

# MINNESOTA DEPARTMENT OF TRANSPORTATION ANOKA COUNTY

## CONSTRUCTION PLAN FOR GRADING, AGG.BASE, BIT. SURFACING, DRAINAGE, CURB & GUTTER, BRIDGE, NOISE WALLS AND SIGNAL SYSTEMS

LOCATED ON C.S.A.H. 51 BETWEEN C.S.A.H. 12 AND 290' SOUTH OF C.S.A.H. 14

STATE PROJ. NO. 002-651-007  
C.S.A.H. 51

GROSS LENGTH 10,320.56 FEET 1.95 MILES  
BRIDGES-LENGTH 86.69 FEET 0.016 MILES  
EXCEPTIONS-LENGTH 0.00 FEET 0.000 MILES  
NET LENGTH 10,233.87 FEET 1.94 MILES

EX-BRIDGE # 02520  
NEW-BRIDGE # 02585

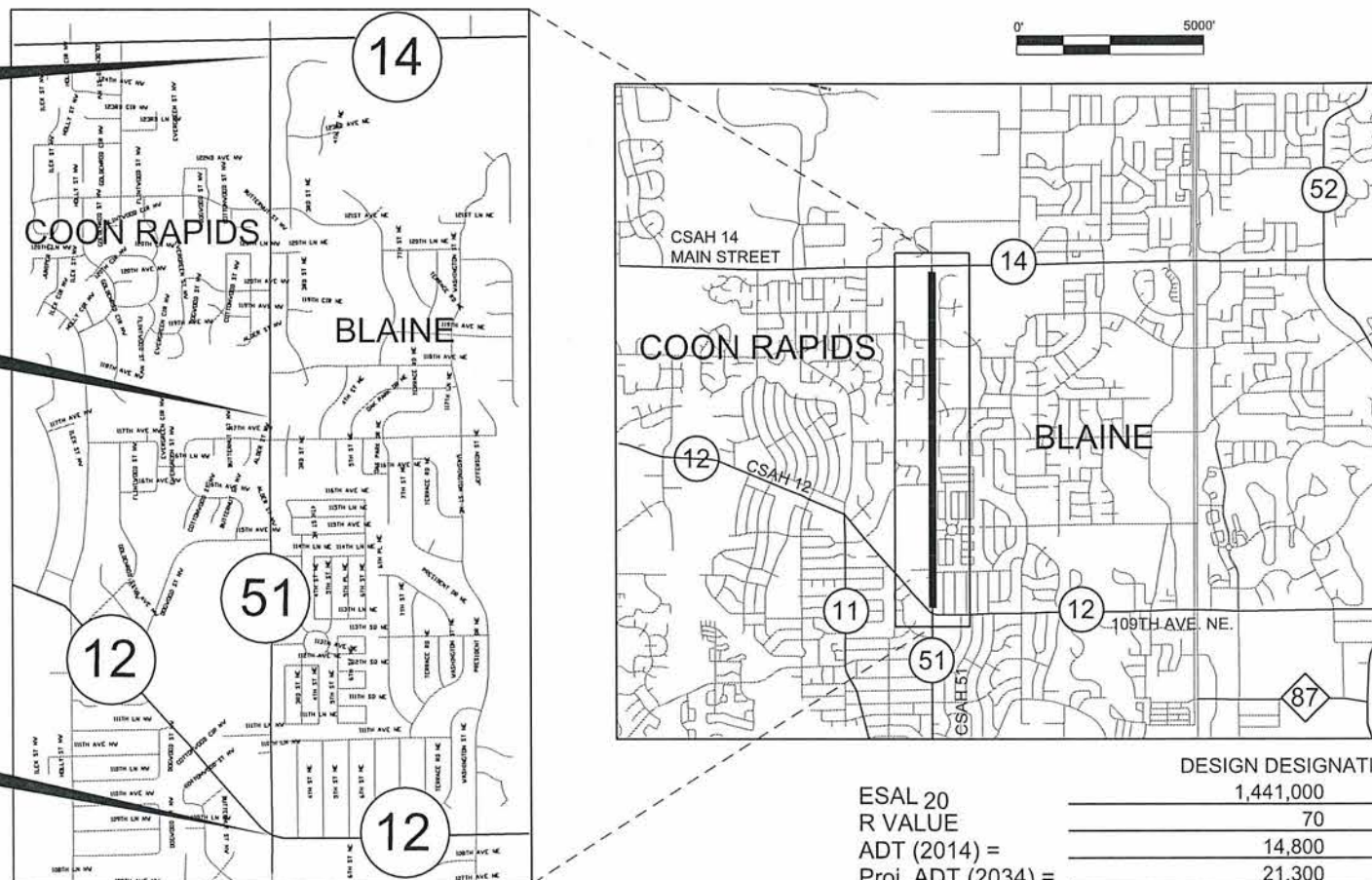
UTILITY NOTE: THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF C/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

THE PROJECT LENGTH AND DESCRIPTION ARE BASED ON NB C.S.A.H. 51 ALIGNMENT

END S.P. 002-651-007  
END S.A.P. 106-020-031  
END S.A.P. 114-020-046  
N.B. C.S.A.H. 51 STA. 123+51.36

BRIDGE NO. 02585

BEGIN S.P. 002-651-007  
BEGIN S.A.P. 106-020-031  
BEGIN S.A.P. 114-020-046  
N.B. C.S.A.H. 51 STA. 20+30.80



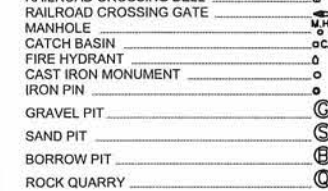
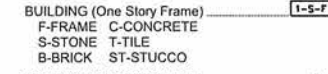
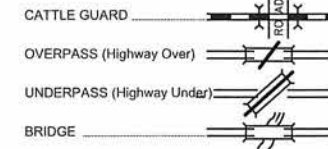
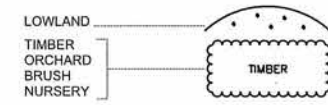
DESIGN DESIGNATION

ESAL 20	1,441,000
R VALUE	70
ADT (2014) =	14,800
Proj. ADT (2034) =	21,300
Proj. HCADT (2034) =	760
Soil Factor	NA
10 TON DESIGN	
Functional Classification	A MINOR ARTERIAL
No. of Traffic Lanes	4
No. of Parking Lanes	0
Design Speed	40 MPH 109TH AVE NORTH TO 53+42
Design Speed	50 MPH 53+42 NORTH TO CSAH 14
Based on Stopping Sight Distance	N/A
Height of eye	3.5'
Height of object	2.0'
Design Speed not achieved at:	
STA. _____ TO STA. _____	MPH _____



PLAN SYMBOLS

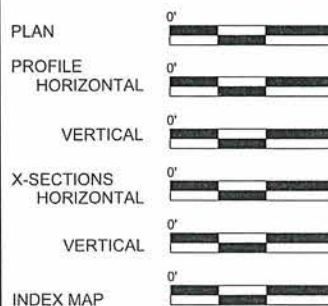
- COUNTY LINE
- TOWNSHIP OR RANGE LINE
- SECTION LINE
- QUARTER LINE
- SIXTEENTH LINE
- RIGHT OF WAY LINE
- SLOPE EASEMENT
- EXISTING RIGHT OF WAY
- PROPERTY LINE
- CORPORATE OR CITY LIMITS
- RETAINING WALL
- RAILROAD
- RAILROAD RIGHT OF WAY
- RIVER OR CREEK
- DRAINAGE DITCH
- CULVERT
- DROP INLET
- GUARD RAIL
- BARBED WIRE FENCE
- WOVEN WIRE FENCE
- CHAIN LINK FENCE
- WOOD FENCE
- STONE WALL OR FENCE
- HEDGE



UTILITY SYMBOLS

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

SCALES



GOVERNING SPECIFICATIONS  
THE 2005 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE INSTALLED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MNMUTCD), AND PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS."

SHEET NO.	TITLE SHEET DESCRIPTION
1	TITLE SHEET
2	GENERAL LAYOUT
3 - 7	STATEMENT OF ESTIMATED QUANTITIES
8	STANDARD PLATES, BASIS OF QUANTITIES, INDEX TABS
9 - 17	TAB SHEETS
18	SOILS AND CONSTRUCTION NOTES
19 - 22	EARTHWORK & AGGREGATE TABULATION & SUMMARY
23	EARTHWORK BALANCE
24 - 28	ALIGNMENT PLAN
29	ALIGNMENT TABULATION
30 - 34	EXISTING UTILITIES
35 - 43	TYPICAL SECTIONS
44 - 51	STANDARD PLANS
52 - 58	DETOUR AND EXISTING SIGNING & STRIPING
59 - 71	CONSTRUCTION STAGING
72 - 92	STAGING TRAFFIC CONTROL
93 - 101	INPLACE TOPOGRAPHY AND REMOVAL PLAN
102 - 110	CONSTRUCTION PLAN AND PROFILE
111 - 115	SOUTHBOUND PROFILE
116 - 126	SIDE STREET CONSTRUCTION PLAN, PROFILE, X-SECTION
127 - 137	INTERSECTION DETAILS
138 - 142	DRAINAGE TABULATIONS
143 - 156	DRAINAGE PLAN
157	DRAINAGE DETAIL
158 - 162	POND DETAILS
163 - 180	NOISE BARRIER
181 - 187	RETAINING WALL DETAILS
188 - 189	SWPPP NARRATIVE
190 - 198	TURF ESTABLISHMENT AND EROSION CONTROL PLAN
199 - 206	EROSION CONTROL DETAILS
207 - 217	SIGNING & STRIPING PLAN, TAB & DETAILS
218 - 256	TRAFFIC SIGNAL PLANS
257 - 319	CROSS SECTIONS
320 - 327	BRIDGE APPROACH PANEL PLANS
328 - 365	BRIDGE PLANS
366 - 371	CULVERT PLANS
372 - 377	COON RAPIDS UTILITY PLAN
378 - 381	BLAINE UTILITY PLAN

THIS PLAN CONTAINS 381 SHEETS

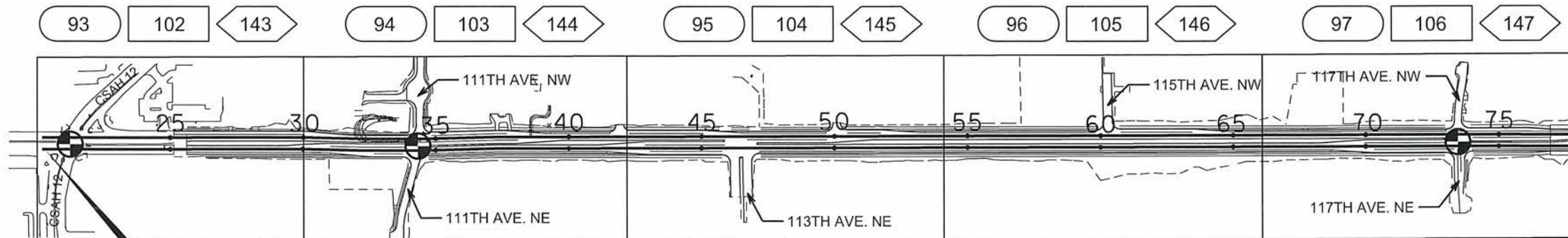
Approved: *[Signature]* 4/9/14  
ANOKA COUNTY ENGINEER

Approved: *[Signature]* 6/6/14  
CITY OF COON RAPIDS ENGINEER

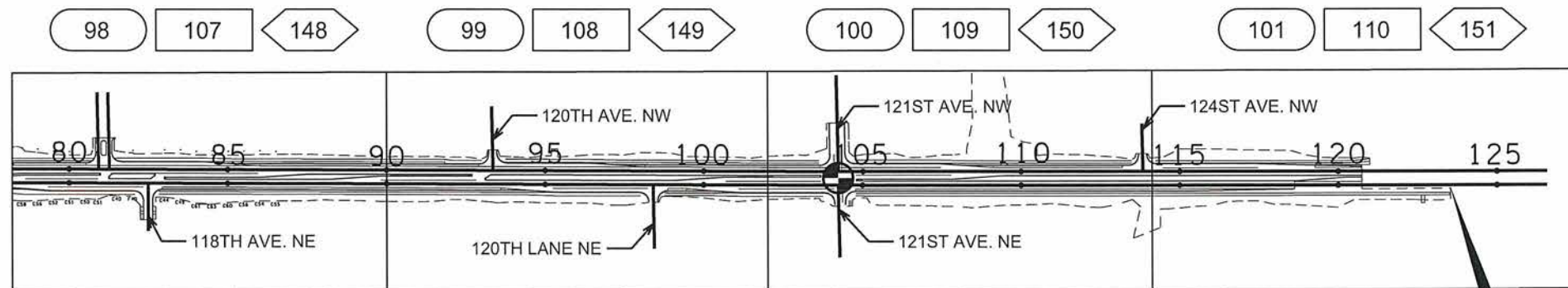
Approved: *[Signature]* 06/06/14  
CITY OF BLAINE ENGINEER

REVIEWED FOR COMPLIANCE WITH STATE AND FEDERAL AID RULES/POLICY \_\_\_\_\_ .20  
DISTRICT STATE AID ENGINEER

APPROVED FOR STATE AID AND FEDERAL AID FUNDING \_\_\_\_\_ .20  
STATE AID ENGINEER

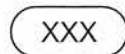





BEGIN S.P. 002-651-007  
 BEGIN S.P. 106-020-031  
 BEGIN S.P. 114-020-046  
 N.B. C.S.A.H. 51 STA. 20+30.80



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**LEGEND**

-  INPLACE TOPOGRAPHY AND REMOVAL PLAN SHEET NUMBER
-  CONSTRUCTION PLAN SHEET NUMBER
-  STORM DRAINAGE PLAN SHEET NUMBER
-  INPLACE SIGNAL SYSTEM



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_GL.dgn      06/06/2014      1:57:29 PM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *[Signature]*  
 DATE: 6-9-14      LICENSE NO. 24756

DRAWN BY: NJD      DATE: 11-25-13  
 DESIGN BY: NJD      DATE: 10-31-13  
 CHECKED BY: GMP      DATE: 12-13-13



**ANOKA COUNTY  
 HIGHWAY DEPT.**

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

GENERAL LAYOUT  
 Sheet 2 of 381 Sheets

TAB / NOTE	ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL PROJECT QUANTITIES ESTIMATED	PARTICIPATING- FEDERAL FUNDS				NON-PARTICIPATING-LOCAL FUNDS
					ANOKA COUNTY 002-651-007 ROADWAY QUANTITIES ESTIMATED	CITY OF BLAINE 106-020-031 ROADWAY QUANTITIES ESTIMATED	CITY OF COON RAPIDS 114-020-046 ROADWAY QUANTITIES ESTIMATED	DRAINAGE QUANTITIES ESTIMATED	CITY OF COON RAPIDS C.P. 11-24 ROADWAY QUANTITIES ESTIMATED
[1]	2011.601	VIBRATION MONITORING	LUMP SUM	1	1				
	2021.501	MOBILIZATION	LUMP SUM	1	1				
	2031.501	FIELD OFFICE TYPE D	EACH	1	1				
	2041.610	TRAINEES	HOUR	1,200	1,200				
A	2101.501	CLEARING	ACRE	4.7	4.7				
A	2101.502	CLEARING	TREE	581	581				
A	2101.506	GRUBBING	ACRE	4.7	4.7				
A	2101.507	GRUBBING	TREE	450	450				
[14]	2101.511	CLEARING AND GRUBBING	LUMP SUM	1					1
[20]	2102.501	PAVEMENT MARKING REMOVAL	SQ FT	79	79				
[20]	2102.502	PAVEMENT MARKING REMOVAL ( 4" DOUBLE SOLID PAINT )	LIN FT	6,630	6,630				
[20]	2102.502	PAVEMENT MARKING REMOVAL ( 4" SOLID PAINT )	LIN FT	8,810	8,810				
[20]	2102.502	PAVEMENT MARKING REMOVAL ( 24" SOLID PAINT )	LIN FT	438	438				
C	2104.501	REMOVE PIPE CULVERTS	LIN FT	409	409				
[7] , [14]	2104.501	REMOVE WATER MAIN	LIN FT	191		67		124	
C	2104.501	REMOVE SEWER PIPE (STORM)	LIN FT	7,886	7,886				
B	2104.501	REMOVE CURB AND GUTTER	LIN FT	7,490	7,490				
B	2104.501	REMOVE RETAINING WALL	LIN FT	390	390				
B	2104.501	REMOVE CHAIN LINK FENCE	LIN FT	35					35
[19]	2104.501	REMOVE GUARD RAIL	LIN FT	837	837				
B	2104.503	REMOVE BITUMINOUS WALK	SQ FT	67,432	67,432				
B	2104.503	REMOVE CONCRETE WALK	SQ FT	14,304	14,304				
B	2104.503	REMOVE CONCRETE MEDIAN	SQ FT	2,576	2,576				
K	2104.505	REMOVE CONCRETE DRIVEWAY PAVEMENT	SQ YD	202	202				
B , K	2104.505	REMOVE BITUMINOUS PAVEMENT	SQ YD	67,532	67,532				
F	2104.505	REMOVE BITUMINOUS SURFACING (TEMPORARY)	SQ YD	1,359	1,359				
C	2104.509	REMOVE PIPE APRON	EACH	20	20				
D7 D10	2104.509	REMOVE CASTING	EACH	2	2				
[7]	2104.509	REMOVE CURB STOP & BOX	EACH	9		9			
[14]	2104.509	REMOVE HYDRANT	EACH	14		6		8	
[7]	2104.509	REMOVE SANITARY CLEANOUT	EACH	9		9			
C	2104.509	REMOVE DRAINAGE STRUCTURE	EACH	45	45				
[8]	2104.509	REMOVE SIGN TYPE C	EACH	89	89				
B , K	2104.511	SAWING CONCRETE PAVEMENT (FULL DEPTH)	LIN FT	222	222				
B , K	2104.513	SAWING BIT PAVEMENT (FULL DEPTH)	LIN FT	1,980	1,980				
B	2104.521	SALVAGE CHAIN LINK FENCE	LIN FT	67	67				
B	2104.521	SALVAGE RETAINING WALL	LIN FT	30	30				
[D8]	2104.523	SALVAGE CONCRETE APRON	EACH	1	1				
[10]	2104.523	SALVAGE SIGN TYPE C	EACH	13	13				
[11]	2104.523	SALVAGE SIGN TYPE SPECIAL	EACH	9	9				
[14]	2104.525	ABANDON WATERMAIN	EACH	1					1
[1]	2104.601	REMOVE REGULATED WASTE MATERIAL (BRIDGE)	LUMP SUM	1	1				
[15]	2104.601	HAUL SALVAGED MATERIAL	LUMP SUM	1	1				
DD, F	2105.501	COMMON EXCAVATION (EV) (P)	CU YD	39,871	39,871				
AA	2105.507	SUBGRADE EXCAVATION (EV) (P)	CU YD	22,046	22,046				
[2]	2105.522	SELECT GRANULAR BACKFILL (CV)	CU YD	765	765				
	2105.601	DEWATERING	LUMP SUM	1	1				
[5]	2105.607	EXCAVATION SPECIAL (EV)	CU YD	87,229	28,229				59,000
F	2106.607	GRANULAR EMBANKMENT (CV) (TEMPORARY)	CU YD	360	360				
	2130.501	WATER	M GALLONS	650	650				

**STATEMENT OF ESTIMATED QUANTITIES NOTES:**

- [1] SEE BRIDGE TABULATION - PAGE 329
- [2] SEE CULVERT TABULATION - PAGE 366
- [3] SEE MODULAR BLOCK RETAINING WALL PLAN SHEETS 181 - 183
- [4] SEE DIV-S ( SPEC. 2422, SPECIAL INSTRUCTIONS ) AND WOOD NOISE BARRIER PLAN SHEETS 163 - 180
- [5] QUANTITY FOR POND EXCAVATION. SEE EARTHWORK BALANCE SHEET 23
- [6] SEE STAGING SIGN QTY'S SHEET 92 AND PERMENENT SIGN TABULATION PAGE 207
- [7] SEE CITY OF BLAINE UTILITY TABULATION SHEETS 378 - 381
- [8] SEE SALVAGE SIGN TABULATION SHEET 58
- [9] SEE PERM. SIGN TAB SHEET 212 SIGN POSTS, HARDWARE AND INSTALL. SHALL BE INCIDENTAL TO SIGN PANEL
- [10] SEE SIGN REMOVAL TAB SHEET 58 (BUS STOP SIGNS)

- [11] SEE SIGN REMOVAL TAB SHEET 58 (CITY STREET SIGNS)
- [12] SEE TRAFFIC SIGNAL PLAN SHEETS 218 - 256
- [13] SEE TEMPORARY TRAFFIC CONTROL STAGING PLAN SHEETS 72 - 92 FOR PLAN AND QUANTITIES
- [14] SEE CITY OF COON RAPIDS UTILITY TABULATION SHEETS 372 - 377
- [15] "TRUCK IN AND INSTALL RECLAIM GRAVEL FOR STREET PATCH (LV)" IN COON RAPIDS UTILITY PLAN 372 - 377
- [16] SEE RETAINING WALL DETAILS SHEETS 181 - 183 FOR LOCATION AND QUANTITY OF THIS ITEM (ATOP RETAINING WALL)
- [17] INCLUDES RIPRAP CLASS III & GEOTEXTILE FILTER FOR END OF SPECIAL DITCH LNB 64+00.
- [18] SEE DIV-S , ( SPEC. 2554 ) AND STANDARD PLAN SHEETS 49 - 51
- [19] SEE INPLACE TOPOGRAPHY AND REMOVAL PLAN 93 - 101
- [20] SEE TEMPORARY PAVEMENT MARKING TABULATION SHEET 92

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_SEQ.dgn 06/09/2014 2:18:17 PM

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

PRINT NAME: CURT A. KOBIARCSIK

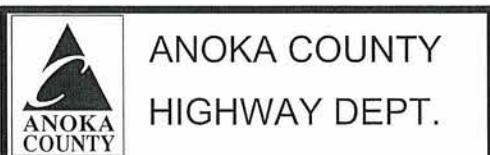
SIGNATURE: *Curt Kobilarcsik*

DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE 11-25-13

DESIGN BY: NJD DATE 10-31-13

CHECKED BY: GMP DATE 12-13-13



S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

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G, K, AG3, F	2211.503	AGGREGATE BASE (CV) CLASS 5 (P)	CU YD	17,674	17,674				
[14]	2211.506	TRUCK IN & INSTALL RECLAIM GRAVEL FOR STREET PATCH (LV)	CU YD	45			45		
B	2232.501	MILL BITUMINOUS SURFACE (1.5")	SQ YD	3,551	3,551				
[1]	2301.553	BRIDGE APPROACH PANELS (3A42)	SQ YD	560	560				
E,F	2357.502	BITUMINOUS MATERIAL FOR TACK COAT	GALLON	7,813	7,813				
G, K	2360.501	TYPE SP 12.5 WEARING COURSE MIX (2,B) (BIT TRAIL / BIT DR. WAYS)	TON	2,367	1,242	802	322		
E	2360.501	TYPE SP 12.5 WEARING COURSE MIX (4,F)	TON	13,283	13,283				
E,F	2360.502	TYPE SP 12.5 NON WEAR COURSE MIX (4,B)	TON	9,138	9,138				
E,F	2360.505	TYPE SP 12.5 BIT MIXTURE FOR PATCHING	TON	2	2				
[1]	2401.501	STRUCTURAL CONCRETE (3Y43)	(P) CU YD	188	188				
[1]	2401.512	BRIDGE SLAB CONCRETE (3Y36)	(P) SQ FT	9,736	9,736				
[1]	2401.513	TYPE MOD F (TL-5) RAILING CONCRETE (3Y46)	(P) LIN FT	254	254				
[1]	2401.513	TYPE P-1 (TL-2) RAILING CONCRETE (3Y46)	(P) LIN FT	254	254				
[1]	2401.515	SIDEWALK CONCRETE (3Y46)	(P) SQ FT	2,081	2,081				
[1]	2401.516	RAISED MEDIAN CONCRETE (3Y46)	(P) SQ FT	580	580				
[1]	2401.541	REINFORCEMENT BARS (EPOXY COATED)	(P) POUND	95,470	95,470				
[1]	2401.541	REINFORCEMENT BARS (STAINLESS STEEL)	(P) POUND	1,140	1,140				
[1]	2401.601	STRUCTURE EXCAVATION	LUMP SUM	1	1.0				
[1]	2401.601	SLOPE PREPARATION	LUMP SUM	1	1				
[1]	2401.618	BRIDGE DECK PLANING	(P) SQ FT	8,910	8,910				
[1]	2402.583	ORNAMENTAL METAL RAILING TYPE SPECIAL	(P) LIN FT	252	252				
[1]	2402.590	ELASTOMERIC BEARING PAD, TYPE 1	(P) EACH	30	30				
[1]	2404.501	CONCRETE WEARING COURSE (3U17A)	(P) SQ FT	9,755	9,755				
[1]	2405.502	PRESTRESSED CONCRETE BEAMS 36M	(P) LIN FT	1,294	1,294				
[1]	2405.511	DIAPHRAGMS FOR TYPE 36M PRESTR BEAMS	(P) LIN FT	108	108				
[2]	2411.511	STRUCTURE EXCAVATION CLASS U	LUMP SUM	1	1				
[3]	2411.618	MODULAR BLOCK RETAINING WALL	SQ FT	2,525	2,525				
[2]	2412.511	7 X 4 PRECAST CONCRETE BOX CULVERT	LIN FT	224	224				
[2]	2412.512	7 X 4 PRECAST CONCRETE BOX CULVERT END SECTION	EACH	2	2				
[4]	2422.618	WOOD NOISE BARRIER	SQ FT	64,640	64,640				
[1]	2442.501	REMOVE EXISTING BRIDGE	LUMP SUM	1	1				
[2]	2451.507	GRANULAR BEDDING (CV)	CU YD	450	450				
[1]	2452.507	C-I-P CONCRETE PILING DELIVERED 12"	LIN FT	2,890	2,890				
[1]	2452.508	C-I-P CONCRETE PILING DRIVEN 12"	LIN FT	2,890	2,890				
[1]	2452.519	C-I-P CONCRETE TEST PILE 95 FT LONG 12"	EACH	6	6				
D7	2501.515	15" RC PIPE APRON	EACH	4			4		
D7	2501.515	18" RC PIPE APRON	EACH	1			1		
D7	2501.515	24" RC PIPE APRON	EACH	3			3		
D7	2501.515	30" RC PIPE APRON	EACH	2			2		
D7	2501.515	36" RC PIPE APRON	EACH	1			1		
D7	2501.515	42" RC PIPE APRON	EACH	1			1		
[1]	2502.502	DRAINAGE SYSTEM TYPE (B910)	LUMP SUM	1	1				
[7]	2503.511	8" PVC PIPE SEWER	LIN FT	54		54			
[14]	2503.511	12" RC PIPE SEWER CLASS V	LIN FT	70					70
D7	2503.511	15" RC PIPE SEWER CLASS V	LIN FT	6,031			6,031		
D7	2503.511	18" RC PIPE SEWER CLASS III	LIN FT	1,341			1,341		
D7	2503.511	21" RC PIPE SEWER CLASS III	LIN FT	1,386			1,386		
D7	2503.511	24" RCP PIPE SEWER CLASS III	LIN FT	697			427		270
D7	2503.511	27" RC PIPE SEWER CLASS III	LIN FT	1,445			1,445		
D7	2503.511	30" RC PIPE SEWER CLASS III	LIN FT	1,099			1,099		

STATEMENT OF ESTIMATED QUANTITIES NOTES:

- [1] SEE BRIDGE TABULATION - PAGE 329
- [2] SEE CULVERT TABULATION - PAGE 366
- [3] SEE MODULAR BLOCK RETAINING WALL PLAN SHEETS 181 - 183
- [4] SEE DIV-S ( SPEC. 2422, SPECIAL INSTRUCTIONS ) AND WOOD NOISE BARRIER PLAN SHEETS 163 - 180
- [5] QUANTITY FOR POND EXCAVATION. SEE EARTHWORK BALANCE SHEET 23
- [6] SEE STAGING SIGN QTY'S SHEET 92 AND PERMENTENT SIGN TABULATION PAGE 207
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NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\02-651-07\Plan\0265107_SEQ.dgn					
06/09/2014 2:19:28 PM					

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

PRINT NAME: CURT A. KOBLARCSIK

SIGNATURE: *Curt Koblarcsik*

DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 11-25-13

DESIGN BY: NJD DATE: 10-31-13

CHECKED BY: GMP DATE: 12-13-13



ANOKA COUNTY  
HIGHWAY DEPT.

S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

STATEMENT OF ESTIMATED QUANTITIES

Sheet 4 of 381 Sheets

TAB / NOTE	ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL PROJECT QUANTITIES ESTIMATED	PARTICIPATING- FEDERAL FUNDS				NON-PARTICIPATING-LOCAL FUNDS
					ANOKA COUNTY 002-651-007 ROADWAY QUANTITIES ESTIMATED	CITY OF BLAINE 106-020-031 ROADWAY QUANTITIES ESTIMATED	CITY OF COON RAPIDS 114-020-046 ROADWAY QUANTITIES ESTIMATED	DRAINAGE QUANTITIES ESTIMATED	CITY OF COON RAPIDS 114-020-046 ROADWAY QUANTITIES ESTIMATED
D7	2503.511	33" RC PIPE SEWER CLASS III	LIN FT	596				596	
D7	2503.511	36" RC PIPE SEWER CLASS III	LIN FT	1,316				1,316	
D7	2503.511	42" RC PIPE SEWER CLASS III	LIN FT	53				53	
D7 D8	2503.511	60" RC PIPE SEWER CLASS III	LIN FT	24				24	
[7]	2503.602	CONNECT TO EXISTING SANITARY SEWER	EACH	1		1			
D7	2503.602	CONNECT TO EXISTING STORM SEWER	EACH	7				7	
[14]	2504.602	CONNECT TO EXISTING WATER MAIN	EACH	2			2		
[14]	2504.602	CONNECT TO EXISTING WATER SERVICE	EACH	1			1		
[7], [14]	2504.602	HYDRANT	EACH	14		6	7		1
[14]	2504.603	HYDRANT EXTENSION	LIN FT	2			2		
[14]	2504.602	F & I 6" RW VALVE FOR HYDRANT	EACH	8			7		1
[14]	2504.602	8" RW VALVE & BOX	EACH	2					2
[14]	2504.602	8" X 8" X 6" TEES	EACH	4			4		
[14]	2504.602	8" TEE	EACH	1					1
[14]	2504.602	8" SLEEVES	EACH	3			3		
[14]	2504.602	12" SLEEVES	EACH	2			2		
[14]	2504.602	8" PLUGS	EACH	3			3		
[14]	2504.602	8" 90 DEGREE BEND	EACH	2			2		
[14]	2504.602	8" HDPE TO DIP ADAPTER	EACH	2			2		
[7], O, M	2504.602	ADJUST GATE VALVE	EACH	13	13				
[14]	2504.602	1" CURB STOP WITH ROD	EACH	4			4		
[14]	2504.602	1" CORPORATION STOP	EACH	4			4		
[7]	2504.602	6" X 6" WET TAP	EACH	1		1			
[7]	2504.602	8" X 6" WET TAP	EACH	2		2			
[7]	2504.602	8" X 8" WET TAP	EACH	1		1			
[7]	2504.602	12" X 6" WET TAP	EACH	1		1			
[14]	2504.603	1" TYPE K COPPER PIPE	LIN FT	110					110
[7], [14]	2504.603	6" WATERMAIN DUCTILE IRON CL 52	LIN FT	200		80	120		
[14]	2504.603	8" WATER MAIN DUCTILE IRON CL 52	LIN FT	77		37	40		
[14]	2504.603	8" HDPE WATER MAIN (DIRECTIONAL DRILL)	LIN FT	860					860
[7]	2504.608	FITTINGS	POUND	103		103			
D7	2506.501	CONST. DRAINAGE STRUCTURE DESIGN H	LIN FT	171.03				168.53	2.50
D7	2506.501	CONST. DRAINAGE STRUCTURE DES 48-4020	LIN FT	1,122.90				1,115.20	7.70
D7	2506.501	CONST. DRAINAGE STRUCTURE DES 54-4020	LIN FT	101.47				101.47	
D7	2506.501	CONST. DRAINAGE STRUCTURE DES 60-4020	LIN FT	90.50				82.98	7.52
D7	2506.501	CONST. DRAINAGE STRUCTURE DES 66-4020	LIN FT	5.85				5.85	
D7	2506.501	CONST. DRAINAGE STRUCTURE DES 72-4020	LIN FT	5.14				5.14	
D7	2506.501	CONST. DRAINAGE STRUCTURE DES 78-4020	LIN FT	10.36				10.36	
D7	2506.501	CONST. DRAINAGE STRUCTURE DES 84-4020	LIN FT	14.63				14.63	
D7	2506.501	CONST. DRAINAGE STRUCTURE DES 96-4020	LIN FT	15.17				15.17	
D7	2506.501	CONST. DRAINAGE STRUCTURE DES 108-4020	LIN FT	6.93				6.93	
[7],H	2506.503	RECONSTRUCT DRAINAGE STRUCTURE	LIN FT	16.72		16.72			
D7 D10	2506.516	CASTING ASSEMBLY	EACH	205				203	2
[7],H	2506.522	ADJUST FRAME & RING CASTING	EACH	6	6				
D7 D8 [1][2]	2511.501	RANDOM RIPRAP CLASS III	CU YD	520	510				10
D7 D8 [1][2]	2511.515	GEOTEXTILE FILTER TYPE IV (MOD)	SQ YD	1,042	1042				
D	2521.501	4" CONCRETE WALK	SQ FT	104,131	100,750		3,381		
I	2521.501	6" CONCRETE WALK	SQ FT	9,389	9,389				
D	2531.501	CONCRETE CURB & GUTTER DESIGN B418 (MOD)	LIN FT	17,755	17,755				
D	2531.501	CONCRETE CURB & GUTTER DESIGN B424	LIN FT	18,460	9,230	4,566	4,664		

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- [2] SEE CULVERT TABULATION - PAGE 366
- [3] SEE MODULAR BLOCK RETAINING WALL PLAN SHEETS 181 - 183
- [4] SEE DIV-S ( SPEC. 2422, SPECIAL INSTRUCTIONS ) AND WOOD NOISE BARRIER PLAN SHEETS 163 - 180
- [5] QUANTITY FOR POND EXCAVATION. SEE EARTHWORK BALANCE SHEET 23
- [6] SEE STAGING SIGN QTY'S SHEET 92 AND PERMANENT SIGN TABULATION PAGE 207
- [7] SEE CITY OF BLAINE UTILITY TABULATION SHEETS 378 - 381
- [8] SEE SALVAGE SIGN TABULATION SHEET 58
- [9] SEE PERM. SIGN TAB SHEET 212 SIGN POSTS, HARDWARE AND INSTALL. SHALL BE INCIDENTAL TO SIGN PANEL
- [10] SEE SIGN REMOVAL TAB SHEET 58 (BUS STOP SIGNS)

- [11] SEE SIGN REMOVAL TAB SHEET 58 (CITY STREET SIGNS)
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- [17] INCLUDES RIPRAP CLASS III & GEOTEXTILE FILTER FOR END OF SPECIAL DITCH LNB 64+00.
- [18] SEE DIV-S , ( SPEC. 2554 ) AND STANDARD PLAN SHEETS 49 - 51
- [19] SEE INPLACE TOPOGRAPHY AND REMOVAL PLAN 93 - 101
- [20] SEE TEMPORARY PAVEMENT MARKING TABULATION SHEET 92

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_SEQ.dgn 06/09/2014 11:05:11 AM

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PRINT NAME: CURT A. KOBILARCSIK

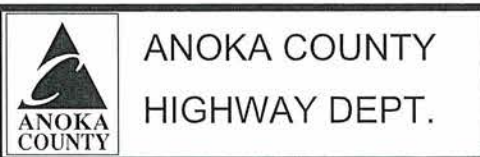
SIGNATURE: *[Signature]*

DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 11-25-13

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CHECKED BY: GMP DATE: 12-13-13



S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

**STATEMENT OF ESTIMATED QUANTITIES**

Sheet 5 of 381 Sheets

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D	2531.501	CONCRETE CURB & GUTTER DESIGN B612	LIN FT	1,747	944	437	367		
D	2531.501	CONCRETE CURB & GUTTER DESIGN B618	LIN FT	1,607	852	357	399		
D	2531.501	CONCRETE CURB & GUTTER DESIGN S512	LIN FT	878	439		439		
D	2531.503	CONCRETE MEDIAN (NOSE)	SQ YD	54	54				
K	2531.507	6" CONCRETE DRIVEWAY PAVEMENT	SQ YD	119	119				
I	2531.618	TRUNCATED DOMES	SQ FT	528	528				
[6] [13]	2533.507	PORTABLE PRECAST CONC BARRIER DES 8337	LIN FT	3,350	3,350				
K	2540.602	MAIL BOX SUPPORT	EACH	16	16				
K	2540.602	RELOCATE MAIL BOX SUPPORT	EACH	16	16				
[1]	2545.509	CONDUIT SYSTEM (FUTURE)	LUMP SUM	1	1				
[18]	2554.501	TRAFFIC BARRIER DESIGN SPECIAL	LIN FT	100	100				
[6]	2554.602	IMPACT ATTENUATOR BARRELS	EACH	10	10				
[18]	2554.603	PLATE BEAM GUARDRAIL	LIN FT	237.5	238				
[18]	2554.615	IMPACT ATTENUATOR ( C.A.T )	AMBY	4	4				
[16]	2557.603	INSTALL CHAIN LINK FENCE	LIN FT	327	327				
[13]	2563.601	TRAFFIC CONTROL SUPERVISOR	LUMP SUM	1	1				
[13]	2563.601	TRAFFIC CONTROL (STAGE 1)	LUMP SUM	1	1				
[13]	2563.601	TRAFFIC CONTROL (STAGE 2)	LUMP SUM	1	1				
[13]	2563.601	TRAFFIC CONTROL (STAGE 3)	LUMP SUM	1	1				
[13]	2563.601	TRAFFIC CONTROL (STAGE 4)	LUMP SUM	1	1				
[13]	2563.601	DETOUR SIGNING	LUMP SUM	1	1				
[20]	2563.602	RAISED PAVEMENT MARKER TEMPORARY	EACH	403	403				
	2563.610	POLICE OFFICER	HOUR	30	30				
[9]	2564.531	SIGN PANELS TYPE C	SQ FT	545	545				
[10]	2564.537	INSTALL SIGN TYPE C	EACH	13	13				
[11]	2564.537	INSTALL SIGN TYPE SPECIAL	EACH	9	9				
[9]	2564.550	DELINEATOR TYPE X4-13	EACH	10	10				
[9]	2564.552	HAZARD MARKER X4-2	EACH	9	9				
[9]	2564.552	CULVERT MARKER X4-3	EACH	2	2				
[9]	2564.553	CLEARANCE MARKER X4-4	EACH	8	8				
[12]	2565.511	TRAFFIC CONTROL SIGNAL SYSTEM B	SIG SYS	1	0.25	0.375	0.375		
[12]	2565.511	TRAFFIC CONTROL SIGNAL SYSTEM C	SIG SYS	1	0.33	0.67			
[12]	2565.511	TRAFFIC CONTROL SIGNAL SYSTEM D	SIG SYS	1	0.25	0.375			
[12]	2565.511	TRAFFIC CONTROL SIGNAL SYSTEM E	SIG SYS	1	0.25	0.375			
[12]	2565.601	EMERGENCY VEHICLE PREEMPTION SYSTEM B	LUMP SUM	1	0.25	0.375	0.375		
[12]	2565.601	EMERGENCY VEHICLE PREEMPTION SYSTEM C	LUMP SUM	1	0.33	0.67			
[12]	2565.601	EMERGENCY VEHICLE PREEMPTION SYSTEM D	LUMP SUM	1	0.25	0.375			
[12]	2565.601	EMERGENCY VEHICLE PREEMPTION SYSTEM E	LUMP SUM	1	0.25	0.375	0.375		
[12]	2565.601	TRAFFIC CONTROL INTERCONNECTION	LUMP SUM	1	1				
[12]	2565.602	SIGNAL SERVICE CABINET	EACH	4	4				
[12]	2565.616	FLASHING BEACON SYSTEM	SYSTEM	1	1				
[12]	2656.616	REVISE SIGNAL SYSTEM A	SYSTEM	1	0.5	0.25	0.25		
J [14]	2573.502	SILT FENCE, TYPE MACHINE SLICED	LIN FT	10,600	8,650				1,950
J	2573.505	FLOTATION SILT CURTAIN TYPE STILL WATER	LIN FT	798	798				
J	2573.540	FILTER LOG TYPE WOOD FIBER BIOROLL	LIN FT	244	244				
J	2573.530	STORM DRAIN INLET PROTECTION	EACH	205	205				
J	2573.550	EROSION CONTROL SUPERVISOR	LUMP SUM	1	1				
J [14]	2575.501	SEEDING	ACRE	14.67	11				3.5
J	2575.502	SEED MIXTURE 260	POUND	839	839				
J [14]	2575.502	SEED MIXTURE 310	POUND	309	22				287

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NAME: P:\02-651-07\Plan\0265107_SEQ.dgn					
06/09/2014 11:05:18 AM					

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PRINT NAME: CURT A. KOBILARCSIK

SIGNATURE: *Curt Kobilarcsik*


DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 11-25-13

DESIGN BY: NJD DATE: 10-31-13

CHECKED BY: GMP DATE: 12-13-13

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



S.P. 002-651-007  
S.P. 106-020-031  
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J	2575.502	SEED MIXTURE 350	POUND	184	184				
J	2575.505	SODDING TYPE SALT RESISTANT	SQ YD	9,069	9,069				
J	2575.511	MULCH MATERIAL TYPE 3	TON	22	22				
J [14]	2575.523	EROSION CONTROL BLANKETS CATEGORY 00	SQ YD	52,417	36,817				15,600
J [14]	2575.532	FERTILIZER TYPE 2	POUND	1,400					1,400
J	2575.532	FERTILIZER TYPE 3	POUND	3,264	3,264				
J	2575.532	FERTILIZER TYPE 4	POUND	293	293				
J [14]	2575.555	TURF ESTABLISHMENT	LUMP SUM	1			1		
J	2575.571	RAPID STABILIZATION METHOD 3	MGAL	76	76				
[20]	2581.501	REMOVABLE PREFORMED PLASTIC MARKING ( YELLOW )	LIN FT	2,720	2,720				
[20]	2581.501	REMOVABLE PREFORMED PLASTIC MARKING ( WHITE )	LIN FT	2,870	2,870				
[6]	2581.602	PAVEMENT MESSAGE (LT ARROW) PREF. THERMOPLASTIC	EACH	20	20				
[6]	2581.602	PAVEMENT MESSAGE (RT ARROW) PREF. THERMOPLASTIC	EACH	18	18				
[6]	2581.602	PAVEMENT MESSAGE (LT THRU ARROW) PREF. THERMOPLASTIC	EACH	2	2				
[20]	2581.603	REMOVABLE PREFORMED PLASTIC MASK ( BLACK )	LIN FT	190	190				
[20]	2582.502	4" SOLID LINE WHITE-PAINT	LIN FT	46,730	46,730				
[20]	2582.502	4" SOLID LINE YELLOW-PAINT	LIN FT	12,860	12,860				
[6]	2582.502	4" SOLID LINE WHITE-EPOXY	LIN FT	29,736	29,736				
[6]	2582.502	4" BROKEN LINE WHITE-EPOXY	LIN FT	3,880	3,880				
[6]	2582.502	4" DOUBLE SOLID LINE YELLOW-EPOXY	LIN FT	350	350				
[6]	2582.502	4" SOLID LINE YELLOW-EPOXY	LIN FT	18,560	18,560				
[6]	2582.602	ZEBRA CROSSWALK - WHITE PREFORMED THERMOPLASTIC	SQ FT	3,078	3,078				
[6]	2582.603	24" SOLID LINE WHITE - PREFORMED THERMOPLASTIC	LIN FT	513	513				

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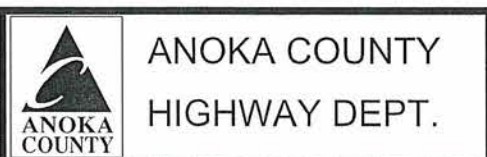
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S.P. 114-020-046

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

### STANDARD PLATES

PLATE NO.	DESCRIPTION
3000L	REINFORCED CONCRETE PIPE
3006G	GASKET JOINT FOR R.C. PIPE
3007E	SHEAR REINFORCEMENT FOR PRECAST DRAINAGE STRUCTURES
3022C	PRECAST CONCRETE SAFETY APRON
3100G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3133D	RIPRAP AT RCP OUTLETS
3145G	CONCRETE PIPE TIES
4005L	MANHOLE OR CATCH BASIN TYPE A & B CONE SECTIONS PRECAST - DESIGN F
4006L	MANHOLE OR CATCH BASIN PRECAST - DESIGNS G AND H
4010H	CONCRETE SHORT CONE & ADJUSTING RING (SECTIONAL CONCRETE)
4011E	PRECAST CONCRETE BASE
4018A	MANHOLE OR CATCH BASIN (REDUCER CONE SECTION PRECAST) - DESIGN D
4126F	CATCH BASIN FRAME CASTING - CASTING NO. 801
4161F	CURB BOX CASTING FOR CATCH BASIN - CASTING NO. 821B, 822 AND 831A
4020J	MANHOLE OR CATCH BASIN (FOR USE WITH OR WITHOUT TRAFFIC LOADS)
4026A	CONCRETE ENCASED CONCRETE ADJUSTING RINGS
4101D	RING CASTING FOR MANHOLE OR CATCH BASIN
4125D	CATCH BASIN FRAME CASTING (FOR SQUARE GRATE) - CASTING NO. 806
4134A	CURB BOX CASTING FOR CATCH BASIN (FOR DESIGN B CURBS) - CASTING NO. 825
4143E	STOOL GRATE & CONCRETE FRAME (MEDIAN DRAINS) - CASTING NO. 731
4154B	CATCH BASIN GRATE CASTING - CASTING NO. 816
4180J	MANHOLE OR CATCH BASIN STEP
7035N	CONCRETE WALK & CURB RETURNS AT ENTRANCES
7038A	DETECTABLE WARNING SURFACE TRUNCATED DOMES
7065C	BITUMINOUS CURB
7100H	CONCRETE CURB AND GUTTER (DESIGN B and DESIGN V)
7111J	INSTALLATION OF CATCH BASIN CASTINGS (CONCRETE CURB AND GUTTER)
7113A	CONCRETE APPROACH NOSE DETAIL
8000I	STANDARD BARRICADES
8110E	TRAFFIC SIGNAL BRACKETING (POLE MOUNTED)
8114A	P.V.C. HANDHOLE/PULLBOX (NO VEHICLE LOAD)
8118D	SERVICE EQUIPMENT & POLE TRAFFIC CONTROL SIGNALS
8119C	GROUND MOUNTED CABINET FOUNDATION
8121H	TRANSFORMER BASE AND POLE BASE PLATE (PA85M, PA90 AND PA100)
8123G	POLE AND MAST ARM - LUMINAIRES AND TRAFFIC LIGHTS ASSEMBLY
8126K	POLE FOUNDATION ( PA90 AND PA100 )
8150C	INSTALLATION OF CULVERT MARKERS
8337C	TEMPORARY PORTABLE PRECAST CONCRETE BARRIER (TYPE "F" )
9102E	TURF ESTABLISHMENT AREAS (AT PIPE CULVERT ENDS)
9322K	CHAIN LINK FENCE (SHEET 1 OF 2)

### BASIS OF QUANTITIES

SPEC NO	DESCRIPTION	RATE
2213.610	STREET SWEEPER (WITH PICKUP BROOM)	PROJECT LENGTH / 3 MPH FOR 90 DAYS
2357.502	BITUMINOUS MATERIAL FOR TACK COAT	0.05 GAL / SQ YD / LIFT
2360.501	TYPE SP12.5 WEARING COURSE MIXTURE	115 LBS / SQ YD / IN
2360.502	TYPE SP12.5 NON-WEARING COURSE MIXTURE	115 LBS / SQ YD / IN
2575.502	SEED MIXTURE 260	100 LBS / ACRE
2575.502	SEED MIXTURE 310	82 LBS / ACRE
2575.502	SEED MIXTURE 350	84.5 LBS / ACRE
2575.511	MULCH MATERIAL TYPE 3	2 TONS / ACRE
2575.521	RAPID STABILIZATION METHOD 3	6 M GALLONS / ACRE
2575.532	FERTILIZER TYPE 3 ( SOD AREAS )	175 LBS / ACRE
2575.532	FERTILIZER TYPE 3 ( SEED AREAS )	350 LBS / ACRE
2575.532	FERTILIZER TYPE 4	120 LBS / ACRE

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NO	DATE	BY	CKD	APPR	REVISION

NAME: P:02-651-07\Plan\0265107\_SEQ.dgn 06/06/2014 1:20:10 PM

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

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



ANOKA COUNTY  
HIGHWAY DEPT.

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

STANDARD PLATES,  
BASIS OF QUANTITIES,  
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CLEARING & GRUBBING SPEC (2101)									A
PLAN LOC.	ALIGNMENT	STA TO STA	OFFSET LNB		CLEARING		GRUBBING		
			LEFT	RIGHT	(TREE)	(ACRE)	(TREE)	(ACRE)	
REM-1	NB CSAH 51	25+14 - 30+00		15' - 35'	0	0	0	0	
	SB CSAH 51	25+14 - 30+00	24' - 33'		5	0	5	0	
REM-2	NB CSAH 51	30+00 - 42+00		12' - 145'	47	0	33	0	
	SB CSAH 51	30+00 - 42+00	20' - 176'		49	0	42	0	
REM-3	NB CSAH 51	42+00 - 54+00		30' - 127'	41	0	30	0	
	SB CSAH 51	42+00 - 54+00	38' - 57'		5	0.22	5	0.22	
REM-4	NB CSAH 51	54+00 - 66+00		27' - 55'	59	0	48	0	
	SB CSAH 51	54+00 - 66+00	24' - 312'		48	1.77	28	1.77	
REM-5	NB CSAH 51	66+00 - 78+00		28' - 69'	21	0.26	12	0.26	
	SB CSAH 51	66+00 - 78+00	27' - 228'		36	0.72	31	0.72	
REM-6	NB CSAH 51	78+00 - 90+00		18' - 68'	19	0.05	19	0.05	
	SB CSAH 51	78+00 - 90+00	26' - 60'		3	0.16	3	0.16	
REM-7	NB CSAH 51	90+00 - 102+00		26' - 60'	55	0.12	49	0.12	
	SB CSAH 51	90+00 - 102+00	16' - 77'		0	0.46	0	0.46	
REM-8	NB CSAH 51	102+00 - 114+00		41' - 91'	129	0	81	0	
	SB CSAH 51	102+00 - 114+00	44' - 260'		3	0.94	3	0.94	
REM-9	NB CSAH 51	114+00 - 123+54		39' - 71'	61	0	61	0	
	SB CSAH 51	114+00 - 123+54			0	0	0	0	
PROJECT TOTAL					581	4.7	450	4.7	

**CLEARING & GRUBBING GENERAL NOTES:**  
TREES WITHIN THE CONSTRUCTION LIMITS WILL BE DESIGNATED FOR REMOVAL BY THE ENGINEER.  
REMOVAL OF MISCELLANEOUS SHRUBS AND LANDSCAPING SHALL BE CONSIDERED INCIDENTAL

REMOVALS / SALVAGE / SAWING / MILLING																	B
PLAN LOC.	ALIGNMENT	STA TO STA	REMOVE (SPEC. 2104)							SALVAGE (SPEC. 2104)		SAWING (SPEC. 2104)		MILLING (SPEC 2232)	NOTES		
			BIT. PAVEMENT (SQ YD)	BIT. WALK (SQ FT)	CONC. WALK (SQ FT)	CONC. MED (SQ FT)	CONC. CURB & GUTTER (LIN FT)	CHAIN LINK FENCE (LIN FT)	RETAINING WALL (LIN FT)	GUARD RAIL (LIN FT)	RETAINING WALL (LIN FT)	CHAIN LINK FENCE (LIN FT)	BIT. SAWING (LIN FT)	CONC. SAWING (LIN FT)		1.5" TRANSITION MILLING (SQ YD)	
REM-1	NB CSAH 51	24+00 - 30+00	3,112		2,085	1,166	1,137						123	5	1,389	[1]	
REM-1	NB CSAH 51	21+43 - 23+93	17		1,307		152						152	120		[2]	
REM-2	NB CSAH 51	30+00 - 42+00	6,823	6,936	1,612		1,348		295		30						
		111TH NW 16+57 - 20+42	1,078	3,123	2,157		730						116	5			
		111TH NW 18+00 - 19+00											67				
		111TH NW 19+15 - 19+15							95								
REM-3	NB CSAH 51	42+00 - 54+00	6,761	8,862												[3]	
		4-SEA.PARK 10+00 - 11+81	1,587				652							168			[1]
REM-4	NB CSAH 51	54+00 - 66+00	6,854	10,101							90						
		115TH NW 300+00 - 305+00	1,613		150		654						318	5			
REM-5	NB CSAH 51	66+00 - 78+00	6,324	8,898							365						
		117TH NW 400+00 - 404+24	956				459						57				
		117TH NE 450+00 - 452+50	1,144		1,565		644						87	30			
REM-6	NB CSAH 51	78+00 - 90+00	6,922	4,838	2,713						382						
		CEMETERY 500+00 - 501+42	513			694	219							64			
		118TH NE 600+00 - 601+15	401					179						30			
REM-7	NB CSAH 51	90+00 - 102+00	7,415	6,990	1,550												
		120TH NW 701+36 - 701+95	239				63							28			
		120TH NE 800+10 - 800+55	153				61							30			
REM-8	NB CSAH 51	102+00 - 114+00	7,712	9,014													
		121ST NW 901+48 - 902+92	887		449		203							49	15		
		121ST NE 905+14 - 905+77	281		675		82							35	10		
		124TH NW 1000+95 - 1001+43	190		386		78							29			S.S.124TH
REM-9	NB CSAH 51	114+00 - 120+75	4,118	5,809	41	330	150							290	5	2,162	
		124TH NW 1000+95 - 1001+43	55														N.S.124TH
PROJECT TOTAL			66,433	67,432	14,304	2,576	7,490	35	390	837	30	67	1,636	195	3,551		

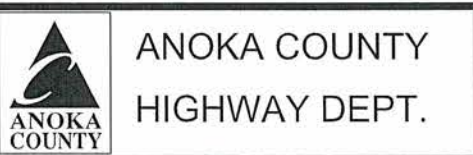
**REMOVALS NOTES:**  
[1] CONCRETE APPROACH NOSE REMOVAL INCIDENTAL  
[2] ITEMS RELEVANT TO INTERSECTION OF UNIVERSITY AVE (CSAH 51) AND NORTHDAL BLVD (CSAH 12)  
[3] CHAIN LINK FENCE BEHIND STORAGE BUSINESS - SOUTH OF TENNIS COURTS

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_SEQ.dgn 06/05/2014 1:20:17 PM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
PRINT NAME: CURT A. KOBILARCSIK  
SIGNATURE: *Curt Kobilarcsik*  
DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 11-25-13  
DESIGN BY: NJD DATE: 10-31-13  
CHECKED BY: GMP DATE: 12-13-13



S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

STORM SEWER REMOVAL							C
ALIGNMENT	STATION TO STATION	OFFSET	REMOVE (SPEC 2104)				NOTES
			DRAINAGE STRUCTURE	PIPE APRON	STORM SEWER PIPE	PIPE CULVERTS	
			(EACH)	(EACH)	(LIN FT)	(LIN FT)	
SB CSAH 51	25+35 - 25+94	25' LT - 21' LT			58		
NB CSAH 51	25+84	15' LT	1				CB
NB CSAH 51	25+84 - 25+85	15' LT - 27' LT			15		
NB / SB CSAH 51	25+84 - 25+85	15' LT - 19' RT			34		
SB CSAH 51	25+85 - 25+90	14' RT - 3' LT			18		
NB CSAH 51	25+85 - 25+93	19' RT - 19' RT			9		
SB CSAH 51	25+85	21' LT	1				CB
SB CSAH 51	25+85	14' RT	1				CB
NB CSAH 51	25+85	19' RT	1				CB
SB CSAH 51	25+90 - 25+98	3' LT - 11' LT			11		
SB CSAH 51	25+90	3' LT	1				MH
SB CSAH 51	25+91 - 27+61	3' LT - 3' LT			170		
NB CSAH 51	25+93	19' RT	1				CB
SB CSAH 51	25+94 - 25+95	21' LT - 42' LT			22		
SB CSAH 51	25+94 - 25+98	21' LT - 11' LT			12		
SB CSAH 51	25+94	21' LT	1				CB
SB CSAH 51	25+98 - 27+62	11' LT - 11' LT			163		
SB CSAH 51	25+98	11' LT	1				MH
NB CSAH 51	27+41	19' RT	1				CB
NB CSAH 51	27+41 - 27+61	19' RT - 11' RT			20		
SB CSAH 51	27+61	3' LT	1				MH
NB / SB CSAH 51	27+61 - 27+61	11' RT - 3' LT			58		
SB CSAH 51	27+61 - 27+62	3' LT - 11' LT			8		
NB CSAH 51	27+61	11' RT	1				CB
SB CSAH 51	27+61 - 32+40	3' LT - 8' LT			478		
SB CSAH 51	27+62 - 32+28	11' LT - 17' LT			467		
SB CSAH 51	27+62 - 27+62	11' LT - 25' LT			14		
SB CSAH 51	27+62	25' LT	1				CB
SB CSAH 51	27+62	11' LT	1				CB
SB CSAH 51	32+00 - 32+27	30' LT - 31' LT			27		
SB CSAH 51	32+00	30' LT	1				CB
SB CSAH 51	32+27 - 32+27	31' LT - 17' LT			14		
SB CSAH 51	32+27	31' LT	1				CB
SB CSAH 51	32+28 - 32+40	17' LT - 8' LT			14		
SB CSAH 51	32+29	17' LT	1				MH
SB CSAH 51	32+40 - 34+18	8' LT - 10' LT			178		
SB CSAH 51	32+40	8' LT	1				MH
NB CSAH 51	33+52	289' RT	1				CB
NB CSAH 51	33+75 - 33+81	20' LT - 356' RT			377		
NB CSAH 51	33+75 - 34+28	20' LT - 3' LT			56		
NB CSAH 51	33+75	20' LT	1				MH
SB CSAH 51	34+18 - 36+79	10' LT - 36+79			261		
SB CSAH 51	34+18	10' LT	1				CB
NB CSAH 51	34+28 - 36+71	3' LT - 20' RT			245		
NB CSAH 51	34+28	3' LT	1				MH
NB CSAH 51	36+71	20' RT	1				MH
NB CSAH 51	36+71 - 38+31	20' RT - 27' RT			160		
SB CSAH 51	36+74 - 36+79	7' LT - 13' LT			8		
SB CSAH 51	36+74	7' LT	1				CB
SB CSAH 51	36+79 - 40+33	13' LT - 20' LT			354		
SB CSAH 51	36+79	13' LT	1				MH
NB CSAH 51	38+30	27' RT		1			
SB CSAH 51	40+33 - 43+78	20' LT - 18' LT			345		
SB CSAH 51	40+33	20' LT	1				CB
SB CSAH 51	41+65 - 42+23	15' LT - 15' LT		2		58	
SUBTOTAL (A)			25	3	3596	58	

REMOVE STORM NOTES:  
 [1] EXISTING OUTLET CONTROL STRUCTURE. 84" CONCRETE STRUCTURE WITH FRAME RING AND COVER

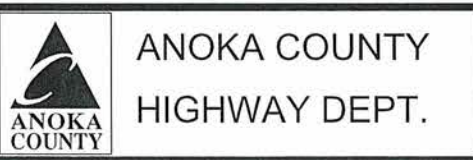
STORM SEWER REMOVAL							C
ALIGNMENT	STATION TO STATION	OFFSET	REMOVE (SPEC 2104)				NOTES
			DRAINAGE STRUCTURE	PIPE APRON	STORM SEWER PIPE	PIPE CULVERTS	
			(EACH)	(EACH)	(LIN FT)	(LIN FT)	
SB CSAH 51	43+78 - 47+25	18' LT - 20' LT			346		
SB CSAH 51	43+78	18' LT	1				CB
NB / SB CSAH 51	44+89 - 44+86	23' RT - 12' LT		2		78	
NB CSAH 51	44+95	35' RT		1			
SB CSAH 51	46+54	223' LT	1				[1]
SB CSAH 51	47+22	168' LT	1				MH
SB CSAH 51	46+54 - 47+22	224' LT - 168' LT			88		
SB CSAH 51	46+63 - 47+22	224' LT - 192' LT			32		
SB CSAH 51	47+25 - 47+22	20' LT - 168' LT			149		
SB CSAH 51	47+25 - 51+00	20' LT - 20' LT			375		
SB CSAH 51	47+25	19' LT	1				CB
SB CSAH 51	51+00 - 54+00	20' LT 20' LT			300		
SB CSAH 51	51+00	20' LT	1				MH
SB CSAH 51	54+00 - 57+10	20' LT - 20' LT			310		
SB CSAH 51	54+00	20' LT	1				MH
SB CSAH 51	57+10 - 60+12	20' LT 19' LT			302		
SB CSAH 51	57+10	20' LT	1				MH
SB CSAH 51	60+00 - 60+03	19' LT - 173' LT			154		
SB CSAH 51	60+12 - 65+11	19' LT - 50' LT			500		
SB CSAH 51	60+12	19' LT	1				MH
115TH AVE NW	301+44.17	30' RT	1				
NB / SB CSAH 51	64+14 - 65+25	16' RT - 42' LT		2		150	
NB CSAH 51	64+15	16' RT	1				
SB CSAH 51	65+12	50' LT	1				
NB CSAH 51	73+27 - 73+34	18' RT - 35' RT			18		
NB CSAH 51	73+27	18' RT	1				CB
NB CSAH 51	73+34 - 73+68	35' RT - 34' RT			35		
NB CSAH 51	73+34	35' RT	1				CB
NB CSAH 51	73+68 - 75+80	34' RT - 15' RT			212		
NB CSAH 51	73+68	34' RT	1				CB
NB CSAH 51	75+80	15' RT		1			
SB CSAH 51	77+62 - 78+41	32' LT - 19' LT			80		
SB CSAH 51	77+62	32' LT		1			
SB CSAH 51	78+41 - 82+32	19' LT 19' LT			391		
SB CSAH 51	78+41	19' LT	1				CB
NB CSAH 51	82+17 - 82+77	18' RT - 18' RT		2		61	
SB CSAH 51	82+32 - 86+00	19' LT - 39' LT			369		
SB CSAH 51	82+32	19' LT	1				CB
SB CSAH 51	86+00	39' LT	1				MH
SB CSAH 51	86+00 - 86+07	39' LT - 58' LT			20		
NB CSAH 51	98+10 - 98+72	15' RT - 16' RT		2		62	
SB CSAH 51	103+33 - 103+50	31' LT - 31' LT			17		
SB CSAH 51	103+33	30' LT		1			
SB CSAH 51	103+49	31' LT	1				MH
SB CSAH 51	103+50 - 105+46				196		
NB CSAH 51	103+63	25' RT		1			
NB CSAH 51	103+64 - 104+11	25' RT - 44' RT			51		
NB CSAH 51	104+11 - 104+45	44' RT - 41' RT			30		
NB CSAH 51	104+11	44' RT	1				CB
NB CSAH 51	104+45 - 105+27	41' RT - 32' RT			78		
NB CSAH 51	104+45	41' RT	1				CB
SB CSAH 51	104+85	32' LT	1				CB
NB CSAH 51	105+27	32' RT		1			
SB CSAH 51	105+46 - 107+41	33' LT - 45' LT			195		
SB CSAH 51	105+46 - 105+46	33' LT - 59' LT			26		
SB CSAH 51	105+46	32' LT	1				CB
SB CSAH 51	107+42	44' LT		1			
NB CSAH 51	114+00	60' RT			16		
SUBTOTAL (B)			20	17	4,290	351	
PROJECT TOTAL (A+B)			45	20	7,886	409	

NO	DATE	BY	CKD	APPR	REVISION

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I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBLARCSIK  
 SIGNATURE: *[Signature]*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



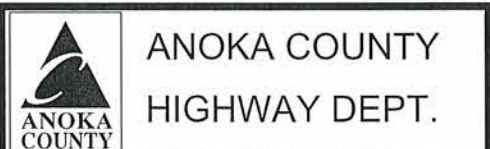
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 S.P. 106-020-031  
 S.P. 114-020-046

CONCRETE SUMMARY										D
STATION		ALIGNMENT	OFFSET TO	CONCRETE CURB & GUTTER DESIGN B424	CONCRETE CURB & GUTTER DESIGN B418 (MOD)	CONCRETE CURB & GUTTER DESIGN B612	CONCRETE CURB & GUTTER DESIGN B618	CONCRETE CURB & GUTTER DESIGN S512	4" CONCRETE WALK	CONCRETE MEDIAN NOSE
BEGIN	END			LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	SQ FT	SQ YD
20+31	22+80	NB CSAH 51	127' LT - 60' RT			140	97		113	10
25+62	30+00	NB CSAH 51	12' LT - 16.5' LT		438				6,434	
25+62	30+00	NB CSAH 51	20' RT - 23.0' RT	438					1,824	
30+00	42+00	NB CSAH 51	13' LT - 24' LT		1,110				8,028	5
30+00	42+00	NB CSAH 51	18' RT - 23' RT	1,233					2,259	
42+00	54+00	NB CSAH 51	13' LT - 24' LT		1,073				8,342	5
42+00	54+00	NB CSAH 51	18' RT - 23' RT	1,156						
54+00	66+00	NB CSAH 51	12.5' LT		1,200				18,000	
54+00	66+00	NB CSAH 51	18.0' RT	1,200						
66+00	78+00	NB CSAH 51	13' LT - 24' LT		1,005				7,447	5
66+00	78+00	NB CSAH 51	18' RT - 23' RT	1,115						
78+00	90+00	NB CSAH 51	13' LT - 24' LT		1,137				8,449	12
78+00	90+00	NB CSAH 51	18' RT - 23' RT	1,213						
90+00	102+00	NB CSAH 51	13' LT - 24' LT		1,155				11,950	5
90+00	102+00	NB CSAH 51	18' RT - 23' RT	1,207						
102+00	114+00	NB CSAH 51	13' LT - 24' LT		1,084				10,253	5
102+00	114+00	NB CSAH 51	18' RT - 23' RT	1,215						
114+00	120+75	NB CSAH 51	13' LT - 24' LT		675				8,689	
114+00	120+75	NB CSAH 51	18' RT - 23' RT	355						
25+15	30+00	SB CSAH 51	13' RT - 15' RT		438					
25+15	30+00	SB CSAH 51	23' LT	485					8,376	
30+00	42+00	SB CSAH 51	13' RT - 24' RT		1,110					
30+00	42+00	SB CSAH 51	14' LT - 40' LT	1,216					1,992	
42+00	54+00	SB CSAH 51	13' RT - 24' RT		1,074					
42+00	54+00	SB CSAH 51	14' LT - 40' LT	1,006						
54+00	66+00	SB CSAH 51	13' RT		1,200					
54+00	66+00	SB CSAH 51	18' LT - 63' LT	1,218						
66+00	78+00	SB CSAH 51	13' RT - 24' RT		1,003					
66+00	78+00	SB CSAH 51	18' LT - 56' LT	1,128						
78+00	90+00	SB CSAH 51	13' RT - 24' RT		1,136					
78+00	90+00	SB CSAH 51	18' LT - 51' LT	1,186						
90+00	102+00	SB CSAH 51	13' RT - 24' RT		1,158					
90+00	102+00	SB CSAH 51	18' LT - 54' LT	1,216						
102+00	114+00	SB CSAH 51	13' RT - 24' RT		1,084					
102+00	114+00	SB CSAH 51	18' LT - 54' LT	1,177						
114+00	120+75	SB CSAH 51	12.5' RT		675					
114+00	120+75	SB CSAH 51	18' LT - 36' LT	696						
100+00	101+25	111TH AVE NW				634			1,579	
15+85	17+12	H. OAKS						258		
17+12	17+53	H. OAKS				100				
110+70	113+65	111TH AVE NE					593			
10+54	11+81	113TH AVE NE				635				6
302+70	304+37	115TH AVE NW					601			
401+60	403+72	117TH AVE NW						417		
404+29	404+29	117TH AVE NE				238			396	
600+55	601+15	118TH AVE NE					120			
901+48	902+46	121ST AVE NW					196			
905+54	905+62	121ST AVE NE								
501+42	501+97	CEMETERY	43' LT - 10' RT					203		
<b>PROJECT TOTAL</b>				<b>18,460</b>	<b>17,755</b>	<b>1,747</b>	<b>1,607</b>	<b>878</b>	<b>104,131</b>	<b>54</b>

NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\02-651-07\Plan\0265107_SEQ.dgn					
06/06/2014 1:20:29 PM					

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *[Signature]*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

BITUMINOUS SUMMARY						E
ALIGNMENT	STATION TO STATION	BITUMINOUS			NOTES	
		2360 TYPE SP 12.5 WEAR (4,F)	2360 TYPE SP 12.5 NON-WEAR (4,B)	2357 BIT. TACK COAT		
		TON	TON	GALLON		
NB CSAH 51	25+62 - 30+00	379	172	150	[1]	
NB CSAH 51	30+00 - 42+00	868	578	503	[1]	
NB CSAH 51	42+00 - 54+00	310	207	180	[1]	
NB CSAH 51	54+00 - 66+00	702	468	407	[1]	
NB CSAH 51	66+00 - 78+00	817	545	474	[1]	
NB CSAH 51	78+00 - 90+00	853	569	495	[1]	
NB CSAH 51	90+00 - 102+00	881	587	511	[1]	
NB CSAH 51	102+00 - 114+00	812	541	471	[1]	
NB CSAH 51	114+00 - 120+75	469	188	163	[1]	
SB CSAH 51	25+15 - 30+00	308	205	179	[1]	
SB CSAH 51	30+00 - 42+00	856	571	496	[1]	
SB CSAH 51	42+00 - 54+00	874	583	507	[1]	
SB CSAH 51	54+00 - 66+00	773	515	448	[1]	
SB CSAH 51	66+00 - 78+00	788	525	457	[1]	
SB CSAH 51	78+00 - 90+00	864	576	501	[1]	
SB CSAH 51	90+00 - 102+00	773	515	448	[1]	
SB CSAH 51	102+00 - 114+00	896	597	520	[1]	
SB CSAH 51	114+00 - 120+75	439	292	254	[1]	
111TH AVE NE	110+70 - 113+65	80	106	92	[3]	
111TH AVE NW	16+56 - 19+97	122	163	142	[3]	
113TH AVE NE	10+54 - 11+80	89	119	103	[3]	
115TH AVE NW	302+70 - 304+36	57	76	66	[3]	
117TH AVE NE	450+54 - 452+50	106	106	92	[3]	
117TH AVE NW	401+60 - 403+73	78	78	68	[3]	
MORNINGSIDE ENT	551+42 - 551+85	16	21	18	[3]	
118TH AVE NE	600+55 - 601+15	15	21	18	[3]	
121ST AVE NW	901+48 - 902+46	58	58	50	[3]	
PROJECT TOTAL		13,283	8,982	7,813		
CSAH 12	21+43 - 23+93		2		[2]	

BITUMINOUS SUMMARY NOTES:  
 [1] QUANTITY FOR MAINLINE CONSTRUCTION  
 [2] QUANTITY FOR PATCHING BITUMINOUS ADJACENT TO PROPOSED CURB RAMPS  
 [3] QUANTITY FOR SIDE STREETS

TEMPORARY WIDENING								F
ALI.	STA.	TO	STA.	BITUMINOUS REMOVAL	2" SP 12.5 NON-WEAR SPNWB330B	COMMON EX	GRANULAR FILL	4" BASE CLASS 5
				SQ YDS	TONS	CU YD	CU YDS	CU YDS
NB	31+75	TO	33+41	120	14	15	0	13
NB	33+80	TO	35+81	146	17	15	0	16
NB	107+50	TO	118+57	1,093	126	120	360	120
TOTALS				1,359	156	150	360	149

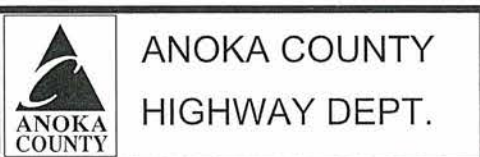
BITUMINOUS TRAIL SUMMARY					G
ALIGNMENT	STATION TO STATION	BIT. PATH 2360 SP 12.5 WEAR SPWED230B		AGGREGATE BASE CL 5	
		SQ YD	TON		
		CU YD			
NB CSAH 51	30+00 - 42+00	663	95	73	
NB CSAH 51	42+00 - 54+00	1,005	144	111	
NB CSAH 51	54+00 - 66+00	1,067	153	117	
NB CSAH 51	66+00 - 78+00	978	141	108	
NB CSAH 51	78+00 - 90+00	1,131	163	124	
NB CSAH 51	90+00 - 102+00	1,096	157	121	
NB CSAH 51	102+00 - 114+00	1,015	146	112	
NB CSAH 51	114+00 - 120+75	873	125	96	
SB CSAH 51	30+00 - 42+00	668	96	73	
SB CSAH 51	42+00 - 54+00	1,047	151	115	
SB CSAH 51	54+00 - 66+00	1,059	152	116	
SB CSAH 51	66+00 - 78+00	975	140	107	
SB CSAH 51	78+00 - 90+00	1,076	155	118	
SB CSAH 51	90+00 - 102+00	1,100	158	121	
SB CSAH 51	102+00 - 114+00	987	142	109	
SB CSAH 51	114+00 - 120+75	602	87	66	
111TH AVE NE	110+70 - 113+65	162	23	18	
111TH AVE NW	100+00 - 101+25	353	51	39	
PROJECT TOTAL		15,857	2,279	1,744	

SAN. SEWER / WAT. MH ADJUST / RECONST.								H	
ALI	STATION	OFFSET	EXISTING TOC	PROPOSED TOC	CHANGE FT	RECONSTRUCT FT	ADJUST EA	CITY	REMARKS
NB	27+78	12' LT	907.90	908.11	0.21		1	BLAINE	SANITARY MH
NB	30+77	14' LT	911.10	913.27	2.17	6.17		BLAINE	SANITARY MH
NB	33+60	16' LT	908.03	909.44	1.41	5.41		BLAINE	SANITARY MH
NB	33+65	318' RT	906.13	907.10	0.97		1	BLAINE	SANITARY MH
SB	73+47	80' LT	892.66	894.08	1.42		1	COON RAPIDS	SANITARY MH
NB	73+52	203' RT	896.83	896.72	0.11		1	BLAINE	SANITARY MH
SB	73+68	238' LT	890.69	890.86	0.17		1	COON RAPIDS	SANITARY MH
NB	73+80	3' LT	893.95	895.09	1.14	5.14		BLAINE	WATER MH
NB	78+52	3' LT	892.92	892.59	0.33		1	BLAINE	WATER MH
NB	82+28	27' RT	892.55	892.83	0.28		1	BLAINE	WATER MH
NB	82+51	68' RT	892.98	892.95	0.03		1	BLAINE	SANITARY MH
PROJECT TOTAL						16.72	8		

NO	DATE	BY	CKD	APPR	REVISION

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBIARCSIK  
 SIGNATURE: *[Signature]*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

PEDESTRIAN CURB RAMPS, SIGNAL POLE LOCATIONS, PUSHBUTTON LOCATIONS														I		
INTERSECTION	ALIGNMENT	QUADRANT	6" CONCRETE WALK	3" CLASS 5 [3]	SQUARE TRUNCATED DOMES		RADIAL TRUNCATED DOMES			CENTER OF SIGNAL POLE BASE		CENTER OF PUSHBUTTON [4], [5]				NOTES
			SQ FT	CU YD (LV)	SQ FT	NUMBER OF PANELS [2]	SQ FT	LONG RADIUS [FT]	NUMBER OF PANELS [2]	STATION		EB / WB		NB / SB		
										STATION	OFFSET	STATION	OFFSET	STATION	OFFSET	
CSAH 12	NB CSAH 51	SE	172	1.91	32	8				N/A						
CSAH 12	NB CSAH 51	NE	467	5.19	16	4				N/A						
CSAH 12	SB CSAH 51	NW	548	6.09	32	8				N/A						
CSAH 12	SB CSAH 51	SW	332	3.69	16	4				N/A						
111TH AVENUE	NB CSAH 51	SE	374	4.16			16	30	4	33+83.66	34.12	R	SIGNAL MOUNT	35+95.82	40.41	R
111TH AVENUE	NB CSAH 51	NE	438	4.87	8	2	8	30	2	34+62.68	28.49	R	SIGNAL MOUNT	34+52.43	34.81	R
111TH AVENUE	SB CSAH 51	NW	365	4.06			24	30	6	34+79.15	32.89	L	SIGNAL MOUNT	34+67.72	37.78	L
111TH AVENUE	SB CSAH 51	SW	368	4.09	8	2	8	30	2	34+04.23	23.50	L	SIGNAL MOUNT	34+15.58	33.09	L
113TH AVENUE	NB CSAH 51	SE	329	3.66			24	30	6	45+87.24	33.81	R	SIGNAL MOUNT	45+95.45	38.49	R
113TH AVENUE	NB CSAH 51	NE	424	4.71			16	30	4	47+11.56	28.44	R	SIGNAL MOUNT	46+98.76	36.14	R
113TH AVENUE	SB CSAH 51	NW	502	5.58	8	2				46+98.36	27.00	L	SIGNAL MOUNT		N/A	
113TH AVENUE	SB CSAH 51	SW	546	6.07	8	2				45+87.03	28.52	L	SIGNAL MOUNT		N/A	
115TH AVENUE	SB CSAH 51	SW	80	0.89			12	40	3	N/A			N/A		N/A	
115TH AVENUE	SB CSAH 51	NW	115	1.28			12	40	3	N/A			N/A		N/A	
117TH AVENUE	NB CSAH 51	SE	456	5.07			24	30	6	73+17.28	38.62	R	73+07.26	32.96	R	SIGNAL MOUNT
117TH AVENUE	NB CSAH 51	NE	489	5.43			16	30	4	73+93.43	28.53	R	SIGNAL MOUNT	73+81.06	36.33	R
117TH AVENUE	SB CSAH 51	NW	358	3.98			28	30	7	73+82.94	34.10	L	SIGNAL MOUNT	73+72.02	37.70	L
117TH AVENUE	SB CSAH 51	SW	413	4.59			16	30	4	73+09.97	28.44	L	SIGNAL MOUNT	73+22.18	35.45	L
118TH AVENUE	NB CSAH 51	SE	137	1.52			12	30	3	N/A			N/A		N/A	
118TH AVENUE	NB CSAH 51	NE	94	1.04			12	30	3	N/A			N/A		N/A	
120TH AVENUE	SB CSAH 51	SW	98	1.09			12	30	3	N/A			N/A		N/A	
120TH AVENUE	SB CSAH 51	NW	128	1.42			12	30	3	N/A			N/A		N/A	
120TH LANE	NB CSAH 51	SE	137	1.52			12	30	3	N/A			N/A		N/A	
120TH LANE	NB CSAH 51	NE	95	1.06			12	30	3	N/A			N/A		N/A	
121ST AVENUE	NB CSAH 51	SE	366	4.07			32	30	8	103+97.58	37.2	R	103+86.92	31.86	R	SIGNAL MOUNT
121ST AVENUE	NB CSAH 51	NE	445	4.94			28	30	7	104+69.61	28.41	R	SIGNAL MOUNT	104+57.56	36.07	R
121ST AVENUE	SB CSAH 51	NW	427	4.74			24	30	6	104+66.90	34.93	L	SIGNAL MOUNT	104+56.46	39.20	R
121ST AVENUE	SB CSAH 51	SW	496	5.51			16	30	4	103+75.17	28.50	L	SIGNAL MOUNT	103+86.02	35.19	L
124TH AVENUE	SB CSAH 51	SW	98	1.09			12	30	3	N/A			N/A		N/A	
124TH AVENUE	SB CSAH 51	NW	92	1.02			12	30	3	N/A			N/A		N/A	
PROJECT TOTAL			9,389	104	128	32	400		100							

**PEDESTRIAN CURB RAMP NOTES**

[2] ASSUMES EACH PANEL IS APPROXIMATELY 2' X 2'

[3] CLASS 5 INCIDENTAL, QUANTITY FOR INFORMATION ONLY

[4] "SIGNAL MOUNT" MEANS THE PUSHBUTTON WILL BE MOUNTED ON THE SIGNAL POLE AND THAT A SEPARATE PUSHBUTTON POLE IS NOT NECESSARY

[5] THESE COLUMNS FOR INFORMATION ONLY - SEPARATE PUSHBUTTON STATION LOCATIONS INCLUDED FOR FUTURE INSTALLATION IF NECESSARY. NO SEPARATE PUSHBUTTON STATIONS TO BE INSTALLED WITH THIS PROJECT

NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\02-651-07\Plant\0265107_SEQ.dgn					
06/06/2014 1:20:44 PM					

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

PRINT NAME: CURT A. KOBILARCSIK

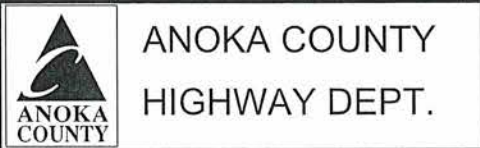
SIGNATURE: *Curt Kobilarcsik*

DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 11-25-13

DESIGN BY: NJD DATE: 10-31-13

CHECKED BY: GMP DATE: 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

**TURF ESTABLISHMENT & EROSION CONTROL**

**J**

PAGE EROSION CONTROL	LOCATION		TEMPORARY EROSION CONTROL					PERMANENT EROSION CONTROL									
			SILT FENCE TYPE MACHINE SLICED	FLOTATION SILT CURTAIN TYPE STILL WATER	STORM DRAIN INLET PROTECTION	FILTER LOG TYPE WOOD FIBER BIOROLL	RAPID STABILIZATION METHOD 3	SEEDING	SEED MIXTURE 260	SEED MIXTURE 310	SEED MIXTURE 350	MULCH MATERIAL TYPE 3	DISK ANCHORING	FERTILIZER TYPE 3	FERTILIZER TYPE 4	EROSION CONTROL BLANKETS CAT. 00	SODDING TYPE SALT RESISTANT
			STATION TO	STATION	LIN FT	LIN FT	EACH	LIN FT	MGAL	ACRE	POUND	POUND	POUND	TON	ACRE	POUND	POUND
EC 1	25+62	- 30+00	0	0	15	0	1	0.2	19	0	0	0	0	71	0	915	126
EC 2	30+00	- 42+00	858	0	24	0	10	1.7	65	7	50	3	2	286	82	6,048	1,593
EC 3	42+00	- 54+00	604	0	35	0	5	0.8	77	0	0	2	1	289	0	2,209	574
EC 4	54+00	- 66+00	2,284	0	23	96	18	3.1	243	0	54	6	3	850	77	5,724	0
EC 5	66+00	- 78+00	2,366	375	19	148	11	1.6	104	15	28	3	2	418	61	4,519	1,525
EC 6	78+00	- 90+00	25	0	25	0	6	0.8	81	0	0	2	1	324	0	3,928	1,106
EC 7	90+00	- 102+00	251	0	21	0	6	0.8	76	0	0	2	1	297	0	3,695	811
EC 8	102+00	- 114+00	1,361	423	34	0	11	1.2	64	0	45	2	1	344	63	4,034	3,334
EC-9	114+00	- 123+54	901	0	9	0	7	1.2	110	0	7	2	1	385	11	5,746	0
<b>PROJECT TOTAL</b>			<b>8,650</b>	<b>798</b>	<b>205</b>	<b>244</b>	<b>76</b>	<b>11.2</b>	<b>839</b>	<b>22</b>	<b>184</b>	<b>22</b>	<b>11</b>	<b>3,264</b>	<b>293</b>	<b>36,817</b>	<b>9,069</b>

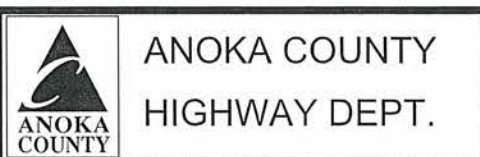
NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_SEQ.dgn 06/06/2014 1:20:56 PM

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

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *[Signature]*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13




S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

TABULATIONS

Sheet 14 of 381 Sheets

DRIVEWAYS														K	
CENTERLINE STATION	LOCATION			DESCRIPTION	SAWCUT		REMOVE		RELOCATE MAIL BOX EACH	MAIL BOX SUPPORT EACH	CONSTRUCT				NOTES
	ALIGNMENT	OFFSET			BIT LIN FT	CONC LIN FT	BIT SQ YD	CONC SQ YD			APRON WIDTH	2.5" BIT 2,B TON	6" CONC SQ YD	4" AGG CL 5 CU YD	
		FROM	TO												
<b>UNIVERSITY AVE - CSAH 51</b>															
26+27.17	NB 51	19' RT	25' RT	#10937	0	15	0	13	1	1	0	0	0	0	
27+10.23	NB 51	13' RT	30' RT		0	0	0	9	0	0	0	0	0	0	
27+27.67	SB 51	13' LT	40' LT		19	0	55	10	0	0	0	3	0	2	
27+32.61	NB 51	11' RT	31' RT		0	0	0	7	0	0	0	0	0	0	
28+20.43	SB 51	11' LT	39' LT		23	0	0	64	0	0	0	3	0	2	
28+62.22	NB 51	9' RT	33' RT		0	0	0	9	0	0	0	0	0	0	
29+37.26	NB 51	7' RT	34' RT		0	0	0	6	0	0	0	0	0	0	
30+16.12	NB 51	5' RT	33' RT		0	0	0	8	0	0	0	0	0	0	
30+92.29	NB 51	2' RT	35' RT		0	0	0	9	0	0	0	0	0	0	
31+66.27	NB 51	2' RT	57' RT		0	0	0	10	0	0	0	0	0	0	
31+90.10	NB 51	0' RT	134' RT		0	0	0	9	0	0	0	0	0	0	
32+11.28	SB 51	16' LT	32' LT	110TH	29	0	30	0	0	0	0	4	0	3	
32+25.00	SB 51	78' LT	78' LT	NEW ENT SUB STA.	0	0	0	0	0	0	0	16	0	12	
33+59.66	SB 51	12' LT	16' LT		0	0	0	7	0	0	0	0	0	0	
37+30.93	SB 51	5' LT	82' LT	#11130	55	0	319	0	1	1	0	39	0	30	
37+79.85	SB 51	5' LT	82' LT	#11140	0	0	0	0	1	1	0	0	0	0	
38+58.80	SB 51	4' LT	44' LT	#11150	12	0	82	0	1	1	20	3	11	1	
39+27.25	SB 51	3' LT	38' LT	REMOVE DRIVEWAY	9	0	47	0	0	0	0	0	0	0	
41+90.74	SB 51	5' LT	45' LT	STOR. ENT. #11230	33	0	151	0	1	1	0	0	0	0	
67+75.00	SB 51	20' LT	26' LT	POND 300 SER. ENT	0	0	0	0	0	0	22	0	12	1	
68+56.97	SB 51	3' LT	99' LT	REMOVE DRIVEWAY	8	0	155	0	0	0	0	0	0	0	
99+76.29	NB 51	13' RT	40' RT	REMOVE DRIVEWAY	17	0	48	0	0	0	0	0	0	0	
109+50.00	SB 51	20' LT	25' LT	POND 500 SER. ENT	0	0	0	0	0	0	22	0	12	1	
<b>SUBTOTAL CSAH 51</b>					<b>205</b>	<b>15</b>	<b>887</b>	<b>161</b>	<b>5</b>	<b>5</b>	<b>64</b>	<b>67</b>	<b>35</b>	<b>54</b>	
<b>111TH NE/NW</b>															
111+39.11	111TH NE	53' RT	107' RT	REMOVED BY OTHERS	0	0	0	0	0	0	0	0	0	0	
111+00.00	111TH NE	14' RT	19' RT	POND 100 SER. ENT	0	0	0	0	0	0	20	0	10	1	
112+26.35	111TH NE	27' RT	34' RT	CONCRETE	0	12	0	10	0	0	20	0	24	3	
18+00.00	111TH NW	19' LT	24' LT	UTILITY ACC.	0	0	0	0	0	0	20	2	0	1	
19+40.00	111TH NW	14' LT	30' LT	CONC. APR/ BIT DR #11120	0	0	0	0	1	1	33	2	19	4	
19+47.49	111TH NW	1' RT	37' RT	REMOVE DRIVEWAY	21	0	86	0	0	0	0	0	0	0	
<b>SUBTOTAL 111TH AVE</b>					<b>21</b>	<b>12</b>	<b>86</b>	<b>10</b>	<b>1</b>	<b>1</b>	<b>93</b>	<b>4</b>	<b>53</b>	<b>8</b>	
<b>115ST AVE NW</b>															
303+20.00	115TH NW	28' RT	36' RT	POND 200 SER. ENT	0	0	0	0	0	0	0	0	17	2	
<b>SUBTOTAL 115TH AVE</b>					<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>17</b>	<b>2</b>	
<b>117TH NW</b>															
401+95.82	117TH NW	14' LT	17' LT	#47 , #33	18	0	6	0	2	2	0	1	0	1	
402+88.98	117TH NW	15' LT	30' LT	#19	22	0	31	0	1	1	0	4	0	3	
403+42.48	117TH NW	16' LT	30' LT	#5	12	0	21	0	1	1	0	3	0	2	
<b>SUBTOTAL 117TH NW</b>					<b>52</b>	<b>0</b>	<b>58</b>	<b>0</b>	<b>4</b>	<b>4</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>6</b>	
<b>118TH NE</b>															
600+80.78	118TH NE	15' RT	24' RT	#11	15	0	15	0	1	1	0	2	0	2	
600+80.78	118TH NE	15' LT	25' LT	#14	17	0	18	0	1	1	0	2	0	2	
601+05.00	118TH NE	16' RT	25' RT	#18 , #5	17	0	16	0	2	2	0	2	0	2	
601+05.00	118TH NE	15' LT	25' LT	#22 , #9	17	0	19	0	2	2	0	2	0	2	
<b>SUBTOTAL 118TH NE</b>					<b>66</b>	<b>0</b>	<b>68</b>	<b>0</b>	<b>6</b>	<b>6</b>	<b>0</b>	<b>9</b>	<b>0</b>	<b>7</b>	
<b>121ST AVE NW</b>															
901+90	121ST NW	24' LT	32' LT	OLD GAS STATION	0	0	0	31	0	0	35	0	31	3	
<b>SUBTOTAL 121ST AVE</b>					<b>0</b>	<b>0</b>	<b>0</b>	<b>31</b>	<b>0</b>	<b>0</b>	<b>35</b>	<b>0</b>	<b>31</b>	<b>3</b>	
<b>PROJECT TOTAL</b>					<b>344</b>	<b>27</b>	<b>1099</b>	<b>202</b>	<b>16</b>	<b>16</b>	<b>192</b>	<b>88</b>	<b>119</b>	<b>79</b>	

**DRIVEWAY NOTES**  
 [1] TYPE SP 12.5 WEAR (SPWEB230B)  
 [2] ASSUMES 4 INCHES OF AGGREGATE BENEATH NEW BITUMINOUS DRIVEWAY  
 [3] TWO STREET ACCESS POINTS FOR A SHARED RESIDENTIAL DRIVEWAY (QUANTITY IS FOR ENTIRE DRIVEWAY)  
 [4] 110TH LANE NW CLOSER  
 [7] NO CONCRETE APRON  
 [8] TRANSITION 7' ON EACH SIDE OF ENTERANCE IN CONCRETE WALK TO MEET KNOCKDOWN IN CURB, DRIVEWAY PORTION TO BE 8" CONC.

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. PRINT NAME: CURT A. KOBILARCSIK SIGNATURE: <i>Curt Kobilarsik</i> DATE: 6-9-14 LICENSE NO. 24756					DRAWN BY: NJD DATE 11-25-13 DESIGN BY: NJD DATE 10-31-13 CHECKED BY: GMP DATE 12-13-13		 <b>ANOKA COUNTY HIGHWAY DEPT.</b>		S.P. 002-651-007 S.P. 106-020-031 S.P. 114-020-046		TABULATIONS Sheet 15 of 381 Sheets			
NO	DATE	BY	CKD	APPR	REVISION					NAME: P:\02-651-07\Plan\0265107_SEQ.dgn				
					06/06/2014 1:21:01 PM									

WATER (CITY OF COON RAPIDS)										L
ALI.	STA.	TO	STA.	OFF.	TO	OFF.	LIN FT	ITEM	NOTES	
SB 51	32+50	TO	34+92	165' LT	TO	165' LT	238	WATER MAIN		
SB 51	32+54			165' LT	TO	173' LT	8	WATER MAIN		
SB 51	34+48	TO	34+51	396' LT	TO	34' LT	362	WATER MAIN		
SB 51	34+49	TO	34+66	247' LT			18	WATER MAIN		
SB 51	34+51	TO	34+76	34' LT			25	WATER MAIN		
SB 51	34+72			232' LT				HYDRANT		
SB 51	34+76			34' LT				HYDRANT		
SB 51	40+92	TO	47+46	16' LT	TO	21' LT	653	WATER MAIN		
SB 51	41+71			17' LT	TO	33' LT	16	WATER MAIN		
SB 51	41+71			33' LT				HYDRANT		
SB 51	43+62			18' LT	TO	43' LT	24	WATER MAIN		
SB 51	47+40			29' LT				HYDRANT		
SB 51	47+40	TO	47+46	29' LT			6	WATER MAIN		
SB 51	47+46			21' LT	TO	42' LT	20	WATER MAIN		
SB 51	73+36	TO	73+76	229' LT	TO	230' LT	39	WATER MAIN		
SB 51	73+56	TO	73+78	98' LT	TO	267' LT	171	WATER MAIN		
SB 51	73+56	TO	73+68	98' LT			13	WATER MAIN		
SB 51	104+53			47' LT				HYDRANT		

EXISTING GATE VALVES (CITY OF COON RAPIDS)					M
ALI.	STA.	OFF.	ADJUST GATE VALVE	NOTES	
SB 51	34+47	163' LT	1	GATE VALVE	
SB 51	34+49	242' LT	1	GATE VALVE	
SB 51	34+49	252' LT	1	GATE VALVE	
SB 51	69+07	228' LT	1	GATE VALVE	
SB 51	73+37	229' LT	1	GATE VALVE	
SB 51	73+68	99' LT	1	GATE VALVE	
COON RAPIDS PROJECT TOTALS			6		

WATER (CITY OF BLAINE)										N
ALI.	STA.	TO	STA.	OFF.	TO	STA.	LIN FT	ITEM	NOTES	
NB 51	25+29	TO	28+01	29' RT	TO	5' RT	260	WATER MAIN		
NB 51	28+00			14' RT				HYDRANT		
NB 51	28+00	TO	28+01	14' RT	TO	5' RT	9	WATER MAIN		
NB 51	28+01	TO	33+91	5' RT	TO	6' LT	590	WATER MAIN	WM TURNS EAST AND RUNS DOWN 111TH AVE	
NB 51	33+82			25' RT				HYDRANT		
NB 51	66+93			10' RT				HYDRANT		
NB 51	66+93	TO	82+28	3' LT			978	WATER MAIN		
NB 51	73+00 RT (APPROX)			HYDRANT RISER			BURIED ITEM			
NB 51	66+86	TO	73+44	3' LT	TO	250' RT	253	WATER MAIN	WM COMES FROM E. PRIOR TO TURNING N. AT 66+86	
NB 51	79+36	TO	79+37	3' LT	TO	53' RT	56	WATER MAIN		
NB 51	82+28			3' LT	TO	114' RT	117	WATER MAIN		
NB 51	82+32			33' RT				HYDRANT		
NB 51	98+19			30' RT	TO	56' RT	27	WATER MAIN		
NB 51	98+19	TO	101+98	30' RT	TO	37' RT	379	WATER MAIN		
NB 51	98+19			30' RT				HYDRANT		
NB 51	101+98	TO	102+05	37' RT	TO	117' RT	9	WATERMAIN		
NB 51	122+68			47' RT	TO	33' RT	14	WATER MAIN		
NB 51	122+68	TO	123+54	33' RT	TO	34' RT	86	WATER MAIN		

EXISTING GATE VALVES (CITY OF BLAINE)					O
ALI.	STA.	OFF.	ADJUST GATE VALVE	NOTES	
NB 51	29+78	7' RT	1	GATE VALVE	
NB 51	33+91	6' LT	1	GATE VALVE	
NB 51	73+37	29' RT	1	GATE VALVE	
NB 51	73+44	218' RT	1	GATE VALVE	
NB 51	79+36	1' LT	1	GATE VALVE	
NB 51	98+26	30' RT	1	GATE VALVE ( BURIED)	
NB 51	122+96	40' RT	1	GATE VALVE	
BLAINE PROJECT TOTALS			7		

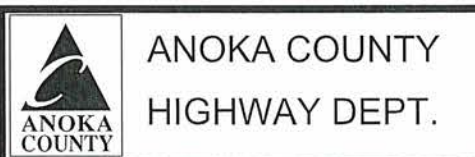
NOTE:  
FOR INFORMATIONAL PURPOSES ONLY.  
SEE CITY PLANS FOR DETAIL CONSTRUCTION  
INFORMATION.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_SEQ.dgn 06/06/2014 1:21:07 PM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *[Signature]*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046



UTILITY CONTACTS				P
UTILITY	CONTACT	NUMBER	EMAIL	
CENTERPOINT ENERGY	STEVE GUHANICK	612-321-5421	STEVE.GUHANICK@CENTERPOINT ENERGY.COM	
COMMCAS COMM.	DOUG ZAHN	651-755-2602	DOUG_ZAHN@CABLE.COMCAST.COM	
CONNEXUS ENERGY	TOM KELLER	763-323-2762	TOM.KELLER@CONNEXUSENERGY.COM	
ZAYO FIBER SOLUTIONS	MIKE DAHLE	763-545-9998	MICHAEL.DAHLE@ZAYO.COM	
CENTURYLINK	BILL BYERS	763-712-5002	BILL.BYERS@CENTURYLINK.COM	
CITY OF COON RAPIDS	GREG CRONIN	612-490-9441	GCRONIN@COONRAPIDSMN.GOV	
CITY OF BLAINE	STEFAN HIGGINS	763-717-2722	SHIGGINS@CI.BLAINE.MN.US	
GREAT RIVER ENERGY	MICHELLE MACMILLAN	763-445-5984	MMACMILLAN@GREENERGY.COM	

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_SEQ.dgn 06/06/2014 1:21:13 PM

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PRINT NAME: CURT A. KOBILARCSIK

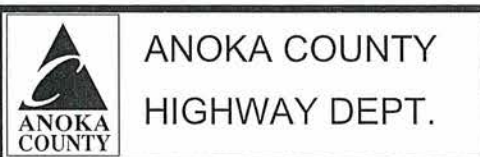
SIGNATURE: *Curt Kobilarcsik*

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S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

1. TOP OF THE SUBGRADE IS CONSIDERED THE CONTACT GRADE BETWEEN THE AGGREGATE BASE LAYER AND THE UNDERLYING SUBGRADE.
2. GRANULAR MATERIAL SHALL BE DEFINED AS INPLACE SOILS THAT MEET THE REQUIREMENTS OF MN/DOT SPEC. 3149.2B1.
3. FOR THIS PROJECT, IT IS ASSUMED THAT ALL INPLACE SOILS BENEATH THE ASSUMED 4 INCHES OF INPLACE TOPSOIL MEET THE REQUIREMENTS FOR GRANULAR MATERIAL.
4. ALL TOPSOIL STRIPPING WILL BE CONSIDERED TO BE COMMON EXCAVATION.
5. TOPSOIL SHALL BE DEFINED AS EXISTING SOILS WHICH MEET MN/DOT SPECIFICATION 3877 THAT WOULD BE SUITABLE FOR REUSE.
6. SUITABLE GRADING MATERIAL CONSISTS OF MINERAL SOILS WHICH ARE FREE OF ORGANIC CONTENT AND DEBRIS, ARE NON-EXPANSIVE, AND ARE IN A CONDITION WHICH CAN MEET SPECIFIED COMPACTION LEVELS. FOR ESTIMATING PURPOSES, ALL SOILS BENEATH THE ASSUMED 4 INCHES OF INPLACE TOPSOIL MEET THE REQUIREMENTS FOR SUITABLE GRADING MATERIAL AND ARE THUS CONSIDERED TO BE GRANULAR MATERIAL.
7. SLOPE DRESSING ON THE PROJECT IS DEFINED AS THE TOPSOIL OR OTHER SOIL PLACED DURING PRIOR CONSTRUCTION TO PROVIDE A MEDIUM FOR ESTABLISHING TURF. THESE SOILS MAY NOT MEET THE MINIMUM ORGANIC CONTENT AND OTHER REQUIREMENTS FOR TOPSOIL BORROW
8. IN ALL AREAS OF NEW MAINLINE ROADWAY RECONSTRUCTION (PERMANENT AND TEMPORARY), PROVIDE FOR A MINIMUM 12 INCH COMPACTION SUBCUT UNLESS OTHERWISE NOTED. BACKFILL WITH INPLACE GRANULAR MATERIAL OR GRANULAR MATERIAL TAKEN FROM ELSEWHERE WITHIN THE PROJECT LIMITS. ANY UNCONTAMINATED SUITABLE GRANULAR MATERIAL REMOVED FROM THE EXISTING SUBGRADE AREA MAY BE USED IN OTHER AREAS DESIGNATED FOR THE SAME MATERIAL.
9. UNLESS OTHERWISE SPECIFICALLY ALLOWED OR REQUIRED BY THE CONTRACT, BITUMINOUS AND CONCRETE ITEMS DISTURBED BY CONSTRUCTION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE RECYCLED TO THE EXTENT ALLOWED IN BASE AND SURFACING ITEMS OR DISPOSED OF OUTSIDE THE RIGHT-OF-WAY IN ACCORDANCE WITH SPEC. 2104.3C3.
10. WHERE CONNECTING NEW SURFACING ADJACENT TO ANY INPLACE PAVEMENTS TO BE WIDENED, CUT VERTICALLY TO THE BOTTOM OF THE INPLACE SURFACING OR TO THE BOTTOM OF THE NEW SURFACING DESIGN, WHICHEVER IS DEEPER, THEN AT 1:2 SLOPE TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION.
11. WHERE CONNECTING TO THE INPLACE ROADWAYS AT THE TERMINI OF PROPOSED NEW CONSTRUCTION, CUT VERTICALLY TO THE BOTTOM OF THE INPLACE SURFACING OR TO THE BOTTOM OF THE NEW SURFACING DESIGN, WHICHEVER IS DEEPER, THEN AT A 1:2 TAPER TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION.
12. WHERE MATCHING INTO INPLACE CROSSROADS, CUT VERTICALLY TO THE BOTTOM OF THE INPLACE SURFACING OR TO THE BOTTOM OF THE NEW SURFACING DESIGN, WHICHEVER IS DEEPER, THEN AT A 1:2 TAPER TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION.
13. USE TACK COAT BETWEEN ALL BITUMINOUS MIXTURES AND PRIOR TO PLACING ANY BITUMINOUS MIXTURES ON THE EXISTING PAVEMENT. THE BITUMINOUS TACK COAT MATERIAL SHALL BE APPLIED AT A UNIFORM RATE OF 0.03 TO 0.05 GALLONS/SQ. YD. BETWEEN BITUMINOUS LAYERS AND 0.07 TO 0.10 GALLONS/SQ. YD. ON CONCRETE OR MILLED BITUMINOUS SURFACES PRIOR TO BEING OVERLAID. THE APPLICATION RATES ARE FOR UNDILUTED EMULSIONS (AS SUPPLIED FROM THE REFINERY) OR MC AND RC LIQUID ASPHALTS. THE ASPHALT EMULSION MAY BE FURTHER DILUTED IN THE FIELD IN ACCORDANCE WITH SPECIFICATION 2357.
14. PROVIDE A SAWCUT WHERE PLACING NEW PAVEMENT ADJACENT TO INPLACE PAVEMENT TO ENSURE A UNIFORM JOINT.
15. STRIP ALL TOPSOIL AND INPLACE SLOPE DRESSING WHERE PRESENT IN AREAS TO BE DISTURBED BY CONSTRUCTION AND REUSE AS SLOPE DRESSING. FOR ESTIMATING PURPOSES, THE DEPTH OF THE INPLACE TOPSOIL AVAILABLE IS CONSIDERED TO BE 4 INCHES.
16. EMBANKMENT QUANTITIES SHOWN ON THE EARTHWORK TABULATION REPRESENT ALL EARTHWORK QUANTITIES BELOW THE TOP OF SUBGRADE. QUANTITIES REQUIRED ABOVE THE TOP OF SUBGRADE OR FOR TEMPORARY CONSTRUCTION ARE PROVIDED IN DETAIL ON THE BITUMINOUS, AGGREGATE SUMMARY, OR TEMPORARY WIDENING TABS.
17. THE CONSTRUCTION LIMITS AS SHOWN IN THE PLANS REPRESENT THE POINT OF INTERSECTION BETWEEN THE REQUIRED FILL OR CUT SLOPE AND THE EXISTING GROUND LINE AS DEPICTED ON THE CROSS SECTIONS. THE CONSTRUCTION LIMITS DO NOT INCLUDE AREAS REQUIRED FOR SLOPE ROUNDING.
18. DITCH BOTTOMS, TOE OF FILL, CUT RUNOUTS AND THE TOP EDGE OF THE BACKSLOPES SHALL BE ROUNDED REGARDLESS OF THE SECTION USED ON THE CROSS SECTION SHEETS.
19. ANY DEBRIS WHICH MAY BE ENCOUNTERED DURING GRADING SHALL BECOME PROPERTY OF THE CONTRACTOR AND DISPOSED OF OFF THE PROJECT RIGHT OF WAY IN A SUITABLE DISPOSAL AREA AS APPROVED BY THE ENGINEER.
20. UNSUITABLE SOILS NOT USED ON THE PROJECT SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND REMOVED FROM THE PROJECT AND DISPOSED OF IN ACCORDANCE WITH MN/DOT SPECIFICATIONS.
21. INPLACE BITUMINOUS PAVEMENT RANGES FROM 4" TO 9" THICK. (AVERAGE 5"). FOR INFORMATION ONLY, CONTRACTOR TO VERIFY PAVEMENT DEPTH PRIOR TO PLACING BID.
22. AGGREGATE BASE MATERIAL SHALL MEET THE REQUIREMENTS OF MN/DOT SPEC. 3138, CLASS 5.
23. COMPACTION OF ALL AGGREGATE BASE, GRANULAR, AND SELECT GRANULAR MATERIAL SHOULD BE IN ACCORDANCE WITH MN/DOT "MODIFIED PENETRATION INDEX METHOD"
24. EMBANKMENT CONSTRUCTION SHALL BE PERFORMED AS REQUIRED BY MN/DOT SPECIFICATION 2105
25. COMPACTION OF ALL PERMANENT BITUMINOUS MIXTURES SHALL BE THE "MAXIMUM DENSITY METHOD"
26. NO OVER-EXCAVATION WILL BE ALLOWED INSIDE THE COUNTY'S RIGHT OF WAY OF THIS PROJECT.
27. EXCESS GRANULAR MATERIAL MUST BE DEEMED EXCESS BY THE PROJECT ENGINEER PRIOR TO REMOVING IT FROM THE PROJECT.

NO	DATE	BY	CKD	APPR	REVISION

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PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
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ANOKA COUNTY  
 HIGHWAY DEPT.

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046  
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SOILS & CONSTRUCTION  
 NOTES

Sheet 18 of 381 Sheets

UNIVERSITY AVENUE EARTHWORK TABULATION				A1
STATION	EXCAVATION TOTALS		EMBANKMENT VOLUMES	
	COMMON (C.Y.)	SUBGRADE (C.Y.)	TOPSOIL (C.Y.)	GRANULAR (C.Y.)
25+15.00				
25+50.00	15	19	2	21
26+00.00	82	88	7	90
26+50.00	152	149	10	152
27+00.00	186	149	9	153
27+50.00	165	149	7	155
28+00.00	111	139	6	162
28+50.00	81	102	9	176
29+00.00	75	61	16	204
29+50.00	111	45	25	248
30+00.00	137	47	20	263
30+50.00	131	48	9	249
31+00.00	76	39	7	244
31+50.00	64	32	10	243
32+00.00	129	32	15	310
32+50.00	183	39	14	294
33+00.00	175	51	11	197
33+50.00	77	46	7	188
34+00.00	20	53	3	234
34+50.00	24	72	0	217
35+00.00	150	99	8	166
35+50.00	270	136	18	197
36+00.00	245	155	20	219
36+50.00	221	167	19	207
37+00.00	250	171	17	197
37+50.00	358	171	19	189
38+00.00	383	168	19	182
38+50.00	307	165	17	179
39+00.00	274	165	17	197
39+50.00	238	155	16	197
40+00.00	203	142	14	159
40+50.00	182	140	14	152
41+00.00	165	140	14	176
41+50.00	162	142	16	187
42+50.00	358	320	31	388
43+00.00	220	177	13	197
43+50.00	273	179	12	186
44+00.00	287	180	11	181
44+50.00	256	180	9	181
45+00.00	205	172	8	199
45+50.00	205	170	7	205
46+00.00	257	157	6	169
47+00.00	686	302	11	308
47+50.00	443	158	5	160
48+00.00	569	157	10	157
48+50.00	745	161	18	161
49+00.00	841	161	21	161
49+50.00	874	161	20	161
<b>SUBTOTAL (A)</b>	<b>11,621</b>	<b>6,111</b>	<b>597</b>	<b>9,218</b>

UNIVERSITY AVENUE EARTHWORK TABULATION				A1
STATION	EXCAVATION TOTALS		EMBANKMENT VOLUMES	
	COMMON (C.Y.)	SUBGRADE (C.Y.)	TOPSOIL (C.Y.)	GRANULAR (C.Y.)
50+00.00	927	167	20	167
50+50.00	917	174	17	174
51+00.00	851	164	15	164
51+50.00	805	146	17	146
52+00.00	780	140	20	140
52+50.00	732	140	20	141
53+00.00	646	140	19	143
53+50.00	538	140	17	153
54+00.00	429	139	18	175
54+50.00	345	135	20	210
55+00.00	279	131	20	251
55+50.00	226	129	18	278
55+70.00	75	50	7	113
56+50.00	234	188	31	451
57+00.00	96	104	22	302
57+50.00	67	89	24	356
58+00.00	54	68	24	415
58+50.00	51	49	24	455
59+00.00	53	36	24	459
59+50.00	52	35	24	418
60+00.00	35	42	18	333
60+50.00	24	53	12	266
61+00.00	37	56	15	312
61+50.00	50	54	20	375
62+00.00	50	78	21	385
62+50.00	52	98	21	404
63+00.00	56	93	22	419
63+50.00	61	88	22	452
64+00.00	75	89	34	624
64+50.00	163	93	45	628
65+00.00	211	92	46	505
65+50.00	150	94	44	526
66+00.00	125	101	36	435
66+50.00	133	108	37	298
67+00.00	118	116	30	264
67+50.00	109	121	18	236
68+00.00	141	121	17	206
68+50.00	156	125	17	195
69+00.00	144	141	16	182
69+50.00	175	158	16	174
70+00.00	156	149	18	180
70+50.00	107	139	21	217
71+00.00	111	130	24	238
71+50.00	116	98	26	231
72+00.00	92	65	25	282
72+50.00	61	36	23	385
73+00.00	55	11	22	447
73+47.00	25	19	10	298
<b>SUBTOTAL (B)</b>	<b>10,945</b>	<b>4,932</b>	<b>1,077</b>	<b>14,608</b>

UNIVERSITY AVENUE EARTHWORK TABULATION				A1
STATION	EXCAVATION TOTALS		EMBANKMENT VOLUMES	
	COMMON (C.Y.)	SUBGRADE (C.Y.)	TOPSOIL (C.Y.)	GRANULAR (C.Y.)
74+00.00	59	68	7	211
74+50.00	161	95	16	227
75+00.00	204	111	18	218
75+50.00	180	129	17	202
76+00.00	154	144	17	199
76+50.00	124	153	12	191
78+00.00	524	455	39	834
78+50.00	262	145	25	329
79+00.00	281	144	29	257
79+50.00	278	157	23	216
80+00.00	234	158	17	219
80+50.00	179	157	15	218
80+90.00	111	136	10	151
81+50.00	98	167	13	243
82+00.00	47	76	12	239
82+50.00	38	34	10	247
83+00.00	42	15	14	301
83+50.00	59	3	21	417
84+00.00	69	0	24	538
84+50.00	78	0	27	603
85+00.00	72	0	27	608
85+50.00	60	0	24	603
86+00.00	66	0	24	561
86+50.00	77	1	25	471
87+00.00	85	4	26	397
87+50.00	86	22	26	358
88+00.00	79	54	25	310
88+50.00	80	98	23	274
89+00.00	99	136	23	256
89+50.00	112	146	23	239
90+00.00	126	152	22	229
90+50.00	141	160	23	220
91+00.00	142	161	23	207
91+50.00	130	158	23	192
92+00.00	99	148	21	192
92+50.00	92	133	19	195
93+00.00	88	112	19	202
93+50.00	67	96	18	208
94+00.00	74	89	19	228
94+50.00	77	77	19	244
95+00.00	98	68	20	227
95+50.00	117	59	19	227
96+00.00	112	49	18	256
96+50.00	140	56	20	258
97+00.00	184	58	24	237
97+50.00	169	62	23	225
98+00.00	177	73	23	213
98+50.00	198	90	21	183
<b>SUBTOTAL (C)</b>	<b>6,229</b>	<b>4,609</b>	<b>986</b>	<b>14,080</b>
<b>MAINLINE TOTAL</b>	<b>37,177</b>	<b>21,311</b>	<b>3,850</b>	<b>52,853</b>

NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\02-651-07\Plan\0261507_EW_P1.dgn 06/05/2014 7:39:52 AM					

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt A. Kobilarsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



ANOKA COUNTY  
HIGHWAY DEPT.

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

EARTHWORK SUMMARY

UNIVERSITY AVENUE EARTHWORK TABULATION				A1
STATION	EXCAVATION TOTALS		EMBANKMENT VOLUMES	
	COMMON (C.Y.)	SUBGRADE (C.Y.)	TOPSOIL (C.Y.)	GRANULAR (C.Y.)
99+00.00	166	102	19	165
99+50.00	108	102	18	180
100+00.00	59	130	16	191
100+50.00	56	156	17	216
101+00.00	61	150	19	250
101+50.00	52	133	17	275
102+00.00	47	127	15	284
102+50.00	50	128	16	314
103+00.00	46	127	17	344
103+50.00	41	110	17	336
104+00.00	18	79	8	253
104+50.00	7	104	0	167
105+00.00	165	136	18	217
105+50.00	222	130	31	329
106+00.00	164	139	26	389
106+50.00	242	151	22	383
107+00.00	326	161	19	371
107+50.00	414	167	22	392
108+00.00	481	166	27	406
108+50.00	503	164	28	396
109+00.00	487	153	27	378
109+50.00	451	137	27	357
110+00.00	406	128	29	343
110+50.00	359	122	27	323
111+00.00	320	123	27	319
111+50.00	295	124	31	365
112+00.00	276	122	35	428
112+50.00	254	119	35	452
113+00.00	209	127	32	416
113+50.00	156	142	22	301
114+00.00	136	147	24	443
114+50.00	116	139	30	546
115+00.00	109	124	34	468
115+50.00	113	116	41	496
116+00.00	114	115	40	460
116+50.00	129	117	38	430
117+00.00	157	119	36	433
117+50.00	190	123	35	431
118+00.00	174	126	39	423
118+50.00	143	128	43	400
119+00.00	126	102	37	273
119+50.00	121	90	30	173
120+00.00	133	103	29	169
120+50.00	101	101	23	139
121+00.00	41	50	11	60
121+50.00	11	0	9	8
122+00.00	9	0	9	9
122+50.00	9	0	9	9
123+00.00	9	0	9	37
<b>SUBTOTAL (D)</b>	<b>8,382</b>	<b>5,659</b>	<b>1,190</b>	<b>14,947</b>
<b>MAINLINE TOTAL</b>	<b>37,177</b>	<b>21,311</b>	<b>3,850</b>	<b>52,853</b>

SIDE STREET EARTHWORK TABULATIONS				A2
ALIGNMENT	STATION	EXCAVATION	EMBANKMENT	
		COMMON (C.Y.)	TOPSOIL (C.Y.)	GRANULAR (C.Y.)
121 W	901+48.93			
121 W	901+86.00	55	5	4
121 W	902+25.00	85	6	4
121 W	902+46.32	52	5	2
<b>121ST AVE W TOTAL</b>		<b>192</b>	<b>16</b>	<b>10</b>

ALIGNMENT	STATION	EXCAVATION	EMBANKMENT	
		COMMON (C.Y.)	TOPSOIL (C.Y.)	GRANULAR (C.Y.)
118 E	600+55.01			
118 E	600+82.00	10	6	7
118 E	601+05.00	9	5	7
118 E	601+14.82	3	2	3
<b>118TH AVE E TOTAL</b>		<b>22</b>	<b>13</b>	<b>17</b>

ALIGNMENT	STATION	EXCAVATION	EMBANKMENT	
		COMMON (C.Y.)	TOPSOIL (C.Y.)	GRANULAR (C.Y.)
117 W	401+60.07			
117 W	402+40.00	41	4	8
117 W	402+60.00	12	1	2
117 W	402+90.00	12	2	8
117 W	403+20.00	3	3	23
117 W	403+40.00	4	2	25
117 W	403+60.00	4	2	29
117 W	403+72.68	2	2	20
<b>117TH AVE W TOTAL</b>		<b>78</b>	<b>16</b>	<b>115</b>

ALIGNMENT	STATION	EXCAVATION	EMBANKMENT	
		COMMON (C.Y.)	TOPSOIL (C.Y.)	GRANULAR (C.Y.)
117 E	450+54.05			
117 E	450+70.00	24	3	2
117 E	450+90.00	38	4	2
117 E	451+10.00	40	4	2
117 E	451+30.00	34	4	2
117 E	451+50.00	27	4	2
117 E	451+65.00	15	3	2
117 E	452+00.00	22	4	2
117 E	452+17.00	6	0	0
117 E	452+50.09	15	3	2
<b>117TH E TOTAL</b>		<b>221</b>	<b>29</b>	<b>16</b>

SIDE STREET EARTHWORK TABULATIONS				A2
ALIGNMENT	STATION	EXCAVATION	EMBANKMENT	
		COMMON (C.Y.)	TOPSOIL (C.Y.)	GRANULAR (C.Y.)
115 W	302+70.00			
115 W	303+00.00	22	5	3
115 W	303+20.00	13	3	2
115 W	303+40.00	9	3	5
115 W	303+60.00	6	4	8
115 W	303+80.00	4	4	13
115 W	304+00.00	4	4	19
115 W	304+20.00	4	4	23
115 W	304+36.05	3	3	20
<b>115TH AVE W TOTAL</b>		<b>65</b>	<b>30</b>	<b>93</b>

ALIGNMENT	STATION	EXCAVATION	EMBANKMENT	
		COMMON (C.Y.)	TOPSOIL (C.Y.)	GRANULAR (C.Y.)
113 E	10+54.22			
113 E	10+80.00	130	4	3
113 E	11+00.00	82	2	2
113 E	11+20.00	65	2	2
113 E	11+40.00	47	1	2
113 E	11+60.00	28	1	5
113 E	11+80.63	28	1	5
<b>113TH AVE E TOTAL</b>		<b>380</b>	<b>11</b>	<b>19</b>

ALIGNMENT	STATION	EXCAVATION	EMBANKMENT	
		COMMON (C.Y.)	TOPSOIL (C.Y.)	GRANULAR (C.Y.)
111 E	110+69.73			
111 E	110+80.00	34	1	1
111 E	111+00.00	50	3	2
111 E	111+20.00	33	2	2
111 E	111+40.00	25	2	2
111 E	111+60.00	24	2	2
111 E	111+80.00	23	5	13
111 E	112+00.00	23	8	20
111 E	112+20.00	20	7	15
111 E	112+40.00	17	5	11
111 E	112+60.00	15	5	7
111 E	112+80.00	15	5	5
111 E	112+89.00	7	3	2
111 E	113+64.94	49	23	13
<b>111TH AVE E TOTAL</b>		<b>335</b>	<b>71</b>	<b>95</b>

ALIGNMENT	STATION	EXCAVATION	EMBANKMENT	
		COMMON (C.Y.)	TOPSOIL (C.Y.)	GRANULAR (C.Y.)
120TH W	OVERALL AREA	27	0	0
120TH E	OVERALL AREA	24	0	0
121ST E	OVERALL AREA	33	0	0
124TH W	OVERALL AREA	23	0	0
<b>MISCELLANEOUS ENT. TOTAL</b>		<b>107</b>	<b>0</b>	<b>0</b>

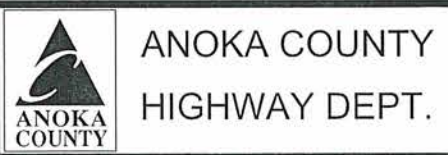
NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0261507\_EW\_P1.dgn 06/05/2014 7:39:52 AM

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

PRINT NAME: CURT A. KOBILARCSIK  
SIGNATURE: *Curt Kobilarcsik*  
DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 11-25-13  
DESIGN BY: NJD DATE: 10-31-13  
CHECKED BY: GMP DATE: 12-13-13



S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

EARTHWORK SUMMARY

Sheet 20 of 381 Sheets

SIDE STREET EARTHWORK TABULATIONS				A2
ALIGNMENT	STATION	EXCAVATION	EMBANKMENT	
		COMMON (C.Y.)	TOPSOIL (C.Y.)	GRANULAR (C.Y.)
111 W	16+57.00			
111 W	16+80.00	14	2	7
111 W	17+00.00	12	4	4
111 W	17+20.00	13	4	2
111 W	17+40.00	14	1	1
111 W	17+60.00	15	1	1
111 W	17+80.00	15	1	2
111 W	18+02.00	16	1	3
<b>111TH AVE W TOTAL</b>		<b>99</b>	<b>14</b>	<b>20</b>

ALIGNMENT	STATION	EXCAVATION	EMBANKMENT	
		COMMON (C.Y.)	TOPSOIL (C.Y.)	GRANULAR (C.Y.)
111 W	CUL DE SAC	378	40	0
<b>111TH W CUL DE SAC TOTAL</b>		<b>378</b>	<b>40</b>	<b>0</b>

ALIGNMENT	STATION	EXCAVATION	EMBANKMENT	
		COMMON (C.Y.)	TOPSOIL (C.Y.)	GRANULAR (C.Y.)
111 W	19+47.00			
111 W	19+60.00	34	3	2
111 W	19+80.00	48	5	3
111 W	19+96.00	44	4	2
<b>111TH AVE W TOTAL</b>		<b>126</b>	<b>12</b>	<b>7</b>

ALIGNMENT	STATION	EXCAVATION	EMBANKMENT	
		COMMON (C.Y.)	TOPSOIL (C.Y.)	GRANULAR (C.Y.)
HOF	15+98.00			
HOF	16+12.23	19	1	1
HOF	16+40.00	93	4	2
HOF	16+60.00	86	3	2
HOF	16+80.00	102	3	2
HOF	17+00.00	117	4	2
HOF	17+17.00	110	4	2
<b>HERITAGE OAKS TOTAL</b>		<b>527</b>	<b>19</b>	<b>11</b>

ALIGNMENT	STATION	EXCAVATION	EMBANKMENT	
		COMMON (C.Y.)	TOPSOIL (C.Y.)	GRANULAR (C.Y.)
CEM	501+43.00			
CEM	501+50.00	4	1	1
CEM	501+60.00	4	1	2
CEM	501+70.00	3	1	2
CEM	501+80.00	2	1	3
CEM	501+86.50	1	1	3
<b>CEMETERY ENT. TOTAL</b>		<b>14</b>	<b>5</b>	<b>11</b>

MAINLINE AGGREGATE TABULATION		AG1
STATION	ALIGNMENT	AGGREGATE (C.Y.)
25+15.00	CSAH 51	
25+50.00	CSAH 51	9
26+00.00	CSAH 51	44
26+50.00	CSAH 51	76
27+00.00	CSAH 51	76
27+50.00	CSAH 51	77
28+00.00	CSAH 51	77
28+50.00	CSAH 51	77
29+00.00	CSAH 51	77
29+50.00	CSAH 51	77
30+00.00	CSAH 51	79
30+50.00	CSAH 51	82
31+00.00	CSAH 51	82
31+50.00	CSAH 51	79
32+00.00	CSAH 51	78
32+50.00	CSAH 51	80
33+00.00	CSAH 51	82
33+50.00	CSAH 51	82
34+00.00	CSAH 51	66
34+50.00	CSAH 51	59
35+00.00	CSAH 51	77
35+50.00	CSAH 51	86
36+00.00	CSAH 51	88
36+50.00	CSAH 51	88
37+00.00	CSAH 51	86
37+50.00	CSAH 51	86
38+00.00	CSAH 51	85
38+50.00	CSAH 51	82
39+00.00	CSAH 51	82
39+50.00	CSAH 51	78
40+00.00	CSAH 51	72
40+50.00	CSAH 51	71
41+00.00	CSAH 51	72
41+50.00	CSAH 51	72
42+50.00	CSAH 51	161
43+00.00	CSAH 51	89
43+50.00	CSAH 51	91
44+00.00	CSAH 51	91
44+50.00	CSAH 51	91
45+00.00	CSAH 51	91
45+50.00	CSAH 51	90
46+00.00	CSAH 51	79
47+00.00	CSAH 51	151
47+50.00	CSAH 51	78
48+00.00	CSAH 51	78
48+50.00	CSAH 51	81
49+00.00	CSAH 51	81
49+50.00	CSAH 51	81
<b>SUBTOTAL (A)</b>		<b>3,817</b>

MAINLINE AGGREGATE TABULATION		AG1
STATION	ALIGNMENT	AGGREGATE (C.Y.)
50+00.00	CSAH 51	83
50+50.00	CSAH 51	87
51+00.00	CSAH 51	82
51+50.00	CSAH 51	75
52+00.00	CSAH 51	72
52+50.00	CSAH 51	72
53+00.00	CSAH 51	72
53+50.00	CSAH 51	72
54+00.00	CSAH 51	72
54+50.00	CSAH 51	72
55+00.00	CSAH 51	72
55+50.00	CSAH 51	72
56+00.00	CSAH 51	29
56+50.00	CSAH 51	115
57+00.00	CSAH 51	72
57+50.00	CSAH 51	71
58+00.00	CSAH 51	71
58+50.00	CSAH 51	72
59+00.00	CSAH 51	72
59+50.00	CSAH 51	72
60+00.00	CSAH 51	71
60+50.00	CSAH 51	71
61+00.00	CSAH 51	74
61+50.00	CSAH 51	77
62+00.00	CSAH 51	77
62+50.00	CSAH 51	77
63+00.00	CSAH 51	77
63+50.00	CSAH 51	77
64+00.00	CSAH 51	75
64+50.00	CSAH 51	72
65+00.00	CSAH 51	72
65+50.00	CSAH 51	72
66+00.00	CSAH 51	72
66+50.00	CSAH 51	72
67+00.00	CSAH 51	72
67+50.00	CSAH 51	72
68+00.00	CSAH 51	72
68+50.00	CSAH 51	72
69+00.00	CSAH 51	67
69+50.00	CSAH 51	71
70+00.00	CSAH 51	82
70+50.00	CSAH 51	85
71+00.00	CSAH 51	86
71+50.00	CSAH 51	86
72+00.00	CSAH 51	86
72+50.00	CSAH 51	86
73+00.00	CSAH 51	81
73+47.00	CSAH 51	69
<b>SUBTOTAL (B)</b>		<b>3,600</b>

MAINLINE AGGREGATE TABULATION		AG1
STATION	ALIGNMENT	AGGREGATE (C.Y.)
74+00.00	CSAH 51	83
74+50.00	CSAH 51	86
75+00.00	CSAH 51	86
75+50.00	CSAH 51	86
76+00.00	CSAH 51	86
76+50.00	CSAH 51	85
78+00.00	CSAH 51	248
78+50.00	CSAH 51	79
79+00.00	CSAH 51	80
79+50.00	CSAH 51	85
80+00.00	CSAH 51	86
80+50.00	CSAH 51	86
80+90.00	CSAH 51	69
81+50.00	CSAH 51	100
82+00.00	CSAH 51	82
82+50.00	CSAH 51	79
83+00.00	CSAH 51	77
83+50.00	CSAH 51	81
84+00.00	CSAH 51	86
84+50.00	CSAH 51	86
85+00.00	CSAH 51	83
85+50.00	CSAH 51	81
86+00.00	CSAH 51	81
86+50.00	CSAH 51	80
87+00.00	CSAH 51	77
87+50.00	CSAH 51	74
88+00.00	CSAH 51	72
88+50.00	CSAH 51	73
89+00.00	CSAH 51	76
89+50.00	CSAH 51	79
90+00.00	CSAH 51	80
90+50.00	CSAH 51	81
91+00.00	CSAH 51	81
91+50.00	CSAH 51	81
92+00.00	CSAH 51	81
92+50.00	CSAH 51	81
93+00.00	CSAH 51	77
93+50.00	CSAH 51	72
94+00.00	CSAH 51	74
94+50.00	CSAH 51	77
95+00.00	CSAH 51	78
95+50.00	CSAH 51	81
96+00.00	CSAH 51	82
96+50.00	CSAH 51	82
97+00.00	CSAH 51	80
97+50.00	CSAH 51	78
98+00.00	CSAH 51	77
98+50.00	CSAH 51	74
<b>SUBTOTAL (C)</b>		<b>4,029</b>

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0261507\_EW\_P1.dgn 06/05/2014 7:39:53 AM

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

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



ANOKA COUNTY  
HIGHWAY DEPT.

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

EARTHWORK SUMMARY  
& AGGREGATE SUMMARY

MAINLINE AGGREGATE TABULATION		AG1
STATION	ALIGNMENT	AGGREGATE (C.Y.)
99+00.00	CSAH 51	71
99+50.00	CSAH 51	73
100+00.00	CSAH 51	78
100+50.00	CSAH 51	82
101+00.00	CSAH 51	84
101+50.00	CSAH 51	86
102+00.00	CSAH 51	86
102+50.00	CSAH 51	86
103+00.00	CSAH 51	86
103+50.00	CSAH 51	86
104+00.00	CSAH 51	79
104+50.00	CSAH 51	72
105+00.00	CSAH 51	79
105+50.00	CSAH 51	86
106+00.00	CSAH 51	86
106+50.00	CSAH 51	86
107+00.00	CSAH 51	86
107+50.00	CSAH 51	86
108+00.00	CSAH 51	84
108+50.00	CSAH 51	82
109+00.00	CSAH 51	78
109+50.00	CSAH 51	73
110+00.00	CSAH 51	72
110+50.00	CSAH 51	72
111+00.00	CSAH 51	72
111+50.00	CSAH 51	72
112+00.00	CSAH 51	71
112+50.00	CSAH 51	71
113+00.00	CSAH 51	71
113+50.00	CSAH 51	73
114+00.00	CSAH 51	75
114+50.00	CSAH 51	75
115+00.00	CSAH 51	75
115+50.00	CSAH 51	75
116+00.00	CSAH 51	74
116+50.00	CSAH 51	73
117+00.00	CSAH 51	72
117+50.00	CSAH 51	71
118+00.00	CSAH 51	70
118+50.00	CSAH 51	68
119+00.00	CSAH 51	52
119+50.00	CSAH 51	41
120+00.00	CSAH 51	45
120+50.00	CSAH 51	45
121+00.00	CSAH 51	22
121+50.00	CSAH 51	0
122+00.00	CSAH 51	0
122+50.00	CSAH 51	0
123+00.00	CSAH 51	0
SUBTOTAL (D)		3,302
MAINLINE TOTAL		14,748

SIDE STREET AGGREGATE TAB		AG2
STATION	ALIGNMENT	AGGREGATE (C.Y.)
450+54.05	117 E	
450+70.00	117 E	12
450+90.00	117 E	16
451+10.00	117 E	16
451+30.00	117 E	14
451+50.00	117 E	13
451+65.00	117 E	10
452+00.00	117 E	20
452+17.00	117 E	9
452+50.09	117 E	18
117TH E TOTAL		128

SIDE STREET AGGREGATE TAB		AG2
STATION	ALIGNMENT	AGGREGATE (C.Y.)
901+48.93	121 W	
901+86.00	121 W	34
902+25.00	121 W	36
902+46.32	121 W	19
121ST AVE W TOTAL		89

SIDE STREET AGGREGATE TAB		AG2
STATION	ALIGNMENT	AGGREGATE (C.Y.)
600+55.01	118 E	
600+82.00	118 E	9
601+05.00	118 E	7
601+14.82	118 E	3
118TH AVE E TOTAL		19

SIDE STREET AGGREGATE TAB		AG2
STATION	ALIGNMENT	AGGREGATE (C.Y.)
401+60.07	117 W	
402+40.00	117 W	43
402+60.00	117 W	11
402+90.00	117 W	16
403+20.00	117 W	16
403+40.00	117 W	11
403+60.00	117 W	11
403+72.68	117 W	7
117TH AVE W TOTAL		115

SIDE STREET AGGREGATE TAB		AG2
STATION	ALIGNMENT	AGGREGATE (C.Y.)
302+70.00	115 W	
303+00.00	115 W	17
303+20.00	115 W	11
303+40.00	115 W	11
303+60.00	115 W	11
303+80.00	115 W	11
304+00.00	115 W	11
304+20.00	115 W	11
304+36.05	115 W	9
115TH AVE W TOTAL		92

SIDE STREET AGGREGATE TAB		AG2
STATION	ALIGNMENT	AGGREGATE (C.Y.)
16+57.00	111 W	
16+80.00	111 W	7
17+00.00	111 W	6
17+20.00	111 W	6
17+40.00	111 W	6
17+60.00	111 W	6
17+80.00	111 W	6
18+02.00	111 W	7
111ST AVE W TOTAL		44

SIDE STREET AGGREGATE TAB		AG2
STATION	ALIGNMENT	AGGREGATE (C.Y.)
CUL DE SAC	111 W	111
111TH W CUL DE SAC TOTAL		111

SIDE STREET AGGREGATE TAB		AG2
STATION	ALIGNMENT	AGGREGATE (C.Y.)
OVERALL AREA	120TH W	18
OVERALL AREA	120TH E	16
OVERALL AREA	121ST E	21
OVERALL AREA	124TH W	15
MISCELLANEOUS ENT. TOTAL		71

SIDE STREET AGGREGATE TAB		AG2
STATION	ALIGNMENT	AGGREGATE (C.Y.)
10+54.22	113 E	
10+80.00	113 E	25
11+00.00	113 E	19
11+20.00	113 E	19
11+40.00	113 E	19
11+60.00	113 E	19
11+80.63	113 E	19
113TH AVE E TOTAL		120

SIDE STREET AGGREGATE TAB		AG2
STATION	ALIGNMENT	AGGREGATE (C.Y.)
501+43.00	CEM	
501+50.00	CEM	4
501+60.00	CEM	7
501+70.00	CEM	6
501+80.00	CEM	6
501+86.50	CEM	4
CEMETERY ENT. TOTAL		27

SIDE STREET AGGREGATE TAB		AG2
STATION	ALIGNMENT	AGGREGATE (C.Y.)
110+69.73	111 E	
110+80.00	111 E	3
111+00.00	111 E	6
111+20.00	111 E	6
111+40.00	111 E	6
111+60.00	111 E	6
111+80.00	111 E	6
112+00.00	111 E	6
112+20.00	111 E	6
112+40.00	111 E	6
112+60.00	111 E	6
112+80.00	111 E	6
112+89.00	111 E	3
113+64.94	111 E	23
111ST AVE E TOTAL		89

SIDE STREET AGGREGATE TAB		AG2
STATION	ALIGNMENT	AGGREGATE (C.Y.)
19+47.00	111 W	
19+60.00	111 W	4
19+80.00	111 W	6
19+96.00	111 W	5
111TH AVE W TOTAL		15

SIDE STREET AGGREGATE TAB		AG2
STATION	ALIGNMENT	AGGREGATE (C.Y.)
15+98.00	HOF	
16+12.23	HOF	2
16+40.00	HOF	8
16+60.00	HOF	6
16+80.00	HOF	6
17+00.00	HOF	6
17+17.00	HOF	5
HERITAGE OAKS TOTAL		33

AGGREGATE SUMMARY	AG3
LOCATION	AGGREGATE (C.Y.)
MAINLINE TOTAL	14,748
121ST AVE W TOTAL	89
118TH AVE E TOTAL	19
117TH AVE W TOTAL	115
117TH E TOTAL	128
115TH AVE W TOTAL	92
113TH AVE E TOTAL	120
111ST AVE E TOTAL	89
111ST AVE W TOTAL	44
111TH W CUL DE SAC TOTAL	111
111TH AVE W TOTAL	15
HERITAGE OAKS TOTAL	33
CEMETERY ENT. TOTAL	27
MISCELLANEOUS ENT. TOTAL	71

PROJECT TOTAL	15,701
---------------	--------

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0261507\_EW\_P1.dgn 06/05/2014 7:39:55 AM

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

PRINT NAME: CURT A. KOBILARCSIK

SIGNATURE: *Curt A. Kobilarsik*

DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 11-25-13

DESIGN BY: NJD DATE: 10-31-13

CHECKED BY: GMP DATE: 12-13-13

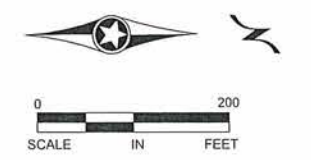
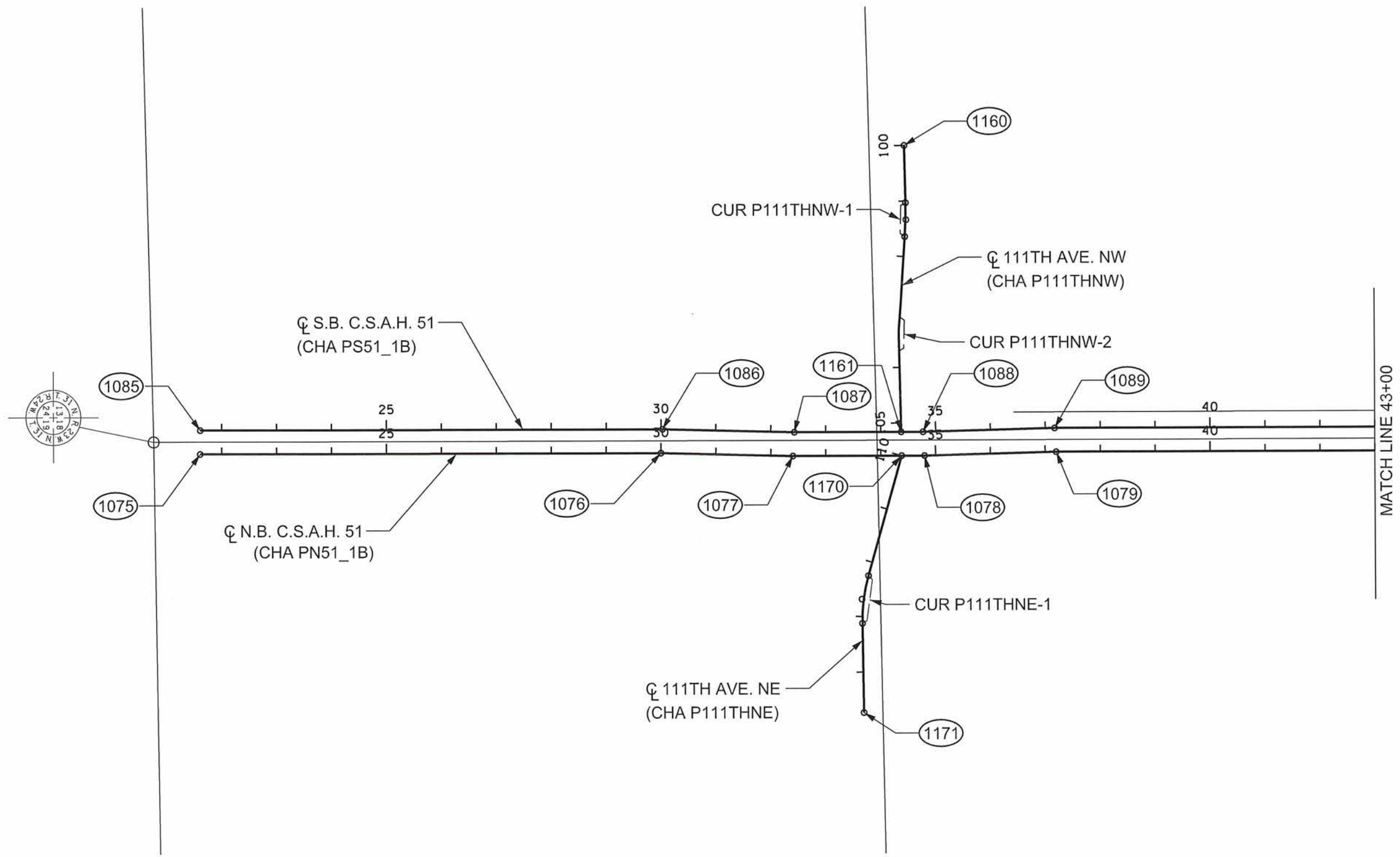


ANOKA COUNTY  
HIGHWAY DEPT.

S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

AGGREGATE SUMMARY





1 OF 5

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_ALL\_P1.dgn      06/05/2014      7:39:57 AM

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

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarcsik*  
 DATE: 6-9-14      LICENSE NO. 24756

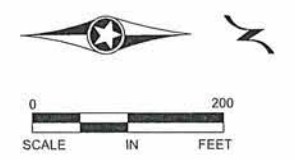
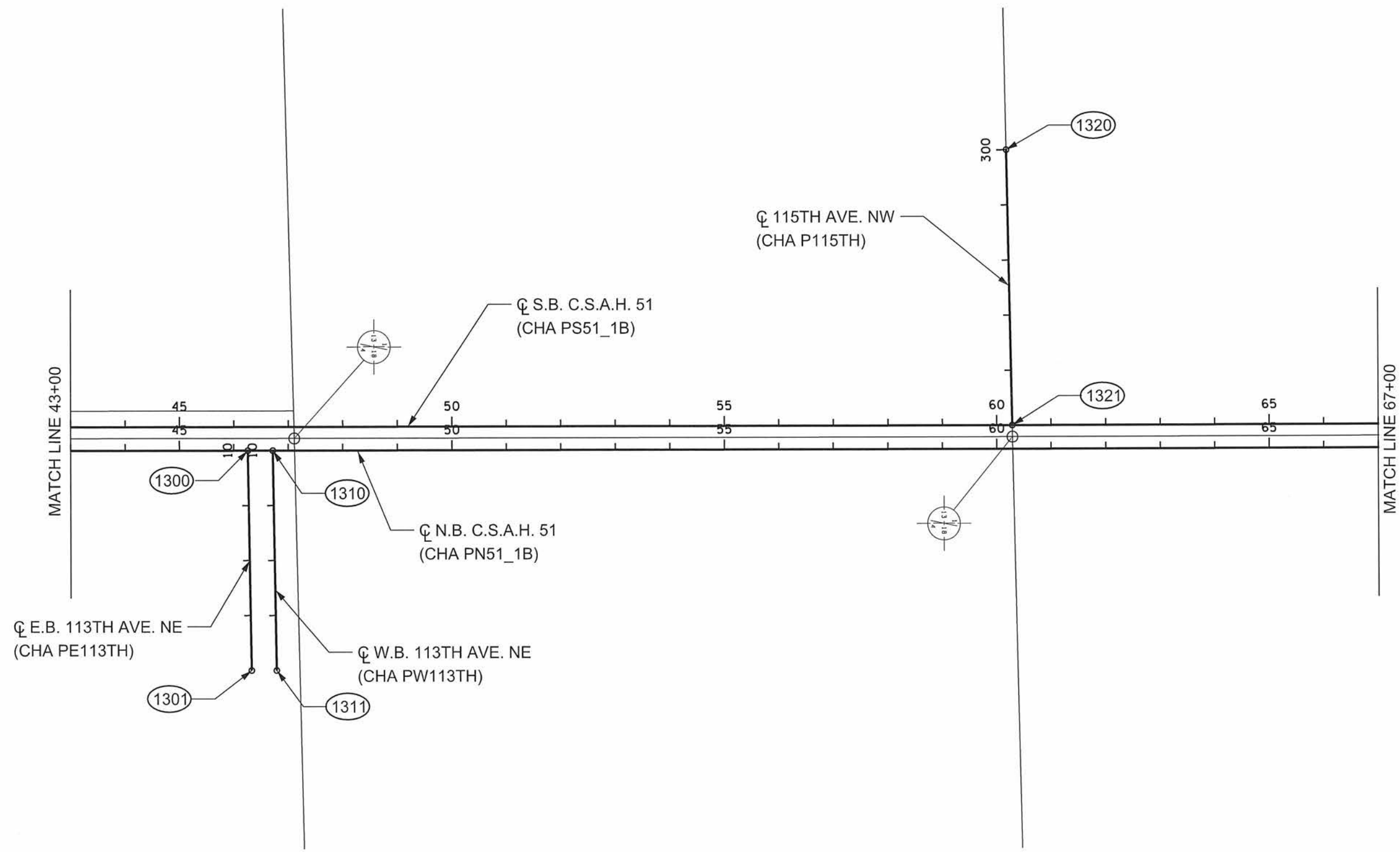
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 DESIGN BY: NJD      DATE: 10-31-13  
 CHECKED BY: GMP      DATE: 12-13-13

 ANOKA COUNTY  
 HIGHWAY DEPT.

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

ALIGNMENT PLAN  
 STA 25+14.96 TO 43+00  
 Sheet 24 of 381 Sheets





2 OF 5

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_ALI\_P2.dgn 06/05/2014 7:39:59 AM

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

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarcsik*  
 DATE: 6-9-14 LICENSE NO. 24756

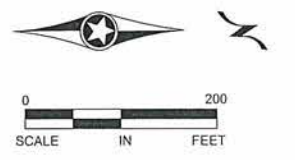
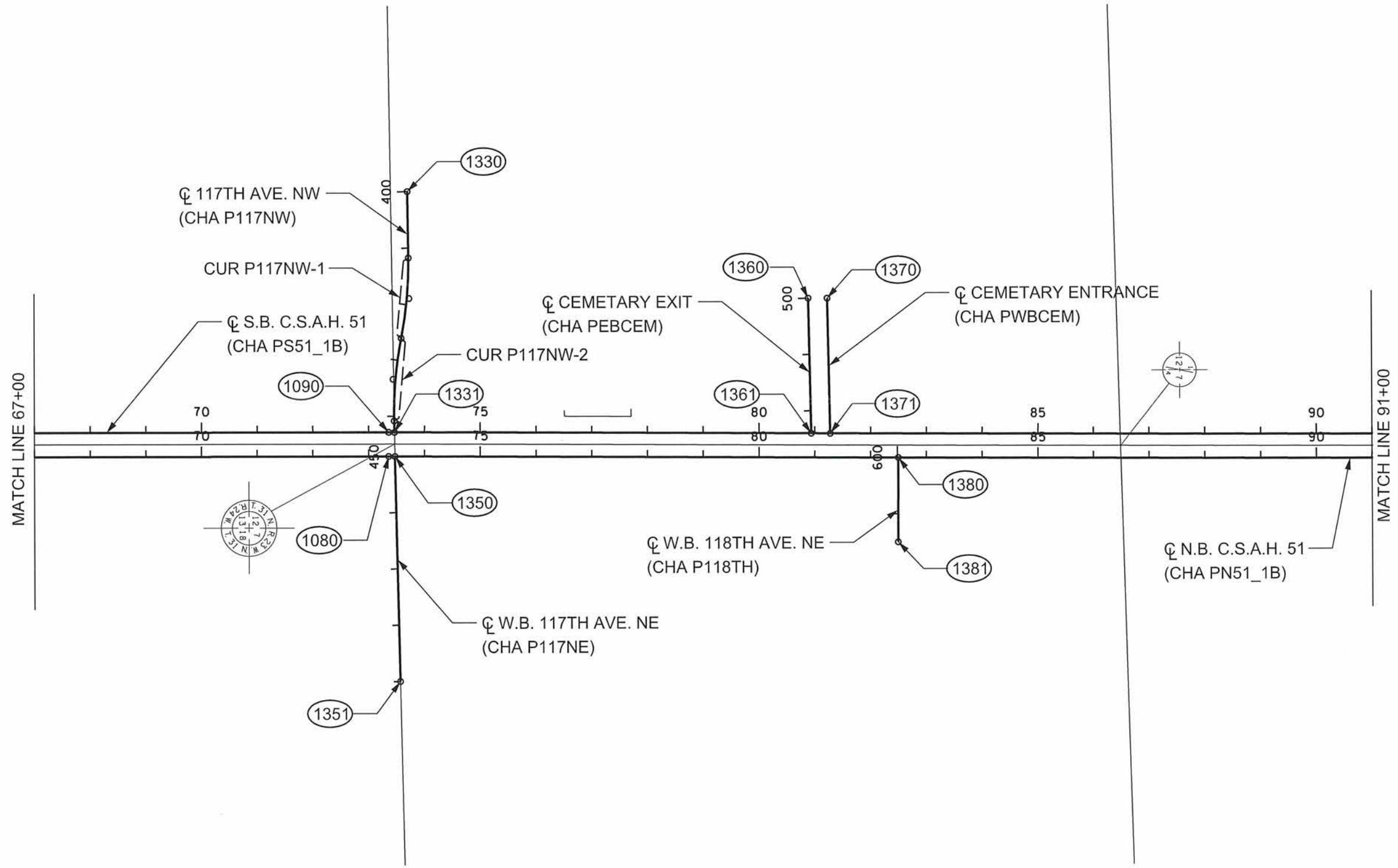
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 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



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

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

ALIGNMENT PLAN  
 STA 43+00 TO 67+00  
 Sheet 25 of 381 Sheets



3 OF 5

NO	DATE	BY	CKD	APPR	REVISION


NAME: P:\02-651-07\Plan\0265107\_ALI\_P3.dgn      06/05/2014      7:40:00 AM

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

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarsik*  
 DATE: 6-9-14      LICENSE NO. 24756

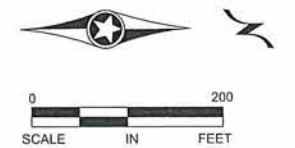
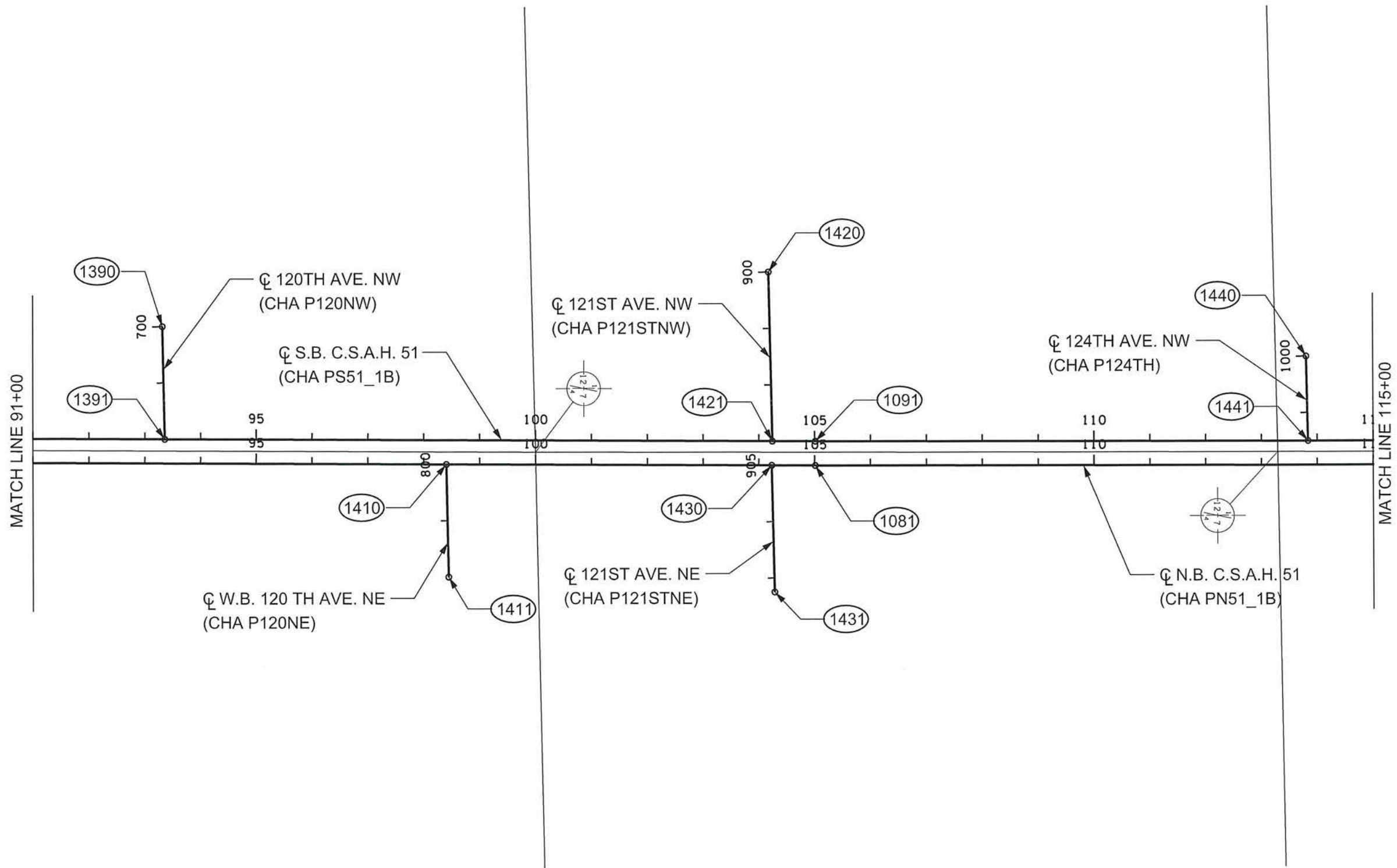
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 CHECKED BY: GMP      DATE: 12-13-13

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



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

**ALIGNMENT PLAN**  
 STA 67+00 TO 91+00  
 Sheet 26 of 381 Sheets



4 OF 5

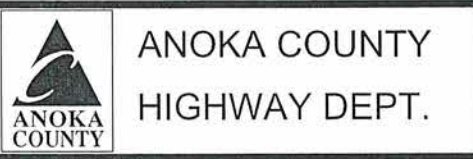
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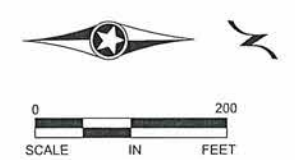
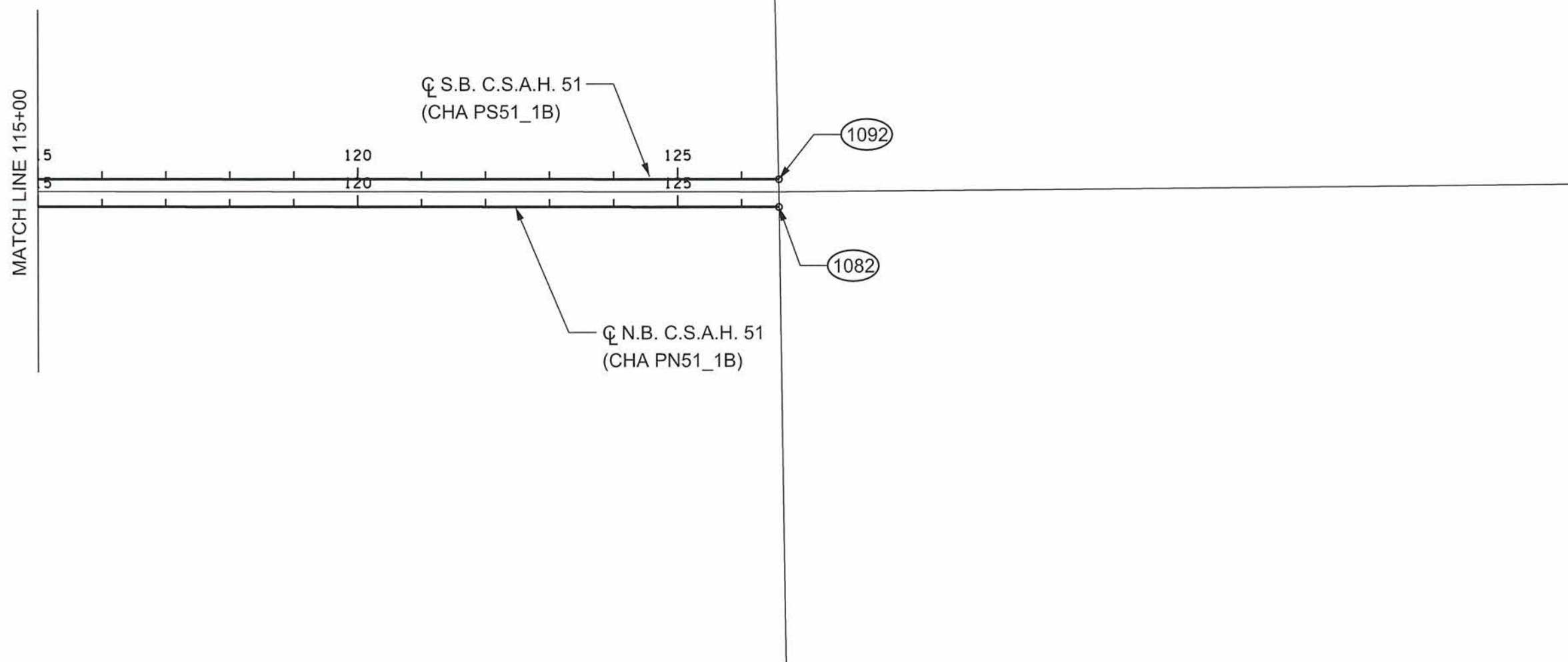
PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarsik*  
 DATE: 6-9-14      LICENSE NO. 24756

DRAWN BY: NJD      DATE: 11-25-13  
 DESIGN BY: NJD      DATE: 10-31-13  
 CHECKED BY: GMP      DATE: 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

ALIGNMENT PLAN  
 STA 91+00 TO 115+00  
 Sheet 27 of 381 Sheets



5 OF 5

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_ALI\_P5.dgn      06/05/2014      7:40:03 AM

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

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarcsik*  
 DATE: 6-9-14      LICENSE NO. 24756

DRAWN BY: NJD      DATE: 11-25-13  
 DESIGN BY: NJD      DATE: 10-31-13  
 CHECKED BY: GMP      DATE: 12-13-13



**ANOKA COUNTY  
 HIGHWAY DEPT.**

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

**ALIGNMENT PLAN**  
 STA 115+00 TO 123+51.36  
 Sheet 28 of 381 Sheets

ALIGNMENT TABULATION

POINT NUMBER	POINT	ALIGNMENT	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	X	Y	
☪ N.B. C.S.A.H. 51 <PN51_1B>										
1075	POT	☪ N.B. C.S.A.H. 51	21+60.720					500,125.6170	148,493.4464	
1076	POT		30+00.000					500,132.0077	149,332.7021	
1077	POT		32+40.074					500,139.8350	149,572.6488	
1078	POT		34+79.926					500,141.6614	149,812.4933	
1079	POT		37+20.000					500,137.4890	150,052.5314	
1080	POT		73+35.969					500,165.0229	153,668.3953	
1081	POT		105+01.280					500,206.0363	156,833.4411	
1082	POT	☪ N.B. C.S.A.H. 51	126+58.450					500,227.6166	158,990.5031	

☪ S.B. C.S.A.H. 51 <PS51_1B>										
1085	POT	☪ S.B. C.S.A.H. 51	21+60.720					500,082.6192	148,493.9053	
1086	POT		30+02.621					500,089.0299	149,335.7823	
1087	POT		32+42.696					500,096.8572	149,575.7290	
1088	POT		34+77.070					500,098.6419	149,810.0967	
1089	POT		37+17.145					500,094.4695	150,050.1347	
1090	POT		73+35.952					500,122.0251	153,668.8376	
1091	POT		105+01.315					500,163.0391	156,833.9348	
1092	POT	☪ S.B. C.S.A.H. 51	126+58.422					500,184.6188	158,990.9333	

☪ 111TH NW <P111THNW>											
1160	POT		100+00.000					499,582.5781	149,781.8474		
	PC		101+02.944					499,685.5145	149,783.1174	N 89° 17' 35.46" E	
P111THNW-1	PI		101+33.526	5° 00' 11.17" RT	8° 11' 06.40"	700.000'	30.582'	61.124'	499,716.0938	149,783.4946	PI
	CC							499,694.1497	149,083.1706		
	PT		101+64.069					499,746.5895	149,781.2036	S 85° 42' 13.37" E	
	PC		103+09.304					499,891.4172	149,770.3234	S 85° 42' 13.37" E	
P111THNW-2	PI		103+39.886	5° 00' 11.17" LT	8° 11' 06.40"	700.000'	30.582'	61.124'	499,921.9129	149,768.0324	PI
	CC							499,943.8570	150,468.3564		
	PT		103+70.429					499,952.4922	149,768.4097	N 89° 17' 35.46" E	
1161	POT	☪ 111TH NW	105+16.286					500,098.3381	149,770.2089		

☪ 111TH NE <P111THNE>											
1170	POT	☪ 111TH NE	110+00.000					500,141.3434	149,770.7395		
	PC		112+25.269					500,357.5072	149,707.3424	S 73° 39' 16.21" E	
P111THNE-1	PI		112+69.120	16° 37' 55.24" LT	19° 05' 54.94"	300.000'	43.851'	87.085'	500,399.5857	149,695.0015	PI
	CC							500,441.9359	149,995.2170		
	PT		113+12.354					500,443.4360	149,695.2208	N 89° 42' 48.56" E	
1171	POT	☪ 111TH NE	114+73.128					500,604.2079	149,696.0247		

☪ E.B. 113TH <PE113TH>										
1300	POT	☪ E.B. 113TH	10+00.000					500,144.3877	150,958.4989	
1301	POT	☪ E.B. 113TH	14+00.000					500,544.3800	150,960.9912	

☪ W.B. 113TH <PW113TH>										
1310	POT	☪ W.B. 113TH	10+00.000					500,144.7352	151,004.1270	
1311	POT	☪ W.B. 113TH	14+00.000					500,544.7274	151,006.6193	

ALIGNMENT TABULATION

POINT NUMBER	POINT	ALIGNMENT	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH	
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	E	N		
☪ 115TH NW <P115TH>											
1320	POT	☪ 115TH NW	300+00.000							499,612.0977	152,356.0305
1321	POT	☪ 115TH NW	305+00.000							500,112.0691	152,361.3749

☪ 117TH NW <P117NW>												
1330	POT	☪ 117TH NW	400+00.000							499,695.5229	153,707.0562	
	PC		401+17.484							499,813.0059	153,707.6382	N 89° 42' 58.27" E
P117NW-1	PI		401+89.391	12° 09' 40.96" RT	8° 29' 17.75"	675.000'	71.907'	143.273'	499,884.9116	153,707.9944	PI	
	CC								499,816.3495	153,032.6465		
	PRC		402+60.757						499,955.2786	153,693.1945	S 78° 07' 20.78" E	
	PRC		402+60.757						499,955.2786	153,693.1945	S 78° 07' 20.78" E	
P117NW-2	PI		403+34.901	12° 32' 12.32" LT	8° 29' 17.75"	675.000'	74.144'	147.695'	500,027.8348	153,677.9342	PI	
	CC								500,094.2078	154,353.7425		
	PT		404+08.452						500,101.9736	153,678.7872	N 89° 20' 26.90" E	
1331	POT	☪ 117TH NW	404+28.637						500,122.1570	153,679.0194		

☪ 117TH NE <P117NE>											
1350	POT	☪ 117TH NE	450+00.000							500,165.1670	153,679.5143
1351	POT	☪ 117TH NE	454+00.000							500,565.1406	153,684.1162

☪ E.B. CEMETARY <PEBCEM>											
1360	POT	☪ E.B. CEMETARY	500+00.000							499,891.8577	154,424.0419
1361	POT	☪ E.B. CEMETARY	502+40.000							500,131.8442	154,426.5902

☪ W.B. CEMETARY <PWBCEM>											
1370	POT	☪ W.B. CEMETARY	550+00.000							499,892.2984	154,458.0485
1371	POT	☪ W.B. CEMETARY	552+40.000							500,132.2848	154,460.5968

☪ 118TH NE <P118TH>											
1380	POT	☪ 118TH NE	600+00.000							500,176.8608	154,581.9326
1381	POT	☪ 118TH NE	601+50.000							500,326.8477	154,579.9540

☪ 120TH NW <P120NW>											
1390	POT	☪ 120TH NW	700+00.000							499,947.9495	155,666.2938
1391	POT	☪ 120TH NW	702+00.000							500,147.9372	155,668.5090

☪ 120TH NE <P120NE>											
1410	POT	☪ 120TH NE	800+00.000							500,197.4734	156,172.6366
1411	POT	☪ 102TH NE	802+00.000							500,397.4647	156,174.5050

☪ 121ST NW <P121STNW>											
1420	POT	☪ 121ST NW	900+00.000							499,862.0639	156,753.1973
1421	POT	☪ 121ST NW	903+00.000							500,162.0409	156,756.9069

☪ 121ST NE <P121STNE>											
1430	POT	☪ 121ST NE	905+00.000							500,205.0252	156,755.4179
1431	POT	☪ 121ST NE	907+25.000							500,430.0077	156,758.2245

☪ 124TH NW <P124TH>											
1440	POT	☪ 124TH NW	1000+00.000							500,021.8783	157,714.6856
1441	POT	☪ 124TH NW	1001+50.000							500,171.8681	157,716.4374

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_ALI\_TAB1.dgn 06/05/2014 7:40:05 AM

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

PRINT NAME: CURT A. KOBILARCSIK

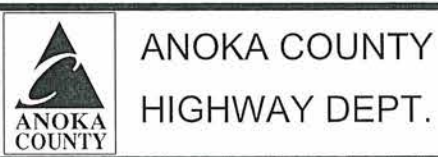
SIGNATURE: *Curt Kobilarcsik*

DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 11-25-13

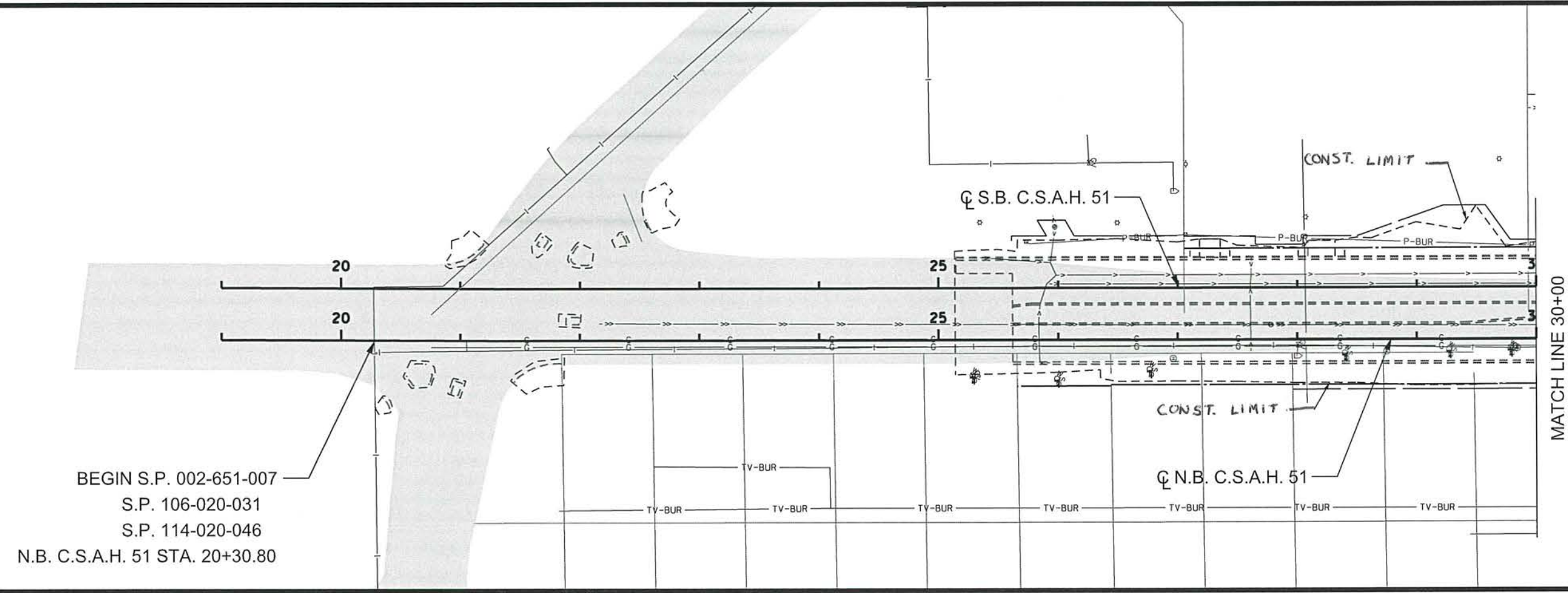
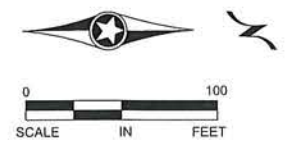
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CHECKED BY: GMP DATE: 12-13-13

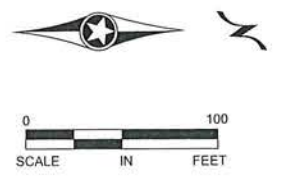
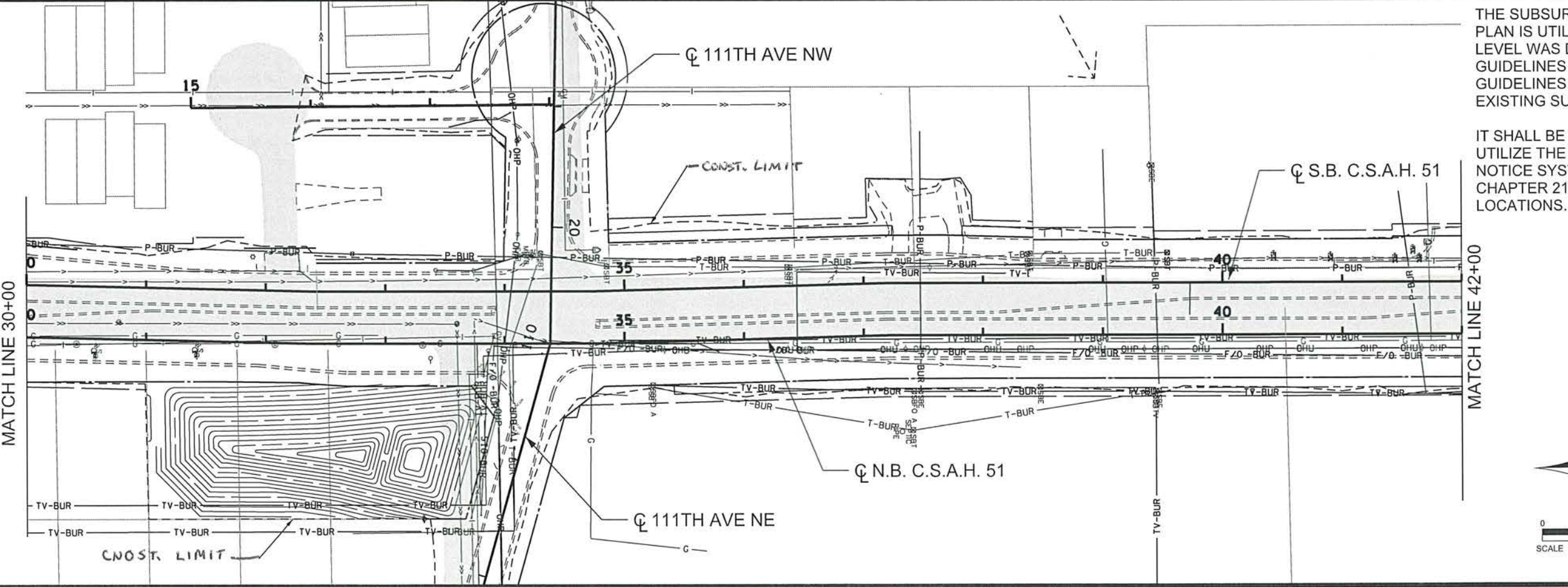


S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

LEGEND	
	CENTERPOINT ENERGY
	COMCAST CABLE COMMUNICATIONS
	CONNEXUS ENERGY/ GREAT RIVER ENERGY
	ZAYO FIBER SOLUTIONS
	TRAFFIC SIGNAL
	EXISTING STORM SEWER
	EXISTING SAN SEWER
	EXISTING WATER MAIN
	PROPOSED STORM DRAIN
	EXISTING R/W
	PROPOSED R/W
	EXISTING ROADWAY
	PROPOSED C & G



BEGIN S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046  
 N.B. C.S.A.H. 51 STA. 20+30.80



THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS 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."

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.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:02-651-07\Plan\0265107\_UT1.dgn 06/05/2014 7:44:51 AM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt A. Kobilarscik*  
 DATE: 6-9-14 LICENSE NO. 24756

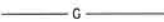












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 CHECKED BY: GMP DATE: 12-13-13

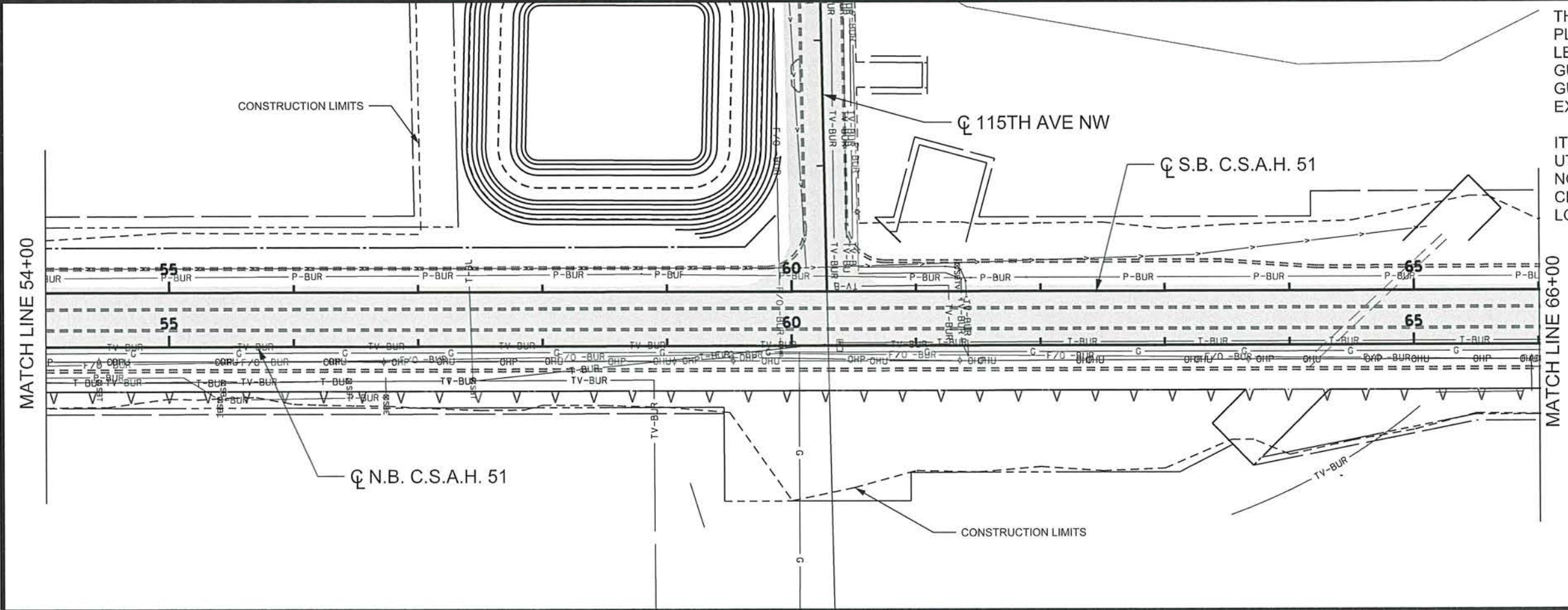
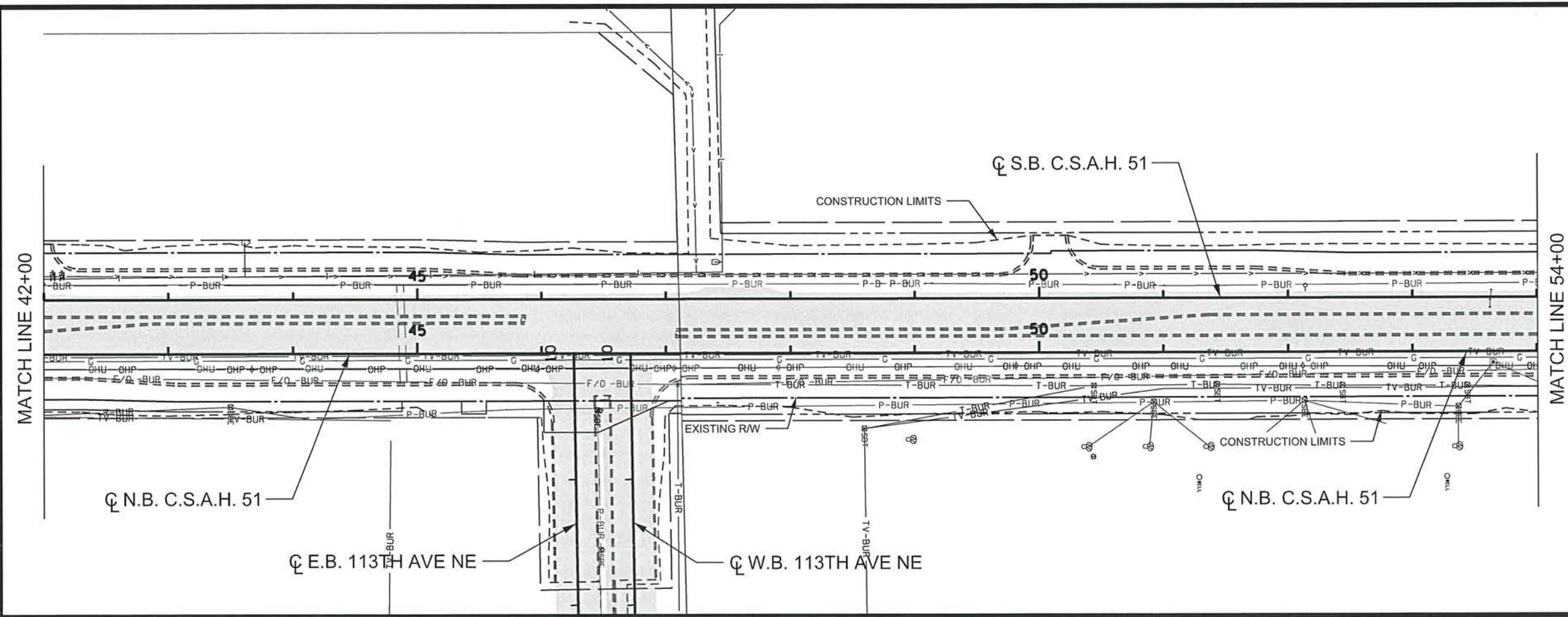
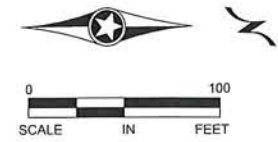
**ANOKA COUNTY**  
**HIGHWAY DEPT.**

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

INPLACE UTILITY PLAN  
 UNIVERSITY AVENUE  
 STA 20+30.80 TO 42+00.00  
 Sheet 30 of 381 Sheets

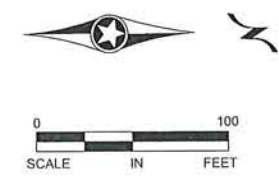
LEGEND

-  CENTERPOINT ENERGY
-  COMCAST CABLE COMMUNICATIONS
-  CONNEXUS ENERGY/ GREAT RIVER ENERGY
-  ZAYO FIBER SOLUTIONS
-  TRAFFIC SIGNAL
-  EXISTING STORM SEWER
-  EXISTING SAN SEWER
-  EXISTING WATER MAIN
-  PROPOSED STORM DRAIN
-  EXISTING R/W
-  PROPOSED R/W
-  EXISTING ROADWAY
-  PROPOSED C & G



THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS 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."

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.




NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\02-651-07\Plan\0265107_UT2.dgn					
06/05/2014 7:44:53 AM					

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

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarcsik*  
 DATE: 6-9-14 LICENSE NO. 24756

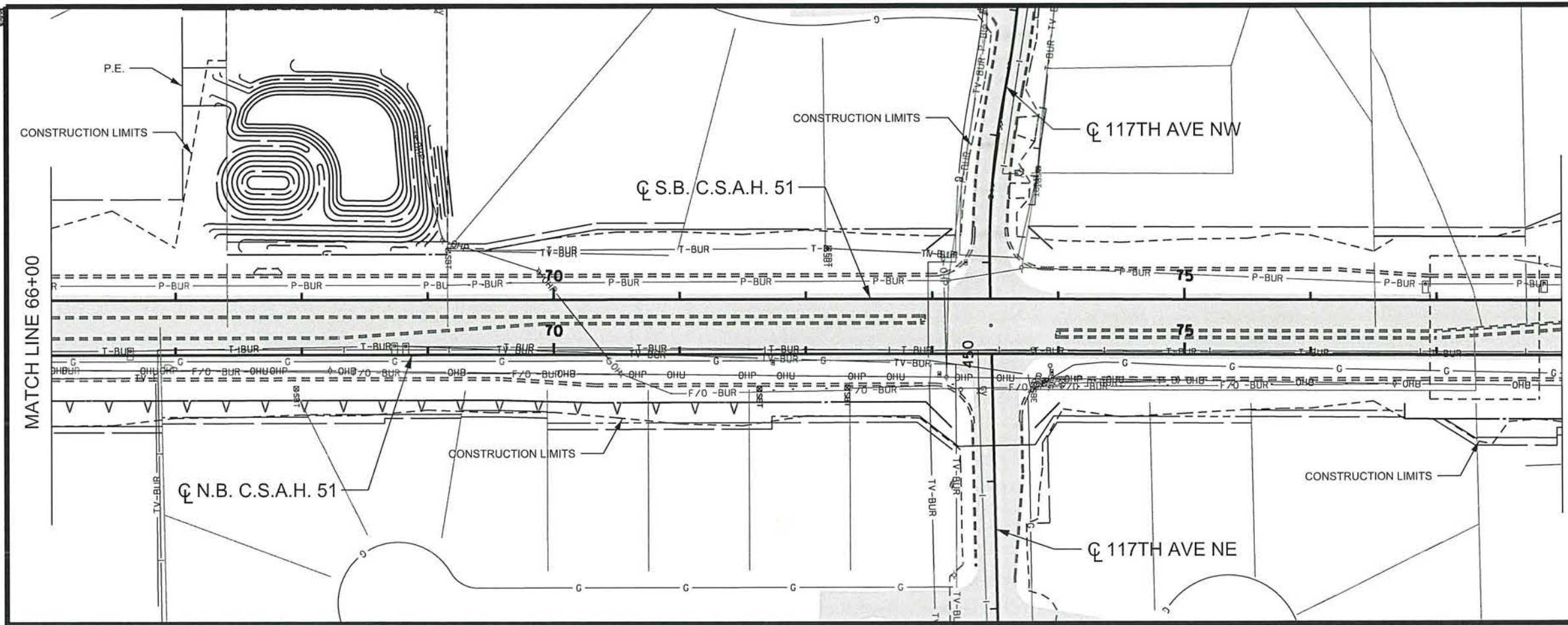
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 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



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

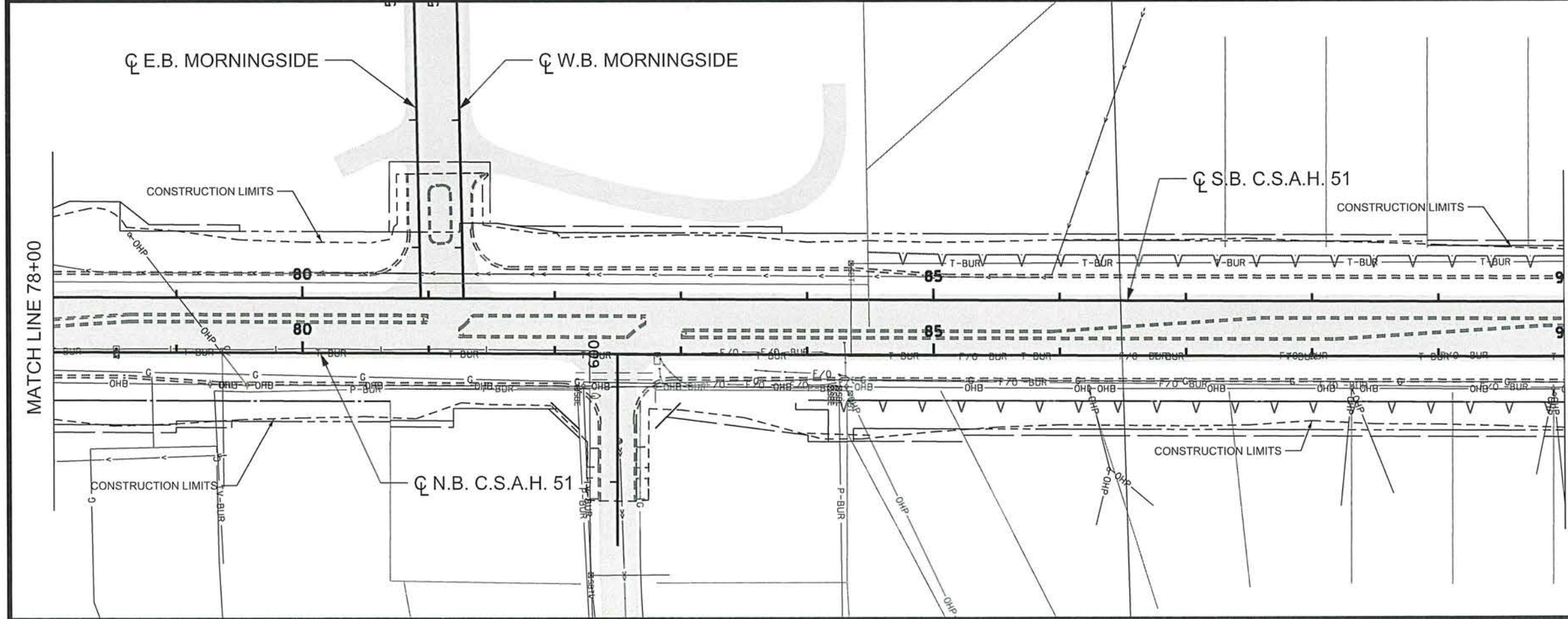
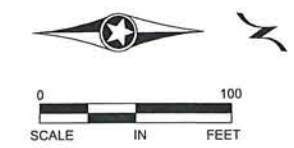
S.P. 002-651-007  
 S.P. 106-020-031  
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INPLACE UTILITY PLAN  
 UNIVERSITY AVENUE  
 STA 42+00.00 TO 66+00.00  
 Sheet 31 of 381 Sheets



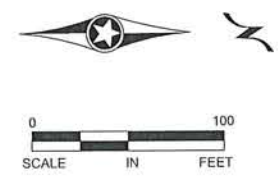
**LEGEND**

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	COMCAST CABLE COMMUNICATIONS
	CONNEXUS ENERGY/ GREAT RIVER ENERGY
	ZAYO FIBER SOLUTIONS
	TRAFFIC SIGNAL
	EXISTING STORM SEWER
	EXISTING SAN SEWER
	EXISTING WATER MAIN
	PROPOSED STORM DRAIN
	EXISTING R/W
	PROPOSED R/W
	EXISTING ROADWAY
	PROPOSED C & G



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NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_UT3.dgn      06/05/2014      7:44:55 AM

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

PRINT NAME: CURT A. KOBILARCSIK

SIGNATURE: *Curt Kobilarcsik*

DATE: 6-9-14      LICENSE NO. 24756

DRAWN BY: ZCJF      DATE: 11-25-13

DESIGN BY: NJD      DATE: 10-31-13

CHECKED BY: GMP      DATE: 12-13-13

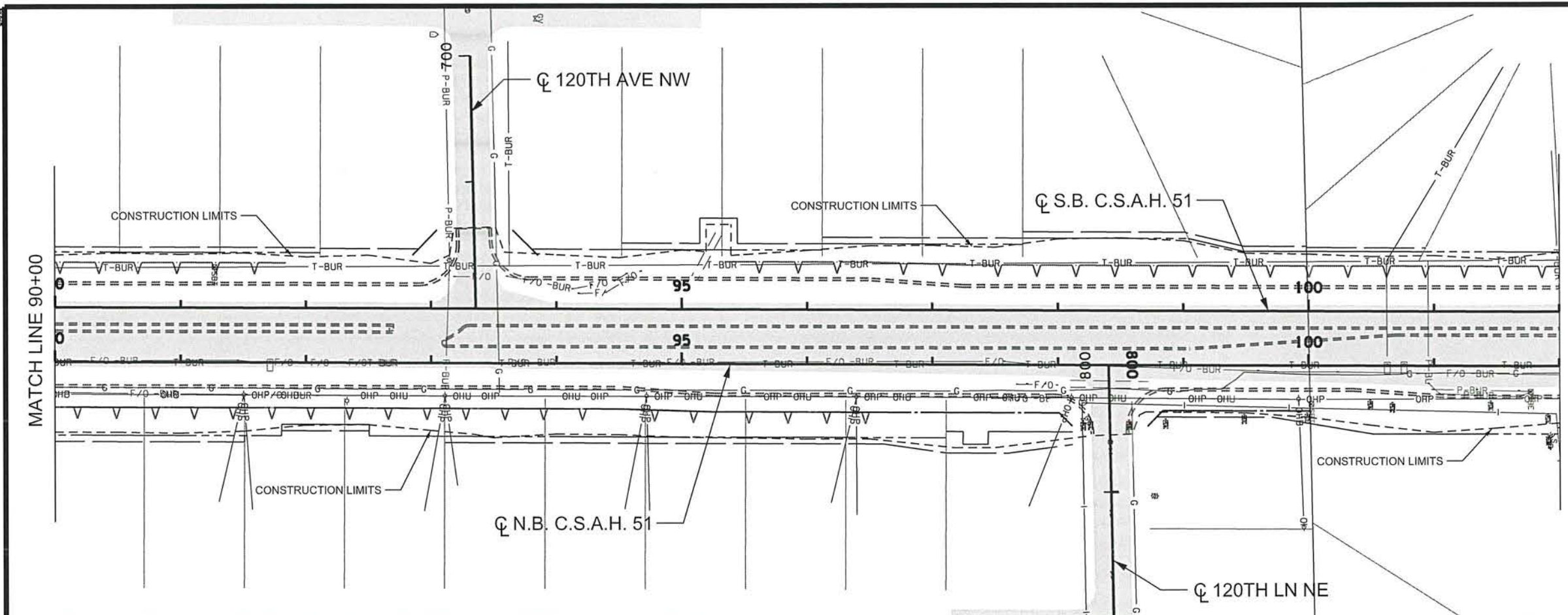
**ANOKA COUNTY**  
HIGHWAY DEPT.

S.P. 002-651-007  
S.P. 106-020-031  
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INPLACE UTILITY PLAN  
UNIVERSITY AVENUE  
STA 66+00.00 TO 90+00.00

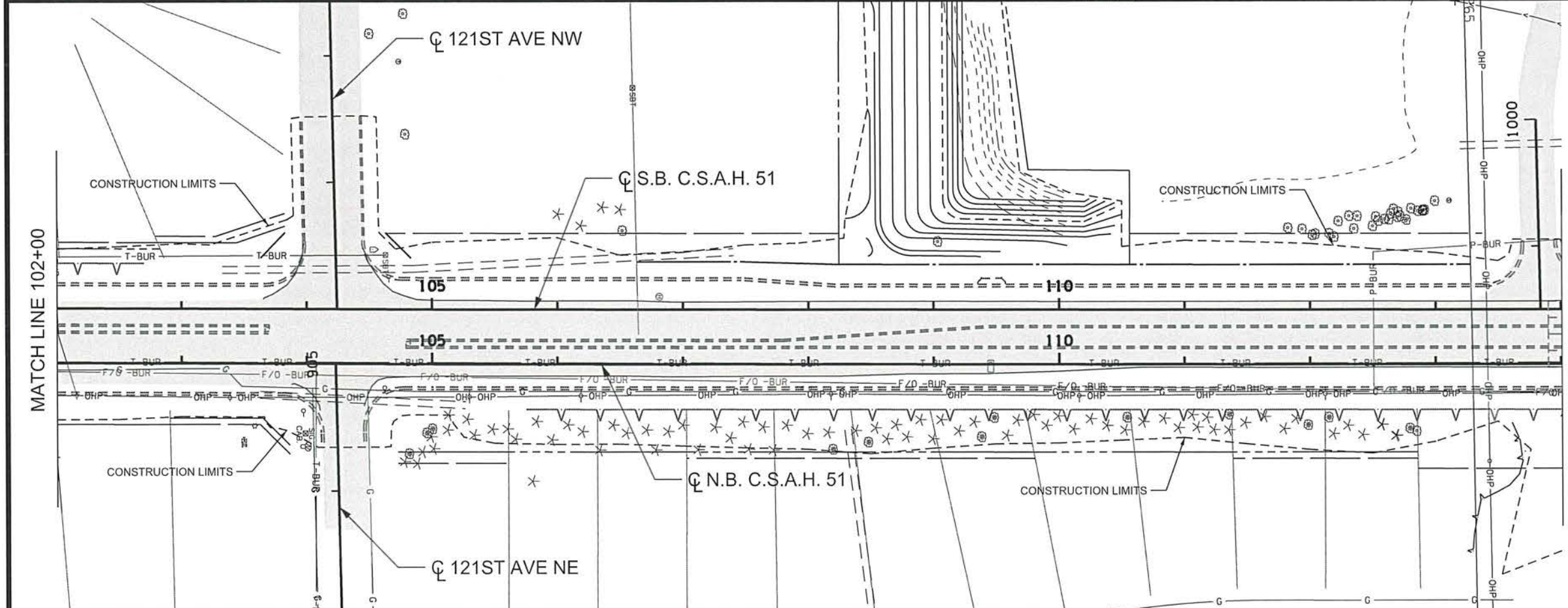
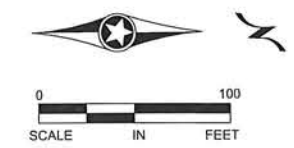
Sheet 32 of 381 Sheets





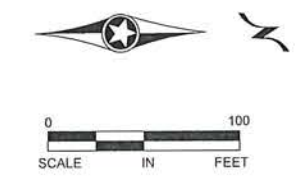
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— G —	CENTERPOINT ENERGY
— TV-BUR —	COMCAST CABLE COMMUNICATIONS
— OHU —	CONNEXUS ENERGY/ GREAT RIVER ENERGY
— P-BUR —	ZAYO FIBER SOLUTIONS
— T-BUR —	TRAFFIC SIGNAL
— OHU —	EXISTING STORM SEWER
— SIG-BUR —	EXISTING SAN SEWER
—>—>	EXISTING WATER MAIN
—>—>	PROPOSED STORM DRAIN
—	EXISTING RW
—	PROPOSED RW
—	EXISTING ROADWAY
—	PROPOSED C & G



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NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_UT4.dgn      06/05/2014      7:44:57 AM

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

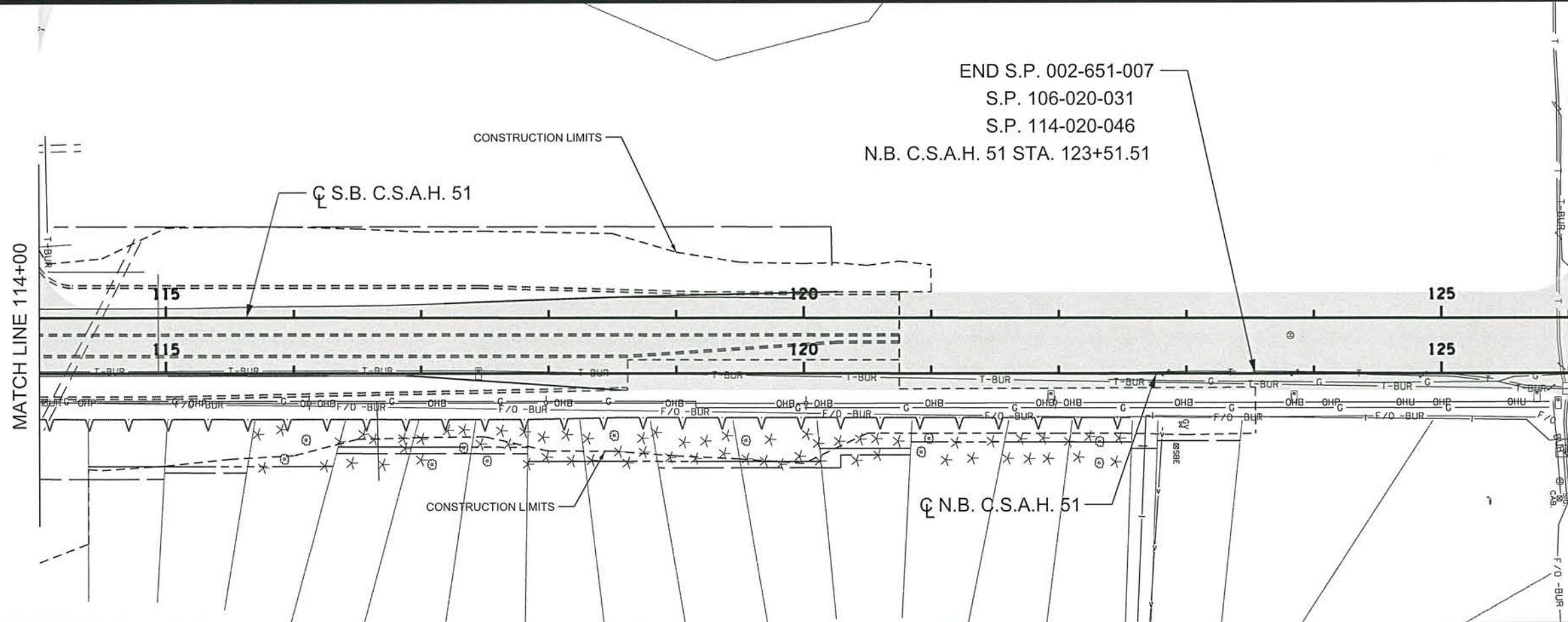
PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt A. Kobilarsik*  
 DATE: 6-9-14      LICENSE NO. 24756

DRAWN BY: ZCJF      DATE: 11-25-13  
 DESIGN BY: NJD      DATE: 10-31-13  
 CHECKED BY: GMP      DATE: 12-13-13

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

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

**INPLACE UTILITY PLAN**  
**UNIVERSITY AVENUE**  
 STA 90+00.00 TO 114+00.00  
 Sheet 33 of 381 Sheets



THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS 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."

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NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_UT5.dgn 06/05/2014 7:44:59 AM

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

PRINT NAME: CURT A. KOBILARCSIK

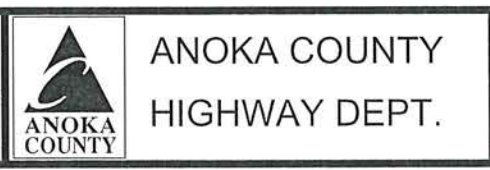
SIGNATURE: *Curt Kobilarcsik*

DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY ZCJF DATE 11-25-13

DESIGN BY NJD DATE 10-31-13

CHECKED BY GMP DATE 12-13-13



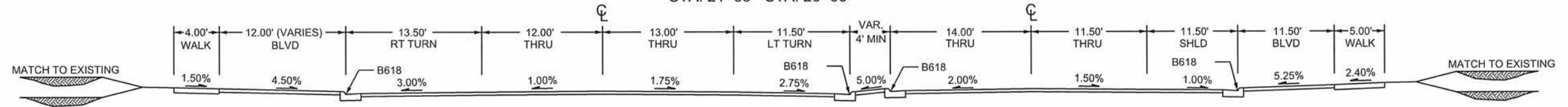
S.P. 002-651-007  
 S.P. 106-020-031  
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INPLACE UTILITY PLAN  
 UNIVERSITY AVENUE  
 STA 114+00.00 TO 123+51.51

Sheet 34 of 381 Sheets

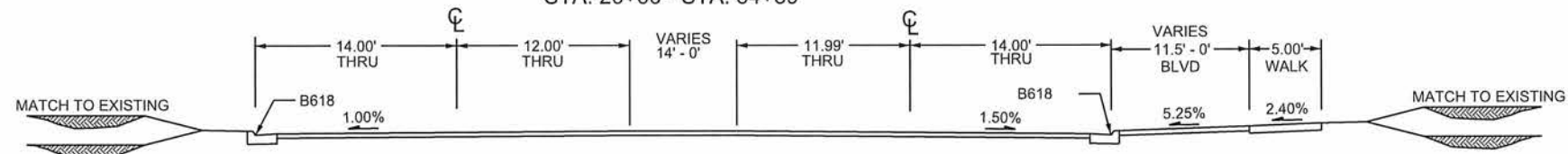
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STA. 21+85 - STA. 26+66



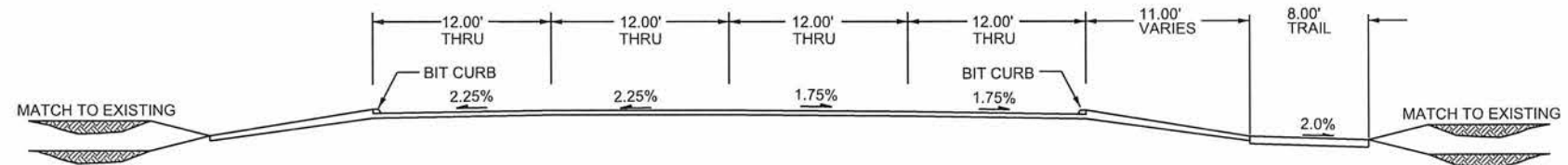
C.S.A.H. 51 (UNIVERSITY AVE)

STA. 26+66 - STA. 34+89



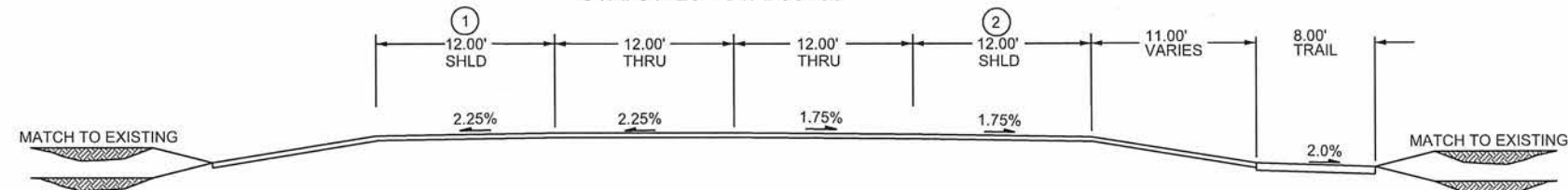
C.S.A.H. 51 (UNIVERSITY AVE)

STA. 34+89 - STA. 36+61



C.S.A.H. 51 (UNIVERSITY AVE)

STA. 36+61 - STA. 64+00  
STA. 81+28 - STA. 93+36



GENERAL NOTES:

- SEE CONSTRUCTION PLANS FOR TURN LANE LOCATIONS
- ALL CROSS SLOPES ARE EXPRESSED AS A PERCENT
- UNLESS OTHERWISE SPECIFIED, THE GRADING GRADE CROSS SLOPES SHALL BE THE SAME AS THE FINISHED SURFACE OF THE MAINLINE.
- UNLESS OTHERWISE SPECIFIED, CLASS 5 AGGREGATE WILL EXTEND 1' BEYOND BACK OF CURB.

- 4.0" TOPSOIL & SEED ON ALL DISTURBED AREAS
- ALL STATIONING BASED ON ALIGNMENT (NB CSAH 51) UNLESS OTHERWISE NOTED
- UNLESS OTHERWISE SPECIFIED CLASS 5 AGGREGATE WILL EXTEND 12" BEYOND THE EDGE OF BITUMINOUS TRAIL

NOTES:

- ① RT TURN LANE STA. 60+70 TO STA. 64+15
- ② BYPASS LANE STA. 56+05 TO STA. 62+85

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_TYP.dgn 06/05/2014 7:44:34 AM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarcsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 11-26-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



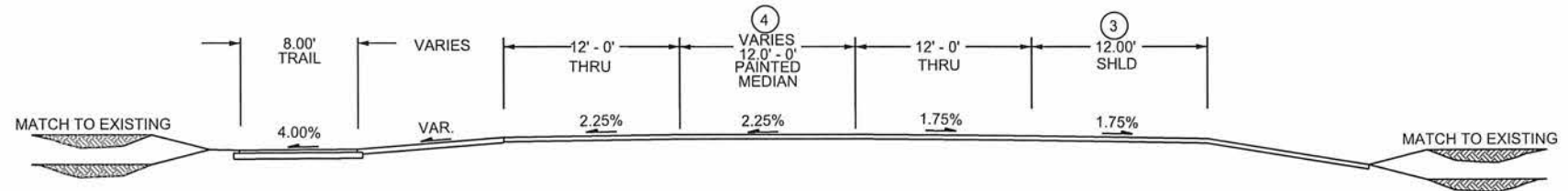
ANOKA COUNTY  
HIGHWAY DEPT.

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

EXISTING  
TYPICAL SECTIONS

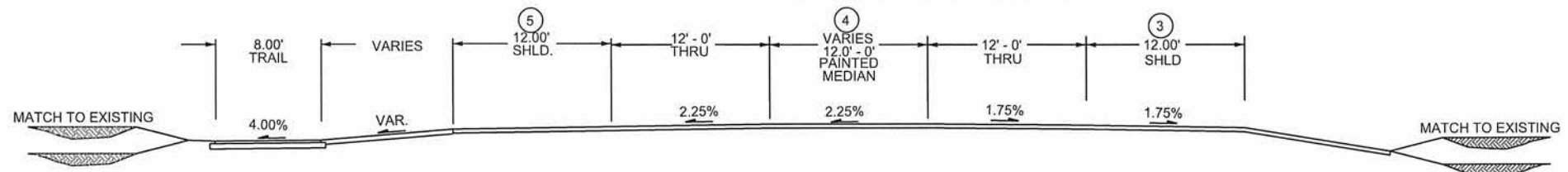
C.S.A.H. 51 (UNIVERSITY AVE)

STA. 64+00 - STA. 81+28



C.S.A.H. 51 (UNIVERSITY AVE)

STA. 93+36 - STA. 120+75.15



GENERAL NOTES:

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- ALL STATIONING BASED ON ALIGNMENT (NB CSAH 51) UNLESS OTHERWISE NOTED
- UNLESS OTHERWISE SPECIFIED CLASS 5 AGGREGATE WILL EXTEND 12" BEYOND THE EDGE OF BITUMINOUS TRAIL

NOTES:

- ③ RT TURN LANE STA. 68+60 TO STA. 73+47  
RT TURN LANE STA. 78+35 TO STA. 81+20  
RT TURN LANE STA. 99+28 TO STA. 104+25
- ④ N.B. LT TURN LANE STA. 68+65 TO STA. 73+47  
S.B. LT TURN LANE STA. 73+47 TO STA 75+75  
N.B. LT TURN LANE STA. 99+03 TO STA. 104+23  
S.B. LT TURN LANE STA. 104+23 TO STA. 109+10
- ⑤ RT TURN LANE STA. 93+36 TO STA. 98+26  
RT TURN LANE STA. 104+23 TO STA. 109+03  
RT TURN LANE STA. 114+35 TO STA. 117+05

NO	DATE	BY	CKD	APPR	REVISION

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt A. Kobilarsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 11-26-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13

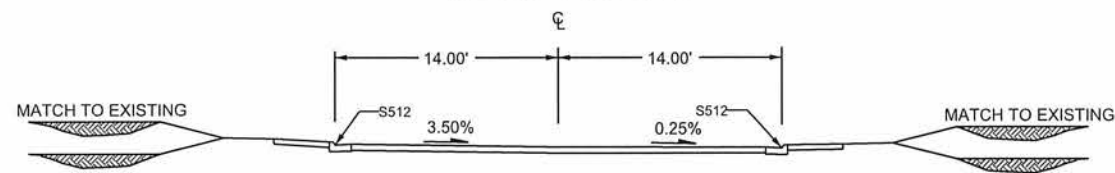


ANOKA COUNTY  
 HIGHWAY DEPT.

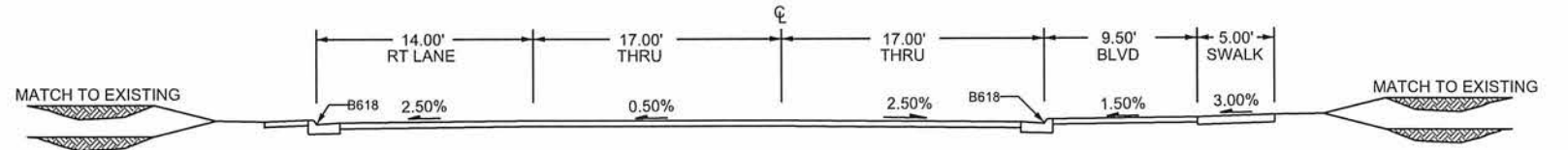
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 S.P. 114-020-046

EXISTING  
 TYPICAL SECTIONS  
 Sheet 36 of 381 Sheets

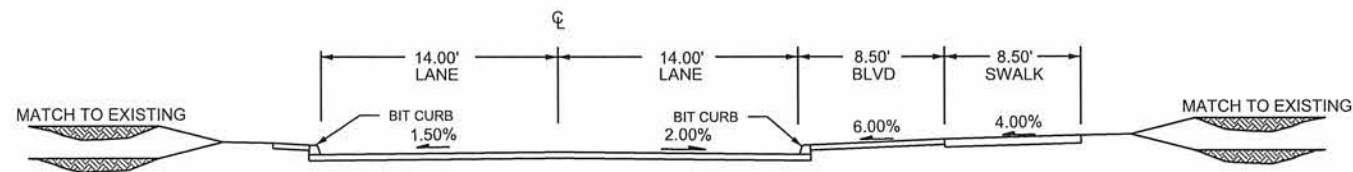
110TH LANE NW



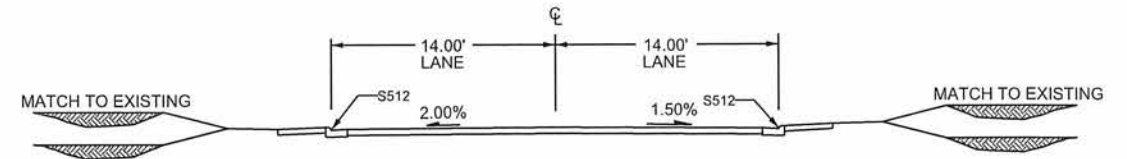
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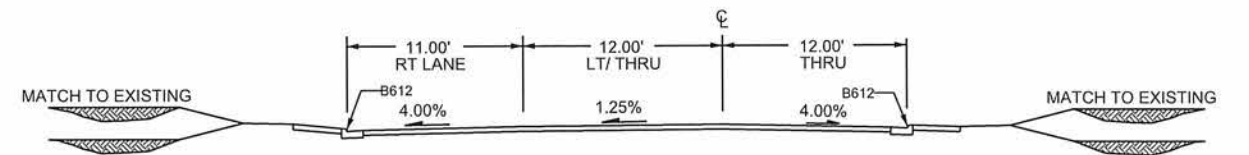
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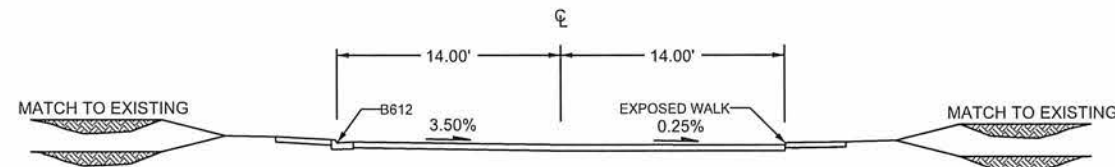
117TH AVE NW



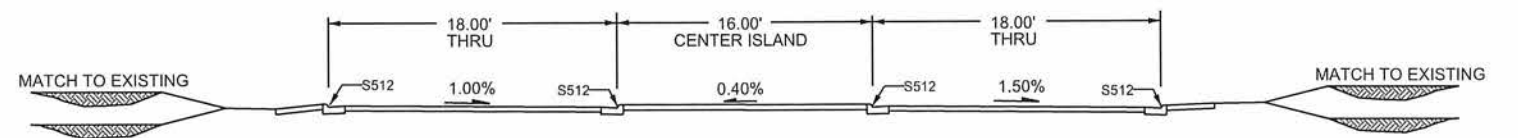
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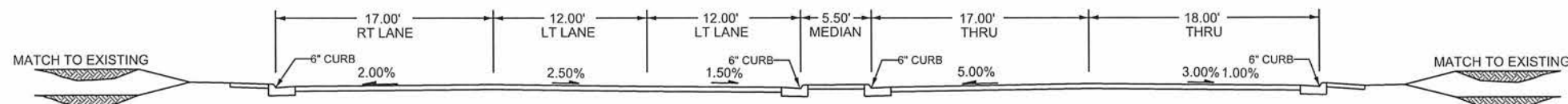
111TH LANE NW



MORNING SIDE ENTRANCE



113TH AVE NE



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:102-651-07\Plan\0265107\_TYP.dgn 06/05/2014 7:44:32 AM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarcsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 11-26-13  
 DESIGN BY: NJD DATE: 10-31-13  
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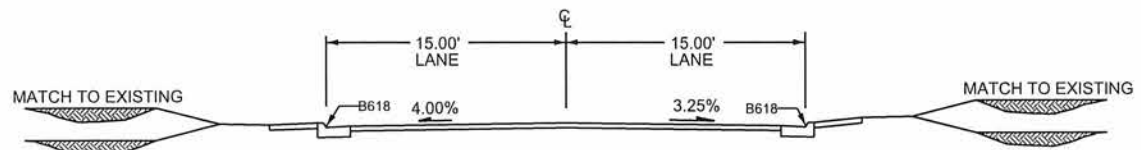


ANOKA COUNTY  
 HIGHWAY DEPT.

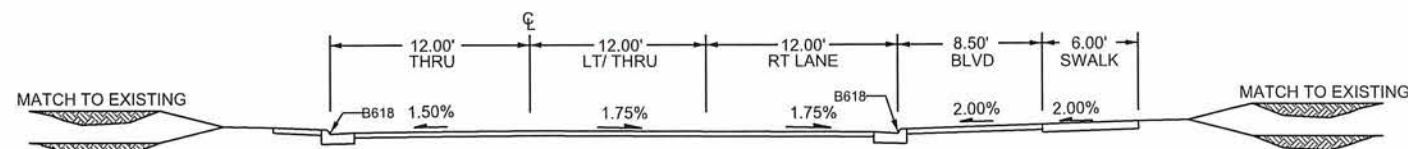
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 S.P. 106-020-031  
 S.P. 114-020-046

EXISTING  
 TYPICAL SECTIONS  
 Sheet 37 of 381 Sheets

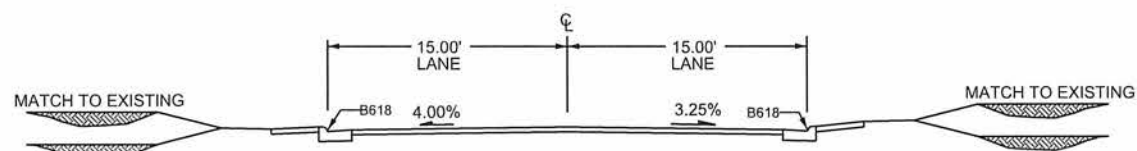
118TH AVE NE



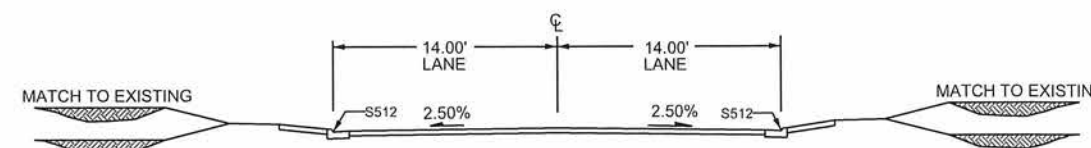
121ST AVE NE



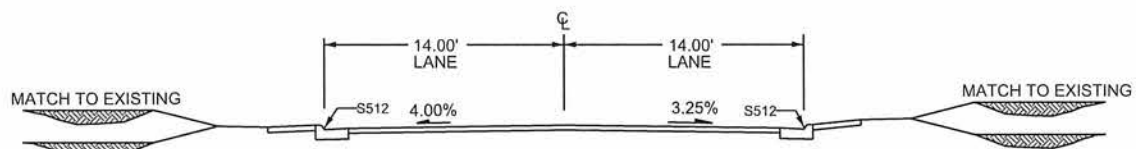
120TH AVE NE



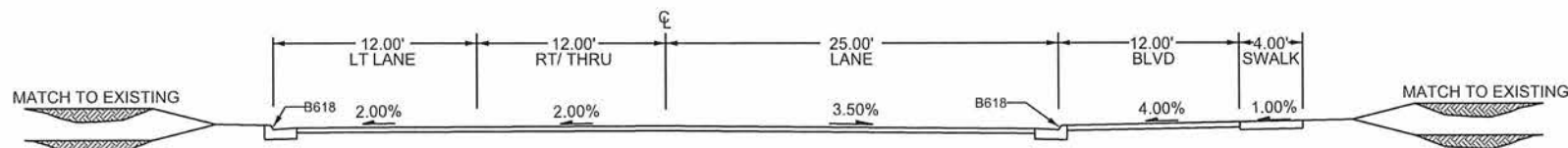
124TH AVE NW



120TH AVE NW



121ST AVE NW



NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\02-651-07\Plan\0265107_TYP.dgn					
06/05/2014 7:44:33 AM					

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

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 11-26-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



ANOKA COUNTY  
 HIGHWAY DEPT.

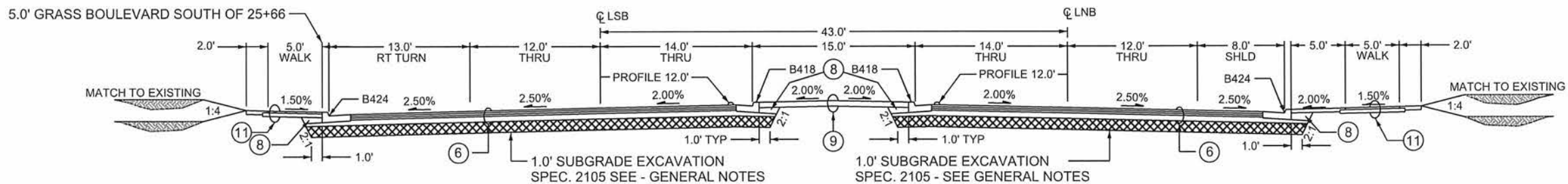
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 S.P. 106-020-031  
 S.P. 114-020-046

EXISTING  
 TYPICAL SECTIONS

Sheet 38 of 381 Sheets

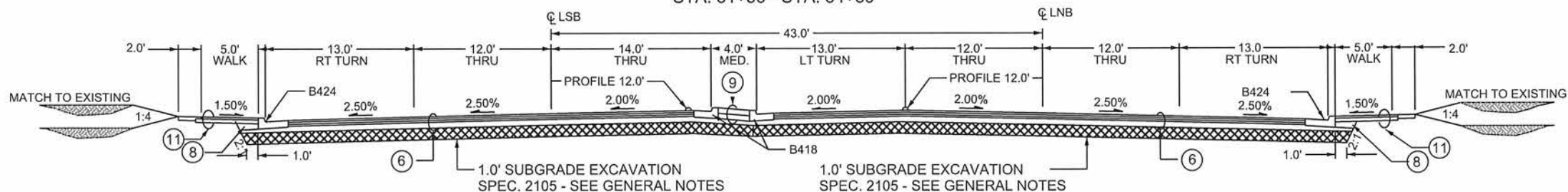
C.S.A.H. 51 (UNIVERSITY AVE)

BEGIN PROJECT - STA. 31+56



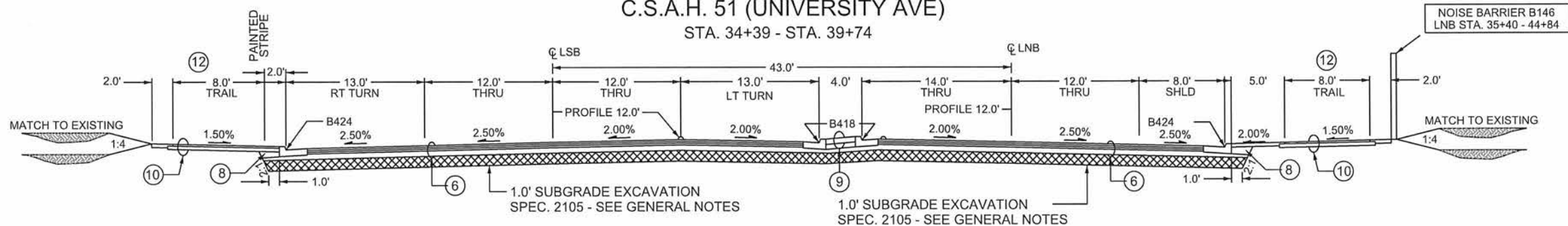
C.S.A.H. 51 (UNIVERSITY AVE)

STA. 31+56 - STA. 34+39



C.S.A.H. 51 (UNIVERSITY AVE)

STA. 34+39 - STA. 39+74



GENERAL NOTES:

- 1.0' SUBGRADE EXCAVATION SHALL BE THE BLENDING OF THE EXISTING SUBGRADE AS TO UNIFY THE SOILS AT LEAST 1.0' BENEATH THE GRADING GRADE. PAID FOR AS 2105.507 - ( SUBGRADE EXCAVATION )
- SEE CONSTRUCTION PLANS FOR TURN LANE LOCATIONS
- ALL CROSS SLOPES ARE EXPRESSED AS A PERCENT
- UNLESS OTHERWISE SPECIFIED, THE GRADING GRADE CROSS SLOPES SHALL BE THE SAME AS THE FINISHED SURFACE OF THE MAINLINE.

- UNLESS OTHERWISE SPECIFIED, CLASS 5 AGGREGATE WILL EXTEND 1' BEYOND BACK OF CURB.
- 4.0" TOPSOIL & SEED ON ALL DISTURBED AREAS
- ALL STATIONING BASED ON ALIGNMENT (NB CSAH 51) UNLESS OTHERWISE NOTED
- UNLESS OTHERWISE SPECIFIED CLASS 5 AGGREGATE WILL EXTEND 12" BEYOND THE EDGE OF BITUMINOUS TRAIL

NOTES:

- ⑥ SEE INSET "B" PAGE 43
- ⑧ SUITABLE MATERIAL
- ⑨ SEE DETAIL "A" PAGE 43
- ⑩ SEE INSET "A" PAGE 43
- ⑪ SEE INSET "E" PAGE 43
- ⑫ SEE DETAIL "B" PAGE 43

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:02-651-07Plan\0265107\_TYP.dgn 06/05/2014 7:44:27 AM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
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 SIGNATURE: *Curt Kobilarsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 11-26-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



ANOKA COUNTY  
 HIGHWAY DEPT.

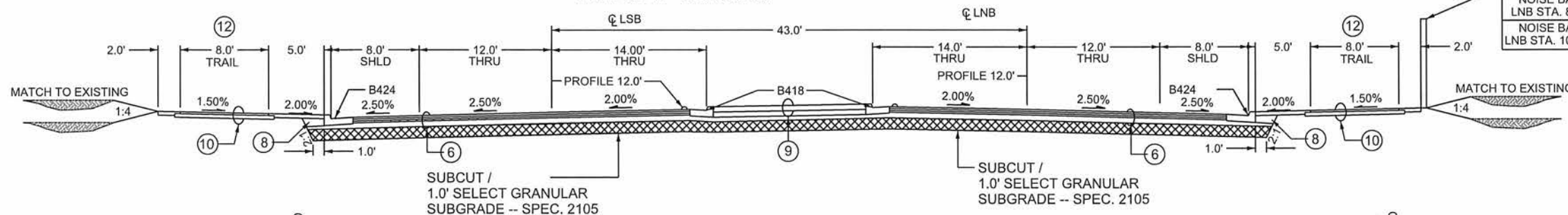
S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

PROPOSED  
 TYPICAL SECTIONS  
 UNIVERSITY AVENUE  
 Sheet 39 of 381 Sheets

C.S.A.H. 51 (UNIVERSITY AVE)

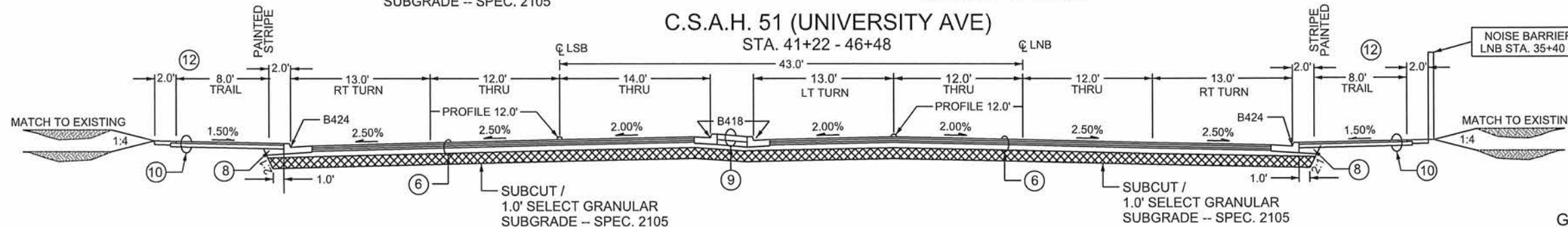
STA. 39+74 - STA. 41+22    STA. 87+64 - STA. 88+22  
 STA. 52+48 - STA. 60+16    STA. 109+46 - STA. 113+86  
 STA. 65+11 - STA. 68+67

NOISE BARRIER B146  
 LNB STA. 35+40 - 44+84  
 NOISE BARRIER B115  
 LNB STA. 48+21 - 71+73  
 NOISE BARRIER B89  
 LNB STA. 84+01 - 96+65  
 NOISE BARRIER B66  
 LNB STA. 105+76 - 122+56



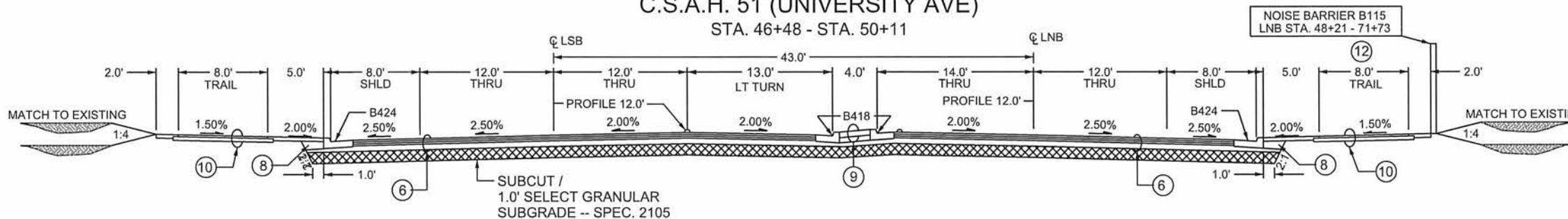
C.S.A.H. 51 (UNIVERSITY AVE)

STA. 41+22 - 46+48



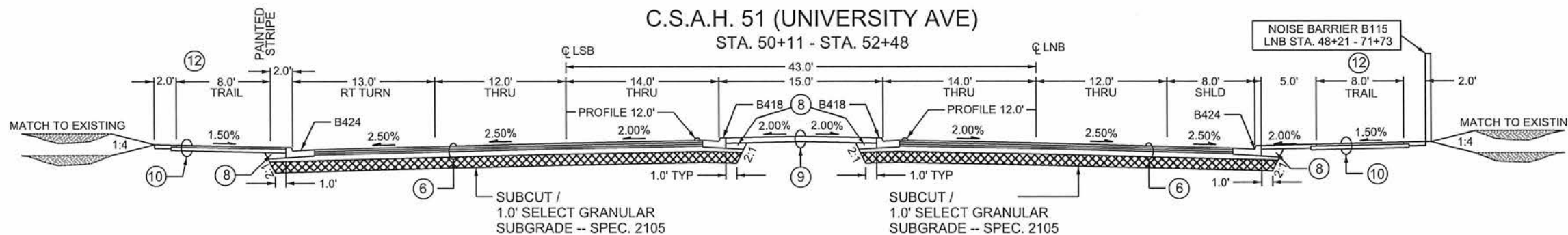
C.S.A.H. 51 (UNIVERSITY AVE)

STA. 46+48 - STA. 50+11



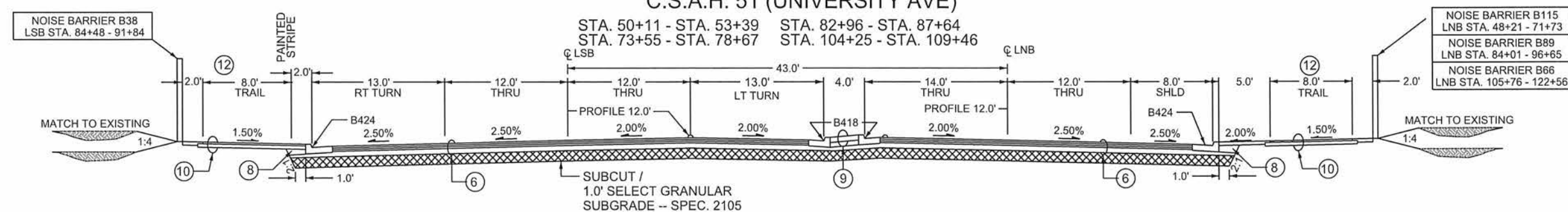
C.S.A.H. 51 (UNIVERSITY AVE)

STA. 50+11 - STA. 52+48



C.S.A.H. 51 (UNIVERSITY AVE)

STA. 50+11 - STA. 53+39    STA. 82+96 - STA. 87+64  
 STA. 73+55 - STA. 78+67    STA. 104+25 - STA. 109+46



GENERAL NOTES:

- 1.0' SUBGRADE EXCAVATION SHALL BE THE BLENDING OF THE EXISTING SUBGRADE AS TO UNIFY THE SOILS AT LEAST 1.0' BENEATH THE GRADING GRADE. PAID FOR AS 2105.507 - ( SUBGRADE EXCAVATION )
- SEE CONSTRUCTION PLANS FOR TURN LANE LOCATIONS
- ALL CROSS SLOPES ARE EXPRESSED AS A PERCENT
- UNLESS OTHERWISE SPECIFIED, THE GRADING GRADE CROSS SLOPES SHALL BE THE SAME AS THE FINISHED SURFACE OF THE MAINLINE.
- UNLESS OTHERWISE SPECIFIED, CLASS 5 AGGREGATE WILL EXTEND 1' BEYOND BACK OF CURB.
- 4.0" TOPSOIL & SEED ON ALL DISTURBED AREAS
- ALL STATIONING BASED ON ALIGNMENT (NB CSAH 51) UNLESS OTHERWISE NOTED
- UNLESS OTHERWISE SPECIFIED CLASS 5 AGGREGATE WILL EXTEND 12" BEYOND THE EDGE OF BITUMINOUS TRAIL

NOTES:

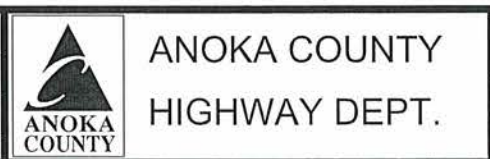
- ⑥ SEE INSET "B" PAGE 43
- ⑧ SUITABLE MATERIAL
- ⑨ SEE DETAIL "A" PAGE
- ⑩ SEE INSET "A" PAGE 43
- ⑪ SEE INSET "E" PAGE 43
- ⑫ SEE DETAIL "B" PAGE 43

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_TYP.dgn      06/09/2014      12:50:44 PM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarsik*  
 DATE: 6-9-14      LICENSE NO. 24756

DRAWN BY: NJD      DATE: 11-28-13  
 DESIGN BY: NJD      DATE: 10-31-13  
 CHECKED BY: GMP      DATE: 12-13-13

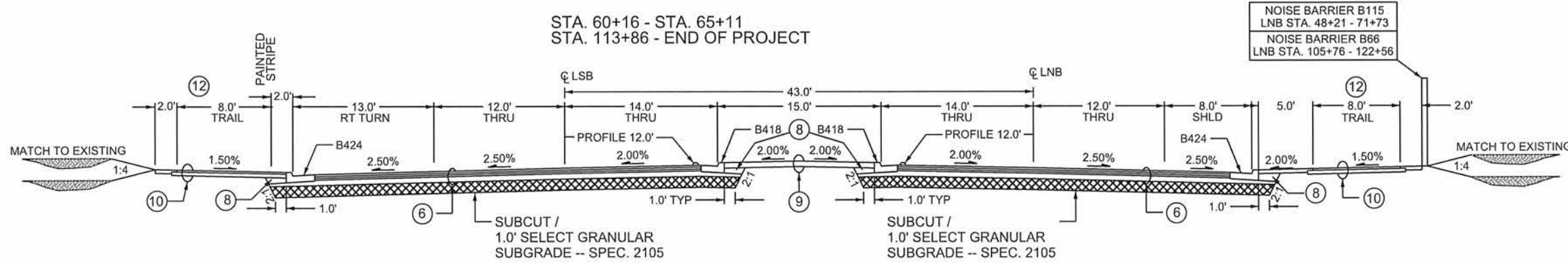


S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

PROPOSED  
 TYPICAL SECTIONS  
 UNIVERSITY AVENUE  
 Sheet 40 of 381 Sheets



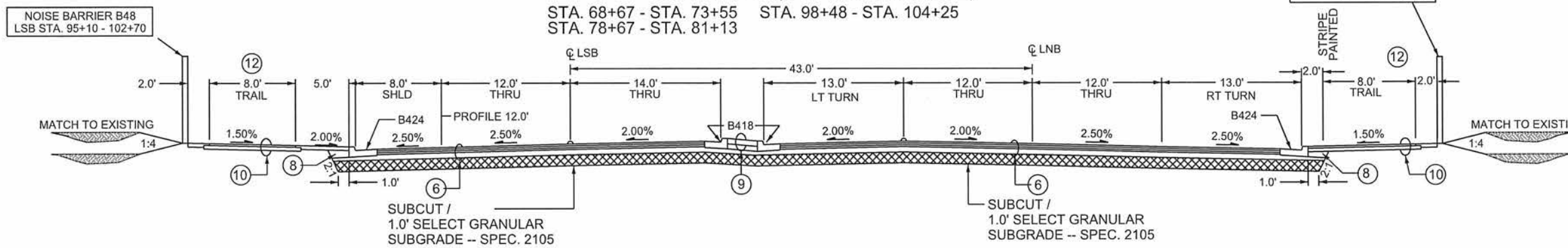
C.S.A.H. 51 (UNIVERSITY AVE)



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- UNLESS OTHERWISE SPECIFIED CLASS 5 AGGREGATE WILL EXTEND 12" BEYOND THE EDGE OF BITUMINOUS TRAIL

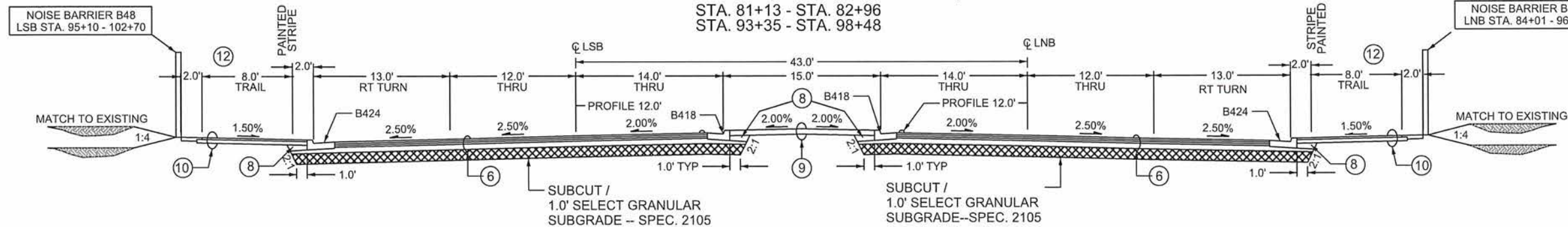
C.S.A.H. 51 (UNIVERSITY AVE)



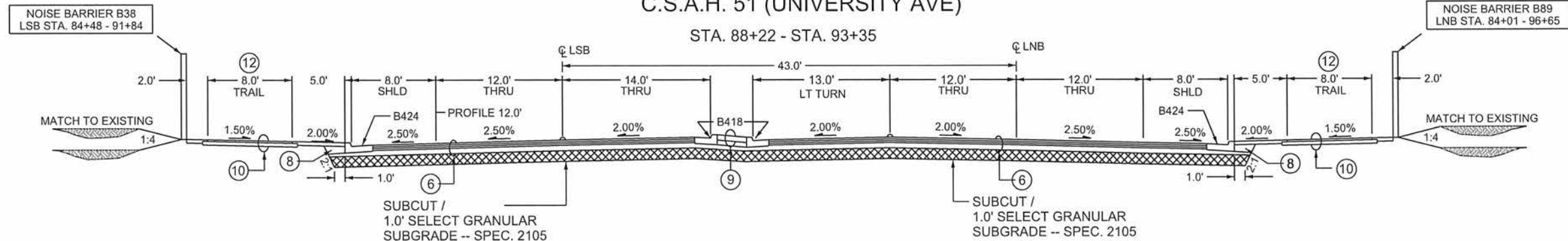
NOTES:

- ⑥ SEE INSET "B" PAGE 43
- ⑧ SUITABLE MATERIAL
- ⑨ SEE DETAIL "A" PAGE 43
- ⑩ SEE INSET "A" PAGE 43
- ⑪ SEE INSET "E" PAGE 43
- ⑫ SEE DETAIL "B" PAGE 43

C.S.A.H. 51 (UNIVERSITY AVE)



C.S.A.H. 51 (UNIVERSITY AVE)



NO	DATE	BY	CKD	APPR	REVISION

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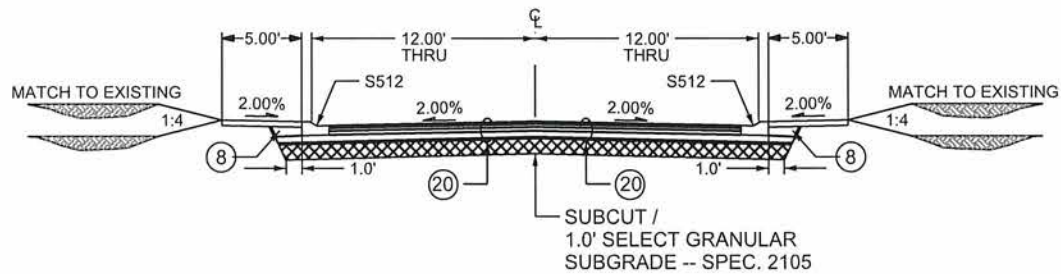


ANOKA COUNTY  
 HIGHWAY DEPT.

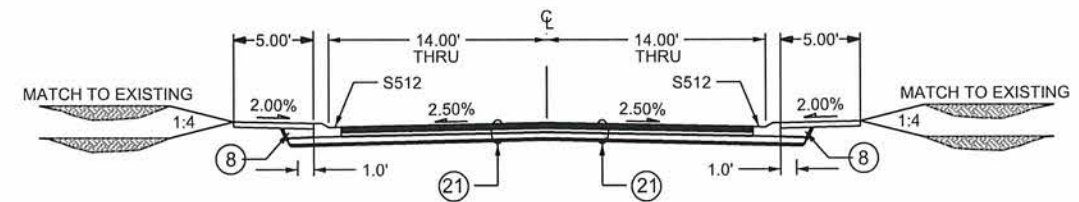
S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

PROPOSED  
 TYPICAL SECTIONS  
 UNIVERSITY AVENUE  
 Sheet 41 of 381 Sheets

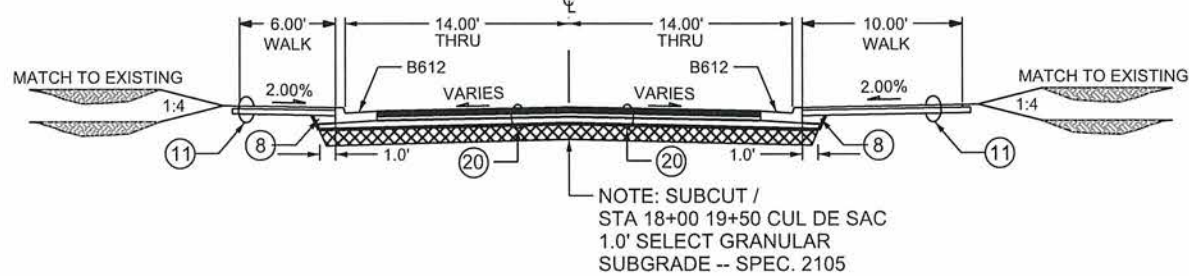
110TH LN RE-ALIGN



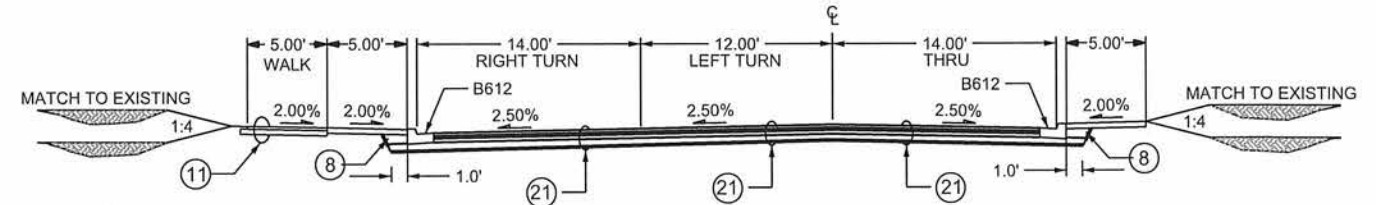
117TH AVE NW



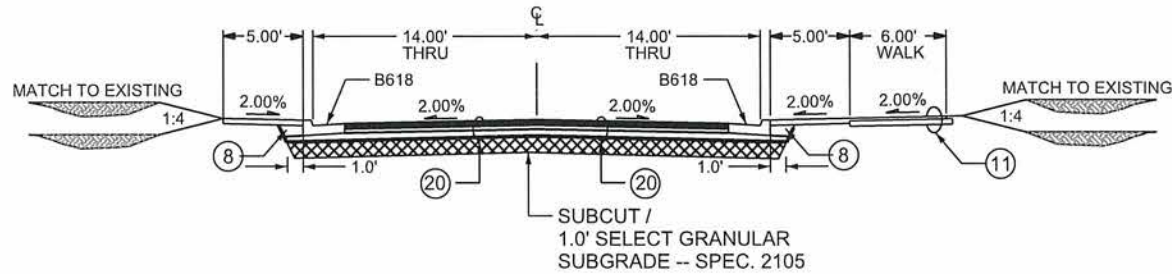
111TH AVENUE NW



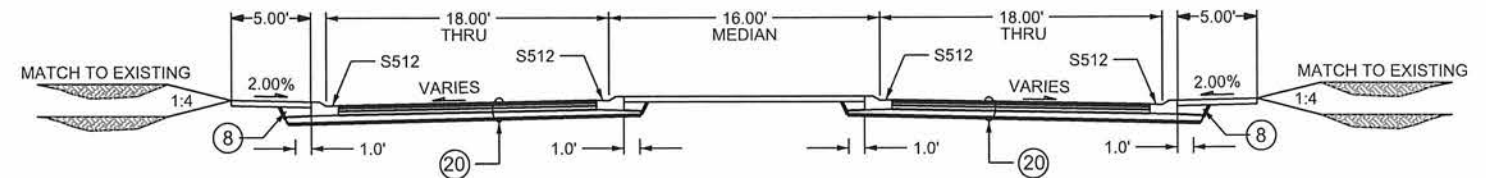
117TH AVE NE



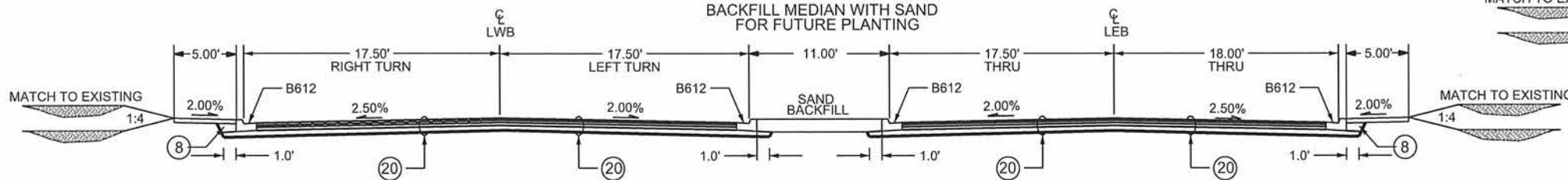
111TH AVENUE NE



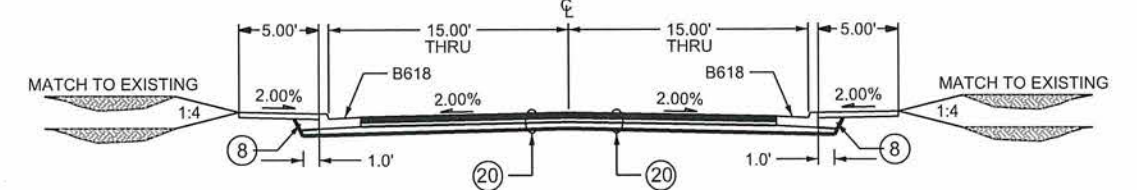
MORNINGSIDE  
BACKFILL MEDIAN WITH SAND  
FOR FUTURE PLANTING



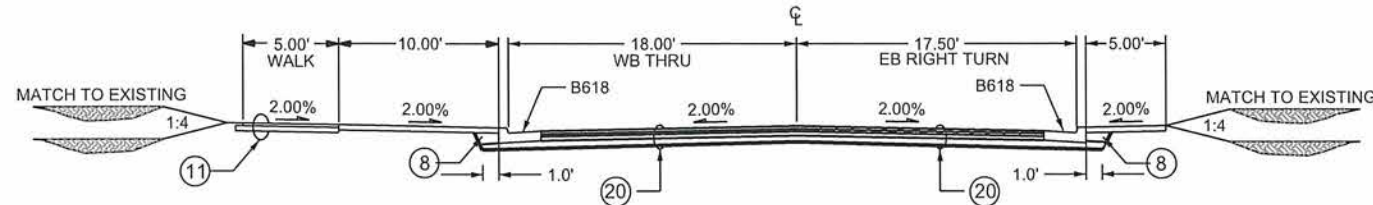
113TH AVENUE NE  
BACKFILL MEDIAN WITH SAND  
FOR FUTURE PLANTING



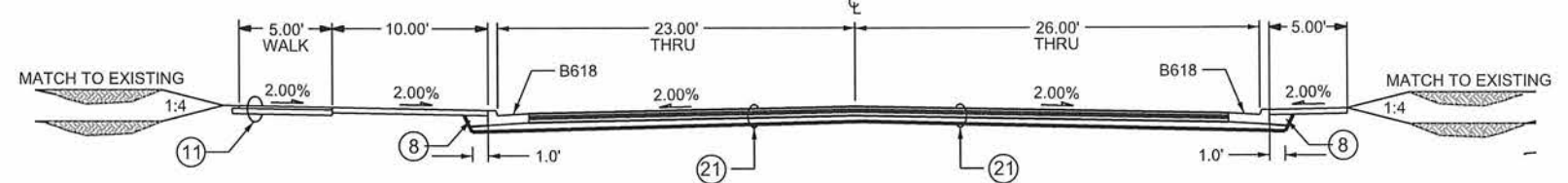
118TH AVE NE



115TH AVENUE NW



121ST AVE NW



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- UNLESS OTHERWISE SPECIFIED CLASS 5 AGGREGATE WILL EXTEND 12" BEYOND THE EDGE OF BITUMINOUS TRAIL

NOTES:

- (8) SUITABLE MATERIAL 43
- (11) SEE INSET "E" PAGE 43
- (20) SEE INSET "C" PAGE 43
- (21) SEE INSET "D" PAGE 43

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_TYP.dgn  
06/05/2014 7:44:29 AM

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

PRINT NAME: CURT A. KOBILARCSIK  
SIGNATURE: *Curt Kobilarsik*  
DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 11-26-13  
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CHECKED BY: GMP DATE: 12-13-13



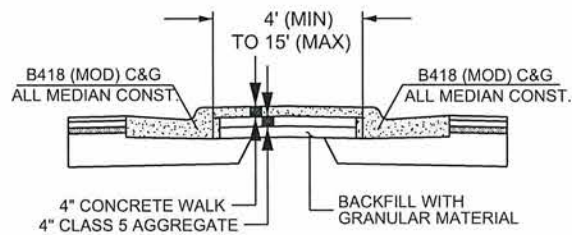
ANOKA COUNTY  
HIGHWAY DEPT.

S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

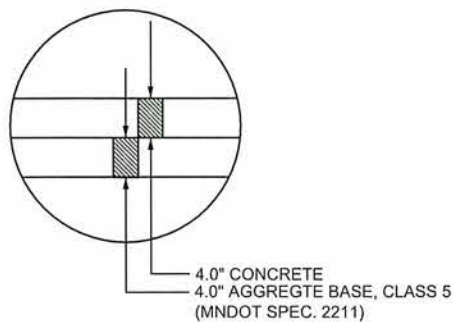
PROPOSED  
TYPICAL SECTIONS  
SIDE ROADS

Sheet 42 of 381 Sheets

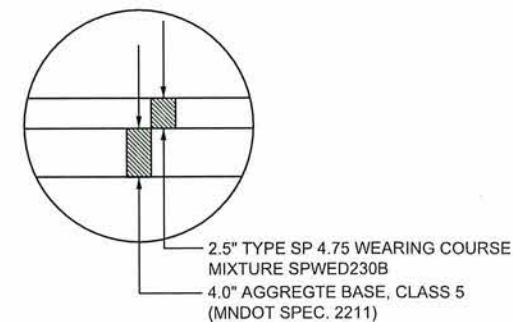
**DETAIL "A"  
MEDIAN**



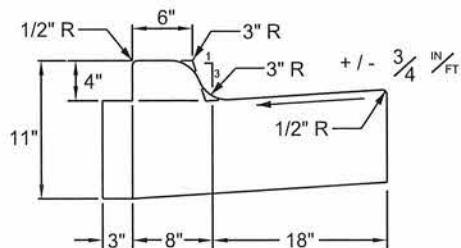
**INSET "E" CONCRETE WALK**



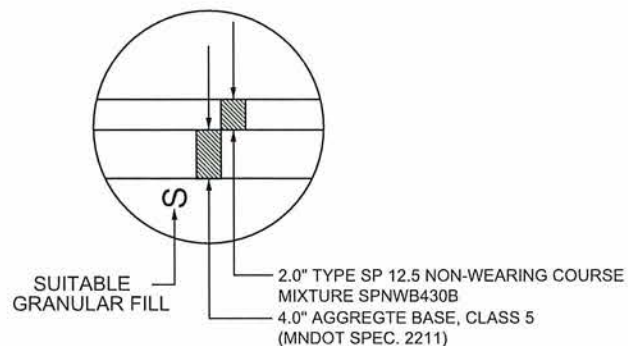
**INSET "A" BITUMINOUS PATH /  
BITUMINOUS DRIVEWAYS**



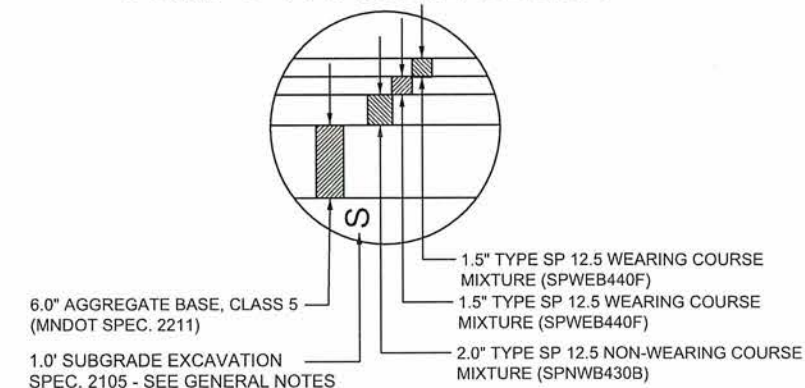
**MEDIAN  
B4 MODIFIED CURB & GUTTER  
(NO VARIANCES ALLOWED)**



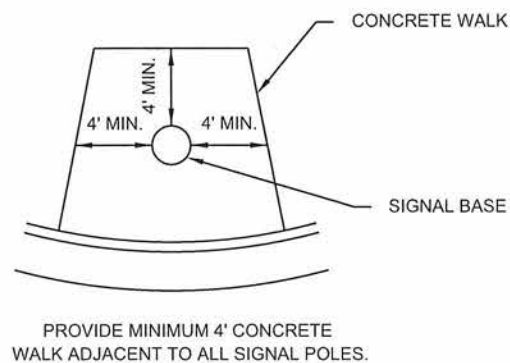
**TEMPORARY WIDENING**



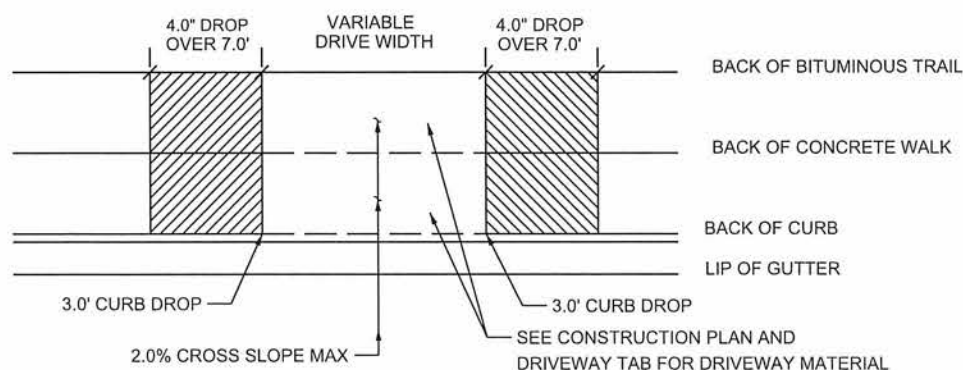
**INSET "B" PAVEMENT DESIGN — UNIVERSITY AVENUE**



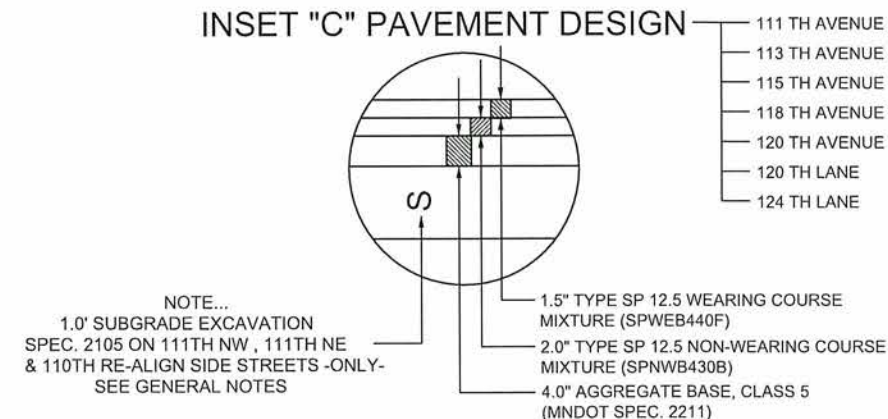
**CONCRETE WALK AT SIGNAL BASES**



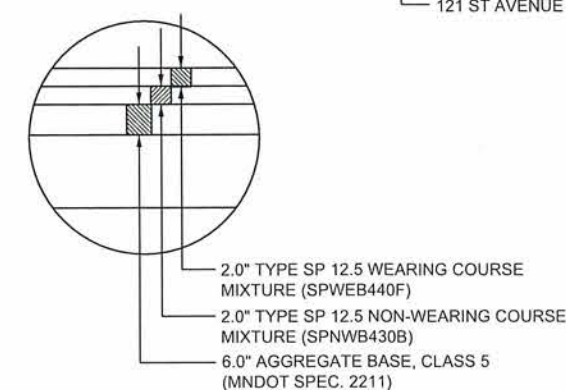
**WALK / TRAIL DEPRESSION FOR DRIVEWAYS  
WHERE WALK / TRAIL MEETS BACK OF CURB**



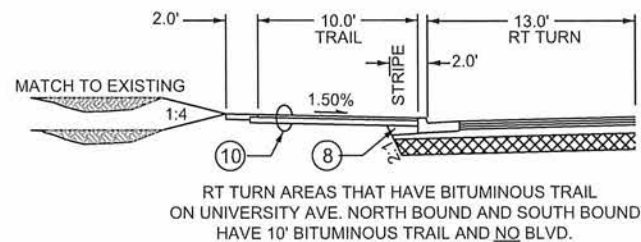
**INSET "C" PAVEMENT DESIGN**



**INSET "D" PAVEMENT DESIGN**



**DETAIL "B"  
TRAIL DETAIL - RT TURN LANE AREAS**



NO	DATE	BY	CKD	APPR	REVISION

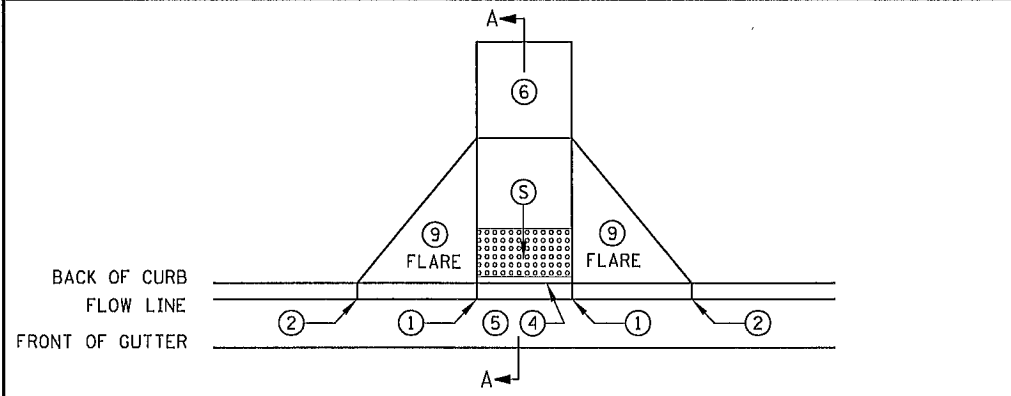
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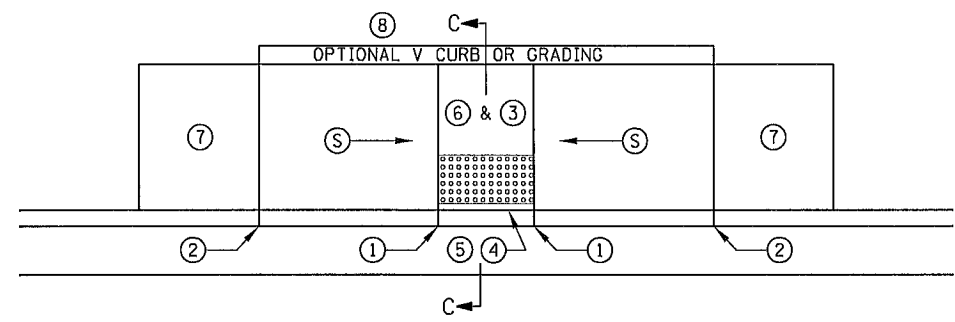


**ANOKA COUNTY  
HIGHWAY DEPT.**

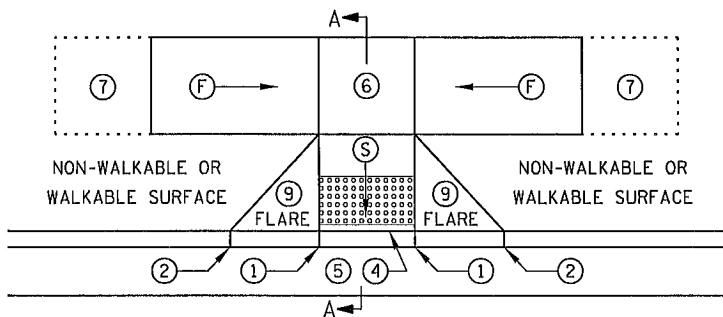
S.P. 002-651-007  
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 S.P. 114-020-046



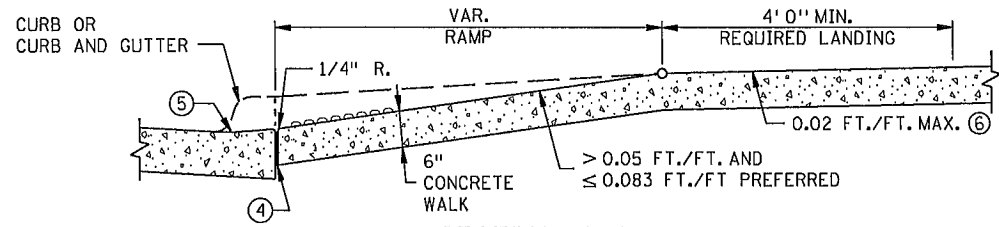
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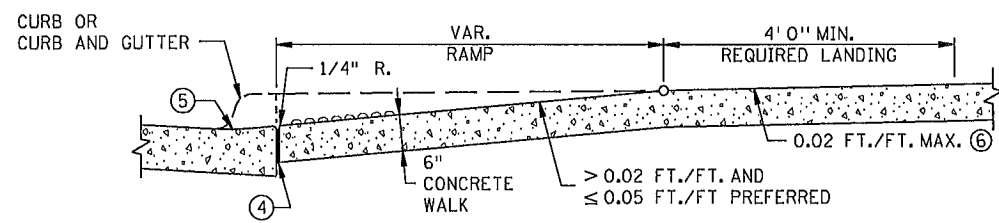
PARALLEL



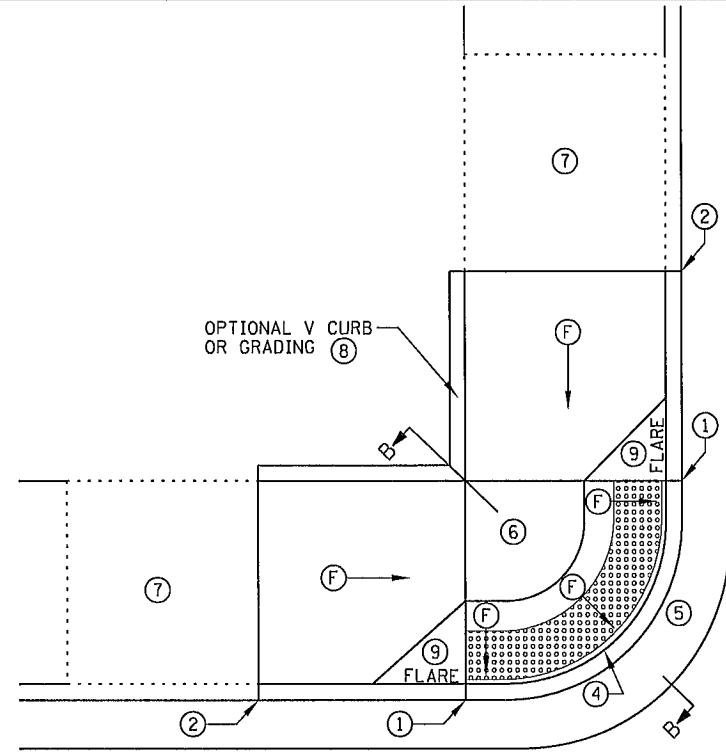
TIERED PERPENDICULAR



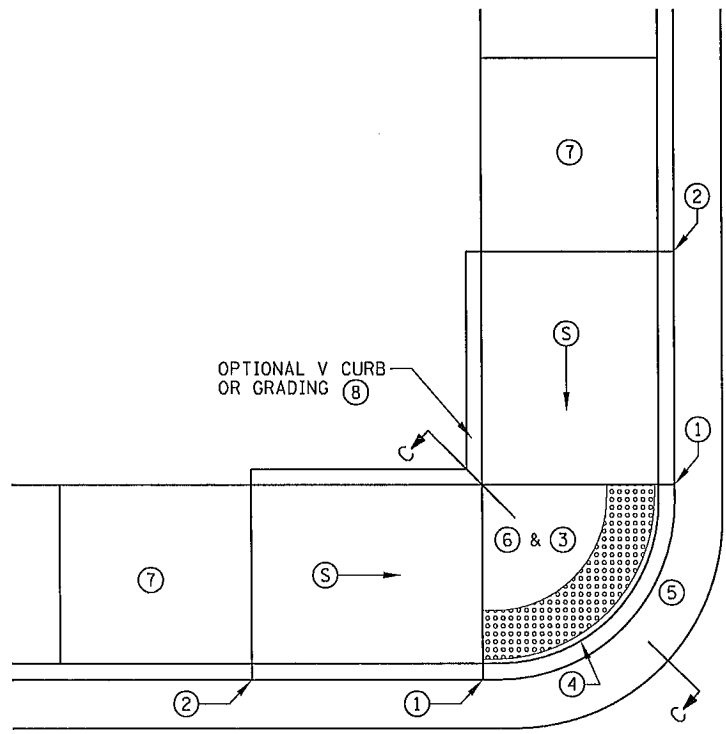
SECTION A-A  
PERPENDICULAR/TIERED/DIAGONAL



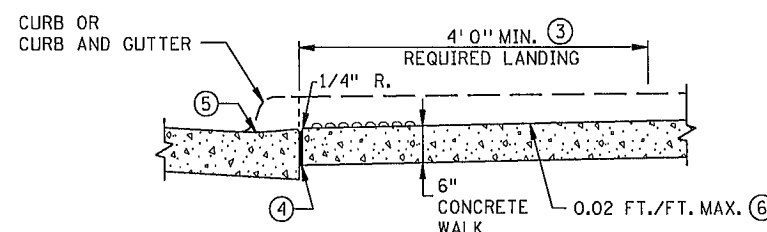
SECTION B-B  
FAN



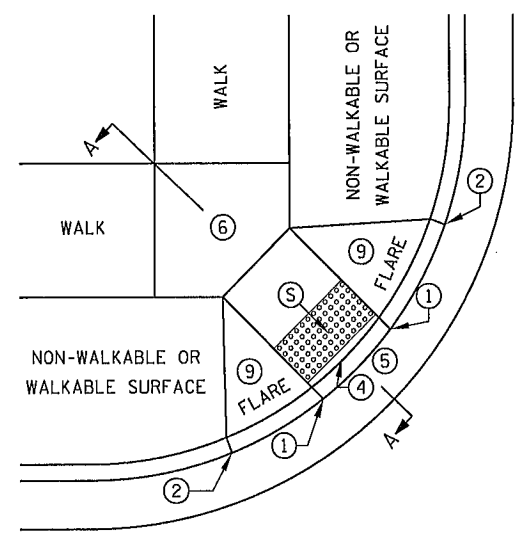
FAN



DEPRESSED CORNER



SECTION C-C  
PARALLEL/DEPRESSED CORNER



DIAGONAL 10

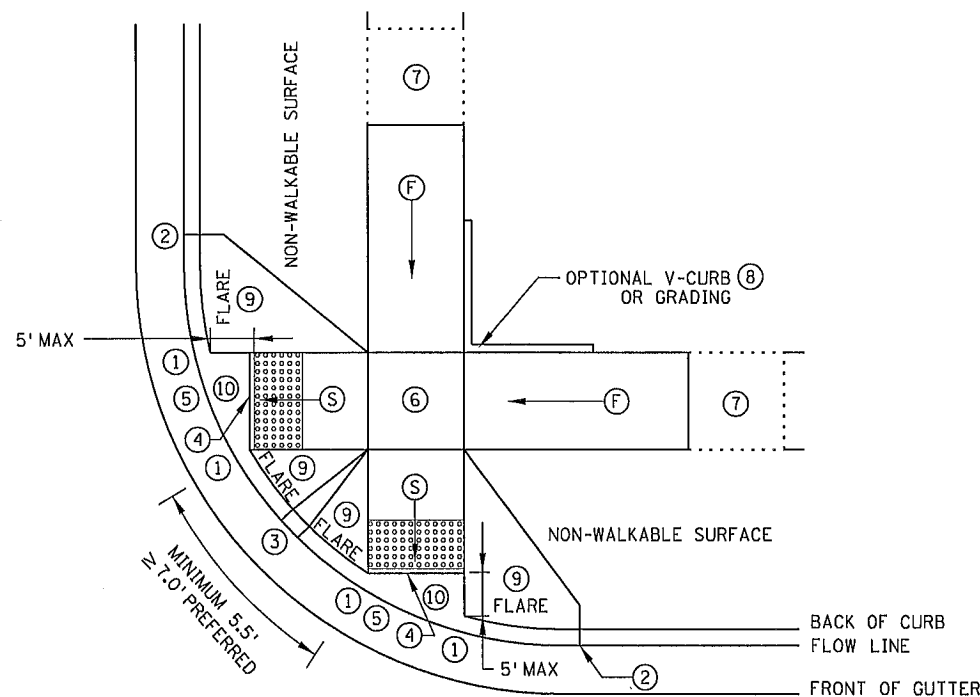
NOTES:

- LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE.
- INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE.
- SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS GREATER THAN 5.0%.
- CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS.
- ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL.
- TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS MAY BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 5 WHEN LANDINGS ARE CAST SEPARATELY.
- ALL SLOPES ARE ABSOLUTE, RATHER THAN RELATIVE TO SIDEWALK/ROADWAY GRADES.
- TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.
- 4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MINIMUM OF 24" IN THE PATH OF TRAVEL. SHARED USE PATHS SHALL HAVE DETECTABLE WARNING ACROSS THE ENTIRE WIDTH OF PATH WHEN THE PATH CROSSES A ROAD.
- SEE STANDARD PLATE T038 AND SHEET 4 OF 5 FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.
- ① 0" CURB HEIGHT.
- ② FULL CURB HEIGHT.
- ③ DETECTABLE WARNINGS MAY BE PART OF 4' X 4' LANDING AREA IF IT IS NOT FEASIBLE TO CONSTRUCT THE LANDING OUTSIDE OF THE DETECTABLE WARNING AREA.
- ④ 1/2" PREFORMED JOINT FILLER MATERIAL AASHTO M 213. JOINT FILLER SHALL BE PLACED FLUSH WITH THE BACK OF CURB AND ADJACENT SIDEWALK. JOINT SHALL BE FREE OF DEBRIS. RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB.
- ⑤ SEE PEDESTRIAN ACCESS ROUTE CURB AND GUTTER DETAIL FOR INFORMATION ON CONSTRUCTING CURB AND GUTTER AT CURB OPENINGS. SEE SHEET NO. 3 OF 5.
- ⑥ 4' BY 4' MIN. LANDING WITH MAX. 2.0% SLOPE IN ALL DIRECTIONS.
- ⑦ IF LONGITUDINAL SLOPE IS GREATER THAN 5.0%, 4' X 4' MIN. LANDING WITH MAX 2.0% SLOPE IN ALL DIRECTIONS REQUIRED.
- ⑧ V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. SEE SHEET 5 OF 5.
- ⑨ SEE SHEET 4 OF 5, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS.
- ⑩ DIAGONAL RAMPS SHOULD ONLY BE USED AFTER ALL OTHER CURB RAMP TYPES HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL.

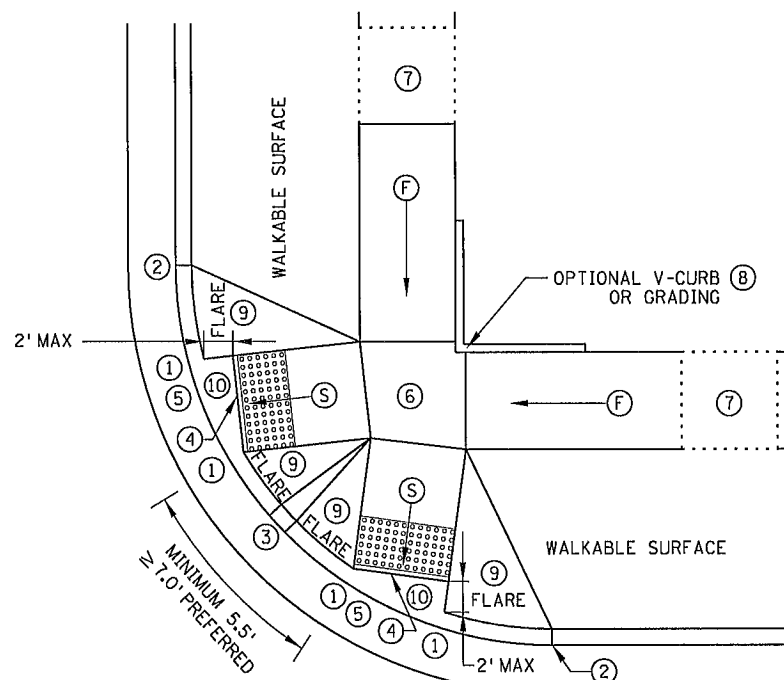
LEGEND	
THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.	
S	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%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

STANDARD PLAN SHEET NO.  
5-297.250 (1 OF 5)  
STANDARD APPROVED:  
APRIL 10, 2013

PEDESTRIAN CURB RAMP DETAILS

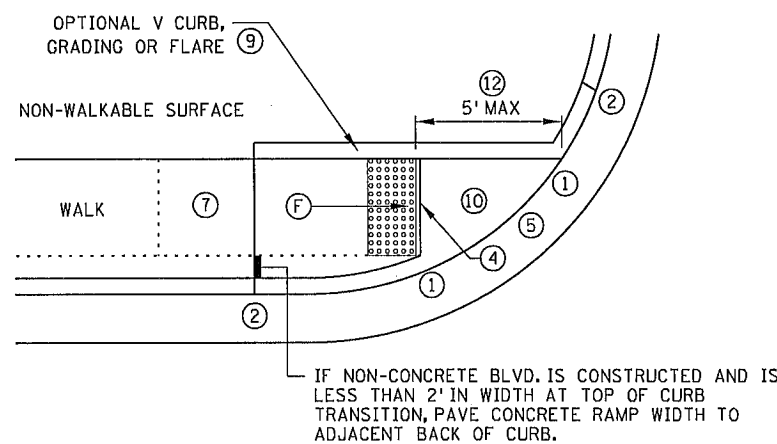


ADJACENT TO NON-WALKABLE SURFACE

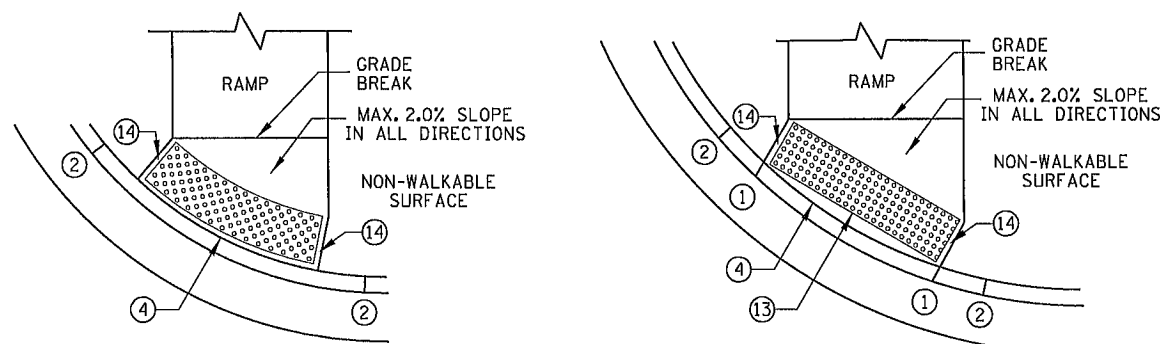


ADJACENT TO WALKABLE SURFACE

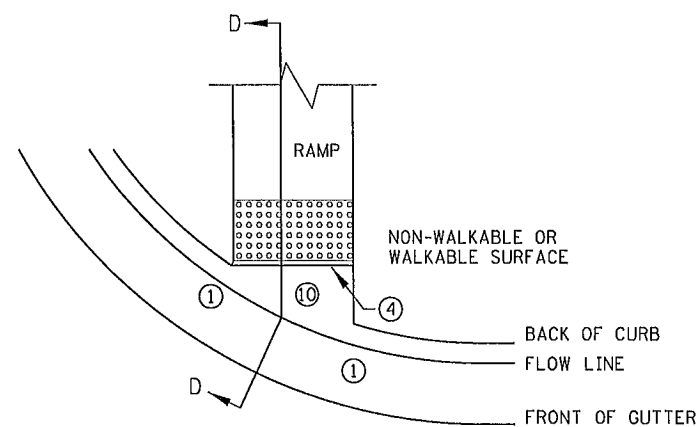
COMBINED DIRECTIONAL 15



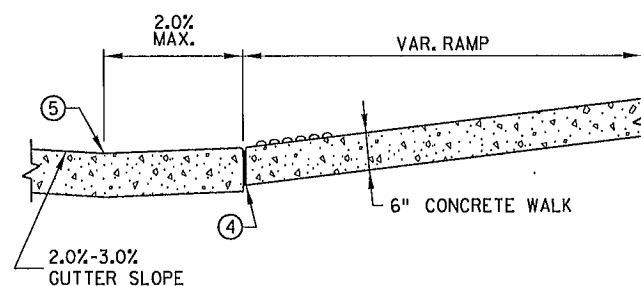
ONE-WAY DIRECTIONAL



DETECTABLE WARNING PLACEMENT WHEN SETBACK CRITERIA IS EXCEEDED



CURB FOR DIRECTIONAL RAMPS 11



SECTION D-D

NOTES:

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

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

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

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS.

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

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

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

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

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

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

- 1 0" CURB HEIGHT.
- 2 FULL CURB HEIGHT.
- 3 3" MINIMUM CURB HEIGHT, 4" PREFERRED.
- 4 1/2" PREFORMED JOINT FILLER MATERIAL AASHTO M 213. JOINT FILLER SHALL BE PLACED FLUSH WITH THE BACK OF CURB AND ADJACENT SIDEWALK. JOINT SHALL BE FREE OF DEBRIS. RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MIN. TO 6" MAX. FROM THE BACK OF CURB.
- 5 SEE PEDESTRIAN ACCESS ROUTE CURB AND GUTTER DETAIL FOR INFORMATION ON CONSTRUCTING CURB AND GUTTER AT CURB OPENINGS. SEE SHEET NO. 3 OF 5.
- 6 4' BY 4' MIN. LANDING WITH MAX. 2.0% SLOPE IN ALL DIRECTIONS.
- 7 IF LONGITUDINAL SLOPE IS GREATER THAN 5.0%, 4' X 4' MIN. LANDING WITH MAX 2.0% SLOPE IN ALL DIRECTIONS REQUIRED.
- 8 V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.
- 9 SEE SHEET 4 OF 5, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS.
- 10 MAX. 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK AND DRAIN TO FLOW LINE. SHALL BE CONSTRUCTED INTEGRAL WITH CURB AND GUTTER.
- 11 TO BE USED FOR ALL DIRECTIONAL RAMPS.
- 12 PLACE DOMES AT THE BACK OF CURB WHEN ALLOWABLE SETBACK CRITERIA IS EXCEEDED.
- 13 RECTANGULAR DETECTABLE WARNINGS MAY BE SETBACK 9" FROM THE BACK OF CURB WITH CORNERS SET 3" FROM BACK OF CURB. IF 9" SETBACK IS EXCEEDED USE RADIAL DETECTABLE WARNINGS.
- 14 WHEN NO CONCRETE FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
- 15 FRONT EDGE OF DETECTABLE WARNING SHALL BE SET BACK 2' MAXIMUM WHEN ADJACENT TO WALKABLE SURFACE, AND 5' MAXIMUM WHEN ADJACENT TO NON-WALKABLE SURFACE WITH ONE CORNER SET 3" FROM BACK OF CURB. WHETHER A SURFACE IS WALKABLE OR NOT SHALL BE DETERMINED BY THE ENGINEER

LEGEND

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

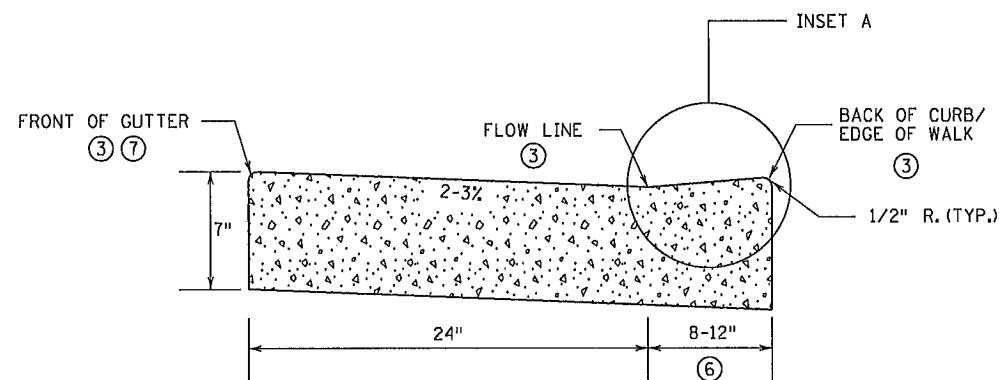
- S INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%
- F INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%

STANDARD PLAN SHEET NO.  
5-297.250 (2 OF 5)  
STANDARD APPROVED:  
APRIL 10, 2013

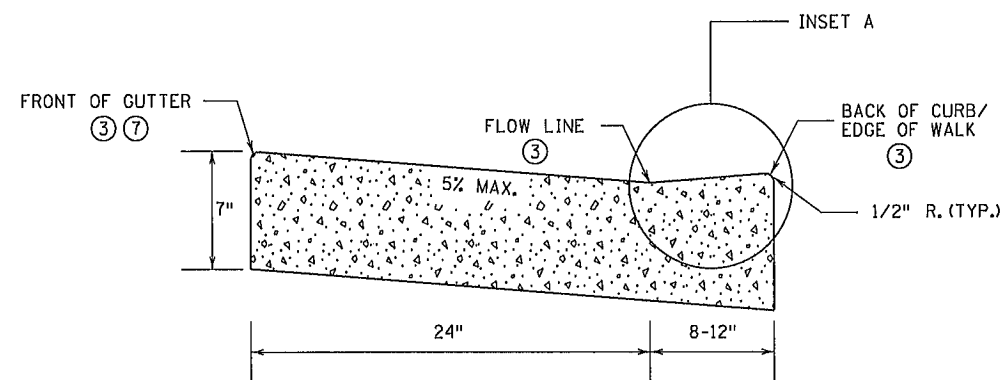
PEDESTRIAN CURB RAMP DETAILS

STATE PROJ. NO. S.P. 002-651-007

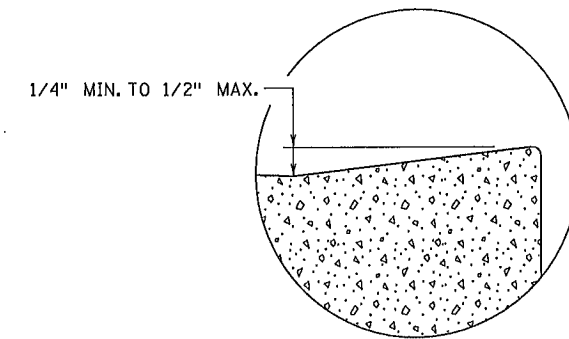
SHEET NO. 45 OF 381 SHEETS



NON PERPENDICULAR ①

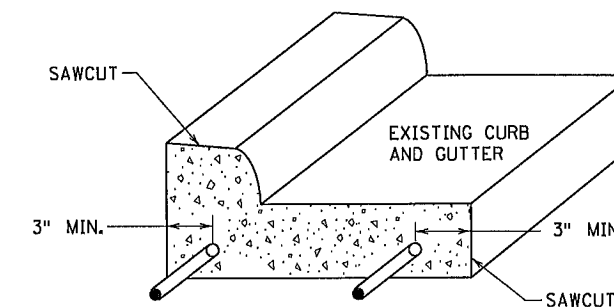
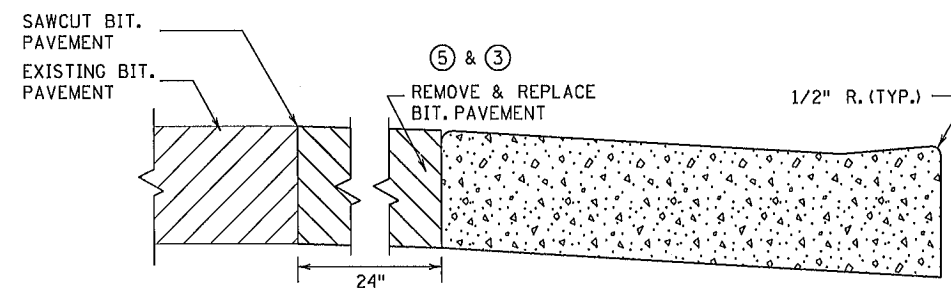
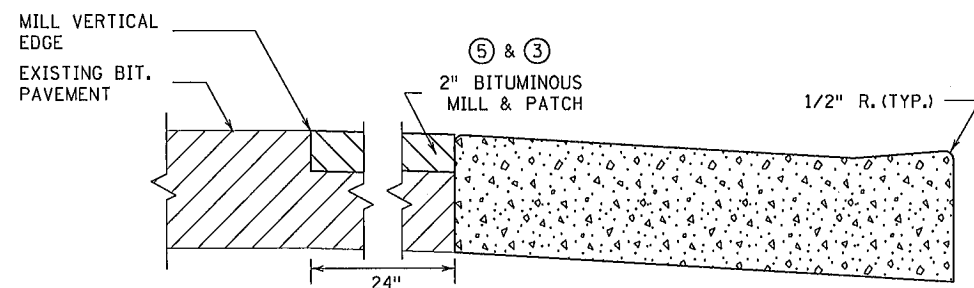


PERPENDICULAR ②

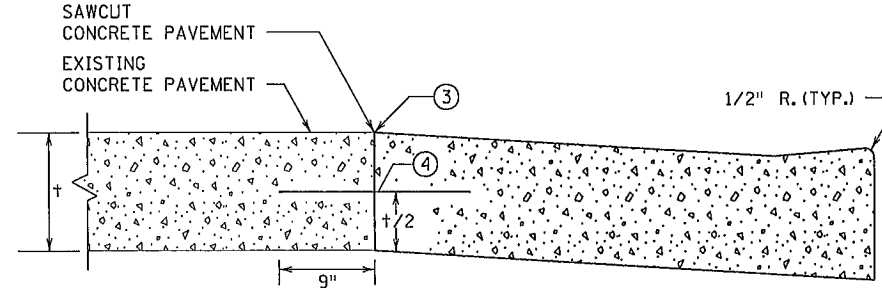
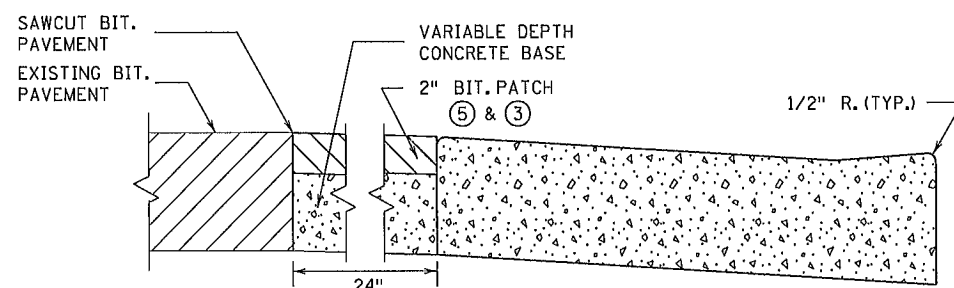


INSET A

PEDESTRIAN ACCESS ROUTE  
CURB & GUTTER DETAIL



CURB AND GUTTER REINFORCEMENT ⑧  
FOR USE ON CURB RAMP RETROFITS



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

NOTES:

POSITIVE FLOW LINE DRAINAGE SHALL BE MAINTAINED THROUGH THE PEDESTRIAN ACCESS ROUTE (PAR) AT A 2% MAXIMUM.

NO PONDING SHALL BE PRESENT IN THE PAR.

ANY VERTICAL LIP THAT OCCURS AT THE FLOW LINE SHALL NOT BE GREATER THAN 1/4 INCH.

① FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED NON PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: FANS, DEPRESSED CORNERS, & ONE WAY AND COMBINED DIRECTIONALS.

② FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: PERPENDICULAR, TIERED PERPENDICULAR, PARALLEL, AND DIAGONAL RAMPS.

③ THERE SHALL BE NO VERTICAL DISCONTINUITIES GREATER THAN 1/4\".

④ DRILL AND GROUT NO. 4 EPOXY-COATED 18\" LONG TIE BARS AT 30\" CENTER TO CENTER INTO EXISTING CONCRETE PAVEMENT.

⑤ ELEVATION CHANGE TAKES PLACE FROM THE EXISTING TO NEW FRONT OF GUTTER. PATCH IS USED TO MATCH THE NEW GUTTER FACE INTO THE EXISTING ROADWAY.

⑥ VARIABLE WIDTH FOR DIRECTIONAL CURB APPLICATIONS.

⑦ TOP FRONT OF GUTTER SHALL BE CONSTRUCTED FLUSH WITH PROPOSED ADJACENT PAVEMENT ELEVATION. PAR GUTTER SHALL NOT BE OVERLAID.

⑧ WHERE PLAN SPECIFIES, DRILL AND GROUT 2 - NO. 4 X 12\" LONG REINFORCEMENT BARS (EPOXY COATED).

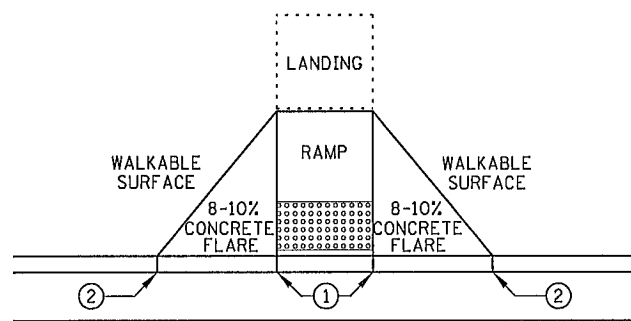
STANDARD PLAN SHEET NO.  
5-297.250 (3 OF 5)

STANDARD APPROVED:  
APRIL 10, 2013

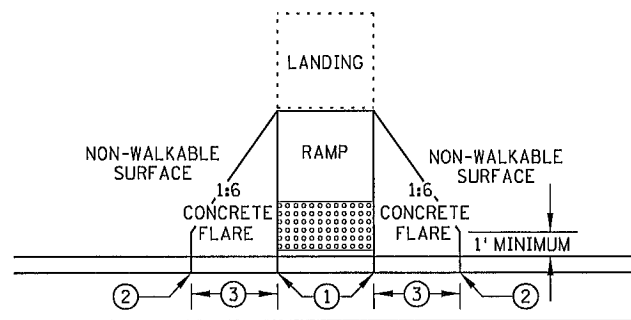
PEDESTRIAN CURB RAMP DETAILS

STATE PROJ. NO. S.P. 002-651-007

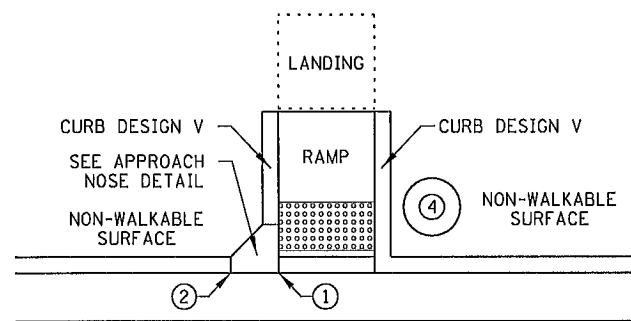
SHEET NO. 46 OF 381 SHEETS



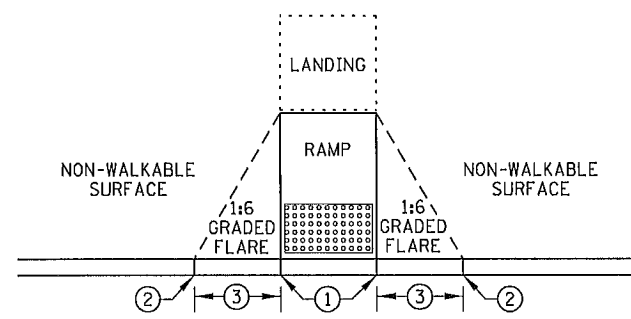
PAVED FLARES  
ADJACENT TO WALKABLE SURFACE



PAVED FLARES  
ADJACENT TO NON-WALKABLE SURFACE

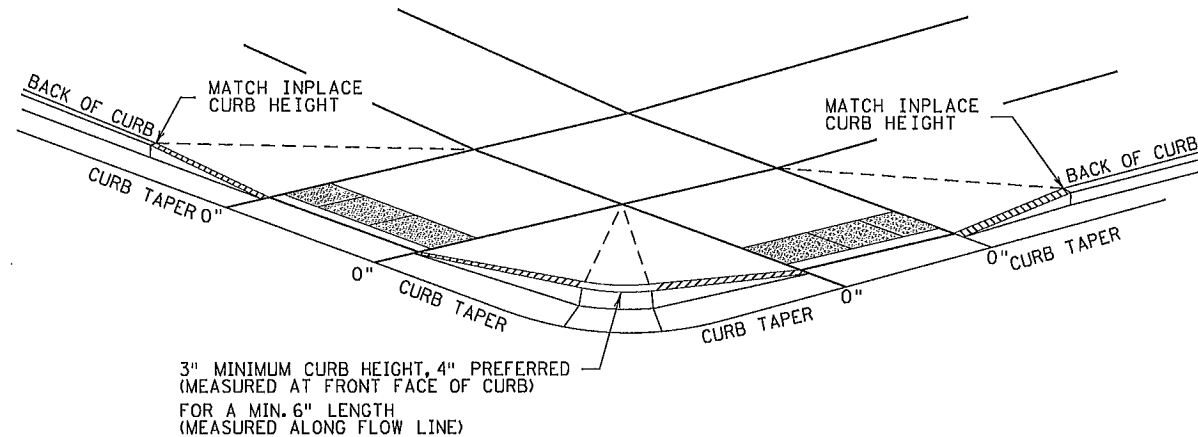


RETURNED CURB

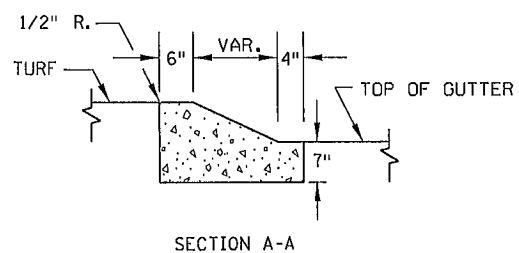
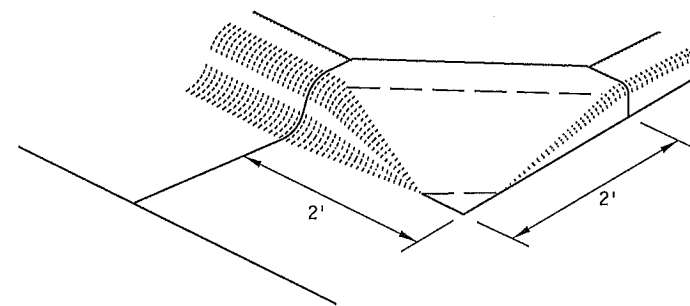


GRADED FLARES

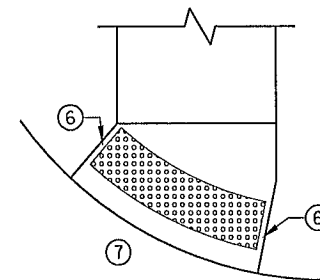
TYPICAL SIDE TREATMENT OPTIONS ⑤



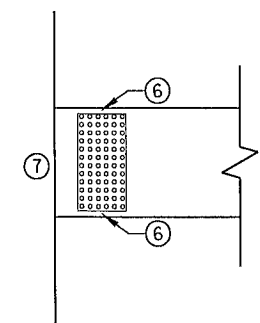
DETECTABLE EDGE WITH  
CURB AND GUTTER ⑧



APPROACH NOSE DETAIL  
FOR DOWNSTREAM SIDE OF TRAFFIC



RADIAL DETECTABLE WARNING



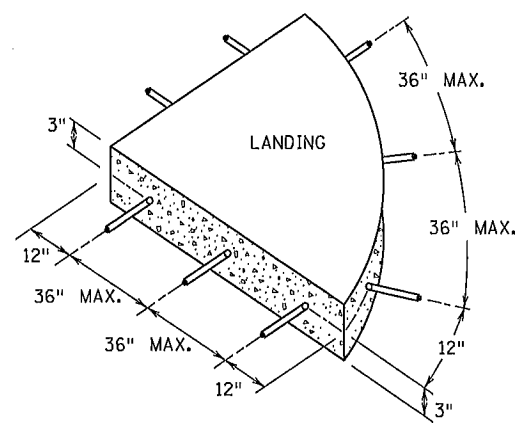
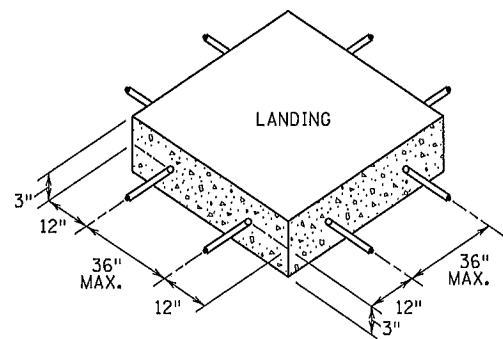
RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER

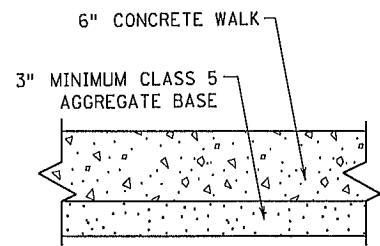
NOTES:

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

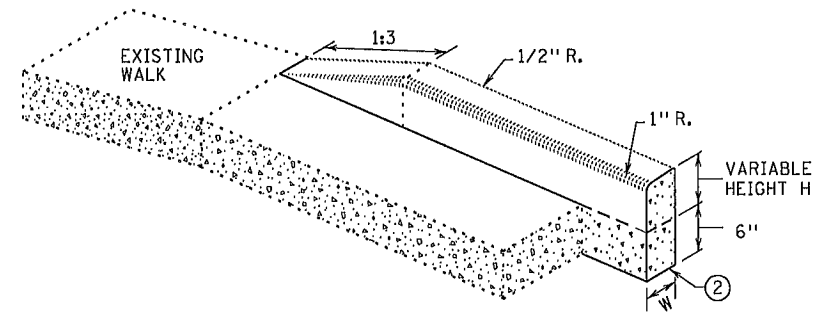
- ① 0" CURB HEIGHT.
- ② FULL CURB HEIGHT.
- ③ 2' - 3' FLARE.
- ④ IMMOVABLE OBJECT OR OBSTRUCTION.
- ⑤ SIDE TREATMENTS ARE APPLICABLE TO ALL RAMP TYPES AND SHOULD BE IMPLEMENTED AS NEEDED ON ALL RAMPS AS FIELD CONDITIONS DICTATE. THE ENGINEER SHALL DETERMINE THE RAMP SIDE TREATMENTS BASED ON MAINTENANCE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



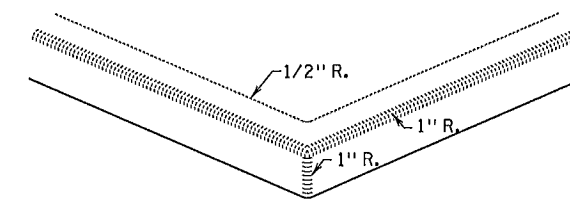
SIDEWALK REINFORCEMENT ⑤ ⑥



TYPICAL SIDEWALK SECTION WITHIN INTERSECTION CORNER

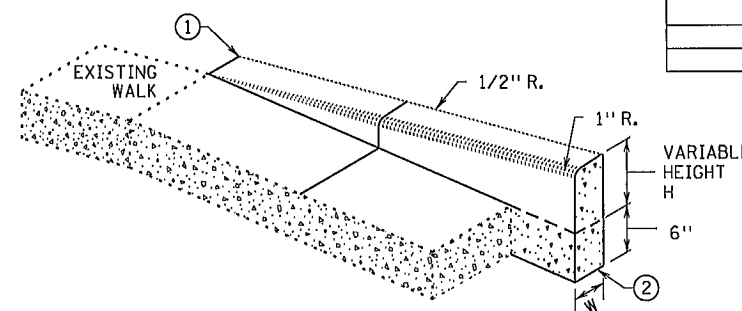


V CURB ADJACENT TO LANDSCAPE CURB WITHIN SIDEWALK LIMITS

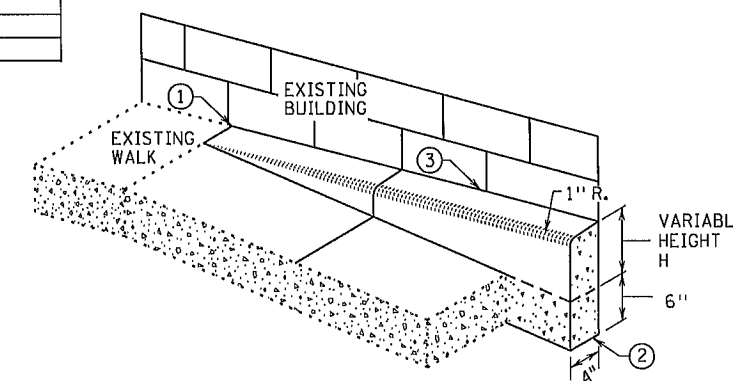


V CURB INTERSECTION

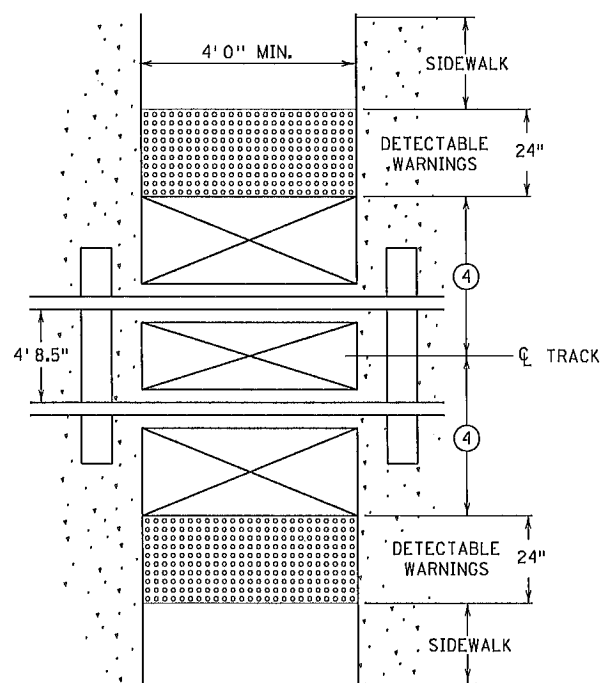
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
< 6"	4"
≥ 6"	6"



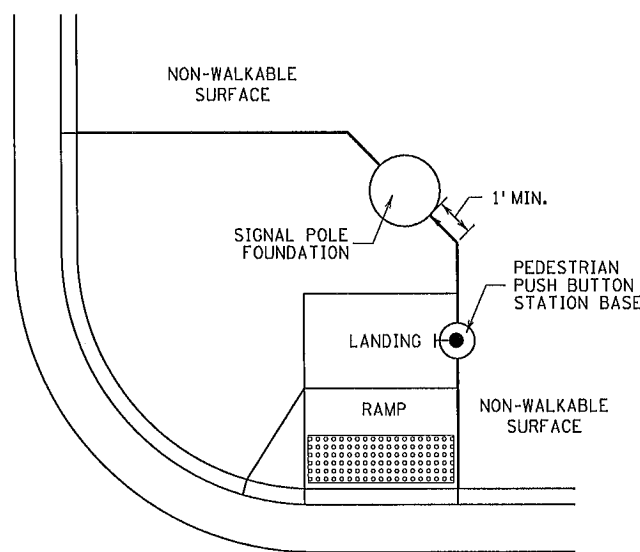
V CURB ADJACENT TO LANDSCAPE CURB OUTSIDE SIDEWALK LIMITS



V CURB ADJACENT TO BUILDING OR BARRIER



RAILROAD CROSSING PLAN VIEW



CONCRETE WALK EDGES ADJACENT TO CONCRETE STRUCTURES

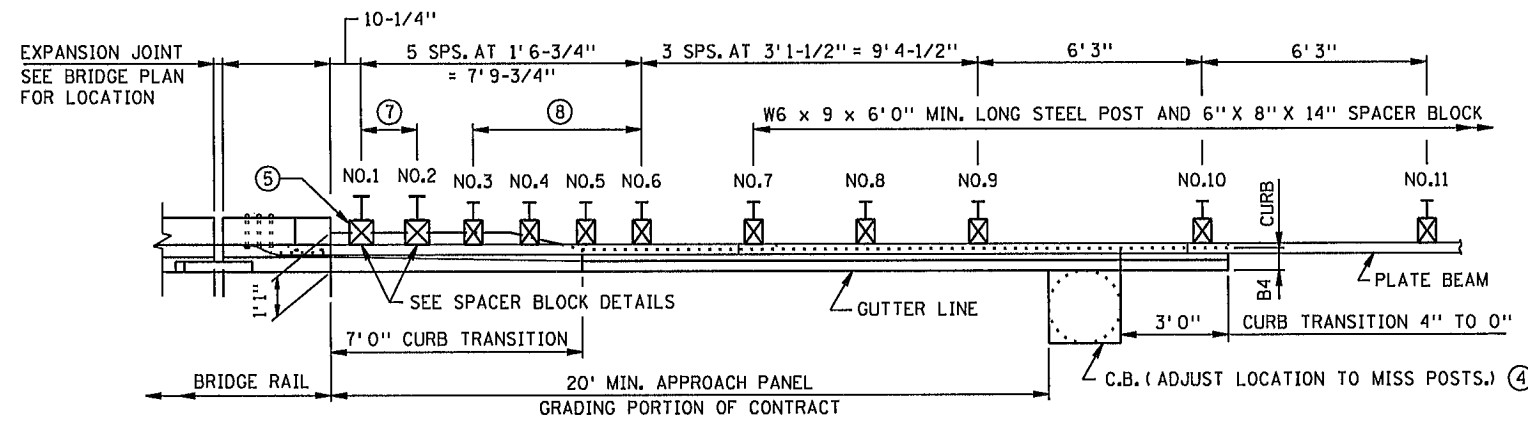
NOTES:

- ALL V CURB CONTRACTION JOINTS SHALL MATCH CONCRETE WALK JOINTS.
- WHERE RIGHT-OF-WAY ALLOWS, USE OF V CURB SHOULD BE MINIMIZED. GRADING ADJACENT TURF OR SLOPING ADJACENT PAVEMENT IS PREFERRED.
- V CURB SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.
- V CURB NEXT TO BUILDING SHALL BE A 4" WIDTH AND SHALL MATCH PREVIOUS TOP OF SIDEWALK ELEVATIONS.
- ① END TAPERS AT TRANSITION SECTION SHALL MATCH INPLACE SIDEWALK GRADES.
- ② ALL V CURB SHALL MATCH BOTTOM OF ADJACENT WALK.
- ③ EDGE BETWEEN NEW V CURB AND INPLACE STRUCTURE SHALL BE SEALED AND BOND BREAKER SHALL BE USED BETWEEN EXISTING STRUCTURE AND PLACED V-CURB.
- ④ EDGE OF DETECTABLE WARNING SURFACES SHALL BE PLACED 15' MAXIMUM FROM THE CENTERLINE OF THE TRACK. WHEN PEDESTRIAN GATES ARE PROVIDED, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE SIDE OF THE GATES OPPOSITE THE RAIL, 17" - 19" FROM THE APPROACHING SIDE OF THE GATE ARM.
- ⑤ WHEN PLAN SPECIFIES, DRILL AND GROUT NO. 4 12" LONG REINFORCEMENT BARS AT 36" MAX. CENTER TO CENTER (EPOXY COATED).
- ⑥ TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS MAY BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON THIS SHEET WHEN LANDINGS ARE CAST SEPARATELY.

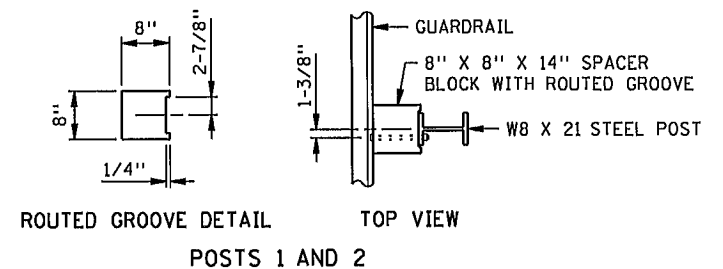
STANDARD PLAN SHEET NO.  
5-297.250 (5 OF 5)  
STANDARD APPROVED:  
APRIL 10, 2013

PEDESTRIAN CURB RAMP DETAILS

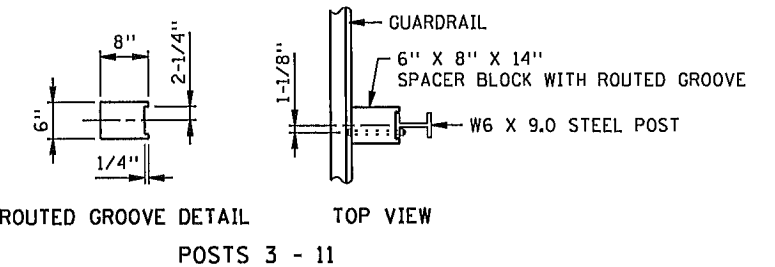




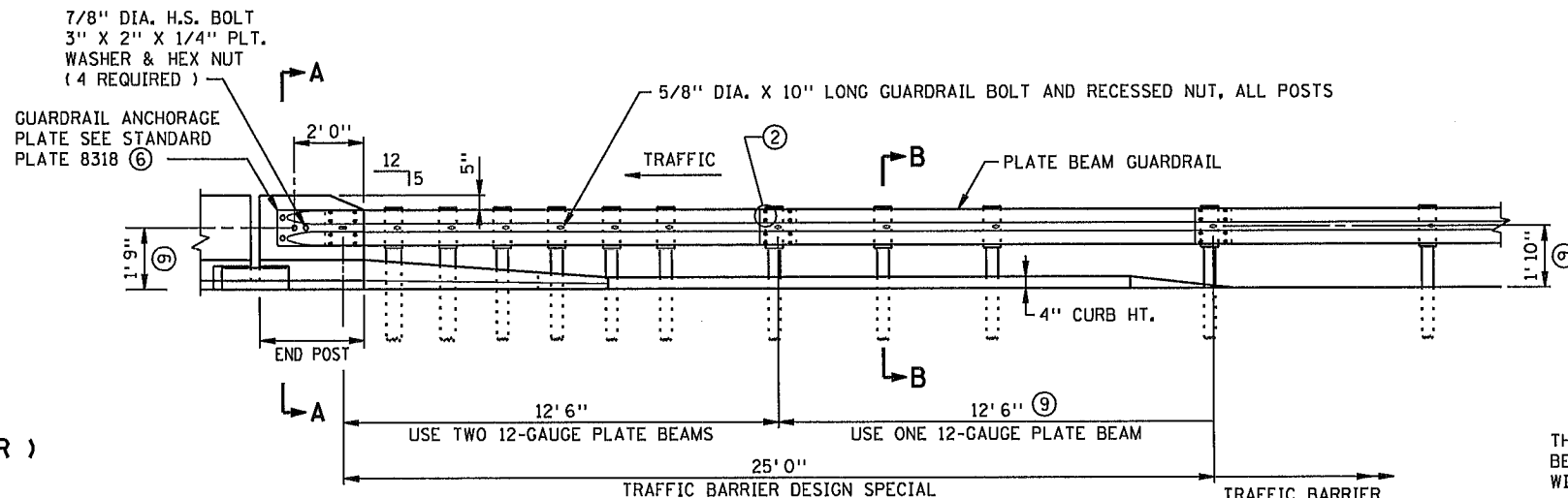
PLAN



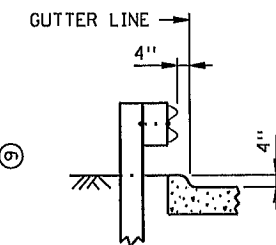
ROUTED GROOVE DETAIL TOP VIEW  
POSTS 1 AND 2



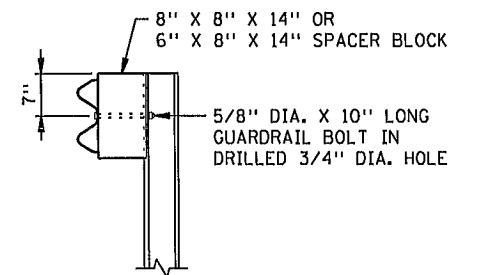
ROUTED GROOVE DETAIL TOP VIEW  
POSTS 3 - 11



ELEVATION

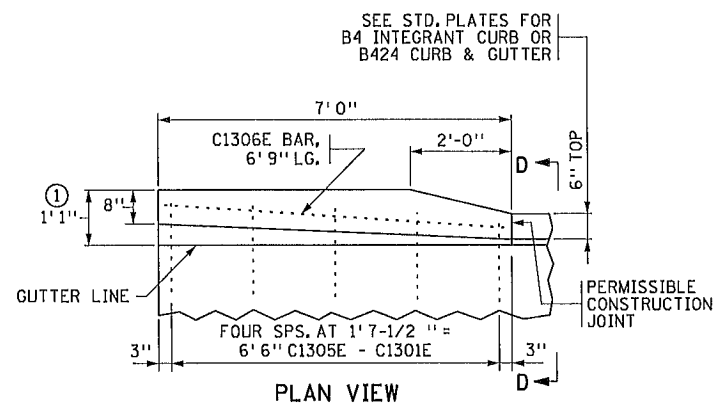


SECTION B-B  
THE TRANSITION SECTION HAS BEEN TESTED AND APPROVED WITH THE CURB PLACED AS SHOWN

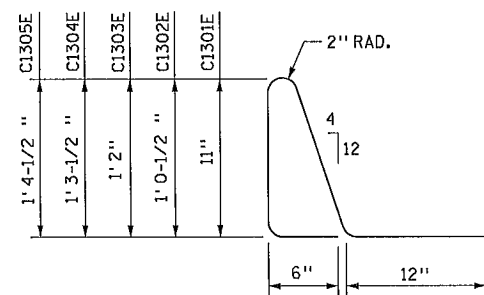


END VIEW  
SPACER BLOCK DETAILS

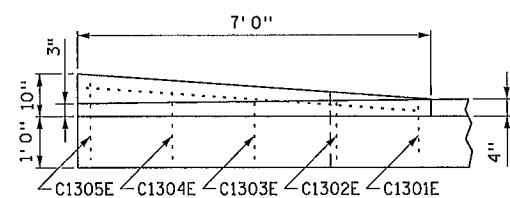
SECTION A - A  
F SHAPE RAIL (F BARRIER)  
(PARALLEL WINGWALL SHOWN)



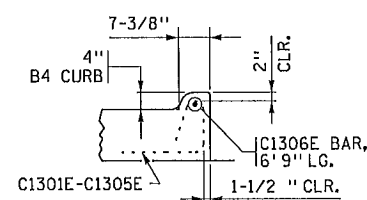
PLAN VIEW



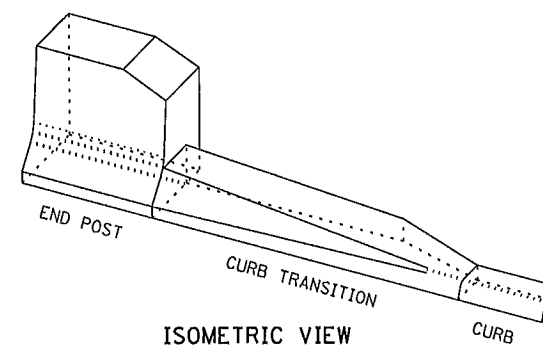
C1301E - C1305E (3)



INSIDE ELEVATION  
(FOR F - SHAPE SAFETY RAIL)



SECTION D-D



ISOMETRIC VIEW

NOTES:

ALL REBARS ARE IN METRIC DESIGNATIONS

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

TRAFFIC BARRIER DESIGN SPECIAL

CURB TRANSITION DETAILS

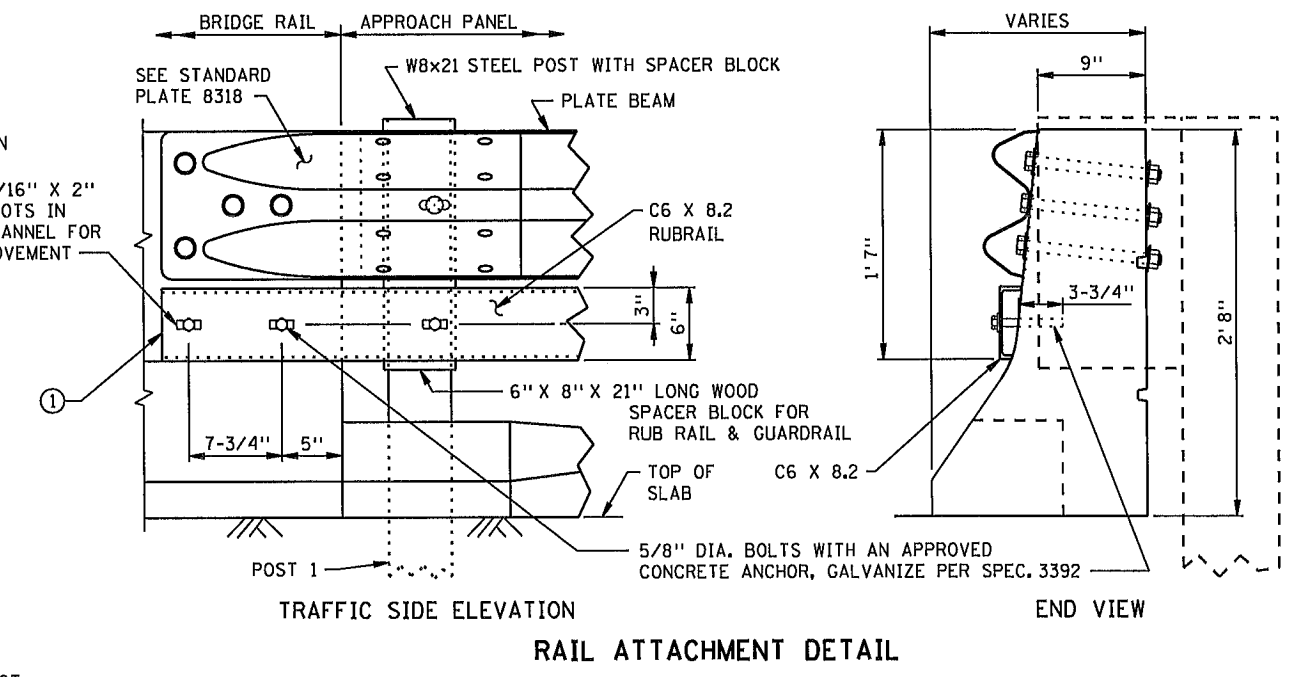
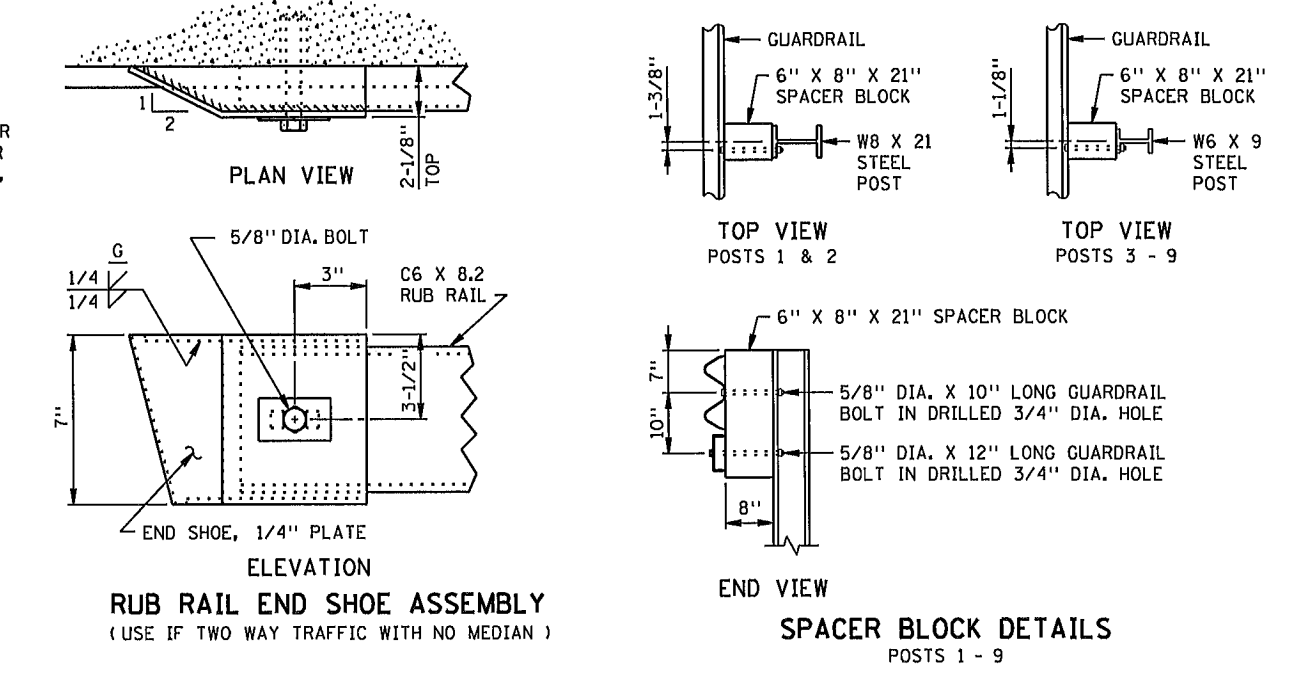
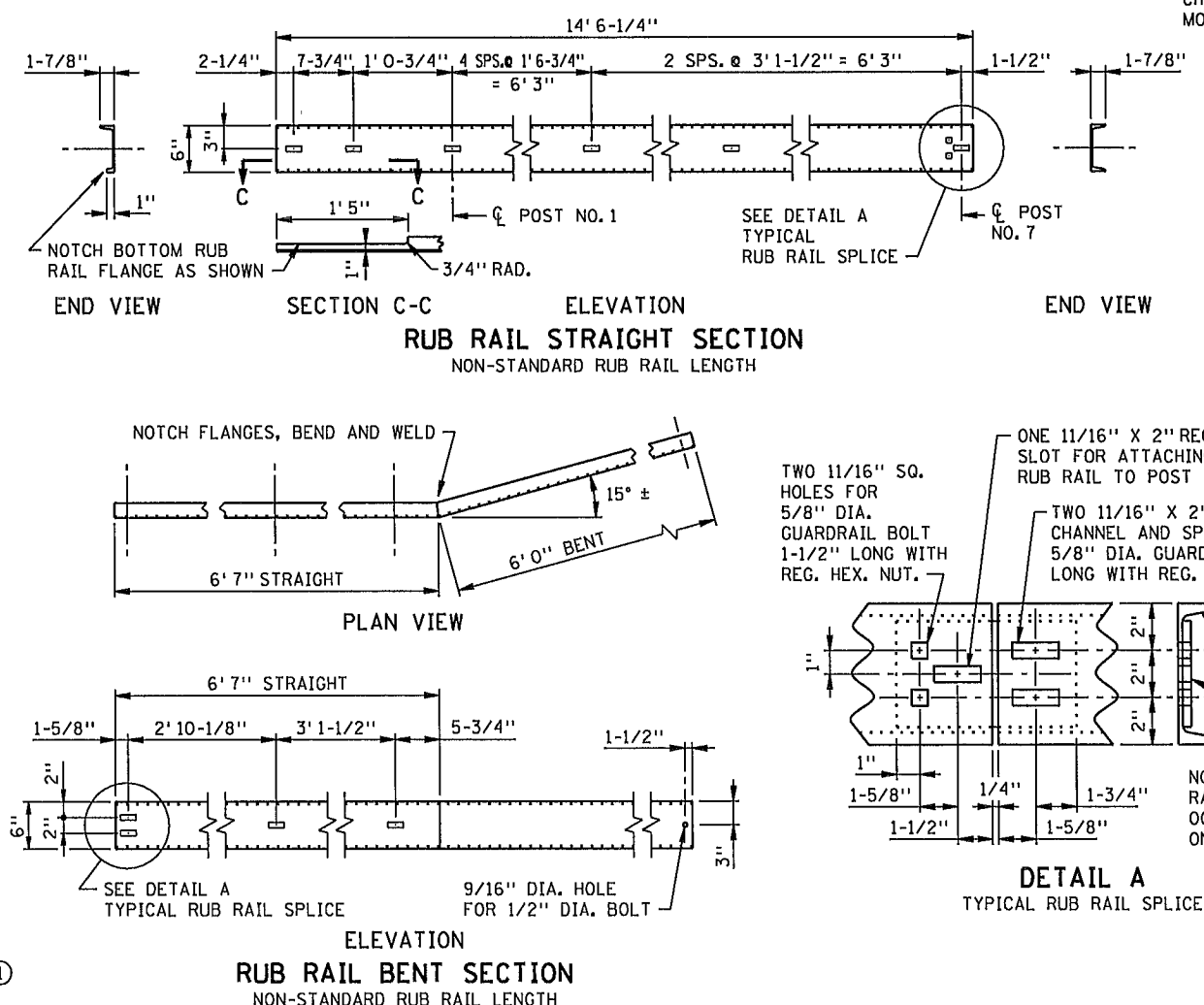
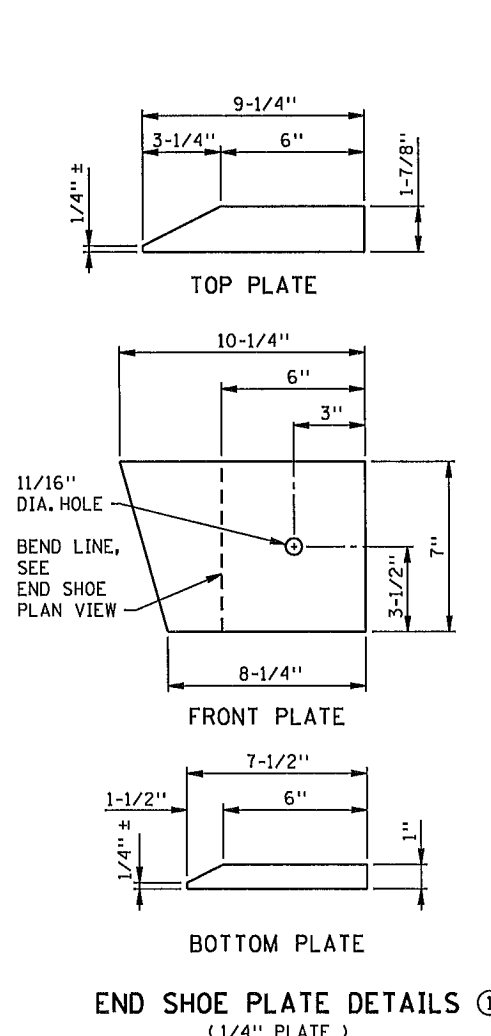
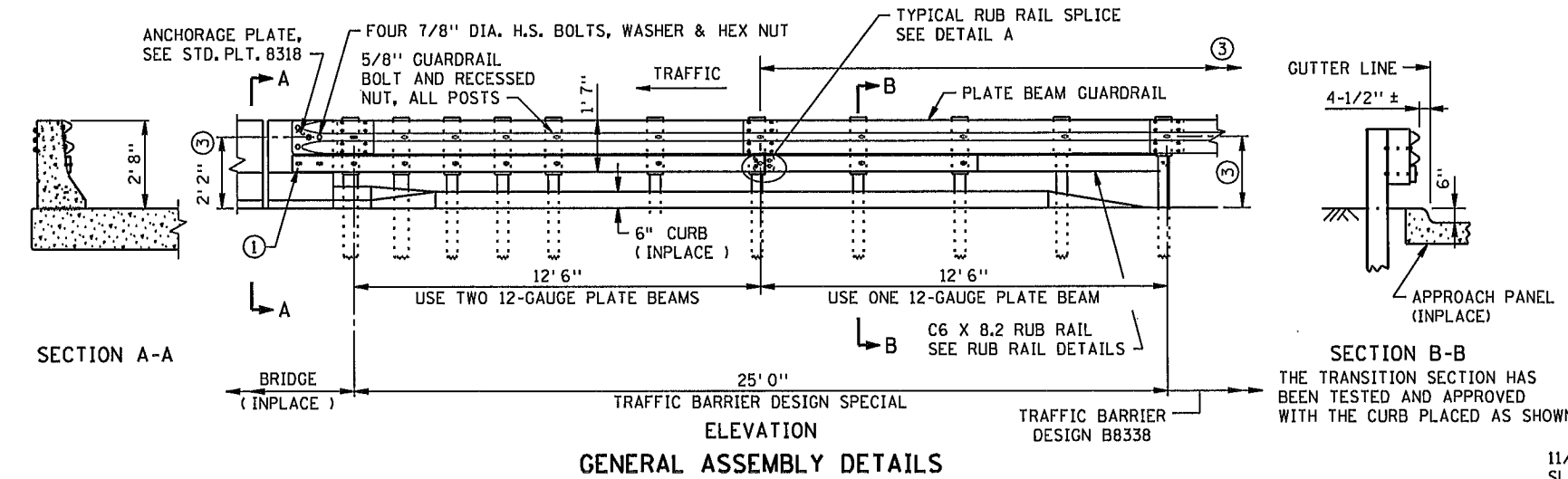
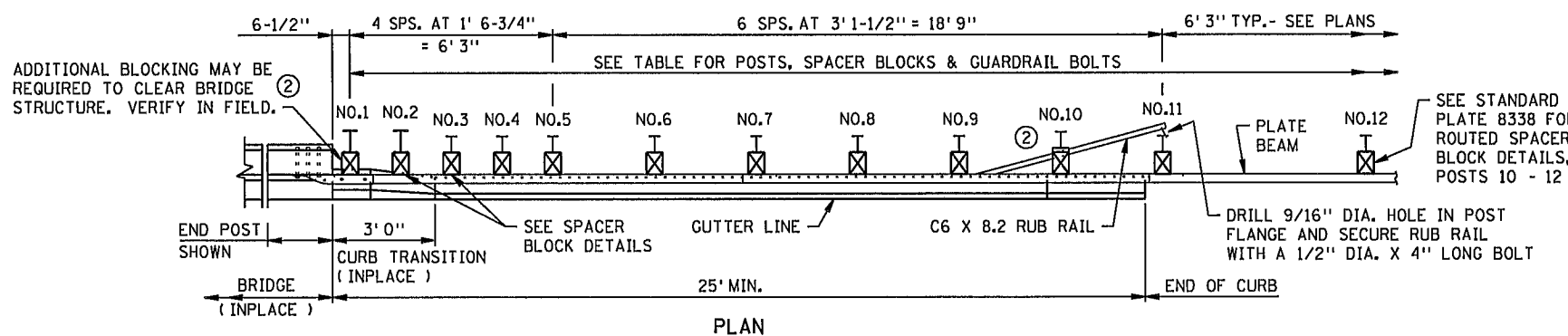
F-SHAPE SAFETY BARRIER TO B4 CURB WITH W-BEAM GUARDRAIL BARRIER

STANDARD SHEET NO.  
5-297.603  
STANDARD APPROVED:  
MARCH 23, 2011

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

STATE PROJ. NO. S.P. 002-651-007

SHEET NO. 49 OF 381 SHEETS



**POST, SPACER BLOCK & BOLT TABLE**

DESCRIPTION	POST NO.	SIZE
POST	1 & 2	W8 X 21 X 8' 0" MIN. LONG
	3 - 12	W6 X 9 X 6' 0" MIN. LONG
SPACER BLOCK	1 - 9	6" X 8" X 21"
	10 - 12	6" X 8" X 14"
GUARDRAIL BOLT & RECESSED NUT	1 - 12	5/8" DIA. X 10" - GUARDRAIL
	1 - 9	5/8" DIA. X 12" - RUB RAIL

**NOTES:**

STRUCTURAL STEEL TO BE 3306, EXCEPT AS NOTED.

ALL SLOTTED HOLES ARE 11/16" X 2".

ALL SQUARE HOLES ARE 11/16".

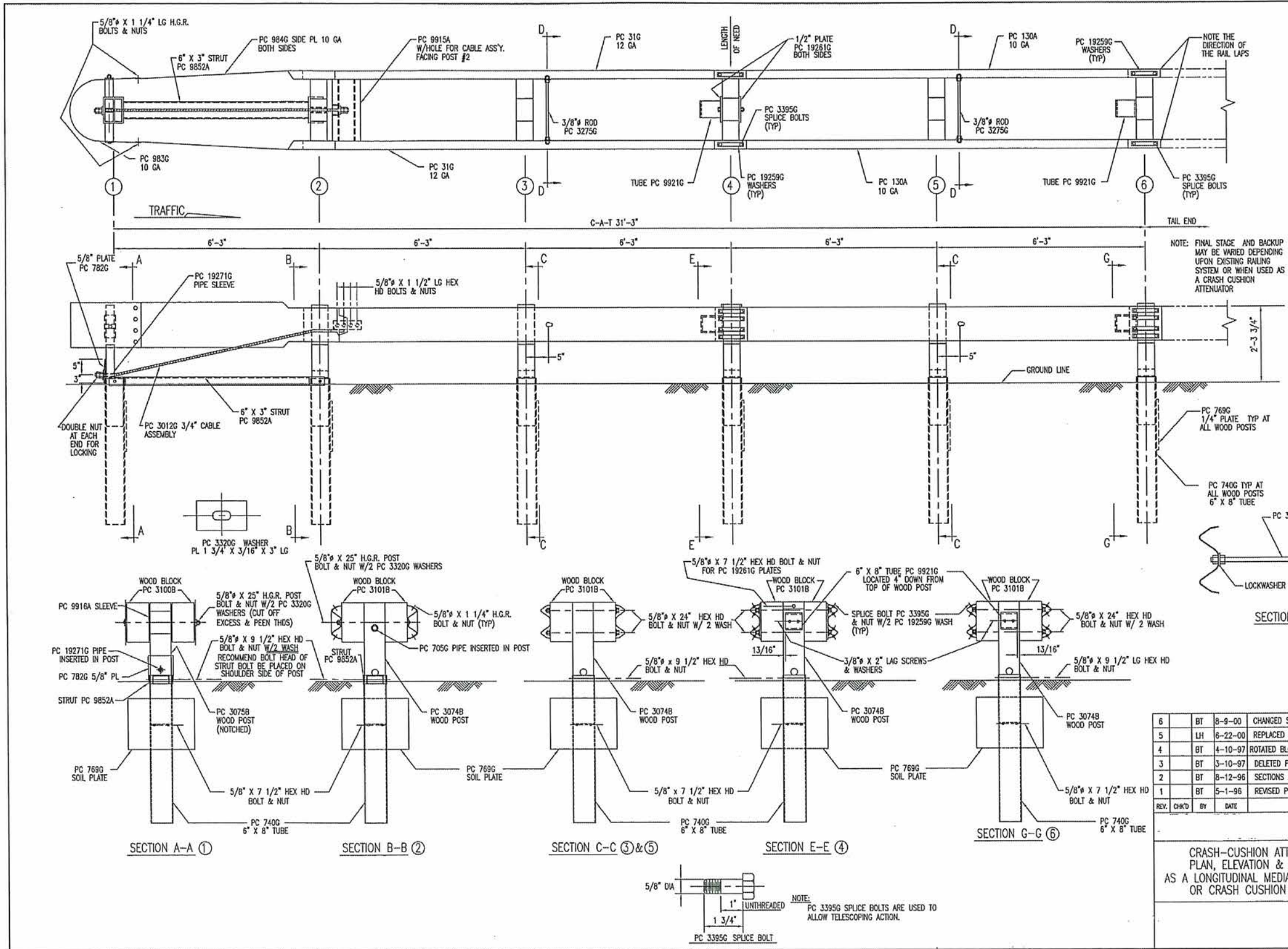
RUB RAIL IS C6 X 8.2

GALVANIZE STRUCTURAL SHAPES PER SPEC. 3394 AFTER FABRICATION, EXCEPT AS NOTED.

MATERIALS AND CONSTRUCTION PER SPEC. 2554, EXCEPT AS NOTED.

GALVANIZE ALL HARDWARE PER SPEC. 3392.

- ① END SHOE REQUIRED IF TWO WAY TRAFFIC AND NO MEDIAN.
- ② ADDITIONAL BLOCKING MAY BE REQUIRED AT POST NO. 1 OR 10.
- ③ GUARDRAIL CENTERLINE HEIGHT IS 2' 2" FROM 0' TO 12' 6" FROM BRIDGE. HEIGHT TRANSITIONS FROM 2' 2" TO 1' 10" BETWEEN 12' 6" AND 37' 6" FROM BRIDGE.



C-A-T BILL OF MATERIAL

PRODUCT CODE	QTY	DESCRIPTION
31G	2	12/12/6/O CAT (GUARDRAIL)
130A	2	10/12/6/5/10/8/SP CAT (GUARDRAIL)
705G	1	2" x 5 1/2" PIPE
740G	6	4" TUBE SLEEVE
769G	6	1/4 x 18 x 24 SOIL PLATE
782G	1	5/8" x 8" x 8" BEARING PLATE
983G	1	10/NOSE PLATE/CAT/ROLLED
984G	2	10/SIDE PLATE CAT
3012G	1	CABLE 3/4 x 8'0/DBL SWG
3074B	5	WD 3/6 POST #2, 3, 4, 5, 6 CAT
3075B	1	WD 3/6 POST #1 CAT
3100B	2	WD BLOCK 1'2 #1 CAT
3101B	10	WD BLOCK 1'2 #2-6 CAT
3255G	4	3/8" FLAT WASHER
3263G	4	3/8" x 2" LAG SCREW
3275G	2	3/8" x 24 1/2" RESTRAINT ROD
3300G	20	5/8" FLAT WASHER
3320G	4	3/16" x 1 3/4" x 3" RECT WASHER
3340G	85	5/8" G.R. NUT
3360G	16	5/8" x 1 1/2" G.R. BOLT
3380G	8	5/8" x 1 1/2" HEX BOLT
3395G	32	5/8" x 1 3/4" HEX BOLT CAT
3478G	13	5/8" x 7 1/2" HEX BOLT
3497G	6	5/8" x 9 1/2" HEX BOLT
3650G	2	5/8" x 25" G.R. BOLT
3900G	2	1" FLAT WASHER
3910G	4	1" HEX NUT
4252G	8	3/8" HEX NUT
4258G	4	3/8" LOCK WASHER
4640G	8	5/8" x 24" HEX BOLT
9852A	1	CHANNEL STRUT x 6"-6"
9915A	1	SPACER CHANNEL CAT
9916A	1	10/BENT PLATE SLEEVE
9921G	2	6" SLEEVE 6 x 8
19259G	32	3/16" x 2" x 10" PLATE WASHER
19261G	2	1/2 x 3 x 7 POST PLATE
19271G	1	1" x 2 1/2" PIPE SLEEVE CAT

REV.	CHK'D	BY	DATE	REMARKS
6	BT		8-9-00	CHANGED SYSTEM HEIGHT, WAS 2'-3"
5	LH		6-22-00	REPLACED PC 766 WITH PC 769, CHANGED TITLE BLOCK
4	BT		4-10-97	ROTATED BLOCK PC 9921 90° AT POST 4 & 6
3	BT		3-10-97	DELETED PC 3072, 3073, 4470, CHG QTY 3074 & 3478
2	BT		8-12-96	SECTIONS A-A & B-B, CORRECTED PIPE SLEEVE PC No
1	BT		5-1-96	REVISED PC No 31G & 130A

CRASH-CUSHION ATTENUATING TERMINAL PLAN, ELEVATION & SECTIONS FOR USE AS A LONGITUDINAL MEDIAN BARRIER TERMINAL OR CRASH CUSHION ATTENUATOR.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\STD PLANS\NEW GUARDRAIL\618.dwg 8/11/2014 8:11:32 AM

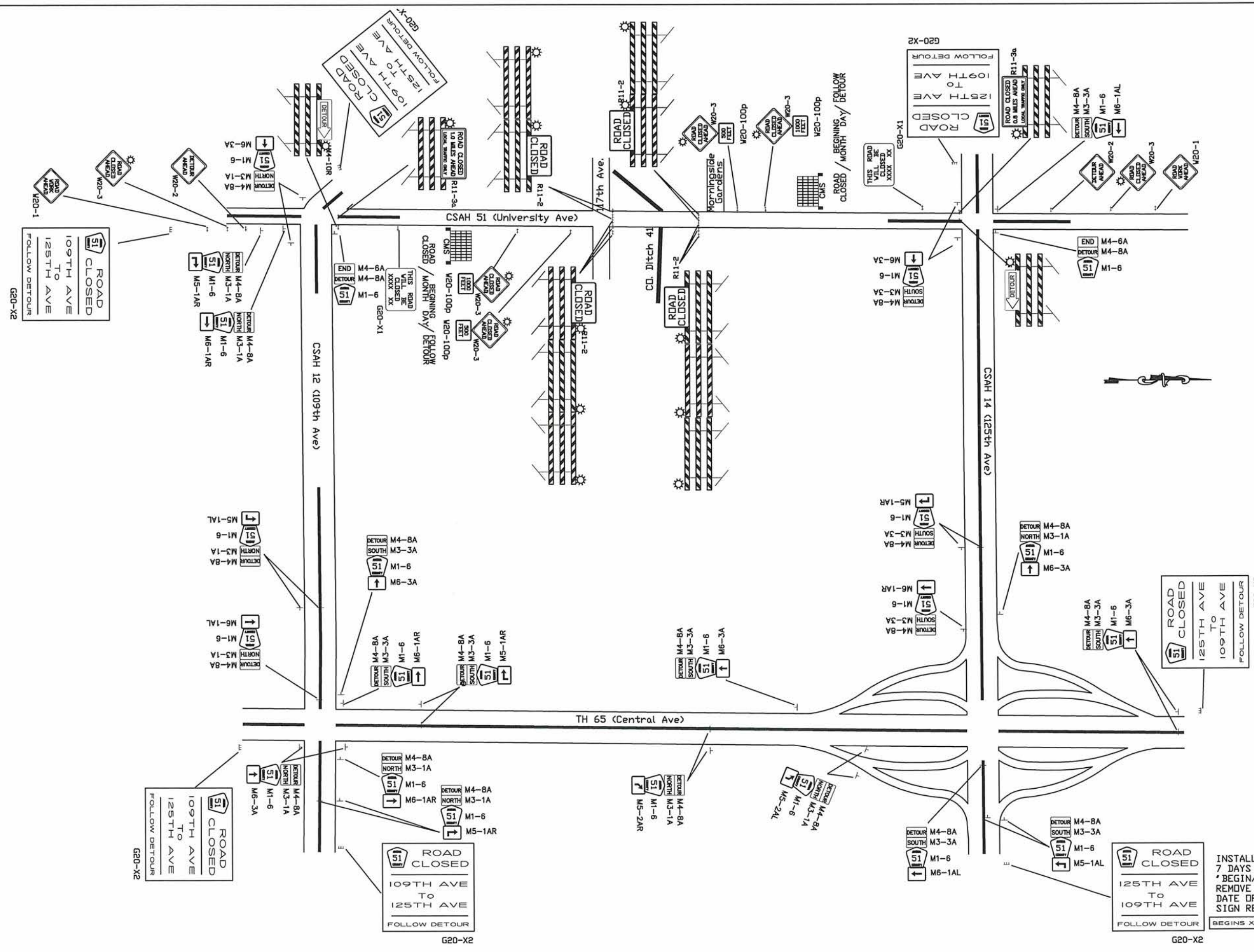
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarsik*  
 DATE: 6-9-14 LICENSE NO. #LICNO

DRAWN BY: NJD DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

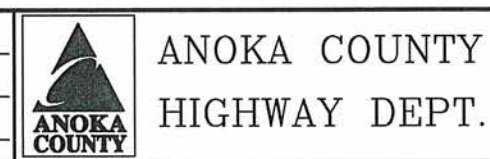


INSTALL G20-X2 SIGNS  
7 DAYS PRIOR WITH  
'BEGIN/DATE' PLATE.  
REMOVE PLATE AT START  
DATE OF CONSTRUCTION SO  
SIGN READS 'FOLLOW DETOUR'  
BEGINS XX/XX/XX

NO	DATE	BY	CKD	APPR	REVISION

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT KOBILARCSIK  
 SIGNATURE: *Curt Kobilarsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: RLB DATE: 1/15/14  
 DESIGN BY: RLB DATE: 1/15/14  
 CHECKED BY: JR DATE: 1/15/14



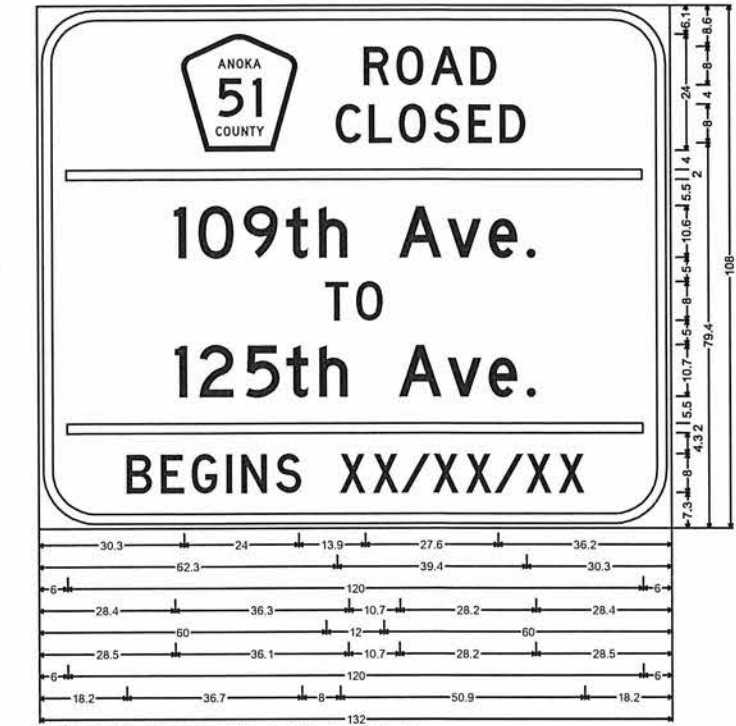
STATE PROJECT NO. 02-651-07  
 STATE PROJECT NO. 106-020-031  
 STATE PROJECT NO. 114-020-046  
 COUNTY PROJECT NO. \_\_\_\_\_

DETOUR PLAN  
 Sheet 52 of 381 Sheets

M.U.T.C.D. CODE	SIZE	INSERT	QTY.	M.U.T.C.D. CODE	SIZE	INSERT	QTY.
M4-8	24"x12"	M4-6 END	1	W20-2	48"x48"	DETOUR AHEAD	2
M3-4A	24"x12"	M5-1AL ←	2	W20-1	48"x48"	ROAD WORK AHEAD	2
M1-6A	24"x24"	M5-1AR →	4	W20-3	48"x48"	ROAD CLOSED AHEAD	6
	21"x15"	M6-1AL ←	1	W20-100p	42"x18"	XXXX FEET 500 1000	2
		M6-1AR →	2				2
		M6-3A ↑	5				
		M5-2AR ↗	2				
		M5-2AL ↘	2				
M4-8	24"x12"	M4-6 END	1	G20-X1	60"x 48"	THIS ROAD WILL BE CLOSED MONTH DAY	2
M3-4A	24"x12"	M5-1AL ←	2				
M1-6A	24"x24"	M5-1AR →	4	R11-3a	60"x30"	ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY	1
	21"x15"	M6-1AL ←	2	TYPE III	8 FT		1
		M6-1AR →	2				
		M6-3A ↑	6				
G20-X2	132"x108"	ROAD CLOSED 109TH AVE TO 125TH AVE FOLLOW DETOUR	* 4	R11-3a	60"x30"	ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY	1
				TYPE III	8 FT		1
G20-X2	132"x108"	ROAD CLOSED 125TH AVE TO 109TH AVE FOLLOW DETOUR	* 3	M4-10L	48"x18"	DETOUR	1
				TYPE III	8 FT		1
G20-X2	114"x20"	BEGINS XX/XX/XX	7	M4-10R	48"x18"	DETOUR	1
R11-2	48"x30"	ROAD CLOSED	1	TYPE III	8 FT		1
TYPE III	8FT		4	R11-2	48"x30"	ROAD CLOSED	1
				TYPE III	8 FT		4
				CMS			2



G20-X2\_132x108; 12.0" Radius, 2.0" Border, 1.0" Indent, Black on Orange; [ROAD] D; [CLOSED] D; [125th Ave.] D; [TO] D; [109th Ave.] D; [BEGINS] D; [XXXXXXX] D;



G20-X2\_132x108; 12.0" Radius, 2.0" Border, 1.0" Indent, Black on Orange; [ROAD] D; [CLOSED] D; [109th Ave.] D; [TO] D; [125th Ave.] D; [BEGINS] D; [XXXXXXX] D;

\* INSTALL G20-X2 SIGNS 7 DAYS PRIOR WITH 'BEGIN/DATE' PLATE; REMOVE PLATE AT START DATE OF CONSTRUCTION SO SIGN READS 'FOLLOW DETOUR'

### STANDARD TRAFFIC CONTROL NOTES

- 1) LOCATIONS OF ALL SIGNS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- 2) ALL BARRICADES AND SIGNS SHALL BE PROPERLY WEIGHTED WITH SANDBAGS.
- 3) ALL BARRICADES SHALL HAVE REFLECTIVE MATERIAL ON BOTH SIDES.
- 4) ALL BARRICADE MARKINGS SHALL BE SLANTED IN ACCORDANCE WITH THE MINNESOTA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
- 5) ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MOST RECENT EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
- 6) ADDITIONS OR CHANGES TO THIS PLAN MAY BE MADE AS DETERMINED BY THE ENGINEER.

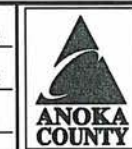
NO	DATE	BY	CHKD	APPR	REVISION

NAME: T:\Traffic\dwg\CSAH 14 (Main S)\RR DET 14.dwg

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

PRINT NAME: CURT KOBILARCSIK  
 SIGNATURE: *Curt Kobilarsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: RLB DATE: 1/15/14  
 DESIGN BY: RLB DATE: 1/15/14  
 CHECKED BY: JR DATE: 1/15/14



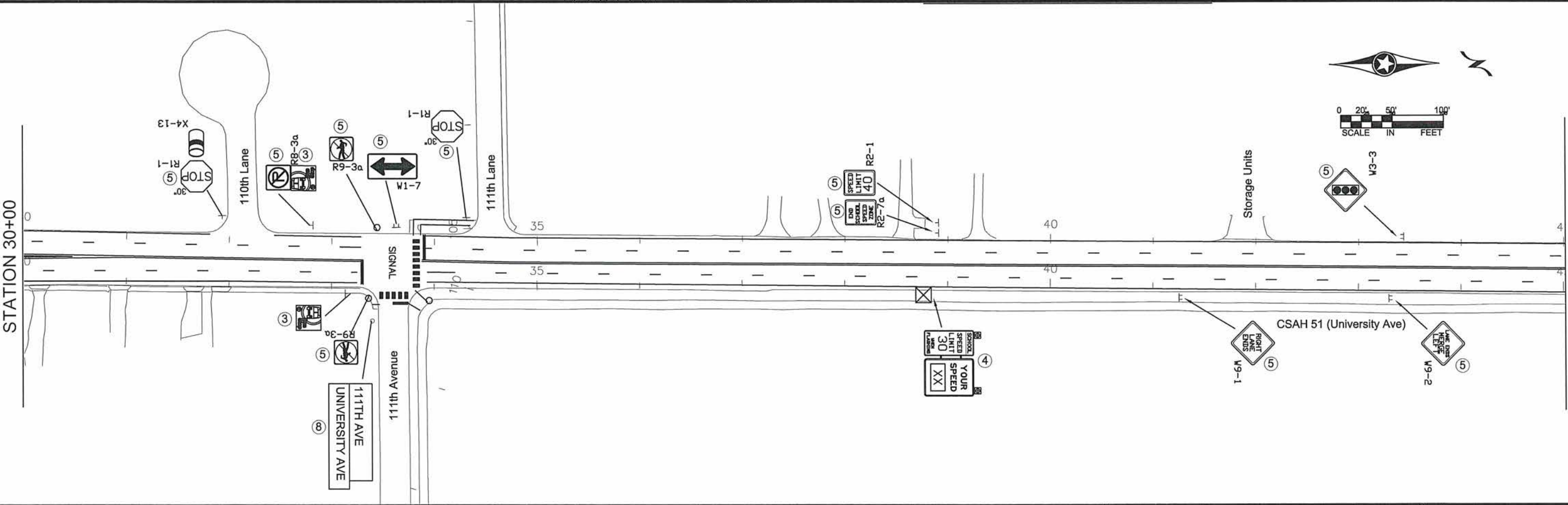
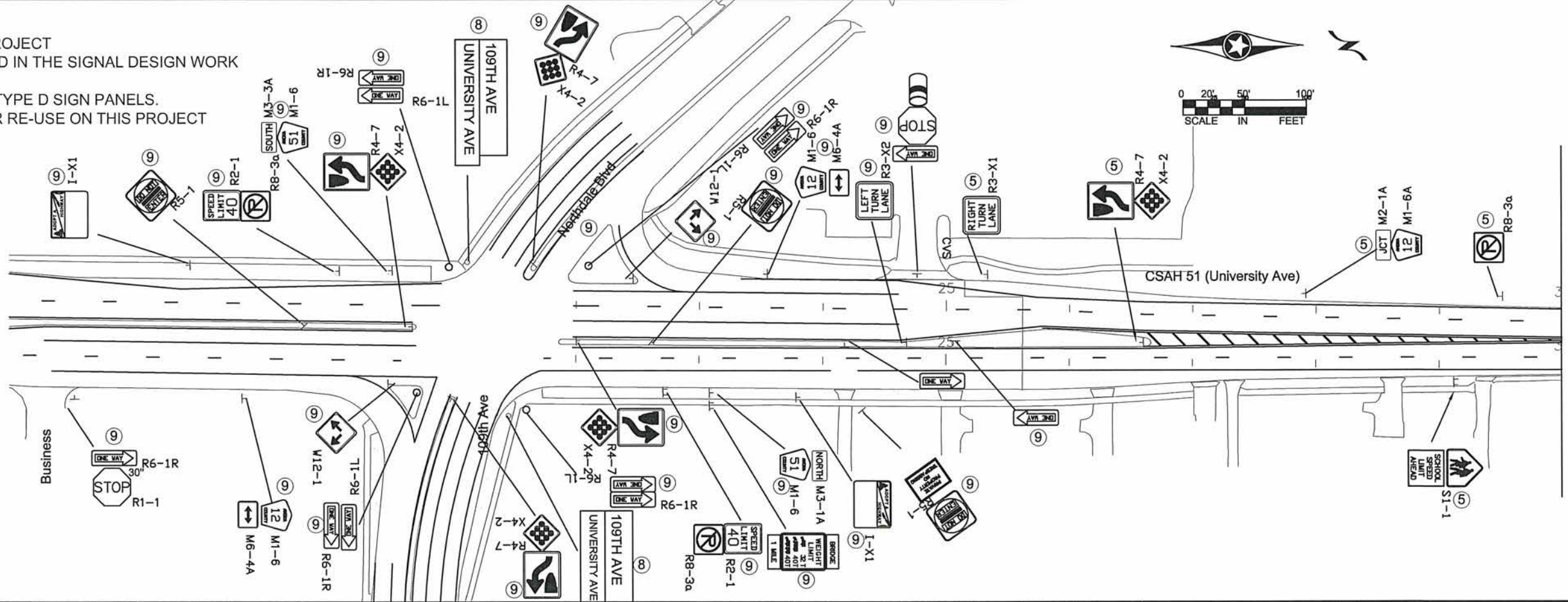
ANOKA COUNTY  
HIGHWAY DEPT.

STATE PROJECT NO. 02-651-07  
 STATE PROJECT NO. 106-020-031  
 STATE PROJECT NO. 114-020-046  
 COUNTY PROJECT NO.

DETOUR QUANTITIES  
 Sheet 53 of 381 Sheets

NOTES:

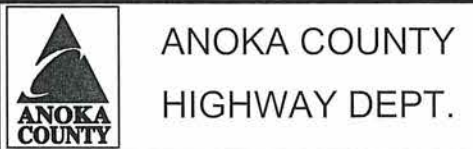
- ③ SALVAGE FOR RE-USE ON THIS PROJECT
- ④ DRIVER FEEDBACK SIGN INCLUDED IN THE SIGNAL DESIGN WORK
- ⑤ REMOVE
- ⑦ SALVAGE AND INSTALL IN-PLACE TYPE D SIGN PANELS.
- ⑧ SALVAGE SIGN TYPE SPECIAL FOR RE-USE ON THIS PROJECT
- ⑨ RETAIN INPLACE SIGN



NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\02-651-07\Base\TRAFFIC\0265107_EXISTING SIGNING & STRIPING.dwg					

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt A. Kobilarsik*  
 DATE: 6-9-14 REG. NO. 24756

DRAWN BY: RLB DATE 08/07/13  
 DESIGN BY: RLB DATE 08/07/13  
 CHECKED BY: JR DATE 08/07/13



STATE PROJECT NO. 02-651-07  
 STATE PROJECT NO. 106-020-031  
 STATE PROJECT NO. 114-020-046  
 COUNTY PROJECT NO. \_\_\_\_\_

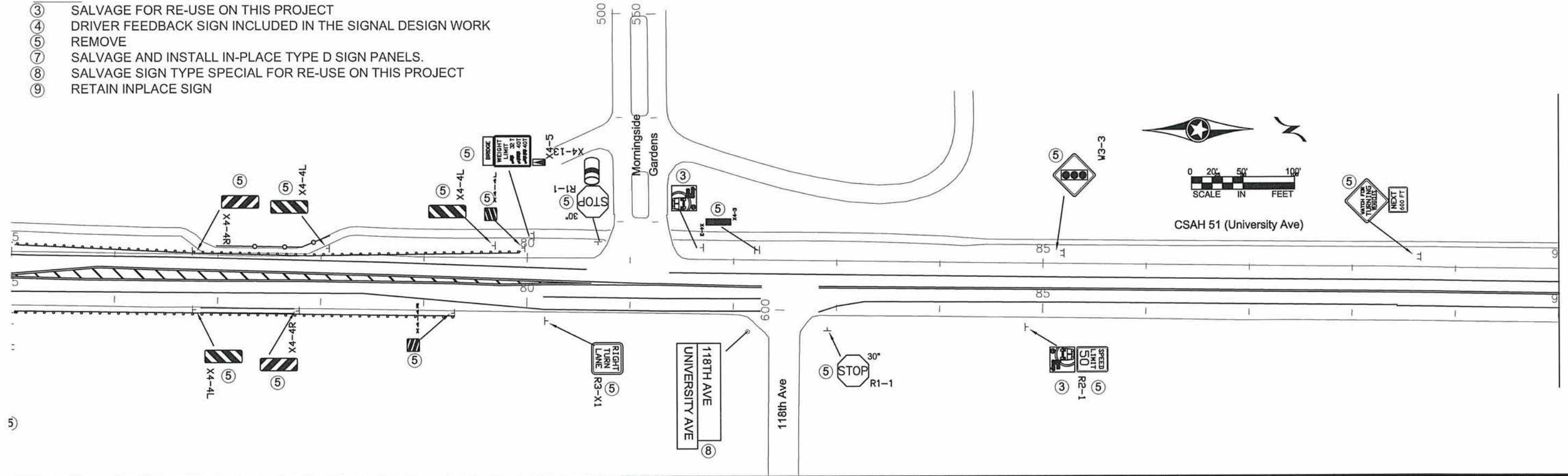
EXISTING SIGNING & STRIPING PLAN  
 Sheet 54 of 381 Sheets



NOTES:

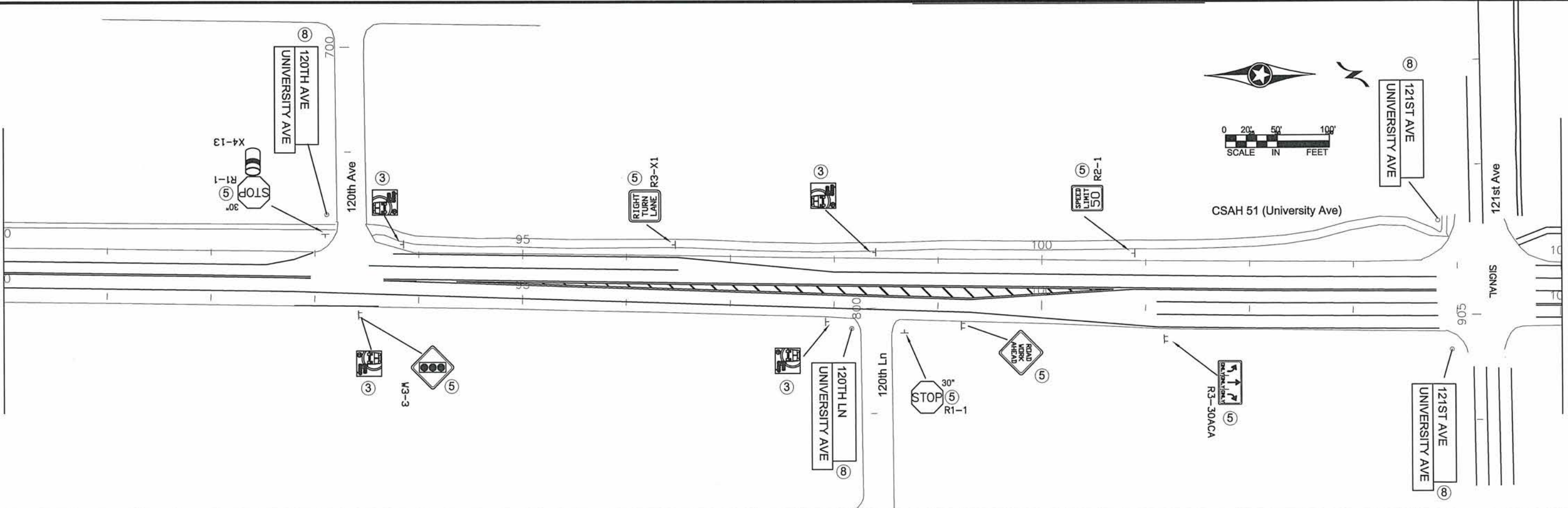
- ③ SALVAGE FOR RE-USE ON THIS PROJECT
- ④ DRIVER FEEDBACK SIGN INCLUDED IN THE SIGNAL DESIGN WORK
- ⑤ REMOVE
- ⑦ SALVAGE AND INSTALL IN-PLACE TYPE D SIGN PANELS.
- ⑧ SALVAGE SIGN TYPE SPECIAL FOR RE-USE ON THIS PROJECT
- ⑨ RETAIN INPLACE SIGN

STATION 75+00



STATION 90+00

STATION 90+00



STATION 105+00

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Base\TRAFFIC\0265107\_EXISTING SIGNING & STRIPING.dwg

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt A. Kobilarsik*  
 DATE: 6-9-14 REG. NO. 24756

DRAWN BY: RLB DATE 08/07/13  
 DESIGN BY: RLB DATE 08/07/13  
 CHECKED BY: JR DATE 08/07/13



ANOKA COUNTY  
 HIGHWAY DEPT.

STATE PROJECT NO. 02-651-07  
 STATE PROJECT NO. 106-020-031  
 STATE PROJECT NO. 114-020-046  
 COUNTY PROJECT NO.

EXISTING SIGNING &  
 STRIPING PLAN  
 Sheet 56 of 381 Sheets





M SIGN REMOVAL TAB							
STATION	REMOVE SIGN TYPE C	SALVAGE SIGN TYPE C	SALVAGE SIGN TYPE SPECIAL	INSTALL SIGN TYPE C	INSTALL SIGN TYPE SPECIAL	SIGN NUMBER	SIGN LEGEND
	EACH	EACH	EACH	EACH	EACH		
22+70						R2-1	Speed Limit
						R8-3a	No Parking
25+32	1					R3-x1	Right Turn Lane
26+87	1					R4-7	Keep Right
						X4-2	9-button
27+90	1					M2-1a	Jct
						M1-6A	12
29+10	1					S1-1	School Zone Sign
							School Speed Limit Ahead
29+50	1					R8-3a	No Parking
31+95	1					R1-1	Stop
						X4-13	delineator
32+80	1			1		R8-3a	No Parking
		1					Bus Stop
33+13	1	1		1			Bus Stop
33+37	1					R9-3a	No Ped Xing
33+40	1					R9-3a	No Ped Xing
33+65	1					W1-7	Two-Direction Large Arrow
34+32	1					R1-1	Stop
						X4-13	delineator
39+50	1					R2-7a	End School Speed Zone
39+50	1					R2-1	SL 40
41+25	1					W9-1	Right Lane Ends
41+60	1					R1-1	Stop
						X4-13	delineator
43+30	1					W9-2	Lane Ends Merge Left
43+43	1					W3-3	Signal Ahead
45+70			1		1		113th AVE/UNIVERSITY AVE
							STOP
45+90	1						NO MOTOR VEHICLES
							BICYCLE
							NO MOTOR VEHICLES
						S1-1	School Zone Sign
							STATE LAW
47+03	1					S2-P2	arrow
						S1-1	School Zone Sign
							STATE LAW
						S2-P2	arrow
47+10	1					S1-1	School Zone Sign
							STATE LAW
						S2-P2	arrow
						S1-1	School Zone Sign
							STATE LAW
47+25	1						STOP
							NO MOTOR VEHICLES
							BICYCLE
							NO MOTOR VEHICLES
50+30	1					R8-3a	No Parking
52+10	1					W14-3	No Passing Zone
53+40	1					R2-7a	End School Speed Zone
53+40	1					R2-1	SL 50
55+15	1					W14-3	No Passing Zone

M SIGN REMOVAL TAB							
STATION	REMOVE SIGN TYPE C	SALVAGE SIGN TYPE C	SALVAGE SIGN TYPE SPECIAL	INSTALL SIGN TYPE C	INSTALL SIGN TYPE SPECIAL	SIGN NUMBER	SIGN LEGEND
	EACH	EACH	EACH	EACH	EACH		
56+50	1	1				I-x1	Northdale Middle School
58+30	1					x4-13	delineator
58+30	1					x4-13	delineator
59+40	1					S1-1	School Zone Sign
							School Speed Limit Ahead
59+80			1		1		115th AVE/UNIVERSITY AVE
						R1-1	Stop
59+85	1					R1-x2a	Cross Traffic Does Not Stop
						x4-13	delineator
						R1-1	Stop
60+55	1					R1-x2a	Cross Traffic Does Not Stop
60+85	1	1		1			Bus Stop
61+10	1	1		1			Bus Stop
62+45	1					R3-x1	Right Turn Lane
63+70	1					x4-5	Plow Up
64+10	1					x4-4L	Clearance Marker
64+35	1	1		1		I-x1	Northdale Middle School
64+70	1					x4-5	Plow Down
66+00	1					W3-3	Signal Ahead
70+30	1					R3-30ACA	Lane Designation
72+10	1					R2-1	SL 50
73+80			1		1		117th AVE/UNIVERSITY AVE
74+65	1			1		R3-30AD	Lane Designation
75+00	1					X4-4L	Clearance Marker
75+00	1						Bus Stop
75+00	1					R12-5	Bridge
75+00	1					R12-5	Weight Rest
75+00	1					X4-4R	Clearance Marker
76+75	1					X4-4L	Clearance Marker
76+75	1					X4-4R	Clearance Marker
77+80	1					X4-4R	Clearance Marker
78+10	1					X4-4L	Clearance Marker
79+30	1					X4-4R	Clearance Marker
79+70	1					X4-4L	Clearance Marker
80+00	1					X4-4L	Clearance Marker
80+05	1					R12-5	Bridge
						R12-5	Weight Rest
						X4-5	Plow Up
80+15	1					R3-x1	Right Turn Lane
80+70	1					R1-1	Stop
						X4-13	delineator
81+70	1	1		1			Bus Stop
82+20	1					X4-3	culvert marker
						X4-3	culvert marker
82+30			1		1		118th AVE/UNIVERSITY AVE
82+90	1					R1-1	Stop
						X4-13	delineator
84+80	1			1		R2-1	SL 50
		1					Bus Stop
85+20	1					W3-3	Signal Ahead

M SIGN REMOVAL TAB							
STATION	REMOVE SIGN TYPE C	SALVAGE SIGN TYPE C	SALVAGE SIGN TYPE SPECIAL	INSTALL SIGN TYPE C	INSTALL SIGN TYPE SPECIAL	SIGN NUMBER	SIGN LEGEND
	EACH	EACH	EACH	EACH	EACH		
88+70	1					W14-x	Watch for Turning Vehicles
						W20-100p	600feet
93+10	1					R1-1	Stop
						X4-13	delineator
93+10			1		1		120th AVE/UNIVERSITY AVE
93+42	1					W3-3	Signal Ahead
		1		1			Bus Stop
93+85	1	1		1			Bus Stop
96+45	1					R3-x1	Right Turn Lane
97+90	1	1		1			Bus Stop
98+20			1		1		120th LN/UNIVERSITY AVE
98+40	1	1		1			Bus Stop
98+70	1					R1-1	Stop
						X4-13	delineator
99+00	1					W14-3	No Passing Zone
100+90	1					R2-1	SL 50
101+20	1					R3-30ACA	Lane Designation
103+90			1		1		121st AVE/UNIVERSITY AVE
103+90			1		1		121st AVE/UNIVERSITY AVE
107+50	1					R3-30ACA	Lane Designation
113+55	1					R3-2	No Left Turn
113+55	1					R3-2	No Left Turn
113+50			1		1		124th AVE/UNIVERSITY AVE
113+57	1					R1-1	Stop
						X4-13	delineator
114+05	1					R5-1	Do Not Enter
						R4-7	Keep Right
114+07	1					x4-2	9-button
114+10	1					x4-4L	Clearance Marker
116+20	1					R3-x1	Right Turn Lane
116+80	1					W3-3	Signal Ahead
118+50	1					X4-5	Plow Up
						R4-7	Keep Right
119+10	1					x4-2	9-button
119+60	1					W20-X3L	Merge Left
119+90	1					M2-1a	Jct
						M1-6A	CR 14
120+40	1					R3-4	No U-Turn
						R4-7	Keep Right
						X4-2	9-button
120+75	1					R3-X1	Right Turn Lane
TOTAL	89	13	9	13	9		

CONSTRUCTION NOTES:  
1. FOR RELOCATING TRAFFIC SIGNS DURING CONSTRUCTION, AS DIRECTED BY THE ENGINEER, RELOCATION INCIDENTAL TO TRAFFIC CONTROL.

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
CURT A. KOBILARCSIK  
PRINT NAME: Curt A. Kobilarsik  
SIGNATURE: [Signature]  
DATE: 6-9-14 REG. NO. 24756

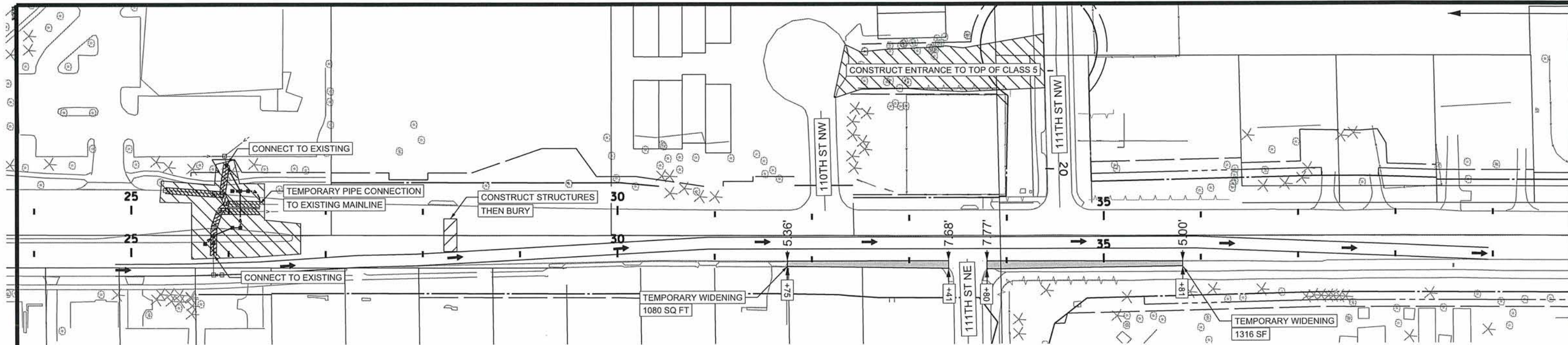
DRAWN BY RLB DATE 08/08/13  
DESIGN BY RLB DATE 08/08/13  
CHECKED BY JR DATE 08/08/13



ANOKA COUNTY  
HIGHWAY DEPT.

STATE PROJECT NO. 02-651-07  
STATE PROJECT NO. 106-020-031  
STATE PROJECT NO. 114-020-046  
COUNTY PROJECT NO. \_\_\_\_\_

SALVAGE SIGNS  
TABULATION  
Sheet 58 of 381 Sheets



**STAGE 1 CONSTRUCTION NOTES:**

SOUTH DRAINAGE AT LOW POINT TO BE COMPLETED USING TEMPORARY TRAFFIC CONTROL LAYOUTS DURING THIS STAGE

SAND CREEK EAST OUTFALL TO BE COMPLETED DURING THIS STAGE

**\*\* SIGNAL MODIFICATION WORK AT NORTHDAL E BOULEVARD \*\***  
MUST BE COSTRUCTED / STAGED SO THAT IT DOES NOT CONFLICT WITH CONSTRUCTION NORTH OF CVS PHARMACY

ALL TEMPORARY WIDENING TO BE COMPLETED DURING THIS STAGE

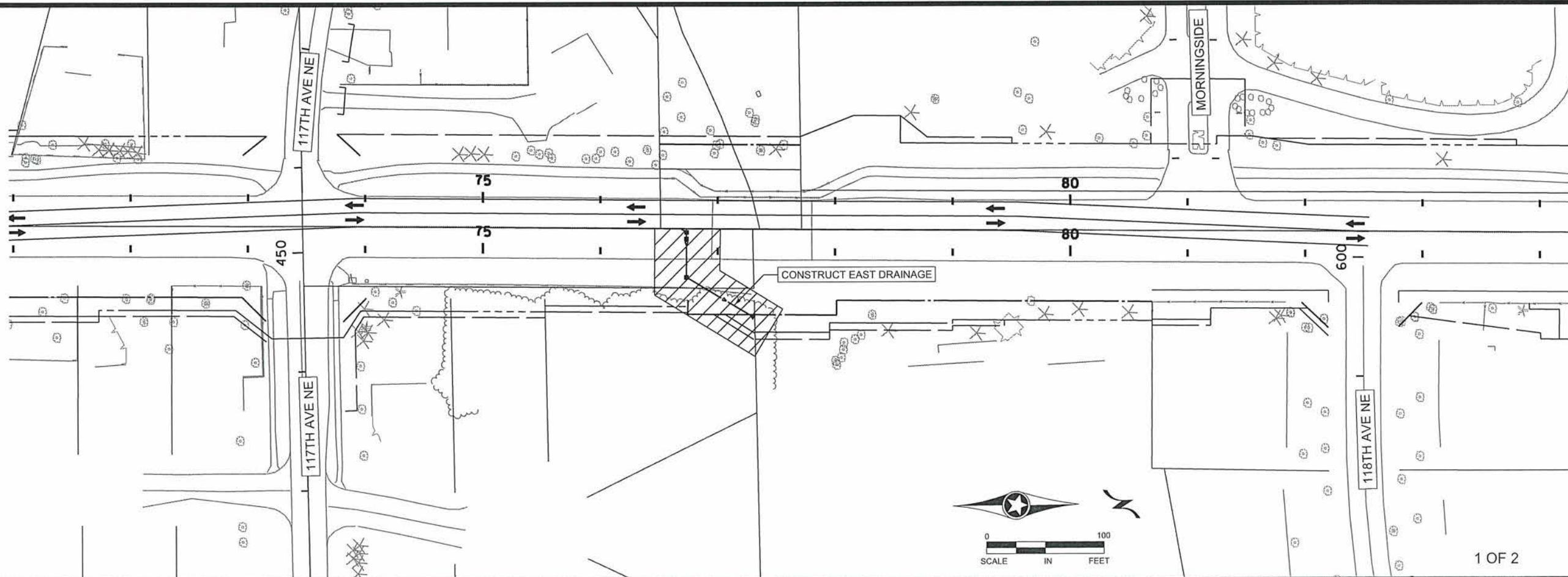
SEE TRAFFIC CONTROL SHEETS 72 - 92 FOR TRAFFIC CONTROL NOTES AND DETAILS

STAGING / CONSTRUCTION OF NORTHDAL E SIGNAL WORK TO BE DETERMINED BY CONTRACTOR AND VERIFIED WITH CONSTRUCTION ENGINEER PRIOR TO CONSTRUCTION

**LEGEND**

- CONSTRUCTION AREA
- EXISTING TOPOGRAPHY
- PROPOSED CONST.
- EXISTING CONST.
- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- TEMPORARY EASEMENT
- PERMANENT EASEMENT
- GENERAL TRAFFIC FLOW  
SEE TRAFFIC CONTROL PLAN FOR DETAILS
- PROPOSED DRAINAGE TO BE COMPLETE DURING THIS STAGE
- PROPOSED DRAINAGE COMPLETED DURING PREVIOUS STAGE

SCALE IN FEET



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_STG1-P1.dgn 06/05/2014 7:43:48 AM

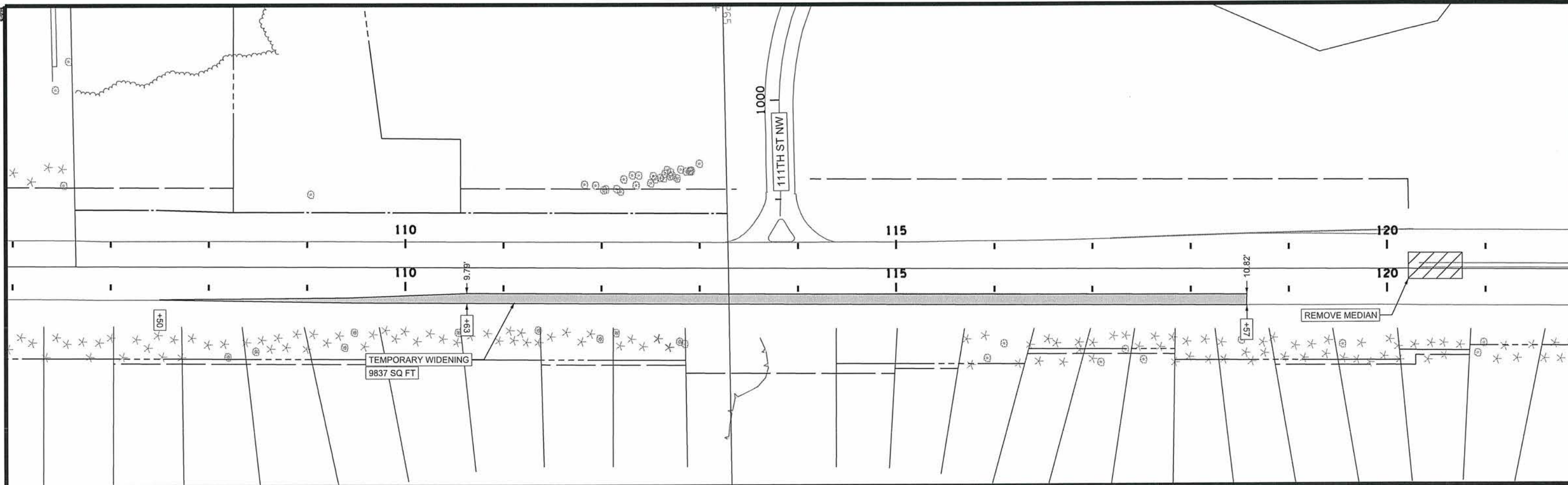
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: CURT A. KOBIARCSIK  
SIGNATURE: *Curt A. Kobilarcsik*  
DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 11-25-13  
DESIGN BY: NJD DATE: 10-31-13  
CHECKED BY: GMP DATE: 12-13-13

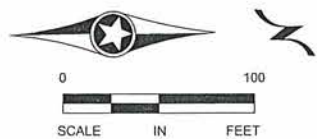
**ANOKA COUNTY  
HIGHWAY DEPT.**

S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046



LEGEND

- CONSTRUCTION AREA
- EXISTING TOPOGRAPHY
- PROPOSED CONST.
- EXISTING CONST.
- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- TEMPORARY EASEMENT
- PERMANENT EASEMENT
- GENERAL TRAFFIC FLOW  
SEE TRAFFIC CONTROL PLAN FOR DETAILS
- PROPOSED DRAINAGE TO BE COMPLETE DURING THIS STAGE
- PROPOSED DRAINAGE COMPLETED DURING PREVIOUS STAGE



STAGE 1 CONSTRUCTION NOTES:

SOUTH DRAINAGE AT LOW POINT TO BE COMPLETED USING TEMPORARY TRAFFIC CONTROL LAYOUTS DURING THIS STAGE

SAND CREEK EAST OUTFALL TO BE COMPLETED DURING THIS STAGE

ALL TEMPORARY WIDENING TO BE COMPLETED DURING THIS STAGE

SEE TRAFFIC CONTROL SHEETS 72 - 92 FOR TRAFFIC CONTROL NOTES AND DETAILS

NO	DATE	BY	CKD	APPR	REVISION

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SIGNATURE: *Curt Kobilarsik*

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CHECKED BY: GMP DATE: 12-13-13

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

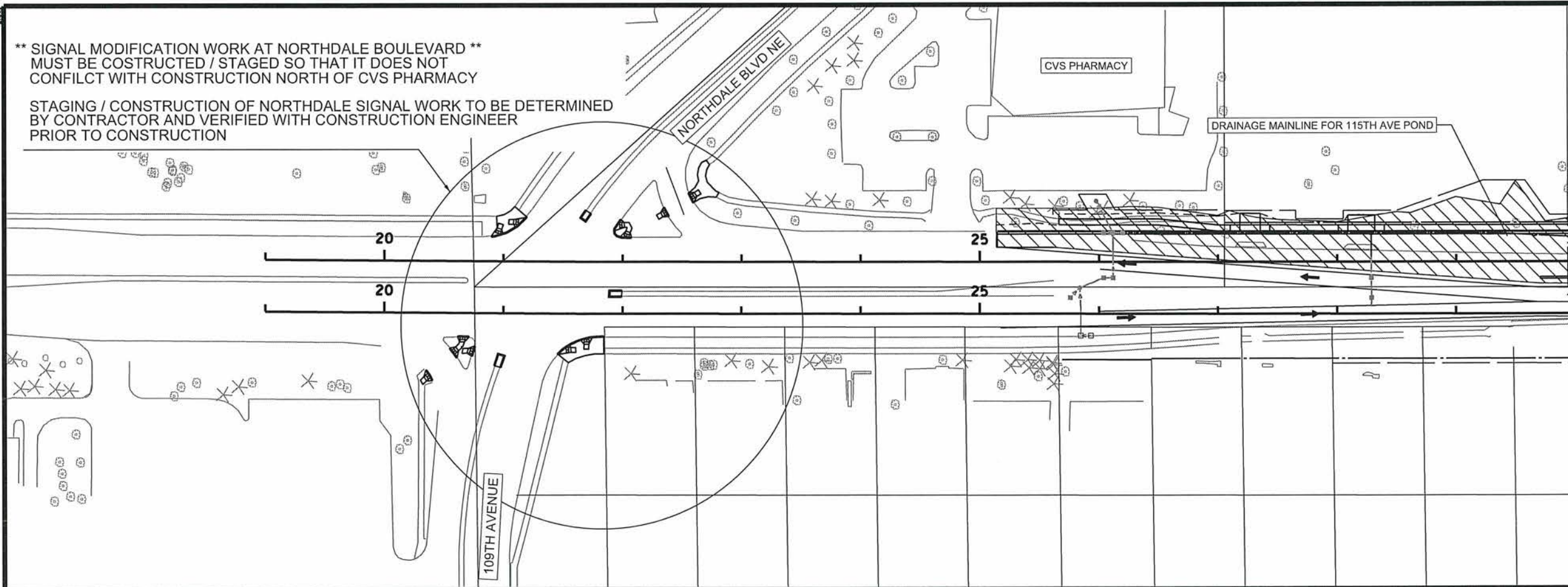
S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

STAGE 1  
WIDENING & MISC. CONSTRUCTION

Sheet 60 of 381 Sheets

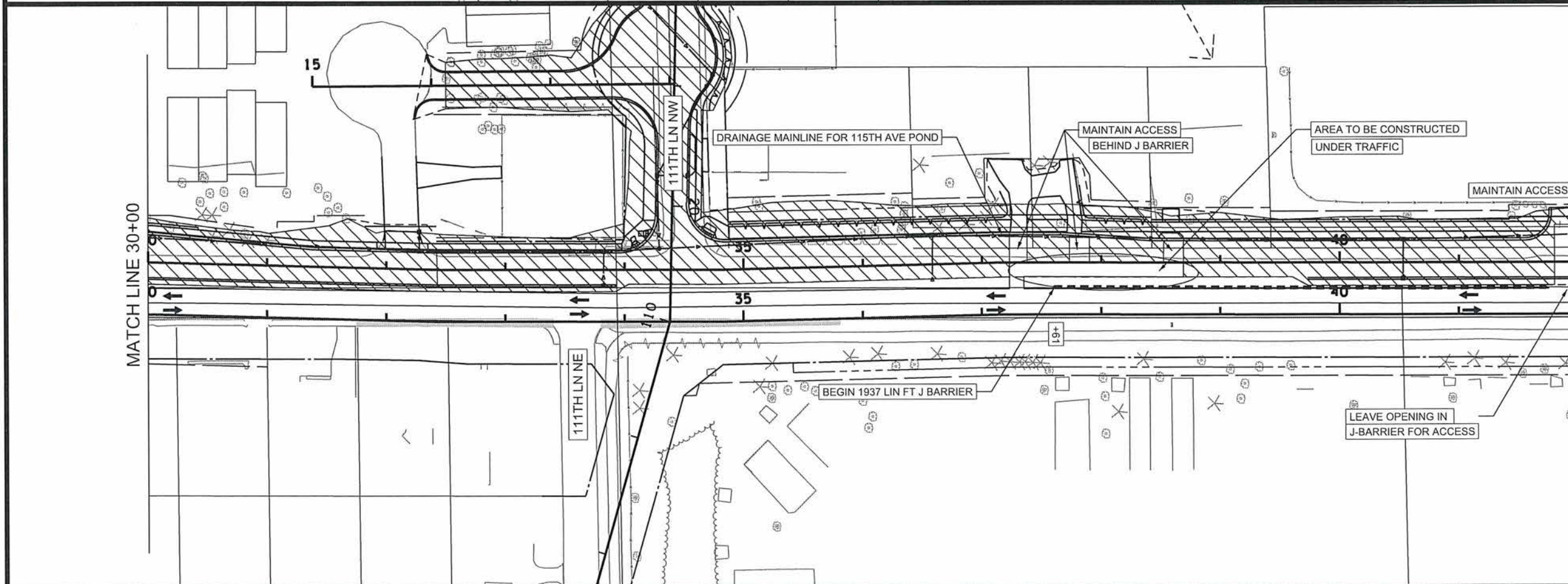
**\*\* SIGNAL MODIFICATION WORK AT NORTHDALÉ BOULEVARD \*\*  
MUST BE CONSTRUCTED / STAGED SO THAT IT DOES NOT  
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STAGING / CONSTRUCTION OF NORTHDALÉ SIGNAL WORK TO BE DETERMINED  
BY CONTRACTOR AND VERIFIED WITH CONSTRUCTION ENGINEER  
PRIOR TO CONSTRUCTION



**LEGEND**

- CONSTRUCTION AREA
- EXISTING TOPOGRAPHY
- PROPOSED CONST.
- EXISTING CONST.
- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- TEMPORARY EASEMENT
- PERMANENT EASEMENT
- GENERAL TRAFFIC FLOW  
SEE TRAFFIC CONTROL PLAN FOR DETAILS
- PROPOSED DRAINAGE TO BE COMPLETE DURING THIS STAGE
- PROPOSED DRAINAGE COMPLETED DURING PREVIOUS STAGE



**STAGE 1 CONSTRUCTION NOTES:**

POND GRADING FOR 115TH AVE POND, GRIZZ POND, AND CRESCENT POND EXT. COMPLETED DURING THIS STAGE

DRAINAGE CONNECTION FOR EXISTING SCHOOL POND TO BE COMPLETED DURING THIS STAGE

DRAINAGE CONNECTION FOR BURL OAKS NEIGHBORHOOD TO BE COMPLETED DURING THIS STAGE

DRAINAGE MAINLINE FOR 115TH AVE POND, GRIZZ POND, AND CRESCENT POND EXT. TO BE COMPLETED DURING THIS STAGE

SEE TRAFFIC CONTROL SHEETS 72 - 92 FOR TRAFFIC CONTROL NOTES AND DETAILS

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_STG2-P1.dgn 06/05/2014 7:43:54 AM

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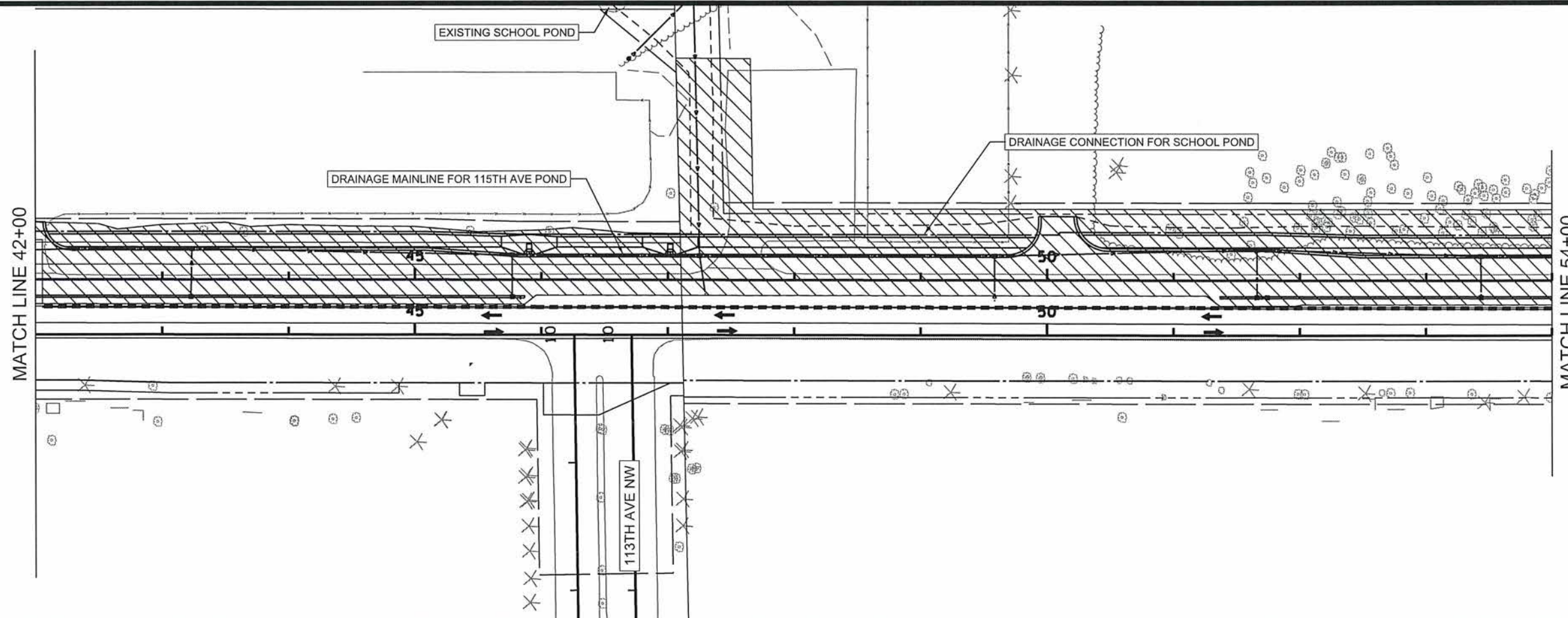
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SIGNATURE: *Curt Kobilarsik*  
DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 11-25-13  
DESIGN BY: NJD DATE: 10-31-13  
CHECKED BY: GMP DATE: 12-13-13

**ANOKA COUNTY  
HIGHWAY DEPT.**

S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

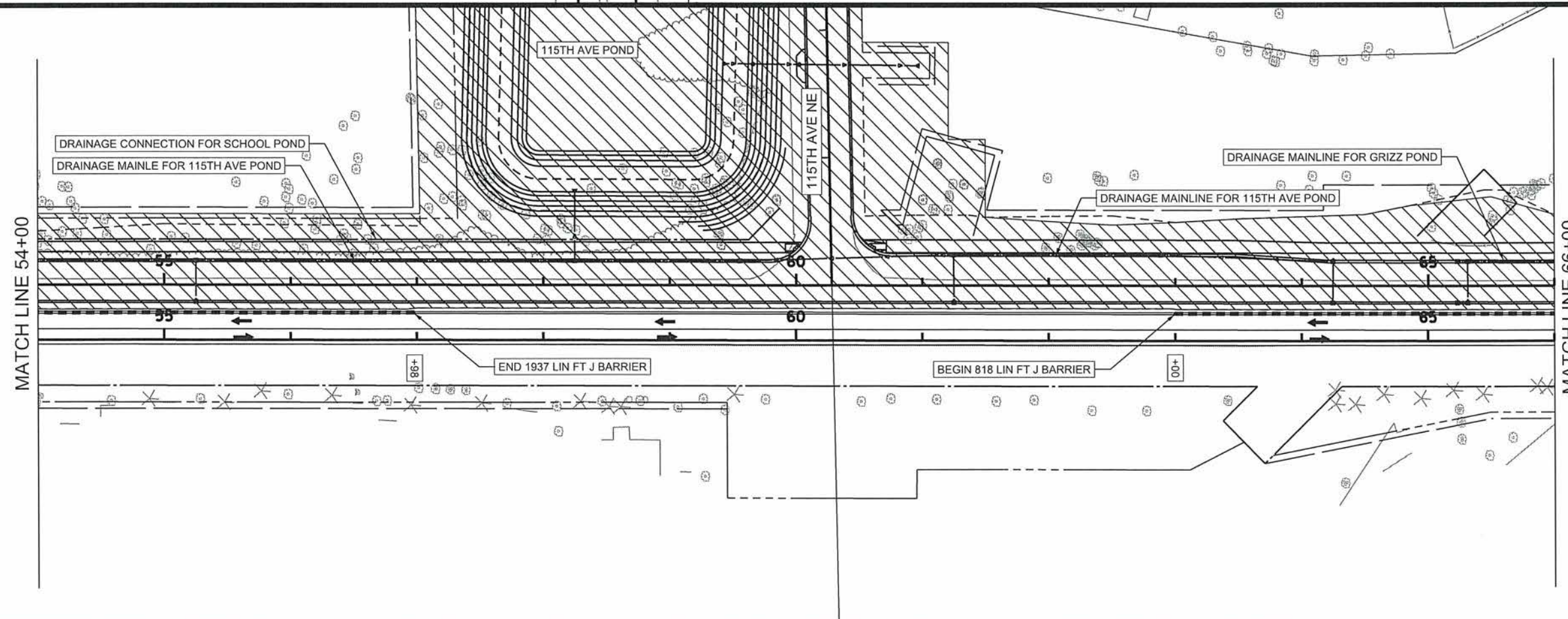
STAGE 2  
WEST CONSTRUCTION  
Sheet 61 of 381 Sheets



**LEGEND**

- CONSTRUCTION AREA
- EXISTING TOPOGRAPHY
- PROPOSED CONST.
- EXISTING CONST.
- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- TEMPORARY EASEMENT
- PERMANENT EASEMENT
- GENERAL TRAFFIC FLOW  
SEE TRAFFIC CONTROL PLAN FOR DETAILS
- PROPOSED DRAINAGE TO BE COMPLETE DURING THIS STAGE
- PROPOSED DRAINAGE COMPLETED DURING PREVIOUS STAGE

SCALE IN FEET



**STAGE 1 CONSTRUCTION NOTES:**

POND GRADING FOR 115TH AVE POND, GRIZZ POND, AND CRESCENT POND EXT. COMPLETED DURING THIS STAGE

DRAINAGE CONNECTION FOR EXISTING SCHOOL POND TO BE COMPLETED DURING THIS STAGE

DRAINAGE CONNECTION FOR BURL OAKS NEIGHBORHOOD TO BE COMPLETED DURING THIS STAGE

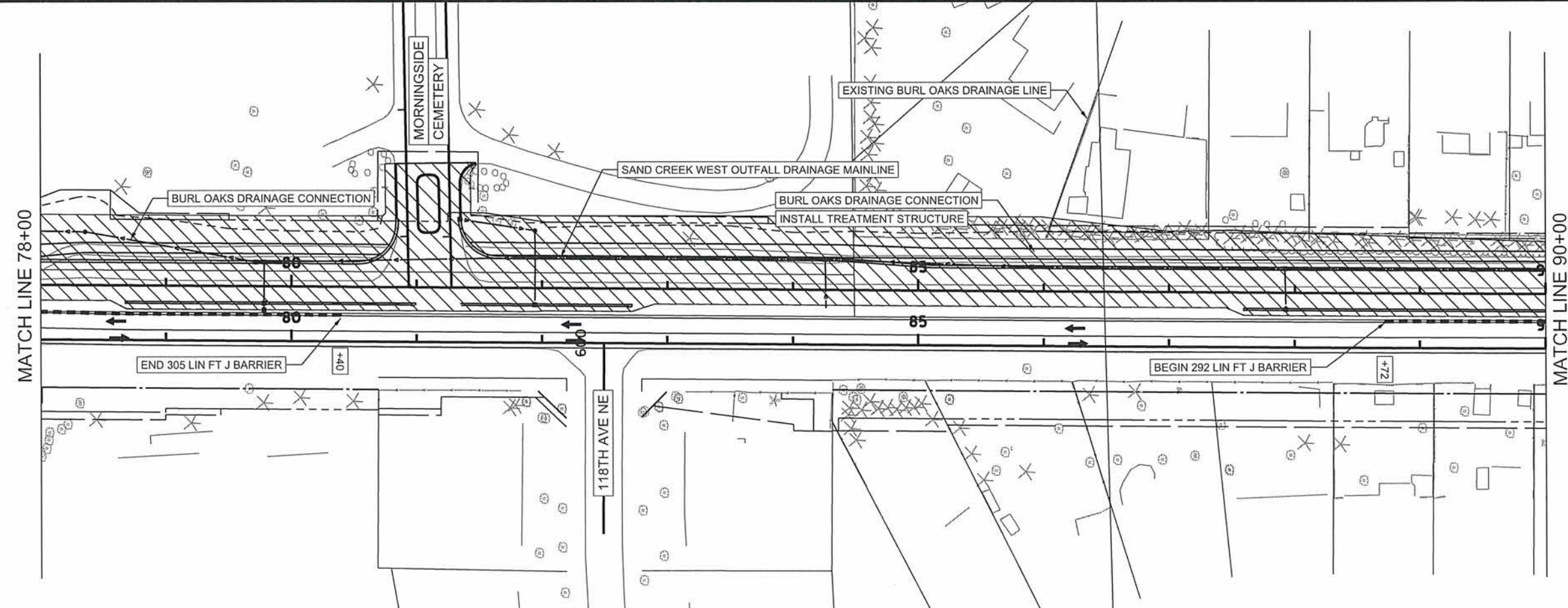
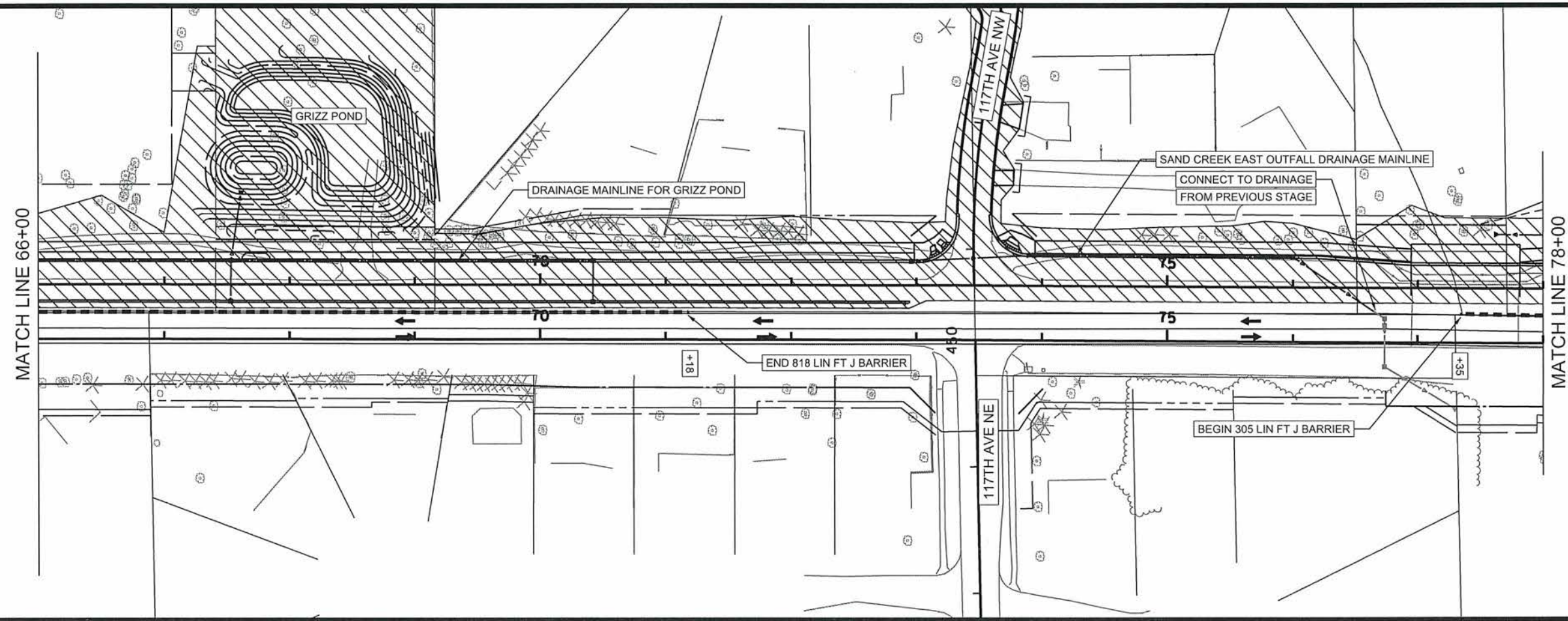
DRAINAGE MAINLINE FOR 115TH AVE POND, GRIZZ POND, AND CRESCENT POND EXT. TO BE COMPLETED DURING THIS STAGE

SEE TRAFFIC CONTROL SHEETS 72 - 92 FOR TRAFFIC CONTROL NOTES AND DETAILS

<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>NO</th> <th>DATE</th> <th>BY</th> <th>CKD</th> <th>APPR</th> <th>REVISION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> <p>NAME: P:\02-651-07\Plan\0265107_STG2-P2.dgn</p>	NO	DATE	BY	CKD	APPR	REVISION							<p>I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.</p> <p>PRINT NAME: CURT A. KOBILARCSIK</p> <p>SIGNATURE: <i>Curt A. Kobilarsik</i></p> <p>DATE: 6-9-14 LICENSE NO. 24756</p>	<p>DRAWN BY: NJD DATE 11-25-13</p> <p>DESIGN BY: NJD DATE 10-31-13</p> <p>CHECKED BY: GMP DATE 12-13-13</p>	<p><b>ANOKA COUNTY HIGHWAY DEPT.</b></p> <p>S.P. 002-651-007 S.P. 106-020-031 S.P. 114-020-046</p>	<p style="text-align: center;">STAGE 2 WEST CONSTRUCTION</p> <p>Sheet 62 of 381 Sheets</p>
NO	DATE	BY	CKD	APPR	REVISION											

**LEGEND**

- CONSTRUCTION AREA
- EXISTING TOPOGRAPHY
- PROPOSED CONST.
- EXISTING CONST.
- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- TEMPORARY EASEMENT
- PERMANENT EASEMENT
- GENERAL TRAFFIC FLOW  
SEE TRAFFIC CONTROL PLAN FOR DETAILS
- PROPOSED DRAINAGE TO BE COMPLETE DURING THIS STAGE
- PROPOSED DRAINAGE COMPLETED DURING PREVIOUS STAGE



**STAGE 1 CONSTRUCTION NOTES:**

POND GRADING FOR 115TH AVE POND, GRIZZ POND, AND CRESCENT POND EXT. COMPLETED DURING THIS STAGE

DRAINAGE CONNECTION FOR EXISTING SCHOOL POND TO BE COMPLETED DURING THIS STAGE

DRAINAGE CONNECTION FOR BURL OAKS NEIGHBORHOOD TO BE COMPLETED DURING THIS STAGE

DRAINAGE MAINLINE FOR 115TH AVE POND, GRIZZ POND, AND CRESCENT POND EXT. TO BE COMPLETED DURING THIS STAGE

SEE TRAFFIC CONTROL SHEETS 72 - 92 FOR TRAFFIC CONTROL NOTES AND DETAILS

NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\02-651-07\Plan\0265107_STG2-P3.dgn					
06/05/2014 7:43:59 AM					

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DATE: 6-9-14 LICENSE NO. 24756

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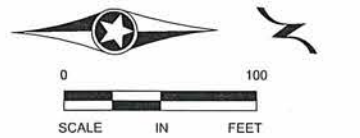
**ANOKA COUNTY  
HIGHWAY DEPT.**

S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

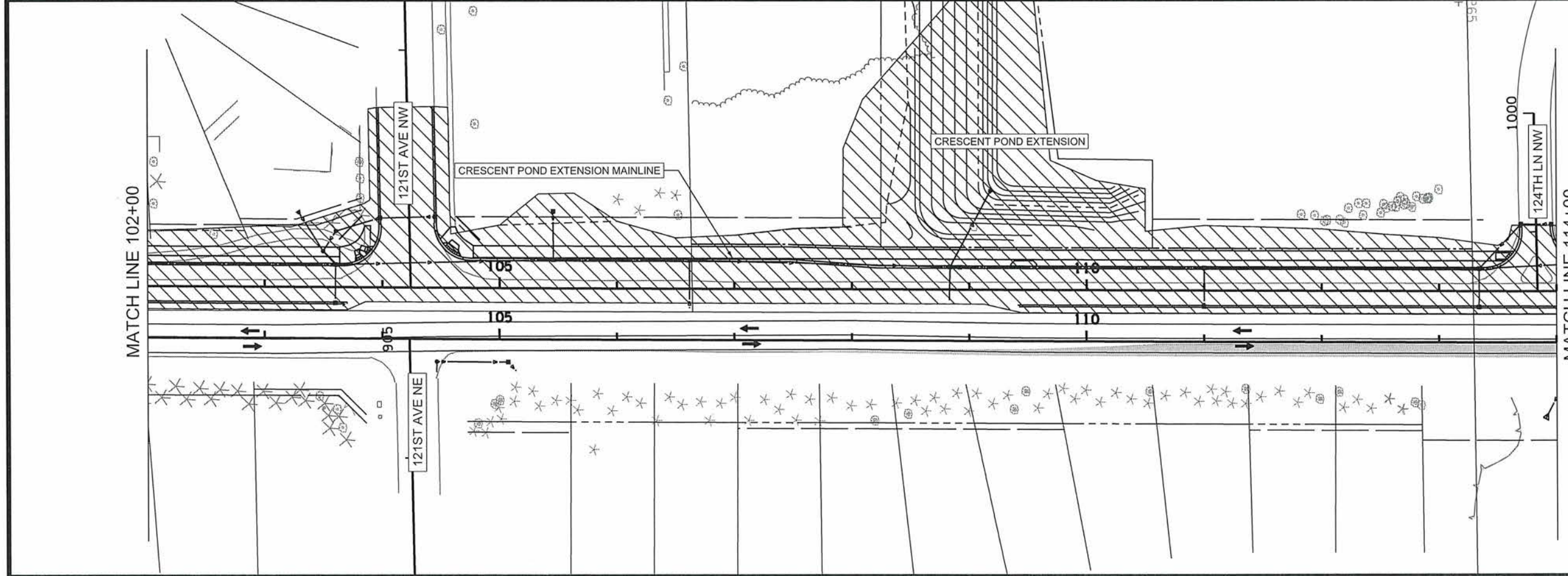
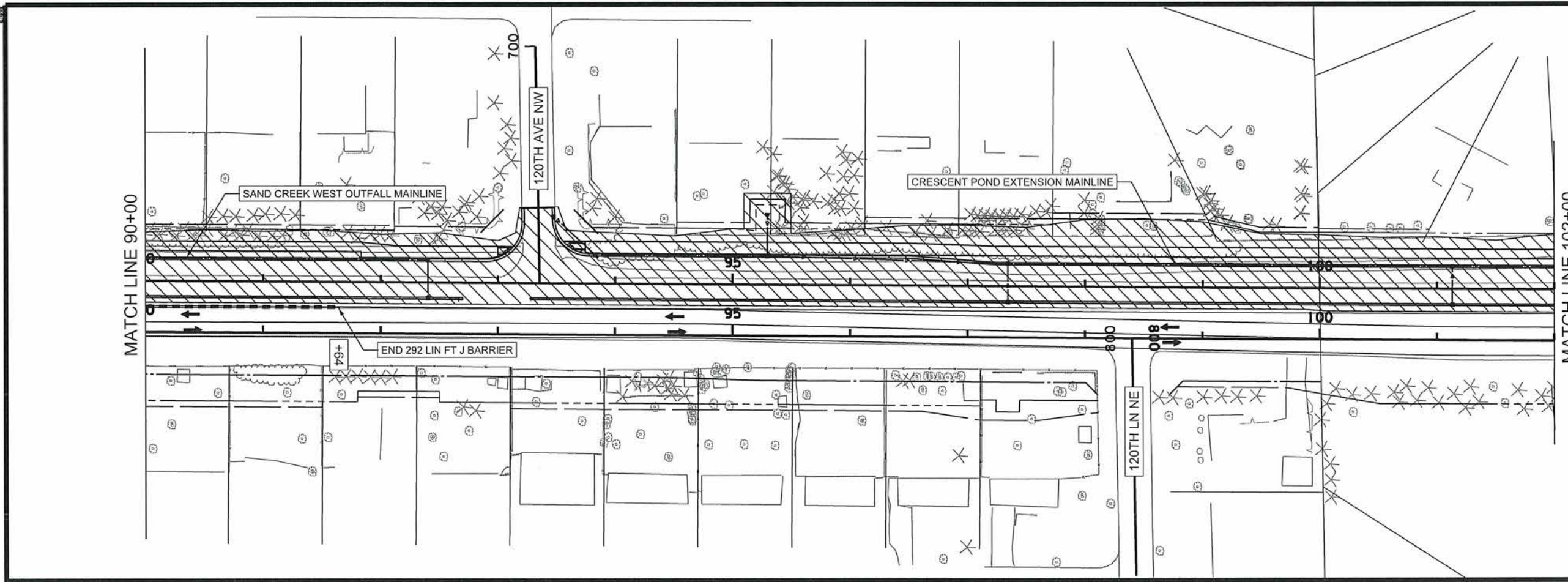
STAGE 2  
WEST CONSTRUCTION  
Sheet 63 of 381 Sheets

**LEGEND**

-  CONSTRUCTION AREA
-  EXISTING TOPOGRAPHY
-  PROPOSED CONST.
-  EXISTING CONST.
-  EXISTING RIGHT OF WAY
-  PROPOSED RIGHT OF WAY
-  TEMPORARY EASEMENT
-  PERMANENT EASEMENT
-  GENERAL TRAFFIC FLOW  
SEE TRAFFIC CONTROL PLAN FOR DETAILS
-  PROPOSED DRAINAGE TO BE COMPLETE DURING THIS STAGE
-  PROPOSED DRAINAGE COMPLETED DURING PREVIOUS STAGE



0 100  
SCALE IN FEET



**STAGE 1 CONSTRUCTION NOTES:**

- POND GRADING FOR 115TH AVE POND, GRIZZ POND, AND CRESCENT POND EXT. COMPLETED DURING THIS STAGE
- DRAINAGE CONNECTION FOR EXISTING SCHOOL POND TO BE COMPLETED DURING THIS STAGE
- DRAINAGE CONNECTION FOR BURL OAKS NEIGHBORHOOD TO BE COMPLETED DURING THIS STAGE
- DRAINAGE MAINLINE FOR 115TH AVE POND, GRIZZ POND, AND CRESCENT POND EXT. TO BE COMPLETED DURING THIS STAGE


SEE TRAFFIC CONTROL SHEETS 72 - 92 FOR TRAFFIC CONTROL NOTES AND DETAILS

NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\02-651-07\Plan\0265107_STG2-P4.dgn					
06/05/2014 7:44:03 AM					

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

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt A. Kobilarsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



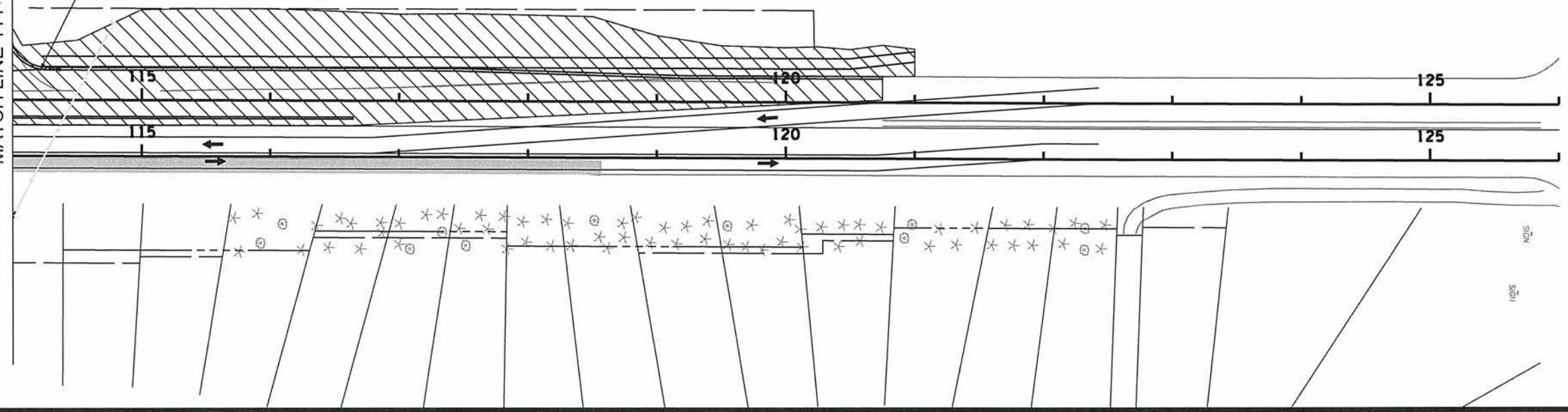
**ANOKA COUNTY  
HIGHWAY DEPT.**

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046



MATCH LINE 114+00

CRESCENT POND EXTENSION MAINLINE



**LEGEND**

- CONSTRUCTION AREA
- EXISTING TOPOGRAPHY
- PROPOSED CONST.
- EXISTING CONST.
- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- TEMPORARY EASEMENT
- PERMANENT EASEMENT
- GENERAL TRAFFIC FLOW  
SEE TRAFFIC CONTROL PLAN FOR DETAILS
- PROPOSED DRAINAGE TO BE COMPLETE DURING THIS STAGE
- PROPOSED DRAINAGE COMPLETED DURING PREVIOUS STAGE

SCALE IN FEET

**STAGE 1 CONSTRUCTION NOTES:**

- POND GRADING FOR 115TH AVE POND, GRIZZ POND, AND CRESCENT POND EXT. COMPLETED DURING THIS STAGE
- DRAINAGE CONNECTION FOR EXISTING SCHOOL POND TO BE COMPLETED DURING THIS STAGE
- DRAINAGE CONNECTION FOR BURL OAKS NEIGHBORHOOD TO BE COMPLETED DURING THIS STAGE
- DRAINAGE MAINLINE FOR 115TH AVE POND, GRIZZ POND, AND CRESCENT POND EXT. TO BE COMPLETED DURING THIS STAGE

SEE TRAFFIC CONTROL SHEETS 72 - 92 FOR TRAFFIC CONTROL NOTES AND DETAILS

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_STG2-P5.dgn      06/05/2014      7:44:05 AM

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 SIGNATURE: *Curt Kobilarsik*  
 DATE: 6-9-14      LICENSE NO. 24756

DRAWN BY: NJD      DATE: 11-25-13  
 DESIGN BY: NJD      DATE: 10-31-13  
 CHECKED BY: GMP      DATE: 12-13-13

**ANOKA COUNTY  
HIGHWAY DEPT.**

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046












**STAGE 2  
WEST CONSTRUCTION**

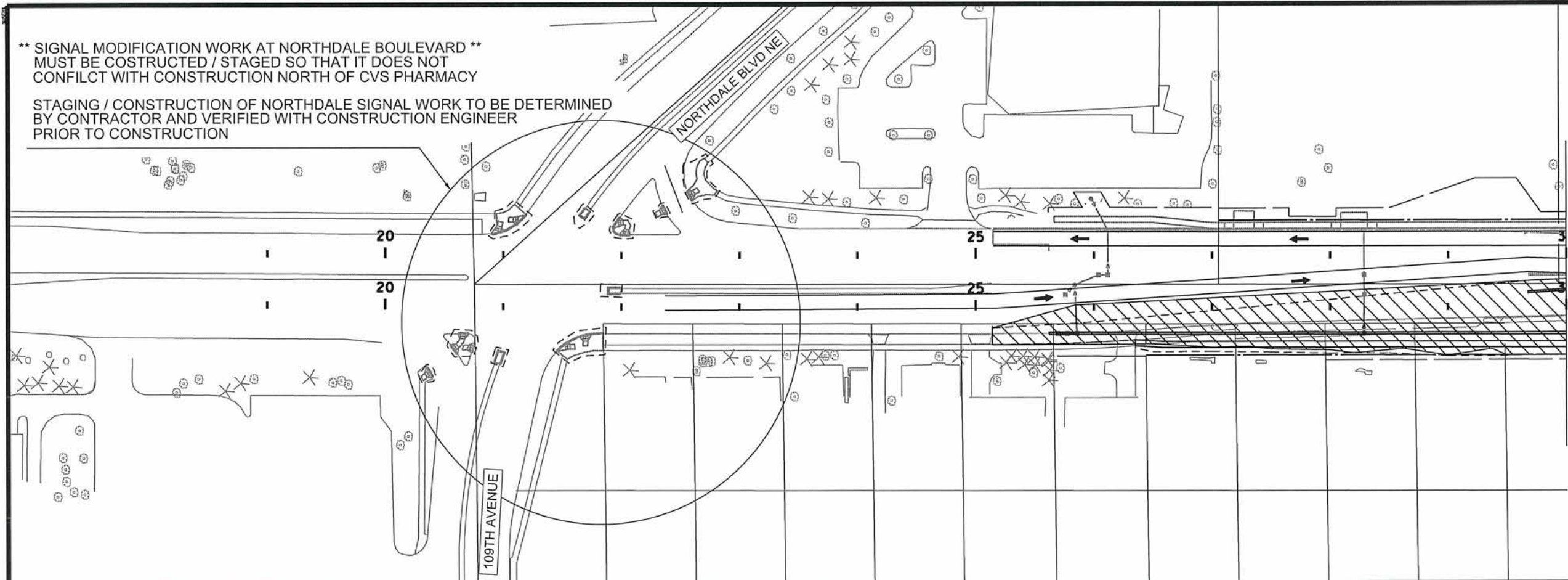
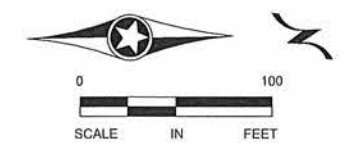
Sheet 65 of 381 Sheets

**\*\* SIGNAL MODIFICATION WORK AT NORTHDALÉ BOULEVARD \*\*  
MUST BE CONSTRUCTED / STAGED SO THAT IT DOES NOT  
CONFLICT WITH CONSTRUCTION NORTH OF CVS PHARMACY**

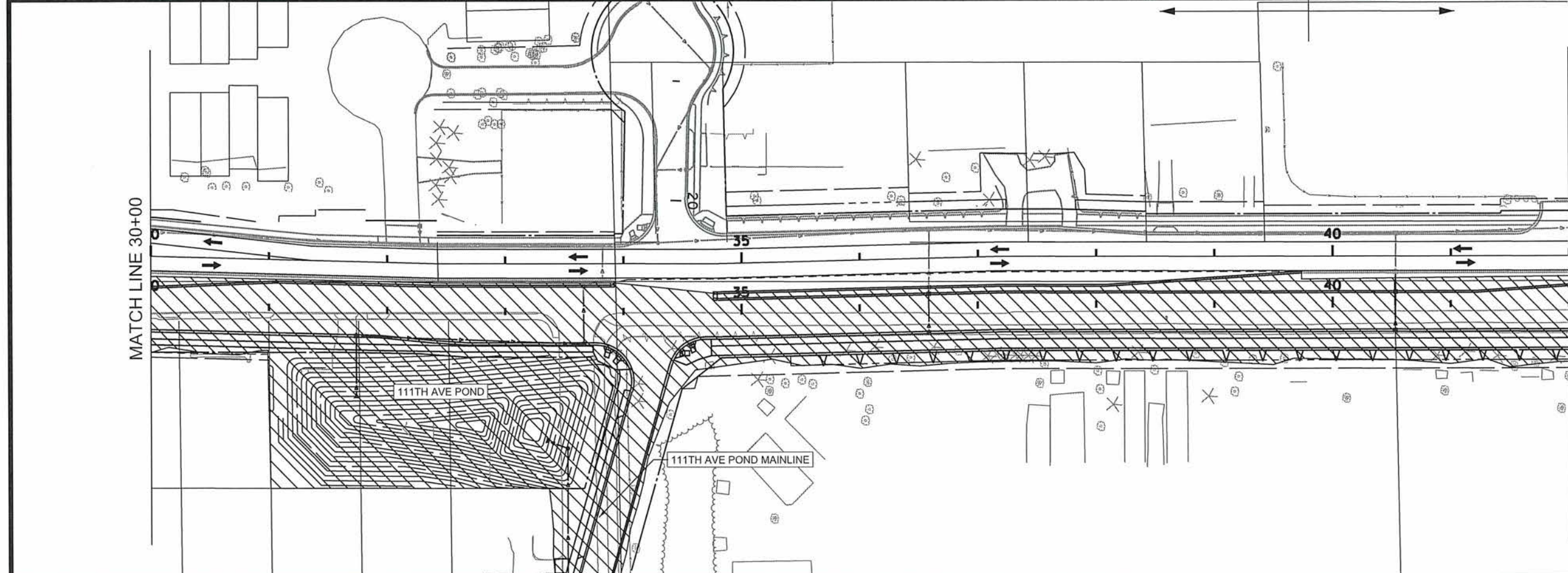
STAGING / CONSTRUCTION OF NORTHDALÉ SIGNAL WORK TO BE DETERMINED  
BY CONTRACTOR AND VERIFIED WITH CONSTRUCTION ENGINEER  
PRIOR TO CONSTRUCTION

**LEGEND**

-  CONSTRUCTION AREA
-  EXISTING TOPOGRAPHY
-  PROPOSED CONST.
-  EXISTING CONST.
-  EXISTING RIGHT OF WAY
-  PROPOSED RIGHT OF WAY
-  TEMPORARY EASEMENT
-  PERMANENT EASEMENT
-  GENERAL TRAFFIC FLOW  
SEE TRAFFIC CONTROL  
PLAN FOR DETAILS
-  PROPOSED DRAINAGE  
TO BE COMPLETE  
DURING THIS STAGE
-  PROPOSED DRAINAGE  
COMPLETED DURING  
PREVIOUS STAGE




MATCH LINE 30+00



**STAGE 3 CONSTRUCTION NOTES:**

- POND GRADING FOR 111TH AVE POND TO BE COMPLETED DURING THIS STAGE
- NORTHBOUND SIDE OF ROADWAY TO BE COMPLETED DURING THIS STAGE

**NOTE:**

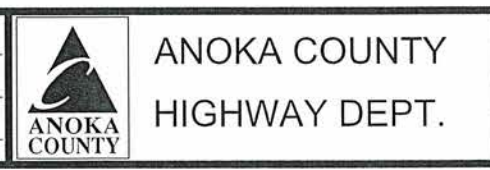
-  SB LEFT TURN BAYS,  
TO BE CONSTRUCTED IN STAGE 4  
(INCLUDES C & G AND PAVEMENT)

SEE TRAFFIC CONTROL SHEETS  
72 - 92 FOR TRAFFIC CONTROL  
NOTES AND DETAILS

NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\02-651-07\Plan\0265107_STG3-P1.dgn					
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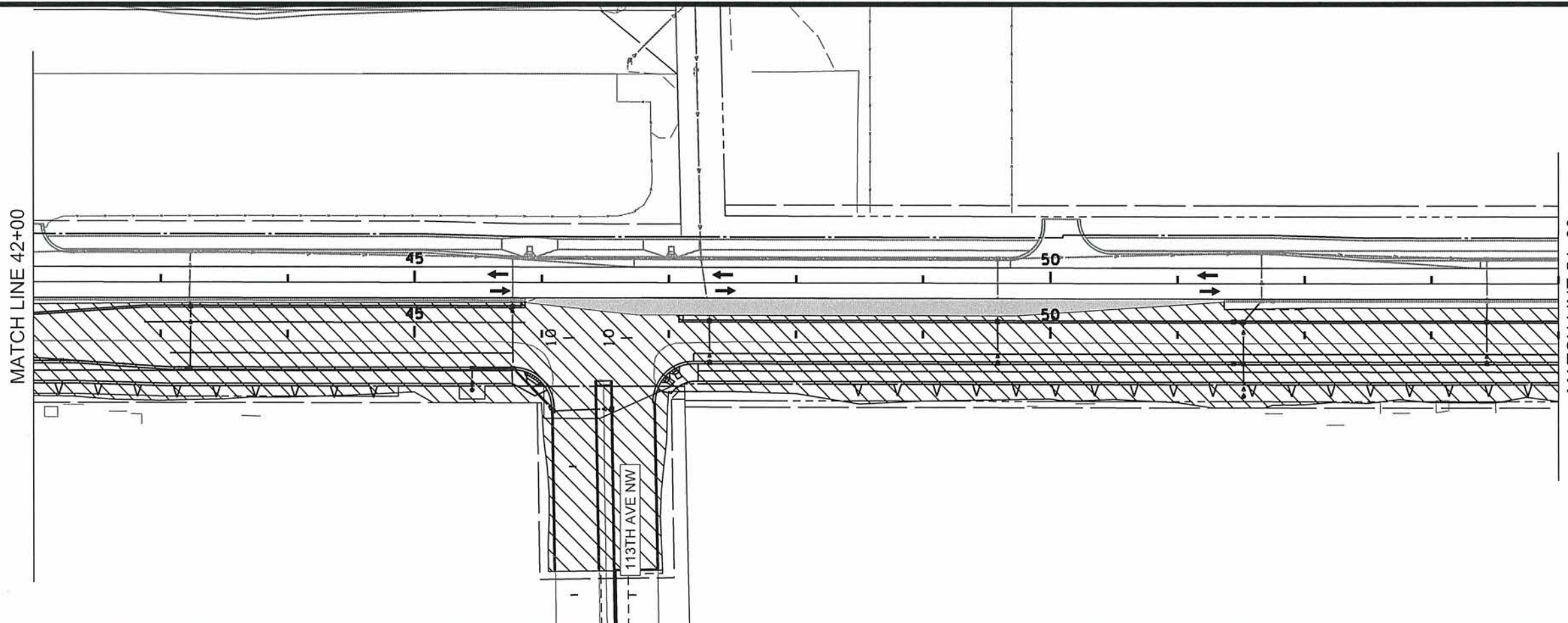
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S.P. 106-020-031  
S.P. 114-020-046

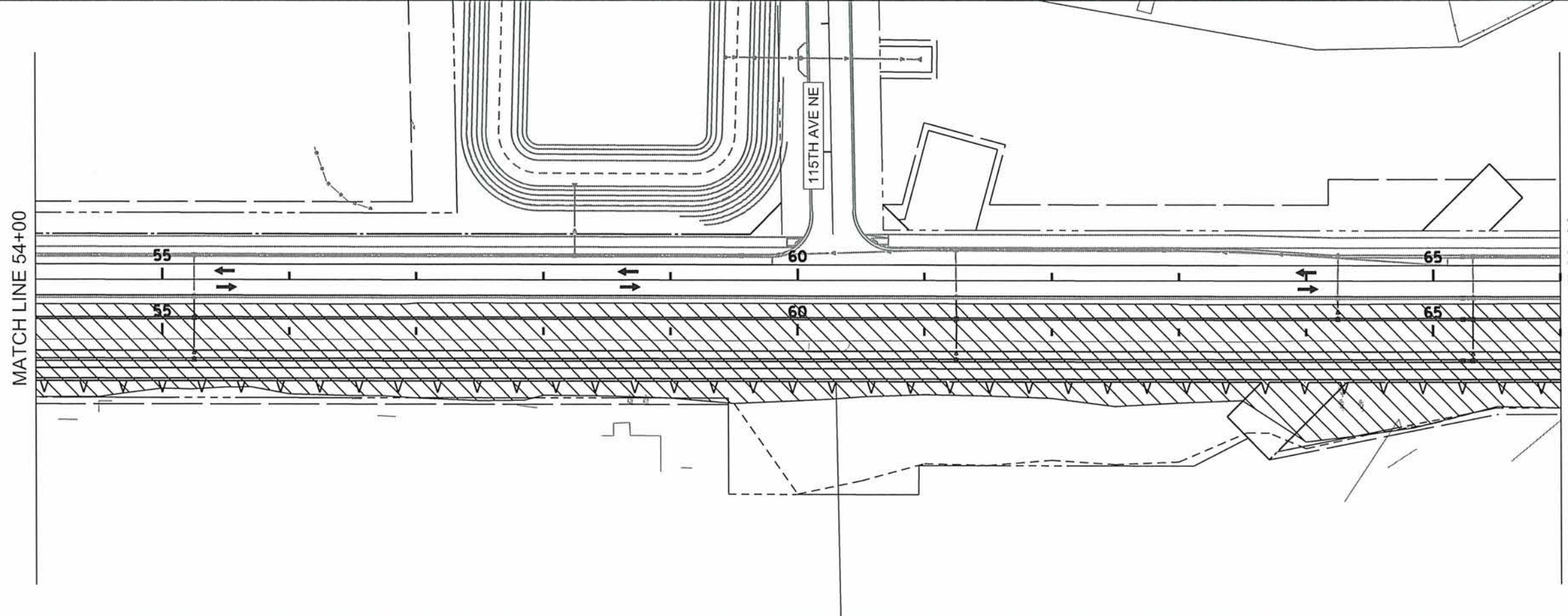
STAGE 3  
EAST CONSTRUCTION  
Sheet 66 of 381 Sheets



**LEGEND**

- CONSTRUCTION AREA
- EXISTING TOPOGRAPHY
- PROPOSED CONST.
- EXISTING CONST.
- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- TEMPORARY EASEMENT
- PERMANENT EASEMENT
- GENERAL TRAFFIC FLOW  
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- PROPOSED DRAINAGE TO BE COMPLETE DURING THIS STAGE
- PROPOSED DRAINAGE COMPLETED DURING PREVIOUS STAGE

SCALE IN FEET



**STAGE 3 CONSTRUCTION NOTES:**

POND GRADING FOR 111TH AVE POND TO BE COMPLETED DURING THIS STAGE

NORTHBOUND SIDE OF ROADWAY TO BE COMPLETED DURING THIS STAGE

**NOTE:**

SB LEFT TURN BAYS, TO BE CONSTRUCTED IN STAGE 4 ( INCLUDES C & G AND PAVEMENT )

SEE TRAFFIC CONTROL SHEETS 72 - 92 FOR TRAFFIC CONTROL NOTES AND DETAILS

NO	DATE	BY	CKD	APPR	REVISION
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PRINT NAME: CURT A. KOBILARCSIK

SIGNATURE:

DATE: 6-9-17 LICENSE NO. 24756

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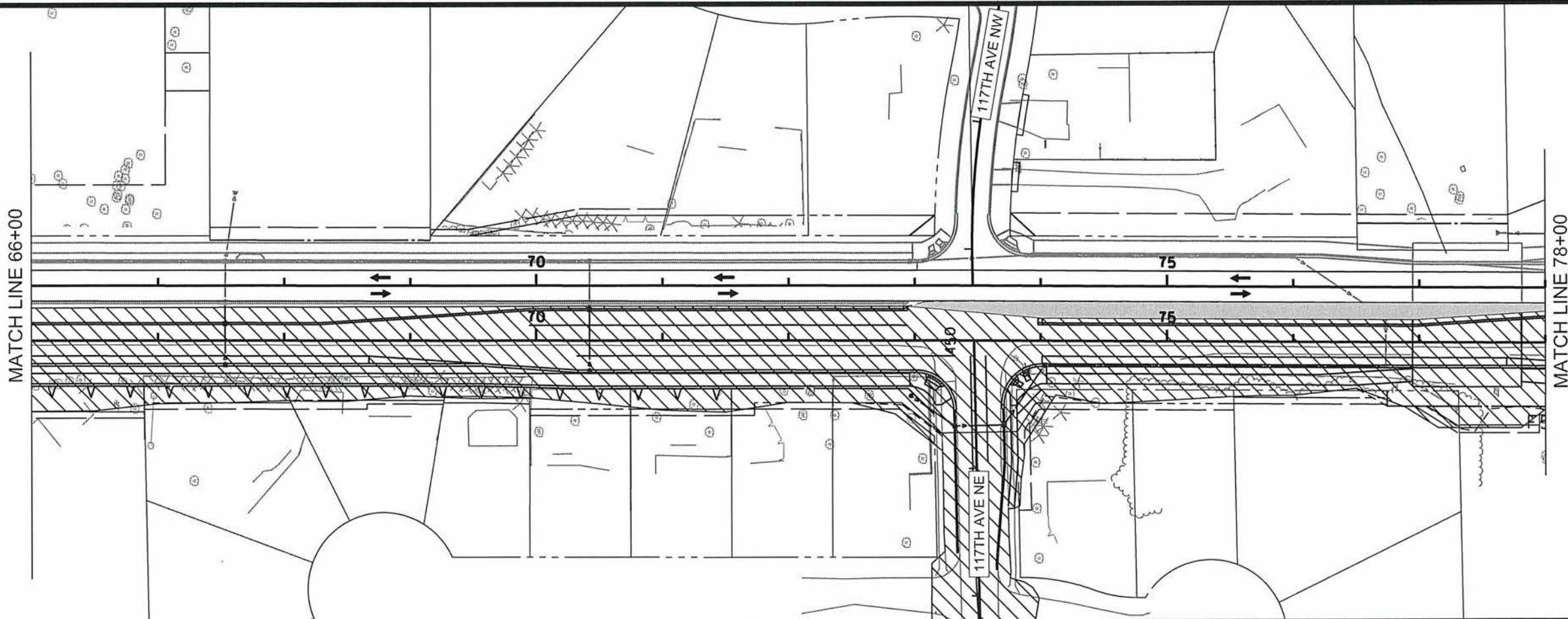
CHECKED BY: NJD DATE: 12-13-13



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

S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

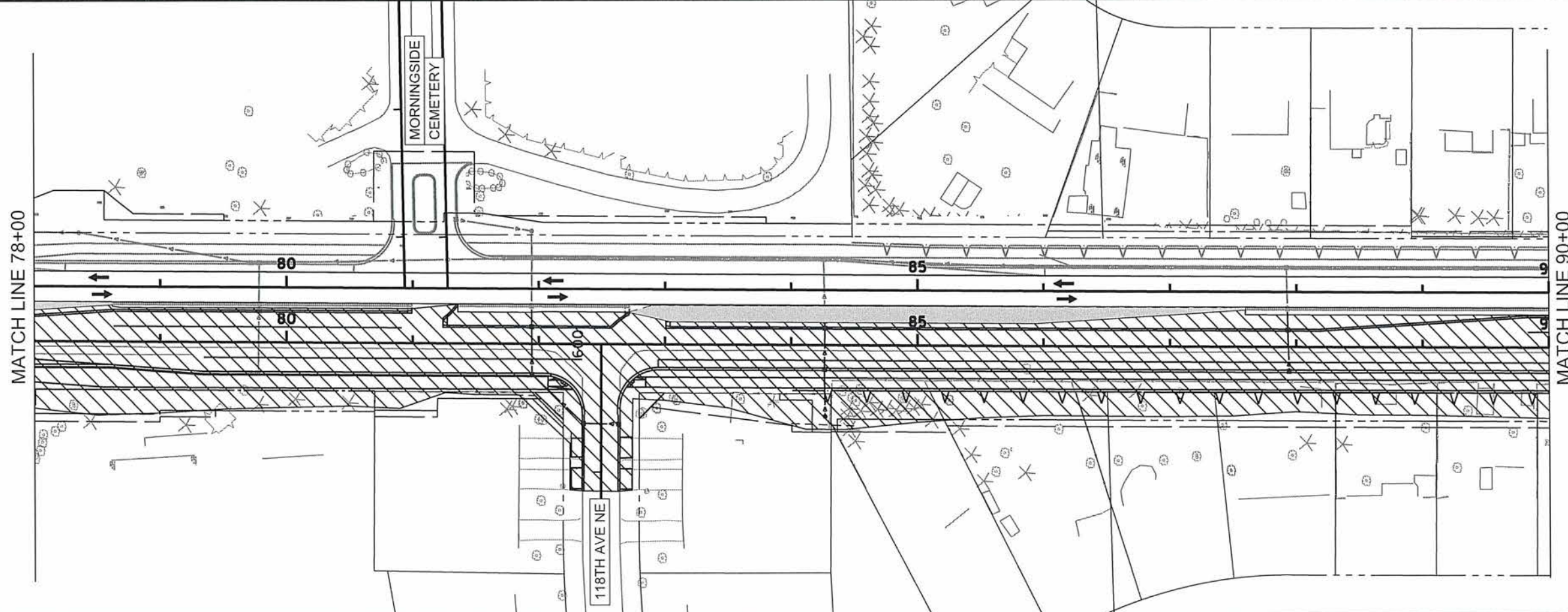
STAGE 3  
EAST CONSTRUCTION  
Sheet 67 of 381 Sheets



**LEGEND**

- CONSTRUCTION AREA
- EXISTING TOPOGRAPHY
- PROPOSED CONST.
- EXISTING CONST.
- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- TEMPORARY EASEMENT
- PERMANENT EASEMENT
- GENERAL TRAFFIC FLOW  
SEE TRAFFIC CONTROL PLAN FOR DETAILS
- PROPOSED DRAINAGE TO BE COMPLETE DURING THIS STAGE
- PROPOSED DRAINAGE COMPLETED DURING PREVIOUS STAGE

SCALE IN FEET



**STAGE 3 CONSTRUCTION NOTES:**

POND GRADING FOR 111TH AVE POND TO BE COMPLETED DURING THIS STAGE

NORTHBOUND SIDE OF ROADWAY TO BE COMPLETED DURING THIS STAGE

**NOTE:**

SB LEFT TURN BAYS, TO BE CONSTRUCTED IN STAGE 4 (INCLUDES C & G AND PAVEMENT)

SEE TRAFFIC CONTROL SHEETS 72 - 92 FOR TRAFFIC CONTROL NOTES AND DETAILS

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:102-651-07\Plan\0265107\_STG3-P3.dgn 06/05/2014 7:44:12 AM

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SIGNATURE:

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DRAWN BY: NJD DATE: 11-25-13

DESIGN BY: NJD DATE: 10-31-13

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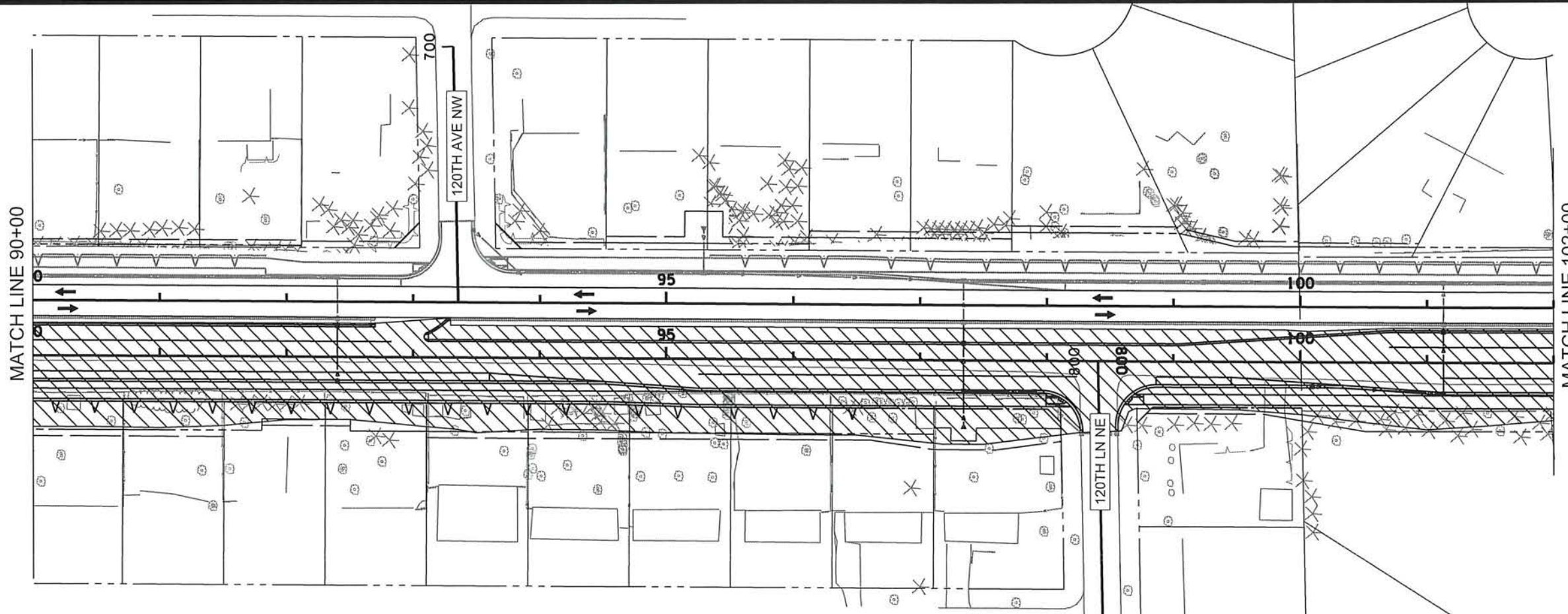


**ANOKA COUNTY**  
**HIGHWAY DEPT.**

S.P. 002-651-007  
S.P. 106-020-031  
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STAGE 3  
EAST CONSTRUCTION

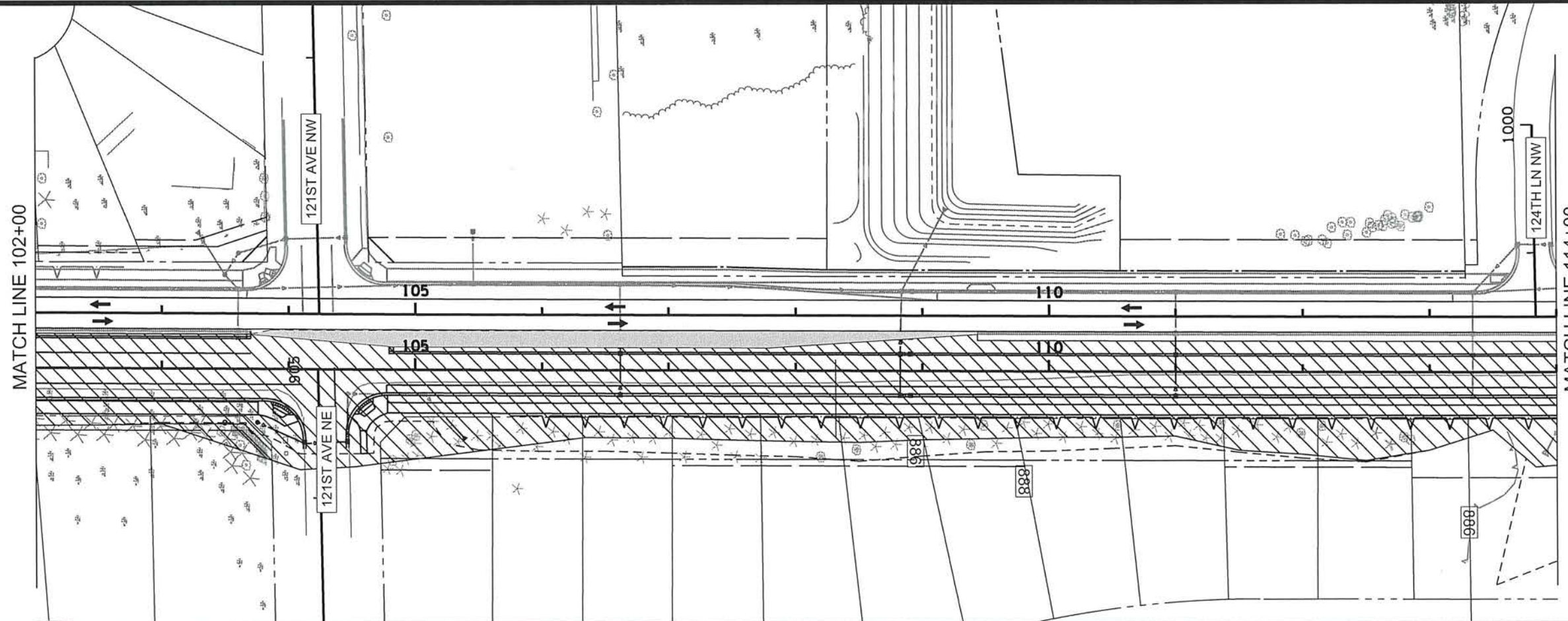
Sheet 68 of 381 Sheets



**LEGEND**

- CONSTRUCTION AREA
- EXISTING TOPOGRAPHY
- PROPOSED CONST.
- EXISTING CONST.
- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- TEMPORARY EASEMENT
- PERMANENT EASEMENT
- GENERAL TRAFFIC FLOW  
SEE TRAFFIC CONTROL PLAN FOR DETAILS
- PROPOSED DRAINAGE TO BE COMPLETE DURING THIS STAGE
- PROPOSED DRAINAGE COMPLETED DURING PREVIOUS STAGE

SCALE IN FEET



**STAGE 3 CONSTRUCTION NOTES:**

- POND GRADING FOR 111TH AVE POND TO BE COMPLETED DURING THIS STAGE
- NORTHBOUND SIDE OF ROADWAY TO BE COMPLETED DURING THIS STAGE

**NOTE:**

SB LEFT TURN BAYS, TO BE CONSTRUCTED IN STAGE 4 (INCLUDES C & G AND PAVEMENT)

SEE TRAFFIC CONTROL SHEETS 72 - 92 FOR TRAFFIC CONTROL NOTES AND DETAILS

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_STG3-P4.dgn 06/05/2014 7:44:15 AM

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

PRINT NAME: CURT A. KOBIARCSIK

SIGNATURE: *Curt Kobilarcsik*

DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 11-25-13

DESIGN BY: NJD DATE: 10-31-13

CHECKED BY: GMP DATE: 12-13-13












**ANOKA COUNTY  
HIGHWAY DEPT.**

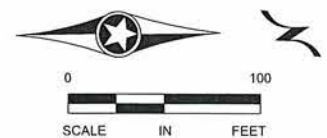
S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

STAGE 3  
EAST CONSTRUCTION

Sheet 69 of 381 Sheets

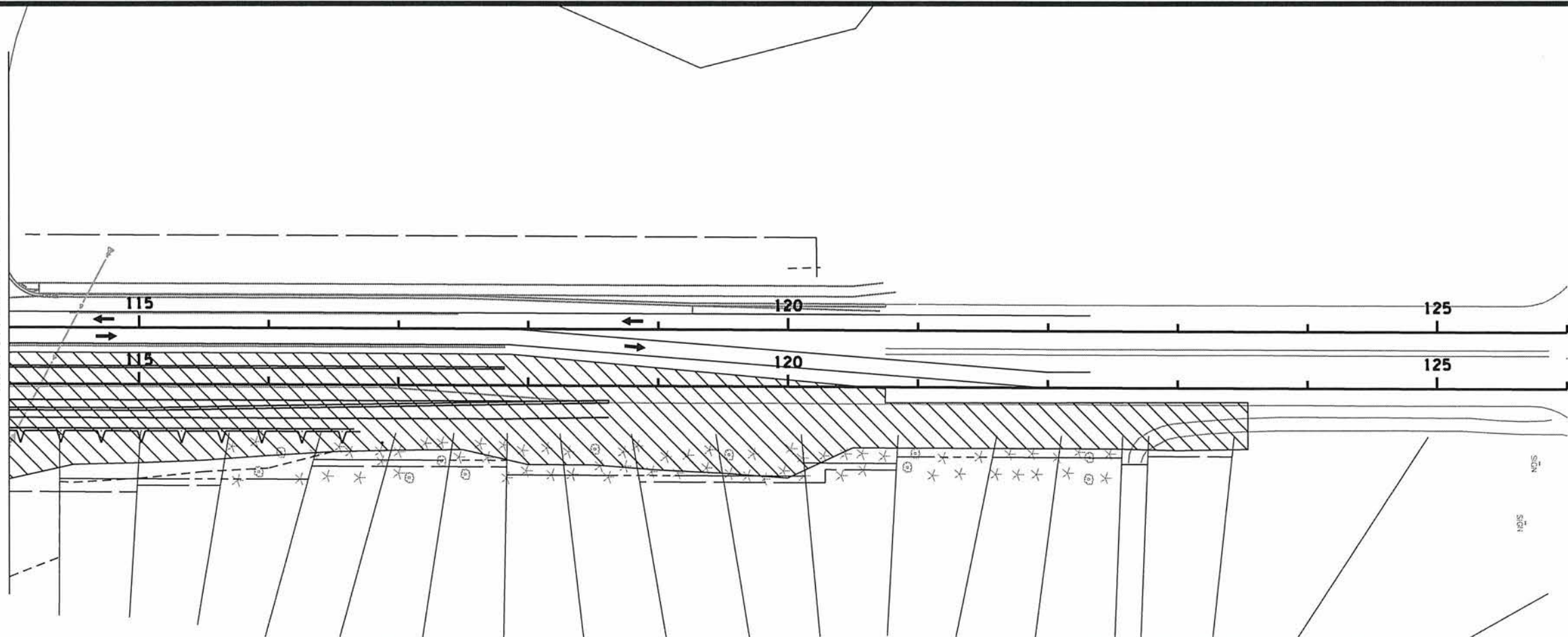
**LEGEND**

-  CONSTRUCTION AREA
-  EXISTING TOPOGRAPHY
-  PROPOSED CONST.
-  EXISTING CONST.
-  EXISTING RIGHT OF WAY
-  PROPOSED RIGHT OF WAY
-  TEMPORARY EASEMENT
-  PERMANENT EASEMENT
-  GENERAL TRAFFIC FLOW  
SEE TRAFFIC CONTROL PLAN FOR DETAILS
-  PROPOSED DRAINAGE TO BE COMPLETE DURING THIS STAGE
-  PROPOSED DRAINAGE COMPLETED DURING PREVIOUS STAGE



0 100  
SCALE IN FEET

MATCH LINE 114+00




**STAGE 3 CONSTRUCTION NOTES:**

POND GRADING FOR 111TH AVE POND TO BE COMPLETED DURING THIS STAGE

NORTHBOUND SIDE OF ROADWAY TO BE COMPLETED DURING THIS STAGE

**NOTE:**

 SB LEFT TURN BAYS, TO BE CONSTRUCTED IN STAGE 4 ( INCLUDES C & G AND PAVEMENT )


SEE TRAFFIC CONTROL SHEETS 72 - 92 FOR TRAFFIC CONTROL NOTES AND DETAILS

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_STG3-P5.dgn 06/05/2014 7:44:17 AM

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PRINT NAME: CURT A. KOBILARCSIK


SIGNATURE: 

DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY NJD DATE 11-25-13

DESIGN BY NJD DATE 10-31-13

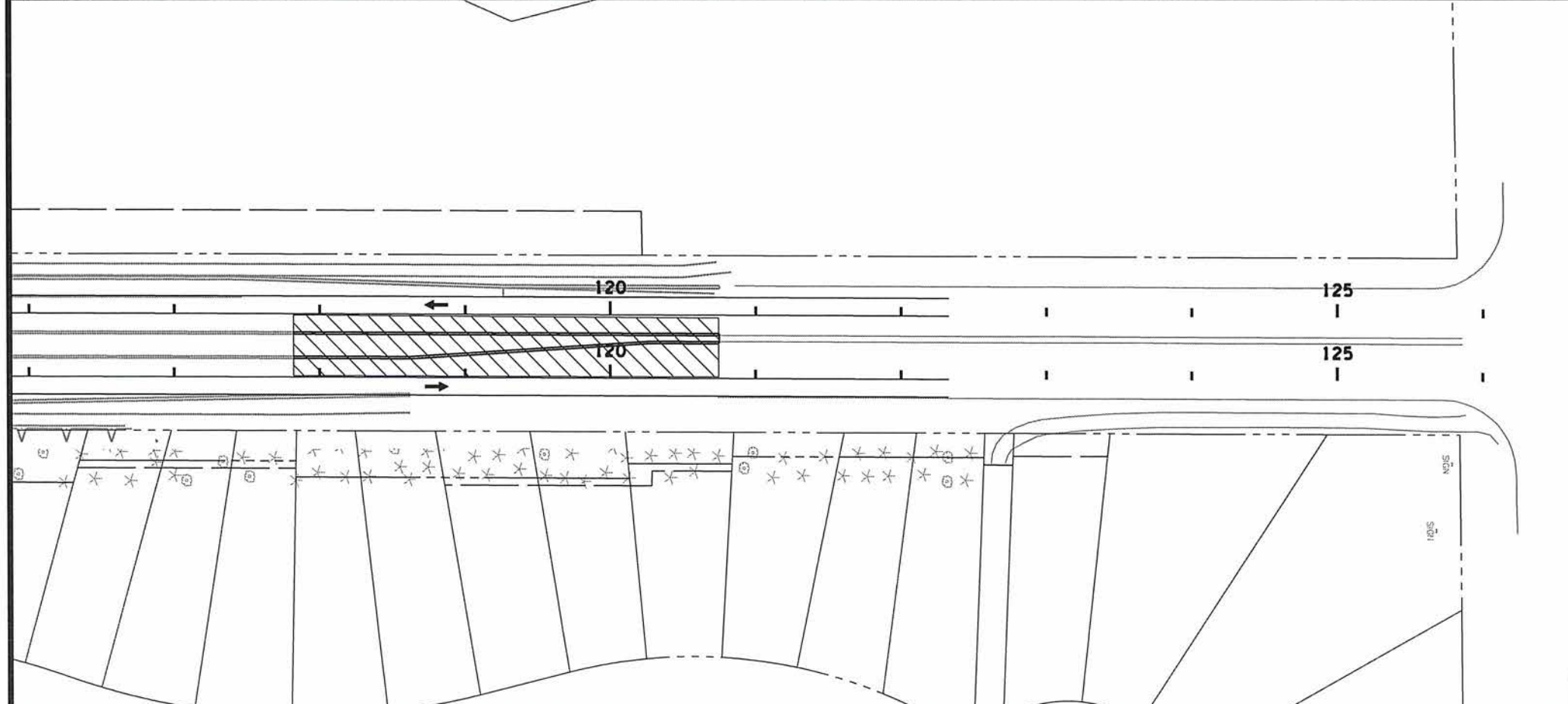
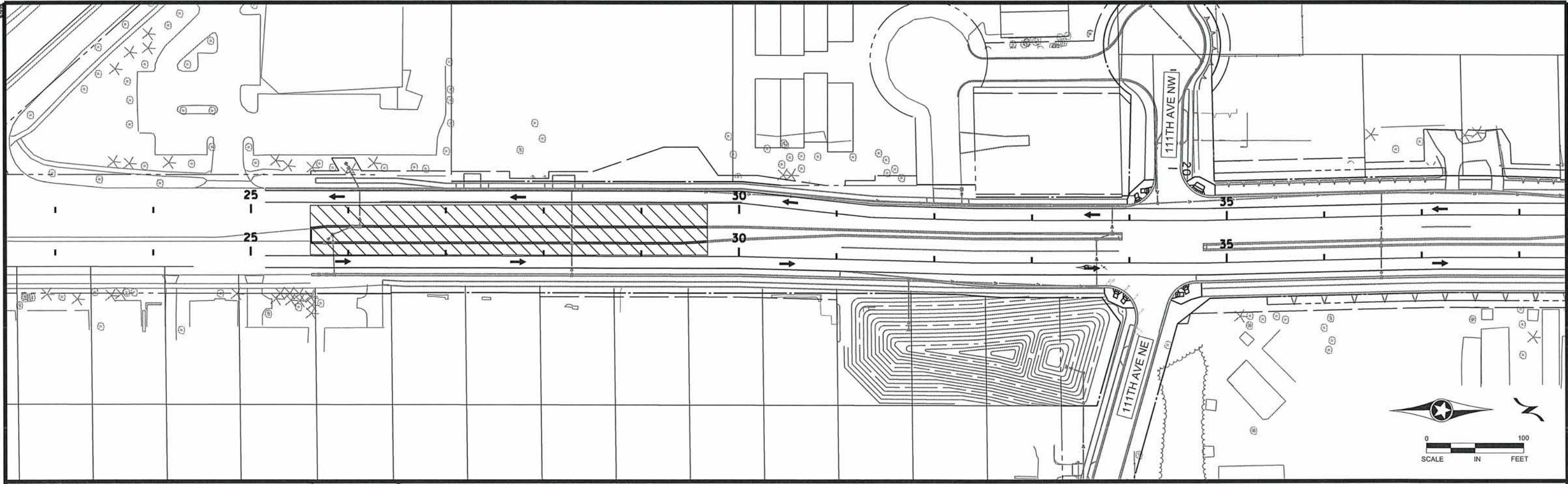
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 ANOKA COUNTY HIGHWAY DEPT.

S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

STAGE 3  
EAST CONSTRUCTION

Sheet 70 of 381 Sheets



**LEGEND**

- CONSTRUCTION AREA
- EXISTING TOPOGRAPHY
- PROPOSED CONST.
- EXISTING CONST.
- EXISTING RIGHT OF WAY
- PROPOSED RIGHT OF WAY
- TEMPORARY EASEMENT
- PERMANENT EASEMENT
- GENERAL TRAFFIC FLOW  
SEE TRAFFIC CONTROL PLAN FOR DETAILS
- PROPOSED DRAINAGE  
TO BE COMPLETE DURING THIS STAGE
- PROPOSED DRAINAGE  
COMPLETED DURING PREVIOUS STAGE

SCALE IN FEET

**STAGE 4 CONSTRUCTION NOTES:**

COMPLETE MEDIAN DURING THIS STAGE

**NOTE:**

SB LEFT TURN BAYS,  
TO BE CONSTRUCTED IN STAGE 4  
( INCLUDES C & G AND PAVEMENT )

SEE TRAFFIC CONTROL SHEETS  
72 - 92 FOR TRAFFIC CONTROL  
NOTES AND DETAILS

NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\02-651-07\Plan\0265107_STG4-P1.dgn					
06/05/2014 7:44:19 AM					

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CHECKED BY: GMP DATE: 12-13-13

**ANOKA COUNTY**  
HIGHWAY DEPT.

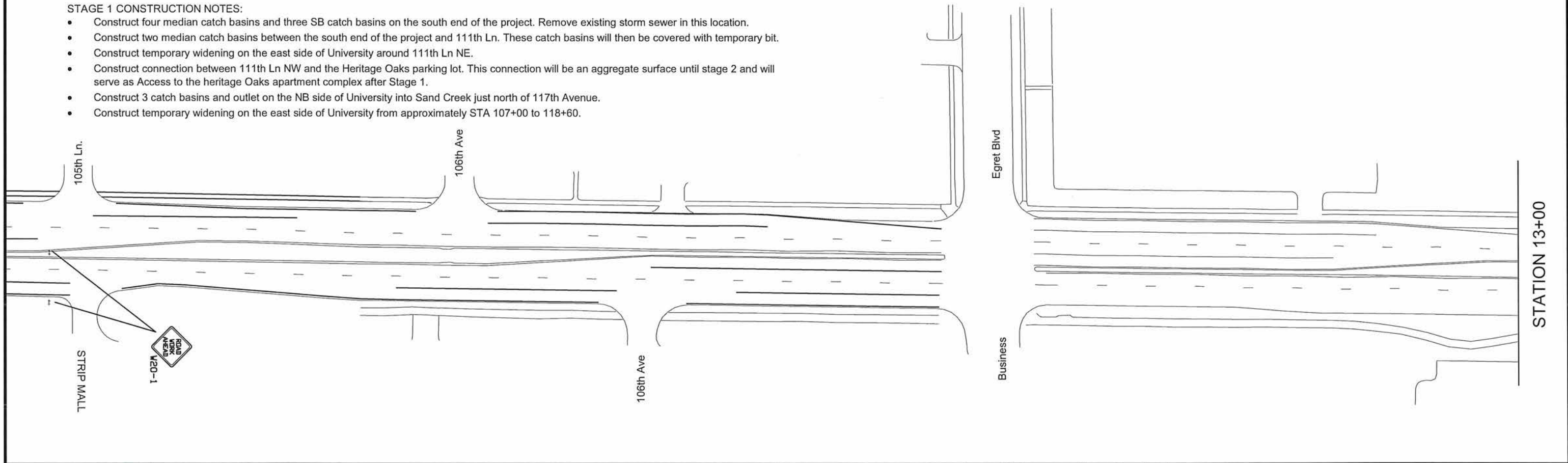
S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

STAGE 4  
MISC. CONSTRUCTION

Sheet 71 of 381 Sheets

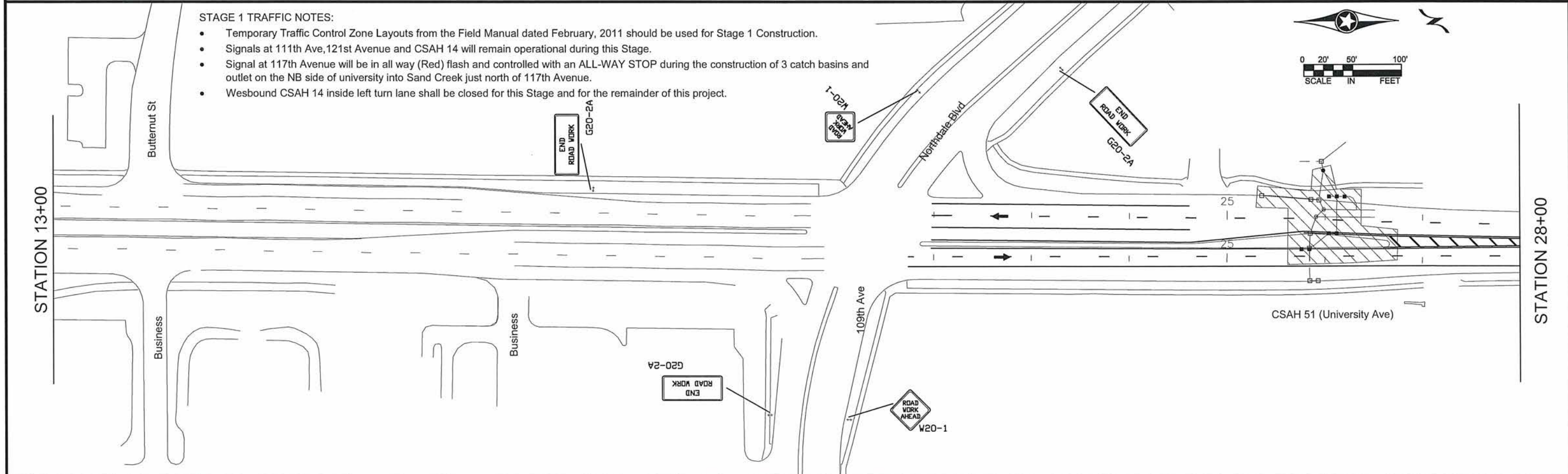
**STAGE 1 CONSTRUCTION NOTES:**

- Construct four median catch basins and three SB catch basins on the south end of the project. Remove existing storm sewer in this location.
- Construct two median catch basins between the south end of the project and 111th Ln. These catch basins will then be covered with temporary bit.
- Construct temporary widening on the east side of University around 111th Ln NE.
- Construct connection between 111th Ln NW and the Heritage Oaks parking lot. This connection will be an aggregate surface until stage 2 and will serve as Access to the heritage Oaks apartment complex after Stage 1.
- Construct 3 catch basins and outlet on the NB side of University into Sand Creek just north of 117th Avenue.
- Construct temporary widening on the east side of University from approximately STA 107+00 to 118+60.



**STAGE 1 TRAFFIC NOTES:**

- Temporary Traffic Control Zone Layouts from the Field Manual dated February, 2011 should be used for Stage 1 Construction.
- Signals at 111th Ave, 121st Avenue and CSAH 14 will remain operational during this Stage.
- Signal at 117th Avenue will be in all way (Red) flash and controlled with an ALL-WAY STOP during the construction of 3 catch basins and outlet on the NB side of university into Sand Creek just north of 117th Avenue.
- Westbound CSAH 14 inside left turn lane shall be closed for this Stage and for the remainder of this project.



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DRAWN BY: RLB DATE 08/01/13  
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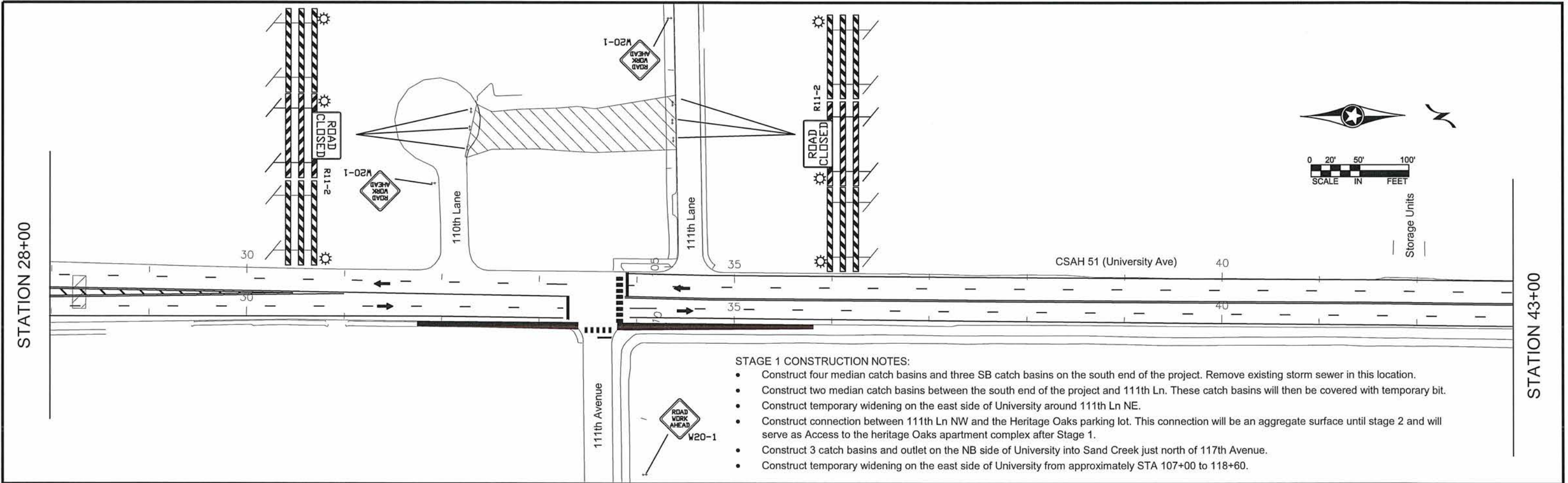


**ANOKA COUNTY  
 HIGHWAY DEPT.**

STATE PROJECT NO. 02-651-07  
 STATE PROJECT NO. 106-020-031  
 STATE PROJECT NO. 114-020-046  
 COUNTY PROJECT NO. \_\_\_\_\_

STAGE 1  
 TRAFFIC CONTROL  
 Sheet 72 of 381 Sheets



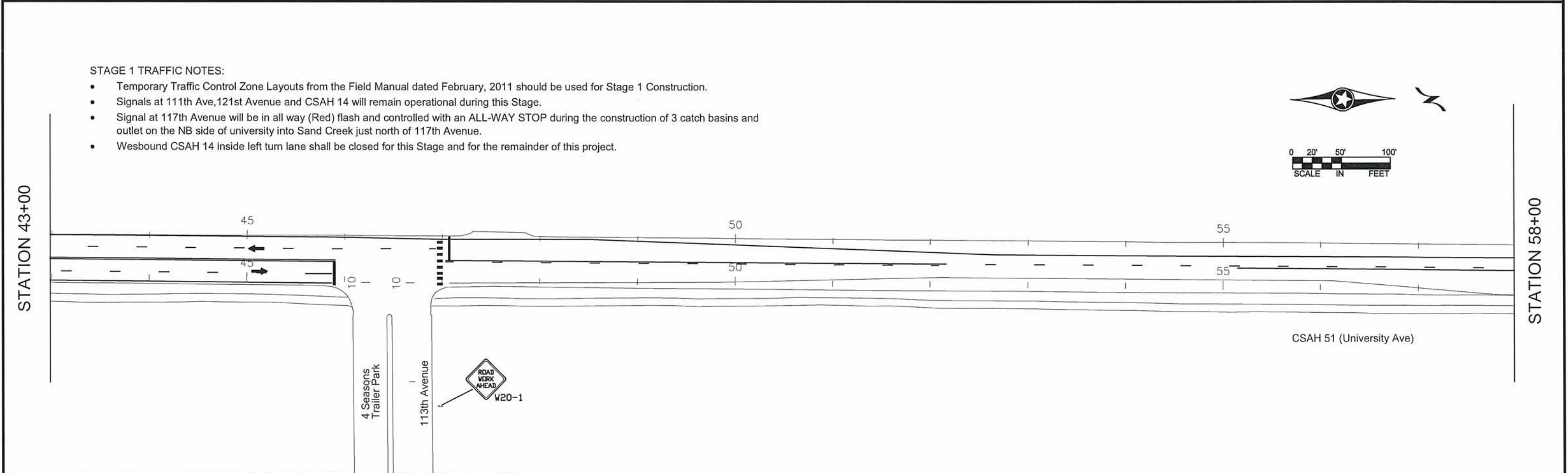


**STAGE 1 CONSTRUCTION NOTES:**

- Construct four median catch basins and three SB catch basins on the south end of the project. Remove existing storm sewer in this location.
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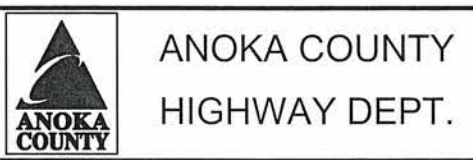


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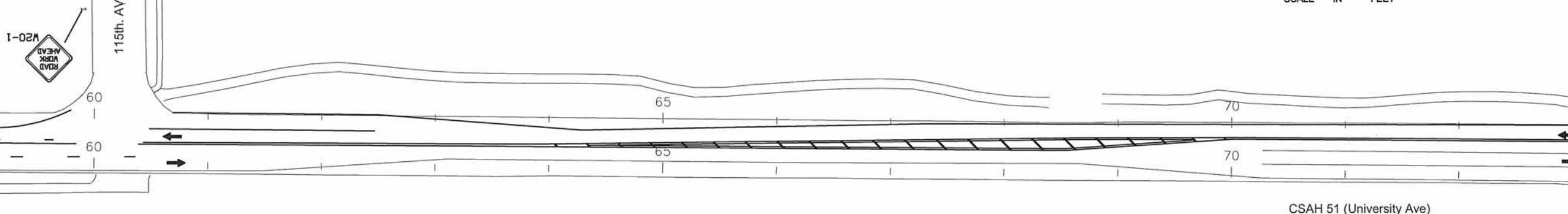
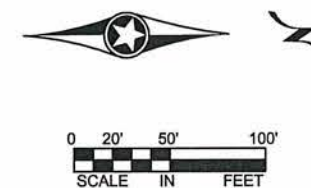
STAGE 1  
 TRAFFIC CONTROL  
 Sheet 73 of 381 Sheets

STATION 58+00

STATION 73+00

STAGE 1 CONSTRUCTION NOTES:

- Construct four median catch basins and three SB catch basins on the south end of the project. Remove existing storm sewer in this location.
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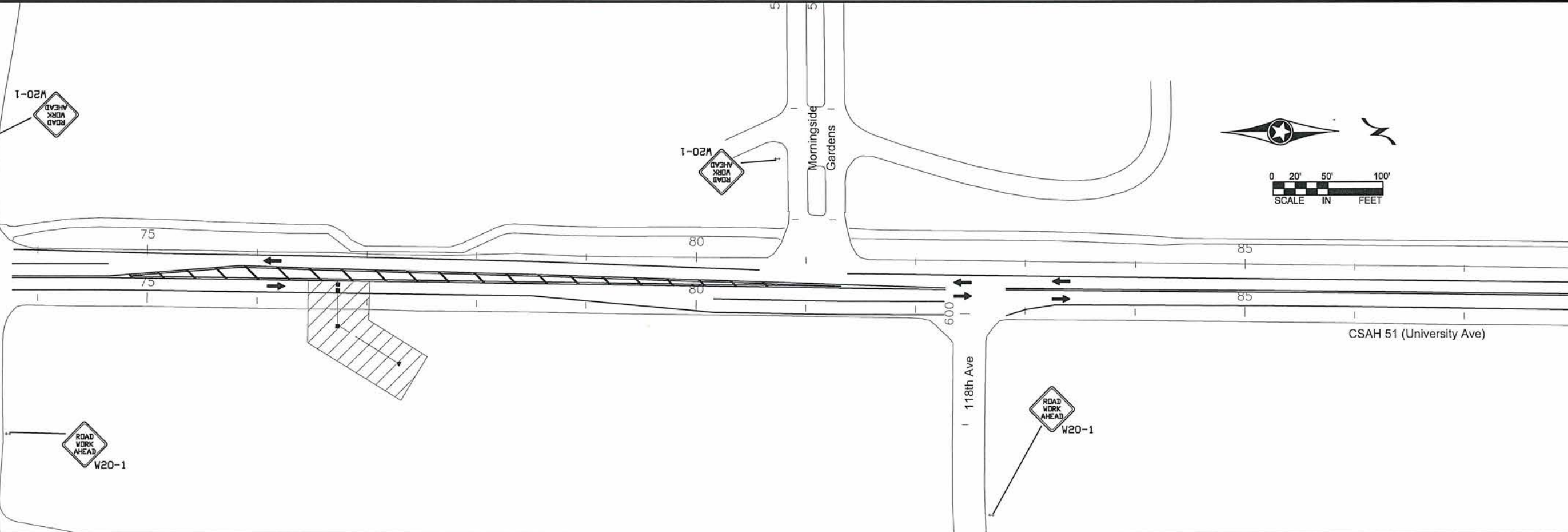
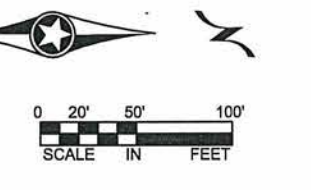


STAGE 1 TRAFFIC NOTES:

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- Wesbound CSAH 14 inside left turn lane shall be closed for this Stage and for the remainder of this project.

STATION 73+00

STATION 88+00



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ANOKA COUNTY  
HIGHWAY DEPT.

STATE PROJECT NO. 02-651-07

STATE PROJECT NO. 106-020-031

STATE PROJECT NO. 114-020-046

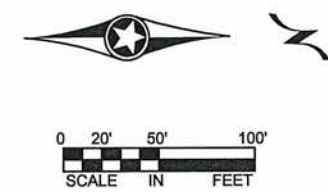
COUNTY PROJECT NO.

STAGE 1  
TRAFFIC CONTROL

Sheet 74 of 381 Sheets

STATION 88+00

STATION 103+00



STAGE 1 CONSTRUCTION NOTES:

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STATION 103+00

STATION 118+00

STAGE 1 TRAFFIC NOTES:

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ANOKA COUNTY  
HIGHWAY DEPT.

STATE PROJECT NO. 02-651-07

STATE PROJECT NO. 106-020-031

STATE PROJECT NO. 114-020-046

COUNTY PROJECT NO.

STAGE 1  
TRAFFIC CONTROL

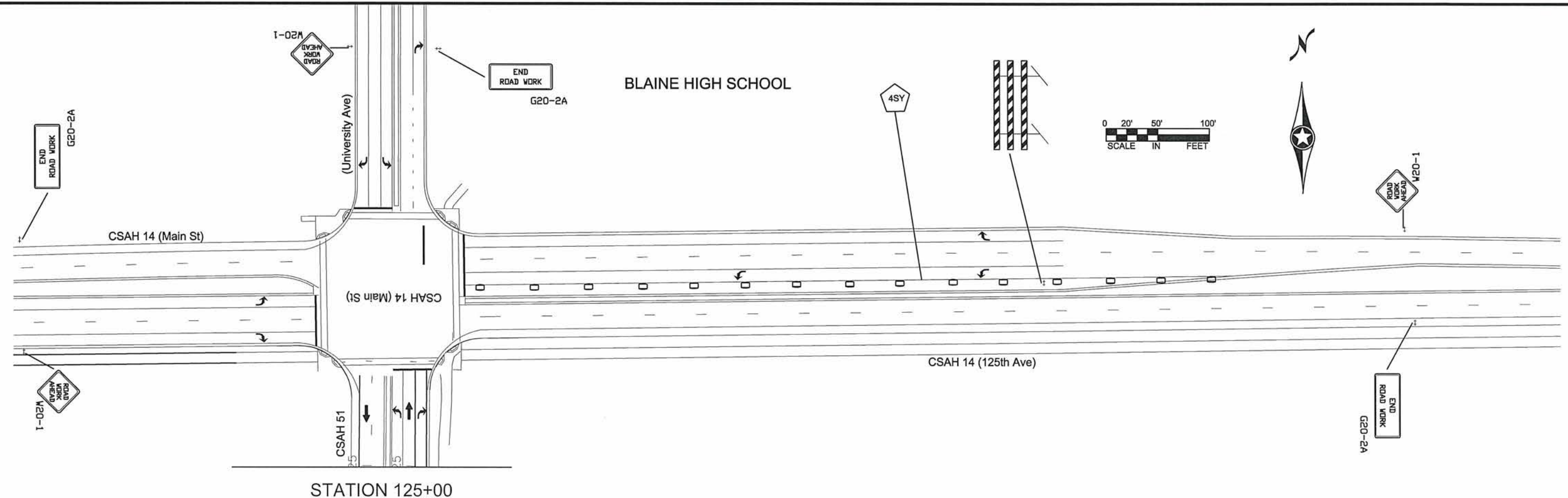
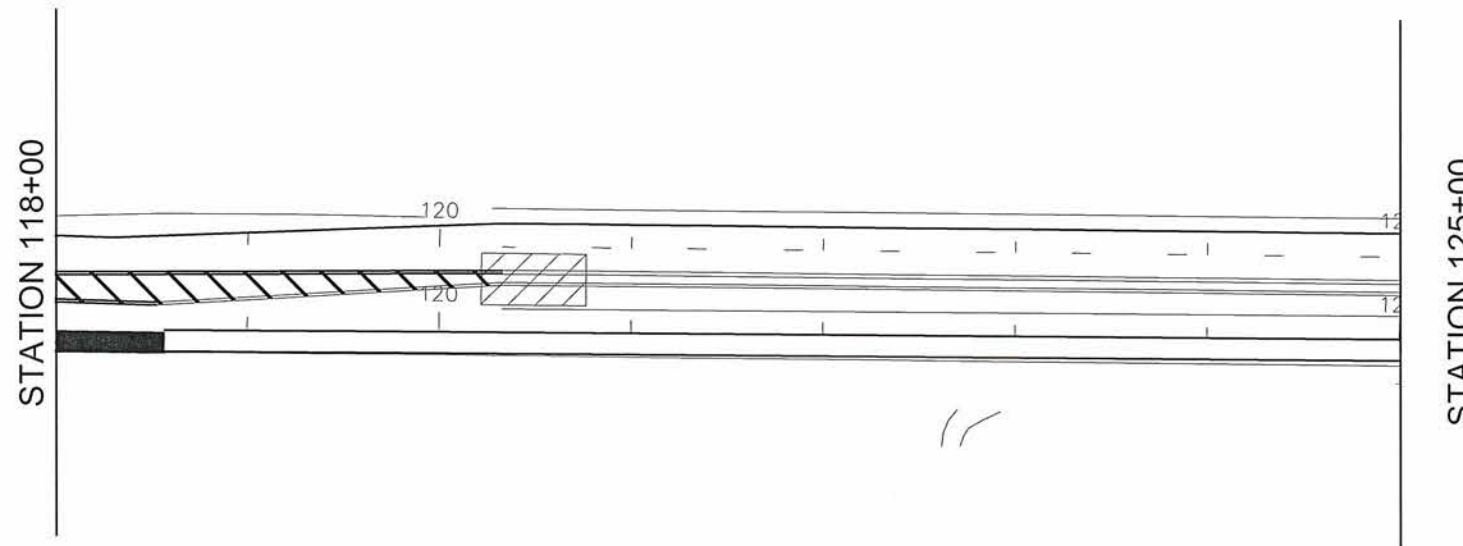
Sheet 75 of 381 Sheets

STAGE 1 CONSTRUCTION NOTES:

- Construct four median catch basins and three SB catch basins on the south end of the project. Remove existing storm sewer in this location.
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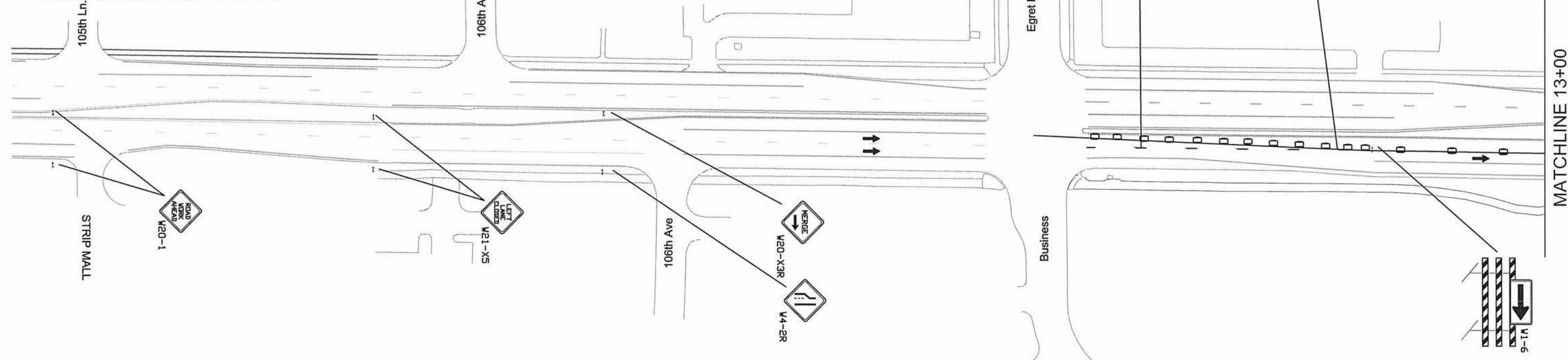
ANOKA COUNTY  
 HIGHWAY DEPT.

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STAGE 1  
 TRAFFIC CONTROL

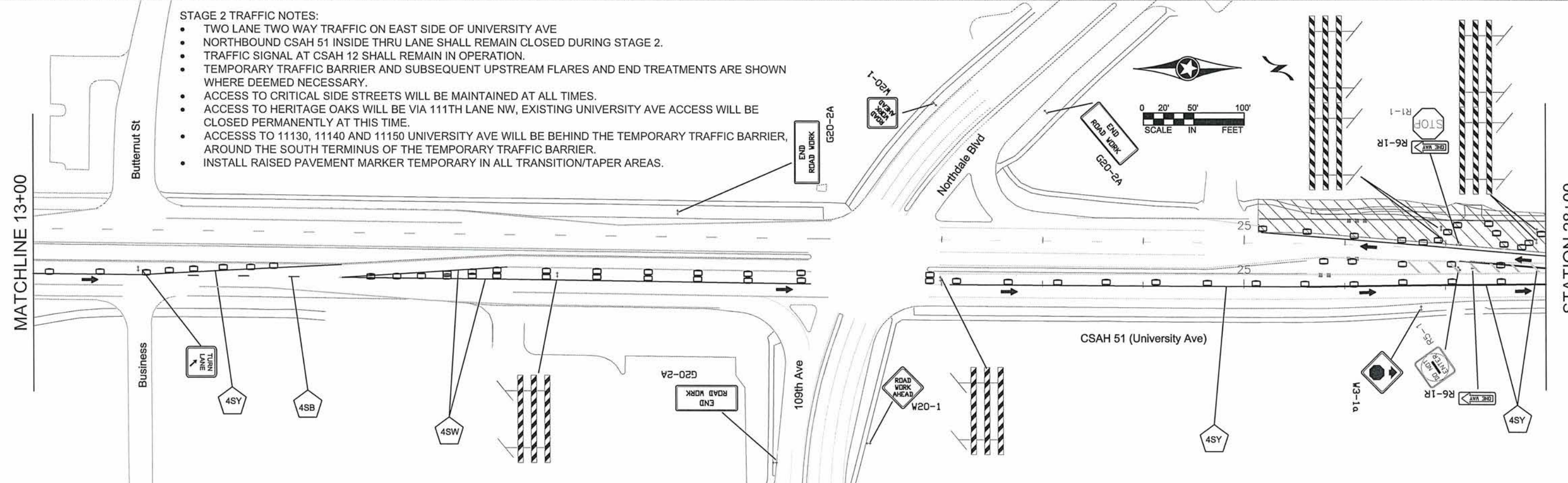
STAGE 2 CONSTRUCTION NOTES:

- CONSTRUCT ALL CURBING ON THE WEST AND SB MEDIAN CURB WHERE POSSIBLE.
- CONSTRUCT ALL SIDE STREETS WEST OF UNIVERSITY
- CONSTRUCT DRAINAGE MAINLINE PLUS TWO PARALLEL DRAINAGE MAINLINES FOR THE SCHOOL POND AND BURL OAKS.
- CONSTRUCT THREE PONDS, POND 115 (115TH AVE), GRIZZ POND (SOUTH OF 117TH) AND CRESCENT POND ADDITION (NORTH OF 121ST AVE)
- THE WESTSIDE OF THE BRIDGE FOR SAND CREEK WILL BE REMOVED/REPLACED DURING THIS STAGE.



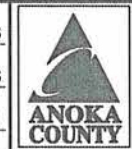
STAGE 2 TRAFFIC NOTES:

- TWO LANE TWO WAY TRAFFIC ON EAST SIDE OF UNIVERSITY AVE
- NORTHBOUND CSAH 51 INSIDE THRU LANE SHALL REMAIN CLOSED DURING STAGE 2.
- TRAFFIC SIGNAL AT CSAH 12 SHALL REMAIN IN OPERATION.
- TEMPORARY TRAFFIC BARRIER AND SUBSEQUENT UPSTREAM FLARES AND END TREATMENTS ARE SHOWN WHERE DEEMED NECESSARY.
- ACCESS TO CRITICAL SIDE STREETS WILL BE MAINTAINED AT ALL TIMES.
- ACCESS TO HERITAGE OAKS WILL BE VIA 111TH LANE NW, EXISTING UNIVERSITY AVE ACCESS WILL BE CLOSED PERMANENTLY AT THIS TIME.
- ACCESS TO 11130, 11140 AND 11150 UNIVERSITY AVE WILL BE BEHIND THE TEMPORARY TRAFFIC BARRIER, AROUND THE SOUTH TERMINUS OF THE TEMPORARY TRAFFIC BARRIER.
- INSTALL RAISED PAVEMENT MARKER TEMPORARY IN ALL TRANSITION/TAPER AREAS.



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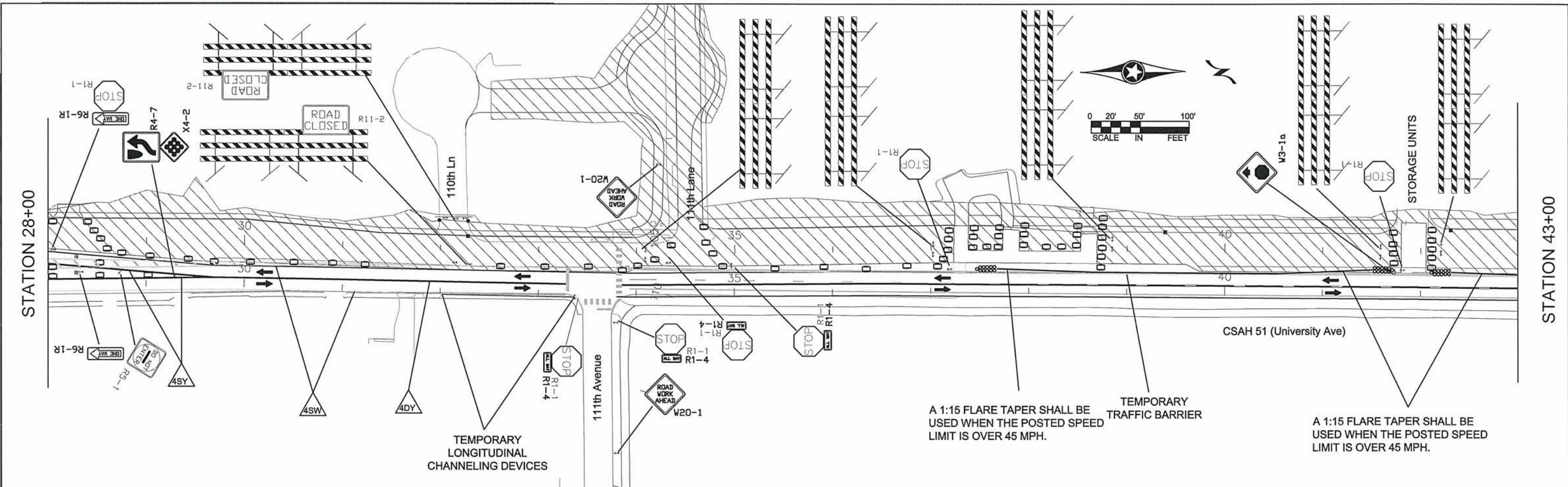


ANOKA COUNTY  
 HIGHWAY DEPT.

STATE PROJECT NO. 02-651-07  
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STAGE 2  
 TRAFFIC CONTROL  
 Sheet 77 of 381 Sheets

NO	DATE	BY	CKD	APPR	REVISION

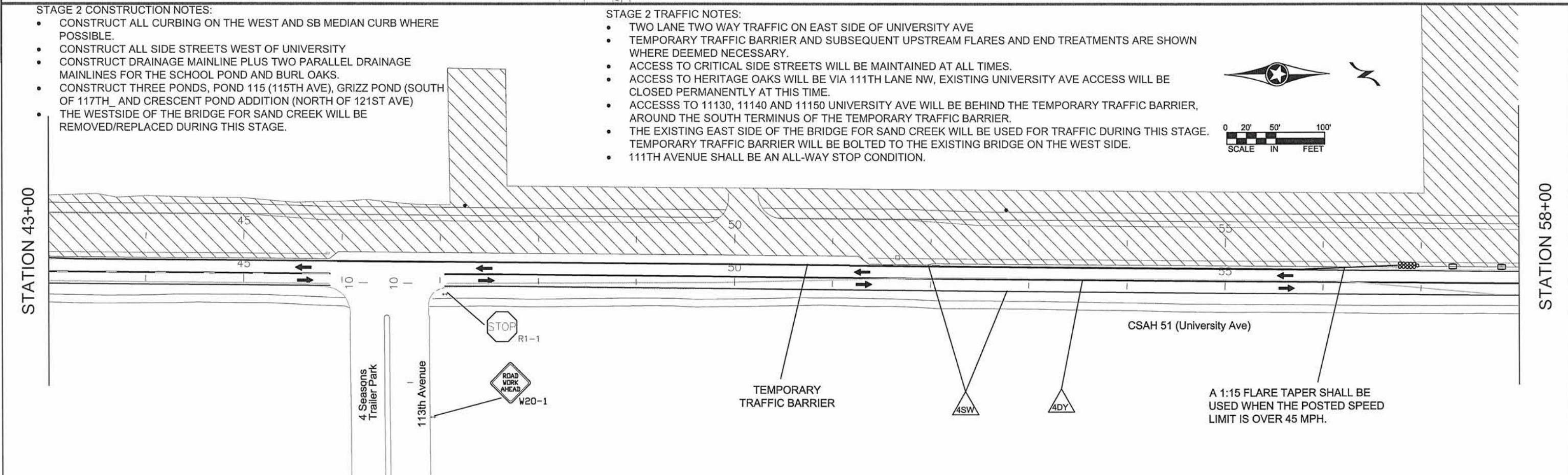


**STAGE 2 CONSTRUCTION NOTES:**

- CONSTRUCT ALL CURBING ON THE WEST AND SB MEDIAN CURB WHERE POSSIBLE.
- CONSTRUCT ALL SIDE STREETS WEST OF UNIVERSITY
- CONSTRUCT DRAINAGE MAINLINE PLUS TWO PARALLEL DRAINAGE MAINLINES FOR THE SCHOOL POND AND BURL OAKS.
- CONSTRUCT THREE PONDS, POND 115 (115TH AVE), GRIZZ POND (SOUTH OF 117TH\_ AND CRESCENT POND ADDITION (NORTH OF 121ST AVE)
- THE WESTSIDE OF THE BRIDGE FOR SAND CREEK WILL BE REMOVED/REPLACED DURING THIS STAGE.

**STAGE 2 TRAFFIC NOTES:**

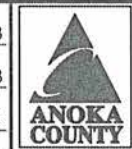
- TWO LANE TWO WAY TRAFFIC ON EAST SIDE OF UNIVERSITY AVE
- TEMPORARY TRAFFIC BARRIER AND SUBSEQUENT UPSTREAM FLARES AND END TREATMENTS ARE SHOWN WHERE DEEMED NECESSARY.
- ACCESS TO CRITICAL SIDE STREETS WILL BE MAINTAINED AT ALL TIMES.
- ACCESS TO HERITAGE OAKS WILL BE VIA 111TH LANE NW, EXISTING UNIVERSITY AVE ACCESS WILL BE CLOSED PERMANENTLY AT THIS TIME.
- ACCESS TO 11130, 11140 AND 11150 UNIVERSITY AVE WILL BE BEHIND THE TEMPORARY TRAFFIC BARRIER, AROUND THE SOUTH TERMINUS OF THE TEMPORARY TRAFFIC BARRIER.
- THE EXISTING EAST SIDE OF THE BRIDGE FOR SAND CREEK WILL BE USED FOR TRAFFIC DURING THIS STAGE. TEMPORARY TRAFFIC BARRIER WILL BE BOLTED TO THE EXISTING BRIDGE ON THE WEST SIDE.
- 111TH AVENUE SHALL BE AN ALL-WAY STOP CONDITION.



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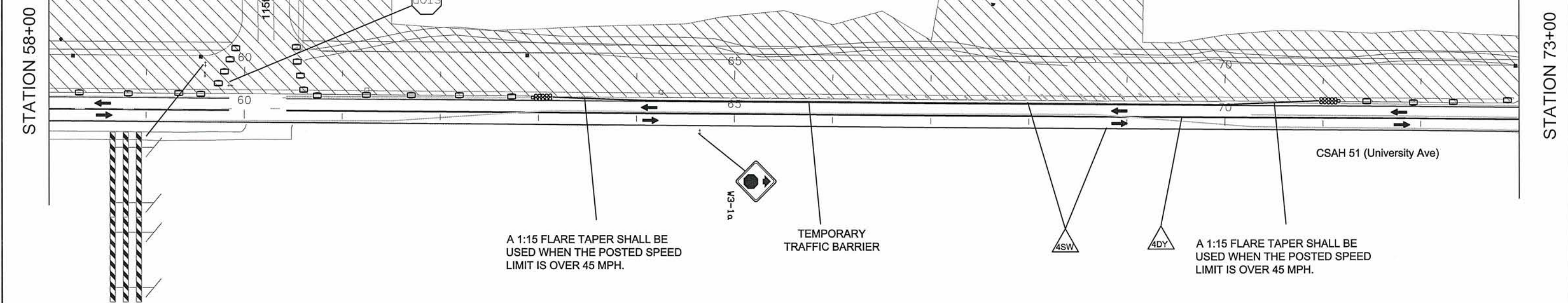
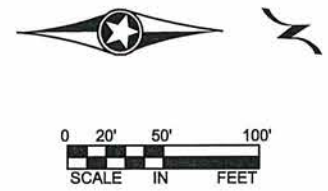
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 COUNTY PROJECT NO. \_\_\_\_\_

STAGE 2  
TRAFFIC CONTROL  
 Sheet 78 of 381 Sheets

STAGE 2 CONSTRUCTION NOTES:

- CONSTRUCT ALL CURBING ON THE WEST AND SB MEDIAN CURB WHERE POSSIBLE.
- CONSTRUCT ALL SIDE STREETS WEST OF UNIVERSITY
- CONSTRUCT DRAINAGE MAINLINE PLUS TWO PARALLEL DRAINAGE MAINLINES FOR THE SCHOOL POND AND BURL OAKS.
- CONSTRUCT THREE PONDS, POND 115 (115TH AVE), GRIZZ POND (SOUTH OF 117TH, AND CRESCENT POND ADDITION (NORTH OF 121ST AVE)
- THE WESTSIDE OF THE BRIDGE FOR SAND CREEK WILL BE REMOVED/REPLACED DURING THIS STAGE.



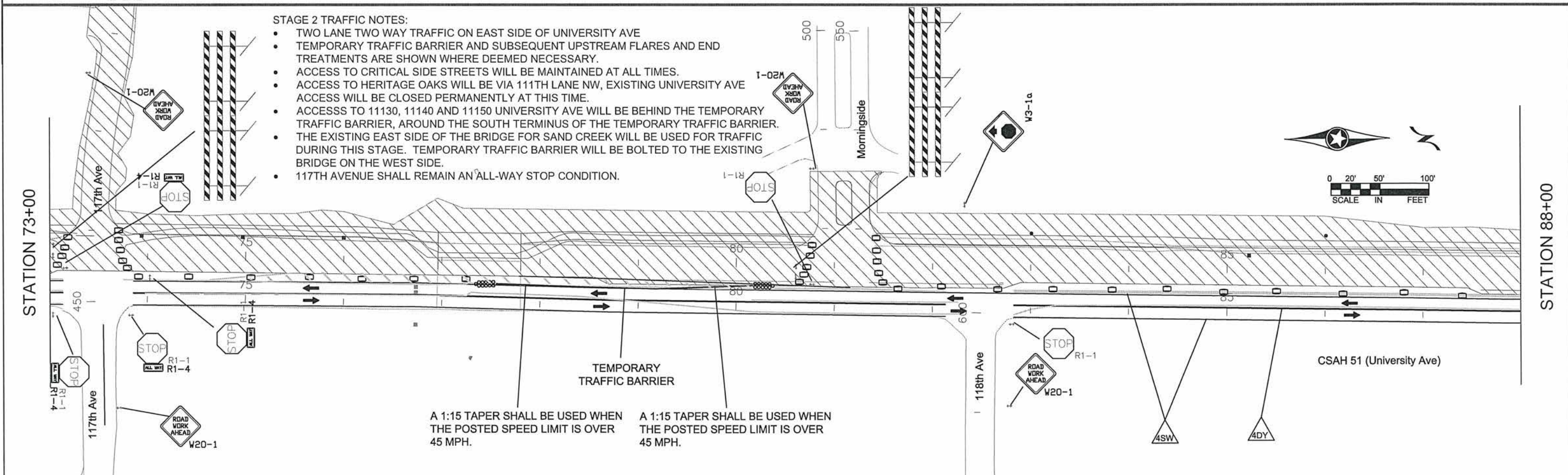
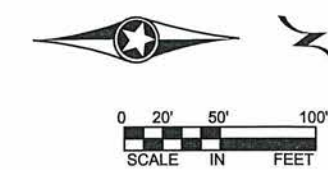
A 1:15 FLARE TAPER SHALL BE USED WHEN THE POSTED SPEED LIMIT IS OVER 45 MPH.

TEMPORARY TRAFFIC BARRIER

A 1:15 FLARE TAPER SHALL BE USED WHEN THE POSTED SPEED LIMIT IS OVER 45 MPH.

STAGE 2 TRAFFIC NOTES:

- TWO LANE TWO WAY TRAFFIC ON EAST SIDE OF UNIVERSITY AVE
- TEMPORARY TRAFFIC BARRIER AND SUBSEQUENT UPSTREAM FLARES AND END TREATMENTS ARE SHOWN WHERE DEEMED NECESSARY.
- ACCESS TO CRITICAL SIDE STREETS WILL BE MAINTAINED AT ALL TIMES.
- ACCESS TO HERITAGE OAKS WILL BE VIA 111TH LANE NW, EXISTING UNIVERSITY AVE ACCESS WILL BE CLOSED PERMANENTLY AT THIS TIME.
- ACCESS TO 11130, 11140 AND 11150 UNIVERSITY AVE WILL BE BEHIND THE TEMPORARY TRAFFIC BARRIER, AROUND THE SOUTH TERMINUS OF THE TEMPORARY TRAFFIC BARRIER.
- THE EXISTING EAST SIDE OF THE BRIDGE FOR SAND CREEK WILL BE USED FOR TRAFFIC DURING THIS STAGE. TEMPORARY TRAFFIC BARRIER WILL BE BOLTED TO THE EXISTING BRIDGE ON THE WEST SIDE.
- 117TH AVENUE SHALL REMAIN AN ALL-WAY STOP CONDITION.



A 1:15 TAPER SHALL BE USED WHEN THE POSTED SPEED LIMIT IS OVER 45 MPH.

A 1:15 TAPER SHALL BE USED WHEN THE POSTED SPEED LIMIT IS OVER 45 MPH.

TEMPORARY TRAFFIC BARRIER

NO	DATE	BY	CKD	APPR	REVISION

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 SIGNATURE: *Curt Kobilarcsik*  
 DATE: 6-9-14 REG. NO. 24756

DRAWN BY: RLB DATE 08/01/13  
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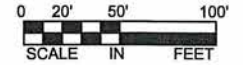
ANOKA COUNTY  
 HIGHWAY DEPT.

STATE PROJECT NO. 02-651-07  
 STATE PROJECT NO. 106-020-031  
 STATE PROJECT NO. 114-020-046  
 COUNTY PROJECT NO.

STAGE 2  
 TRAFFIC CONTROL  
 Sheet 79 of 381 Sheets

STAGE 2 CONSTRUCTION NOTES:

- CONSTRUCT ALL CURBING ON THE WEST AND SB MEDIAN CURB WHERE POSSIBLE.
- CONSTRUCT ALL SIDE STREETS WEST OF UNIVERSITY
- CONSTRUCT DRAINAGE MAINLINE PLUS TWO PARALLEL DRAINAGE MAINLINES FOR THE SCHOOL POND AND BURL OAKS.
- CONSTRUCT THREE PONDS, POND 115 (115TH AVE), GRIZZ POND (SOUTH OF 117TH\_ AND CRESCENT POND ADDITION (NORTH OF 121ST AVE)
- THE WESTSIDE OF THE BRIDGE FOR SAND CREEK WILL BE REMOVED/REPLACED DURING THIS STAGE.

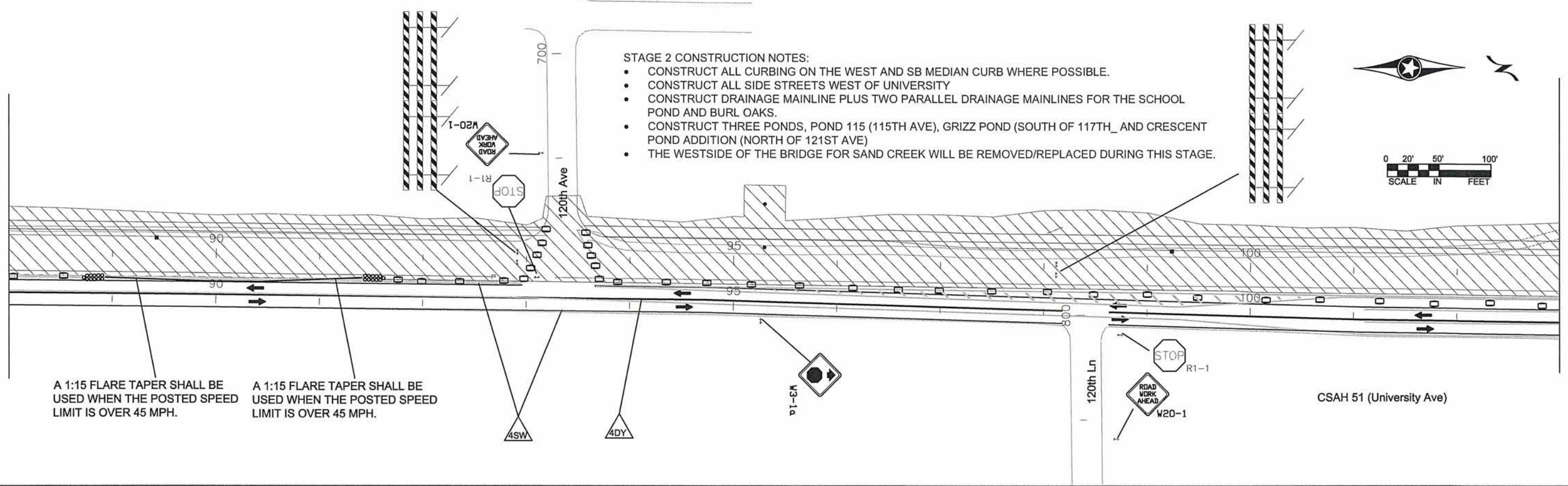


STATION 88+00

STATION 103+00

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A 1:15 FLARE TAPER SHALL BE USED WHEN THE POSTED SPEED LIMIT IS OVER 45 MPH.

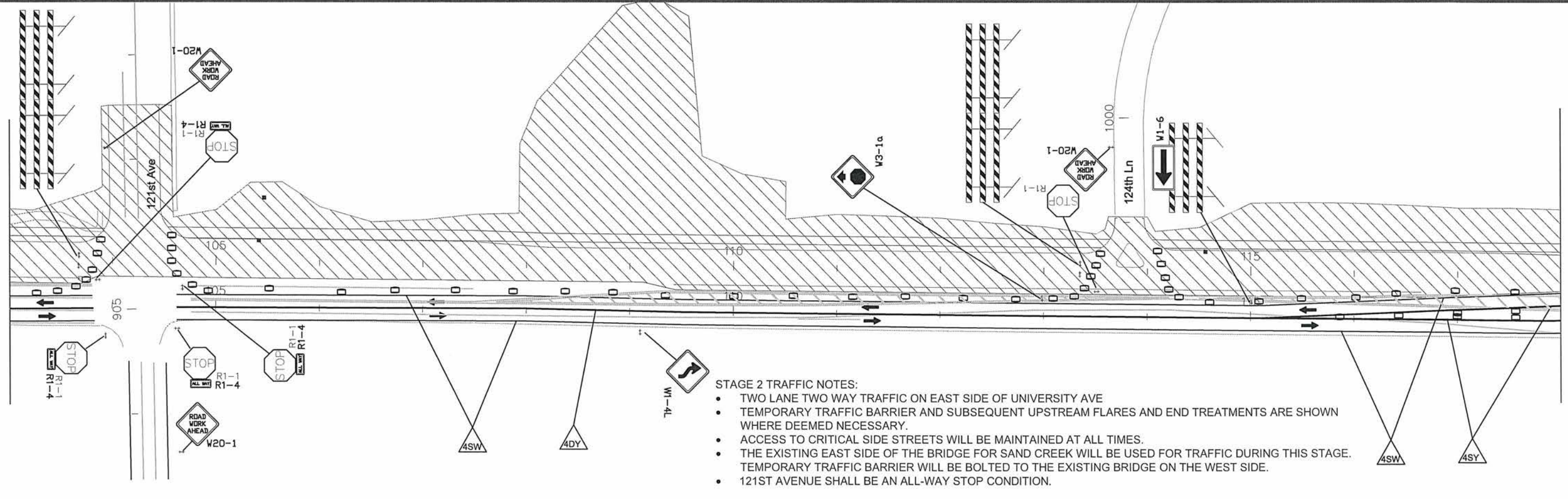


STATION 103+00

STATION 118+00

STAGE 2 TRAFFIC NOTES:

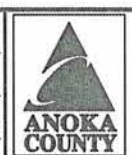
- TWO LANE TWO WAY TRAFFIC ON EAST SIDE OF UNIVERSITY AVE
- TEMPORARY TRAFFIC BARRIER AND SUBSEQUENT UPSTREAM FLARES AND END TREATMENTS ARE SHOWN WHERE DEEMED NECESSARY.
- ACCESS TO CRITICAL SIDE STREETS WILL BE MAINTAINED AT ALL TIMES.
- THE EXISTING EAST SIDE OF THE BRIDGE FOR SAND CREEK WILL BE USED FOR TRAFFIC DURING THIS STAGE. TEMPORARY TRAFFIC BARRIER WILL BE BOLTED TO THE EXISTING BRIDGE ON THE WEST SIDE.
- 121ST AVENUE SHALL BE AN ALL-WAY STOP CONDITION.



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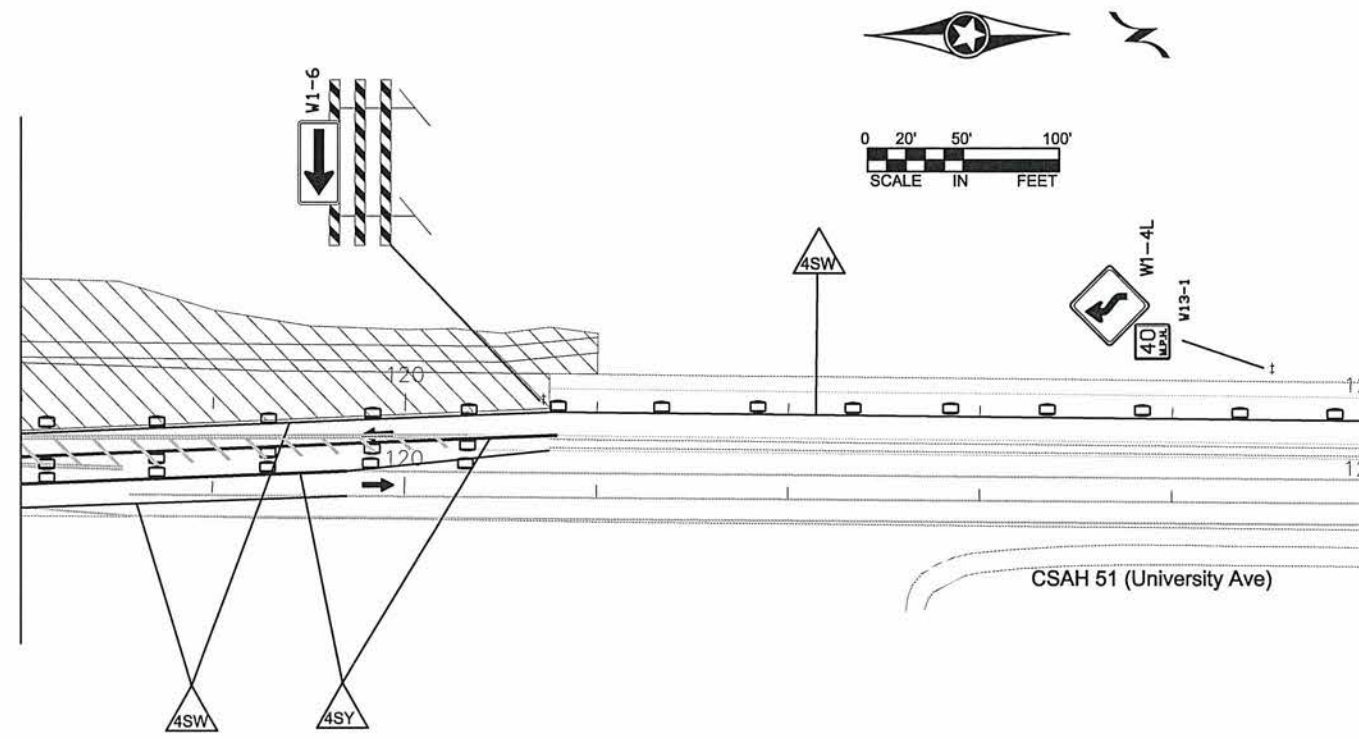
ANOKA COUNTY  
 HIGHWAY DEPT.

STATE PROJECT NO. 02-651-07  
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 COUNTY PROJECT NO.

STAGE 2  
 TRAFFIC CONTROL  
 Sheet 80 of 381 Sheets



STATION 118+00



STATION 125+00

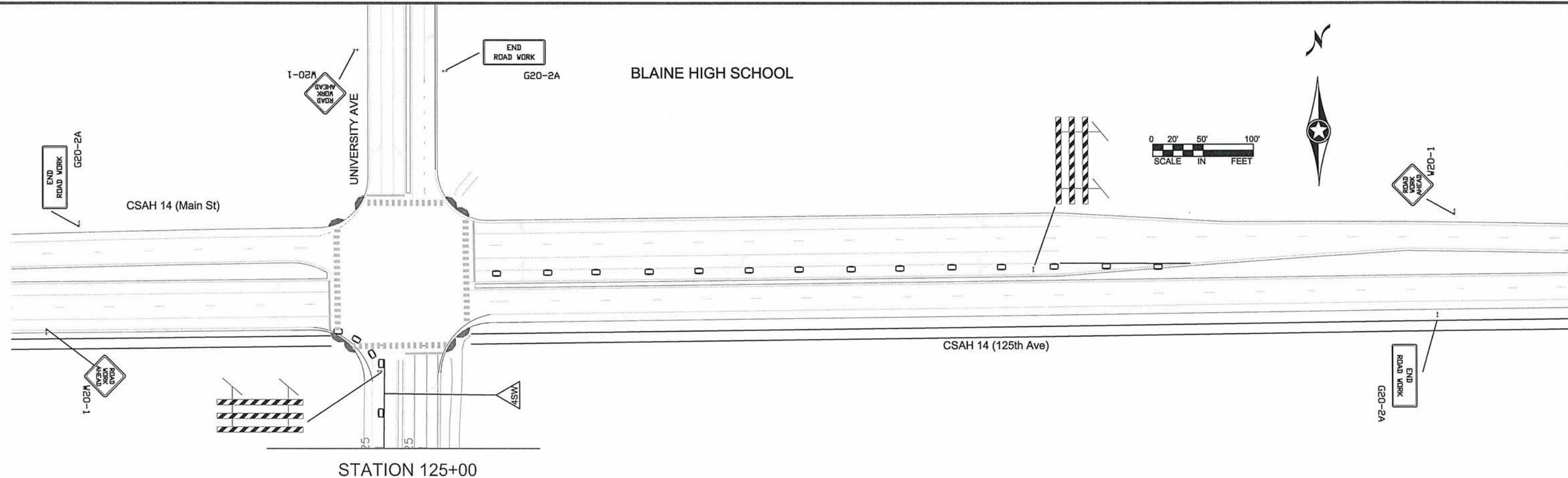
STAGE 2 CONSTRUCTION NOTES:

- CONSTRUCT ALL CURBING ON THE WEST AND SB MEDIAN CURB WHERE POSSIBLE.
- CONSTRUCT ALL SIDE STREETS WEST OF UNIVERSITY
- CONSTRUCT DRAINAGE MAINLINE PLUS TWO PARALLEL DRAINAGE MAINLINES FOR THE SCHOOL POND AND BURL OAKS.
- CONSTRUCT THREE PONDS, POND 115 (115TH AVE), GRIZZ POND (SOUTH OF 117TH\_ AND CRESCENT POND ADDITION (NORTH OF 121ST AVE)
- THE WESTSIDE OF THE BRIDGE FOR SAND CREEK WILL BE REMOVED/REPLACED DURING THIS STAGE.

STAGE 2 TRAFFIC NOTES:

- TWO LANE TWO WAY TRAFFIC ON EAST SIDE OF UNIVERSITY AVE
- TEMPORARY TRAFFIC BARRIER AND SUBSEQUENT UPSTREAM FLARES AND END TREATMENTS ARE SHOWN WHERE DEEMED NECESSARY.
- ACCESS TO CRITICAL SIDE STREETS WILL BE MAINTAINED AT ALL TIMES.
- ACCESS TO HERITAGE OAKS WILL BE VIA 111TH LANE NW, EXISTING UNIVERSITY AVE ACCESS WILL BE CLOSED PERMANENTLY AT THIS TIME.
- ACCESS TO 11130, 11140 AND 11150 UNIVERSITY AVE WILL BE BEHIND THE TEMPORARY TRAFFIC BARRIER, AROUND THE SOUTH TERMINUS OF THE TEMPORARY TRAFFIC BARRIER.
- THE EXISTING EAST SIDE OF THE BRIDGE FOR SAND CREEK WILL BE USED FOR TRAFFIC DURING THIS STAGE. TEMPORARY TRAFFIC BARRIER WILL BE BOLTED TO THE EXISTING BRIDGE ON THE WEST SIDE.
- TRAFFIC SIGNAL AT CSAH 14 SHALL REMAIN IN OPERATION.
- THE WESTBOUND CSAH 14 INSIDE LEFT TURN LANE SHALL REMAIN CLOSED FOR THIS STAGE.

BLAINE HIGH SCHOOL



STATION 125+00

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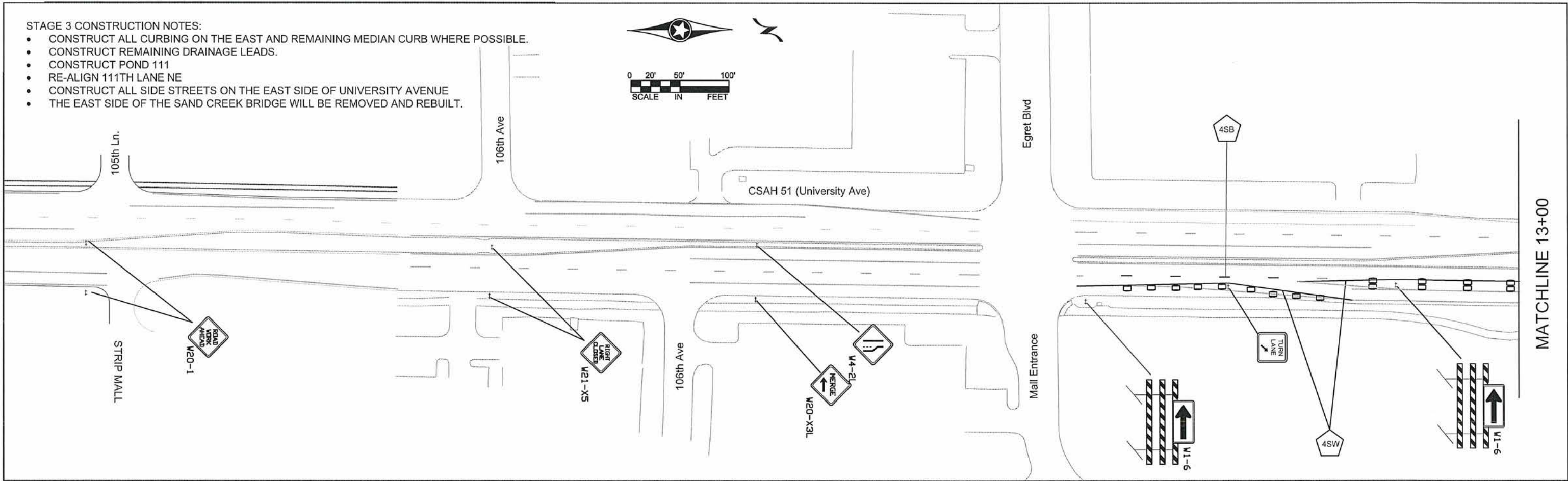
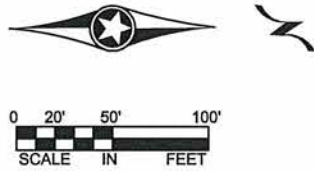
ANOKA COUNTY  
 HIGHWAY DEPT.

STATE PROJECT NO. 02-651-07  
 STATE PROJECT NO. 106-020-031  
 STATE PROJECT NO. 114-020-046  
 COUNTY PROJECT NO.

STAGE 2  
 TRAFFIC CONTROL  
 Sheet 81 of 381 Sheets

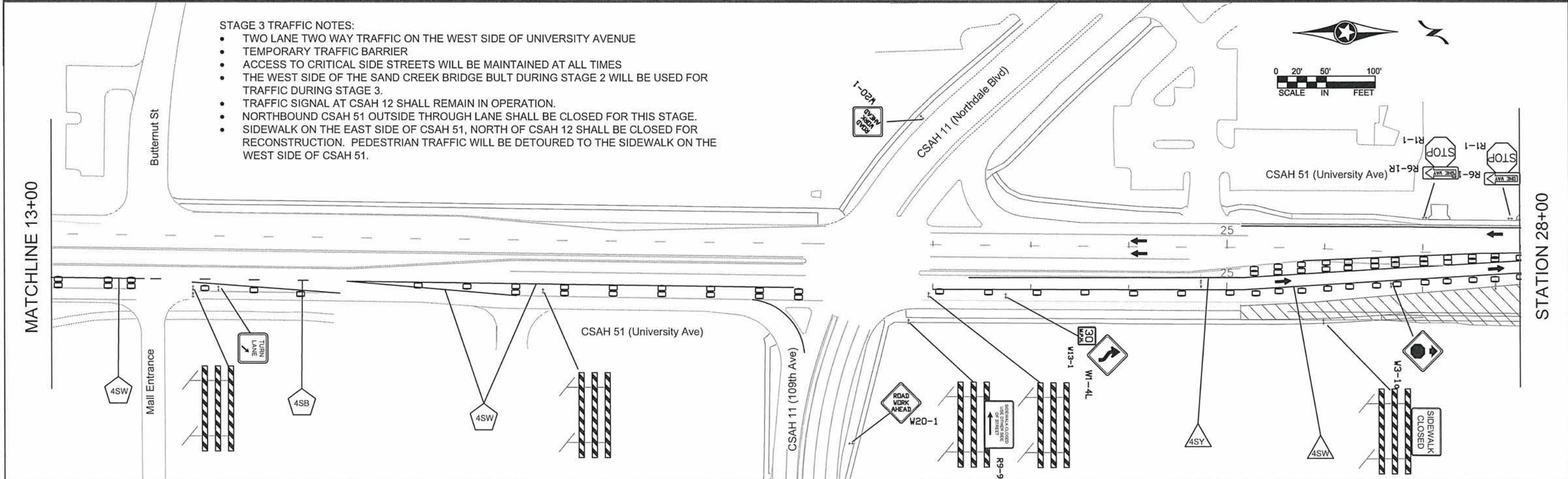
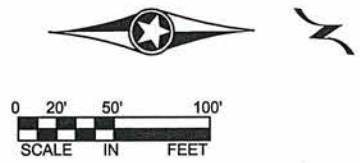
**STAGE 3 CONSTRUCTION NOTES:**

- CONSTRUCT ALL CURBING ON THE EAST AND REMAINING MEDIAN CURB WHERE POSSIBLE.
- CONSTRUCT REMAINING DRAINAGE LEADS.
- CONSTRUCT POND 111
- RE-ALIGN 111TH LANE NE
- CONSTRUCT ALL SIDE STREETS ON THE EAST SIDE OF UNIVERSITY AVENUE
- THE EAST SIDE OF THE SAND CREEK BRIDGE WILL BE REMOVED AND REBUILT.



**STAGE 3 TRAFFIC NOTES:**

- TWO LANE TWO WAY TRAFFIC ON THE WEST SIDE OF UNIVERSITY AVENUE
- TEMPORARY TRAFFIC BARRIER
- ACCESS TO CRITICAL SIDE STREETS WILL BE MAINTAINED AT ALL TIMES
- THE WEST SIDE OF THE SAND CREEK BRIDGE BUILT DURING STAGE 2 WILL BE USED FOR TRAFFIC DURING STAGE 3.
- TRAFFIC SIGNAL AT CSAH 12 SHALL REMAIN IN OPERATION.
- NORTHBOUND CSAH 51 OUTSIDE THROUGH LANE SHALL BE CLOSED FOR THIS STAGE.
- SIDEWALK ON THE EAST SIDE OF CSAH 51, NORTH OF CSAH 12 SHALL BE CLOSED FOR RECONSTRUCTION. PEDESTRIAN TRAFFIC WILL BE DETOURED TO THE SIDEWALK ON THE WEST SIDE OF CSAH 51.



NO	DATE	BY	CKD	APPR	REVISION

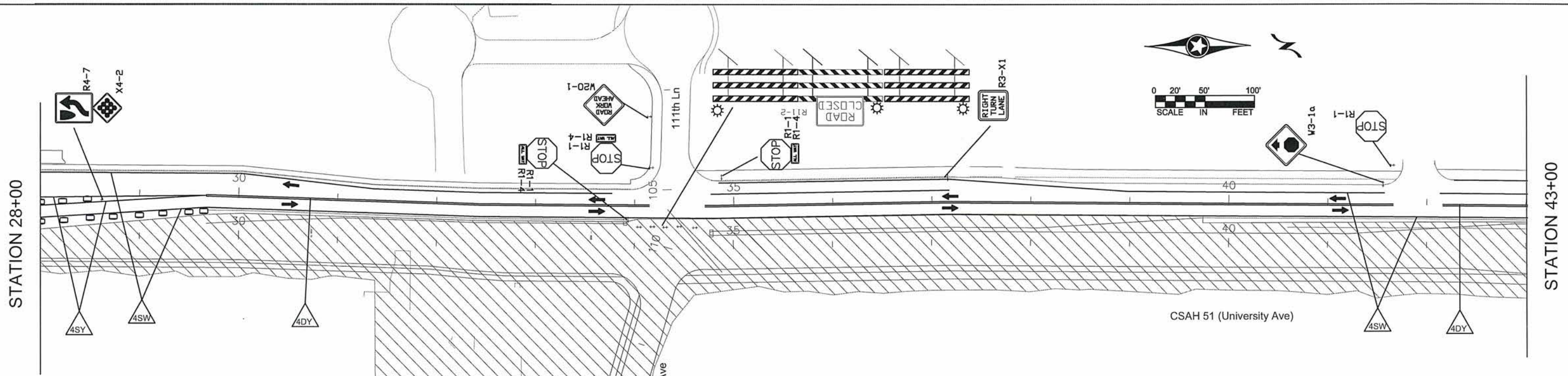
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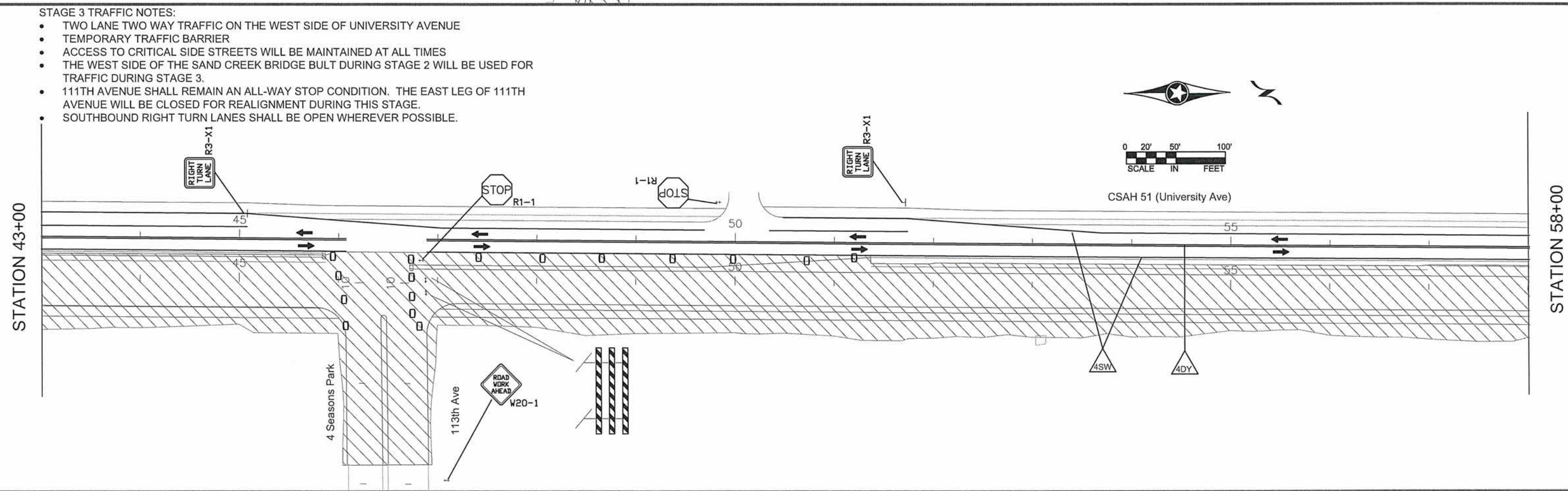
**ANOKA COUNTY HIGHWAY DEPT.**

STATE PROJECT NO. 02-651-07  
 STATE PROJECT NO. 106-020-031  
 STATE PROJECT NO. 114-020-046  
 COUNTY PROJECT NO. \_\_\_\_\_

STAGE 3 TRAFFIC CONTROL  
 Sheet 82 of 381 Sheets



- STAGE 3 CONSTRUCTION NOTES:**
- CONSTRUCT ALL CURBING ON THE EAST AND REMAINING MEDIAN CURB WHERE POSSIBLE.
  - CONSTRUCT REMAINING DRAINAGE LEADS.
  - CONSTRUCT POND 111
  - RE-ALIGN 111TH LANE NE
  - CONSTRUCT ALL SIDE STREETS ON THE EAST SIDE OF UNIVERSITY AVENUE
  - THE EAST SIDE OF THE SAND CREEK BRIDGE WILL BE REMOVED AND REBUILT.



- STAGE 3 TRAFFIC NOTES:**
- TWO LANE TWO WAY TRAFFIC ON THE WEST SIDE OF UNIVERSITY AVENUE
  - TEMPORARY TRAFFIC BARRIER
  - ACCESS TO CRITICAL SIDE STREETS WILL BE MAINTAINED AT ALL TIMES
  - THE WEST SIDE OF THE SAND CREEK BRIDGE BULT DURING STAGE 2 WILL BE USED FOR TRAFFIC DURING STAGE 3.
  - 111TH AVENUE SHALL REMAIN AN ALL-WAY STOP CONDITION. THE EAST LEG OF 111TH AVENUE WILL BE CLOSED FOR REALIGNMENT DURING THIS STAGE.
  - SOUTHBOUND RIGHT TURN LANES SHALL BE OPEN WHEREVER POSSIBLE.

NO	DATE	BY	CKD	APPR	REVISION

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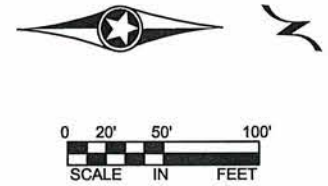


ANOKA COUNTY  
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STATE PROJECT NO. 02-651-07  
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 STATE PROJECT NO. 114-020-046  
 COUNTY PROJECT NO.

STAGE 3  
 TRAFFIC CONTROL  
 Sheet 83 of 381 Sheets

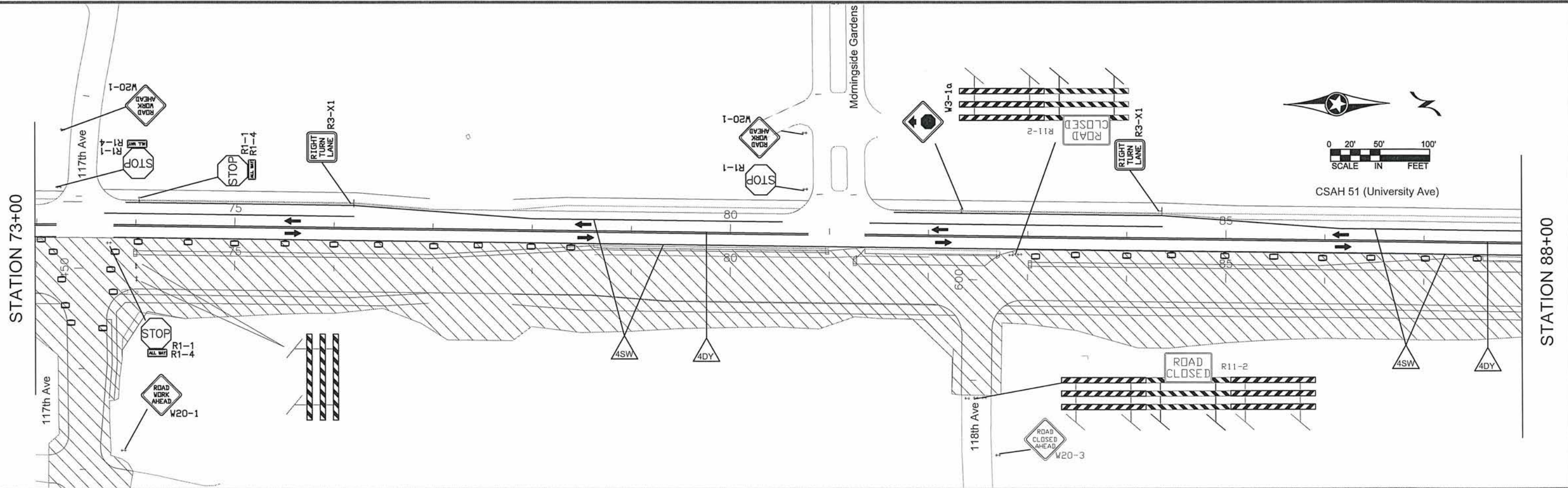
- STAGE 3 CONSTRUCTION NOTES:
- CONSTRUCT ALL CURBING ON THE EAST AND REMAINING MEDIAN CURB WHERE POSSIBLE.
  - CONSTRUCT REMAINING DRAINAGE LEADS.
  - CONSTRUCT POND 111
  - RE-ALIGN 111TH LANE NE
  - CONSTRUCT ALL SIDE STREETS ON THE EAST SIDE OF UNIVERSITY AVENUE
  - THE EAST SIDE OF THE SAND CREEK BRIDGE WILL BE REMOVED AND REBUILT.



STATION 58+00

STATION 73+00

- STAGE 3 TRAFFIC NOTES:
- TWO LANE TWO WAY TRAFFIC ON THE WEST SIDE OF UNIVERSITY AVENUE
  - TEMPORARY TRAFFIC BARRIER
  - ACCESS TO CRITICAL SIDE STREETS WILL BE MAINTAINED AT ALL TIMES
  - THE WEST SIDE OF THE SAND CREEK BRIDGE BUILT DURING STAGE 2 WILL BE USED FOR TRAFFIC DURING STAGE 3.
  - 117TH AVENUE SHALL REMAIN AN ALL-WAY STOP CONDITION.
  - 118TH AVENUE SHALL BE TEMPORARILY CLOSED DURING THIS STAGE.



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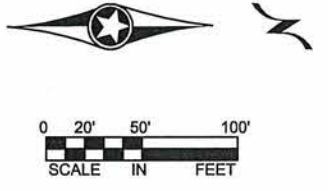
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**ANOKA COUNTY**  
**HIGHWAY DEPT.**

STATE PROJECT NO. 02-651-07  
 STATE PROJECT NO. 106-020-031  
 STATE PROJECT NO. 114-020-046  
 COUNTY PROJECT NO.

STAGE 3  
 TRAFFIC CONTROL  
 Sheet 84 of 381 Sheets

- STAGE 3 CONSTRUCTION NOTES:
- CONSTRUCT ALL CURBING ON THE EAST AND REMAINING MEDIAN CURB WHERE POSSIBLE.
  - CONSTRUCT REMAINING DRAINAGE LEADS.
  - CONSTRUCT POND 111
  - RE-ALIGN 111TH LANE NE
  - CONSTRUCT ALL SIDE STREETS ON THE EAST SIDE OF UNIVERSITY AVENUE
  - THE EAST SIDE OF THE SAND CREEK BRIDGE WILL BE REMOVED AND REBUILT.



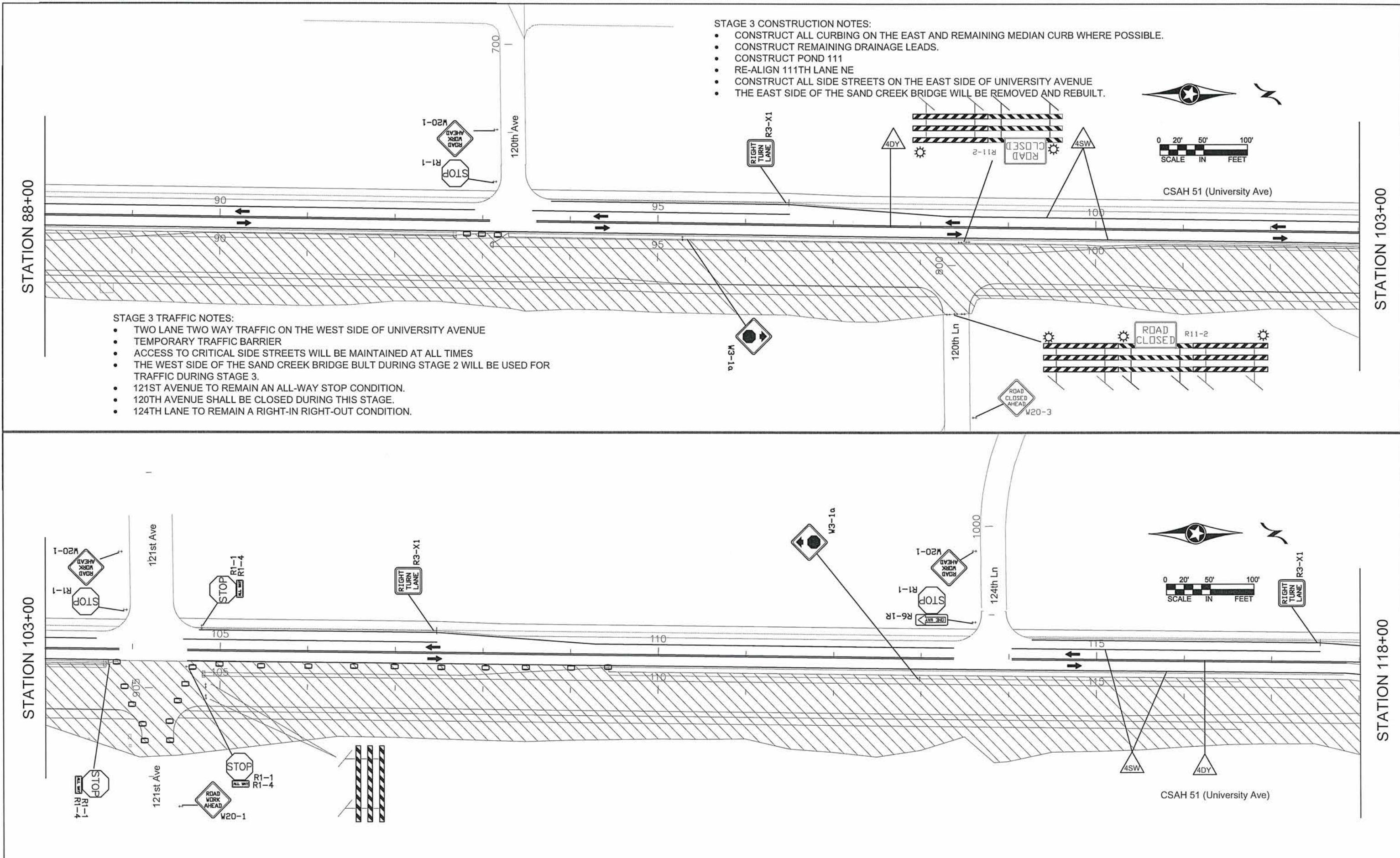
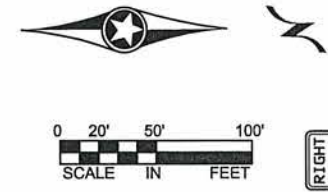
STATION 88+00

STATION 103+00

- STAGE 3 TRAFFIC NOTES:
- TWO LANE TWO WAY TRAFFIC ON THE WEST SIDE OF UNIVERSITY AVENUE
  - TEMPORARY TRAFFIC BARRIER
  - ACCESS TO CRITICAL SIDE STREETS WILL BE MAINTAINED AT ALL TIMES
  - THE WEST SIDE OF THE SAND CREEK BRIDGE BULT DURING STAGE 2 WILL BE USED FOR TRAFFIC DURING STAGE 3.
  - 121ST AVENUE TO REMAIN AN ALL-WAY STOP CONDITION.
  - 120TH AVENUE SHALL BE CLOSED DURING THIS STAGE.
  - 124TH LANE TO REMAIN A RIGHT-IN RIGHT-OUT CONDITION.

STATION 103+00

STATION 118+00



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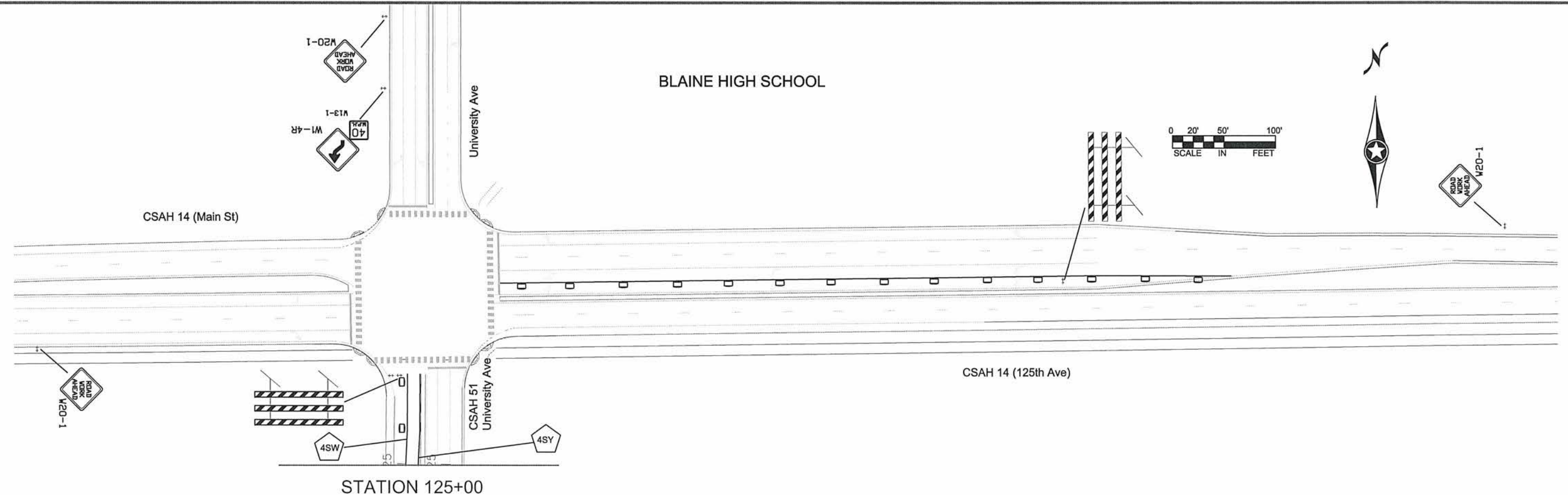
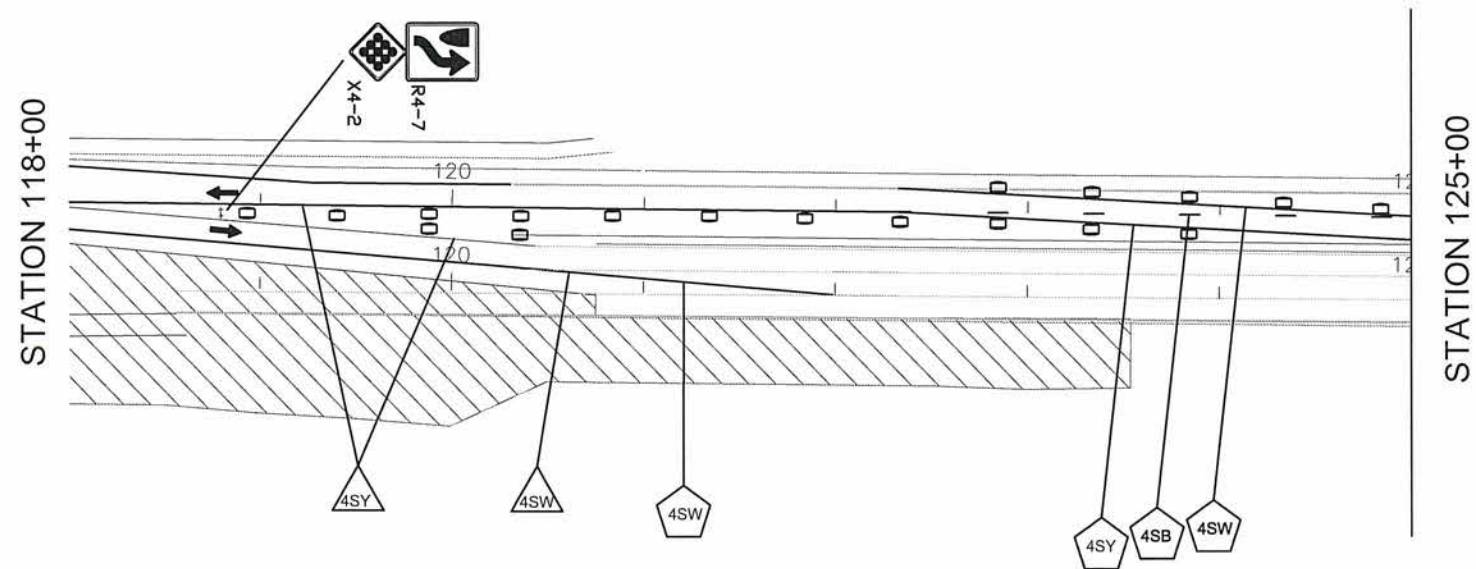
STAGE 3  
 TRAFFIC CONTROL  
 Sheet 85 of 381 Sheets

STAGE 3 CONSTRUCTION NOTES:

- CONSTRUCT ALL CURBING ON THE EAST AND REMAINING MEDIAN CURB WHERE POSSIBLE.
- CONSTRUCT REMAINING DRAINAGE LEADS.
- CONSTRUCT POND 111
- RE-ALIGN 111TH LANE NE
- CONSTRUCT ALL SIDE STREETS ON THE EAST SIDE OF UNIVERSITY AVENUE
- THE EAST SIDE OF THE SAND CREEK BRIDGE WILL BE REMOVED AND REBUILT.

STAGE 3 TRAFFIC NOTES:

- TWO LANE TWO WAY TRAFFIC ON THE WEST SIDE OF UNIVERSITY AVENUE
- TEMPORARY TRAFFIC BARRIER
- ACCESS TO CRITICAL SIDE STREETS WILL BE MAINTAINED AT ALL TIMES
- THE WEST SIDE OF THE SAND CREEK BRIDGE BULT DURING STAGE 2 WILL BE USED FOR TRAFFIC DURING STAGE 3.
- TRAFFIC SIGNAL AT CSAH 14 SHALL REMAIN IN OPERATION.
- CSAH 14 WESTBOUND INSIDE LEFT TURN LANE SHALL REMAIN CLOSED DURING THIS STAGE.



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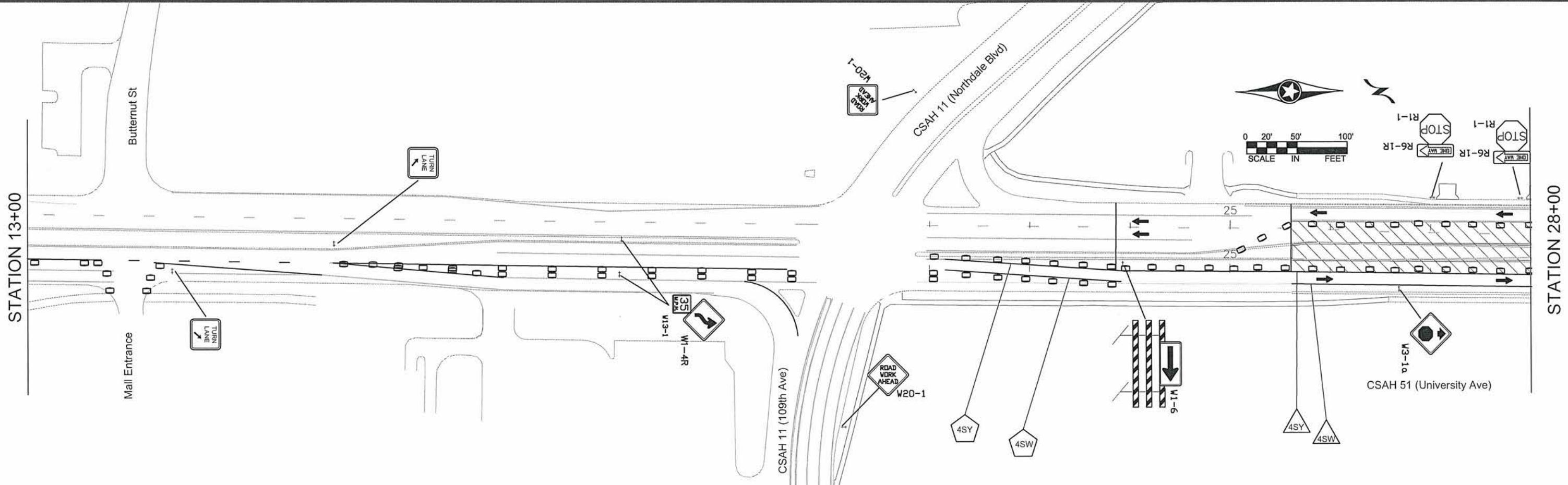
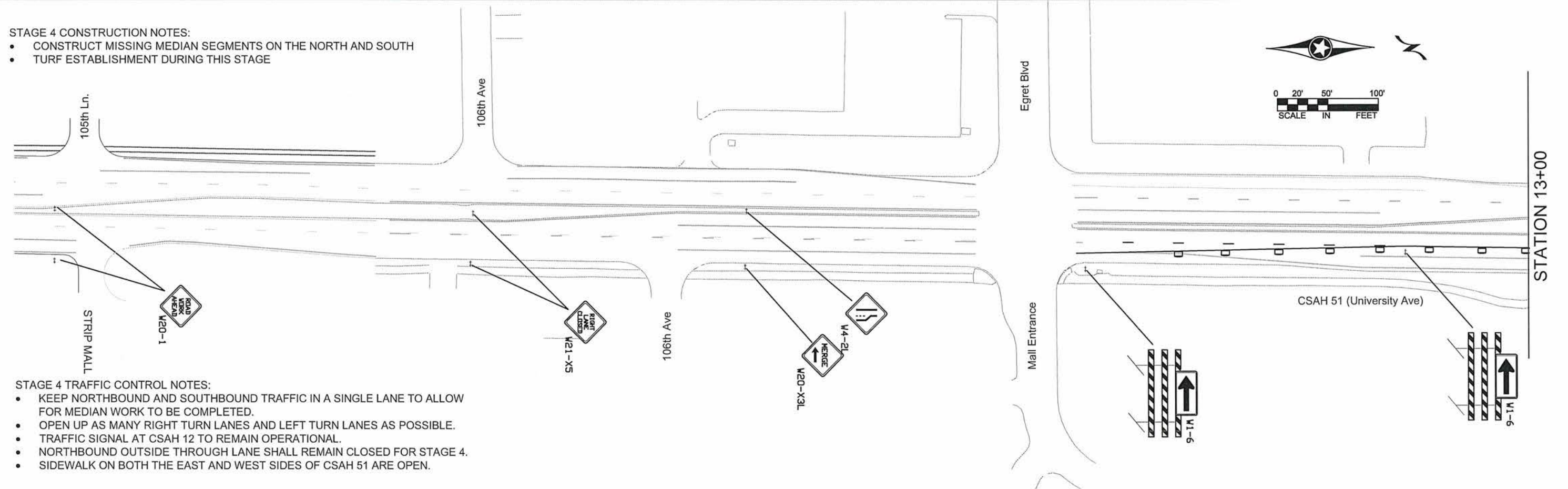
STATE PROJECT NO. 02-651-07  
 STATE PROJECT NO. 106-020-031  
 STATE PROJECT NO. 114-020-046  
 COUNTY PROJECT NO. \_\_\_\_\_

STAGE 4 CONSTRUCTION NOTES:

- CONSTRUCT MISSING MEDIAN SEGMENTS ON THE NORTH AND SOUTH
- TURF ESTABLISHMENT DURING THIS STAGE

STAGE 4 TRAFFIC CONTROL NOTES:

- KEEP NORTHBOUND AND SOUTHBOUND TRAFFIC IN A SINGLE LANE TO ALLOW FOR MEDIAN WORK TO BE COMPLETED.
- OPEN UP AS MANY RIGHT TURN LANES AND LEFT TURN LANES AS POSSIBLE.
- TRAFFIC SIGNAL AT CSAH 12 TO REMAIN OPERATIONAL.
- NORTHBOUND OUTSIDE THROUGH LANE SHALL REMAIN CLOSED FOR STAGE 4.
- SIDEWALK ON BOTH THE EAST AND WEST SIDES OF CSAH 51 ARE OPEN.



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:102-651-07\Bases\TRAFFIC\10265107\_TRAFFIC CONTROL STAGE 4.dwg

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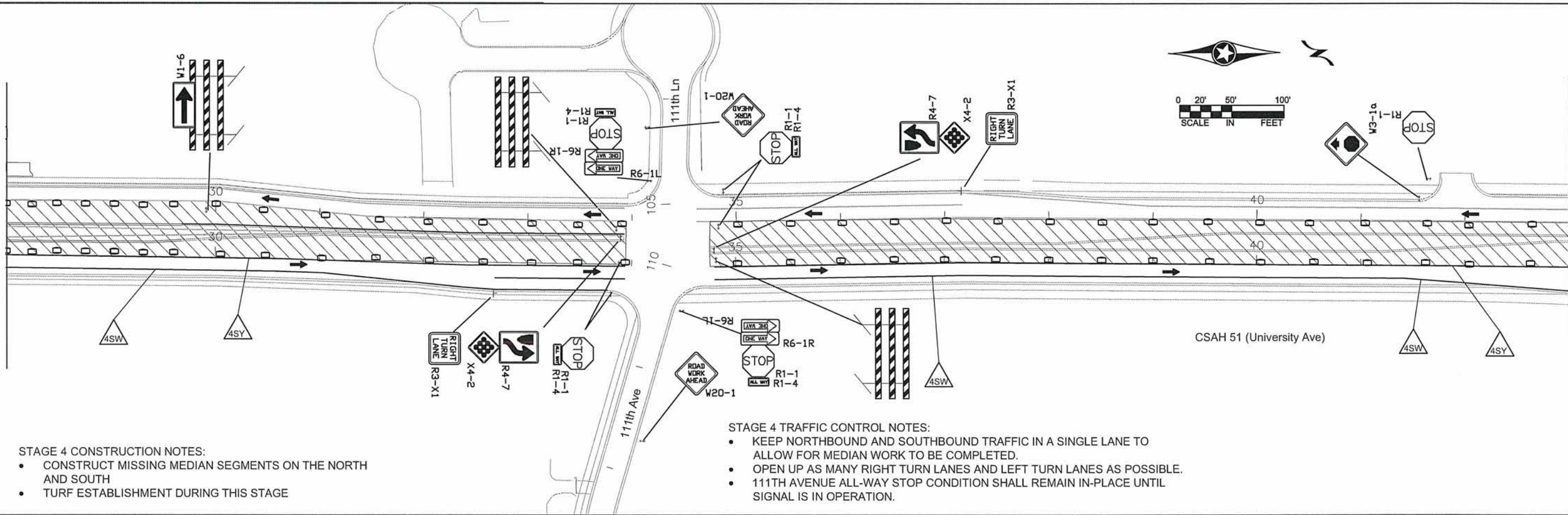
COUNTY PROJECT NO.

STAGE 4  
TRAFFIC CONTROL

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STATION 28+00

STATION 43+00



STAGE 4 CONSTRUCTION NOTES:

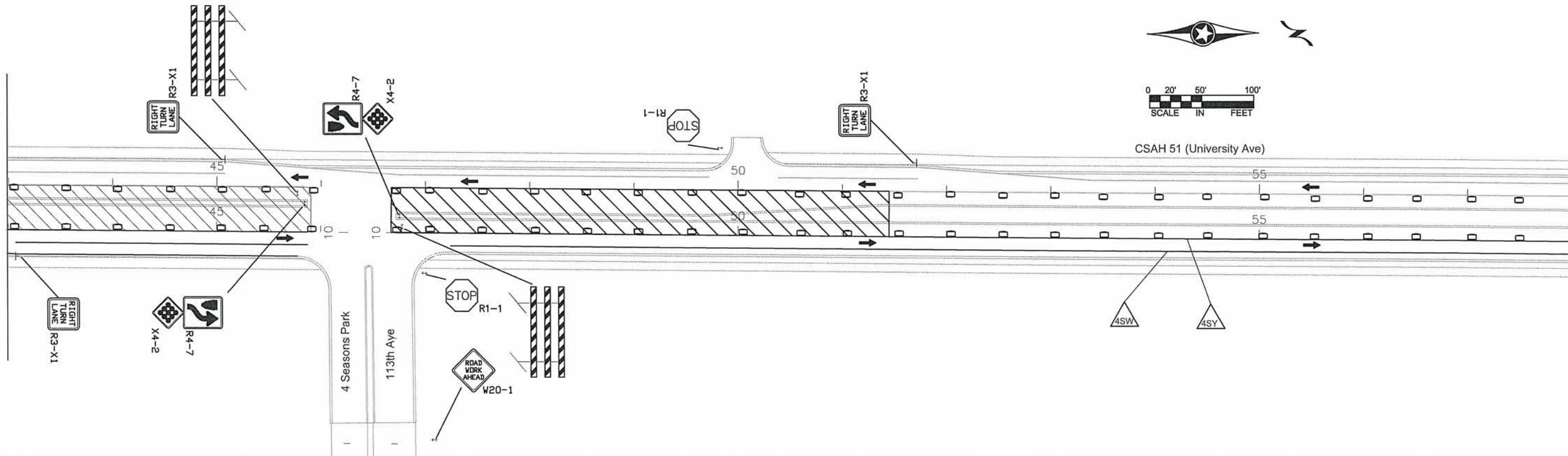
- CONSTRUCT MISSING MEDIAN SEGMENTS ON THE NORTH AND SOUTH
- TURF ESTABLISHMENT DURING THIS STAGE

STAGE 4 TRAFFIC CONTROL NOTES:

- KEEP NORTHBOUND AND SOUTHBOUND TRAFFIC IN A SINGLE LANE TO ALLOW FOR MEDIAN WORK TO BE COMPLETED.
- OPEN UP AS MANY RIGHT TURN LANES AND LEFT TURN LANES AS POSSIBLE.
- 111TH AVENUE ALL-WAY STOP CONDITION SHALL REMAIN IN-PLACE UNTIL SIGNAL IS IN OPERATION.

STATION 43+00

STATION 58+00



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COUNTY PROJECT NO. \_\_\_\_\_

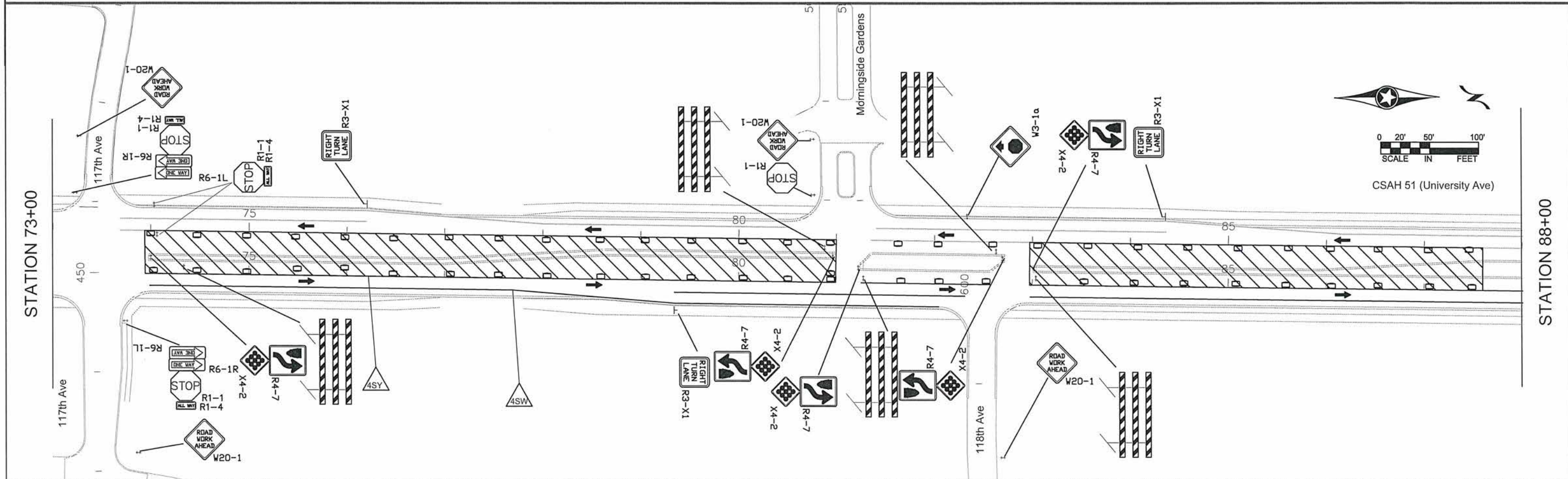
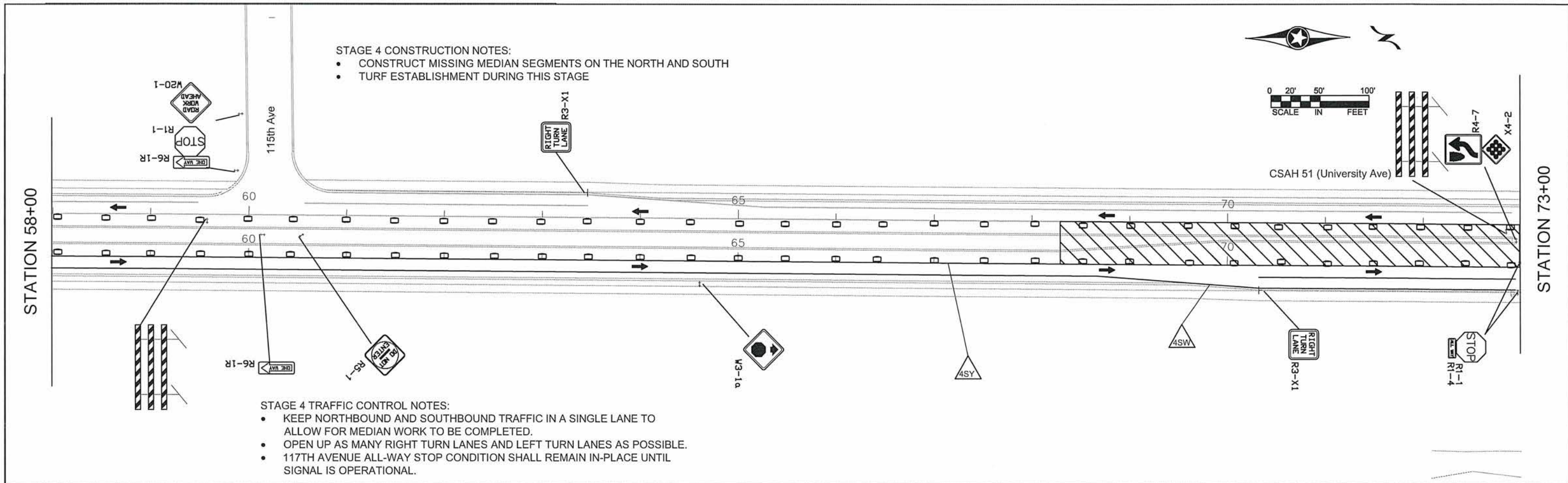
STAGE 4  
TRAFFIC CONTROL

Sheet 88 of 381 Sheets

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Base\TRAFFIC\0265107\_TRAFFIC CONTROL STAGE 4.dwg





NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Bases\TRAFFIC\0265107\_TRAFFIC CONTROL STAGE 4.dwg

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

PRINT NAME: CURT A KOBIJARCSIK  
 SIGNATURE: *Curt A. Kobiljarcsik*  
 DATE: 6-9-14 REG. NO. 24756

DRAWN BY: RLB DATE 08/01/13  
 DESIGN BY: RLB DATE 08/01/13  
 CHECKED BY: JR DATE 08/01/13

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

STATE PROJECT NO. 02-651-07  
 STATE PROJECT NO. 106-020-031  
 STATE PROJECT NO. 114-020-046  
 COUNTY PROJECT NO. \_\_\_\_\_

STAGE 4  
 TRAFFIC CONTROL  
 Sheet 89 of 381 Sheets

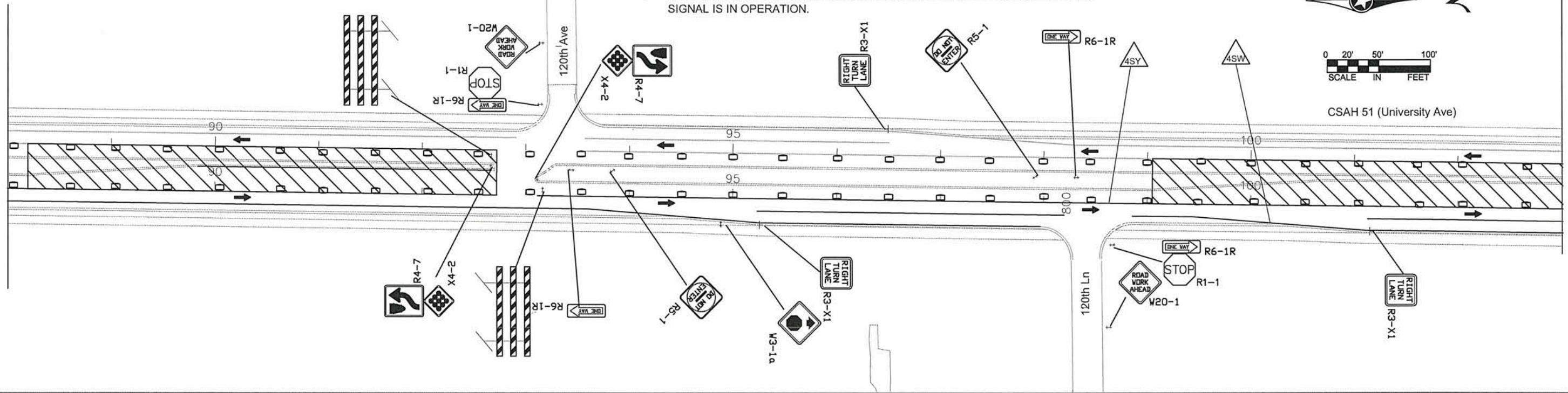
STAGE 4 CONSTRUCTION NOTES:

- CONSTRUCT MISSING MEDIAN SEGMENTS ON THE NORTH AND SOUTH
- TURF ESTABLISHMENT DURING THIS STAGE

STAGE 4 TRAFFIC CONTROL NOTES:

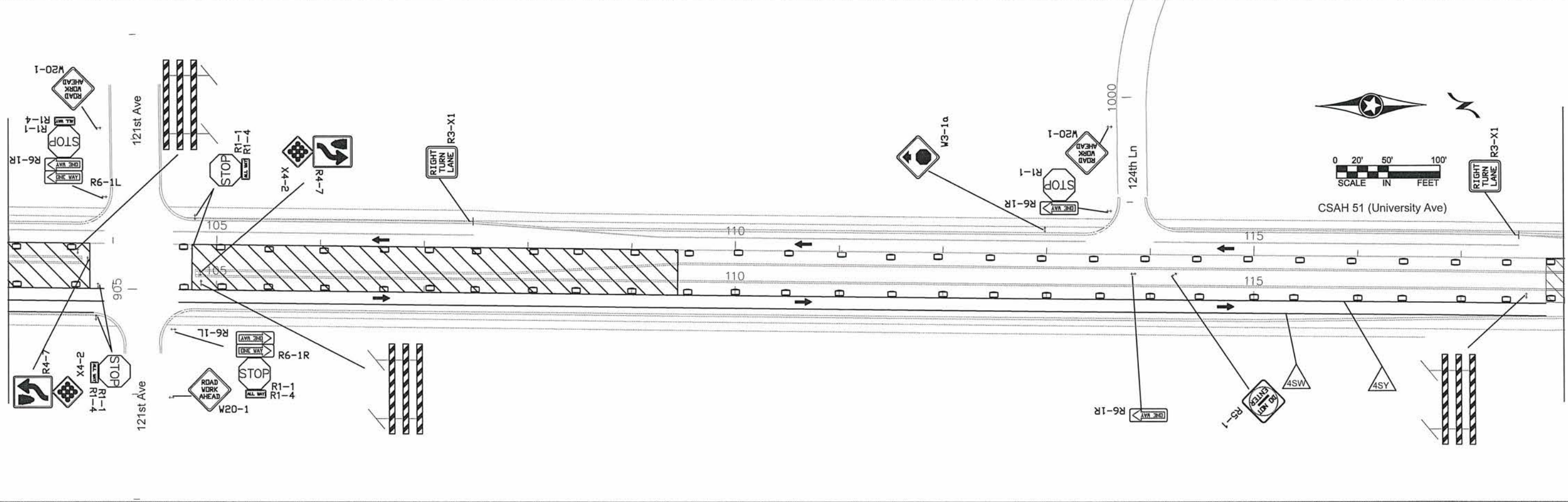
- KEEP NORTHBOUND AND SOUTHBOUND TRAFFIC IN A SINGLE LANE TO ALLOW FOR MEDIAN WORK TO BE COMPLETED.
- OPEN UP AS MANY RIGHT TURN LANES AND LEFT TURN LANES AS POSSIBLE.
- 121ST AVENUE SHALL REMAIN AN ALL-WAY STOP CONDITION UNTIL TRAFFIC SIGNAL IS IN OPERATION.

STATION 88+00



STATION 103+00

STATION 103+00



STATION 118+00

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A KOBILARCSIK  
 SIGNATURE: *Curt Kobilarcsik*  
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DRAWN BY: RLB DATE 08/01/13  
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 CHECKED BY: JR DATE 08/01/13



ANOKA COUNTY  
 HIGHWAY DEPT.

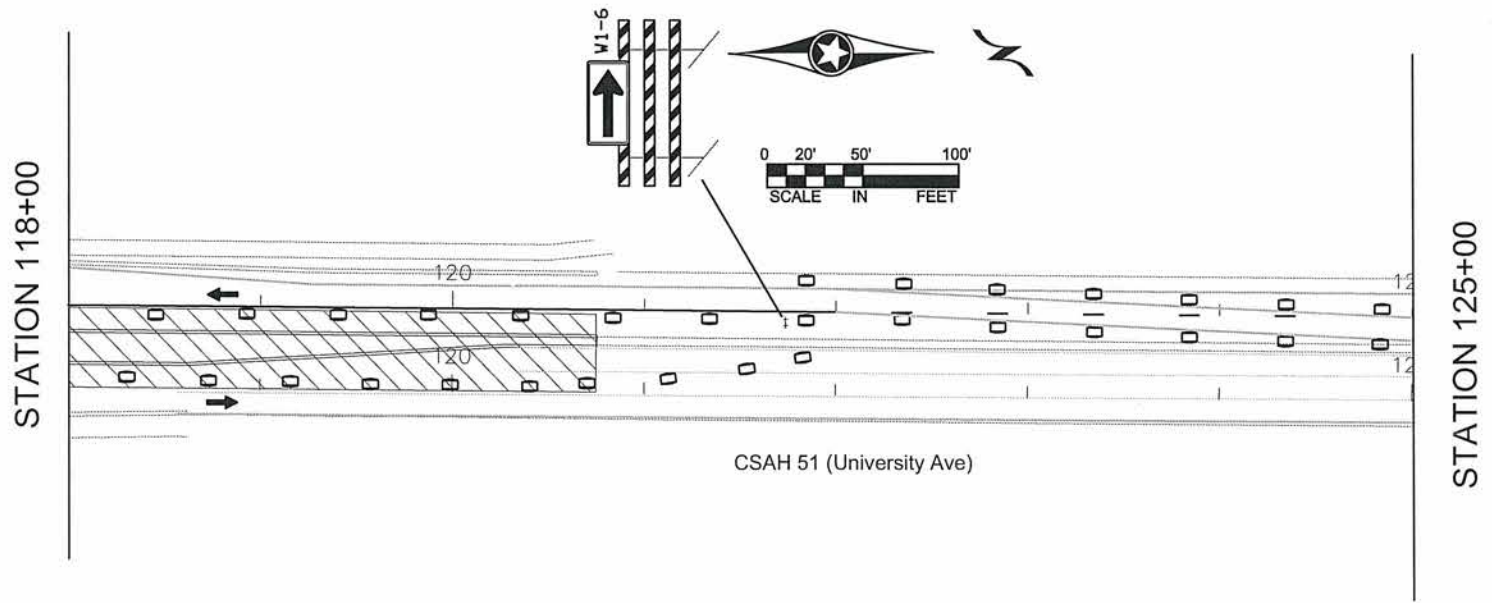
STATE PROJECT NO. 02-651-07  
 STATE PROJECT NO. 106-020-031  
 STATE PROJECT NO. 114-020-046  
 COUNTY PROJECT NO.

STAGE 4  
 TRAFFIC CONTROL

Sheet 90 of 381 Sheets

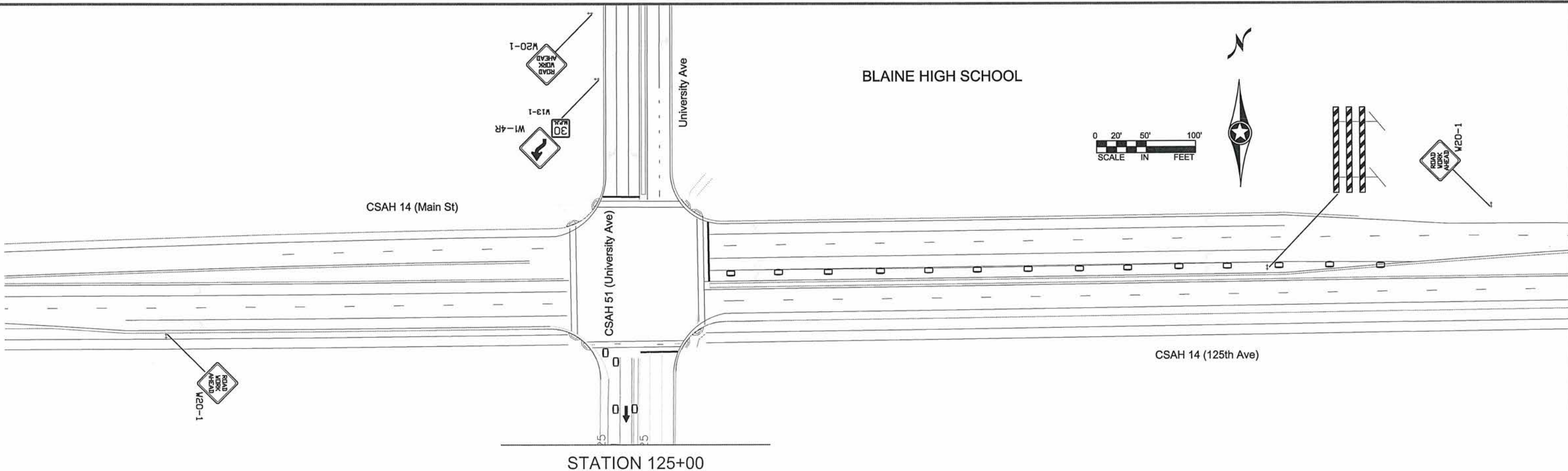
NO	DATE	BY	CKD	APPR	REVISION

NAME: P:102-651-07\Base\TRAFFIC\0265107\_TRAFFIC CONTROL STAGE 4.dwg



- STAGE 4 CONSTRUCTION NOTES:
- CONSTRUCT MISSING MEDIAN SEGMENTS ON THE NORTH AND SOUTH
  - TURF ESTABLISHMENT DURING THIS STAGE

- STAGE 4 TRAFFIC CONTROL NOTES:
- KEEP NORTHBOUND AND SOUTHBOUND TRAFFIC IN A SINGLE LANE TO ALLOW FOR MEDIAN WORK TO BE COMPLETED.
  - OPEN UP AS MANY RIGHT TURN LANES AND LEFT TURN LANES AS POSSIBLE.
  - TRAFFIC SIGNAL AT CSAH 14 TO REMAIN IN OPERATION.
  - CSAH 14 WESTBOUND INSIDE LEFT TURN LANE SHALL BE CLOSED DURING THIS STAGE.



NO	DATE	BY	CKD	APPR	REVISION

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ANOKA COUNTY  
 HIGHWAY DEPT.

STATE PROJECT NO. 02-651-07  
 STATE PROJECT NO. 106-020-031  
 STATE PROJECT NO. 114-020-046  
 COUNTY PROJECT NO. \_\_\_\_\_

STAGE 4  
 TRAFFIC CONTROL  
 Sheet 91 of 381 Sheets

M.U.T.C.D. CODE	SIZE	INSERT	QTY. STG. 1	QTY. STG. 2	QTY. STG. 3	QTY. STG. 4
R1-6L	48" x 18"		0	1	1	6
R1-6R	48" x 18"		0	3	3	16
R1-1	48" x 48"		0	23	20	28
R1-4	48" x 12"		0	12	10	8
R3-X1	30" x 30"		0	0	9	15
R3-X2	30" x 30"		0	0	0	11
R5-1	30" x 30"		0	2	0	4
W1-4R	48" x 48"		0	0	1	2
W1-4L	48" x 48"		0	2	1	0
W3-1A	48" x 48"		0	6	6	6
W4-2R	48" x 48"		0	1	0	0
W4-2L	48" x 48"		0	0	1	1
W20-1	48" x 48"		21	19	17	20
W20-X3R	48" x 48"		0	1	0	0
W20-X3L	48" x 48"		0	0	1	1

M.U.T.C.D. CODE	SIZE	INSERT	QTY. STG. 1	QTY. STG. 2	QTY. STG. 3	QTY. STG. 4
W1-6	48" x 24"		0	1	0	3
TYPE III	8 FOOT		1	6	7	17
W1-6	48" x 24"		0	2	2	2
TYPE III	8 FOOT		0	29	18	x
R9-9	30" x 18"		0	0	1	0
R9-9	30" x 18"		0	0	1	0
G20-2A	48" x 24"		6	6	6	6
R11-2	48" x 30"		0	2	6	x
R4-8	24" x 30"		0	1	2	14
X4-2	18" X 18"		0	1	2	14
W13 -1	18" X 18"		0	1	2	2
G20-X9	30" X36"		0	1	1	2
	Variable arrow angle					
REFLECTORIZED REBOUNDABLE DRUM			15	335	195	490
W21-X5	48" x 48"		0	2	0	0

TEMPORARY PAVEMENT MARKING TABULATION		
PAVEMENT MARKING REMOVAL 4" DOUBLE SOLID PAINT	LIN FT	6630
PAVEMENT MARKING REMOVAL 4" SOLID PAINT	LIN FT	8810
PAVEMENT MARKING REMOVAL 24"	LIN FT	438
PAVEMENT MESSAGE MARKING REMOVAL	SF	79
REMOVABLE PREFORM PLASTIC MASK (BLACK)	LIN FT	190
REMOVABLE PREFORM PLASTIC MARKING (YELLOW)	LIN FT	2720
REMOVABLE PREFORM PLASTIC MARKING (WHITE)	LIN FT	2870
4" SOLID LINE WHITE - PAINT	LIN FT	46730
4" SOLID LINE YELLOW - PAINT	LIN FT	12860
PORTABLE PRECAST CONCRETE BARRIER	LIN FT	3350
IMPACT ATTENUATOR BARRELS	EACH	10
RAISED PAVEMENT MARKER TEMPORARY	EACH	403

NOTES:

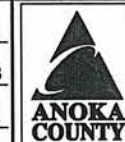
- ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE LATEST FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.
- ALL TYPE III BARRICADES SHALL BE REFLECTORIZED ON BOTH SIDES. BARRICADE MARKINGS SHALL BE SLANTED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

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Bose\TRAFFIC\0265107\_STGQTY.dwg

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE:   
 DATE: 6-9-14 REG. NO. 24756

DRAWN BY: RLB DATE 8/08/13  
 DESIGN BY: RLB DATE 8/08/13  
 CHECKED BY: JR DATE 8/08/13

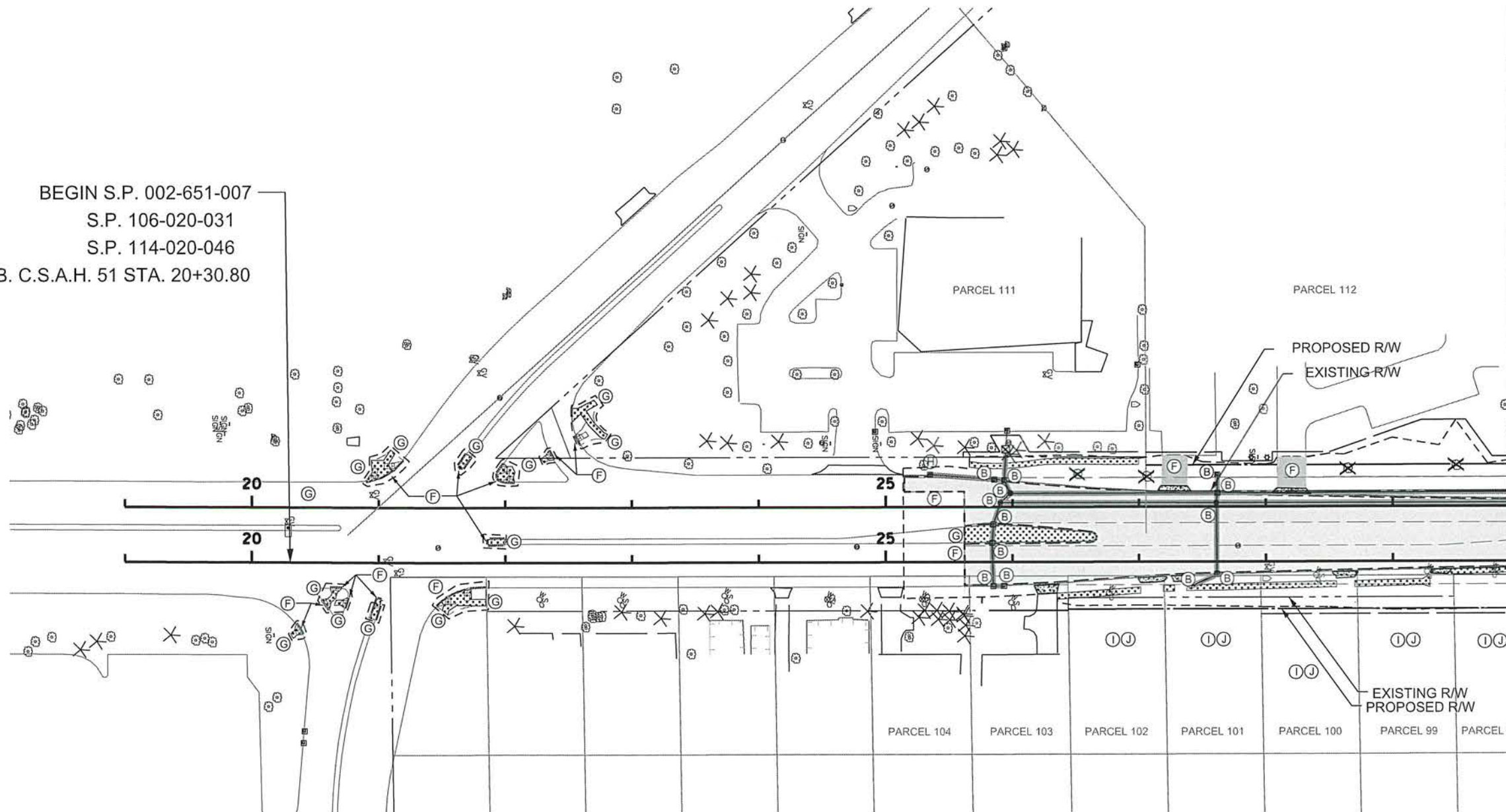


ANOKA COUNTY  
 HIGHWAY DEPT.

STATE PROJECT NO. 02-651-07  
 STATE PROJECT NO. 106-020-031  
 STATE PROJECT NO. 114-020-046  
 COUNTY PROJECT NO.

STAGING  
 SIGN QUANTITIES  
 Sheet 92 of 381 Sheets

BEGIN S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046  
 N.B. C.S.A.H. 51 STA. 20+30.80



MATCH LINE 30+00

LEGEND	
	REMOVE BITUMINOUS PAVEMENT
	REMOVE CONCRETE PAVEMENT
	REMOVE SIDEWALK
	CLEAR & GRUB (ACRE)
	REMOVE SEWER PIPE STORM
	REMOVE CURB AND GUTTER
	REMOVE BITUMINOUS CURB
	TREE REMOVAL BY EACH
	SAWING BITUMINOUS PAVEMENT
	CONSTRUCTION LIMIT
	TEMPORARY EASEMENT
	PERMANENT EASEMENT
	SOIL BORING
	CLOSE DRIVE ACCESS

**REMOVAL NOTES**

REFER TO TRAFFIC SIGNAL PLANS FOR TRAFFIC SIGNAL REMOVALS.

THE CONTRACTOR SHALL PERFORM ALL CLEARING AND GRUBBING AS DIRECTED AND MARKED IN THE FIELD BY THE ENGINEER. THE CONTRACTOR SHALL OTHERWISE PROTECT ALL EXISTING TREES NOT SPECIFICALLY MARKED FOR REMOVAL.

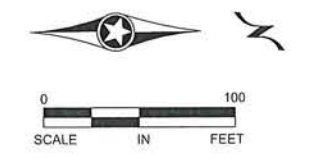
ALL MANHOLES AND CATCH BASINS WILL BE PAID FOR AS "REMOVE DRAINAGE STRUCTURE" ITEM 2104.509 CALLED OUT IN REMOVAL PLANS AS MH AND CB. FOR INFORMATION PURPOSES ONLY.

ALL PRIVATE UTILITIES TO BE RELOCATED BY OTHERS AS REQUIRED. SEE IN PLACE UTILITY TABULATION FOR MORE INFORMATION.

ALL ROADWAY SIGNS WITHIN THE CONSTRUCTION LIMITS AND CONFLICTING SIGNS SHALL BE SALVAGED BY THE CONTRACTOR.

SEE CITY WATERMAIN AND SEWERS PLANS FOR WATERMAIN, HYDRANT, AND SEWER REMOVAL ITEMS.

- NOTES:**
- ⓑ REMOVE MH OR CB
  - ⓒ REMOVE FENCE (BY OTHERS)
  - ⓓ REMOVE RETAINING WALL
  - ⓔ SAWCUT BITUMINOUS
  - ⓕ SAWCUT CONCRETE
  - ⓖ EXISTING CB REMAINS INPLACE
  - ① 9 - CURB STOP BOXES TO BE REMOVED FROM R/W TO CONNECTION POINT FROM REMOVED HOUSES SOUTH OF 111TH EAST SIDE OF CSAH 51. (PAID FOR BY THE EACH)
  - ② 9 - SANITARY CLEANOUTS TO BE REMOVED FROM R/W TO CONNECTION POINT FROM REMOVED HOUSES SOUTH OF 111TH EAST SIDE OF CSAH 51. (PAID FOR BY THE EACH)



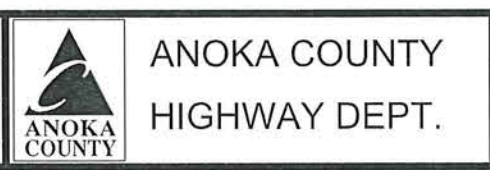
NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_REM1.dgn      06/05/2014      7:43:07 AM

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

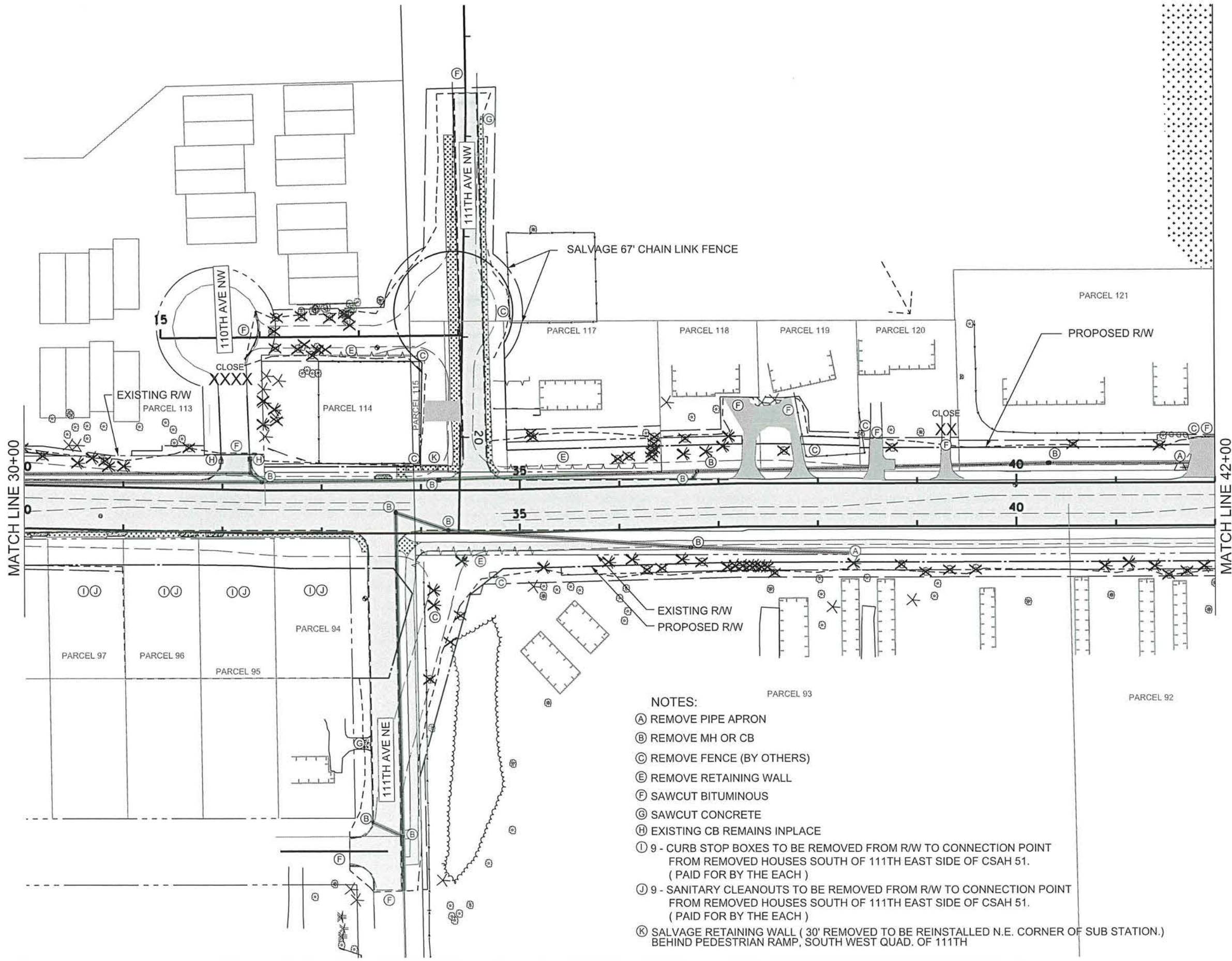
PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt A. Kobilarsik*  
 DATE: 6-9-14      LICENSE NO. 24756

DRAWN BY: JCF      DATE: 11-25-13  
 DESIGN BY: NJD      DATE: 10-31-13  
 CHECKED BY: GMP      DATE: 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

REMOVAL PLAN  
 STA 20+30.80 TO 30+00.00  
 Sheet 93 of 381 Sheets



LEGEND	
	REMOVE BITUMINOUS PAVEMENT
	REMOVE CONCRETE PAVEMENT
	REMOVE SIDEWALK
	CLEAR & GRUB (ACRE)
	REMOVE SEWER PIPE STORM
	REMOVE CURB AND GUTTER
	REMOVE BITUMINOUS CURB
	TREE REMOVAL BY EACH
	SAWING BITUMINOUS PAVEMENT
	CONSTRUCTION LIMIT
	TEMPORARY EASEMENT
	PERMANENT EASEMENT
	SOIL BORING
	CLOSE DRIVE ACCESS

**REMOVAL NOTES**

REFER TO TRAFFIC SIGNAL PLANS FOR TRAFFIC SIGNAL REMOVALS.

THE CONTRACTOR SHALL PERFORM ALL CLEARING AND GRUBBING AS DIRECTED AND MARKED IN THE FIELD BY THE ENGINEER. THE CONTRACTOR SHALL OTHERWISE PROTECT ALL EXISTING TREES NOT SPECIFICALLY MARKED FOR REMOVAL.

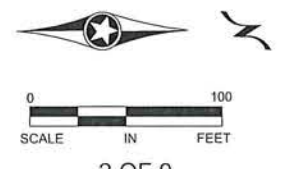
ALL MANHOLES AND CATCH BASINS WILL BE PAID FOR AS "REMOVE DRAINAGE STRUCTURE" ITEM 2104.509 CALLED OUT IN REMOVAL PLANS AS MH AND CB. FOR INFORMATION PURPOSES ONLY.

ALL PRIVATE UTILITIES TO BE RELOCATED BY OTHERS AS REQUIRED. SEE IN PLACE UTILITY TABULATION FOR MORE INFORMATION.

ALL ROADWAY SIGNS WITHIN THE CONSTRUCTION LIMITS AND CONFLICTING SIGNS SHALL BE SALVAGED BY THE CONTRACTOR.

SEE CITY WATERMAIN AND SEWERS PLANS FOR WATERMAIN, HYDRANT, AND SEWER REMOVAL ITEMS.

- NOTES:**
- (A) REMOVE PIPE APRON
  - (B) REMOVE MH OR CB
  - (C) REMOVE FENCE (BY OTHERS)
  - (E) REMOVE RETAINING WALL
  - (F) SAWCUT BITUMINOUS
  - (G) SAWCUT CONCRETE
  - (H) EXISTING CB REMAINS INPLACE
  - (I) 9 - CURB STOP BOXES TO BE REMOVED FROM R/W TO CONNECTION POINT FROM REMOVED HOUSES SOUTH OF 111TH EAST SIDE OF CSAH 51. (PAID FOR BY THE EACH)
  - (J) 9 - SANITARY CLEANOUTS TO BE REMOVED FROM R/W TO CONNECTION POINT FROM REMOVED HOUSES SOUTH OF 111TH EAST SIDE OF CSAH 51. (PAID FOR BY THE EACH)
  - (K) SALVAGE RETAINING WALL ( 30' REMOVED TO BE REINSTALLED N.E. CORNER OF SUB STATION.) BEHIND PEDESTRIAN RAMP, SOUTH WEST QUAD. OF 111TH



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_REM2.dgn      06/05/2014      7:43:10 AM

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

PRINT NAME: CURT A. KOBILARCSIK

SIGNATURE: *Curt Kobilarcsik*

DATE: 6-9-14      LICENSE NO. 24756

DRAWN BY: JCF      DATE: 11-25-13

DESIGN BY: NJD      DATE: 10-31-13

CHECKED BY: GMP      DATE: 12-13-13

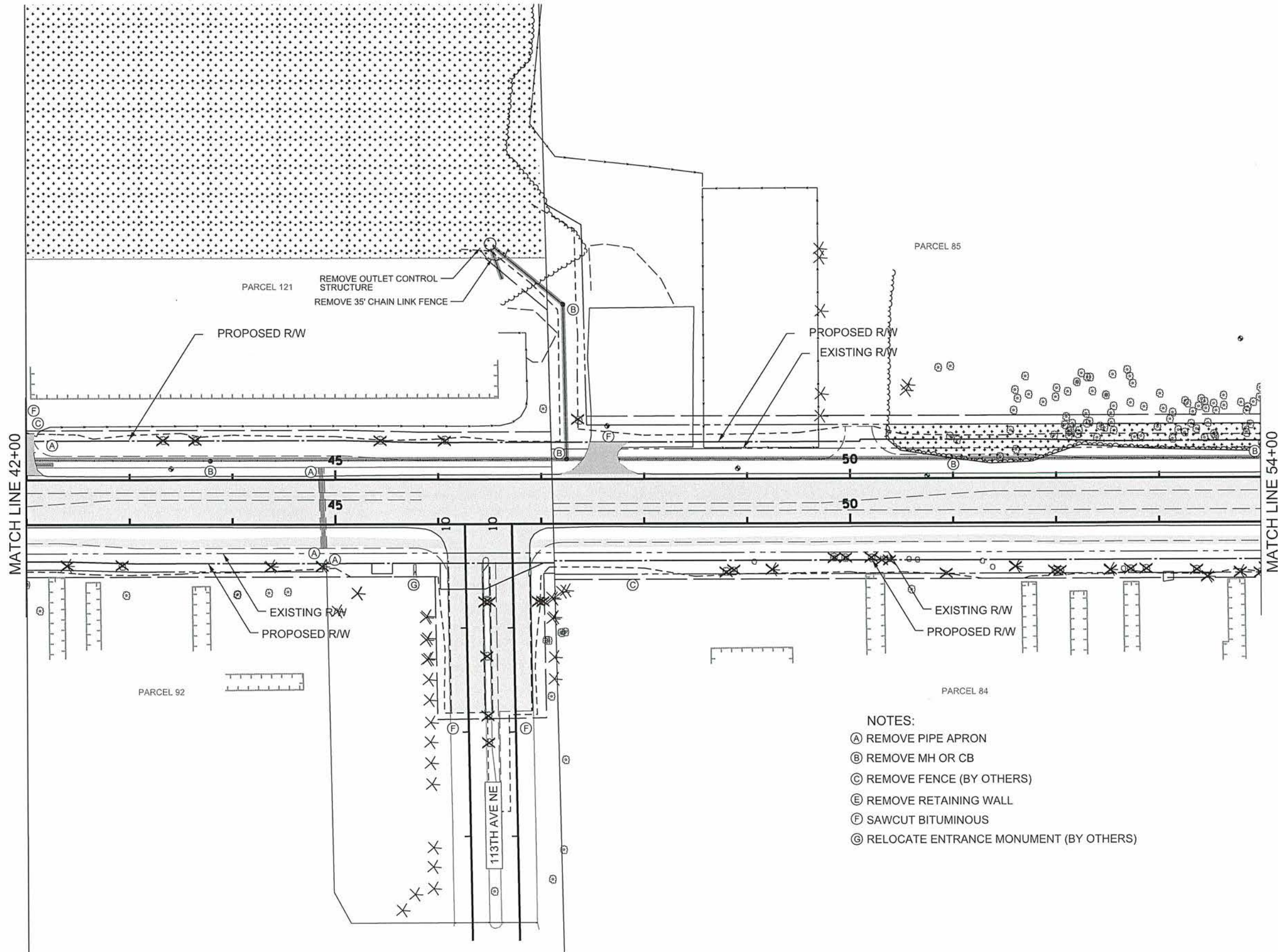
**ANOKA COUNTY**  
**HIGHWAY DEPT.**

S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

**REMOVAL PLAN**

STA 30+00 TO 42+00

Sheet 94 of 381 Sheets



LEGEND	
[Pattern: Dotted]	REMOVE BITUMINOUS PAVEMENT
[Pattern: Stippled]	REMOVE CONCRETE PAVEMENT
[Pattern: Grid]	REMOVE SIDEWALK
[Pattern: Sparse Dotted]	CLEAR & GRUB (ACRE)
[Line: Solid]	REMOVE SEWER PIPE STORM
[Line: Dashed]	REMOVE CURB AND GUTTER
[Line: Dotted]	REMOVE BITUMINOUS CURB
[Symbol: X]	TREE REMOVAL BY EACH
[Line: Dashed]	SAWING BITUMINOUS PAVEMENT
[Line: Dotted]	CONSTRUCTION LIMIT
[Line: Solid]	TEMPORARY EASEMENT
[Line: Dashed]	PERMANENT EASEMENT
[Symbol: Circle with cross]	SOIL BORING
[Symbol: XX]	CLOSE DRIVE ACCESS

**REMOVAL NOTES**

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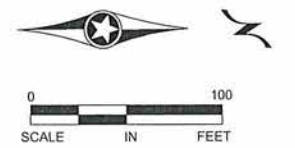
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ALL ROADWAY SIGNS WITHIN THE CONSTRUCTION LIMITS AND CONFLICTING SIGNS SHALL BE SALVAGED BY THE CONTRACTOR.

SEE CITY WATERMAIN AND SEWERS PLANS FOR WATERMAIN, HYDRANT, AND SEWER REMOVAL ITEMS.

- NOTES:**
- (A) REMOVE PIPE APRON
  - (B) REMOVE MH OR CB
  - (C) REMOVE FENCE (BY OTHERS)
  - (E) REMOVE RETAINING WALL
  - (F) SAWCUT BITUMINOUS
  - (G) RELOCATE ENTRANCE MONUMENT (BY OTHERS)



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_REM3.dgn      06/05/2014      7:43:12 AM

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

PRINT NAME: CURT A. KOBILARCSIK

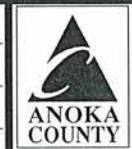
SIGNATURE: *Curt A. Kobilarsik*

DATE: 6-9-14      LICENSE NO. 24756

DRAWN BY: JCF      DATE: 11-25-13

DESIGN BY: NJD      DATE: 10-31-13

CHECKED BY: GMP      DATE: 12-13-13



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

S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

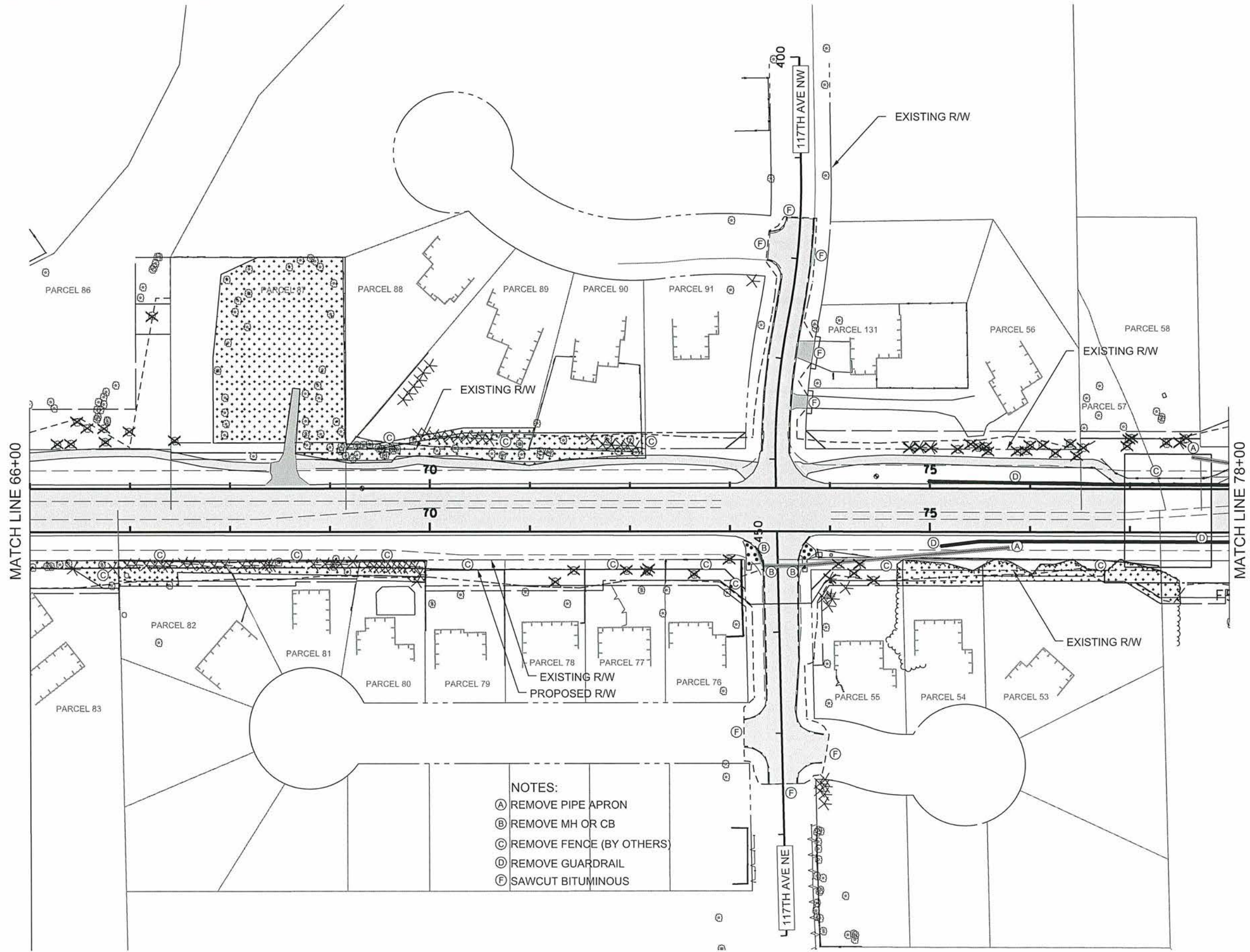
**REMOVAL PLAN**

STA 42+00 TO 54+00

Sheet 95 of 381 Sheets







LEGEND	
	REMOVE BITUMINOUS PAVEMENT
	REMOVE CONCRETE PAVEMENT
	REMOVE SIDEWALK
	CLEAR & GRUB (ACRE)
	REMOVE SEWER PIPE STORM
	REMOVE CURB AND GUTTER
	REMOVE BITUMINOUS CURB
	TREE REMOVAL BY EACH
	SAWING BITUMINOUS PAVEMENT
	CONSTRUCTION LIMIT
	TEMPORARY EASEMENT
	PERMANENT EASEMENT
	SOIL BORING
	CLOSE DRIVE ACCESS

**REMOVAL NOTES**

REFER TO TRAFFIC SIGNAL PLANS FOR TRAFFIC SIGNAL REMOVALS.

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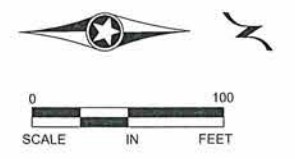
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ALL PRIVATE UTILITIES TO BE RELOCATED BY OTHERS AS REQUIRED. SEE IN PLACE UTILITY TABULATION FOR MORE INFORMATION.

ALL ROADWAY SIGNS WITHIN THE CONSTRUCTION LIMITS AND CONFLICTING SIGNS SHALL BE SALVAGED BY THE CONTRACTOR.

SEE CITY WATERMAIN AND SEWERS PLANS FOR WATERMAIN, HYDRANT, AND SEWER REMOVAL ITEMS.

- NOTES:**
- (A) REMOVE PIPE APRON
  - (B) REMOVE MH OR CB
  - (C) REMOVE FENCE (BY OTHERS)
  - (D) REMOVE GUARDRAIL
  - (F) SAWCUT BITUMINOUS



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:102-651-07/Plan10265107\_REM5.dgn 06/05/2014 7:43:17 AM

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

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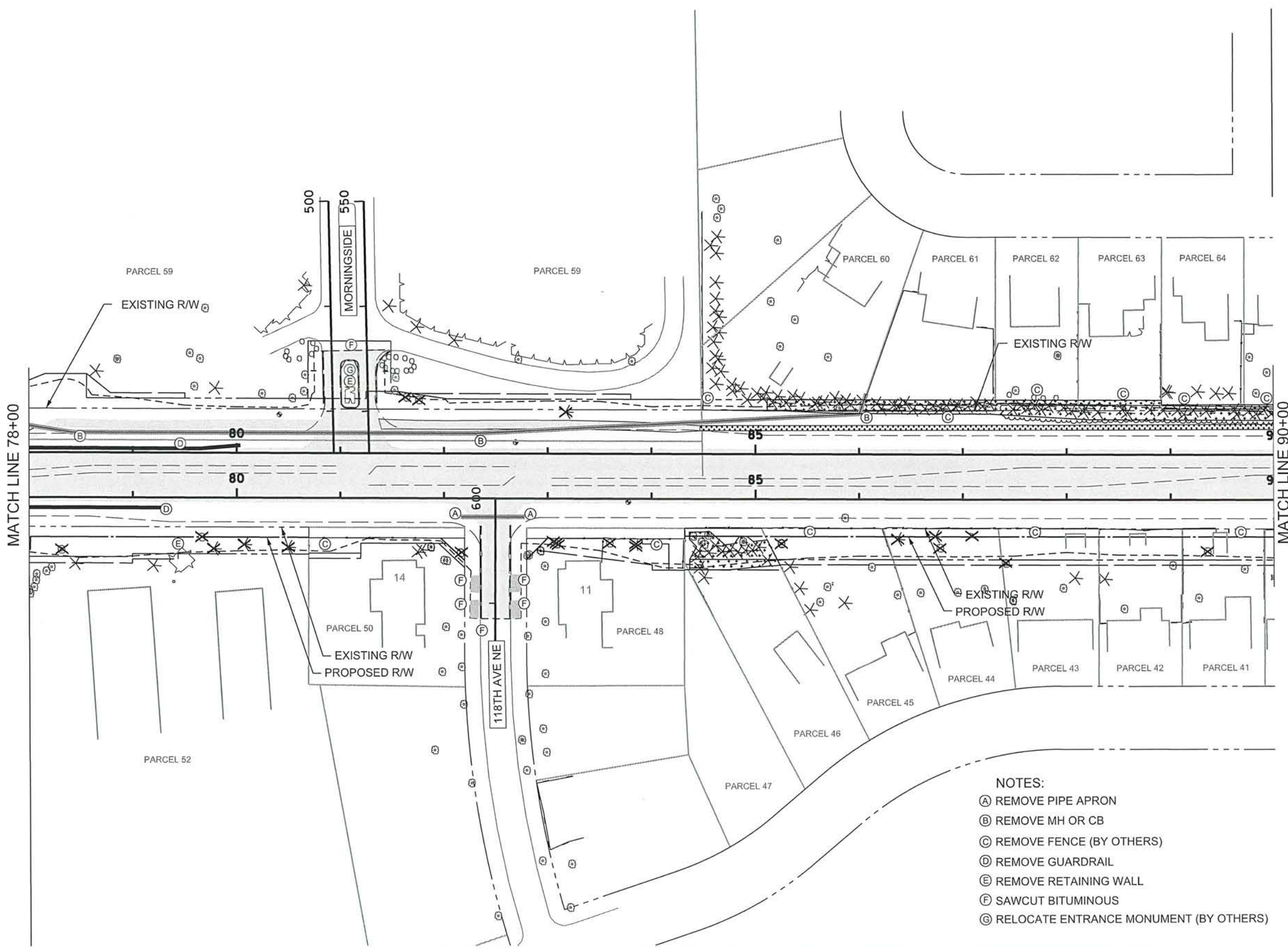
DRAWN BY: JCF DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



**ANOKA COUNTY  
HIGHWAY DEPT.**

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

**REMOVAL PLAN**  
 STA 66+00 TO 78+00  
 Sheet 97 of 381 Sheets



LEGEND	
	REMOVE BITUMINOUS PAVEMENT
	REMOVE CONCRETE PAVEMENT
	REMOVE SIDEWALK
	CLEAR & GRUB (ACRE)
	REMOVE SEWER PIPE STORM
	REMOVE CURB AND GUTTER
	REMOVE BITUMINOUS CURB
	TREE REMOVAL BY EACH
	SAWING BITUMINOUS PAVEMENT
	CONSTRUCTION LIMIT
	TEMPORARY EASEMENT
	PERMANENT EASEMENT
	SOIL BORING
	CLOSE DRIVE ACCESS

**REMOVAL NOTES**

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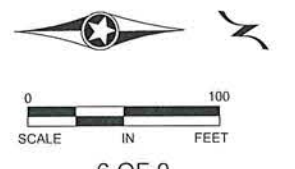
ALL MANHOLES AND CATCH BASINS WILL BE PAID FOR AS "REMOVE DRAINAGE STRUCTURE" ITEM 2104.509 CALLED OUT IN REMOVAL PLANS AS MH AND CB. FOR INFORMATION PURPOSES ONLY.

ALL PRIVATE UTILITIES TO BE RELOCATED BY OTHERS AS REQUIRED. SEE IN PLACE UTILITY TABULATION FOR MORE INFORMATION.

ALL ROADWAY SIGNS WITHIN THE CONSTRUCTION LIMITS AND CONFLICTING SIGNS SHALL BE SALVAGED BY THE CONTRACTOR.

SEE CITY WATERMAIN AND SEWERS PLANS FOR WATERMAIN, HYDRANT, AND SEWER REMOVAL ITEMS.

- NOTES:**
- (A) REMOVE PIPE APRON
  - (B) REMOVE MH OR CB
  - (C) REMOVE FENCE (BY OTHERS)
  - (D) REMOVE GUARDRAIL
  - (E) REMOVE RETAINING WALL
  - (F) SAWCUT BITUMINOUS
  - (G) RELOCATE ENTRANCE MONUMENT (BY OTHERS)



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_REM6.dgn      06/05/2014      7:43:19 AM

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

PRINT NAME: CURT A. KOBILARCSIK

SIGNATURE: *Curt Kobilarsik*

DATE: 6-9-14      LICENSE NO. 24756

DRAWN BY: JCF      DATE: 11-25-13

DESIGN BY: NJD      DATE: 10-31-13

CHECKED BY: GMP      DATE: 12-13-13

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

S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

REMOVAL PLAN	
STA 78+00	TO 90+00
Sheet 98 of 381 Sheets	

LEGEND	
	REMOVE BITUMINOUS PAVEMENT
	REMOVE CONCRETE PAVEMENT
	REMOVE SIDEWALK
	CLEAR & GRUB (ACRE)
	REMOVE SEWER PIPE STORM
	REMOVE CURB AND GUTTER
	REMOVE BITUMINOUS CURB
	TREE REMOVAL BY EACH
	SAWING BITUMINOUS PAVEMENT
	CONSTRUCTION LIMIT
	TEMPORARY EASEMENT
	PERMANENT EASEMENT
	SOIL BORING
	CLOSE DRIVE ACCESS

**REMOVAL NOTES**

REFER TO TRAFFIC SIGNAL PLANS FOR TRAFFIC SIGNAL REMOVALS.

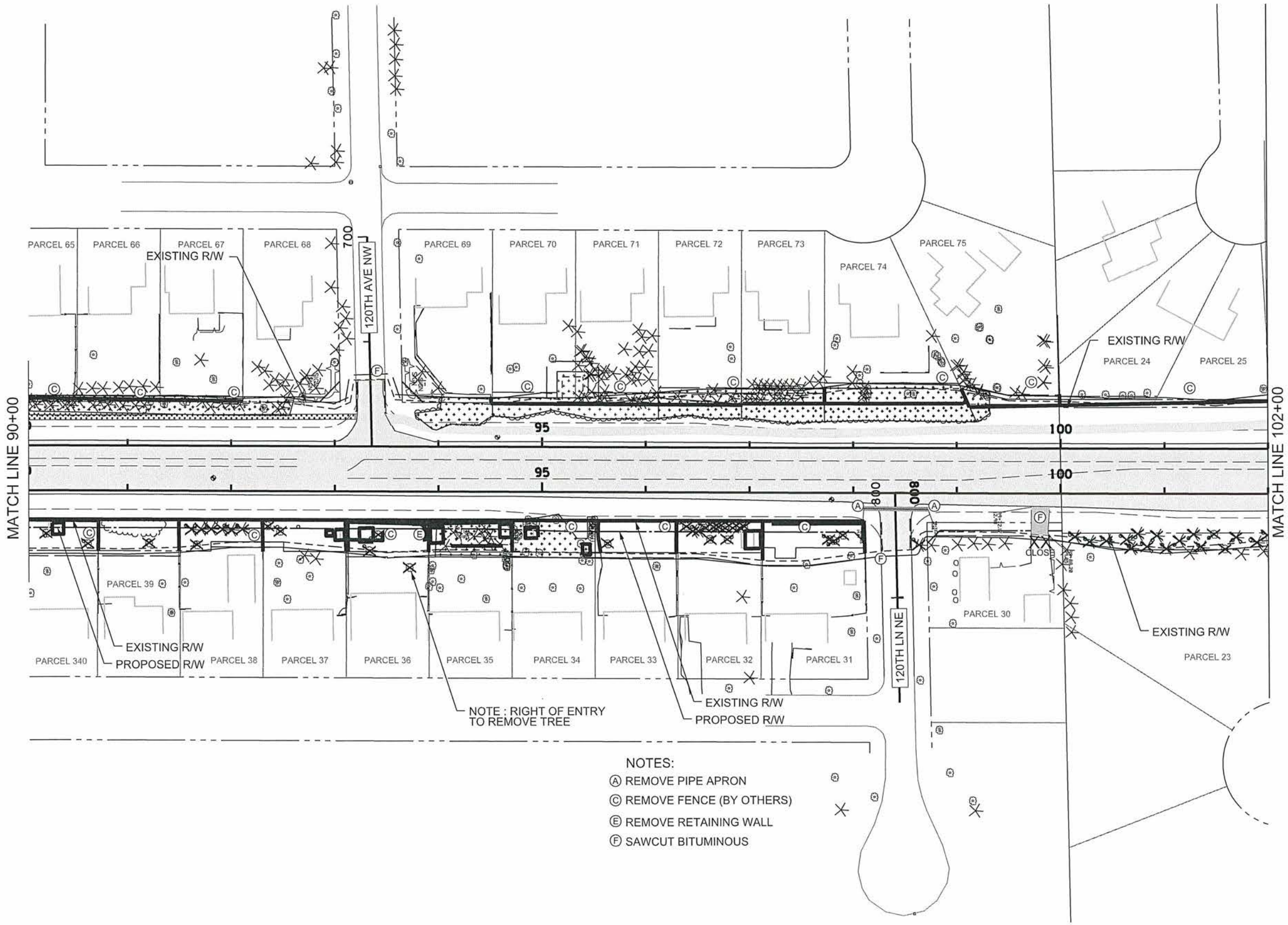
THE CONTRACTOR SHALL PERFORM ALL CLEARING AND GRUBBING AS DIRECTED AND MARKED IN THE FIELD BY THE ENGINEER. THE CONTRACTOR SHALL OTHERWISE PROTECT ALL EXISTING TREES NOT SPECIFICALLY MARKED FOR REMOVAL.

ALL MANHOLES AND CATCH BASINS WILL BE PAID FOR AS "REMOVE DRAINAGE STRUCTURE" ITEM 2104.509 CALLED OUT IN REMOVAL PLANS AS MH AND CB. FOR INFORMATION PURPOSES ONLY.

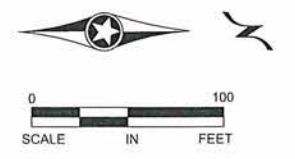
ALL PRIVATE UTILITIES TO BE RELOCATED BY OTHERS AS REQUIRED. SEE IN PLACE UTILITY TABULATION FOR MORE INFORMATION.

ALL ROADWAY SIGNS WITHIN THE CONSTRUCTION LIMITS AND CONFLICTING SIGNS SHALL BE SALVAGED BY THE CONTRACTOR.

SEE CITY WATERMAIN AND SEWERS PLANS FOR WATERMAIN, HYDRANT, AND SEWER REMOVAL ITEMS.



- NOTES:**
- (A) REMOVE PIPE APRON
  - (C) REMOVE FENCE (BY OTHERS)
  - (E) REMOVE RETAINING WALL
  - (F) SAWCUT BITUMINOUS



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_REM7.dgn      06/05/2014      7:43:22 AM

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

PRINT NAME: CURT A. KOBILARCSIK

SIGNATURE: *Curt Kobilarsik*

DATE: 6-9-14      LICENSE NO. 24756

DRAWN BY: JCF      DATE: 11-25-13

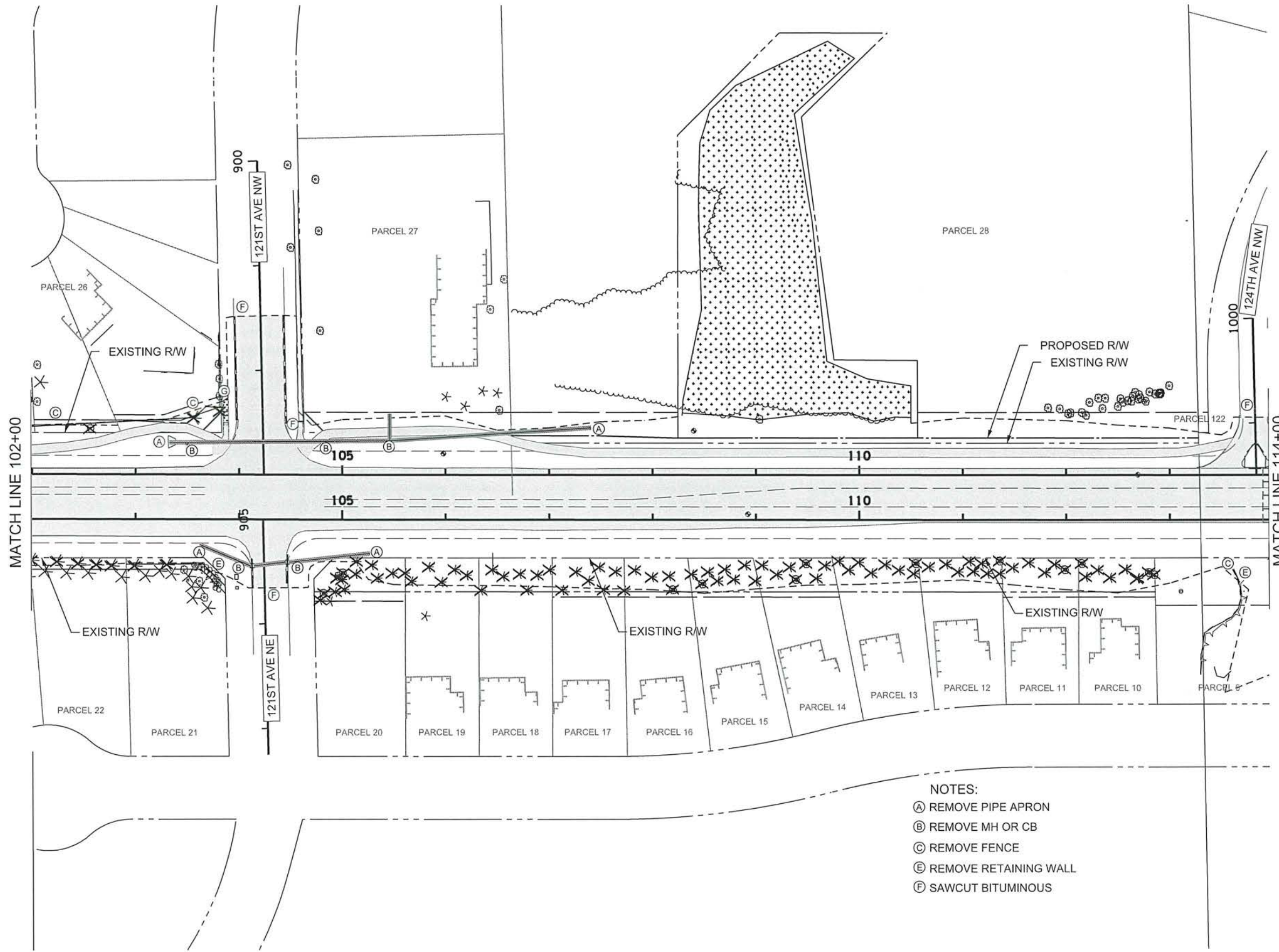
DESIGN BY: NJD      DATE: 10-31-13

CHECKED BY: GMP      DATE: 12-13-13

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

S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

REMOVAL PLAN	
STA 90+00	TO 102+00
Sheet 99 of 381 Sheets	



LEGEND	
	REMOVE BITUMINOUS PAVEMENT
	REMOVE CONCRETE PAVEMENT
	REMOVE SIDEWALK
	CLEAR & GRUB (ACRE)
	REMOVE SEWER PIPE STORM
	REMOVE CURB AND GUTTER
	REMOVE BITUMINOUS CURB
	TREE REMOVAL BY EACH
	SAWING BITUMINOUS PAVEMENT
	CONSTRUCTION LIMIT
	TEMPORARY EASEMENT
	PERMANENT EASEMENT
	SOIL BORING
	CLOSE DRIVE ACCESS

**REMOVAL NOTES**

REFER TO TRAFFIC SIGNAL PLANS FOR TRAFFIC SIGNAL REMOVALS.

THE CONTRACTOR SHALL PERFORM ALL CLEARING AND GRUBBING AS DIRECTED AND MARKED IN THE FIELD BY THE ENGINEER. THE CONTRACTOR SHALL OTHERWISE PROTECT ALL EXISTING TREES NOT SPECIFICALLY MARKED FOR REMOVAL.

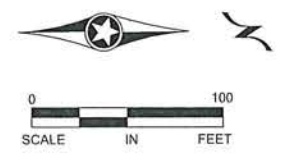
ALL MANHOLES AND CATCH BASINS WILL BE PAID FOR AS "REMOVE DRAINAGE STRUCTURE" ITEM 2104.509 CALLED OUT IN REMOVAL PLANS AS MH AND CB. FOR INFORMATION PURPOSES ONLY.

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SEE CITY WATERMAIN AND SEWERS PLANS FOR WATERMAIN, HYDRANT, AND SEWER REMOVAL ITEMS.

- NOTES:**
- (A) REMOVE PIPE APRON
  - (B) REMOVE MH OR CB
  - (C) REMOVE FENCE
  - (E) REMOVE RETAINING WALL
  - (F) SAWCUT BITUMINOUS



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_REM8.dgn 06/05/2014 7:43:24 AM

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

PRINT NAME: CURT A. KOBILARCSIK

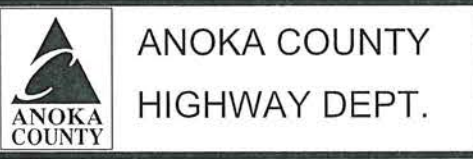
SIGNATURE: *C. Kobilarcsik*

DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13

DESIGN BY: NJD DATE: 10-31-13

CHECKED BY: GMP DATE: 12-13-13

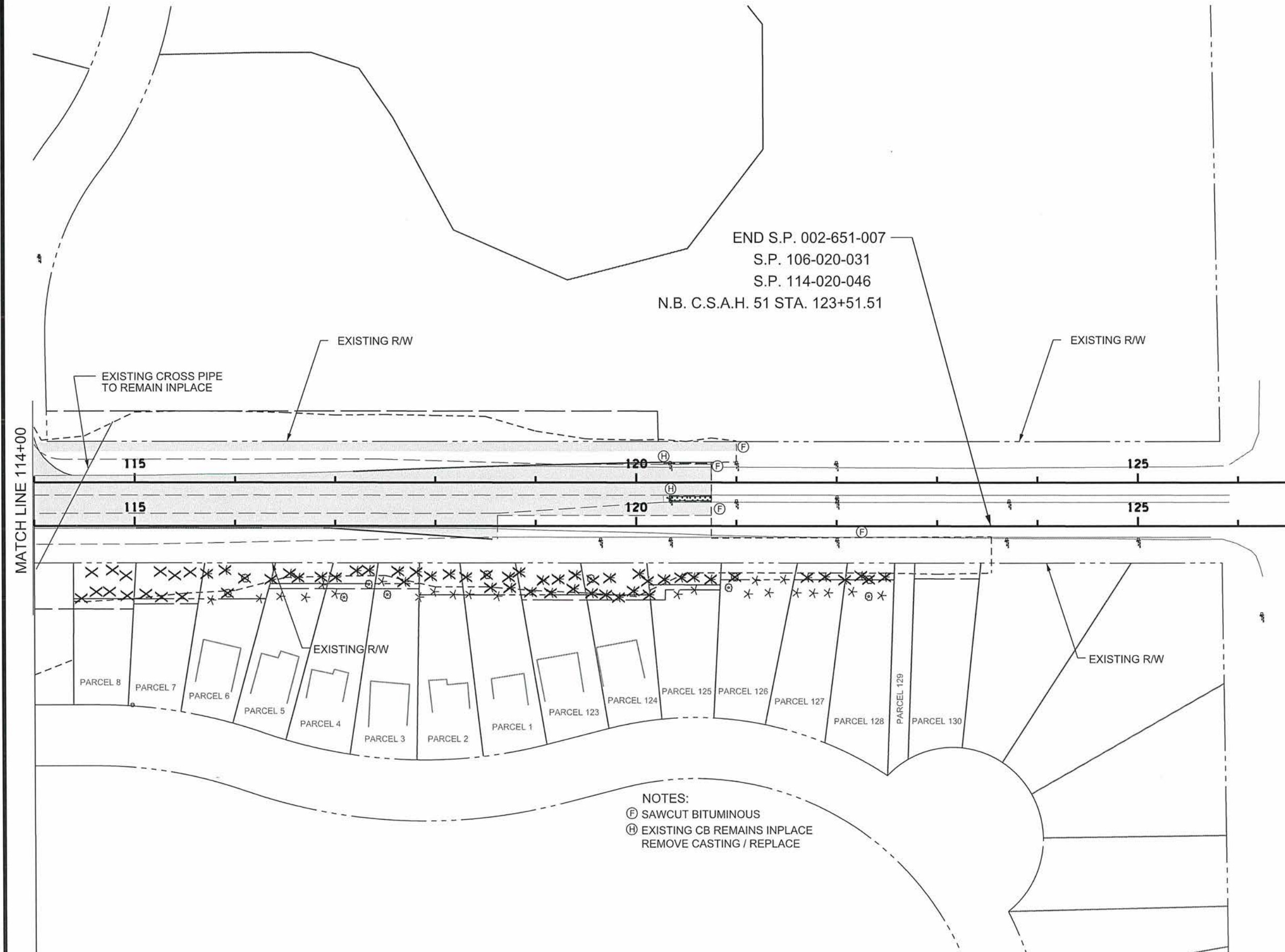


S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

**REMOVAL PLAN**

STA 102+00 TO 114+00

Sheet 100 of 381 Sheets



LEGEND	
	REMOVE BITUMINOUS PAVEMENT
	REMOVE CONCRETE PAVEMENT
	REMOVE SIDEWALK
	CLEAR & GRUB (ACRE)
	REMOVE SEWER PIPE STORM
	REMOVE CURB AND GUTTER
	REMOVE BITUMINOUS CURB
	TREE REMOVAL BY EACH
	SAWING BITUMINOUS PAVEMENT
	CONSTRUCTION LIMIT
	TEMPORARY EASEMENT
	PERMANENT EASEMENT
	SOIL BORING
	CLOSE DRIVE ACCESS

**REMOVAL NOTES**

REFER TO TRAFFIC SIGNAL PLANS FOR TRAFFIC SIGNAL REMOVALS.

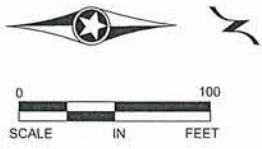
THE CONTRACTOR SHALL PERFORM ALL CLEARING AND GRUBBING AS DIRECTED AND MARKED IN THE FIELD BY THE ENGINEER. THE CONTRACTOR SHALL OTHERWISE PROTECT ALL EXISTING TREES NOT SPECIFICALLY MARKED FOR REMOVAL.

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SEE CITY WATERMAIN AND SEWERS PLANS FOR WATERMAIN, HYDRANT, AND SEWER REMOVAL ITEMS.



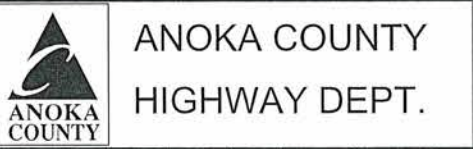
NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_REM9.dgn 06/05/2014 7:43:26 AM

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

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt A. Kobilarsik*  
 DATE: 6-9-14 LICENSE NO. 24756

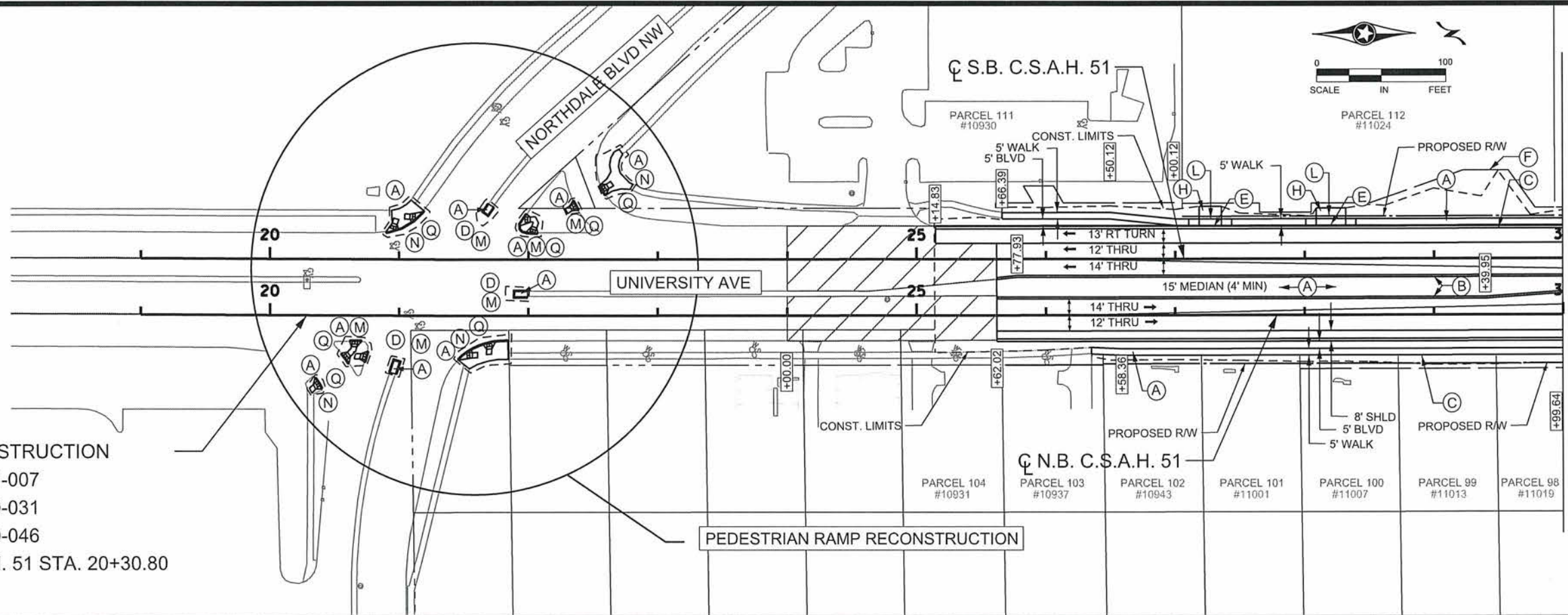
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 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



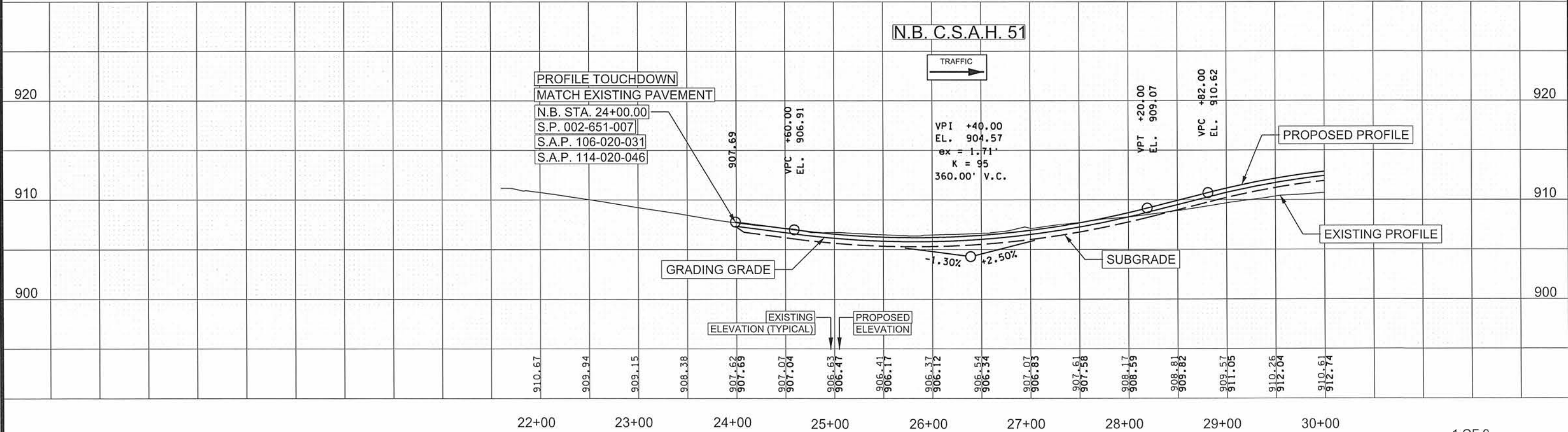
S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

REMOVAL PLAN  
 STA 114+00 TO 123+51.51  
 Sheet 101 of 381 Sheets

BEGIN CONSTRUCTION  
 S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046  
 N.B. C.S.A.H. 51 STA. 20+30.80



- CONSTRUCTION NOTES:**
- 1.5" TRANSITION MILL
  - (A) CONCRETE WALK
  - (B) B418 CURB & GUTTER
  - (C) B424 CURB & GUTTER
  - (D) CONCRETE APPROACH NOSE STD. PLATE 7113
  - (E) CURB DROP
  - (F) TEMPORARY EASEMENT
  - (G) PERMANENT EASEMENT
  - (H) BITUMINOUS DRIVEWAY
  - (I) CONCRETE DRIVEWAY
  - (J) NOISE WALL
  - (K) RETAINING WALL
  - (L) SEE DETAILS FOR CONC. ENT. DESIGN PARAMETERS IN WALK
  - (M) B612 CURB & GUTTER
  - (N) B618 CURB & GUTTER
  - (O) S512 CURB & GUTTER
  - (P) 42" VINYL COATED CHAIN LINK FENCE (TOP OF RETAINING WALL)
  - (Q) PEDESTRIAN RAMP
- RETAINING WALL  
 NOISE WALL
- ALL DIMENSIONS ARE TO FACE OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.



1	4/9/14	JCF	NJD	ADDED BUILDINGS
NO	DATE	BY	CKD	APPR
				REVISION
				06/05/2014 7:42:33 AM

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

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt A. Kobilarcsik*  
 DATE: 6-9-14 LICENSE NO. 24756

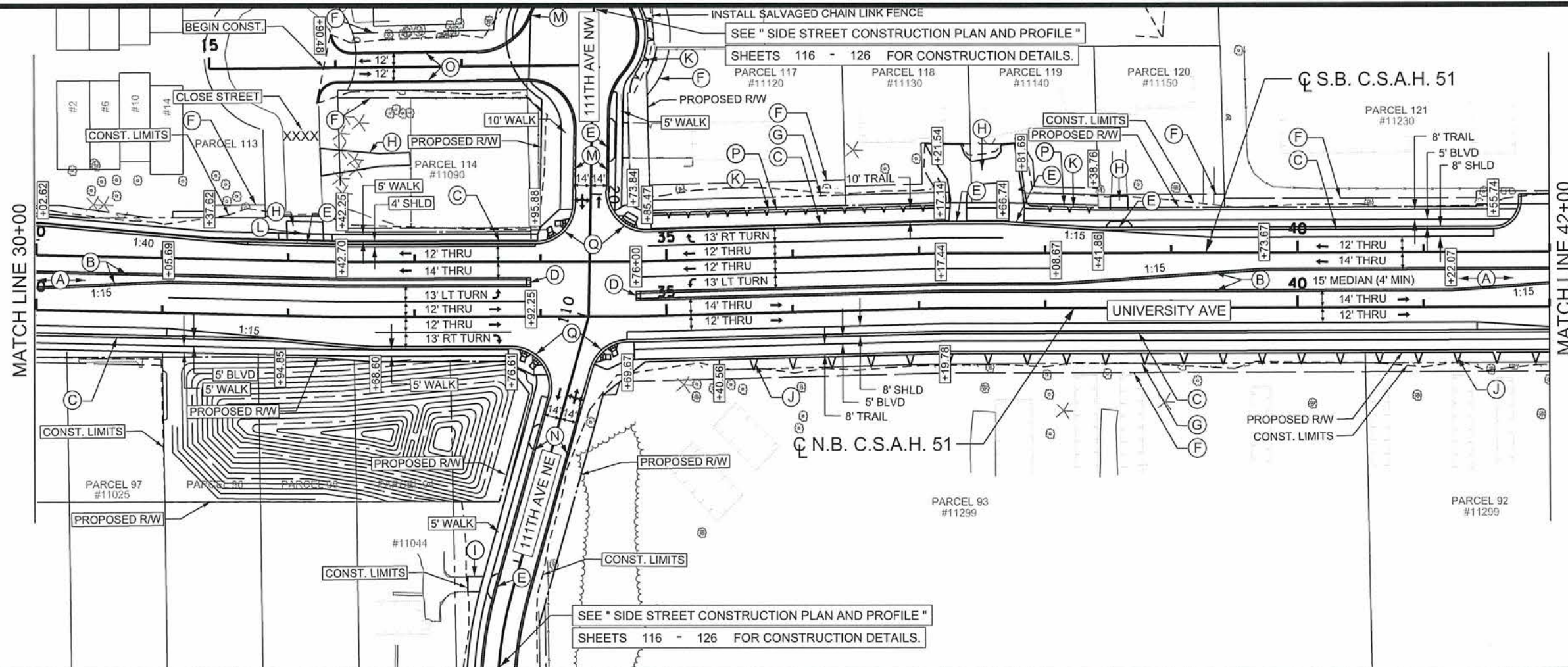
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 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



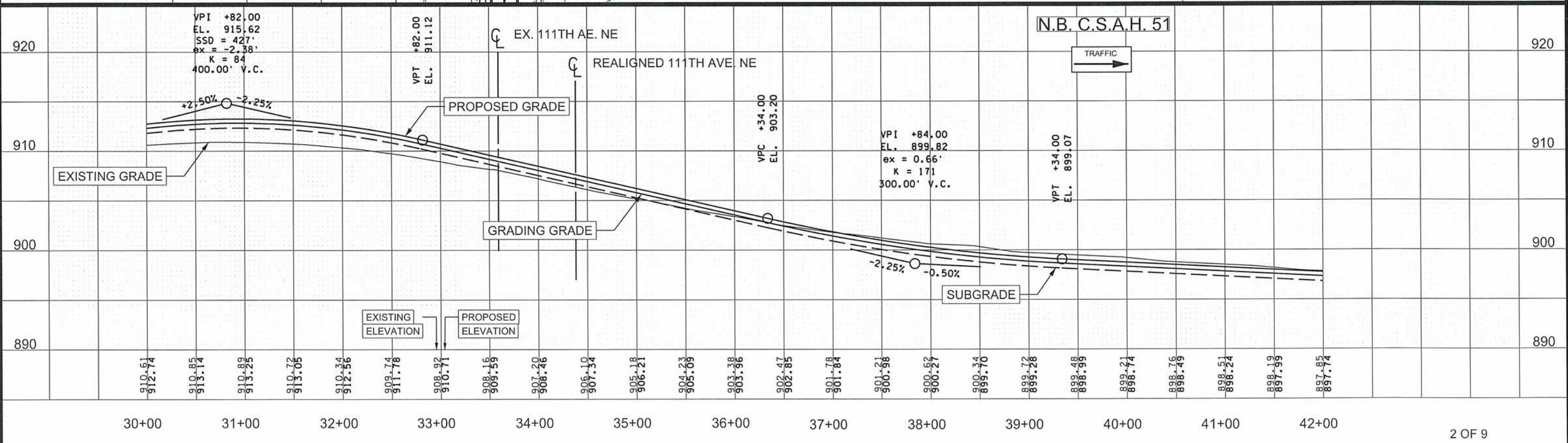
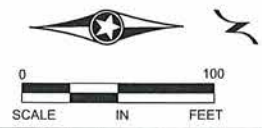
ANOKA COUNTY  
 HIGHWAY DEPT.

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

CONSTRUCTION PLAN AND PROFILE  
 STA 20+30.80 TO 30+00.00  
 Sheet 102 of 381 Sheets



- CONSTRUCTION NOTES:**
- 1.5" TRANSITION MILL
  - (A) CONCRETE WALK
  - (B) B418 CURB & GUTTER
  - (C) B424 CURB & GUTTER
  - (D) CONCRETE APPROACH NOSE STD. PLATE 7113
  - (E) CURB DROP
  - (F) TEMPORARY EASEMENT
  - (G) PERMANENT EASEMENT
  - (H) BITUMINOUS DRIVEWAY
  - (I) CONCRETE DRIVEWAY
  - (J) NOISE WALL
  - (K) RETAINING WALL
  - (L) SEE DETAILS FOR CONC. ENT. DESIGN PARAMETERS IN WALK
  - (M) B612 CURB & GUTTER
  - (N) B618 CURB & GUTTER
  - (O) S512 CURB & GUTTER
  - (P) 42" VINYL COATED CHAIN LINK FENCE (TOP OF RETAINING WALL)
  - (Q) PEDESTRIAN RAMP
  - RETAINING WALL
  - NOISE WALL
- ALL DIMENSIONS ARE TO FACE OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.



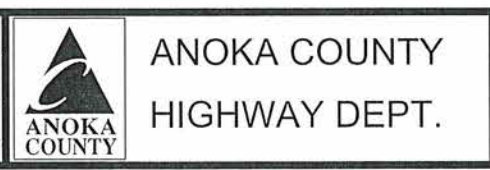
NO	DATE	BY	CKD	APPR	REVISION
1	4/9/14	JCF	NJD		ADDED STREET INFO

NAME: P:\02-651-07\Plan\0265107\_PP2.dgn 06/05/2014 7:42:36 AM

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

PRINT NAME: CURT A. KOBIARCSIK  
 SIGNATURE: *C. Kobiarcsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

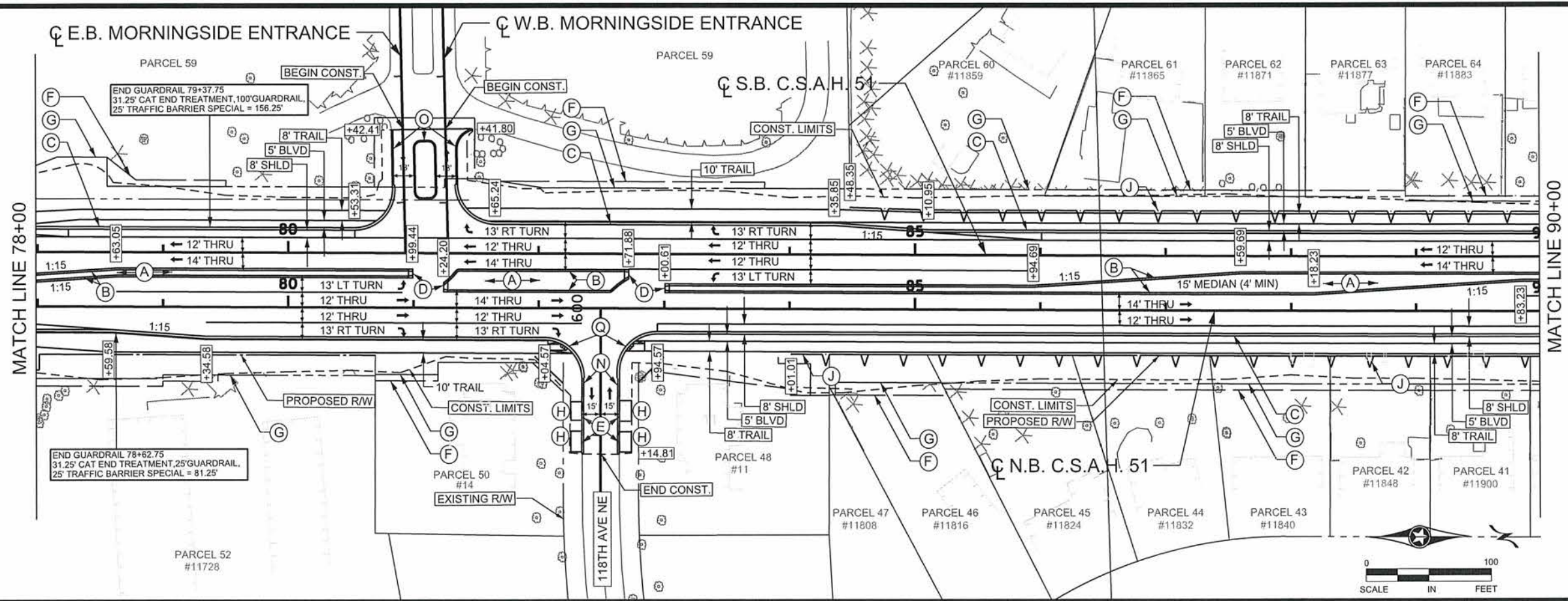
**CONSTRUCTION PLAN AND PROFILE**  
 STA 30+00.00 TO 42+00.00  
 Sheet 103 of 381 Sheets



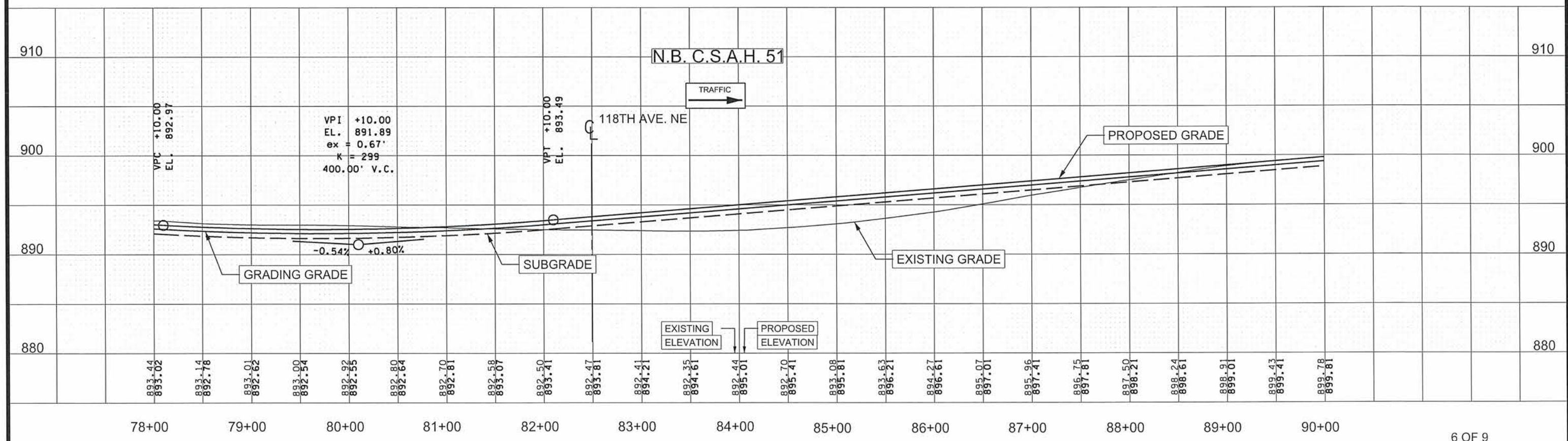








- CONSTRUCTION NOTES:**
- 1.5" TRANSITION MILL
  - (A) CONCRETE WALK
  - (B) B418 CURB & GUTTER
  - (C) B424 CURB & GUTTER
  - (D) CONCRETE APPROACH NOSE STD. PLATE 7113
  - (E) CURB DROP
  - (F) TEMPORARY EASEMENT
  - (G) PERMANENT EASEMENT
  - (H) BITUMINOUS DRIVEWAY
  - (I) CONCRETE DRIVEWAY
  - (J) NOISE WALL
  - (K) RETAINING WALL
  - (L) SEE DETAILS FOR CONC. ENT. DESIGN PARAMETERS IN WALK
  - (M) B612 CURB & GUTTER
  - (N) B618 CURB & GUTTER
  - (O) S512 CURB & GUTTER
  - (P) 42" VINYL COATED CHAIN LINK FENCE (TOP OF RETAINING WALL)
  - (Q) PEDESTRIAN RAMP
- RETAINING WALL  
 NOISE WALL
- ALL DIMENSIONS ARE TO FACE OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.

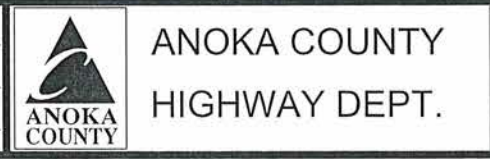


1	4/9/14	JCF	NJD	ADDED STREET INFO
NO	DATE	BY	CKD	APPR
				REVISION
				06/05/2014 7:42:53 AM

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

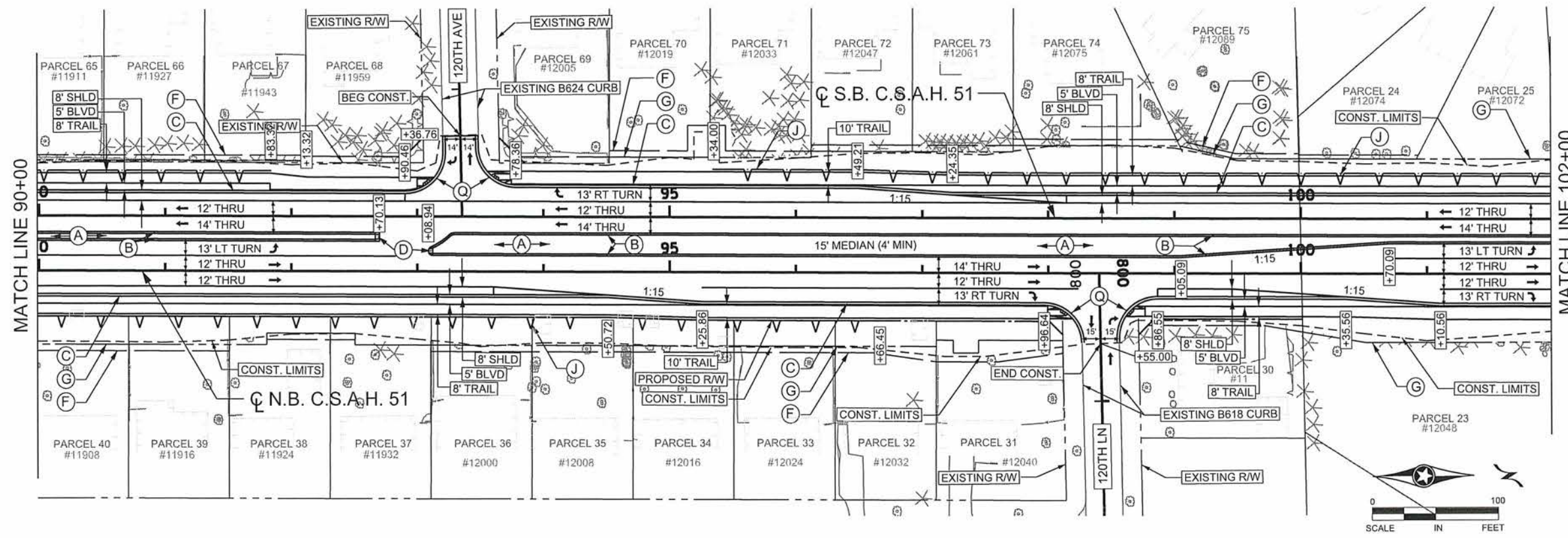
PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarcsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13

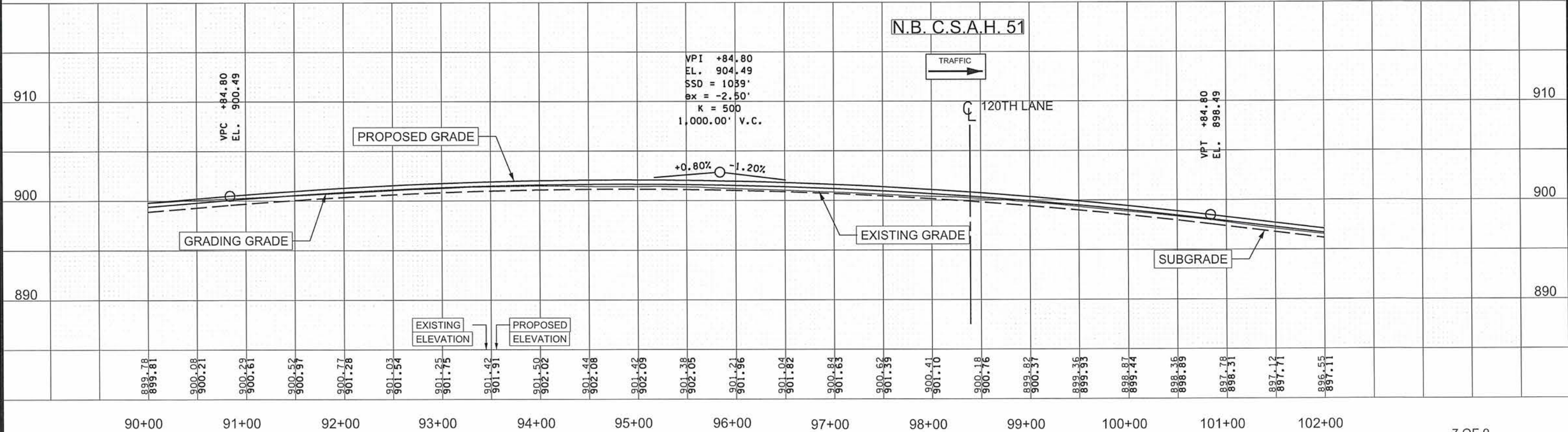


S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

CONSTRUCTION PLAN AND PROFILE  
 STA 78+00.00 TO 90+00.00  
 Sheet 107 of 381 Sheets



- CONSTRUCTION NOTES:**
- 1.5" TRANSITION MILL
  - (A) CONCRETE WALK
  - (B) B418 CURB & GUTTER
  - (C) B424 CURB & GUTTER
  - (D) CONCRETE APPROACH NOSE STD. PLATE 7113 CURB DROP
  - (E) TEMPORARY EASEMENT
  - (G) PERMANENT EASEMENT
  - (H) BITUMINOUS DRIVEWAY
  - (I) CONCRETE DRIVEWAY
  - (J) NOISE WALL
  - (K) RETAINING WALL
  - (L) SEE DETAILS FOR CONC. ENT. DESIGN PARAMETERS IN WALK
  - (M) B612 CURB & GUTTER
  - (N) B618 CURB & GUTTER
  - (O) S512 CURB & GUTTER
  - (P) 42" VINYL COATED CHAIN LINK FENCE (TOP OF RETAINING WALL)
  - (Q) PEDESTRIAN RAMP
- RETAINING WALL  
NOISE WALL
- ALL DIMENSIONS ARE TO FACE OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.

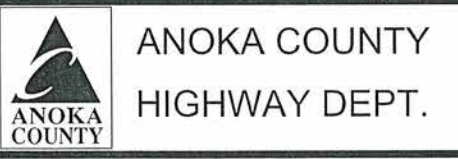


1	4/9/14	JCF	NJD	ADDED STREET INFO
NO	DATE	BY	CKD	APPR
REVISION				DATE
NAME: P:\02-651-07\Plan\0265107_PP7.dgn				06/05/2014 7:42:55 AM

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

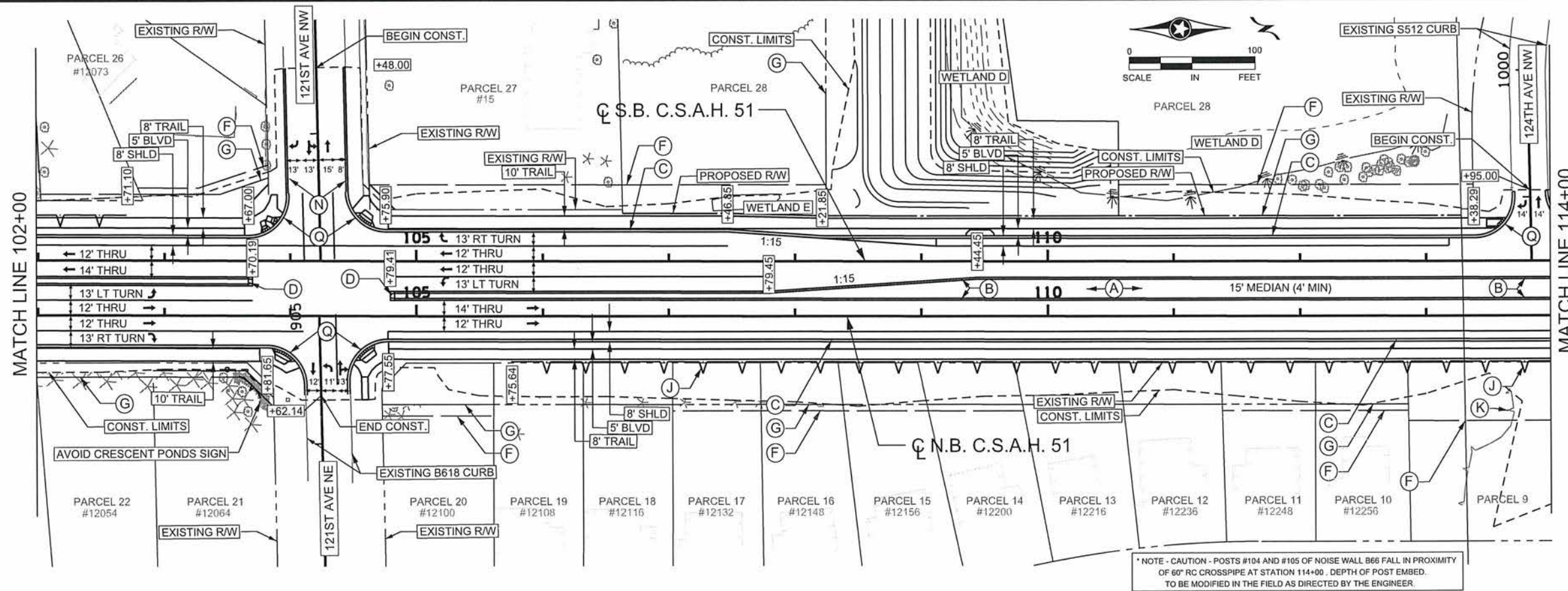
PRINT NAME: CURT A. KOBILARCSIK  
SIGNATURE: *Curt A. Kobilarsik*  
DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
DESIGN BY: NJD DATE: 10-31-13  
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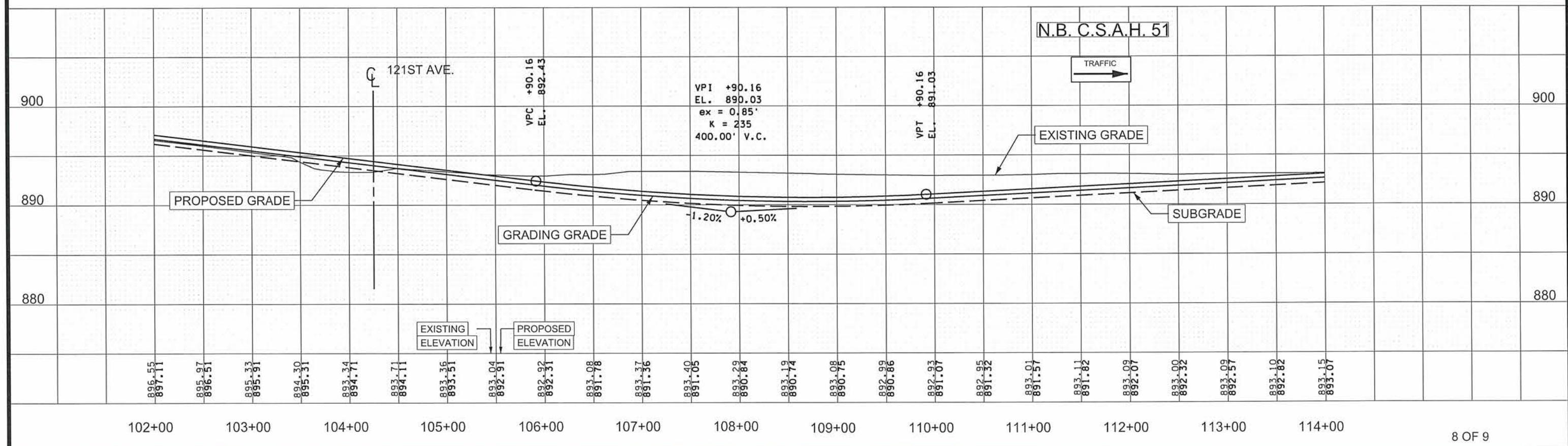
S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

CONSTRUCTION PLAN AND PROFILE  
STA 90+00.00 TO 102+00.00  
Sheet 108 of 381 Sheets



- CONSTRUCTION NOTES:**
- 1.5" TRANSITION MILL
  - (A) CONCRETE WALK
  - (B) B418 CURB & GUTTER
  - (C) B424 CURB & GUTTER
  - (D) CONCRETE APPROACH NOSE STD. PLATE 7113 CURB DROP
  - (E) TEMPORARY EASEMENT
  - (F) PERMANENT EASEMENT
  - (H) BITUMINOUS DRIVEWAY
  - (I) CONCRETE DRIVEWAY
  - (J) NOISE WALL
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  - (M) B612 CURB & GUTTER
  - (N) B618 CURB & GUTTER
  - (O) S512 CURB & GUTTER
  - (P) 42" VINYL COATED CHAIN LINK FENCE (TOP OF RETAINING WALL)
  - (Q) PEDESTRIAN RAMP
  - RETAINING WALL
  - NOISE WALL
- ALL DIMENSIONS ARE TO FACE OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.

\* NOTE - CAUTION - POSTS #104 AND #105 OF NOISE WALL B66 FALL IN PROXIMITY OF 60" RC CROSSPIPE AT STATION 114+00. DEPTH OF POST EMBED. TO BE MODIFIED IN THE FIELD AS DIRECTED BY THE ENGINEER.



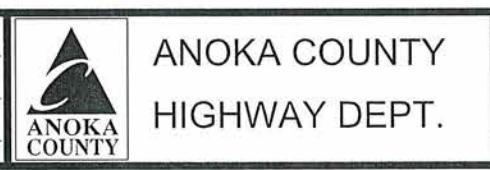
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1	4/9/14	JCF	NJD		ADDED STREET INFO

NAME: P:\02-651-07\Plan\0265107\_PP8.dgn 06/05/2014 7:42:58 AM

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

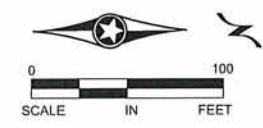
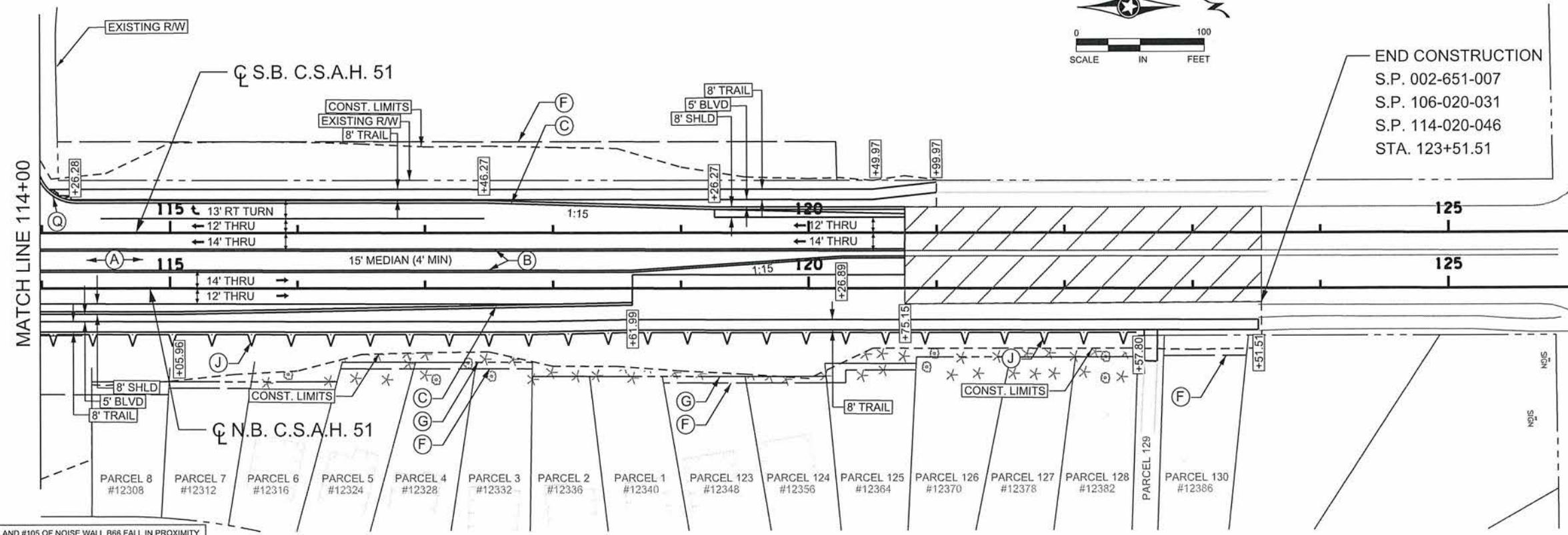
PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt A. Kobilarsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

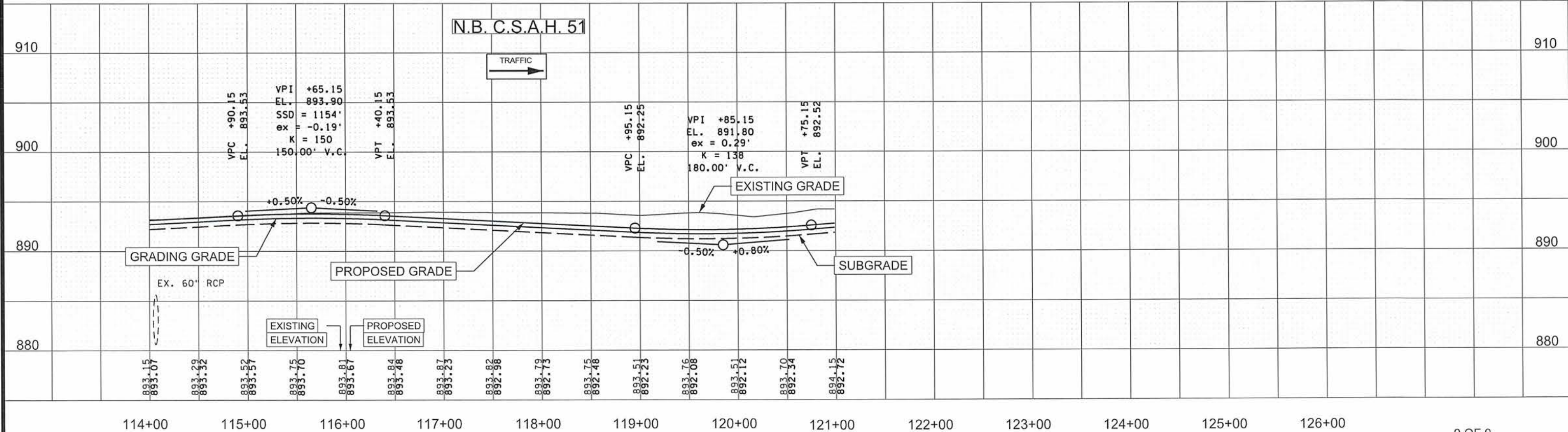
**CONSTRUCTION PLAN AND PROFILE**  
 STA 102+00.00 TO 114+00.00  
 Sheet 109 of 381 Sheets



END CONSTRUCTION  
S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046  
STA. 123+51.51

- CONSTRUCTION NOTES:**
- 1.5" TRANSITION MILL
  - (A) CONCRETE WALK
  - (B) B418 CURB & GUTTER
  - (C) B424 CURB & GUTTER
  - (D) CONCRETE APPROACH NOSE STD. PLATE 7113
  - (E) CURB DROP
  - (F) TEMPORARY EASEMENT
  - (G) PERMANENT EASEMENT
  - (H) BITUMINOUS DRIVEWAY
  - (I) CONCRETE DRIVEWAY
  - (J) NOISE WALL
  - (K) RETAINING WALL
  - (L) SEE DETAILS FOR CONC. ENT. DESIGN PARAMETERS IN WALK
  - (M) B612 CURB & GUTTER
  - (N) B618 CURB & GUTTER
  - (O) S512 CURB & GUTTER
  - (P) 42" VINYL COATED CHAIN LINK FENCE (TOP OF RETAINING WALL)
  - (Q) PEDESTRIAN RAMP
- RETAINING WALL
- NOISE WALL
- ALL DIMENSIONS ARE TO FACE OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.

\* NOTE - CAUTION - POSTS #104 AND #105 OF NOISE WALL B66 FALL IN PROXIMITY OF 60" RC CROSSPIPE AT STATION 114+00. DEPTH OF POST EMBED. TO BE MODIFIED IN THE FIELD AS DIRECTED BY THE ENGINEER.



1	4/9/14	JCF	NJD	ADDED STREET INFO
NO	DATE	BY	CKD	APPR
				REVISION
				06/05/2014 7:43:00 AM

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

PRINT NAME: CURT A. KOBILARCSIK

SIGNATURE: *Curt Kobilarcsik*

DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13

DESIGN BY: NJD DATE: 10-31-13

CHECKED BY: GMP DATE: 12-13-13



ANOKA COUNTY  
HIGHWAY DEPT.

S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

CONSTRUCTION PLAN  
AND PROFILE

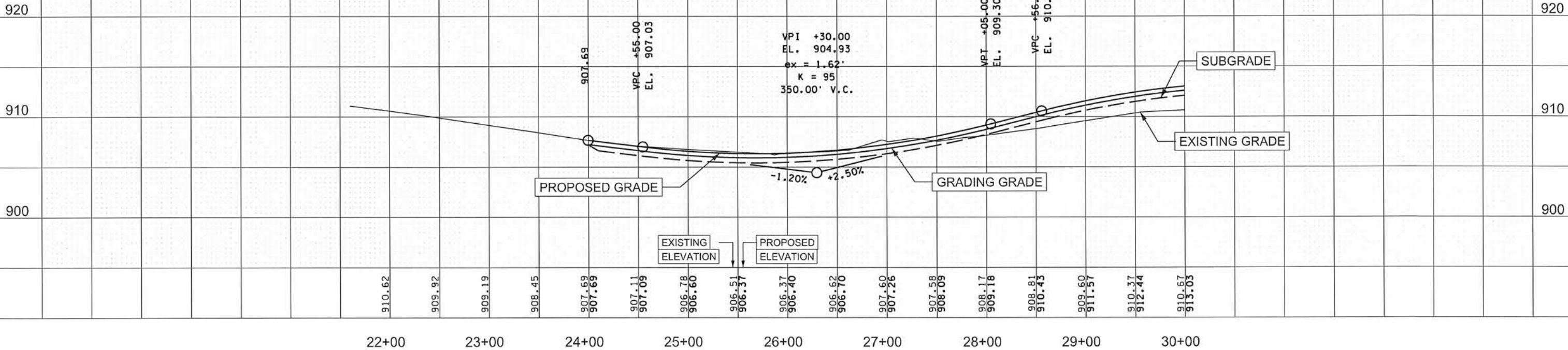
STA 114+00.00 TO 123+51.51

Sheet 110 of 381 Sheets

S.B. C.S.A.H. 51



VPI +30.00  
EL. 904.93  
ex = 1.62'  
K = 95  
350.00' V.C.



S.B. C.S.A.H. 51

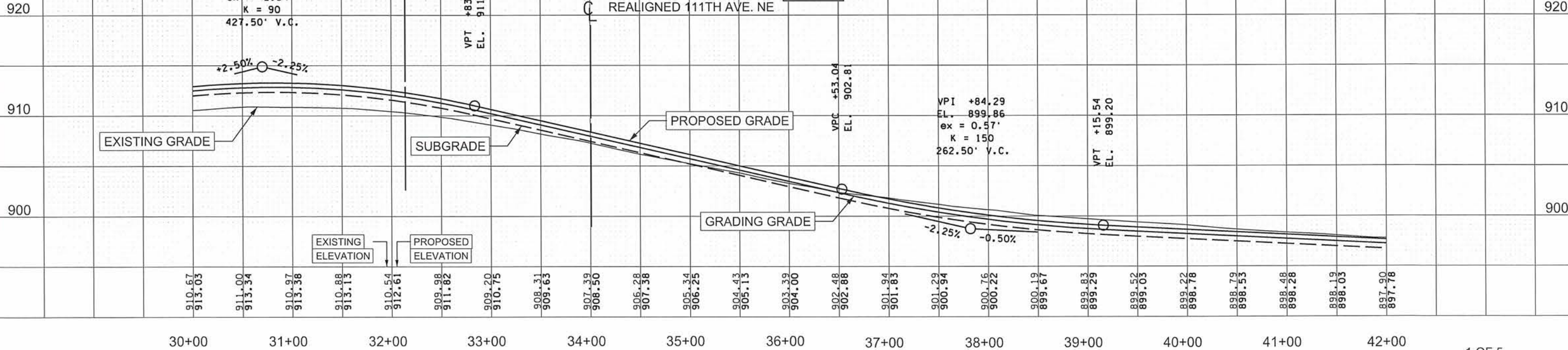


VPI +70.00  
EL. 915.93  
SSD = 441'  
ex = -2.54'  
K = 90  
427.50' V.C.

110TH LANE NE  
VPT +83.75  
EL. 911.12

REALIGNED 111TH AVE. NE

VPI +84.29  
EL. 899.86  
ex = 0.57'  
K = 150  
262.50' V.C.

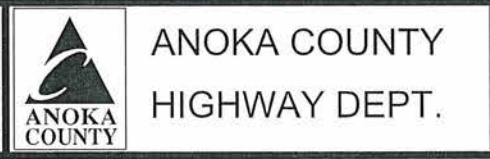


NO	DATE	BY	CKD	APPR	REVISION

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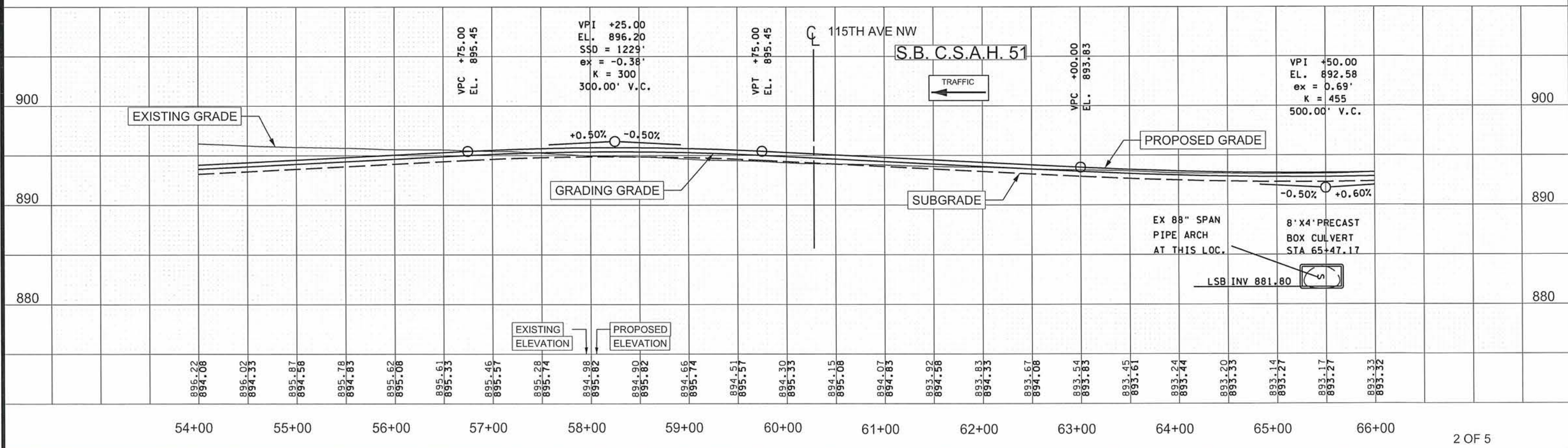
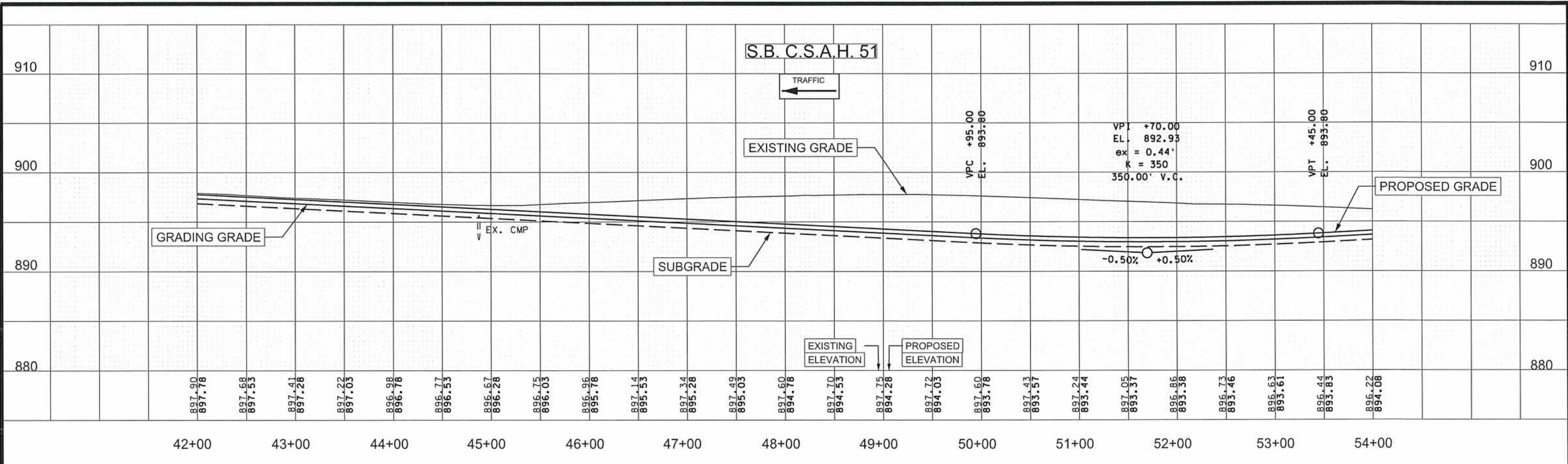
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBIARCSIK  
 SIGNATURE: *Curt Kobiarcsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

LSB PROFILE  
 STA 22+00.00 TO 42+00.00  
 Sheet 111 of 381 Sheets



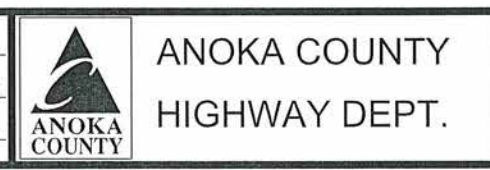
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I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt A. Kobilarsik*  
 DATE: 6-9-19 LICENSE NO. 24756

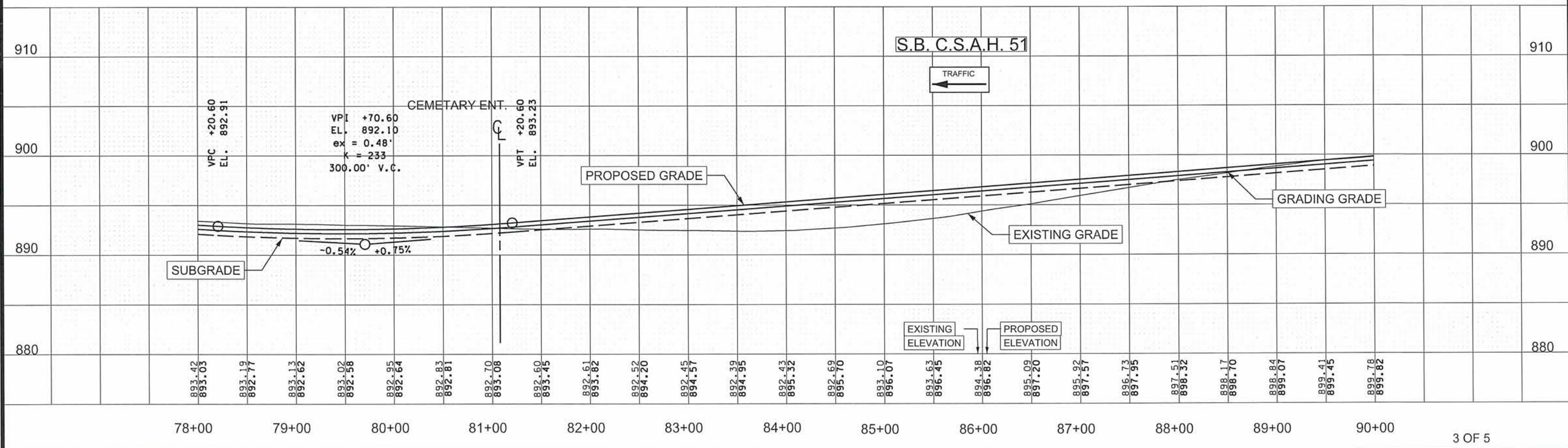
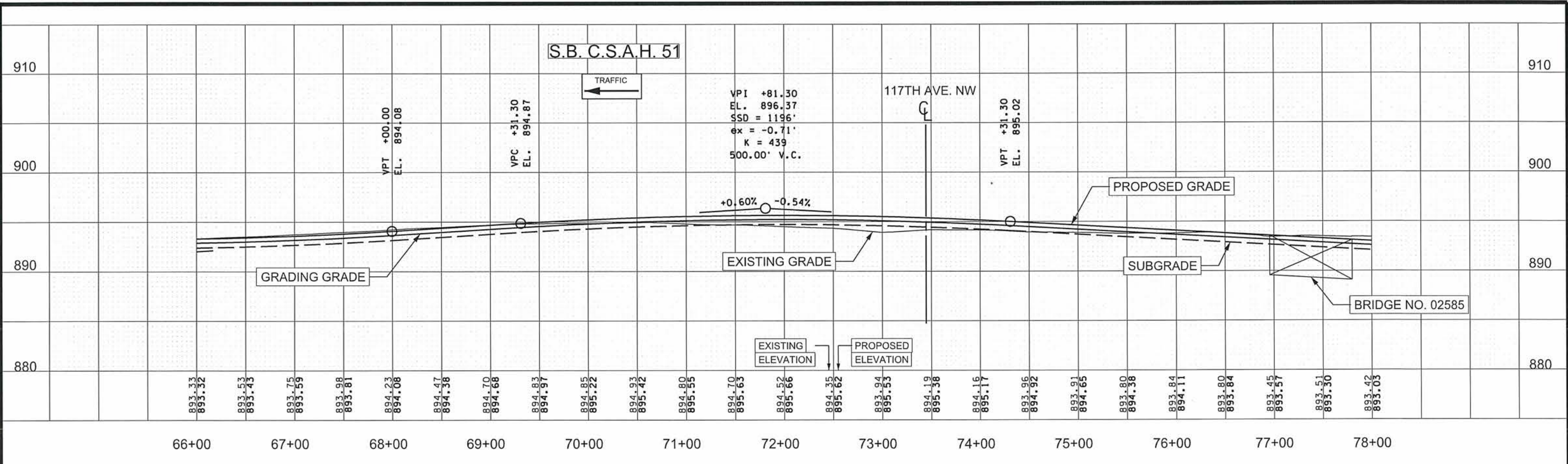
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 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

LSB PROFILE  
 STA 42+00.00 TO 66+00.00  
 Sheet 112 of 381 Sheets





NO	DATE	BY	CKD	APPR	REVISION

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

PRINT NAME: CURT A. KOBILARCSIK

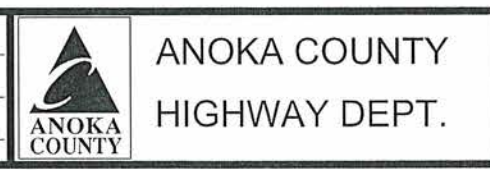
SIGNATURE: *Curt A. Kobilarsik*

DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13

DESIGN BY: NJD DATE: 10-31-13

CHECKED BY: GMP DATE: 12-13-13

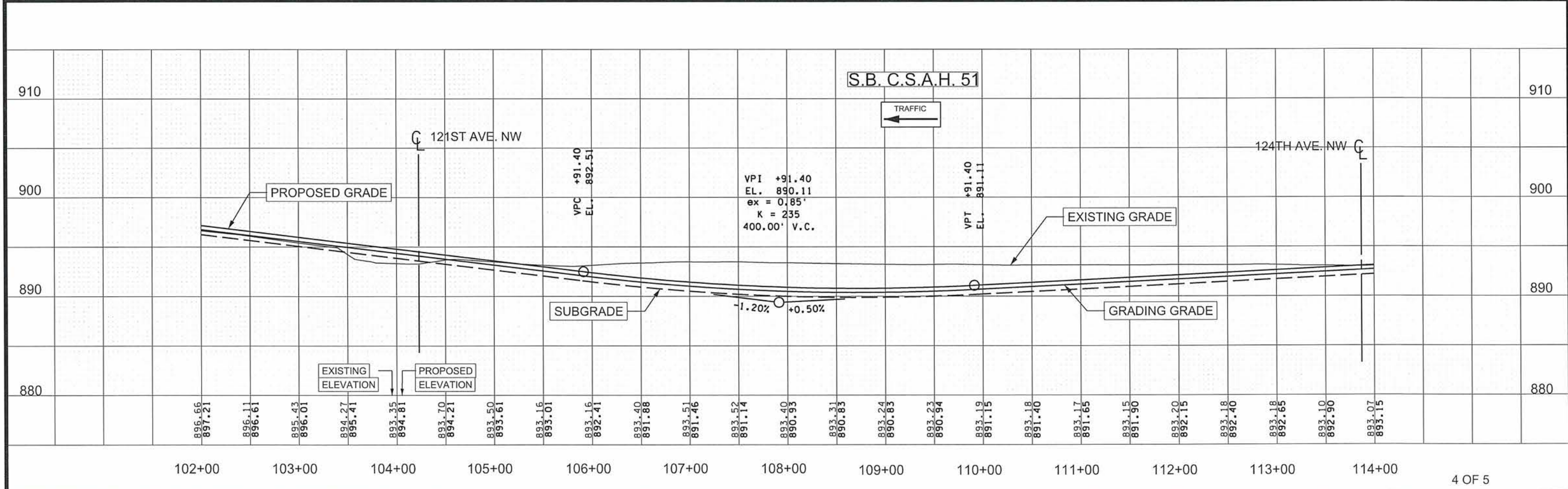
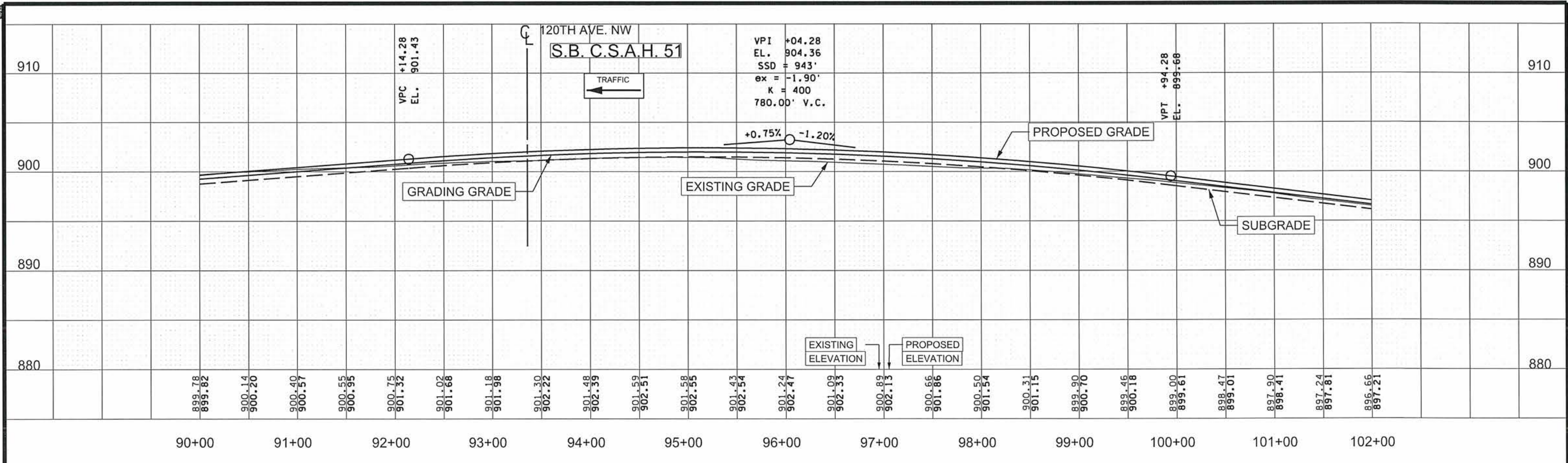


S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

LSB PROFILE

STA 66+00.00 TO 90+00.00

Sheet 113 of 381 Sheets



NO	DATE	BY	CKD	APPR	REVISION

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

PRINT NAME: CURT A. KOBILARCSIK

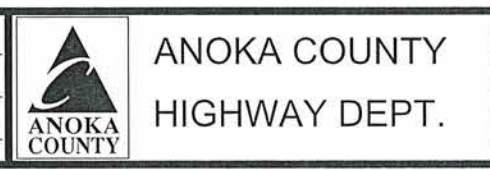
SIGNATURE: *Curt Kobilarcsik*

DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13

DESIGN BY: NJD DATE: 10-31-13

CHECKED BY: GMP DATE: 12-13-13

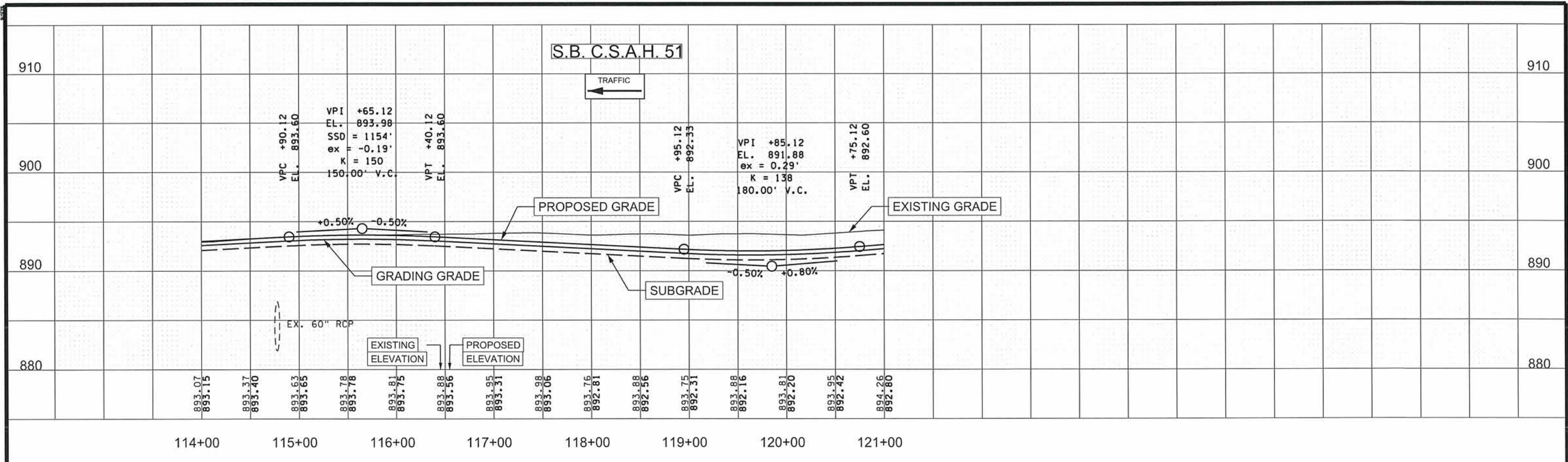


S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

LSB PROFILE

STA 90+00.00 TO 114+00.00

Sheet 114 of 381 Sheets



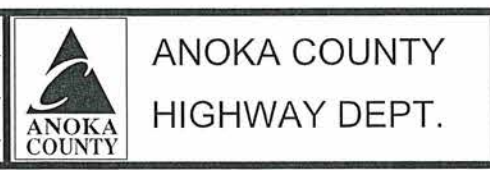
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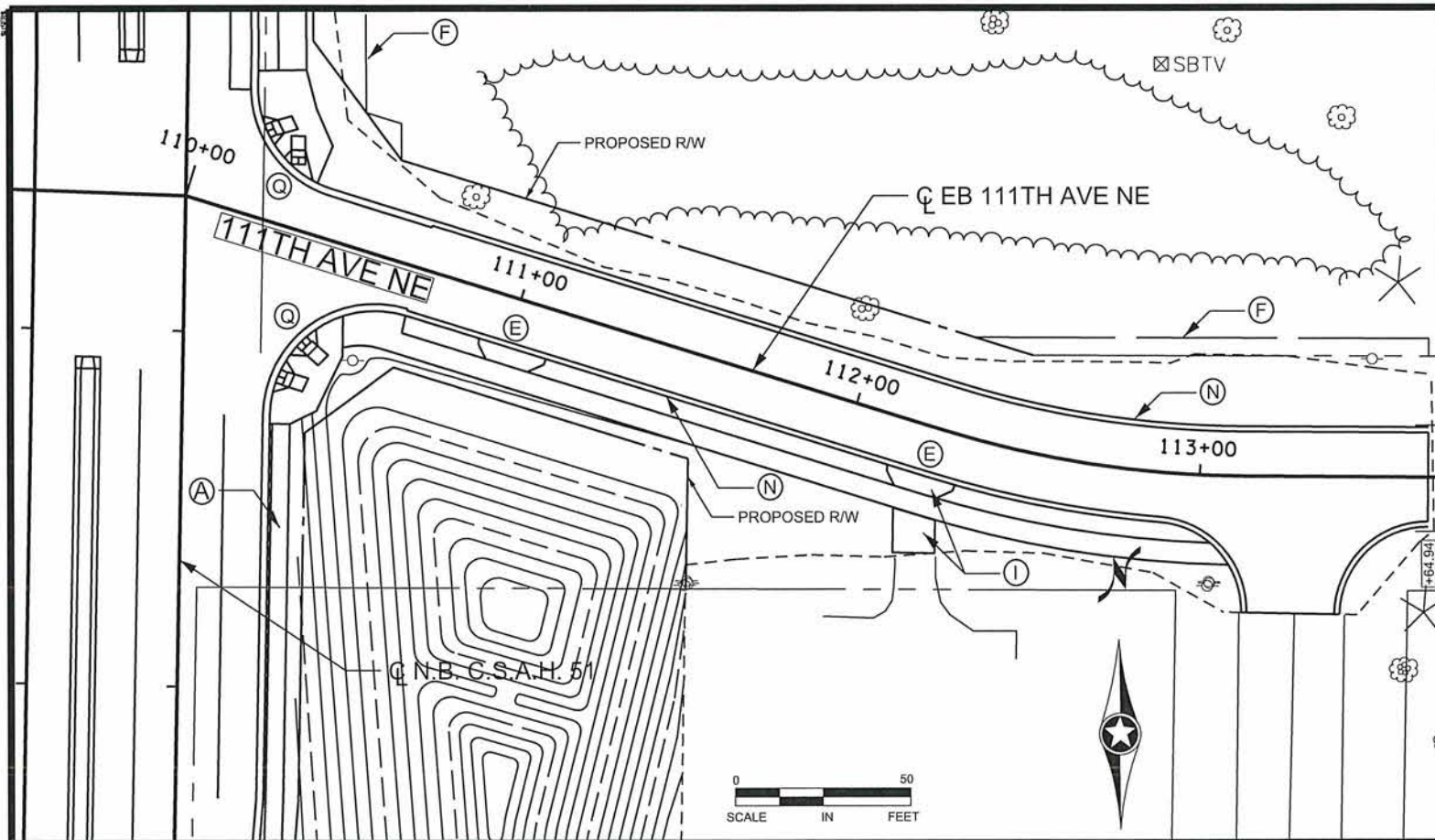
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 SIGNATURE: *Curt A. Kobilarsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY JCF DATE 11-25-13  
 DESIGN BY NJD DATE 10-31-13  
 CHECKED BY GMP DATE 12-13-13

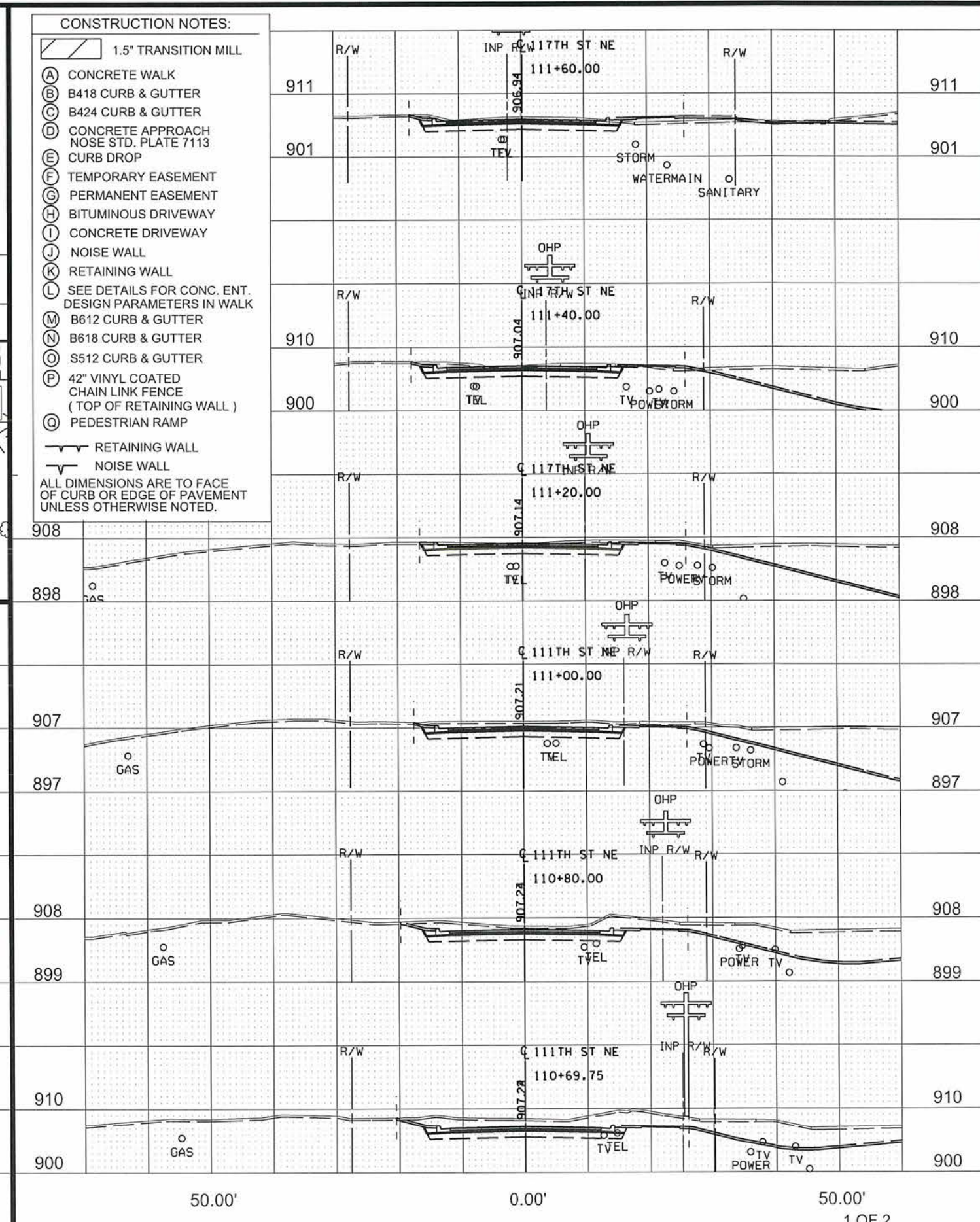
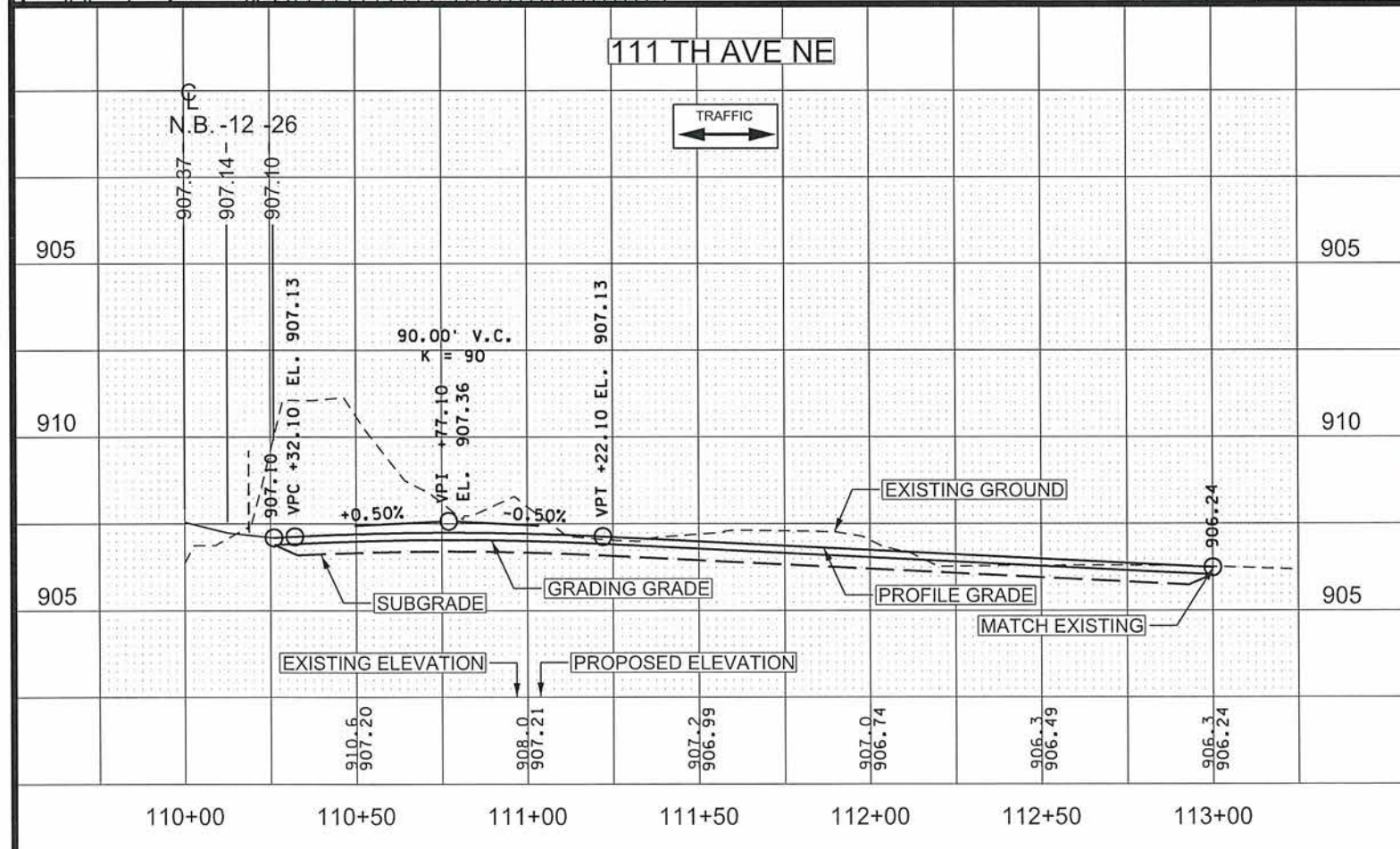


S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

LSB PROFILE  
 STA 114+00.00 TO 121+00.00  
 Sheet 115 of 381 Sheets



- CONSTRUCTION NOTES:**
- 1.5" TRANSITION MILL
  - (A) CONCRETE WALK
  - (B) B418 CURB & GUTTER
  - (C) B424 CURB & GUTTER
  - (D) CONCRETE APPROACH NOSE STD. PLATE 7113
  - (E) CURB DROP
  - (F) TEMPORARY EASEMENT
  - (G) PERMANENT EASEMENT
  - (H) BITUMINOUS DRIVEWAY
  - (I) CONCRETE DRIVEWAY
  - (J) NOISE WALL
  - (K) RETAINING WALL
  - (L) SEE DETAILS FOR CONC. ENT. DESIGN PARAMETERS IN WALK
  - (M) B612 CURB & GUTTER
  - (N) B618 CURB & GUTTER
  - (O) S512 CURB & GUTTER
  - (P) 42" VINYL COATED CHAIN LINK FENCE (TOP OF RETAINING WALL)
  - (Q) PEDESTRIAN RAMP
- RETAINING WALL  
 NOISE WALL  
 ALL DIMENSIONS ARE TO FACE OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.



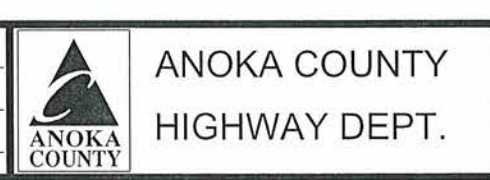
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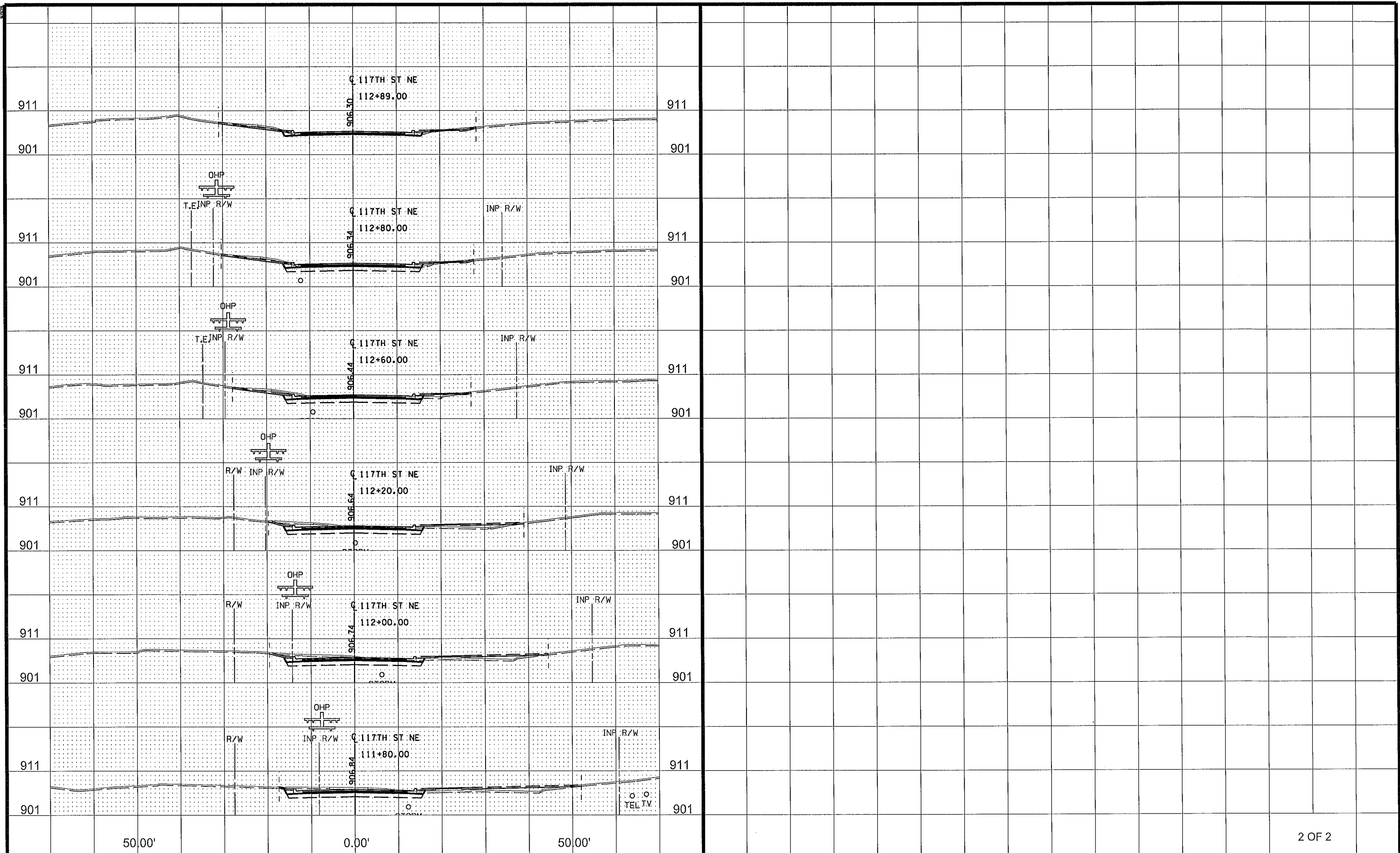
PRINT NAME: CURT A. KOBIARCSIK  
 SIGNATURE: *Curt A. Kobilarcsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 2-13-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

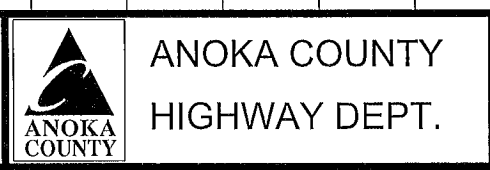
CONSTRUCTION PLAN/  
 PROFILE/ AND X-SEC  
 111TH AVE NE  
 Sheet 116 of 381 Sheets



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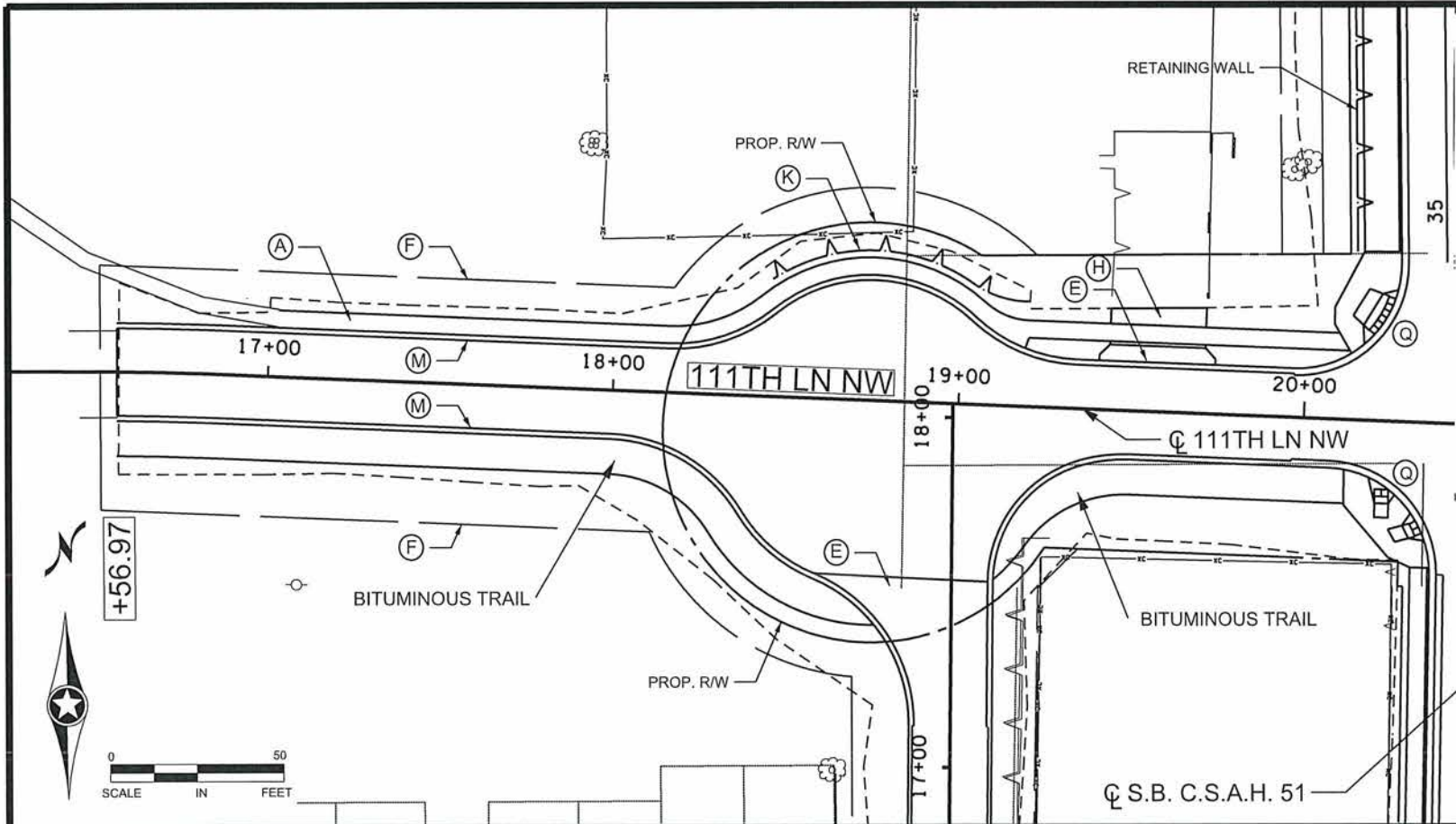
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DRAWN BY NJD DATE 2-13-13  
 DESIGN BY NJD DATE 10-31-13  
 CHECKED BY GMP DATE 12-13-13



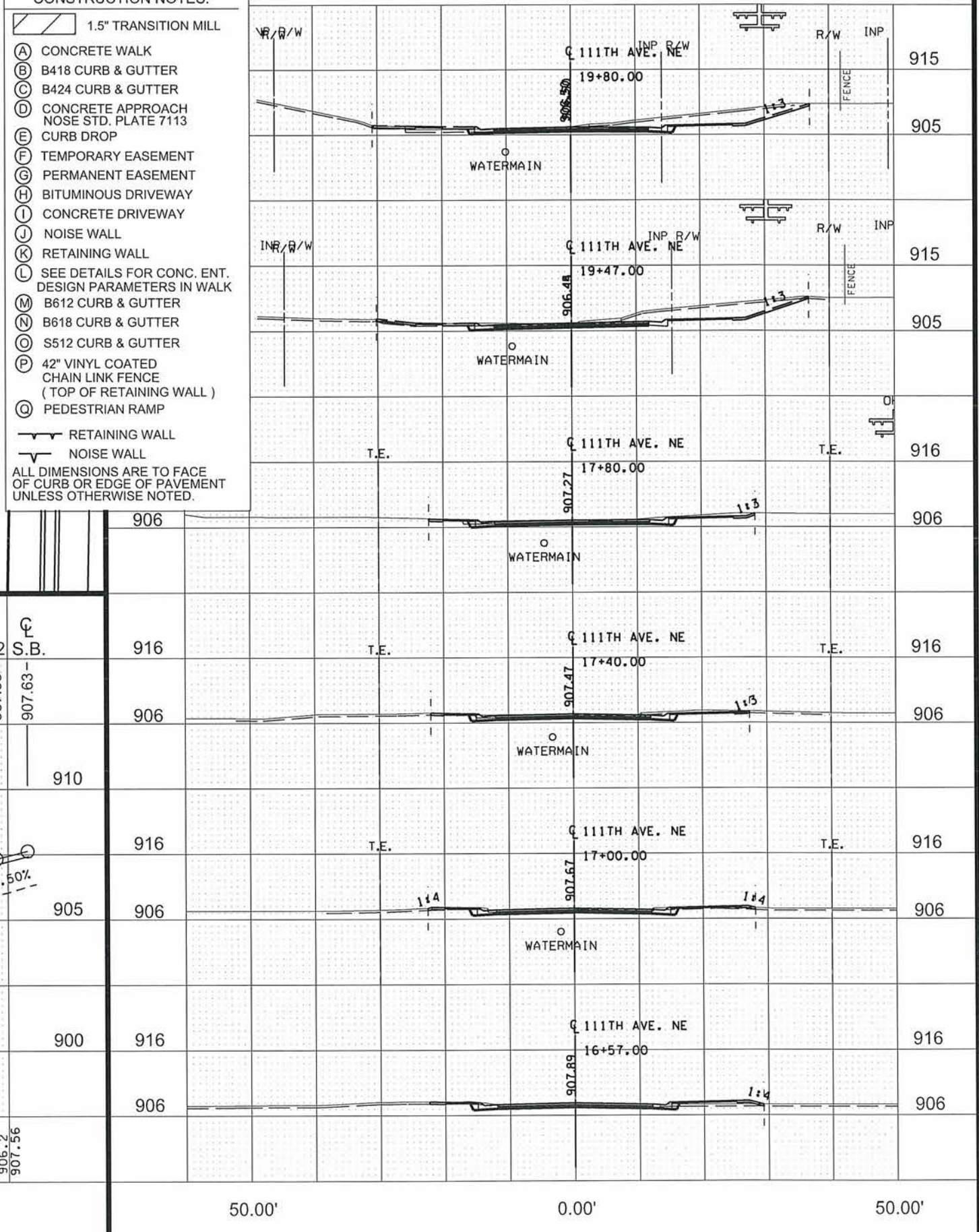
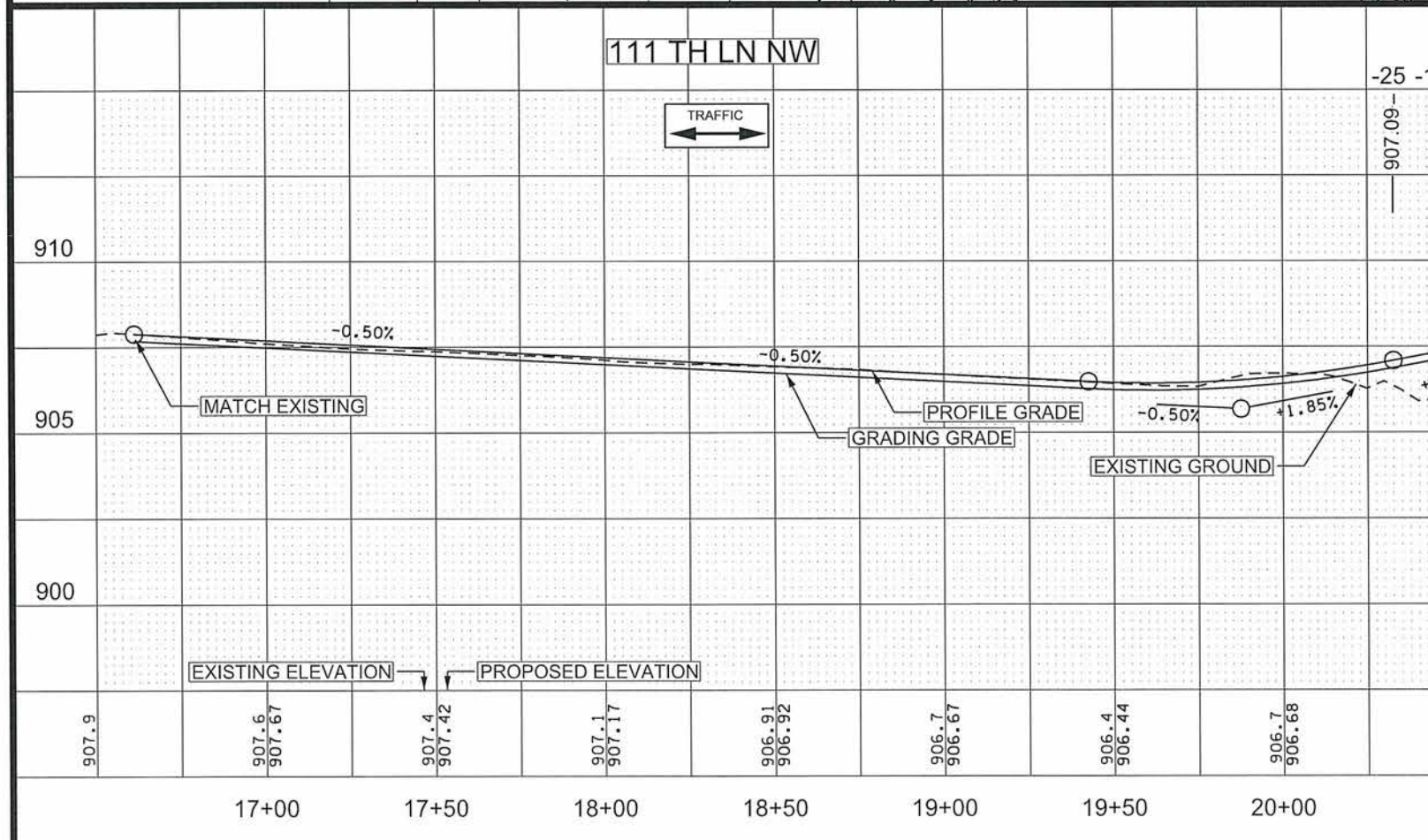
S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

CONSTRUCTION PLAN/  
 PROFILE/ AND X-SEC  
 111TH AVE NE  
 Sheet 117 of 381 Sheets



**CONSTRUCTION NOTES:**

- 1.5" TRANSITION MILL
  - (A) CONCRETE WALK
  - (B) B418 CURB & GUTTER
  - (C) B424 CURB & GUTTER
  - (D) CONCRETE APPROACH NOSE STD. PLATE 7113
  - (E) CURB DROP
  - (F) TEMPORARY EASEMENT
  - (G) PERMANENT EASEMENT
  - (H) BITUMINOUS DRIVEWAY
  - (I) CONCRETE DRIVEWAY
  - (J) NOISE WALL
  - (K) RETAINING WALL
  - (L) SEE DETAILS FOR CONC. ENT. DESIGN PARAMETERS IN WALK
  - (M) B612 CURB & GUTTER
  - (N) B618 CURB & GUTTER
  - (O) S512 CURB & GUTTER
  - (P) 42" VINYL COATED CHAIN LINK FENCE (TOP OF RETAINING WALL)
  - (Q) PEDESTRIAN RAMP
  - RETAINING WALL
  - NOISE WALL
- ALL DIMENSIONS ARE TO FACE OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.



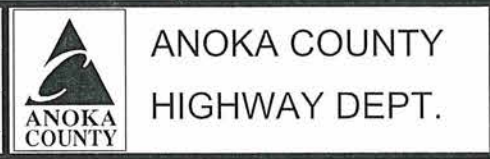
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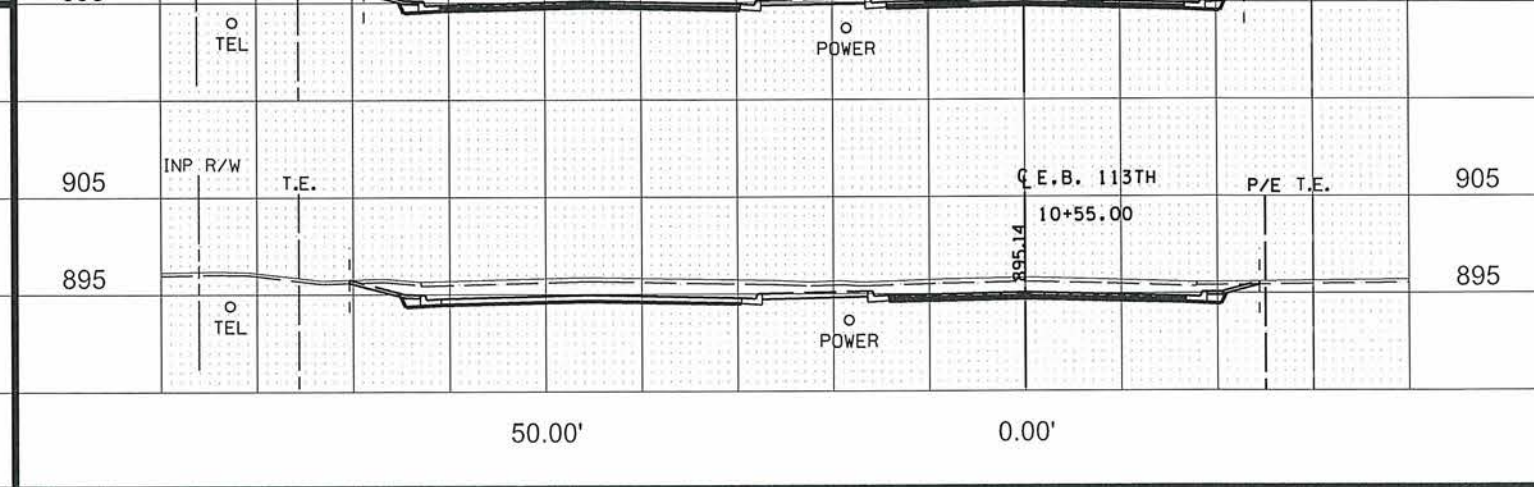
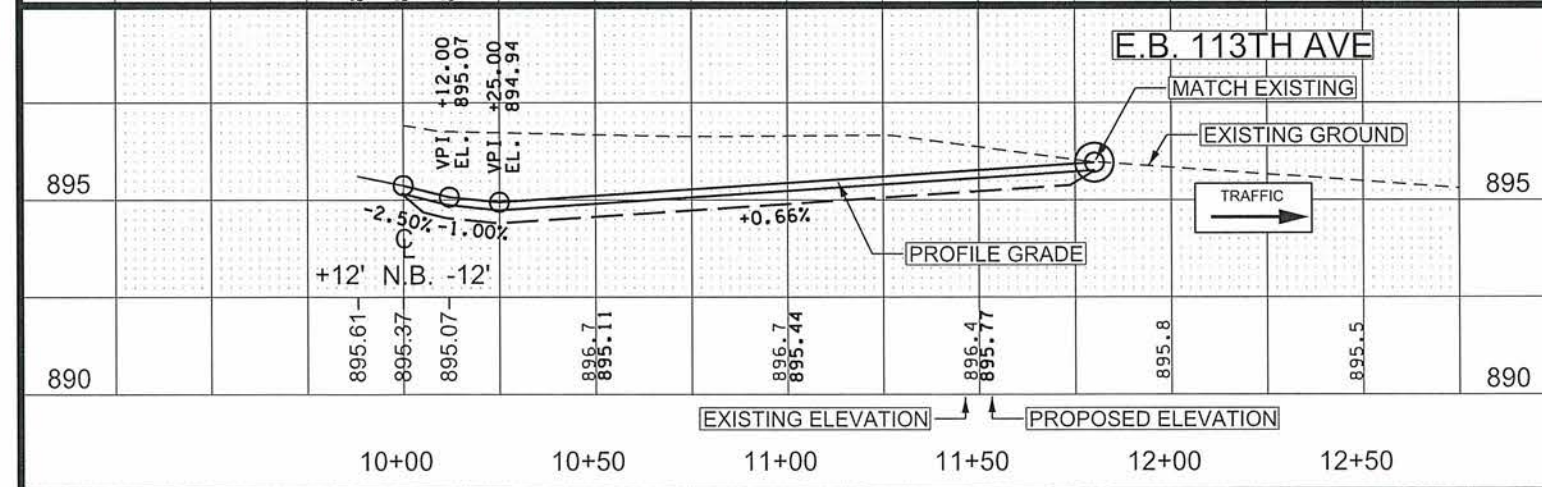
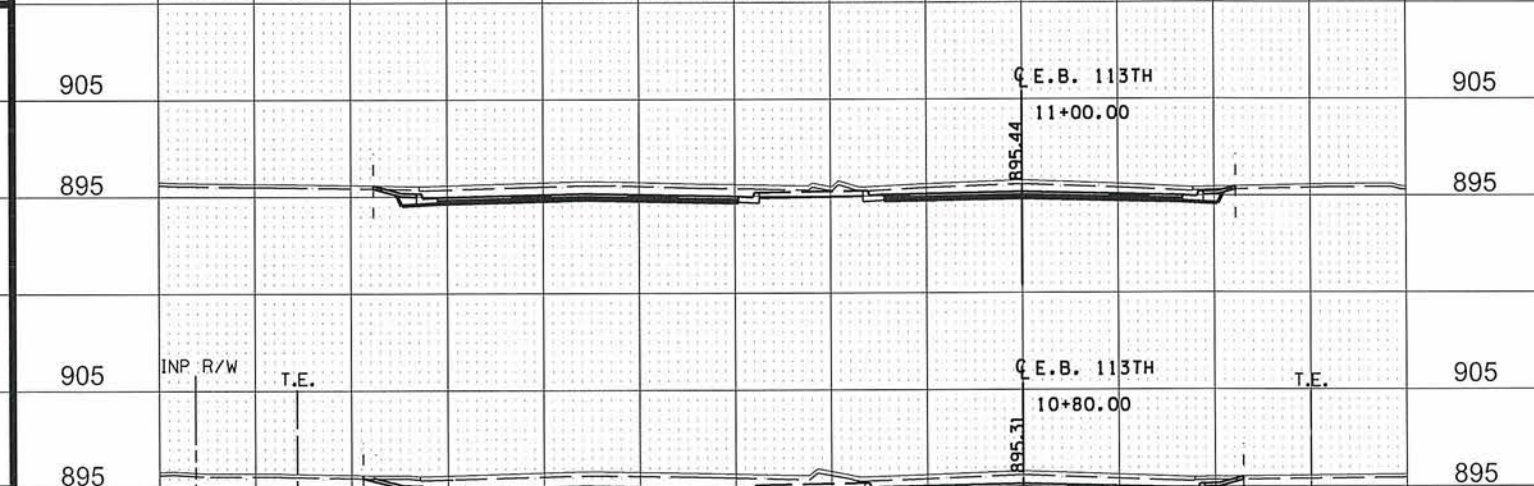
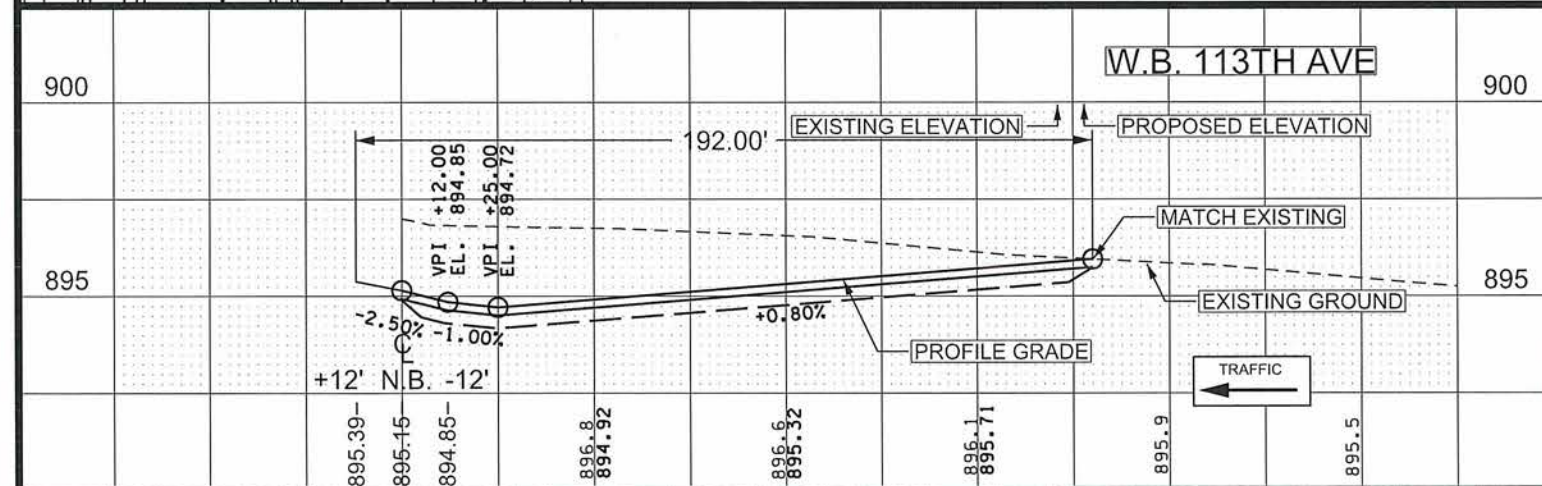
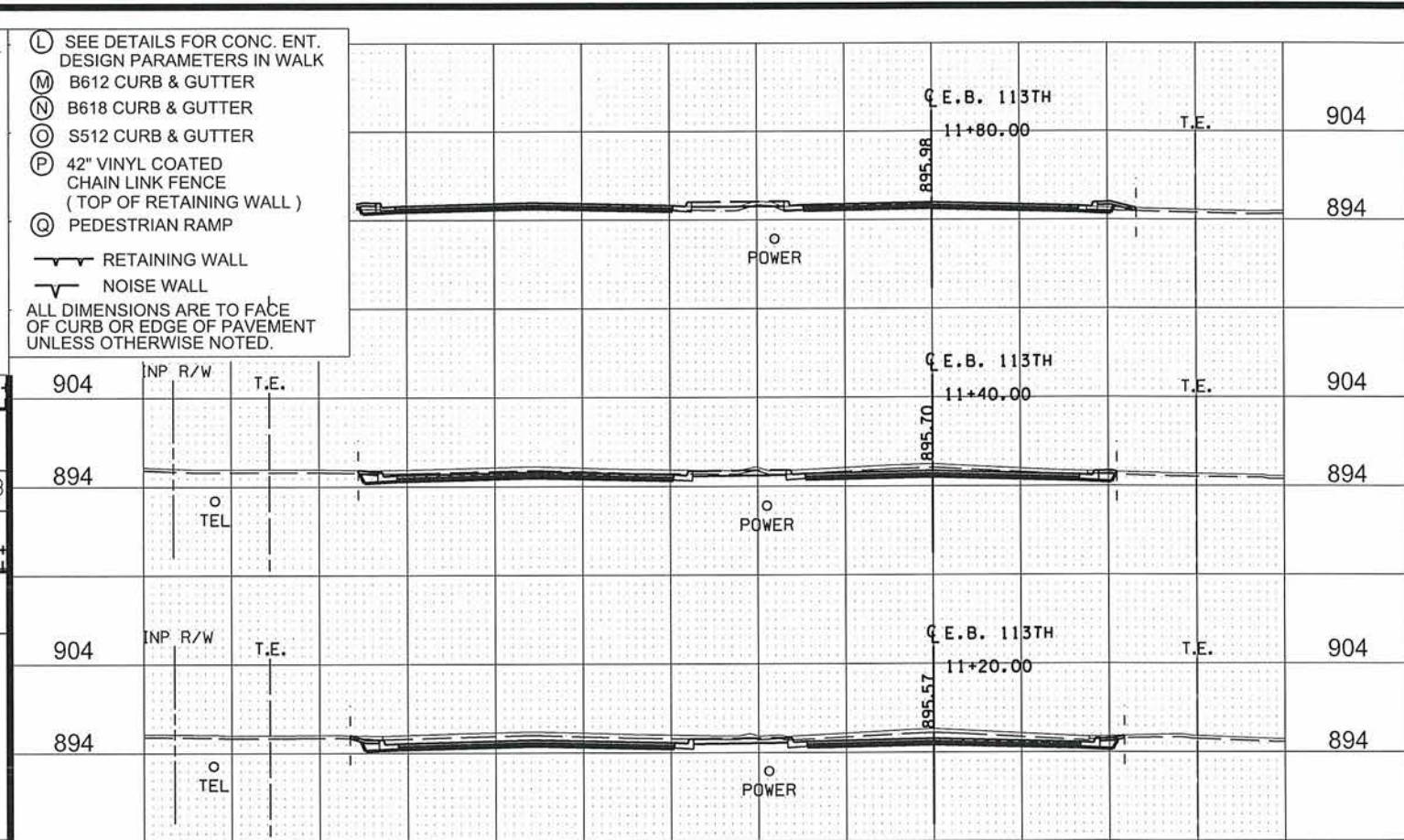
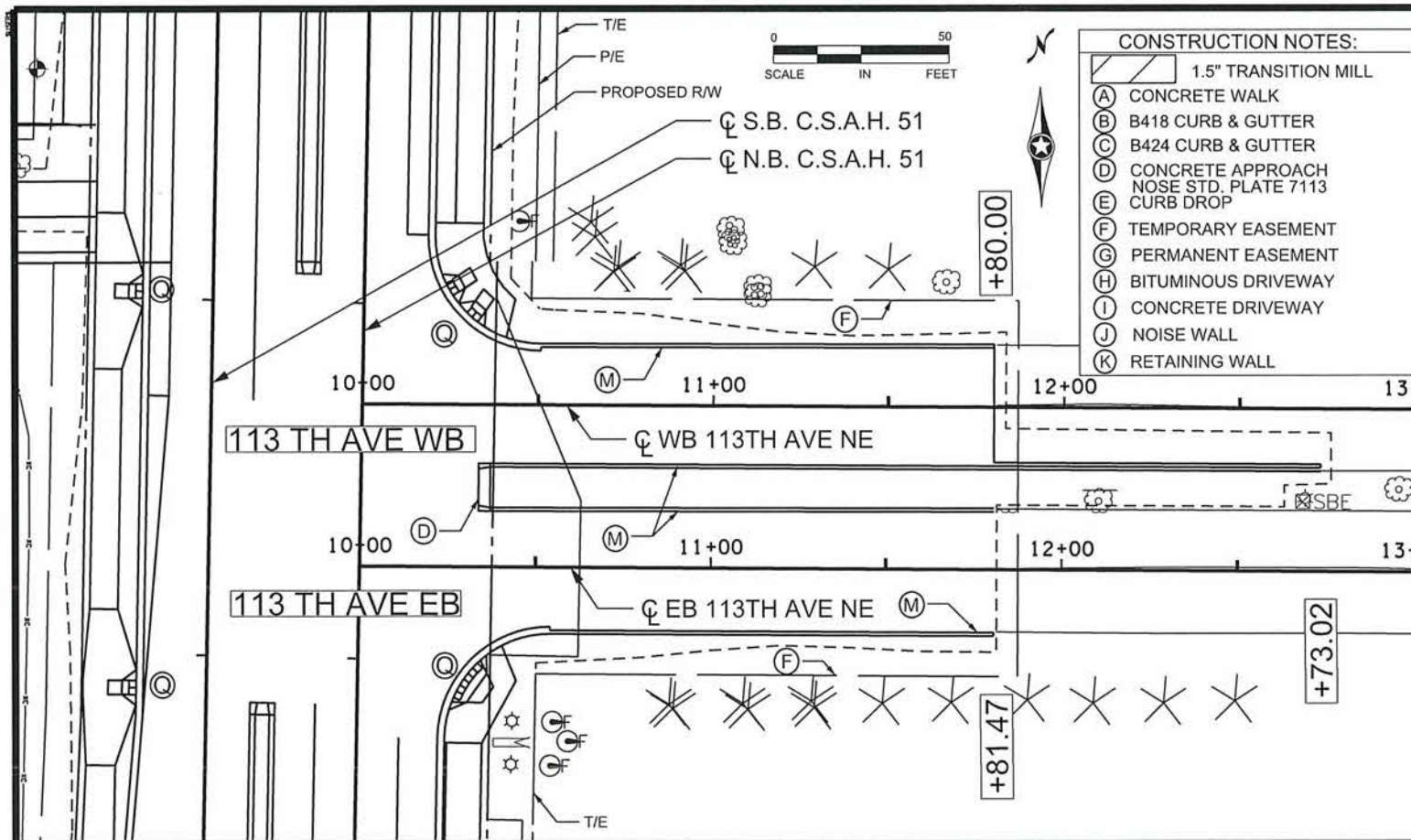
PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarcsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 2-13-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

CONSTRUCTION PLAN, PROFILE, AND X-SEC  
 111TH LN NW  
 Sheet 118 of 381 Sheets



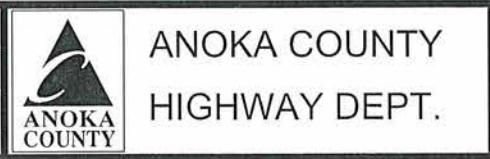
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I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *C. Kobilarcsik*  
 DATE: 6-9-14    LICENSE NO. 24756

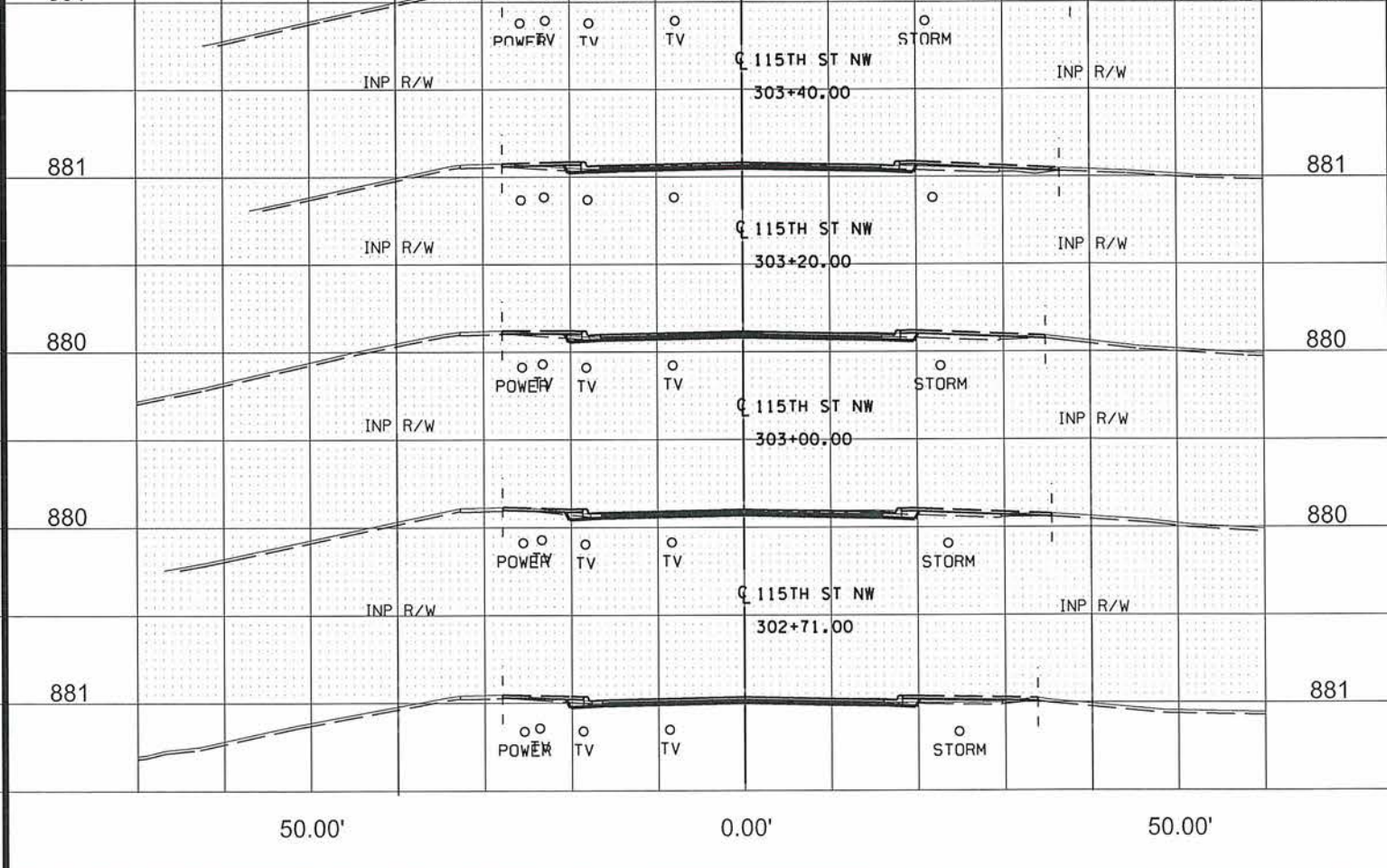
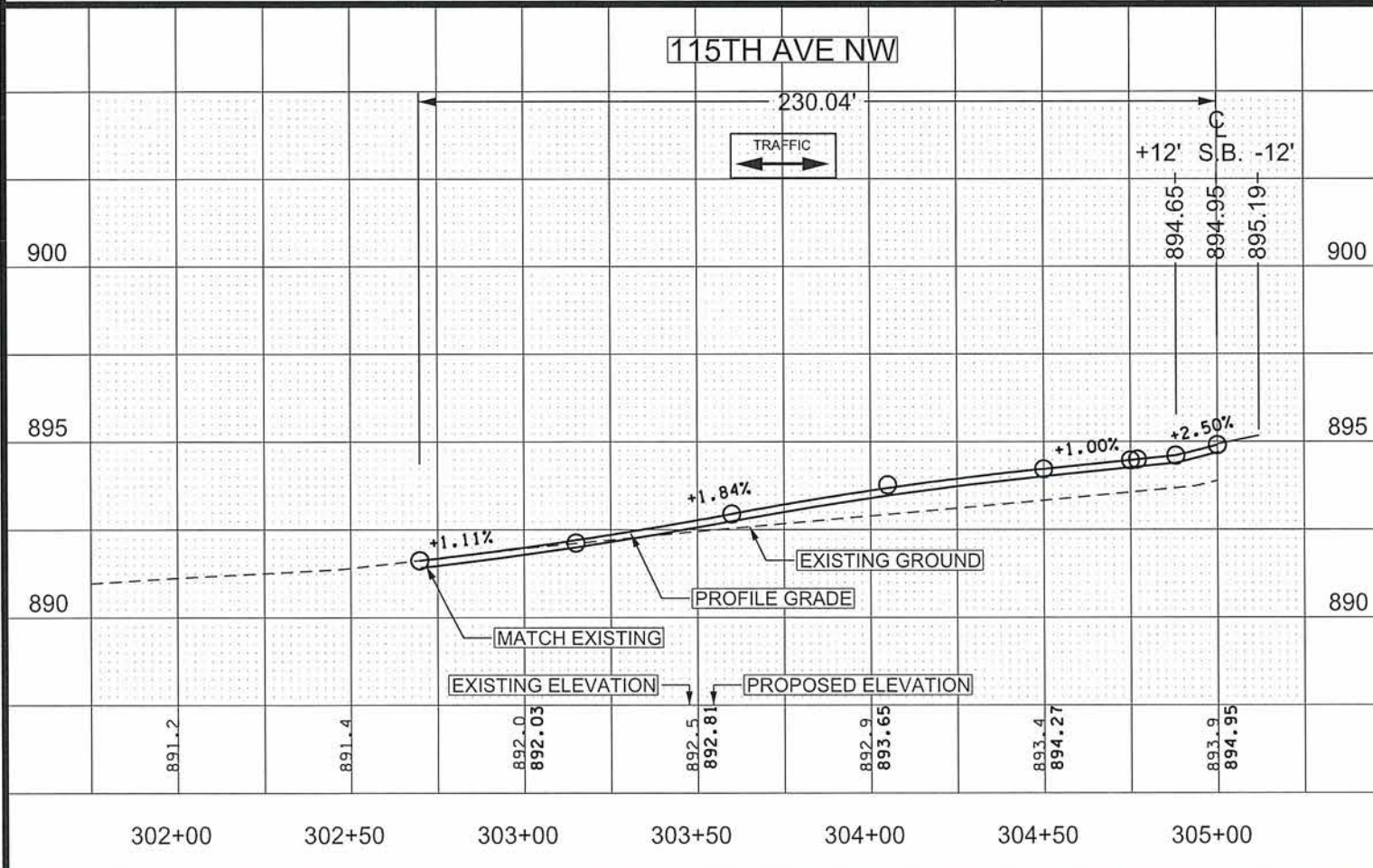
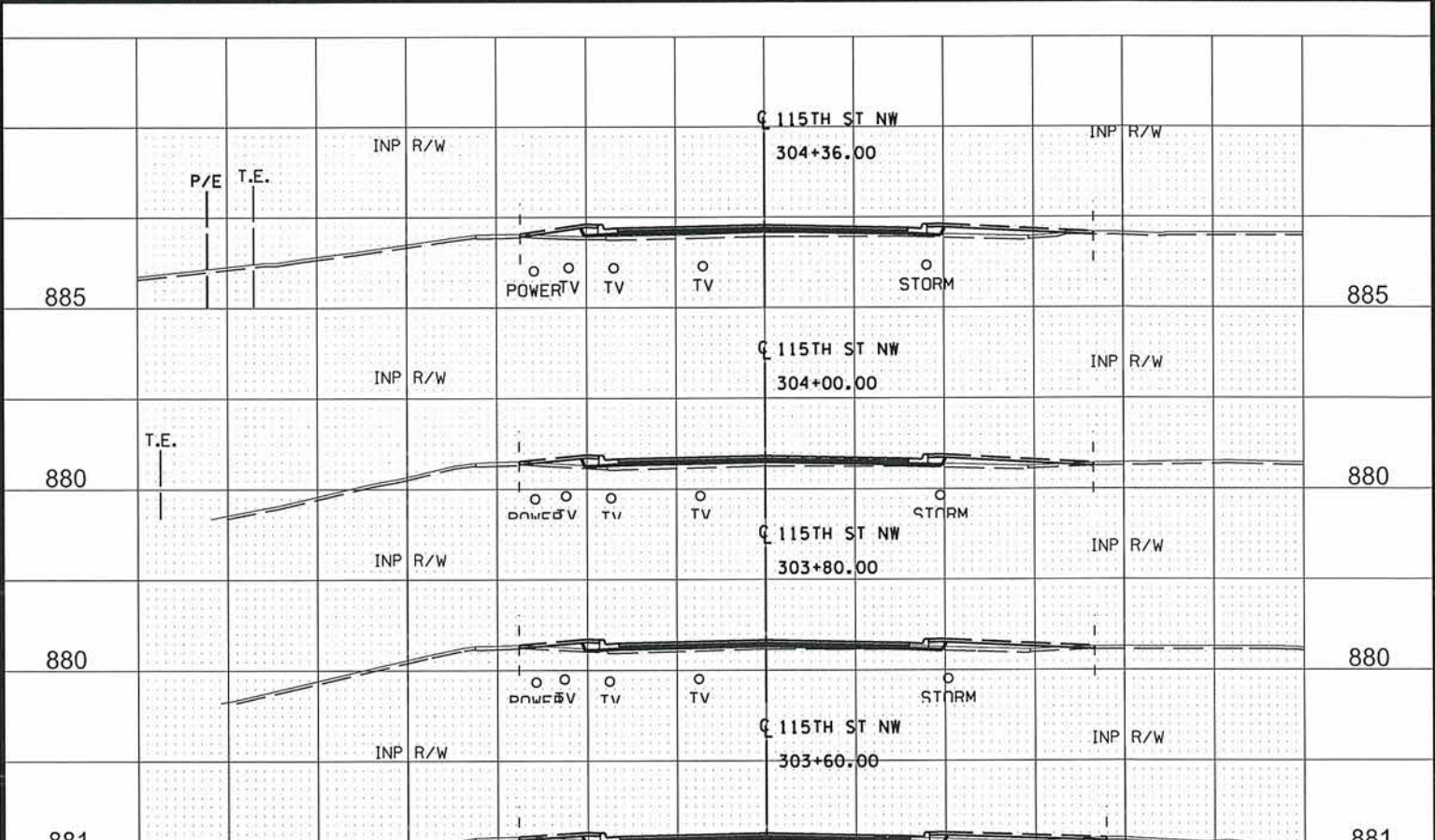
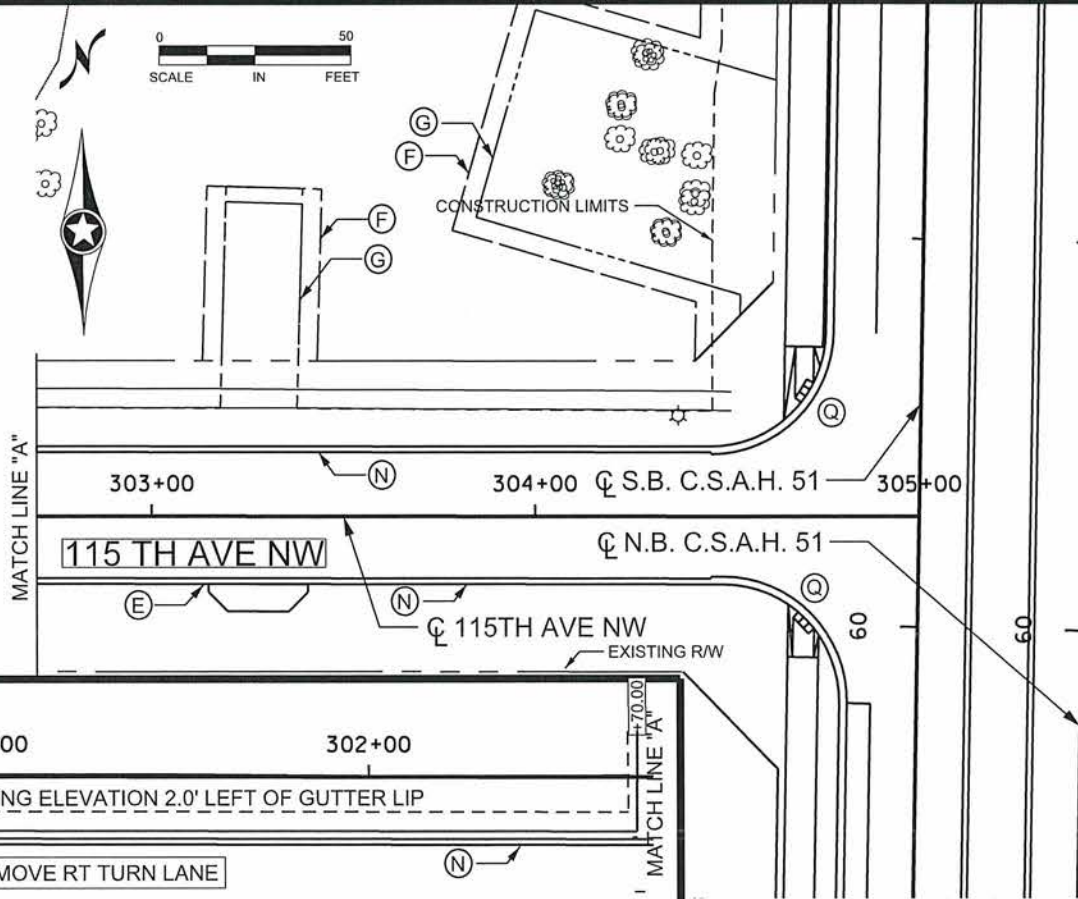
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 CHECKED BY: GMP    DATE: 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

CONSTRUCTION NOTES:

- 1.5" TRANSITION MILL
  - (A) CONCRETE WALK
  - (B) B418 CURB & GUTTER
  - (C) B424 CURB & GUTTER
  - (D) CONCRETE APPROACH NOSE STD. PLATE 7113 CURB DROP
  - (E) TEMPORARY EASEMENT
  - (F) PERMANENT EASEMENT
  - (H) BITUMINOUS DRIVEWAY
  - (I) CONCRETE DRIVEWAY
  - (J) NOISE WALL
  - (K) RETAINING WALL
  - (L) SEE DETAILS FOR CONC. ENT. DESIGN PARAMETERS IN WALK
  - (M) B612 CURB & GUTTER
  - (N) B618 CURB & GUTTER
  - (O) S512 CURB & GUTTER
  - (P) 42" VINYL COATED CHAIN LINK FENCE (TOP OF RETAINING WALL)
  - (Q) PEDESTRIAN RAMP
  - RETAINING WALL
  - NOISE WALL
- ALL DIMENSIONS ARE TO FACE OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.



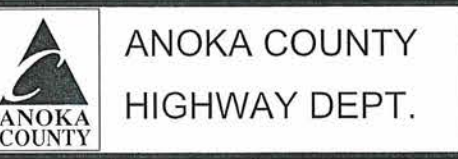
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NAME: P:102-651-07\Plan\0265107\_IN-115.dgn 06/05/2014 7:41:32 AM

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

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *[Signature]*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 2-13-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13





S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

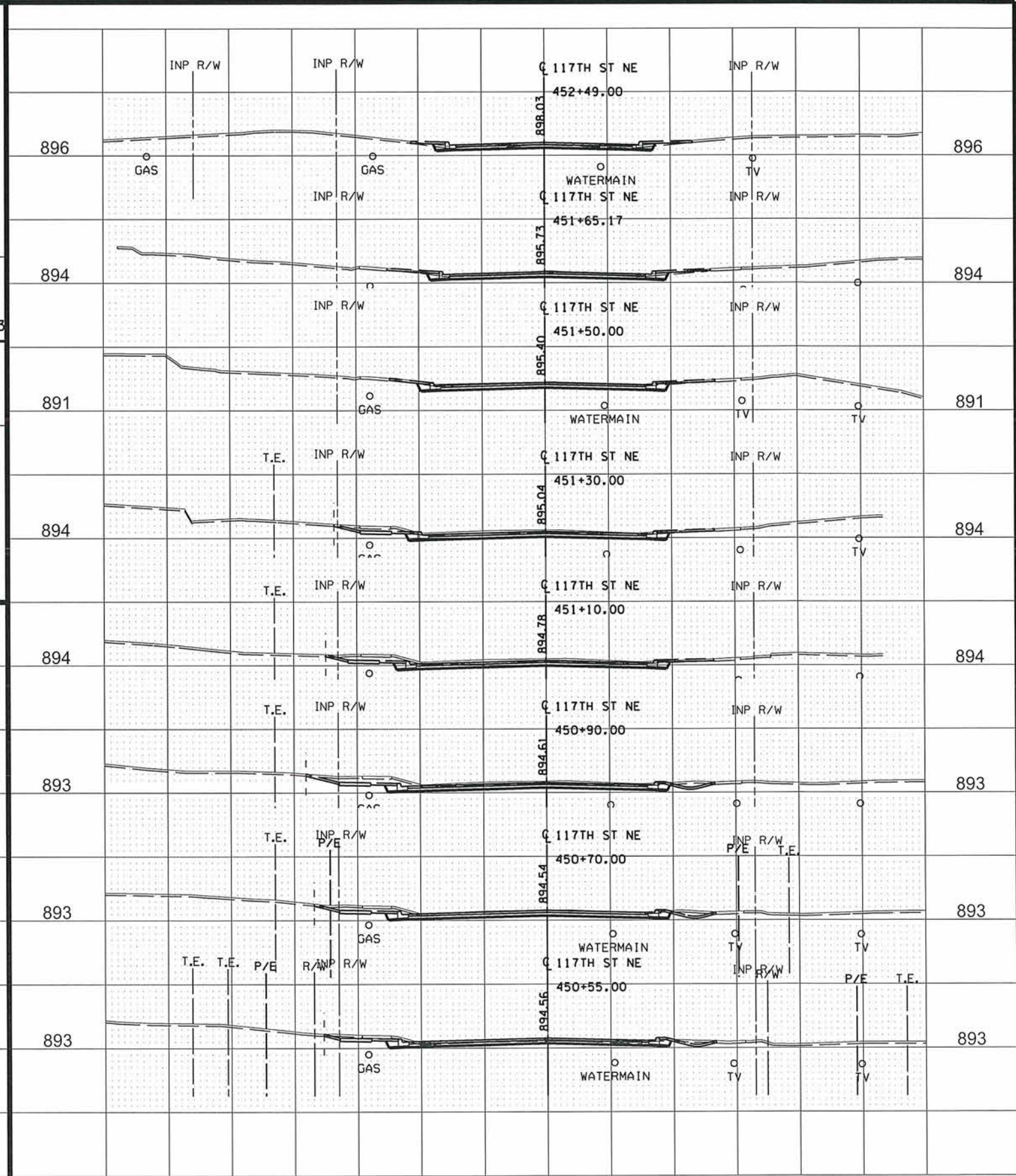
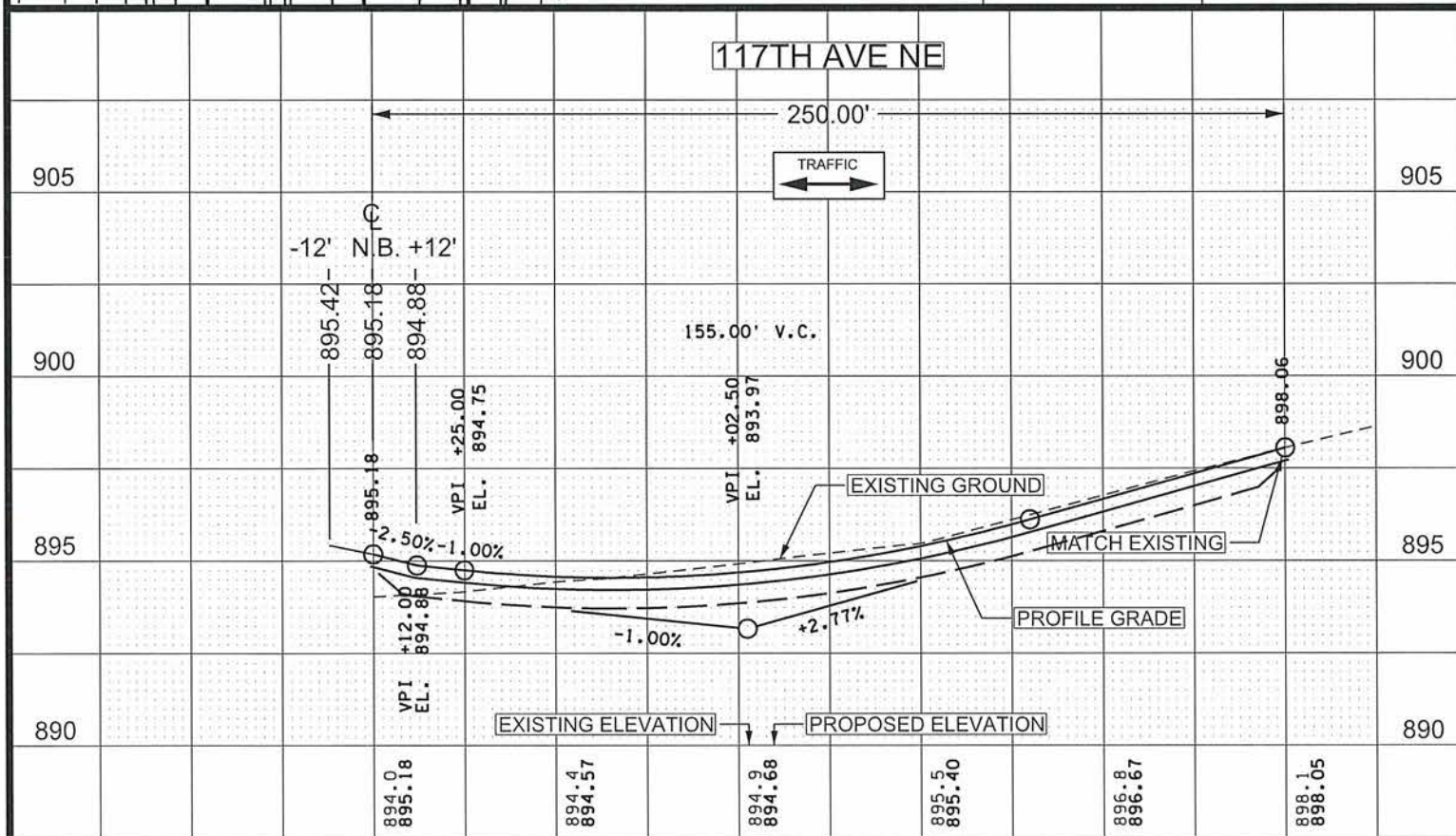
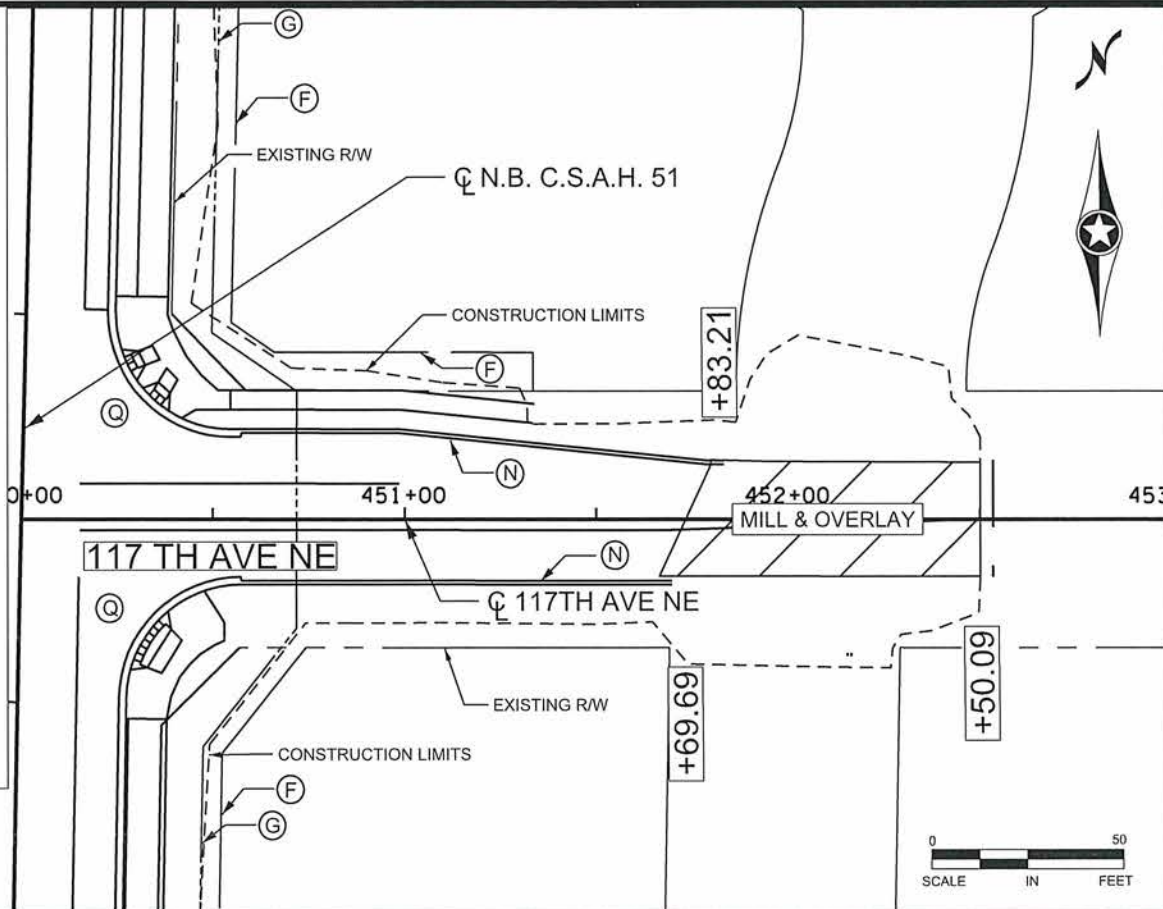
CONSTRUCTION PLAN/  
 PROFILE/ AND X-SEC  
 115TH AVE NW  
 Sheet 120 of 381 Sheets



CONSTRUCTION NOTES:

-  1.5" TRANSITION MILL
- (A) CONCRETE WALK
- (B) B418 CURB & GUTTER
- (C) B424 CURB & GUTTER
- (D) CONCRETE APPROACH NOSE STD. PLATE 7113 CURB DROP
- (E) TEMPORARY EASEMENT
- (G) PERMANENT EASEMENT
- (H) BITUMINOUS DRIVEWAY
- (I) CONCRETE DRIVEWAY
- (J) NOISE WALL
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- (L) SEE DETAILS FOR CONC. ENT. DESIGN PARAMETERS IN WALK
- (M) B612 CURB & GUTTER
- (N) B618 CURB & GUTTER
- (O) S512 CURB & GUTTER
- (P) 42" VINYL COATED CHAIN LINK FENCE (TOP OF RETAINING WALL)
- (Q) PEDESTRIAN RAMP

-  RETAINING WALL
  -  NOISE WALL
- ALL DIMENSIONS ARE TO FACE OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.




894.0	895.18	894.4	894.57	894.9	894.68	895.5	895.40	896.8	896.67	898.1	898.05
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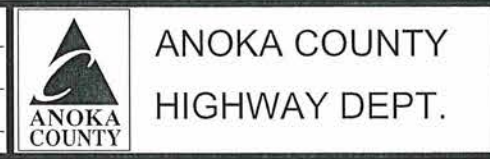
NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_IN-117E.dgn 06/05/2014 7:41:34 AM

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

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE:   
 DATE: 6-9-14 LICENSE NO. 24756

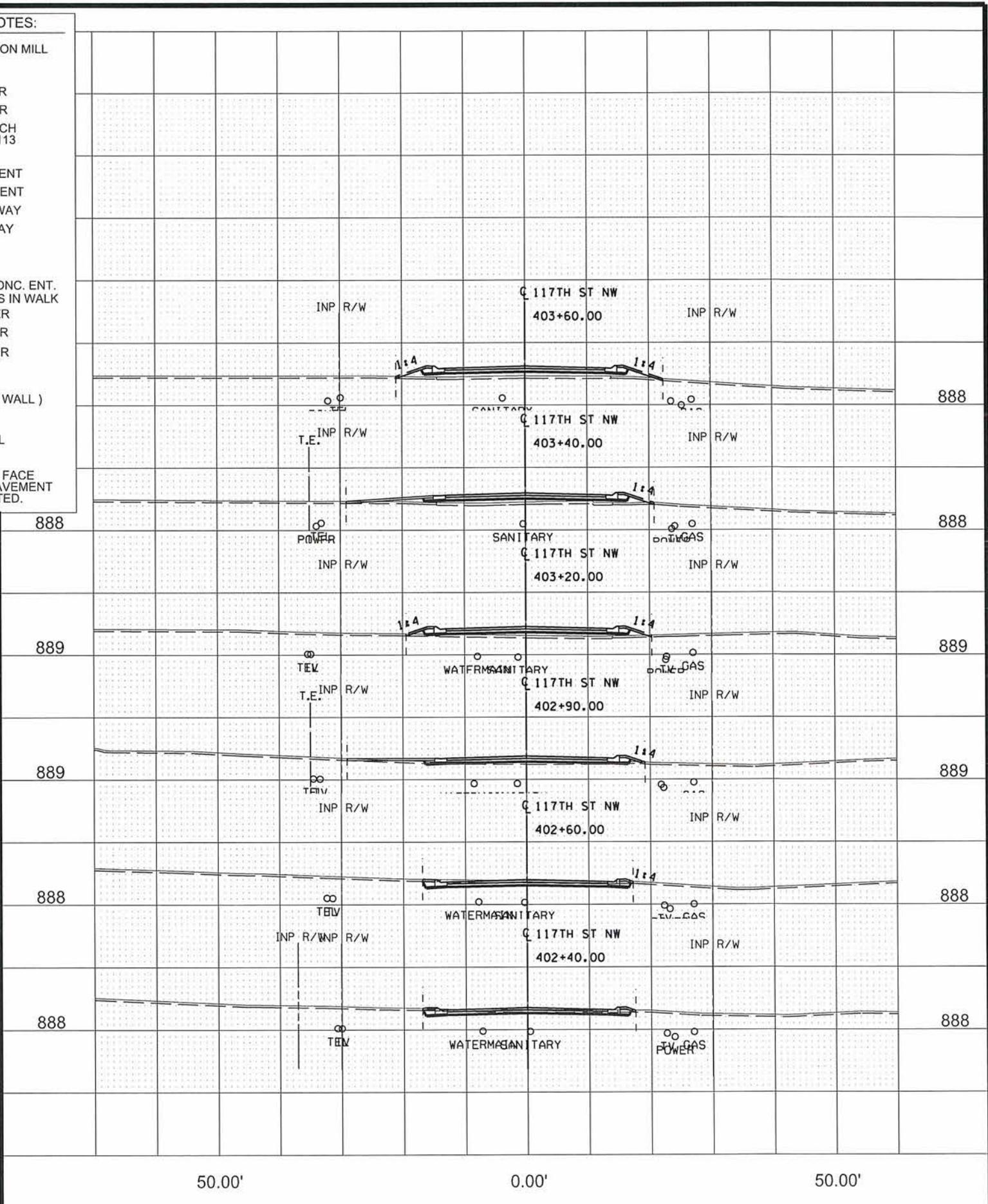
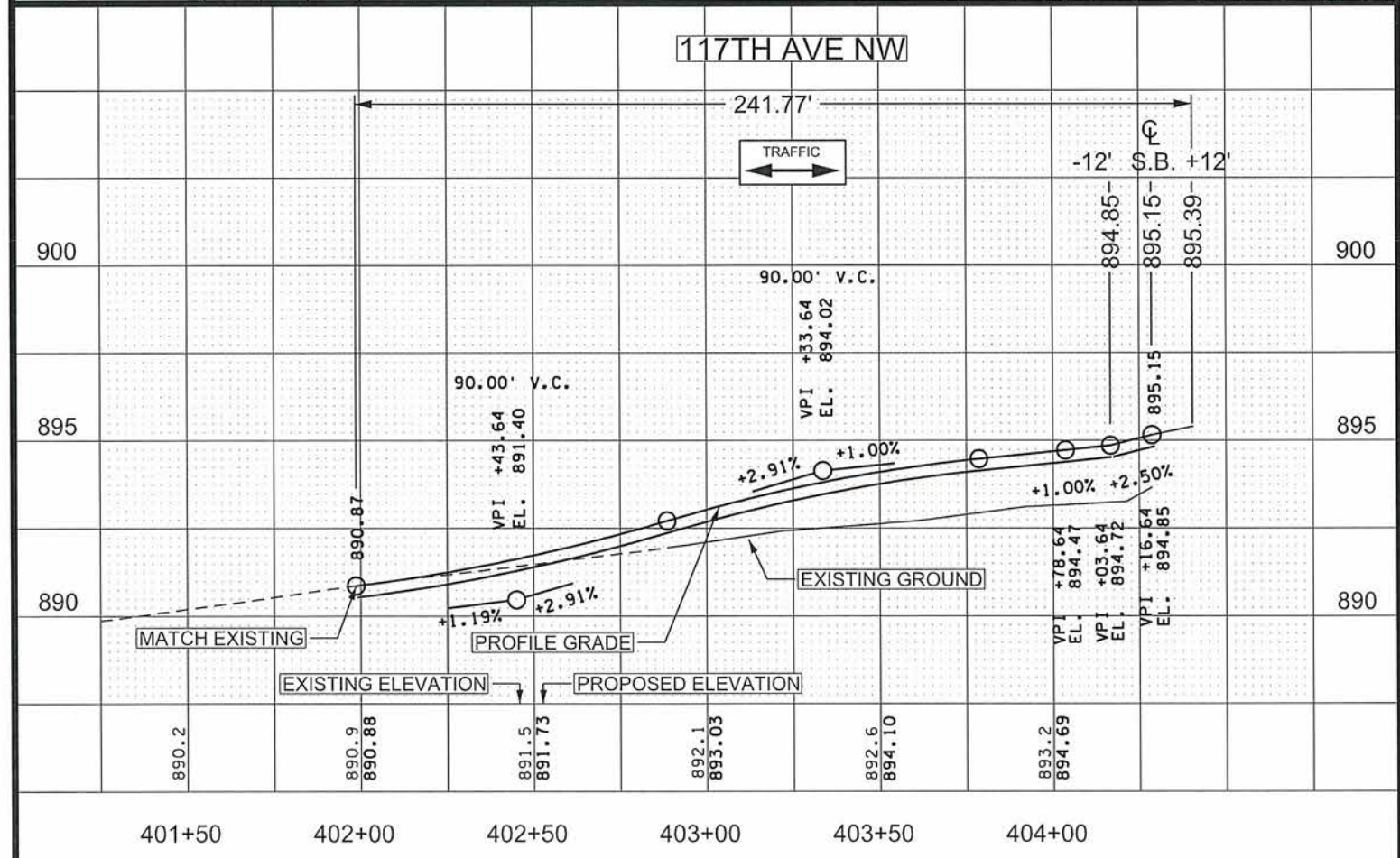
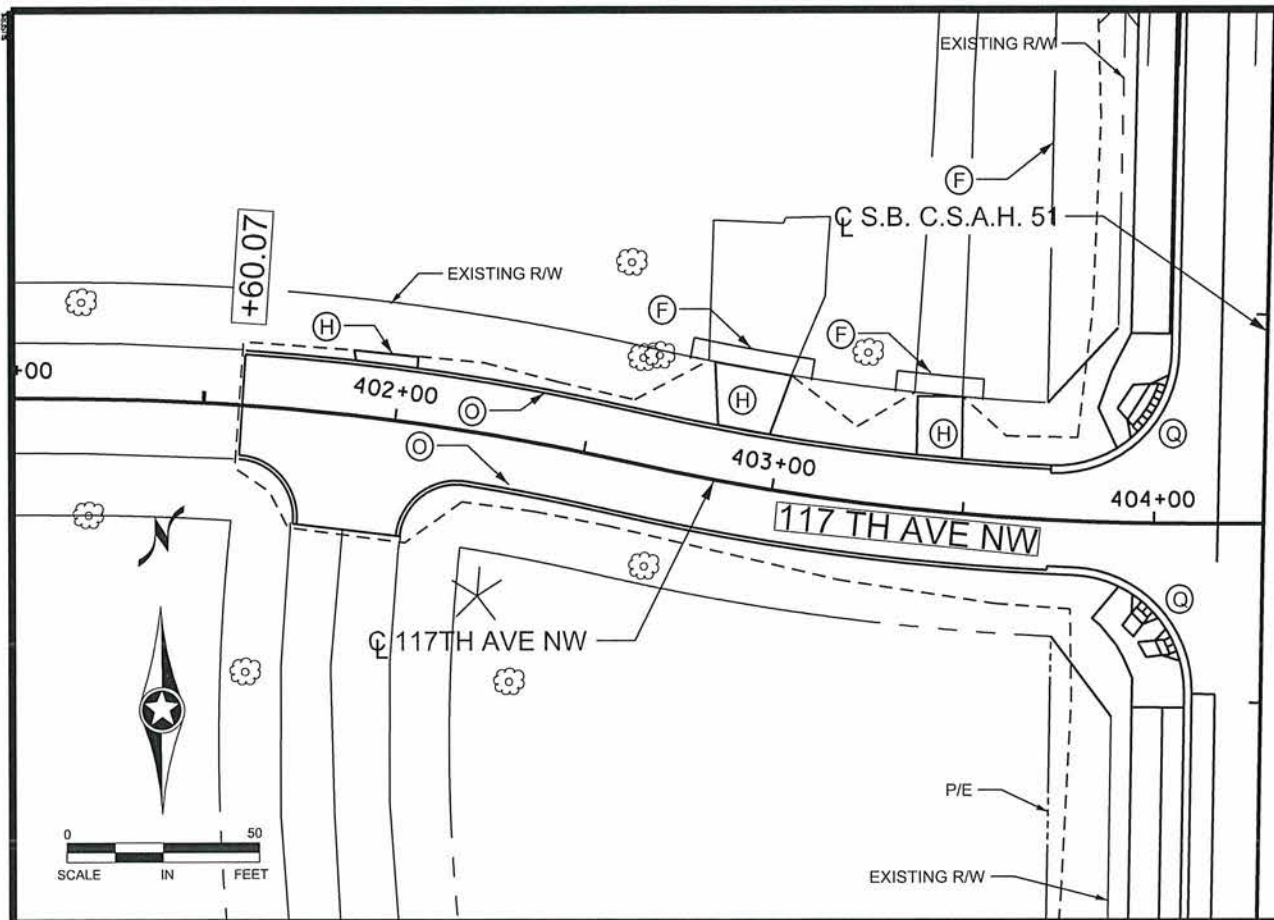
DRAWN BY: NJD DATE: 2-13-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

CONSTRUCTION PLAN/  
 PROFILE/ AND X-SEC  
 117TH AVE NE  
 Sheet 121 of 381 Sheets

- CONSTRUCTION NOTES:**
- 1.5" TRANSITION MILL
  - (A) CONCRETE WALK
  - (B) B418 CURB & GUTTER
  - (C) B424 CURB & GUTTER
  - (D) CONCRETE APPROACH NOSE STD. PLATE 7113
  - (E) CURB DROP
  - (F) TEMPORARY EASEMENT
  - (G) PERMANENT EASEMENT
  - (H) BITUMINOUS DRIVEWAY
  - (I) CONCRETE DRIVEWAY
  - (J) NOISE WALL
  - (K) RETAINING WALL
  - (L) SEE DETAILS FOR CONC. ENT. DESIGN PARAMETERS IN WALK
  - (M) B612 CURB & GUTTER
  - (N) B618 CURB & GUTTER
  - (O) S512 CURB & GUTTER
  - (P) 42" VINYL COATED CHAIN LINK FENCE (TOP OF RETAINING WALL)
  - (Q) PEDESTRIAN RAMP
- RETAINING WALL  
 NOISE WALL  
 ALL DIMENSIONS ARE TO FACE OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.



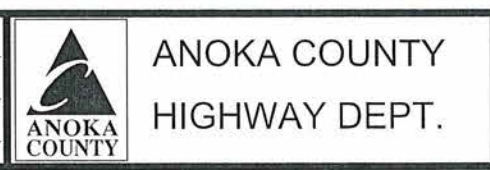
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NAME: P:\02-651-07\Plan\0265107\_IN-117W.dgn 06/05/2014 7:41:36 AM

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

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *C. Kobilarcsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 2-13-13  
 DESIGN BY: DATE: XXX  
 CHECKED BY: GMP DATE: XXX

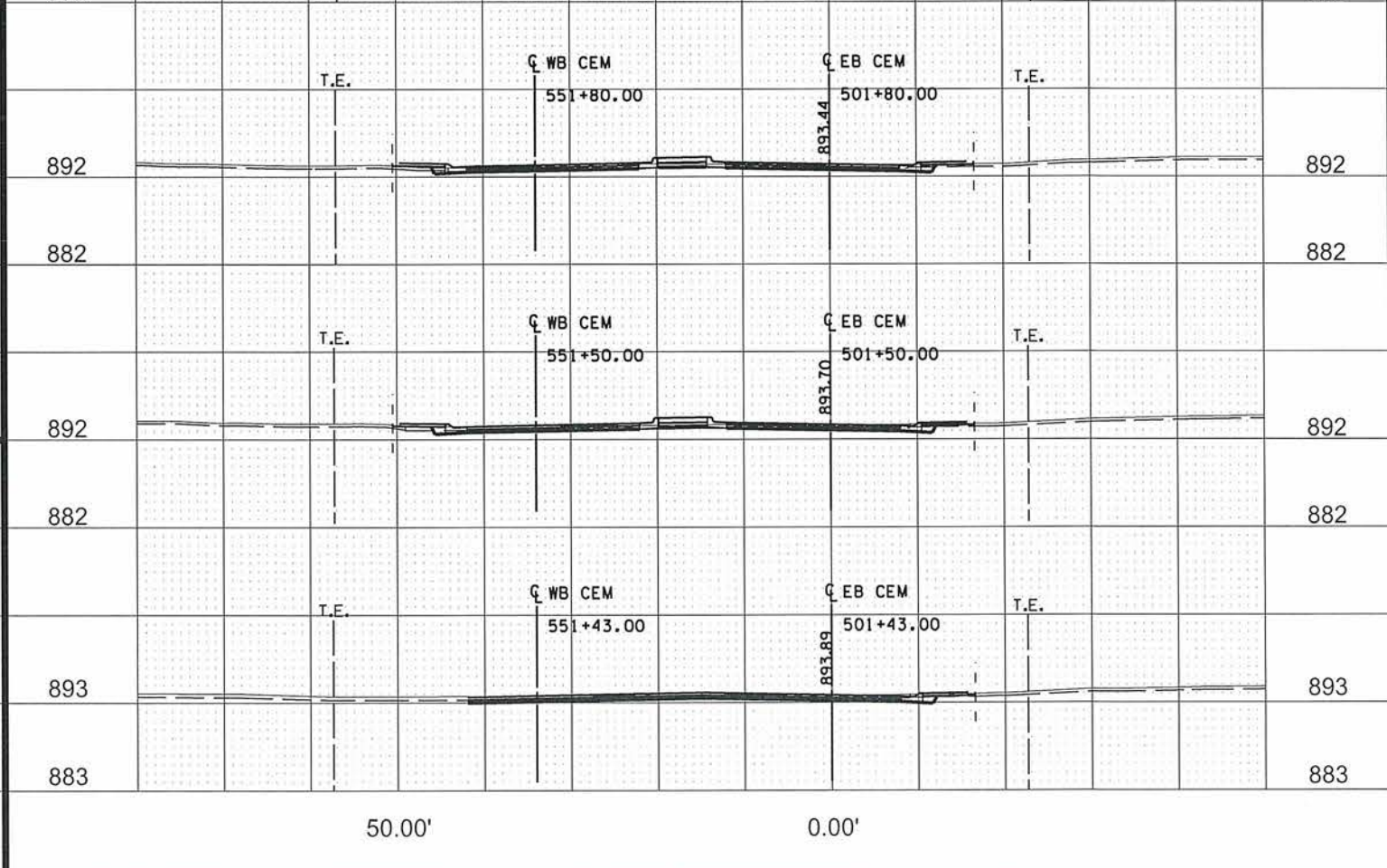
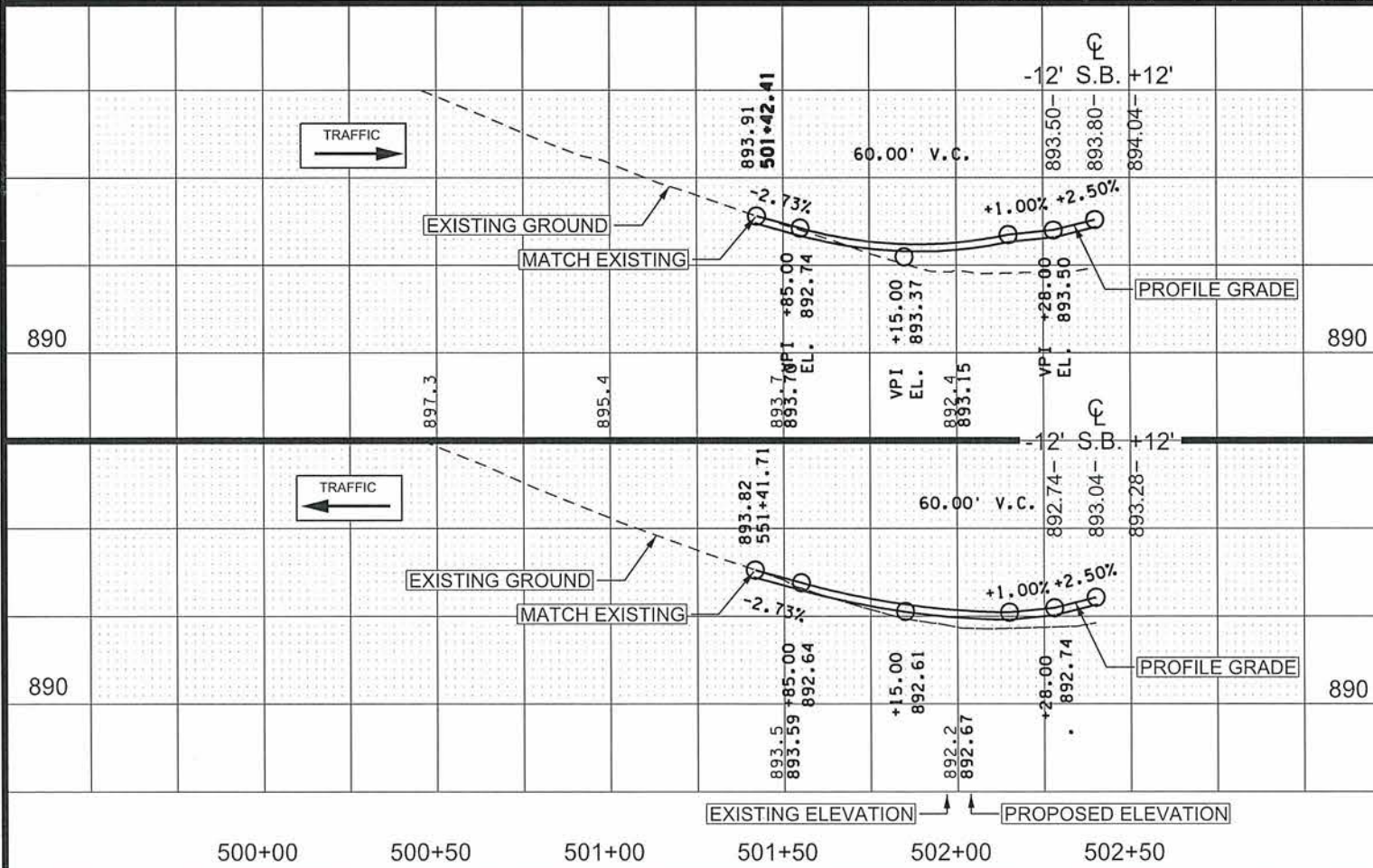
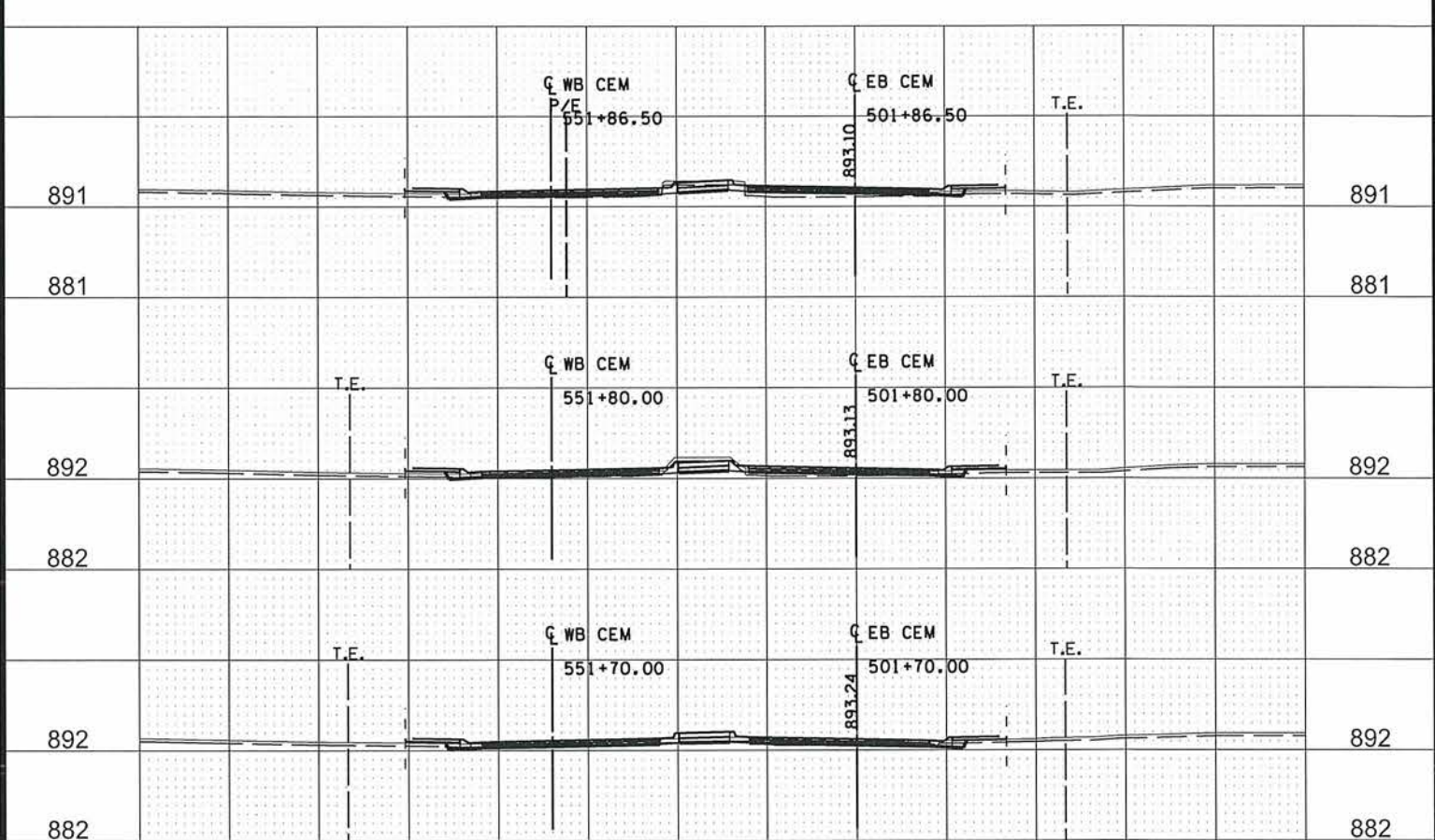
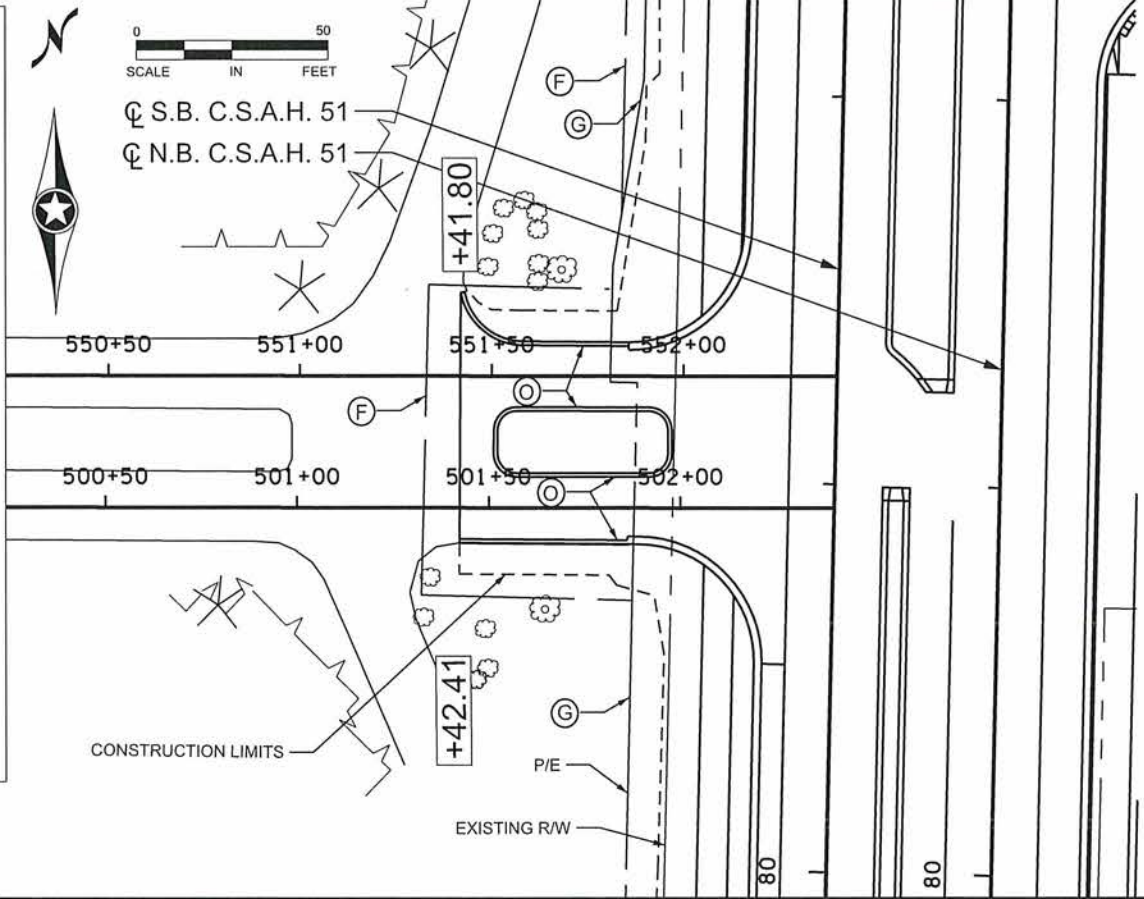


S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

CONSTRUCTION PLAN/  
 PROFILE/ AND X-SEC  
 117TH AVE NW  
 Sheet 122 of 381 Sheets

CONSTRUCTION NOTES:

-  1.5" TRANSITION MILL
  - (A) CONCRETE WALK
  - (B) B418 CURB & GUTTER
  - (C) B424 CURB & GUTTER
  - (D) CONCRETE APPROACH NOSE STD. PLATE 7113
  - (E) CURB DROP
  - (F) TEMPORARY EASEMENT
  - (G) PERMANENT EASEMENT
  - (H) BITUMINOUS DRIVEWAY
  - (I) CONCRETE DRIVEWAY
  - (J) NOISE WALL
  - (K) RETAINING WALL
  - (L) SEE DETAILS FOR CONC. ENT. DESIGN PARAMETERS IN WALK
  - (M) B612 CURB & GUTTER
  - (N) B618 CURB & GUTTER
  - (O) S512 CURB & GUTTER
  - (P) 42" VINYL COATED CHAIN LINK FENCE (TOP OF RETAINING WALL)
  - (Q) PEDESTRIAN RAMP
  -  RETAINING WALL
  -  NOISE WALL
- ALL DIMENSIONS ARE TO FACE OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:102-651-07\Plan\10265107\_IN-CEM.dgn      06/05/2014      7:41:44 AM

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

PRINT NAME: CURT A. KOBILARCSIK

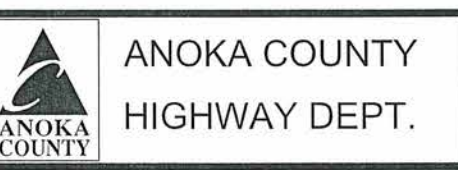
SIGNATURE: *C. Kobilarcsik*

DATE: 6-9-14      LICENSE NO. 24756

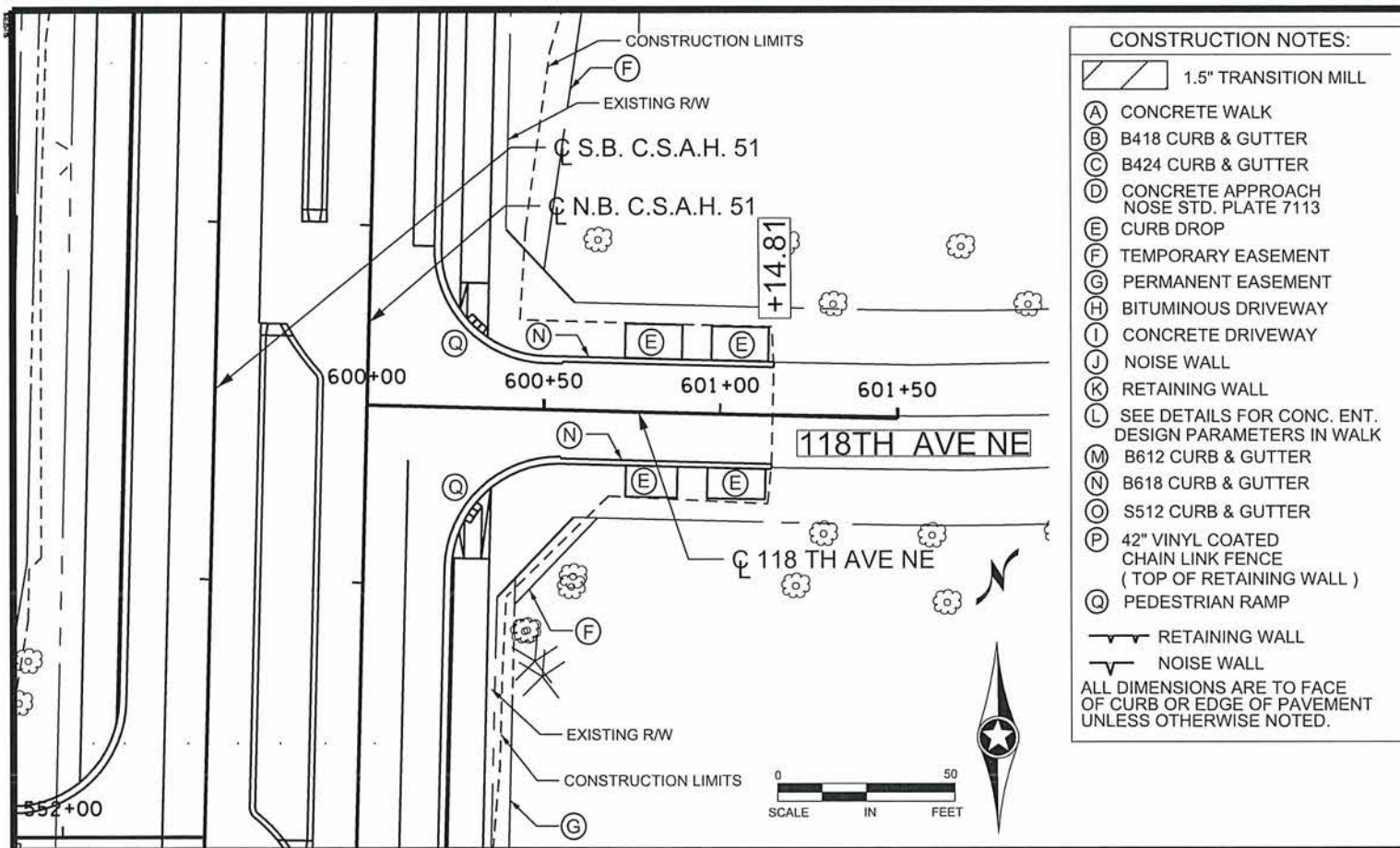
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DESIGN BY: NJD      DATE: 10-31-13

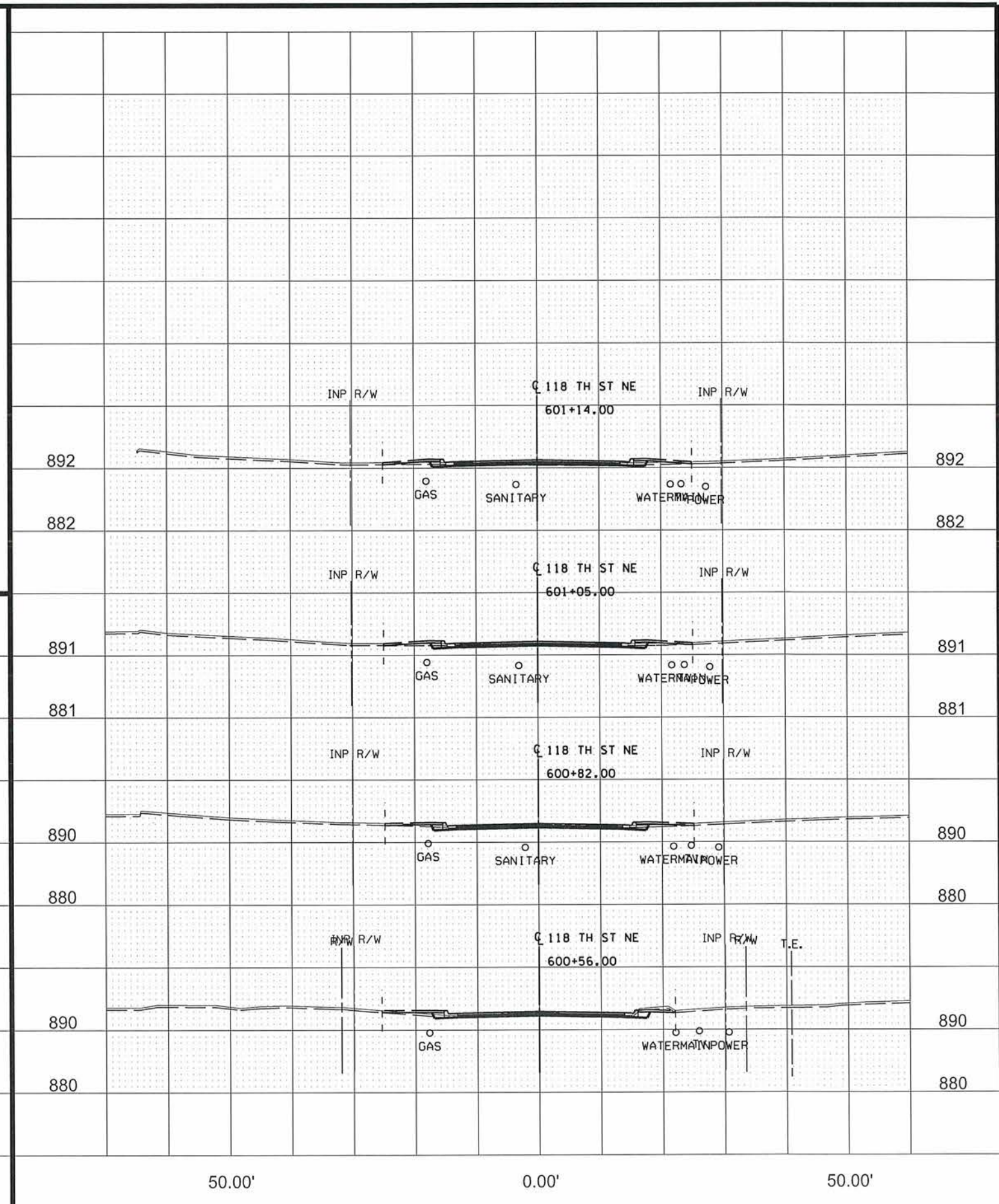
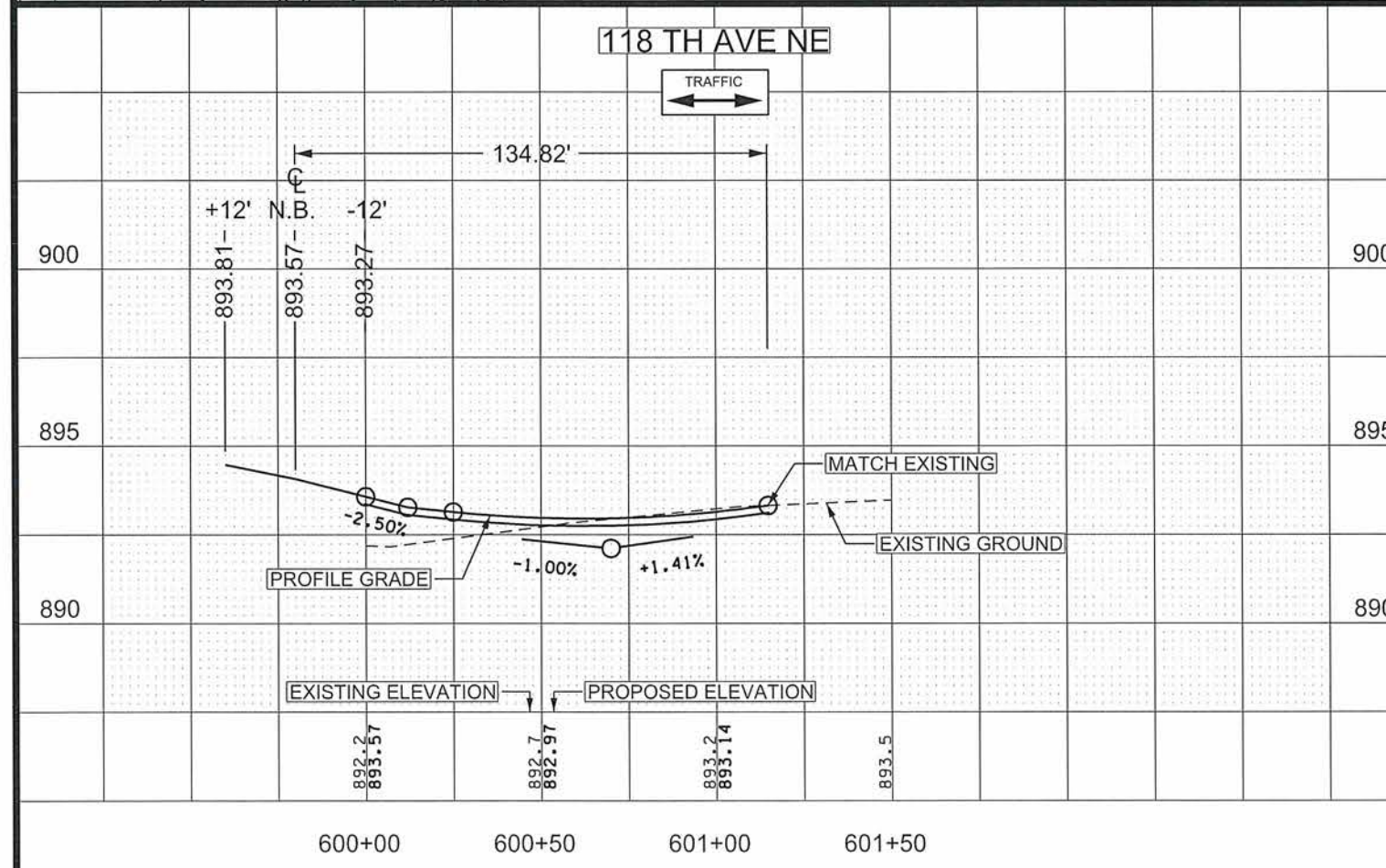
CHECKED BY: GMP      DATE: 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046



- CONSTRUCTION NOTES:
- 1.5" TRANSITION MILL
  - (A) CONCRETE WALK
  - (B) B418 CURB & GUTTER
  - (C) B424 CURB & GUTTER
  - (D) CONCRETE APPROACH NOSE STD. PLATE 7113
  - (E) CURB DROP
  - (F) TEMPORARY EASEMENT
  - (G) PERMANENT EASEMENT
  - (H) BITUMINOUS DRIVEWAY
  - (I) CONCRETE DRIVEWAY
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  - (P) 42" VINYL COATED CHAIN LINK FENCE (TOP OF RETAINING WALL)
  - (Q) PEDESTRIAN RAMP
  - RETAINING WALL
  - NOISE WALL
- ALL DIMENSIONS ARE TO FACE OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_IN-118.dgn 06/05/2014 7:41:39 AM

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

PRINT NAME: CURT A. KOBIARCSIK  
SIGNATURE: *Curt Kobiarcsik*  
DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 2-13-13  
DESIGN BY: NJD DATE: 10-31-13  
CHECKED BY: GMP DATE: 12-13-13



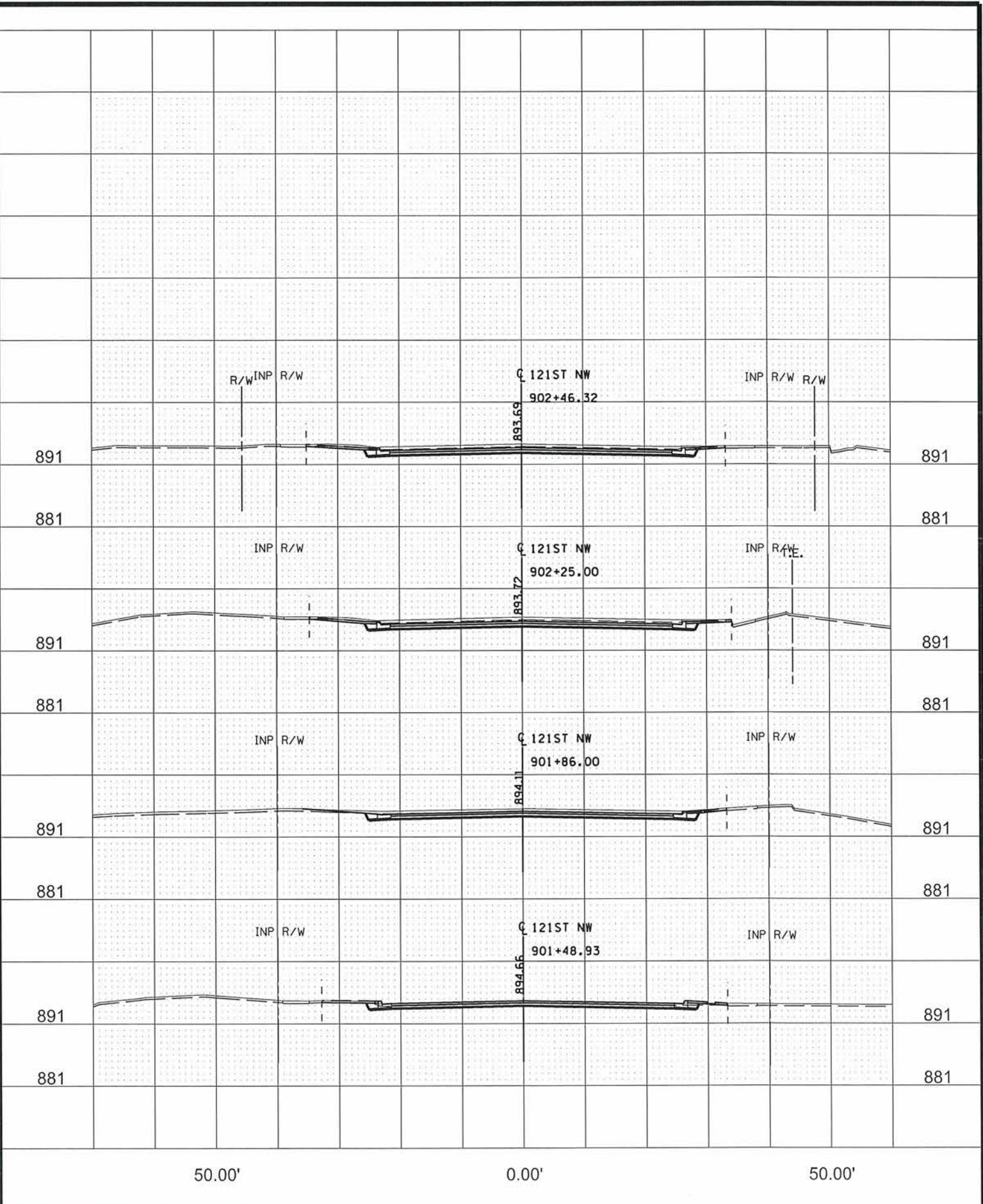
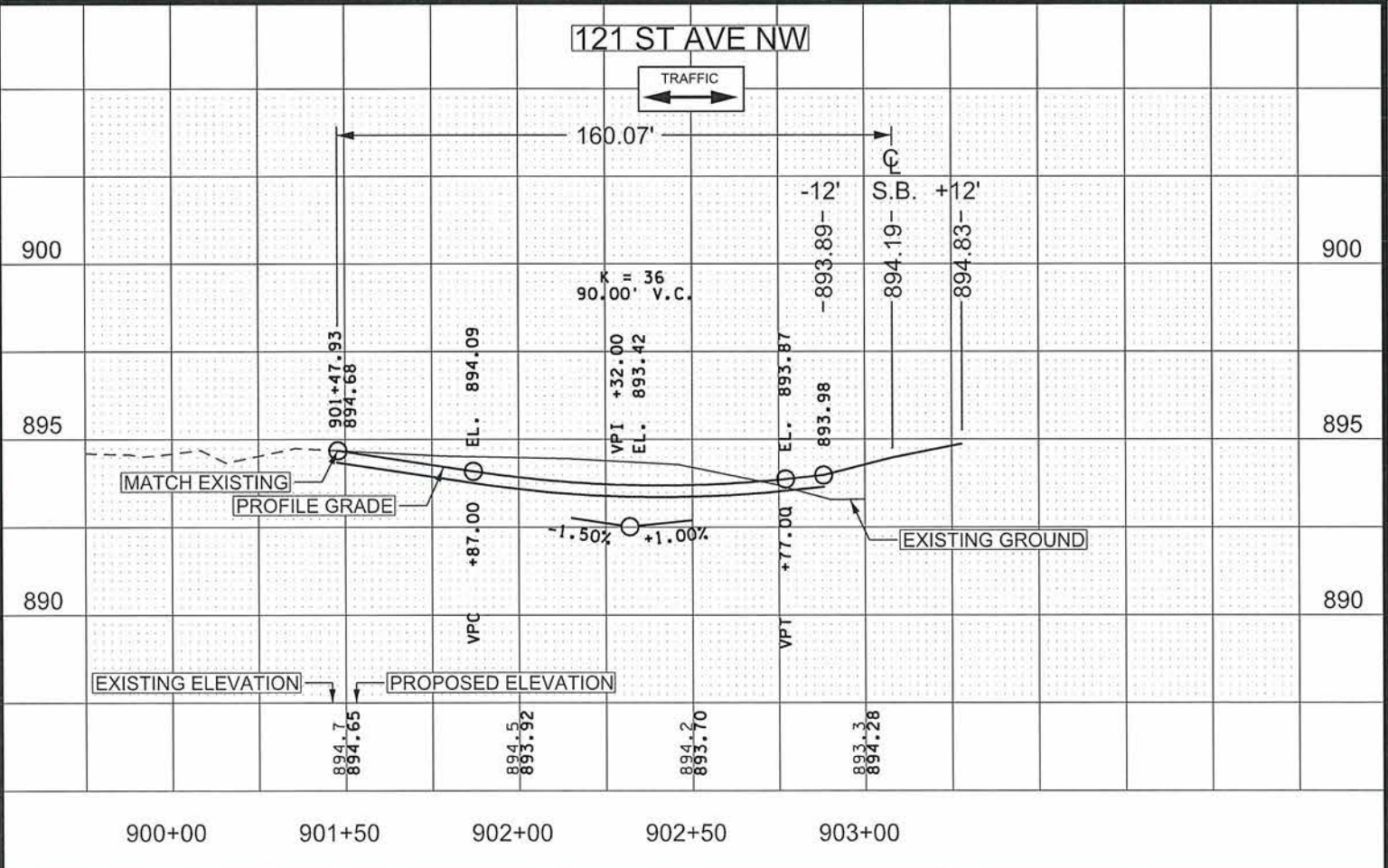
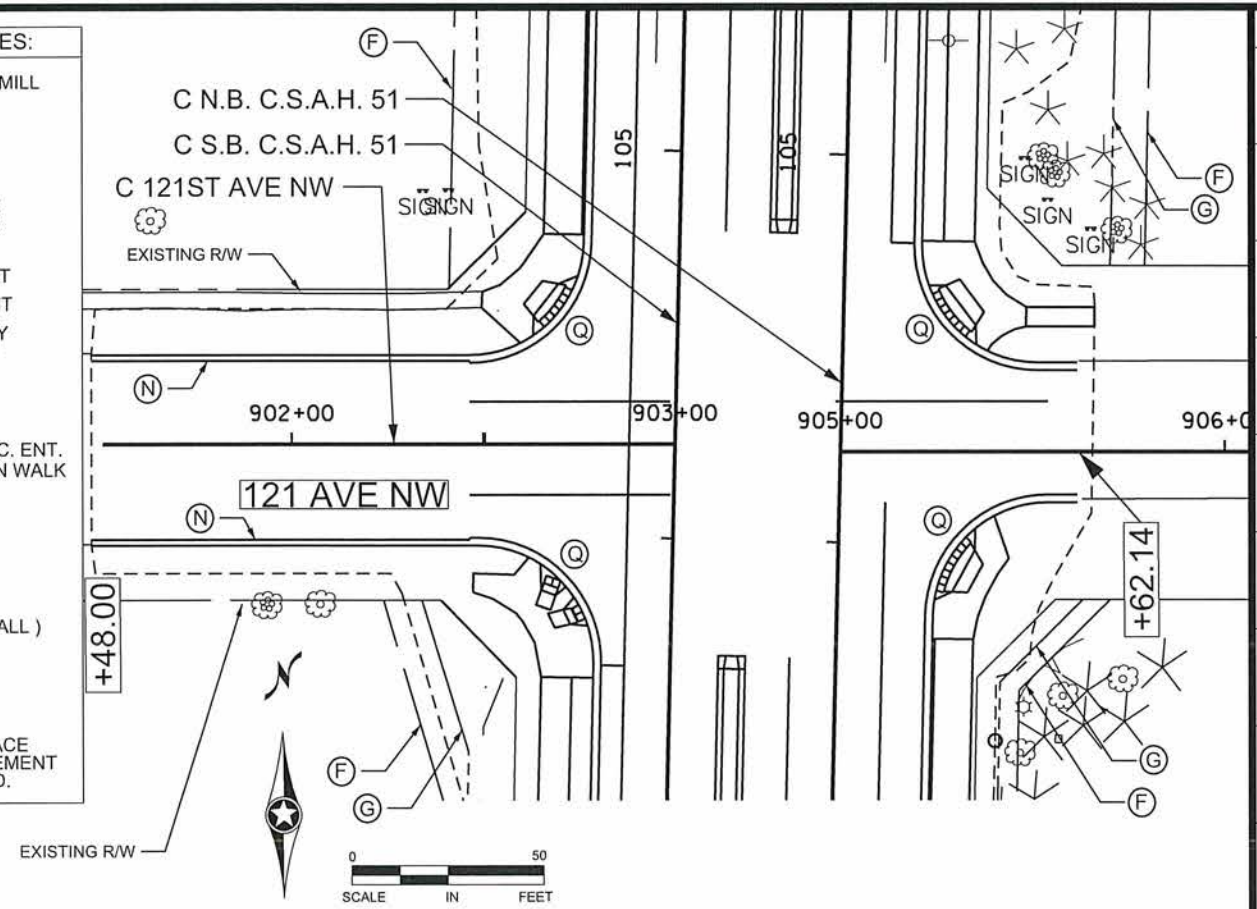
ANOKA COUNTY  
HIGHWAY DEPT.

S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

CONSTRUCTION PLAN/  
PROFILE/ AND X-SEC  
118TH AVE NE  
Sheet 124 of 381 Sheets

CONSTRUCTION NOTES:

-  1.5" TRANSITION MILL
  - (A) CONCRETE WALK
  - (B) B418 CURB & GUTTER
  - (C) B424 CURB & GUTTER
  - (D) CONCRETE APPROACH NOSE STD. PLATE 7113
  - (E) CURB DROP
  - (F) TEMPORARY EASEMENT
  - (G) PERMANENT EASEMENT
  - (H) BITUMINOUS DRIVEWAY
  - (I) CONCRETE DRIVEWAY
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  -  NOISE WALL
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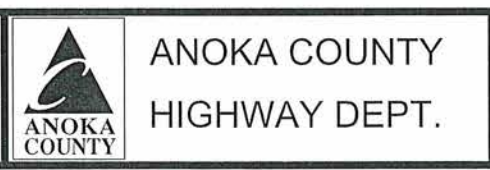
NO	DATE	BY	CKD	APPR	REVISION

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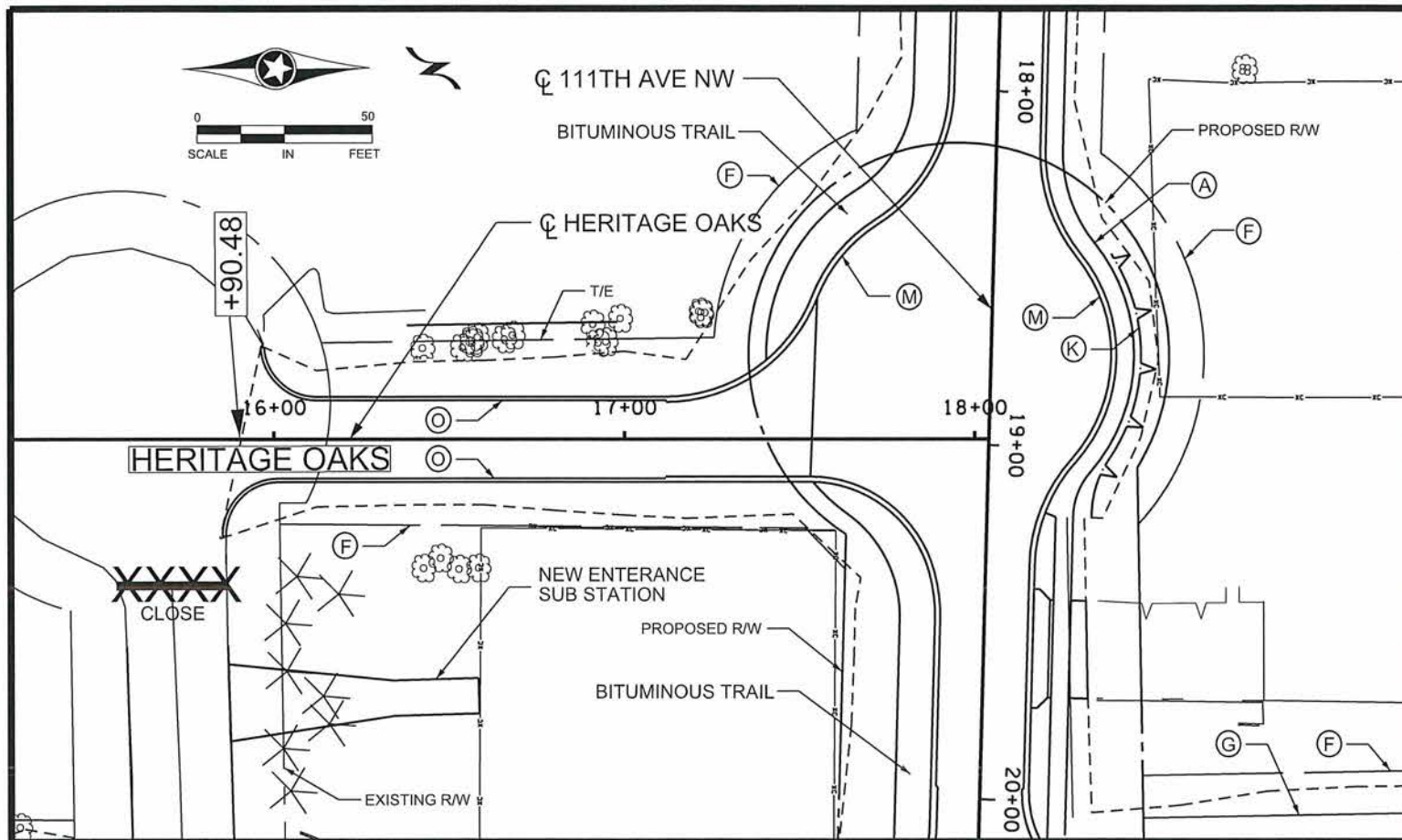
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: CURT A. KOBIARCSIK  
 SIGNATURE: *Curt A. Kobiarcsik*  
 DATE: 6-9-14      LICENSE NO. 24756

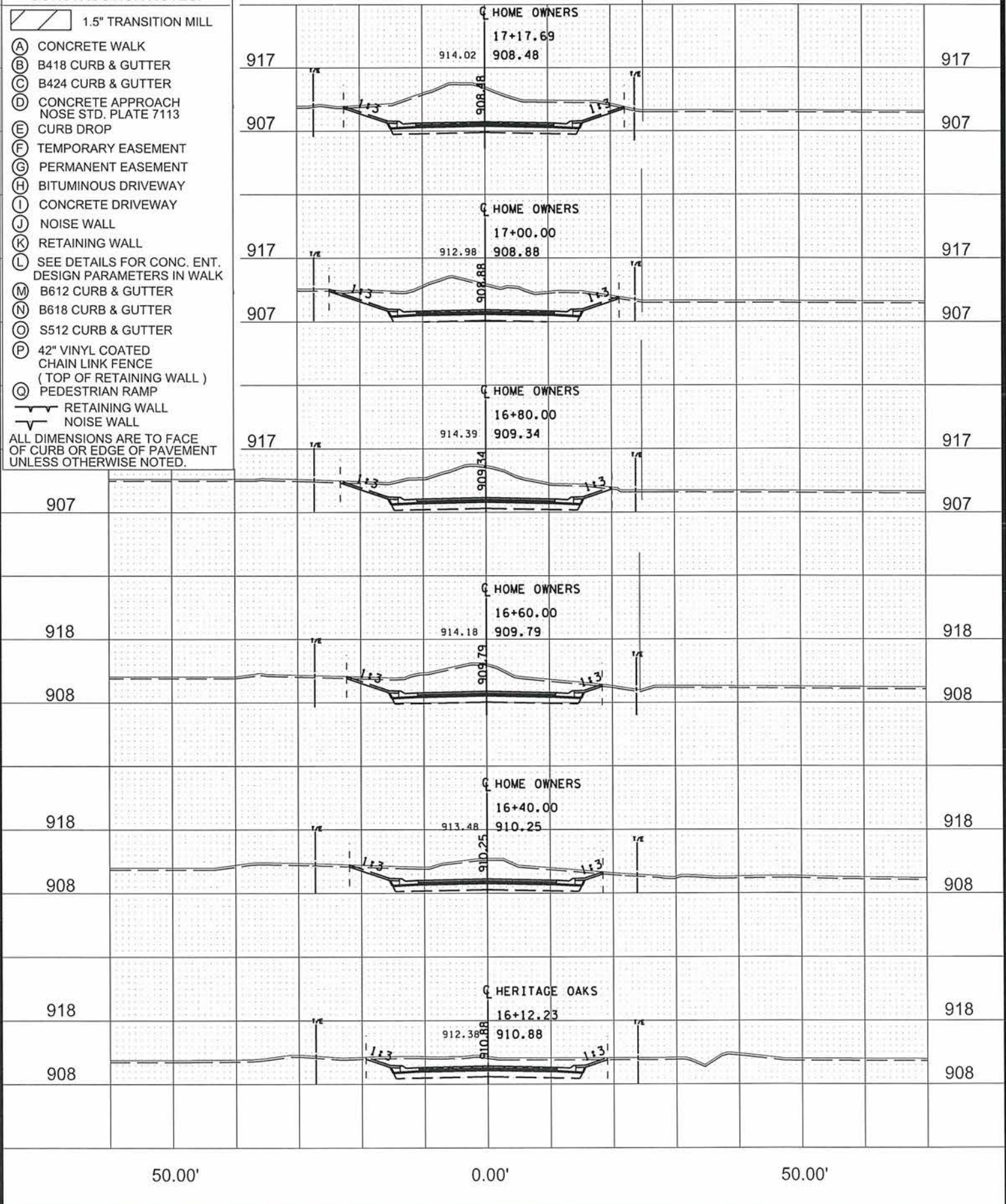
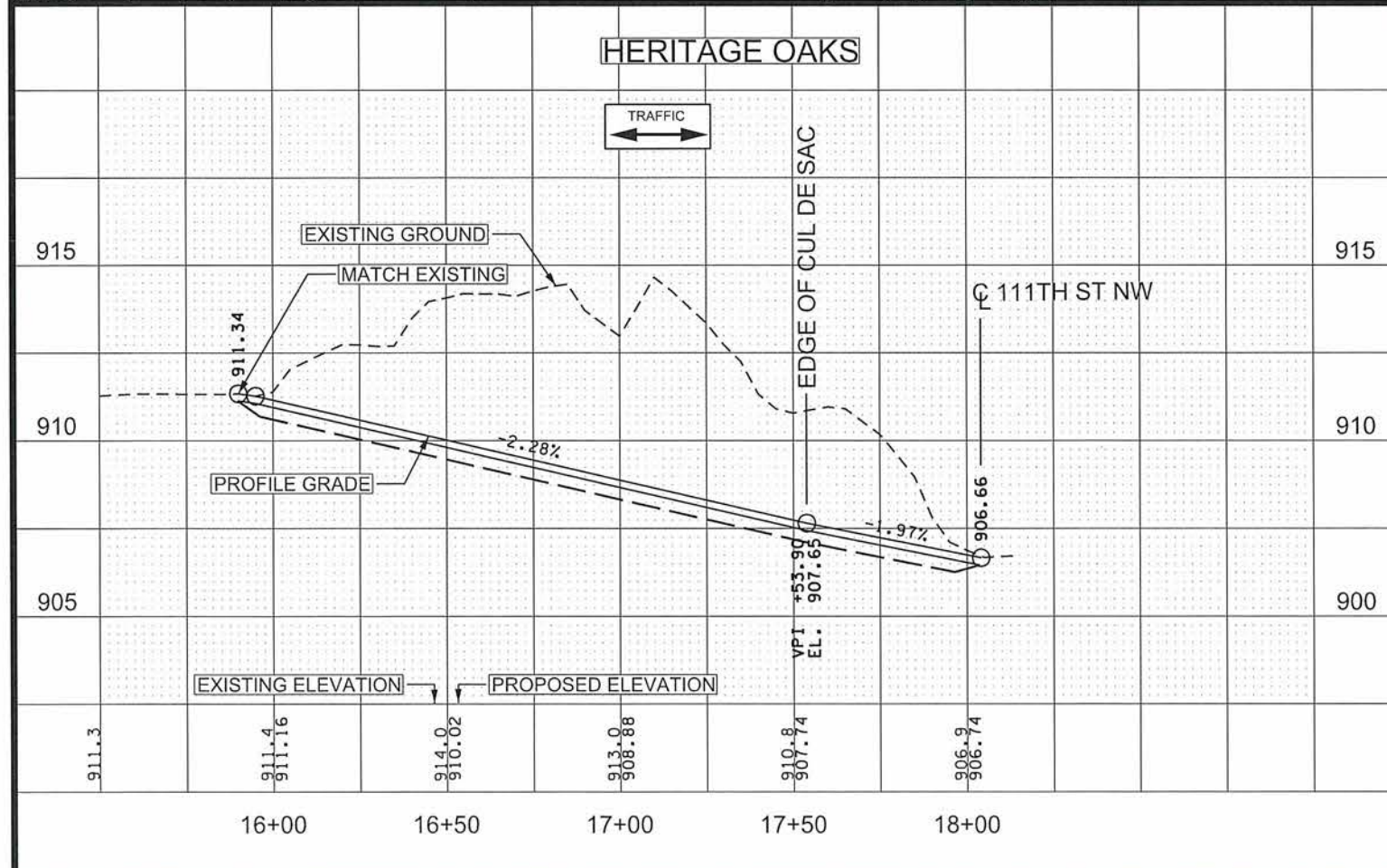
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 DESIGN BY: NJD      DATE: 10-31-13  
 CHECKED BY: GMP      DATE: 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046



- CONSTRUCTION NOTES:**
- 1.5" TRANSITION MILL
  - (A) CONCRETE WALK
  - (B) B418 CURB & GUTTER
  - (C) B424 CURB & GUTTER
  - (D) CONCRETE APPROACH NOSE STD. PLATE 7113 CURB DROP
  - (E) TEMPORARY EASEMENT
  - (F) PERMANENT EASEMENT
  - (H) BITUMINOUS DRIVEWAY
  - (I) CONCRETE DRIVEWAY
  - (J) NOISE WALL
  - (K) RETAINING WALL
  - (L) SEE DETAILS FOR CONC. ENT. DESIGN PARAMETERS IN WALK
  - (M) B612 CURB & GUTTER
  - (N) B618 CURB & GUTTER
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  - RETAINING WALL
  - NOISE WALL
- ALL DIMENSIONS ARE TO FACE OF CURB OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.



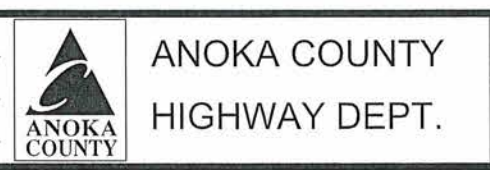
NO	DATE	BY	CKD	APPR	REVISION

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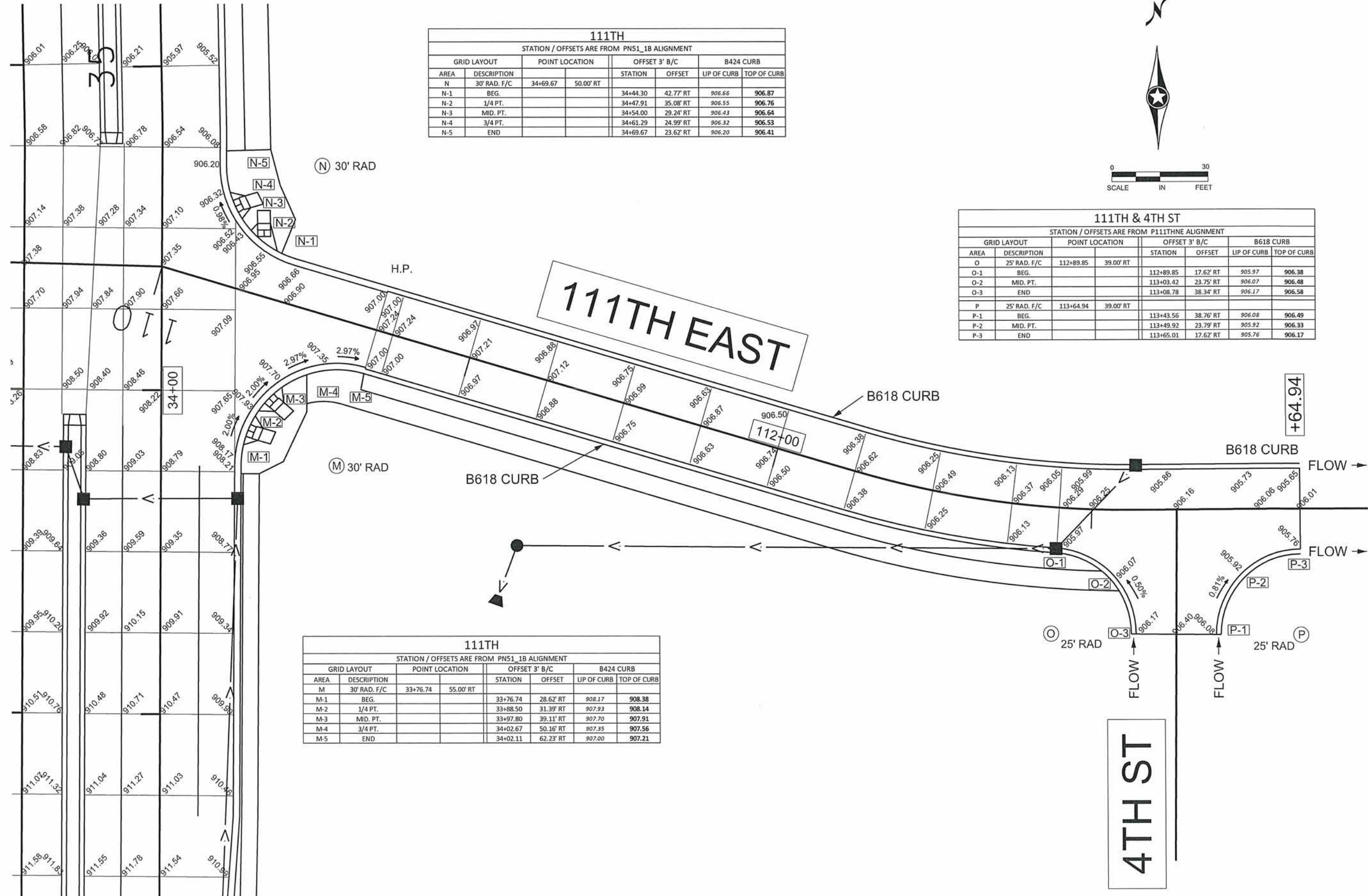
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: CURT A. KOBIARCSIK  
 SIGNATURE: *Curt A. Kobilarcsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 2-13-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046



111TH						
STATION / OFFSETS ARE FROM PNS1_1B ALIGNMENT						
GRID LAYOUT		POINT LOCATION		OFFSET 3' B/C		B424 CURB
AREA	DESCRIPTION	STATION	OFFSET	LIP OF CURB	TOP OF CURB	
N	30' RAD. F/C	34+69.67	50.00' RT			
N-1	BEG.		34+44.30	42.77' RT	906.66	906.87
N-2	1/4 PT.		34+47.91	35.08' RT	906.55	906.76
N-3	MID. PT.		34+54.00	29.24' RT	906.43	906.64
N-4	3/4 PT.		34+61.29	24.99' RT	906.32	906.53
N-5	END		34+69.67	23.62' RT	906.20	906.41



111TH & 4TH ST						
STATION / OFFSETS ARE FROM P111THNE ALIGNMENT						
GRID LAYOUT		POINT LOCATION		OFFSET 3' B/C		B618 CURB
AREA	DESCRIPTION	STATION	OFFSET	LIP OF CURB	TOP OF CURB	
O	25' RAD. F/C	112+89.85	39.00' RT			
O-1	BEG.		112+89.85	17.62' RT	905.97	906.38
O-2	MID. PT.		113+03.42	23.75' RT	906.07	906.48
O-3	END		113+08.78	38.34' RT	906.17	906.58
P	25' RAD. F/C	113+64.94	39.00' RT			
P-1	BEG.		113+43.56	38.76' RT	906.08	906.49
P-2	MID. PT.		113+49.92	23.79' RT	905.92	906.33
P-3	END		113+65.01	17.62' RT	905.76	906.17

111TH						
STATION / OFFSETS ARE FROM PNS1_1B ALIGNMENT						
GRID LAYOUT		POINT LOCATION		OFFSET 3' B/C		B424 CURB
AREA	DESCRIPTION	STATION	OFFSET	LIP OF CURB	TOP OF CURB	
M	30' RAD. F/C	33+76.74	55.00' RT			
M-1	BEG.		33+76.74	28.62' RT	908.17	908.38
M-2	1/4 PT.		33+88.50	31.39' RT	907.93	908.14
M-3	MID. PT.		33+97.80	39.11' RT	907.70	907.91
M-4	3/4 PT.		34+02.67	50.16' RT	907.35	907.56
M-5	END		34+02.11	62.23' RT	907.00	907.21

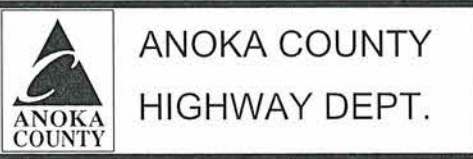
NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_ID-111TH EAST.dgn 06/05/2014 7:40:51 AM

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

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *[Signature]*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13

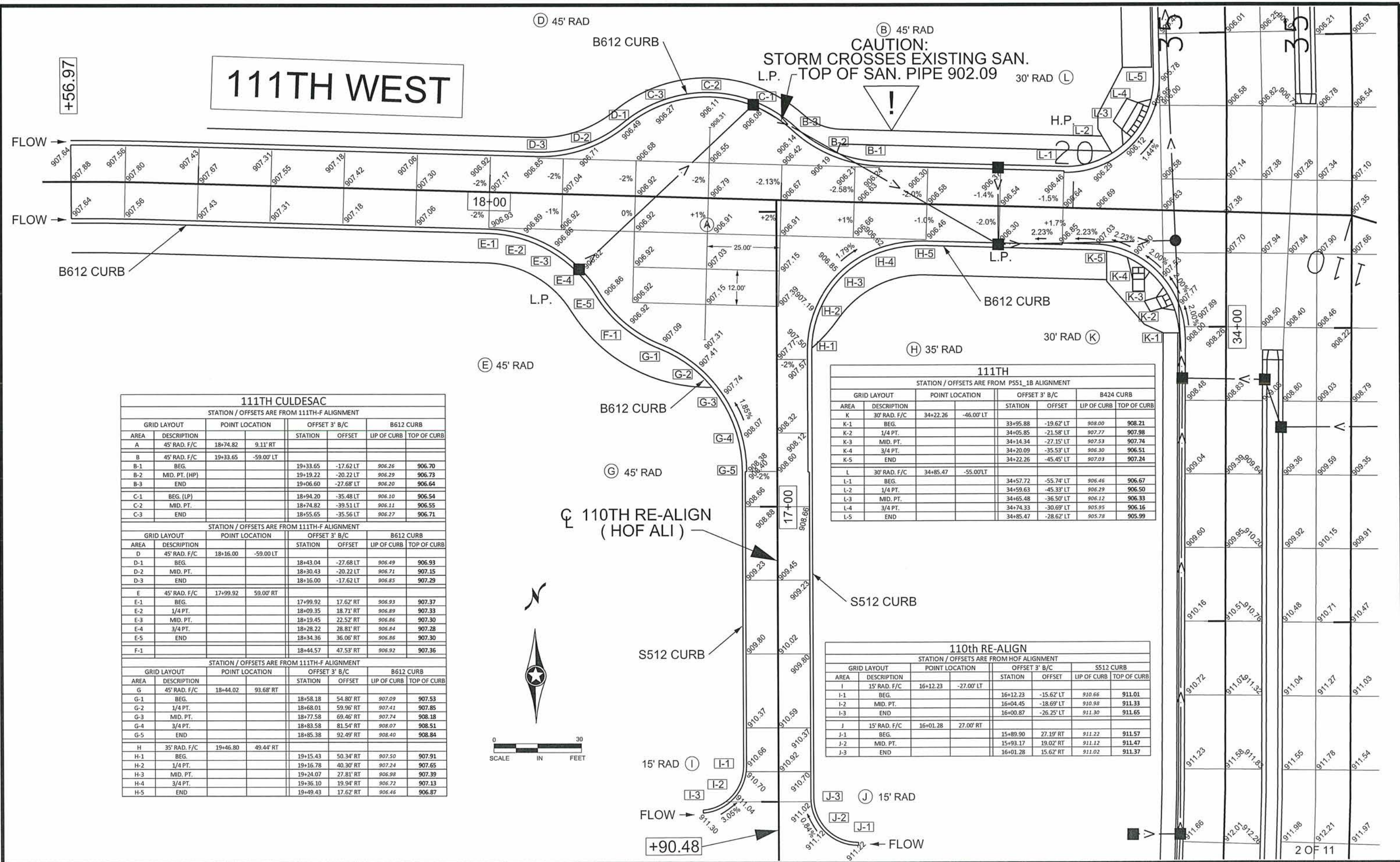


S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

INTERSECTION DETAILS  
 111TH EAST  
 Sheet 127 of 381 Sheets

# 111TH WEST

CAUTION:  
STORM CROSSES EXISTING SAN.  
L.P. TOP OF SAN. PIPE 902.09



111TH CULDESAC							
STATION / OFFSETS ARE FROM 111TH-F ALIGNMENT							
GRID LAYOUT		POINT LOCATION		OFFSET 3' B/C		B612 CURB	
AREA	DESCRIPTION	STATION	OFFSET	LIP OF CURB	TOP OF CURB		
A	45' RAD. F/C	18+74.82	9.11' RT				
B	45' RAD. F/C	19+33.65	-59.00' LT				
B-1	BEG.	19+33.65	-17.62' LT	906.26	906.70		
B-2	MID. PT. (HP)	19+19.22	-20.22' LT	906.29	906.73		
B-3	END	19+06.60	-27.68' LT	906.20	906.64		
C-1	BEG. (LP)	18+94.20	-35.48' LT	906.10	906.54		
C-2	MID. PT.	18+74.82	-39.51' LT	906.11	906.55		
C-3	END	18+55.65	-35.56' LT	906.27	906.71		

STATION / OFFSETS ARE FROM 111TH-F ALIGNMENT							
GRID LAYOUT		POINT LOCATION		OFFSET 3' B/C		B612 CURB	
AREA	DESCRIPTION	STATION	OFFSET	LIP OF CURB	TOP OF CURB		
D	45' RAD. F/C	18+16.00	-59.00' LT				
D-1	BEG.	18+43.04	-27.68' LT	906.49	906.93		
D-2	MID. PT.	18+30.43	-20.22' LT	906.71	907.15		
D-3	END	18+16.00	-17.62' LT	906.85	907.29		
E	45' RAD. F/C	17+99.92	59.00' RT				
E-1	BEG.	17+99.92	17.62' RT	906.93	907.37		
E-2	1/4 PT.	18+09.35	18.71' RT	906.89	907.33		
E-3	MID. PT.	18+19.45	22.52' RT	906.86	907.30		
E-4	3/4 PT.	18+28.22	28.81' RT	906.84	907.28		
E-5	END	18+34.36	36.06' RT	906.86	907.30		
F-1		18+44.57	47.53' RT	906.92	907.36		

STATION / OFFSETS ARE FROM 111TH-F ALIGNMENT							
GRID LAYOUT		POINT LOCATION		OFFSET 3' B/C		B612 CURB	
AREA	DESCRIPTION	STATION	OFFSET	LIP OF CURB	TOP OF CURB		
G	45' RAD. F/C	18+44.02	93.68' RT				
G-1	BEG.	18+58.18	54.80' RT	907.09	907.53		
G-2	1/4 PT.	18+68.01	59.96' RT	907.41	907.85		
G-3	MID. PT.	18+77.58	69.46' RT	907.74	908.18		
G-4	3/4 PT.	18+83.58	81.54' RT	908.07	908.51		
G-5	END	18+85.38	92.49' RT	908.40	908.84		
H	35' RAD. F/C	19+46.80	49.44' RT				
H-1	BEG.	19+15.43	50.34' RT	907.50	907.91		
H-2	1/4 PT.	19+16.78	40.30' RT	907.24	907.65		
H-3	MID. PT.	19+24.07	27.81' RT	906.98	907.39		
H-4	3/4 PT.	19+36.10	19.94' RT	906.72	907.13		
H-5	END	19+49.43	17.62' RT	906.46	906.87		

111TH							
STATION / OFFSETS ARE FROM PS51_1B ALIGNMENT							
GRID LAYOUT		POINT LOCATION		OFFSET 3' B/C		B424 CURB	
AREA	DESCRIPTION	STATION	OFFSET	LIP OF CURB	TOP OF CURB		
K	30' RAD. F/C	34+22.26	-46.00' LT				
K-1	BEG.	33+95.88	-19.62' LT	908.00	908.21		
K-2	1/4 PT.	34+05.85	-21.58' LT	907.77	907.98		
K-3	MID. PT.	34+14.34	-27.15' LT	907.53	907.74		
K-4	3/4 PT.	34+20.09	-35.53' LT	906.30	906.51		
K-5	END	34+22.26	-45.45' LT	907.03	907.24		
L	30' RAD. F/C	34+85.47	-55.00' LT				
L-1	BEG.	34+57.72	-55.74' LT	906.46	906.67		
L-2	1/4 PT.	34+59.63	-45.33' LT	906.29	906.50		
L-3	MID. PT.	34+65.48	-36.50' LT	906.12	906.33		
L-4	3/4 PT.	34+74.33	-30.69' LT	905.95	906.16		
L-5	END	34+85.47	-28.62' LT	905.78	905.99		

110th RE-ALIGN							
STATION / OFFSETS ARE FROM HOF ALIGNMENT							
GRID LAYOUT		POINT LOCATION		OFFSET 3' B/C		S512 CURB	
AREA	DESCRIPTION	STATION	OFFSET	LIP OF CURB	TOP OF CURB		
I	15' RAD. F/C	16+12.23	-27.00' LT				
I-1	BEG.	16+12.23	-15.62' LT	910.66	911.01		
I-2	MID. PT.	16+04.45	-18.60' LT	910.98	911.33		
I-3	END	16+00.87	-26.25' LT	911.30	911.65		
J	15' RAD. F/C	16+01.28	27.00' RT				
J-1	BEG.	15+89.90	27.19' RT	911.22	911.57		
J-2	MID. PT.	15+93.17	19.02' RT	911.12	911.47		
J-3	END	16+01.28	15.62' RT	911.02	911.37		



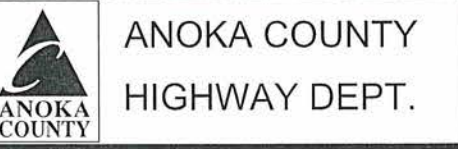
NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_ID-111TH WEST.dgn 06/05/2014 7:40:52 AM

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

PRINT NAME: CURT A. KOBILARCSIK  
SIGNATURE: *[Signature]*  
DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
DESIGN BY: NJD DATE: 10-31-13  
CHECKED BY: GMP DATE: 12-13-13

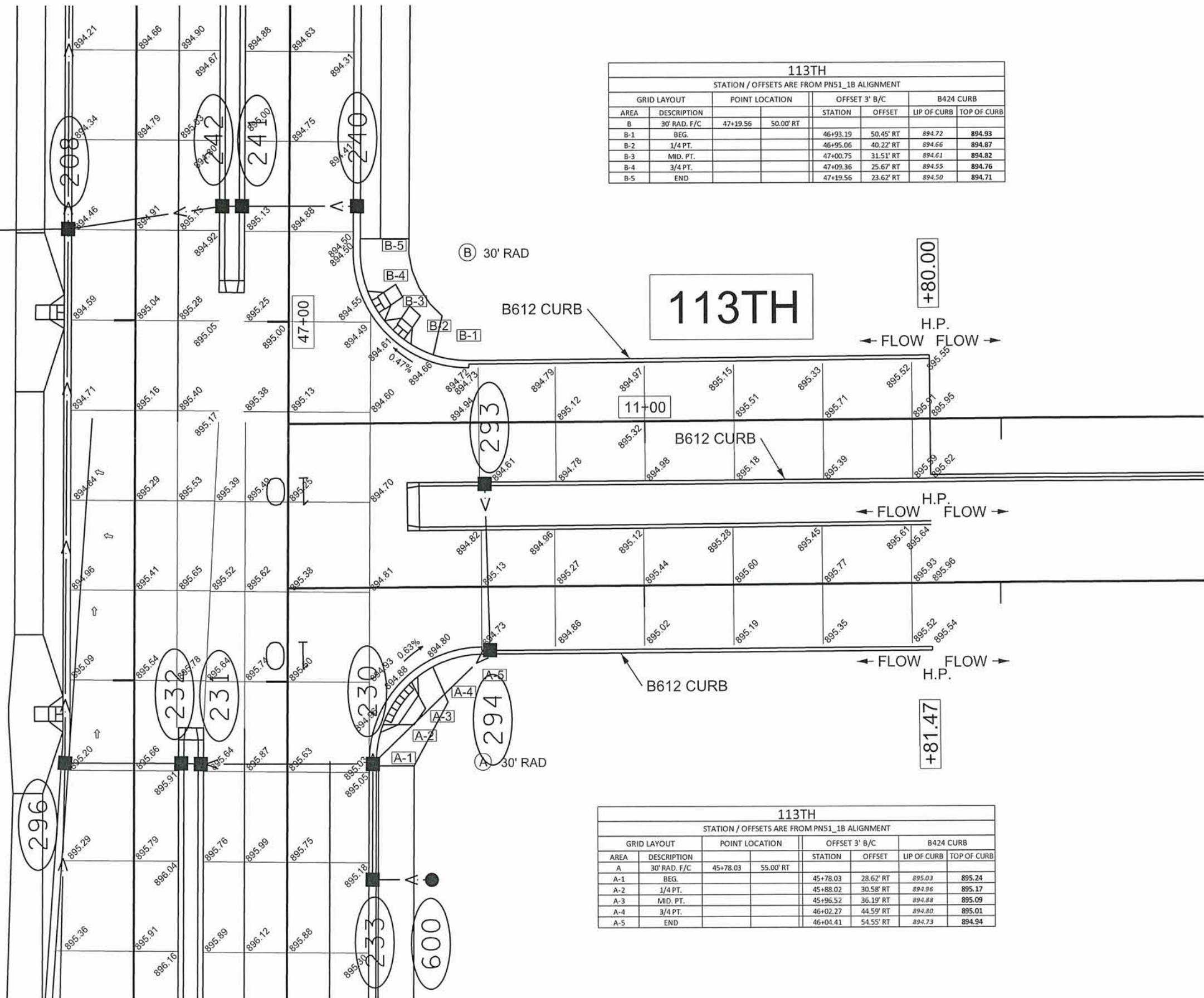


S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046



113TH							
STATION / OFFSETS ARE FROM PNS1_1B ALIGNMENT							
GRID LAYOUT		POINT LOCATION		OFFSET 3' B/C		B424 CURB	
AREA	DESCRIPTION			STATION	OFFSET	LIP OF CURB	TOP OF CURB
B	30' RAD. F/C	47+19.56	50.00' RT				
B-1	BEG.			46+93.19	50.45' RT	894.72	894.93
B-2	1/4 PT.			46+95.06	40.22' RT	894.66	894.87
B-3	MID. PT.			47+00.75	31.51' RT	894.61	894.82
B-4	3/4 PT.			47+09.36	25.67' RT	894.55	894.76
B-5	END			47+19.56	23.62' RT	894.50	894.71

113TH							
STATION / OFFSETS ARE FROM PNS1_1B ALIGNMENT							
GRID LAYOUT		POINT LOCATION		OFFSET 3' B/C		B424 CURB	
AREA	DESCRIPTION			STATION	OFFSET	LIP OF CURB	TOP OF CURB
A	30' RAD. F/C	45+78.03	55.00' RT				
A-1	BEG.			45+78.03	28.62' RT	895.03	895.24
A-2	1/4 PT.			45+88.02	30.58' RT	894.96	895.17
A-3	MID. PT.			45+96.52	36.19' RT	894.88	895.09
A-4	3/4 PT.			46+02.27	44.59' RT	894.80	895.01
A-5	END			46+04.41	54.55' RT	894.73	894.94



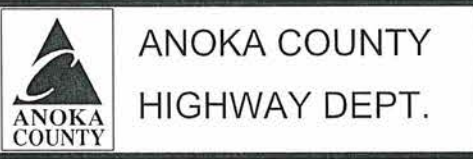
NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_ID-113TH.dgn 06/05/2014 7:40:54 AM

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

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarcsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13

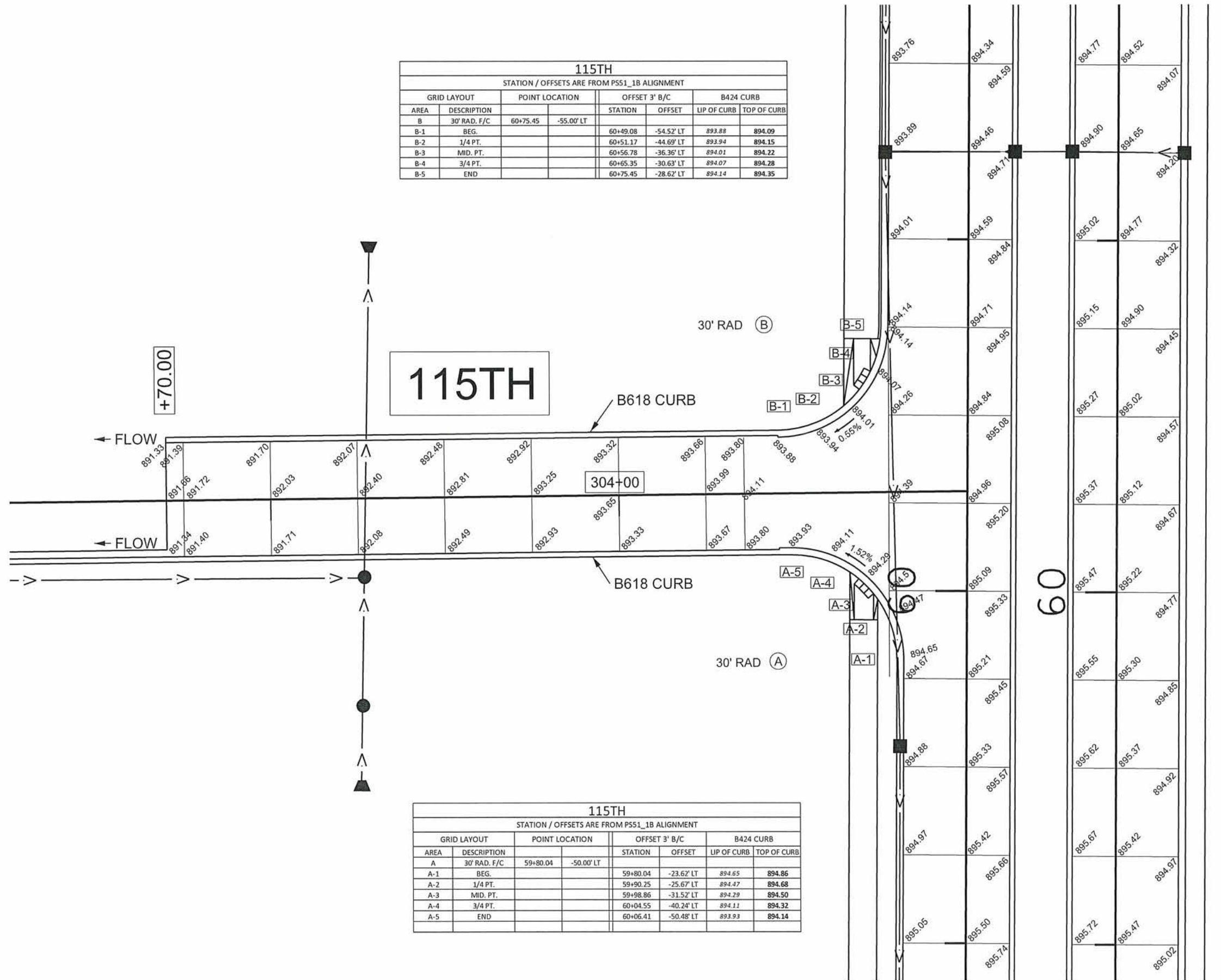


S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

INTERSECTION DETAILS  
 113TH  
 Sheet 129 of 381 Sheets

115TH							
STATION / OFFSETS ARE FROM PSS1_1B ALIGNMENT							
GRID LAYOUT		POINT LOCATION		OFFSET 3' B/C		B424 CURB	
AREA	DESCRIPTION	STATION	OFFSET	LIP OF CURB	TOP OF CURB		
B	30' RAD. F/C	60+75.45	-55.00' LT				
B-1	BEG.	60+49.08	-54.52' LT	893.88	894.09		
B-2	1/4 PT.	60+51.17	-44.69' LT	893.94	894.15		
B-3	MID. PT.	60+56.78	-36.36' LT	894.01	894.22		
B-4	3/4 PT.	60+65.35	-30.63' LT	894.07	894.28		
B-5	END	60+75.45	-28.62' LT	894.14	894.35		

115TH							
STATION / OFFSETS ARE FROM PSS1_1B ALIGNMENT							
GRID LAYOUT		POINT LOCATION		OFFSET 3' B/C		B424 CURB	
AREA	DESCRIPTION	STATION	OFFSET	LIP OF CURB	TOP OF CURB		
A	30' RAD. F/C	59+80.04	-50.00' LT				
A-1	BEG.	59+80.04	-23.62' LT	894.65	894.86		
A-2	1/4 PT.	59+90.25	-25.67' LT	894.47	894.68		
A-3	MID. PT.	59+98.86	-31.52' LT	894.29	894.50		
A-4	3/4 PT.	60+04.55	-40.24' LT	894.11	894.32		
A-5	END	60+06.41	-50.48' LT	893.93	894.14		



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_ID-115TH.dgn 06/05/2014 7:40:55 AM

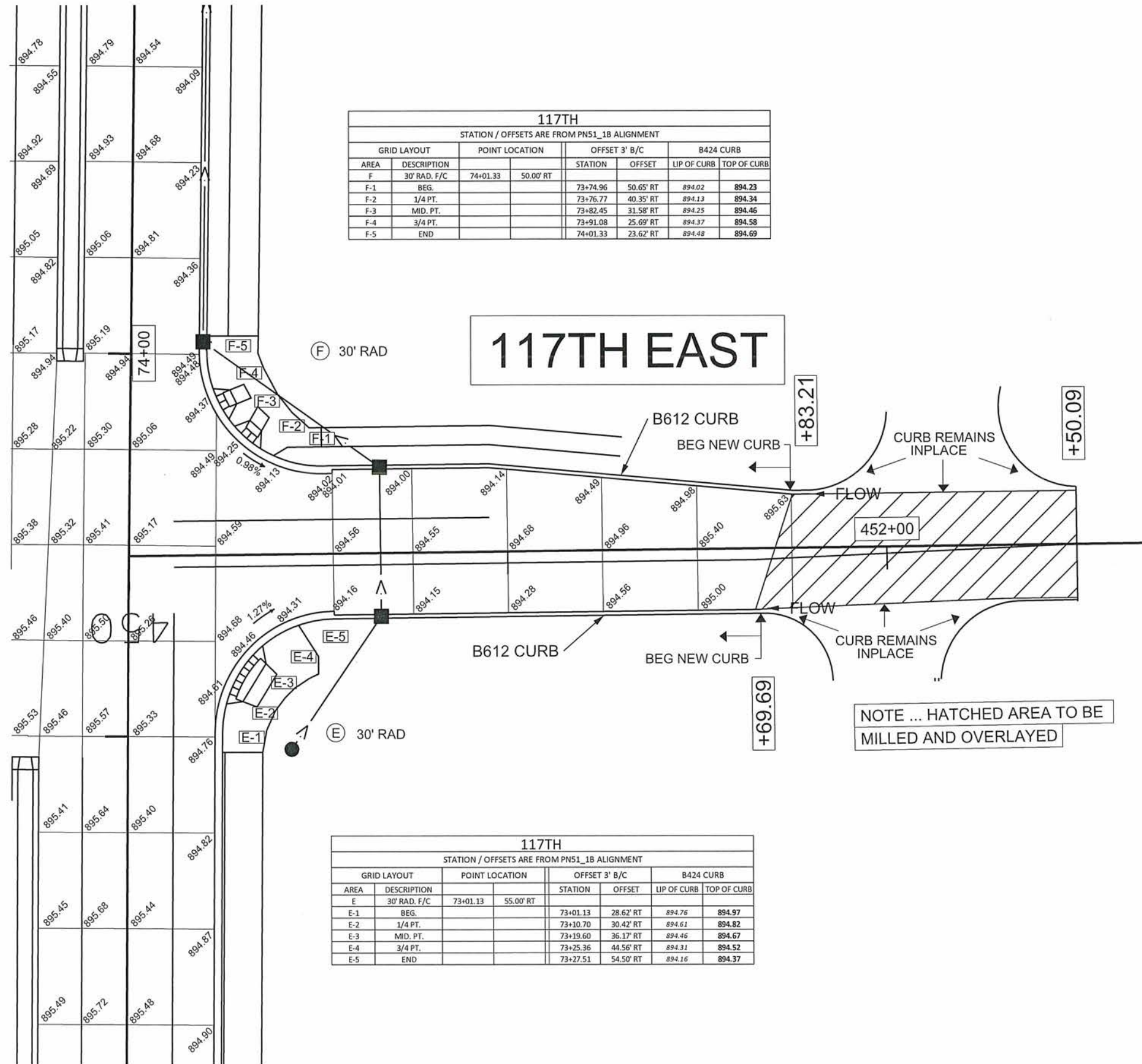
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarcsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13

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

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046



117TH							
STATION / OFFSETS ARE FROM PNS1_1B ALIGNMENT							
GRID LAYOUT		POINT LOCATION		OFFSET 3' B/C		B424 CURB	
AREA	DESCRIPTION	STATION	OFFSET	STATION	OFFSET	LIP OF CURB	TOP OF CURB
F	30' RAD. F/C	74+01.33	50.00' RT				
F-1	BEG.			73+74.96	50.65' RT	894.02	894.23
F-2	1/4 PT.			73+76.77	40.35' RT	894.13	894.34
F-3	MID. PT.			73+82.45	31.58' RT	894.25	894.46
F-4	3/4 PT.			73+91.08	25.69' RT	894.37	894.58
F-5	END			74+01.33	23.62' RT	894.48	894.69

117TH							
STATION / OFFSETS ARE FROM PNS1_1B ALIGNMENT							
GRID LAYOUT		POINT LOCATION		OFFSET 3' B/C		B424 CURB	
AREA	DESCRIPTION	STATION	OFFSET	STATION	OFFSET	LIP OF CURB	TOP OF CURB
E	30' RAD. F/C	73+01.13	55.00' RT				
E-1	BEG.			73+01.13	28.62' RT	894.76	894.97
E-2	1/4 PT.			73+10.70	30.42' RT	894.61	894.82
E-3	MID. PT.			73+19.60	36.17' RT	894.46	894.67
E-4	3/4 PT.			73+25.36	44.56' RT	894.31	894.52
E-5	END			73+27.51	54.50' RT	894.16	894.37



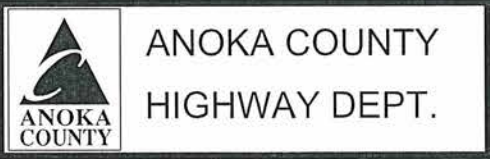
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I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt A. Kobilarsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13

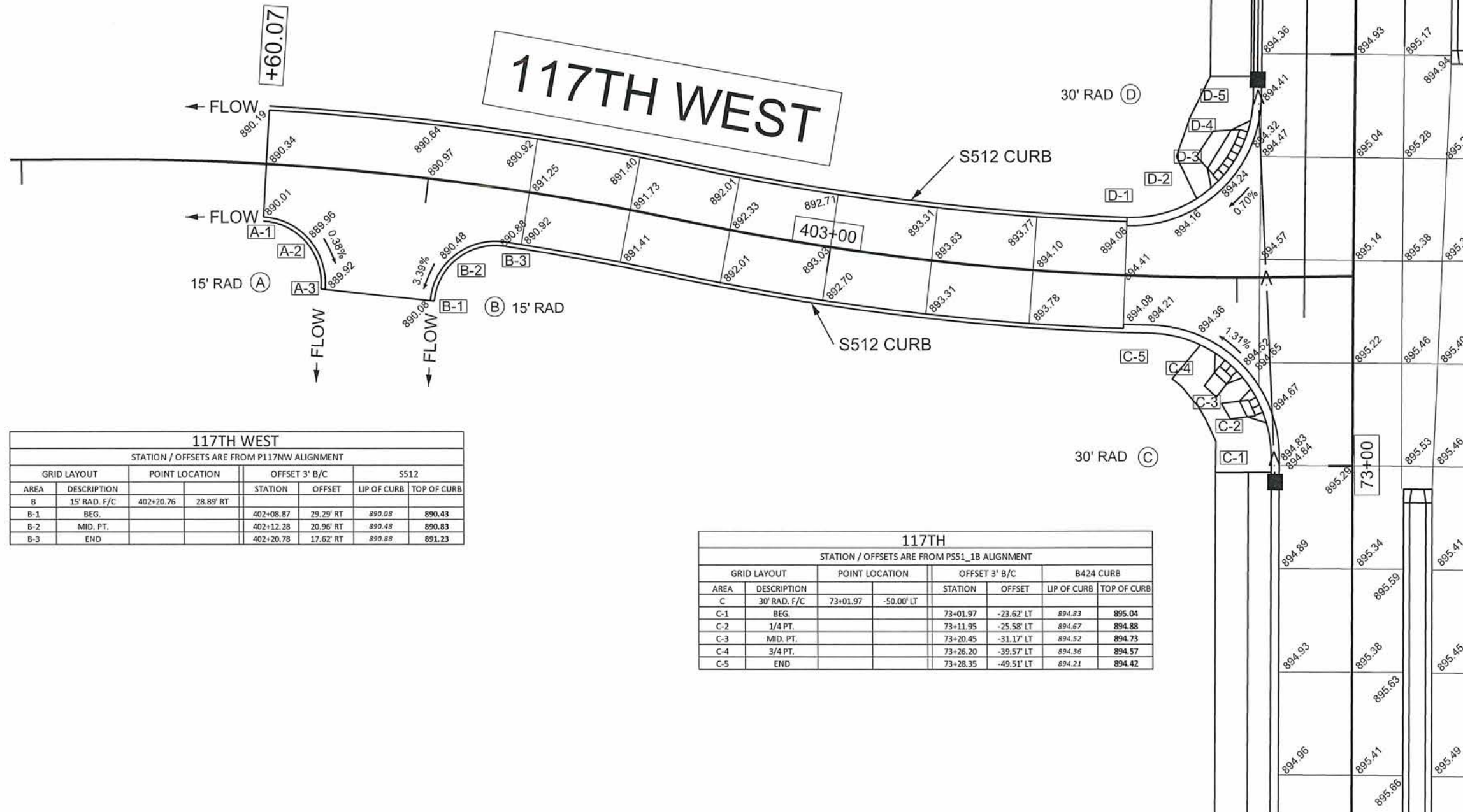


S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

INTERSECTION DETAILS  
 117TH EAST  
 Sheet 131 of 381 Sheets

117TH WEST							
STATION / OFFSETS ARE FROM P117NW ALIGNMENT							
GRID LAYOUT		POINT LOCATION		OFFSET 3' B/C		S512	
AREA	DESCRIPTION			STATION	OFFSET	LIP OF CURB	TOP OF CURB
A	15' RAD. F/C	401+60.14	28.90' RT				
A-1	BEG.			401+60.11	17.62' RT	890.01	890.36
A-2	MID. PT.			401+68.62	20.97' RT	889.96	890.31
A-3	END			401+72.03	29.31' RT	889.92	890.27

117TH							
STATION / OFFSETS ARE FROM PSS1_1B ALIGNMENT							
GRID LAYOUT		POINT LOCATION		OFFSET 3' B/C		B424 CURB	
AREA	DESCRIPTION			STATION	OFFSET	LIP OF CURB	TOP OF CURB
D	30' RAD. F/C	73+89.81	-55.00' LT				
D-1	BEG.			73+63.44	-55.63' LT	894.08	894.29
D-2	1/4 PT.			73+65.27	-45.34' LT	894.16	894.37
D-3	MID. PT.			73+70.94	-36.57' LT	894.24	894.45
D-4	3/4 PT.			73+79.57	-30.69' LT	894.32	894.53
D-5	END			73+89.81	-28.62' LT	894.41	894.62



117TH WEST							
STATION / OFFSETS ARE FROM P117NW ALIGNMENT							
GRID LAYOUT		POINT LOCATION		OFFSET 3' B/C		S512	
AREA	DESCRIPTION			STATION	OFFSET	LIP OF CURB	TOP OF CURB
B	15' RAD. F/C	402+20.76	28.89' RT				
B-1	BEG.			402+08.87	29.29' RT	890.08	890.43
B-2	MID. PT.			402+12.38	20.96' RT	890.48	890.83
B-3	END			402+20.78	17.62' RT	890.88	891.23

117TH							
STATION / OFFSETS ARE FROM PSS1_1B ALIGNMENT							
GRID LAYOUT		POINT LOCATION		OFFSET 3' B/C		B424 CURB	
AREA	DESCRIPTION			STATION	OFFSET	LIP OF CURB	TOP OF CURB
C	30' RAD. F/C	73+01.97	-50.00' LT				
C-1	BEG.			73+01.97	-23.62' LT	894.83	895.04
C-2	1/4 PT.			73+11.95	-25.58' LT	894.67	894.88
C-3	MID. PT.			73+20.45	-31.17' LT	894.52	894.73
C-4	3/4 PT.			73+26.20	-39.57' LT	894.36	894.57
C-5	END			73+28.35	-49.51' LT	894.21	894.42



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_ID-117TH WEST.dgn 06/05/2014 7:40:58 AM

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

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



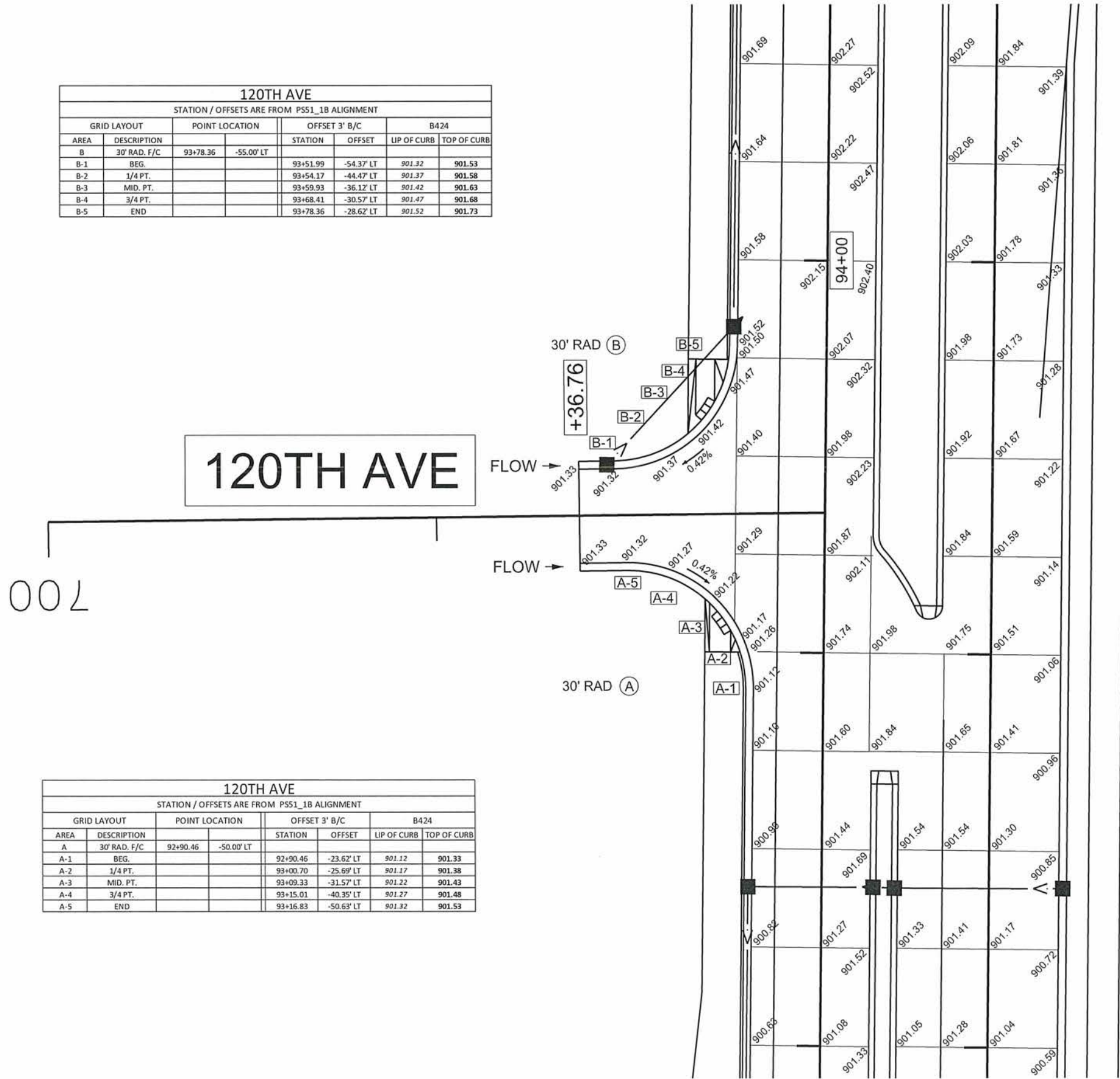
ANOKA COUNTY  
HIGHWAY DEPT.

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

INTERSECTION DETAILS  
117TH WEST



120TH AVE							
STATION / OFFSETS ARE FROM PSS1_1B ALIGNMENT							
GRID LAYOUT		POINT LOCATION		OFFSET 3' B/C		B424	
AREA	DESCRIPTION			STATION	OFFSET	LIP OF CURB	TOP OF CURB
B	30' RAD. F/C	93+78.36	-55.00' LT				
B-1	BEG.			93+51.99	-54.37' LT	901.32	901.53
B-2	1/4 PT.			93+54.17	-44.47' LT	901.37	901.58
B-3	MID. PT.			93+59.93	-36.12' LT	901.42	901.63
B-4	3/4 PT.			93+68.41	-30.57' LT	901.47	901.68
B-5	END			93+78.36	-28.62' LT	901.52	901.73



120TH AVE							
STATION / OFFSETS ARE FROM PSS1_1B ALIGNMENT							
GRID LAYOUT		POINT LOCATION		OFFSET 3' B/C		B424	
AREA	DESCRIPTION			STATION	OFFSET	LIP OF CURB	TOP OF CURB
A	30' RAD. F/C	92+90.46	-50.00' LT				
A-1	BEG.			92+90.46	-23.62' LT	901.12	901.33
A-2	1/4 PT.			93+00.70	-25.69' LT	901.17	901.38
A-3	MID. PT.			93+09.33	-31.57' LT	901.22	901.43
A-4	3/4 PT.			93+15.01	-40.35' LT	901.27	901.48
A-5	END			93+16.83	-50.63' LT	901.32	901.53

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:102-651-07\Plan\0265107\_ID-120AVE.dgn 06/05/2014 7:41:00 AM

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

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarcsik*  
 DATE: 6-9-14 LICENSE NO. 24756

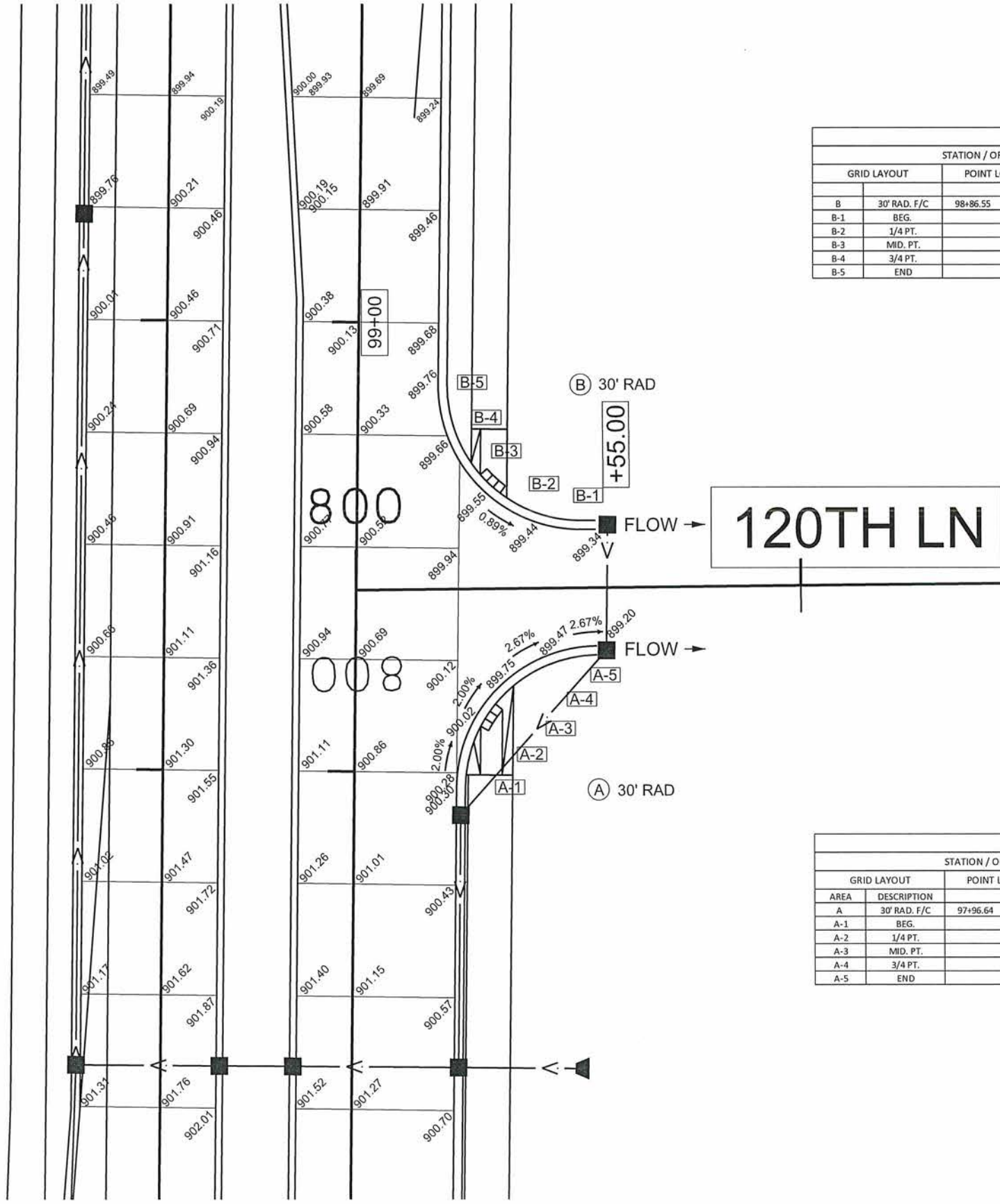
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 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



ANOKA COUNTY  
 HIGHWAY DEPT.

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

INTERSECTION DETAILS  
 120TH AVE  
 Sheet 134 of 381 Sheets



120TH LN						
STATION / OFFSETS ARE FROM PN51_1B ALIGNMENT						
GRID LAYOUT	POINT LOCATION	OFFSET 3' B/C		B424		
B	30' RAD. F/C	98+86.55	50.00' RT			
B-1	BEG.			98+60.17	50.59' RT	899.25
B-2	1/4 PT.			98+62.01	40.31' RT	899.37
B-3	MID. PT.			98+67.69	31.56' RT	899.50
B-4	3/4 PT.			98+76.32	25.68' RT	899.63
B-5	END			98+86.55	23.62' RT	899.76

120TH LN						
STATION / OFFSETS ARE FROM PN51_1B ALIGNMENT						
AREA	DESCRIPTION	POINT LOCATION		OFFSET 3' B/C		B424
		STATION	OFFSET	LIP OF CURB	TOP OF CURB	
A	30' RAD. F/C	97+96.64	55.00' RT			
A-1	BEG.			97+96.64	28.62' RT	900.30
A-2	1/4 PT.			98+06.60	30.57' RT	900.07
A-3	MID. PT.			98+15.08	36.14' RT	899.83
A-4	3/4 PT.			98+20.84	44.50' RT	899.51
A-5	END			98+23.01	54.41' RT	899.20



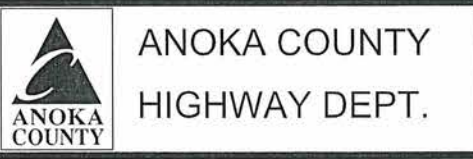
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NAME: P:\02-651-07\Plan\0265107\_ID-120LN.dgn 06/05/2014 7:41:01 AM

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

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

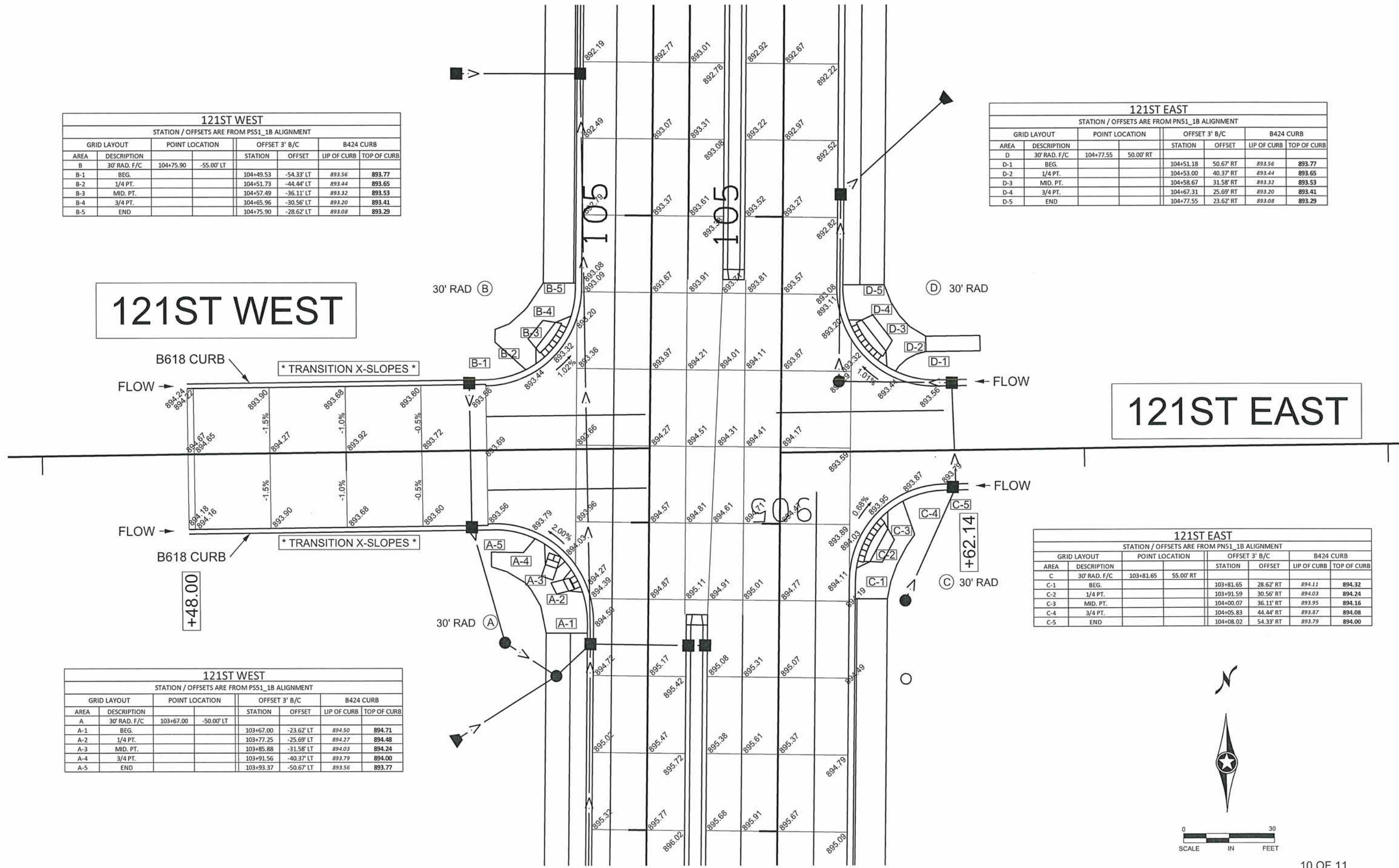
INTERSECTION DETAILS  
 120TH LN  
 Sheet 135 of 381 Sheets

121ST WEST						
STATION / OFFSETS ARE FROM PSS1_1B ALIGNMENT						
GRID LAYOUT		POINT LOCATION		OFFSET 3' B/C		B424 CURB
AREA	DESCRIPTION	STATION	OFFSET	LIP OF CURB	TOP OF CURB	
B	30' RAD. F/C	104+75.90	-55.00' LT			
B-1	BEG.	104+49.53	-54.33' LT	893.56	893.77	
B-2	1/4 PT.	104+51.73	-44.44' LT	893.44	893.65	
B-3	MID. PT.	104+57.49	-36.11' LT	893.32	893.53	
B-4	3/4 PT.	104+65.96	-30.56' LT	893.20	893.41	
B-5	END	104+75.90	-28.62' LT	893.08	893.29	

121ST EAST						
STATION / OFFSETS ARE FROM PNS1_1B ALIGNMENT						
GRID LAYOUT		POINT LOCATION		OFFSET 3' B/C		B424 CURB
AREA	DESCRIPTION	STATION	OFFSET	LIP OF CURB	TOP OF CURB	
D	30' RAD. F/C	104+77.55	50.00' RT			
D-1	BEG.	104+51.18	50.67' RT	893.56	893.77	
D-2	1/4 PT.	104+53.00	40.37' RT	893.44	893.65	
D-3	MID. PT.	104+58.67	31.58' RT	893.32	893.53	
D-4	3/4 PT.	104+67.31	25.69' RT	893.20	893.41	
D-5	END	104+77.55	23.62' RT	893.08	893.29	

121ST WEST

121ST EAST



121ST WEST						
STATION / OFFSETS ARE FROM PSS1_1B ALIGNMENT						
GRID LAYOUT		POINT LOCATION		OFFSET 3' B/C		B424 CURB
AREA	DESCRIPTION	STATION	OFFSET	LIP OF CURB	TOP OF CURB	
A	30' RAD. F/C	103+67.00	-50.00' LT			
A-1	BEG.	103+67.00	-23.62' LT	894.50	894.71	
A-2	1/4 PT.	103+77.25	-25.69' LT	894.27	894.48	
A-3	MID. PT.	103+85.88	-31.58' LT	894.03	894.24	
A-4	3/4 PT.	103+91.56	-40.37' LT	893.79	894.00	
A-5	END	103+93.37	-50.67' LT	893.56	893.77	

121ST EAST						
STATION / OFFSETS ARE FROM PNS1_1B ALIGNMENT						
GRID LAYOUT		POINT LOCATION		OFFSET 3' B/C		B424 CURB
AREA	DESCRIPTION	STATION	OFFSET	LIP OF CURB	TOP OF CURB	
C	30' RAD. F/C	103+81.65	55.00' RT			
C-1	BEG.	103+81.65	28.62' RT	894.11	894.32	
C-2	1/4 PT.	103+91.59	30.56' RT	894.03	894.24	
C-3	MID. PT.	104+00.07	36.11' RT	893.95	894.16	
C-4	3/4 PT.	104+05.83	44.44' RT	893.87	894.08	
C-5	END	104+08.02	54.33' RT	893.79	894.00	

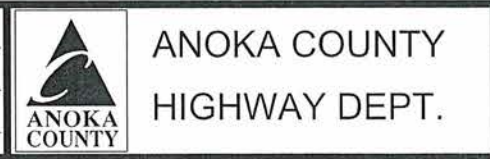
NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_ID-121ST.dgn 06/05/2014 7:41:03 AM

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

PRINT NAME: CURT A. KOBIARCSIK  
 SIGNATURE: *Curt Kobiarcsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

INTERSECTION DETAILS  
121ST

Sheet 136 of 381 Sheets

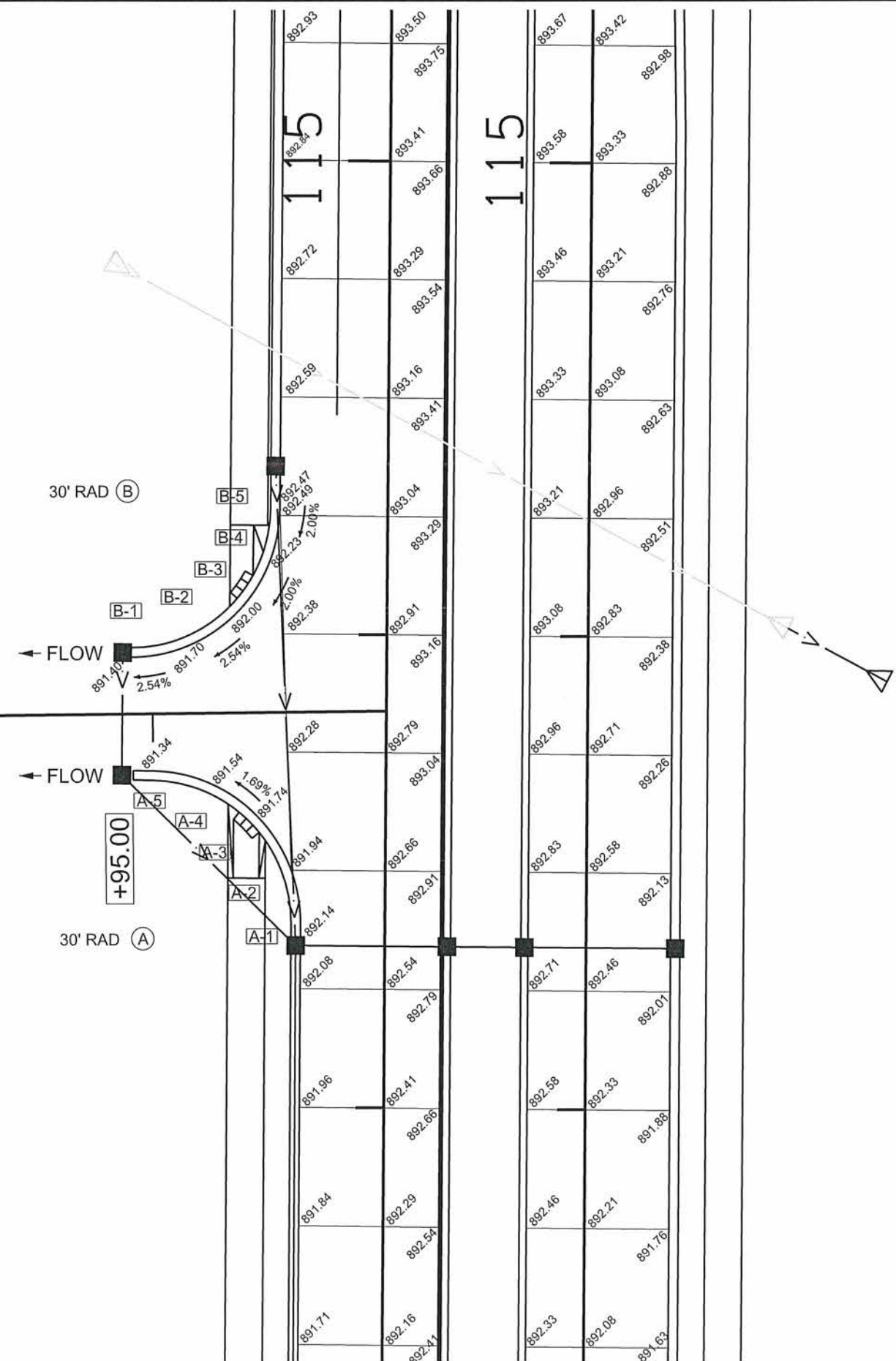


124TH LN						
STATION / OFFSETS ARE FROM PSS1_1B ALIGNMENT						
GRID LAYOUT		POINT LOCATION		OFFSET 3' B/C		B424
AREA	DESCRIPTION			STATION	OFFSET	LIP OF CURB TOP OF CURB
B	30' RAD. F/C	114+26.67	-55.00' LT			
B-1	BEG.			114+00.29	-55.00' LT	891.40 891.61
B-2	1/4 PT.			114+02.30	-44.91' LT	891.70 891.91
B-3	MID. PT.			114+08.02	-36.35' LT	892.00 892.21
B-4	3/4 PT.			114+16.58	-30.63' LT	892.23 892.44
B-5	END			114+26.67	-28.62' LT	892.47 892.68

124TH LN						
STATION / OFFSETS ARE FROM PSS1_1B ALIGNMENT						
GRID LAYOUT		POINT LOCATION		OFFSET 3' B/C		B424
AREA	DESCRIPTION			STATION	OFFSET	LIP OF CURB TOP OF CURB
A	30' RAD. F/C	113+38.69	-50.00' LT			
A-1	BEG.			113+38.69	-23.62' LT	892.14 892.35
A-2	1/4 PT.			113+48.78	-25.63' LT	891.94 892.15
A-3	MID. PT.			113+57.34	-31.35' LT	891.74 891.95
A-4	3/4 PT.			113+63.17	-40.14' LT	891.54 891.75
A-5	END			113+65.06	-50.57' LT	891.34 891.55

124TH

000 ↓



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_ID-124TH.dgn 06/05/2014 7:41:04 AM

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

PRINT NAME: CURT A. KOBILARCSIK

SIGNATURE: *Curt Kobilarcsik*

DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13

DESIGN BY: NJD DATE: 10-31-13

CHECKED BY: GMP DATE: 12-13-13



ANOKA COUNTY  
HIGHWAY DEPT.

S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

INTERSECTION DETAILS  
124TH

Sheet 137 of 381 Sheets

## DRAINAGE TAB - POND 100

**D1**

STRUCTURE NO.		CENTER OF CASTING				DRAINAGE STRUCTURES					STORM SEWER					SOD TYPE SALT RESISTANT	RIPRAP CLASS III	GEOTEXTILE FABRIC TYPE IV MOD	CONNECT TO EX STORM	NOTES		
FLows FROM	FLows TO	ALIGN	STATION	O/S	L/R	TYPE	DESIGN	PAY HEIGHT		CASTING ASSEMBLY TYPE	STEPS REQ'D	TOP OF CASTING ELEVATION	OUTLET ELEVATION	DOWN STREAM INLET	SLOPE %	30" RCP CL III LIN FT	30" RCP APRON EACH	SQ YD	CU YD		SQ YD	EACH
								54-4020 LIN FT	108-4020 LIN FT													
622	623	P_111THNE	113+13.91	13.85	L	CB	108-4020		6.93	B	YES	905.75	898.77	898.66	0.31	36					1	
623	107	P_111THNE	112+89.67	12.70	R	CB	54-4020	7.49		B	YES	906.20	898.66	898.16	0.30	168						
107	109	P_111THNE	111+30.25	51.68	R	MH	54-4020	9.29		F	YES	907.50	898.16	898.05	0.50	21						
109	N/A	P_111THNE	111+28.71	72.63	R	APRON	APRON			N/A		N/A	898.05	N/A	N/A		1	20	6.5	3.3		
<b>DRAINAGE SUBTOTAL (A)</b>								16.78	6.93	3							225	1	20	6.5	3.30	1

## DRAINAGE TAB - POND 200

**D2**

STRUCTURE NO.		CENTER OF CASTING				DRAINAGE STRUCTURES										STORM SEWER												SOD TYPE SALT RESISTANT	RIPRAP CLASS III	GEOTEXTILE FABRIC TYPE IV MOD	CONNECT TO EX STORM	NOTES								
FLows FROM	FLows TO	ALIGN	STATION	O/S	L/R	TYPE	DESIGN	PAY HEIGHT								CASTING ASSEMBLY TYPE	STEPS REQ'D	TOP OF CASTING ELEVATION	OUTLET ELEVATION	DOWN STREAM INLET	SLOPE %	12" RCP CL V LIN FT	15" RCP CL V LIN FT	18" RCP CL V LIN FT	18" RCP APRON EACH	21" RCP CL III LIN FT	24" RCP CL III LIN FT	24" RCP APRON EACH	27" RCP CL III LIN FT	27" RCP APRON EACH	30" RCP CL III LIN FT		33" RCP CL III LIN FT	36" RCP CL III LIN FT	42" RCP CL III LIN FT	42" RCP APRON EACH	SQ YD	CU YD	SQ YD	EACH
								H LIN FT	48-4020 LIN FT	54-4020 LIN FT	60-4020 LIN FT	66-4020 LIN FT	72-4020 LIN FT	78-4020 LIN FT	84-4020 LIN FT																									
021	022	PSS1_1B	46+54.00	225	L	SPECIAL	54-4020																																	
022	208	PSS1_1B	47+20.27	225	L	MH	48-4020																																	
023	022	PSS1_1B	46+69.31	174	L	BH	H	2.17																																
100	180	PSS1_1B	26+11.78	24.00	L	CB	60-4020				4.32																													
101	131	PSS1_1B	26+03.80	13.25	R	CB	48-4020			5.05																														
102	101	PSS1_1B	25+83.82	21.50	R	MH	84-4020						5.03																											
103	102	PN51_1B	25+85.88	19.00	R	CB	48-4020			3.74																														
104	142	PN51_1B	28+28.76	19.00	R	CB	H	3.20																																
105	124	PN51_1B	33+66.73	24.00	R	CB	48-4020			4.45																														
106	N/A	PN51_1B	91.75.59	63.83	R	APRON	APRON																																	
108	100	PSS1_1B	25+97.63	50.40	L	MH	48-4020			5.13																														
110	133	PN51_1B	25+69.71	19.00	R	CB	H	3.20																																
111	100	PSS1_1B	26+03.72	24.00	L	CB	H	3.16																																
113	114	PSS1_1B	32+27.10	31.10	L	CB																																		
114	122	PSS1_1B	32+27.58	15.00	L	CB	54-4020				12.34																													
115	114	PSS1_1B	29+27.89	24.00	L	CB	48-4020			11.10																														
116	105	PN51_1B	31+74.42	19.00	R	CB	48-4020			7.45																														
116	106																																							
120	121	111F	19+74.06	13.00	L	CB	H	3.08																																
121	607	111F	19+74.75	13.00	R	CB	60-4020																																	
122	607	PSS1_1B	33+82.51	15.00	L	CB	54-4020				9.50		3.57																											
123	122	PSS1_1B	33+82.21	13.25	R	CB	48-4020			5.31																														
124	123	PN51_1B	33+66.73	24.25	L	CB	48-4020			4.94																														
130	121	111F	18+89.64	32.13	L	CB	48-4020			3.08																														
131	100	PSS1_1B	26+11.86	13.25	R	CB	54-4020				5.03																													
132	102	PN51_1B	25+75.96	13.25	L	CB	H	3.15																																
133	103	PN51_1B	25+77.77	19.00	R	CB	48-4020			3.46																														
134	130	111F	18+31.34	25.33	R	CB	H	3.08																																
140	115	PSS1_1B	28+28.65	24.00	L	CB	54-4020				8.61																													
141	140	PSS1_1B	28+28.80	13.25	R	CB	48-4020			4.76																														
142	141	PN51_1B	28+29.00	13.25	L	CB	48-4020			4.08																														
180	140	PSS1_1B	26+19.81	24.00	L	CB	48-4020			4.32																														
201	203	PN51_1B	36+58.82	13.25	L	CB	48-4020			4.05																														
202	220	PN51_1B	42+21.96	19.00	R	CB	H	3.57																																
203	204	PSS1_1B	36+57.90	24.25	R	CB	48-4020			3.84																														
204	209	PSS1_1B	36+59.23	24.00	L	CB	54-4020				5.15																													
206	207	PSS1_1B	42+30.45	24.00	L	CB	54-4020			4.53																														
207	296	PSS1_1B	43+23.19	24.00	L	CB	54-4020			4.53																														
208	257	PSS1_1B	47+25.17	19.00	L	CB	66-4020					5.85																												
210	211	PN51_1B	40+53.20	19.00	R	CB	H	3.20																																
211	212	PN51_1B	40+53.41	13.25	L	CB	48-4020																																	



**DRAINAGE TAB - POND 300**

**D3**


STRUCTURE NO.		CENTER OF CASTING				DRAINAGE STRUCTURES						STORM SEWER						SOD TYPE	RIPRAP	GEOTEXTILE	NOTES					
FLOWS FROM	FLOWS TO	ALIGN	STATION	O/S	L/R	TYPE	DESIGN	PAY HEIGHT			CASTING ASSEMBLY TYPE	STEPS REQ'D	TOP OF CASTING ELEVATION	OUTLET ELEVATION	DOWN STREAM INLET	SLOPE %	15" RCP	18" RCP	21" RCP	24" RCP		24" RCP	SALT RESISTANT	CLASS III	FABRIC TYPE IV MOD	
								CL V	CL V	CL III							CL III	APRON	SQ YD	CU YD		SQ YD				
350	351	PN51_1B	65+31.49	19.00	R	CB	48-4020		3.24		C		892.59	889.30	889.14	0.50	32									
351	352	PN51_1B	65+31.46	13.25	L	CB	48-4020		4.11		B		893.30	889.14	889.09	0.30	17									
352	353	PS51_1B	65+31.40	13.25	R	CB	48-4020		4.22		B		893.11	888.84	888.74	0.30		32								
353	354	PS51_1B	65+31.21	19.00	L	CB	48-4020		3.87		C		892.41	888.49	887.83	0.30			222							
354	355	PS51_1B	67+53.22	19.00	L	CB	54-4020			5.34	D	YES	892.97	887.58	887.41	0.33				51						
355		PS51_1B	67+61.07	69.45	L	APRON	APRON				N/A		N/A	887.41	N/A	N/A				1	15	5.4	2.7			
360	350	PN51_1B	65+23.38	19.00	R	CB	H	3.20			C		892.59	889.34	889.30	0.50	8									
361	351	PN51_1B	65+23.57	13.25	L	CB	H	3.20			B		893.30	890.05	890.01	0.50	8									
362	352	PS51_1B	65+23.29	13.25	R	CB	H	3.20			B		893.11	889.86	889.82	0.50	8									
363	353	PS51_1B	65+23.25	19.00	L	CB	H	3.23			C		892.41	889.13	889.08	0.60	8									
370	371	PN51_1B	67+53.35	19.00	R	CB	H	3.20			D		893.15	889.90	889.74	0.50	32									
371	372	PN51_1B	67+53.15	13.25	L	CB	48-4020		4.07		B		893.86	889.74	889.66	0.50	17									
372	354	PS51_1B	67+53.02	13.25	R	CB	48-4020		3.96		B		893.67	889.66	889.50	0.50	32									
380	381	PN51_1B	70+42.47	24.00	R	CB	H	3.20			D		894.31	891.06	890.82	0.50	48									
381	382	PN51_1B	70+42.38	24.25	L	CB	48-4020		4.28		B		895.15	890.82	890.79	0.50	6									
382	383	PS51_1B	70+42.25	13.25	R	CB	48-4020		4.40		B		895.24	890.79	890.63	0.51	32									
383	354	PS51_1B	70+42.39	19.00	L	CB	48-4020		3.86		D		894.54	890.63	889.18	0.50	289									
<b>DRAINAGE SUBTOTAL (C)</b>								<b>19.23</b>	<b>36.01</b>	<b>5.34</b>	<b>16</b>						<b>537</b>	<b>32</b>	<b>222</b>	<b>51</b>	<b>1</b>	<b>15.00</b>	<b>5.40</b>	<b>2.70</b>		

**DRAINAGE TAB - BURL OAKS**

**D5**

STRUCTURE NO.		CENTER OF CASTING				DRAINAGE STRUCTURES						STORM SEWER						SOD TYPE	RIPRAP	GEOTEXTILE	CONNECT	NOTES							
FLOWS FROM	FLOWS TO	ALIGN	STATION	O/S	L/R	TYPE	DESIGN	PAY HEIGHT				CASTING ASSEMBLY TYPE	STEPS REQ'D	TOP OF CASTING ELEVATION	OUTLET ELEVATION	DOWN STREAM INLET	SLOPE %	15" RCP	21" RCP	30" RCP	33" RCP		36" RCP	36" RCP	SALT RESISTANT	CLASS III	FABRIC TYPE IV MOD	TO EX STORM	
								CL V	CL III	CL III	CL III							CL III	APRON	SQ YD	CU YD		SQ YD	EACH					
364		PS51_1B	77+63.98	42.63	L	APRON	APRON				N/A		N/A	881.56	N/A	N/A						1	30	8.1	4.1				
400	494	PS51_1B	81+94.48	24.00	L	CB	60-4020			9.63	D	YES	892.79	883.11	882.46	0.30													
402	616	PS51_1B	79+71.84	19.00	L	CB	60-4020			9.48	C	YES	891.72	882.19	881.78	0.30					216								
403	494	PS51_1B	79+78.31	13.25	R	CB	48-4020		4.41		B		892.45	887.99	887.82	0.53	32												
404	403	PN51_1B	79+78.10	24.25	L	CB	48-4020		4.17		B		892.24	888.02	887.99	0.50	6												
405	450	PN51_1B	79+71.37	24.00	R	CB	H	3.20			C		891.54	888.29	888.26	0.50	6												
406	422	PN51_1B	81+94.74	24.00	R	CB	48-4020		3.36		D		892.38	888.97	888.78	0.50	37												
410	400	PS51_1B	84+25.77	24.00	L	CB	60-4020			10.67	D	YES	894.52	883.80	883.11	0.30													
411	410	PS51_1B	84+26.79	24.25	R	CB	48-4020		9.07		B	YES	895.15	886.03	885.78	0.50	48												
412	411	PN51_1B	84+26.76	13.25	L	CB	48-4020		8.98		B	YES	895.08	886.05	886.03	0.50	6												
421	400	PS51_1B	81+94.52	13.25	R	CB	48-4020		4.88		B	YES	893.63	888.70	888.51	0.51	37												
422	421	PN51_1B	81+94.53	13.25	L	CB	48-4020		4.39		B		893.22	888.78	888.70	0.48	17												
423	412	PN51_1B	84+26.50	19.00	R	CB	48-4020		8.08		D	YES	894.35	886.22	886.05	0.50	32												
430	472	PS51_1B	89+42.45	19.00	L	CB	48-4020		3.20		D		898.52	895.27	893.64	1.09	150												
431	472	PS51_1B	87+93.02	13.25	R	CB	48-4020		4.27		B		898.12	893.80	893.64	0.50	32												
432	431	PN51_1B	87+93.41	13.25	L	CB	48-4020		4.08		B		898.01	893.88	893.80	0.50	17												
440	430	PS51_1B	92+40.27	19.00	L	CB	48-4020		3.73		D		900.75	896.97	895.27	0.57	298												
441	440	PS51_1B	92+40.51	13.25	R	CB	48-4020		4.29		B		901.47	897.13	896.97	0.50	32												
442	441	PN51_1B	92+40.27	24.25	L	CB	48-4020		4.05		B		901.26	897.16	897.13	0.50	6												
443	442	PN51_1B	92+40.58	19.00	R	CB	H	3.20			D		900.62	897.37	897.16	0.50	43												
450	404	PN51_1B	79+77.76	24.00	R	CB	48-4020		3.23		C		891.54	888.26	888.02	0.50	48												
470	410	PS51_1B	85+90.51	19.00	L	CB	54-4020			11.28	D	YES	895.88	884.55	884.05	0.30											1		
472	470	PS51_1B	87+92.04	19.00	L	CB	48-4020		4.21		D		897.40	893.14	892.13	0.50		202	165										
492	493	P118TH	600+62.42	14.00	L	CB	H	3.20			B		892.64	889.39	889.24	0.50	28												
493	406	P118TH	600+62.04	14.00	R	CB	48-4020		3.35		B		892.64	889.24	888.97	0.50	56												
494	402	PS51_1B	79+78.42	19.00	L	CB	60-4020			9.47	C	YES	891.73	882.21	882.19	0.30					7								
498	432	PN51_1B	87+94.41	19.00	R	CB	H	3.20			D		897.30	894.05	893.88	0.50	32												
616	364	PS51_1B	78+35.43	41.96	L	MH	96-4020				F	YES	893.00	881.78	881.56	0.31											[1]		
617	618	PWBCEM	551+86.36	7.74	L	CB	H	3.20			B		892.47	889.22	888.69	0.87	61												
618	400	PS51_1B	84+94.29	45.19	L	BH	48-4020		3.63		E		891.95	888.69	888.58	0.50	21												
619	423	PN51_1B	84+27.06	55.77	R	BH	H	3.62			E		889.65	886.40	886.22	0.50	37												
<b>DRAINAGE SUBTOTAL (E)</b>								<b>19.62</b>	<b>85.38</b>	<b>11.28</b>	<b>39.25</b>	<b>15.17</b>	<b>30</b>					<b>1082</b>	<b>202</b>	<b>165</b>	<b>447</b>	<b>216</b>	<b>1</b>	<b>30.00</b>	<b>8.10</b>	<b>4.10</b>	<b>1.00</b>		

NOTE [1] - THIS IS A BAFFLE STRUCTURE WITH A 4.0' SUMP. SUMP ELEVATION IS 877.78.

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. PRINT NAME: CURT A. KOBIARCSIK SIGNATURE: <i>Curt A. Kobilarcsik</i> DATE: 6-9-14 LICENSE NO. 24756					DRAWN BY: NJD DATE: 11-26-13 DESIGN BY: NJD DATE: 10-31-13 CHECKED BY: GMP DATE: 12-13-13		 <b>ANOKA COUNTY</b> <b>HIGHWAY DEPT.</b>	S.P. 002-651-007 S.P. 106-020-031 S.P. 114-020-046	<b>DRAINAGE TAB</b>  Sheet 140 of 381 Sheets						
NO	DATE	BY	CKD	APPR	REVISION	NAME: P:\02-651-07\Plan\0265107_DR_TAB.dgn					06/05/2014 9:42:40 AM				

**DRAINAGE TAB - POND 500**

**D6**

STRUCTURE NO.		CENTER OF CASTING				DRAINAGE STRUCTURES								STORM SEWER							SOD TYPE SALT RESISTANT	RIPRAP CLASS III	GEOTEXTILE FABRIC TYPE IV MOD	NOTES			
FLOWS FROM	FLOWS TO	ALIGN	STATION	O/S	L/R	TYPE	DESIGN	PAY HEIGHT				CASTING ASSEMBLY TYPE	STEPS REQ'D	TOP OF CASTING ELEVATION	OUTLET ELEVATION	DOWN STREAM INLET	SLOPE %	15" RCP	15" RCP	18" RCP	21" RCP	30" RCP	30" RCP		SQ YD	CU YD	SQ YD
								CL V	APRON	CL III	CL III							CL III	APRON								
								H	48-4020	60-4020	84-4020																
								LIN FT	LIN FT	LIN FT	LIN FT																
501	502	PN51_1B	97+34.37	13.25	L	CB	48-4020		5.92			B	YES	901.33	895.36	895.31	0.30	17									
502	503	PS51_1B	97+34.38	13.25	R	CB	48-4020		6.46			B	YES	901.82	895.31	895.21	0.30	32									
503	597	PS51_1B	97+34.23	19.00	L	CB	48-4020		5.84			D	YES	901.10	895.21	894.26	0.50	189									
504	505	PS51_1B	101+12.81	19.00	L	CB	48-4020		4.29			D		897.40	893.06	890.92	0.87			247							
505	506	PS51_1B	103+60.19	19.00	L	CB	48-4020		5.89			D	YES	894.43	888.49	887.56	0.50			186							
506	507	PS51_1B	105+46.04	24.00	L	CB	48-4020		4.72			D	YES	892.08	887.31	886.73	0.50				116						
507	508	PS51_1B	106+61.73	24.00	L	CB	48-4020		3.90			D		890.68	886.73	885.62	0.50				222						
508	598	PS51_1B	108+83.59	19.00	L	CB	84-4020				5.28	C		889.96	884.63	884.42	0.30				71						
509	506	PS51_1B	105+45.69	64.77	L	BH	H	3.20				B		890.97	887.72	887.60	0.30			41							
515	516	PN51_1B	101+13.21	24.00	R	CB	48-4020		3.20			D		897.17	893.92	893.68	0.50	48									
516	517	PN51_1B	101+12.86	24.25	L	CB	48-4020		4.06			B		897.79	893.68	893.65	0.50	6									
517	504	PS51_1B	101+13.04	13.25	R	CB	48-4020		4.42			B		898.12	893.65	893.49	0.50	32									
518	519	PN51_1B	103+75.48	41.55	R	BH	H	3.62				E		893.76	890.51	890.31	0.50	41									
519	520	PN51_1B	104+12.71	56.82	R	CB	48-4020		3.37			B		893.63	890.31	890.14	0.50	34									
520	254	PN51_1B	104+46.69	56.15	R	CB	48-4020		3.25			B		893.44	890.14	889.96	0.50	37									
524	525	PN51_1B	104+46.68	19.00	R	MH	48-4020		3.45			F		893.46	889.96	889.65	0.50	61									
525	523	PN51_1B	105+07.49	19.00	R	CB	45-4020		2.69			D		892.39	889.65	888.00	3.67	45									
521	522	PN51_1B	103+60.12	24.25	L	CB	H	3.40				B		894.82	891.37	891.34	0.50	6									
522	505	PS51_1B	103+60.10	13.25	R	CB	48-4020		3.76			B		895.15	891.34	891.17	0.53	32									
523		PN51_1B	104+91.57	52.73	R	APRON	APRON					N/A		N/A	888.00	N/A	N/A		1					8			
530	532	PN51_1B	106+61.93	19.00	R	CB	H	3.20				D		890.96	887.71	887.55	0.50	32									
531	507	PS51_1B	106+61.92	24.25	R	CB	48-4020		3.83			B		891.41	887.53	887.28	0.50	48									
532	531	PN51_1B	106+61.99	13.25	L	CB	48-4020		3.91			B		891.51	887.55	887.53	0.50	6									
540	541	PN51_1B	108+82.66	19.00	R	CB	48-4020		3.24			C		889.88	886.59	886.43	0.50	32									
541	542	PN51_1B	108+82.65	13.25	L	CB	48-4020		4.12			B		890.60	886.43	886.37	0.50	12									
542	508	PS51_1B	108+82.83	17.32	R	CB	48-4020		4.27			B		890.69	886.37	886.19	0.50	36									
550	551	PN51_1B	113+34.18	19.00	R	CB	H	3.20				D		891.89	888.64	888.48	0.50	32									
551	552	PN51_1B	113+34.13	13.25	L	CB	48-4020		4.05			B		892.58	888.48	888.40	0.50	17									
552	553	PS51_1B	113+34.12	13.25	R	CB	48-4020		4.24			B		892.69	888.40	888.24	0.50	32									
553	554	PS51_1B	113+34.08	19.00	L	CB	84-4020				4.32	D		891.97	887.60	886.42	0.50			234							
554	555	PS51_1B	111+00.06	19.00	L	CB	48-4020		4.58			D	YES	890.80	886.17	885.13	0.50				208						
555	508	PS51_1B	108+91.71	19.00	L	CB	48-4020		4.80			C	YES	889.97	885.13	885.08	0.50				8						
557	553	PS51_1B	114+35.38	24.00	L	CB	H	3.31				D		892.35	888.99	888.48	0.50	101									
558	603	P121STNW	902+41.02	25.00	R	CB	48-4020		3.48			A		893.16	889.63	888.91	1.85	39									
559	558	P121STNW	902+40.90	22.00	L	CB	H	3.20				A		893.12	889.87	889.63	0.50	47									
560	561	PN51_1B	111+00.09	19.00	R	CB	H	3.20				D		890.72	887.47	887.31	0.50	32									
561	562	PN51_1B	111+00.04	13.25	L	CB	48-4020		4.08			B		891.44	887.31	887.23	0.50	17									
562	554	PS51_1B	111+00.04	13.25	R	CB	48-4020		4.24			B		891.52	887.23	887.06	0.50	32									
580	540	PN51_1B	108+90.74	19.00	R	CB	H	3.20				C		889.88	886.63	886.59	0.50	8									
581	541	PN51_1B	108+90.53	13.25	L	CB	H	3.30				B		890.57	887.22	887.18	0.50	8									
582	542	PS51_1B	108+90.79	16.83	R	CB	H	3.47				B		890.69	887.17	887.13	0.50	8									
591	501	PN51_1B	97+34.58	24.00	R	CB	48-4020		4.97			D	YES	900.49	895.47	895.36	0.30	37									
592	591	PN51_1B	97+90.56	24.00	R	CB	48-4020		4.48			D		900.17	895.64	895.47	0.30	56									
597	504	PS51_1B	99+23.47	19.00	L	CB	48-4020		5.30			D	YES	899.61	894.26	893.31	0.50	189									
598		PS51_1B	109+16.93	81.49	L	APRON	APRON					N/A		N/A	884.42	N/A	N/A				1		20	6.5	3.3		
599	515	PN51_1B	100+09.30	19.00	R	CB	H	3.20				D		898.48	895.23	893.92	1.26	104									
603	615	PS51_1B	103+60.29	47.12	L	BH	48-4020		3.62			E		892.16	888.91	888.81	0.50	20									
604	608	PS51_1B	95+29.38	58.78	L	APRON	APRON					N/A		N/A	900.11	898.33	5.11	35	1				8				
605	591	PN51_1B	97+34.69	51.88	R	APRON	APRON					N/A		N/A	897.10	896.96	0.60	23	1				8				
606	615	PS51_1B	103+29.53	61.29	L	APRON	APRON					N/A		N/A	890.00	889.81	0.50	37	1								
608	503	PS51_1B	95+29.45	24.00	L	CB	48-4020		4.46			D		901.57	897.06	896.04	0.50	205									
609	608	PS51_1B	93+82.91	24.00	L	CB	48-4020		3.51			D		901.35	897.79	897.06	0.50	147									
610	609	PS51_1B	93+47.34	56.27	L	CB	H	3.20				C		901.28	898.03	897.79	0.50	48									
611	592	P120NE	800+56.14	14.00	R	CB	48-4020		3.20			B		899.04	895.79	895.64	0.30	49									
612	611	P120NE	800+56.72	14.00	L	CB	H	3.20				B		899.14	895.89	895.79	0.36	28									
613	553	PS51_1B	113+69.69	56.42	L	CB	48-4020		3.33			B		891.24	887.86	887.60	0.50	52									
614	613	PS51_1B	113+95.66	56.44	L	CB	H	3.20				B		891.24	887.99	887.86	0.50	26									
615	505	PS51_1B	103+49.64	30.14	L	MH	60-4020				6.30	F	YES	895.16	888.81	888.73	0.50	15									
<b>DRAINAGE SUBTOTAL (F)</b>								<b>49.10</b>	<b>146.93</b>	<b>6.30</b>	<b>9.60</b>	<b>53</b>						<b>2192</b>	<b>4</b>	<b>708</b>	<b>554</b>	<b>71</b>	<b>1</b>	<b>44.00</b>	<b>6.50</b>	<b>3.30</b>	

NO	DATE	BY	CKD	APPR	REVISION

**DRAINAGE TAB - PROJECT TOTAL**

**D7**

	DRAINAGE STRUCTURES											STORM SEWER														SOD TYPE SALT RESISTANT	RIPRAP CLASS III	GEOTEXTILE FABRIC TYPE IV MOD	CONNECT TO EX STORM	NOTES						
	PAY HEIGHT										CASTING ASSEMBLIES	12" RCP	15" RCP	15" RCP	18" RCP	18" RCP	21" RCP	24" RCP	24" RCP	27" RCP	27" RCP	30" RCP	30" RCP	33" RCP	36" RCP						36" RCP	42" RCP	42" RCP			
	H	48-4020	54-4020	60-4020	66-4020	72-4020	78-4020	84-4020	96-4020	108-4020		CL V	CL V	APRON	CL V	APRON	CL III	CL III	APRON	CL III	APRON	CL III	APRON	CL III	APRON						CL III	CL III	APRON	CL III	APRON	
LIN FT	LIN FT	LIN FT	LIN FT				LIN FT	LIN FT	LIN FT	EACH	LIN FT	LIN FT	EACH	LIN FT	EACH	LIN FT	LIN FT	EACH	LIN FT	EACH	LIN FT	EACH	LIN FT	EACH	LIN FT	LIN FT	EACH	LIN FT	EACH	SQ YD	CU YD	SQ YD	EACH			
DRAINAGE SUBTOTAL (A)			16.78						6.93	3																										
DRAINAGE SUBTOTAL (B)	75.77	809.82	68.07	44.95	5.85	5.14	10.36	5.03		90	70	1,874		1	408	581		1,445	1					225	1		149	1,100		53	1	20	6.5	3.3	1	
DRAINAGE SUBTOTAL (C)	19.23	36.01	5.34							16		537			32	222	51																15	5.4	2.7	
DRAINAGE SUBTOTAL (D)	7.31	44.76								11		346			492																		15	5.4	2.7	
DRAINAGE SUBTOTAL (E)	19.62	85.38	11.28	39.25					15.17	30		1,082			202								165			447	216	1			30	8.1	4.1	1		
DRAINAGE SUBTOTAL (F)	49.10	146.93		6.30				9.60		53		2,192	4	708	554								71	1						44	6.5	3.3				
<b>PROJECT TOTAL</b>	<b>171.03</b>	<b>1,122.90</b>	<b>101.47</b>	<b>90.50</b>	<b>5.85</b>	<b>5.14</b>	<b>10.36</b>	<b>14.63</b>	<b>15.17</b>	<b>203</b>	<b>70</b>	<b>6,031</b>	<b>4</b>	<b>1,341</b>	<b>1</b>	<b>1,386</b>	<b>697</b>	<b>3</b>	<b>1,445</b>				<b>1,099</b>	<b>2</b>	<b>596</b>	<b>1,316</b>	<b>1</b>	<b>53</b>	<b>1</b>	<b>184</b>	<b>58.8</b>	<b>116.8</b>	<b>7</b>			

CASTING ASSEMBLY TYPE	ASSUMED CASTING HEIGHT [FT]	DESCRIPTION	TYPE
A	0.75	18' GRATE WITH CURB BOX	CB
B	0.75	18" GRATE WITH COVER PLATE	CB
C	0.75	24" GRATE WITH CURB BOX	CB
D	0.75	24" GRATE WITH COVER PLATE	CB
E	0.33	BEEHIVE	BH
F	0.75	MANHOLE	MH
G	0.87	ROUND CASTING & GRATE	CB
N/A	N/A	APRON	APRON

POND 600 - CROSS PIPE EXTENTION								D8	
NEW END OF APRON LOCATION				NEW INVERT ELEV.	60" RC PIPE SEWER CLASS III	RIPRAP CLASS III	GEOTEXTILE FABRIC TYPE IV MOD	SALVAGE CONCRETE APRON	
ALIGN	STATION	O/S	L/R						
PN51_1B	113+91.03	63.88	R	880.14	24	6	30	1	

DRAINAGE CONSTRUCTION NOTE:  
 EXISTING 60" CROSS PIPE TO BE EXTENDED 24' TO MEET NEW POND SLOPE. APRON IS TO BE REMOVED / SALVAGED AND RE-INSTALLED AFTER AN EXTENTION OF 24' OF 60" RC CLASS III PIPE IS INSTALLED AND TIED.  
 APRON SALVAGE / INSTALL WILL BE PAID FOR AS ITEM 2104.523 " SALVAGE CONCRETE APRON "

INLET APRON / PIPE LENGTH REDUCTION				D9	
LOCATION				SALVAGE CONCRETE APRON	REMOVE SEWER PIPE (STORM)
ALIGNMENT	STATION	OFFSET	LT / RT	( EACH )	( LIN FT )
PN51_1B	108+34	51'	RT	1	16

APRON IS TO BE REMOVED / SALVAGED , 16' OF EXISTING PIPE REMOVED AND APRON RE-INSTALLED  
 APRON SALVAGE / INSTALL WILL BE PAID AS ITEM 2104.523 " SALVAGE CONCRETE APRON "  
 AND PIPE REMOVAL AS ITEM 2104.501 REMOVE SEWER PIPE (STORM)

CASTING REMOVAL / REPLACEMENT							D10
LOCATION				REMOVE CASTING	NEW CASTING ASSEMBLY	CASTING ASSEMBLY TYPE	CASTING SIZE
ALIGNMENT	STATION	OFFSET	LT / RT	( EACH )	( EACH )		
PS51_1B	120+34	20'	LT	1	1	D	24"
PS51_1B	120+34	13.25'	RT	1	1	B	18"
TOTAL				2	2		

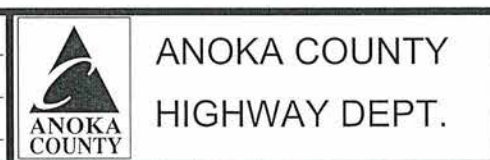
2 - CASTINGS AT STA. 120+34 LSB SHOULDER AND MEDIAN ARE TO BE REMOVED AND REPLACED WITH NEW CASTINGS  
 PAID FOR AS ITEM (2104.509 REMOVE CASTING AND 2506.516 CASTING ASSEMBLY )

NO	DATE	BY	CKD	APPR	REVISION

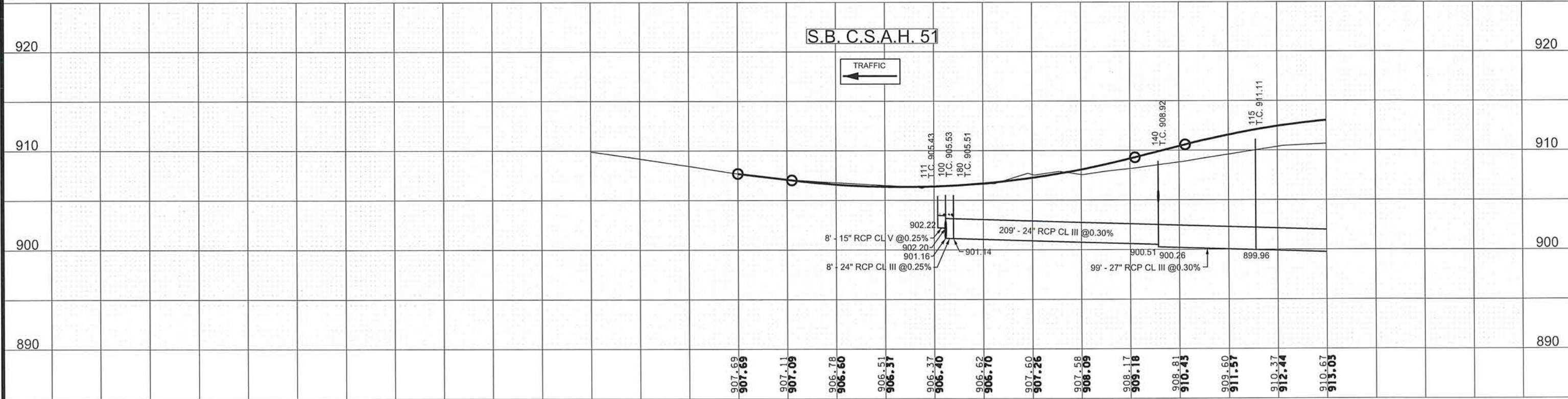
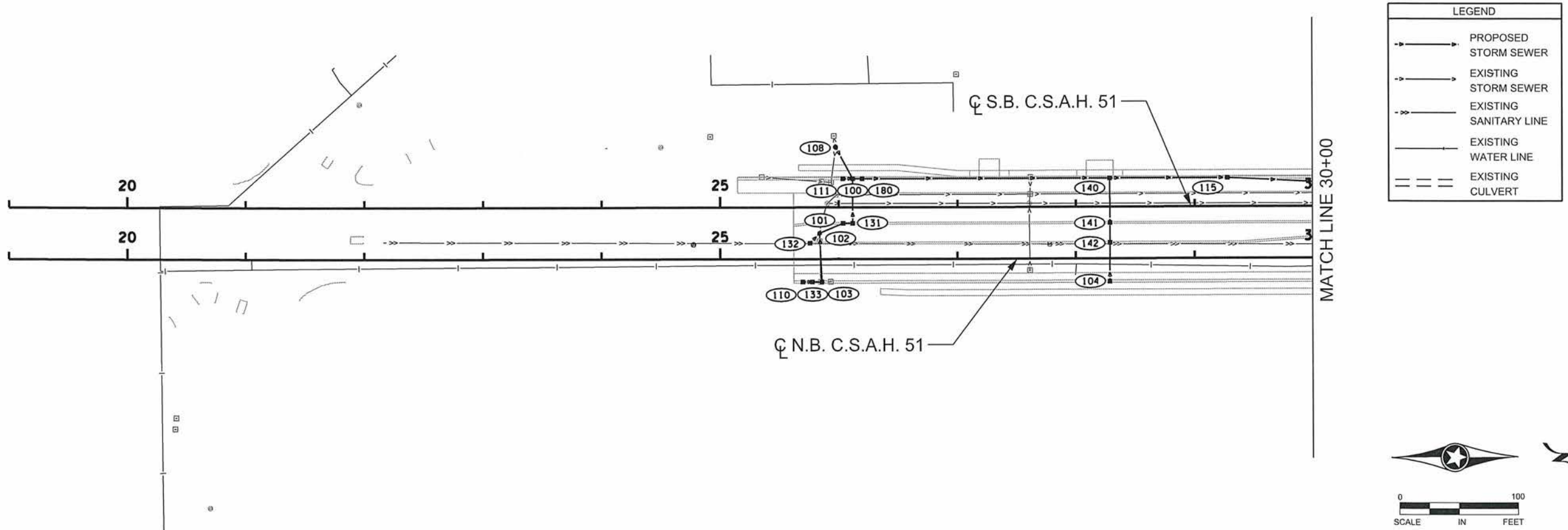
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I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 11-26-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046



22+00      23+00      24+00      25+00      26+00      27+00      28+00      29+00      30+00

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_DR\_PP1.dgn      06/05/2014      9:53:58 AM

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

PRINT NAME: CURT A. KOBILARCSIK

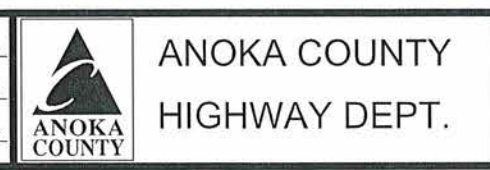
SIGNATURE: *Curt Kobilarsik*

DATE: 6-9-14      LICENSE NO. 24756

DRAWN BY: JCF      DATE: 11-25-13

DESIGN BY: NJD      DATE: 10-31-13

CHECKED BY: GMP      DATE: 12-13-13



S.P. 002-651-007

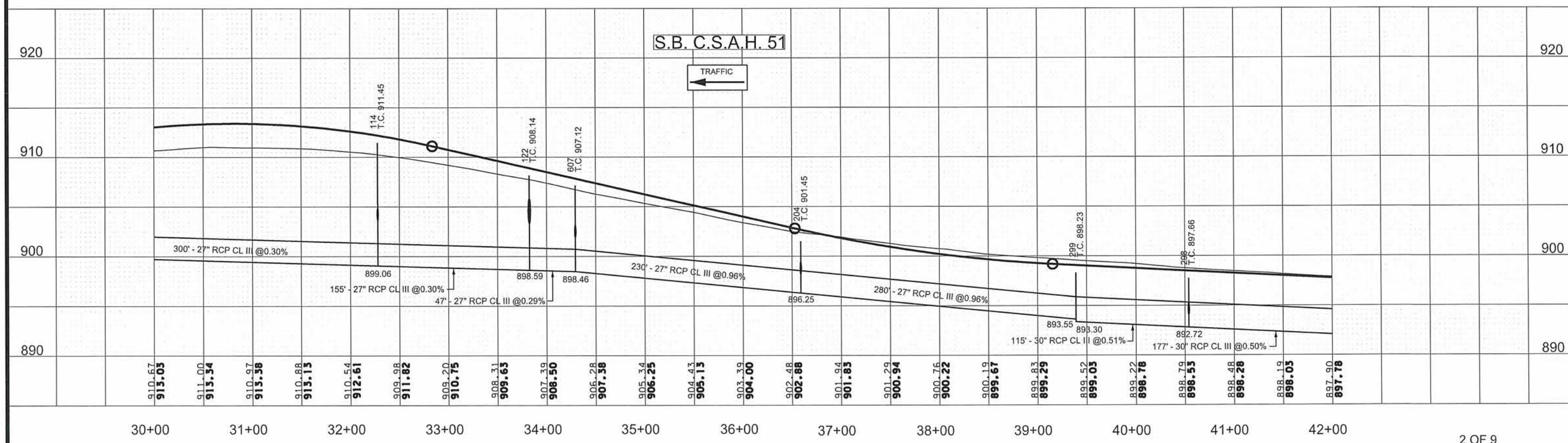
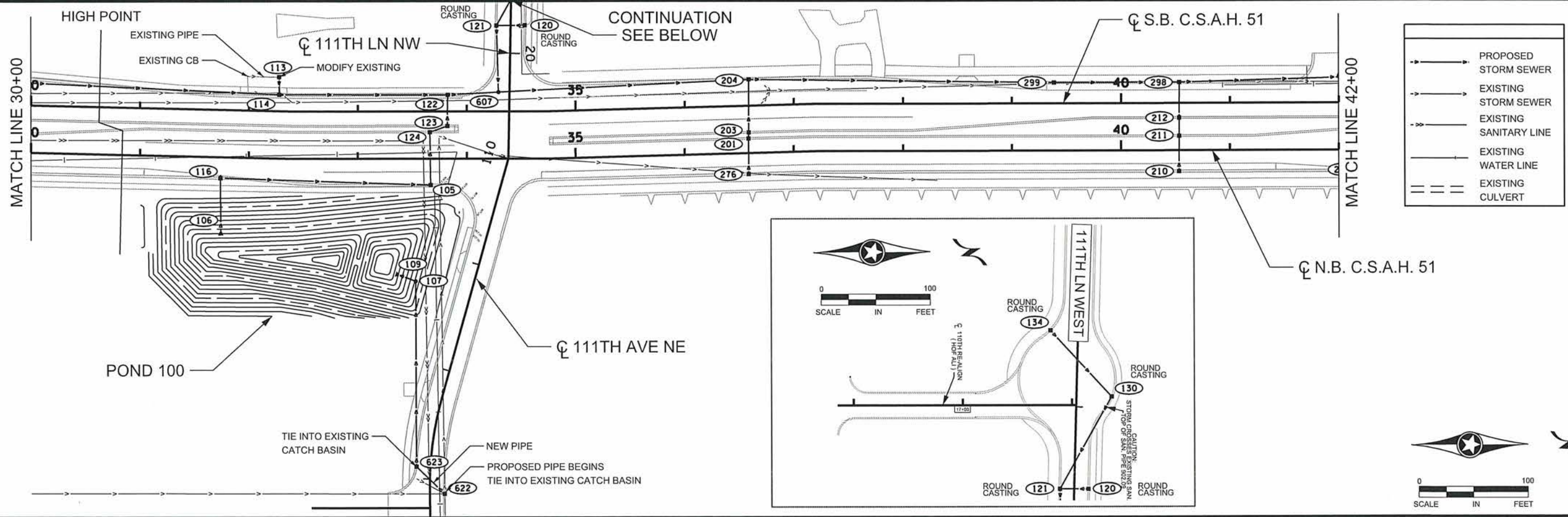
S.P. 106-020-031

S.P. 114-020-046

DRAINAGE PLAN

STA 20+30.80 TO 30+00

Sheet 143 of 381 Sheets



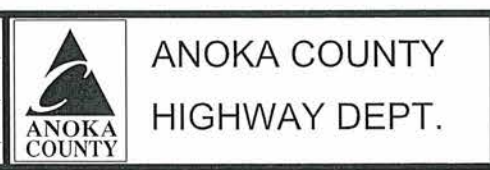
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I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: CURT A. KOBIARCSIK  
 SIGNATURE: *Curt A. Kobilarcsik*  
 DATE: 6-9-14 LICENSE NO. 24756

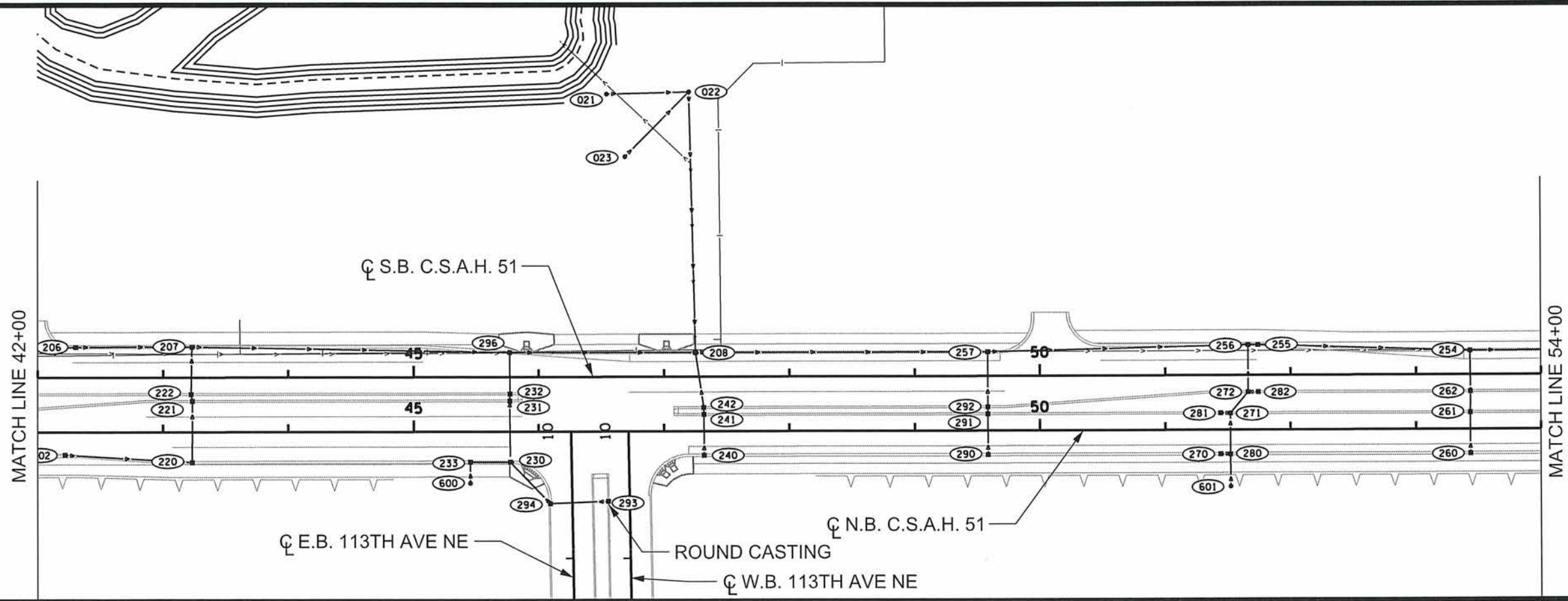
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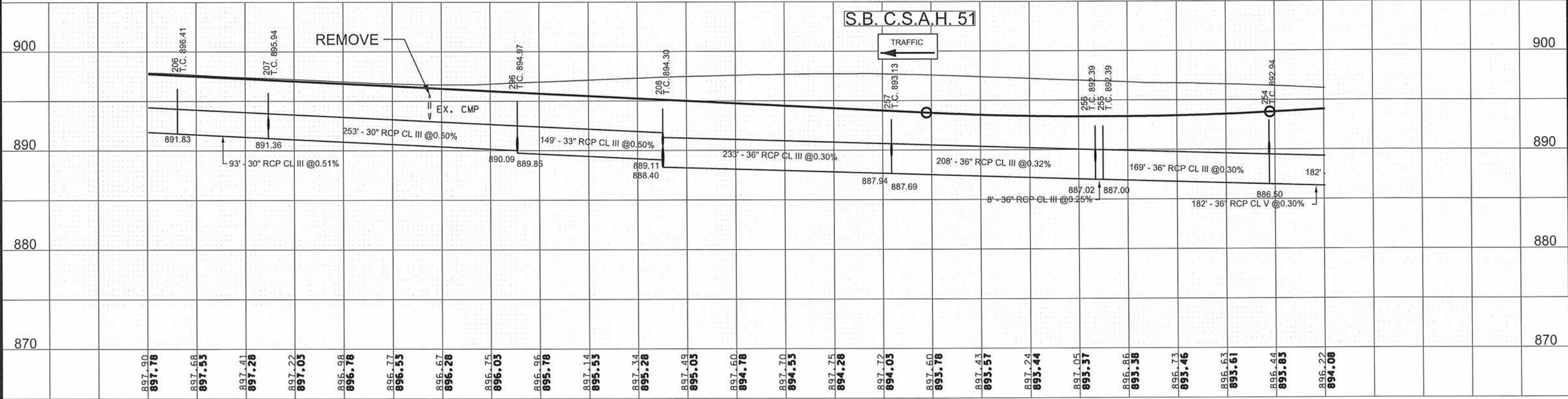
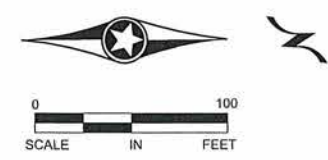
S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

DRAINAGE PLAN  
 STA 30+00 TO 42+00  
 Sheet 144 of 381 Sheets





LEGEND	
	PROPOSED STORM SEWER
	EXISTING STORM SEWER
	EXISTING SANITARY LINE
	EXISTING WATER LINE
	EXISTING CULVERT



897.90 <b>897.78</b>	897.68 <b>897.55</b>	897.41 <b>897.28</b>	897.22 <b>897.05</b>	896.98 <b>896.78</b>	896.77 <b>896.55</b>	896.67 <b>896.28</b>	896.75 <b>896.05</b>	896.96 <b>895.78</b>	897.14 <b>895.53</b>	897.34 <b>895.28</b>	897.49 <b>895.05</b>	897.60 <b>894.78</b>	897.70 <b>894.55</b>	897.75 <b>894.28</b>	897.72 <b>894.05</b>	897.60 <b>893.78</b>	897.43 <b>893.57</b>	897.24 <b>893.44</b>	897.05 <b>893.37</b>	896.86 <b>893.38</b>	896.73 <b>893.46</b>	896.63 <b>893.61</b>	896.44 <b>893.83</b>	896.22 <b>894.08</b>
42+00	43+00	44+00	45+00	46+00	47+00	48+00	49+00	50+00	51+00	52+00	53+00	54+00												

3 OF 9

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_DR\_PP3.dgn 06/05/2014 9:54:04 AM

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

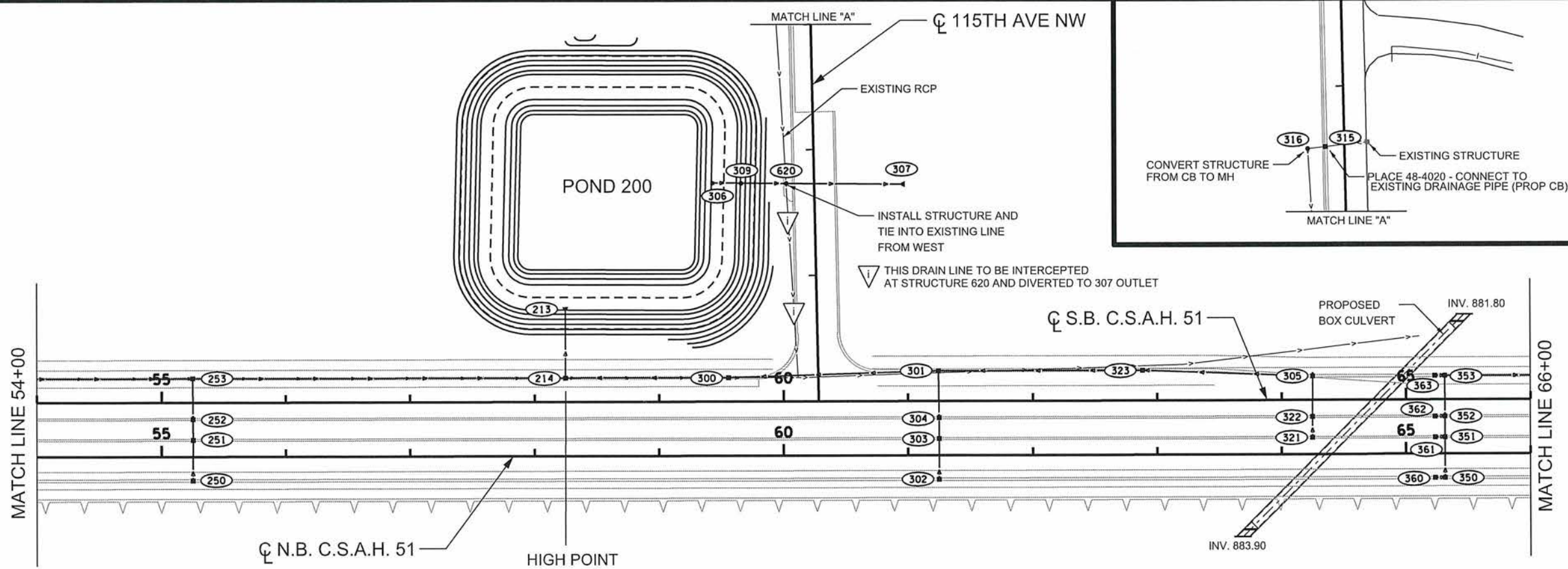
PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarcsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13

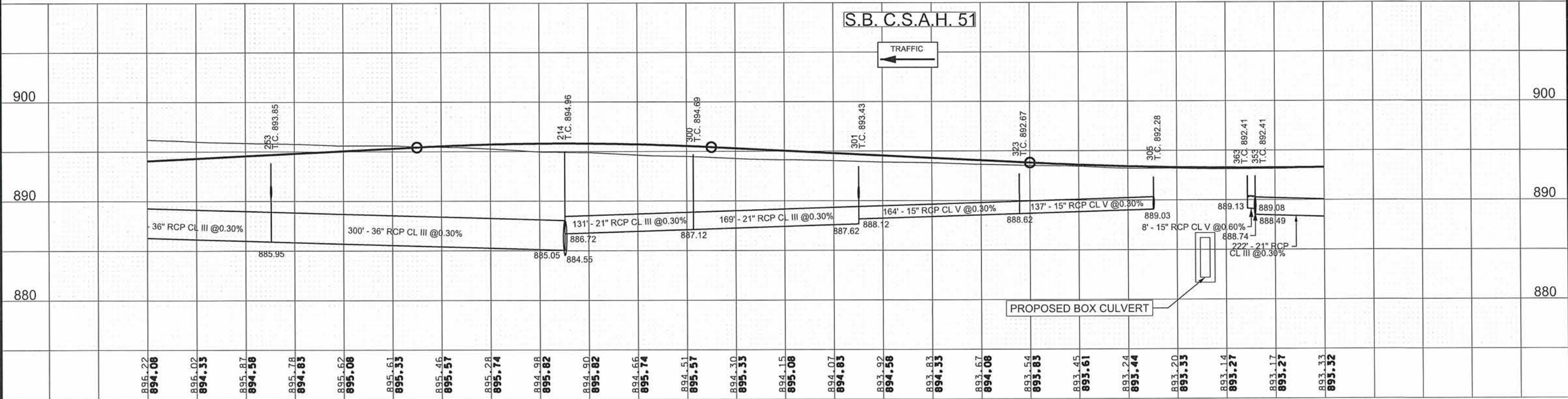
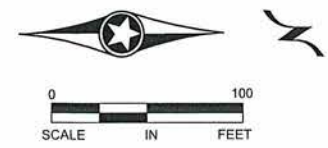
**ANOKA COUNTY**  
**HIGHWAY DEPT.**

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

**DRAINAGE PLAN**  
 STA 42+00 TO 54+00  
 Sheet 145 of 381 Sheets



LEGEND	
	PROPOSED STORM SEWER
	EXISTING STORM SEWER
	EXISTING SANITARY LINE
	EXISTING WATER LINE
	EXISTING CULVERT



896.22 <b>894.08</b>	896.02 <b>894.33</b>	895.87 <b>894.58</b>	895.78 <b>894.83</b>	895.62 <b>895.08</b>	895.61 <b>895.33</b>	895.46 <b>895.57</b>	895.28 <b>895.74</b>	894.88 <b>895.82</b>	894.90 <b>895.82</b>	894.66 <b>895.74</b>	894.51 <b>895.57</b>	894.30 <b>895.33</b>	894.15 <b>895.08</b>	894.07 <b>894.83</b>	893.92 <b>894.56</b>	893.83 <b>894.33</b>	893.67 <b>894.08</b>	893.54 <b>893.83</b>	893.45 <b>893.61</b>	893.24 <b>893.44</b>	893.20 <b>893.53</b>	893.14 <b>893.27</b>	893.17 <b>893.27</b>	893.33 <b>893.32</b>	
54+00	55+00	56+00	57+00	58+00	59+00	60+00	61+00	62+00	63+00	64+00	65+00	66+00													

4 OF 9

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_DR\_PP4.dgn 06/05/2014 9:54:18 AM

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

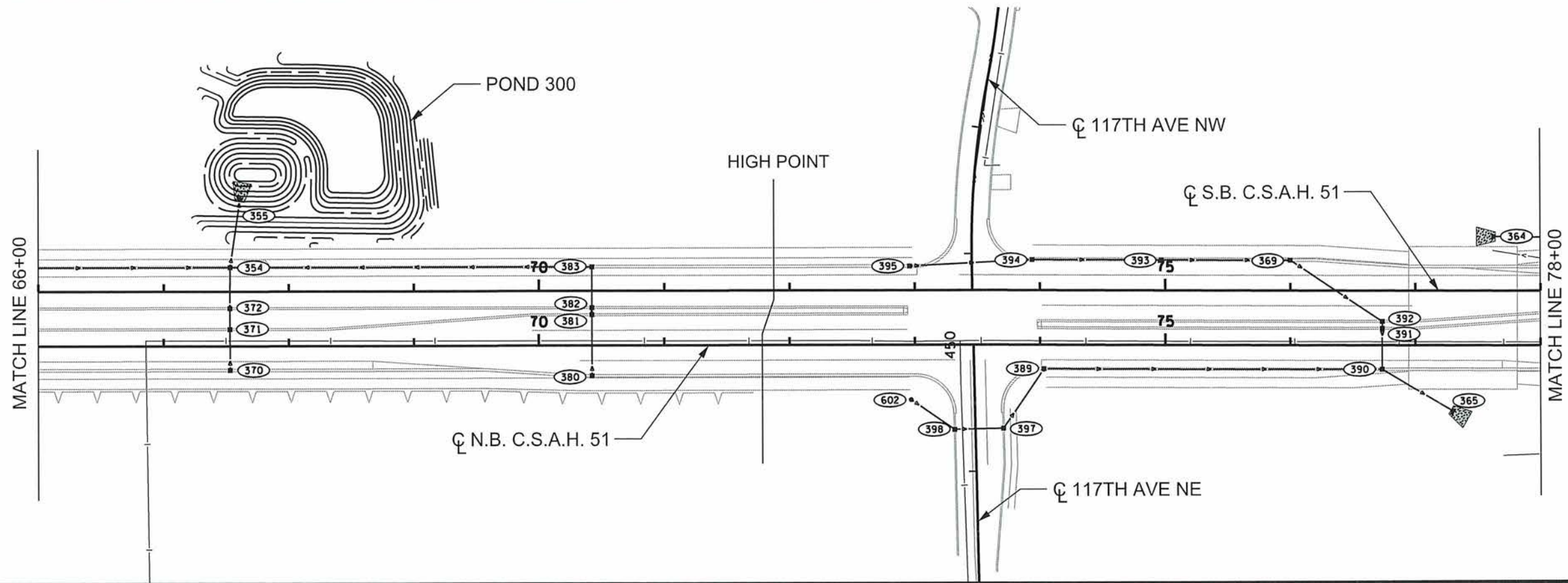
PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt A. Kobilarsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13

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

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

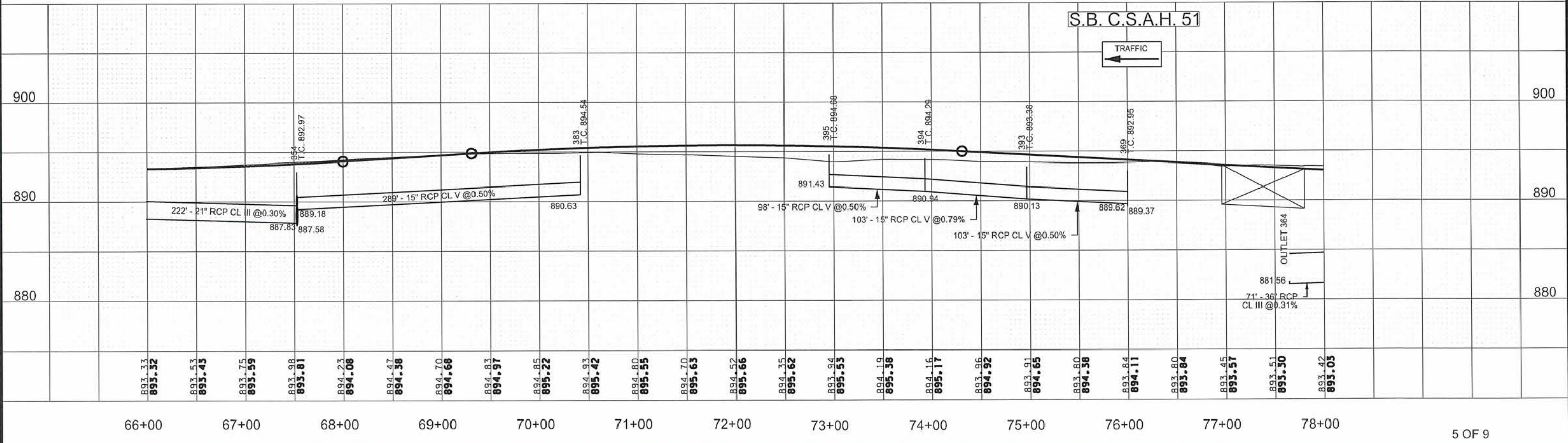
**DRAINAGE PLAN**  
 STA 54+00 TO 66+00  
 Sheet 146 of 381 Sheets



**LEGEND**

- PROPOSED STORM SEWER
- - - EXISTING STORM SEWER
- - - EXISTING SANITARY LINE
- - - EXISTING WATER LINE
- - - EXISTING CULVERT

SCALE IN FEET



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_DR\_PP5.dgn 06/05/2014 9:54:21 AM

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

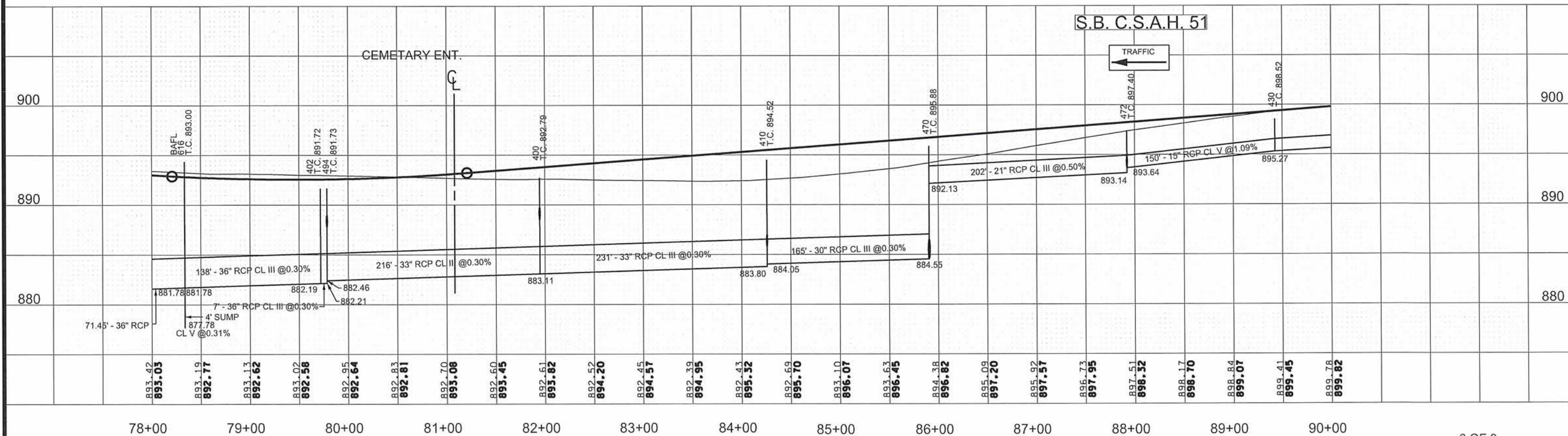
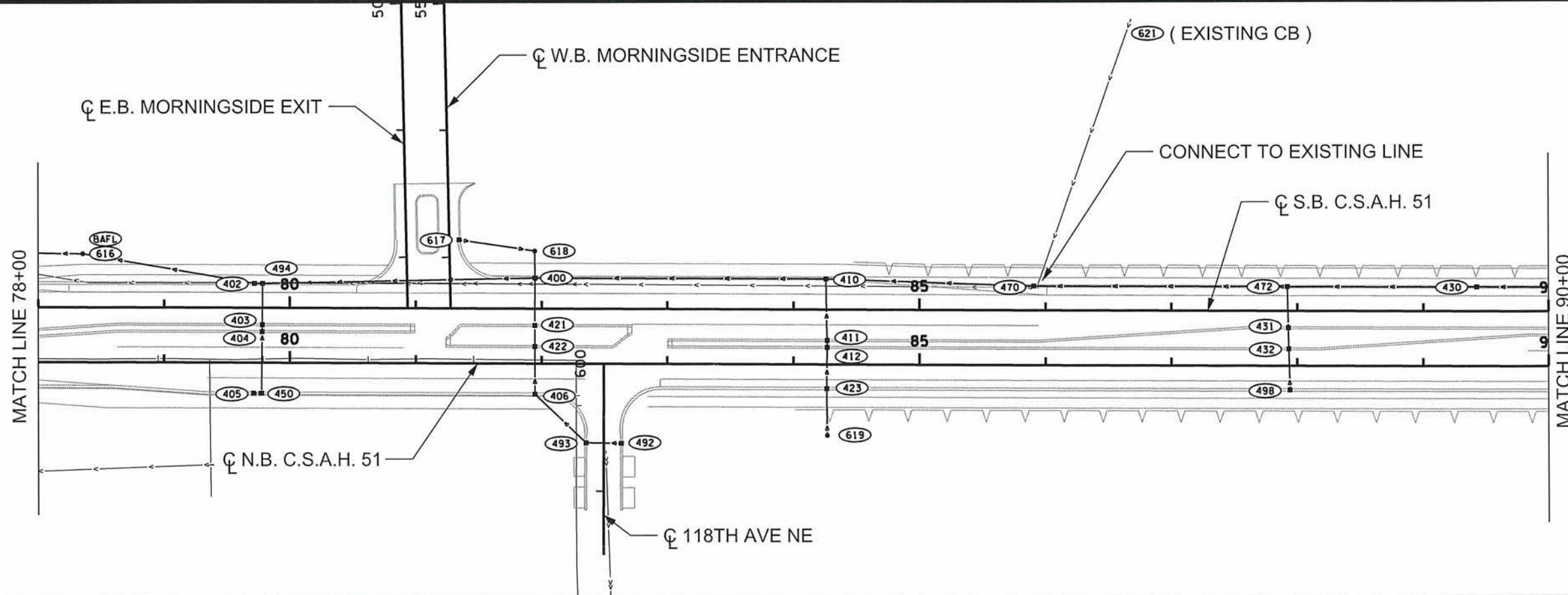
PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY JCF DATE 11-25-13  
 DESIGN BY NJD DATE 10-31-13  
 CHECKED BY GMP DATE 12-13-13

**ANOKA COUNTY  
HIGHWAY DEPT.**

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

**DRAINAGE PLAN**  
 STA 66+00 TO 78+00  
 Sheet 147 of 381 Sheets



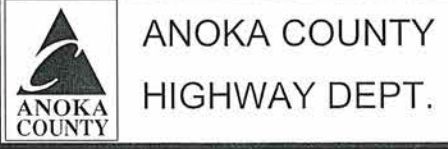
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I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

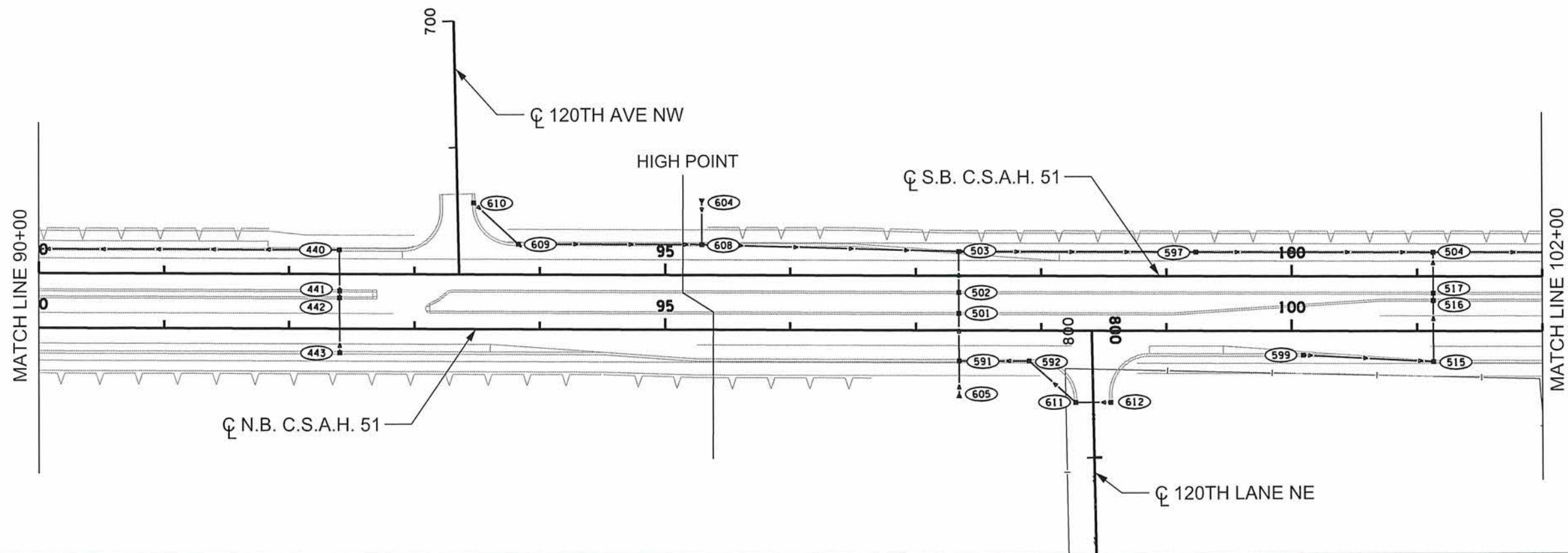
PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarcsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13

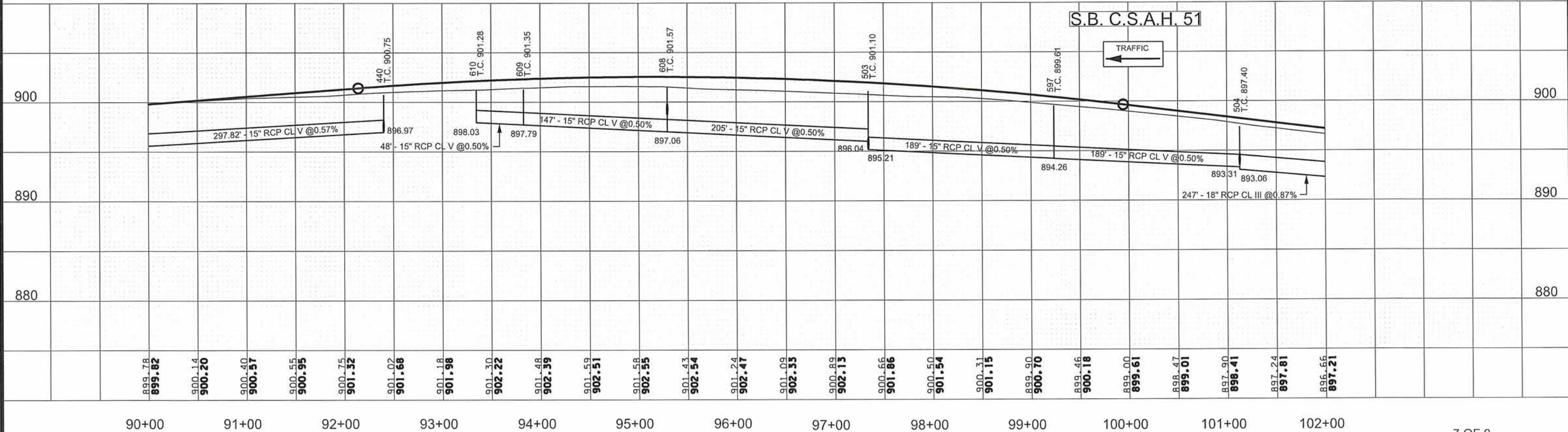
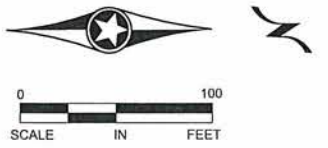


S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

DRAINAGE PLAN  
 STA 78+00 TO 90+00  
 Sheet 148 of 381 Sheets



LEGEND	
	PROPOSED STORM SEWER
	EXISTING STORM SEWER
	EXISTING SANITARY LINE
	EXISTING WATER LINE
	EXISTING CULVERT



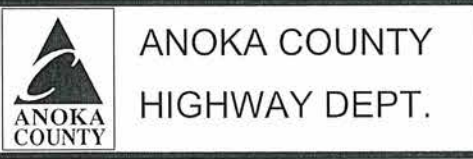
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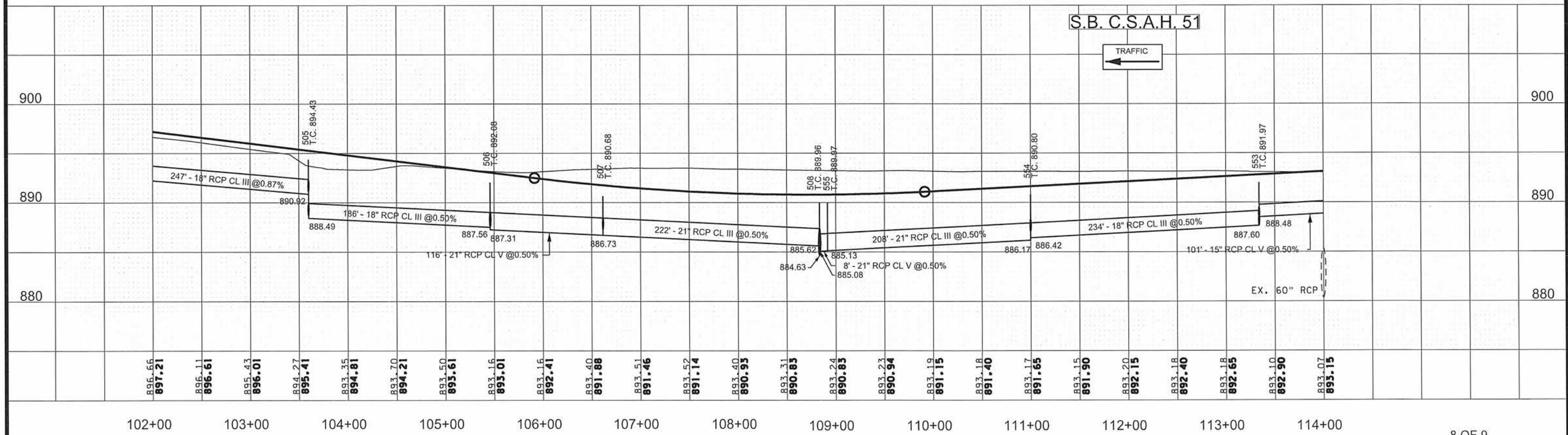
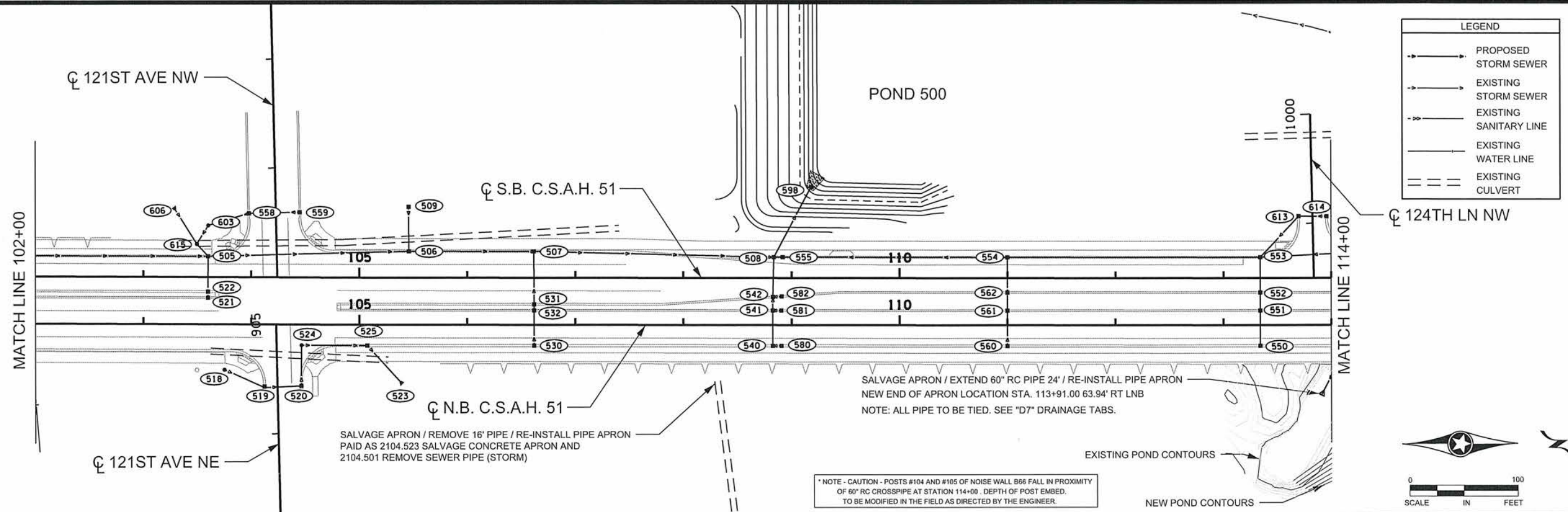
PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *C. Kobilarsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13

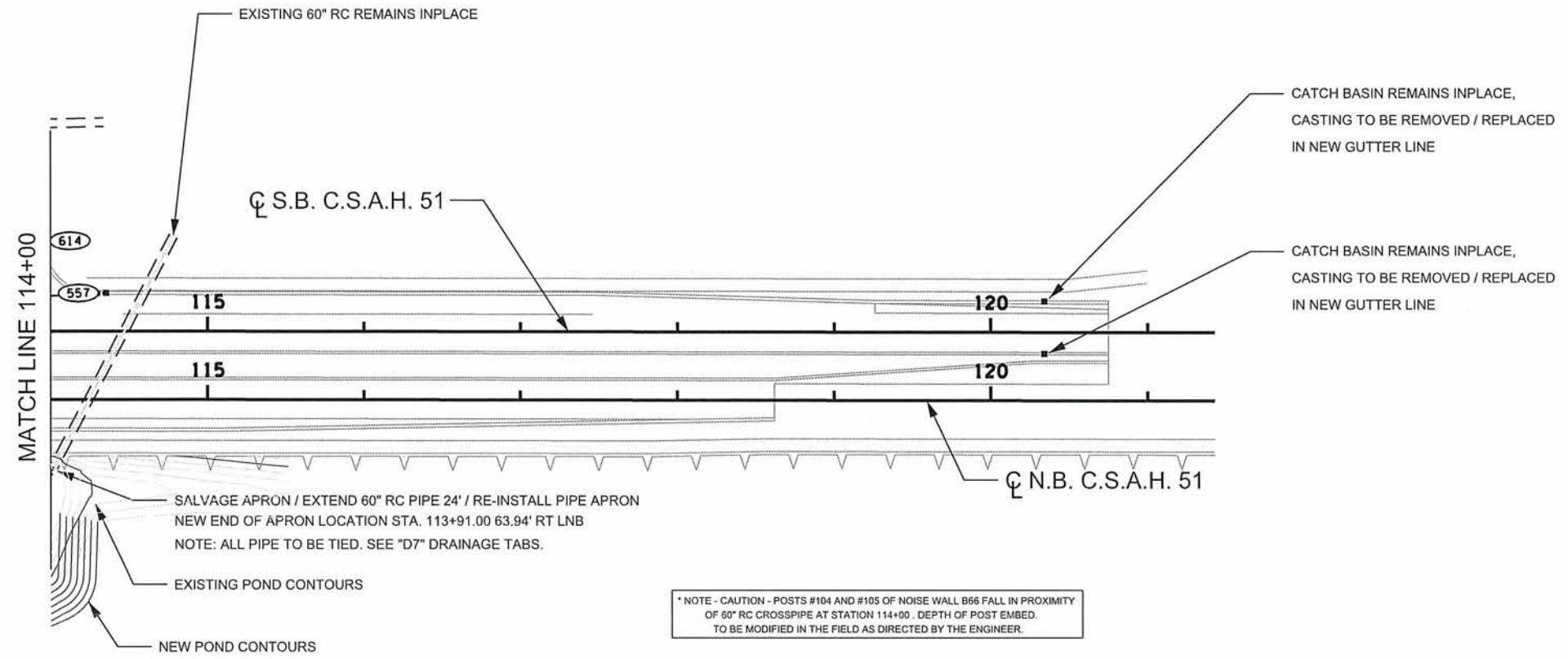


S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

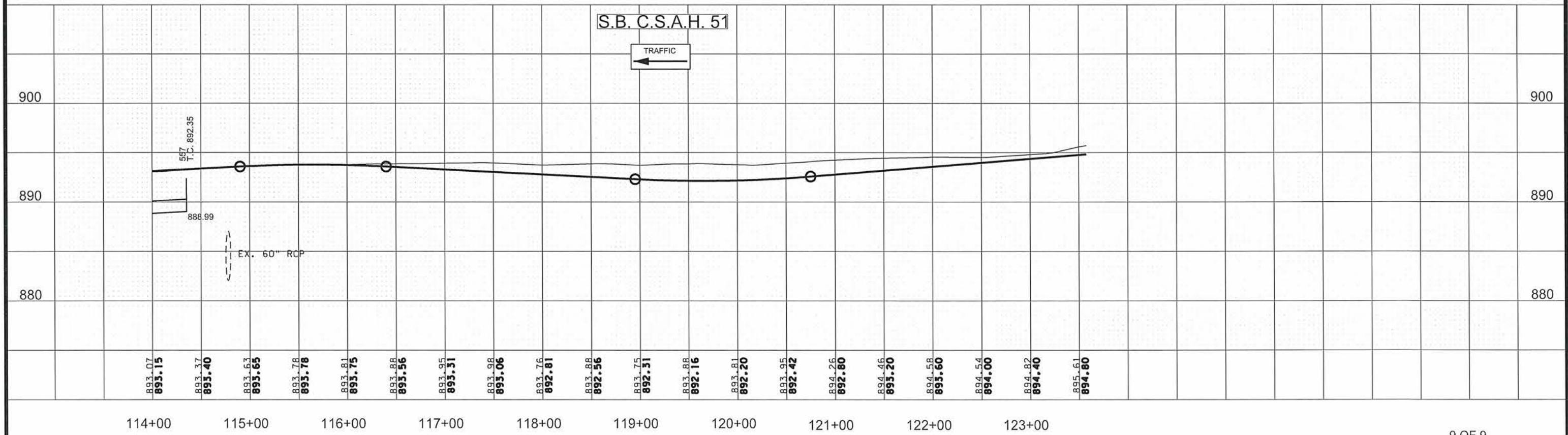
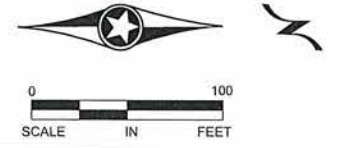
**DRAINAGE PLAN**  
 STA 90+00 TO 102+00  
 Sheet 149 of 381 Sheets



I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. PRINT NAME: CURT A. KOBIARCSIK SIGNATURE: <i>Curt A. Kobiarcsik</i> DATE: 6-9-14 LICENSE NO. 24756		DRAWN BY: JCF DATE: 11-25-13 DESIGN BY: NJD DATE: 10-31-13 CHECKED BY: GMP DATE: 12-13-13	<b>ANOKA COUNTY</b> <b>HIGHWAY DEPT.</b>	S.P. 002-651-007 S.P. 106-020-031 S.P. 114-020-046	<b>DRAINAGE PLAN</b> STA 102+00 TO 114+00 Sheet 150 of 381 Sheets
NO DATE BY CKD APPR REVISION NAME: P:\02-651-07\Plan\0265107_DR_PP8.dgn 06/05/2014 9:54:31 AM					



LEGEND	
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	EXISTING STORM SEWER
	EXISTING SANITARY LINE
	EXISTING WATER LINE
	EXISTING CULVERT



NO	DATE	BY	CKD	APPR	REVISION

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

PRINT NAME: CURT A. KOBILARCSIK

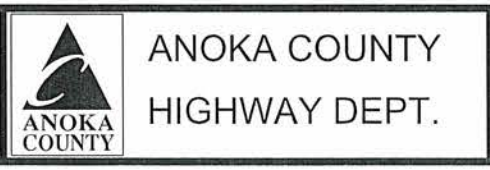
SIGNATURE: *Curt Kobilarcsik*

DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13

DESIGN BY: NJD DATE: 10-31-13

CHECKED BY: GMP DATE: 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

DRAINAGE PLAN

STA 114+00 TO 123+51.51

Sheet 151 of 381 Sheets

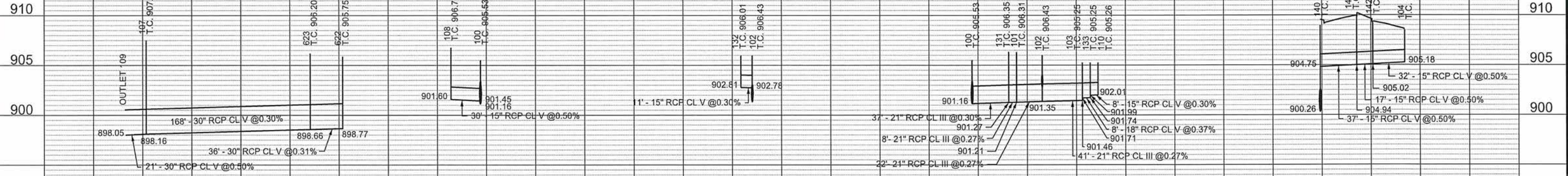
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108-100

132-102

100-110

140-104

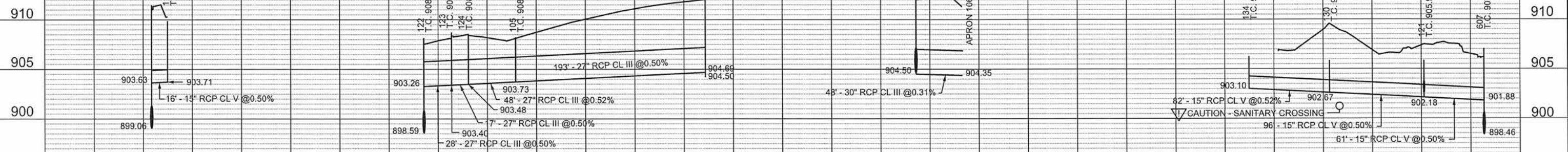


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122-116

116-106

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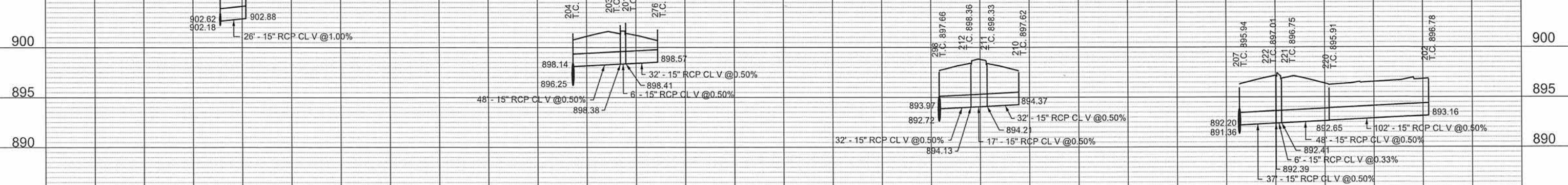


121-120

204-276

298-210

207-202



NO	DATE	BY	CKD	APPR	REVISION
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I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: CURT A. KOBILARCSIK

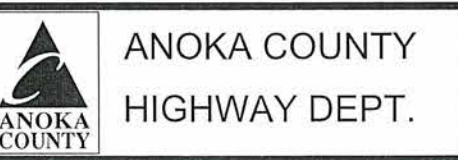
SIGNATURE: *Curt Kobilarcsik*

DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13

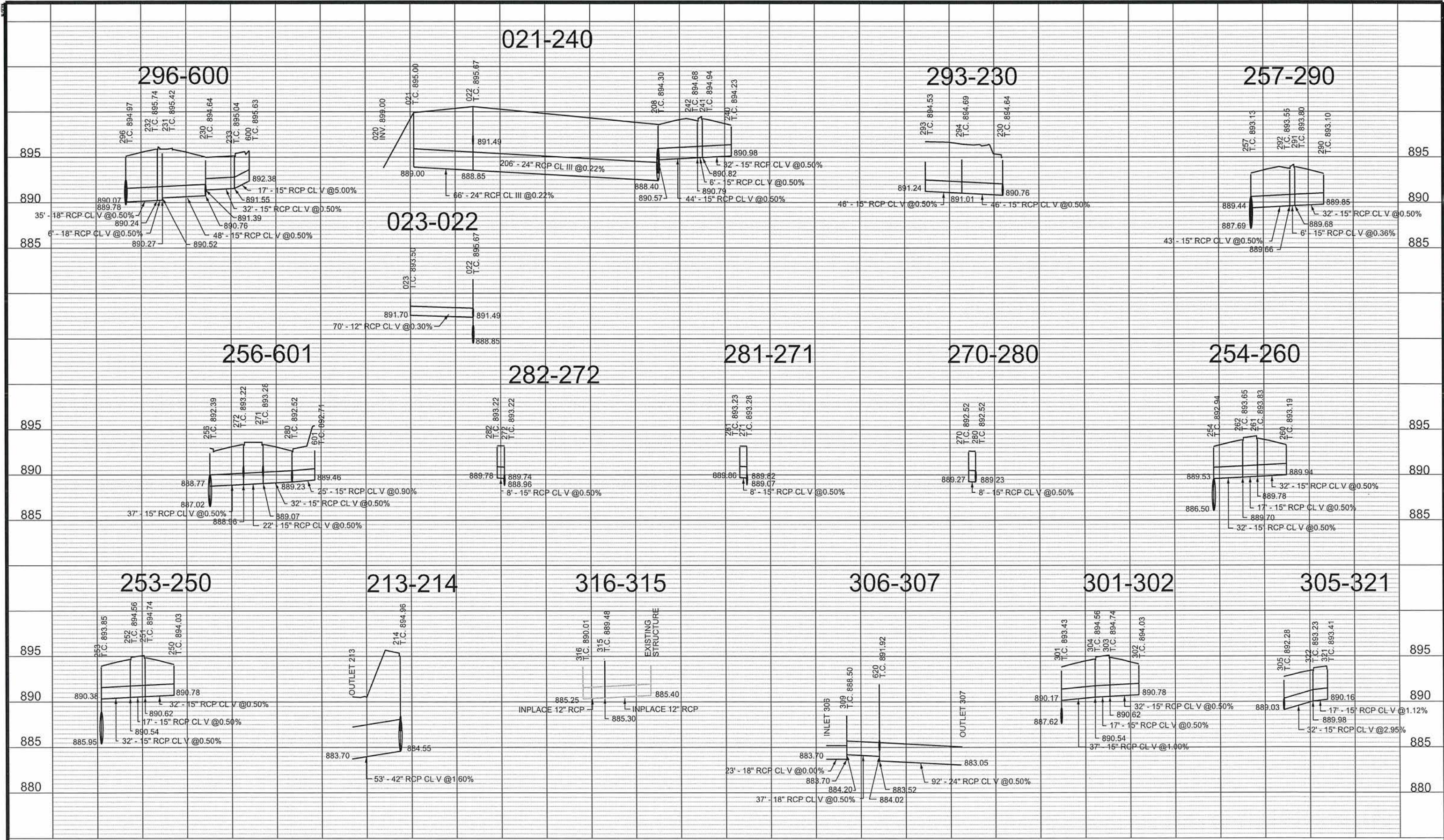
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CHECKED BY: GMP DATE: 12-13-13



S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046





NO	DATE	BY	CKD	APPR	REVISION
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06/05/2014 9:53:29 AM					

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

PRINT NAME: CURT A. KOBIARCSIK

SIGNATURE: *Curt A. Kobiarcsik*

DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13

DESIGN BY: NJD DATE: 10-31-13

CHECKED BY: GMP DATE: 12-13-13



S.P. 002-651-007

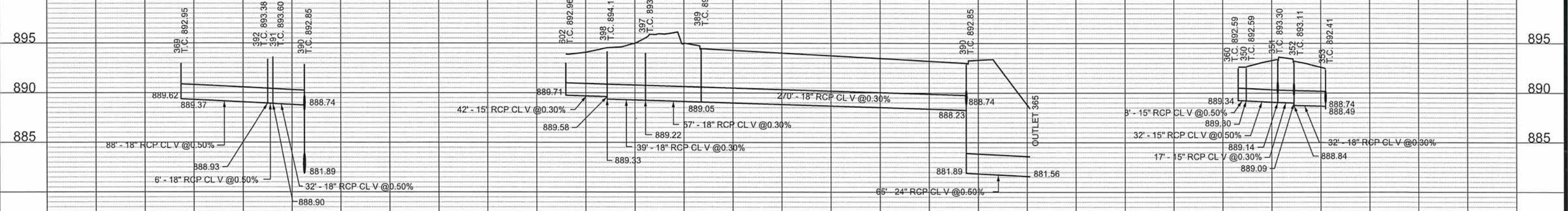
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S.P. 114-020-046

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602-365

360-353

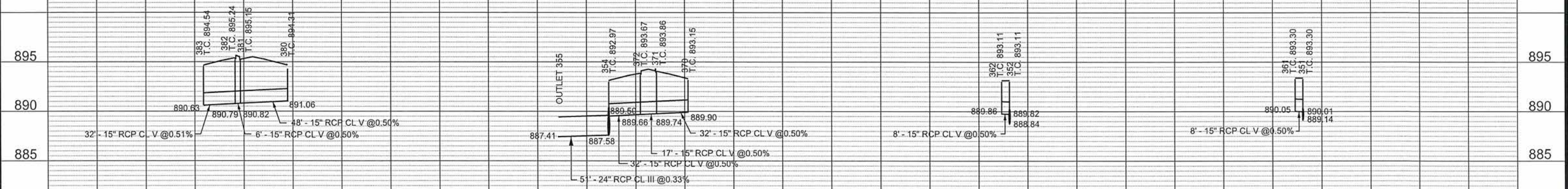


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354-370

362-352

361-351



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PRINT NAME: CURT A. KOBILARCSIK

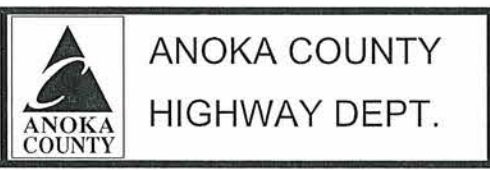
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DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13

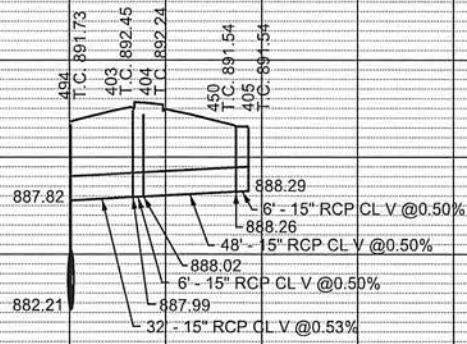
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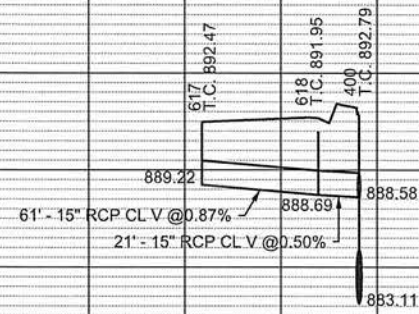


S.P. 002-651-007  
 S.P. 106-020-031  
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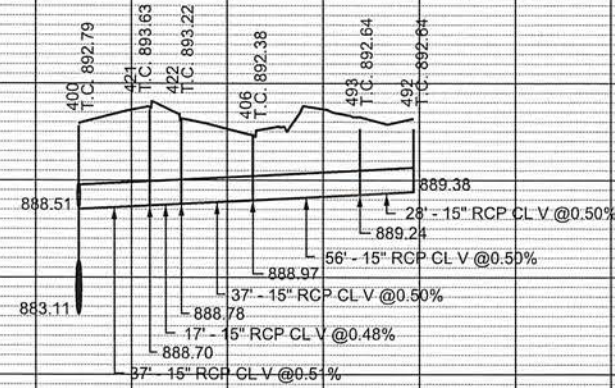
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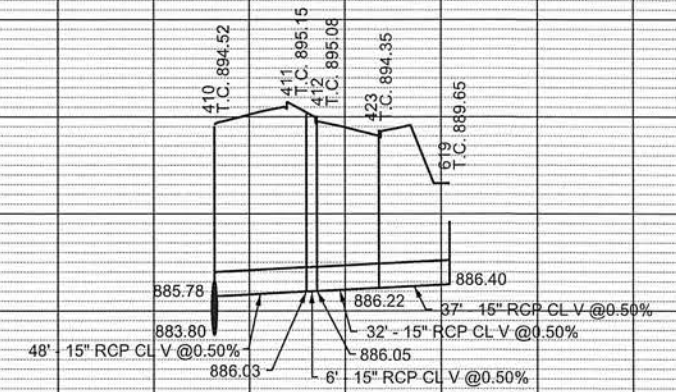
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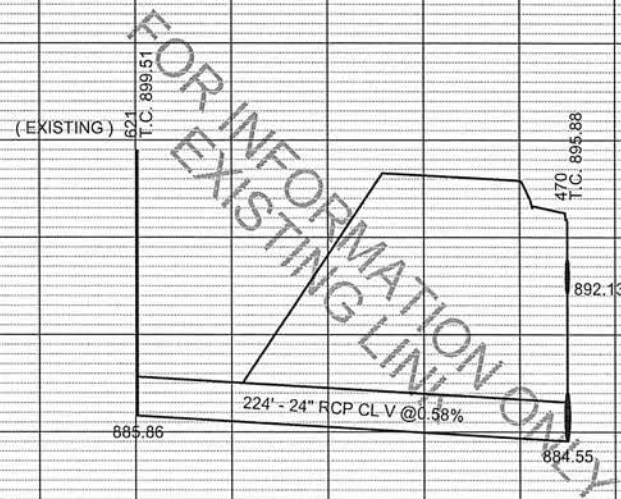
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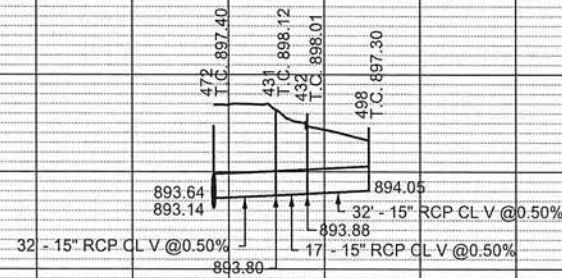
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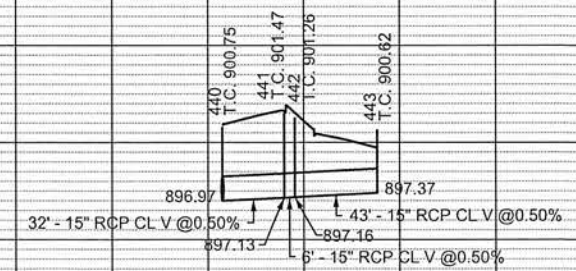
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472-498



440-443



FOR INFORMATION ONLY  
EXISTING LINE

NO	DATE	BY	CKD	APPR	REVISION
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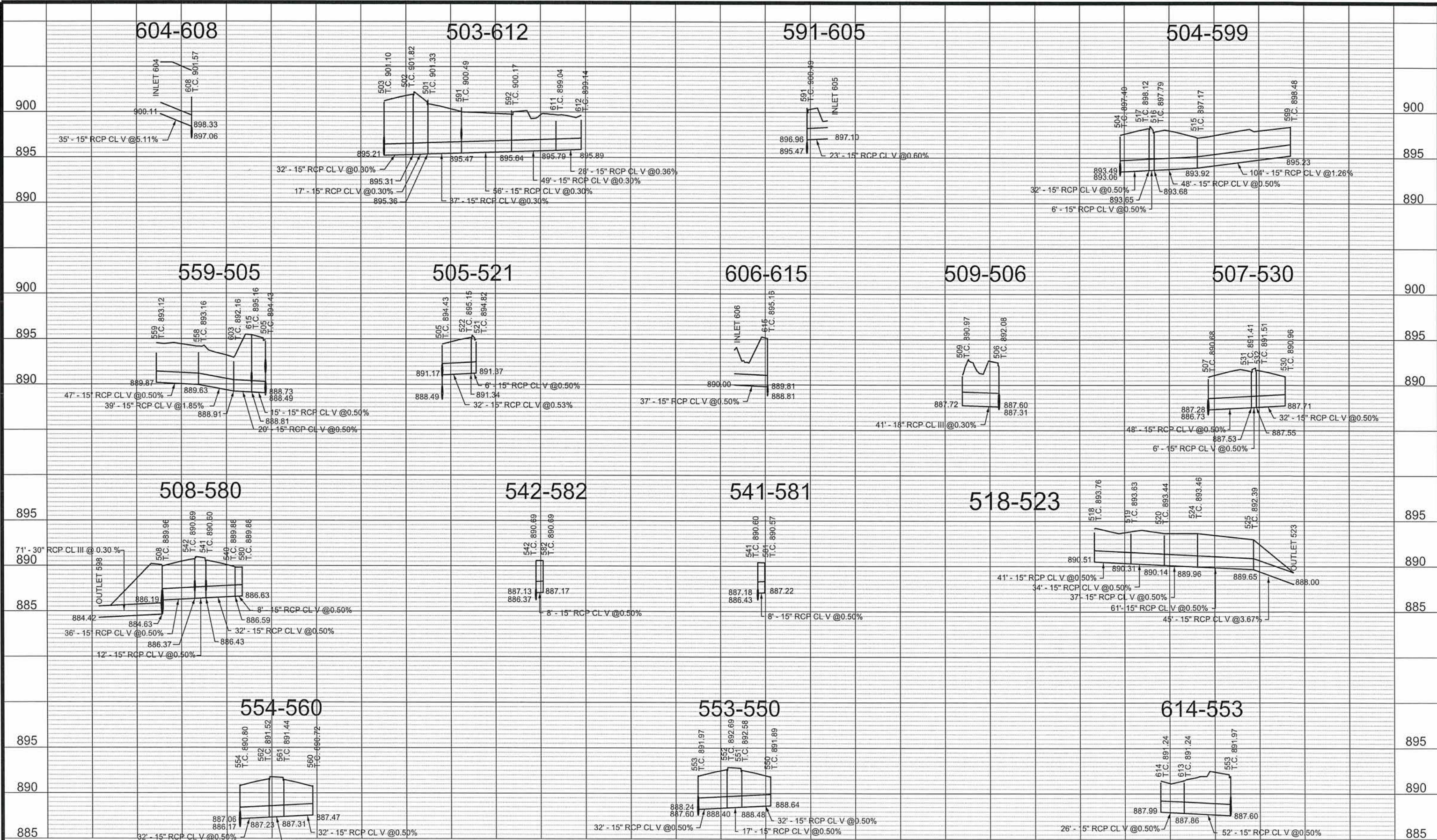
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt A. Kobilarsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
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ANOKA COUNTY  
HIGHWAY DEPT.

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046



NO	DATE	BY	CKD	APPR	REVISION
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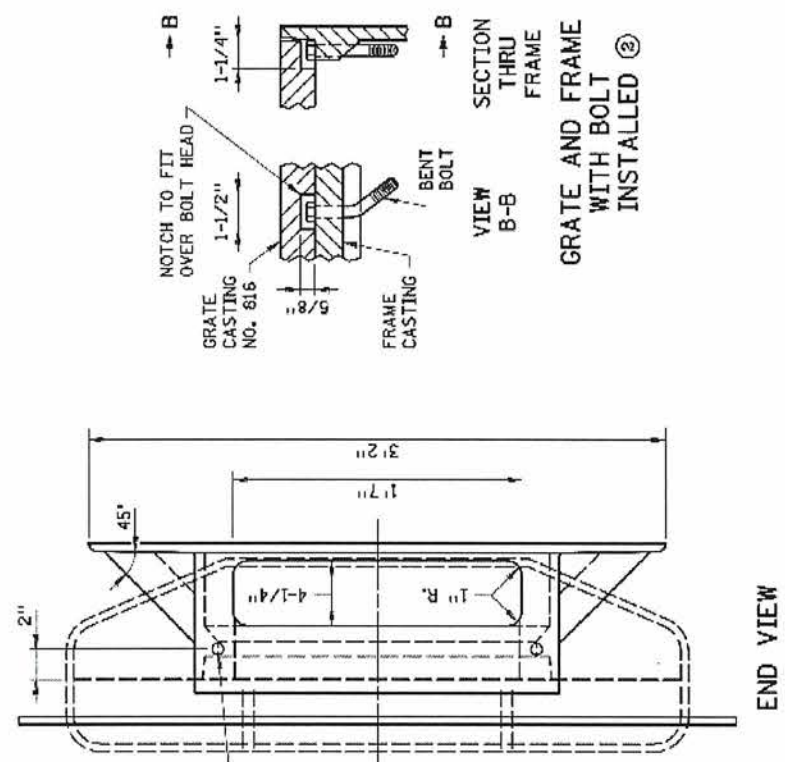


ANOKA COUNTY  
HIGHWAY DEPT.

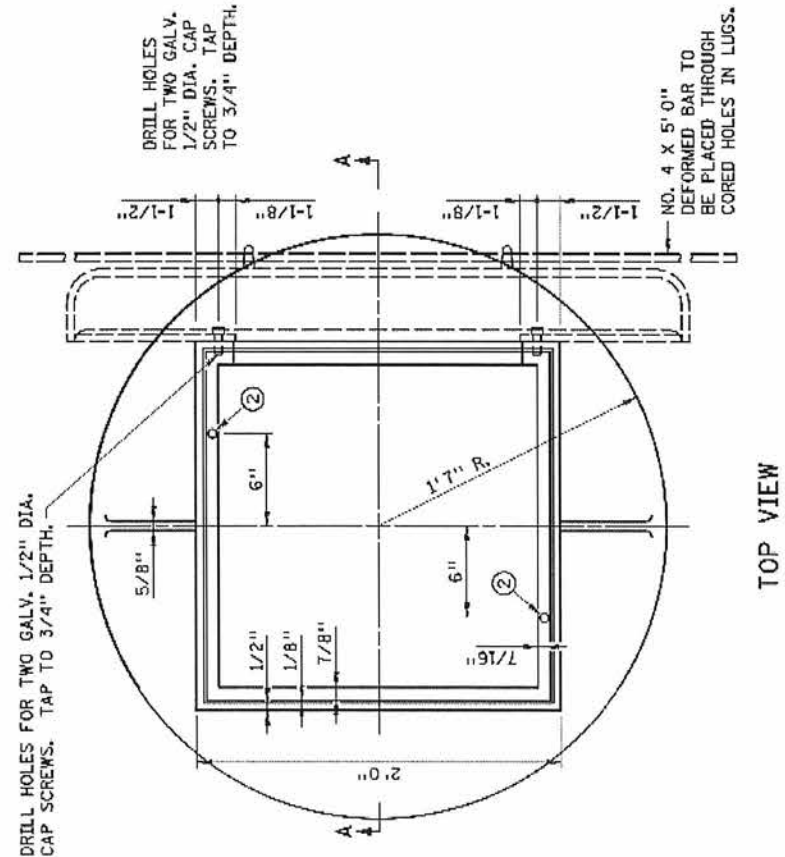
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S.P. 106-020-031  
S.P. 114-020-046

DRAINAGE LEADS

Sheet 156 of 381 Sheets



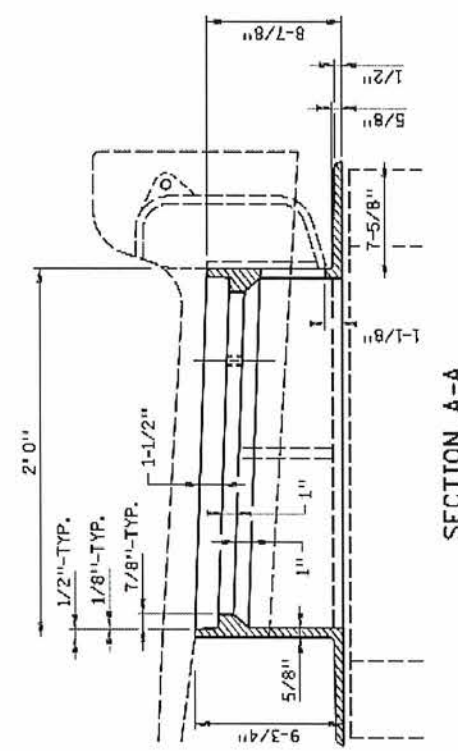
SECTION THRU FRAME  
VIEW B-B  
GRATE AND FRAME WITH BOLT INSTALLED ②



TOP VIEW

**CASTINGS USED FOR ASSEMBLY**  
 GRATE NO. 816 (MNDOT STD PLATE 4154B)  
 CURB BOX ① NO. 823A (MNDOT STD PLATE 4160) OR

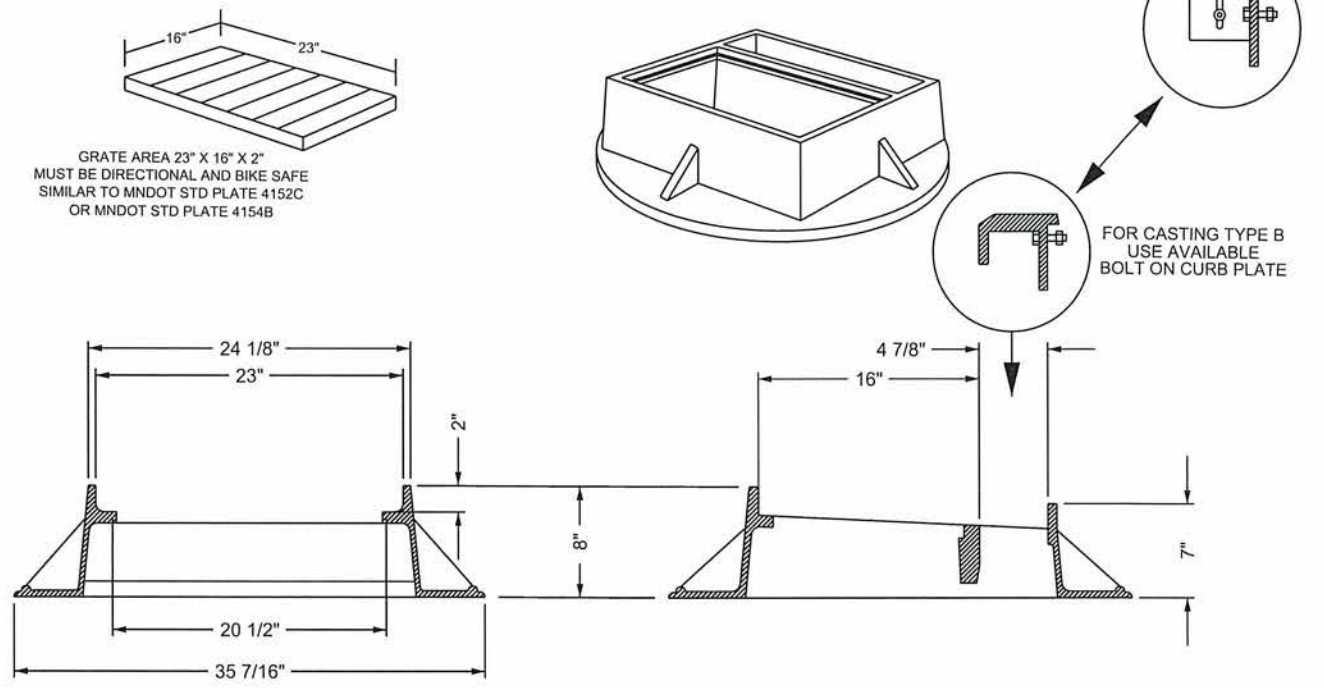
**NOTES:**  
 USE 1/4" FILLETS IN ALL CORNERS. SEE MNDOT STANDARD PLATE 7111 FOR INSTALLATION REQUIREMENTS. APPLIES TO DESIGN B OR V CURB AND CURB AND GUTTER.  
 ① AT LOCATIONS INDICATED IN TOP VIEW, PROVIDE 9/16" DIA. HOLES WHEN GRATE NO 816 (MNDOT STD PLATE 4154) IS USED WITH THIS FRAME. FIELD PLACE 1/2" DIA X 4" LONG GALV BOLT IN UP STREAM SIDE AND BENT UNDERSIDE TO PREVENT REMOVAL. THIS WILL PREVENT GRATE NO. 816 (MNDOT STD PLATE 4154) FROM BEING PLACED IN WRONG AND NOT BEING BICYCLE SAFE



SECTION A-A

GRATE FRAME CASTING TYPE C & D

**FRAME RING AND CASTING TYPE A  
 FRAME RING AND CASTING TYPE B**  
 TO BE USED FOR MEDIAN CATCH BASINS



FOR FRAME CASTING FOR TYPE E & F SEE MNDOT STD PLATE 4101D  
 FOR GRATE CASTING TYPE E SEE S MNDOT STD PLATE 4140D "CONCAVE"  
 FOR GRATE CASTING TYPE F SEE S MNDOT STD PLATE 4110F  
 FOR FRAME CASTING FOR TYPE G SEE MNDOT STD PLATE 4126F  
 SEE MNDOT STD PLATE 4161F FOR CURB BOX ON G TYPE CASTING  
 FOR TYPE G CASTINGS USE GRATE NO 810 - MNDOT STD PLATE 4149C

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:302-651-07\Plan\0265107\_DR\_DET.dgn 06/05/2014 9:52:45 AM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBIARCSIK  
 SIGNATURE: *Curt A. Kobilarcsik*  
 DATE: 6-9-14 LICENSE NO. 24756

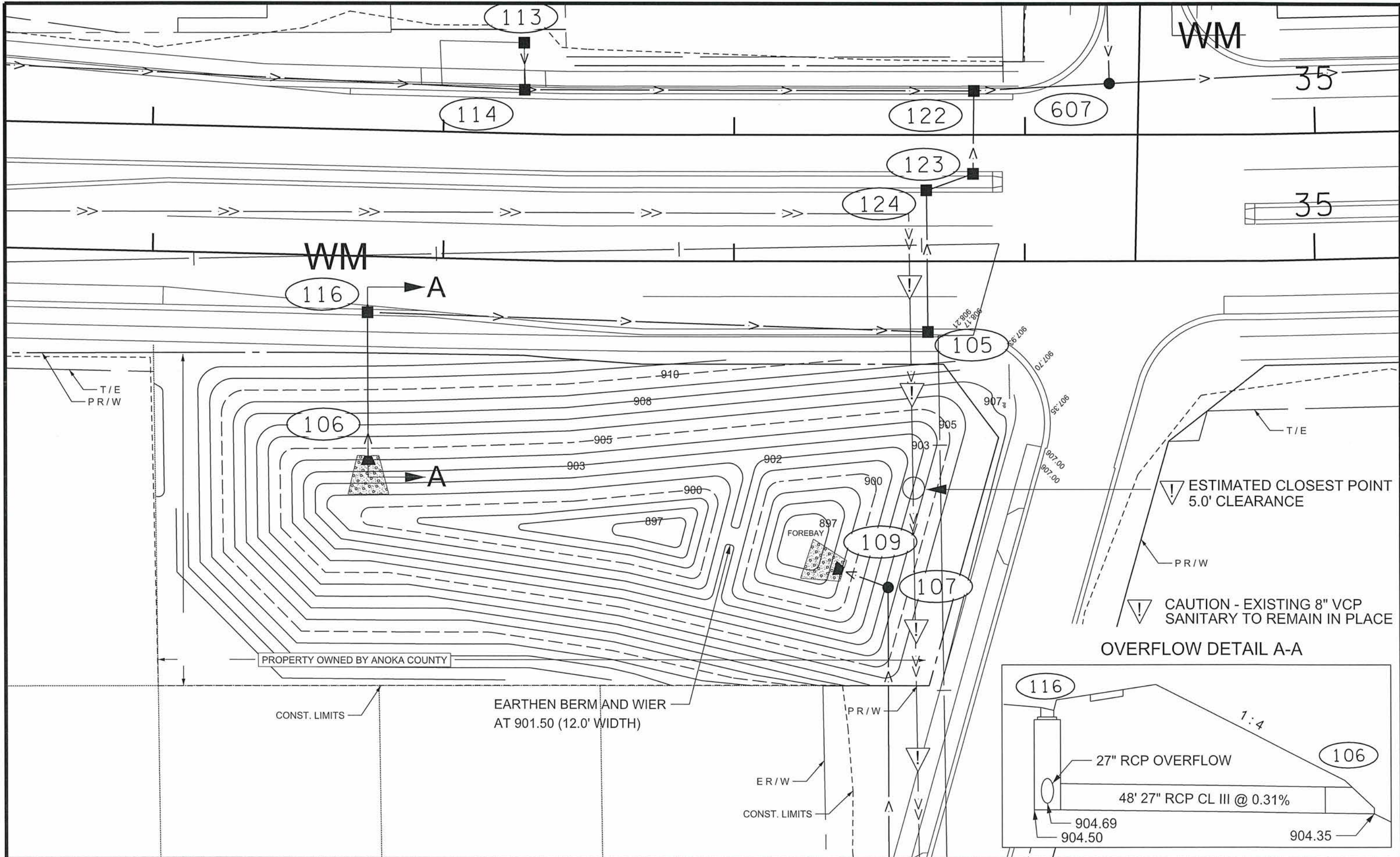
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 DESIGN BY: NJD DATE: 10/31/13  
 CHECKED BY: #ZZC DATE: -



**ANOKA COUNTY  
 HIGHWAY DEPT.**

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

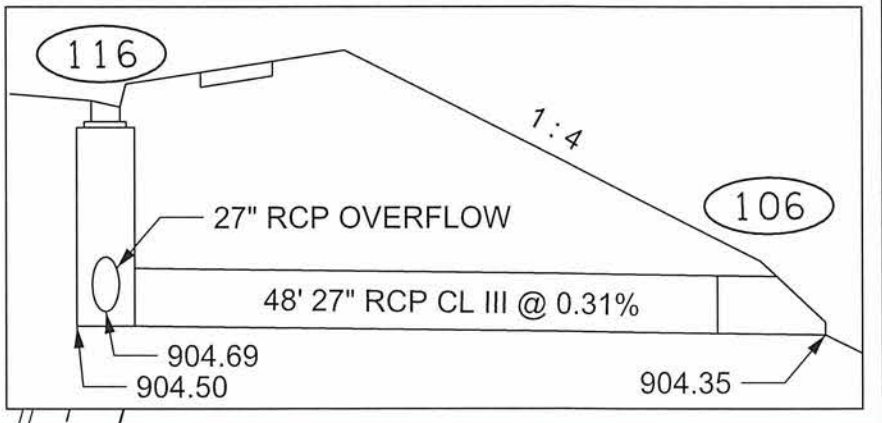
DRAINAGE DETAILS  
 Sheet 157 of 381 Sheets



ESTIMATED CLOSEST POINT  
5.0' CLEARANCE

CAUTION - EXISTING 8" VCP  
SANITARY TO REMAIN IN PLACE

OVERFLOW DETAIL A-A

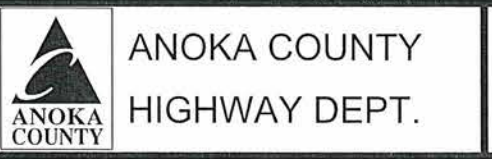


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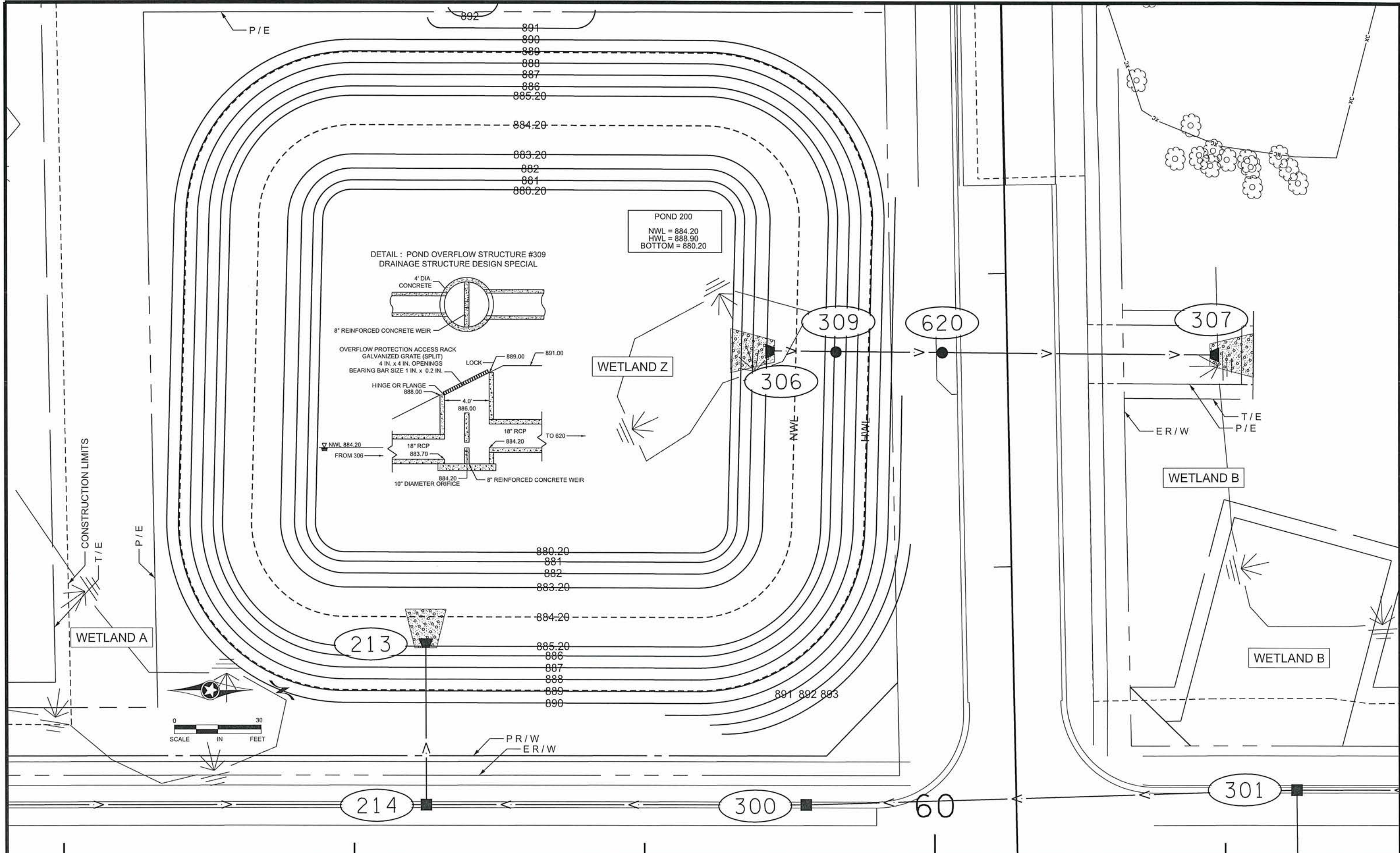
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

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DRAWN BY: NJD DATE: 11-25-13  
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 CHECKED BY: GMP DATE: 12-13-13

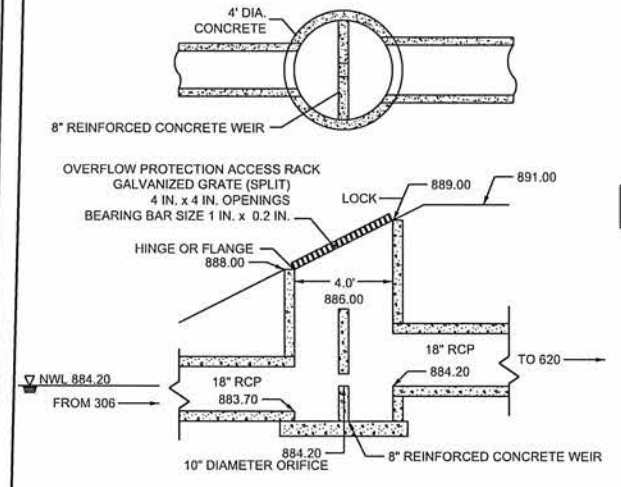


S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046



POND 200  
 NWL = 884.20  
 HWL = 888.90  
 BOTTOM = 880.20

DETAIL : POND OVERFLOW STRUCTURE #309  
 DRAINAGE STRUCTURE DESIGN SPECIAL



NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\02-651-07\Plan\0261507_POND200.dgn					

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

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt A. Kobilarsik*  
 DATE: 6-9-14 LICENSE NO. 24756

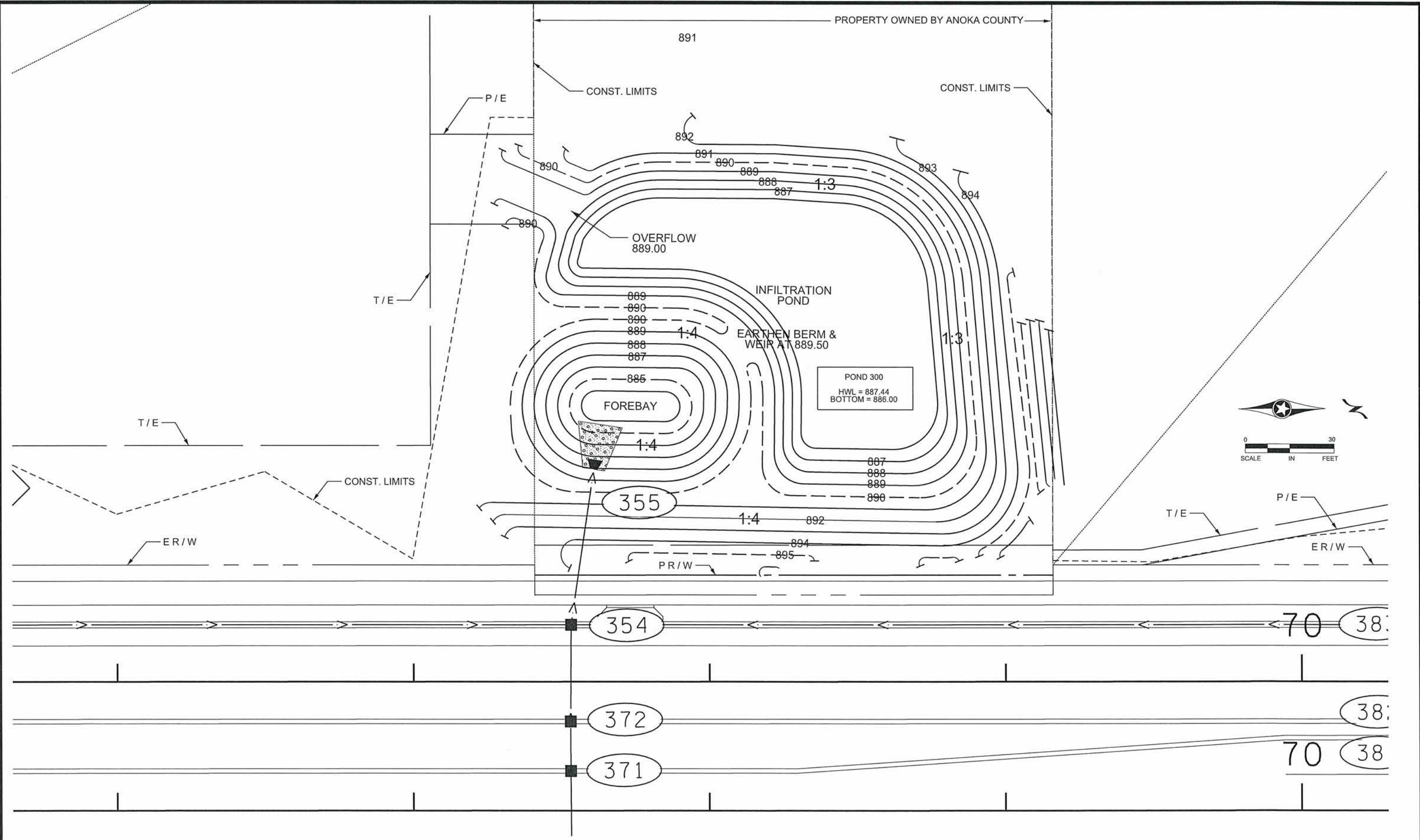
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ANOKA COUNTY  
 HIGHWAY DEPT.

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

POND 200  
 GRADING AND DETAILS  
 Sheet 159 of 381 Sheets



NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\02-651-07\Plan\0261507_POND300.dgn					
06/05/2014 9:58:22 AM					

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

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SIGNATURE: *Curt Kobilarcsik*

DATE: 6-9-14 LICENSE NO. 24756

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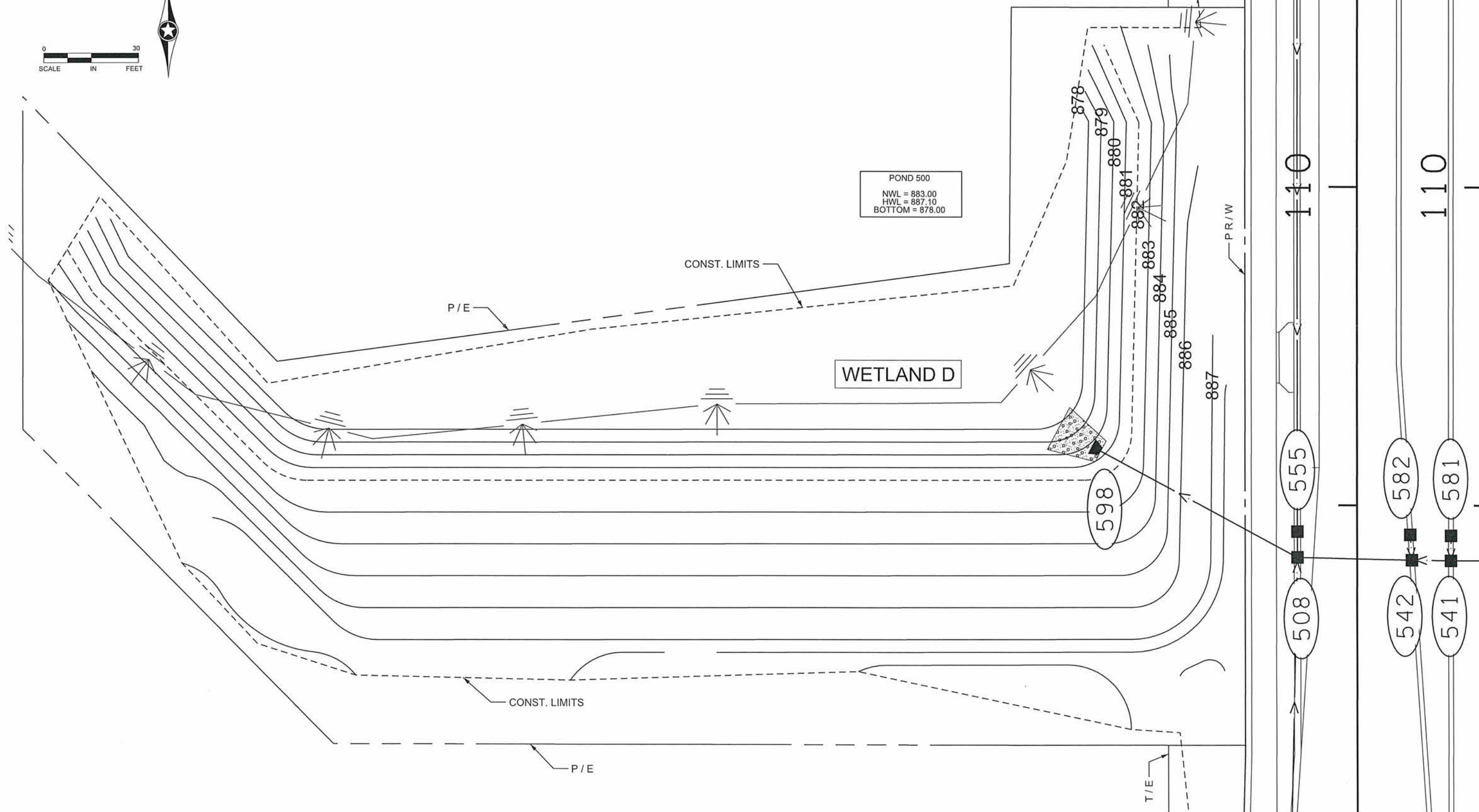
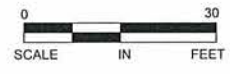
ANOKA COUNTY  
HIGHWAY DEPT.

S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

POND 300  
GRADING AND DETAILS

Sheet 160 of 381 Sheets





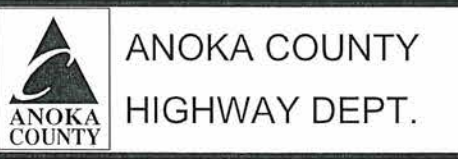
NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0261507\_POND500.dgn      06/05/2014      9:58:24 AM

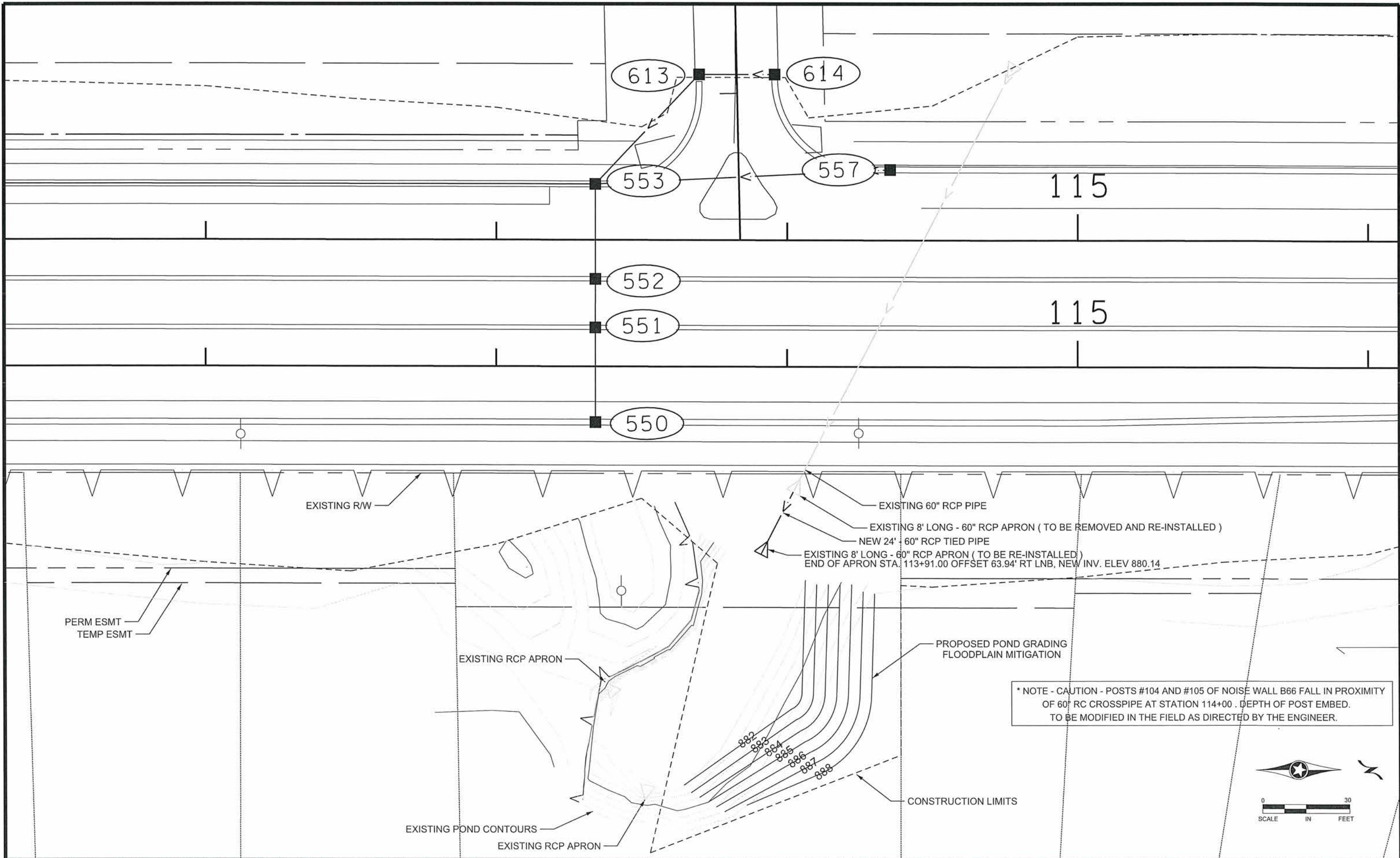
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt A. Kobilarsik*  
 DATE: 6-9-14      LICENSE NO. 24756

DRAWN BY: NJD      DATE: 11-25-13  
 DESIGN BY: NJD      DATE: 10-31-13  
 CHECKED BY: GMP      DATE: 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046



NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\02-651-07\Plan\0261507_POND600MIT.dgn 06/05/2014 9:58:30 AM					

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

PRINT NAME: CURT A. KOBILARCSIK

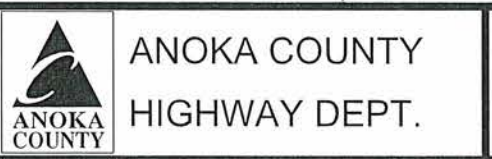
SIGNATURE: *Curt Kobilarsik*

DATE: 6-9-14 LICENSE NO. 24756

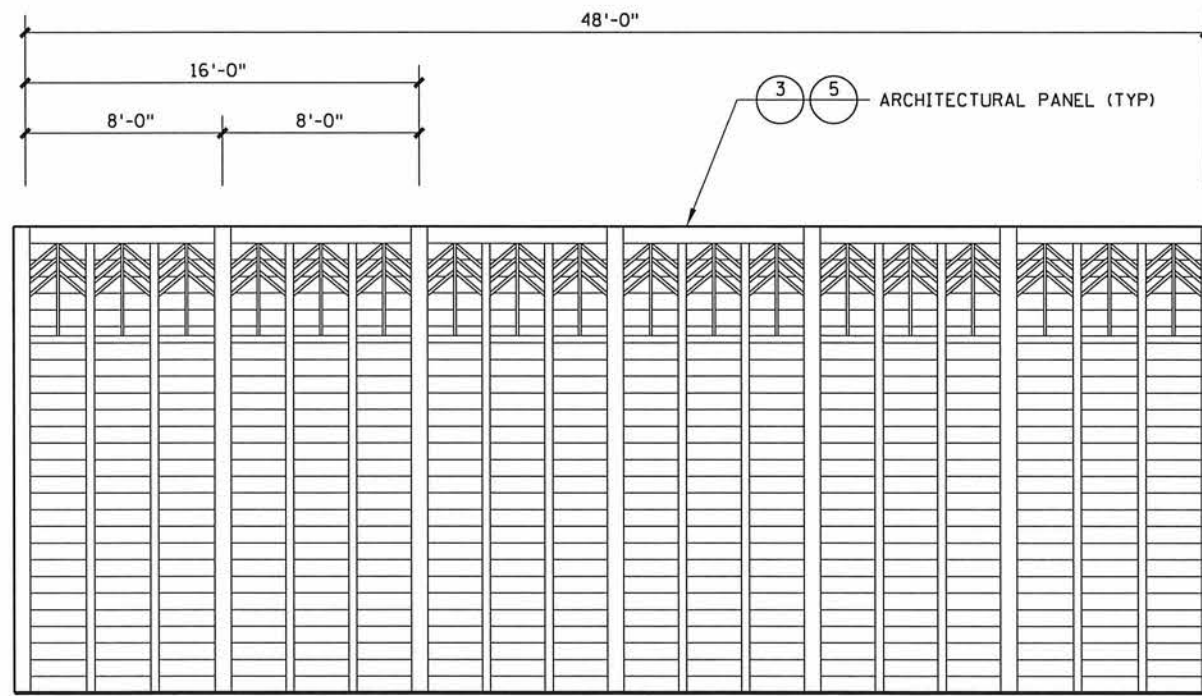
DRAWN BY: NJD DATE: 11-25-13

DESIGN BY: NJD DATE: 10-31-13

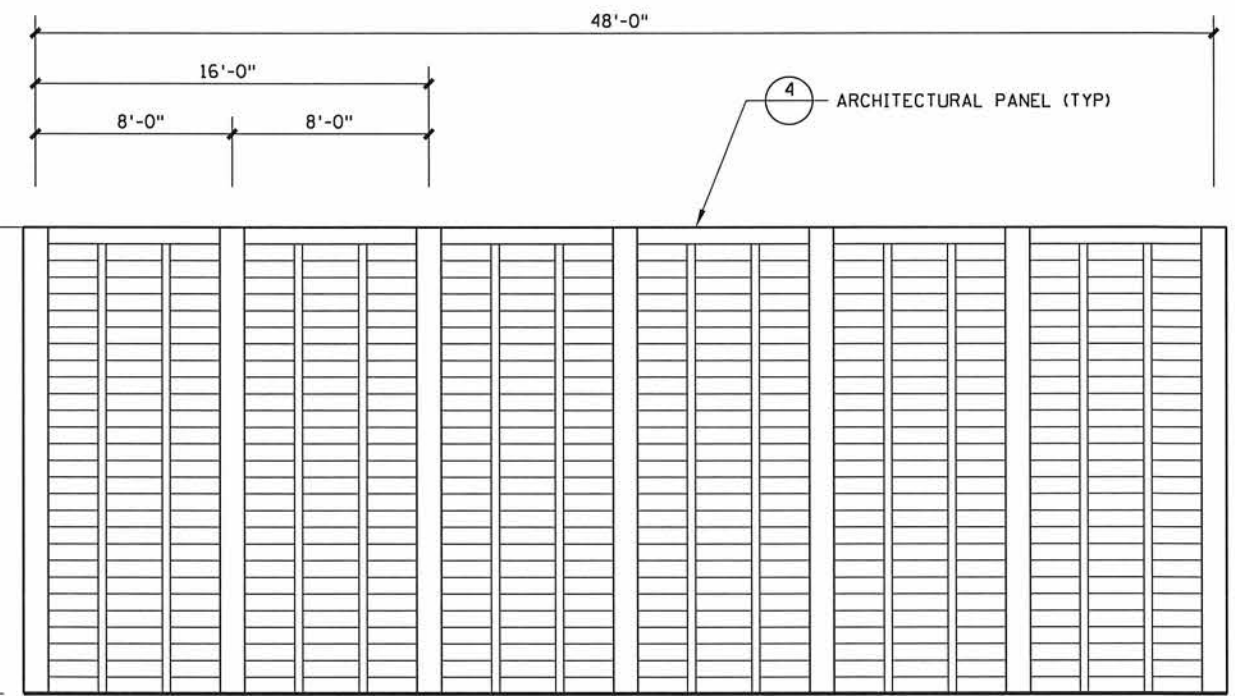
CHECKED BY: GMP DATE: 12-13-13



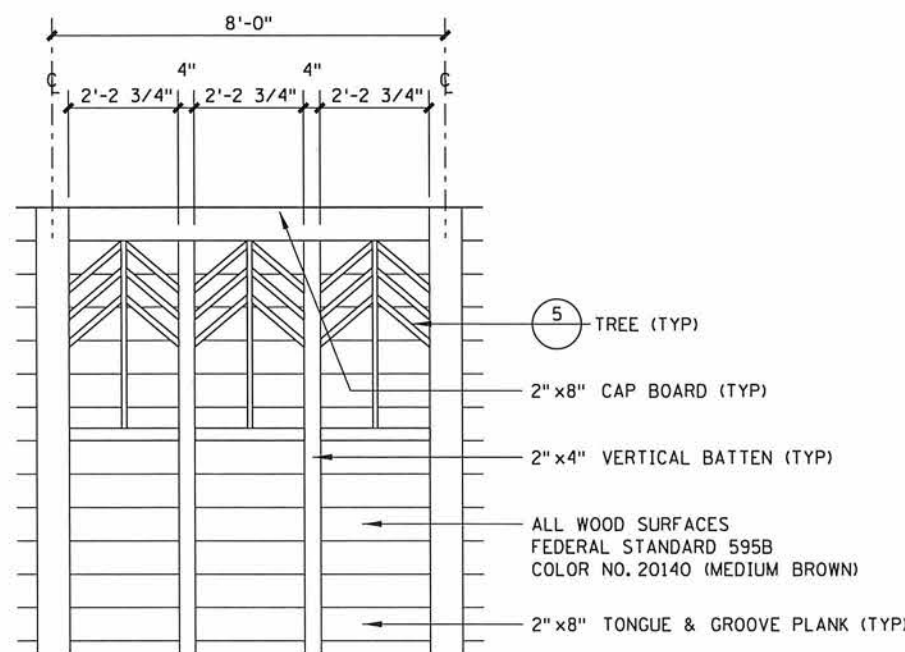
S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046



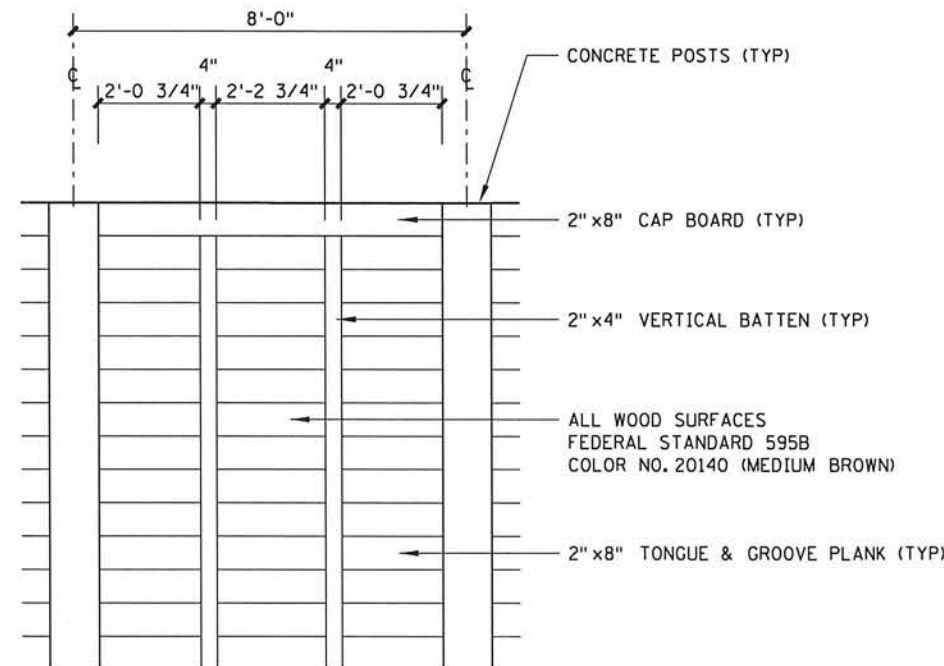
1 ARCHITECTURAL PANEL - ELEVATION (RESIDENT AND/OR HIGHWAY SIDE)



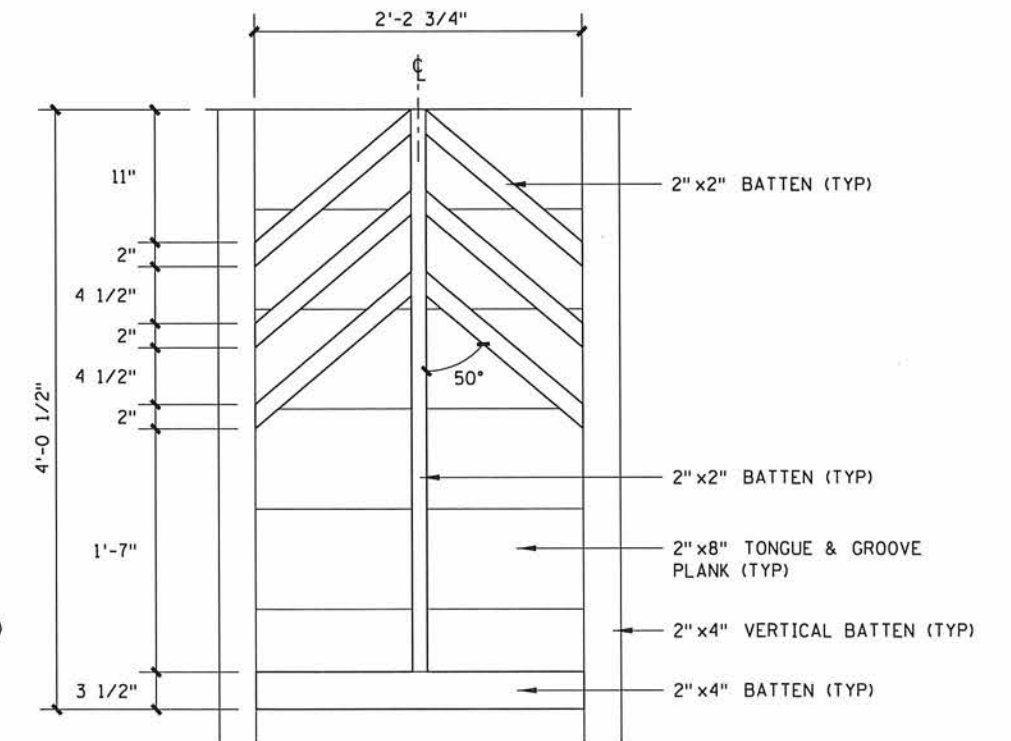
2 ARCHITECTURAL PANEL - ELEVATION (RESIDENT AND/OR HIGHWAY SIDE)



3 DETAIL



4 DETAIL



5 TREE - DETAIL

NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\02-651-07\Plan\0265107_NWB_1.dgn					
06/05/2014 7:41:49 AM					

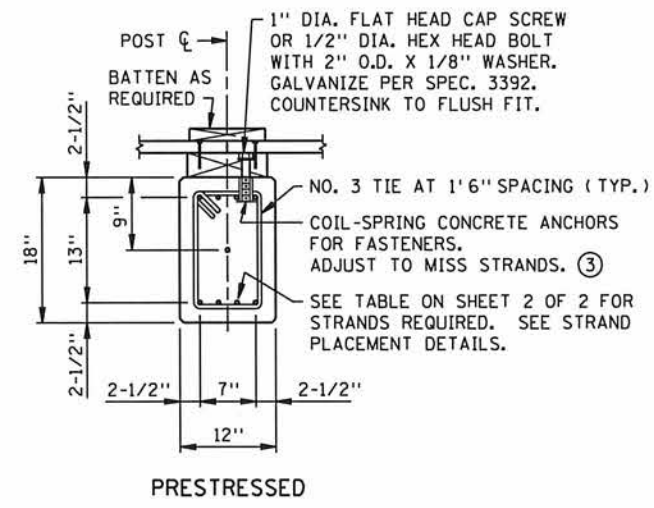
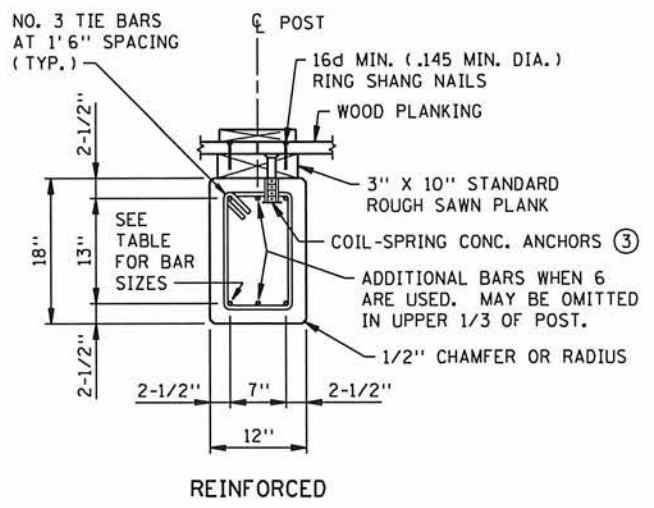
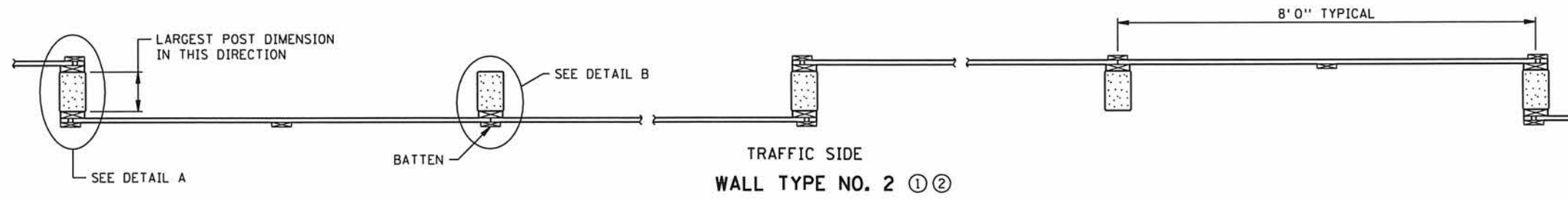
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarcsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



ANOKA COUNTY  
 HIGHWAY DEPT.

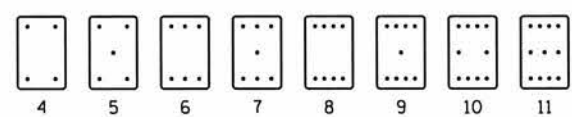
S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046



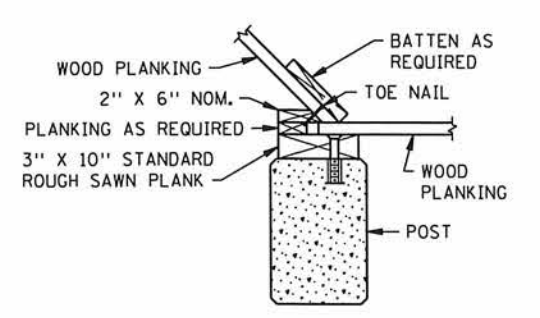
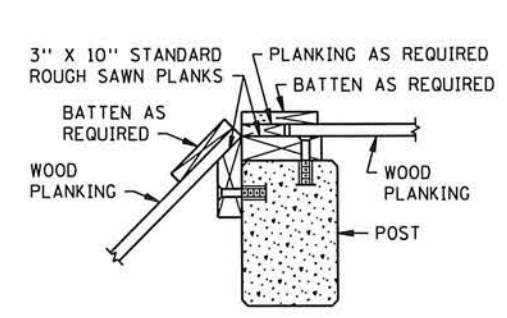
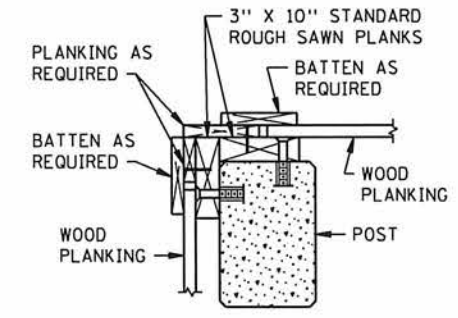
REINFORCED

PRESTRESSED

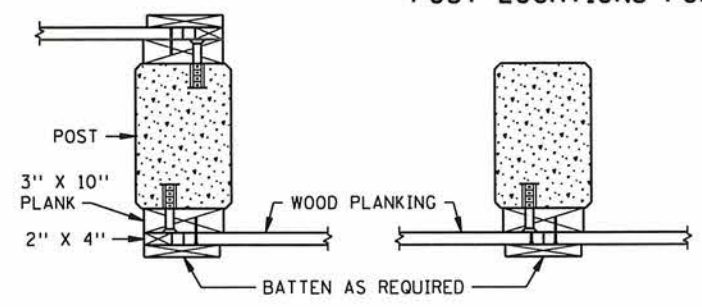
POST DETAILS



STRAND PLACEMENT DETAILS



POST LOCATIONS FOR ANGLE TURNS



DETAIL A

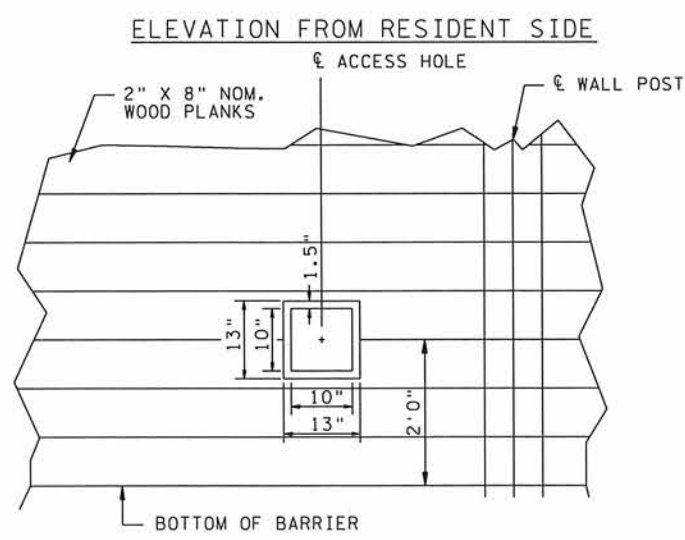
DETAIL B

NOTES:

- (2) TYPE NO. 2 AND 3 SHALL BE USED IN NON-FILL CONDITIONS ONLY.
- (3) SPACE AT 4' 0" ON ALTERNATE SIDES OF POST C. ULTIMATE PULL-OUT 2.25K PER ANCHOR.

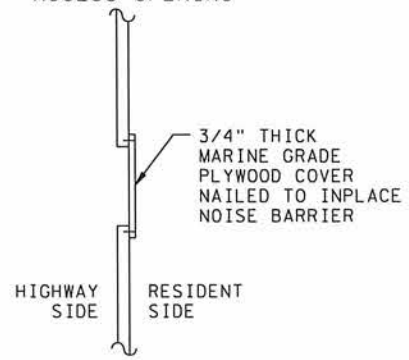
FIRE HOSE ACCESS HOLE DETAILS  
NOTE: LOCATIONS AND QUANTITIES OF ACCESS HOLES TO BE DETERMINED BY ENGINEER AND CITY IN THE FIELD.

FIRE HOSE ACCESS, INCLUDING SIGNS, IS INCIDENTAL.



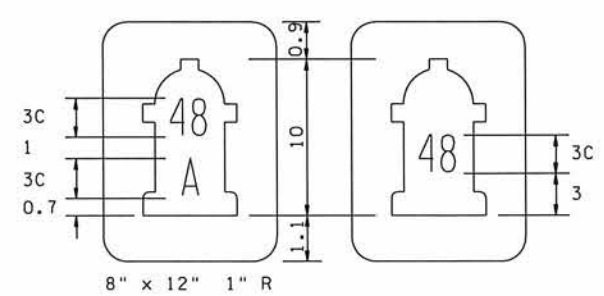
ACCESS HOLE COVER

SECTION VIEW AT ACCESS OPENING



IDENTIFICATION SIGN  
(EACH SIDE OF NOISE WALL)

DIMENSIONS IN INCHES



WHITE LETTERS, RED HYDRANT ON WHITE BACKGROUND FULLY REFLECTORIZED. THE ENGINEER WILL PROVIDE THE NUMBER AND LETTER DESIGNATION FOR EACH LOCATION.

STANDARD SHEET NO. 5-297.661 (1 OF 2)  
STANDARD APPROVED: JANUARY 4, 1994

TITLE: WOOD PLANKING NOISE BARRIER WITH CONCRETE POSTS

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_NWB\_2.dgn 06/05/2014 7:41:52 AM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
PRINT NAME: CURT A. KOBILARCSIK  
SIGNATURE: *Curt A. Kobilarscik*  
DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
DESIGN BY: NJD DATE: 10-31-13  
CHECKED BY: GMP DATE: 12-13-13



ANOKA COUNTY  
HIGHWAY DEPT.

S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

NOISE BARRIER DETAILS  
Sheet 164 of 381 Sheets

FILL HEIGHT W = 0' TO 1'

"H" WALL HEIGHT (FT.)	POST SPACING (FT.)	POST SIZE (IN.)	REINF. BARS	PRE-STRESSED STRANDS	POST EMBEDMENT			
					LEVEL GROUND	2:1 SLOPE	3:1 SLOPE	4:1 SLOPE
5	8	12 X 18	4 NO. 4	4	5' 0"	8' 0"	7' 0"	6' 0"
6	8	12 X 18	4 NO. 4	4	6' 0"	9' 0"	8' 0"	7' 0"
7	8	12 X 18	4 NO. 4	4	6' 0"	9' 0"	8' 0"	8' 0"
8	8	12 X 18	4 NO. 4	4	7' 0"	10' 0"	9' 0"	8' 0"
9	8	12 X 18	4 NO. 4	4	7' 0"	11' 0"	10' 0"	9' 0"
10	8	12 X 18	4 NO. 4	4	8' 0"	11' 0"	10' 0"	9' 0"
11	8	12 X 18	4 NO. 5	4	8' 0"	12' 0"	11' 0"	10' 0"
12	8	12 X 18	4 NO. 5	4	8' 0"	12' 0"	11' 0"	10' 0"
13	8	12 X 18	4 NO. 5	4	9' 0"	13' 0"	11' 0"	10' 0"
14	8	12 X 18	4 NO. 5	4	9' 0"	13' 0"	11' 0"	10' 0"
15	8	12 X 18	6 NO. 5	4	9' 0"	13' 0"	11' 0"	11' 0"
16	8	12 X 18	6 NO. 5	4	9' 0"	14' 0"	12' 0"	11' 0"
17	8	12 X 18	6 NO. 5	4	10' 0"	14' 0"	12' 0"	11' 0"
18	8	12 X 18	6 NO. 6	4	10' 0"	15' 0"	13' 0"	12' 0"
19	8	12 X 18	6 NO. 6	5	10' 0"	15' 0"	13' 0"	12' 0"
20	8	12 X 18	6 NO. 6	5	10' 0"	15' 0"	13' 0"	12' 0"
21	8	12 X 18	6 NO. 6	6	11' 0"	16' 0"	14' 0"	13' 0"
22	8	12 X 18	6 NO. 7	6	11' 0"	16' 0"	14' 0"	13' 0"
23	8	12 X 18	6 NO. 7	7	11' 0"	17' 0"	14' 0"	13' 0"
24	8	12 X 18	6 NO. 7	8	11' 0"	17' 0"	15' 0"	14' 0"
25	8	12 X 18	6 NO. 7	9	12' 0"	17' 0"	15' 0"	14' 0"

DESIGN CRITERIA:

φ = 30° (GRANULAR)  
 WIND LOAD = 23 P.S.F.  
 f<sub>b</sub> = 4000 P.S.I. CONCRETE POSTS.  
 f<sub>b</sub> = 1400 P.S.I. WOOD PLANKING.  
 f<sub>b</sub> = 1200 P.S.I. ALL OTHER WOOD MEMBERS.  
 STRESS LEVEL SYMBOL  
 PER AITC-117-(LATEST ADDITION):  
 24F = 2400 PSI ALLOWABLE BENDING STRESS  
 20F = 2000 PSI ALLOWABLE BENDING STRESS

POST DESIGN CRITERIA

NO. OF STRANDS	f'c(1) (6)	f'c (5)
6 OR LESS	4000 PSI	5500 PSI
7 OR MORE	4000 PSI	6000 PSI

NOTES:

EMBEDMENT LENGTH IS BASED ON THE WATER TABLE BEING BELOW THE EMBEDMENT DEPTH OTHER CONDITIONS REQUIRE A SPECIAL DESIGN.

FOR SLOPES BETWEEN THOSE SHOWN, USE THE EMBEDMENTS FOR THE STEEPER SLOPE OR USE INTERPOLATION.

FOR SLOPES 6:1 OR FLATTER, USE LEVEL GROUND EMBEDMENT.

THE FINISHED WIDE FACE DIMENSION FOR THE ROUGH SAWN 3" PLANKS SHALL BE THE SAME AS THE FINISHED WIDE FACE DIMENSION FOR THE 2" PLANKS.

GALVANIZE NAILS PER SPEC. 3392. NAILING REQUIREMENTS SHOWN ARE BASED ON FULL HEAD NAILS AND ENTIRE LENGTH OF SHANK BEING DEFORMED. SEE SPECIAL PROVISIONS FOR POWER NAILS ALTERNATE.

SOIL TESTS AT 200 FT. INTERVALS SHALL BE REQUIRED AT EACH SITE LOCATION AND THE RESULTS REVIEWED BY THE SOILS ENGINEER FOR RECOMMENDATIONS.

SOIL TREATMENT AND BACKFILL SHALL CONFORM TO SPEC. 2451.

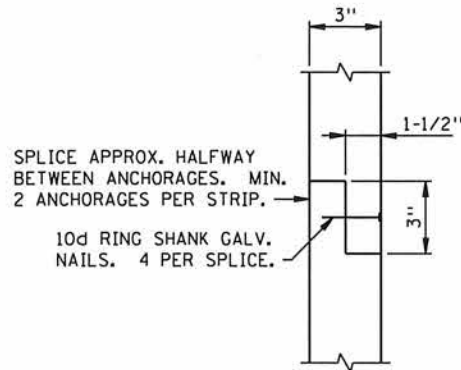
SEE SPEC. 2554 FOR ADDITIONAL CONST. INFORMATION, UNLESS OTHERWISE NOTED. CONCRETE POSTS WITH THE SAME TOTAL LENGTH SHALL USE THE LARGEST NUMBER OF PRESTRESSED STRANDS REQUIRED FOR THAT POST LENGTH.

PRESTRESSED STEEL STRANDS ARE 1/2" DIA. (AREA = 0.153 SQ. IN.), MIN. OF 2 SPACES, 270 KIP ULTIMATE STRENGTH. INITIAL PRESTRESS EQUALS 28,900 LBS./STRAND.

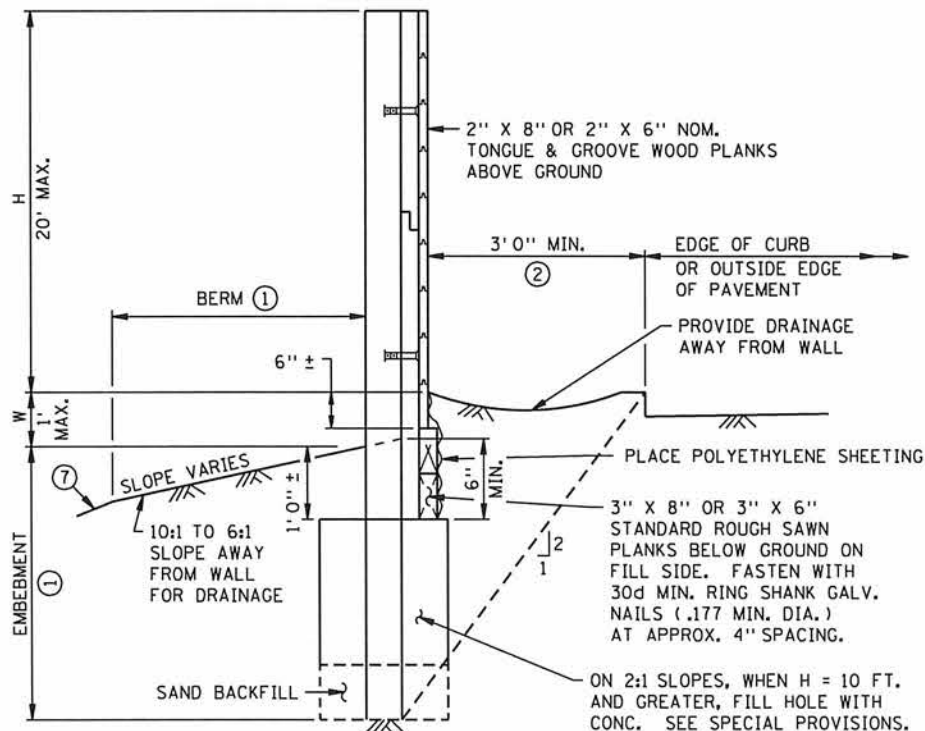
STEEL STRANDS PER SPEC. 3348 AND PAINT THE EXPOSED ENDS OF THE STRANDS WITH AN APPROVED GRAY EPOXY.

ALL REINF. BARS SHALL BE EPOXY COATED GRADE 60 PER SPEC. 3301 AND HAVE A MIN. 2" CLEAR UNLESS OTHERWISE NOTED.

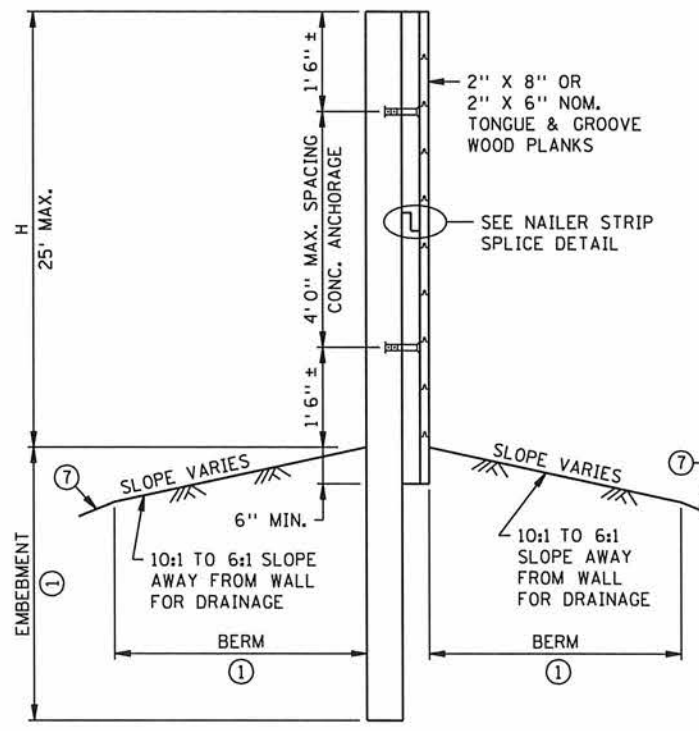
- ① EMBEDMENT DEPTHS IN THE TABLES ARE BASED ON A 3 FT. MIN. BERM IN FRONT OF THE WALL.
- ② WHEN THE CURB LINE IS CLOSER THAN 2:1 SLOPE, A SPECIAL DESIGN IS REQUIRED.
- ③ 1" MIN. DISTANCE FROM EDGE OR END OF PLANK.
- ④ USE THE POST SIZE AND EMBEDMENT FOR THE HIGHER WALL SECTION AT THE STEP.
- ⑤ MINIMUM CONCRETE STRENGTH AT THE TIME OF PRESTRESS TRANSFER.
- ⑥ MIN. CONCRETE STRENGTH THE POST CAN BE TRANSPORTED AND INSTALLED. THE CONCRETE SHALL BE PER SPEC. 2461.4A4b.
- ⑦ SEE POST EMBEDMENT TABLES.



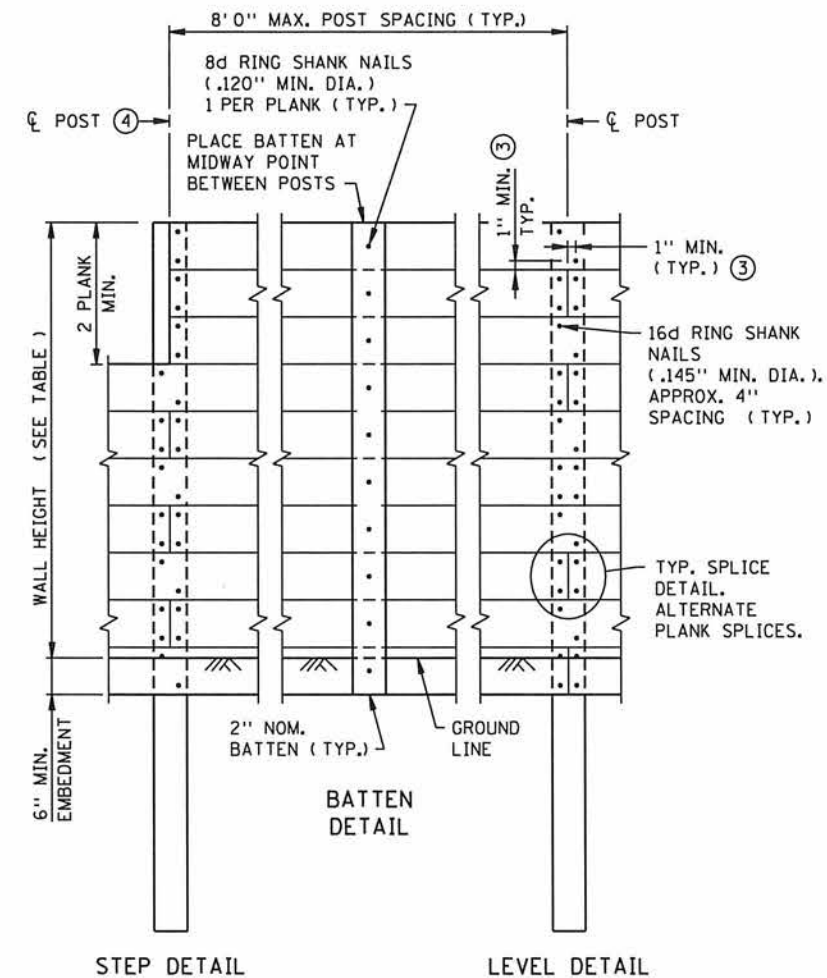
NAILER STRIP SPLICE DETAIL



SECTION AT POST WITH EARTH FILL



SECTION AT POST WITHOUT EARTH FILL



FRONT ELEVATION POST BATTENS NOT SHOWN

STANDARD SHEET NO. 5-297.661 (2 OF 2)  
 STANDARD APPROVED: JANUARY 4, 1994

TITLE: WOOD PLANKING NOISE BARRIER WITH CONCRETE POSTS

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_NWB\_3.dgn 06/05/2014 7:41:53 AM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt A. Kobilarsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



ANOKA COUNTY HIGHWAY DEPT.

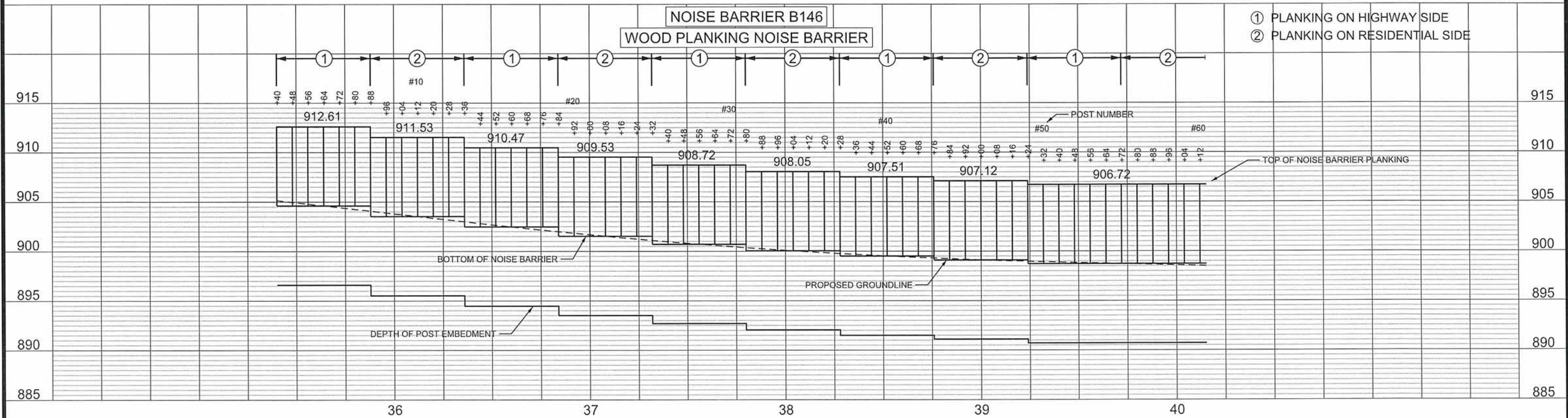
S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

NOISE BARRIER DETAILS

NOISE BARRIER B146								
POST NO.	WALL STATION	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
1	35+40.00	36.86	905.14	912.61	64	17	9.53	895.61
2	35+48.00	36.86	904.97	912.61	64	17	9.36	895.61
3	35+56.00	36.86	904.79	912.61	64	17	9.18	895.61
4	35+64.00	36.86	904.61	912.61	64	17	9.00	895.61
5	35+72.00	36.86	904.43	912.61	64	17	8.82	895.61
6	35+80.00	36.86	904.25	912.61	64	17	8.64	895.61
7	35+88.00	36.86	904.07	911.53	64	17	9.54	894.53
8	35+96.00	36.86	903.89	911.53	64	17	9.36	894.53
9	36+04.00	36.86	903.71	911.53	64	17	9.18	894.53
10	36+12.00	36.86	903.53	911.53	64	17	9.00	894.53
11	36+20.00	36.86	903.35	911.53	64	17	8.82	894.53
12	36+28.00	36.86	903.17	911.53	64	17	8.64	894.53
13	36+36.00	36.86	902.99	910.47	64	17	9.52	893.47
14	36+44.00	36.86	902.82	910.47	64	17	9.35	893.47
15	36+52.00	36.86	902.64	910.47	64	17	9.17	893.47
16	36+60.00	36.86	902.47	910.47	64	17	9.00	893.47
17	36+68.00	36.86	902.31	910.47	64	17	8.84	893.47
18	36+76.00	36.86	902.14	910.47	64	17	8.67	893.47
19	36+84.00	36.86	901.99	909.53	64	17	9.46	892.53
20	36+92.00	36.86	901.83	909.53	64	17	9.30	892.53

NOISE BARRIER B146								
POST NO.	WALL STATION	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
21	37+00.00	36.86	901.68	909.53	64	17	9.15	892.53
22	37+08.00	36.86	901.53	909.53	64	17	9.00	892.53
23	37+16.00	36.86	901.38	909.53	64	17	8.85	892.53
24	37+24.00	36.86	901.24	909.53	64	17	8.71	892.53
25	37+32.00	36.86	901.10	909.53	64	17	9.38	891.72
26	37+40.00	36.86	900.97	908.72	64	17	9.25	891.72
27	37+48.00	36.86	900.84	908.72	64	17	9.12	891.72
28	37+56.00	36.86	900.72	908.72	64	17	9.00	891.72
29	37+64.00	36.86	900.59	908.72	64	17	8.87	891.72
30	37+72.00	36.86	900.48	908.72	64	17	8.76	891.72
31	37+80.00	36.86	900.36	908.05	64	17	9.31	891.05
32	37+88.00	36.86	900.26	908.05	64	17	9.21	891.05
33	37+96.00	36.86	900.15	908.05	64	17	9.10	891.05
34	38+04.00	36.86	900.05	908.05	64	17	9.00	891.05
35	38+12.00	36.86	899.95	908.05	64	17	8.90	891.05
36	38+20.00	36.86	899.86	908.05	64	17	8.81	891.05
37	38+28.00	36.86	899.77	907.51	64	17	9.26	890.51
38	38+36.00	36.86	899.68	907.51	64	17	9.17	890.51
39	38+44.00	36.86	899.60	907.51	64	17	9.09	890.51
40	38+52.00	36.86	899.51	907.51	64	17	9.00	890.51

NOISE BARRIER B146								
POST NO.	WALL STATION	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
41	38+60.00	36.86	899.44	907.51	64	17	8.93	890.51
42	38+68.00	36.86	899.38	907.51	64	17	8.87	890.51
43	38+76.00	36.86	899.31	907.12	64	17	9.19	890.12
44	38+84.00	36.86	899.24	907.12	64	17	9.12	890.12
45	38+92.00	36.86	899.18	907.12	64	17	9.06	890.12
46	39+00.00	36.86	899.12	907.12	64	17	9.00	890.12
47	39+08.00	36.86	899.07	907.12	64	17	8.95	890.12
48	39+16.00	36.86	899.03	907.12	64	17	8.91	890.12
49	39+24.00	36.86	898.98	907.12	64	17	9.26	889.72
50	39+32.00	36.86	898.94	906.72	64	17	9.22	889.72
51	39+40.00	36.86	898.89	906.72	64	17	9.17	889.72
52	39+48.00	36.86	898.85	906.72	64	17	9.13	889.72
53	39+56.00	36.86	898.80	906.72	64	17	9.08	889.72
54	39+64.00	36.86	898.76	906.72	64	17	9.04	889.72
55	39+72.00	36.86	898.72	906.72	64	17	9.00	889.72
56	39+80.00	36.86	898.68	906.72	64	17	8.96	889.72
57	39+88.00	36.86	898.64	906.72	64	17	8.92	889.72
58	39+96.00	36.86	898.60	906.72	64	17	8.88	889.72
59	40+04.00	36.86	898.56	906.72	64	17	8.84	889.72
60	40+12.00	36.86	898.52	906.72	64	17	8.80	889.72



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:02-651-07Plan\0265107\_NWB146\_PP.dgn 06/05/2014 7:42:16 AM

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

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt A. Kobilarsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



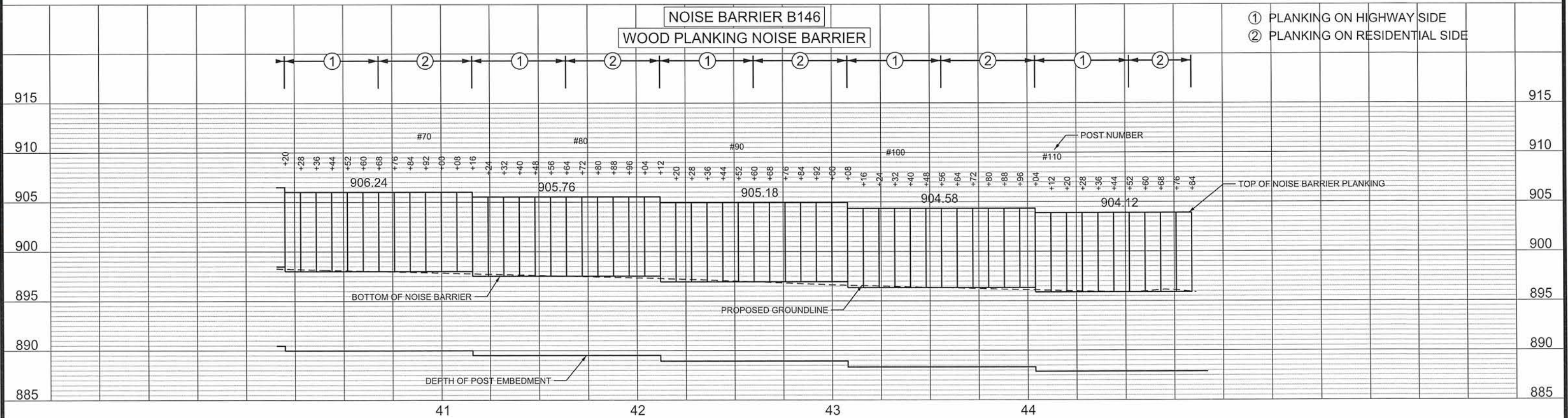
S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

NOISE BARRIER PLANS  
 NW B146 (1 OF 2)  
 STA 35+40.00 TO 40+12.00  
 Sheet 166 of 381 Sheets

NOISE BARRIER B146								
POST NO.	WALL STATION NB 51	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
61	40+20.00	36.86	898.48			17	9.24	889.24
62	40+28.00	36.86	898.44	906.24	64	17	9.20	889.24
63	40+36.00	36.86	898.40	906.24	64	17	9.16	889.24
64	40+44.00	36.86	898.36	906.24	64	17	9.12	889.24
65	40+52.00	36.86	898.32	906.24	64	17	9.08	889.24
66	40+60.00	36.86	898.28	906.24	64	17	9.04	889.24
67	40+68.00	36.86	898.24	906.24	64	17	9.00	889.24
68	40+76.00	36.86	898.20	906.24	64	17	8.96	889.24
69	40+84.00	36.86	898.16	906.24	64	17	8.92	889.24
70	40+92.00	36.86	898.12	906.24	64	17	8.88	889.24
71	41+00.00	36.86	898.08	906.24	64	17	8.84	889.24
72	41+08.00	36.86	898.04	906.24	64	17	8.80	889.24
73	41+16.00	36.86	898.00	905.76	64	17	9.24	888.76
74	41+24.00	36.86	897.96	905.76	64	17	9.20	888.76
75	41+32.00	36.86	897.92	905.76	64	17	9.16	888.76
76	41+40.00	36.86	897.88	905.76	64	17	9.12	888.76
77	41+48.00	36.86	897.84	905.76	64	17	9.08	888.76
78	41+56.00	36.86	897.80	905.76	64	17	9.04	888.76
79	41+64.00	36.86	897.76	905.76	64	17	9.00	888.76
80	41+72.00	36.86	897.72	905.76	64	17	8.96	888.76

NOISE BARRIER B146								
POST NO.	WALL STATION NB 51	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
81	41+80.00	36.86	897.68	905.76	64	17	8.92	888.76
82	41+88.00	36.86	897.64	905.76	64	17	8.88	888.76
83	41+96.00	36.86	897.60	905.76	64	17	8.84	888.76
84	42+04.00	36.86	897.56	905.76	64	17	8.80	888.76
85	42+12.00	36.86	897.51	905.76	64	17	9.33	888.18
86	42+20.00	36.86	897.47	905.18	64	17	9.29	888.18
87	42+28.00	36.86	897.42	905.18	64	17	9.24	888.18
88	42+36.00	36.96	897.36	905.18	64	17	9.18	888.18
89	42+44.00	37.17	897.30	905.18	64	17	9.12	888.18
90	42+52.00	37.38	897.24	905.18	64	17	9.06	888.18
91	42+60.00	37.60	897.18	905.18	64	17	9.00	888.18
92	42+68.00	37.81	897.12	905.18	64	17	8.94	888.18
93	42+76.00	38.02	897.05	905.18	64	17	8.87	888.18
94	42+84.00	38.23	896.99	905.18	64	17	8.81	888.18
95	42+92.00	38.44	896.93	905.18	64	17	8.75	888.18
96	43+00.00	38.66	896.87	905.18	64	17	8.69	888.18
97	43+08.00	38.86	896.83	904.58	64	17	9.25	887.58
98	43+16.00	38.86	896.78	904.58	64	17	9.20	887.58
99	43+24.00	38.86	896.74	904.58	64	17	9.16	887.58
100	43+32.00	38.86	896.70	904.58	64	17	9.12	887.58

NOISE BARRIER B146								
POST NO.	WALL STATION NB 51	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
101	43+40.00	38.86	896.66	904.58	64	17	9.08	887.58
102	43+48.00	38.86	896.62	904.58	64	17	9.04	887.58
103	43+56.00	38.86	896.58	904.58	64	17	9.00	887.58
104	43+64.00	38.86	896.54	904.58	64	17	8.96	887.58
105	43+72.00	38.86	896.50	904.58	64	17	8.92	887.58
106	43+80.00	38.86	896.46	904.58	64	17	8.88	887.58
107	43+88.00	38.86	896.42	904.58	64	17	8.84	887.58
108	43+96.00	38.86	896.38	904.58	64	17	8.80	887.58
109	44+04.00	38.86	896.34	904.12	64	17	9.22	887.12
110	44+12.00	38.86	896.31	904.12	64	17	9.18	887.12
111	44+20.00	38.86	896.27	904.12	64	17	9.15	887.12
112	44+28.00	38.86	896.23	904.12	64	17	9.11	887.12
113	44+36.00	38.86	896.19	904.12	64	17	9.07	887.12
114	44+44.00	38.86	896.15	904.12	64	17	9.03	887.12
115	44+52.00	38.86	896.12	904.12	64	17	9.00	887.12
116	44+60.00	38.86	896.21	904.12	64	17	9.09	887.12
117	44+68.00	38.86	896.34	904.12	64	17	9.22	887.12
118	44+76.00	38.86	896.32	904.12	64	17	9.20	887.12
119	44+84.00	38.86	896.16	904.12	64	17	9.04	887.12
BARRIER B146 TOTALS					7552	2023		



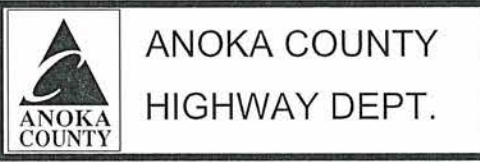
NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_NWB146\_PP2.dgn 06/05/2014 7:42:18 AM

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

PRINT NAME: CURT A. KOBILARCSIK  
SIGNATURE: *Curt A. Kobilarsik*  
DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
DESIGN BY: NJD DATE: 10-31-13  
CHECKED BY: GMP DATE: 12-13-13



S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

NOISE BARRIER PLANS  
NW B146 (2 OF 2)  
STA 40+20.00 TO 44+84.00  
Sheet 167 of 381 Sheets

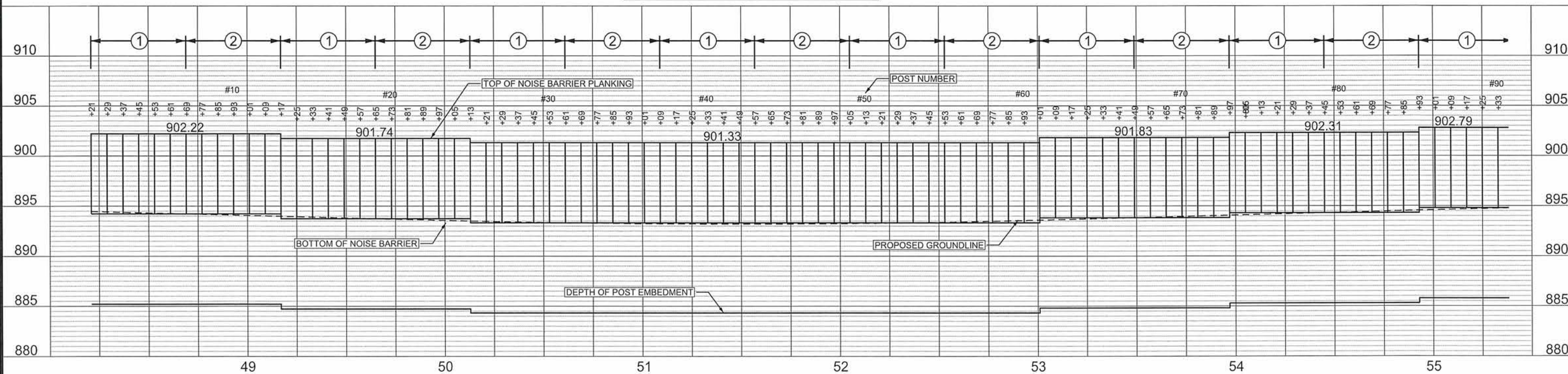
NOISE BARRIER B115								
POST NO.	WALL STATION NB 51	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
1	48+21.00	36.86	894.46	902.22	64	17	9.24	885.22
2	48+29.00	36.86	894.42	902.22	64	17	9.20	885.22
3	48+37.00	36.86	894.38	902.22	64	17	9.16	885.22
4	48+45.00	36.86	894.34	902.22	64	17	9.12	885.22
5	48+53.00	36.86	894.30	902.22	64	17	9.08	885.22
6	48+61.00	36.86	894.26	902.22	64	17	9.04	885.22
7	48+69.00	36.86	894.22	902.22	64	17	9.00	885.22
8	48+77.00	36.86	894.18	902.22	64	17	8.96	885.22
9	48+85.00	36.86	894.14	902.22	64	17	8.92	885.22
10	48+93.00	36.86	894.10	902.22	64	17	8.88	885.22
11	49+01.00	36.86	894.06	902.22	64	17	8.84	885.22
12	49+09.00	36.86	894.02	902.22	64	17	8.80	885.22
13	49+17.00	36.86	893.98	901.74	64	17	9.24	884.74
14	49+25.00	36.86	893.94	901.74	64	17	9.20	884.74
15	49+33.00	36.86	893.90	901.74	64	17	9.16	884.74
16	49+41.00	36.86	893.86	901.74	64	17	9.12	884.74
17	49+49.00	36.86	893.82	901.74	64	17	9.08	884.74
18	49+57.00	36.86	893.78	901.74	64	17	9.04	884.74
19	49+65.00	36.86	893.74	901.74	64	17	9.00	884.74
20	49+73.00	36.86	893.70	901.74	64	17	8.96	884.74
21	49+81.00	36.86	893.66	901.74	64	17	8.92	884.74
22	49+89.00	36.86	893.62	901.74	64	17	8.88	884.74
23	49+97.00	36.86	893.58	901.74	64	17	8.84	884.74
24	50+05.00	36.86	893.54	901.74	64	17	8.80	884.74
25	50+13.00	36.86	893.51	901.33	64	17	9.18	884.33
26	50+21.00	36.86	893.47	901.33	64	17	9.14	884.33
27	50+29.00	36.86	893.44	901.33	64	17	9.11	884.33
28	50+37.00	36.86	893.41	901.33	64	17	9.08	884.33
29	50+45.00	36.86	893.38	901.33	64	17	9.05	884.33
30	50+53.00	36.86	893.35	901.33	64	17	9.02	884.33

NOISE BARRIER B115								
POST NO.	WALL STATION NB 51	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
31	50+61.00	36.86	893.33	901.33	64	17	9.00	884.33
32	50+69.00	36.86	893.32	901.33	64	17	8.99	884.33
33	50+77.00	36.86	893.30	901.33	64	17	8.97	884.33
34	50+85.00	36.86	893.28	901.33	64	17	8.95	884.33
35	50+93.00	36.86	893.26	901.33	64	17	8.93	884.33
36	51+01.00	36.86	893.24	901.33	64	17	8.91	884.33
37	51+09.00	36.86	893.23	901.33	64	17	8.90	884.33
38	51+17.00	36.86	893.23	901.33	64	17	8.90	884.33
39	51+25.00	36.86	893.22	901.33	64	17	8.89	884.33
40	51+33.00	36.86	893.21	901.33	64	17	8.88	884.33
41	51+41.00	36.86	893.21	901.33	64	17	8.88	884.33
42	51+49.00	36.86	893.20	901.33	64	17	8.87	884.33
43	51+57.00	36.86	893.21	901.33	64	17	8.88	884.33
44	51+65.00	36.86	893.21	901.33	64	17	8.88	884.33
45	51+73.00	36.86	893.21	901.33	64	17	8.88	884.33
46	51+81.00	36.86	893.22	901.33	64	17	8.89	884.33
47	51+89.00	36.86	893.23	901.33	64	17	8.90	884.33
48	51+97.00	36.86	893.24	901.33	64	17	8.91	884.33
49	52+05.00	36.86	893.26	901.33	64	17	8.93	884.33
50	52+13.00	36.86	893.27	901.33	64	17	8.94	884.33
51	52+21.00	36.86	893.29	901.33	64	17	8.96	884.33
52	52+29.00	36.86	893.31	901.33	64	17	8.98	884.33
53	52+37.00	36.86	893.34	901.33	64	17	9.01	884.33
54	52+45.00	36.86	893.36	901.33	64	17	9.03	884.33
55	52+53.00	36.86	893.39	901.33	64	17	9.06	884.33
56	52+61.00	36.86	893.42	901.33	64	17	9.09	884.33
57	52+69.00	36.86	893.45	901.33	64	17	9.12	884.33
58	52+77.00	36.86	893.48	901.33	64	17	9.15	884.33
59	52+85.00	36.86	893.52	901.33	64	17	9.19	884.33
60	52+93.00	36.86	893.56	901.33	64	17	9.23	884.33

NOISE BARRIER B115								
POST NO.	WALL STATION NB 51	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
61	53+01.00	36.86	893.59	901.83	64	17	8.76	884.83
62	53+09.00	36.86	893.63	901.83	64	17	8.80	884.83
63	53+17.00	36.86	893.67	901.83	64	17	8.84	884.83
64	53+25.00	36.86	893.71	901.83	64	17	8.88	884.83
65	53+33.00	36.86	893.75	901.83	64	17	8.92	884.83
66	53+41.00	36.86	893.79	901.83	64	17	8.96	884.83
67	53+49.00	36.86	893.83	901.83	64	17	9.00	884.83
68	53+57.00	36.86	893.87	901.83	64	17	9.04	884.83
69	53+65.00	36.86	893.91	901.83	64	17	9.08	884.83
70	53+73.00	36.86	893.95	901.83	64	17	9.12	884.83
71	53+81.00	36.86	893.99	901.83	64	17	9.16	884.83
72	53+89.00	36.86	894.03	901.83	64	17	9.20	884.83
73	53+97.00	36.86	894.07	902.31	64	17	8.76	885.31
74	54+05.00	36.86	894.11	902.31	64	17	8.80	885.31
75	54+13.00	36.86	894.15	902.31	64	17	8.84	885.31
76	54+21.00	36.86	894.19	902.31	64	17	8.88	885.31
77	54+29.00	36.86	894.23	902.31	64	17	8.92	885.31
78	54+37.00	36.86	894.27	902.31	64	17	8.96	885.31
79	54+45.00	36.86	894.31	902.31	64	17	9.00	885.31
80	54+53.00	36.86	894.35	902.31	64	17	9.04	885.31
81	54+61.00	36.86	894.39	902.31	64	17	9.08	885.31
82	54+69.00	36.86	894.43	902.31	64	17	9.12	885.31
83	54+77.00	36.86	894.47	902.31	64	17	9.16	885.31
84	54+85.00	36.86	894.51	902.31	64	17	9.20	885.31
85	54+93.00	36.86	894.55	902.79	64	17	8.76	885.79
86	55+01.00	36.86	894.59	902.79	64	17	8.80	885.79
87	55+09.00	36.86	894.63	902.79	64	17	8.84	885.79
88	55+17.00	36.86	894.67	902.79	64	17	8.88	885.79
89	55+25.00	36.86	894.71	902.79	64	17	8.92	885.79
90	55+33.00	36.86	894.75	902.79	64	17	8.96	885.79

**NOISE BARRIER B115**  
**WOOD PLANKING NOISE BARRIER**

- ① PLANKING ON HIGHWAY SIDE
- ② PLANKING ON RESIDENTIAL SIDE



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_NWB115\_PP1.dgn 06/05/2014 7:42:10 AM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBIARCSIK  
 SIGNATURE: *[Signature]*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



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

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

**NOISE BARRIER PLANS**  
**NW B115 (1 OF 4)**  
 STA 48+21 TO 55+33  
 Sheet 168 of 381 Sheets



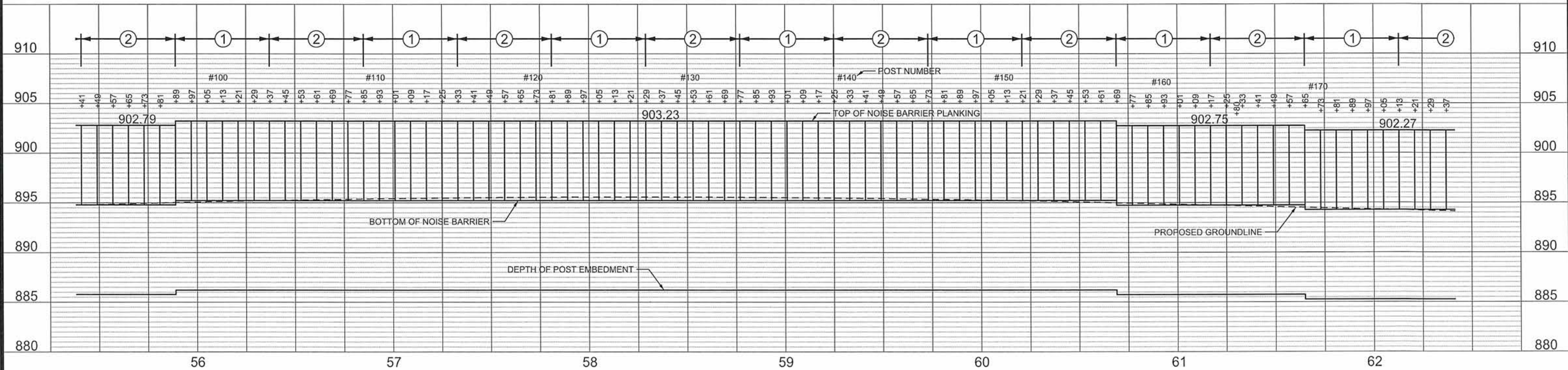
NOISE BARRIER B115								
POST NO.	WALL STATION NB 51	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
91	55+41.00	36.86	894.79	902.79	64	17	9.00	885.79
92	55+49.00	36.86	894.83	902.79	64	17	9.04	885.79
93	55+57.00	36.86	894.87	902.79	64	17	9.08	885.79
94	55+65.00	36.86	894.91	902.79	64	17	9.12	885.79
95	55+73.00	36.86	894.95	902.79	64	17	9.16	885.79
96	55+81.00	36.86	894.99	902.79	64	17	9.20	885.79
97	55+89.00	36.86	895.03	903.23	64	17	8.80	886.23
98	55+97.00	36.86	895.07	903.23	64	17	8.84	886.23
99	56+05.00	36.86	895.10	903.23	64	17	8.87	886.23
100	56+13.00	36.86	895.14	903.23	64	17	8.91	886.23
101	56+21.00	36.86	895.17	903.23	64	17	8.94	886.23
102	56+29.00	36.86	895.20	903.23	64	17	8.97	886.23
103	56+37.00	36.86	895.23	903.23	64	17	9.00	886.23
104	56+45.00	36.86	895.26	903.23	64	17	9.03	886.23
105	56+53.00	36.86	895.29	903.23	64	17	9.06	886.23
106	56+61.00	36.86	895.32	903.23	64	17	9.09	886.23
107	56+69.00	36.86	895.34	903.23	64	17	9.11	886.23
108	56+77.00	36.86	895.37	903.23	64	17	9.14	886.23
109	56+85.00	36.86	895.39	903.23	64	17	9.16	886.23
110	56+93.00	36.86	895.41	903.23	64	17	9.18	886.23
111	57+01.00	36.86	895.43	903.23	64	17	9.20	886.23
112	57+09.00	36.86	895.45	903.23	64	17	9.22	886.23
113	57+17.00	36.86	895.47	903.23	64	17	9.24	886.23
114	57+25.00	36.86	895.48	903.23	64	17	9.25	886.23
115	57+33.00	36.86	895.50	903.23	64	17	9.27	886.23
116	57+41.00	36.86	895.51	903.23	64	17	9.28	886.23
117	57+49.00	36.86	895.53	903.23	64	17	9.30	886.23
118	57+57.00	36.86	895.54	903.23	64	17	9.31	886.23
119	57+65.00	36.86	895.55	903.23	64	17	9.32	886.23
120	57+73.00	36.86	895.56	903.23	64	17	9.33	886.23

NOISE BARRIER B115								
POST NO.	WALL STATION NB 51	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
121	57+81.00	36.86	895.57	903.23	64	17	9.34	886.23
122	57+89.00	36.86	895.57	903.23	64	17	9.34	886.23
123	57+97.00	36.86	895.58	903.23	64	17	9.35	886.23
124	58+05.00	36.86	895.58	903.23	64	17	9.35	886.23
125	58+13.00	36.86	895.58	903.23	64	17	9.35	886.23
126	58+21.00	36.86	895.58	903.23	64	17	9.35	886.23
127	58+29.00	36.86	895.58	903.23	64	17	9.35	886.23
128	58+37.00	36.86	895.58	903.23	64	17	9.35	886.23
129	58+45.00	36.86	895.58	903.23	64	17	9.35	886.23
130	58+53.00	36.86	895.58	903.23	64	17	9.35	886.23
131	58+61.00	36.86	895.57	903.23	64	17	9.34	886.23
132	58+69.00	36.86	895.56	903.23	64	17	9.33	886.23
133	58+77.00	36.86	895.56	903.23	64	17	9.33	886.23
134	58+85.00	36.86	895.55	903.23	64	17	9.32	886.23
135	58+93.00	36.86	895.54	903.23	64	17	9.31	886.23
136	59+01.00	36.86	895.53	903.23	64	17	9.30	886.23
137	59+09.00	36.86	895.51	903.23	64	17	9.28	886.23
138	59+17.00	36.86	895.50	903.23	64	17	9.27	886.23
139	59+25.00	36.86	895.48	903.23	64	17	9.25	886.23
140	59+33.00	36.86	895.46	903.23	64	17	9.23	886.23
141	59+41.00	36.86	895.45	903.23	64	17	9.22	886.23
142	59+49.00	36.86	895.43	903.23	64	17	9.20	886.23
143	59+57.00	36.86	895.41	903.23	64	17	9.18	886.23
144	59+65.00	36.86	895.39	903.23	64	17	9.16	886.23
145	59+73.00	36.86	895.36	903.23	64	17	9.13	886.23
146	59+81.00	36.86	895.34	903.23	64	17	9.11	886.23
147	59+89.00	36.86	895.31	903.23	64	17	9.08	886.23
148	59+97.00	36.86	895.29	903.23	64	17	9.06	886.23
149	60+05.00	36.86	895.26	903.23	64	17	9.03	886.23
150	60+13.00	36.86	895.23	903.23	64	17	9.00	886.23

NOISE BARRIER B115								
POST NO.	WALL STATION NB 51	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
151	60+21.00	35.61'	895.20	903.23	64	17	8.97	886.23
152	60+29.00	35.61'	895.17	903.23	64	17	8.94	886.23
153	60+37.00	35.61'	895.14	903.23	64	17	8.91	886.23
154	60+45.00	35.61'	895.10	903.23	64	17	8.87	886.23
155	60+53.00	35.61'	895.07	903.23	64	17	8.84	886.23
156	60+61.00	35.61'	895.03	903.23	64	17	8.80	886.23
157	60+69.00	35.61'	894.99	902.75	64	17	9.24	885.75
158	60+77.00	35.61'	894.95	902.75	64	17	9.20	885.75
159	60+85.00	35.61'	894.91	902.75	64	17	9.16	885.75
160	60+93.00	35.61'	894.87	902.75	64	17	9.12	885.75
161	61+01.00	35.61'	894.83	902.75	64	17	9.08	885.75
162	61+09.00	35.61'	894.79	902.75	64	17	9.04	885.75
163	61+17.00	35.61'	894.75	902.75	64	17	9.00	885.75
164	61+25.00	35.61'	894.71	902.75	64	17	8.96	885.75
165	61+33.00	35.61'	894.67	902.75	64	17	8.92	885.75
166	61+41.00	35.61'	894.63	902.75	64	17	8.88	885.75
167	61+49.00	35.61'	894.59	902.75	64	17	8.84	885.75
168	61+57.00	35.61'	894.55	902.75	64	17	8.80	885.75
169	61+65.00	35.61'	894.51	902.27	64	17	9.24	885.27
170	61+73.00	35.61'	894.47	902.27	64	17	9.20	885.27
171	61+81.00	35.61'	894.43	902.27	64	17	9.16	885.27
172	61+89.00	35.61'	894.39	902.27	64	17	9.12	885.27
173	61+97.00	35.61'	894.35	902.27	64	17	9.08	885.27
174	62+05.00	35.61'	894.31	902.27	64	17	9.04	885.27
175	62+13.00	35.61'	894.27	902.27	64	17	9.00	885.27
176	62+21.00	35.61'	894.23	902.27	64	17	8.96	885.27
177	62+29.00	35.61'	894.19	902.27	64	17	8.92	885.27
178	62+37.00	35.61'	894.15	902.27	64	17	8.88	885.27

NOISE BARRIER B115  
WOOD PLANKING NOISE BARRIER

- ① PLANKING ON HIGHWAY SIDE
- ② PLANKING ON RESIDENTIAL SIDE

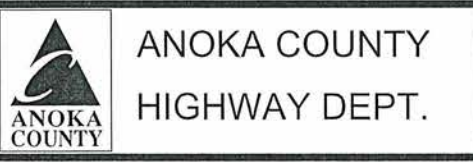


NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_NWB115\_PP2.dgn 06/05/2014 7:42:11 AM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarcsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

NOISE BARRIER PLANS  
 NW B115 (2 OF 4)  
 STA 55+41.00 TO 62+37.00  
 Sheet 169 of 381 Sheets

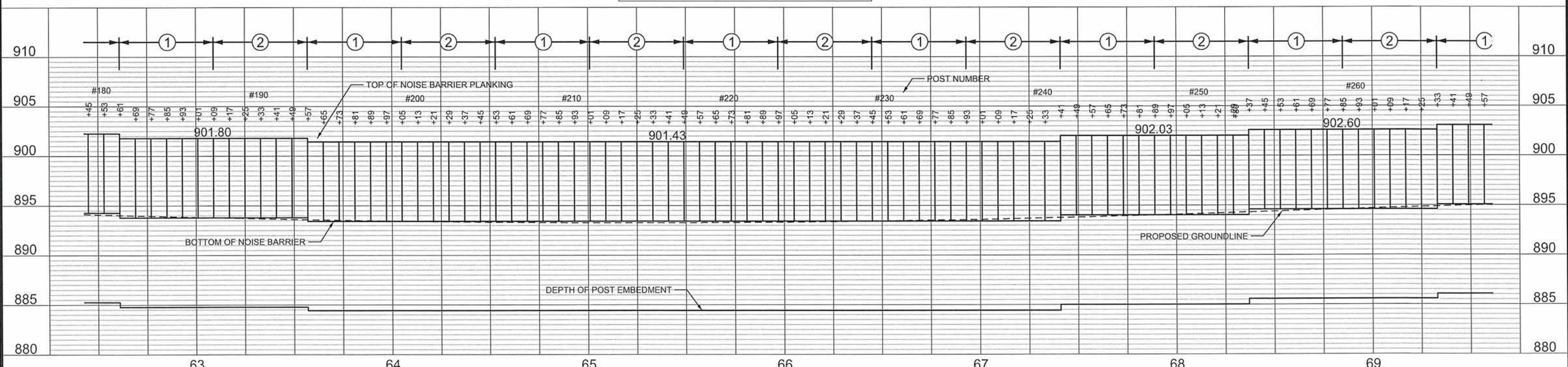
NOISE BARRIER B115								
POST NO.	WALL STATION NB 51	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ.FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
179	62+45.00	36.86	894.11	902.27	64	17	8.84	885.27
180	62+53.00	36.86	894.07	902.27	64	17	8.80	885.27
181	62+61.00	36.86	894.03	901.80	64	17	9.23	884.80
182	62+69.00	36.86	893.99	901.80	64	17	9.19	884.80
183	62+77.00	36.86	893.95	901.80	64	17	9.15	884.80
184	62+85.00	36.86	893.91	901.80	64	17	9.11	884.80
185	62+93.00	36.86	893.87	901.80	64	17	9.07	884.80
186	63+01.00	36.86	893.83	901.80	64	17	9.03	884.80
187	63+09.00	36.86	893.80	901.80	64	17	9.00	884.80
188	63+17.00	36.86	893.76	901.80	64	17	8.96	884.80
189	63+25.00	36.86	893.72	901.80	64	17	8.92	884.80
190	63+33.00	36.86	893.69	901.80	64	17	8.89	884.80
191	63+41.00	36.86	893.65	901.80	64	17	8.85	884.80
192	63+49.00	36.86	893.62	901.80	64	17	8.82	884.80
193	63+57.00	36.86	893.59	901.80	64	17	9.16	884.43
194	63+65.00	36.86	893.56	901.43	64	17	9.13	884.43
195	63+73.00	36.86	893.54	901.43	64	17	9.11	884.43
196	63+81.00	36.86	893.51	901.43	64	17	9.08	884.43
197	63+89.00	36.86	893.48	901.43	64	17	9.05	884.43
198	63+97.00	36.86	893.46	901.43	64	17	9.03	884.43
199	64+05.00	36.86	893.44	901.43	64	17	9.01	884.43
200	64+13.00	36.86	893.42	901.43	64	17	8.99	884.43
201	64+21.00	36.86	893.40	901.43	64	17	8.97	884.43
202	64+29.00	36.86	893.38	901.43	64	17	8.95	884.43
203	64+37.00	36.86	893.36	901.43	64	17	8.93	884.43
204	64+45.00	36.86	893.35	901.43	64	17	8.92	884.43
205	64+53.00	36.86	893.33	901.43	64	17	8.90	884.43
206	64+61.00	36.86	893.32	901.43	64	17	8.89	884.43
207	64+69.00	36.86	893.31	901.43	64	17	8.88	884.43
208	64+77.00	36.86	893.30	901.43	64	17	8.87	884.43

NOISE BARRIER B115								
POST NO.	WALL STATION NB 51	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ.FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
209	64+85.00	36.86	893.29	901.43	64	17	8.86	884.43
210	64+93.00	36.86	893.28	901.43	64	17	8.85	884.43
211	65+01.00	36.86	893.28	901.43	64	17	8.85	884.43
212	65+09.00	36.86	893.28	901.43	64	17	8.85	884.43
213	65+17.00	36.86	893.28	901.43	64	17	8.85	884.43
214	65+25.00	36.86	893.28	901.43	64	17	8.85	884.43
215	65+33.00	36.86	893.28	901.43	64	17	8.85	884.43
216	65+41.00	36.86	893.27	901.43	64	17	8.84	884.43
217	65+49.00	36.86	893.28	901.43	64	17	8.85	884.43
218	65+57.00	36.86	893.28	901.43	64	17	8.85	884.43
219	65+65.00	36.86	893.29	901.43	64	17	8.86	884.43
220	65+73.00	36.86	893.30	901.43	64	17	8.87	884.43
221	65+81.00	36.86	893.31	901.43	64	17	8.88	884.43
222	65+89.00	36.86	893.32	901.43	64	17	8.89	884.43
223	65+97.00	36.86	893.32	901.43	64	17	8.89	884.43
224	66+05.00	36.86	893.34	901.43	64	17	8.91	884.43
225	66+13.00	36.86	893.36	901.43	64	17	8.93	884.43
226	66+21.00	36.86	893.37	901.43	64	17	8.94	884.43
227	66+29.00	36.86	893.39	901.43	64	17	8.96	884.43
228	66+37.00	36.86	893.41	901.43	64	17	8.98	884.43
229	66+45.00	36.86	893.42	901.43	64	17	8.99	884.43
230	66+53.00	36.86	893.44	901.43	64	17	9.01	884.43
231	66+61.00	36.86	893.47	901.43	64	17	9.04	884.43
232	66+69.00	36.86	893.50	901.43	64	17	9.07	884.43
233	66+77.00	36.86	893.52	901.43	64	17	9.09	884.43
234	66+85.00	36.86	893.55	901.43	64	17	9.12	884.43
235	66+93.00	36.86	893.57	901.43	64	17	9.14	884.43
236	67+01.00	36.86	893.60	901.43	64	17	9.17	884.43
237	67+09.00	36.86	893.64	901.43	64	17	9.21	884.43
238	67+17.00	36.86	893.67	901.43	64	17	9.24	884.43

NOISE BARRIER B115								
POST NO.	WALL STATION NB 51	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ.FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
239	67+25.00	36.86	893.71	901.43	64	17	9.28	884.43
240	67+33.00	36.86	893.74	901.43	64	17	9.31	884.43
241	67+41.00	36.86	893.78	902.03	64	17	8.75	885.03
242	67+49.00	36.86	893.81	902.03	64	17	8.78	885.03
243	67+57.00	36.86	893.85	902.03	64	17	8.82	885.03
244	67+65.00	36.86	893.90	902.03	64	17	8.87	885.03
245	67+73.00	36.86	893.94	902.03	64	17	8.91	885.03
246	67+81.00	36.86	893.98	902.03	64	17	8.95	885.03
247	67+89.00	36.86	894.03	902.03	64	17	9.00	885.03
248	67+97.00	36.86	894.07	902.03	64	17	9.04	885.03
249	68+05.00	36.86	894.12	902.03	64	17	9.09	885.03
250	68+13.00	36.86	894.17	902.03	64	17	9.14	885.03
251	68+21.00	36.86	894.21	902.03	64	17	9.18	885.03
252	68+29.00	36.86	894.26	902.03	64	17	9.23	885.03
253	68+37.00	36.86	894.31	902.60	64	17	8.71	885.60
254	68+45.00	36.86	894.36	902.60	64	17	8.76	885.60
255	68+53.00	36.86	894.41	902.60	64	17	8.81	885.60
256	68+61.00	36.86	894.45	902.60	64	17	8.85	885.60
257	68+69.00	36.86	894.50	902.60	64	17	8.90	885.60
258	68+77.00	36.86	894.55	902.60	64	17	8.95	885.60
259	68+85.00	36.86	894.60	902.60	64	17	9.00	885.60
260	68+93.00	36.86	894.65	902.60	64	17	9.05	885.60
261	69+01.00	36.86	894.69	902.60	64	17	9.09	885.60
262	69+09.00	36.86	894.74	902.60	64	17	9.14	885.60
263	69+17.00	36.86	894.79	902.60	64	17	9.19	885.60
264	69+25.00	36.86	894.83	902.60	64	17	9.23	885.60
265	69+33.00	36.86	894.88	903.70	64	17	8.18	886.70
266	69+41.00	36.86	894.92	903.70	64	17	8.22	886.70
267	69+49.00	36.86	894.97	903.70	64	17	8.27	886.70
268	69+57.00	36.95	894.99	903.70	64	17	8.29	886.70

**NOISE BARRIER B115**  
**WOOD PLANKING NOISE BARRIER**

- ① PLANKING ON HIGHWAY SIDE
- ② PLANKING ON RESIDENTIAL SIDE



\* NOTE - CAUTION - POSTS #198, #199 AND #200 OF NOISE WALL B115 FALL IN PROXIMITY OF 7' X 4' BOX CULVERT AT STATION 64+00. DEPTH OF POST EMBED. NOT TO EXCEED 5'. SEE SPECIAL PROVISIONS (SPEC. 2422, AND SPECIAL INSTRUCTIONS)

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:02-651-07\Plan\0265107\_NWB115\_PP3.dgn 06/05/2014 7:42:13 AM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



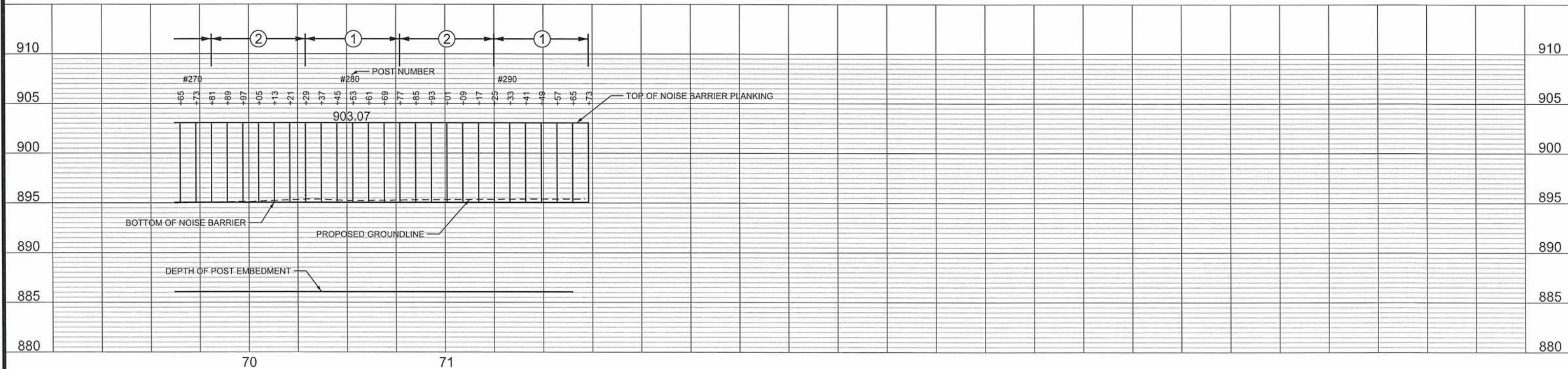
S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

NOISE BARRIER PLANS  
 NW B115 (3 OF 4)  
 STA 62+45.00 TO 69+57.00  
 Sheet 170 of 381 Sheets

NOISE BARRIER B115								
POST NO.	WALL STATION NB 51	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
269	69+65.00	37.15	895.01	903.70	64	17	8.31	886.70
270	69+73.00	37.35	895.03	903.70	64	17	8.33	886.70
271	69+81.00	37.55	895.07	903.70	64	17	8.37	886.70
272	69+89.00	37.76	895.11	903.70	64	17	8.41	886.70
273	69+97.00	37.96	895.14	903.70	64	17	8.44	886.70
274	70+05.00	38.13	895.17	903.70	64	17	8.47	886.70
275	70+13.00	38.37	895.24	903.70	64	17	8.54	886.70
276	70+21.00	38.57	895.31	903.70	64	17	8.61	886.70
277	70+29.00	38.77	895.38	903.70	64	17	8.68	886.70
278	70+37.00	38.86	895.37	903.70	64	17	8.67	886.70
279	70+45.00	38.86	895.29	903.70	64	17	8.59	886.70
280	70+53.00	38.86	895.23	903.70	64	17	8.53	886.70
281	70+61.00	38.86	895.25	903.70	64	17	8.55	886.70
282	70+69.00	38.86	895.26	903.70	64	17	8.56	886.70
283	70+77.00	38.86	895.28	903.70	64	17	8.58	886.70
284	70+85.00	38.86	895.30	903.70	64	17	8.60	886.70
285	70+93.00	38.86	895.32	903.70	64	17	8.62	886.70
286	71+01.00	38.86	895.34	903.70	64	17	8.64	886.70
287	71+09.00	38.86	895.35	903.70	64	17	8.65	886.70
288	71+17.00	38.86	895.36	903.70	64	17	8.66	886.70
289	71+25.00	38.86	895.37	903.70	64	17	8.67	886.70
290	71+33.00	38.86	895.38	903.70	64	17	8.68	886.70
291	71+41.00	38.86	895.39	903.70	64	17	8.69	886.70
292	71+49.00	38.86	895.40	903.70	64	17	8.70	886.70
293	71+57.00	38.86	895.40	903.70	64	17	8.70	886.70
294	71+65.00	38.86	895.40	903.70	64	17	8.70	886.70
295	71+73.00	38.86	895.40	903.70	64	17	8.70	886.70
NW B115 TOTALS					18816	5015		

**NOISE BARRIER B115**  
**WOOD PLANKING NOISE BARRIER**

- ① PLANKING ON HIGHWAY SIDE
- ② PLANKING ON RESIDENTIAL SIDE

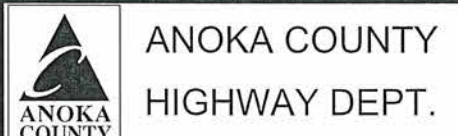


NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_NWB115\_PP4.dgn 06/05/2014 7:42:14 AM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt A. Kobilarsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

NOISE BARRIER PLANS  
 NW B115 (4 OF 4)  
 STA 69+65.00 TO 71+73.00  
 Sheet 171 of 381 Sheets

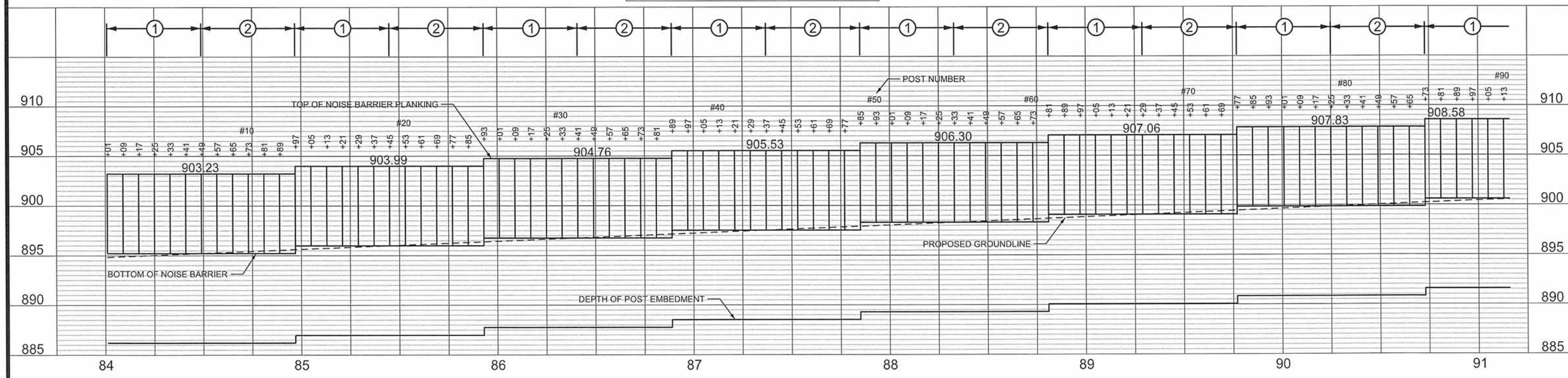
NOISE BARRIER B89								
POST NO.	WALL STATION NB 51	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ. FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
1	84+01.00	36.86	894.84	903.23	64	17	8.61	886.23
2	84+09.00	36.86	894.91	903.23	64	17	8.68	886.23
3	84+17.00	36.86	894.97	903.23	64	17	8.74	886.23
4	84+25.00	36.86	895.03	903.23	64	17	8.80	886.23
5	84+33.00	36.86	895.10	903.23	64	17	8.87	886.23
6	84+41.00	36.86	895.16	903.23	64	17	8.93	886.23
7	84+49.00	36.86	895.23	903.23	64	17	9.00	886.23
8	84+57.00	36.86	895.29	903.23	64	17	9.06	886.23
9	84+65.00	36.86	895.35	903.23	64	17	9.12	886.23
10	84+73.00	36.86	895.42	903.23	64	17	9.19	886.23
11	84+81.00	36.86	895.48	903.23	64	17	9.25	886.23
12	84+89.00	36.86	895.55	903.23	64	17	9.32	886.23
13	84+97.00	36.86	895.61	903.99	64	17	8.62	886.99
14	85+05.00	36.86	895.67	903.99	64	17	8.68	886.99
15	85+13.00	36.86	895.74	903.99	64	17	8.75	886.99
16	85+21.00	36.86	895.80	903.99	64	17	8.81	886.99
17	85+29.00	36.86	895.87	903.99	64	17	8.88	886.99
18	85+37.00	36.86	895.93	903.99	64	17	8.94	886.99
19	85+45.00	36.86	895.99	903.99	64	17	9.00	886.99
20	85+53.00	36.86	896.06	903.99	64	17	9.07	886.99
21	85+61.00	36.86	896.12	903.99	64	17	9.13	886.99
22	85+69.00	36.86	896.19	903.99	64	17	9.20	886.99
23	85+77.00	36.86	896.25	903.99	64	17	9.26	886.99
24	85+85.00	36.86	896.31	903.99	64	17	9.32	886.99
25	85+93.00	36.86	896.38	904.76	64	17	8.62	887.76
26	86+01.00	36.86	896.44	904.76	64	17	8.68	887.76
27	86+09.00	36.86	896.51	904.76	64	17	8.75	887.76
28	86+17.00	36.86	896.57	904.76	64	17	8.81	887.76
29	86+25.00	36.86	896.63	904.76	64	17	8.87	887.76
30	86+33.00	36.86	896.70	904.76	64	17	8.94	887.76

NOISE BARRIER B89								
POST NO.	WALL STATION NB 51	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ. FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
31	86+41.00	36.86	896.76	904.76	64	17	9.00	887.76
32	86+49.00	36.86	896.83	904.76	64	17	9.07	887.76
33	86+57.00	36.86	896.89	904.76	64	17	9.13	887.76
34	86+65.00	36.86	896.95	904.76	64	17	9.19	887.76
35	86+73.00	36.86	897.02	904.76	64	17	9.26	887.76
36	86+81.00	36.86	897.08	904.76	64	17	9.32	887.76
37	86+89.00	36.86	897.15	905.53	64	17	8.62	888.53
38	86+97.00	36.86	897.21	905.53	64	17	8.68	888.53
39	87+05.00	36.86	897.27	905.53	64	17	8.74	888.53
40	87+13.00	36.86	897.34	905.53	64	17	8.81	888.53
41	87+21.00	36.86	897.40	905.53	64	17	8.87	888.53
42	87+29.00	36.86	897.47	905.53	64	17	8.94	888.53
43	87+37.00	36.86	897.53	905.53	64	17	9.00	888.53
44	87+45.00	36.86	897.59	905.53	64	17	9.06	888.53
45	87+53.00	36.86	897.66	905.53	64	17	9.13	888.53
46	87+61.00	36.86	897.72	905.53	64	17	9.19	888.53
47	87+69.00	36.86	897.79	905.53	64	17	9.26	888.53
48	87+77.00	36.86	897.85	905.53	64	17	9.32	888.53
49	87+85.00	36.86	897.92	906.30	64	17	8.62	889.30
50	87+93.00	36.86	897.98	906.30	64	17	8.68	889.30
51	88+01.00	36.86	898.04	906.30	64	17	8.74	889.30
52	88+09.00	36.86	898.11	906.30	64	17	8.81	889.30
53	88+17.00	36.86	898.17	906.30	64	17	8.87	889.30
54	88+25.00	36.86	898.24	906.30	64	17	8.94	889.30
55	88+33.00	36.86	898.30	906.30	64	17	9.00	889.30
56	88+41.00	36.86	898.36	906.30	64	17	9.06	889.30
57	88+49.00	36.86	898.43	906.30	64	17	9.13	889.30
58	88+57.00	36.86	898.49	906.30	64	17	9.19	889.30
59	88+65.00	36.86	898.55	906.30	64	17	9.25	889.30
60	88+73.00	36.86	898.62	906.30	64	17	9.32	889.30

NOISE BARRIER B89								
POST NO.	WALL STATION NB 51	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ. FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
61	88+81.00	36.86	898.68	907.06	64	17	8.62	890.06
62	88+89.00	36.86	898.75	907.06	64	17	8.69	890.06
63	88+97.00	36.86	898.81	907.06	64	17	8.75	890.06
64	89+05.00	36.86	898.87	907.06	64	17	8.81	890.06
65	89+13.00	36.86	898.94	907.06	64	17	8.88	890.06
66	89+21.00	36.86	899.00	907.06	64	17	8.94	890.06
67	89+29.00	36.86	899.07	907.06	64	17	9.01	890.06
68	89+37.00	36.86	899.13	907.06	64	17	9.07	890.06
69	89+45.00	36.86	899.19	907.06	64	17	9.13	890.06
70	89+53.00	36.86	899.26	907.06	64	17	9.20	890.06
71	89+61.00	36.86	899.32	907.06	64	17	9.26	890.06
72	89+69.00	36.86	899.39	907.06	64	17	9.33	890.06
73	89+77.00	36.86	899.45	907.83	64	17	8.62	890.83
74	89+85.00	36.86	899.51	907.83	64	17	8.68	890.83
75	89+93.00	36.86	899.58	907.83	64	17	8.75	890.83
76	90+01.00	36.86	899.64	907.83	64	17	8.81	890.83
77	90+09.00	36.86	899.71	907.83	64	17	8.88	890.83
78	90+17.00	36.86	899.77	907.83	64	17	8.94	890.83
79	90+25.00	36.86	899.83	907.83	64	17	9.00	890.83
80	90+33.00	36.86	899.90	907.83	64	17	9.07	890.83
81	90+41.00	36.86	899.96	907.83	64	17	9.13	890.83
82	90+49.00	36.86	900.03	907.83	64	17	9.20	890.83
83	90+57.00	36.86	900.09	907.83	64	17	9.26	890.83
84	90+65.00	36.86	900.15	907.83	64	17	9.32	890.83
85	90+73.00	36.86	900.22	908.58	64	17	8.64	891.58
86	90+81.00	36.86	900.28	908.58	64	17	8.70	891.58
87	90+89.00	36.86	900.34	908.58	64	17	8.76	891.58
88	90+97.00	36.86	900.41	908.58	64	17	8.83	891.58
89	91+05.00	36.86	900.47	908.58	64	17	8.89	891.58
90	91+13.00	36.86	900.53	908.58	64	17	8.94	891.58

**NOISE BARRIER B89**  
**WOOD PLANKING NOISE BARRIER**

- ① PLANKING ON HIGHWAY SIDE
- ② PLANKING ON RESIDENTIAL SIDE

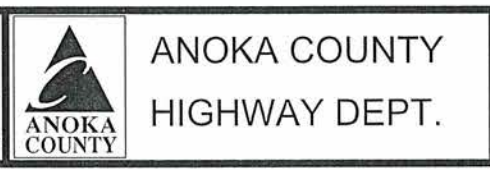


NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_NWB89\_PP1.dgn 06/05/2014 7:42:06 AM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBILARCZIK  
 SIGNATURE: *Curt Kobilarcik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

NOISE BARRIER PLANS  
 NW B89 (1 OF 2)  
 STA 84+01.00 TO 91+13.00  
 Sheet 172 of 381 Sheets

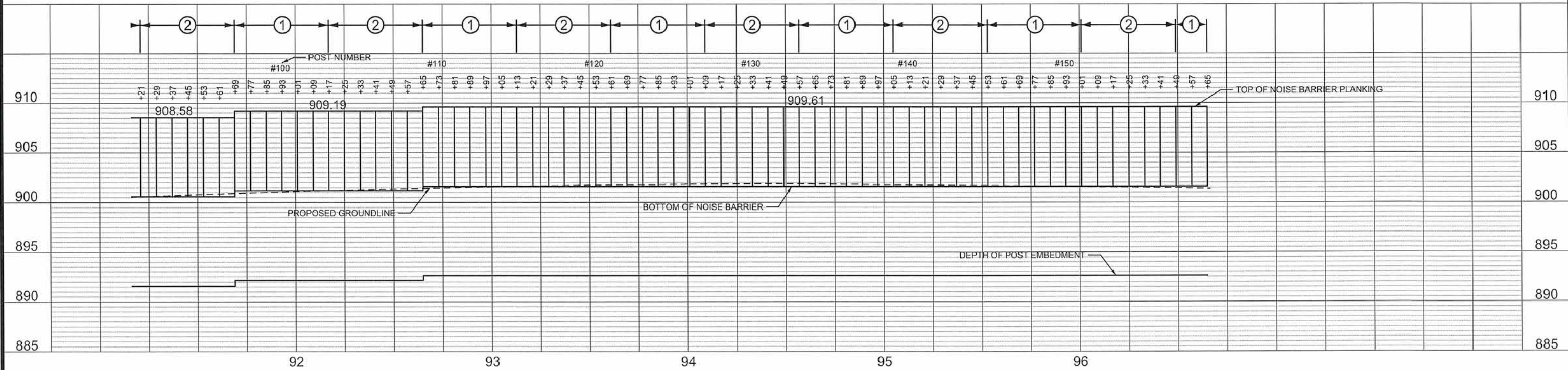
NOISE BARRIER B89								
POST NO.	WALL STATION NB 51	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
91	91+21.00	36.86	900.58	908.58	64	17	9.00	891.58
92	91+29.00	36.86	900.64	908.58	64	17	9.06	891.58
93	91+37.00	36.86	900.70	908.58	64	17	9.12	891.58
94	91+45.00	36.86	900.76	908.58	64	17	9.17	891.58
95	91+53.00	36.86	900.81	908.58	64	17	9.23	891.58
96	91+61.00	36.86	900.86	908.58	64	17	9.28	891.58
97	91+69.00	36.86	900.91	908.58	64	17	8.72	892.19
98	91+77.00	36.86	900.96	909.19	64	17	8.77	892.19
99	91+85.00	36.86	901.01	909.19	64	17	8.82	892.19
100	91+93.00	36.86	901.06	909.19	64	17	8.87	892.19
101	92+01.00	36.86	901.11	909.19	64	17	8.92	892.19
102	92+09.00	36.86	901.15	909.19	64	17	8.96	892.19
103	92+17.00	36.86	901.19	909.19	64	17	9.00	892.19
104	92+25.00	36.86	901.23	909.19	64	17	9.04	892.19
105	92+33.00	36.86	901.27	909.19	64	17	9.08	892.19
106	92+41.00	36.86	901.32	909.19	64	17	9.13	892.19
107	92+49.00	36.86	901.36	909.19	64	17	9.17	892.19
108	92+57.00	36.86	901.39	909.19	64	17	9.20	892.19
109	92+65.00	36.86	901.43	909.61	64	17	8.81	892.61
110	92+73.00	36.86	901.46	909.61	64	17	8.85	892.61
111	92+81.00	36.86	901.49	909.61	64	17	8.88	892.61
112	92+89.00	36.86	901.53	909.61	64	17	8.91	892.61
113	92+97.00	36.86	901.56	909.61	64	17	8.95	892.61
114	93+05.00	36.86	901.59	909.61	64	17	8.98	892.61
115	93+13.00	36.86	901.61	909.61	64	17	9.00	892.61
116	93+21.00	36.86	901.64	909.61	64	17	9.03	892.61
117	93+29.00	36.86	901.67	909.61	64	17	9.06	892.61
118	93+37.00	36.86	901.69	909.61	64	17	9.08	892.61
119	93+45.00	36.86	901.72	909.61	64	17	9.11	892.61
120	93+53.00	36.86	901.74	909.61	64	17	9.13	892.61

NOISE BARRIER B89								
POST NO.	WALL STATION NB 51	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
121	93+61.00	36.86	901.75	909.61	64	17	9.14	892.61
122	93+69.00	36.86	901.77	909.61	64	17	9.16	892.61
123	93+77.00	36.86	901.79	909.61	64	17	9.18	892.61
124	93+85.00	36.86	901.81	909.61	64	17	9.20	892.61
125	93+93.00	36.86	901.83	909.61	64	17	9.22	892.61
126	94+01.00	36.86	901.84	909.61	64	17	9.23	892.61
127	94+09.00	36.86	901.85	909.61	64	17	9.24	892.61
128	94+17.00	36.86	901.86	909.61	64	17	9.25	892.61
129	94+25.00	36.86	901.87	909.61	64	17	9.26	892.61
130	94+33.00	36.86	901.88	909.61	64	17	9.27	892.61
131	94+41.00	36.86	901.89	909.61	64	17	9.28	892.61
132	94+49.00	36.86	901.90	909.61	64	17	9.29	892.61
133	94+57.00	37.03	901.88	909.61	64	17	9.27	892.61
134	94+65.00	37.24	901.87	909.61	64	17	9.26	892.61
135	94+73.00	37.45	901.85	909.61	64	17	9.24	892.61
136	94+81.00	37.67	901.83	909.61	64	17	9.22	892.61
137	94+89.00	37.88	901.81	909.61	64	17	9.20	892.61
138	94+97.00	38.09	901.80	909.61	64	17	9.18	892.61
139	95+05.00	38.31	901.78	909.61	64	17	9.17	892.61
140	95+13.00	38.52	901.76	909.61	64	17	9.15	892.61
141	95+21.00	37.73	901.75	909.61	64	17	9.13	892.61
142	95+29.00	38.86	901.73	909.61	64	17	9.12	892.61
143	95+37.00	38.86	901.71	909.61	64	17	9.10	892.61
144	95+45.00	38.86	901.70	909.61	64	17	9.09	892.61
145	95+53.00	38.86	901.68	909.61	64	17	9.07	892.61
146	95+61.00	38.86	901.67	909.61	64	17	9.05	892.61
147	95+69.00	38.86	901.65	909.61	64	17	9.04	892.61
148	95+77.00	38.86	901.64	909.61	64	17	9.03	892.61
149	95+85.00	38.86	901.62	909.61	64	17	9.01	892.61
150	95+93.00	38.86	901.61	909.61	64	17	9.00	892.61

NOISE BARRIER B89								
POST NO.	WALL STATION NB 51	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
151	96+01.00	38.86	901.59	909.61	64	17	8.98	892.61
152	96+09.00	38.86	901.57	909.61	64	17	8.96	892.61
153	96+17.00	38.86	901.55	909.61	64	17	8.94	892.61
154	96+25.00	38.86	901.52	909.61	64	17	8.91	892.61
155	96+33.00	38.86	901.50	909.61	64	17	8.89	892.61
156	96+41.00	38.86	901.48	909.61	64	17	8.87	892.61
157	96+49.00	38.86	901.46	909.61	64	17	8.85	892.61
158	96+57.00	38.86	901.43	909.61	64	17	8.82	892.61
159	96+65.00	38.86	901.40	909.61	64	17	8.79	892.61
BARRIER B89 TOTALS					10112	2703		

**NOISE BARRIER B89**  
**WOOD PLANKING NOISE BARRIER**

- ① PLANKING ON HIGHWAY SIDE
- ② PLANKING ON RESIDENTIAL SIDE

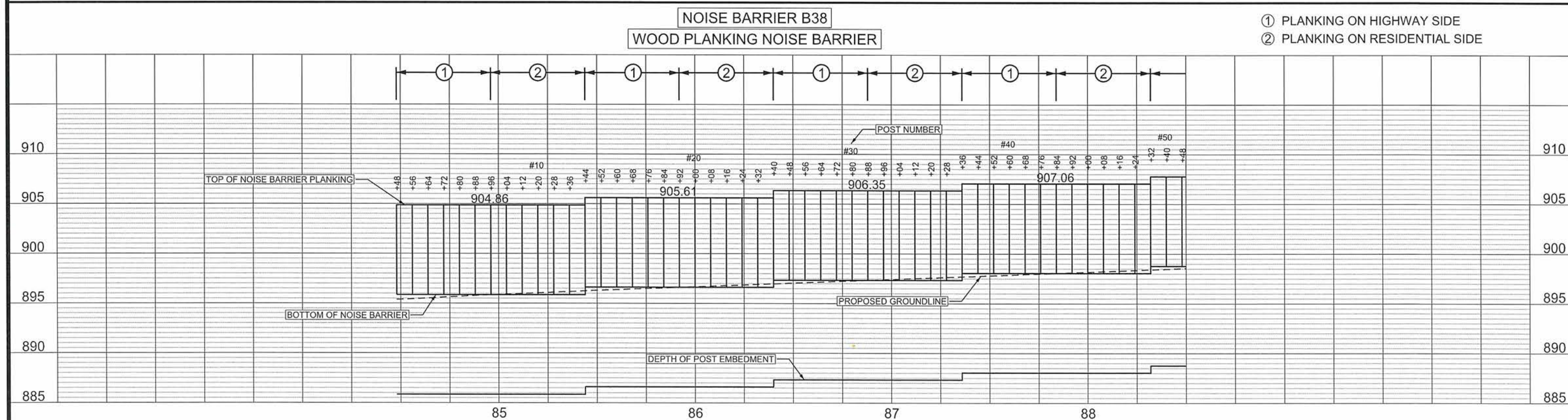


<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>NO</th> <th>DATE</th> <th>BY</th> <th>CKD</th> <th>APPR</th> <th>REVISION</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table> <p>NAME: P:\02-651-07\Plan\0265107_NWB89_PP2.dgn</p>	NO	DATE	BY	CKD	APPR	REVISION							<p>I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.</p> <p>PRINT NAME: CURT A. KOBILARCSIK</p> <p>SIGNATURE: <i>Curt A. Kobilarsik</i></p> <p>DATE: 6-9-14 LICENSE NO. 24756</p>	<p>DRAWN BY: JCF DATE: 11-25-13</p> <p>DESIGN BY: NJD DATE: 10-31-13</p> <p>CHECKED BY: GMP DATE: 12-13-13</p>	<p><b>ANOKA COUNTY</b> <b>HIGHWAY DEPT.</b></p>	<p>S.P. 002-651-007</p> <p>S.P. 106-020-031</p> <p>S.P. 114-020-046</p>	<p><b>NOISE BARRIER PLANS</b> <b>NW B89 (2 OF 2)</b></p> <p>STA 91+21.00 TO 96+65.00</p> <p>Sheet 173 of 381 Sheets</p>
NO	DATE	BY	CKD	APPR	REVISION												

NOISE BARRIER B38								
POST NO.	WALL STATION SB 51	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ.FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
1	84+48.00	38.54	895.38	904.86	72	19	9.52	885.86
2	84+56.00	38.32	895.44	904.86	72	19	9.58	885.86
3	84+64.00	38.11	895.52	904.86	72	19	9.66	885.86
4	84+72.00	37.90	895.61	904.86	72	19	9.75	885.86
5	84+80.00	37.68	895.69	904.86	72	19	9.83	885.86
6	84+88.00	37.47	895.77	904.86	72	19	9.91	885.86
7	84+96.00	37.26	895.86	904.86	72	19	10.00	885.86
8	85+04.00	37.04	895.91	904.86	72	19	10.05	885.86
9	85+12.00	36.86	895.97	904.86	72	19	10.11	885.86
10	85+20.00	36.86	896.04	904.86	72	19	10.18	885.86
11	85+28.00	36.86	896.11	904.86	72	19	10.25	885.86
12	85+36.00	36.86	896.18	904.86	72	19	10.32	885.86
13	85+44.00	36.86	896.25	904.86	72	19	9.64	886.61
14	85+52.00	36.86	896.31	905.61	72	19	9.70	886.61
15	85+60.00	36.86	896.38	905.61	72	19	9.76	886.61
16	85+68.00	36.86	896.44	905.61	72	19	9.82	886.61
17	85+76.00	36.86	896.50	905.61	72	19	9.88	886.61
18	85+84.00	36.86	896.56	905.61	72	19	9.94	886.61
19	85+92.00	36.86	896.62	905.61	72	19	10.01	886.61
20	86+00.00	36.86	896.68	905.61	72	19	10.06	886.61

NOISE BARRIER B38								
POST NO.	WALL STATION SB 51	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ.FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
21	86+08.00	36.86	896.74	905.61	72	19	10.13	886.61
22	86+16.00	36.86	896.80	905.61	72	19	10.18	886.61
23	86+24.00	36.86	896.86	905.61	72	19	10.25	886.61
24	86+32.00	36.86	896.92	905.61	72	19	10.30	886.61
25	86+40.00	36.86	896.98	906.35	72	19	9.63	887.35
26	86+48.00	36.86	897.04	906.35	72	19	9.68	887.35
27	86+56.00	36.86	897.10	906.35	72	19	9.75	887.35
28	86+64.00	36.86	897.16	906.35	72	19	9.80	887.35
29	86+72.00	36.86	897.22	906.35	72	19	9.87	887.35
30	86+80.00	36.86	897.28	906.35	72	19	9.92	887.35
31	86+88.00	36.86	897.34	906.35	72	19	9.99	887.35
32	86+96.00	36.86	897.40	906.35	72	19	10.05	887.35
33	87+04.00	36.86	897.46	906.35	72	19	10.11	887.35
34	87+12.00	36.86	897.52	906.35	72	19	10.17	887.35
35	87+20.00	36.86	897.58	906.35	72	19	10.23	887.35
36	87+28.00	36.86	897.64	906.35	72	19	10.29	887.35
37	87+36.00	36.86	897.70	907.06	72	19	9.64	888.06
38	87+44.00	36.86	897.76	907.06	72	19	9.70	888.06
39	87+52.00	36.86	897.82	907.06	72	19	9.76	888.06
40	87+60.00	36.86	897.88	907.06	72	19	9.82	888.06

NOISE BARRIER B38								
POST NO.	WALL STATION SB 51	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ.FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
41	87+68.00	36.86	897.94	907.06	72	19	9.88	888.06
42	87+76.00	36.86	898.00	907.06	72	19	9.94	888.06
43	87+84.00	36.86	898.06	907.06	72	19	10.00	888.06
44	87+92.00	36.86	898.12	907.06	72	19	10.06	888.06
45	88+00.00	36.86	898.18	907.06	72	19	10.12	888.06
46	88+08.00	36.86	898.24	907.06	72	19	10.18	888.06
47	88+16.00	36.86	898.30	907.06	72	19	10.24	888.06
48	88+24.00	36.86	898.36	907.06	72	19	10.30	888.06
49	88+32.00	36.86	898.42	907.06	72	19	9.63	888.78
50	88+40.00	36.86	898.48	907.78	72	19	9.70	888.78
51	88+48.00	36.86	898.54	907.78	72	19	9.76	888.78



- ① PLANKING ON HIGHWAY SIDE
- ② PLANKING ON RESIDENTIAL SIDE

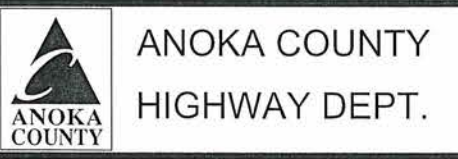
NO	DATE	BY	CKD	APPR	REVISION

NAME: P:02-651-07\Plan\0265107\_NWB38\_PP1.dgn 06/05/2014 7:41:55 AM

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

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarcsik*  
 DATE: 6-9-19 LICENSE NO. 24756

DRAWN BY JCF DATE 11-25-13  
 DESIGN BY NJD DATE 10-31-13  
 CHECKED BY GMP DATE 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

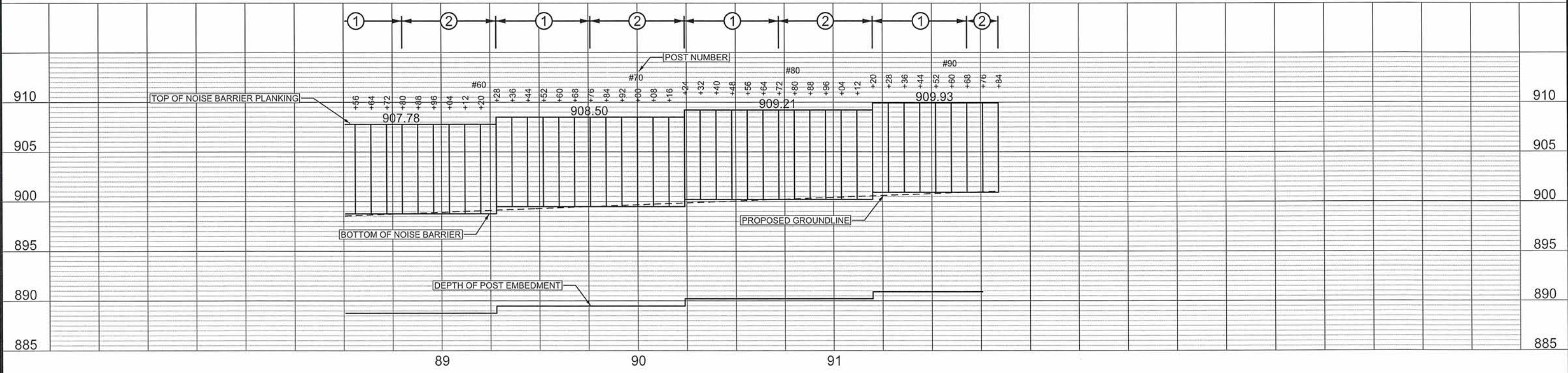
NOISE BARRIER PLANS  
 NW B38 (1 OF 2)  
 STA 84+48.00 TO 88+48.00  
 Sheet 174 of 381 Sheets

NOISE BARRIER B38								
POST NO.	WALL STATION SB 51	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
52	88+56.00	36.86	898.60			19	9.82	888.78
53	88+64.00	36.86	898.66	907.78	72	19	9.88	888.78
54	88+72.00	36.86	898.72	907.78	72	19	9.94	888.78
55	88+80.00	36.86	898.78	907.78	72	19	10.00	888.78
56	88+88.00	36.86	898.84	907.78	72	19	10.06	888.78
57	88+96.00	36.86	898.90	907.78	72	19	10.12	888.78
58	89+04.00	36.86	898.96	907.78	72	19	10.18	888.78
59	89+12.00	36.86	899.02	907.78	72	19	10.24	888.78
60	89+20.00	36.86	899.08	907.78	72	19	10.30	888.78
61	89+28.00	36.86	899.14	908.50	72	19	9.63	889.50
62	89+36.00	36.86	899.20	908.50	72	19	9.70	889.50
63	89+44.00	36.86	899.26	908.50	72	19	9.76	889.50
64	89+52.00	36.86	899.32	908.50	72	19	9.82	889.50
65	89+60.00	36.86	899.38	908.50	72	19	9.88	889.50
66	89+68.00	36.86	899.44	908.50	72	19	9.93	889.50
67	89+76.00	36.86	899.50	908.50	72	19	10.00	889.50
68	89+84.00	36.86	899.56	908.50	72	19	10.05	889.50
69	89+92.00	36.86	899.62	908.50	72	19	10.12	889.50
70	90+00.00	36.86	899.68	908.50	72	19	10.18	889.50
71	90+08.00	36.86	899.74	908.50	72	19	10.24	889.50
72	90+16.00	36.86	899.80	908.50	72	19	10.30	889.50
73	90+24.00	36.86	899.86	909.21	72	19	9.64	890.21
74	90+32.00	36.86	899.92	909.21	72	19	9.70	890.21
75	90+40.00	36.86	899.98	909.21	72	19	9.76	890.21

NOISE BARRIER B38								
POST NO.	WALL STATION SB 51	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
76	90+48.00	36.86	900.04			19	9.82	890.21
77	90+56.00	36.86	900.10	909.21	72	19	9.88	890.21
78	90+64.00	36.86	900.16	909.21	72	19	9.94	890.21
79	90+72.00	36.86	900.22	909.21	72	19	10.01	890.21
80	90+80.00	36.86	900.28	909.21	72	19	10.06	890.21
81	90+88.00	36.86	900.34	909.21	72	19	10.13	890.21
82	90+96.00	36.86	900.40	909.21	72	19	10.18	890.21
83	91+04.00	36.86	900.46	909.21	72	19	10.25	890.21
84	91+12.00	36.86	900.52	909.21	72	19	10.30	890.21
85	91+20.00	36.86	900.58	909.93	72	19	9.65	890.93
86	91+28.00	36.86	900.64	909.93	72	19	9.71	890.93
87	91+36.00	36.86	900.70	909.93	72	19	9.77	890.93
88	91+44.00	36.86	900.76	909.93	72	19	9.83	890.93
89	91+52.00	36.86	900.81	909.93	72	19	9.88	890.93
90	91+60.00	36.86	900.87	909.93	72	19	9.94	890.93
91	91+68.00	36.86	900.93	909.93	72	19	10.00	890.93
92	91+76.00	36.86	900.98	909.93	72	19	10.05	890.93
93	91+84.00	36.86	900.98			19	10.05	890.93
BARRIER B38 TOTALS					6624	1767		

NOISE BARRIER B38  
WOOD PLANKING NOISE BARRIER

- ① PLANKING ON HIGHWAY SIDE
- ② PLANKING ON RESIDENTIAL SIDE



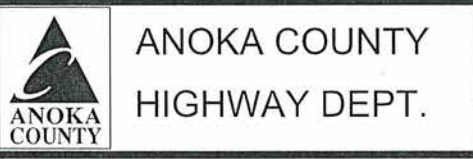
NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_NWB38\_PP2.dgn 06/05/2014 7:41:57 AM

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

PRINT NAME: CURT A. KOBILARCSIK  
SIGNATURE: *Curt A. Kobilarsik*  
DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
DESIGN BY: NJD DATE: 10-31-13  
CHECKED BY: GMP DATE: 12-13-13

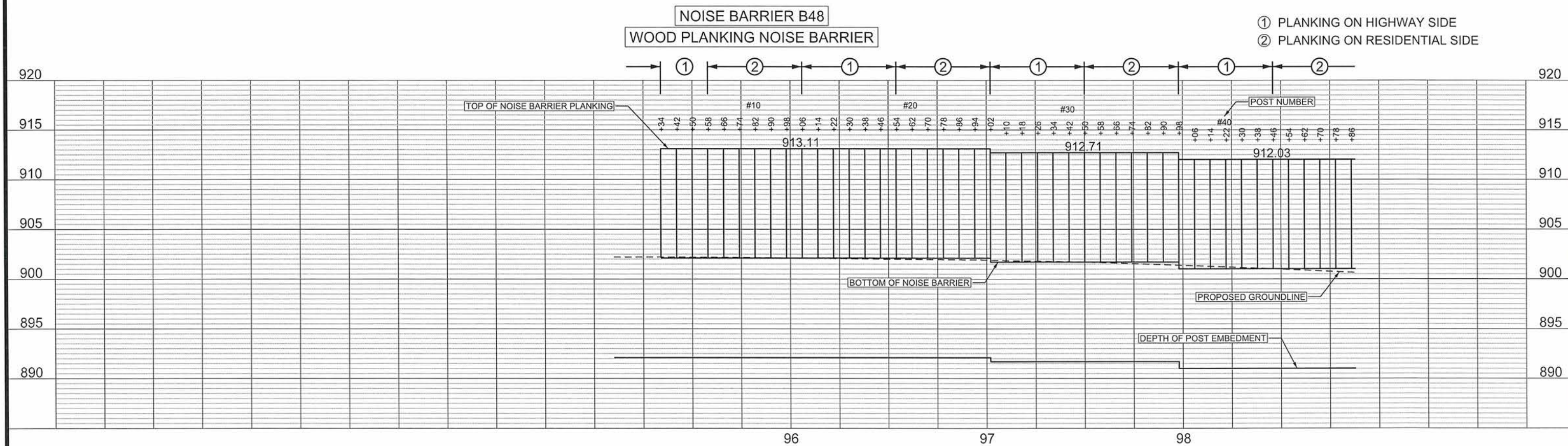


S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

NOISE BARRIER PLANS  
NW B38 (2 OF 2)  
STA 88+56.00 TO 91+84.00  
Sheet 175 of 381 Sheets

NOISE BARRIER B48								
POST NO.	WALL STATION SB 51	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
1	95+34.00	38.86	902.21	913.11	88	22	11.10	891.11
2	95+42.00	38.86	902.21	913.11	88	22	11.10	891.11
3	95+50.00	38.86	902.20	913.11	88	22	11.09	891.11
4	95+58.00	38.86	902.19	913.11	88	22	11.08	891.11
5	95+66.00	38.86	902.18	913.11	88	22	11.07	891.11
6	95+74.00	38.86	902.17	913.11	88	22	11.06	891.11
7	95+82.00	38.86	902.16	913.11	88	22	11.05	891.11
8	95+90.00	38.86	902.14	913.11	88	22	11.03	891.11
9	95+98.00	38.86	902.13	913.11	88	22	11.02	891.11
10	96+06.00	38.86	902.11	913.11	88	22	11.00	891.11
11	96+14.00	38.86	902.09	913.11	88	22	10.98	891.11
12	96+22.00	38.86	902.07	913.11	88	22	10.96	891.11
13	96+30.00	38.86	902.05	913.11	88	22	10.94	891.11
14	96+38.00	38.86	902.03	913.11	88	22	10.92	891.11
15	96+46.00	38.86	902.01	913.11	88	22	10.90	891.11
16	96+54.00	38.73	901.99	913.11	88	22	10.88	891.11
17	96+62.00	38.52	901.98	913.11	88	22	10.87	891.11
18	96+70.00	38.31	901.97	913.11	88	22	10.86	891.11
19	96+78.00	38.09	901.95	913.11	88	22	10.84	891.11
20	96+86.00	37.88	901.94	913.11	88	22	10.83	891.11
21	96+94.00	37.67	901.92	913.11	88	22	10.81	891.11
22	97+02.00	37.45	901.90	912.71	88	22	11.19	890.71
23	97+10.00	37.24	901.85	912.71	88	22	11.14	890.71
24	97+18.00	37.03	901.82	912.71	88	22	11.11	890.71

NOISE BARRIER B48								
POST NO.	WALL STATION SB 51	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
25	97+26.00	36.86	901.79	912.71	88	22	11.08	890.71
26	97+34.00	36.86	901.76	912.71	88	22	11.05	890.71
27	97+42.00	36.86	901.74	912.71	88	22	11.03	890.71
28	97+50.00	36.86	901.71	912.71	88	22	11.00	890.71
29	97+58.00	36.86	901.66	912.71	88	22	10.95	890.71
30	97+66.00	36.86	901.61	912.71	88	22	10.90	890.71
31	97+74.00	36.86	901.56	912.71	88	22	10.85	890.71
32	97+82.00	36.86	901.50	912.71	88	22	10.79	890.71
33	97+90.00	36.86	901.45	912.71	88	22	10.74	890.71
34	97+98.00	36.86	901.40	912.03	88	22	11.37	890.03
35	98+06.00	36.86	901.34	912.03	88	22	11.31	890.03
36	98+14.00	36.86	901.28	912.03	88	22	11.25	890.03
37	98+22.00	36.86	901.22	912.03	88	22	11.19	890.03
38	98+30.00	36.86	901.15	912.03	88	22	11.12	890.03
39	98+38.00	36.86	901.09	912.03	88	22	11.06	890.03
40	98+46.00	36.86	901.03	912.03	88	22	11.00	890.03
41	98+54.00	36.86	900.96	912.03	88	22	10.93	890.03
42	98+62.00	36.86	900.89	912.03	88	22	10.86	890.03
43	98+70.00	36.86	900.82	912.03	88	22	10.79	890.03
44	98+78.00	36.86	900.75	912.03	88	22	10.72	890.03
45	98+86.00	36.86	900.67	912.03	88	22	10.64	890.03
46	98+94.00	36.86	900.60	911.19	88	22	11.41	889.19
47	99+02.00	36.86	900.53	911.19	88	22	11.34	889.19
48	99+10.00	36.86	900.45	911.19	88	22	11.26	889.19

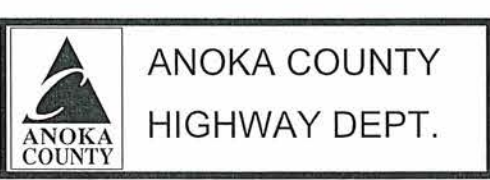


NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\02-651-07\Plan\0265107_NWB48_PP1.dgn 06/05/2014 7:41:58 AM					

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

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

NOISE BARRIER PLANS  
 NW B48 (1 of 2)  
 STA 95+34.00 TO 98+86.00  
 Sheet 176 of 381 Sheets

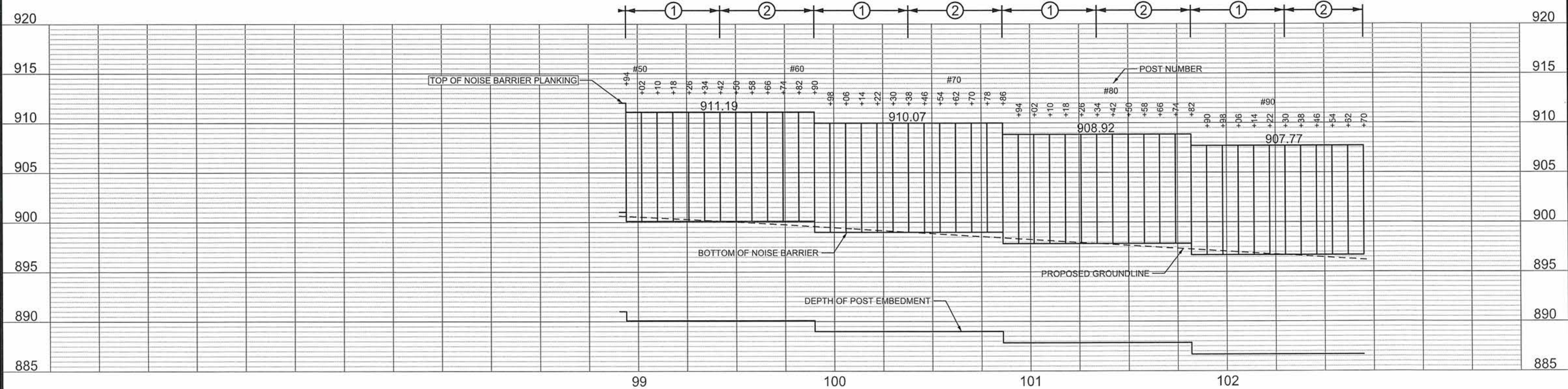


NOISE BARRIER B48								
POST NO.	WALL STATION	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
49	99+18.00	36.86	900.37	911.19	88	22	11.18	889.19
50	99+26.00	36.86	900.29	911.19	88	22	11.10	889.19
51	99+34.00	36.86	900.20	911.19	88	22	11.01	889.19
52	99+42.00	36.86	900.12	911.19	88	22	10.93	889.19
53	99+50.00	36.86	900.04	911.19	88	22	10.85	889.19
54	99+58.00	36.86	899.95	911.19	88	22	10.76	889.19
55	99+66.00	36.86	899.86	911.19	88	22	10.67	889.19
56	99+74.00	36.86	899.77	911.19	88	22	10.58	889.19
57	99+82.00	36.86	899.67	911.19	88	22	10.48	889.19
58	99+90.00	36.86	899.58	910.07	88	22	11.51	888.07
59	99+98.00	36.86	899.48	910.07	88	22	11.41	888.07
60	100+06.00	36.86	899.39	910.07	88	22	11.32	888.07
61	100+14.00	36.86	899.29	910.07	88	22	11.22	888.07
62	100+22.00	36.86	899.20	910.07	88	22	11.13	888.07
63	100+30.00	36.86	899.10	910.07	88	22	11.03	888.07
64	100+38.00	36.86	899.00	910.07	88	22	10.93	888.07
65	100+46.00	36.86	898.91	910.07	88	22	10.84	888.07
66	100+54.00	36.86	898.81	910.07	88	22	10.74	888.07
67	100+62.00	36.86	898.72	910.07	88	22	10.65	888.07
68	100+70.00	36.86	898.62	910.07	88	22	10.55	888.07
69	100+78.00	36.86	898.52	910.07	88	22	10.45	888.07
70	100+86.00	36.86	898.43	908.92	88	22	11.51	886.92
71	100+94.00	36.86	898.33	908.92	88	22	11.41	886.92
72	101+02.00	36.86	898.24	908.92	88	22	11.32	886.92
73	101+10.00	36.86	898.14	908.92	88	22	11.22	886.92

NOISE BARRIER B48								
POST NO.	WALL STATION	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
74	101+18.00	36.86	898.04	908.92	88	22	11.12	886.92
75	101+26.00	36.86	897.95	908.92	88	22	11.03	886.92
76	101+34.00	36.86	897.85	908.92	88	22	10.93	886.92
77	101+42.00	36.86	897.76	908.92	88	22	10.84	886.92
78	101+50.00	36.86	897.66	908.92	88	22	10.74	886.92
79	101+58.00	36.86	897.56	908.92	88	22	10.64	886.92
80	101+66.00	36.86	897.47	908.92	88	22	10.55	886.92
81	101+74.00	36.86	897.37	908.92	88	22	10.45	886.92
82	101+82.00	36.86	897.28	907.77	88	22	11.51	885.77
83	101+90.00	36.86	897.18	907.77	88	22	11.41	885.77
84	101+98.00	36.86	897.08	907.77	88	22	11.31	885.77
85	102+06.00	36.86	896.99	907.77	88	22	11.22	885.77
86	102+14.00	36.86	896.89	907.77	88	22	11.12	885.77
87	102+22.00	36.86	896.80	907.77	88	22	11.03	885.77
88	102+30.00	36.86	896.70	907.77	88	22	10.93	885.77
89	102+38.00	36.86	896.60	907.77	88	22	10.83	885.77
90	102+46.00	36.86	896.51	907.77	88	22	10.74	885.77
91	102+54.00	36.86	896.41	907.77	88	22	10.64	885.77
92	102+62.00	36.86	896.31	907.77	88	22	10.54	885.77
93	102+70.00	36.86	896.21	907.77	88	22	10.44	885.77
<b>BARRIER B48 TOTALS</b>					<b>8096</b>	<b>2046</b>		

**NOISE BARRIER B48**  
**WOOD PLANKING NOISE BARRIER**

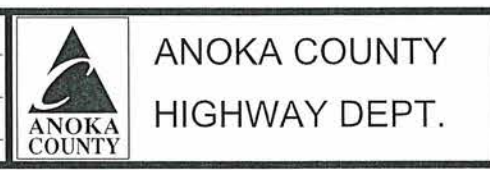
- ① PLANKING ON HIGHWAY SIDE
- ② PLANKING ON RESIDENTIAL SIDE



NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\02-651-07\Plan\0265107_NWB48_PP2.dgn					06/05/2014 7:42:00 AM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarcsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



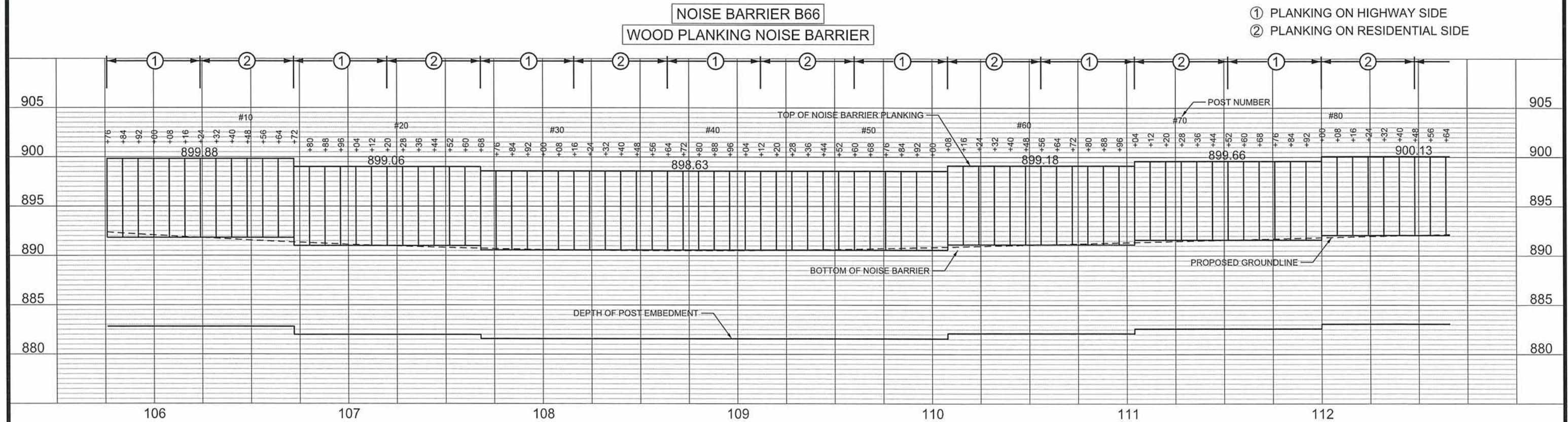
S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

NOISE BARRIER PLANS  
 NW B48 (2 of 2)  
 STA 98+94.00 TO 102+70.00  
 Sheet 177 of 381 Sheets

NOISE BARRIER B66								
POST NO.	WALL STATION NB 51	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
1	105+76.00	36.86	892.42	899.88	64	17	9.54	882.88
2	105+84.00	36.86	892.33	899.88	64	17	9.45	882.88
3	105+92.00	36.86	892.23	899.88	64	17	9.35	882.88
4	106+00.00	36.86	892.14	899.88	64	17	9.26	882.88
5	106+08.00	36.86	892.05	899.88	64	17	9.17	882.88
6	106+16.00	36.86	891.97	899.88	64	17	9.09	882.88
7	106+24.00	36.86	891.88	899.88	64	17	9.00	882.88
8	106+32.00	36.86	891.80	899.88	64	17	8.92	882.88
9	106+40.00	36.86	891.72	899.88	64	17	8.84	882.88
10	106+48.00	36.86	891.63	899.88	64	17	8.75	882.88
11	106+56.00	36.86	891.56	899.88	64	17	8.68	882.88
12	106+64.00	36.86	891.49	899.88	64	17	8.61	882.88
13	106+72.00	36.86	891.42	899.06	64	17	9.36	882.06
14	106+80.00	36.86	891.36	899.06	64	17	9.30	882.06
15	106+88.00	36.86	891.29	899.06	64	17	9.23	882.06
16	106+96.00	36.86	891.22	899.06	64	17	9.16	882.06
17	107+04.00	36.86	891.16	899.06	64	17	9.10	882.06
18	107+12.00	36.86	891.11	899.06	64	17	9.05	882.06
19	107+20.00	36.86	891.06	899.06	64	17	9.00	882.06
20	107+28.00	36.86	891.01	899.06	64	17	8.95	882.06
21	107+36.00	36.86	890.96	899.06	64	17	8.90	882.06
22	107+44.00	36.86	890.91	899.06	64	17	8.85	882.06
23	107+52.00	36.86	890.87	899.06	64	17	8.81	882.06
24	107+60.00	36.86	890.83	899.06	64	17	8.77	882.06
25	107+68.00	36.86	890.80	898.63	64	17	9.17	881.63
26	107+76.00	36.86	890.77	898.63	64	17	9.14	881.63
27	107+84.00	36.86	890.73	898.63	64	17	9.10	881.63
28	107+92.00	36.86	890.70	898.63	64	17	9.07	881.63
29	108+00.00	36.86	890.67	898.63	64	17	9.04	881.63
30	108+08.00	36.86	890.65	898.63	64	17	9.02	881.63

NOISE BARRIER B66								
POST NO.	WALL STATION NB 51	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
31	108+16.00	36.86	890.63	898.63	64	17	9.00	881.63
32	108+24.00	36.86	890.62	898.63	64	17	8.99	881.63
33	108+32.00	36.86	890.60	898.63	64	17	8.97	881.63
34	108+40.00	36.86	890.59	898.63	64	17	8.96	881.63
35	108+48.00	36.86	890.57	898.63	64	17	8.94	881.63
36	108+56.00	36.86	890.57	898.63	64	17	8.94	881.63
37	108+64.00	36.86	890.57	898.63	64	17	8.94	881.63
38	108+72.00	36.86	890.57	898.63	64	17	8.94	881.63
39	108+80.00	36.86	890.57	898.63	64	17	8.94	881.63
40	108+88.00	36.86	890.57	898.63	64	17	8.94	881.63
41	108+96.00	36.86	890.57	898.63	64	17	8.94	881.63
42	109+04.00	36.86	890.58	898.63	64	17	8.95	881.63
43	109+12.00	36.86	890.60	898.63	64	17	8.97	881.63
44	109+20.00	36.86	890.61	898.63	64	17	8.98	881.63
45	109+28.00	36.86	890.63	898.63	64	17	9.00	881.63
46	109+36.00	36.86	890.65	898.63	64	17	9.02	881.63
47	109+44.00	36.86	890.67	898.63	64	17	9.04	881.63
48	109+52.00	36.86	890.69	898.63	64	17	9.06	881.63
49	109+60.00	36.86	890.72	898.63	64	17	9.09	881.63
50	109+68.00	36.86	890.76	898.63	64	17	9.13	881.63
51	109+76.00	36.86	890.79	898.63	64	17	9.16	881.63
52	109+84.00	36.86	890.83	898.63	64	17	9.20	881.63
53	109+92.00	36.86	890.86	898.63	64	17	9.23	881.63
54	110+00.00	36.86	890.90	898.63	64	17	9.27	881.63
55	110+08.00	36.86	890.94	899.18	64	17	8.76	882.18
56	110+16.00	36.86	890.98	899.18	64	17	8.80	882.18
57	110+24.00	36.86	891.02	899.18	64	17	8.84	882.18
58	110+32.00	36.86	891.06	899.18	64	17	8.88	882.18
59	110+40.00	36.86	891.10	899.18	64	17	8.92	882.18
60	110+48.00	36.86	891.14	899.18	64	17	8.96	882.18

NOISE BARRIER B66								
POST NO.	WALL STATION NB 51	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
61	110+56.00	36.86	891.18	899.18	64	17	9.00	882.18
62	110+64.00	36.86	891.22	899.18	64	17	9.04	882.18
63	110+72.00	36.86	891.26	899.18	64	17	9.08	882.18
64	110+80.00	36.86	891.30	899.18	64	17	9.12	882.18
65	110+88.00	36.86	891.34	899.18	64	17	9.16	882.18
66	110+96.00	36.86	891.38	899.18	64	17	9.20	882.18
67	111+04.00	36.86	891.42	899.66	64	17	8.76	882.66
68	111+12.00	36.86	891.46	899.66	64	17	8.80	882.66
69	111+20.00	36.86	891.50	899.66	64	17	8.84	882.66
70	111+28.00	36.86	891.54	899.66	64	17	8.88	882.66
71	111+36.00	36.86	891.58	899.66	64	17	8.92	882.66
72	111+44.00	36.86	891.62	899.66	64	17	8.96	882.66
73	111+52.00	36.86	891.66	899.66	64	17	9.00	882.66
74	111+60.00	36.86	891.70	899.66	64	17	9.04	882.66
75	111+68.00	36.86	891.74	899.66	64	17	9.08	882.66
76	111+76.00	36.86	891.78	899.66	64	17	9.12	882.66
77	111+84.00	36.86	891.82	899.66	64	17	9.16	882.66
78	111+92.00	36.86	891.86	899.66	64	17	9.20	882.66
79	112+00.00	36.86	891.90	900.13	64	17	8.77	883.13
80	112+08.00	36.86	891.94	900.13	64	17	8.81	883.13
81	112+16.00	36.86	891.98	900.13	64	17	8.85	883.13
82	112+24.00	36.86	892.02	900.13	64	17	8.89	883.13
83	112+32.00	36.86	892.06	900.13	64	17	8.93	883.13
84	112+40.00	36.86	892.10	900.13	64	17	8.97	883.13
85	112+48.00	36.86	892.14	900.13	64	17	9.01	883.13
86	112+56.00	36.86	892.18	900.13	64	17	9.05	883.13
87	112+64.00	36.86	892.22	900.13	64	17	9.09	883.13



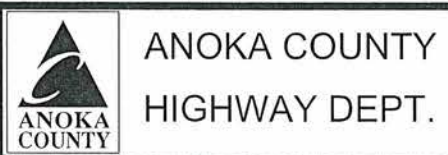
NO	DATE	BY	CKD	APPR	REVISION

NAME: P:02-651-07\Plan\0265107\_NWB66\_PP1.dgn 06/05/2014 7:42:01 AM

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

PRINT NAME: CURT A. KOBIARCSIK  
SIGNATURE: *Curt A. Kobiarczik*  
DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
DESIGN BY: NJD DATE: 10-31-13  
CHECKED BY: GMP DATE: 12-13-13



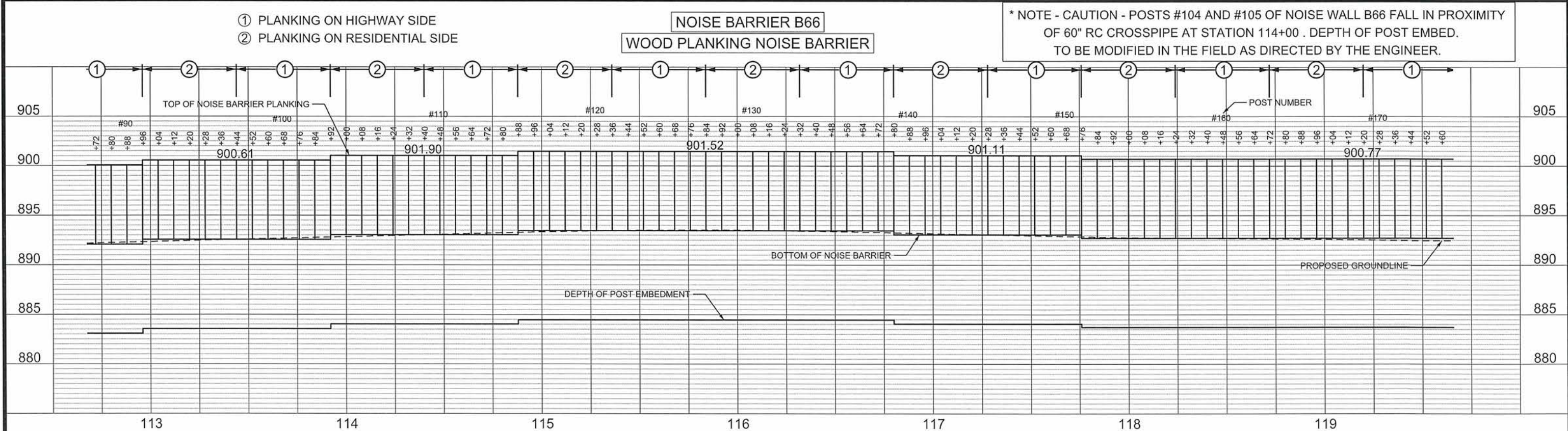
S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

NOISE BARRIER PLANS  
NW B66 (1 of 3)  
STA 105+76.00 TO 112+64.00  
Sheet 178 of 381 Sheets

NOISE BARRIER B66								
POST NO.	WALL STATION NB 51	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
88	112+72.00	36.86	892.26	900.13	64	17	9.13	883.13
89	112+80.00	36.86	892.30	900.13	64	17	9.17	883.13
90	112+88.00	36.86	892.34	900.13	64	17	9.21	883.13
91	112+96.00	36.86	892.38	900.61	64	17	8.77	883.61
92	113+04.00	36.86	892.42	900.61	64	17	8.81	883.61
93	113+12.00	36.86	892.46	900.61	64	17	8.85	883.61
94	113+20.00	36.86	892.50	900.61	64	17	8.89	883.61
95	113+28.00	36.86	892.54	900.61	64	17	8.93	883.61
96	113+36.00	36.86	892.58	900.61	64	17	8.97	883.61
97	113+44.00	36.86	892.62	900.61	64	17	9.01	883.61
98	113+52.00	36.86	892.66	900.61	64	17	9.05	883.61
99	113+60.00	36.86	892.70	900.61	64	17	9.09	883.61
100	113+68.00	36.86	892.74	900.61	64	17	9.13	883.61
101	113+76.00	36.86	892.78	900.61	64	17	9.17	883.61
102	113+84.00	36.86	892.82	900.61	64	17	9.21	883.61
103	113+92.00	36.86	892.86	901.90	64	17	7.96	884.90
104 *	114+00.00	36.86	892.90	901.90	64	17	8.00	884.90
105 *	114+08.00	36.86	892.94	901.90	64	17	8.04	884.90
106	114+16.00	36.86	892.98	901.90	64	17	8.08	884.90
107	114+24.00	36.86	893.02	901.90	64	17	8.12	884.90
108	114+32.00	36.86	893.06	901.90	64	17	8.16	884.90
109	114+40.00	36.86	893.10	901.90	64	17	8.20	884.90
110	114+48.00	36.86	893.14	901.90	64	17	8.24	884.90
111	114+56.00	36.86	893.18	901.90	64	17	8.28	884.90
112	114+64.00	36.86	893.21	901.90	64	17	8.31	884.90
113	114+72.00	36.86	893.25	901.90	64	17	8.35	884.90
114	114+80.00	36.86	893.29	901.90	64	17	8.39	884.90
115	114+88.00	36.86	893.33	901.90	64	17	8.43	884.90
116	114+96.00	36.86	893.37	901.52	64	17	8.85	884.52
117	115+04.00	36.86	893.41	901.52	64	17	8.89	884.52

NOISE BARRIER B66								
POST NO.	WALL STATION NB 51	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
118	115+12.00	36.86	893.43	901.52	64	17	8.91	884.52
119	115+20.00	36.86	893.46	901.52	64	17	8.94	884.52
120	115+28.00	36.86	893.49	901.52	64	17	8.97	884.52
121	115+36.00	36.86	893.52	901.52	64	17	9.00	884.52
122	115+44.00	36.86	893.54	901.52	64	17	9.02	884.52
123	115+52.00	36.86	893.57	901.52	64	17	9.05	884.52
124	115+60.00	36.86	893.57	901.52	64	17	9.05	884.52
125	115+68.00	36.86	893.57	901.52	64	17	9.05	884.52
126	115+76.00	36.86	893.57	901.52	64	17	9.05	884.52
127	115+84.00	36.86	893.57	901.52	64	17	9.05	884.52
128	115+92.00	36.86	893.58	901.52	64	17	9.06	884.52
129	116+00.00	36.86	893.58	901.52	64	17	9.06	884.52
130	116+08.00	36.86	893.56	901.52	64	17	9.04	884.52
131	116+16.00	36.86	893.53	901.52	64	17	9.01	884.52
132	116+24.00	36.86	893.51	901.52	64	17	8.99	884.52
133	116+32.00	36.86	893.48	901.52	64	17	8.96	884.52
134	116+40.00	36.86	893.46	901.52	64	17	8.94	884.52
135	116+48.00	36.86	893.43	901.52	64	17	8.91	884.52
136	116+56.00	36.86	893.40	901.52	64	17	8.88	884.52
137	116+64.00	36.86	893.37	901.52	64	17	8.85	884.52
138	116+72.00	36.86	893.34	901.52	64	17	8.82	884.52
139	116+80.00	36.86	893.31	900.77	64	17	9.54	883.77
140	116+88.00	36.86	893.27	900.77	64	17	9.50	883.77
141	116+96.00	36.86	893.24	900.77	64	17	9.47	883.77
142	117+04.00	36.86	893.21	900.77	64	17	9.44	883.77
143	117+12.00	36.86	893.17	900.77	64	17	9.40	883.77
144	117+20.00	36.86	893.14	900.77	64	17	9.37	883.77
145	117+28.00	36.86	893.11	900.77	64	17	9.34	883.77
146	117+36.00	36.86	893.08	900.77	64	17	9.31	883.77
147	117+44.00	36.86	893.04	900.77	64	17	9.27	883.77

NOISE BARRIER B66								
POST NO.	WALL STATION NB 51	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
148	117+52.00	36.86	893.01	900.77	64	17	9.24	883.77
149	117+60.00	36.86	892.98	900.77	64	17	9.21	883.77
150	117+68.00	36.86	892.94	900.77	64	17	9.17	883.77
151	117+76.00	36.86	892.91	900.77	64	17	9.14	883.77
152	117+84.00	36.84	892.88	900.77	64	17	9.11	883.77
153	117+92.00	36.68	892.84	900.77	64	17	9.07	883.77
154	118+00.00	36.52	892.81	900.77	64	17	9.04	883.77
155	118+08.00	36.36	892.79	900.77	64	17	9.02	883.77
156	118+16.00	36.20	892.78	900.77	64	17	9.01	883.77
157	118+24.00	36.04	892.77	900.77	64	17	9.00	883.77
158	118+32.00	35.88	892.76	900.77	64	17	8.99	883.77
159	118+40.00	35.72	892.74	900.77	64	17	8.97	883.77
160	118+48.00	35.56	892.73	900.77	64	17	8.96	883.77
161	118+56.00	35.40	892.72	900.77	64	17	8.95	883.77
162	118+64.00	35.38	892.71	900.77	64	17	8.94	883.77
163	118+72.00	35.38	892.69	900.77	64	17	8.92	883.77
164	118+80.00	35.38	892.68	900.77	64	17	8.91	883.77
165	118+88.00	35.38	892.67	900.77	64	17	8.90	883.77
166	118+96.00	35.38	892.66	900.77	64	17	8.89	883.77
167	119+04.00	35.38	892.64	900.77	64	17	8.87	883.77
168	119+12.00	35.38	892.62	900.77	64	17	8.85	883.77
169	119+20.00	35.38	892.59	900.77	64	17	8.82	883.77
170	119+28.00	35.38	892.57	900.77	64	17	8.80	883.77
171	119+36.00	35.38	892.55	900.77	64	17	8.78	883.77
172	119+44.00	35.38	892.53	900.77	64	17	8.76	883.77
173	119+52.00	35.38	892.51	900.77	64	17	8.74	883.77
174	119+60.00	35.38	892.52	900.77	64	17	8.75	883.77



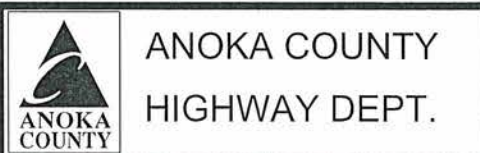
NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_NWB66\_PP2.dgn 06/05/2014 7:42:03 AM

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

PRINT NAME: CURT A. KOBILARCSIK  
SIGNATURE: *Curt Kobilarsik*  
DATE: 6-9-17 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
DESIGN BY: NJD DATE: 10-31-13  
CHECKED BY: GMP DATE: 12-13-13

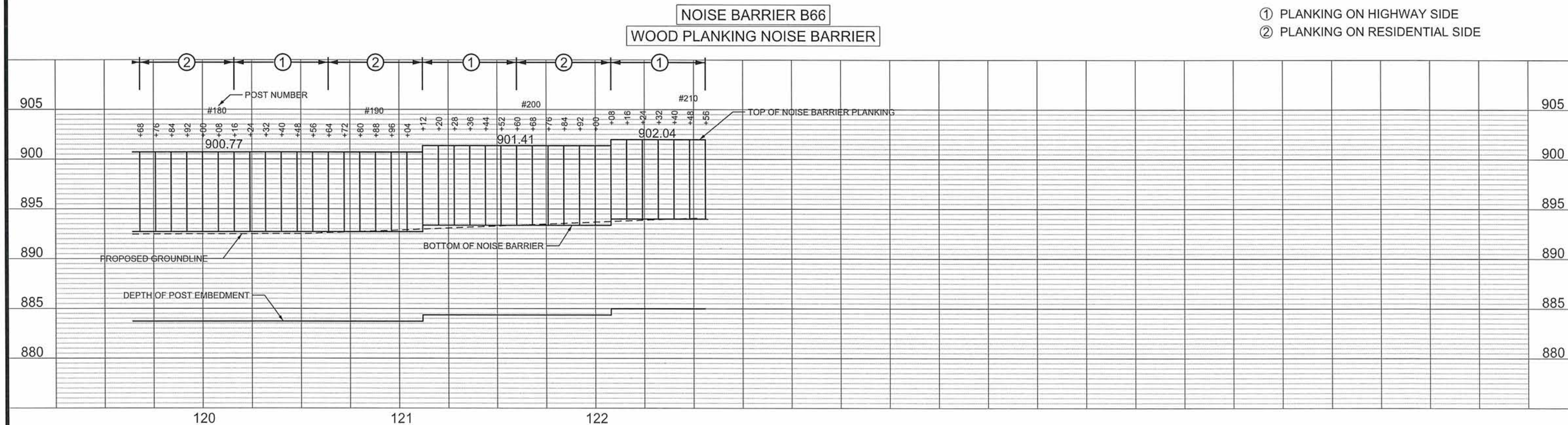


S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

NOISE BARRIER PLANS  
NW B66 (2 of 3)  
STA 112+72.00 TO 119+60.00  
Sheet 179 of 381 Sheets

NOISE BARRIER B66								
POST NO.	WALL STATION NB 51	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
175	119+68.00	35.38	892.52	900.77	64	17	8.75	883.77
176	119+76.00	35.38	892.53	900.77	64	17	8.76	883.77
177	119+84.00	35.38	892.53	900.77	64	17	8.76	883.77
178	119+92.00	35.38	892.54	900.77	64	17	8.77	883.77
179	120+00.00	35.38	892.55	900.77	64	17	8.78	883.77
180	120+08.00	35.38	892.55	900.77	64	17	8.78	883.77
181	120+16.00	35.38	892.55	900.77	64	17	8.78	883.77
182	120+24.00	35.38	892.55	900.77	64	17	8.78	883.77
183	120+32.00	35.38	892.55	900.77	64	17	8.78	883.77
184	120+40.00	35.38	892.56	900.77	64	17	8.79	883.77
185	120+48.00	35.38	892.56	900.77	64	17	8.79	883.77
186	120+56.00	35.38	892.60	900.77	64	17	8.83	883.77
187	120+64.00	35.38	892.66	900.77	64	17	8.89	883.77
188	120+72.00	35.38	892.72	900.77	64	17	8.95	883.77
189	120+80.00	35.38	892.78	900.77	64	17	9.01	883.77
190	120+88.00	35.38	892.84	900.77	64	17	9.07	883.77
191	120+96.00	35.38	892.90	900.77	64	17	9.13	883.77
192	121+04.00	35.38	892.97	900.77	64	17	9.20	883.77
193	121+12.00	35.38	893.03	901.41	64	17	8.62	884.41
194	121+20.00	35.38	893.09	901.41	64	17	8.68	884.41

NOISE BARRIER B66								
POST NO.	WALL STATION NB 51	CENTER OF CONC. POST FROM CL	GROUND ELEV.	TOP OF PLANKING ELEV.	PLANKING AREA (SQ FT)	POST LENGTH (LIN FT)	ACTUAL POST EMBED (LIN FT)	BOTTOM OF EMBED. ELEV.
195	121+28.00	35.38	893.16	901.41	64	17	8.75	884.41
196	121+36.00	35.38	893.22	901.41	64	17	8.81	884.41
197	121+44.00	35.38	893.29	901.41	64	17	8.88	884.41
198	121+52.00	35.38	893.35	901.41	64	17	8.94	884.41
199	121+60.00	35.38	893.41	901.41	64	17	9.00	884.41
200	121+68.00	35.38	893.48	901.41	64	17	9.07	884.41
201	121+76.00	35.38	893.54	901.41	64	17	9.13	884.41
202	121+84.00	35.38	893.61	901.41	64	17	9.20	884.41
203	121+92.00	35.38	893.67	901.41	64	17	9.26	884.41
204	122+00.00	35.38	893.73	901.41	64	17	9.32	884.41
205	122+08.00	35.38	893.80	901.41	64	17	9.39	884.41
206	122+16.00	35.38	893.86	902.04	64	17	8.82	885.04
207	122+24.00	35.38	893.93	902.04	64	17	8.89	885.04
208	122+32.00	35.38	893.99	902.04	64	17	8.95	885.04
209	122+40.00	35.38	894.05	902.04	64	17	9.01	885.04
210	122+48.00	35.38	894.11	902.04	64	17	9.07	885.04
211	122+56.00	35.38	894.04	902.04	64	17	9.00	885.04
<b>BARRIER B66 TOTALS</b>					<b>13440</b>	<b>3587</b>		



- ① PLANKING ON HIGHWAY SIDE
- ② PLANKING ON RESIDENTIAL SIDE

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_NWB66\_PP3.dgn 06/05/2014 7:42:05 AM

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

PRINT NAME: CURT A. KOBIARCSIK  
 SIGNATURE: *Curt A. Kobiarcsik*  
 DATE: 6-9-14 LICENSE NO. 24756

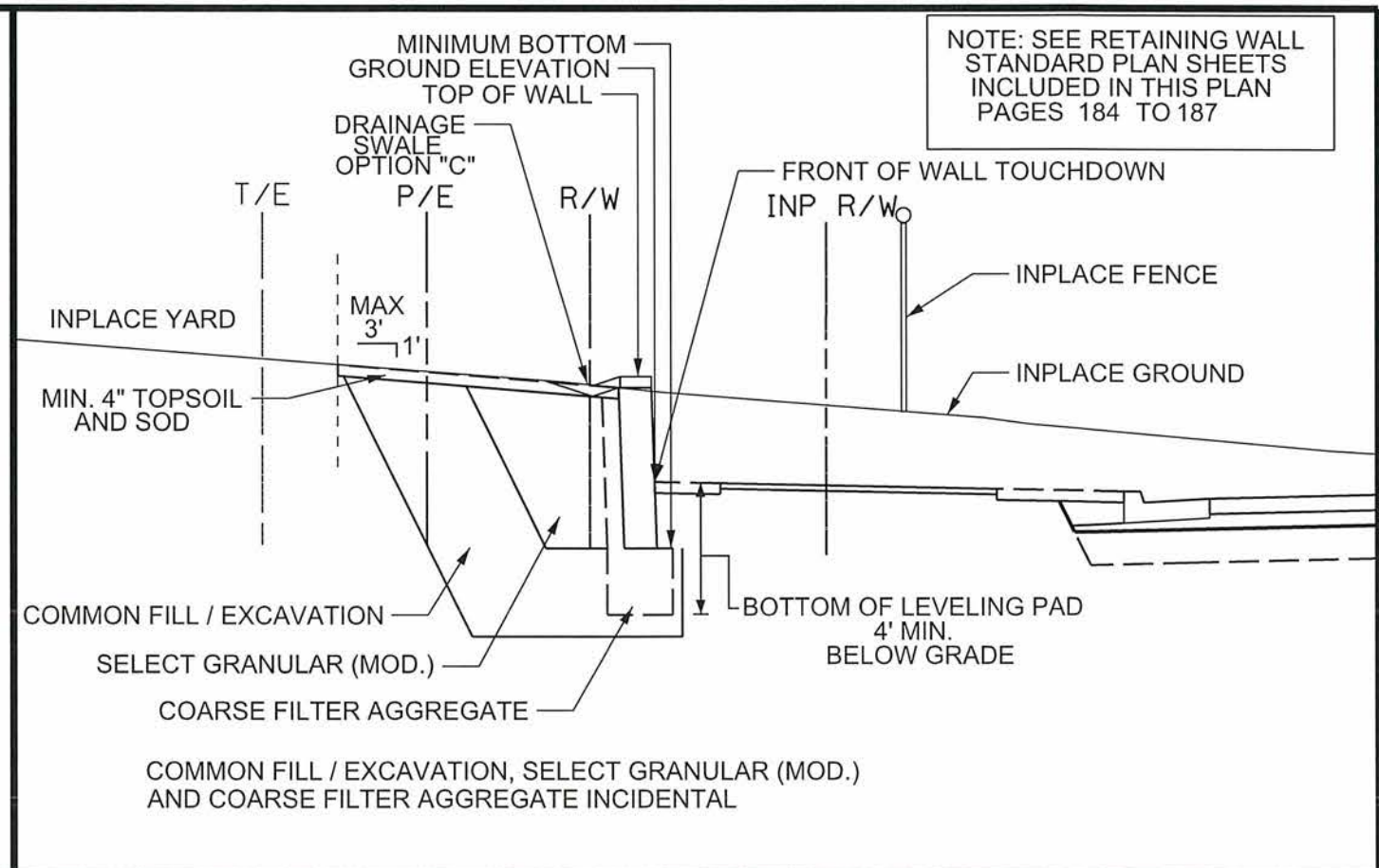
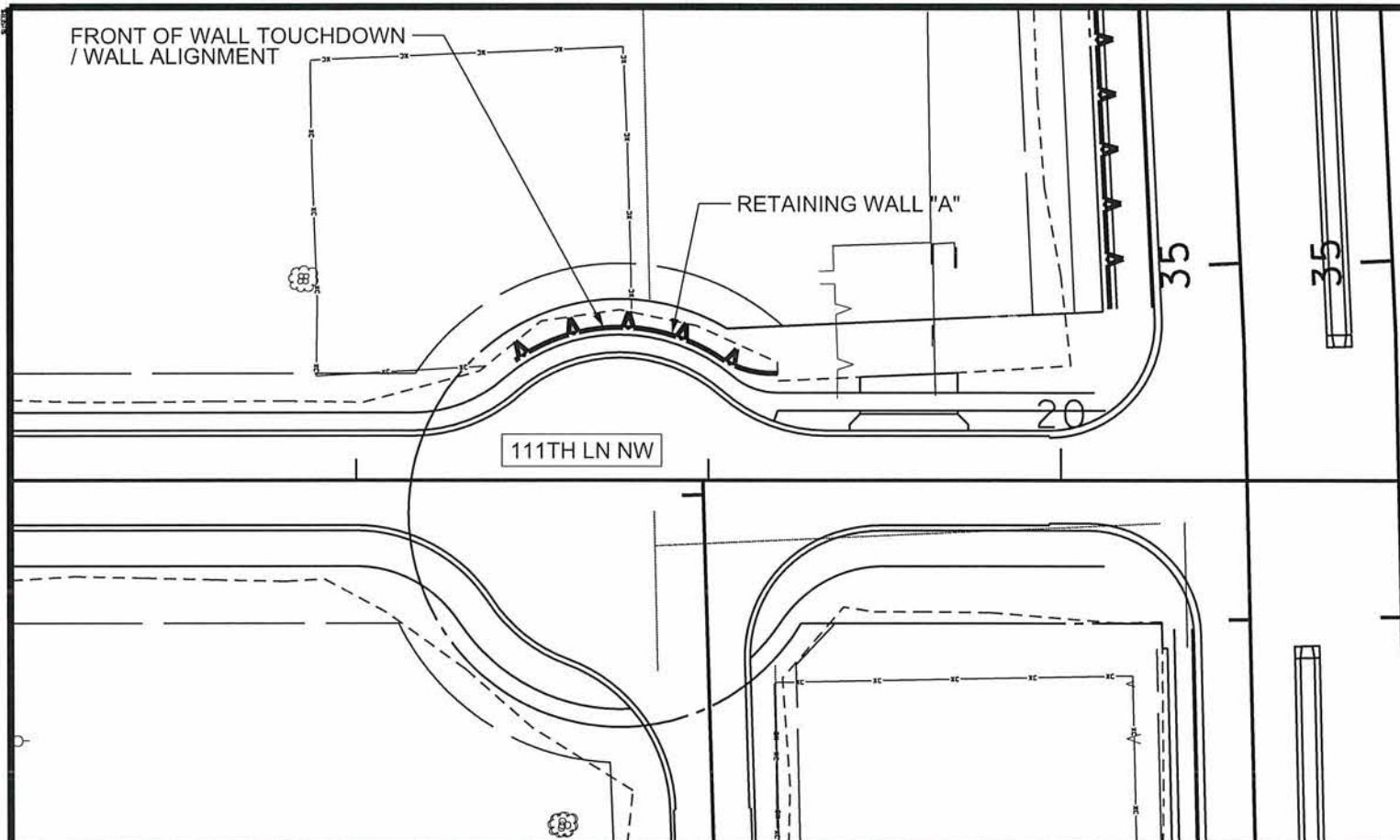
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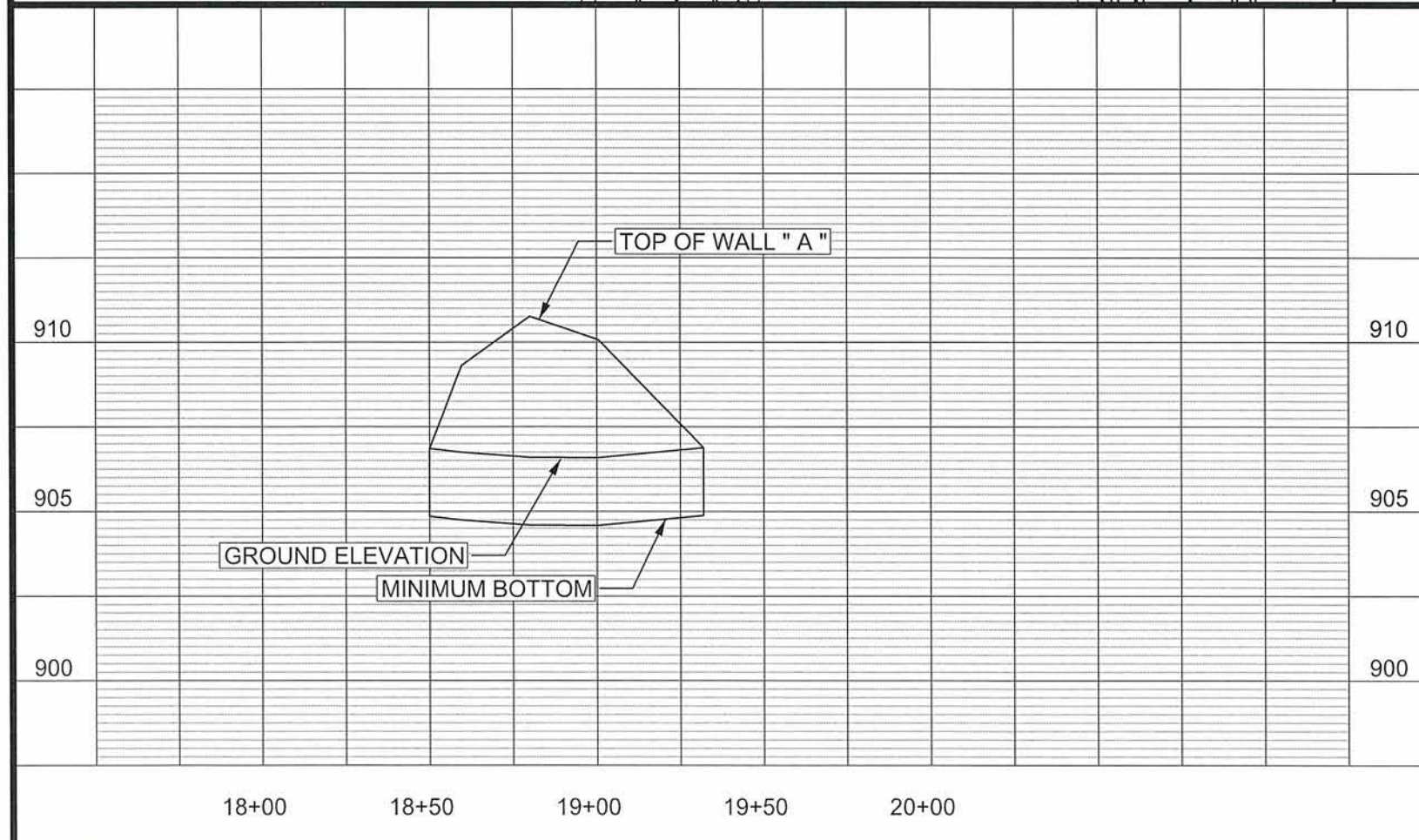
**ANOKA COUNTY  
HIGHWAY DEPT.**

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

**NOISE BARRIER PLANS  
NW B66 (3 of 3)**  
 STA 119+68.00 TO 122+56.00  
 Sheet 180 of 381 Sheets



NOTE: SEE RETAINING WALL STANDARD PLAN SHEETS INCLUDED IN THIS PLAN PAGES 184 TO 187



NOTE:  
WALL MUST BE PROVIDED BY AN APPROVED MNDOT SUPPLIER, THE DESIGN MUST FOLLOW THE REQUIREMENTS IN THE LATEST DRY CAST TECH MEMO AND THE STANDARD WALL DETAIL SHEETS. DESIGN MUST BE APPROVED BY THE ENGINEER.

MODULAR BLOCK WALL "A"								
STATION	OFFSET	ALIGN	FINISHED GRADE (FRONT FACE)	TOP OF WALL	BOTTOM OF WALL	HEIGHT	AREA [SQ.FT]	
18+50.00	36.58	111W	906.85	906.85	904.85	2.00'		
18+59.69	40.73	111W	906.75	909.31	904.75	4.56'	32	
18+80.11	42.63	111W	906.59	910.76	904.59	6.17'	110	
19+00.53	36.39	111W	906.59	910.09	904.59	5.5'	119	
19+22.06	30.14	111W	906.78	907.89	904.78	3.11'	93	
19+32.00	30.56	111W	906.88	906.88	904.88	2.'	25	
<b>WALL TOTAL</b>								<b>379</b>

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_RWALL\_P1.dgn 06/05/2014 7:43:28 AM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt A. Kobilarsik*  
 DATE: 6-9-14 LICENSE NO. 24756

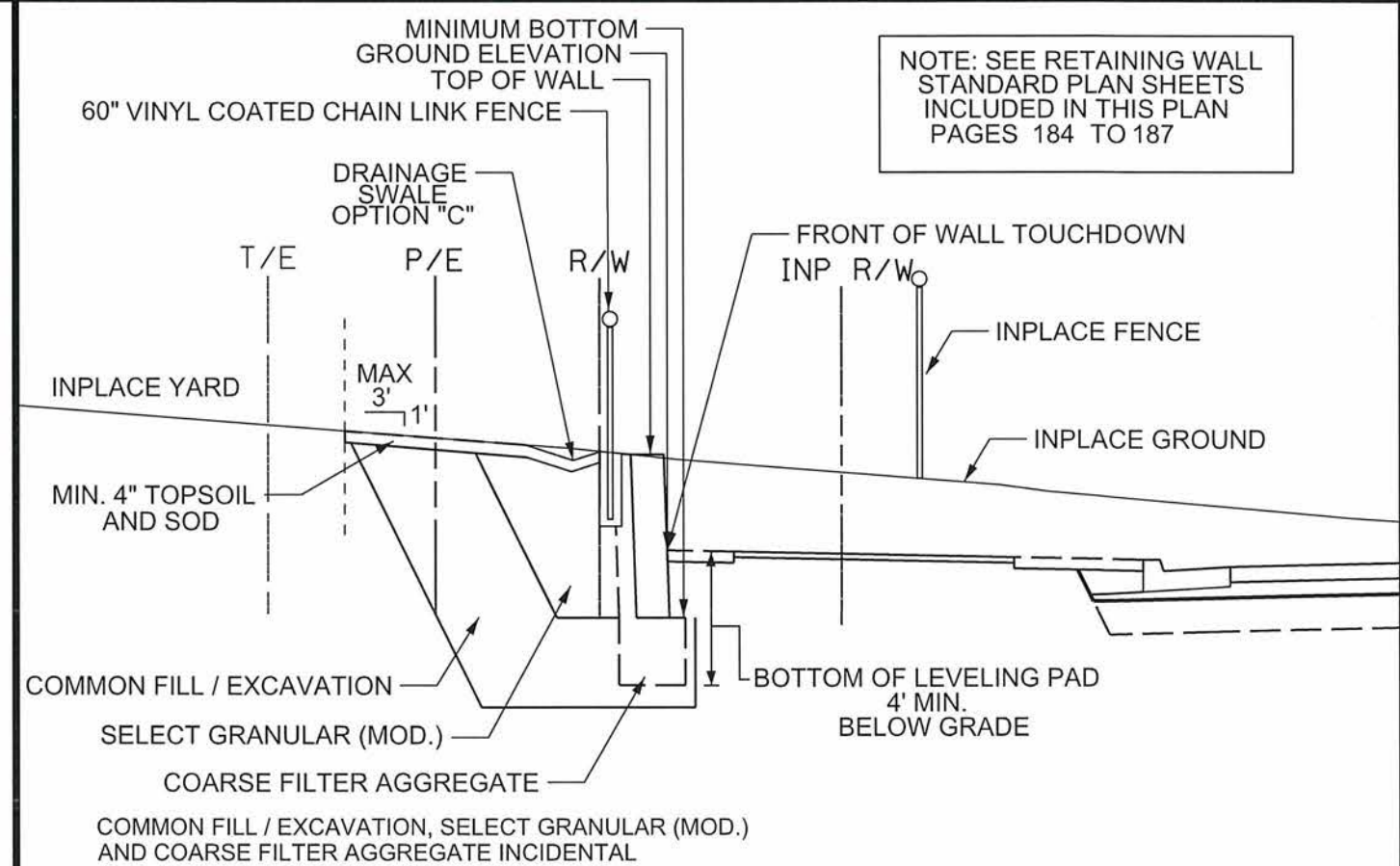
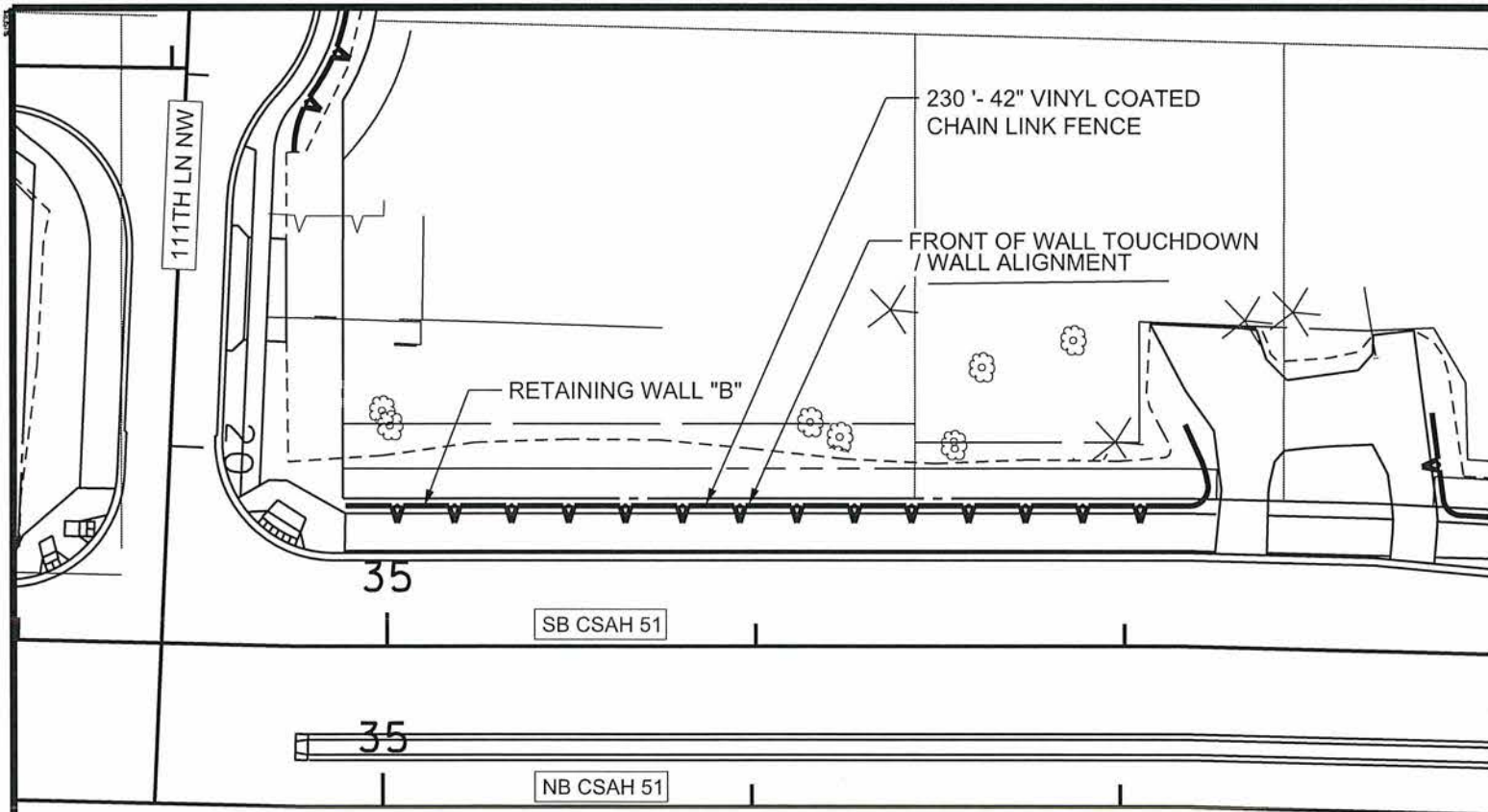
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 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



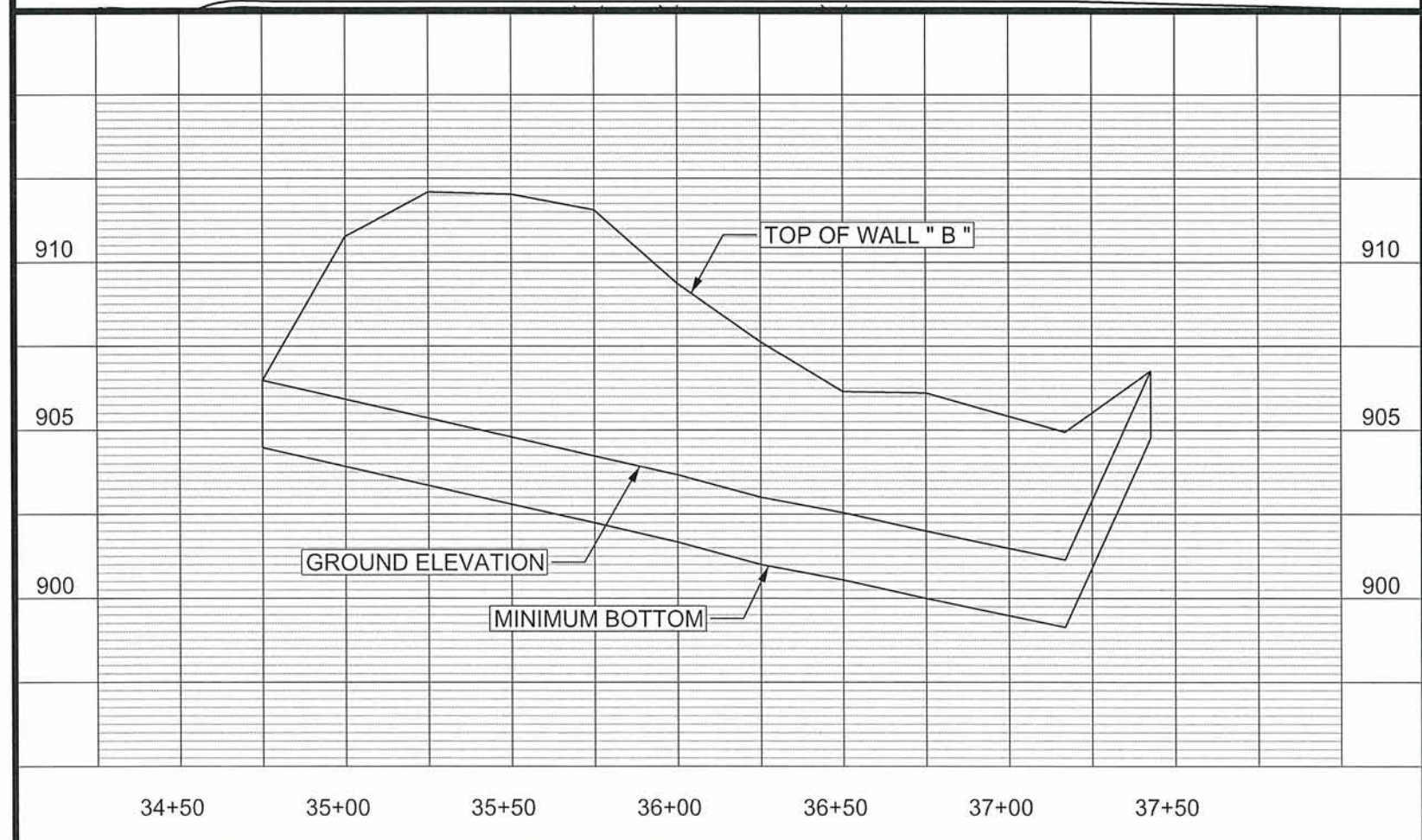
ANOKA COUNTY  
HIGHWAY DEPT.

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

RETAINING WALL "A"  
 Sheet 181 of 381 Sheets



NOTE: SEE RETAINING WALL STANDARD PLAN SHEETS INCLUDED IN THIS PLAN PAGES 184 TO 187



NOTE: WALL MUST BE PROVIDED BY AN APPROVED MNDOT SUPPLIER, THE DESIGN MUST FOLLOW THE REQUIREMENTS IN THE LATEST DRY CAST TECH MEMO AND THE STANDARD WALL DETAIL SHEETS. DESIGN MUST BE APPROVED BY THE ENGINEER.

MODULAR BLOCK WALL "B"							
STATION	OFFSET	ALIGN	FINISHED GRADE (FRONT FACE)	TOP OF WALL	BOTTOM OF WALL	HEIGHT	AREA [SQ FT]
34+75.00	80.66	LNB	906.48	906.48	904.48	2.00'	
35+00.00	80.66	LNB	905.92	910.77	903.92	6.85'	111
35+25.00	80.66	LNB	905.36	912.10	903.36	8.74'	195
35+50.00	80.66	LNB	904.79	912.03	902.79	9.24'	225
35+75.00	80.66	LNB	904.12	911.56	902.12	9.44'	233
36+00.00	80.66	LNB	903.67	909.37	901.67	7.70'	236
36+25.00	80.66	LNB	903.11	907.63	901.11	6.52'	163
36+50.00	80.66	LNB	902.54	906.15	900.54	5.61'	152
36+75.00	80.66	LNB	902.00	906.11	900.00	6.11'	147
37+00.00	80.66	LNB	901.49	905.41	899.49	5.92'	150
37+25.00	86.01	LNB	902.91	905.51	900.91	4.6'	132
37+42.72	102.49	LNB	906.76	906.76	904.76	2.00'	82
WALL TOTAL							1824

NOTE: NORTH END OF WALL STATION 37+42.72 IN TAB IS FOR CALCULATING SQ FT ONLY. ACTUAL STATION OF NORTH END OF WALL TO BE USED IS 37+17.73

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:102-651-07\Plan\0265107\_RWALL\_P2.dgn 06/05/2014 7:43:30 AM

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

PRINT NAME: CURT A. KOBILARCSIK

SIGNATURE: *Curt Kobilarsik*

DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 11-25-13

DESIGN BY: NJD DATE: 10-31-13

CHECKED BY: GMP DATE: 12-13-13

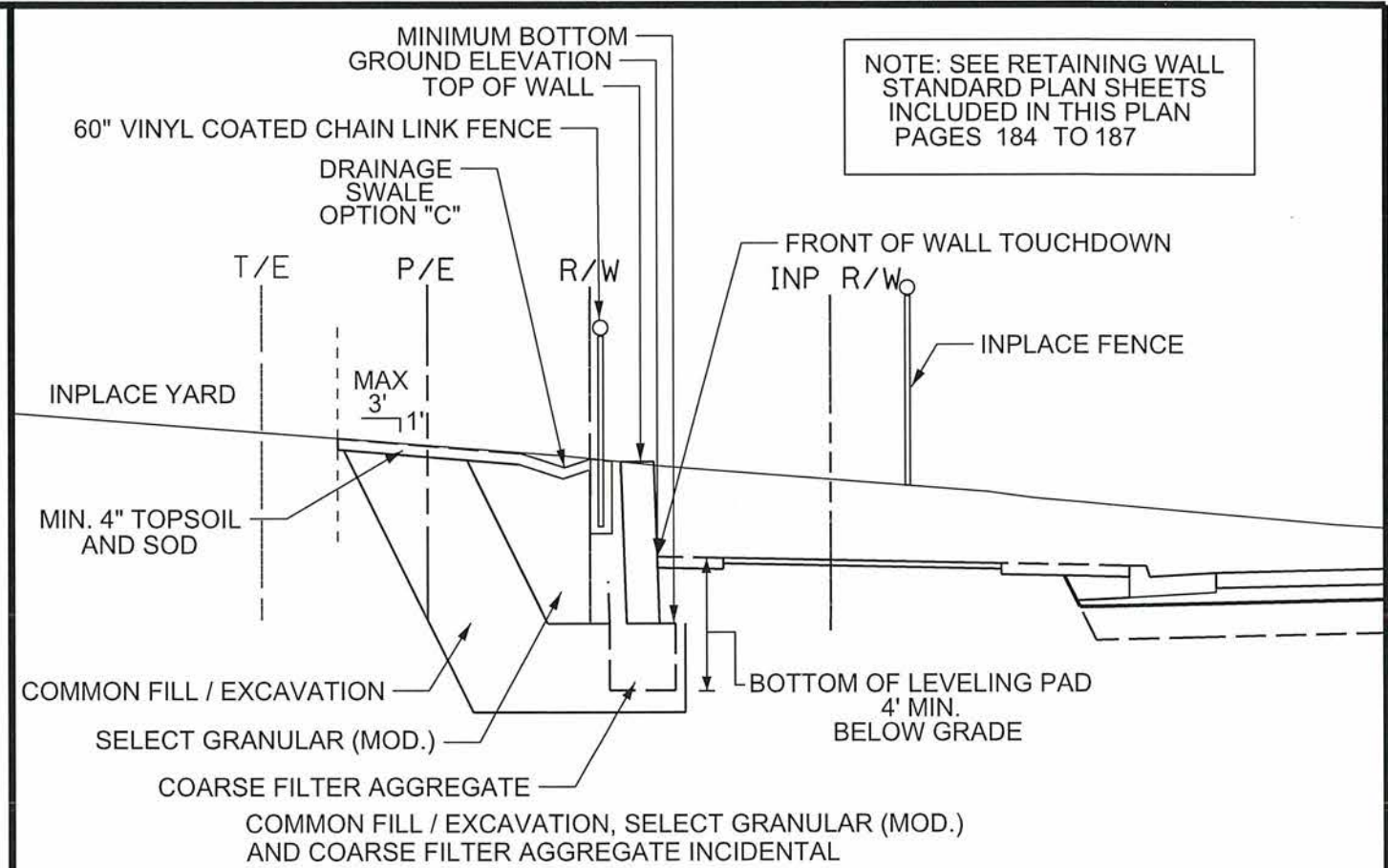
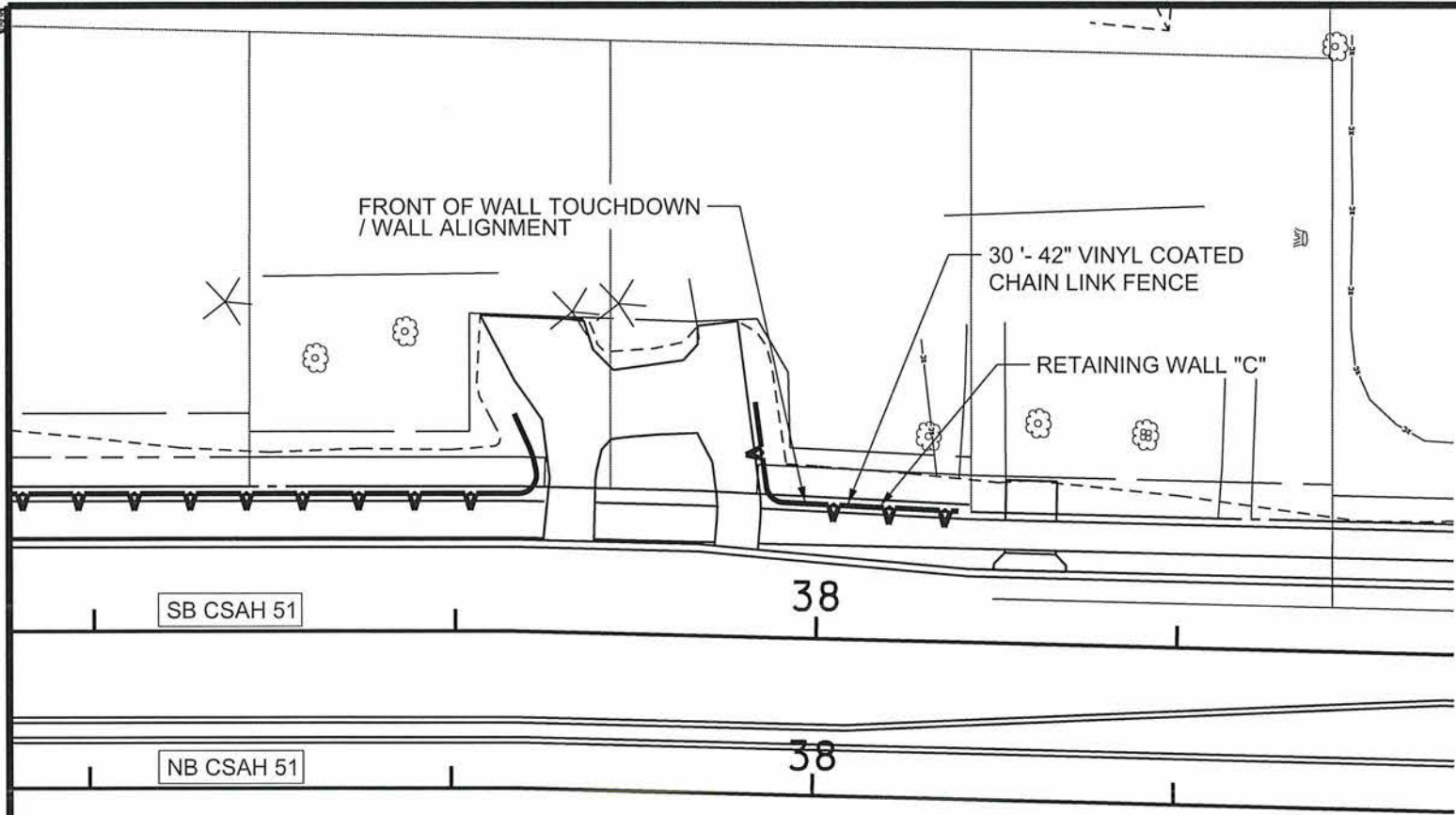


ANOKA COUNTY HIGHWAY DEPT.

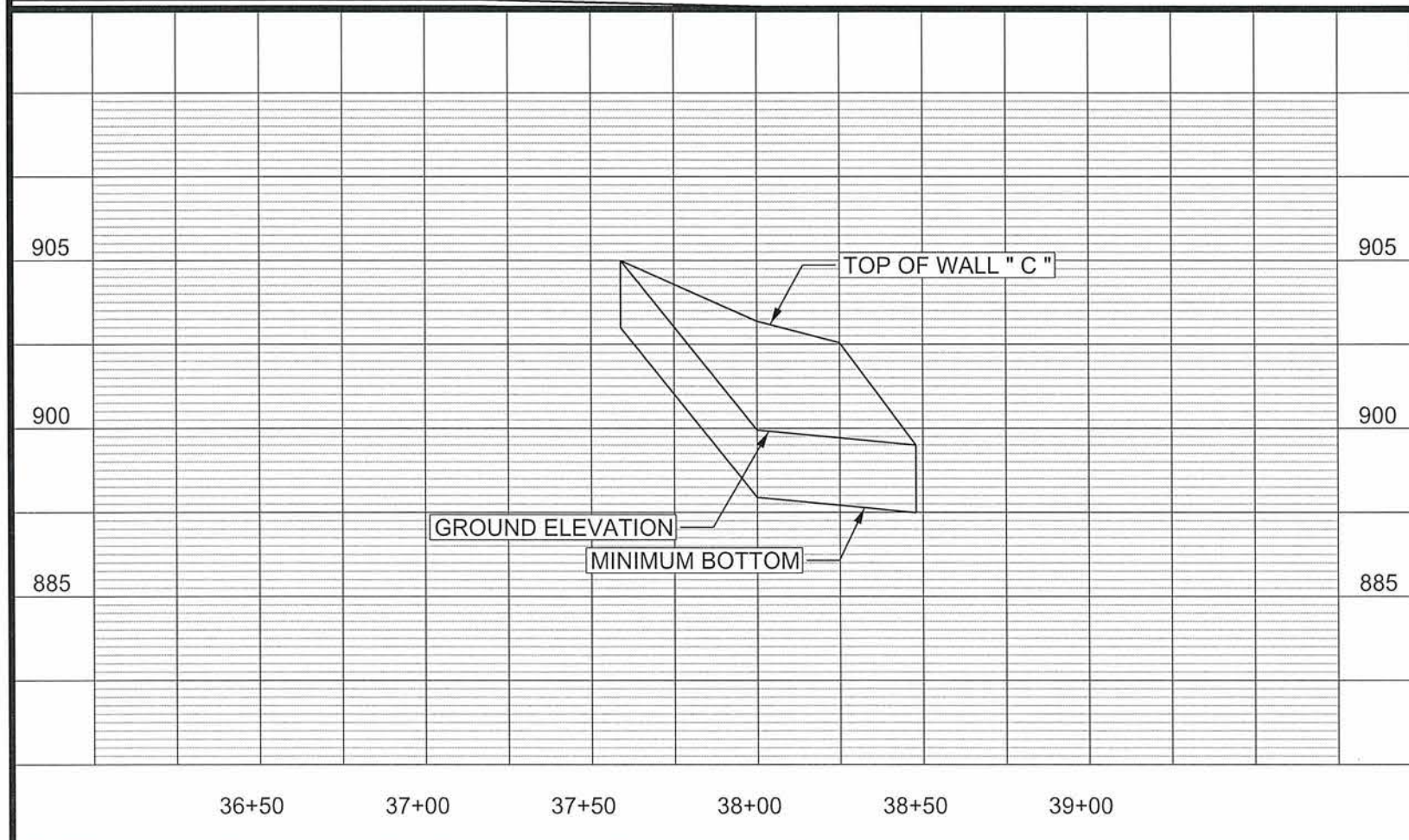
S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

RETAINING WALL "B"

Sheet 182 of 381 Sheets



NOTE: SEE RETAINING WALL STANDARD PLAN SHEETS INCLUDED IN THIS PLAN PAGES 184 TO 187



NOTE: WALL MUST BE PROVIDED BY AN APPROVED MNDOT SUPPLIER, THE DESIGN MUST FOLLOW THE REQUIREMENTS IN THE LATEST DRY CAST TECH MEMO AND THE STANDARD WALL DETAIL SHEETS. DESIGN MUST BE APPROVED BY THE ENGINEER.

MODULAR BLOCK WALL "C"								
STATION	OFFSET	ALIGN	FINISHED GRADE (FRONT FACE)	TOP OF WALL	BOTTOM OF WALL	HEIGHT	AREA [SQ FT]	
37+58.91	107.25	LNB	905.00	905.00	903	2.00'		
38+00.00	79.70	LNB	899.95	903.19	897.95	5.24'	149	
38+25.00	79.20	LNB	899.71	902.55	897.71	4.84'	126	
38+38.89	78.69	LNB	899.50	899.50	897.5	2.0'	48	
WALL TOTAL								322

NOTE : SOUTH END OF WALL STATION 37+58.91 IN TAB IS FOR CALCULATING SQ FT ONLY. ACTUAL STATION OF SOUTH END OF WALL TO BE USED IS 37+81.82

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265147\_RWall\_P3.dgn 06/05/2014 7:43:32 AM

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

PRINT NAME: CURT A. KOBIARCSIK

SIGNATURE: *Curt A. Kobilarcsik*

DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 11-25-13

DESIGN BY: NJD DATE: 10-31-13

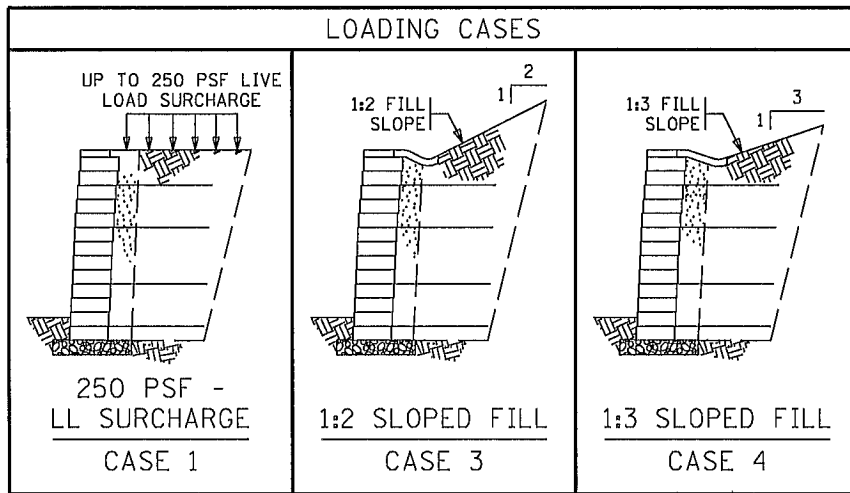
CHECKED BY: GMP DATE: 12-13-13

ANOKA COUNTY HIGHWAY DEPT.

S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

RETAINING WALL "C"

Sheet 183 of 381 Sheets



CASE 2 IS OMITTED INTENTIONALLY FOR FUTURE RECONSIDERATION

**NOTES TO CONTRACTOR:**

APPROVED COMBINATIONS OF MODULAR BLOCK UNIT AND SOIL REINFORCEMENT PRODUCTS LIST WITH MBW REINFORCEMENT CLASS NOTED ARE HELD AND MAINTAINED BY THE FOUNDATIONS UNIT, AND POSTED AT [www.mrr.dot.state.mn.us/geotechnical/foundations/foundations.asp](http://www.mrr.dot.state.mn.us/geotechnical/foundations/foundations.asp) UNDER FOUNDATIONS UNIT. ONLY APPROVED PRODUCT COMBINATIONS, INCLUDING BLOCK PRODUCED FROM APPROVED SOURCES MEETING DURABILITY AND QUALITY CONTROL REQUIREMENTS, MAY BE USED IN STANDARD DESIGNS.

PROVIDE DETAILED DRAWINGS FOR CONSTRUCTION CONTAINING:

- SUBMIT, WITH THE DETAILED DRAWINGS, A COPY OF Mn/DOT STANDARD SHEETS FOR LOADING CASE(S) USED WITH OPTIONS USED MARKED IN THE TABLE.
- ELEVATION VIEW WITH REINFORCEMENT PLACEMENT REQUIREMENTS, WALL FACING LAYOUT, AND GEOMETRIC INFORMATION. TOP OF WALL MAY EXTEND UP TO 4" ABOVE PLAN TOP OF WALL ELEVATION.
- PLAN VIEW WITH BOTTOM AND TOP OF WALL ALIGNMENT, AND PLAN LIMITS OF WALL ALIGNMENT.
- CROSS SECTIONS DETAILING BATTER, REINFORCEMENT, VERTICAL SPACING, REINFORCEMENT LENGTHS, SUBSURFACE DRAINAGE, SURFACE DRAINAGE, AND WATER RUNOFF COLLECTION ABOVE WALL.
- REINFORCEMENT LAYOUT: REINFORCEMENT SHALL BE PLACED AT 100% COVERAGE RATIO. REINFORCEMENT ELEVATIONS SHALL BE CONSISTENT ACROSS LENGTH OF WALL STRUCTURE.
- NOTE BLOCK, REINFORCEMENT, AND FILL PLACEMENT METHODS AND REQUIREMENTS.
- DETAIL ALL WALL FILL PENETRATIONS AND WALL FACE PENETRATIONS. DETAIL REINFORCEMENT AND/OR WALL FACING UNIT PLACEMENT AROUND PENETRATIONS.
- DETAILS THAT ARE SPECIFIC TO VENDOR PRODUCTS AND THEIR INTERACTION WITH OTHER PROJECT COMPONENTS.
- LIST INFORMATION ON APPROVED COMBINATION OF MBW UNIT AND GEOSYNTHETIC REINFORCEMENT, INCLUDING Mn/DOT CLASSIFICATION CODE, NOMINAL BLOCK WIDTH, PROPERTIES FOR FIELD IDENTIFICATION, AND INSTALLATION INSTRUCTIONS.
- DETAILS OF CAP UNITS AND INSTALLATION/FASTENING INSTRUCTIONS FOR THE CAPS. CAP UNITS SHALL BE SET IN A BED OF ADHESIVE DESIGNED TO WITHSTAND MOISTURE AND TEMPERATURE EXTREMES, REMAIN FLEXIBLE, AND SHALL BE SPECIFICALLY FORMULATED FOR BONDING MASONRY TO MASONRY.
- CERTIFICATION BY PROFESSIONAL ENGINEER THAT THE CONSTRUCTION LAYOUT MEETS THE REQUIREMENTS OF PLANS AND Mn/DOT MSEW STANDARDS. DEVIATION FROM STANDARD DESIGN TABLES ARE PERMITTED BY VALUE ENGINEERING SUBMITTAL ONLY ON PROJECTS WITH OVER 5000 SQ. FT. OF WALL.

DEFINITION OF TERMS	
MBW	= MODULAR BLOCK WALL
LL	= LIVE LOAD
C.I.P.	= CAST-IN-PLACE
H	= WALL HEIGHT
S	= VERTICAL REINFORCEMENT SPACING
REINFORCEMENT COVERAGE RATIO	= WIDTH OF SOIL REINFORCEMENTS TO HORIZONTAL SPACING (100% COVERAGE RATIO REQUIRED)

**DESIGN CRITERIA**

DESIGN CRITERIA FOLLOWS THE AASHTO SPECIFICATION FOR HIGHWAY BRIDGES (16TH EDITION WITH 1998 INTERIMS) EXCEPT FOR THE DEVIATIONS NOTED BELOW. DESIGN CRITERIA ARE IN ACCORDANCE WITH Mn/DOT POLICY, AS RECORDED IN THE Mn/DOT ROAD DESIGN MANUAL.

- A. THE MINIMUM REINFORCEMENT LENGTH IS 4 FT. OR 0.7H, WHICHEVER IS GREATER.
- B. THE REINFORCEMENT FILL FRICTION ANGLE IS 35°.
- C. THE ALLOWABLE CONNECTION LOAD, AT A GIVEN NORMAL LOAD, IS COMPUTED AS THE ULTIMATE CONNECTION STRENGTH REDUCED BY A SAFETY FACTOR EQUAL TO 2.0.
- D. THE LATERAL EARTH PRESSURE COMPUTATION FOR EXTERNAL STABILITY CALCULATIONS USES AN INTERFACE ANGLE SET EQUAL TO THE RETAINED BACKFILL ANGLE.
- E. THE LATERAL EARTH PRESSURE COMPUTATION FOR INTERNAL STABILITY CALCULATIONS INCORPORATES THE EFFECTS OF WALL FACE BATTER.

MINIMUM FACTORS OF SAFETY:  
 OVERTURNING: 2.0  
 SLIDING: 1.5  
 ECCENTRICITY:  $e < L/6$   
 BEARING CAPACITY: 2.5  
 DEEP SEATED STABILITY: 1.3

BEARING:  
 A. SEE FOUNDATION REPORT FOR ALLOWABLE SOIL BEARING PRESSURE.  
 B. CASES 1 AND 4 - ALLOWABLE SOIL BEARING CAPACITY (ULTIMATE BEARING CAPACITY REDUCED BY A SAFETY FACTOR OF 2.5) OF 2000 PSF IS REQUIRED FOR WALLS UP TO 10 FT. IN HEIGHT. FOR WALLS GREATER THAN 10 FT. IN HEIGHT, THE REQUIRED ALLOWABLE BEARING CAPACITY IS EQUAL TO:  $2000 \text{ PSF} + (H-10)(625 \text{ PSF})$  WITH H IN FEET.  
 C. CASE 3 - ALLOWABLE SOIL BEARING CAPACITY (ULTIMATE BEARING CAPACITY REDUCED BY A SAFETY FACTOR OF 2.5) OF 2500 PSF IS REQUIRED FOR WALLS UP TO 10 FT. IN HEIGHT. FOR WALLS GREATER THAN 10 FT. IN HEIGHT, THE REQUIRED ALLOWABLE BEARING CAPACITY IS EQUAL TO:  $2500 \text{ PSF} + (H-10)(850 \text{ PSF})$  WITH H IN FEET.

REINFORCED WALL FILL CHARACTERISTICS:  
 A. SELECT GRANULAR BORROW MODIFIED FOLLOWING SPEC. 3149.2B2. MODIFICATION: SELECT GRANULAR BORROW MODIFIED, FOR SPECIAL USE IN EMBANKMENT OR BACKFILL CONSTRUCTION OR OTHER SPECIFIED PURPOSES, MAY BE ANY PIT-RUN OR CRUSHER-RUN MATERIAL THAT IS GRADED FROM COARSE TO FINE, SUCH THAT 100% OF THE MATERIAL MUST PASS THE 2" SIEVE, AND THAT THE RATIO OF THE PORTION PASSING THE #200 SIEVE DIVIDED BY THE PORTION PASSING THE 1" SIEVE MAY NOT EXCEED 10% BY MASS (THAT IS: #200/1" RATIO)  
 B. INTERNAL ANGLE OF FRICTION ( $\phi_r$ ) = 35°  
 C. COHESION (C) = 0  
 D. MOIST UNIT WEIGHT ( $\gamma_r$ ) = 125 PSF

COARSE FILTER AGGREGATE CHARACTERISTICS:  
 A. COARSE FILTER AGGREGATE TO MEET SPEC. 3149.2H. INCIDENTAL, NO DIRECT PAYMENT WILL BE MADE.

RETAINED BACKFILL CHARACTERISTICS:  
 A. INTERNAL ANGLE OF FRICTION ( $\phi_b$ ) = 30°  
 B. COHESION (C) = 0  
 C. MOIST UNIT WEIGHT ( $\gamma_b$ ) = 120 PSF

FOUNDATION SOILS CHARACTERISTICS:  
 A. INTERNAL ANGLE OF FRICTION ( $\phi_f$ ) = 30°  
 B. COHESION (C) = 0  
 C. UNIT WEIGHT ( $\gamma_f$ ) = 120 PSF

**SUMMARY OF ESTIMATED QUANTITIES FOR MBW WALLS**

	UNIT	QUANTITY
STRUCTURE EXCAVATION CLASS ---	CU. YD.	-----
STRUCTURE EXCAVATION CLASS ---	CU. YD.	-----
REINFORCED WALL FILL (CV)	CU. YD.	-----
STRUCTURAL CONCRETE (1A43)	CU. YD.	-----
MBW WALL	SQ. FT.	-----
TYPE I GEOTEXTILE	SQ. YD.	-----

①②

- ① VERTICAL FACE AREA OF MODULAR BLOCK AS MEASURED FROM PLAN TOP OF WALL TO 2 FT. BELOW FINISHED GRADE AT BOTTOM OF WALL.
- ② PAY ITEM FOR MBW WALLS SHALL BE 2411.

**NOTES TO DESIGNER:**

HEIGHT AND LOCATION RESTRICTIONS FOR ISSUES SUCH AS FREEZE-THAW DURABILITY ARE GOVERNED BY APPROPRIATE TECHNICAL MEMORANDUMS. CURRENT GOVERNING TECH. MEMO. NO.: 01-05-MRR-01 MAY BE FOUND AT [www.dot.state.mn.us/tecsup/tmemo/index.html](http://www.dot.state.mn.us/tecsup/tmemo/index.html).

IN ADDITION TO THE STANDARD SHEETS, PLAN AND FRONT ELEVATION VIEWS OF THE MODULAR BLOCK RETAINING WALLS SHALL BE INCLUDED IN THE PLANS. THE PLAN VIEW MUST SHOW ALIGNMENT BASELINE, LIMITS OF BOTTOM OF WALL ALIGNMENT, AND LIMITS OF TOP OF WALL ALIGNMENT AS ALIGNMENTS VARY WITH BATTER OF WALL SYSTEM ACTUALLY SUPPLIED. THE FRONT ELEVATION MUST IDENTIFY BOTTOM AND TOP OF WALL ELEVATIONS, EXISTING GRADES, AND FINISHED GRADES.

IF THE WALL IS CURVED, THE RADIUS AT THE BOTTOM AND THE TOP OF EACH WALL SEGMENT AND THE P.C. AND P.T. STATION POINTS OFF OF BASELINE AND LIMITS OF BOTTOM AND TOP OF WALL ALIGNMENT MUST BE SHOWN.

REFERENCE STANDARD PLATES AND PROVIDE DETAILS FOR TRAFFIC BARRIERS, CURB AND GUTTER, HANDRAILS AND FENCING AS REQUIRED BY PROJECT CONDITIONS. SEE AASHTO AND Mn/DOT DESIGN MANUALS, STANDARD PLATES AND DETAILS FOR REQUIREMENTS.

SURFACE DRAINAGE PATTERNS SHALL BE SHOWN IN THE PLAN VIEW. PROVIDE DIMENSIONS FOR WIDTH AND DEPTH OF THE DRAINAGE SWALE AS WELL AS THE TYPE OF IMPERVIOUS LINER MATERIAL. SURFACE WATER RUNOFF SHOULD BE COLLECTED ABOVE AND DIVERTED AROUND WALL FACE.

DETAIL LINES AND GRADES OF THE INTERNAL DRAINAGE COLLECTION PIPE. DETAIL OR NOTE THE DESTINATION OF INTERNAL WALL DRAINS AS WELL AS THE METHOD OF TERMINATION (DAYLIGHT END OF PIPE OR CONNECTION INTO HYDRAULIC STRUCTURE). THE SPACING FOR DRAIN PIPE OUTLET SHALL NOT BE MORE THAN 250 FT.

SOFT SOILS AND/OR HIGH WATER CONDITIONS (DEFINED AS GROUNDWATER WITHIN A DEPTH EQUAL TO THE WALL HEIGHT H) MAY NOT BE SUITABLE FOR APPLICATION OF STANDARD DESIGNS AND REQUIRE SPECIAL CONSIDERATION BY THE FOUNDATIONS UNIT.

STANDARD DESIGN CHARTS ARE NOT APPLICABLE TO:  
 PROJECT/SITES WHERE FOUNDATION SOILS SHEAR STRENGTH AND/OR BEARING CAPACITY DO NOT MEET OR EXCEED VALUES USED IN THE DEVELOPMENT OF STANDARD DESIGN CHARTS.  
 PROJECTS WITH A LARGE QUANTITY OF FACE AREA WHERE PROJECT SPECIFIC DESIGNS ARE RECOMMENDED, AS DEFINED IN Mn/DOT ROAD DESIGN MANUAL.  
 WHERE SLOPES IN FRONT OF WALL ARE STEEPER THAN 1:3.  
 WHERE MAXIMUM WALL HEIGHT EXCEEDS 12 FT.  
 WHERE WALLS ARE TIERED.  
 WALLS WITH NOISE WALLS.

IF USING CONCRETE RAILING, INCLUDE STANDARD BRIDGE DETAIL "CONCRETE RAILING (TYPE F)" IN PLAN SET.

PROVIDE PROJECT SPECIFIC AESTHETIC REQUIREMENTS INCLUDING COLOR AND FASCIA SURFACING IN THE SPECIAL PROVISIONS.

CHAPTER 9 OF THE Mn/DOT "ROAD DESIGN MANUAL" CONTAINS GUIDELINES, TRAFFIC SAFETY AND OTHER ASPECTS.

**GENERAL NOTES:**

UTILITIES:  
 EXISTING AND PROPOSED UTILITIES ARE SHOWN IN THE GRADING PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING FACILITIES AND SHALL EXERCISE CARE IN ADJACENT CONSTRUCTION.

EXCAVATION AND EARTHWORK:  
 ALL EXCAVATION AND EMBANKMENT WORK SHALL CONFORM TO Mn/DOT 2451.

CAST-IN-PLACE CONCRETE:  
 ALL CONCRETE SHALL CONFORM TO Mn/DOT 2461, EXCEPT AS NOTED.

CONSTRUCTION:  
 CONSTRUCTION SHALL BE IN ACCORDANCE WITH Mn/DOT 2411, EXCEPT AS NOTED.

GEOMETRICS AND GRADES:  
 DATA FOR BASELINE GEOMETRY IS TABULATED FOR WALL ALIGNMENT, SEE LAYOUT SHEETS. WALL ALIGNMENT REFERENCE IS ALONG FRONT FACE OF WALL.

THE FILL SLOPE CONVENTION OF 1 VERTICAL TO HORIZONTAL IS USED IN THIS PLAN.

COMPACTION REQUIREMENTS:  
 COMPACT REINFORCED WALL FILL IN ACCORDANCE WITH Mn/DOT SPEC. 2105.3F1 UNLESS RECOMMENDED OTHERWISE BY THE SOILS ENGINEER.

COMPACT GRANULAR BEDDING IN ACCORDANCE WITH Mn/DOT SPEC. 2105.3F1 UNLESS RECOMMENDED OTHERWISE BY THE SOILS ENGINEER.

REVISED: 11-12-02

APPROVED: JULY 12, 2002

*Samuel J. Peterson*  
 STATE BRIDGE ENGINEER

STANDARD SHEET NO.  
5-297.640

STANDARD APPROVED:  
JULY 12, 2002

TITLE:

**MODULAR BLOCK RETAINING WALL  
 GENERAL NOTES AND SUMMARY OF QUANTITIES**

REVISION DATE  
11-12-02

STATE PROJ. NO. S.P. 002-651-007

SHEET NO. 184 OF 381 SHEETS



**MODULAR BLOCK WALL REINFORCEMENT LAYOUT**

CASE 1 - LEVEL BACKFILL WITH 250 PSF SURCHARGE

MBW REINFORCEMENT CLASS	STRENGTH OF SOIL REINF. (PLF)		① MINIMUM REINFORCEMENT LENGTH, L (FT.)	MAXIMUM WALL HEIGHT (FT.)	② NOMINAL BLOCK WIDTH (IN.)	WALL BATTER RANGE (DEGREES)		③ MAXIMUM UNREINFORCED WALL HT, A (IN.)	ZONE 1		ZONE 2		ZONE 3	
	LG. TERM (T <sub>Q</sub> )	DESIGN (T <sub>D</sub> )				H1 (FT.)	S1 <sub>MAX</sub> (IN.)		H2 (FT.)	S2 <sub>MAX</sub> (IN.)	H3 (FT.)	S3 <sub>MAX</sub> (IN.)		
MBW-700	1050	700	0.7 H	12.0	12	0	3	15	7.9	24	4.1	16		
						3	7	16	9.8	24	2.2	16		
						7	10	18	11.5	24	0.5	16		
						10	15	18	12.0	24				
						0	3	32	4.9	32	3.0	24	4.1	16
						3	7	32	4.9	32	4.9	24	2.2	16
						7	10	32	5.9	32	6.1	24		
						10	15	32	7.2	32	4.8	24		
MBW-1050	1575	1050	0.7 H	12.0	12	0	3	15	12.0	24				
						3	7	16	12.0	24				
						7	10	18	12.0	24				
						10	15	18	12.0	24				
						0	3	36	5.9	42	4.9	32	1.2	24
						3	7	40	8.5	42	3.5	32		
						7	10	42	9.8	42	2.2	32		
						10	15	42	9.8	42	2.2	32		
MBW-1400	2100	1400	0.7 H	12.0	12	0	3	15	12.0	24				
						3	7	16	12.0	24				
						7	10	18	12.0	24				
						10	15	18	12.0	24				
						0	3	36	6.6	48	3.3	42	2.1	32
						3	7	40	8.2	48	3.8	42		
						7	10	48	9.8	48	2.2	42		
						10	15	48	9.8	48	2.2	42		

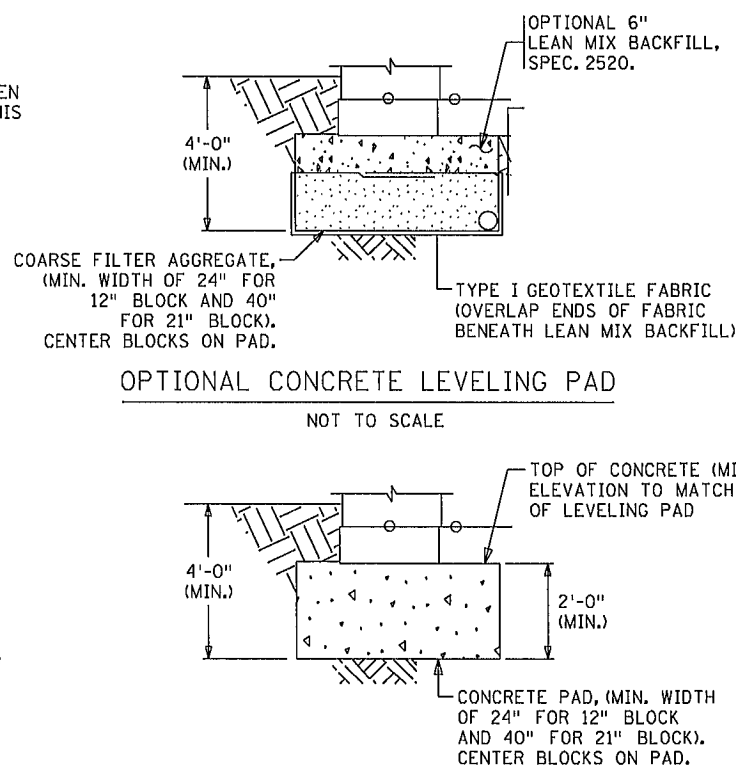
**INSTRUCTIONS TO CONTRACTOR:**

USE AS MANY ZONES AS WALL HEIGHT REQUIRES, STARTING WITH ZONE 1 AND ADDING ADDITIONAL ZONES TO THE BOTTOM OF THE WALL AS NEEDED TO MAKE UP THE TOTAL WALL HEIGHT (H) NEEDED.

REINFORCEMENT CLASS, NOMINAL BLOCK WIDTH AND WALL BATTER ARE GENERALLY THE CONTRACTOR'S OPTION TO SELECT FROM Mn/DOT APPROVED PRODUCTS LISTS LOCATED AT [www.mrr.dot.state.mn.us/geotechnical/foundations/foundations.asp](http://www.mrr.dot.state.mn.us/geotechnical/foundations/foundations.asp).

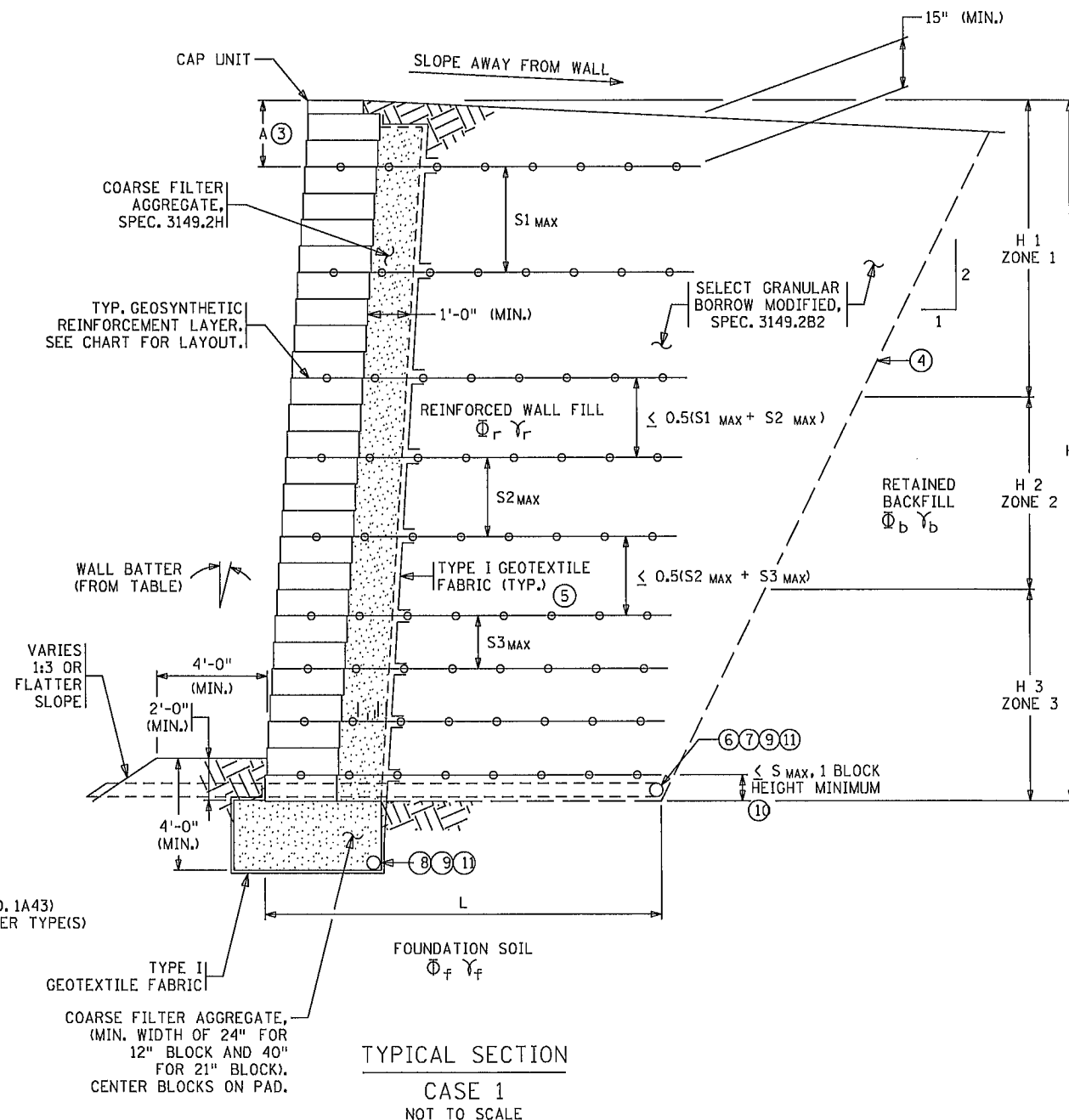
**NOTES TO CONTRACTOR:**

- ① OR 4 FT. MINIMUM, WHICHEVER IS GREATER.
- ② WIDTH - AS MEASURED FROM FRONT TO BACK FACE OF BLOCK UNIT.
- ③ MAXIMUM DISTANCE FROM TOP OF WALL TO FIRST REINFORCEMENT LAYER. UNREINFORCED WALLS ARE NOT INCLUDED IN THIS STANDARD BUT MAY BE CONSTRUCTED UP TO AT LEAST THE HEIGHT GIVEN IN THE TABLE FOR A GIVEN NOMINAL BLOCK WIDTH AND THE SPECIFIED FILL MATERIALS CONTAINED IN THIS STANDARD.
- ④ PAY LIMITS OF STRUCTURAL EXCAVATION. ACTUAL EXCAVATION SLOPE IS DETERMINED BY OSHA REGULATIONS AND IN-SITU SOILS; EXCAVATION BEYOND "LIMITS OF STRUCTURAL EXCAVATION" AT CONTRACTOR'S EXPENSE.
- ⑤ THE WRAP LENGTH FOR GEOTEXTILE FABRIC SHALL NOT BE MORE THAN 6".
- ⑥ INSPECT EXCAVATION SLOPES FOR ACTIVE SEEPAGE AND PLACE ADDITIONAL DRAINS WHERE SEEPAGE OCCURS AS DIRECTED BY THE ENGINEER.
- ⑦ PLACE DRAIN AT BOTTOM OF REINFORCED SOIL IF PIPE CAN BE SLOPED TO OUTLET. DO NOT OUTLET ONTO A SIDEWALK.
- ⑧ IF PIPE AT THIS ELEVATION CANNOT BE SLOPED TO DRAIN, OMIT DRAIN AND USE "CONCRETE PAD WITHOUT DRAIN" DETAIL.
- ⑨ 4" THERMOPLASTIC PERFORATED PIPE, SPEC. 3245, WRAP WITH TYPE I GEOTEXTILE, SPEC. 3733 (TYP.) INSTALLATION AS PER SPEC. 2502, WITH PRECAST CONCRETE HEAD WALL AT OUTLET.
- ⑩ S<sub>MAX</sub> = 0.5 S1<sub>MAX</sub> IF THE WALL HEIGHT IS WITHIN ZONE 1.  
S<sub>MAX</sub> = 0.5 S2<sub>MAX</sub> IF THE WALL HEIGHT IS WITHIN ZONE 2.  
S<sub>MAX</sub> = 0.5 S3<sub>MAX</sub> IF THE WALL HEIGHT IS WITHIN ZONE 3.
- ⑪ THE REINFORCED WALL FILL DRAIN MAY BE CONNECTED INTO FOOTING DRAIN, INSTEAD OF OUT LETTING THROUGH THE WALL, IF CAPACITY IS ADEQUATE TO TRANSMIT THE FLOW.



CONCRETE PAD WITHOUT DRAIN

NOT TO SCALE



TYPICAL SECTION

CASE 1  
NOT TO SCALE

REVISED: 11-12-02

APPROVED: JULY 12, 2002

*David A. Johnson*  
STATE BRIDGE ENGINEER

STANDARD SHEET NO.  
5-297.641  
STANDARD APPROVED:  
JULY 12, 2002

TITLE:  
**MODULAR BLOCK RETAINING WALL  
SOIL REINFORCEMENT FOR LEVEL FILL, CASE 1**

REVISION DATE  
11-12-02

STATE PROJ. NO. S.P. 002-651-007

SHEET NO. 185 OF 381 SHEETS

MODULAR BLOCK WALL REINFORCEMENT LAYOUT

CASE 4 - 1:3 FILL SLOPE

MBW REINFORCEMENT CLASS	STRENGTH OF SOIL REINF. (PLF)		① MINIMUM REINFORCEMENT LENGTH, L (FT.)	MAXIMUM WALL HEIGHT (FT.)	② NOMINAL BLOCK WIDTH (IN.)	WALL BATTER RANGE (DEGREES)		③ MAXIMUM UNREINFORCED WALL HT., A (IN.)	ZONE 1		ZONE 2		ZONE 3			
	LG. TERM (T <sub>cl</sub> )	DESIGN (T <sub>d</sub> )				≥	<		H1 (FT.)	S1 <sub>MAX</sub> (IN.)	H2 (FT.)	S2 <sub>MAX</sub> (IN.)	H3 (FT.)	S3 <sub>MAX</sub> (IN.)		
MBW-700	1050	700	0.7 H	12.0	12	0	3	24	8.5	24	3.5	16				
						3	7	24	9.2	24	2.8	16				
						7	10	24	11.2	24	0.8	16				
						10	15	24	12.0	24						
					21	0	3	32	4.6	32	3.9	24	3.5	16		
						3	7	32	5.2	32	3.9	24	2.9	16		
						7	10	32	5.2	32	5.9	24	0.9	16		
						10	15	32	5.9	32	6.1	24				
MBW-1050	1575	1050	0.7 H	12.0	12	0	3	24	12.0	24						
						3	7	24	12.0	24						
						7	10	24	12.0	24						
						10	15	24	12.0	24						
					21	0	3	42	5.6	42	3.3	32	3.1	24		
						3	7	42	8.2	42	2.6	32	1.2	24		
						7	10	42	8.5	42	3.5	32				
						10	15	42	9.8	42	2.2	32				
MBW-1400	2100	1400	0.7 H	12.0	12	0	3	24	12.0	24						
						3	7	24	12.0	24						
						7	10	24	12.0	24						
						10	15	24	12.0	24						
					21	0	3	42	8.9	42	3.1	32				
						3	7	42	10.8	42	1.2	32				
						7	10	42	12.0	42						
						10	15	42	12.0	42						

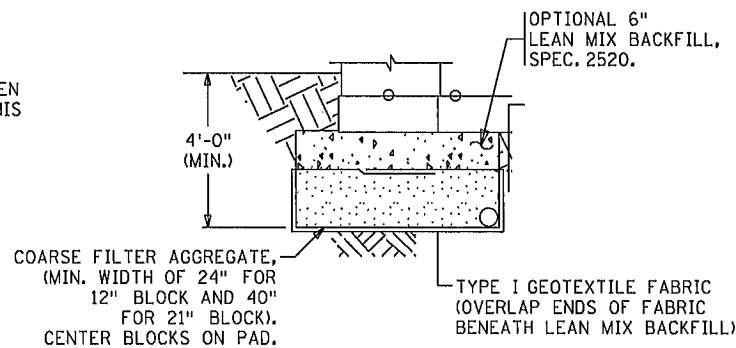
INSTRUCTIONS TO CONTRACTOR:

USE AS MANY ZONES AS WALL HEIGHT REQUIRES, STARTING WITH ZONE 1 AND ADDING ADDITIONAL ZONES TO THE BOTTOM OF THE WALL AS NEEDED TO MAKE UP THE TOTAL WALL HEIGHT (H) NEEDED.

REINFORCEMENT CLASS, NOMINAL BLOCK WIDTH AND WALL BATTER ARE GENERALLY THE CONTRACTOR'S OPTION TO SELECT FROM Mn/DOT APPROVED PRODUCTS LISTS LOCATED AT [www.mrr.dot.state.mn.us/geotechnical/foundations/foundations.asp](http://www.mrr.dot.state.mn.us/geotechnical/foundations/foundations.asp).

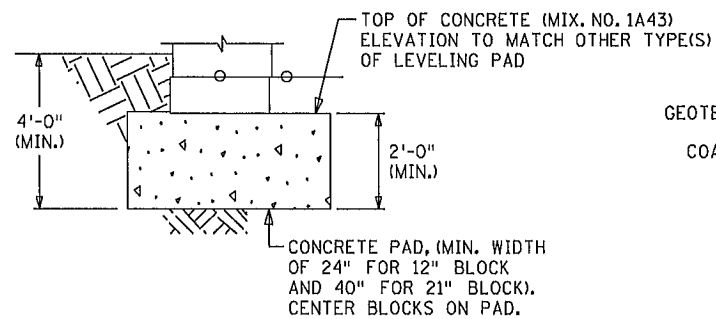
NOTES TO CONTRACTOR:

- ① OR 4 FT. MINIMUM, WHICHEVER IS GREATER.
- ② WIDTH - AS MEASURED FROM FRONT TO BACK FACE OF BLOCK UNIT.
- ③ MAXIMUM DISTANCE FROM TOP OF WALL TO FIRST REINFORCEMENT LAYER. UNREINFORCED WALLS ARE NOT INCLUDED IN THIS STANDARD BUT MAY BE CONSTRUCTED UP TO AT LEAST THE HEIGHT GIVEN IN THE TABLE FOR A GIVEN NOMINAL BLOCK WIDTH AND THE SPECIFIED FILL MATERIALS CONTAINED IN THIS STANDARD.
- ④ PAY LIMITS OF STRUCTURAL EXCAVATION. ACTUAL EXCAVATION SLOPE IS DETERMINED BY OSHA REGULATIONS AND IN-SITU SOILS; EXCAVATION BEYOND "LIMITS OF STRUCTURAL EXCAVATION" AT CONTRACTOR'S EXPENSE.
- ⑤ THE WRAP LENGTH FOR GEOTEXTILE FABRIC SHALL NOT BE MORE THAN 6".
- ⑥ INSPECT EXCAVATION SLOPES FOR ACTIVE SEEPAGE AND PLACE ADDITIONAL DRAINS WHERE SEEPAGE OCCURS AS DIRECTED BY THE ENGINEER.
- ⑦ PLACE DRAIN AT BOTTOM OF REINFORCED SOIL IF PIPE CAN BE SLOPED TO OUTLET. DO NOT OUTLET ONTO A SIDEWALK.
- ⑧ IF PIPE AT THIS ELEVATION CANNOT BE SLOPED TO DRAIN, OMIT DRAIN AND USE "CONCRETE PAD WITHOUT DRAIN" DETAIL.
- ⑨ 4" THERMOPLASTIC PERFORATED PIPE, SPEC. 3245, WRAP WITH TYPE I GEOTEXTILE, SPEC. 3733 (TYP.) INSTALLATION AS PER SPEC. 2502, WITH PRECAST CONCRETE HEAD WALL AT OUTLET.
- ⑩  $S_{MAX} = 0.5 S1_{MAX}$  IF THE WALL HEIGHT IS WITHIN ZONE 1.  
 $S_{MAX} = 0.5 S2_{MAX}$  IF THE WALL HEIGHT IS WITHIN ZONE 2.  
 $S_{MAX} = 0.5 S3_{MAX}$  IF THE WALL HEIGHT IS WITHIN ZONE 3.
- ⑪ THE REINFORCED WALL FILL DRAIN MAY BE CONNECTED INTO FOOTING DRAIN, INSTEAD OF OUT LETTING THROUGH THE WALL, IF CAPACITY IS ADEQUATE TO TRANSMIT THE FLOW.



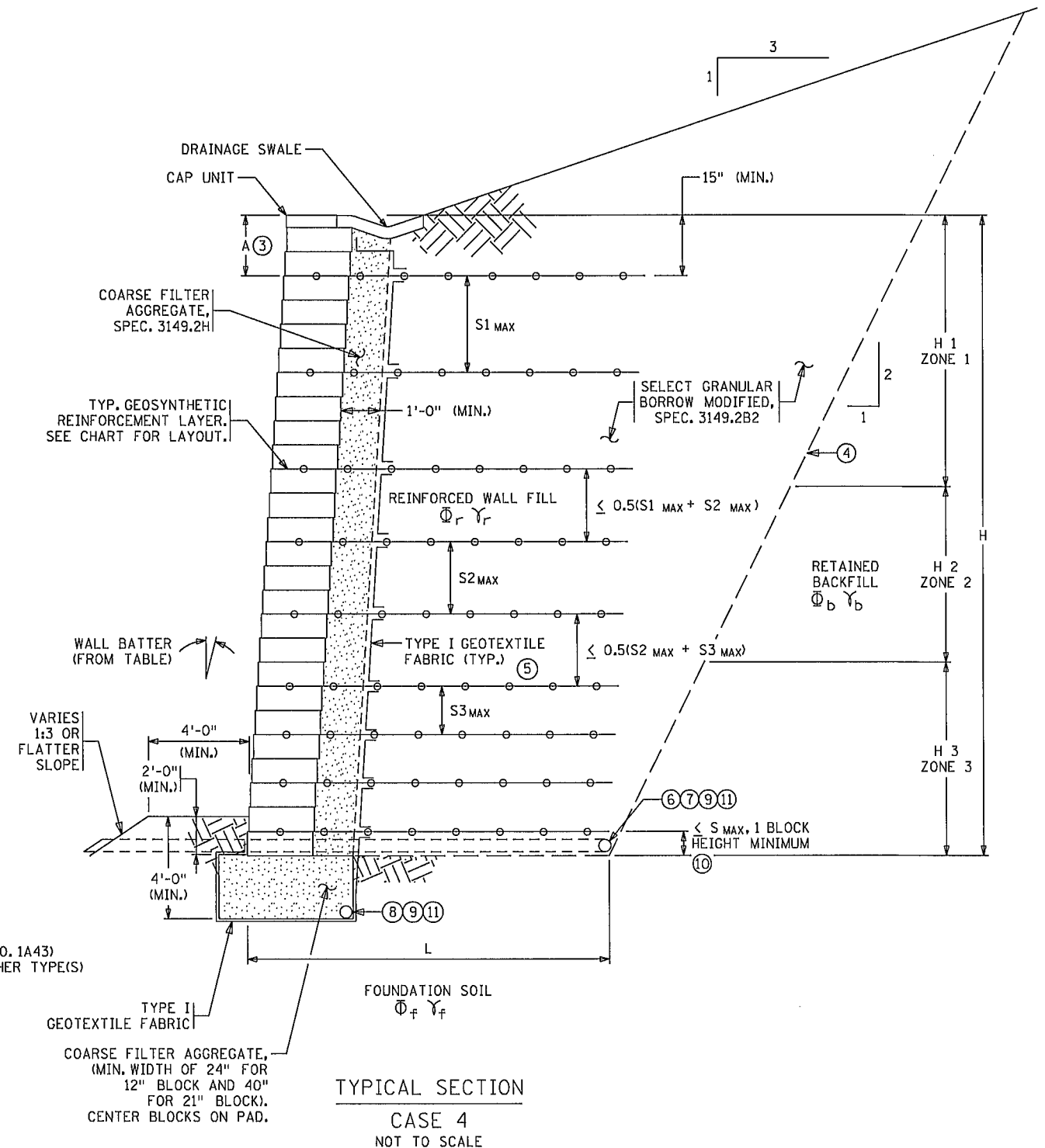
OPTIONAL CONCRETE LEVELING PAD

NOT TO SCALE



CONCRETE PAD WITHOUT DRAIN

NOT TO SCALE



TYPICAL SECTION

CASE 4  
NOT TO SCALE

REVISED: 11-12-02

APPROVED: JULY 12, 2002

*Samuel J. Peterson*  
STATE BRIDGE ENGINEER

REVISION DATE  
11-12-02

STANDARD SHEET NO.  
5-297.644  
STANDARD APPROVED:  
JULY 12, 2002

TITLE:

MODULAR BLOCK RETAINING WALL  
SOIL REINFORCEMENT FOR 1:3 FILL SLOPE, CASE 4

STATE PROJ. NO. S.P. 002-651-007

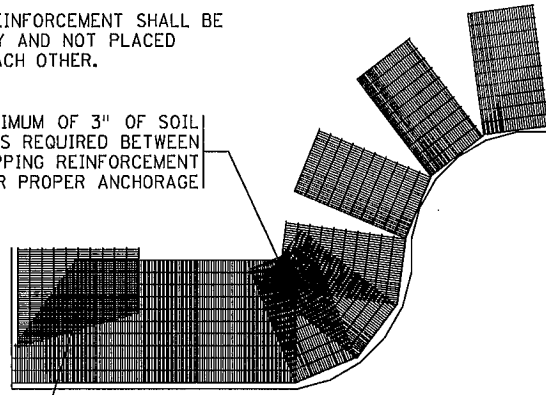
SHEET NO. 186 OF 381 SHEETS

NOTES:

CORRECT ORIENTATION OF GEOSYNTHETIC TO OBTAIN PROPER STRENGTH SHALL BE DETAILED ON CONTRACTOR DRAWINGS.

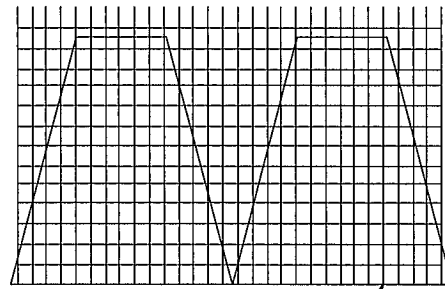
ADJACENT WIDTHS OF REINFORCEMENT SHALL BE EXTENDED AS NECESSARY AND NOT PLACED DIRECTLY ON TOP OF EACH OTHER.

MINIMUM OF 3" OF SOIL FILL IS REQUIRED BETWEEN OVERLAPPING REINFORCEMENT FOR PROPER ANCHORAGE



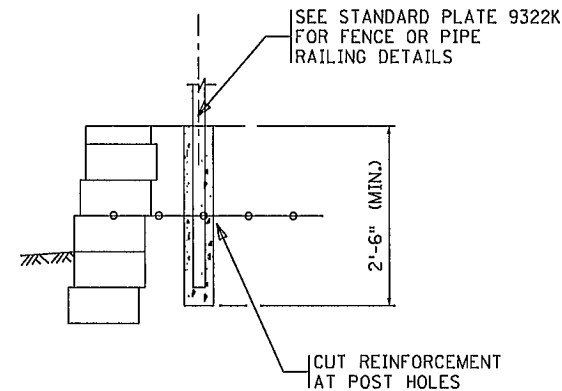
STAGGER REINFORCEMENT BY ONE BLOCK HEIGHT. REINFORCEMENTS SHALL NOT BE PLACED DIRECTLY ON TOP OF EACH OTHER.

REINFORCEMENT PLACEMENT AROUND CURVES AND CORNERS

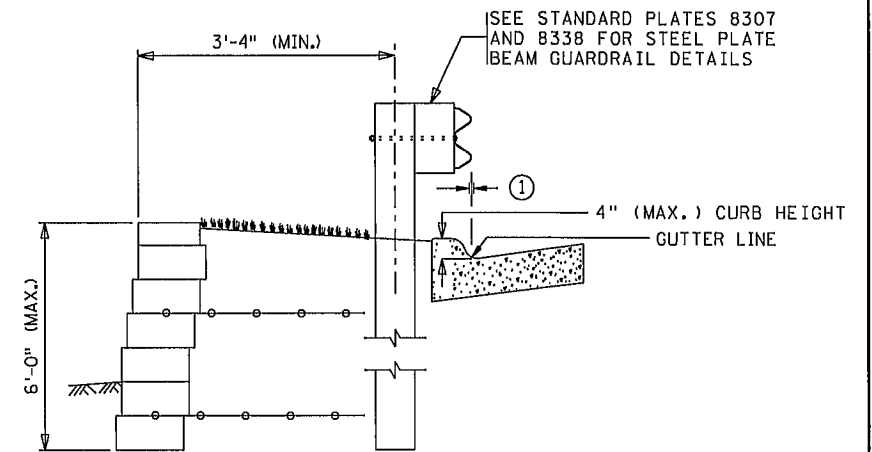


REINFORCEMENT IS TO BE PLACED ON LEVEL BACKFILL AND EXTENDED TO FRONT FACE OF OVERLYING BLOCKS. PLACE NEXT UNIT. PULL REINFORCEMENT TAUT AND BACKFILL AS REQUIRED.

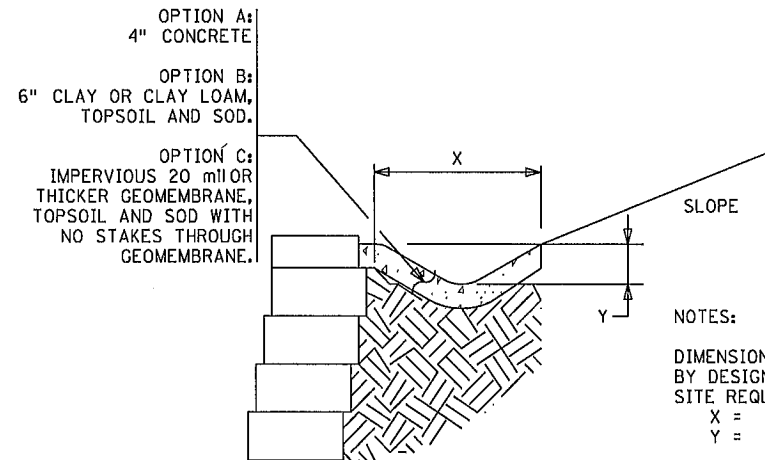
REINFORCEMENT PLACEMENT BETWEEN BLOCK UNITS



POST DETAIL  
TYPICAL HANDRAIL AND/OR FENCE POST

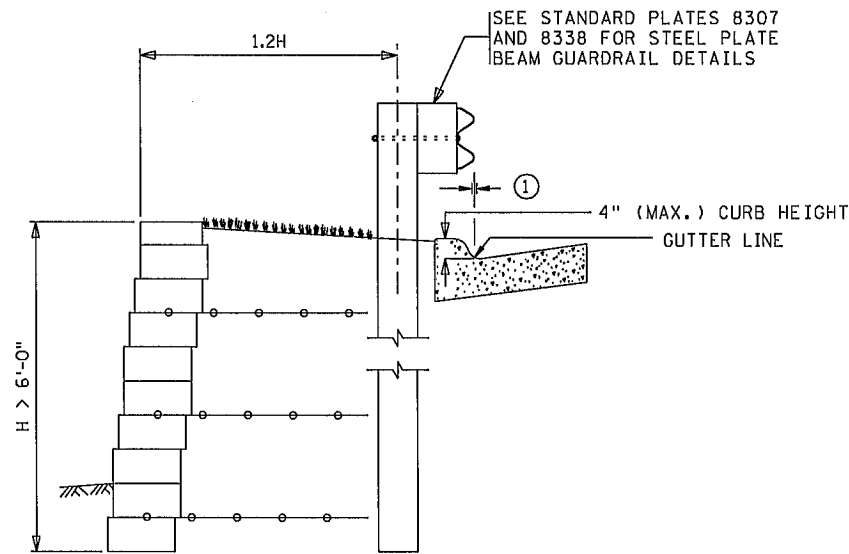


STEEL PLATE BEAM GUARDRAIL DETAIL 1



TYPICAL DRAIN SWALE DETAIL

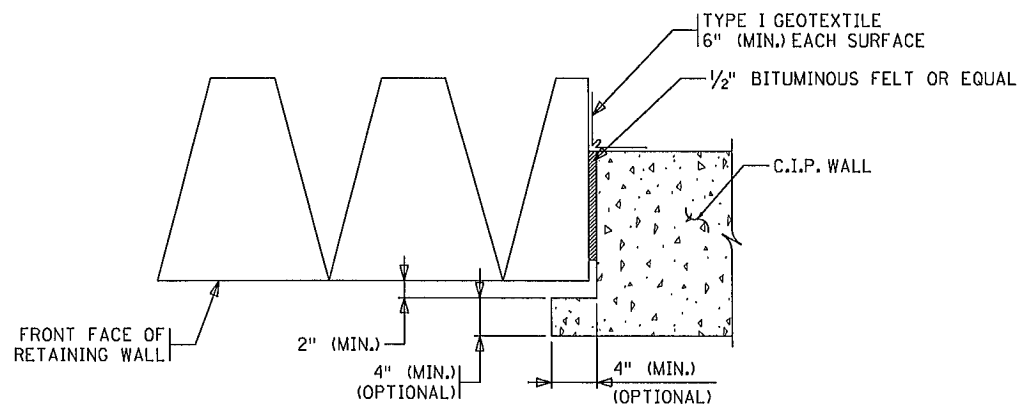
NOTES:  
DIMENSIONS TO BE DETERMINED BY DESIGN ENGINEER BASED ON SITE REQUIREMENTS.  
X =  
Y =  
SEE PLAN VIEW FOR SURFACE DRAINAGE PATTERNS.



STEEL PLATE BEAM GUARDRAIL DETAIL 2  
(AADT SHALL BE LESS THAN 5000)  
STEEL PLATE BEAM GUARDRAIL SHOWN.

NOTES:

① USE CAUTION WHEN PLACING CURB WITH GUARDRAIL. CURBS ADVERSELY AFFECT THE PERFORMANCE OF THE GUARDRAIL. GENERALLY PLACE CURB DIRECTLY BELOW GUARDRAIL. SEE PLANS OR REFER TO STANDARD PLAN 5-297.601 (2), FOR CURB LOCATIONS ON NCHRP REPORT NO. 350 APPROVED BRIDGE TRANSITIONS, SEE STANDARD PLANS 5-297.603, .605, .606 ETC..



CONNECTION DETAIL AT JUNCTURE OF MSEW AND C.I.P. STRUCTURE

REVISED:  
APPROVED:  
*David L. Johnson*  
STATE BRIDGE ENGINEER

STANDARD SHEET NO. 5-297.645	TITLE: <b>MODULAR BLOCK RETAINING WALL DETAILS</b>
STANDARD APPROVED: MARCH 19, 2003	
STATE PROJ. NO. S.P. 002-651-007	SHEET NO. 187 OF 381 SHEETS

**PROJECT LOCATION AND GENERAL INFORMATION**

THIS ROAD CONSTRUCTION PROJECT ADDS A MEDIAN, RIGHT AND LEFT TURN LANES, AN ADDITIONAL THRU LANE IN BOTH DIRECTIONS, CONCRETE WALK AND BITUMINOUS TRAIL.

THIS PROJECT WILL PRIMARILY CONSIST OF GRADING, PLACING AGGREGATE BASE, BITUMINOUS PAVING, CURB AND GUTTER, STORM SEWER CONSTRUCTION, STORM WATER PONDING.

THIS PROJECT WILL REQUIRE THE DISTURBANCE OF 38.95 ACRES OF SOILS AND DOES CREATE THE POTENTIAL FOR SEDIMENT DISCHARGE FROM THE SITE.

**TRAINING REQUIREMENTS**

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

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

**LONG TERM OPERATION AND MAINTENANCE**

THE CITIES OF BLAINE AND COON RAPIDS STREETS DIVISION WILL BE RESPONSIBLE FOR THE LONG TERM OPERATION AND MAINTENANCE OF THE PERMANENT STORMWATER MANAGEMENT AND SNOW REMOVAL OPERATIONS ALONG THE PROPOSED WALK.

STEFAN HIGGINS  
CITY OF BLAINE - ASSISTANT CITY ENGINEER  
10801 TOWN SQUARE DR NE  
BLAINE, MN 55449  
PHONE: (763) 717-2722

DAVE ZIEGLMEIER  
CITY OF COON RAPIDS - SENIOR ENGINEERING TECHNICIAN  
11155 ROBINSON DRIVE  
COON RAPIDS, MN 55433  
PHONE: (763) 767-6541

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

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

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

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

RECEIVING SURFACE WATERS		
NAME OF WATER BODY	SPECIAL WATER	IMPAIRED WATER
ANOKA COUNTY		
SAND CREEK (CNTY DITCH 41)	YES	YES
(CNTY DITCH 39)	YES	YES

**DISTURBED SOIL AREA**

TOTAL DISTURBED SOILS AREA FOR THIS PROJECT IS 38.95 ACRES

**IMPERVIOUS SOIL AREA**

EXISTING AREA OF IMPERVIOUS SURFACE IS 16.29 ACRES.  
POST CONSTRUCTION AREA OF IMPERVIOUS SURFACE 23.50 ACRES.

**SOIL TYPES**

THE PREDOMINANT SOIL TYPE FOUND ON THIS PROJECT IS SAND.

**CONSTRUCTION PHASING**

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

WHEN TOPSOIL IS DISTURBED, THE TOPSOIL WILL BE STRIPPED AND STOCKPILED IN SOIL BERMS AT THE TOE OF THE STRIPPED SLOPES ALONG THE PROJECT LIMITS. TEMPORARY VEGETATION WILL BE ESTABLISHED ON THE STOCKPILED TOPSOIL BERMS WITH SEED MIXTURE 250, TYPE 3 FERTILIZER, AND DISK ANCHORED TYPE 3 MULCH AS PROVIDED IN THE PLAN. STOCKPILED TOPSOIL BERMS WILL NOT BE PLACED IN ANY STORMWATER CONVEYANCES.

AFTER STRIPPING THE TOPSOIL THE EXPOSED SOIL INSLOPES WILL BE STABILIZED WITH DISK ANCHORED TYPE 1 MULCH WITHIN 7 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS BEEN TEMPORARILY OR PERMANENTLY CEASED.

**TEMPORARY SEDIMENT BASINS**

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

**PERMANENT STORMWATER MANAGEMENT SYSTEM**

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

THIS ROAD CONSTRUCTION PROJECT HAS A GREATER THEN 1 ACRE INCREASE IN IMPERVIOUS AREA.

**EROSION PREVENTION PRACTICES**

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

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

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

**PROJECT CONTACTS**

MPCA	NPDES	LAURAL MEZNER	218-316-3889
MPCA	EMERGENCY	STATE DUTY OFFICER	800-422-0798
DNR	NOT REQUIRED		
COE	NOT REQUIRED		
ANOKA COUNTY DESIGN SWPPP PREPARATION	U OF MN DESIGN OF SWPPP EXPIRES 5/15	NICK DOBDA	763-862-4261
ANOKA COUNTY PROJECT REPRESENTATIVE	U OF MN SITE MANAGEMENT EXPIRES 5/15	GREG ANDERSON	763-238-8966
EROSION CONTROL SUPERVISOR (CONTRACTOR)			

**SEDIMENT CONTROL PRACTICES**

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

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

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

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

**POLLUTION PROVENTION MEASURES**

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

THESE MANAGEMENT MEASURES FOR POLLUTION PREVENTION WILL BE STRICTLY ENFORCED.

**LOCATION OF SWPPP REQUIREMENTS**

REQUIREMENT	PLAN		MN/DOT SPECIFICATION	SPECIAL PROVISION
	TITLE	LOCATION		
NPDES PERMIT COMPLIANCE			1701, 1702, & 1717	1717 (AIR, LAND & WATER) 1717 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT)
CERTIFIED PERSONNEL IN EROSION AND SEDIMENT CONTROL SITE MANAGEMENT			1506, 1717, & 2573	1717 (AIR, LAND & WATER) 1717 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT)
CHAIN OF RESPONSIBILITY	AGENCY CONTACTS	SHEET 182	1506, 1717, & 2573	
PROJECT SCHEDULE / WEEKLY EROSION & SEDIMENT CONTROL SCHEDULE / COMPLETING INSPECTION / MAINTENANCE LOG	AGENCY CONTACTS	SHEET 183	1717 & 2573	1717 (AIR, LAND & WATER) 1717 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT)
SWPPP PREPARATION	AGENCY CONTACTS	SHEET 182		
SITE MAP / RECEIVING WATERS / DIRECTION OF FLOW			1717	
PROJECT SPECIFIC CONSTRUCTION STAGING			1717	1717 (AIR, LAND & WATER) 1717 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT) 1806 (DETERMINATION AND EXTENSION OF CONTRACT TIME)
TEMPORARY EROSION AND SEDIMENT CONTROL BMP LOCATIONS, INSTALLATION, TIMING OF INSTALLATION AND TYPE OF BMP	QUANTITY TABULATIONS	SHEET 14	2573 & 2525	2575 (RAPID STABILIZATION SPECIFICATION)
ADDITIONAL TEMPORARY AND OR PERMANENT EROSION AND SEDIMENT CONTROL BMP'S NOT PROVIDED OR SHOWN IN THE PLAN			1717, 2573, & 2575	1717 (AIR, LAND & WATER) 1717 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT) 2575 (RAPID STABILIZATION SPECIFICATION)
MAINTENANCE OF EROSION AND SEDIMENT CONTROL DEVICES, REMOVAL OF TRACKED SEDIMENT, REMOVAL OF DEVICES			1717 & 2573	1514 (MAINTENANCE DURING CONSTRUCTION) 1717 (LAND AIR & WATER) 1717 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT)
DEWATERING			2105.3B, & 2451.3C	DEWATERING MAY ALSO REQUIRE DNR PERMIT. NO DEWATERING IS ANTICIPATED FOR THIS PROJECT
FINAL STABILIZATION	QUANTITY TABULATIONS EROSION CONTROL PLAN	SHEET 14 SHEET 184-192	1717, 2573, & 2575	1717 (AIR, LAND & WATER) 1717 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT)
TEMPORARY EROSION AND SEDIMENT CONTROL DETAILS	QUANTITY TABULATIONS EROSION CONTROL PLAN	SHEET 14 SHEET 184-192	2575	2575 (RAPID STABILIZATION SPECIFICATION)
PERMANENT EROSION CONTROL DETAILS	EROSION CONTROL DETAILS	SHEET 193-197	2575	2575 (CONTROLLING EROSION AND ESTABLISHING VEGETATION)

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_SWPPP.dgn 06/05/2014 7:44:21 AM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
PRINT NAME: CURT A. KOBILARCSIK  
SIGNATURE: *Curt A. Kobilarsik*  
DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: NJD DATE: 11/25/13  
DESIGN BY: NJD DATE: 11/25/13  
CHECKED BY: GMP DATE: 12/13/13



ANOKA COUNTY  
HIGHWAY DEPT.

S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

SWPPP NARRATIVE

## STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

### Training

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

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

### Amending the SWPPP

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

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

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_SWPPP.dgn      06/05/2014      7:44:22 AM

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

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarcsik*  
 DATE: 6-9-14      LICENSE NO. 24756

DRAWN BY: NJD      DATE: 11/25/13  
 DESIGN BY: NJD      DATE: 11/25/13  
 CHECKED BY: GMP      DATE: 12/13/13

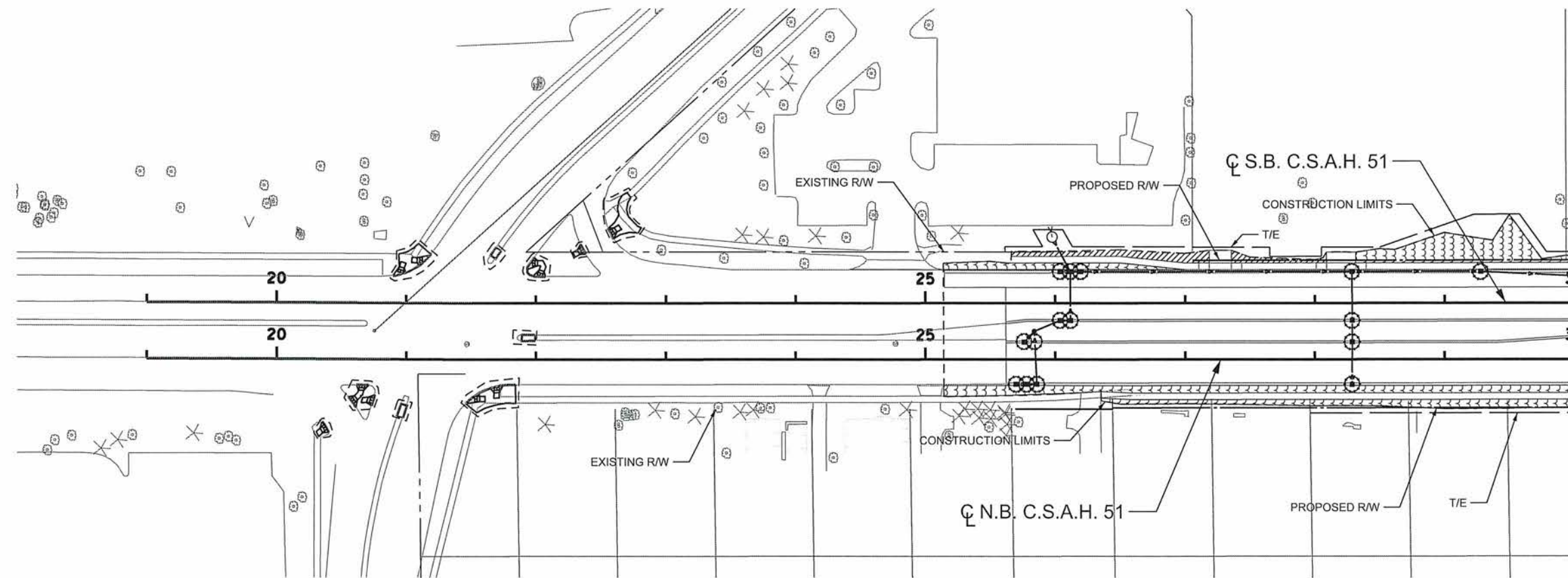


**ANOKA COUNTY  
HIGHWAY DEPT.**

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046  
 -

LEGEND

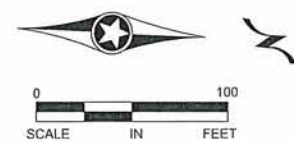
- PROPOSED CATCH BASIN
- PROPOSED STORM SEWER
- — — INPLACE CULVERT
- ==== PROPOSED CULVERT
- MS— SILT FENCE TYPE MACHINE SLICED
- ==== FLOTATION SILT CURTAIN
- ⊙ RIPRAP CLASS III
- ⊙ INLET PROTECTION
- ⊙ FILTER LOG TYPE WOOD FIBER BIOROLL
- ⊙ WETLAND BOUNDARIES
- ▨ SODDING TYPE SALT RESISTANT FERTILIZER 20-10-20
- ⊙ SEEDING MIX 260 FERTILIZER TYPE 3 20-10-20 MULCH TYPE 3 DISC ANCHORING
- ⊙ EROSION CONTROL BLANKET CATEGORY 00 SEEDING MIX 260 FERTILIZER TYPE 3 20-10-20
- ⊙ SEEDING MIX 310 FERTILIZER TYPE 4 17-10-7 MULCH TYPE 3 DISC ANCHORING
- ⊙ EROSION CONTROL BLANKET CATEGORY 00 SEEDING MIX 350 FERTILIZER TYPE 4 17-10-7



MATCH LINE 30+00

NOTES

- 1.) THE CONTRACTOR SHALL CONSTRUCT WASHED GRAVEL ENTRANCES AT POINTS OF EXIT FROM THE WORK AREA ONTO EXISTING BITUMINOUS PAVEMENT AS DIRECTED BY THE ENGINEER.
- 2.) SILT FENCE SHALL FOLLOW AS CLOSE AS POSSIBLE A SINGLE CONTOUR.
- 3.) SILT FENCE SHALL BE CLEANED OUT OR REPLACED WHEN SEDIMENT REACHES 8" OR  $\frac{1}{3}$  OF SILT FENCE HEIGHT.
- 4.) WHEN SEDIMENT DEPOSITS IN A WATER OF THE STATE, THE MATERIAL MUST BE REMOVED WITHIN 7 DAYS.
- 5.) IF SILT DEPOSITS IN THE ANOKA COUNTY RIGHT-OF-WAY, THE CONTRACTOR IS RESPONSIBLE FOR ITS REMOVAL.
- 6.) ALL GRADED AREAS ARE TO BE REVEGETATED WITHIN 14 DAYS OF THE COMPLETION OF GRADING.



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_EC1J.dgn 06/05/2014 7:40:27 AM

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

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarcsik*  
 DATE: 6-9-14 LICENSE NO. 24756

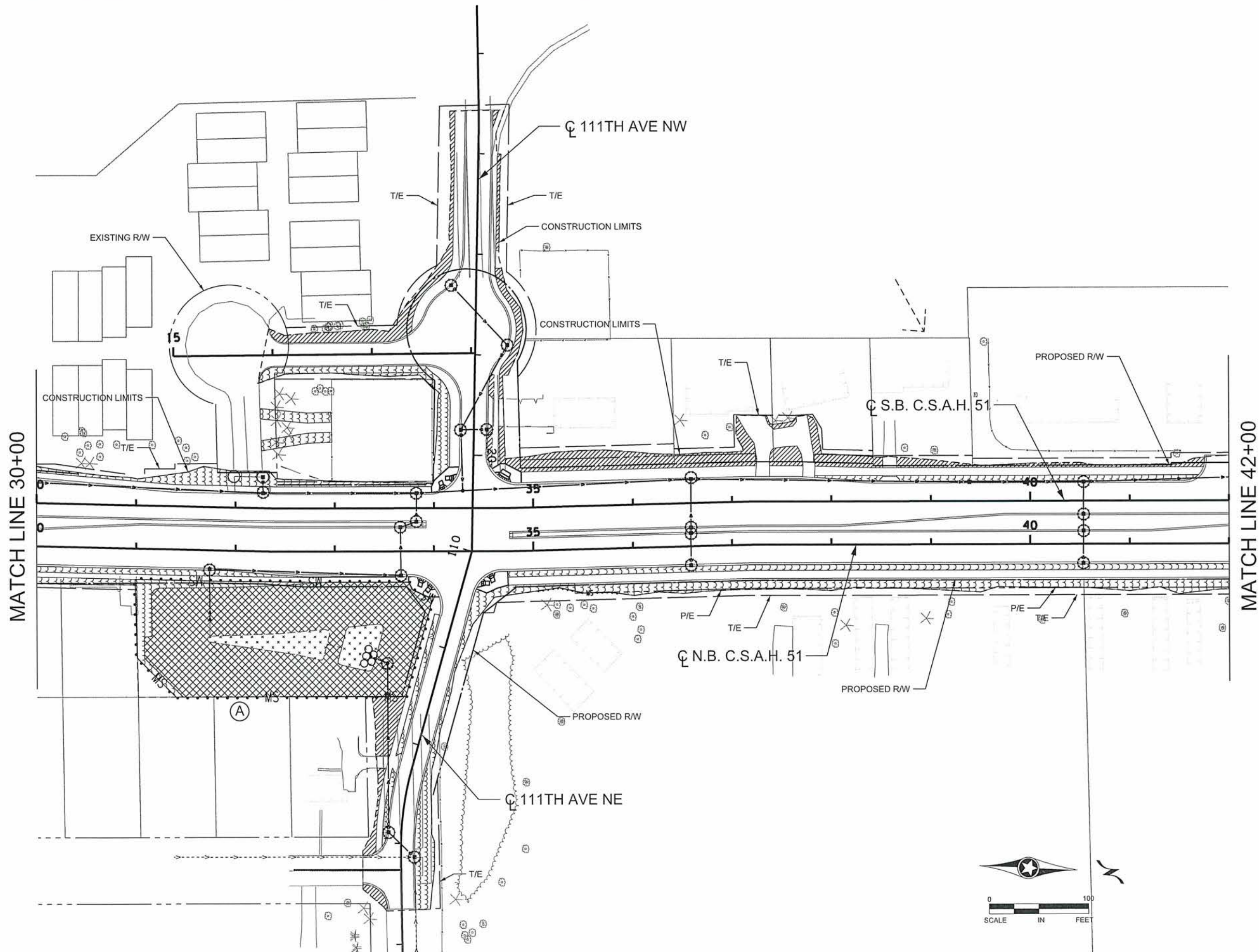
DRAWN BY: JCF DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



ANOKA COUNTY  
 HIGHWAY DEPT.

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

EROSION CONTROL PLAN  
 STA 20+30.80 TO 30+00  
 Sheet 190 of 381 Sheets



LEGEND	
	PROPOSED CATCH BASIN
	PROPOSED STORM SEWER
	INPLACE CULVERT
	PROPOSED CULVERT
	SILT FENCE TYPE MACHINE SLICED
	FLOTATION SILT CURTAIN
	RIPRAP CLASS III
	INLET PROTECTION
	FILTER LOG TYPE WOOD FIBER BIOROLL
	WETLAND BOUNDARIES
	SODDING TYPE SALT RESISTANT FERTILIZER 20-10-20
	SEEDING MIX 260 FERTILIZER TYPE 3 20-10-20 MULCH TYPE 3 DISC ANCHORING
	EROSION CONTROL BLANKET CATEGORY 00 SEEDING MIX 260 FERTILIZER TYPE 3 20-10-20
	SEEDING MIX 310 FERTILIZER TYPE 4 17-10-7 MULCH TYPE 3 DISC ANCHORING
	EROSION CONTROL BLANKET CATEGORY 00 SEEDING MIX 350 FERTILIZER TYPE 4 17-10-7

(A) INFILTRATION POND TO HAVE SILT FENCE INSTALLED AT CONSTRUCTION LIMITS FOR POND GRADING AND AROUND ENTIRE PERIMETER OF POND AT TOP CONTOUR FOLLOWING FINAL GRADING OF POND.

- NOTES
- 1.) THE CONTRACTOR SHALL CONSTRUCT WASHED GRAVEL ENTRANCES AT POINTS OF EXIT FROM THE WORK AREA ONTO EXISTING BITUMINOUS PAVEMENT AS DIRECTED BY THE ENGINEER.
  - 2.) SILT FENCE SHALL FOLLOW AS CLOSE AS POSSIBLE A SINGLE CONTOUR.
  - 3.) SILT FENCE SHALL BE CLEANED OUT OR REPLACED WHEN SEDIMENT REACHES 8" OR  $\frac{1}{3}$  OF SILT FENCE HEIGHT.
  - 4.) WHEN SEDIMENT DEPOSITS IN A WATER OF THE STATE, THE MATERIAL MUST BE REMOVED WITHIN 7 DAYS.
  - 5.) IF SILT DEPOSITS IN THE ANOKA COUNTY RIGHT-OF-WAY, THE CONTRACTOR IS RESPONSIBLE FOR ITS REMOVAL.
  - 6.) ALL GRADED AREAS ARE TO BE REVEGETATED WITHIN 14 DAYS OF THE COMPLETION OF GRADING.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_EC2J.dgn 06/05/2014 7:40:29 AM

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

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarcsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13

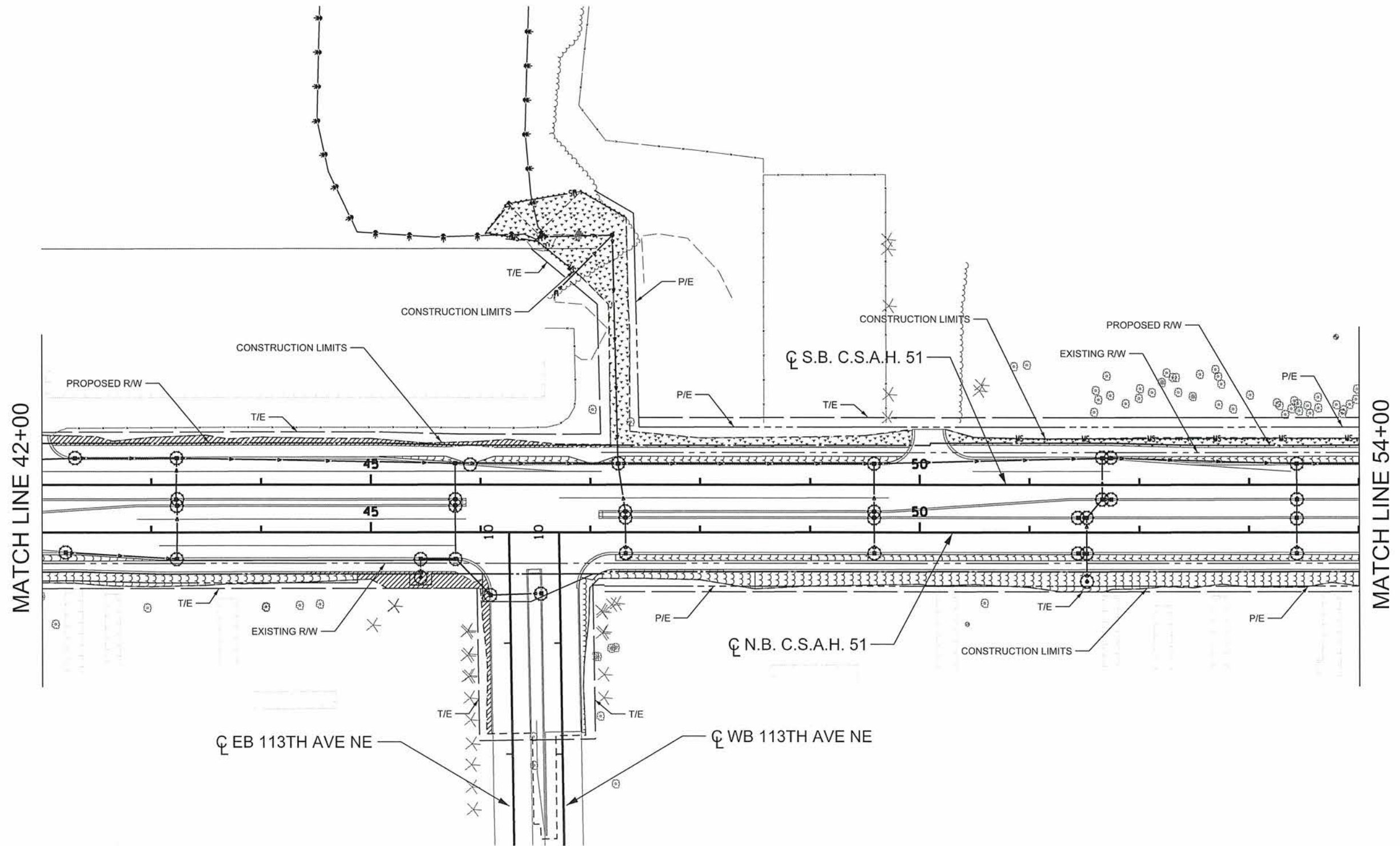
**ANOKA COUNTY**  
**HIGHWAY DEPT.**

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

**EROSION CONTROL PLAN**

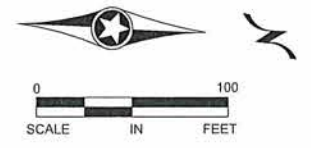
STA 30+00 TO 42+00

Sheet 191 of 381 Sheets



LEGEND	
	PROPOSED CATCH BASIN
	PROPOSED STORM SEWER
	INPLACE CULVERT
	PROPOSED CULVERT
	SILT FENCE TYPE MACHINE SLICED
	FLOTATION SILT CURTAIN
	RIPRAP CLASS III
	INLET PROTECTION
	FILTER LOG TYPE WOOD FIBER BIOROLL
	WETLAND BOUNDARIES
	SODDING TYPE SALT RESISTANT FERTILIZER 20-10-20
	SEEDING MIX 260 FERTILIZER TYPE 3 20-10-20 MULCH TYPE 3 DISC ANCHORING
	EROSION CONTROL BLANKET CATEGORY 00 SEEDING MIX 260 FERTILIZER TYPE 3 20-10-20
	SEEDING MIX 310 FERTILIZER TYPE 4 17-10-7 MULCH TYPE 3 DISC ANCHORING
	EROSION CONTROL BLANKET CATEGORY 00 SEEDING MIX 350 FERTILIZER TYPE 4 17-10-7

- NOTES
- 1.) THE CONTRACTOR SHALL CONSTRUCT WASHED GRAVEL ENTRANCES AT POINTS OF EXIT FROM THE WORK AREA ONTO EXISTING BITUMINOUS PAVEMENT AS DIRECTED BY THE ENGINEER.
  - 2.) SILT FENCE SHALL FOLLOW AS CLOSE AS POSSIBLE A SINGLE CONTOUR.
  - 3.) SILT FENCE SHALL BE CLEANED OUT OR REPLACED WHEN SEDIMENT REACHES 8" OR  $\frac{1}{3}$  OF SILT FENCE HEIGHT.
  - 4.) WHEN SEDIMENT DEPOSITS IN A WATER OF THE STATE, THE MATERIAL MUST BE REMOVED WITHIN 7 DAYS.
  - 5.) IF SILT DEPOSITS IN THE ANOKA COUNTY RIGHT-OF-WAY, THE CONTRACTOR IS RESPONSIBLE FOR ITS REMOVAL.
  - 6.) ALL GRADED AREAS ARE TO BE REVEGETATED WITHIN 14 DAYS OF THE COMPLETION OF GRADING.



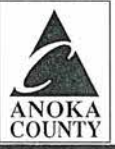
NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_EC3J.dgn 06/05/2014 7:40:32 AM

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

PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *[Signature]*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13

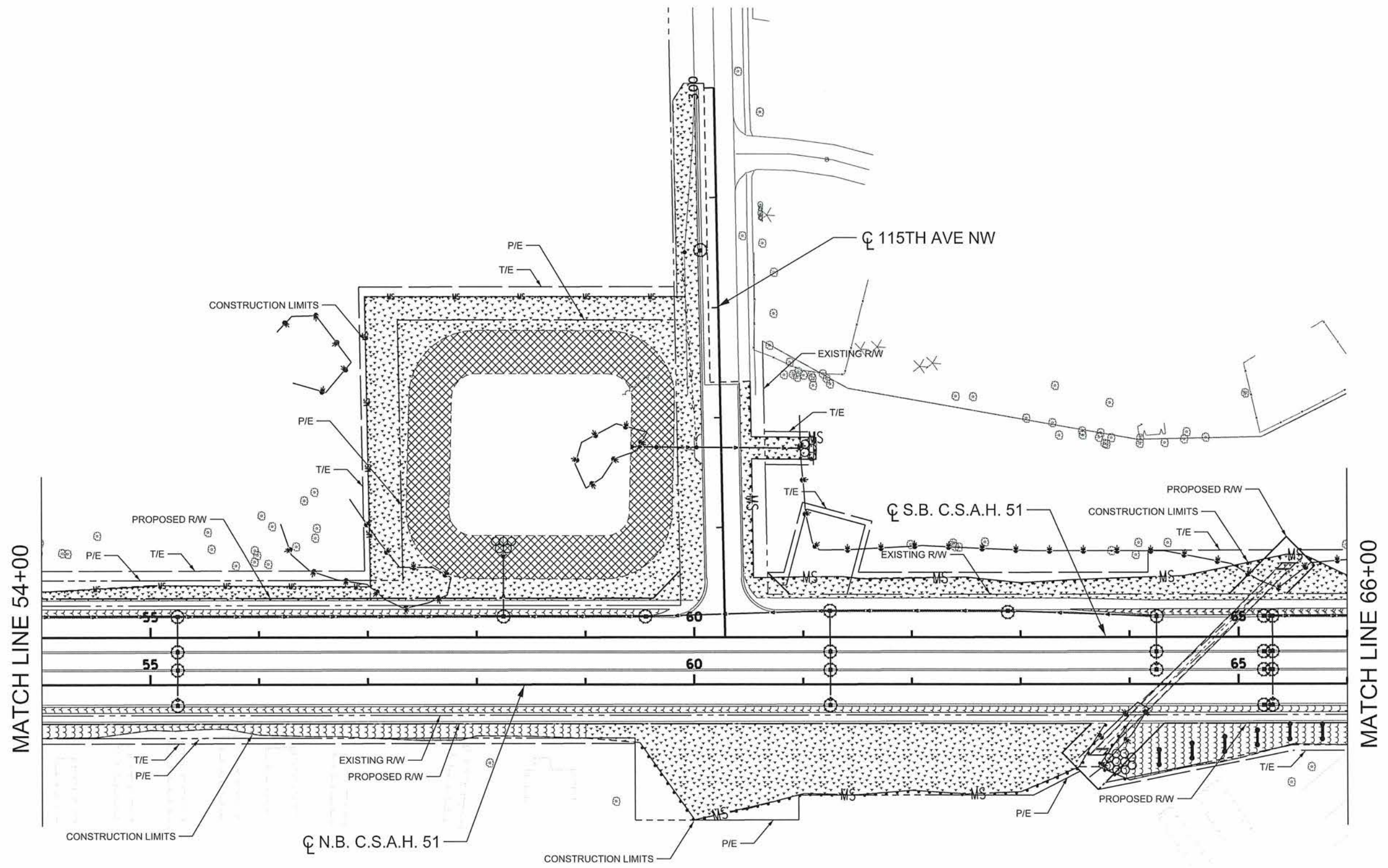


ANOKA COUNTY  
HIGHWAY DEPT.

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

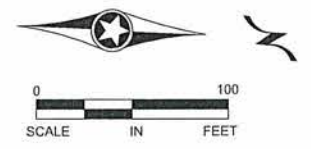
EROSION CONTROL PLAN  
 STA 42+00 TO 54+00  
 Sheet 192 of 381 Sheets





LEGEND	
	PROPOSED CATCH BASIN
	PROPOSED STORM SEWER
	INPLACE CULVERT
	PROPOSED CULVERT
	SILT FENCE TYPE MACHINE SLICED
	FLOTATION SILT CURTAIN
	RIPRAP CLASS III
	INLET PROTECTION
	FILTER LOG TYPE WOOD FIBER BIOROLL
	WETLAND BOUNDARIES
	SODDING TYPE SALT RESISTANT FERTILIZER 20-10-20
	SEEDING MIX 260 FERTILIZER TYPE 3 20-10-20 MULCH TYPE 3 DISC ANCHORING
	EROSION CONTROL BLANKET CATEGORY 00 SEEDING MIX 260 FERTILIZER TYPE 3 20-10-20
	SEEDING MIX 310 FERTILIZER TYPE 4 17-10-7 MULCH TYPE 3 DISC ANCHORING
	EROSION CONTROL BLANKET CATEGORY 00 SEEDING MIX 350 FERTILIZER TYPE 4 17-10-7

- NOTES
- 1.) THE CONTRACTOR SHALL CONSTRUCT WASHED GRAVEL ENTRANCES AT POINTS OF EXIT FROM THE WORK AREA ONTO EXISTING BITUMINOUS PAVEMENT AS DIRECTED BY THE ENGINEER.
  - 2.) SILT FENCE SHALL FOLLOW AS CLOSE AS POSSIBLE A SINGLE CONTOUR.
  - 3.) SILT FENCE SHALL BE CLEANED OUT OR REPLACED WHEN SEDIMENT REACHES 8" OR  $\frac{1}{3}$  OF SILT FENCE HEIGHT.
  - 4.) WHEN SEDIMENT DEPOSITS IN A WATER OF THE STATE, THE MATERIAL MUST BE REMOVED WITHIN 7 DAYS.
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  - 6.) ALL GRADED AREAS ARE TO BE REVEGETATED WITHIN 14 DAYS OF THE COMPLETION OF GRADING.



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_EC4J.dgn 06/05/2014 7:40:35 AM

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

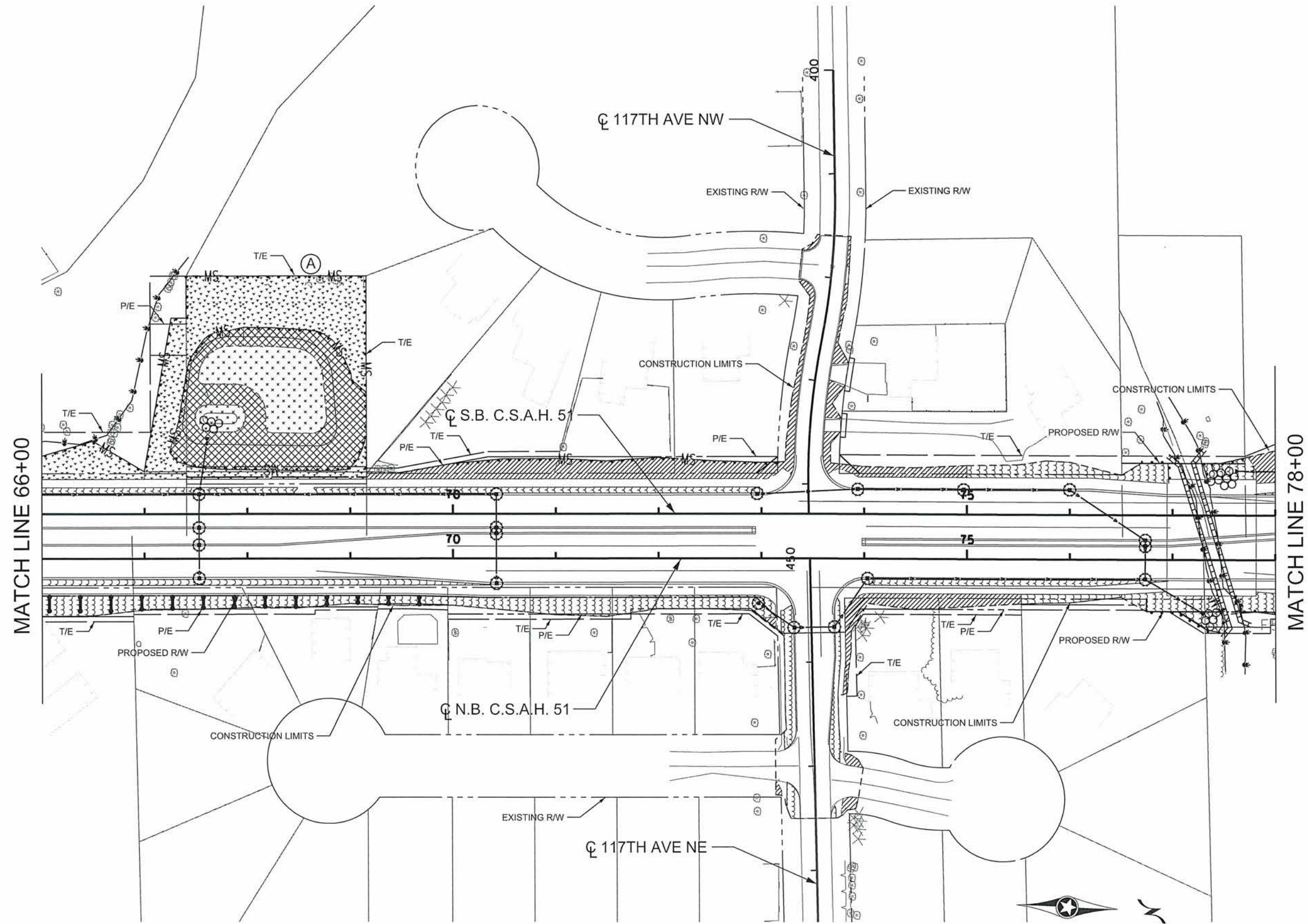
PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarcsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13

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

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

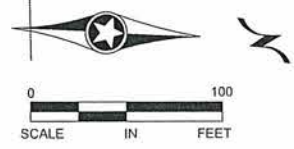
EROSION CONTROL PLAN  
 STA 54+00 TO 66+00  
 Sheet 193 of 381 Sheets



LEGEND	
	PROPOSED CATCH BASIN
	PROPOSED STORM SEWER
	INPLACE CULVERT
	PROPOSED CULVERT
	SILT FENCE TYPE MACHINE SLICED
	FLOTATION SILT CURTAIN
	RIPRAP CLASS III
	INLET PROTECTION
	FILTER LOG TYPE WOOD FIBER BIOROLL
	WETLAND BOUNDARIES
	SODDING TYPE SALT RESISTANT FERTILIZER 20-10-20
	SEEDING MIX 260 FERTILIZER TYPE 3 20-10-20 MULCH TYPE 3 DISC ANCHORING
	EROSION CONTROL BLANKET CATEGORY 00 SEEDING MIX 260 FERTILIZER TYPE 3 20-10-20
	SEEDING MIX 310 FERTILIZER TYPE 4 17-10-7 MULCH TYPE 3 DISC ANCHORING
	EROSION CONTROL BLANKET CATEGORY 00 SEEDING MIX 350 FERTILIZER TYPE 4 17-10-7

**(A)** INFILTRATION POND TO HAVE SILT FENCE INSTALLED AT CONSTRUCTION LIMITS FOR POND GRADING AND AROUND ENTIRE PERIMETER OF POND AT TOP CONTOUR FOLLOWING FINAL GRADING OF POND.

- NOTES**
- 1.) THE CONTRACTOR SHALL CONSTRUCT WASHED GRAVEL ENTRANCES AT POINTS OF EXIT FROM THE WORK AREA ONTO EXISTING BITUMINOUS PAVEMENT AS DIRECTED BY THE ENGINEER.
  - 2.) SILT FENCE SHALL FOLLOW AS CLOSE AS POSSIBLE A SINGLE CONTOUR.
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  - 4.) WHEN SEDIMENT DEPOSITS IN A WATER OF THE STATE, THE MATERIAL MUST BE REMOVED WITHIN 7 DAYS.
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  - 6.) ALL GRADED AREAS ARE TO BE REVEGETATED WITHIN 14 DAYS OF THE COMPLETION OF GRADING.



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_EC5J.dgn 06/05/2014 7:40:38 AM

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

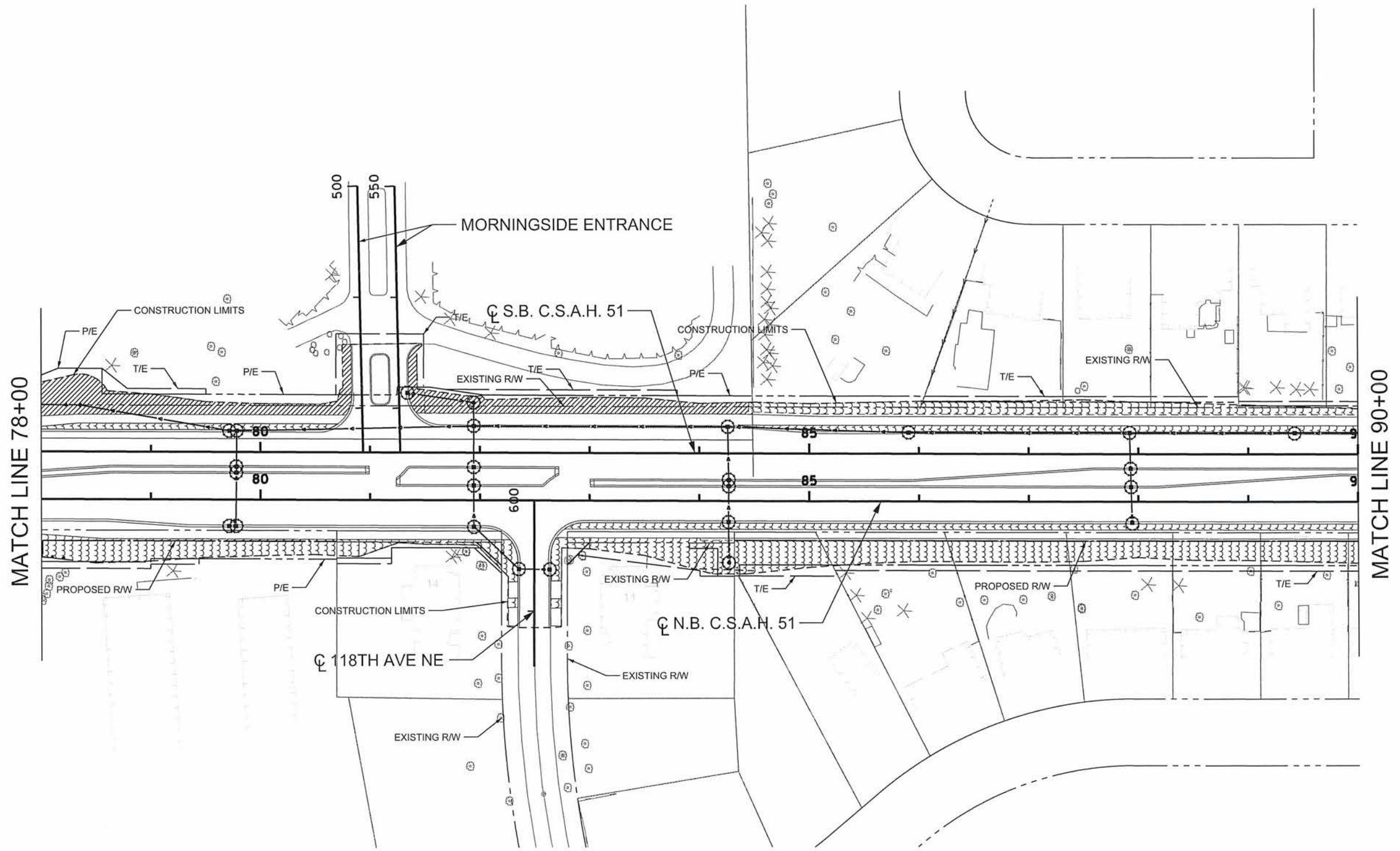
PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13

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

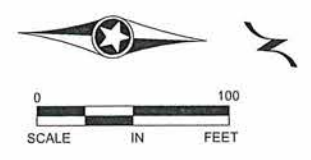
S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

**EROSION CONTROL PLAN**  
 STA 66+00 TO 78+00  
 Sheet 194 of 381 Sheets



LEGEND	
	PROPOSED CATCH BASIN
	PROPOSED STORM SEWER
	INPLACE CULVERT
	PROPOSED CULVERT
	SILT FENCE TYPE MACHINE SLICED
	FLOTATION SILT CURTAIN
	RIPRAP CLASS III
	INLET PROTECTION
	FILTER LOG TYPE WOOD FIBER BIROLL
	WETLAND BOUNDARIES
	SODDING TYPE SALT RESISTANT FERTILIZER 20-10-20
	SEEDING MIX 260 FERTILIZER TYPE 3 20-10-20 MULCH TYPE 3 DISC ANCHORING
	EROSION CONTROL BLANKET CATEGORY 00 SEEDING MIX 260 FERTILIZER TYPE 3 20-10-20
	SEEDING MIX 310 FERTILIZER TYPE 4 17-10-7 MULCH TYPE 3 DISC ANCHORING
	EROSION CONTROL BLANKET CATEGORY 00 SEEDING MIX 350 FERTILIZER TYPE 4 17-10-7

- NOTES
- 1.) THE CONTRACTOR SHALL CONSTRUCT WASHED GRAVEL ENTRANCES AT POINTS OF EXIT FROM THE WORK AREA ONTO EXISTING BITUMINOUS PAVEMENT AS DIRECTED BY THE ENGINEER.
  - 2.) SILT FENCE SHALL FOLLOW AS CLOSE AS POSSIBLE A SINGLE CONTOUR.
  - 3.) SILT FENCE SHALL BE CLEANED OUT OR REPLACED WHEN SEDIMENT REACHES 8" OR  $\frac{1}{3}$  OF SILT FENCE HEIGHT.
  - 4.) WHEN SEDIMENT DEPOSITS IN A WATER OF THE STATE, THE MATERIAL MUST BE REMOVED WITHIN 7 DAYS.
  - 5.) IF SILT DEPOSITS IN THE ANOKA COUNTY RIGHT-OF-WAY, THE CONTRACTOR IS RESPONSIBLE FOR ITS REMOVAL.
  - 6.) ALL GRADED AREAS ARE TO BE REVEGETATED WITHIN 14 DAYS OF THE COMPLETION OF GRADING.



NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\02-651-07\Plan\0265107_EC6J.dgn 06/05/2014 7:40:40 AM					

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

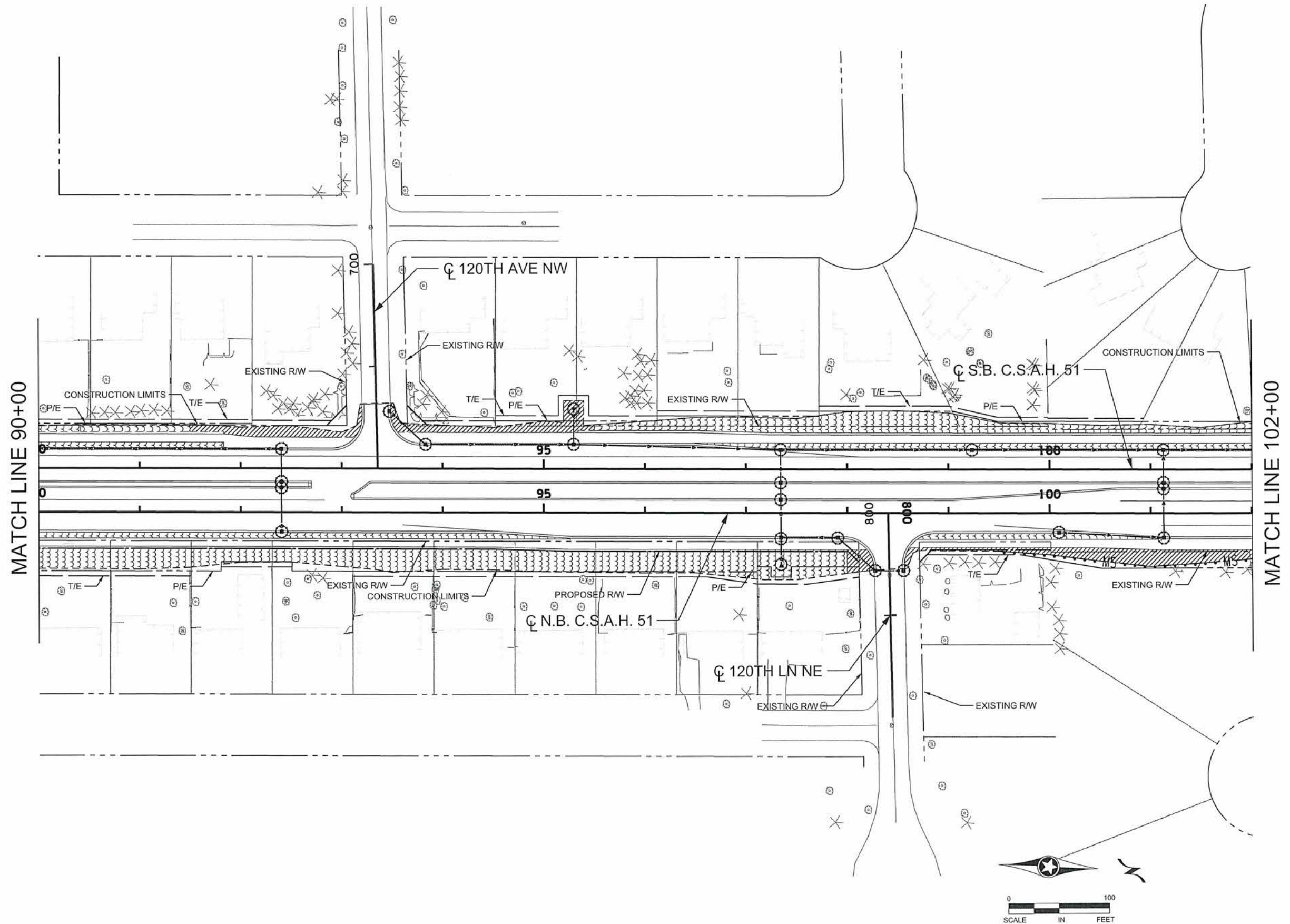
PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarcsik*  
 DATE: 6-9-17 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13

ANOKA COUNTY HIGHWAY DEPT.

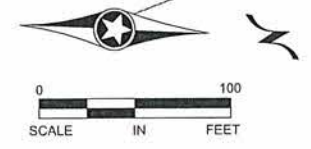
S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

EROSION CONTROL PLAN  
 STA 78+00 TO 90+00  
 Sheet 195 of 381 Sheets



LEGEND	
	PROPOSED CATCH BASIN
	PROPOSED STORM SEWER
	INPLACE CULVERT
	PROPOSED CULVERT
	SILT FENCE TYPE MACHINE SLICED
	FLOTATION SILT CURTAIN
	RIPRAP CLASS III
	INLET PROTECTION
	FILTER LOG TYPE WOOD FIBER BIOROLL
	WETLAND BOUNDARIES
	SODDING TYPE SALT RESISTANT FERTILIZER 20-10-20
	SEEDING MIX 260 FERTILIZER TYPE 3 20-10-20 MULCH TYPE 3 DISC ANCHORING
	EROSION CONTROL BLANKET CATEGORY 00 SEEDING MIX 260 FERTILIZER TYPE 3 20-10-20
	SEEDING MIX 310 FERTILIZER TYPE 4 17-10-7 MULCH TYPE 3 DISC ANCHORING
	EROSION CONTROL BLANKET CATEGORY 00 SEEDING MIX 350 FERTILIZER TYPE 4 17-10-7

- NOTES
- 1.) THE CONTRACTOR SHALL CONSTRUCT WASHED GRAVEL ENTRANCES AT POINTS OF EXIT FROM THE WORK AREA ONTO EXISTING BITUMINOUS PAVEMENT AS DIRECTED BY THE ENGINEER.
  - 2.) SILT FENCE SHALL FOLLOW AS CLOSE AS POSSIBLE A SINGLE CONTOUR.
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NO	DATE	BY	CKD	APPR	REVISION

NAME: P:102-651-07\Plan\10265107\_EC7J.dgn 06/05/2014 7:40:42 AM

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

PRINT NAME: CURT A. KOBILARCSIK

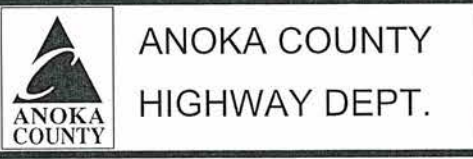
SIGNATURE: *Curt A. Kobilarsik*

DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13

DESIGN BY: NJD DATE: 10-31-13

CHECKED BY: GMP DATE: 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
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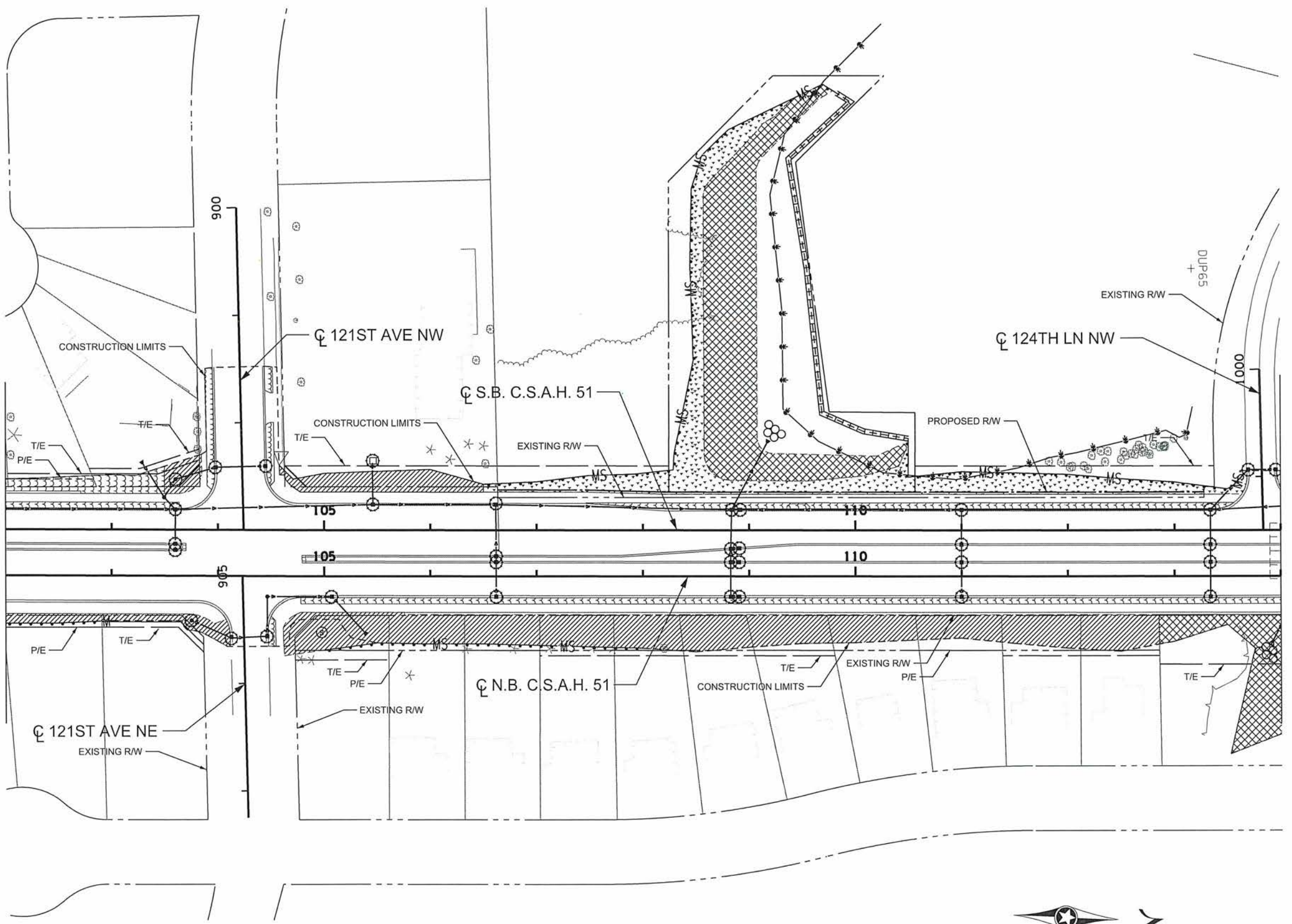
EROSION CONTROL PLAN

STA 90+00 TO 102+00

Sheet 196 of 381 Sheets

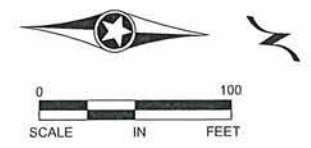
MATCH LINE 102+00

MATCH LINE 114+00



LEGEND	
	PROPOSED CATCH BASIN
	PROPOSED STORM SEWER
	INPLACE CULVERT
	PROPOSED CULVERT
	SILT FENCE TYPE MACHINE SLICED
	FLOTATION SILT CURTAIN
	RIPRAP CLASS III
	INLET PROTECTION
	FILTER LOG TYPE WOOD FIBER BIOROLL
	WETLAND BOUNDARIES
	SODDING TYPE SALT RESISTANT FERTILIZER 20-10-20
	SEEDING MIX 260 FERTILIZER TYPE 3 20-10-20 MULCH TYPE 3 DISC ANCHORING
	EROSION CONTROL BLANKET CATEGORY 00 SEEDING MIX 260 FERTILIZER TYPE 3 20-10-20
	SEEDING MIX 310 FERTILIZER TYPE 4 17-10-7 MULCH TYPE 3 DISC ANCHORING
	EROSION CONTROL BLANKET CATEGORY 00 SEEDING MIX 350 FERTILIZER TYPE 4 17-10-7

- NOTES
- 1.) THE CONTRACTOR SHALL CONSTRUCT WASHED GRAVEL ENTRANCES AT POINTS OF EXIT FROM THE WORK AREA ONTO EXISTING BITUMINOUS PAVEMENT AS DIRECTED BY THE ENGINEER.
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NO	DATE	BY	CKD	APPR	REVISION

NAME: P:102-651-07\Plan\10265107\_EC&J.dgn 06/05/2014 7:40:45 AM

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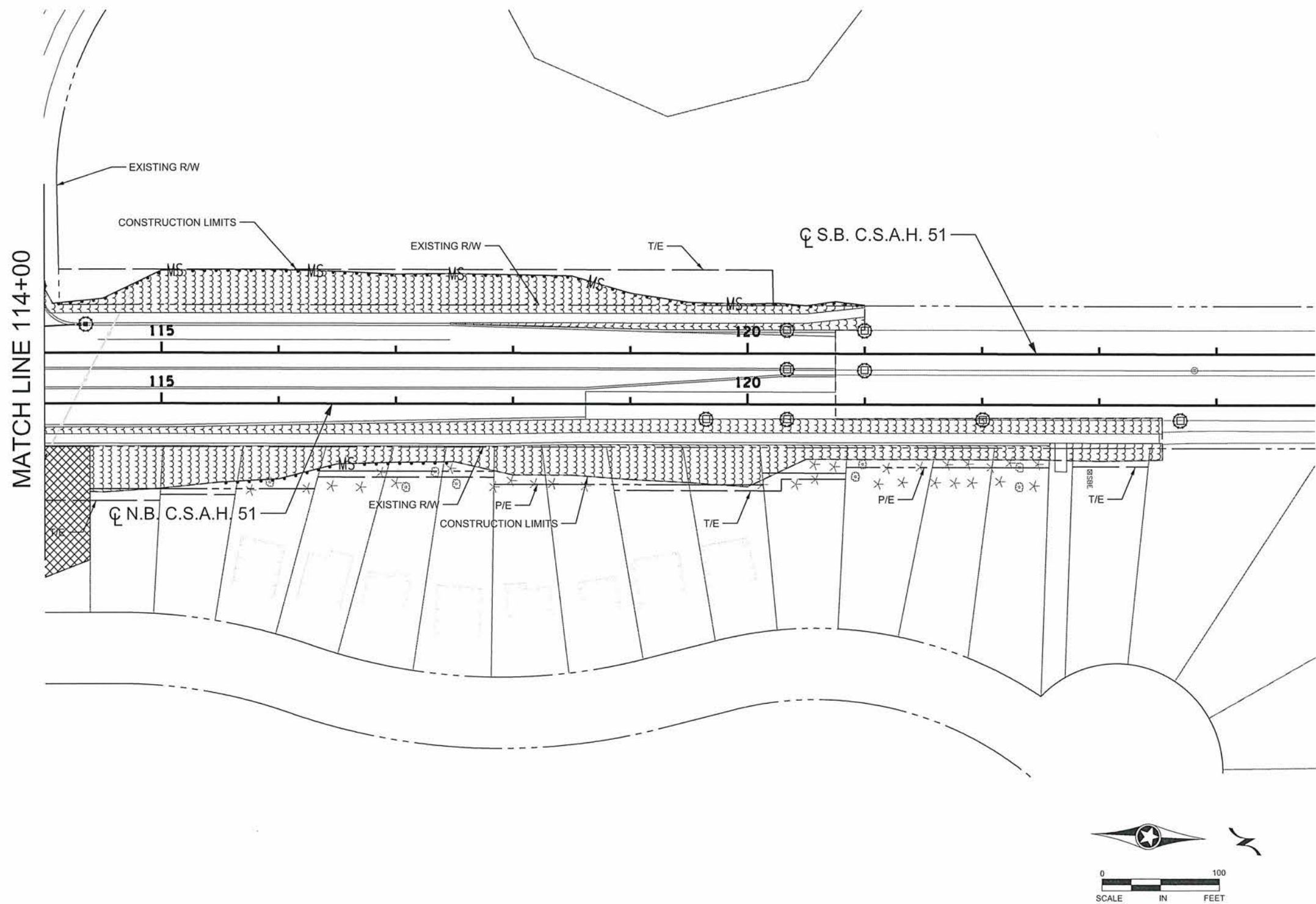
PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt A. Kobilarsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
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**ANOKA COUNTY**  
**HIGHWAY DEPT.**

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

EROSION CONTROL PLAN  
 STA 102+00 TO 114+00  
 Sheet 197 of 381 Sheets



MATCH LINE 114+00

LEGEND	
■	PROPOSED CATCH BASIN
□	INPLACE CATCH BASIN
→	PROPOSED STORM SEWER
---	INPLACE CULVERT
—	PROPOSED CULVERT
→MS→	SILT FENCE TYPE MACHINE SLICED
	FLOTATION SILT CURTAIN
○○○	RIPRAP CLASS III
○	INLET PROTECTION
⊥	FILTER LOG TYPE WOOD FIBER BIOROLL
~	WETLAND BOUNDARIES
///	SODDING TYPE SALT RESISTANT FERTILIZER 20-10-20
●●●	SEEDING MIX 260 FERTILIZER TYPE 3 20-10-20 MULCH TYPE 3 DISC ANCHORING
□□□	EROSION CONTROL BLANKET CATEGORY 00 SEEDING MIX 260 FERTILIZER TYPE 3 20-10-20
★	SEEDING MIX 310 FERTILIZER TYPE 4 17-10-7 MULCH TYPE 3 DISC ANCHORING
⊗	EROSION CONTROL BLANKET CATEGORY 00 SEEDING MIX 350 FERTILIZER TYPE 4 17-10-7

- NOTES**
- 1.) THE CONTRACTOR SHALL CONSTRUCT WASHED GRAVEL ENTRANCES AT POINTS OF EXIT FROM THE WORK AREA ONTO EXISTING BITUMINOUS PAVEMENT AS DIRECTED BY THE ENGINEER.
  - 2.) SILT FENCE SHALL FOLLOW AS CLOSE AS POSSIBLE A SINGLE CONTOUR.
  - 3.) SILT FENCE SHALL BE CLEANED OUT OR REPLACED WHEN SEDIMENT REACHES 8" OR  $\frac{1}{3}$  OF SILT FENCE HEIGHT.
  - 4.) WHEN SEDIMENT DEPOSITS IN A WATER OF THE STATE, THE MATERIAL MUST BE REMOVED WITHIN 7 DAYS.
  - 5.) IF SILT DEPOSITS IN THE ANOKA COUNTY RIGHT-OF-WAY, THE CONTRACTOR IS RESPONSIBLE FOR ITS REMOVAL.
  - 6.) ALL GRADED AREAS ARE TO BE REVEGETATED WITHIN 14 DAYS OF THE COMPLETION OF GRADING.



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Plan\0265107\_EC9J.dgn 06/05/2014 7:40:47 AM

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

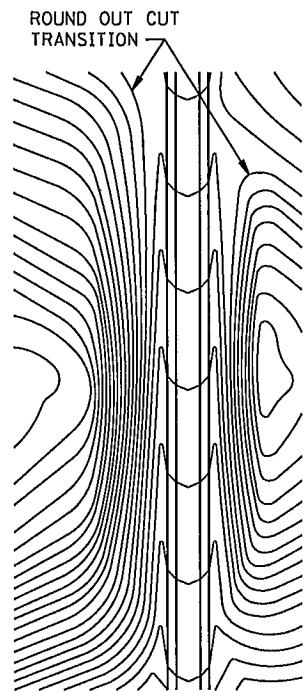
PRINT NAME: CURT A. KOBILARCSIK  
SIGNATURE: *Curt Kobilarcsik*  
DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: JCF DATE: 11-25-13  
DESIGN BY: NJD DATE: 10-31-13  
CHECKED BY: GMP DATE: 12-13-13

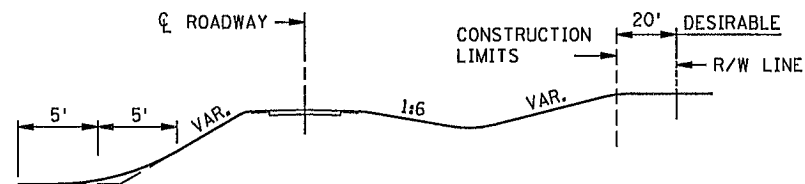
**ANOKA COUNTY**  
**HIGHWAY DEPT.**

S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

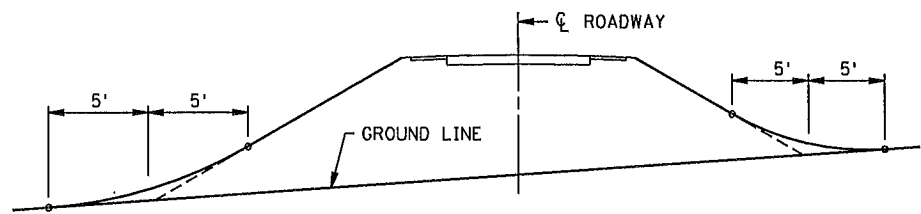
**EROSION CONTROL PLAN**  
STA 114+00 TO 123+51.51  
Sheet 198 of 381 Sheets



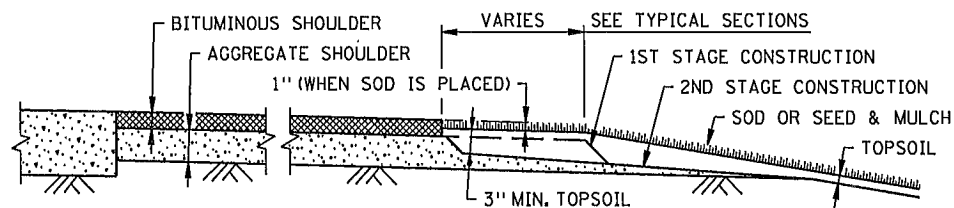
CONTOURING ROAD CUTS



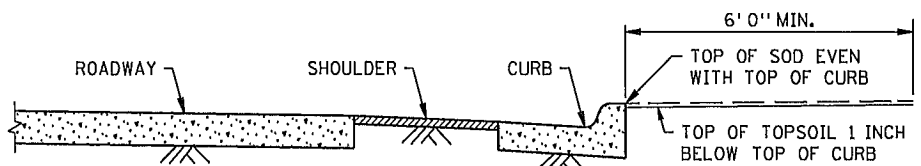
ROUNDING SHOULDERS AND BACKSLOPES



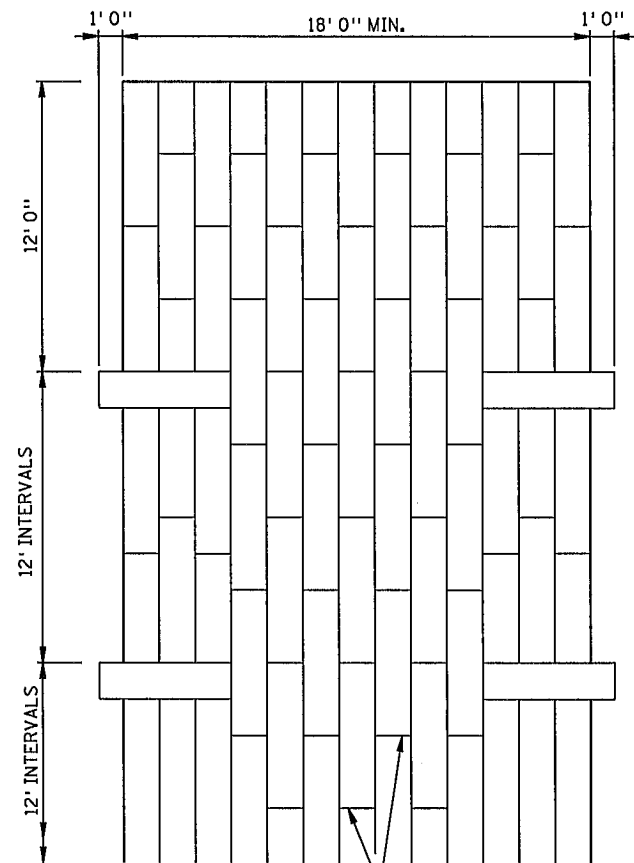
SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES



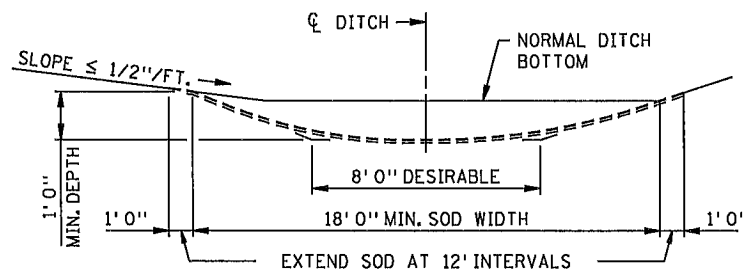
SHAPING AND TOPSOILING INSLOPES



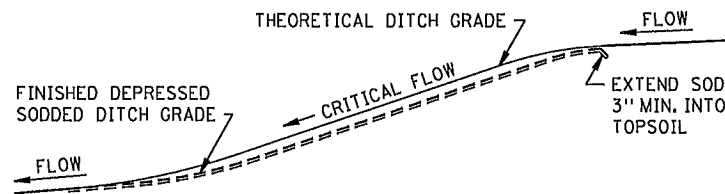
SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED



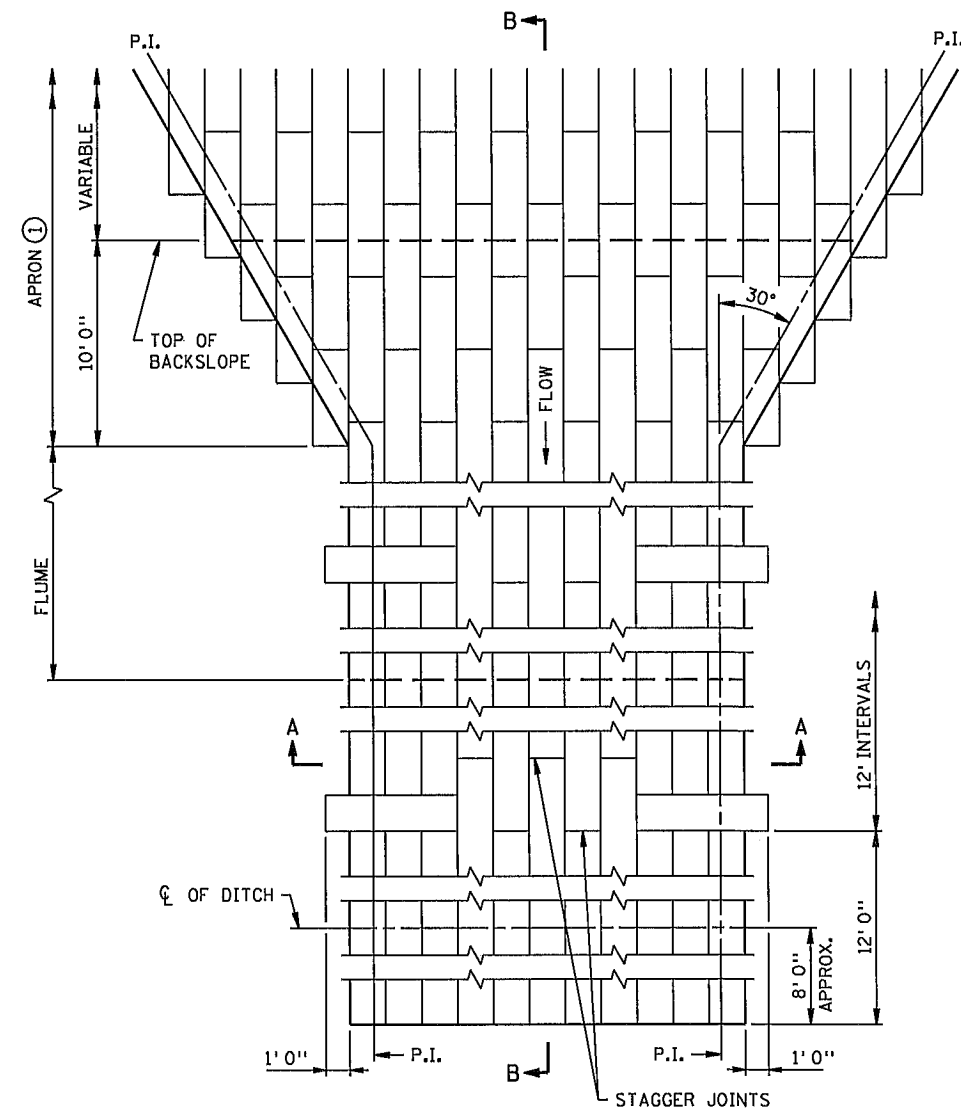
STAGGER JOINTS  
PLAN VIEW



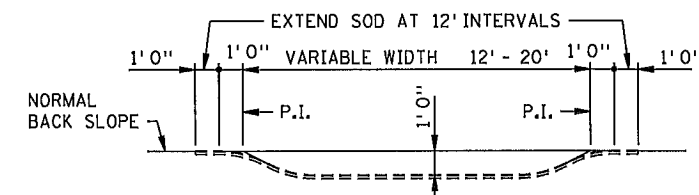
SODDED DITCH CROSS SECTION  
WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 1/2"/FT.),  
FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING.



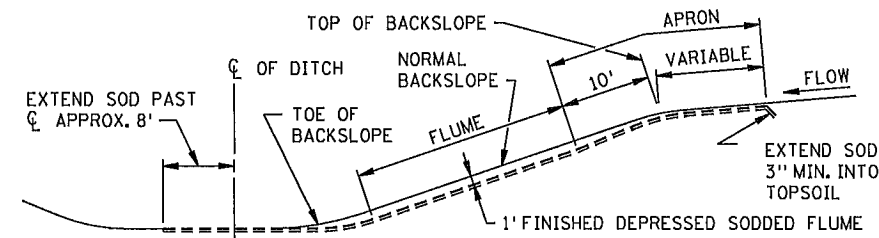
DITCH PROFILE  
SODDED DITCH DETAILS



PLAN VIEW



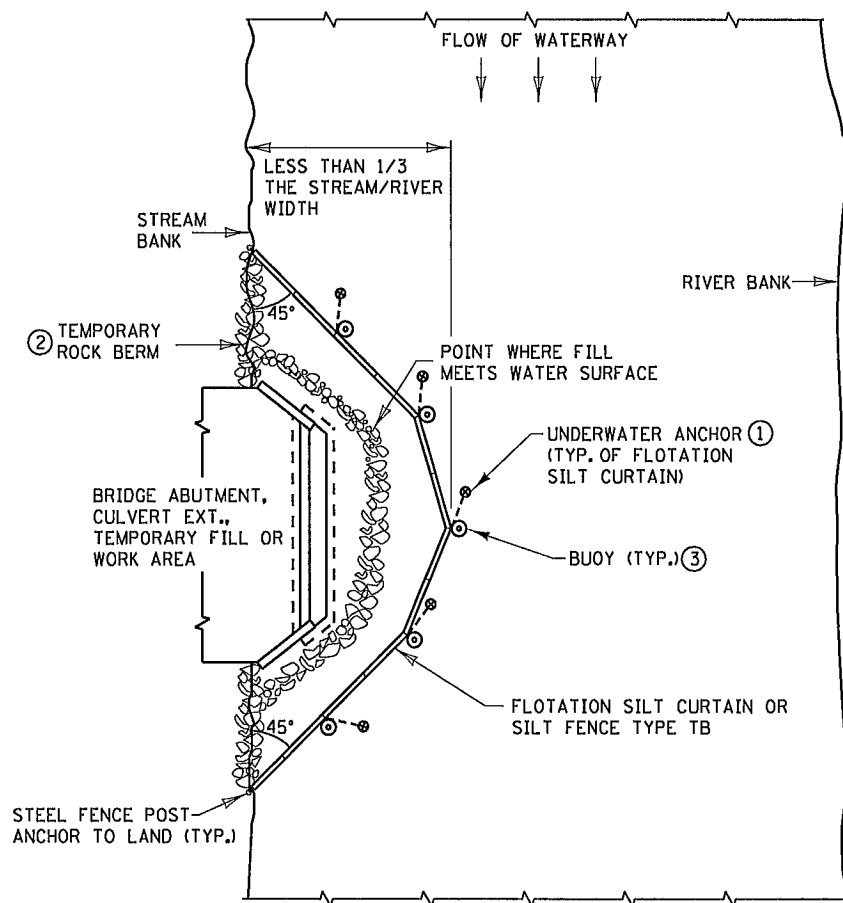
SECTION A-A



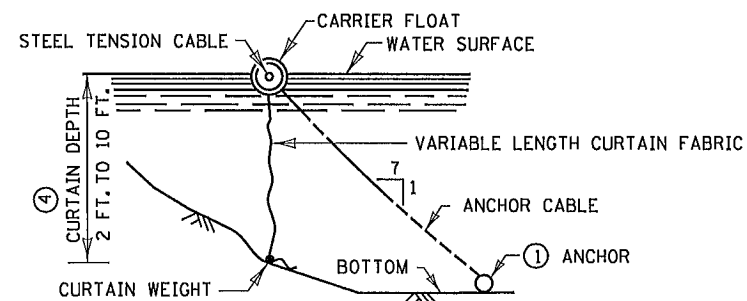
SECTION B-B  
SODDED FLUME DETAILS

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

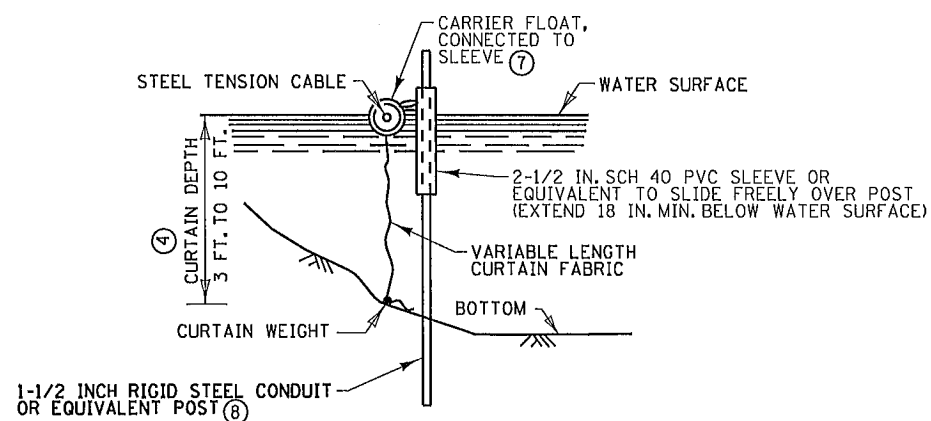
STANDARD SHEET NO. 5-297.404	TITLE: PERMANENT EROSION CONTROL ALONG ROADWAYS, DITCHES AND FLUMES
STANDARD APPROVED: NOVEMBER 20, 2002	
STATE PROJ. NO. S.P. 002-651-007	SHEET NO. 199 OF 381 SHEETS



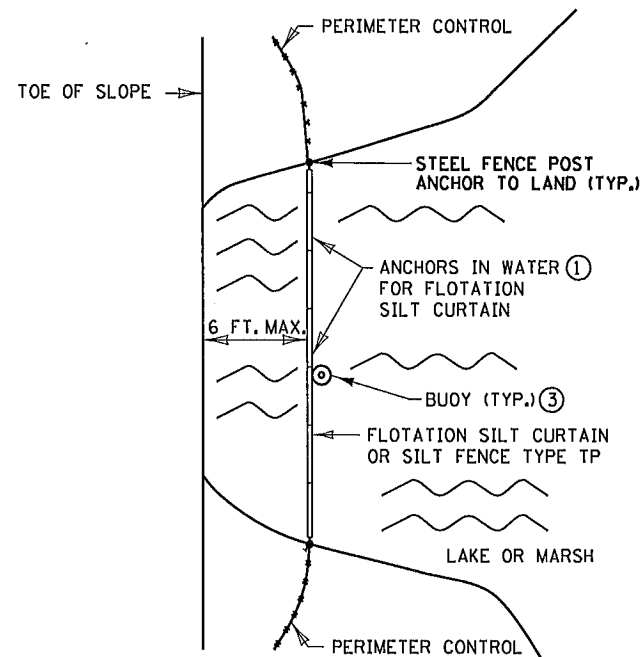
PLAN VIEW FOR STREAM ⑤



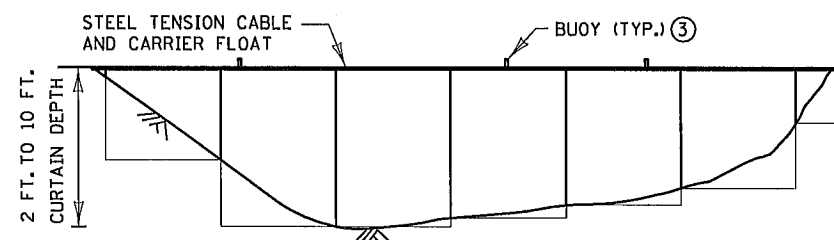
FLOTATION SILT CURTAIN



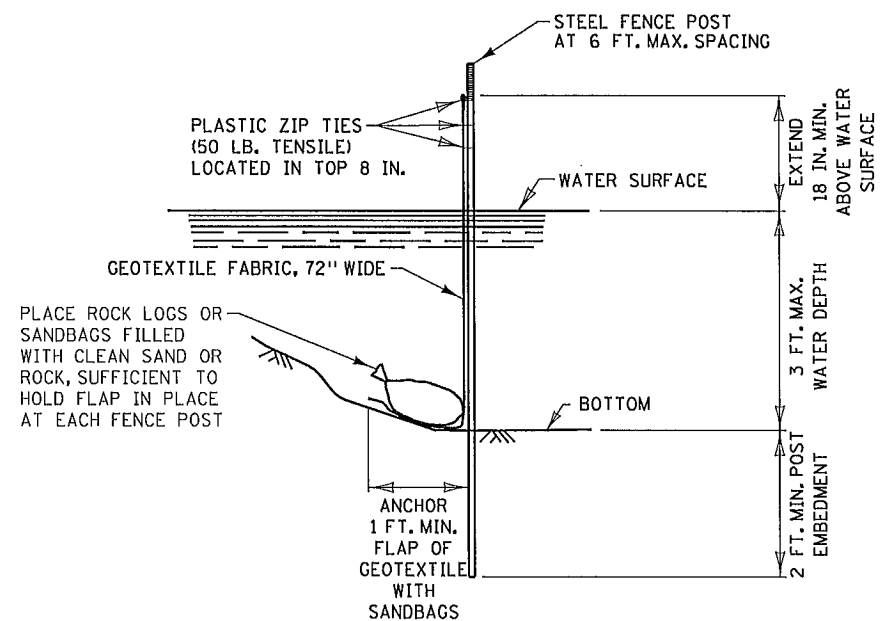
ALTERNATE FLOTATION SILT CURTAIN



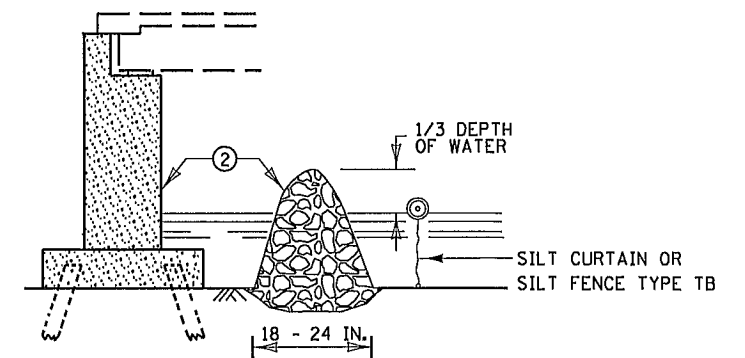
PLAN VIEW FOR LAKE OR MARSH ⑤



FRONT VIEW FOR FLOTATION SILT CURTAIN



SILT FENCE TYPE TB ⑥



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 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 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.

NOTES:

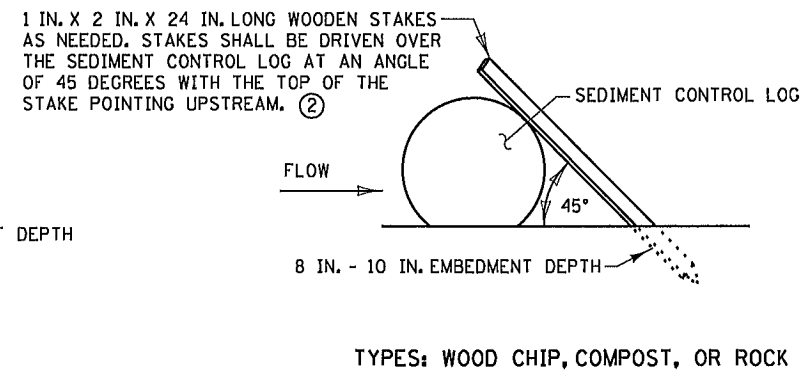
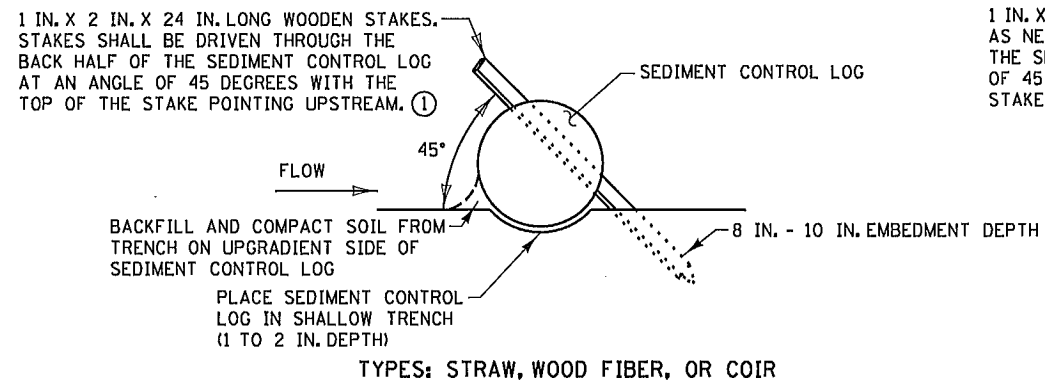
SEE SPECS. 2573, 3886, 3887 & 3893.

- 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.

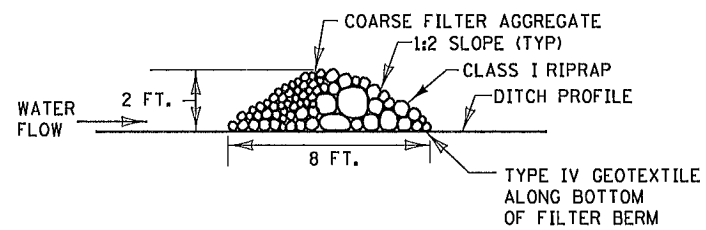
STANDARD SHEET NO.  
 5-297.405 (1 OF 7)  
 STANDARD APPROVED:  
 DECEMBER 11, 2013

TITLE:  
 TEMPORARY SEDIMENT CONTROL  
 SILT CURTAIN OR SILT FENCE TYPE TB

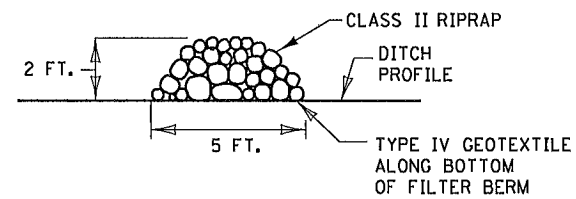




### SEDIMENT CONTROL LOGS

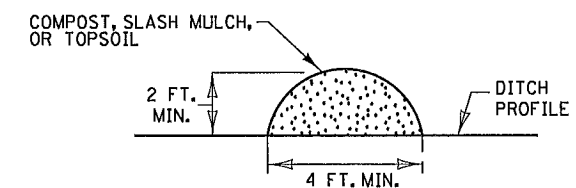


TYPE 3 (ROCK WEEPER)

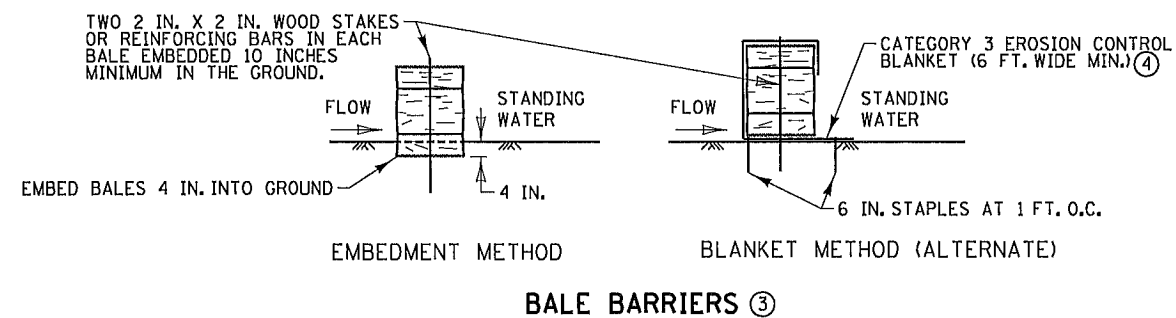


TYPE 5 (ROCK)

### FILTER BERMS



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



### NOTES:

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

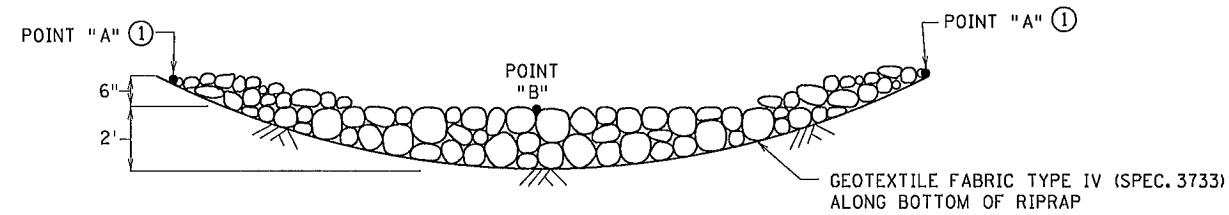
- ① SPACE BETWEEN STAKES SHALL BE A MAXIMUM OF 1 FOOT FOR DITCH CHECKS OR 2 FEET FOR OTHER APPLICATIONS.
- ② PLACE STAKES AS NEEDED TO PREVENT MOVEMENT OF SEDIMENT CONTROL LOGS PLACED ON SLOPES OR AS NEEDED DUE TO OTHER FACTORS. STAKES SHALL BE INCIDENTAL.
- ③ TO BE USED FOR CRITICAL PERIMETER CONTROL 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.

STANDARD SHEET NO.  
5-297.405 (2 OF 7)  
STANDARD APPROVED:  
DECEMBER 11, 2013

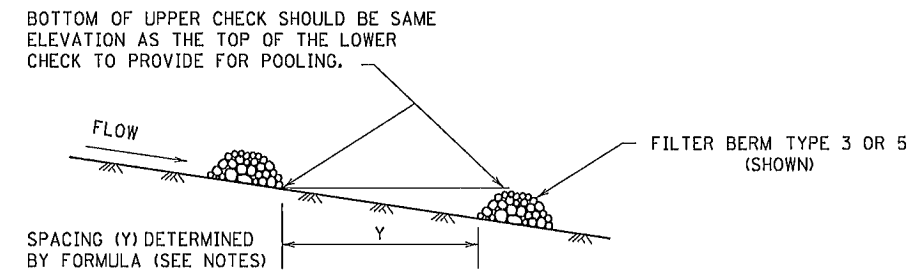
TEMPORARY SEDIMENT CONTROL  
FILTER BERMS, SEDIMENT CONTROL LOGS, AND BALE BARRIERS

STATE PROJ. NO. S.P. 002-651-007

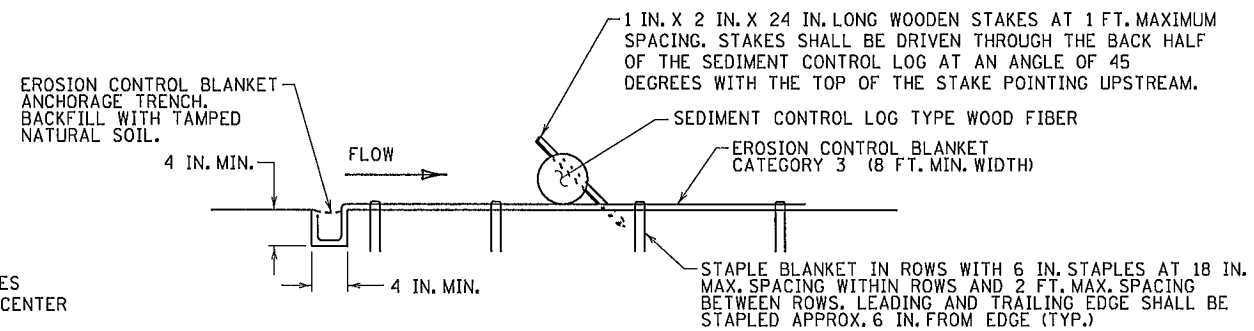
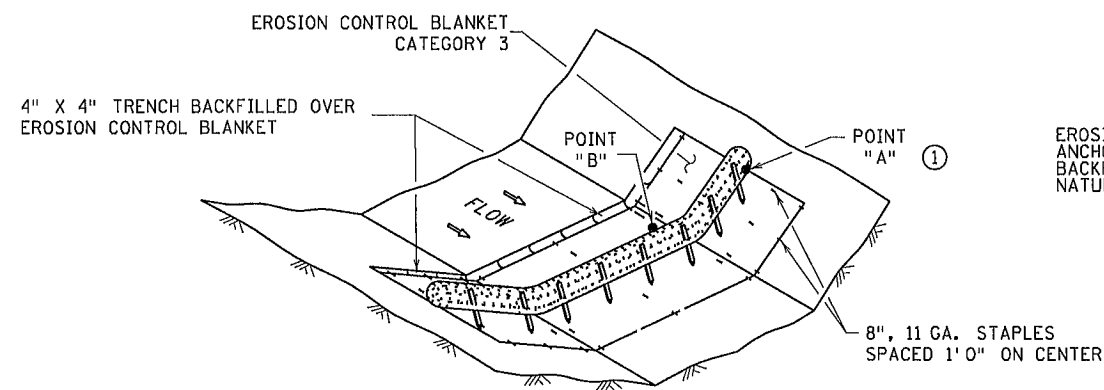
SHEET NO. 201 OF 381 SHEETS



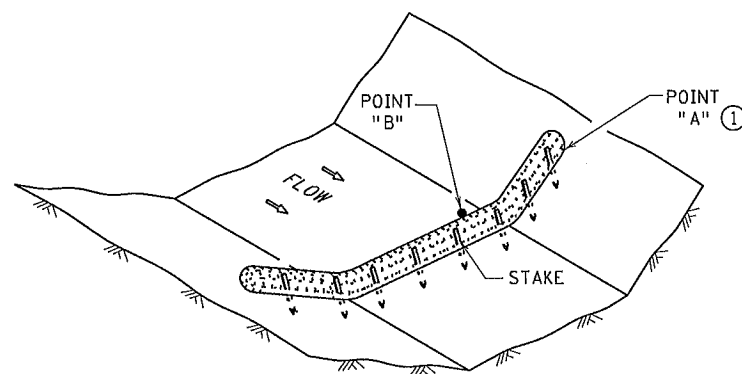
ROCK DITCH CHECKS  
 FILTER BERMS TYPE 3 (ROCK WEEPER) OR FILTER TYPE 5 (ROCK) ②③  
 (FOR USE ON ROUGH GRADED AREAS)



DITCH CHECK SPACING  
 (FOR ALL FILTER BERM TYPES)



SEDIMENT CONTROL LOG TYPE BLANKET SYSTEM ④



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

NOTES:

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

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

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

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

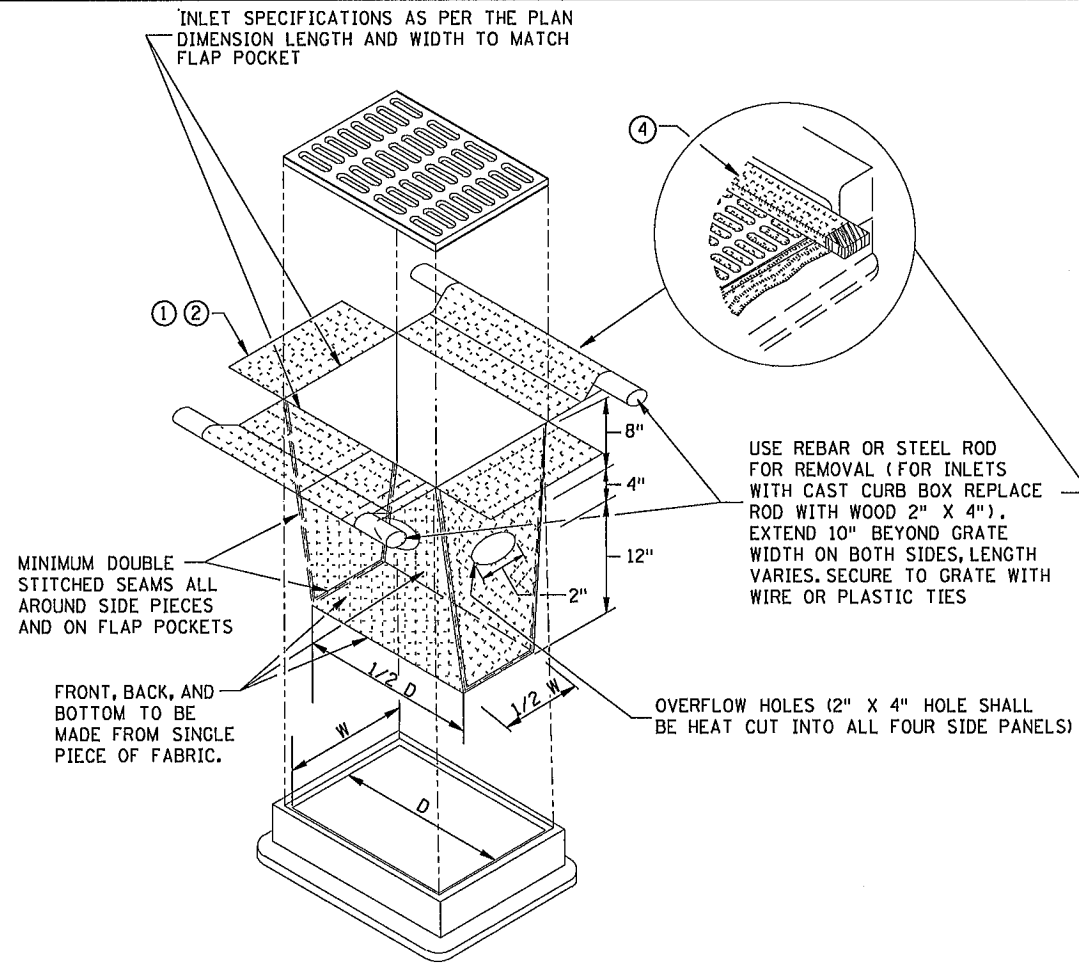
- ① POINT "A" MUST BE A MINIMUM OF 6 INCHES HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.
- ② PERMANENT ROCK DITCH CHECKS PLACED WITHIN THE CLEAR ZONE ARE TO BE 18" OR LESS IN HEIGHT. A 1:6 APPROACH AND DEPARTURE SLOPE SHALL BE PROVIDED.
- ③ DITCH GRADE 3% -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

STANDARD SHEET NO.  
 5-297.405 ( 3 OF 7 )  
 STANDARD APPROVED:  
 DECEMBER 11, 2013

TEMPORARY SEDIMENT CONTROL  
 DITCH CHECK

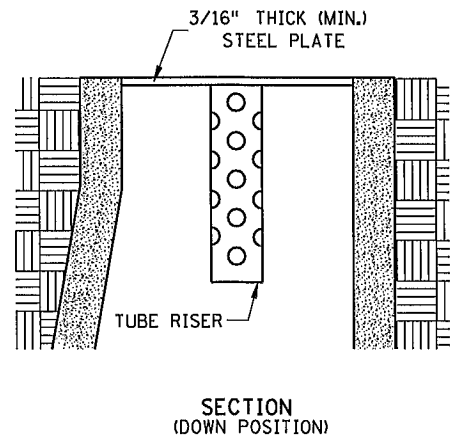
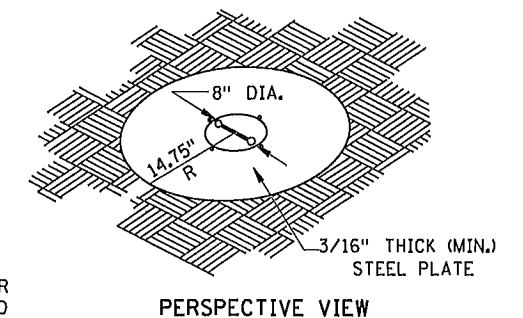
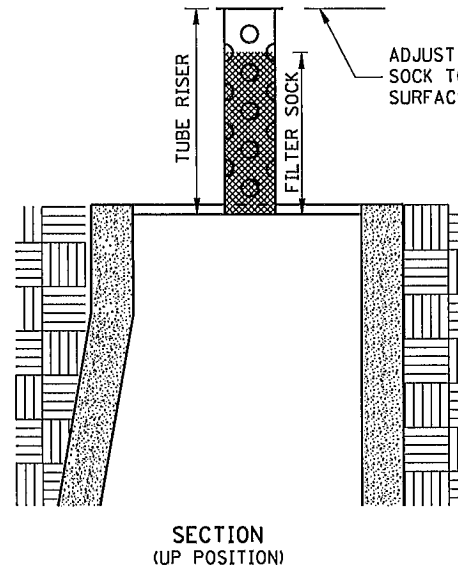
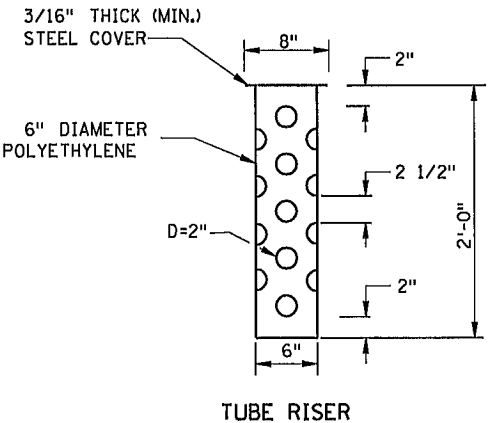
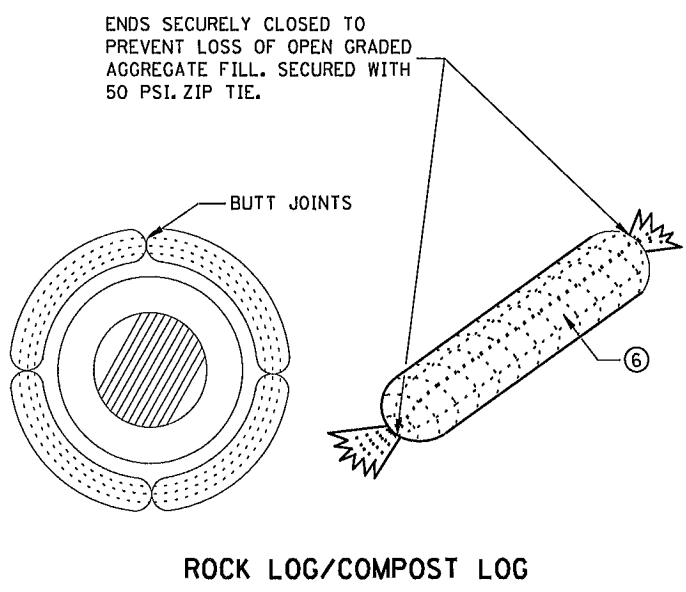
STATE PROJ. NO. S.P. 002-651-007

SHEET NO. 202 OF 381 SHEETS

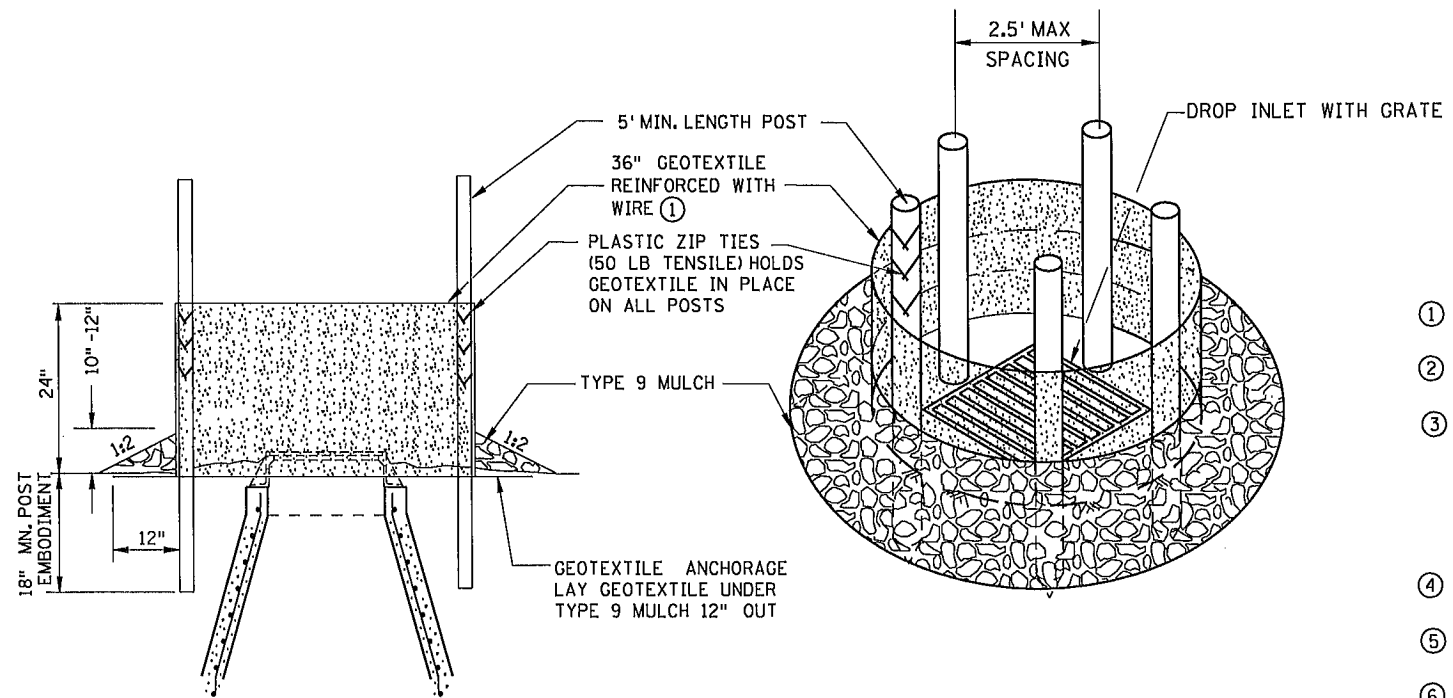


**FILTER BAG INSERT ③**

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

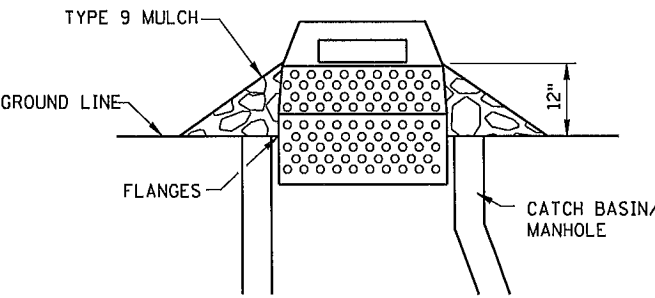


**POP-UP HEAD**



**SILT FENCE RING AND ROCK FILTER BERM**

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



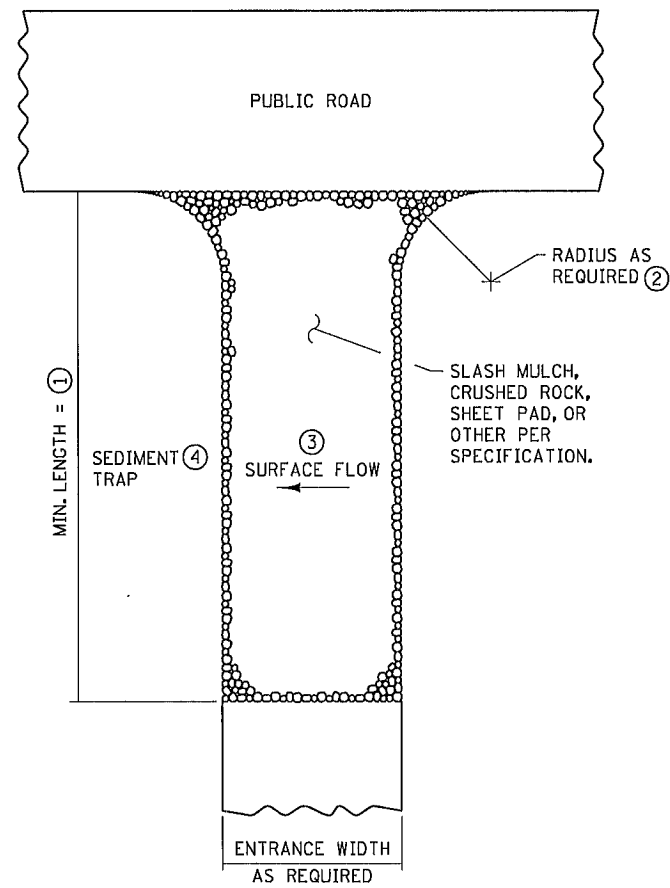
**SEDIMENT CONTROL INLET HAT**

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.

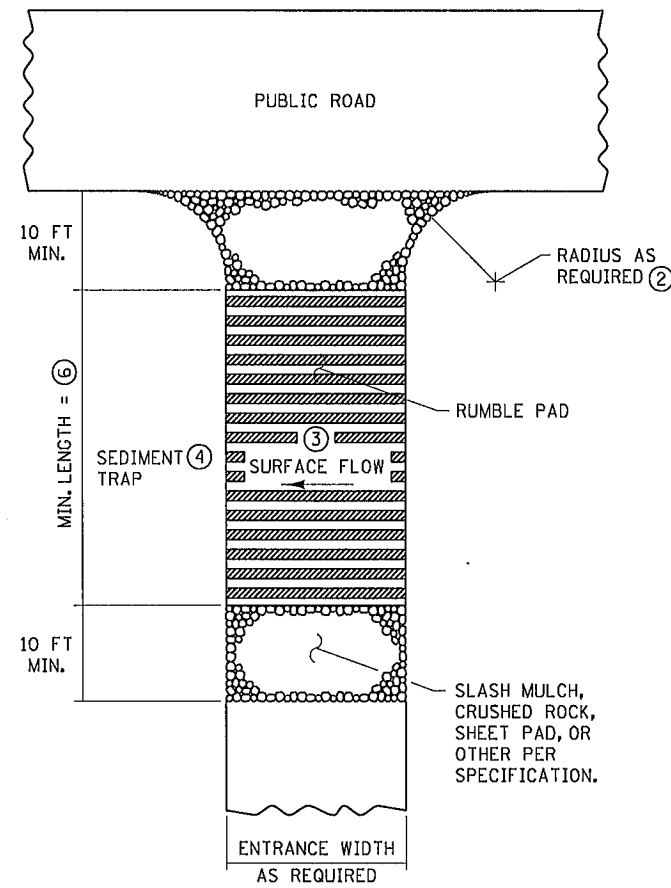
**NOTES:**

- 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.

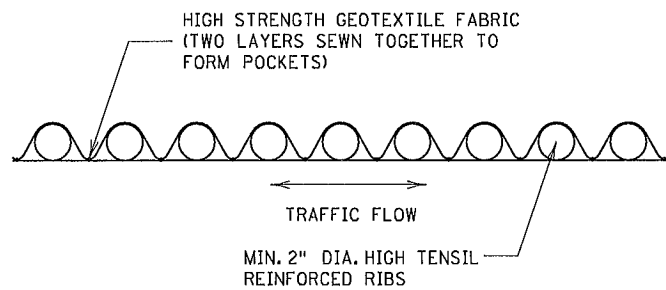
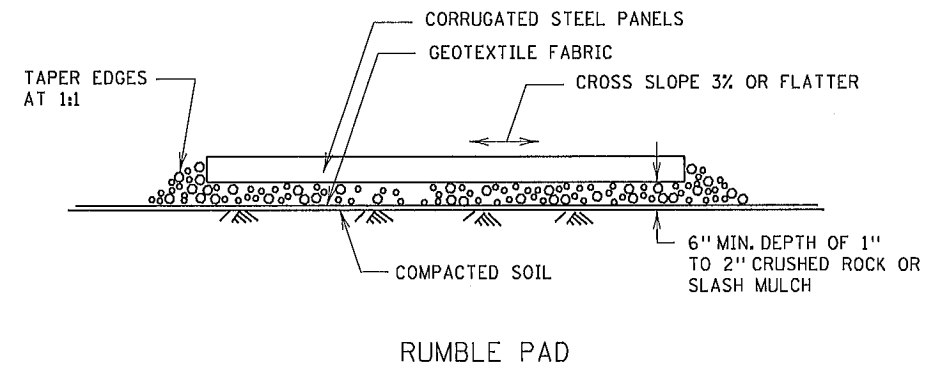
STANDARD SHEET NO. 5-297.405 (4 OF 7)	TITLE: <b>TEMPORARY SEDIMENT CONTROL STORM DRAIN INLET PROTECTION</b>
STANDARD APPROVED: DECEMBER 11, 2013	
STATE PROJ. NO. S.P. 002-651-007	SHEET NO. 203 OF 381 SHEETS



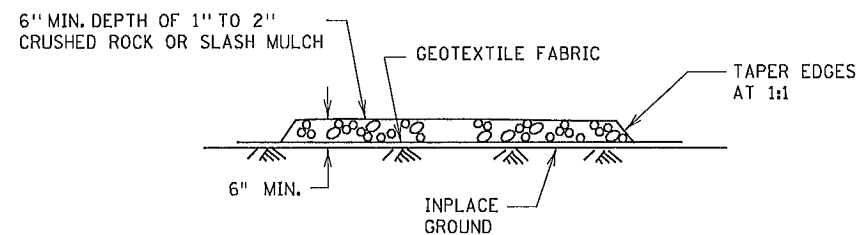
SLASH MULCH, CRUSHED ROCK, OR SHEET PAD CONSTRUCTION EXIT ⑤⑦



RUMBLE PAD CONSTRUCTION EXIT ⑤⑦



SHEET PAD

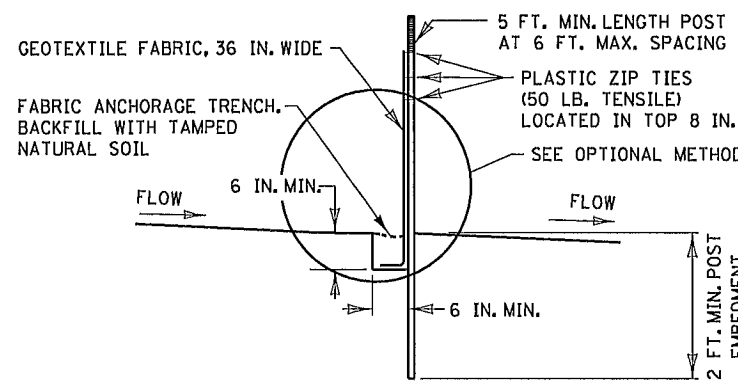


SLASH MULCH OR CRUSHED ROCK

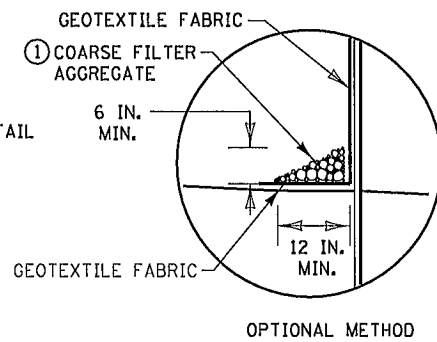
NOTES:

- SEE SPECS. 2573 & 3882.
- ① MINIMUM LENGTH SHALL BE THE GREATER OF 50 FEET OR A LENGTH SUFFICIENT TO ALLOW A MINIMUM OF 5 TIRE ROTATIONS ON THE PROVIDED PAD. MINIMUM LENGTH SHALL BE CALCULATED USING THE LARGEST TIRE WHICH WILL BE USED IN TYPICAL OPERATIONS.
  - ② PROVIDE RADIUS OR WIDEN PAD SUFFICIENTLY TO PREVENT VEHICLE TIRES FROM TRACKING OFF OF PAD WHEN LEAVING SITE.
  - ③ IF RUNOFF FROM DISTURBED AREAS FLOWS TOWARD CONSTRUCTION EXITS, PREVENT RUNOFF FROM DRAINING DIRECTLY TO PUBLIC ROAD OVER CONSTRUCTION EXIT BY CROWNING THE EXIT OR SLOPING TO ONE SIDE. IF SURFACE GRADING IS INSUFFICIENT, PROVIDE OTHER MEANS OF INTERCEPTING RUNOFF.
  - ④ IF RUNOFF FROM CONSTRUCTION EXITS WILL DRAIN OFF OF PROJECT SITE, PROVIDE SEDIMENT TRAP WITH STABILIZED OVERFLOW.
  - ⑤ IF A TIRE WASH OFF IS REQUIRED THE CONSTRUCTION EXITS SHALL BE GRADED TO DRAIN THE WASH WATER TO A SEDIMENT TRAP.
  - ⑥ MINIMUM LENGTH OF RUMBLE PAD SHALL BE 20 FEET, OR AS REQUIRED TO REMOVE SEDIMENT FROM TIRES. IF SIGNIFICANT SEDIMENT IS TRACKED FROM THE SITE, THE RUMBLE PAD SHALL BE LENGTHENED OR THE DESIGN MODIFIED TO PROVIDE ADDITIONAL VIBRATION. WASH-OFF LENGTH SHALL BE AS REQUIRED TO EFFECTIVELY REMOVE CONSTRUCTION SEDIMENT FROM VEHICLE TIRES.
  - ⑦ MAINTENANCE OF CONSTRUCTION EXITS SHALL OCCUR WHEN THE EFFECTIVENESS OF SEDIMENT REMOVAL HAS BEEN REDUCED. MAINTENANCE SHALL CONSIST OF REMOVING SEDIMENT AND CLEANING THE MATERIALS OR PLACING ADDITIONAL MATERIAL (SLASH MULCH OR CRUSHED ROCK) OVER SEDIMENT FILLED MATERIAL TO RESTORE EFFECTIVENESS.

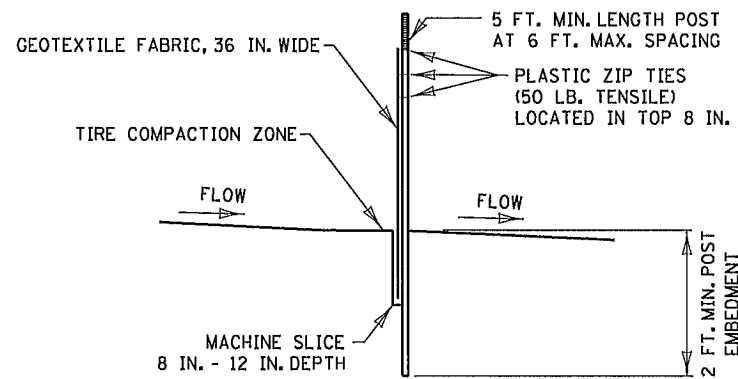
STANDARD SHEET NO. 5-297.405 (5 OF 7)	TITLE: <b>TEMPORARY SEDIMENT CONTROL CONSTRUCTION EXITS</b>
STANDARD APPROVED: DECEMBER 11, 2013	
STATE PROJ. NO. S.P. 002-651-007	SHEET NO. 204 OF 381 SHEETS



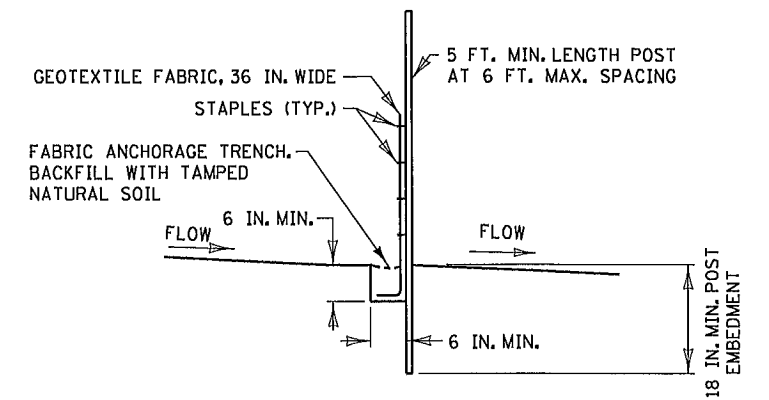
**SILTS FENCE TYPE HI ②  
(HAND INSTALLED)**



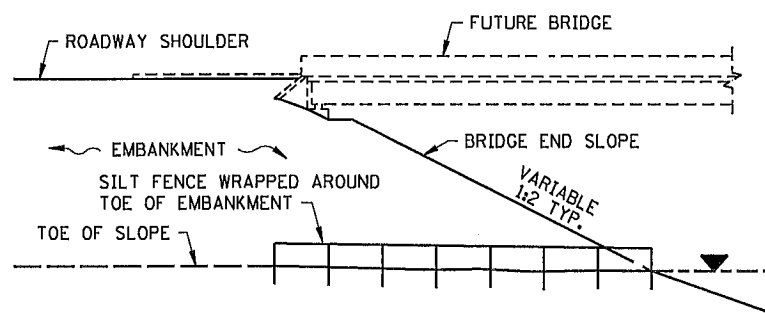
**OPTIONAL METHOD**



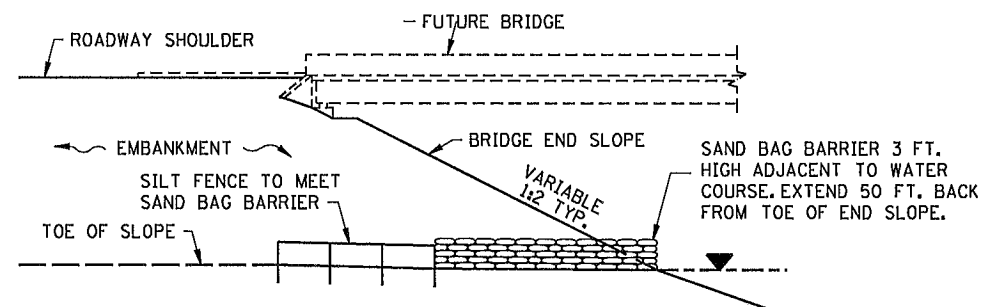
**SILTS FENCE TYPE MS ②  
(MACHINE SLICED)**



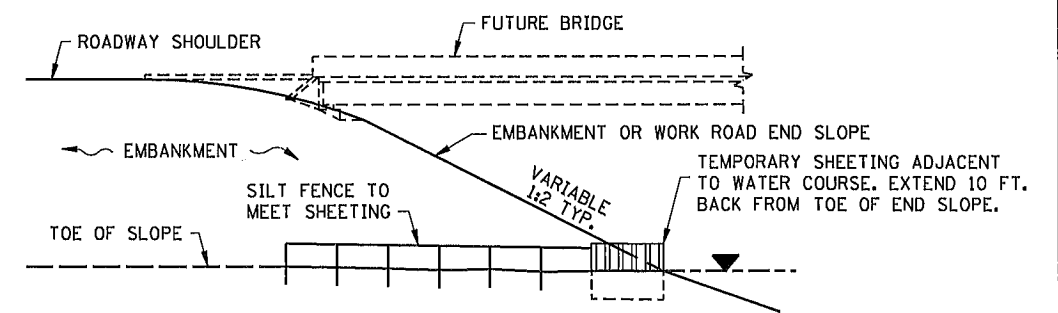
**SILTS FENCE TYPE PA ③  
(PREASSEMBLED)**



**SILTS FENCE ONLY ④**

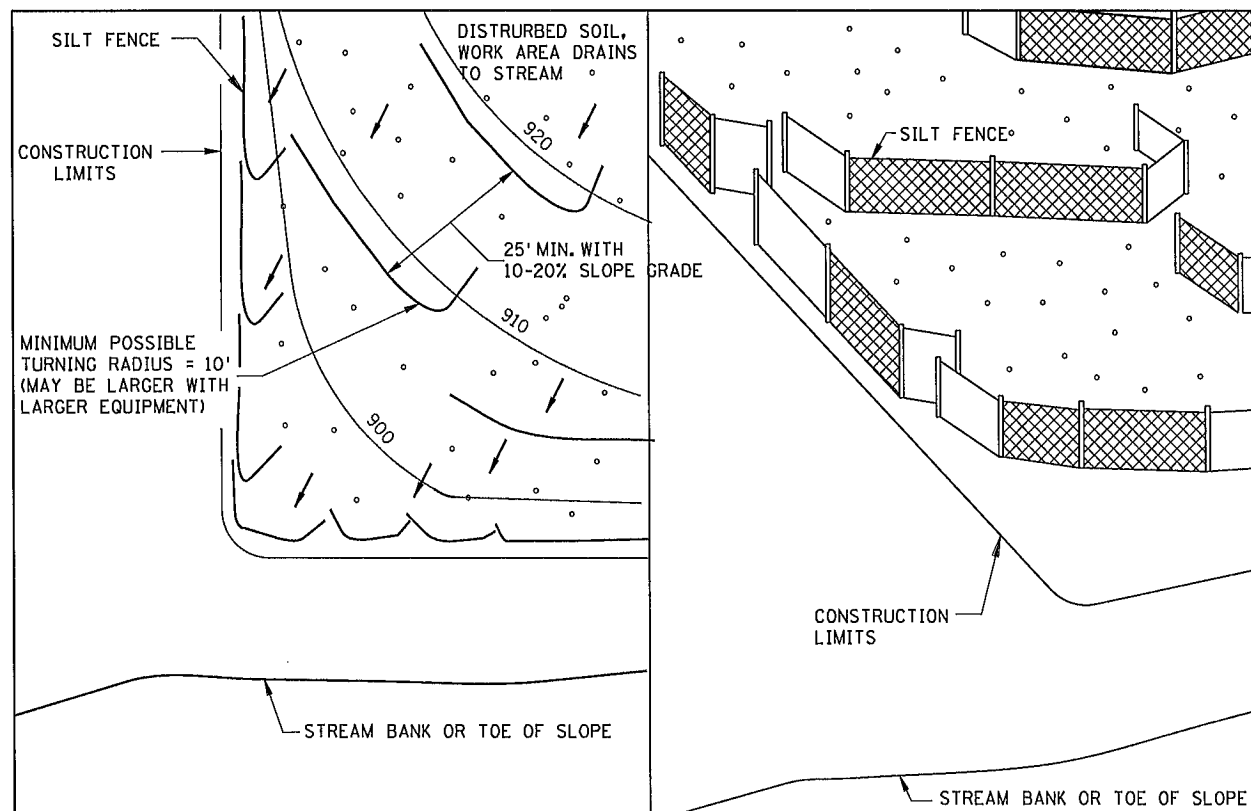


**SILTS FENCE WITH SAND BAGS ⑤**



**SILTS FENCE WITH SHEETING ⑥**

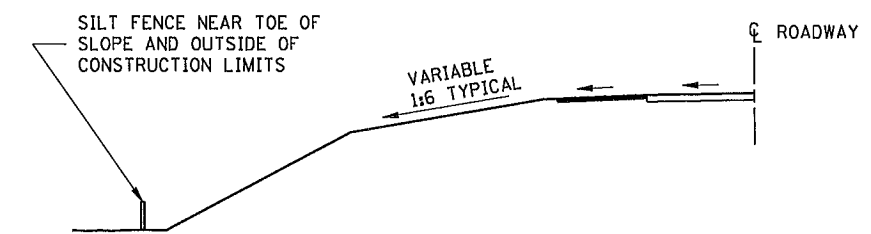
**INSTALLATION AT BRIDGE EMBANKMENT ADJACENT TO WATER**



**PLAN VIEW**

**PERSPECTIVE VIEW**

**J-HOOK INSTALLATION**

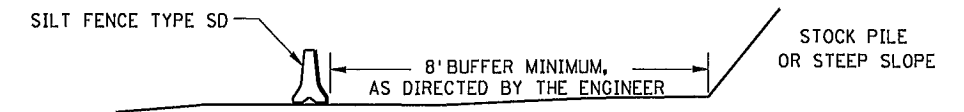
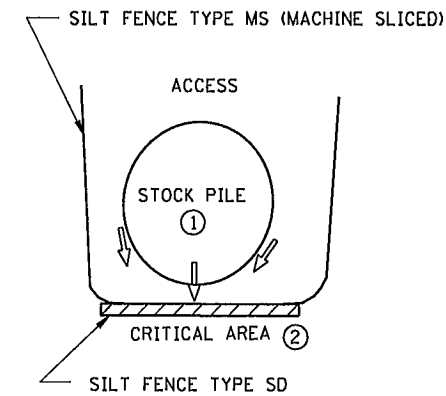
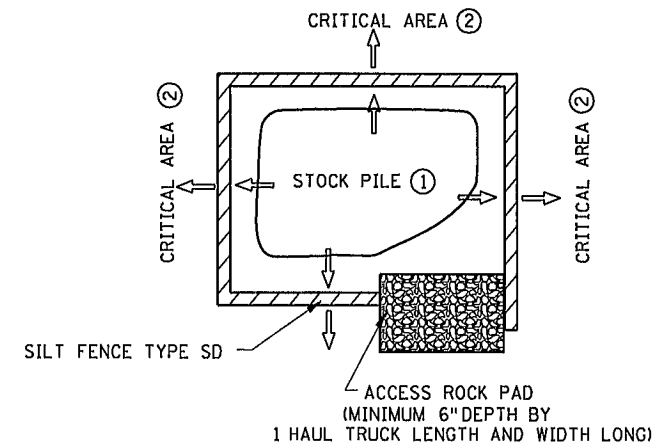
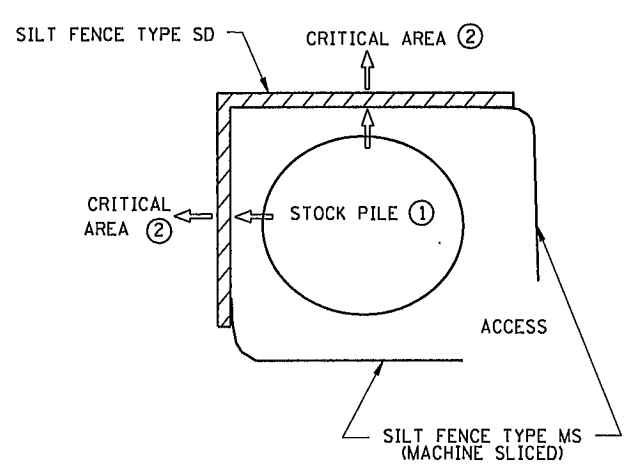


**LOCATION AT TOE OF ROADWAY EMBANKMENT**

**NOTES:**

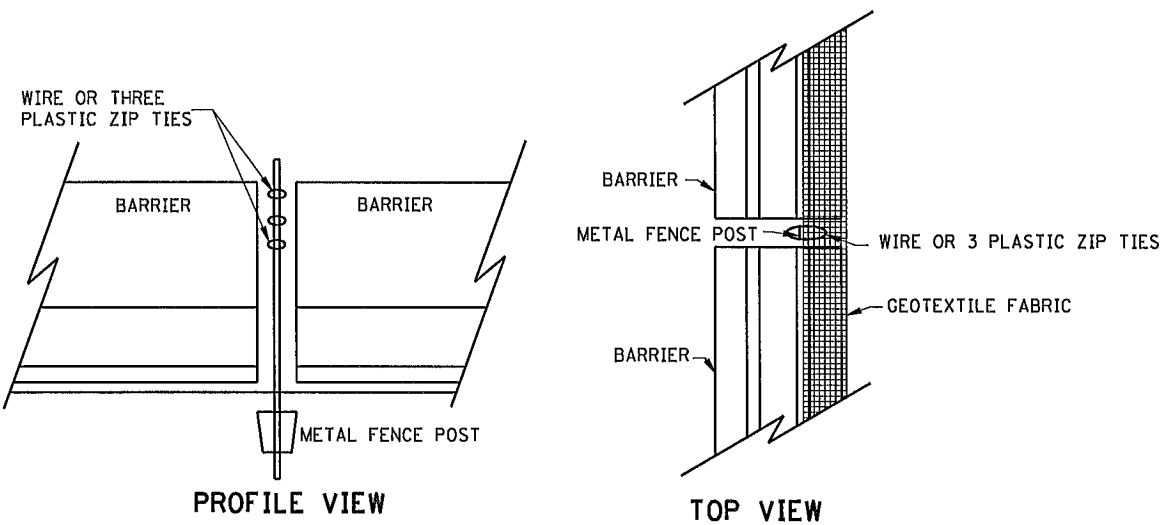
- SEE SPECS. 2573, 3149 & 3886.
- ① COARSE FILTER AGGREGATE (SPEC. 3149) SHALL BE INCIDENTAL.
- ② TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 1 ACRE.
- ③ TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 0.25 ACRE.
- ④ WATER COURSE FLOW VELOCITY: STANDING. CONTRIBUTING SLOPE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

STANDARD SHEET NO. 5-297.405 (6 OF 7)	TITLE: <b>TEMPORARY SEDIMENT CONTROL SILTS FENCE</b>
STANDARD APPROVED: DECEMBER 11, 2013	
STATE PROJ. NO. S.P. 002-651-007	SHEET NO. 205 OF 381 SHEETS

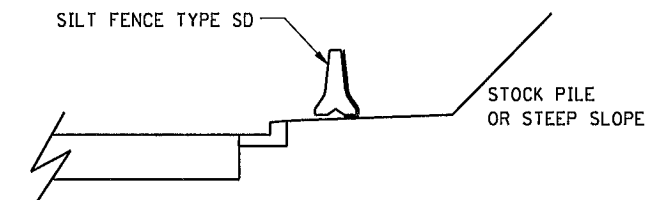


**STOCKPILE SEDIMENT CONTROL**

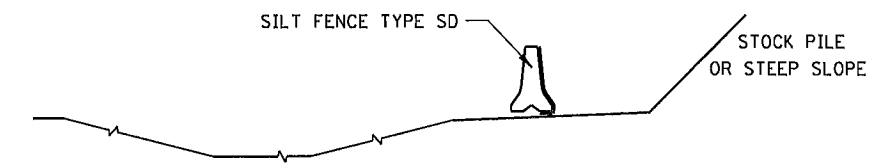
**STOCK PILE CONTAINMENT**



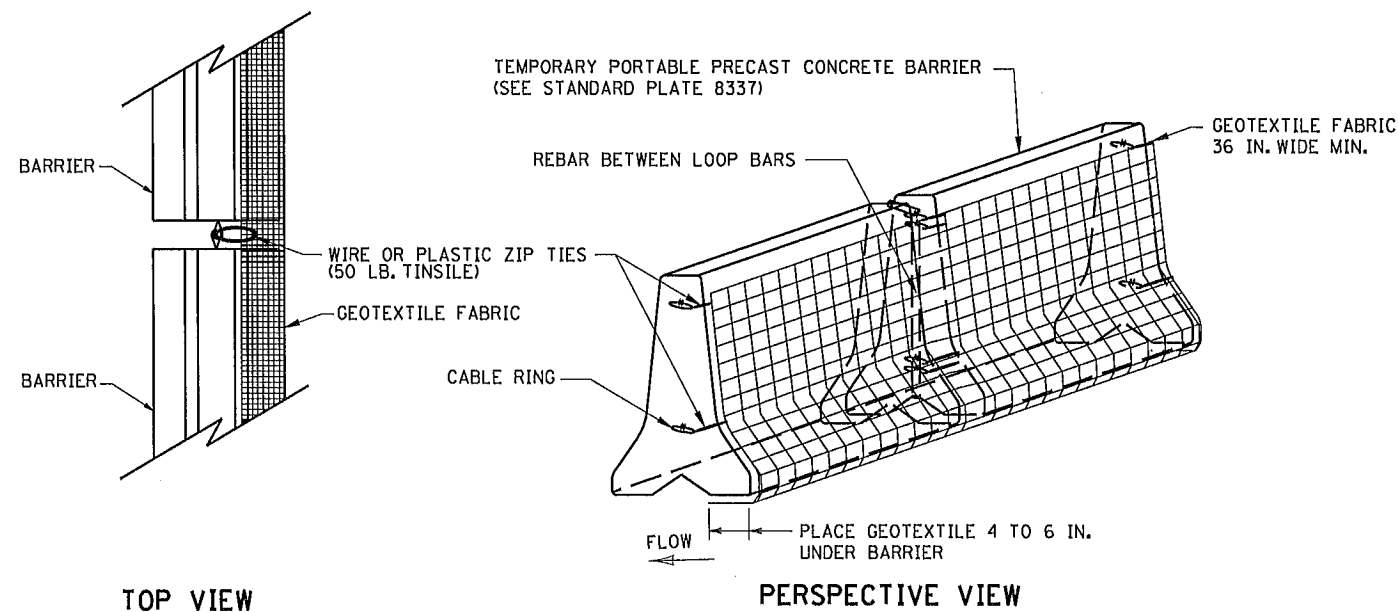
**SILT FENCE TYPE SD (SUPER DUTY) BARRIER WITHOUT LOOP BARS**



**CURB AND GUTTER PROTECTION SYSTEM**



**DITCH PROTECTION SYSTEM**



**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 INSTALLED. 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.

STANDARD SHEET NO.  
5-297.405 (7 OF 7)  
STANDARD APPROVED:  
DECEMBER 11, 2013

TITLE:  
**TEMPORARY SEDIMENT CONTROL  
SUPER DUTY SILT FENCE**

STATE PROJ. NO. S.P. 002-651-007

SHEET NO. 206 OF 381 SHEETS

**PERMANENT PAVEMENT MARKING PLAN**  
NOTES AND GUIDELINES

**GENERAL INFORMATION:**

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

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

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

**EPOXY:**

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

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

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

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

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

**PREFORMED THERMOPLASTIC:**

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

**PAINT:**

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

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

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

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

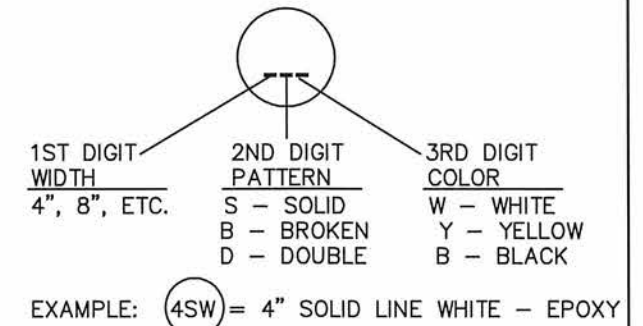
PERMANENT PAVEMENT MARKING TABULATION		
ITEM	UNIT	TOTAL QUANTITY
PAVEMENT MESSAGE (LT ARROW) PREFORMED THERMOPLASTIC	EACH	20
PAVEMENT MESSAGE (LT-THRU ARROW) PREFORMED THERMOPLASTIC	EACH	2
PAVEMENT MESSAGE (RT ARROW) PREFORMED THERMOPLASTIC	EACH	18
24" SOLID LINE WHITE - PREFORMED THERMOPLASTIC	LIN FT	513
4" SOLID LINE WHITE - EPOXY	LIN FT	29736
4" SOLID LINE YELLOW - EPOXY	LIN FT	18560
4" BROKEN LINE WHITE - EPOXY (10' STRIPE, 40' SKIP)	LIN FT	3880
3'X6' THERMOPLASTIC ZEBRA CROSSWALK	SQ FT	3078
4" DOUBLE SOLID LINE YELLOW - EPOXY	LIN FT	350

**SYMBOLS & MATERIALS LEGEND**

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

**STRIPING KEY**

- CIRCLE - EPOXY    □ SQUARE - POLY PREFORM
- △ TRIANGLE - PAINT
- ⬠ PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING



NO	DATE	BY	CKD	APPR	REVISION

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 PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE: *Curt Kobilarcsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: RLB DATE 08/08/13  
 DESIGN BY: RLB DATE 08/08/13  
 CHECKED BY: JR DATE 08/08/13



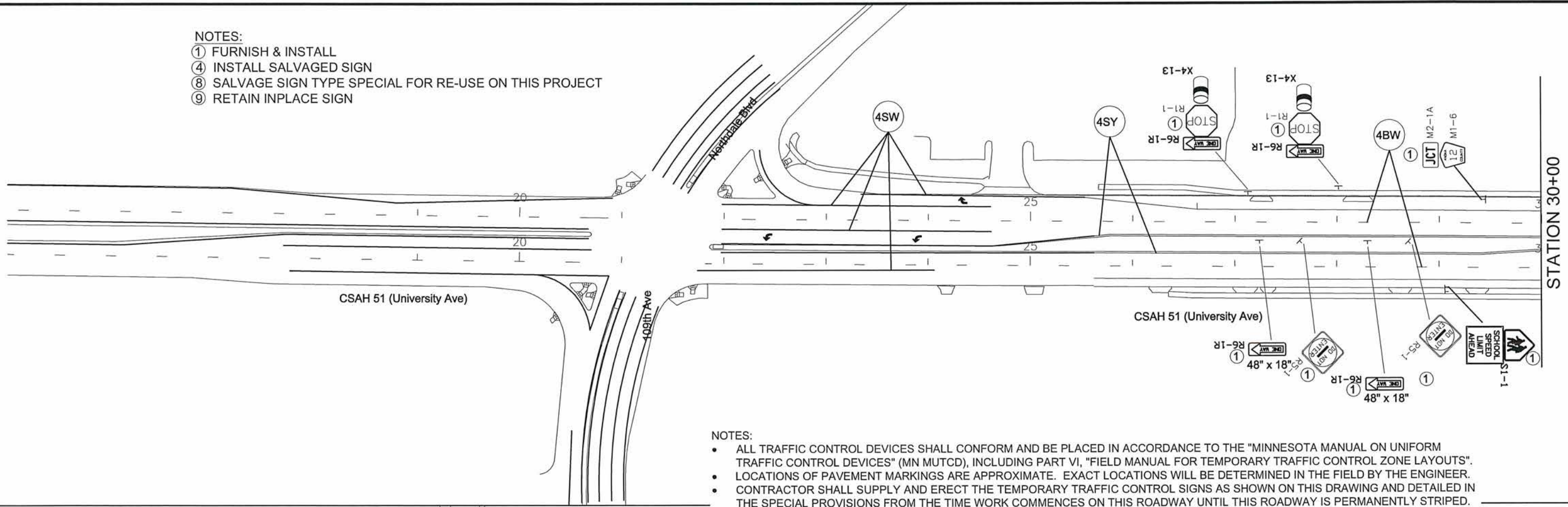
**ANOKA COUNTY**  
**HIGHWAY DEPT.**

STATE PROJECT NO. 02-651-07  
 STATE PROJECT NO. 106-020-031  
 STATE PROJECT NO. 114-020-046  
 COUNTY PROJECT NO. \_\_\_\_\_

PERMANENT MARKING TABULATION  
 Sheet 207 of 381 Sheets

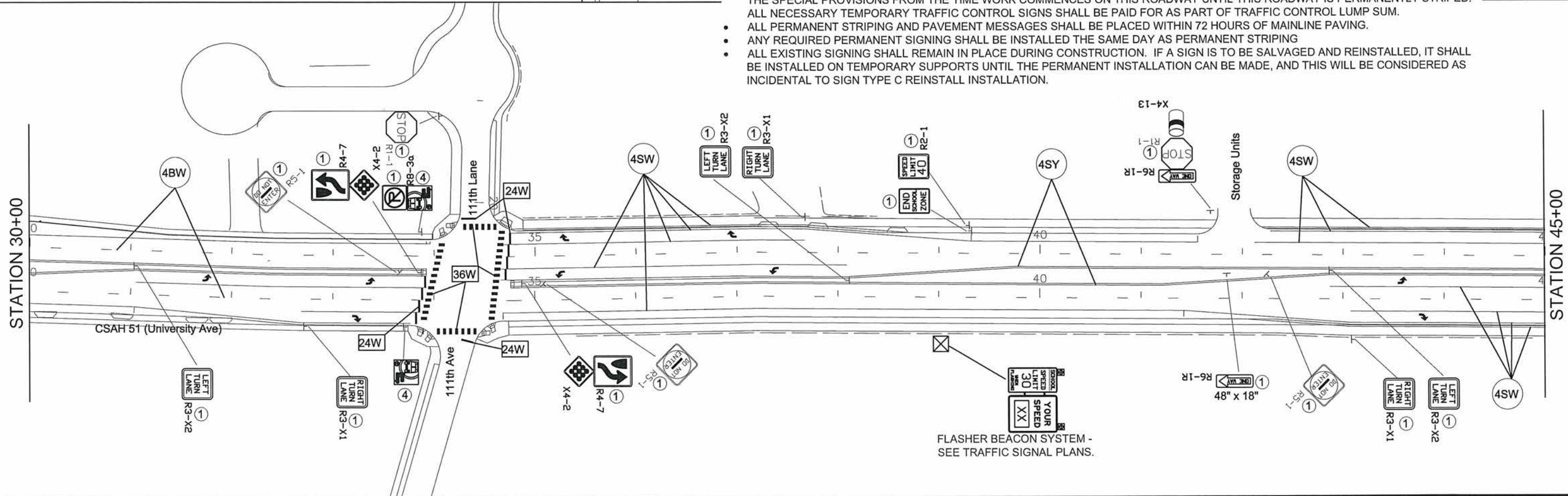
NOTES:

- ① FURNISH & INSTALL
- ④ INSTALL SALVAGED SIGN
- ⑧ SALVAGE SIGN TYPE SPECIAL FOR RE-USE ON THIS PROJECT
- ⑨ RETAIN INPLACE SIGN



NOTES:

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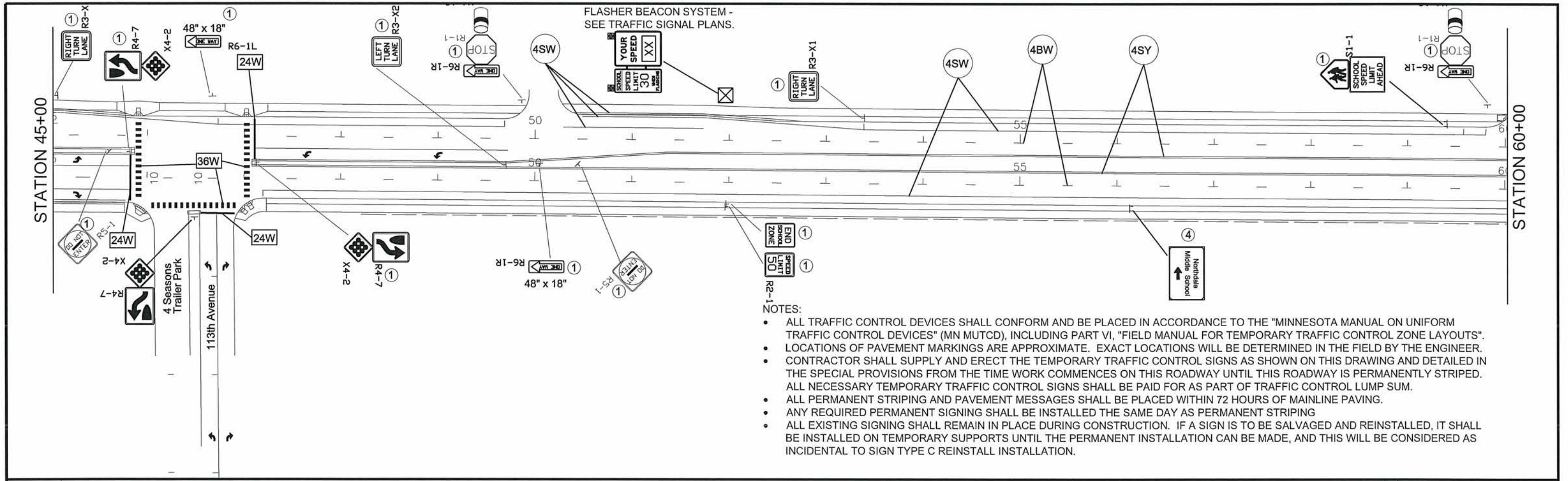
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PERMANENT SIGNING &  
 STRIPING PLAN  
 Sheet 208 of 381 Sheets

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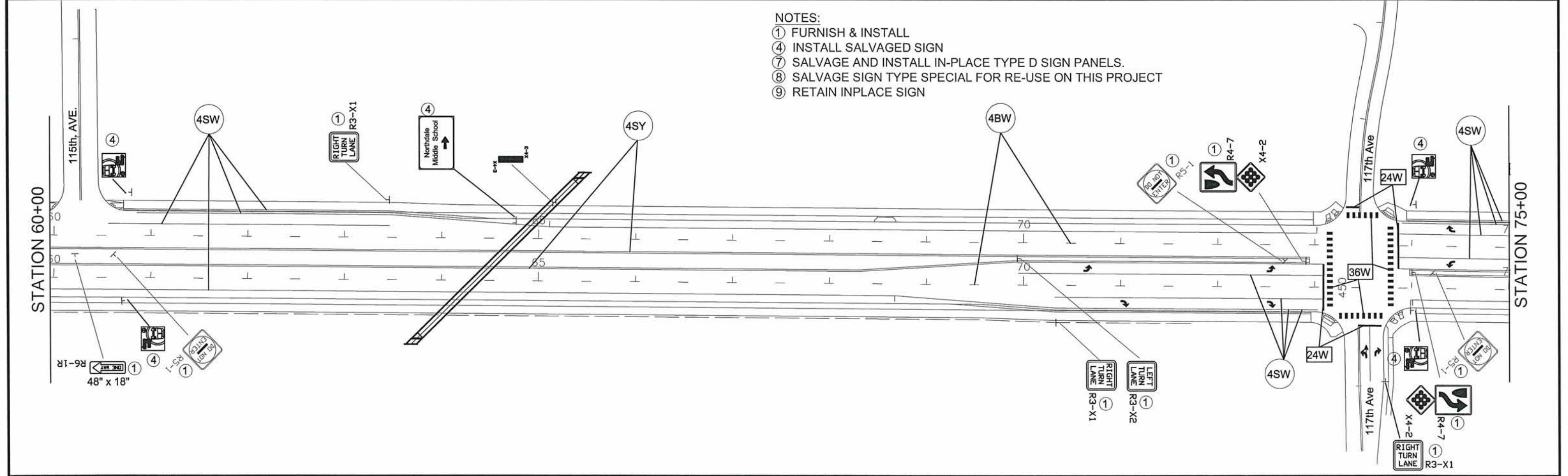
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- ⑦ SALVAGE AND INSTALL IN-PLACE TYPE D SIGN PANELS.
- ⑧ SALVAGE SIGN TYPE SPECIAL FOR RE-USE ON THIS PROJECT
- ⑨ RETAIN INPLACE SIGN

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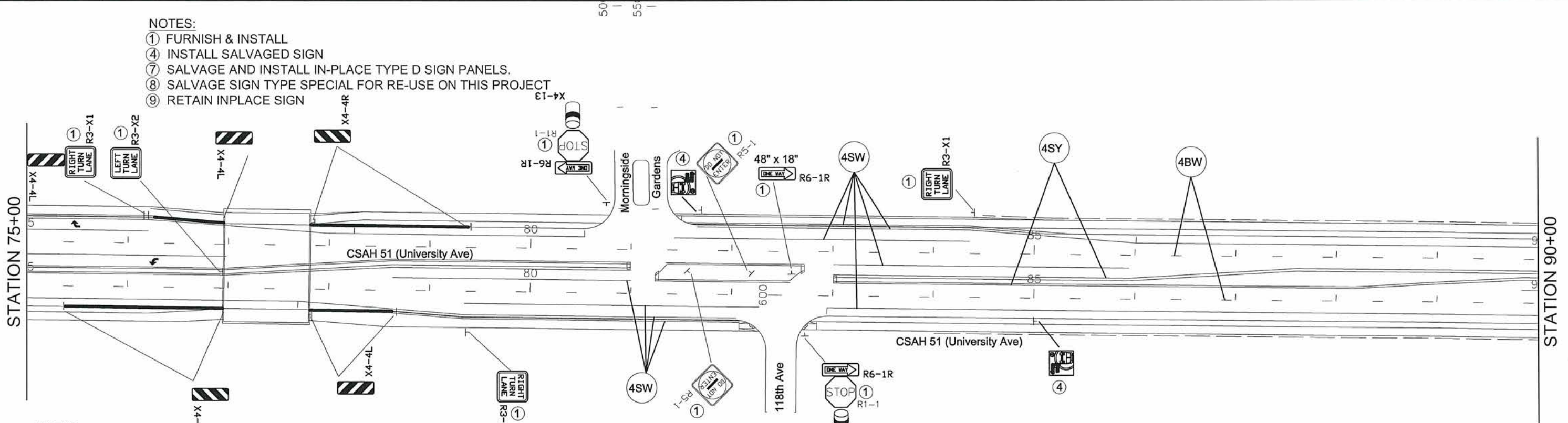
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PERMANENT SIGNING &  
 STRIPING PLAN  
 Sheet 209 of 381 Sheets

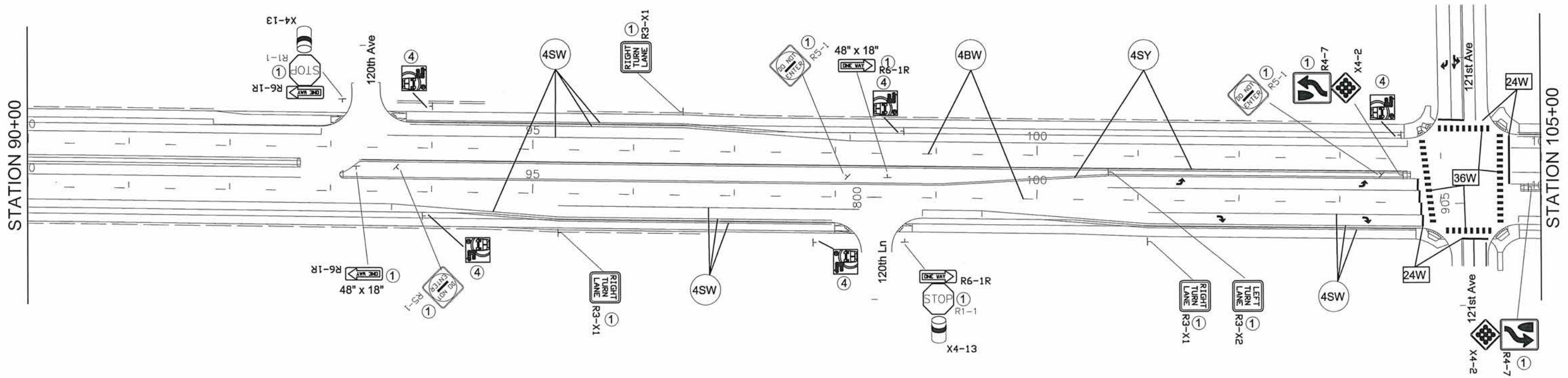
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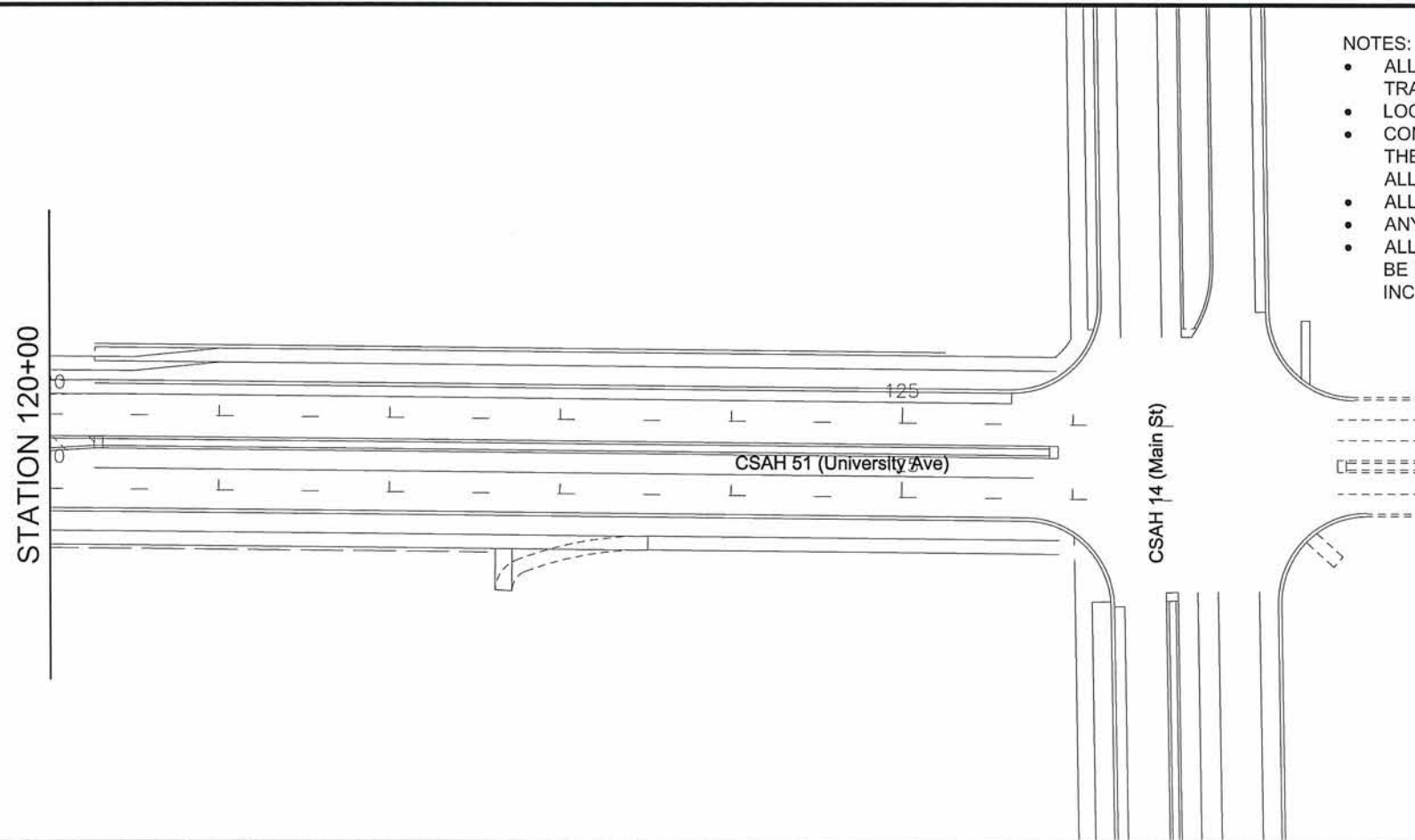
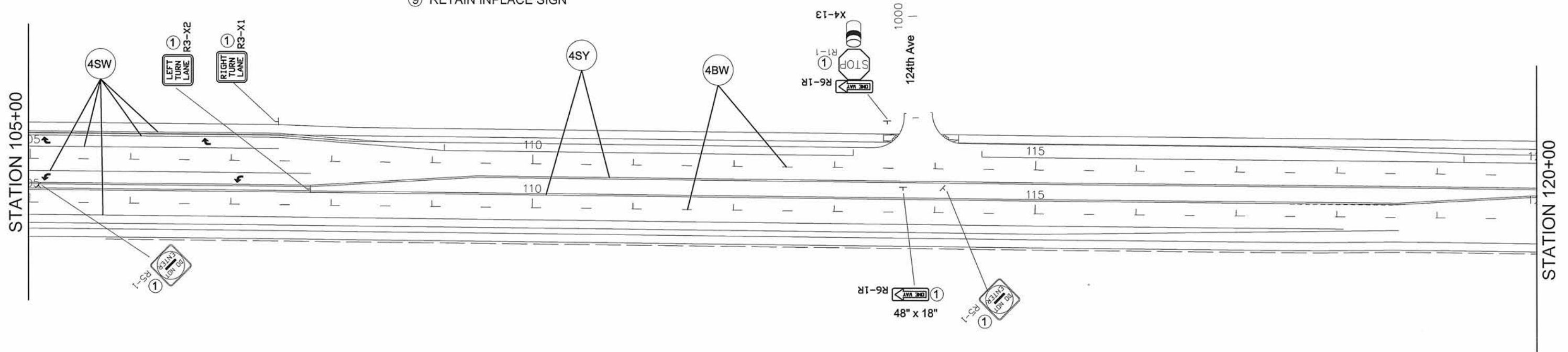


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PERMANENT SIGNING &  
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 Sheet 210 of 381 Sheets

- NOTES:
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STATE PROJECT NO. 114-020-046  
COUNTY PROJECT NO.

PERMANENT SIGNING & STRIPING PLAN

Sheet 211 of 381 Sheets

SIGN PANELS TYPE C							
M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY	SQ FT PANEL AREA	SQ FT TOTAL AREA	MOUNTING POST PER INSTALLATION	MOUNTING HEIGHT
R6-1R	12" x 36"		10	3.00	30.00		
R1-1	30" x 30"		11	6.25	68.75	1	7.0'
X4-13	4" diameter x 15"		10	1.31	0		
R2-1	24" x 30"		1	5.00	5.00	1	7.0'
R2-1	24" x 30"		1	5.00	5.00	1	7.0'
R3-X1	30" x 30"		15	6.25	93.75	1	7.0'
R3-X2	30" x 30"		8	6.25	50.00	1	7.0'
R4-7	24" x 30"		9	5.00	45.00	1	7.0'
X4-2	18" x 18"		9	2.25	0		
R5-1	30" x 30"		17	6.25	106.25	1	7.0'
R6-1L	18" x 48"		2	6.00	12.00	2	7.0'
R6-1R	18" x 48"		9	6.00	60.00	2	7.0'
S1-1	36" x 36"		2	9.00	18.00	2	7.0'

SIGN PANELS TYPE C							
M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY	SQ FT PANEL AREA	SQ FT TOTAL AREA	MOUNTING POST PER INSTALLATION	MOUNTING HEIGHT
S4-5	36" x 36"		2	9.00	18.00		7.0'
S5-2	24" x 30"		2	5.00	10.00	1	7.0'
M2-1	21" x 15"		1	2.19	2.19		
M1-6	24" x 24"		1	4.00	4.00	1	7.0'
R8-3a	24" x 24"		1	4.00	4.00	1	7.0'
X4-4R	12" x 36"		4	3.00	12.00	1	7.0'
X4-4L	12" x 36"		4	3.00	12.00	1	7.0'
X4-3	6" x 12"		2	0.50	1.00	1	7.0'
Projects Totals			120		544.94		

NOTES:

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

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Basel\TRAFFIC\0265107\_PERMANENT SIGNING & STRIPING.dwg

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A. KOBILARCSIK  
 SIGNATURE:   
 DATE: 6-9-14 REG. NO. 24756

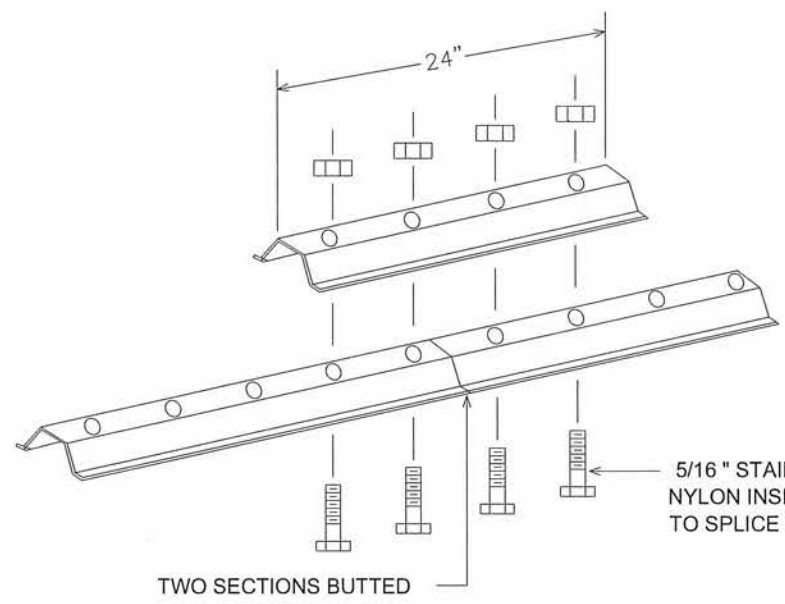
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 DESIGN BY: RLB DATE 1/21/14  
 CHECKED BY: JR DATE 1/21/14



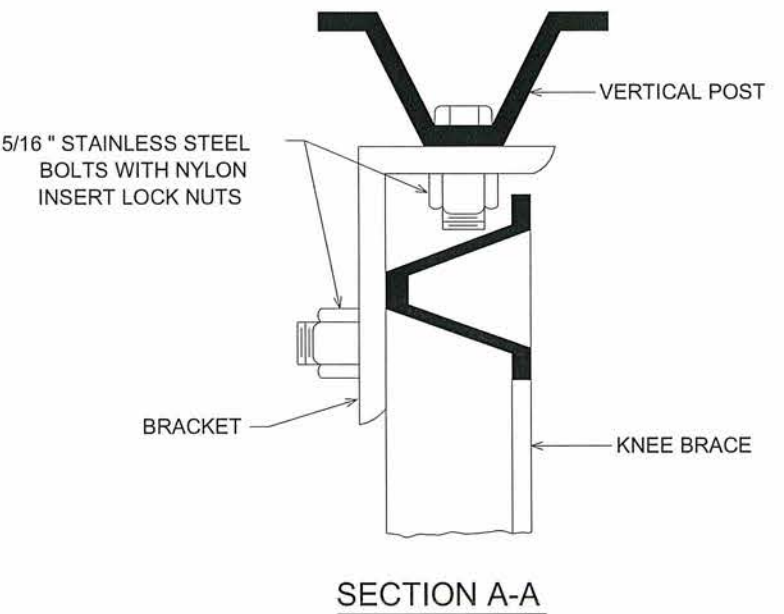
ANOKA COUNTY  
 HIGHWAY DEPT.

STATE PROJECT NO. 02-651-07  
 STATE PROJECT NO. 106-020-031  
 STATE PROJECT NO. 114-020-046  
 COUNTY PROJECT NO.

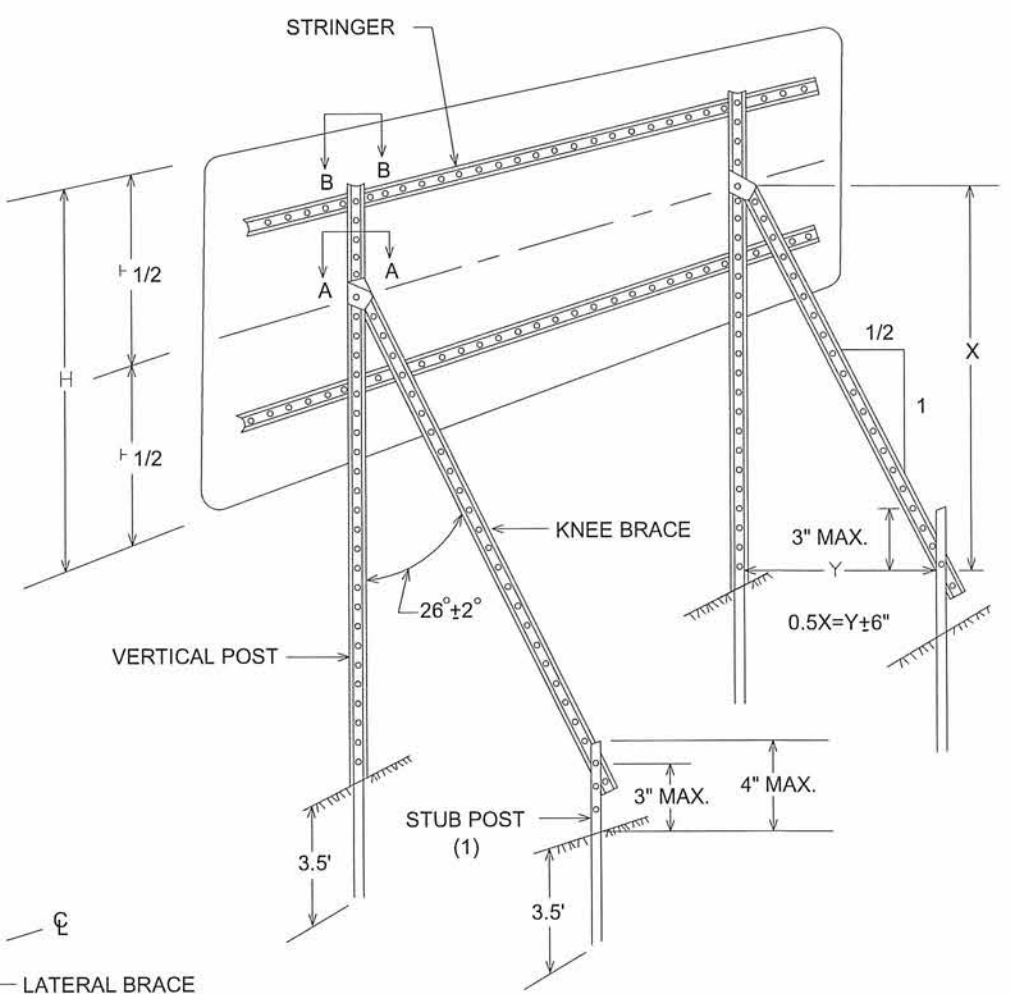
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 QUANTITY



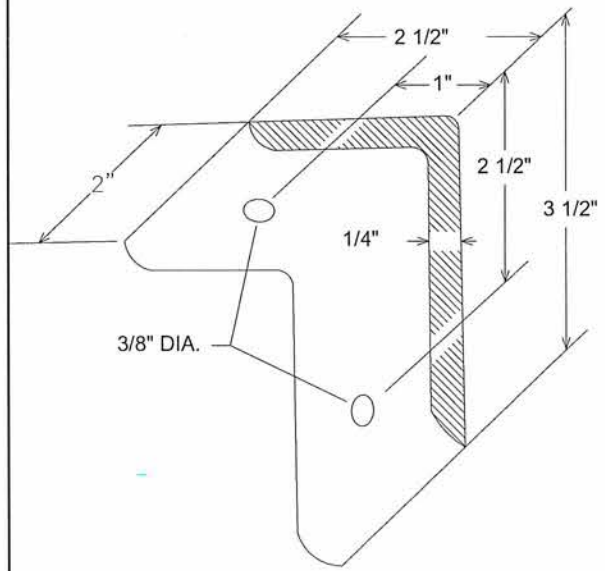
**LATERAL BRACE OR STRINGER  
SPLICE DETAIL (EXPLODED VIEW)**



**SECTION A-A**

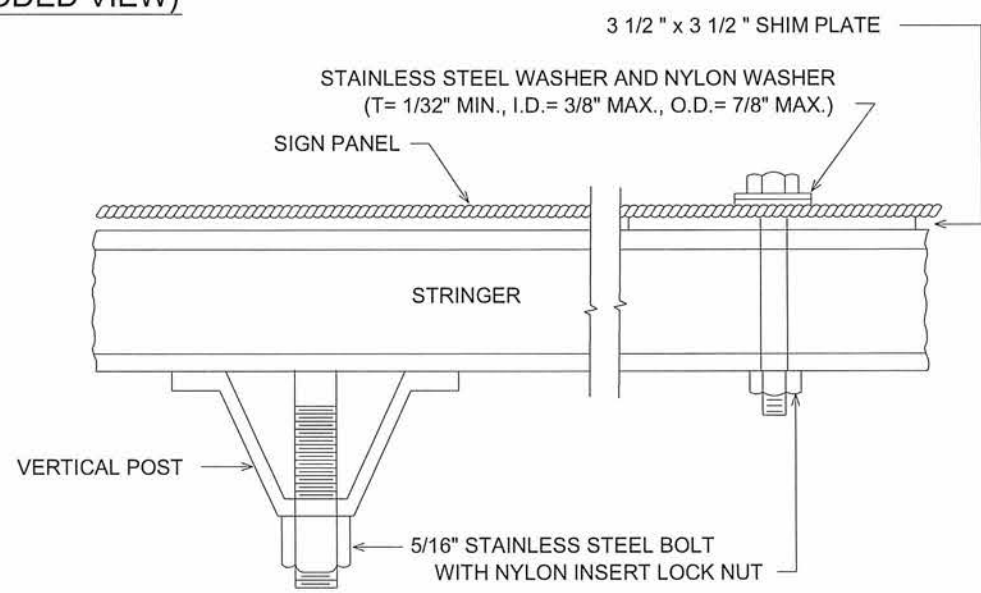


**TYPICAL "A-FRAME" INSTALLATION  
TYPE "D" SIGNS**

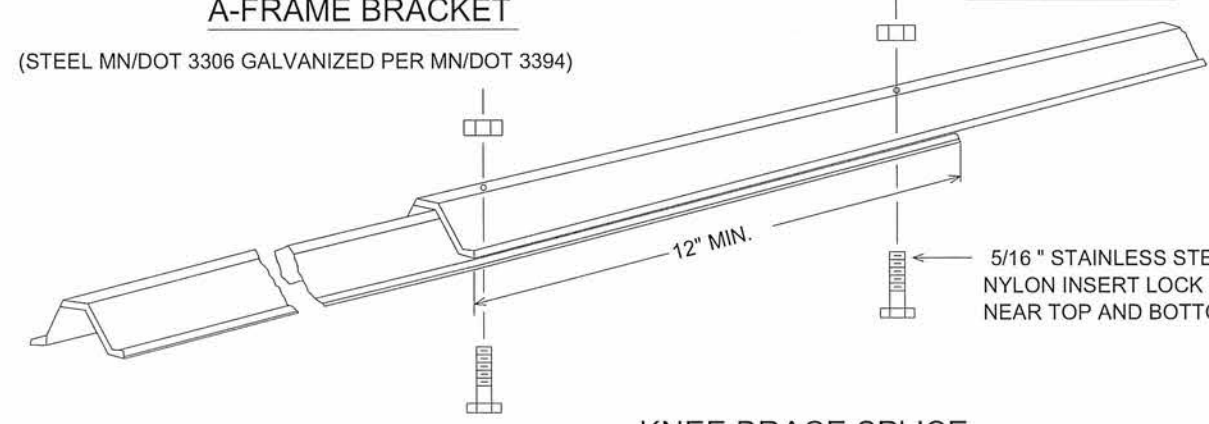


**A-FRAME BRACKET**

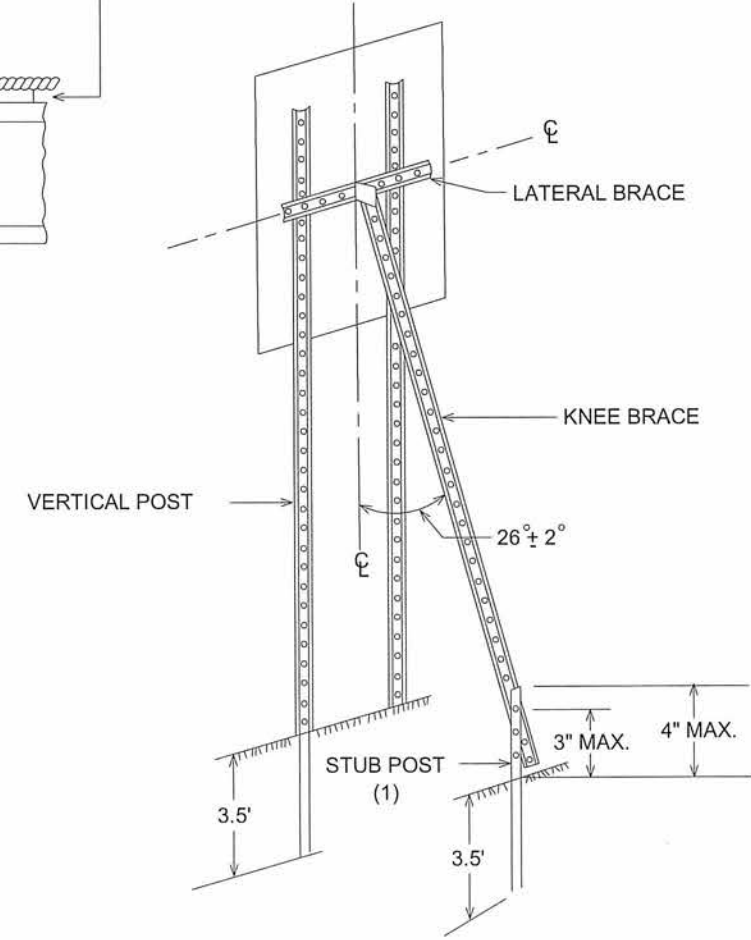
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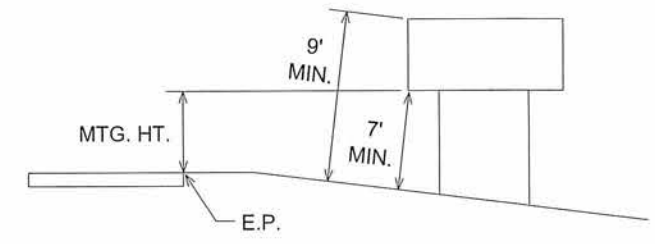
**SECTION B-B**



**KNEE BRACE SPLICE**



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



**TYPICAL MOUNTING**

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

**TYPE C & D SIGN  
STRUCTURAL DETAILS**

NO	DATE	BY	CKD	APPR	REVISION

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 PRINT NAME: CURT A KOBILARCSIK  
 SIGNATURE: *Curt Kobilarcsik*  
 DATE: 6-9-14 LICENSE NO. 24756

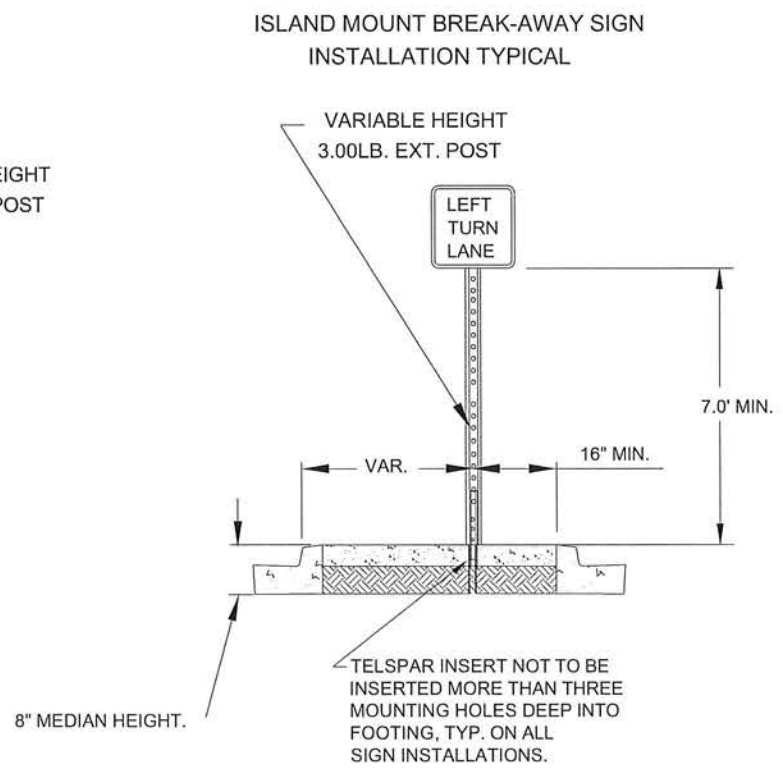
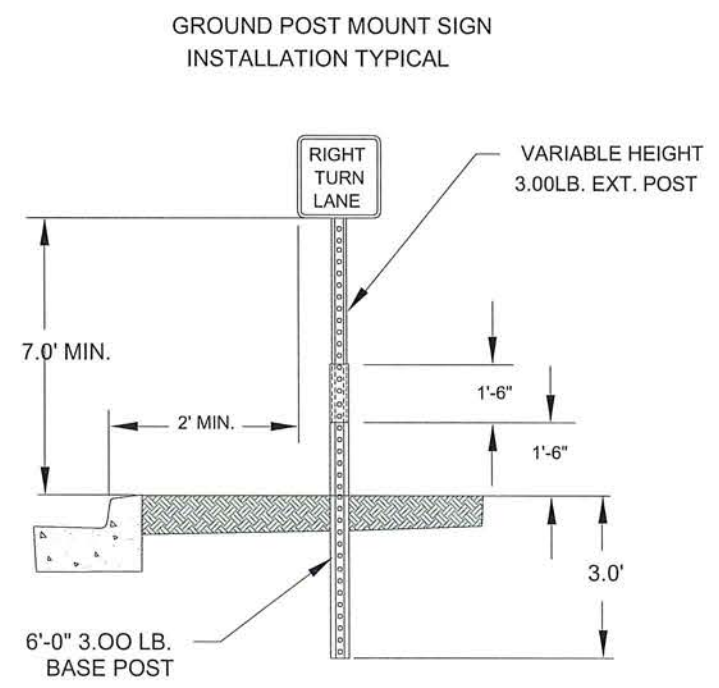
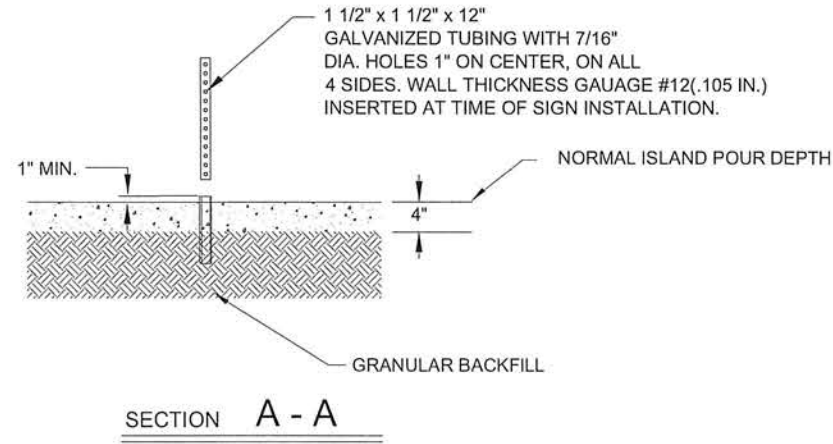
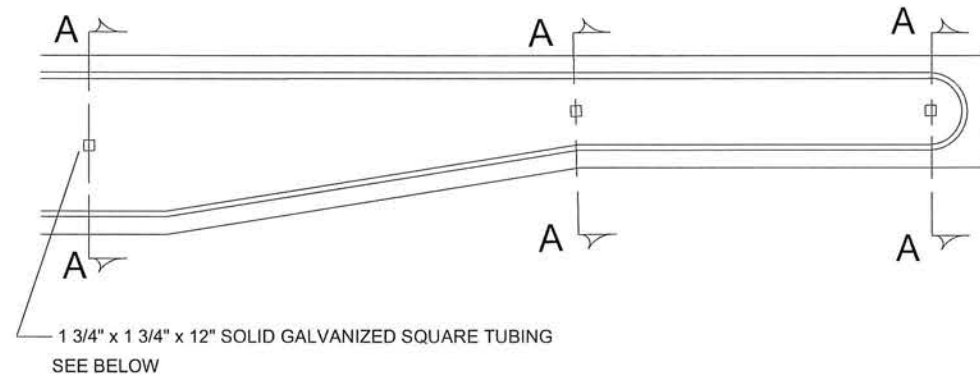
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 DESIGN BY: RLB DATE: 8/08/13  
 CHECKED BY: JLR DATE: 8/08/13



**ANOKA COUNTY  
HIGHWAY DEPT.**

STATE PROJECT NO. 02-651-07  
 STATE PROJECT NO. 106-020-031  
 STATE PROJECT NO. 114-020-046  
 COUNTY PROJECT NO. \_\_\_\_\_

SIGNING & STRIPING DETAILS  
 Sheet 213 of 381 Sheets

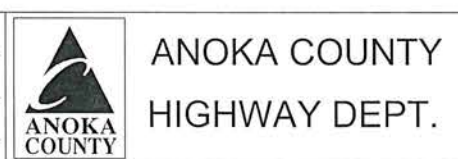


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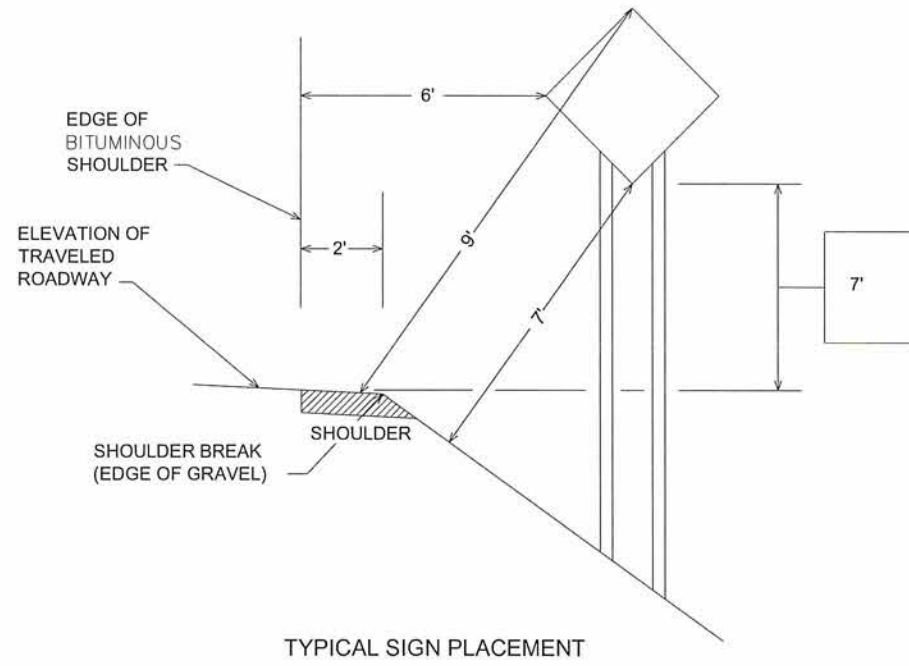
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 DESIGN BY: RLB DATE: 8/08/13  
 CHECKED BY: JR DATE: 8/08/13



STATE PROJECT NO. 02-651-07  
 STATE PROJECT NO. 106-020-031  
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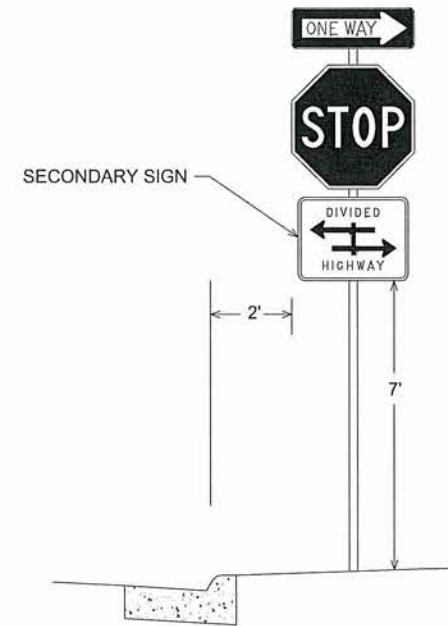
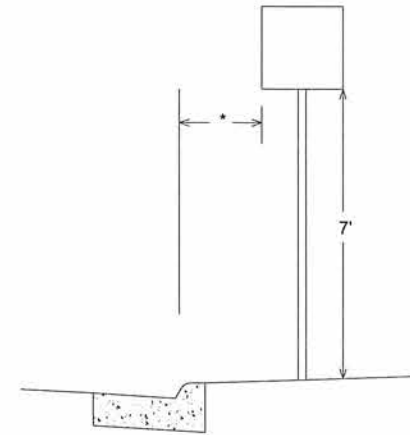
SIGNING & STRIPING DETAILS  
 Sheet 214 of 381 Sheets

RURAL



URBAN

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



NOTE:

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

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
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DRAWN BY RLB DATE 8/08/13  
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 CHECKED BY JR DATE 8/08/13



ANOKA COUNTY  
 HIGHWAY DEPT.

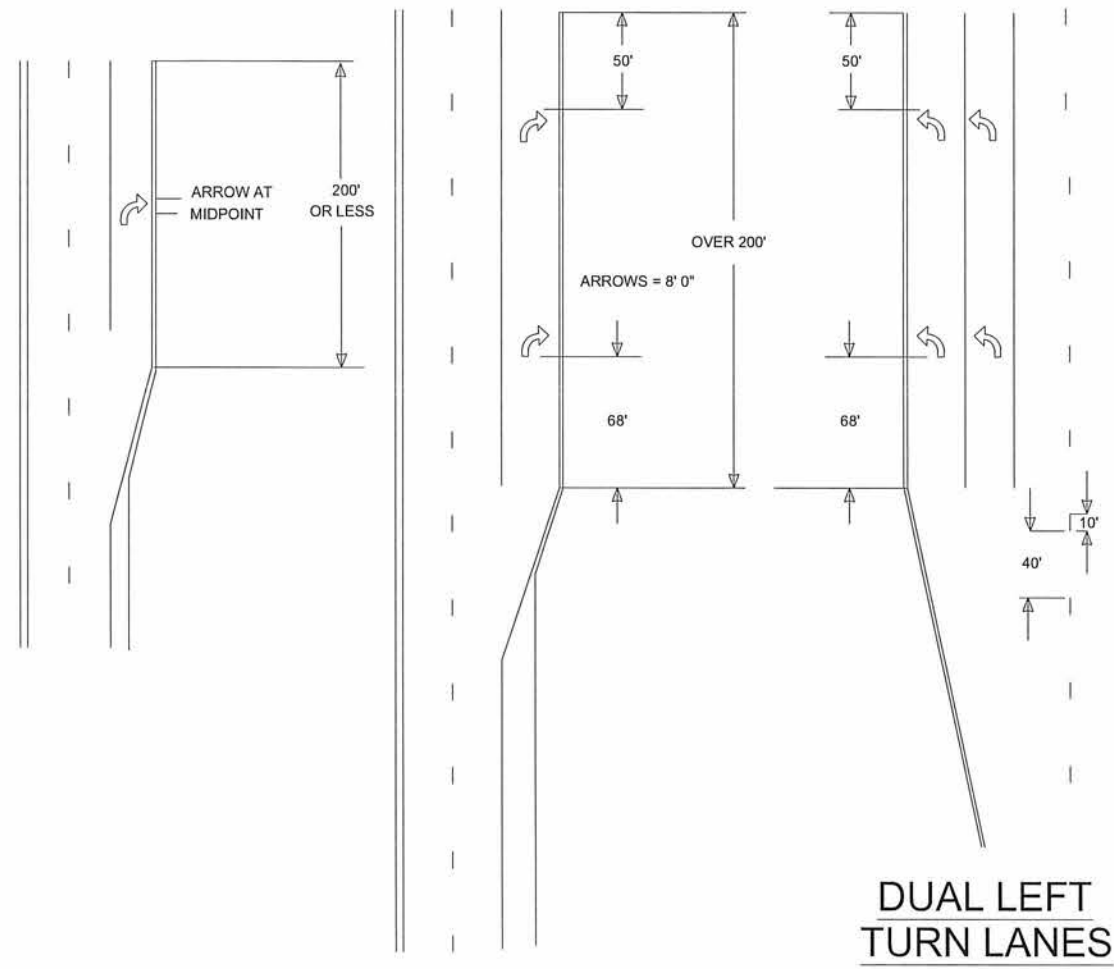
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 STATE PROJECT NO. 114-020-046  
 COUNTY PROJECT NO.

SIGNING & STRIPING DETAILS  
 Sheet 215 of 381 Sheets

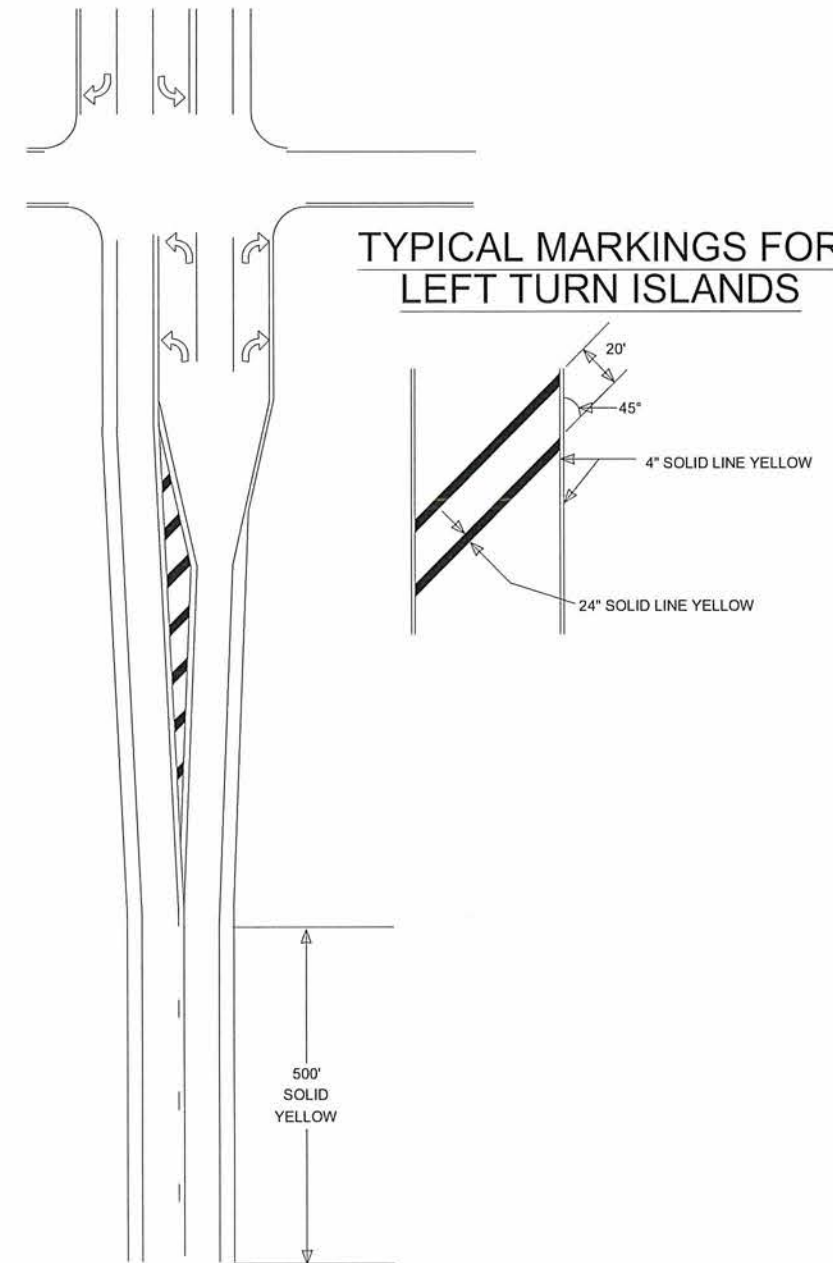
NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Base\TRAFFIC\Sign&Stripe\_Details.dwg

**TYPICAL MESSAGE PLACEMENT  
FOR TURN LANES**



**TYPICAL MARKINGS FOR  
LEFT TURN ISLANDS**



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Base\TRAFFIC\Sign&Stripe\_Details.dwg

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SIGNATURE: *Curt A. Kobilarsik*

DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY RLB DATE 8/08/13

DESIGN BY RLB DATE 8/08/13

CHECKED BY JR DATE 8/08/13



**ANOKA COUNTY  
HIGHWAY DEPT.**

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STATE PROJECT NO. 114-020-046

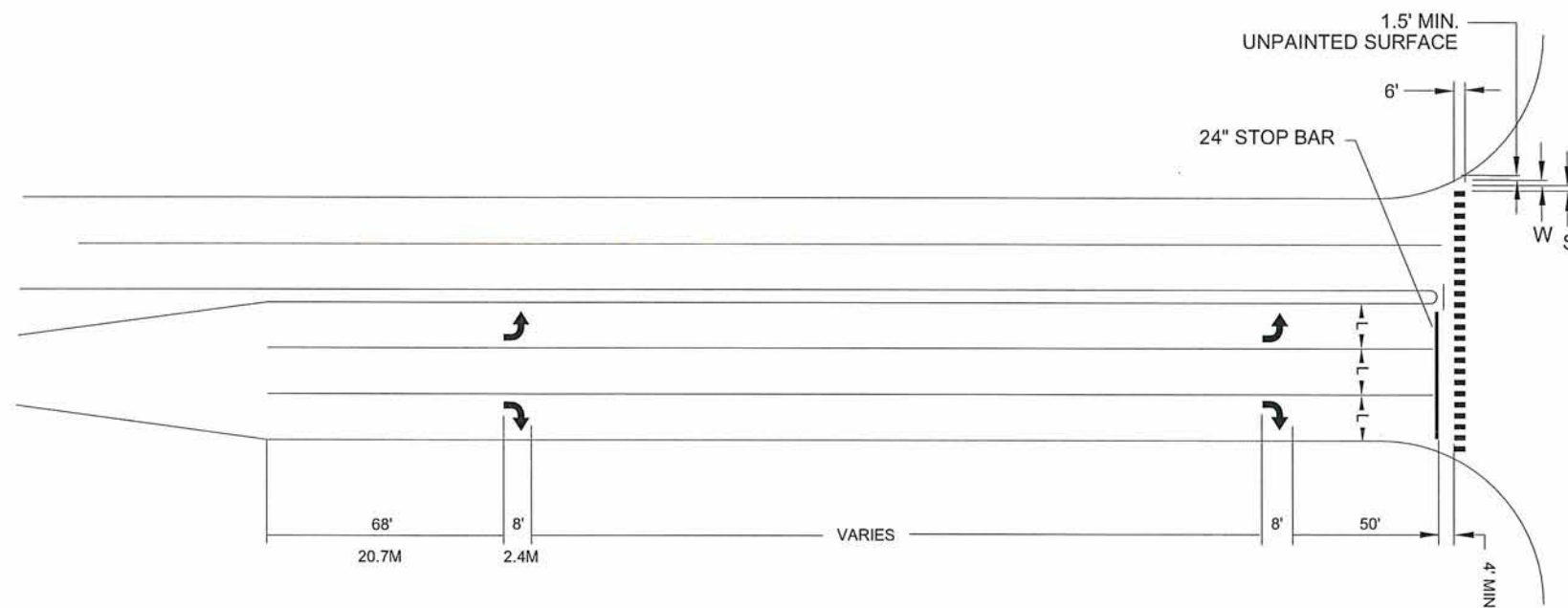
COUNTY PROJECT NO.

**SIGNING & STRIPING DETAILS**

Sheet 216 of 381 Sheets



## MARKINGS FOR PEDESTRIAN CROSSWALKS



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

### NOTES: CROSSWALKS:

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

## NOTES & GUIDELINES

### GENERAL INFORMATION:

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

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

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

### EPOXY:

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

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

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

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

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

### PAINT:

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

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

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

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

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

PRINT NAME: CURT A KOBILARCSIK  
 SIGNATURE: *Curt Kobilarcsik*  
 DATE: 6-9-14 LICENSE NO. 24756

DRAWN BY: RLB DATE: 8/08/13

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**ANOKA COUNTY  
HIGHWAY DEPT.**

STATE PROJECT NO. 02-651-07

STATE PROJECT NO. 106-020-031

STATE PROJECT NO. 114-020-046

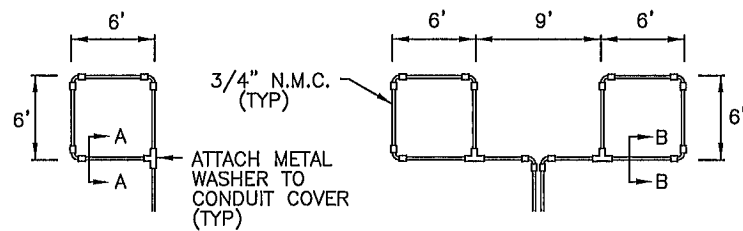
COUNTY PROJECT NO.

SIGNING & STRIPING DETAILS

Sheet 217 of 381 Sheets

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-651-07\Bose\TRAFFIC\Sign&Stripe\_Details.dwg

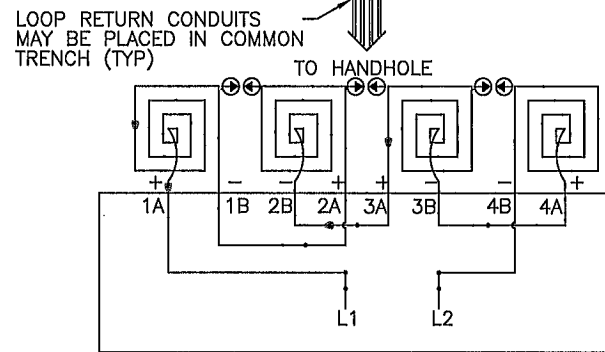
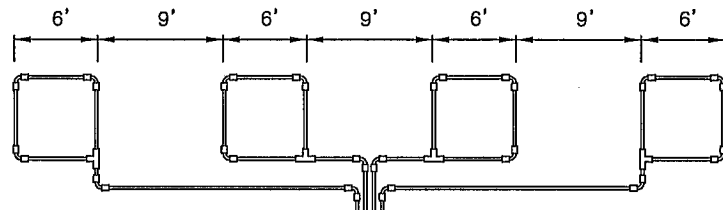


**LOOP DETECTOR  
DETAIL 'A'**  
(LOOP PHASING FOR  
SINGLE CONNECTION)

LOOP CONNECTIONS SHALL BE  
LABELED AND SPLICED IN THE  
HANDHOLE AS FOLLOWS:

L1 TO 1A  
1B TO 2A  
2B TO L2

**LOOP DETECTOR  
DETAIL 'B'**  
(LOOP PHASING FOR  
SERIES CONNECTION)

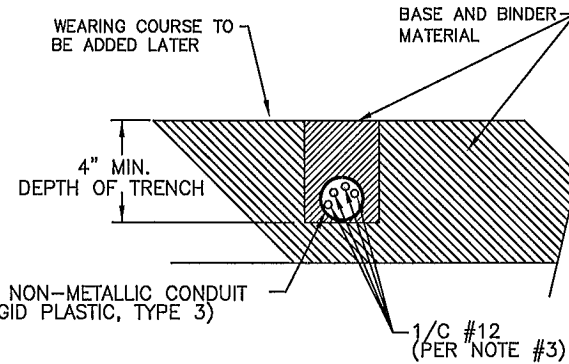


LOOP CONNECTIONS SHALL BE LABELED AND SPLICED  
IN THE HANDHOLE AS FOLLOWS:

L1 TO 1A      3B TO 4A  
1B TO 2A      4B TO L2  
2B TO 3A

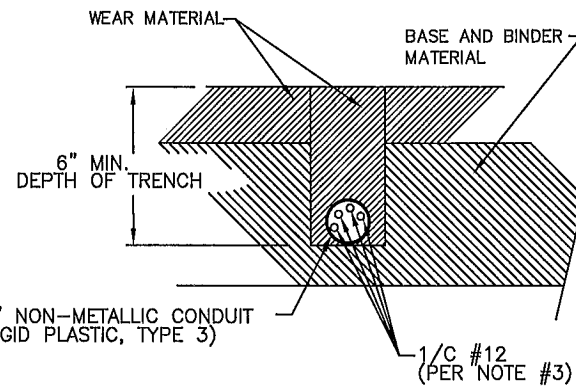
SPLICE CONTROL CABLE TO L1 & L2 IN HANDHOLE.  
ALL CONDUCTORS SHALL BE TAGGED IN HANDHOLE  
(1A, 1B, ECT)

**LOOP DETECTOR  
DETAIL 'C'**  
(LOOP PHASING FOR  
SERIES CONNECTION)



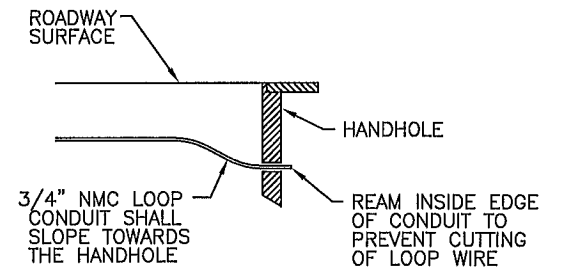
**SECTION A-A**

DETAIL FOR LOOP INSTALLATION  
IN NEW ROADWAY



**SECTION B-B**

DETAIL FOR LOOP INSTALLATION  
IN EXISTING ROADWAY



**DRAINAGE DETAIL**

**LOOP DETECTOR WIRING**

- 1) ALL CORNERS SHALL BE 90° CONDUIT BENDS.
- 2) CONNECT WIRES IN HANDHOLES USING SPLICE KIT METHOD DESCRIBED IN THE SPECIAL PROVISIONS.
- 3) LOOP DETECTOR WIRES SHALL BE #12 AWG CROSSED LINKED POLYETHYLENE (XLP). SEE SPECIAL PROVISIONS.
- 4) LOOP LEAD IN WIRES SHALL BE TWISTED A MIN. OF (5) TURNS PER FOOT THROUGH THE CONDUIT TO THE HANDHOLE.
- 5) NMC DESIGNATES NON-METALLIC CONDUIT (SPEC. 3803)
- 6) LOOPS 6' x 6' THRU 6' x 14' SHALL HAVE (4) TURNS.
- 7) LOOPS 6' x 15' AND LARGER SHALL HAVE (2) TURNS.

TRAFFIC SIGNAL TABULATION			X
ITEM NO	ITEM	UNIT	TOTAL ESTIMATED QUANTITY
2565	TRAFFIC CONTROL SIGNAL SYSTEM "B"	SIG. SYS.	1
2565	TRAFFIC CONTROL SIGNAL SYSTEM "C"	SIG. SYS.	1
2565	TRAFFIC CONTROL SIGNAL SYSTEM "D"	SIG. SYS.	1
2565	TRAFFIC CONTROL SIGNAL SYSTEM "E"	SIG. SYS.	1
2565	TRAFFIC CONTROL INTERCONNECTION	LUMP SUM	1
2565	EMERGENCY VEHICLE PREEMPTION SYSTEM "B"	LUMP SUM	1
2565	EMERGENCY VEHICLE PREEMPTION SYSTEM "C"	LUMP SUM	1
2565	EMERGENCY VEHICLE PREEMPTION SYSTEM "D"	LUMP SUM	1
2565	EMERGENCY VEHICLE PREEMPTION SYSTEM "E"	LUMP SUM	1
2565	SIGNAL SERVICE CABINET	EACH	4
2565	FLASHING BEACON SYSTEM	SYSTEM	1
2565	REVISE SIGNAL SYSTEM "A"	SYSTEM	1

TRAFFIC SIGNAL STANDARD PLATES	
THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT	
PLATE NO.	DESCRIPTION
* 8000 I	STANDARD BARRICADES
* 8110 E	TRAFFIC SIGNAL BRACKETING (POLE MOUNTED)
* 8111 E	TRAFFIC SIGNAL BRACKETING (PEDESTAL MOUNTED) (3 SHEETS)
* 8112 G	PEDESTAL FOUNDATION (TRAFFIC CONTROL SIGNALS)
* 8114 A	PVC HANDHOLE/PULLBOX (NO VEHICLE LOAD) (2 SHEETS)
* 8117 F	PRECAST CONCRETE HAND HOLE (OR PULL BOX) (2 SHEETS)
* 8118 D	SERVICE EQUIPMENT & POLE-TRAFFIC CONTROL SIGNALS
* 8119 C	GROUND MOUNTED CABINET FOUNDATION
* 8120 P	POLE FOUNDATION (PA 85)
* 8121 H	TRANSFORMER BASE & POLE BASE PLATE (2 SHEETS)
* 8122 F	PEDESTAL & PEDESTAL BASE (FOR TRAFFIC CONTROL SIGNALS SUPPORT)
* 8123 G	POLE & MAST ARM-LUMINAIRES & TRAFFIC LIGHTS ASSEMBLY (2 SHEETS)
* 8126 K	POLE FOUNDATION (PA90 & PA100)
* 8129 A	SHIM AND WASHER (TRAFFIC CONTROL SIGNALS AND ROADWAY LIGHTING)

\* - STANDARD PLATES APPLICABLE TO THIS PROJECT

S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

**LEGEND OF SYMBOLS**

CONTROLLER AND SERVICE EQUIP. NO's	(A)
SIGNAL BASE NO.	(1)
SIGNAL FACE NO.	(2)
LUMINAIRE NO.	(3)
CONTROLLER AND CABINET	(4)
CONTROLLER AND CABINET - IN PLACE	(5)
HANDHOLE	(6)
HANDHOLE - IN PLACE	(7)
RIGID STEEL CONDUIT (RSC)	(8)
RIGID STEEL CONDUIT (RSC) - IN PLACE	(9)
SIGNAL FACE WITH BACKGROUND SHIELD	(10)
SIGNAL FACE W/O BACKGROUND SHIELD	(11)
SIGNAL FACE - IN PLACE	(12)
PEDESTRIAN INDICATORS	(13)
PEDESTRIAN INDICATORS - IN PLACE	(14)
PEDESTRIAN PUSH BUTTONS ON PEDESTAL OR POLE	(15)
PEDESTRIAN PUSH BUTTON STATION	(16)
TRAFFIC SIGNAL PEDESTAL	(17)
TRAFFIC SIGNAL PEDESTAL - INPLACE	(18)
TRAFFIC SIGNAL POLE AND MAST ARM	(19)
TRAFFIC SIGNAL POLE AND MAST ARM - IN PLACE	(20)
STREET LIGHT POLE AND LUMINAIRE	(21)
STREET LIGHT POLE AND LUMINAIRE - IN PLACE	(22)
MAST ARM AND LUMINAIRE	(23)
MAST ARM AND LUMINAIRE - INPLACE	(24)
WOOD POLE	(25)
WOOD POLE - IN PLACE	(26)
SOURCE OF POWER	(27)
RAILROAD SIGNAL - IN PLACE	(28)
RIGHT OF WAY LINE	(29)
CENTERLINE	(30)
EDGE OF ROADWAY	(31)
SHOULDERLINE	(32)
CURB LINE	(33)
STOP BAR	(34)
EMERGENCY VEHICLE PREEMPTION DETECTOR	(35)

**ABBREVIATIONS**

3-1(EG)	SIGNAL HEAD PHASE "3" - NO "1"	P2-1(EG)	PED INDICATION PHASE "2" - NO. "1"
BR. GR.	BARE GROUND	PB	PUSH BUTTON
CH. SW.	CHECK SWITCH	PB2-1(EG)	PUSH BUTTON PHASE "2" - NO. "1"
CLR	CLEAR	PEC	PHOTOELECTRIC CELL
D2-1(EG)	DETECTOR PHASE "2" - NO. "1"	PED	PEDESTRIAN
DWK	DON'T WALK	R	RED
EQG	EQUIPMENT GROUND	R&S	REMOVE AND SALVAGE
EVP	EMERGENCY VEHICLE PRE-EMPTION	RLTA	RED LEFT TURN ARROW
F&I	FURNISH AND INSTALL	RRTA	RED RIGHT TURN ARROW
FL	FLASH/FLASHING	RSC	RIGID STEEL CONDUIT
G	GREEN	SOP	SOURCE OF POWER
GLTA	GREEN LEFT TURN ARROW	SPR	SPARE
GRN	GREEN	ST. LHT	STREET LIGHT
GR. R	GROUND ROD	STA	STATION
GRTA	GREEN RIGHT TURN ARROW	SW	SWITCH
GTHA	GREEN THRU ARROW	SWD	SWITCHED
HH	HANDHOLE	S&R	SALVAGE AND REINSTALL
HPS	HIGH PRESSURE SODIUM	TDW	TELEPHONE DROP WIRE
JB	JUNCTION BOX	WLK	WALK
LUM	LUMINAIRE	YEL	YELLOW
NEU	NEUTRAL	YLTA	YELLOW LEFT TURN ARROW
NMC	NONMETALLIC CONDUIT	YRTA	YELLOW RIGHT TURN ARROW
		YTHA	YELLOW THRU ARROW

**CONDUCTOR COLOR CODE**

R	RED
O	ORANGE
BL	BLUE
WH	WHITE
R/BLK	RED WITH BLACK TRACER
O/BLK	ORANGE WITH BLACK TRACER
BL/BLK	BLUE WITH BLACK TRACER
WH/BLK	WHITE WITH BLACK TRACER
BLK	BLACK
BLK/WH	BLACK WITH WHITE TRACER
G/BLK	GREEN WITH BLACK TRACER
G	GREEN

DRAWN BY: JMG  
DESIGNER: JMG  
CHECKED BY: JMG

DESIGN TEAM	NO.	BY	DATE

REVISIONS	NO.	BY	DATE

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
Date: April 23, 2014  
Name: John M. Gray, PE  
Lic. No. 22457

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PHONE: (651) 490-2000  
3535 VADNAIS CENTER DR.  
ST. PAUL, MN 55110

ANOKA COUNTY  
CITIES OF BLAINE  
AND COON RAPIDS

TRAFFIC SIGNAL SYSTEMS 'A-E'  
DETAILS AND STANDARD PLATES  
CSAH 51 (UNIVERSITY AVE) SIGNAL SYSTEMS

FILE NO.  
ANOKC 125457  
SIGNAL SHEET  
1 OF 39

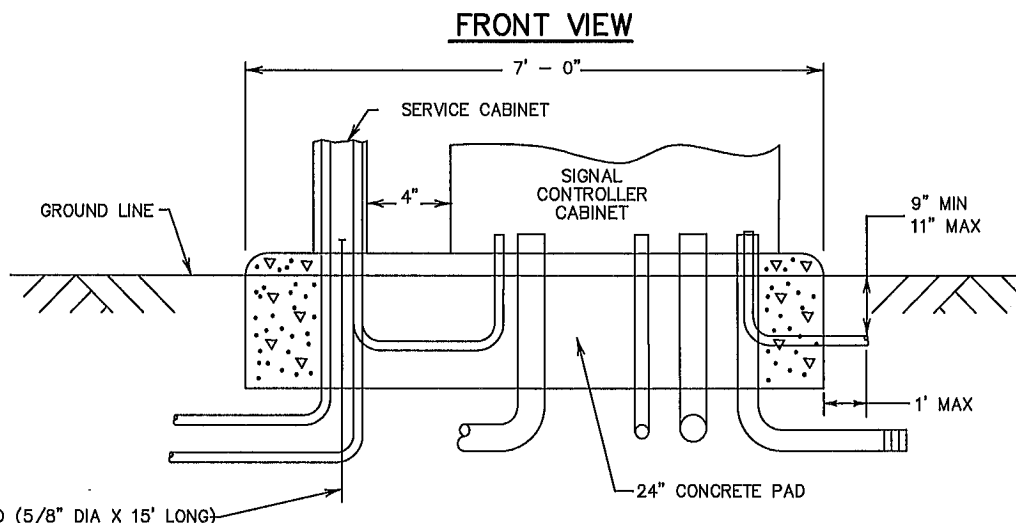
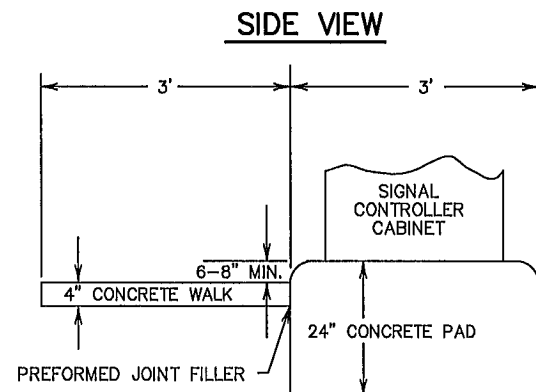
218  
381

# TYPICAL PAD WITH CONTROLLER CABINET AND SERVICE CABINET

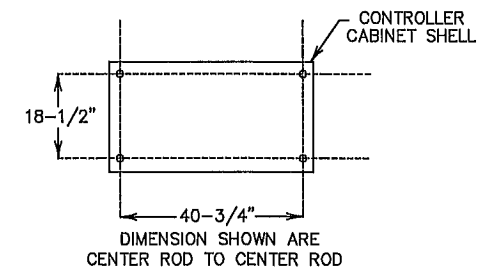
SEE INTERSECTION LAYOUT FOR CABLE INFORMATION (NOT TO SCALE)

## NOTES:

1. THE ANCHOR RODS, NUTS AND WASHERS FOR THE COUNTY FURNISHED CONTROLLERS AND CABINETS (SYSTEMS "B-E") SHALL BE FURNISHED BY THE COUNTY AND INSTALLED BY THE CONTRACTOR. ANCHOR BOLTS AT SYSTEM "A" ARE IN PLACE AND SHALL BE REUSED IN PLACE (COUNTY WILL PROVIDE NEW ANCHOR NUTS AND WASHERS FOR NEW CABINET).
2. THE UPPER PART OF EACH NEW EQUIPMENT PAD SHALL BE BEVELLED OR CHAMFERED IN A NEAT MANNER AS DIRECTED BY THE ENGINEER.
3. THE TOP OF THE CONDUITS SHALL BE THREADED AND CAPPED AFTER INSTALLATION (UNTIL CABLES ARE INSTALLED).
4. CONDUIT SHALL PROJECT A MINIMUM OF 2" ABOVE CONCRETE AND SHALL BE LOCATED INSIDE OF THE CABINET WHERE DIRECTED BY THE ENGINEER, BUT SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (SUPPORTING MEMBERS, ETC.).
5. CONCRETE MIX 3A32 OR EQUAL SHALL BE USED FOR THE EQUIPMENT PADS AND SIDEWALKS.
6. CONDUITS WITH BOTH ENDS TERMINATING WITHIN THE PADS SHALL NOT BE INSTALLED BELOW THE CONCRETE.
7. THE EXACT LOCATION OF CONDUITS WITHIN EACH PAD SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.
8. ANCHOR RODS SHALL PROJECT A MINIMUM OF 3" ABOVE THE CONCRETE BUT SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (SUPPORTING MEMBERS, ETC.).
9. CONTRACTOR SHALL PROVIDE MINIMUM 4-INCH CLEARANCE BETWEEN CONTROLLER AND SERVICE CABINETS ON EACH EQUIPMENT PAD FOUNDATION AS SHOWN.

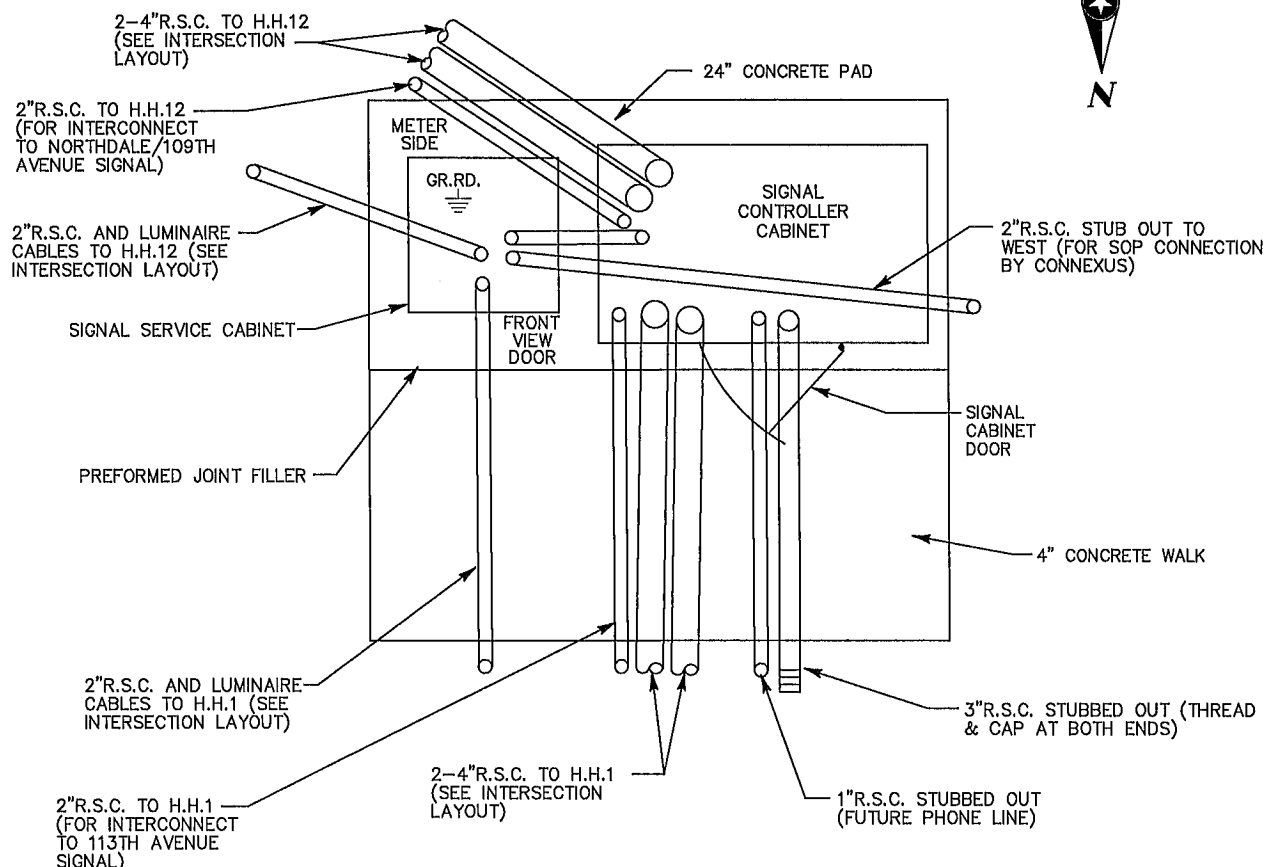


## CONTROLLER CABINET TYPE "P" & "R" BOLT PATTERN



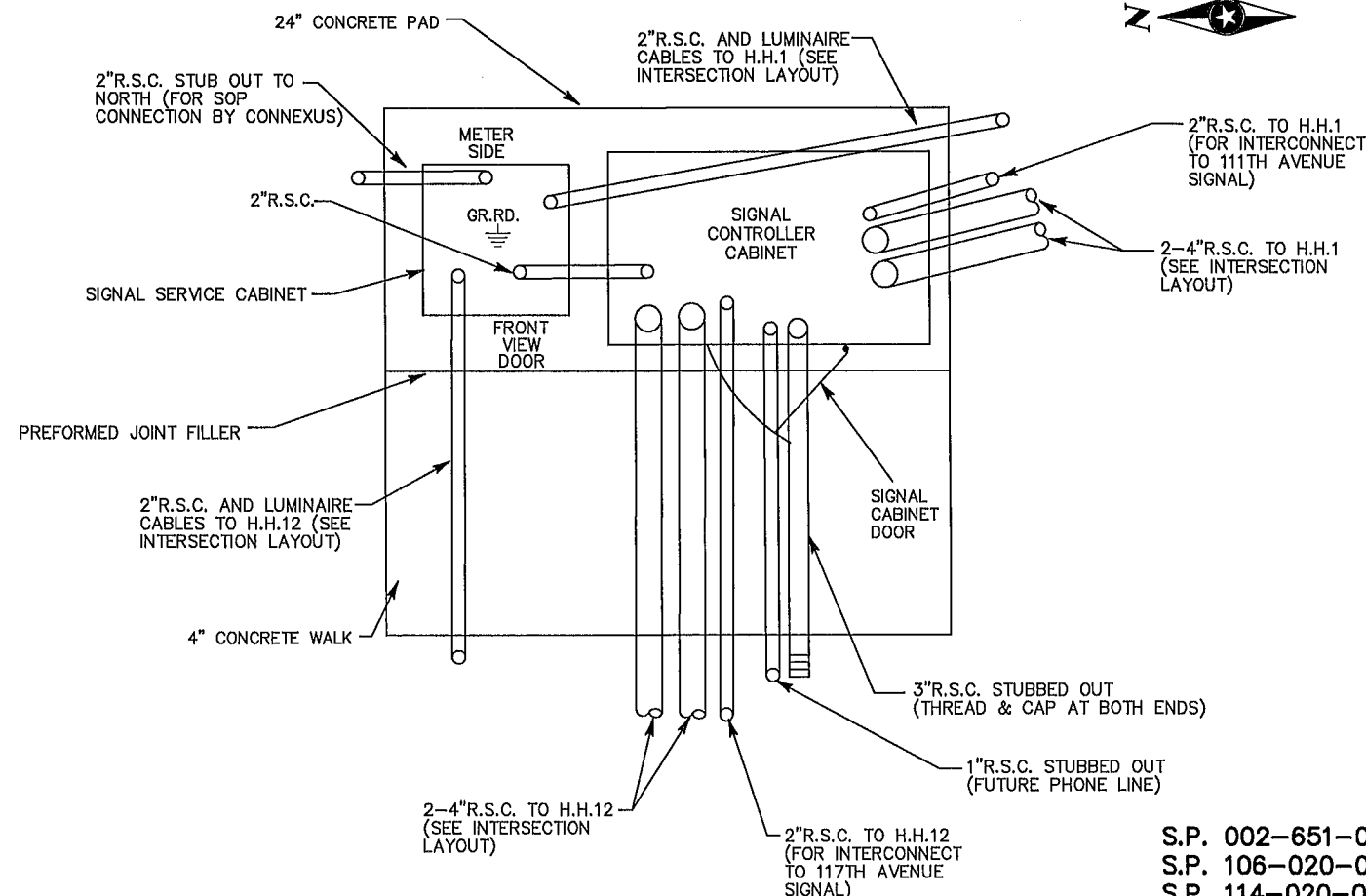
## PLAN VIEW - SYSTEM "B"

CSAH 51 (UNIVERSITY AVENUE) AT 111TH AVENUE



## PLAN VIEW - SYSTEM "C"

CSAH 51 (UNIVERSITY AVENUE) AT 113TH AVENUE



S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

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DESIGNER: JMG				
CHECKED BY: JMG				
DESIGN TEAM				

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*John M. Gray*  
Name: John M. Gray, PE  
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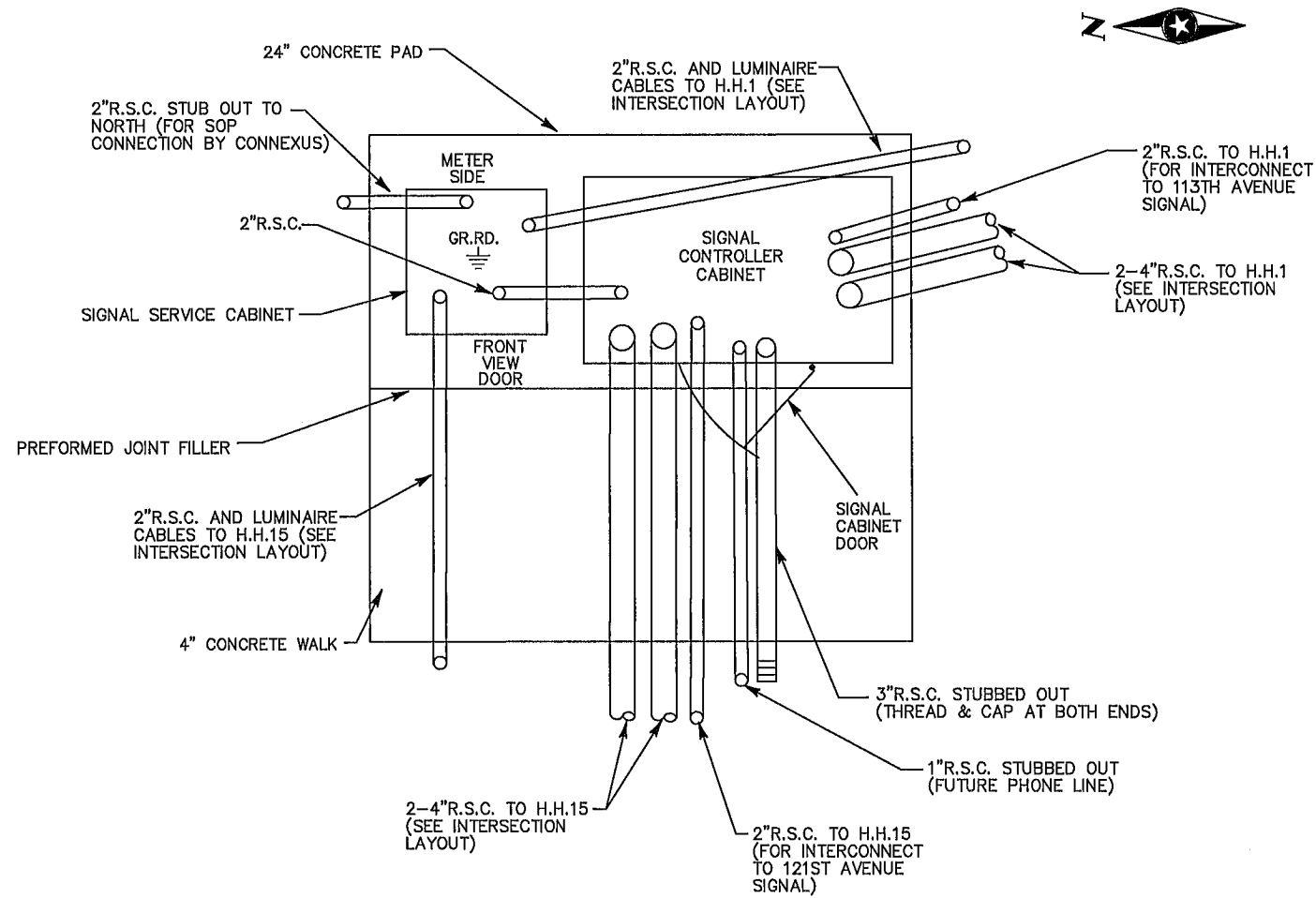
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CITIES OF BLAINE  
AND COON RAPIDS

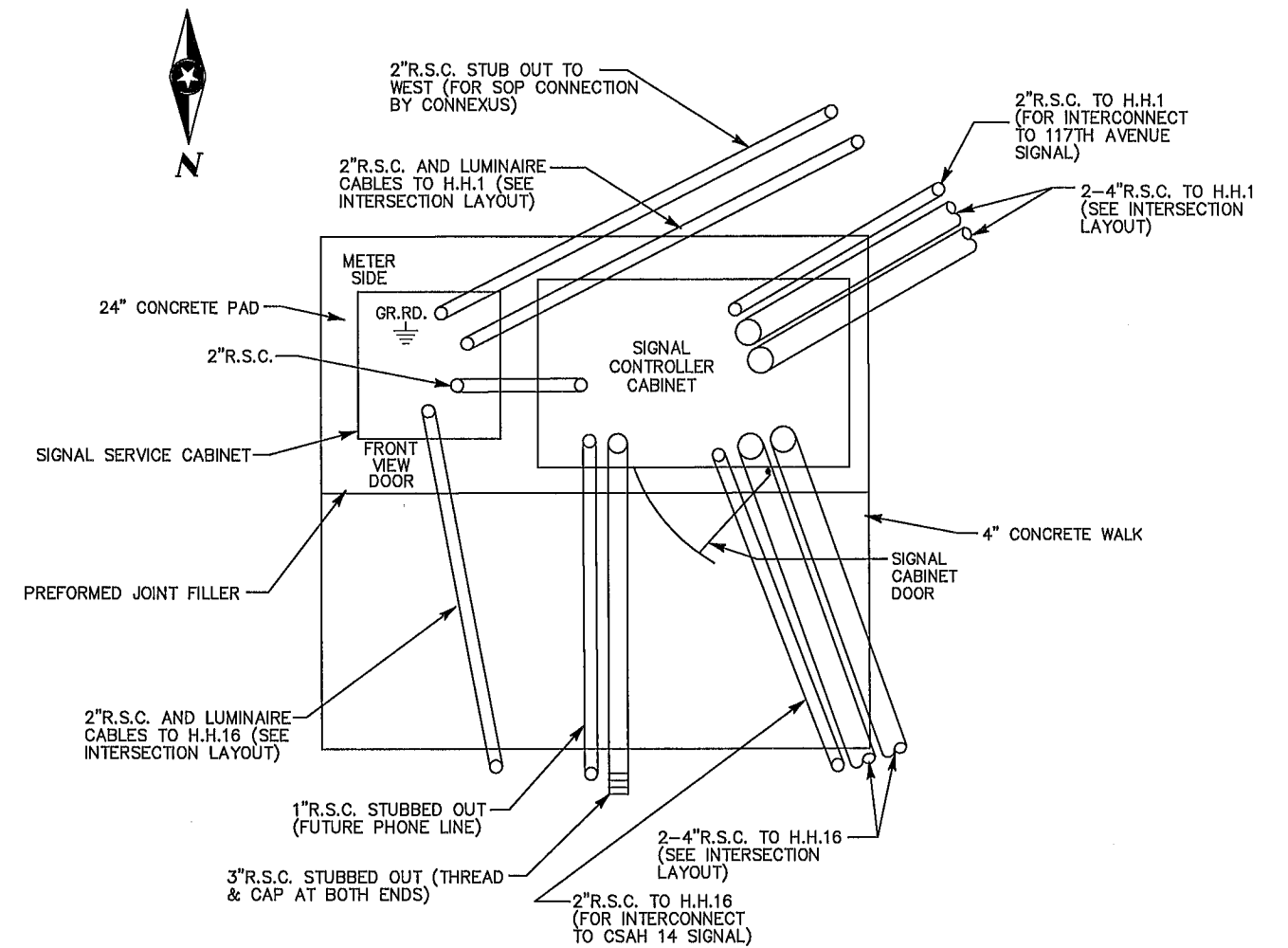
**TRAFFIC SIGNAL SYSTEMS "B-E"**  
EQUIPMENT PAD DETAILS  
CSAH 51 (UNIVERSITY AVE) SIGNAL SYSTEMS

FILE NO. ANOKC 125457  
SIGNAL SHEET 2 OF 39  
219  
391

**PLAN VIEW—SYSTEM "D"**  
CSAH 51 (UNIVERSITY AVENUE) AT 117TH AVENUE

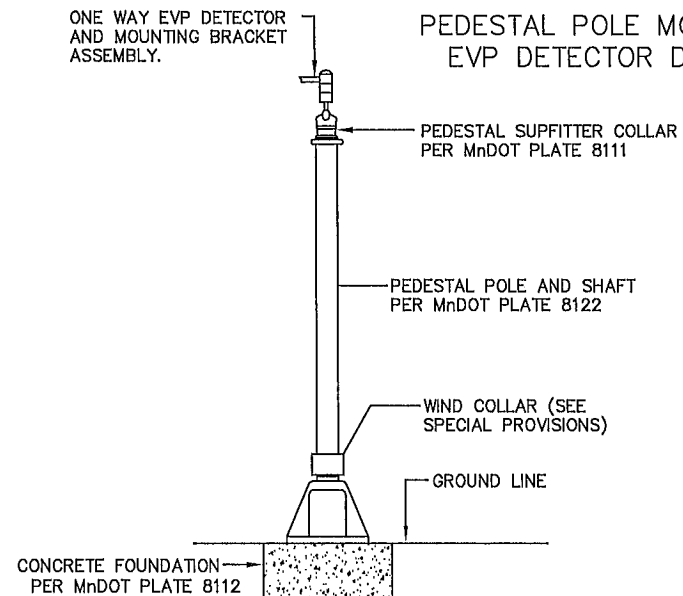


**PLAN VIEW - SYSTEM "E"**  
CSAH 51 (UNIVERSITY AVENUE) AT 121ST AVENUE



ONE WAY EVP DETECTOR  
AND MOUNTING BRACKET  
ASSEMBLY.

**PEDESTAL POLE MOUNTED  
EVP DETECTOR DETAIL**



S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

DRAWN BY: JMG				
DESIGNER: JMG				
CHECKED BY: JMG				
DESIGN TEAM	NO.	BY	DATE	REVISIONS

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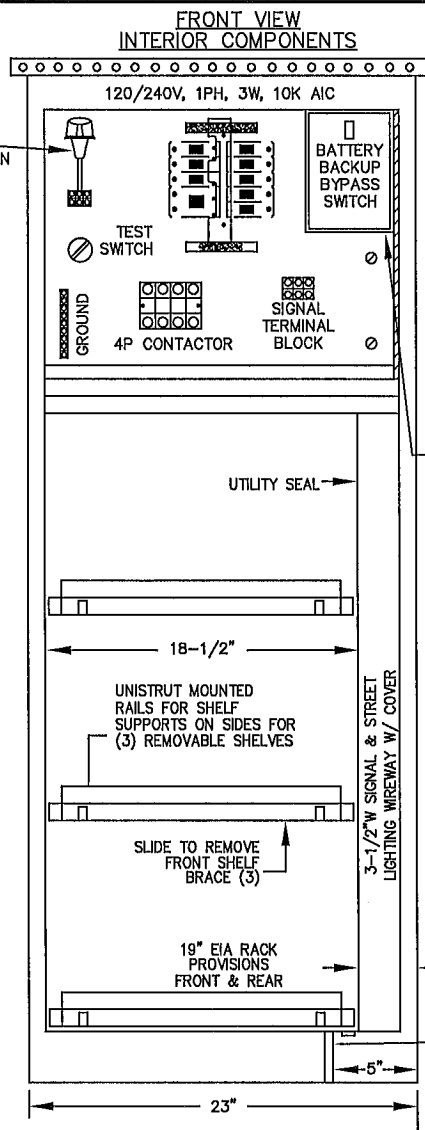
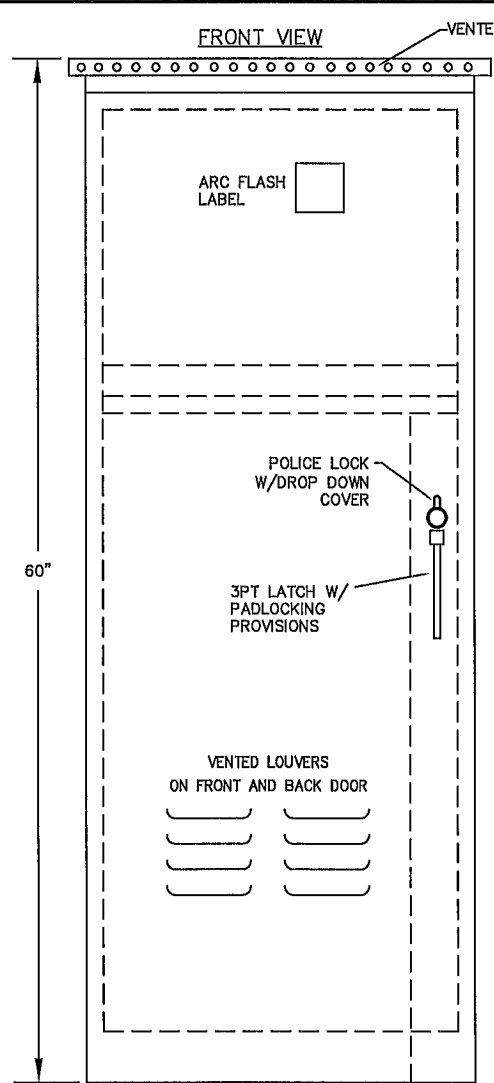
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**ANOKA COUNTY**  
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**TRAFFIC SIGNAL SYSTEMS "B-E"**  
EQUIPMENT PAD AND EVP DETAILS  
CSAH 51 (UNIVERSITY AVE) SIGNAL SYSTEMS

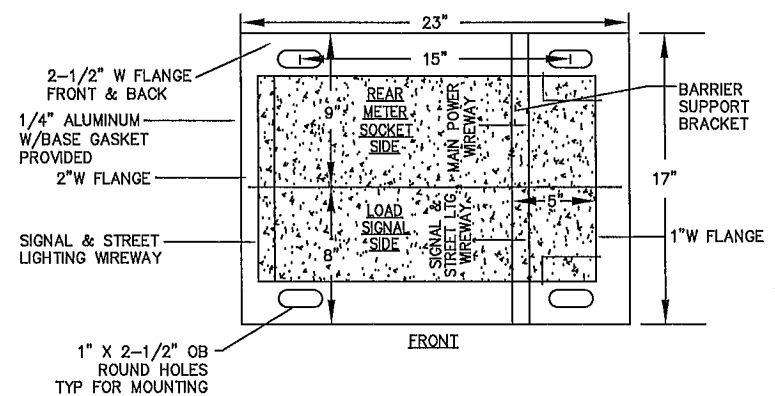
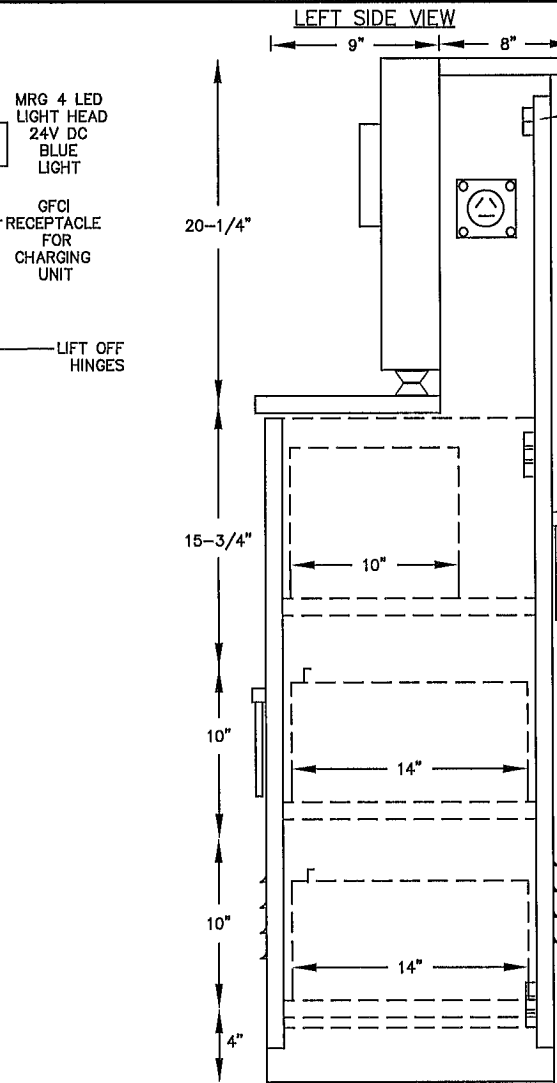
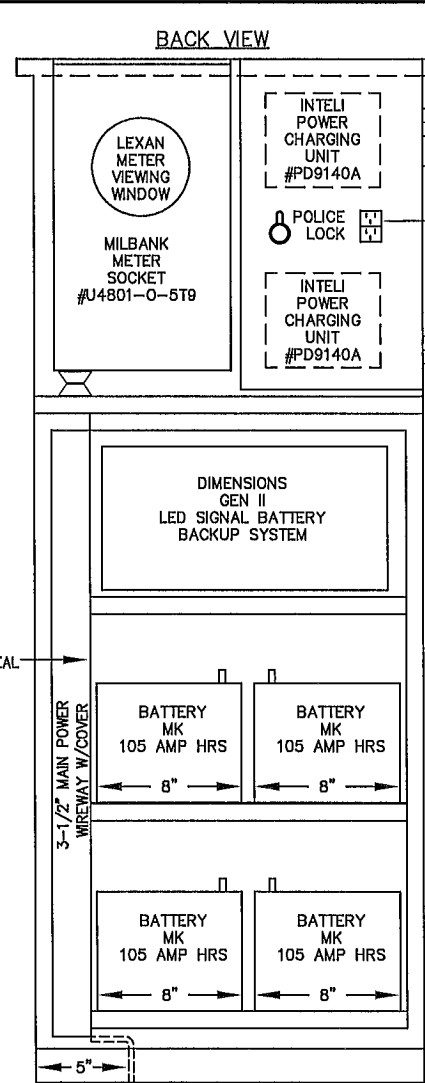
FILE NO. ANOKC 125457	220
SIGNAL SHEET 3 OF 39	381



- LOAD CENTER  
CIRCUIT  
BREAKERS  
ITE "Q" TYPE  
1-100A/2P  
SERVICE  
DISCONNECT  
1-20A/1P GFCI  
RECEPTACLE  
1-15/1P  
PHOTOCELL  
4-15A/1P  
LUMINAIRES  
1-30A/1P  
SIGNAL SVC  
1 SPARE

CUTOFF PROVISIONS IN  
DEAD FRONT FOR BATTERY  
BACKUP BYPASS SWITCH

INTERIOR  
COMPONENTS  
BEHIND HINGED  
DEAD FRONT  
W/ (2)-1/4  
TURN LATCHES

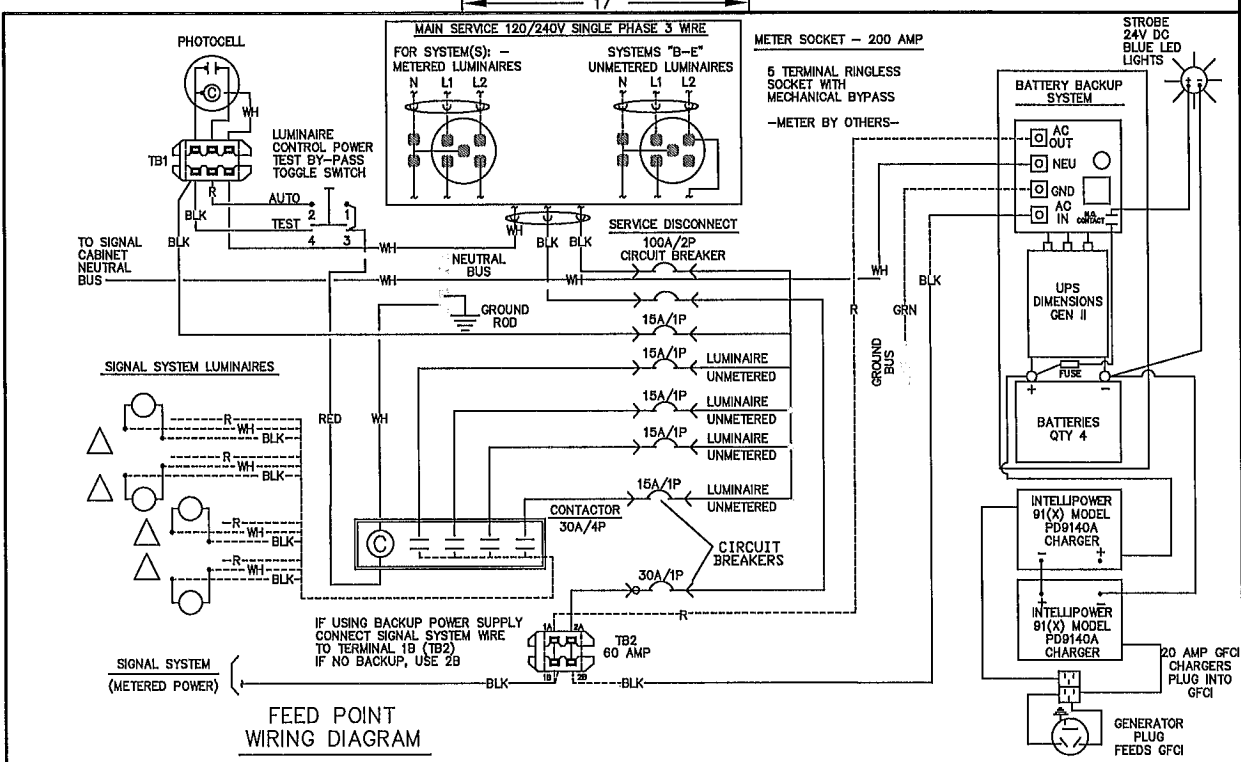


**CABINET CONSTRUCTION**

- NEMA 3R
- 1/8" ALUMINUM 5052-H32
- ANODIZED 30 MINUTE CLEAR
- NEOPRENE GASKETED DOORS
- NON-CORRODING HARDWARE
- ETL LISTED IN ACCORDANCE W/UL508A

SEE SPECIAL PROVISIONS AND STATEMENT OF ESTIMATED QUANTITIES REGARDING SEPARATE PAY ITEM FOR FURNISHING & INSTALLING NEW BATTERY BACK-UP SIGNAL SERVICE CABINETS.

S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046



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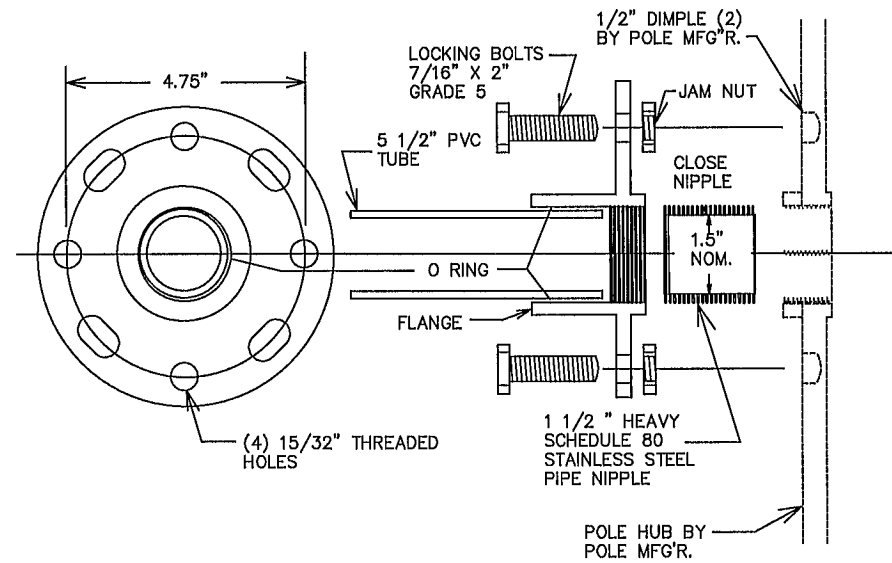
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PHONE: (651) 490-2000  
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ANOKA COUNTY  
CITIES OF BLAINE  
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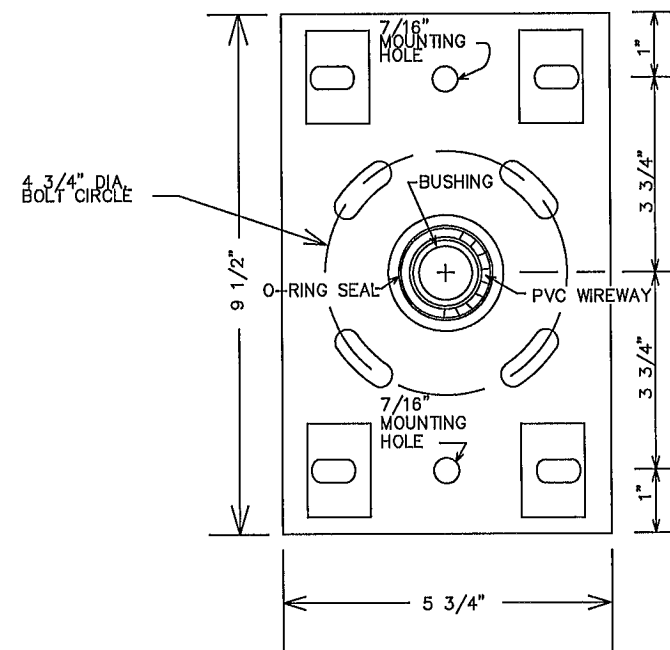
TRAFFIC SIGNAL SYSTEMS "B-E"  
SIGNAL SERVICE CABINET DETAILS  
CSAH 51 (UNIVERSITY AVE) SIGNAL SYSTEMS

FILE NO.  
ANOKC 125457  
SIGNAL SHEET  
4 OF 39

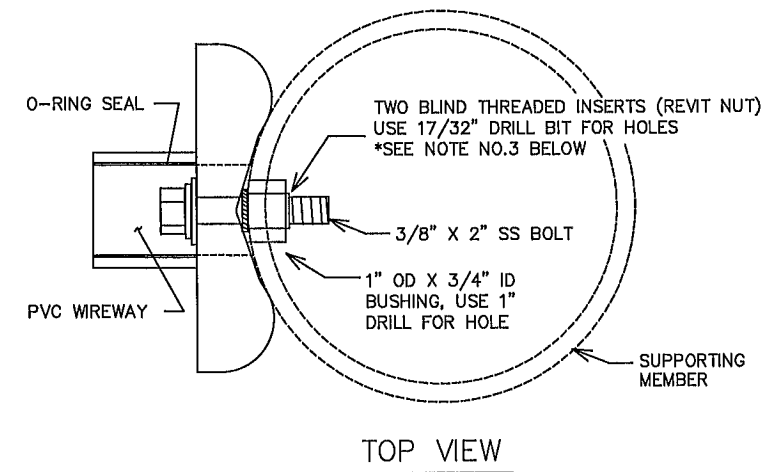
221  
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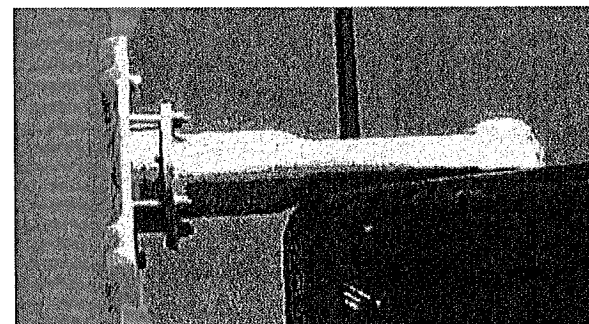
**THREADED HUB AND FLANGE POLE ADAPTOR**



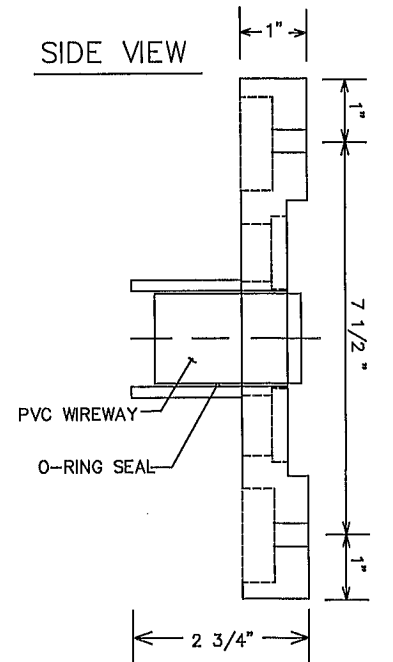
**BOLT ON HUB & FLANGE**



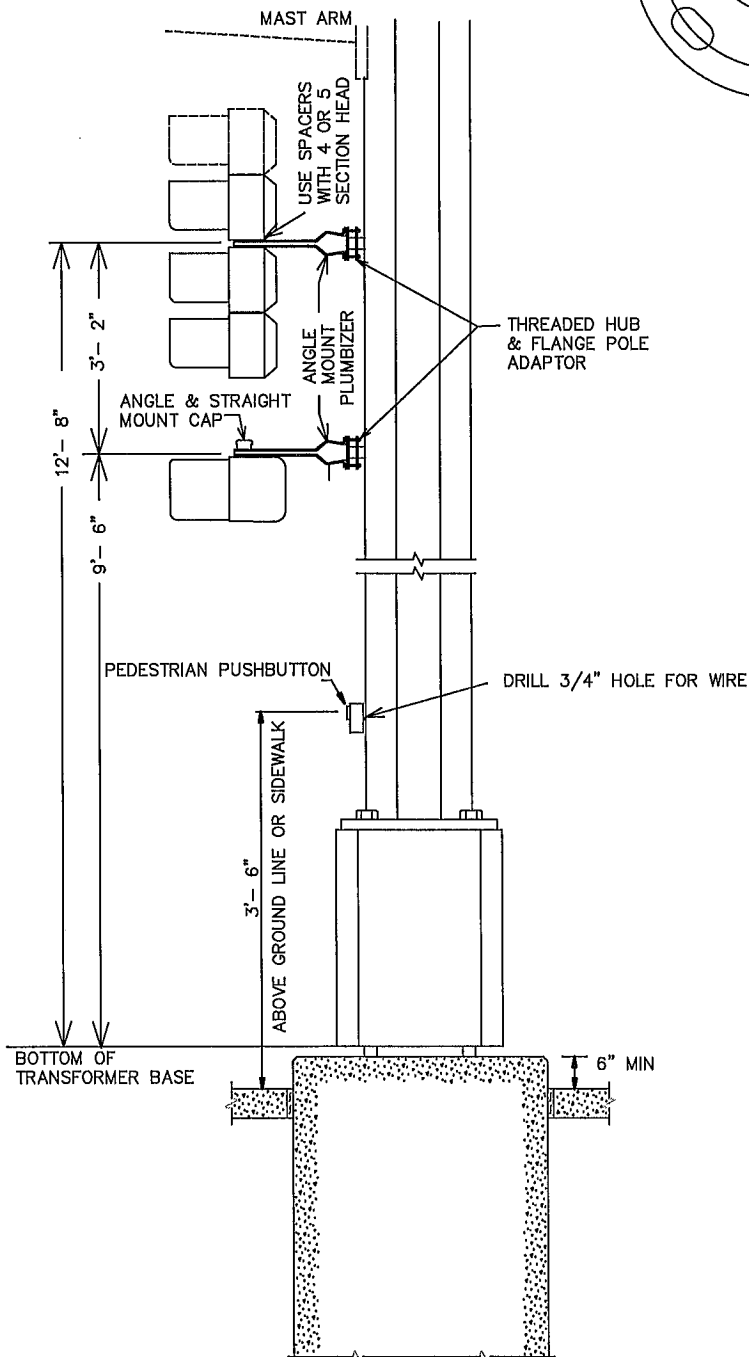
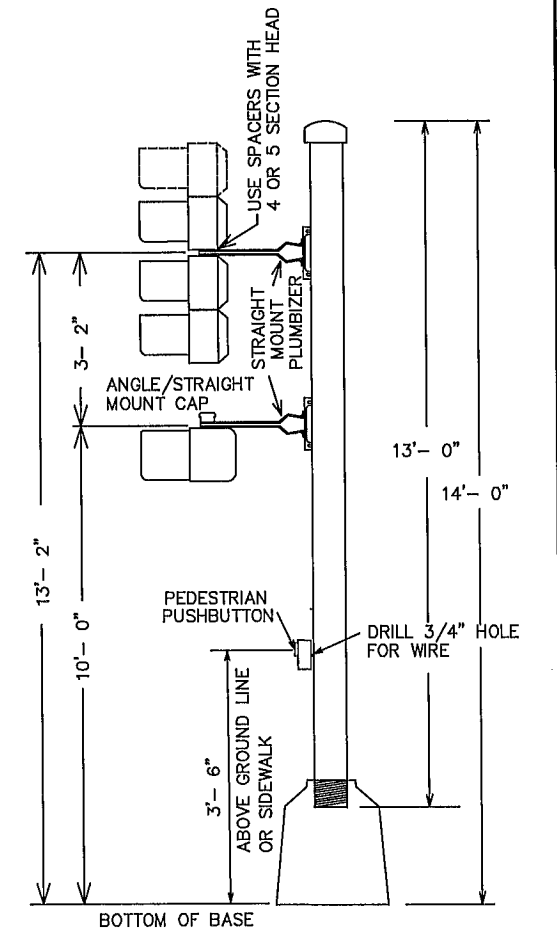
**TOP VIEW**



- NOTE:
1. ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.
  2. USE SIGNAL HEAD MOUNTED SPACERS FOR 4 & 5 SECTION POLY HEADS.
  3. BLIND THREADED INSERTS (RIVET NUT) MUST BE INSTALLED USING MANUFACTURERS SPECIFIC INSTALLATION TOOL. NO OTHER METHOD OF INSTALLATION IS ACCEPTABLE.
  4. SEE STANDARD PLATE NUMBER 8122 FOR ADDITIONAL PEDESTAL POLE DETAILS.



**TYPICAL PEDESTAL MOUNTING**  
NOT TO SCALE



**TYPICAL SIGNAL POLE MOUNTING**  
NOT TO SCALE

- NOTE:
1. ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.
  2. USE SIGNAL HEAD MOUNTED SPACERS FOR 4 & 5 SECTION POLY HEADS.
  3. SEE STANDARD PLATE NUMBER 8123 FOR ADDITIONAL SIGNAL POLE DETAILS.

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DESIGNER: JMG  
CHECKED BY: JMG

NO.	BY	DATE

REVISIONS

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**ANOKA COUNTY**  
CITIES OF BLAINE  
AND COON RAPIDS

**TRAFFIC SIGNAL SYSTEMS 'B-E'**  
ONE-WAY POLE MOUNT DETAILS  
CSAH 51 (UNIVERSITY AVE) SIGNAL SYSTEMS

FILE NO.  
ANOKC 125457  
SIGNAL SHEET  
5 OF 39

222  
381

S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

SIGNS FOR TRAFFIC SIGNAL SYSTEM										
SIGN PANELS - TYPE D (FURNISH AND INSTALL)										
SIGNAL SYSTEM	SIGN PANEL	POLE NO.	a (FT)	b (FT)	SIZE (IN)	MOUNTING BRACKET		AREA/SIGN (SQ. FT.)	NO. REQ.	PANEL LEGEND
						QUANTITY	SPACING (1)			
B	D-1	1	-	28'	66 x 24	3	----	11.00	1	111th Ave
B	D-2	2	8'	-	108 x 24	4	----	18.00	1	University Ave
B	D-3	3	-	28'	66 x 24	3	----	11.00	1	111th Ave
B	D-4	4	8'	-	108 x 24	4	----	18.00	1	University Ave
C	D-5	1	-	28'	96 x 24	4	----	16.00	1	113th Ave w/RT Arrow
C	D-6	3	-	28'	96 x 24	4	----	16.00	1	113th Ave w/LT Arrow
C	D-7	4	8'	-	108 x 24	4	----	18.00	1	University Ave
D	D-8	1	-	28'	72 x 24	3	----	12.00	1	117th Ave
D	D-9	2	8'	-	108 x 24	4	----	18.00	1	University Ave
D	D-10	3	-	28'	72 x 24	3	----	12.00	1	117th Ave
D	D-11	4	8'	-	108 x 24	4	----	18.00	1	University Ave
E	D-12	1	8'	-	108 x 24	4	----	18.00	1	University Ave
E	D-13	2	-	28'	72 x 24	3	----	12.00	1	121st Ave
E	D-14	3	8'	-	108 x 24	4	----	18.00	1	University Ave
E	D-15	4	-	28'	72 x 24	3	----	12.00	1	121st Ave
TOTAL QUANTITIES								228.00	15	

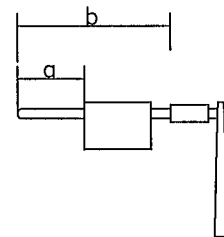
(1) = SPACING BETWEEN STIFFENERS SHALL NOT EXCEED 36 INCHES AND SHALL BE UNIFORMLY SPACED. SEE STANDARD SIGNS MANUAL, PAGE 105A (REVISION DATE 7/06/2007) FOR BRACKET SPACING REQUIREMENTS.

SIGNS FOR TRAFFIC SIGNAL SYSTEM										
SIGN PANELS - TYPE C (FURNISH AND INSTALL)										
SIGNAL SYSTEM	SIGN PANEL	POLE NO.	a (FT)	b (FT)	SIZE (IN)	MOUNTING BRACKET		AREA/SIGN (SQ. FT.)	NO. REQ.	PANEL LEGEND
						QUANTITY	SPACING (1)			
B	R6-1L	1,3	-	-	36 x 12	①	----	3.00	2	ONE WAY (LEFT)
B	R6-1R	1,3	-	-	36 x 12	①	----	3.00	2	ONE WAY (RIGHT)
C	R6-1L	3	-	-	36 x 12	①	----	3.00	1	ONE WAY (LEFT)
C	R6-1R	1	-	-	36 x 12	①	----	3.00	1	ONE WAY (RIGHT)
D	R6-1L	1,3	-	-	36 x 12	①	----	3.00	2	ONE WAY (LEFT)
D	R6-1R	1,3	-	-	36 x 12	①	----	3.00	2	ONE WAY (RIGHT)
E	R6-1L	2,4	-	-	36 x 12	①	----	3.00	2	ONE WAY (LEFT)
E	R6-1R	2,4	-	-	36 x 12	①	----	3.00	2	ONE WAY (RIGHT)
B	R10-X12	1,3	1'	-	36 x 42	2	----	10.50	2	LEFT TURN YIELD ON FLASHING YELLOW ARROW
C	R10-X12	1,3	1'	-	36 x 42	2	----	10.50	2	LEFT TURN YIELD ON FLASHING YELLOW ARROW
D	R10-X12	1,3	1'	-	36 x 42	2	----	10.50	2	LEFT TURN YIELD ON FLASHING YELLOW ARROW
E	R10-X12	2,4	1'	-	36 x 42	2	----	10.50	2	LEFT TURN YIELD ON FLASHING YELLOW ARROW
FLASHER	S5-1	5,6	-	-	24 x 48	②	----	8.00	2	SCHOOL SPEED LIMIT 30 WHEN FLASHING
TOTAL QUANTITIES								142.00	24	

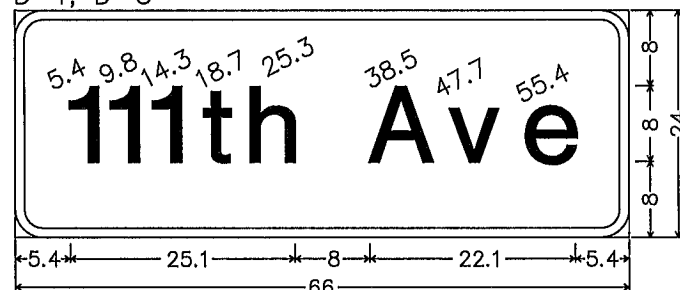
SIGNS FOR FLASHING BEACON SYSTEM					
DYNAMIC SPEED SIGNS (FURNISH AND INSTALL)					
SIGNAL SYSTEM	POLE NO.	SIZE (IN)	MOUNTING BRACKET	NO. REQ.	PANEL LEGEND
FLASHER	5,6	30 x 41	②	2	YOUR SPEED (XX)

GENERAL SIGNING NOTES:

- COLOR FOR ALL TYPE D SIGNS SHALL BE WHITE LEGEND AND BORDER ON GREEN BACKGROUND, FULLY REFLECTORIZED.
- CORNERS EXTENDING BEYOND THE BORDER SHALL NOT BE TRIMMED.
- FOR STRUCTURAL DETAILS OF MAST ARM MOUNTED SIGNS, SEE STANDARD SIGNS MANUAL, PAGE 105A (REVISION DATE: 7/06/07), AND SPECIAL PROVISIONS.
- SEE STANDARD SIGNS MANUAL FOR DETAILED DRAWINGS OF TYPE C SIGN PANELS AND ARROW DETAILS.
- FURNISHING AND INSTALLING TYPE C & D SIGNS SHALL BE INCLUDED UNDER THE PAY ITEMS FOR ITEM NO. 2565 (TRAFFIC SIGNAL SYSTEMS "B-E"). SEE SPECIAL PROVISIONS.
- FURNISHING AND INSTALLING TYPE C (S5-1) AND DYNAMIC SPEED SIGNS SHALL BE INCLUDED UNDER THE PAY ITEM FOR ITEM NO. 2565 (FLASHING BEACON SYSTEM). SEE SPECIAL PROVISIONS.
- ALL NEW TYPE C AND D SIGN PANELS SHALL BE FABRICATED USING DG3 SHEETING. SEE SPECIAL PROVISIONS.
- ① = INSTALL SIGN PANEL ON TRAFFIC SIGNAL MAST ARM POLE.
- ② = INSTALL SIGN PANEL ON TRAFFIC SIGNAL PEDESTAL POLE.

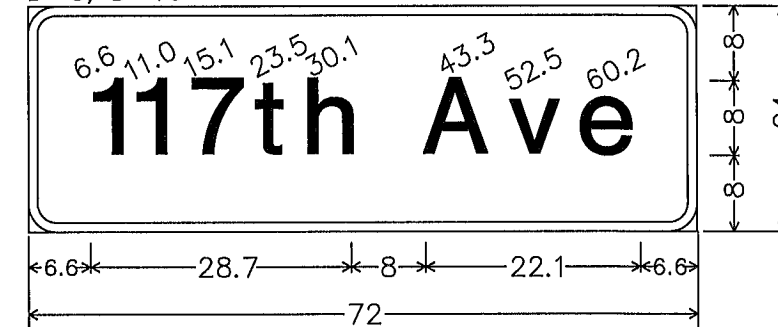


D-1, D-3



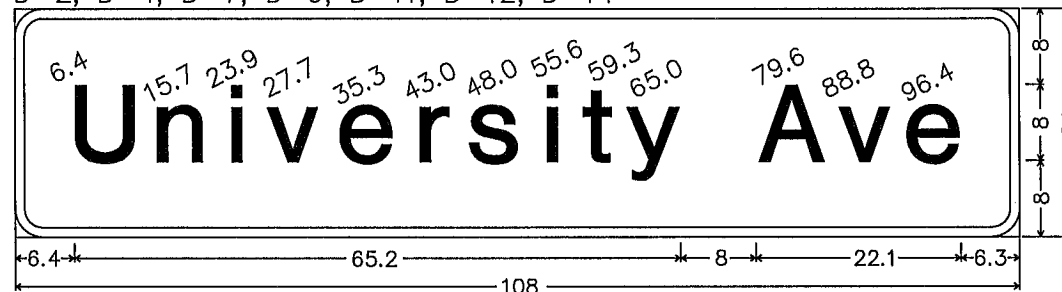
3.0" Radius, 1.0" Border, White on Green; [111th Ave] E Mod;

D-8, D-10



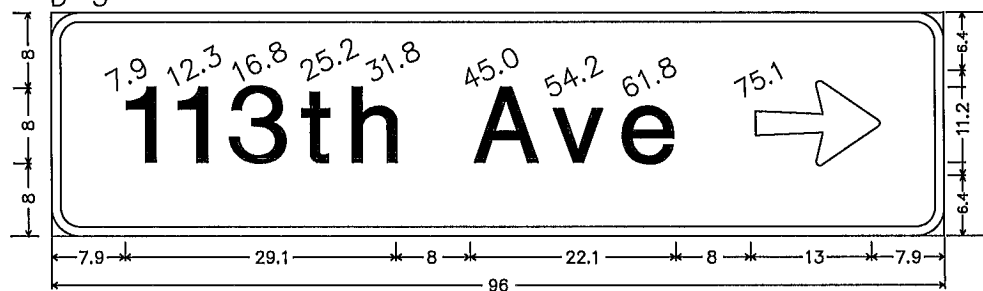
3.0" Radius, 1.0" Border, White on Green; [117th Ave] E Mod;

D-2, D-4, D-7, D-9, D-11, D-12, D-14



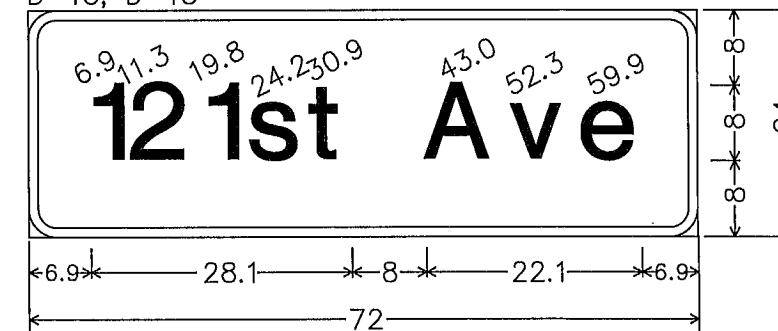
3.0" Radius, 1.0" Border, White on Green; [University Ave] E Mod;

D-5



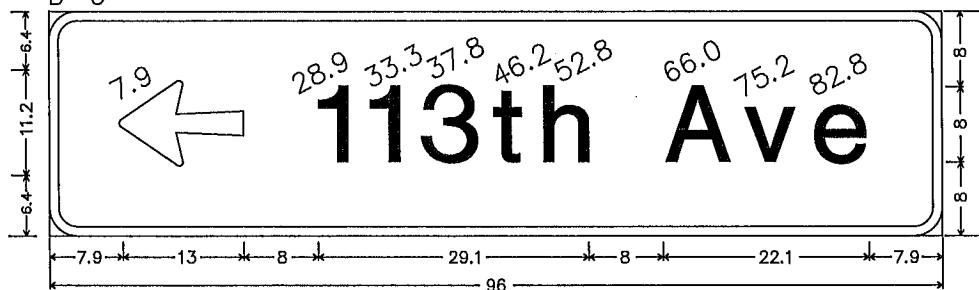
3.0" Radius, 1.0" Border, White on Green; [113th Ave] E Mod; Arrow 5 - 13.0" 0°

D-13, D-15



3.0" Radius, 1.0" Border, White on Green; [121st Ave] E Mod;

D-6



3.0" Radius, 1.0" Border, White on Green; Arrow 5 - 13.0" 180°, [113th Ave] E Mod

DRAWN BY: JMG  
DESIGNER: JMG  
CHECKED BY: JMG  
DESIGN TEAM

NO.	BY	DATE	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
Date: April 23, 2014 Name: John M. Gray, PE Ltc. No. 22457

SEH  
PHONE: (651) 490-2000  
3535 VADNAIS CENTER DR.  
ST. PAUL, MN 55110

ANOKA COUNTY  
CITIES OF BLAINE  
AND COON RAPIDS

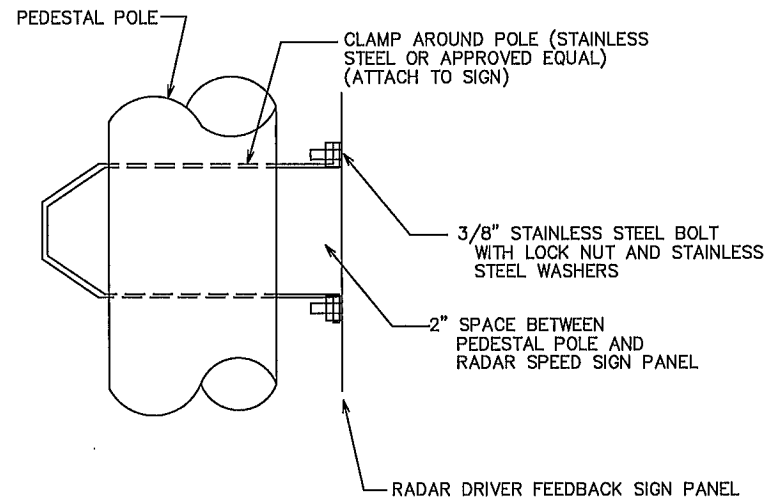
TRAFFIC SIGNAL SYSTEMS "A-E"  
SIGNAL SIGNING DETAILS  
CSAH 51 (UNIVERSITY AVE) SIGNAL SYSTEMS

FILE NO.  
ANOKC 125457  
SIGNAL SHEET  
6 OF 39  
223  
381

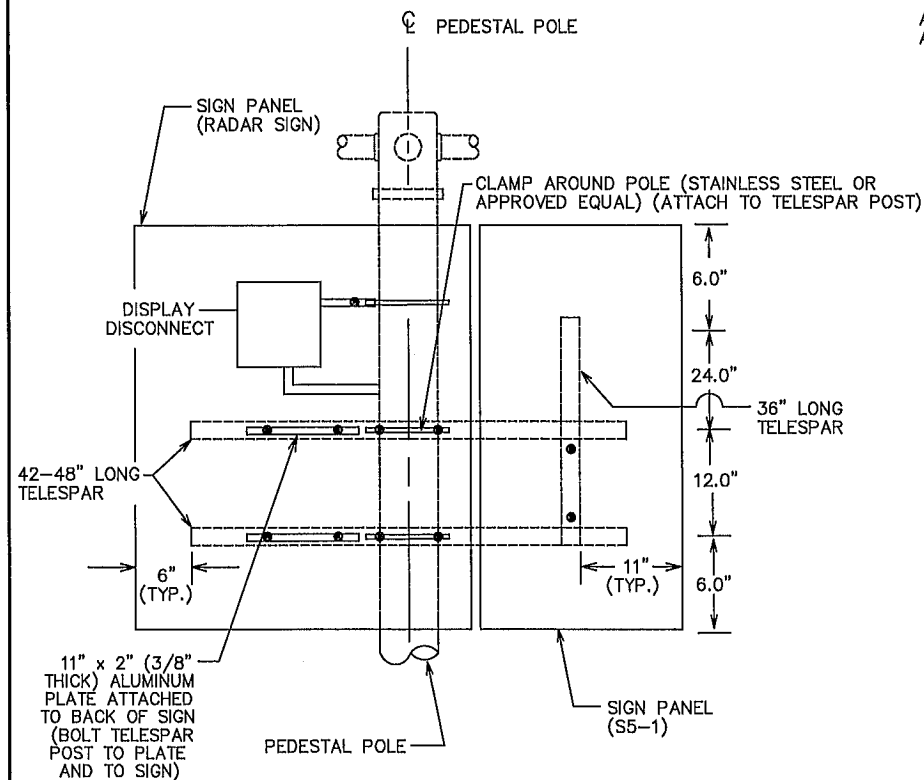
S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

# FLASHER SIGN MOUNTING ATTACHMENT DETAILS

## SIDE DETAIL



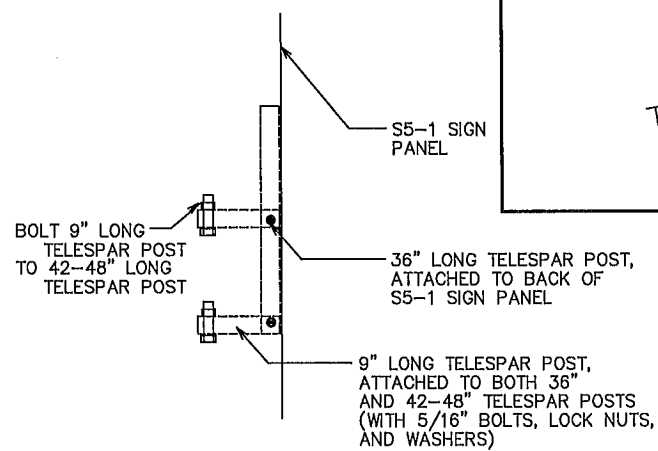
## FRONT DETAIL



3/8" STAINLESS STEEL BOLTS WITH STAINLESS STEEL WASHERS & LOCK NUTS

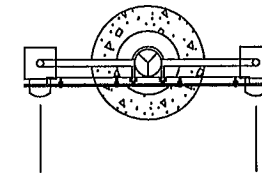
ALL TELESPAR POSTS ARE 2" POSTS.

## SIDE DETAIL



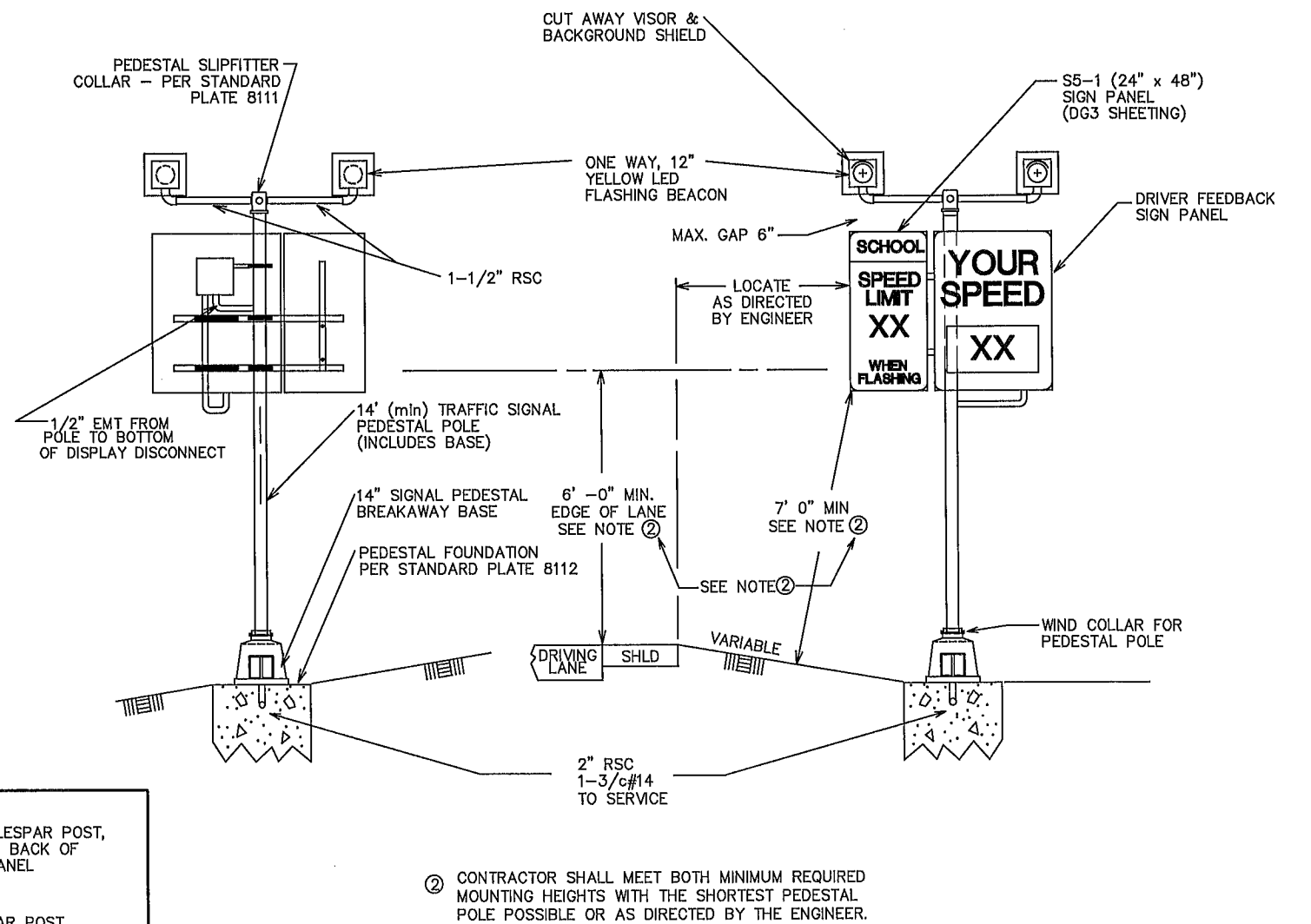
# HARDWIRE POWERED FLASHER POLE DETAILS

## TOP VIEW



## FRONT VIEW

## BACK VIEW



S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

DRAWN BY: JMG				
DESIGNER: JMG				
CHECKED BY: JMG				
DESIGN TEAM	NO.	BY	DATE	REVISIONS

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*John M. Gray*  
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Lic. No. 22457  
Date: April 23, 2014

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ST. PAUL, MN 55110

ANOKA COUNTY  
CITIES OF BLAINE  
AND COON RAPIDS

FLASHING BEACON SYSTEM  
TYPICAL DETAILS  
CSAH 51 (UNIVERSITY AVE) - NEAR 113TH AVE

FILE NO. ANOKC 125457  
SIGNAL SHEET 7 OF 39  
224  
381



NMC LOOP DETECTORS					
OLD NUMBER	NEW NUMBER	SIZE (FT.)	LOCATION	FUNCTION	STATUS
D5-1	D1-1	4-6x6	AS SHOWN	1	INPLACE
D6-2	D2-1	6x6	330'	1	INPLACE
D6-1	D2-2	6x6	330'	1	INPLACE
D6-4	D2-3	6x6	5'	2	INPLACE
D6-3	D2-4	6x6	5'	2	INPLACE
D7-1	D3-1	4-6x6	AS SHOWN	1	INPLACE
D8-1	D4-1	2-6x6	260'	3,8	INPLACE
D8-3	D4-2	2-6x6	AS SHOWN	1	INPLACE
D8-2	D4-3	2-6x6	AS SHOWN	7	INPLACE
D1-1	D5-1	4-6x6	AS SHOWN	1	INPLACE
D2-1	D6-1	6x6	230'	1	F & I
D2-2	D6-2	6x6	230'	1	F & I
D2-3	D6-3	6x6	5'	2	INPLACE
D2-4	D6-4	6x6	5'	2	INPLACE
D3-1	D7-1	4-6x6	AS SHOWN	1	INPLACE
D4-1	D8-1	2-6x6	260'	3,8	INPLACE
D4-3	D8-2	2-6x6	AS SHOWN	1	INPLACE
D4-2	D8-3	2-6x6	AS SHOWN	7	INPLACE

NOTE: LOCATION=DISTANCE FROM STOP BAR TO FRONT OF LOOP DETECTOR.



INSTALL VIDEO DETECTORS (FURNISHED BY COUNTY)				
CAMERA NO.	INTERSECTION APPROACH FACING	SIGNAL POLE (CAMERA) LOCATION	CAMERA MOUNTED AT	MOUNTING HEIGHT
V2/5-1	SB CSAH 51	MAST ARM 3	ON MAST ARM	25'

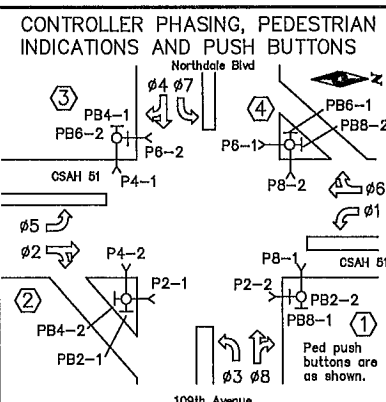
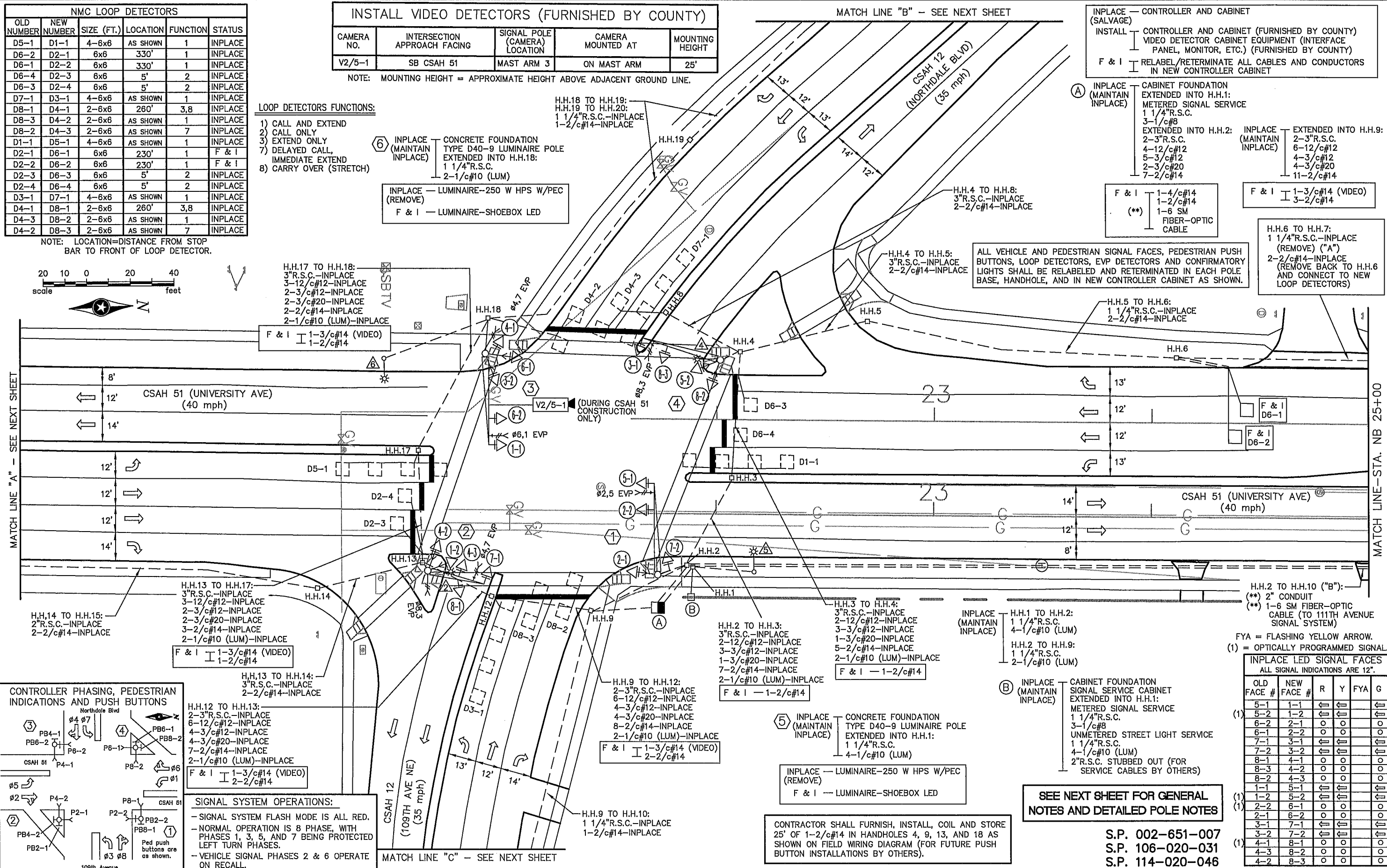
NOTE: MOUNTING HEIGHT = APPROXIMATE HEIGHT ABOVE ADJACENT GROUND LINE.

**LOOP DETECTORS FUNCTIONS:**

- 1) CALL AND EXTEND
- 2) CALL ONLY
- 3) EXTEND ONLY
- 7) DELAYED CALL, IMMEDIATE EXTEND
- 8) CARRY OVER (STRETCH)

INPLACE — CONCRETE FOUNDATION TYPE D40-9 LUMINAIRE POLE EXTENDED INTO H.H.18: 1 1/4" R.S.C. 2-1/c#10 (LUM)

INPLACE — LUMINAIRE-250 W HPS W/PEC (REMOVE)  
F & I — LUMINAIRE-SHOEBOX LED



**SIGNAL SYSTEM OPERATIONS:**

- SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 8 PHASE, WITH PHASES 1, 3, 5, AND 7 BEING PROTECTED LEFT TURN PHASES.
- VEHICLE SIGNAL PHASES 2 & 6 OPERATE ON RECALL.

INPLACE — CONTROLLER AND CABINET (SALVAGE)  
INSTALL — CONTROLLER AND CABINET (FURNISHED BY COUNTY)  
VIDEO DETECTOR CABINET EQUIPMENT (INTERFACE PANEL, MONITOR, ETC.) (FURNISHED BY COUNTY)  
F & I — RELABEL/RETERMINATE ALL CABLES AND CONDUCTORS IN NEW CONTROLLER CABINET

INPLACE (MAINTAIN INPLACE) — CABINET FOUNDATION EXTENDED INTO H.H.1: METERED SIGNAL SERVICE 1 1/4" R.S.C. 3-1/c#8  
EXTENDED INTO H.H.2: INPLACE (MAINTAIN INPLACE) 2-3" R.S.C. 4-12/c#12 5-3/c#12 2-3/c#20 7-2/c#14  
EXTENDED INTO H.H.9: 2-3" R.S.C. 6-12/c#12 4-3/c#12 11-2/c#14

F & I — 1-4/c#14 1-2/c#14 1-6 SM FIBER-OPTIC CABLE

F & I — 1-3/c#14 (VIDEO) 3-2/c#14

H.H.6 TO H.H.7: 1 1/4" R.S.C.—INPLACE (REMOVE) ("A") 2-2/c#14—INPLACE (REMOVE BACK TO H.H.6 AND CONNECT TO NEW LOOP DETECTORS)

ALL VEHICLE AND PEDESTRIAN SIGNAL FACES, PEDESTRIAN PUSH BUTTONS, LOOP DETECTORS, EVP DETECTORS AND CONFIRMATORY LIGHTS SHALL BE RELABELED AND RETERMINATED IN EACH POLE BASE, HANDHOLE, AND IN NEW CONTROLLER CABINET AS SHOWN.

H.H.2 TO H.H.10 ("B"):  
(\*\*) 2" CONDUIT  
(\*\*) 1-6 SM FIBER-OPTIC CABLE (TO 111TH AVENUE SIGNAL SYSTEM)

FYA = FLASHING YELLOW ARROW.  
(1) = OPTICALLY PROGRAMMED SIGNAL.

INPLACE LED SIGNAL FACES						
ALL SIGNAL INDICATIONS ARE 12"						
OLD FACE #	NEW FACE #	R	Y	FYA	G	
(1) 5-1	1-1	←	←			↑
(1) 5-2	1-2	←	←			↑
6-2	2-1	○	○			○
6-1	2-2	○	○			○
7-1	3-1	←	←			↑
7-2	3-2	←	←			↑
8-1	4-1	○	○			○
8-3	4-2	○	○			○
8-2	4-3	○	○			○
1-1	5-1	←	←			↑
(1) 1-2	5-2	←	←			↑
(1) 2-2	6-1	○	○			○
2-1	6-2	○	○			○
3-1	7-1	←	←			↑
3-2	7-2	←	←			↑
(1) 4-1	8-1	○	○			○
4-3	8-2	○	○			○
4-2	8-3	○	○			○

SEE NEXT SHEET FOR GENERAL NOTES AND DETAILED POLE NOTES

S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

CONTRACTOR SHALL FURNISH, INSTALL, COIL AND STORE 25' OF 1-2/c#14 IN HANDHOLES 4, 9, 13, AND 18 AS SHOWN ON FIELD WIRING DIAGRAM (FOR FUTURE PUSH BUTTON INSTALLATIONS BY OTHERS).

DRAWN BY: JMG  
DESIGNER: JMG  
CHECKED BY: JMG

NO.	BY	DATE	REVISIONS

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Date: April 23, 2014 Name: John M. Gray, PE Lic. No. 22457

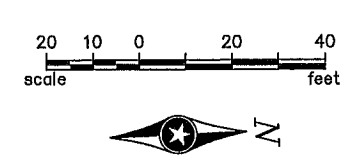
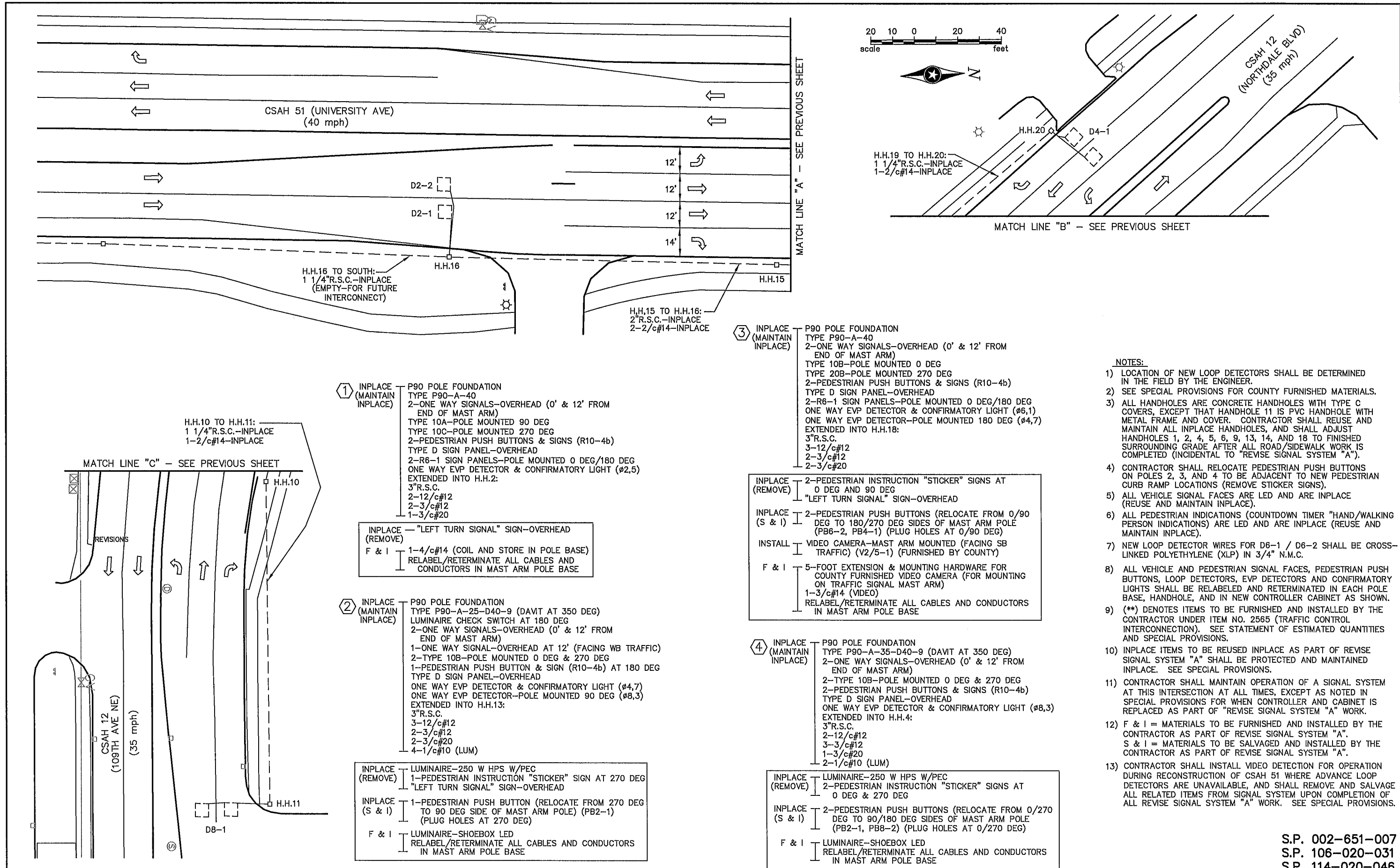
SEH PHONE: (651) 490-2000 3535 VADNAIS CENTER DR. ST. PAUL, MN 55110

ANOKA COUNTY CITIES OF BLAINE AND COON RAPIDS

REVISE SYSTEM 'A'/INTERCONNECT INTERSECTION LAYOUT CSAH 51 (UNIVERSITY AVE) AT CSAH 12 (NORTHDALE BLVD/109TH AVE)

FILE NO. ANOKC 125457 SIGNAL SHEET 8 OF 39

225 391



- NOTES:**
- 1) LOCATION OF NEW LOOP DETECTORS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
  - 2) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
  - 3) ALL HANDHOLES ARE CONCRETE HANDHOLES WITH TYPE C COVERS, EXCEPT THAT HANDHOLE 11 IS PVC HANDHOLE WITH METAL FRAME AND COVER. CONTRACTOR SHALL REUSE AND MAINTAIN ALL INPLACE HANDHOLES, AND SHALL ADJUST HANDHOLES 1, 2, 4, 5, 6, 9, 13, 14, AND 18 TO FINISHED SURROUNDING GRADE AFTER ALL ROAD/SIDEWALK WORK IS COMPLETED (INCIDENTAL TO "REVISE SIGNAL SYSTEM "A").
  - 4) CONTRACTOR SHALL RELOCATE PEDESTRIAN PUSH BUTTONS ON POLES 2, 3, AND 4 TO BE ADJACENT TO NEW PEDESTRIAN CURB RAMP LOCATIONS (REMOVE STICKER SIGNS).
  - 5) ALL VEHICLE SIGNAL FACES ARE LED AND ARE INPLACE (REUSE AND MAINTAIN INPLACE).
  - 6) ALL PEDESTRIAN INDICATIONS (COUNTDOWN TIMER "HAND/WALKING PERSON INDICATIONS) ARE LED AND ARE INPLACE (REUSE AND MAINTAIN INPLACE).
  - 7) NEW LOOP DETECTOR WIRES FOR D6-1 / D6-2 SHALL BE CROSS-LINKED POLYETHYLENE (XLP) IN 3/4" N.M.C.
  - 8) ALL VEHICLE AND PEDESTRIAN SIGNAL FACES, PEDESTRIAN PUSH BUTTONS, LOOP DETECTORS, EVP DETECTORS AND CONFIRMATORY LIGHTS SHALL BE RELABELED AND RETERMINATED IN EACH POLE BASE, HANDHOLE, AND IN NEW CONTROLLER CABINET AS SHOWN.
  - 9) (\*\*) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECTION). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
  - 10) INPLACE ITEMS TO BE REUSED INPLACE AS PART OF REVISE SIGNAL SYSTEM "A" SHALL BE PROTECTED AND MAINTAINED INPLACE. SEE SPECIAL PROVISIONS.
  - 11) CONTRACTOR SHALL MAINTAIN OPERATION OF A SIGNAL SYSTEM AT THIS INTERSECTION AT ALL TIMES, EXCEPT AS NOTED IN SPECIAL PROVISIONS FOR WHEN CONTROLLER AND CABINET IS REPLACED AS PART OF "REVISE SIGNAL SYSTEM "A" WORK.
  - 12) F & I = MATERIALS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR AS PART OF REVISE SIGNAL SYSTEM "A". S & I = MATERIALS TO BE SALVAGED AND INSTALLED BY THE CONTRACTOR AS PART OF REVISE SIGNAL SYSTEM "A".
  - 13) CONTRACTOR SHALL INSTALL VIDEO DETECTION FOR OPERATION DURING RECONSTRUCTION OF CSAH 51 WHERE ADVANCE LOOP DETECTORS ARE UNAVAILABLE, AND SHALL REMOVE AND SALVAGE ALL RELATED ITEMS FROM SIGNAL SYSTEM UPON COMPLETION OF ALL REVISE SIGNAL SYSTEM "A" WORK. SEE SPECIAL PROVISIONS.

S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

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DESIGNER: JMG			
CHECKED BY: JMG			
DESIGN TEAM	NO.	BY	DATE
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*John M. Gray*  
Name: John M. Gray, PE  
Date: April 23, 2014  
Lic. No. 22457

PHONE: (651) 480-2000  
3535 VADNAIS CENTER DR.  
ST. PAUL, MN 55110

**ANOKA COUNTY**  
**CITIES OF BLAINE AND COON RAPIDS**

**REVISE SYSTEM "A"/INTERCONNECT INTERSECTION LAYOUT**  
CSAH 51 (UNIVERSITY AVE) AT CSAH 12 (NORTHDALE BLVD/109TH AVE)

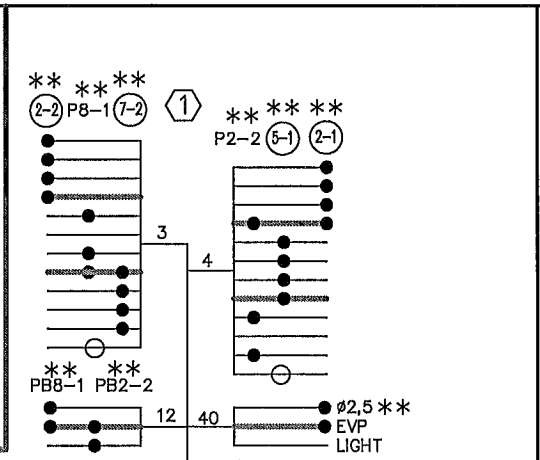
FILE NO. ANOKC 125457  
SIGNAL SHEET 9 OF 39

226  
381

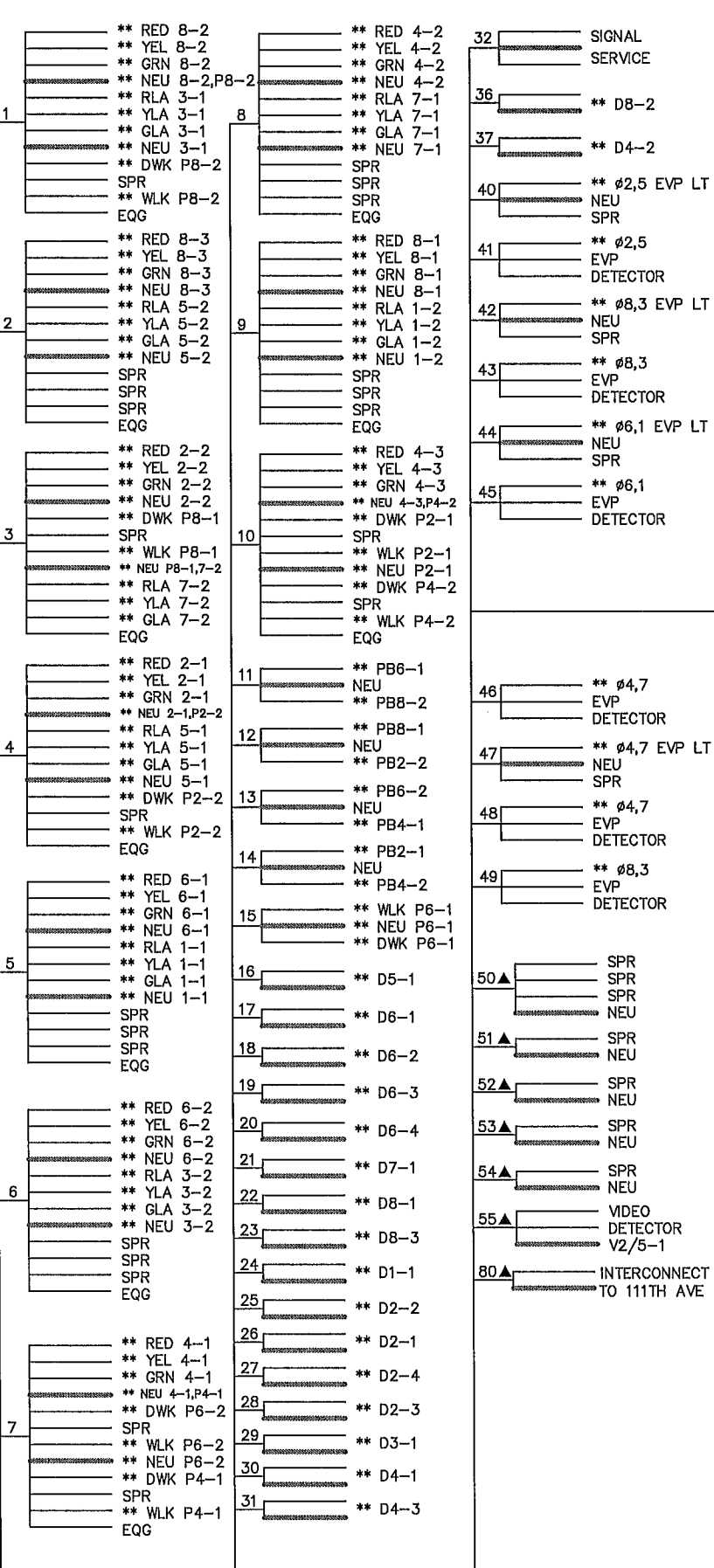
**CONDUCTOR COLOR CODING**

R	BLK/R	4/c#14
BL	BLK	
WH	WH	
R/BLK	BLK	2-1/c#2
O/BLK	WH	2-1/c#6
BL/BLK	WH	2-1/c#10
WH/BLK	R	
BLK	WH	3/c#12
BLK/WH	BLK	
G/BLK	BLK	
G	CLEAR	2/c#14
	R OR O	
	WH OR YEL	3/c#20
	BLK OR BL	

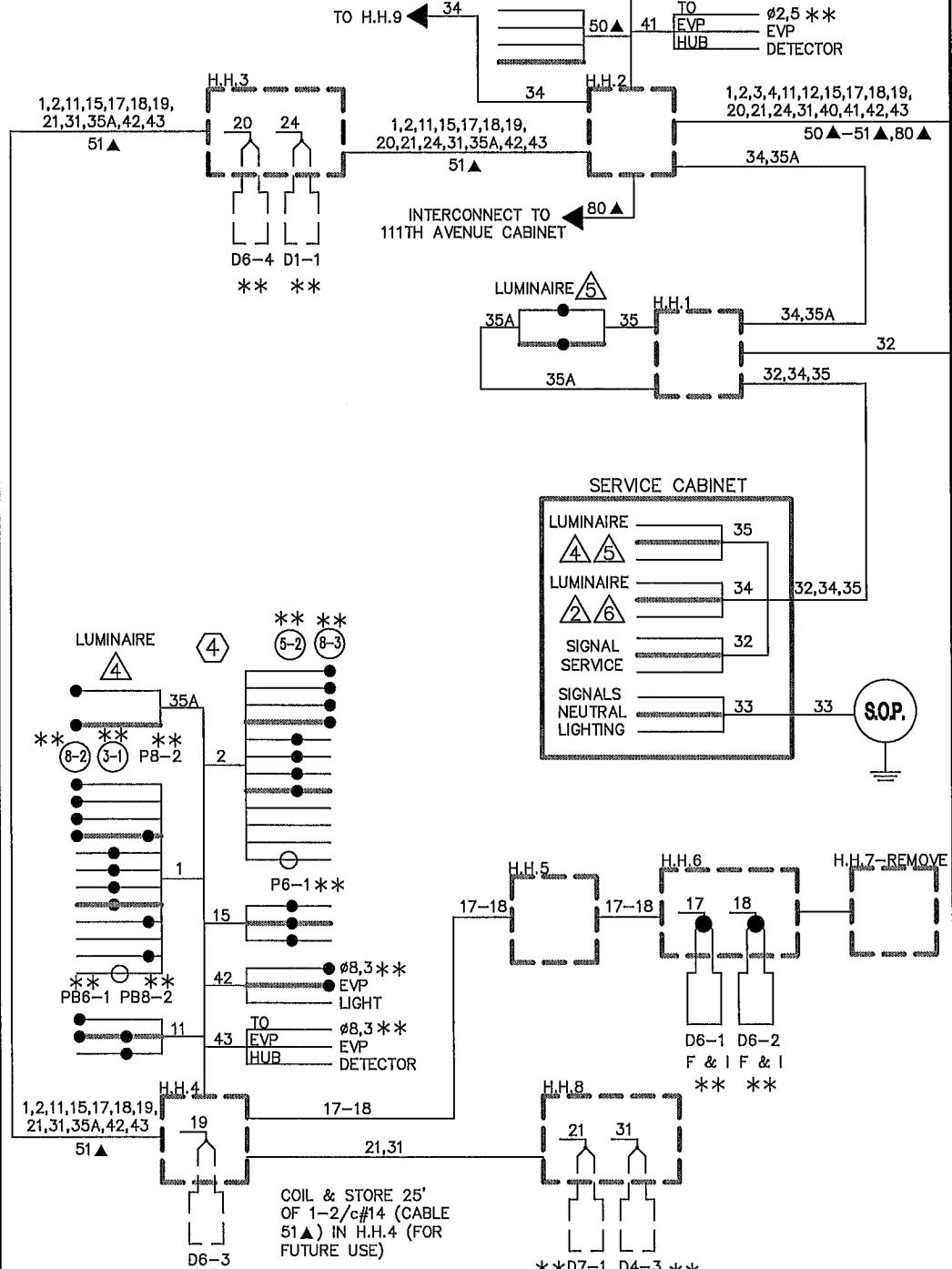
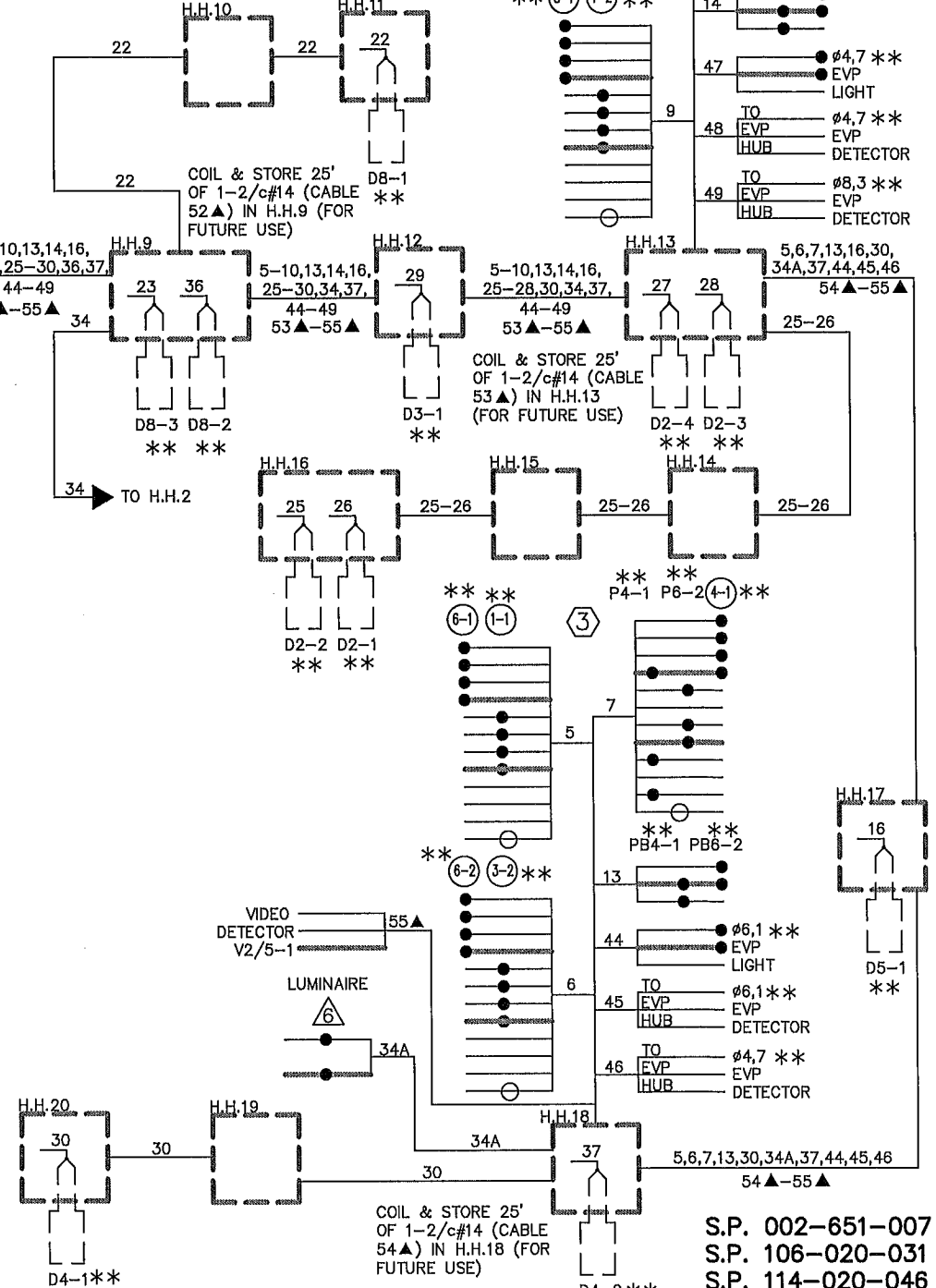
NOTE: ALL TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.



**CONTROLLER AND CABINET**



- NOTES:**
- 1) ALL CABLES AND CONDUCTORS ARE INPLACE AND SHALL BE REUSED AS SHOWN, EXCEPT WHERE DENOTED BY ▲ (▲ = CABLES & CONDUCTORS TO BE FURNISHED AND INSTALLED BY CONTRACTOR).
  - 2) F & I = LOOP DETECTOR TO BE FURNISHED AND INSTALLED BY CONTRACTOR AS PART OF PROJECT.
  - 3) \*\* DENOTES NEW LABELING OF EXISTING SIGNAL HEAD, LOOP DETECTOR, PUSH BUTTON, EVP, ETC. ON INPLACE CABLE (CONTRACTOR SHALL RELABEL ALL TERMINAL BLOCKS AND HANDHOLES CONTAINING THIS DESIGNATION).
  - 4) ● = NEW TERMINATION ON INPLACE OR NEW CABLE.  
○ = EXISTING TERMINATION ON INPLACE CABLE.



DRAWN BY: JMG  
 DESIGNER: JMG  
 CHECKED BY: JMG

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 Date: April 23, 2014  
 Lic. No. 22457

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**ANOKA COUNTY**  
**CITIES OF BLAINE**  
**AND COON RAPIDS**

REVISE SYSTEM 'A'/INTERCONNECT  
 FIELD WIRING DIAGRAM  
 CSAH 51 (UNIVERSITY AVE) AT  
 CSAH 12 (NORTHDALE BLVD/109TH AVE)

FILE NO. ANOKC 125457  
 SIGNAL SHEET 10 OF 39  
 227  
 381

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

SIGNAL SYSTEM "B" POLE NOTES

- ① PA100 POLE FOUNDATION  
 TYPE PA100-A-40-D30-9 (DAVIT AT 350 DEG)  
 LUMINAIRE-LED SHOEBOX  
 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'  
 2-STRAIGHT MOUNT SIGNALS-OVERHEAD AT 11' & 23'  
 2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG & 180 DEG  
 2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED 90 DEG AND 180 DEG  
 2-PEDESTRIAN PUSH BUTTONS  
 2-R6-1 SIGN PANELS-POLE MOUNTED 0 DEG & 180 DEG  
 R10-X12 SIGN PANEL-ADJACENT TO 1-1  
 TYPE D SIGN PANEL-OVERHEAD (D-1)  
 (\*) ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT (#6,1)  
 EXTEND INTO H.H.12:  
 3"R.S.C.  
 2-12/c#14  
 (\*) 1-3/c#14  
 (\*) 1-3/c#20  
 2-2/c#14  
 1-3/c#14 (LUM)  
 1-1/c#6 (INS.GR.)

- ② PA90 POLE FOUNDATION  
 TYPE PA90-A-30-D30-9 (DAVIT AT 350 DEG)  
 LUMINAIRE-LED SHOEBOX  
 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'  
 2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG AND 180 DEG  
 2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED 90 DEG AND 180 DEG  
 2-PEDESTRIAN PUSH BUTTONS  
 TYPE D SIGN PANEL-OVERHEAD (D-2)  
 (\*) ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT (#8)  
 EXTEND INTO H.H.3:  
 3"R.S.C.  
 2-12/c#14  
 (\*) 1-3/c#14  
 (\*) 1-3/c#20  
 2-2/c#14  
 1-3/c#14 (LUM)  
 1-1/c#6 (INS.GR.)

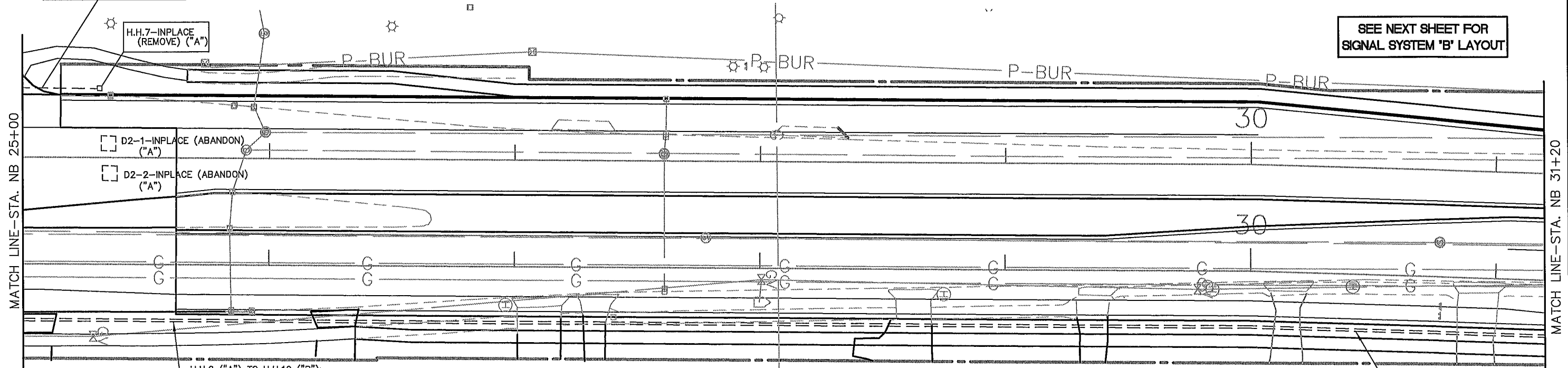
- ③ PA100 POLE FOUNDATION  
 TYPE PA100-A-45-D30-9 (DAVIT AT 350 DEG)  
 LUMINAIRE-LED SHOEBOX  
 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'  
 2-STRAIGHT MOUNT SIGNALS-OVERHEAD AT 11' & 23'  
 2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG AND 180 DEG  
 2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED 90 DEG AND 180 DEG  
 2-PEDESTRIAN PUSH BUTTONS  
 2-R6-1 SIGN PANELS-POLE MOUNTED 0 DEG & 180 DEG  
 R10-X12 SIGN PANEL-ADJACENT TO 5-1  
 TYPE D SIGN PANEL-OVERHEAD (D-3)  
 (\*) ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT (#2,5)  
 EXTEND INTO H.H.6:  
 3"R.S.C.  
 3-12/c#14  
 (\*) 1-3/c#14  
 (\*) 1-3/c#20  
 2-2/c#14  
 1-3/c#14 (LUM)  
 1-1/c#6 (INS.GR.)

- ④ PA90 POLE FOUNDATION  
 TYPE PA90-A-35-D30-9 (DAVIT AT 350 DEG)  
 LUMINAIRE-LED SHOEBOX  
 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'  
 2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG AND 180 DEG  
 2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED 90 DEG AND 180 DEG  
 2-PEDESTRIAN PUSH BUTTONS  
 TYPE D SIGN PANEL-OVERHEAD (D-4)  
 (\*) ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT (#4)  
 (\*) ONE WAY EVP DETECTOR AT 90 DEG (#8)  
 EXTEND INTO H.H.9:  
 3"R.S.C.  
 2-12/c#14  
 (\*) 1-3/c#14  
 (\*) 2-3/c#20  
 2-2/c#14  
 1-3/c#14 (LUM)  
 1-1/c#6 (INS.GR.)

H.H.6 TO H.H.7 ("A"):  
 1 1/4"R.S.C.-INPLACE (REMOVE) ("A")  
 2-2/c#14-INPLACE (SALVAGE BACK TO H.H.6 AND REINSTALL TO NEW H.H.7A) ("A")

H.H.7-INPLACE (REMOVE) ("A")

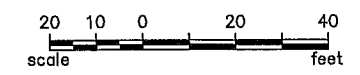
SEE NEXT SHEET FOR SIGNAL SYSTEM "B" LAYOUT



H.H.2 ("A") TO H.H.10 ("B"):  
 (\*\*) 2" CONDUIT  
 (\*\*) 1-6 SM FIBER-OPTIC CABLE (TO NORTHDAL BLVD/109TH AVE SIGNAL)

H.H.2 ("A") TO H.H.10 ("B"):  
 (\*\*) 2" CONDUIT  
 (\*\*) 1-6 SM FIBER-OPTIC CABLE (TO 111TH AVENUE SIGNAL SYSTEM)

- INTERCONNECT NOTES:
- 1) IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" (TELEPHONE NUMBER 651-454-0002) AS REQUIRED BY MINNESOTA STATUTE 2160.
  - 2) DISTANCE OFF SHOULDER OR CURB FOR INTERCONNECT CONDUIT SHALL BE 1-2 FEET.
  - 3) (\*\*) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECTION). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
  - 4) ITEMS DENOTED BY "A" SHALL BE INCLUDED AS PART OF PAY ITEM FOR "REVISE SIGNAL SYSTEM "A".
  - 5) ITEMS LISTED UNDER "SIGNAL SYSTEM "B" POLE NOTES" SHALL BE INCLUDED AS PART OF PAY ITEM FOR "TRAFFIC CONTROL SIGNAL SYSTEM "B".



DRAWN BY: JMG				
DESIGNER: JMG				
CHECKED BY: JMG				
DESIGN TEAM	NO.	BY	DATE	REVISIONS

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

*John M. Gray*  
 Name: John M. Gray, PE  
 Lic. No. 22457  
 Date: April 23, 2014

SEH  
 PHONE: (651) 490-2000  
 3535 VADNAIS CENTER DR.  
 ST. PAUL, MN 55110

ANOKA COUNTY  
 CITIES OF BLAINE  
 AND COON RAPIDS

SYSTEMS "A-B"/INTERCONNECT  
 INTERSECTION LAYOUT  
 CSAH 51 (UNIVERSITY AVE)  
 (NORTHDAL-109TH AVE TO 111TH AVE)

FILE NO.  
 ANOKC 125457  
 SIGNAL SHEET  
 11 OF 39

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

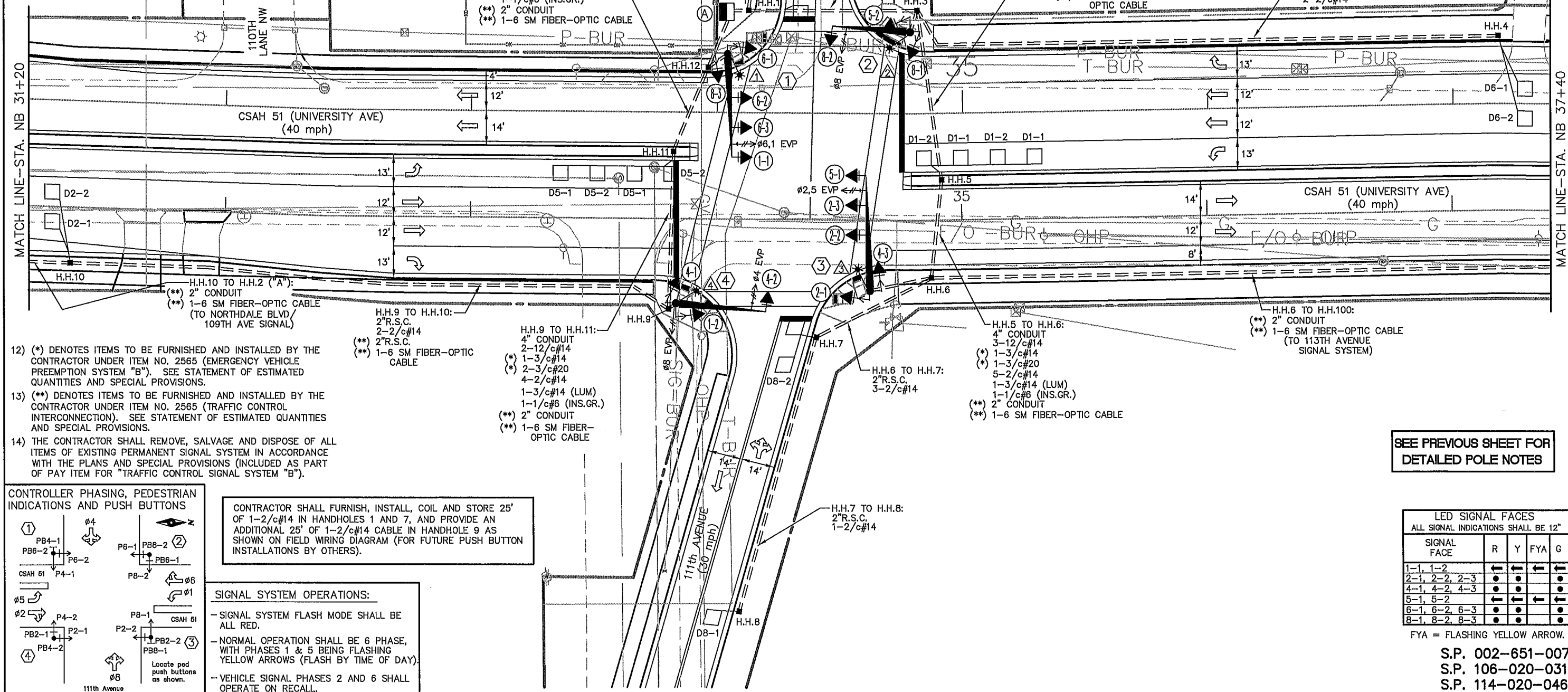
228  
 381

- NOTES:**
- 1) LOCATION OF FOUNDATIONS, LOOP DETECTORS, AND HANDHOLES SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
  - 2) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
  - 3) NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS.
  - 4) A 3/4" HALF COUPLING, 3/4" PIPE NIPPLE, AND CONDUIT OUTLET BODY SHALL BE FURNISHED AND INSTALLED 6 FEET FROM THE END OF EACH MAST ARM (FOR EVP).
  - 5) THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE POWER COMPANY TO ARRANGE FOR THE POWER CONNECTION (CONNEXUS). SEE SPECIAL PROVISIONS.
  - 6) SEE SPECIAL PROVISIONS AND DETAILS REGARDING SIGNS TO BE FURNISHED AND INSTALLED BY CONTRACTOR (INCLUDED AS PART OF PAY ITEM FOR "TRAFFIC CONTROL SIGNAL SYSTEM B").
  - 7) EACH PEDESTRIAN INDICATION SHALL BE ONE SECTION FILLED COUNTDOWN TIMER "HAND/WALKING PERSON" INDICATION.
  - 8) ALL VEHICLE AND PEDESTRIAN SIGNAL INDICATIONS SHALL BE LED.
  - 9) EACH SIGNAL FACE SHALL HAVE A BACKGROUND SHIELD.
  - 10) SEE DETAILS, SPECIAL PROVISIONS, AND STATEMENT OF ESTIMATED QUANTITIES REGARDING BATTERY BACK-UP SIGNAL SERVICE CABINET TO BE FURNISHED AND INSTALLED BY CONTRACTOR (SEPARATE FROM ITEM NO. 2565 FOR THIS SIGNAL SYSTEM).
  - 11) LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) IN 3/4" N.M.C. SEE SPECIAL PROVISIONS.

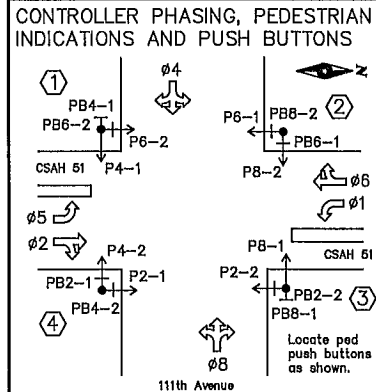
F & I	N.M.C. LOOP DETECTORS	LOCATION	FUNCTION
D1-1	2-6x6	20' & 50'	1
D1-2	2-6x6	5' & 35'	1
D2-1	6x6	250'	1
D2-2	6x6	250'	1
D4-1	6x6	90'	3,8
D4-2	2-6x6	0' & 15'	7
D5-1	2-6x6	15' & 45'	1
D5-2	2-6x6	0' & 30'	1
D6-1	6x6	250'	1
D6-2	6x6	250'	1
D8-1	6x6	120'	3,8
D8-2	2-6x6	0' & 15'	7

- LOOP DETECTORS FUNCTIONS:**
- 1) CALL AND EXTEND
  - 3) EXTEND ONLY
  - 7) DELAYED CALL, IMMEDIATE EXTEND
  - 8) CARRY OVER (STRETCH)

NOTE: LOCATION=DISTANCE FROM STOP BAR TO FRONT OF LOOP DETECTOR.



- 12) (\*) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (EMERGENCY VEHICLE PREEMPTION SYSTEM "B"). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 13) (\*\*) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECTION). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 14) THE CONTRACTOR SHALL REMOVE, SALVAGE AND DISPOSE OF ALL ITEMS OF EXISTING PERMANENT SIGNAL SYSTEM IN ACCORDANCE WITH THE PLANS AND SPECIAL PROVISIONS (INCLUDED AS PART OF PAY ITEM FOR "TRAFFIC CONTROL SIGNAL SYSTEM "B").



CONTRACTOR SHALL FURNISH, INSTALL, COIL AND STORE 25' OF 1-2/c#14 IN HANDHOLES 1 AND 7, AND PROVIDE AN ADDITIONAL 25' OF 1-2/c#14 CABLE IN HANDHOLE 9 AS SHOWN ON FIELD WIRING DIAGRAM (FOR FUTURE PUSH BUTTON INSTALLATIONS BY OTHERS).

- SIGNAL SYSTEM OPERATIONS:**
- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
  - NORMAL OPERATION SHALL BE 6 PHASE, WITH PHASES 1 & 5 BEING FLASHING YELLOW ARROWS (FLASH BY TIME OF DAY).
  - VEHICLE SIGNAL PHASES 2 AND 6 SHALL OPERATE ON RECALL.

SEE PREVIOUS SHEET FOR DETAILED POLE NOTES

**LED SIGNAL FACES**  
ALL SIGNAL INDICATIONS SHALL BE 12"

SIGNAL FACE	R	Y	FYA	G
1-1, 1-2	●	●	●	●
2-1, 2-2, 2-3	●	●	●	●
4-1, 4-2, 4-3	●	●	●	●
5-1, 5-2	●	●	●	●
6-1, 6-2, 6-3	●	●	●	●
8-1, 8-2, 8-3	●	●	●	●

FYA = FLASHING YELLOW ARROW.

S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

DRAWN BY: JMG  
DESIGNER: JMG  
CHECKED BY: JMG

NO.	BY	DATE	REVISIONS

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**ANOKA COUNTY**  
CITIES OF BLAINE AND COON RAPIDS

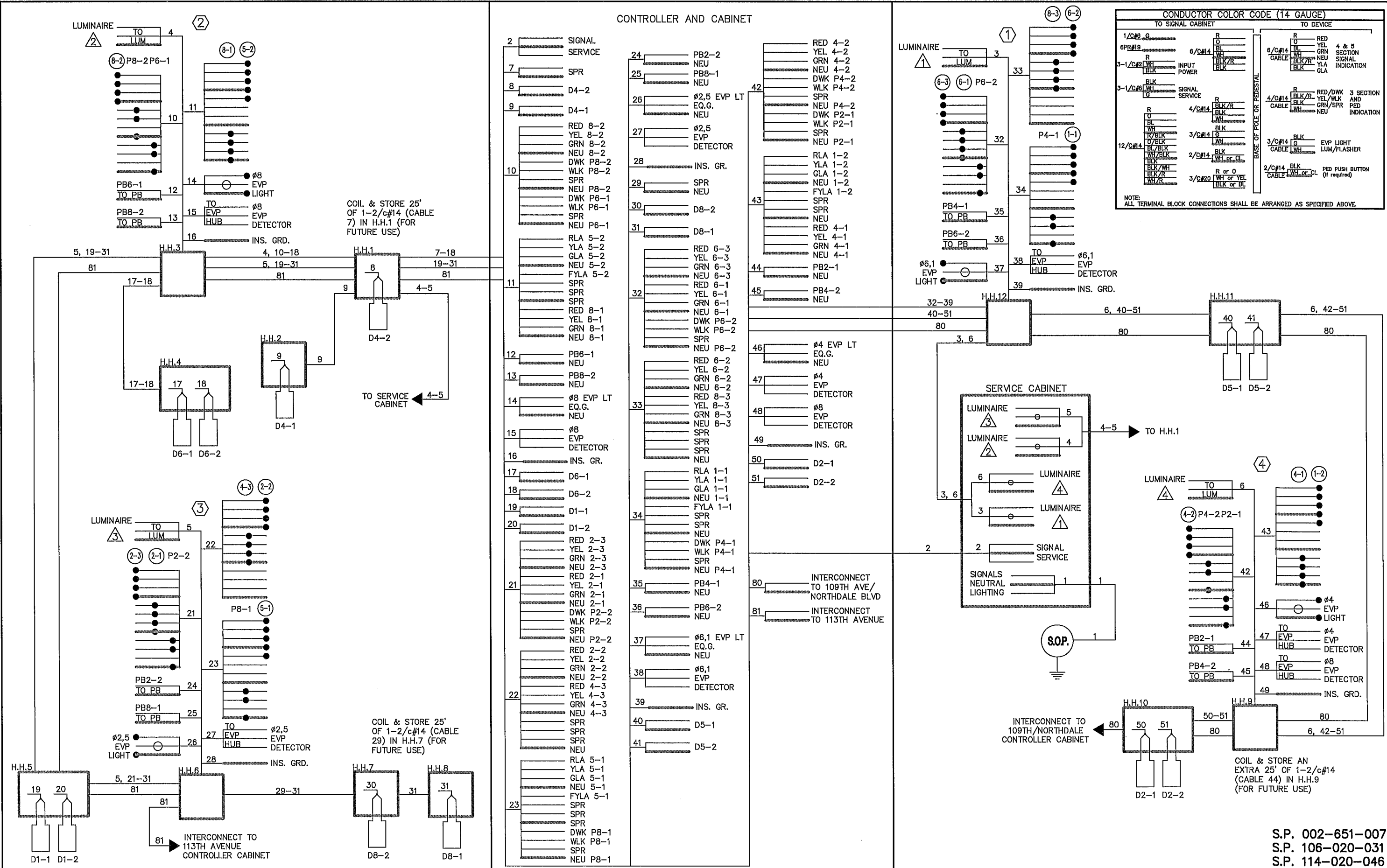
**TRAFFIC SIGNAL SYSTEM "B"**  
INTERSECTION LAYOUT  
CSAH 51 (UNIVERSITY AVE) AT 11TH AVENUE

FILE NO. ANOKC 125457  
SIGNAL SHEET 12 OF 39  
229  
381

CONTROLLER AND CABINET

TO SIGNAL CABINET		TO DEVICE	
1/C#19 G	R	R	RED
6/P#19	BLK	BLK	YEL
3-1/C#14	WH	WH	GRN
	BLK	BLK/R	NEU
	BLK	BLK	YLA
		BLK	GLA
			4 & 5 SECTION INDICATION
			3 SECTION AND PED INDICATION
3-1/C#19	BLK	R	RED/DWK
	WH	BLK/R	YEL/WLK
	WH	BLK	GRN/SPR
	WH	WH	NEU
			EVP LIGHT LUM/FLASHER
			PED PUSH BUTTON (If required)

NOTE: ALL TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.

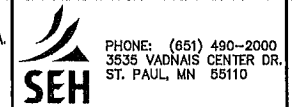


- |    |                |    |          |          |          |
|----|----------------|----|----------|----------|----------|
| 2  | SIGNAL SERVICE | 24 | PB2-2    | RED 4-2  | RED 4-2  |
| 7  | SPR            | 25 | PB8-1    | YEL 4-2  | YEL 4-2  |
| 8  | D4-2           | 26 | NEU      | GRN 4-2  | GRN 4-2  |
| 9  | D4-1           | 26 | NEU      | NEU 4-2  | NEU 4-2  |
| 10 | RED 8-2        | 26 | EQ.G.    | DWK P4-2 | DWK P4-2 |
|    | YEL 8-2        | 27 | NEU      | WLK P4-2 | WLK P4-2 |
|    | GRN 8-2        | 27 | EQ.G.    | NEU P4-2 | NEU P4-2 |
|    | NEU 8-2        | 27 | NEU      | DWK P2-1 | DWK P2-1 |
|    | DWK P8-2       | 28 | INS. GR. | WLK P2-1 | WLK P2-1 |
|    | WLK P8-2       | 29 | SPR      | NEU P2-1 | NEU P2-1 |
|    | SPR P8-2       | 29 | NEU      | RLA 1-2  | RLA 1-2  |
|    | NEU P8-2       | 30 | D8-2     | YLA 1-2  | YLA 1-2  |
|    | DWK P6-1       | 31 | D8-1     | GLA 1-2  | GLA 1-2  |
|    | WLK P6-1       | 31 | NEU      | NEU 1-2  | NEU 1-2  |
|    | SPR P6-1       | 32 | RED 6-3  | FYLA 1-2 | FYLA 1-2 |
|    | NEU P6-1       | 32 | YEL 6-3  | SPR      | SPR      |
|    | RLA 5-2        | 33 | GRN 6-3  | NEU      | NEU      |
|    | YLA 5-2        | 33 | NEU 6-3  | RED 8-1  | RED 8-1  |
|    | GLA 5-2        | 33 | YEL 6-1  | YEL 8-1  | YEL 8-1  |
|    | NEU 5-2        | 33 | RED 8-3  | GRN 8-1  | GRN 8-1  |
|    | FYLA 5-2       | 33 | GRN 8-3  | NEU 8-1  | NEU 8-1  |
|    | SPR            | 33 | NEU 8-3  |          |          |
|    | RED 8-1        | 33 | SPR      |          |          |
|    | YEL 8-1        | 33 | NEU      |          |          |
|    | GRN 8-1        | 33 | RED 6-2  |          |          |
|    | NEU 8-1        | 33 | YEL 6-2  |          |          |
|    |                | 33 | GRN 6-2  |          |          |
|    |                | 33 | NEU 6-2  |          |          |
|    |                | 33 | RED 8-3  |          |          |
|    |                | 33 | YEL 8-3  |          |          |
|    |                | 33 | GRN 8-3  |          |          |
|    |                | 33 | NEU 8-3  |          |          |
|    |                | 33 | SPR      |          |          |
|    |                | 33 | NEU      |          |          |
|    |                | 33 | RLA 1-1  |          |          |
|    |                | 33 | YLA 1-1  |          |          |
|    |                | 33 | GLA 1-1  |          |          |
|    |                | 33 | NEU 1-1  |          |          |
|    |                | 33 | FYLA 1-1 |          |          |
|    |                | 33 | SPR      |          |          |
|    |                | 33 | NEU      |          |          |
|    |                | 33 | DWK P4-1 |          |          |
|    |                | 33 | WLK P4-1 |          |          |
|    |                | 33 | SPR      |          |          |
|    |                | 33 | NEU P4-1 |          |          |
|    |                | 33 | PB4-1    |          |          |
|    |                | 33 | NEU      |          |          |
|    |                | 33 | PB6-2    |          |          |
|    |                | 33 | NEU      |          |          |
|    |                | 33 | NEU P2-2 |          |          |
|    |                | 33 | RED 2-2  |          |          |
|    |                | 33 | YEL 2-2  |          |          |
|    |                | 33 | GRN 2-2  |          |          |
|    |                | 33 | NEU 2-2  |          |          |
|    |                | 33 | RED 4-3  |          |          |
|    |                | 33 | YEL 4-3  |          |          |
|    |                | 33 | GRN 4-3  |          |          |
|    |                | 33 | NEU 4-3  |          |          |
|    |                | 33 | SPR      |          |          |
|    |                | 33 | NEU      |          |          |
|    |                | 33 | RLA 5-1  |          |          |
|    |                | 33 | YLA 5-1  |          |          |
|    |                | 33 | GLA 5-1  |          |          |
|    |                | 33 | NEU 5-1  |          |          |
|    |                | 33 | FYLA 5-1 |          |          |
|    |                | 33 | SPR      |          |          |
|    |                | 33 | NEU      |          |          |
|    |                | 33 | DWK P8-1 |          |          |
|    |                | 33 | WLK P8-1 |          |          |
|    |                | 33 | SPR      |          |          |
|    |                | 33 | NEU P8-1 |          |          |

DRAWN BY: JMG  
 DESIGNER: JMG  
 CHECKED BY: JMG  
 DESIGN TEAM

NO.	BY	DATE	REVISIONS

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 Date: April 23, 2014 Name: John M. Gray, PE Lic. No. 22457

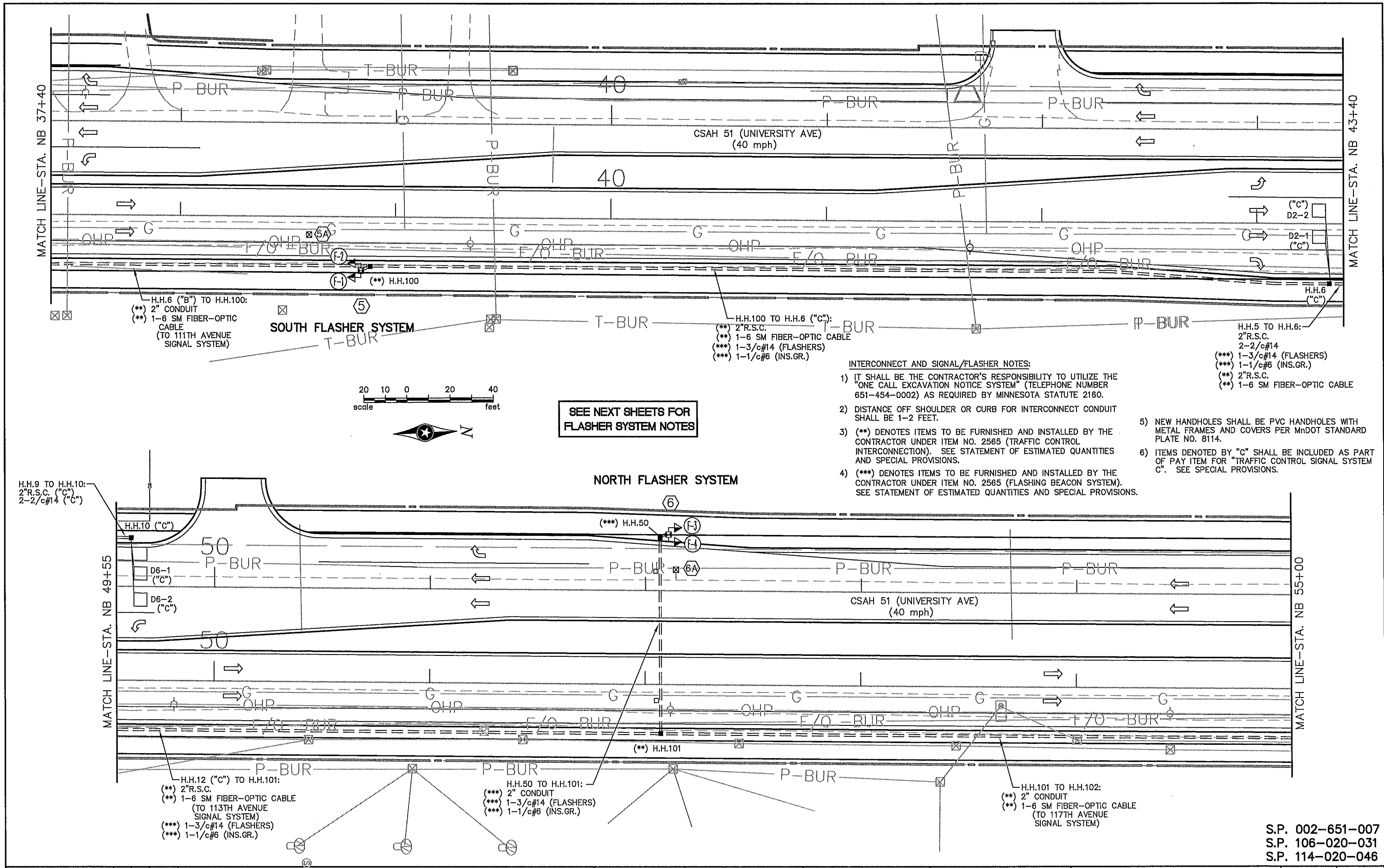


ANOKA COUNTY  
 CITIES OF BLAINE AND COON RAPIDS

TRAFFIC SIGNAL SYSTEM 'B'  
 FIELD WIRING DIAGRAM  
 CSAH 51 (UNIVERSITY AVE) AT 11TH AVENUE

FILE NO. ANOKC 125457  
 SIGNAL SHEET 13 OF 39  
 230  
 381

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046



SEE NEXT SHEETS FOR  
FLASHER SYSTEM NOTES

INTERCONNECT AND SIGNAL/FLASHER NOTES:

- 1) IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" (TELEPHONE NUMBER 651-454-0002) AS REQUIRED BY MINNESOTA STATUTE 2160.
- 2) DISTANCE OFF SHOULDER OR CURB FOR INTERCONNECT CONDUIT SHALL BE 1-2 FEET.
- 3) (\*\*) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECTION). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 4) (\*\*\*) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (FLASHING BEACON SYSTEM). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 5) NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS PER MNDOT STANDARD PLATE NO. 8114.
- 6) ITEMS DENOTED BY "C" SHALL BE INCLUDED AS PART OF PAY ITEM FOR "TRAFFIC CONTROL SIGNAL SYSTEM C". SEE SPECIAL PROVISIONS.

H.H.6 ("B") TO H.H.100:  
(\*\*) 2" CONDUIT  
(\*\*) 1-6 SM FIBER-OPTIC CABLE  
(TO 111TH AVENUE SIGNAL SYSTEM)

H.H.100 TO H.H.6 ("C"):  
(\*\*) 2" R.S.C.  
(\*\*) 1-6 SM FIBER-OPTIC CABLE  
(\*\*\*) 1-3/c#14 (FLASHERS)  
(\*\*\*) 1-1/c#6 (INS.GR.)

H.H.5 TO H.H.6:  
2" R.S.C.  
2-2/c#14  
(\*\*\*) 1-3/c#14 (FLASHERS)  
(\*\*\*) 1-1/c#6 (INS.GR.)  
(\*\*) 2" R.S.C.  
(\*\*) 1-6 SM FIBER-OPTIC CABLE

H.H.9 TO H.H.10:  
2" R.S.C. ("C")  
2-2/c#14 ("C")

H.H.12 ("C") TO H.H.101:  
(\*\*) 2" R.S.C.  
(\*\*) 1-6 SM FIBER-OPTIC CABLE  
(TO 113TH AVENUE SIGNAL SYSTEM)  
(\*\*\*) 1-3/c#14 (FLASHERS)  
(\*\*\*) 1-1/c#6 (INS.GR.)

H.H.50 TO H.H.101:  
(\*\*\*) 2" CONDUIT  
(\*\*\*) 1-3/c#14 (FLASHERS)  
(\*\*\*) 1-1/c#6 (INS.GR.)

H.H.101 TO H.H.102:  
(\*\*) 2" CONDUIT  
(\*\*) 1-6 SM FIBER-OPTIC CABLE  
(TO 117TH AVENUE SIGNAL SYSTEM)

S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

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ANOKA COUNTY  
CITIES OF BLAINE  
AND COON RAPIDS

SIGNAL SYSTEM 'C'/FLASHER SYSTEM  
INTERSECTION LAYOUT  
CSAH 51 (UNIVERSITY AVE)  
(111TH AVENUE TO 117TH AVENUE)

FILE NO. ANOKC 125457  
SIGNAL SHEET 14 OF 39  
231  
381

- NOTES:**
- 1) LOCATION OF FOUNDATIONS, LOOP DETECTORS, AND HANDHOLES SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
  - 2) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
  - 3) NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS.
  - 4) A 3/4" HALF COUPLING, 3/4" PIPE NIPPLE, AND CONDUIT OUTLET BODY SHALL BE FURNISHED AND INSTALLED 6 FEET FROM THE END OF EACH MAST ARM (FOR EVP).
  - 5) THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE POWER COMPANY TO ARRANGE FOR THE POWER CONNECTION (CONNEXUS). SEE SPECIAL PROVISIONS.
  - 6) SEE SPECIAL PROVISIONS AND DETAILS REGARDING SIGNS TO BE FURNISHED AND INSTALLED BY CONTRACTOR (INCLUDED AS PART OF PAY ITEM FOR "TRAFFIC CONTROL SIGNAL SYSTEM C").
  - 7) EACH PEDESTRIAN INDICATION SHALL BE ONE SECTION FILLED COUNTDOWN TIMER "HAND/WALKING PERSON" INDICATION.
  - 8) ALL VEHICLE AND PEDESTRIAN SIGNAL INDICATIONS SHALL BE LED.
  - 9) EACH SIGNAL FACE SHALL HAVE A BACKGROUND SHIELD.
  - 10) SEE DETAILS, SPECIAL PROVISIONS, AND STATEMENT OF ESTIMATED QUANTITIES REGARDING BATTERY BACK-UP SIGNAL SERVICE CABINET TO BE FURNISHED AND INSTALLED BY CONTRACTOR (SEPARATE FROM ITEM NO. 2565 FOR THIS SIGNAL SYSTEM).
  - 11) LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) IN 3/4" N.M.C. SEE SPECIAL PROVISIONS.

F & I N.M.C. LOOP DETECTORS			
NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D1-1	2-6x6	20' & 50'	1
D1-2	2-6x6	5' & 35'	1
D2-1	6x6	250'	1
D2-2	6x6	250'	1
D5-1	2-6x6	20' & 50'	1
D5-2	2-6x6	5' & 35'	1
D6-1	6x6	250'	1
D6-2	6x6	250'	1
D8-1	6x8	120'	3,8
D8-2	6x8	120'	3,8
D8-3	2-6x8	0' & 15'	7
D8-4	2-6x8	0' & 15'	1

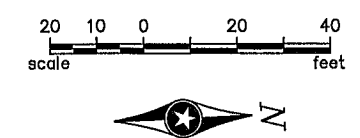
- LOOP DETECTORS FUNCTIONS:**
- 1) CALL AND EXTEND
  - 3) EXTEND ONLY
  - 7) DELAYED CALL, IMMEDIATE EXTEND
  - 8) CARRY OVER (STRETCH)

NOTE: LOCATION=DISTANCE FROM STOP BAR TO FRONT OF LOOP DETECTOR.

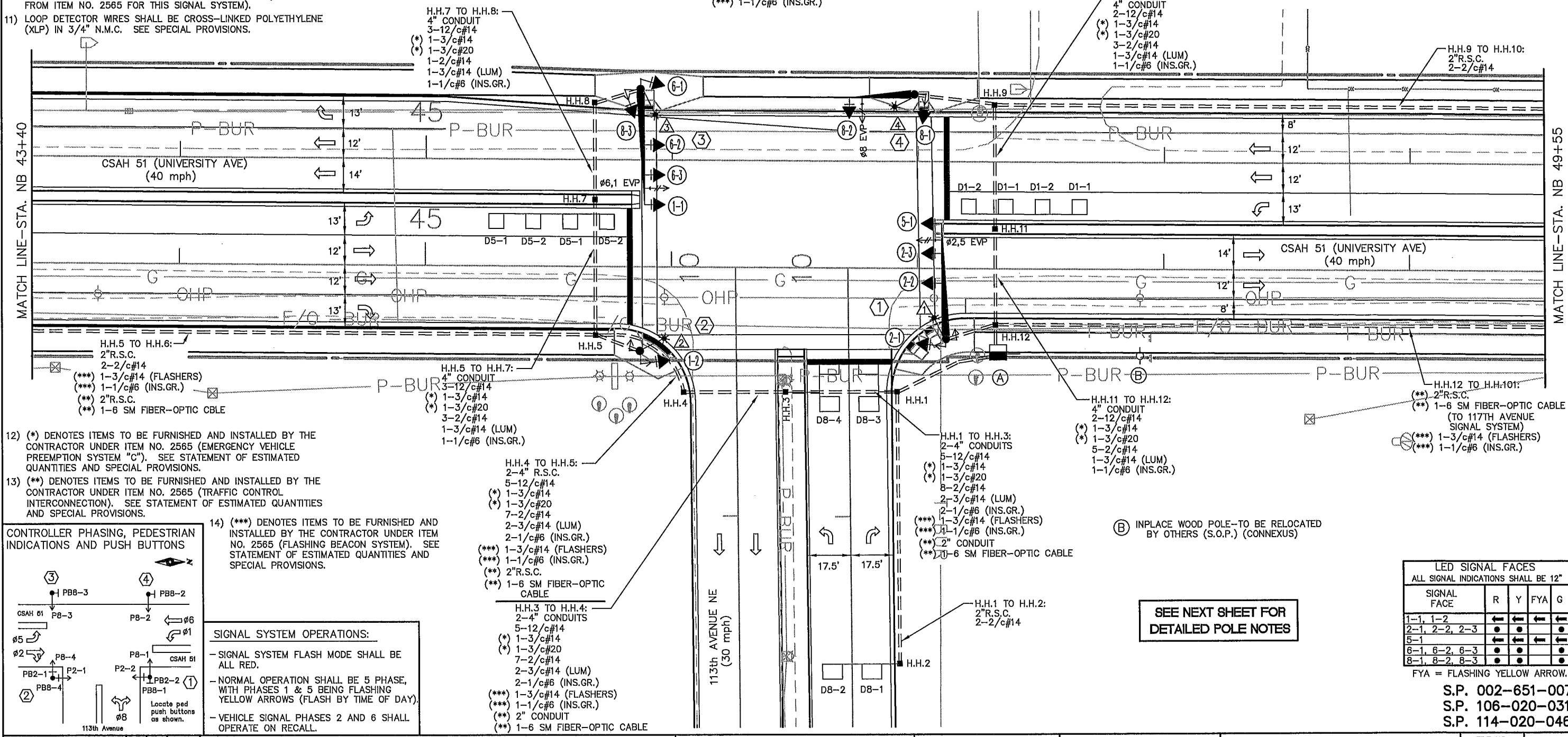
- (A) INSTALL CONTROLLER AND CABINET (FURNISHED BY COUNTY)**
- EQUIPMENT PAD FOUNDATION  
BBU SIGNAL SERVICE CABINET  
BETWEEN CONTROLLER CABINET AND SERVICE CABINET:  
METERED SIGNAL SERVICE  
2" R.S.C.  
3-1/c#6
- CONTROLLER CABINET TO H.H.1:  
4" R.S.C.  
2-12/c#14  
9-2/c#14  
1-1/c#6 (INS.GR.)  
1-1/c#6 (INS.GR.)
- CONTROLLER CABINET TO H.H.12:  
4" R.S.C.  
3-12/c#14  
1-3/c#14  
1-3/c#20  
2-2/c#14  
1-1/c#6 (INS.GR.)  
1-1/c#6 (INS.GR.)

- SERVICE CABINET TO H.H.1:  
2" R.S.C.  
UNMETERED STREET LIGHT/FLASHER SERVICE  
2-3/c#14 (LUM)  
1-3/c#14 (FLASHERS)
- SERVICE CABINET TO H.H.12:  
2" R.S.C.  
UNMETERED STREET LIGHT/FLASHER SERVICE  
2-3/c#14 (LUM)  
1-3/c#14 (FLASHERS)
- STUB OUT 1-2" R.S.C. FROM SERVICE CABINET TO NORTH (FOR POWER CABLES BY CONNEXUS)
- STUB OUT 3" R.S.C. FROM CONTROLLER CABINET TO WEST (THREAD AND CAP-FOR FUTURE USE)
- STUB OUT 1" R.S.C. FROM CONTROLLER CABINET (FOR FUTURE PHONE LINE BY OTHERS)

- CONTROLLER CABINET TO H.H.1:  
(\*\*) 2" R.S.C.  
(\*\*) 1-6 SM/6 MM FO CABLE
- CONTROLLER CABINET TO H.H.12:  
(\*\*) 2" R.S.C.  
(\*\*) 1-6 SM/6 MM FO CABLE

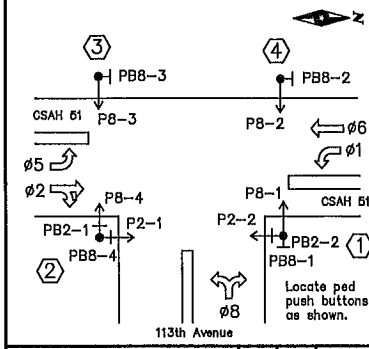


CONTRACTOR SHALL FURNISH, INSTALL, COIL AND STORE 25' OF 1-2/c#14 IN HANDHOLE 1 AS SHOWN ON FIELD WIRING DIAGRAM (FOR FUTURE PUSH BUTTON INSTALLATION BY OTHERS).



- 12) (\*) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (EMERGENCY VEHICLE PREEMPTION SYSTEM "C"). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 13) (\*\*) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECTION). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 14) (\*\*\*) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (FLASHING BEACON SYSTEM). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.

**CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS**



**SIGNAL SYSTEM OPERATIONS:**

- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
- NORMAL OPERATION SHALL BE 5 PHASE, WITH PHASES 1 & 5 BEING FLASHING YELLOW ARROWS (FLASH BY TIME OF DAY).
- VEHICLE SIGNAL PHASES 2 AND 6 SHALL OPERATE ON RECALL.

(B) INPLACE WOOD POLE-TO BE RELOCATED BY OTHERS (S.O.P.) (CONNEXUS)

SEE NEXT SHEET FOR DETAILED POLE NOTES

LED SIGNAL FACES				
ALL SIGNAL INDICATIONS SHALL BE 12"				
SIGNAL FACE	R	Y	FYA	G
1-1, 1-2	●	●	●	●
2-1, 2-2, 2-3	●	●	●	●
5-1	●	●	●	●
6-1, 6-2, 6-3	●	●	●	●
8-1, 8-2, 8-3	●	●	●	●

FYA = FLASHING YELLOW ARROW.

S.P. 002-651-007  
S.P. 106-020-031  
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ST. PAUL, MN 55110

ANOKA COUNTY  
CITIES OF BLAINE  
AND COON RAPIDS

TRAFFIC SIGNAL SYSTEM "C"  
INTERSECTION LAYOUT  
CSAH 51 (UNIVERSITY AVE) AT 113TH AVENUE

FILE NO.  
ANOKC 125457  
SIGNAL SHEET  
15 OF 38

232  
381



SIGNAL SYSTEM "C" POLE NOTES

- ① PA100 POLE FOUNDATION  
 TYPE PA100-A-45-D30-9 (DAVIT AT 350 DEG)  
 LUMINAIRE-LED SHOEBOX  
 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'  
 2-STRAIGHT MOUNT SIGNALS-OVERHEAD AT 11' & 23'  
 1-ANGLE MOUNT SIGNAL-POLE MOUNTED 180 DEG  
 2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED 90 DEG AND 180 DEG  
 2-PEDESTRIAN PUSH BUTTONS  
 1-R6-1R SIGN PANEL-POLE MOUNTED 180 DEG  
 R10-X12 SIGN PANEL-ADJACENT TO 5-1  
 TYPE D SIGN PANEL-OVERHEAD (D-5)  
 (\*) ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT (#2,5)  
 EXTEND INTO H.H.12:  
 3"R.S.C.  
 3-12/c#14  
 (\*) 1-3/c#14  
 (\*) 1-3/c#20  
 2-2/c#14  
 1-3/c#14 (LUM)  
 1-1/c#6 (INS.GR.)

- ② PA90 POLE FOUNDATION  
 TYPE PA90-A-D30-9 MAST ARM POLE (DAVIT AT 350 DEG)  
 LUMINAIRE-LED SHOEBOX  
 1-ANGLE MOUNT SIGNAL-POLE MOUNTED 90 DEG  
 2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED 90 DEG AND 180 DEG  
 2-PEDESTRIAN PUSH BUTTONS  
 EXTEND INTO H.H.5:  
 3"R.S.C.  
 2-12/c#14  
 2-2/c#14  
 1-3/c#14 (LUM)  
 1-1/c#6 (INS.GR.)

- ③ PA100 POLE FOUNDATION  
 TYPE PA100-A-45-D30-9 (DAVIT AT 350 DEG)  
 LUMINAIRE-LED SHOEBOX  
 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'  
 2-STRAIGHT MOUNT SIGNALS-OVERHEAD AT 11' & 23'  
 2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG AND 180 DEG  
 1-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED 90 DEG  
 2-PEDESTRIAN PUSH BUTTON  
 1-R6-1L SIGN PANEL-POLE MOUNTED 0 DEG  
 R10-X12 SIGN PANEL-ADJACENT TO 1-1  
 TYPE D SIGN PANEL-OVERHEAD (D-6)  
 (\*) ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT (#6,1)  
 EXTEND INTO H.H.8:  
 3"R.S.C.  
 3-12/c#14  
 (\*) 1-3/c#14  
 (\*) 1-3/c#20  
 1-2/c#14  
 1-3/c#14 (LUM)  
 1-1/c#6 (INS.GR.)

- ④ PA85 POLE FOUNDATION  
 TYPE PA85-A-25-D30-9 (DAVIT AT 350 DEG)  
 LUMINAIRE-LED SHOEBOX  
 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'  
 1-ANGLE MOUNT SIGNAL-POLE MOUNTED 180 DEG  
 1-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED 180 DEG  
 1-PEDESTRIAN PUSH BUTTON  
 TYPE D SIGN PANEL-OVERHEAD (D-7)  
 (\*) ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT (#8)  
 EXTEND INTO H.H.9:  
 3"R.S.C.  
 2-12/c#14  
 (\*) 1-3/c#14  
 (\*) 1-3/c#20  
 1-2/c#14  
 1-3/c#14 (LUM)  
 1-1/c#6 (INS.GR.)

ADVANCE SCHOOL FLASHER SYSTEM (FLASHING BEACON SYSTEM) NOTES:

SOUTH FLASHER SYSTEM

- ⑤ (\*\*\*) PEDESTAL FOUNDATION  
 (\*\*\*) 14' PEDESTAL POLE AND BASE (FLASHER #5)  
 (\*\*\*) WIND COLLAR FOR PEDESTAL POLE  
 (\*\*\*) 2-12" LED YELLOW FLASHERS WITH VISORS, BRACKETING, AND SLIPFITTER COLLAR (FACING NORTHBOUND TRAFFIC)  
 (\*\*\*) RADAR SPEED SIGN (YOUR SPEED XX)-POLE MOUNTED  
 (\*\*\*) S5-1 (SCHOOL-SPEED LIMIT 30-WHEN FLASHING) SIGN PANEL (24"x48")-POLE MOUNTED  
 (\*\*\*) DISPLAY DISCONNECT CABINET-MOUNTED ON BACK OF RADAR SPEED SIGN  
 (\*\*\*) 1/2" FLEXIBLE CONDUIT FROM CABINET TO BOTTOM OF RADAR SPEED SIGN  
 (\*\*\*) 1/2" EL FROM CABINET TO PEDESTAL POLE  
 (\*\*\*) ELECTRICAL CABLES FROM SIGN PANEL AND FLASHERS TO PEDESTAL POLE BASE (CONNECT TO 1-3/c#14 IN POLE BASE)  
 EXTEND INTO H.H.100:  
 (\*\*\*) 2"R.S.C.  
 (\*\*\*) 1-3/c#14  
 (\*\*\*) 1-1/c#6 INS.GR.

NORTH FLASHER SYSTEM

- ⑥ (\*\*\*) PEDESTAL FOUNDATION  
 (\*\*\*) 14' PEDESTAL POLE AND BASE (FLASHER #6)  
 (\*\*\*) WIND COLLAR FOR PEDESTAL POLE  
 (\*\*\*) 2-12" LED YELLOW FLASHERS WITH VISORS, BRACKETING, AND SLIPFITTER COLLAR (FACING SOUTHBOUND TRAFFIC)  
 (\*\*\*) RADAR SPEED SIGN (YOUR SPEED XX)-POLE MOUNTED  
 (\*\*\*) S5-1 (SCHOOL-SPEED LIMIT 30-WHEN FLASHING) SIGN PANEL (24"x48")-POLE MOUNTED  
 (\*\*\*) DISPLAY DISCONNECT CABINET-MOUNTED ON BACK OF RADAR SPEED SIGN  
 (\*\*\*) 1/2" FLEXIBLE CONDUIT FROM CABINET TO BOTTOM OF RADAR SPEED SIGN  
 (\*\*\*) 1/2" EL FROM CABINET TO PEDESTAL POLE  
 (\*\*\*) ELECTRICAL CABLES FROM SIGN PANEL AND FLASHERS TO PEDESTAL POLE BASE (CONNECT TO 1-3/c#14 IN POLE BASE)  
 EXTEND INTO H.H.50:  
 (\*\*\*) 2"R.S.C.  
 (\*\*\*) 1-3/c#14  
 (\*\*\*) 1-1/c#6 INS.GR.

- ⑤A ⑥A INPLACE (SALVAGE) (\*\*\* RADAR SPEED SIGN (YOUR SPEED XX)  
 (\*\*\*) DISPLAY DISCONNECT CABINET-MOUNTED ON BACK OF RADAR SPEED SIGN
- INPLACE (REMOVE) (\*\*\* PEDESTAL FOUNDATION  
 (\*\*\*) PEDESTAL POLE AND BASE  
 (\*\*\*) 2-12" LED YELLOW FLASHERS  
 (\*\*\*) S5-1 SIGN PANEL  
 (\*\*\*) FLASHER POLE CONDUIT AND CABLES  
 (\*\*\*) DISCONNECT BOX AND WOOD POLE MOUNTED CONDUIT ON ADJACENT CONNEXUS WOOD POLE

FLASHER SYSTEM NOTES:

- SEE SPECIAL PROVISIONS AND DETAILS FOR FURTHER INFORMATION REGARDING FLASHER SYSTEM INSTALLATION.
- FLASHER/SIGN SYSTEM SHALL BE TIME OF DAY ACTUATED.
- LOCATION OF FOUNDATION AND HANDHOLES SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- REMOVAL AND SALVAGING OF INPLACE SCHOOL FLASHER SYSTEM COMPONENTS SHALL BE INCLUDED AS PART OF PAY ITEM FOR "FLASHING BEACON SYSTEM". SEE SPECIAL PROVISIONS.
- ALL YELLOW FLASHERS SHALL BE LED.
- SEE DETAILS FOR FURTHER INFORMATION REGARDING MOUNTING OF ALL FLASHER POLE MATERIALS AND ELECTRICAL EQUIPMENT.
- HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS PER MNDOT STANDARD PLATE 8114.
- (\*\*\*) DENOTES ITEMS TO BE FURNISHED AND INSTALLED (OR REMOVED AND SALVAGED) BY THE CONTRACTOR UNDER ITEM NO. 2565 (FLASHING BEACON SYSTEM). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

DRAWN BY: JMG  
 DESIGNER: JMG  
 CHECKED BY: JMG

DESIGN TEAM	NO.	BY	DATE	REVISIONS

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

*John M. Gray*  
 Name: John M. Gray, PE  
 Date: April 23, 2014 Llc. No. 22457

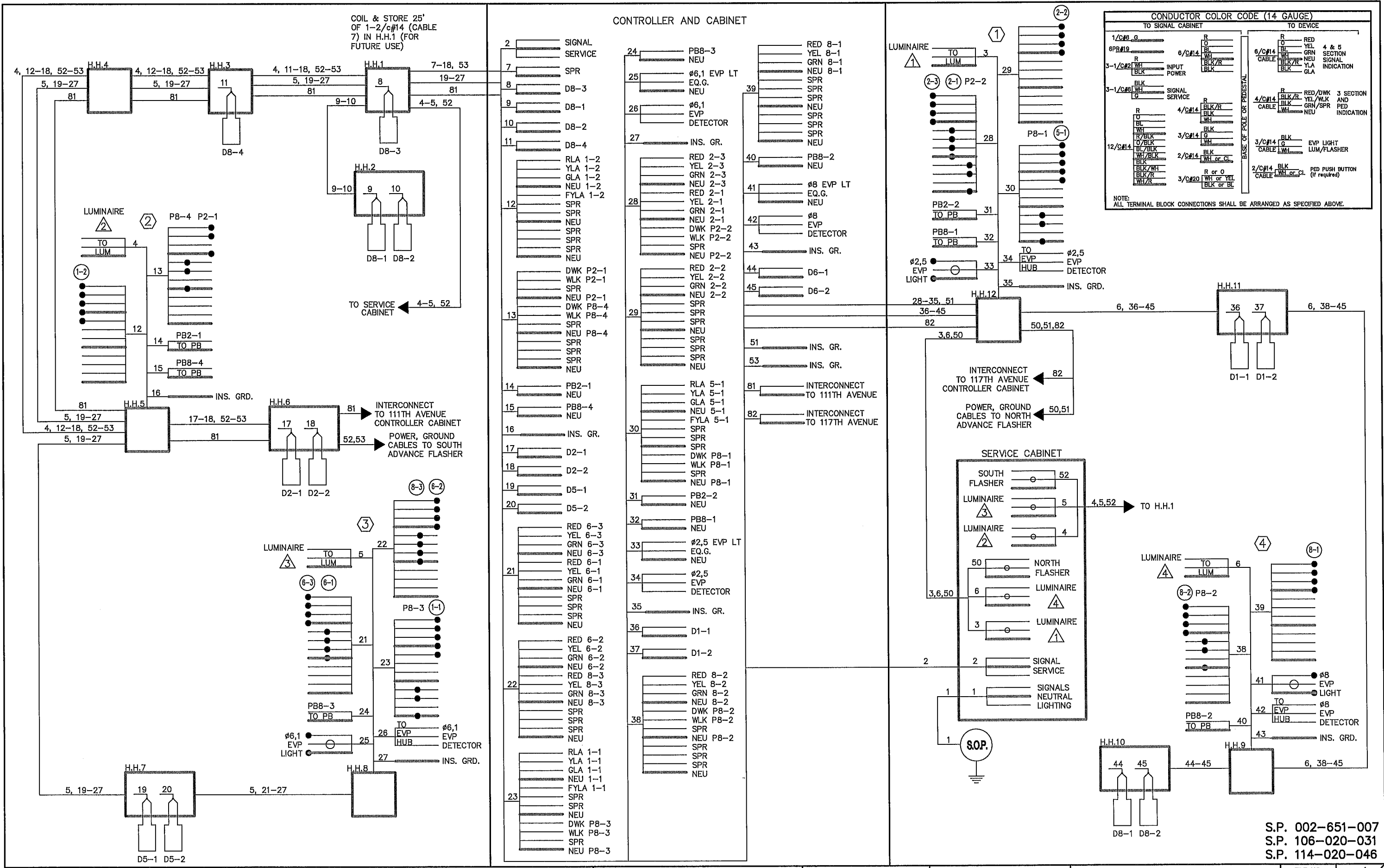
SEH  
 PHONE: (651) 490-2000  
 3535 VADNAIS CENTER DR.  
 ST. PAUL, MN 55110

ANOKA COUNTY  
 CITIES OF BLAINE  
 AND COON RAPIDS

SIGNAL SYSTEM 'C'/FLASHER SYSTEM  
 INTERSECTION LAYOUT  
 CSAH 51 (UNIVERSITY AVE) AT 113TH AVENUE

FILE NO.  
 ANOKC 125457  
 SIGNAL SHEET  
 16 OF 39

233  
 381



DRAWN BY: JMG  
 DESIGNER: JMG  
 CHECKED BY: JMG

DESIGN TEAM	NO.	BY	DATE	REVISIONS

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 Date: April 23, 2014

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 3535 VADNAIS CENTER DR.  
 ST. PAUL, MN 55110

**ANOKA COUNTY**  
**CITIES OF BLAINE AND COON RAPIDS**

**TRAFFIC SIGNAL SYSTEM 'C'**  
**FIELD WIRING DIAGRAM**  
 CSAH 51 (UNIVERSITY AVE) AT 113TH AVENUE

FILE NO. ANOKC 125457  
 SIGNAL SHEET 17 OF 39  
**234**  
**381**

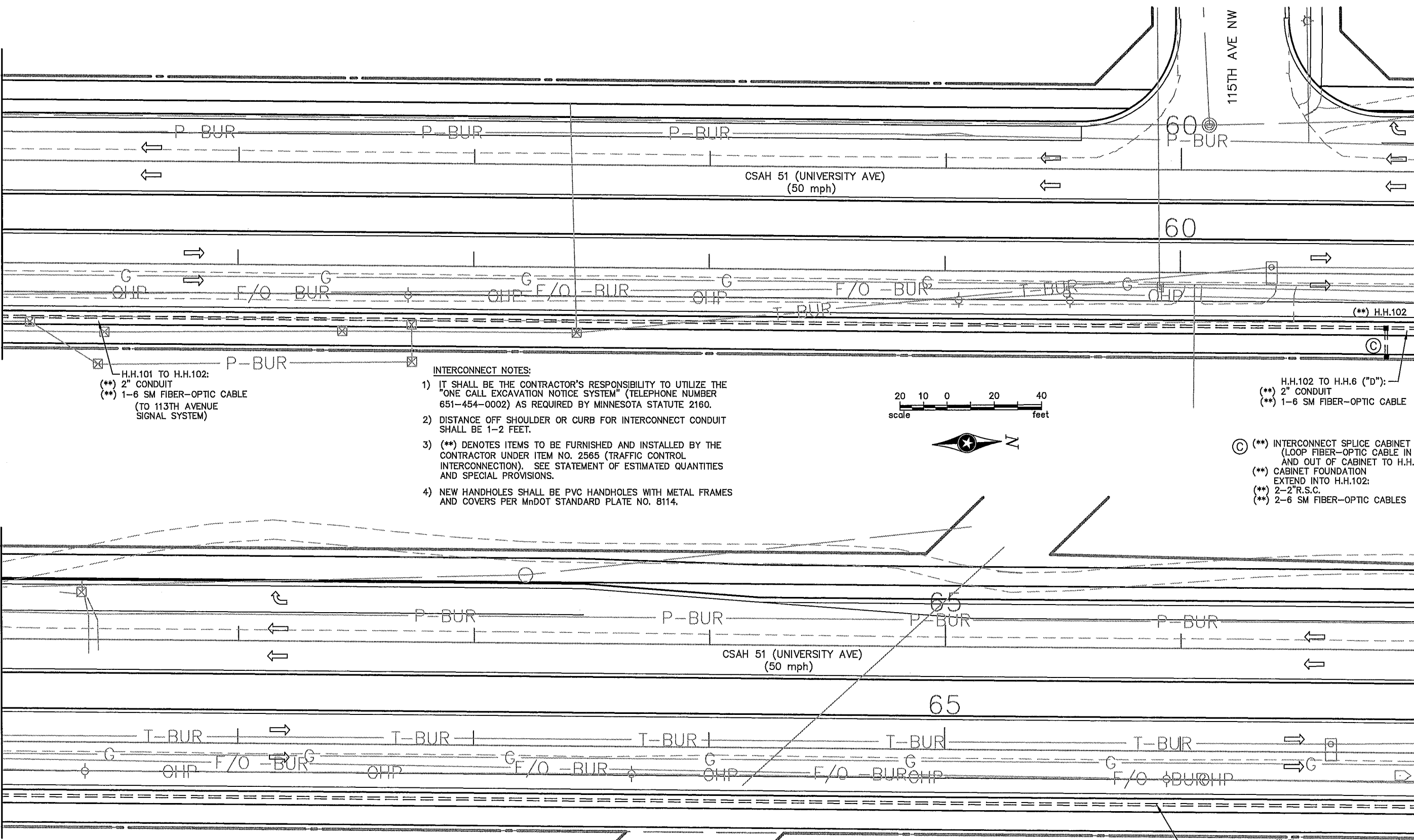
S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

MATCH LINE—STA. NB 55+00

MATCH LINE—STA. NB 61+00

MATCH LINE—STA. NB 61+00

MATCH LINE—STA. NB 67+00



H.H.101 TO H.H.102:  
 (\*\*) 2" CONDUIT  
 (\*\*) 1-6 SM FIBER-OPTIC CABLE  
 (TO 113TH AVENUE  
 SIGNAL SYSTEM)

- INTERCONNECT NOTES:**
- 1) IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" (TELEPHONE NUMBER 651-454-0002) AS REQUIRED BY MINNESOTA STATUTE 2160.
  - 2) DISTANCE OFF SHOULDER OR CURB FOR INTERCONNECT CONDUIT SHALL BE 1-2 FEET.
  - 3) (\*\*) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECTION). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
  - 4) NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS PER MNDOT STANDARD PLATE NO. 8114.



H.H.102 TO H.H.6 ("D"):  
 (\*\*) 2" CONDUIT  
 (\*\*) 1-6 SM FIBER-OPTIC CABLE

- (C) (\*\*) INTERCONNECT SPLICE CABINET (LOOP FIBER-OPTIC CABLE IN AND OUT OF CABINET TO H.H.102)  
 (\*\*) CABINET FOUNDATION EXTEND INTO H.H.102:  
 (\*\*) 2-2" R.S.C.  
 (\*\*) 2-6 SM FIBER-OPTIC CABLES

H.H.102 TO H.H.6 ("D"):  
 (\*\*) 2" CONDUIT  
 (\*\*) 1-6 SM FIBER-OPTIC CABLE  
 (TO 117TH AVENUE  
 SIGNAL SYSTEM)

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

DRAWN BY:	JMG
DESIGNER:	JMG
CHECKED BY:	JMG
DESIGN TEAM	

NO.	BY	DATE	REVISIONS

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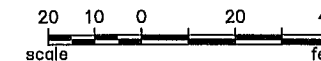
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 ST. PAUL, MN 55110

**ANOKA COUNTY**  
**CITIES OF BLAINE**  
**AND COON RAPIDS**

**TRAFFIC SIGNAL INTERCONNECT**  
**INTERSECTION LAYOUT**  
**CSAH 51 (UNIVERSITY AVE)**  
**(113TH AVENUE TO 117TH AVENUE)**

FILE NO.	ANOKC 125457	235
SIGNAL SHEET	18 OF 39	381

SIGNAL SYSTEM "D" POLE NOTES



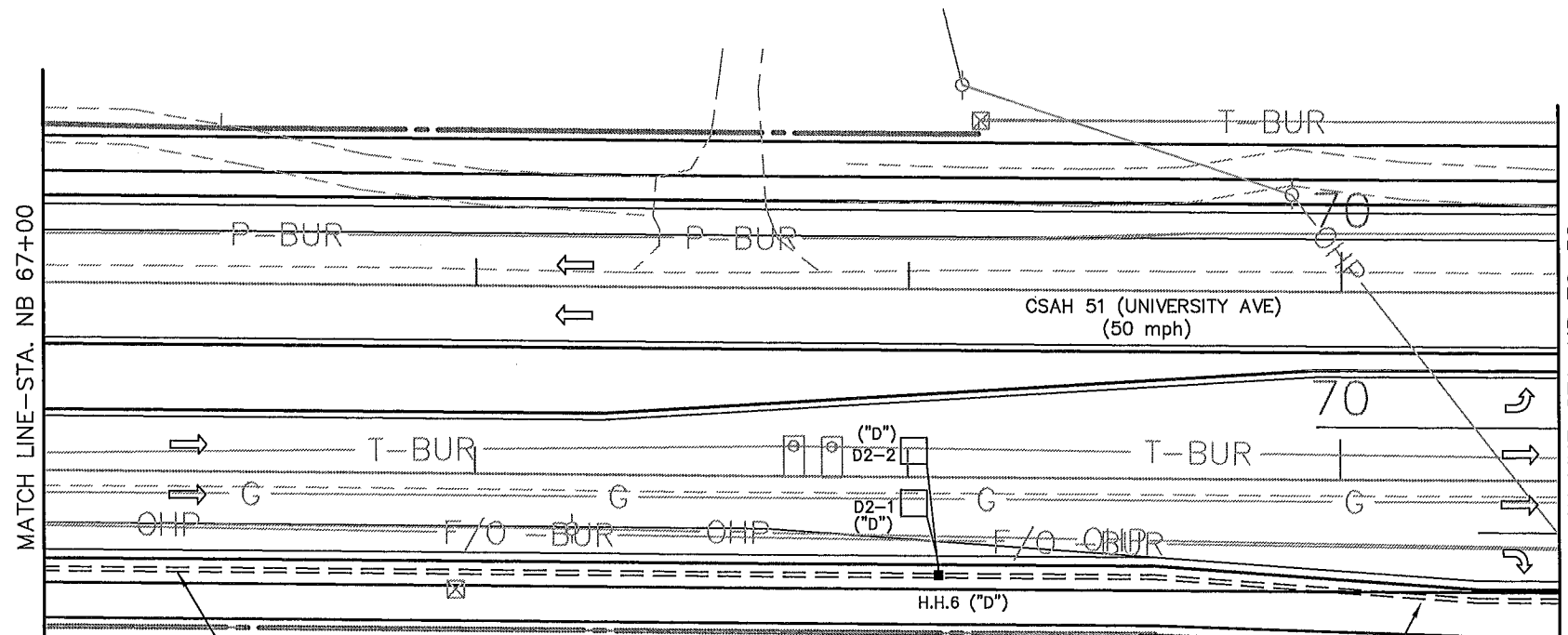
SEE NEXT SHEET FOR SIGNAL SYSTEM 'D' LAYOUT

- ① PA100 POLE FOUNDATION  
TYPE PA100-A-45-D30-9 (DAVIT AT 350 DEG)  
LUMINAIRE-LED SHOEBOX  
1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'  
2-STRAIGHT MOUNT SIGNALS-OVERHEAD AT 11' & 23'  
2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG AND 180 DEG  
2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED 90 DEG AND 180 DEG  
2-PEDESTRIAN PUSH BUTTONS  
2-R6-1 SIGN PANEL-POLE MOUNTED 0 DEG AND 180 DEG  
R10-X12 SIGN PANEL-ADJACENT TO 5-1  
TYPE D SIGN PANEL-OVERHEAD (D-8)  
(\* ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT (#2,5)  
EXTEND INTO H.H.15:  
3"R.S.C.  
3-12/c#14  
(\* 1-3/c#14  
(\* 1-3/c#20  
2-2/c#14  
1-3/c#14 (LUM)  
1-1/c#6 (INS.GR.)

- ② PA85 POLE FOUNDATION  
TYPE PA85-A-20-D30-9 (DAVIT AT 350 DEG.)  
LUMINAIRE-LED SHOEBOX  
1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'  
2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG AND 180 DEG  
2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED 90 DEG AND 180 DEG  
2-PEDESTRIAN PUSH BUTTONS  
TYPE D SIGN PANEL-OVERHEAD (D-9)  
(\* ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT (#4)  
EXTEND INTO H.H.3:  
3"R.S.C.  
2-12/c#14  
(\* 1-3/c#14  
(\* 1-3/c#20  
2-2/c#14  
1-3/c#14 (LUM)  
1-1/c#6 (INS.GR.)

- ③ PA100 POLE FOUNDATION  
TYPE PA100-A-45-D30-9 (DAVIT AT 350 DEG)  
LUMINAIRE-LED SHOEBOX  
1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'  
2-STRAIGHT MOUNT SIGNALS-OVERHEAD AT 11' & 23'  
2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG AND 180 DEG  
2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED 90 DEG AND 180 DEG  
2-PEDESTRIAN PUSH BUTTONS  
2-R6-1 SIGN PANELS-POLE MOUNTED 0 DEG AND 180 DEG  
R10-X12 SIGN PANEL-ADJACENT TO 1-1  
TYPE D SIGN PANEL-OVERHEAD (D-10)  
(\* ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT (#6,1)  
EXTEND INTO H.H.8:  
3"R.S.C.  
3-12/c#14  
(\* 1-3/c#14  
(\* 1-3/c#20  
2-2/c#14  
1-3/c#14 (LUM)  
1-1/c#6 (INS.GR.)

- ④ PA90 POLE FOUNDATION  
TYPE PA90-A-30-D30-9 (DAVIT AT 350 DEG)  
LUMINAIRE-LED SHOEBOX  
1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'  
2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG AND 180 DEG  
2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED 90 DEG AND 180 DEG  
2-PEDESTRIAN PUSH BUTTONS  
TYPE D SIGN PANEL-OVERHEAD (D-11)  
(\* ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT (#8)  
EXTEND INTO H.H.11:  
3"R.S.C.  
2-12/c#14  
(\* 1-3/c#14  
(\* 1-3/c#20  
2-2/c#14  
1-3/c#14 (LUM)  
1-1/c#6 (INS.GR.)



INTERCONNECT NOTES:

- 1) IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" (TELEPHONE NUMBER 651-454-0002) AS REQUIRED BY MINNESOTA STATUTE 2160.
- 2) DISTANCE OFF SHOULDER OR CURB FOR INTERCONNECT CONDUIT SHALL BE 1-2 FEET.
- 3) (\*\* DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECTION). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 4) NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS PER MnDOT STANDARD PLATE NO. 8114.
- 5) ITEMS DENOTED BY "D" SHALL BE INCLUDED AS PART OF PAY ITEM FOR "TRAFFIC CONTROL SIGNAL SYSTEM D". SEE SPECIAL PROVISIONS.

H.H.6 TO H.H.102:  
(\*\*) 2" CONDUIT  
(\*\*) 1-6 SM FIBER-OPTIC CABLE  
(TO 113TH AVENUE SIGNAL SYSTEM)

H.H.5 TO H.H.6:  
2"R.S.C. ("D")  
2-2/c#14 ("D")  
(\*\*) 2"R.S.C.  
(\*\*) 1-6 SM FIBER-OPTIC CABLE

DRAWN BY: JMG  
DESIGNER: JMG  
CHECKED BY: JMG  
DESIGN TEAM

NO.	BY	DATE	REVISIONS

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CITIES OF BLAINE AND COON RAPIDS

SIGNAL SYSTEM 'D'/INTERCONNECT  
INTERSECTION LAYOUT  
CSAH 51 (UNIVERSITY AVE)  
(113TH AVENUE TO 117TH AVENUE)

FILE NO.  
ANOKC 125457  
SIGNAL SHEET  
19 OF 39

236  
381

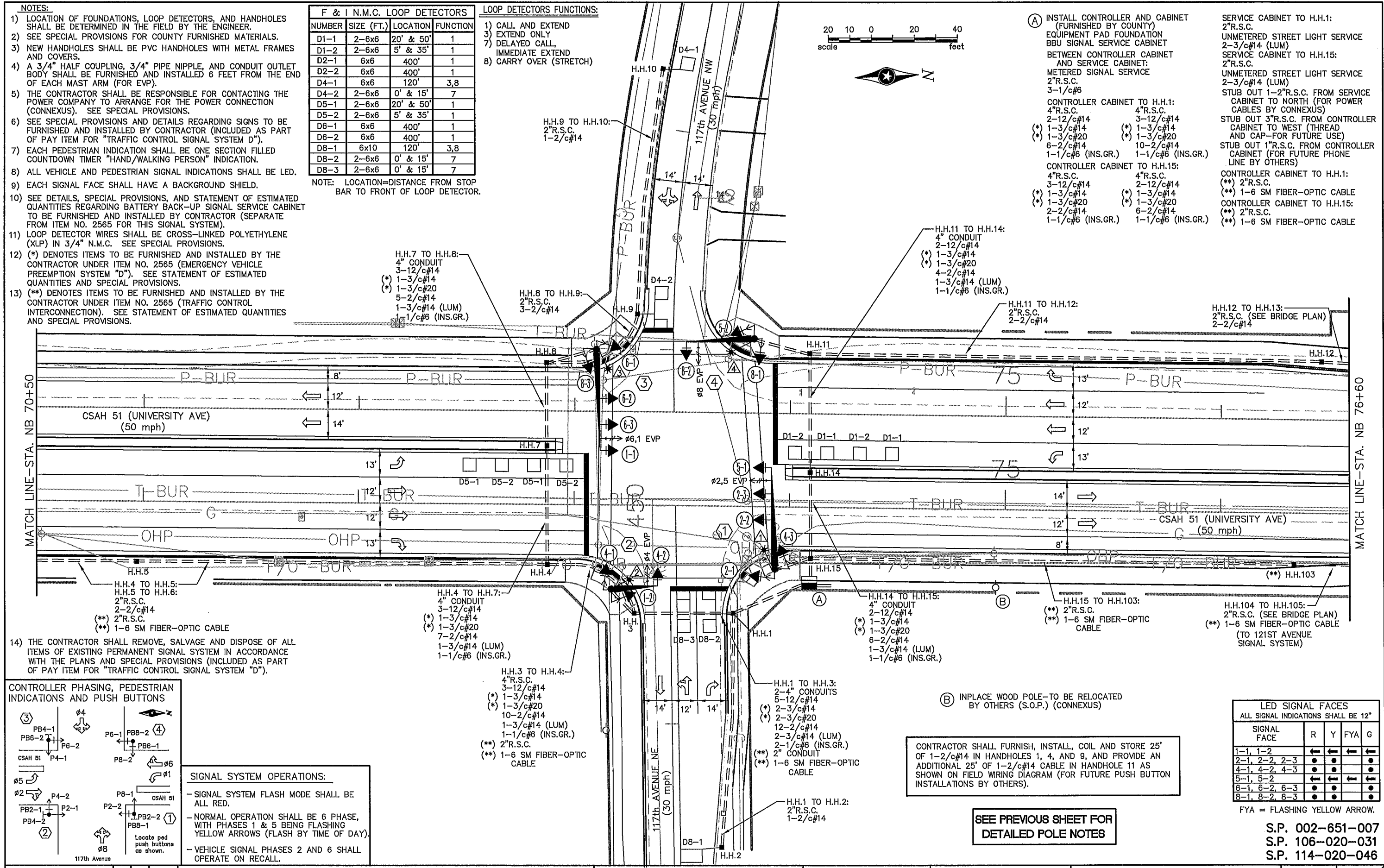
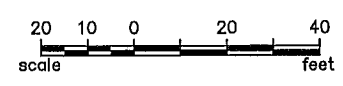
S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

- NOTES:**
- 1) LOCATION OF FOUNDATIONS, LOOP DETECTORS, AND HANDHOLES SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
  - 2) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
  - 3) NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS.
  - 4) A 3/4" HALF COUPLING, 3/4" PIPE NIPPLE, AND CONDUIT OUTLET BODY SHALL BE FURNISHED AND INSTALLED 6 FEET FROM THE END OF EACH MAST ARM (FOR EVP).
  - 5) THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE POWER COMPANY TO ARRANGE FOR THE POWER CONNECTION (CONNEXUS). SEE SPECIAL PROVISIONS.
  - 6) SEE SPECIAL PROVISIONS AND DETAILS REGARDING SIGNS TO BE FURNISHED AND INSTALLED BY CONTRACTOR (INCLUDED AS PART OF PAY ITEM FOR "TRAFFIC CONTROL SIGNAL SYSTEM D").
  - 7) EACH PEDESTRIAN INDICATION SHALL BE ONE SECTION FILLED COUNTDOWN TIMER "HAND/WALKING PERSON" INDICATION.
  - 8) ALL VEHICLE AND PEDESTRIAN SIGNAL INDICATIONS SHALL BE LED.
  - 9) EACH SIGNAL FACE SHALL HAVE A BACKGROUND SHIELD.
  - 10) SEE DETAILS, SPECIAL PROVISIONS, AND STATEMENT OF ESTIMATED QUANTITIES REGARDING BATTERY BACK-UP SIGNAL SERVICE CABINET TO BE FURNISHED AND INSTALLED BY CONTRACTOR (SEPARATE FROM ITEM NO. 2565 FOR THIS SIGNAL SYSTEM).
  - 11) LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) IN 3/4" N.M.C. SEE SPECIAL PROVISIONS.
  - 12) (\*) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (EMERGENCY VEHICLE PREEMPTION SYSTEM "D"). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
  - 13) (\*\*) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECTION). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.

F & I N.M.C. LOOP DETECTORS				
NUMBER	SIZE (FT.)	LOCATION	FUNCTION	
D1-1	2-6x6	20' & 50'	1	
D1-2	2-6x6	5' & 35'	1	
D2-1	6x6	400'	1	
D2-2	6x6	400'	1	
D4-1	6x6	120'	3,8	
D4-2	2-6x6	0' & 15'	7	
D5-1	2-6x6	20' & 50'	1	
D5-2	2-6x6	5' & 35'	1	
D6-1	6x6	400'	1	
D6-2	6x6	400'	1	
D8-1	6x10	120'	3,8	
D8-2	2-6x6	0' & 15'	7	
D8-3	2-6x6	0' & 15'	7	

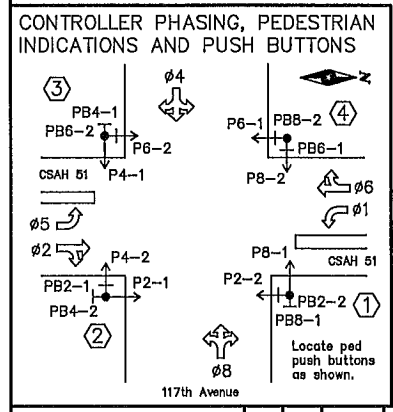
- LOOP DETECTORS FUNCTIONS:**
- 1) CALL AND EXTEND
  - 3) EXTEND ONLY
  - 7) DELAYED CALL, IMMEDIATE EXTEND
  - 8) CARRY OVER (STRETCH)

NOTE: LOCATION=DISTANCE FROM STOP BAR TO FRONT OF LOOP DETECTOR.



- (A) INSTALL CONTROLLER AND CABINET (FURNISHED BY COUNTY)  
EQUIPMENT PAD FOUNDATION  
BBU SIGNAL SERVICE CABINET  
BETWEEN CONTROLLER CABINET AND SERVICE CABINET:  
METERED SIGNAL SERVICE  
2" R.S.C.  
3-1/c#6
- CONTROLLER CABINET TO H.H.1:  
4" R.S.C.  
2-12/c#14  
1-3/c#14  
1-3/c#20  
6-2/c#14  
1-1/c#6 (INS.GR.)
- CONTROLLER CABINET TO H.H.15:  
4" R.S.C.  
3-12/c#14  
1-3/c#14  
1-3/c#20  
2-2/c#14  
1-1/c#6 (INS.GR.)
- CONTROLLER CABINET TO H.H.1:  
4" R.S.C.  
3-12/c#14  
1-3/c#14  
1-3/c#20  
6-2/c#14  
1-1/c#6 (INS.GR.)
- CONTROLLER CABINET TO H.H.15:  
4" R.S.C.  
2-12/c#14  
1-3/c#14  
1-3/c#20  
6-2/c#14  
1-1/c#6 (INS.GR.)
- SERVICE CABINET TO H.H.1:  
2" R.S.C.  
UNMETERED STREET LIGHT SERVICE  
2-3/c#14 (LUM)
- SERVICE CABINET TO H.H.15:  
2" R.S.C.  
UNMETERED STREET LIGHT SERVICE  
2-3/c#14 (LUM)
- STUB OUT 1-2" R.S.C. FROM SERVICE CABINET TO NORTH (FOR POWER CABLES BY CONNEXUS)
- STUB OUT 3" R.S.C. FROM CONTROLLER CABINET TO WEST (THREAD AND CAP-FOR FUTURE USE)
- STUB OUT 1" R.S.C. FROM CONTROLLER CABINET (FOR FUTURE PHONE LINE BY OTHERS)
- CONTROLLER CABINET TO H.H.1:  
(\*\*) 2" R.S.C.  
(\*\*) 1-6 SM FIBER-OPTIC CABLE
- CONTROLLER CABINET TO H.H.15:  
(\*\*) 2" R.S.C.  
(\*\*) 1-6 SM FIBER-OPTIC CABLE

- 14) THE CONTRACTOR SHALL REMOVE, SALVAGE AND DISPOSE OF ALL ITEMS OF EXISTING PERMANENT SIGNAL SYSTEM IN ACCORDANCE WITH THE PLANS AND SPECIAL PROVISIONS (INCLUDED AS PART OF PAY ITEM FOR "TRAFFIC CONTROL SIGNAL SYSTEM D").



- SIGNAL SYSTEM OPERATIONS:**
- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
  - NORMAL OPERATION SHALL BE 6 PHASE, WITH PHASES 1 & 5 BEING FLASHING YELLOW ARROWS (FLASH BY TIME OF DAY).
  - VEHICLE SIGNAL PHASES 2 AND 6 SHALL OPERATE ON RECALL.

(B) INPLACE WOOD POLE-TO BE RELOCATED BY OTHERS (S.O.P.) (CONNEXUS)

CONTRACTOR SHALL FURNISH, INSTALL, COIL AND STORE 25' OF 1-2/c#14 IN HANDHOLES 1, 4, AND 9, AND PROVIDE AN ADDITIONAL 25' OF 1-2/c#14 CABLE IN HANDHOLE 11 AS SHOWN ON FIELD WIRING DIAGRAM (FOR FUTURE PUSH BUTTON INSTALLATIONS BY OTHERS).

SEE PREVIOUS SHEET FOR DETAILED POLE NOTES

**LED SIGNAL FACES**  
ALL SIGNAL INDICATIONS SHALL BE 12"

SIGNAL FACE	R	Y	FYA	G
1-1, 1-2	●	●	●	●
2-1, 2-2, 2-3	●	●	●	●
4-1, 4-2, 4-3	●	●	●	●
5-1, 5-2	●	●	●	●
6-1, 6-2, 6-3	●	●	●	●
8-1, 8-2, 8-3	●	●	●	●

FYA = FLASHING YELLOW ARROW.

DRAWN BY: JMG  
DESIGNER: JMG  
CHECKED BY: JMG

NO.	BY	DATE	REVISIONS

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

Date: April 23, 2014 Name: John M. Gray, PE Lc. No. 22457

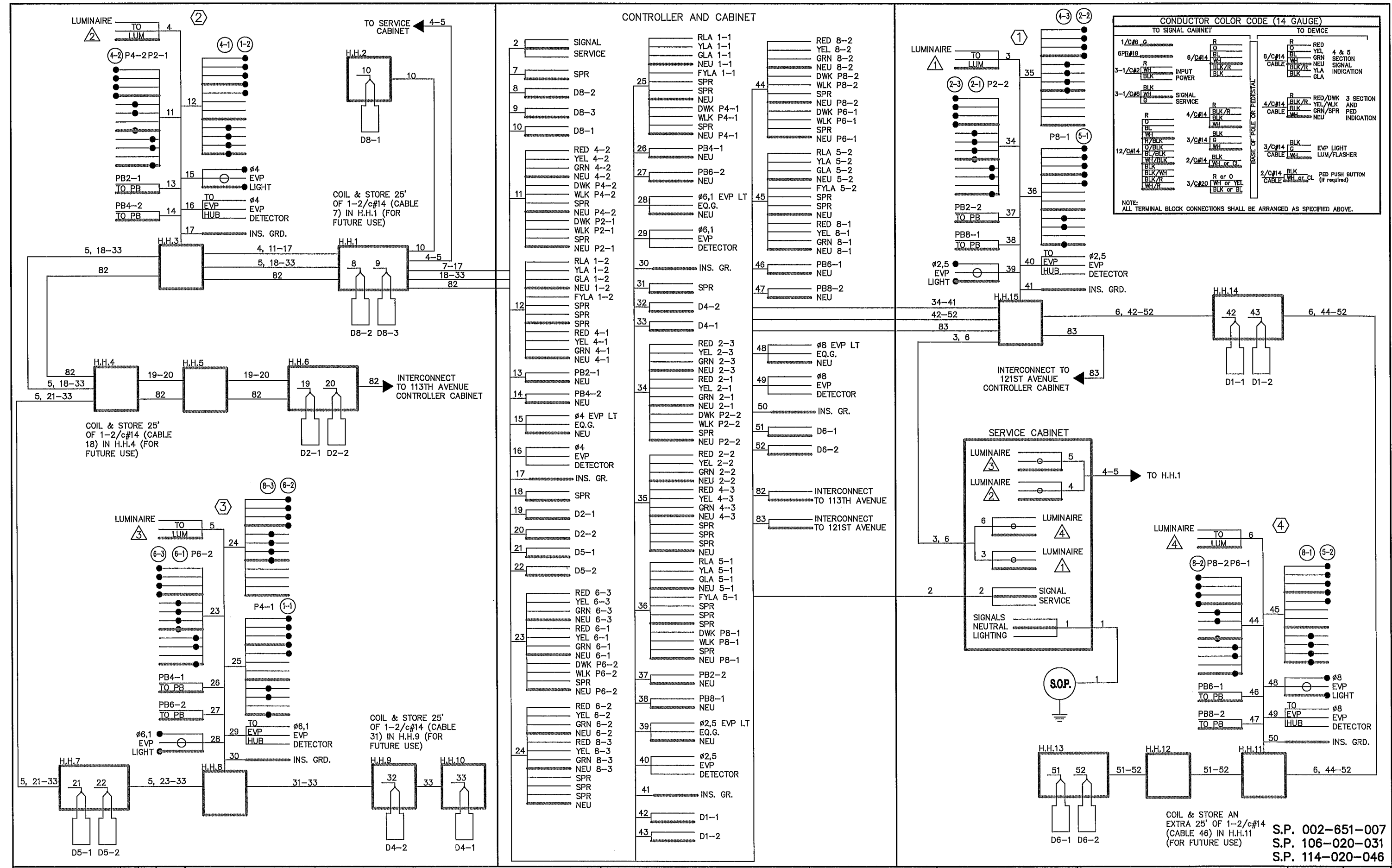
SEH  
PHONE: (651) 490-2000  
3535 WADSWORTH CENTER DR.  
ST. PAUL, MN 55110

ANOKA COUNTY  
CITIES OF BLAINE  
AND COON RAPIDS

TRAFFIC SIGNAL SYSTEM "D"  
INTERSECTION LAYOUT  
CSAH 51 (UNIVERSITY AVE) AT 117TH AVENUE

FILE NO.  
ANOKC 125457  
SIGNAL SHEET  
20 OF 39

237  
381



**CONDUCTOR COLOR CODE (14 GAUGE)**

TO SIGNAL CABINET		TO DEVICE	
1/C#14	R	BLK	RED
6/PB#19	BLK	BLK/R	YEL
3-1/C#2	WH	BLK/R	GRN
	BLK	BLK/R	NEU
	BLK	BLK	YLA
	BLK	BLK	GLA
	BLK	BLK	4 & 5 SECTION INDICATION
	BLK	BLK	3 SECTION AND PED INDICATION
	BLK	BLK	RED/DWK
	BLK	BLK	YEL/WLK
	BLK	BLK	GRN/SPR
	BLK	BLK	NEU
	BLK	BLK	EVP LIGHT
	BLK	BLK	LUM/FLASHER
	BLK	BLK	PED PUSH BUTTON (if required)

NOTE: ALL TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.

DRAWN BY: JMG  
 DESIGNER: JMG  
 CHECKED BY: JMG

DESIGN TEAM	NO.	BY	DATE	REVISIONS

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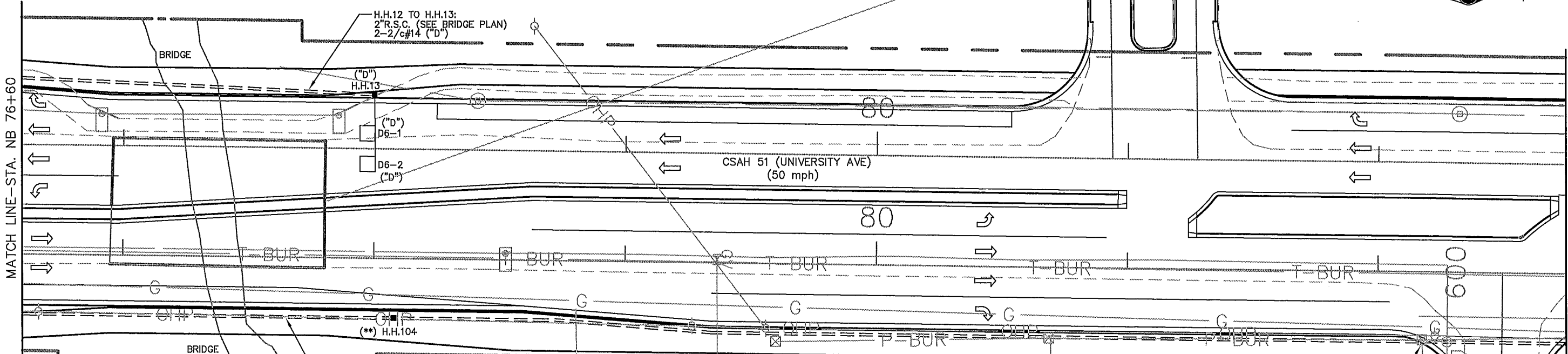
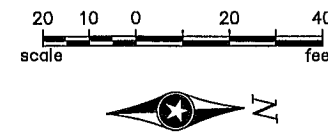
*John M. Gray*  
 Name: John M. Gray, PE  
 Lic. No. 22457  
 Date: April 23, 2014

**SEH**  
 PHONE: (651) 490-2000  
 3535 VADNAIS CENTER DR.  
 ST. PAUL, MN 55110

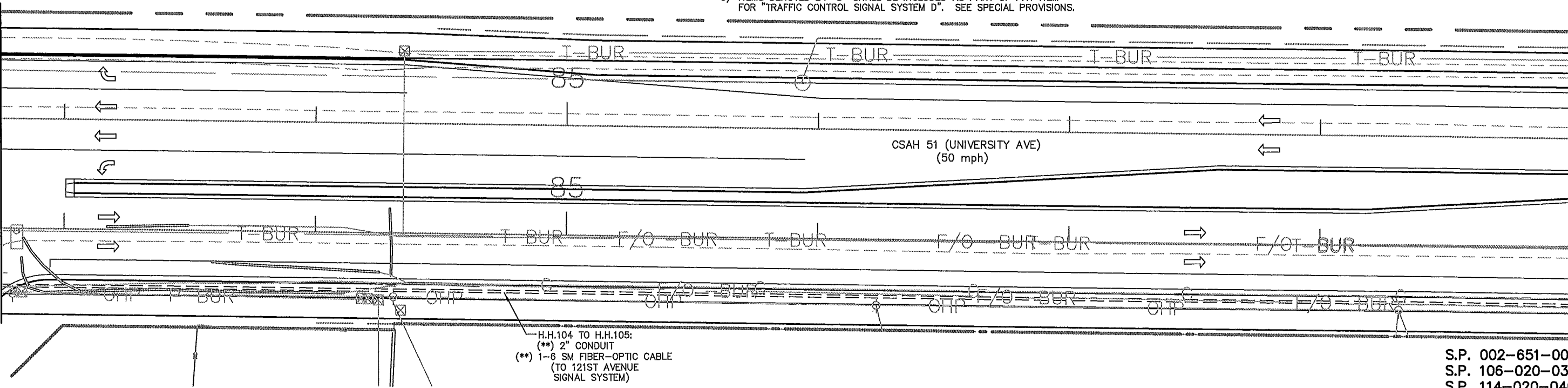
**ANOKA COUNTY**  
**CITIES OF BLAINE AND COON RAPIDS**

**TRAFFIC SIGNAL SYSTEM 'D'**  
**FIELD WIRING DIAGRAM**  
 CSAH 51 (UNIVERSITY AVE) AT 117TH AVENUE

FILE NO. ANOKC 125457  
 SIGNAL SHEET 21 OF 39  
**238**  
**381**



- INTERCONNECT NOTES:**
- 1) IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" (TELEPHONE NUMBER 651-454-0002) AS REQUIRED BY MINNESOTA STATUTE 2160.
  - 2) DISTANCE OFF SHOULDER OR CURB FOR INTERCONNECT CONDUIT SHALL BE 1-2 FEET.
  - 3) (\*\*) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECTION). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
  - 4) NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS PER MNDOT STANDARD PLATE NO. 8114.
  - 5) ITEMS DENOTED BY "D" SHALL BE INCLUDED AS PART OF PAY ITEM FOR "TRAFFIC CONTROL SIGNAL SYSTEM D". SEE SPECIAL PROVISIONS.



H.H.12 TO H.H.13:  
2" R.S.C. (SEE BRIDGE PLAN)  
2-2/c#14 ("D")

H.H.103 TO H.H.104:  
2" R.S.C. (SEE BRIDGE PLAN)  
(\*\*) 1-6 SM FIBER-OPTIC CABLE  
(TO 117TH AVENUE  
SIGNAL SYSTEM)

H.H.104 TO H.H.105:  
(\*\*) 2" CONDUIT  
(\*\*) 1-6 SM FIBER-OPTIC CABLE  
(TO 121ST AVENUE  
SIGNAL SYSTEM)

H.H.104 TO H.H.105:  
(\*\*) 2" CONDUIT  
(\*\*) 1-6 SM FIBER-OPTIC CABLE

DRAWN BY: JMG  
DESIGNER: JMG  
CHECKED BY: JMG  
DESIGN TEAM

NO.	BY	DATE	REVISIONS

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*John M. Gray*  
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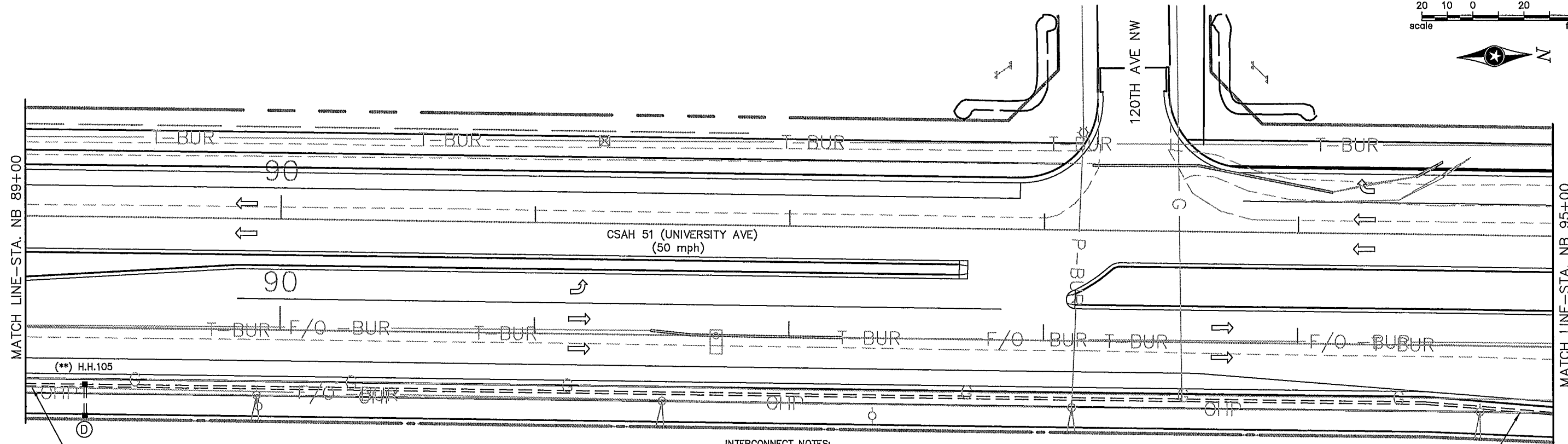
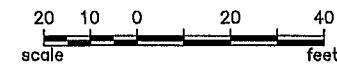
**ANOKA COUNTY**  
CITIES OF BLAINE  
AND COON RAPIDS

**SIGNAL SYSTEM "D"/INTERCONNECT  
INTERSECTION LAYOUT  
CSAH 51 (UNIVERSITY AVE)  
(117TH AVENUE TO 121ST AVENUE)**

FILE NO. ANOKC 125457  
SIGNAL SHEET 22 OF 39

S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

239  
301

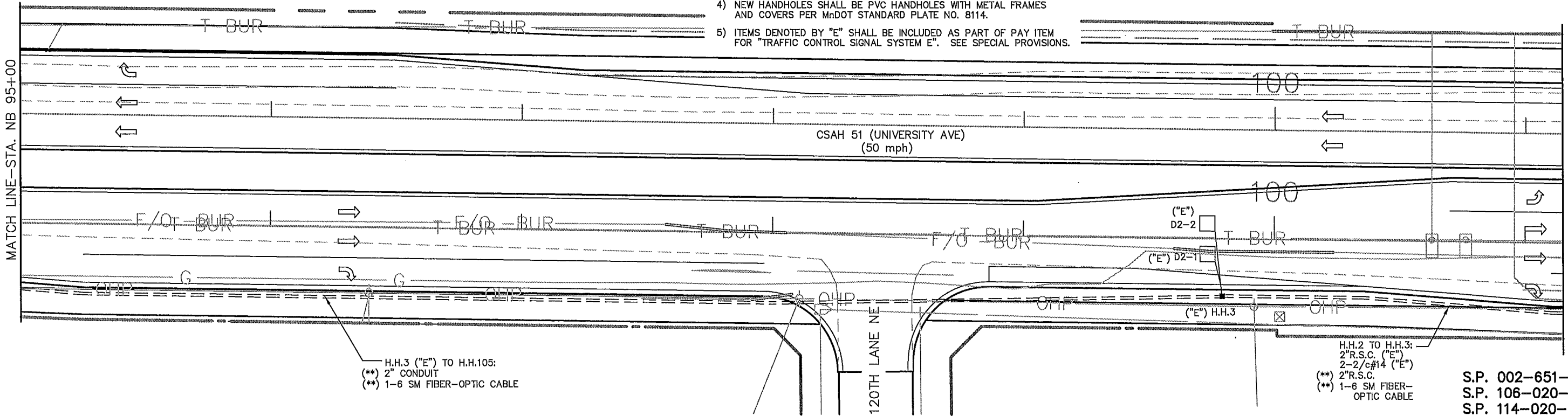


H.H.104 TO H.H.105:  
 (\*\*) 2" CONDUIT  
 (\*\*) 1-6 SM FIBER-OPTIC CABLE  
 (TO 117TH AVENUE SIGNAL SYSTEM)

Ⓧ (\*\*) INTERCONNECT SPLICE CABINET  
 (LOOP FIBER-OPTIC CABLE IN AND OUT OF CABINET TO H.H.105)  
 (\*\*) CABINET FOUNDATION EXTEND INTO H.H.105:  
 (\*\*) 2-2"R.S.C.  
 (\*\*) 2-6 SM FIBER-OPTIC CABLES

- INTERCONNECT NOTES:**
- 1) IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" (TELEPHONE NUMBER 651-454-0002) AS REQUIRED BY MINNESOTA STATUTE 2160.
  - 2) DISTANCE OFF SHOULDER OR CURB FOR INTERCONNECT CONDUIT SHALL BE 1-2 FEET.
  - 3) (\*\*) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2585 (TRAFFIC CONTROL INTERCONNECTION). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
  - 4) NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS PER MnDOT STANDARD PLATE NO. 8114.
  - 5) ITEMS DENOTED BY "E" SHALL BE INCLUDED AS PART OF PAY ITEM FOR "TRAFFIC CONTROL SIGNAL SYSTEM E". SEE SPECIAL PROVISIONS.

H.H.105 TO H.H.3 ("E"):  
 (\*\*) 2" CONDUIT  
 (\*\*) 1-6 SM FIBER-OPTIC CABLE



H.H.3 ("E") TO H.H.105:  
 (\*\*) 2" CONDUIT  
 (\*\*) 1-6 SM FIBER-OPTIC CABLE

H.H.2 TO H.H.3:  
 2"R.S.C. ("E")  
 2-2/c#14 ("E")  
 (\*\*) 2"R.S.C.  
 (\*\*) 1-6 SM FIBER-OPTIC CABLE

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

DRAWN BY: JMG  
 DESIGNER: JMG  
 CHECKED BY: JMG  
 DESIGN TEAM

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**ANOKA COUNTY**  
**CITIES OF BLAINE AND COON RAPIDS**

**SIGNAL SYSTEM 'E'/INTERCONNECT INTERSECTION LAYOUT**  
**CSAH 51 (UNIVERSITY AVE)**  
**(117TH AVENUE TO 121ST AVENUE)**

FILE NO. ANOKC 125457  
 SIGNAL SHEET 23 OF 39  
**240**  
**381**

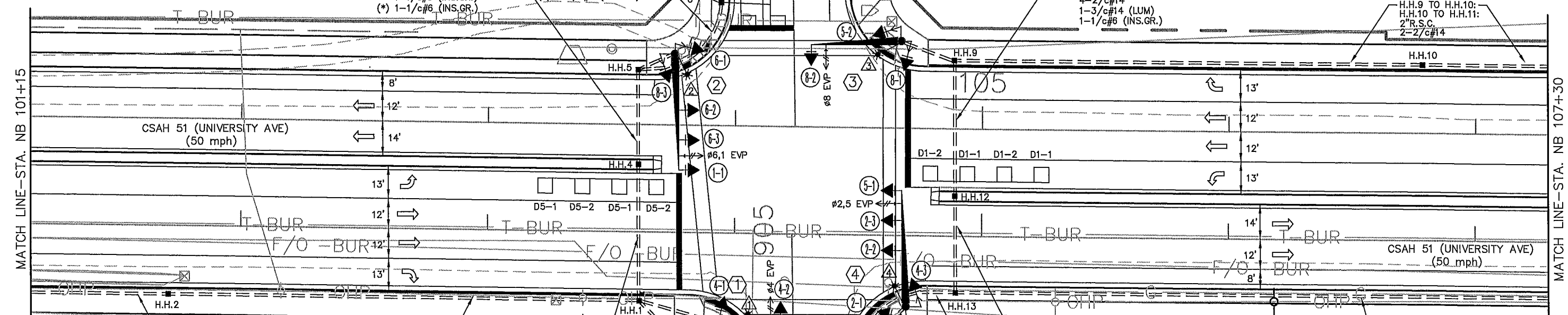


- NOTES:**
- 1) LOCATION OF FOUNDATIONS, LOOP DETECTORS, AND HANDHOLES SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
  - 2) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
  - 3) NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS.
  - 4) A 3/4" HALF COUPLING, 3/4" PIPE NIPPLE, AND CONDUIT OUTLET BODY SHALL BE FURNISHED AND INSTALLED 6 FEET FROM THE END OF EACH MAST ARM (FOR EVP).
  - 5) THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE POWER COMPANY TO ARRANGE FOR THE POWER CONNECTION (CONNEXUS). SEE SPECIAL PROVISIONS.
  - 6) SEE SPECIAL PROVISIONS AND DETAILS REGARDING SIGNS TO BE FURNISHED AND INSTALLED BY CONTRACTOR (INCLUDED AS PART OF PAY ITEM FOR "TRAFFIC CONTROL SIGNAL SYSTEM E").
  - 7) EACH PEDESTRIAN INDICATION SHALL BE ONE SECTION FILLED COUNTDOWN TIMER "HAND/WALKING PERSON" INDICATION.
  - 8) ALL VEHICLE AND PEDESTRIAN SIGNAL INDICATIONS SHALL BE LED.
  - 9) EACH SIGNAL FACE SHALL HAVE A BACKGROUND SHIELD.
  - 10) SEE DETAILS, SPECIAL PROVISIONS, AND STATEMENT OF ESTIMATED QUANTITIES REGARDING BATTERY BACK-UP SIGNAL SERVICE CABINET TO BE FURNISHED AND INSTALLED BY CONTRACTOR (SEPARATE FROM ITEM NO. 2565 FOR THIS SIGNAL SYSTEM).
  - 11) LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) IN 3/4" N.M.C. SEE SPECIAL PROVISIONS.
  - 12) (\*) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (EMERGENCY VEHICLE PREEMPTION SYSTEM "E"). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.

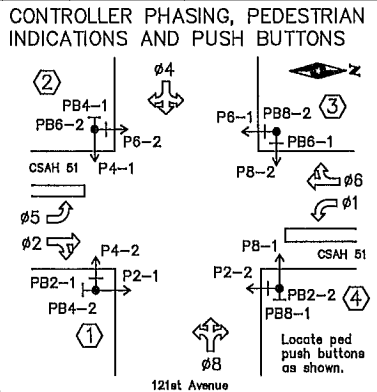
F & I N.M.C. LOOP DETECTORS			
NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D1-1	2-6x6	20' & 50'	1
D1-2	2-6x6	5' & 35'	1
D2-1	6x6	400'	1
D2-2	6x6	400'	1
D4-1	6x6	120'	3,8
D4-2	2-6x6	0' & 15'	7
D4-3	2-6x6	0' & 15'	7
D5-1	2-6x6	20' & 50'	1
D5-2	2-6x6	5' & 35'	1
D6-1	6x6	400'	1
D6-2	6x6	400'	1
D8-1	6x6	120'	3,8
D8-2	2-6x6	0' & 15'	7
D8-3	2-6x6	0' & 15'	7

- LOOP DETECTORS FUNCTIONS:**
- 1) CALL AND EXTEND
  - 3) EXTEND ONLY
  - 7) DELAYED CALL, IMMEDIATE EXTEND
  - 8) CARRY OVER (STRETCH)

NOTE: LOCATION=DISTANCE FROM STOP BAR TO FRONT OF LOOP DETECTOR.



- 13) (\*\*) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECTION). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 14) THE CONTRACTOR SHALL REMOVE, SALVAGE AND DISPOSE OF ALL ITEMS OF EXISTING PERMANENT SIGNAL SYSTEM IN ACCORDANCE WITH THE PLANS AND SPECIAL PROVISIONS (INCLUDED AS PART OF PAY ITEM FOR "TRAFFIC CONTROL SIGNAL SYSTEM E").



**(B) INPLACE WOOD POLE-TO BE RELOCATED BY OTHERS (S.O.P.) (CONNEXUS)**

**SIGNAL SYSTEM OPERATIONS:**

- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
- NORMAL OPERATION SHALL BE 6 PHASE, WITH PHASES 1 & 5 BEING FLASHING YELLOW ARROWS (FLASH BY TIME OF DAY).
- VEHICLE SIGNAL PHASES 2 AND 6 SHALL OPERATE ON RECALL.

- H.H.1 TO H.H.2:**  
H.H.2 TO H.H.3:  
2" R.S.C.  
2-2/c#14  
(\*\*) 2" R.S.C.  
(\*\*) 1-6 SM FIBER-OPTIC CABLE
- H.H.1 TO H.H.4:**  
4" CONDUIT  
3-12/c#14  
(\*) 1-3/c#14  
(\*) 2-3/c#20  
8-2/c#14  
1-3/c#14 (LUM)  
1-1/c#6 (INS.GR.)  
(\*) 1-1/c#6 (INS.GR.)

- H.H.14 TO H.H.16:**  
2-4" CONDUITS  
5-12/c#14  
(\*) 2-3/c#14  
(\*) 2-3/c#20  
11-2/c#14  
2-3/c#14 (LUM)  
2-1/c#6 (INS.GR.)  
(\*\*) 2" CONDUIT  
(\*\*) 1-6 SM FIBER-OPTIC CABLE

**H.H.14 TO H.H.15:**  
2" R.S.C.-INPLACE (CUT & EXTEND INTO NEW H.H.14)  
1-2/c#14

- H.H.12 TO H.H.13:**  
4" CONDUIT  
2-12/c#14  
(\*) 1-3/c#14  
(\*) 1-3/c#20  
6-2/c#14  
1-3/c#14 (LUM)  
1-1/c#6 (INS.GR.)

- H.H.13 TO H.H.14:**  
4" R.S.C.  
2-12/c#14  
(\*) 1-3/c#14  
(\*) 1-3/c#20  
6-2/c#14  
1-3/c#14 (LUM)  
1-1/c#6 (INS.GR.)  
(\*\*) 2" R.S.C.  
(\*\*) 1-6 SM FIBER-OPTIC CABLE

**SEE NEXT SHEET FOR DETAILED POLE NOTES**

CONTRACTOR SHALL FURNISH, INSTALL, COIL AND STORE 25' OF 1-2/c#14 IN HANDHOLE 6, AND PROVIDE AN ADDITIONAL 25' OF 1-2/c#14 CABLE IN HANDHOLE 9 AS SHOWN ON FIELD WIRING DIAGRAM (FOR FUTURE PUSH BUTTON INSTALLATION BY OTHERS).

**LED SIGNAL FACES**  
ALL SIGNAL INDICATIONS SHALL BE 12"

SIGNAL FACE	R	Y	FYA	G
1-1, 1-2	●	●	●	●
2-1, 2-2, 2-3	●	●	●	●
4-1, 4-2, 4-3	●	●	●	●
5-1, 5-2	●	●	●	●
6-1, 6-2, 6-3	●	●	●	●
8-1, 8-2, 8-3	●	●	●	●

FYA = FLASHING YELLOW ARROW.

S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

DRAWN BY: JMG  
DESIGNER: JMG  
CHECKED BY: JMG

DESIGN TEAM	NO.	BY	DATE	REVISIONS

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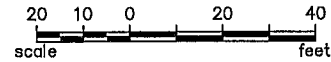
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**ANOKA COUNTY**  
CITIES OF BLAINE  
AND COON RAPIDS

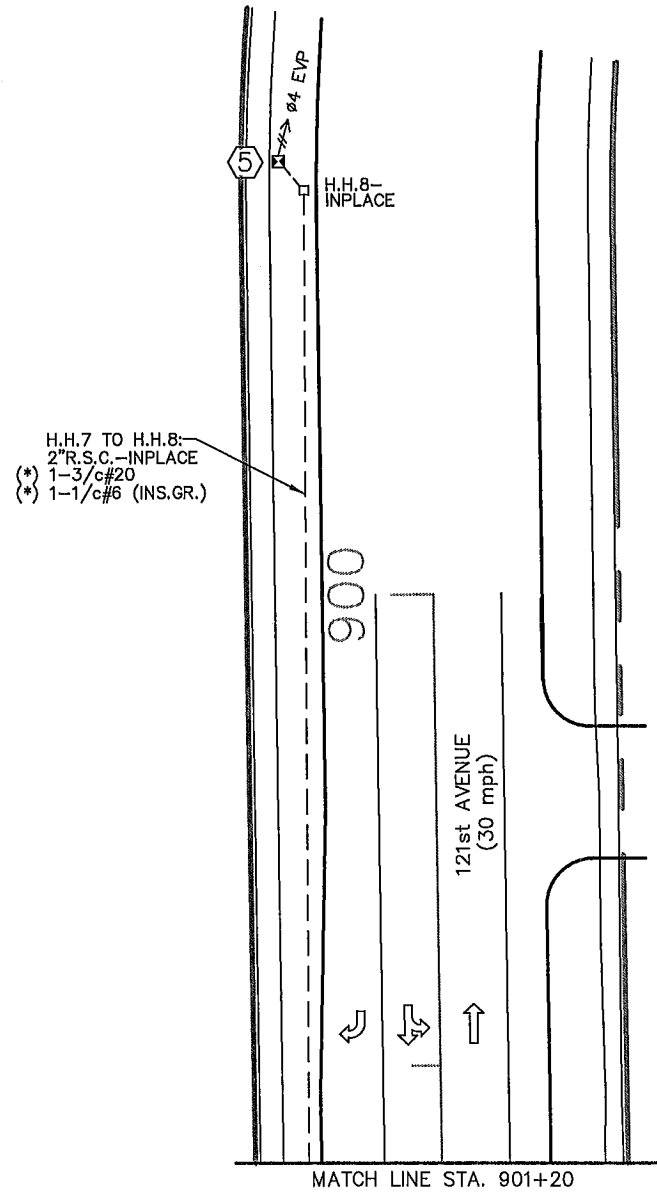
**TRAFFIC SIGNAL SYSTEM 'E'**  
INTERSECTION LAYOUT  
CSAH 51 (UNIVERSITY AVE) AT 121ST AVENUE

FILE NO.  
ANOKC 125457  
SIGNAL SHEET  
24 OF 39

241  
381



- ⑤ PEDESTAL FOUNDATION-INPLACE
- (\*\*) 10' PEDESTAL POLE AND BASE
- (\*\*) WIND COLLAR FOR PEDESTAL POLE
- (\*\*) ONE WAY EVP DETECTOR-MOUNT ATOP SLIPFITTER COLLAR (FACING EB TRAFFIC) (#4)
- EXTENDED INTO H.H.8:
- 2"R.S.C.-INPLACE
- (\*\*) 1-3/c#20
- (\*\*) 1-1/c#6 (INS.GR.)



SIGNAL SYSTEM "E" POLE NOTES

- ① PA85 POLE FOUNDATION
- TYPE PA85-A-20-D30-9 (DAVIT AT 350 DEG.)
- LUMINAIRE-LED SHOEBOX
- 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0' AND 180 DEG
- 2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG AND 180 DEG
- 2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED 90 DEG AND 180 DEG
- 2-PEDESTRIAN PUSH BUTTONS
- TYPE D SIGN PANEL-OVERHEAD (D-12)
- (\*) ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT (#4)
- EXTEND INTO H.H.1:
- 3"R.S.C.
- 2-12/c#14
- (\*) 1-3/c#14
- (\*) 1-3/c#20
- 2-2/c#14
- 1-3/c#14 (LUM)
- 1-1/c#6 (INS.GR.)

- ③ PA90 POLE FOUNDATION
- TYPE PA90-A-35-D30-9 (DAVIT AT 350 DEG)
- LUMINAIRE-LED SHOEBOX
- 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0' AND 180 DEG
- 2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG AND 180 DEG
- 2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED 90 DEG AND 180 DEG
- 2-PEDESTRIAN PUSH BUTTONS
- TYPE D SIGN PANEL-OVERHEAD (D-14)
- (\*) ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT (#8)
- EXTEND INTO H.H.9:
- 3"R.S.C.
- 2-12/c#14
- (\*) 1-3/c#14
- (\*) 1-3/c#20
- 2-2/c#14
- 1-3/c#14 (LUM)
- 1-1/c#6 (INS.GR.)

- ② PA100 POLE FOUNDATION
- TYPE PA100-A-45-D30-9 (DAVIT AT 350 DEG)
- LUMINAIRE-LED SHOEBOX
- 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'
- 2-STRAIGHT MOUNT SIGNALS-OVERHEAD AT 11' & 23'
- 2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG AND 180 DEG
- 2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED 90 DEG AND 180 DEG
- 2-PEDESTRIAN PUSH BUTTONS
- 2-R6-1 SIGN PANEL-POLE MOUNTED 0 DEG AND 180 DEG
- R10-X12 SIGN PANEL-ADJACENT TO 1-1
- TYPE D SIGN PANEL-OVERHEAD (D-13)
- (\*) ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT (#6,1)
- EXTEND INTO H.H.5:
- 3"R.S.C.
- 3-12/c#14
- (\*) 1-3/c#14
- (\*) 1-3/c#20
- 2-2/c#14
- 1-3/c#14 (LUM)
- 1-1/c#6 (INS.GR.)

- ④ PA100 POLE FOUNDATION
- TYPE PA100-A-45-D30-9 (DAVIT AT 350 DEG)
- LUMINAIRE-LED SHOEBOX
- 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'
- 2-STRAIGHT MOUNT SIGNALS-OVERHEAD AT 11' & 23'
- 2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG AND 180 DEG
- 2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED 90 DEG AND 180 DEG
- 2-PEDESTRIAN PUSH BUTTONS
- 2-R6-1 SIGN PANEL-POLE MOUNTED 0 DEG AND 180 DEG
- R10-X12 SIGN PANEL-ADJACENT TO 5-1
- TYPE D SIGN PANEL-OVERHEAD (D-15)
- (\*) ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT (#2,5)
- EXTEND INTO H.H.14:
- 3"R.S.C.
- 3-12/c#14
- (\*) 1-3/c#14
- (\*) 1-3/c#20
- 2-2/c#14
- 1-3/c#14 (LUM)
- 1-1/c#6 (INS.GR.)

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

DRAWN BY: JMG				
DESIGNER: JMG				
CHECKED BY: JMG				
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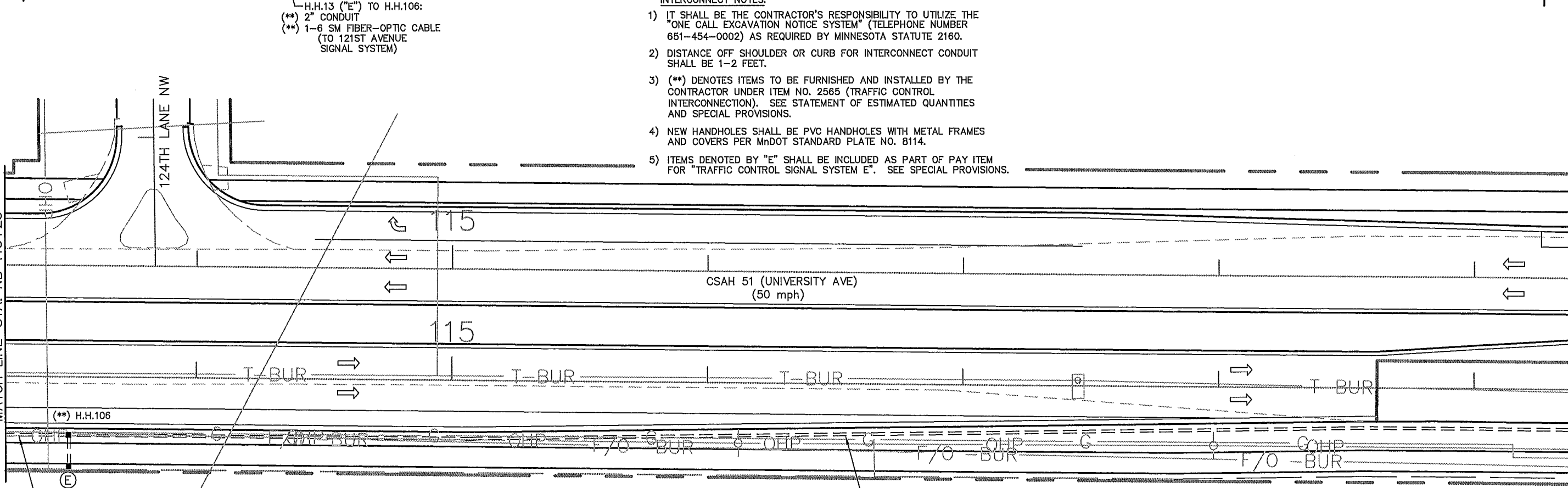
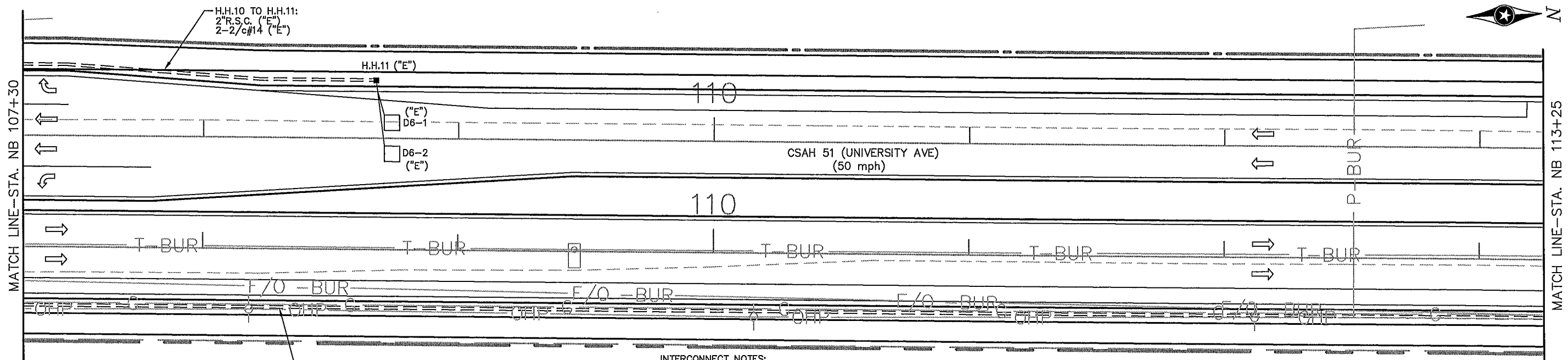
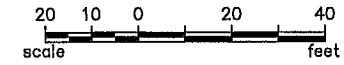
**SEH**  
 PHONE: (651) 480-2000  
 3535 VADNAIS CENTER DR.  
 ST. PAUL, MN 55110

**ANOKA COUNTY**  
**CITIES OF BLAINE AND COON RAPIDS**

**TRAFFIC SIGNAL SYSTEM 'E'**  
**INTERSECTION LAYOUT**  
 CSAH 51 (UNIVERSITY AVE) AT 121ST AVENUE

FILE NO. ANOKC 125457	242
SIGNAL SHEET	381
25 OF 39	





H.H.10 TO H.H.11:  
2" R.S.C. ("E")  
2-2/c#14 ("E")

H.H.13 ("E") TO H.H.106:  
(\*\*) 2" CONDUIT  
(\*\*) 1-6 SM FIBER-OPTIC CABLE  
(TO 121ST AVENUE  
SIGNAL SYSTEM)

- INTERCONNECT NOTES:**
- 1) IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" (TELEPHONE NUMBER 651-454-0002) AS REQUIRED BY MINNESOTA STATUTE 2160.
  - 2) DISTANCE OFF SHOULDER OR CURB FOR INTERCONNECT CONDUIT SHALL BE 1-2 FEET.
  - 3) (\*\*) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECTION). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
  - 4) NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS PER MNDOT STANDARD PLATE NO. 8114.
  - 5) ITEMS DENOTED BY "E" SHALL BE INCLUDED AS PART OF PAY ITEM FOR "TRAFFIC CONTROL SIGNAL SYSTEM E". SEE SPECIAL PROVISIONS.

H.H.13 ("E") TO H.H.106:  
(\*\*) 2" CONDUIT  
(\*\*) 1-6 SM FIBER-OPTIC CABLE

(E) (\*\*) INTERCONNECT SPLICE CABINET  
(LOOP FIBER-OPTIC CABLE IN  
AND OUT OF CABINET TO H.H.106)  
(\*\*) CABINET FOUNDATION  
EXTEND INTO H.H.106:  
(\*\*) 2-2" R.S.C.  
(\*\*) 2-6 SM FIBER-OPTIC CABLES

H.H.106 TO H.H.3 (CSAH 14)  
(\*\*) 2" CONDUIT  
(\*\*) 1-6 SM FIBER-OPTIC CABLE  
(TO CSAH 14 SIGNAL SYSTEM)

S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

DRAWN BY: JMG  
DESIGNER: JMG  
CHECKED BY: JMG

DESIGN TEAM	NO.	BY	DATE	REVISIONS

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

*John M. Gray*  
Name: John M. Gray, PE  
Date: April 23, 2014  
Lic. No. 22457

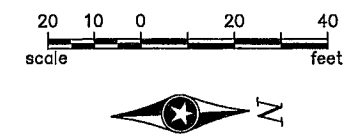
**SEH**  
PHONE: (651) 490-2000  
3535 VADNAIS CENTER DR.  
ST. PAUL, MN 55110

**ANOKA COUNTY**  
CITIES OF BLAINE  
AND COON RAPIDS

**SIGNAL SYSTEM 'E'/INTERCONNECT  
INTERSECTION LAYOUT  
CSAH 51 (UNIVERSITY AVE)  
(121ST AVENUE TO CSAH 14)**

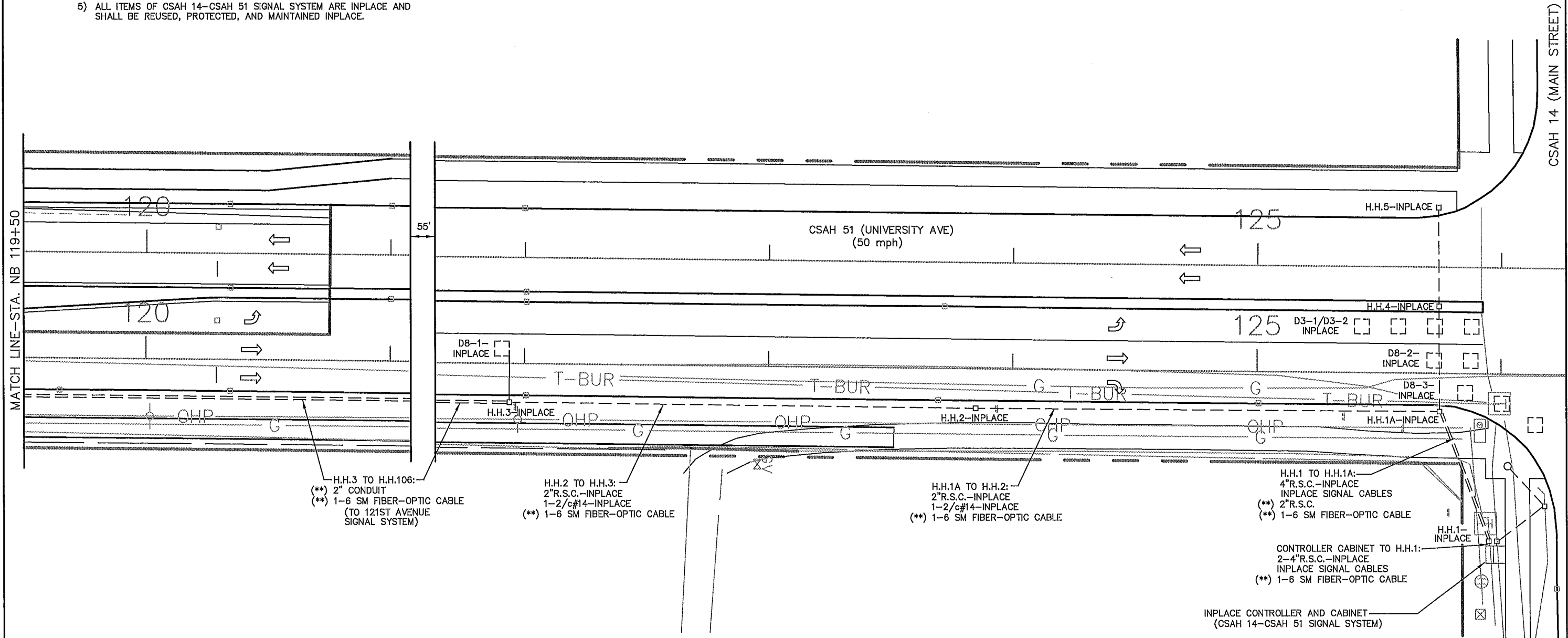
FILE NO.  
ANOKC 125457  
SIGNAL SHEET  
27 OF 39

244  
381



**INTERCONNECT NOTES:**

- 1) IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" (TELEPHONE NUMBER 651-454-0002) AS REQUIRED BY MINNESOTA STATUTE 2160.
- 2) DISTANCE OFF SHOULDER OR CURB FOR INTERCONNECT CONDUIT SHALL BE 1-2 FEET.
- 3) (\*\*) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECTION). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 4) NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS PER MnDOT STANDARD PLATE NO. 8114.
- 5) ALL ITEMS OF CSAH 14-CSAH 51 SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED, PROTECTED, AND MAINTAINED INPLACE.



H.H.3 TO H.H.106:  
 (\*\*) 2" CONDUIT  
 (\*\*) 1-6 SM FIBER-OPTIC CABLE  
 (TO 121ST AVENUE SIGNAL SYSTEM)

H.H.2 TO H.H.3:  
 2"R.S.C.-INPLACE  
 1-2/c#14-INPLACE  
 (\*\*) 1-6 SM FIBER-OPTIC CABLE

H.H.1A TO H.H.2:  
 2"R.S.C.-INPLACE  
 1-2/c#14-INPLACE  
 (\*\*) 1-6 SM FIBER-OPTIC CABLE

H.H.1 TO H.H.1A:  
 4"R.S.C.-INPLACE  
 INPLACE SIGNAL CABLES  
 (\*\*) 2"R.S.C.  
 (\*\*) 1-6 SM FIBER-OPTIC CABLE

CONTROLLER CABINET TO H.H.1:  
 2-4"R.S.C.-INPLACE  
 INPLACE SIGNAL CABLES  
 (\*\*) 1-6 SM FIBER-OPTIC CABLE

INPLACE CONTROLLER AND CABINET  
 (CSAH 14-CSAH 51 SIGNAL SYSTEM)

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

DRAWN BY: JMG  
 DESIGNER: JMG  
 CHECKED BY: JMG

NO.	BY	DATE	REVISIONS

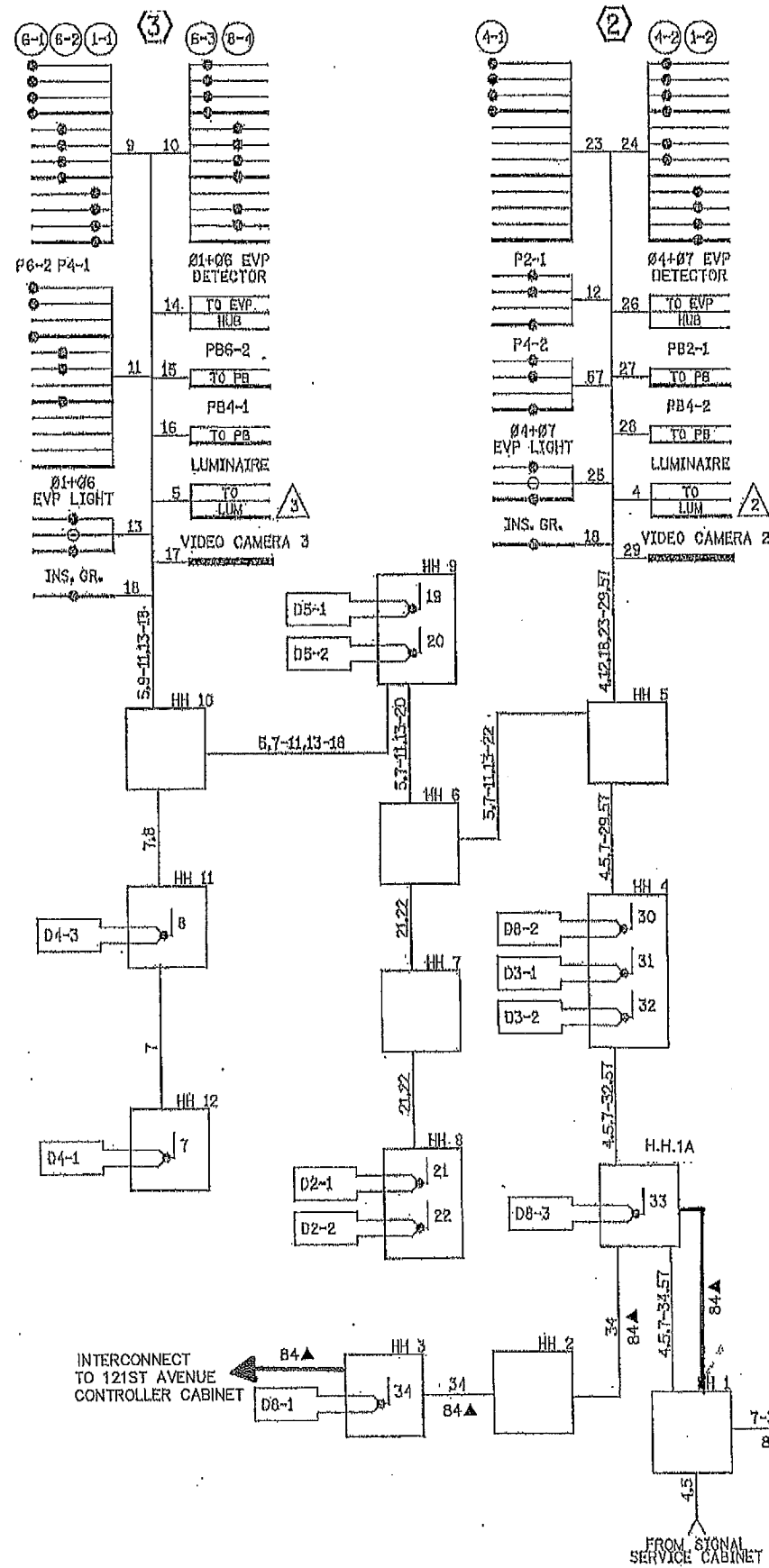
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Date: April 23, 2014  
 Name: John M. Gray, PE  
 Lic. No. 22457

SEH  
 PHONE: (651) 490-2000  
 3535 VADNAIS CENTER DR.  
 ST. PAUL, MN 55110

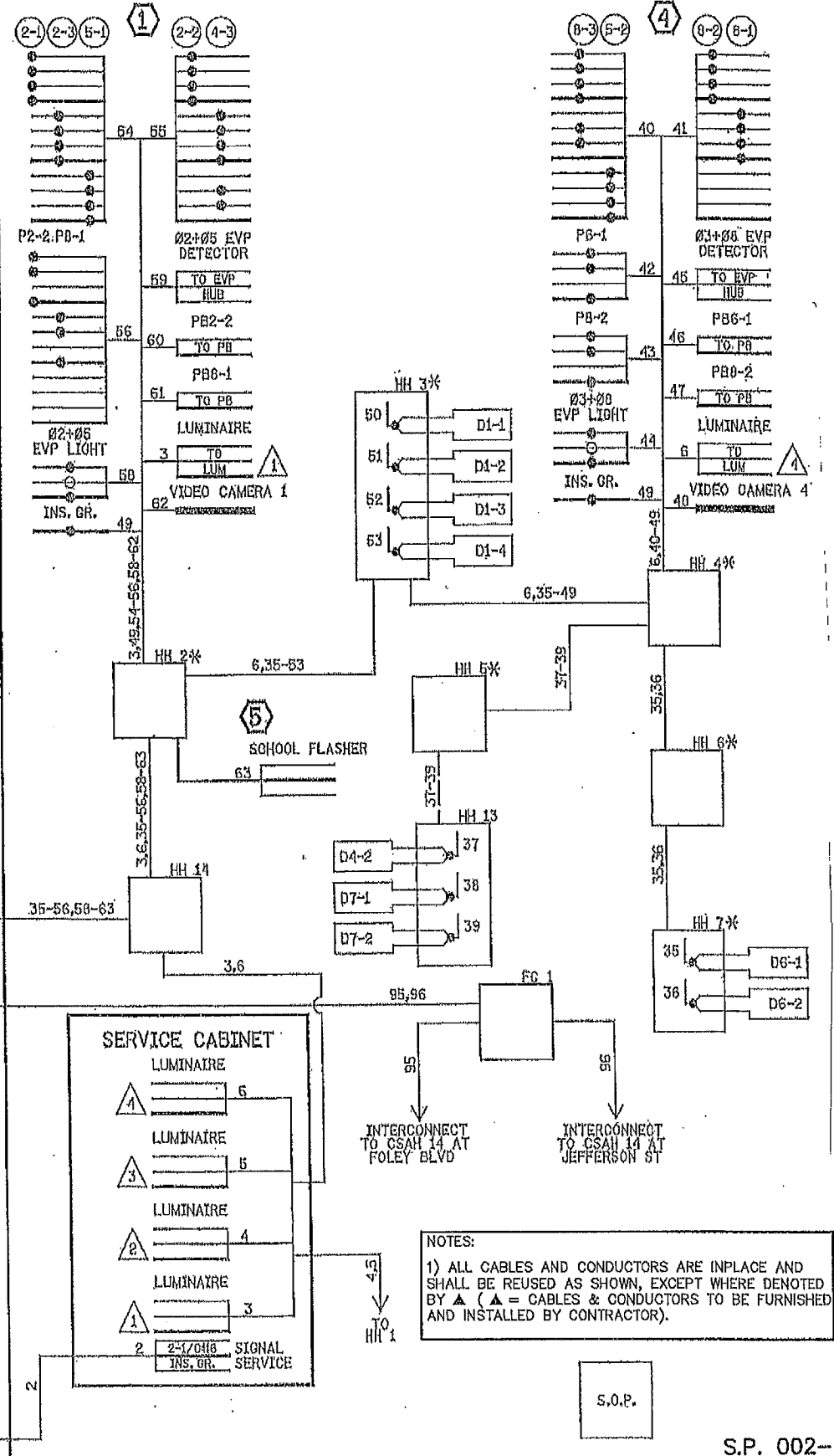
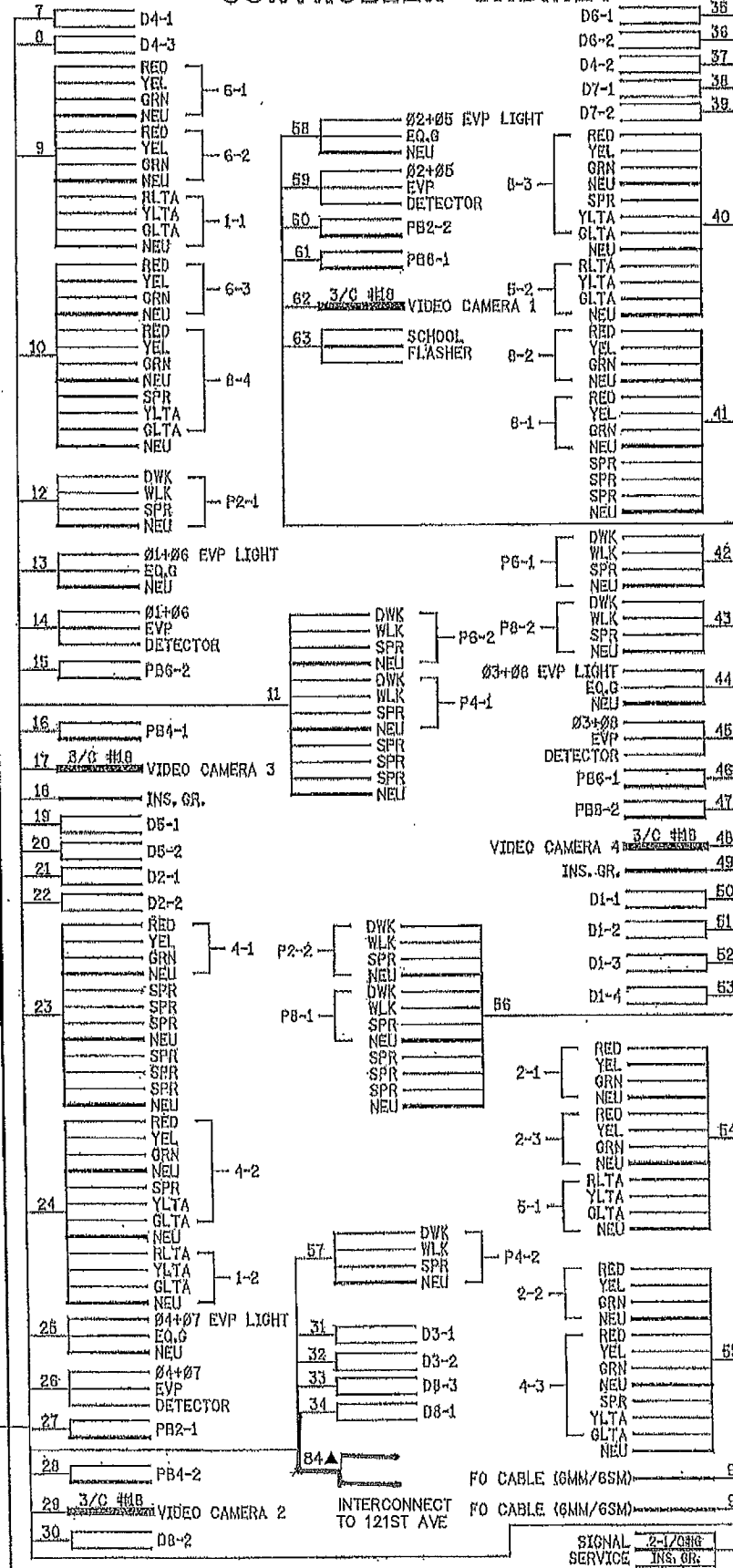
**ANOKA COUNTY**  
**CITIES OF BLAINE AND COON RAPIDS**

**TRAFFIC SIGNAL INTERCONNECTION**  
**INTERSECTION LAYOUT**  
**CSAH 51 (UNIVERSITY AVE)**  
**(121ST AVENUE TO CSAH 14)**

FILE NO. ANOKC 125457  
 SIGNAL SHEET 28 OF 39  
 245  
 301



**CONTROLLER CABINET**



**NOTES:**  
 1) ALL CABLES AND CONDUCTORS ARE INPLACE AND SHALL BE REUSED AS SHOWN, EXCEPT WHERE DENOTED BY ▲ (▲ = CABLES & CONDUCTORS TO BE FURNISHED AND INSTALLED BY CONTRACTOR).

S.O.P.

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

DRAWN BY: JMG			
DESIGNER: JMG			
CHECKED BY: JMG			
DESIGN TEAM	NO.	BY	DATE
			REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Date: April 23, 2014 Name: John M. Gray, PE Lto. No. 22457

SEH  
 PHONE: (851) 490-2000  
 3535 VADNAIS CENTER DR.  
 ST. PAUL, MN 55110

**ANOKA COUNTY**  
 CITIES OF BLAINE  
 AND COON RAPIDS

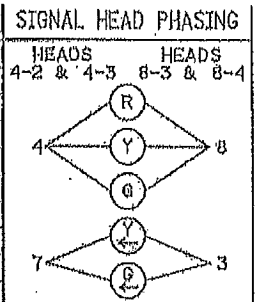
**TRAFFIC SIGNAL INTERCONNECTION**  
 FIELD WIRING DIAGRAM  
 CSAH 51 (UNIVERSITY AVE) AT CSAH 14

FILE NO. ANOKC 125457	246
SIGNAL SHEET 29 OF 39	381

**LED SIGNAL INDICATIONS**

FACE	R	Y	G	RTA	YTA	QTA
1-1, 1-2				←	←	←
2-1, 2-2, 2-3	●	●	●			
4-1	●	●	●			
4-2, 4-3	●	●	●			
5-1, 5-2				←	←	←
6-1, 6-2, 6-3	●	●	●			
8-1, 8-2	●	●	●			
8-3, 8-4	●	●	●	←	←	←

ALL VEHICLE SIGNAL INDICATIONS SHALL BE 12"  
EACH SIGNAL FACE SHALL HAVE A BACKGROUND SHIELD

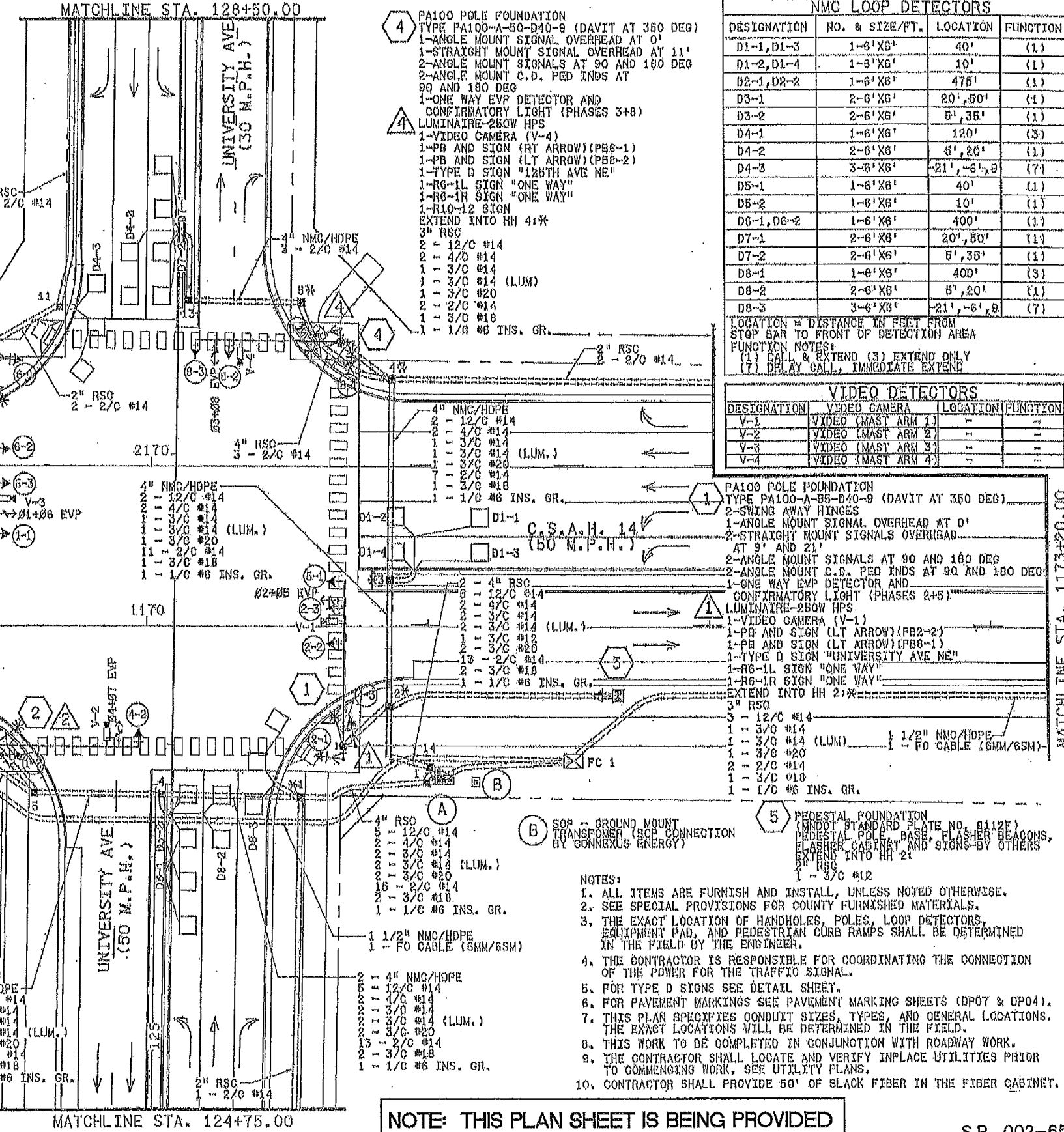


**3 PA100 POLE FOUNDATION**  
TYPE PA100-A-55-D40-9 (DAVIT AT 350 DEG)  
2-SWING AWAY HINGES  
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'  
2-STRAIGHT MOUNT SIGNALS OVERHEAD AT 17' AND 29'  
2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG  
2-ANGLE MOUNT C.D. PED INDS AT 90 AND 180 DEG  
1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 1+6)  
LUMINAIRE-250W HPS  
1-VIDEO CAMERA (V-3)  
1-PB AND SIGN (LT ARROW)(PB2-2)  
1-PB AND SIGN (RT ARROW)(PB4-1)  
1-TYPE D SIGN "UNIVERSITY AVE NE"  
1-R6-1L SIGN "ONE WAY"  
1-R6-1R SIGN "ONE WAY"  
EXTEND INTO HH 10'  
3" RSC  
3 - 12/C #14  
1 - 3/C #14  
1 - 3/C #14 (LUM.)  
1 - 3/C #20  
1 - 3/C #18  
1 - 1/C #6 INS. GR.

**2 PA100 POLE FOUNDATION**  
TYPE PA100-A-55-D40-9 (DAVIT AT 350 DEG)  
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'  
2-ANGLE MOUNT SIGNALS AT 90 & 180 DEG  
2-ANGLE MOUNT C.D. PED INDS AT 90 AND 180 DEG  
1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 4+7)  
LUMINAIRE-250W HPS  
1-VIDEO CAMERA (V-2)  
1-PB AND SIGN (LT ARROW)(PB2-1)  
1-PB AND SIGN (LT ARROW)(PB4-2)  
1-TYPE D SIGN "UNIVERSITY AVE NE"  
1-R6-1L SIGN "ONE WAY"  
1-R6-1R SIGN "ONE WAY"  
1-R10-12 SIGN  
EXTEND INTO HH 5'  
3" RSC  
2 - 12/C #14  
2 - 4/C #14  
1 - 3/C #14  
1 - 3/C #14 (LUM.)  
1 - 3/C #20  
1 - 3/C #18  
1 - 1/C #6 INS. GR.

**CONTROLLER PHASING, PEDESTRIAN INDICATIONS & PUSHBUTTON LAYOUT**

**SIGNAL OPERATION NOTES**  
- NORMAL OPERATION IS B PHASE  
- FLASH MODE SHALL BE ALL RED  
- #1 & #5 SHALL BE PROTECTED LEFT TURNS  
- #3 & #7 SHALL BE PROTECTED/PERMISSIVE LEFT TURNS  
- #2 & #6 SHALL BE ON VEHICLE RECALL



**NOTE: THIS PLAN SHEET IS BEING PROVIDED FOR INFORMATIONAL PURPOSES ONLY.**

**NMC LOOP DETECTORS**

DESIGNATION	NO. & SIZE/FT.	LOCATION	FUNCTION
D1-1, D1-3	1-6' X6'	40'	(1)
D1-2, D1-4	1-6' X6'	10'	(1)
D2-1, D2-2	1-6' X6'	475'	(1)
D3-1	2-6' X6'	20', 50'	(1)
D3-2	2-6' X6'	5', 35'	(1)
D4-1	1-6' X6'	120'	(3)
D4-2	2-6' X6'	5', 20'	(1)
D4-3	3-6' X6'	-21', -6', 9	(7)
D5-1	1-6' X6'	40'	(1)
D5-2	1-6' X6'	10'	(1)
D6-1, D6-2	1-6' X6'	400'	(1)
D7-1	2-6' X6'	20', 50'	(1)
D7-2	2-6' X6'	5', 35'	(1)
D8-1	1-6' X6'	400'	(3)
D8-2	2-6' X6'	5', 20'	(1)
D8-3	3-6' X6'	-21', -6', 9	(7)

LOCATION = DISTANCE IN FEET FROM STOP BAR TO FRONT OF DETECTION AREA  
FUNCTION NOTES:  
(1) CALL & EXTEND (3) EXTEND ONLY  
(7) DELAY CALL, IMMEDIATE EXTEND

**VIDEO DETECTORS**

DESIGNATION	VIDEO CAMERA	LOCATION	FUNCTION
V-1	VIDEO (MAST ARM 1)	-	-
V-2	VIDEO (MAST ARM 2)	-	-
V-3	VIDEO (MAST ARM 3)	-	-
V-4	VIDEO (MAST ARM 4)	-	-

**1 PA100 POLE FOUNDATION**  
TYPE PA100-A-55-D40-9 (DAVIT AT 350 DEG)  
2-SWING AWAY HINGES  
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'  
2-STRAIGHT MOUNT SIGNALS OVERHEAD AT 9' AND 21'  
2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG  
2-ANGLE MOUNT C.D. PED INDS AT 90 AND 180 DEG  
1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 2+5)  
LUMINAIRE-250W HPS  
1-VIDEO CAMERA (V-1)  
1-PB AND SIGN (LT ARROW)(PB2-2)  
1-PB AND SIGN (LT ARROW)(PB0-1)  
1-TYPE D SIGN "UNIVERSITY AVE NE"  
1-R6-1L SIGN "ONE WAY"  
1-R6-1R SIGN "ONE WAY"  
EXTEND INTO HH 2'  
3" RSC  
3 - 12/C #14  
1 - 3/C #14  
1 - 3/C #14 (LUM.)  
1 - 3/C #20  
1 - 3/C #18  
1 - 1/C #6 INS. GR.

**5 PEDESTAL FOUNDATION**  
(BIDDY STANDARD PLATE NO. 8112F)  
PEDESTAL POLE, BASE, FLASHED BEACONS, FLASHER CABINET AND SIGNS BY OTHERS  
EXTEND INTO HH 21'  
3" RSC  
1 - 3/C #12

- NOTES:**
- ALL ITEMS ARE FURNISH AND INSTALL, UNLESS NOTED OTHERWISE.
  - SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
  - THE EXACT LOCATION OF HANDHOLES, POLES, LOOP DETECTORS, EQUIPMENT PAD, AND PEDESTRIAN CURB RAMPS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
  - THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE CONNECTION OF THE POWER FOR THE TRAFFIC SIGNAL.
  - FOR TYPE D SIGNS SEE DETAIL SHEET.
  - FOR PAVEMENT MARKINGS SEE PAVEMENT MARKING SHEETS (DPO7 & DPO4).
  - THIS PLAN SPECIFIES CONDUIT SIZES, TYPES, AND GENERAL LOCATIONS. THE EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD.
  - THIS WORK TO BE COMPLETED IN CONJUNCTION WITH ROADWAY WORK.
  - THE CONTRACTOR SHALL LOCATE AND VERIFY INPLACE UTILITIES PRIOR TO COMMENCING WORK, SEE UTILITY PLANS.
  - CONTRACTOR SHALL PROVIDE 50' OF SLACK FIBER IN THE FIBER CABINET.

DESIGN TEAM

NO.	BY	DATE	REVISIONS

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

Date: April 23, 2014 Name: John M. Gray, PE Licensure No.: 22457

SEH  
PHONE: (651) 490-2000  
3535 WADSWORTH CENTER DR.  
ST. PAUL, MN 55110

**ANOKA COUNTY**  
CITIES OF BLAINE  
AND COON RAPIDS

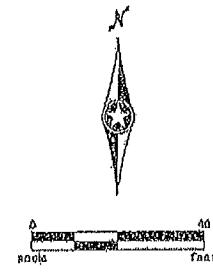
**INPLACE SIGNAL SYSTEM**  
"FOR INFORMATION ONLY"  
CSAH 51 (UNIVERSITY AVE) AT CSAH 14

FILE NO.  
ANOKC 125457  
SIGNAL SHEET  
30 OF 38

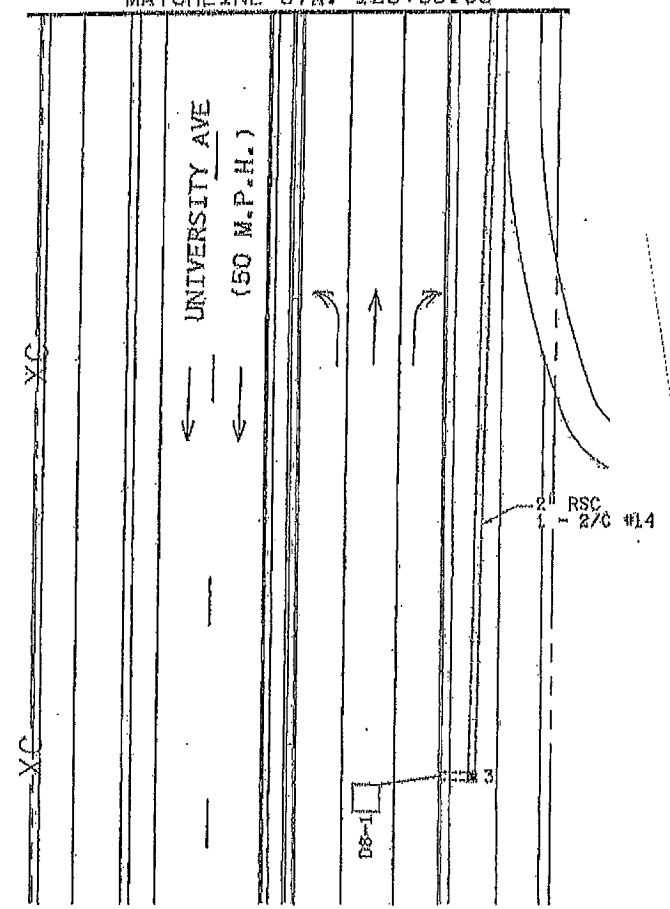
247  
381







MATCHLINE STA. 123+65:00



NOTE: THIS PLAN SHEET IS BEING PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

- NOTES:
1. ALL ITEMS ARE FURNISH AND INSTALL, UNLESS NOTED OTHERWISE.
  2. SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
  3. THE EXACT LOCATION OF HANDHOLES AND LOOP DETECTORS, SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
  4. FOR PAVEMENT MARKINGS SEE PAVEMENT MARKING SHEETS (DP07 & DP04).
  5. THIS PLAN SPECIFIES CONDUIT SIZES, TYPES, AND GENERAL LOCATIONS. THE EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD.
  6. THIS WORK TO BE COMPLETED IN CONJUNCTION WITH ROADWAY WORK.
  7. THE CONTRACTOR SHALL LOCATE AND VERIFY INPLACE UTILITIES PRIOR TO COMMENCING WORK. SEE UTILITY PLANS.

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

DRAWN BY: JMG			
DESIGNER: JMG			
CHECKED BY: JMG			
DESIGN TEAM	NO.	BY	DATE
			REVISIONS

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Date: April 23, 2014 Name: John M. Gray, PE Lic. No. 22487

SEH  
 PHONE: (851) 490-2000  
 3535 VADNAIS CENTER DR.  
 ST. PAUL, MN 55110

ANOKA COUNTY  
 CITIES OF BLAINE  
 AND COON RAPIDS

INPLACE SIGNAL SYSTEM  
 'FOR INFORMATION ONLY'  
 CSAH 51 (UNIVERSITY AVE) AT CSAH 14

FILE NO. ANOKC 125407	249
SIGNAL SHEET 32 OF 39	

381

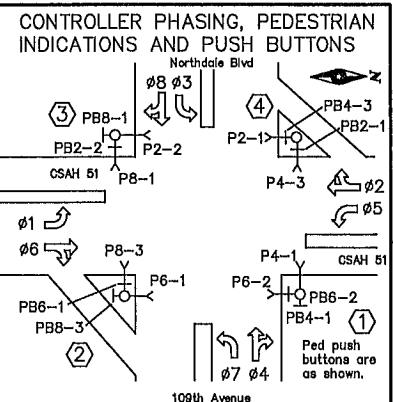
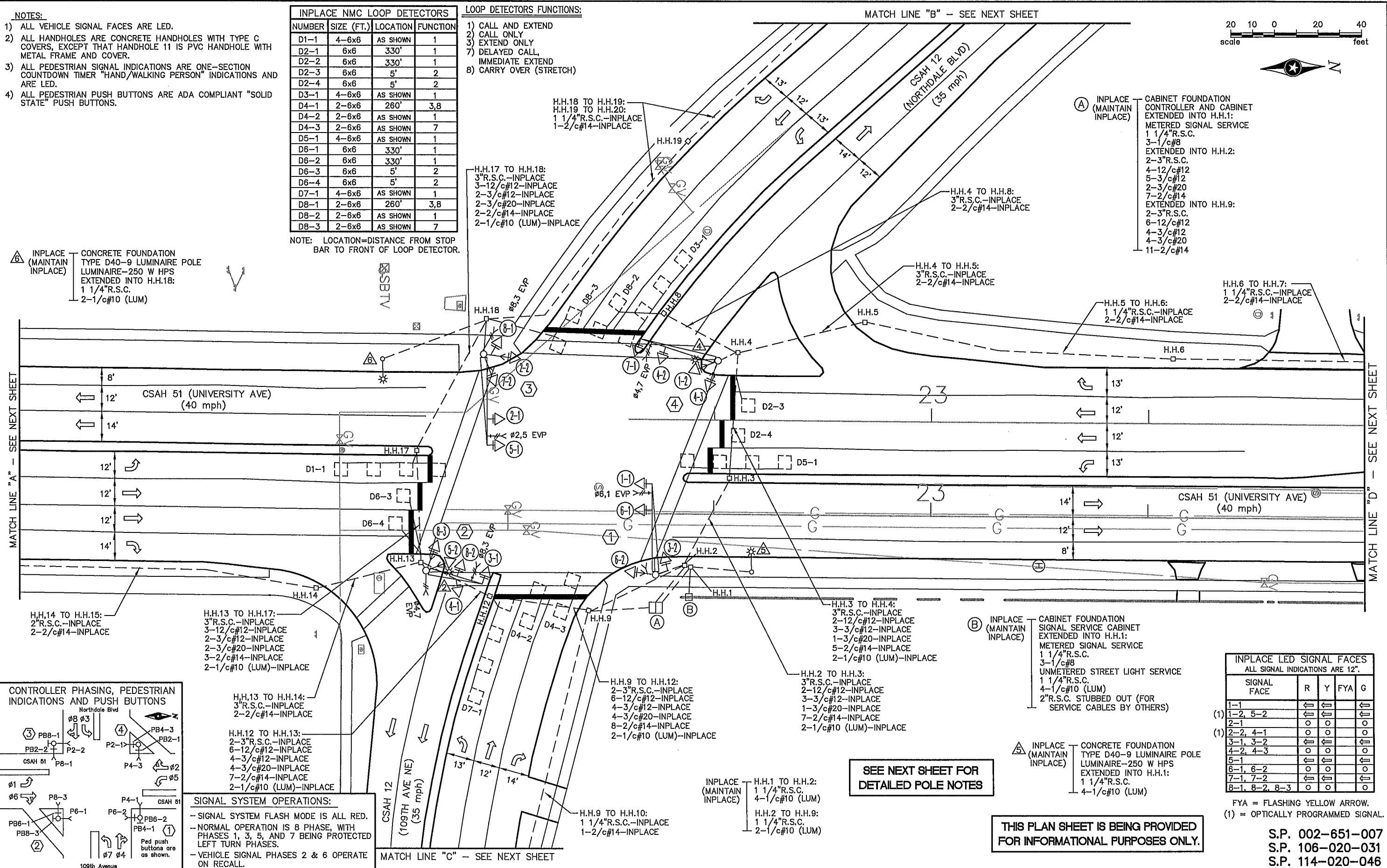
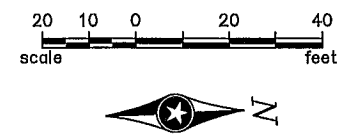
- NOTES:**
- 1) ALL VEHICLE SIGNAL FACES ARE LED.
  - 2) ALL HANDHOLES ARE CONCRETE HANDHOLES WITH TYPE C COVERS, EXCEPT THAT HANDHOLE 11 IS PVC HANDHOLE WITH METAL FRAME AND COVER.
  - 3) ALL PEDESTRIAN SIGNAL INDICATIONS ARE ONE-SECTION COUNTDOWN TIMER "HAND/WALKING PERSON" INDICATIONS AND ARE LED.
  - 4) ALL PEDESTRIAN PUSH BUTTONS ARE ADA COMPLIANT "SOLID STATE" PUSH BUTTONS.

INPLACE NMC LOOP DETECTORS			
NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D1-1	4-6x6	AS SHOWN	1
D2-1	6x6	330'	1
D2-2	6x6	330'	1
D2-3	6x6	5'	2
D2-4	6x6	5'	2
D3-1	4-6x6	AS SHOWN	1
D4-1	2-6x6	260'	3,8
D4-2	2-6x6	AS SHOWN	1
D4-3	2-6x6	AS SHOWN	7
D5-1	4-6x6	AS SHOWN	1
D6-1	6x6	330'	1
D6-2	6x6	330'	1
D6-3	6x6	5'	2
D6-4	6x6	5'	2
D7-1	4-6x6	AS SHOWN	1
D8-1	2-6x6	260'	3,8
D8-2	2-6x6	AS SHOWN	1
D8-3	2-6x6	AS SHOWN	7

- LOOP DETECTORS FUNCTIONS:**
- 1) CALL AND EXTEND
  - 2) CALL ONLY
  - 3) EXTEND ONLY
  - 7) DELAYED CALL, IMMEDIATE EXTEND
  - 8) CARRY OVER (STRETCH)

NOTE: LOCATION=DISTANCE FROM STOP BAR TO FRONT OF LOOP DETECTOR.

INPLACE (MAINTAIN INPLACE) CONCRETE FOUNDATION TYPE D40-9 LUMINAIRE POLE LUMINAIRE-250 W HPS EXTENDED INTO H.H.18: 1 1/4" R.S.C. 2-1/c#10 (LUM)



**SIGNAL SYSTEM OPERATIONS:**

- SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 8 PHASE, WITH PHASES 1, 3, 5, AND 7 BEING PROTECTED LEFT TURN PHASES.
- VEHICLE SIGNAL PHASES 2 & 6 OPERATE ON RECALL.

SEE NEXT SHEET FOR DETAILED POLE NOTES

THIS PLAN SHEET IS BEING PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

INPLACE LED SIGNAL FACES				
ALL SIGNAL INDICATIONS ARE 12".				
SIGNAL FACE	R	Y	FYA	G
1-1	←	←	←	←
1-2	←	←	←	←
2-1	←	←	←	←
2-2	←	←	←	←
3-1	←	←	←	←
3-2	←	←	←	←
4-1	←	←	←	←
4-2	←	←	←	←
4-3	←	←	←	←
5-1	←	←	←	←
6-1	←	←	←	←
6-2	←	←	←	←
7-1	←	←	←	←
7-2	←	←	←	←
8-1	←	←	←	←
8-2	←	←	←	←
8-3	←	←	←	←

FYA = FLASHING YELLOW ARROW.  
(1) = OPTICALLY PROGRAMMED SIGNAL.

DRAWN BY: JMG	DESIGNER: JMG	CHECKED BY: JMG
DESIGN TEAM	NO.	BY DATE
		REVISIONS

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

John M. Gray, PE  
Date: April 23, 2014  
Ltc. No. 22457

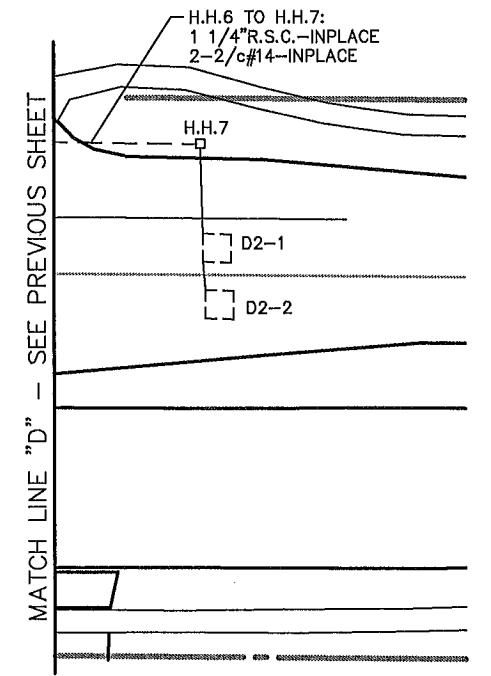
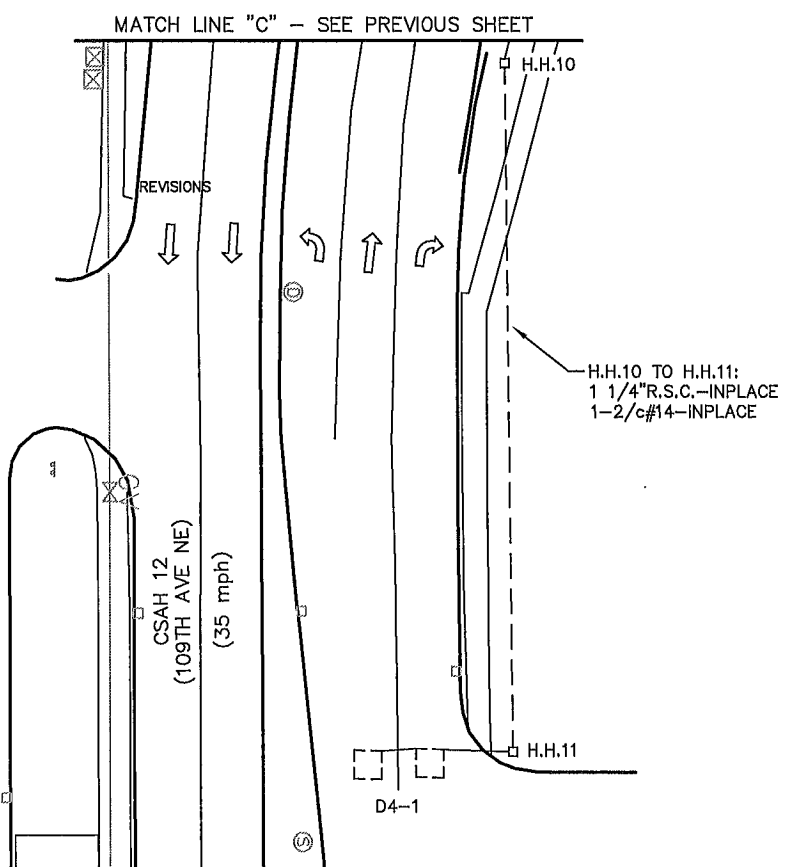
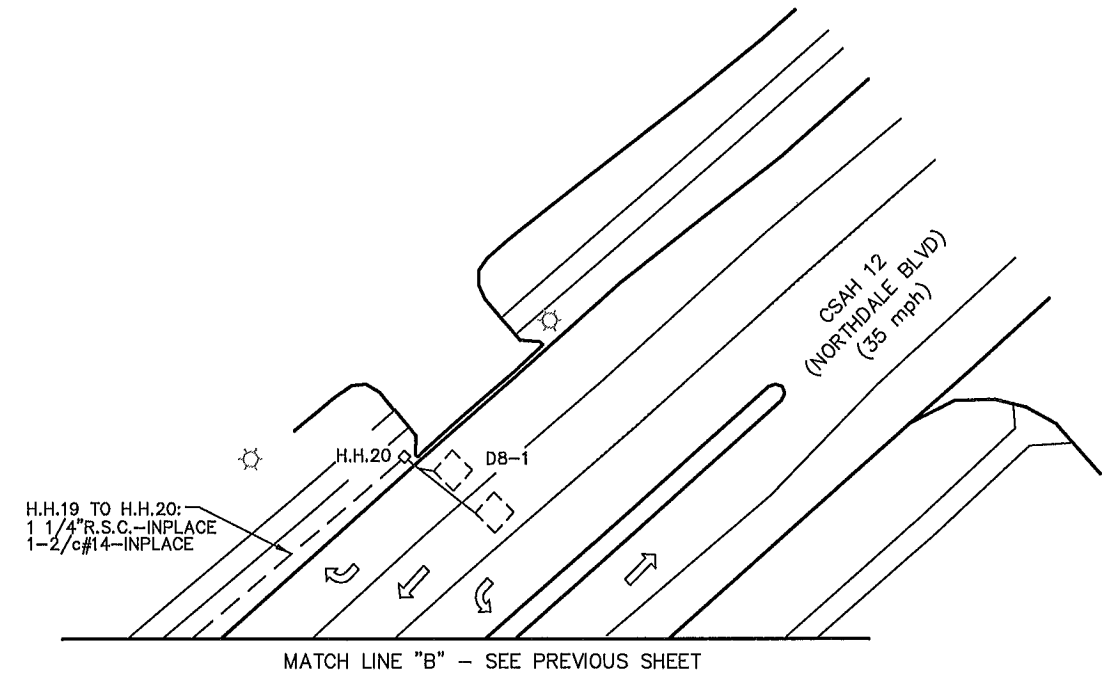
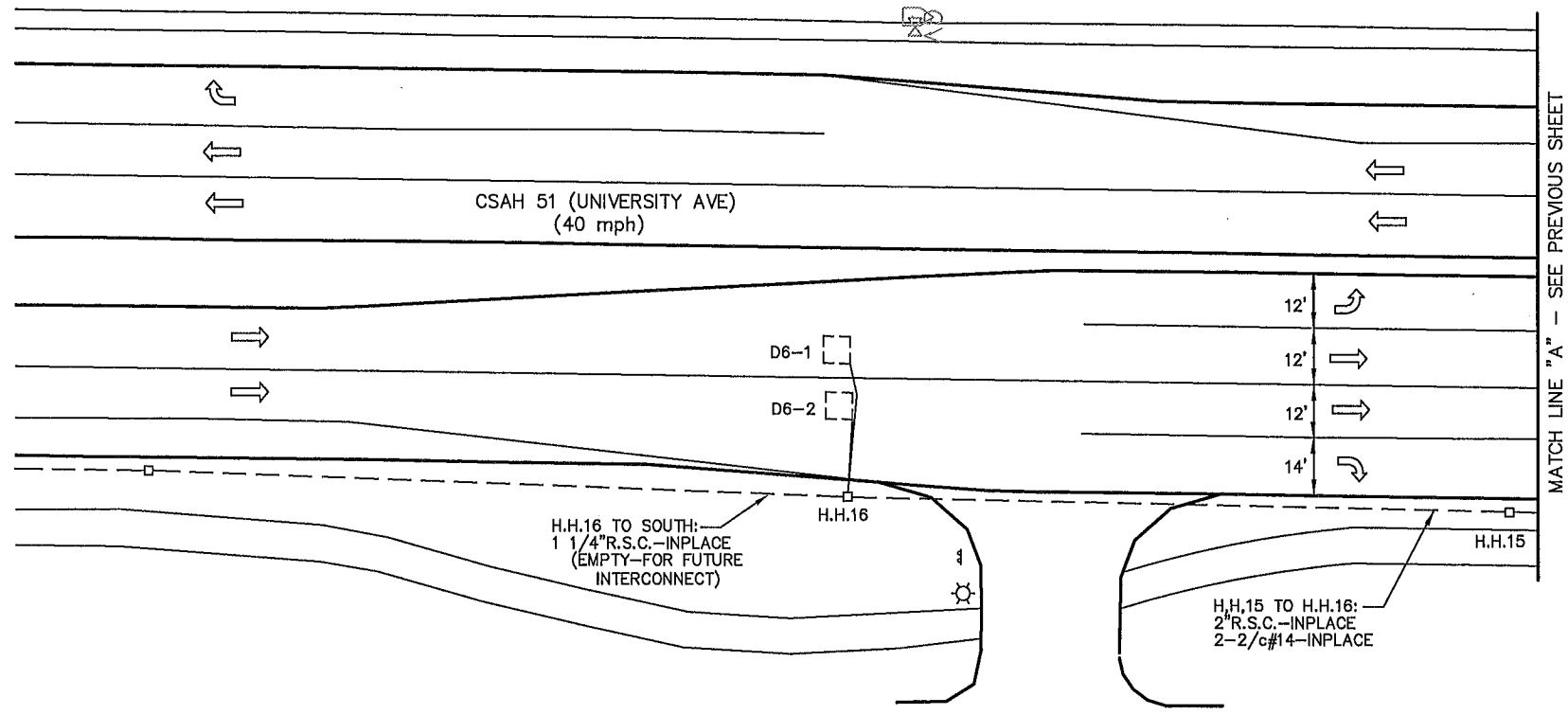
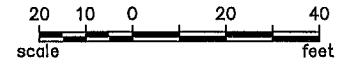
SEH  
PHONE: (651) 490-2000  
3535 VADNAIS CENTER DR.  
ST. PAUL, MN 55110

ANOKA COUNTY  
CITIES OF BLAINE AND COON RAPIDS

INPLACE SIGNAL SYSTEM 'A'  
'FOR INFORMATION ONLY'  
CSAH 51 (UNIVERSITY AVE) AT  
CSAH 12 (NORTHDALE BLVD/109TH AVE)

FILE NO. ANOKC 125457  
SIGNAL SHEET 33 OF 39

250  
381



THIS PLAN SHEET IS BEING PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

- ① INPLACE (MAINTAIN INPLACE)
- P90 POLE FOUNDATION
  - TYPE P90-A-40
  - 2-ONE WAY SIGNALS-OVERHEAD (0' & 12' FROM END OF MAST ARM)
  - TYPE 10A-POLE MOUNTED 90 DEG
  - TYPE 10C-POLE MOUNTED 270 DEG
  - 2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-4b)
  - TYPE D SIGN PANEL-OVERHEAD
  - "LEFT TURN SIGNAL" SIGN-OVERHEAD
  - 2-R6-1 SIGN PANELS-POLE MOUNTED 0 DEG/180 DEG
  - ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT (#6,1)
  - EXTENDED INTO H.H.2:
  - 3" R.S.C.
  - 2-12/c#12
  - 2-3/c#12
  - 1-3/c#20

- ③ INPLACE (MAINTAIN INPLACE)
- P90 POLE FOUNDATION
  - TYPE P90-A-40
  - 2-ONE WAY SIGNALS-OVERHEAD (0' & 12' FROM END OF MAST ARM)
  - TYPE 10B-POLE MOUNTED 0 DEG
  - TYPE 20B-POLE MOUNTED 270 DEG
  - 2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-4b)
  - TYPE D SIGN PANEL-OVERHEAD
  - "LEFT TURN SIGNAL" SIGN-OVERHEAD
  - 2-R6-1 SIGN PANELS-POLE MOUNTED 0 DEG/180 DEG
  - ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT (#2,5)
  - ONE WAY EVP DETECTOR-POLE MOUNTED 180 DEG (#8,3)
  - EXTENDED INTO H.H.18:
  - 3" R.S.C.
  - 3-12/c#12
  - 2-3/c#12
  - 2-3/c#20

- ② INPLACE (MAINTAIN INPLACE)
- P90 POLE FOUNDATION
  - TYPE P90-A-25-D40-9 (DAVIT AT 350 DEG)
  - LUMINAIRE-250 W HPS WITH PEC & CHECK SWITCH
  - 2-ONE WAY SIGNALS-OVERHEAD (0' & 12' FROM END OF MAST ARM)
  - 1-ONE WAY SIGNAL-OVERHEAD AT 12' (FACING WB TRAFFIC)
  - 2-TYPE 10B-POLE MOUNTED 0 DEG & 270 DEG
  - 2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-4b)
  - TYPE D SIGN PANEL-OVERHEAD
  - "LEFT TURN SIGNAL" SIGN-OVERHEAD
  - ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT (#8,3)
  - ONE WAY EVP DETECTOR-POLE MOUNTED 90 DEG (#4,7)
  - EXTENDED INTO H.H.13:
  - 3" R.S.C.
  - 3-12/c#12
  - 2-3/c#12
  - 2-3/c#20
  - 4-1/c#10 (LUM)

- ④ INPLACE (MAINTAIN INPLACE)
- P90 POLE FOUNDATION
  - TYPE P90-A-35-D40-9 (DAVIT AT 350 DEG)
  - LUMINAIRE-250 W HPS WITH PEC
  - 2-ONE WAY SIGNALS-OVERHEAD (0' & 12' FROM END OF MAST ARM)
  - 2-TYPE 10B-POLE MOUNTED 0 DEG & 270 DEG
  - 2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-4b)
  - TYPE D SIGN PANEL-OVERHEAD
  - "LEFT TURN SIGNAL" SIGN-OVERHEAD
  - ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT (#4,7)
  - EXTENDED INTO H.H.4:
  - 3" R.S.C.
  - 2-12/c#12
  - 3-3/c#12
  - 1-3/c#20
  - 2-1/c#10 (LUM)

S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

DRAWN BY: JMG	DESIGNER: JMG	CHECKED BY: JMG
DESIGN TEAM	NO.	BY
	DATE	REVISIONS

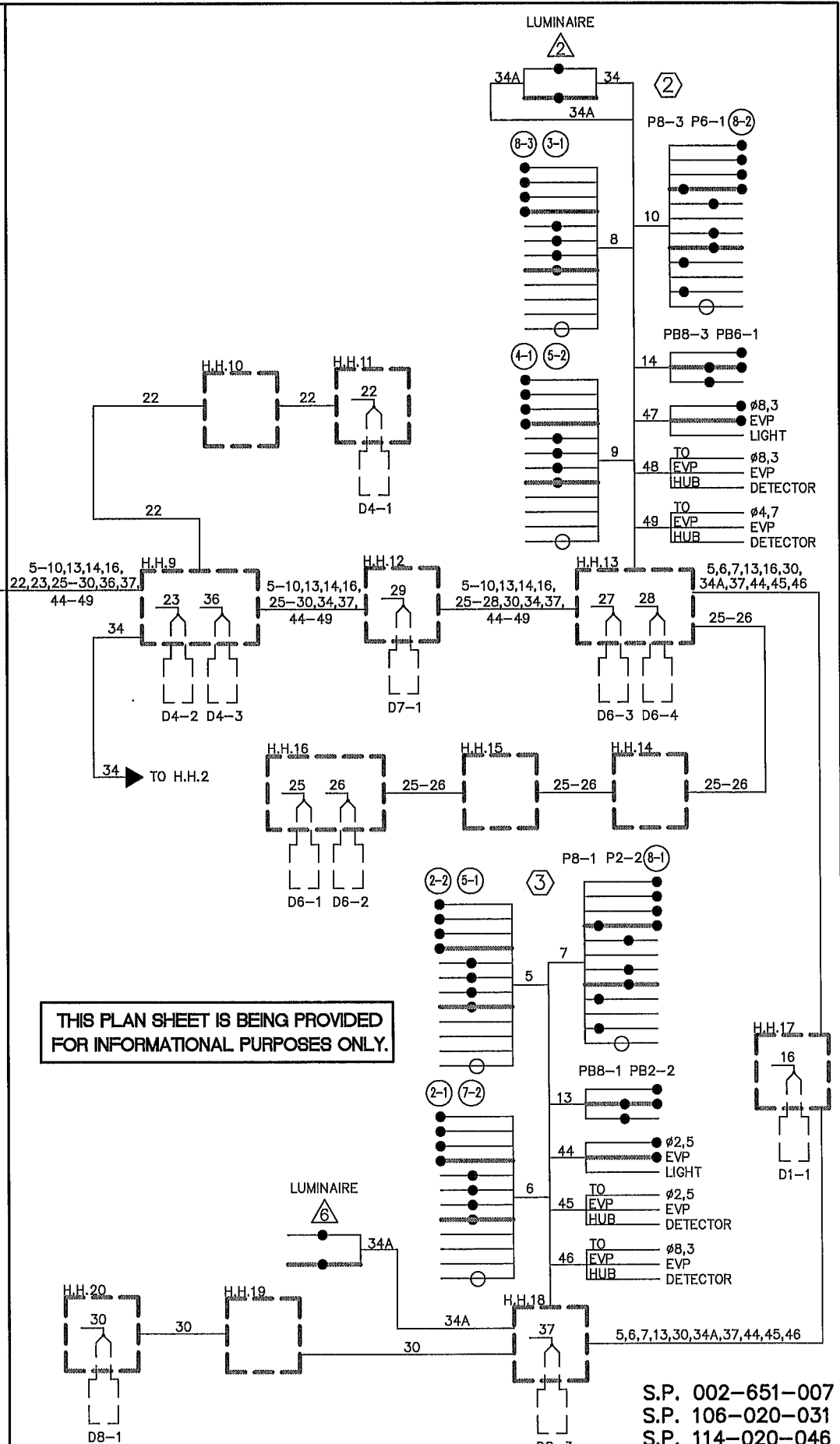
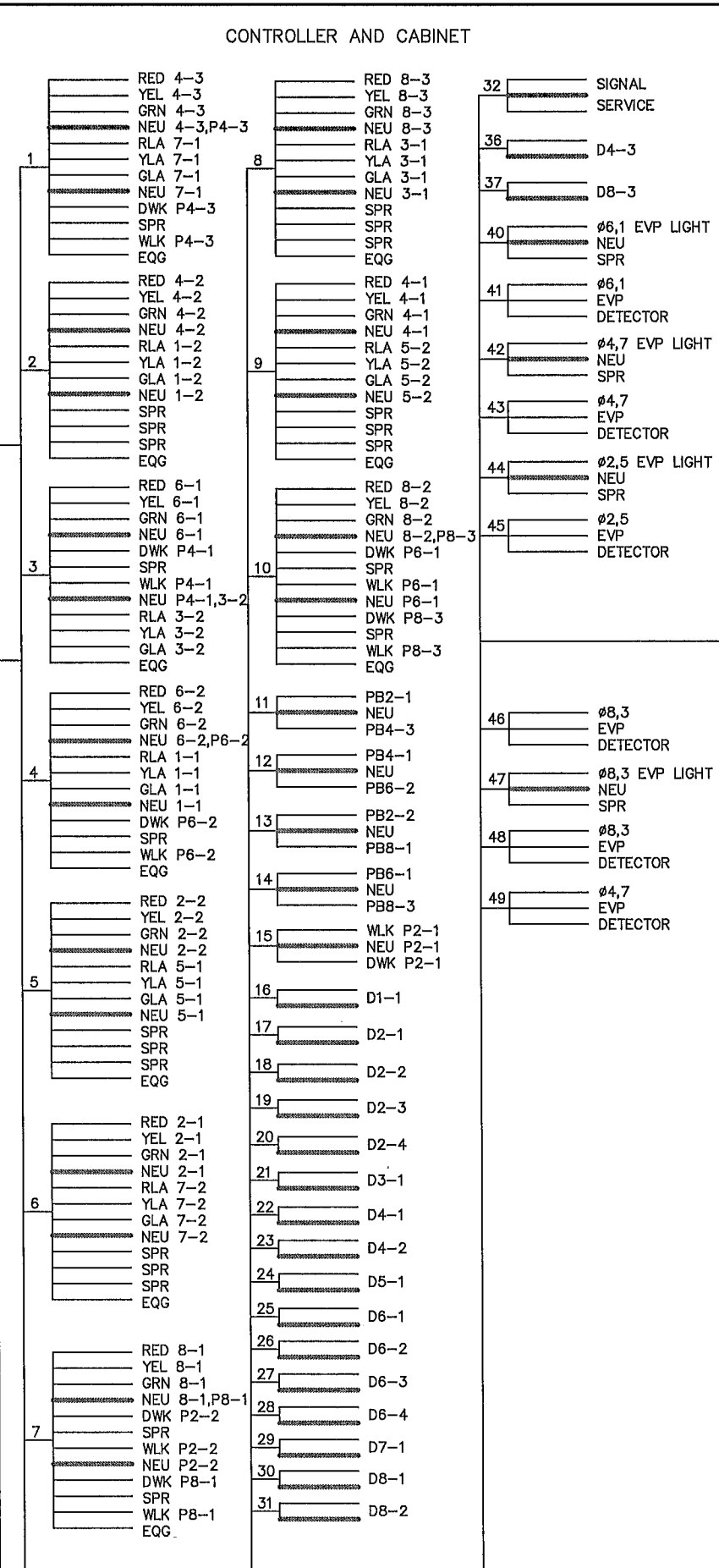
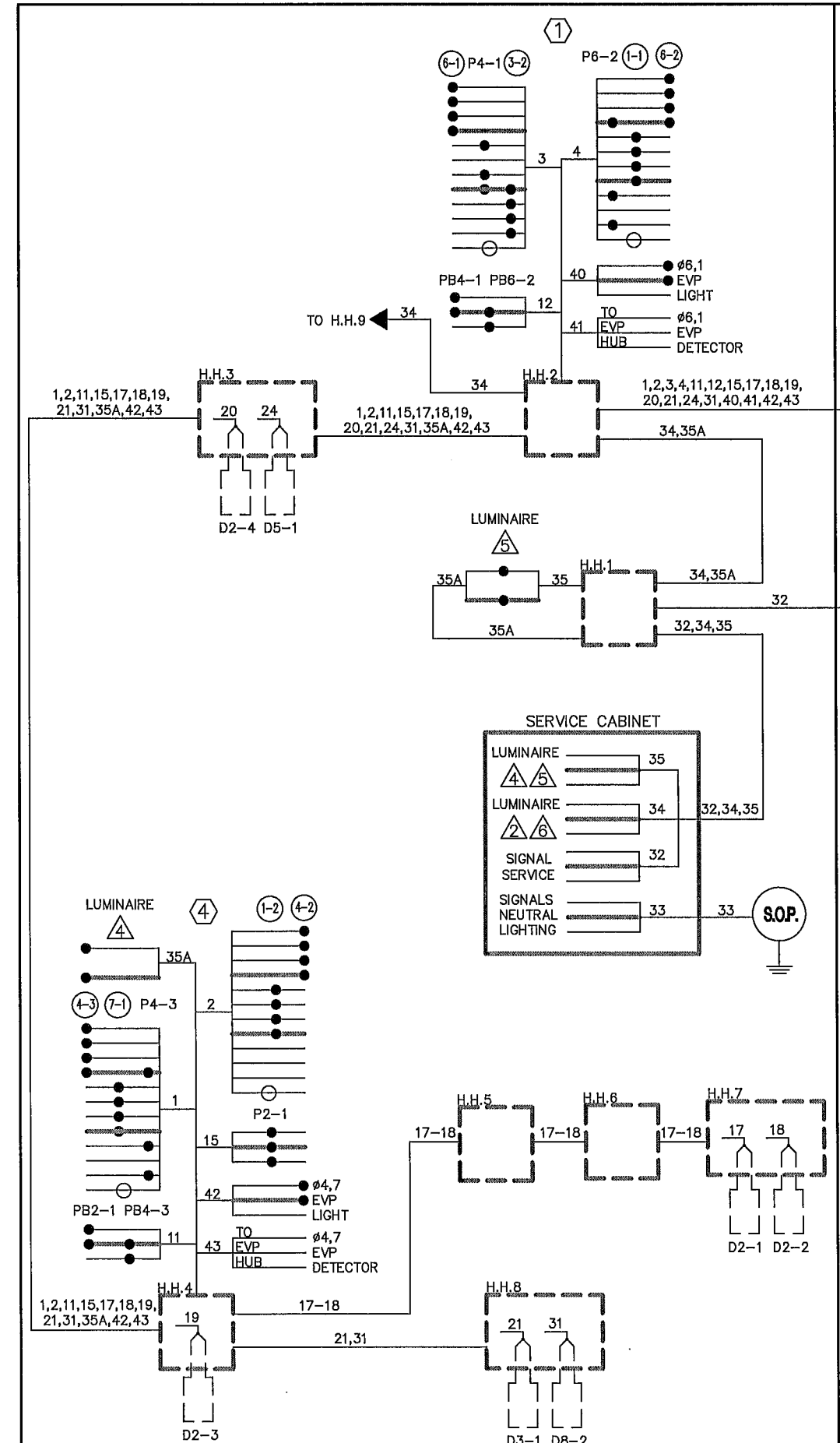
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

*John M. Gray*  
Name: John M. Gray, PE  
Date: April 23, 2014  
Lic. No. 22457



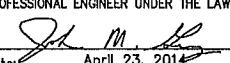
ANOKA COUNTY  
CITIES OF BLAINE  
AND COON RAPIDS

INPLACE SIGNAL SYSTEM "A" "FOR INFORMATION ONLY" CSAH 51 (UNIVERSITY AVE) AT CSAH 12 (NORTHDAL BLVD/109TH AVE)	FILE NO. ANOKC 125457	251
	SIGNAL SHEET	381
	34 OF 39	



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DESIGN TEAM	NO.	BY	DATE
			REVISIONS

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

  
 Name: John M. Gray, PE  
 Lico. No. 22457  
 Date: April 23, 2012

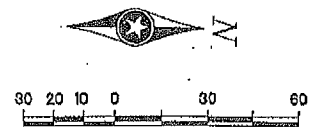
**SEH**  
 PHONE: (651) 490-2000  
 3535 VADNAIS CENTER DR.  
 ST. PAUL, MN 55110

**ANOKA COUNTY**  
**CITIES OF BLAINE**  
**AND COON RAPIDS**

**INPLACE SIGNAL SYSTEM 'A'**  
**'FOR INFORMATION ONLY'**  
**CSAH 51 (UNIVERSITY AVE) AT**  
**CSAH 12 (NORTHDALE BLVD/109TH AVE)**

FILE NO. ANOKC 125457	252
SIGNAL SHEET 35 OF 39	

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

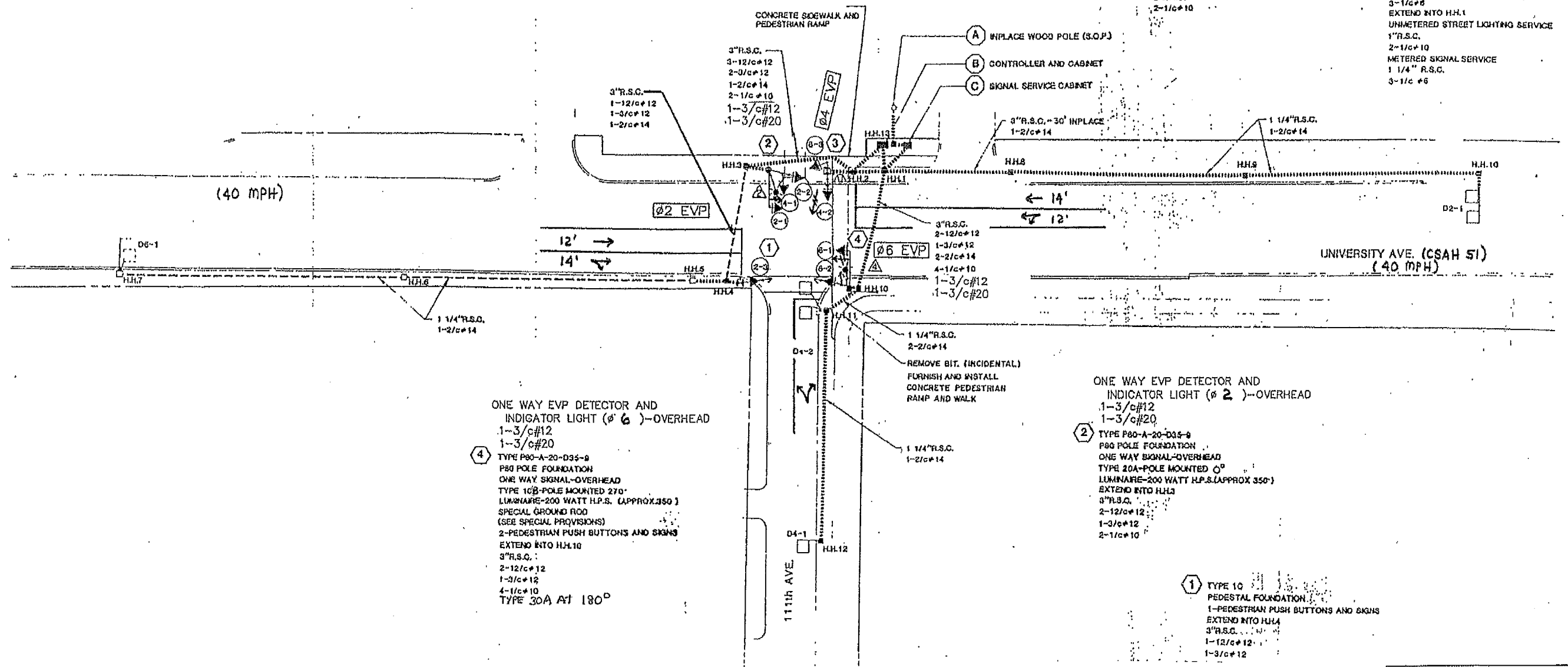


ONE WAY EVP DETECTOR (Ø 4) AND ONE WAY INDICATOR LIGHT (Ø 4) - MOUNT ON TOP OF PEDESTAL POLE  
 1-3/c#12  
 1-3/c#20  
 TYPE 20  
 PEDESTAL FOUNDATION  
 1-PEDESTRIAN PUSH BUTTON AND SIGN  
 EXTEND INTO H.H.2  
 3"R.S.C.  
 3-12/c#12  
 2-3/c#12

A REPLACE WOOD POLE (S.O.P.)  
 1 1/4" R.S.C. RISER AND WEATHERHEAD  
 3-1/c#6  
 EXTEND INTO H.H.13  
 2"R.S.C.  
 3-1/c#6

B CONTROLLER AND CABINET  
 CABINET FOUNDATION  
 EXTEND INTO H.H.1  
 3"R.S.C.  
 2-12/c#10  
 1-3/c#12  
 3-2/c#14  
 3-1/c#6  
 EXTEND INTO H.H.2  
 3"R.S.C.  
 4-12/c#12  
 2-3/c#12  
 1-2/c#14  
 2-3/c#20  
 2-1/c#10

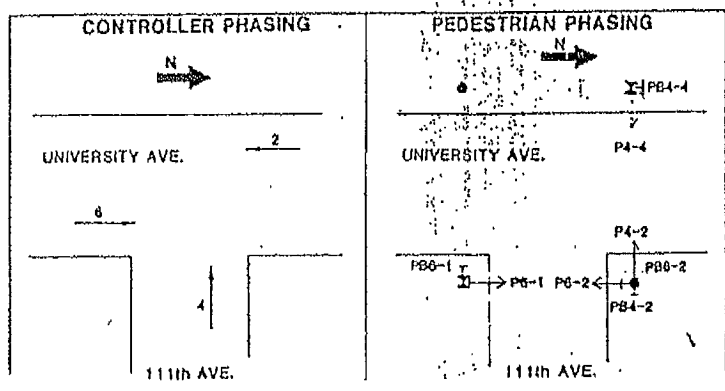
C SERVICE CABINET  
 EXTEND INTO H.H.13  
 METERED SIGNAL SERVICE  
 2"R.S.C.  
 3-1/c#6  
 EXTEND INTO H.H.1  
 UNMETERED STREET LIGHTING SERVICE  
 1"R.S.C.  
 2-1/c#10  
 METERED SIGNAL SERVICE  
 1 1/4" R.S.C.  
 3-1/c#6



ONE WAY EVP DETECTOR AND INDICATOR LIGHT (Ø 6) - OVERHEAD  
 1-3/c#12  
 1-3/c#20  
 TYPE P80-A-20-D35-9  
 P80 POLE FOUNDATION  
 ONE WAY SIGNAL-OVERHEAD  
 TYPE 10B-POLE MOUNTED Ø  
 LUMINAIRE-200 WATT H.P.S. (APPROX.350)  
 SPECIAL GROUND ROD  
 (SEE SPECIAL PROVISIONS)  
 2-PEDESTRIAN PUSH BUTTONS AND SIGNS  
 EXTEND INTO H.H.10  
 3"R.S.C.  
 2-12/c#12  
 1-3/c#12  
 4-1/c#10  
 TYPE 30A AT 180°

ONE WAY EVP DETECTOR AND INDICATOR LIGHT (Ø 2) - OVERHEAD  
 1-3/c#12  
 1-3/c#20  
 TYPE P80-A-20-D35-9  
 P80 POLE FOUNDATION  
 ONE WAY SIGNAL-OVERHEAD  
 TYPE 20A-POLE MOUNTED Ø  
 LUMINAIRE-200 WATT H.P.S. (APPROX.350)  
 EXTEND INTO H.H.13  
 3"R.S.C.  
 2-12/c#12  
 1-3/c#12  
 2-1/c#10

1 TYPE 10  
 PEDESTAL FOUNDATION  
 1-PEDESTRIAN PUSH BUTTONS AND SIGNS  
 EXTEND INTO H.H.4  
 3"R.S.C.  
 1-12/c#12  
 1-3/c#12



LOOP DETECTORS				
NUMBER	SIZE	FUNCTION	DISTANCE	NO. OF TURNS
D2-1	1-8'x6'	1	340'	3
D4-1	1-8'x6'	3 & 8	125'	0
D4-2	2-6'x20'	7	-	3
D6-1	1-8'x6'	1	340'	3

- FUNCTIONS
- 1) CALL AND EXTEND
  - 2) CALL ONLY
  - 3) EXTEND ONLY
  - 4) CALL ONLY DENSITY
  - 5) DELAYED CALL ONLY
  - 6) DELAYED CALL ONLY-DENSITY
  - 7) DELAYED CALL-IMMEDIATE EXTEND
  - 8) CARRY OVER (STRECH)
  - 9) ADVISORY DETECTOR
  - 10) SAMPLING DETECTOR
  - 11) SPECIAL FUNCTION

NOTE: THIS PLAN SHEET IS BEING PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

LED SIGNAL FACES			
SIGNAL FACE	ALL 12"		
	R	Y	G
2-1, 2-2, 2-3	○	●	●
4-1, 4-2	○	●	●
6-1, 6-2, 6-3	○	●	●

● = NEW LED INDICATION.  
 ○ = INPLACE LED INDICATION, REUSE INPLACE.

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

DRAWN BY: JMG	DESIGNER: JMG	CHECKED BY: JMG	DESIGN TEAM	NO.	BY	DATE	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Date: April 23, 2014 Name: John M. Gray, PE Lic. No. 22457

SEH PHONE: (651) 490-2000 3535 VADNAIS CENTER DR. ST. PAUL, MN 55110

ANOKA COUNTY CITIES OF BLAINE AND COON RAPIDS

INPLACE SIGNAL SYSTEM 'B' 'FOR INFORMATION ONLY' CSAH 51 (UNIVERSITY AVE) AT 11TH AVENUE

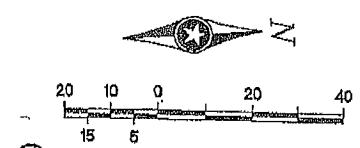
FILE NO. ANOKC 125457 SIGNAL SHEET 38 OF 39

253 381

LOOP DETECTORS			
NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D2-1	6x6	410'	1
D2-2	2-6x6	20'	7
D2-3	2-6x6	5'	7
D4-1	6x6	120'	3
D4-2	2-6x6	5'	7
D6-1	6x6	410'	1
D6-2	2-6x6	20'	7
D6-3	2-6x6	5'	7
D8-1	6x6	220'	3
D8-2	6x6	100'	3
D8-3	2-6x6	5'	7

ONE WAY EVP DETECTOR AND INDICATOR LIGHT (Ø 8) - OVERHEAD  
1-3/c#12  
1-3/c#20

TYPE P80-A-20 P80 POLE FOUNDATION ONE WAY SIGNAL-OVERHEAD 2-TYPE 108-POLE MOUNTED 90° AND 180° 2-PEDESTRIAN PUSH BUTTONS TYPE "D" SIGN PANEL (108"x18")-OVERHEAD EXTEND INTO H.H.10:  
3"R.S.C.  
2-12/c#12  
1-3/c#12



CONTROLLER AND CABINET CABINET FOUNDATION EXTEND INTO H.H.14: METERED SIGNAL SERVICE 1 1/4"R.S.C. 3-1/c#8 EXTEND INTO H.H.1: 4"R.S.C. 5-12/c#12 6-3/c#12 2-3/c#20 8-2/c#14 EXTEND INTO H.H.9: 4"R.S.C. 4-12/c#12 3-3/c#12 3-2/c#14 2-3/c#20

SERVICE CABINET CABINET FOUNDATION 2"R.S.C. STUB OUT (FOR SERVICE BY AEO) EXTEND INTO H.H.14: METERED SIGNAL SERVICE 1 1/4"R.S.C. 3-1/c#8 UNMETERED STREET LIGHT SERVICE 1"R.S.C. 2-1/c#10. BETWEEN H.H.9 AND H.H.14: 1 1/4"R.S.C. 2-1/c#10 BETWEEN H.H.1 AND H.H.9: 2"R.S.C. 2-1/c#10.

LOOP DETECTOR FUNCTIONS:  
1) CALL AND EXTEND 6) DELAYED CALL ONLY DENSITY  
2) CALL ONLY 7) DELAYED CALL-IMMEDIATE EXTEND  
3) EXTEND ONLY 8) CARRY OVER (STRETCH)  
4) CALL ONLY DENSITY 9) ADVISORY DETECTOR  
5) DELAYED CALL ONLY 10) SAMPLING DETECTOR  
11) SPECIAL DETECTOR

TYPE P80-A-25-D40-9 (DAMT AT 350') P80 POLE FOUNDATION 2-ONE WAY SIGNALS-OVERHEAD MID MAST ARM MOUNT AT 12' 2-TYPE 108-POLE MOUNTED 90° AND 180° LUMINAIRE-200 WATT H.P.S. 2-PEDESTRIAN PUSH BUTTONS R10-12 SIGN PANEL (24"x30")-OVERHEAD TYPE "D" SIGN PANEL (96"x18")-OVERHEAD EXTEND INTO H.H.5:  
3"R.S.C.  
2-12/c#12  
2-3/c#12  
2-1/c#10  
ONE WAY EVP DETECTOR AND INDICATOR LIGHT (Ø6)-OVERHEAD  
1-3/c#12  
1-3/c#20

TYPE P80-A-15 P80 POLE FOUNDATION ONE WAY SIGNAL-OVERHEAD TYPE 200-POLE MOUNTED 270° 2-PEDESTRIAN PUSH BUTTONS TYPE "D" SIGN PANEL (108"x18")-OVERHEAD EXTEND INTO H.H.4:  
3"R.S.C.  
4-12/c#12  
3-3/c#12  
5-2/c#14  
2-1/c#10  
2-3/c#12  
2-3/c#20  
ONE WAY EVP DETECTOR AND INDICATOR LIGHT (Ø 4) - OVERHEAD  
1-3/c#12  
1-3/c#20

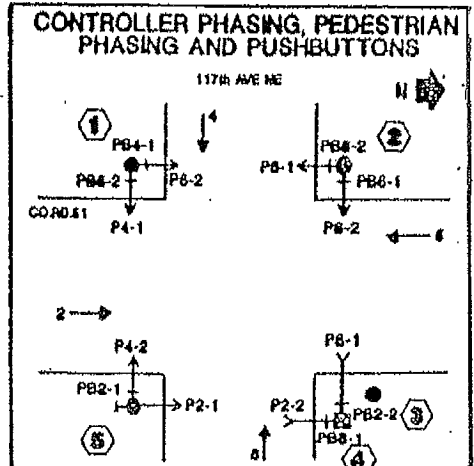
TYPE P88-A-35-D40-9 MAST ARM POLE (DAMT AT 350') P80 POLE FOUNDATION 2-ONE WAY SIGNAL-OVERHEAD MID MAST ARM MOUNT AT 12' TYPE 10A-POLE MOUNTED 90° TYPE 10A-POLE MOUNTED 270° LUMINAIRE-200 WATT H.P.S. WITH PEC & CH.S.W. R10-12 SIGN PANEL (24"x30")-OVERHEAD TYPE "D" SIGN PANEL (96"x18")-OVERHEAD EXTEND INTO H.H.9:  
3"R.S.C.  
2-12/c#12  
4-1/c#10  
ONE WAY EVP DETECTOR AND INDICATOR LIGHT (Ø2)-OVERHEAD  
1-3/c#12  
1-3/c#20

LED SIGNAL FACES			
SIGNAL FACE	ALL 12"		
	R	Y	G
2-1, 2-2, 2-3, 2-4	○	●	●
4-1, 4-2, 4-3	○	●	●
6-1, 6-2, 6-3, 6-4	○	●	●
8-1, 8-2, 8-3	○	●	●

● = INPLACE LED INDICATION.  
○ = INPLACE LED INDICATION, REUSE INPLACE.

S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

NOTE: THIS PLAN SHEET IS BEING PROVIDED FOR INFORMATIONAL PURPOSES ONLY.



DRAWN BY: JMG	DESIGNER: JMG	CHECKED BY: JMG	DESIGN TEAM
NO.	BY	DATE	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
Name: John M. Gray, PE  
Date: April 23, 2014  
Lto. No. 22457

SEH  
PHONE: (651) 490-2000  
3535 VADNAIS CENTER DR.  
ST. PAUL, MN 55110

ANOKA COUNTY  
CITIES OF BLAINE AND COON RAPIDS

INPLACE SIGNAL SYSTEM "D" FOR INFORMATION ONLY  
CSAH 51 (UNIVERSITY AVE) AT 117TH AVENUE

FILE NO. ANOKC 126457  
SIGNAL SHEET 37 OF 39  
254-381

**NOTES:**

- LOCATION OF POLES, CONTROLLER CABINET, SERVICE CABINET, LOOP DETECTORS AND HANDHOLES SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- SEE SPECIAL PROVISIONS REGARDING COUNTY AND CITY FURNISHED MATERIALS.
- LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) IN 3/4" N.M.C. SEE SPECIAL PROVISIONS.
- NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS.
- EACH SIGNAL FACE WILL HAVE BACKGROUND SHIELD.
- EACH PEDESTRIAN INDICATION WILL BE A ONE SECTION "FILLED" HAND/WALKING PERSON INDICATION.
- ALL VEHICLE SIGNAL INDICATIONS, AND ALL PEDESTRIAN SIGNAL INDICATIONS WILL BE LED.
- SEE SPECIAL PROVISIONS AND DETAILS REGARDING SIGNS, STRIPING, CONCRETE WALK, AND PEDESTRIAN CURB RAMP TO BE FURNISHED & INSTALLED BY CONTRACTOR (INCIDENTAL).
- ALL MAST ARM POLE MOUNTED VEHICLE AND PEDESTRIAN SIGNAL INDICATIONS SHALL BE MOUNTED USING ONE-WAY SIGNAL HEAD MOUNTS. SEE DETAILS & SPECIAL PROVISIONS.
- A 3/4" HALF COUPLING, 3/4" PIPE NIPPLE AND CONDUIT OUTLET BODY SHALL BE FURNISHED AND INSTALLED 6 FEET FROM THE END OF EACH MAST ARM (FOR EVP).
- ALL CONDUIT, CABLES & HANDHOLES SHALL BE NEW, FURNISHED AND INSTALLED BY CONTRACTOR.
- CONTRACTOR SHALL COORDINATE ALL TRAFFIC SIGNAL INSTALLATION WORK WITH ROAD CONSTRUCTION TO BE COMPLETED BY OTHERS AS PART OF SEPARATE PROJECT.
- CONCRETE WALK SHALL BE FURNISHED & INSTALLED 5-FOOT AROUND SIGNAL POLES ON NW, SE AND SW QUADRANTS.

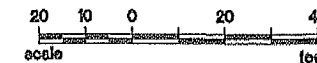
NMC LOOP DETECTORS			
NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D1-1	2-6x6	20' & 50'	1
D1-2	2-6x6	5' & 35'	3
D2-1	6x6	400'	1
D4-1	6x6	120'	2
D4-2	2-6x6	0' & 15'	3
D4-3	2-6x6	0' & 15'	3
D5-1	2-6x6	20' & 50'	1
D5-2	2-6x6	5' & 35'	3
D6-1	6x6	400'	1
D8-1	6x6	120'	2
D8-2	2-6x6	0' & 15'	3
D8-3	2-6x6	0' & 15'	3

NOTE: LOCATION-DISTANCE FROM STOP BAR TO FRONT OF LOOP DETECTOR.

**LOOP DETECTORS FUNCTIONS:**

- CALL AND EXTEND
- EXTEND ONLY
- DELAYED CALL, IMMEDIATE EXTEND

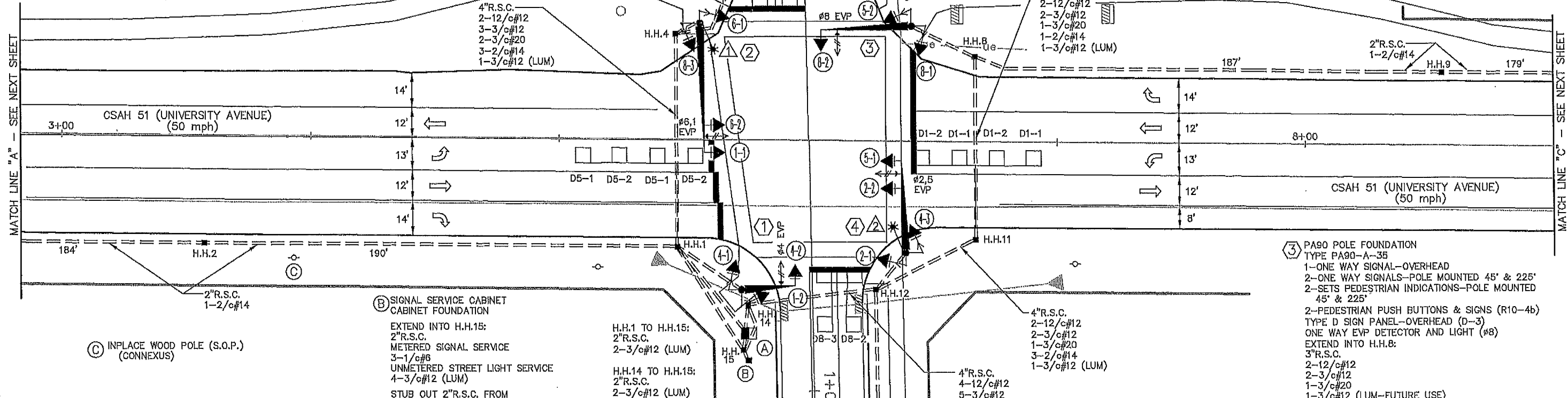
**MATCH LINE "B" - SEE NEXT SHEET**



- ② PA100 POLE FOUNDATION  
TYPE PA100-A-50-D30-9 (DAVIT AT 350')  
LUMINAIRE-250 W HPS  
2-ONE WAY SIGNALS-OVERHEAD (0' & 11' FROM END OF MAST ARM)  
2-ONE WAY SIGNALS-POLE MOUNTED 45' & 225'  
2-SETS PEDESTRIAN INDICATIONS-POLE MOUNTED 45' & 225'  
2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-4b)  
TYPE D SIGN PANEL-OVERHEAD (D-2)  
ONE WAY EVP DETECTOR AND LIGHT (#6,1)  
EXTEND INTO H.H.4:  
3"R.S.C.  
2-12/c#12  
3-3/c#12  
1-3/c#20  
1-3/c#12 (LUM)

- Ⓐ CONTROLLER AND CABINET  
CABINET FOUNDATION  
EXTEND INTO H.H.15:  
METERED SIGNAL SERVICE  
2"R.S.C.  
3-1/c#6  
EXTEND INTO H.H.1:  
4"R.S.C.  
4-12/c#12  
5-3/c#12  
3-3/c#20  
6-2/c#14  
EXTEND INTO H.H.14:  
4"R.S.C.  
4-12/c#12  
5-3/c#12  
2-3/c#20  
6-2/c#14  
STUB OUT 2-3"R.S.C. FROM CABINET TO NORTH (THREAD AND CAP BOTH ENDS-FOR FUTURE USE)  
STUB OUT 1"N.M.C. FROM CABINET (FOR FUTURE PHONE LINE BY OTHERS)

**NOTE: THIS PLAN SHEET IS BEING PROVIDED FOR INFORMATIONAL PURPOSES ONLY.**



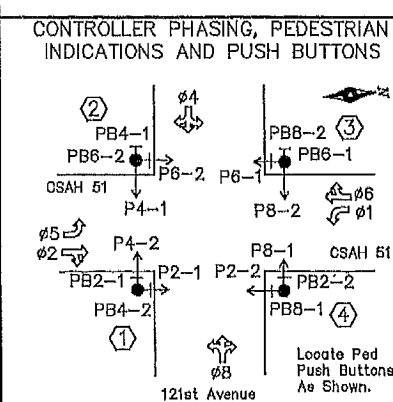
Ⓒ INPLACE WOOD POLE (S.O.P.) (CONNEXUS)

Ⓑ SIGNAL SERVICE CABINET  
CABINET FOUNDATION  
EXTEND INTO H.H.15:  
2"R.S.C.  
METERED SIGNAL SERVICE  
3-1/c#6  
UNMETERED STREET LIGHT SERVICE  
4-3/c#12 (LUM)  
STUB OUT 2"R.S.C. FROM SERVICE CABINET TO SOUTH (FOR POWER BY CONNEXUS)

① PA85 POLE FOUNDATION  
TYPE PA85-A-20  
1-ONE WAY SIGNAL-OVERHEAD  
2-ONE WAY SIGNALS-POLE MOUNTED 45' & 225'  
2-SETS PEDESTRIAN INDICATIONS-POLE MOUNTED 45' & 225'  
2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-4b)  
TYPE D SIGN PANEL-OVERHEAD (D-1)  
ONE WAY EVP DETECTOR AND LIGHT (#4)  
EXTEND INTO H.H.1:  
3"R.S.C.  
2-12/c#12  
2-3/c#12  
1-3/c#20  
1-3/c#12 (LUM-FUTURE USE)

③ PA90 POLE FOUNDATION  
TYPE PA90-A-35  
1-ONE WAY SIGNAL-OVERHEAD  
2-ONE WAY SIGNALS-POLE MOUNTED 45' & 225'  
2-SETS PEDESTRIAN INDICATIONS-POLE MOUNTED 45' & 225'  
2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-4b)  
TYPE D SIGN PANEL-OVERHEAD (D-3)  
ONE WAY EVP DETECTOR AND LIGHT (#8)  
EXTEND INTO H.H.8:  
3"R.S.C.  
2-12/c#12  
2-3/c#12  
1-3/c#20  
1-3/c#12 (LUM-FUTURE USE)

④ PA90 POLE FOUNDATION  
TYPE PA90-A-35-D30-9 (DAVIT AT 350')  
LUMINAIRE-250 W HPS  
2-ONE WAY SIGNALS-OVERHEAD (0' & 11' FROM END OF MAST ARM)  
2-ONE WAY SIGNALS-POLE MOUNTED 45' & 225'  
2-SETS PEDESTRIAN INDICATIONS-POLE MOUNTED 45' & 225'  
2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-4b)  
TYPE D SIGN PANEL-OVERHEAD (D-4)  
ONE WAY EVP DETECTOR AND LIGHT (#2,5)  
EXTEND INTO H.H.12:  
3"R.S.C.  
2-12/c#12  
3-3/c#12  
1-3/c#20  
1-3/c#12 (LUM)



**SIGNAL SYSTEM OPERATIONS:**

- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
- NORMAL OPERATION SHALL BE 6 PHASE, WITH PHASES 1 AND 5 BEING PROTECTED LEFT TURN PHASES.
- VEHICLE SIGNAL PHASES 2 AND 6 SHALL OPERATE ON RECALL.

LED SIGNAL FACES			
SIGNAL FACE	ALL 12"		
	R	Y	G
1-1, 1-2	←	←	←
2-1, 2-2	●	●	●
4-1, 4-2, 4-3	●	●	●
5-1, 5-2	←	←	←
6-1, 6-2	●	●	●
8-1, 8-2, 8-3	●	●	●

S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

DRAWN BY: JMG  
DESIGNER: JMG  
CHECKED BY: JMG  
DESIGN TEAM

NO.	BY	DATE	REVISIONS

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

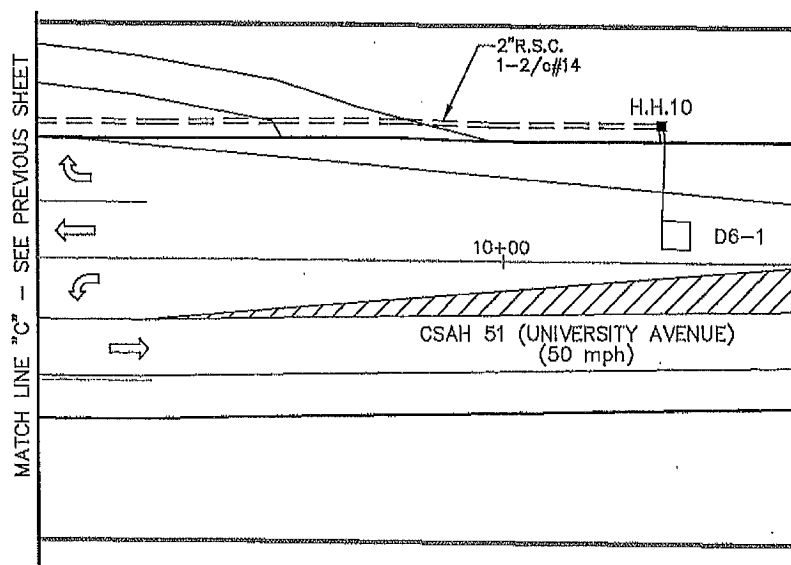
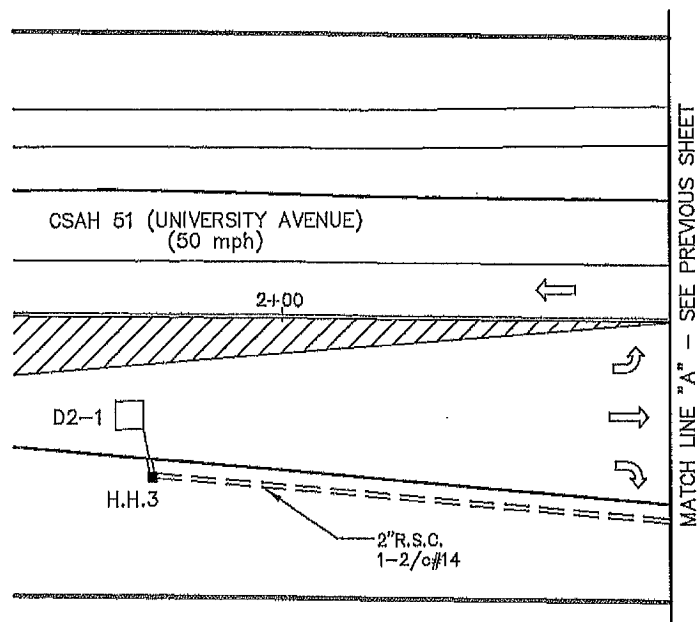
John M. Gray, PE  
Date: April 23, 2014  
Lic. No. 22457

SEH  
PHONE: (651) 490-2000  
3635 VADNAIS CENTER DR.  
ST. PAUL, MN 55110

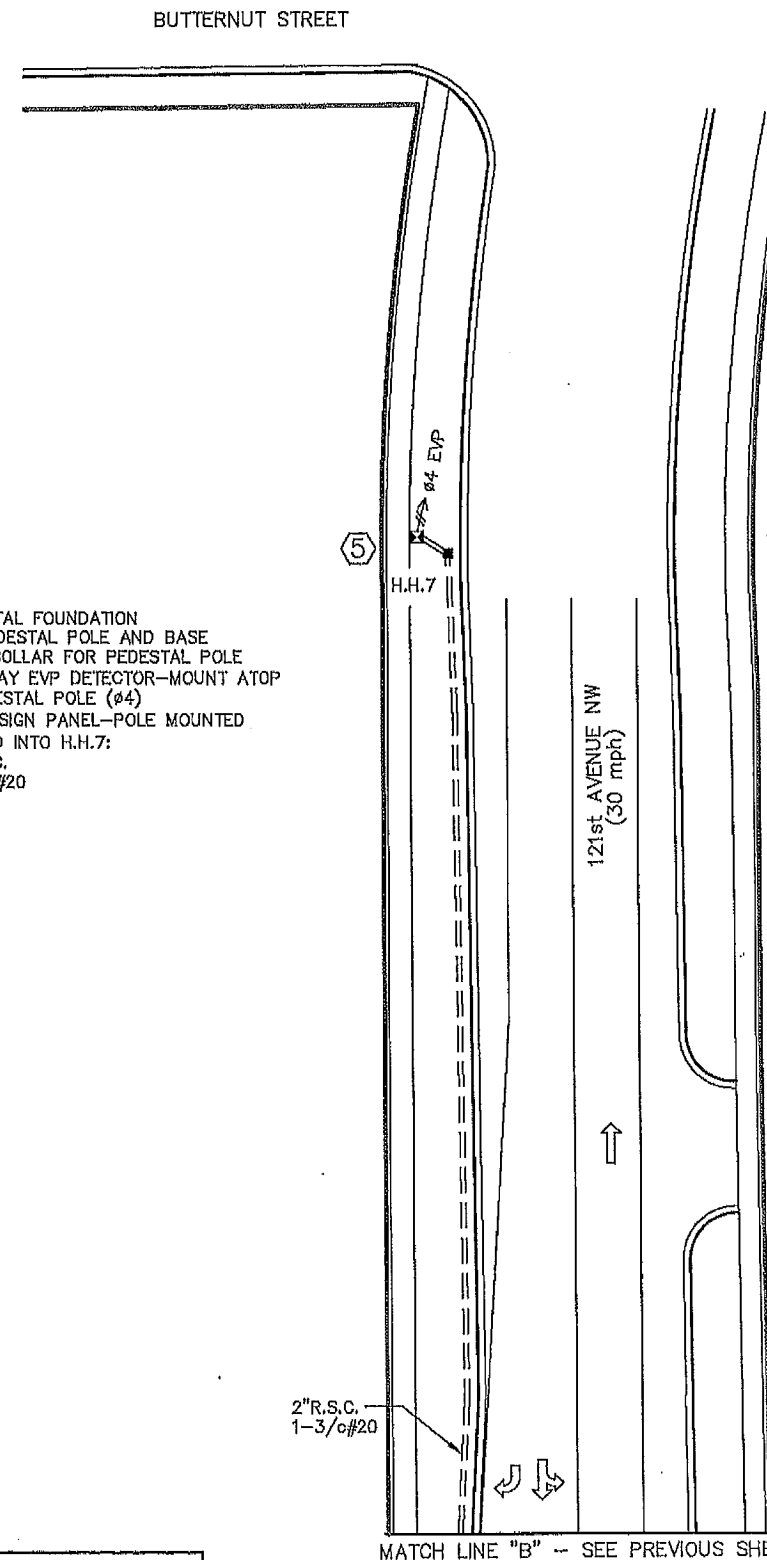
**ANOKA COUNTY**  
CITIES OF BLAINE  
AND COON RAPIDS

**INPLACE SIGNAL SYSTEM 'E'**  
**'FOR INFORMATION ONLY'**  
CSAH 51 (UNIVERSITY AVE) AT 121ST AVENUE

FILE NO.  
ANOKC 125457  
SIGNAL SHEET  
38 OF 39  
**255**  
**381**



(5) PEDESTAL FOUNDATION  
 10' PEDESTAL POLE AND BASE  
 WIND COLLAR FOR PEDESTAL POLE  
 ONE WAY EVP DETECTOR—MOUNT ATOP  
 PEDESTAL POLE (ø4)  
 W3-3 SIGN PANEL—POLE MOUNTED  
 EXTEND INTO H.H.7:  
 2"R.S.C.  
 1-3/c#20



NOTE: THIS PLAN SHEET IS BEING PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

DRAWN BY: JMG				
DESIGNER: JMG				
CHECKED BY: JMG				
DESIGN TEAM	NO.	BY	DATE	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 Name: John M. Gray, PE  
 Lico. No. 22457  
 Date: April 23, 2014

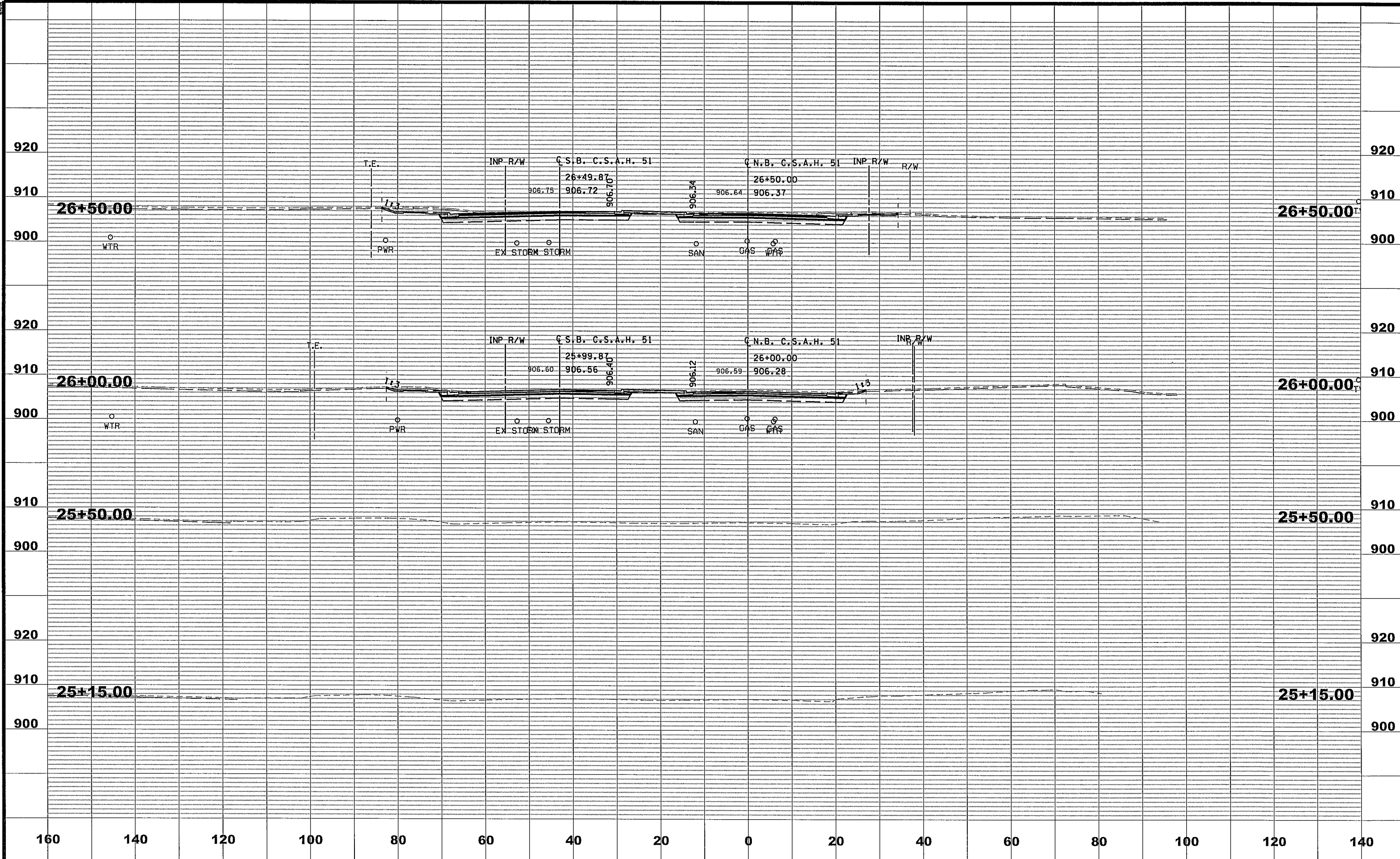
PHONE: (651) 490-2000  
 3535 VADNAIS CENTER DR.  
 ST. PAUL, MN 55110

**ANOKA COUNTY**  
**CITIES OF BLAINE**  
**AND COON RAPIDS**

INPLACE SIGNAL SYSTEM 'E'  
 'FOR INFORMATION ONLY'  
 CSAH 51 (UNIVERSITY AVE) AT 121ST AVENUE

FILE NO. ANOKC 125457  
 SIGNAL SHEET 39 OF 39  
 256  
 381





NO	DATE	BY	CKD	APPR	REVISION
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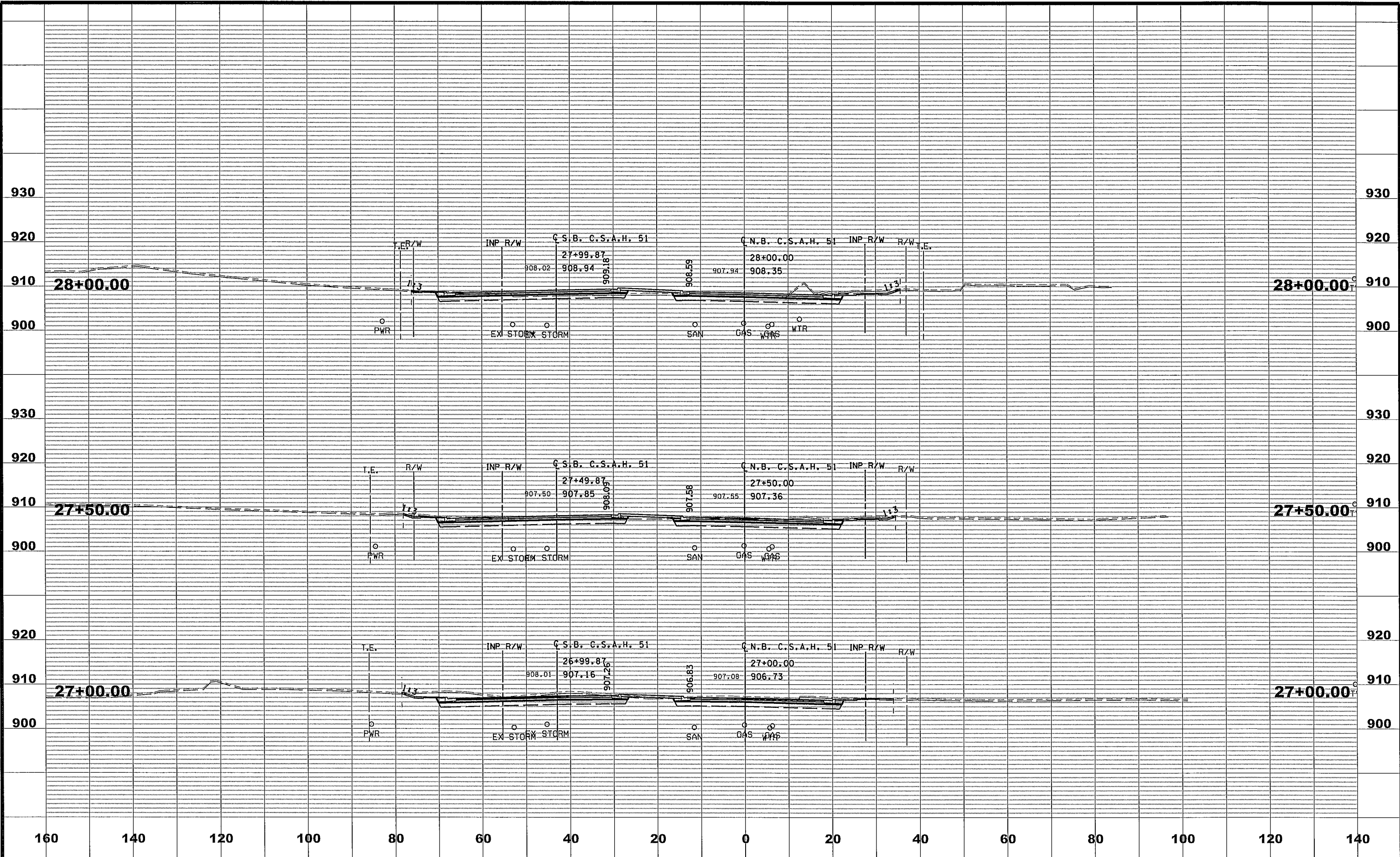
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 CHECKED BY GMP DATE 12-13-13



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

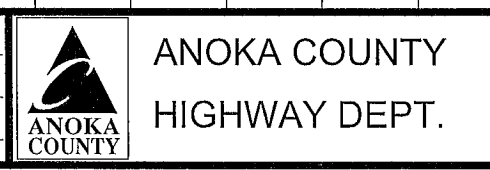
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 S.P. 114-020-046  
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CROSS SECTIONS  
 STA 26+00.00 TO 26+50.00  
 Sheet 257 of 381 Sheets



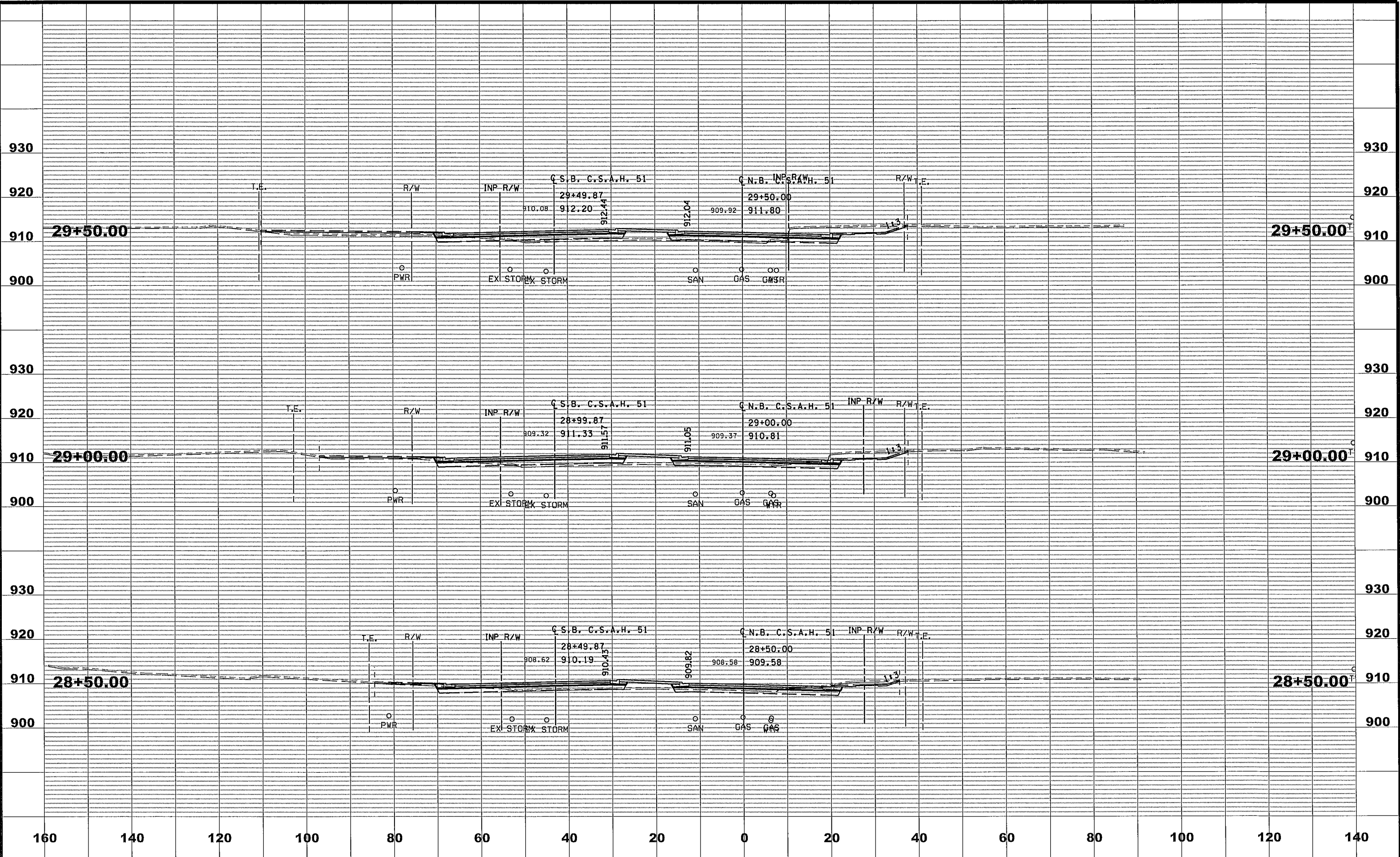
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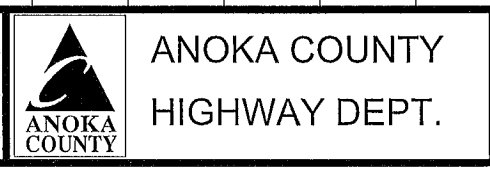
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 Sheet 258 of 381 Sheets



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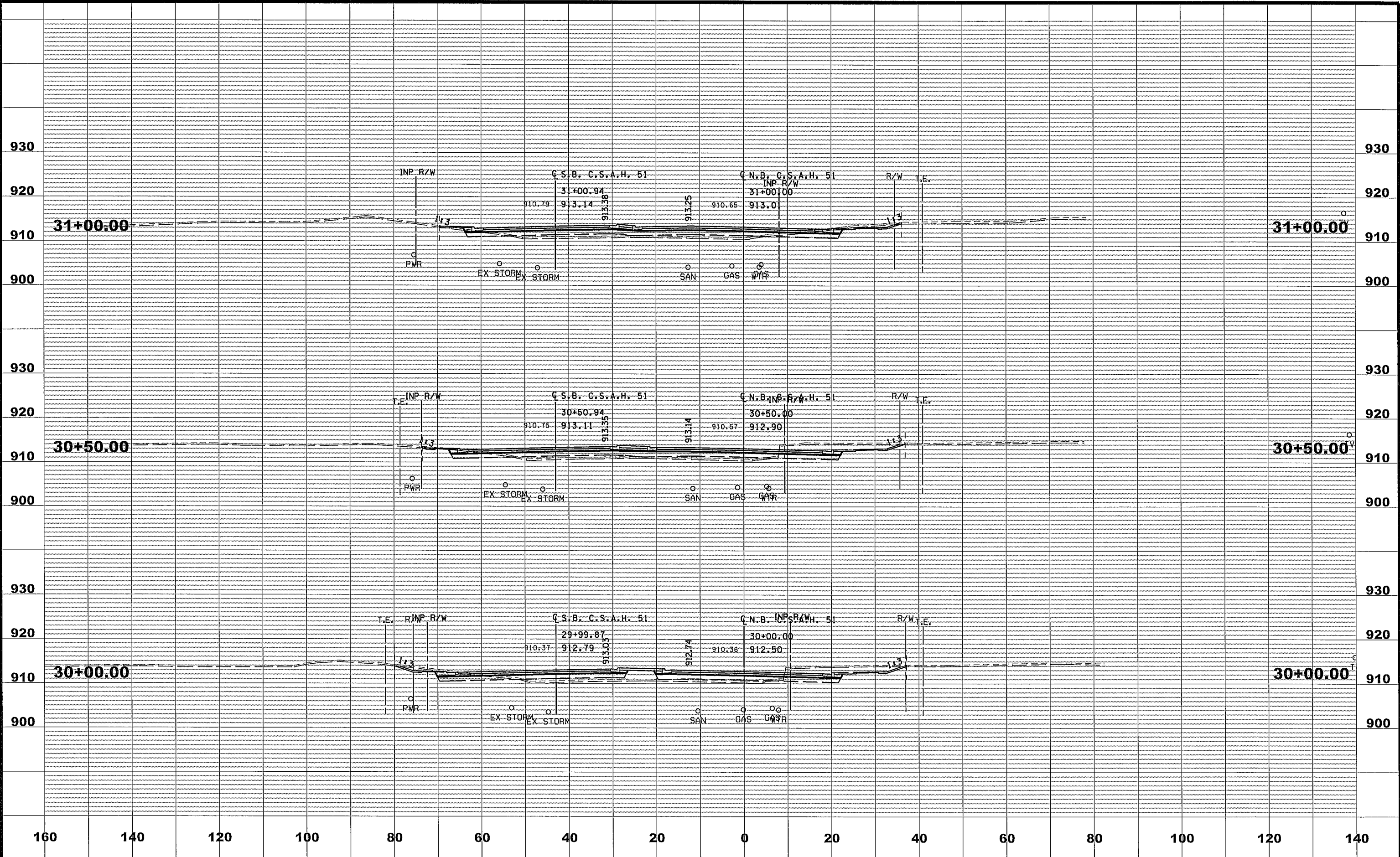
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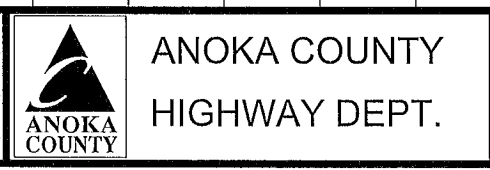
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 S.P. 114-020-046

CROSS SECTIONS  
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 Sheet 259 of 381 Sheets



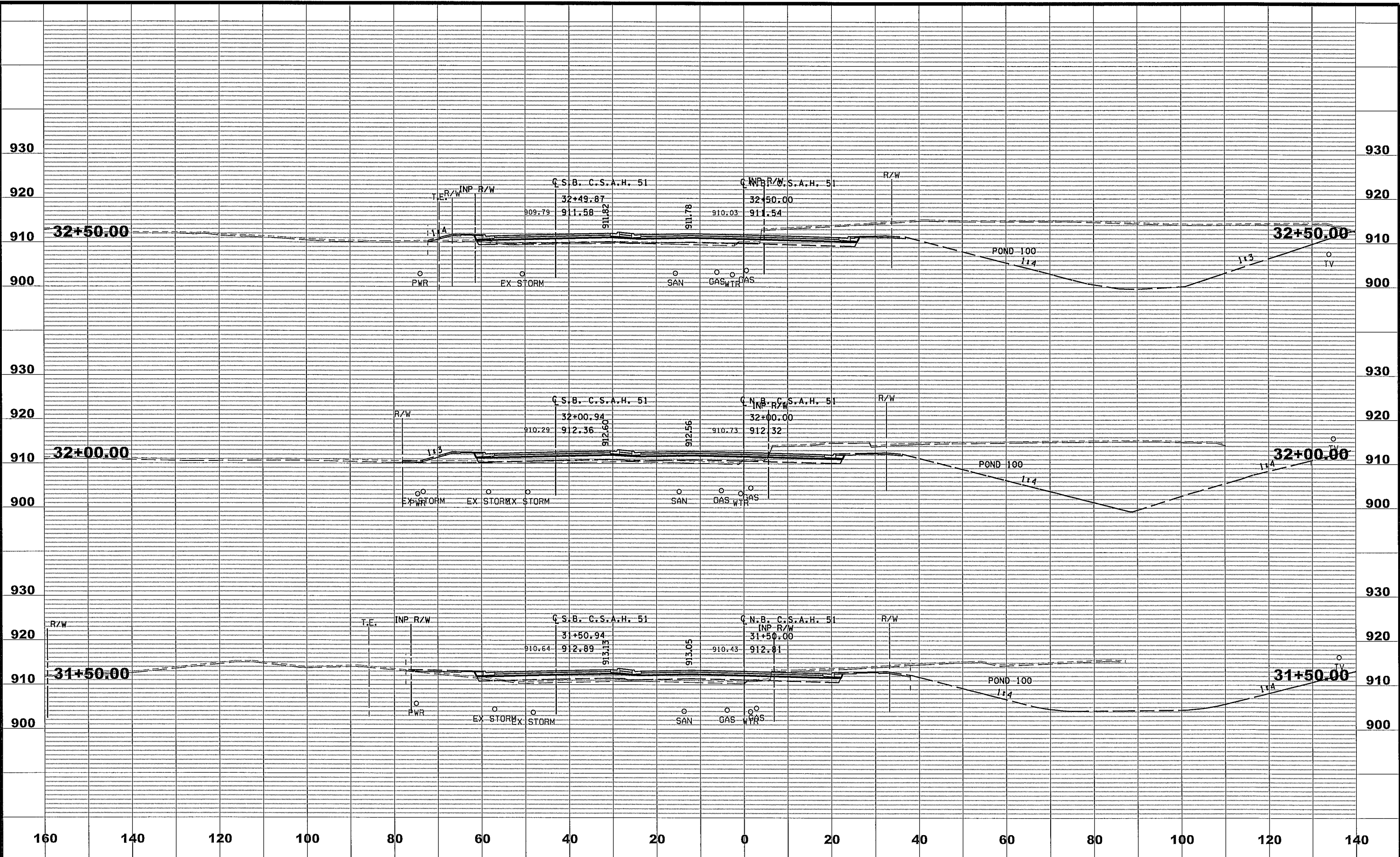
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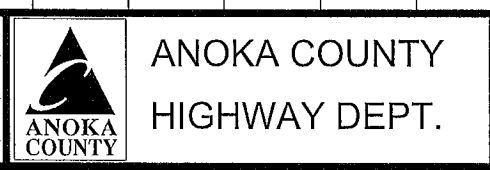
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 S.P. 114-020-046

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 Sheet 260 of 381 Sheets



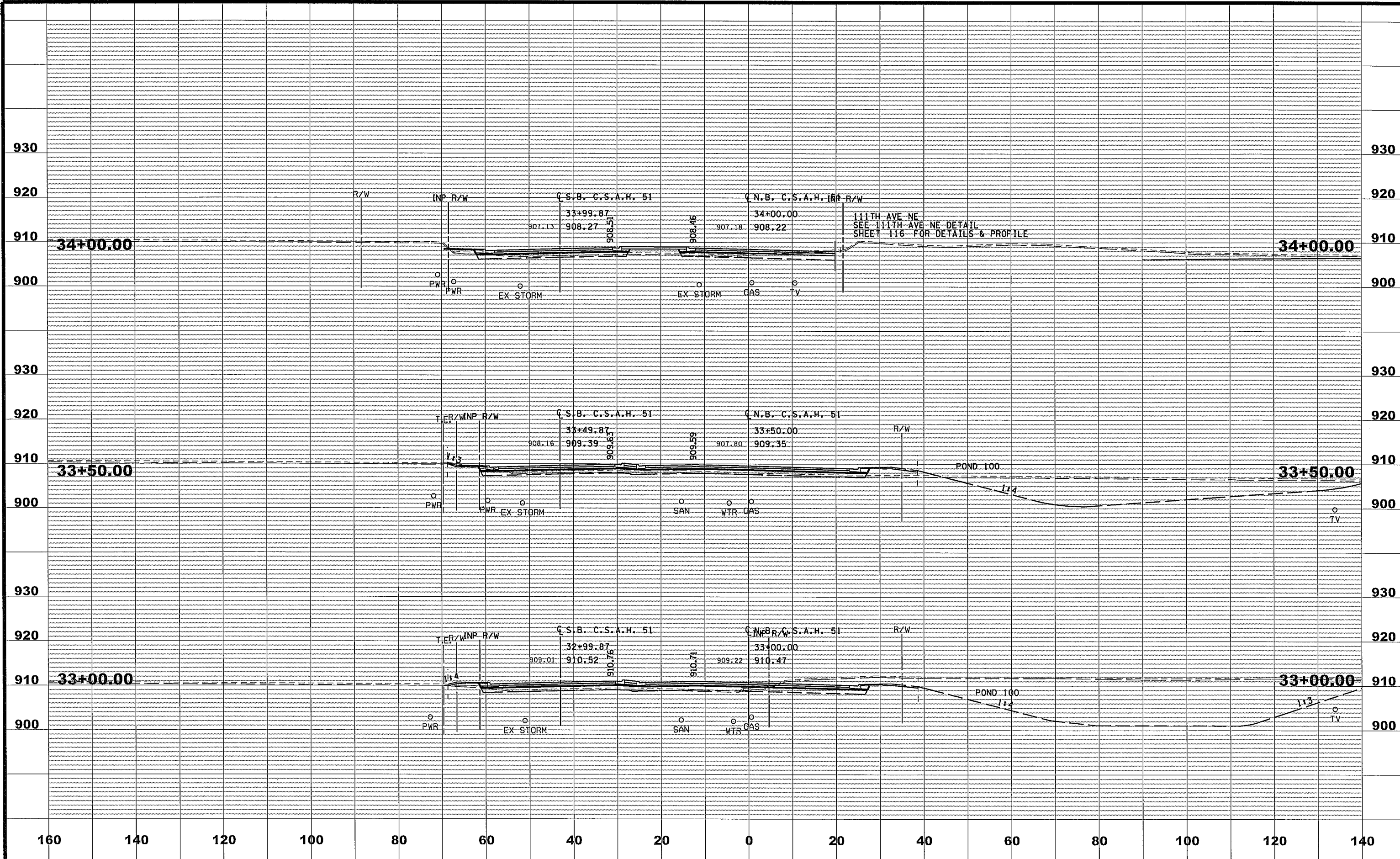
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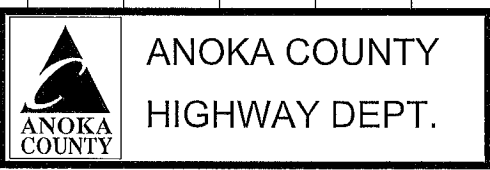
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 S.P. 114-020-046  
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 Sheet 261 of 381 Sheets



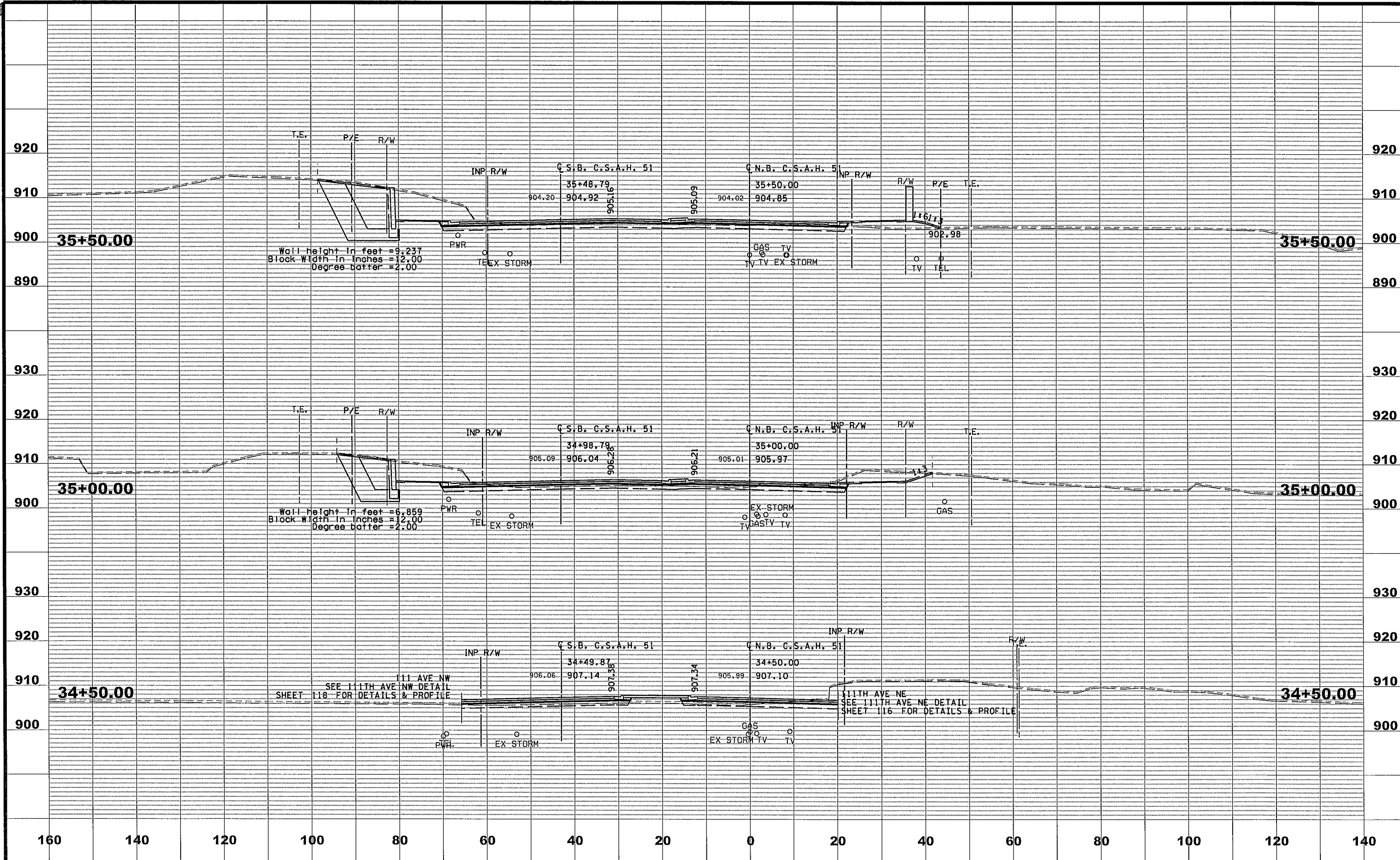
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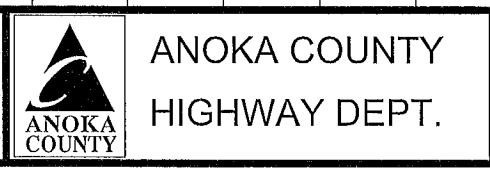
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 S.P. 114-020-046

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 Sheet 262 of 381 Sheets



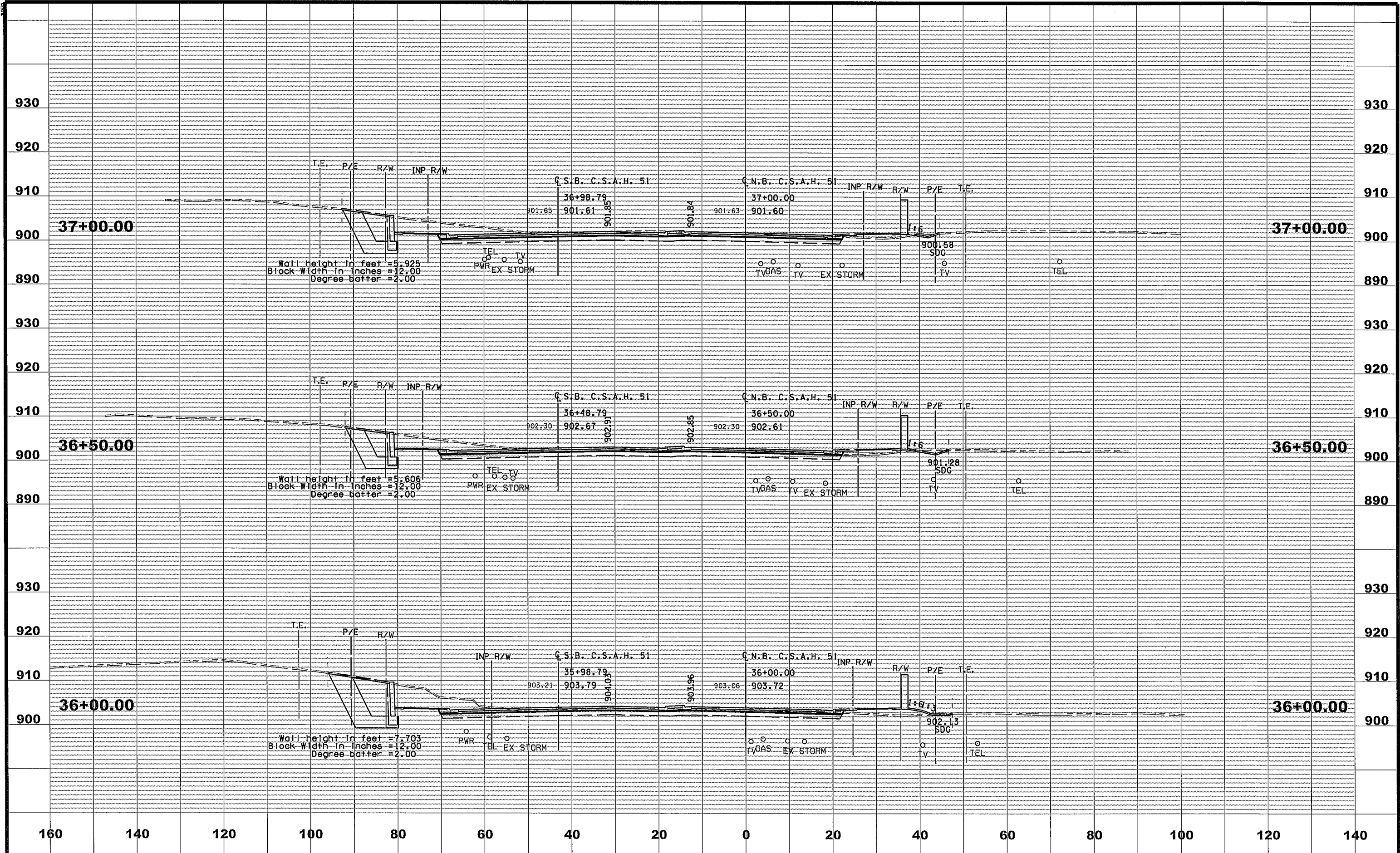
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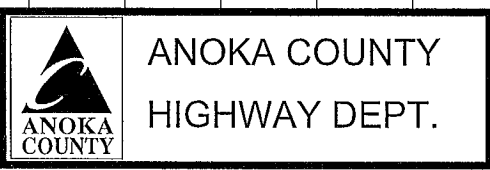
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 S.P. 114-020-046

CROSS SECTIONS  
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 Sheet 263 of 381 Sheets



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 S.P. 114-020-046

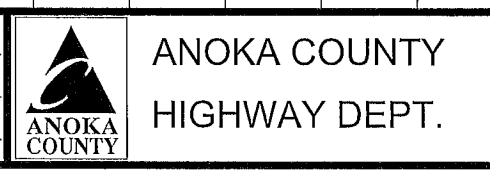
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 Sheet 264 of 381 Sheets





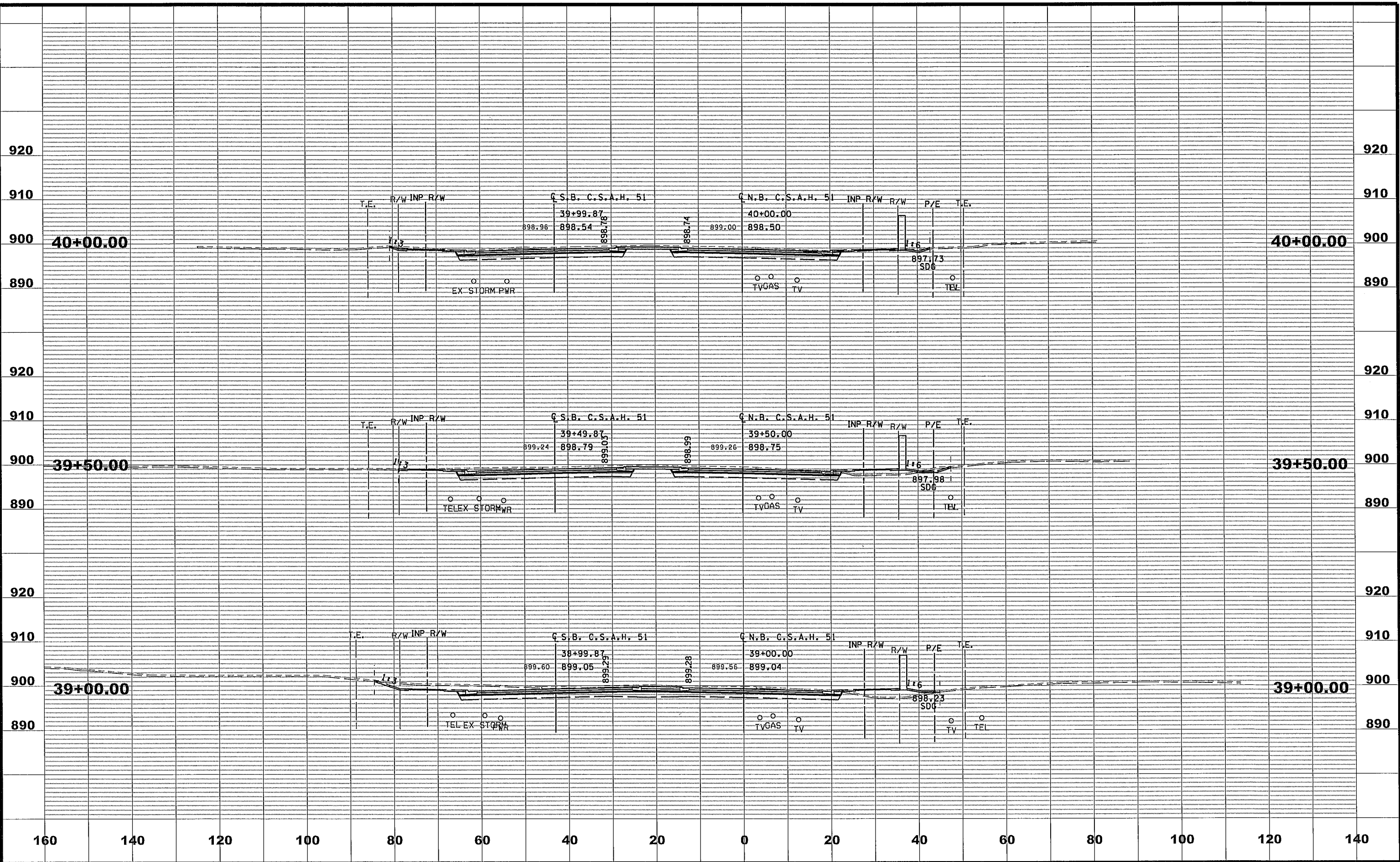
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 S.P. 114-020-046

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 Sheet 265 of 381 Sheets



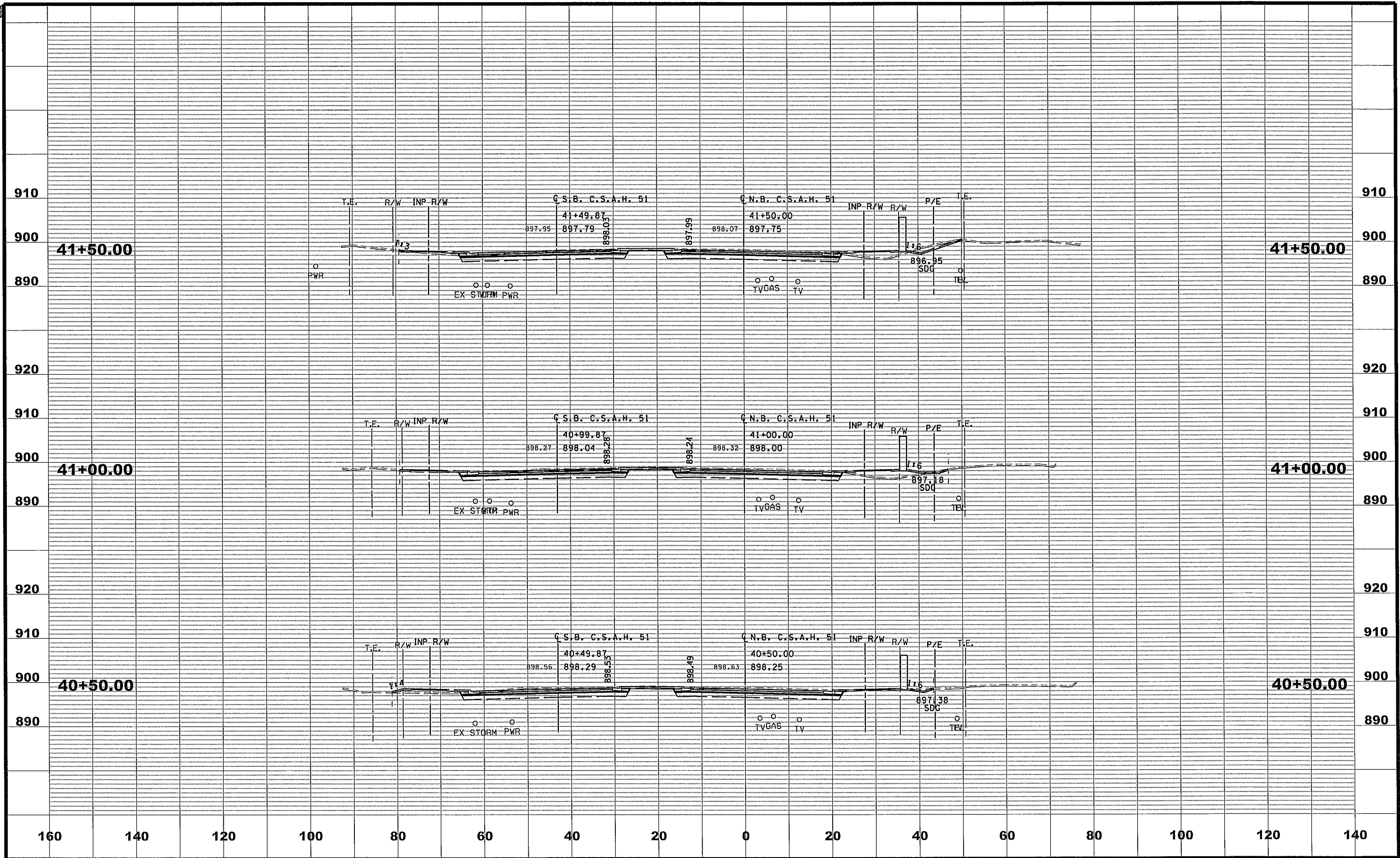
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 S.P. 114-020-046

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 Sheet 266 of 381 Sheets



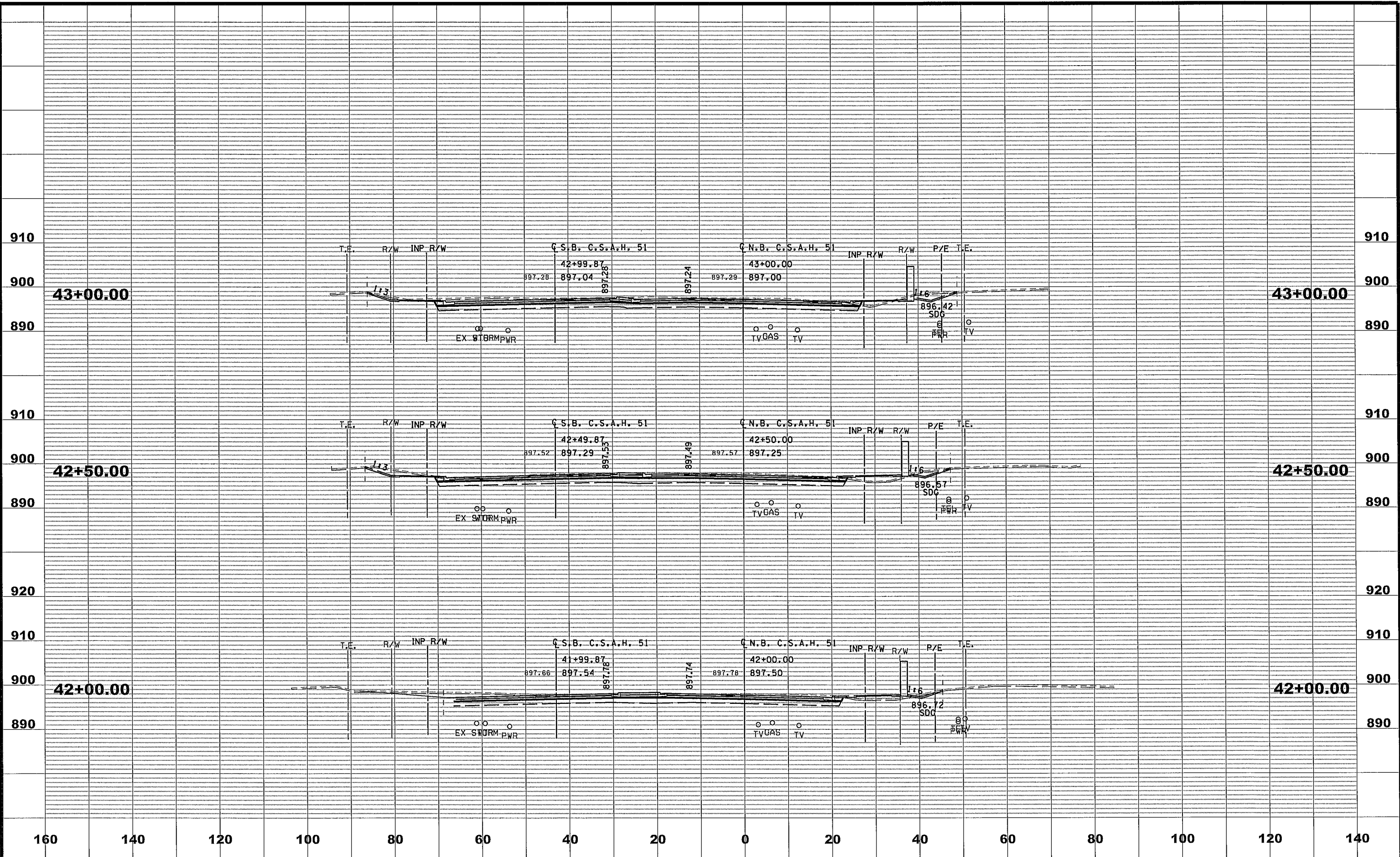
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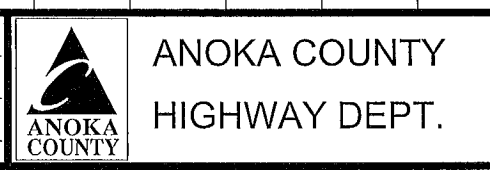
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 Sheet 267 of 381 Sheets



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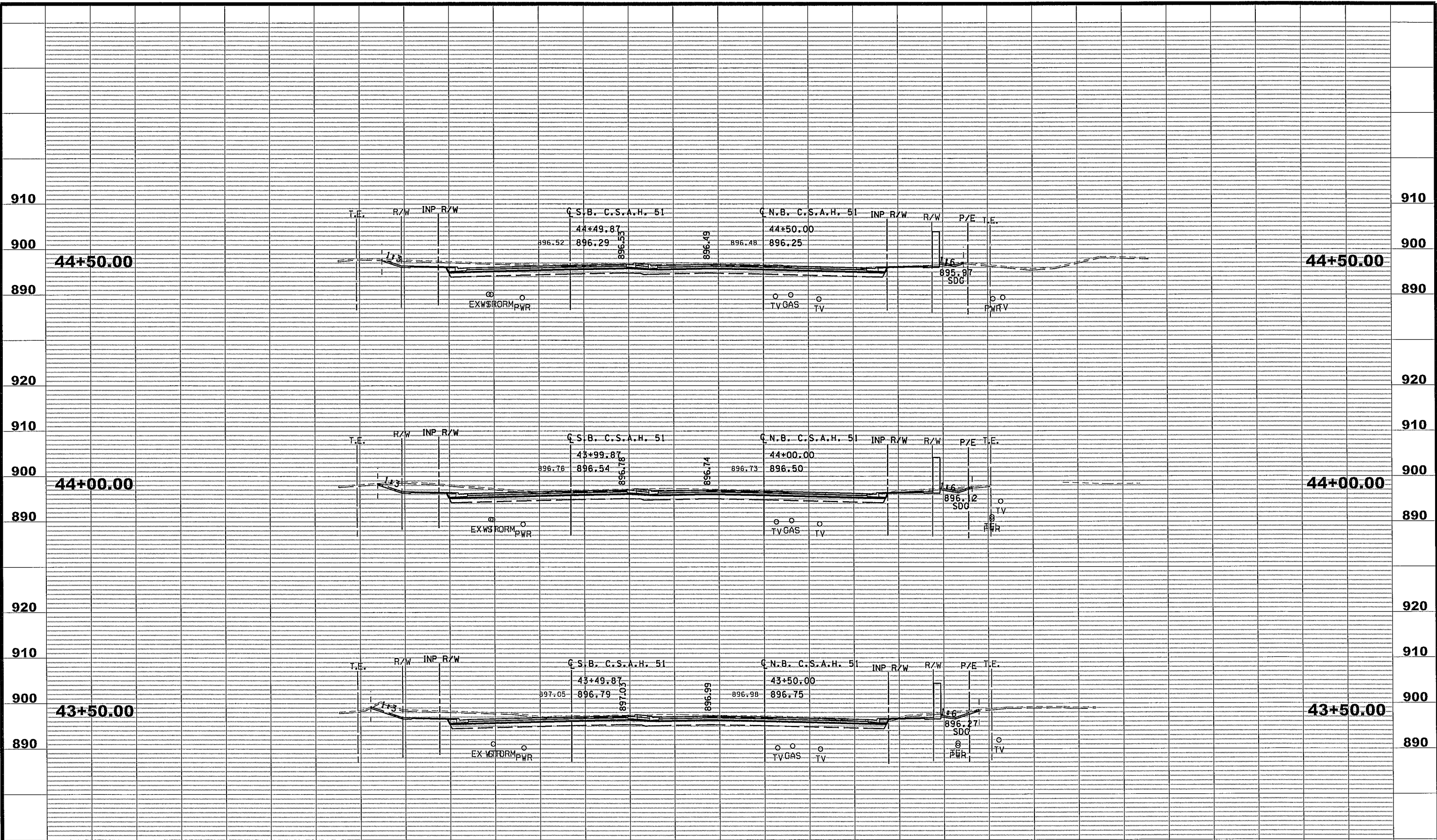
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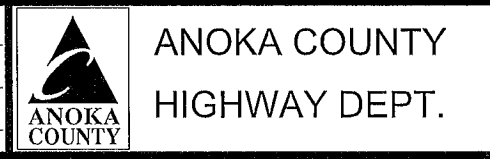
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 Sheet 268 of 381 Sheets



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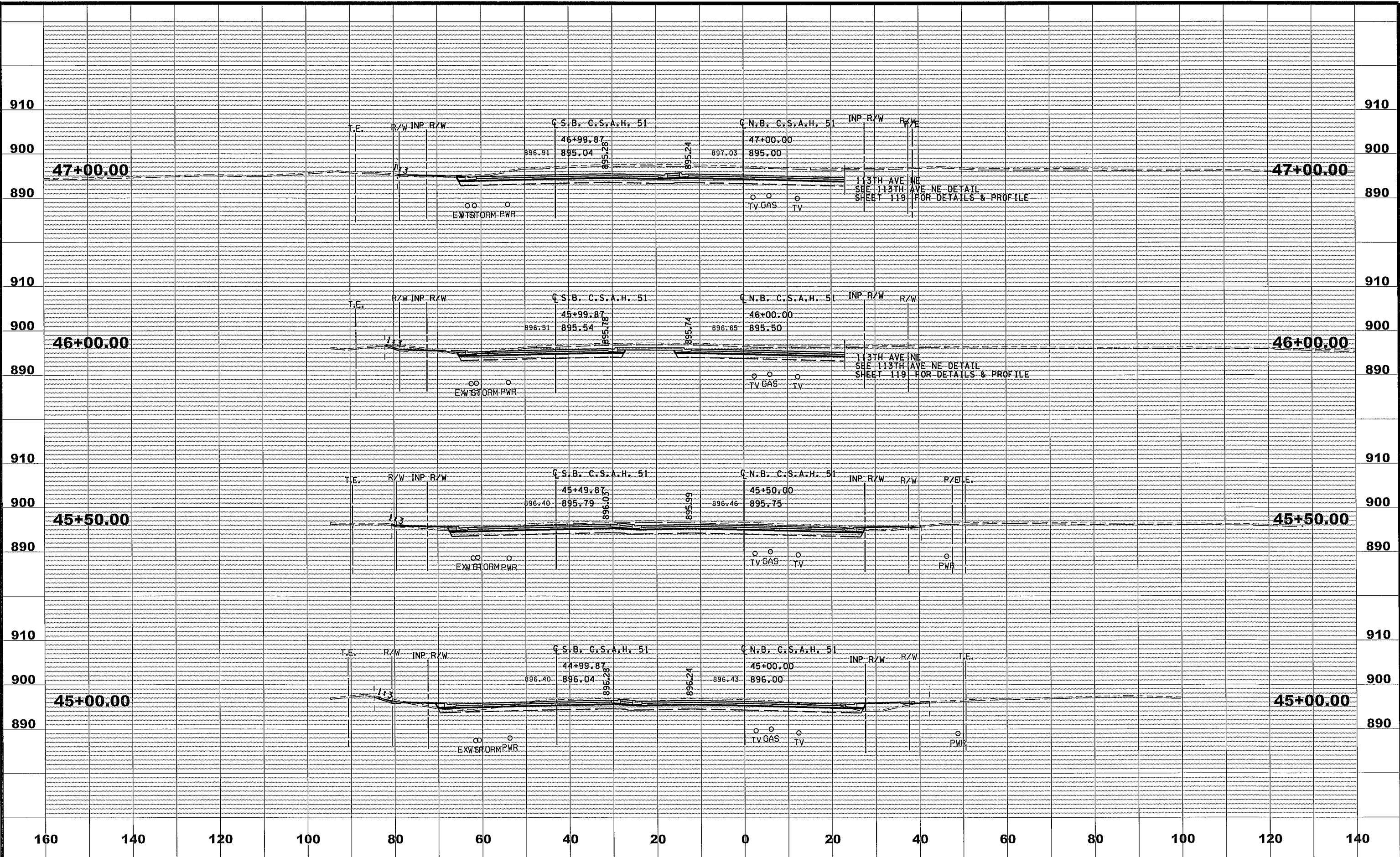
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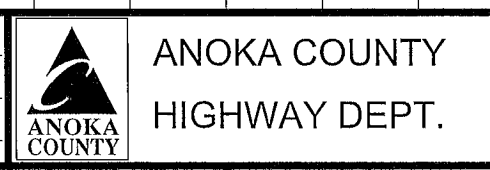
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 Sheet 269 of 381 Sheets



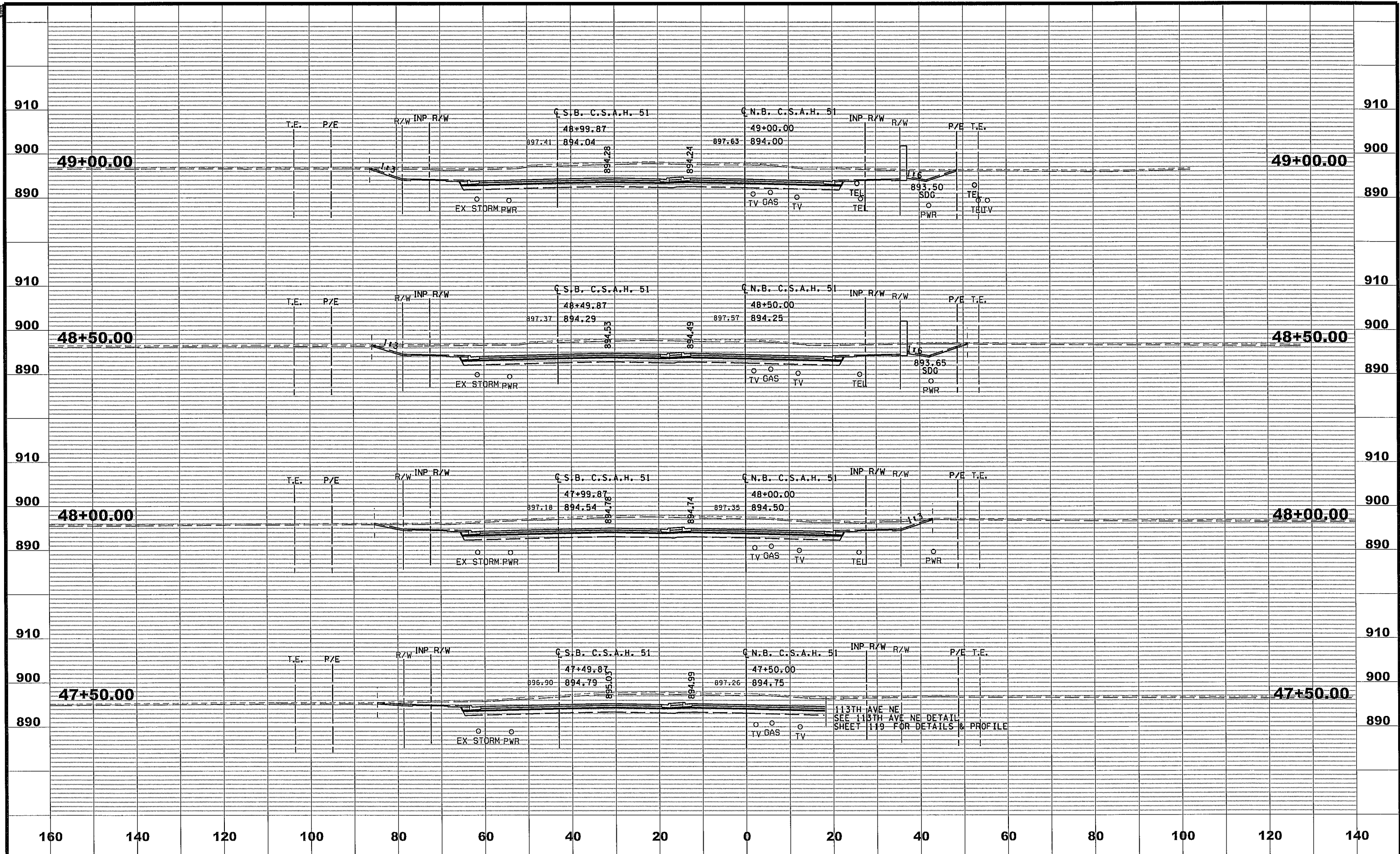
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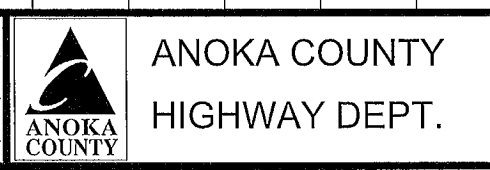
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 Sheet 270 of 381 Sheets



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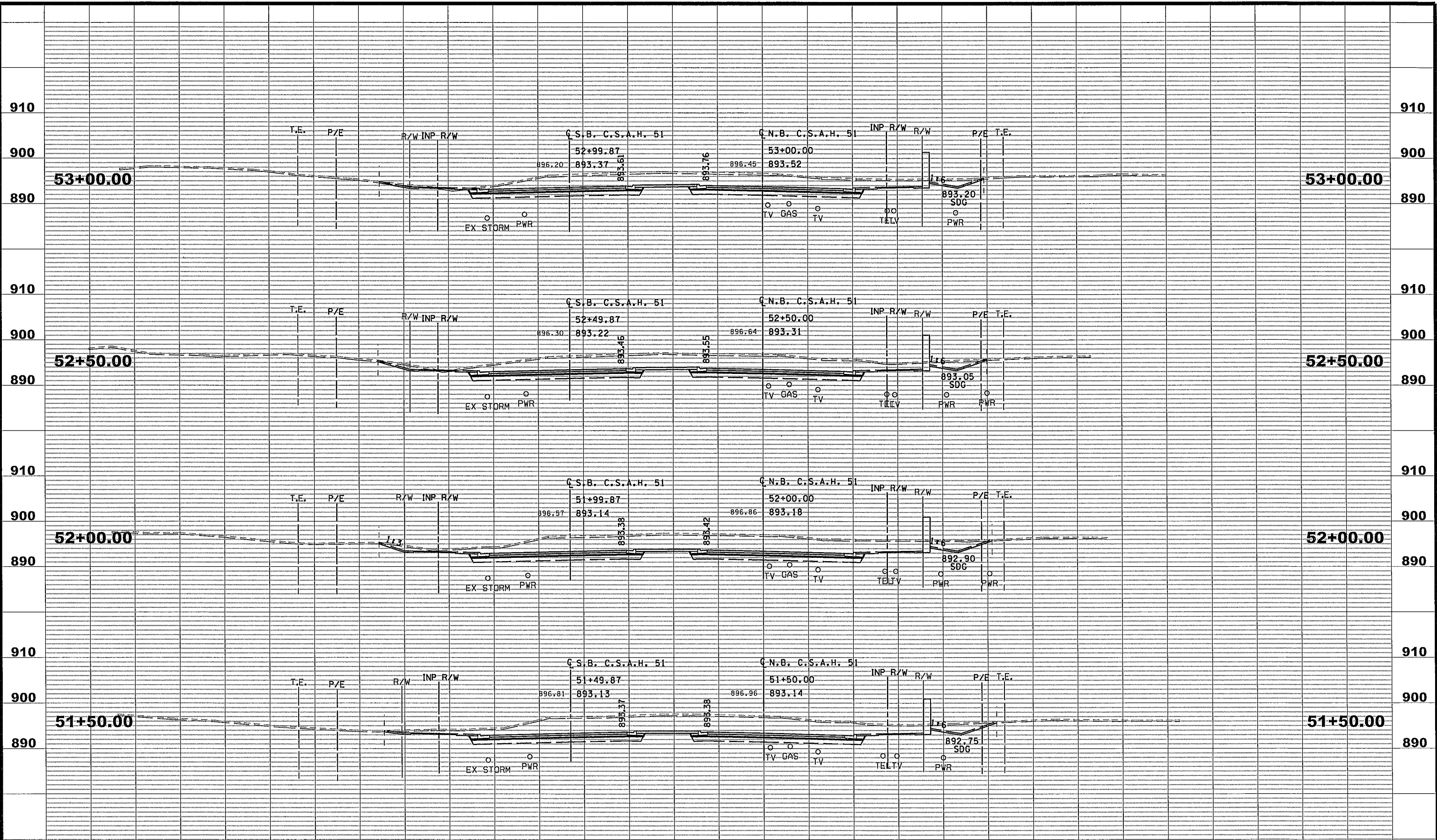


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CROSS SECTIONS  
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 Sheet 271 of 381 Sheets

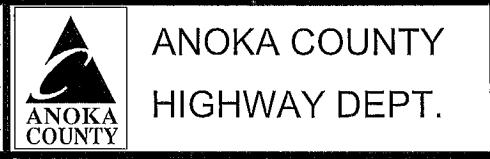






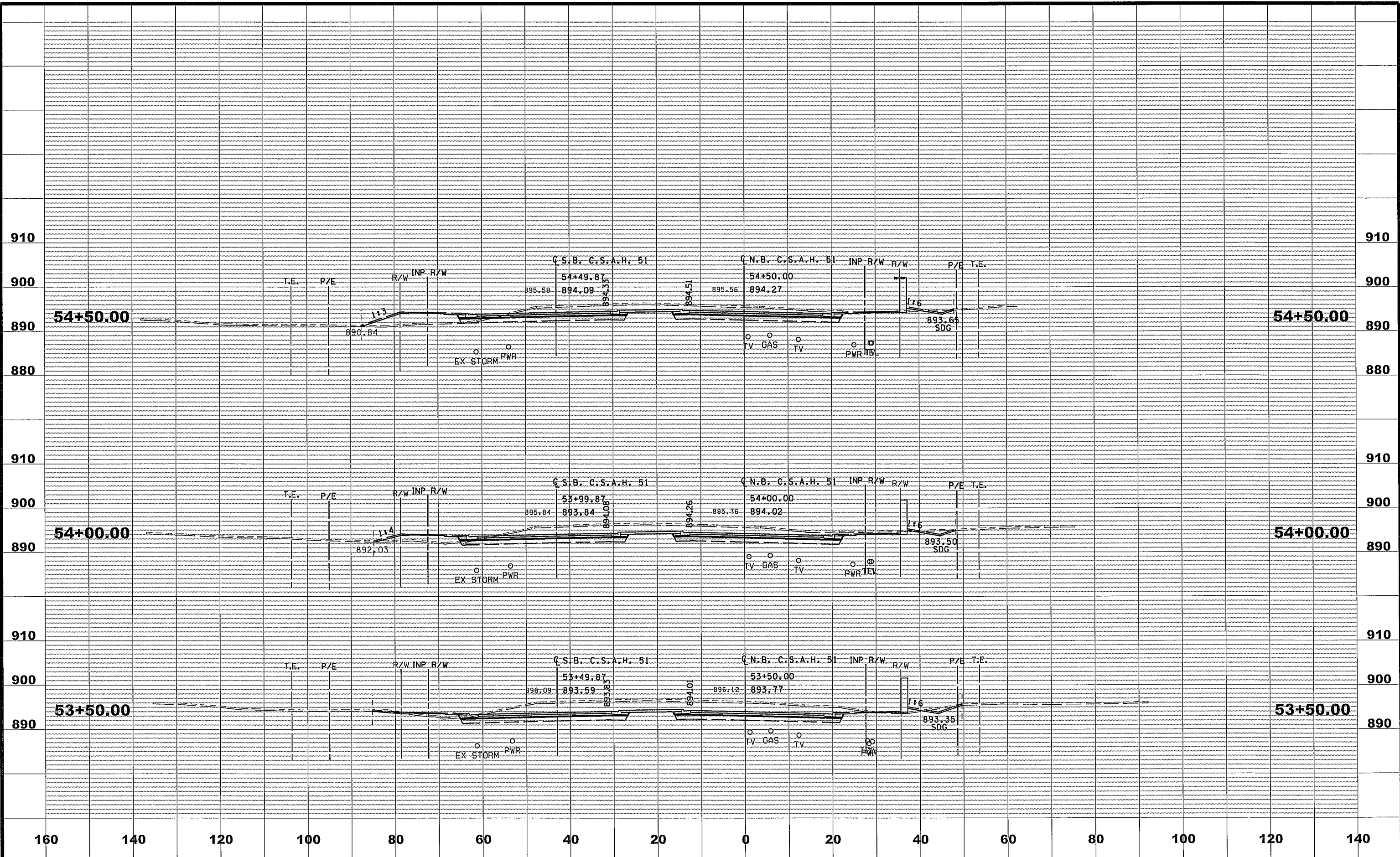
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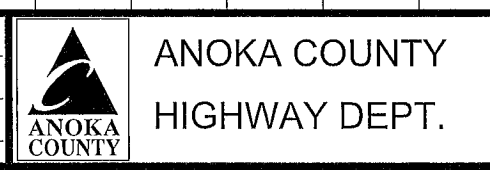
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 S.P. 114-020-046

CROSS SECTIONS  
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 Sheet 273 of 381 Sheets



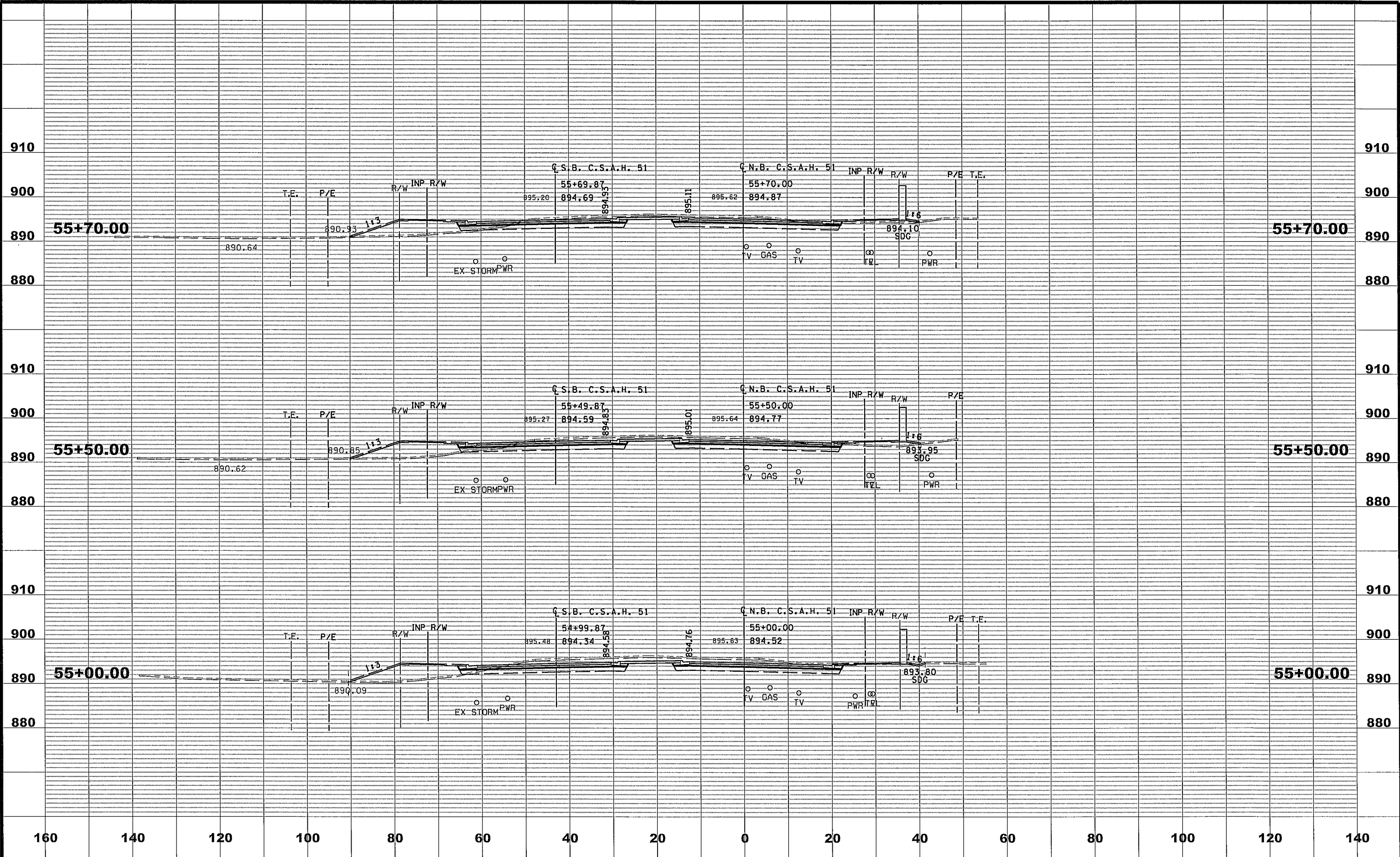
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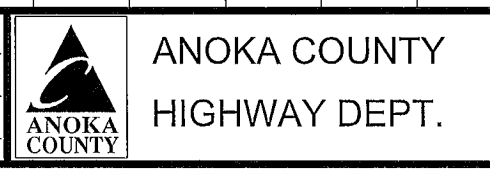
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CROSS SECTIONS  
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 Sheet 274 of 381 Sheets



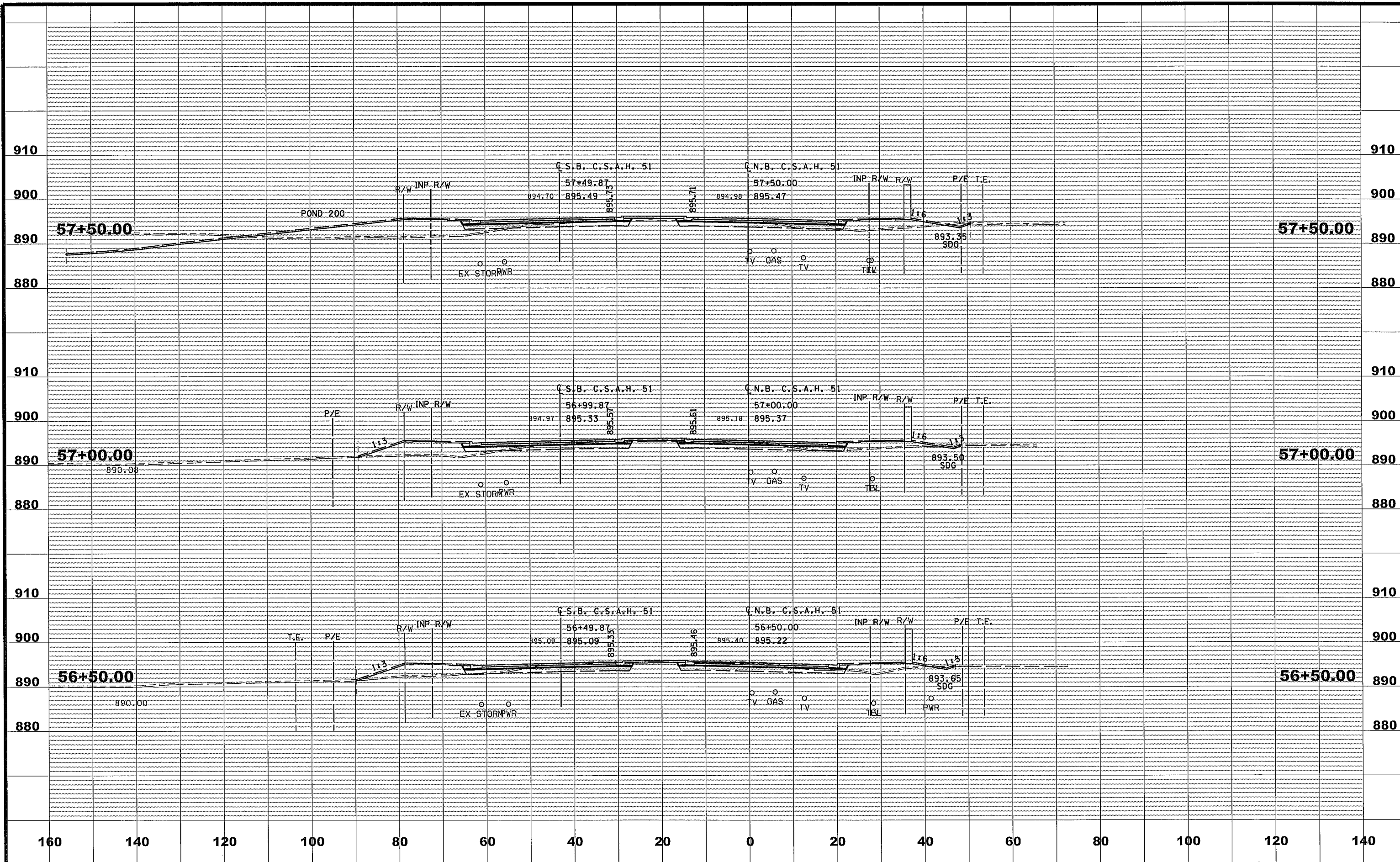
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 S.P. 106-020-031  
 S.P. 114-020-046

CROSS SECTIONS  
 STA 55+00.00 TO 55+70.00  
 Sheet 275 of 381 Sheets



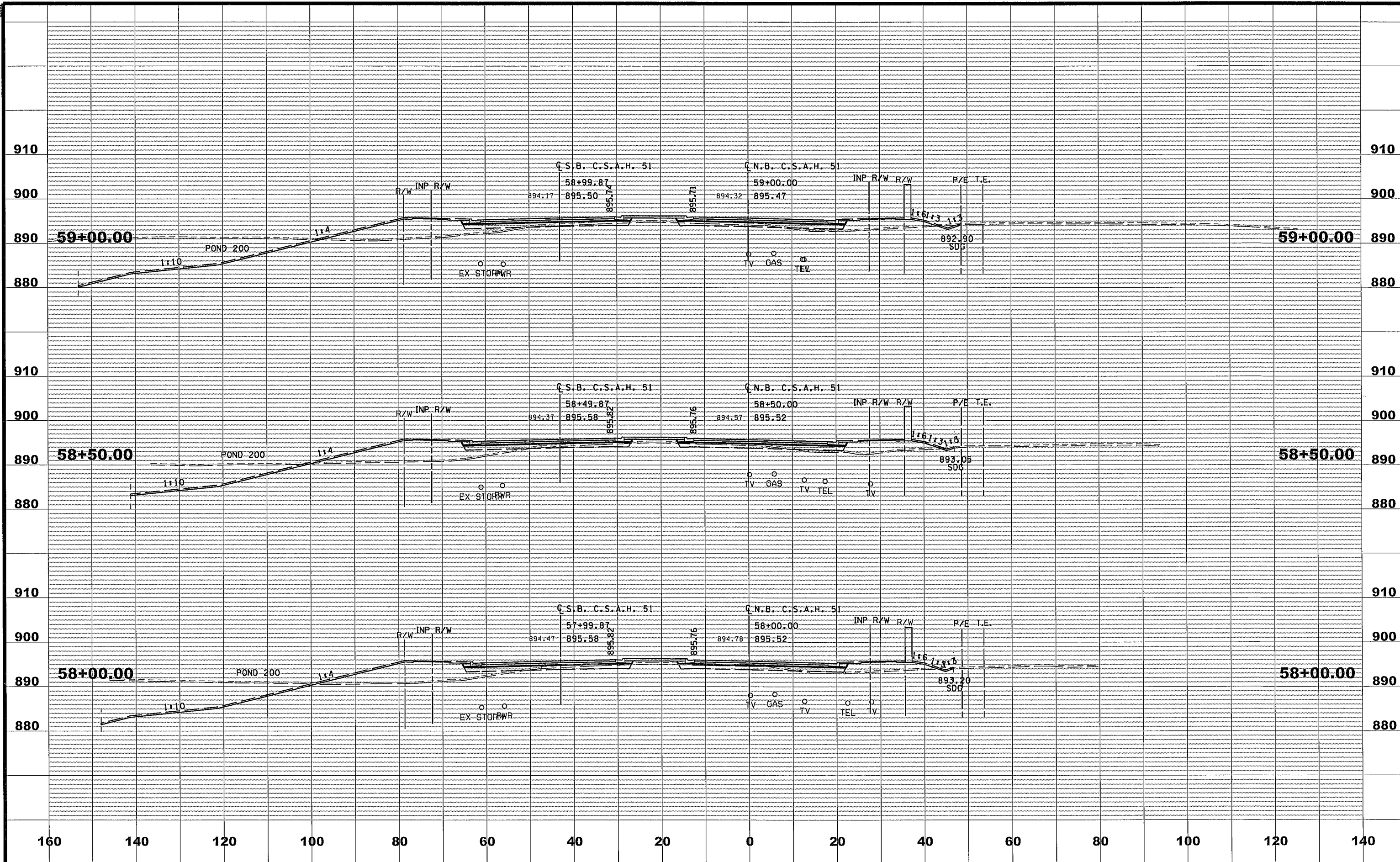
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 S.P. 114-020-046

CROSS SECTIONS  
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 Sheet 276 of 381 Sheets



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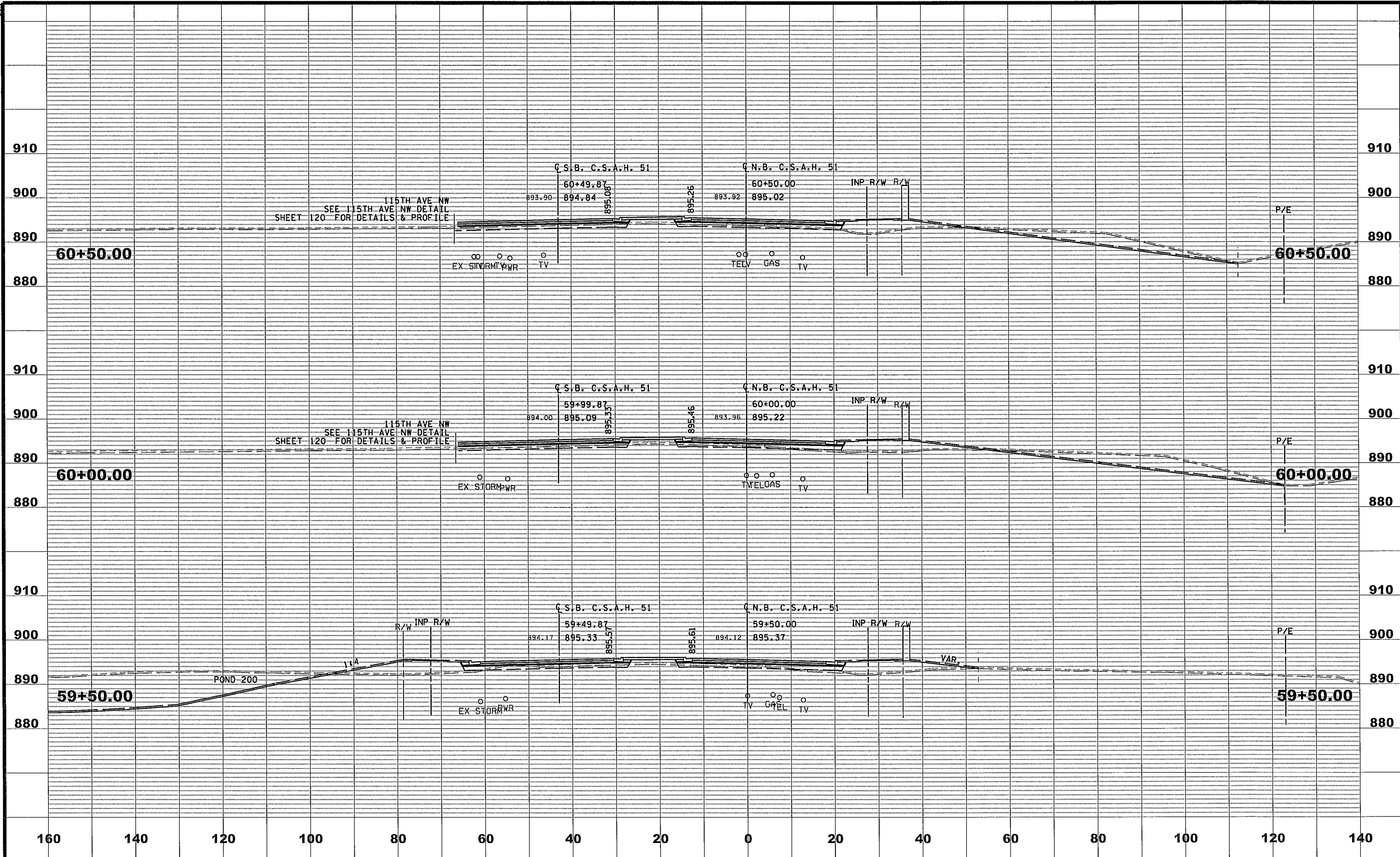
DRAWN BY NJD DATE 11-25-13  
 DESIGN BY NJD DATE 10-31-13  
 CHECKED BY GMP DATE 12-13-13



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

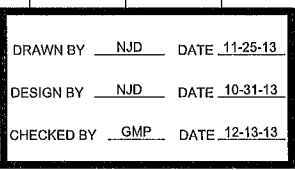
S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

CROSS SECTIONS  
 STA 58+00.00 TO 59+00.00  
 Sheet 277 of 381 Sheets



NO	DATE	BY	CKD	APPR	REVISION
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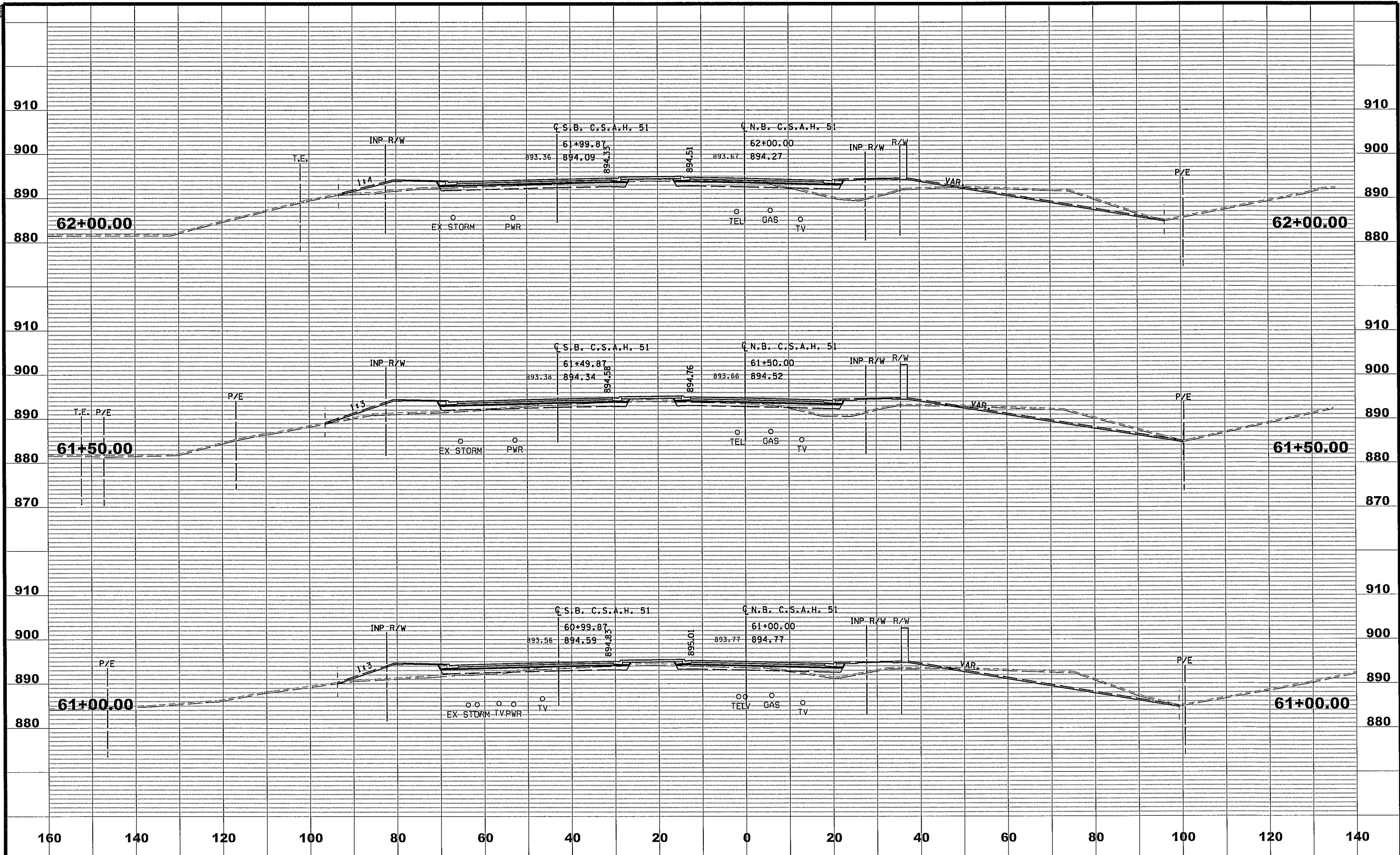
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 DESIGN BY NJD DATE 10-31-13  
 CHECKED BY GMP DATE 12-13-13



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

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

CROSS SECTIONS  
 STA 59+50.00 TO 60+50.00  
 Sheet 278 of 381 Sheets



NO	DATE	BY	CKD	APPR	REVISION
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06/05/2014 10:22:31 AM					

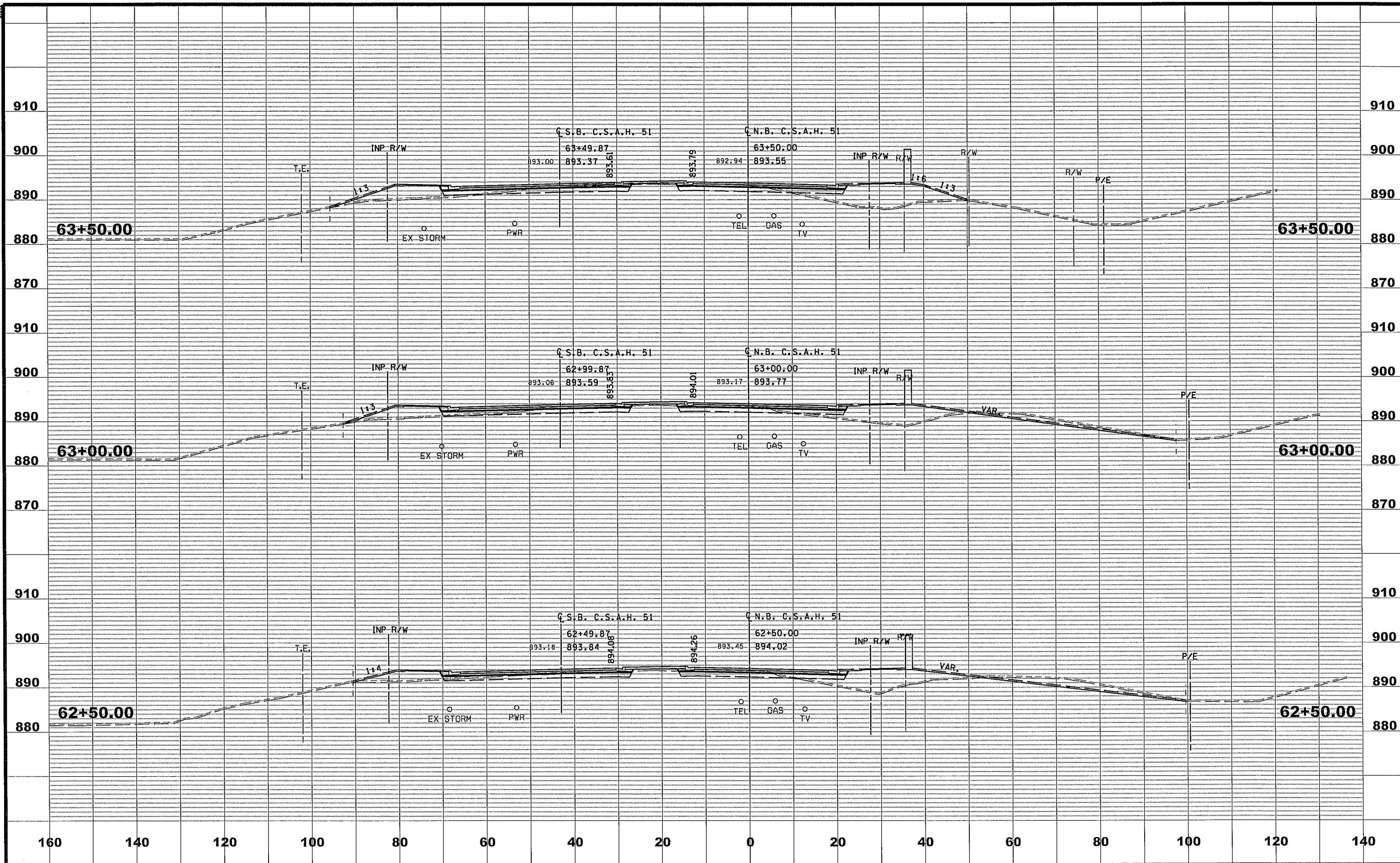
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 DESIGN BY NJD DATE 10-31-13  
 CHECKED BY GMP DATE 12-13-13



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

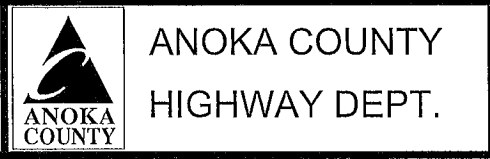
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 S.P. 106-020-031  
 S.P. 114-020-046

CROSS SECTIONS  
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 Sheet 279 of 381 Sheets



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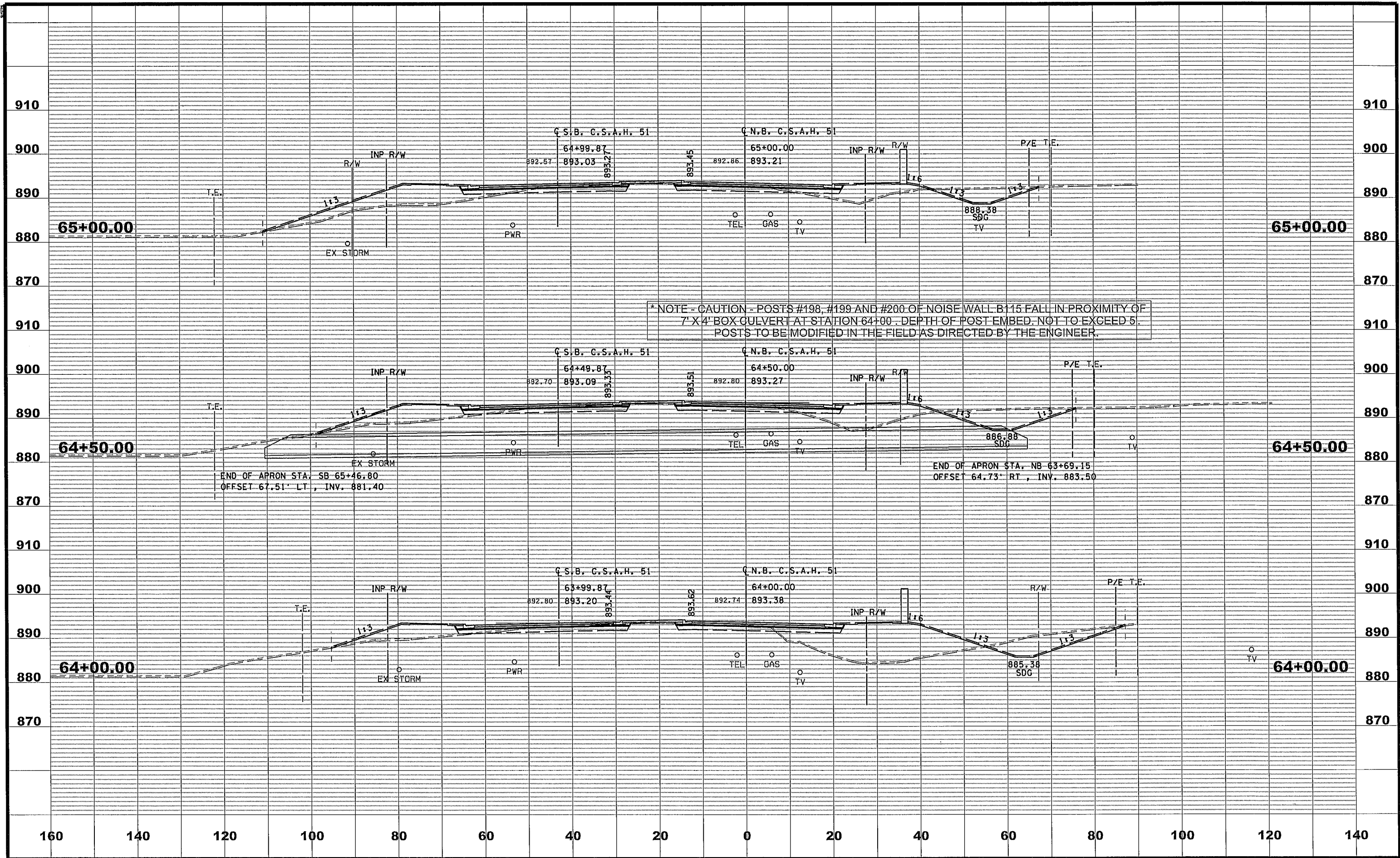
DRAWN BY NJD DATE 11-25-13  
 DESIGN BY NJD DATE 10-31-13  
 CHECKED BY GMP DATE 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

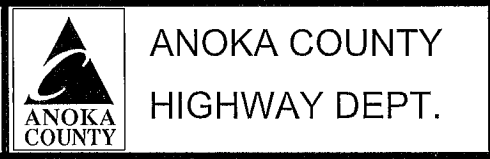
CROSS SECTIONS  
 STA 62+50.00 TO 63+50.00  
 Sheet 280 of 381 Sheets





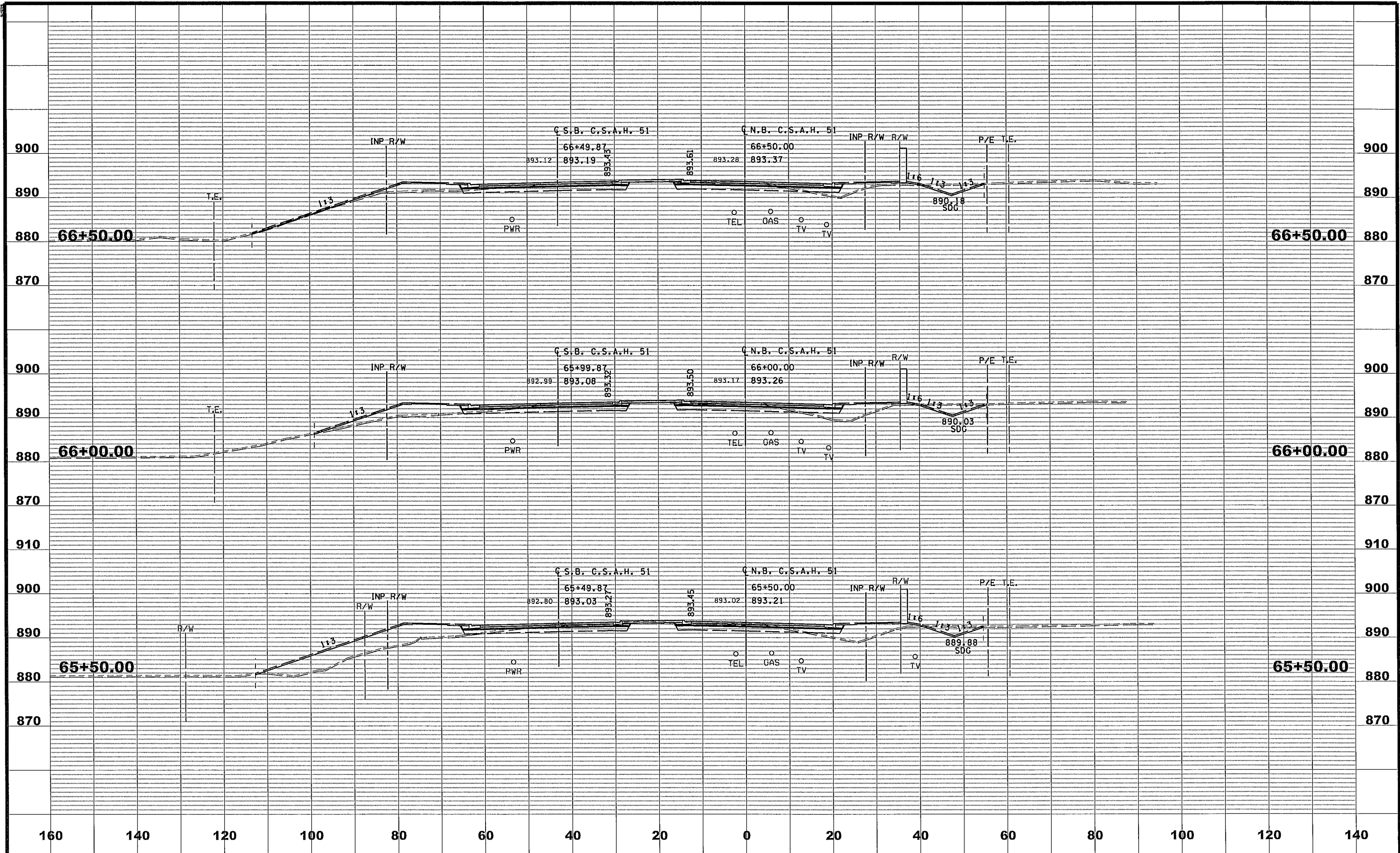
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DRAWN BY NJD DATE 11-25-13  
 DESIGN BY NJD DATE 10-31-13  
 CHECKED BY GMP DATE 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

CROSS SECTIONS  
 STA 64+00.00 TO 65+00.00  
 Sheet 281 of 381 Sheets



NO	DATE	BY	CKD	APPR	REVISION
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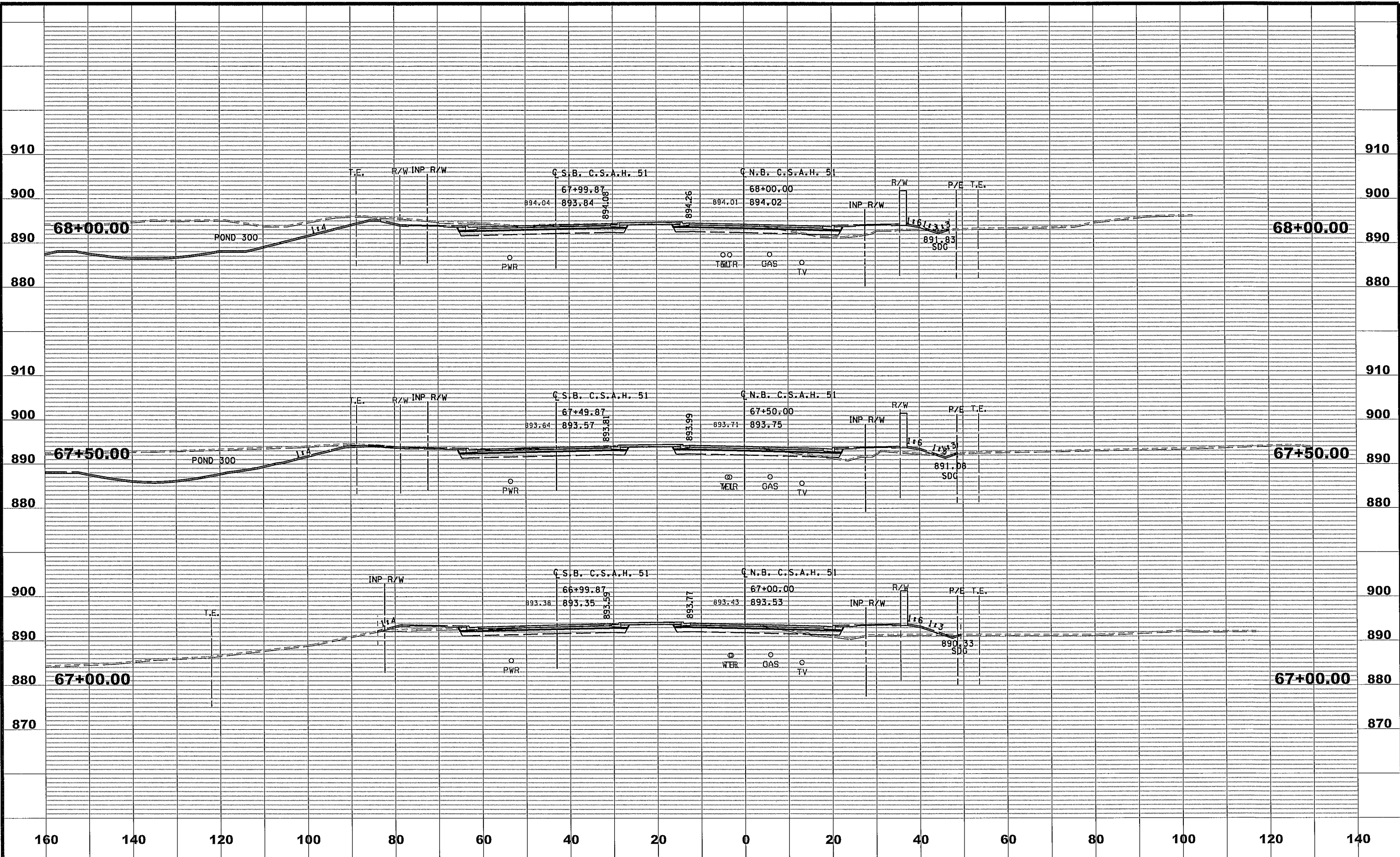
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 CHECKED BY GMP DATE 12-13-13



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

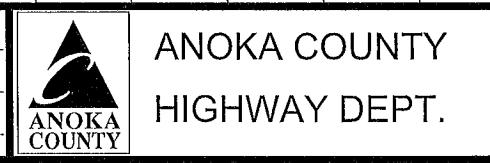
S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046  
 -

CROSS SECTIONS  
 STA 65+50.00 TO 66+50.00  
 Sheet 282 of 381 Sheets



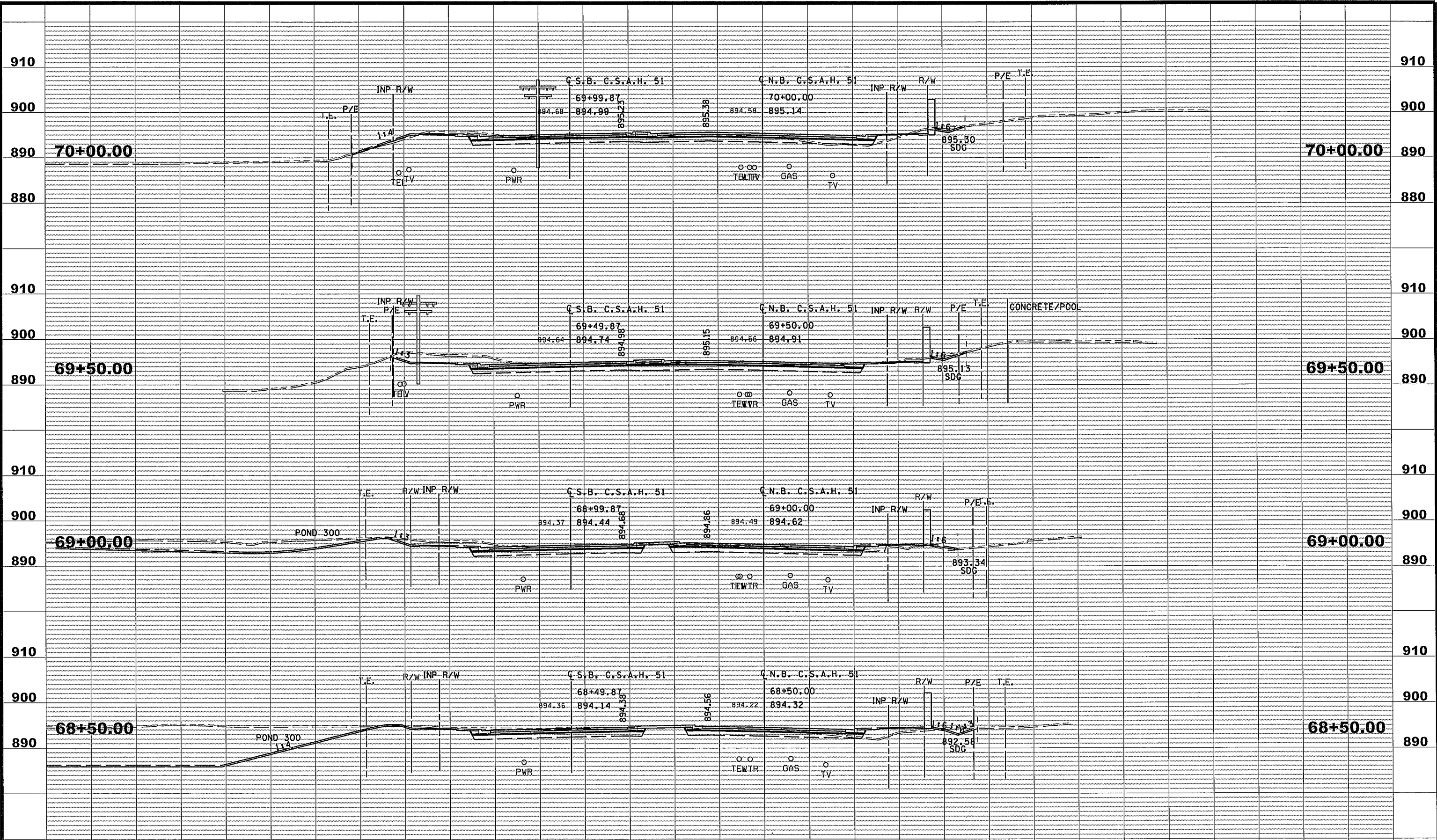
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 CHECKED BY GMP DATE 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

CROSS SECTIONS  
 STA 67+00.00 TO 68+00.00  
 Sheet 283 of 381 Sheets

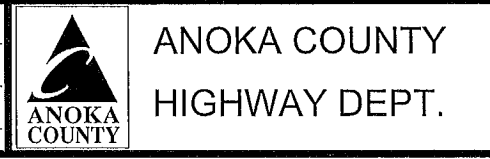


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NO	DATE	BY	CKD	APPR	REVISION

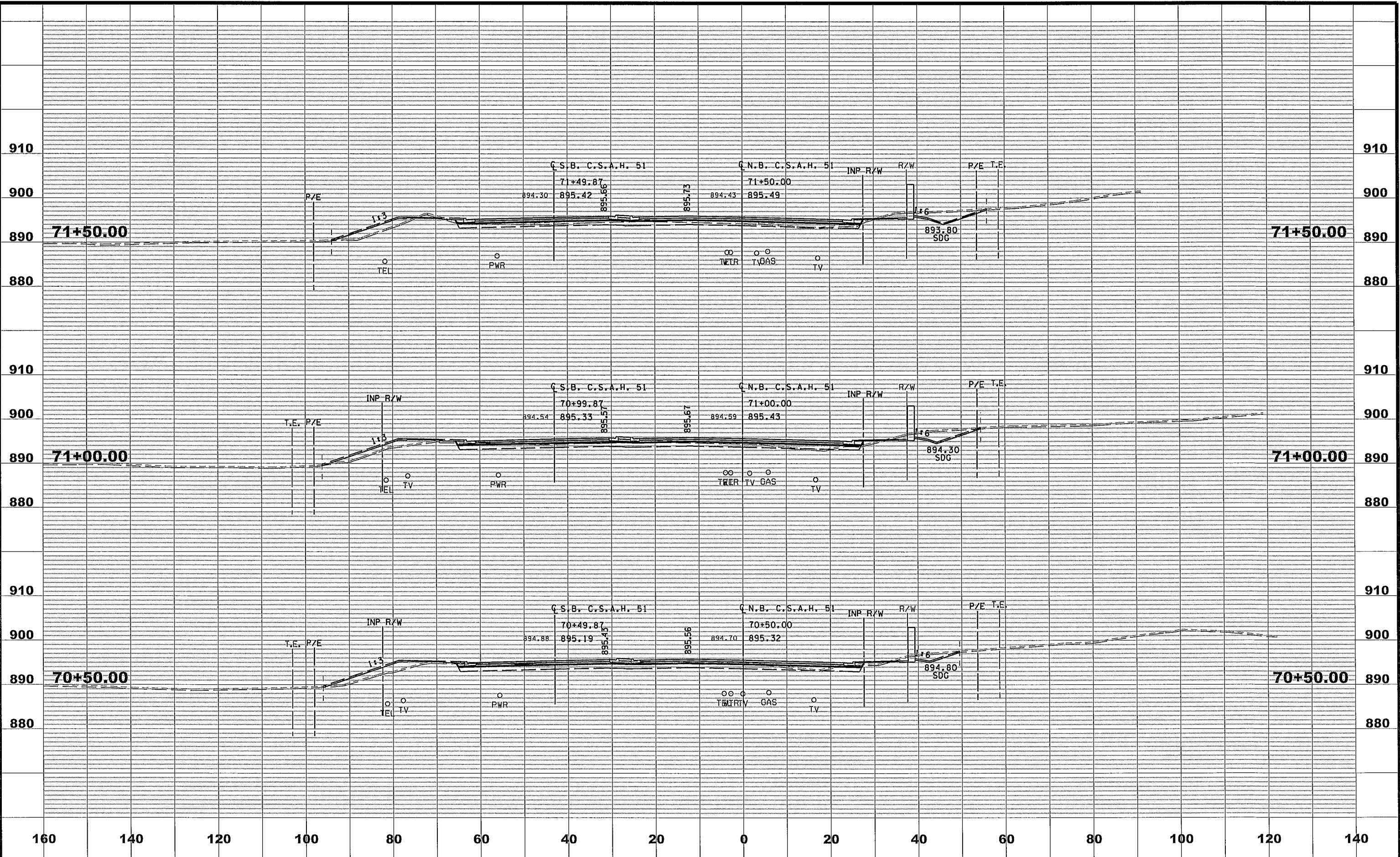
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 CHECKED BY GMP DATE 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

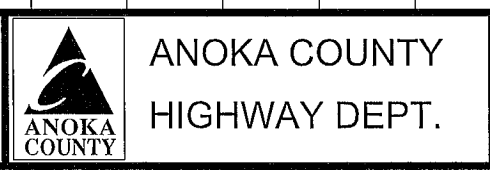
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 Sheet 284 of 381 Sheets



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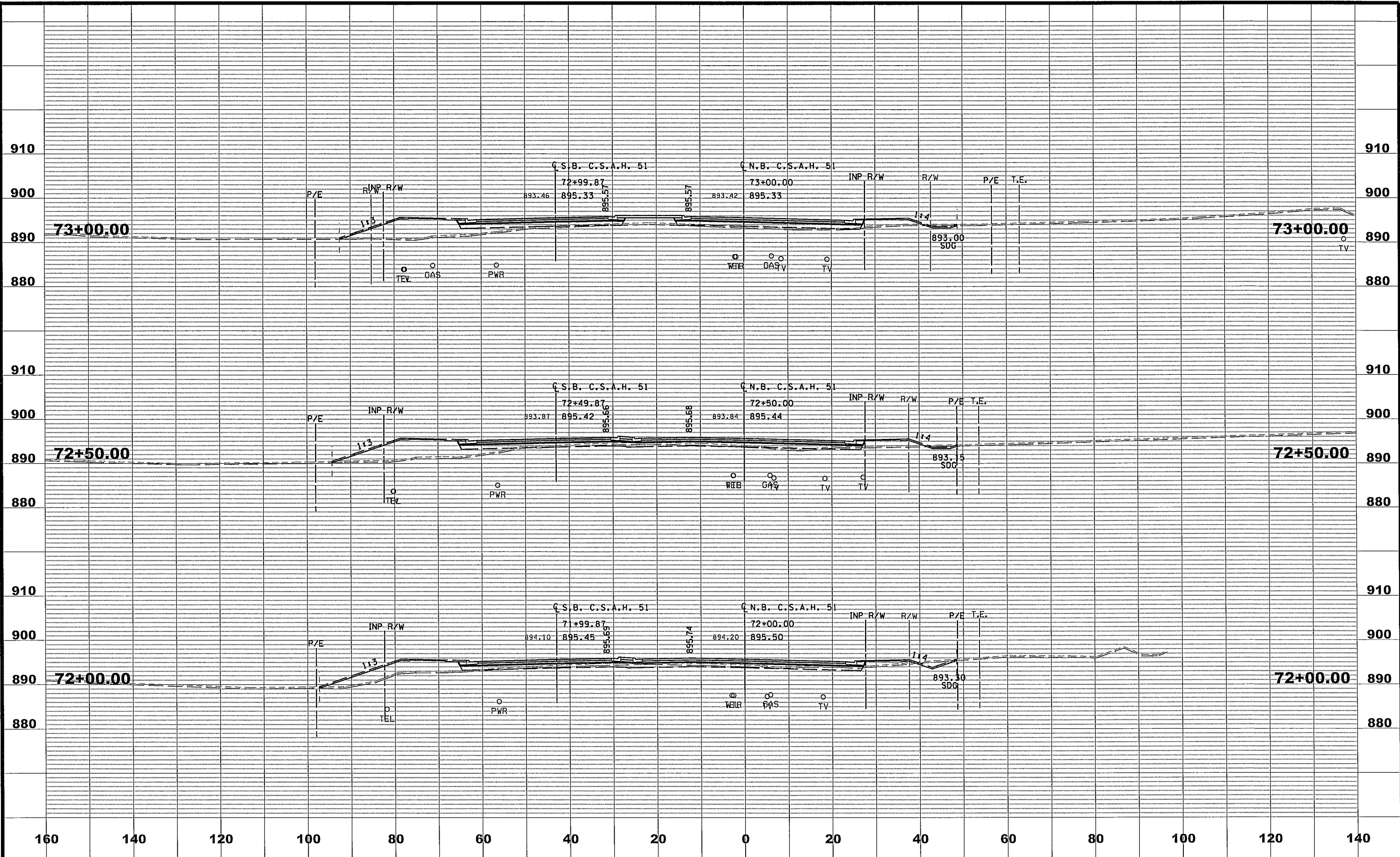
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 CHECKED BY GMP DATE 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

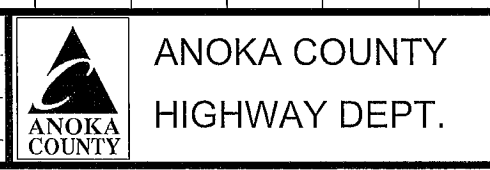
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 Sheet 285 of 381 Sheets



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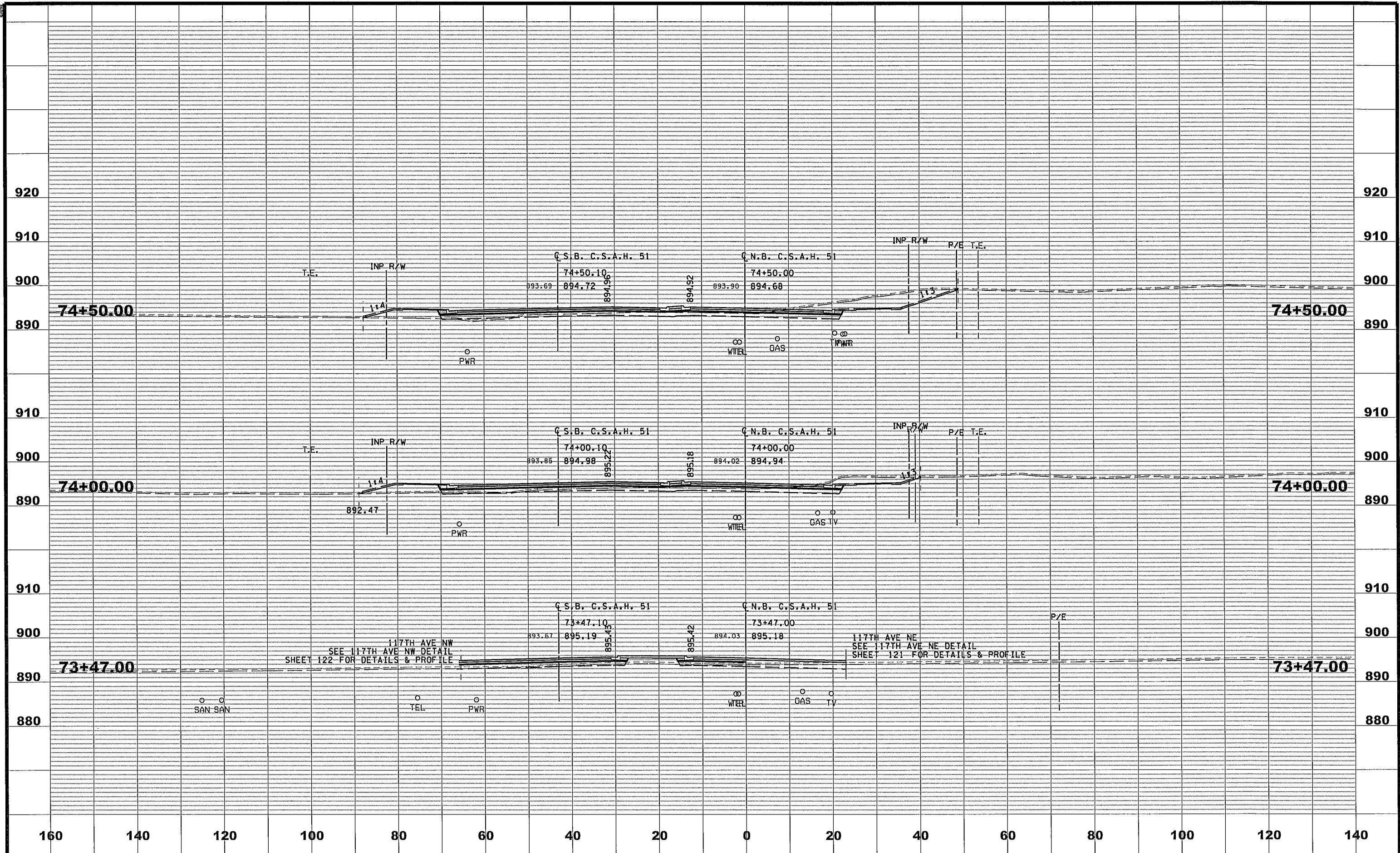
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 DESIGN BY: NJD DATE: 10-31-13  
 CHECKED BY: GMP DATE: 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

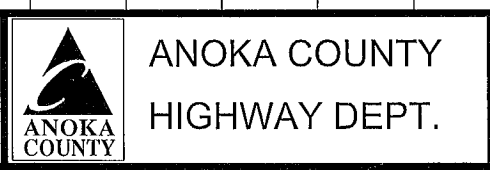
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 Sheet 286 of 381 Sheets



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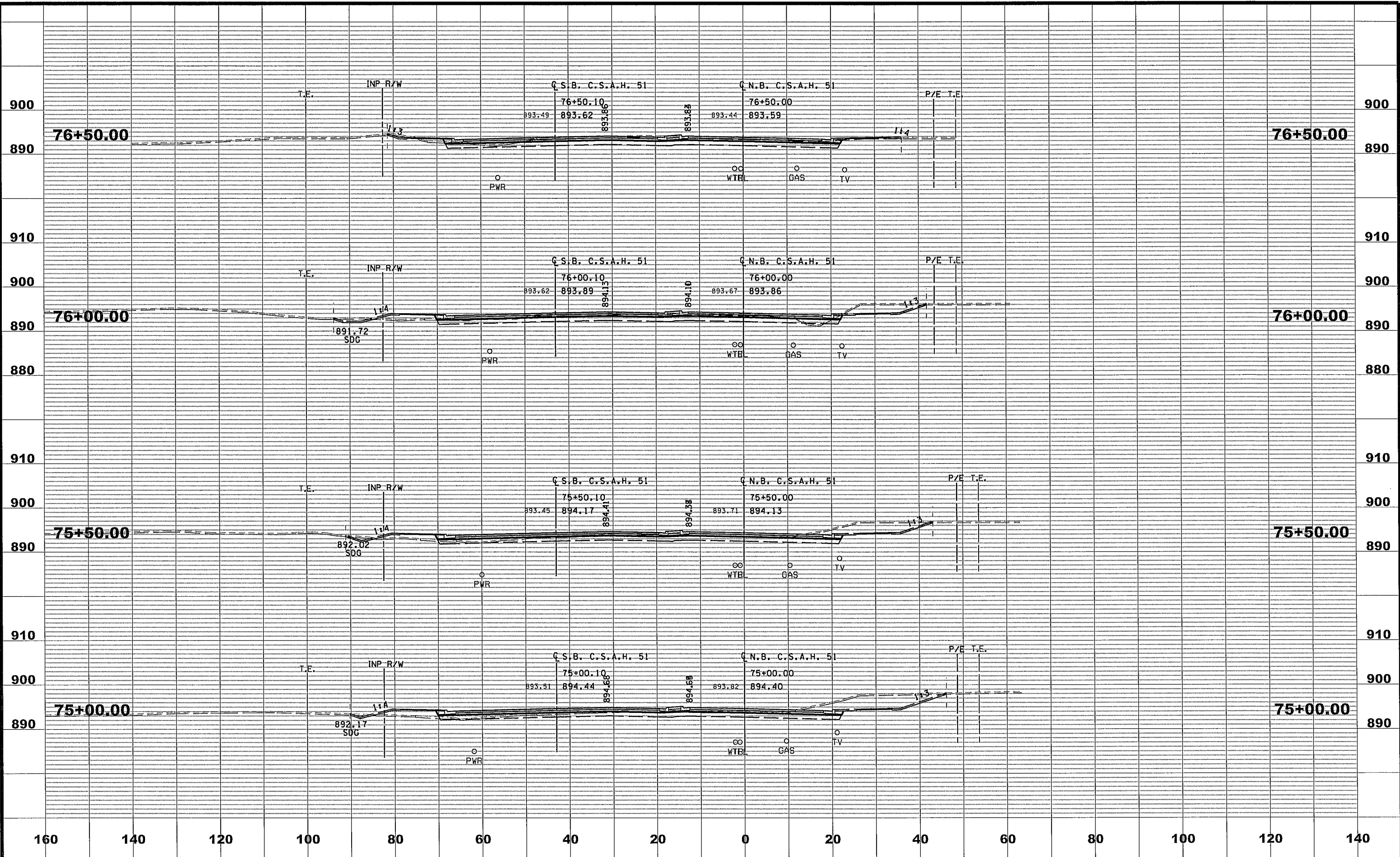
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 CHECKED BY GMP DATE 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

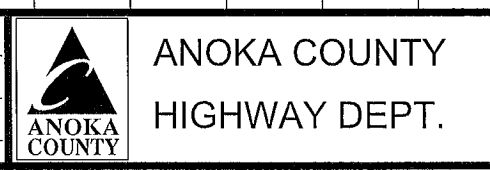
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 Sheet 287 of 381 Sheets



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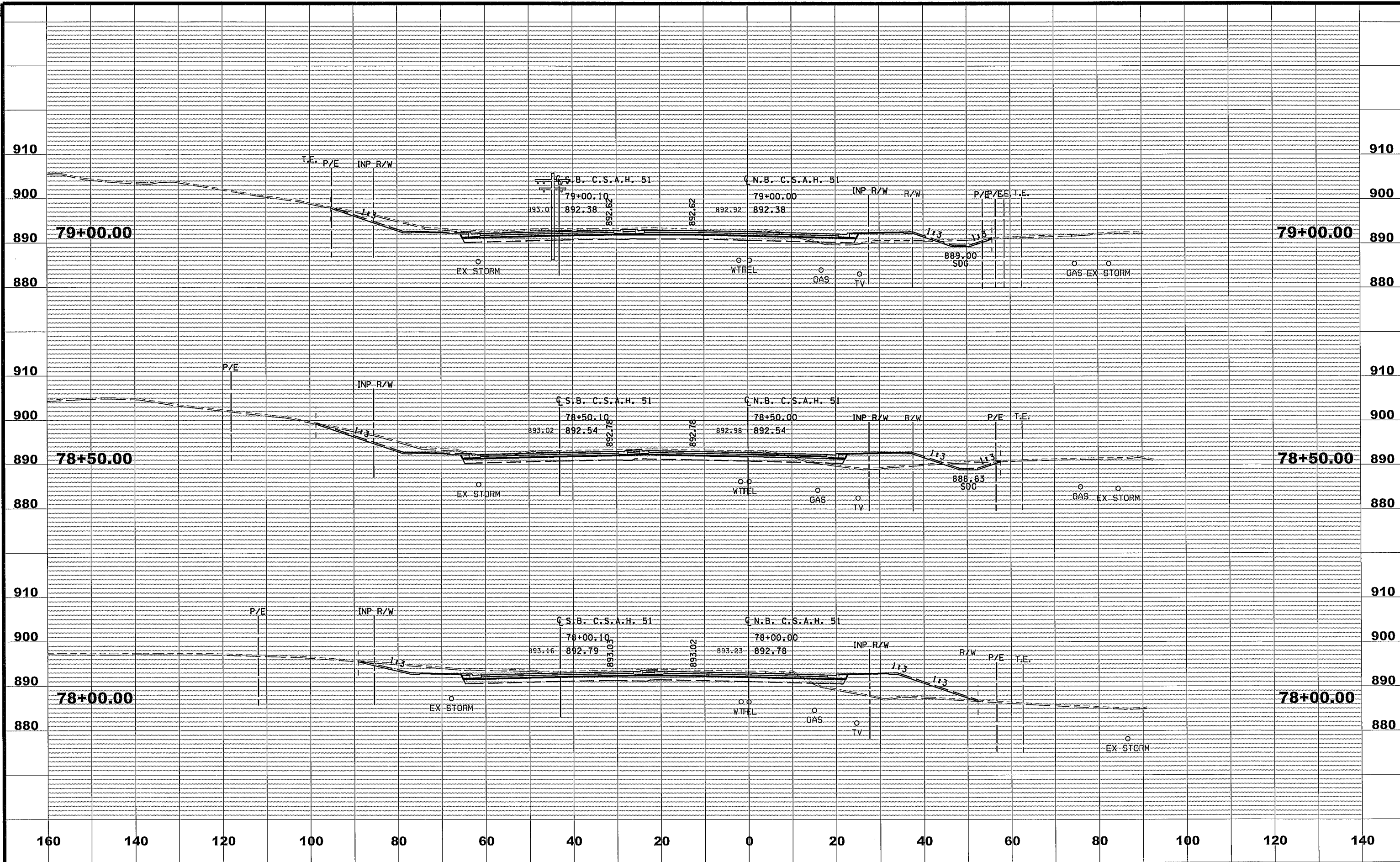
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 DESIGN BY NJD DATE 10-31-13  
 CHECKED BY GMP DATE 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

CROSS SECTIONS  
 STA 75+00.00 TO 76+50.00  
 Sheet 288 of 381 Sheets





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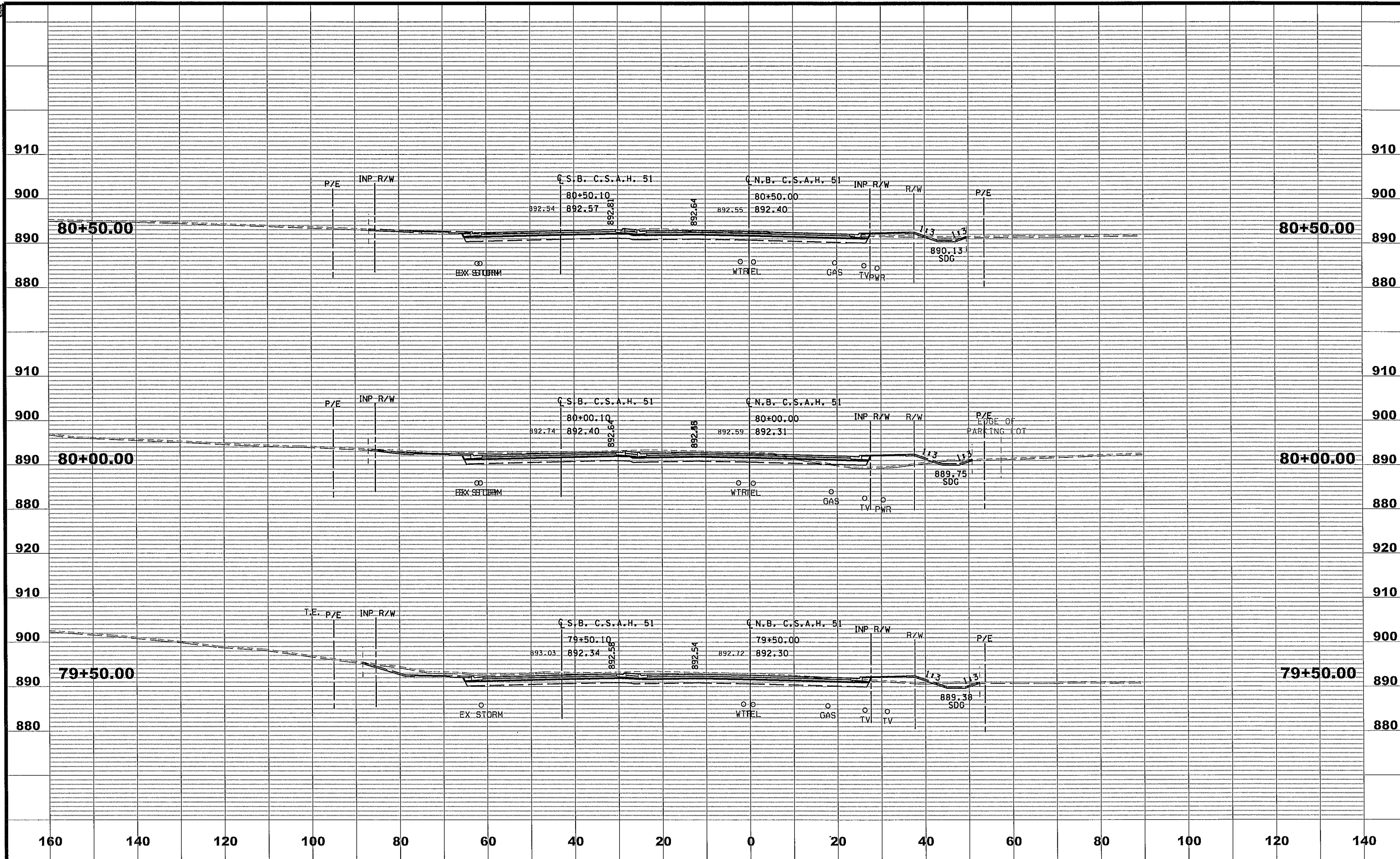
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 DESIGN BY NJD DATE 10-31-13  
 CHECKED BY GMP DATE 12-13-13



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

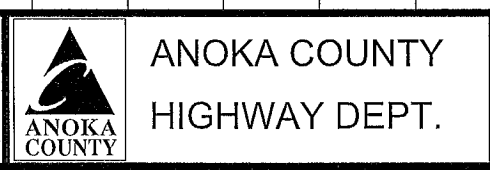
S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

CROSS SECTIONS  
 STA 78+00.00 TO 79+00.00  
 Sheet 289 of 381 Sheets



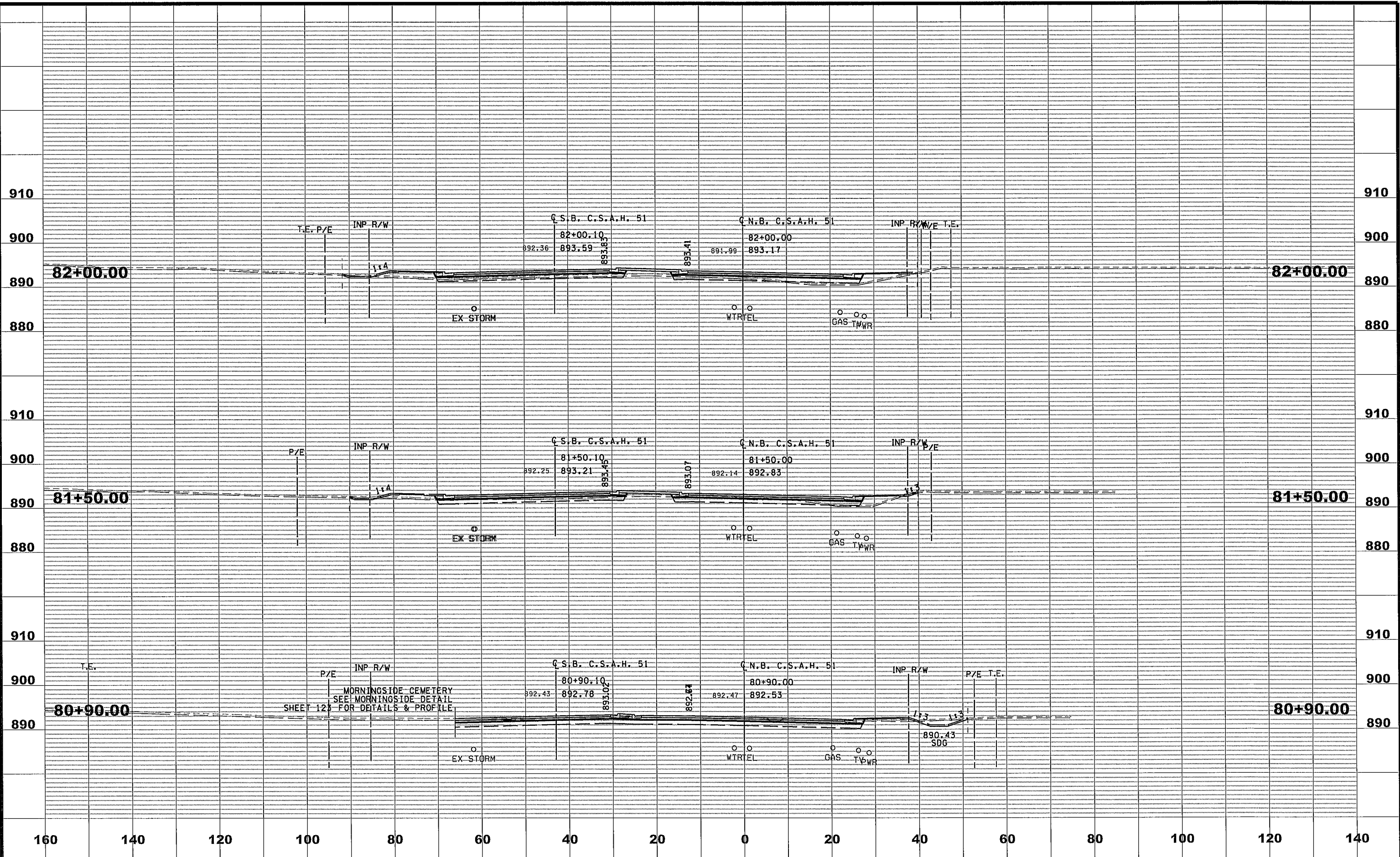
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 CHECKED BY GMP DATE 12-13-13



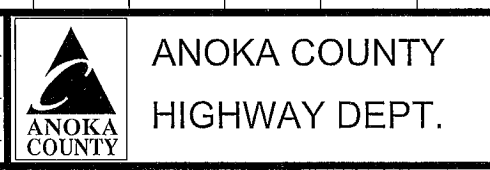
S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

CROSS SECTIONS  
 STA 79+50.00 TO 80+50.00  
 Sheet 290 of 381 Sheets



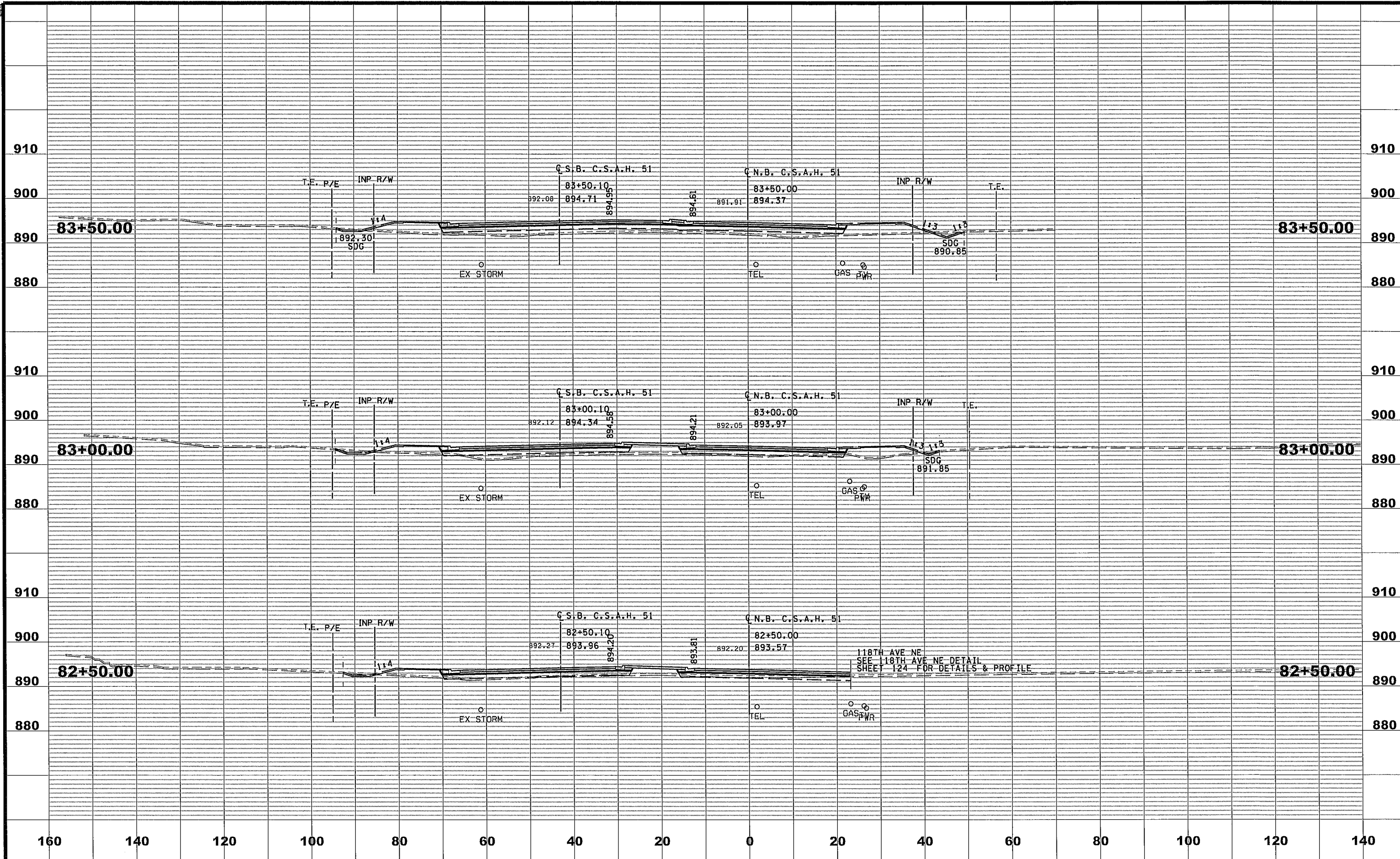
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 CHECKED BY GMP DATE 12-13-13



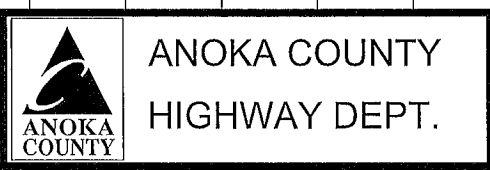
S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

CROSS SECTIONS  
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 Sheet 291 of 381 Sheets



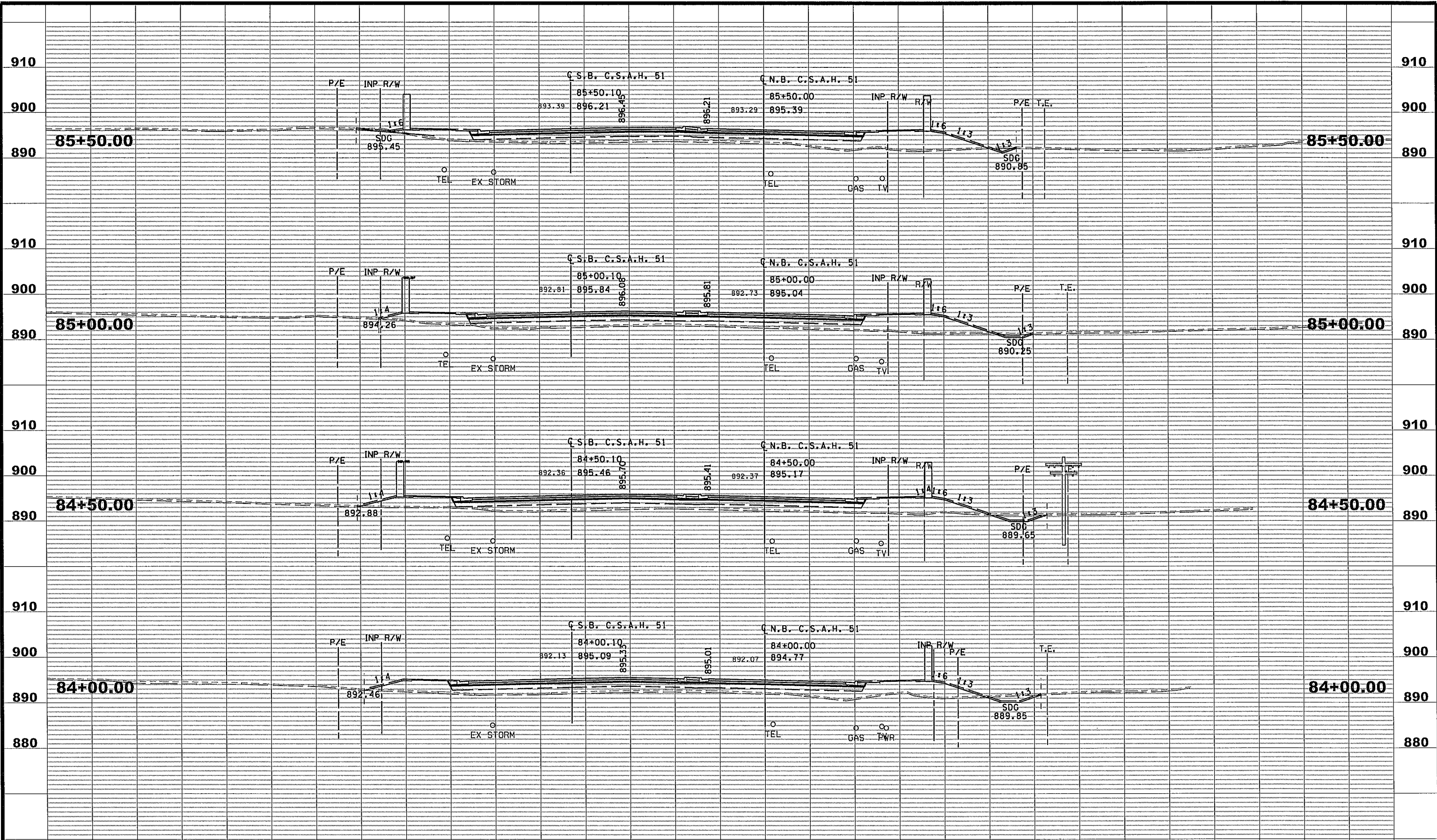
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 CHECKED BY GMP DATE 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

CROSS SECTIONS  
 STA 82+50.00 TO 83+50.00  
 Sheet 292 of 381 Sheets

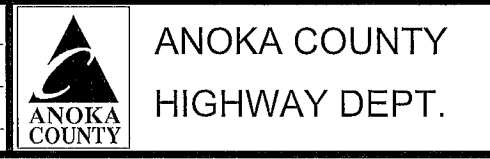


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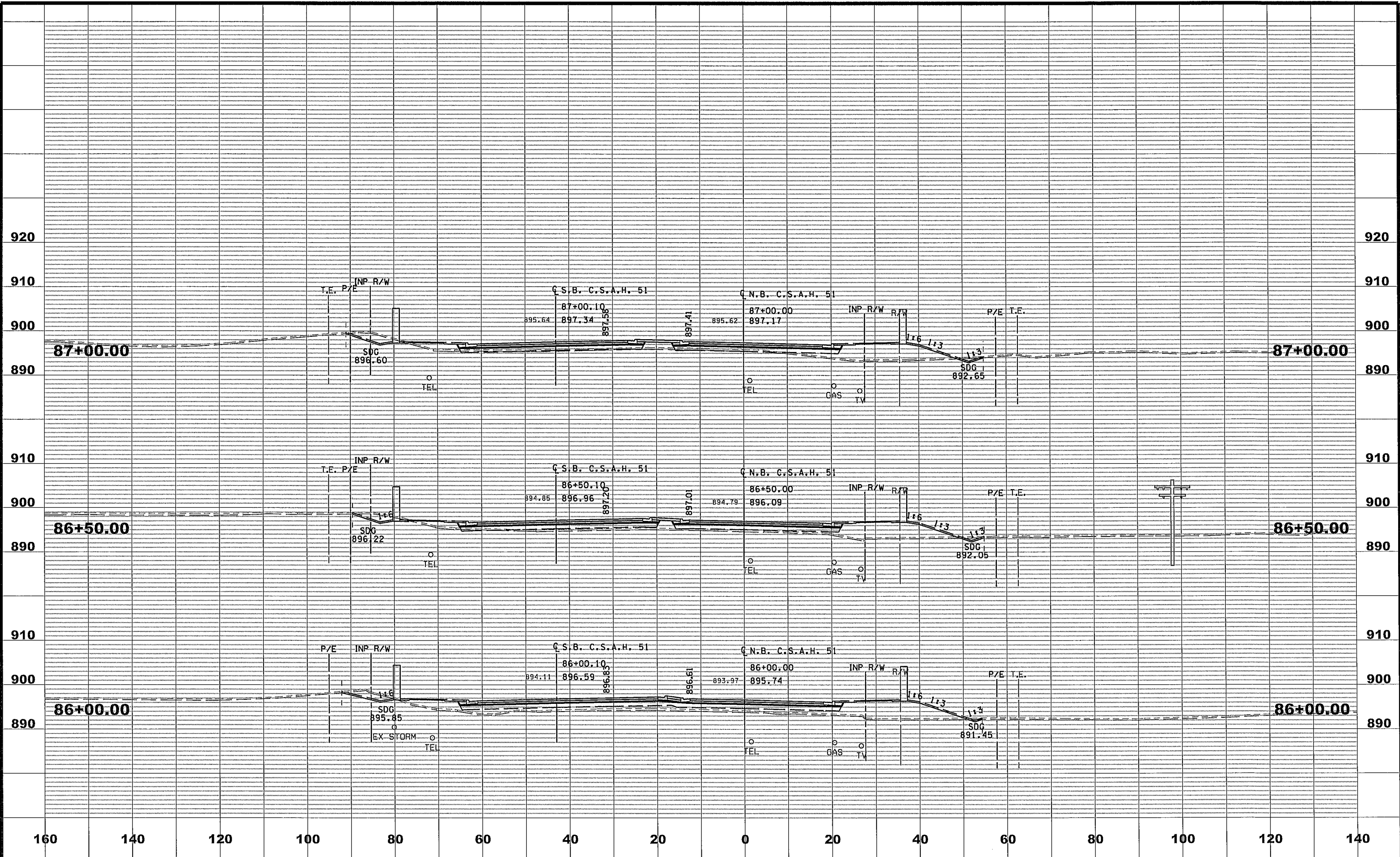
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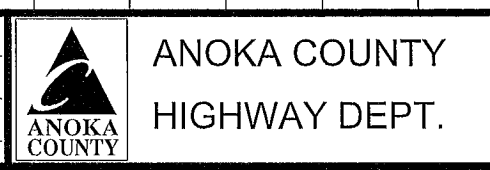
S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

CROSS SECTIONS  
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 Sheet 293 of 381 Sheets



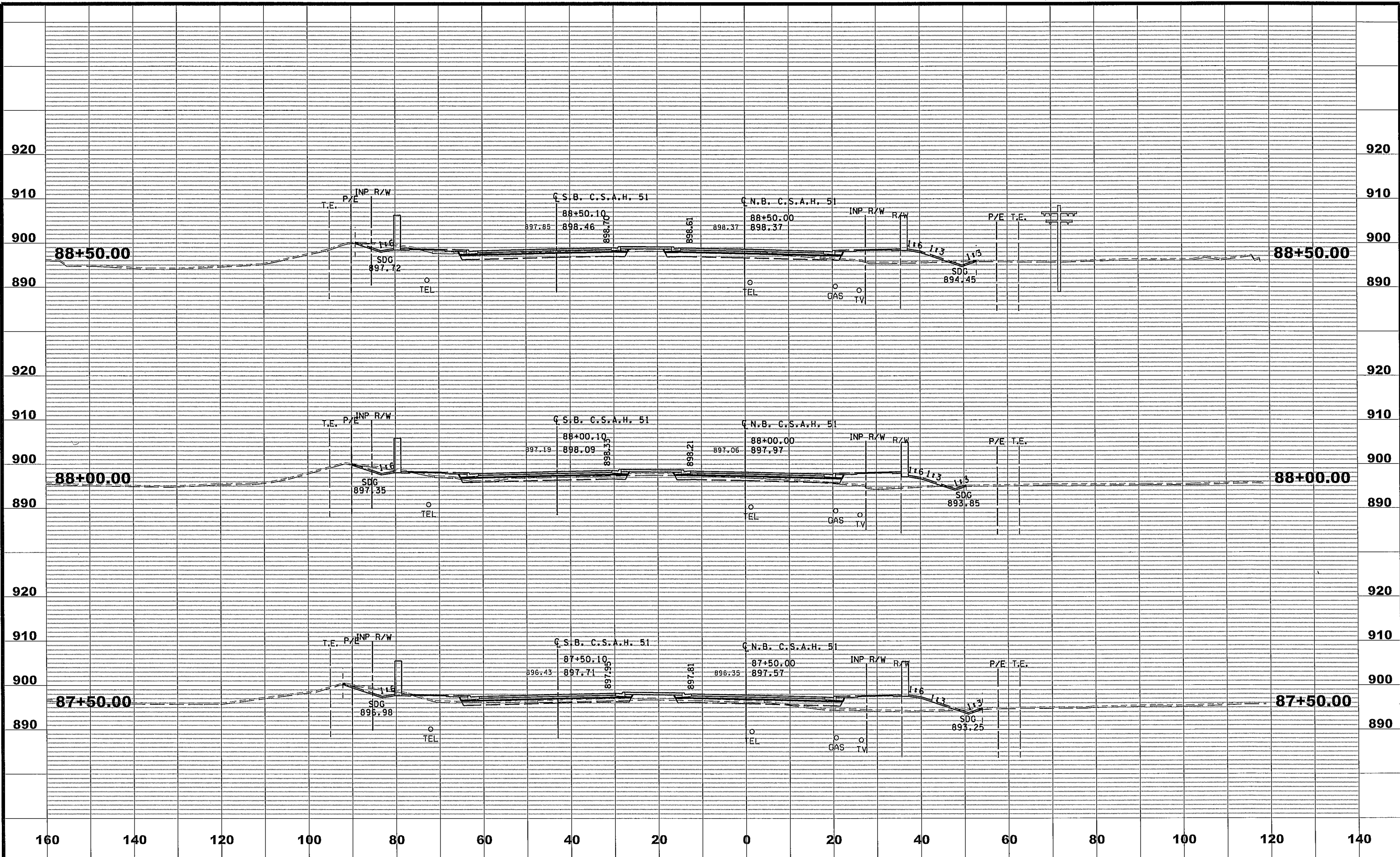
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S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

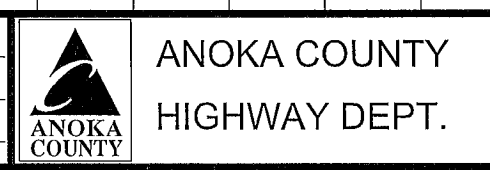
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 Sheet 294 of 381 Sheets



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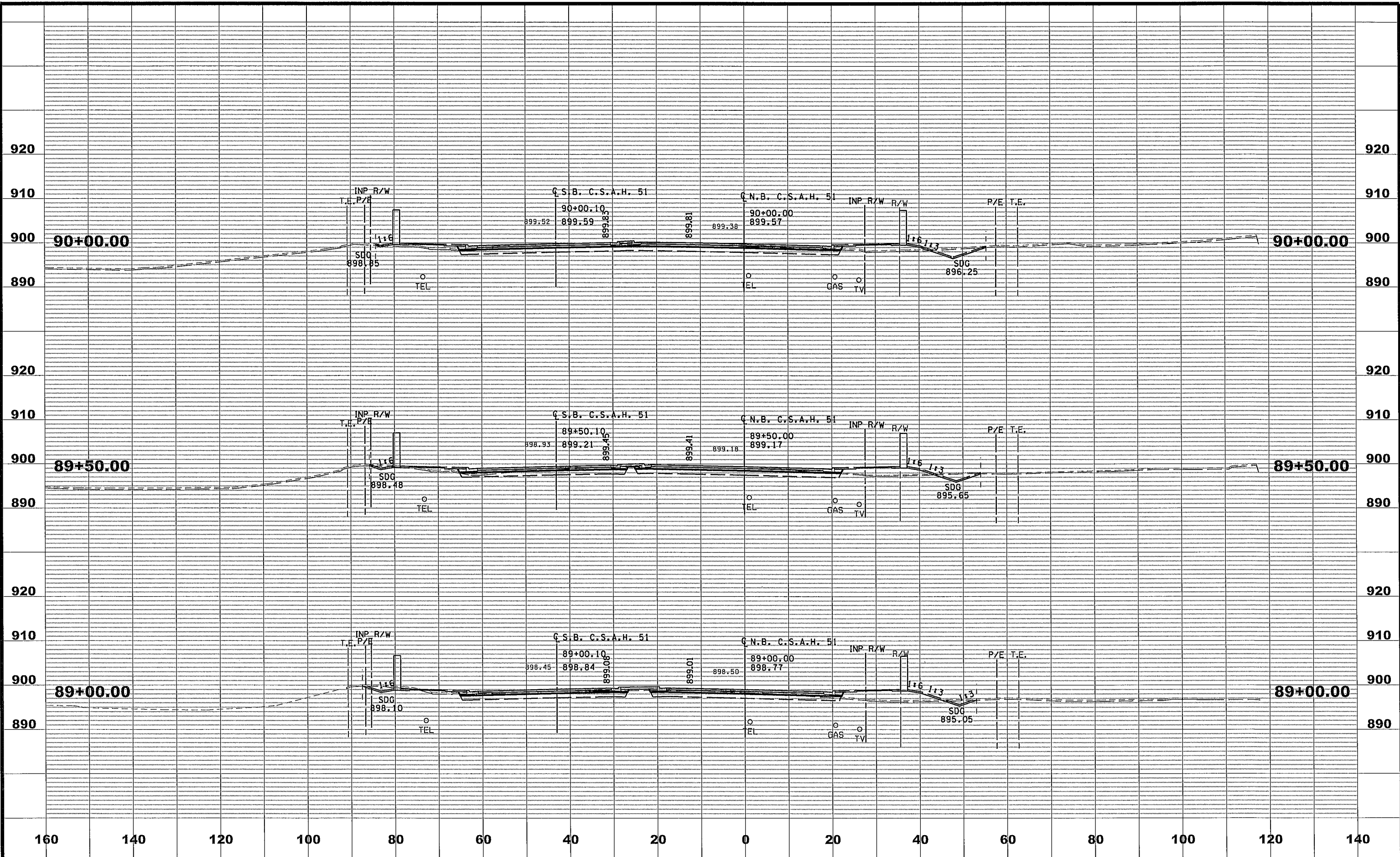
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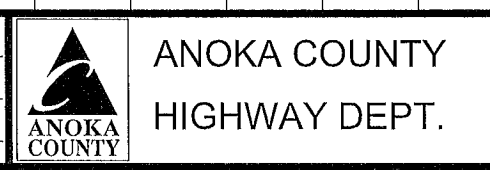
S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046  
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CROSS SECTIONS  
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 Sheet   295   of   381   Sheets



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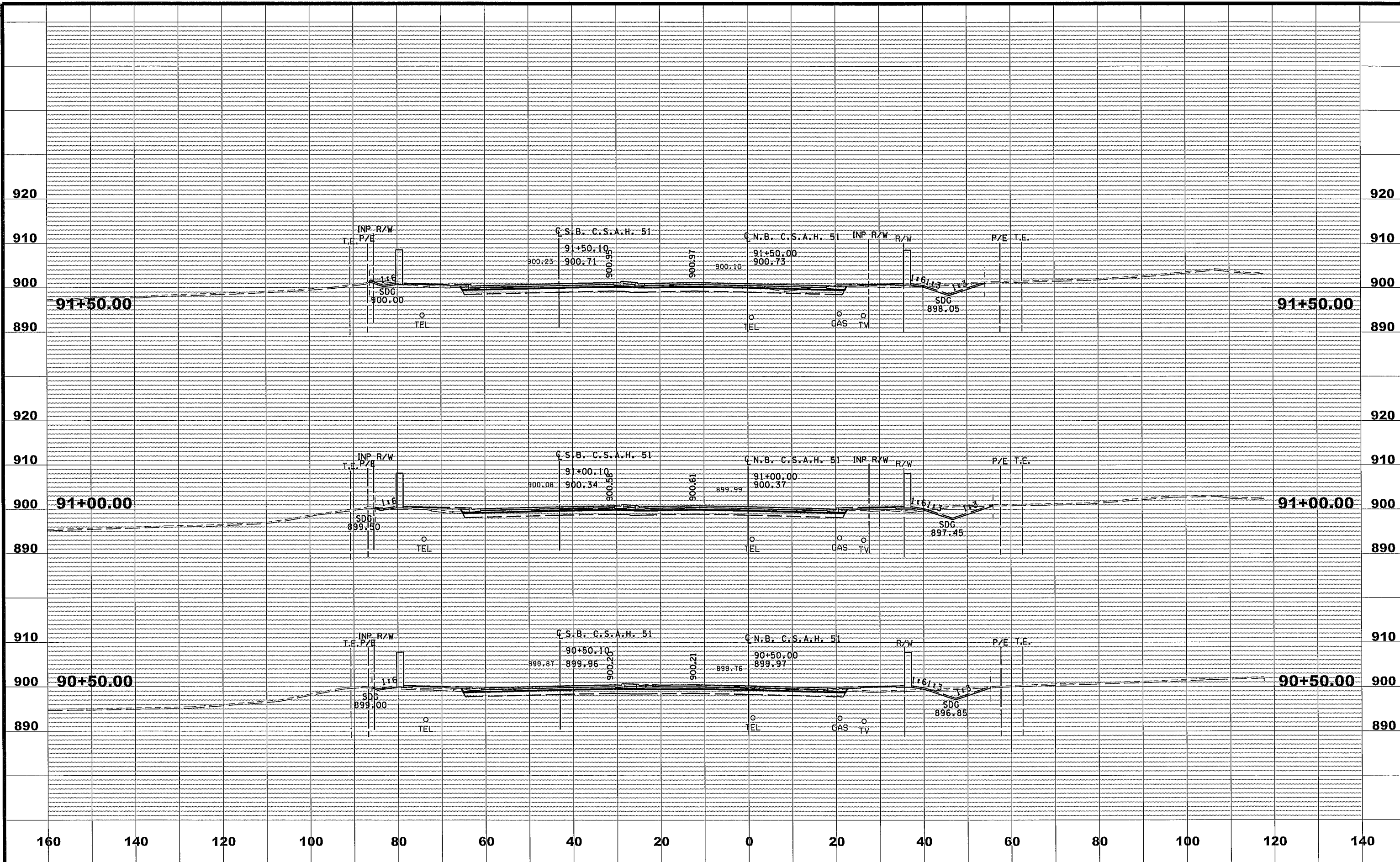
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 DESIGN BY NJD DATE 10-31-13  
 CHECKED BY GMP DATE 12-13-13



S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046  
 -

CROSS SECTIONS  
 STA 89+00.00 TO 90+00.00  
 Sheet 296 of 381 Sheets





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06/05/2014 10:22:46 AM					

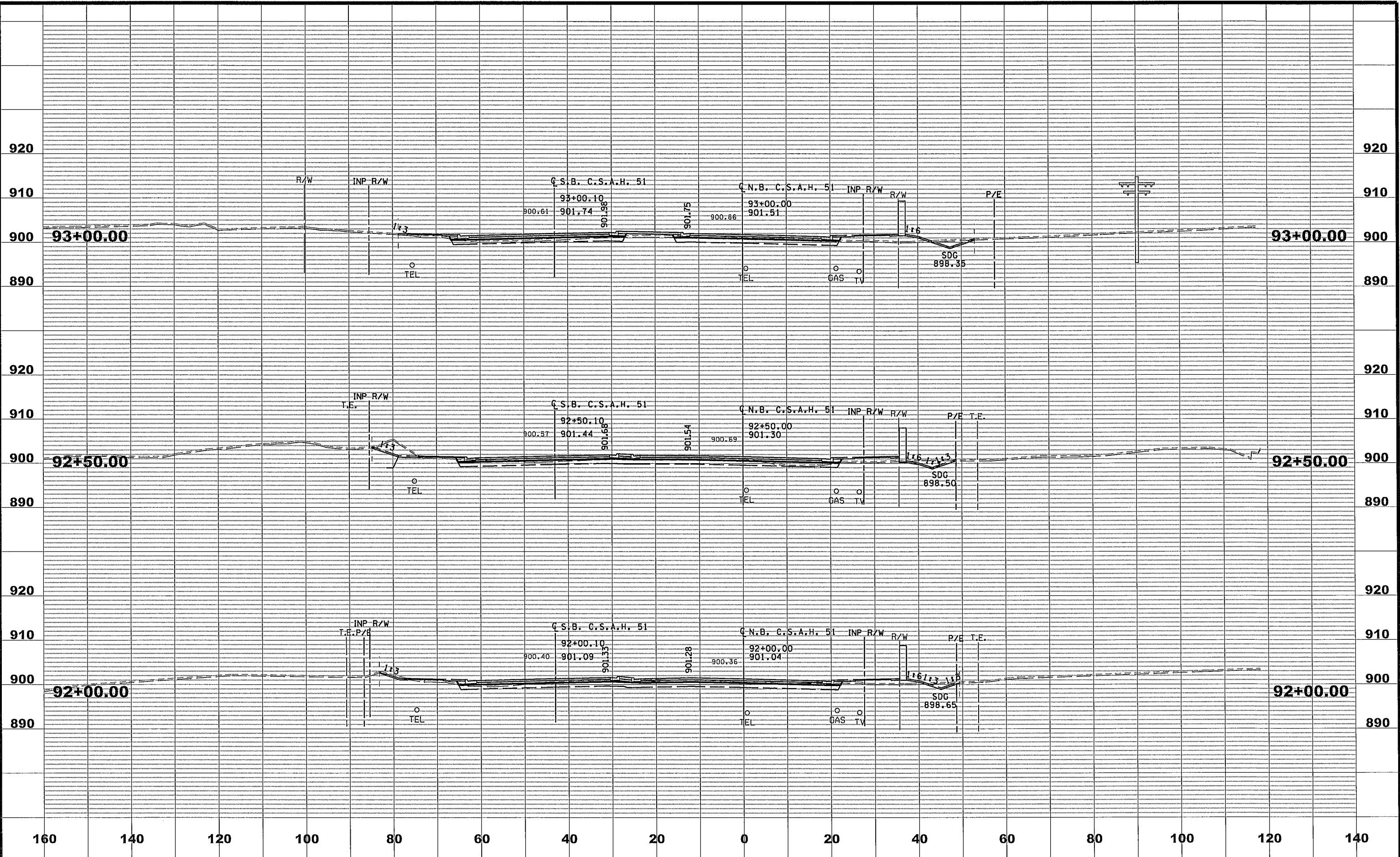
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 DESIGN BY NJD DATE 10-31-13  
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**ANOKA COUNTY**  
**HIGHWAY DEPT.**

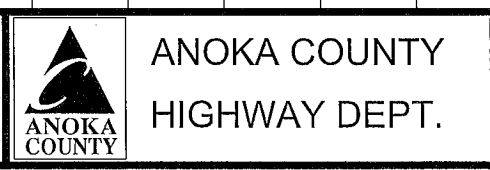
S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

CROSS SECTIONS  
 STA 90+50.00 TO 91+50.00  
 Sheet 297 of 381 Sheets



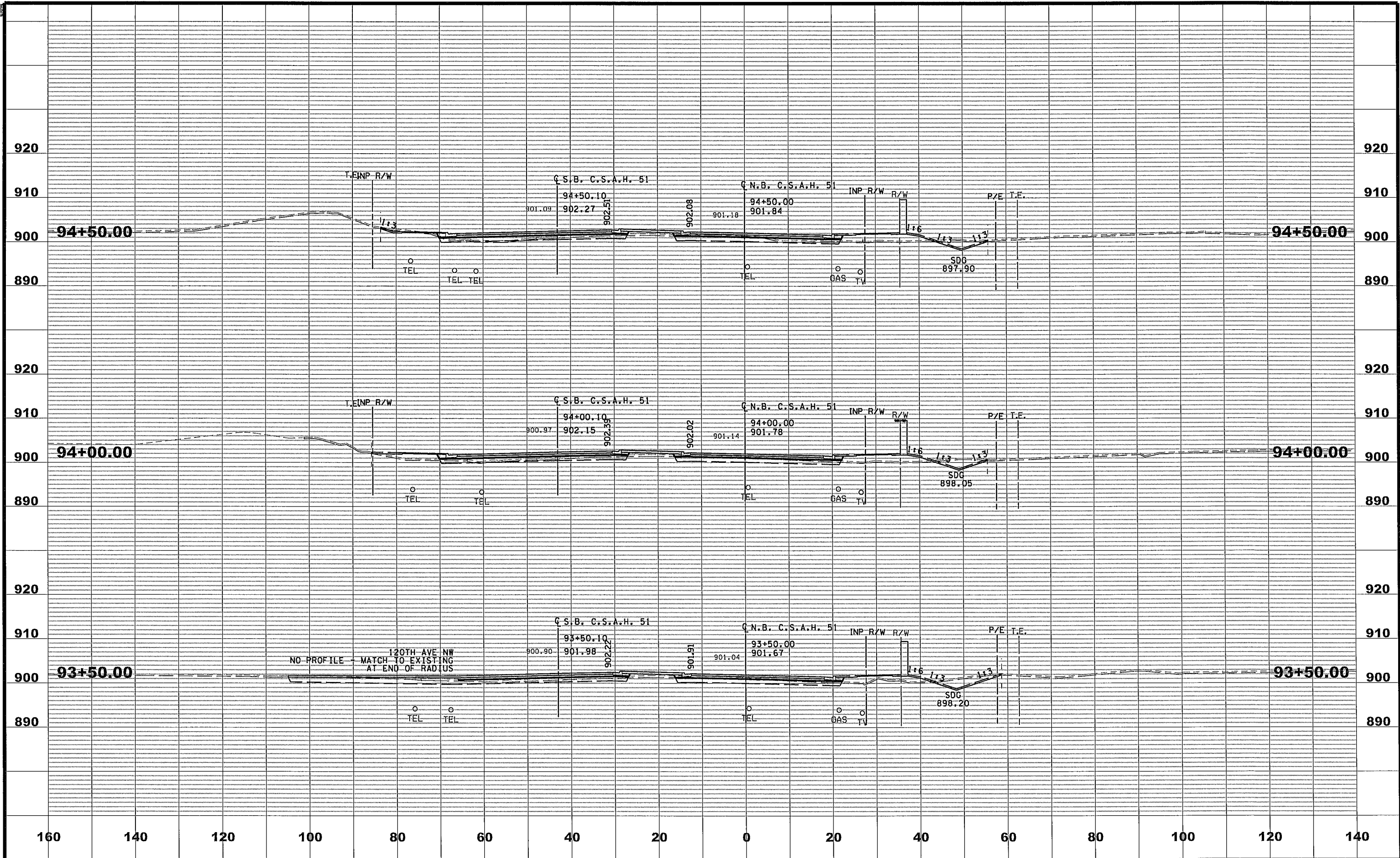
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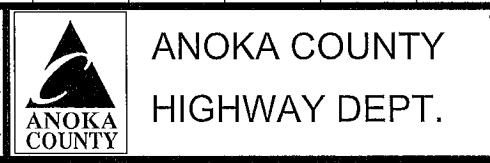
S.P. 002-651-007  
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 S.P. 114-020-046

CROSS SECTIONS  
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 Sheet 298 of 381 Sheets



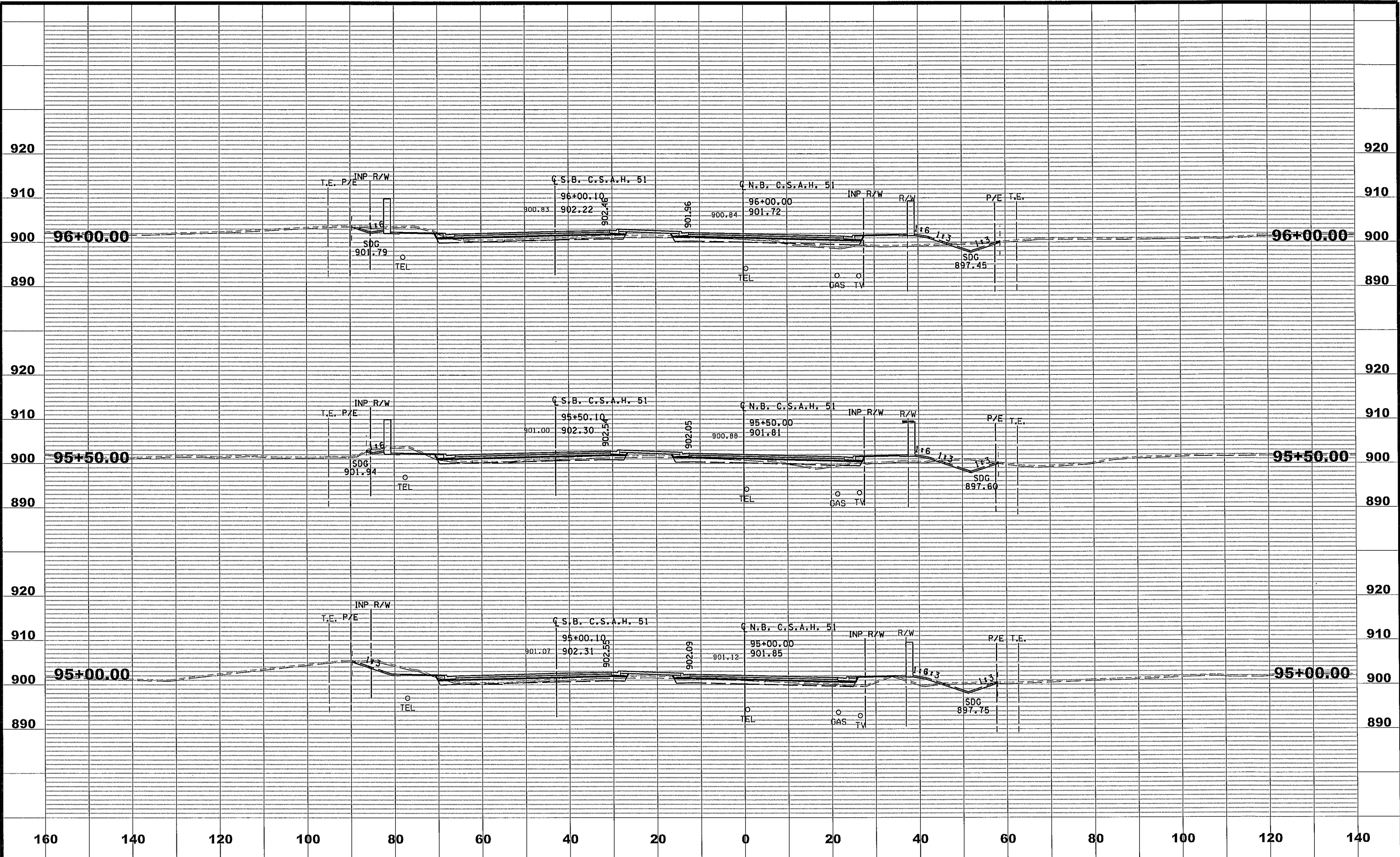
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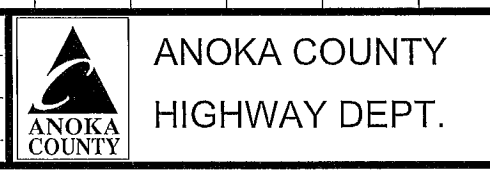
S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

CROSS SECTIONS  
 STA 93+50.00 TO 94+50.00  
 Sheet 299 of 381 Sheets



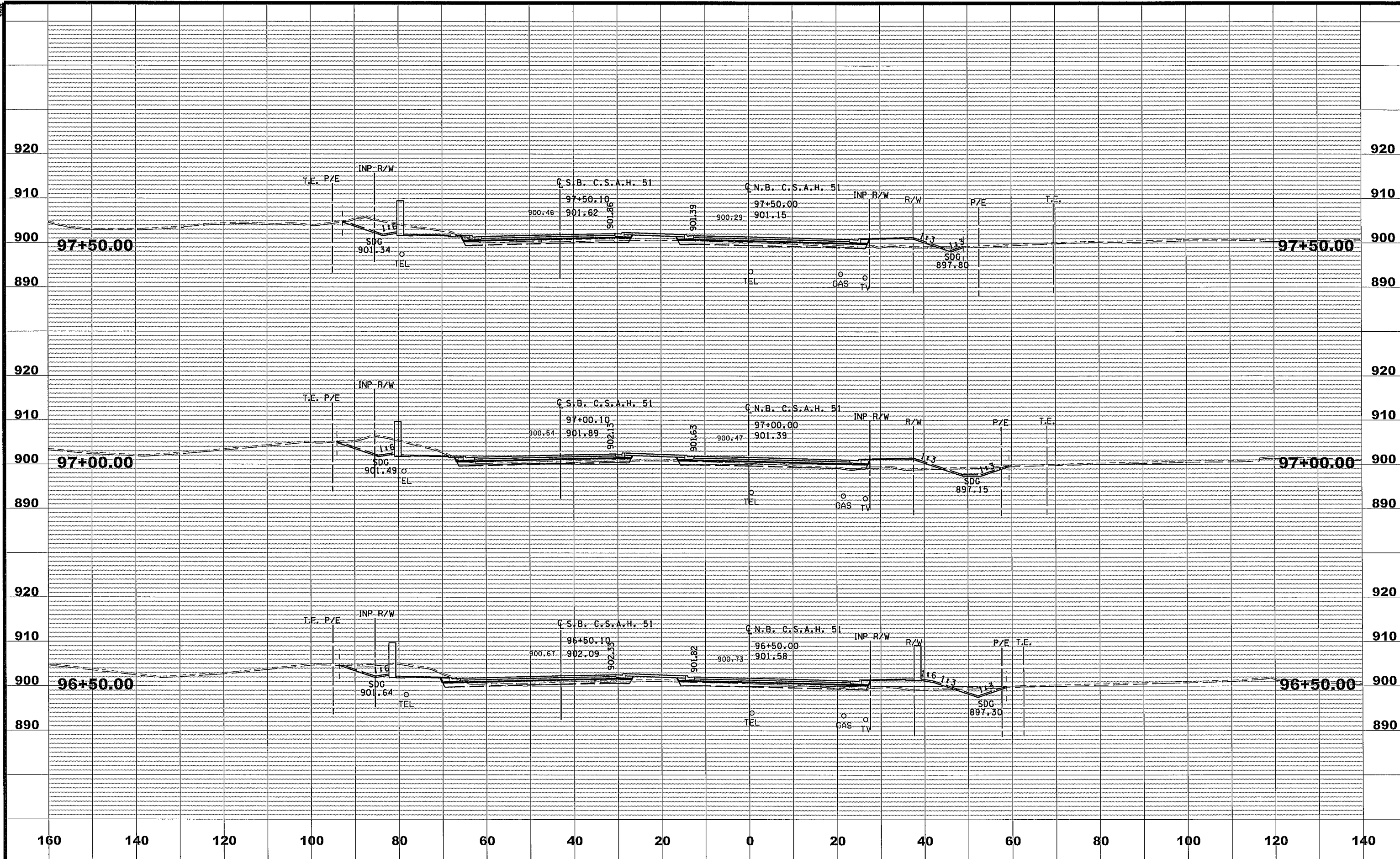
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S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

CROSS SECTIONS  
 STA 95+00.00 TO 96+00.00  
 Sheet 300 of 381 Sheets



NO	DATE	BY	CKD	APPR	REVISION
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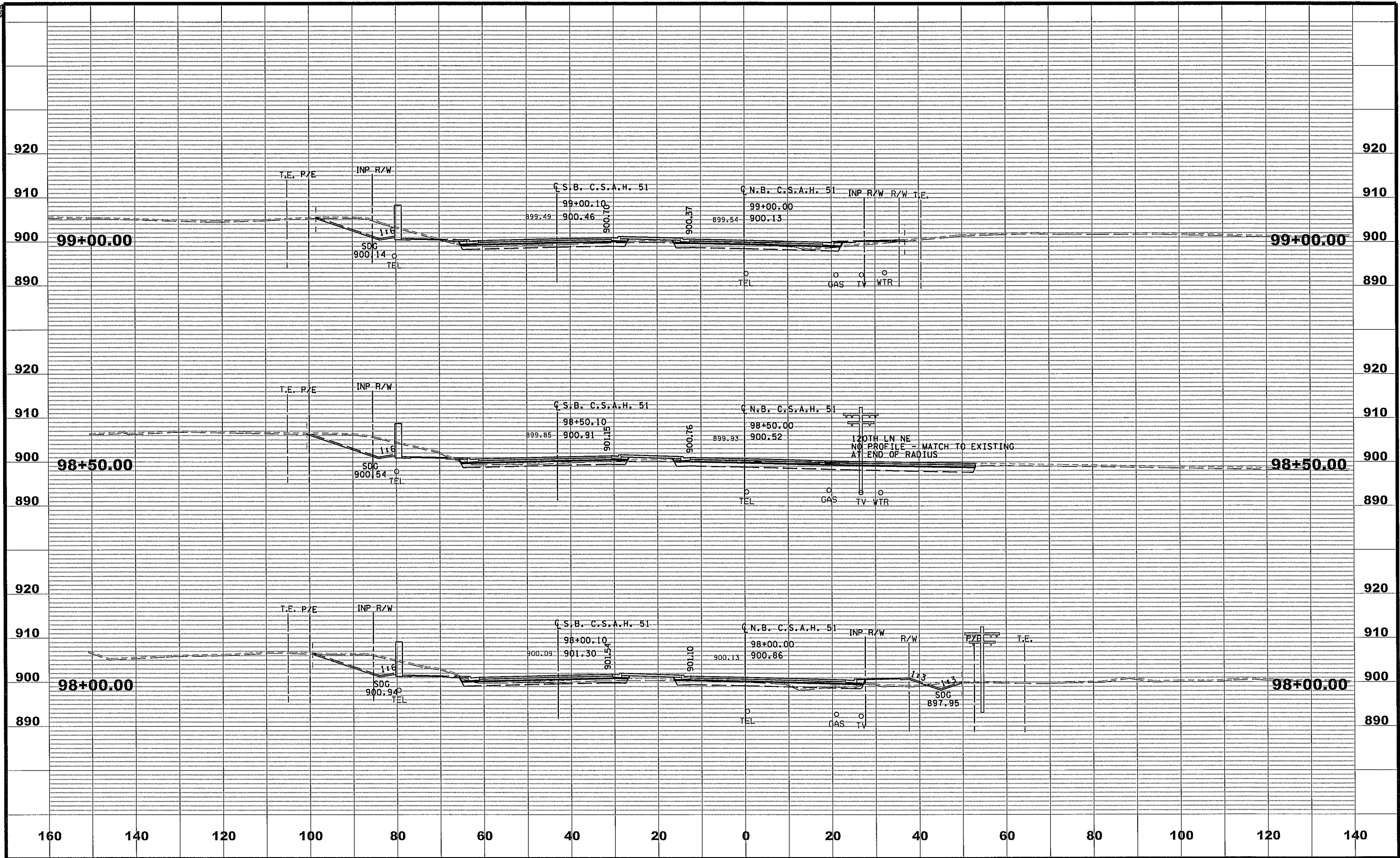
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 CHECKED BY GMP DATE 12-13-13



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

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

CROSS SECTIONS  
 STA 96+50.00 TO 97+50.00  
 Sheet 301 of 381 Sheets



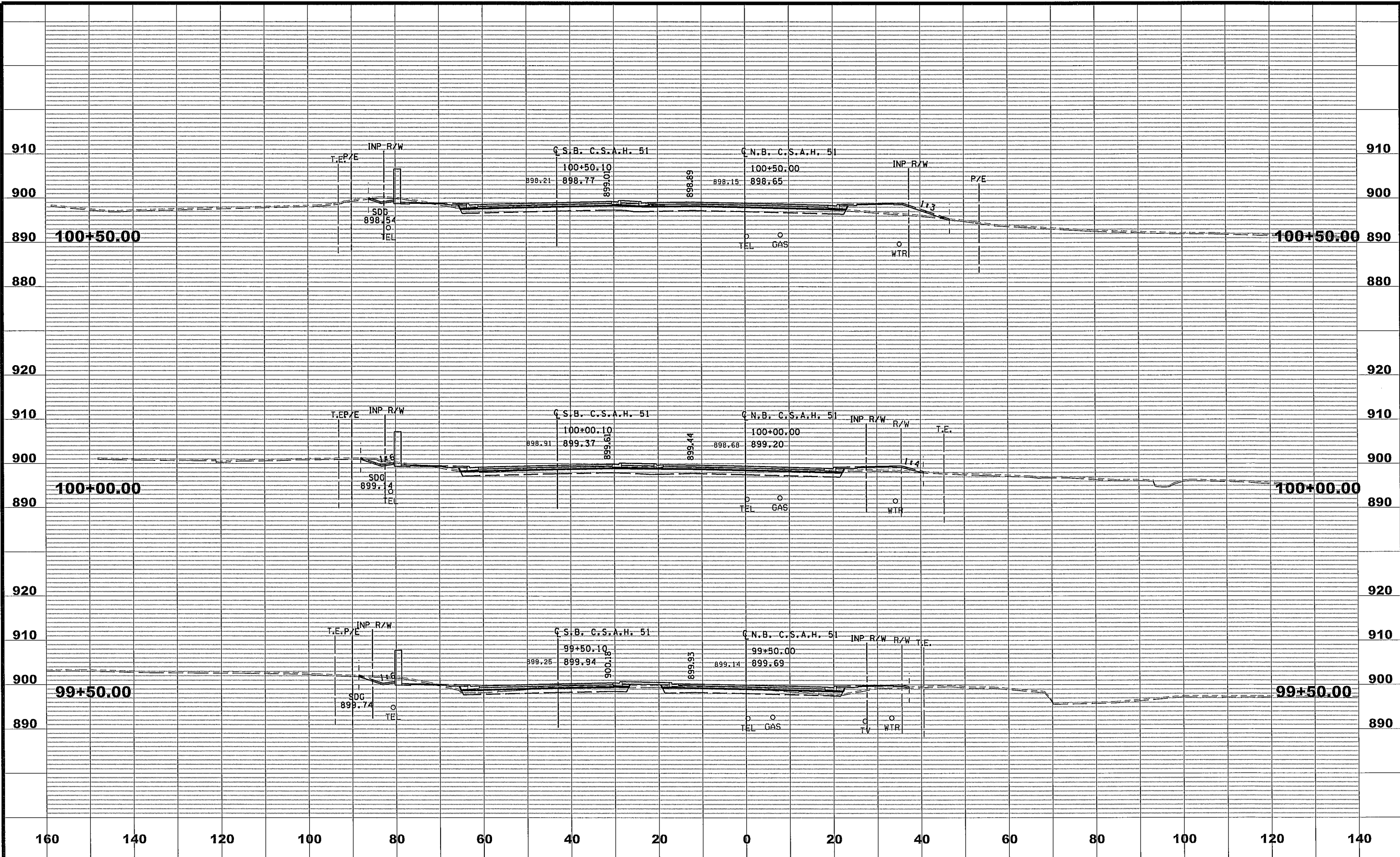
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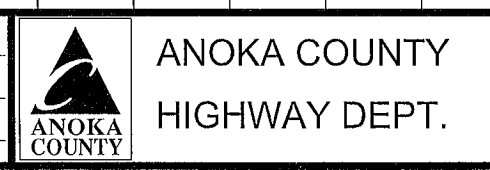
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 Sheet 302 of 381 Sheets



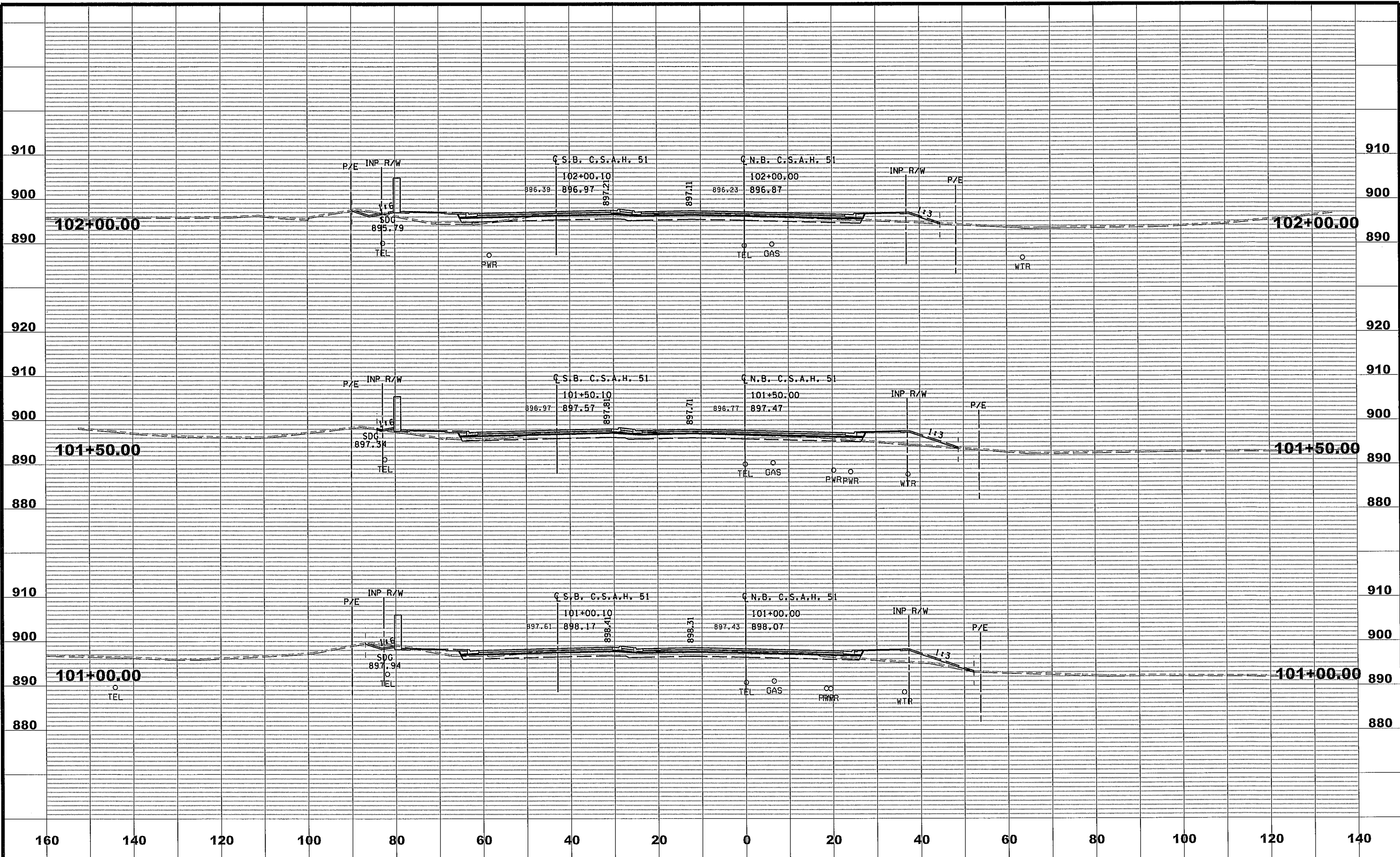
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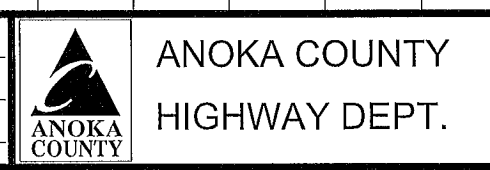
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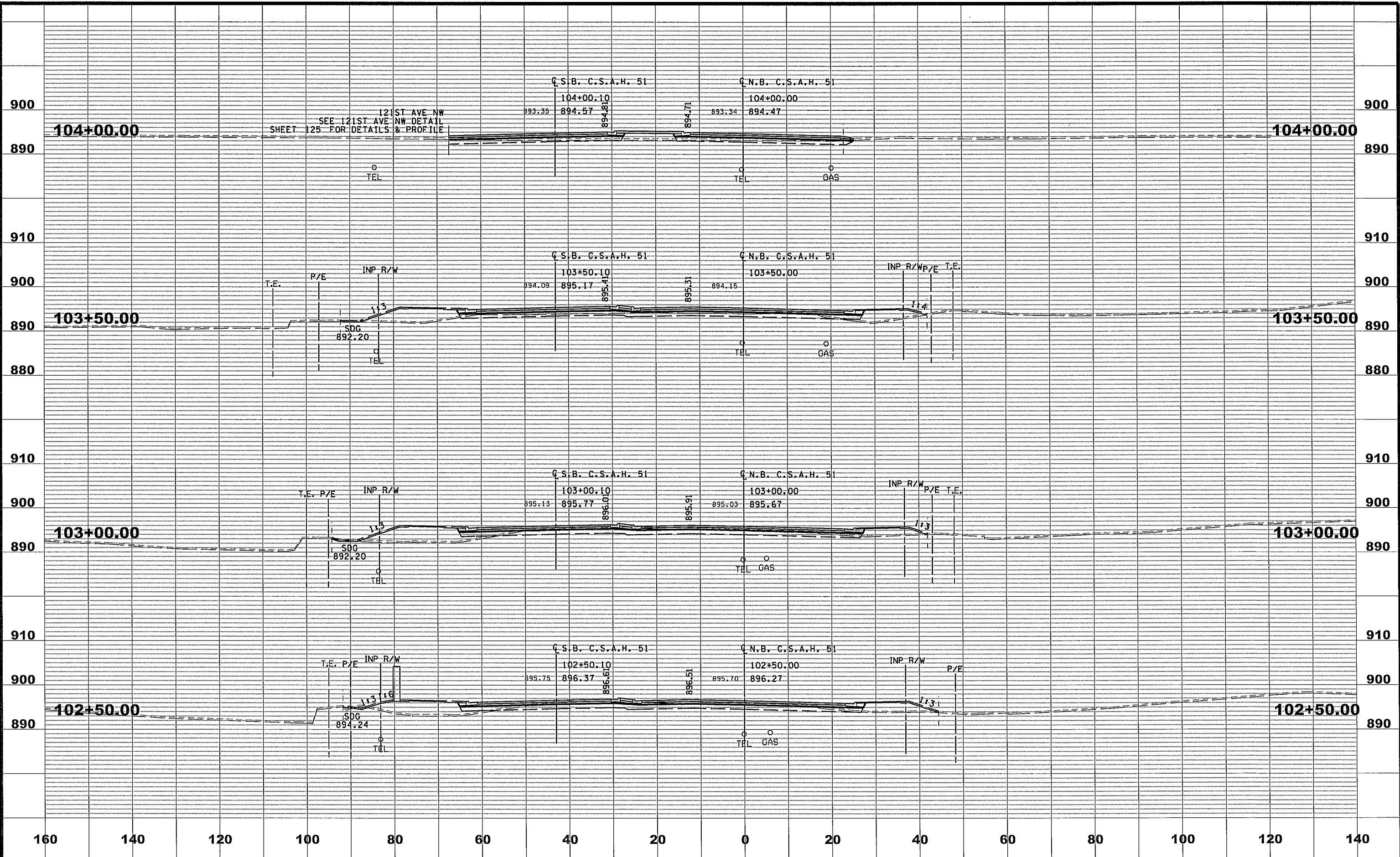
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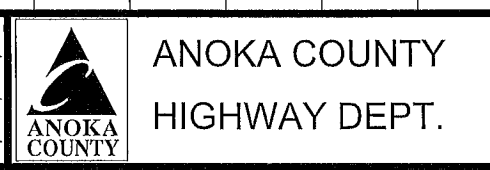
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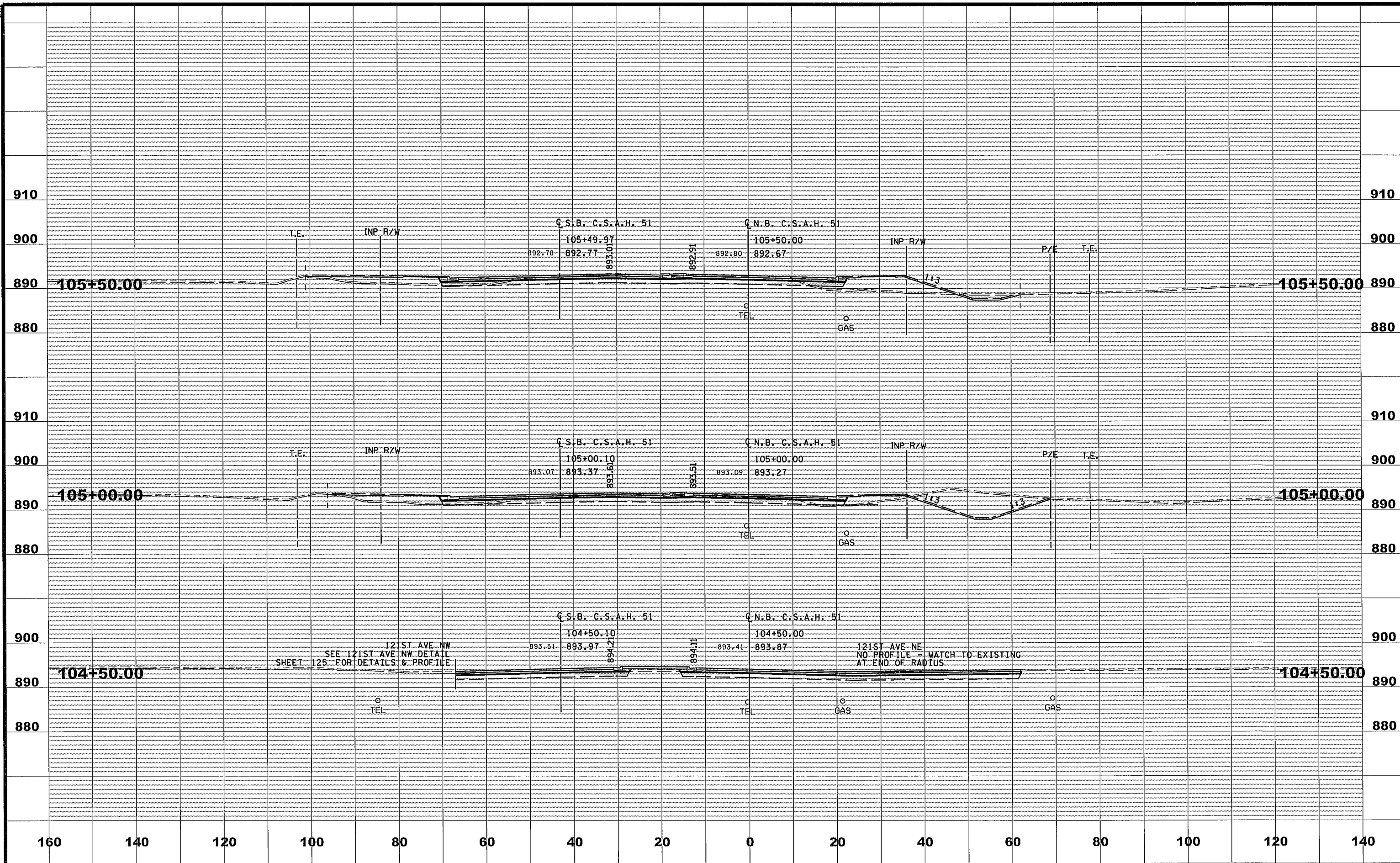
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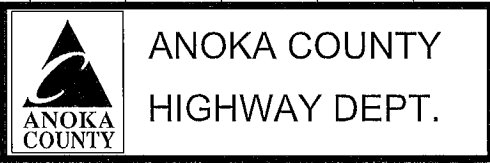
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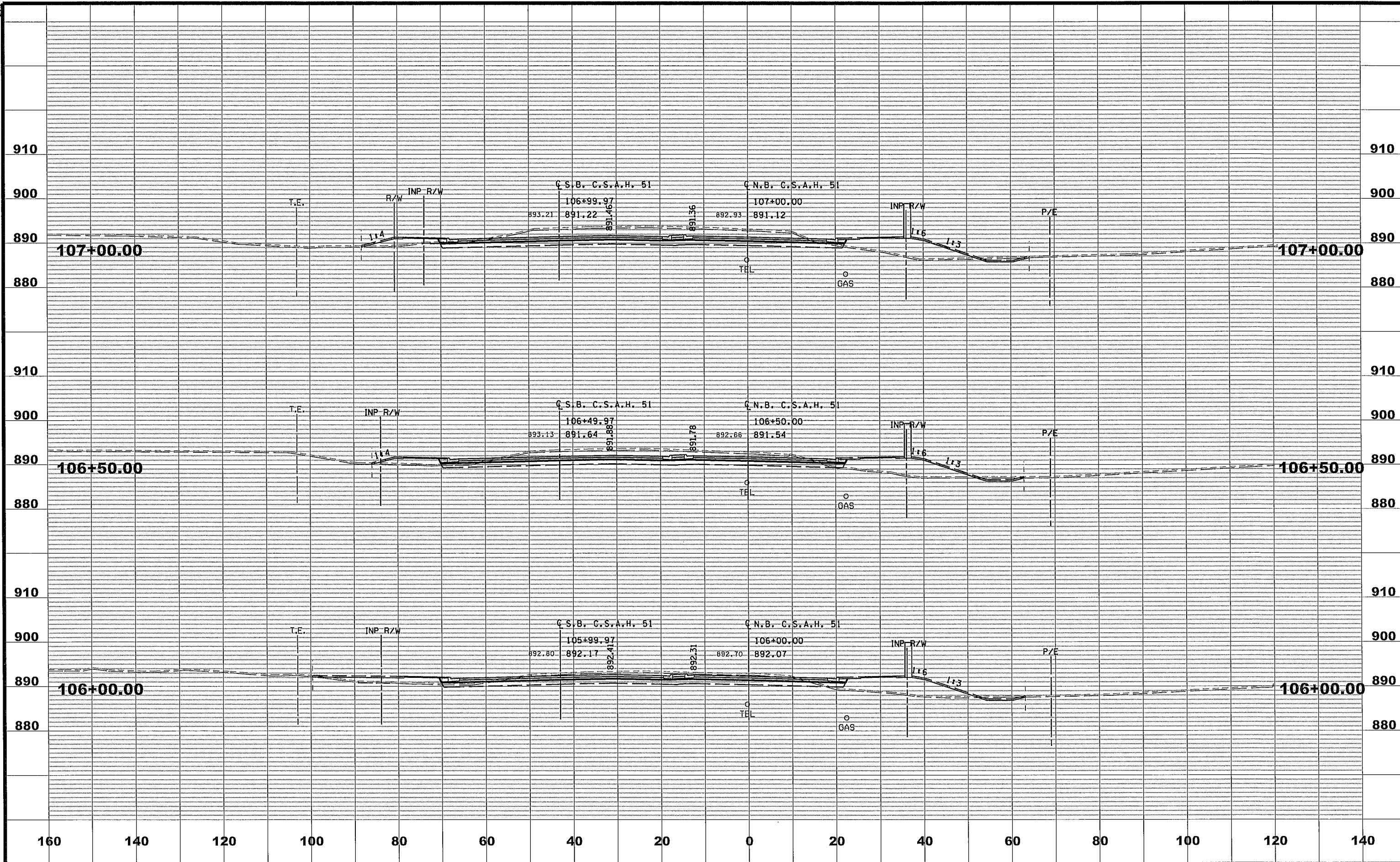
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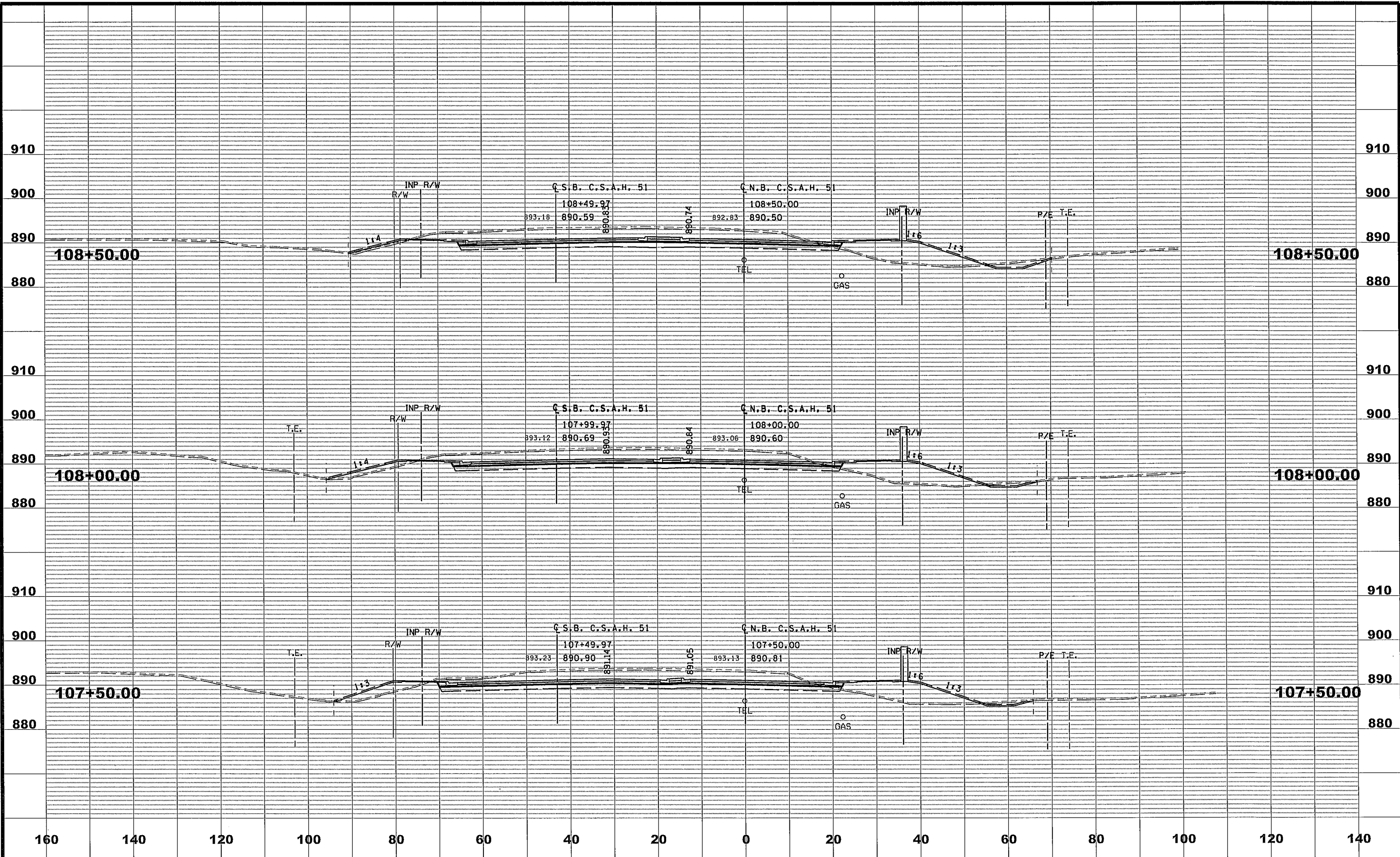
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**ANOKA COUNTY  
HIGHWAY DEPT.**

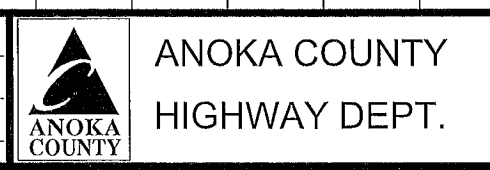
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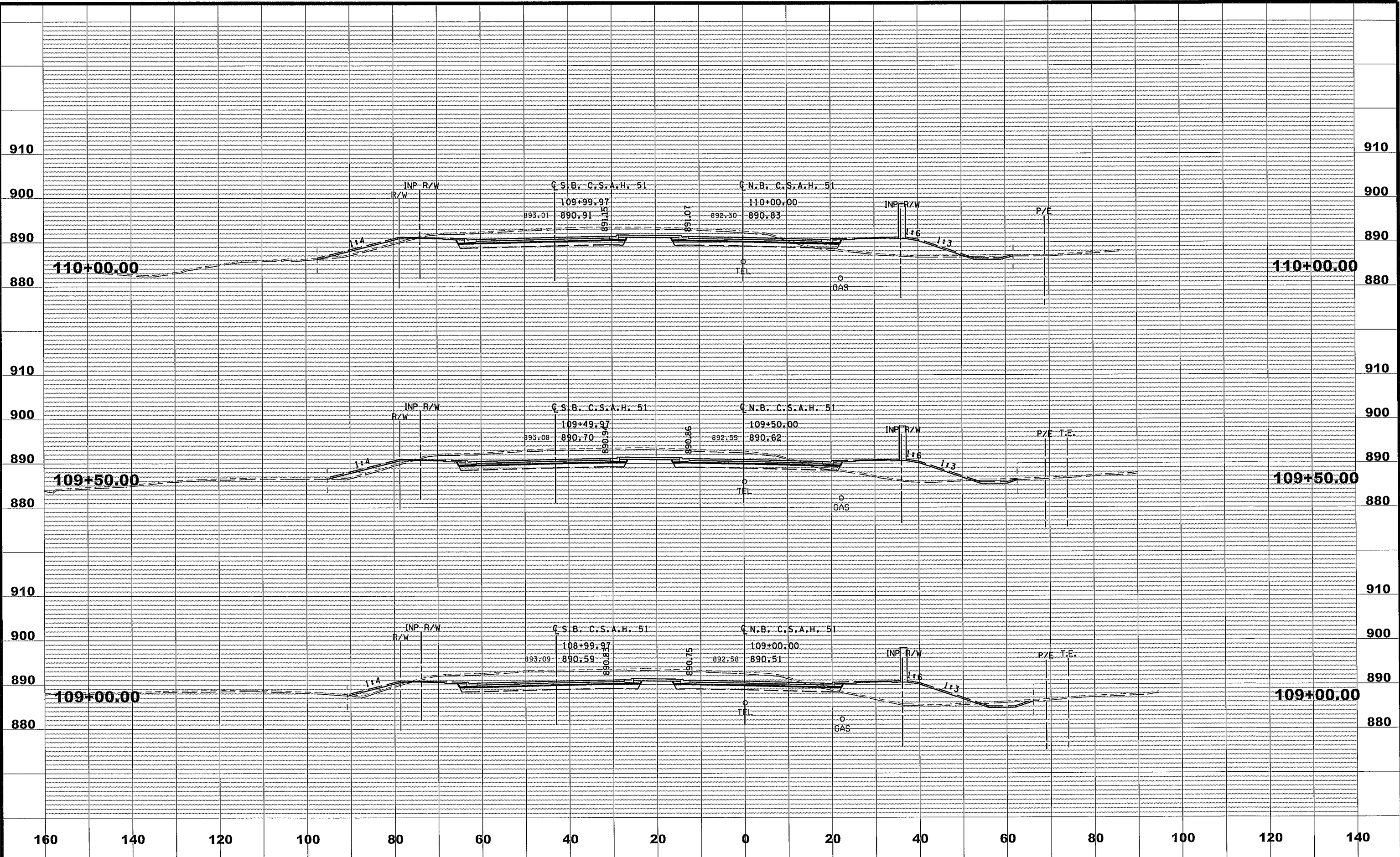
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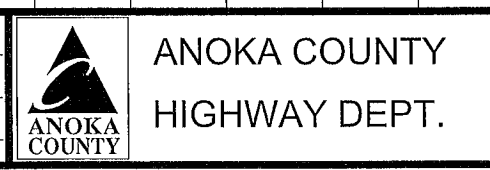
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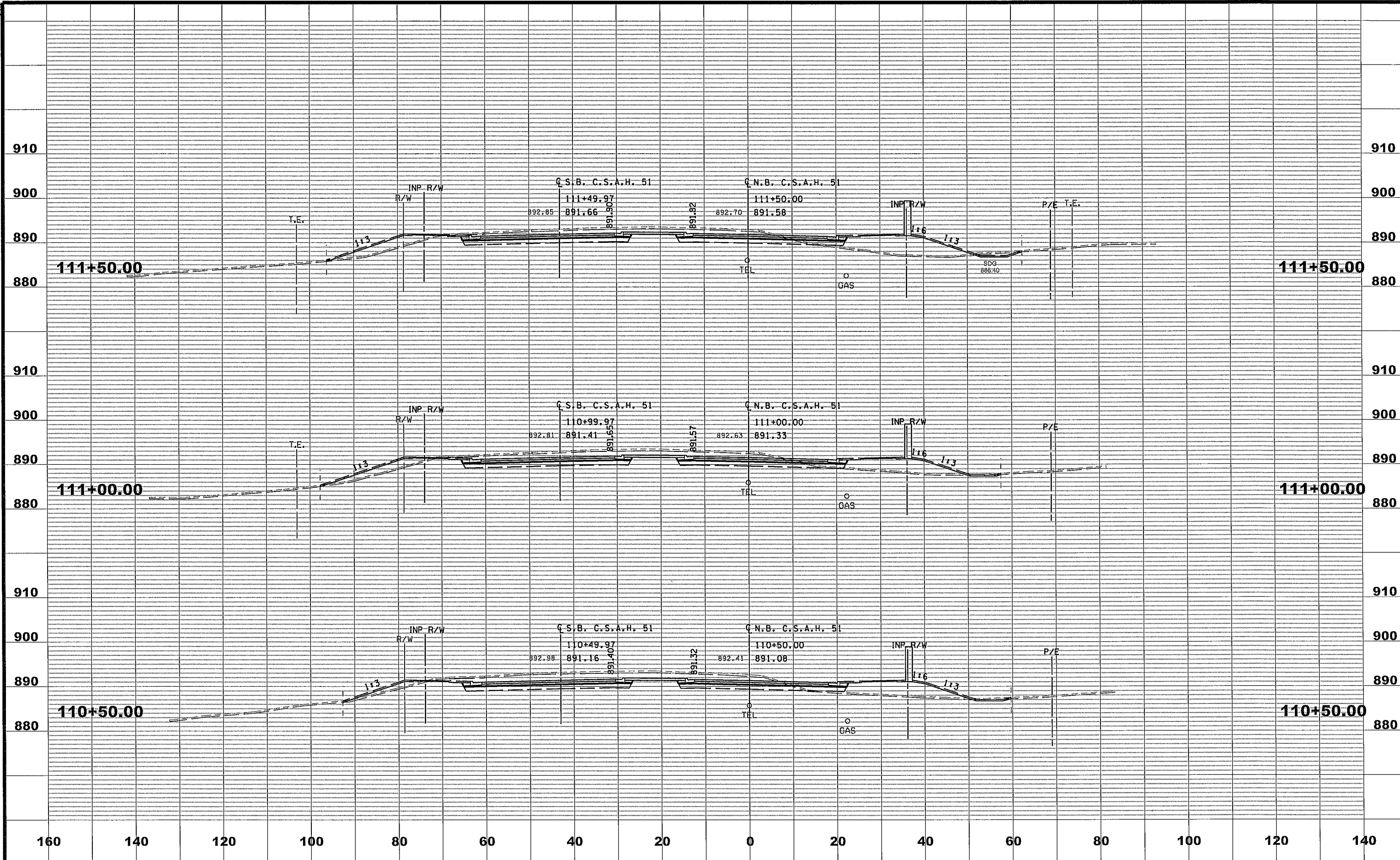
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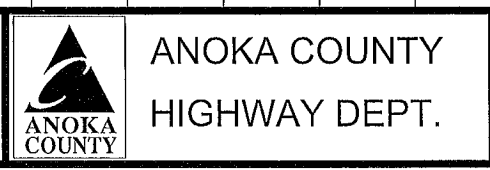
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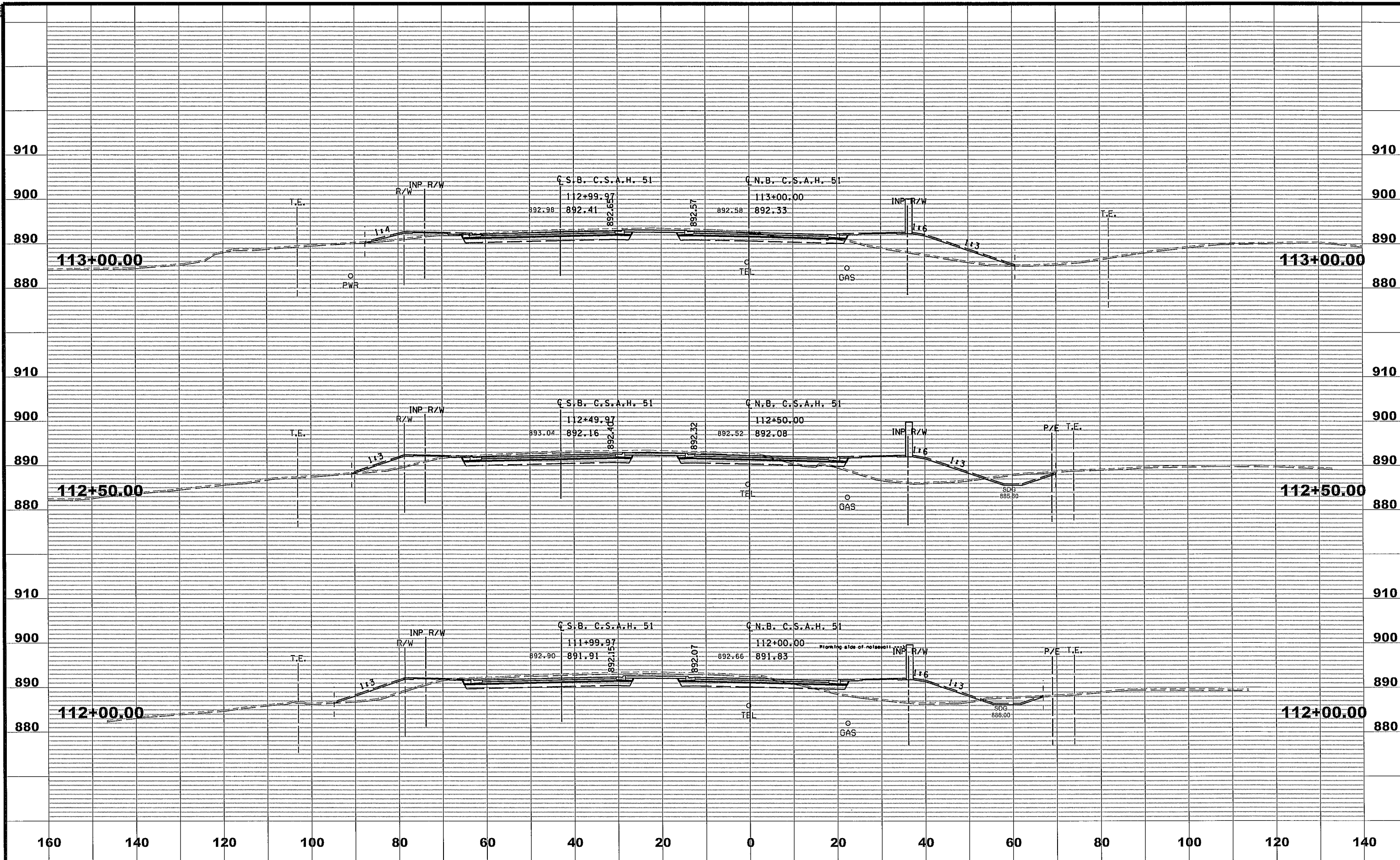
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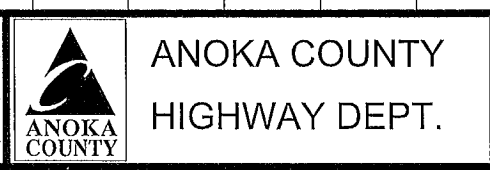
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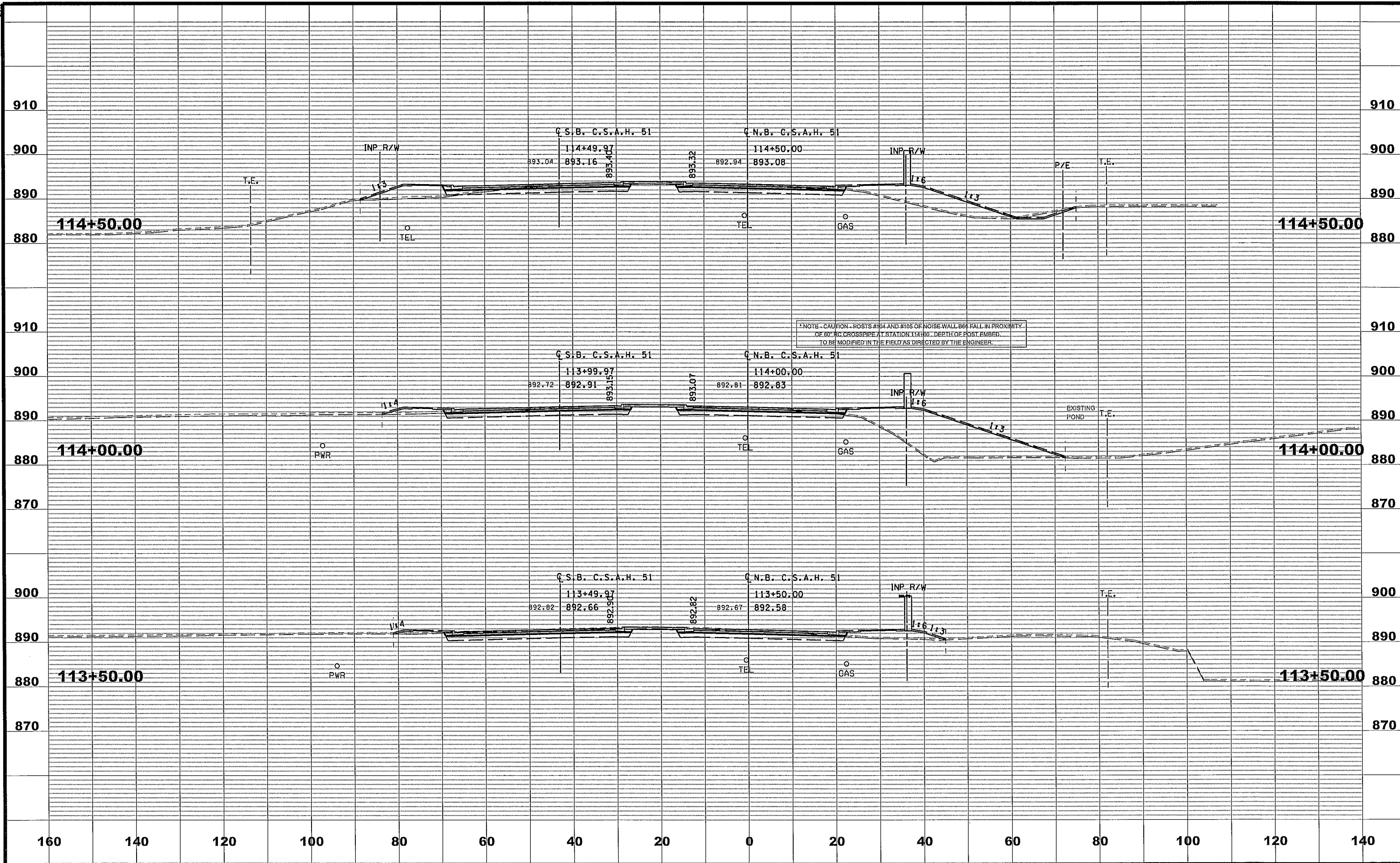
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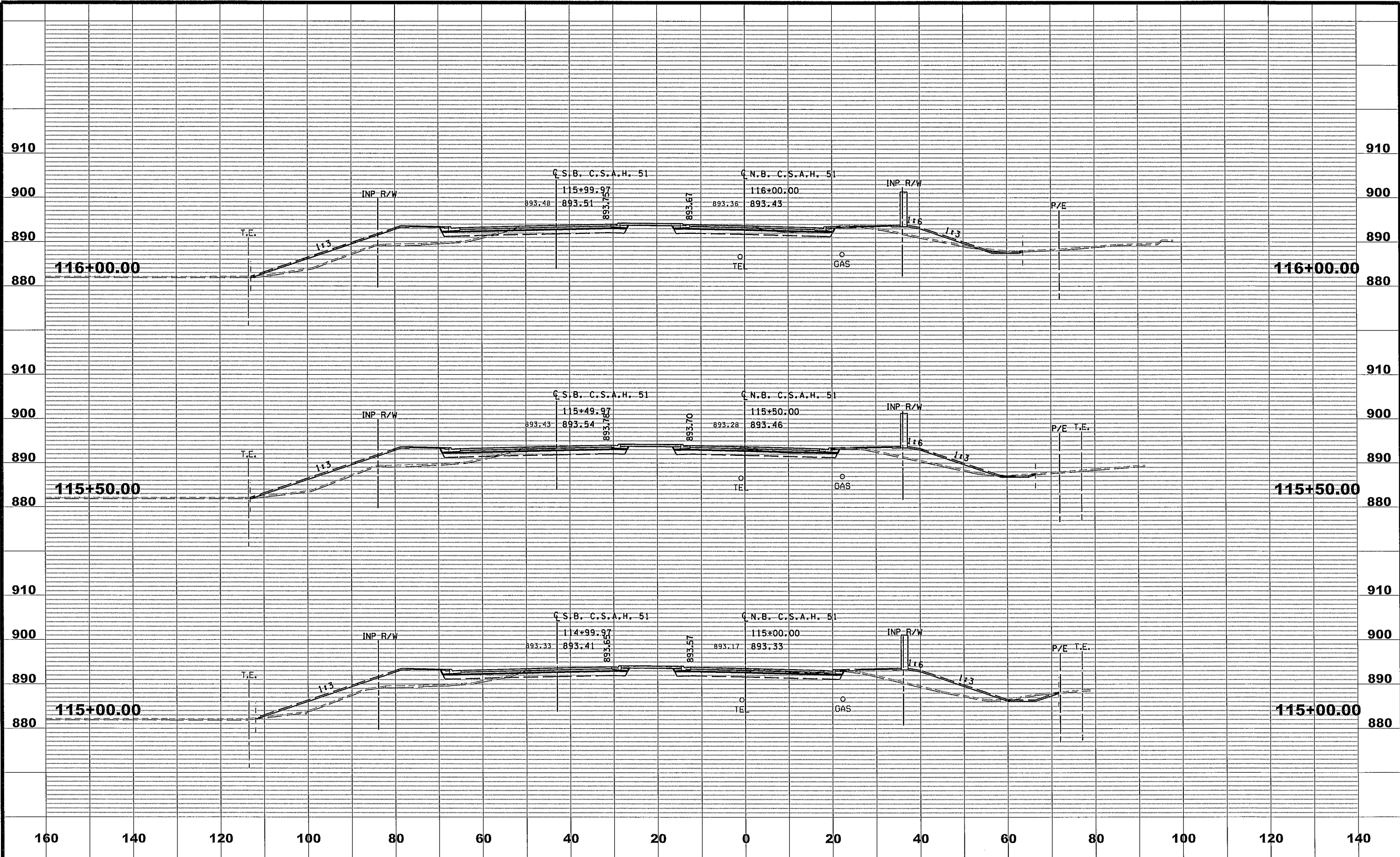
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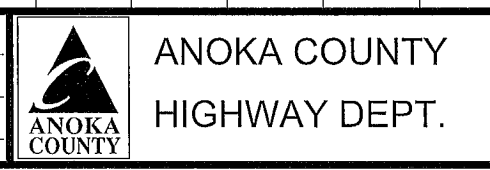
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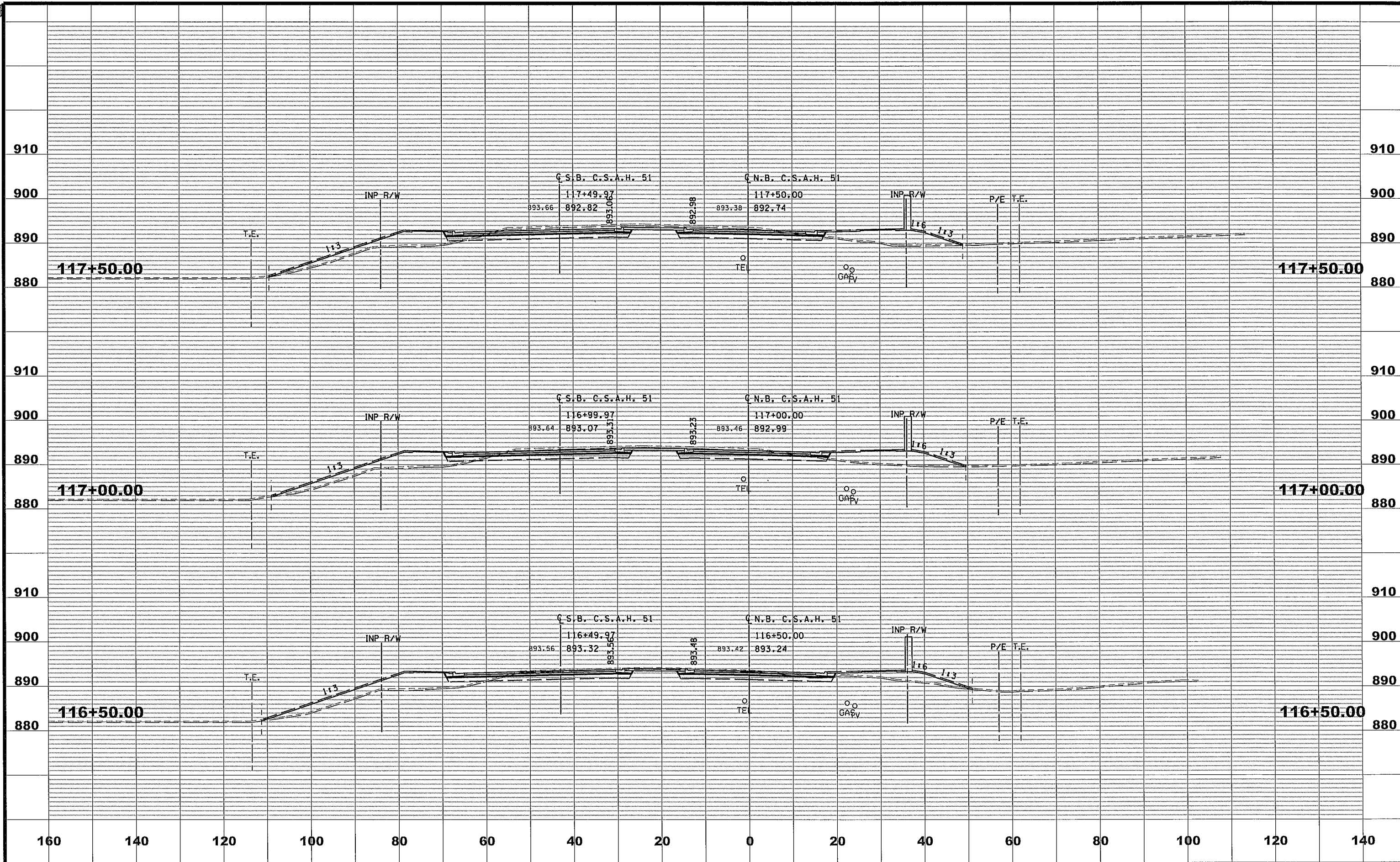
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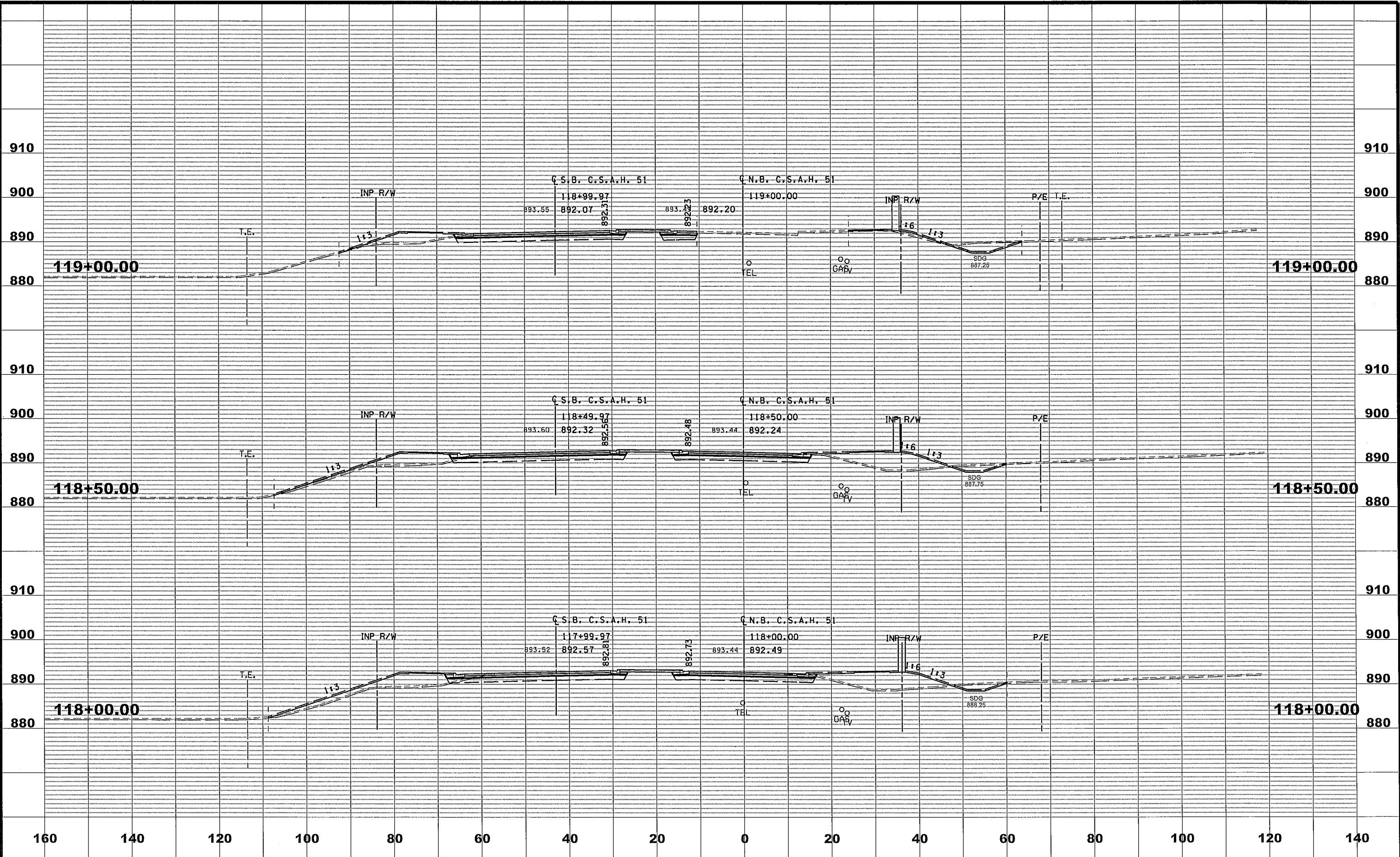
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**ANOKA COUNTY**  
**HIGHWAY DEPT.**

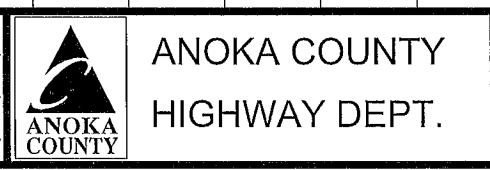
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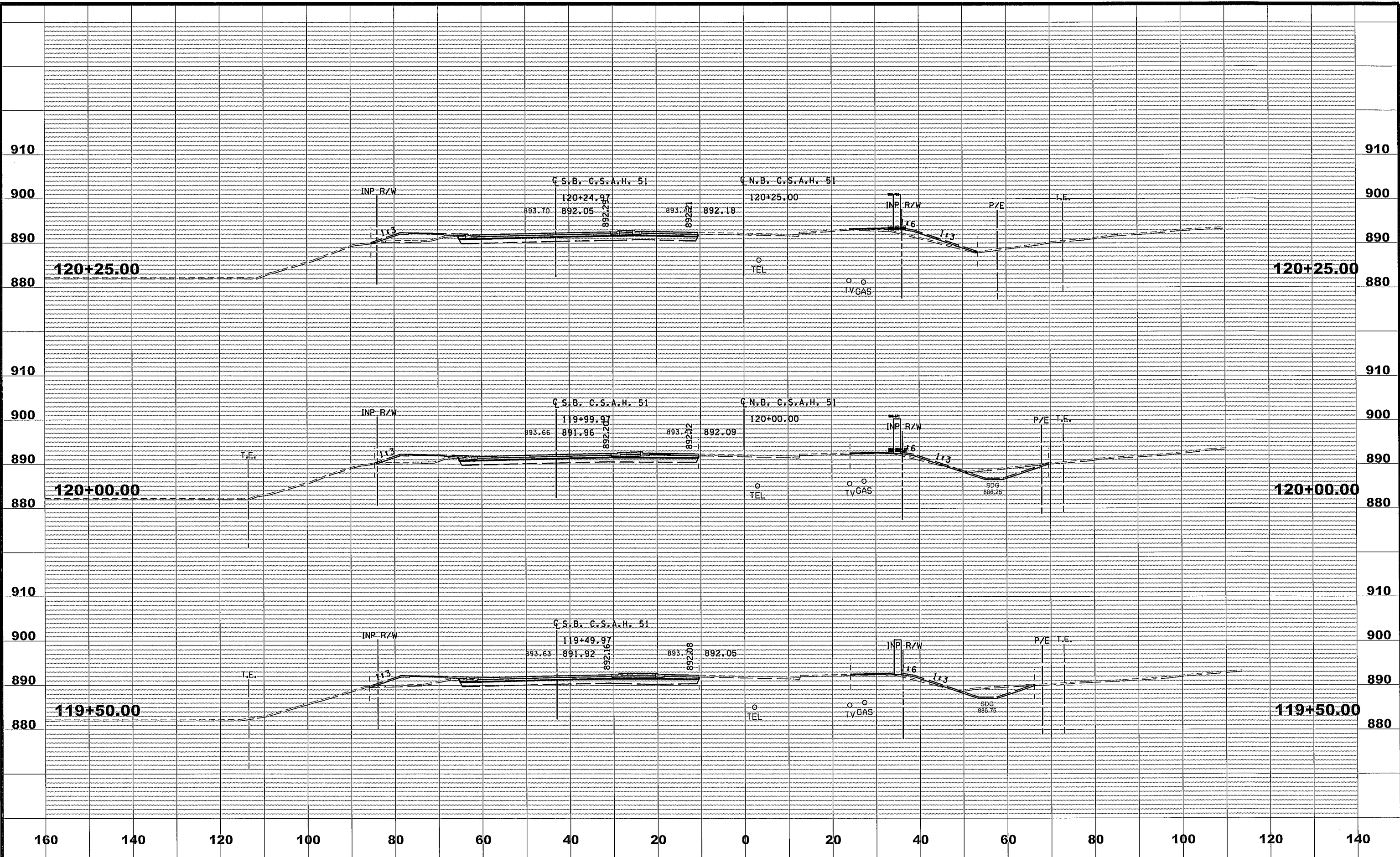
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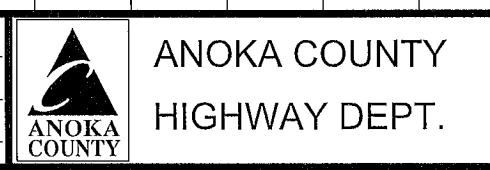
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 Sheet 315 of 381 Sheets



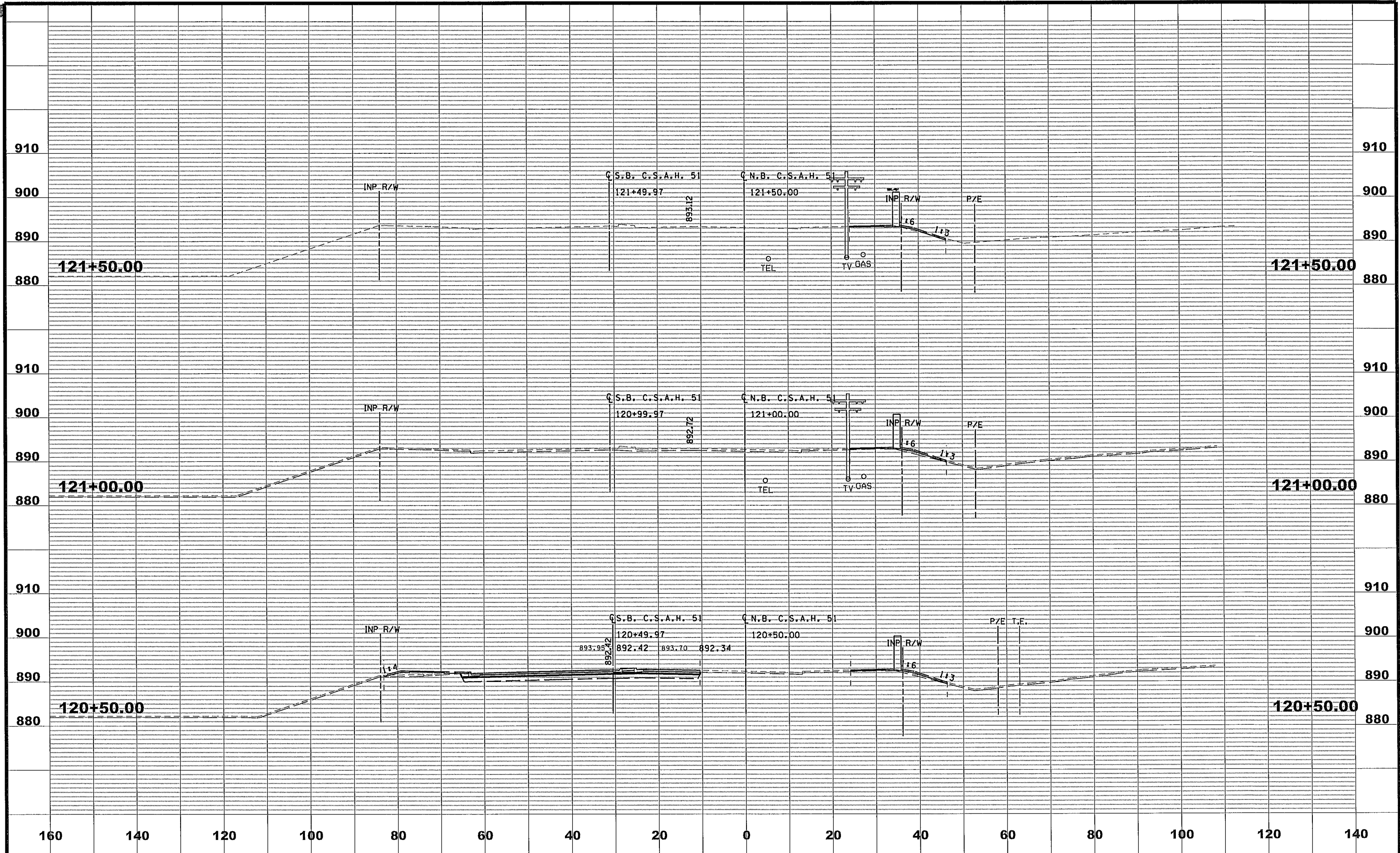
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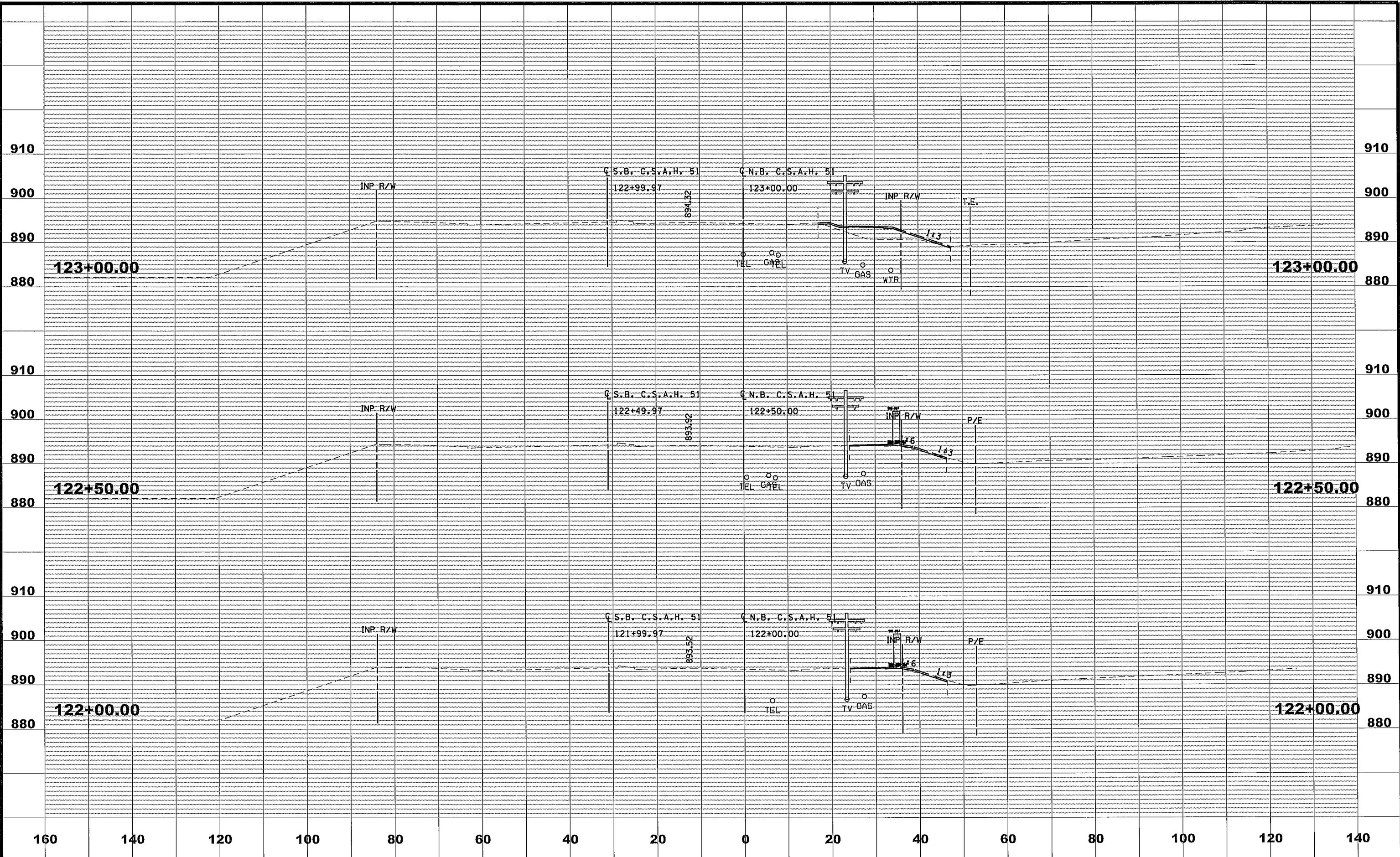
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**ANOKA COUNTY**  
**HIGHWAY DEPT.**

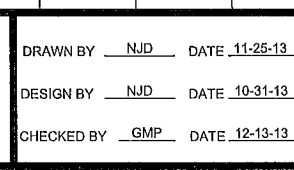
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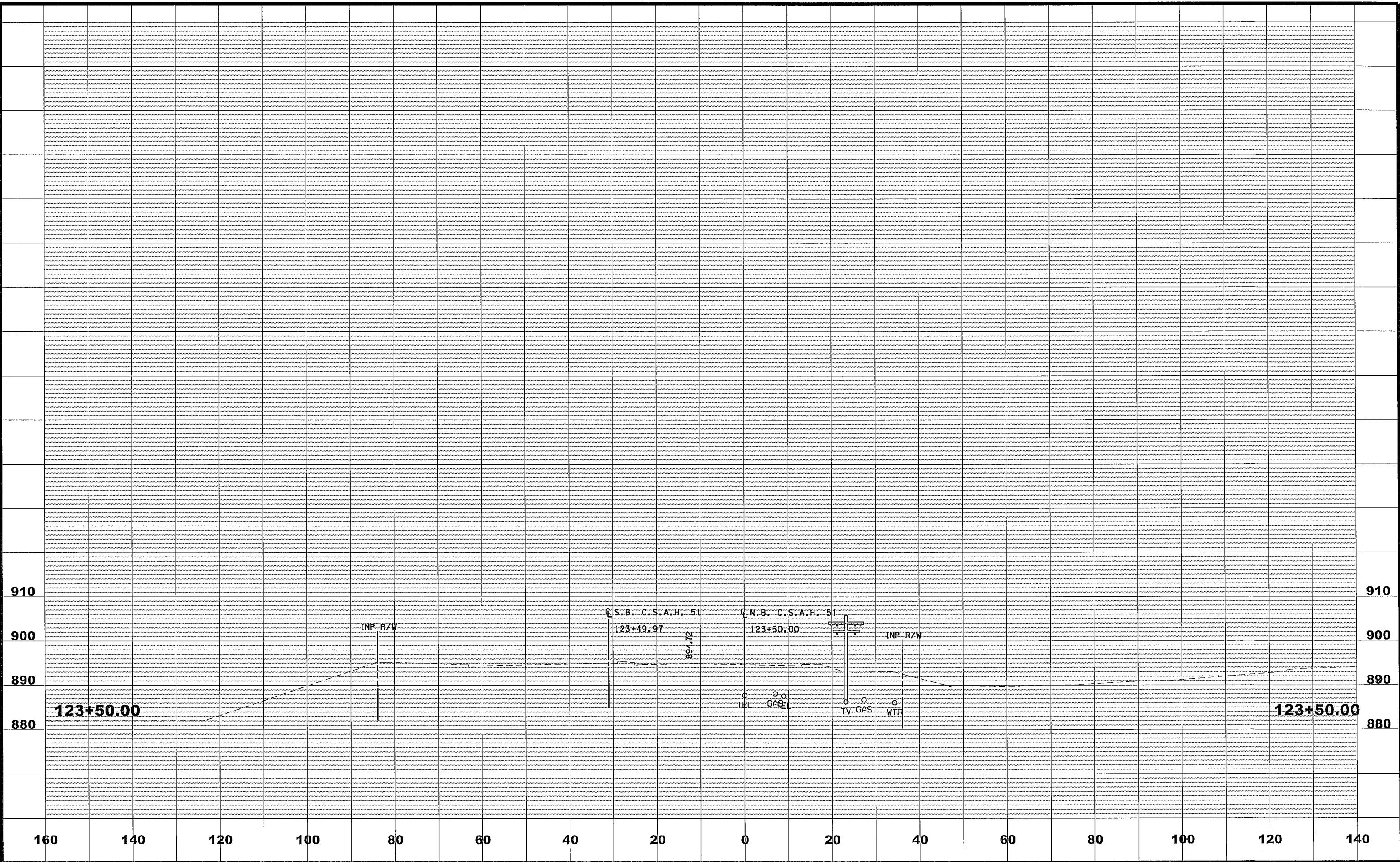
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ANOKA COUNTY  
HIGHWAY DEPT.

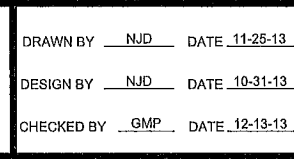
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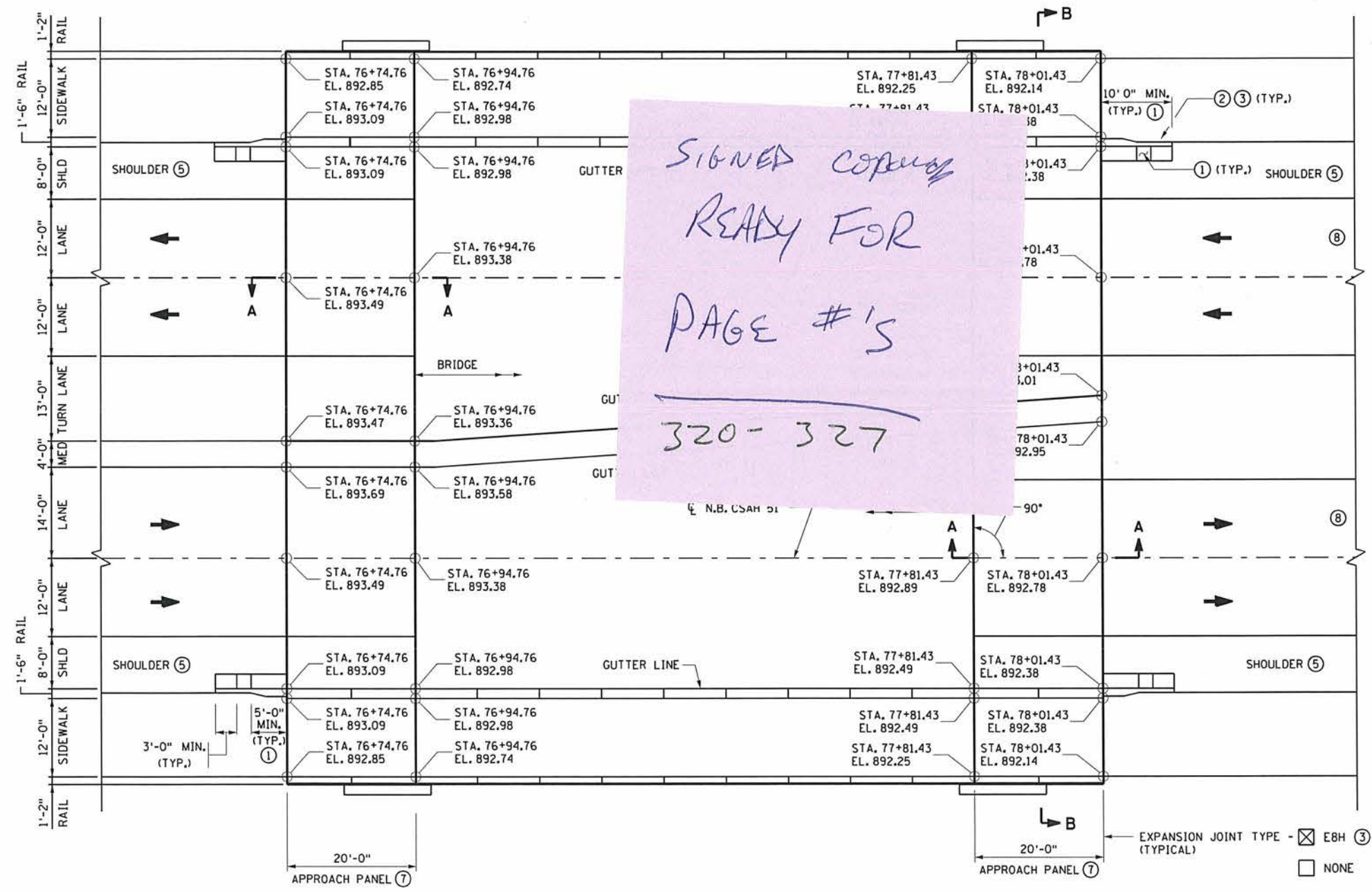
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S.P. 114-020-046

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Sheet 319 of 381 Sheets



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 PAGE #'S  
 320-327

**NOTES:**

- ① SEE STANDARD PLAN 5-297.231 FOR DRAINAGE DETAILS AND ADDITIONAL REQUIREMENTS.
- ② B4 CURB DESIGN SHOWN. SEE STANDARD PLATES FOR CURB DETAILS.
- ③ E8H QUANTITY SHALL BE PAID FOR SEPARATELY, MEASURED FROM BACK OF CURB TO BACK OF CURB.
- ④ TO ACCOMMODATE GUARDRAIL CONNECTION AND CRASH TEST REQUIREMENTS THE CONCRETE BARRIER MUST EXTEND 7'-0" MINIMUM ONTO THE APPROACH PANEL. FOR PARALLEL WINGWALLS THE BARRIER MUST EXTEND 7'-0" MINIMUM ON TO THE APPROACH PANEL OR TO THE END OF THE WINGWALL, WHICHEVER IS LONGER. REFER TO BRIDGE PLAN FOR BARRIER REINFORCEMENT AND PAYMENT.
- ⑤ SEE GRADING PLANS FOR PAVEMENT AND SHOULDER WIDTHS AND CONFIGURATION.
- ⑥ WHEN SKEW IS OVER 45°, THE JOINT SHALL BE PERPENDICULAR TO CUTTER FOR 1'-0" (TYP.).
- ⑦ PANEL SIZE AND REQUIREMENTS FOR TRANSVERSE AND LONGITUDINAL JOINTS ARE SHOWN ON STANDARD PLANS 5-297.228 AND 5-297.229.
- ⑧ FOR CONCRETE PAVEMENT, SEE STANDARD PLAN 5-297.227 FOR LUG REQUIREMENTS.

**GENERAL NOTES:**

SECTION A-A IS SHOWN ON STANDARD PLAN 5-297.227.  
 SECTION B-B IS SHOWN ON STANDARD PLAN 5-297.225  
 AND SHOW THE STATION AND ELEVATION AT END LOCATIONS ON THE APPROACH PANEL.

A CONCRETE SILL IS REQUIRED BENEATH EXPANSION JOINT TYPE E8H. EXTEND THE EXPANSION JOINT AND THE SILL ALONG THE FULL WIDTH OF THE TRAFFIC LANES, SHOULDERS AND CURB. ENSURE THAT SILL DOES NOT INTERFERE WITH GUARDRAIL POST PLACEMENT. CONCRETE SILL AND CURBING, IF REQUIRED, ARE INCLUDED IN THE APPROACH PANEL PAY ITEM.

AT THE END OF THE CONCRETE BARRIER, TRANSITION FACE OF 4-INCH CURB INTO PROFILE OF CONCRETE BARRIER. SEE CURB TRANSITION DETAILS ON STANDARD PLAN 5-297.227 IF THERE IS NO ROADWAY CURB AT THE END OF THE APPROACH PANEL, APPROACH PANEL CURB HEIGHT FROM 4 INCH TO 0 INCH IN THE LAST 3'-4" SECTION (1:10 OR FLATTER SLOPE).

GENERAL DRAINAGE DETAILS ARE SHOWN ON BRIDGE APPROACH PANEL DRAINAGE DETAILS, STANDARD PLAN 5-297.231. ADDITIONAL CATCH BASIN DETAILS ARE SHOWN ON DRAINAGE PLAN SHEETS.

CONCRETE MIX SHALL BE 3A42 FOR APPROACH PANEL AND SILL.  
 REFER TO MNDOT SPEC. 2406 FOR ADDITIONAL INFORMATION.

**APPROACH PANEL PLAN**  
 SQUARE, BARRIER ON APPROACH PANEL

STANDARD PLAN SHEET NO.  
**5-297.224**

STANDARD APPROVED:  
 DECEMBER 20, 2011

NO	DATE	BY	CHK	REVISIONS

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

*Barritt Lovelace*  
 LICENSED PROFESSIONAL ENGINEER: BARRITT LOVELACE  
 DATE: 4-14-14 REG NO: 40456

**WSB**  
 Associates, Inc.  
 701 Xenia Avenue South, Suite 300  
 Minneapolis, MN 55416  
 www.wsbang.com

763-414-0000 • Fax 763-514-1723  
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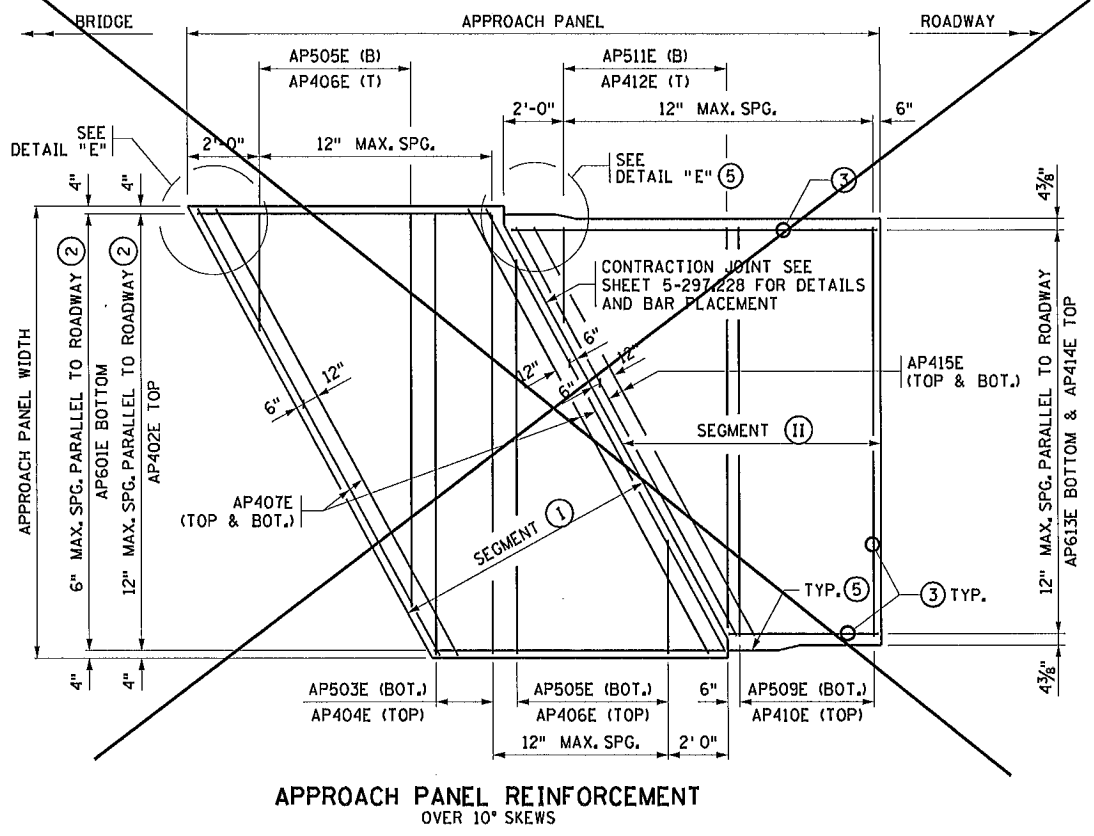
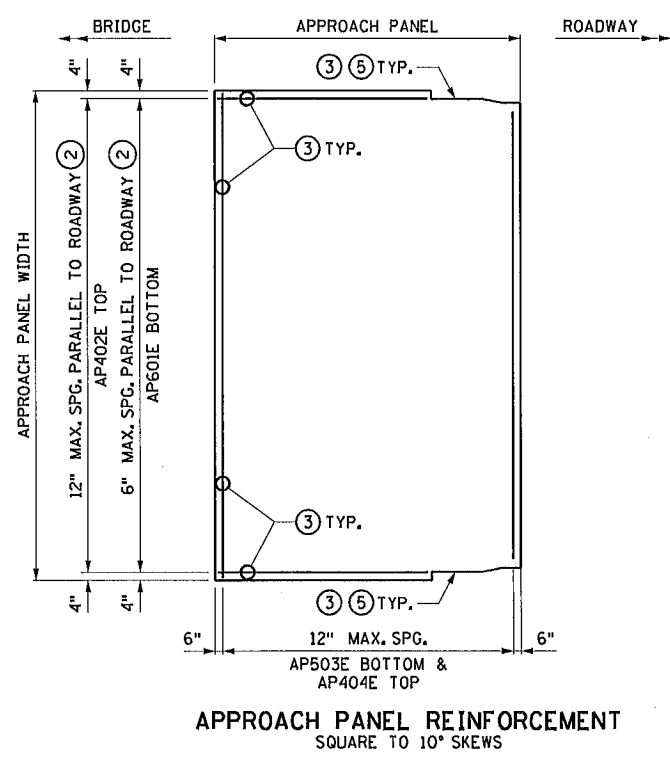
**C.S.A.H. 51**  
**ANOKA COUNTY**  
**S.P. 002-651-007**

TITLE:  
**BRIDGE APPROACH**  
**PANEL LAYOUT**  
 (CONCRETE BARRIER ON APPROACH PANEL)

DES: BRL	DR: DJV
CHK: AJN	CHK: BRL
Sheet <b>320</b> of <b>381</b> Sheets	

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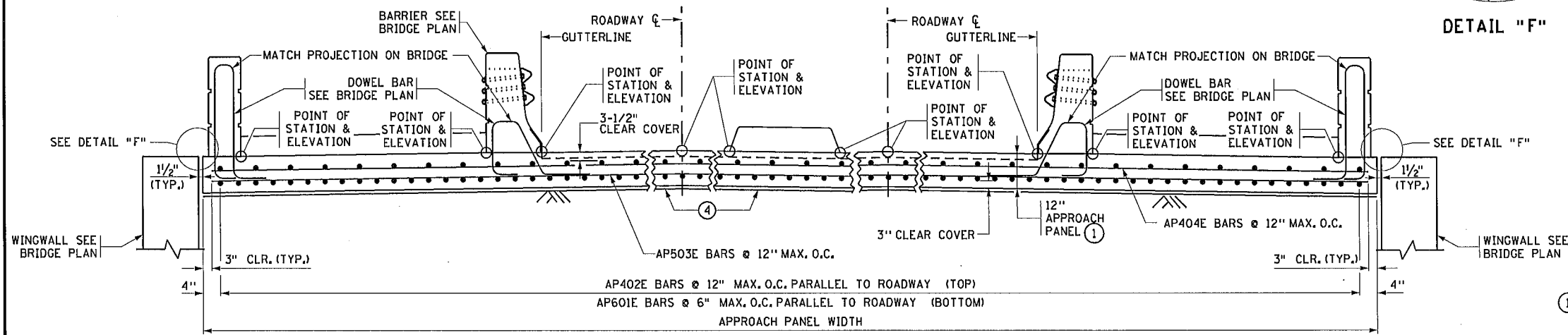
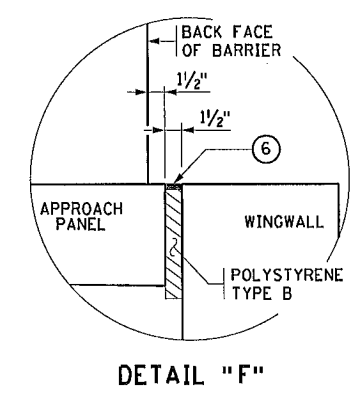
ESTIMATED REINFORCEMENT QUANTITY FOR BRIDGE APPROACH PANELS		
TYPE	LOCATION	ESTIMATED WEIGHT
PANEL (SQ. TO 10°)	BRIDGE TO END OF APPROACH PANEL	48.5 LB./SQ. YD.
PANEL SEGMENT (I)	BRIDGE TO CONTRACTION JOINT	48.5 LB./SQ. YD.
PANEL SEGMENT (II)	CONTRACTION JOINT TO END OF APPROACH PANEL	35.0 LBS/SQ. YD.
CURB	7.0 FT. CURB TRANSITION	19.0 LBS/EACH
SILL	SILL (IF REQUIRED)	14.0 LBS/LIN FT.

**NOTES:**  
 TRANSVERSE BARS IN BOTH PANEL SEGMENTS ARE PERPENDICULAR TO ROADWAY CENTERLINE EXCEPT AP407E ARE PARALLEL TO SKEW IN SEGMENT (I) AND AP415E ARE PARALLEL TO SKEW IN SEGMENT (II).  
 LONGITUDINAL BARS IN BOTH PANEL SEGMENTS ARE PARALLEL TO ROADWAY CENTERLINE.

**BILL OF REINFORCEMENT FOR BRIDGE APPROACH PANELS**

CONTRACTOR IS REQUIRED TO COMPLETE THE BILL OF REINFORCEMENT TABLE AND PREPARE SHOP DRAWINGS AND SUBMIT THEM TO THE PROJECT ENGINEER AT LEAST 3 WEEKS BEFORE REBAR FABRICATION.

BAR	NO.	LENGTH	SHAPE	LOCATION
AP601E				BOTTOM LONGITUDINAL
AP402E				TOP LONGITUDINAL
AP503E				BOTTOM TRANSVERSE
AP404E				TOP TRANSVERSE
AP505E	SER. OF	'- TO		BOTTOM TRANSVERSE
AP406E	SER. OF	'- TO		TOP TRANSVERSE
AP407E				TOP & BOTTOM EDGE
AP508E		8'-0		TOP CORNER - FAN
AP509E				BOTTOM TRANSVERSE
AP410E				TOP TRANSVERSE
AP511E	SER. OF	'- TO		BOTTOM TRANSVERSE
AP412E	SER. OF	'- TO		TOP TRANSVERSE
AP613E	SER. OF	'- TO		BOTTOM LONGITUDINAL
AP414E	SER. OF	'- TO		TOP LONGITUDINAL
AP415E				TOP & BOTTOM EDGE
AP616E		5'-0		C2H-D JOINT



CONCRETE BARRIERS ARE SHOWN, BUT MAY NOT BE PRESENT. REFER TO BRIDGE PLANS FOR END OF BARRIER LOCATIONS.

- GENERAL NOTES:**
- AS PER MNDOT SPEC. 3301, USE EPOXY COATED GRADE 60 REINFORCEMENT BARS IN APPROACH PANEL, CONCRETE SILL AND CURB TRANSITION.
  - BARS MARKED WITH THE SUFFIX "E" SHALL BE EPOXY COATED IN ACCORDANCE WITH MNDOT SPEC. 3301.
  - FOR VARIABLE ROADWAY WIDTHS, VARY THE LAP LENGTH OF THE REINFORCEMENT.
  - MINIMUM REINFORCEMENT LAP LENGTHS ARE AS FOLLOWS: NO. 4 BAR = 1'-8", NO. 5 BAR = 2'-1", NO. 6 BAR = 2'-6".
  - ALL LAP SPLICES SHALL BE STAGGERED SUCH THAT NO MORE THAN 50% OF REBAR IS SPLICED AT THE SAME LOCATION.
  - APPROACH SLAB THICKNESS IS 12" (12" MONOLITHIC OR 10" SLAB + 2" WEARING COURSE). CHECK BRIDGE PLANS FOR CONCRETE WEARING COURSE, WHICH IS INCLUDED IN BRIDGE PLAN QUANTITIES.
  - SPACING ONLY FOR B4 INTEGRANT CURB. SEE CURB DETAIL FOR SPACING FOR USING B424 CURB AND GUTTER.
  - EXTEND AND/OR CUT REINFORCING AS NECESSARY TO ACCOMMODATE CURB TRANSITION IF PRESENT. REINFORCEMENT MUST EXTEND INTO CURB AS SHOWN IN TRANSVERSE SECTIONS B-B AND C-C.
  - IF THE APPROACH PANEL IS TIED TO THE BRIDGE ABUTMENT WITH REINFORCEMENT BARS, PLACE 12 MIL POLYETHYLENE SHEETING (OR 2 LAYERS OF 6 MIL) UNDER THE LIMITS OF THE APPROACH PANEL TO ALLOW THE PANEL TO MOVE LONGITUDINALLY ON THE GRADE. SHEETING IS INCLUDED IN THE APPROACH PANEL PAY ITEM.
  - SEE STANDARD PLAN 5-297,224 FOR CURB TRANSITION LOCATION.
  - SEAL WITH SELF-LEVELING SILICONE PER MNDOT 3722.

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STANDARD PLAN SHEET NO.  
**5-297,225**

STANDARD APPROVED:  
**DECEMBER 20, 2011**

REVISION DATE  
**3-22-2013**

NO	DATE	BY	CHK	REVISIONS

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

*Barritt Lovelace*  
 LICENSED PROFESSIONAL ENGINEER: BARRITT LOVELACE  
 DATE: 4-14-14 REG NO: 40458

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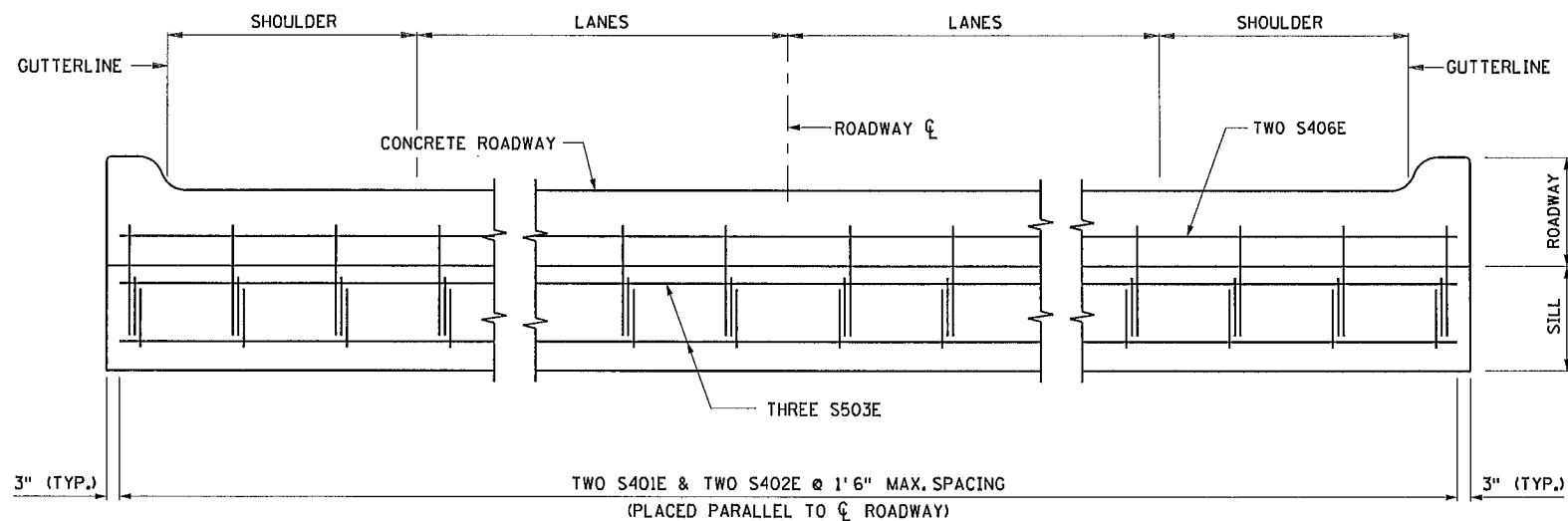
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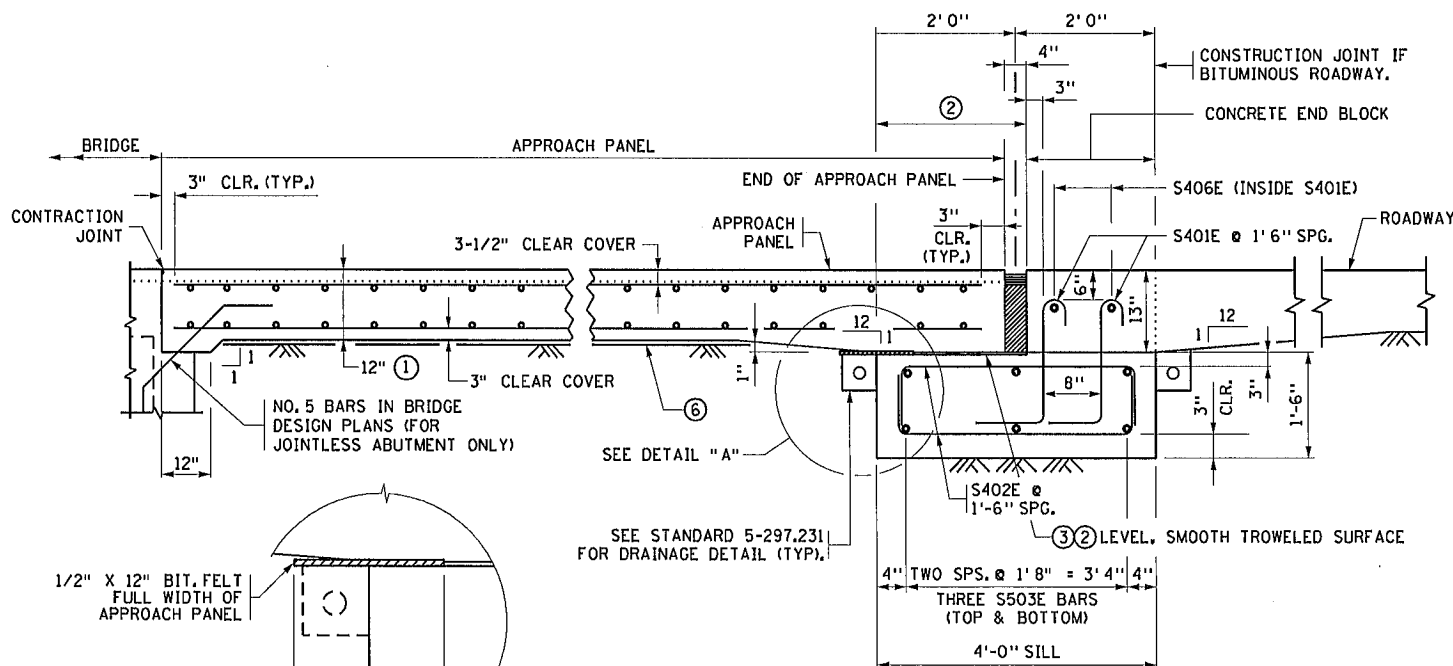
TITLE:  
**BRIDGE APPROACH PANEL  
 REINFORCEMENT DETAILS  
 (CONCRETE BARRIER ON APPROACH PANEL)**

DES: BRL DR: DJV  
 CHK: AJN CHK: BRL

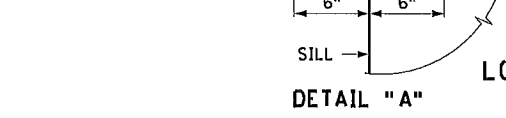
Sheet 321 of 301 Sheets



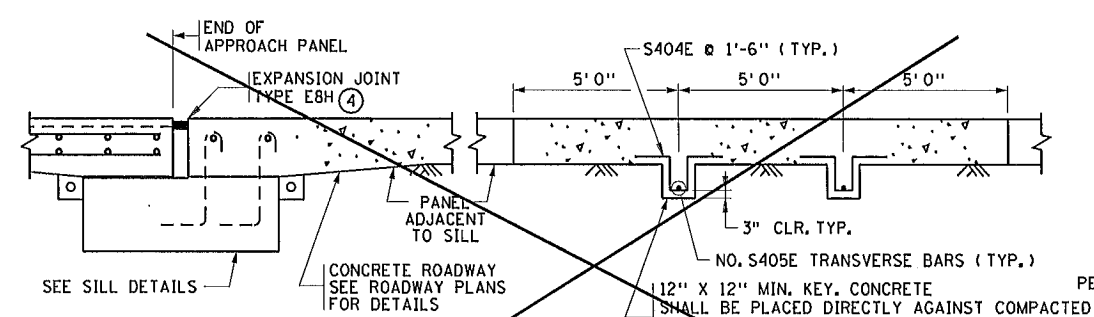
**SILL ELEVATION**  
(REINFORCEMENT IN PAVEMENT NOT SHOWN)



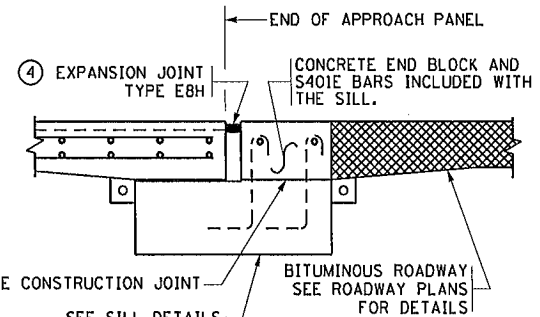
**LONGITUDINAL SECTION A-A**  
FROM SHEET 5-297.222 & SHEET 5-297.224



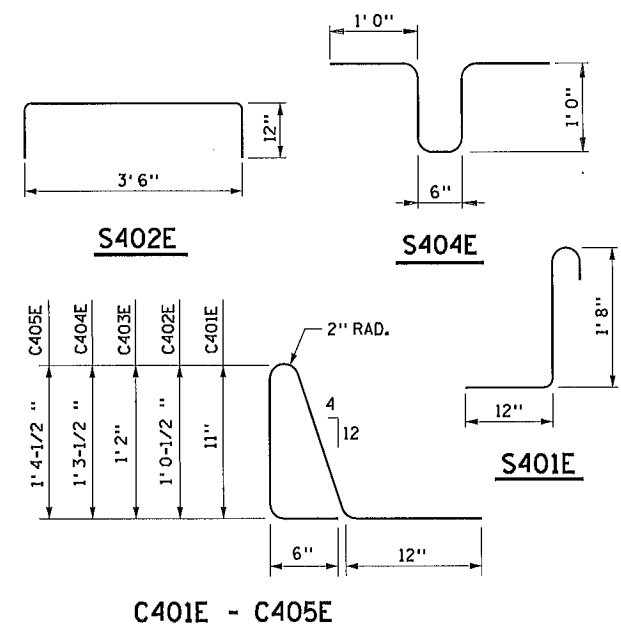
**DETAIL "A"**



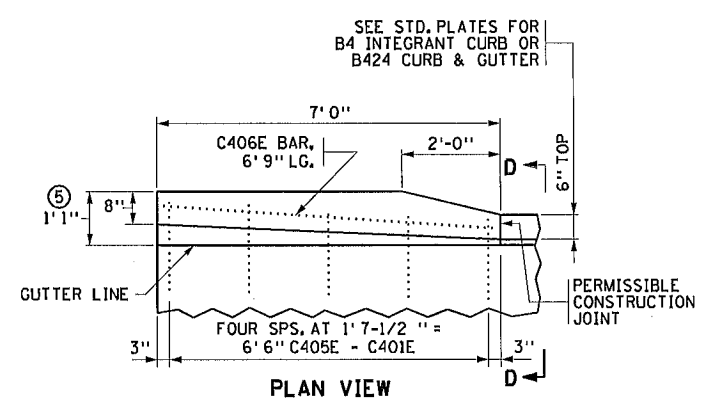
**SILL & CONCRETE MAINLINE**



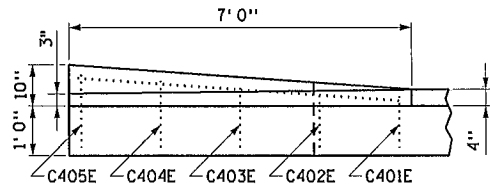
**SILL & BITUMINOUS MAINLINE**



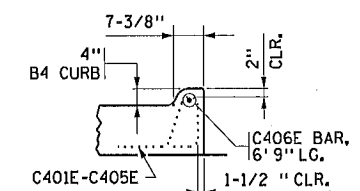
**C401E - C405E**



**PLAN VIEW**

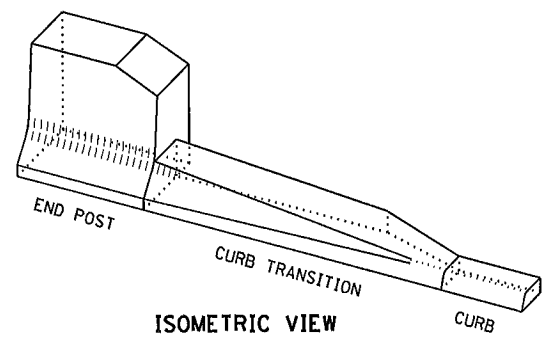


**INSIDE ELEVATION (FOR F-SHAPE SAFETY RAIL)**



**SECTION D-D**

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



**ISOMETRIC VIEW**

**BITUMINOUS MAINLINE WITHOUT SILL**  
(NON TRUNK HIGHWAY USE ONLY)

**BILL OF REINFORCEMENT FOR CONCRETE SILL**

CONTRACTOR IS REQUIRED TO COMPLETE THE BILL OF REINFORCEMENT TABLE AND PREPARE SHOP DRAWINGS AND SUBMIT THEM TO THE PROJECT ENGINEER AT LEAST 3 WEEKS BEFORE REBAR FABRICATION.

BAR NO.	NO.	LENGTH	SHAPE	LOCATION
S401E	---	3' 2"	J	SILL_VERTICAL
S402E	---	5' 6"	J	SILL_TIE
* S503E	---	---	---	SILL_HORIZONTAL
* S404E	---	4' 6"	J	KEY_TIE
* S405E	---	---	---	KEY_HORIZONTAL
* S406E	---	---	---	END_BLOCK_HORIZONTAL

\* MINIMUM REINFORCEMENT LAP LENGTHS ARE AS FOLLOWS:  
NO. 4 BAR = 1'-8", NO. 5 BAR = 2'-1".

**BILL OF REINFORCEMENT FOR CURB TRANSITION**

CONTRACTOR IS REQUIRED TO COMPLETE THE BILL OF REINFORCEMENT TABLE AND PREPARE SHOP DRAWINGS AND SUBMIT THEM TO THE PROJECT ENGINEER AT LEAST 3 WEEKS BEFORE REBAR FABRICATION.

BAR NO.	NO.	LENGTH	SHAPE	LOCATION
C401E	---	---	---	CURB_VERTICAL
C402E	---	3' 9"	---	CURB_VERTICAL
C403E	---	4' 0"	---	CURB_VERTICAL
C404E	---	4' 3"	---	CURB_VERTICAL
C405E	---	4' 5"	---	CURB_VERTICAL
C406E	---	6' 9"	---	CURB_LONGITUDINAL

**NOTES:**

- AS PER MNDOT 3301, USE EPOXY COATED GRADE 60 REINFORCEMENT BARS.
- ENSURE THAT SILL DOES NOT INTERFERE WITH GUARDRAIL POST PLACEMENT.
- ① APPROACH SLAB THICKNESS IS 12" (12" MONOLITHIC OR 10" SLAB + 2" WEARING COURSE). CHECK BRIDGE PLANS FOR CONCRETE WEARING COURSE, WHICH IS INCLUDED IN BRIDGE PLAN QUANTITIES.
- ② PLACE PLASTIC SHEETING (MNDOT 3756) AS APPROVED BY THE ENGINEER TO BREAK BOND. COVER AREA SHOWN IN DETAIL. (SHEETING IS INCLUDED IN THE APPROACH PANEL PAY ITEM).
- ③ REQUIRED CONSTRUCTION JOINT.
- ④ SEE STANDARD PLANS 5-297.222 & 5-297.224 FOR TYPE OF EXPANSION JOINT, DETAILS OF EXPANSION JOINT TYPE EBH ARE SHOWN ON STANDARD PLAN 5-297.229.
- ⑤ FROM BACK SIDE OF CURB TRANSITION TO GUTTERLINE.
- ⑥ IF THE APPROACH PANEL IS TIED TO THE BRIDGE ABUTMENT WITH REINFORCEMENT BARS, PLACE 12 MIL POLYETHYLENE SHEETING (OR 2 LAYERS OF 6 MIL) UNDER THE LIMITS OF THE APPROACH PANEL TO ALLOW THE PANEL TO MOVE LONGITUDINALLY ON THE GRADE. SHEETING IS INCLUDED IN THE APPROACH PANEL PAY ITEM.

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STANDARD PLAN SHEET NO.  
**5-297.227**

STANDARD APPROVED:  
**DECEMBER 20, 2011**

REVISION DATE  
**3-22-2013**

NO.	DATE	BY	CHK	REVISIONS

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

*Barritt Lovelace*  
LICENSED PROFESSIONAL ENGINEER: BARRITT LOVELACE  
DATE: 4-14-14 REG NO: 40456

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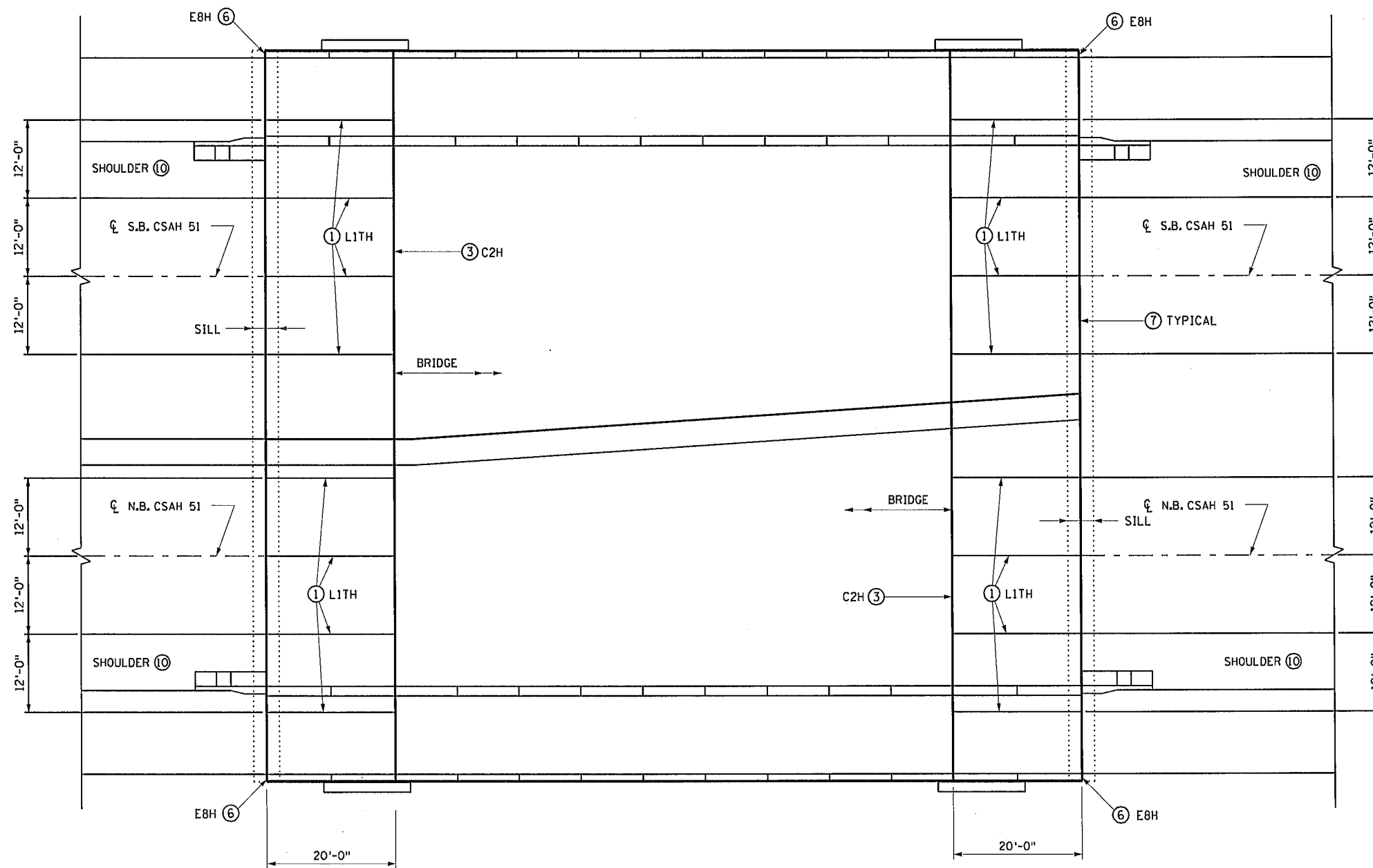
TITLE:  
**BRIDGE APPROACH PANEL MISCELLANEOUS DETAILS**

DES: BRL DR: DJV  
CHK: AJN CHK: BRL

Sheet **322** of **301** Sheets

**APPROACH PANEL JOINT LAYOUT NOTES:**

- ① L1TH LONGITUDINAL JOINT. SEE STANDARD PLAN 5-297.229 FOR REINFORCEMENT LAP LENGTH REQUIREMENTS FOR STAGED CONSTRUCTION.
- ② PERMISSIBLE CONSTRUCTION JOINT. USE JOINT TYPE C2H-D WITH APC16E BARS AT 12-INCH SPACING AT MID-DEPTH OF THE SLAB, PARALLEL TO THE CENTERLINE OF THE ROADWAY. APC16E BARS ARE 5'-0" LONG. PLACE THE BAR WITH 2'-0" ON ONE SIDE OF THE JOINT AND 3'-0" ON THE OPPOSITE SIDE OF THE JOINT. ALTERNATE THE 2'-0" AND 3'-0" DIMENSIONS AS SHOWN ON THE PLAN. THE C2H-D JOINT AND APC16E BARS ARE REQUIRED ON ALL PANELS WITH A SKEW OVER 10 DEGREES.
- ③ C2H CONTRACTION JOINT.
- ④ MAXIMUM PANEL LENGTH OF 20'-0" FOR UP TO 40° SKEWS, 15'-0" FOR SKEWS OVER 40°.
- ⑤ ALL JOINTS SHALL BE SAWCUT. SAWCUTS SHALL BE MADE WHILE THE CONCRETE IS STILL GREEN. WHEN A CONCRETE WEARING COURSE IS SPECIFIED, THE JOINTS SHALL BE SAWN THROUGH BOTH THE WEARING COURSE AND THE UNDERLYING APPROACH SLAB IN A SINGLE OPERATION.
- ⑥ E8H JOINT REQUIRED IN CURB ADJACENT TO E8H JOINT. E8H QUANTITY SHALL BE PAID FOR SEPARATELY, MEASURED FROM BACK OF CURB TO BACK OF CURB.
- ⑦ SEE STANDARD PLANS 5-297.222 OR 5-297.224 FOR TYPE OF EXPANSION JOINT.
- ⑧ SEE STANDARD PLANS 5-297.229 OR 5-297.231 FOR JOINT DETAIL FOR CONCRETE BARRIER ON WINGWALL.
- ⑨ WHEN SKEW IS OVER 45°, THE JOINT SHALL BE PERPENDICULAR TO GUTTER FOR 1'-1" (TYP).
- ⑩ SEE GRADING PLAN FOR PAVEMENT AND SHOULDER WIDTHS AND CONFIGURATION.



**APPROACH PANELS ⑤**

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STANDARD PLAN SHEET NO.  
**5-297.228**  
STANDARD APPROVED:  
MARCH 23, 2011

REVISION DATE  
**3-22-2013**

NO	DATE	BY	CHK	REVISIONS

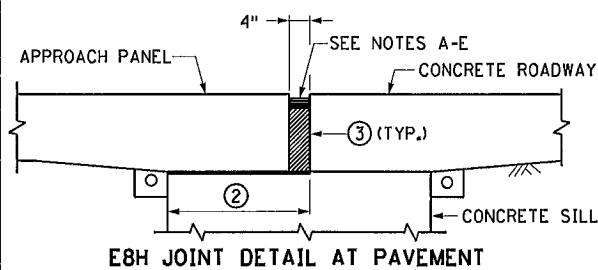
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LICENSED PROFESSIONAL ENGINEER: BARRITT LOVELACE  
DATE: 4-14-14 REG NO: 40456

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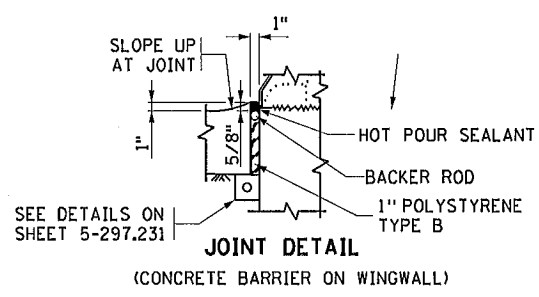
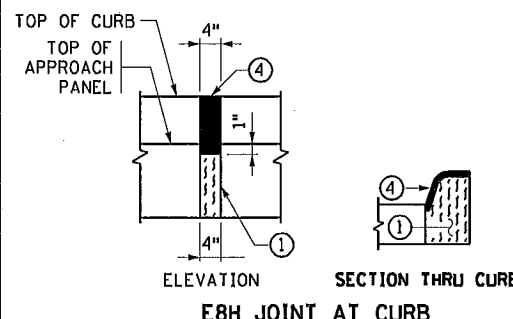
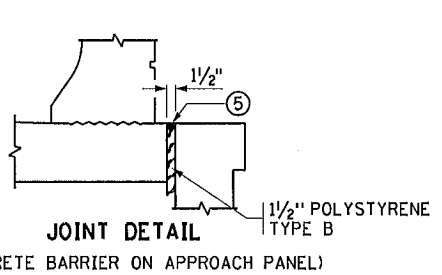
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**ANOKA COUNTY**  
**S.P. 002-651-007**

TITLE:  
**BRIDGE APPROACH PANEL**  
**JOINT LAYOUT**

DES: BRL DR: DJV  
CHK: AJN CHK: BRL  
Sheet **32.3** of **391** Sheets



### EXPANSION JOINTS



### E8H PRESSURE RELIEF JOINT MATERIAL INSTALLATION INSTRUCTIONS:

SEE MNDOT APPROVED/QUALIFIED PRODUCTS LIST.

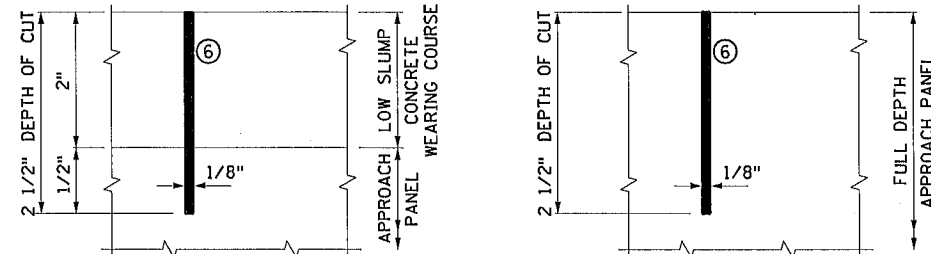
FURNISH AND INSTALL JOINT MATERIAL IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND THE FOLLOWING:

- (A) EXPANSION JOINT FILLER MATERIALS USED FOR A 4 INCH PRESSURE RELIEF JOINT CONSISTS OF A PREFORMED FOAM PRODUCT HAVING MINIMUM DIMENSIONS OF 4.5 INCHES IN WIDTH (MAY BE LAMINATED) AND 8 INCHES IN DEPTH, AND A MINIMUM LENGTH OF 10 FEET. WHEN THE CONCRETE DEPTH IS GREATER THAN THE DEPTH OF THE PRESSURE RELIEF MATERIAL, FILL THE VOID BELOW THE MATERIAL WITH POLYSTYRENE. FURNISH AND INSTALL THE JOINT MATERIAL UNDER COMPRESSION WITH A LUBRICANT ADHESIVE APPLIED TO THE CONCRETE CONTACT SURFACES.
- (B) SAW OR FORM THE JOINTS 4 INCHES WIDE BY THE FULL-DEPTH OF THE PANEL. INSPECT TO ASSURE THAT THE INSIDE WALLS OF THE JOINT HAVE BEEN SANDBLASTED, ARE DRY, SMOOTH AND FREE OF DEBRIS AND LOOSE PARTICLES. APPLY TAPE TO THE TOP 1 INCH OF THE INSIDE WALLS TO PREVENT THE LUBRICANT ADHESIVE FROM CONTAMINATING THE CONCRETE BONDING SURFACES OF THE SUBSEQUENTLY PLACED HOT POUR JOINT SEALER.
- (C) PAINT THE INSIDE WALLS OF THE JOINT WITH LUBRICANT ADHESIVE AT THE RATE OF 1 GALLON PER 50 LINEAL FEET OF JOINT.
- (D) PINCH THE BOTTOM OF THE MATERIAL TOGETHER AND PUSH IT DOWN INTO THE JOINT. WALK THE MATERIAL DOWN INTO THE JOINT, USE A SLEDGEHAMMER AND A 2 X 4 IF NECESSARY. APPLY LUBRICANT ADHESIVE TO THE ENDS OF THE PREFORMED FOAM MATERIAL WHEN BUTTING TWO PIECES TOGETHER.
- (E) FURNISH AND INSTALL THE FOAM RELIEF JOINT MATERIAL TO A DEPTH OF APPROXIMATELY 7/8 INCH BELOW THE FINISHED CONCRETE SURFACE. AFTER INSTALLATION, REMOVE THE TAPE AND FILL THE VOID ON TOP OF THE FOAM MATERIAL WITH APPROXIMATELY 1/2 INCH OF HOT POUR JOINT SEALER (MNDOT 3723 OR 3725) TO A LEVEL OF 3/8 INCH +/- 1/4 INCH BELOW THE FINISHED CONCRETE SURFACE. THE HOT POUR JOINT SEALER SHOULD ONLY SLIGHTLY MELT INTO THE FOAM JOINT MATERIAL (TO PREVENT EXCESSIVE MELTING OF THE JOINT MATERIAL, PLACE THE HOT POUR SEALER AT THE LOWER END OF THE TEMPERATURE SPECIFICATION). CHECK FOR CORRECT TEMPERATURE BY PLACING HOT POUR SEALER ON A SAMPLE OF WASTE FOAM MATERIAL.

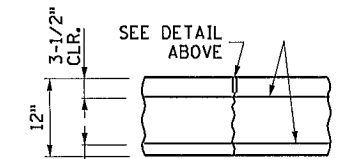
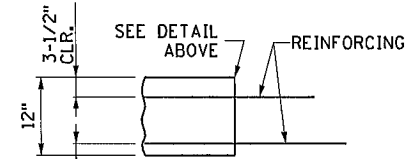
### EXPANSION JOINT NOTES:

- ① PREFORMED JOINT FILLER MATERIAL, SPEC. 3702.
- ② PLACE PLASTIC SHEETING SPEC. 3756 AS APPROVED BY THE ENGINEER TO BREAK BOND. COVER AREA SHOWN IN DETAIL. SEE SILL DETAILS ON STANDARD PLAN 5-297.227.
- ③ THE JOINT FACES SHALL BE CLEANED AND DRIED BY SANDBLASTING AND AIR BLASTING PRIOR TO SEALING THE JOINT.
- ④ HOT POUR JOINT SEALER SPEC. 3725. TOP OF SEALER FLUSH TO 1/8 INCH BELOW TOP OF PAVEMENT SURFACE. MAKE TOP OF SEALER FOR CURB SECTION E8H JOINTS FLUSH WITH SURFACE (+ 1/8 INCH OR - 1/8 INCH).
- ⑤ SEAL WITH SELF-LEVELING SILICONE PER MNDOT 3722.

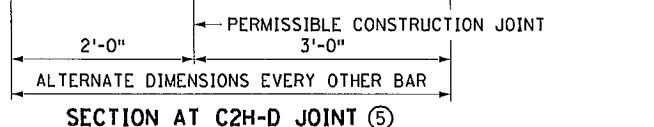
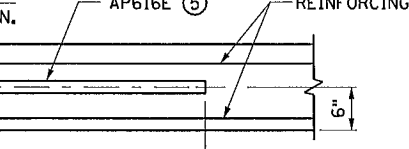
### JOINT DETAILS



### C2H & LITH WITHOUT CONCRETE WEARING COURSE (6)



### LITH (AT CONSTRUCTION JOINT)



### JOINT NOTES:

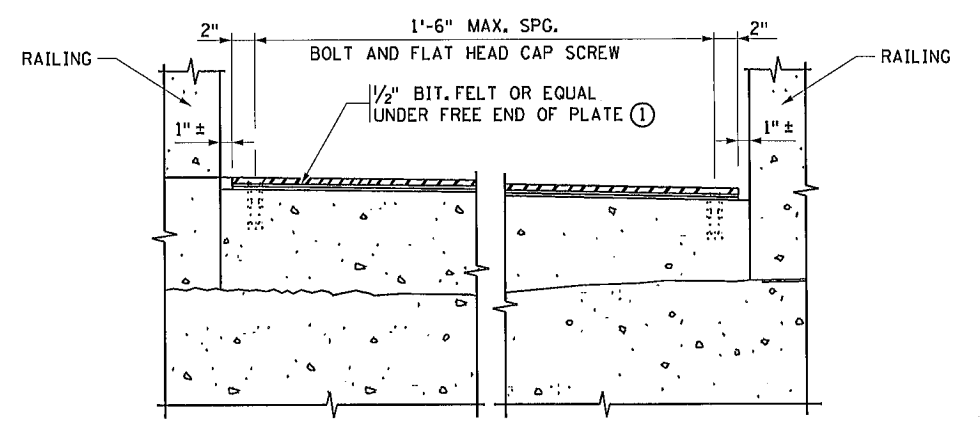
- ⑤ PERMISSIBLE CONSTRUCTION JOINT. AP616E BARS AT 12-INCH SPACING AT MID DEPTH OF SLAB, PARALLEL TO THE CENTERLINE OF THE ROADWAY. AP616E BARS ARE 5'-0" LONG. PLACE THE BAR WITH 2'-0" ON ONE SIDE OF THE JOINT AND 3'-0" ON THE OPPOSITE SIDE OF THE JOINT. ALTERNATE THE 2'-0" AND 3'-0" DIMENSION AS SHOWN ON THE PLAN.
- ⑥ CLEAN AND DRY FULLY CURED JOINT FACES BY SANDBLASTING PRIOR TO SEALING THE JOINT.
- ⑦ WHEN CONSTRUCTING A LITH JOINT UNDER STAGED CONSTRUCTION, EXTEND NO. 4 BARS 1'-8" AND NO. 5 BARS 2'-1" PAST THE EDGE OF THE FIRST CONCRETE POUR. CONSTRUCT LITH JOINT ACCORDING TO DETAIL SHOWN AFTER ADJACENT POUR IS COMPLETE.

### SIDEWALK COVER PLATE

### GENERAL NOTES:

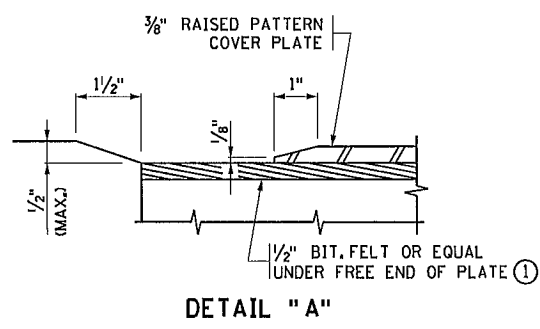
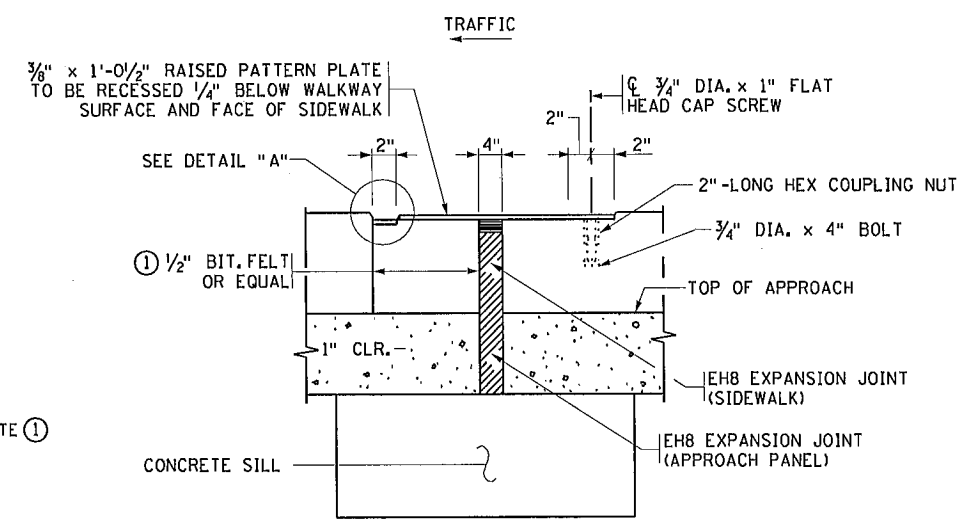
- GALVANIZE STRUCTURAL STEEL AFTER FABRICATION PER Mn/DOT SPEC. 3394
- GALVANIZE FASTENERS PER Mn/DOT SPEC. 3392.
- STRUCTURAL STEEL SHALL COMPLY WITH Mn/DOT SPEC. 3306 OR Mn/DOT SPEC. 3309.
- SHOP DRAWING SUBMITTALS REQUIRED PER Mn/DOT SPEC. 2471.
- CAP SCREWS SHALL BE COUNTERSUNK 1/16" BELOW TOP OF PLATE.
- FURNISHING AND INSTALLING SIDEWALK COVER PLATE IS INCIDENTAL.

- ① USE LARGEST SINGLE PIECE POSSIBLE. USE OF SMALL PIECES OR SCRAPS SECURED TOGETHER IS PROHIBITED.



### SECTION THROUGH SIDEWALK

SEE BRIDGE PLANS FOR RAISED SIDEWALK DETAILS  
COVER PLATE TO EXTEND TO WITHIN 1" OF VERTICAL RAILING FACE ON EACH SIDE OF SIDEWALK



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NO.	DATE	BY	CHK	REVISIONS

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*Barritt Lovelace*  
 LICENSED PROFESSIONAL ENGINEER: BARRITT LOVELACE  
 DATE: 4-14-14 REG NO: 40456

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**ANOKA COUNTY**  
**S.P. 002-651-007**

TITLE:  
**BRIDGE APPROACH PANEL**  
**JOINT DETAILS**

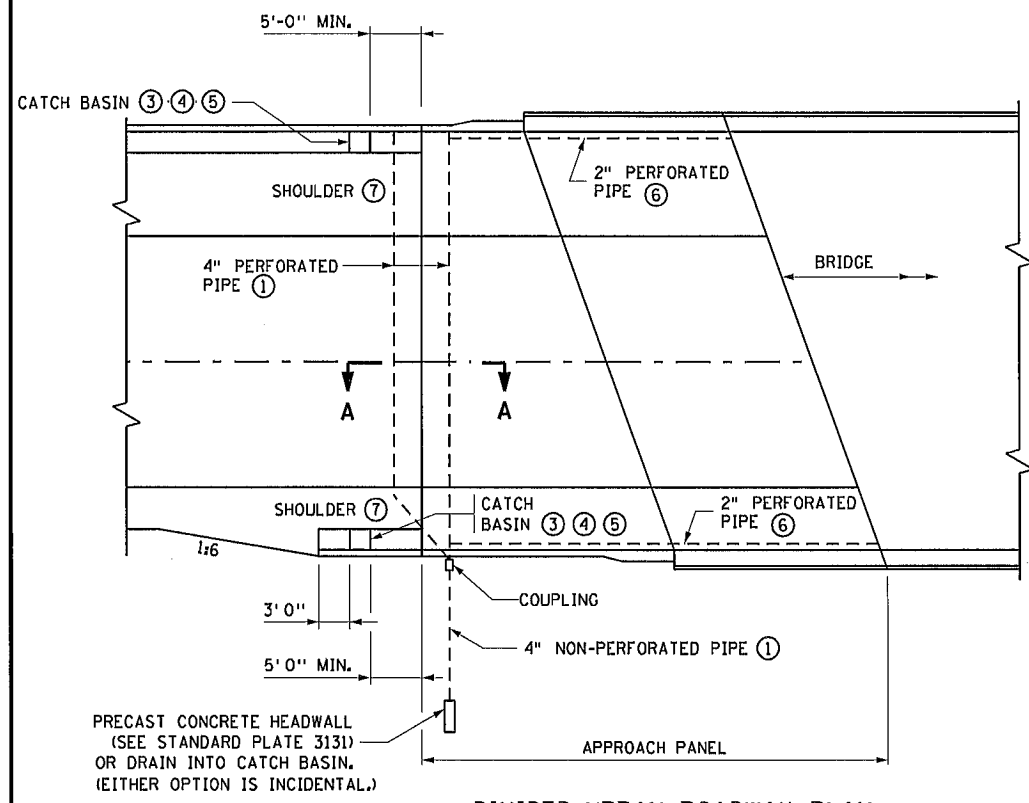
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 CHK: AJN CHK: BRL

Sheet **324** of **391** Sheets

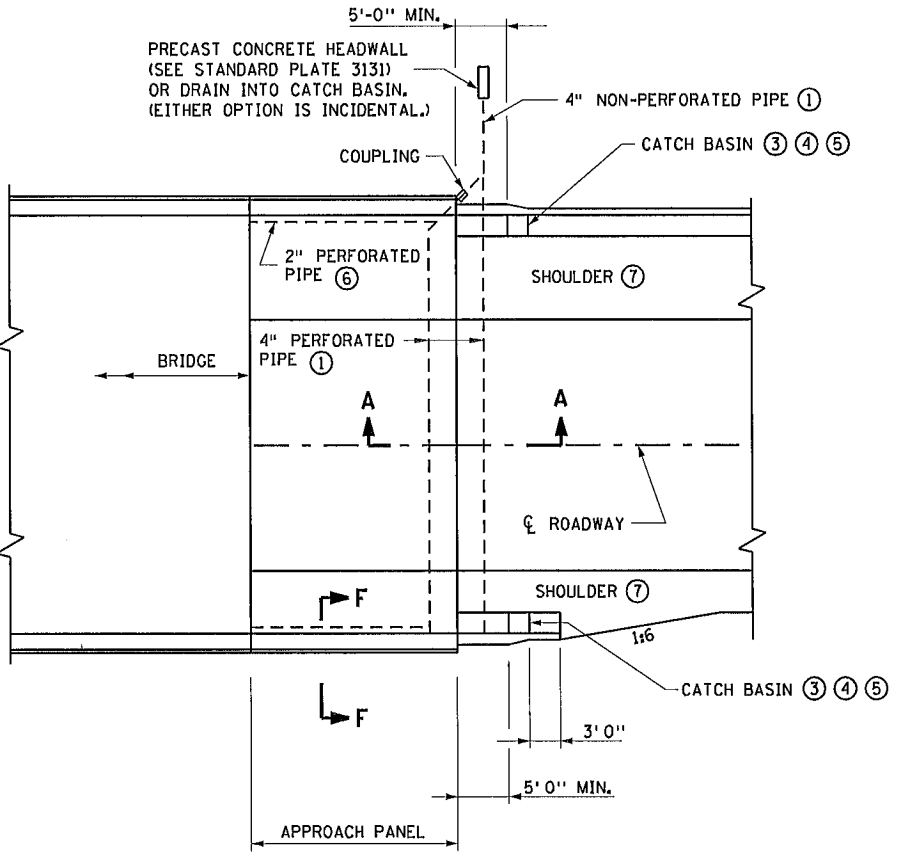
STANDARD PLAN SHEET NO.  
**5-297.229**

STANDARD APPROVED:  
 DECEMBER 20, 2011

REVISION DATE  
 3-22-2013

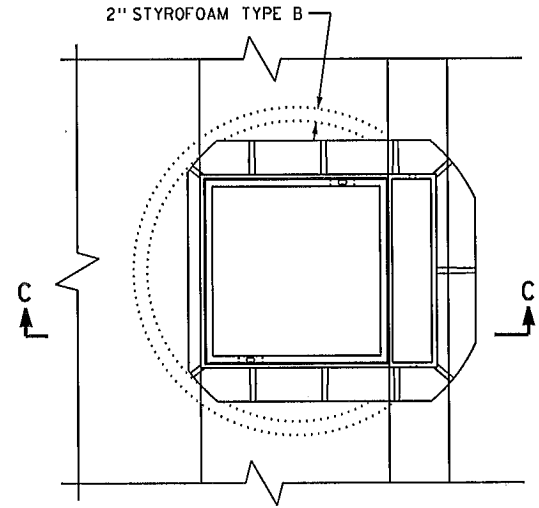


**DIVIDED-URBAN ROADWAY PLAN  
OVER 10° - SKEWS**

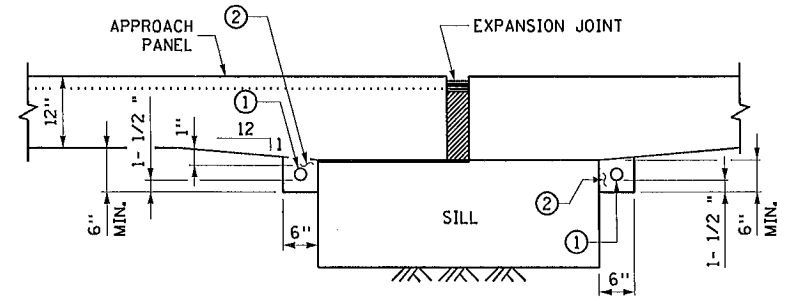


**DIVIDED-URBAN ROADWAY PLAN  
SQUARE TO 10° SKEWS**

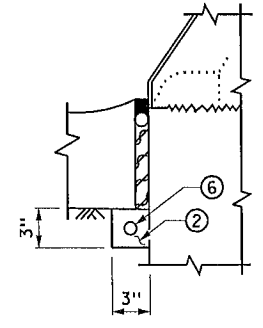
- NOTES:**
- ① 4-INCH NOMINAL DIAMETER THERMOPLASTIC PIPE, AS PER ASTM D1785M, SCHEDULE 40. SLOPE PIPE TO DITCH, WRAP PERFORATED PIPE WITH GEOTEXTILE AS PER SPEC. 3733. 1/8 INCH PER 12 INCH MINIMUM SLOPE. FURNISHING AND INSTALLING THE DRAIN SYSTEM IS INCIDENTAL.
  - ② BACKFILL WITH FINE AGGREGATE (MNDOT 3149) MODIFIED TO 0-3% PASSING A NO. 200 SIEVE (INCIDENTAL).
  - ③ SEE ROADWAY PLAN FOR ADDITIONAL CATCH BASIN DETAILS.
  - ④ LOCATE BETWEEN GUARDRAIL POST OR AS DETERMINED BY THE DESIGNER.
  - ⑤ REFER TO THE DRAINAGE PLAN TO DETERMINE WHETHER A FLUME OR A CATCH BASIN REQUIRED.
  - ⑥ 2-INCH NOMINAL DIAMETER THERMOPLASTIC PIPE, AS PER ASTM D1785M, SCHEDULE 40. SLOPE PIPE TO DITCH, WRAP PERFORATED PIPE WITH GEOTEXTILE AS PER SPEC. 3733. 1/8 INCH PER 12 INCH MINIMUM SLOPE. FURNISHING AND INSTALLING THE DRAIN SYSTEM IS INCIDENTAL.
  - ⑦ SEE GRADING PLANS FOR PAVEMENT AND SHOULDER WIDTHS AND CONFIGURATION.



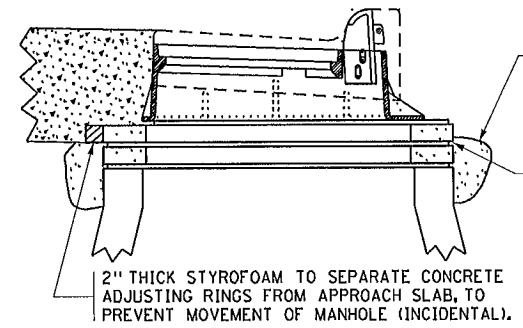
**PLAN VIEW OF C.B. CASTING  
(GRATE NOT SHOWN)**



**SECTION A-A  
DRAINAGE AT EXPANSION JOINT DETAIL**



**SECTION F-F  
DRAINAGE AT PANEL EDGE OF JOINT  
(THIS DETAIL IS USED IF THE CONCRETE BARRIER  
IS MOUNTED ON THE WINGWALL. DO NOT USE THIS DETAIL  
IF THE BARRIER IS MOUNTED ON THE APPROACH PANEL.)**



**SECTION C-C**

ENCASE CASTING AND RINGS WITH A CONCRETE COLLAR. USE THE SAME MIX AS USED IN CONCRETE CURB AND GUTTER OR USE MORTAR MIX (MNDOT 2506.2B) FOR THE CONCRETE COLLAR (INCIDENTAL).

MORTAR BETWEEN CASTING, RINGS AND STRUCTURE EXCEPT AS SHOWN. SEE SPEC. 2506.2B FOR MORTAR MIX REQUIREMENT (INCIDENTAL).

2" THICK STYROFOAM TO SEPARATE CONCRETE ADJUSTING RINGS FROM APPROACH SLAB, TO PREVENT MOVEMENT OF MANHOLE (INCIDENTAL).

4/14/2014 10:07:14 AM K:\02076-000\Cad\Plan\cbr-02585-ep06.dgn

STANDARD PLAN SHEET NO.  
**5-297.231**

STANDARD APPROVED:  
MARCH 23, 2011

NO.	DATE	BY	CHK	REVISIONS

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

*Barritt Lovelace*

LICENSED PROFESSIONAL ENGINEER: BARRITT LOVELACE  
DATE: 4-14-14 REG NO: 40456

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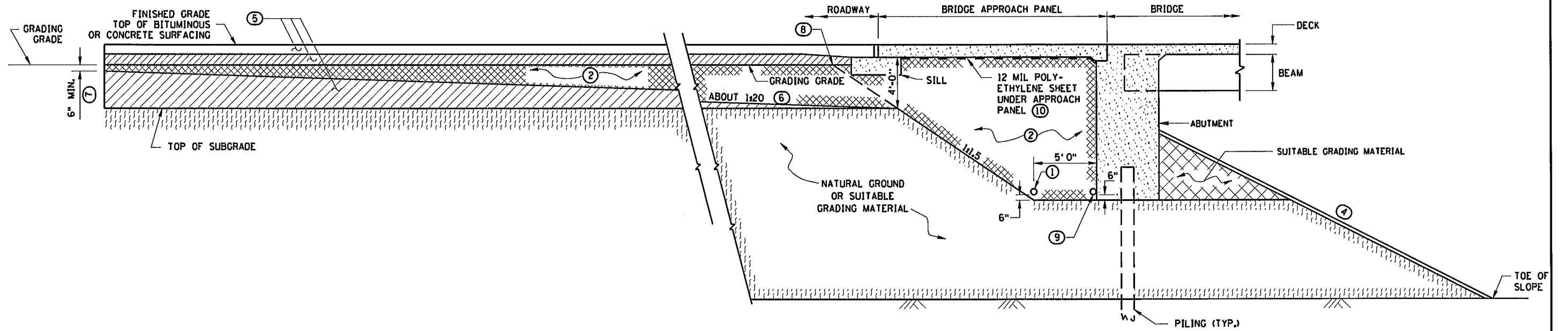
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**C.S.A.H. 51  
ANOKA COUNTY  
S.P. 002-651-007**

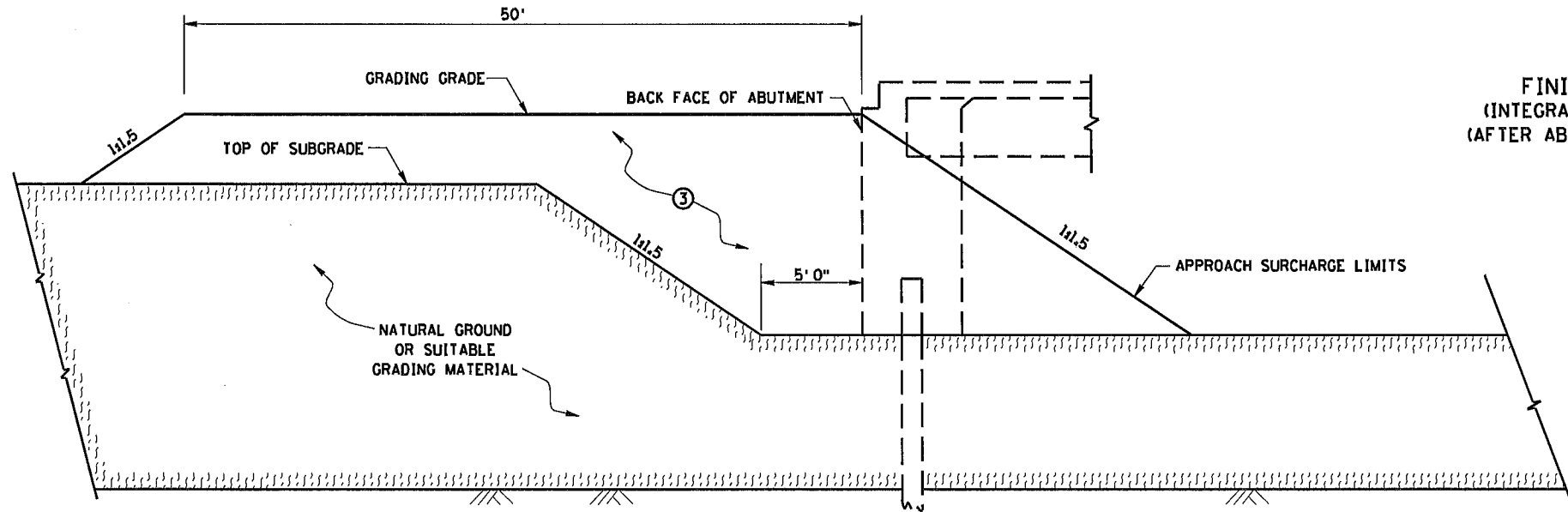
TITLE:  
**BRIDGE APPROACH PANEL  
DRAINAGE DETAILS**

DES: BRL	DR: DJV
CHK: AJN	CHK: BRL

Sheet **325** of **381** Sheets



ELEVATION  
 FINISHED GRADING SECTION  
 (INTEGRAL ABUTMENT ON PILING SHOWN)  
 (AFTER ABUTMENT HAS BEEN CONSTRUCTED)



ELEVATION  
 ROUGH GRADING SECTION  
 (PRIOR TO ABUTMENT CONSTRUCTION)

NOTES:

- ① SUBSURFACE PIPE DRAIN. SEE GRADING PLAN FOR DETAILS. FURNISH AND INSTALL IF SHOWN IN GRADING PLAN.
- ② QUANTITY OF SELECT GRANULAR MATERIAL MODIFIED 10% IS BASED ON DIMENSIONS SHOWN, AND PAYMENT IS BASED ON THIS QUANTITY. SELECT GRANULAR MATERIAL MODIFIED 10% SHALL COMPLY WITH SPEC. 3149.2B2, MODIFIED TO 10% OR LESS PASSING THE NUMBER 200 SIEVE. SEE GRADING PLAN FOR QUANTITY. IF THE CONTRACTOR CHOOSES TO INCREASE DIMENSIONS IN ORDER TO FACILITATE CONSTRUCTION OPERATIONS, ANY QUANTITY INCREASES SHALL BE CONSIDERED INCIDENTAL.
- ③ PLACE ABUTMENT APPROACH SURCHARGE MATERIAL PRIOR TO ABUTMENT CONSTRUCTION. AFTER COMPLETION OF SURCHARGE WAITING PERIOD, REMOVE SURCHARGE AND EXISTING NATURAL GROUND OR SUITABLE GRADING MATERIAL TO THE LIMITS SHOWN IN "ROUGH GRADING SECTION" ABOVE, PRIOR TO ABUTMENT CONSTRUCTION. SEE BRIDGE PLANS AND SPECIAL PROVISIONS FOR ABUTMENT APPROACH SURCHARGE REQUIREMENT AND PAYMENTS.
- ④ SEE BRIDGE PLANS FOR SLOPE AND SLOPE PROTECTION.
- ⑤ SEE GRADING PLANS FOR TYPE OF MATERIAL.
- ⑥ START 1:20 TAPER AT END OF APPROACH PANEL. 1:20 VARIES WHEN APPROACH PANEL IS SKEWED.
- ⑦ GRADING TO BE SQUARED OFF ON SKEWED BRIDGES.
- ⑧ TOP OF 1:1.5 SLOPE (FORMS A LINE PARALLEL TO END OF BRIDGE).
- ⑨ SUBSURFACE PIPE DRAIN. SEE BRIDGE PLAN FOR STANDARD DETAIL B910 FOR DETAILS.
- ⑩ PLACE 12 MIL POLYETHYLENE SHEETING (OR TWO LAYERS OF 6 MIL) UNDER THE LIMITS OF THE APPROACH PANEL TO ALLOW THE PANEL TO MOVE LONGITUDINALLY ON THE GRADE. SHEETING IS INCIDENTAL.

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STANDARD SHEET NO.  
**5-297.234 (1 OF 2)**  
 STANDARD APPROVED:  
 AUGUST 1, 2011

NO.	DATE	BY	CHK	REVISIONS

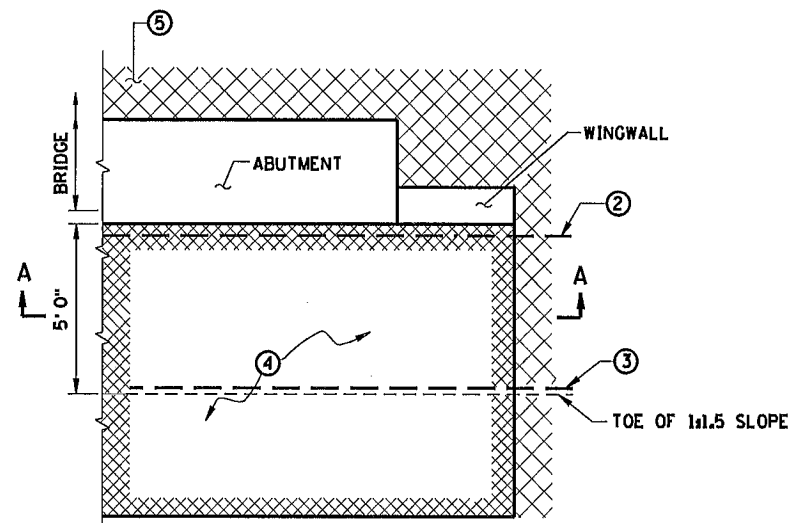
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
*Barritt Lovelace*  
 LICENSED PROFESSIONAL ENGINEER: BARRITT LOVELACE  
 DATE: 4-14-14 REG NO: 40459

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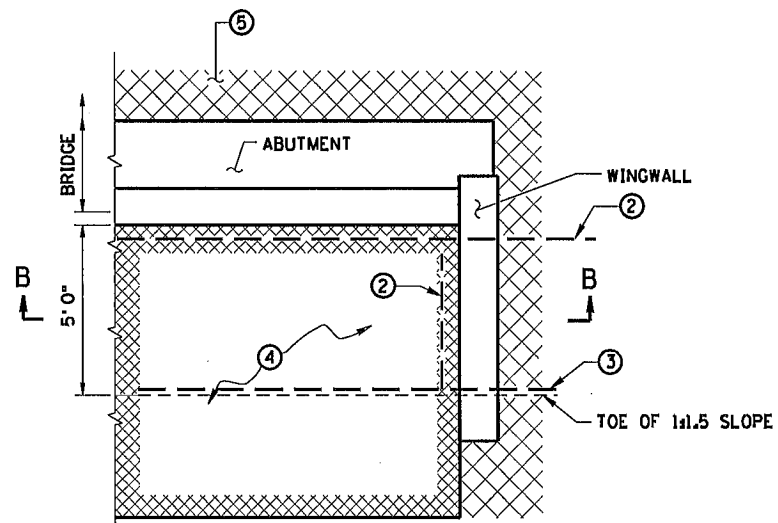
**C.S.A.H. 51**  
**ANOKA COUNTY**  
**S.P. 002-651-007**

TITLE:  
**BRIDGE ABUTMENT**  
**APPROACH TREATMENT**  
**FOR INTEGRAL ABUTMENTS**

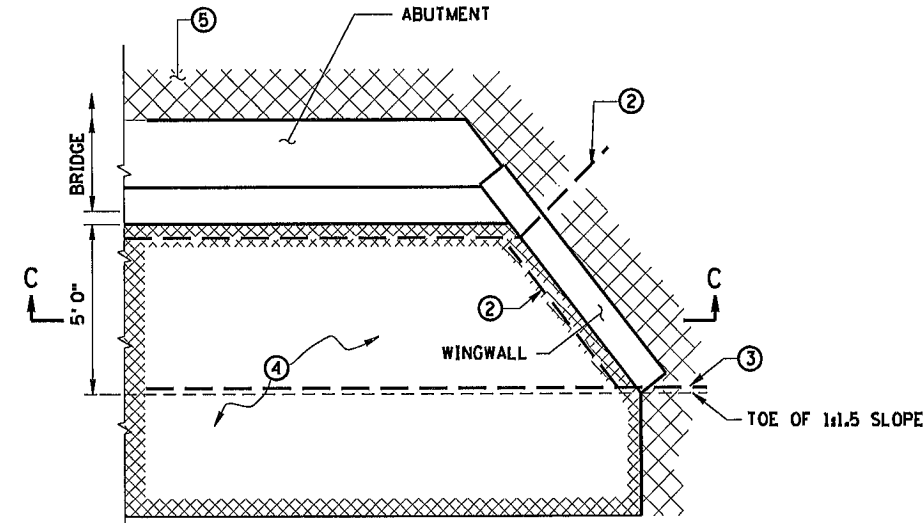
DES: BRL	DR: DJV
CHK: AJN	CHK: BRL
Sheet <b>326</b> of <b>381</b> Sheets	



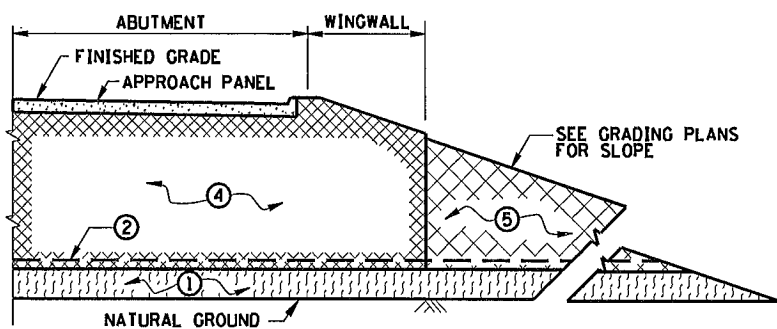
PARTIAL PLAN VIEW AT ABUTMENT  
(WINGWALL AT 180°) (FINISHED GRADING)



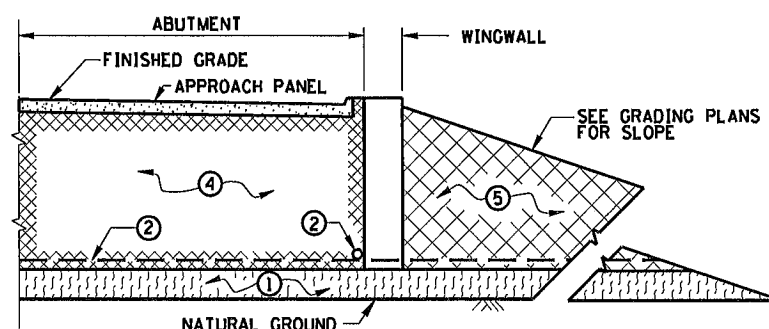
PARTIAL PLAN VIEW AT ABUTMENT  
(WINGWALL AT 90°) (FINISHED GRADING)



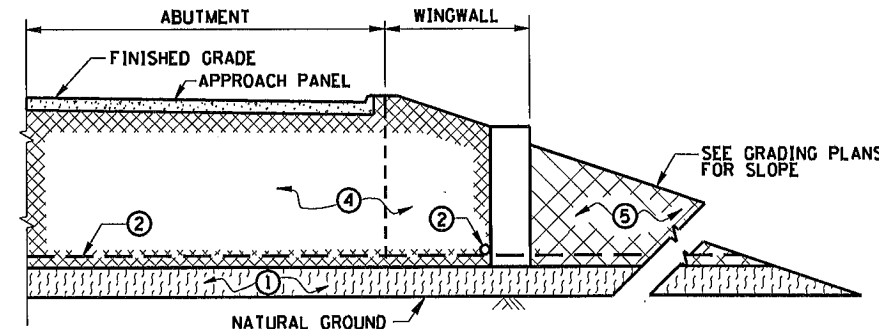
PARTIAL PLAN VIEW AT ABUTMENT  
(WINGWALL AT ANY OTHER ANGLE) (FINISHED GRADING)



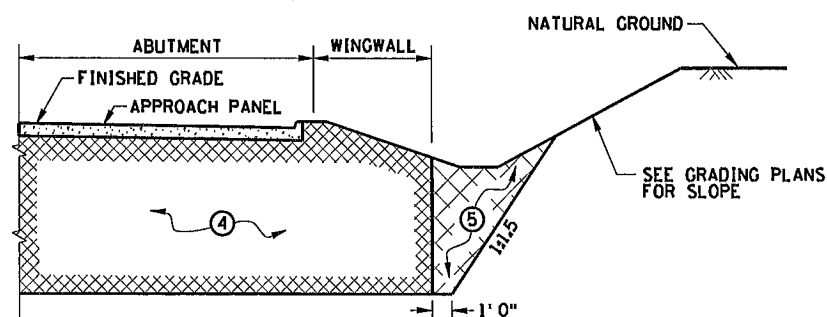
FINISHED GRADING SECTION A-A  
(FILL SECTION)



FINISHED GRADING SECTION B-B  
(FILL SECTION)



FINISHED GRADING SECTION C-C  
(FILL SECTION)



FINISHED GRADING SECTION A-A  
(CUT SECTION)  
(BRIDGE DETAIL B910 DRAIN NOT SHOWN)

NOTES:

- ① NATURAL GROUND OR SUITABLE GRADING MATERIAL.
- ② SUBSURFACE PIPE DRAIN. SEE BRIDGE PLAN FOR STANDARD DETAIL B910 FOR DETAILS.
- ③ SUBSURFACE PIPE DRAIN. SEE GRADING PLAN FOR DETAILS. FURNISH AND INSTALL IF SHOWN IN GRADING PLAN.
- ④ QUANTITY OF SELECT GRANULAR MATERIAL MODIFIED 10% IS BASED ON DIMENSIONS SHOWN, AND PAYMENT IS BASED ON THIS QUANTITY. SELECT GRANULAR MATERIAL MODIFIED 10% SHALL COMPLY WITH SPEC. 3149.2B2, MODIFIED TO 10% OR LESS PASSING THE NUMBER 200 SIEVE. SEE GRADING PLAN FOR QUANTITY, IF THE CONTRACTOR CHOOSES TO INCREASE DIMENSIONS IN ORDER TO FACILITATE CONSTRUCTION OPERATIONS, ANY QUANTITY INCREASES SHALL BE CONSIDERED INCIDENTAL.
- ⑤ SUITABLE GRADING MATERIAL.

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STANDARD SHEET NO.  
5-297.234 (2 OF 2)  
STANDARD APPROVED:  
AUGUST 1, 2011

NO	DATE	BY	CHK	REVISIONS

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*Barritt Lovelace*  
LICENSED PROFESSIONAL ENGINEER: BARRITT LOVELACE  
DATE: 4-14-14 REG NO: 40456

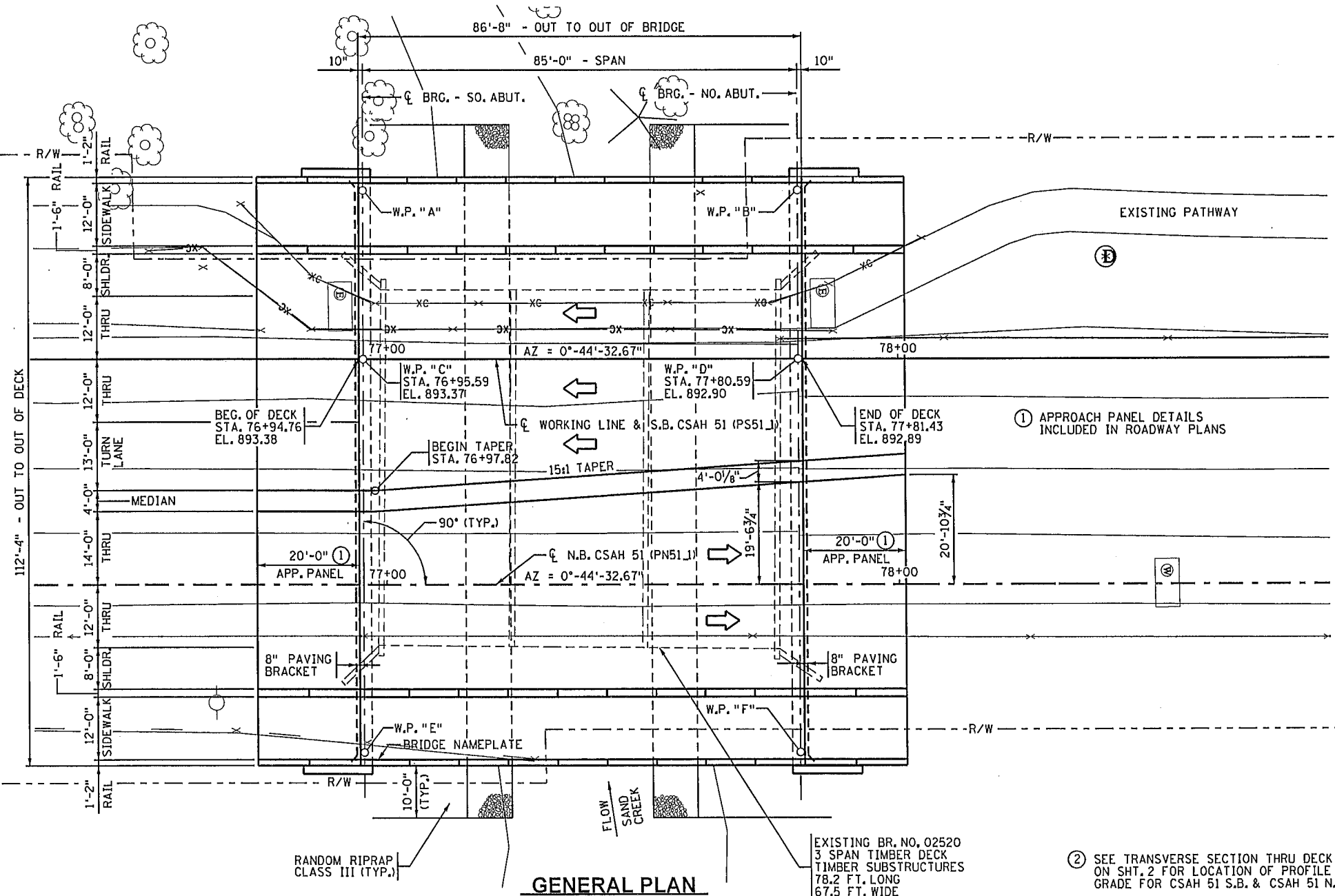
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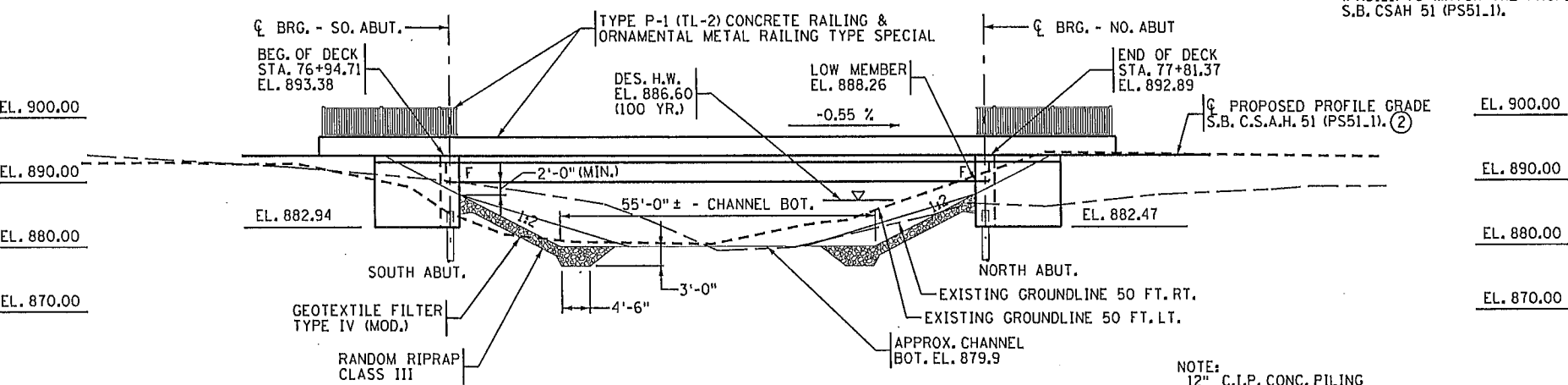
TITLE:  
**BRIDGE ABUTMENT  
APPROACH TREATMENT  
FOR INTEGRAL ABUTMENTS**

DES: BRL	DR: DJV
CHK: AJN	CHK: BRL

Sheet 327 of 301 Sheets



**GENERAL PLAN**



**GENERAL ELEVATION**

**DESIGN DATA**

2012 AND CURRENT INTERIM AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS  
 DESIGN LOADING HL93 LIVE LOAD  
 LOAD AND RESISTANCE FACTOR DESIGN METHOD  
 DEAD LOAD INCLUDES 20 PSF ALLOWANCE FOR FUTURE WEARING COURSE MODIFICATIONS.  
 MATERIAL DESIGN PROPERTIES:  
 REINFORCED CONCRETE:  
 f'c = 4 ksi n = 8  
 fy = 60 ksi REINFORCEMENT  
 PRESTRESSED CONCRETE:  
 f'c = 9 ksi n = 1  
 fpu = 270 ksi STRANDS LOW RELAX 0.75fpu FOR INITIAL PULL  
 STRUCTURAL STEEL:  
 fy = 50 ksi

DESIGN SPEED = 50 MPH  
 APPROXIMATE DECK AREA = 9736 SF  
 OPERATING RATING FACTOR = 1.68 (LRFR)  
 PROJECTED ADT FOR 2034 = 23800

**LIST OF SHEETS**

NO.	DESCRIPTION
1	GENERAL PLAN AND ELEVATION
2	TRANSVERSE SECTION AND QUANTITIES
3	BRIDGE LAYOUT
4	EXISTING BRIDGE REMOVAL - STAGE 1
5 & 6	STAGING PLAN
7-13	SOUTH ABUTMENT DETAILS AND REINF.
14-20	NORTH ABUTMENT DETAILS AND REINF.
21	PRESTR. CONC. BEAM DETAILS
22	FRAMING PLAN
23-25	SUPERSTRUCTURE DETAILS
26	CONDUIT SYSTEM DETAILS
27	TYPE MOD. F (TL-5) CONCRETE RAILING
28	TYPE P-1 (TL-2) CONCRETE RAILING
29	ORNAMENTAL METAL RAILING DETAILS
30	RIPRAP SLOPE WITH GEOTEXTILE
31-34	BRIDGE DETAILS
35	AS-BUILT BRIDGE DATA
36	BRIDGE SURVEY
37	BRIDGE SURVEY - PLAN & PROFILE
38	BRIDGE SURVEY - BORING LOGS

BENCH MARK EL. 893.76  
 LOCATION: ELECTRIC MANHOLE IN PATHWAY  
 N.W. QUAD OF TIMBER BRIDGE  
 STA. 77+85.25, 55.94' LT.  
 VERTICAL DATUM IS NAVD 88

APPROVED: \_\_\_\_\_  
 ANOKA COUNTY ENGINEER

DATE: \_\_\_\_\_

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 INFRASTRUCTURE - ENGINEERS - PLANNERS

MINNESOTA DEPARTMENT OF TRANSPORTATION

**FINAL PLAN**  
**Bridge No. 02585**  
 C.S.A.H. 51 OVER SAND CREEK  
 1.0 MILE SOUTH OF JCT. T.H. 242  
 AND C.S.A.H. 51  
 SPAN IDENTIFICATION NO. 501  
 SEC. 7 TWP. 31N R. 23W  
 CITY OF BLAINE ANOKA COUNTY

APPROVED: \_\_\_\_\_ STATE BRIDGE ENGINEER DATE \_\_\_\_\_

NO.	DATE	BY	CHK	REVISIONS

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

*Barritt Lovelace*  
 LICENSED PROFESSIONAL ENGINEER: BARRITT LOVELACE  
 DATE: 8-6-13 REG NO.: 40456

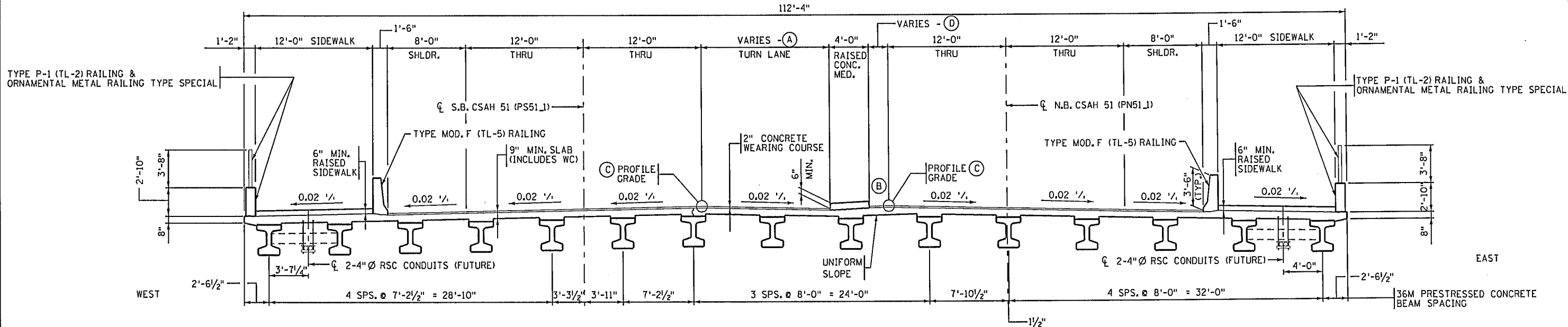
**C.S.A.H. 51**  
**ANOKA COUNTY**  
**S.P. 002-651-007**

TITLE: **GENERAL PLAN AND ELEVATION**

DES: BRL OR: DJV  
 CHK: AJN CHK: BRL  
**02585**  
 Sheet **328** of **381** Sheets

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TRANSVERSE SECTION THRU DECK

- (A) 7'-5/8" TO 13'-0"
- (B) 0.02 %
- (C) PROFILE GRADE ELEVATIONS MATCH
- (D) 2'-0" TO 7'-6 3/4"

SCHEDULE OF QUANTITIES FOR BRIDGE NO. 02585

ITEM NO.	ITEM	UNIT	QUANTITY
2011.601	VIBRATION MONITORING	LUMP SUM	1
2021.501	MOBILIZATION	LUMP SUM	1
2104.601	REMOVE REGULATED WASTE MATERIAL (BRIDGE)	LUMP SUM	1
2401.501	STRUCTURAL CONCRETE (3Y43)	CU. YD.	188 (P)
2401.512	BRIDGE SLAB CONCRETE (3Y36)	SQ. FT.	9736 (P)
2401.513	TYPE MOD F (TL-5) RAILING CONCRETE (3Y46)	LIN. FT.	254 (P)
2401.513	TYPE P-1 (TL-2) RAILING CONCRETE (3Y46)	LIN. FT.	254 (P)
2401.515	SIDEWALK CONCRETE (3Y46)	SQ. FT.	2081 (P)
2401.516	RAISED MEDIAN CONCRETE (3Y46)	SQ. FT.	580 (P)
2401.541	REINFORCEMENT BARS (EPOXY COATED)	POUND	95470 (P)
2401.541	REINFORCEMENT BARS (STAINLESS STEEL)	POUND	1140 (P)
2401.601	SLOPE PREPARATION	LUMP SUM	1
2401.601	STRUCTURE EXCAVATION	LUMP SUM	1
2401.618	BRIDGE DECK PLANING	SQ. FT.	8910 (P)
2402.583	ORNAMENTAL METAL RAILING TYPE SPECIAL	LIN. FT.	252 (P)
2402.590	ELASTOMERIC BEARING PAD, TYPE 1	EACH	30 (P)
2404.501	CONCRETE WEARING COURSE (3U17A)	SQ. FT.	9755 (P)
2405.502	PRESTRESSED CONCRETE BEAMS 36M	LIN. FT.	1294 (P)
2405.511	DIAPHRAGMS FOR TYPE 36M PRESTR BEAMS	LIN. FT.	108 (P)
2442.501	REMOVE EXISTING BRIDGE	LUMP SUM	1
2452.507	C-I-P CONCRETE PILING DELIVERED 12"	LIN. FT.	2890
2452.508	C-I-P CONCRETE PILING DRIVEN 12"	LIN. FT.	2890
2452.519	C-I-P CONCRETE TEST PILES 95 FT LONG 12"	EACH	6
2502.502	DRAINAGE SYSTEM TYPE (B910)	LUMP SUM	1
2511.501	RANDOM RIPRAP CLASS III	CU. YD.	430
2511.515	GEOTEXTILE FILTER TYPE IV (MOD)	SQ. YD.	750
2545.509	CONDUIT SYSTEM (FUTURE)	LUMP SUM	1

- ① NON-PARTICIPATING FOR BRIDGE BOND FUNDS, STA. 77+37.50
- ② NON-PARTICIPATING FUNDS

CONSTRUCTION NOTES

THE 2005 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

THE BAR SIZES SHOWN IN THE PLAN ARE IN U.S. CUSTOMARY DESIGNATIONS.

BARS MARKED WITH THE SUFFIX "E" SHALL BE EPOXY COATED.

BARS MARKED WITH THE SUFFIX "S" SHALL BE STAINLESS STEEL PER SPEC. 3312.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF C1/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA".

THE PILE LOADS SHOWN IN THE PLAN AND THE CORRESPONDING NOMINAL PILE BEARING RESISTANCE (R<sub>n</sub>) WERE COMPUTED USING LRFD METHODOLOGY. PILE BEARING RESISTANCE DETERMINED IN THE FIELD SHALL INCORPORATE THE METHODS AND/OR FORMULAS DESCRIBED IN THE SPECIAL PROVISIONS.

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*Barritt Lovelace*  
 LICENSED PROFESSIONAL ENGINEER: BARRITT LOVELACE  
 DATE: 8-6-13 REG NO: 40456

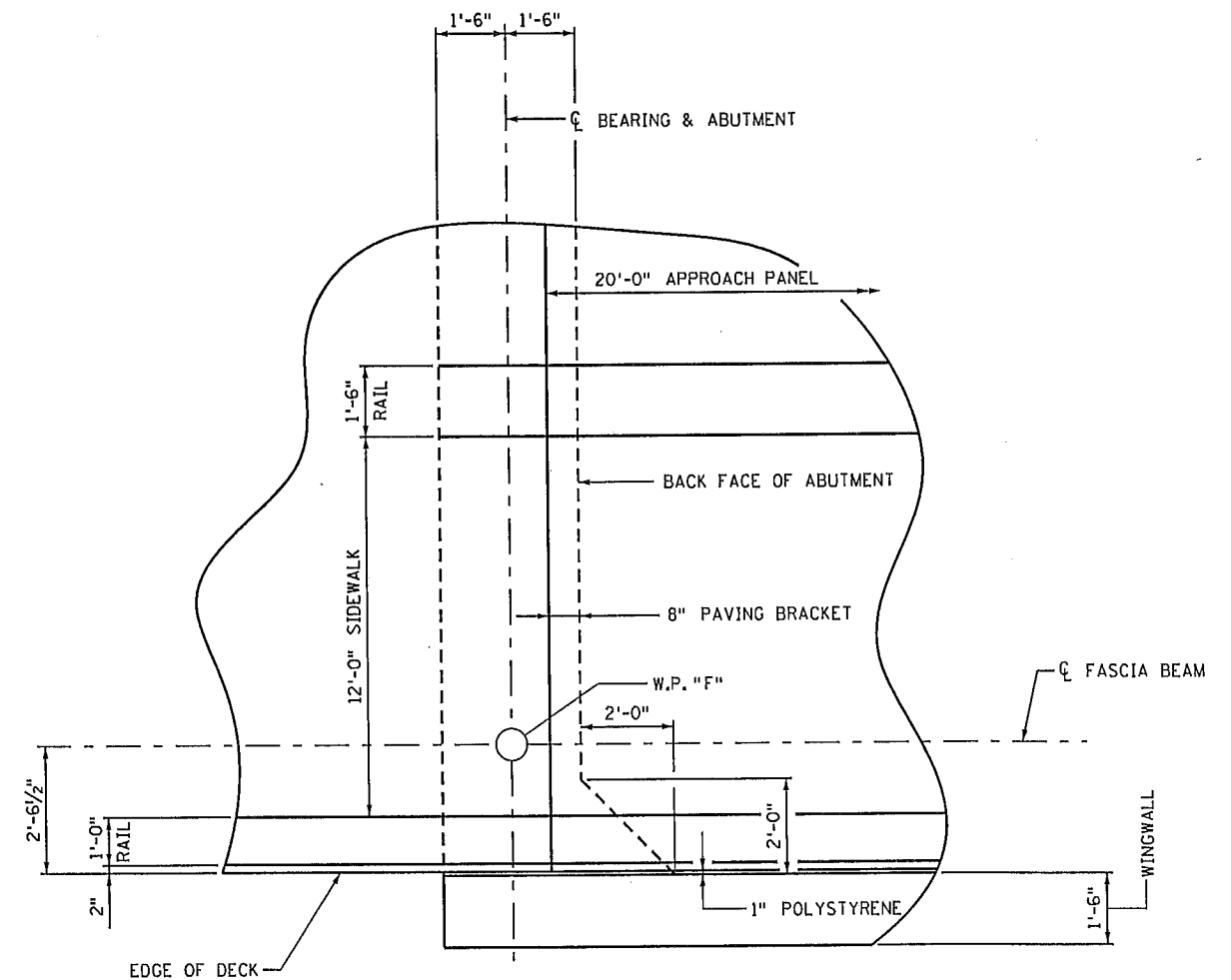
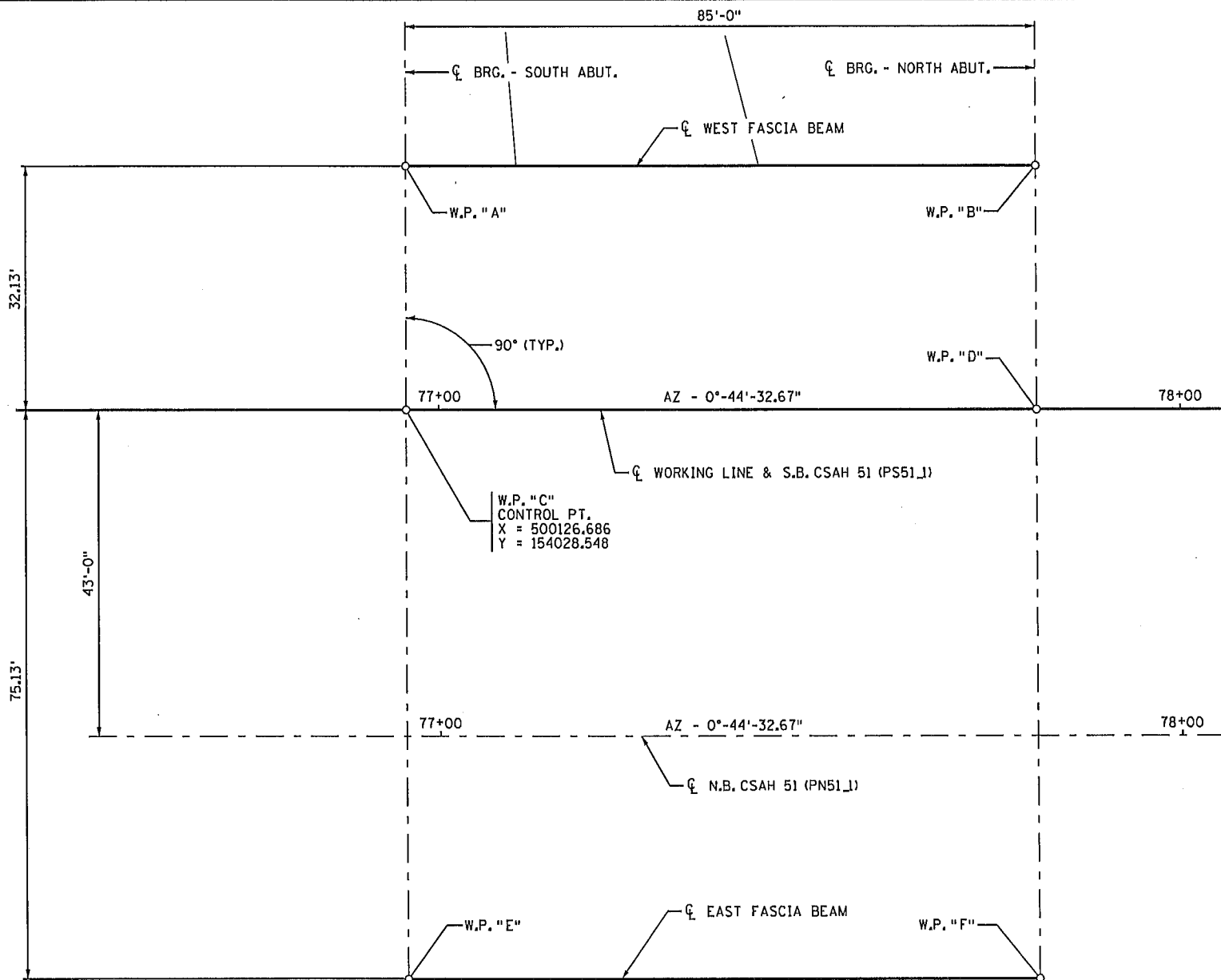
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**ANOKA COUNTY**  
**S.P. 002-651-007**

TITLE:  
**TRANSVERSE SECTION AND QUANTITIES**

DES: BRL DR: DJV  
 CHK: AJN CHK: BRL  
 Sheet 329 of 301 Sheets

Bridge No.  
**02585**



TYPICAL CORNER DETAIL

① ELEVATIONS CORRESPOND TO TOP OF STRUCTURAL DECK OR BOTTOM OF SIDEWALK

TOP OF ROADWAY TO BRIDGE SEAT

	SLAB THICKNESS	STOOL HEIGHT	BEAM HEIGHT	BEARING HEIGHT	TOTAL
SOUTH ABUT.	9"	3"	36"	1/2"	4.04'
NORTH ABUT.	9"	3"	36"	1/2"	4.04'

WORKING POINT LAYOUT

DIMENSIONS BETWEEN WORKING POINTS

POINT	STATION	X-COORD	Y-COORD	ELEVATIONS						POINT			
				A	B	C	D	E	F				
A	76+95.59	500094.564	154028.964		85.00	32.13	90.87		136.85	892.73 (1)	4.04'	888.69	A
B	77+80.59	500095.665	154113.957			90.87	32.13	136.85		892.26 (1)	4.04'	888.22	B
C	76+95.59	500126.686	154028.548				85.00	75.13	113.44	893.36	-	-	C
D	77+80.59	500127.788	154113.541					113.44	75.13	892.90	-	-	D
E	76+95.59	500201.805	154027.575						85.00	892.73 (1)	4.04'	888.69	E
F	77+80.59	500202.906	154112.567							892.26 (1)	4.04'	888.22	F

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*Barritt Lovelace*

LICENSED PROFESSIONAL ENGINEER: BARRITT LOVELACE  
DATE: 8-6-13 REG NO: 40456

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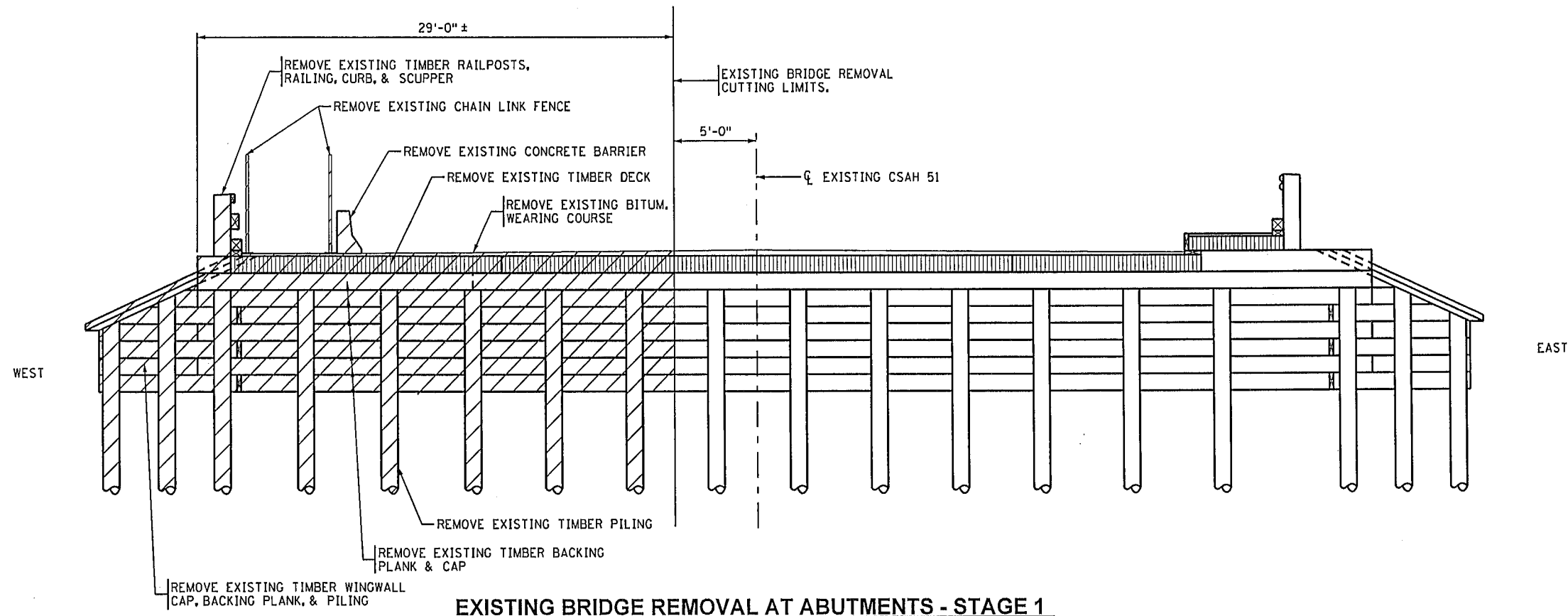
**C.S.A.H. 51**  
**ANOKA COUNTY**  
**S.P. 002-651-007**

TITLE:  
**BRIDGE LAYOUT**

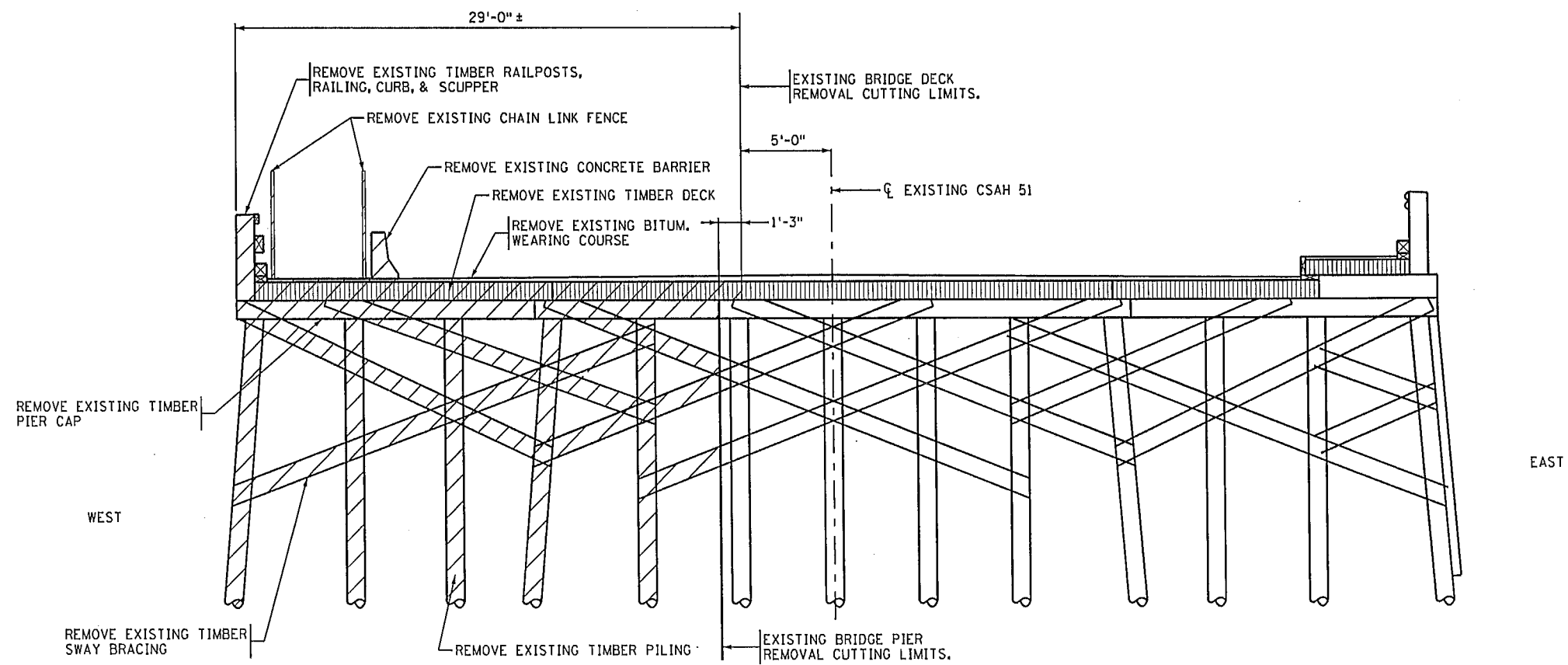
DES: BRL DR: DJV  
CHK: AJN CHK: BRL

Sheet **330** of **301** Sheets

Bridge No.  
**02585**



**EXISTING BRIDGE REMOVAL AT ABUTMENTS - STAGE 1**



**EXISTING BRIDGE REMOVAL AT PIERS - STAGE 1**

**REMOVAL NOTES**

HATCHED AREA'S INDICATE PORTIONS OF EXISTING BRIDGE TO BE REMOVED IN STAGE 1 CONSTRUCTION.

REMAINDER OF THE EXISTING BRIDGE WILL BE REMOVED AFTER TRAFFIC HAS BEEN SWITCHED OVER TO PROPOSED BRIDGE STAGE 1 CONSTRUCTION. AFTER ENTIRE EXISTING BRIDGE HAS BEEN REMOVED STAGE 2 OF THE PROPOSED BRIDGE CAN BEGIN.

NO CUTTING WILL BE PERMITTED UNTIL THE CUTTING LIMITS HAVE BEEN OUTLINED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. REMOVAL SHALL CONFORM TO SPEC. 2433.

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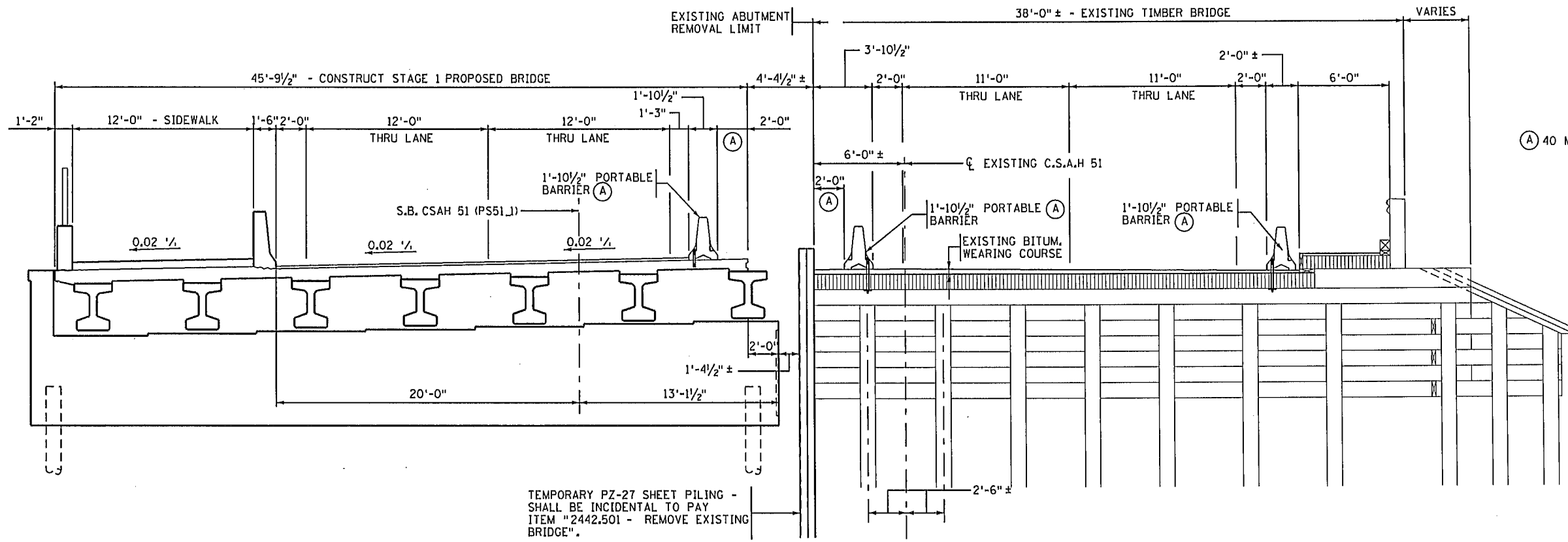
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**ANOKA COUNTY**  
**S.P. 002-651-007**

TITLE:  
**EXISTING BRIDGE REMOVALS - STAGE 1**

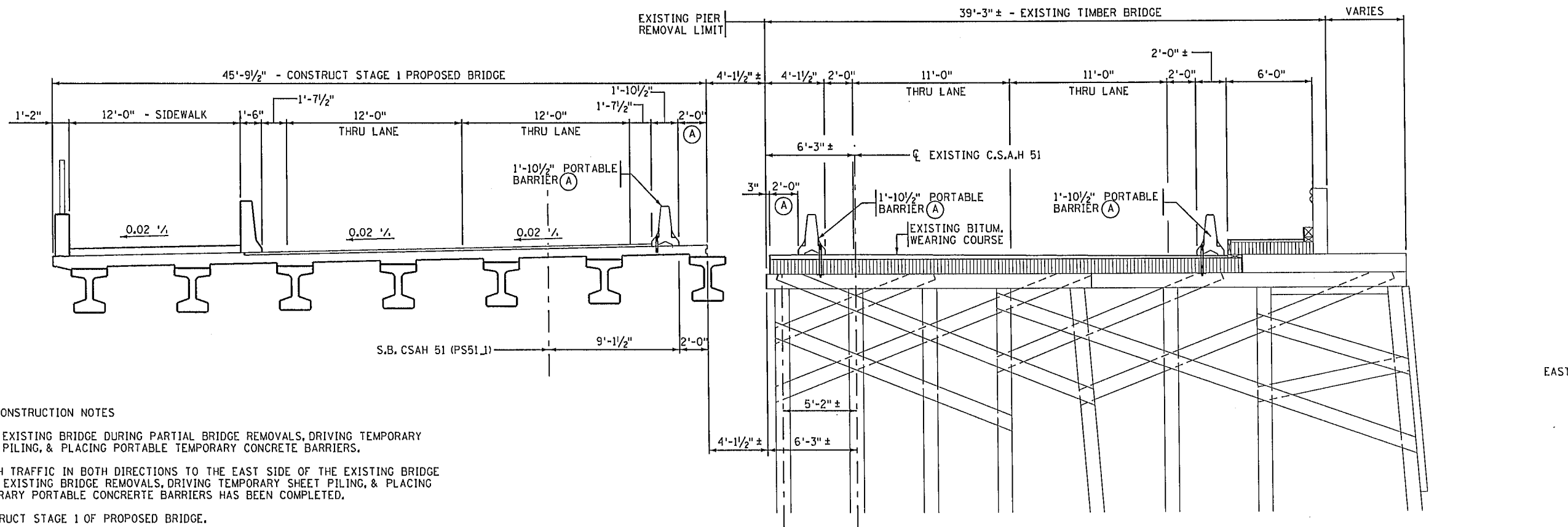
DES: BRL	DR: DJV
CHK: AJN	CHK: BRL
Sheet <b>331</b> of <b>381</b> Sheets	

Bridge No.  
**02585**



TEMPORARY PZ-27 SHEET PILING - SHALL BE INCIDENTAL TO PAY ITEM "2442.501 - REMOVE EXISTING BRIDGE".

**BRIDGE CONSTRUCTION AT ABUTMENTS - STAGE 1**



**STAGE 1 CONSTRUCTION NOTES**

1. CLOSE EXISTING BRIDGE DURING PARTIAL BRIDGE REMOVALS, DRIVING TEMPORARY SHEET PILING, & PLACING PORTABLE TEMPORARY CONCRETE BARRIERS.
2. SWITCH TRAFFIC IN BOTH DIRECTIONS TO THE EAST SIDE OF THE EXISTING BRIDGE AFTER EXISTING BRIDGE REMOVALS, DRIVING TEMPORARY SHEET PILING, & PLACING TEMPORARY PORTABLE CONCRETE BARRIERS HAS BEEN COMPLETED.
3. CONSTRUCT STAGE 1 OF PROPOSED BRIDGE.

**BRIDGE CONSTRUCTION AT PIERS - STAGE 1**

8/6/2013 11:06 PM K:\2013-000\_Cad\Plan\cbr-02585\_staging.dgn

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*Barritt Lovelace*  
 LICENSED PROFESSIONAL ENGINEER: BARRITT LOVELACE  
 DATE: 8-6-13 REG NO: 40456

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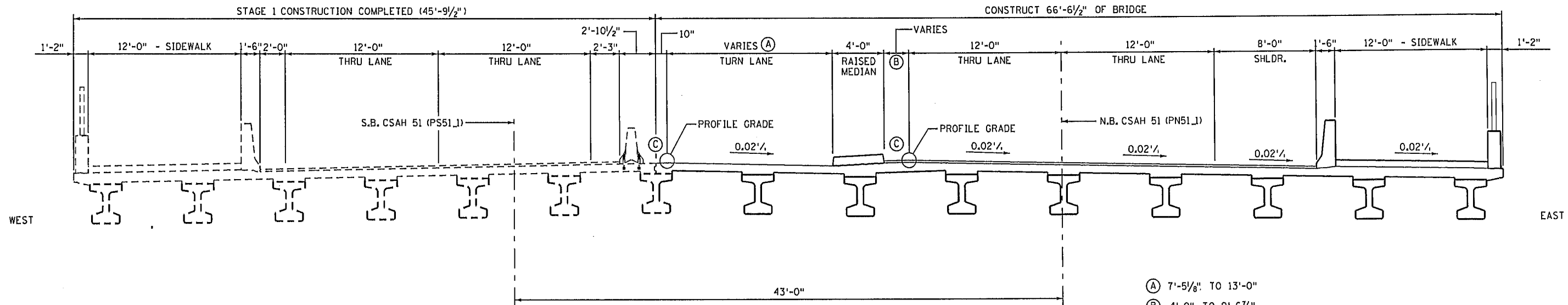
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**C.S.A.H. 51**  
**ANOKA COUNTY**  
**S.P. 002-651-007**

TITLE:  
**STAGING PLAN**

DES: BRL	DR: DJV
CHK: AJN	CHK: BRL
Sheet <b>332</b> of <b>301</b> Sheets	

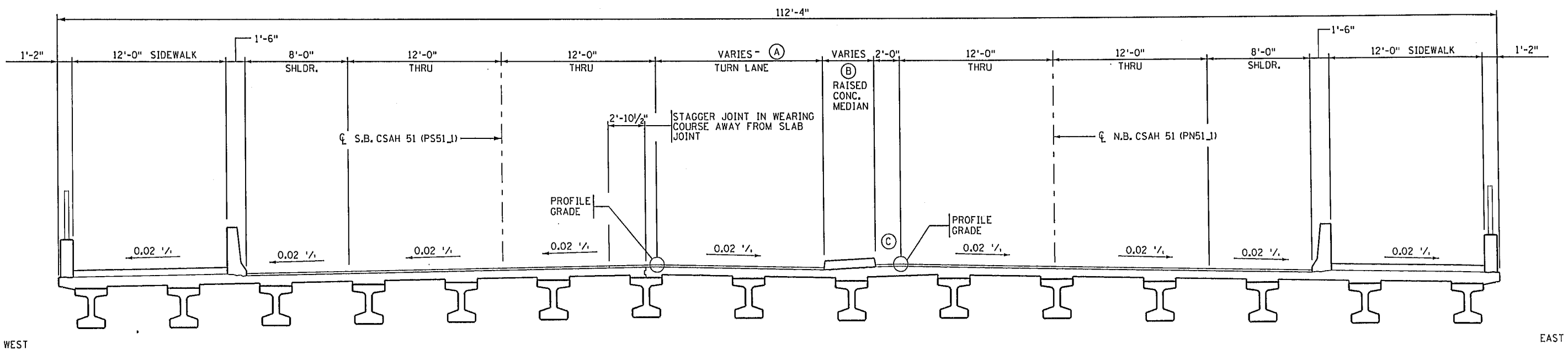
Bridge No.  
**02585**



- (A) 7'-5 1/8" TO 13'-0"
- (B) 4'-0" TO 9'-6 7/8"
- (C) 0.02 %

- STAGE 2 CONSTRUCTION NOTES**
1. SWITCH ALL TRAFFIC ONTO NEWLY CONSTRUCTED STAGE 1.
  2. REMOVE REMAINDER OF EXISTING BRIDGE.
  3. CONSTRUCT REMAINDER OF THE BRIDGE EAST OF STAGE 1 EXCEPT WEARING COURSE BETWEEN TEMPORARY BARRIER & 6" RAISED MEDIAN.

**BRIDGE CONSTRUCTION - STAGE 2**



- (A) 7'-5 1/8" TO 13'-0"
- (B) 4'-0" TO 9'-6 7/8"
- (C) 0.02 %

- STAGE 3 CONSTRUCTION NOTES**
1. SWITCH NORTH BOUND TRAFFIC TO NORTH BOUND PERMANENT TRAFFIC LANES.
  2. MOVE SOUTH BOUND TRAFFIC TO SOUTH BOUND SHOULDER AND WEST THRU LANE.
  3. REMOVE TEMPORARY PORTABLE BARRIER AND COMPLETE REMAINDER OF BRIDGE.
  4. SHIFT SOUTH BOUND TRAFFIC TO PERMANENT SOUTH BOUND THRU LANES.

**BRIDGE CONSTRUCTION - STAGE 3**

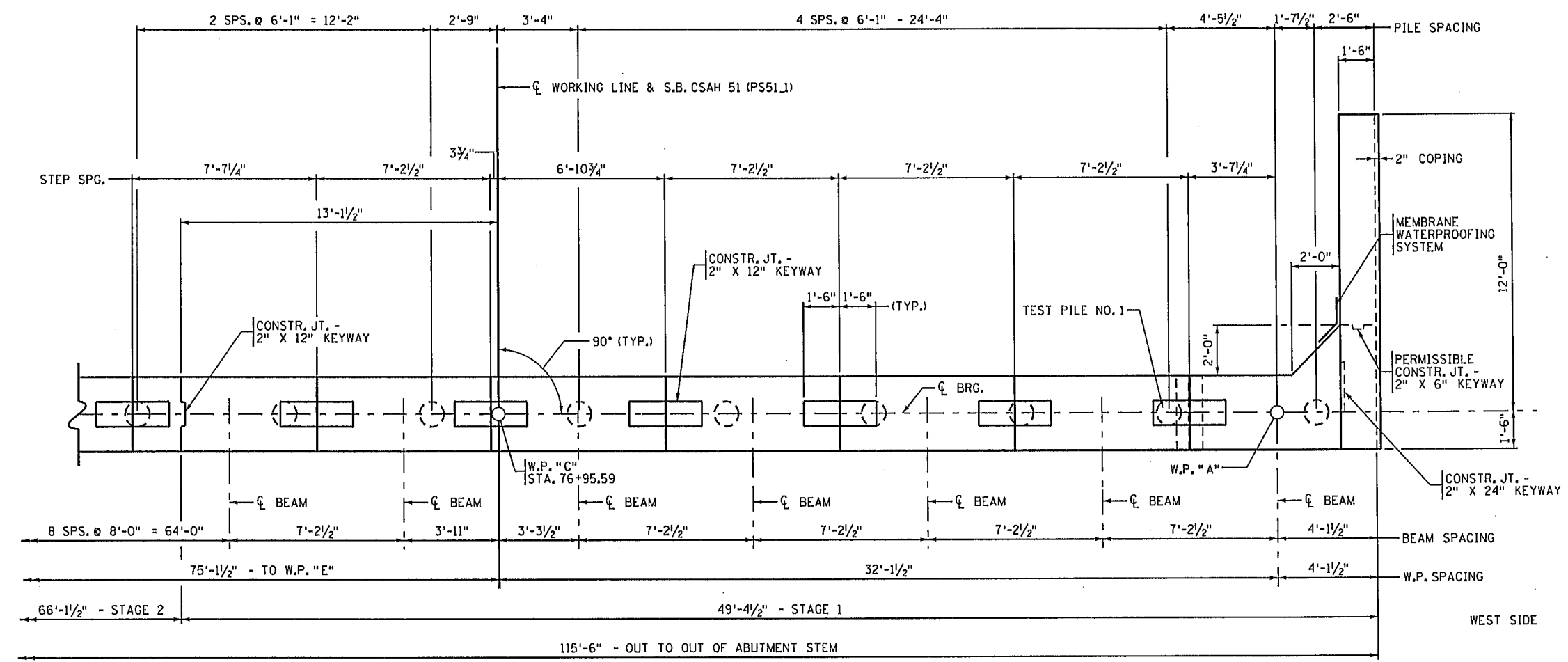
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NO.	DATE	BY	CHK	REVISIONS																							

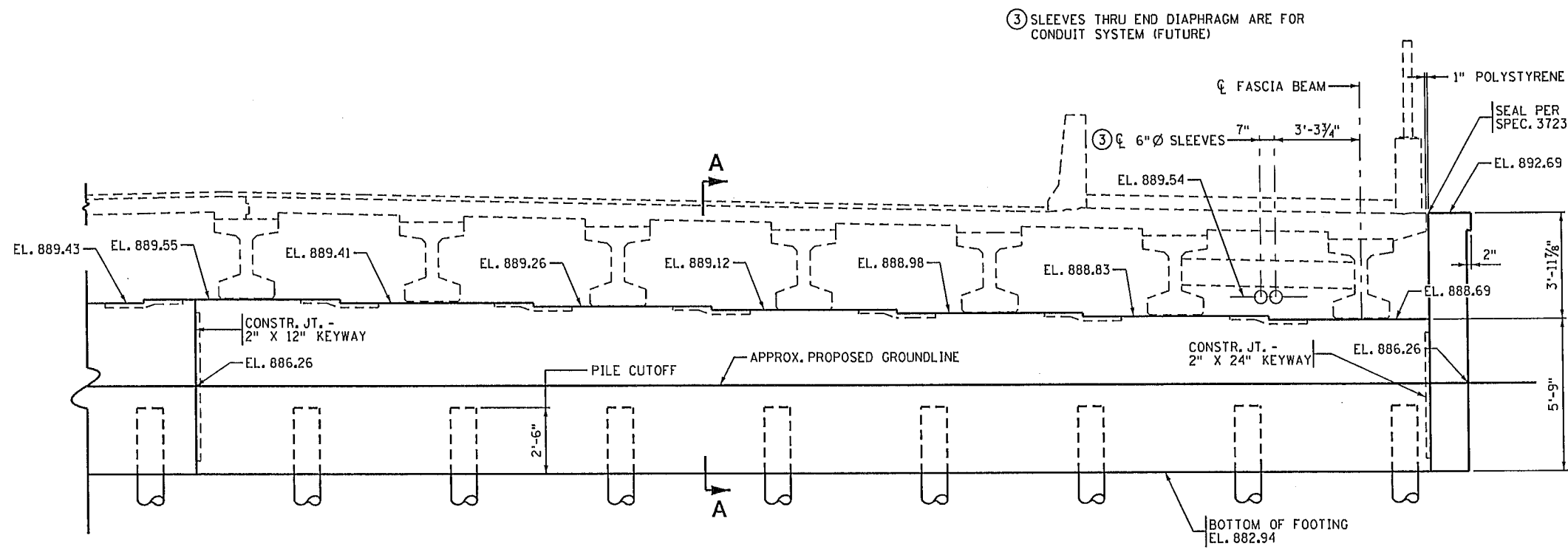
**SUMMARY OF QUANTITIES - SOUTH ABUTMENT**

STRUCTURAL CONCRETE (3Y43)	94	CU. YD.
REINFORCEMENT BARS (EPOXY COATED)	11065	POUND
① C-I-P CONNCRETE PILING DELIVERED 12"	1445	LIN. FT.
① C-I-P CONCRETE PILING DRIVEN 12"	1445	LIN. FT.
C-I-P CONCRETE TEST PILES 95 FT. LONG 12"	3	EACH
② MEMBRANE WATERPROOFING SYSTEM	155	LIN. FT.
STRUCTURE EXCAVATION	1	LUMP SUM
RANDOM RIPRAP CLASS III	215	CU. YD.
GEOTEXTILE FILTER TYPE IV MODIFIED	375	SQ. YD.
SLOPE PREPARATION	1	LUMP SUM
DRAINAGE SYSTEM TYPE (B910)	1	LUMP SUM

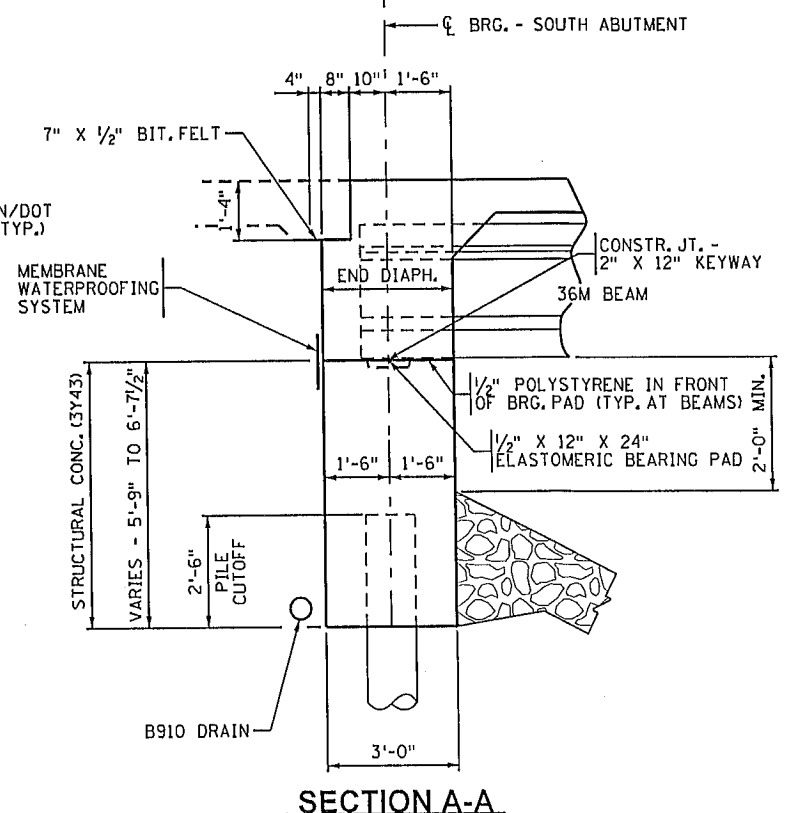
- ① DOES NOT INCLUDE TEST PILES.
- ② TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.



**PLAN VIEW - STAGE 1**



**ELEVATION VIEW - STAGE 1**



**SECTION A-A**

③ SLEEVES THRU END DIAPHRAGM ARE FOR CONDUIT SYSTEM (FUTURE)

8/6/2013 11:07 PM K:\02076-000\Cad\Plan\cbr-02585\_southabut1.dgn

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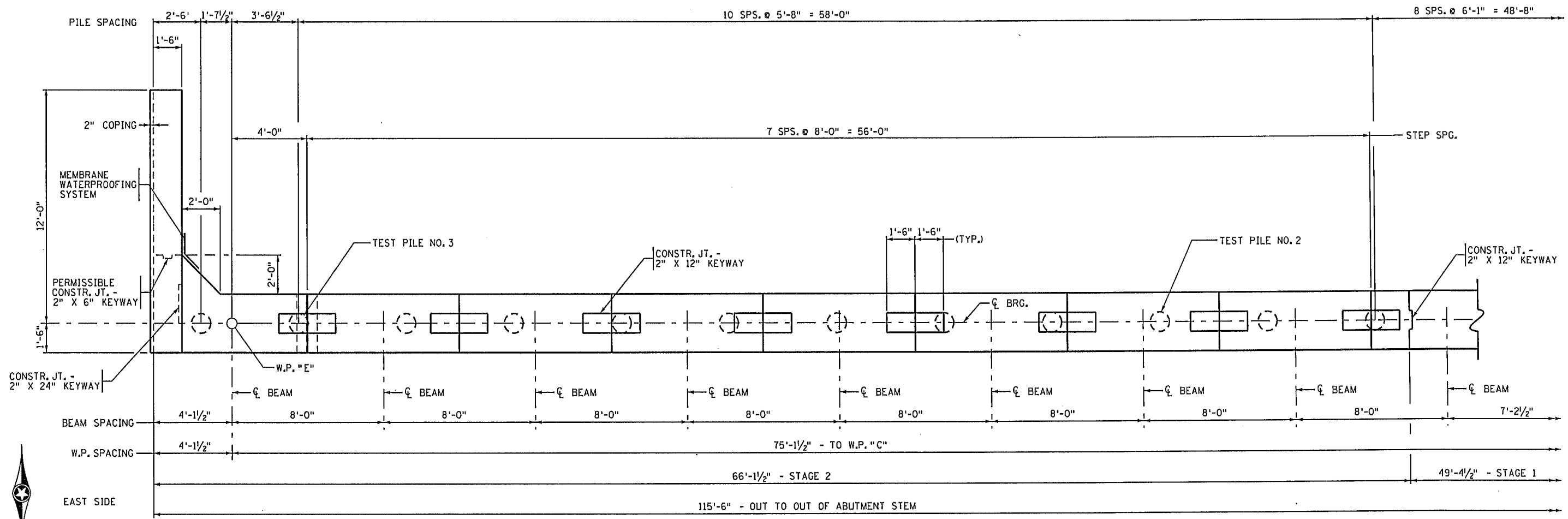
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**ANOKA COUNTY**  
**S.P. 002-651-007**

TITLE:  
**SOUTH ABUTMENT DETAILS**

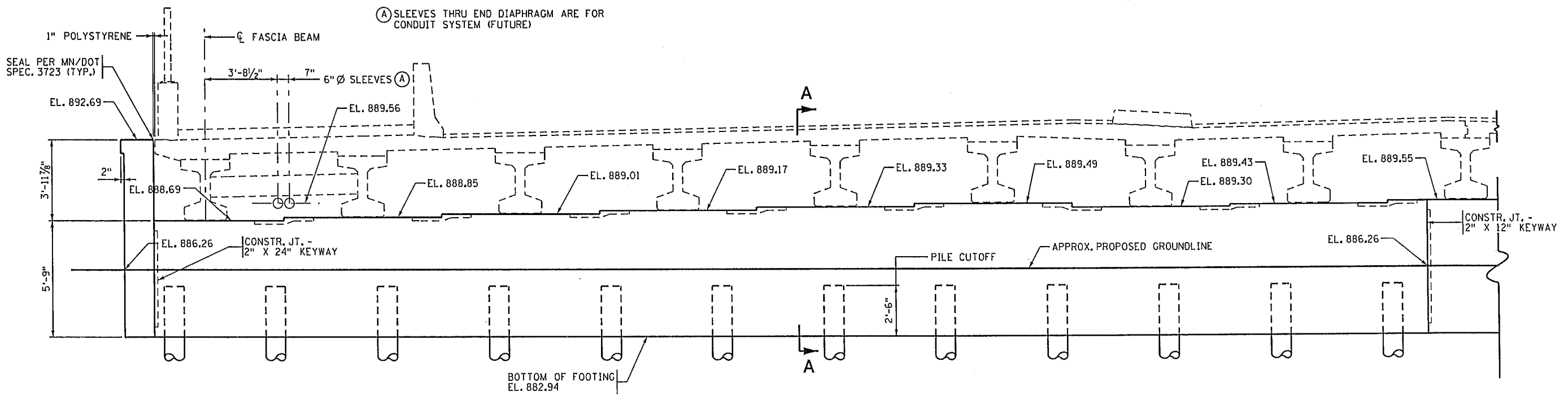
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CHK: AJN	CHK: BRL

Sheet **334** of **381** Sheets

Bridge No.  
**02585**



**PLAN VIEW - STAGE 2**



**ELEVATION VIEW - STAGE 2**

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TITLE:  
**SOUTH ABUTMENT  
 DETAILS**

DES: BRL	DR: DJV
CHK: AJN	CHK: BRL
Sheet <b>335</b> of <b>301</b> Sheets	

Bridge No.  
**02585**

SOUTH ABUTMENT REQUIRED NOMINAL PILE BEARING RESISTANCE FOR CIP PILES R <sub>n</sub> - TONS/PILE		
FIELD CONTROL METHOD	φ dyn	* R <sub>n</sub>
MN/DOT PILE FORMULA 2012 (MPF12)		
$R_n = 20 \sqrt{\frac{W \times H}{1000}} \times \log\left(\frac{10}{S}\right)$	0.50	164.6
PDA	0.65	126.6

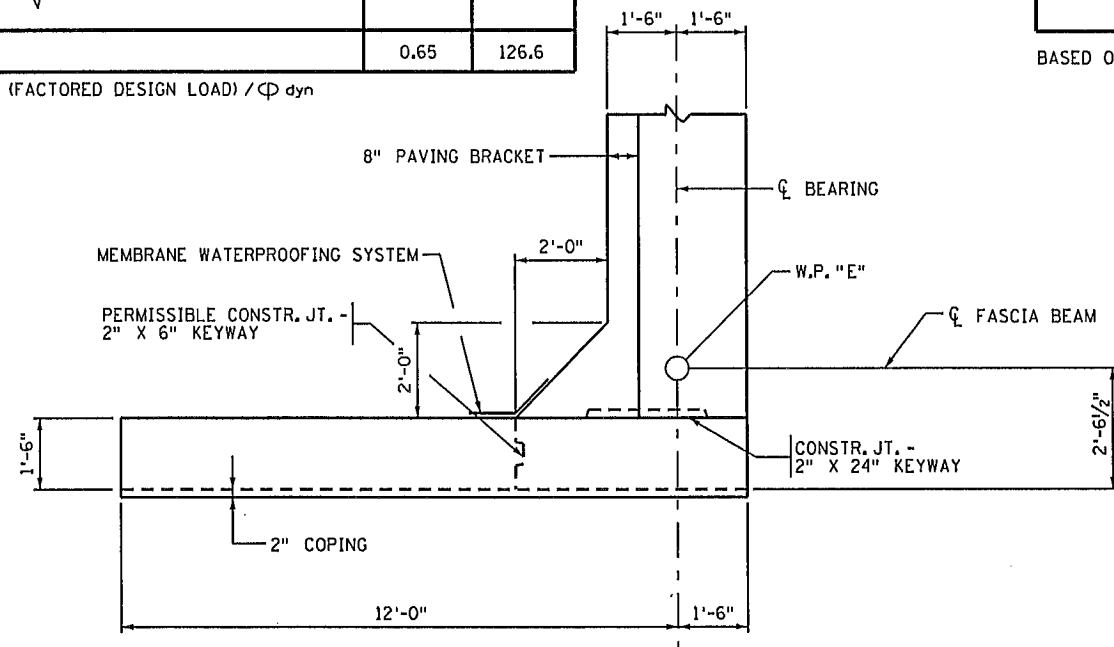
\* R<sub>n</sub> = (FACTORED DESIGN LOAD) / φ dyn

SOUTH ABUTMENT COMPUTED PILE LOAD - TONS/PILE	
	SOUTH ABUT.
FACTORED DEAD LOAD + EARTH PRESSURE	62.1
FACTORED LIVE LOAD	20.2
FACTORED DESIGN LOAD =	82.3

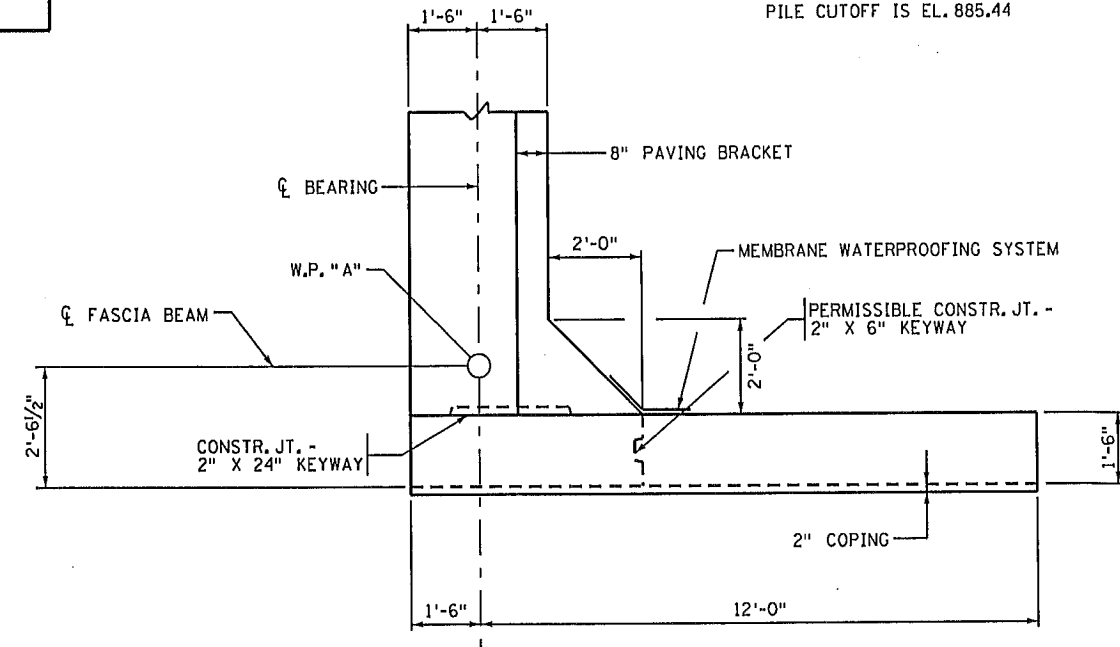
BASED ON STRENGTH I LOAD COMBINATION.

**PILE NOTES**

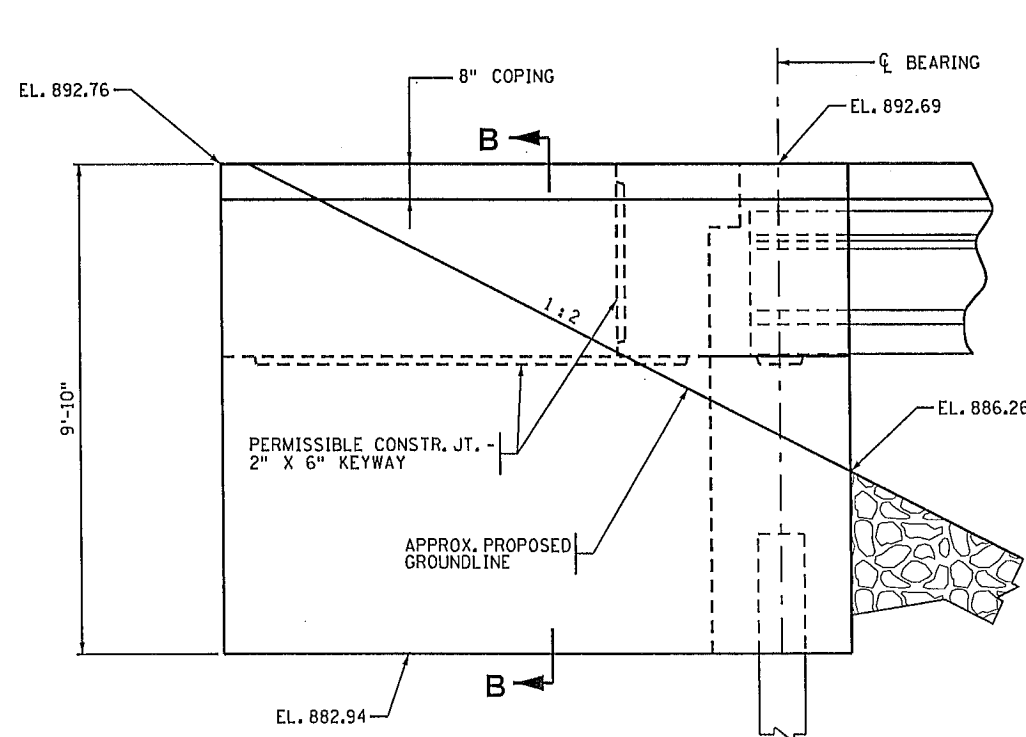
- 3 CAST-IN-PLACE CONC. TEST PILE 95 FT. LONG
  - 17 CAST-IN-PLACE CONC. PILES EST. LENGTH 85 FT.
  - 20 CAST-IN-PLACE CONC. PILES REQ'D FOR SOUTH ABUTMENT
- PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.  
PILES TO HAVE A NOMINAL DIAMETER OF 12"  
FOR PILE SPLICE DETAILS SEE DETAIL B201  
PILE CUTOFF IS EL. 885.44



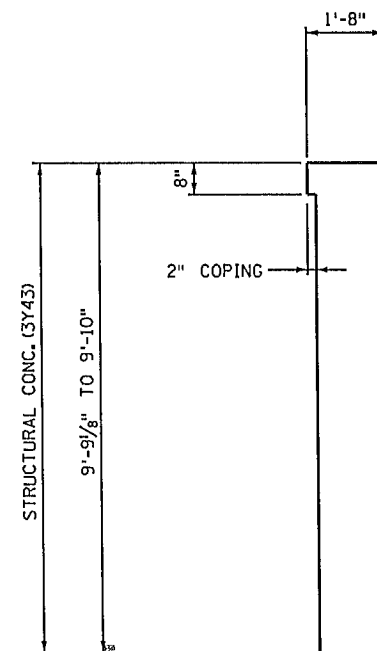
**S.E. WINGWALL PLAN**



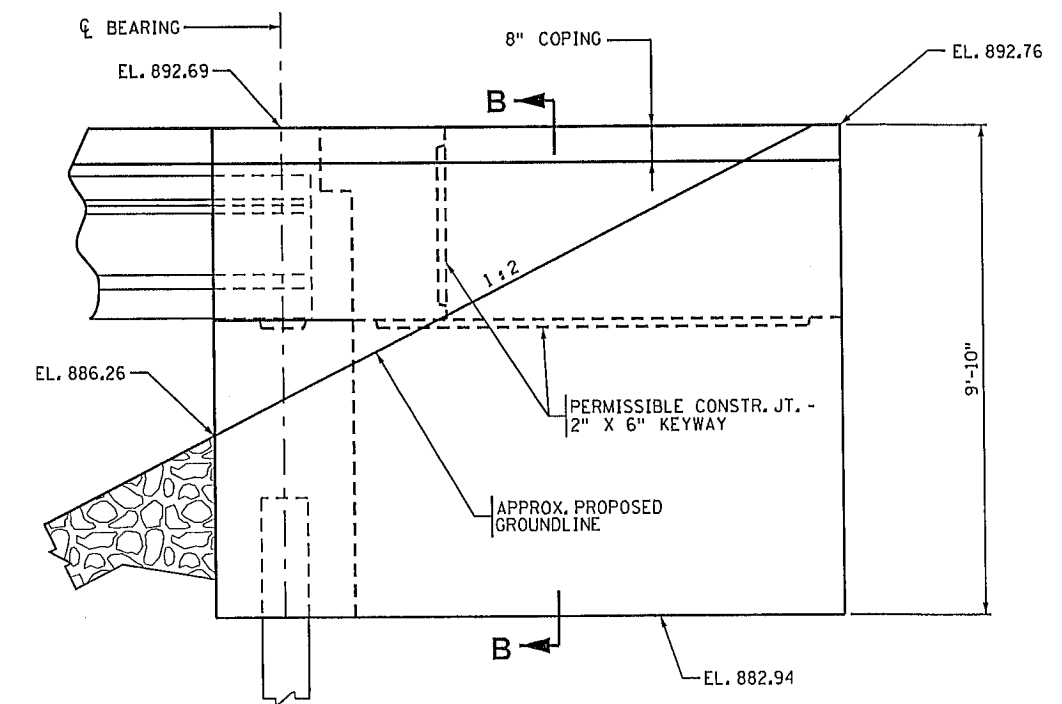
**S.W. WINGWALL PLAN**



**S.E. WINGWALL ELEVATION**



**SECTION B-B**



**S.W. WINGWALL ELEVATION**

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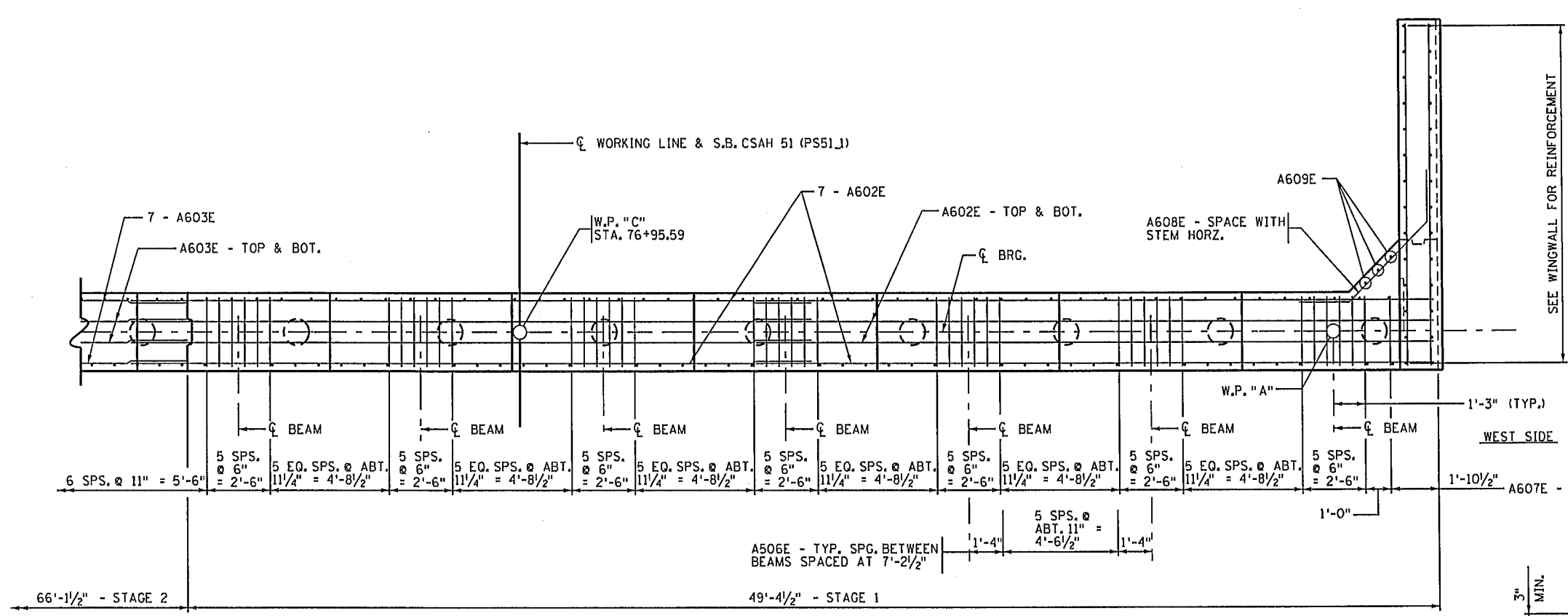
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ANOKA COUNTY  
S.P. 002-651-007**

TITLE:  
**SOUTH ABUTMENT  
DETAILS**

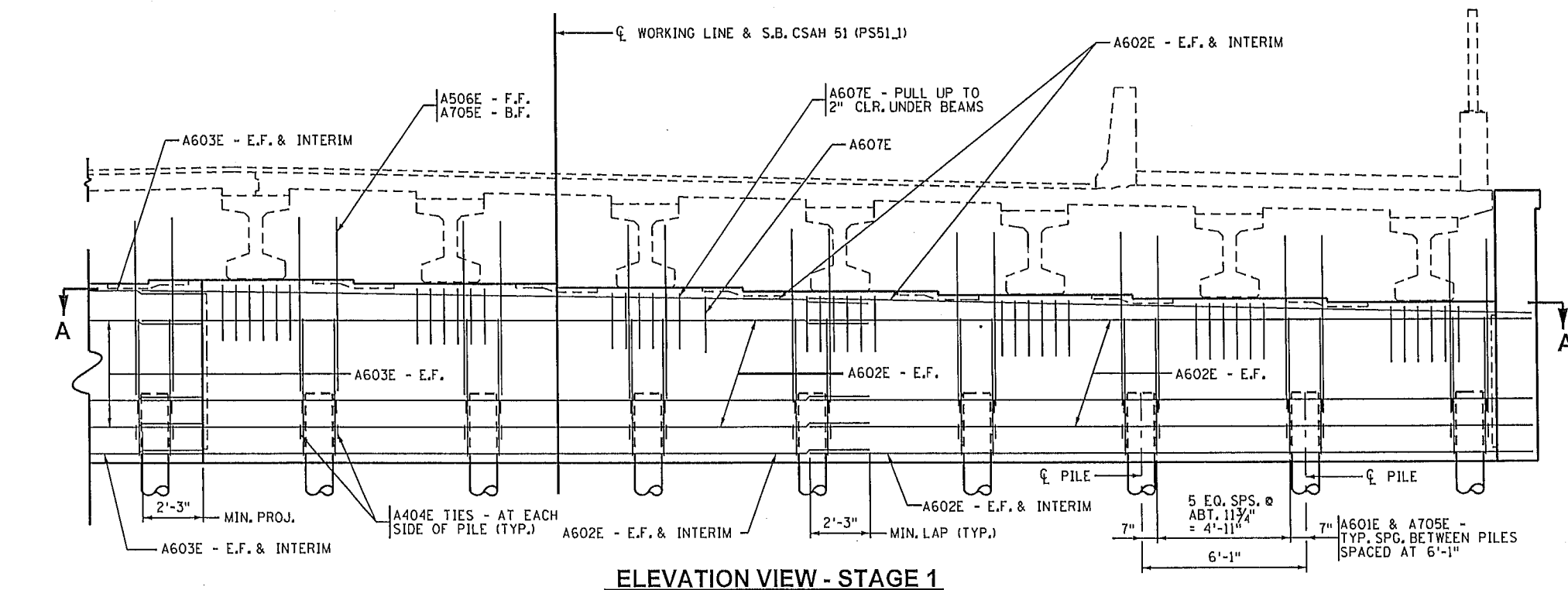
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CHK: AJN	CHK: BRL
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Bridge No.  
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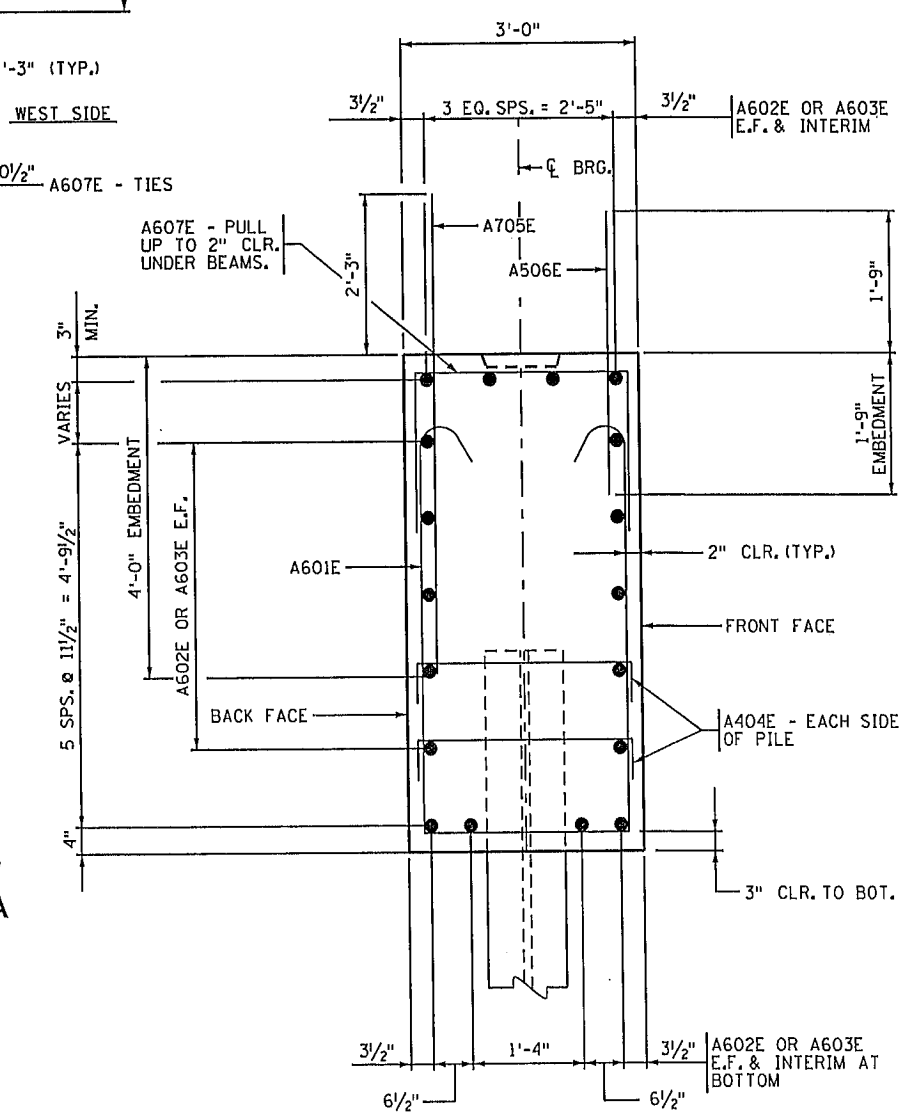




**SECTION A-A - STAGE 1**




**ELEVATION VIEW - STAGE 1**



**TYPICAL SECTION THRU ABUTMENT**

8/6/2003 11:00 AM  
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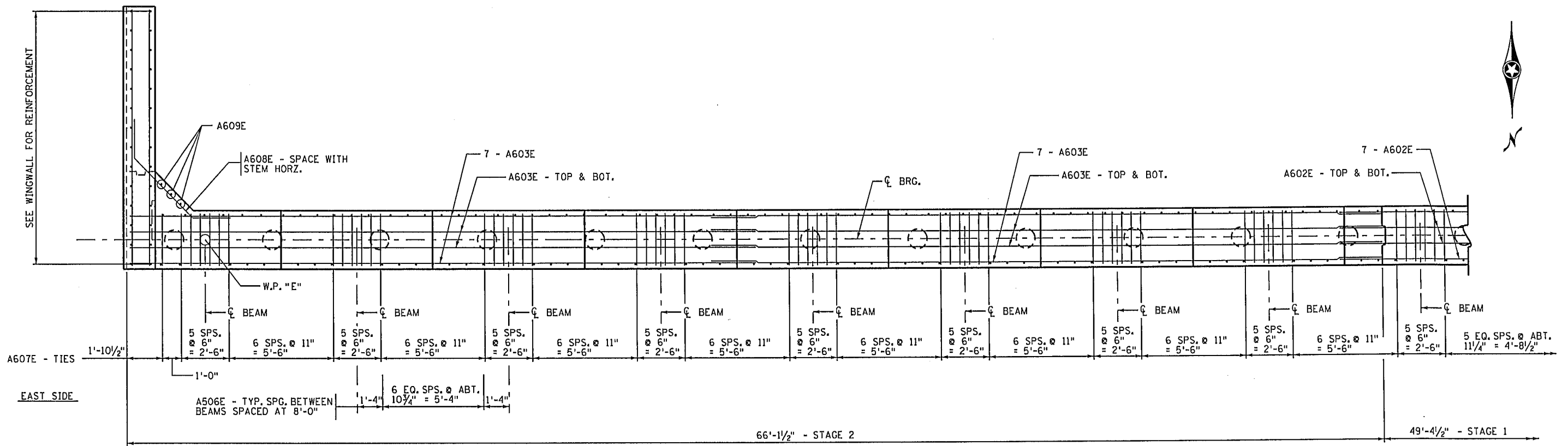
  
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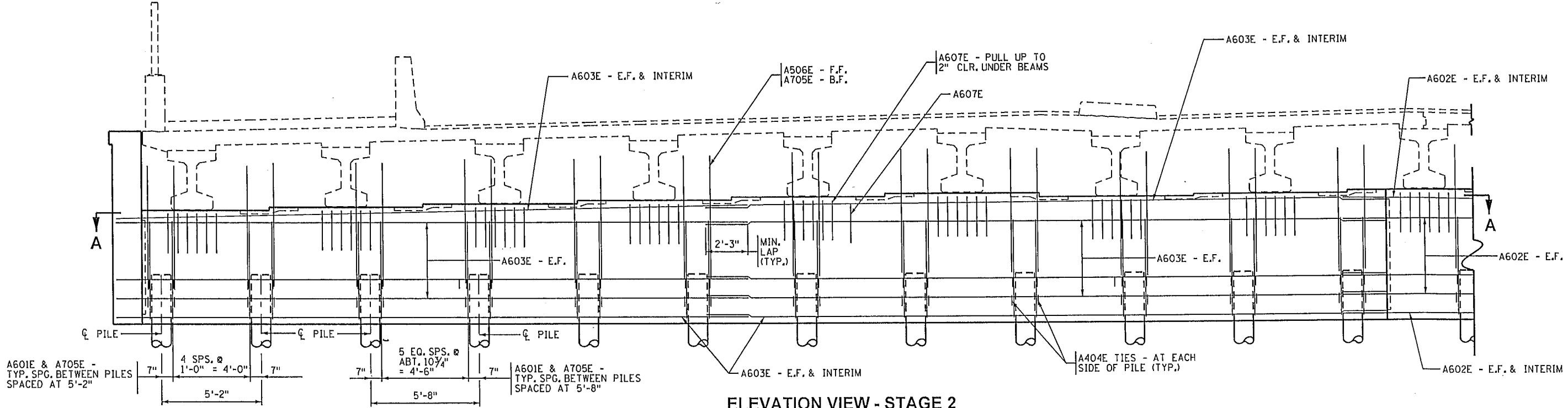
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**SOUTH ABUTMENT REINFORCEMENT**

DES: BRL DR: DJV  
 CHK: AJN CHK: BRL  
 Sheet 337 of 301 Sheets

Bridge No.  
 02585



SECTION A-A - STAGE 2



ELEVATION VIEW - STAGE 2

8/6/2013 1:18:08 PM K:\20276-000\Cad\Plan\cbr02585\_southabut5.dgn

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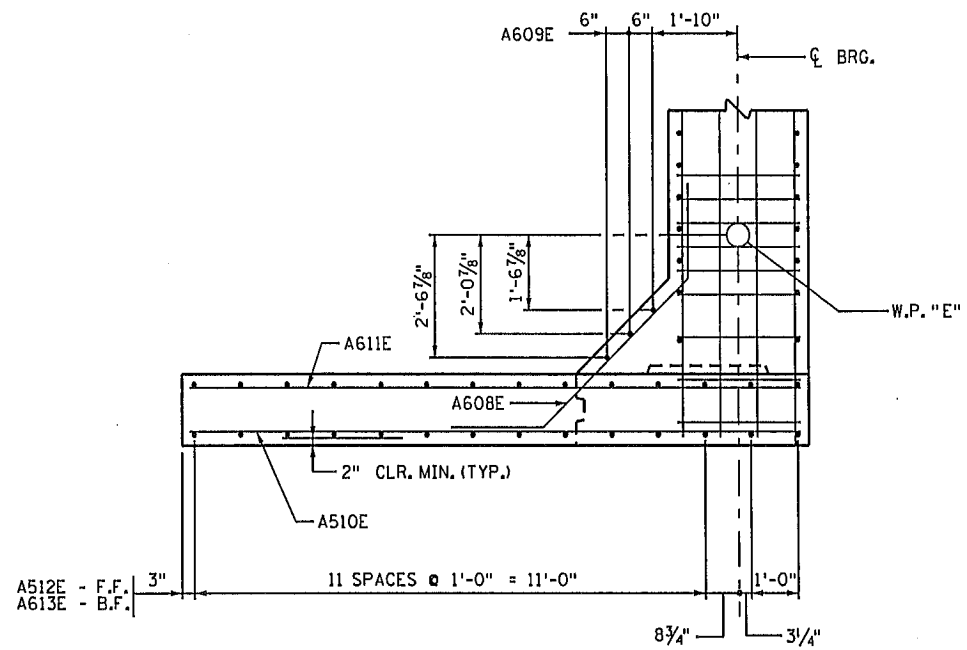
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**ANOKA COUNTY**  
**S.P. 002-651-007**

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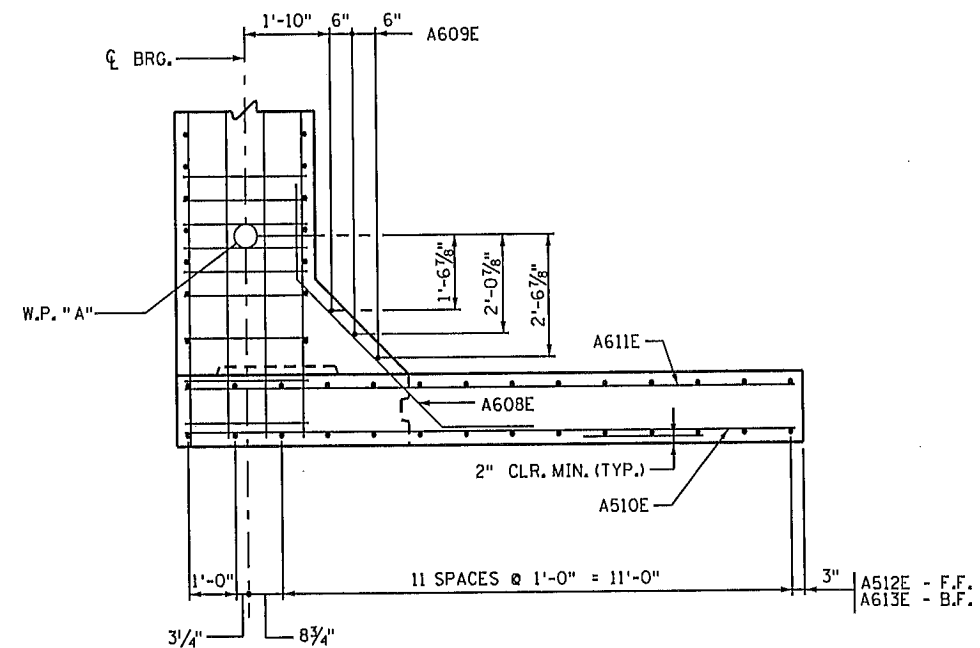
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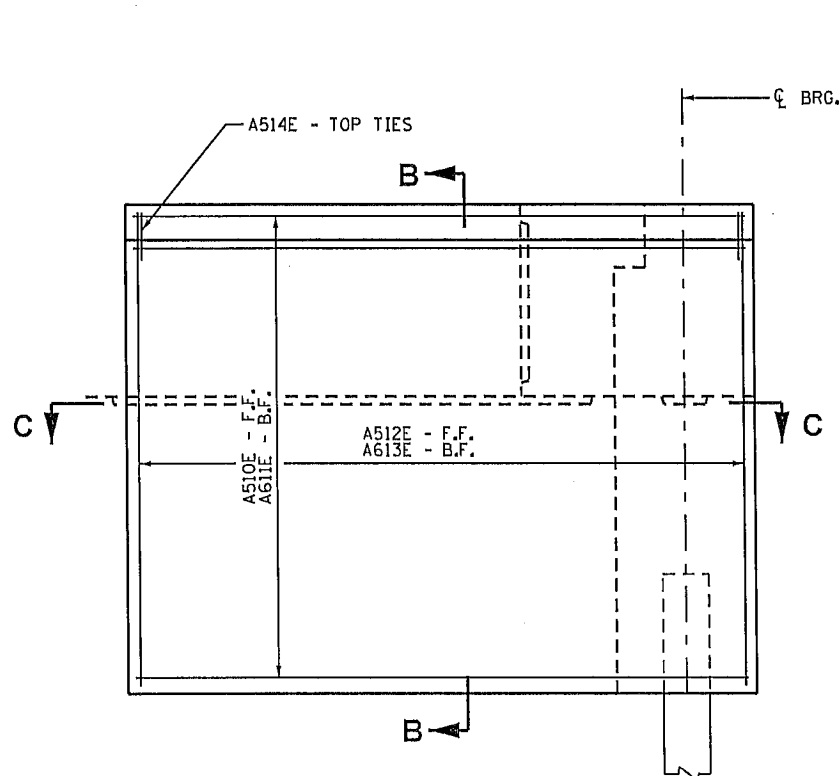
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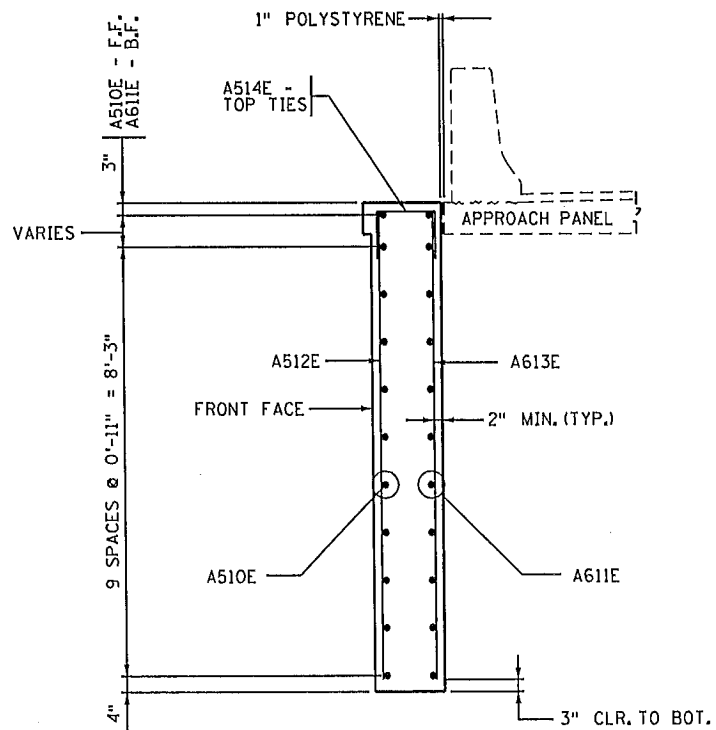
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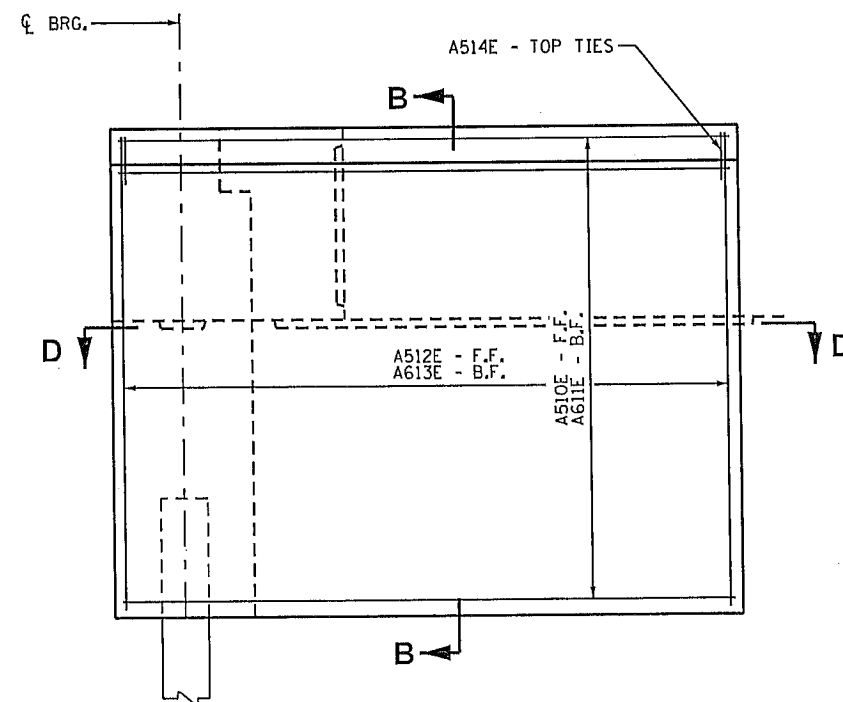
**SECTION D-D**



**S.E. WINGWALL ELEVATION**



**SECTION B-B**



**S.W. WINGWALL ELEVATION**

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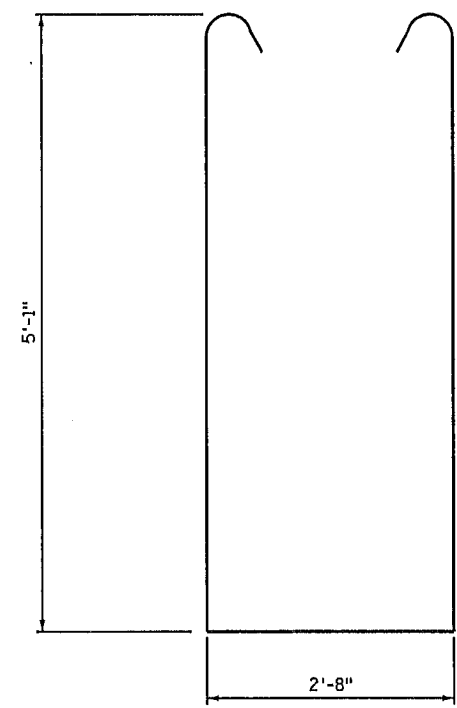
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Sheet <b>339</b> of <b>391</b> Sheets	

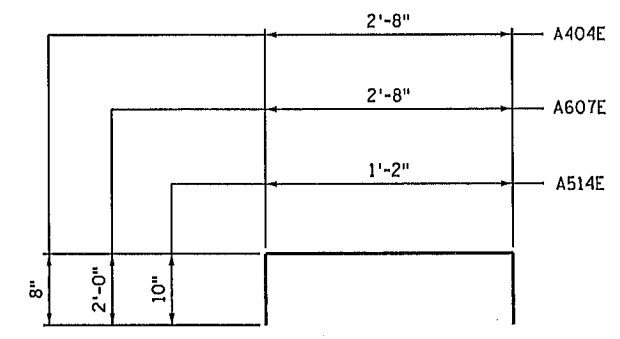
Bridge No.  
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**BILL OF REINFORCEMENT - SOUTH ABUTMENT**

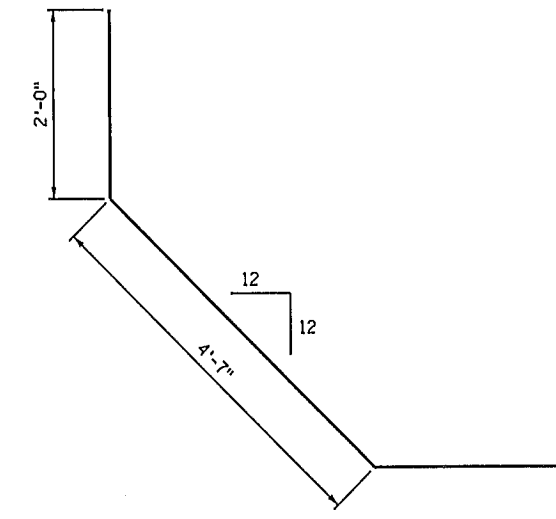
BAR	NO.	LENGTH	SHAPE	LOCATION
A601E	115	14'-2"		STEM - STIRRUPS
A602E	36	27'-0"		STEM - HORZ.
A603E	36	34'-2"		STEM - HORZ.
A404E	80	4'-0"		STEM - TIES @ PILES
A705E	115	6'-3"		STEM - B.F. DOWELS
A506E	96	3'-6"		STEM - F.F. DOWELS
A607E	156	6'-8"		STEM - BR. SEAT TIES
A608E	14	8'-7"		STEM - FILLET HORZS.
A609E	6	5'-5"		STEM - FILLET VERTS.
A510E	22	13'-2"		BOTH WINGS - F.F. HORZ.
A611E	22	13'-2"		BOTH WINGS - B.F. HORZ.
A512E	28	9'-4"		BOTH WINGS - F.F. VERT.
A613E	28	9'-4"		BOTH WINGS - B.F. VERT.
A514E	28	2'-10"		BOTH WINGS - TOP TIES



**A601E**



**A404E, A607E, & A514E**



**A608E**

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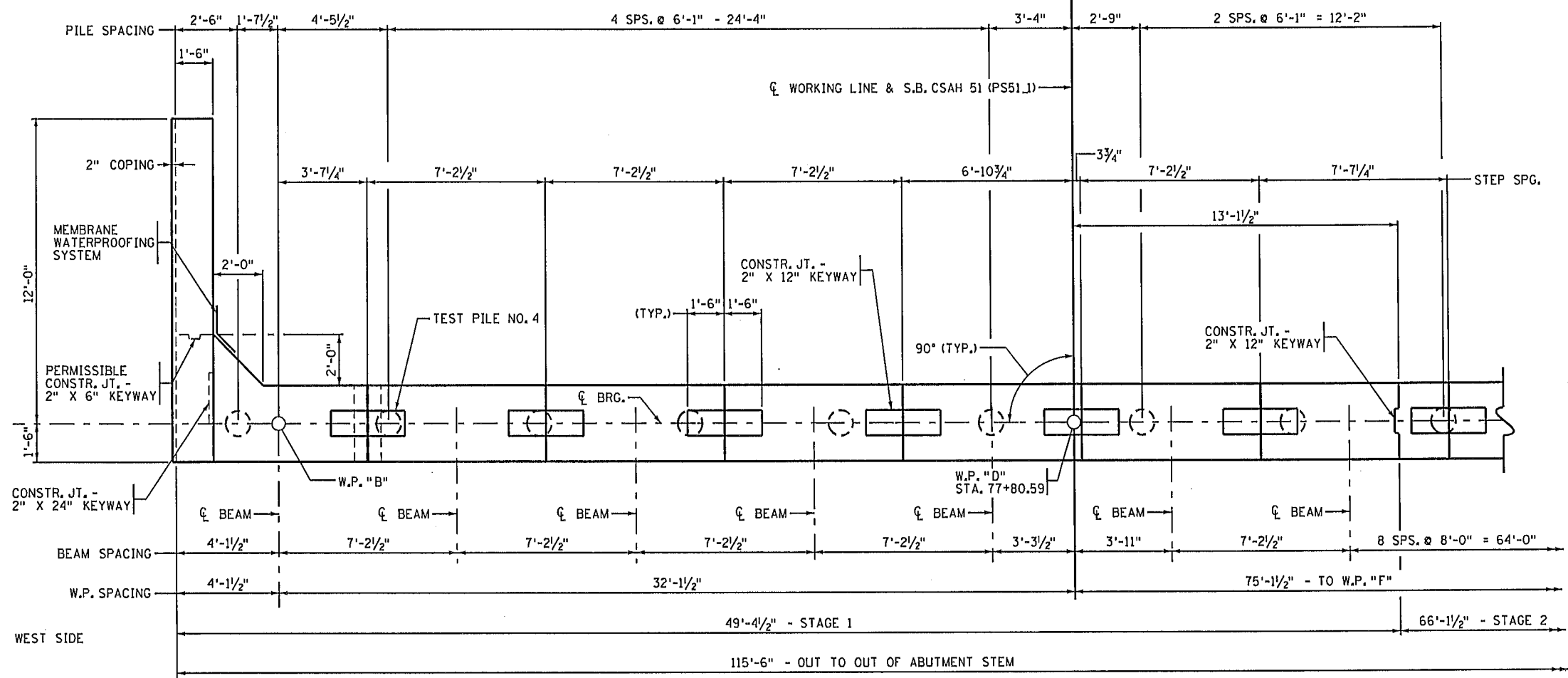
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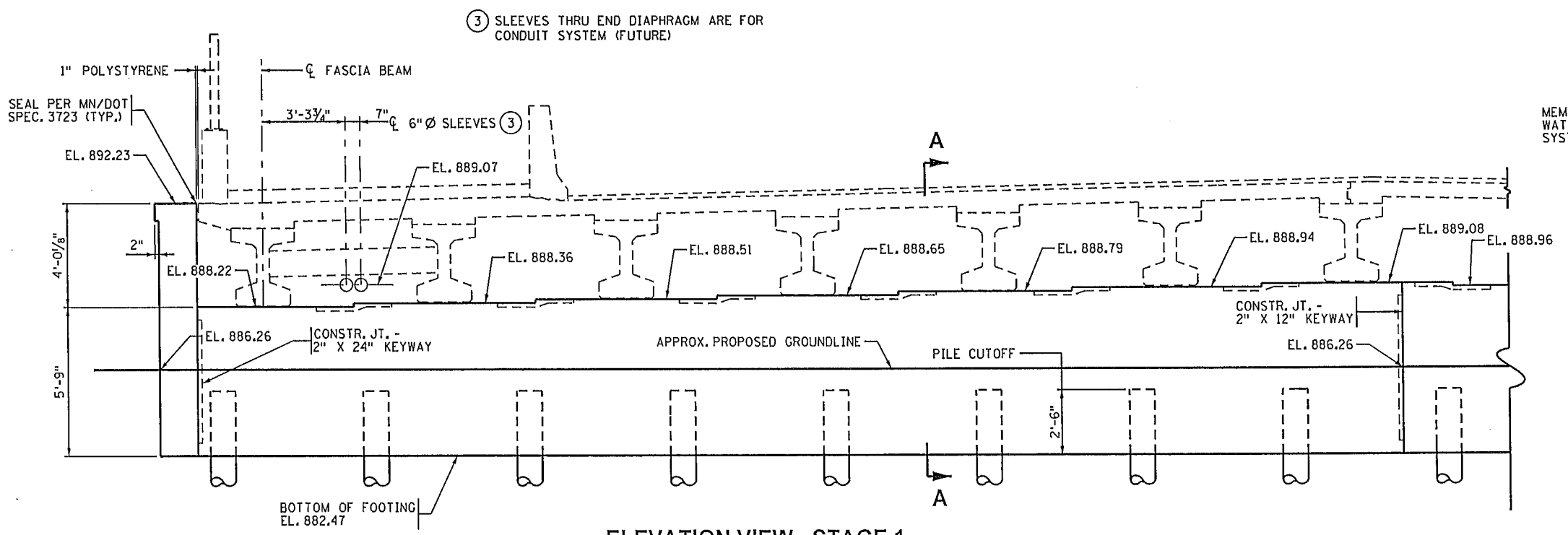
**SUMMARY OF QUANTITIES - NORTH ABUTMENT**

STRUCTURAL CONCRETE (3Y43)	94	CU. YD.
REINFORCEMENT BARS (EPOXY COATED)	11065	POUND
① C-I-P CONCRETE PILING DELIVERED 12"	1445	LIN. FT.
① C-I-P CONCRETE PILING DRIVEN 12"	1445	LIN. FT.
C-I-P CONCRETE TEST PILES 95 FT. LONG 12"	3	EACH
② MEMBRANE WATERPROOFING SYSTEM	155	LIN. FT.
STRUCTURE EXCAVATION	1	LUMP SUM
RANDOM RIPRAP CLASS III	215	CU. YD.
GEOTEXTILE FILTER TYPE IV MODIFIED	375	SQ. YD.
SLOPE PREPARATION	1	LUMP SUM
DRAINAGE SYSTEM TYPE (B910)	1	LUMP SUM

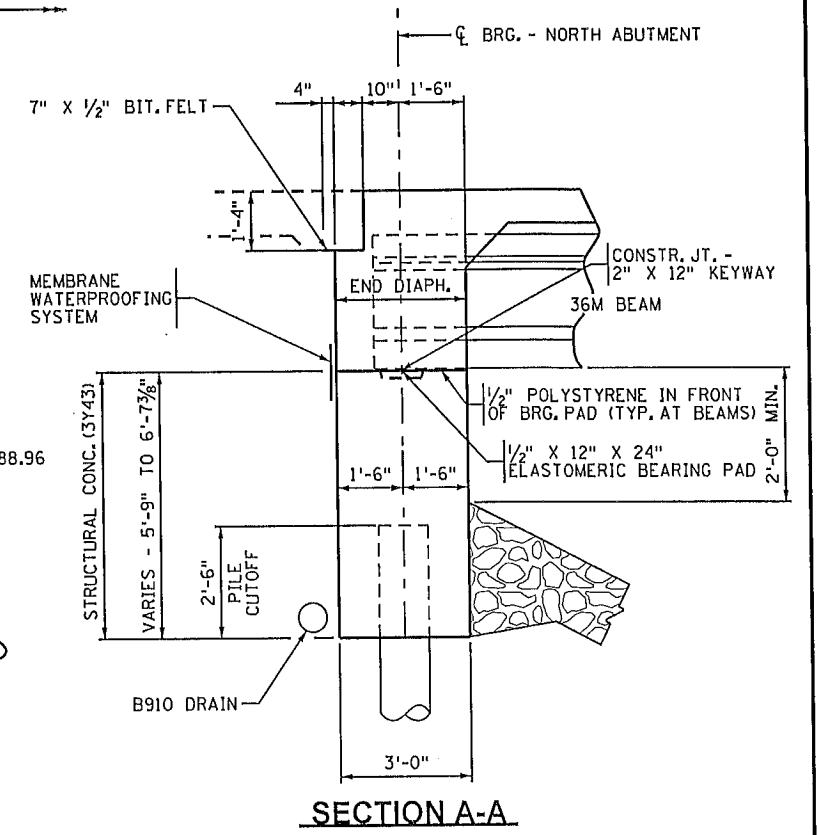
- ① DOES NOT INCLUDE TEST PILES.
- ② TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.



**PLAN VIEW - STAGE 1**



**ELEVATION VIEW - STAGE 1**



**SECTION A-A**

③ SLEEVES THRU END DIAPHRAGM ARE FOR CONDUIT SYSTEM (FUTURE)

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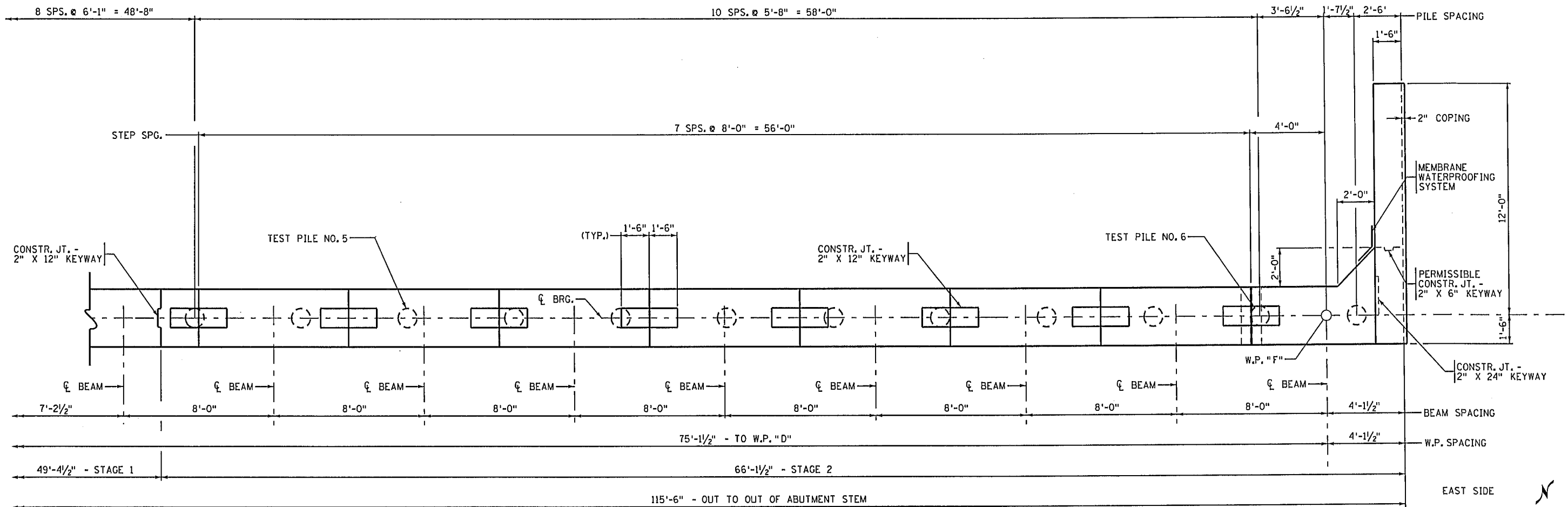
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**S.P. 002-651-007**

TITLE: **NORTH ABUTMENT DETAILS**

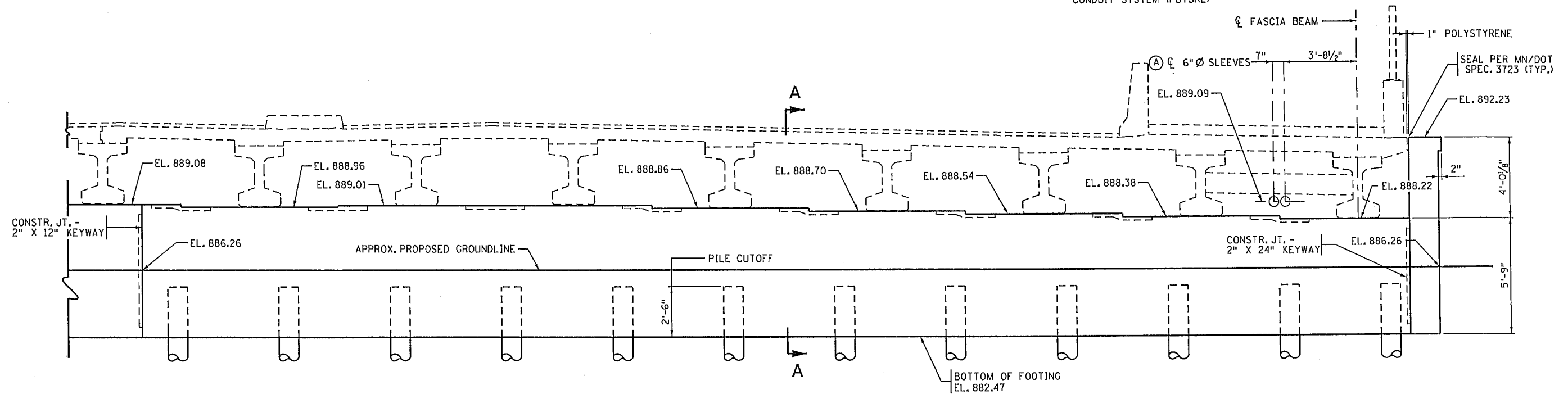
DES: BRL DR: DJV  
 CHK: AJN CHK: BRL  
 Sheet **341** of **381** Sheets

Bridge No. **02585**



PLAN VIEW - STAGE 2

(A) SLEEVES THRU END DIAPHRAGM ARE FOR CONDUIT SYSTEM (FUTURE)



ELEVATION VIEW - STAGE 2

8/16/2013 10:00 PM K:\02076-000\_Cad\Plan\cbr-02585\_nor-thabut3.dgn

NO	DATE	BY	CHK	REVISIONS

**NORTH ABUTMENT DETAILS**

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.

*Barritt Lovelace*  
 LICENSED PROFESSIONAL ENGINEER: BARRITT LOVELACE  
 DATE: 8-5-13 REG NO: 40456

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**ANOKA COUNTY**  
**S.P. 002-651-007**

TITLE: **NORTH ABUTMENT DETAILS**

DES: BRL	DR: DJV
CHK: AJN	CHK: BRL

Sheet **342** of **301** Sheets

Bridge No. **02585**

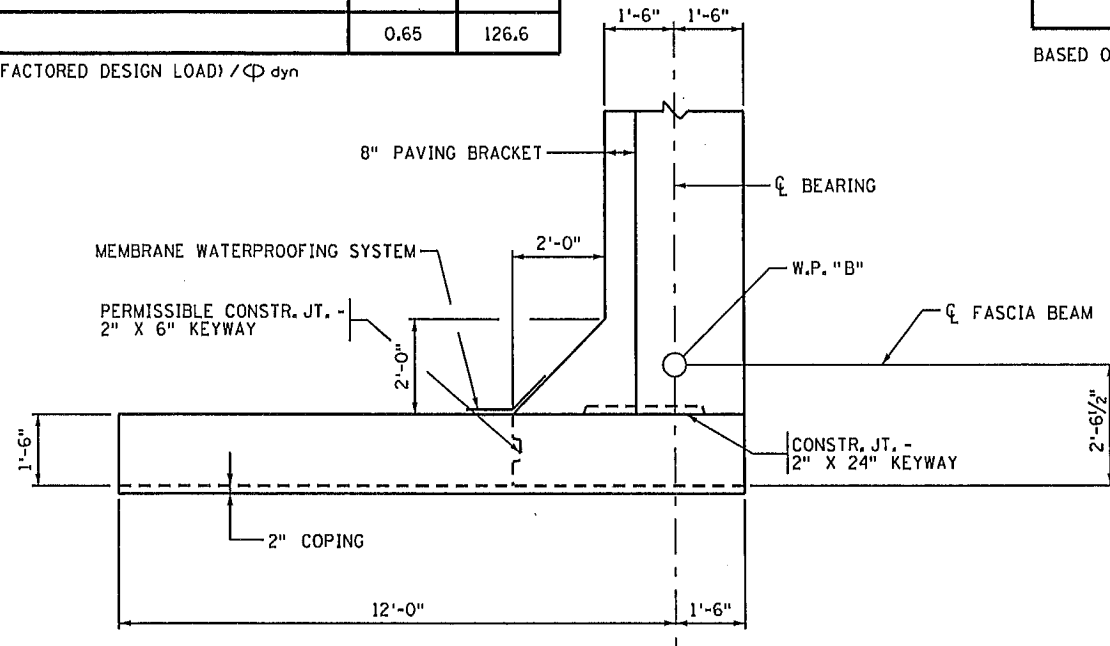
NORTH ABUTMENT REQUIRED NOMINAL PILE BEARING RESISTANCE FOR CIP PILES R <sub>n</sub> - TONS/PILE		
FIELD CONTROL METHOD	φ <sub>dyn</sub>	* R <sub>n</sub>
MN/DOT PILE FORMULA 2012 (MPF12)	0.50	164.6
$R_n = 20 \sqrt{\frac{W \times H}{1000}} \times \log\left(\frac{10}{S}\right)$		
PDA	0.65	126.6

\* R<sub>n</sub> = (FACTORED DESIGN LOAD) / φ<sub>dyn</sub>

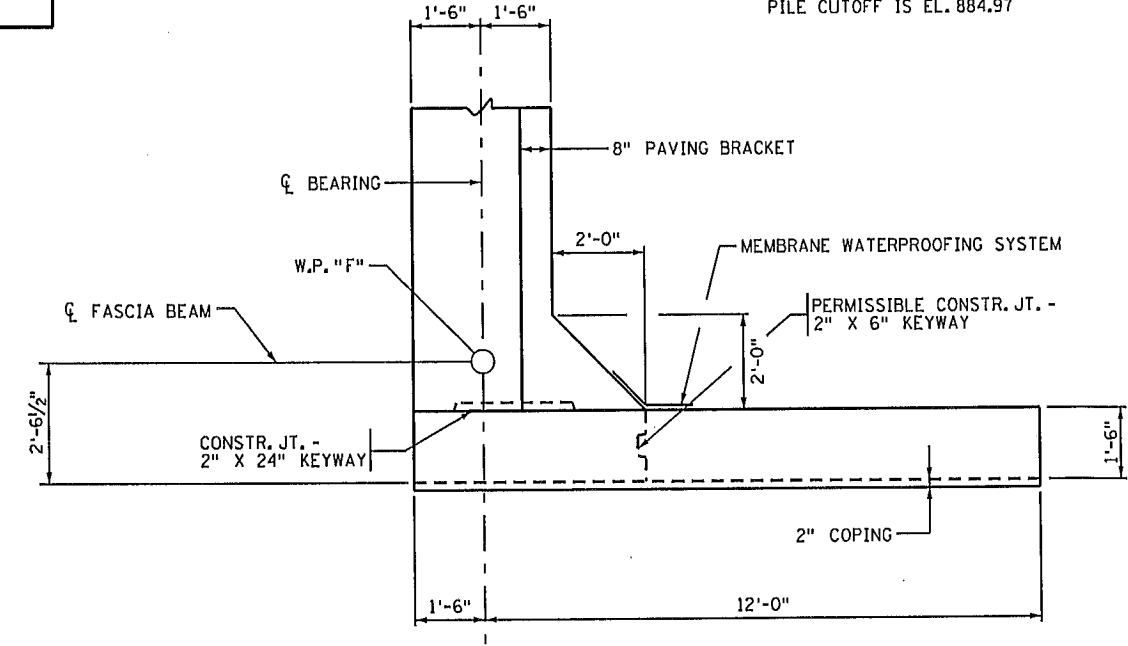
NORTH ABUTMENT COMPUTED PILE LOAD - TONS/PILE	
	NORTH ABUT.
FACTORED DEAD LOAD + EARTH PRESSURE	62.1
FACTORED LIVE LOAD	20.2
FACTORED DESIGN LOAD =	82.3

BASED ON STRENGTH I LOAD COMBINATION.

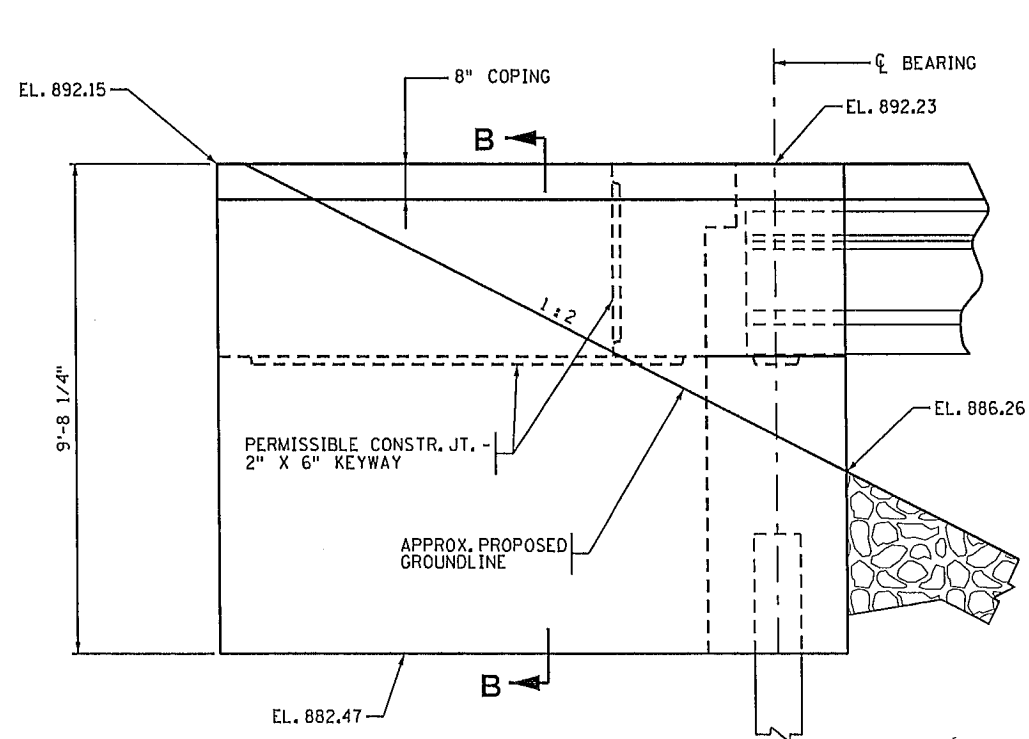
**PILE NOTES**  
 3 CAST-IN-PLACE CONC. TEST PILE 95 FT. LONG  
 17 CAST-IN-PLACE CONC. PILES EST. LENGTH 85 FT.  
 20 CAST-IN-PLACE CONC. PILES REQ'D FOR NORTH ABUTMENT  
 PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.  
 PILES TO HAVE A NOMINAL DIAMETER OF 12"  
 FOR PILE SPLICE DETAILS SEE DETAIL B201  
 PILE CUTOFF IS EL. 884.97



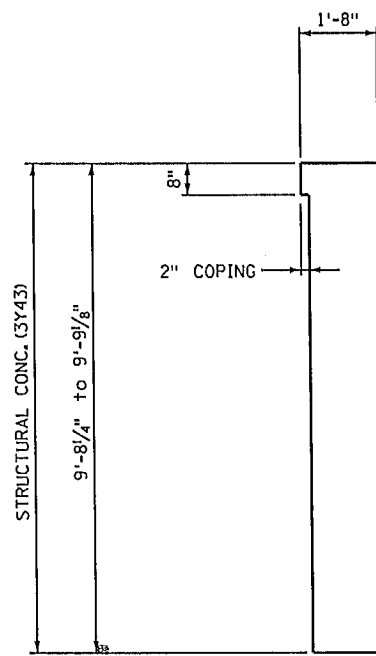
**N.W. WINGWALL PLAN**



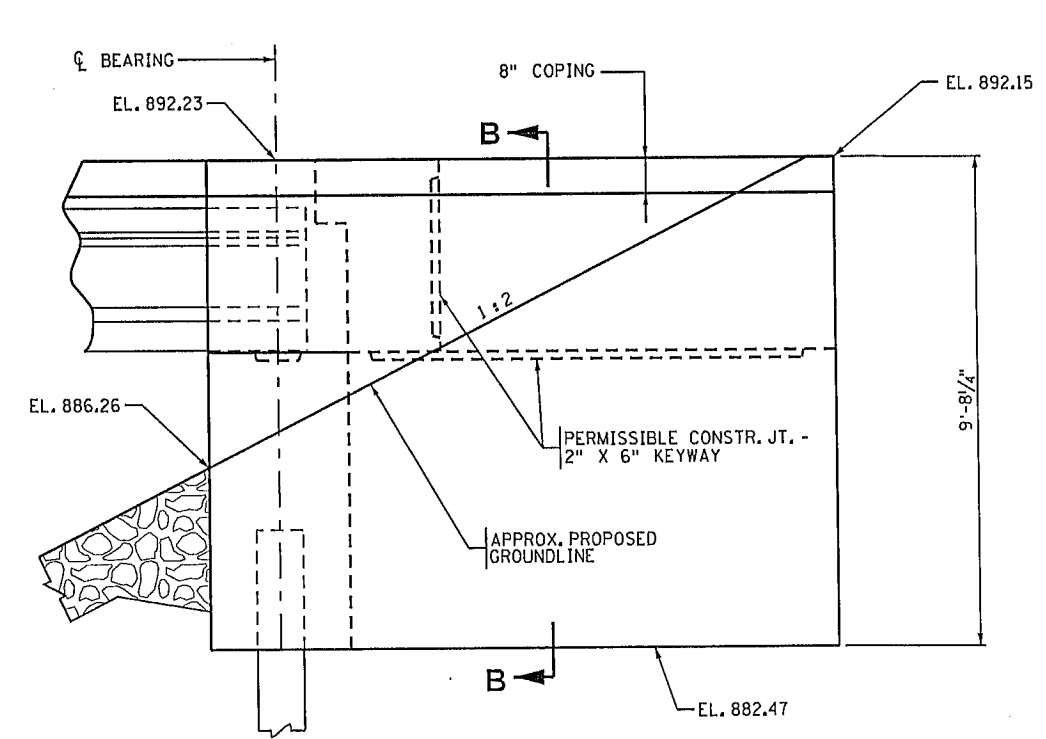
**N.E. WINGWALL PLAN**



**N.W. WINGWALL ELEVATION**



**SECTION B-B**



**N.E. WINGWALL ELEVATION**

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 DATE: 8-6-13 REG NO: 40458

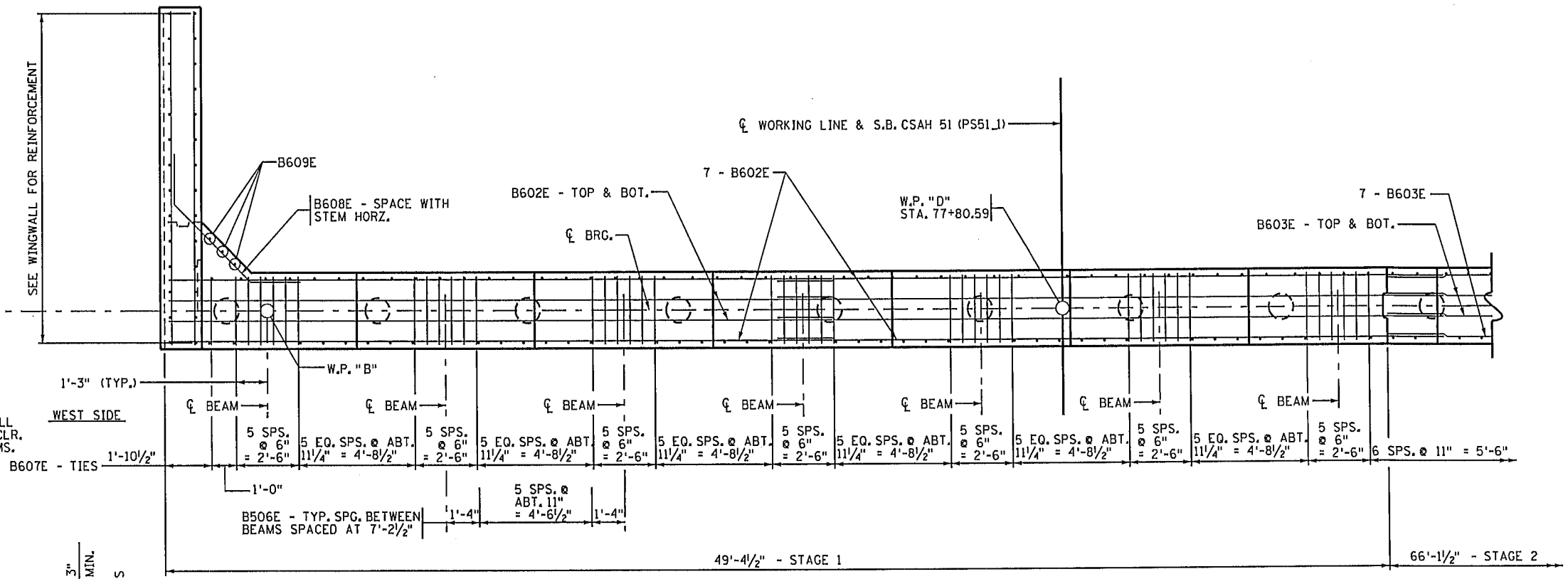
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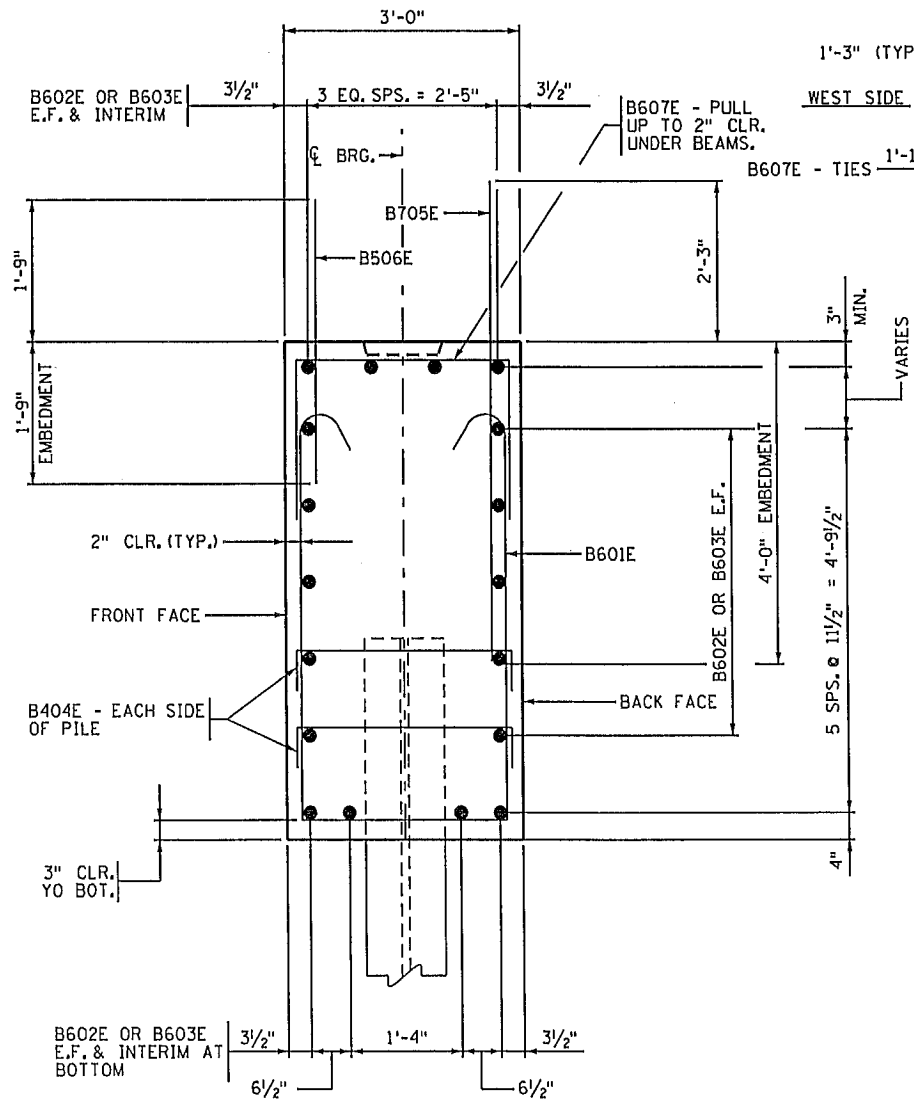
TITLE:  
**NORTH ABUTMENT  
 DETAILS**

DES: BRL DR: DJV  
 CHK: AJN CHK: BRL  
 Sheet **343** of **381** Sheets

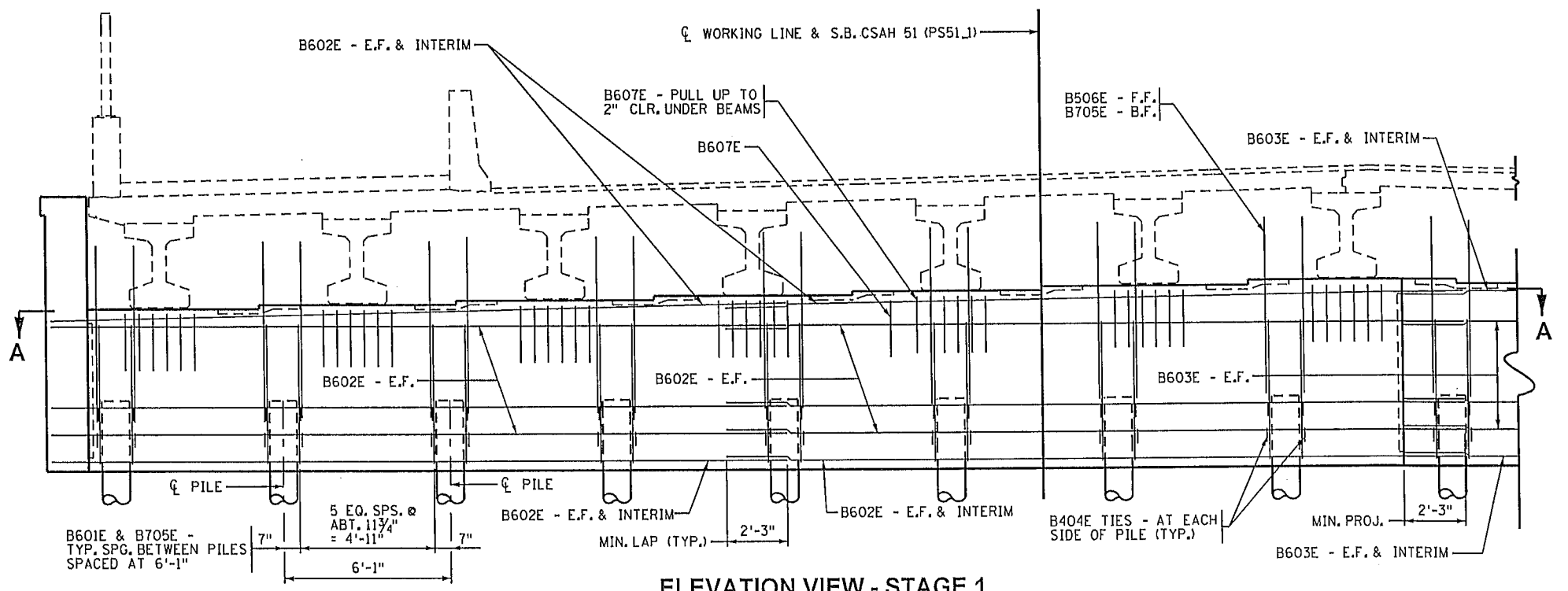
Bridge No.  
**02585**



SECTION A-A - STAGE 1



TYPICAL SECTION THRU ABUTMENT



ELEVATION VIEW - STAGE 1

8/5/2013 1:18:11 PM K:\02076-000\Drawings\Plan\abr02585\_nor-abut4.dgn

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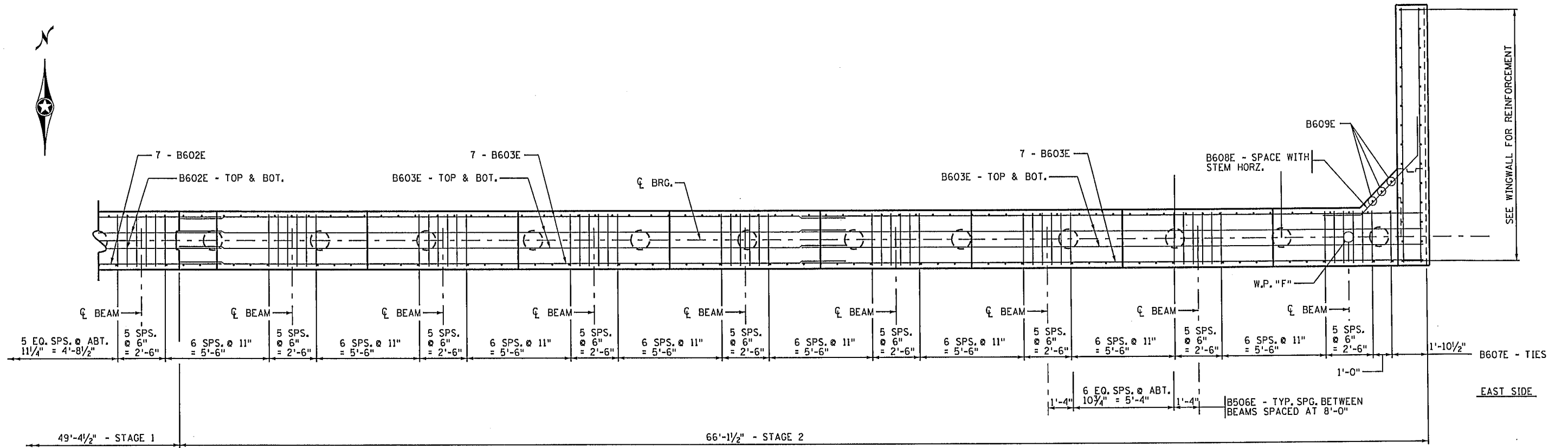
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DES: BRL	DR: DJV
CHK: AJN	CHK: BRL

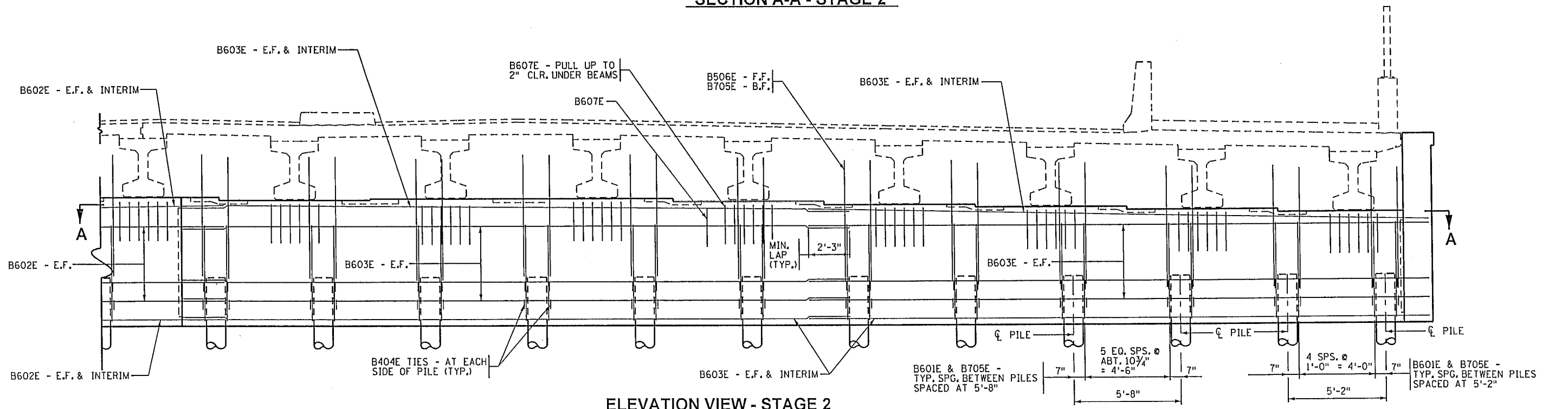
Sheet **344** of **381** Sheets

Bridge No. **02585**





**SECTION A-A - STAGE 2**



**ELEVATION VIEW - STAGE 2**

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DATE: 8-6-13 REG NO: 40458

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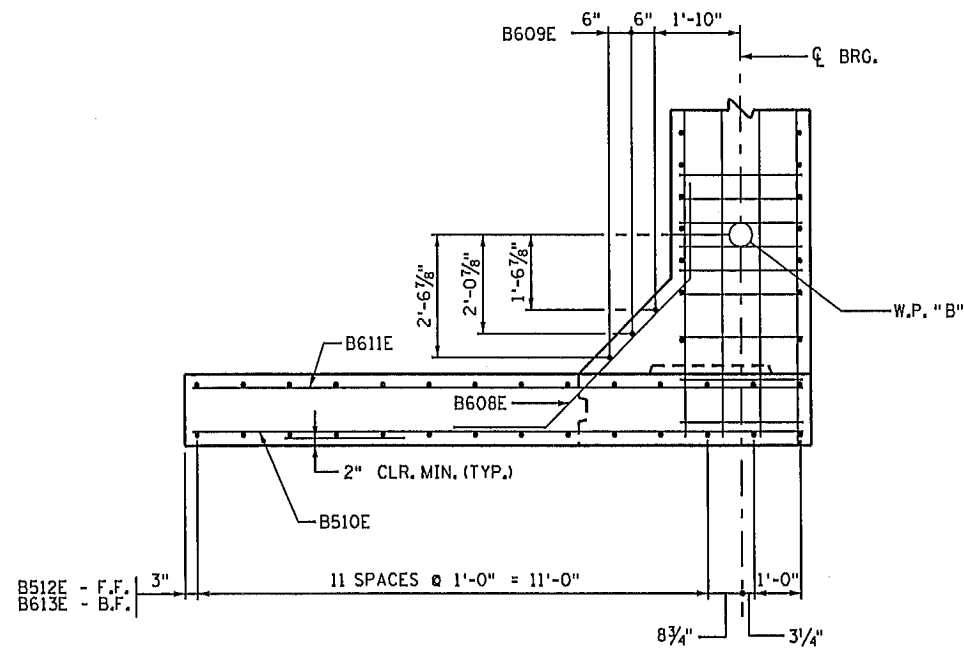
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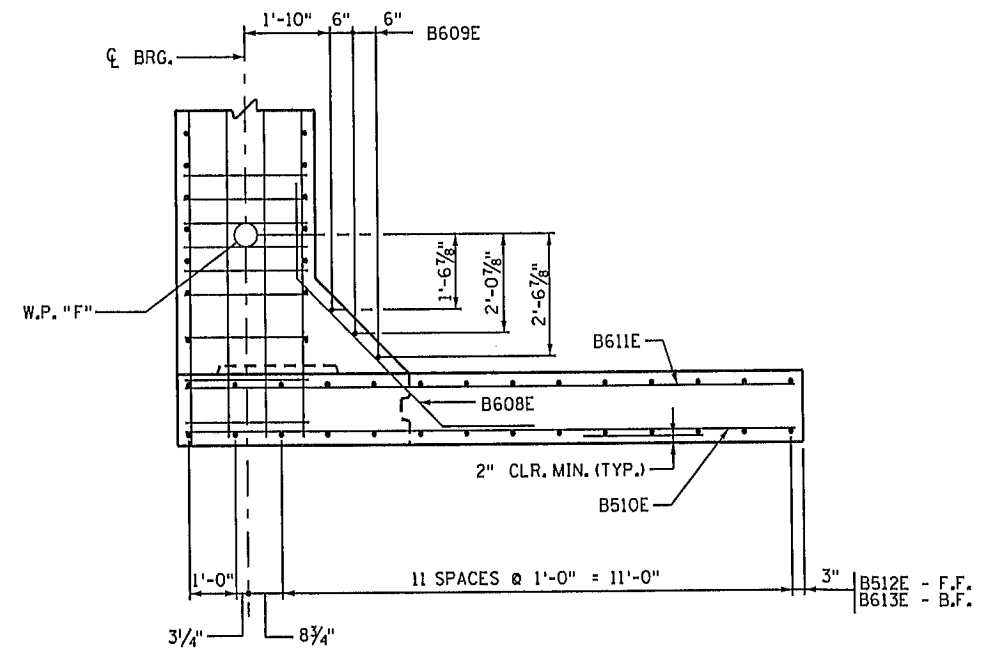
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DES: BRL	DR: DJV
CHK: AJN	CHK: BRL
Sheet <b>345</b> of <b>301</b> Sheets	

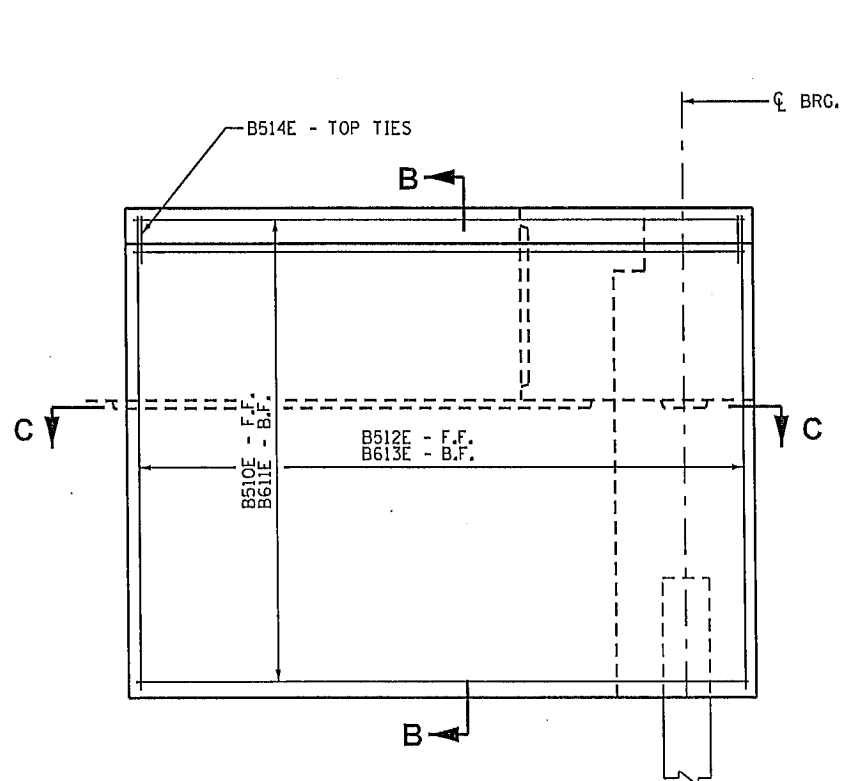
Bridge No.  
**02585**



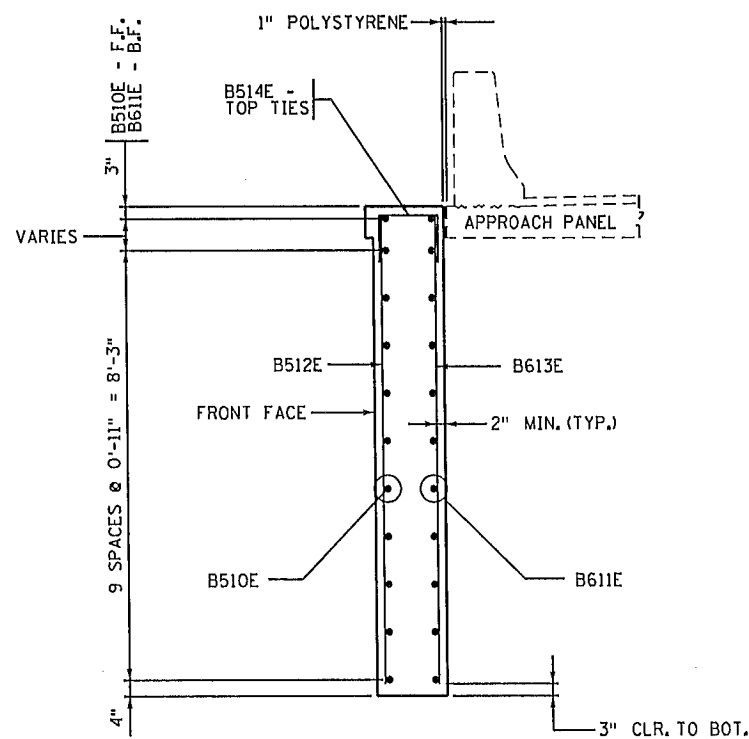
**SECTION C-C**



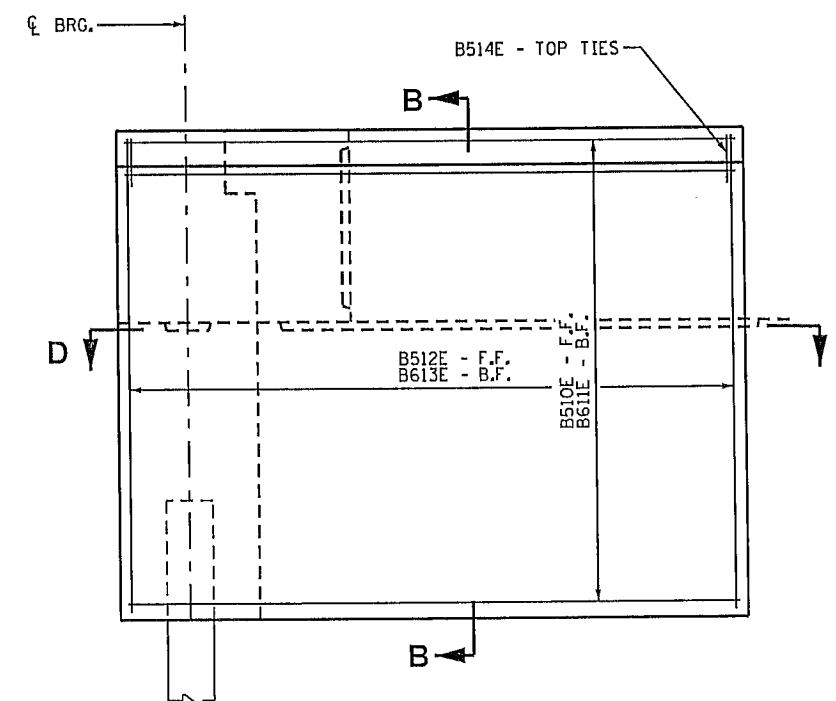
**SECTION D-D**



**N.W. WINGWALL ELEVATION**




**SECTION B-B**



**N.E. WINGWALL ELEVATION**

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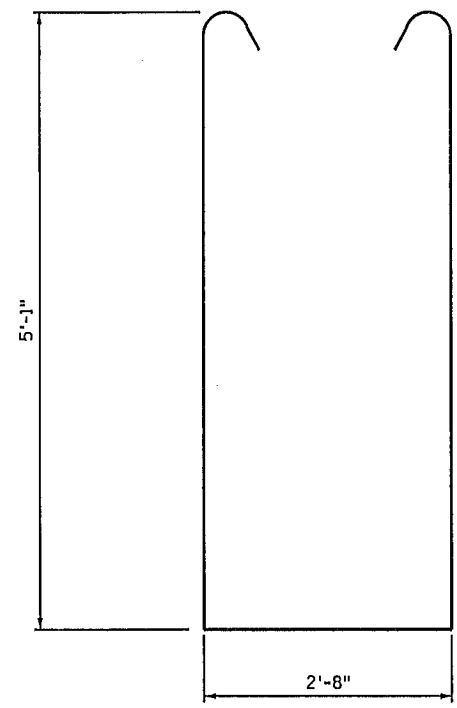
TITLE:  
**NORTH ABUTMENT REINFORCEMENT**

DES: BRL	DR: DJV
CHK: AJN	CHK: BRL
Sheet <b>346</b> of <b>381</b> Sheets	

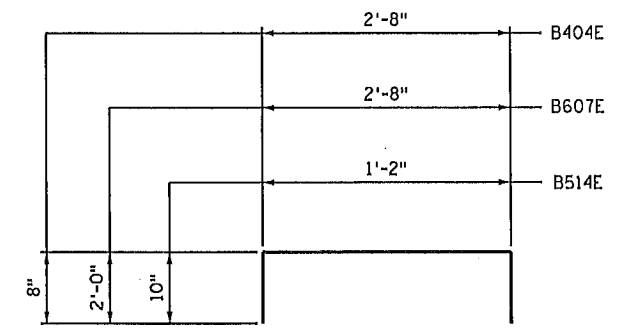
Bridge No.  
**02585**

**BILL OF REINFORCEMENT - NORTH ABUTMENT**

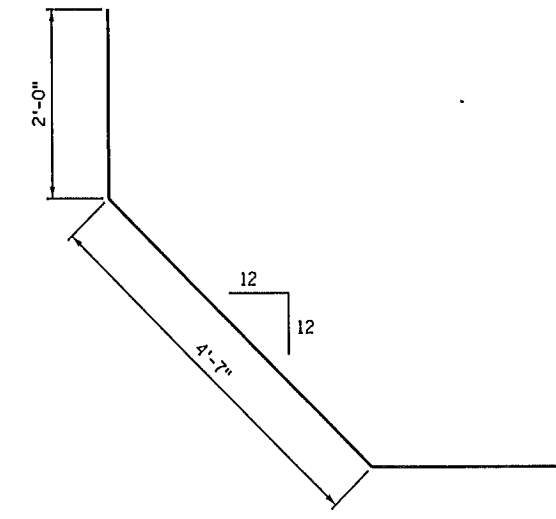
BAR	NO.	LENGTH	SHAPE	LOCATION
B601E	115	14'-2"		STEM - STIRRUPS
B602E	36	27'-0"		STEM - HORZ.
B603E	36	34'-2"		STEM - HORZ.
B404E	80	4'-0"		STEM - TIES @ PILES
B705E	115	6'-3"		STEM - B.F. DOWELS
B506E	96	3'-6"		STEM - F.F. DOWELS
B607E	156	6'-8"		STEM - BR. SEAT TIES
B608E	14	8'-7"		STEM - FILLET HORZS.
B609E	6	5'-5"		STEM - FILLET VERTS.
B510E	22	13'-2"		BOTH WINGS - F.F. HORZ.
B611E	22	13'-2"		BOTH WINGS - B.F. HORZ.
B512E	28	9'-4"		BOTH WINGS - F.F. VERT.
B613E	28	9'-4"		BOTH WINGS - B.F. VERT.
B514E	28	2'-10"		BOTH WINGS - TOP TIES



**B601E**



**B404E, B607E, & B514E**



**B608E**

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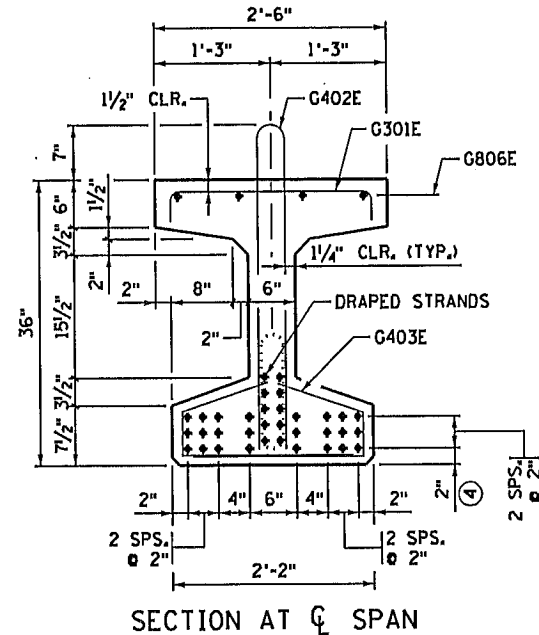
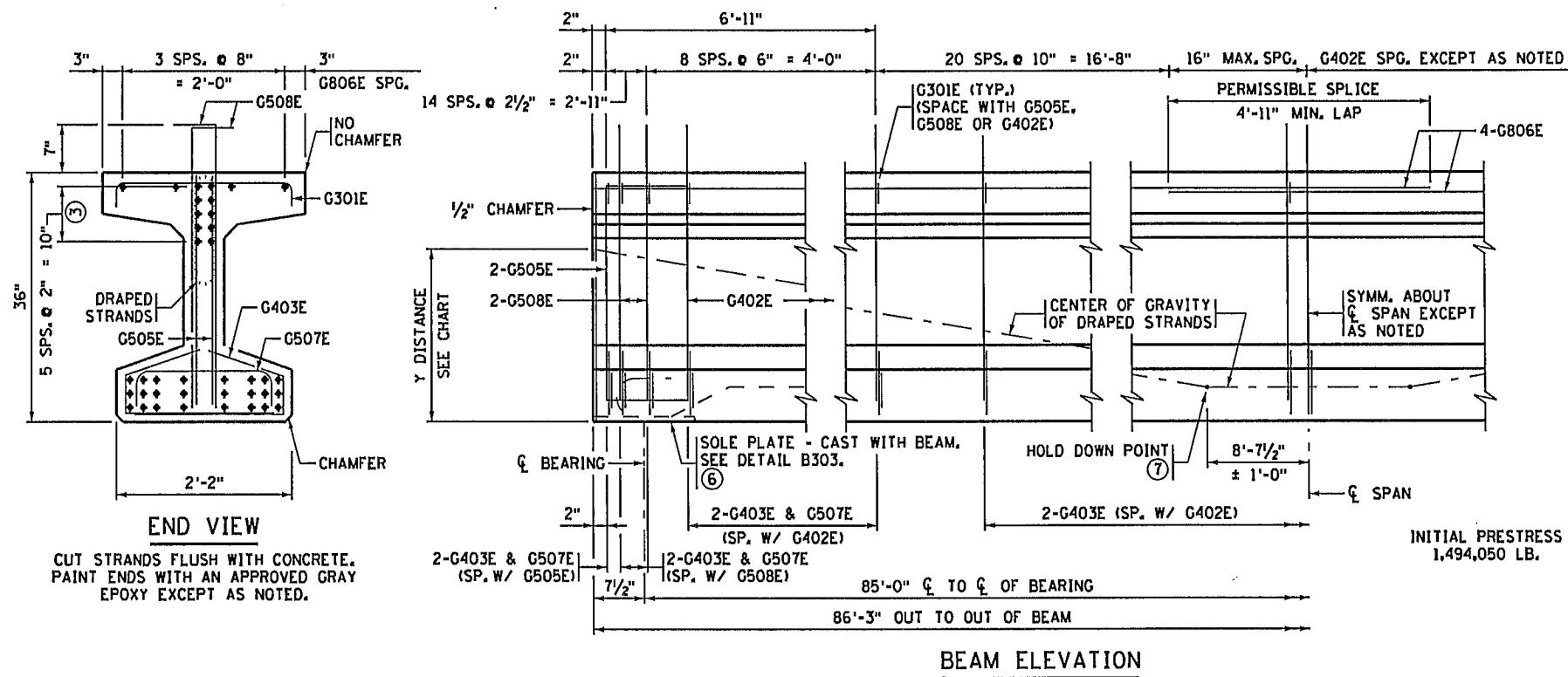
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TITLE:  
**NORTH ABUTMENT REINFORCEMENT**

DES: BRL	DR: DJV
CHK: AJN	CHK: BRL
Sheet <b>347</b> of <b>301</b> Sheets	

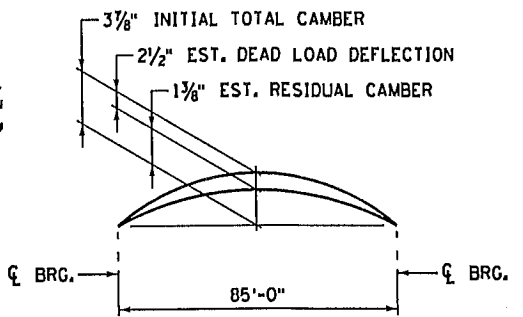
Bridge No.  
**02585**



Y DISTANCES (IN INCHES)			
	NO.	CL SPAN	END
STRAIGHT STRANDS	24	4	
DRAPED STRANDS	10	7	29
TOTAL STRANDS	34	4.9	

Y = DISTANCE TO CENTER OF GRAVITY OF STRANDS FROM BOTTOM OF BEAM. ALL STRANDS SPACED 2" CENTER TO CENTER, HORIZONTALLY AND VERTICALLY, EXCEPT AS NOTED.

A TOLERANCE OF ± 1" WILL BE PERMITTED IN THIS DIMENSION.



INITIAL CAMBER IS GIVEN AFTER DIAPHRAGMS ARE IN PLACE.

DEAD LOAD DEFLECTION SHOWN IS FOR WEIGHT OF SLAB, WEARING COURSE, RAILING, SIDEWALK AND MEDIAN WHERE APPLICABLE.

ENGINEER WILL TAKE ELEVATIONS AT TOP OF BEAMS AFTER ERECTION AND WILL ALLOW FOR DEFLECTION SHOWN TO ENABLE CONTRACTOR TO BUILD FORMS TO CORRECT GRADE AND SPECIFIED SLAB THICKNESS.

**END VIEW**

CUT STRANDS FLUSH WITH CONCRETE. PAINT ENDS WITH AN APPROVED GRAY EPOXY EXCEPT AS NOTED.

**BEAM ELEVATION**

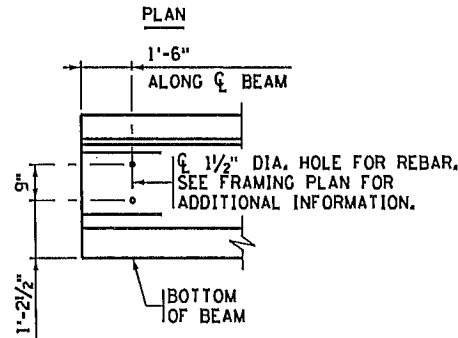
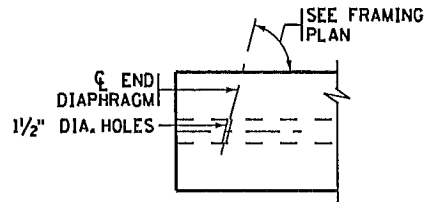
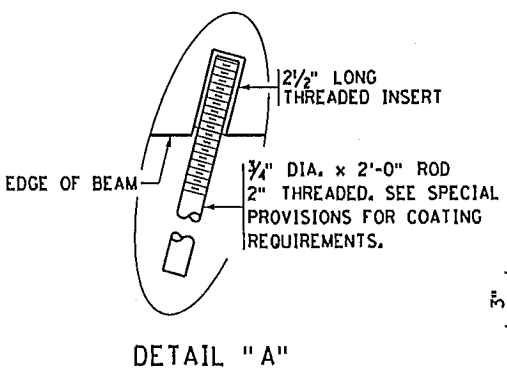
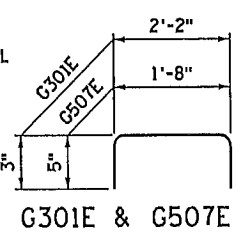
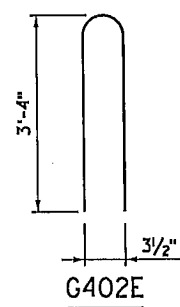
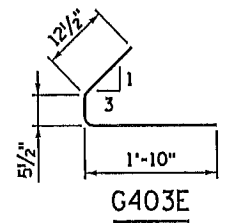
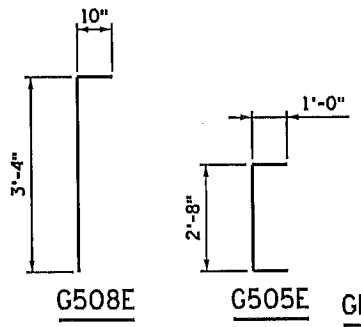
**SECTION AT CL SPAN**

**CAMBER DIAGRAM**

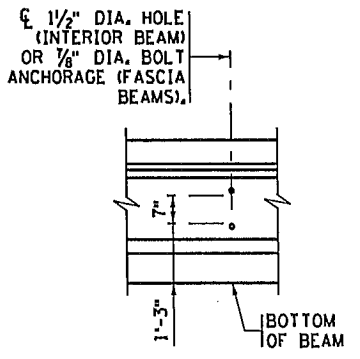
CALCULATED PRESTRESS LOSSES	
ELASTIC SHORTENING LOSS	20.1 KSI
LONG TERM LOSSES	23.8 KSI
TOTAL LOSSES	43.9 KSI

MINIMUM CONCRETE STRENGTH - K.S.I.	
① f'cl	② f'c
7500 KSI	9000 KSI

PRESTRESSING STRAND DIAMETER	
⑤ 1/2"	<input type="checkbox"/>
⑤ 0.60"	<input checked="" type="checkbox"/>



**CONCRETE END DIAPHRAGM**



**STEEL INTERMEDIATE DIAPHRAGM**  
(SEE DETAIL B403 FOR DIAPHRAGM DETAILS)

**GENERAL NOTES**

TOPS OF BEAMS SHALL BE ROUGH FLOATED AND BROOMED TRANSVERSELY FOR BOND. PROVIDE HANDLING HOOKS OR DEVICES AS REQUIRED BY CONTRACTOR.

EACH BEAM SHALL BE MARKED, SHOWING BRIDGE NUMBER, CASTING DATE, AND INDIVIDUAL IDENTIFICATION LETTERS AND NUMBERS. MARKINGS SHALL BE MADE ON THE FACE OF THE BEAM, NEAR THE END, SO LOCATED THAT THEY WILL BE EXPOSED AFTER THE END DIAPHRAGMS HAVE BEEN CAST. FASCIA BEAMS SHALL BE MARKED ON THE INSIDE FACE. ALL MARKINGS SHALL BE STENCILLED AND BE CLEARLY LEGIBLE. FOR LOCATION OF BEAMS, SEE FRAMING PLAN.

ALL MATERIAL AND WORK SHOWN OR NOTED ON THIS SHEET SHALL BE INCLUDED IN UNIT PRICE BID FOR PRESTRESSED CONCRETE BEAMS. SEE Mn/DOT SPEC. 2405. SEE FRAMING PLAN FOR BEAM END MARKED "X" AND DIAPHRAGM SPACING.

APPROXIMATE WEIGHT OF BEAM IS 26.5 TONS.

AS AN ALTERNATE TO THE DIAPHRAGM ANCHORAGES SHOWN, THE CONTRACTOR MAY SUBMIT DETAILS OF A CAST-IN-PLACE ANCHORAGE TO THE ENGINEER FOR APPROVAL. ANCHORAGE MUST PROVIDE AN ULTIMATE PULL OUT STRENGTH OF 15 KIPS PER ANCHORAGE.

- ① MINIMUM CONCRETE STRENGTH AT TIME OF PRESTRESS TRANSFER.
- ② MINIMUM CONCRETE STRENGTH WHEN BEAM CAN BE TRANSPORTED AND INSTALLED.
- ③ DRAPED STRANDS.
- ④ STRAIGHT STRANDS.
- ⑤ PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION STRAND, CONFORMING TO ASTM A416, GRADE 270.
- ⑥ FOR INTEGRAL ABUTMENT, SOLE PLATE CAN BE ELIMINATED OR REPLACED WITH AN APPROVED PROTECTION PLATE.
- ⑦ CENTER OF GRAVITY OF HOLD DOWNS WHEN MULTIPLE HOLD DOWNS ARE USED.

REVISED: 10-22-2009  
APPROVED: OCTOBER 26, 2005  
*Daniel J. Bergan*  
STATE BRIDGE ENGINEER

SEE SUPERSTRUCTURE DETAILS AND REINFORCEMENT FOR DIAPHRAGM DETAILS.

**DETAIL "A"**

**G301E & G507E**

**BEAMS B1 & B2**

**FIG. 5-397.505**

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DATE: 8-6-13 REG NO.: 40456

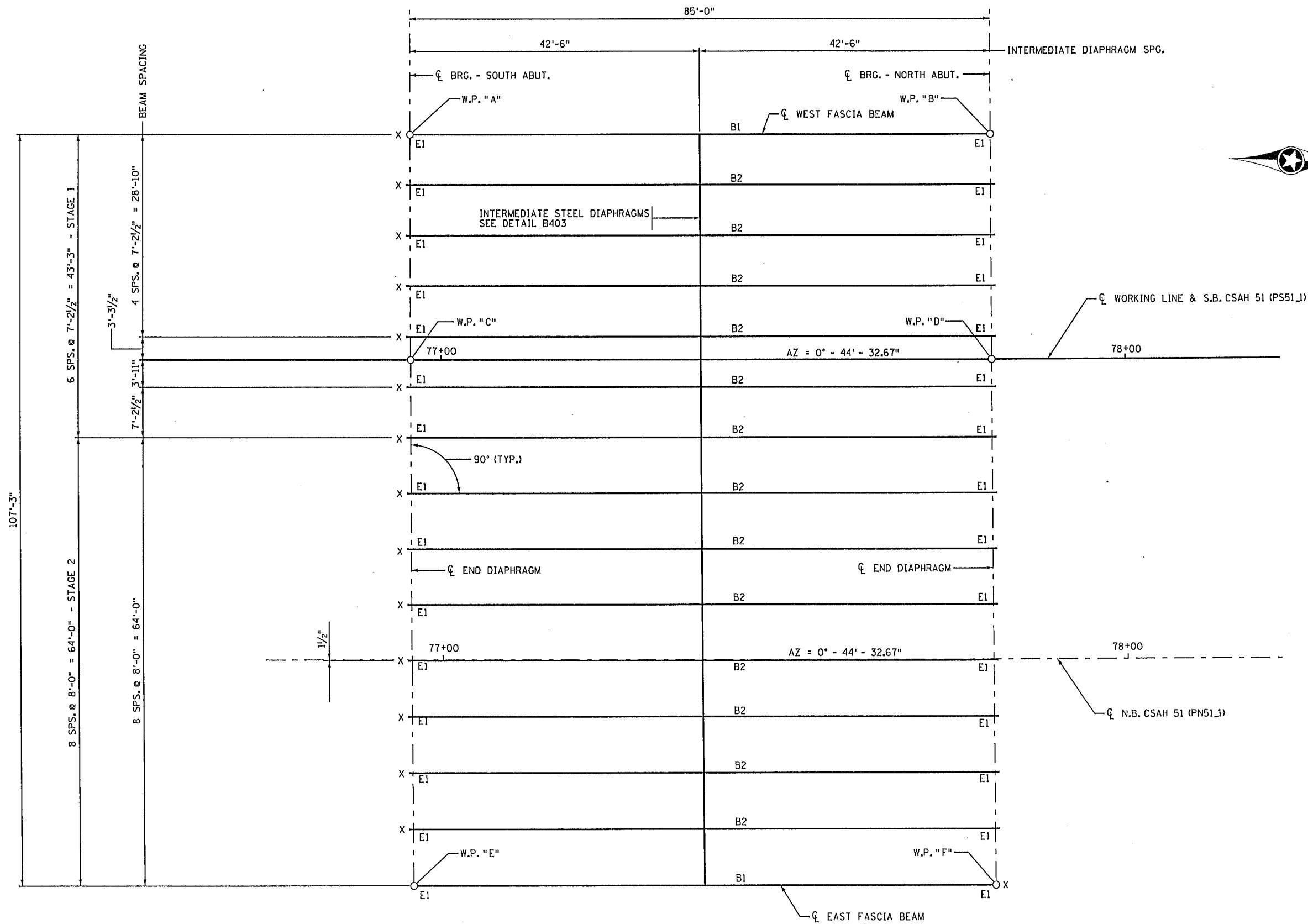
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TITLE: **36" PRESTRESSED CONCRETE BEAM (PRETENSIONED) 36M - 86**

DES: BRL DR: DJV  
CHK: AJN CHK: BRL  
Sheet **348** of 301 Sheets

Bridge No. **02585**



**FRAMING PLAN**

X = MARKS END OF BEAM  
 E1 = ELASTOMERIC PAD, TYPE 1

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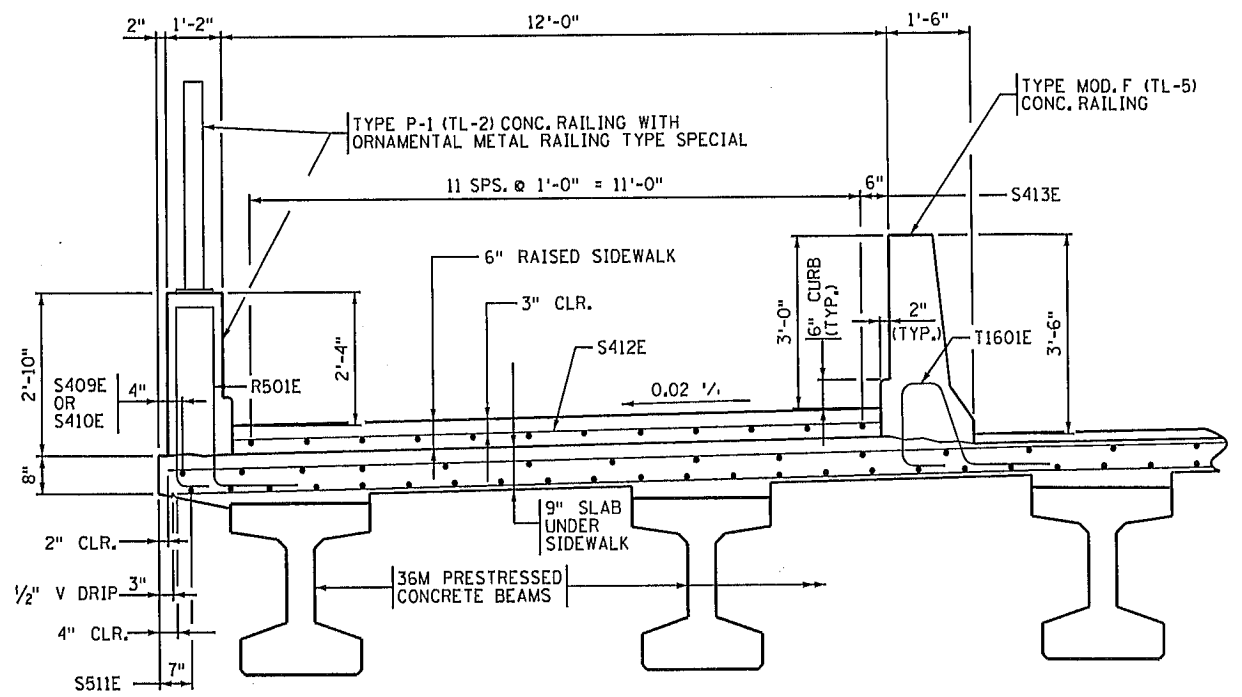
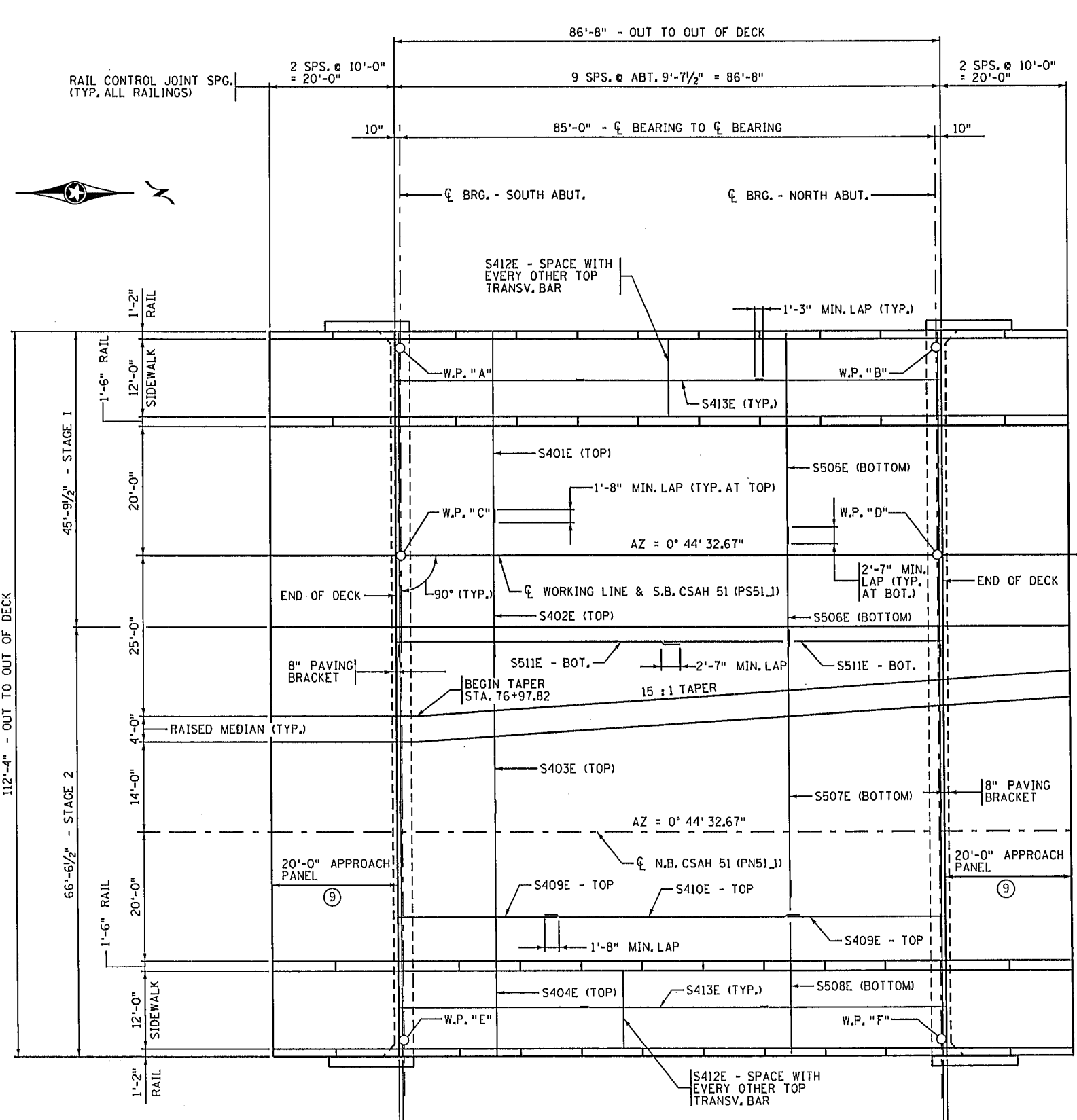
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TITLE:  
**FRAMING PLAN**

DES: BRL	DR: DJV
CHK: AJN	CHK: BRL
Sheet <b>349</b> of <b>301</b> Sheets	

Bridge No.  
**02585**



**EDGE OF DECK AND RAISED SIDEWALK DETAIL**

⑨ APPROACH PANELS TO BE PAID FOR UNDER ROADWAY PORTION OF THIS CONTRACT. SEE ROADWAY PLANS FOR APPROACH PANEL DETAILS.

5 3/4" - TOP  
5 1/2" - BOT. 187 SPS. @ 5 1/2" = 85'-8 1/2"  
147 SPS. @ 7" = 85'-9"

5 3/4" - TOP  
5 1/2" - BOT. S401E - S404E TOP TRANSV.  
S505E - S508E BOT. TRANSV.

**DECK PLAN**

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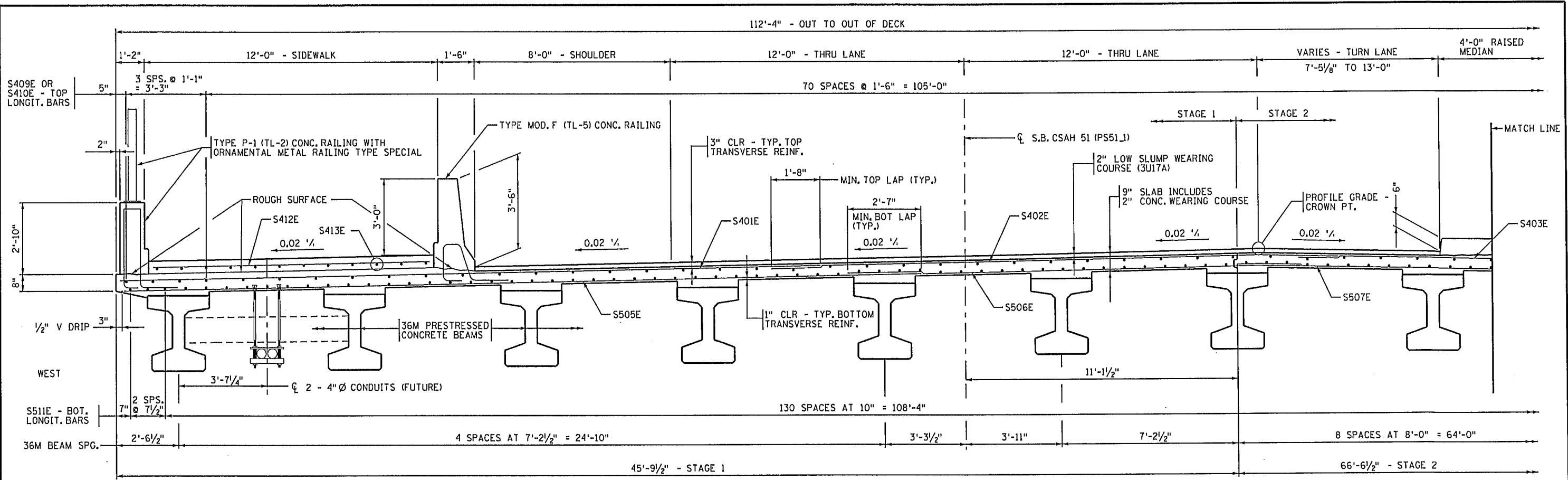
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**S.P. 002-651-007**

TITLE:  
**SUPERSTRUCTURE**  
**DETAILS**

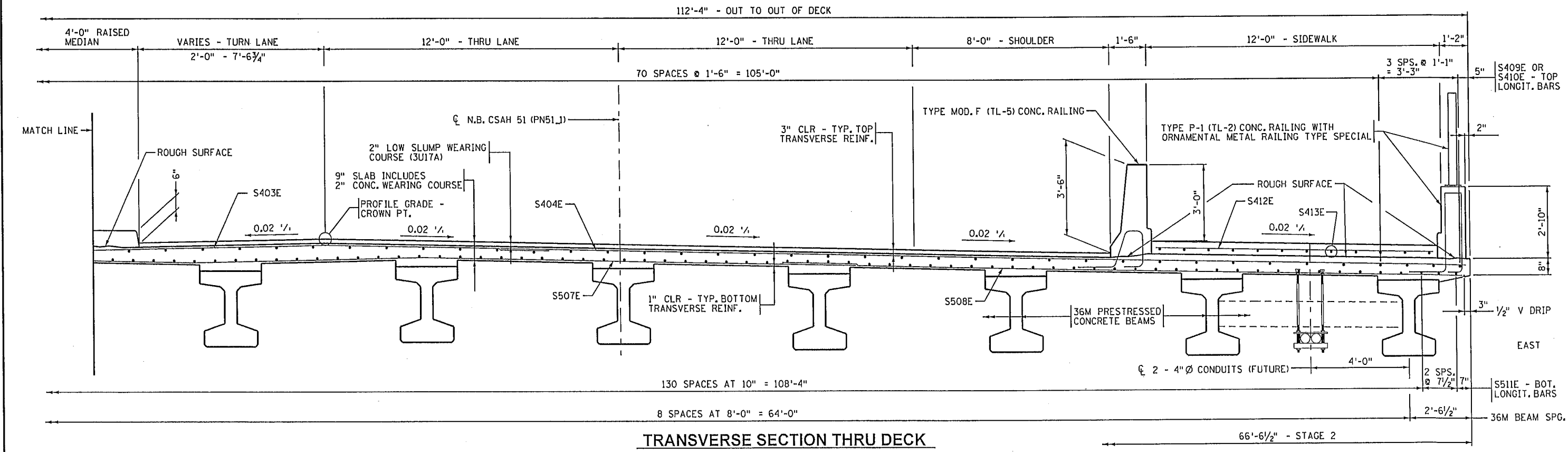
DES: BRL	DR: DJV
CHK: AJN	CHK: BRL
Sheet <b>350</b> of <b>381</b> Sheets	

Bridge No.  
**02585**



**TRANSVERSE SECTION THRU DECK**

NOTE: SEE SHT. 23 FOR EDGE DECK & SIDEWALK DETAILS.



**TRANSVERSE SECTION THRU DECK**

8/6/2013 1:58:44 PM K:\02076-000\Cad\Plan\cbr-02585\_super2.dgn

NO	DATE	BY	CHK	REVISIONS

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*Barritt Lovelace*

LICENSED PROFESSIONAL ENGINEER: BARRITT LOVELACE  
 DATE: 8-6-13 REG NO: 40458

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**ANOKA COUNTY**  
**S.P. 002-651-007**

TITLE:  
**SUPERSTRUCTURE**  
**DETAILS**

DES: BRL DR: DJV  
 CHK: AJN CHK: BRL  
 Sheet 351 of 381 Sheets

Bridge No.  
**02585**

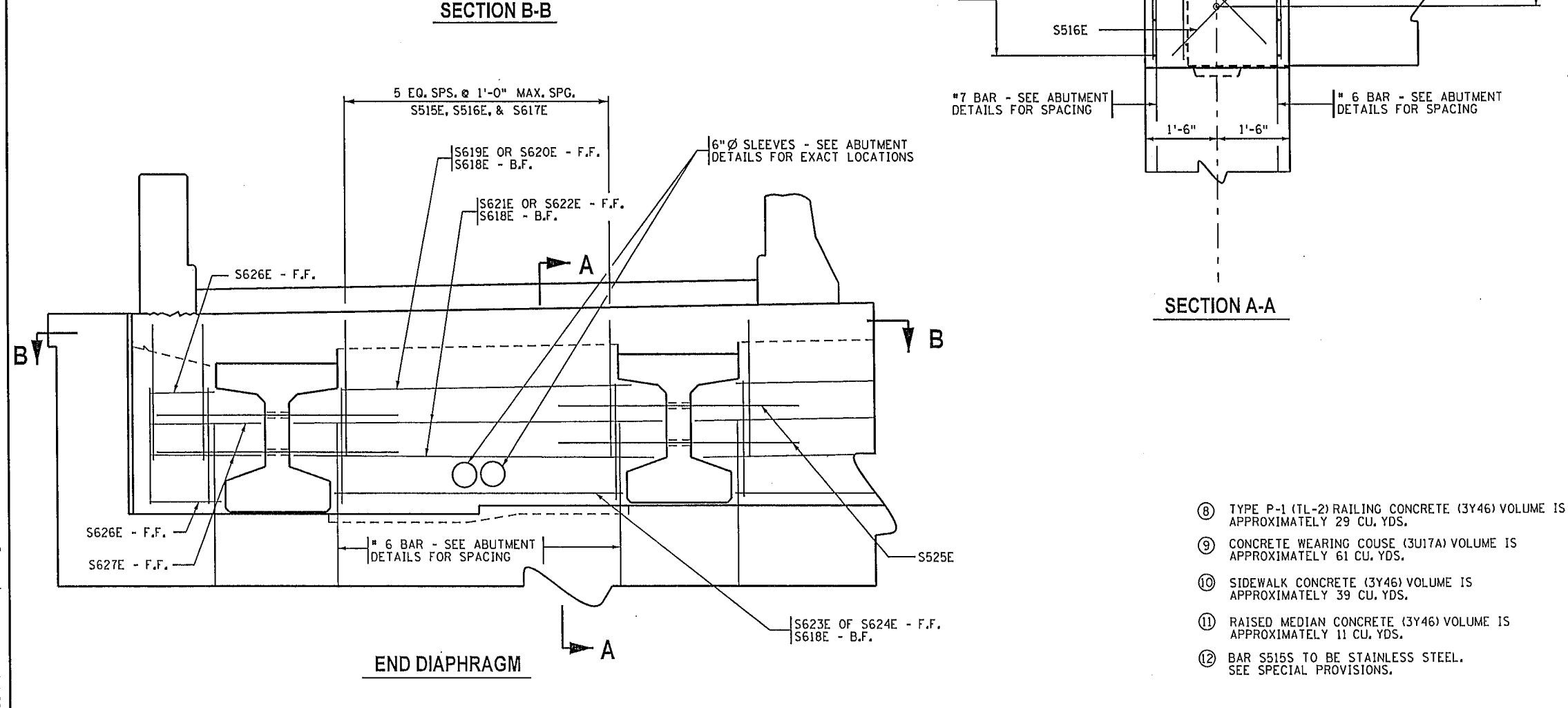
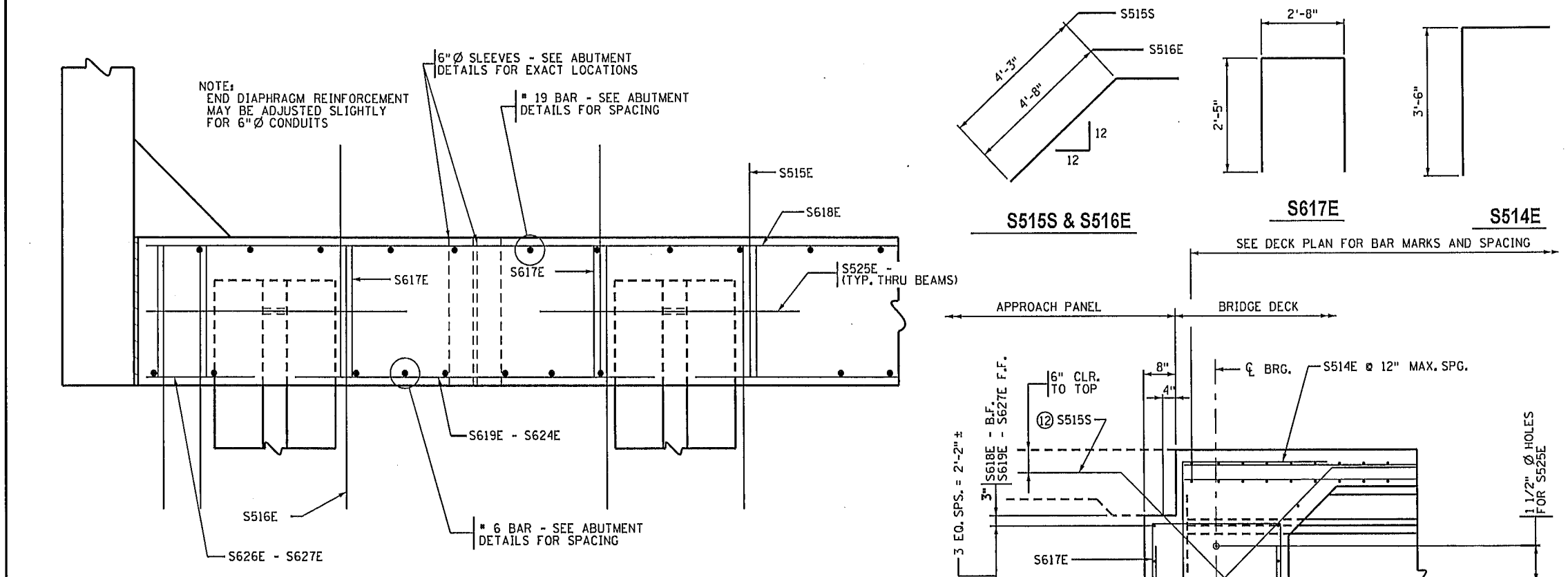
**BILL OF REINFORCEMENT - SUPERSTRUCTURE**

BAR	NO.	LENGTH	SHAPE	LOCATION
S401E	188	28'-8"	—	TOP - TRANSV.
S402E	188	23'-0"	—	TOP - TRANSV.
S403E	188	26'-3"	—	TOP - TRANSV.
S404E	188	39'-6"	—	TOP - TRANSV.
S505E	148	32'-7"	—	BOT. - TRANSV.
S506E	148	18'-6"	—	BOT. - TRANSV.
S507E	148	41'-6"	—	BOT. - TRANSV.
S508E	148	27'-9"	—	BOT. - TRANSV.
S409E	154	25'-0"	—	TOP - LONGIT.
S410E	77	40'-0"	—	TOP - LONGIT.
S511E	270	44'-6"	—	BOT. - LONGIT.
S412E	188	11'-4"	—	SIDEWALK - TRANSV.
S413E	72	30'-0"	—	SIDEWALK - LONGIT.
S514E	226	6'-6"	—	END DIAPH. - AT END
S515S	168	6'-6"	—	END DIAPH. - TO APP. PANEL
S516E	176	7'-0"	—	END DIAPH. - TO DECK
S617E	176	7'-2"	—	END DIAPH. - TIES
S618E	32	30'-0"	—	END DIAPH. - B.F. HORZ.
S619E	16	5'-9"	—	END DIAPH. - F.F. HORZ.
S620E	12	5'-0"	—	END DIAPH. - F.F. HORZ.
S621E	32	7'-4"	—	END DIAPH. - F.F. HORZ.
S622E	24	6'-7"	—	END DIAPH. - F.F. HORZ.
S623E	16	5'-6"	—	END DIAPH. - F.F. HORZ.
S624E	12	4'-9"	—	END DIAPH. - F.F. HORZ.
S525E	60	5'-0"	—	END DIAPH. - THRU BEAMS
S626E	8	1'-1"	—	END DIAPH. - F.F. HORZ.
S627E	8	2'-0"	—	END DIAPH. - F.F. HORZ.

**SUMMARY OF QUANTITIES - SUPERSTRUCTURE**

①	BRIDGE SLAB CONCRETE (3Y36)	9736	SQ. FT.
②	TYPE MOD. F (TL-5) RAILING CONCRETE (3Y46)	254	LIN. FT.
③	TYPE P-1 (TL-2) RAILING CONCRETE (3Y46)	254	LIN. FT.
④	REINFORCEMENT BARS (EPOXY COATED)	73340	POUND
⑤	REINFORCEMENT BARS (STAINLESS STEEL)	1140	POUND
⑥	PRESTRESSED CONCRETE BEAMS TYPE 36M	1294	LIN. FT.
⑦	DIAPHRAGMS FOR TYPE 36M PRESTR. BEAMS	108	LIN. FT.
⑧	CONCRETE WEARING COURSE (3U17A)	9755	SQ. FT.
⑨	ORNAMENTAL METAL RAILING TYPE SPECIAL	252	LIN. FT.
⑩	SIDEWALK CONCRETE (3Y46)	2081	SQ. FT.
⑪	RAISED MEDIAN CONCRETE (3Y46)	580	SQ. FT.
⑫	ELASTOMERIC BEARING PAD, TYPE 1	30	EACH
⑬	BENCH MARK DISK	1	EACH
⑭	BRIDGE NAME PLATE	1	EACH
⑮	1/2" POLYSTYRENE	60	SQ. FT.
⑯	1" POLYSTYRENE	50	SQ. FT.
⑰	BRIDGE DECK PLANING	8910	SQ. FT.
⑱	CONDUIT SYSTEM (FUTURE)	1	LUMP SUM

- ① "BRIDGE SLAB CONCRETE (3Y36)" VOLUME WAS COMPUTED USING AN AVERAGE STUOL HEIGHT OF 2 1/2" INCHES AND IS APPROXIMATELY 304 CU. YDS. INCLUDES 67 CU. YDS. FOR END DIAPHRAGMS.
- ② TYPE MOD. F (TL-5) RAILING CONCRETE (3Y46)" VOLUME IS APPROXIMATELY 38 CU. YDS.
- ③ CONCRETE END DIAPHRAGN SHALL BE POURED INTEGRALLY WITH DECK.
- ④ INCLUDES SLAB, END DIAPHRAGM, AND RAILING REINFORCEMENT.
- ⑤ PAYMENT FOR BEAMS INCLUDED IN ITEM "PRESTRESSED CONCRETE BEAMS TYPE 36M PER LINEAR FOOT.
- ⑥ STATE WILL FURNISH DISK. BEND PRONGS OUTWARD TO ANCHOR DISK IN CONCRETE. BOTTOM OF DISK TOP TO BE PLACED FLUSH WITH CONCRETE. PAYMENT FOR PLACING TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.
- ⑦ TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.



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*Barritt Lovelace*

LICENSED PROFESSIONAL ENGINEER: BARRITT LOVELACE  
DATE: 8-6-13 REG NO.: 40458

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**S.P. 002-651-007**

TITLE:  
**SUPERSTRUCTURE DETAILS**

DES: BRL DR: DJV  
CHK: AJN CHK: BRL

Sheet **352** of **301** Sheets

Bridge No.  
**02585**

8/6/2013 10:44:44 AM K:\02076-000\_Cad\Plan\cb-r-02585\_super3.dgn



**SUMMARY OF QUANTITIES - (FUTURE)  
CONDUIT SYSTEM**

HANGER ASSEMBLIES	20	EACH
4" Ø R.S.C. CONDUIT	750	LIN. FT.
4" Ø R.S.C. END CAPS	8	EACH
45° ELBOWS	8	EACH
6" Ø SLEEVES	8	EACH

**NOTES:**

RODS, EYEBOLTS AND PIPE CLAMPS SHALL COMPLY WITH MNDOT 3313 TYPE I.

CONCRETE INSERTS SHALL BE AN APPROVED TYPE OF MALLEABLE IRON MATERIAL AS PER MNDOT 3324 GRADE 35018, TAP AFTER GALVANIZING.

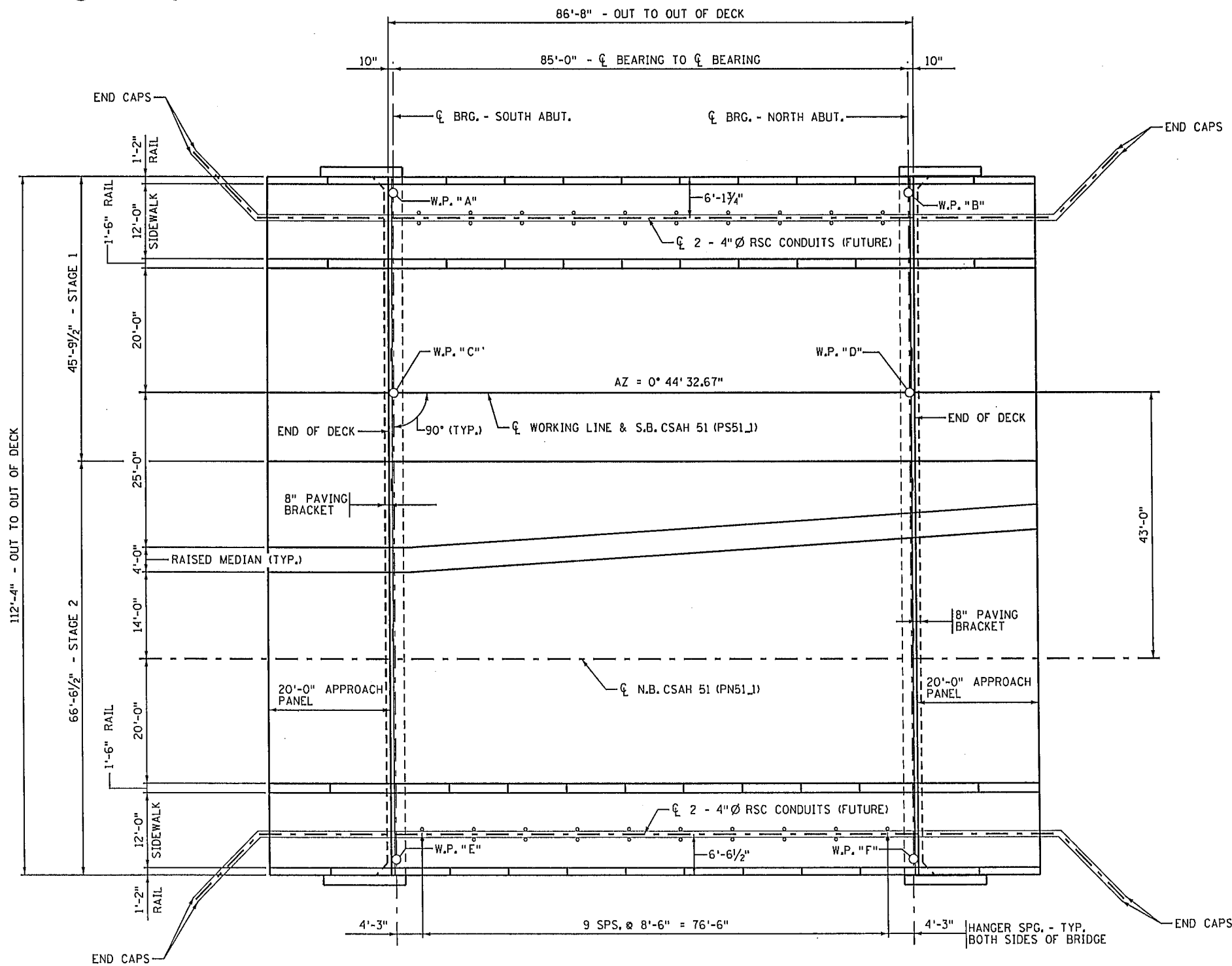
TURNBUCKLES AND EYEBOLTS SHALL COMPLY WITH ASTM A325 CLASS A MINIMUM REQUIREMENTS.

FLAT BARS AND ANCHORAGES SHALL COMPLY WITH MNDOT SPEC. 3306.

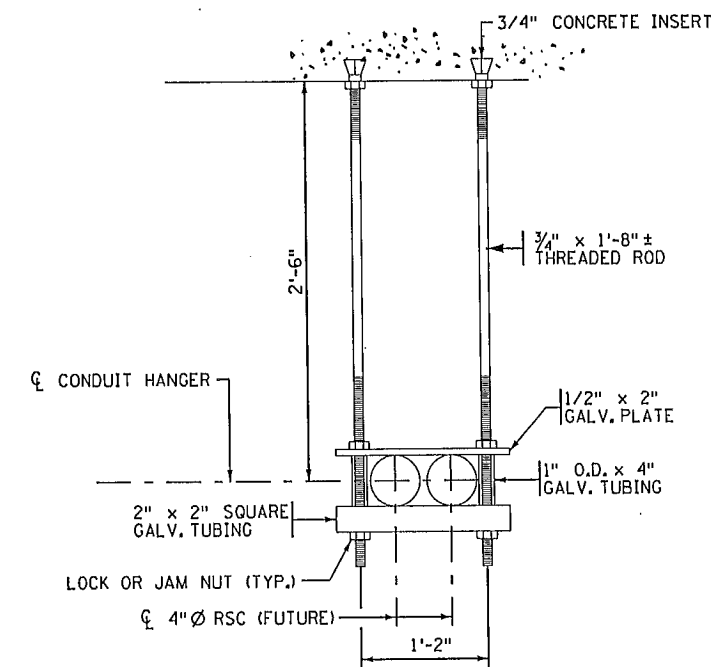
GALVANIZE NUTS, BOLTS, WASHERS, TURNBUCKLES, EYEBOLTS, RODS AND INSERTS PER MNDOT 3392. GALVANIZE OTHER MATERIAL PER MNDOT 3394 AFTER FABRICATION.

PIPE SLEEVES SHALL COMPLY WITH MNDOT 3362.

CAULK AROUND CONDUIT AND PIPES AT PIPE SLEEVES THROUGH ABUTMENT DIAPHRAGM



**PLAN VIEW - CONDUIT SYSTEMS**



**HANGER ASSEMBLY DETAIL**

4/22/2014 10:49:48 AM R:\02076-000\Cad\Plan\cbr-02585\_conduit.dgn

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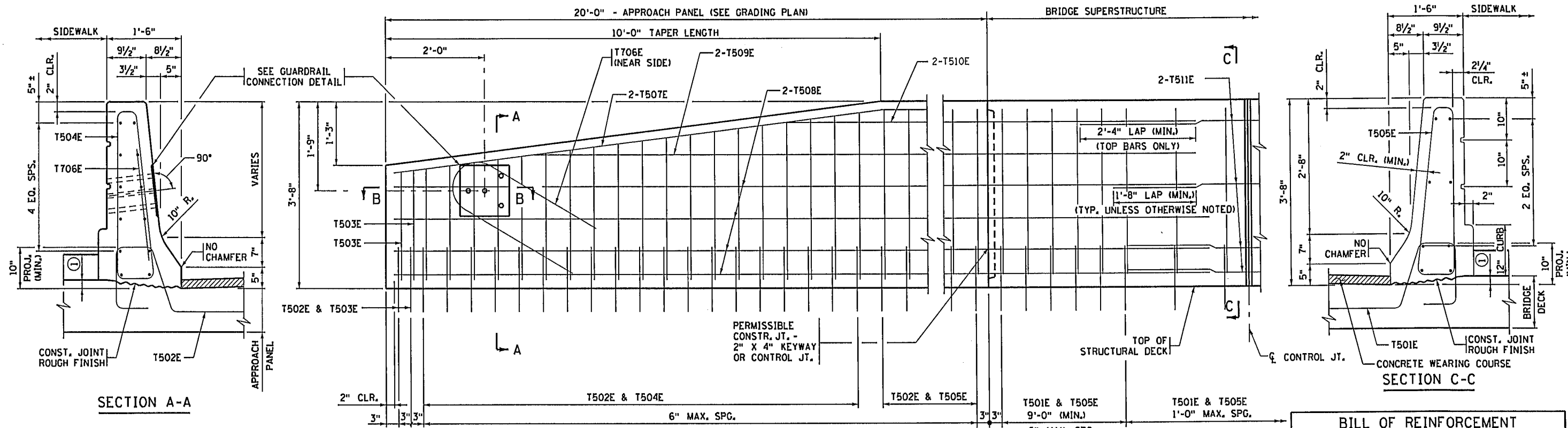
**C.S.A.H. 51  
 ANOKA COUNTY  
 S.P. 002-651-007**

TITLE: **CONDUIT SYSTEM  
 DETAILS**

DES: BRL	DR: DJV
CHK: AJN	CHK: BRL

Sheet **353** of **301** Sheets

Bridge No. **02585**



SECTION A-A

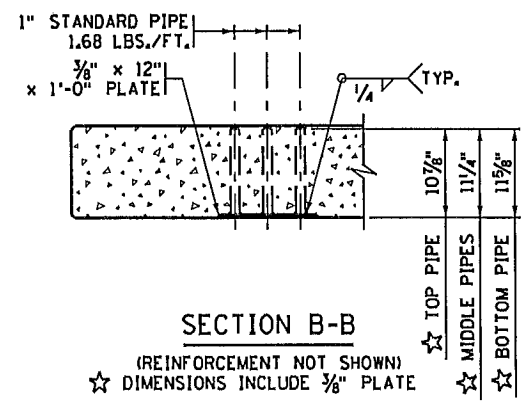
SECTION C-C

EXPANSION JOINT  
EXPANSION DEVICE NOT SHOWN  
INSIDE ELEVATION OF BARRIER  
CONCRETE WEARING COURSE NOT SHOWN

BARRIER MEETS TEST LEVEL 5 REQUIREMENTS OF NCHRP REPORT 350

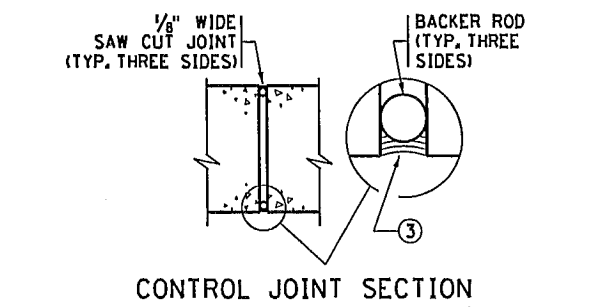
BILL OF REINFORCEMENT FOR BARRIER				
BAR	NO.	LENGTH	SHAPE	LOCATION
T501E	210	5'-5"		BARRIER DOWEL
T502E	164	5'-11"		BARRIER VERTICAL
T503E	8	5'-11"		BARRIER VERTICAL
T504E	4 SER. OF 18	6'-0" TO 8'-0"		BARRIER VERTICAL
T505E	294	8'-2"		BARRIER VERTICAL
T706E	4	6'-6"		BARRIER VERTICAL
T507E	8	11'-11"		BARRIER LONGIT.
T508E	32	31'-0"		BARRIER LONGIT.
T509E	8	28'-0"		BARRIER LONGIT.
T510E	8	24'-0"		BARRIER LONGIT.
T511E	32	36'-0"		BARRIER LONGIT.

② 2 LINES - WITH 2'-4" MIN. LAP AT TOP BARS AND 1'-8" MIN. LAP BELOW TOP BARS

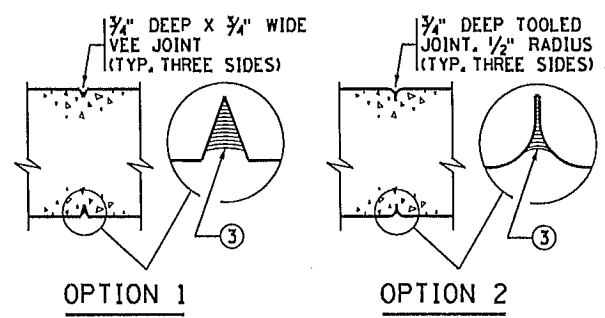


SECTION B-B

(REINFORCEMENT NOT SHOWN)  
☆ DIMENSIONS INCLUDE 3/8" PLATE



CONTROL JOINT SECTION

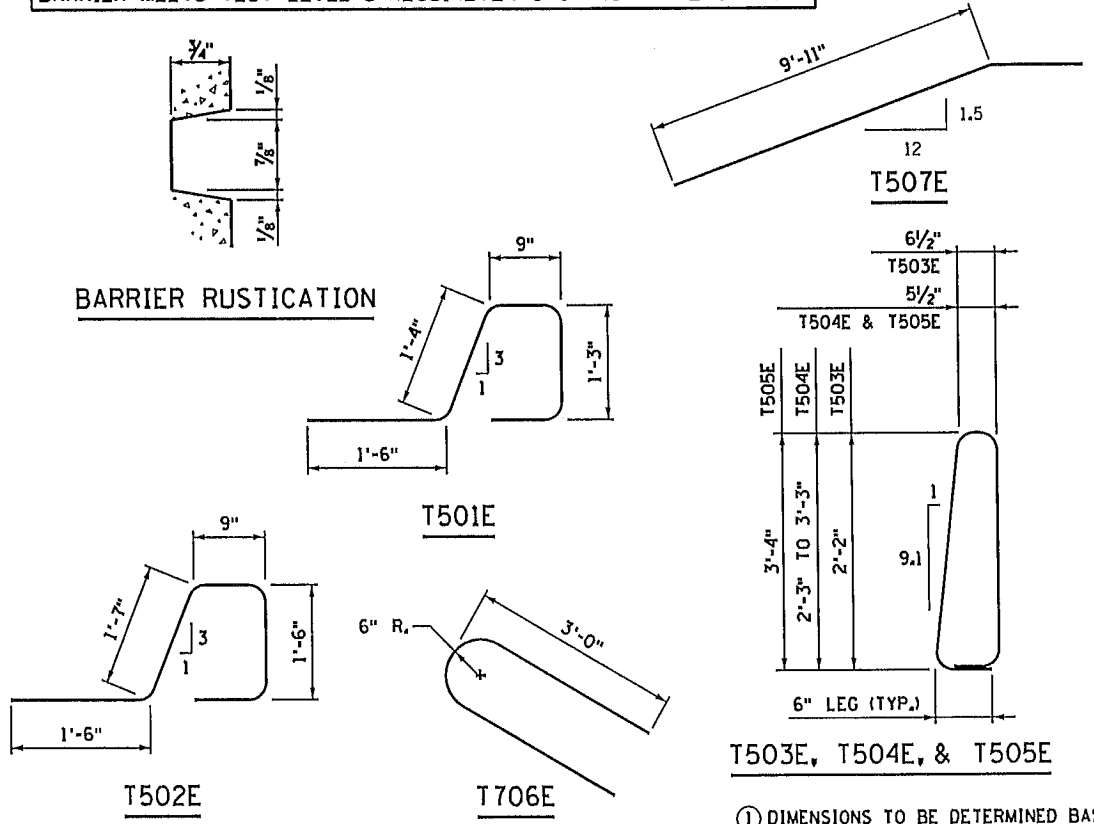


OPTION 1      OPTION 2

CONTROL JOINT DETAILS

WHEN USING SLIP FORM METHOD TO PLACE THE CONCRETE, CUT JOINT 3 INCHES DEEP USING MARGIN TROWEL OR SIMILAR MEANS IMMEDIATELY AFTER CONCRETE PLACEMENT (TYP, THREE SIDES)

③ SEE SPECIAL PROVISIONS FOR JOINT SEALING REQUIREMENTS.



BARRIER RUSTICATION

GUARDRAIL CONNECTION DETAIL

GALVANIZE AFTER FABRICATION PER Mn/DOT SPEC. 3394  
ESTIMATED WEIGHT = 22 LBS

REVISED: 05-26-2006  
APPROVED: JULY 25, 2005  
*David J. Johnson*  
STATE BRIDGE ENGINEER

NO.	DATE	BY	CHK	REVISIONS

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*Barritt Lovelace*  
LICENSED PROFESSIONAL ENGINEER: BARRITT LOVELACE  
DATE: 8-6-13      REG NO: 40459

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**C.S.A.H. 51**  
**ANOKA COUNTY**  
**S.P. 002-651-007**

TITLE:  
**TYPE MOD. F (TL-5) RAILING**  
WITH BRIDGE SLAB SIDEWALK AND INTEGRAL END POST (WITH CONC. WEARING COURSE)

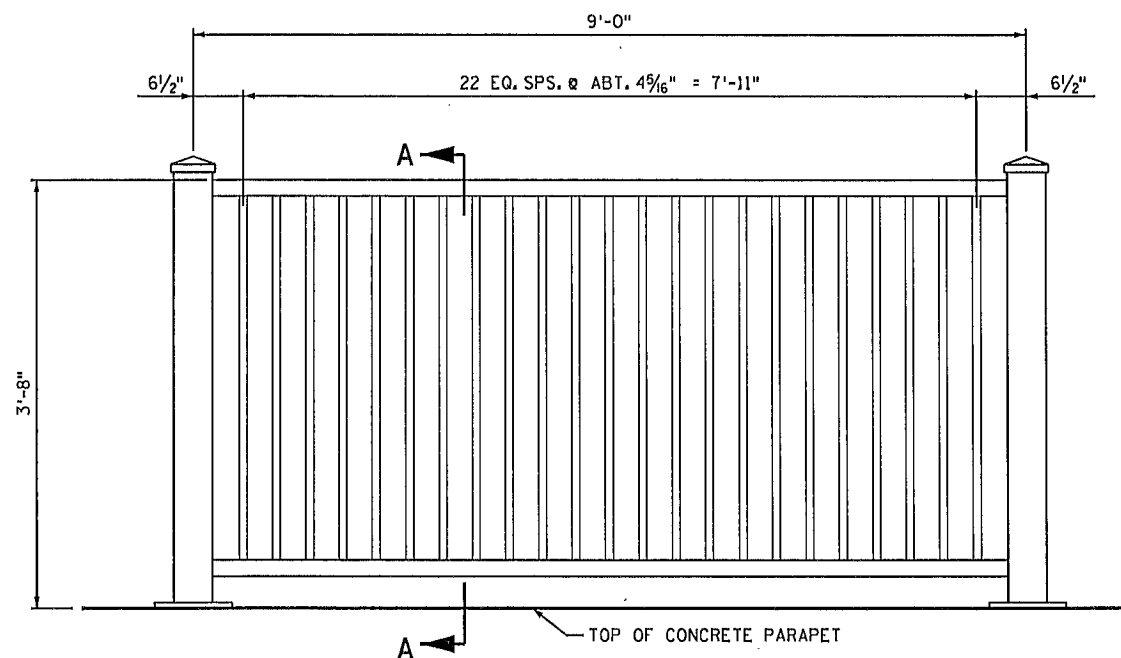
DES: BRL      DR: DJV  
CHK: AJN      CHK: BRL  
Sheet **354** of **301** Sheets

FIG. 5-397.125

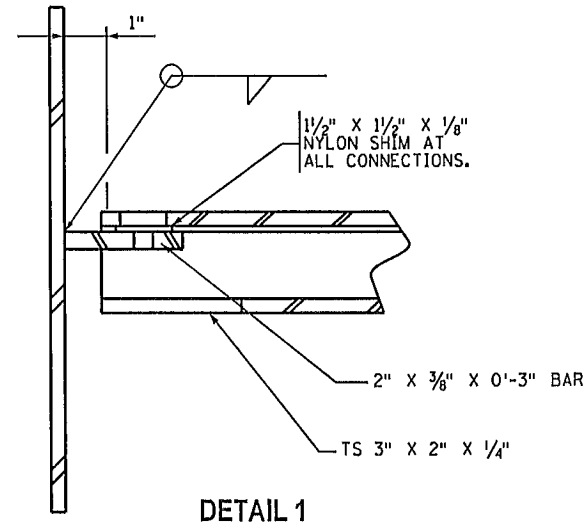
Bridge No. **02585**

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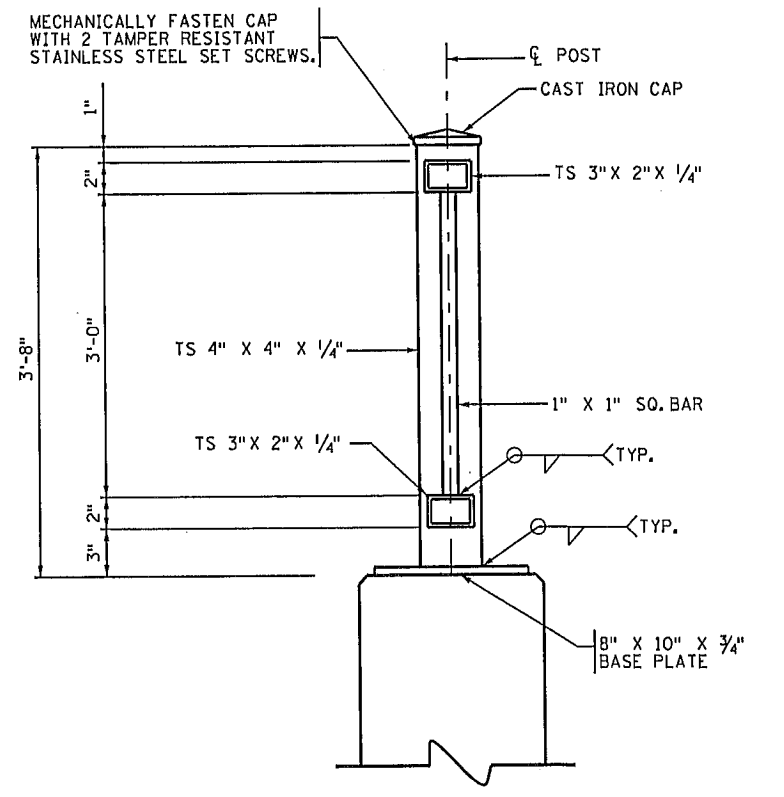




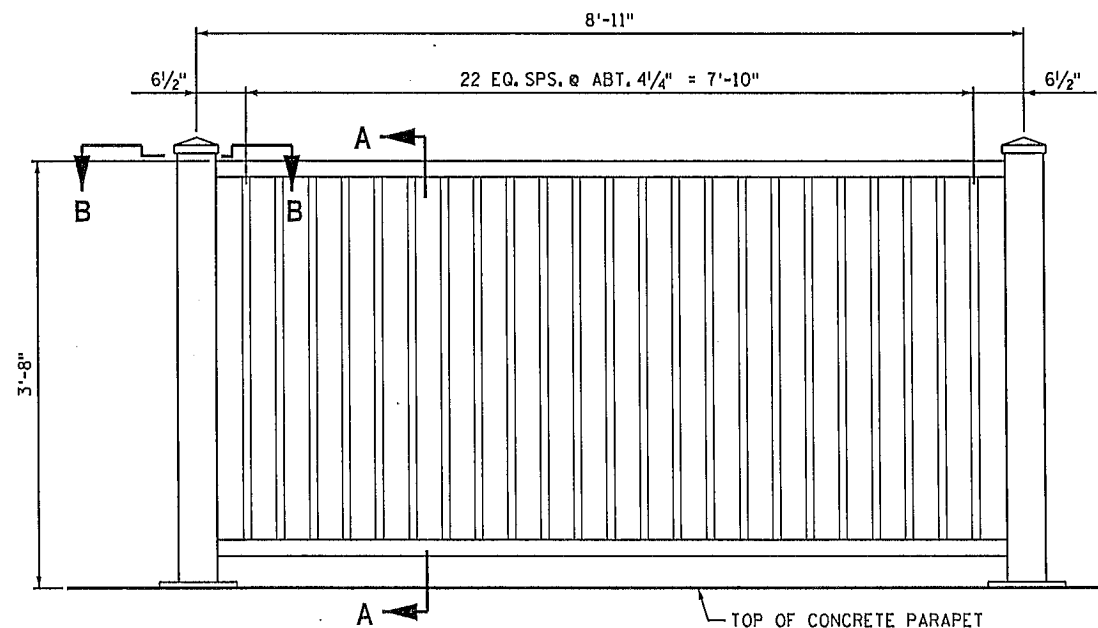
**PANEL "A"**



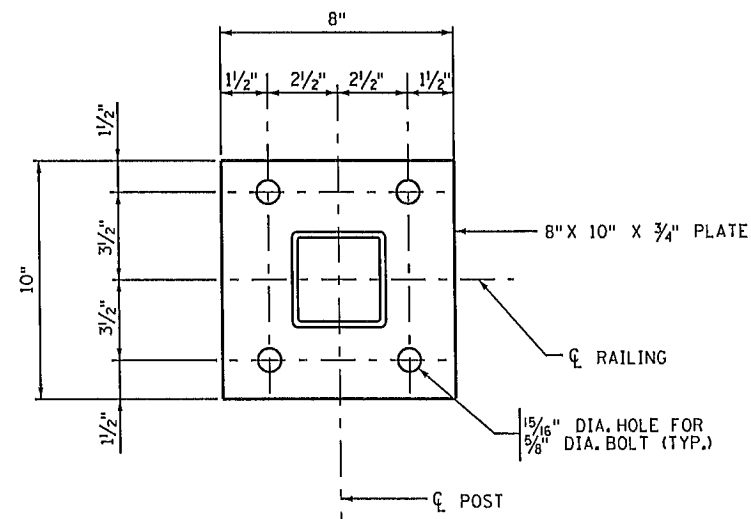
**DETAIL 1**



**SECTION A-A**



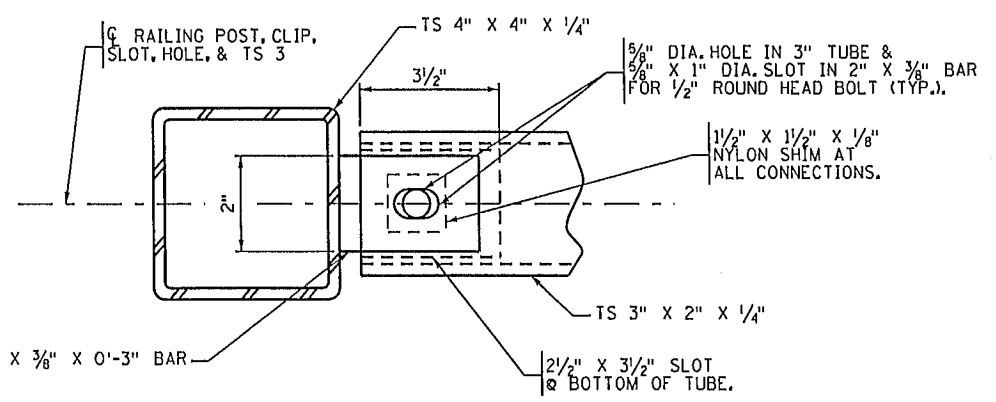
**PANEL "B"**



**BASE PLATE DETAIL**

**NOTES:**

- LENGTH OF "ORNAMENTAL METAL RAILING TYPE SPECIAL" FOR PAYMENT WILL BE MEASURED FROM ENDPST TO ENDPST
- ALL STRUCTURAL STEEL TUBING IN THE RAIL SHALL BE A500, GRADE B.
- ALL OTHER STRUCTURAL MATERIAL SHALL CONFORM TO MN/DOT SPEC. 3306.
- RAILPOSTS AND PICKETS SHALL BE PLUMB (VERTICAL).
- FOR RAIL COATING, SEE SPECIAL PROVISIONS.
- THE RAILING, BASE PLATES, AND PROTRUDING PORTIONS OF BOLTS, NUTS, AND WASHERS SHALL BE PAINTED IN ACCORDANCE WITH THE SPECIAL PROVISIONS.
- FOR RAIL ANCHORAGE REQUIREMENTS, SEE THE SPECIAL PROVISIONS.
- THE CONNECTION AT ONE END OF EACH PANEL SHALL ALLOW FOR EXPANSION.
- RAILING SHALL BE GROUNDED WITH 5/8" DIA. COPPER ROD AS PER MN/DOT SPEC. 2557, (INCIDENTAL TO ORNAMENTAL METAL RAILING TYPE SPECIAL).



**SECTION B-B**

8/6/2013 1:48:45 PM R:\02016-000\_Cad\Plan\cbr-02585\_metalrail.dgn

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DATE: 8-6-13 REG NO.: 40456

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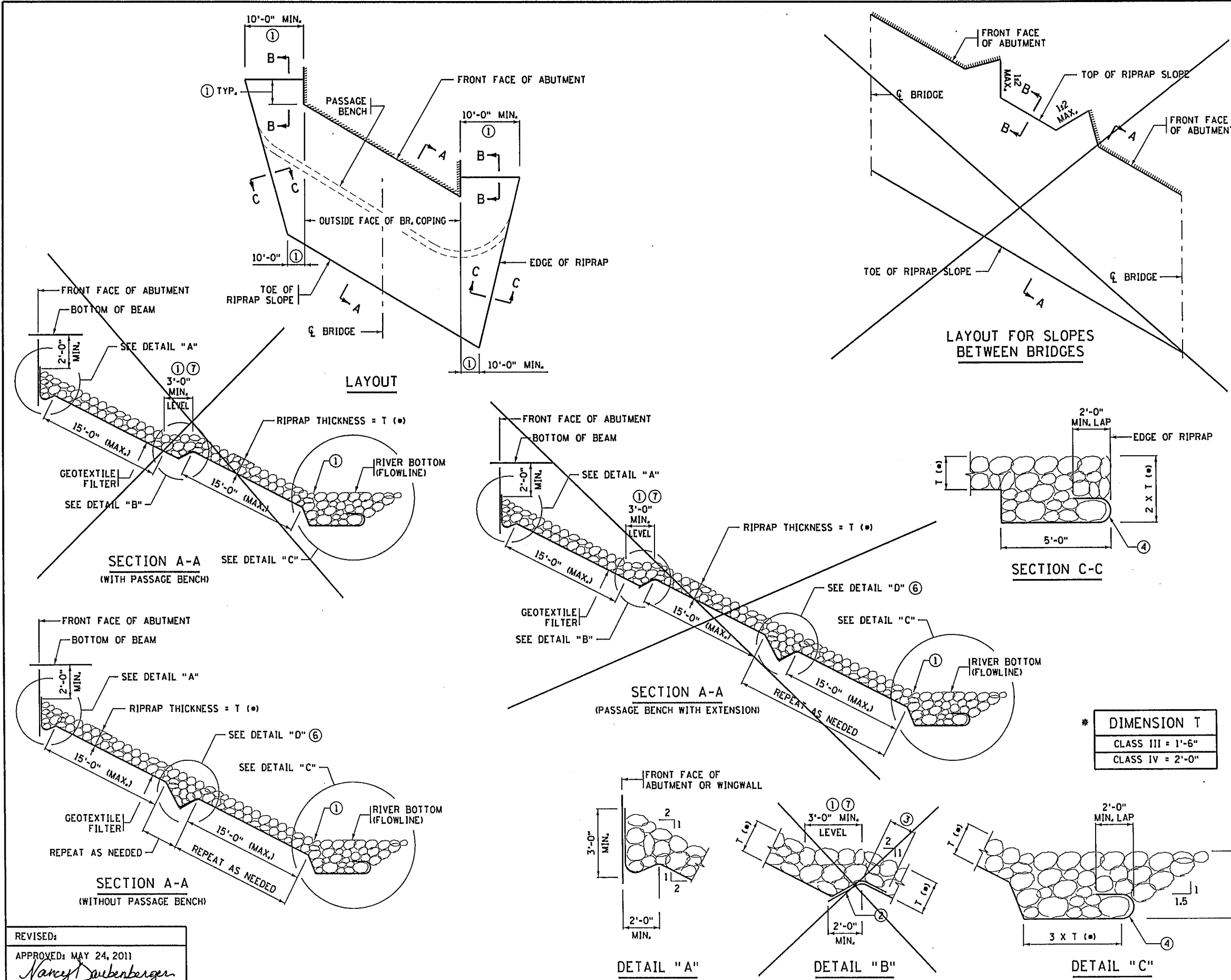
**C.S.A.H. 51**  
**ANOKA COUNTY**  
**S.P. 002-651-007**

TITLE:  
**ORNAMENTAL METAL RAILING**  
**TYPE (SPECIAL) DETAILS**

DES: BRL	DR: DJV
CHK: AJN	CHK: BRL

Sheet **356** of **381** Sheets

Bridge No.  
**02585**



**GENERAL NOTES**

- SEE SPECIAL PROVISIONS FOR MATERIALS, PREPARATION AND PLACEMENT.
- USE GEOTEXTILE FILTER MATERIAL AS PER Mn/DOT SPECIAL PROVISION 2511.
- PAYMENT WILL BE MADE UNDER ITEM 2511.515 GEOTEXTILE FILTER TYPE IV (MODIFIED) BY THE SQ. YD.
- PAYMENT WILL BE MADE UNDER ITEM 2511.501 RANDOM RIPRAP CLASS III BY THE CU. YD.
- SLOPES ARE EXPRESSED AS A RATIO OF VERTICAL DISTANCE : HORIZONTAL DISTANCE.
- SLOPE BOTTOM OF TRENCHES 1:20 PARALLEL TO ABUTMENT FACE TO PROVIDE POSITIVE DRAINAGE.

- ① SEE PLAN SHEET NO. 35 FOR DIMENSIONS, AND FOR ELEVATIONS OF RIPRAP TOE AND PASSAGE BENCHES.
- ② PLACE RIPRAP IN TRENCH TO HOLD THE GEOTEXTILE FABRIC IN PLACE BEFORE PLACING THE REST OF THE RIPRAP (FROM THE BOTTOM OF THE SLOPE).
- ③ OVERLAP GEOTEXTILE FILTER 2'-0" MINIMUM.
- ④ WRAP GEOTEXTILE FILTER AROUND TOE, OVERHANG BETWEEN 1ST AND 2ND LAYER OF RIPRAP. USE HAND PLACEMENT OR SIMILAR METHODS TO ESTABLISH PROFILE AND PLACE FABRIC IF UNDER WATER.
- ⑤ BURY EDGES OF GEOTEXTILE FILTER TO DIRECT WATER FLOW OVER THE FABRIC WITHOUT UNDERMINING.
- ⑥ OMIT THE TRENCH SHOWN IN DETAIL "D" AND THE 15'-0" MAXIMUM SPACING BETWEEN TRENCHES FOR SLOPES 1:3 OR FLATTER.
- ⑦ ~~SURFACE BENCHES WITH AGGREGATE CLASS 5 INCIDENTAL TO RIPRAP; TIE BENCHES TO NATURAL GROUNDLINES OUTSIDE OF BRIDGE.~~

\* DIMENSION T

CLASS III = 1'-6"
CLASS IV = 2'-0"

FIG. 5-397.309 (MOD.)

8/6/2013 11:46 PM K:\2016-000\Cad\Plan\cbr-02585\_slope.dgn

REVISED:

APPROVED: MAY 24, 2011

*Nancy Dubenberger*

STATE BRIDGE ENGINEER

NO.	DATE	BY	CHK	REVISIONS

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*Barritt Lovelace*

LICENSED PROFESSIONAL ENGINEER: BARRITT LOVELACE

DATE: 8-6-13 REG NO: 40459

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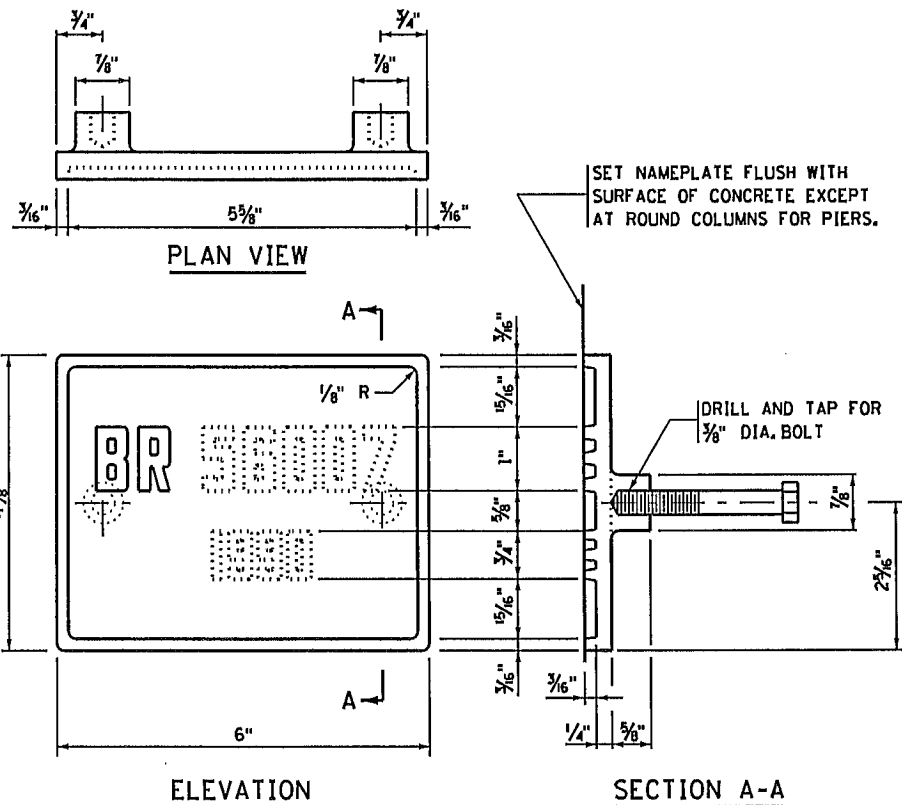
**C.S.A.H. 51**  
**ANOKA COUNTY**  
**S.P. 002-651-007**

TITLE:  
**RIPRAP SLOPE WITH GEOTEXTILE FILTER (SLOPES 1:2 AND FLATTER)**

DES: BRL	DR: DJV
CHK: AJN	CHK: BRL

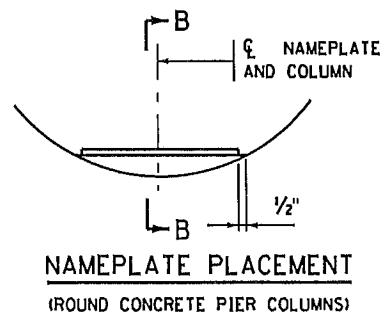
Sheet **357** of **381** Sheets

Bridge No.  
**02585**



THE DASHED NUMBERS SHOWN ABOVE ARE FOR ILLUSTRATION. DATA TO BE SHOWN ON NAMEPLATE IS AS FOLLOWS:

BRIDGE 02585  
YEAR 2014



NAMEPLATE PLACEMENT  
(ROUND CONCRETE PIER COLUMNS)



NUMBERS FOR NAMEPLATE

**NOTES:**

- NO SHOP DRAWING REQUIRED.
- MATERIAL SHALL COMPLY WITH Mn/DOT SPEC. 3327.
- LETTERS AND NUMBERS SHALL CONFORM TO THOSE SHOWN.
- DRAFT ON LETTERS AND NUMBERS SHALL NOT BE MORE THAN 3" IN 12".
- HORIZONTAL SPACING OF LETTERS AND NUMBERS SHALL PRODUCE A BALANCED LAYOUT IN PROPORTION TO SPACING SHOWN.
- TOP SURFACE OF LETTERS, NUMBERS AND FRAMES SHALL BE BURNISHED.
- FURNISH 2 STEEL BOLTS 3/8" DIA. x 3" LONG WITH EACH PLATE.
- ALL DIMENSIONS FOR 3/4" HIGH LETTERS AND NUMBERS SHALL BE IN DIRECT PROPORTION TO THOSE SHOWN FOR THE 1" HIGH LETTERS AND NUMBERS.

APPROVED: NOVEMBER 22, 2002

*Daniel J. Johnson*  
STATE BRIDGE ENGINEER

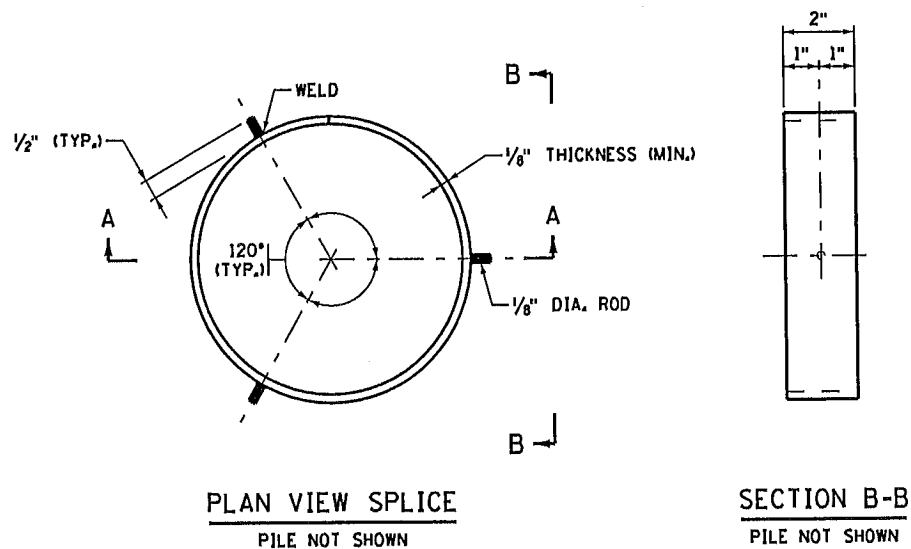
STATE OF MINNESOTA  
DEPARTMENT OF TRANSPORTATION

BRIDGE NAMEPLATE  
(FOR NEW BRIDGES)

REVISION

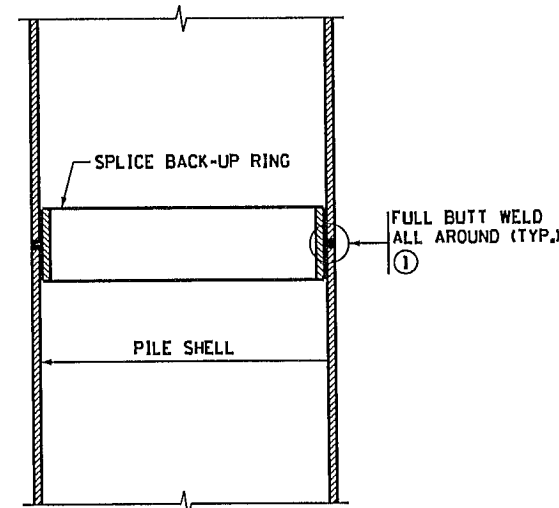
DETAIL NO.

B101



PLAN VIEW SPLICE  
PILE NOT SHOWN

SECTION B-B  
PILE NOT SHOWN



SECTION A-A

**NOTES:**

- APPROVED COMMERCIAL PILE SPLICE BACK-UP RING MAY BE USED IN LIEU OF THE TYPE DETAILED. BACK-UP RING SHALL HAVE A TIGHT FIT.
- WELDING ELECTRODES SHALL BE CELLULOSIC TYPE ELECTRODES E-6010 OR E-6011.
- ELECTRODES WHICH HAVE BECOME WET, SOILED OR DAMAGED SHALL NOT BE USED.
- WELDING SHALL NOT BE DONE WHEN THE AMBIENT TEMPERATURE IS LOWER THAN 0° F., OR WHEN THE PILE IS WET OR EXPOSED TO FALLING RAIN OR SNOW. WHEN THE PILE METAL TEMPERATURE IS BELOW 32° F., THE PILE METAL IN THE AREA OF THE WELD SHALL BE HEATED TO A MINIMUM TEMPERATURE OF 70° F. AND MAINTAINED AT THIS TEMPERATURE DURING WELDING.
- ① FOR PILE SHELL THICKNESSES GREATER THAN 1/2", USE A B-U4c WELD CONFIGURATION.

APPROVED: NOVEMBER 22, 2002

*Daniel J. Johnson*  
STATE BRIDGE ENGINEER

STATE OF MINNESOTA  
DEPARTMENT OF TRANSPORTATION

PILE SPLICE  
(CAST-IN-PLACE CONCRETE PILES)

REVISION

DETAIL NO.

B201

8/16/2013 10:46 PM K:\020716-000\Cad\Plan\cbr-02585\_detail.dgn

NO.	DATE	BY	CHK	REVISIONS

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

*Daniel J. Johnson*  
LICENSED PROFESSIONAL ENGINEER: BARRITT LOVELACE  
DATE: 8-8-13 REG NO: 40456

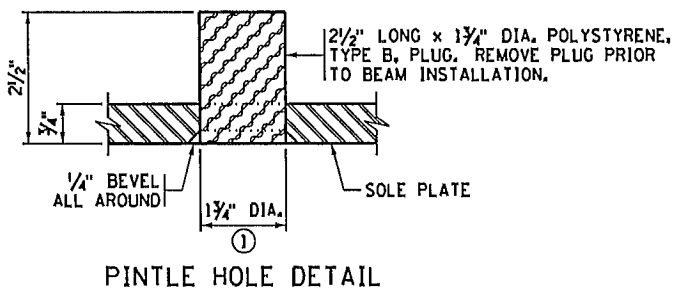
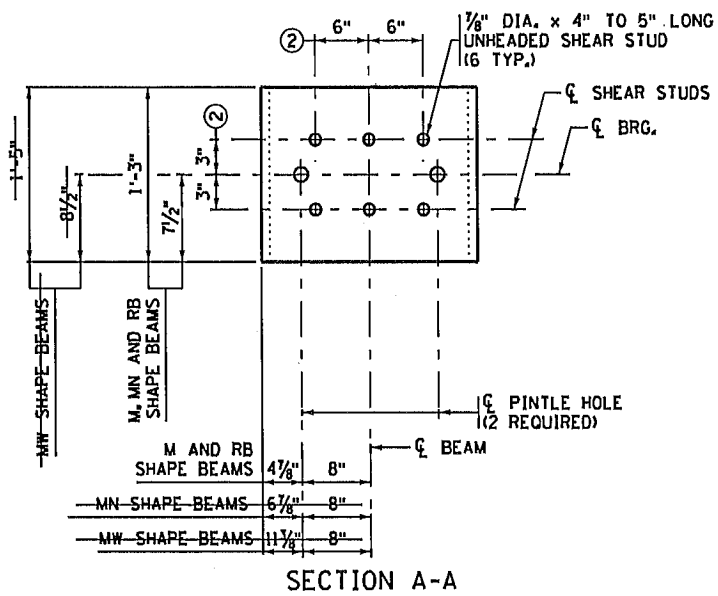
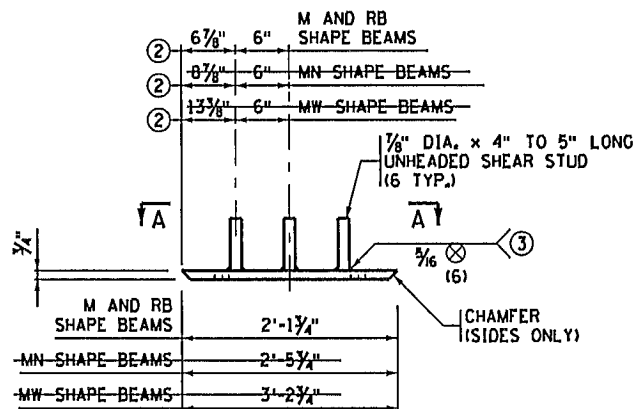
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C.S.A.H. 51  
ANOKA COUNTY  
S.P. 002-651-007

TITLE:  
BRIDGE DETAILS

DES: BRL DR: DJV  
CHK: AJN CHK: BRL  
Sheet 358 of 381 Sheets

Bridge No.  
02585



**NOTES:**

MATERIAL TO BE STRUCTURAL STEEL PER MnDOT SPEC. 3306.

WELDED STUDS TO BE WELDABLE CARBON STEEL PER MnDOT SPEC. 3391.2D.

SOLE PLATE FOR BEARING ASSEMBLY TO BE GALVANIZED PER MnDOT SPEC. 3394 AFTER FABRICATION.

PINTLE HOLES SHALL BE FREE OF ZINC BUILD UP FROM GALVANIZING.

SOLE PLATES ARE INCIDENTAL TO PRESTRESSED CONCRETE BEAMS.

- ① FOR 1 1/2" DIA. PINTLES.
- ② THESE DIMENSIONS MAY BE MODIFIED TO CLEAR PRESTRESSED STRANDS. HOWEVER, CHANGES MUST BE APPROVED BY THE ENGINEER.
- ③ THE REQUIREMENTS FOR WELDING STUDS SHALL COMPLY WITH AASHTO/AWS D11.

APPROVED: SEPTEMBER 22, 2011

STATE OF MINNESOTA  
DEPARTMENT OF TRANSPORTATION

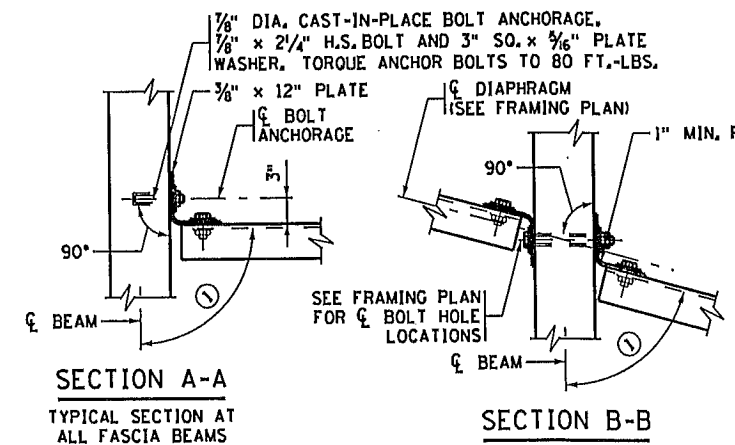
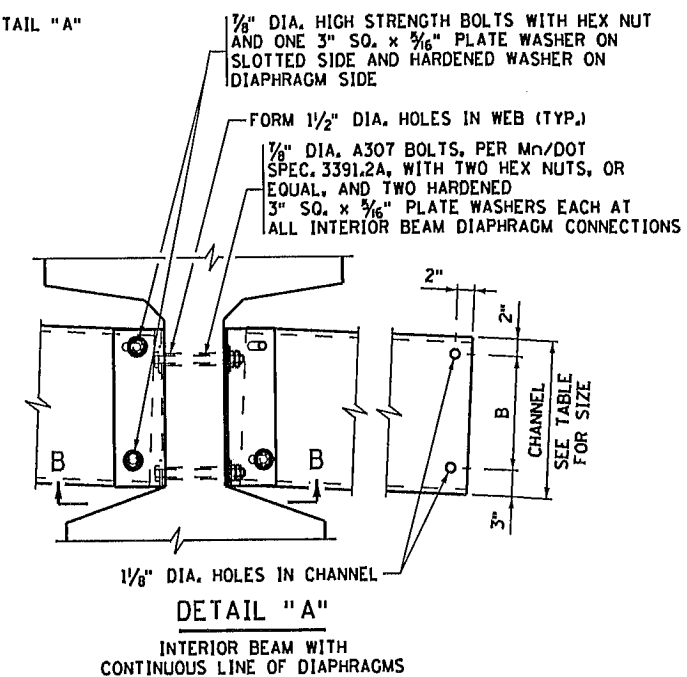
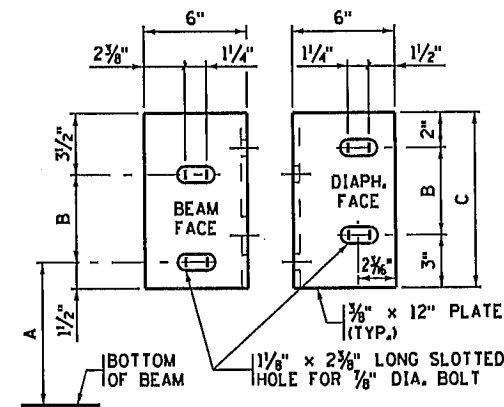
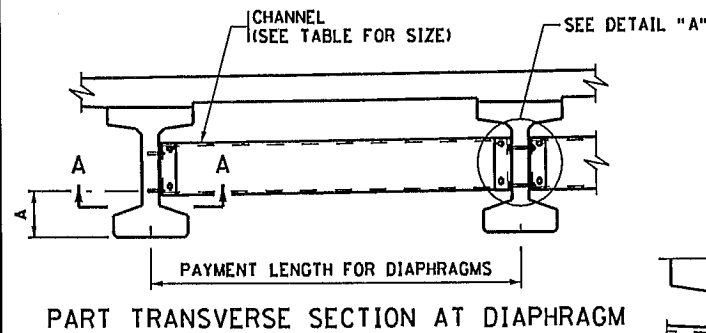
REVISED

DETAIL NO.

*Nancy Daubenberger*  
STATE BRIDGE ENGINEER

SOLE PLATE  
(PRESTRESSED CONCRETE BEAMS)  
(FOR BEARINGS WITH PINTLES)

B303



**NOTES:**

ALL STEEL SHALL CONFORM TO MnDOT SPEC. 3306.

INSTALLATION SHALL CONFORM TO MnDOT SPEC. 2405.3M.

THE LEG OF THE 12" PLATE SHALL BE SHOP BENT TO CONFORM TO THE DIAPHRAGM. A 3/8" x 6" x 6" ANGLE MAY BE USED FOR DIAPHRAGMS PERPENDICULAR TO BEAMS.

ALL STRUCTURAL STEEL SHOWN ON THIS DETAIL, INCLUDING BOLTS AND WASHERS, SHALL BE INCLUDED IN UNIT PRICE BID FOR DIAPHRAGMS FOR PRESTRESSED BEAMS.

BENT PLATES MAY BE USED IN PLACE OF CHANNELS. THE BENT PLATES MUST BE THE SAME HEIGHT AS THE CHANNELS THEY REPLACE, BE 5/16" IN THICKNESS, AND HAVE LEGS 5" LONG.

STEEL PLATES AND SHAPES SHALL BE GALVANIZED IN ACCORDANCE WITH MnDOT SPEC. 3394.

GALVANIZE BOLTS, NUTS AND WASHERS PER MnDOT SPEC. 3392.

- ① FOR SKEW ANGLES UNDER 20°, USE 90° LESS THE SKEW ANGLE. FOR SKEW ANGLES OVER 20°, USE 90°.

BEAM HEIGHT	DISTANCE			CHANNEL SIZE
	A	B	C	
36M	1'-3"	7"	1'-0"	C12x20.7
-45M	1'-3 3/4"	1'-1"	1'-6"	MC18x42.7
-54M	1'-2 1/4"	1'-1"	2'-6"	MC18x42.7
-MN45	1'-7 1/2"	7"	1'-0"	C12x20.7
-MN54	1'-7 1/2"	1'-1"	1'-9"	MC18x42.7
-MN63	1'-7 1/2"	1'-1"	2'-6"	MC18x42.7

APPROVED: OCTOBER 26, 2005

STATE OF MINNESOTA  
DEPARTMENT OF TRANSPORTATION

REVISED  
06-14-2006  
10-22-2009

DETAIL NO.

*Daniel J. Morgan*  
STATE BRIDGE ENGINEER

STEEL INTERMEDIATE DIAPHRAGM  
(FOR 36M - 54M, MN45 - MN63 PRESTRESSED CONCRETE BEAMS)

B403

8/6/2013 11:51:17 PM K:\02076-000\Cad\Plan\cbr02585-det12.dgn

NO.	DATE	BY	CHK	REVISIONS

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

*Daniel J. Morgan*  
LICENSED PROFESSIONAL ENGINEER: BARRITT LOVELACE  
DATE: 8-6-13 REG NO.: 40456

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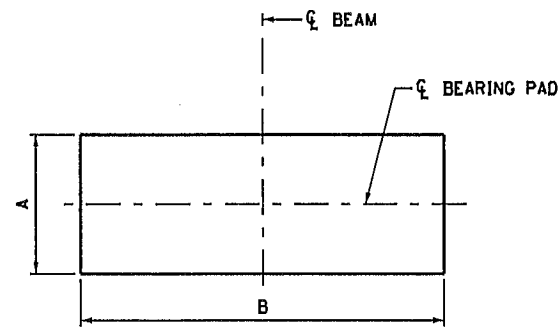
C.S.A.H. 51  
ANOKA COUNTY  
S.P. 002-651-007

TITLE:  
BRIDGE DETAILS

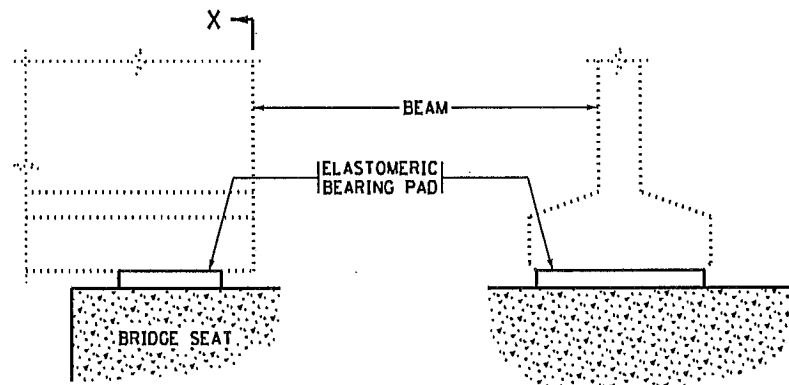
DES: BRL DR: DJV  
CHK: AJN CHK: BRL

Bridge No.  
02585

Sheet 359 of 381 Sheets



PLAN  
(BEAM NOT SHOWN)



SIDE ELEVATION

SECTION X-X

TABLE						
PAD TYPE	LOCATION	BEAM SIZE	BEARING PAD SIZE			SHAPE FACTOR
			A	B	D ①	
1	ABUTMENTS	36M	12	24	1/2	8.0

NOTES:

ELASTOMERIC MATERIALS AND PAD CONSTRUCTION SHALL COMPLY WITH SPEC. 3741.

① "D" INDICATES THE THICKNESS OF THE BEARING PAD.

APPROVED: NOVEMBER 22, 2002

*Daniel J. Hanson*  
STATE BRIDGE ENGINEER

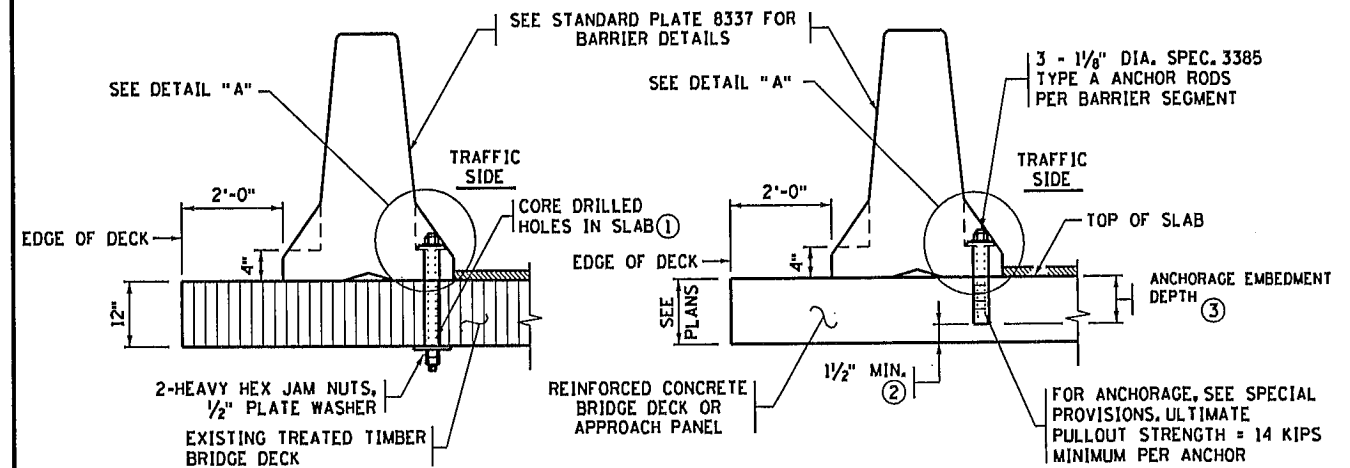
STATE OF MINNESOTA  
DEPARTMENT OF TRANSPORTATION

ELASTOMERIC BEARING PAD  
(PRESTRESSED CONCRETE BEAMS)

REVISION  
12-17-2008  
05-24-2012

DETAIL NO.

B305

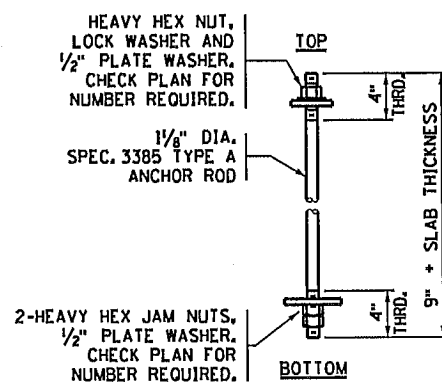


OPTION 1

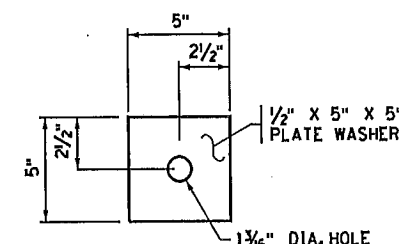
DO NOT USE ON NEW DECK

OPTION 2

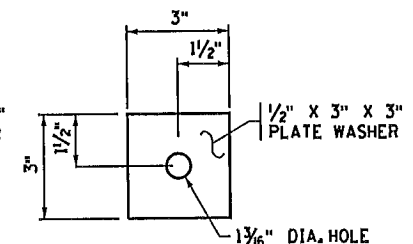
ANCHORAGE DETAILS  
REINFORCEMENT NOT SHOWN



BOTTOM

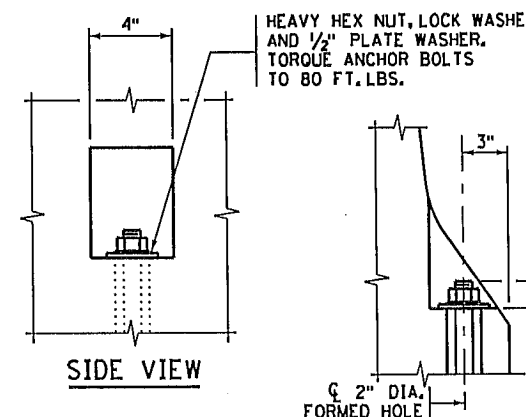


BOTTOM PLATE WASHER  
(ONLY USED FOR OPTION 1)



TOP PLATE WASHER

OPTION 1 ANCHOR  
(3 PER BARRIER SEGMENT)



SIDE VIEW

DETAIL "A"

NOTES:

- ALL HARDWARE TO BE GALVANIZED PER SPEC. 3392.
- ALL STRUCTURAL STEEL TO BE SPEC. 3306 UNLESS OTHERWISE NOTED. COST OF ANCHORAGE SYSTEM, ANCHOR REMOVAL AND GROUTING OF HOLE ARE INCIDENTAL TO THE COST OF PLACING THE TEMPORARY PORTABLE PRECAST BARRIER.
- PIN BARRIERS TOGETHER PER STANDARD PLATE 8337.
- THROUGH BOLT ANCHORS MUST BE USED IF THE DECK IS PENETRATED DURING DRILLING PROCESS.
- DO NOT USE ON BRIDGES OR APPROACH PANELS WITH A BITUMINOUS OVERLAY.
- REFER TO TRAFFIC CONTROL PLANS FOR DEPLOYMENT LENGTH AND BARRIER TERMINATION REQUIREMENTS.
- ANCHOR ON TRAFFIC SIDE OF BARRIER ONLY.
- SEE SPECIAL PROVISIONS FOR BARRIER INSTALLATION AND REMOVAL REQUIREMENTS.
- ① PERCUSSION DRILLING OF THESE HOLES IS NOT PERMITTED.
- ② 1/2" MINIMUM TO PREVENT BOTTOM OF SLAB FROM SPALLING OR FRACTURING DURING DRILLING.
- ③ 5 1/2" MINIMUM AND 6" MAXIMUM FOR BRIDGE DECKS WITH TOP MAT REINFORCEMENT AND SOUND CONCRETE. 9" MINIMUM AND 10 1/2" MAXIMUM FOR SOUND CONCRETE APPROACH PANELS.

NOTE:  
40 MPH - ADVISORY POSTED SPEED LIMIT  
DURING CONSTRUCTION.

APPROVED: DECEMBER 21, 2011

*Nancy Daukenberger*  
STATE BRIDGE ENGINEER

STATE OF MINNESOTA  
DEPARTMENT OF TRANSPORTATION  
TEMPORARY PORTABLE PRECAST CONCRETE  
BARRIER ANCHORAGE  
(TEMPORARY USAGE IN LIMITED BARRIER DISPLACEMENT AREAS)

REVISED  
05-24-2012

DETAIL NO.

B920  
(MOD.)

8/5/2013 11:47 PM K:\02076-000\Cad\Plan\cbr-02585-det013.dgn

NO.	DATE	BY	CHK	REVISIONS

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*Barritt Lovelace*  
LICENSED PROFESSIONAL ENGINEER: BARRITT LOVELACE  
DATE: 8-6-13 REG NO.: 40455

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ANOKA COUNTY  
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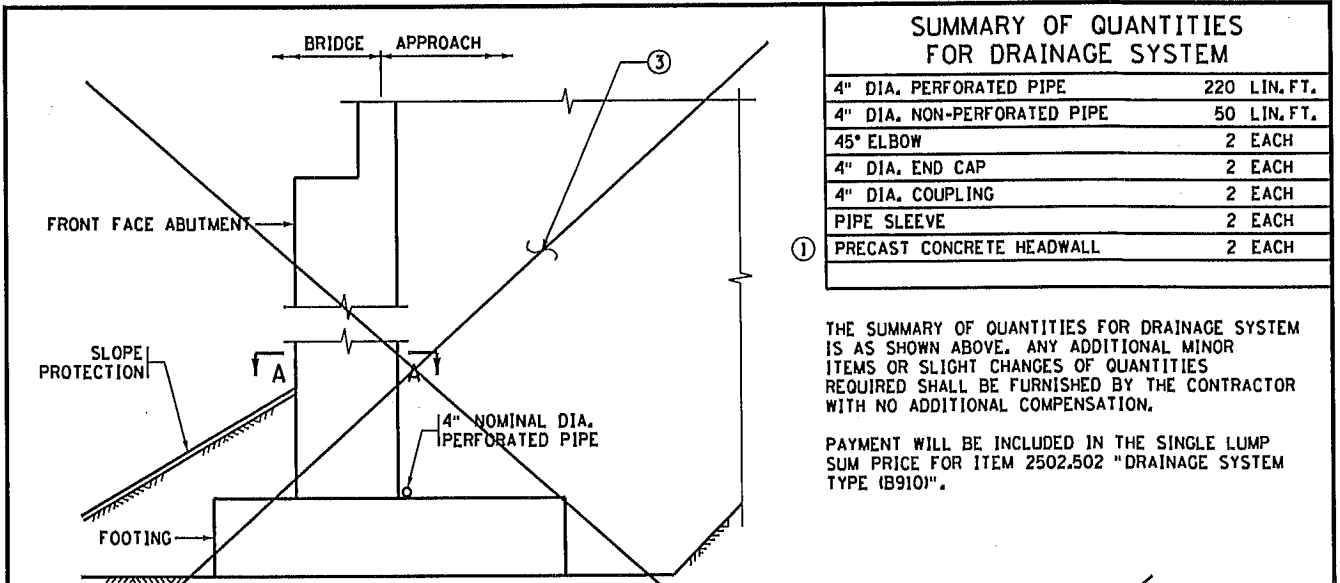
TITLE:  
BRIDGE DETAILS

DES: BRL DR: DJV  
CHK: AJN CHK: BRL

Sheet 360 of 381 Sheets

Bridge No.  
02585

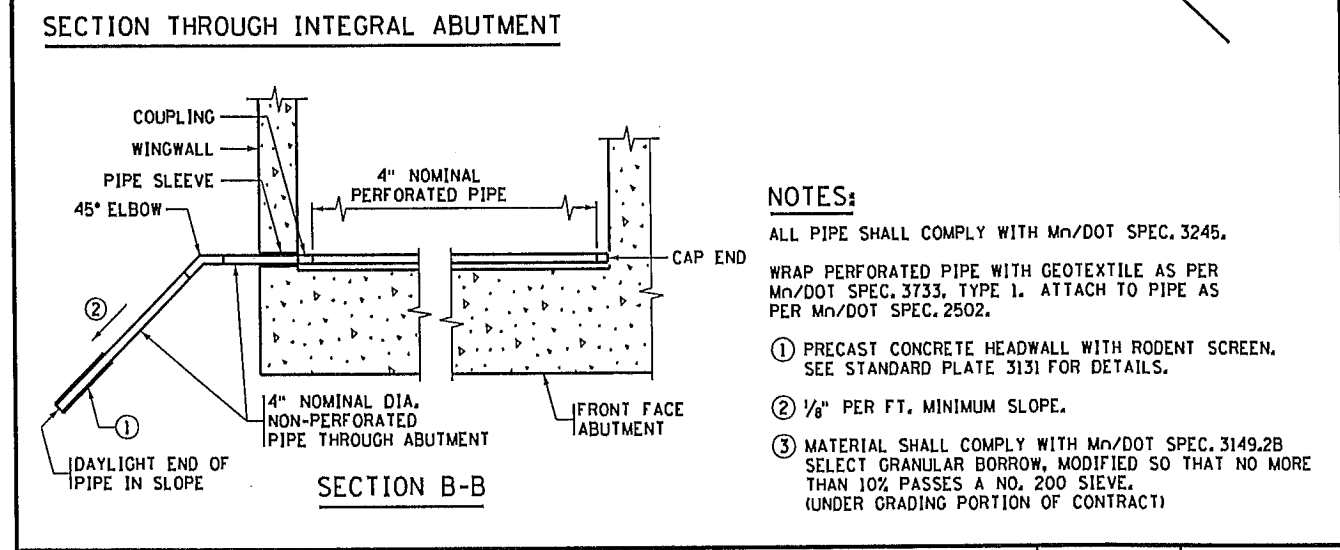
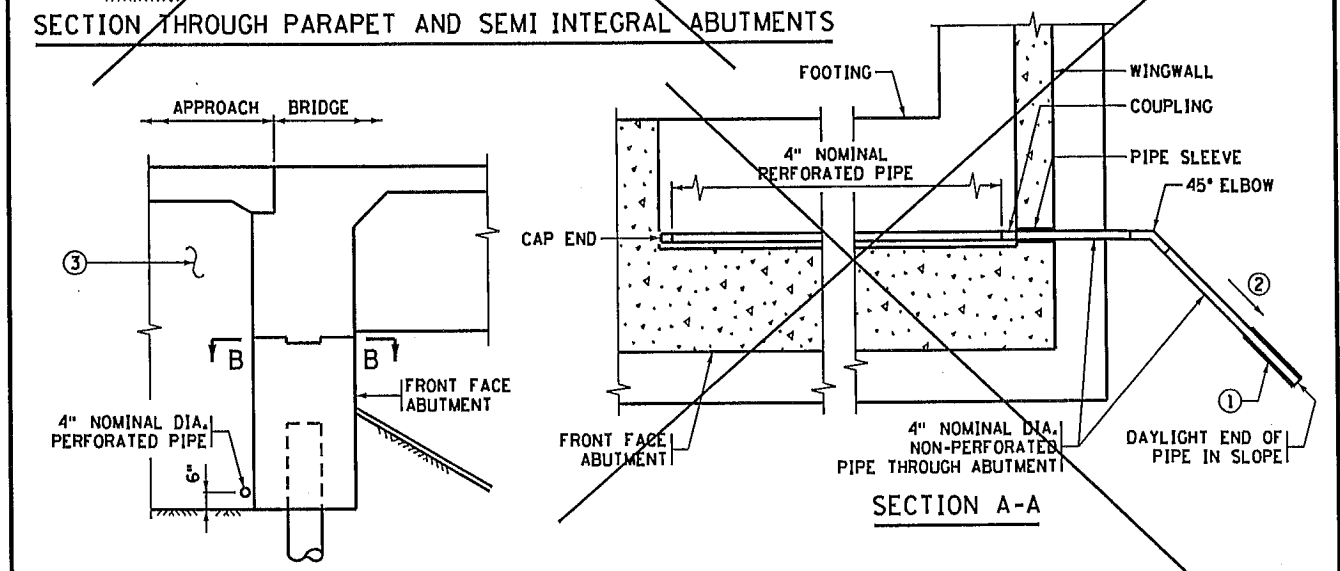




SUMMARY OF QUANTITIES FOR DRAINAGE SYSTEM	
4" DIA. PERFORATED PIPE	220 LIN. FT.
4" DIA. NON-PERFORATED PIPE	50 LIN. FT.
45° ELBOW	2 EACH
4" DIA. END CAP	2 EACH
4" DIA. COUPLING	2 EACH
PIPE SLEEVE	2 EACH
PRECAST CONCRETE HEADWALL	2 EACH

THE SUMMARY OF QUANTITIES FOR DRAINAGE SYSTEM IS AS SHOWN ABOVE. ANY ADDITIONAL MINOR ITEMS OR SLIGHT CHANGES OF QUANTITIES REQUIRED SHALL BE FURNISHED BY THE CONTRACTOR WITH NO ADDITIONAL COMPENSATION.

PAYMENT WILL BE INCLUDED IN THE SINGLE LUMP SUM PRICE FOR ITEM 2502.502 "DRAINAGE SYSTEM TYPE (B910)".



- NOTES:**
- ALL PIPE SHALL COMPLY WITH Mn/DOT SPEC. 3245.
  - WRAP PERFORATED PIPE WITH GEOTEXTILE AS PER Mn/DOT SPEC. 3733, TYPE 1. ATTACH TO PIPE AS PER Mn/DOT SPEC. 2502.
  - ① PRECAST CONCRETE HEADWALL WITH RODENT SCREEN. SEE STANDARD PLATE 3131 FOR DETAILS.
  - ② 1/8" PER FT. MINIMUM SLOPE.
  - ③ MATERIAL SHALL COMPLY WITH Mn/DOT SPEC. 3149.2B SELECT GRANULAR BORROW, MODIFIED SO THAT NO MORE THAN 10% PASSES A NO. 200 SIEVE. (UNDER GRADING PORTION OF CONTRACT)

APPROVED: MARCH 26, 2009 <i>Daniel J. Horgan</i> STATE BRIDGE ENGINEER	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION <b>DRAINAGE SYSTEM</b>	REVISED 10-22-2009	DETAIL NO. B910
--	--	-----------------------	--------------------

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*Barritt Lovelace*  
LICENSED PROFESSIONAL ENGINEER: BARRITT LOVELACE  
DATE: 8-6-13 REG NO: 40456

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**S.P. 002-651-007**

TITLE:  
**BRIDGE DETAILS**

DES: BRL	DR: DJV
CHK: AJN	CHK: BRL

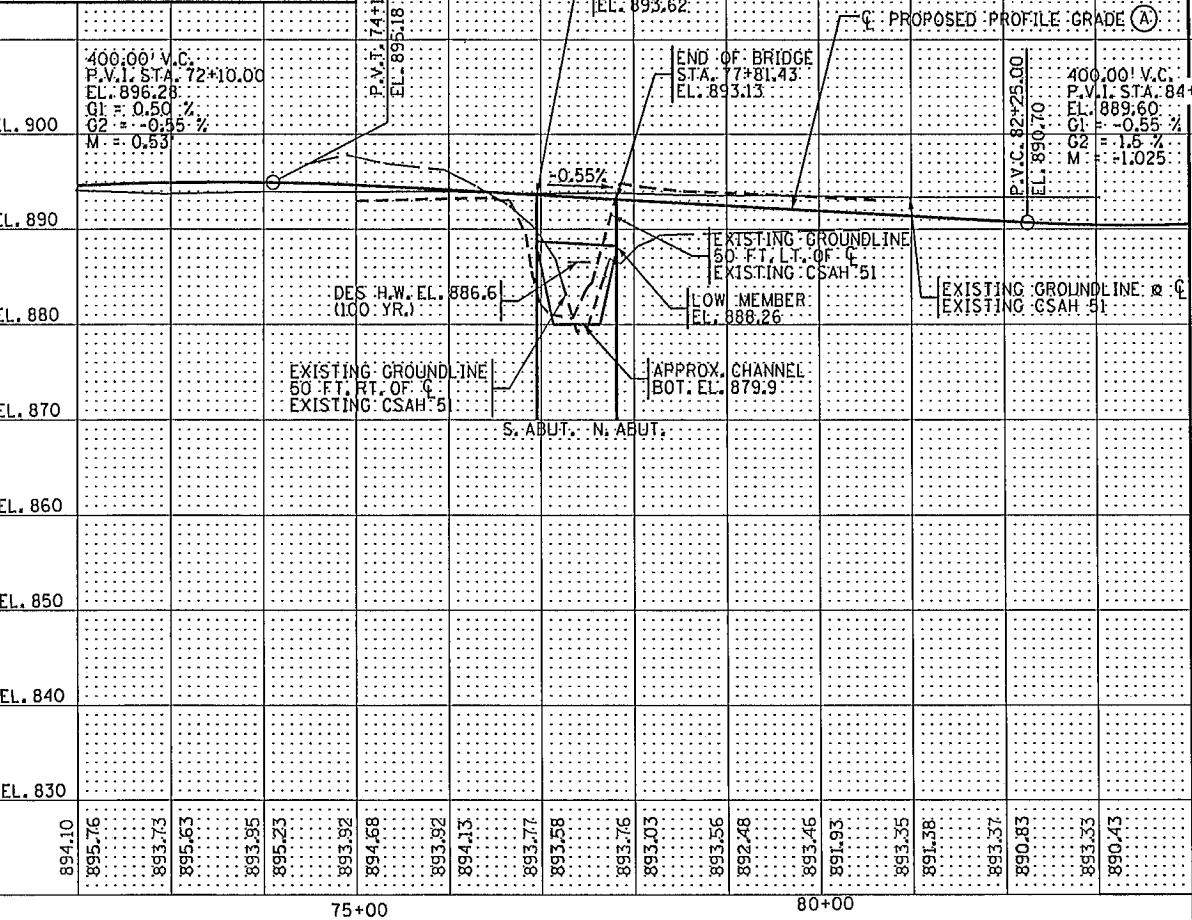
Sheet **361** of **381** Sheets

Bridge No.  
**02585**

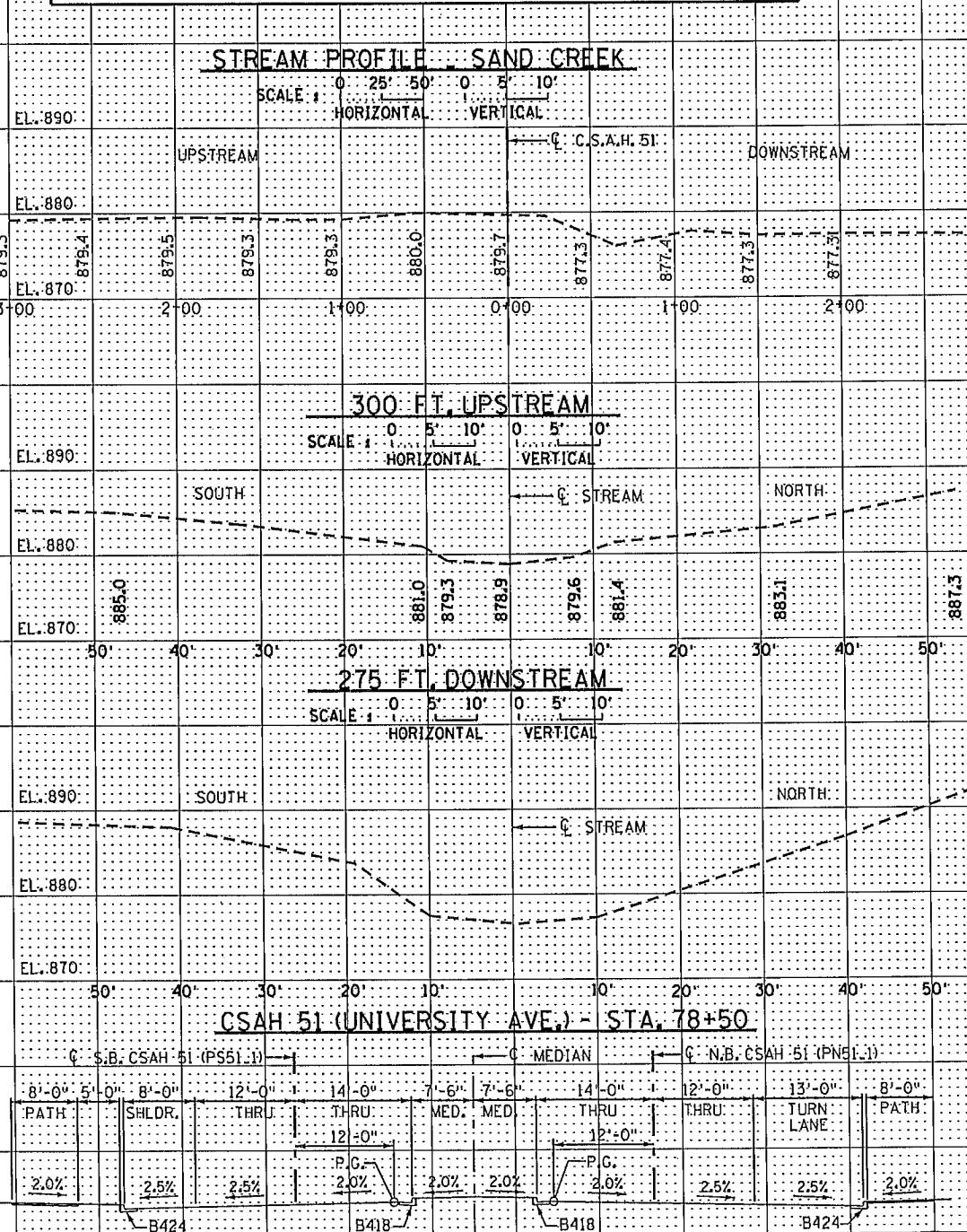


**CONTRACTED PROFILE**

SCALE: 0 50' 100' 0 5' 10'  
HORIZONTAL VERTICAL



**TYPICAL SECTIONS & PERTINENT DATA**



**LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE**

- SPECIAL FEATURES: NONE
- OTHER BRIDGES OR CULVERTS OVER THE SAME STREAM  
118TH AVENUE CULVERT - UPSTREAM BR. NO. 02J32  
DOWN STREAM:
- APPARENT HIGHWATER ELEVATION: UNKNOWN  
OBTAINED FROM: N/A
- OTHER DATA: NONE

**HYDRAULIC ENGINEERS RECOMMENDATION**  
DATE: 08/16/2012

STREAM OR DITCH DESIGNATION: SAND CREEK  
DRAINAGE AREA: 13.2 SQ. MI.  
MAX. FLOOD ON RECORD: C.F.S. UNKNOWN  
MAXIMUM OBSERVED HIGHWATER ELEVATION: UNKNOWN  
DESIGN FLOOD (100 YR. FREQ.): 388 C.F.S.  
HEADWATER ELEVATION: 886.6 FT.

TOTAL STAGE INCREASE: 0.1 FT.  
LOW MEMBER AT OR ABOVE ELEVATION: 886.5 FT.  
WATERWAY AREA REQUIRED BELOW ELEV. 886.5 FT. = 458 SQ. FT. AT RIGHT ANGLES TO CHANNEL  
BASIC FLOOD (100 YR. FREQ.): 388 C.F.S.  
HEADWATER ELEVATION: 886.6 FT.  
TOTAL STAGE INCREASE: 0.1 FT.  
MEAN VELOCITY THROUGH STRUCTURE: 0.8 F.P.S.  
FLOWLINE ELEVATION: 879.9 FT. SKEW ANGLE: NONE  
ESTIMATED PRELIMINARY TOTAL SCOUR AT PIER EL. N/A FT. (500 YR. FREQ.)

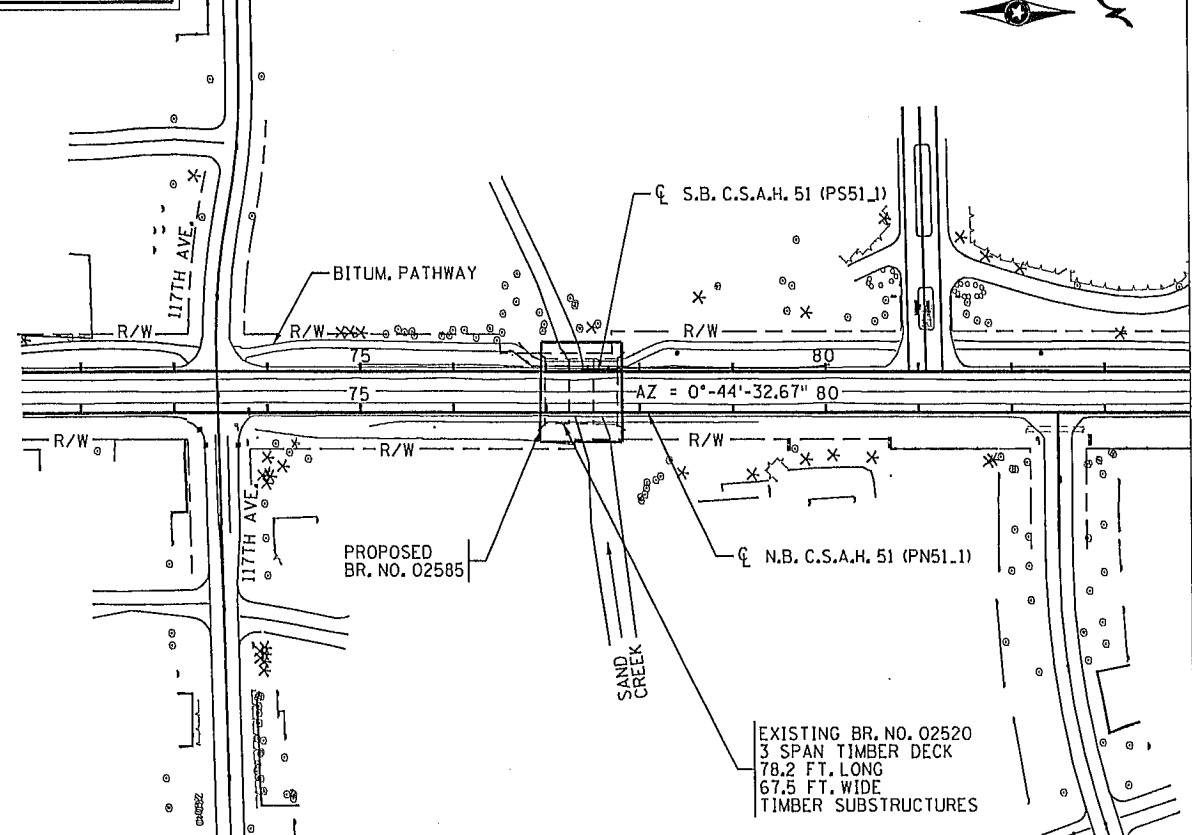
**SCOUR CONFIRMATION RECOMMENDATION**  
DATE: N/A  
TOTAL SCOUR AT PIER EL. N/A (500 YR. FREQ.)  
SCOUR CODE: L

BRIDGE SURVEY SHEETS MADE FROM :  
ANOKA COUNTY SURVEY ON 10/15/2011  
BENCH MARK ELEVATION 893.76 (N.A.V.D. 88 ADJ.)  
LOCATION: ELECTRIC MANHOLE IN PATH  
N.W. QUAD OF TIMBER BRIDGE  
STA. 77+85.25, 55.94' LEFT

HORIZONTAL DATUM NAD 83 (96 ADJ)  
VERTICAL DATUM IS NAVD 88

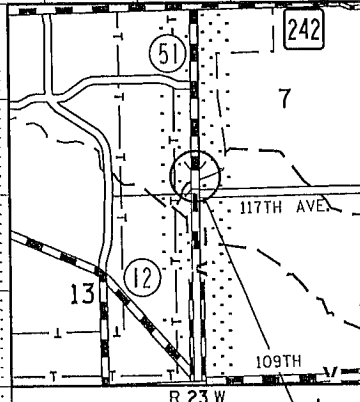
**PLAT**

SCALE: 0 50' 100'



**CSAH 51 (UNIVERSITY AVE.) - STA. 78+50**

PATH	SHLDR.	THRU	THRU	MED. MED.	THRU	THRU	TURN LANE	PATH
8'-0"	5'-0"	12'-0"	14'-0"	7'-6"	7'-6"	14'-0"	12'-0"	13'-0"
2.0%	2.5%	2.5%	2.0%	2.0%	2.0%	2.0%	2.5%	2.0%

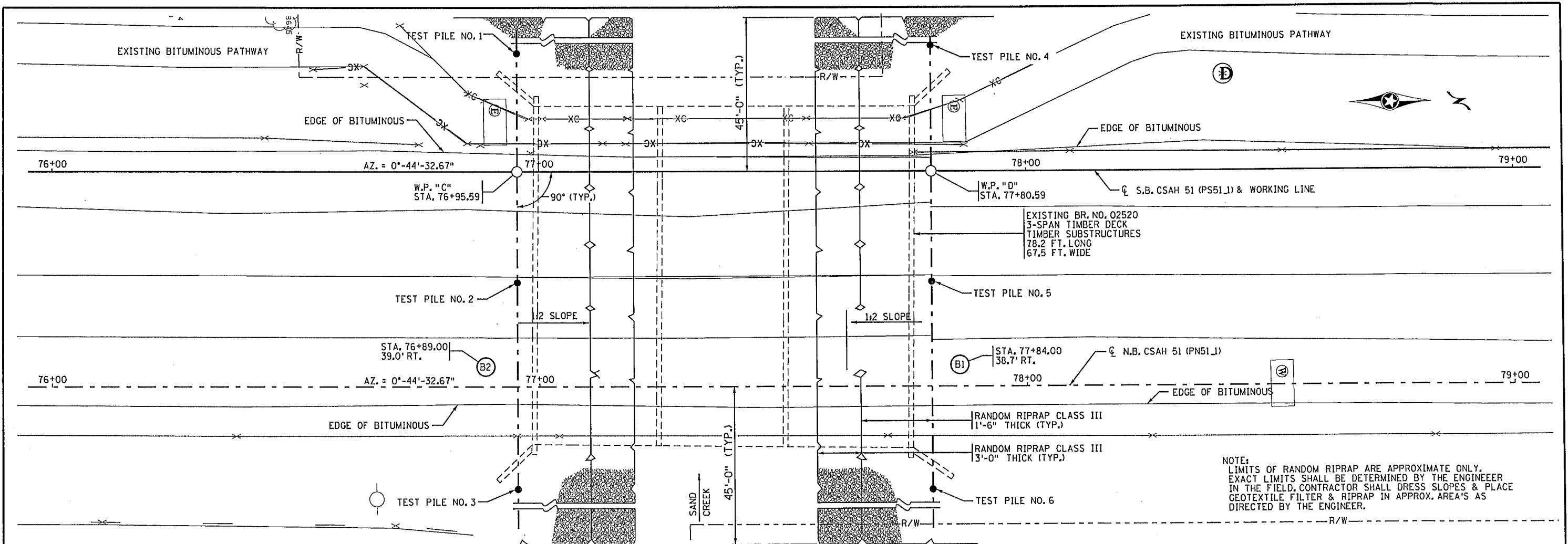


**BRIDGE SURVEY**  
PROPOSED BRIDGE LOCATED ON C.S.A.H. 51  
1.0 MILE SOUTH OF JCT. TH 242  
AND C.S.A.H. 51 OVER SAND CREEK.

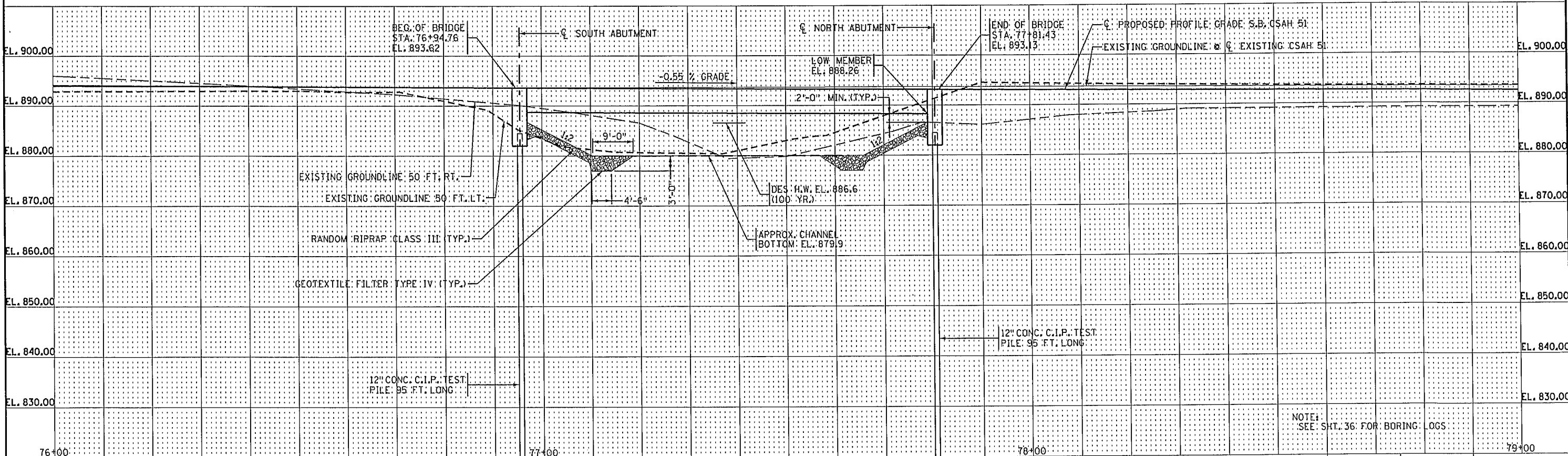
SEC 7 T 31 N R 23 W  
COUNTY: ANOKA  
CITY: BLAINE

BRIDGE NO. 02585

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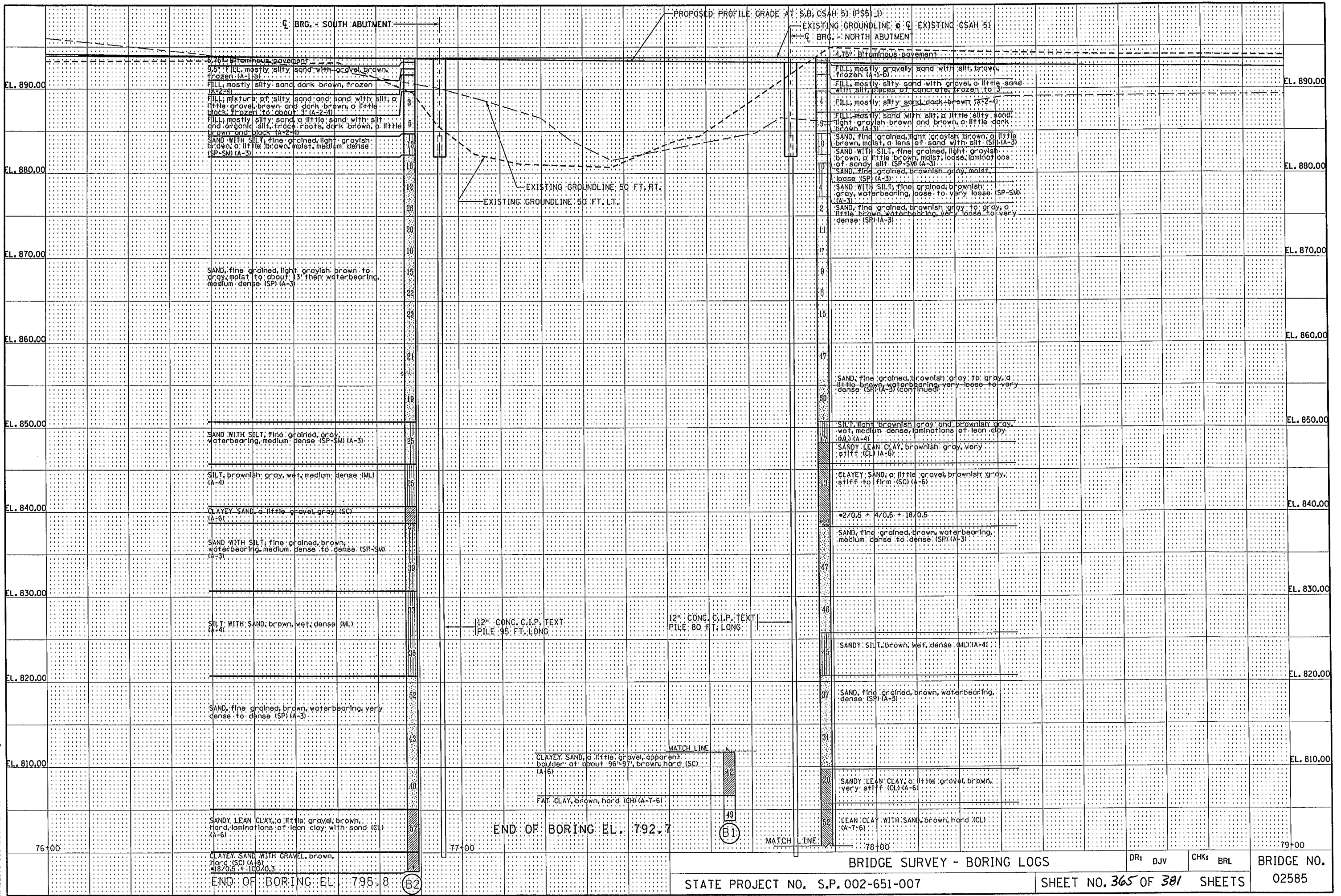


NOTE:  
LIMITS OF RANDOM RIPRAP ARE APPROXIMATE ONLY.  
EXACT LIMITS SHALL BE DETERMINED BY THE ENGINEER  
IN THE FIELD. CONTRACTOR SHALL DRESS SLOPES & PLACE  
GEOTEXTILE FILTER & RIPRAP IN APPROX. AREA'S AS  
DIRECTED BY THE ENGINEER.



BRIDGE SURVEY - PLAN AND PROFILE

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C. BRG. - SOUTH ABUTMENT

PROPOSED PROFILE GRADE AT S.B. CSAH 51 (P55.1)

EXISTING GROUNDLINE @ C. BRG. - NORTH ABUTMENT

EXISTING CSAH 51

EL. 890.00

EL. 890.00

EL. 880.00

EL. 880.00

EL. 870.00

EL. 870.00

EL. 860.00

EL. 860.00

EL. 850.00

EL. 850.00

EL. 840.00

EL. 840.00

EL. 830.00

EL. 830.00

EL. 820.00

EL. 820.00

EL. 810.00

EL. 810.00

76+00

77+00

78+00

79+00

4.75' Bituminous pavement  
 9.5' FILL, mostly silty sand with gravel, brown, frozen (A-1-b)  
 FILL, mostly silty sand, dark brown, frozen (A-2-4)  
 FILL, mixture of silty sand and sand with silt, a little gravel, brown and dark brown, a little black, frozen to about 3' (A-2-4)  
 FILL, mostly silty sand, a little sand with silt and organic silt, trace roots, dark brown, a little brown and black (A-2-4)  
 SAND WITH SILT, fine grained, light grayish brown, a little brown, moist, medium dense (SP-SM) (A-3)

SAND, fine grained, light grayish brown to gray, moist to about 13' then waterbearing, medium dense (SP) (A-3)

SAND WITH SILT, fine grained, gray, waterbearing, medium dense (SP-SM) (A-3)

SILT, brownish gray, wet, medium dense (ML) (A-4)

CLAYEY SAND, a little gravel, gray (SC) (A-6)

SAND WITH SILT, fine grained, brown, waterbearing, medium dense to dense (SP-SM) (A-3)

SILT WITH SAND, brown, wet, dense (ML) (A-4)

SAND, fine grained, brown, waterbearing, very dense to dense (SP) (A-3)

SANDY LEAN CLAY, a little gravel, brown, hard, laminations of lean clay with sand (CL) (A-6)

CLAYEY SAND WITH GRAVEL, brown, hard (SC) (A-6)

END OF BORING EL. 795.8

EXISTING GROUNDLINE, 50 FT. RT.  
 EXISTING GROUNDLINE, 50 FT. LT.

12" CONC. C.I.P. TEXT PILE 95 FT. LONG  
 12" CONC. C.I.P. TEXT PILE 80 FT. LONG

CLAYEY SAND, a little gravel, apparent boulder of about 96-97', brown, hard (SC) (A-6)

FAT CLAY, brown, hard (CH) (A-7-6)

END OF BORING EL. 792.7

4.75' Bituminous pavement  
 FILL, mostly gravelly sand with silt, brown, frozen (A-1-b)  
 FILL, mostly silty sand with gravel, a little sand with silt, pieces of concrete, frozen to 3'  
 FILL, mostly silty sand, dark brown (A-2-4)  
 FILL, mostly sand with silt, a little silty sand, light grayish brown and brown, a little dark brown (A-3)

SAND, fine grained, light grayish brown, a little brown, moist, a lens of sand with silt (SP) (A-3)  
 SAND WITH SILT, fine grained, light grayish brown, a little brown, moist, loose, laminations of sandy silt (SP-SM) (A-3)  
 SAND, fine grained, brownish gray, moist, loose (SP) (A-3)  
 SAND WITH SILT, fine grained, brownish gray, waterbearing, loose to very loose (SP-SM)

SAND, fine grained, brownish gray to gray, a little brown, waterbearing, very loose to very dense (SP) (A-3)

SAND, fine grained, brownish gray to gray, a little brown, waterbearing, very loose to very dense (SP) (A-3) (continued)

SILT, light brownish gray and brownish gray, wet, medium dense, laminations of lean clay (ML) (A-4)

SANDY LEAN CLAY, brownish gray, very stiff (CL) (A-6)

CLAYEY SAND, a little gravel, brownish gray, stiff to firm (SC) (A-6)

•270.5 \* 470.5 + 18/0.5

SAND, fine grained, brown, waterbearing, medium dense to dense (SP) (A-3)

SANDY SILT, brown, wet, dense (ML) (A-4)

SAND, fine grained, brown, waterbearing, dense (SP) (A-3)

SANDY LEAN CLAY, a little gravel, brown, very stiff (CL) (A-6)

LEAN CLAY WITH SAND, brown, hard (CL) (A-7-6)

(B1)

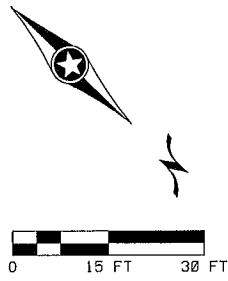
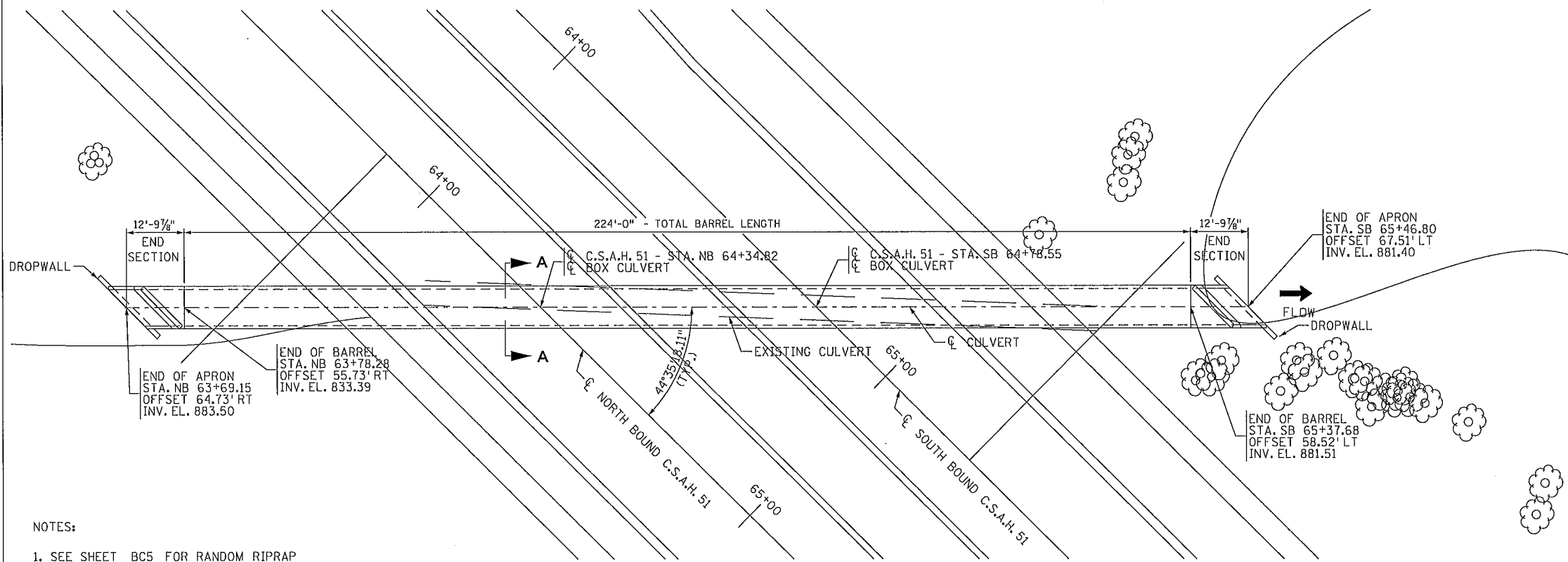
(B2)

BRIDGE SURVEY - BORING LOGS

STATE PROJECT NO. S.P. 002-651-007

SHEET NO. 365 OF 391 SHEETS

BRIDGE NO. 02585



**DESIGN DATA**

2012 AND CURRENT INTERIM AASHTO  
 BRIDGE DESIGN SPECIFICATIONS  
 LOAD FACTOR DESIGN METHOD  
 DESIGN LOADING HS25 LIVE LOAD

INSIDE HEIGHT.....4'-0"  
 INSIDE WIDTH.....7'-0"  
 BARREL LENGTH.....224'-0"  
 DESIGN FILL DEPTH.....3'-0" - 8'-0"

MAXIMUM ALLOWABLE DESIGN STRESSES:

REINFORCED CONCRETE:  
 $f'_c = 5,000$  PSI  $n = 8$   
 $f_y = 60,000$  PSI REINFORCEMENT

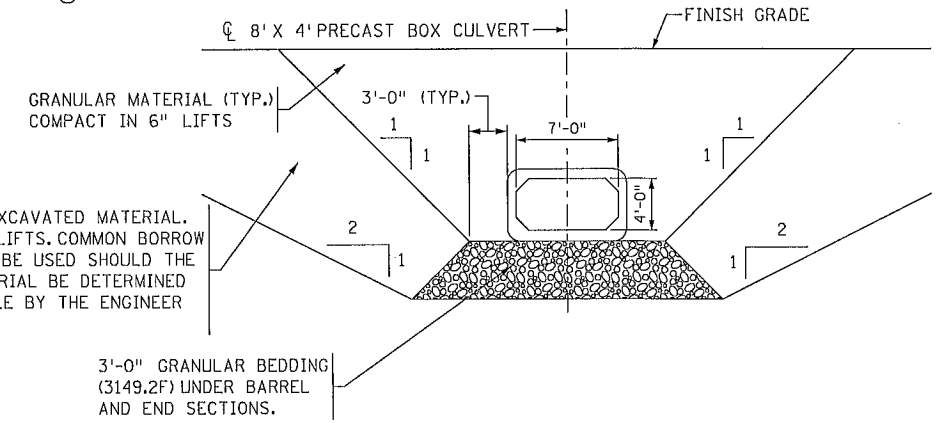
STRUCTURAL STEEL:  
 $f_y = 36,000$  P.S.I. STRUCTURAL STEEL (MNDOT 3306)

**LIST OF SHEETS**

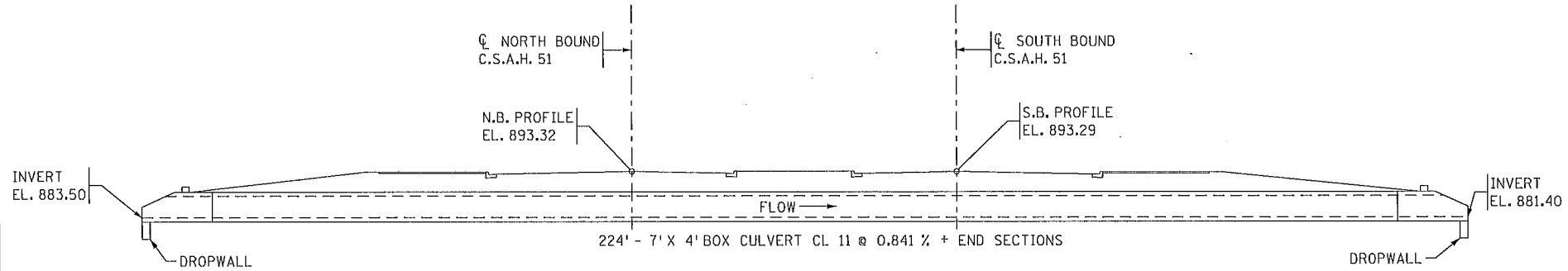
NO.	DESCRIPTION
BC1	GENERAL PLAN AND ELEVATION
BC2	PRECAST BOX CULVERT BARREL DETAILS
BC3	PRECAST CONCRETE END SECTION TYPE I
BC4	ALTERNATE DROP WALLS FOR BOX CULVERTS
BC5	EMBANKMENT PROTECTION FOR BOX CULVERTS

- NOTES:
- SEE SHEET BC5 FOR RANDOM RIPRAP CLASS IV EMBANKMENT PROTECTION. TIE INTO DOWNSTREAM RIPRAP. USE CL. IV RATHER THAN CL. III SHOWN.
  - AT BARREL JOINTS PROVIDE THREE-PLY JOINT WATERPROOFING PER SPEC 2481 ON OUTSIDE ON THE TOP AND WALLS. ALL BARREL JOINTS SHALL BE EFFECTIVELY SEALED WITH A PREFORMED RUBBER IN JOINTS.
  - SEE SHEET BC2 FOR CONCRETE BOX DESIGN INFORMATION.

**GENERAL PLAN - 7'-0" X 4'-0" PRECAST BOX CULVERT**



**SECTION A-A THRU PRECAST BOX CULVERT**



**GENERAL ELEVATION - 7'-0" X 4'-0" PRECAST BOX CULVERT**

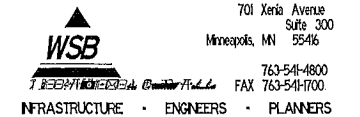
**HYDRAULIC ENGINEERS RECOMMENDATION**

DATED: 04/17/13  
 STREAM OR DITCH DESIGNATION COUNTY DITCH 39  
 DRAINAGE AREA 1.87 SQ. MILES  
 MAX. DISCHARGE ON RECORD UNKN. DESIGN DISCHARGE (100YR. FREQ.) 390 C.F.S.  
 MAX. HIGHWATER ELEVATION UNKN. DESIGNED HIGHWATER ELEVATION 892.5  
 DESIGNED MEAN VELOCITY THROUGH STRUCTURE 14.6 F.P.S.  
 LOW SUPERSTRUCTURE AT OR ABOVE ELEVATION N/A  
 FLOWLINE ELEVATION 883.5 SKEW ANGLE 45°  
 WATERWAY AREA REQ'D. BELOW ELEVATION 887.5 = 28 SQ. FT. @ RIGHT ANGLES TO CHANNEL

IN THE INTEREST OF FLOOD PLAIN ZONING THE REGIONAL FLOOD (100 YR. FREQ.) IS 390 C.F.S. AT STAGE 883.5 AND MEAN VELOCITY OF 14.6 F.P.S. WITH 9.0 FT. SWELLHEAD. THE ABOVE RECOMMENDATION WILL PROVIDE A STRUCTURE OF ADEQUATE WATERWAY TO PASS THE REGIONAL FLOOD WITHIN CRITERIA ESTABLISHED BY THE DEPARTMENT OF NATURAL RESOURCES.  
 SCOUR CODE E

APPROVED:

ANOKA COUNTY ENGINEER DATE:



MINNESOTA DEPARTMENT OF TRANSPORTATION

**7' X 4' CULVERT  
 GENERAL PLAN & ELEVATION**

LOCATED ON C.S.A.H. 51 1.25 MILE SOUTH OF JCT. TH 242 AND C.S.A.H. 51 OVER COUNTY DITCH 39

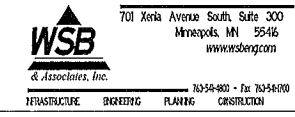
SEC. 18 TWP. 31 N R.23 W

ANOKA COUNTY

SCHEDULE OF QUANTITIES FOR BOX CULVERT							
ITEM NO.	2411.511	2412.511	2412.512	2451.507	2451.607	2511.501	2511.515
ITEM	STRUCTURE EXCAVATION CLASS	7' X 4' PRECAST CONCRETE BOX CULVERT	7' X 4' PRECAST CONCRETE BOX CULVERT END SECTION	GRANULAR BEDDING (CV)	SELECT GRANULAR BACKFILL (CV)	RANDOM RIPRAP, CLASS III	GEOTEXTILE FILTER TYPE IV (MOD.)
UNIT	LUMP SUM	LIN. FT.	EACH	CU. YD.	CU. YD.	CU. YD.	CU. YD.
QUANTITY	1	224	2	450	765	15	25

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

*Barritt Lovelace*  
 LICENSED PROFESSIONAL ENGINEER - BARRITT LOVELACE  
 DATE 10-29-13 REG. NO. 40456

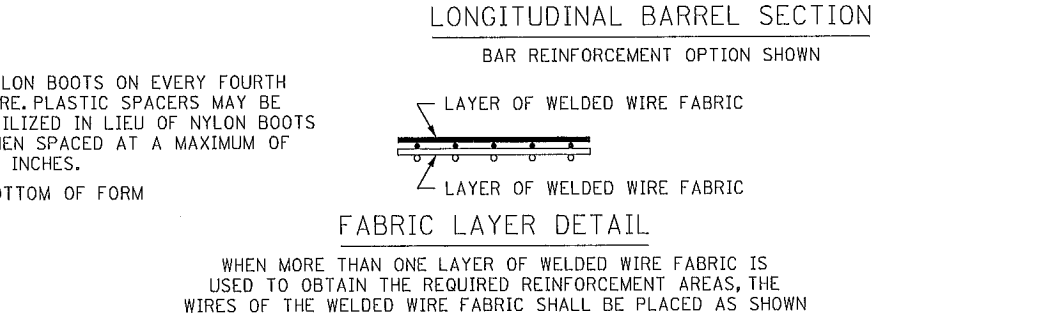
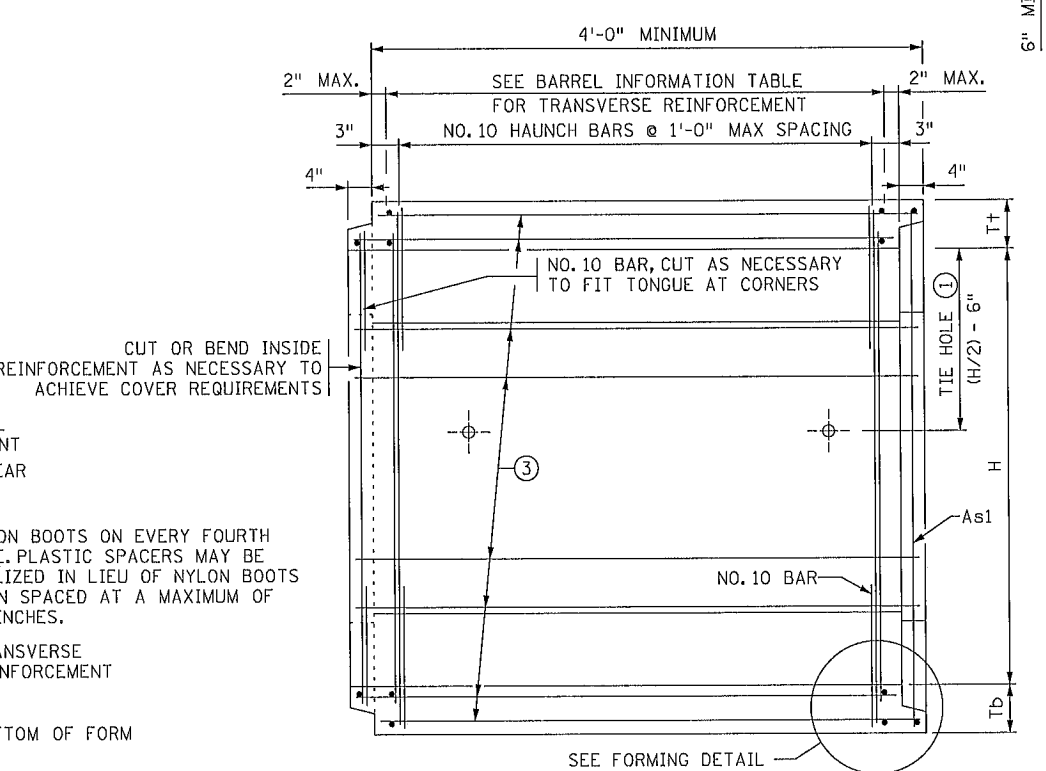
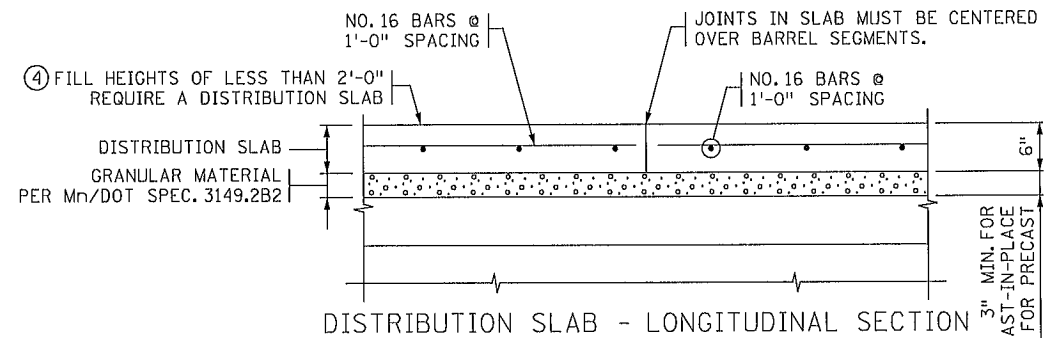
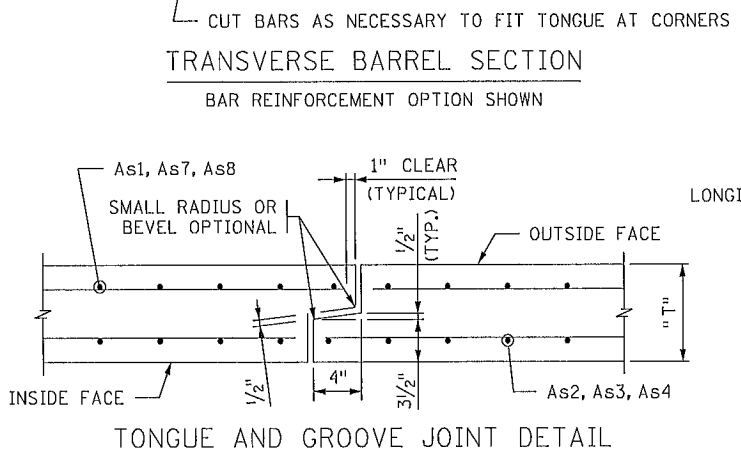
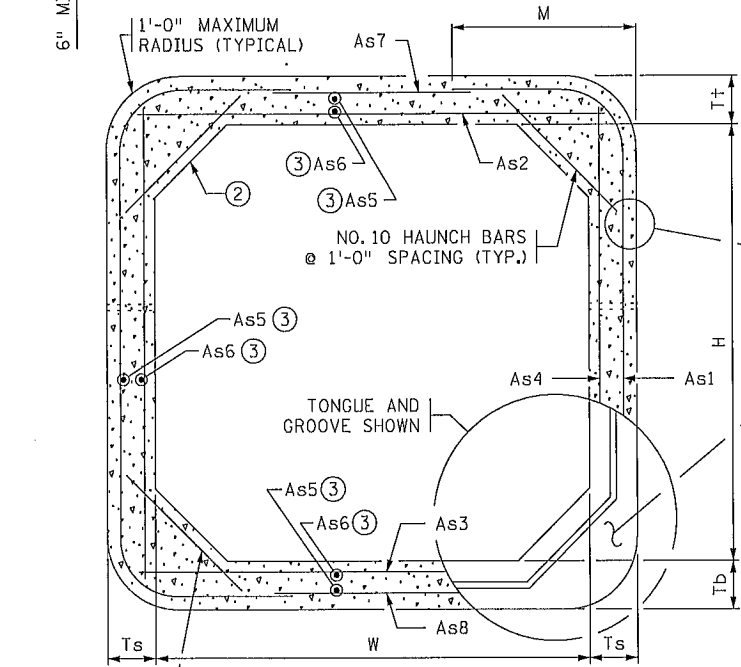
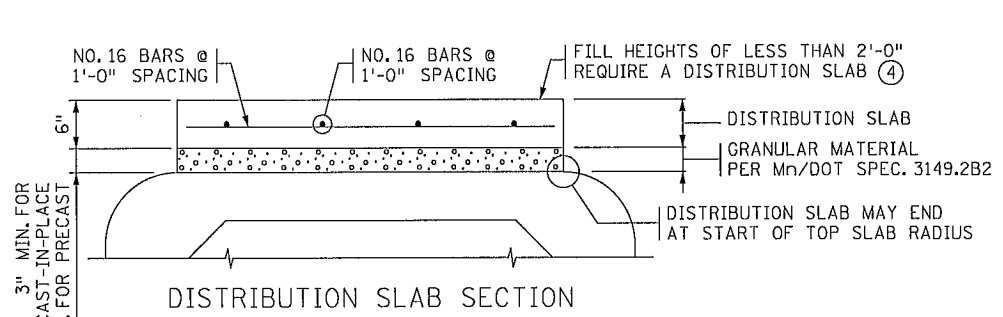


**C.S.A.H. 51  
 ANOKA COUNTY  
 SP. 002-651-007**

TITLE:  
**GENERAL PLAN & ELEVATION**

DES: BRL	DR: DJV	Sheet 366 of 381 Sheets
CHK: A.J.N	CHK: BRL	

06/05/2014 10:08:36 AM \$FILES\$



**CONSTRUCTION NOTES**

CULVERTS TO BE CONSTRUCTED AS PER Mn/DOT SPEC. 2412 EXCEPT AS NOTED.

IF THE DISTANCE BETWEEN DOUBLE BARRELS IS LESS THAN 2'-0" USE EITHER PEA ROCK OR LEAN MIX BACKFILL (Mn/DOT 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. SEE STANDARD FIGURE 5-395.115 FOR DETAILS. MINIMUM DISTANCE BETWEEN THE BARRELS IS 6".

THE WELDED WIRE FABRIC, SHEAR REINFORCEMENT AND REINFORCEMENT BARS SHALL CONFORM TO APPLICABLE REQUIREMENTS OF AASHTO M259.

1 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 FABRIC OR  
 (b) 1 LAYER OF WELDED WIRE FABRIC AND 1 LAYER OF REINFORCEMENT BARS OR  
 (c) 1 LAYER OF REINFORCEMENT BARS.

THE REINFORCEMENT SHALL BE DEVELOPED IN ACCORDANCE WITH AASHTO "LRFD BRIDGE DESIGN SPECIFICATIONS". IF BAR REINFORCEMENT IS SUBSTITUTED FOR WELDED WIRE FABRIC, THE AREAS OF REINFORCEMENT SHALL BE INCREASED BY 8%.

THE MAXIMUM SIZE OF REINFORCEMENT BARS SHALL BE NO. 19. THE MAXIMUM WELDED WIRE FABRIC SIZE SHALL BE A W23 PER LAYER (MAXIMUM OF 2 LAYERS).

THE SPACING CENTER TO CENTER OF THE TRANSVERSE WIRES SHALL NOT BE LESS THAN 2" NOR MORE THAN 4". THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 8".

WELDING WILL NOT BE ALLOWED ON REINFORCEMENT BARS OR WELDED WIRE FABRIC, EXCEPT THAT THE ORIGINAL WELDING REQUIRED TO MANUFACTURE WIRE FABRIC IS ACCEPTABLE.

WHEN REINFORCEMENT IS CUT, ADDITIONAL REINFORCEMENT SHALL BE ADDED ON BOTH SIDES OF THE CUT MEMBER TO REPLACE OR EXCEED THE CUT STEEL.

CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.

SHOP DRAWING APPROVAL PER Mn/DOT SPEC. 3238.2A 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) CULVERT TIES ARE TO BE 1" DIAMETER RODS. SEE STANDARD PLATE NO. 3145 FOR CONNECTION DETAILS.

(2) HAUNCH SIZES ARE TO BE 12" VERTICAL, 12" HORIZONTAL ON ALL BOX SIZES.

(3) LONGITUDINAL REINFORCEMENT DENOTED AS As5 AND As6 MUST BE PLACED IN ALL SLABS AND WALLS AND MUST BE 0.06 SQ. IN./FT. MIN.

(4) FILL HEIGHTS OF LESS THAN 2'-0" REQUIRE A DISTRIBUTION SLAB.

USE 3Y43 CONCRETE FOR THE DISTRIBUTION SLAB.

CAST-IN-PLACE DISTRIBUTION SLABS SHALL BE 6" THICK. PROVIDE 3" MINIMUM GRANULAR MATERIAL PER Mn/DOT SPEC. 3149.2B2 BETWEEN BARREL AND DISTRIBUTION SLAB.

PRECAST DISTRIBUTION SLABS SHALL BE 6" THICK AND MAY BE USED FOR FILL HEIGHTS OVER 1'-0". PROVIDE 6" MINIMUM GRANULAR MATERIAL PER Mn/DOT SPEC 3149.2B2 BETWEEN BARREL AND DISTRIBUTION SLAB.

IF DISTRIBUTION SLAB IS USED AS PAVEMENT SURFACE IT MUST BE REDESIGNED PER THE Mn/DOT PAVEMENT DESIGN MANUAL.

**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 FABRIC REINFORCEMENT												
							W (FT.)	H (FT.)	T+ (IN.)	Td (IN.)	Ts (IN.)		As1		As2		As3		As4		As7		As8		
													AREA (IN. <sup>2</sup> /FT.)	LENGTH (FT.)	M (FT.)	AREA (IN. <sup>2</sup> /FT.)	LENGTH (FT.)	AREA (IN. <sup>2</sup> /FT.)	LENGTH (FT.)	AREA (IN. <sup>2</sup> /FT.)	LENGTH (FT.)	AREA (IN. <sup>2</sup> /FT.)	LENGTH (FT.)	AREA (IN. <sup>2</sup> /FT.)	LENGTH (FT.)
NB 64+34.82	7x4	II	5000	3 - 8	NO	NO	7	4	9	10	8	2950	0.36	10'-8"	2'-10"	0.37	7'-6"	0.36	7'-6"	0.20	4'-6"	0.24	5'-3"	0.24	5'-3"

\* 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 MnDOT STANDARD PLATE 3145F. 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:  
 APPROVED: MARCH 24, 2011  
 Nancy Ambenberger  
 STATE BRIDGE 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.  
 LICENSED PROFESSIONAL ENGINEER BARRY LOVELACE  
 DATE 10-29-13 REG. NO. 40456

**WSB**  
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 INFRASTRUCTURE • WATERWORKS • PAVING • CONSTRUCTION

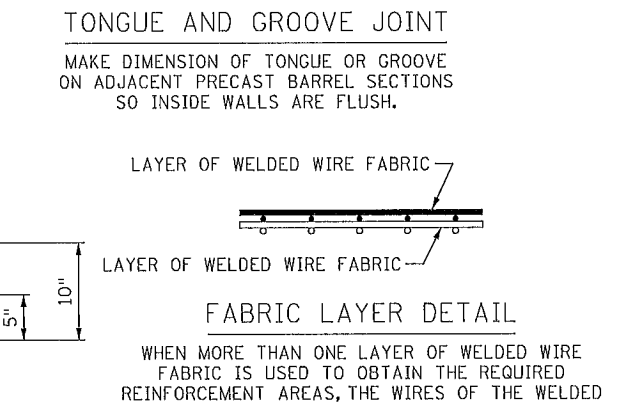
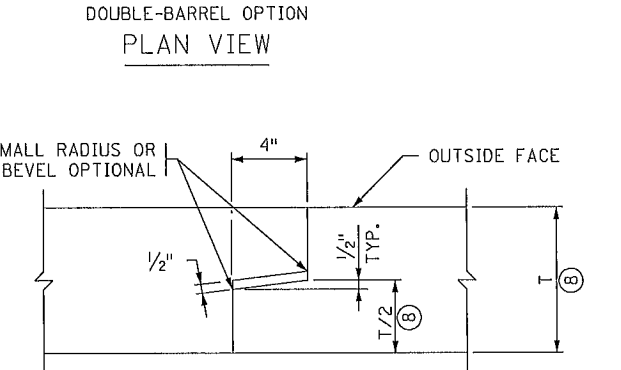
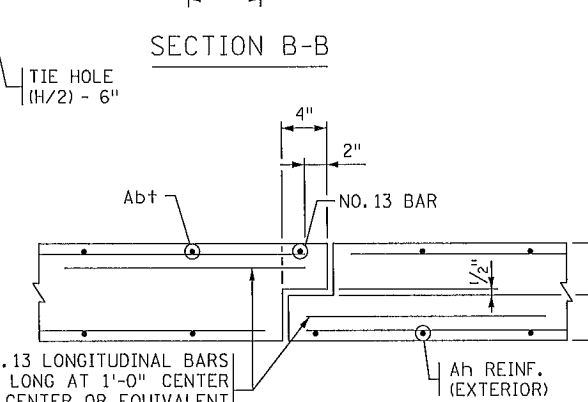
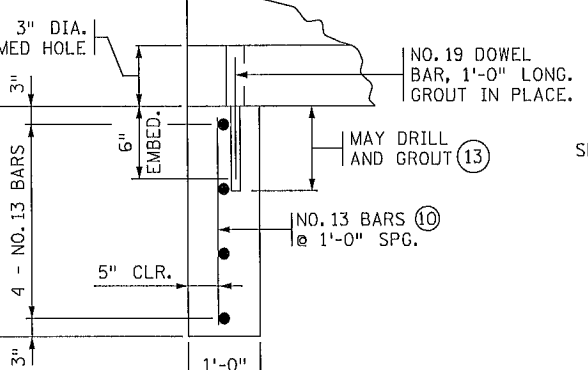
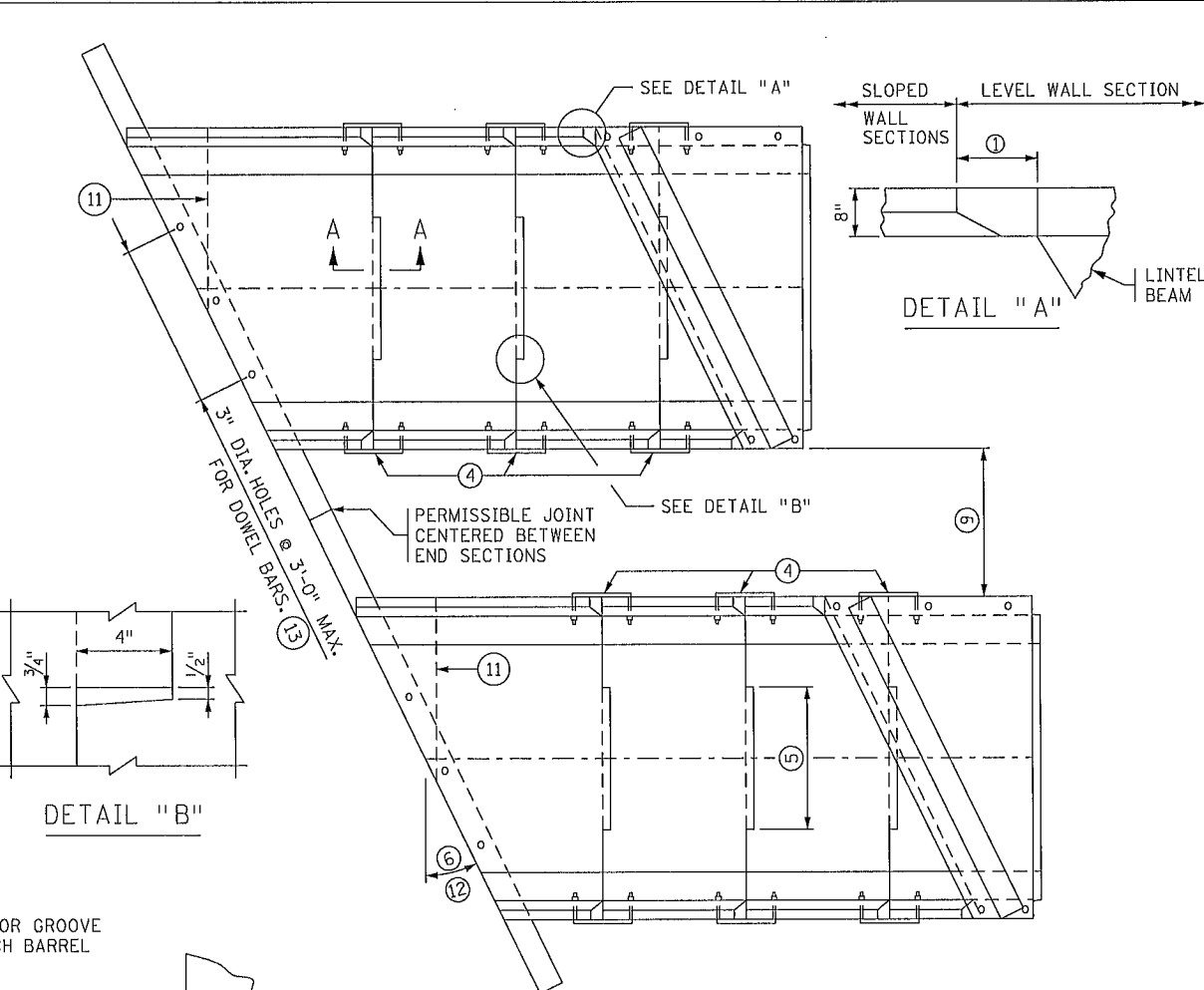
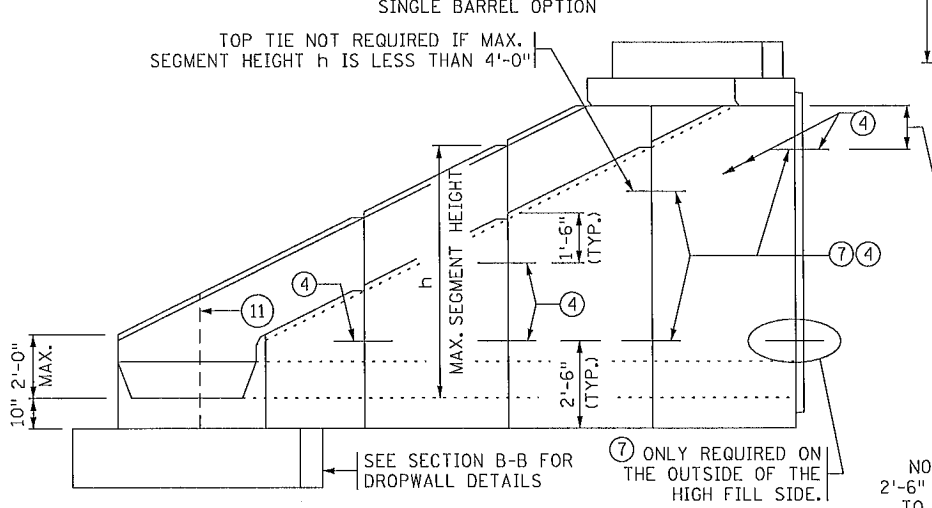
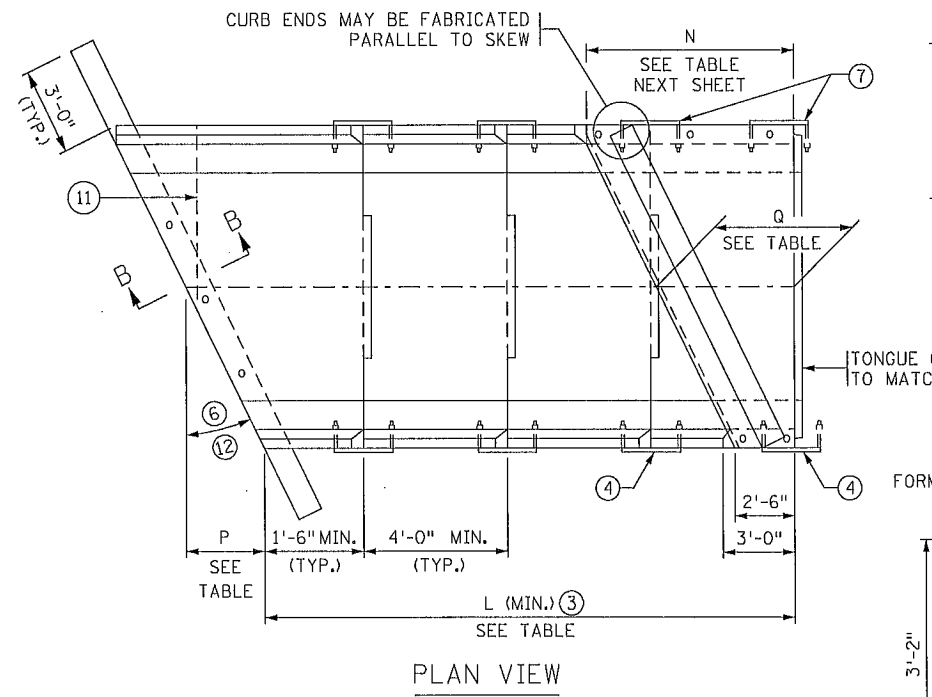
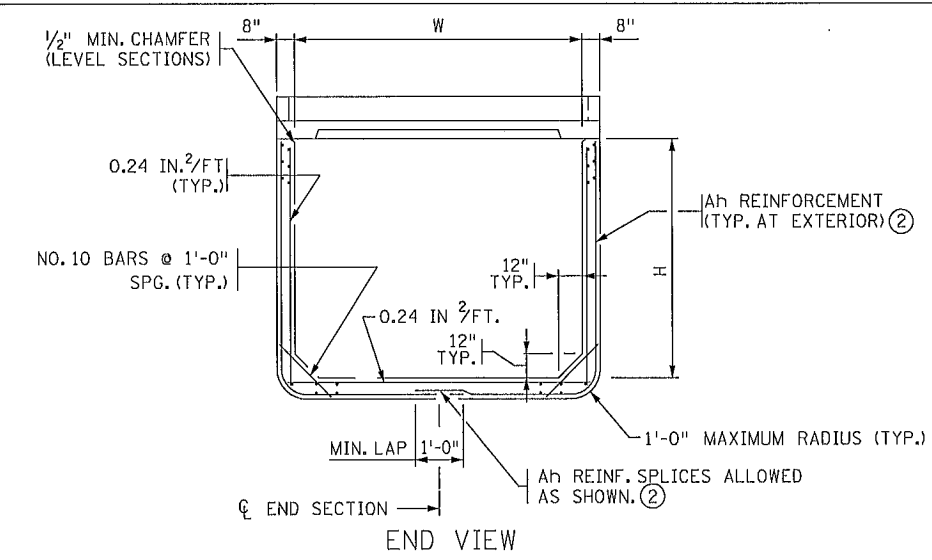
**C.S.A.H. 51**  
**ANOKA COUNTY**  
**S.P. 002-651-007**

TITLE:  
**BARREL DETAILS**

DES: BRL DR: DJV  
 CHK: A.J.N CHK: BRL  
 Sheet 367 of 381 Sheets

FIG. 5-395.101(A)

06/05/2014 10:08:24 AM 8FILES



- ### CONSTRUCTION NOTES
- SEE FIG. 5-395.101(A) AND FIG. 5-393.101(B) FOR ADDITIONAL DIMENSIONS AND CONSTRUCTION NOTES.
- ON ALL END SECTIONS FOR WATERWAYS, USE DROPWALLS ON INLET AND OUTLET ENDS.
- FINISH ALL EXPOSED EDGES OF CONCRETE WITH 1/2" OR 3/4" CHAMFER OR RADIUS UNLESS OTHERWISE NOTED.
- PRECAST CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.
- DROPWALL CONCRETE SHALL BE MIX NO. 1A43 OR 3Y43. LIMITS FOR DROPWALL EXCAVATION TO BE APPROXIMATELY THE SAME AS DROPWALL DIMENSIONS. FURNISHING AND INSTALLATION OF DROPWALL TO BE INCLUDED IN PRICE BID FOR END SECTIONS.
- LONGITUDINAL REINFORCEMENT SHALL BE A MINIMUM OF 0.06 SQ. IN. PER FT. ON BOTH FACES.
- NO TONGUE OR GROOVE REQUIRED IN WALLS BETWEEN END SECTIONS.
- SEE FIG. 5-395.115 FOR EMBANKMENT PROTECTION.
- 8 1/8" @ 15"; 10 3/8" @ 30"; 1'-2" @ 45°
  - SEE FIG. 5-395.110(B) FOR REINFORCEMENT TABLES.
  - NUMBER OF SECTIONS VARIES WITH "H" DIMENSION.
  - EXCEPT AS NOTED, CULVERT TIES ARE TO BE 1" DIA RODS. SEE STANDARD PLATE NO. 3145 FOR DETAILS.
  - 3'-6" TONGUE AND 3'-7" GROOVE FOR 6'-0" WIDE CULVERTS. 5'-0" TONGUE AND 5'-1" GROOVE FOR CULVERTS OVER 6'-0" WIDE. CENTER TONGUE AND GROOVE ON CL OF EACH APRON JOINT.
  - FOR SKEW ANGLES OVER 7 1/2° UP TO 22 1/2°, USE A 15° SKEW END SECTION. FOR SKEW ANGLES OVER 22 1/2° UP TO 37 1/2°, USE A 30° SKEW END SECTION. FOR SKEW ANGLES OVER 37 1/2° UP TO 45°, USE A 45° SKEW END SECTION.
  - PROVIDE EXTRA STRONG CONNECTION AT LOCATION SHOWN; REQUIRED ONLY ON HIGH FILL SIDE FOR 45° SKEW END SECTIONS OVER 6'-0" HIGH. FOR MULTIPLE BARREL OPTION, ONLY INCLUDE EXTRA STRONG TIES ON THE OUTSIDE OF THE HIGH FILL SIDE. SEE FIG. 5-395.110(B) FOR DETAILS.
  - DIMENSION "T" IS EQUAL TO T1, T2 OR T3.
  - IF THE DISTANCE BETWEEN DOUBLE BARRELS IS LESS THAN 2'-0" USE EITHER PEA ROCK OR LEAN MIX BACKFILL (Mn/DOT 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. SEE STANDARD FIGURE 5-395.115 FOR DETAILS. MINIMUM DISTANCE BETWEEN THE BARRELS IS 6".
  - AS AN ALTERNATE TO THE ONE LAYER OF WELDED WIRE FABRIC CONTRACTOR MAY PROVIDE TWO LAYERS OF REBAR OR WELDED WIRE FABRIC WITH THE STEEL AREA EQUAL TO HALF OF THE TEMPERATURE STEEL PER CODE REQUIREMENTS IN EACH FACE OF THE DROPWALL.
  - ON THE LAST SEGMENT OF THE 45° SKEWED APRONS, A TRANSVERSE JOINT IN THE BOTTOM IS PERMITTED. A SPECIAL TIE, SIMILAR TO THE SIDE TIE, MUST BE PROVIDED. THE TIE SHALL BE INSET AND THE SPACE FILLED WITH AN APPROVED GROUT.
  - FOR BOX CULVERTS WITH SPANS OF 16' THE MAXIMUM SKEW SHALL BE 30°.
  - FILL HOLE WITH GROUT. GROUT SHALL CONSIST OF 1 PART CEMENT AND 2 PARTS SAND. USE TYPE 1A AIR ENTRAINED PORTLAND CEMENT. GROUT MIX SHALL HAVE A MAXIMUM SLUMP OF 4".

HEIGHT H (FT.)	15° SKEW	30° SKEW	45° SKEW
4	7'-1 1/4"	7'-7 3/8"	8'-7 3/8"
5	9'-2 1/2"	9'-11 1/8"	11'-5 7/8"
6	11'-3 3/8"	12'-2 7/8"	14'-3 3/4"
7	13'-4 1/4"	14'-6 5/8"	17'-1 3/4"
8	15'-5 1/8"	16'-10 1/4"	19'-11 3/8"
9	17'-5 7/8"	19'-2"	22'-9 5/8"
10	19'-6 3/4"	21'-5 3/4"	25'-7 1/2"
11	21'-7 5/8"	23'-9 3/8"	28'-5 1/2"
12	23'-8 1/2"	26'-1 1/8"	31'-3 3/8"
13	25'-9 3/8"	28'-4 7/8"	34'-1 3/8"
14	27'-10 7/8"	30'-8 1/2"	36'-11 1/4"

WIDTH W (FT.)	15° SKEW	30° SKEW	45° SKEW
6	0'-11 3/4"	2'-1 3/8"	3'-8"
7	1'-3"	2'-8 3/8"	4'-2"
10	1'-6 1/4"	3'-3 1/4"	5'-8"
12	1'-9 3/8"	3'-10 1/4"	6'-8"
14	2'-0 5/8"	4'-5 1/2"	7'-8"
16	2'-3 7/8"	5'-0"	12

WIDTH W (FT.)	15° SKEW	30° SKEW	45° SKEW
6	3'-5 3/4"	4'-7 3/8"	6'-2"
7	3'-9"	5'-2 3/8"	6'-8"
10	4'-0"	5'-9 1/2"	8'-2"
12	4'-3 3/8"	6'-4 1/8"	9'-2"
14	4'-6 5/8"	6'-11 1/8"	10'-2"
16	4'-9 7/8"	7'-6 1/8"	12

REVISION:  
APPROVED: MARCH 24, 2011  
*Nancy Dubenberger*  
STATE BRIDGE ENGINEER

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
*Barritt Lovelace*  
LICENSED PROFESSIONAL ENGINEER - BARRITT LOVELACE  
DATE: 10-29-13 REG. NO. 40456

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INFRASTRUCTURE DESIGN PLANNING CONSTRUCTION

**C.S.A.H. 51**  
**ANOKA COUNTY**  
**S.P. 002-651-007**

TITLE:  
**PRECAST CONCRETE END SECTION - TYPE I**

DES: BRL DR: DJV  
CHK: A-JN CHK: BRL  
Sheet **368** of **381** Sheets

FIG. 5-395.110(A)

06/05/2014 10:06:25 AM \$FILES



Ah REINFORCEMENT		
HEIGHT H (FT.)	Ah (IN <sup>2</sup> /FT.)	
	15° & 30° SKEW	45° SKEW
7 OR LESS	0.192	0.192
8	0.20	0.24
9	0.29	0.36
10	0.42	0.53
11	0.60	0.75
12	0.78	0.98
13	1.03	1.36
14	1.38	1.85

NOTE: h IS THE LARGEST VERTICAL DIMENSION OF THE SEGMENT.

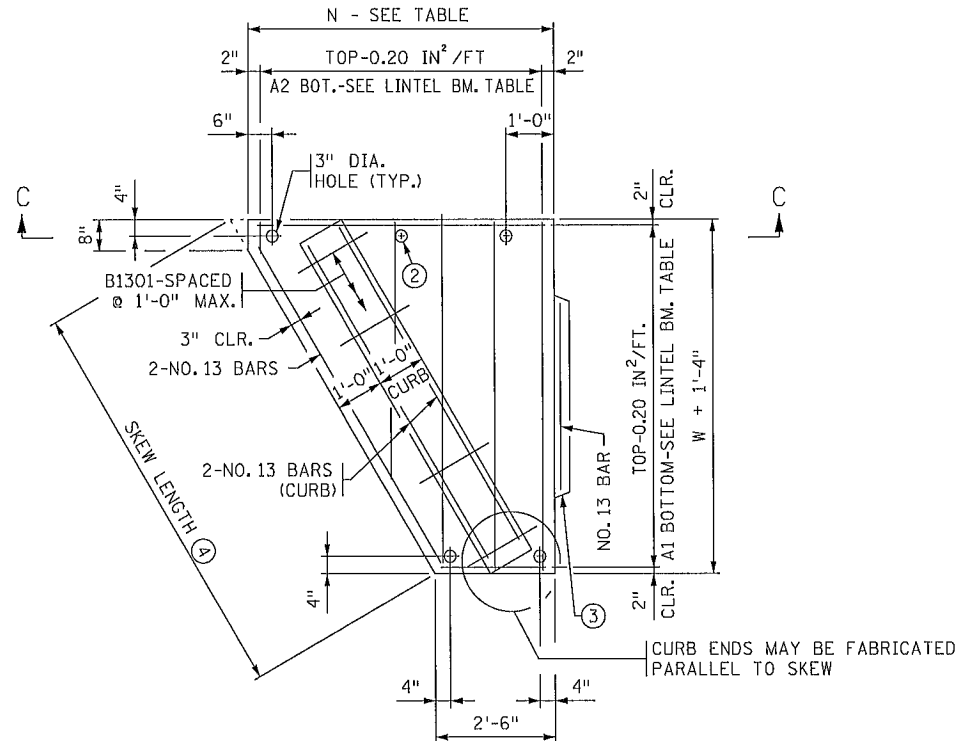
LINTEL BEAM REINFORCEMENT		
WIDTH W (FT.)	BOTTOM REINFORCEMENT	
	A1	A2
6	NO. 13 @ 1'-6"	NO. 13 @ 1'-4"
7	NO. 13 @ 1'-1"	NO. 13 @ 12"
10	NO. 13 @ 9"	NO. 13 @ 6"
12	NO. 16 @ 9"	NO. 16 @ 6"
14	NO. 19 @ 9"	NO. 22 @ 6"
16	NO. 19 @ 9"	NO. 22 @ 6"

LENGTH N			
WIDTH W (FT.)	15° SKEW	30° SKEW	45° SKEW
6	4'-3 3/8"	6'-4 1/4"	9'-2"
7	4'-9 7/8"	7'-6"	10'-2"
10	5'-4 1/4"	8'-7 7/8"	13'-2"
12	5'-10 3/4"	9'-9 3/4"	15'-2"
14	6'-5 1/8"	10'-11 5/8"	17'-2"
16	6'-11 5/8"	12'-1 1/2"	NA (7)

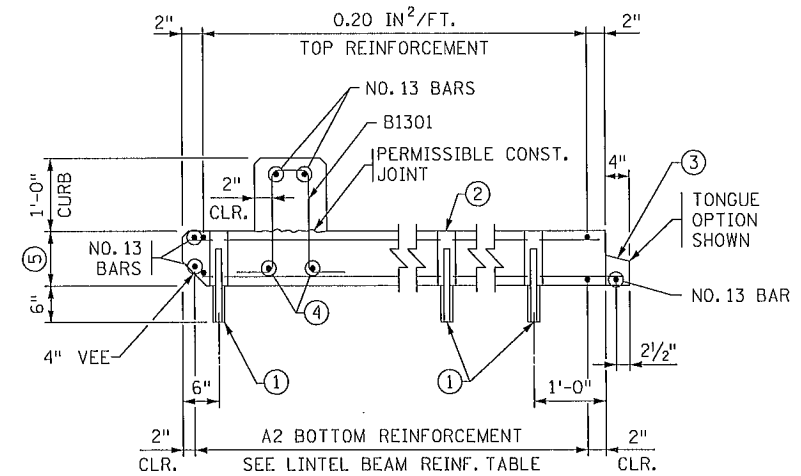
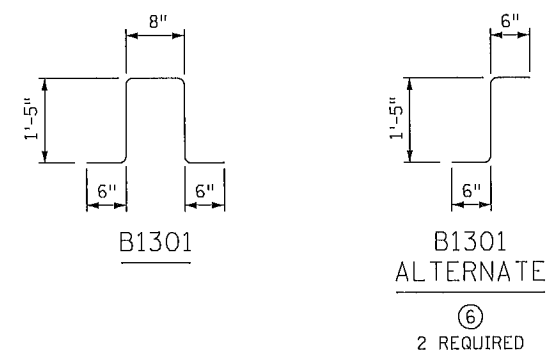
LINTEL BEAM THICKNESS			
WIDTH W (FT.)	15° SKEW	30° SKEW	45° SKEW
≤ 12	9"	9"	9"
14	10" (8)	10" (8)	10" (8)
16	10" (8)	10" (8)	NA (7)

CONSTRUCTION NOTES

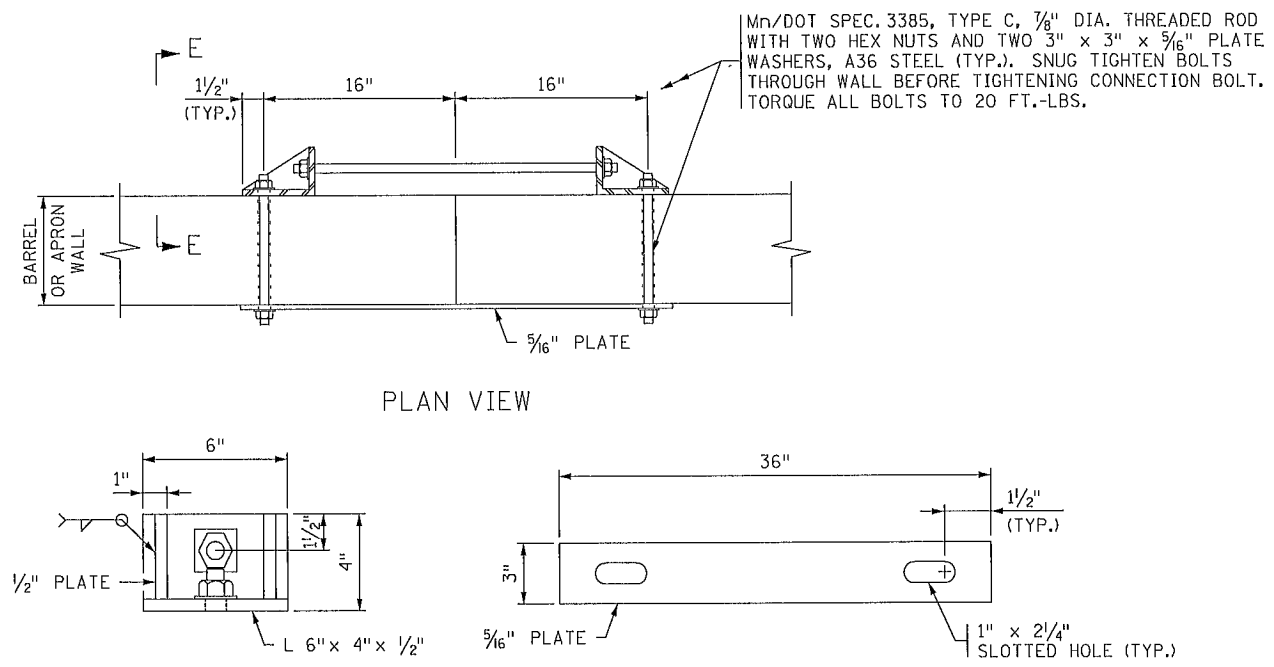
- ALL END SECTIONS REQUIRE CURB ON LINTEL BEAM.
- GROUT SHALL CONSIST OF 1 PART CEMENT AND 2 PARTS SAND. USE TYPE 1A AIR ENTRAINED PORTLAND CEMENT. GROUT MIX SHALL HAVE A MAXIMUM SLUMP OF 4".
- STRUCTURAL STEEL PER Mn/DOT SPEC. 3306.
- WELDING PER Mn/DOT SPEC. 2471.
- GALVANIZE STRUCTURAL STEEL PER Mn/DOT SPEC. 3394.
- GALVANIZE BOLTS, NUTS AND WASHERS PER Mn/DOT SPEC. 3392.
- ① NO. 25 DOWEL, 1'-0" LONG, 2" DIA. HOLE IN THE TOP OF THE WALL SECTION AND 3" DIA. HOLE IN THE LINTEL. FILL HOLE WITH GROUT.
- ② PROVIDE ADDITIONAL 3" HOLES AT 4'-0" MAXIMUM SPACING WHEN SIDE OF LINTEL BEAM IS OVER 6 FT.
- ③ CHECK THE LOCATION TO DETERMINE WHETHER A TONGUE OR A GROOVE IS USED. TONGUE AND GROOVE TO TERMINATE AT CULVERT RADIUS.
- ④ FOR SKEW LENGTH UNDER 10' USE NO. 25 BARS. FOR SKEW LENGTH OF 10' TO 14' USE NO. 29 BARS. FOR SKEW LENGTH OVER 14' TO 18' USE NO. 32 BARS. FOR SKEW LENGTH OVER 18' TO 22' USE NO. 36 BARS OR EQUAL. SKEW LENGTH IS DISTANCE BETWEEN OUTSIDE FACES OF END SECTION ALONG LINTEL BEAM.
- ⑤ SEE LINTEL BEAM THICKNESS TABLE ON THIS SHEET. LINTEL BEAMS SHALL CONTAIN 5000 PSI CONCRETE UNLESS OTHERWISE SPECIFIED.
- ⑥ ALTERNATE BAR BEND MAY BE USED FOR B1301.
- ⑦ FOR CULVERTS WITH SPANS OF 16' THE MAXIMUM SKEW SHALL BE 30°.
- ⑧ ALTERNATIVELY A 9" THICKNESS MAY BE USED WITH 6500 PSI CONCRETE.



PLAN VIEW  
LINTEL BEAM WITH INTEGRAL CURB



SECTION C-C  
LINTEL BEAM WITH INTEGRAL CURB



SECTION E-E  
PLATE DETAIL  
EXTRA STRONG CONNECTION DETAILS

REVISION:  
APPROVED: MARCH 24, 2011  
*Nancy D. Lamberger*  
STATE BRIDGE ENGINEER

FIG. 5-395.110(B)

06/05/2014 10:06:28 AM SFILES

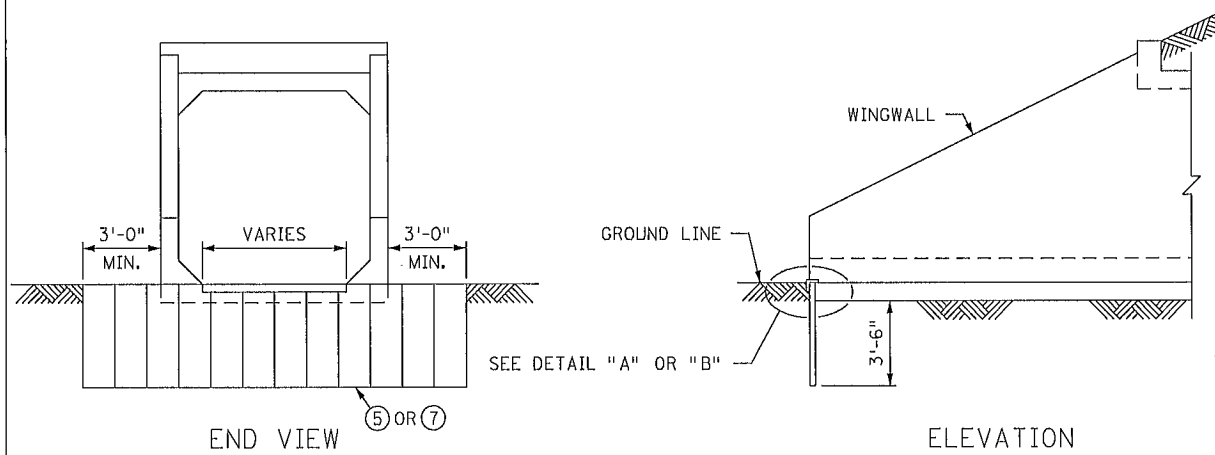
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
*Barry Lovelace*  
LICENSED PROFESSIONAL ENGINEER - BARRRY LOVELACE  
DATE 10-29-13 REG NO. 40456

**WSB**  
Associates, Inc.  
701 Xenia Avenue South, Suite 300  
Minneapolis, MN 55416  
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763-588-8000 • Fax 763-567-0000  
INFRASTRUCTURE BIDDING PLANNING CONSTRUCTION

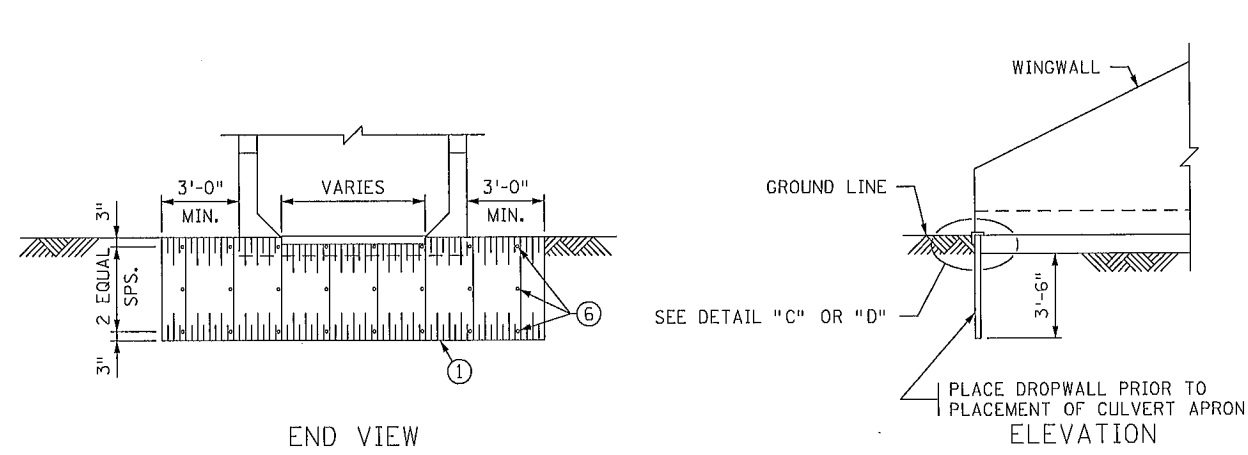
**C.S.A.H. 51**  
**ANOKA COUNTY**  
**S.P. 002-651-007**

TITLE:  
**PRECAST CONCRETE END SECTION - TYPE I**

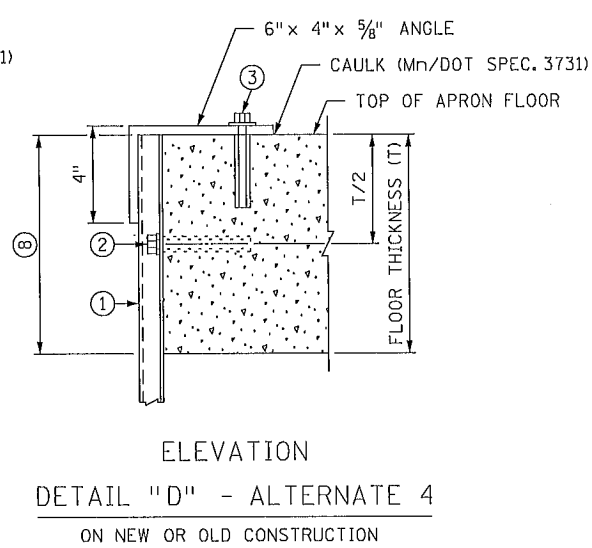
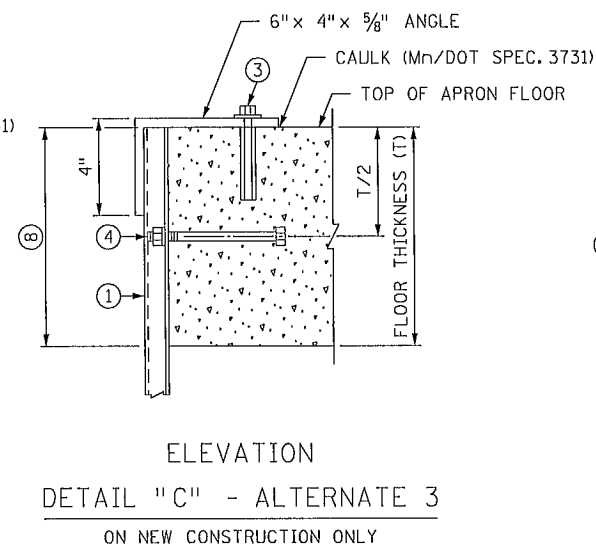
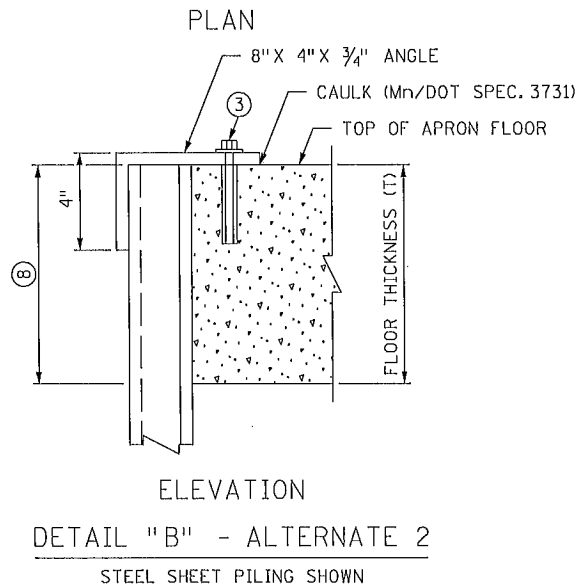
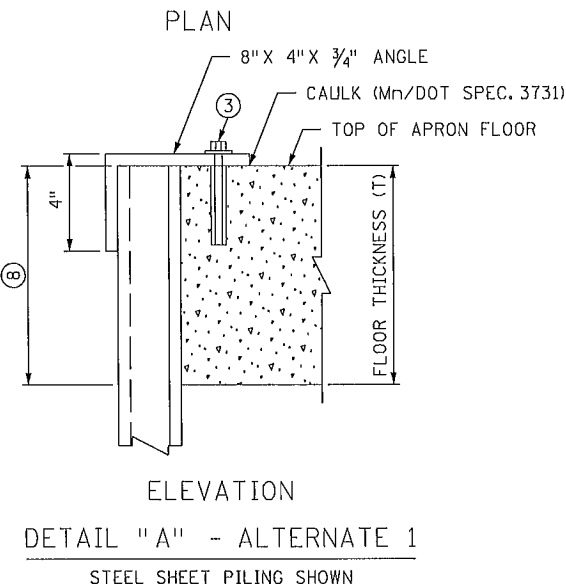
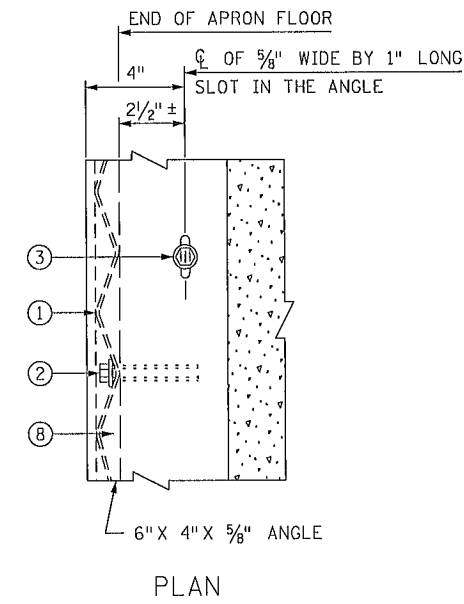
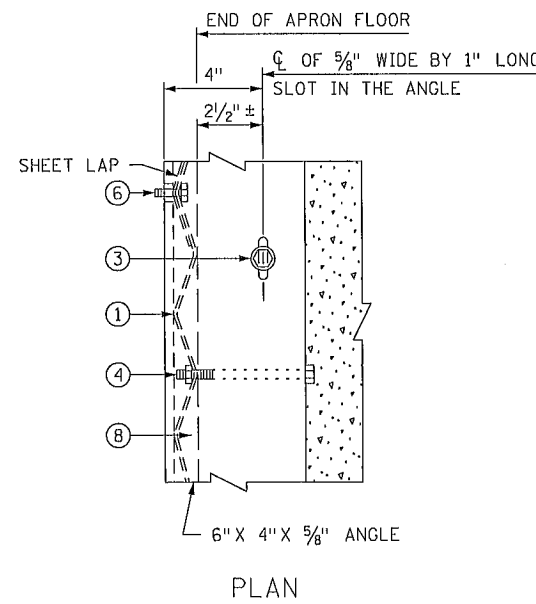
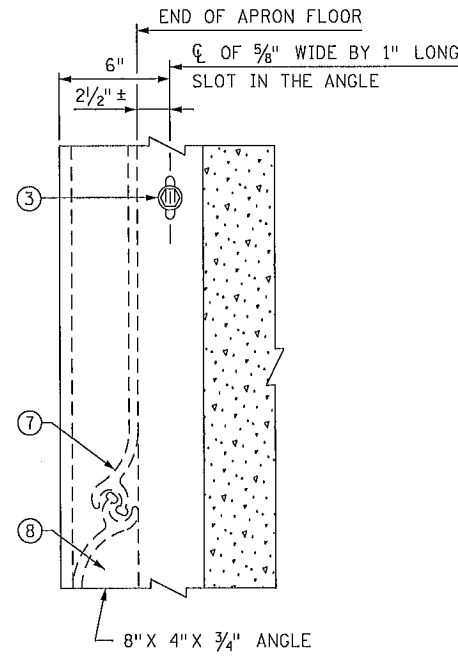
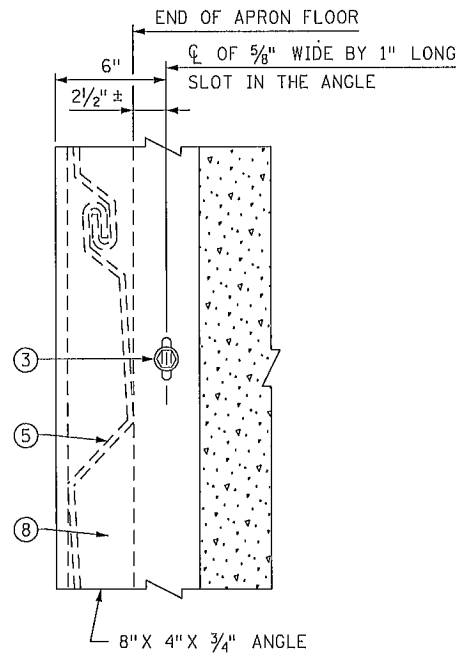
DES: BRL	DR: DJV
CHK: A.J.N	CHK: BRL
Sheet 369	of 381
Sheets	



ALTERNATES 1 & 2 (STEEL SHEET PILING)



ALTERNATES 3 & 4 (GALVANIZED STEEL SHEETS)



CONSTRUCTION NOTES

- ① GALVANIZE ALL FASTENERS AS PER Mn/DOT SPEC. 3392.
- BEFORE CULVERT PLANS ARE PREPARED, SAMPLES SHALL BE TAKEN FROM THE DRAINAGE AREA FOR PH DETERMINATION. THE SOIL AND WATER SHOULD HAVE A PH OF 6.5 OR MORE IF SHEET STEEL IS USED.
- ① 2 1/2" x 1/2" OR 2 3/8" x 1/2" CORRUGATED (12 GAGE) OR HEAVIER GALVANIZED STEEL SHEETS.
- ② FASTEN THE STEEL SHEETS TO THE FRONT EDGE OF THE APRON WITH 3/8" DIAMETER BY 4" LONG BOLTS AND APPROVED ANCHORAGES (10" ± CENTER TO CENTER, TO THE NEAREST VALLEY).
- ③ FASTEN THE 8" x 4" x 3/4" OR 6" x 4" x 5/8" ANGLE WITH 3/8" DIAMETER 4" LONG BOLTS, 1" O.D. WASHER AND AN APPROVED ANCHORAGE (2'-0" SPACING).
- ④ FASTEN THE STEEL SHEETS TO THE FRONT EDGE OF THE APRON WITH 3/8" DIAMETER 5" LONG BOLTS, NUT AND LOCK WASHER (10" ± CENTER TO CENTER, TO THE NEAREST VALLEY).
- ⑤ (12 GAGE) GALVANIZED CORRUGATED STEEL SHEET PILING, INTERLOCKING TYPE A.
- ⑥ 3/8" DIA. x 1" LONG BOLT WITH NUT, TO LAP STEEL SHEETS.
- ⑦ STEEL SHEET PILING, SECTION NO. MP-112 OR EQUAL.
- ⑧ FILL THE VOIDS AS SHOWN, WITH CONCRETE OR CONCRETE GROUT, AS APPROVED BY THE ENGINEER.

REVISION:  
 APPROVED: MARCH 24, 2011  
*Nancy S. Sauerberger*  
 STATE BRIDGE 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.  
*Barry Lovelace*  
 LICENSED PROFESSIONAL ENGINEER - BARRY LOVELACE  
 DATE 12-22-11 REG. NO. 40456

**WSB**  
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 701 Xenia Avenue South, Suite 300  
 Minneapolis, MN 55464  
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 763-598-8000 - Fax 763-598-7000  
 INFRASTRUCTURE BRIDGING PLANNING CONSTRUCTION

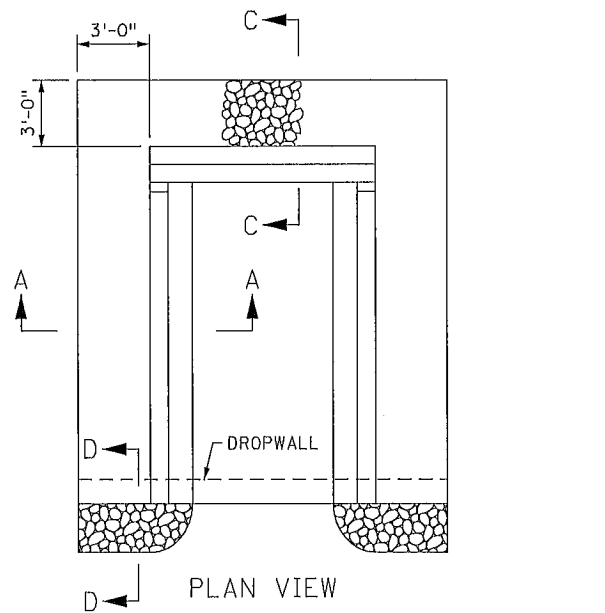
**C.S.A.H. 51**  
**ANKA COUNTY**  
**S.P. 002-651-007**

TITLE:  
**ALTERNATE DROPWALLS FOR BOX CULVERTS**

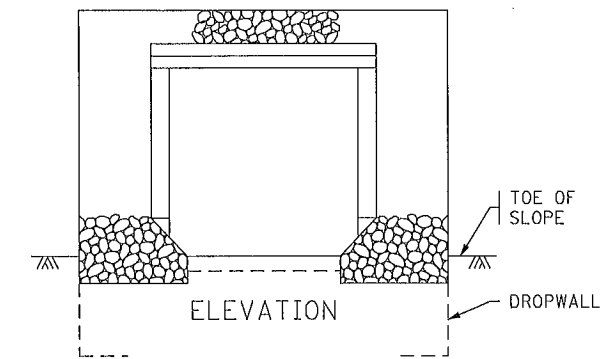
DES: BRL DR: DJV  
 CHK: A.JN CHK: BRL  
 Sheet 370 of 381 Sheets

FIG. 5-395.111

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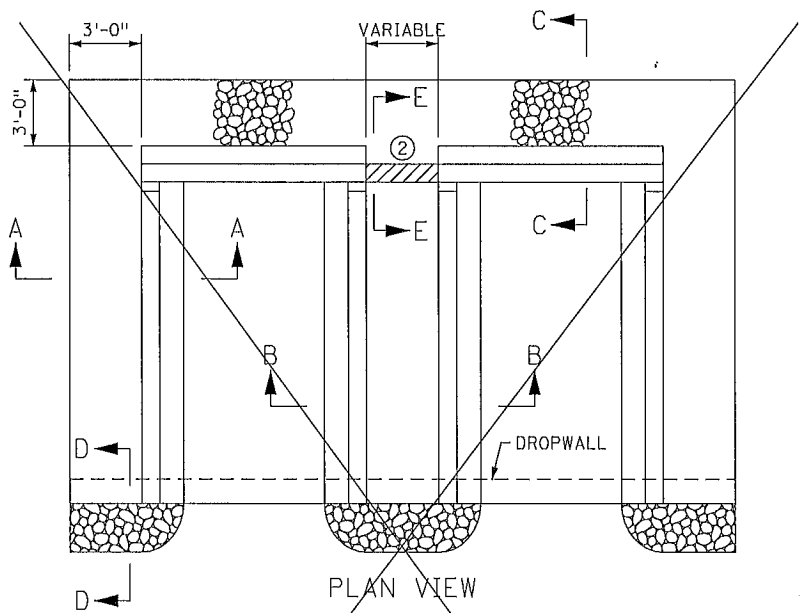


PLAN VIEW

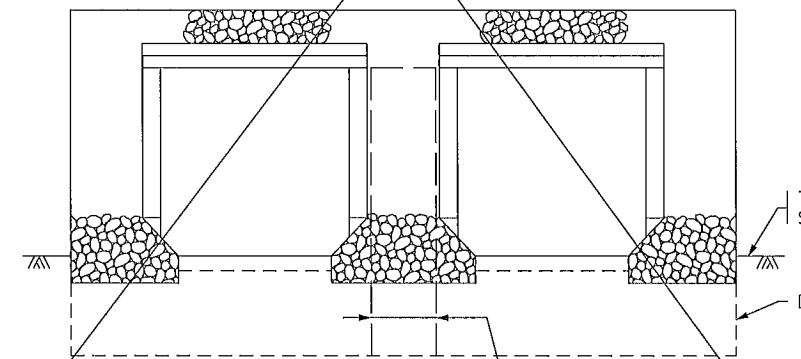


ELEVATION

SINGLE BARREL  
CLASS III SHOWN  
(FOR SKEWS UP TO 7 1/2°)

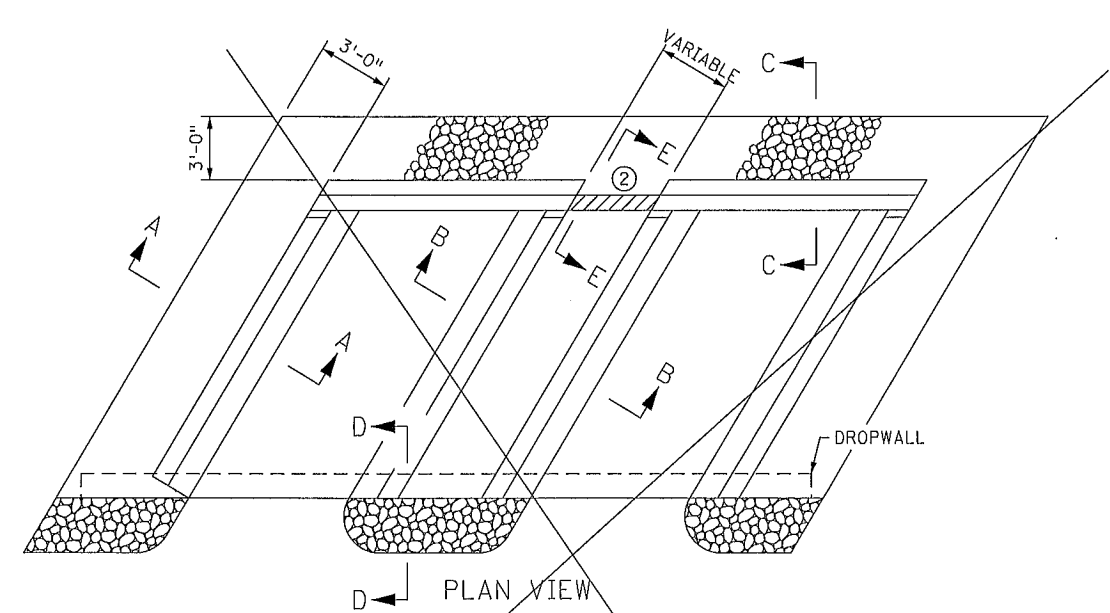


PLAN VIEW

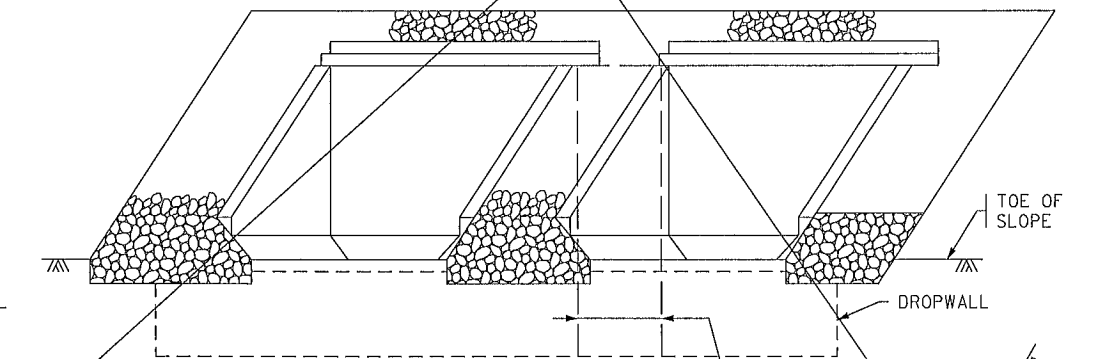


ELEVATION

DOUBLE BARREL  
CLASS III SHOWN  
(FOR SKEWS UP TO 7 1/2°)

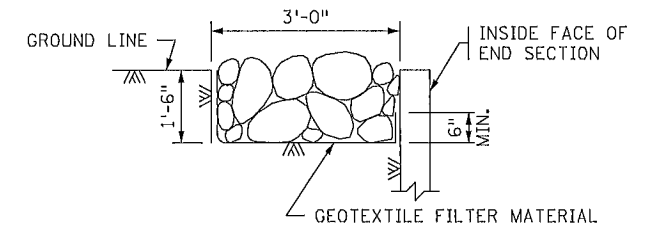


PLAN VIEW

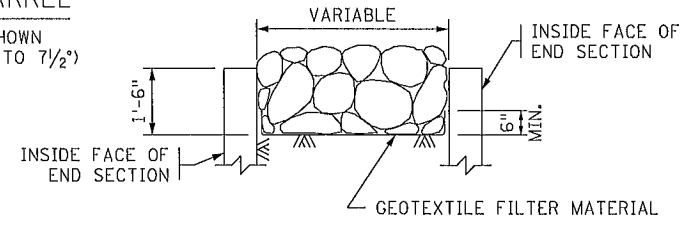


ELEVATION

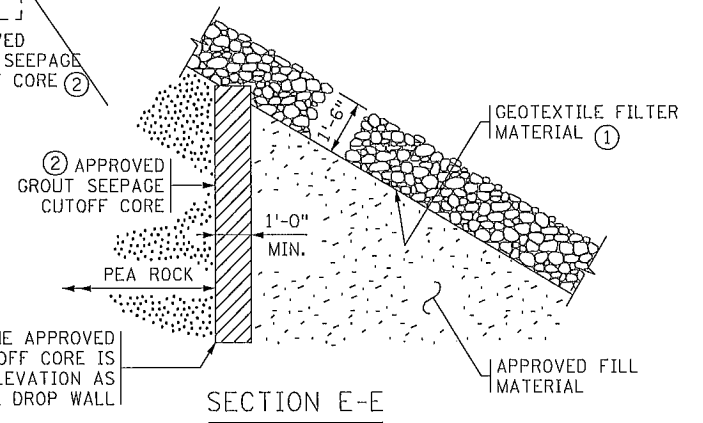
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CLASS III SHOWN  
(FOR SKEWS OVER 7 1/2°)



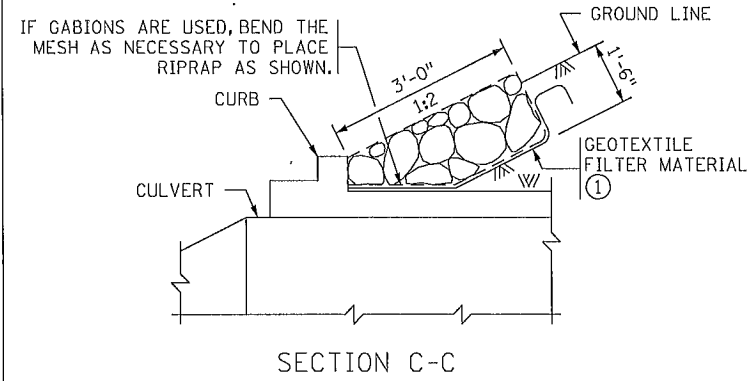
SECTION A-A



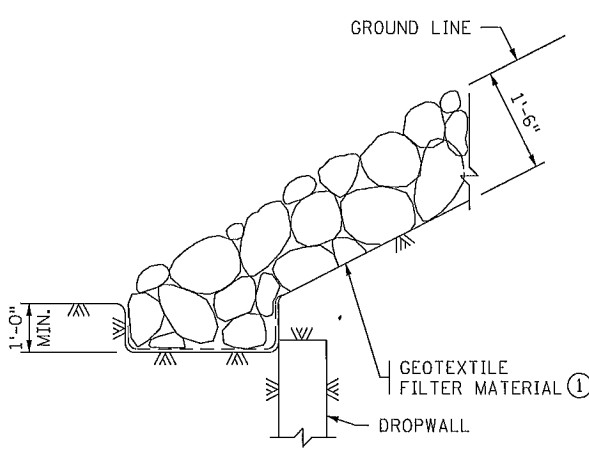
SECTION B-B



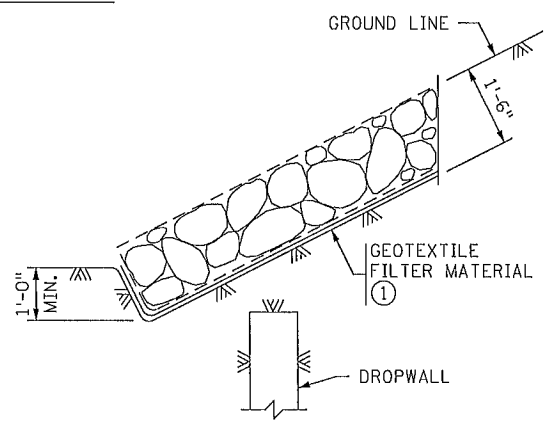
SECTION E-E



SECTION C-C



CLASS III RIPRAP OPTION



CLASS II RIPRAP IN GABIONS OPTION

CONSTRUCTION NOTES

- RIPRAP SHALL COMPLY WITH Mn/DOT SPECS. 2511 AND 3601. THE CONTRACTOR MAY USE EITHER CLASS III, WITH GEOTEXTILE FILTER MATERIAL, OR CLASS II ENCLOSED IN GABIONS, WITH GEOTEXTILE FILTER MATERIAL. 4" TO 8" DIA. ROCK MAY BE USED IN GABIONS, IF THE MESH OPENINGS ARE 4" OR LESS. GABIONS SHALL BE RIVER TYPE, CODE "D", 3 FT. WIDE X 1.5 FT. DEEP.
- FOR TYPE OF GEOTEXTILE FILTER MATERIAL REQUIRED, SEE Mn/DOT SPEC. 3733. GEOTEXTILE STRIPS SHOULD BE CONTINUOUS WITHOUT OVERLAPS, EXCEPT FOR THE TOP STRIP, WHICH SHOULD SHINGLE VERTICAL STRIPS. THE TOP EDGE SHOULD BE BURIED TO PREVENT UNDERMINING (Mn/DOT SPEC. 2511.3B).
  - IF THE DISTANCE BETWEEN DOUBLE BARRELS IS LESS THAN 2'-0" USE EITHER PEA ROCK OR LEAN MIX BACKFILL (Mn/DOT 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. MINIMUM DISTANCE BETWEEN THE BARRELS IS 6".

REVISION:  
APPROVED: MARCH 24, 2011  
*Nancy Dubenberger*  
STATE BRIDGE 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.  
*Barritt Lovelace*  
LICENSED PROFESSIONAL ENGINEER BARRITT LOVELACE  
DATE 10-29-13 REG. NO. 40456

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INFRASTRUCTURE BRIDGEWORK PLANNING CONSULTING

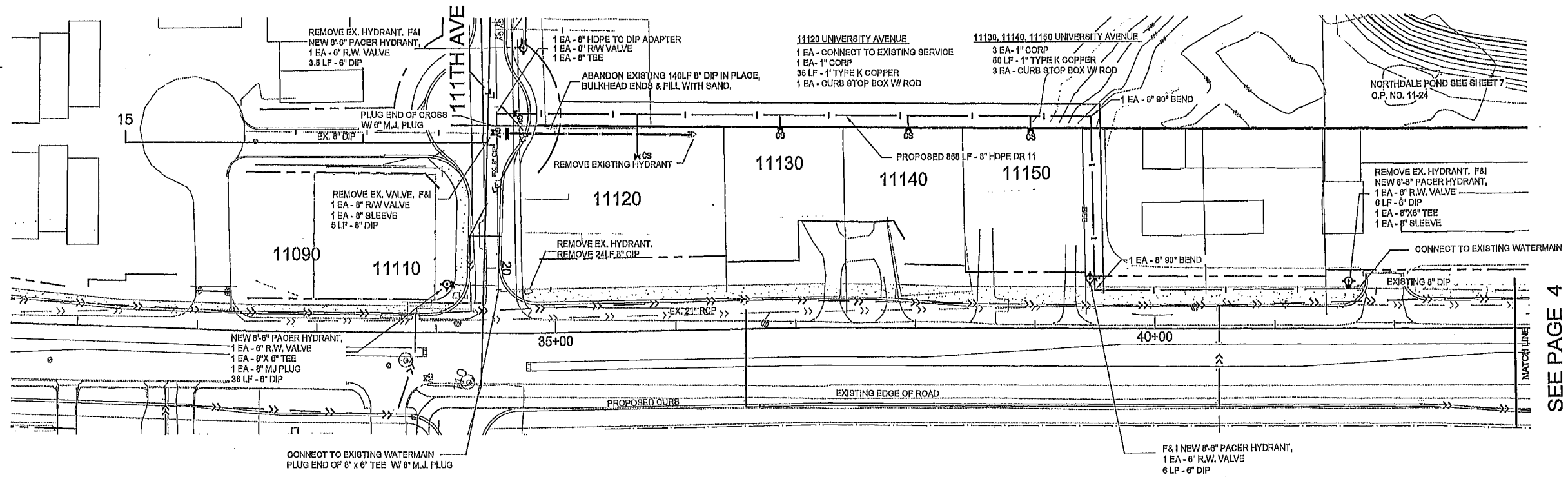
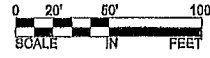
**C.S.A.H. 51**  
**ANOKA COUNTY**  
**SP. 002-651007**

TITLE:  
**EMBANKMENT PROTECTION**  
**FOR BOX CULVERTS**

DES: BRL DR: DJV  
CHK: A.J.N CHK: BRL  
Sheet 371 of 381 Sheets

FIG. 5-395.115

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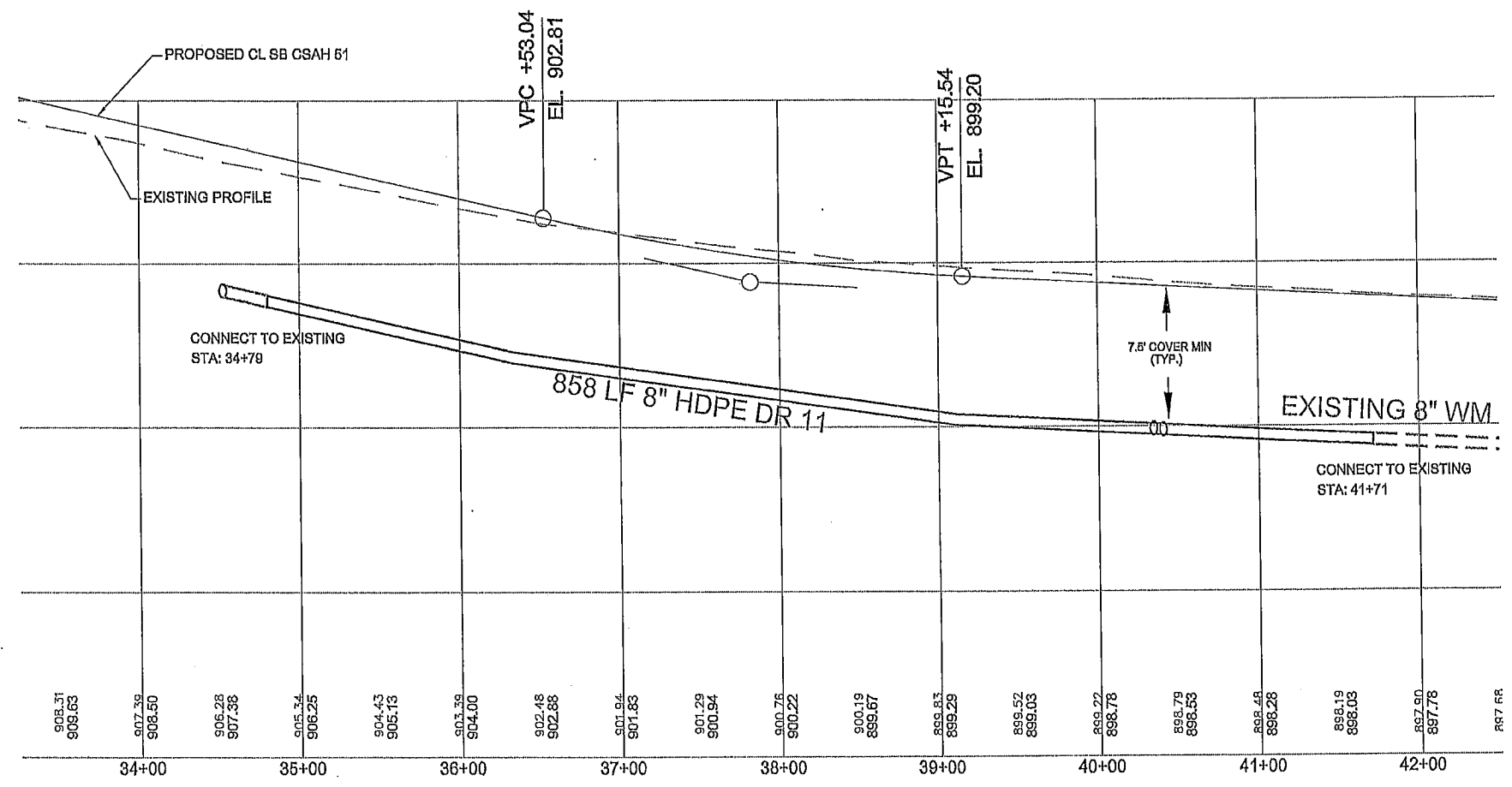
SEE PAGE 4

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the State of Minnesota.  
 Date: \_\_\_\_\_ Reg. No. 42831

INITIAL	REVISIONS

DESIGNED BY: K.B.K.	SCALE: 1"=50'
DRAWN BY: J.W.H./D.M.Z.	VERT. SCALE: 1"=10'
ORIGINAL DATE: _____	

- NOTES:
- CONTRACTOR TO VERIFY DEPTH OF EXISTING WATERMAIN
  - 11120 UNIVERSITY AVE. - DISCONNECT EXISTING SERVICE, CUT & RECONNECT TO NEW W.M. (TYP.)
  - 11130, 11140, 11150 UNIVERSITY AVE. - INSTALL NEW CURB STOPS AT R.O.W
  - ALL VALVES SHALL INCLUDE 1.5' OPERATING NUT EXTENDERS.
  - CONNECT TO EXISTING WATERMAIN INCLUDES PAVEMENT REMOVAL, EXCAVATION, FITTINGS, PIPE, LABOR & EQUIPMENT NECESSARY TO MAKE THE CORRECTION.
  - ALL DISTURBED YARD / BOULEVARD REPAIRS SHALL RECEIVE 6" TOPSOIL AND SOD.



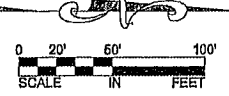
PROJECT # 11-24  
 WATERMAIN  
 UNIVERSITY AVENUE

City of Coon Rapids  
 11155 Robinson Drive  
 Coon Rapids, MN 55433-3761  
 763-755-2880  
 Fax 763-757-5491  
 www.coonrapidsmn.gov

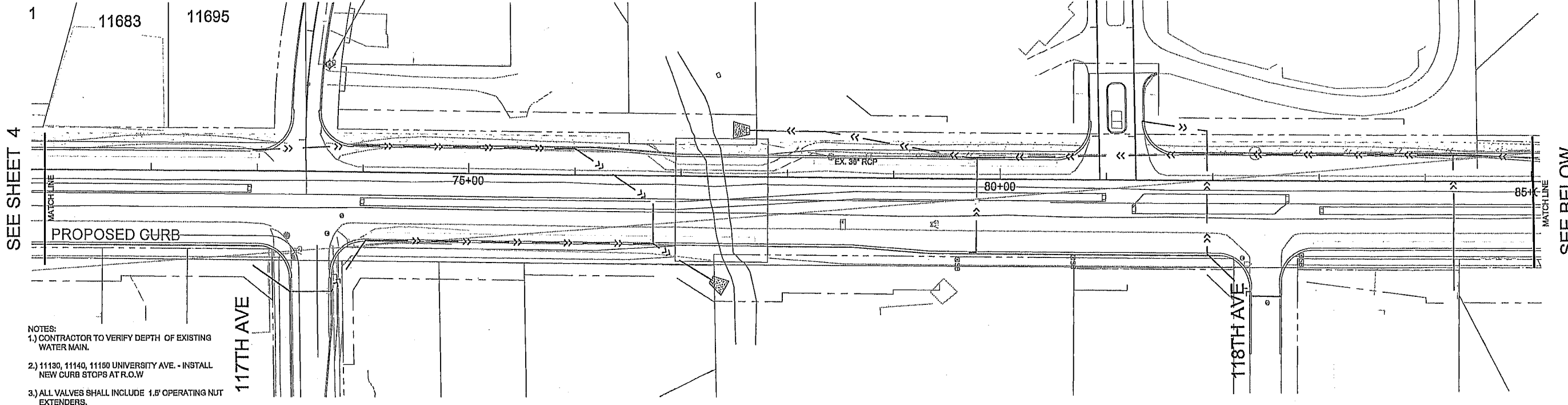


372  
 381



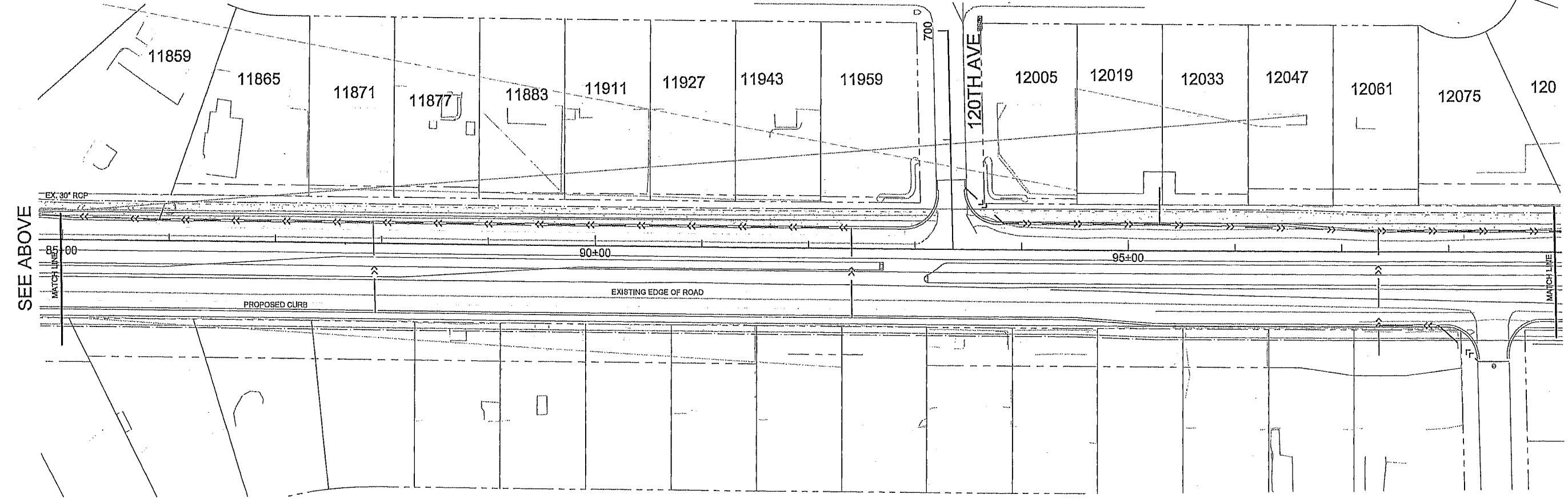


REMOVE EX. HYDRANT, F&I  
 NEW 8"-6" PACER HYDRANT,  
 1 EA - 6" R.W. VALVE  
 3.5 LF - 6" DIP



# UNIVERSITY AVENUE

- NOTES:
- 1.) CONTRACTOR TO VERIFY DEPTH OF EXISTING WATER MAIN.
  - 2.) 11130, 11140, 11150 UNIVERSITY AVE. - INSTALL NEW CURB STOPS AT R.O.W
  - 3.) ALL VALVES SHALL INCLUDE 1.8' OPERATING NUT EXTENDERS.
  - 4.) CONNECT TO EXISTING WATER MAIN INCLUDES PAVEMENT REMOVAL, EXCAVATION, FITTINGS, PIPE, LABOR & EQUIPMENT NECESSARY TO MAKE THE CORRECTION.
  - 5.) ALL DISTURBED YARD / BOULEVARD REPAIRS SHALL RECEIVE 6" TOPSOIL AND SOD.



SEE SHEET 4

SEE BELOW

SEE ABOVE

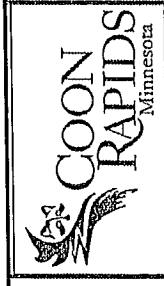
SEE SHEET 6

I hereby certify that this plan specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of Minnesota.  
 Date: \_\_\_\_\_ MN Reg. No.: 42831

DESIGNED BY:	INITIAL
K.B.K.	
DRAWN BY:	REVISIONS
J.W.H./D.M.Z	
ORIGINAL DATE:	
SCALE	
HORIZ. 1"=50'	
VERT. 1"=10'	

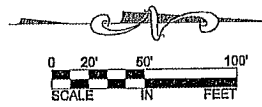
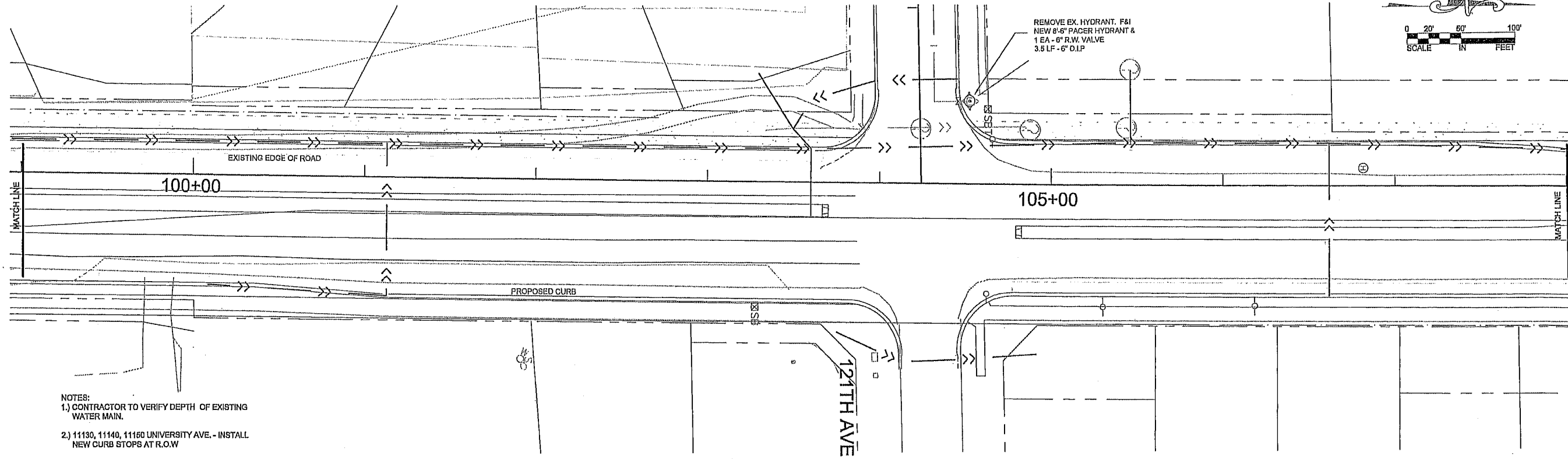
PROJECT # 11-24  
 WATERMAIN  
 UNIVERSITY AVENUE

City of Coon Rapids  
 14155 Robinson Drive  
 Coon Rapids, MN 55433-3761  
 763-753-2830  
 Fax 763-753-5481  
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374  
 381

SEE SHEET 5

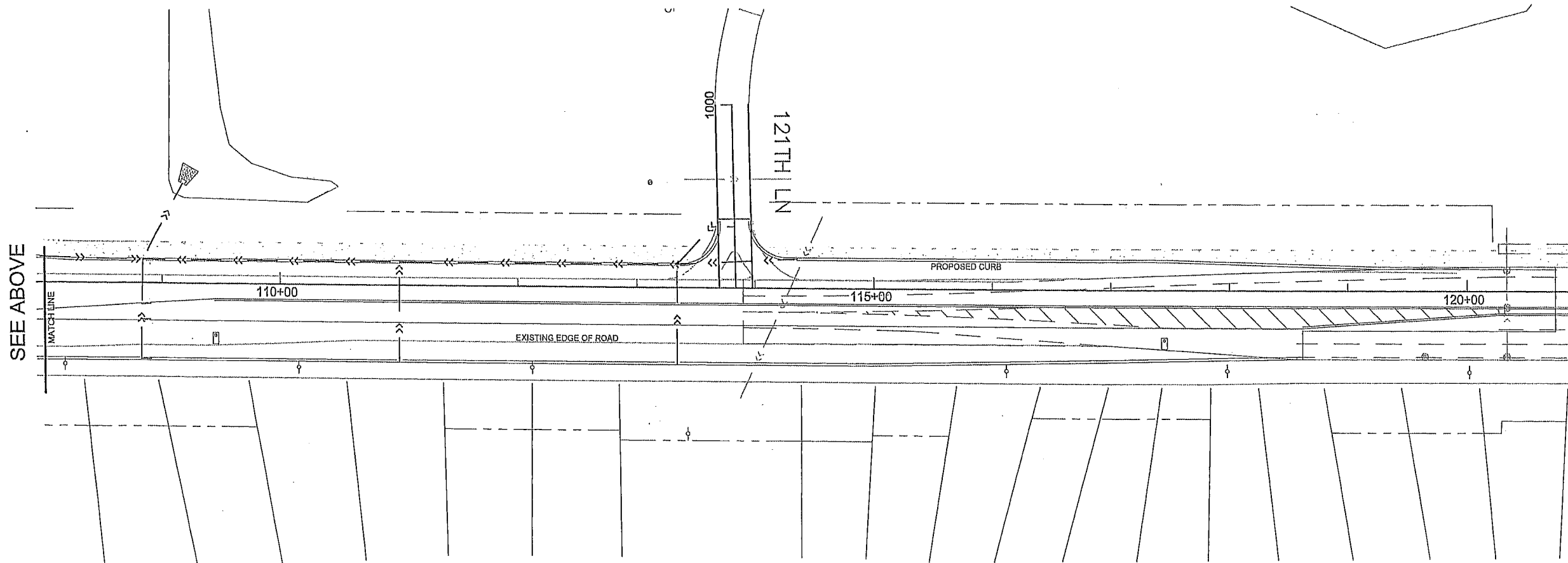


SEE BELOW

NOTES:

- 1.) CONTRACTOR TO VERIFY DEPTH OF EXISTING WATER MAIN.
- 2.) 11130, 11140, 11160 UNIVERSITY AVE. - INSTALL NEW CURB STOPS AT R.O.W
- 3.) ALL VALVES SHALL INCLUDE 1.5' OPERATING NUT EXTENDERS.
- 4.) CONNECT TO EXISTING WATER MAIN INCLUDES PAVEMENT REMOVAL, EXCAVATION, FITTINGS, PIPE, LABOR & EQUIPMENT NECESSARY TO MAKE THE CORRECTION.
- 5.) ALL DISTURBED YARD / BOULEVARD REPAIRS SHALL RECEIVE 6" TOPSOIL AND SOD.

# UNIVERSITY AVENUE



SEE ABOVE

I hereby certify that this plan prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the State of Minnesota.

Date:            M.E. Reg. No. 42831

REVISIONS	INITIAL

DESIGNED BY:	K.B.K.
DRAWN BY:	J.W.H. / D.M.Z
ORIGINAL DATE:	
SCALE	HORIZ. 1"=50'
VERT.	1"=10'

**PROJECT # 11-24**  
**WATERMAIN**  
 UNIVERSITY AVENUE

City of Coon Rapids  
 11155 Robinson Drive  
 Coon Rapids, MN 55433-3751  
 763-765-2880  
 Fax 763-767-6481  
 www.coonrapidsmn.gov



375  
 381  
 OF

MSA PROJECT No. 002-651-007 UNIVERSITY AVENUE  
C.P. NO. 11-24  
WATERMAIN TABULATION SHEET

EXISTING WATERMAIN								
STATION	LOCATION			EXISTING ITEM	REMOVE VALVE BOX	REMOVE VALVE EACH	REMOVE HYDRANT EACH	REMARKS
					EACH	EACH	EACH	
UNIVERSITY								
18+21	29	LT	111TH AVE	8-6 HYDRANT / VALVE	1	1	1	
18+90	6	LT	111TH AVE	8" GATE VALVE	1	1		
18+93	170	LT	111TH AVE	8-6 HYDRANT / VALVE	1		1	
34+98	41	LT	SB	8-6 HYDRANT / VALVE	1	1	1	
41+71	39	LT	SB	8-6 HYDRANT / VALVE	1	1	1	
43+61	41	LT	SB	8-6 HYDRANT / VALVE	1	1	1	
47+40	29	LT	SB	8-6 HYDRANT / VALVE	1	1	1	
47+78	243	LT	SB	12" GATE VALVE	1	1		
403+31	19	LT	117TH AVE	8-6 HYDRANT / VALVE	1	1	1	
902+53	35	LT	121ST AVE	8-6 HYDRANT / VALVE	1	1	1	

PROPOSED WATERMAIN								
STATION	LOCATION			PROPOSED ITEM	NEW GATE VALVE EACH	NEW HYDRANT / VALVE EACH	RELOCATE HYDRANT EACH	REMARKS
					EACH	EACH	EACH	
UNIVERSITY								
18+21	29	LT	111TH AVE	8-6 HYDRANT		1		
18+75	22	LT	111TH AVE	8" GATE VALVE	1			
18+90	5	LT	111TH AVE	8" GATE VALVE	1			
34+08	39	LT	SB	8-6 HYDRANT		1		
39+45	41	LT	SB	8-6 HYDRANT		1		
41+62	39	LT	SB	8-6 HYDRANT		1		
43+61	41	LT	SB	8-6 HYDRANT		1		
47+40	41	LT	SB	8-6 HYDRANT		1		
48+57	243	LT	SB	12" GATE VALVE	1			
403+31	19	LT	117TH AVE	8-6 HYDRANT		1		
902+53	35	LT	121ST AVE	8-6 HYDRANT		1		

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the State of Minnesota. Date: MK Reg. No. 429331

---

DESIGNED BY: K.B.K.      DRAWN BY: J.W.H / D.M.Z.      ORIGINAL DATE:      SCALE: HORIZ.      VERT.

---

PROJECT # 11-24  
TABULATIONS  
WATERMAIN TABULATION SHEET

---

City of Coon Rapids  
1115 Robinson Drive  
Coon Rapids, MN 55433-9701  
763-752-2800  
Fax: 763-767-6481  
www.coonrapidsmn.gov

---

COON RAPIDS  
Minnesota

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SHEET

376

381

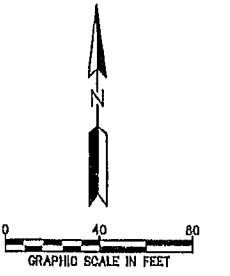
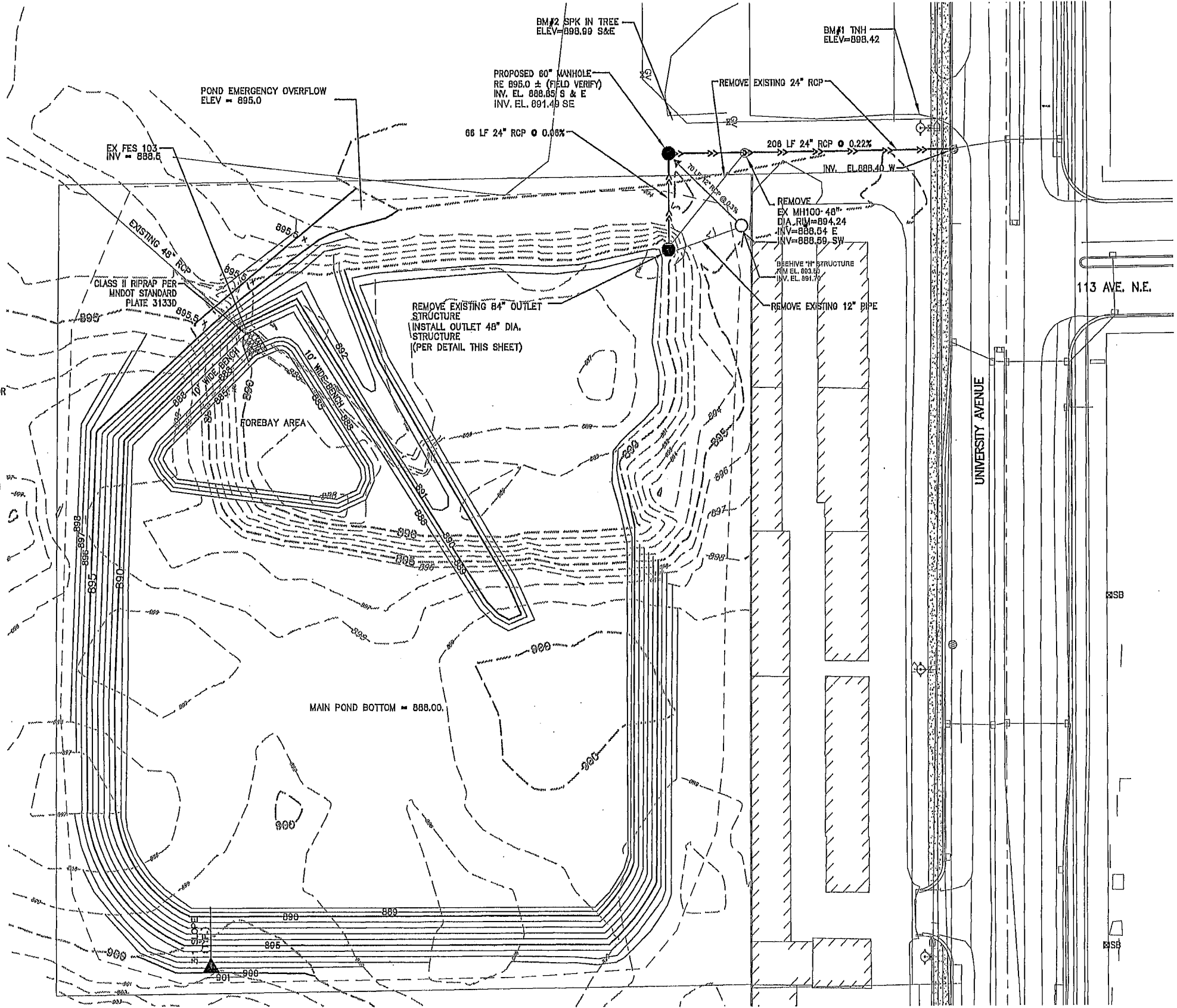
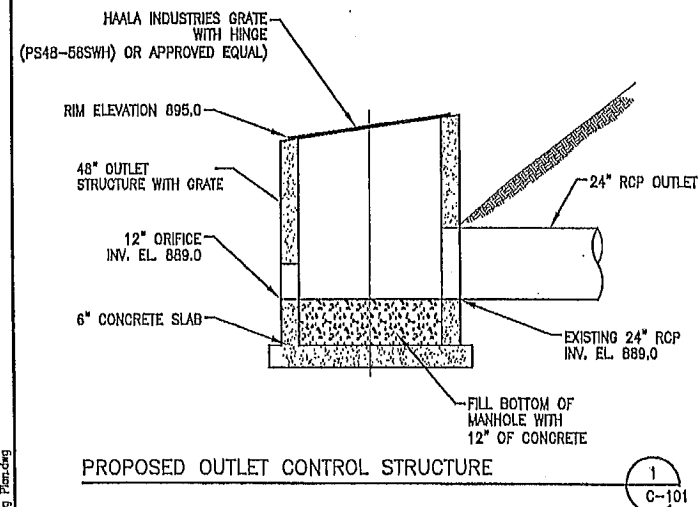
OF

CITY PROJ. 11-24  
MSAP 002-651-007

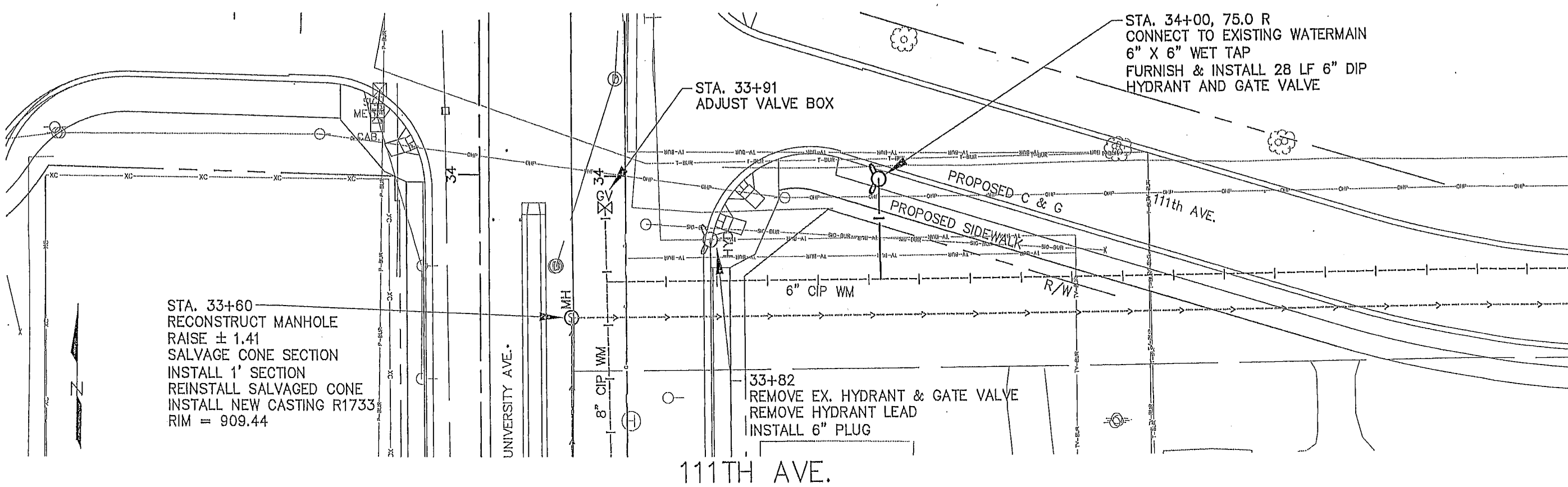
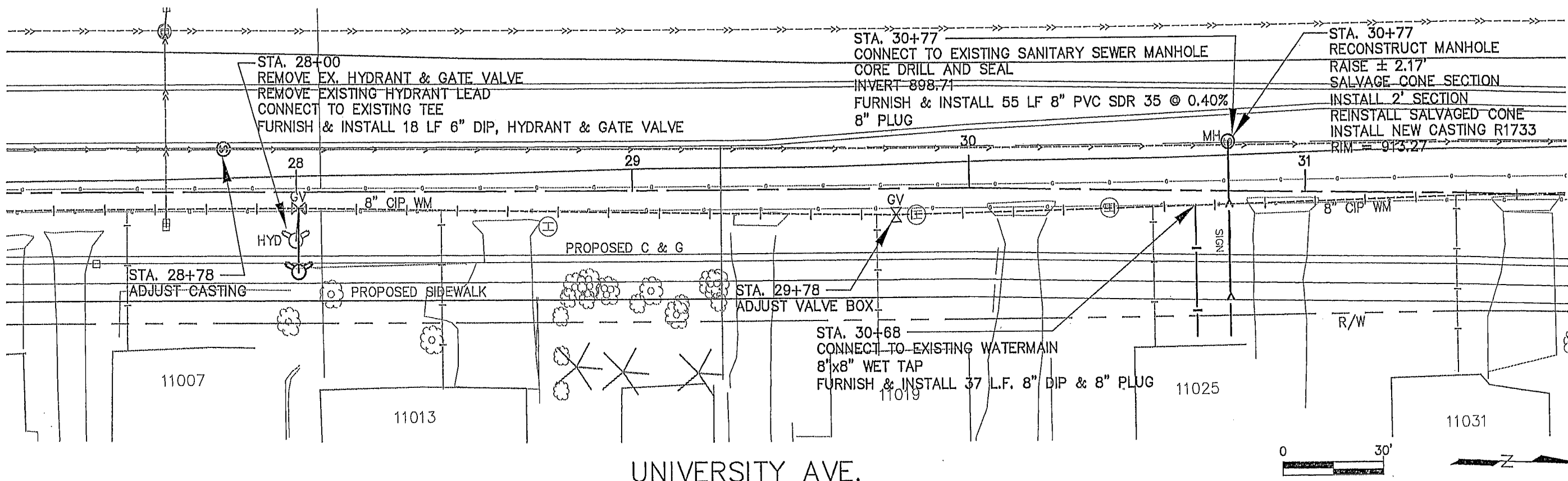


NOTES:

1. RANDOM RIP RAP CLASS II AROUND FLARED END SECTION. UNIT PRICE SHALL INCLUDE PLACEMENT. ITEM 2611.601/00012.
2. EROSION CONTROL BLANKET CATEGORY 00 SHALL BE PLACED ON ALL DISTURBED AREAS WITH SEED UNTIL TURF ESTABLISHMENT HAS BEEN APPROVED BY ENGINEER. ITEM 2575.623/00010.
3. SILT FENCE (APPROXIMATELY 1950 LF) SHALL BE PLACED AROUND DISTURBED AREA. CONTRACTOR RESPONSIBLE FOR INSTALLING MAINTAINING AND REMOVAL UNDER THE SILT FENCE BID ITEM. CONTRACTOR SHALL BE PAID FOR REPLACEMENT OF DAMAGED SILT FENCE. ITEM 2573.611/00040
4. SITE IS WOODED WITH LARGE MATURE TREES. CONTRACTOR SHALL CLEAR AND GRUB SITE, SIZE OF TREE SHALL NOT ADJUST OF LUMP SUM PRICE. (APPROXIMATE 6.5 ACRES) ITEM 2101.611/00010
5. CONTRACTOR IS RESPONSIBLE FOR SITE FINE GRADING TO BE INCLUDED IN COMMON EXCAVATION BID. ITEM 2105.601/00010
6. CONTRACTOR IS RESPONSIBLE FOR THE DOWNSTREAM CLEANING OF STORM SEWER PIPE AT NO COST TO OWNER.
7. BASIN SHALL BE STAKED BY THE CITY OF COON RAPIDS ENGINEERING DEPARTMENT ONCE. CONTRACTOR IS RESPONSIBLE FOR ANY RESTAKING.
8. BASIN FINISHED TOPOGRAPHY SHALL BE SURVEYED BY COON RAPIDS ENGINEERING DEPARTMENT. CONTRACTOR SHALL BE PAID FOR COMMON EXCAVATION ITEM 2105.601/00010 FOR THE QUANTITY DETERMINED BY THIS SURVEY.
9. CONTRACTOR SHALL SCARIFY BOTTOM OF BASIN (BETWEEN 897 AND 888 CONTOURS) TO A DEPTH OF 15" FOLLOWING GRADING.
10. BASIN SHALL BE SEEDED WITH MN DOT 328NEP MIX PER MNDOT APPLICATION RATES. PLACE EROSION CONTROL BLANKET AFTER SEEDING.
11. VERTICAL DATUM IN NAVD 88
12. BM#1 AND BM#2 ESTABLISHED BY OTHERS.



				SEAL	PRIME CONSULTANT	PROJECT TITLE	SHEET TITLE
				I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  Todd E. Shoemaker	 Wenck Wenck Associates, Inc. Consulting Engineers 1800 PIONEER CREEK CENTER WAPLE PLAN, MINNESOTA 763-472-1100 763-472-1242	NORTHDALE INFILTRATION BASIN  CITY OF COON RAPIDS 11155 ROBINSON DRIVE N.W.  COON RAPIDS, MN 55433 PHONE 763-765-2880	PROPOSED GRADING AND STORM SEWER PLAN  DWN BY: JVB CHK'D BY: TES APP'D BY: TES DWG DATE: 04/08/2014 SCALE: AS NOTED PROJECT NO.: 3491-01 SHEET NO.: 377/381 REV NO.: 1
1	ISSUED FOR BIDDING	JVB	TES				
REV	REVISION DESCRIPTION	DWN	APP	REV DATE			



ENGINEERING DEPARTMENT  
 10801 Town Square Drive, Blaine, Minnesota 55449  
 Phone (763) 785-6172

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed professional engineer under the laws of the State of Minnesota.  
 Date 01/23/14 Reg. No. 41290

DATE

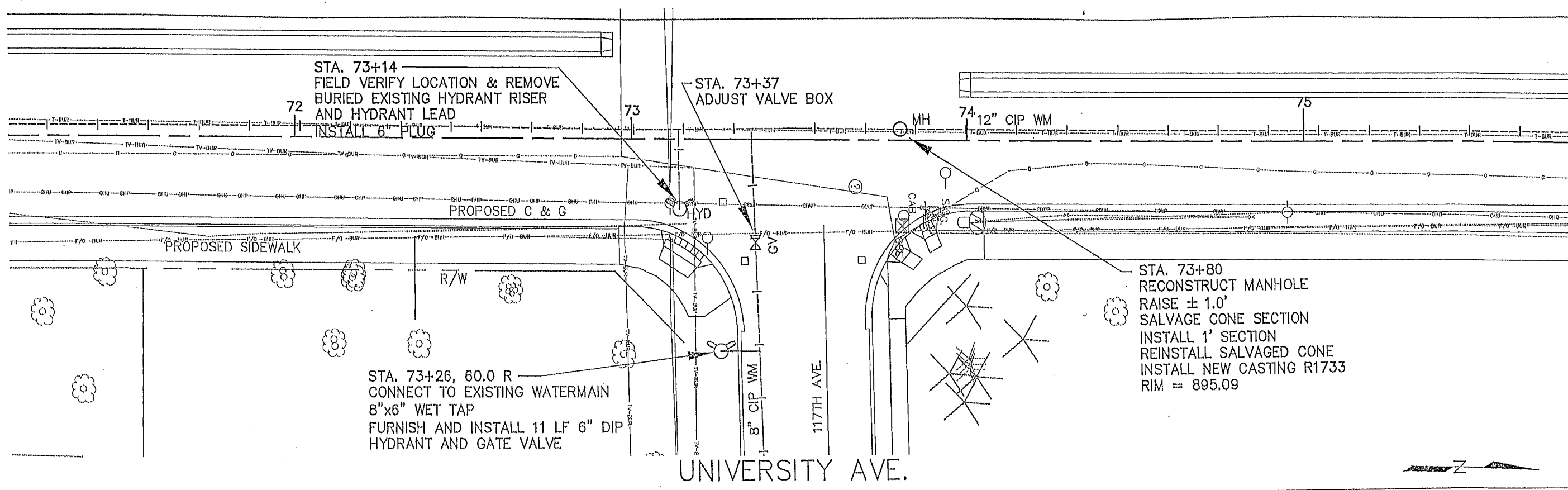
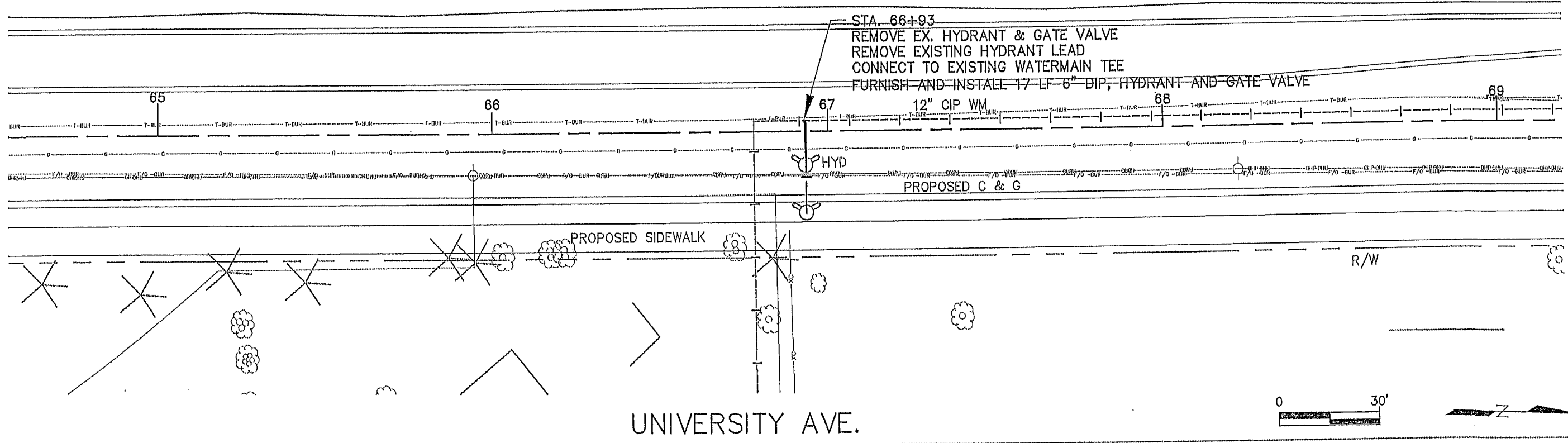
REVISION

PROJECT NO. 10-09  
 DESIGN BY: STH DRAWN BY: GDR  
 CHECKED BY: STH APPROVED BY: STH  
 AS BUILT BY: XXX

S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

UNIVERSITY AVENUE  
 UTILITY PLANS

SHEET NO. 378 OF 381 SHEETS



ENGINEERING DEPARTMENT  
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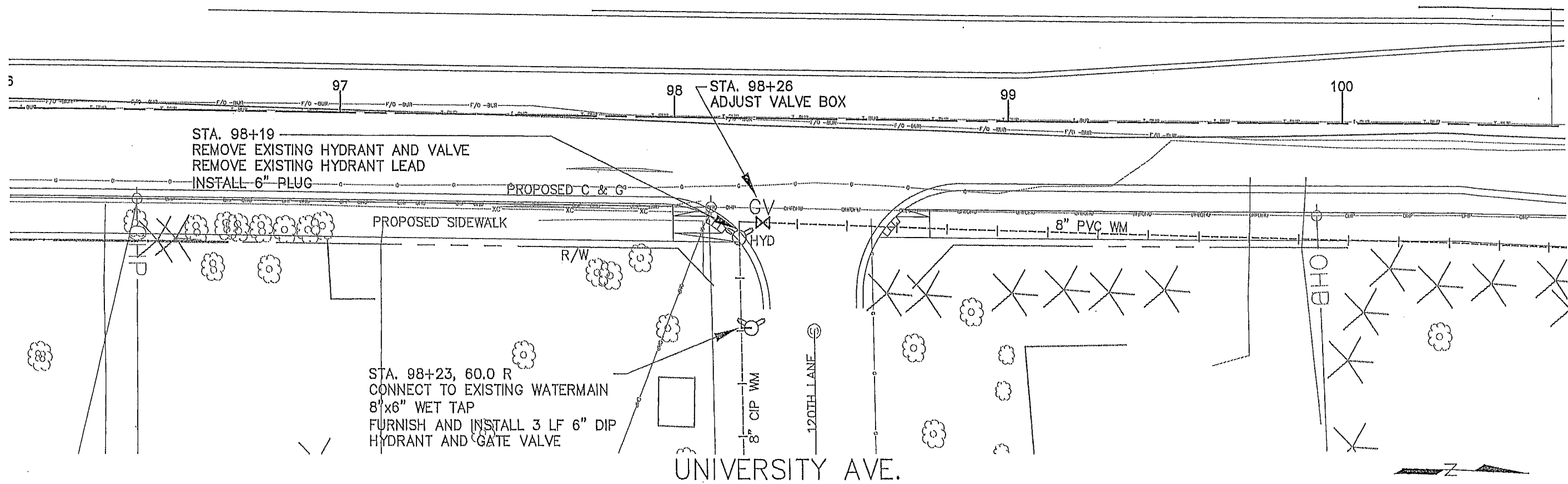
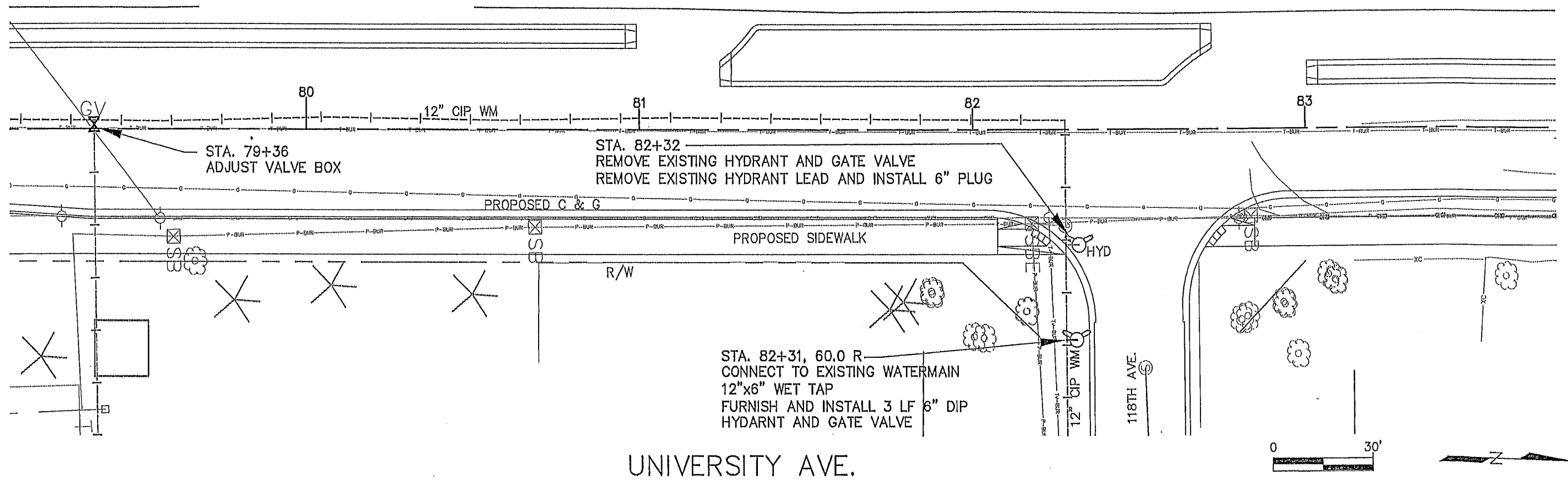
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*[Signature]*  
 Date 01/23/14 Reg. No. 41290

DATE	REVISION

PROJECT NO. 10-09	
DESIGN BY: STH	DRAWN BY: GDR
CHECKED BY: STH	APPROVED BY: STH
AS BUILT BY: XXX	

S.P. 002-651-007  
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 UTILITY PLANS



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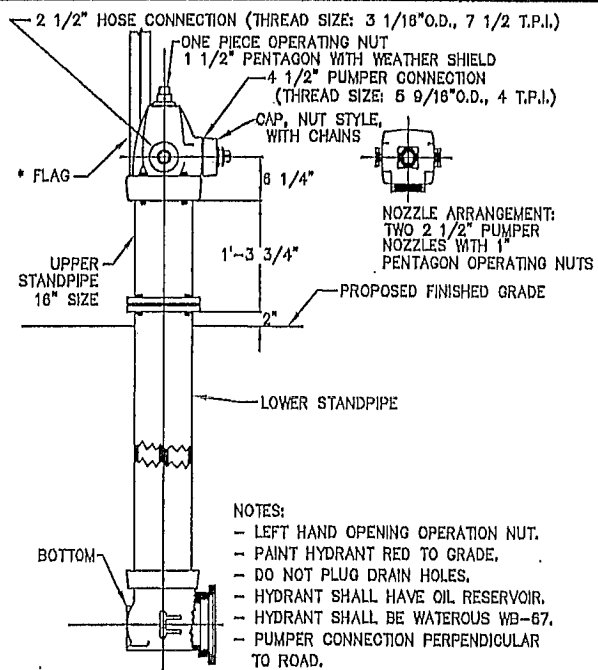
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*[Signature]*  
 Date 01/23/14 Reg. No. 41290

DATE	REVISION

PROJECT NO.	10-09
DESIGN BY:	STH
CHECKED BY:	STH
AS BUILT BY:	XXX
DRAWN BY:	GDR
APPROVED BY:	STH

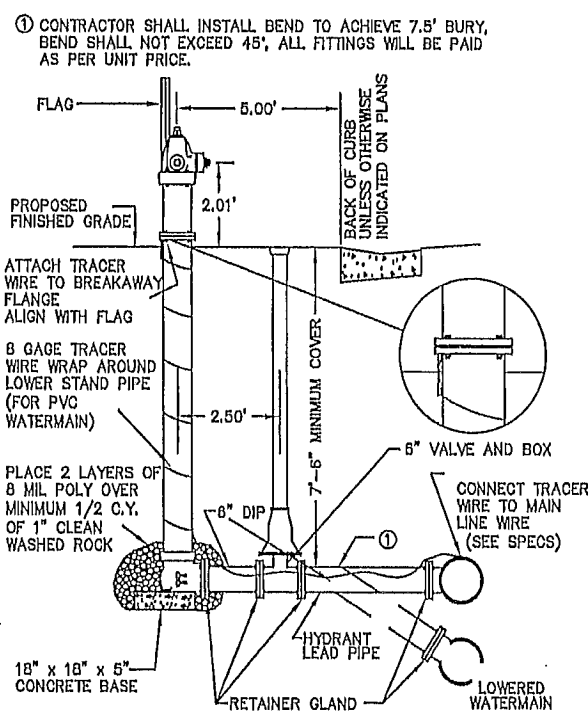
S.P. 002-651-007  
 S.P. 106-020-031  
 S.P. 114-020-046

UNIVERSITY AVENUE  
 UTILITY PLANS



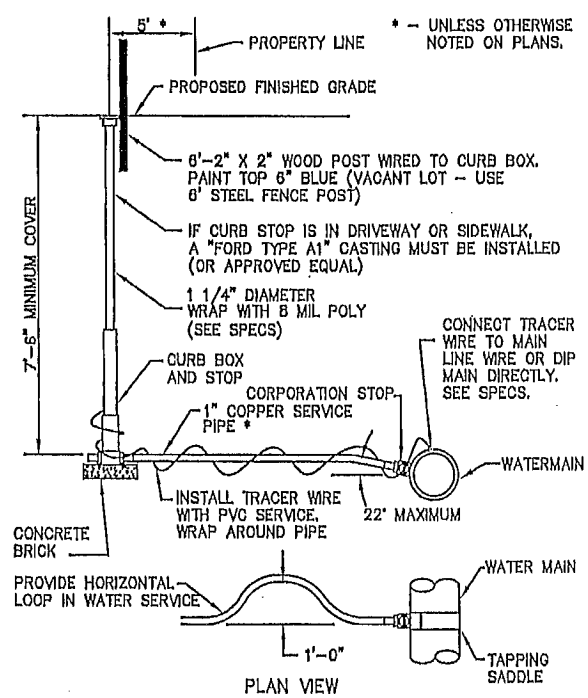
Date: 02/21/07 TYPICAL HYDRANT Plate No. WS-1

STANDARD DETAIL PLATE  
City of Blaine - Engineering Department  
10001 Town Square Drive NE, Blaine, Minnesota 55449 (763)765-6178 Fax(763)765-6180



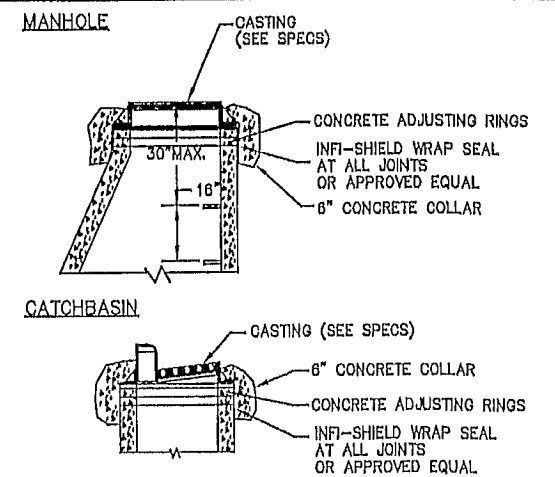
Date: 02/22/07 HYDRANT INSTALLATION Plate No. WS-2

STANDARD DETAIL PLATE  
City of Blaine - Engineering Department  
10001 Town Square Drive NE, Blaine, Minnesota 55449 (763)765-6178 Fax(763)765-6180



Date: 07/23/07 WATER SERVICE CONNECTION Plate No. WS-3

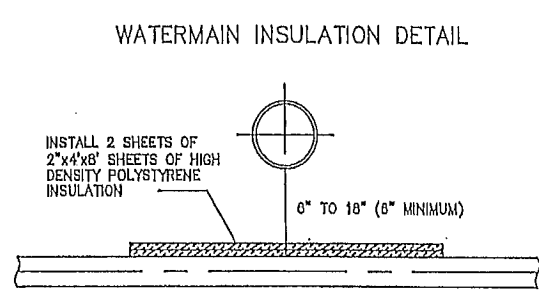
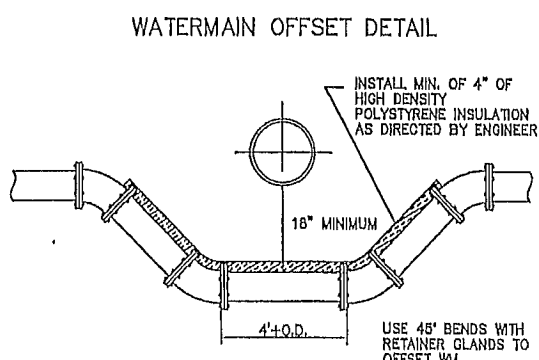
STANDARD DETAIL PLATE  
City of Blaine - Engineering Department  
10001 Town Square Drive NE, Blaine, Minnesota 55449 (763)765-6178 Fax(763)765-6180



NOTES:  
1. USE MINIMUM OF 2-0.2' ADJUSTING RINGS, MAXIMUM OF 6-0.2' ADJUSTING RINGS, ALL SET IN MORTAR.  
2. MANHOLE STEPS SHALL BE PER MNDOT PLATE 4180, TYPE W. STEPS SHALL BE LOCATED ON UPSTREAM WALL FOR PIPE SIZES UP TO AND INCLUDING 15" AND ON SIDE WALL FOR GREATER THAN 15".  
3. LIDS FOR SANITARY SEWER SHALL BE MARKED "SANITARY" AND LIDS FOR STORM SEWERS SHALL BE MARKED "STORM".  
4. NO WOOD SHIMS WILL BE ALLOWED.

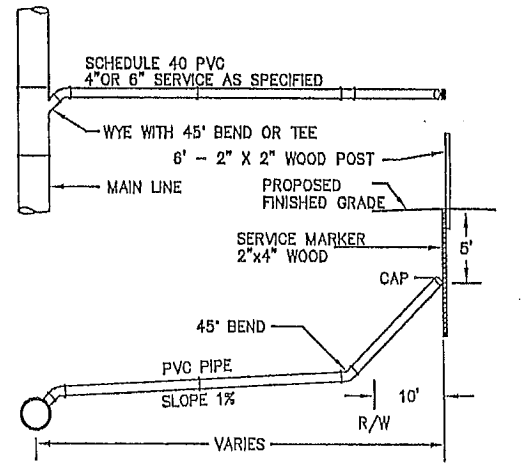
ADJUSTING RINGS & STEPS Plate No. MI-3

STANDARD DETAIL PLATE  
City of Blaine - Engineering Department  
10001 Town Square Drive NE, Blaine, Minnesota 55449 (763)765-6178 Fax(763)765-6180



Date: 03/06/07 WATERMAIN OFFSET & INSULATION DETAIL Plate No. WS-8

STANDARD DETAIL PLATE  
City of Blaine - Engineering Department  
10001 Town Square Drive NE, Blaine, Minnesota 55449 (763)765-6178 Fax(763)765-6180



NOTE: WHEN SANITARY SERVICE IS NOT ACCOMPANIED BY A WATER SERVICE IN THE SAME TRENCH, INSTALL A 6" POST NEXT TO THE 2"x4" MARKER AND PAINT THE TOP 6" GREEN, FOR VACANT LOTS, USE 6" STEEL FENCE POST.

UNLESS OTHERWISE INDICATED ON PLANS

NO BEND MAY BE USED OTHER THAN THOSE SHOWN ON DETAIL

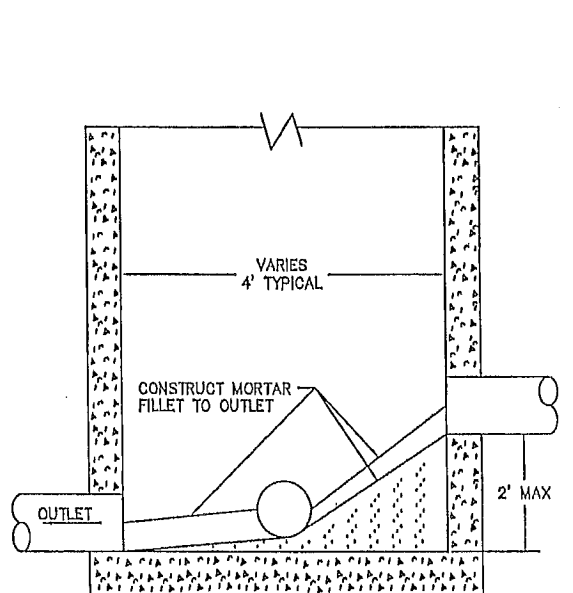
SOLVENT WELD ALL JOINTS

ON EXISTING MAINS, SEE DETAIL SSS-2

IF DISTANCE FROM MAIN TO STRUCTURE IS GREATER THAN 100', A CLEAN OUT MUST BE INSTALLED AT 100' INTERVALS, SEE DETAIL SSS-B.

Date: 02/21/07 SERVICE CONNECTION Plate No. SSS-3

STANDARD DETAIL PLATE  
City of Blaine - Engineering Department  
10001 Town Square Drive NE, Blaine, Minnesota 55449 (763)765-6178 Fax(763)765-6180



Date: 02/21/07 TYPICAL SANITARY MANHOLE INVERT Plate No. SSS-8

STANDARD DETAIL PLATE  
City of Blaine - Engineering Department  
10001 Town Square Drive NE, Blaine, Minnesota 55449 (763)765-6178 Fax(763)765-6180



ENGINEERING DEPARTMENT  
9150 Central Ave., N.E. Blaine, Minnesota 55434  
Phone (612) 784-6700

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly registered professional engineer under the laws of the State of Minnesota.

STEFAN T. HIGGINS  
Date: 01/22/14 Reg. No. 41280

DATE	REVISION

PROJECT NO.	10-09
DESIGN BY:	STH
DRAWN BY:	STH
CHECKED BY:	STH
APPROVED BY:	STH
AS BUILT BY:	

S.P. 002-651-007  
S.P. 106-020-031  
S.P. 114-020-046

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UTILITY DETAILS