MINNESOTA DEPARTMENT OF TRANSPORTATION
ANOKA COUNTY

CONSTRUCTION PLAN FOR MUCKING,GRADING, AGG.BASE, RECLAIM, BITUMINOUS SURFACING, AND SIGNAL SYSTEM

LOCATED ON C.S.A.H. 78 FROM 900' SOUTH OF C.S.A.H. 20 TO 900' NORTH OF C.S.A.H. 20

AND C.S.A.H. 20 FROM 1,200' WEST OF C.S.A.H. 78 TO CRANE ST NW

STATE PROJ. NO. 002-678-020

C.S.A.H. 78					C.S.A.H. 20				
GROSS LENGTH	1856.63	FEET	0.352	MILES	GROSS LENGTH	2,146.44	FEET	0.406	MILES
BRIDGES-LENGTH	0.00	FEET	0.000	MILES	BRIDGES-LENGTH	0.00	FEET	0.000	MILES
EXCEPTIONS-LENGTH	0.00	FEET	0.000	MILES	EXCEPTIONS-LENGTH	0.00	FEET	0.000	MILES
NET LENGTH	1856.63	FEET	0.352	MILES	NET LENGTH	2,146.44	FEET	0.406	MILES

PLAN SYMBOLS

COUNTY LINE
TOWNSHIP OR RANGE LINE
SECTION LINE
QUARTER LINE
SIXTEENTH LINE
RIGHT OF WAY LINE
SLOPE EASEMENT
EXISTING RIGHT OF WAY
PROPERTY LINE
CORPORATE OR CITY LIMITS
RETAINING WALL
RAILROAD
RAILROAD RIGHT OF WAY
RIVER OR CREEK
DRAINAGE DITCH
CULVERT
DROP INLET
GUARD RAIL
BARBED WIRE FENCE
WOVEN WIRE FENCE
CHAIN LINK FENCE
WOOD FENCE
STONE WALL OR FENCE
HEDGE
LOWLAND
TIMBER / ORCHARD / BRUSH / NURSERY — TIMBER
CATTLE GUARD — ROAD
OVERPASS (Highway Over)
UNDERPASS (Highway Under)
BRIDGE
BUILDING (One Story Frame) — 1-S-F
F-FRAME C-CONCRETE
S-STONE T-TILE
B-BRICK ST-STUCCO
RAILROAD CROSSING BELL
RAILROAD CROSSING GATE
MANHOLE — M.H.
CATCH BASIN — C.B.
FIRE HYDRANT
CAST IRON MONUMENT
IRON PIN
GRAVEL PIT — G
SAND PIT — S
BORROW PIT — B
ROCK QUARRY — Q

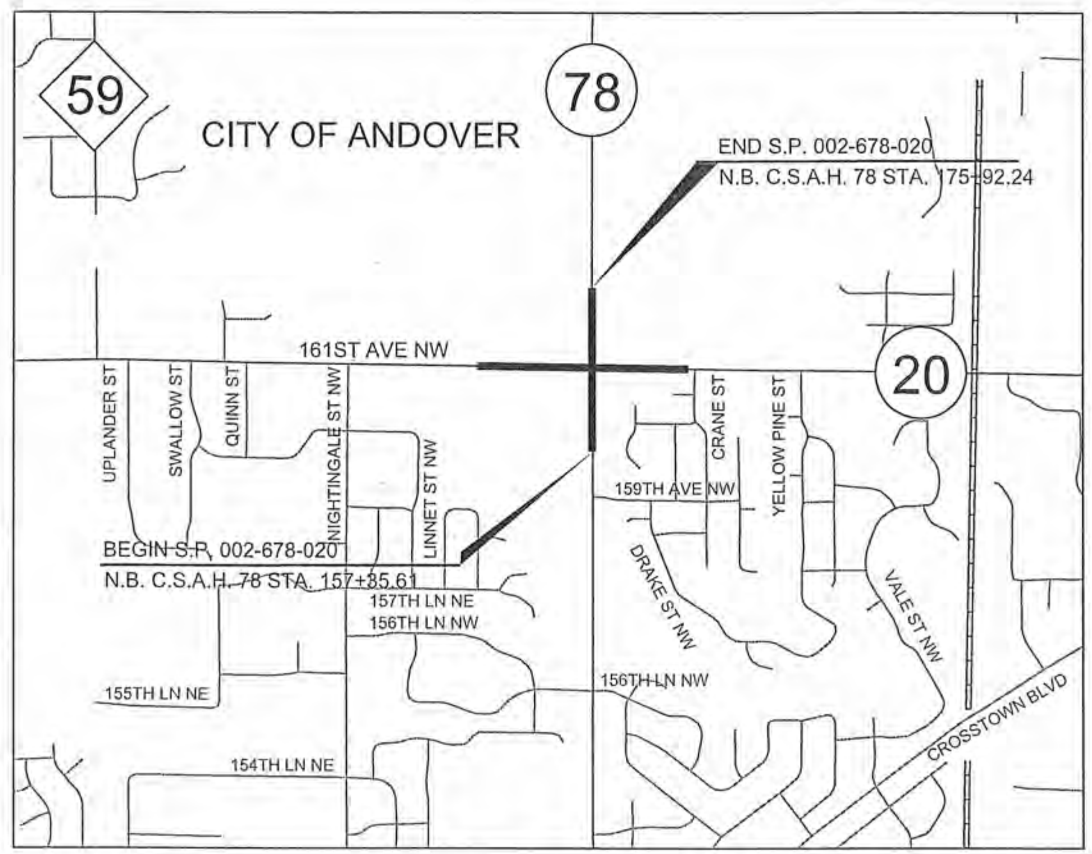
UTILITY SYMBOLS

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 — T
ELECTRIC MANHOLE — E
BURIED TELEPHONE CABLE — T-BUR
BURIED ELECTRIC CABLE — P-BUR
T-AE
SEWER (Sanitary or Storm)
SEWER MANHOLE

SCALES

PLAN 0' 100'
PROFILE HORIZONTAL 0' 100'
VERTICAL 0' 10'
X-SECTIONS HORIZONTAL 0' 10'
VERTICAL 0' 10'
INDEX MAP 0' 2000'

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



PROJECT LOCATION

CITY OF ANDOVER
ANOKA COUNTY
MN/DOT TRANSPORTATION DISTRICT - METRO
SECTIONS 14 AND 15
TOWNSHIP 32 NORTH
RANGE 24 WEST

MINN. PROJ. NO. HSIP 0214 (170)

GOVERNING SPECIFICATIONS

THE 2005 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.
ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITITION OF THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", INCLUDING THE LATEST FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

INDEX

PLAN CONTAINS 111 SHEETS

DESIGN DESIGNATION C.S.A.H. 78

$ESAL_{20}$	2,571,000
R VALUE	60
ADT (2014) =	8,791
Proj. ADT (2031) =	12,340
Proj. HCADT (2031) =	1,062
Soil Factor	NA

10 TON DESIGN

Functional Classification A MINOR ARTERIAL
No. of Traffic Lanes 2 No. of Parking Lanes 0
Existing Shoulder Width 10'
Design Speed 55 MPH
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 ____

DESIGN DESIGNATION C.S.A.H. 20

$ESAL_{20}$	2,417,000
R VALUE	60
ADT (2014) =	7,560
Proj. ADT (2031) =	10,612
Proj. HCADT (2031) =	913
Soil Factor	NA

10 TON DESIGN

Functional Classification West of CSAH 78 A MINOR ARTERIAL
Functional Classification East of CSAH 78 B MINOR ARTERIAL
No. of Traffic Lanes 2 No. of Parking Lanes 0
Existing Shoulder Width 8' - 10'
Design Speed 55 MPH
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 ____

Approved [signature] 4/23/2014
ANOKA COUNTY ENGINEER

Approved David D. Berkowitz, 2014
CITY OF ANDOVER

REVIEWED FOR COMPLIANCE WITH STATE AID AND FEDERAL AID RULES/POLICY [signature] 6/4, 2014
DISTRICT STATE AID ENGINEER

APPROVED FOR STATE AID AND FEDERAL AID FUNDING [signature] 6/4, 2014
STATE AID ENGINEER

NO	DATE	BY	CKD	APPR	REVISION
1	4/3/14	JCF	NJD		HSIP,BEG-END,GOVERNING SPEC.,SHLDR WIDTH,AID,DES.SPEED

NAME: P:\02-678-20\Plan_200267820_TITLE20_J.dgn 04/16/2014 11:16:39 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. KOBILARCSIK
SIGNATURE: [signature]
DATE: 4-17-14 LICENSE NO. 24756

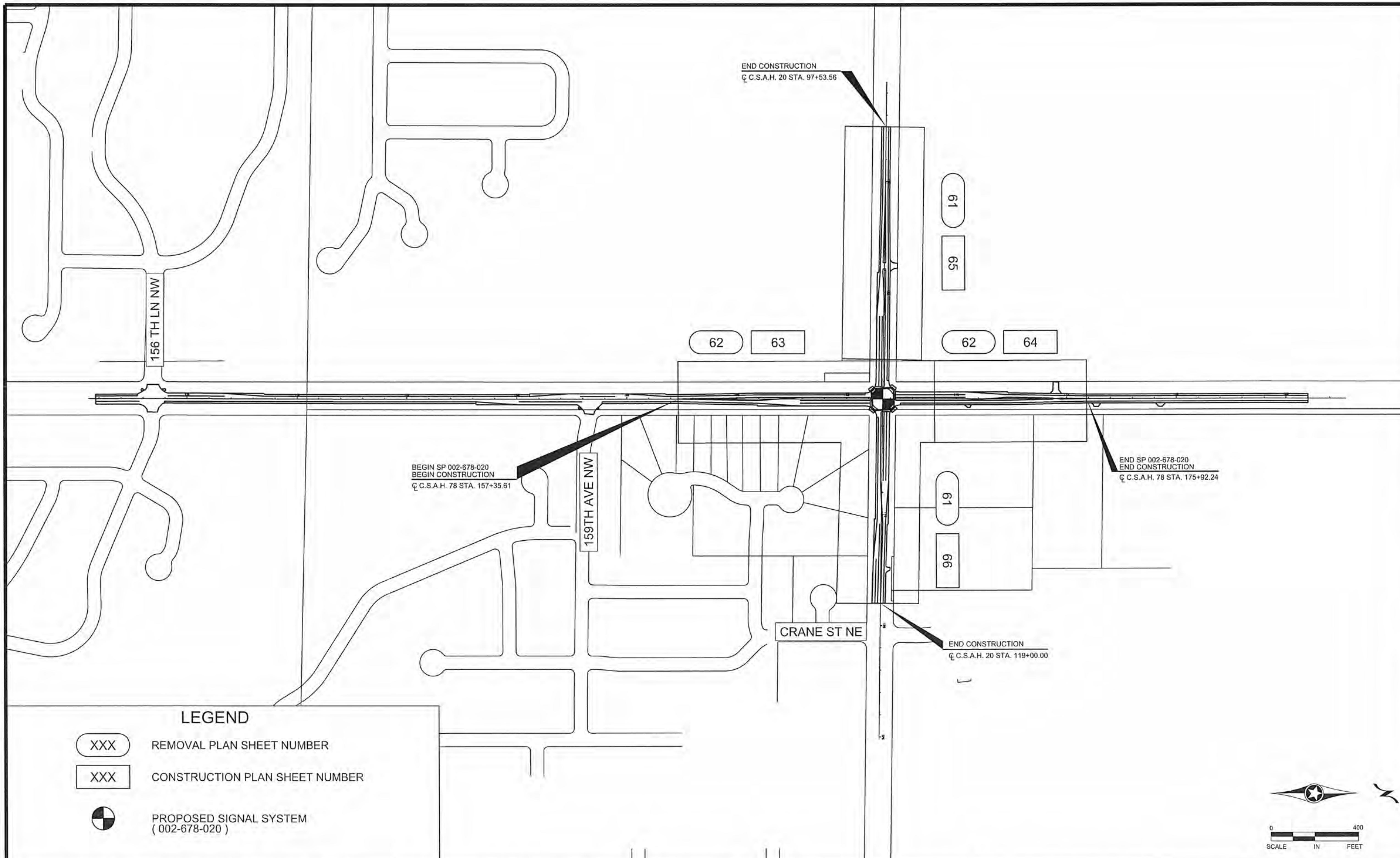
DRAWN BY NJD DATE 12/20/13
DESIGN BY NJD DATE 08/08/13
CHECKED BY GMP DATE 02/20/14

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

TITLE SHEET



LEGEND

XXX — REMOVAL PLAN SHEET NUMBER

XXX — CONSTRUCTION PLAN SHEET NUMBER

PROPOSED SIGNAL SYSTEM
(002-678-020)

NO	DATE	BY	CKD	APPR	REVISION
1	4/3/14	JCF	NJD		BEGIN / END CONSTRUCTION NOTES

NAME: P:\02-678-20\Plan_20\0267820_GL20_J.dgn 06/04/2014 1:34:55 PM

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

PRINT NAME: CURT A. KOBILARCSIK
SIGNATURE: Curt Kobilarcsik
DATE: 6-12-14 LICENSE NO. 24756

DRAWN BY NJD DATE 12/20/13
DESIGN BY NJD DATE 08/08/13
CHECKED BY GMP DATE 02/20/14

ANOKA COUNTY

ANOKA COUNTY
HIGHWAY DEPT.

ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

GENERAL LAYOUT
CSAH 20 & CSAH 78

TAB	ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL PROJECT QUANTITIES ESTIMATED	PARTICIPATING FEDERAL FUNDS: ANOCA COUNTY 002-678-020 ROADWAY QUANTITIES ESTIMATED	PARTICIPATING FEDERAL FUNDS: CITY OF ANDOVER 198-020-033 ROADWAY QUANTITIES ESTIMATED
	2021.501	MOBILIZATION	LUMP SUM	1	0.92	0.08
	2031.501	FIELD OFFICE TYPE D	EACH	1	1	
K	2101.502	CLEARING	TREE	7	7	
K	2101.507	GRUBBING	TREE	7	7	
L	2104.501	REMOVE PIPE CULVERTS	LIN FT	80	80	
N , O	2104.505	REMOVE BITUMINOUS PAVEMENT	SQ YD	128	128	
L	2104.509	REMOVE PIPE APRON	EACH	2	2	
SHEET 5	2104.509	REMOVE SIGN TYPE C	EACH	41	41	
L , N, O	2104.513	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	336	336	
SHEET 5	2104.523	SALVAGE SIGN TYPE D	EACH	1	1	
J	2105.501	COMMON EXCAVATION	CU YD	2358	2358	
J	2105.505	MUCK EXCAVATION	CU YD	16,464	16,464	
J	2105.507	SUBGRADE EXCAVATION (EV)	CU YD	935	935	
J	2105.522	SELECT GRANULAR BORROW (LV)	CU YD	26,517	26,517	
J	2105.607	HAUL & STOCKPILE BITUMINOUS MATERIAL (LV)	CU YD	2,281	2,281	
O	2112.603	SHOULDER PREPARATION	LIN FT	1,869	1,869	
	2130.501	WATER	MGAL	54	54	
O	2211.502	AGGREGATE BASE (LV) CLASS 5	CU YD	128	128	
I	2221.607	STOCKPILE AGGREGATE (CV)	CU YD	1,670	1,670	
I	2221.607	AGGREGATE SHOULDERING (CV) FROM STOCKPILE	CU YD	277	277	
L	2232.501	MILL BITUMINOUS SURFACE (2.0")	SQ YD	39	39	
D	2331.604	BITUMINOUS PAVEMENT RECLAMATION	SQ YD	15,962	15,962	
N,M	2357.502	BITUMINOUS MATERIAL FOR TACK COAT	GALLON	2,076	2,076	
N,M	2360.501	TYPE SP 12.5 WEARING COURSE MIX (3,E)	TON	5,286	5,286	
N	2360.501	TYPE SP 12.5 WEARING COURSE MIX (2,B)	TON	9	9	
M,O	2360.502	TYPE SP 12.5 NON WEAR COURSE MIX (3,B)	TON	2,350	2,350	
P	2501.511	15" RC PIPE CULVERT DES 3006 CL V	LIN FT	80	80	
P	2501.567	15" RC SAFETY APRON & GRATE DES 3128	EACH	2	2	
P	2531.501	CONCRETE CURB AND GUTTER DESIGN B424	LIN FT	118	118	
P	2531.618	TRUNCATED DOMES	SQ FT	96	96	
P	2531.618	PEDESTRIAN CURB RAMP	SQ FT	1,377	1,377	
M	2535.501	BITUMINOUS CURB (MODIFIED)	LIN FT	315	315	
N	2540.602	MAIL BOX SUPPORT	EACH	1	1	
[3]	2545.523	2" NON-METALLIC CONDUIT	LIN FT	2,750	1,375	1,375
	2563.601	TRAFFIC CONTROL SUPERVISOR	LUMP SUM	1	0.92	0.08
[5]	2563.601	TRAFFIC CONTROL	LUMP SUM	1	0.92	0.08
SHEET 26	2563.601	DETOUR SIGNING	LUMP SUM	1	0.92	0.08
SHEET 71	2564.531	SIGN PANELS TYPE C	SQ FT	257.00	257.00	
SHEET 71	2564.537	INSTALL SIGN TYPE C	EACH	56	56	
SHEET 5	2564.537	INSTALL SIGN TYPE D	EACH	1	1	
[3]	2565.511	TRAFFIC CONTROL SIGNAL SYSTEM	SIG SYS	1	0.50	0.50
[3]	2565.521	2" RIGID STEEL CONDUIT	LIN FT	1,000	500	500
[3]	2565.601	EMERGENCY VEHICLE PREEMPTION SYSTEM	LUMP SUM	1		1
[3]	2565.602	PVC HANDHOLE	EACH	6	3	3
[3]	2565.602	SIGNAL SERVICE CABINET	EACH	1	0.50	0.50
[3]	2565.603	1/C#14 INTERCONNECT	LIN FT	4,000	2,000	2,000
Q	2573.502	SILT FENCE, TYPE MACHINE SLICED	LIN FT	3,148	3,148	
Q	2573.602	CULVERT PROTECTION	EACH	7	7	
Q	2575.501	SEEDING	ACRE	2.37	2.37	
Q	2575.502	SEED MIXTURE 310	POUND	86	86	
Q	2575.502	SEED MIXTURE 250	POUND	166	166	
Q	2575.511	MULCH MATERIAL TYPE 1	TON	3.6	3.6	
Q	2575.519	DISK ANCHORING	ACRE	1.8	1.8	
Q	2575.523	EROSION CONTROL BLANKETS CATEGORY 3	SQ YD	6,067	6,067	
Q	2575.532	FERTILIZER TYPE 3 (20-10-20)	POUND	462	462	
Q	2575.532	FERTILIZER TYPE 3 (23-0-30)	POUND	210	210	
Q	2575.571	RAPID STABILIZATION METHOD 3	MGAL	14	14	
[4]	2582.602	PAVEMENT MESSAGE (LT ARROW) PREFORMED THERMOPLASTIC	EACH	8	8	
[4]	2582.602	PAVEMENT MESSAGE (RT ARROW) PREFORMED THERMOPLASTIC	EACH	8	8	
[4]	2582.618	3 X 6 ZEBRA CROSSWALK-PREFORMED THERMOPLASTIC	SQ FT	756	756	
[4]	2582.502	4" SOLID LINE WHITE-EPOXY	LIN FT	10,625	10,625	
[4]	2582.502	4" SOLID LINE YELLOW - EPOXY	LIN FT	500	500	
[4]	2582.502	4" BROKEN LINE YELLOW-EPOXY	LIN FT	70	70	
[4]	2582.502	4" DOUBLE SOLID LINE YELLOW - EPOXY	LIN FT	5,495	5,495	
[4]	2582.603	24" SOLID LINE YELLOW - PREF THERMOPLASTIC	LIN FT	635	635	
[4]	2582.603	24" SOLID LINE WHITE - PREFORMED THERMOPLASTIC	LIN FT	163	163	

GENERAL NOTES:

[1] SEE REMOVAL PLAN SHEET PAGES 61 AND 62
[2] SEE CONSTRUCTION STAGING PLAN SHEETS 27 - 42
[3] SEE TRAFFIC SIGNAL PLAN SHEETS 76 - 87
[4] SEE SIGNING AND STRIPING TAB SHEETS 68-75 (STREET SIGNS PAID FOR AS ITEM 2564.537)
[5] TEMPORARY STAGING ITEMS. SEE STAGING SIGN QUANTITIES SHEET 58 OF THIS PLAN. ALL ITEMS ON THIS SHEET INCLUDING PAINT ITEMS AND CMS'S AS WELL AS THE COST TO SETUP EACH STAGE INCIDENTAL TO ITEM 2563.601 TRAFFIC CONTROL. QUANTITIES ARE FOR SAP 002-678-020 INTERSECTION PROJECT ONLY

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
3022C	PRECAST CONCRETE SAFETY APRON
3145G	CONCRETE PIPE TIES
7038A	DETECTABLE WARNING SURFACE , TRUNCATED DOMES
7100H	CONCRETE CURB AND GUTTER (DESIGN B and DESIGN V)
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
9102E	TURF ESTABLISHMENT AREAS (AT PIPE CULVERT ENDS)
9350A	MAILBOX SUPPORT (SWING-AWAY TYPE)

BASIS OF QUANTITIES

SPEC NO	DESCRIPTION	RATE
2130.501	WATER	70 MGAL/MILE
2357.502	BITUMINOUS MATERIAL FOR TACK COAT	0.05 GAL / SQ YD / 1-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 310	82 LBS / ACRE
2575.502	SEED MIXTURE 250	70 LBS / ACRE
2575.511	MULCH MATERIAL TYPE 1	2 TONS / ACRE
2575.532	FERTILIZER TYPE 3 (20-10-20)	350 LBS / ACRE
2575.532	FERTILIZER TYPE 3 (23-0-30)	200 LBS / ACRE
2575.571	RAPID STABILIZATION TYPE 3	6 MGAL / ACRE

INDEX OF TABULATION CHARTS

NO	DATE	BY	CKD	APPR	REVISION
1	4/3/14	JCF	NJD		ITEM DESCRIPTIONS, ADD STD PLATE 7038A

NAME: P:\02-678-20\Plan_20\0267820_TAB20_J.dgn 06/04/2014 1:38:30 PM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINT NAME: CURT A. KOBILARCSIK
SIGNATURE: CuKobKl
DATE: 6-12-14 LICENSE NO. 24756

DRAWN BY NJD DATE 12/20/13
DESIGN BY NJD DATE 08/08/13
CHECKED BY GMP DATE 02/20/14

ANOKA COUNTY
ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

SEQ, STANDARD PLATES, BASIS OF QUANTITIES, & INDEX OF TABULATIONS

CLEARING & GRUBBING — K

ALIGNMENT	STATION	OFFSET LEFT	OFFSET RIGHT	CLEARING (TREE)	GRUBBING (TREE)	NOTES
CSAH 20	117+30		50	1	1	[1]
CSAH 20	117+56		53	1	1	[1]
CSAH 20	117+64		50	1	1	[1]
CSAH 20	118+61		49	1	1	[1]
CSAH 20	118+73		50	1	1	[1]
CSAH 20	118+85		50	1	1	[1]
CSAH 20	118+93		49	1	1	[1]
		PROJECT TOTAL		7	7	

CLEARING & GRUBBING GENERAL NOTES:
[1] TREES WITHIN THE CONSTRUCTION LIMITS WILL BE DESIGNATED FOR REMOVAL BY THE ENGINEER.

BITUMINOUS SUMMARY — M

ALIGNMENT	STATION	TO	STATION	2360 TYPE SP 12.5 WEAR (3,E) (TON)	2360 TYPE SP 12.5 NON-WEAR (3,B) (TON)	BITUMINOUS CURB (LIN FT)	BIT. TACK COAT (GALLON)	NOTES
CSAH 78	157+35.37	-	165+00.00	664	332		289	[1]
CSAH 78	157+35.37	-	165+00.00	156			34	[2]
CSAH 78	157+35.37	-	160+92.97	73			16	[2]
CSAH 78	160+92.97	-	165+00.00	135	68		59	[3]
CSAH 78	165+00.00	-	175+92.24	956	478		416	[1]
CSAH 78	165+00.00	-	165+83.64	17			4	[2]
CSAH 78	165+00.00	-	172+34.70	277	138		120	[3]
CSAH 78	167+44.21	-	175+92.24	173			38	[2]
CSAH 78	172+34.70	-	175+92.24	73			16	[2]
CSAH 78	170+36.90	-	170+66.80	3			0	[5]
CSAH 78	174+25.23	-	174+78.98	30			9	[4]
CSAH 20	97+53.56	-	108+00.00	831	415		361	[1]
CSAH 20	97+53.56	-	108+00.00	214			47	[2]
CSAH 20	97+53.56	-	104+09.98	125			27	[2]
CSAH 20	104+09.98	-	108+00.00	130	65		56	[3]
CSAH 20	103+51.56	-	104+04.08	20		40	6	[4][6]
CSAH 20	108+00.00	-	111+65.32	328	164		143	[1]
CSAH 20	116+51.37	-	119+00.00	924	462		402	[3]
CSAH 20	108+00.00	-	108+95.56	20			4	[2]
CSAH 20	110+60.97	-	113+47.50	59			13	[2]
CSAH 20	115+42.50	-	119+00.00	73			16	[2]
CSAH 20	117+34.30	-	117+63.20	5				[5]
CSAH 20	117+63.20	-	119+00.00			275		[6]
	PROJECT TOTAL			5,286	2,122	315	2,076	

BITUMINOUS SUMMARY NOTES:
[1] QUANTITY FOR MAINLINE CONSTRUCTION
[2] QUANTITY FOR SHOULDER CONSTRUCTION
[3] QUANTITY FOR RECONSTRUCTED AREA
[4] QUANTITY FOR SIDE STEET CONSTRUCTION
[5] QUANTITY FOR DRIVEWAY CONSTRUCTION
[6] QUANTITY FOR BITUMINOUS CURB W.B. CSAH 20

DRIVEWAYS — N

CENTERLINE STATION	LOCATION ALIGNMENT	OFFSET FROM	OFFSET TO	DESCRIPTION	MAIL BOX SUPPORT (EACH)	SAWCUT BITUMINOUS PAVEMENT (LIN FT)	REMOVE BITUMINOUS PAVEMENT (SQ YD)	TYPE SP 12.5 WEAR COURSE (2,B) (TON)	NOTES
158+26.42	CSAH 78	26	40	FIELD ENT.					[3]
170+55.70	CSAH 78	25	39	16157 HANSON	1	14	30	4	[1][2]
172+43.16	CSAH 78	-25	-39	FIELD ENT.					[3]
117+43.93	CSAH 20	-23	-42	1487 161ST AVE		14	41	5	[1][2]
				PROJECT TOTAL	1	28	71	9	

DRIVEWAY NOTES
[1] 2.0" BITUMINOUS FOR DRIVEWAYS 2360 TYPE SP 12.5 WEAR (2,B) SAWCUT EDGE TO BE TACK COATED.
[2] BIT. DRIVEWAYS TO BE SAWCUT / BIT. REMOVED, RECLAIMED MATERIAL ADDED AS NEEDED TO ADJUST TO NEW ROAD SURFACE PRIOR TO PAVING, AS DIRECTED BY ENGINEER.
[3] AGGREGATE DRIVEWAY, 6 TONS RECLAIMED MATERIAL TO BE ADDED TO ADJUST TO NEW ROAD SURFACE. AS DIRECTED BY ENGINEER.

TEMPORARY WIDENING — O

ALIGNMENT	STATION	TO	STATION	WIDTH [1] (LIN FT)	SHOULDER PREP (LIN FT)	TYPE SP 12.5 NON WEAR (3,B) (TON)	AGGREGATE BASE CL-5 (LV) (CU YD)	SAWCUT BITUMINOUS PAVEMENT (LIN FT)	REMOVE BITUMINOUS PAVEMENT (SQ YD)	NOTES
CSAH 78	157+35	-	160+93	1 - 6	358	27	16			[2] , [3]
CSAH 78	160+93	-	166+10	6	712	80	47			[2] , [3]
CSAH 78	167+13	-	172+35	6	522	84	49			[2] , [3]
CSAH 78	172+35	-	172+92	6 - 1	57	30	17			[2] , [3]
CSAH 78	157+35	-	158+45	4 - 1	110	2		110	21	[4]
CSAH 78	174+82	-	175+92	2 - 4	110	4		110	36	[4]
			PROJECT TOTAL		1,869	228	128	220	57	

TEMPORARY WIDENING NOTES
[1] APPROXIMATE WIDTH - ACTUAL WIDTH VARIES. SEE STAGING PLANS FOR DETAILS ON TEMPORARY WIDENING WIDTHS
[2] STAGE 1B NORTHBOUND TEMPORARY WIDENING
[3] RECLAMATION OF TEMPORARY BITUMINOUS DURING STAGE 3 INCORPORATED INTO PROJECT RECLAIM QUANTITY.
[4] STAGE 2 SOUTHBOUND TEMPORARY WIDENING BETWEEN PROPOSED EDGE OF BIT SHOULDER AND AGGREGATE SHOULDER PI. - THE 2.0" TEMPORARY BITUMINOUS TO BE SAWCUT AND REMOVED PRIOR TO STAGE 4 (FINAL PAVING OPERATIONS)

PED. CURB RAMPS, CONCRETE CURB, RC PIPE CULVERT AND APRONS — P

QUAD.	STATION	ALIGNMENT	OFFSET	15" RC PIPE CULVERT DES 3006 CL V (LIN FT)	15" RC SAFTEY APRON &GRATE DES 3128 (EACH)	PEDESTRIAN CURB RAMP 6" CONC. (SQ FT)	TRUNCATED DOMES (SQ FT)	B424 CONCRETE CURB & GUTTER (LIN FT)	NOTES
	167+57	CSAH 78	49' LT - 45' RT	80	2				[1][5]
S.W.	166+12	CSAH 78	LEFT			324	24	28	[2][3][4][6]
S.E.	166+12	CSAH 78	RIGHT			334	24	31	[2][3][4][6]
N.W.	167+16	CSAH 78	LEFT			357	24	30	[2][3][4][6]
N.E.	167+16	CSAH 78	RIGHT			362	24	30	[2][3][4][6]
			PROJECT TOTAL	80	2	1,377	96	118	

NOTES:
[1] EXISTING CROSS PIPE TO BE REMOVED TO ALLOW FOR NEW SIGNAL BASE. NEW CROSS PIPE TO BE INSTALLED 50' NORTH OF EXISTING LOCATION WITH THE SAME INVERT ELEVATIONS. (894.40 WEST SIDE , 894.20 EAST SIDE) 80' PIPE + 2 - 7' APRONS = TOTAL LENGTH APRON TO APRON 94'.
[2] SEE " DETAILS " AND " PEDESTRIAN RAMP LAYOUT " FOR DESIGN REQUIREMENTS.
[3] RECLAIMED MATERIAL TO BE ADDED AT THE DECRETION OF THE ENGINEER TO MATCH NEW ROAD SURFACE.
[4] CONCRETE CURB TO BE INSTALLED IN SIGNALIZED INTERSECTION RAD. FOR CONSTRUCTION OF NEW PEDESTRIAN CURB RAMPS
[5] ALL JOINTS ON CL PIPE MUST BE TIED. PAYMENT SHALL BE INCIDENTAL TO ITEM 2501.511 , RC PIPE CULVERTS.
[6] PEDESTRIAN CURB RAMP MUST BE 6" CONCRETE AND CONSTRUCTED PRIOR TO PAVING.

1 OF 4

SIGN REMOVAL TAB

STATION	DIRECTION	REMOVE SIGN TYPE C	SALVAGE SIGN TYPE D	INSTALL SIGN TYPE D	SIGN NUMBER	SIGN LEGEND
		EACH	EACH	EACH		
CSAH 78 (Hanson Blvd)						
156+33	Lt	1			W3-1A	Stop Ahead
156+33	Rt	1			W3-1A	Stop Ahead
159+98	Rt	1			M2-1A	Jct
					M1-6A	Rt 20
161+97	Lt		1	1	IX-1	Adopt
162+98	Lt	1			R2-1	Speed Limit 55
163+42	Rt	1			R3-X1	Right Turn Lane
164+62	Lt	1			M3-3A	SOUTH
					M1-6A	Rt 78
164+62	Lt	1			M4-5A	TO
					M3-4A	WEST
					M1-6A	Rt 18
					M6-3A	Thru Arrow
165+88	Rt	1			R1-1	Stop Sign
					R1-4	ALL-WAY
165+88	Rt	1			M1-6A	Rt 20
					M6-4A	two direction
165+88	Rt	1			M4-5A	TO
					M3-2A	EAST
					M1-6A	Rt 18
					M6-1AR	Right Arrow
167+16	Lt	1			R1-1	Stop Sign
					R1-4	ALL-WAY
					delineator	delineator
167+16	Lt	1			M1-6A	Rt 20
					M6-4A	two direction
167+27	Rt	1			M3-1A	NORTH
					M1-6A	Rt 78
					R1-1	Stop Sign
					R1-4	ALL-WAY
					delineator	delineator
169+98	Lt	1			R3-X1	Right Turn Lane
170+85	Rt	1			R2-1	Speed Limit 55
173+17	Lt	1			M2-1A	Jct
					M1-6A	Rt 20
177+40	Lt	1			W3-1A	Stop Ahead
177+40	Rt	1			W3-1A	Stop Ahead
SUBTOTAL (A)		18	1	1		

SIGN REMOVAL TAB

STATION	DIRECTION	REMOVE SIGN TYPE C	SALVAGE SIGN TYPE D	INSTALL SIGN TYPE D	SIGN NUMBER	SIGN LEGEND
		EACH	EACH	EACH		
CSAH 20 (161st Ave)						
99+82	Lt	1			W3-1A	Stop Ahead
99+82	Rt	1			W3-1A	Stop Ahead
102+47	Rt	1			M2-1A	Jct
					M1-6A	Rt 78
103+48	Lt	1			R1-1	Stop Sign
					delineator	delineator
106+39	Rt	1			R3-X1	Right Turn Lane
106+93	Lt	1			R2-1	Speed Limit 55
109+09	Rt	1			R1-1	Stop Sign
					R1-4	ALL-WAY
					delineator	delineator
109+09	Rt	1			M1-6A	Rt 78
					M6-4A	two direction
109+09	Lt	1			R1-1	Stop Sign
					R1-4	ALL-WAY
					delineator	delineator
					M3-4A	WEST
					M1-6A	Rt 20
110+48	Lt	1			R1-1	Stop Sign
					R1-4	ALL-WAY
					delineator	delineator
110+48	Lt	1			M1-6A	Rt 78
					M6-4A	two direction
110+48	Lt	1			M4-5A	TO
					M3-4A	WEST
					M1-6A	Rt 18
					M6-1AL	Left Arrow
110+54	Rt	1			R1-1	Stop Sign
					R1-4	ALL-WAY
					delineator	delineator
112+13	Rt	1			M3-2A	EAST
					M1-6A	Rt 20
112+13	Rt	1			M4-5A	TO
					M3-2A	EAST
					M1-6A	Rt 18
					M6-3A	Thru Arrow
113+36	Rt	1			R2-1	Speed Limit 55
113+77	Lt	1			R3-X1	Right Turn Lane
117+20	Rt	1			R3-30AD	Lane Designation
117+20	Lt	1			M2-1A	Jct
					M1-6A	Rt 78
117+90	Lt	1			X4-5	Snow Plow Marker (Down)
119+17	Rt	1			W3-1A	Stop Ahead
119+43	Lt	1			W3-1A	Stop Ahead
119+88	Lt	1			X4-5	Snow Plow Marker (Up)
SUBTOTAL (B)		23	0	0		
PROJECT TOTAL (A+B)		41	1	1		

2 OF 4

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Plan_20\0267820_TAB20_J.dgn 04/16/2014 2:21:40 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: 4-17-14 LICENSE NO. 24756

DRAWN BY NJD DATE 12/20/13

DESIGN BY NJD DATE 08/08/13

CHECKED BY GMP DATE 02/20/14

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.P. 002-678-020

CITY OF ANDOVER S.A.P. 198-020-033

TABULATIONS

TURF ESTABLISHMENT AND EROSION CONTROL — Q

					TEMPORARY EROSION CONTROL			PERMANENT EROSION CONTROL								
ALI	LOCATION			LT / RT	RAPID STABILIZATION METHOD 3	SILT FENCE TYPE MACHINE SLICED	CULVERT PROTECTION	SEEDING	SEED MIXTURE 310	SEED MIXTURE 250	MULCH MATERIAL TYPE 1	DISC ANCHORING	EROSION CONTROL BLANKETS CAT. 3	FERTILIZER TYPE 3 20-10-20	FERTILIZER TYPE 3 23-0-30	NOTES
	STATION	TO	STATION		(MGAL)	(LIN FT)	(EACH)	(ACRE)	(POUND)	(POUND)	(TON)	(ACRE)	(SQ YD)	(POUND)	(POUND)	
78N	160+64	--	166+15	RT		575										[2]
78N	167+04	--	172+29	LT		545										[2]
20E	98+00	--	109+33	RT		1159										[2]
20E	110+42	--	119+00	RT		869										[2]
20E	104+20			LT			1									[3]
20E	117+05			RT			1									[3]
78N	157+86			LT			1									[3]
78N	167+03			LT			1									[3]
78N	170+81			RT			1									[3]
78N	172+64			LT			1									[3]
78N	174+89			LT			1									[3]
20E	98+00	--	101+62	LT	0.9			0.15	12	11	0.30	0.15			30.0	[1]
20E	98+00	--	106+37	RT	2.3			0.39	32	27	0.78	0.39			78.0	[1]
20E	111+50	--	117+37	LT	1.6			0.27	22	19	0.54	0.27			54.0	[1]
20E	111+87	--	117+30	RT	1.4			0.24	20	17	0.48	0.24			48.0	[1]
20E	101+62	--	103+66	LT	0.5			0.08		6	0.16	0.08		28.0		[1]
20E	103+90	--	10+88	LT	1.2			0.20		14	0.40	0.20		70.0		[1]
20E	106+37	--	109+48	RT	0.5			0.09		6				31.5		[1]
20E	117+30	--	119+00	RT	0.4			0.07		5				24.5		[1]
20E	117+51	--	119+00	LT	0.1			0.01		1	0.02	0.01		3.5		[1]
78N	157+35		158+06	RT	0.1			0.01		1	0.02	0.01		3.5		[1]
78N	157+35		165+72	LT	1.2			0.20		14	0.40	0.20		70.0		[1]
78N	158+56	--	160+62	RT				0.02		1	0.04	0.02		7.0		[1]
78N	158+56	--	166+34	RT	1.4			0.24		17				84.0		[1]
78N	166+94	--	172+64	LT	1.0			0.17		12				59.5		[1]
78N	166+97	--	170+49	RT	0.8			0.13		9	0.26	0.13		45.5		[1]
78N	170+63		175+92	RT	0.5			0.08		6	0.16	0.08		28.0		[1]
78N	174+65		175+92	LT	0.1			0.02		1	0.04	0.02		7.0		[1]
78N/20E	160+63	--	119+00	RT									2,609			
78N	166+94	--	172+64	LT									823			
20E	103+76	--	109+51	RT									984			
20E	110+05	--	117+37	LT									1,651			
PROJECT TOTAL					**14.0**	**3148**	**7**	**2.37**	**86**	**166**	**3.60**	**1.80**	**6,067**	**462.0**	**210.0**	

TURF ESTABLISHMENT AND EROSION CONTROL NOTES:
[1] ALL SEEDED AREAS NOT COVERD IN BLANKET SHALL BE MULCHED AND DISK ANCHORED. IN AREAS WHERE THE SLOPE IS GREATER THEN CAN BE DISC ANCHORED RAPID RAPID STABILIZATION METHOD 3 SHALL BE USED AS DIRECTED BY THE ENGINEER.
[2] SILT FENCE SHALL FOLLOW A SINGLE CONTOUR WHERE POSSIBLE AND CLEANED OUT WHEN SEDIMENT REACHES 1/3 HT. OF FENCE.
[3] CULVERT PROTECTION TO BE INSTALLED AT HIGH INVERT OF PIPE.

REMOVALS, SAWING, MILLING AND RECLAIMING — L

ALI	STATION TO STATION	REMOVE PIPE CULVERTS	REMOVE PIPE APRONS	SAWING BITUMINOUS PAVEMENT	MILL BITUMINOUS SURFACE (2")	BITUMINOUS PAVEMENT RECLAMATION	NOTES
		(LIN FT)	(EACH)	(LIN FT)	(SQ YD)	(SQ YD)	
CSAH 78	157+35.37 - 165+00.00					4,072	
CSAH 78	165+00.00 - 175+92.24					1,026	
CSAH 78	167+07.00	80	2				[1]
CSAH 20	97+49.56			41	18		[2]
CSAH 20	97+49.56 - 108+00.00					8,082	
CSAH 20	108+00.00 - 111+65.32					1,571	
CSAH 20	116+51.37 - 119+00.00					1,211	
CSAH 20	119+00.00			47	21		[2]
	PROJECT TOTAL	**80**	**2**	**88**	**39**	**15,962**	

REMOVALS NOTES:
[1] EXISTING CROSS PIPE TO BE REMOVED TO ALLOW FOR NEW SIGNAL BASE. NEW CROSS PIPE TO BE INSTALLED 50' NORTH OF EXISTING LOCATION WITH THE SAME INVERT ELEVATIONS.
[2] SAWCUT AND 4' MILL JOINT REQUIRED AT BEGIN AND END OF PROJECT.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Plan_20\0267820_TAB20_J.dgn 04/16/2014 2:21:45 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: 4-17-14 LICENSE NO. 24756

DRAWN BY NJD DATE 12/20/13
DESIGN BY NJD DATE 08/08/13
CHECKED BY GMP DATE 02/20/14

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

TABULATIONS

UTILITY OWNERS — R

CITY OF ANDOVER CONTACT DAVE BERKOWITZ 1685 CROSSTOWN BLVD NW ANDOVER MN 55304 TEL. 763-737-5133	CONNEXUS ENERGY CONTACT MAT RAUSCHENDORFER 14601 RAMSEY BLVD NW RAMSEY, MN 55303 TEL. 612-321-5421
GREAT RIVER ENERGY CONTACT MICHELLE MACMILLAN 12300 ELM CREEK BLVD MAPLE GROVE, MN 55369 TEL. 763-445-5984	CENTERPOINT CONTACT STEVE GUHANICK 700 WEST LINDEN AVENUE P.O. BOX 1165 MINNEAPOLIS, MN 55440-1165 TEL 612-321-5421
CENTURY LINK CONTACT SCOTT KUNZMAN 425 MONROE ST ANOKA, MN 55303 TEL. 763-712-5019	COMCAST CONTACT DOUG ZAHN 3050 ECHO LAKE RD MAHTOMEDI, MN 55115 TEL. 763-712-5019
XCEL ENERGY CONTACT TOM KELLER 5363 260TH ST. N. WYOMING, MN 55303 TEL. 763-323-2762	ZAYO FIBER SOLUTIONS CONTACT MICHAEL DAHLE 763-545-9998

COMCAST - TV — S

BEGIN STA.	END STA.	OFFSET FROM CL	REMARKS	
CSAH 78				
157+35	169+63	40' RT TO 30' RT	UNDER GROUND	GUARD & PROTECT
169+63	170+48	30' RT TO 88' RT	UNDER GROUND	GUARD & PROTECT
CSAH 20				
97+54	119+00	40' LT	OVER HEAD	RELOCATE

CONNEXUS UNDERGROUND - POWER — T

CSAH 78

BEGIN STA.	END STA.	OFFSET FROM CL	REMARKS	
157+35	168+29	52' RT TO 52' RT	SINGLE	GUARD & PROTECT
167+06	167+86	170' RT	SINGLE	GUARD & PROTECT
167+86	168+05	170' RT TO 108' RT	SINGLE	GUARD & PROTECT
168+05		54' RT TO 108' RT	SINGLE	GUARD & PROTECT
168+30		52' LT TO 52' RT	SINGLE	GUARD & PROTECT
168+30	186+00	52' LT TO 54' LT	SINGLE	GUARD & PROTECT
169+83	170+37	55' RT TO 347' RT	SINGLE - SERVICE	GUARD & PROTECT
169+83	175+33	55' RT TO 51' RT	SINGLE	GUARD & PROTECT
169+85	169+83	52' LT TO 55' RT	SINGLE	GUARD & PROTECT
174+62	174+70	262' LT TO 58' LT	SINGLE - SERVICE	GUARD & PROTECT
175+05	175+33	276' RT TO 51' RT	SINGLE - SERVICE	GUARD & PROTECT
175+33		51' RT TO 55' LT	SINGLE	GUARD & PROTECT
175+33	175+92	51' RT TO 71' RT	SINGLE	GUARD & PROTECT

CONNEXUS OVERHEAD - POWER — U

CSAH 20

BEGIN STA.	END STA.	OFFSET FROM CL	REMARKS	SIZE & ITEM
97+54	119+00	43' LT	WOOD SINGLE POLES RELOCATE NORTH	TRANS LINE

XCEL OVERHEAD - POWER — V

CSAH 78

BEGIN STA.	END STA.	OFFSET FROM LNB	REMARKS	SIZE & ITEM
157+35	175+92	57' LT	LARGE STEEL-SINGLE POLE LEAVE AS IS	TRANS LINE

GREAT RIVER OVERHEAD - POWER — W

CSAH 78

BEGIN STA.	END STA.	OFFSET FROM LNB	REMARKS	SIZE & ITEM
157+35	175+92	56' RT	WOOD SINGLE POLE LEAVE AS IS	TRANS LINE
157+35	175+92	130' RT	WOOD DBL. POLE LEAVE AS IS	TRANS LINE

CENTERPOINT ENERGY - GAS — X

CSAH 78

BEGIN STA.	END STA.	OFFSET FROM LNB	REMARKS	
157+35	166+00	39' RT TO 37' RT	4" TR CL-6	GUARD AND PROTECT
166+00	167+45	37' RT TO 34' RT	4" TR CL-6	GUARD AND PROTECT
167+45	174+60	34' RT TO 37' RT	4" TR CL-6	GUARD AND PROTECT
170+53	170+86	92' RT TO 36' RT	2" TR CL-6	GUARD AND PROTECT
174+08		37' RT TO 229' RT	2" TR CL-6	GUARD AND PROTECT

CENTURY LINK - TELE. — Y

BEGIN STA.	END STA.	OFFSET FROM CL	REMARKS	
CSAH 78				
157+35	165+90	49' RT TO 44' RT	F/O UNDER GROUND	GUARD AND PROTECT
157+35	160+49	62' RT TO 51' RT	ONE LINE	GUARD AND PROTECT
158+04		52' RT TO 194' RT	F/O UNDER GROUND	GUARD AND PROTECT
160+49	165+90	51' RT TO 52' RT	TWO LINES	GUARD AND PROTECT
166+96	175+42	65' RT TO 55' RT	ONE LINE	GUARD AND PROTECT
170+66	175+92	67' RT TO 60'RT	F/O UNDER GROUND	GUARD AND PROTECT
175+42	175+92	55' RT TO 75' RT	ONE LINE	GUARD AND PROTECT
CSAH 20				GUARD AND PROTECT
97+54	119+00	32' RT TO 35' RT	F/O UNDER GROUND	GUARD AND PROTECT
97+54	119+00	32' RT TO 56' RT	FIVE LINES	GUARD AND PROTECT
110+88	119+00	38' LT TO 30' LT	F/O UNDER GROUND	GUARD AND PROTECT
110+88		34' LT TO 60' RT	TWO LINES	GUARD AND PROTECT

ZAYO FIBER SOLUTIONS — Z

CSAH 20

BEGIN STA.	END STA.	OFFSET FROM CL	REMARKS		SIZE & ITEM
97+54	119+00	40' LT	PLAS-DUCT	GUARD AND PROTECT	1.25"
97+54	119+00	44' LT	PLAS-DUCT	GUARD AND PROTECT	1.25"

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Plan_20\0267820_TAB20_J.dgn 04/16/2014 2:21:47 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: 4-17-14 LICENSE NO. 24756

DRAWN BY NJD DATE 12/20/13
DESIGN BY NJD DATE 08/08/13
CHECKED BY GMP DATE 02/20/14

ANOKA COUNTY
ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

TABULATIONS

SOILS AND CONSTRUCTION NOTES

1. SELECT GRANULAR EMBANKMENT & BORROW ON THIS PROJECT SHALL MEET THE GRADATION REQUIREMENTS OF MN/DOT SPEC. 3149.2B2. IT IS ASSUMED THAT ALL EXCAVATION MATERIAL ON THIS PROJECT WITH THE EXCEPTION OF MUCK AND TOPSOIL WILL MEET THESE REQUIREMENTS.

2. FOR THIS PLAN, THE TERM "GRAVEL" REFERS TO MATERIAL THAT MEETS MNDOT SPEC 3138.2 C. ADDITIONALLY, 100 PERCENT OF THE GRAVEL MIXTURE MUST PASS THROUGH THE 2 INCH SIEVE, AND THE BITUMEN CONTENT OF THE GRAVEL SHALL NOT EXCEED 3.0%

3. IT IS ASSUMED THAT ALL PAVEMENT RECLAMATION WILL BE USED AS AGGREGATE SHOULDERING, AGGREGATE SURFACING, OR AGGREGATE BASE MATERIAL WITHIN THE PROJECT LIMITS.

4. GRAVEL NOT USED AS AGGREGATE SHOULDERING, AGGREGATE SURFACING, OR AGGREGATE BASE MATERIAL WITHIN THE PROJECT LIMITS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND DISPOSED OF OUTSIDE THE RIGHT-OF-WAY IN ACCORDANCE WITH SPEC. 2104.3 D.3. NO DIRECT COMPENSATION SHALL BE MADE FOR THE REMOVAL / DISPOSAL OF SAID GRAVEL.

5. SLOPE DRESSING SHALL BE DEFINED AS EXISTING SOILS SUITABLE TO BE REUSED AS A MEDIUM FOR ESTABLISHING VEGETATION, EITHER PERMANENT OR TEMPORARY. MUCK CANNOT BE USED AS SLOPE DRESSING.

6. STRIP ALL TOPSOIL AND INPLACE SLOPE DRESSING IN AREAS TO BE DISTURBED BY CONSTRUCTION AND REUSE AS SLOPE DRESSING. FOR ESTIMATING PURPOSES, THE DEPTH OF TOPSOIL AVAILABLE IS CONSIDERED TO BE 4 INCHES. CONTRACTOR TO VERIFY PRIOR TO PLACING BID

7. 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.

8. 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.

9. ANY DEBRIS WHICH MAY BE ENCOUNTERED DURING GRADING SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND DISPOSED OF OUTSIDE THE RIGHT-OF-WAY IN ACCORDANCE WITH SPEC. 2104.3 D.3. NO DIRECT COMPENSATION SHALL BE MADE FOR THE REMOVAL / DISPOSAL OF DEBRIS

10. UNSUITABLE SOILS (INCLUDING MUCK) NOT USED ON THE PROJECT SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND DISPOSED OF OUTSIDE THE RIGHT-OF-WAY IN ACCORDANCE WITH SPEC. 2104.3 D.3. NO DIRECT COMPENSATION SHALL BE MADE FOR THE REMOVAL / DISPOSAL OF UNSUITABLE SOILS.

11. INPLACE BITUMINOUS PAVEMENT RANGES FROM 3.5" TO 6.5" THICK. FOR INFORMATION ONLY, CONTRACTOR TO VERIFY PAVEMENT DEPTH PRIOR TO PLACING BID. SEE BORING REPORTS. FOR ESTIMATING PURPOSES, THE EXISING PAVEMENT WAS ASSUMED TO BE 6 INCHED DEEP

12. COMPACTION OF ALL GRANULAR MATERIAL SHOULD BE IN ACCORDANCE WITH MN/DOT "SPECIFIED DENSITY METHOD"

13. EMBANKMENT CONSTRUCTION SHALL BE PERFORMED AS REQUIRED BY MN/DOT SPECIFICATION 2105

14. ALL EXCESS ITEMS INCLUDING BITUMINOUS RECLAIM CANNOT BE TAKEN FROM THE PROJECT UNTIL DEEMED APPROPRIATE BY THE ENGINEER.

CSAH 78 EARTHWORK SUMMARY — A

STATION	EXCAVATION TOTALS					EMBANKMENT VOLUMES		
	TOPSOIL	COMMON	RECLAIM	SUBCUT	MUCK	TOPSOIL	SELECT GRANULAR	MUCK
	CY	CY	CY	CY	CY	CY	CY	CY
157+35.61								
158+00.00	15	3	114	0	0	11	38	0
158+50.00	12	2	89	0	0	9	33	0
159+00.00	13	3	90	0	0	9	34	0
159+50.00	13	3	89	0	0	9	31	0
160+00.00	13	2	89	0	0	8	28	0
160+50.00	15	2	89	0	0	10	30	0
161+00.00	21	2	89	15	36	13	80	14
161+50.00	25	2	89	31	77	16	128	34
162+00.00	26	2	89	31	94	16	189	53
162+50.00	25	1	89	31	103	16	190	58
163+00.00	24	1	88	30	92	15	131	43
163+50.00	23	2	97	29	68	13	127	28
164+00.00	23	2	97	29	44	13	106	17
164+50.00	25	2	87	31	28	15	92	7
165+00.00	23	2	88	32	17	14	76	3
165+50.00	23	3	89	31	10	13	63	2
SUBTOTAL (A)	319	35	1,462	288	570	198	1,375	258

CSAH 78 EARTHWORK SUMMARY — A

STATION	EXCAVATION TOTALS					EMBANKMENT VOLUMES		
	TOPSOIL	COMMON	RECLAIM	SUBCUT	MUCK	TOPSOIL	SELECT GRANULAR	MUCK
	CY	CY	CY		CY	CY	CY	CY
167+50.00								
168+00.00	21	9	86	25	42	11	82	21
168+50.00	23	7	83	24	45	12	93	16
169+00.00	21	6	86	24	20	11	66	8
169+50.00	19	4	88	22	3	10	55	2
170+00.00	22	3	89	20	0	13	65	0
170+50.00	23	3	88	21	0	13	66	0
171+00.00	22	3	86	22	0	12	64	0
171+50.00	23	2	86	20	0	13	69	0
172+00.00	22	2	84	18	0	12	71	0
172+50.00	18	2	84	9	0	10	56	0
173+00.00	15	3	86	0	0	9	41	0
173+50.00	14	4	87	0	0	9	34	0
174+00.00	11	7	88	0	0	6	17	0
174+50.00	9	9	88	0	0	5	9	0
175+00.00	9	7	88	0	0	6	11	0
175+92.24	17	8	161	0	0	13	35	0
SUBTOTAL (B)	289	80	1,458	204	110	163	832	47
CSAH 78 TOTAL (A+B)	608	115	2,920	493	680	361	2,207	305

CSAH 20 EARTHWORK SUMMARY — B

STATION	EXCAVATION TOTALS					EMBANKMENT VOLUMES		
	TOPSOIL	COMMON	RECLAIM	SUBCUT	MUCK	TOPSOIL	SELECT GRANULAR	MUCK
	CY	CY	CY		CY	CY	CY	CY
98+00.00								
98+50.00	16	23	77	0	0	13	9	0
99+00.00	24	14	75	0	0	21	21	0
99+50.00	25	8	74	0	0	22	27	0
100+00.00	28	7	75	0	0	25	35	0
100+50.00	31	6	75	0	0	28	44	0
101+00.00	29	4	76	0	0	26	49	0
101+50.00	29	4	76	0	0	25	55	0
102+00.00	29	5	76	0	0	24	65	0
102+50.00	30	5	76	0	0	23	73	0
103+00.00	30	4	76	0	0	22	79	0
103+50.00	28	4	76	0	0	19	73	0
104+00.00	25	4	76	0	0	15	67	0
104+50.00	30	3	76	6	40	18	124	20
105+00.00	34	3	79	14	143	22	225	65
105+50.00	33	4	82	16	170	22	244	69
106+00.00	32	4	82	17	98	20	186	35
106+50.00	29	3	83	18	32	17	123	10
107+00.00	25	3	86	17	0	15	80	0
107+50.00	22	3	89	17	0	13	65	0
108+00.00	21	4	90	19	0	12	60	0
108+50.00	22	4	91	20	0	13	58	0
109+00.00	22	8	91	22	0	13	53	0
SUBTOTAL (.C)	593	126	1758	167	483	430	1816	199

CSAH 20 EARTHWORK SUMMARY — B

STATION	EXCAVATION TOTALS					EMBANKMENT VOLUMES		
	TOPSOIL	COMMON	RECLAIM	SUBCUT	MUCK	TOPSOIL	SELECT GRANULAR	MUCK
	CY	CY	CY		CY	CY	CY	CY
110+50.00								
111+00.00	25	4	91	18	104	16	140	38
111+50.00	23	2	91	9	193	15	230	15
112+00.00	27	2	93	0	503	19	552	34
112+50.00	31	2	93	0	910	23	973	71
113+00.00	31	1	93	0	1293	23	1347	126
113+50.00	36	1	93	0	1576	26	1601	188
114+00.00	40	1	93	0	1861	29	1856	250
114+50.00	41	1	93	0	1995	30	1988	273
115+00.00	39	0	91	0	1881	29	1898	231
115+50.00	37	0	91	0	1774	27	1784	215
116+00.00	33	1	91	0	1471	25	1490	172
116+50.00	30	1	90	0	953	21	997	89
117+00.00	29	1	88	0	522	19	647	44
117+50.00	24	26	87	13	166	15	285	15
118+00.00	17	71	86	26	0	8	28	0
118+50.00	13	101	85	26	0	4	26	0
119+00.00	12	106	86	26	0	4	26	0
SUBTOTAL (D)	489	323	1,535	118	15,201	335	15,867	1,760
CSAH 20 TOTAL (C+D)	1,082	449	3,294	285	15,684	764	17,683	1,959

ADDITIONAL EARTHWORK — C

LOCATION	EXCAVATION TOTALS					EMBANKMENT VOLUMES		
	TOPSOIL	COMMON	RECLAIM	SUBCUT	MUCK	TOPSOIL	SELECT GRANULAR	MUCK
	CY	CY	CY	CY	CY	CY	CY	CY
CSAH 78 / 20 INTERSECTION	104	0	630	157.5	100	72	300	33
ADDITIONAL TOTALS (.E)	104	0	630	157.5	100	72	300	33

PROJECT EARTHWORK SUMMARY — D

STATION	EXCAVATION TOTALS					EMBANKMENT VOLUMES		
	TOPSOIL	COMMON	RECLAIM	SUBCUT	MUCK	TOPSOIL	SELECT GRANULAR	MUCK
	CY	CY	CY	CY	CY	CY	CY	CY
PROJECT TOTAL (A+B+C+D+E)	1,794	564	6,844	935	16,464	1,197	20,190	2,297

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Plan_20\0267820_TAB20_J.dgn 04/23/2014 1:22:07 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:
DATE: 4-23-14 LICENSE NO. 24756

DRAWN BY NJD DATE 12-10-13
DESIGN BY NJD DATE 10-01-13
CHECKED BY GMP DATE 01-01-14

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

EARTHWORK TABULATION

CSAH 78 AGG SUMMARY — E

STATION	AGGREGATE TOTALS: AGGREGATE SUBBASE	AGGREGATE SHOULDER
	CY	CY
157+35.61		
158+00.00	95	8
158+50.00	75	7
159+00.00	76	6
159+50.00	78	6
160+00.00	79	5
160+50.00	80	4
161+00.00	84	4
161+50.00	88	4
162+00.00	88	4
162+50.00	88	4
163+00.00	88	4
163+50.00	88	4
164+00.00	88	4
164+50.00	88	4
165+00.00	88	4
165+50.00	88	4
SUBTOTAL (A)	1,356	71

CSAH 78 AGG SUMMARY — E

STATION	AGGREGATE TOTALS: AGGREGATE SUBBASE	AGGREGATE SHOULDER
	CY	CY
167+50.00		
168+00.00	88	4
168+50.00	88	4
169+00.00	88	4
169+50.00	88	4
170+00.00	88	4
170+50.00	88	4
171+00.00	88	4
171+50.00	88	4
172+00.00	88	4
172+50.00	84	4
173+00.00	80	4
173+50.00	79	4
174+00.00	76	4
174+50.00	74	4
175+00.00	73	5
175+92.24	133	10
SUBTOTAL (B)	1,388	66
CSAH 78 TOTAL (A+B)	2,745	137

CSAH 20 AGG SUMMARY — F

STATION	AGGREGATE TOTALS: AGGREGATE SUBBASE	AGGREGATE SHOULDER
	CY	CY
98+00.00		
98+50.00	65	4
99+00.00	66	4
99+50.00	66	4
100+00.00	66	4
100+50.00	66	4
101+00.00	67	4
101+50.00	69	4
102+00.00	71	4
102+50.00	74	4
103+00.00	76	4
103+50.00	78	4
104+00.00	80	4
104+50.00	84	4
105+00.00	87	4
105+50.00	88	4
106+00.00	88	4
106+50.00	88	4
107+00.00	88	4
107+50.00	88	4
108+00.00	88	4
108+50.00	88	4
109+00.00	88	4
SUBTOTAL (C.)	1714	77

CSAH 20 AGG SUMMARY — F

STATION	AGGREGATE TOTALS: AGGREGATE SUBBASE	AGGREGATE SHOULDER
	CY	CY
110+50.00		
111+00.00	88	4
111+50.00	88	4
112+00.00	88	4
112+50.00	100	4
113+00.00	97	4
113+50.00	89	4
114+00.00	94	4
114+50.00	94	4
115+00.00	94	4
115+50.00	91	4
116+00.00	88	4
116+50.00	88	4
117+00.00	88	4
117+50.00	90	3
118+00.00	85	1
118+50.00	77	0
119+00.00	77	0
SUBTOTAL (D)	1,273	48
CSAH 20 TOTAL (C+D)	2,988	126

ADDITIONAL AGG — G

LOCATION	AGGREGATE TOTALS: AGGREGATE SUBBASE	AGGREGATE SHOULDER
	CY	CY
CSAH 78 / 20 INTERSECTION	500	14
ADDITIONAL TOTALS (.E)	500	14

PROJECT AGG SUMMARY — H

LOCATION	AGGREGATE SUBBASE	AGGREGATE SHOULDER
	CY	CY
PROJECT TOTAL (A+B+C+D+E)	6,232	277

RECLAIM / GRAVEL BALANCE

EARTHWORK SUMMARY

LOCATION	EXCAVATION TOTALS: TOPSOIL	COMMON	RECLAIM	SUBCUT	MUCK	EMBANKMENT VOLUMES: TOPSOIL	SELECT GRANULAR	MUCK	AGGREGATE BASE	AGGREGATE SHOULDER
	CY	CY	CY	CY	CY	CY	CY	CY	CY	CY
PROJECT TOTAL	1,794	564	6,844	935	21,919	1,197	24,483	2,297	6,232	277

PAY ITEMS

TOTAL REQUIRED AGG BASE 6,232 (CV) - INPLACE RECLAIM / GRAVEL (6) 4,563 (CV) = TOTAL REQUIRED FROM STOCKPILE AGG BASE 1,670 (CV) (3)

TOTAL REQUIRED AGG SHOULDER 277 (CV) — TOTAL REQUIRED FROM STOCKPILE AGG SHOULDER 277 (CV)(4)

= TOTAL NEEDED FROM STOCKPILE GRAVEL 1,947 (CV)

RECLAIM — STOCKPILED (1) RECLAIM 1,630 (CV) + AVAILABLE (2) RECLAIM 128 (CV) = TOTAL AVAILABLE GRAVEL 1,758 (CV)

TOTAL NEEDED FROM STOCKPILE GRAVEL 1,947 (CV) - TOTAL AVAILABLE GRAVEL 1,758 (CV) - GRAVEL BORROW 189 (CV) [5]

GRAVEL BALANCE NOTES

[1] STOCKPILED RECLAIM DUE TO MAINLINE & SHOULDER RECLAIMATION

[2] STOCKPILED RECLAIM DUE TO TEMPORARY WIDENING RECLAIMATION

[3] PAID FOR AS ITEM 2221.506 STOCKPILE AGGREGATE

[4] PAID FOR AS ITEM 2221.607 AGGREGATE SHOULDERING (CV) FROM STOCKPILE

[5] GRAVEL BORROW TO COME FROM ANOKA COUNTY C.P. 13-46-78 (ADJACENT PROJECT)

[6] THE BOTTOM 8 INCHES OF THE 12 INCH RECLAIM WILL REMAIN IN PLACE AS THE GRAVEL BASE. THEREFORE 8 /12 OF THE TOTAL RECLAIM QUANTITY WILL REMAIN INPLACE
6,844 X 8/12 = 4,563

NO	DATE	BY	CKD	APPR	REVISION

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PRINT NAME: CURT A. KOBILARCSIK
SIGNATURE: Curt Kobilarcsik
DATE: 4-17-14 LICENSE NO. 24756

DRAWN BY NJD DATE 12-10-13
DESIGN BY NJD DATE 10-01-13
CHECKED BY GMP DATE 01-01-14

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

EARTHWORK TABULATION

J

EARTHWORK BALANCE

EXCAVATION (CY)

PAY ITEMS	TOTAL		(10)						(11)				
HAUL AND STOCKPILE BIT MATERIAL (EV)	2,281	= 1.4 X	4 / 12	X	RECLAIM 6,844	RECLAIM	6,844	(EV) X	8 / 12	= 4,563	(CV)	RECLAIM / GRAVEL	(3)(7)
COMMON (EV) (1)	2,358				COMMON 2,358	COMMON	564	(EV) /	1.2	= 470	(CV)	COMMON	(2)
						TOPSOIL	1,794	(EV) /	1.0	= 1,794	(CV)	TOPSOIL	(9)
SUBGRADE EXCAVATION	935				SUBGRADE 935	SUBGRADE	935	(EV) /	1.2	= 779	(CV)	SUBGRADE	(8)
MUCK EXCAVATION	16,464				MUCK 16,464	MUCK	16,464	(EV) /	1.0	= 16,464	(CV)	MUCK	(8)

EMBANKMENT (CY)

SELECT GRANULAR	20,190	(CV)
TOPSOIL	1,197	(CV)
MUCK	2,297	(CV)

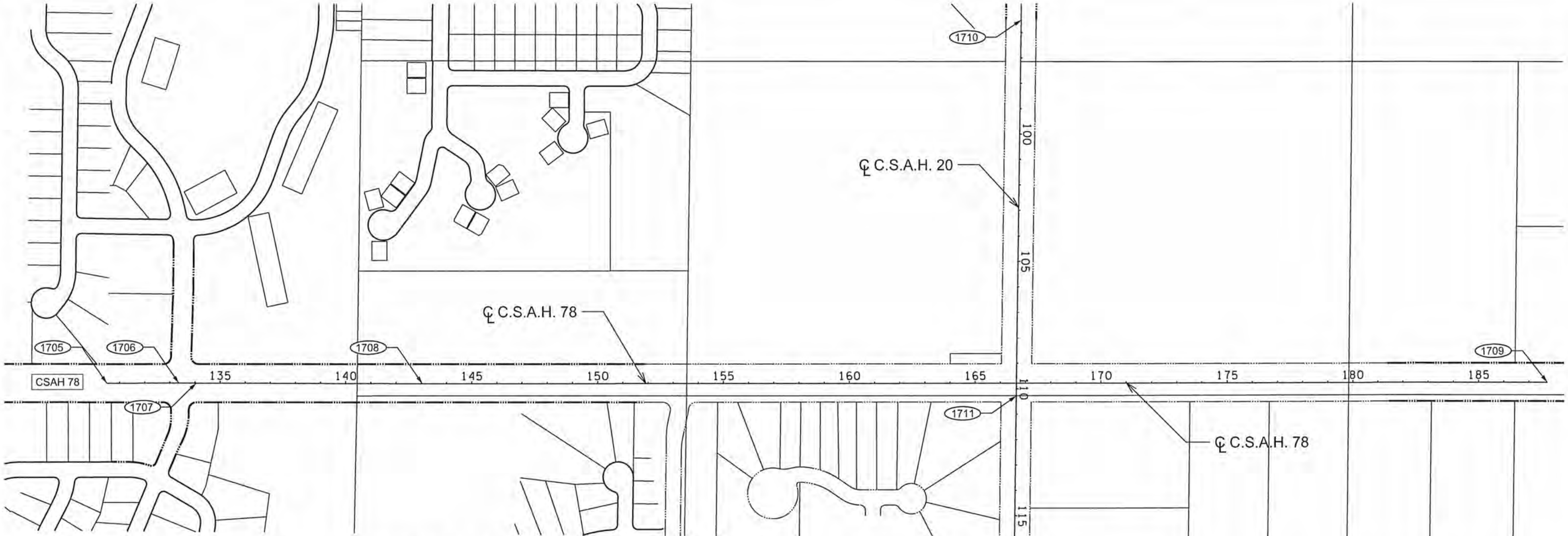
EXCESS (CY)

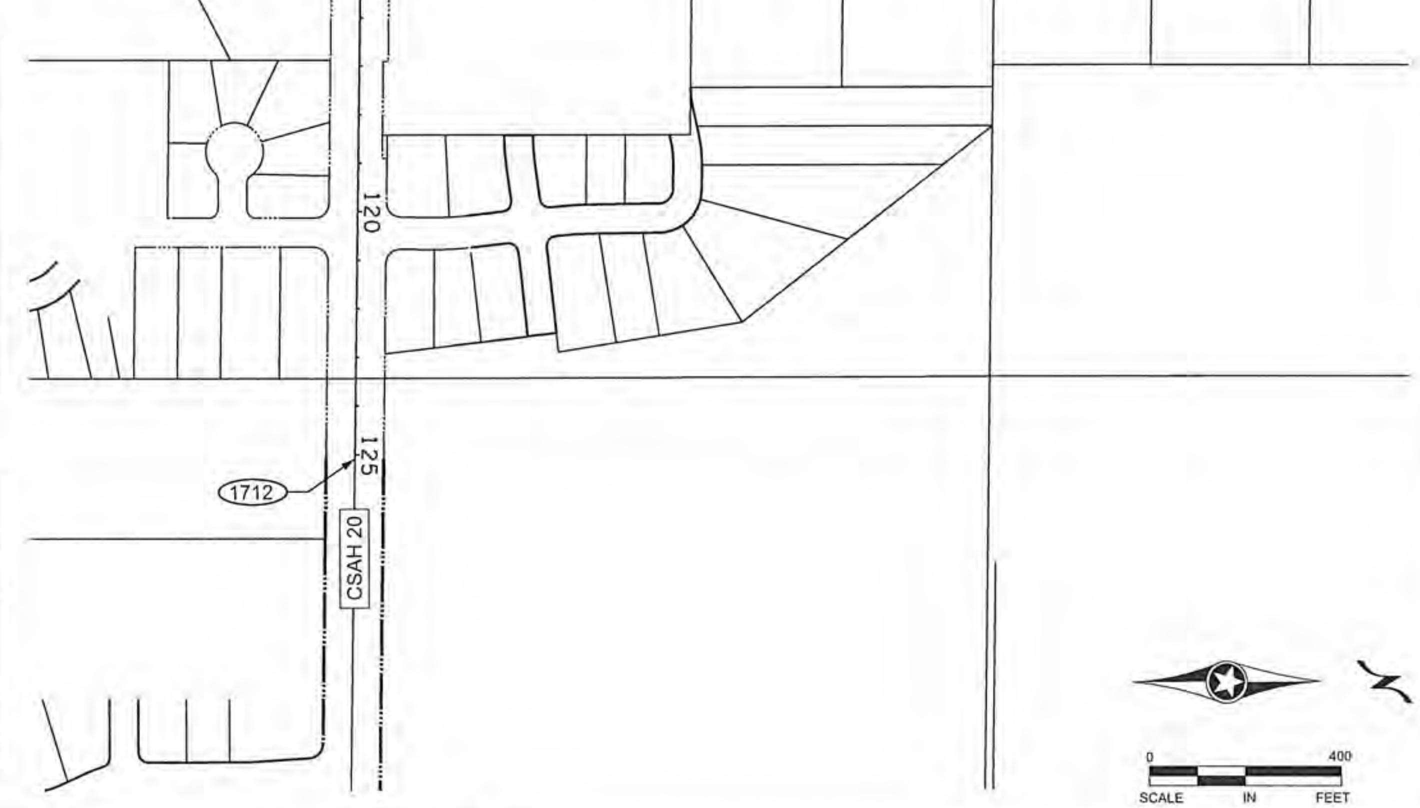
	AVAILABLE		NEEDED		EXCESS	
TOPSOIL	TOPSOIL 1,794 (CV)	-	TOPSOIL 1,197 (CV)	=	TOPSOIL 597 (CV)	(4)
MUCK	MUCK 16,464 (CV)	-	MUCK 2,297 (CV)	=	MUCK 14,167 (CV)	(5)

BORROW (CY)

	NEEDED SELECT GRANULAR		AVAILABLE COMMON (2)		AVAILABLE SUBGRADE (8)		BORROW SELECT GRANULAR		PAY ITEM BORROW SELECT GRANULAR	
SELECT GRANULAR	20,190 (CV)	-	470 (CV)	-	779 (CV)	=	18,941 (CV)	X 1.4 =	26,517 (LV)	(6)

(1) TOTAL COMMON EXCAVATION FOR PROJECT (INCLUDING TOPSOIL.)
(2) IT IS ASSUMED THAT THIS QUANTITY WILL MEET THE REQUIREMENTS FOR SELECT GRANULAR BORROW PER MNDOT SPEC 3149.2 B2
(3) SEE "GRAVEL BALANCE" AND SOILS AND CONSTRUCTION NOTES (NOTES 3 & 4) FOR MORE INFORMATION.
(4) EXCESS TOPSOIL TO BE SPREAD THROUGHOUT THE PROJECT LIMITS AT ENGINEERS DESCRETION.
(5) EXCESS MUCK TO BECOME PROPERTY OF THE CONTRACTOR AND DISPOSED OF OUTSIDE COUNTY RIGHT OF WAY.
(6) TOTAL SELECT GRANULAR BORROW FOR THIS PROJECT. SELECT GRANULAR BORROW MUST MEET REQUIREMENTS IN MNDOT SPEC 3149.2B2.
(7) THIS QUANTITY TO REMAIN IN PLACE AS AGGREGATE BASE. SEE GRAVEL BALANCE FOR MORE INFORMATION.
(8) IT IS ASSUMED THAT EXISTING SUBGRADE MATERIAL MEETS THE REQUIREMENTS FOR SELECT GRANULAR PER MNDOT SPEC 3149.2B2
(9) IT IS ASSUMED THAT THIS QUANTITY WILL MEET FOR SLOPE DRESSING. SEE SOILS AND CONSTRUCTION NOTES (NOTE 5)
(10) THE TOP 4 INCHES OF THE 12 INCH RECLAIM WILL BE STRIPPED AND REDISTRIBUTED OR STOCKPILED FOR USE WITHIN PROJECT LIMITS. THE BOTTOM 8 INCHES WILL REMAIN IN PLACE AS THE GRAVEL BASE. THEREFORE, ONLY 4 / 12 OF THE TOTAL RECLAIM QUANTITY WILL BE COUNTED AS COMMON EXCAVATION AND AVAILABLE AS STOCKPILED GRAVEL.
(11) THE BOTTOM 8 INCHES OF THE 12 INCH RECLAIM WILL REMAIN IN PLACE AS THE GRAVEL BASE. THEREFORE, ONLY 8 / 12 OF THE TOTAL RECLAIM QUANTITY WILL BE COUNTED AS INPLACE GRAVEL BASE.





ALIGNMENT TABULATION

POINT NUMBER	POINT	ALIGNMENT		CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
				DELTA	DEGREE	RADIUS	TANGENT	LENGTH	E	N	
℄ C.S.A.H. 78 <78N_3>											
1705	POT	℄ C.S.A.H. 78	130+50.000						489,804.0092	179,271.5873	
1706	POT		133+35.458						489,805.3507	179,557.0419	
1707	POT		134+74.675						489,806.9360	179,696.2503	
1708	POT		143+03.588						489,815.1000	180,525.1232	
1709	POT		187+72.479						489,847.1927	184,993.8985	

ALIGNMENT TABULATION

POINT NUMBER	POINT	ALIGNMENT		CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
				DELTA	DEGREE	RADIUS	TANGENT	LENGTH	E	N	
℄ C.S.A.H. 20 <20E_3>											
1710	POT	℄ C.S.A.H. 20	95+50.000						488,404.1608	182,918.7204	
1711	POT		110+28.290						489,882.0485	182,884.2254	
1712	POT		125+08.175						491,361.5532	182,850.6701	

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Plan_20\0267820_AL20_J.dgn 04/16/2014 10:37:59 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: 4-17-14 LICENSE NO. 24756

DRAWN BY NJD DATE 12/20/13

DESIGN BY NJD DATE 08/08/13

CHECKED BY GMP DATE 02/20/14

ANOKA COUNTY

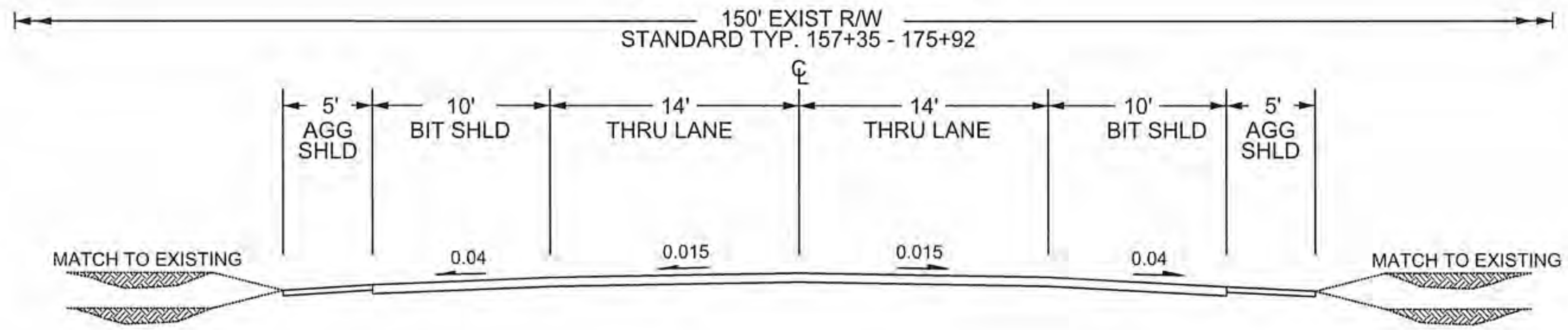
ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.P. 002-678-020

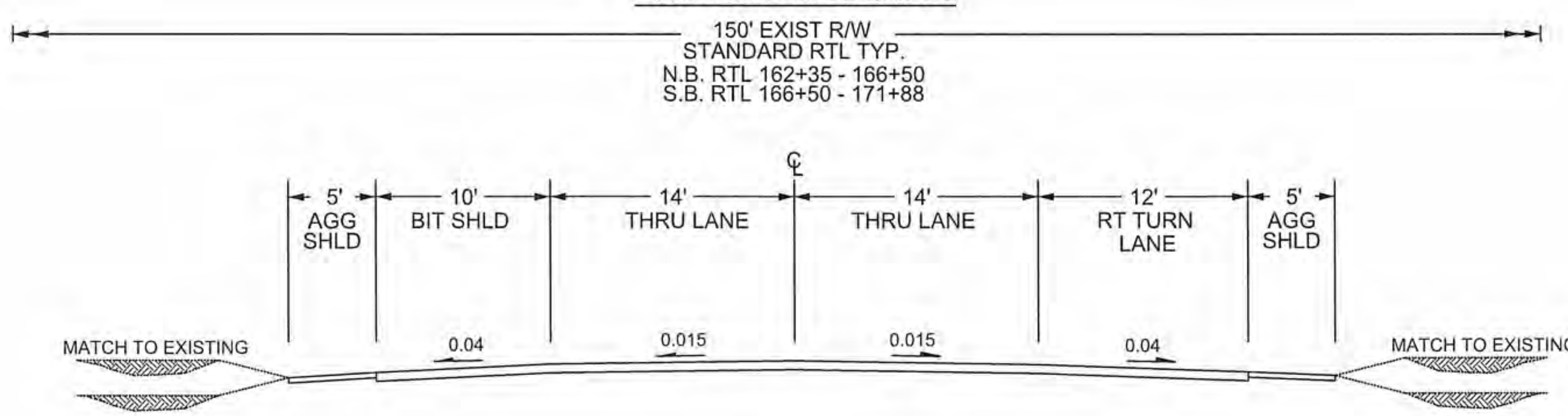
CITY OF ANDOVER S.A.P. 198-020-033

ALIGNMENT TABULATION AND PLAN CSAH 20 & CSAH 78

EXISTING C.S.A.H. 78



EXISTING C.S.A.H. 78



1 OF 3

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Plan_20\0267820_TS20_J.dgn 04/16/2014 10:38:34 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.

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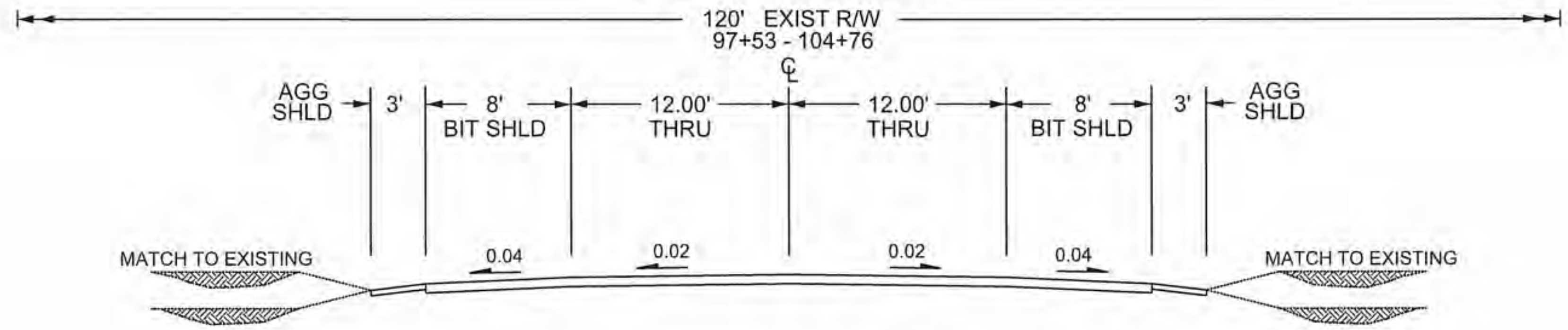
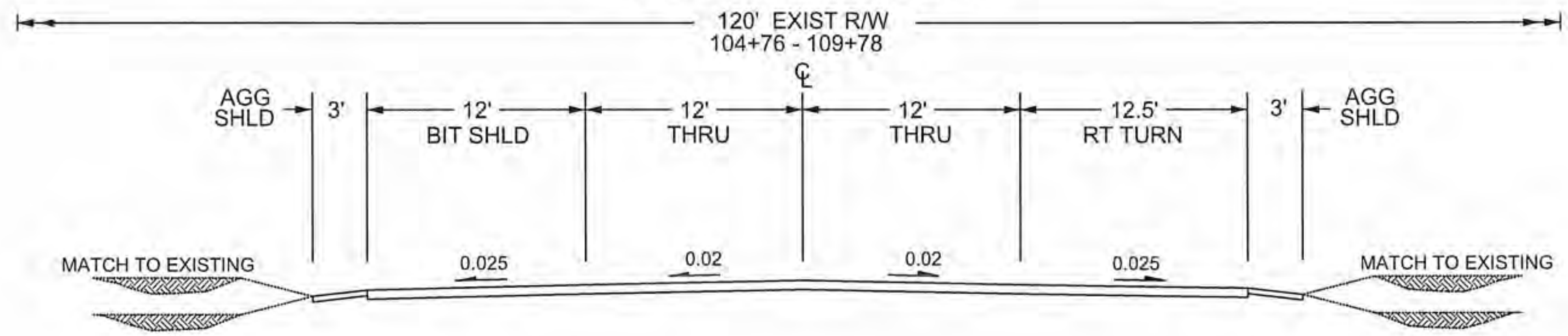
ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

TYPICAL SECTIONS
EXISTING CSAH 78

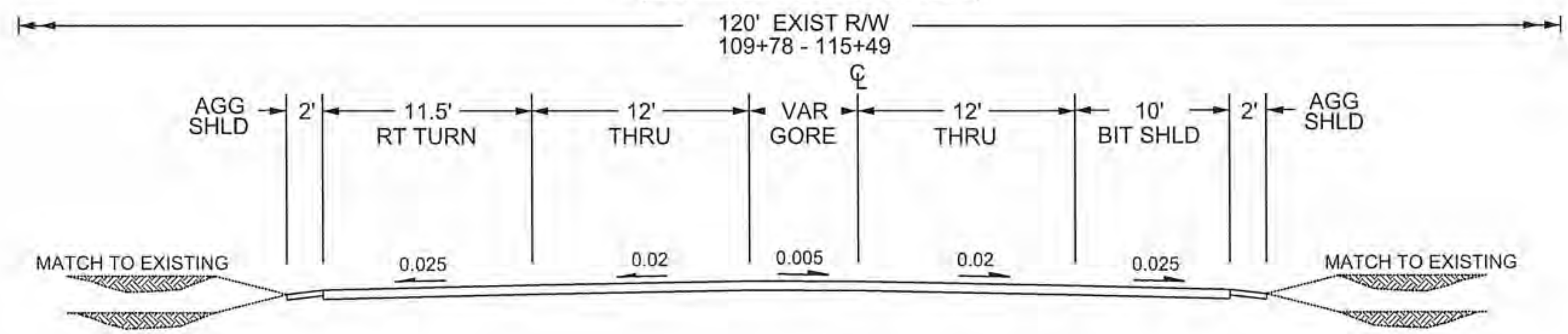
EXISTING C.S.A.H. 20



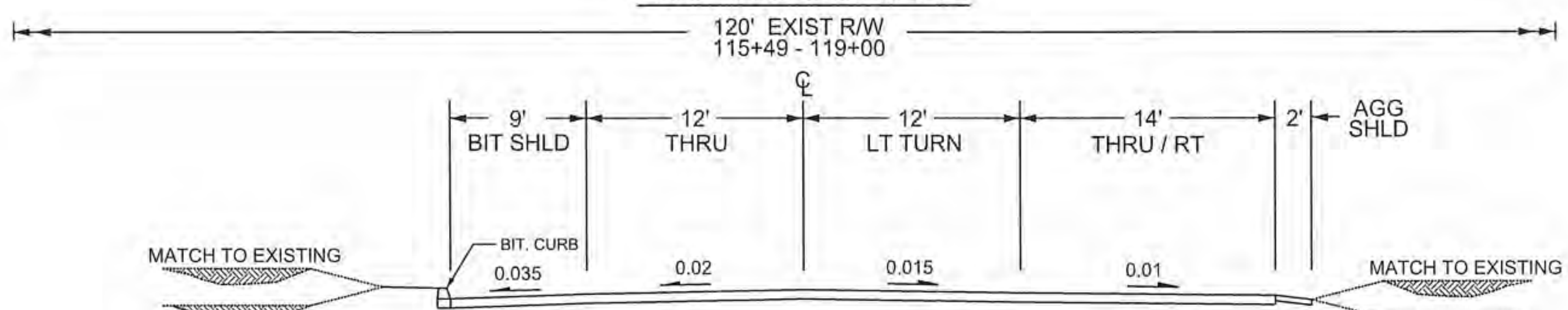
EXISTING C.S.A.H. 20



EXISTING C.S.A.H. 20



EXISTING C.S.A.H. 20



2 OF 3

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Plan_20\0267820_TS20_J.dgn 04/16/2014 10:38:35 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.

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ANOKA COUNTY S.P. 002-678-020

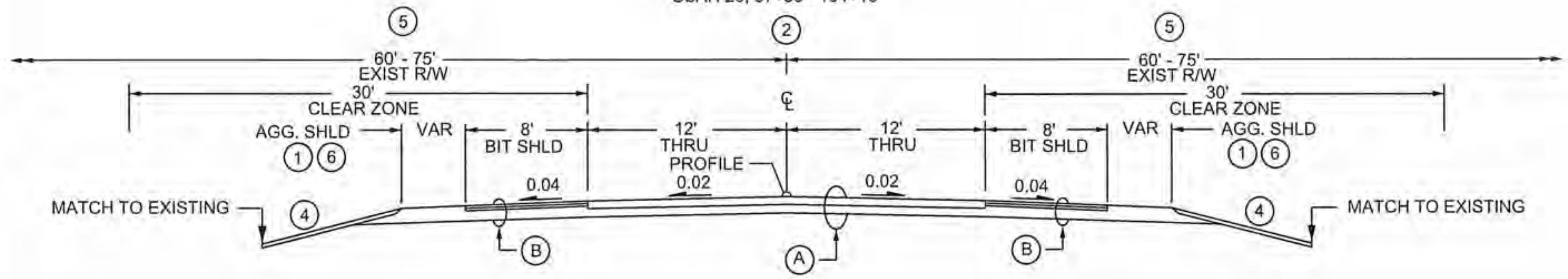
CITY OF ANDOVER S.A.P. 198-020-033

TYPICAL SECTIONS EXISTING CSAH 20

C.S.A.H. 78 / C.S.A.H. 20

MAINLINE ROADWAY

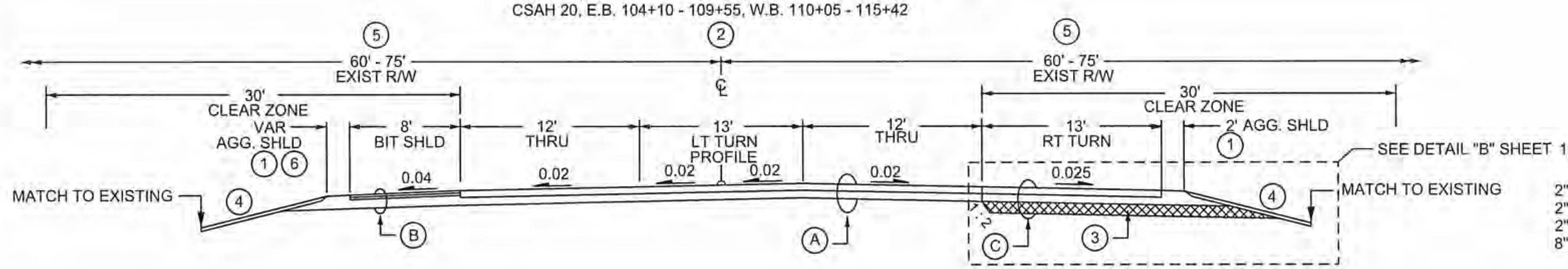
CSAH 78, 157+35 - 160+93
CSAH 78, 172+35 - 175+92
CSAH 20, 97+53 - 104+10



C.S.A.H. 78 / C.S.A.H. 20

INTERSECTION APPROACH C.S.A.H. 20 / C.S.A.H. 78

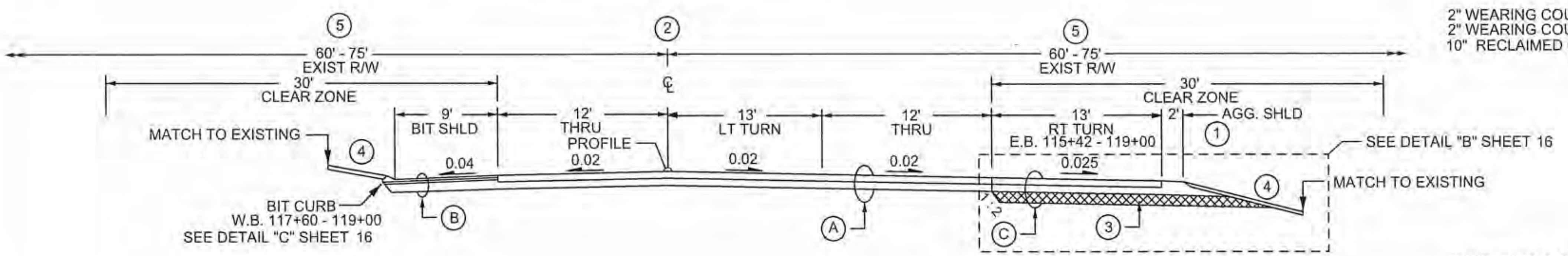
CSAH 78, N.B. 160+93 - 166+40, S.B. 166+90 - 172+35
CSAH 20, E.B. 104+10 - 109+55, W.B. 110+05 - 115+42



C.S.A.H. 78 / C.S.A.H. 20

CSAH 20 INTERSECTION W/ CRANE ST

E.B. 115+42 - 119+00



TYPICAL SECTION NOTES

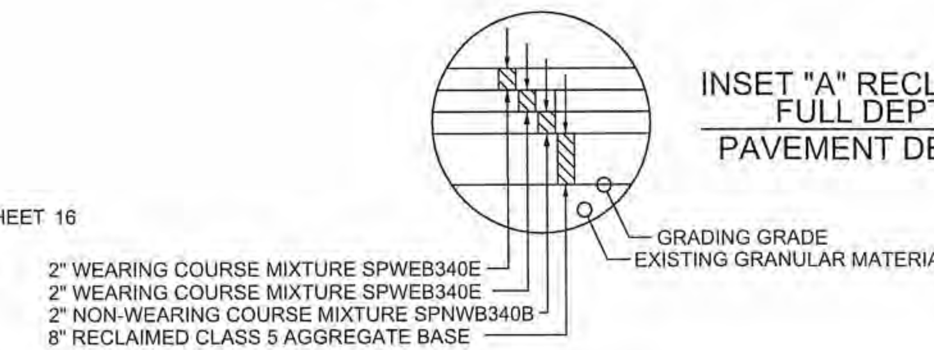
1. CLASS 5 AGGREGATE SHOULDERING OR RECLAIM MATERIAL MEETING REQUIREMENTS FOR MNDOT SPEC 3149.2 C
2. PROPOSED CENTERLINE IS IN THE SAME LOCATION AS THE EXISTING CENTERLINE.
3. 1.0' SUBGRADE EXCAVATION - PAID FOR AS COMMON EX. ITEM 2105.501 SUBGRADE EXCAVATION. BACKFILL WITH SELECT GRANULAR MATERIAL OR RECLAIM MATERIAL MEETING MNDOT SPEC 3149.2 B2.
4. MAINTAIN 1 : 4 SLOPE WITHIN CLEAR ZONE AND A 1 : 3 SLOPE MINIMUM OUTSIDE CLEAR ZONE OR ON BACKSLOPES
5. 75' OF RIGHT OF WAY FOR THE MAJORITY OF CSAH 78. 60' OF RIGHT OF WAY FOR THE MAJORITY OF CSAH 20. SEE CONSTRUCTION PLAN AND CROSS SECTIONS FOR EXACT RIGHT OF WAY LOCATION.
6. AGGREGATE SHOULDER BETWEEN PROPOSED 8.0' SHOULDER AND EXISTING SHOULDER P.I. - WIDTH VARIES - 2.0' MINIMUM

(A) SEE INSET "A" RECLAIMED MAINLINE

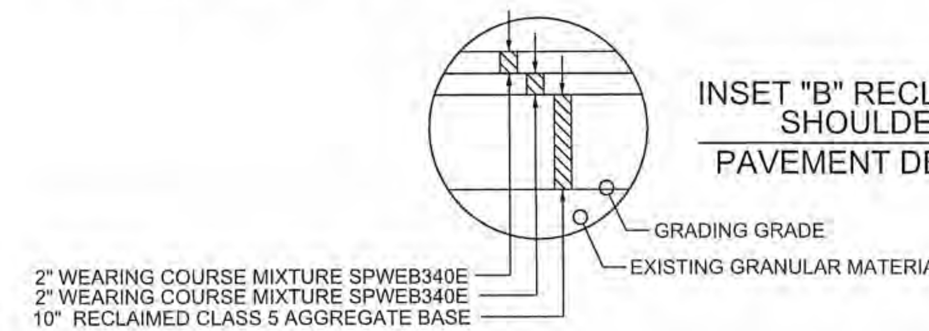
(B) SEE INSET "B" RECLAIMED SHOULDER

(C) SEE INSET "C" BITUMINOUS TURN LANE WIDENING AREAS

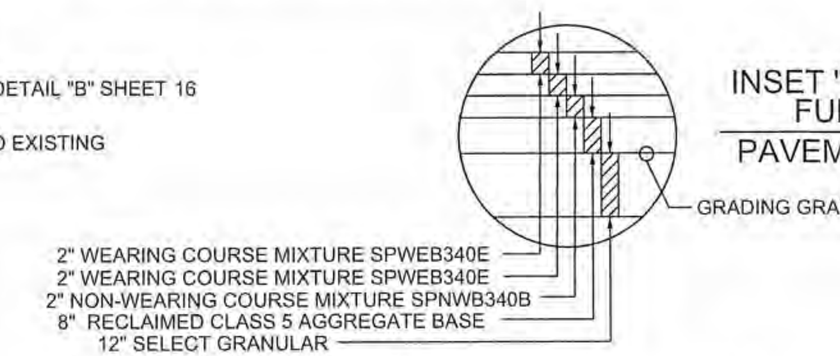
- ALL CROSS SLOPES ARE EXPRESSED IN FT / FT
- UNLESS OTHERWISE SPECIFIED, THE GRADING GRADE CROSS SLOPES SHALL BE THE SAME AS THE FINISHED SURFACE OF THE MAINLINE.



INSET "A" RECLAIMED FULL DEPTH PAVEMENT DESIGN



INSET "B" RECLAIMED SHOULDER PAVEMENT DESIGN



INSET "C" WIDENING FULL DEPTH PAVEMENT DESIGN

3 OF 3

NO	DATE	BY	CKD	APPR	REVISION
1	4/3/14	JCF	NJD		CHANGED 4' SHLDR WIDTH TO " VAR "

NAME: P:\02-678-20\Plan_20\0267820_TS20_J.dgn 04/16/2014 10:38:38 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 A Kobilarcsik
DATE: 4-17-14 LICENSE NO. 24756

DRAWN BY NJD DATE 12/20/13
DESIGN BY NJD DATE 08/08/13
CHECKED BY GMP DATE 02/20/14

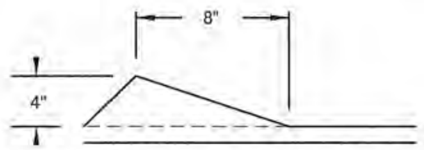
ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

TYPICAL SECTIONS PROPOSED

DETAIL "C" - BIT CURB

(PLACED DURING THE PAVING OF MAIN LINE WEAR COURSE)

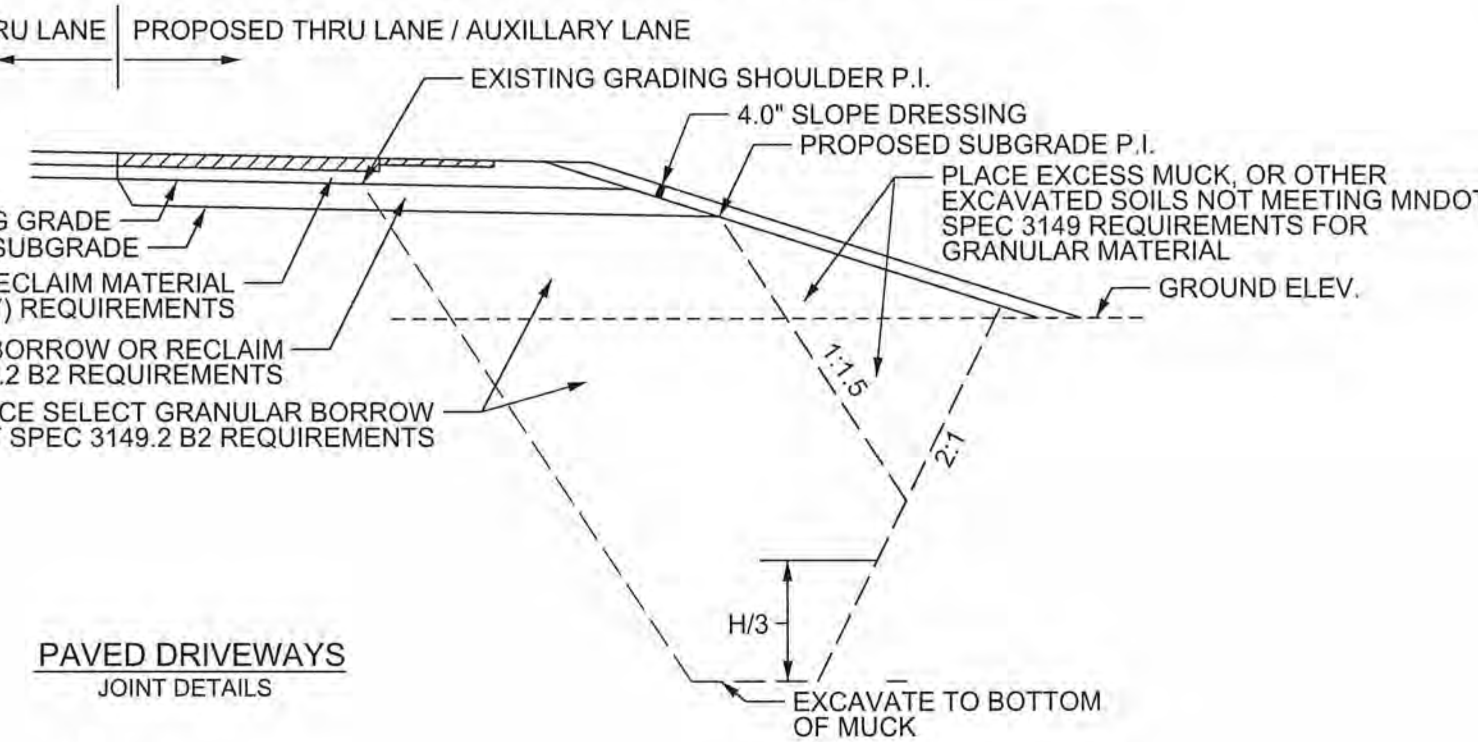


EXISTING BITUMINOUS CURB (LIP) TO BE RECLAIMED WITH SHOULDER

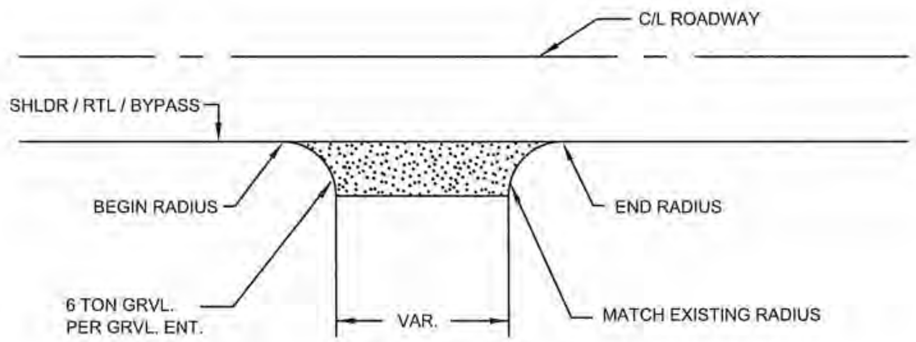
PROPOSED BITUMINOUS CURB (LIP) TO BE PAID UNDER ITEM NO. 2535.501

DETAIL "B" - MUCK IN WIDENING AREAS

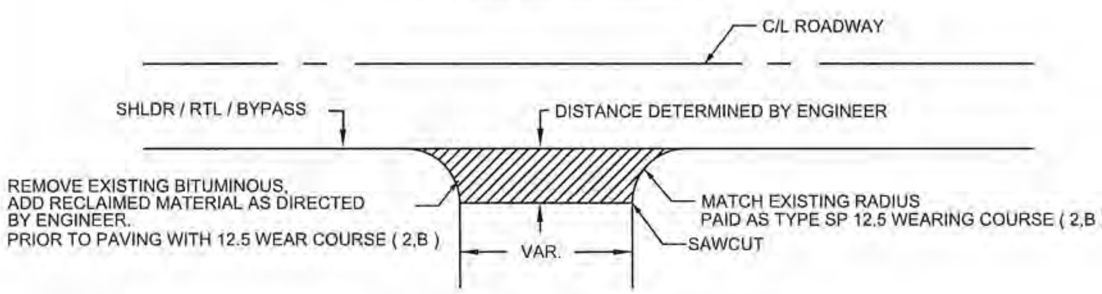
SEE CONSTRUCTION PLAN & CROSS SECTIONS FOR MUCK LOCATIONS



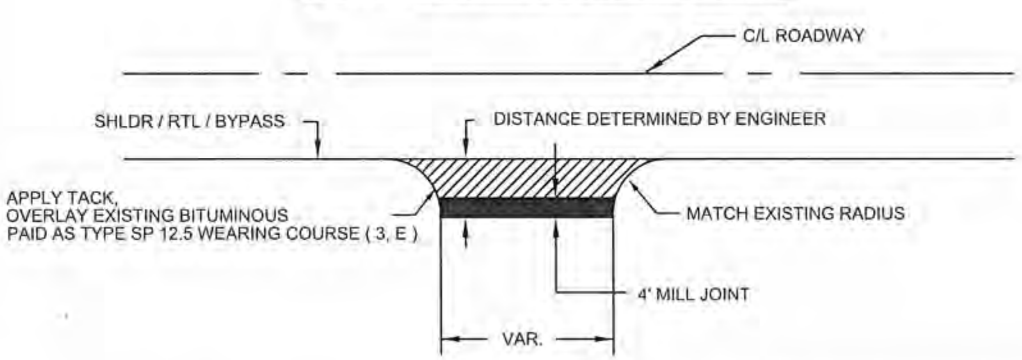
GRAVEL DRIVEWAYS AND FIELD ENT.



PAVED DRIVEWAYS

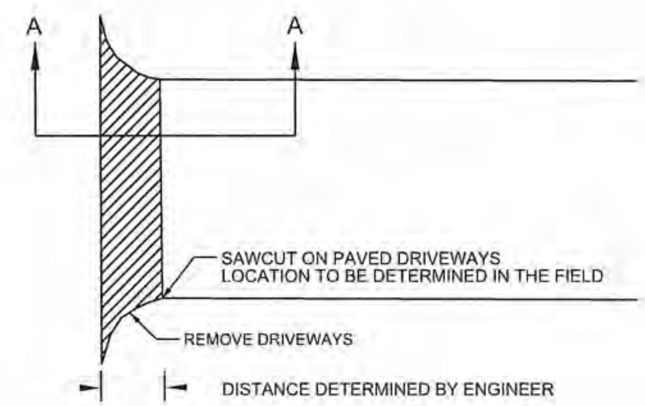


PAVED STREET APPROACHES



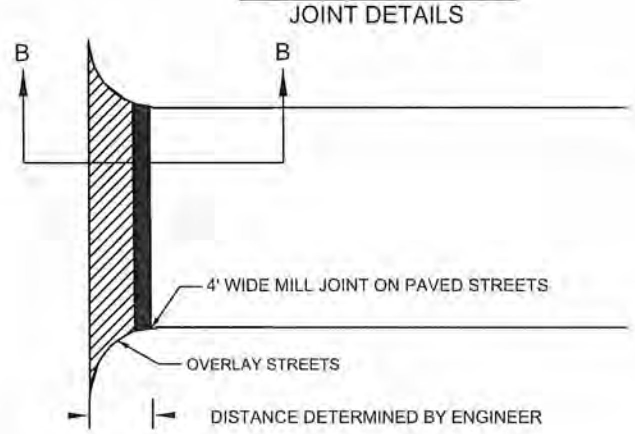
PAVED DRIVEWAYS

JOINT DETAILS

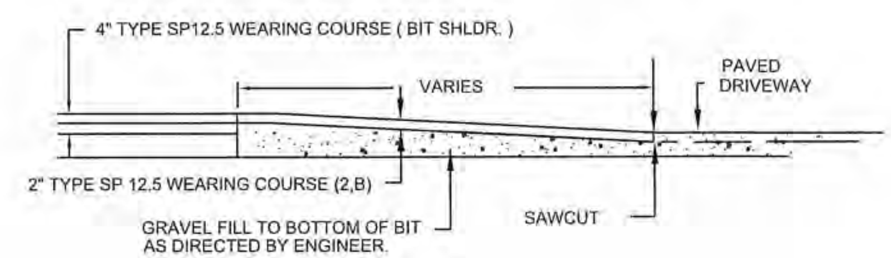


PAVED STREETS

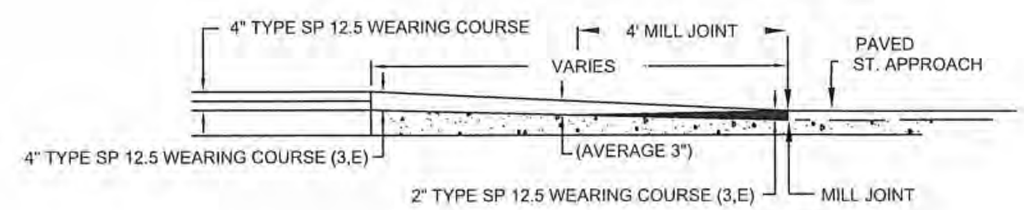
JOINT DETAILS



DRIVEWAY JOINT DETAILS A - A



STREET APPROACH JOINT DETAILS B - B



1 OF 2

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Plan_20\0267820_TS20_J.dgn 04/16/2014 10:38:36 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: Curt Kobilarcsik

DATE: 4-17-14 LICENSE NO. 24756

DRAWN BY NJD DATE 12/20/13

DESIGN BY NJD DATE 08/08/13

CHECKED BY GMP DATE 02/20/14

ANOKA COUNTY

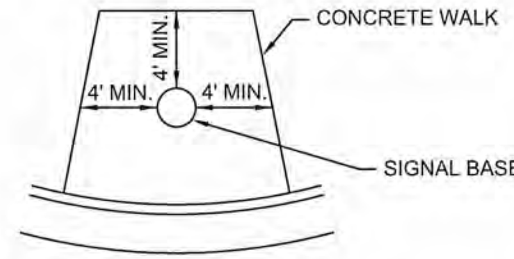
ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.P. 002-678-020

CITY OF ANDOVER S.A.P. 198-020-033

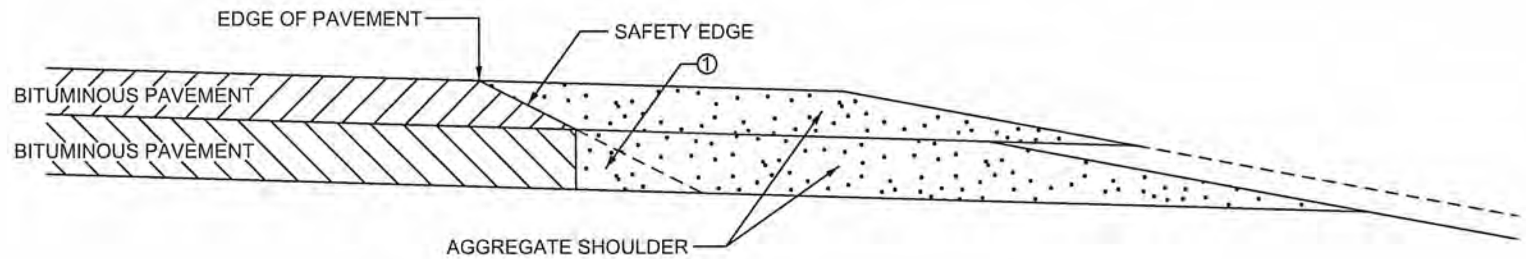
MISCELLANEOUS DETAILS

CONCRETE WALK AT SIGNAL BASES



PROVIDE MINIMUM 4' CONCRETE
WALK ADJACENT TO ALL SIGNAL POLES.

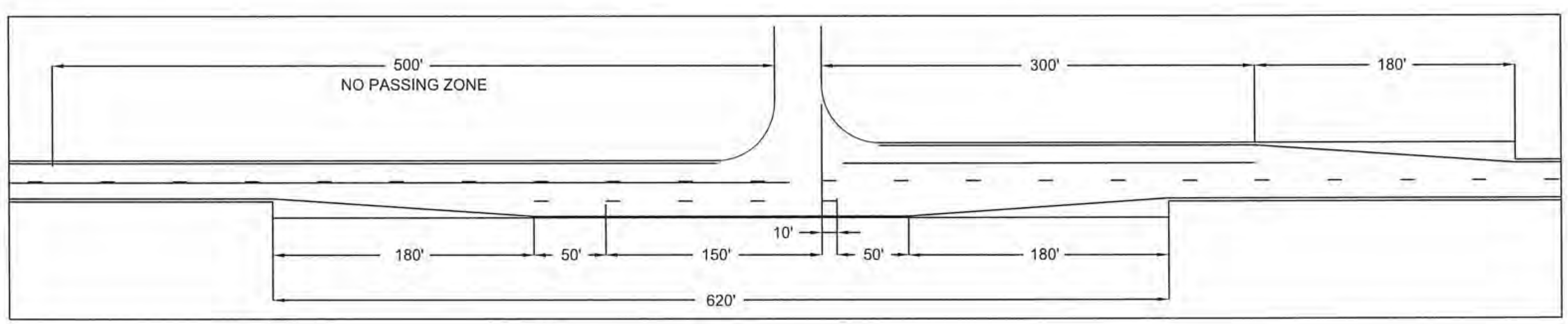
BITUMINOUS PAVEMENT SAFTY EDGE



SAFETY EDGE TO BE USED IN ALL NON-CURB AREAS ON SHOULDER / RIGHT TURN LANES.

① OPTIONAL DESIGN EXTENDS SAFETY EDGE DEEPER
THAN 6" AND WIDER THAN 10.5". SEE SPECIAL PROVISIONS .

RTL / BYPASS LAYOUT



2 OF 2

NO	DATE	BY	CKD	APPR	REVISION	
NAME: P:\02-678-20\Plan_20\0267820_TS20_J.dgn					04/16/2014	10:38:37 AM

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

PRINT NAME: CURT A. KOBILARCSIK

SIGNATURE: Curt Kobilarcsik

DATE: 4-17-14 LICENSE NO. 24756

DRAWN BY NJD DATE 12/20/13
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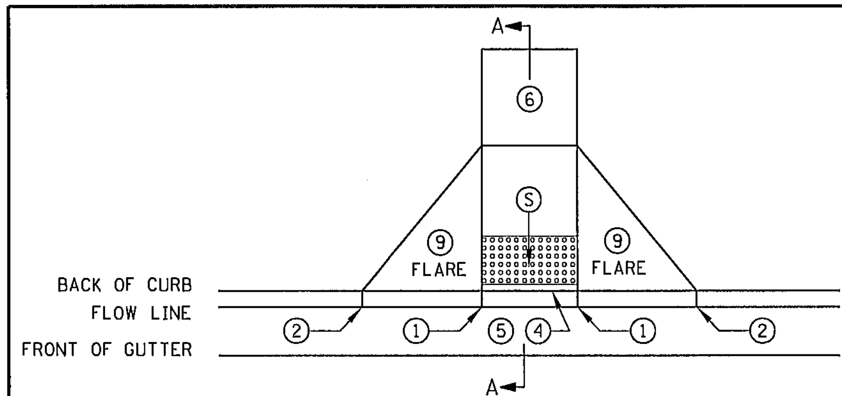
ANOKA COUNTY

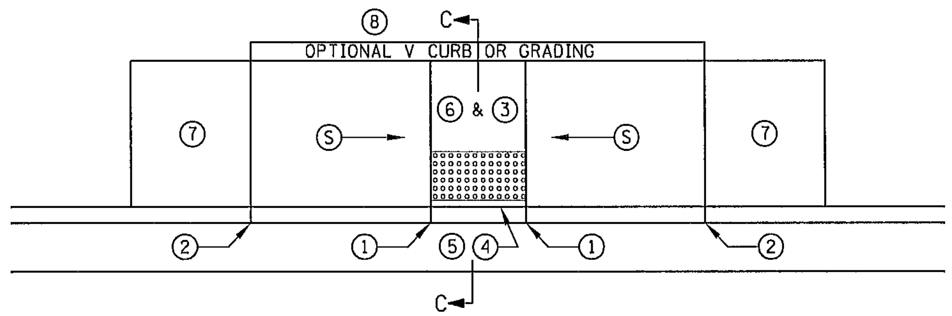
ANOKA COUNTY
HIGHWAY DEPT.

ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

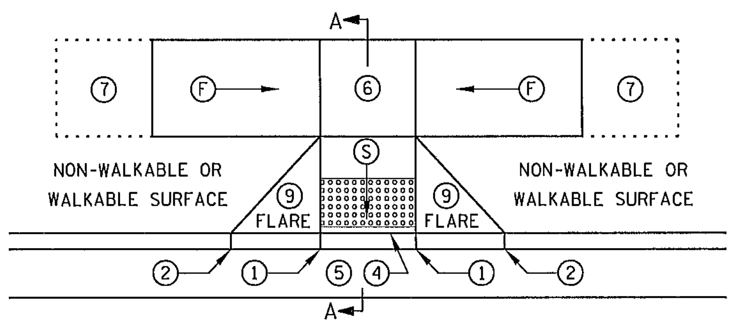
MISCELLANEOUS DETAILS



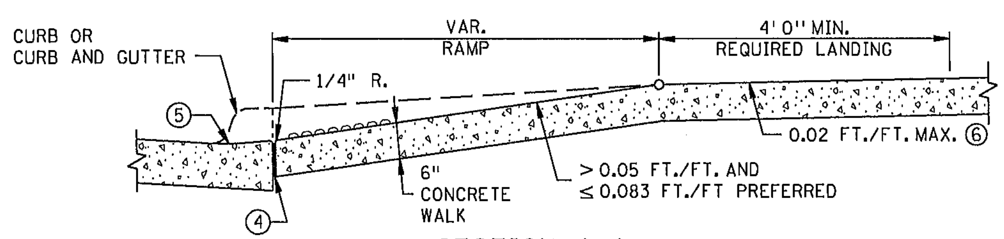
PERPENDICULAR



PARALLEL

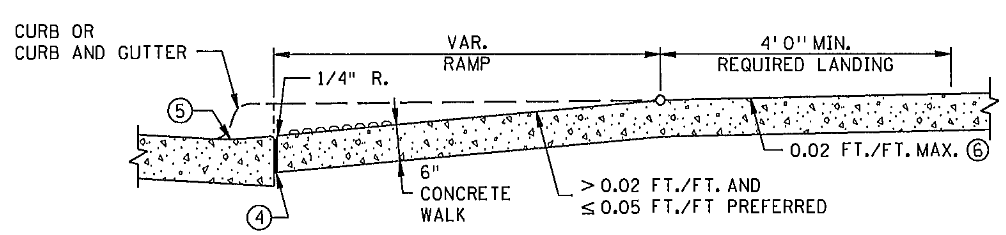


TIERED PERPENDICULAR



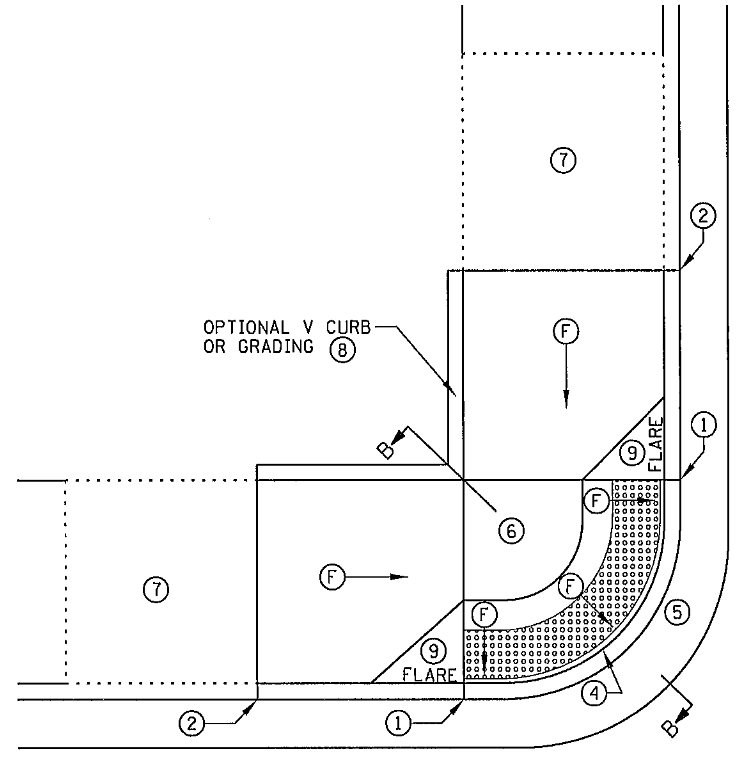
SECTION A-A

PERPENDICULAR/TIERED/DIAGONAL

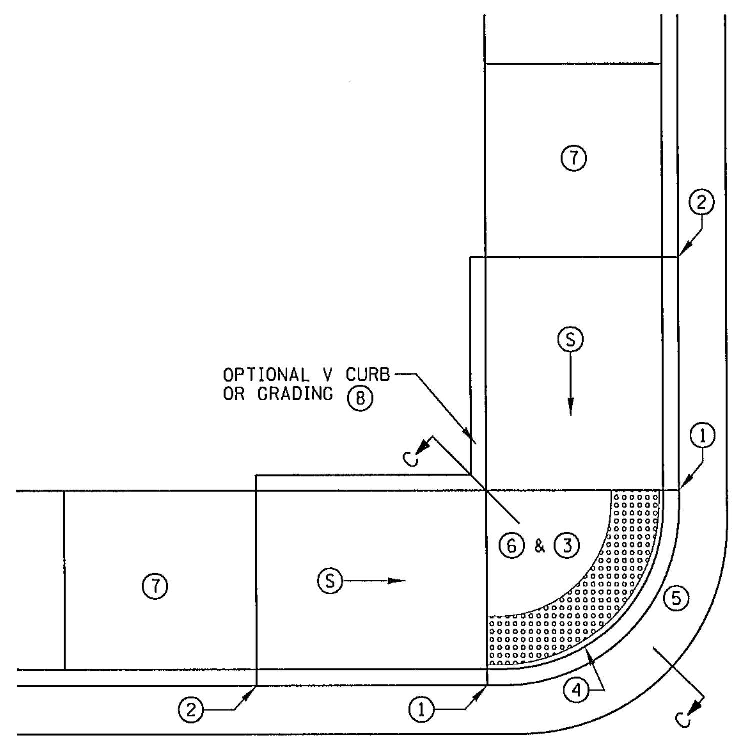


SECTION B-B

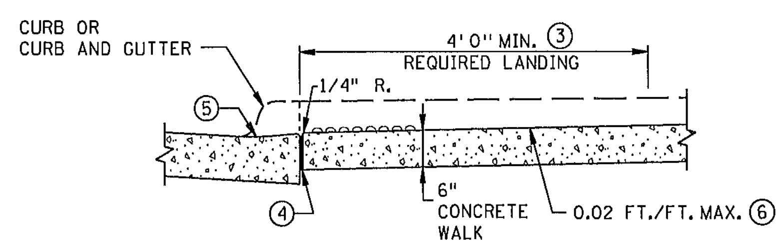
FAN



FAN

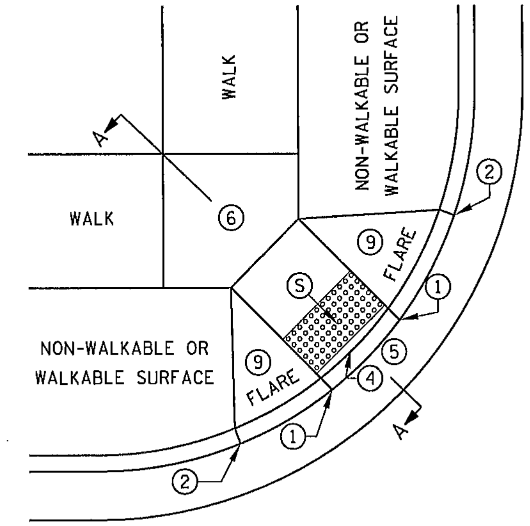


DEPRESSED CORNER



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 CONCTRUCTED, LANDINGS MAY BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 5 WHEN LANDINGS ARE CAST SEPARATELY.

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

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

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

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

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

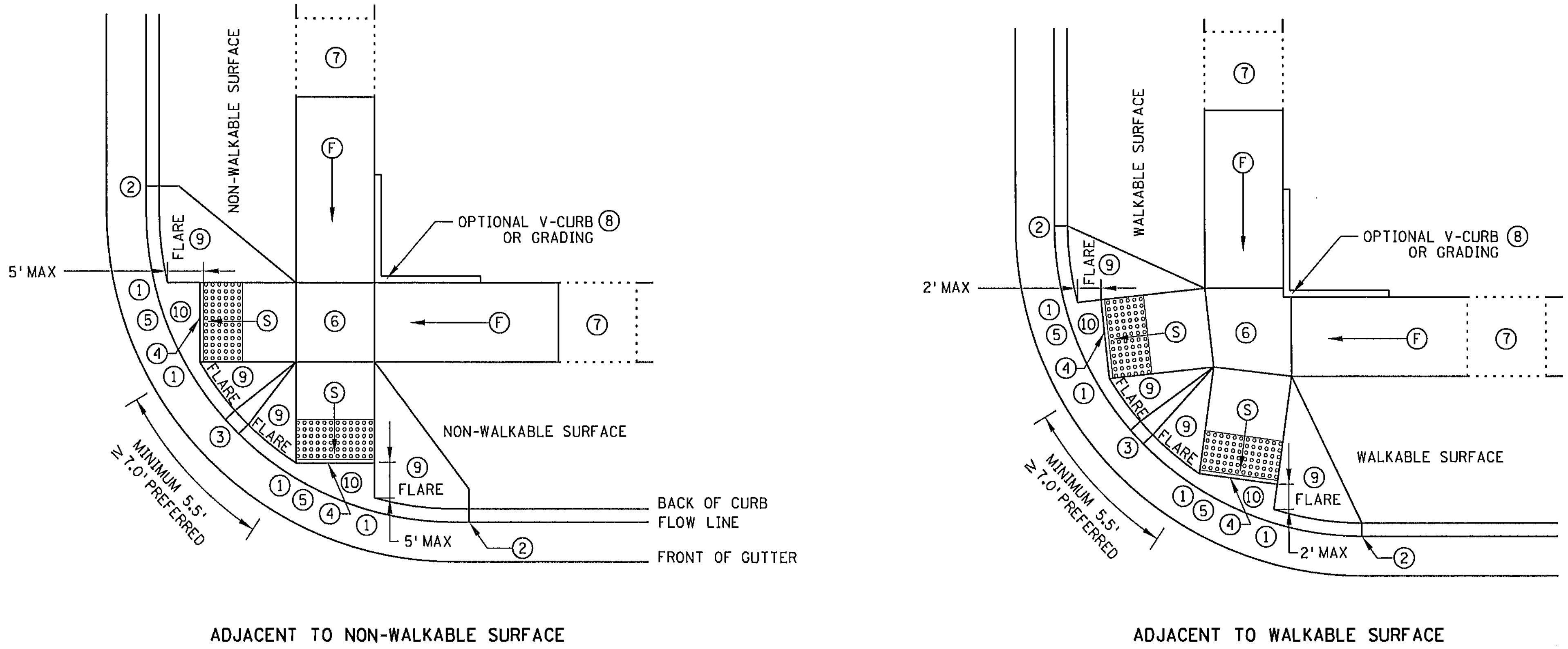
LEGEND

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

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%

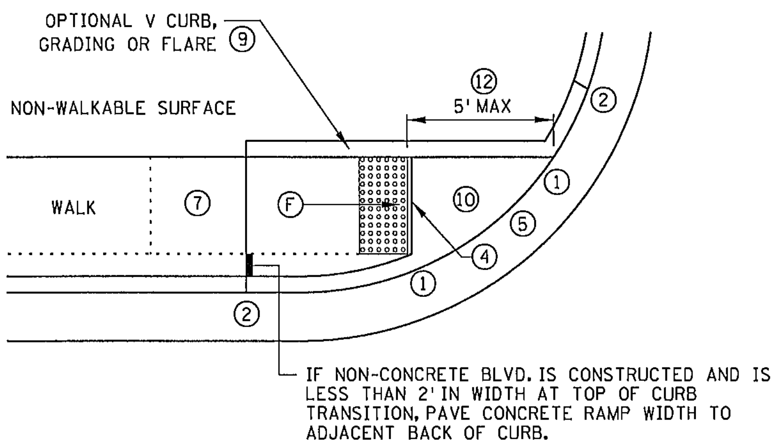
STANDARD PLAN SHEET NO. 5-297.250 (1 OF 5)	**PEDESTRIAN CURB RAMP DETAILS**
STANDARD APPROVED: APRIL 10, 2013	
SP 002-678-020	SHEET NO. 18 OF 111 SHEETS



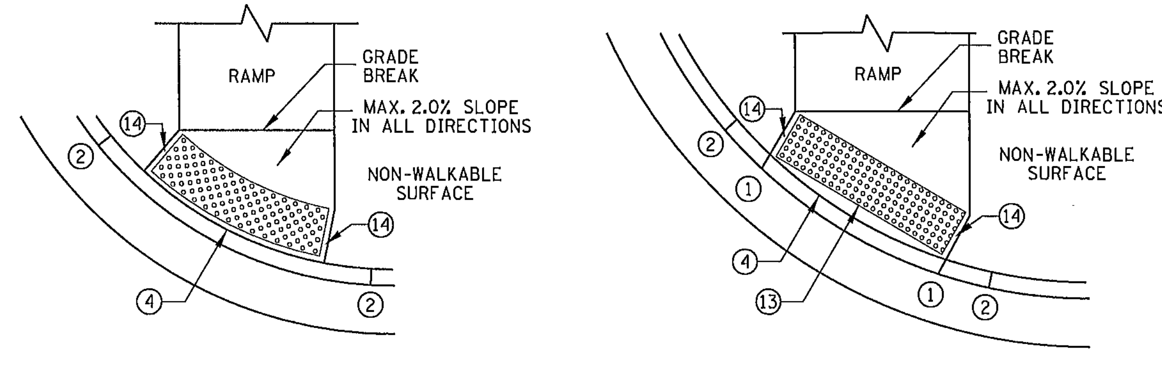
ADJACENT TO NON-WALKABLE SURFACE

ADJACENT TO WALKABLE SURFACE

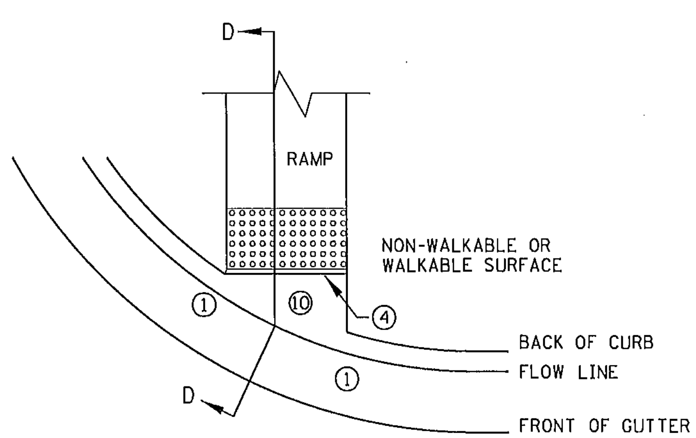
COMBINED DIRECTIONAL ⑮

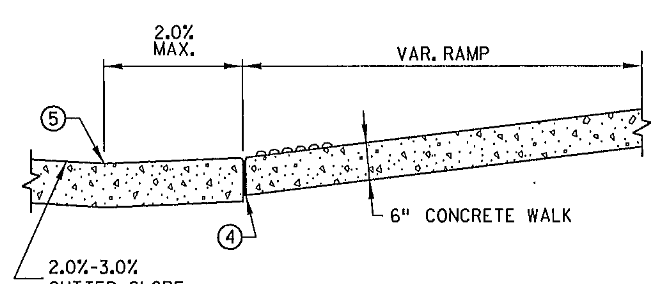


ONE-WAY DIRECTIONAL



DETECTABLE WARNING PLACEMENT WHEN SETBACK CRITERIA IS EXCEEDED





SECTION D-D

CURB FOR DIRECTIONAL RAMPS ⑪

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 CONCTRUCTED, 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.

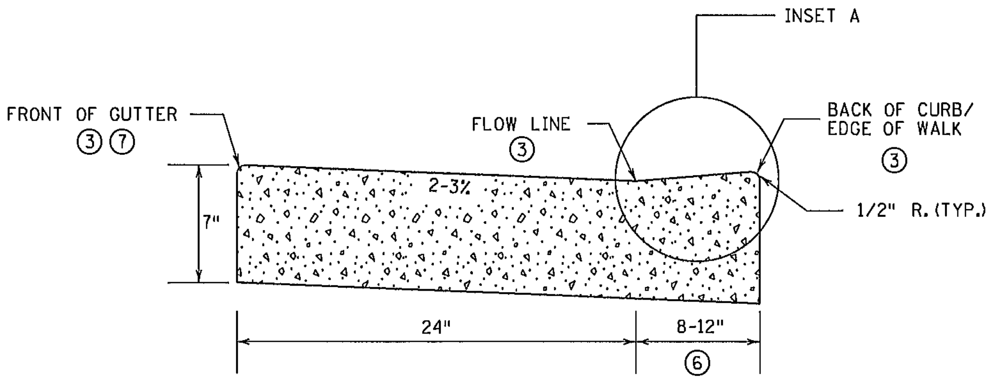
Ⓢ INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%

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

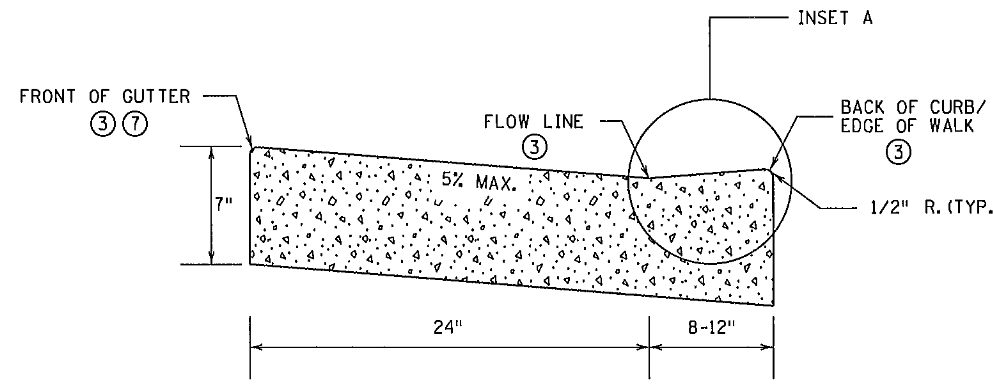
STANDARD PLAN SHEET NO.
5-297.250 (2 OF 5)
STANDARD APPROVED:
APRIL 10, 2013

PEDESTRIAN CURB RAMP DETAILS

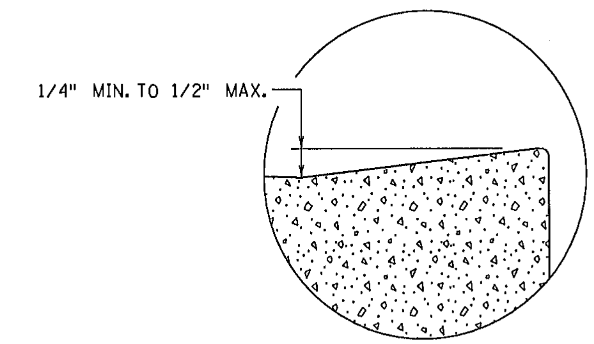
SP 002-678-020



NON PERPENDICULAR ①

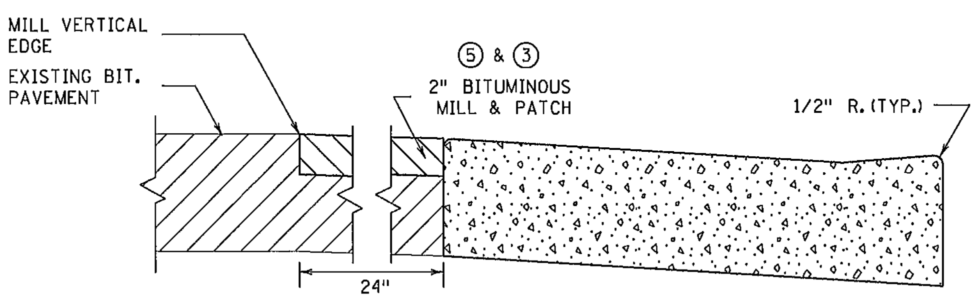


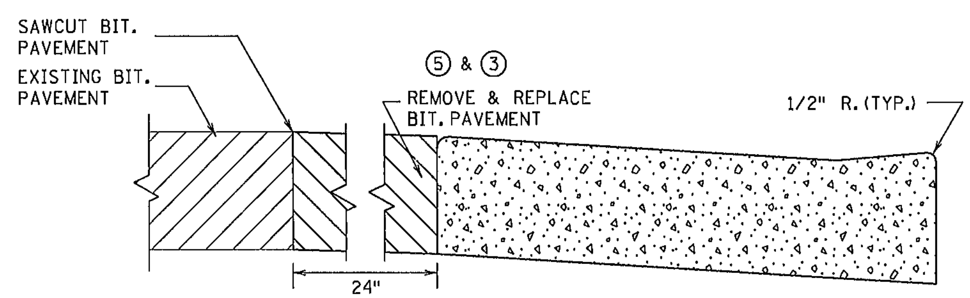
PERPENDICULAR ②

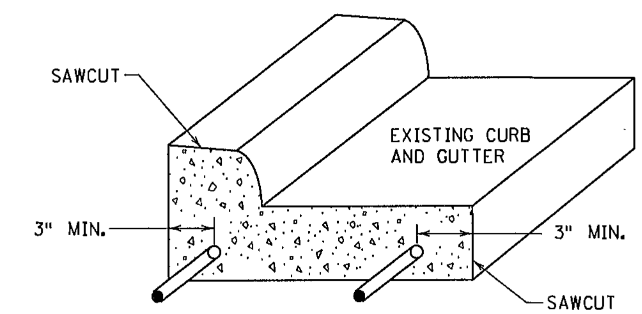


INSET A

PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL

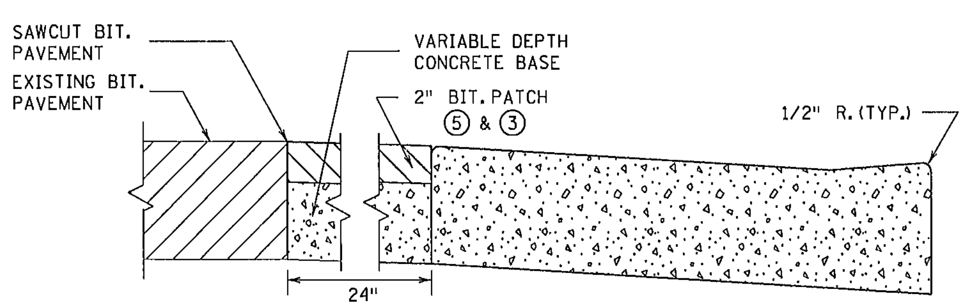


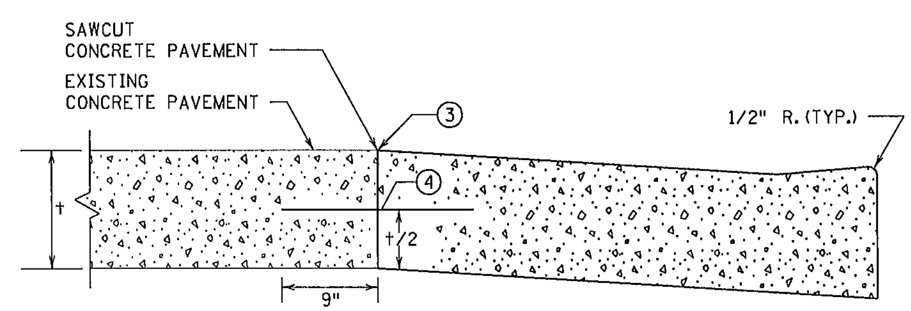




CURB AND GUTTER REINFORCEMENT ⑧

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.

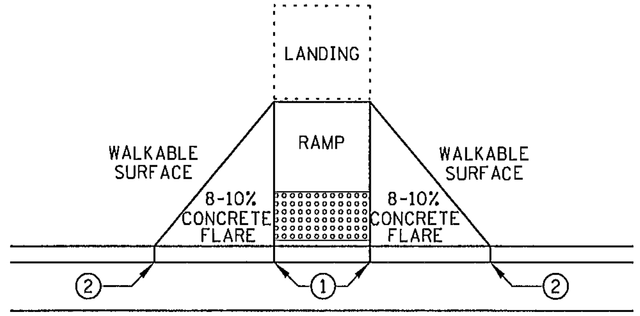
⑤ ELEVATION CHANGE TAKES PLACE FROM THE EXISTING TO NEW FRONT OF GUTTER. PATCH IS USED TO MATCH THE NEW GUTTER FACE INTO THE EXISTING ROADWAY.

⑥ VARIABLE WIDTH FOR DIRECTIONAL CURB APPLICATIONS.

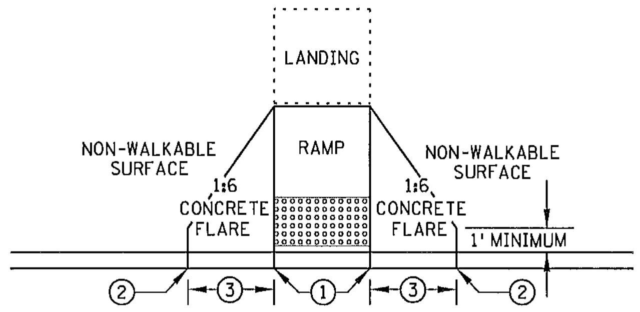
⑦ TOP FRONT OF GUTTER SHALL BE CONSTRUCTED FLUSH WITH PROPOSED ADJACENT PAVEMENT ELEVATION. PAR GUTTER SHALL NOT BE OVERLAID.

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

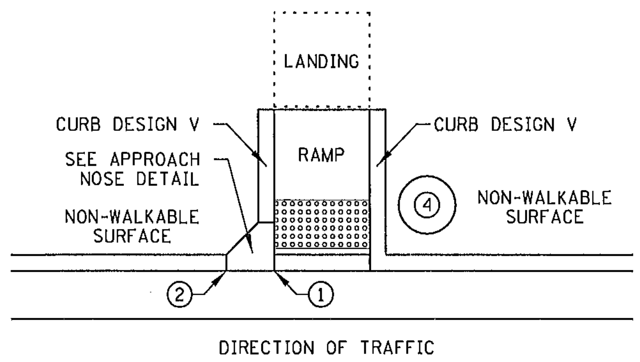
STANDARD PLAN SHEET NO. 5-297.250 (3 OF 5)	PEDESTRIAN CURB RAMP DETAILS
STANDARD APPROVED: APRIL 10, 2013	
SP 002-678-020	SHEET NO. 20 OF 111 SHEETS



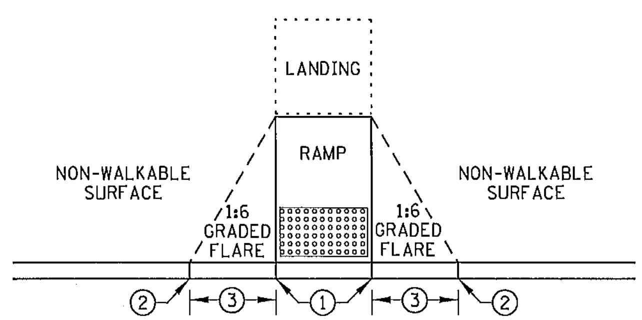
PAVED FLARES
ADJACENT TO WALKABLE SURFACE



PAVED FLARES
ADJACENT TO NON-WALKABLE SURFACE

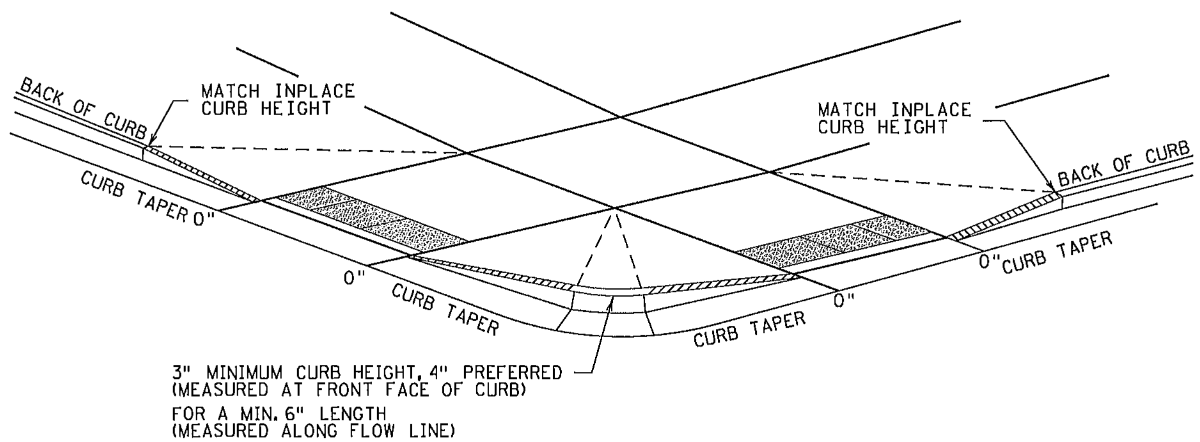


RETURNED CURB

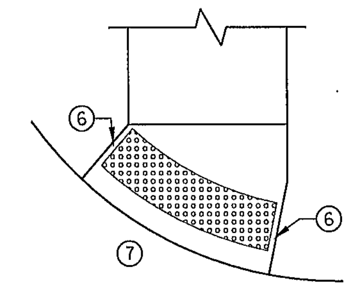


GRADED FLARES

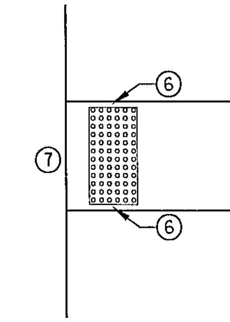
TYPICAL SIDE TREATMENT OPTIONS ⑤



DETECTABLE EDGE WITH
CURB AND GUTTER ⑧

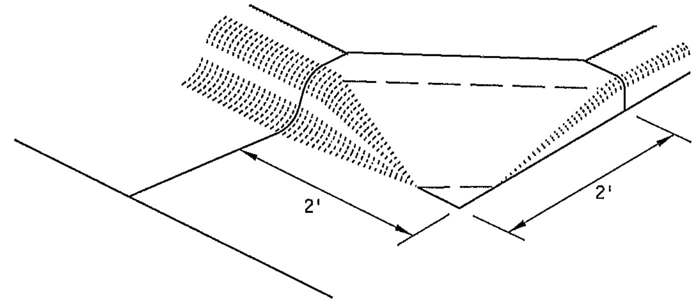


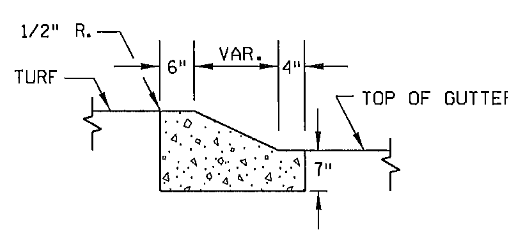
RADIAL DETECTABLE WARNING



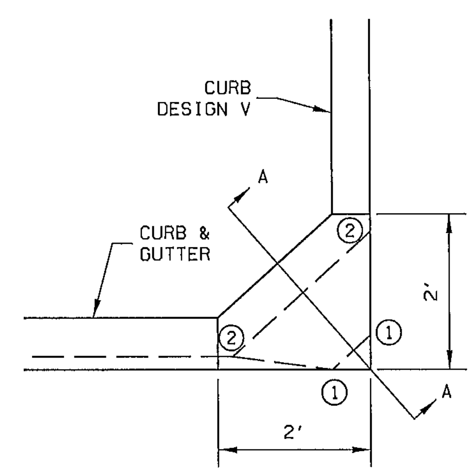
RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER





SECTION A-A



APPROACH NOSE DETAIL

FOR DOWNSTREAM SIDE OF TRAFFIC

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.

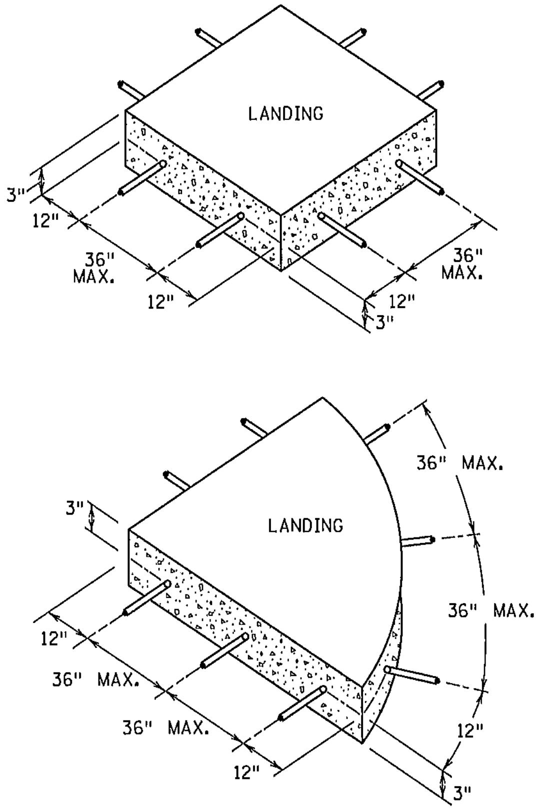
⑤ SIDE TREATMENTS ARE APPLICABLE TO ALL RAMP TYPES AND SHOULD BE IMPLEMENTED AS NEEDED ON ALL RAMPS AS FIELD CONDITIONS DICTATE. THE ENGINEER SHALL DETERMINE THE RAMP SIDE TREATMENTS BASED ON MAINTENANCE OF BOTH ROADWAY AND SIDEWALK, ADJACENT PROPERTY CONSIDERATIONS, AND MITIGATING CONSTRUCTION IMPACTS.

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.

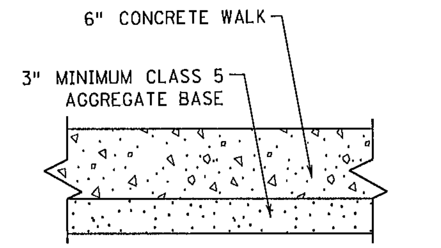
⑦ IF NO CURB AND GUTTER IS PLACED IN RURAL SECTIONS, DETECTABLE WARNINGS SHALL BE PLACED 1' FROM THE EDGE OF ROADWAY TO PROVIDE VISUAL CONTRAST.

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.

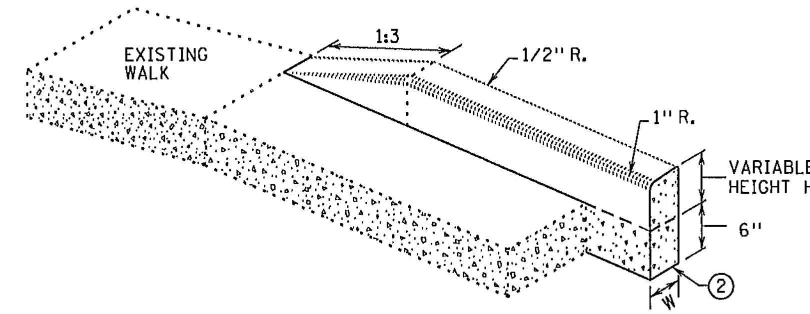
STANDARD PLAN SHEET NO. 5-297.250 (4 OF 5)	PEDESTRIAN CURB RAMP DETAILS
STANDARD APPROVED: APRIL 10, 2013	



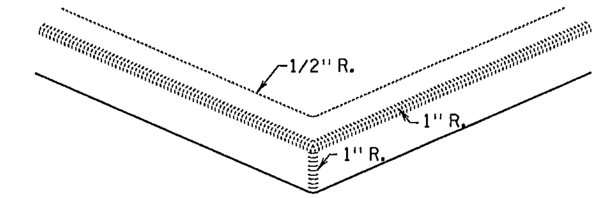
SIDEWALK REINFORCEMENT ⑤ ⑥



TYPICAL SIDEWALK SECTION
WITHIN INTERSECTION CORNER

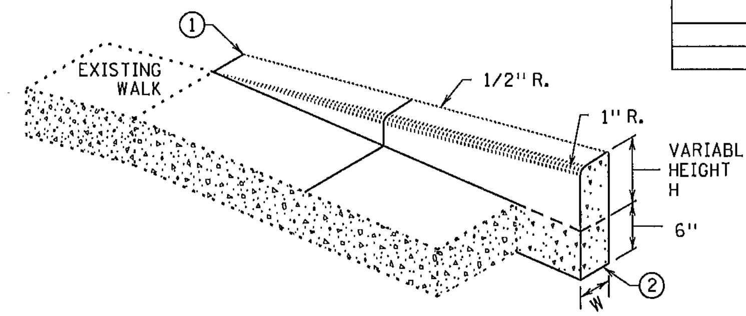


V CURB ADJACENT TO LANDSCAPE
CURB WITHIN SIDEWALK LIMITS

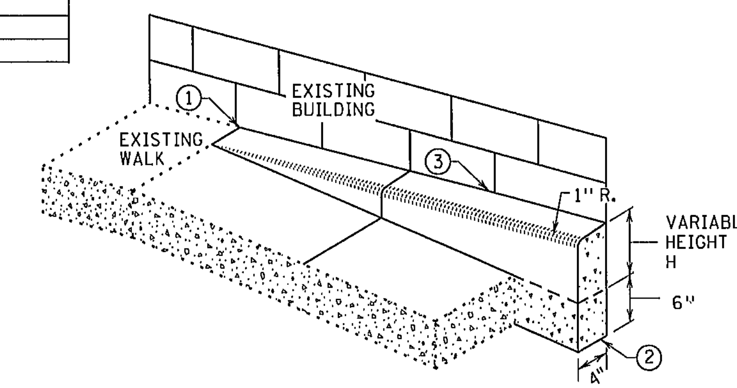


V CURB INTERSECTION

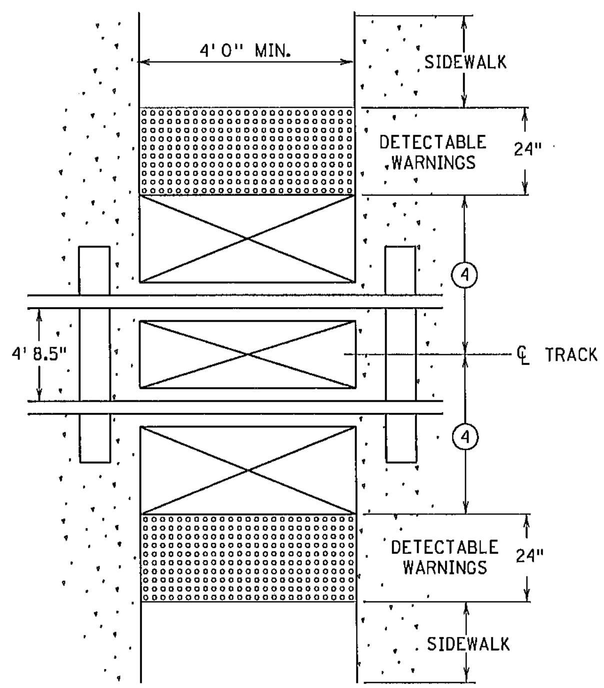
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
< 6"	4"
≥ 6"	6"



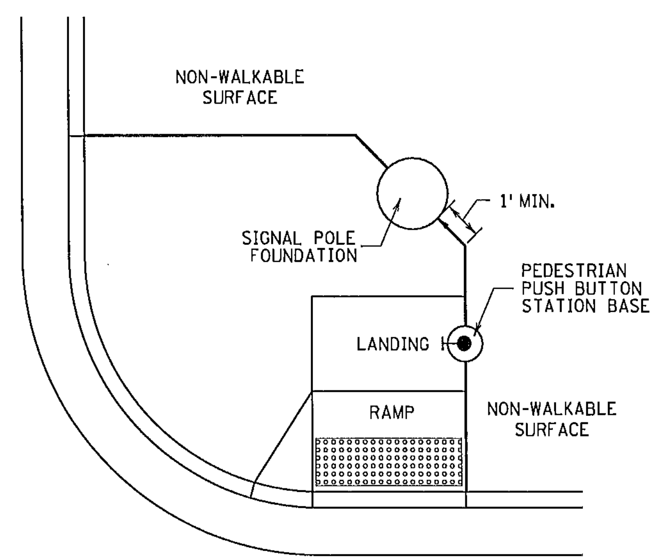
V CURB ADJACENT TO LANDSCAPE
CURB OUTSIDE SIDEWALK LIMITS



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.

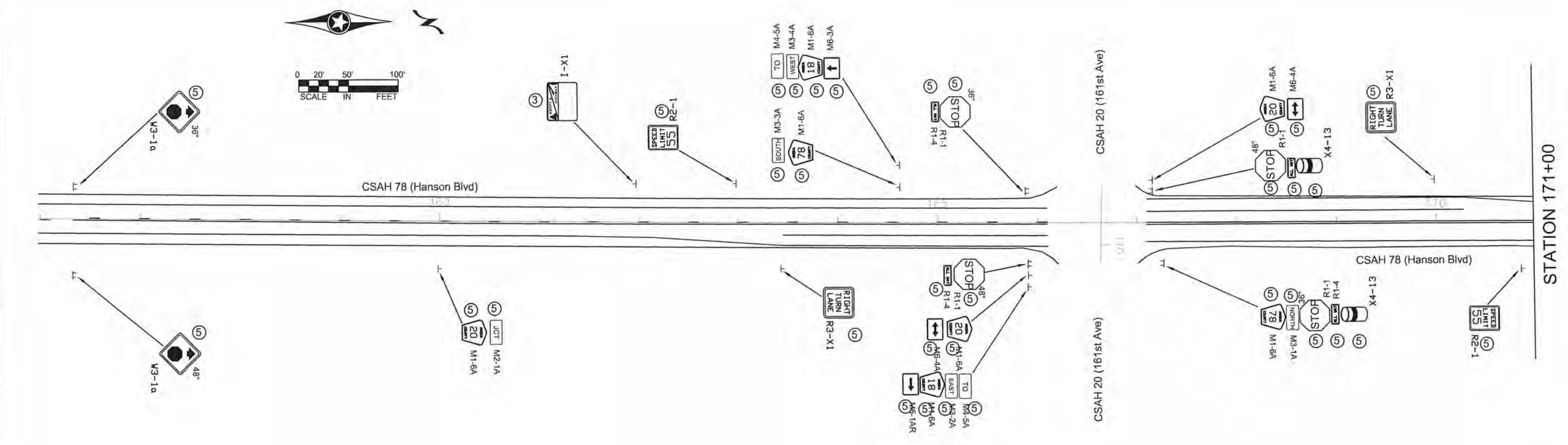
② ALL V CURB SHALL MATCH BOTTOM OF ADJACENT WALK.

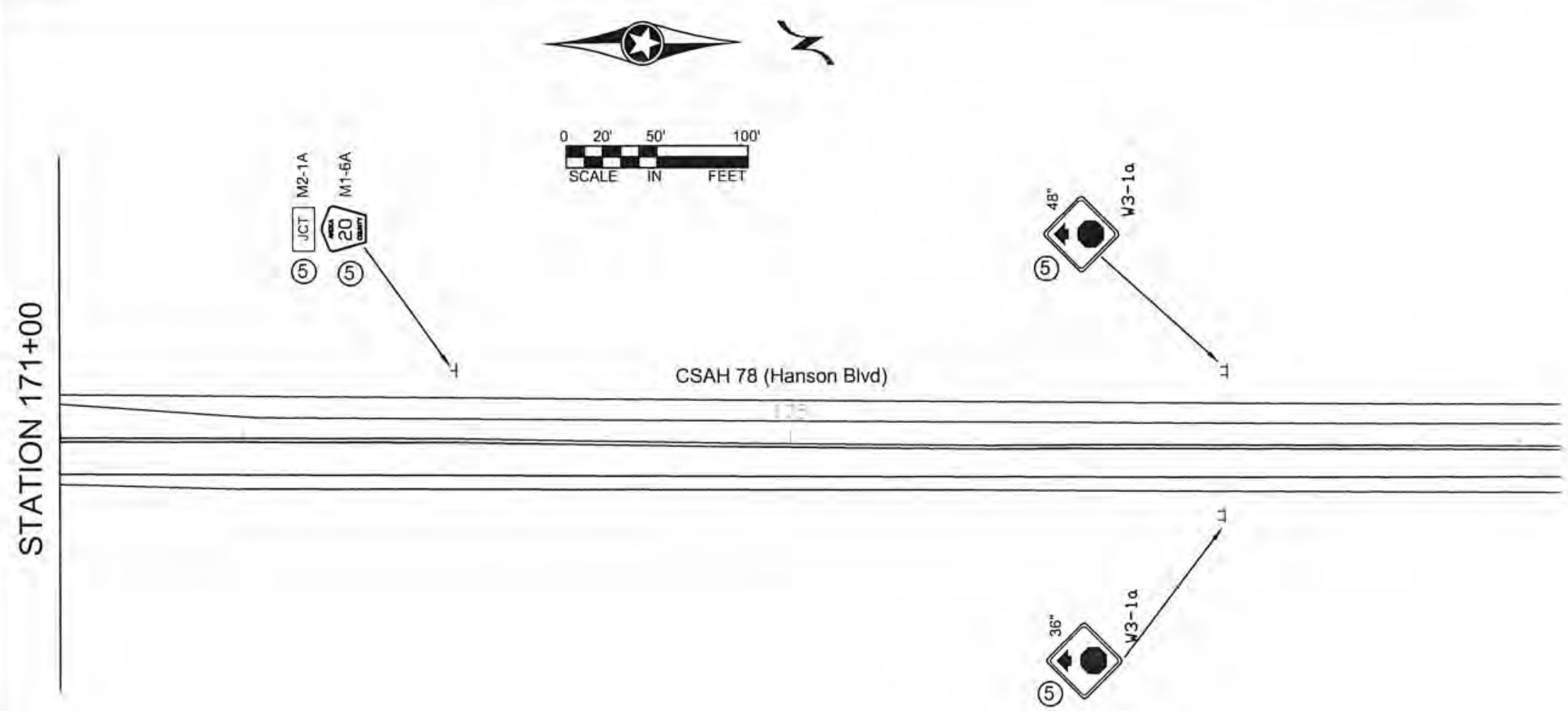
③ EDGE BETWEEN NEW V CURB AND INPLACE STRUCTURE SHALL BE SEALED AND BOND BREAKER SHALL BE USED BETWEEN EXISTING STRUCTURE AND PLACED V-CURB.

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 CONCTRUCTED, LANDINGS MAY BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON THIS SHEET WHEN LANDINGS ARE CAST SEPARATELY.





NOTES:
① FURNISH & INSTALL
② INPLACE
③ SALVAGE FOR RE-USE ON THIS PROJECT
④ INSTALL SALVAGED SIGN
⑤ SALVAGE TO ANOKA COUNTY
⑥
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:\02-678-20\Base\TRAFFIC\02-678-20_EXISTING SIGNING & STRIPING.dwg, 04/15/2014 3:25:36 PM

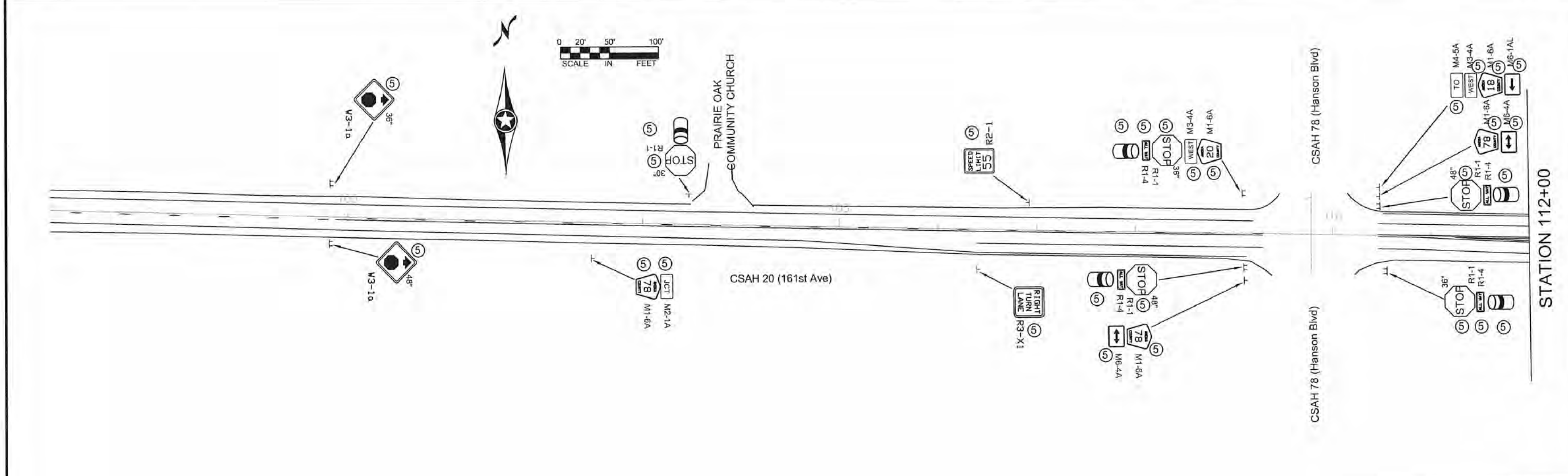
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINT NAME: CURT A. KOBILARCSIK
SIGNATURE: Curt Kobilarcsik
DATE: 4-17-14 LICENSE NO. 24756

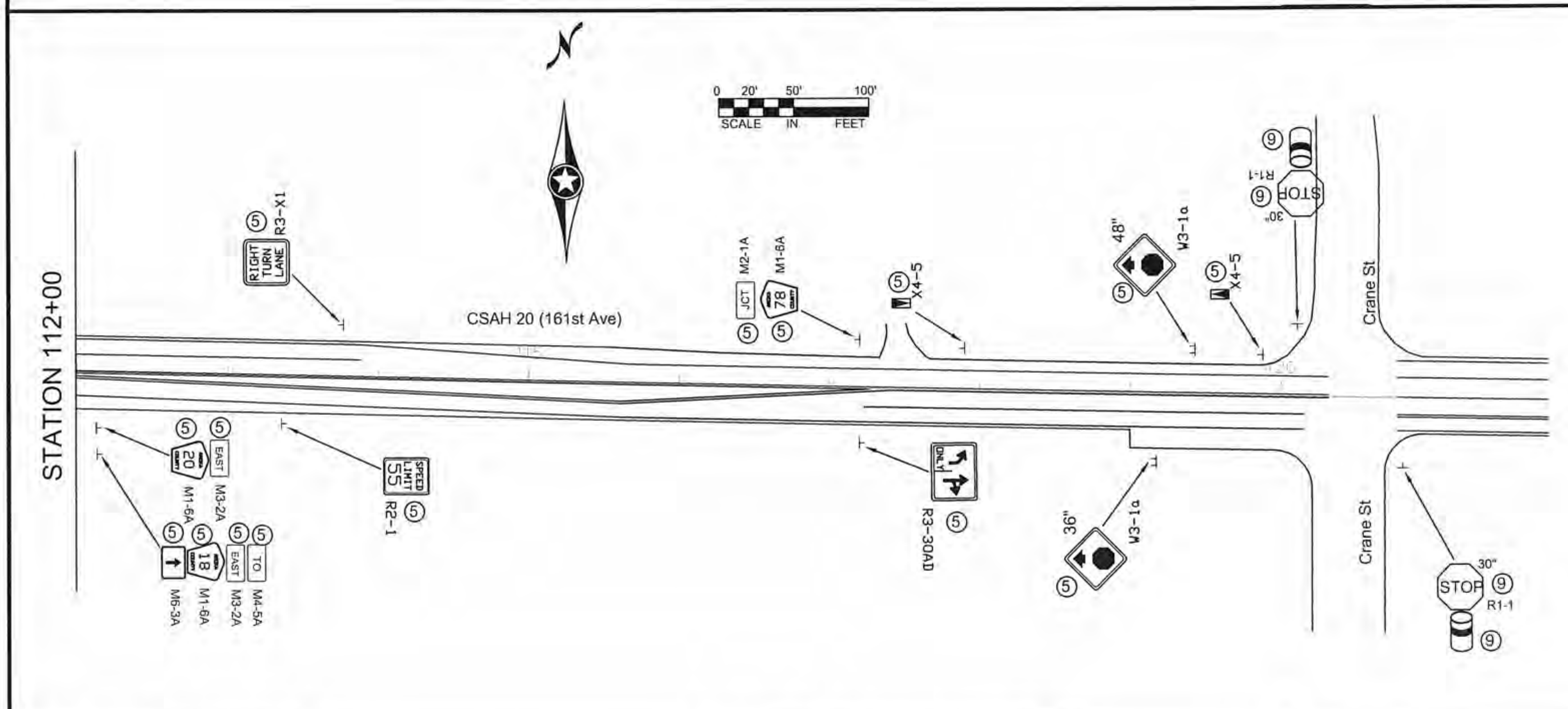
DRAWN BY S.T. DATE 01/08/14
DESIGN BY S.T. DATE 01/08/14
CHECKED BY R.B. DATE 01/13/14

ANOKA COUNTY
ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.A.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

EXISTING SIGNING & STRIPING PLAN





NOTES:
1. FURNISH & INSTALL
2. INPLACE
3. SALVAGE FOR RE-USE ON THIS PROJECT
4. INSTALL SALVAGED SIGN
5. SALVAGE TO ANOKA COUNTY
6.
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:\02-678-20\Base\TRAFFIC\02-678-20_EXISTING SIGNING & STRIPING.dwg, 04/16/2014 8:36:54 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.
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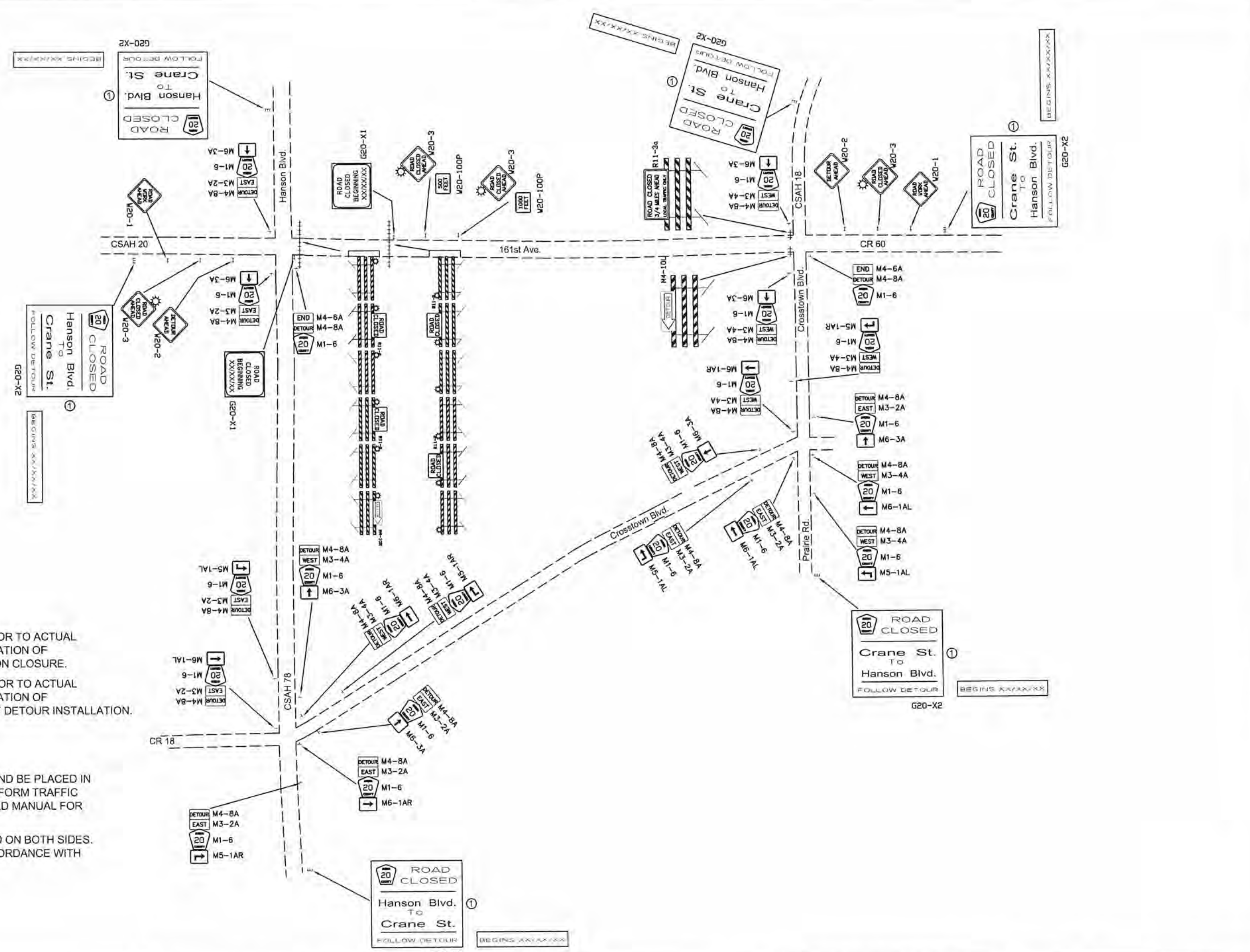
ANOKA COUNTY
ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.A.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

EXISTING SIGNING & STRIPING PLAN

Sheet 24 of 111 Sheets



SPECIFIC NOTES:

① SIGN TO BE PLACED A MINIMUM OF SEVEN DAYS PRIOR TO ACTUAL CLOSING DATE OF ROAD CLOSURE AND IMPLEMENTATION OF DETOUR SIGNING. USE FOLLOW DETOUR PANEL UPON CLOSURE.

② SIGN TO BE PLACED A MINIMUM OF SEVEN DAYS PRIOR TO ACTUAL CLOSING DATE OF ROAD CLOSURE AND IMPLEMENTATION OF DETOUR SIGNING. SIGN TO BE REMOVED AT TIME OF DETOUR INSTALLATION.

GENERAL NOTES:

1) ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE PLACED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), AND PART VI, "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS".

2) ALL TYPE III BARRICADES SHALL BE REFLECTORIZED ON BOTH SIDES. BARRICADES MARKINGS SHALL BE SLANTED IN ACCORDANCE WITH THE MN MUTCD.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Base\TRAFFIC\CSAH20_detour.dwg, 04/15/2014 3:30:51 PM

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
DATE: 4-17-14 REG. NO. 24756

DRAWN BY S.T. DATE 01/06/14
DESIGN BY S.T. DATE 01/06/14
CHECKED BY R.B. DATE 01/06/14

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.A.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

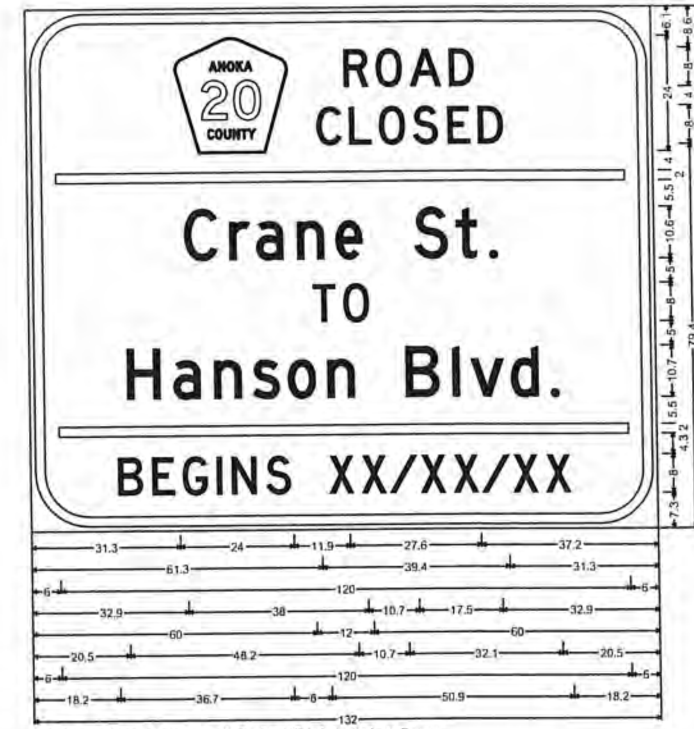
02-678-20
DETOUR

Sheet 25 of 111 Sheets

M. U. T. C. D. CODE	SIZE	INSERT	QUANTITY
W20-1	48" x 48"	ROAD WORK AHEAD	2
W20-2	48" x 48"	DETOUR AHEAD	2
W20-3 w/ FLASHER	48" x 48"	ROAD CLOSED AHEAD	4
		500 FEET	1
W20-100P	42" x 24"	1000 FEET	1
M4-10L TYPE III	48" x 18" 8 FOOT	DETOUR	1
FLASHER M4-10R TYPE III	 48" x 18" 8 FOOT	DETOUR	1
FLASHER R11-2 TYPE III	 48" x 30" 8 FOOT	ROAD CLOSED	4
R11-3 TYPE III	60" x 30" 8 FOOT	ROAD CLOSED 3/4 MILES AHEAD LOCAL TRAFFIC ONLY	1
FLASHER TYPE III	 8 FOOT		4
FLASHER TYPE III	 8 FOOT		4

M. U. T. C. D. CODE	SIZE	INSERT	QUANTITY
G20-X2	132" x 108"	20 ROAD CLOSED Hanson Blvd. To Crane St. BEGINS XX/XX/XX FOLLOW DETOUR ①	3
G20-X2	132" x 108"	20 ROAD CLOSED Crane St. To Hanson Blvd. BEGINS XX/XX/XX FOLLOW DETOUR ①	3
G20-X1	54" x 48"	ROAD CLOSED BEGINNING MONTH DAY ②	1
M4-8 M3-2A M1-6	24" x 12" 24" x 12" 24" x 24" 21" x 15"	DETOUR EAST ANOKA 20 COUNTY M6-3A M5-1AL M6-1AL M5-1AR M6-1AR	 4 2 2 1 1
M4-8 M3-4A M1-6	24" x 12" 24" x 12" 24" x 24" 21" x 15"	DETOUR WEST ANOKA 20 COUNTY M5-1AR M6-1AR M6-3A M5-1AL M6-1AL	 2 2 4 1 1
M4-6A M4-8 M1-6	24" x 12" 24" x 12" 24" x 24"	END DETOUR ANOKA 20 COUNTY	2

G20-X2_132x108; 12.0" Radius, 2.0" Border, 1.0" Indent, Black on Orange;
[ROAD] D; [CLOSED] D; [Hanson Blvd.] D; [TO] D; [Crane St.] D; [BEGINS] D; [XX/XX/XX] D;



G20-X2_132x108; 12.0" Radius, 2.0" Border, 1.0" Indent, Black on Orange;
[ROAD] D; [CLOSED] D; [Crane St.] D; [TO] D; [Hanson Blvd.] D; [BEGINS] D; [XX/XX/XX] D;

SPECIFIC NOTES:

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NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Base\TRAFFIC\CSAH20_detour.dwg, 04/15/2014 3:30:57 PM

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
DATE: 4-17-14 REG. NO. 24756

DRAWN BY S.T. DATE 01/06/14
DESIGN BY S.T. DATE 01/06/14
CHECKED BY R.B. DATE 01/06/14

ANOKA COUNTY HIGHWAY DEPT.

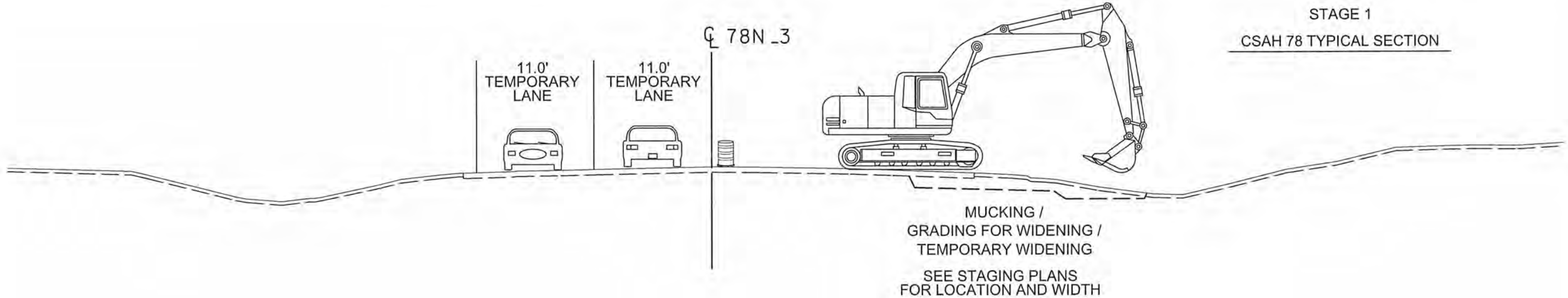
ANOKA COUNTY S.A.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

02-678-20
DETOUR

Sheet 26 of 111 Sheets

STAGE 1

CSAH 78 TYPICAL SECTION

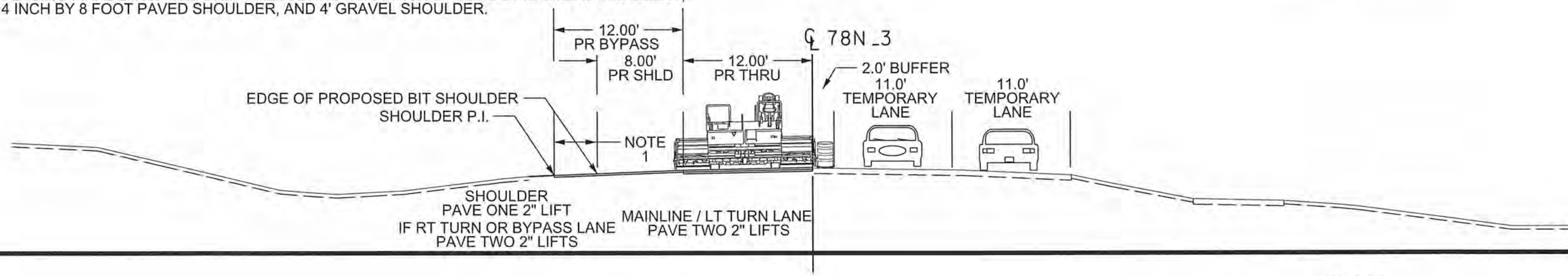


STAGE 2

CSAH 78 TYPICAL SECTION
OUTSIDE 78 & 20 INTERSECTION

NOTE 1: TEMPORARILY PAVE (2" LIFT) THE AREA BETWEEN THE PROPOSED EDGE OF BIT SHOULDER AND THE PROPOSED AGGREGATE SHOULDER P.I. IN AREAS INDICATED ON THE CONSTRUCTION STAGING PLAN SHEETS.

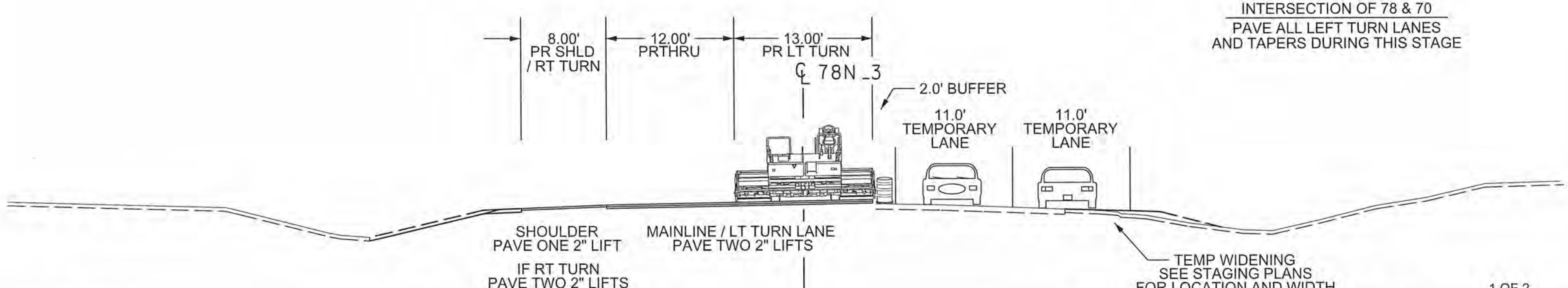
THIS AREA IS APPROXIMATELY 4.0' AND WILL BE SAWCUT AND REMOVED PRIOR TO PLACING FINAL 2 INCH WEAR LIFT RESULTING IN A 6 INCH BY 12 FOOT MAINLINE PAVEMENT, 4 INCH BY 8 FOOT PAVED SHOULDER, AND 4' GRAVEL SHOULDER.



STAGE 2

INTERSECTION OF 78 & 70

PAVE ALL LEFT TURN LANES
AND TAPERS DURING THIS STAGE



1 OF 2

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Plan_20\0267820_STG_TYP.dgn 04/16/2014 2:22:47 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:

DATE: 4-17-14 LICENSE NO. 24756

DRAWN BY NJD DATE 3/7/14

DESIGN BY NJD DATE 8/8/13

CHECKED BY GMP DATE 3/7/14

ANOKA COUNTY

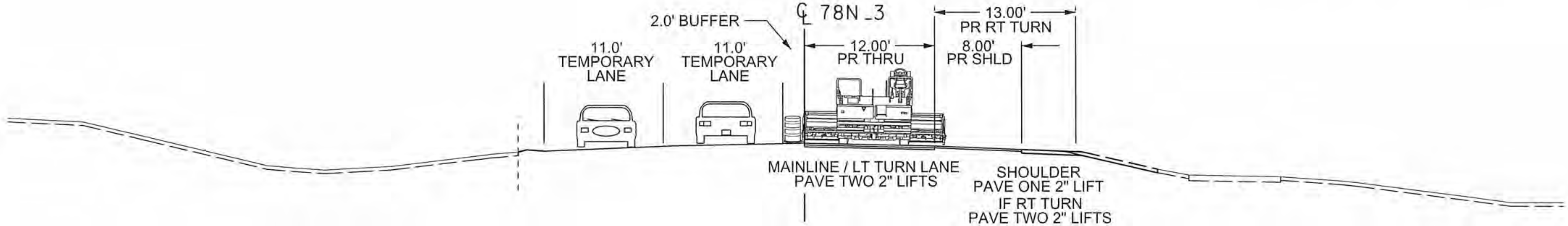
ANOKA COUNTY
HIGHWAY DEPT.

ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

CONSTRUCTION STAGING
TYPICAL SECTIONS

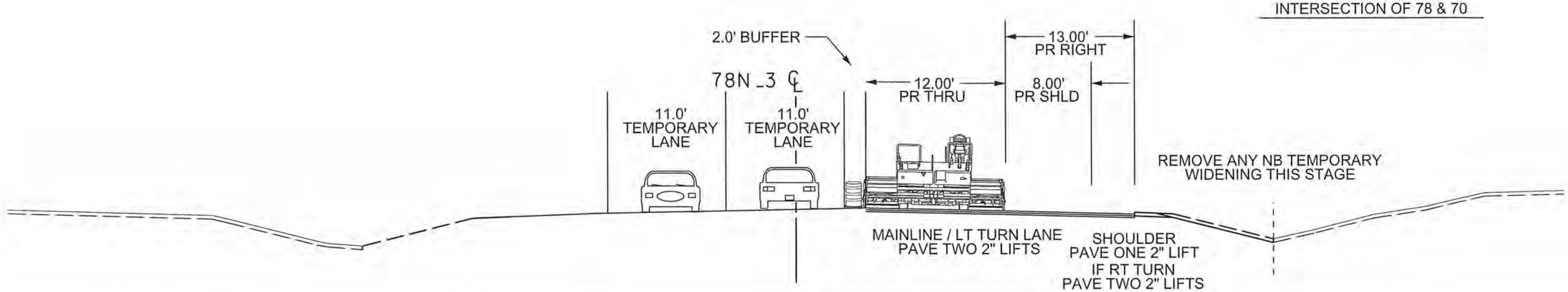
STAGE 3

CSAH 78 TYPICAL SECTION
OUTSIDE 78 & 20 INTERSECTION



STAGE 3

INTERSECTION OF 78 & 70



MISCELLANEOUS CONSTRUCTION STAGING NOTES

CSAH 20 WEST OF CSAH 78

- TWO LANE TWO WAY THROUGH TRAFFIC MUST BE MAINTAINED THROUGH STAGE 1 AND STAGE 2 AT ALL TIMES. 11.0' TEMPORARY LANE WIDTHS MINIMUM. TEMPORARY TRAFFIC LAYOUTS IN THIS SECTION MUST FOLLOW 2011 MNMUTCD AND THE TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS FIELD MANUAL FROM 2013

- THE PROPOSED SURFACE MUST BE BROUGHT TO THE FINAL BASE COURSE OF BITUMINOUS PRIOR TO STAGE 3

- TWO LANE TWO WAY THROUGH TRAFFIC MUST BE MAINTAINED THROUGH STAGE 1 AND STAGE 2 AT ALL TIMES. 11.0' TEMPORARY LANE WIDTHS MINIMUM.

CSAH 20 EAST OF CSAH 78

- CSAH 20 EAST OF CSAH 78 WILL BE CLOSED TO THROUGH TRAFFIC DURING STAGE 1 & STAGE 2.

- THE PROPOSED SURFACE MUST BE BROUGHT TO THE FINAL BASE COURSE OF BITUMINOUS PRIOR TO STAGE 3.

STAGE 4 (NOT SHOWN)

- STAGE 4 SHALL CONSIST OF THE REMOVAL OF ANY AND ALL REMAINING TEMPORARY WIDENING WITHIN THE PROJECT. THIS INCLUDES SAWCUTTING THE TEMPORARILY WIDENED AREAS IN THE SOUTHBOUND SHOULDER DURING STAGE 2.

-THE CONTRACTOR MUST PLACE THE FINAL 2" OF WEAR BITUMINOUS DURING THIS STAGE, ALONG WITH ALL FINAL SIGNING AND STRIPING ITEMS.

-TEMPORARY TRAFFIC LAYOUTS IN THIS SECTION MUST FOLLOW 2011 MNMUTCD AND THE TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS FIELD MANUAL FROM 2013

2 OF 2

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Plan_20\0267820_STG_TYP.dgn 04/16/2014 2:22:48 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: 4-17-14 LICENSE NO. 24756

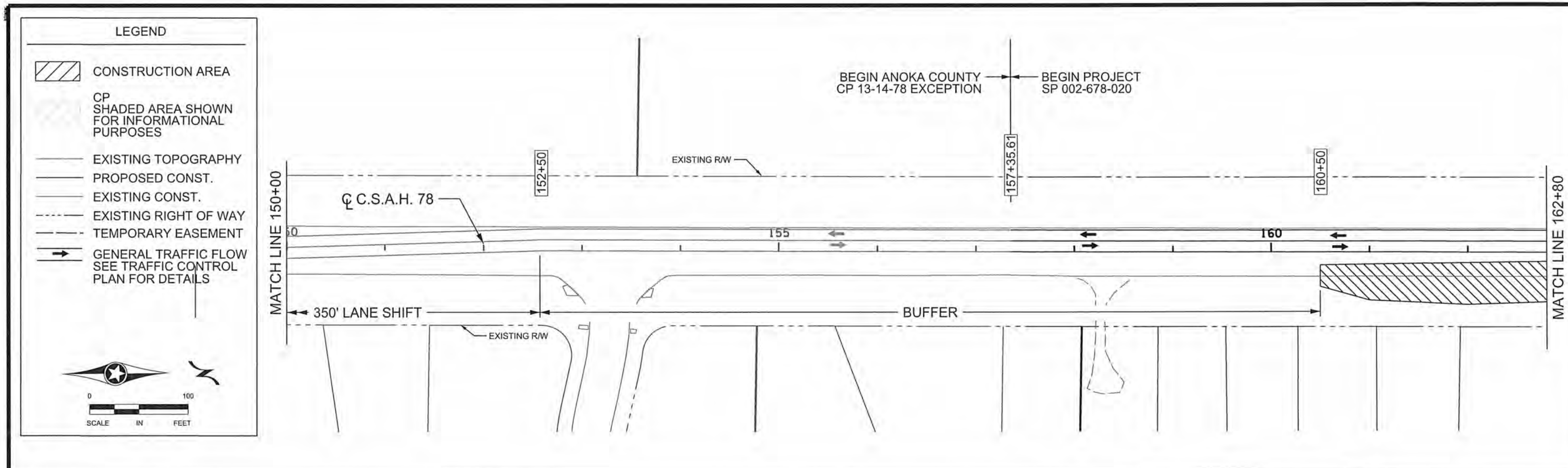
DRAWN BY NJD DATE 3/7/14
DESIGN BY NJD DATE 8/8/13
CHECKED BY GMO DATE 3/7/14

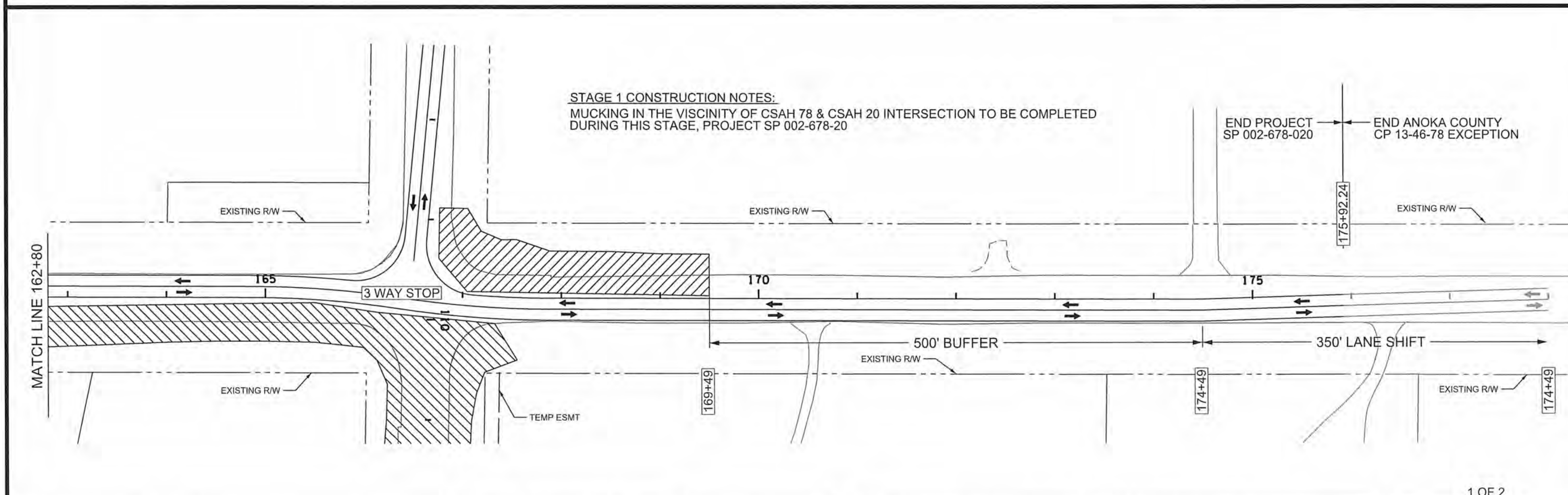
ANOKA COUNTY
ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

CONSTRUCTION STAGING TYPICAL SECTIONS

Sheet 28 of 111 Sheets





1 OF 2

NO	DATE	BY	CKD	APPR	REVISION

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ANOKA COUNTY
HIGHWAY DEPT.

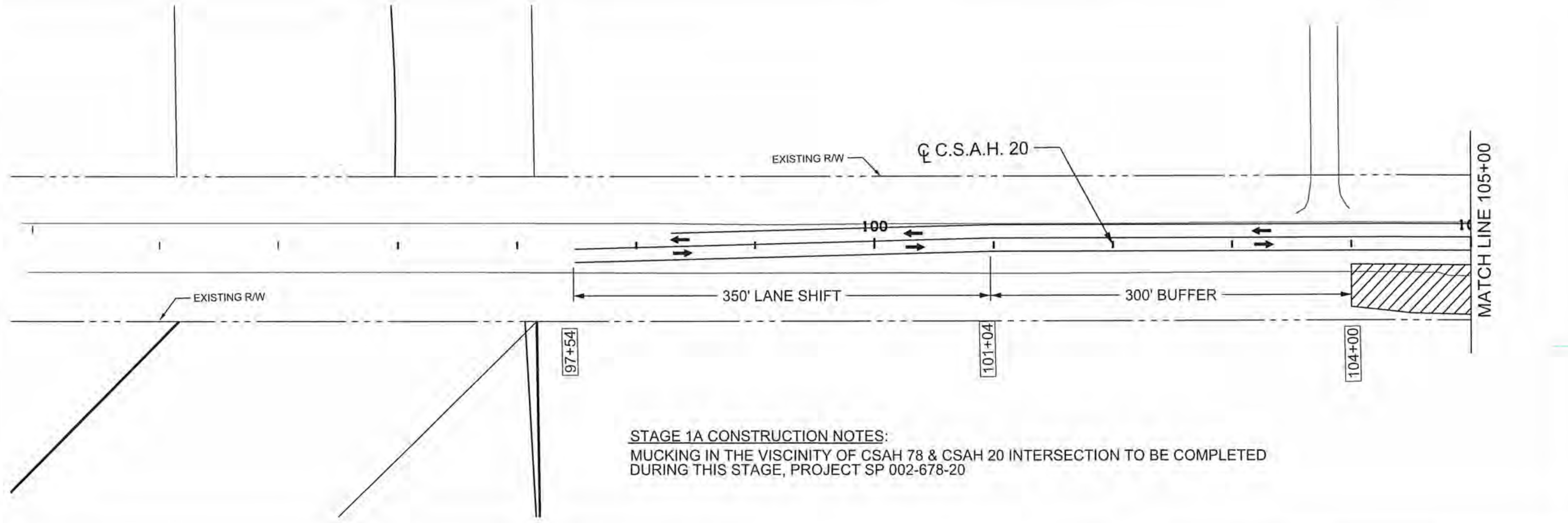
ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

STAGING PLAN
STAGE 1A

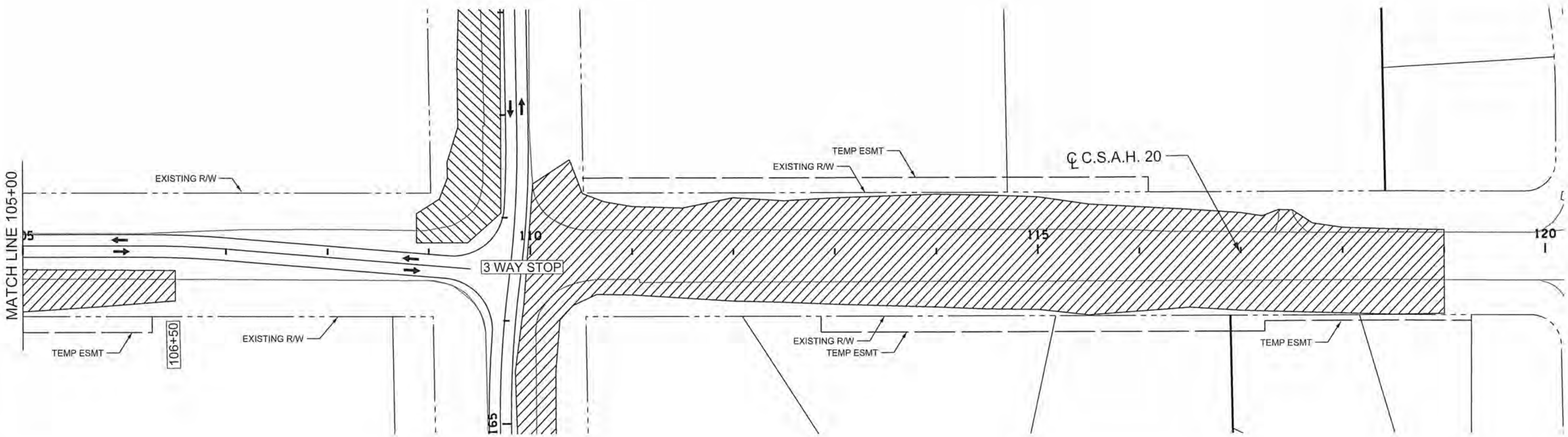
LEGEND

- CONSTRUCTION AREA
- CP 13-46-78 SHADED AREA SHOWN FOR INFORMATIONAL PURPOSES
- EXISTING TOPOGRAPHY
- PROPOSED CONST.
- EXISTING CONST.
- EXISTING RIGHT OF WAY
- TEMPORARY EASEMENT
- GENERAL TRAFFIC FLOW SEE TRAFFIC CONTROL PLAN FOR DETAILS

0 100
SCALE IN FEET



STAGE 1A CONSTRUCTION NOTES:
MUCKING IN THE VISCINITY OF CSAH 78 & CSAH 20 INTERSECTION TO BE COMPLETED DURING THIS STAGE, PROJECT SP 002-678-20



2 OF 2

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.
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SIGNATURE: CurtKobilarcsik
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CITY OF ANDOVER S.A.P. 198-020-033

STAGING PLAN
STAGE 1A

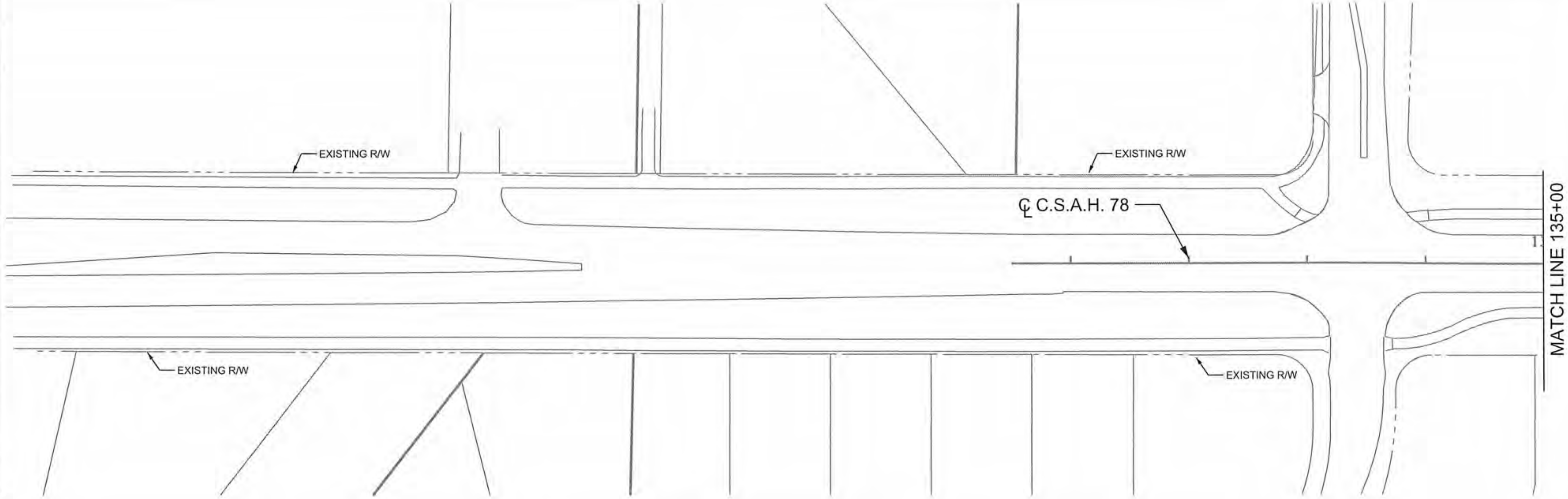
Sheet 30 of 111 Sheets

LEGEND

- CONSTRUCTION AREA
- CP 13-46-78 SHADED AREA SHOWN FOR INFORMATIONAL PURPOSES
- EXISTING TOPOGRAPHY
- PROPOSED CONST.
- EXISTING CONST.
- EXISTING RIGHT OF WAY
- TEMPORARY EASEMENT
- GENERAL TRAFFIC FLOW SEE TRAFFIC CONTROL PLAN FOR DETAILS

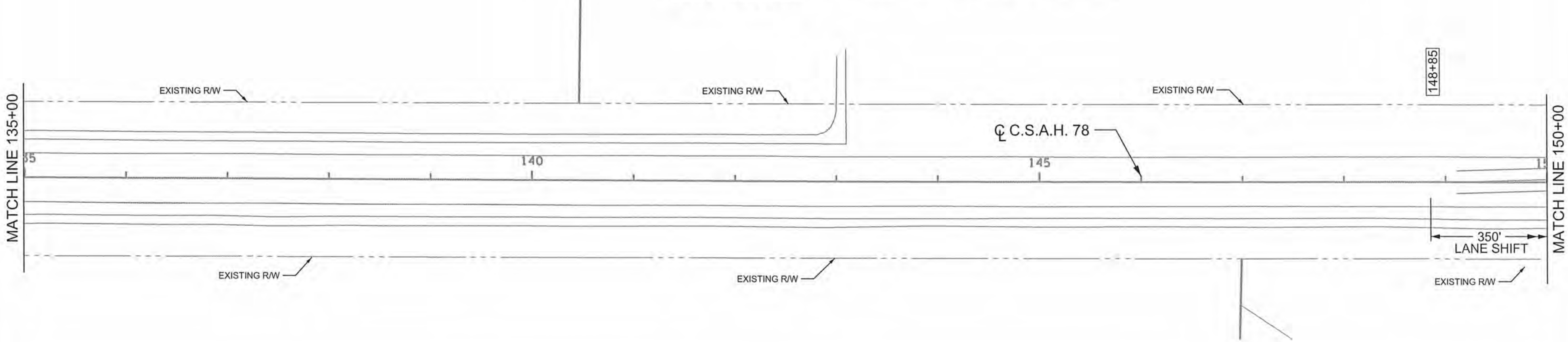
0 100

SCALE IN FEET



STAGE 1B CONSTRUCTION NOTES:

GRADING FOR WIDENING / TEMPORARY WIDENING TO BE COMPLETED DURING THIS STAGE.



1 OF 4

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Plan_20\0267820_STG1B_P1.dgn 04/16/2014 2:22:56 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.

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DATE: 4-17-14 LICENSE NO. 24756

DRAWN BY NJD DATE 3/7/14

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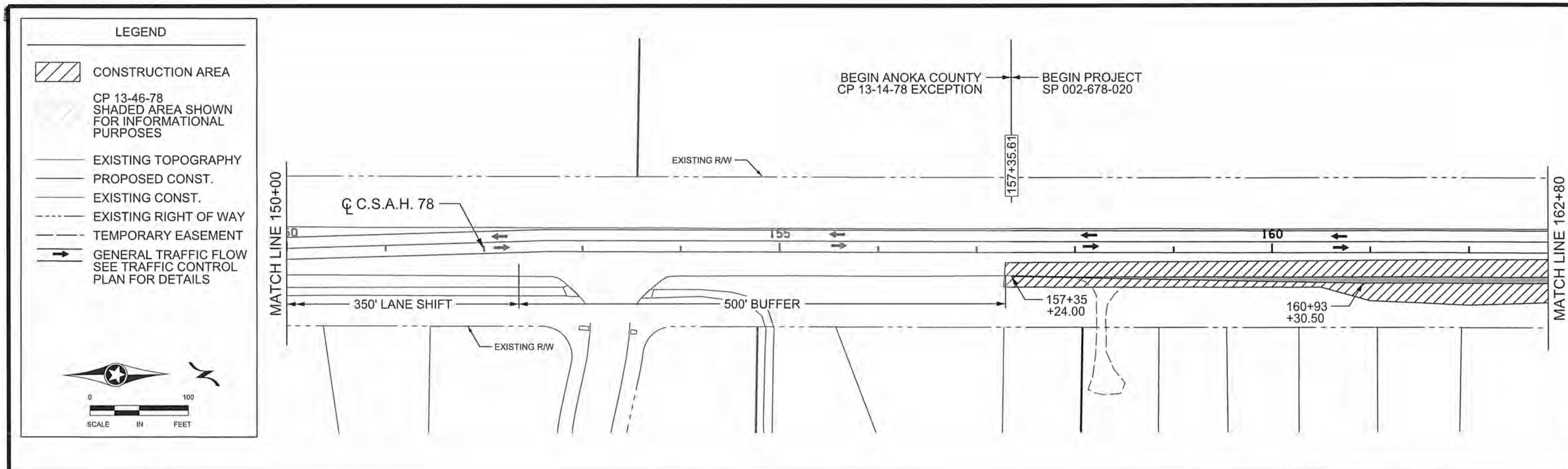
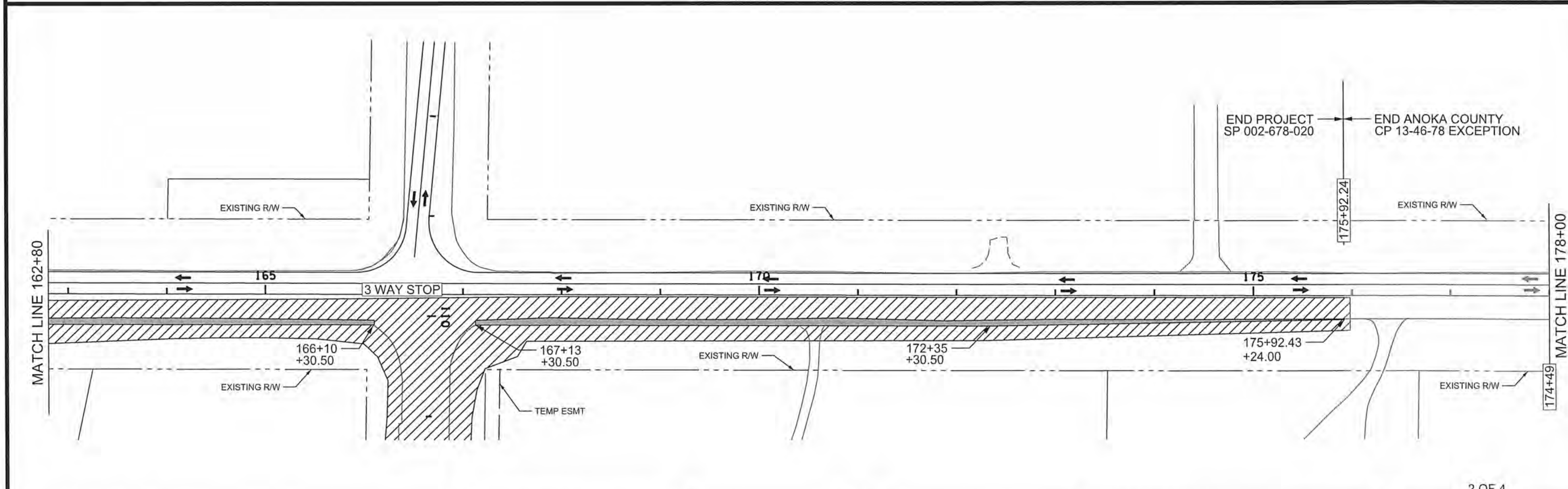
CITY OF ANDOVER S.A.P. 198-020-033

STAGING PLAN STAGE 1B





2 OF 4

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Plan_20\0267820_STG1B_P2.dgn 04/16/2014 2:22:58 PM

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CHECKED BY GMP DATE 3/7/14

ANOKA COUNTY
ANOKA COUNTY HIGHWAY DEPT.

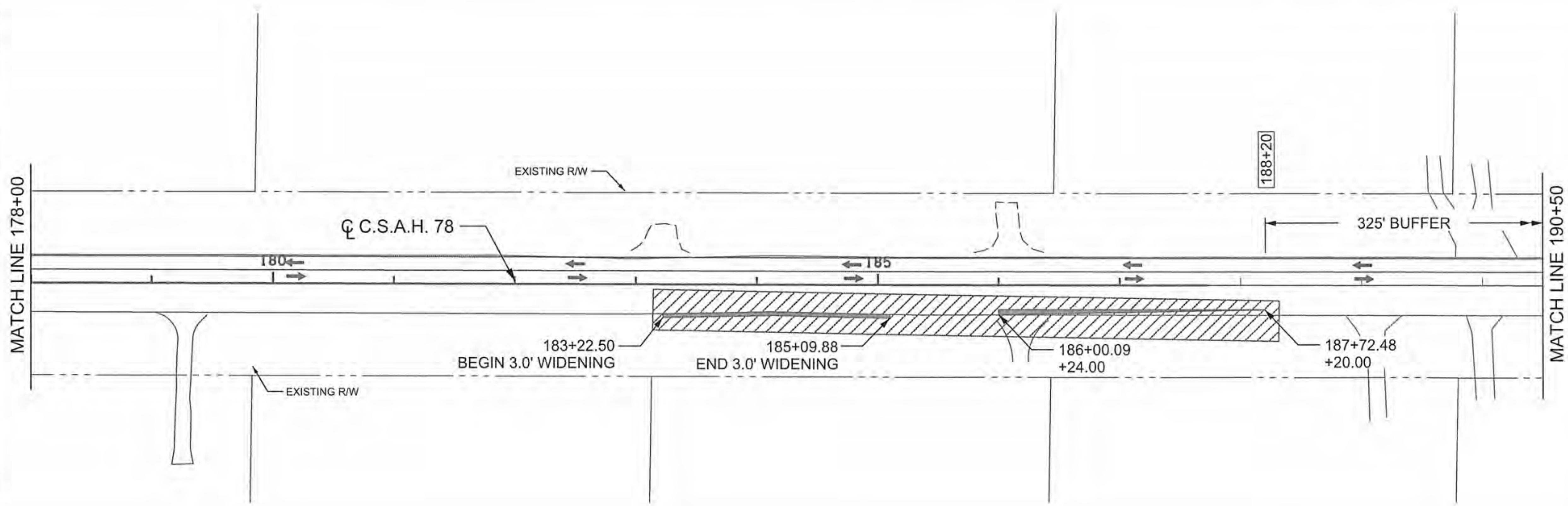
ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

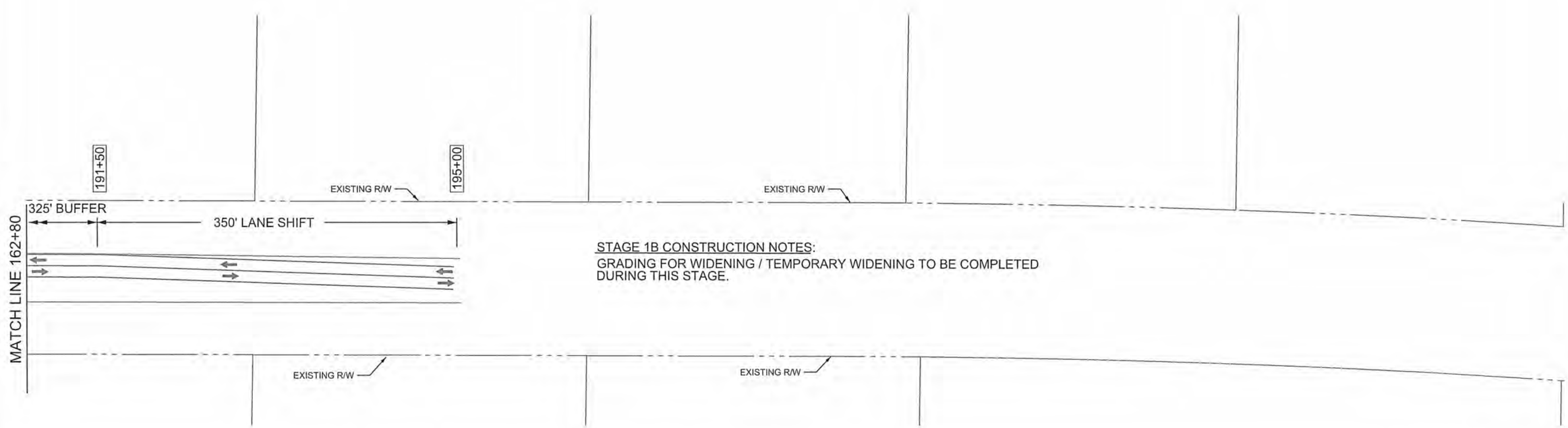
STAGING PLAN
STAGE 1B

LEGEND

- CONSTRUCTION AREA
- CP 13-46-78 SHADED AREA SHOWN FOR INFORMATIONAL PURPOSES
- EXISTING TOPOGRAPHY
- PROPOSED CONST.
- EXISTING CONST.
- EXISTING RIGHT OF WAY
- TEMPORARY EASEMENT
- GENERAL TRAFFIC FLOW SEE TRAFFIC CONTROL PLAN FOR DETAILS

0 100
SCALE IN FEET





STAGE 1B CONSTRUCTION NOTES:

GRADING FOR WIDENING / TEMPORARY WIDENING TO BE COMPLETED DURING THIS STAGE.

3 OF 4

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Plan_20\0267820_STG1B_P3.dgn 04/16/2014 2:23:00 PM

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ANOKA COUNTY
HIGHWAY DEPT.

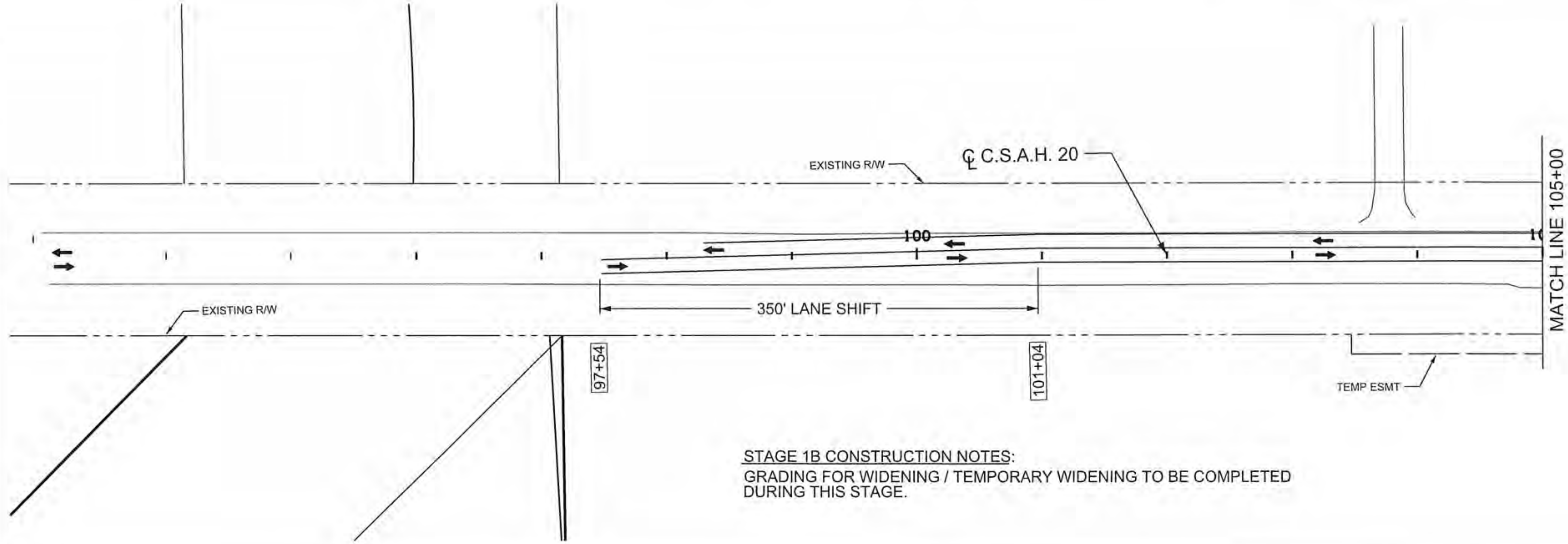
ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

STAGING PLAN
STAGE 1B

LEGEND

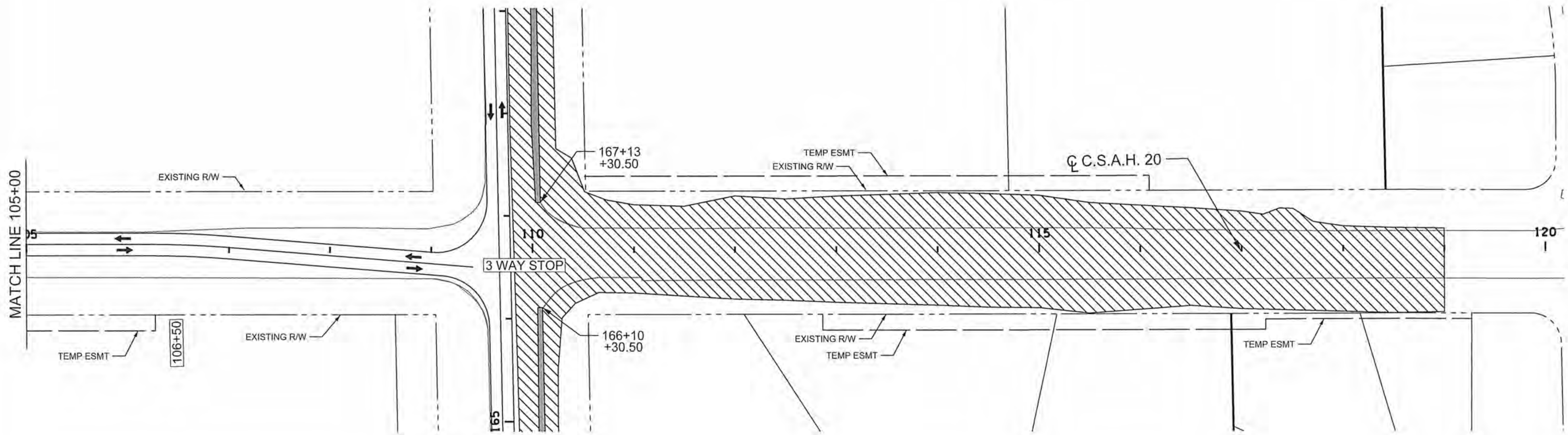
- CONSTRUCTION AREA
- CP 13-46-78 SHADED AREA SHOWN FOR INFORMATIONAL PURPOSES
- EXISTING TOPOGRAPHY
- PROPOSED CONST.
- EXISTING CONST.
- EXISTING RIGHT OF WAY
- TEMPORARY EASEMENT
- GENERAL TRAFFIC FLOW SEE TRAFFIC CONTROL PLAN FOR DETAILS

0 100
SCALE IN FEET



STAGE 1B CONSTRUCTION NOTES:

GRADING FOR WIDENING / TEMPORARY WIDENING TO BE COMPLETED DURING THIS STAGE.



4 OF 4

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Plan_20\0267820_STG1B_P4.dgn 04/16/2014 2:23:02 PM

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

PRINT NAME: CURT A. KOBILARCSIK

SIGNATURE:

DATE: 4-17-14 LICENSE NO. 24756

DRAWN BY NJD DATE 3/7/14
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CITY OF ANDOVER S.A.P. 198-020-033

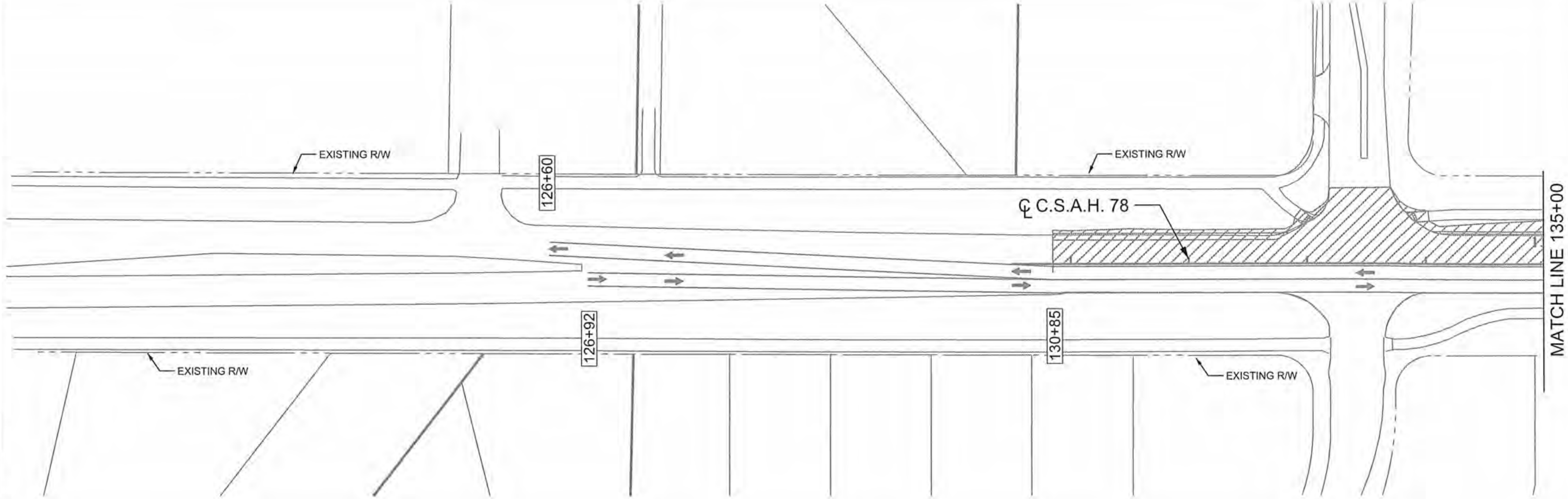
STAGING PLAN
STAGE 1B

Sheet 34 of 111 Sheets

LEGEND

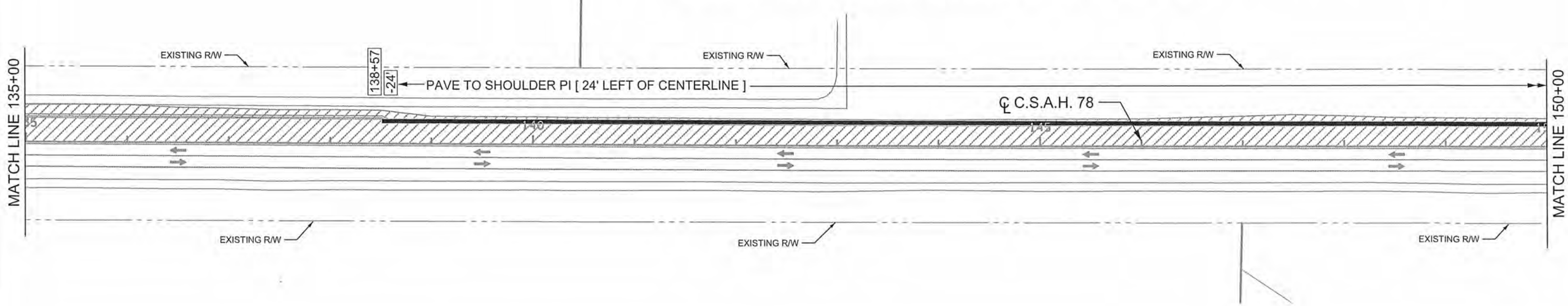
- CONSTRUCTION AREA
- CP 36-46-78 SHADED AREA SHOWN FOR INFORMATIONAL PURPOSES
- EXISTING TOPOGRAPHY
- PROPOSED CONST.
- EXISTING CONST.
- EXISTING RIGHT OF WAY
- TEMPORARY EASEMENT
- GENERAL TRAFFIC FLOW SEE TRAFFIC CONTROL PLAN FOR DETAILS

0 100
SCALE IN FEET



STAGE 2 CONSTRUCTION NOTES:

RECLAIM / OVERLAY SB CSAH 78 DURING THIS STAGE.
RECLAIM / OVERLAY ALL OF CSAH 20 WEST OF CSAH 78 DURING THIS STAGE
RECONSTRUCT/ RECLAIM / OVERLAY CSAH 20 EAST OF CSAH 78 DURING THIS STAGE (SHUT DOWN TO THRU TRAFFIC)
TEMPORARILY PAVE PROPOSED BITUMINOUS SHOULDER SB CSAH 78 WHERE NOTED



1 OF 4

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-678-20\Plan_20\0267820_STG2_P1.dgn 04/16/2014 2:23:04 PM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
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DATE: 4-17-14 LICENSE NO. 24756

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ANOKA COUNTY
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CITY OF ANDOVER S.A.P. 198-020-033

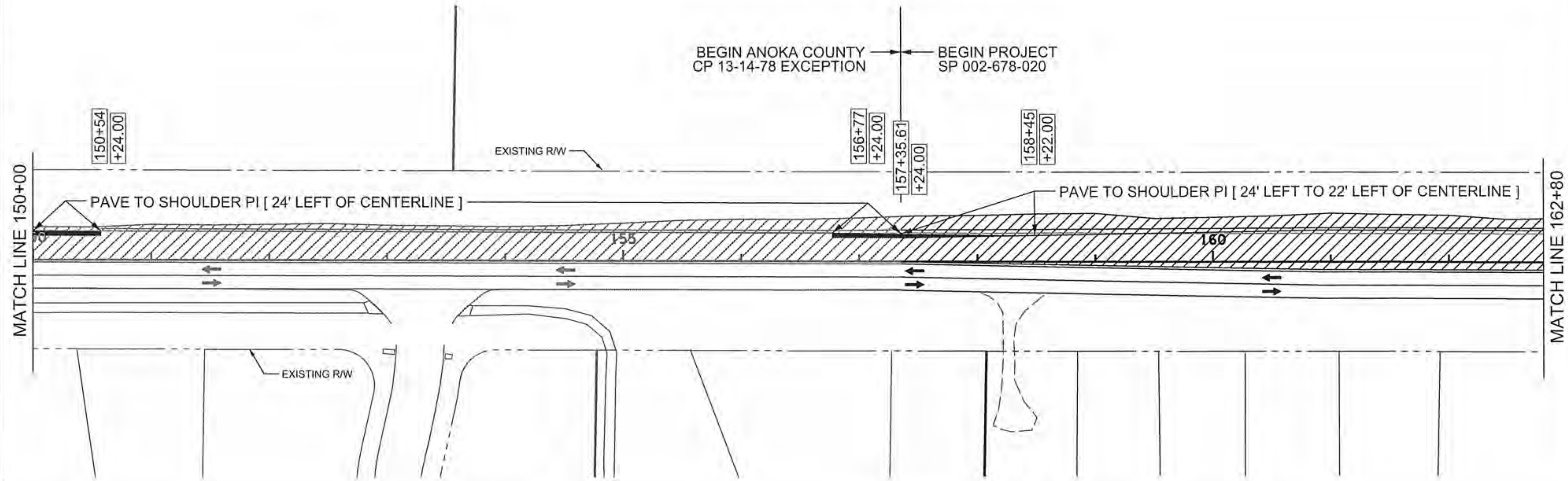
STAGING PLAN
STAGE 2

Sheet 35 of 111 Sheets

LEGEND

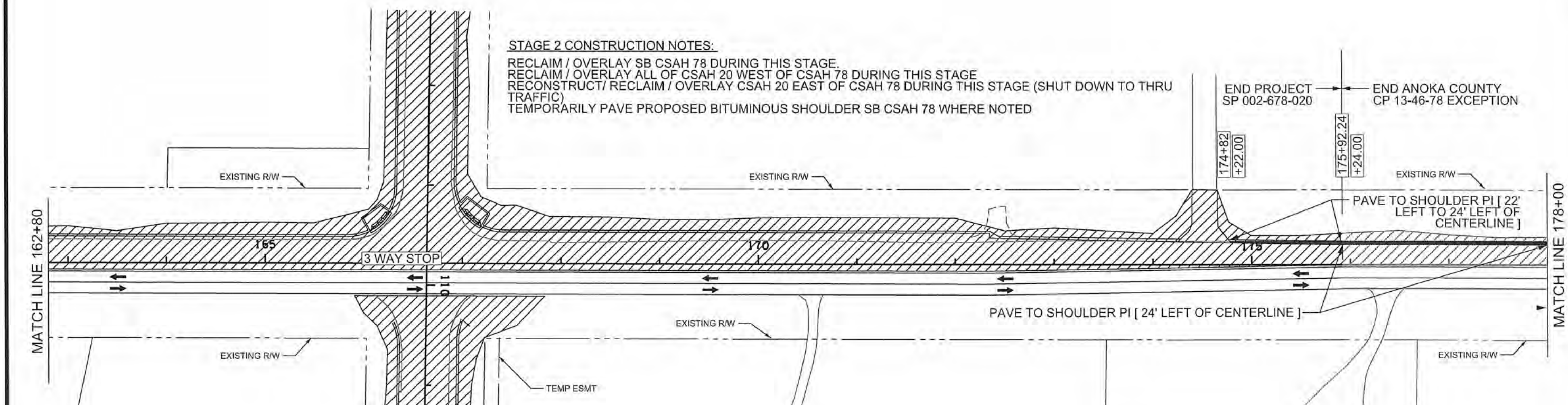
- CONSTRUCTION AREA
- CP 13-46-78 SHADED AREA SHOWN FOR INFORMATIONAL PURPOSES
- EXISTING TOPOGRAPHY
- PROPOSED CONST.
- EXISTING CONST.
- EXISTING RIGHT OF WAY
- TEMPORARY EASEMENT
- GENERAL TRAFFIC FLOW SEE TRAFFIC CONTROL PLAN FOR DETAILS

0 100
SCALE IN FEET



STAGE 2 CONSTRUCTION NOTES:

RECLAIM / OVERLAY SB CSAH 78 DURING THIS STAGE.
RECLAIM / OVERLAY ALL OF CSAH 20 WEST OF CSAH 78 DURING THIS STAGE
RECONSTRUCT/ RECLAIM / OVERLAY CSAH 20 EAST OF CSAH 78 DURING THIS STAGE (SHUT DOWN TO THRU TRAFFIC)
TEMPORARILY PAVE PROPOSED BITUMINOUS SHOULDER SB CSAH 78 WHERE NOTED



2 OF 4

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Plan_20\0267820_STG2_P2.dgn 04/16/2014 2:23:08 PM

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ANOKA COUNTY
HIGHWAY DEPT.

ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

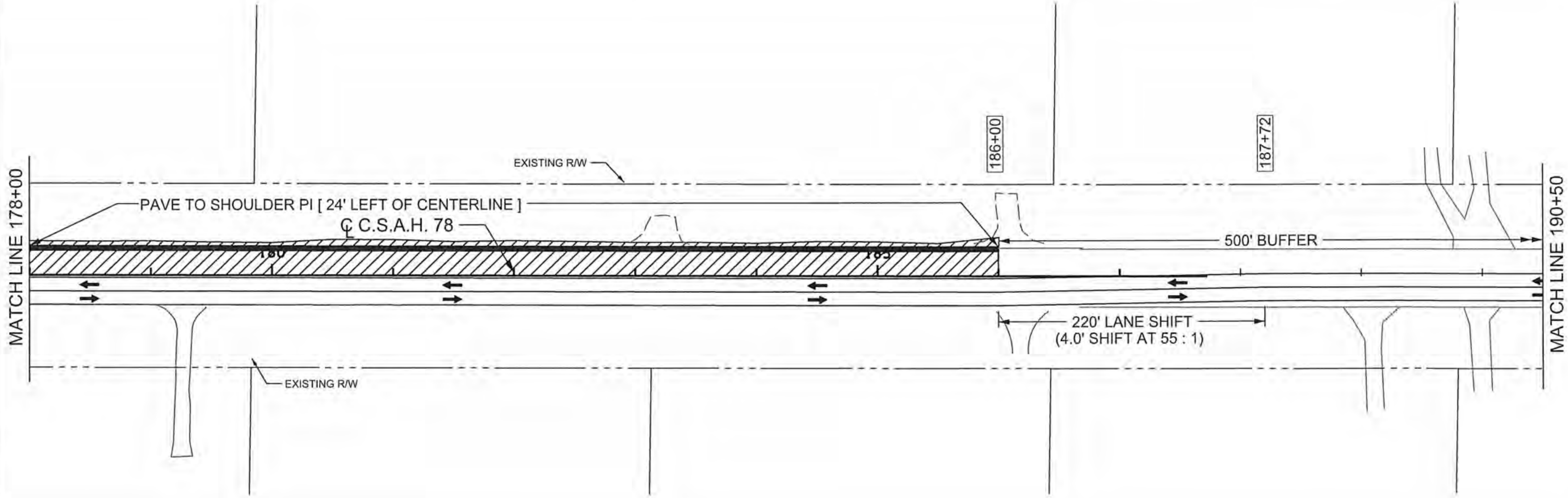
STAGING PLAN
STAGE 2

Sheet 36 of 111 Sheets

LEGEND

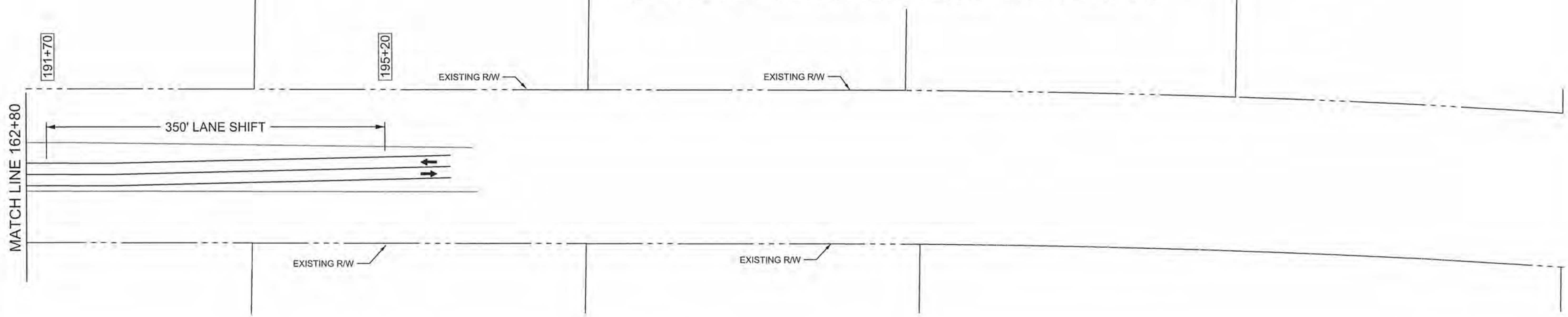
- CONSTRUCTION AREA
- CP 13-46-78 SHADED AREA SHOWN FOR INFORMATIONAL PURPOSES
- EXISTING TOPOGRAPHY
- PROPOSED CONST.
- EXISTING CONST.
- EXISTING RIGHT OF WAY
- TEMPORARY EASEMENT
- GENERAL TRAFFIC FLOW SEE TRAFFIC CONTROL PLAN FOR DETAILS

0 100
SCALE IN FEET



STAGE 2 CONSTRUCTION NOTES:

RECLAIM / OVERLAY SB CSAH 78 DURING THIS STAGE.
RECLAIM / OVERLAY ALL OF CSAH 20 WEST OF CSAH 78 DURING THIS STAGE
RECONSTRUCT/ RECLAIM / OVERLAY CSAH 20 EAST OF CSAH 78 DURING THIS STAGE (SHUT DOWN TO THRU TRAFFIC)
TEMPORARILY PAVE PROPOSED BITUMINOUS SHOULDER SB CSAH 78 WHERE NOTED



3 OF 4

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ANOKA COUNTY
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ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

STAGING PLAN
STAGE 2

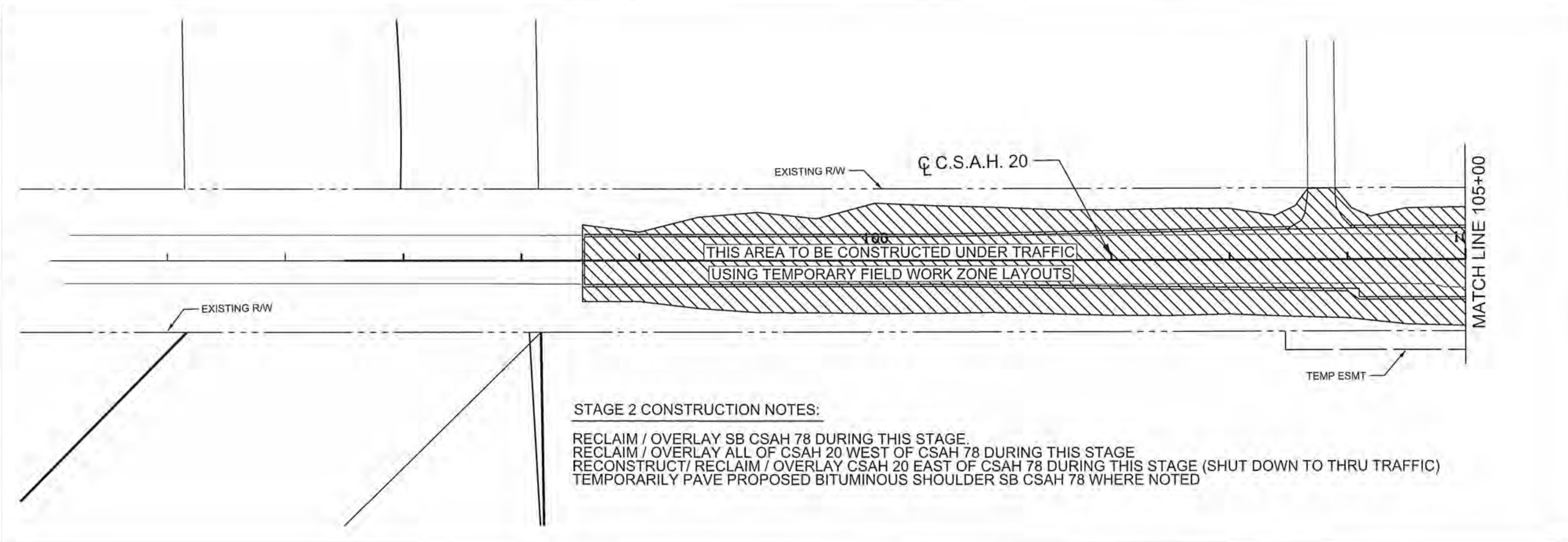
Sheet 37 of 111 Sheets

LEGEND

- CONSTRUCTION AREA
- SP 002-678-020 SHADED AREA SHOWN FOR INFORMATIONAL PURPOSES
- EXISTING TOPOGRAPHY
- PROPOSED CONST.
- EXISTING CONST.
- EXISTING RIGHT OF WAY
- TEMPORARY EASEMENT
- GENERAL TRAFFIC FLOW SEE TRAFFIC CONTROL PLAN FOR DETAILS

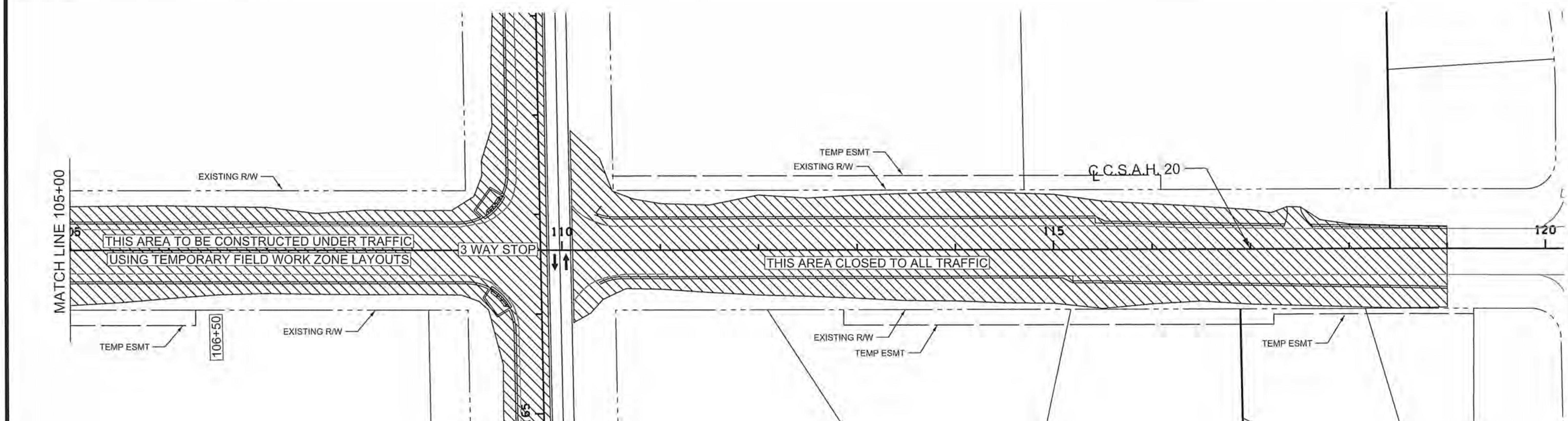
N

0 100
SCALE IN FEET



STAGE 2 CONSTRUCTION NOTES:

RECLAIM / OVERLAY SB CSAH 78 DURING THIS STAGE.
RECLAIM / OVERLAY ALL OF CSAH 20 WEST OF CSAH 78 DURING THIS STAGE
RECONSTRUCT/ RECLAIM / OVERLAY CSAH 20 EAST OF CSAH 78 DURING THIS STAGE (SHUT DOWN TO THRU TRAFFIC)
TEMPORARILY PAVE PROPOSED BITUMINOUS SHOULDER SB CSAH 78 WHERE NOTED



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ANOKA COUNTY
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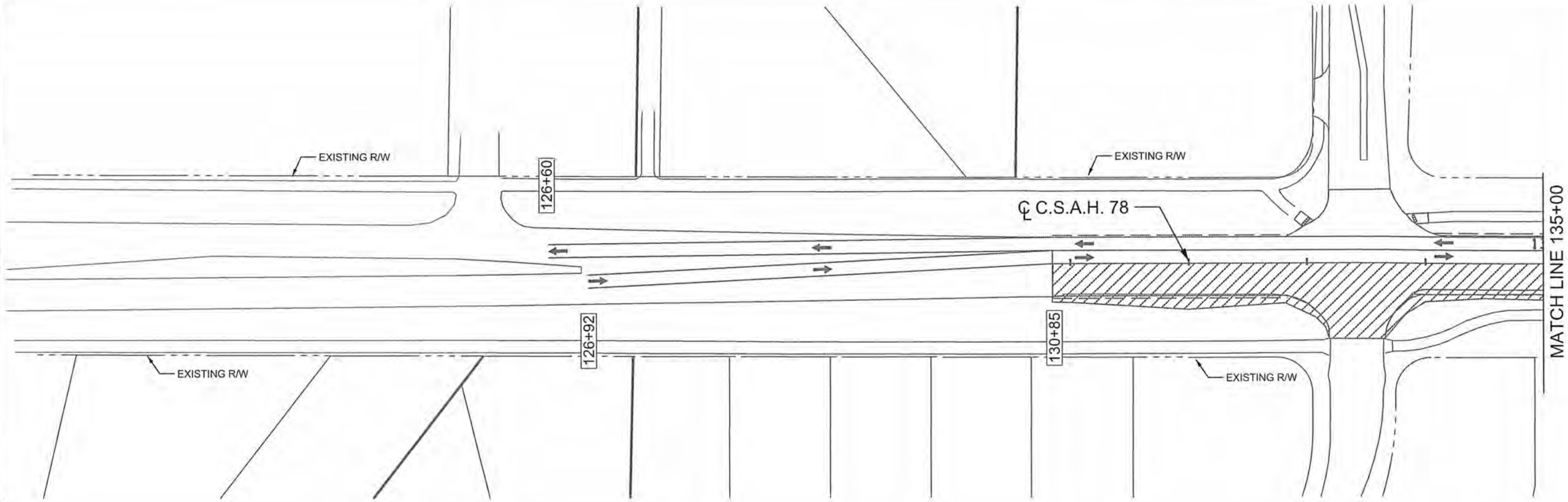
ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

STAGING PLAN
STAGE 2

LEGEND

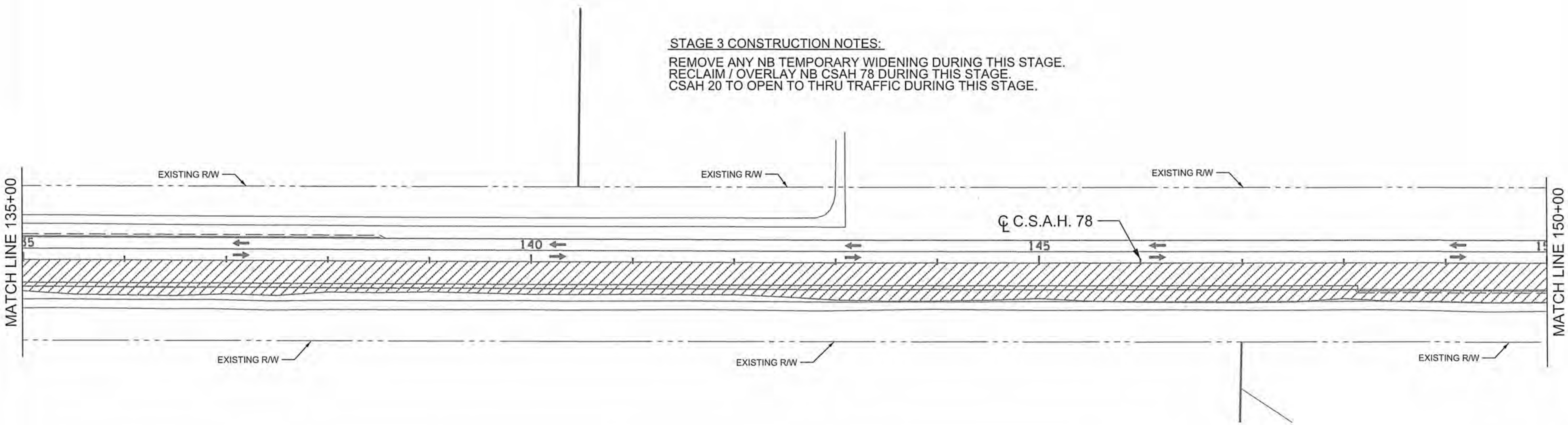
- CONSTRUCTION AREA
- CP 13-46-78 SHADED AREA SHOWN FOR INFORMATIONAL PURPOSES
- EXISTING TOPOGRAPHY
- PROPOSED CONST.
- EXISTING CONST.
- EXISTING RIGHT OF WAY
- TEMPORARY EASEMENT
- GENERAL TRAFFIC FLOW SEE TRAFFIC CONTROL PLAN FOR DETAILS

0 100
SCALE IN FEET



STAGE 3 CONSTRUCTION NOTES:

REMOVE ANY NB TEMPORARY WIDENING DURING THIS STAGE.
RECLAIM / OVERLAY NB CSAH 78 DURING THIS STAGE.
CSAH 20 TO OPEN TO THRU TRAFFIC DURING THIS STAGE.



1 OF 4

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Plan_20\0267820_STG3_P1.dgn 04/16/2014 2:23:11 PM

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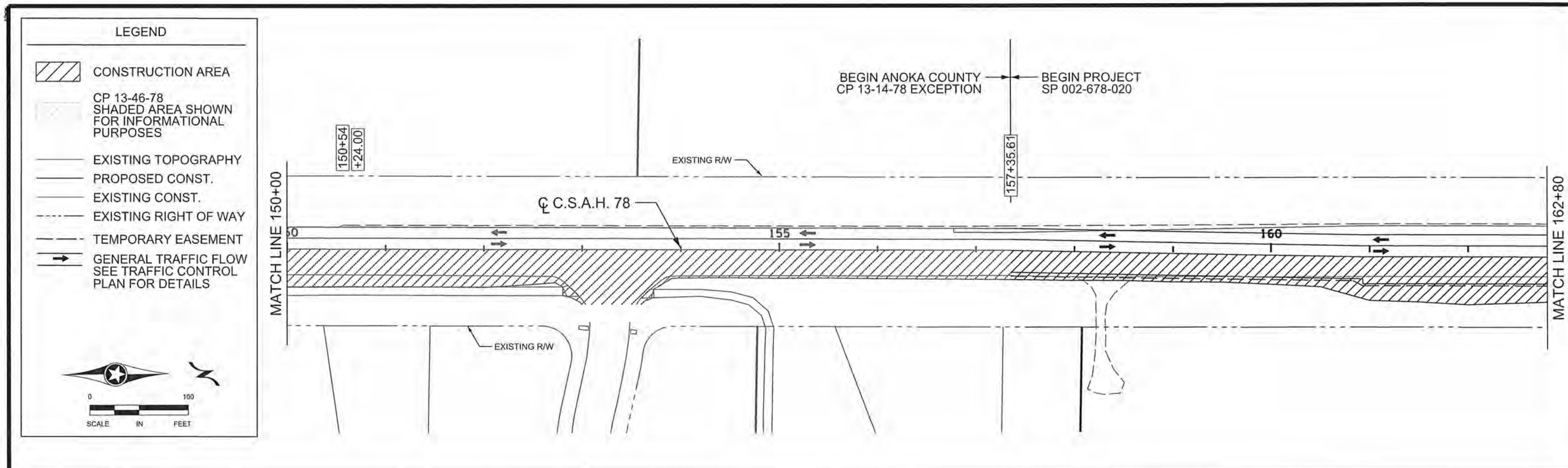
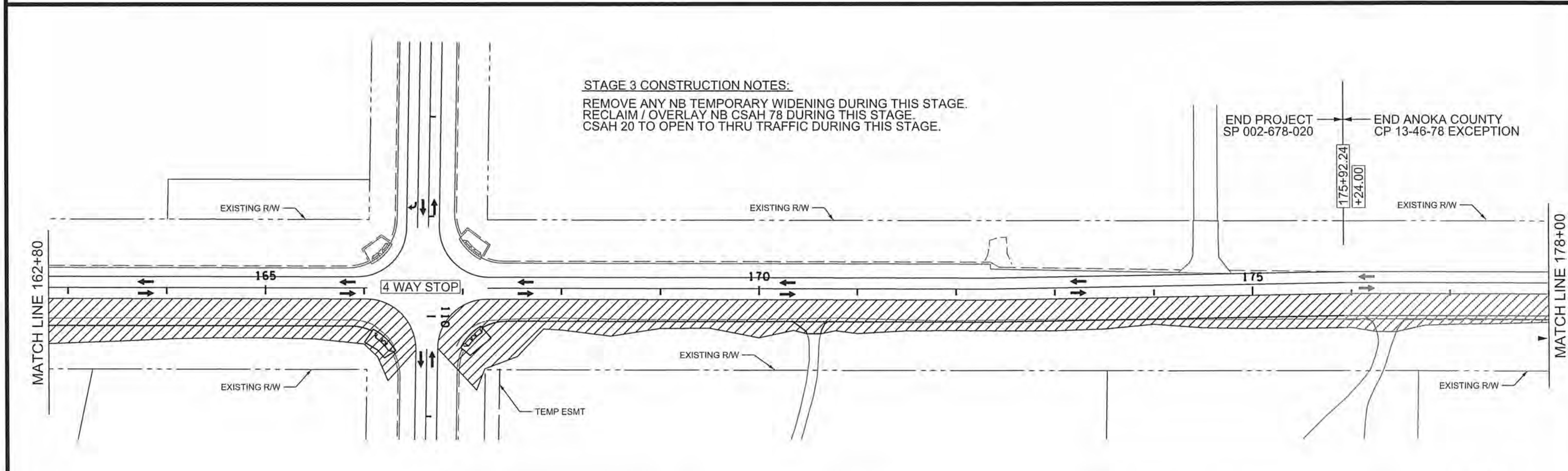
ANOKA COUNTY
HIGHWAY DEPT.

ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

STAGING PLAN
STAGE 3

Sheet 39 of 111 Sheets





2 OF 4

NO	DATE	BY	CKD	APPR	REVISION

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ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

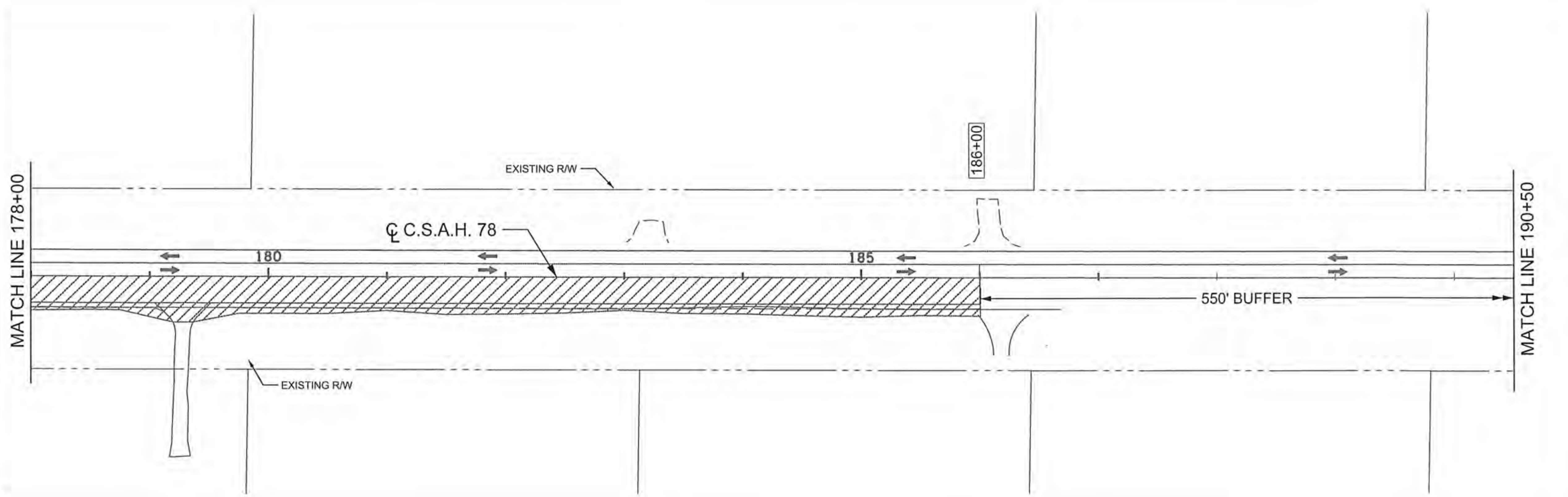
ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

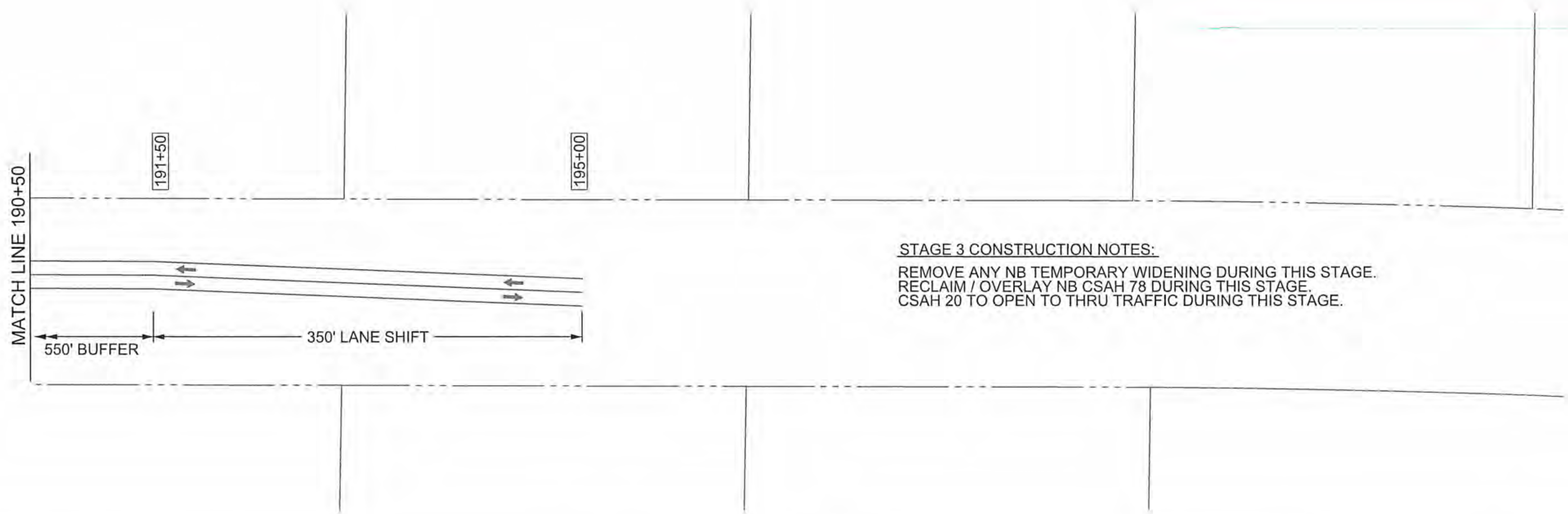
STAGING PLAN
STAGE 3

LEGEND

CONSTRUCTION AREA
CP 13-46-78 SHADED AREA SHOWN FOR INFORMATIONAL PURPOSES
EXISTING TOPOGRAPHY
PROPOSED CONST.
EXISTING CONST.
EXISTING RIGHT OF WAY
TEMPORARY EASEMENT
GENERAL TRAFFIC FLOW SEE TRAFFIC CONTROL PLAN FOR DETAILS

0 100
SCALE IN FEET





STAGE 3 CONSTRUCTION NOTES:

REMOVE ANY NB TEMPORARY WIDENING DURING THIS STAGE.
RECLAIM / OVERLAY NB CSAH 78 DURING THIS STAGE.
CSAH 20 TO OPEN TO THRU TRAFFIC DURING THIS STAGE.

3 OF 4

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Plan_20\0267820_STG3_P3.dgn 04/16/2014 2:23:15 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: 4-17-14 LICENSE NO. 24756

DRAWN BY NJD DATE 3/7/14
DESIGN BY NJD DATE 8/8/13
CHECKED BY GMP DATE 3/7/14

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

STAGING PLAN
STAGE 3

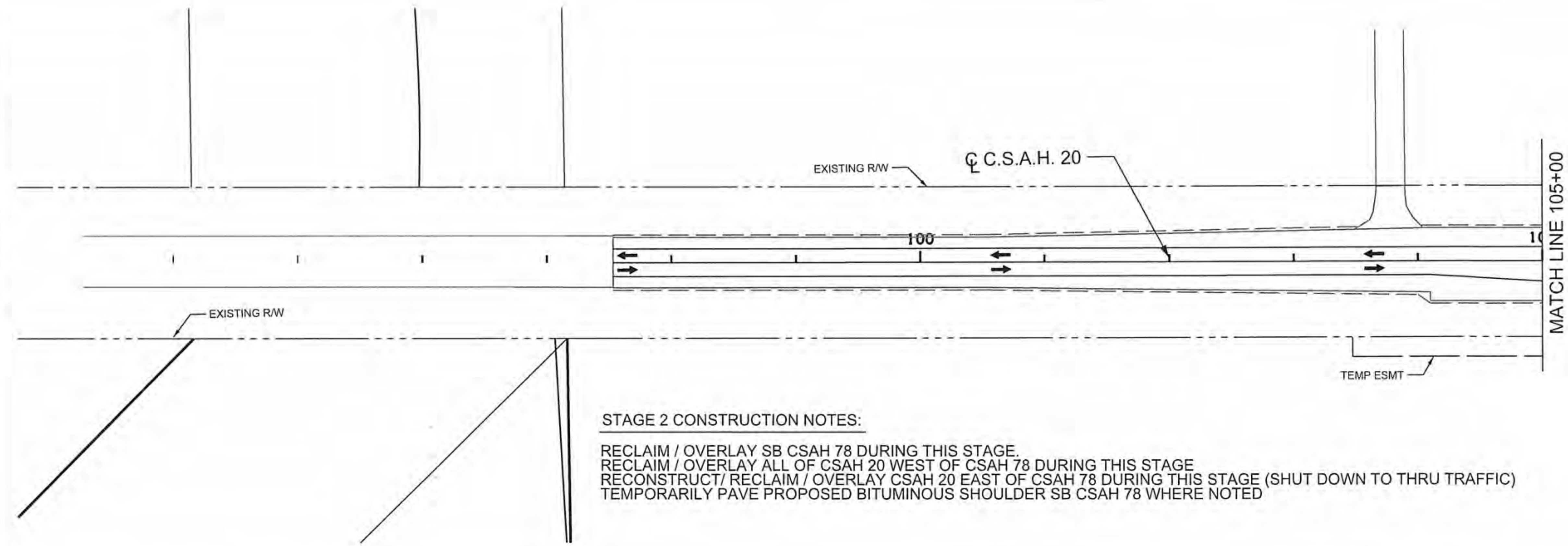
LEGEND

- CONSTRUCTION AREA
- CP 13-46-78 SHADED AREA SHOWN FOR INFORMATIONAL PURPOSES
- EXISTING TOPOGRAPHY
- PROPOSED CONST.
- EXISTING CONST.
- EXISTING RIGHT OF WAY
- TEMPORARY EASEMENT
- GENERAL TRAFFIC FLOW SEE TRAFFIC CONTROL PLAN FOR DETAILS

N

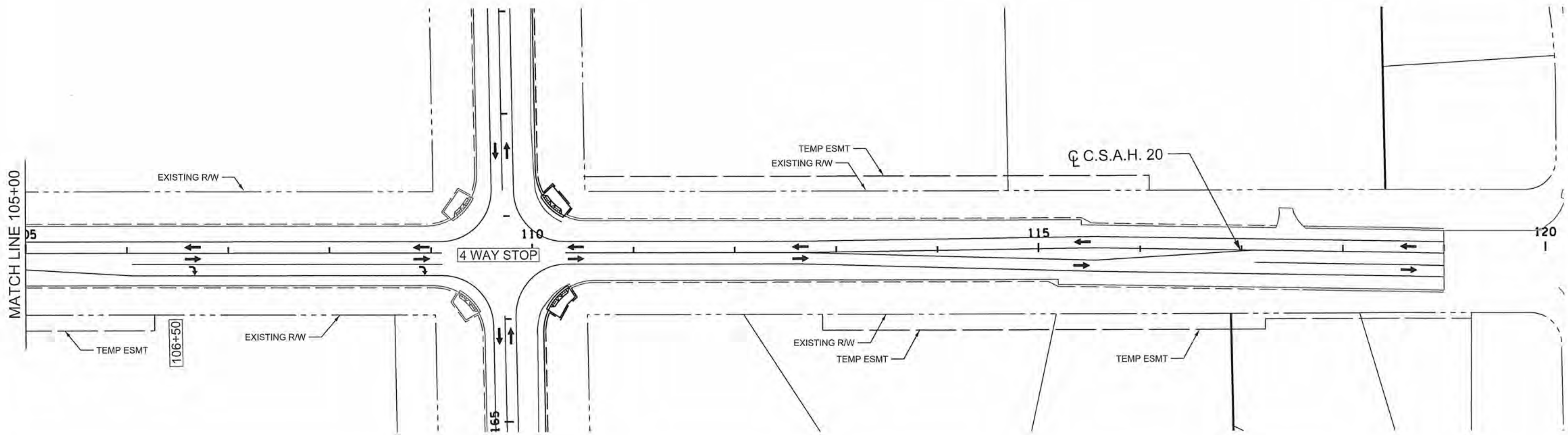
0 100

SCALE IN FEET



STAGE 2 CONSTRUCTION NOTES:

RECLAIM / OVERLAY SB CSAH 78 DURING THIS STAGE.
RECLAIM / OVERLAY ALL OF CSAH 20 WEST OF CSAH 78 DURING THIS STAGE
RECONSTRUCT/ RECLAIM / OVERLAY CSAH 20 EAST OF CSAH 78 DURING THIS STAGE (SHUT DOWN TO THRU TRAFFIC)
TEMPORARILY PAVE PROPOSED BITUMINOUS SHOULDER SB CSAH 78 WHERE NOTED



4 OF 4

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Plan_20\0267820_STG3_P4.dgn 04/16/2014 2:23:17 PM

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ANOKA COUNTY

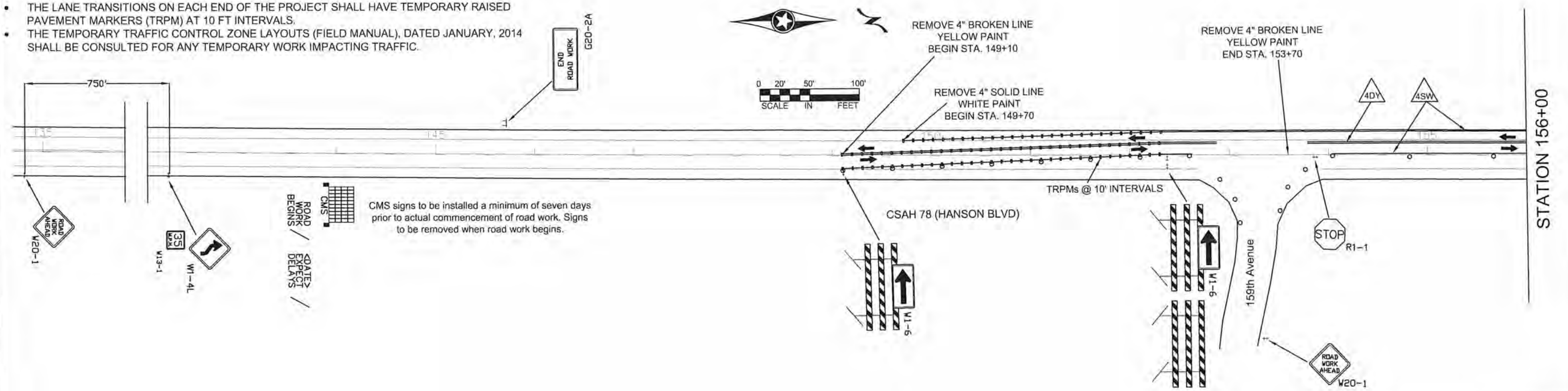
ANOKA COUNTY HIGHWAY DEPT.

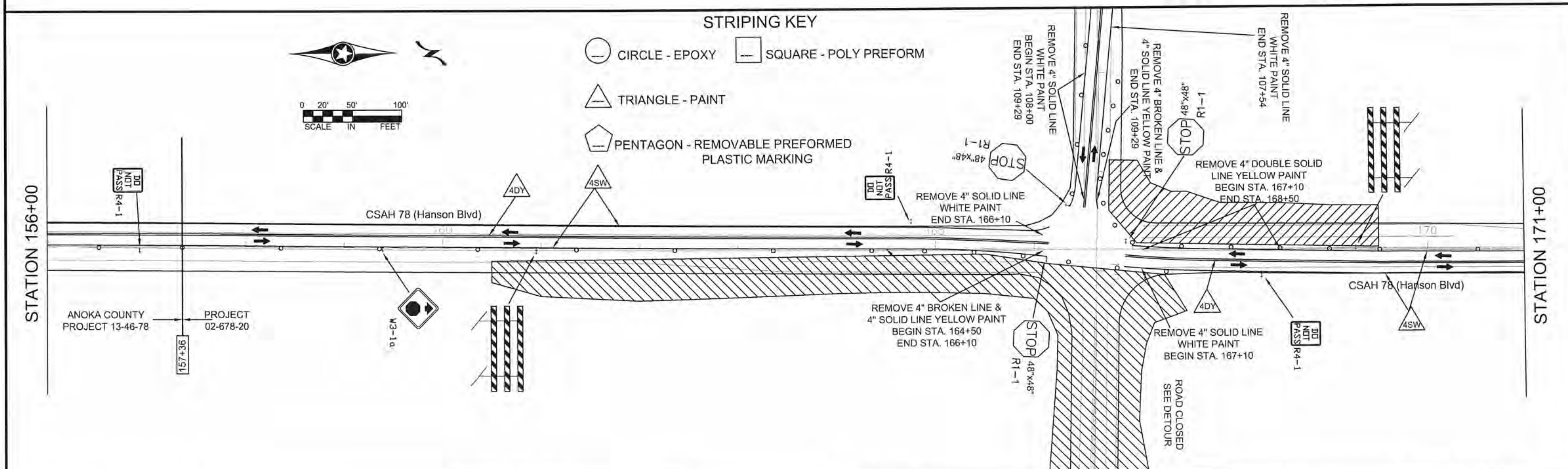
ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

STAGING PLAN
STAGE 3

STAGE 1A TRAFFIC CONTROL NOTES:

- CSAH 78 IS OPEN TO TRAFFIC.
- CSAH 20 FROM CSAH 78 TO CRANE ST. IS CLOSED WITH DETOUR IN PLACE.
- CSAH 78 AT CSAH 20 SHALL BE A 3-WAY STOP CONDITION.
- ACCESS SHALL BE MAINTAINED TO ALL DRIVEWAYS AND STREETS ON BOTH CSAH 78 AND CSAH 20.
- THE LANE TRANSITIONS ON EACH END OF THE PROJECT SHALL HAVE TEMPORARY RAISED PAVEMENT MARKERS (TRPM) AT 10 FT INTERVALS.
- THE TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS (FIELD MANUAL), DATED JANUARY, 2014 SHALL BE CONSULTED FOR ANY TEMPORARY WORK IMPACTING TRAFFIC.





NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Base\TRAFFIC\0267820-Stage 1a_traffic.dwg, 04/15/2014 3:33:52 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: 4-17-14 LICENSE NO. 24756

DRAWN BY S.T. DATE 03/14/14

DESIGN BY S.T. DATE 03/14/14

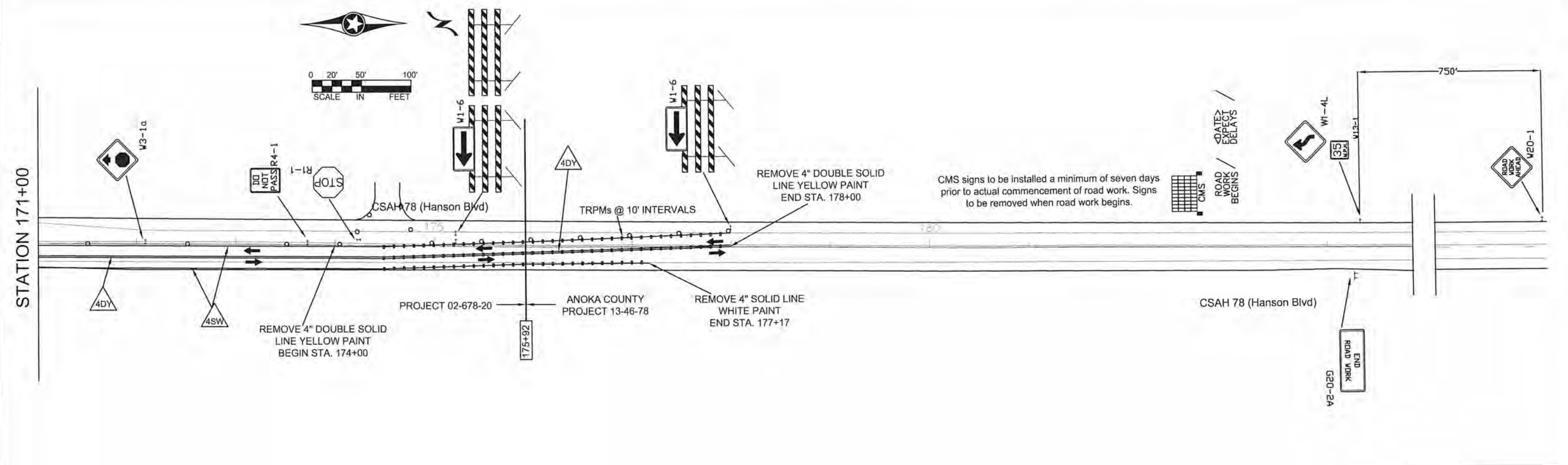
CHECKED BY R.B. DATE 04/08/14

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.A.P. 002-678-020

CITY OF ANDOVER S.A.P. 198-020-033

STAGE 1A TRAFFIC CONTROL LAYOUT

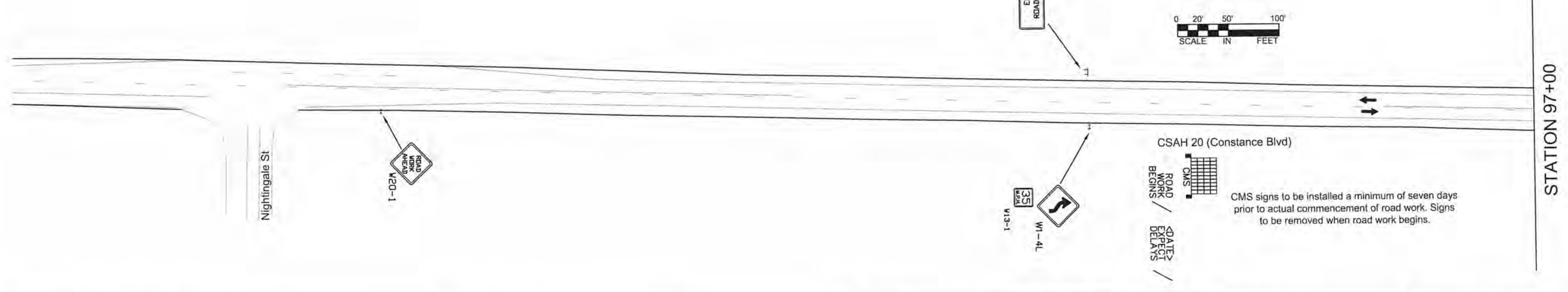


STAGE 1A TRAFFIC CONTROL NOTES:

- CSAH 78 IS OPEN TO TRAFFIC.
- CSAH 20 FROM CSAH 78 TO CRANE ST. IS CLOSED WITH DETOUR IN PLACE.
- CSAH 78 AT CSAH 20 SHALL BE A 3-WAY STOP CONDITION.
- ACCESS SHALL BE MAINTAINED TO ALL DRIVEWAYS AND STREETS ON BOTH CSAH 78 AND CSAH 20.
- THE LANE TRANSITIONS ON EACH END OF THE PROJECT SHALL HAVE TEMPORARY RAISED PAVEMENT MARKERS (TRPM) AT 10 FT INTERVALS.
- THE TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS (FIELD MANUAL), DATED JANUARY, 2014 SHALL BE CONSULTED FOR ANY TEMPORARY WORK IMPACTING TRAFFIC.

STRIPING KEY

- CIRCLE - EPOXY
- SQUARE - POLY PREFORM
- TRIANGLE - PAINT
- PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING



NO	DATE	BY	CKD	APPR	REVISION

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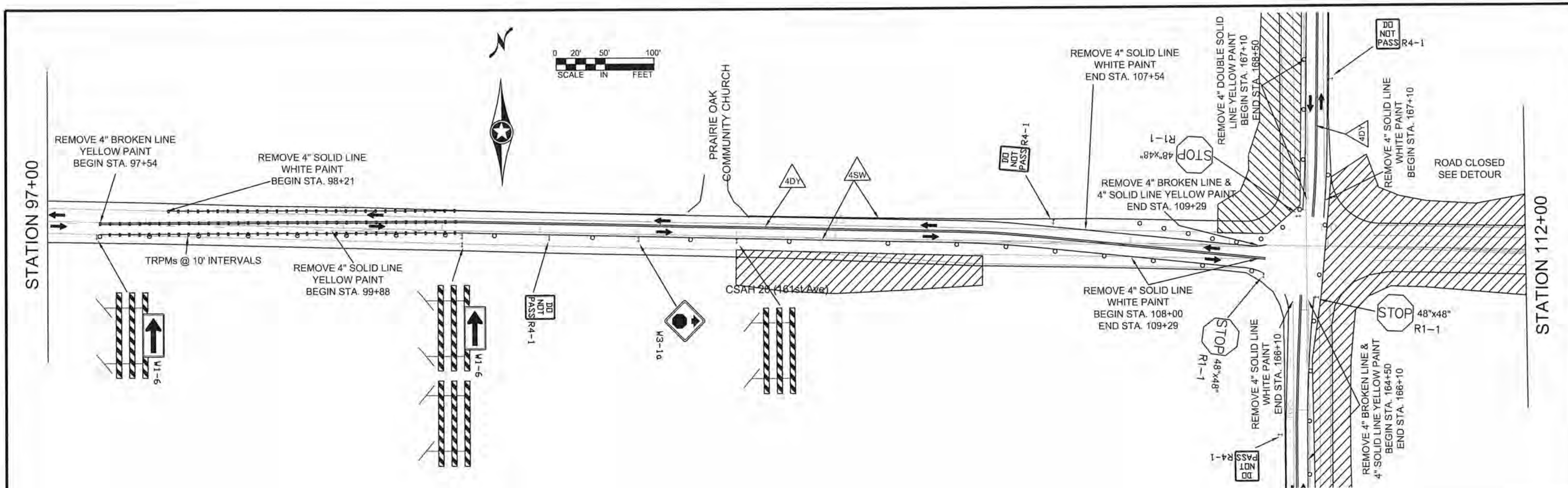
DRAWN BY S.T. DATE 03/14/14
DESIGN BY S.T. DATE 03/14/14
CHECKED BY R.B. DATE 04/08/14

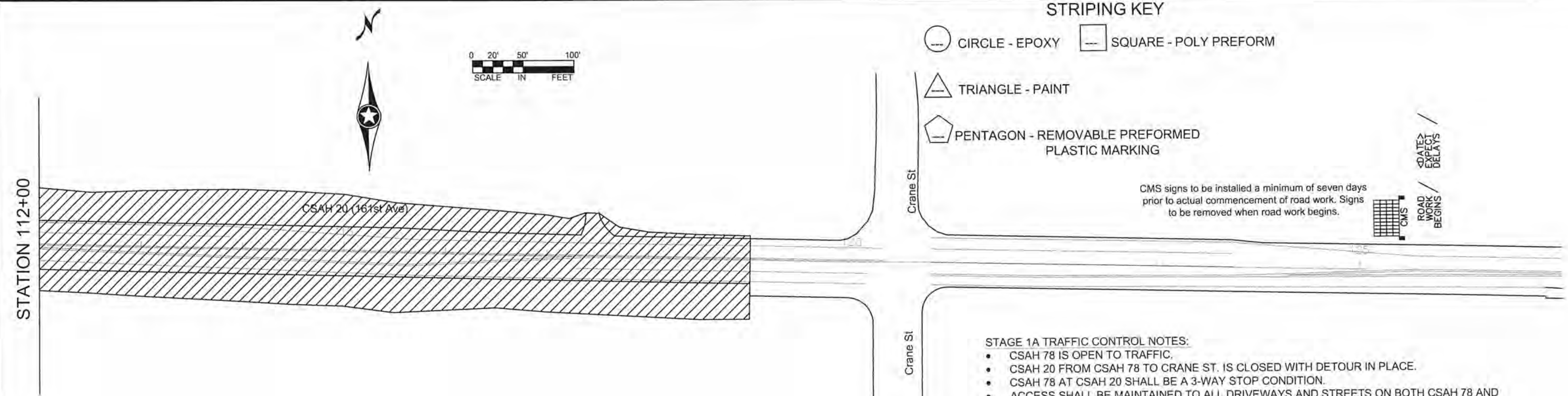
ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.A.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

STAGE 1A TRAFFIC CONTROL LAYOUT

Sheet 44 of 111 Sheets





STRIPING KEY

- CIRCLE - EPOXY
- SQUARE - POLY PREFORM
- TRIANGLE - PAINT
- PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING

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

STAGE 1A TRAFFIC CONTROL NOTES:

- CSAH 78 IS OPEN TO TRAFFIC.
- CSAH 20 FROM CSAH 78 TO CRANE ST. IS CLOSED WITH DETOUR IN PLACE.
- CSAH 78 AT CSAH 20 SHALL BE A 3-WAY STOP CONDITION.
- ACCESS SHALL BE MAINTAINED TO ALL DRIVEWAYS AND STREETS ON BOTH CSAH 78 AND CSAH 20.
- THE LANE TRANSITIONS ON EACH END OF THE PROJECT SHALL HAVE TEMPORARY RAISED PAVEMENT MARKERS (TRPM) AT 10 FT INTERVALS.
- THE TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS (FIELD MANUAL), DATED JANUARY, 2014 SHALL BE CONSULTED FOR ANY TEMPORARY WORK IMPACTING TRAFFIC.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Base\TRAFFIC\0267820-Stage 1a_traffic.dwg, 04/16/2014 8:37:52 AM

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DATE: 4-17-14 LICENSE NO. 24756

DRAWN BY S.T. DATE 03/14/14
DESIGN BY S.T. DATE 03/14/14
CHECKED BY R.B. DATE 04/08/14

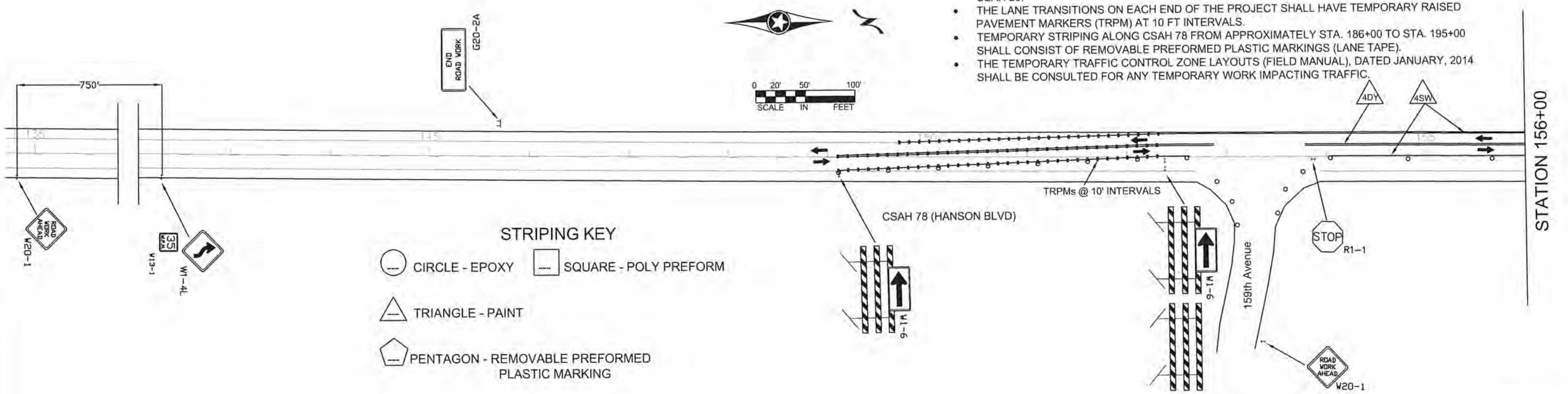
ANOKA COUNTY HIGHWAY DEPT.

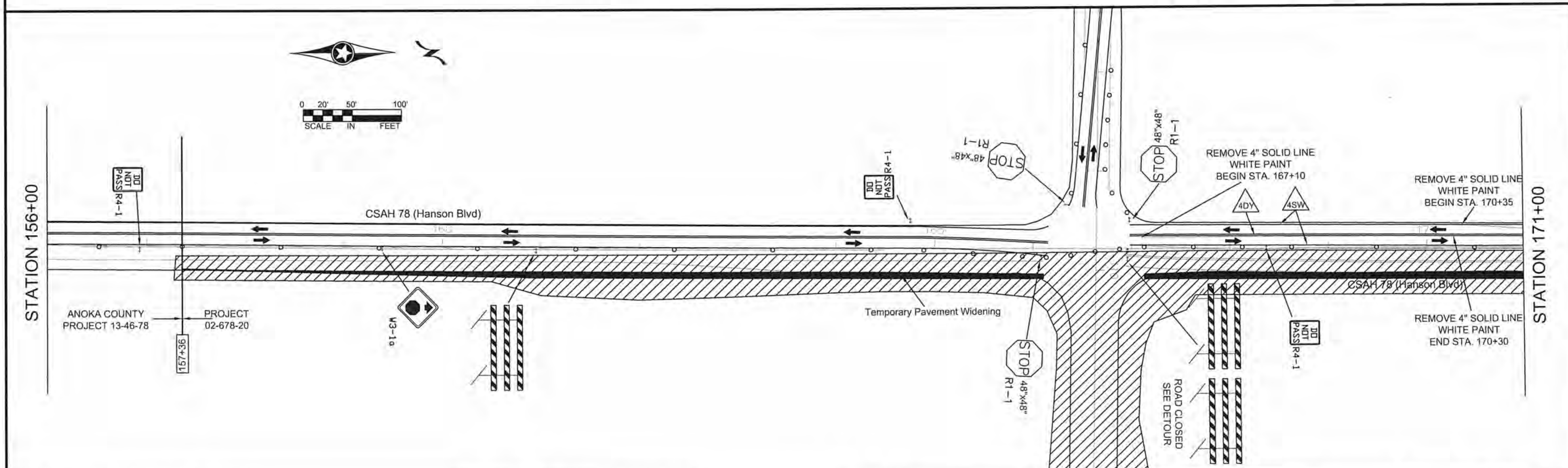
ANOKA COUNTY S.A.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

STAGE 1A TRAFFIC CONTROL LAYOUT

STAGE 1B TRAFFIC CONTROL NOTES:

- CSAH 78 IS OPEN TO TRAFFIC.
- CSAH 20 FROM CSAH 78 TO CRANE ST. IS CLOSED WITH DETOUR IN PLACE.
- CSAH 78 AT CSAH 20 SHALL BE A 3-WAY STOP CONDITION.
- ACCESS SHALL BE MAINTAINED TO ALL DRIVEWAYS AND STREETS ON BOTH CSAH 78 AND CSAH 20.
- THE LANE TRANSITIONS ON EACH END OF THE PROJECT SHALL HAVE TEMPORARY RAISED PAVEMENT MARKERS (TRPM) AT 10 FT INTERVALS.
- TEMPORARY STRIPING ALONG CSAH 78 FROM APPROXIMATELY STA. 186+00 TO STA. 195+00 SHALL CONSIST OF REMOVABLE PREFORMED PLASTIC MARKINGS (LANE TAPE).
- THE TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS (FIELD MANUAL), DATED JANUARY, 2014 SHALL BE CONSULTED FOR ANY TEMPORARY WORK IMPACTING TRAFFIC.





NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Base\TRAFFIC\0267820-Stage 1b_traffic.dwg, 04/15/2014 3:34:36 PM

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

PRINT NAME: CURT A. KOBILARCSIK

SIGNATURE:

DATE: 4-17-14 LICENSE NO. 24756

DRAWN BY S.T. DATE 03/14/14

DESIGN BY S.T. DATE 03/14/14

CHECKED BY R.B. DATE 04/08/14

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.A.P. 002-678-020

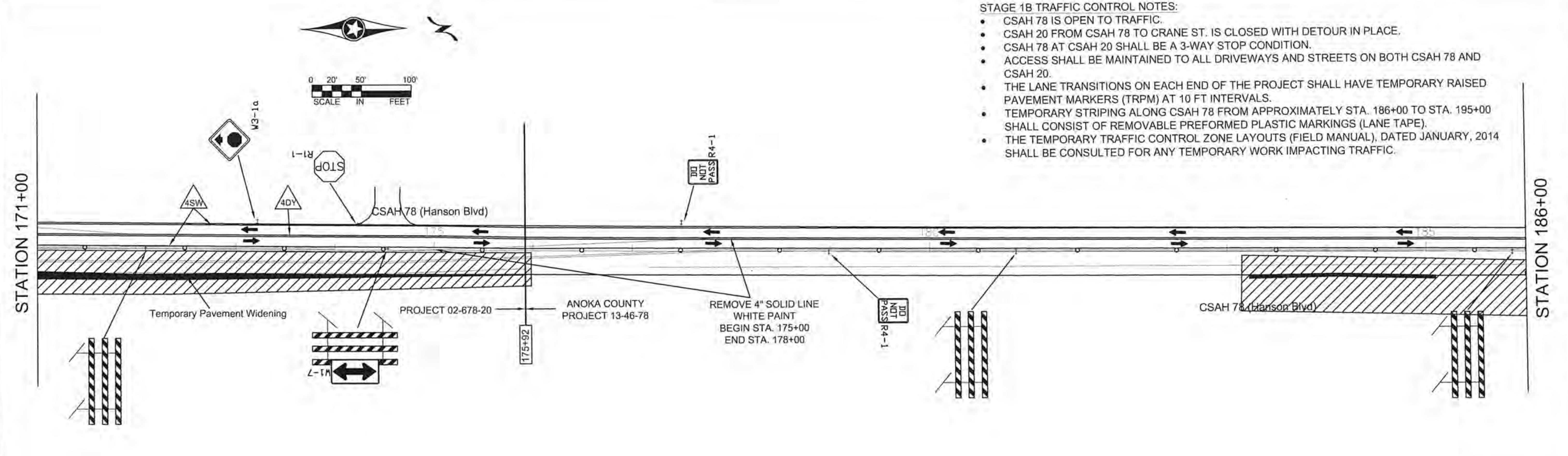
CITY OF ANDOVER S.A.P. 198-020-033

STAGE 1B TRAFFIC CONTROL LAYOUT

Sheet 46 of 111 Sheets

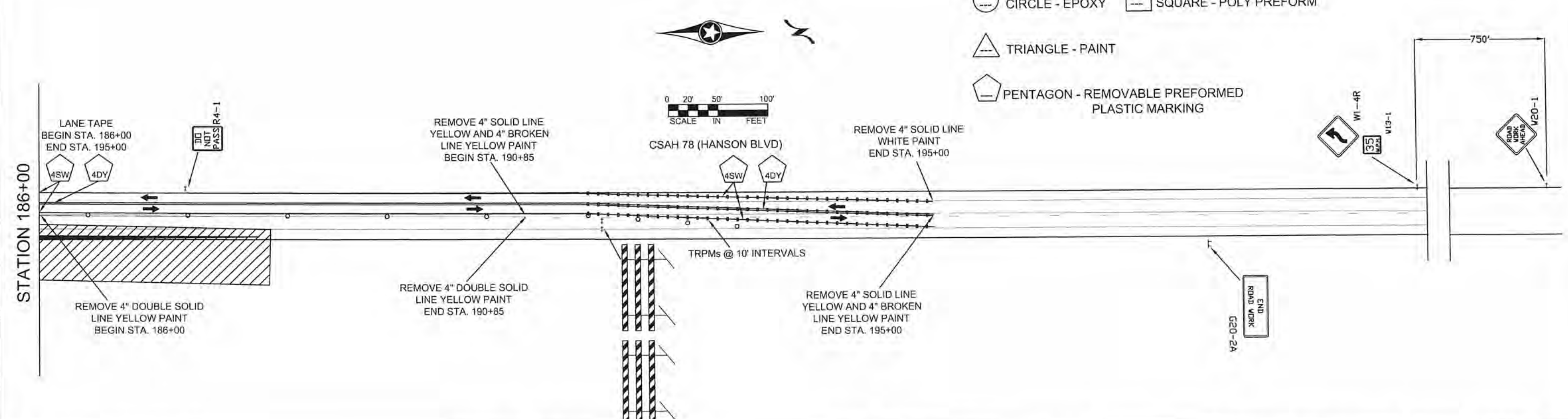
STAGE 1B TRAFFIC CONTROL NOTES:

- CSAH 78 IS OPEN TO TRAFFIC.
- CSAH 20 FROM CSAH 78 TO CRANE ST. IS CLOSED WITH DETOUR IN PLACE.
- CSAH 78 AT CSAH 20 SHALL BE A 3-WAY STOP CONDITION.
- ACCESS SHALL BE MAINTAINED TO ALL DRIVEWAYS AND STREETS ON BOTH CSAH 78 AND CSAH 20.
- THE LANE TRANSITIONS ON EACH END OF THE PROJECT SHALL HAVE TEMPORARY RAISED PAVEMENT MARKERS (TRPM) AT 10 FT INTERVALS.
- TEMPORARY STRIPING ALONG CSAH 78 FROM APPROXIMATELY STA. 186+00 TO STA. 195+00 SHALL CONSIST OF REMOVABLE PREFORMED PLASTIC MARKINGS (LANE TAPE).
- THE TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS (FIELD MANUAL), DATED JANUARY, 2014 SHALL BE CONSULTED FOR ANY TEMPORARY WORK IMPACTING TRAFFIC.



STRIPING KEY

CIRCLE - EPOXY
SQUARE - POLY PREFORM
TRIANGLE - PAINT
PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING



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.
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SIGNATURE: Curt Kobilarcsik
DATE: 4-17-14 LICENSE NO. 24756

DRAWN BY S.T. DATE 03/14/14
DESIGN BY S.T. DATE 03/14/14
CHECKED BY R.B. DATE 04/08/14

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.A.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

STAGE 1B TRAFFIC CONTROL LAYOUT

STAGE 1B TRAFFIC CONTROL NOTES:

- CSAH 78 IS OPEN TO TRAFFIC.
- CSAH 20 FROM CSAH 78 TO CRANE ST. IS CLOSED WITH DETOUR IN PLACE.
- CSAH 78 AT CSAH 20 SHALL BE A 3-WAY STOP CONDITION.
- ACCESS SHALL BE MAINTAINED TO ALL DRIVEWAYS AND STREETS ON BOTH CSAH 78 AND CSAH 20.
- THE LANE TRANSITIONS ON EACH END OF THE PROJECT SHALL HAVE TEMPORARY RAISED PAVEMENT MARKERS (TRPM) AT 10 FT INTERVALS.
- TEMPORARY STRIPING ALONG CSAH 78 FROM APPROXIMATELY STA. 186+00 TO STA. 195+00 SHALL CONSIST OF REMOVABLE PREFORMED PLASTIC MARKINGS (LANE TAPE).
- THE TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS (FIELD MANUAL), DATED JANUARY, 2014 SHALL BE CONSULTED FOR ANY TEMPORARY WORK IMPACTING TRAFFIC.

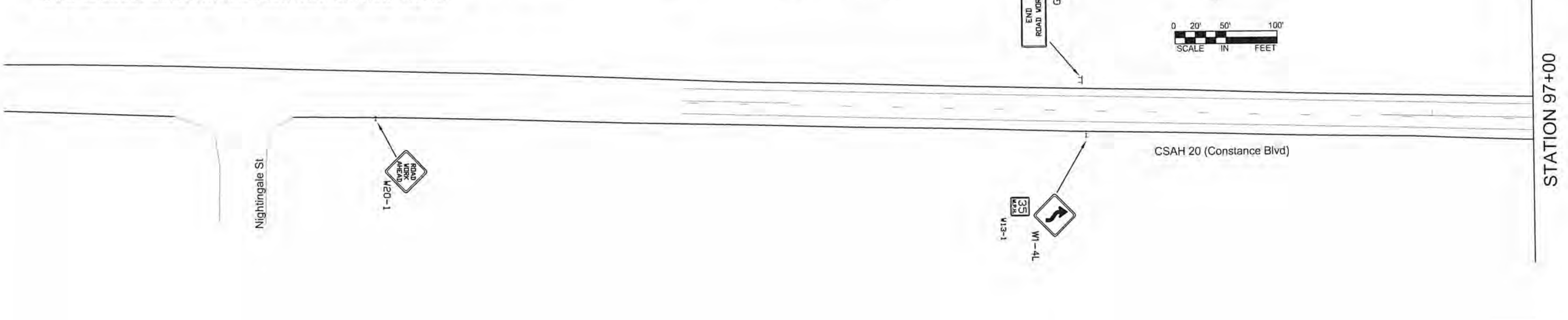
STRIPING KEY

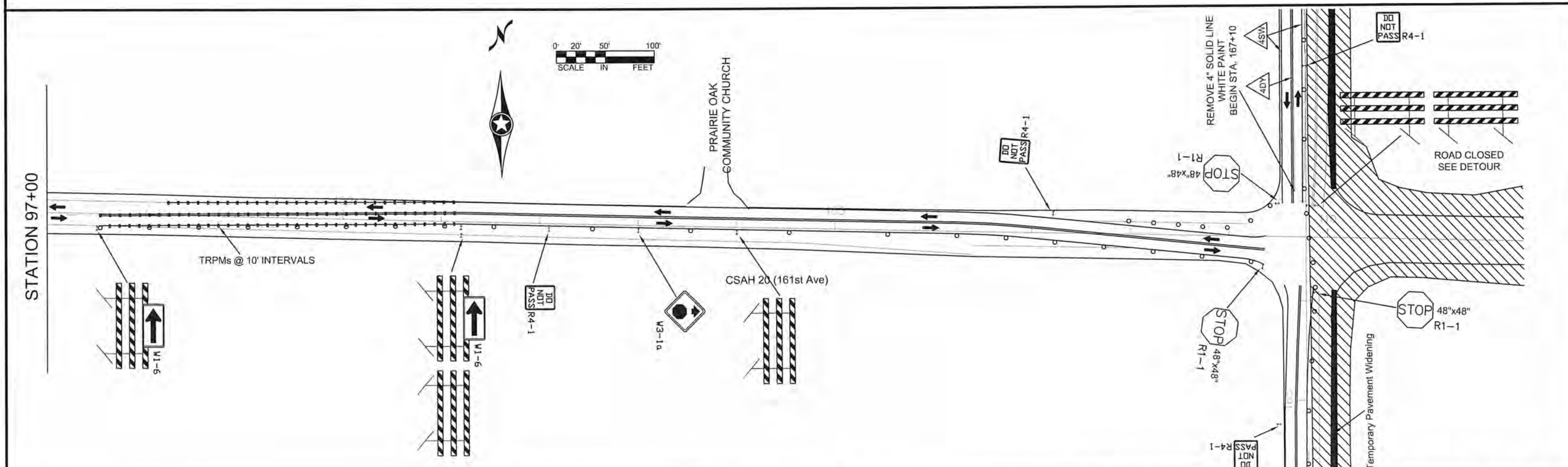
CIRCLE - EPOXY

SQUARE - POLY PREFORM

TRIANGLE - PAINT

PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING





NO	DATE	BY	CKD	APPR	REVISION

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ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.A.P. 002-678-020

CITY OF ANDOVER S.A.P. 198-020-033

STAGE 1B TRAFFIC CONTROL LAYOUT

Sheet 48 of 111 Sheets

STAGE 2 TRAFFIC CONTROL NOTES:

- CSAH 78 IS OPEN TO TRAFFIC.
- CSAH 20 FROM CSAH 78 TO CRANE ST. IS CLOSED WITH DETOUR IN PLACE.
- CSAH 78 AT CSAH 20 SHALL BE A 3-WAY STOP CONDITION.
- ACCESS SHALL BE MAINTAINED TO ALL DRIVEWAYS AND STREETS ON BOTH CSAH 78 AND CSAH 20.
- THE CSAH 78 LANE TRANSITIONS ON EACH END OF THE PROJECT SHALL HAVE TEMPORARY RAISED PAVEMENT MARKERS (TRPM) AT 10 FT INTERVALS.
- TEMPORARY STRIPING ALONG CSAH 78 FROM APPROXIMATELY STA. 126+75 TO STA. 130+85 AND FROM STA. 186+00 TO STA. 195+00 SHALL CONSIST OF REMOVABLE PREFORMED PLASTIC MARKINGS (LANE TAPE).
- THE TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS (FIELD MANUAL), DATED JANUARY, 2014 SHALL BE CONSULTED FOR ANY TEMPORARY WORK IMPACTING TRAFFIC.

STRIPING KEY

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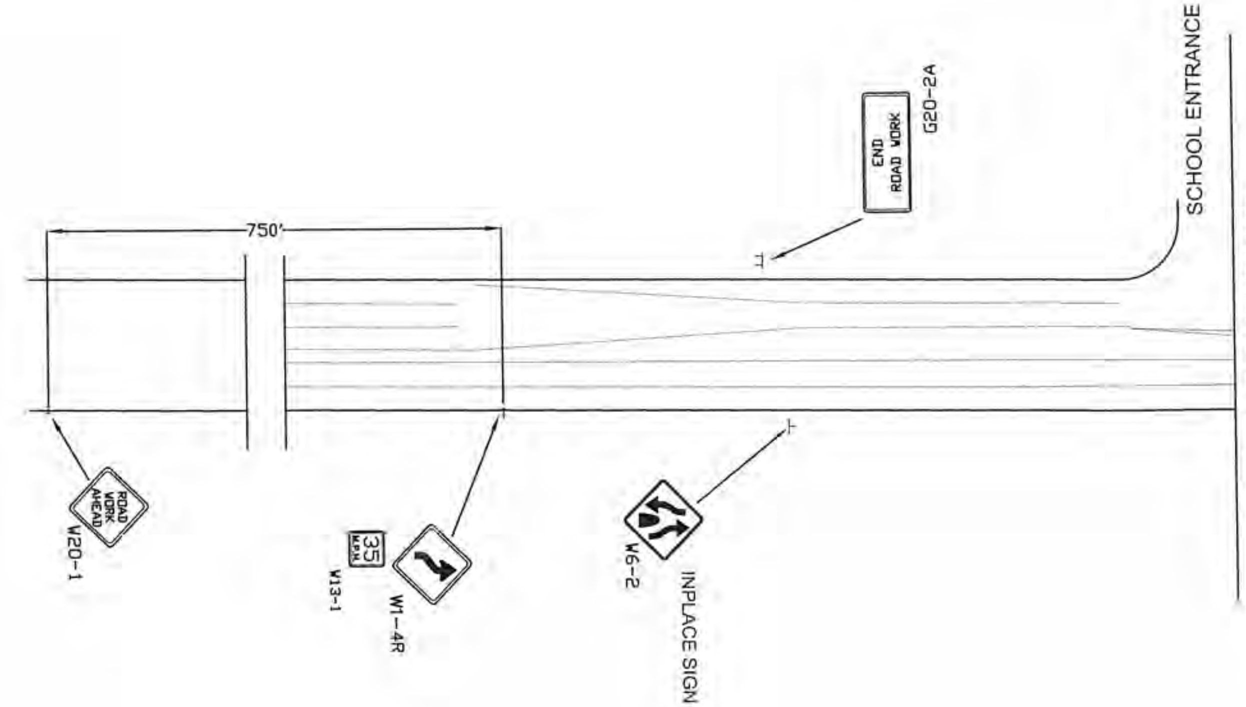

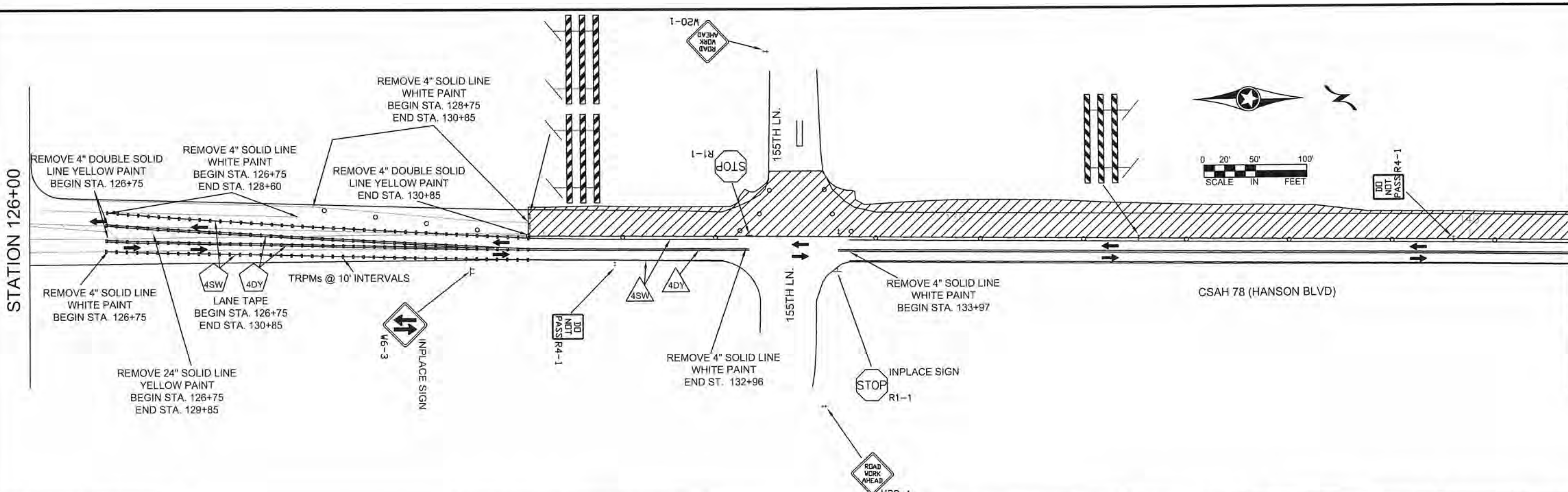

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ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.A.P. 002-678-020

CITY OF ANDOVER S.A.P. 198-020-033

STAGE 2 TRAFFIC CONTROL LAYOUT

STAGE 2 TRAFFIC CONTROL NOTES:

- CSAH 78 IS OPEN TO TRAFFIC.
- CSAH 20 FROM CSAH 78 TO CRANE ST. IS CLOSED WITH DETOUR IN PLACE.
- CSAH 78 AT CSAH 20 SHALL BE A 3-WAY STOP CONDITION.
- ACCESS SHALL BE MAINTAINED TO ALL DRIVEWAYS AND STREETS ON BOTH CSAH 78 AND CSAH 20.
- THE CSAH 78 LANE TRANSITIONS ON EACH END OF THE PROJECT SHALL HAVE TEMPORARY RAISED PAVEMENT MARKERS (TRPM) AT 10 FT INTERVALS.
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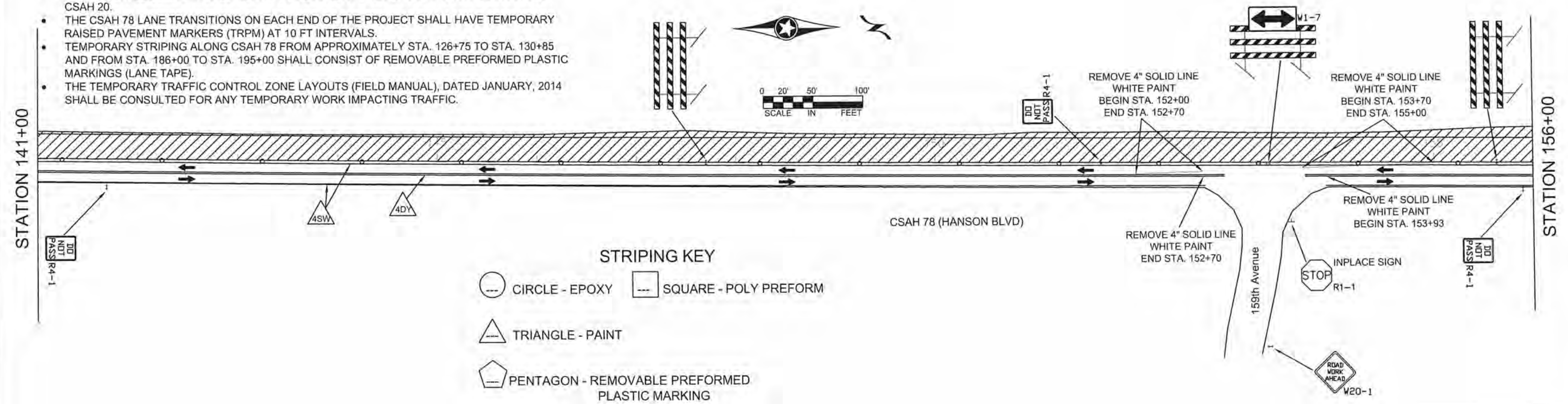

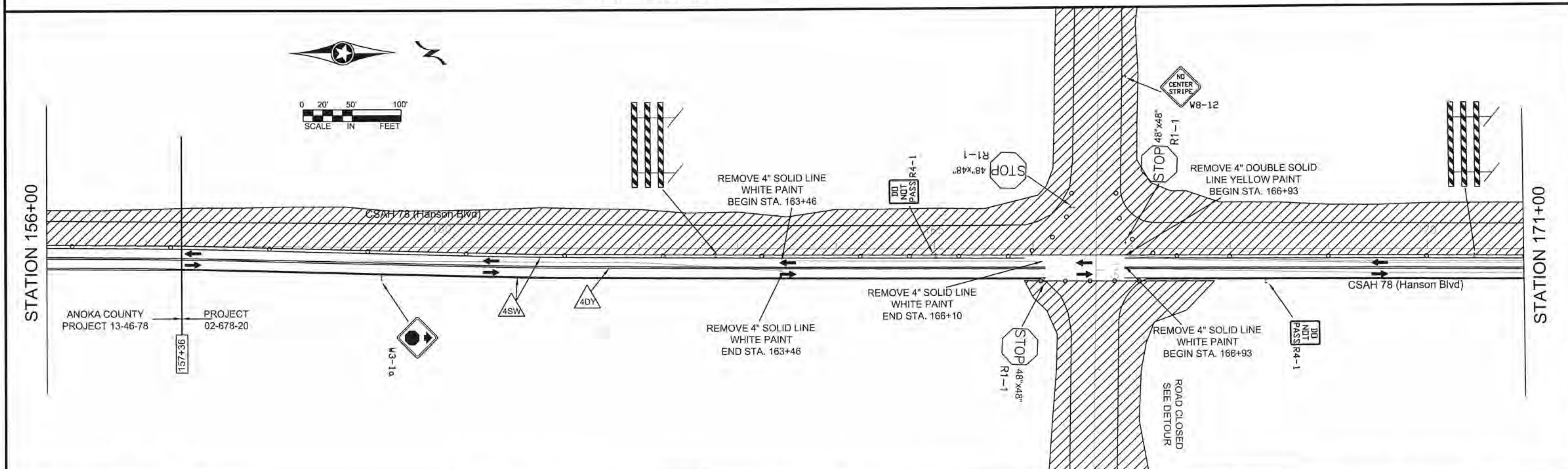

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Base\TRAFFIC\0267820-Stage 2_traffic.dwg, 04/15/2014 3:36:08 PM

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ANOKA COUNTY

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ANOKA COUNTY S.A.P. 002-678-020

CITY OF ANDOVER S.A.P. 198-020-033

STAGE 2 TRAFFIC CONTROL LAYOUT

Sheet 50 of 111 Sheets

STAGE 2 TRAFFIC CONTROL NOTES:

- CSAH 78 IS OPEN TO TRAFFIC.
- CSAH 20 FROM CSAH 78 TO CRANE ST. IS CLOSED WITH DETOUR IN PLACE.
- CSAH 78 AT CSAH 20 SHALL BE A 3-WAY STOP CONDITION.
- ACCESS SHALL BE MAINTAINED TO ALL DRIVEWAYS AND STREETS ON BOTH CSAH 78 AND CSAH 20.
- THE CSAH 78 LANE TRANSITIONS ON EACH END OF THE PROJECT SHALL HAVE TEMPORARY RAISED PAVEMENT MARKERS (TRPM) AT 10 FT INTERVALS.
- TEMPORARY STRIPING ALONG CSAH 78 FROM APPROXIMATELY STA. 126+75 TO STA. 130+85 AND FROM STA. 186+00 TO STA. 195+00 SHALL CONSIST OF REMOVABLE PREFORMED PLASTIC MARKINGS (LANE TAPE).
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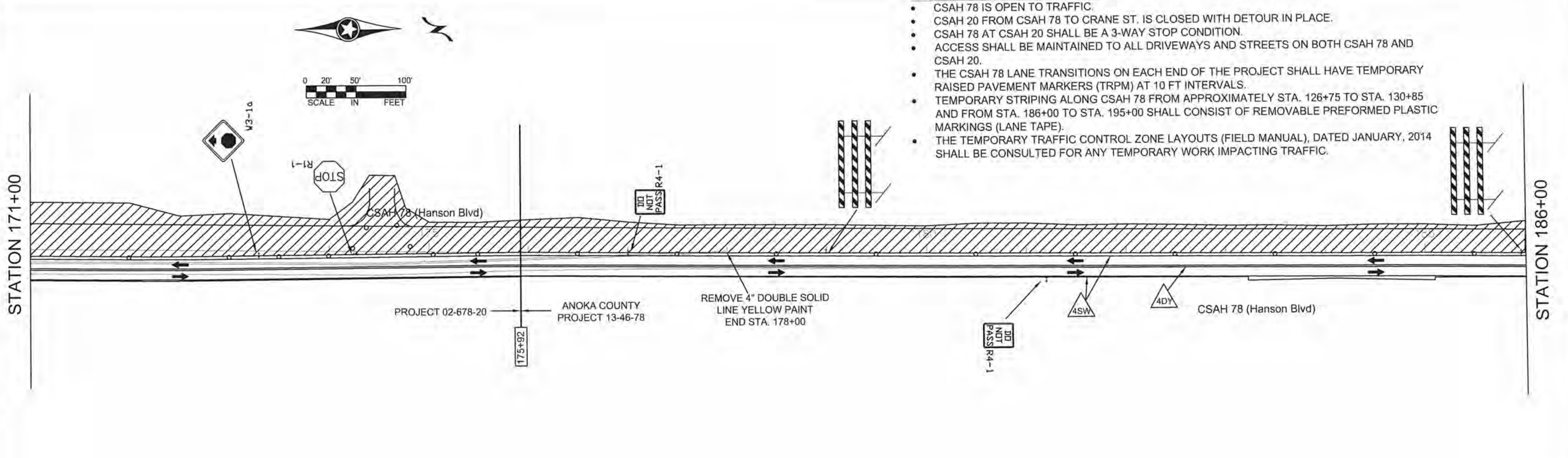

STRIPING KEY

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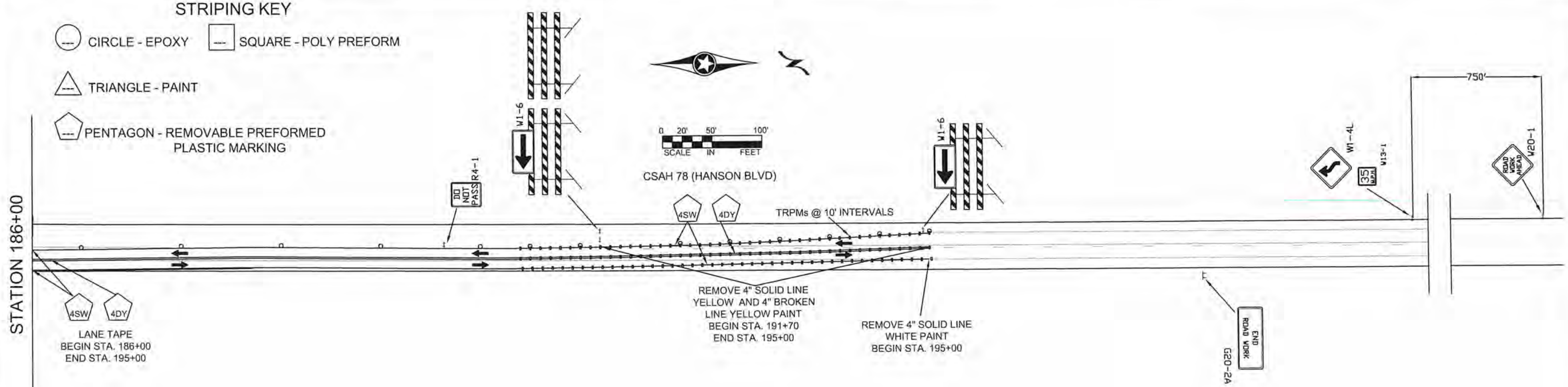
- SQUARE - POLY PREFORM
- TRIANGLE - PAINT
- PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Base\TRAFFIC\0267820-Stage 2_traffic.dwg, 04/15/2014 3:36:11 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: 4-17-14 LICENSE NO. 24756

DRAWN BY S.T. DATE 03/26/14
DESIGN BY S.T. DATE 03/26/14
CHECKED BY R.B. DATE 04/08/14

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.A.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

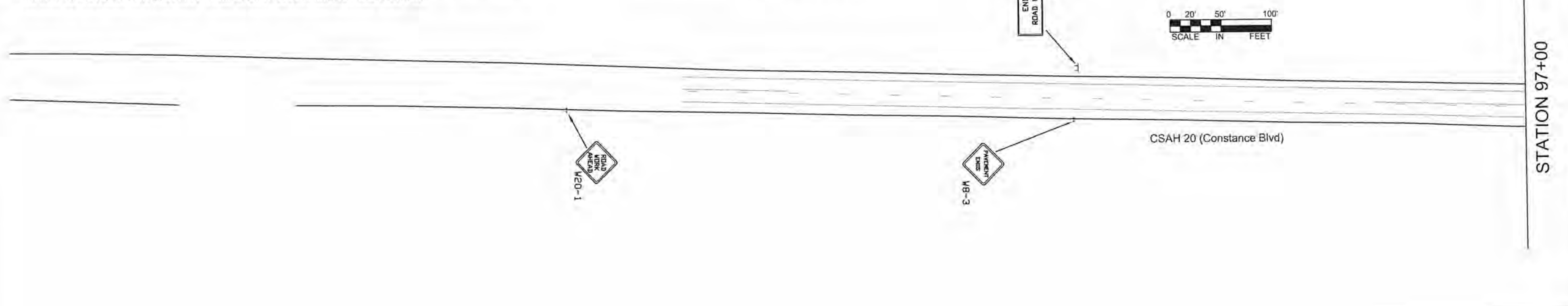
STAGE 2 TRAFFIC CONTROL LAYOUT

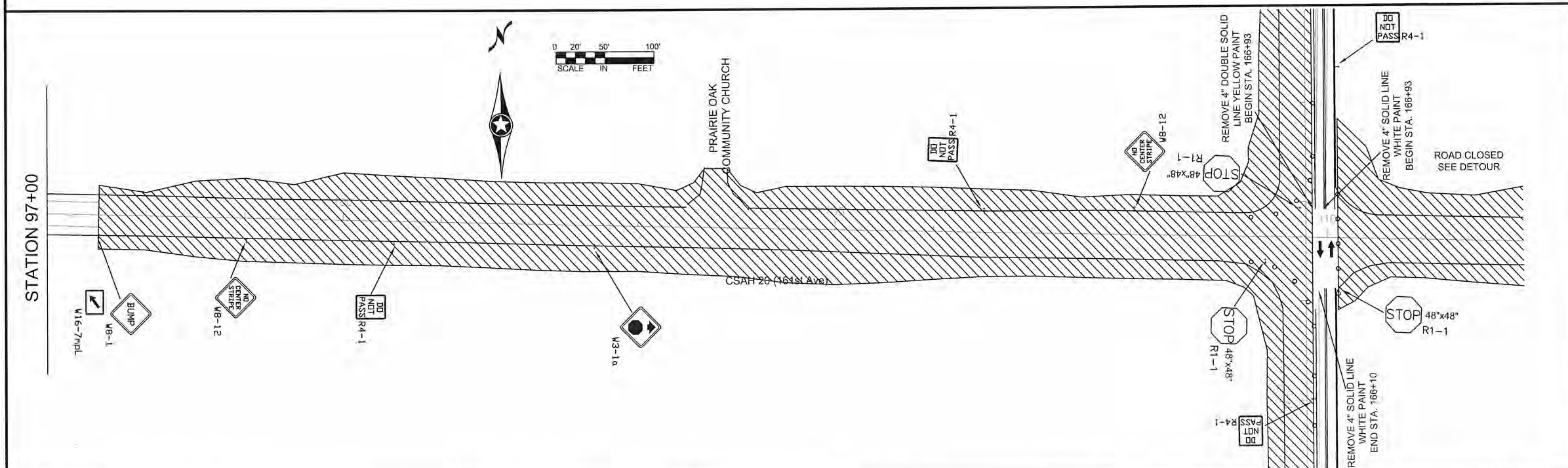
STAGE 2 TRAFFIC CONTROL NOTES:

- CSAH 78 IS OPEN TO TRAFFIC.
- CSAH 20 FROM CSAH 78 TO CRANE ST. IS CLOSED WITH DETOUR IN PLACE.
- CSAH 78 AT CSAH 20 SHALL BE A 3-WAY STOP CONDITION.
- ACCESS SHALL BE MAINTAINED TO ALL DRIVEWAYS AND STREETS ON BOTH CSAH 78 AND CSAH 20.
- THE CSAH 78 LANE TRANSITIONS ON EACH END OF THE PROJECT SHALL HAVE TEMPORARY RAISED PAVEMENT MARKERS (TRPM) AT 10 FT INTERVALS.
- TEMPORARY STRIPING ALONG CSAH 78 FROM APPROXIMATELY STA. 126+75 TO STA. 130+85 AND FROM STA. 186+00 TO STA. 195+00 SHALL CONSIST OF REMOVABLE PREFORMED PLASTIC MARKINGS (LANE TAPE).
- THE TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS (FIELD MANUAL), DATED JANUARY, 2014 SHALL BE CONSULTED FOR ANY TEMPORARY WORK IMPACTING TRAFFIC.

STRIPING KEY

CIRCLE - EPOXY
SQUARE - POLY PREFORM
TRIANGLE - PAINT
PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING





NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Base\TRAFFIC\0267820-Stage 2_traffic.dwg, 04/15/2014 3:36:15 PM

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DATE: 4-17-14 LICENSE NO. 24756

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ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.A.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

STAGE 2 TRAFFIC CONTROL LAYOUT

Sheet 52 of 111 Sheets

STAGE 3 TRAFFIC CONTROL NOTES:

- CSAH 78 AND CSAH 20 ARE BOTH OPEN TO TRAFFIC.
- CSAH 78 AT CSAH 20 SHALL BE A 4-WAY STOP CONDITION.
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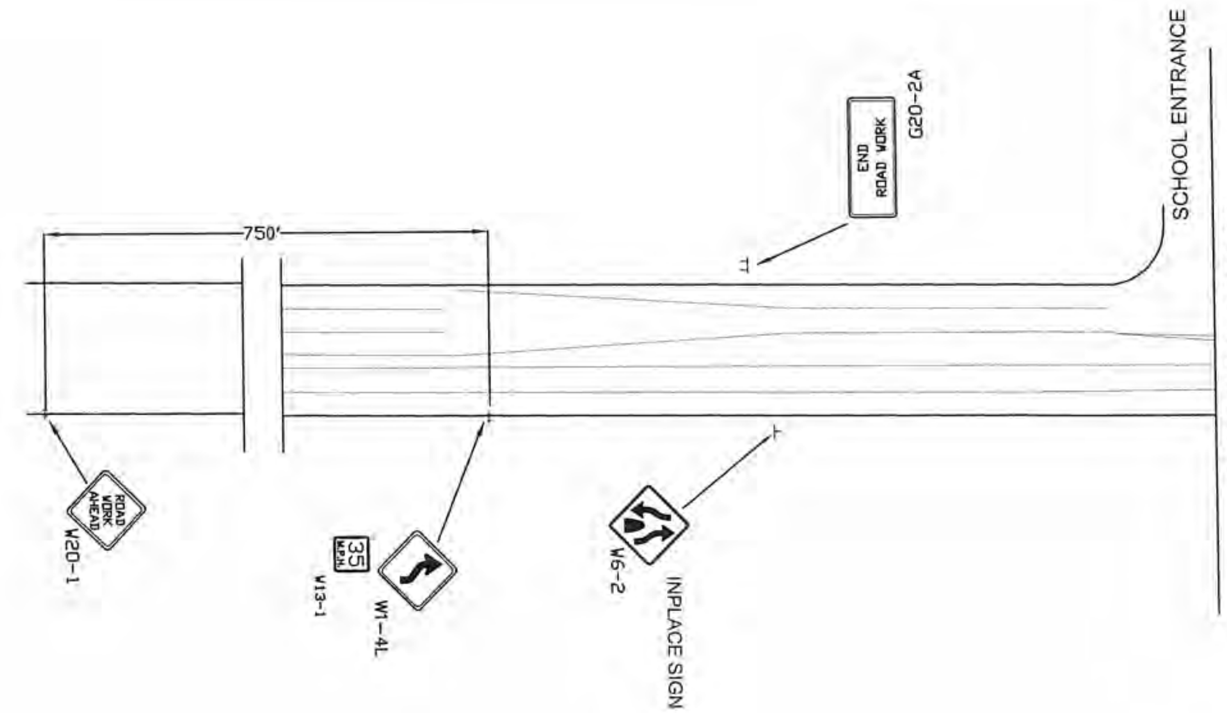

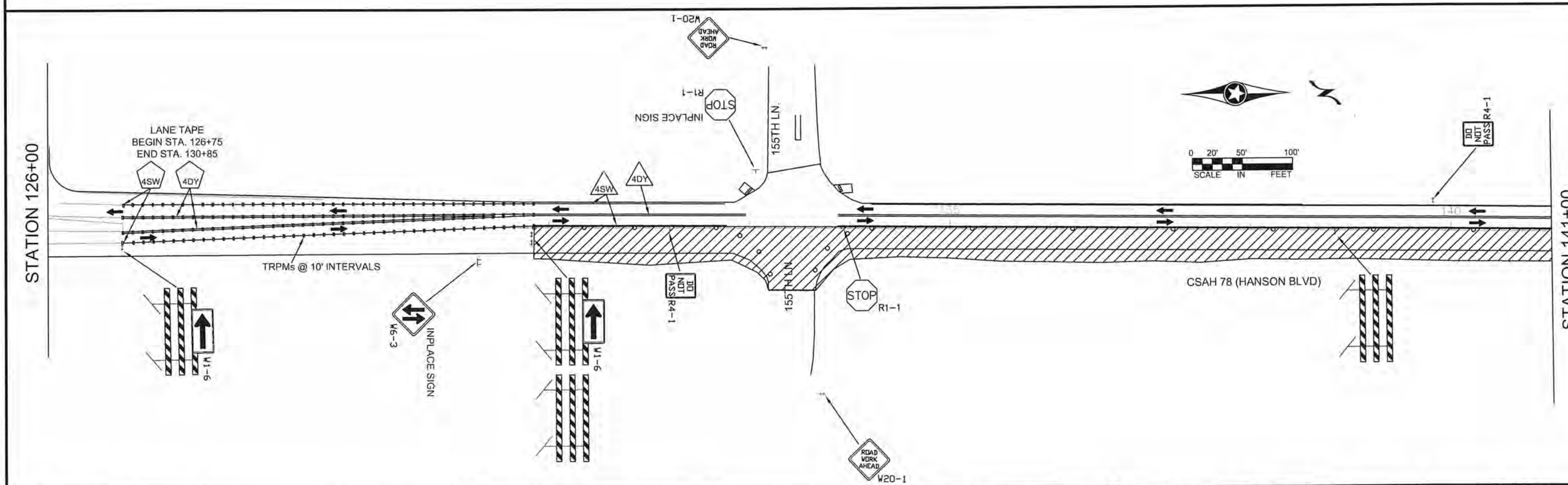

NO	DATE	BY	CKD	APPR	REVISION
NAME:	P:\02-678-20\Base\TRAFFIC\0267820-Stage 3_traffic.dwg, 04/15/2014 3:37:08 PM				

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PRINT NAME: CURT A. KOBILARCSIK

SIGNATURE: Curt Kobilarcsik

DATE: 4-17-14 LICENSE NO. 24756

DRAWN BY S.T. DATE 04/03/14

DESIGN BY S.T. DATE 04/03/14

CHECKED BY R.B. DATE 04/08/14

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.A.P. 002-678-020

CITY OF ANDOVER S.A.P. 198-020-033

STAGE 3 TRAFFIC CONTROL LAYOUT

Sheet 53 of 111 Sheets

STAGE 3 TRAFFIC CONTROL NOTES:

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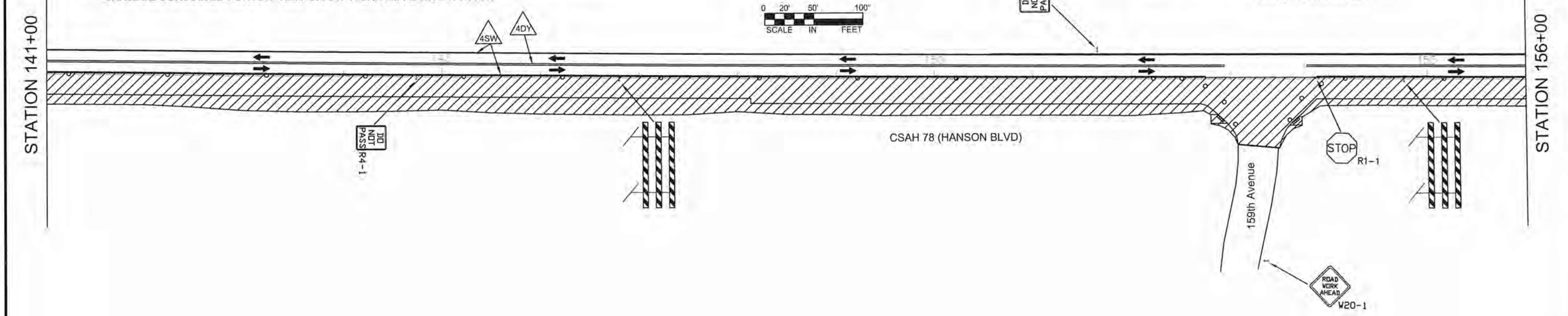

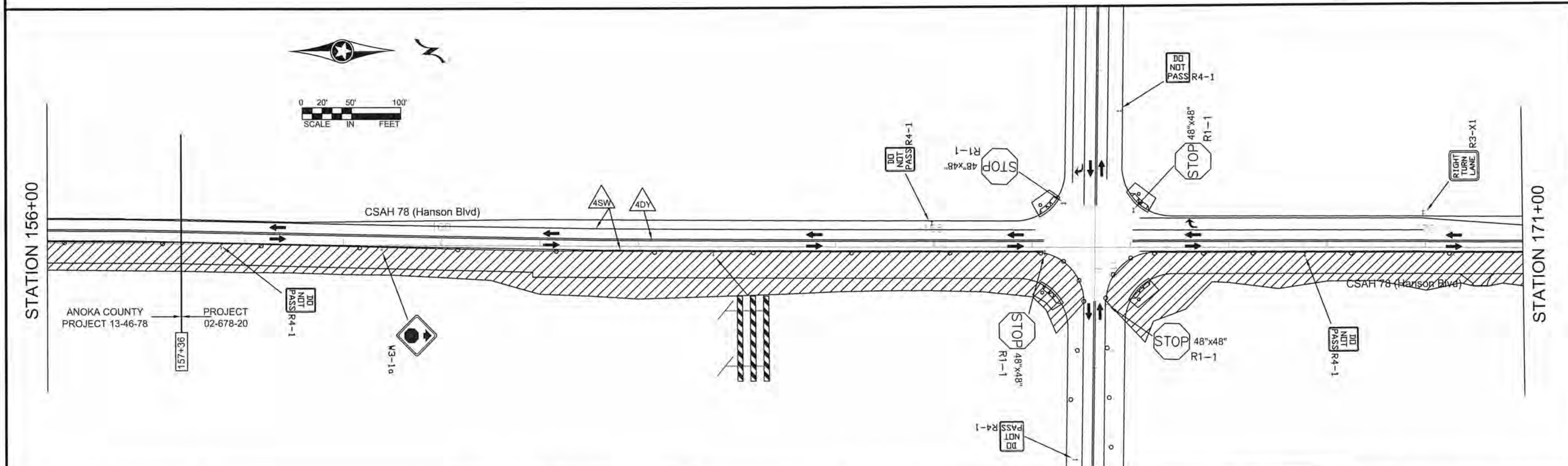

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Base\TRAFFIC\0267820-Stage 3_traffic.dwg, 04/15/2014 3:37:14 PM

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ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.A.P. 002-678-020

CITY OF ANDOVER S.A.P. 198-020-033

STAGE 3 TRAFFIC CONTROL LAYOUT

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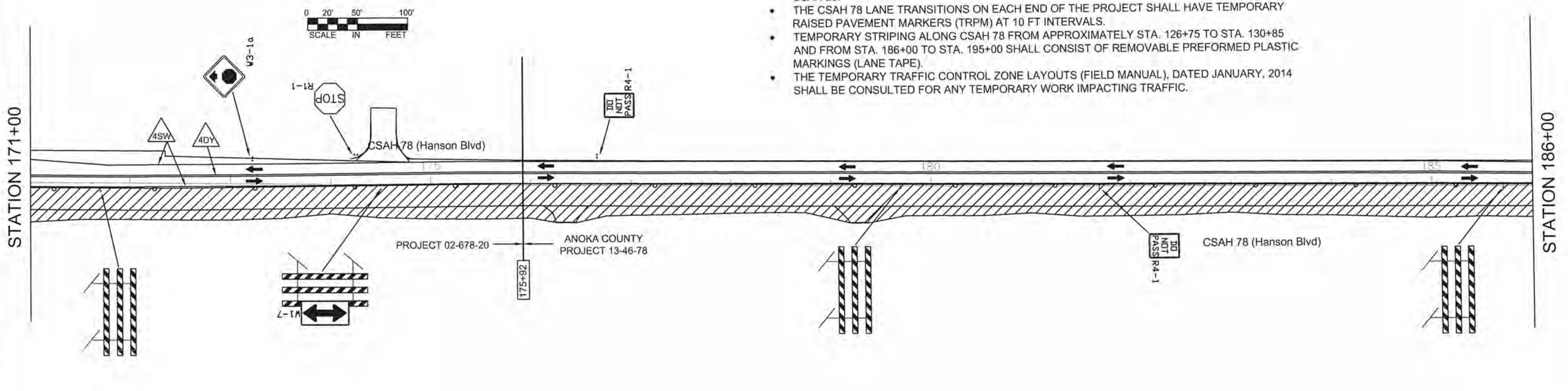

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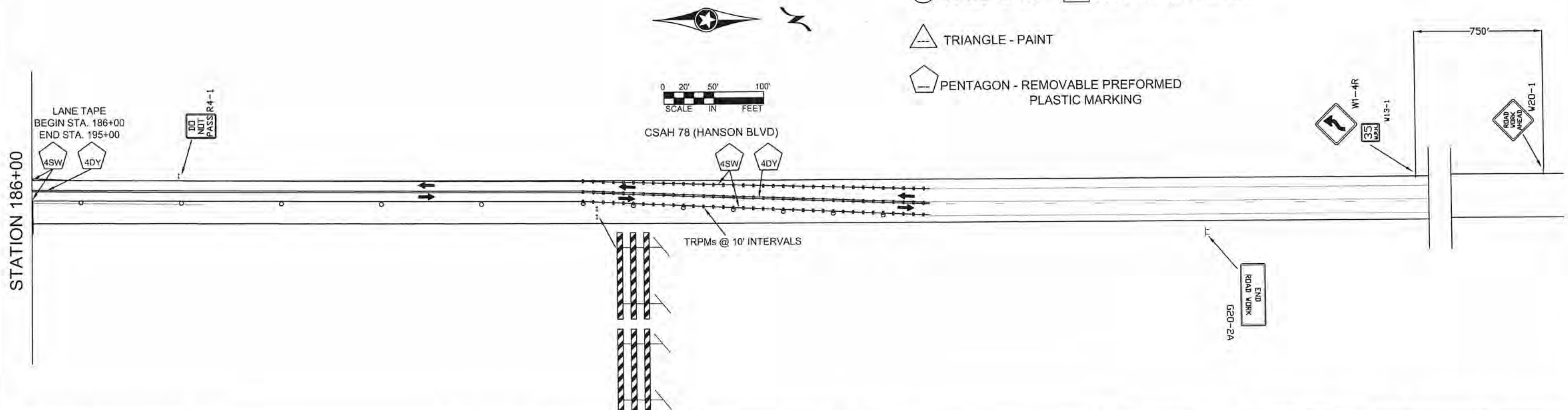

NO	DATE	BY	CKD	APPR	REVISION

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DESIGN BY S.T. DATE 04/03/14

CHECKED BY R.B. DATE 04/08/14

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.A.P. 002-678-020

CITY OF ANDOVER S.A.P. 198-020-033

STAGE 3 TRAFFIC CONTROL LAYOUT

Sheet 55 of 111 Sheets

STAGE 3 TRAFFIC CONTROL NOTES:

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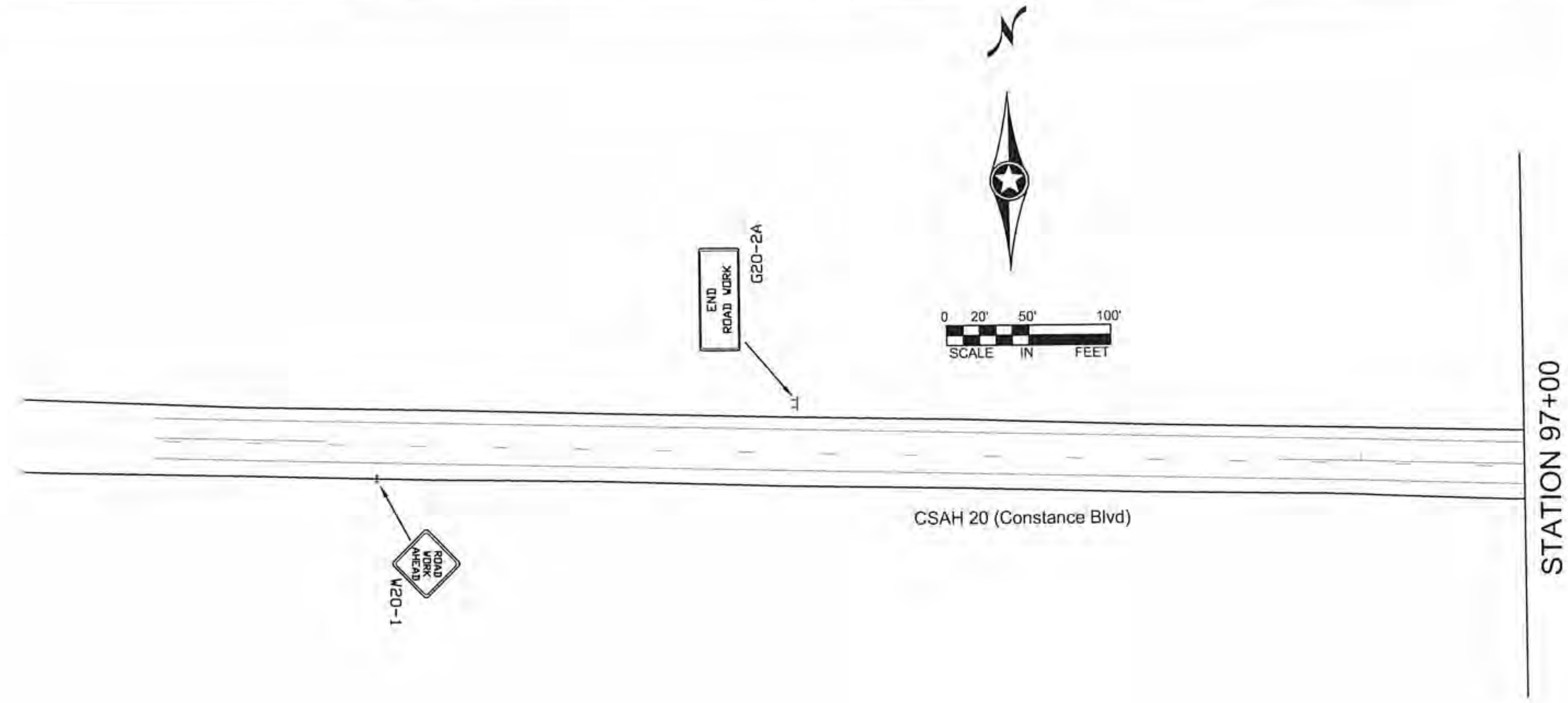

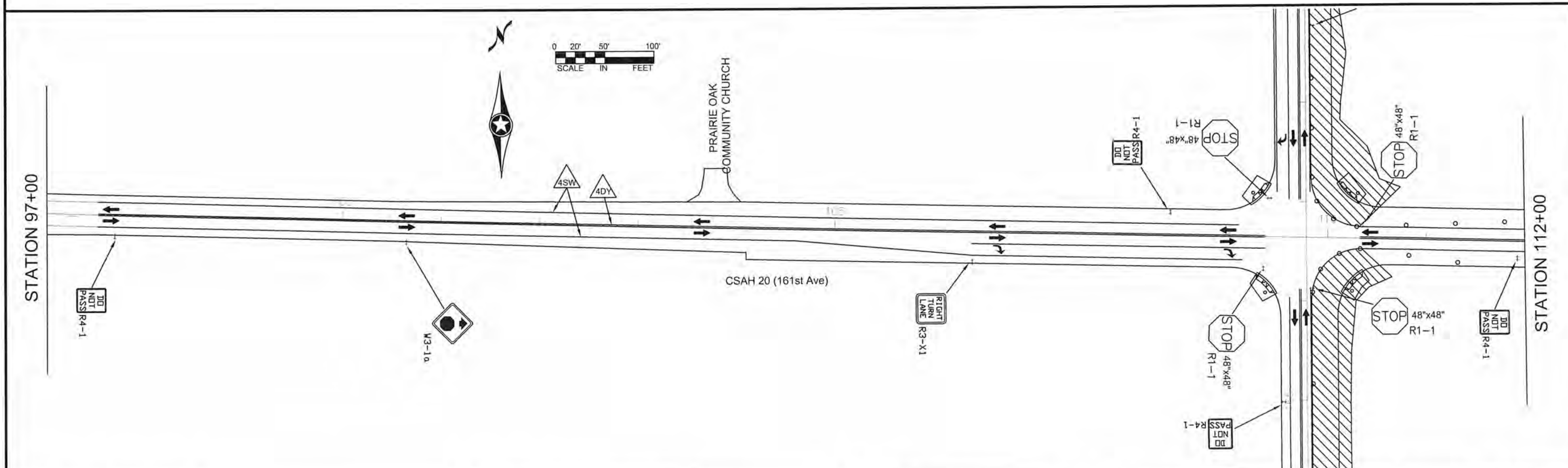

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Base\TRAFFIC\0267820-Stage 3_traffic.dwg, 04/15/2014 3:37:25 PM

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ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.A.P. 002-678-020

CITY OF ANDOVER S.A.P. 198-020-033

STAGE 3 TRAFFIC CONTROL LAYOUT

Sheet 56 of 111 Sheets

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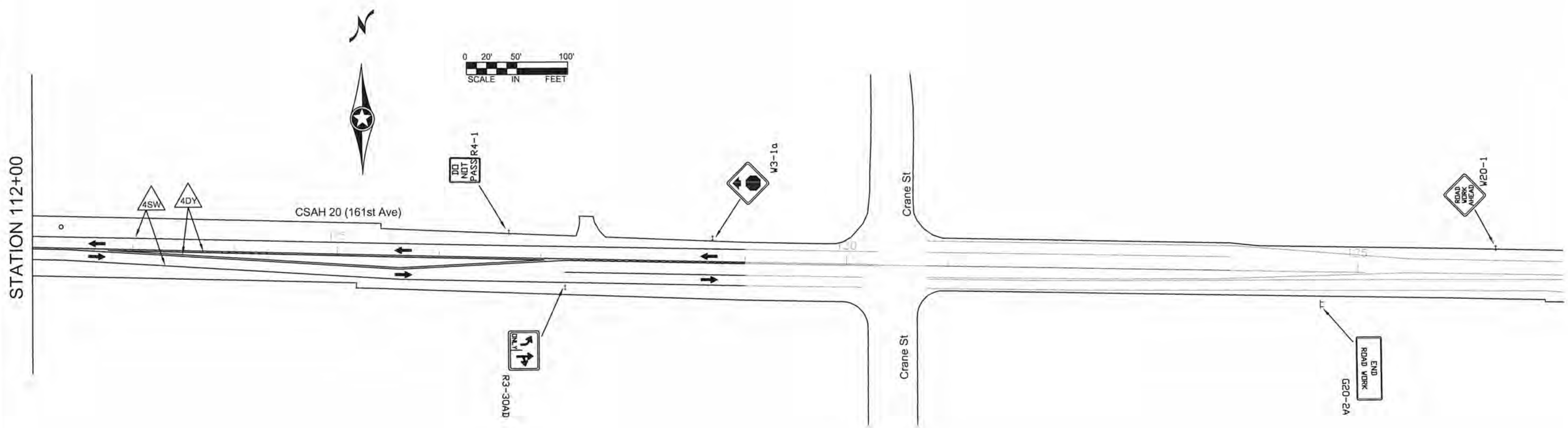

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Base\TRAFFIC\0267820-Stage 3_traffic.dwg, 04/15/2014 3:37:32 PM

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SIGNATURE: Curt Kobilarcsik

DATE: 4-17-14 LICENSE NO. 24756

DRAWN BY S.T. DATE 04/03/14

DESIGN BY S.T. DATE 04/03/14

CHECKED BY R.B. DATE 04/08/14

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.A.P. 002-678-020

CITY OF ANDOVER S.A.P. 198-020-033

STAGE 3 TRAFFIC CONTROL LAYOUT

Sheet 57 of 111 Sheets

M.U.T.C.D. CODE	SIZE	INSERT	QTY. STG. 1A	QTY. STG. 1B	QTY. STG. 2	QTY. STG. 3
R1-1	48" x 48"	STOP	3	3	3	4
R1-1	30" x 30"		1	1	1	1
R3-X1	30" x 30"	RIGHT TURN LANE	0	0	0	2
R3-30AD	36" x 30"	ONLY	0	0	0	1
R4-1	24" x 30"	DO NOT PASS	5	4	4	7
W3-1	48" x 48"		3	3	3	4
W8-1	48" x 48"	BUMP	0	0	1	0
W16-7mpL	30" x 18"		0	0	1	0
W8-3	48" x 48"	PAVEMENT ENDS	0	0	1	0
W8-12	48" x 48"	NO CENTER STRIPE	0	0	1	0
W20-1	48" x 48"	ROAD WORK AHEAD	1	1	1	2
W1-6L	48" x 18"		3	2	0	0
TYPE III	8 FOOT		3	2	0	0
W1-7	48" x 18"		0	1	0	1
TYPE III	8 FOOT		0	1	0	1
TYPE III	8 FOOT		5	6	2	2

M.U.T.C.D. CODE	SIZE	INSERT	QTY. STG. 1A	QTY. STG. 1B	QTY. STG. 2	QTY. STG. 3
REFLECTORIZED REBOUNDABLE DRUM			58	54	38	31
G20-2A	48" x 24"	END ROAD WORK	1	1	1	2
CMS signs to be installed a minimum of seven days prior to actual commencement of road work. Signs to be removed when road work begins.		CMS	4	0	0	0

02-678-20 TEMPORARY PAVEMENT MARKING TABULATION		
ITEM	UNIT	TOTAL QUANTITY
PAVEMENT MARKING REMOVAL 4"	LIN FT	6945
PAVEMENT MARKING REMOVAL DOUBLE 4"	LIN FT	1230
TEMPORARY RAISED PAVEMENT MARKER	EACH	255
4" SOLID LINE WHITE - LATEX PAINT	LIN FT	19850
4" DOUBLE YELLOW - LATEX PAINT	LIN FT	10100

NOTES:

- ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE PLACED IN ACCORDANCE TO THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), AND PART VI, "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 MN MUTCD.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Base\TRAFFIC\002-678-020_STGQTY.dwg, 04/15/2014 3:38:13 PM

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PRINT NAME: CURT A. KOBILARCSIK

SIGNATURE: Curt Kobilarcsik

DATE: 4-17-14 LICENSE NO. 24756

DRAWN BY S.T. DATE 04/08/14

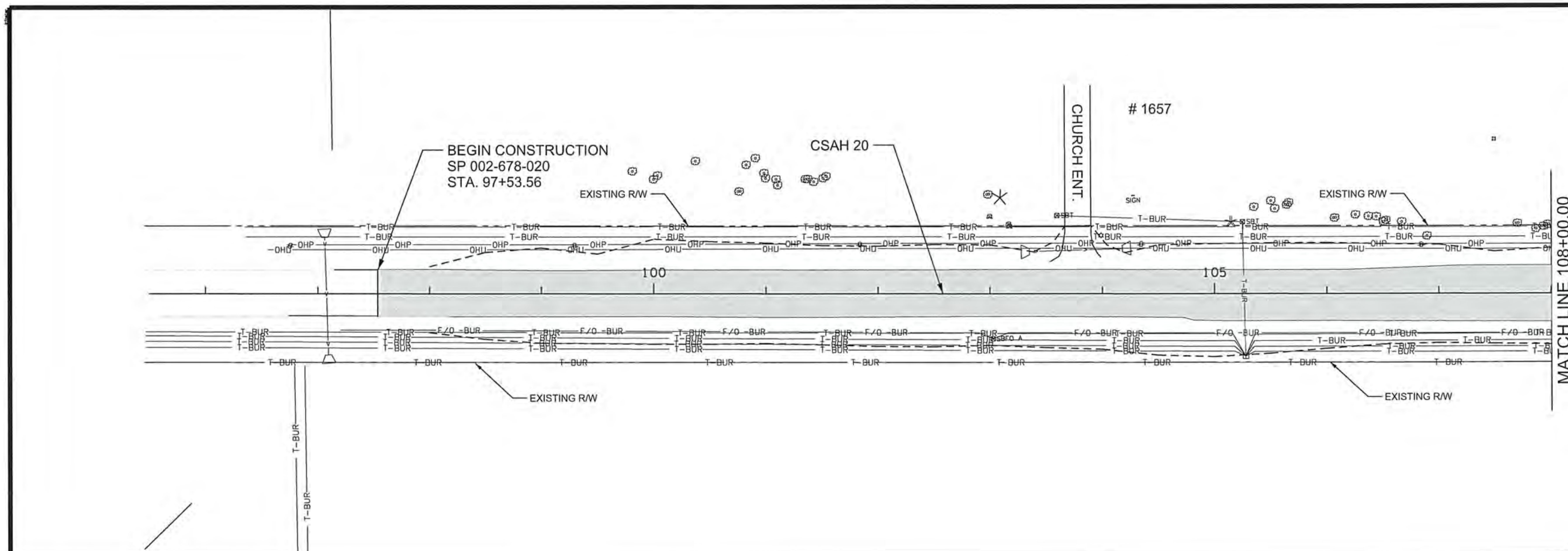
DESIGN BY S.T. DATE 04/08/14

CHECKED BY R.B. DATE 04/08/14

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.A.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

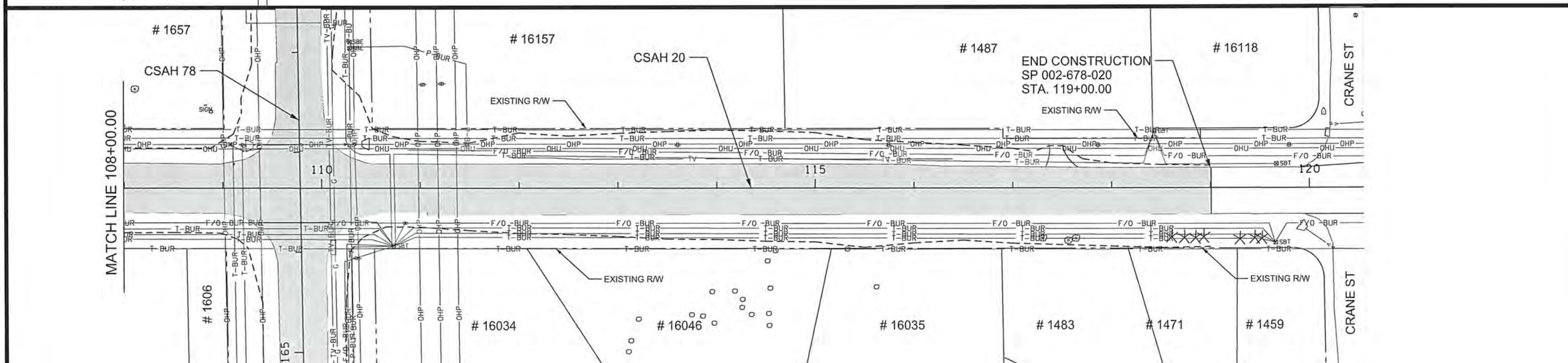
STAGING SIGN QUANTITIES



LEGEND

——G——	CENTERPOINT ENERGY
——TV-BUR—— / —OHU——	COMCAST CABLE COMMUNICATIONS
——P-BUR—— / —OHP——	CONNEXUS ENERGY/ GREAT RIVER ENERGY/ XCEL ENERGY
——T-BUR—— / —OHU——	CENTURY LINK
——T-BUR——	ACCESS COMM.
——>——>——	EXISTING STORM SEWER
– – – –	EXISTING R/W
– – – –	CONSTRUCTION LIMITS
(shaded)	EXISTING ROADWAY

0 100
SCALE IN FEET



1 OF 2

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Plan_20\0267820_UTIL20_1J.dgn 04/16/2014 10:38:39 AM

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PRINT NAME: CURT A. KOBILARCSIK
SIGNATURE: Curt Kobilarcsik
DATE: 4-17-14 LICENSE NO. 24756

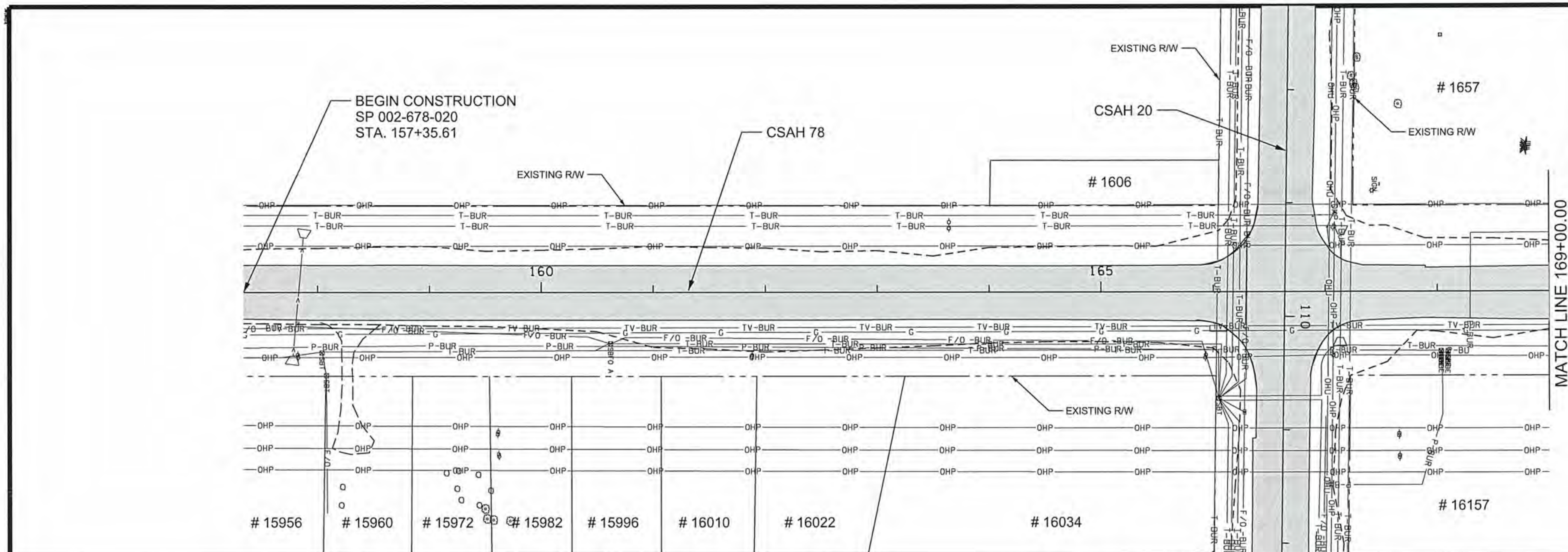
DRAWN BY JF DATE 8/8/2013
DESIGN BY JF DATE 8/8/2013
CHECKED BY GMP DATE 02/20/14

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

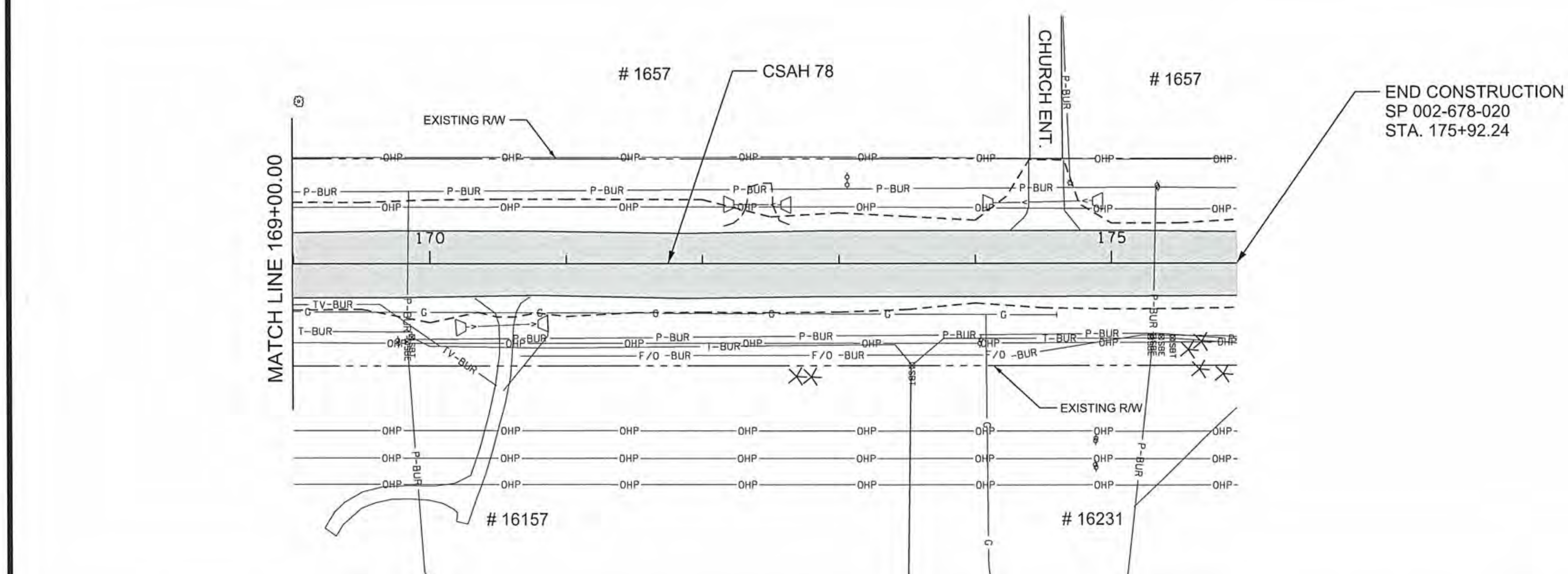
EXISTING UTILITIES
CSAH 20
STA 97+53.56 TO 119+00.00



LEGEND

- G — CENTERPOINT ENERGY
- TV-BUR / OHU — COMCAST CABLE COMMUNICATIONS
- P-BUR / OHP — CONNEXUS ENERGY/ GREAT RIVER ENERGY/ XCEL ENERGY
- T-BUR / OHU — CENTURY LINK
- T-BUR — ACCESS COMM
- EXISTING STORM SEWER
- EXISTING R/W
- CONSTRUCTION LIMITS
- EXISTING ROADWAY

0 100
SCALE IN FEET



2 OF 2

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Plan_20\0267820_UTIL20_2J.dgn 04/16/2014 10:38:42 AM

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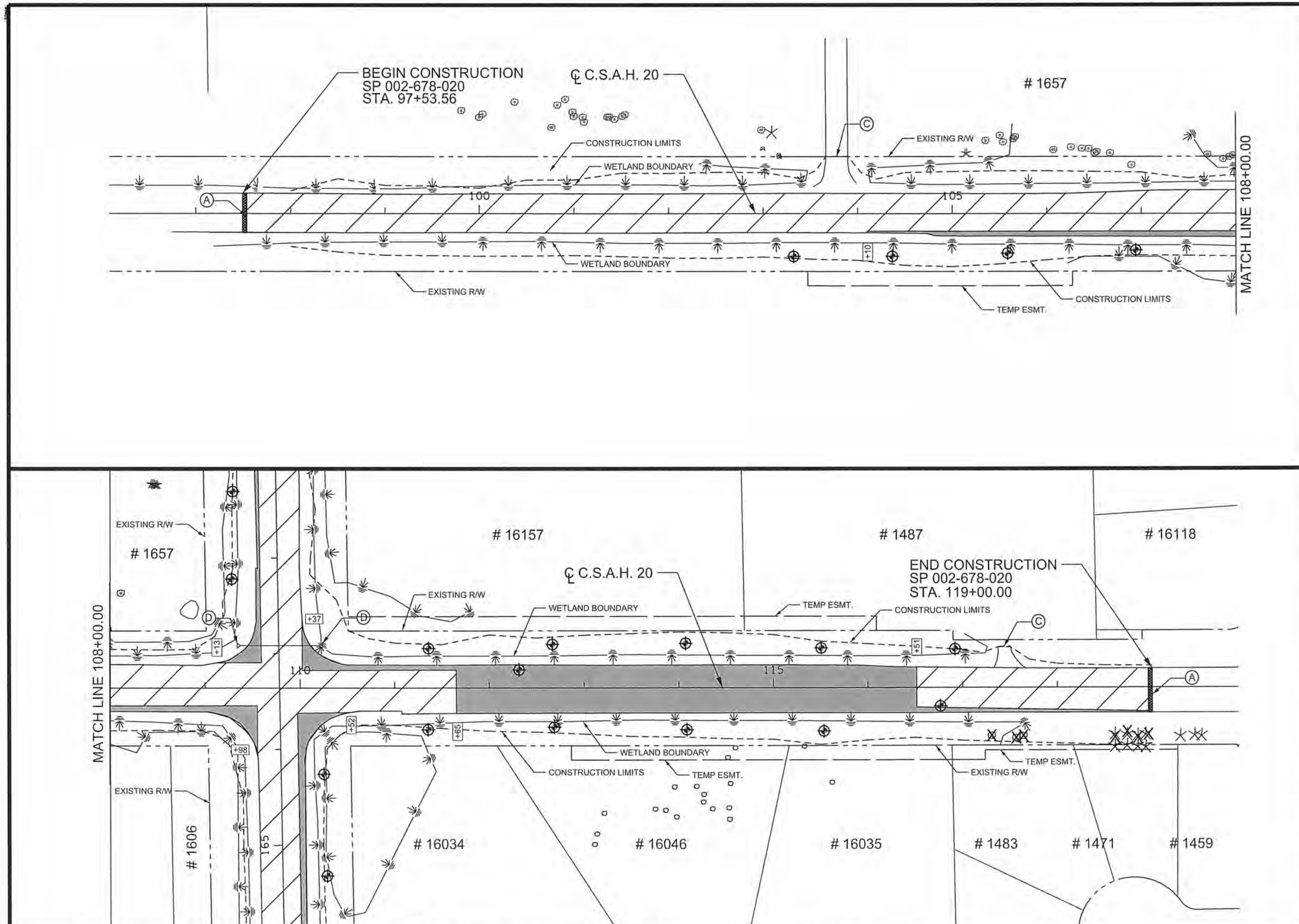
ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033
#XZXX

EXISTING UTILITIES
CSAH 78
STA 157+35.61 TO 175+92.24



LEGEND

- SEE NOTE "A" BELOW
- SEE NOTE "B" BELOW
- OVERLAY EXISTING BIT. STREET APPROACH
- 4.0' MILL JOINT
- (A) SAW BITUMINOUS PAVEMENT
- (C) SAWCUT / REMOVE BIT. DRIVEWAY
- (D) REMOVE EXISTING CONC. CROSS PIPE AND APRONS
- TREE REMOVAL BY EACH
- PUSH SOUNDING

0 100
SCALE IN FEET

REMOVAL NOTES

[A] 12" BIT. RECLAIMATION.
ALL RECLAIMED MATERIAL TO BE REMOVED TO ALLOW FOR TURN LANE CONSTRUCTION - SEE TYPICAL DETAILS.

[B] 12" BIT RECLAIMATION.
TOP 4" OF RECLAIM TO BE REMOVED, HAULED AND USED ON SITE AS AGGREGATE BASE.
SEE TYPICAL DETAILS.

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 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 REMOVED BY THE CONTRACTOR.

1 of 2

NO	DATE	BY	CKD	APPR	REVISION
1	4/3/14	JCF	NJD		REMOVAL NOTES CHANGED SALVAGED TO " REMOVE "

NAME: P:\02-678-20\Plan_20\0267820_REM20_P1J.dgn 06/04/2014 1:41:43 PM

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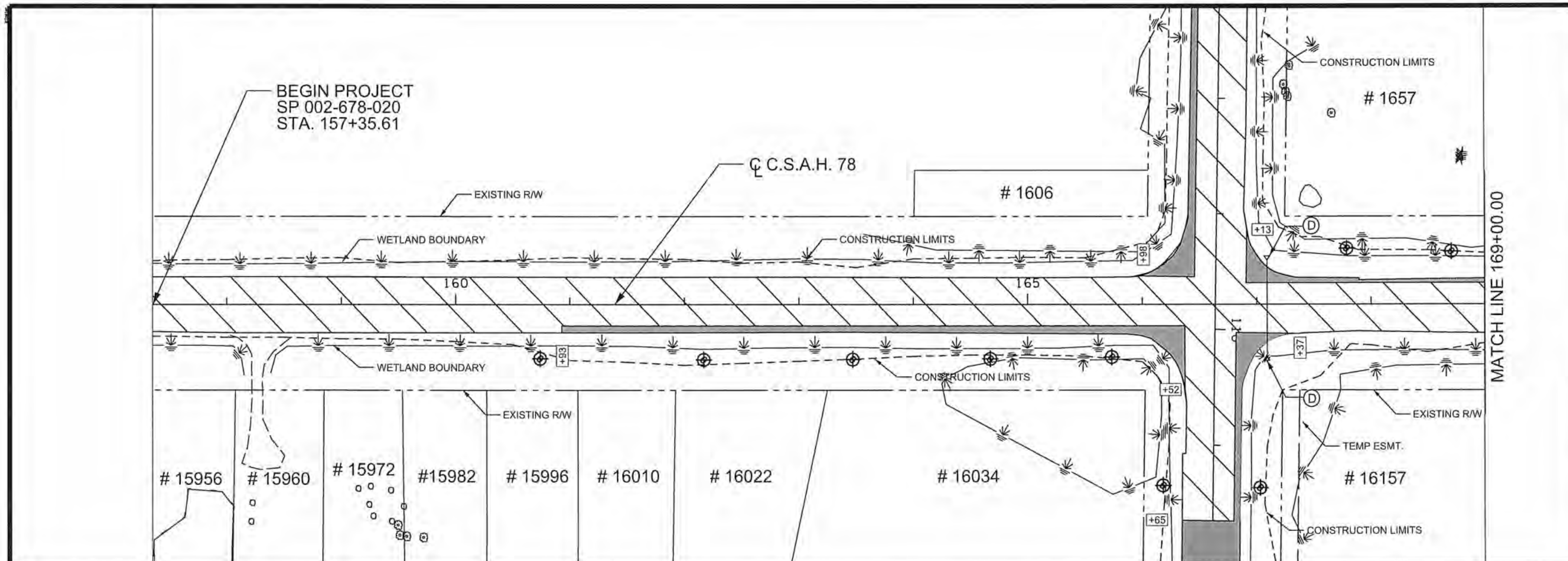
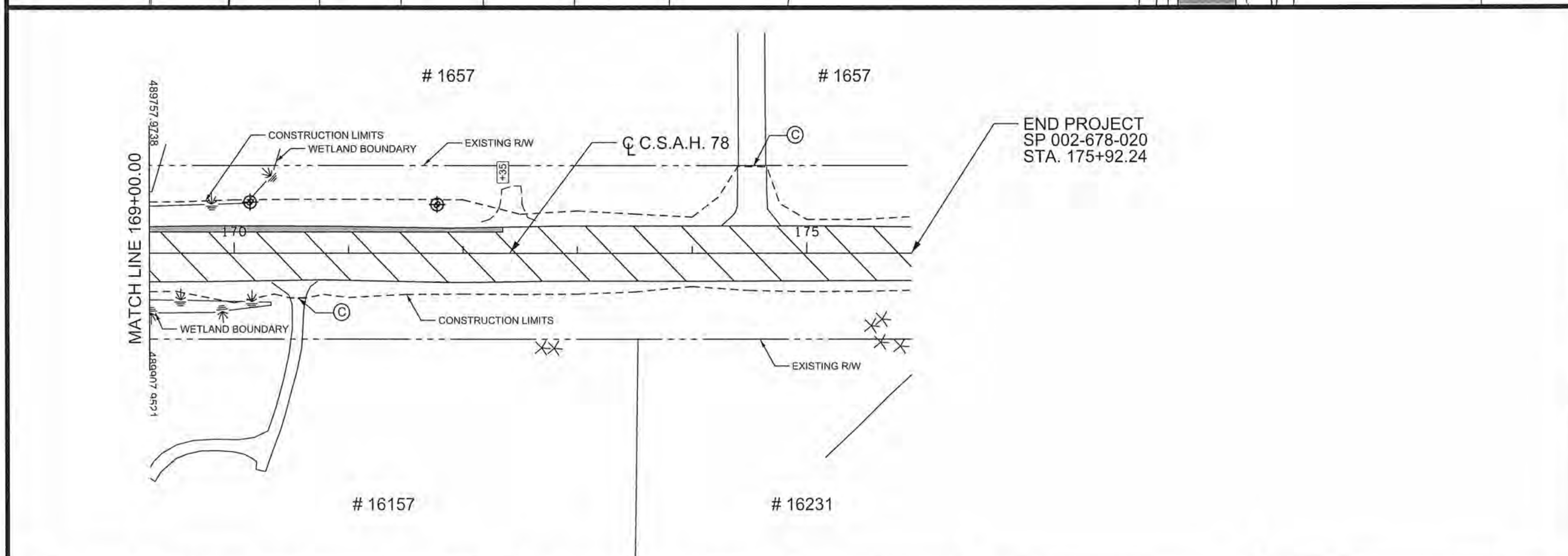
ANOKA COUNTY
ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

REMOVAL PLAN
CSAH 20
STA 97+53.56 TO 119+00.00





LEGEND

- SEE NOTE "A" BELOW
- SEE NOTE 'B" BELOW
- OVERLAY EXISTING BIT. STREET APPROACH
- 4.0' MILL JOINT
- (A) SAW BITUMINOUS PAVEMENT
- (C) SAWCUT / REMOVE BIT. DRIVEWAY
- (D) REMOVE EXISTING CONC. CROSS PIPE AND APRONS
- TREE REMOVAL BY EACH
- PUSH SOUNDING

0 100
SCALE IN FEET

REMOVAL NOTES

[A] 12" BIT. RECLAIMATION. ALL RECLAIMED MATERIAL TO BE REMOVED TO ALLOW FOR TURN LANE CONSTRUCTION - SEE TYPICAL DETAILS.

[B] 12" BIT RECLAIMATION. TOP 4" OF RECLAIM TO BE REMOVED, HAULED AND USED ON SITE AS AGGREGATE BASE. SEE TYPICAL DETAILS.

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 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 REMOVED BY THE CONTRACTOR.

2 of 2

NO	DATE	BY	CKD	APPR	REVISION
1	4/3/14	JCF	NJD		REMOVAL NOTES CHANGED SALVAGED TO " REMOVE "

NAME: P:\02-678-20\Plan_20\0267820_REM20_P2J.dgn 06/04/2014 1:43:02 PM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINT NAME: CURT A. KOBILARCSIK
SIGNATURE: Curt Kobilarcsik
DATE: 6-12-14 LICENSE NO. 24756

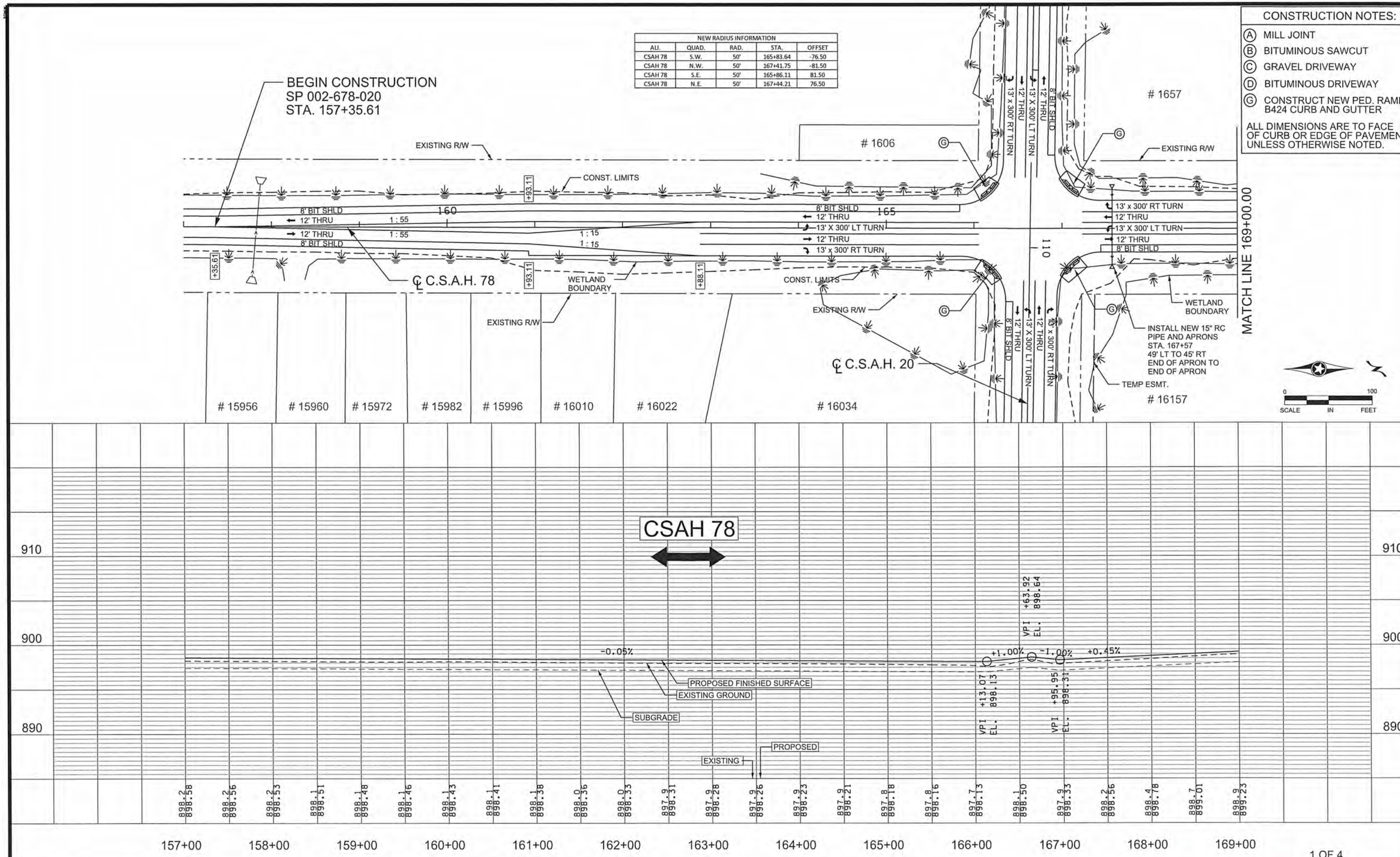
DRAWN BY JF DATE 8/8/2013
DESIGN BY JF DATE 8/8/2013
CHECKED BY GMP DATE 02/20/14

ANOKA COUNTY
ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

REMOVAL PLAN
CSAH 78
STA 157+35.61 TO 175+92.24

NEW RADIUS INFORMATION				
ALI.	QUAD.	RAD.	STA.	OFFSET
CSAH 78	S.W.	50'	165+83.64	-76.50
CSAH 78	N.W.	50'	167+41.75	-81.50
CSAH 78	S.E.	50'	165+86.11	81.50
CSAH 78	N.E.	50'	167+44.21	76.50



CONSTRUCTION NOTES:

- (A) MILL JOINT
- (B) BITUMINOUS SAWCUT
- (C) GRAVEL DRIVEWAY
- (D) BITUMINOUS DRIVEWAY
- (G) CONSTRUCT NEW PED. RAMP B424 CURB AND GUTTER

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

1 OF 4

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Plan_20\0267820_PP20_1J.dgn 04/16/2014 10:38:19 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 Kobilarcsik
DATE: 4-17-14 LICENSE NO. 24756

DRAWN BY NJD DATE 12/20/13
DESIGN BY NJD DATE 08/08/13
CHECKED BY GMP DATE 02/20/14

ANOKA COUNTY
HIGHWAY DEPT.

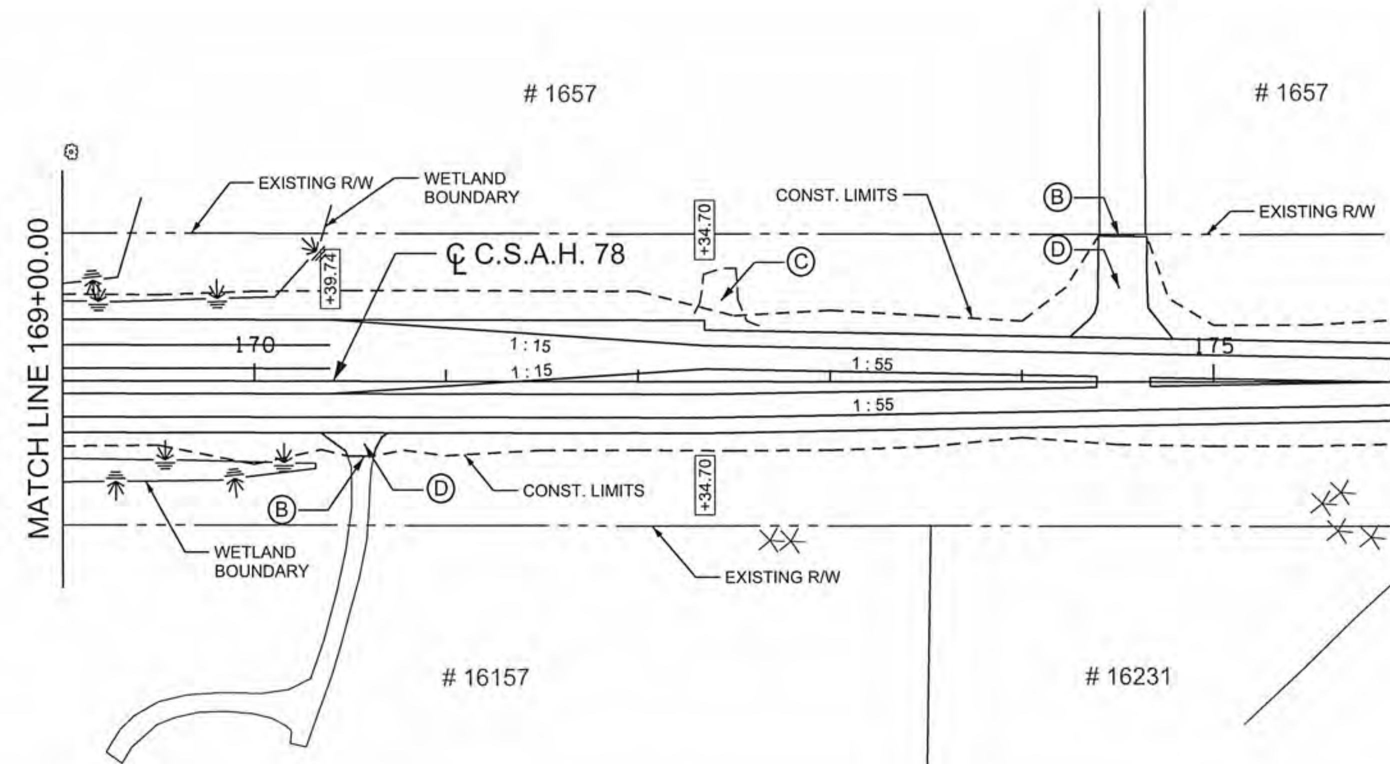
ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

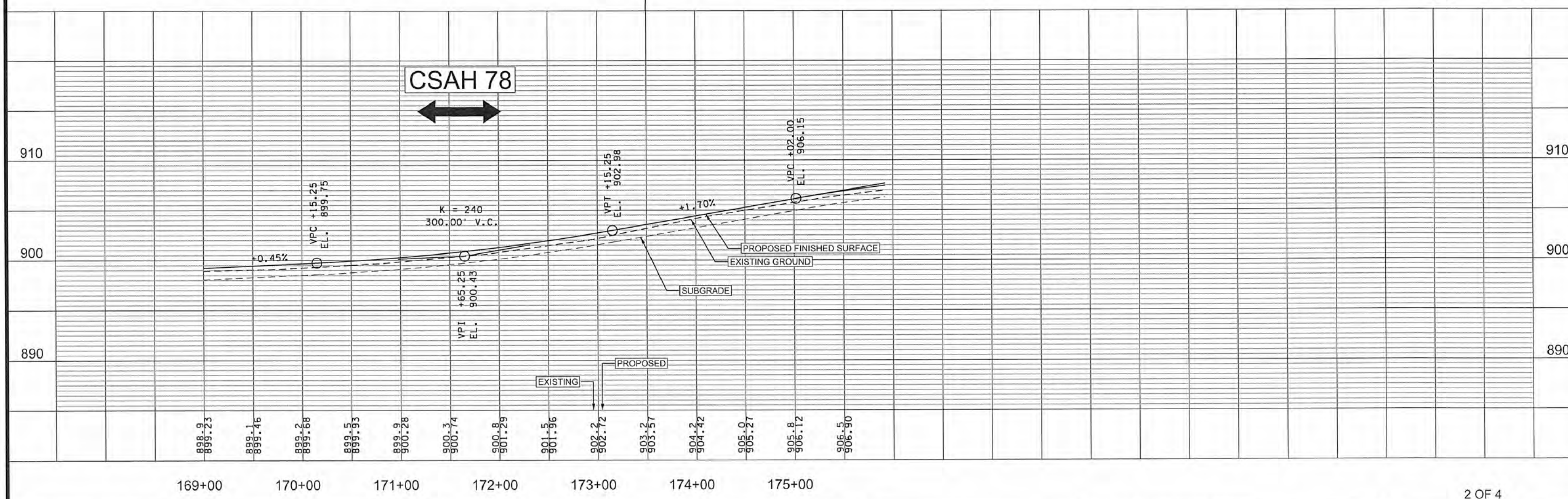
CONSTRUCTION PLAN AND PROFILE
STA 157+35.61 TO 169+00.00

CONSTRUCTION NOTES:

- (A) MILL JOINT
- (B) BITUMINOUS SAWCUT
- (C) GRAVEL DRIVEWAY
- (D) BITUMINOUS DRIVEWAY
- (G) CONSTRUCT NEW PED. RAMP B424 CURB AND GUTTER

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





2 OF 4

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.

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SIGNATURE: Curt Kobilarcsik

DATE: 4-17-14 LICENSE NO. 24756

DRAWN BY NJD DATE 12/20/13

DESIGN BY NJD DATE 08/08/13

CHECKED BY GMP DATE 02/20/14

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.P. 002-678-020

CITY OF ANDOVER S.A.P. 198-020-033

CONSTRUCTION PLAN AND PROFILE

STA 169+00.00 TO 175+92.24

CONSTRUCTION NOTES:

- (A) MILL JOINT
- (B) BITUMINOUS SAWCUT
- (C) GRAVEL DRIVEWAY
- (D) BITUMINOUS DRIVEWAY
- (G) CONSTRUCT NEW PED. RAMP B424 CURB AND GUTTER

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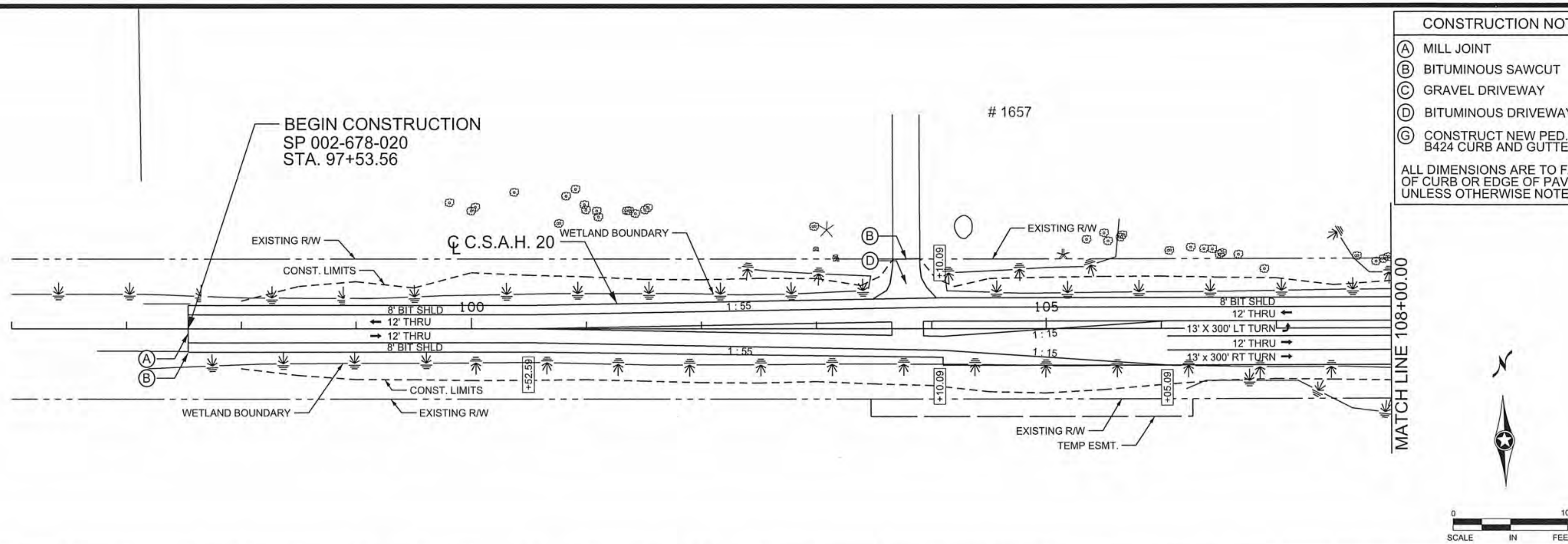

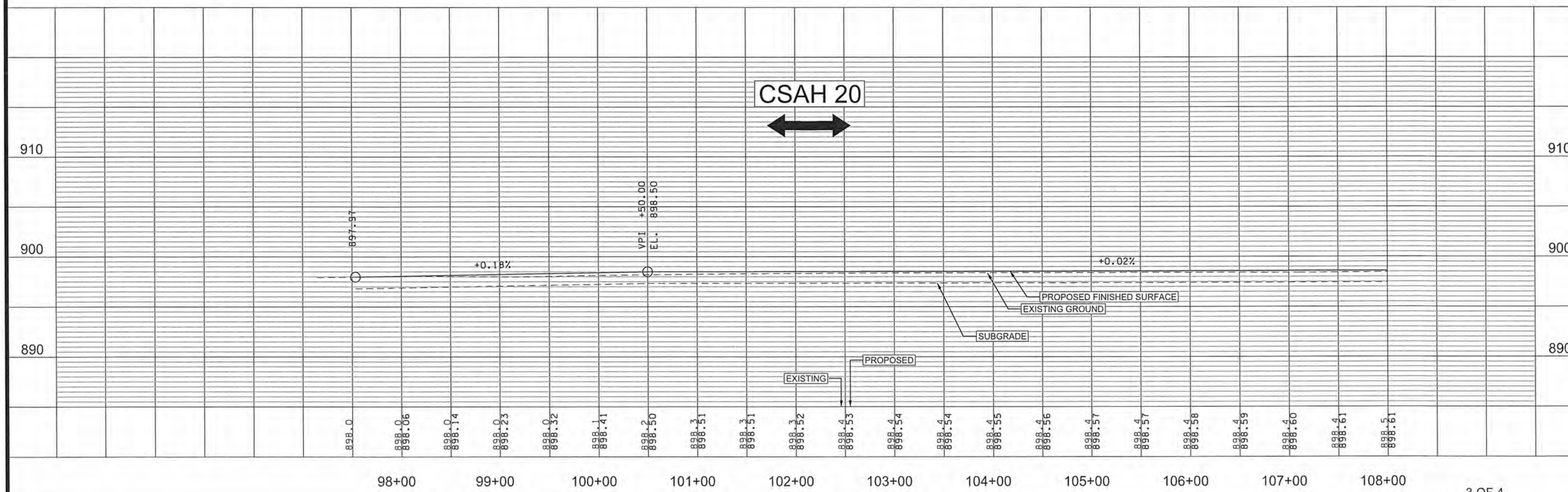

3 OF 4

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Plan_20\0267820_PP20_3J.dgn 04/16/2014 11:02:18 AM

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DATE: 4-17-14 LICENSE NO. 24756

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DESIGN BY NJD DATE 08/08/13

CHECKED BY GMP DATE 02/20/14

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

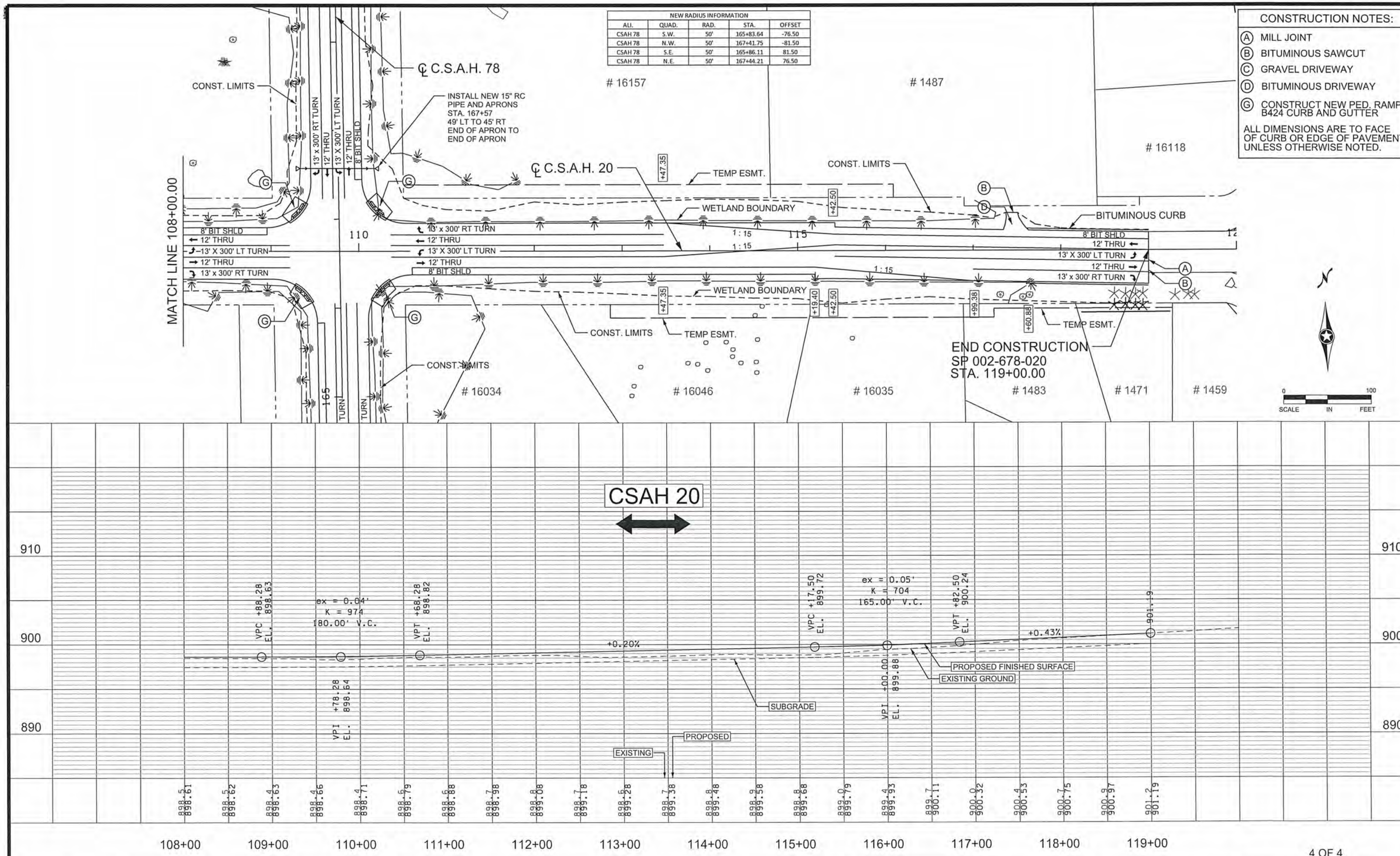
ANOKA COUNTY S.P. 002-678-020

CITY OF ANDOVER S.A.P. 198-020-033

CONSTRUCTION PLAN AND PROFILE

STA 97+53.56 TO 108+00.00

Sheet 65 of 111 Sheets



NEW RADIUS INFORMATION				
ALI.	QUAD.	RAD.	STA.	OFFSET
CSAH 78	S.W.	50'	165+83.64	-76.50
CSAH 78	N.W.	50'	167+41.75	-81.50
CSAH 78	S.E.	50'	165+86.11	81.50
CSAH 78	N.E.	50'	167+44.21	76.50

CONSTRUCTION NOTES:

- (A) MILL JOINT
- (B) BITUMINOUS SAWCUT
- (C) GRAVEL DRIVEWAY
- (D) BITUMINOUS DRIVEWAY
- (G) CONSTRUCT NEW PED. RAMP B424 CURB AND GUTTER

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

4 OF 4

NO	DATE	BY	CKD	APPR	REVISION
1	4/3/14	JCF	NJD		CHANGED % OF SLOPE TO +0.20%

NAME: P:\02-678-20\Plan_20\0267820_PP20_4J.dgn 06/04/2014 1:46:00 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: 6-12-14 LICENSE NO. 24756

DRAWN BY NJD DATE 12/20/13
DESIGN BY NJD DATE 08/08/13
CHECKED BY GMP DATE 02/20/14

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

CONSTRUCTION PLAN AND PROFILE
STA 108+00.00 TO 119+00.00

S.W. QUAD								
	DESCRIPTION	ALI.	STA.	OFFSET	LT / RT	EX. EDGE OF MAT ELEV.	NEW LIP OF CURB ELEV.	PED. CORNER ELEV.
	SIGNAL BASE	CSAH 78	166+08.45	-42.50	LT			
A	50' RAD. PT F/C	CSAH 78	165+83.65	-76.50	LT			
A-1	COMBINED DIRECTIONAL RAMP F/C	CSAH 78	166+06.76	-32.16	LT	897.10	897.50	
A-2	COMBINED DIRECTIONAL RAMP F/C	CSAH 78	166+26.88	-51.39	LT	897.35	897.75	
A-3	BACK PED CORNER	CSAH 78	165+99.79	-44.89	LT			897.92
A-4	BACK PED CORNER	CSAH 78	166+17.47	-57.68	LT			898.11

N.W. QUAD								
	DESCRIPTION	ALI.	STA.	OFFSET	LT / RT	EX. EDGE OF MAT ELEV.	NEW LIP OF CURB ELEV.	PED. CORNER ELEV.
	SIGNAL BASE	CSAH 78	167+08.81	-53.83	LT			
B	50' RAD. PT F/C	CSAH 78	167+41.75	-81.50	LT			
B-1	COMBINED DIRECTIONAL RAMP F/C	CSAH 78	166+97.99	-57.30	LT	897.77	898.17	
B-2	COMBINED DIRECTIONAL RAMP F/C	CSAH 78	167+18.82	-37.02	LT	897.60	898.00	
B-3	BACK PED CORNER	CSAH 78	167+05.29	-64.90	LT			898.38
B-4	BACK PED CORNER	CSAH 78	167+26.12	-49.61	LT			898.42

PROPOSED SIGNAL POLE

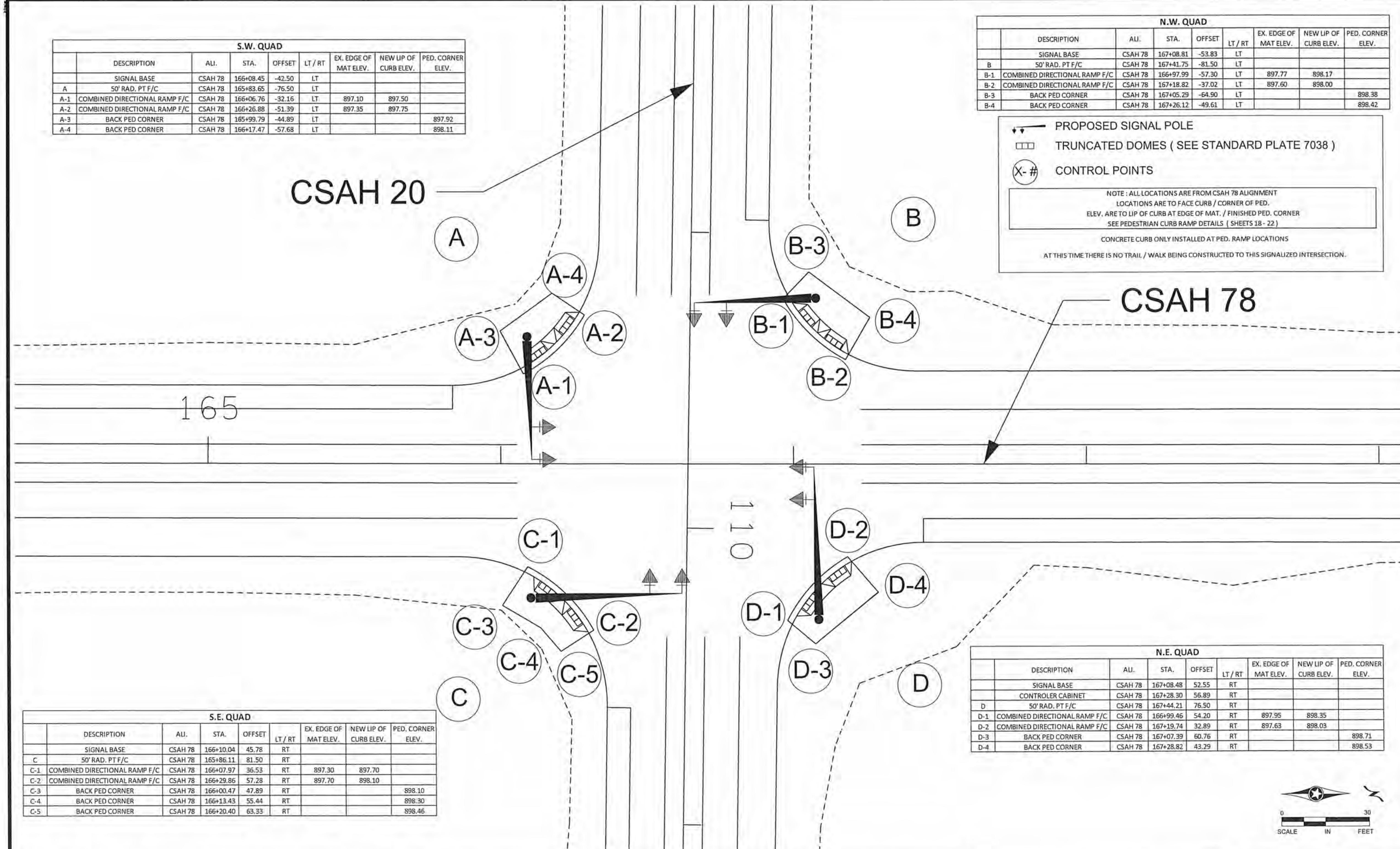
TRUNCATED DOMES (SEE STANDARD PLATE 7038)

X-# CONTROL POINTS

NOTE : ALL LOCATIONS ARE FROM CSAH 78 ALIGNMENT
LOCATIONS ARE TO FACE CURB / CORNER OF PED.
ELEV. ARE TO LIP OF CURB AT EDGE OF MAT. / FINISHED PED. CORNER
SEE PEDESTRIAN CURB RAMP DETAILS (SHEETS 18 - 22)

CONCRETE CURB ONLY INSTALLED AT PED. RAMP LOCATIONS

AT THIS TIME THERE IS NO TRAIL / WALK BEING CONSTRUCTED TO THIS SIGNALIZED INTERSECTION.



S.E. QUAD								
	DESCRIPTION	ALI.	STA.	OFFSET	LT / RT	EX. EDGE OF MAT ELEV.	NEW LIP OF CURB ELEV.	PED. CORNER ELEV.
	SIGNAL BASE	CSAH 78	166+10.04	45.78	RT			
C	50' RAD. PT F/C	CSAH 78	165+86.11	81.50	RT			
C-1	COMBINED DIRECTIONAL RAMP F/C	CSAH 78	166+07.97	36.53	RT	897.30	897.70	
C-2	COMBINED DIRECTIONAL RAMP F/C	CSAH 78	166+29.86	57.28	RT	897.70	898.10	
C-3	BACK PED CORNER	CSAH 78	166+00.47	47.89	RT			898.10
C-4	BACK PED CORNER	CSAH 78	166+13.43	55.44	RT			898.30
C-5	BACK PED CORNER	CSAH 78	166+20.40	63.33	RT			898.46

N.E. QUAD								
	DESCRIPTION	ALI.	STA.	OFFSET	LT / RT	EX. EDGE OF MAT ELEV.	NEW LIP OF CURB ELEV.	PED. CORNER ELEV.
	SIGNAL BASE	CSAH 78	167+08.48	52.55	RT			
	CONTROLER CABINET	CSAH 78	167+28.30	56.89	RT			
D	50' RAD. PT F/C	CSAH 78	167+44.21	76.50	RT			
D-1	COMBINED DIRECTIONAL RAMP F/C	CSAH 78	166+99.46	54.20	RT	897.95	898.35	
D-2	COMBINED DIRECTIONAL RAMP F/C	CSAH 78	167+19.74	32.89	RT	897.63	898.03	
D-3	BACK PED CORNER	CSAH 78	167+07.39	60.76	RT			898.71
D-4	BACK PED CORNER	CSAH 78	167+28.82	43.29	RT			898.53

NO	DATE	BY	CKD	APPR	REVISION
1	4/3/14	JCF	NJD		INCLUDED MORE INFORMATION FOR PED. RAMPS AND NOTES

NAME: P:\02-678-20\Plan_20\0267820_INT_PEDJ.dgn 06/04/2014 1:47:14 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 K

DATE: 6-12-14 LICENSE NO. 24756

DRAWN BY NJD DATE 12/20/13

DESIGN BY NJD DATE 08/08/13

CHECKED BY GMP DATE 02/20/14

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

INTERSECTION DETAIL / PEDESTRIAN RAMP LAYOUT / SIGNAL BASE LOCATIONS

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 $\frac{1}{4}$ INCH UNDER OR $\frac{1}{4}$ 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 EPOLY 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 APPLICAITON 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.

PAVEMENT MARKING QUANTITIES

Item	Quantity	Units
4" Solid Line White - Epoxy	10625	Lin Ft
4" Solid Line Yellow - Epoxy	500	Lin Ft
4" Broken Line Yellow - Epoxy (10 ft stripe / 40 ft gap)	70	Lin Ft
4" Double Solid Line Yellow - Epoxy	5495	Lin Ft
24" Solid Line Yellow - Pref Thermoplastic	635	Lin Ft
24" Solid Line White - Pref Thermoplastic	163	Lin Ft
3'x6' Zebra Crosswalk - Pref Thermoplastic	756	SQ FT
Pavement Message (RT Arrow) Preformed Thermoplastic	8	Each
Pavement Message (LT Arrow) Preformed Thermoplastic	8	Each

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

1ST DIGIT WIDTH: 4", 8", ETC.

2ND DIGIT PATTERN: S – SOLID, B – BROKEN, D – DOUBLE

3RD DIGIT COLOR: W – WHITE, Y – YELLOW, B – BLACK

EXAMPLE: (4SW) = 4" SOLID LINE WHITE – EPOXY

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Base\TRAFFIC\0267820_Perm pvmt mrkg guide notes_guidelines.dwg, 04/17/2014 11:45:42 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: [signature]
DATE: 4-17-14 LICENSE NO. 24756

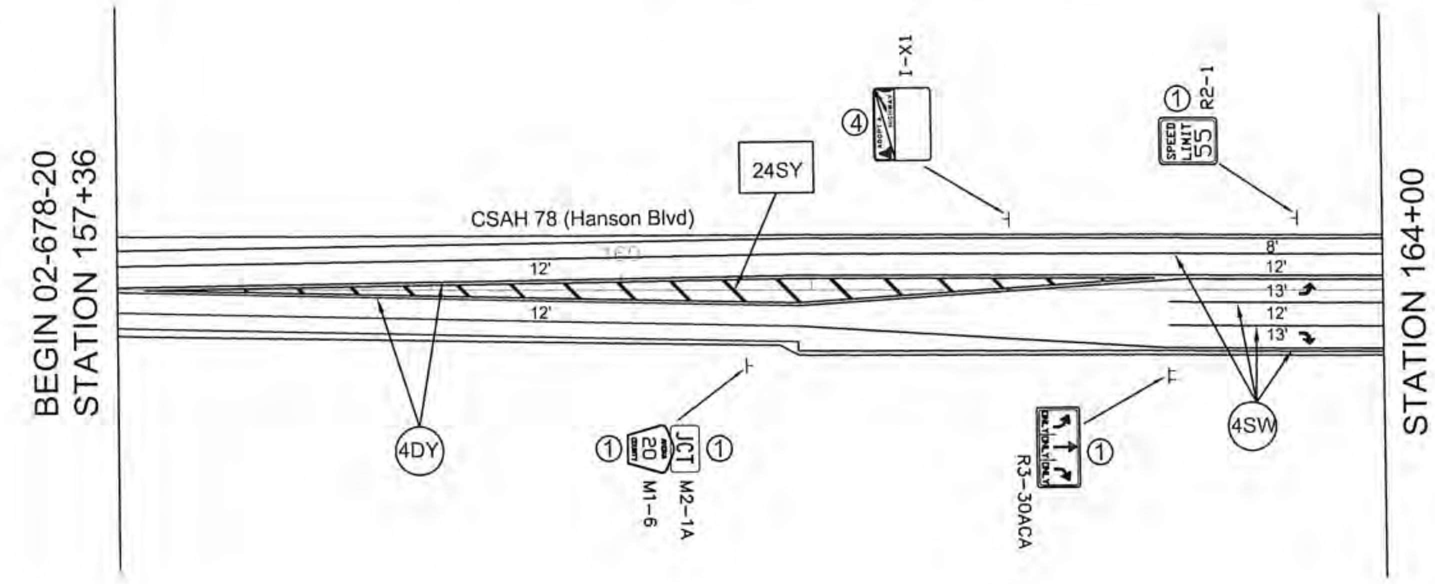
DRAWN BY S.T. DATE 04/14/14
DESIGN BY S.T. DATE 04/14/14
CHECKED BY R.B. DATE 04/15/14

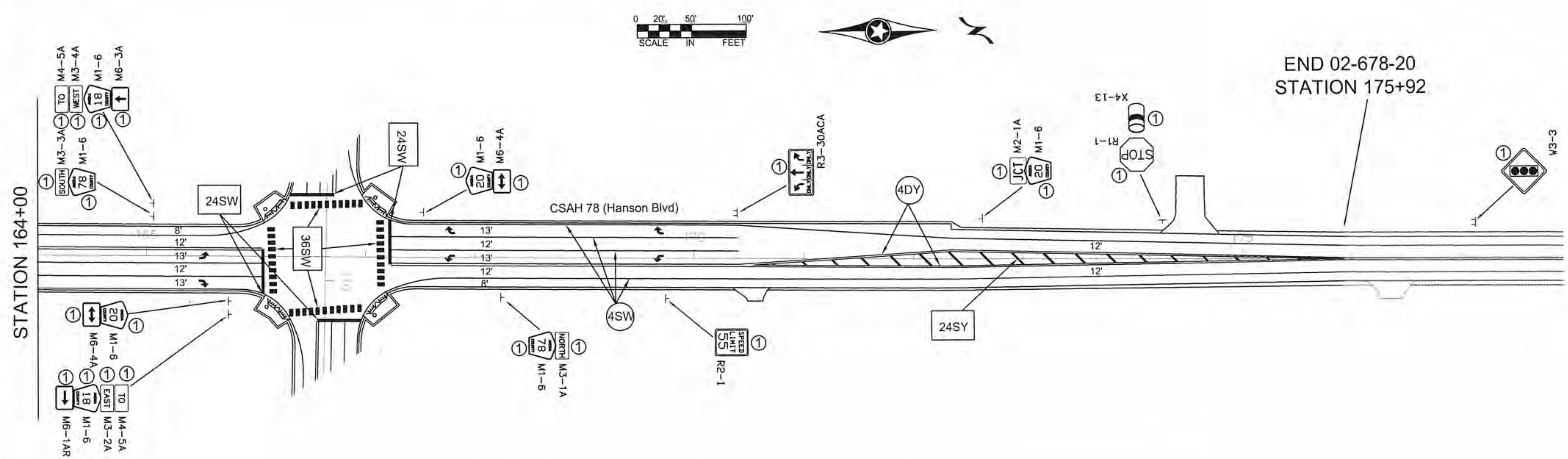
ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.A.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

PERMANENT MARKING TABULATION

NOTES:
① FURNISH & INSTALL
④ RE-INSTALL SALVAGED SIGN





NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Base\TRAFFIC\02-678-20_permanent signing & striping.dwg, 04/15/2014 3:00:43 PM

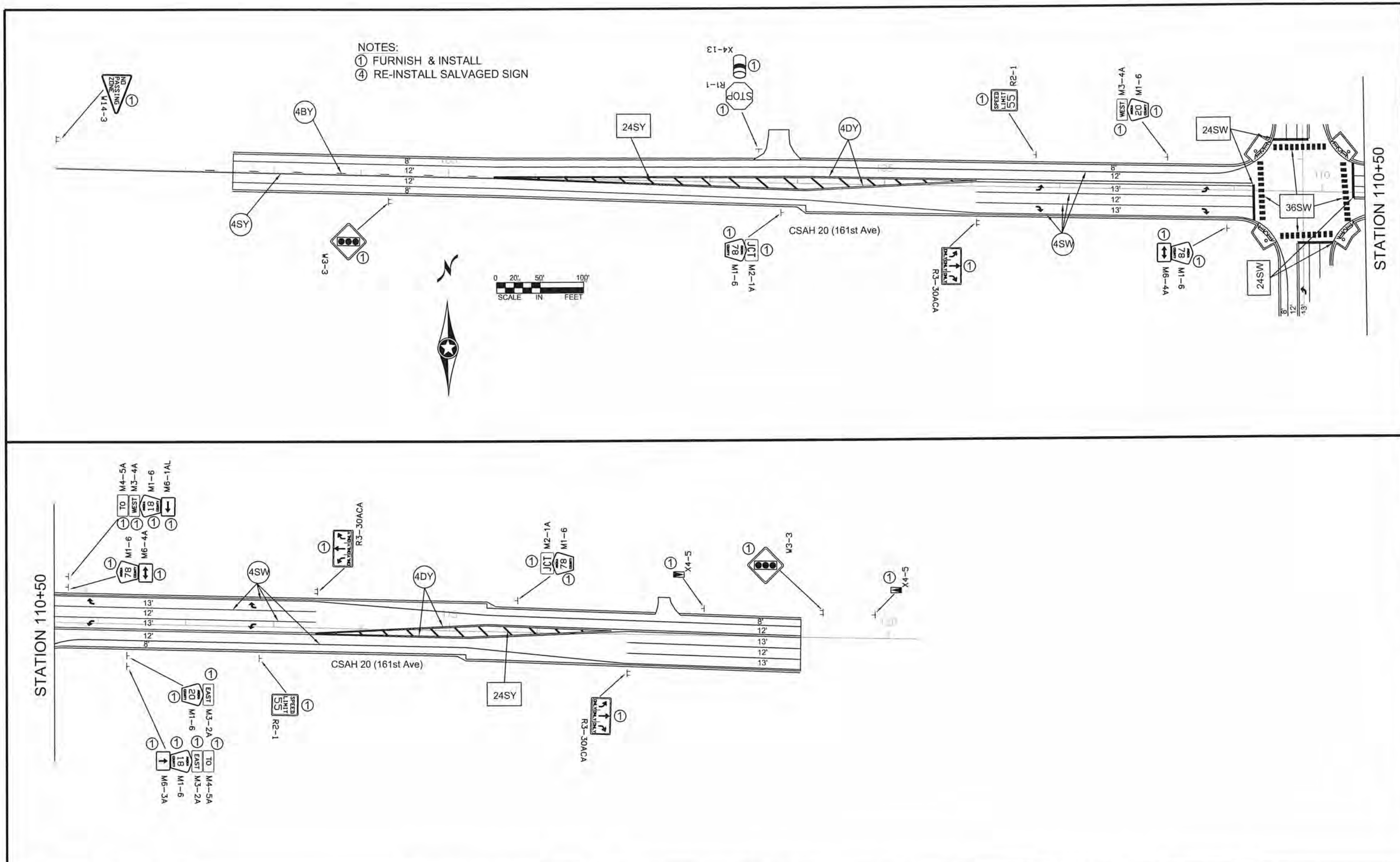
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINT NAME: CURT A. KOBILARCSIK
SIGNATURE: Curt Kobilarcsik
DATE: 4-17-14 REG. NO. 24756

DRAWN BY S.T. DATE 01/16/14
DESIGN BY S.T. DATE 01/16/14
CHECKED BY R.B. DATE 01/22/14

ANOKA COUNTY
HIGHWAY DEPT.

ANOKA COUNTY S.A.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

PERMANENT SIGNING & STRIPING PLAN



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Base\TRAFFIC\02-678-20_permanent signing & striping.dwg, 04/15/2014 3:02:54 PM

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SIGNATURE: Curt Kobilarcsik

DATE: 4-17-14 REG. NO. 24756

DRAWN BY S.T. DATE 01/16/14

DESIGN BY S.T. DATE 01/16/14

CHECKED BY R.B. DATE 01/22/14

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.A.P. 002-678-020

CITY OF ANDOVER S.A.P. 198-020-033

PERMANENT SIGNING & STRIPING PLAN

	SIGN PANELS TYPE C					
SIGN DESIGNATION	SIGN SIZE	SIZE AREA (FT^2)	Total Installations	Total Area (ft^2)	Posts per Installation	Notes
R1-1	30" x 30"	6.25	2	12.5	1	
X4-13	4" x 15"	1.31	1	0		C
R2-1	24" x 30"	5	4	20	1	
R3-30ACA	54" x 30"	11.25	5	56.25	2	
W3-3	48" x 48"	16	3	48	2	
W14-3	48"x48"x36"	6	1	6	2	
M1-6	24" x 24"	4	16	64	1	
M2-1A	21" x15"	2.19	4	8.75		A
M3-1A	24" x 12"	2	1	2		A
M3-2A	24" x 12"	2	3	6		A
M3-3A	24" x 12"	2	1	2		A
M3-4A	24" x 12"	2	3	6		A
M4-5A	24" x 12"	2	4	8		A
M6-1AR	21" x15"	2.19	1	2.19		B
M6-1AL	21" x15"	2.19	1	2.19		B
M6-3A	21" x15"	2.19	2	4.38		B
M6-4A	21" x15"	2.19	4	8.75		B
Project Totals			56	257.00		

NOTES: This table illustrates quantities for F&I new type "C" signs only.

- A Sign mounted above M1-6 sign post assembly
- B Sign mounted below M1-6 sign post assembly
- C Delineator mounted below R1-1 sign post assembly

RE-INSTALL SALVAGED SIGN TYPE D					
STATION		ADDRESS/ DESCRIPTION (NOTES)	SALVAGE SIGN TYPE D EACH	INSTALL SIGN TYPE D EACH	SIGN NUMBER
162+04	Lt		1	1	Adopt
TOTAL			1	1	

M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY	MOUNTING HEIGHT
R1-1	30" x 30"	STOP	2	7.0'
X4-13	4" dia. x 15"		2	
R2-1	24" x 30"	SPEED LIMIT 55	4	7.0'
R3-30ACA	54" x 30"	ONLY ONLY ONLY	5	7.0'
W3-3	48" x 48"		3	7.0'
W14-3	48" x 48" x 36"	NO PASSING ZONE	1	7.0'
X4-5	6" x 12"		1	4.0'
X4-5	6" x 12"		1	4.0'

M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY	MOUNTING HEIGHT
M2-1A	21" x 15"	JCT M2-1A	2	
M3-1A	24" x 12"	NORTH M3-1A	1	
M3-3A	24" x 12"	SOUTH M3-3A	1	
M1-6	24" x 24"	78 M1-6	6	7.0'
M6-4A	21" x 15"	↔ M6-4A	2	
M2-1A	21" x 15"	JCT M2-1A	2	
M3-2A	24" x 12"	EAST M3-2A	1	
M3-4A	24" x 12"	WEST M3-4A	1	
M1-6	24" x 24"	20 M1-6	6	7.0'
M6-4A	21" x 15"	↔ M6-4A	2	
M4-5A	24" x 12"	TO M4-5A	4	
M3-2A	24" x 12"	EAST M3-2A	2	
M3-4A	24" x 12"	WEST M3-4A	2	
M1-6	24" x 24"	18 M1-6	4	7.0'
M6-1AR	21" x 15"	→ M6-1AR	1	
M6-1AL	21" x 15"	← M6-1AL	1	
M6-3A	21" x 15"	↑ M6-3A	2	

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Base\TRAFFIC\02-678-20_permanent signing & striping.dwg, 04/15/2014 3:03:00 PM

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

DATE: 4-17-14 REG. NO. 24756

DRAWN BY S.T. DATE 01/16/14

DESIGN BY S.T. DATE 01/16/14

CHECKED BY R.B. DATE 01/22/14

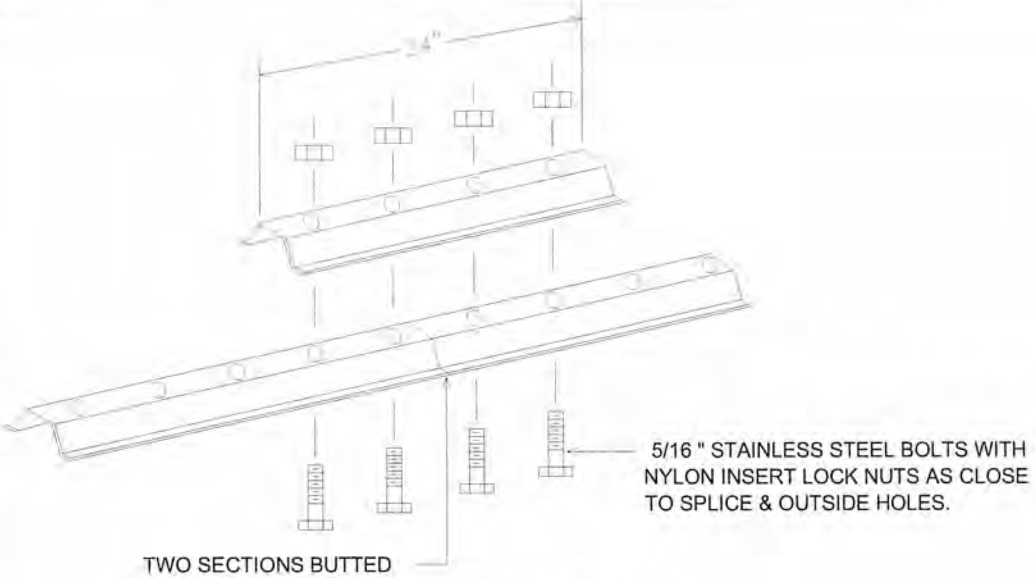
ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

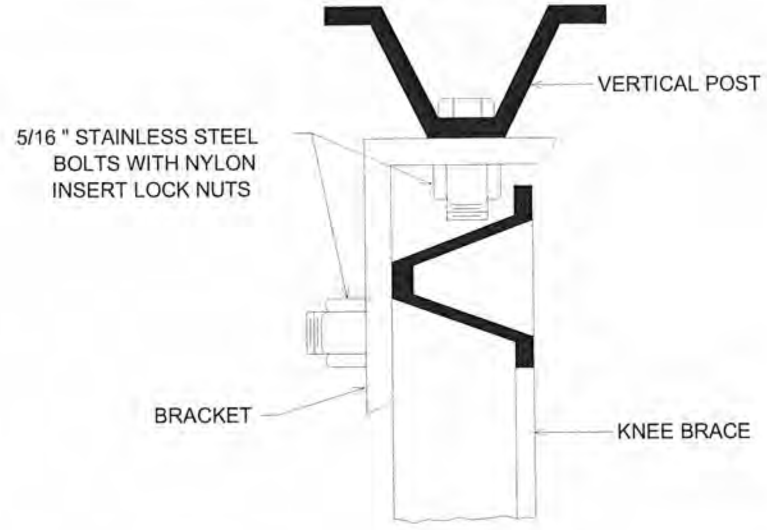
ANOKA COUNTY S.A.P. 002-678-020

CITY OF ANDOVER S.A.P. 198-020-033

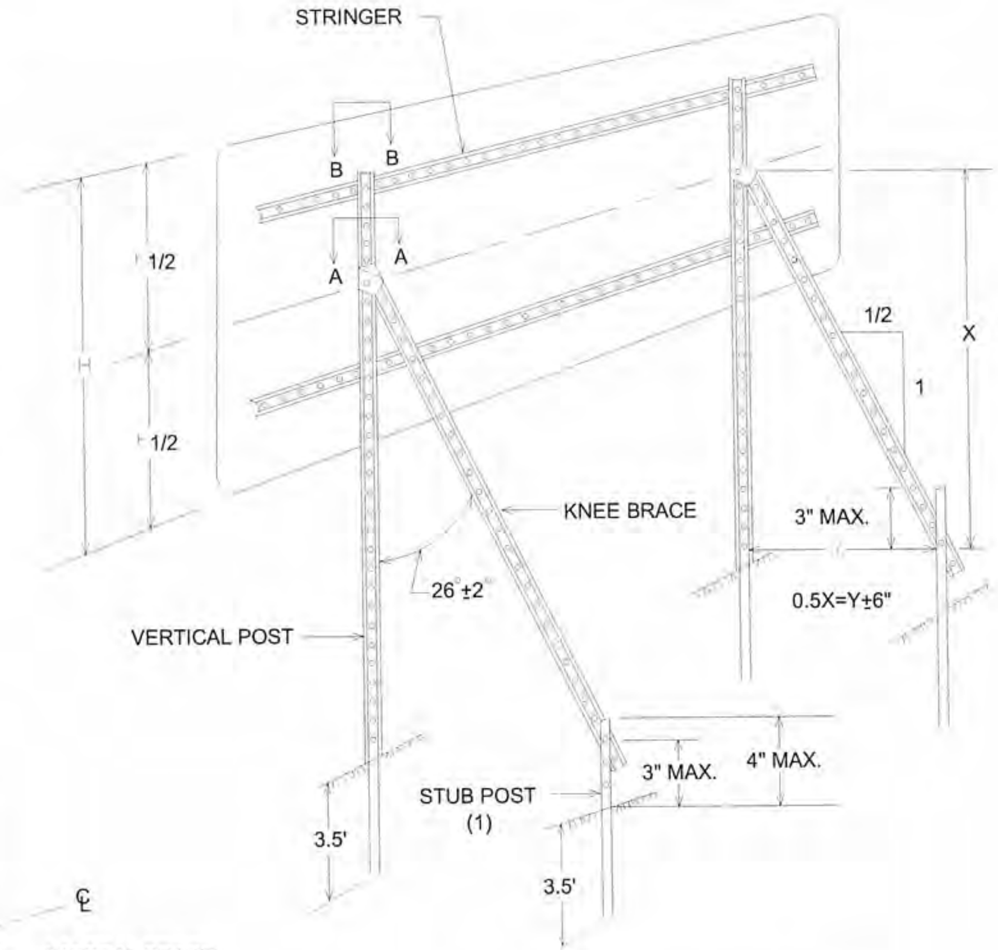
PERMANENT SIGNING & STRIPING PLAN



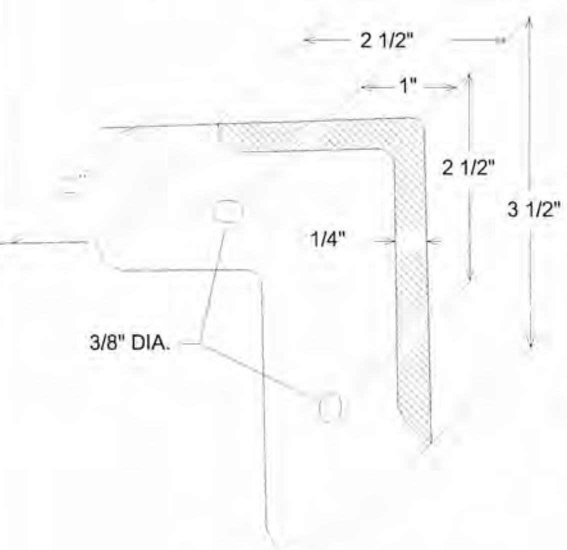
LATERAL BRACE OR STRINGER
SPLICE DETAIL (EXPLODED VIEW)



SECTION A-A

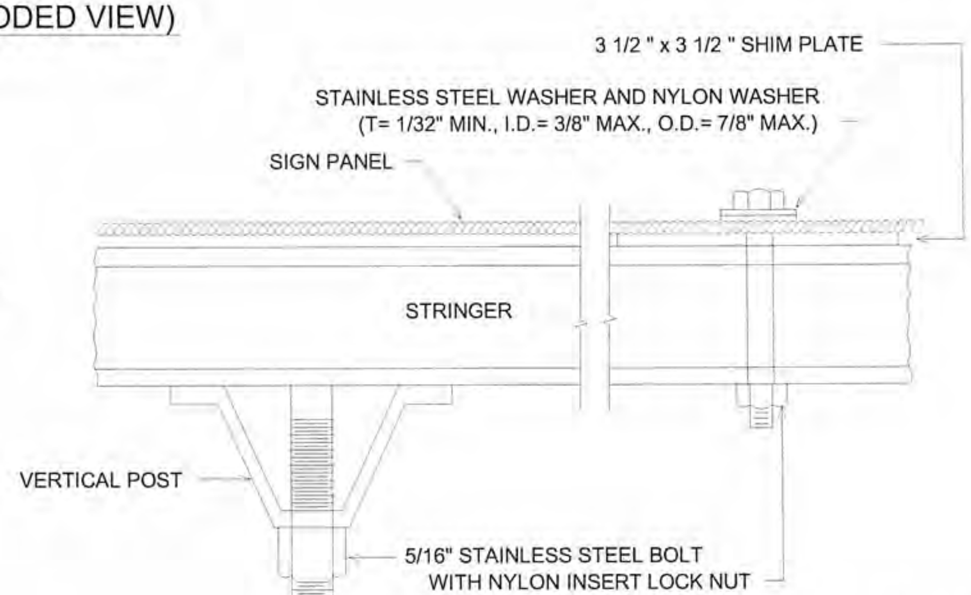


TYPICAL "A-FRAME" INSTALLATION
TYPE "D" SIGNS

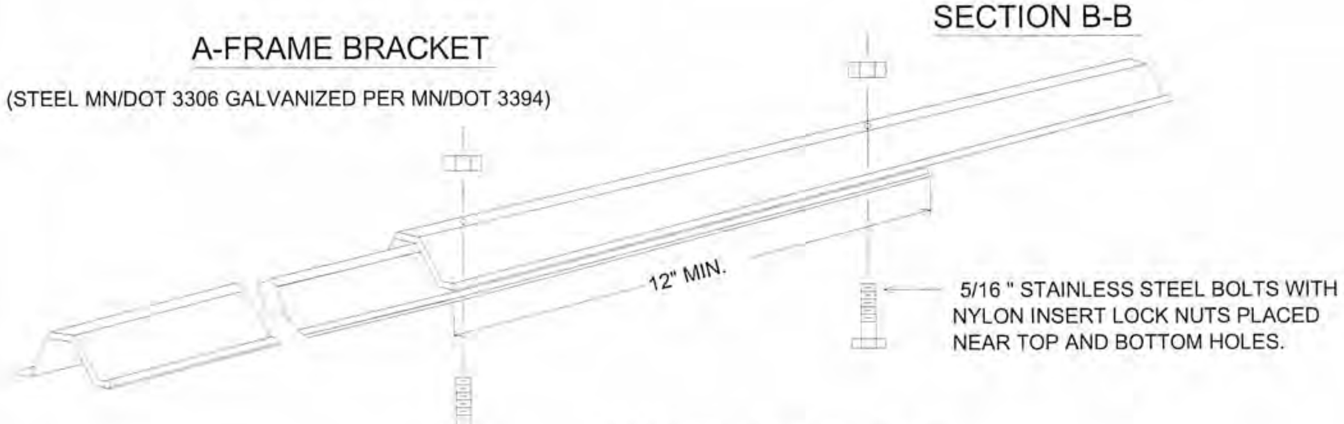


A-FRAME BRACKET

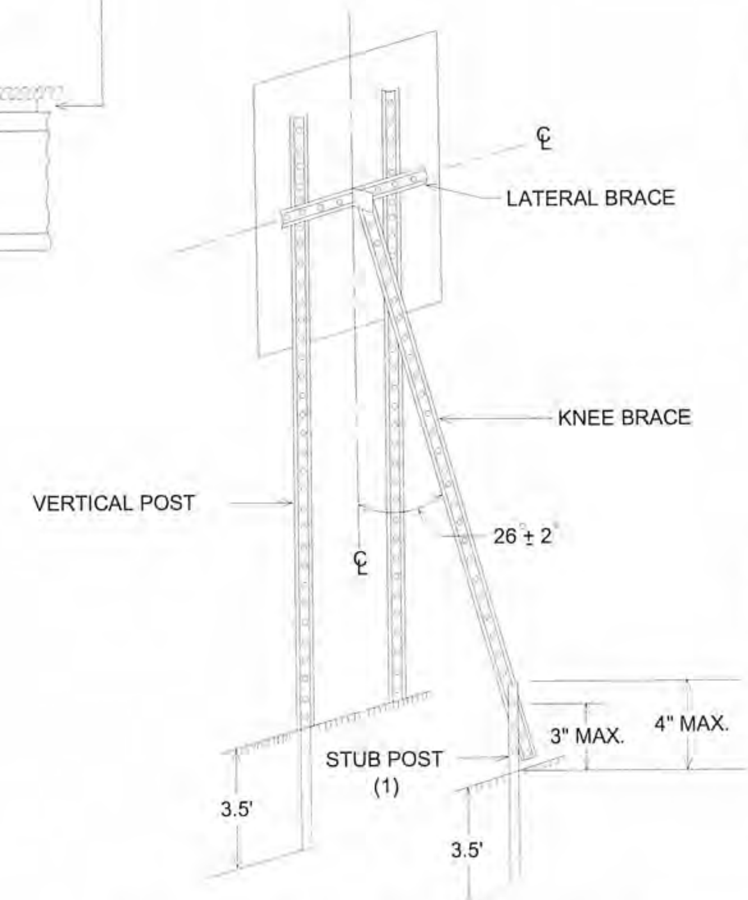
(STEEL MN/DOT 3306 GALVANIZED PER MN/DOT 3394)



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

NAME: P:\02-678-20\Base\TRAFFIC\Sign&Stripe_Details.dwg, 04/15/2014 4:25:25 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: 4-17-14 LICENSE NO. 24756

DRAWN BY S.T. DATE 04/14/14

DESIGN BY S.T. DATE 04/14/14

CHECKED BY R.B. DATE 04/15/14

ANOKA COUNTY

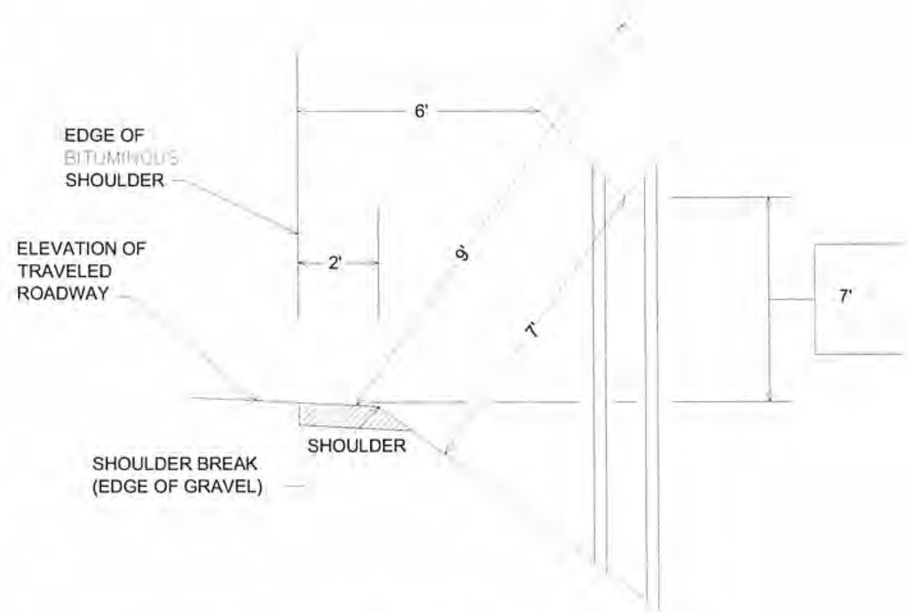
ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.A.P. 002-678-020

CITY OF ANDOVER S.A.P. 198-020-033

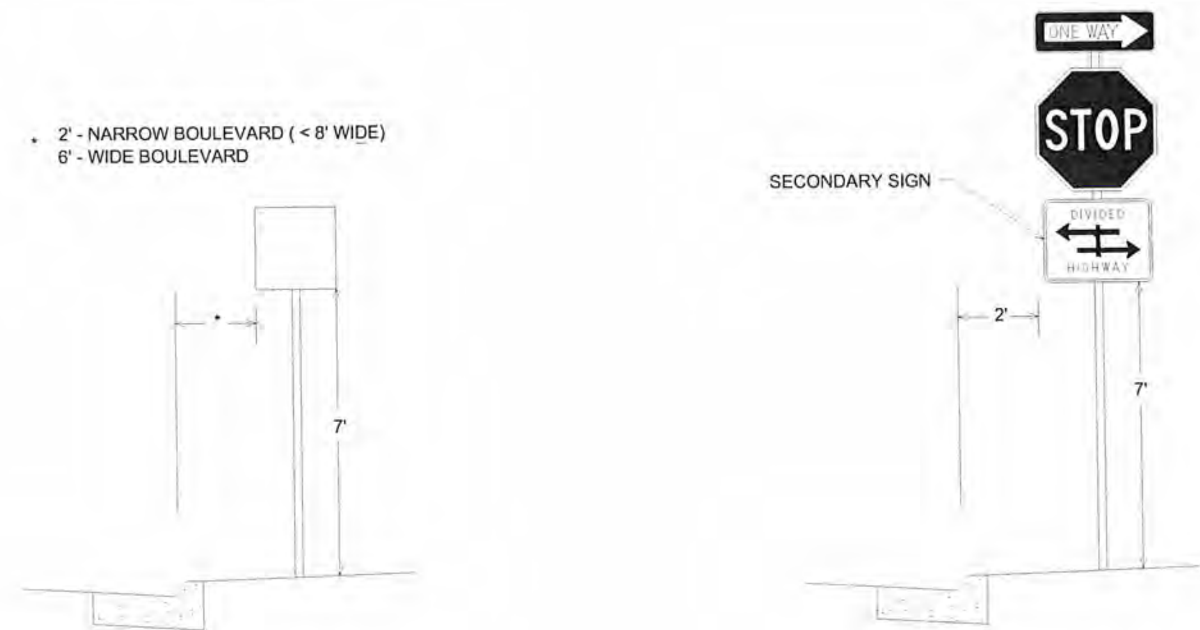
SIGNING & STRIPING DETAILS

RURAL



TYPICAL SIGN PLACEMENT

URBAN



TYPICAL SIGN PLACEMENT

NOTE:

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

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Base\TRAFFIC\Sign&Stripe_Details.dwg, 04/15/2014 4:13:35 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: 4-17-14 LICENSE NO. 24756

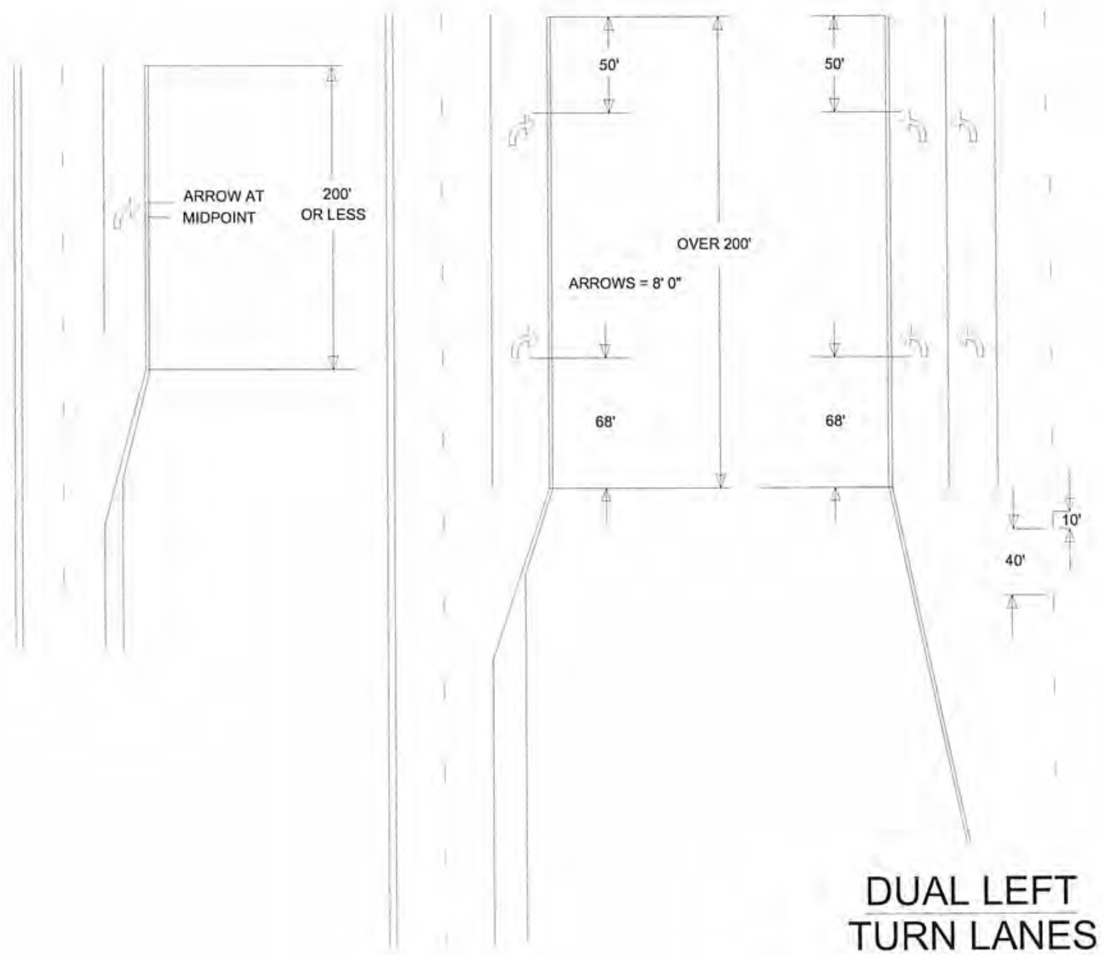
DRAWN BY S.T. DATE 04/14/14
DESIGN BY S.T. DATE 04/14/14
CHECKED BY R.B. DATE 04/15/14

ANOKA COUNTY
ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.A.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

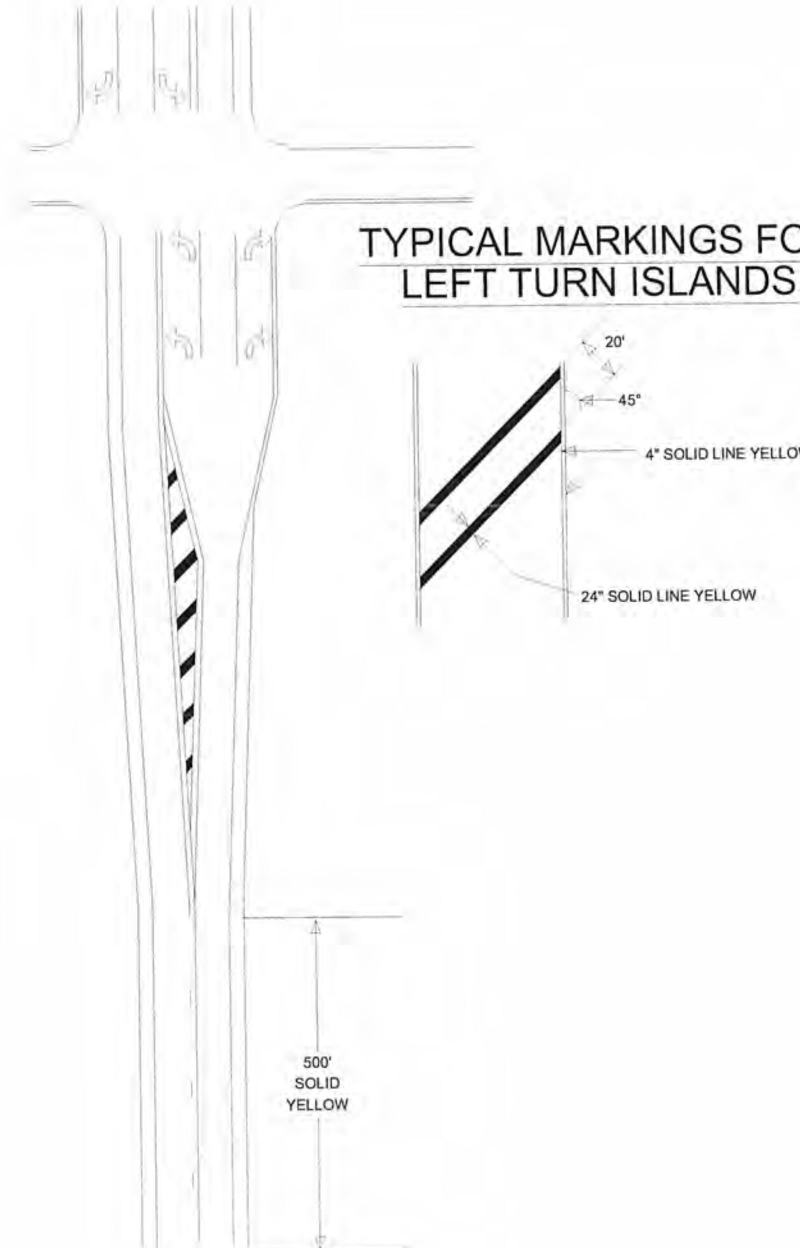
SIGNING & STRIPING DETAILS

TYPICAL MESSAGE PLACEMENT FOR TURN LANES



DUAL LEFT TURN LANES

TYPICAL MARKINGS FOR LEFT TURN ISLANDS



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Base\TRAFFIC\Sign&Stripe_Details.dwg, 04/15/2014 4:15:32 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: 4-17-14 LICENSE NO. 24756

DRAWN BY S.T. DATE 04/14/14
DESIGN BY S.T. DATE 04/14/14
CHECKED BY R.B. DATE 04/15/14

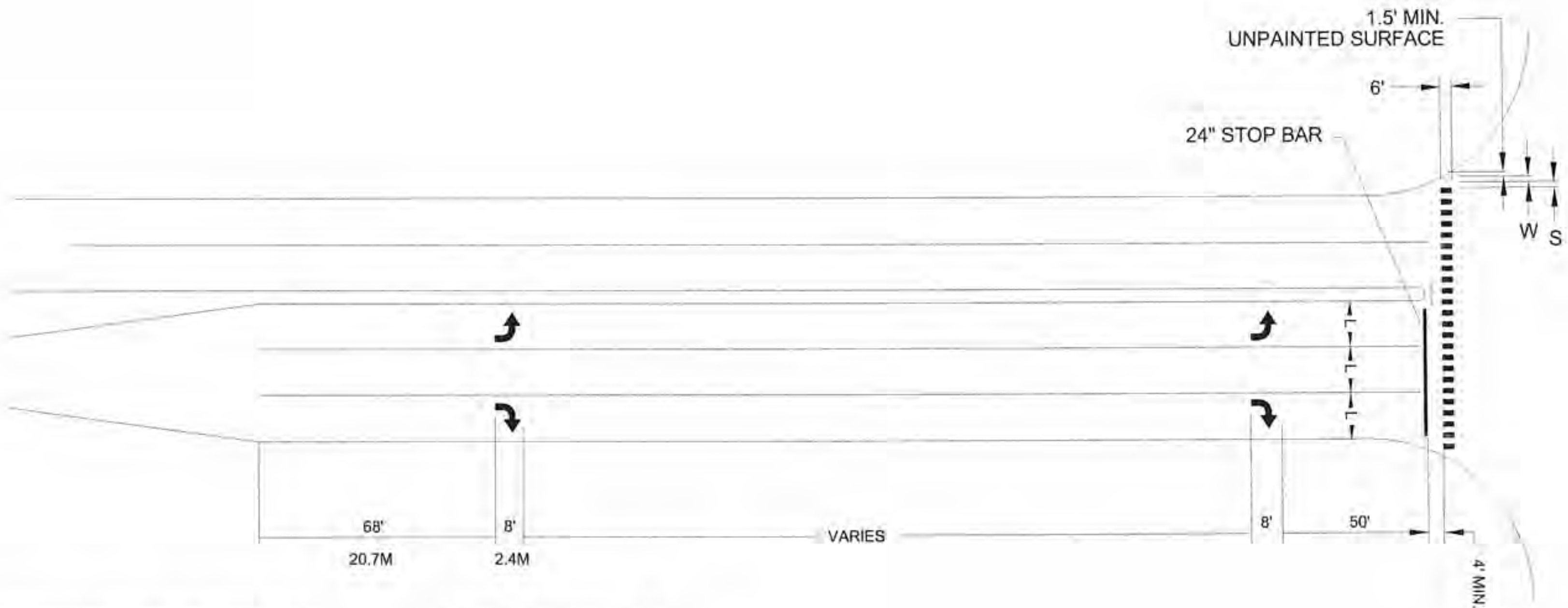
ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.A.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

SIGNING & STRIPING DETAILS

MARKINGS FOR PEDESTRIAN CROSSWALKS



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

NOTES: CROSSWALKS:

1.) PAINTED AREAS ARE TO BE CENTERED ON CENTER AND LANE LINES, EVEN IF INTERSECTION IS NOT ALIGNED.

2.) LOCATION OF ZEBRA CROSSWALKS AND STOP BARS, SIGNAL LOOPS AND PED RAMPS ARE APPROXIMATE. FINAL LOCATIONS ARE TO BE DETERMINED AND FIELD VERFIED 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.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Base\TRAFFIC\Sign&Stripe_Details.dwg, 04/15/2014 4:17:52 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: 4-17-14 LICENSE NO 24756

DRAWN BY S.T. DATE 04/14/14

DESIGN BY S.T. DATE 04/14/14

CHECKED BY R.B. DATE 04/15/14

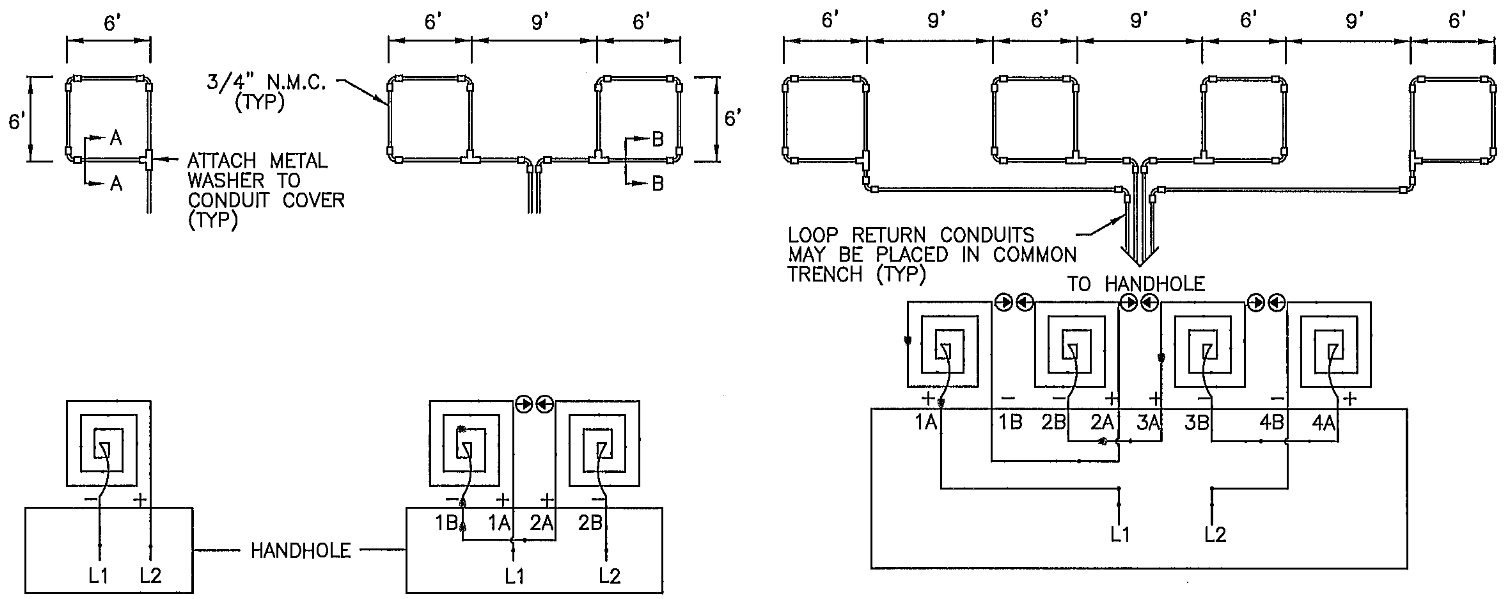
ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.A.P. 002-678-020

CITY OF ANDOVER S.A.P. 198-020-033

SIGNING & STRIPING DETAILS



LOOP CONNECTIONS SHALL BE LABELED AND SPLICED IN THE HANDHOLE AS FOLLOWS:

L1 TO 1A
1B TO 2A
2B TO L2

LOOP CONNECTIONS SHALL BE LABELED AND SPLICED IN THE HANDHOLE AS FOLLOWS:

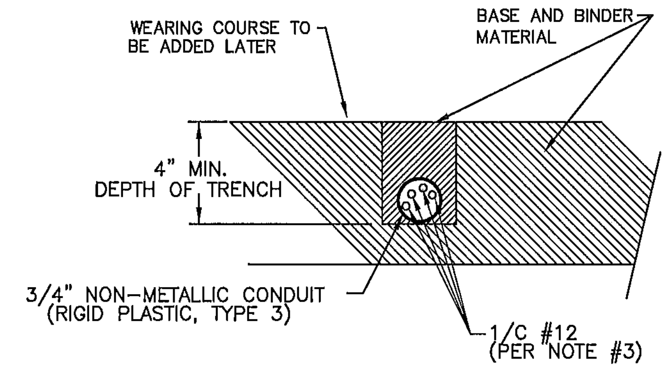
L1 TO 1A
1B TO 2A
2B TO 3A
3B TO 4A
4B TO L2

SPLICE CONTROL CABLE TO L1 & L2 IN HANDHOLE. ALL CONDUCTORS SHALL BE TAGGED IN HANDHOLE (1A, 1B, ECT)

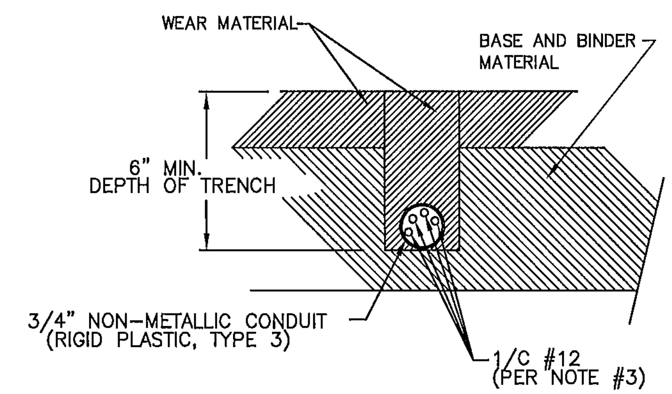
LOOP DETECTOR DETAIL 'A'
(LOOP PHASING FOR SINGLE CONNECTION)

LOOP DETECTOR DETAIL 'B'
(LOOP PHASING FOR SERIES CONNECTION)

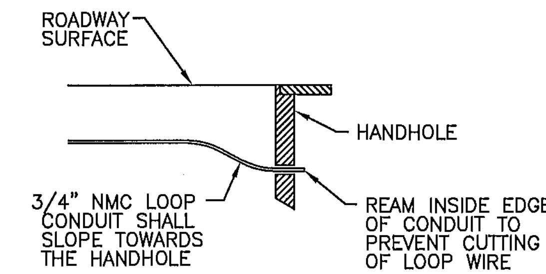
LOOP DETECTOR DETAIL 'C'
(LOOP PHASING FOR SERIES CONNECTION)



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.

LEGEND OF SYMBOLS

CONTROLLER AND SERVICE EQUIP. NO's
SIGNAL BASE NO.
SIGNAL FACE NO.
LUMINAIRE NO.
CONTROLLER AND CABINET
CONTROLLER AND CABINET – IN PLACE
HANDHOLE
HANDHOLE – IN PLACE
RIGID STEEL CONDUIT (RSC)
RIGID STEEL CONDUIT (RSC) – IN PLACE
SIGNAL FACE WITH BACKGROUND SHIELD
SIGNAL FACE W/O BACKGROUND SHIELD
SIGNAL FACE – IN PLACE
PEDESTRIAN INDICATORS
PEDESTRIAN INDICATORS – IN PLACE
PEDESTRIAN PUSH BUTTONS ON PEDESTAL OR POLE
PEDESTRIAN PUSH BUTTON STATION
TRAFFIC SIGNAL PEDESTAL
TRAFFIC SIGNAL PEDESTAL – INPLACE
TRAFFIC SIGNAL POLE AND MAST ARM
TRAFFIC SIGNAL POLE AND MAST ARM – IN PLACE
STREET LIGHT POLE AND LUMINAIRE
STREET LIGHT POLE AND LUMINAIRE – IN PLACE
MAST ARM AND LUMINAIRE
MAST ARM AND LUMINAIRE – INPLACE
WOOD POLE
WOOD POLE – IN PLACE
SOURCE OF POWER
RAILROAD SIGNAL – IN PLACE
RIGHT OF WAY LINE
CENTERLINE
EDGE OF ROADWAY
SHOULDERLINE
CURB LINE
STOP BAR
EMERGENCY VEHICLE PREEMPTION DETECTOR

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

TRAFFIC SIGNAL TABULATION			
ITEM NO	ITEM	UNIT	TOTAL ESTIMATED QUANTITY
2565	TRAFFIC CONTROL SIGNAL SYSTEM	SIG. SYS.	1
2565	EMERGENCY VEHICLE PREEMPTION SYSTEM	LUMP SUM	1
2565	SIGNAL SERVICE CABINET	EACH	1
2565	PVC HANDHOLE	EACH	6
2565	1/C#14 INTERCONNECT	LIN. FT.	4000
2565	2" RIGID STEEL CONDUIT	LIN. FT.	1000
2565	2" NON-METALLIC CONDUIT	LIN. FT.	2750

TRAFFIC SIGNAL STANDARD PLATES
THESE TRAFFIC SIGNAL STANDARD PLATES AS APPROVED BY FHWA SHALL APPLY:

	PLATE NO.	DESCRIPTION
*	8111 E	TRAFFIC SIGNAL BRACKETING (PEDESTAL MOUNTED) (3 SHEETS)
*	8114 A	PVC HANDHOLE/PULLBOX (NO VEHICLE LOAD) (2 SHEETS)
*	8118 D	SERVICE EQUIPMENT & POLE–TRAFFIC CONTROL SIGNALS
*	8119 C	GROUND MOUNTED CABINET FOUNDATION
*	8121 H	TRANSFORMER BASE & POLE BASE PLATE (2 SHEETS)
*	8123 G	POLE & MAST ARM–LUMINAIRES & TRAFFIC LIGHTS ASSEMBLY (2 SHEETS)
*	8126 K	POLE FOUNDATION (PA90 & PA100)

* – APPLIES TO THIS PROJECT

S.P. 002–678–020
S.A.P. 198–020–033
CITY PROJ. 12–30

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 16, 2014 Name: John M. Gray PE Lic. No. 22457

SEH PHONE: (651) 490–2000 3535 VADNAIS CENTER DR. ST. PAUL, MN 55110

ANOKA COUNTY
CITY OF ANDOVER

TRAFFIC SIGNAL SYSTEM
DETAILS AND STANDARD PLATES
CSAH 78 (HANSON BLVD NW) AT CSAH 20 (161st AVE NW)

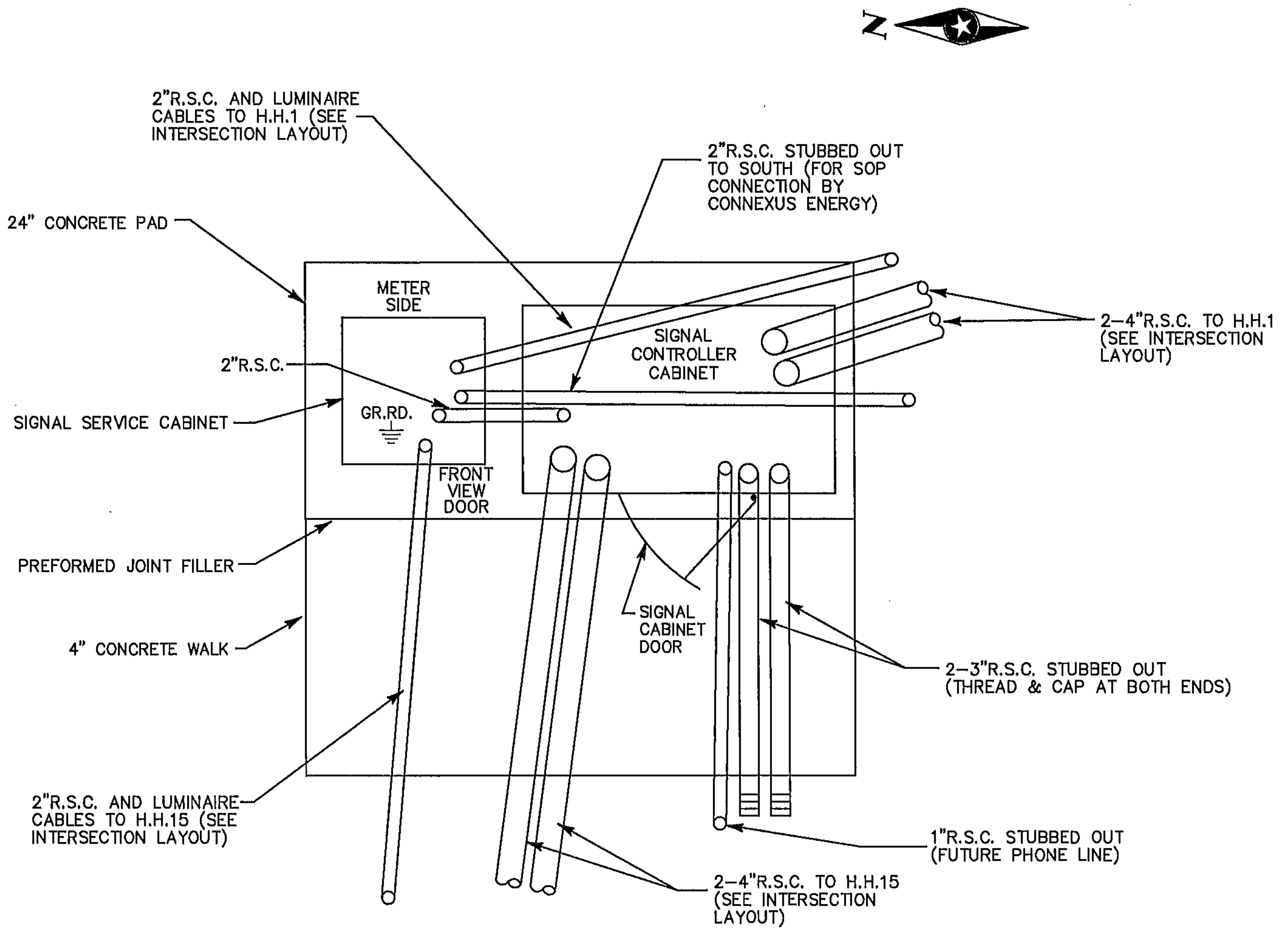
FILE NO. ANOKC 125789
SIGNAL SHEET 1 OF 12

TYPICAL PAD WITH CONTROLLER CABINET AND SERVICE CABINET

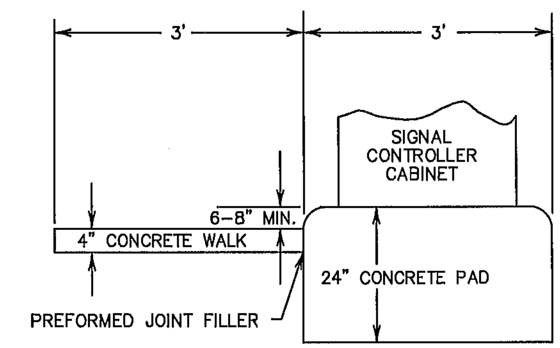
SEE INTERSECTION LAYOUT FOR CABLE INFORMATION (NOT TO SCALE)

PLAN VIEW

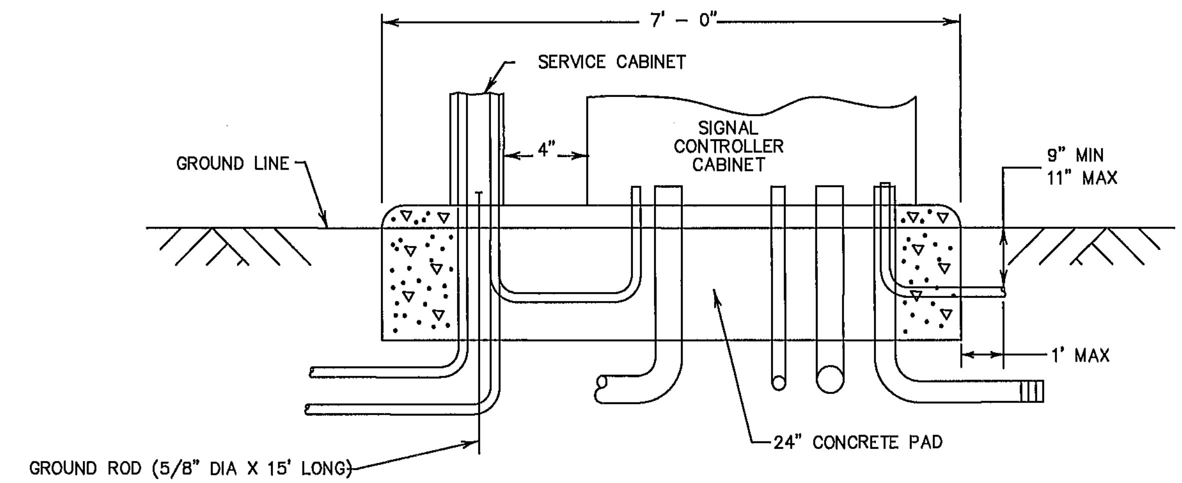
CSAH 78 (HANSON BOULEVARD NW)
AT CSAH 20 (161ST AVENUE NW)



SIDE VIEW



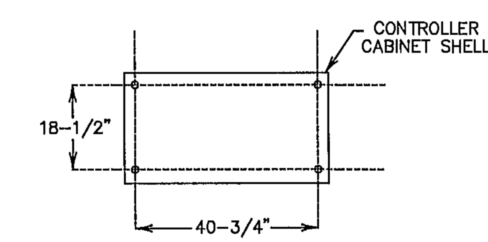
FRONT VIEW



NOTES:

1. THE ANCHOR RODS, NUTS AND WASHERS FOR THE COUNTY FURNISHED CONTROLLER AND CABINET SHALL BE FURNISHED BY THE COUNTY AND INSTALLED BY THE CONTRACTOR.
2. THE UPPER PART OF THE 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 THE CONCRETE AND SHALL BE LOCATED INSIDE 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 PAD AND SIDEWALK.
6. CONDUITS WITH BOTH ENDS TERMINATING WITHIN THE PAD SHALL NOT BE INSTALLED BELOW THE CONCRETE.
7. THE EXACT LOCATION OF CONDUITS WITHIN THE 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 THE EQUIPMENT PAD FOUNDATION AS SHOWN.

CONTROLLER CABINET TYPE "P" & "R" BOLT PATTERN



DIMENSION SHOWN ARE CENTER ROD TO CENTER ROD

S.P. 002-678-020
S.A.P. 198-020-033
CITY PROJ. 12-30

DRAWN BY: JMG	NO.	BY	DATE	REVISIONS
DESIGNER: JMG				
CHECKED BY: JMG				
DESIGN TEAM				

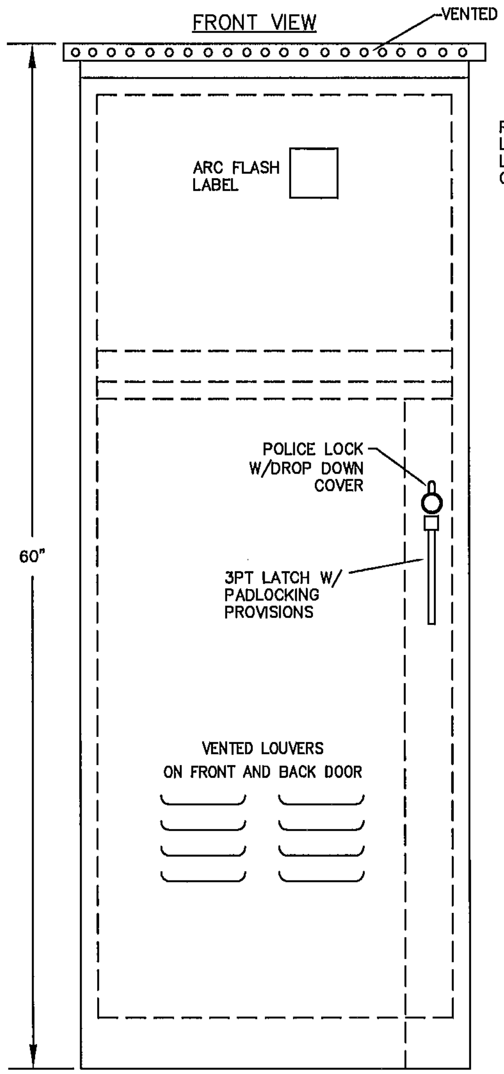
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Date: April 16, 2014 Name: John M. Gray PE Lic. No. 22457

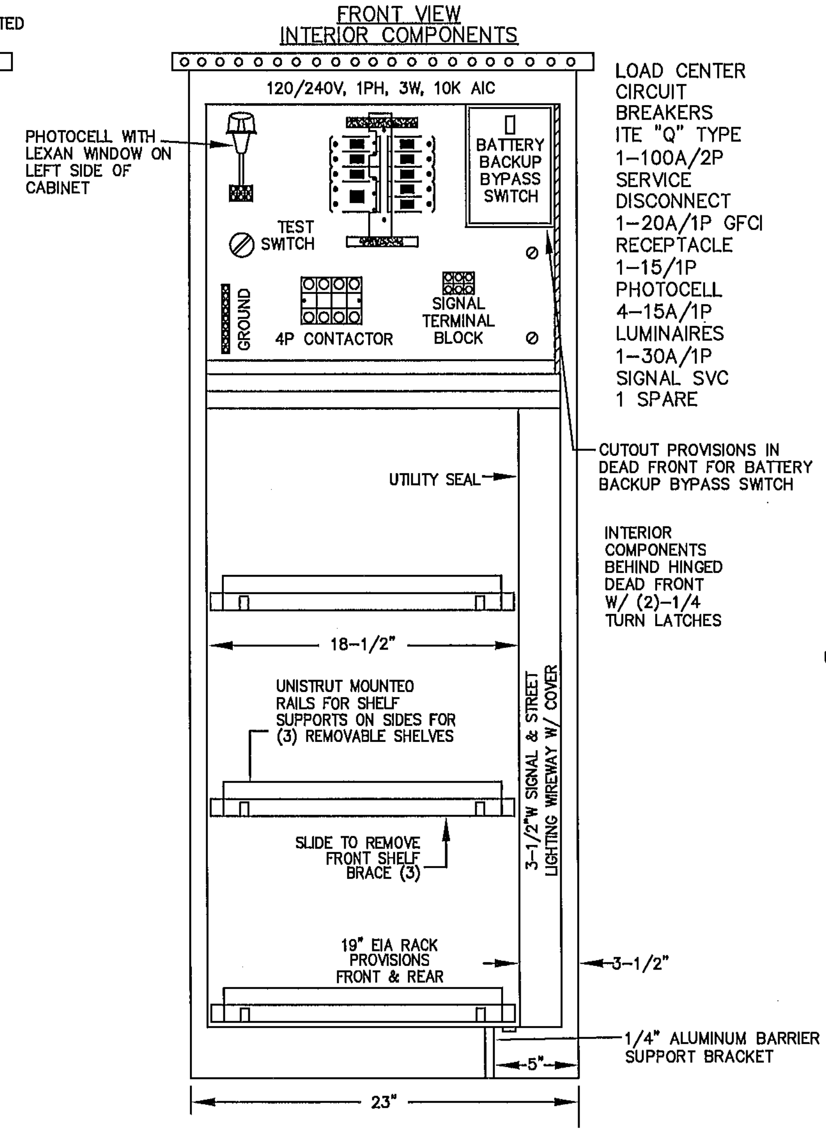
SEH PHONE: (651) 490-2000 3535 VADNAIS CENTER DR. ST. PAUL, MN 55110

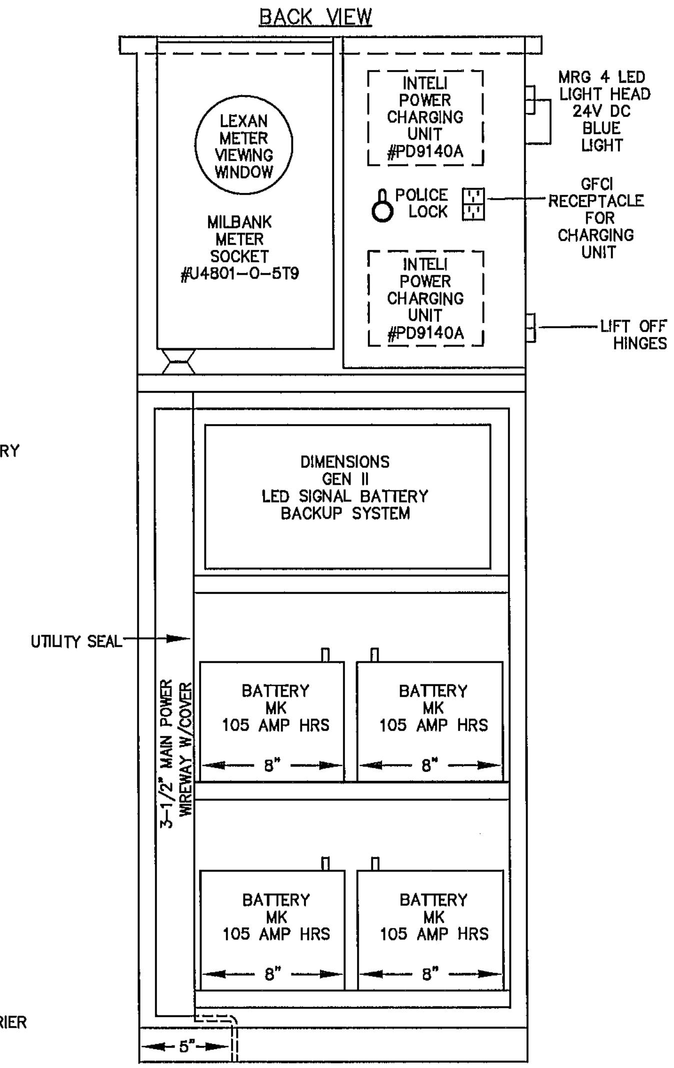
ANOKA COUNTY
CITY OF ANDOVER

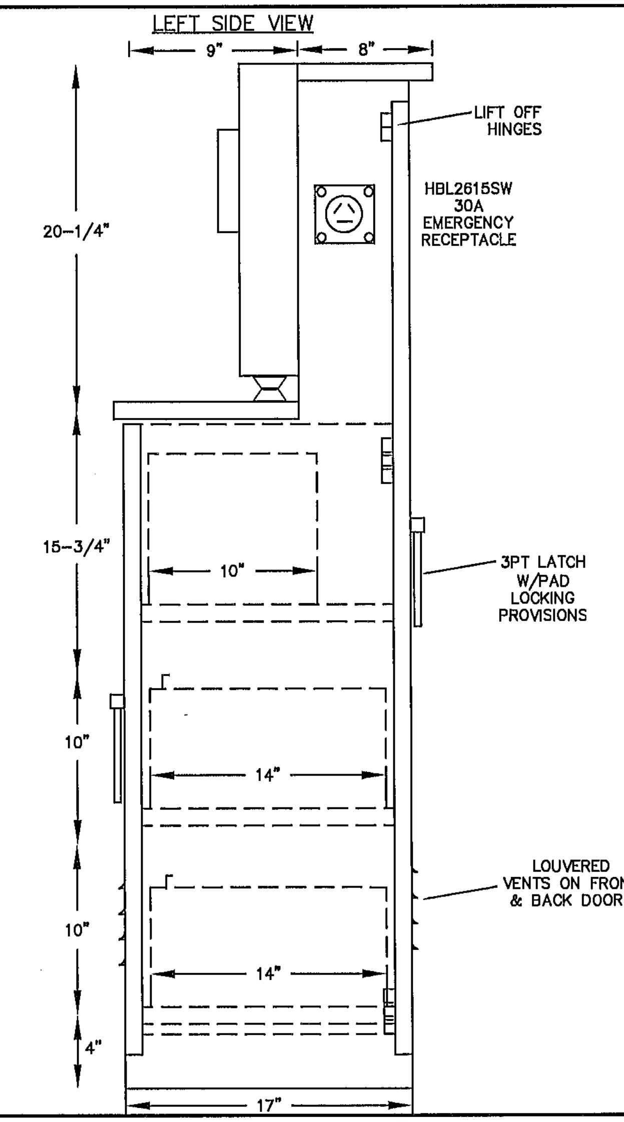
TRAFFIC SIGNAL SYSTEM EQUIPMENT PAD DETAILS
CSAH 78 (HANSON BLVD NW) AT CSAH 20 (161st AVE NW)

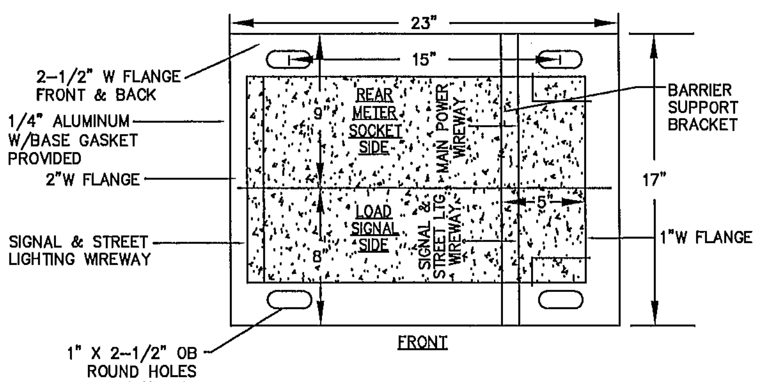
FILE NO. ANOKC 125789
SIGNAL SHEET 2 OF 12







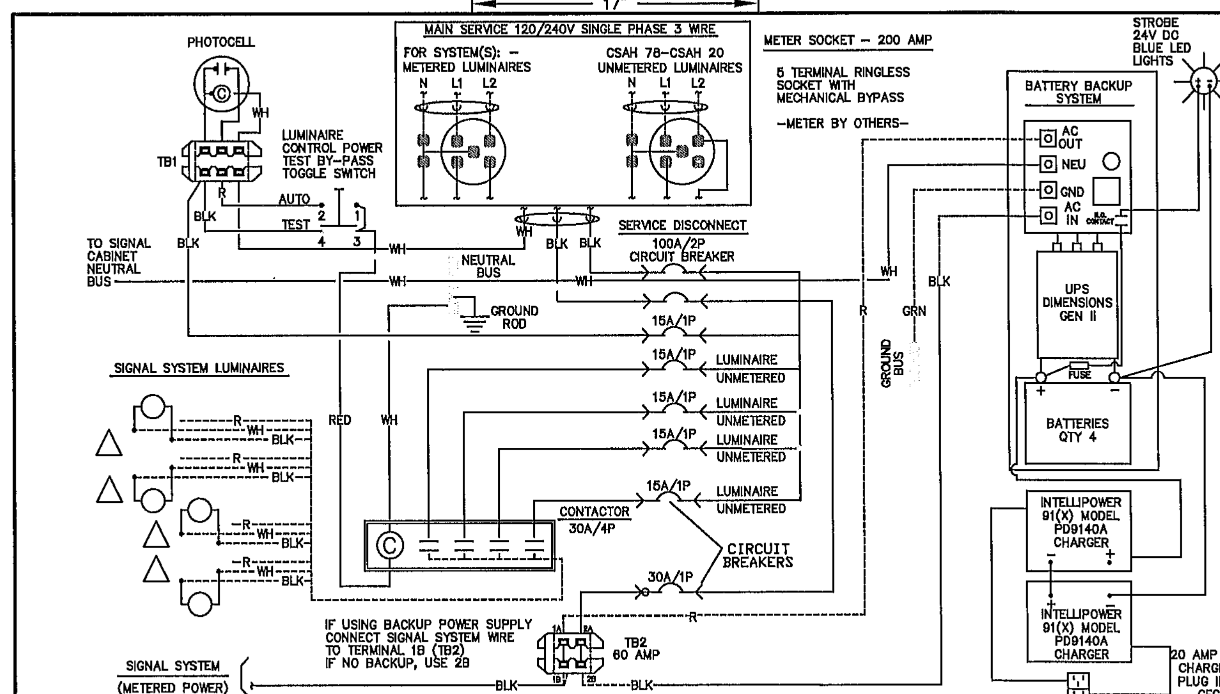




CABINET CONSTRUCTION

-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 CABINET.



FEED POINT
WIRING DIAGRAM

S.P. 002-678-020
S.A.P. 198-020-033
CITY PROJ. 12-30

DRAWN BY: JMG				
DESIGNER: JMG				
CHECKED BY: JMG				
DESIGN TEAM	NO.	BY	DATE	REVISIONS

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Date: April 16, 2014 Name: John M. Gray PE Lic. No. 22457

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PHONE: (651) 490-2000
3535 VADNAIS CENTER DR.
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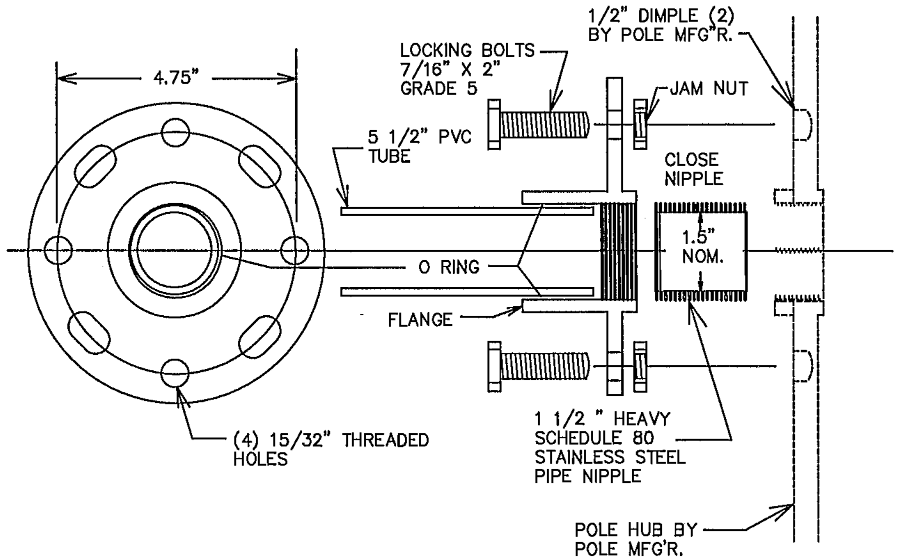
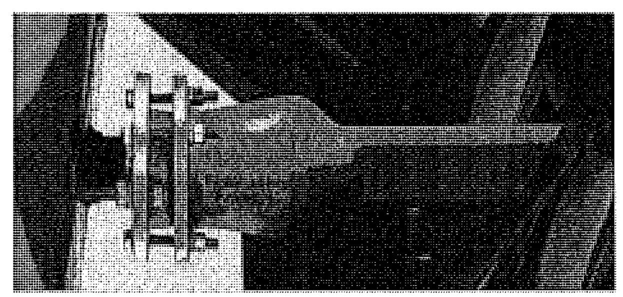
ANOKA COUNTY
CITY OF ANDOVER

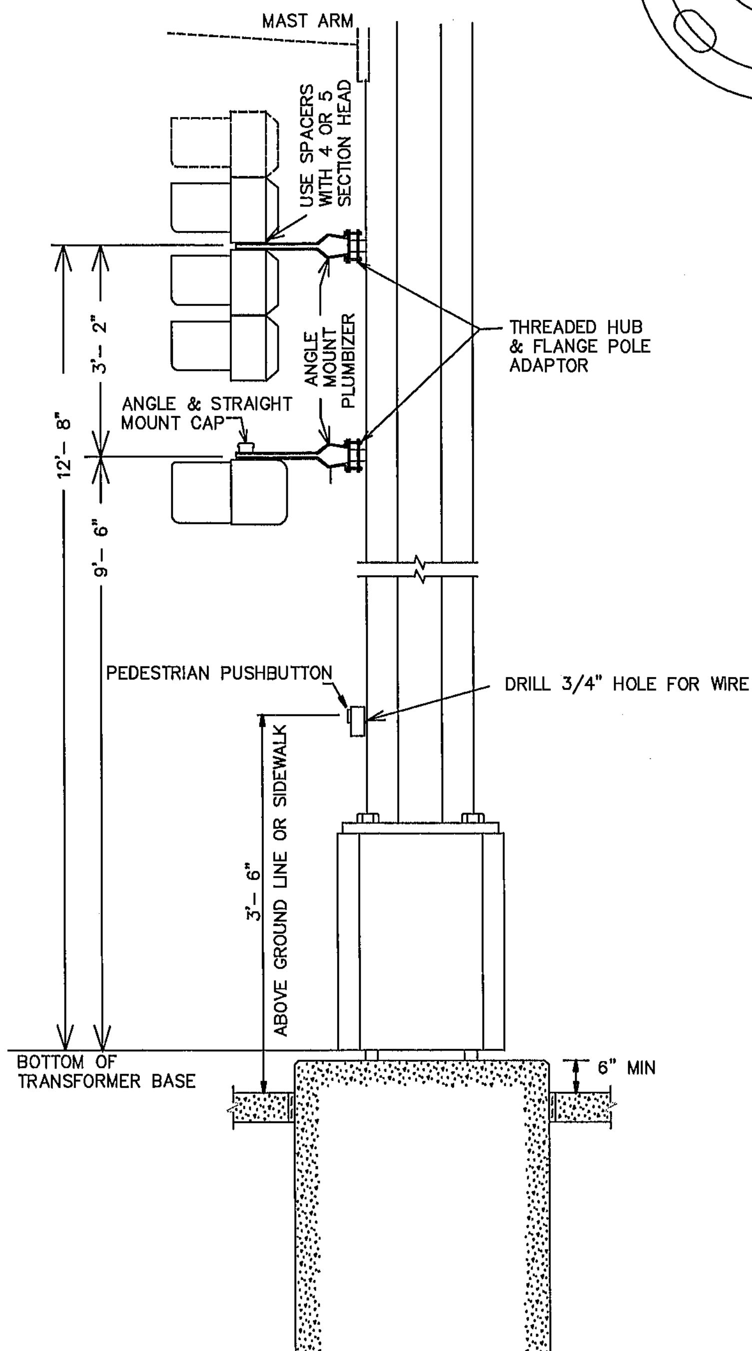
TRAFFIC SIGNAL SYSTEM
SERVICE CABINET DETAILS
CSAH 78 (HANSON BLVD NW) AT CSAH 20 (161st AVE NW)

FILE NO. ANOKC 125789
SIGNAL SHEET 3 OF 12



THREADED HUB AND FLANGE POLE ADAPTOR



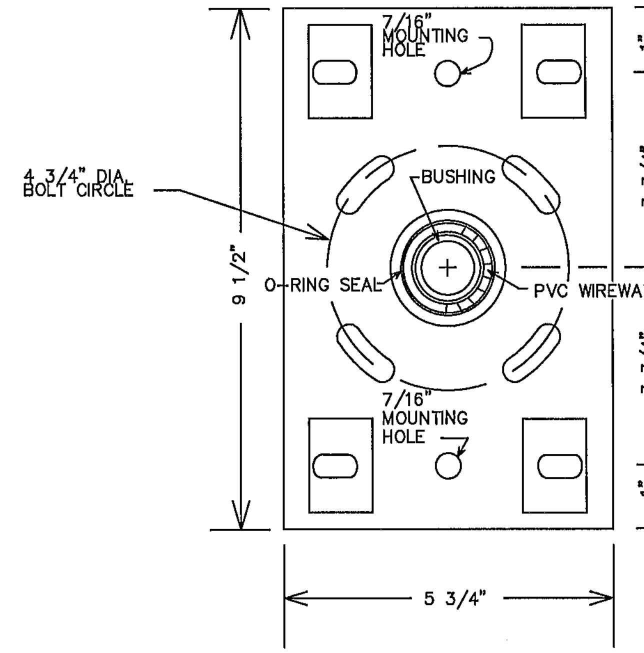


TYPICAL SIGNAL POLE MOUNTING

NOT TO SCALE

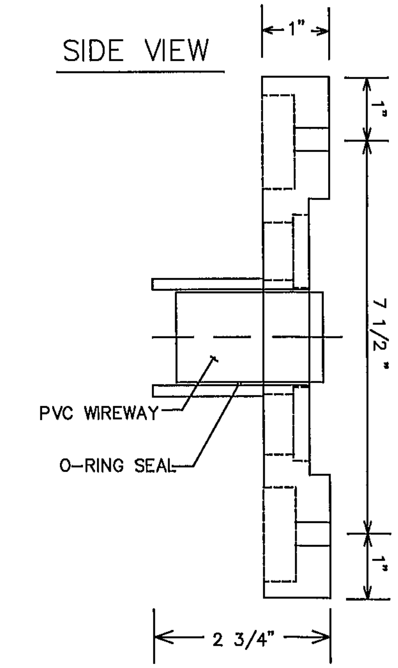
NOTE:

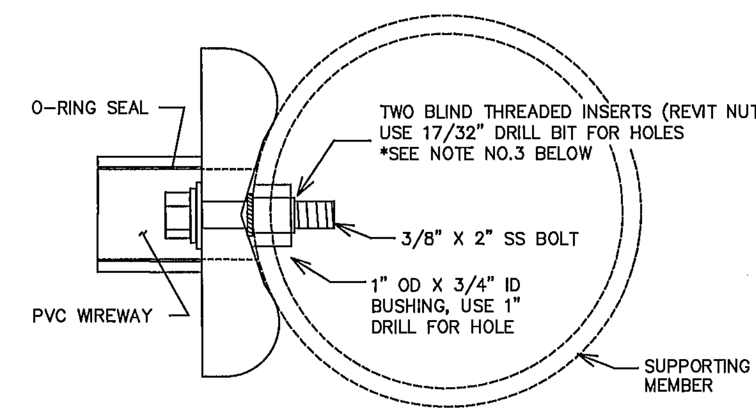
1. ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.
2. USE SIGNAL HEAD MOUNTED SPACERS FOR 4 & 5 SECTION POLY HEADS.
3. SEE STANDARD PLATE NUMBER 8123 FOR ADDITIONAL SIGNAL POLE DETAILS.



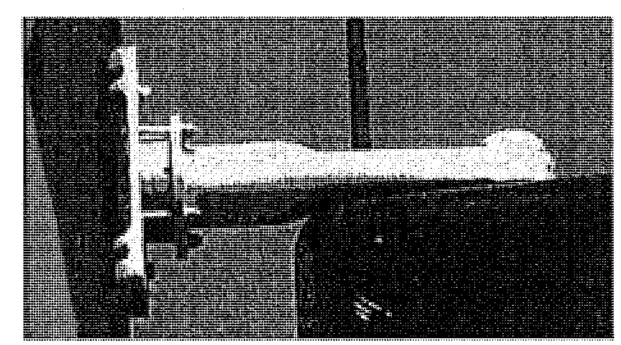
BOLT ON HUB & FLANGE

SIDE VIEW



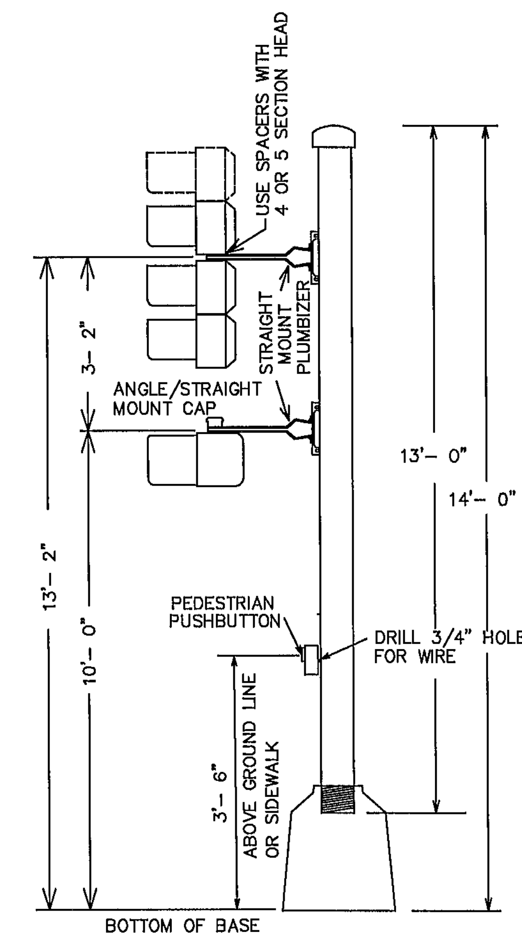


TOP VIEW



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

S.P. 002-678-020
S.A.P. 198-020-033
CITY PROJ. 12-30

DRAWN BY: JMG	NO.	BY	DATE	REVISIONS
DESIGNER: JMG				
CHECKED BY: JMG				
DESIGN TEAM				

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Name: John M. Gray PE
Date: April 16, 2014 Lic. No. 22457

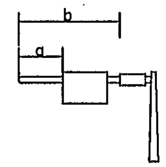
SEH
PHONE: (651) 490-2000
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110

ANOKA COUNTY
CITY OF ANDOVER

TRAFFIC SIGNAL SYSTEM
ONE-WAY POLE MOUNT DETAILS
CSAH 78 (HANSON BLVD NW)
AT CSAH 20 (161st AVE NW)

FILE NO. ANOKC 125789
SIGNAL SHEET 4 OF 12

MAST ARM MOUNTED SIGNS								
SIGN PANELS – TYPE D								
SIGN PANEL	SIZE (In.)	NO. REQ.	NO. POSTS/ STIFFENERS PER SIGN	BAND SPACING (**)	SQ. FT. PER SIGN	POLE NO.	a	b
D-1	96x24	1	4	–	16.00	1	–	28'
D-2	114x24	1	4	–	19.00	2	–	28'
D-3	96x24	1	4	–	16.00	3	–	28'
D-4	114x24	1	4	–	19.00	4	–	28'
TOTAL QUANTITIES		4			70.00			



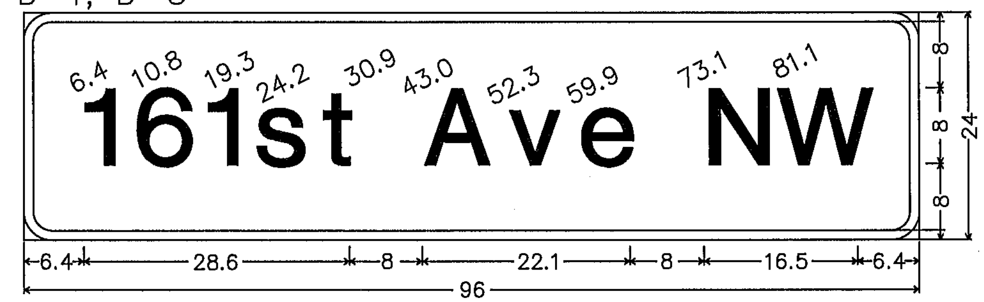
(**)= SPACING BETWEEN STIFFENERS SHALL NOT EXCEED 36 INCHES AND SHALL BE UNIFORMLY SPACED. SEE SPECIAL PROVISIONS AND STANDARD SIGNS MANUAL, PAGE 105A (REVISION DATE: 7/06/07) FOR BRACKET SPACING REQUIREMENTS.

SIGNS FOR TRAFFIC SIGNAL SYSTEM									
SIGN PANELS – TYPE C									
SIGN PANEL	SIZE (In.)	NO. REQ.	NO. POSTS/ STIFFENERS PER SIGN	BAND SPACING (**)	SQ. FT. PER SIGN	TOTAL AREA (SQ.FT.)	POLE NO.	a	b
R10-X12	36x42	4	1	–	10.50	42.00	1,2,3,4	1'	–

GENERAL SIGNING NOTES:

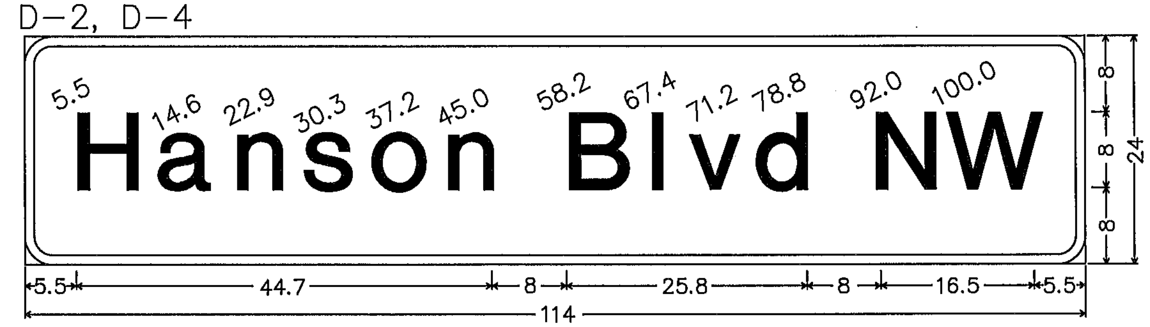
1) COLOR FOR ALL TYPE D SIGNS SHALL BE WHITE LEGEND AND BORDER ON GREEN BACKGROUND, FULLY REFLECTORIZED.
2) CORNERS EXTENDING BEYOND THE BORDER SHALL NOT BE TRIMMED.
3) FOR STRUCTURAL DETAILS OF MAST ARM MOUNTED SIGNS, SEE STANDARD SIGNS MANUAL, PAGE 105A (REVISION DATE: 7/06/07), AND SPECIAL PROVISIONS.
4) SEE STANDARD SIGNS MANUAL FOR DETAILED DRAWINGS OF TYPE C SIGN PANELS.
5) FURNISHING AND INSTALLING TYPE C AND D SIGNS SHALL BE INCLUDED UNDER ITEM NO. 2565 (TRAFFIC CONTROL SIGNAL SYSTEM). SEE SPECIAL PROVISIONS.
6) ALL NEW TYPE C AND D SIGN PANELS SHALL BE FABRICATED USING DG3 SHEETING. SEE SPECIAL PROVISIONS.

D–1, D–3



3.0" Radius, 1.0" Border, White on Green;
[161st Ave NW] E Mod;

D–2, D–4



3.0" Radius, 1.0" Border, White on Green;
[Hanson Blvd NW] E Mod;

S.P. 002–678–020
S.A.P. 198–020–033
CITY PROJ. 12–30

DRAWN BY: JMG
DESIGNER: JMG
CHECKED BY: JMG
DESIGN TEAM

NO.	BY	DATE	REVISIONS

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Date: April 16, 2014 Name: John M. Gray PE Lic. No. 22457

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PHONE: (651) 490–2000
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ST. PAUL, MN 55110

ANOKA COUNTY
CITY OF ANDOVER

TRAFFIC SIGNAL SYSTEM
SIGNAL SIGNING DETAILS
CSAH 78 (HANSON BLVD NW) AT CSAH 20 (161st AVE NW)

FILE NO. ANOKC 125789
SIGNAL SHEET 5 OF 12

NOTES:
1) THE EXACT LOCATION OF HANDHOLES, POLES, LOOP DETECTORS AND EQUIPMENT PAD SHALL BE DETERMINED IN FIELD BY 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.
6) THE CONTRACTOR SHALL LOCATE AND VERIFY INPLACE UTILITIES PRIOR TO COMMENCING WORK.
7) SEE SPECIAL PROVISIONS AND DETAILS REGARDING SIGNS TO BE FURNISHED & INSTALLED BY CONTRACTOR (INCIDENTAL).
8) EACH PEDESTRIAN INDICATION SHALL BE ONE SECTION "FILLED" COUNTDOWN TIMER HAND/WALKING PERSON INDICATION.
9) ALL VEHICLE SIGNAL INDICATIONS, AND ALL PEDESTRIAN SIGNAL INDICATIONS SHALL BE LED.
10) EACH SIGNAL FACE SHALL HAVE BACKGROUND SHIELD.
11) 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).
12) LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) IN 3/4" N.M.C. SEE SPECIAL PROVISIONS.
13) ALL VEHICLE AND PEDESTRIAN SIGNAL HOUSINGS, BACKGROUND SHIELDS, AND VISORS SHALL BE FABRICATED USING BLACK POLYCARBONATE MATERIALS. SEE SPECIAL PROVISIONS.
14) (*) DENOTES ITEMS TO BE FURNISHED & INSTALLED BY BY CONTRACTOR UNDER ITEM NO. 2565 (EMERGENCY VEHICLE PREEMPTION SYSTEM). SEE ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
15) (**) DENOTES ITEMS TO BE FURNISHED, INSTALLED, MEASURED AND PAID FOR SEPARATELY BY CONTRACTOR (FOR FUTURE INTERCONNECT BY OTHERS). SEE ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
16) CONTRACTOR SHALL COIL & STORE 25' OF 1-2/c#14 IN HANDHOLE 15 (FOR FUTURE USE BY OTHERS). SEE FIELD WIRING DIAGRAM FOR FURTHER INFORMATION.

PVC LOOP DETECTORS			
NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D1-1	2-6x6	20' & 50'	1
D1-2	2-6x6	5' & 35'	7
D2-1	6x6	475'	1
D2-2	6x6	10'	1
D2-3	6x6	10'	1
D3-1	2-6x6	20' & 50'	1
D3-2	2-6x6	5' & 35'	7
D4-1	6x6	475'	1
D4-2	2-6x6	5' & 20'	7
D4-3	2-6x6	5' & 20'	1
D5-1	2-6x6	20' & 50'	7
D5-2	2-6x6	5' & 35'	1
D6-1	6x6	475'	1
D6-2	6x6	10'	1
D6-3	6x6	10'	1
D7-1	2-6x6	20' & 50'	1
D7-2	2-6x6	5' & 35'	7
D8-1	6x6	475'	1
D8-2	2-6x6	5' & 20'	7
D8-3	2-6x6	5' & 20'	1

NOTE: LOCATION=DISTANCE FROM STOP BAR TO FRONT OF LOOP DETECTOR.

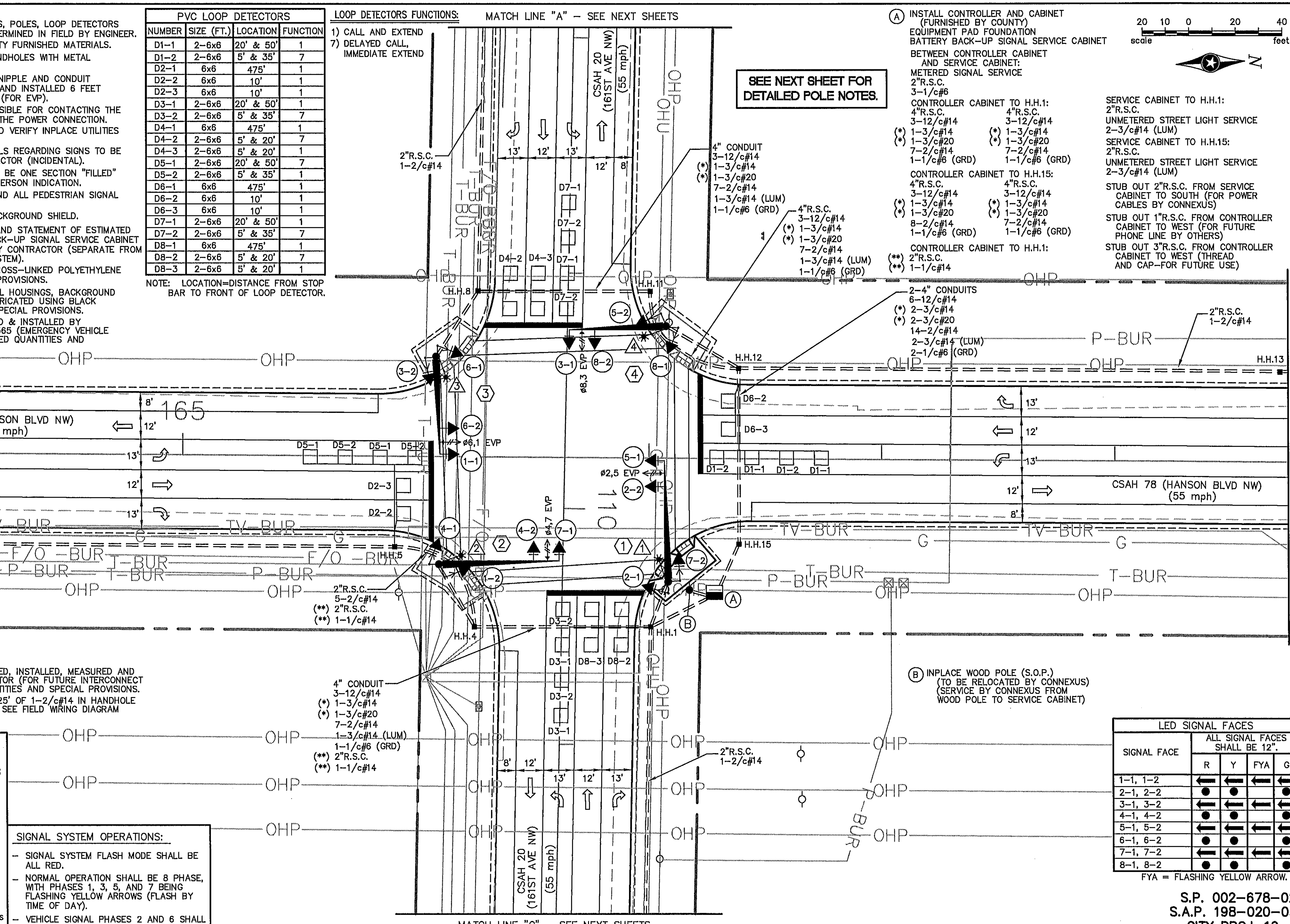
LOOP DETECTORS FUNCTIONS:
1) CALL AND EXTEND
7) DELAYED CALL, IMMEDIATE EXTEND

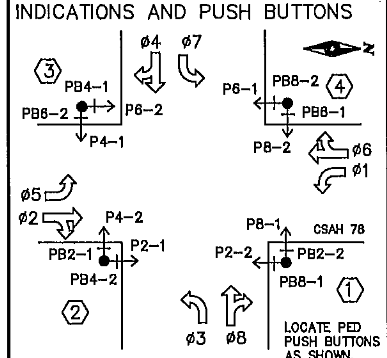
SEE NEXT SHEET FOR DETAILED POLE NOTES.

(A) INSTALL CONTROLLER AND CABINET (FURNISHED BY COUNTY)
EQUIPMENT PAD FOUNDATION
BATTERY BACK-UP 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. / 4"R.S.C.
3-12/c#14 / 3-12/c#14
(*) 1-3/c#14 / (*) 1-3/c#14
(*) 1-3/c#20 / (*) 1-3/c#20
7-2/c#14 / 7-2/c#14
1-1/c#6 (GRD) / 1-1/c#6 (GRD)
CONTROLLER CABINET TO H.H.15:
4"R.S.C. / 4"R.S.C.
3-12/c#14 / 3-12/c#14
(*) 1-3/c#14 / (*) 1-3/c#14
(*) 1-3/c#20 / (*) 1-3/c#20
8-2/c#14 / 7-2/c#14
1-1/c#6 (GRD) / 1-1/c#6 (GRD)
CONTROLLER CABINET TO H.H.1:
(**) 2"R.S.C.
(**) 1-1/c#14

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 2"R.S.C. FROM SERVICE CABINET TO SOUTH (FOR POWER CABLES BY CONNEXUS)
STUB OUT 1"R.S.C. FROM CONTROLLER CABINET TO WEST (FOR FUTURE PHONE LINE BY OTHERS)
STUB OUT 3"R.S.C. FROM CONTROLLER CABINET TO WEST (THREAD AND CAP-FOR FUTURE USE)

(B) INPLACE WOOD POLE (S.O.P.) (TO BE RELOCATED BY CONNEXUS) (SERVICE BY CONNEXUS FROM WOOD POLE TO SERVICE CABINET)





SIGNAL SYSTEM OPERATIONS:
- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
- NORMAL OPERATION SHALL BE 8 PHASE, WITH PHASES 1, 3, 5, AND 7 BEING FLASHING YELLOW ARROWS (FLASH BY TIME OF DAY).
- VEHICLE SIGNAL PHASES 2 AND 6 SHALL OPERATE ON RECALL.

LED SIGNAL FACES				
SIGNAL FACE	ALL SIGNAL FACES SHALL BE 12".			
	R	Y	FYA	G
1-1, 1-2	←	←	←	←
2-1, 2-2	●	●		●
3-1, 3-2	←	←	←	←
4-1, 4-2	●	●		●
5-1, 5-2	←	←	←	←
6-1, 6-2	●	●		●
7-1, 7-2	←	←	←	←
8-1, 8-2	●	●		●

FYA = FLASHING YELLOW ARROW.

S.P. 002-678-020
S.A.P. 198-020-033
CITY PROJ. 12-30

DRAWN BY: JMG
DESIGNER: JMG
CHECKED BY: JMG
DESIGN TEAM

NO.	BY	DATE	REVISIONS

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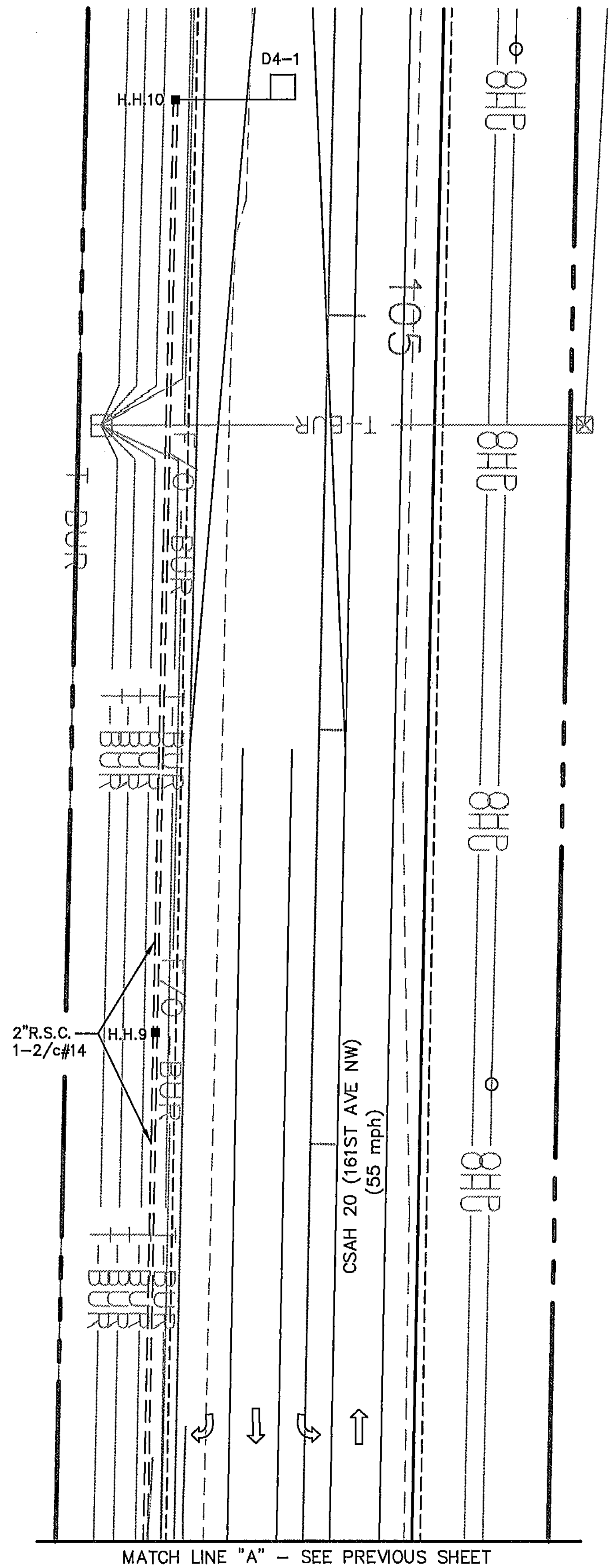
SEH PHONE: (651) 490-2000 3535 VADNAIS CENTER DR. ST. PAUL, MN 55110

ANOKA COUNTY
CITY OF ANDOVER

TRAFFIC SIGNAL SYSTEM
INTERSECTION LAYOUT
CSAH 78 (HANSON BLVD NW) AT CSAH 20 (161st AVE NW)

FILE NO. ANOKC 125789
SIGNAL SHEET 6 OF 12



20 10 0 20 40
scale feet

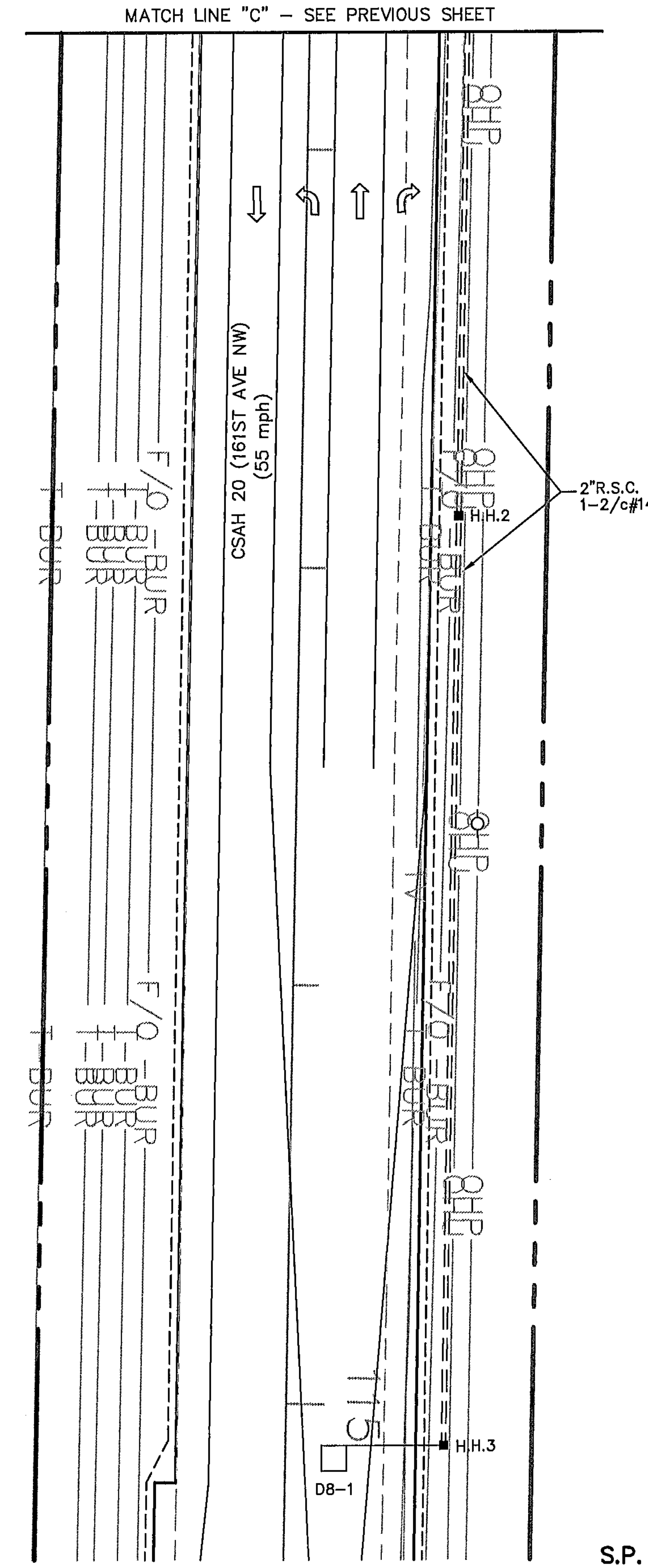
N

① PA100 POLE FOUNDATION
TYPE PA100-A-50-D25-9 (DAVIT AT 350°)
LUMINAIRE-COBRAHEAD LED
1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0°
1-STRAIGHT MOUNT SIGNAL-OVERHEAD AT 11°
2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90° & 180°
2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED 90° & 180°
2-PEDESTRIAN PUSH BUTTONS
R10-X12 SIGN PANEL-ADJACENT TO 5-1
TYPE D SIGN PANEL-OVERHEAD (D-1)
(*) ONE WAY EVP DETECTOR AND LIGHT (ø2,5)
EXTEND INTO H.H.1:
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 (GRD)

② PA100 POLE FOUNDATION
TYPE PA100-A-50-D25-9 (DAVIT AT 350°)
LUMINAIRE-COBRAHEAD LED
1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0°
1-STRAIGHT MOUNT SIGNAL-OVERHEAD AT 11°
2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90° & 180°
2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED 90° & 180°
2-PEDESTRIAN PUSH BUTTONS
R10-X12 SIGN PANEL-ADJACENT TO 7-1
TYPE D SIGN PANEL-OVERHEAD (D-2)
(*) ONE WAY EVP DETECTOR AND LIGHT (ø4,7)
EXTEND INTO H.H.4:
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 (GRD)

③ PA100 POLE FOUNDATION
TYPE PA100-A-40-D25-9 (DAVIT AT 350°)
LUMINAIRE-COBRAHEAD LED
1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0°
1-STRAIGHT MOUNT SIGNAL-OVERHEAD AT 11°
2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90° & 180°
2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED 90° & 180°
2-PEDESTRIAN PUSH BUTTONS
R10-X12 SIGN PANEL-ADJACENT TO 1-1
TYPE D SIGN PANEL-OVERHEAD (D-3)
(*) ONE WAY EVP DETECTOR AND LIGHT (ø6,1)
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 (GRD)

④ PA100 POLE FOUNDATION
TYPE PA100-A-40-D25-9 (DAVIT AT 350°)
LUMINAIRE-COBRAHEAD LED
1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0°
1-STRAIGHT MOUNT SIGNAL-OVERHEAD AT 11°
2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90° & 180°
2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED 90° & 180°
2-PEDESTRIAN PUSH BUTTONS
R10-X12 SIGN PANEL-ADJACENT TO 3-1
TYPE D SIGN PANEL-OVERHEAD (D-4)
(*) ONE WAY EVP DETECTOR AND LIGHT (ø8,3)
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 (GRD)



S.P. 002-678-020
S.A.P. 198-020-033
CITY PROJ. 12-30

DRAWN BY: JMG
DESIGNER: JMG
CHECKED BY: JMG
DESIGN TEAM

NO.	BY	DATE	REVISIONS

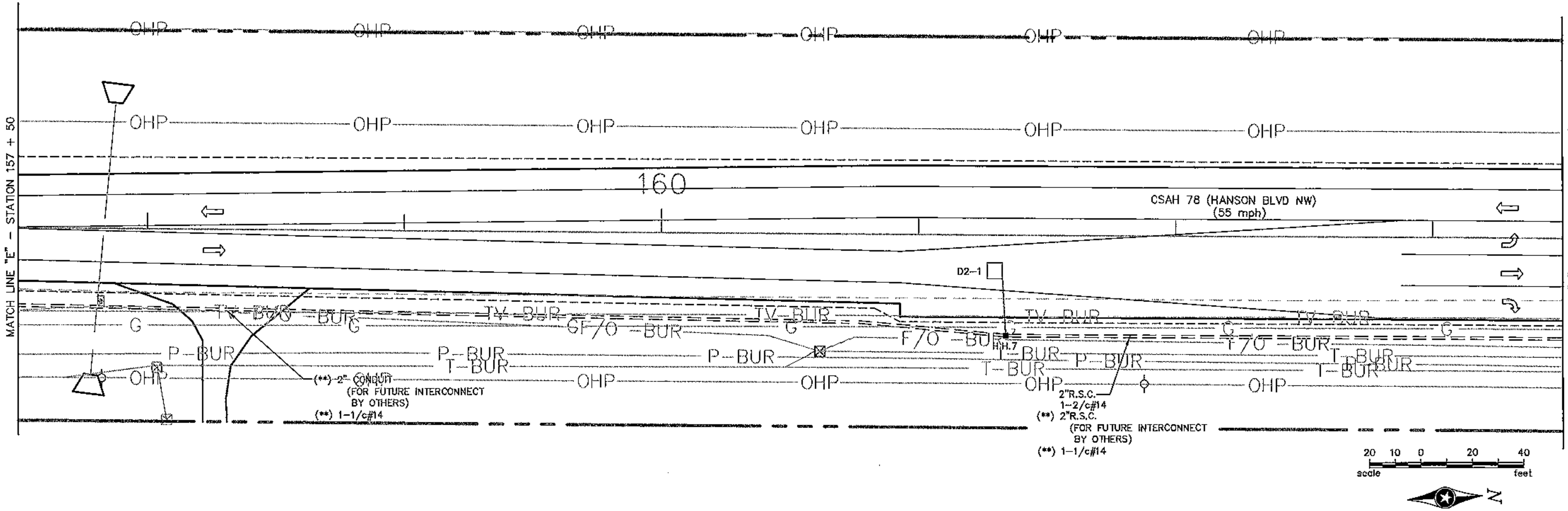
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Date: April 16, 2014 Name: John M. Gray PE Lic. No. 22457

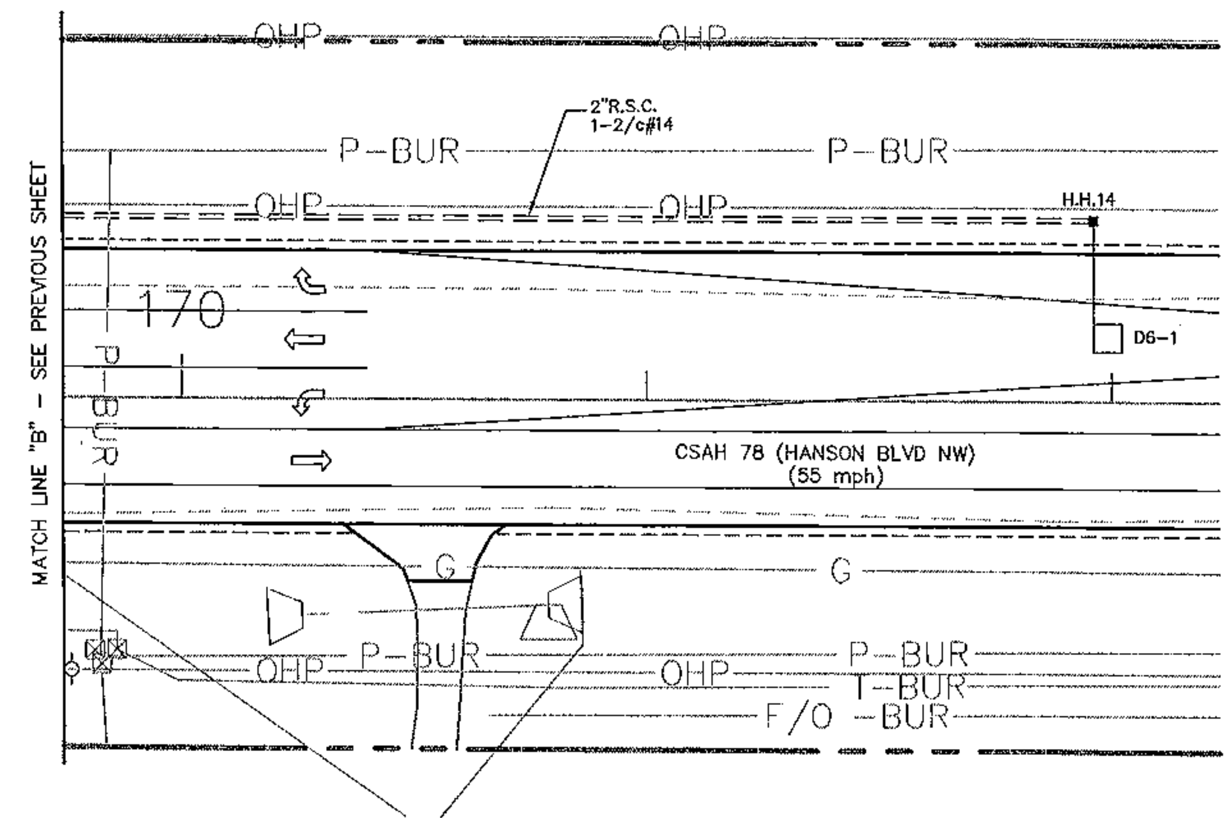
SEH
PHONE: (651) 490-2000
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110

ANOKA COUNTY
CITY OF ANDOVER

TRAFFIC SIGNAL SYSTEM
INTERSECTION LAYOUT
CSAH 78 (HANSON BLVD NW) AT CSAH 20 (161st AVE NW)

FILE NO. ANOKC 125789
SIGNAL SHEET 7 OF 12





NOTES:

1) IT SHALL BE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" (TELEPHONE NUMBER 651-454-0002), AS REQUIRED BY MINNESOTA STATUTE 216D.

2) DISTANCE OFF SHOULDER OR CURB FOR CONDUIT SHALL BE 1-2 FEET (MINIMUM).

3) (**) DENOTES ITEMS TO BE FURNISHED, INSTALLED, MEASURED AND PAID FOR SEPARATELY BY CONTRACTOR (FOR FUTURE INTERCONNECT BY OTHERS). SEE ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.

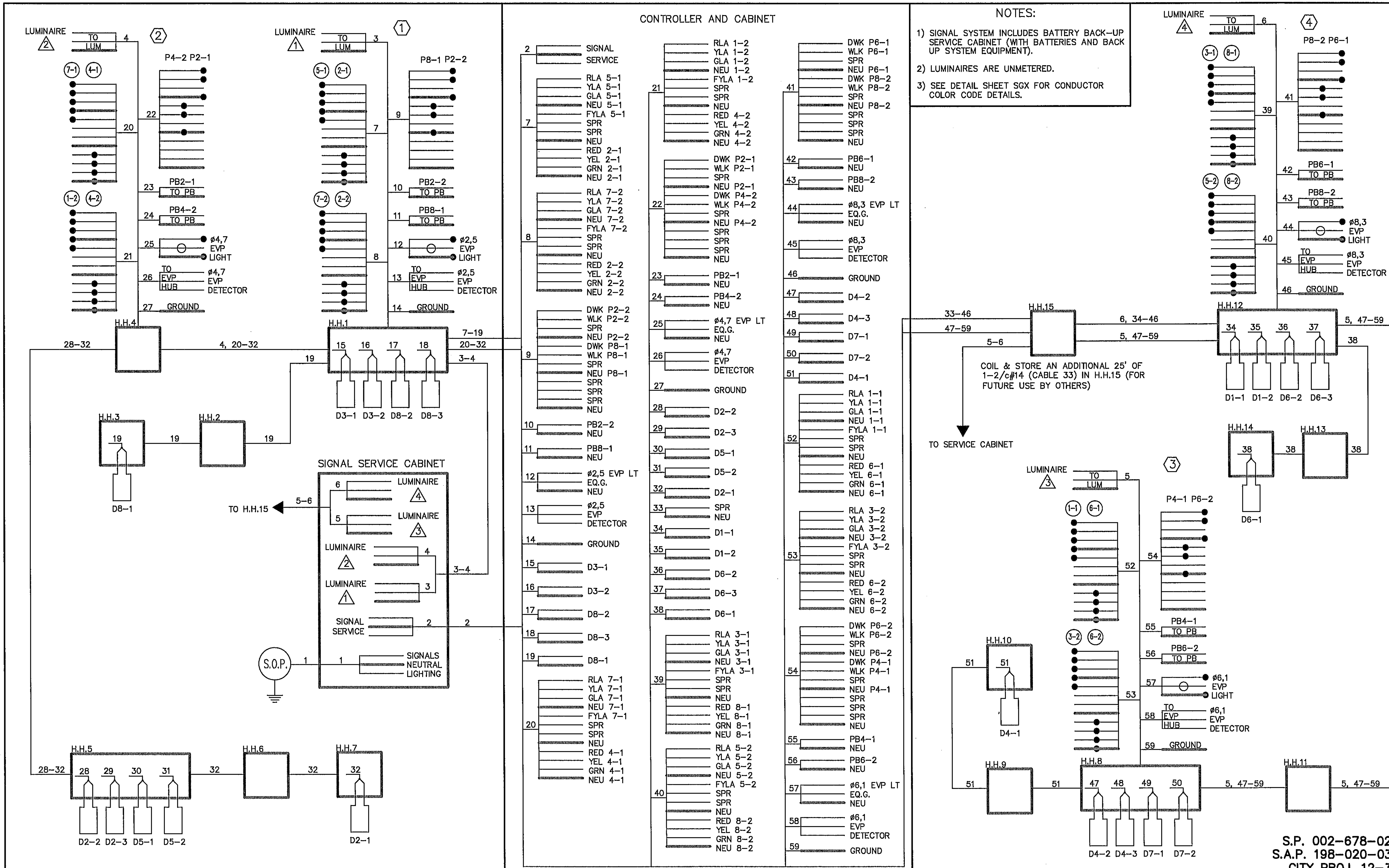
4) NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS.

S.P. 002-678-020
S.A.P. 198-020-033
CITY PROJ. 12-30

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 16, 2014 Name: John M. Gray PE Lic. No. 22457	SEH PHONE: (651) 490-2000 3535 VADNAIS CENTER DR. ST. PAUL, MN 55110	ANOKA COUNTY CITY OF ANDOVER

TRAFFIC SIGNAL SYSTEM INTERSECTION LAYOUT
CSAH 78 (HANSON BLVD NW) AT CSAH 20 (161st AVE NW)

FILE NO. ANOKC 125789
SIGNAL SHEET 8 OF 12



NOTES:

1) SIGNAL SYSTEM INCLUDES BATTERY BACK-UP SERVICE CABINET (WITH BATTERIES AND BACK UP SYSTEM EQUIPMENT).

2) LUMINAIRES ARE UNMETERED.

3) SEE DETAIL SHEET SGX FOR CONDUCTOR COLOR CODE DETAILS.

S.P. 002-678-020
S.A.P. 198-020-033
CITY PROJ. 12-30

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DESIGNER:	JMG		
CHECKED BY:	JMG		
DESIGN TEAM	NO.	BY	DATE	REVISIONS

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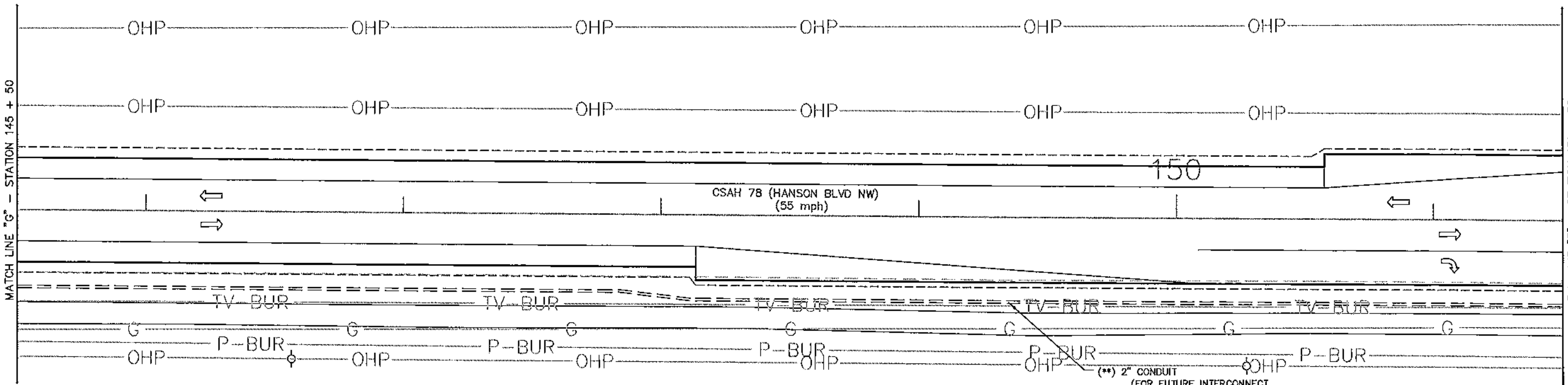
Date: April 16, 2014 Name: John M. Gray PE Lic. No. 22457

SEH PHONE: (651) 490-2000 3535 VADNAIS CENTER DR. ST. PAUL, MN 55110

ANOKA COUNTY
CITY OF ANDOVER

TRAFFIC SIGNAL SYSTEM
FIELD WIRING DIAGRAM
CSAH 78 (HANSON BLVD NW) AT CSAH 20 (161st AVE NW)

FILE NO. ANOKC 125789
SIGNAL SHEET 9 OF 12



NOTES:

1) IT SHALL BE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" (TELEPHONE NUMBER 651-454-0002), AS REQUIREO BY MINNESOTA STATUTE 2160.

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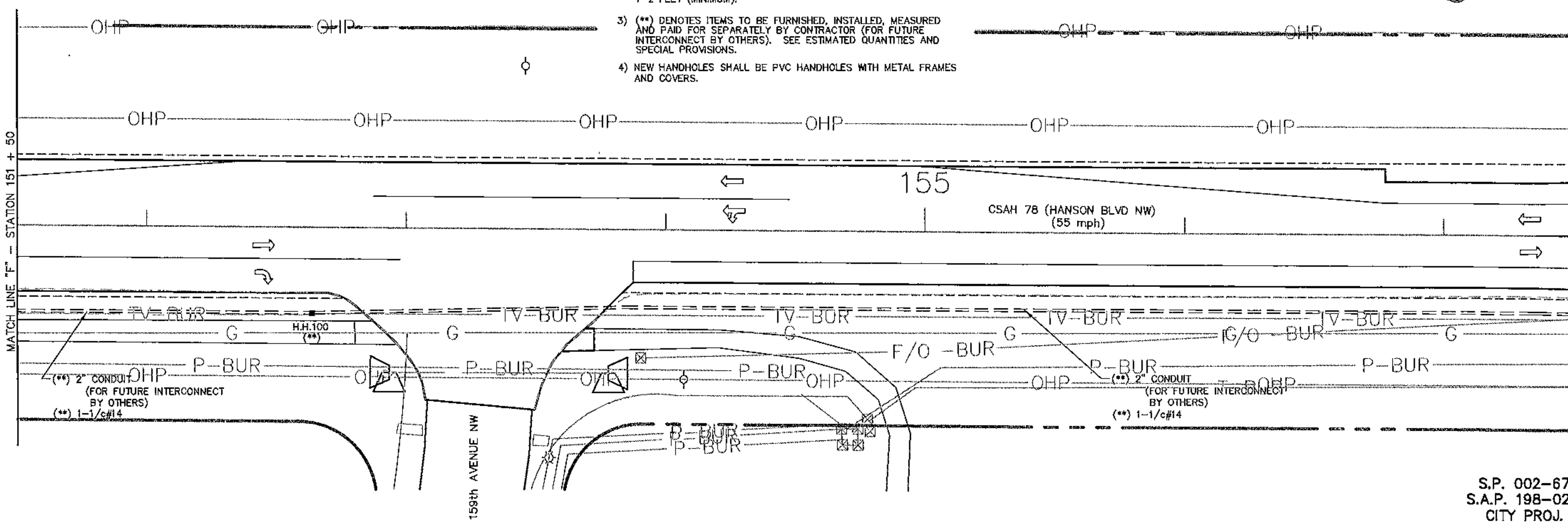
4) NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS.

20 10 0 20 40
scale feet

N



S.P. 002-676-020
S.A.P. 198-020-033
CITY PROJ. 12-30

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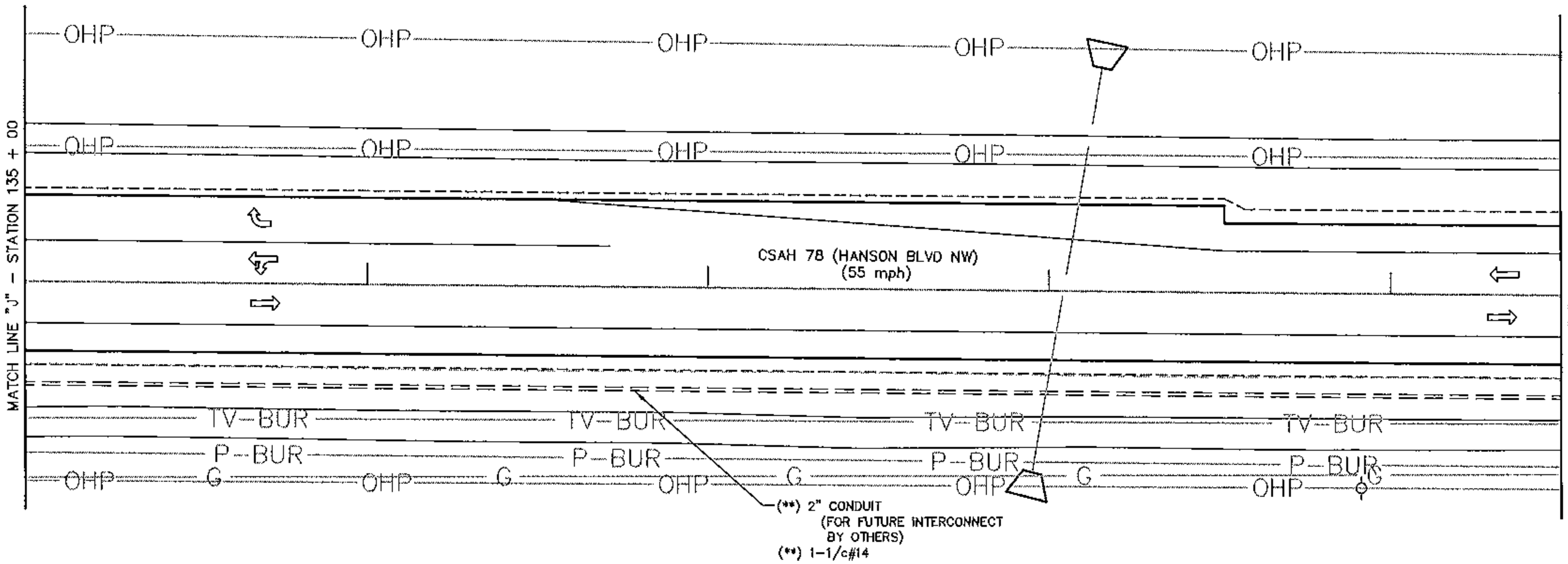
FUTURE SIGNAL INTERCONNECTION
INTERSECTION LAYOUT
CSAH 78 (HANSON BLVD NW)
(155TH LANE NW TO CSAH 20)

FILE NO. ANOKC 125789
SIGNAL SHEET 10 OF 12



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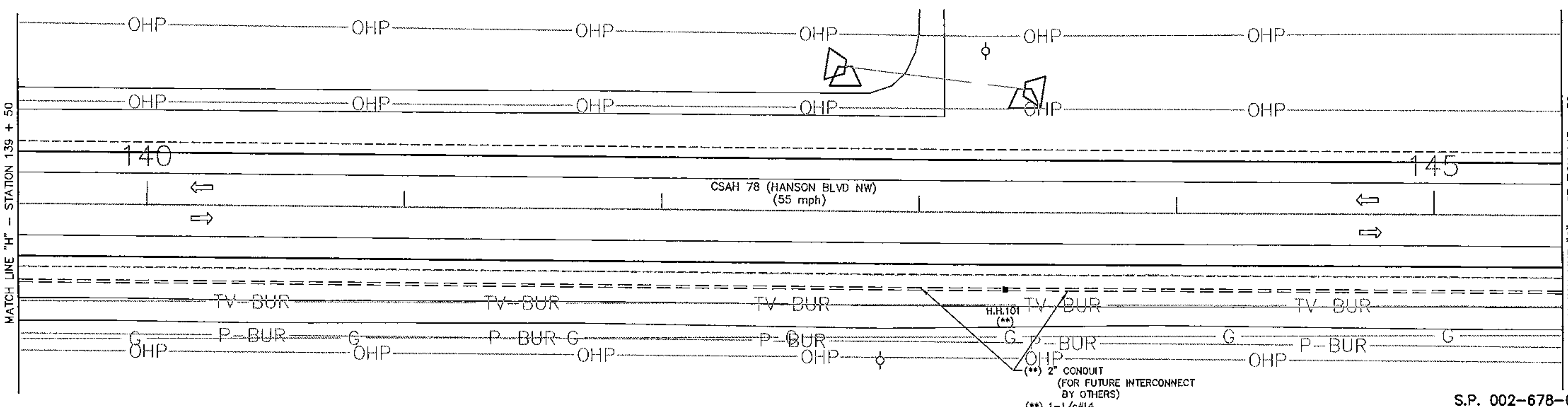

S.P. 002-678-020
S.A.P. 198-020-033
CITY PROJ. 12-30

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 16, 2014 Name: John M. Gray PE Lic. No. 22457	SEH PHONE: (651) 490-2000 3535 VADNAIS CENTER DR. ST. PAUL, MN 55110	ANOKA COUNTY CITY OF ANDOVER	FUTURE SIGNAL INTERCONNECTION INTERSECTION LAYOUT CSAH 78 (HANSON BLVD NW) (155TH LANE NW TO CSAH 20)	FILE NO. ANOKC 125789 SIGNAL SHEET 11 OF 12	86 / 111

NOTES:

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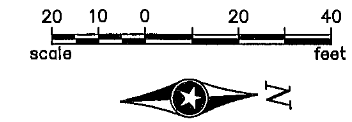

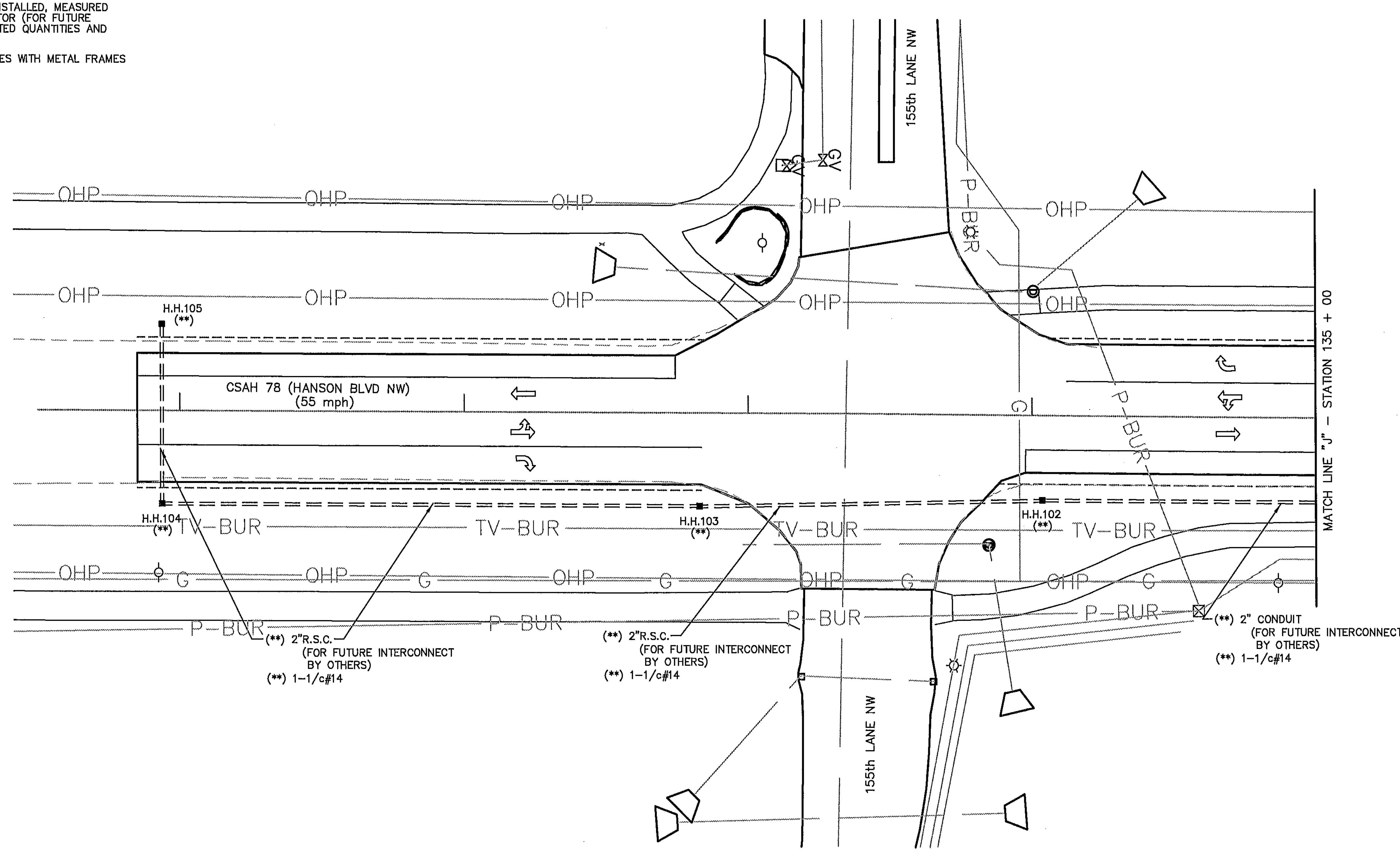

S.P. 002-678-020
S.A.P. 198-020-033
CITY PROJ. 12-30

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DESIGNER: JMG				
CHECKED BY: JMG				
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Date: April 16, 2014 Name: John M. Gray PE Lic. No. 22457

SEH PHONE: (651) 490-2000 3535 VADNAIS CENTER DR. ST. PAUL, MN 55110

ANOKA COUNTY
CITY OF ANDOVER

FUTURE SIGNAL INTERCONNECTION
INTERSECTION LAYOUT
CSAH 78 (HANSON BLVD NW)
(155TH LANE NW TO CSAH 20)

FILE NO. ANOKC 125789
SIGNAL SHEET 12 OF 12

PROJECT LOCATION AND GENERAL INFORMATION

THE ADDITIONAL IMPERVIOUS AREA FOR THIS PROJECT INCLUDES LANE DEVELOPMENT FOR LEFT AND RIGHT TURN LANES, AS WELL AS A BYPASS LANE AND RIGHT TURN LANE FOR CITY STREET APPROACHES.

THE EXISTING 11' SHOULDER WILL BE REDUCED TO A PROPOSED WIDTH OF 8.0'

THIS PROJECT WILL REQUIRE THE DISTURBANCE OF 12.95 ACRES OF SOILS AND DOES CREATE THE POTENTIAL FOR SEDIMENT DISCHARGE FROM THE SITE.

TRAINING REQUIREMENTS

THE CONTRACTOR WILL ENSURE THAT THE TRAINING REQUIRED IN PART 111.A.2 OF THE GENERAL STORMWATER PERMIT FOR CONSTRUCTION ACTIVITY IS COMPLIED WITH

THE INDIVIDUALS TRAINED AND THE TRAINING RECEIVED WILL BE RECORDED IN THE SWPPP BEFORE THE START OF CONSTRUCTION OR AS SOON AS PERSONELL FOR THE PROJECT HAVE BEEN DETERMINED.

LONG TERM OPERATION AND MAINTENANCE

THE CITY OF ANDOVER STREETS DIVISION WILL BE RESPONSIBLE FOR THE SNOW REMOVAL OPERATIONS ALONG THE EXISTING PATH.
FOR QUESTIONS OR CONCERNS CONTACT

DAVE BERKOWITZ
CITY OF ANDOVER PUBLIC WORKS
1685 CROSSTOWN BLVD NW
ANDOVER, MN 55304
OFFICE - (763)-767-5133

RECEIVING SURFACE WATERS, DISCHARGE TO IMPAIRED WATERS & SPECIAL WATERS

THE FOLLOWING TABLE BELOW IDENTIFIES ALL SURFACE WATERS WITHIN 1 MILE OF THE DISTURBED SOIL PROJECT 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 THEN SEVEN (7) DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED.
2) TEMPORARY SEDIMENT BASINS MUST BE USED FOR COMMON DRAINAGE LOCATIONS THAT SERVE AN AREA WITH FIVE (5) OR MORE ACRES DISTURBED AT ONE TIME. THIS PROJECT AS DESIGNED DOES NOT HAVE FIVE (5) DISTURBED ACRES DRAINING TO A COMMON LOCATION AND TEMPORARY SEDIMENT BASINS WILL NOT BE REQUIRED.

RECEIVING SURFACE WATERS		
NAME OF WATER BODY	SPECIAL WATER	IMPAIRED WATER
ANOKA COUNTY		
DNR PROTECTED WETLAND 429-W	NO	NO
COUNTY DITCH 37	NO	NO

DISTURBED SOIL AREA

TOTAL DISTURBED SOILS AREA FOR THIS PROJECT IS 12.95 ACRES

IMPERVIOUS SOIL AREA

EXISTING AREA OF IMPERVIOUS SURFACE IS 8.28 ACRES.
POST CONSTRUCTION AREA OF IMPERVIOUS SURFACE 8.46 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 REQUIRED TO 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 VEGATATION WILL BE ESTABLISHED ON THE STOCKPILED TOPSOIL BERMS WITH SEED MIXTURE 250, TYPE 3 FERTILIZER, AND DISK ANCHORED TYPE 1 MULCH AS PROVIDED IN THE PLAN. STOCKPILED TOPSOIL BERMS WILL NOT BE PLACED IN ANY STORMWATER CONVEYANCES.

AFTER STRIPING THE TOPSOIL THE EXPOSED SOIL INSLOPES WILL BE STABILIZED WITH DISK ANCHORED TYPE 1 MULCH WITHIN 14 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 THRESH HOLD REQUIREMENTS AND 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 LESS 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 14 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 BUST 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 DRAIN 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	HARRY GRAMS	763-862-4250
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 GRATER THEN 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 PREVENTION 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		1506, 1717, & 2573	
PROJECT SCHEDULE / WEEKLY EROSION & SEDIMENT CONTROL SCHEDULE / COMPLETING INSPECTION / MAINTENANCE LOG	AGENCY CONTACTS		1717 & 2573	1717 (AIR, LAND & WATER) 1717 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT)
SWPPP PREPARATION	AGENCY CONTACTS			
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		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		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		2575	2575 (RAPID STABILIZATION SPECIFICATION)
PERMANENT EROSION CONTROL DETAILS	EROSION CONTROL DETAILS		2575	2575 (CONTROLLING EROSION AND ESTABLISHING VEGETATION)

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Plan_20\0267820_SWPP_P1.dgn 04/16/2014 10:38:32 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:
DATE: 4-17-14 LICENSE NO. 24756

DRAWN BY NJD DATE 12/20/13
DESIGN BY NJD DATE 08/08/13
CHECKED BY GMP DATE 02/20/14

ANOKA COUNTY
ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

STORM WATER POLLUTION PREVENTION PLAN

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

Training

Individual revising or amending the SWPPP and individuals performing inspections must fill in the following table.

Name of on-site personel 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

2 OF 2

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Plan_20\0267820_SWPP_P1.dgn 04/16/2014 10:38:32 AM

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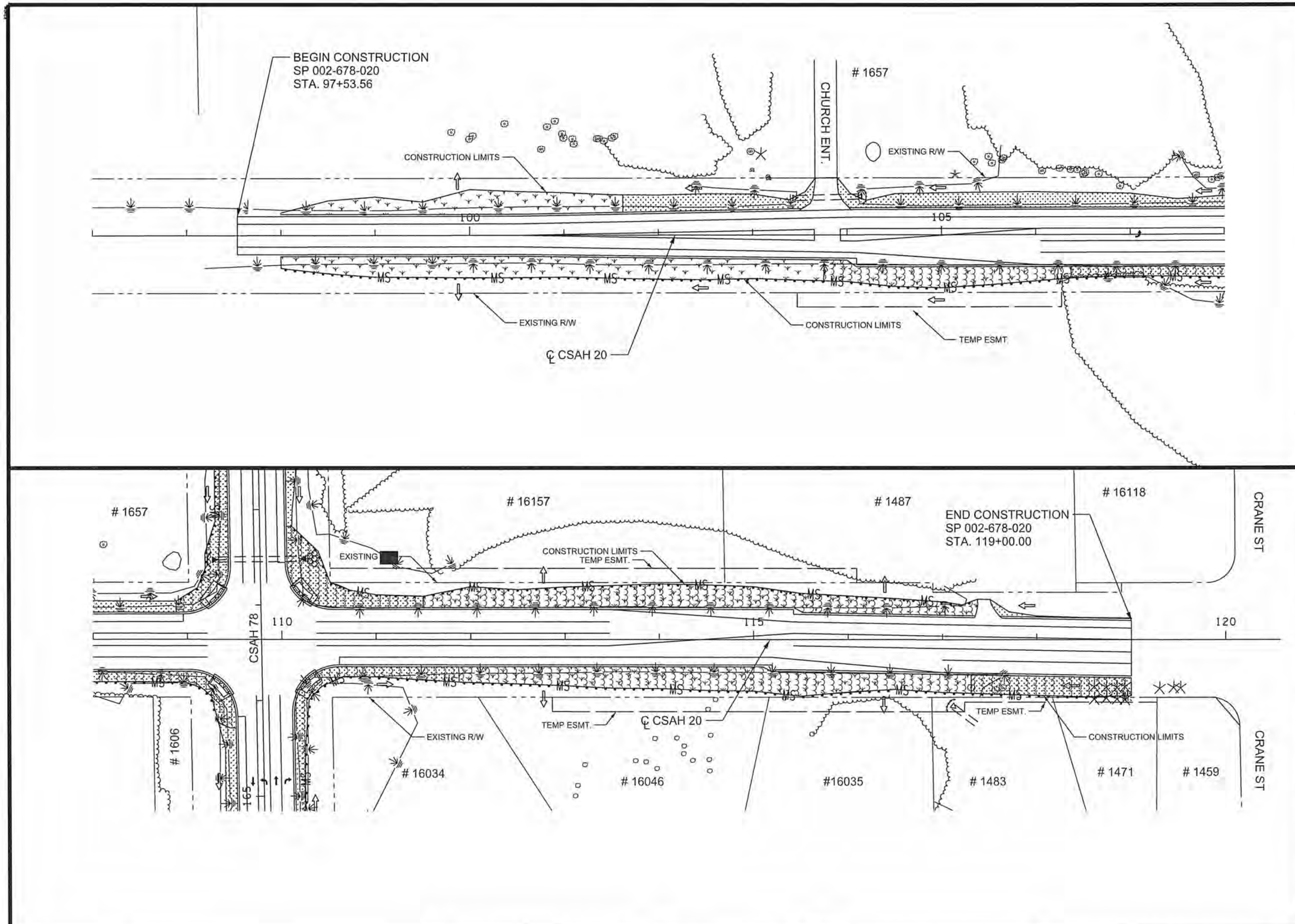
ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.P. 002-678-020

CITY OF ANDOVER S.A.P. 198-020-033

STORM WATER POLLUTION PREVENTION PLAN



LEGEND

- INPLACE APRON
- INPLACE CULVERT
- SILT FENCE TYPE MACHINE SLICED
- RIPRAP (CLASS II UNLESS OTHERWISE NOTED)
- CULVERT PROTECTION
- SURFACE FLOW ARROW
- WETLAND BOUNDARY
- SEEDING MIX (250) FERTILIZER 20-10-20 MULCH TYPE 1 DISK ANCHORED
- SEEDING MIX (250) EROSION CONTROL BLANKET CATEGORY 3 FERTILIZER 20-10-20 MULCH TYPE 1
- SEEDING MIX (310) FERTILIZER 23-0-30 MULCH TYPE 1 DISK ANCHORED
- SEEDING MIX (310) EROSION CONTROL BLANKET CATEGORY 3 FERTILIZER 23-0-30 MULCH TYPE 1

NOTE : ALL SEEDED AREAS NOT COVERED WITH EROSION CONTROL BLANKET SHALL BE MULCHED AND DISK ANCHORED.

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

4.) HEIGHT. 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.

0 100
SCALE IN FEET

1 OF 2

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Plan_20\0267820_EC20_tJ.dgn 04/16/2014 10:38:09 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: 4-17-14 LICENSE NO. 24756

DRAWN BY JF DATE 8/8/2013

DESIGN BY JF DATE 8/8/2013

CHECKED BY GMP DATE 02/20/14

ANOKA COUNTY

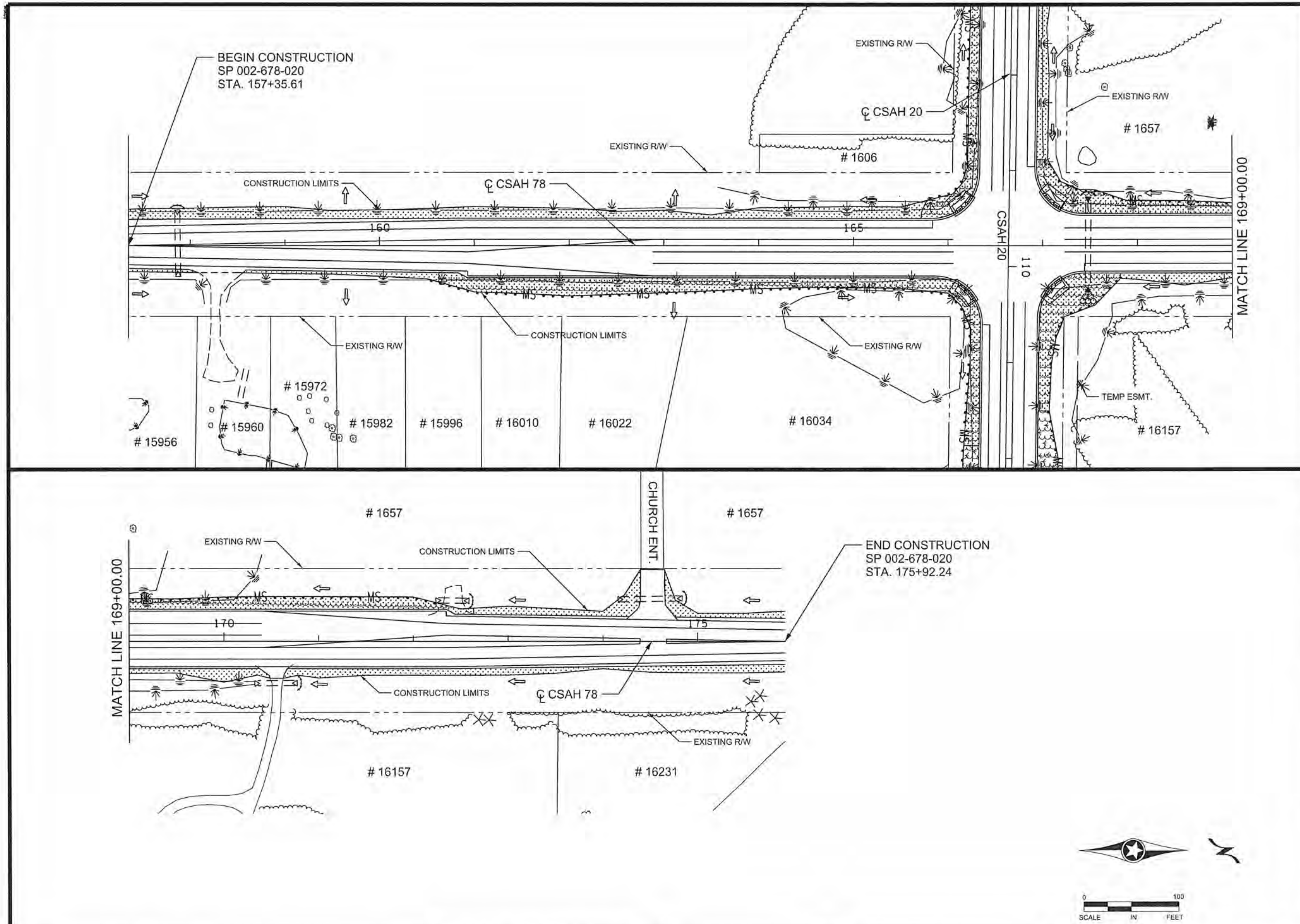
ANOKA COUNTY HIGHWAY DEPT.

ANOKA COUNTY S.P. 002-678-020

CITY OF ANDOVER S.A.P. 198-020-033

EROSION CONTROL PLAN
CSAH 20

STA 97+53.56 TO 119+00.00



LEGEND

- INPLACE APRON
- INPLACE CULVERT
- MS — SILT FENCE TYPE MACHINE SLICED
- RIPRAP (CLASS II UNLESS OTHERWISE NOTED)
- CULVERT PROTECTION
- SURFACE FLOW ARROW
- WETLAND BOUNDARY
- SEEDING MIX (250) FERTILIZER 20-10-20 MULCH TYPE 1 DISK ANCHORED
- SEEDING MIX (250) EROSION CONTROL BLANKET CATEGORY 3 FERTILIZER 20-10-20 MULCH TYPE 1
- SEEDING MIX (310) FERTILIZER 23-0-30 MULCH TYPE 1 DISK ANCHORED
- SEEDING MIX (310) EROSION CONTROL BLANKET CATEGORY 3 FERTILIZER 23-0-30 MULCH TYPE 1

NOTE : ALL SEEDED AREAS NOT COVERED WITH EROSION CONTROL BLANKET SHALL BE MULCHED AND DISK ANCHORED.

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

4.) HEIGHT. 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.

2 OF 2

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\02-678-20\Plan_20\0267820_EC20_2J.dgn 04/16/2014 10:38:12 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 Kobilarcsik

DATE: 4-17-14 LICENSE NO. 24756

DRAWN BY JF DATE 8/8/2013
DESIGN BY JF DATE 8/8/2013
CHECKED BY GMP DATE 02/20/14

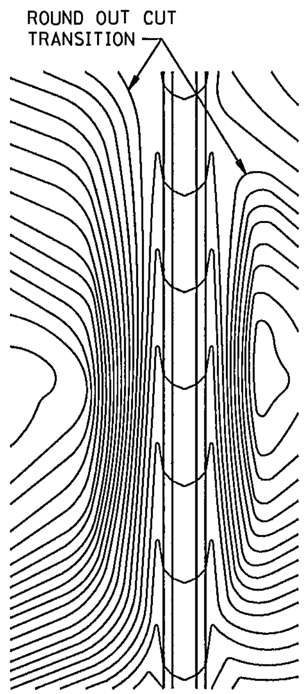
ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

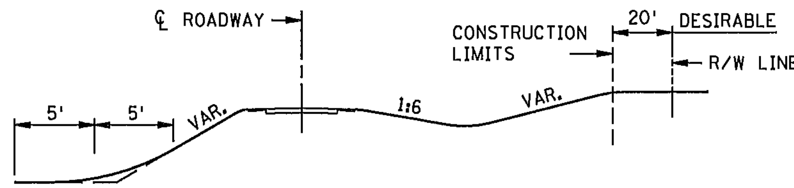
ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

EROSION CONTROL PLAN
CSAH 78

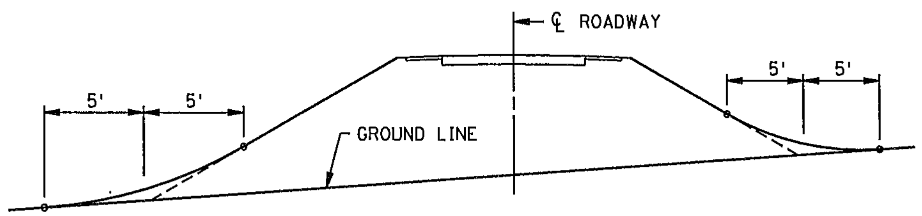
STA 157+35.61 TO 175+92.24



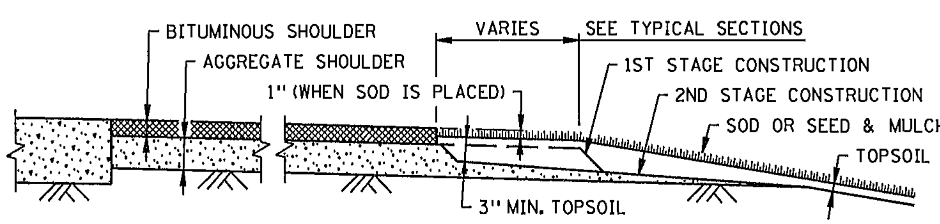
CONTOURING ROAD CUTS



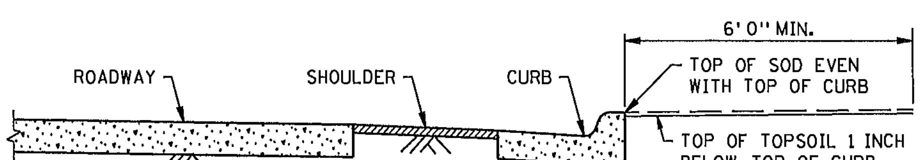
ROUNDING SHOULDERS AND BACKSLOPES



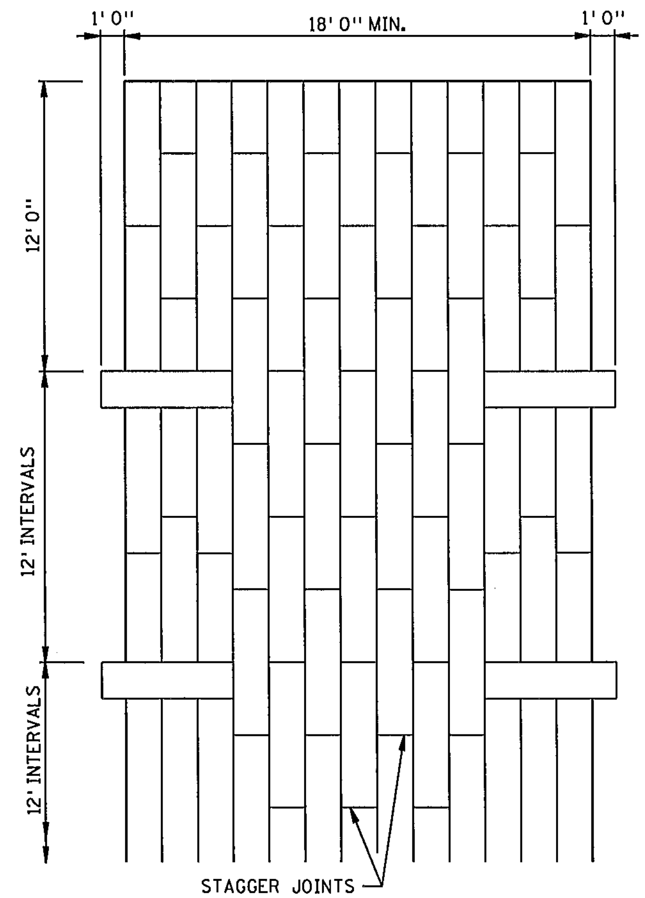
SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES



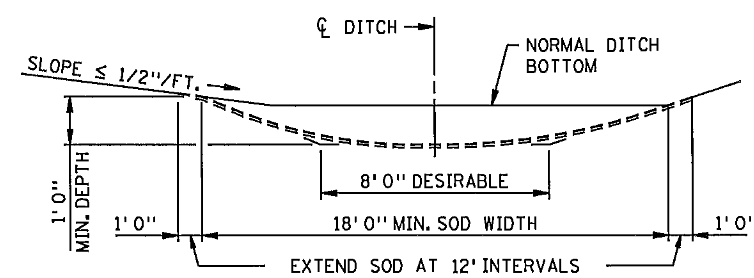
SHAPING AND TOPSOILING INSLOPES



SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED

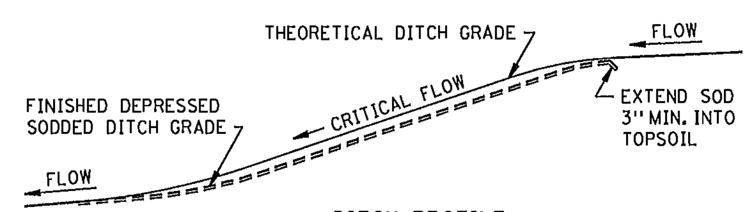


PLAN VIEW



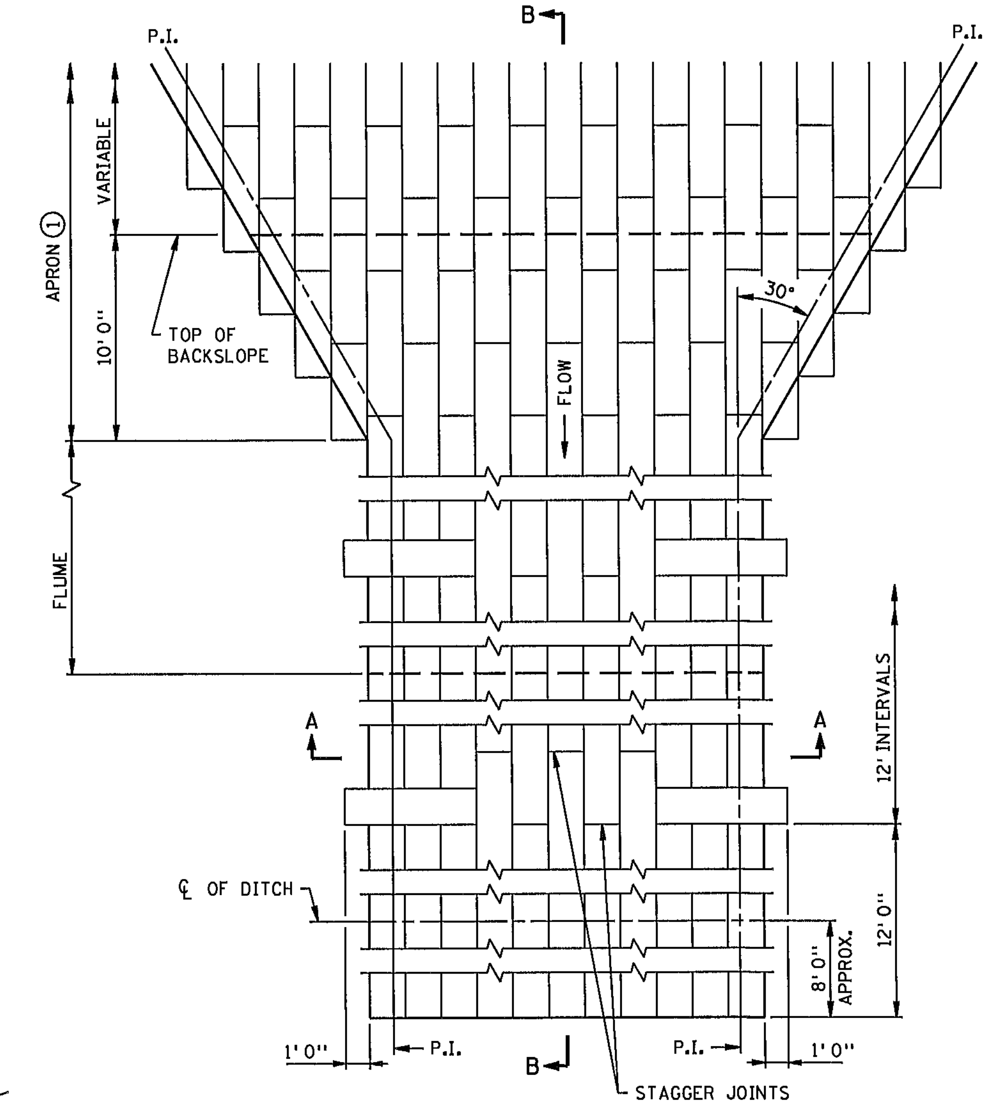
SODDED DITCH CROSS SECTION

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

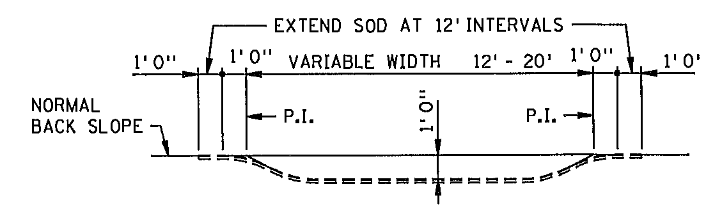


DITCH PROFILE

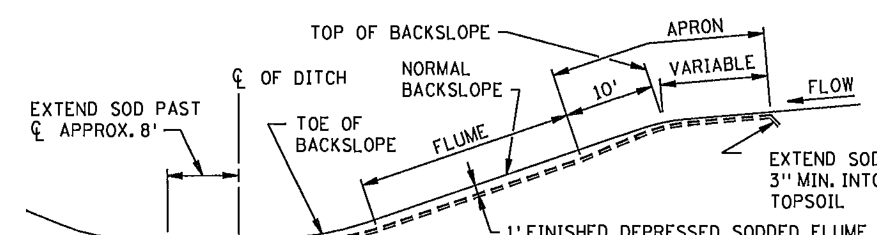
SODDED DITCH DETAILS



PLAN VIEW



SECTION A-A



SECTION B-B

SODDED FLUME DETAILS

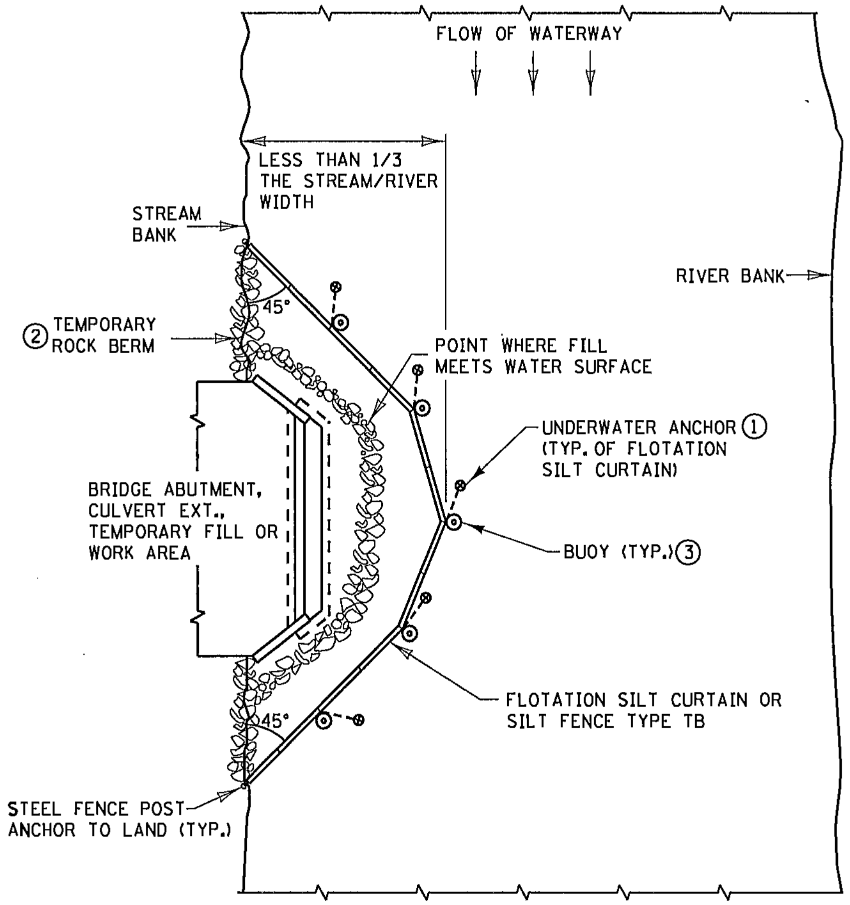
NOTES:

SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION.

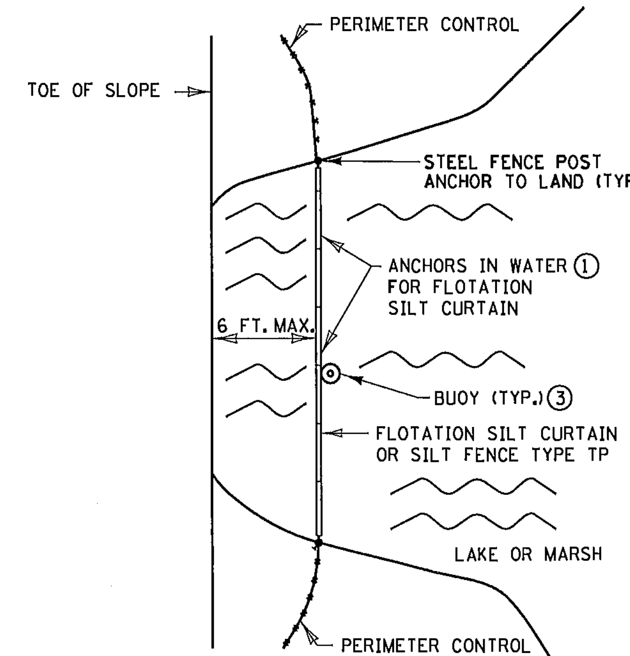
① CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.

STANDARD SHEET NO. 5-297.404	TITLE: PERMANENT EROSION CONTROL ALONG ROADWAYS, DITCHES AND FLUMES
STANDARD APPROVED: NOVEMBER 20, 2002	

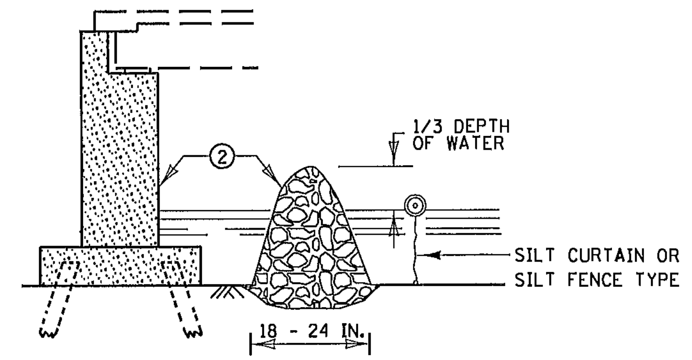
S.P. 002-678-020



PLAN VIEW FOR STREAM ⑤



PLAN VIEW FOR LAKE OR MARSH ⑤



TEMPORARY ROCK BERM
FOR SEDIMENT CONTROL

INSTALLATION GUIDELINES
SILT FENCE TYPE TB

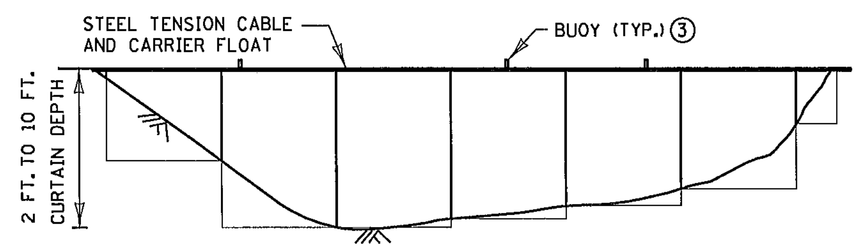
MINIMUM WATER DEPTH: 1 FT.
MAXIMUM WATER DEPTH: 3 FT.
MAXIMUM WATER VELOCITY: 5 FT./SEC.

INSTALLATION GUIDELINES ④
FLOTATION SILT CURTAIN
TYPE: STILL WATER

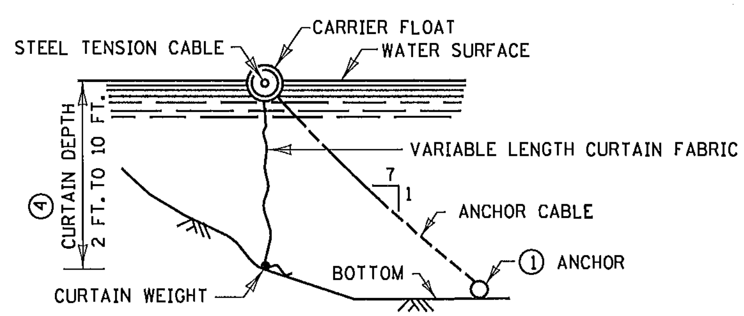
MINIMUM WATER DEPTH: 3 FT.
MAXIMUM WATER DEPTH: 10 FT.
MAXIMUM WATER VELOCITY: 2 FT./SEC.
MAXIMUM WAVE HEIGHT: 1 FT

INSTALLATION GUIDELINES ④
FLOTATION SILT CURTAIN
TYPE: MOVING WATER

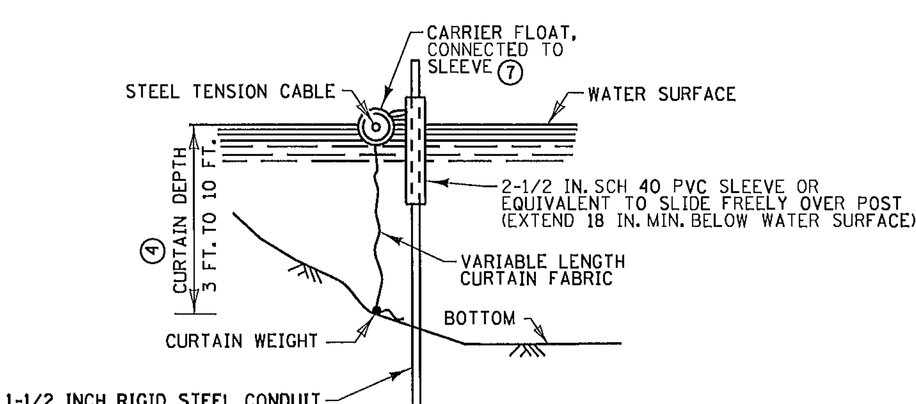
MINIMUM WATER DEPTH: 3 FT.
MAXIMUM WATER DEPTH: 10 FT.
MAXIMUM WATER VELOCITY: 5 FT./SEC.
MAXIMUM WAVE HEIGHT: 2 FT.



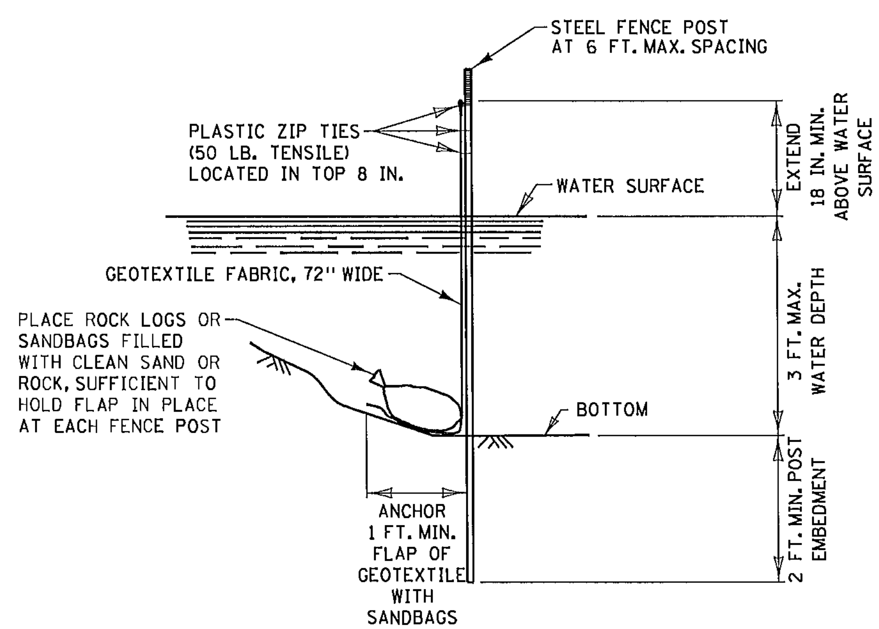
FRONT VIEW FOR FLOTATION SILT CURTAIN



FLOTATION SILT CURTAIN



ALTERNATE FLOTATION SILT CURTAIN



SILT FENCE TYPE TB ⑥

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.

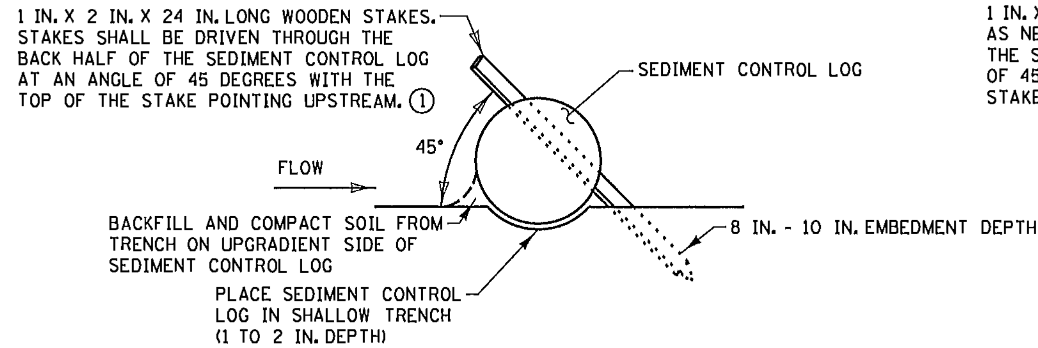
⑤ SILT CURTAIN SHOULD BE REMOVED WHEN THE AREA CONTRIBUTING DIRECT RUNOFF HAS BEEN TEMPORARILY OR PERMANENTLY STABILIZED. SILT CURTAIN SHOULD ALSO BE REMOVED BEFORE WINTER IF ICE UP OR ICE FLOW IS ANTICIPATED.

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.

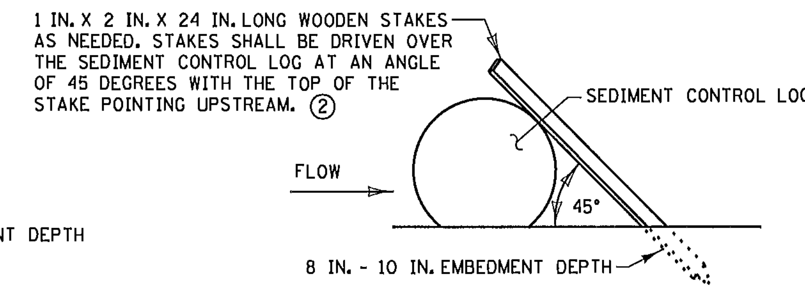
⑦ ANCHOR FLOAT MUST BE CONNECTED SECURELY TO SLEEVE WITH A MINIMUM TENSILE STRENGTH OF 100 LBS. CONNECTION METHOD MUST ALLOW FOR SLEEVE TO MOVE FREELY ON POST.

⑧ PROVIDE SUFFICIENT NUMBER OF POST ANCHORS TO MAINTAIN SILT CURTAIN POSITION.

STANDARD SHEET NO. 5-297.405 (1 OF 7)	TITLE: TEMPORARY SEDIMENT CONTROL SILT CURTAIN OR SILT FENCE TYPE TB
STANDARD APPROVED: DECEMBER 11, 2013	

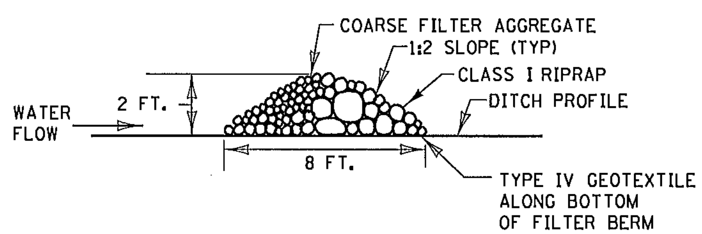


TYPES: STRAW, WOOD FIBER, OR COIR

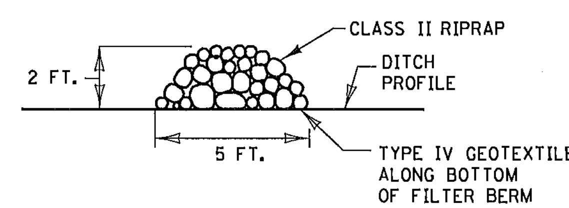


TYPES: WOOD CHIP, COMPOST, OR ROCK

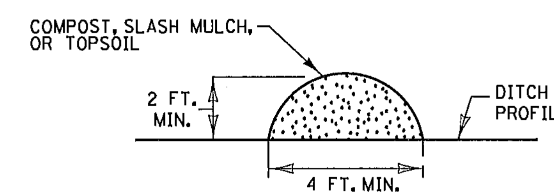
SEDIMENT CONTROL LOGS



TYPE 3 (ROCK WEEPER)

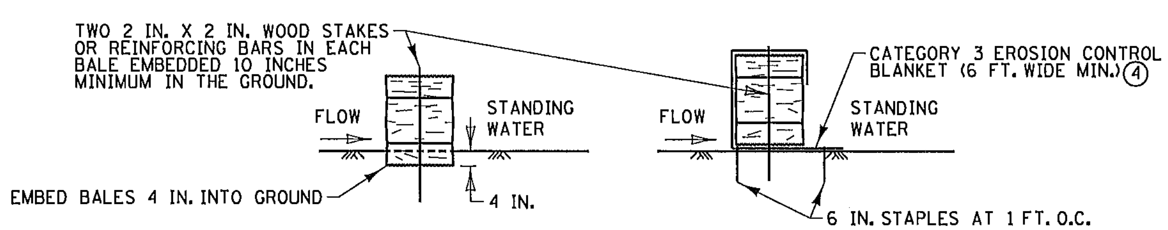


TYPE 5 (ROCK)



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

FILTER BERMS



EMBEDMENT METHOD

BLANKET METHOD (ALTERNATE)

BALE BARRIERS (3)

NOTES:

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

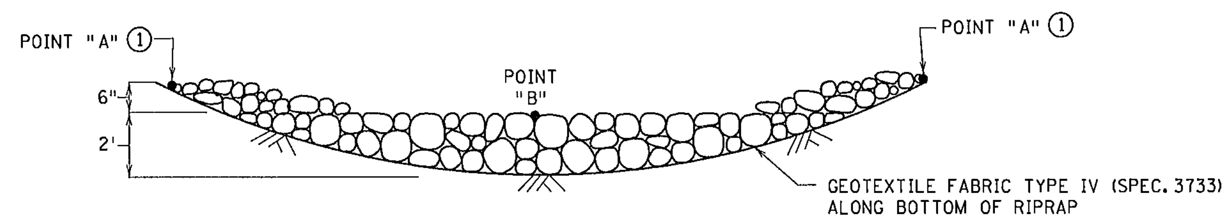
(1) SPACE BETWEEN STAKES SHALL BE A MAXIMUM OF 1 FOOT FOR DITCH CHECKS OR 2 FEET FOR OTHER APPLICATIONS.

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

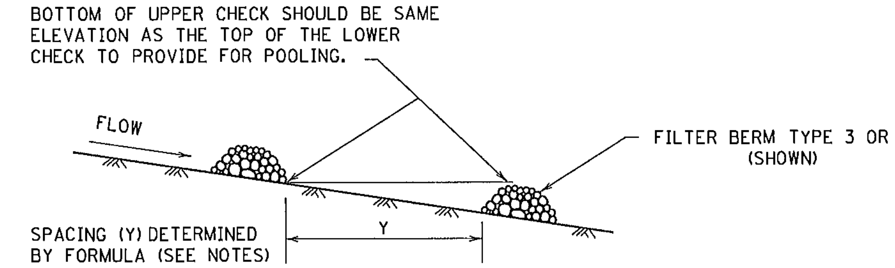
(3) TO BE USED FOR CRITICAL PERIMETER CONTROL AREAS WHERE STANDING WATER OCCURS (6 INCH MAX. DEPTH). BALES SHALL CONSIST OF TYPE 1 MULCH OF APPROXIMATELY 14 IN. X 18 IN. X 36 IN. LONG. BALES SHALL BE PLACED ON EDGE AND BUTTED TIGHT TO ADJACENT BALES.

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

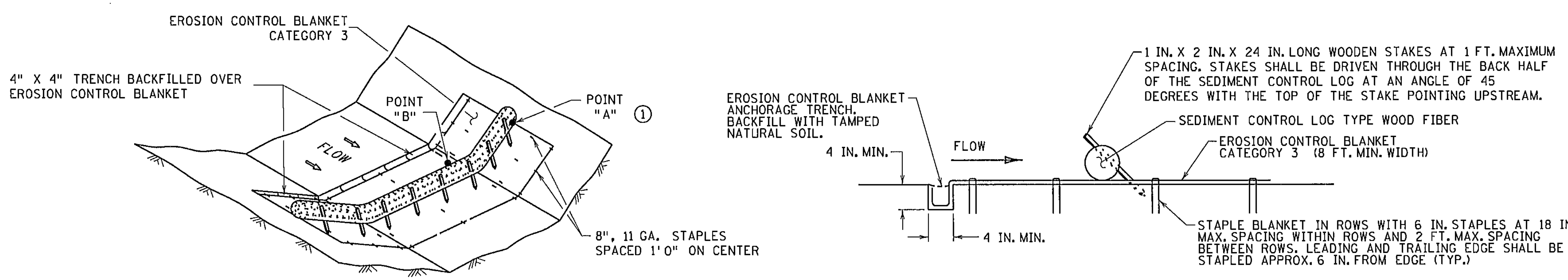
STANDARD SHEET NO. 5-297.405 (2 OF 7)	TEMPORARY SEDIMENT CONTROL FILTER BERMS, SEDIMENT CONTROL LOGS, AND BALE BARRIERS
STANDARD APPROVED: DECEMBER 11, 2013	



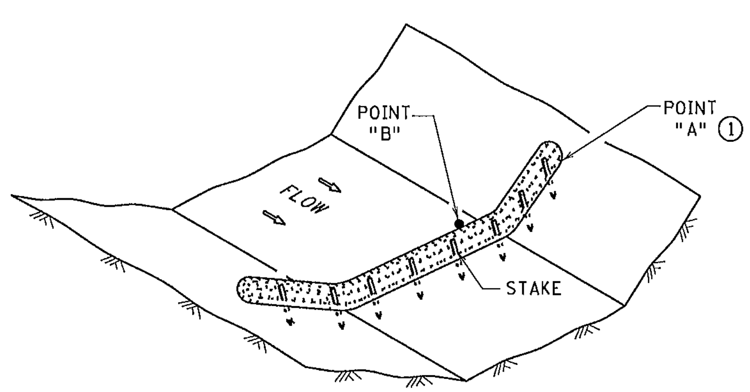
ROCK DITCH CHECKS
FILTER BERMS TYPE 3 (ROCK WEEPER) OR FILTER TYPE 5 (ROCK) ②③
(FOR USE ON ROUGH GRADED AREAS)



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.

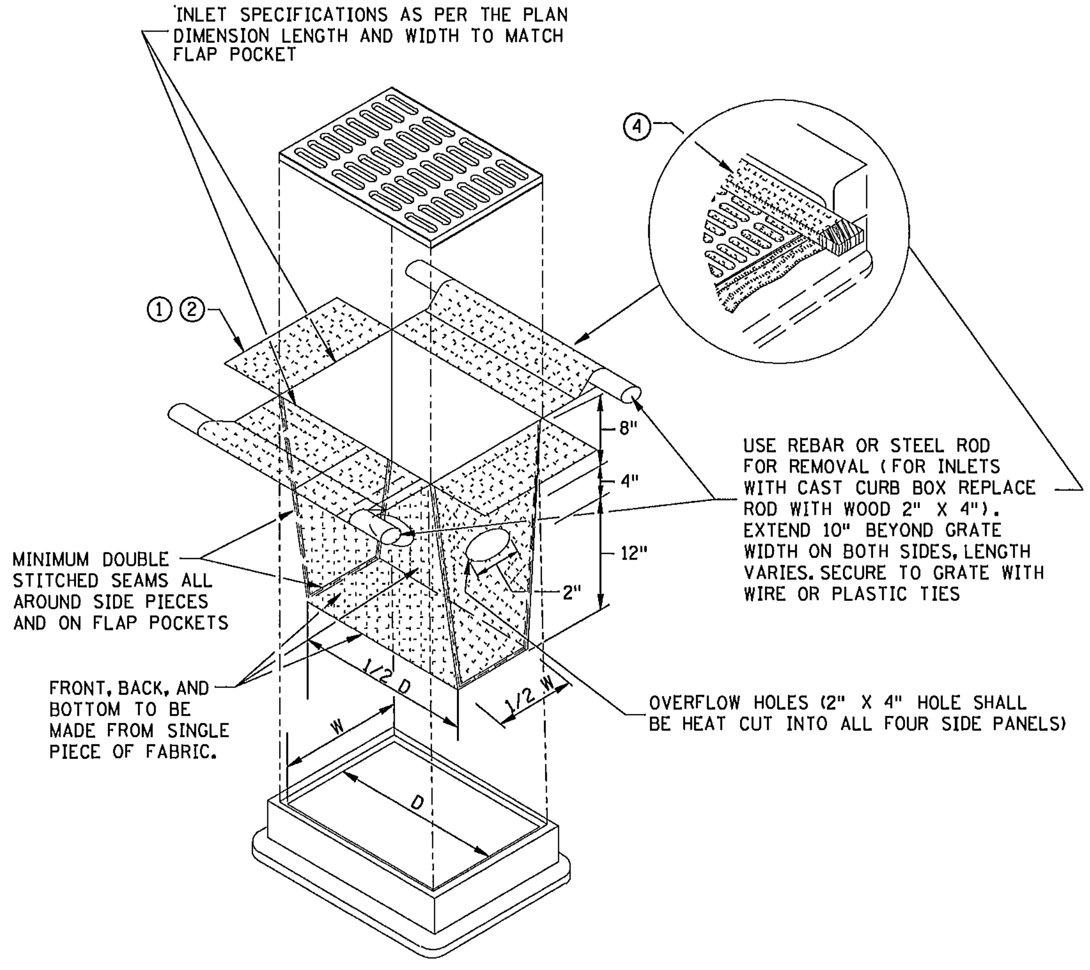
② PERMANENT ROCK DITCH CHECKS PLACED WITHIN THE CLEAR ZONE ARE TO BE 18" OR LESS IN HEIGHT. A 1:6 APPROACH AND DEPARTURE SLOPE SHALL BE PROVIDED.

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

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

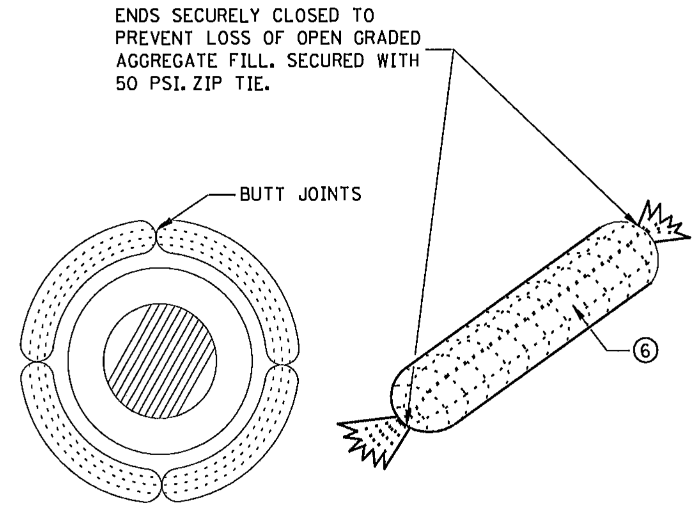
⑤ DITCH GRADE 1.5% - 3%, MAX. FLOW VELOCITY 1.5 FT./SEC..

STANDARD SHEET NO. 5-297.405 (3 OF 7)	TEMPORARY SEDIMENT CONTROL DITCH CHECK
STANDARD APPROVED: DECEMBER 11, 2013	
S.P. 002-678-020	SHEET NO. 95 OF 111 SHEETS

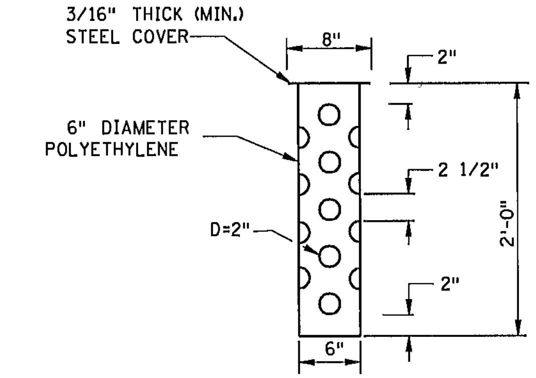


FILTER BAG INSERT ③

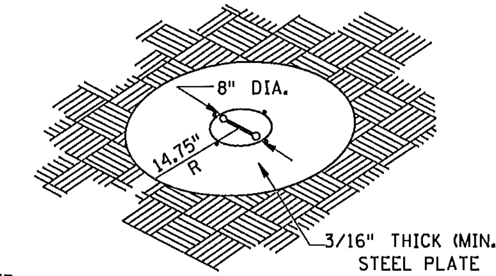
(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX)



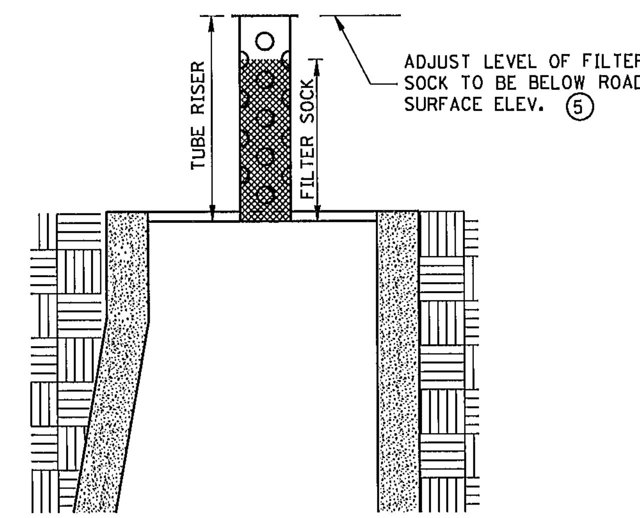
ROCK LOG/COMPOST LOG



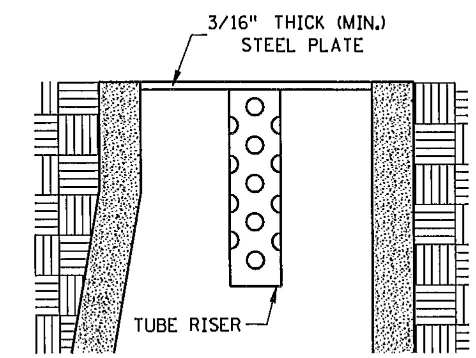
TUBE RISER



PERSPECTIVE VIEW

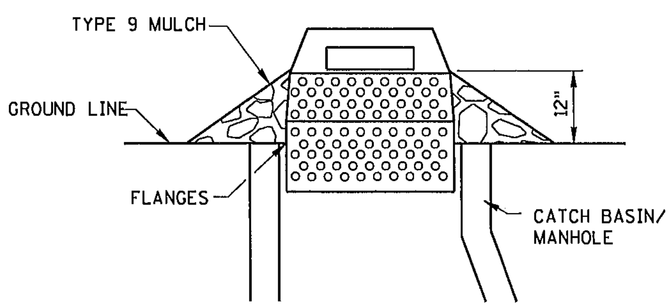


SECTION
(UP POSITION)



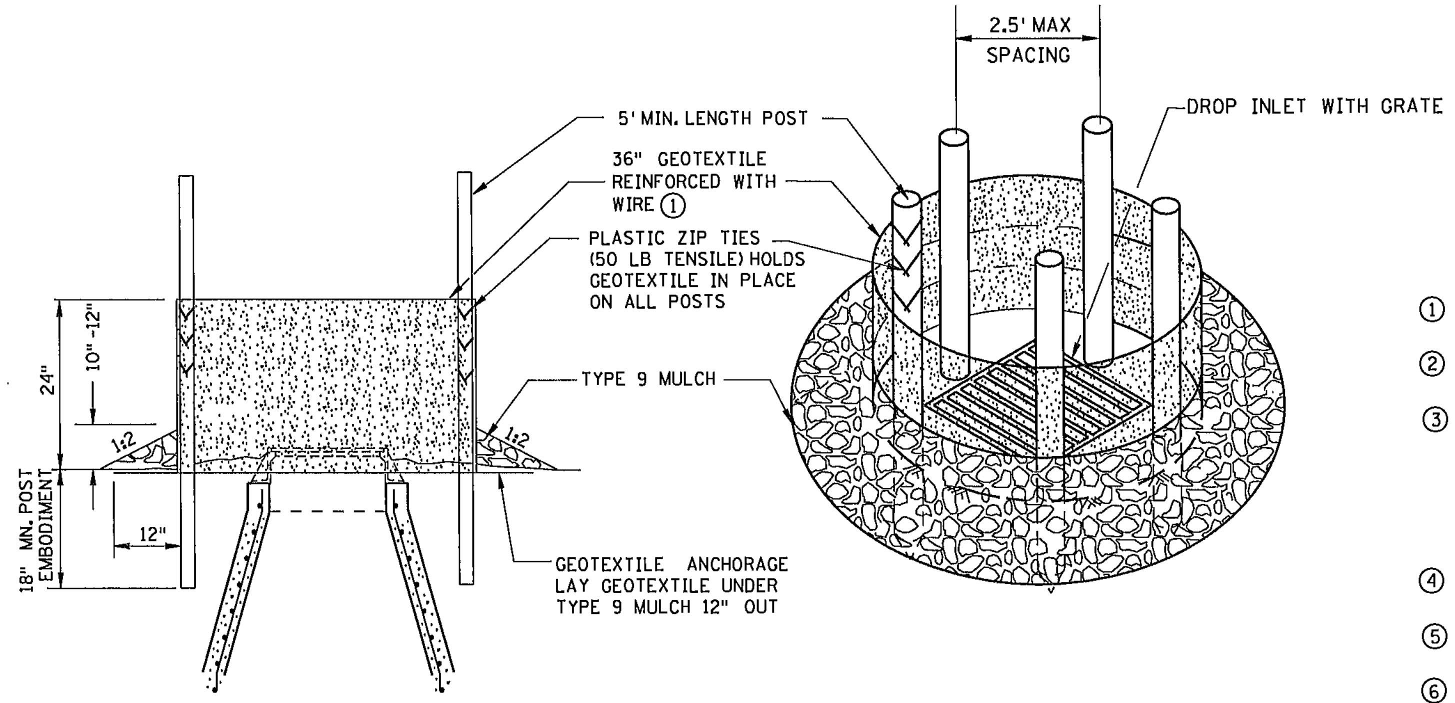
SECTION
(DOWN POSITION)

POP-UP HEAD



SEDIMENT CONTROL INLET HAT

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



SILT FENCE RING AND ROCK FILTER BERM

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

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.

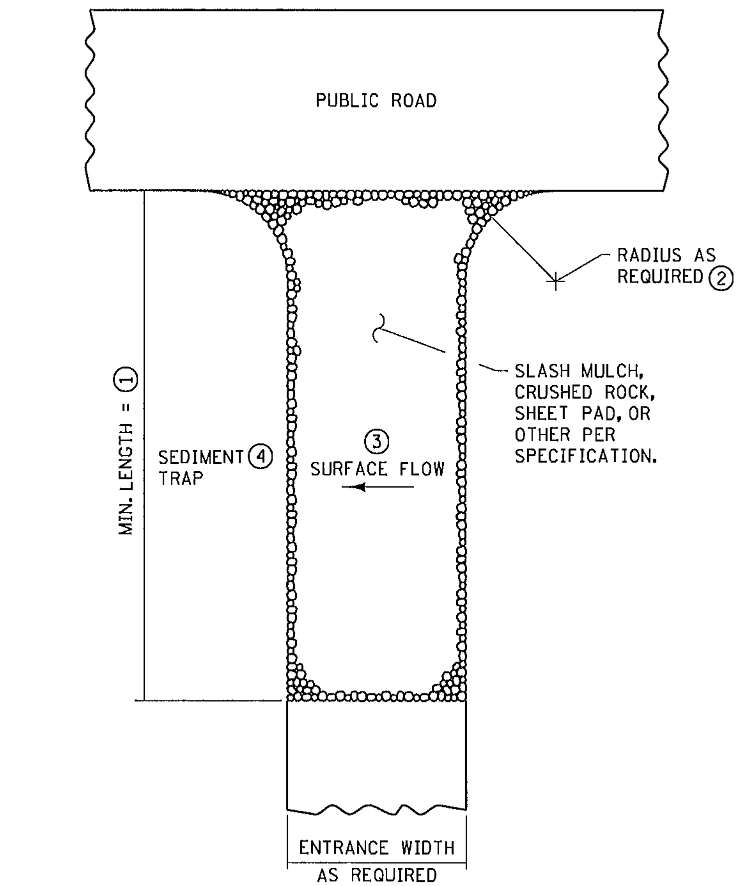
③ INSTALLATION NOTES:
DO NOT PLACE FILTER BAG INSERT IN INLETS SHALLOWER THAN 30 INCHES, MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE. THE PLACED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE OF 3 INCHES BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES. WHERE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

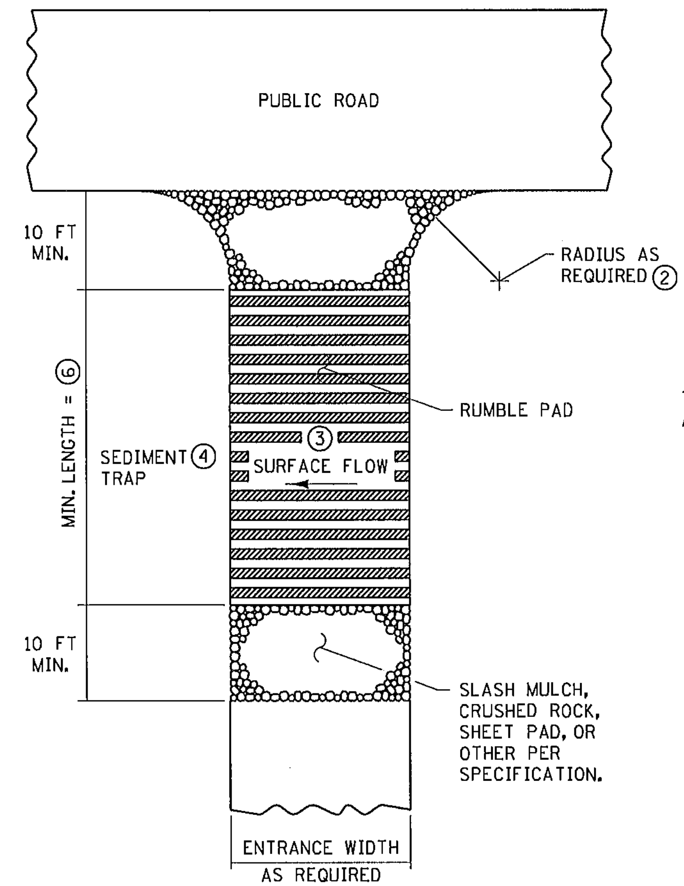
⑤ SOCK HEIGHT MUST NOT BE SO HIGH AS TO SLOW DOWN WATER FILTRATION TO CAUSE FLOODING OF THE ROADWAY.

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.

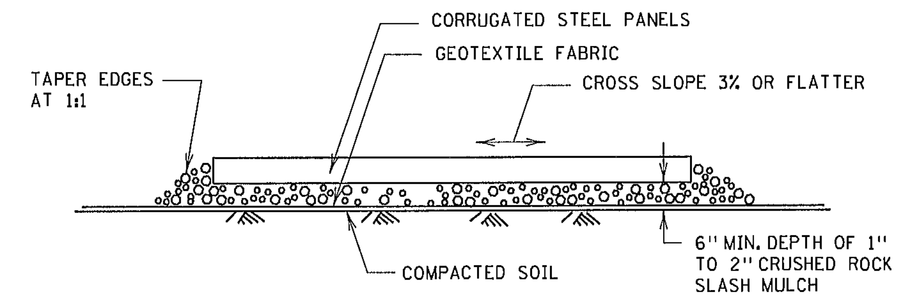
STANDARD SHEET NO. 5-297.405 (4 OF 7)	TITLE: TEMPORARY SEDIMENT CONTROL STORM DRAIN INLET PROTECTION
STANDARD APPROVED: DECEMBER 11, 2013	
S.P. 002-678-020	SHEET NO. 96 OF 111 SHEETS



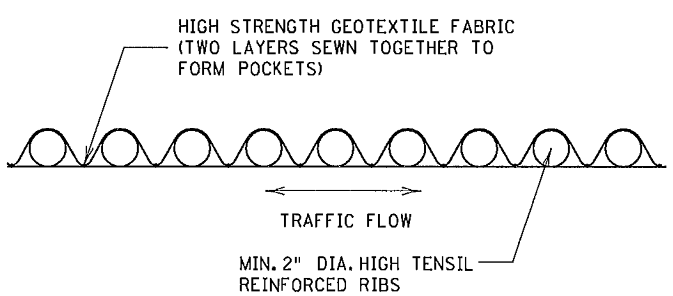
SLASH MULCH, CRUSHED ROCK, OR SHEET PAD CONSTRUCTION EXIT ⑤⑦



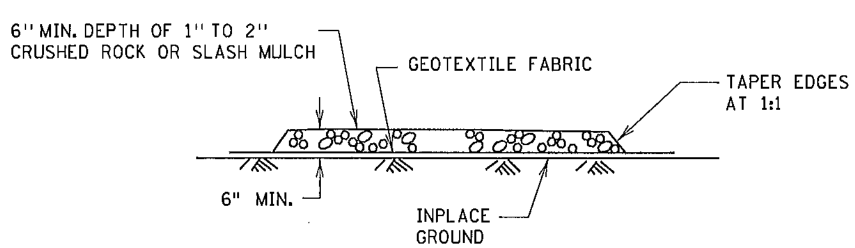
RUMBLE PAD CONSTRUCTION EXIT ⑤⑦



RUMBLE PAD



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.

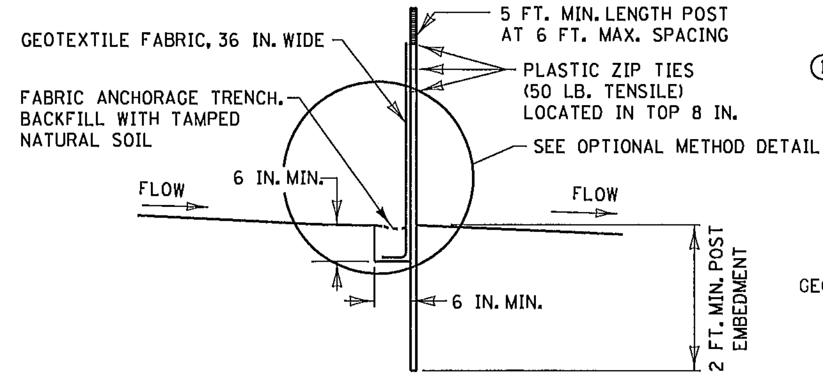
③ IF RUNOFF FROM DISTURBED AREAS FLOWS TOWARD CONSTRUCTION EXITS, PREVENT RUNOFF FROM DRAINING DIRECTLY TO PUBLIC ROAD OVER CONSTRUCTION EXIT BY CROWNING THE EXIT OR SLOPING TO ONE SIDE. IF SURFACE GRADING IS INSUFFICIENT, PROVIDE OTHER MEANS OF INTERCEPTING RUNOFF.

④ IF RUNOFF FROM CONSTRUCTION EXITS WILL DRAIN OFF OF PROJECT SITE, PROVIDE SEDIMENT TRAP WITH STABILIZED OVERFLOW.

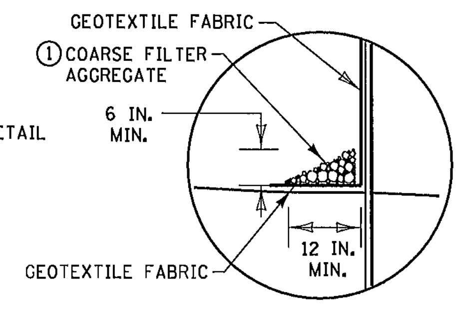
⑤ IF A TIRE WASH OFF IS REQUIRED THE CONSTRUCTION EXITS SHALL BE GRADED TO DRAIN THE WASH WATER TO A SEDIMENT TRAP.

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.

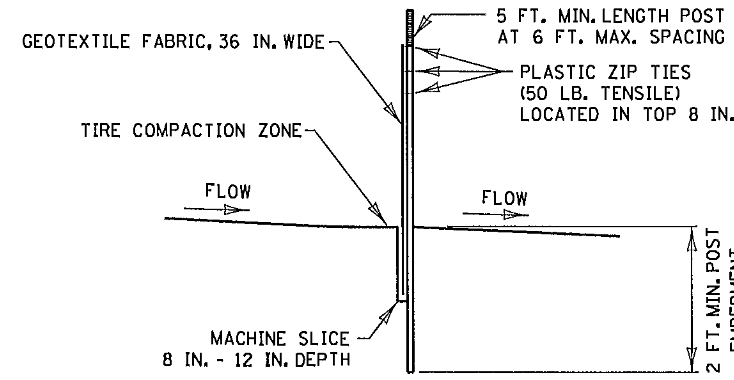
⑦ MAINTENANCE OF CONSTRUCTION EXITS SHALL OCCUR WHEN THE EFFECTIVENESS OF SEDIMENT REMOVAL HAS BEEN REDUCED. MAINTENANCE SHALL CONSIST OF REMOVING SEDIMENT AND CLEANING THE MATERIALS OR PLACING ADDITIONAL MATERIAL (SLASH MULCH OR CRUSHED ROCK) OVER SEDIMENT FILLED MATERIAL TO RESTORE EFFECTIVENESS.



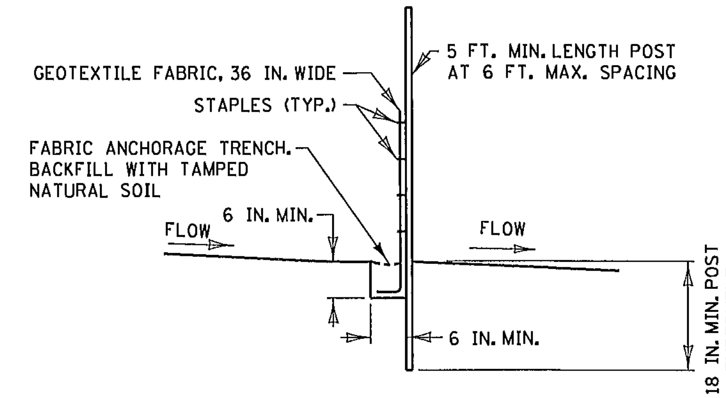
SILT FENCE TYPE HI ②
(HAND INSTALLED)



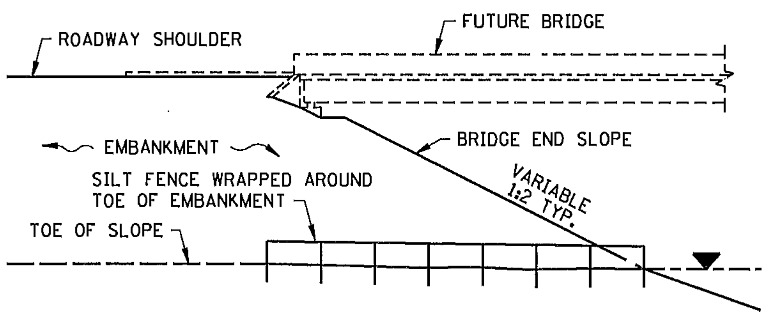
OPTIONAL METHOD



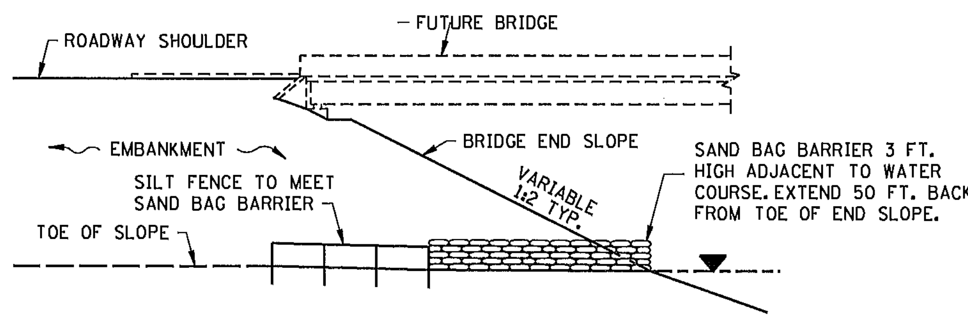
SILT FENCE TYPE MS ②
(MACHINE SLICED)



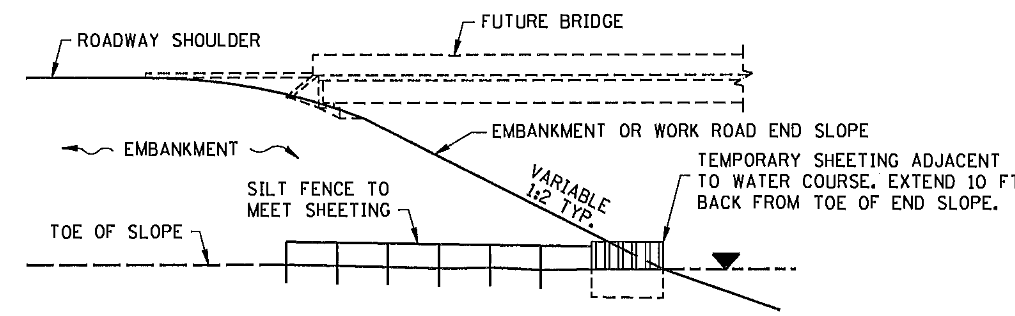
SILT FENCE TYPE PA ③
(PREASSEMBLED)



SILT FENCE ONLY ④

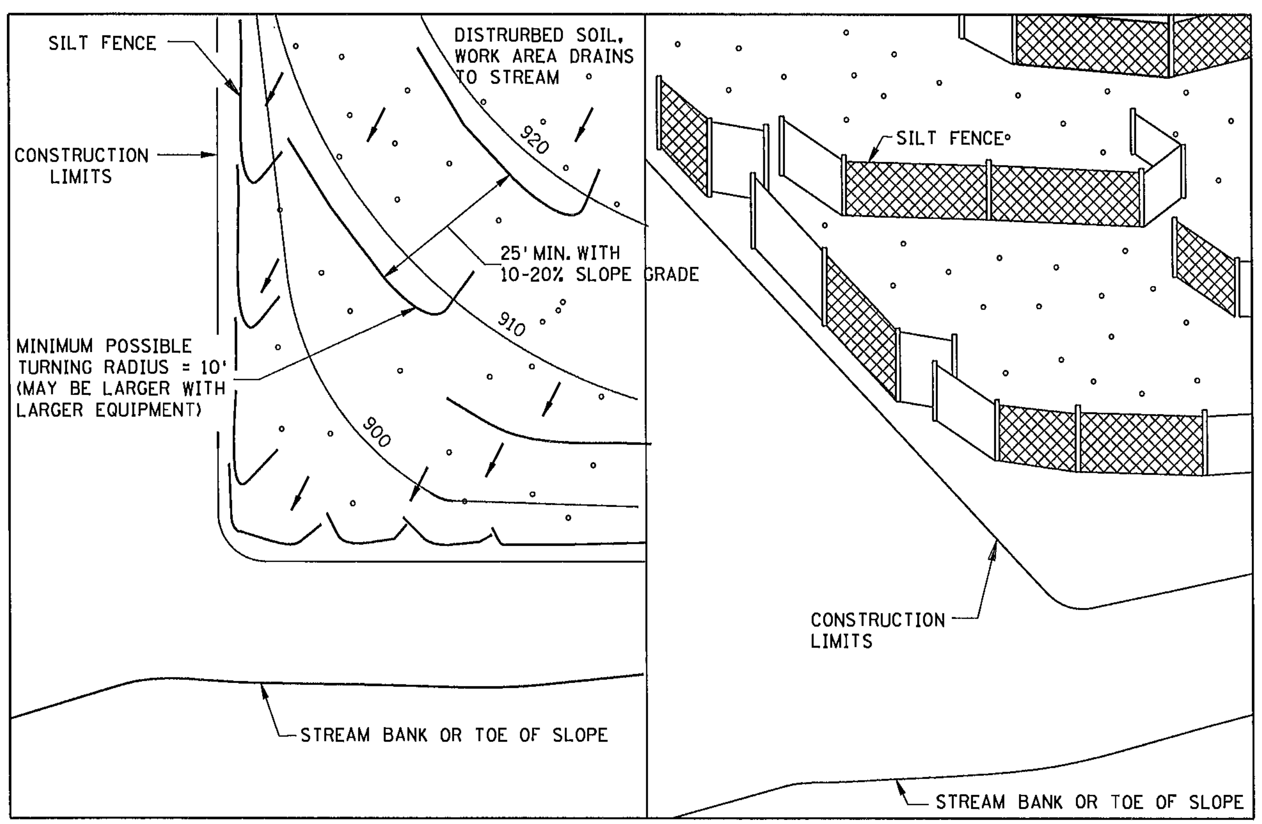


SILT FENCE WITH SAND BAGS ⑤



SILT FENCE WITH SHEETING ⑥

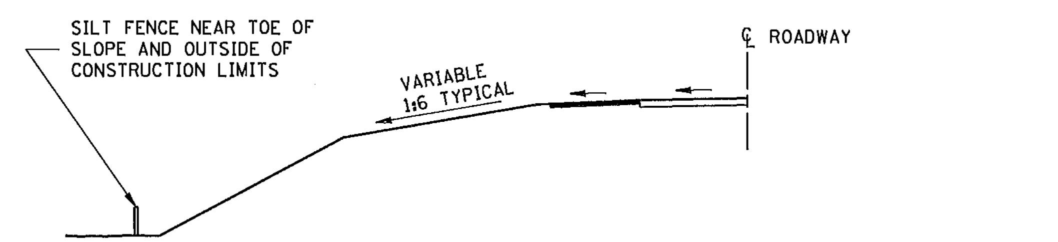
INSTALLATION AT BRIDGE EMBANKMENT ADJACENT TO WATER



PLAN VIEW

PERSPECTIVE VIEW

J-HOOK INSTALLATION



LOCATION AT TOE OF ROADWAY EMBANKMENT

NOTES:

SEE SPECS. 2573, 3149 & 3886.

① COARSE FILTER AGGREGATE (SPEC. 3149) SHALL BE INCIDENTAL.

② TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 1 ACRE.

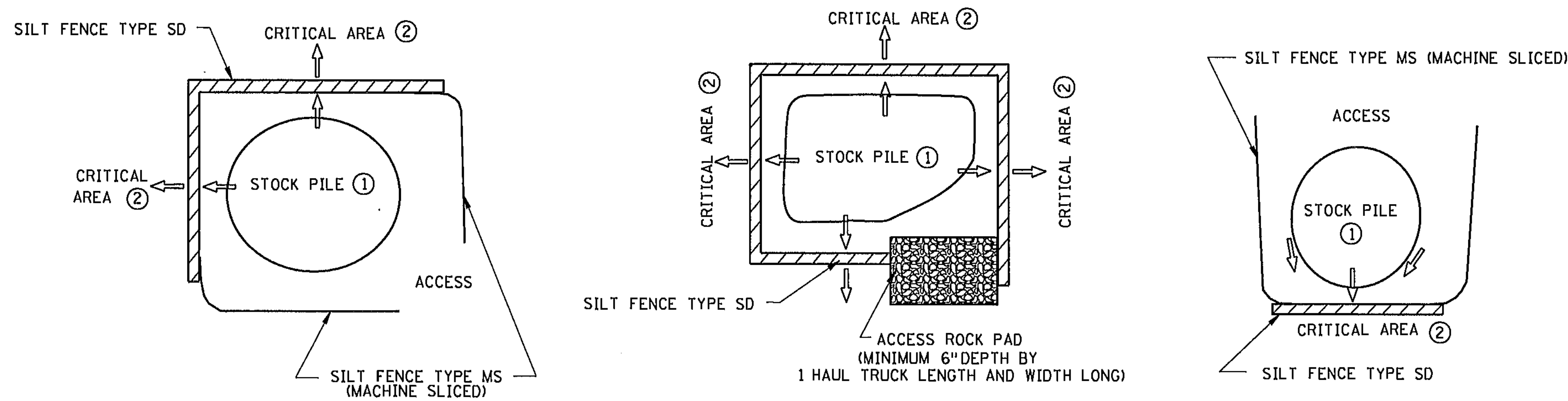
③ TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 0.25 ACRE.

④ WATER COURSE FLOW VELOCITY: STANDING.
CONTRIBUTING SLOPE AREA: 1./2 ACRE.

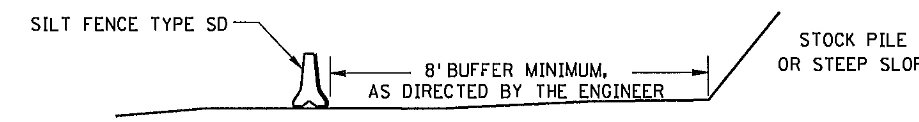
⑤ WATER COURSE FLOW VELOCITY: 1 TO 7 FT./SEC.
CONTRIBUTING SLOPE AREA: 1. ACRE.

⑥ WATER COURSE FLOW VELOCITY: 8 TO 15 FT./SEC.
CONTRIBUTING SLOPE AREA: 3 ACRES.

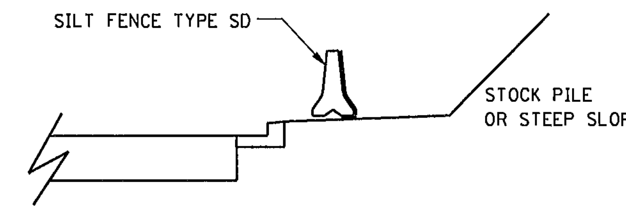
STANDARD SHEET NO. 5-297.405 (6 OF 7)	TITLE: TEMPORARY SEDIMENT CONTROL SILT FENCE
STANDARD APPROVED: DECEMBER 11, 2013	



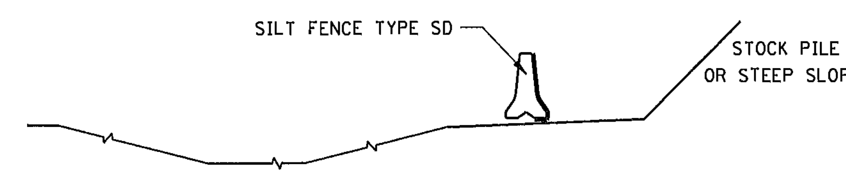
STOCK PILE CONTAINMENT



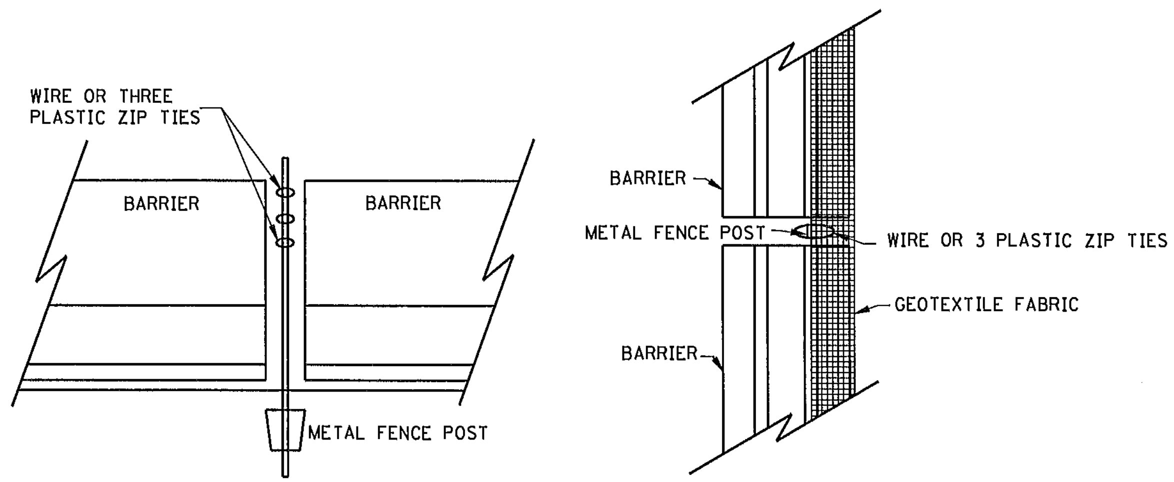
STOCKPILE SEDIMENT CONTROL



CURB AND GUTTER PROTECTION SYSTEM



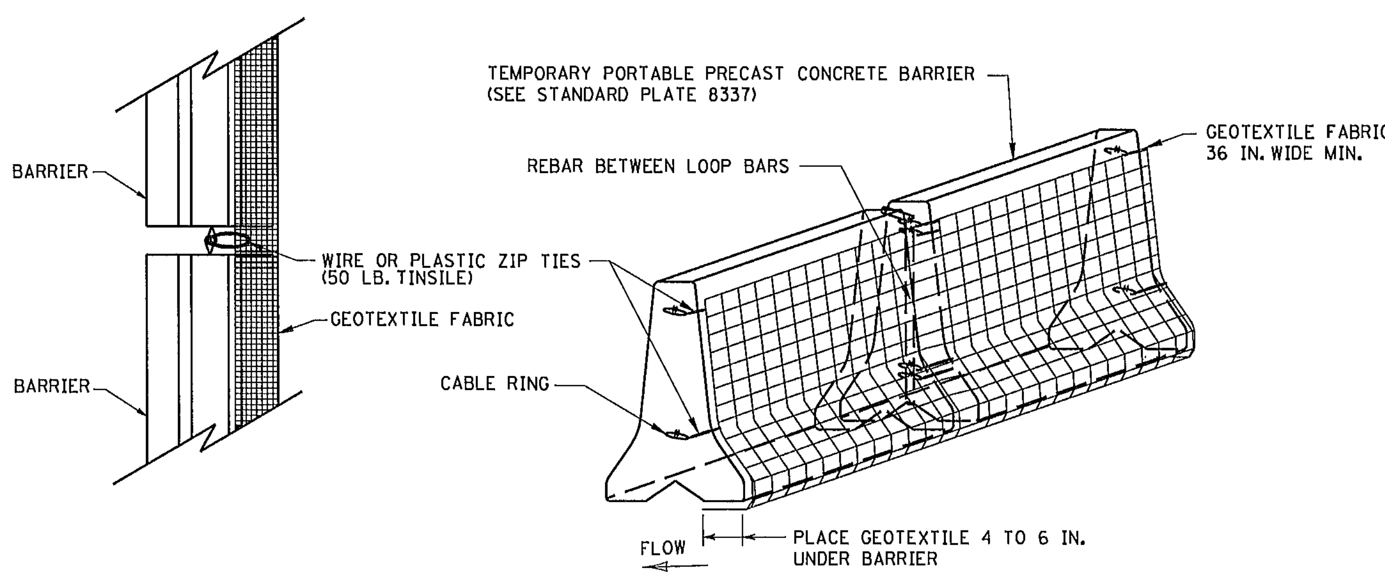
DITCH PROTECTION SYSTEM



PROFILE VIEW

TOP VIEW

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



TOP VIEW

PERSPECTIVE VIEW

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

NOTES:

SEE SPECS. 2533, 2573 & 3886.

SILT FENCE TYPE SD USED TO PROTECT CRITICAL AREAS FROM SHEET FLOW, AND AREAS WHERE OTHER SILT FENCES CANNOT BE INSTALLED. MAXIMUM CONTRIBUTING AREA: 1 ACRE.

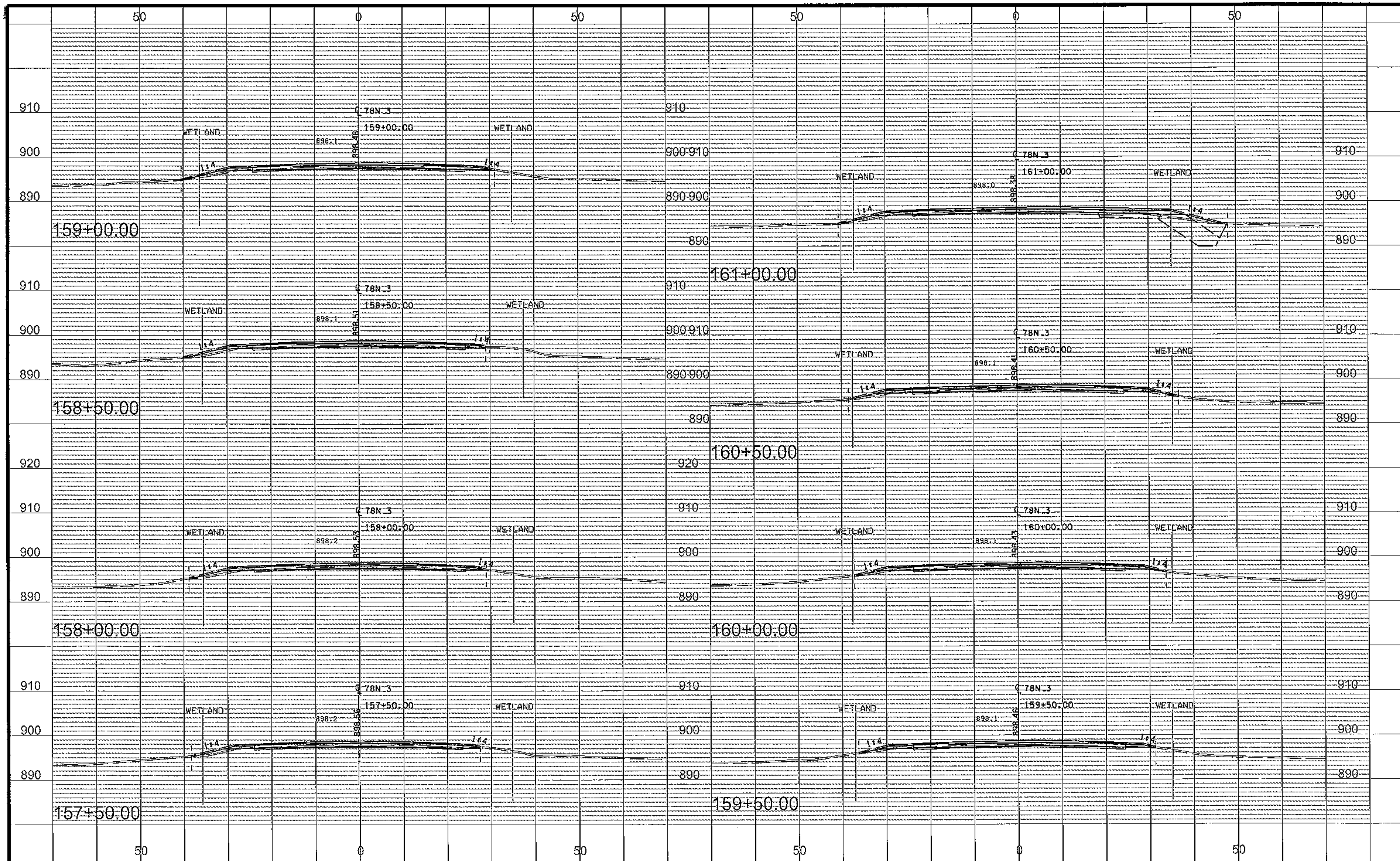
PLACE SILT FENCE TYPE SD ALONG A CONSTANT ELEVATION.

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)	TITLE: TEMPORARY SEDIMENT CONTROL SUPER DUTY SILT FENCE
STANDARD APPROVED: DECEMBER 11, 2013	
S.P. 002-678-020	SHEET NO. 99 OF 111 SHEETS



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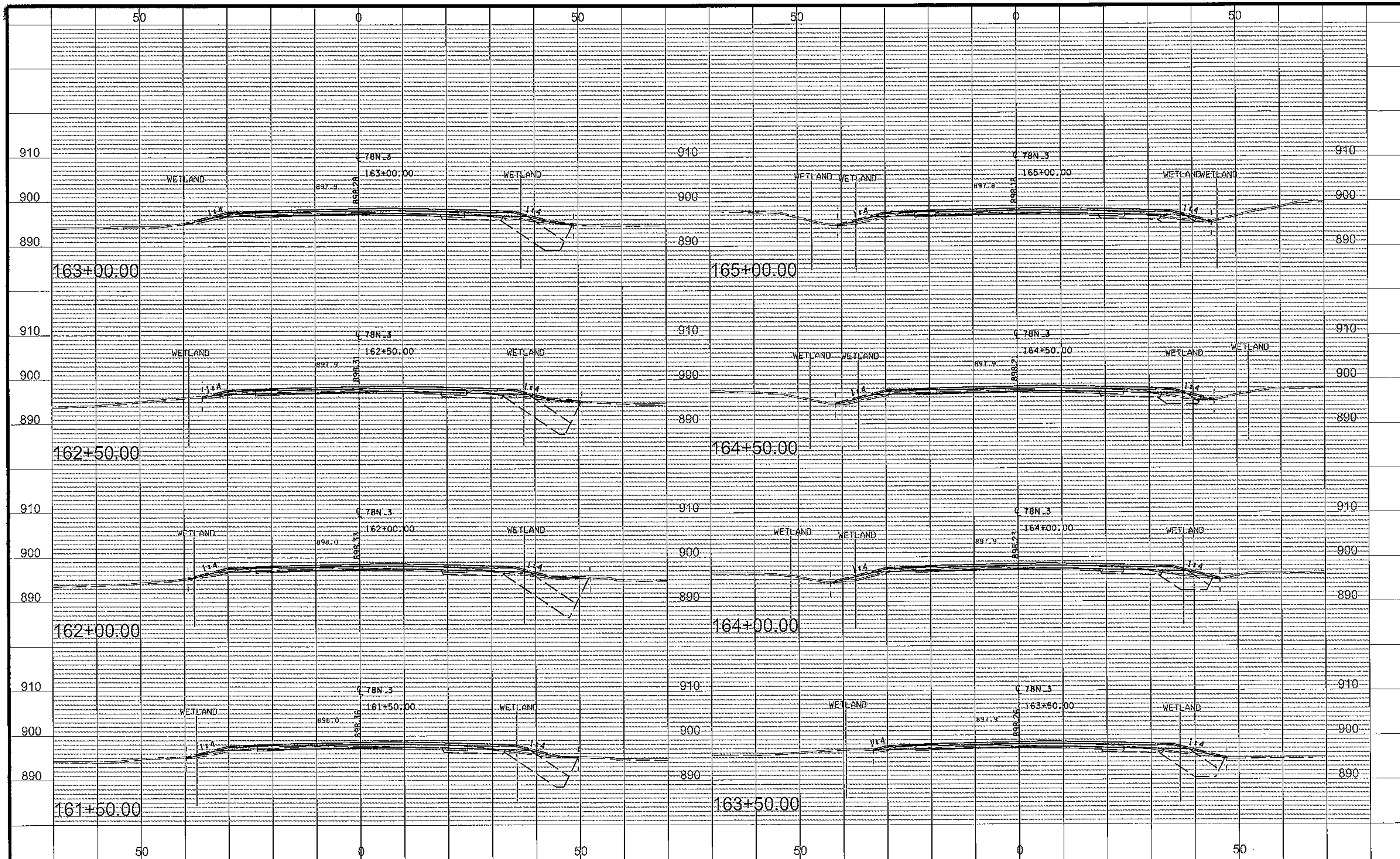
CITY OF ANDOVER S.A.P. 198-020-033

CROSS SECTIONS
CSAH 78
STA 157+50 TO STA 161+00

Sheet 100 of 111 Sheets



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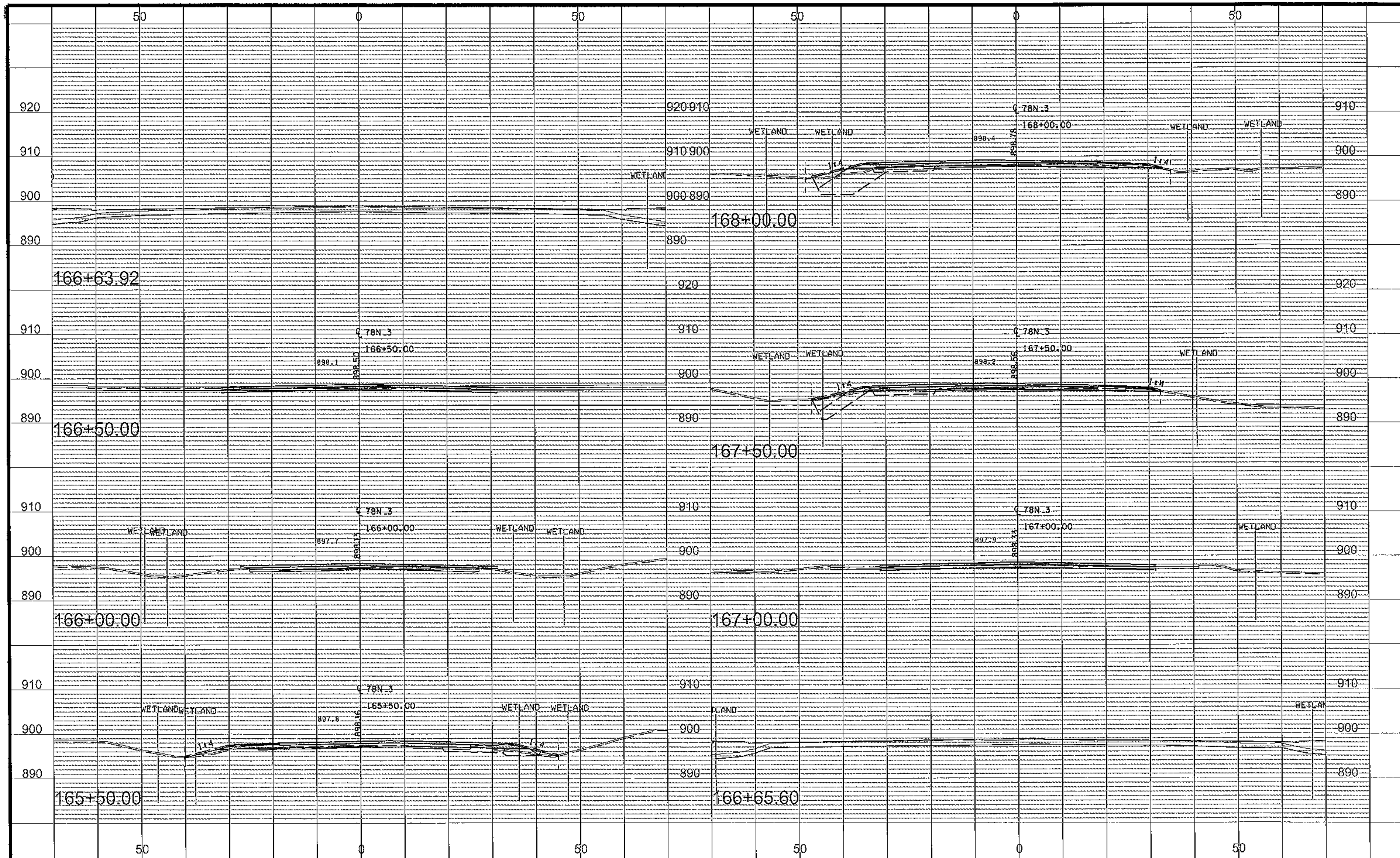
CROSS SECTIONS
CSAH 78
STA 161+50 TO STA 165+00



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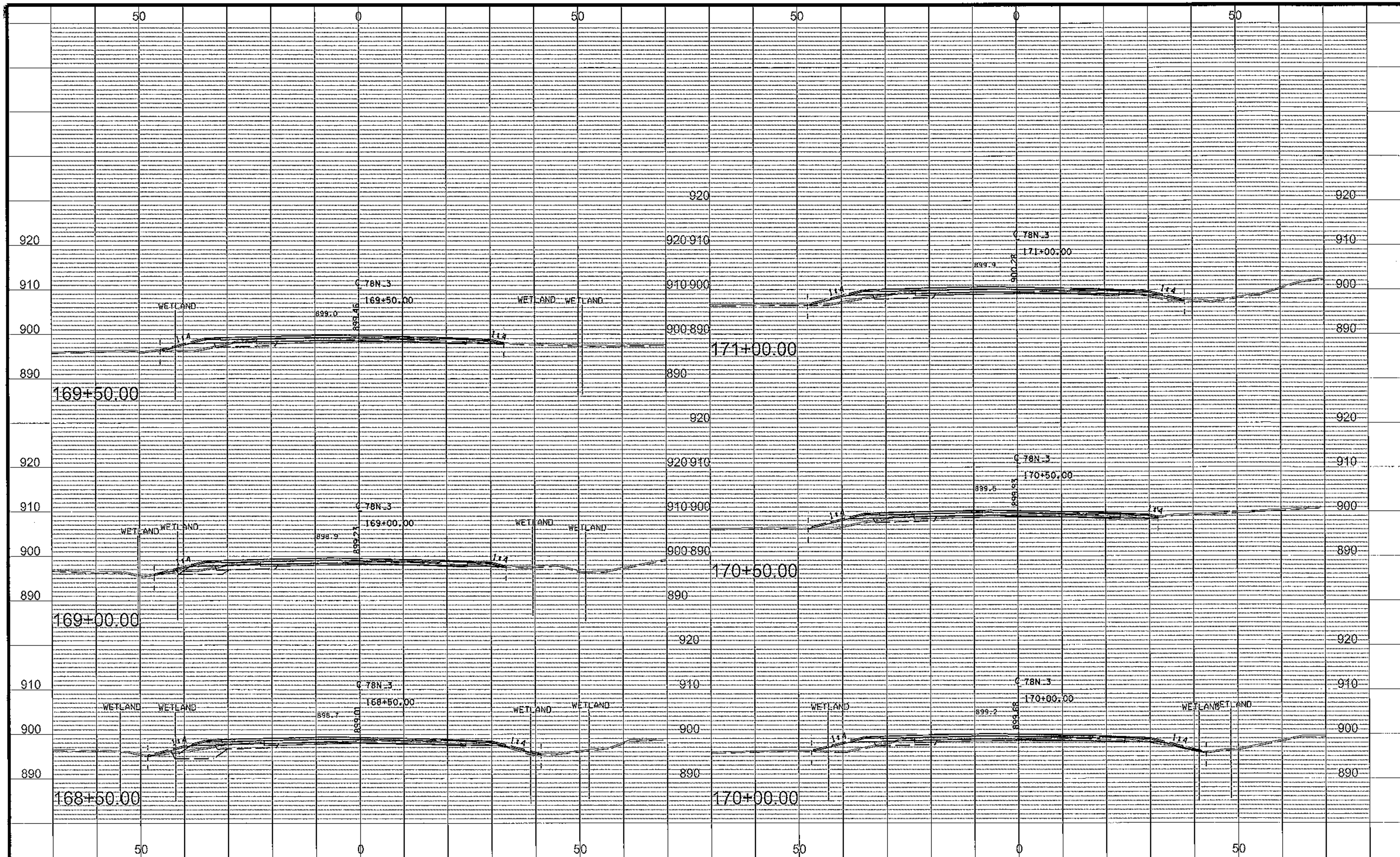
CITY OF ANDOVER S.A.P. 198-020-033

CROSS SECTIONS
CSAH 78
STA 165+50 TO STA 168+00



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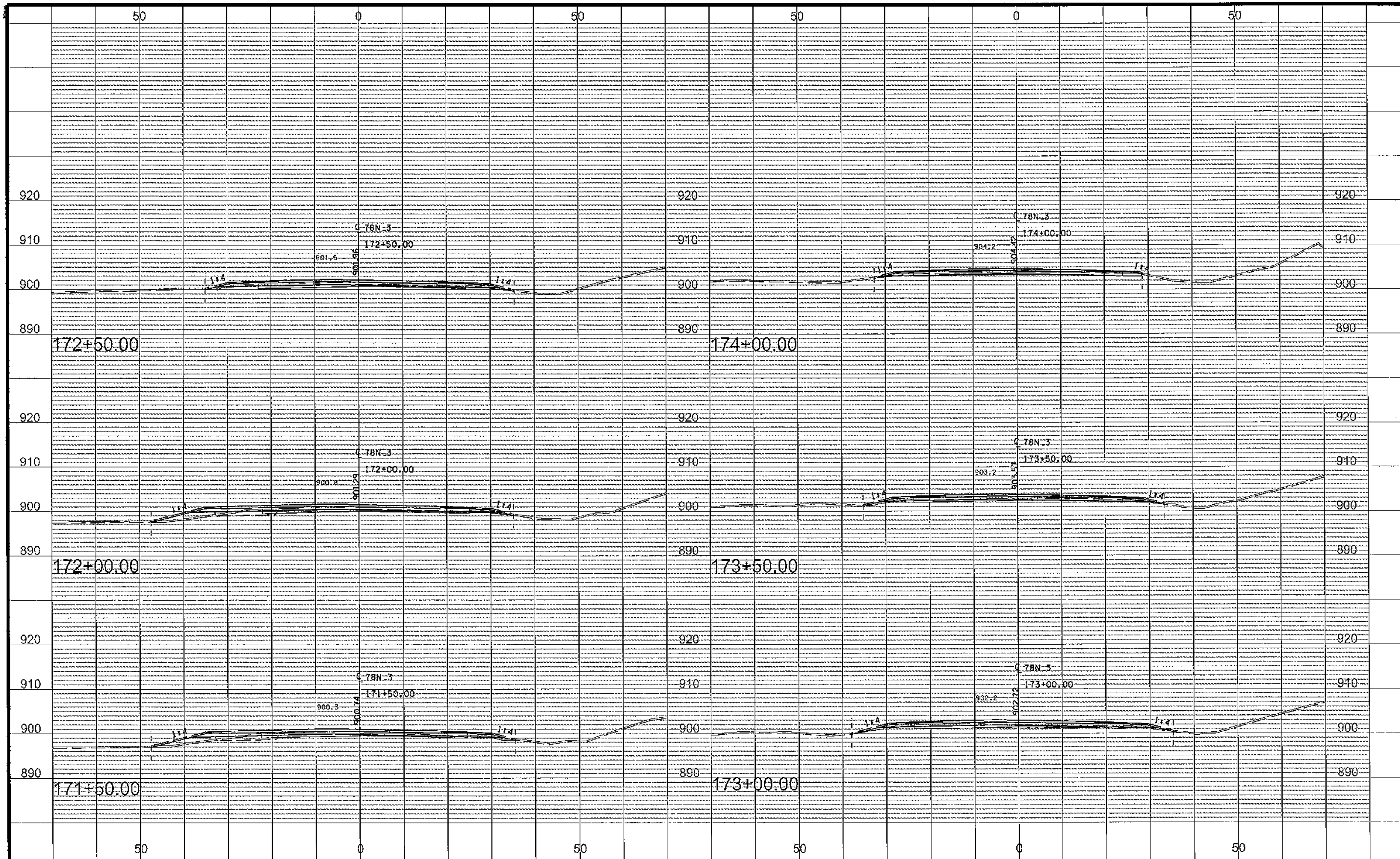
CITY OF ANDOVER S.A.P. 198-020-033

CROSS SECTIONS
CSAH 78
STA 168+50 TO STA 171+00

Sheet 103 of 111 Sheets



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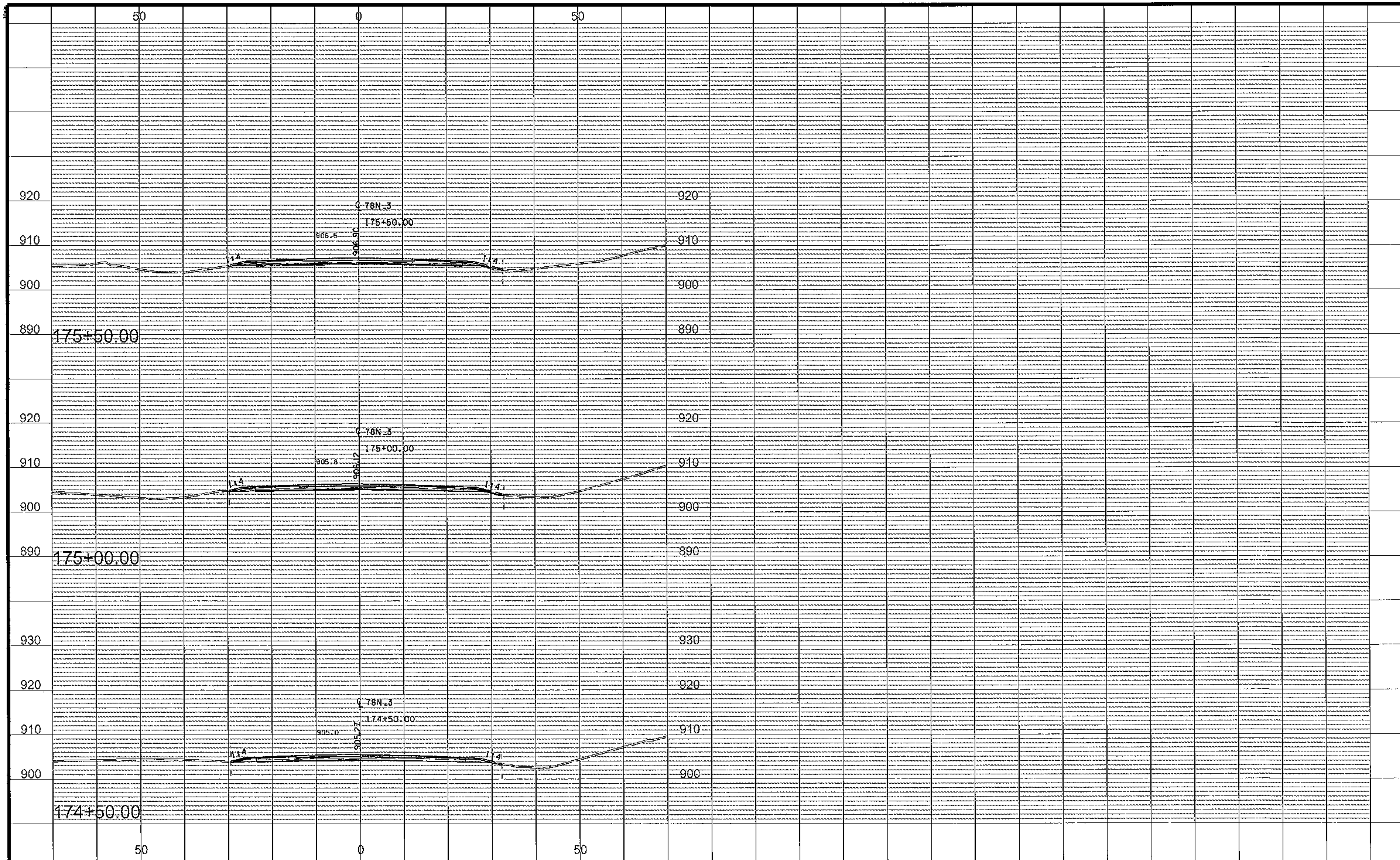
CROSS SECTIONS
CSAH 78
STA 171+50 TO STA 174+00

Sheet 104 of 111 Sheets



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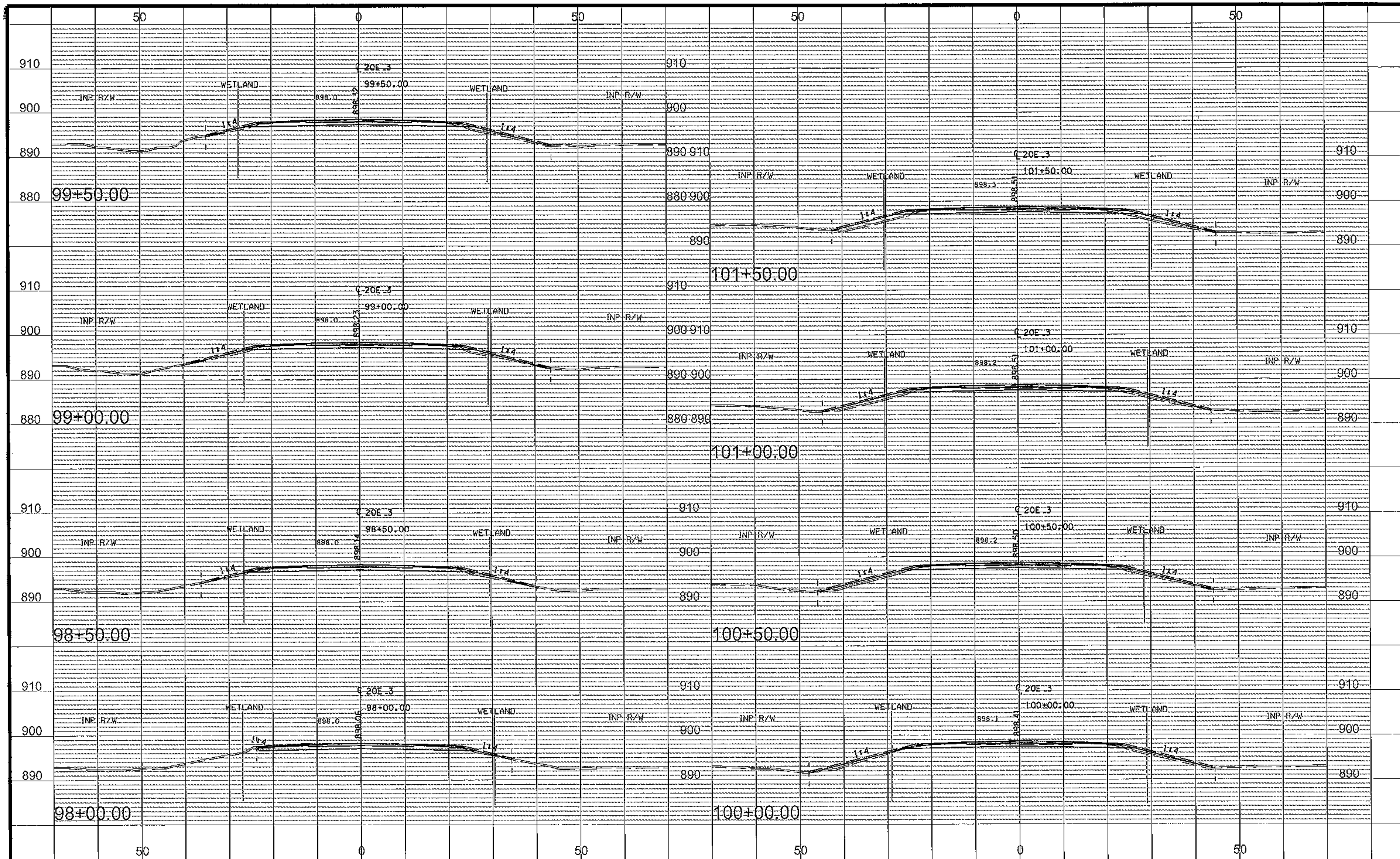
ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

CROSS SECTIONS
CSAH 78
STA 174+50 TO STA 175+50

Sheet 105 of 111 Sheets



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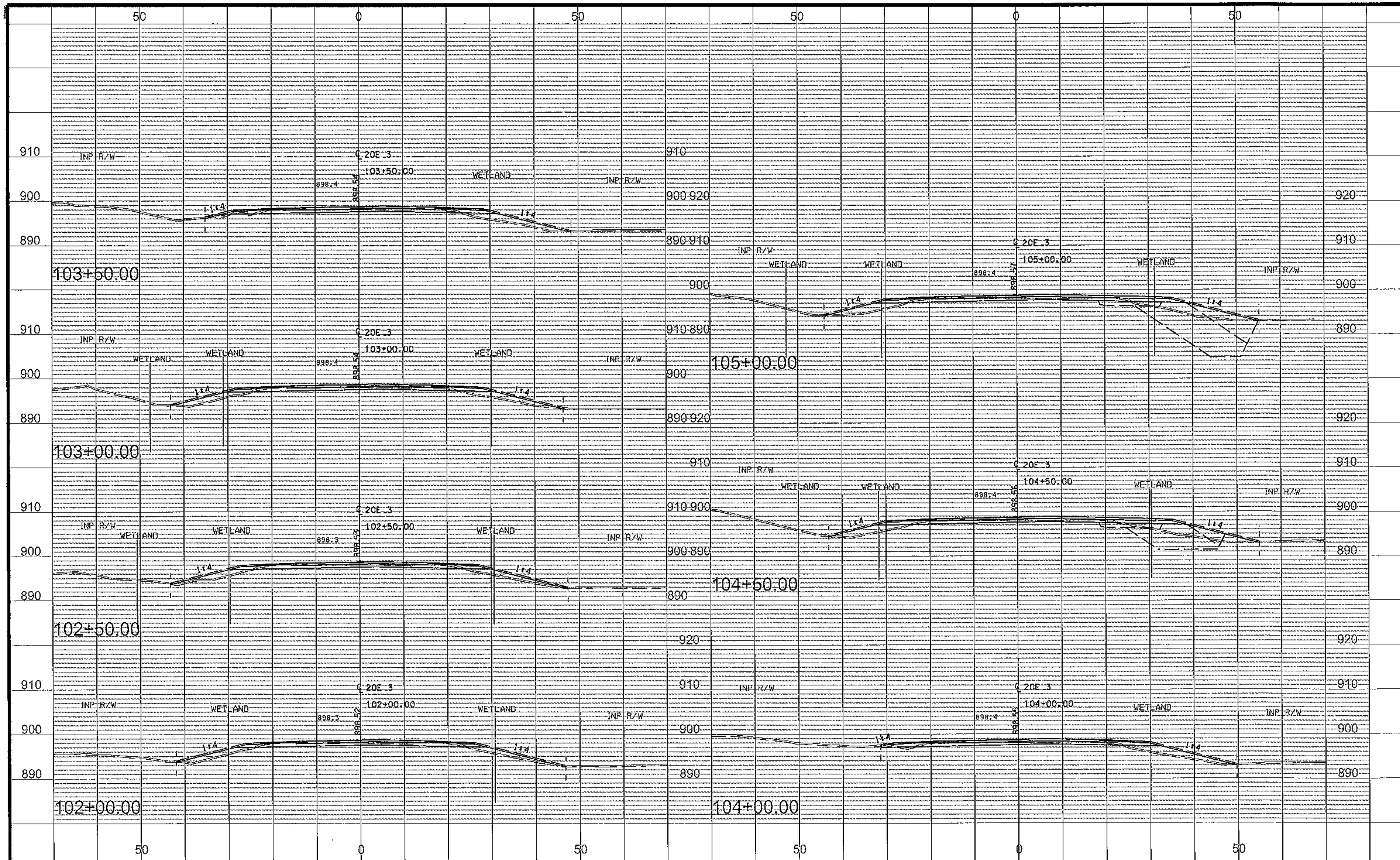
CITY OF ANDOVER S.A.P. 198-020-033

CROSS SECTIONS

CSAH 20

STA 98+00 TO STA 101+50

Sheet 106 of 111 Sheets



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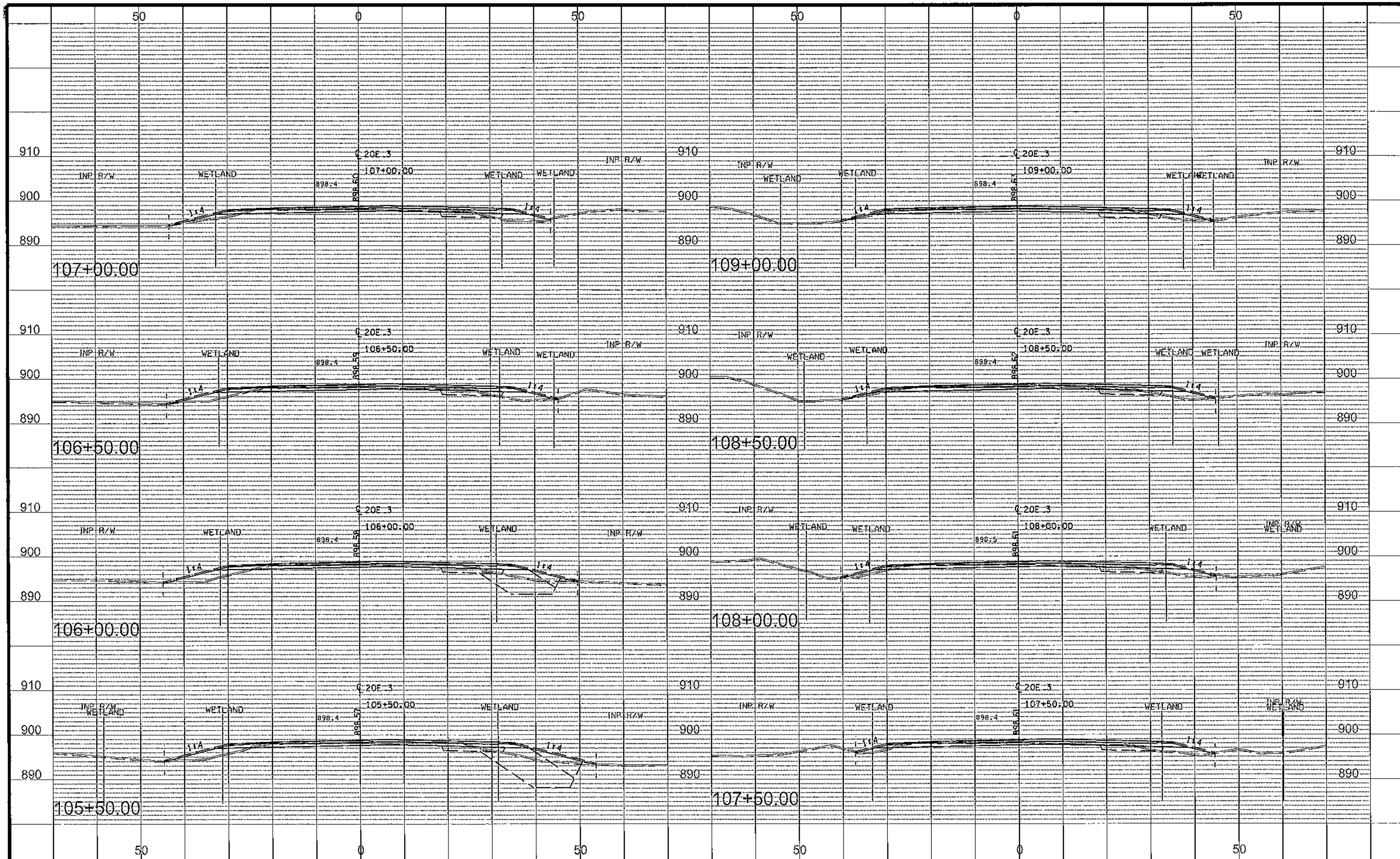
CITY OF ANDOVER S.A.P. 198-020-033

CROSS SECTIONS
CSAH 20
STA 102+00 TO STA 105+00



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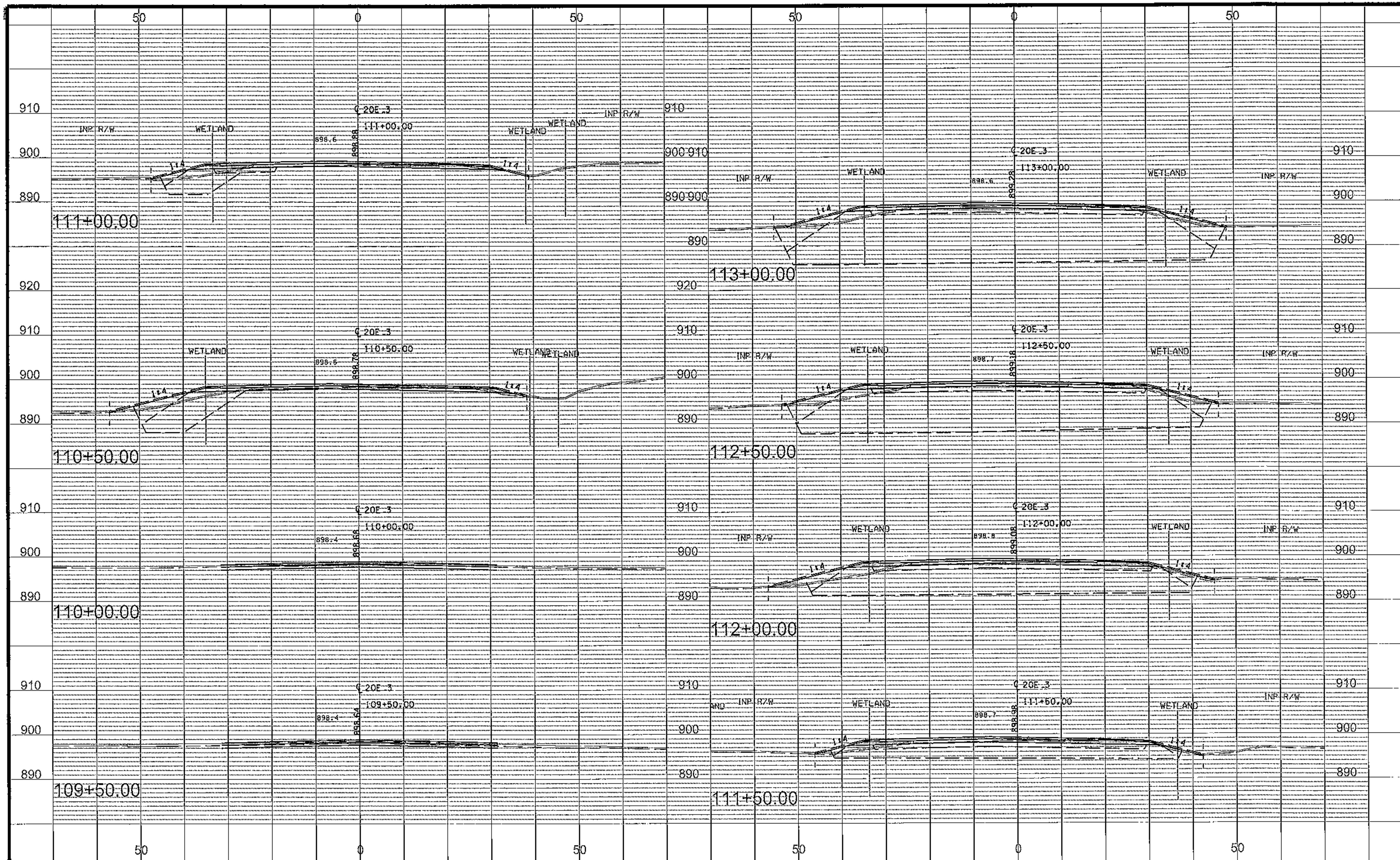
ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

CROSS SECTIONS
CSAH 20
STA 105+50 TO STA 109+00

Sheet 108 of 111 Sheets



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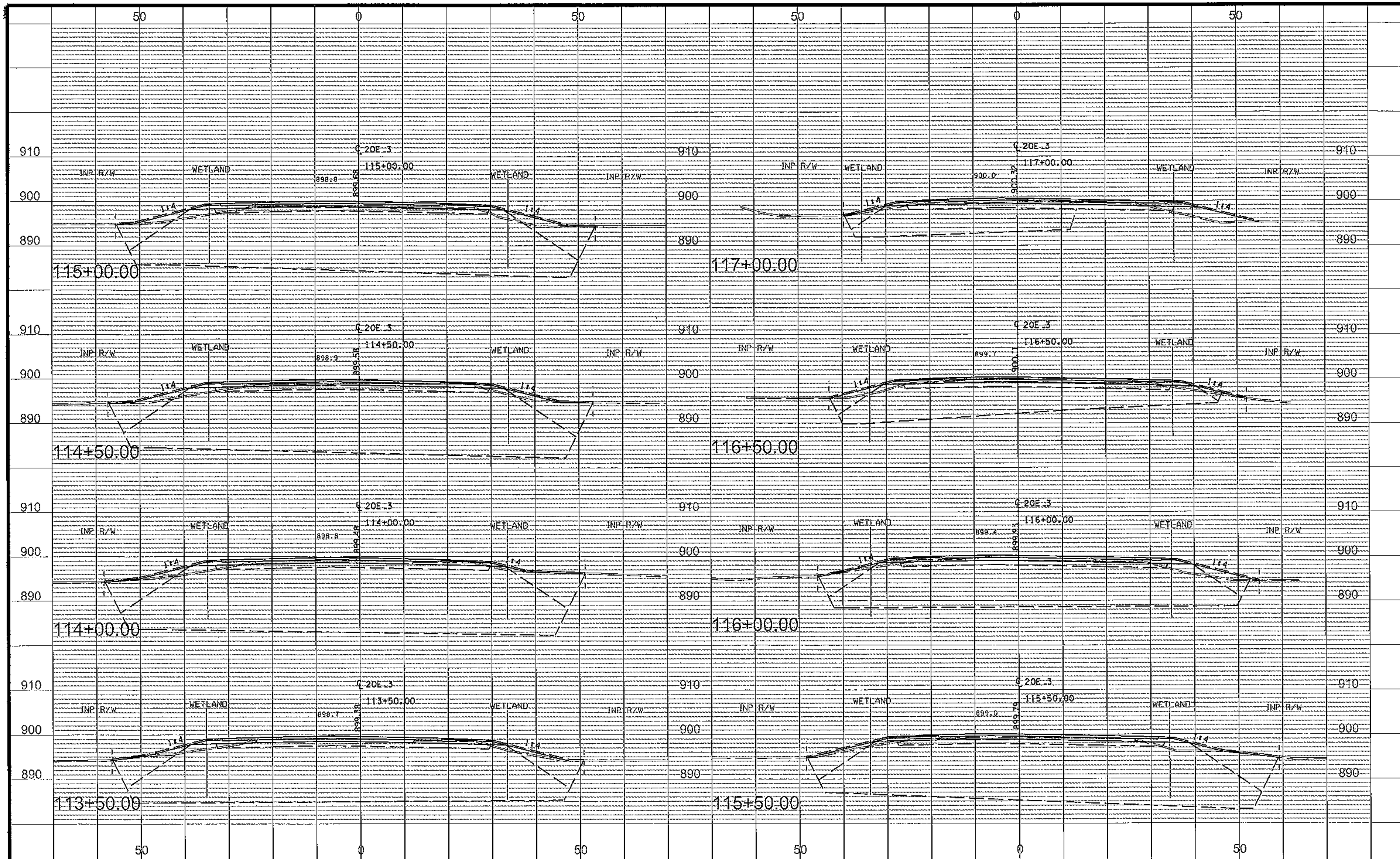
ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

CROSS SECTIONS
CSAH 20
STA 109+50 TO STA 113+00

Sheet 109 of 111 Sheets



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ANOKA COUNTY

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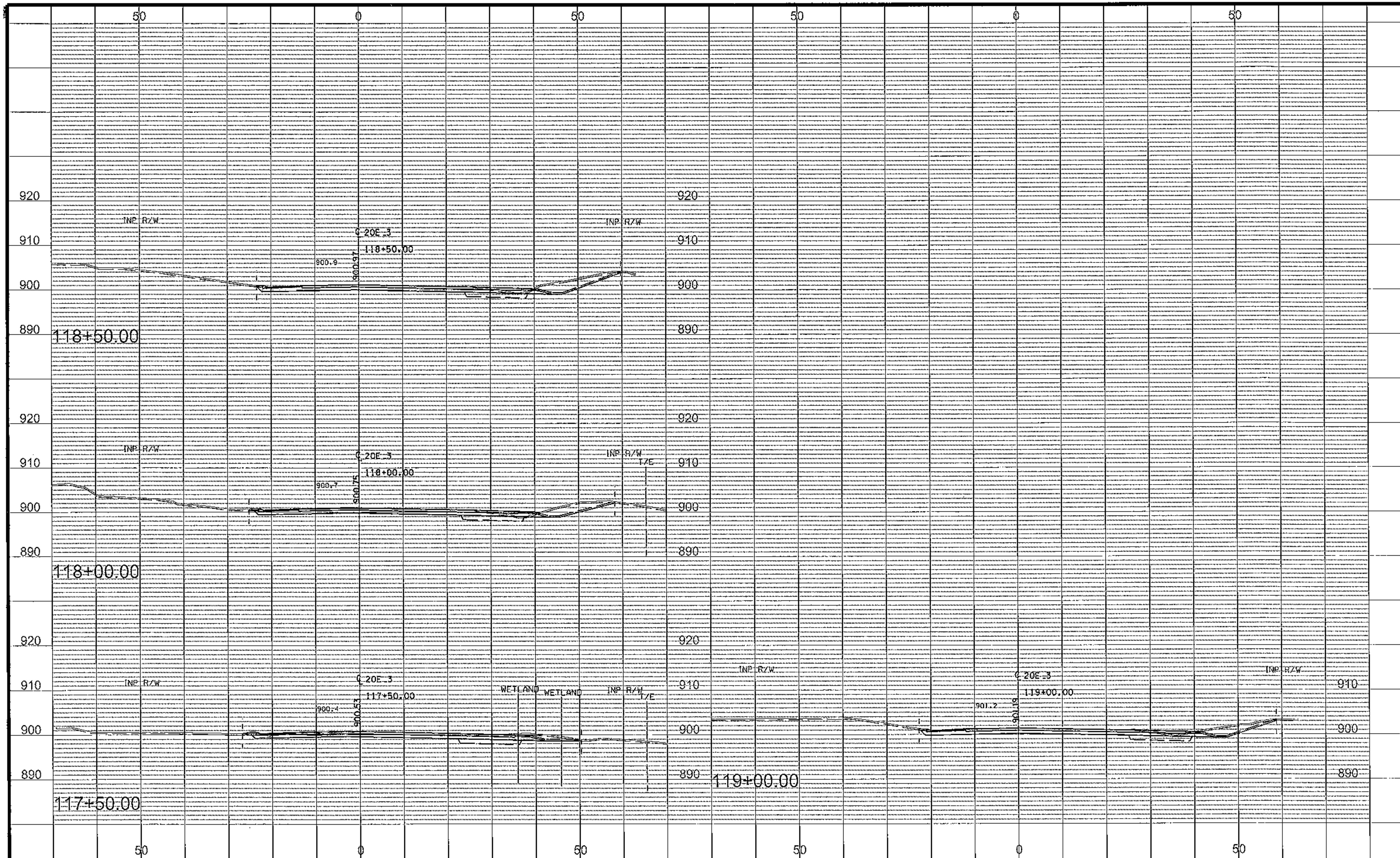
ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

CROSS SECTIONS
CSAH 20
STA 113+50 TO STA 117+00

Sheet 110 of 111 Sheets



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ANOKA COUNTY S.P. 002-678-020
CITY OF ANDOVER S.A.P. 198-020-033

CROSS SECTIONS
CSAH 20
STA 117+50 TO STA 119+00

Sheet 111 of 111 Sheets