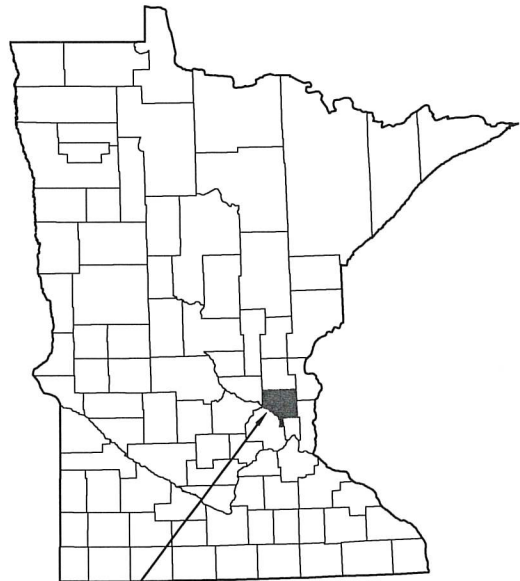
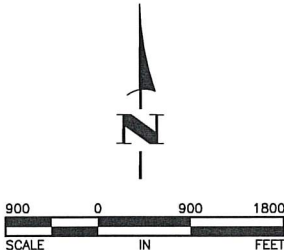
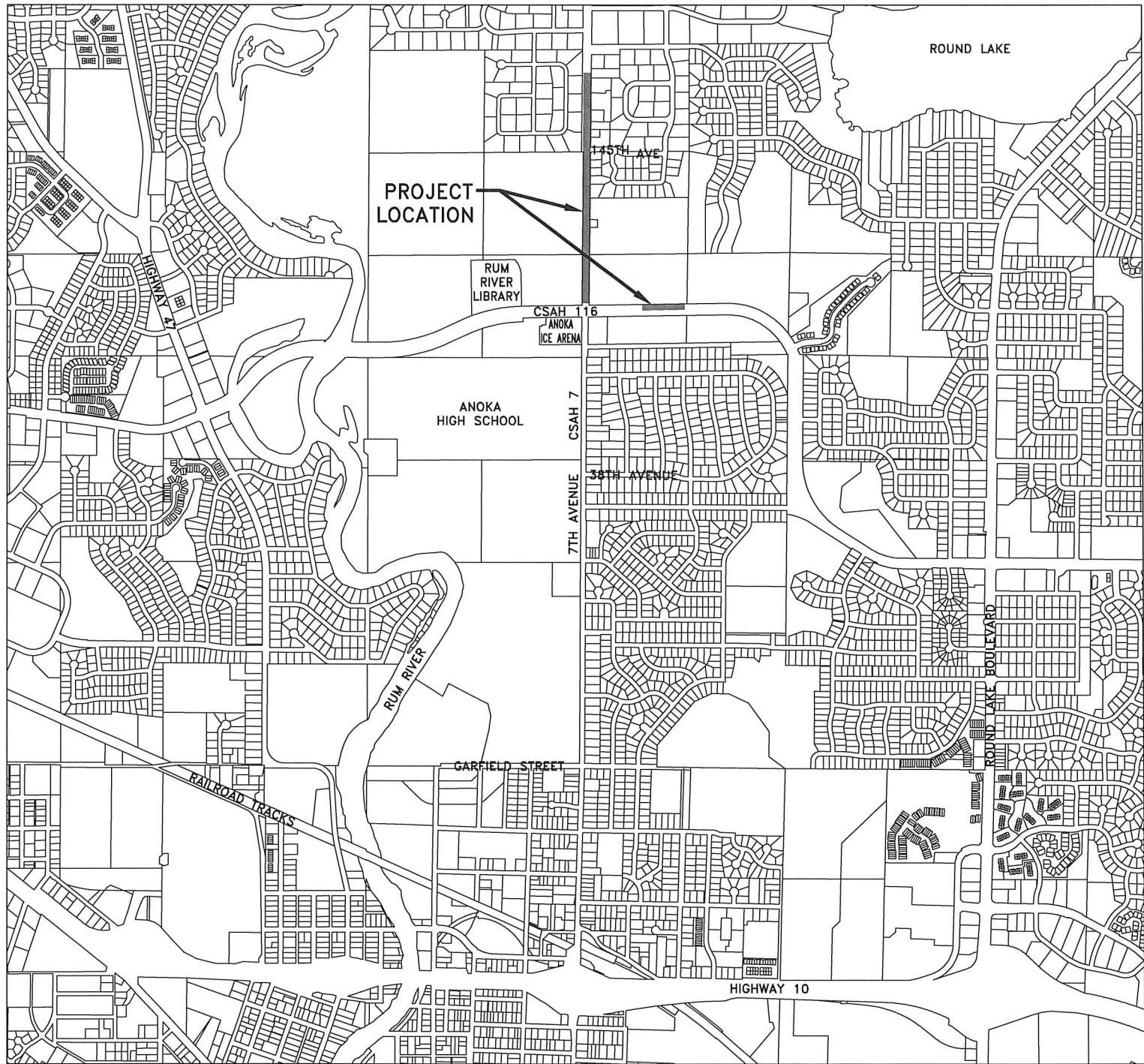


CSAH 7 AND 143RD AVENUE INTERSECTION IMPROVEMENT PROJECT
CONSTRUCTION PLANS FOR AGGREGATE BASE, BITUMINOUS SURFACING, CURB & GUTTER, GRADING,
STORM SEWER, SIGNING, STRIPING, TRAFFIC SIGNAL INSTALLATION AND MISCELLANEOUS CONSTRUCTION
CITIES OF ANOKA AND ANDOVER



CITIES OF ANOKA AND
ANDOVER, ANOKA
COUNTY, MINNESOTA

THE SUBSURFACE UTILITY INFORMATION
IN THIS PLAN IS UTILITY QUALITY LEVEL
D. THIS QUALITY LEVEL WAS DETERMINED
ACCORDING TO THE GUIDELINES OF
CI/ASCE 38-2, ENTITLED "STANDARD
GUIDELINES FOR THE COLLECTION AND
DEPICTION OF EXISTING SUBSURFACE
UTILITY DATA."

GOVERNING SPECIFICATIONS

THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION
"STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL APPLY.

THE 2018 EDITION OF THE CITY ENGINEERS ASSOCIATION OF MINNESOTA
(CEAM) STANDARD SPECIFICATIONS SHALL APPLY.

ALL FEDERAL, STATE AND LOCAL LAWS, REGULATIONS, AND ORDINANCES
SHALL BE COMPLIED WITH IN THE CONSTRUCTION OF THIS PROJECT.

ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE
LATEST EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC
CONTROL DEVICES, INCLUDING THE LATEST FIELD MANUAL FOR
TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

ALL REQUIREMENTS OF THE PROJECT MANUAL FOR THE CSAH 7 AND
143RD AVENUE INTERSECTION IMPROVEMENT PROJECT.

SHEET INDEX

THIS PLAN CONTAINS 91 SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	ESTIMATED QUANTITIES
3	CONSTRUCTION NOTES, PROJECT LEGEND AND TABULATIONS
4-6	TYPICAL SECTIONS
7-8	DETAILS
9-14	PEDESTRIAN CURB RAMP DETAILS
15	TEMPORARY TRAFFIC CONTROL NOTES AND LEGEND
16-18	TRAFFIC CONTROL PHASE 1-CSAH 7
19-21	TRAFFIC CONTROL PHASE 2-CSAH 7
22	TRAFFIC CONTROL PHASE 1-CSAH 116 TURN LANE
23	TRAFFIC CONTROL PHASE 2-CSAH 116 TURN LANE
24-25	ALIGNMENT PLAN
26	ALIGNMENT PLAN AND TABULATION
27-30	EXISTING TOPOGRAPHY AND REMOVALS PLAN
31-35	CONSTRUCTION PLAN SOUTHBOUND LANE-CSAH 7
36-39	CONSTRUCTION PLAN NORTHBOUND LANE-CSAH 7
40	CONSTRUCTION PLAN-CSAH 116 TURN LANE
41-49	STAKING PLAN
50-53	SEDIMENT CONTROL AND RESTORATION PLAN
54-57	SIGNAGE AND STRIPING PLAN
58-59	STRIPING NOTES, LEGEND AND DETAILS
60-63	ANOKA COUNTY HIGHWAY DEPARTMENT SIGN DETAILS
X1-X14	CROSS SECTIONS-CSAH 7
X15	CROSS SECTIONS-CSAH 116 TURN LANE
S1-13	TRAFFIC CONTROL SIGNAL PLANS

Greg Lee
APPROVED: GREG LEE
ANOKA CITY MANAGER

DATE 5/3/22

David D. Berkowitz
APPROVED: DAVID D. BERKOWITZ
CITY OF ANDOVER DIRECTOR OF PUBLIC WORKS/CITY ENGINEER

DATE 5/17/22

Joseph
MacPherson
Digitally signed by Joseph
MacPherson
Date: 2022.05.17 15:14:12
-05'00'
APPROVED: ANOKA COUNTY ENGINEER

DATE 5/17/22

I hereby certify that this plan, specification, or report was prepared
by me or under my direct supervision and that I am a duly Licensed
Professional Engineer under the laws of the State of Minnesota.

Craig J. Jochum
CRAIG J. JOCHUM, P.E.
HAKANSON ANDERSON
DESIGN ENGINEER

23461 DATE 5/3/22
LIC. NO.

DATE	REVISION

May 23, 2022 -- 8:27am
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ESTIMATED QUANTITIES								
ITEM NO.	REF. NOTE	SPEC. REF.	DESCRIPTION	UNIT	TOTAL ESTIMATED QUANTITY	ESTIMATED QUANTITY		
						CITY OF ANOKA	CITY OF ANDOVER	ANOKA COUNTY HIGHWAY DEPARTMENT
1		2021.501	MOBILIZATION	LUMP SUM	1	0.46	0.41	0.13
2		2101.502	CLEARING	EACH	24	24		
3		2101.502	GRUBBING	EACH	24	24		
4		2101.505	CLEARING	ACRE	0.10			0.10
5		2101.505	GRUBBING	ACRE	0.10			0.10
6		2102.503	PAVEMENT MARKING REMOVAL	LIN FT	2363		158	2205
7		2104.502	REMOVE STORM MANHOLE OR CATCH BASIN	EACH	2	1	1	
8		2104.502	REMOVE CASTING	EACH	5	1	4	
9		2104.502	REMOVE GATE VALVE AND BOX	EACH	1	1		
10		2104.502	REMOVE HYDRANT	EACH	1	1		
11		2104.502	REMOVE SIGN	EACH	9	3	2	4
12		2104.502	SALVAGE MAILBOX SUPPORT	EACH	1			1
13		2104.502	SALVAGE PEDESTAL POLE AND BASE	EACH	2		2	
14		2104.502	SALVAGE SIGN	EACH	12	6	5	1
15		2104.503	SAWING CONCRETE PAVEMENT - FULL DEPTH	LIN FT	16	8	8	
16		2104.503	SAWING BITUMINOUS PAVEMENT - FULL DEPTH	LIN FT	3131	709	1604	818
17		2104.503	REMOVE WATERMAIN	LIN FT	15	15		
18		2104.503	REMOVE SEWER PIPE (STORM)	LIN FT	126	120	6	
19		2104.503	REMOVE CONCRETE CURB	LIN FT	2289	730	1559	
20		2104.504	REMOVE BITUMINOUS PAVEMENT	SQ YD	8086	3232	3915	939
21		2104.518	REMOVE CONCRETE WALK	SQ FT	8584	4292	4292	
22		2104.607	SALVAGE RANDOM RIPRAP	CU YD	16		16	
23		2106.507	EXCAVATION-COMMON	CU YD	3274	1456	1721	97
24		2106.507	SELECT GRANULAR EMBANKMENT (CV)	CU YD	1412	508	734	170
25		2211.509	AGGREGATE BASE CLASS 5	TON	3611	1907	1425	279
26		2232.504	MILL BITUMINOUS SURFACE (2")	SQ YD	6722	2197	2945	1580
27		2357.506	BITUMINOUS MATERIAL FOR TACK COAT	GALLONS	2105	806	995	304
28		2360.504	TYPE SP 9.5 WEARING COURSE MIXTURE (2,B) 2.5" THICK	SQ YD	2271	2040	166	65
29		2360.509	TYPE SP 12.5 WEARING COURSE MIXTURE (3,F)	TON	3906	1464	1862	580
30		2360.509	TYPE SP 12.5 NON WEARING COURSE MIXTURE (3,B)	TON	1504	588	737	179
31		2411.502	CONCRETE FLUME	EACH	1		1	
32		2503.503	15" RC PIPE SEWER DESIGN 3006 CLASS V	LIN FT	680	569	111	
33		2503.503	18" RC PIPE SEWER DESIGN 3006 CLASS V	LIN FT	243	243		
34		2503.602	CONNECT TO EXISTING STORM SEWER	EACH	6	1	5	
35		2503.602	CONNECT INTO EXISTING DRAINAGE STRUCTURE	EACH	4		4	
36		2504.602	CONNECT TO EXISTING WATERMAIN	EACH	1	1		
37		2504.602	HYDRANT	EACH	1	1		
38		2504.602	6" GATE VALVE AND BOX	EACH	1	1		
39		2504.603	HYDRANT RISER	LIN FT	1	1		
40		2504.603	6" WATERMAIN DUCTILE IRON CL 52	LIN FT	13	13		
41		2504.608	DUCTILE IRON FITTINGS	POUND	266	266		
42		2506.502	CONSTRUCT DRAINAGE STRUCTURE DESIGN G	EACH	8	2	6	
43		2506.502	CONSTRUCT DRAINAGE STRUCTURE DESIGN 24"X36"	EACH	1		1	
44		2506.502	CASTING ASSEMBLY	EACH	22	7	15	
45		2506.503	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48-4020	LIN FT	40.7	20.4	20.3	
46		2521.518	4" CONCRETE WALK	SQ FT	8308	4154	4154	
47		2521.518	6" CONCRETE WALK	SQ FT	2726	1095	1631	
48		2531.503	CONCRETE CURB AND GUTTER DESIGN B418	LIN FT	1294	647	647	
49		2531.503	CONCRETE CURB AND GUTTER DESIGN B424	LIN FT	3491	1096	1921	474
50		2531.503	CONCRETE CURB AND GUTTER DESIGN B612	LIN FT	125	44	81	

ESTIMATED QUANTITIES								
ITEM NO.	REF. NOTE	SPEC. REF.	DESCRIPTION	UNIT	TOTAL ESTIMATED QUANTITY	ESTIMATED QUANTITY		
						CITY OF ANOKA	CITY OF ANDOVER	ANOKA COUNTY HIGHWAY DEPARTMENT
51		2531.618	TRUNCATED DOMES	SQ FT	330	114	216	
52		2540.602	INSTALL MAILBOX SUPPORT	EACH	1			1
53		2545.502	SERVICE CABINET	EACH	1	0.5	0.5	
54		2563.601	TRAFFIC CONTROL	LUMP SUM	1	0.46	0.41	0.13
55		2563.602	TYPE III BARRICADES	EACH	3	3		
56		2564.502	INSTALL SIGN	EACH	12	6	5	1
57		2564.518	SIGN PANELS TYPE C	SQ FT	96.4	38.8	45.1	12.5
58		2565.501	EMERGENCY VEHICLE PREEMPTION SYSTEM	LUMP SUM	1	0.5	0.5	
59		2565.501	TRAFFIC CONTROL INTERCONNECT	LUMP SUM	1	0.5	0.5	
60		2565.516	TRAFFIC CONTROL SIGNAL SYSTEM	SYSTEM	1	0.5	0.5	
61		2565.602	INSTALL PEDESTAL POLE AND BASE	EACH	2		2	
62		2573.502	STORM DRAIN INLET PROTECTION	EACH	22	10	12	
63		2573.503	SILT FENCE; TYPE MS	LIN FT	1673	1023	275	375
64		2573.503	SEDIMENT CONTROL LOG TYPE STRAW	LIN FT	130	60	10	60
65		2574.504	ROLLED EROSION PREVENTION CATEGORY 15	SQ YD	2662	1452	678	532
66		2574.507	COMMON TOPSOIL BORROW	CU YD	1129	744	210	175
67		2574.508	FERTILIZER TYPE 1	POUND	540	375	111	54
68		2575.505	SEEDING	ACRE	1.80	1.25	0.37	0.18
69		2575.508	SEED MIXTURE 25-131	POUND	396	275	81	40
70		2575.508	HYDRAULIC MULCH MATRIX	POUND	3125	2375	575	175
71		2582.503	4" SOLID LINE MULTI-COMPONENT	LIN FT	6905	2120	2860	1925
72		2582.503	4" BROKEN LINE MULTI-COMPONENT	LIN FT	730	280	350	100
73		2582.503	8" BROKEN LINE MULTI-COMPONENT	LIN FT	105			105
74		2582.503	4" DOUBLE SOLID LINE MULTI-COMPONENT	LIN FT	2425	740	740	945
75		2582.503	24" SOLID LINE PREFORM THERMOPLASTIC	LIN FT	636	310	326	
76		2582.518	PAVEMENT MESSAGE PREFORM THERMOPLASTIC	SQ FT	120	60	60	
77		2582.518	CROSSWALK PREFORM THERMOPLASTIC	SQ FT	1062	477	585	

DATE	REVISION
5/23/22	REVISED QUANTITIES

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.


CRAIG J. JOCHUM, P.E.
Date 5/3/22 Lic. No. 23461

DESIGNED BY:
TAE
DRAWN BY:
DMS
CHECKED BY:
CJJ



Hakanson Anderson
Civil Engineers and Land Surveyors
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CSAH 7 AND 143RD AVENUE
INTERSECTION IMPROVEMENT PROJECT

ESTIMATED QUANTITIES

CITIES OF ANOKA AND ANDOVER, MINNESOTA

SHEET
2
OF
63
SHEETS

1. TOP OF THE GRADING SUBGRADE IS DEFINED AS THE BOTTOM OF THE CLASS 5 AGGREGATE BASE. ALL UNSTABLE MATERIAL SUCH AS TOPSOIL, SILTS, ORGANIC MATERIALS, MUCK, ETC. ENCOUNTERED DURING EXCAVATION WHICH IS NOT ACCOUNTED FOR IN THE ESTIMATED QUANTITIES WILL BE PAID AS "EXCAVATION-COMMON".
2. STRIP AND STOCKPILE ALL INPLACE TOPSOIL AND SLOPE DRESSING IN AREAS TO BE DISTURBED BY CONSTRUCTION AND REUSE AS SLOPE DRESSING. IN AREAS OF STREET, SHOULDER, AND INTERSECTION CONSTRUCTION, THE EXPOSED SAND SHALL BE SURFACE COMPACTED TO AT LEAST 100% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY, ASTM D698, IN AT LEAST THE UPPER 3 FT.
3. UNLESS OTHERWISE RECOMMENDED IN THESE PLANS, THE GRADING SUBGRADE SHALL BE CONSTRUCTED OF SUITABLE GRADING MATERIAL. THE FILL SHALL BE PLACED IN 8" TO 10" LOOSE LIFTS, AND COMPACTED TO 100% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY.
4. SUITABLE GRADING MATERIAL FOR THIS PROJECT SHALL CONSIST OF ALL SOILS ENCOUNTERED WITH THE EXCEPTION OF TOPSOIL, SILT, DEBRIS, ORGANIC MATERIAL AND OTHER UNSTABLE MATERIAL. THE MATERIAL SHALL HAVE A CLASSIFICATION OF SP, SM OR SP-SM (USCS CLASSIFICATIONS).
5. IN ANY PAVEMENT WIDENING THE CONTRACTOR SHALL STRIVE TO SUBSTANTIALLY MATCH BACKFILL MATERIAL WITH IN PLACE SOILS TO FORESTALL ABRUPT FROST DIFFERENTIAL. GRANULAR FILL SHALL NOT BE PLACED BESIDE NON GRANULAR SOILS AND VICE VERSA.
6. WHEN PLACING NEW PAVEMENT ADJACENT TO INPLACE PAVEMENT CUT VERTICALLY TO THE BOTTOM OF INPLACE SURFACING OR TOP OF GRADING SUBGRADE WHICHEVER IS DEEPER AT A 1(V):2(H) TO THE BOTTOM OF EXCAVATION.
7. PROVIDE A SAW CUT WHEN PLACING NEW PAVEMENT ADJACENT TO INPLACE PAVEMENT AND AT TERMINI OF CONSTRUCTION TO ENSURE A UNIFORM JOINT.
8. BITUMINOUS AND CONCRETE ITEMS DISTURBED BY CONSTRUCTION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF IN ACCORDANCE WITH MN/DOT SPEC. 2104.
9. USE TACK COAT BETWEEN ALL BITUMINOUS MIXTURES. THE BITUMINOUS TACK COAT MATERIAL SHALL BE APPLIED AT A UNIFORM RATE OF 0.04 GAL/SY TO 0.06 GAL/SY BETWEEN BITUMINOUS LAYERS. THE APPLICATION RATES ARE FOR UNDILUTED EMULSIONS.
10. PERFORMANCE GRADED (PG) ASPHALT BINDERS PG 58-28 AND PG 64-34 SHALL BE USED FOR ALL BITUMINOUS MIXES ON THIS PROJECT. SPECIFIC PG GRADES SHALL BE STATED IN THE SPECIAL PROVISIONS AND AT THE END OF THE MIX DESIGNATION NUMBER SHOWN ON THE TYPICAL SECTIONS.
11. THE BITUMINOUS MIXTURES SHALL MEET THE REQUIREMENTS OF SPECIFICATIONS 2360 AND 3139.
12. IF NECESSARY, THE UTILITY COMPANIES WILL RELOCATE THEIR FACILITIES CONCURRENTLY WITH THE CONSTRUCTION OPERATIONS UNDER THIS CONTRACT. CONTRACTOR SHALL SCHEDULE CONSTRUCTION IN COOPERATION WITH UTILITY RELOCATION.
13. THE UTILITY CONTRACTORS MAY REQUIRE CONDUIT CROSSING FOR EXISTING AND FUTURE UTILITIES. THE CONDUIT SHALL BE FURNISHED BY THE UTILITY COMPANY AND THE CONTRACTOR SHALL INSTALL THE CONDUIT. THIS WORK SHALL BE INCIDENTAL.
14. EROSION CONTROL SHALL CONFORM TO THE MN/DOT EROSION CONTROL HANDBOOK.
15. CONTRACTOR SHALL OBTAIN A PERMIT FROM THE ANOKA COUNTY HIGHWAY DEPARTMENT PRIOR TO WORKING WITHIN THE COUNTY RIGHT-OF-WAY.
16. ALL DEWATERING REQUIRED TO COMPLETE THIS PROJECT SHALL BE INCIDENTAL.

— 874 —	EXISTING CONTOUR
— 874 —	PROPOSED CONTOUR
— FO-BUR —	BURIED FIBER OPTIC CABLE
— T-BUR —	BURIED TELEPHONE CABLE
— G —	GAS MAIN
— P-BUR —	BURIED ELECTRIC CABLE
— P-OH —	OVERHEAD ELECTRIC CABLE

— STOP

———— | ————— WATERMAIN

⊗ WATERMAIN VALVE

④ STORM SEWER MANHOLE

 CATCH BASIN DECIDUOUS TREE DECIDUOUS TREE

 TRAFFIC SIGNAL POLE

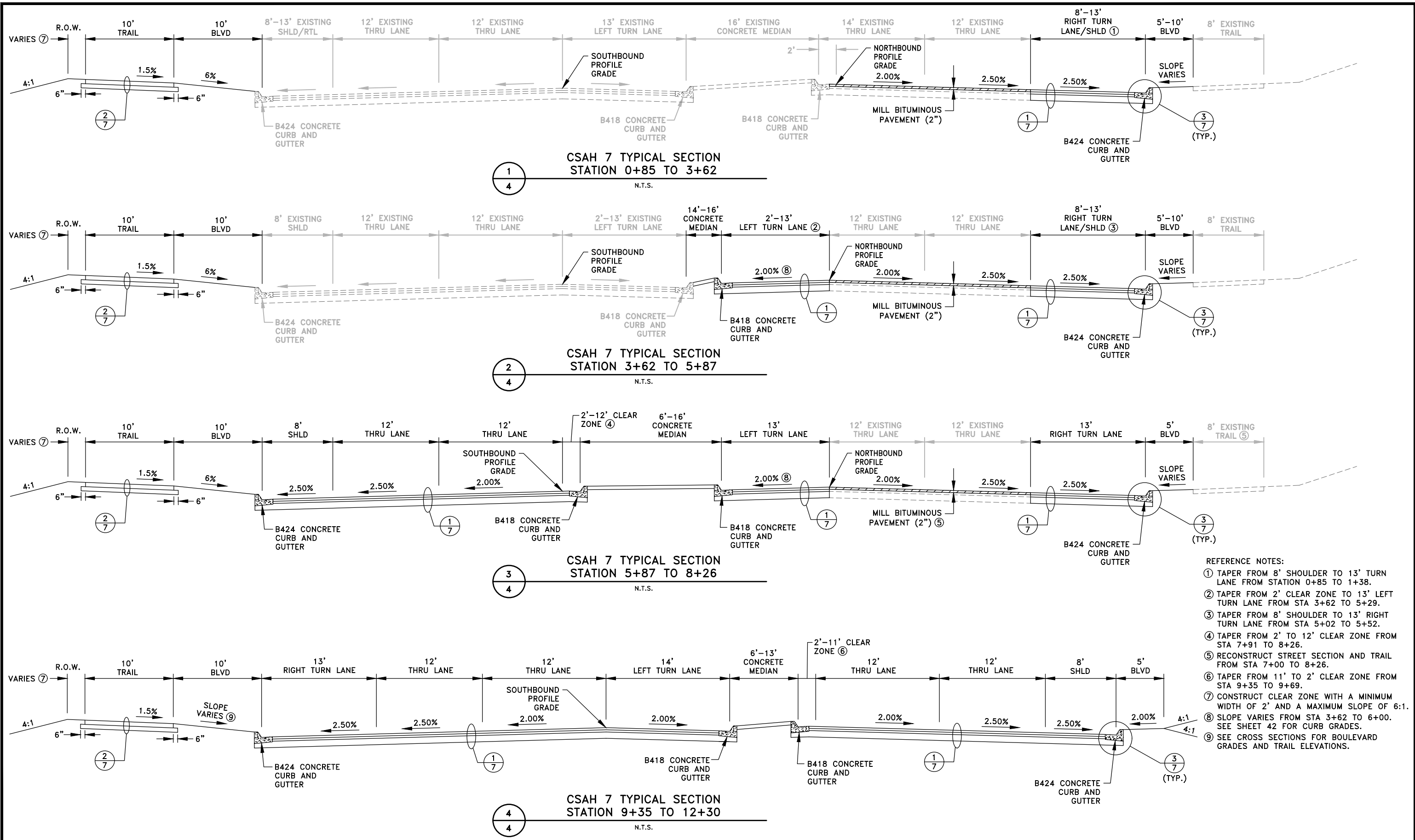
===== CONCRETE CURB & GUTTER


 DETAIL NUMBER
 SHEET NUMBER

STANDARD PLATES	
THESE STANDARD PLATES AS APPROVED BY THE FHWA SHALL APPLY	
PLATE NO.	DESCRIPTION
3000M	REINFORCED CONCRETE PIPE (6 SHEETS)
3006H	GASKET JOINT FOR R.C. PIPE (2 SHEETS)
3007F	SHEAR REINFORCEMENT FOR PRECAST DRAINAGE STRUCTURES
3145G	CONCRETE PIPE OR PRECAST CULVERT TIES
4006L	MANHOLE OR CATCH BASIN PRECAST - DESIGNS G AND H
4010H	CONCRETE SHORT CONE & ADJUSTING RING (SECTIONAL CONCRETE)
4011E	PRECAST CONCRETE BASE
4020J	MANHOLE OR CATCH BASIN (FOR USE WITH OR WITHOUT TRAFFIC LOADS) (2 SHEETS)
4026A	CONCRETE ENCASED CONCRETE ADJUSTING RINGS
4101D	RING CASTING FOR MANHOLE OR CATCH BASIN
4108F	ADJUSTING RINGS FOR CATCH BASINS AND MANHOLES
4110F	COVER CASTING FOR MANHOLE (FOR USE IN ALL TRAFFIC AREAS) CASTING NO. 715 AND 716
4125D	CATCH BASIN FRAME CASTING (FOR SQUARE GRATE) - CASTING NO. 806
4134A	CURB BOX CASTING FOR CATCH BASIN (FOR DESIGN B CURBS) - CASTING NO. 825
4140D	SPECIAL GRATE CASTINGS FOR CATCH BASIN (CONVEX AND CONCAVE) - CASTING NO. 720 AND 721
4154B	CATCH BASIN GRATE CASTING - CASTING NO. 816
4180J	MANHOLE OR CATCH BASIN STEP
7038A	DETECTABLE WARNING SURFACE TRUNCATED DOMES
7100H	CONCRETE CURB AND GUTTER (DESIGN B AND DESIGN V)
7111J	INSTALLATION OF CATCH BASIN CASTINGS (CONCRETE CURB AND GUTTER)
7113A	CONCRETE APPROACH NOSE DETAIL
8000K	TEMPORARY CHANNELIZERS (3 SHEETS)
8110E	TRAFFIC SIGNAL BRACKETING (POLE MOUNTED)
8111E	TRAFFIC SIGNAL BRACKETING (PEDESTAL MOUNTED) (S SHEETS)
8112I	PEDESTAL FOUNDATION (TRAFFIC CONTROL SIGNALS)
8118D	SERVICE EQUIPMENT & POLE TRAFFIC CONTROL SIGNALS
8119C	GROUND MOUNTED CABINET FOUNDATION
8121H	TRANSFORMER BASE AND POLE BASE PLATE (PA85, PA90 AND PA100) (2 SHEETS)
8122F	PEDESTAL AND PEDESTAL BASE (FOR TRAFFIC CONTROL SIGNALS SUPPORT) (2 SHEETS)
8123G	POLE AND MAST ARM LUMINAIRES AND TRAFFIC LIGHTS ASSEMBLY (FOR ALL POLE TYPES) (2 SHEETS)
8126L	POLE FOUNDATION (PA90 AND PA100)

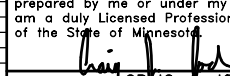
DATE	REVISION	I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.  CRAIG J. JOCHUM, P.E. Date 5/3/22 Lic. No. 23461	DESIGNED BY: TAE	 Hakanson Anderson Civil Engineers and Land Surveyors 3601 Thurston Ave., Anoka, Minnesota 55303 763-427-5860 FAX 763-427-0520 www.hakanson-anderson.com	CSAH 7 AND 143RD AVENUE INTERSECTION IMPROVEMENT PROJECT	CONSTRUCTION NOTES, PROJECT LEGEND AND TABULATIONS	CITIES OF ANOKA AND ANDOVER, MINNESOTA	SHEET 3 OF 63 SHEETS
	DRAWN BY: DMS							
	CHECKED BY: CJJ							

May 03, 2022 - 9:07am
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- REFERENCE NOTES:
- ① TAPER FROM 8' SHOULDER TO 13' TURN LANE FROM STATION 0+85 TO 1+38.
 - ② TAPER FROM 2' CLEAR ZONE TO 13' LEFT TURN LANE FROM STA 3+62 TO 5+29.
 - ③ TAPER FROM 8' SHOULDER TO 13' RIGHT TURN LANE FROM STA 5+02 TO 5+52.
 - ④ TAPER FROM 2' TO 12' CLEAR ZONE FROM STA 7+91 TO 8+26.
 - ⑤ RECONSTRUCT STREET SECTION AND TRAIL FROM STA 7+00 TO 8+26.
 - ⑥ TAPER FROM 11' TO 2' CLEAR ZONE FROM STA 9+35 TO 9+69.
 - ⑦ CONSTRUCT CLEAR ZONE WITH A MINIMUM WIDTH OF 2' AND A MAXIMUM SLOPE OF 6:1.
 - ⑧ SLOPE VARIES FROM STA 3+62 TO 6+00. SEE SHEET 42 FOR CURB GRADES.
 - ⑨ SEE CROSS SECTIONS FOR BOULEVARD GRADES AND TRAIL ELEVATIONS.

May 04, 2022 - 4:26pm
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DATE	REVISION	DESCRIPTION
		I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
		
		CRAIG J. JOCHUM, P.E. Date 5/3/22 Lic. No. 23461

DESIGNED BY:	TAE
DRAWN BY:	DMS
CHECKED BY:	CJJ

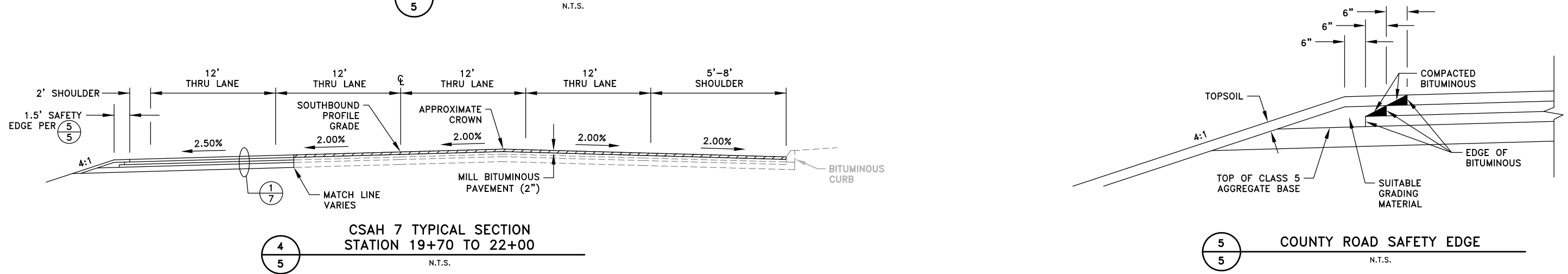
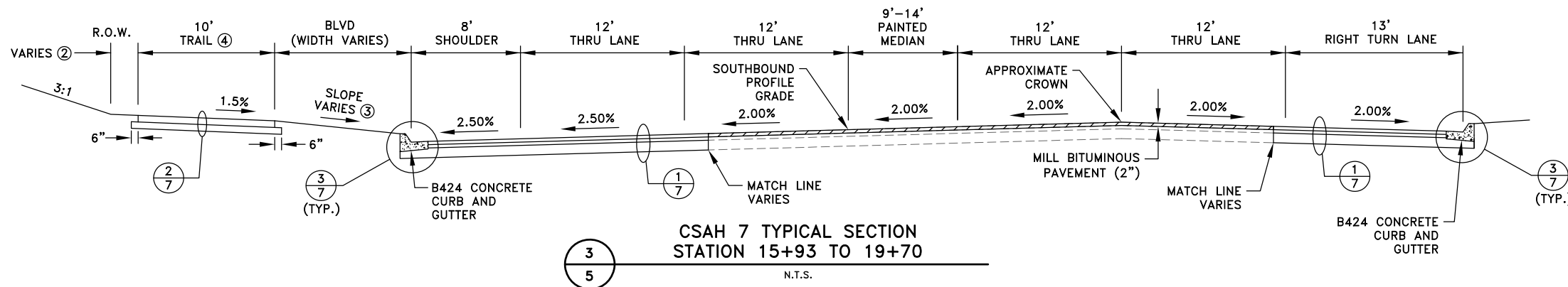
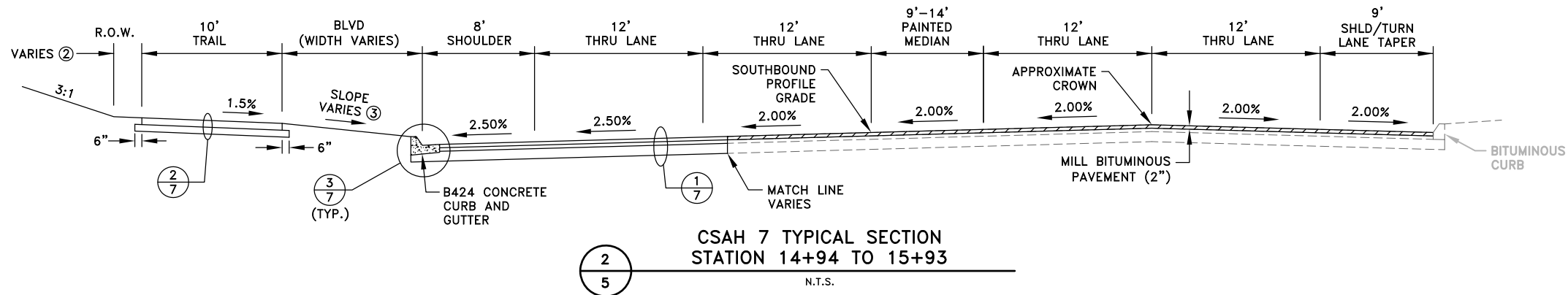
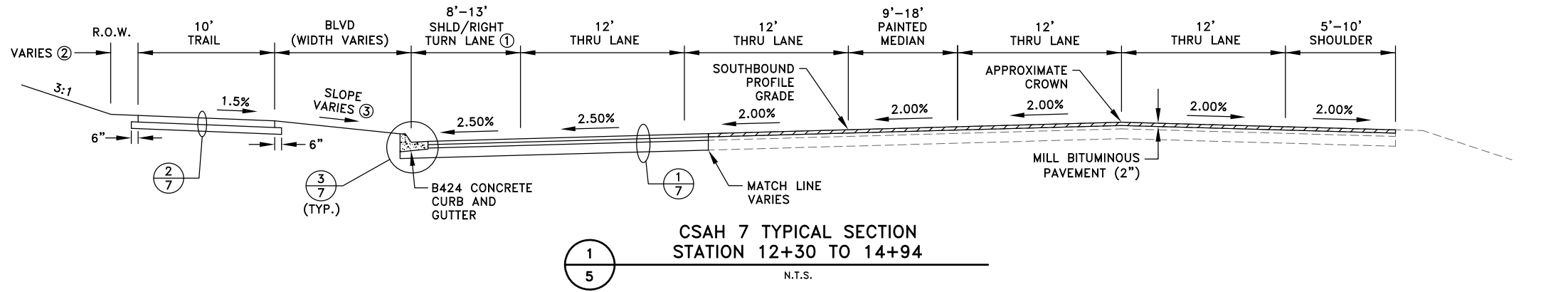


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**CSAH 7 AND 143RD AVENUE
INTERSECTION IMPROVEMENT PROJECT**

TYPICAL SECTIONS

CITIES OF ANOKA AND ANDOVER, MINNESOTA



- REFERENCE NOTES:
- ① TAPER FROM 13' TURN LANE TO 8' SHOULDER FROM STA 12+30 TO 13+07.
 - ② CONSTRUCT CLEAR ZONE WITH A MINIMUM WIDTH OF 2' AND A MAXIMUM SLOPE OF 6:1.
 - ③ SEE CROSS SECTIONS FOR BOULEVARD GRADES AND TRAIL ELEVATIONS.
 - ④ TRAIL ENDS AT STA 19+50.

May 23, 2022 - 8:28am
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DATE	REVISION
5/23/22	REVISED DETAILS 3/5 AND 4/5

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Craig J. Jochum
CRAIG J. JOCHUM, P.E.
Date 5/3/22 Lic. No. 23461

DESIGNED BY:
TAE
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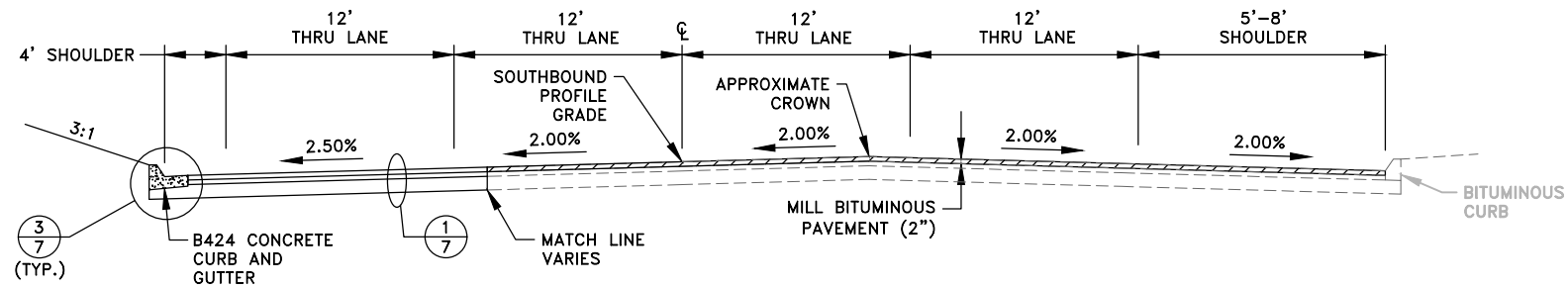
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**CSAH 7 AND 143RD AVENUE
INTERSECTION IMPROVEMENT PROJECT**

TYPICAL SECTIONS
CITIES OF ANOKA AND ANDOVER, MINNESOTA

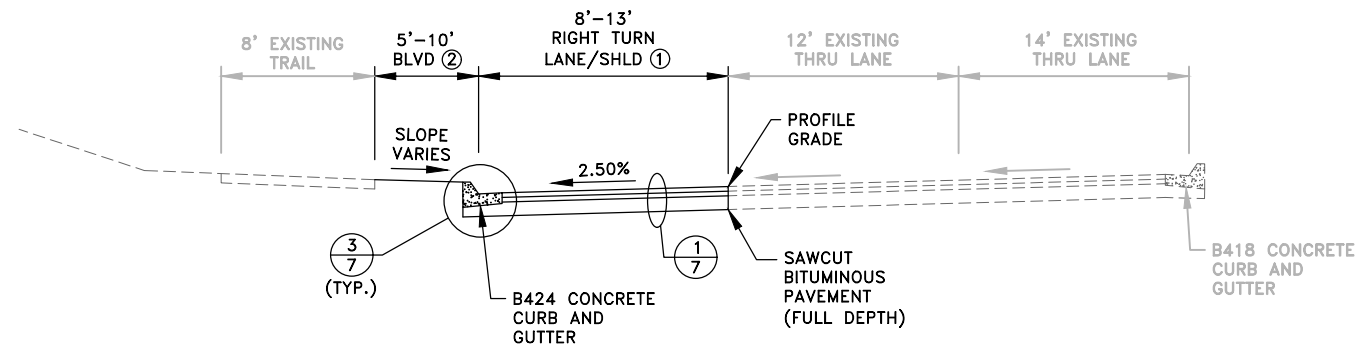
SHEET
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SHEETS

AD303

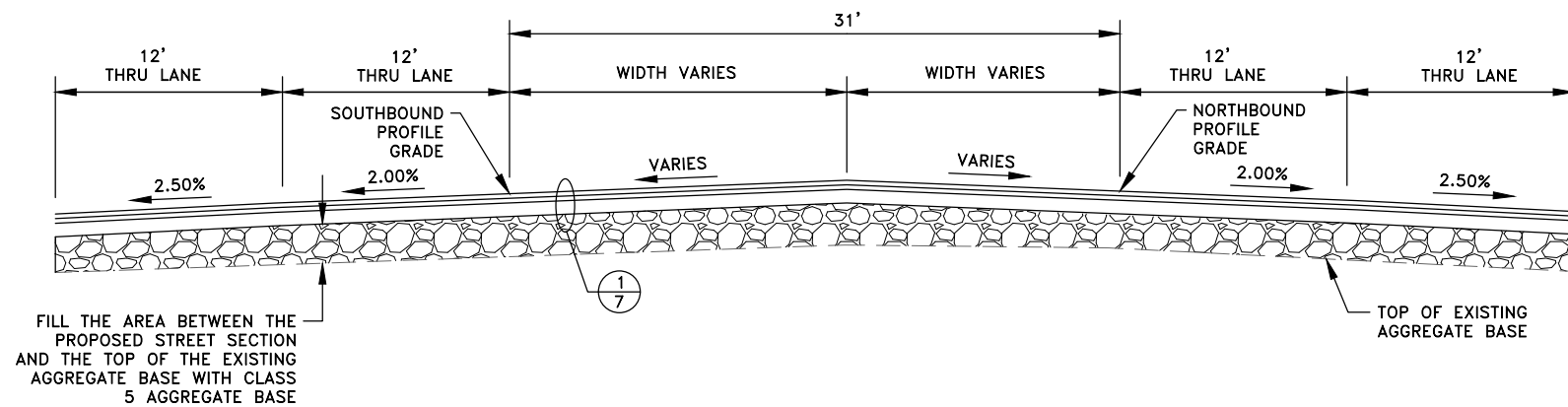


CSAH 7 TYPICAL SECTION
STATION 22+00 TO 23+02
N.T.S.

- REFERENCE NOTES:
- ① TAPER FROM 13' TURN LANE TO 8' SHOULDER FROM STA 4+61 TO 5+49.
 - ② CONSTRUCT CLEAR ZONE ADJACENT TO THE EXISTING TRAIL WITH A MINIMUM WIDTH OF 2' AND A MAXIMUM SLOPE OF 6:1.



CSAH 116 TYPICAL SECTION
STATION 1+93 TO 5+49
N.T.S.



CSAH 7 TYPICAL SECTION
STATION 8+26 TO 9+35
N.T.S.

May 04, 2022 - 4:26pm
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DATE	REVISION

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Craig J. Jochem
CRAIG J. JOCHUM, P.E.
Date 5/3/22 Lic. No. 23461

DESIGNED BY:
TAE
DRAWN BY:
DMS
CHECKED BY:
CJJ



Hakanson Anderson
Civil Engineers and Land Surveyors
3601 Thurston Ave., Anoka, Minnesota 55303
763-427-5860 FAX 763-427-0520
www.hakanson-anderson.com

CSAH 7 AND 143RD AVENUE
INTERSECTION IMPROVEMENT PROJECT

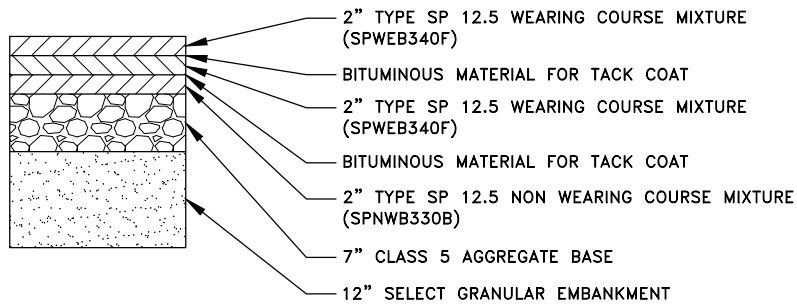
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CITIES OF ANOKA AND ANDOVER, MINNESOTA

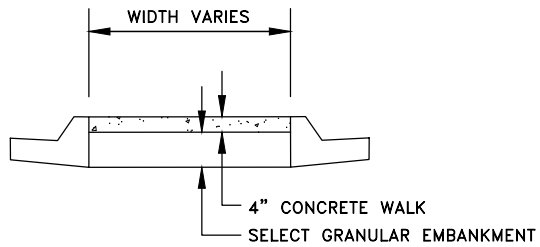
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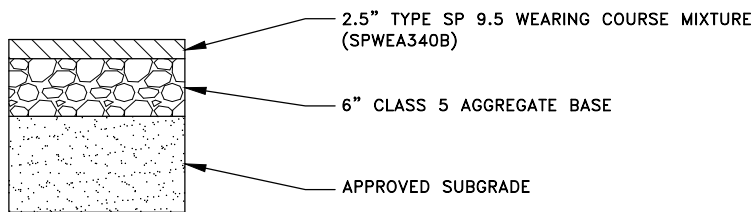
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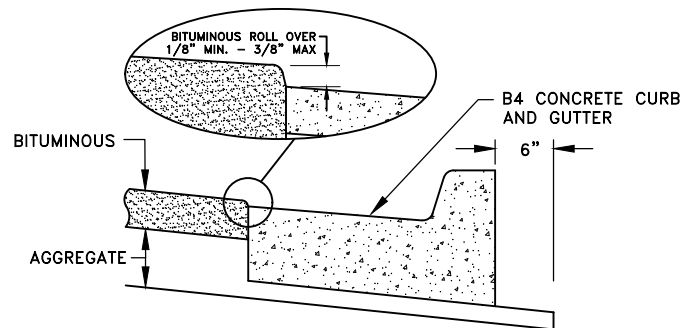
1
7
CSAH 7 AND CSAH 116
PAVEMENT SECTION
N.T.S.



4
7
CONCRETE MEDIAN SECTION
N.T.S.



2
7
TRAIL PAVEMENT SECTION
N.T.S.



3
7
PAVING AT CURB DETAIL
N.T.S.

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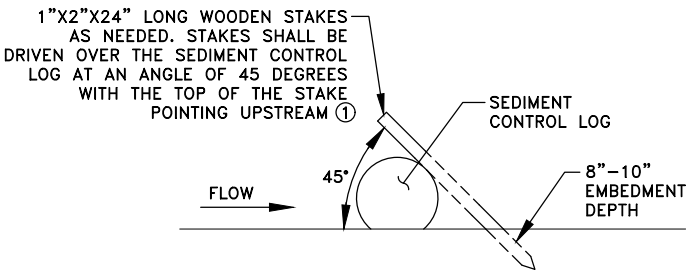
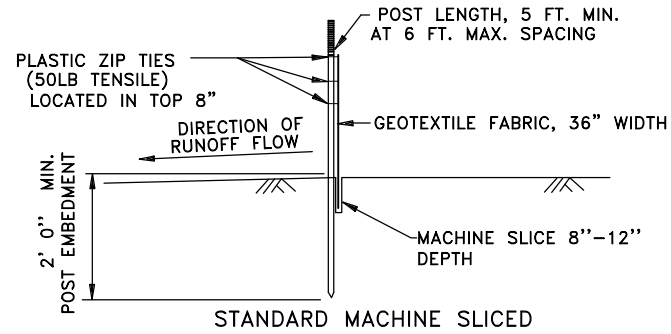
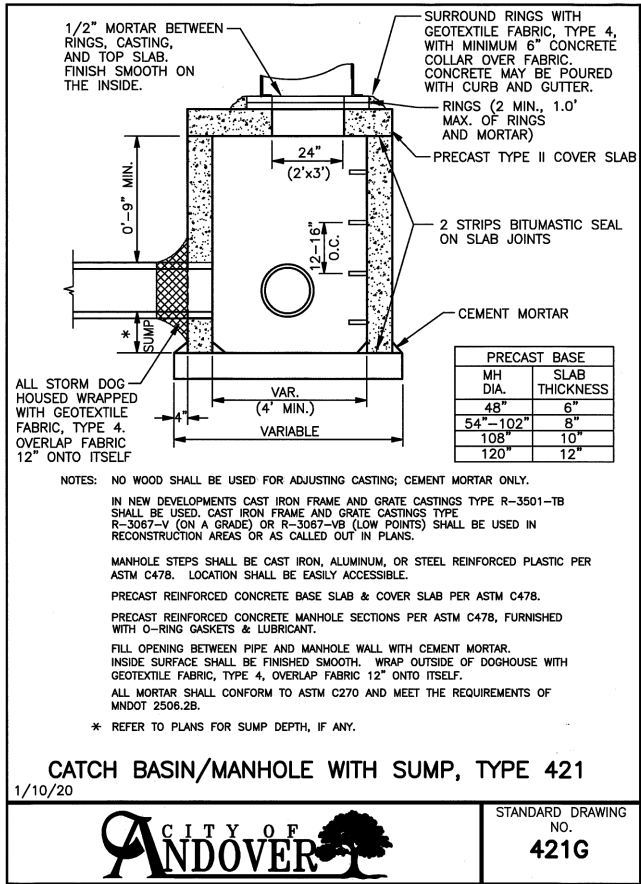
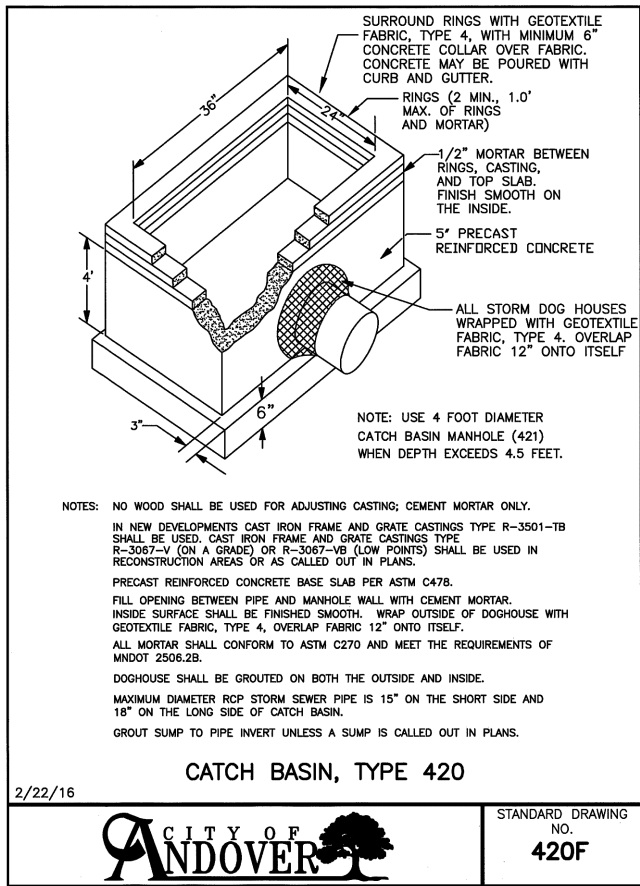
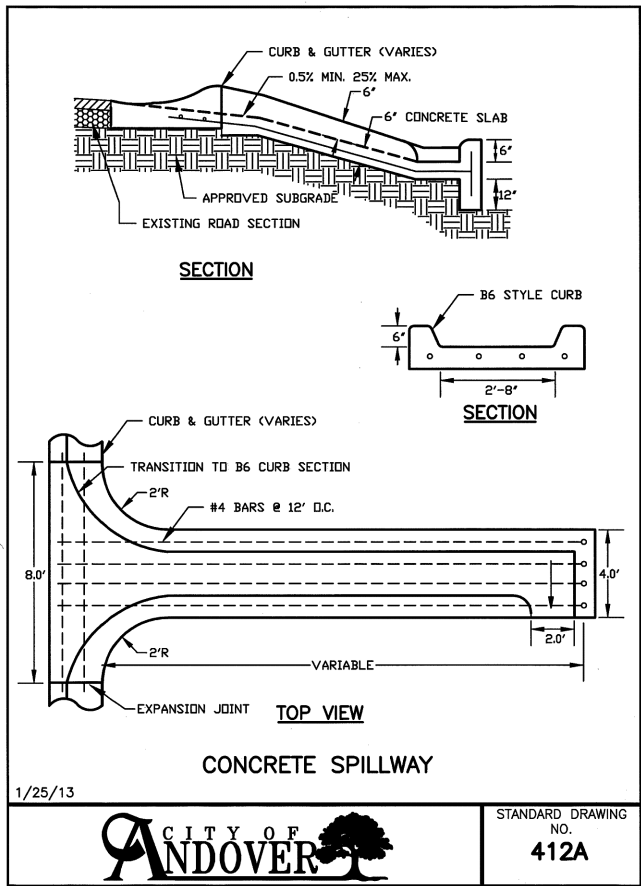


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CSAH 7 AND 143RD AVENUE
INTERSECTION IMPROVEMENT PROJECT

DETAILS
CITIES OF ANOKA AND ANDOVER, MINNESOTA

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SHEETS



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DESIGNED BY: TAE
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CSAH 7 AND 143RD AVENUE
INTERSECTION IMPROVEMENT PROJECT

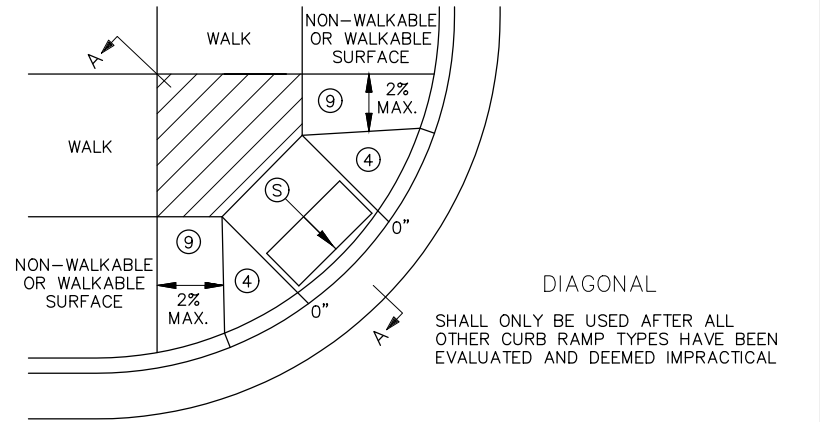
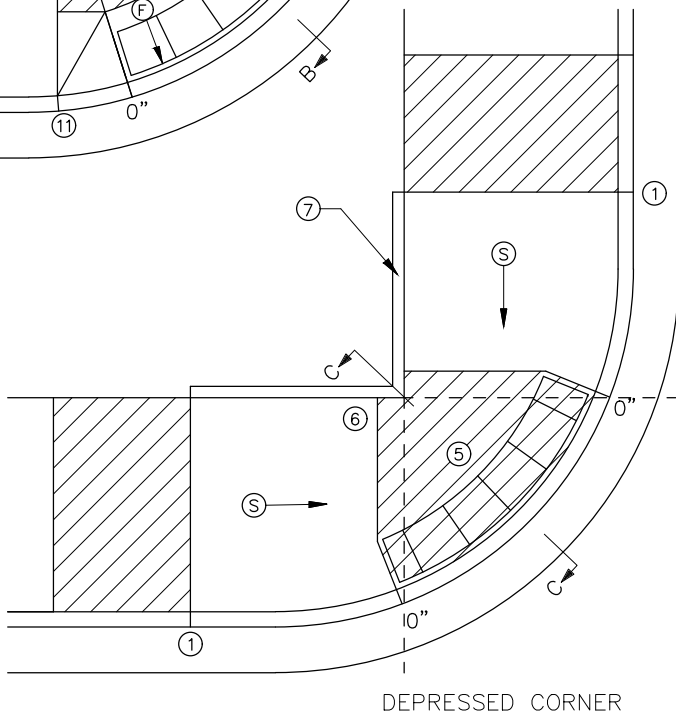
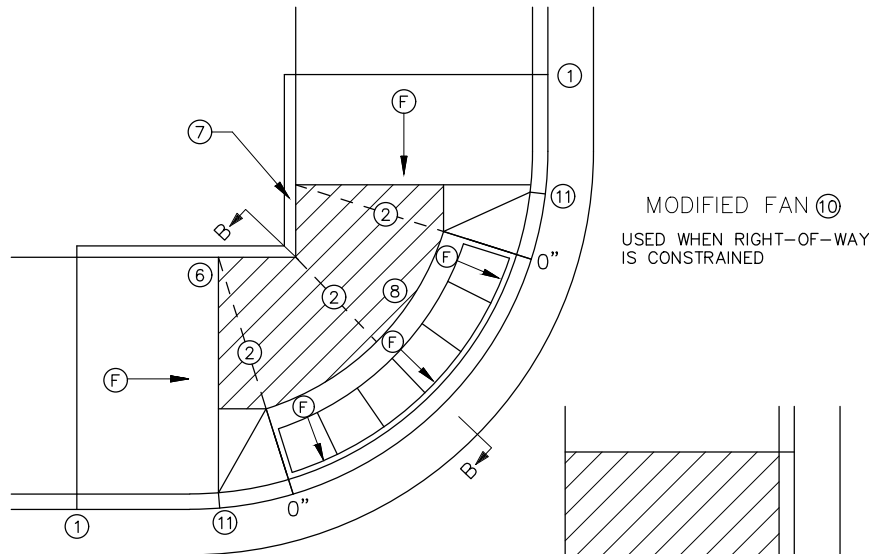
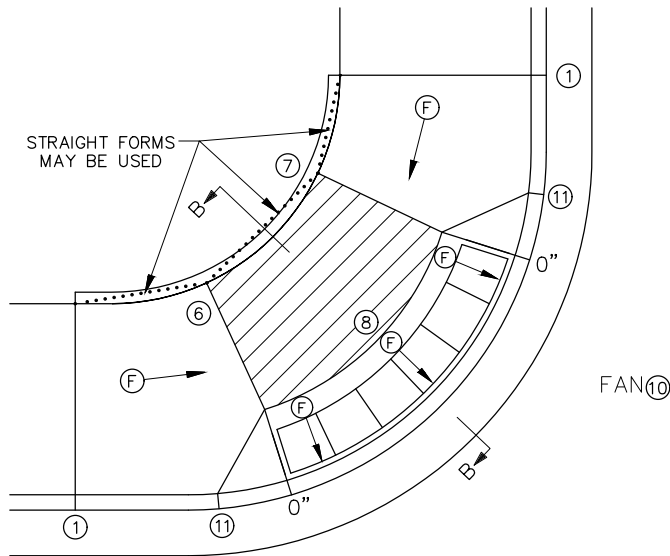
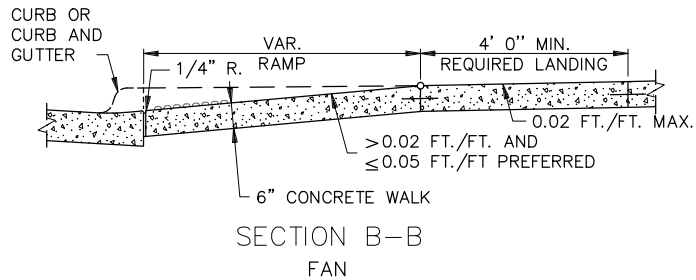
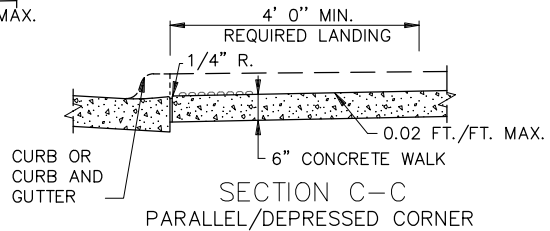
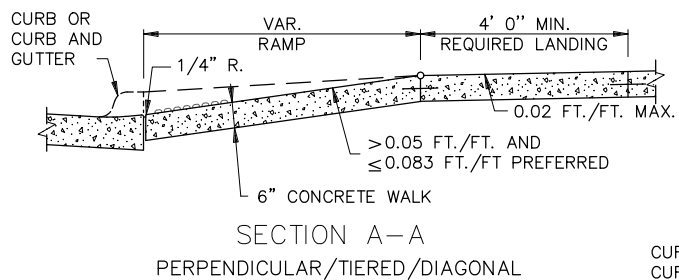
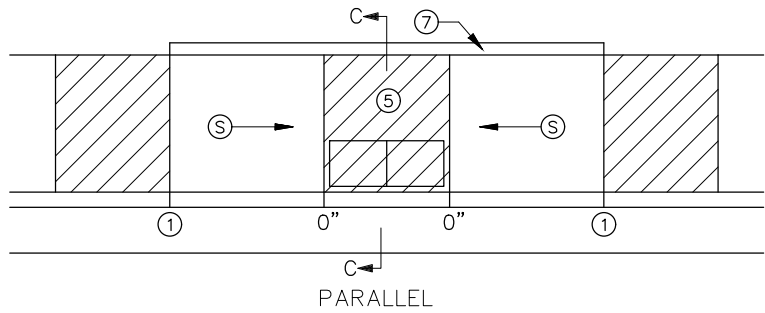
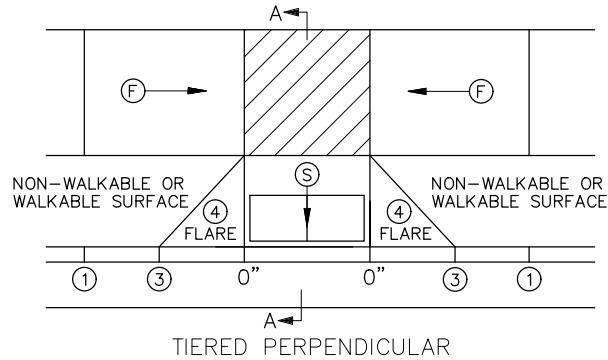
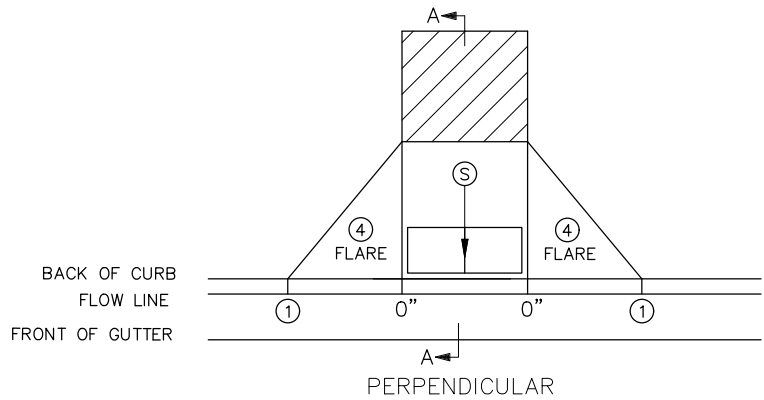
DETAILS

CITIES OF ANOKA AND ANDOVER, MINNESOTA

SHEET 8 OF 63 SHEETS

AD303

May 04, 2022 - 4:26pm
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NOTES:

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMP THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE GREATER THAN 2%.

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

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

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

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL, THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH. (EXCEPT AS STATED IN (6) BELOW.

TO ENSURE RAMP AND LANDINGS ARE PROPERLY CONSTRUCTED, ALL INITIAL LANDINGS AT A TOP OF A RAMPED SURFACE (RUNNING SLOPE GREATER THAN 2%) SHALL BE FORMED AND PLACED SEPARATELY IN AN INDEPENDENT CONCRETE POUR. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 OF 6 FOR ALL SEPARATELY POURED INITIAL LANDINGS.

WHEN SIDEWALK IS AT BACK OF CURB, TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE. MAINTAIN POSITIVE BOULEVARD DRAINAGE TO TOP OF CURB.

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

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMP. DETECTABLE WARNING SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER THE ENTIRE PAR WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK WITH THE EXCEPTION OF 3" MAXIMUM ON EACH OUTSIDE EDGE WHICH ENSURES THE DETECTABLE WARNING ARE ENCASED IN CONCRETE WHEN ADJACENT TO TURF. WHEN ADJACENT TO CONCRETE FLARES 0" - 3" OFFSET IS ALLOWED.

WHEN DESIGNING OR ORDERING RECTANGULAR DETECTABLE WARNING SURFACES SHOULD BE 6" LESS THAN THE INCOMING PAR. ARC LENGTH OF THE RADIAL DETECTABLE WARNING SHOULD NOT BE GREATER THAN 20 FEET.

RECTANGULAR DETECTABLE WARNING SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNING SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB.

- 1 MATCH FULL HEIGHT CURB.
- 2 4' MINIMUM DEPTH LANDING REQUIRED ACROSS TOP OF RAMP.
- 3 3" HIGH CURB WHEN USING A 3' LONG RAMP, 4" HIGH CURB WHEN USING A 4' LONG RAMP.
- 4 SEE SHEET 4 OF 6, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS.
- 5 DETECTABLE WARNING MAY BE PART OF THE 4' X 4' MIN. LANDING AREA IF IT IS NOT FEASIBLE TO CONSTRUCT THE LANDING OUTSIDE OF THE DETECTABLE WARNING AREA.
- 6 THE GRADE BREAK SHALL BE PERPENDICULAR TO THE BACK OF WALK. THIS WILL ENSURE THAT THE GRADE BREAK IS PERPENDICULAR TO THE DIRECTION OF TRAVEL. (TYPICAL FOR ALL)
- 7 WHEN ADJACENT TO GRASS, GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS LESS THAN 5% RUNNING SLOPE SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
- 8 A 7' MIN TOP RADIUS GRADE BREAK IS REQUIRED TO BE CONSTRUCTIBLE.
- 9 PAVE FULL WALK WIDTH.
- 10 "S" SLOPES ON FANS SHALL ONLY BE USED WHEN ALL OTHER FEASIBLE OPTIONS HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL.
- 11 INTERMEDIATE CURB HEIGHTS TAPER RAMP SHALL RISE AT 8-10% TO A MINIMUM 3" CURB HEIGHT. REDUCE INTERMEDIATE CURB HEIGHT TO 2+ INCHES IF NECESSARY TO MATCH ADJACENT BOULEVARD OR SIDEWALK GRADES.

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%.

(X) LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PAR.

X" CURB HEIGHT

REVISION:

APPROVED: 11-04-2021

Jeffrey Perkins
OPERATIONS DIVISION



STANDARD PLAN 5-297.250

1 OF 6

Tom Styrbicki
THOMAS STYRBICKI
STATE DESIGN ENGINEER

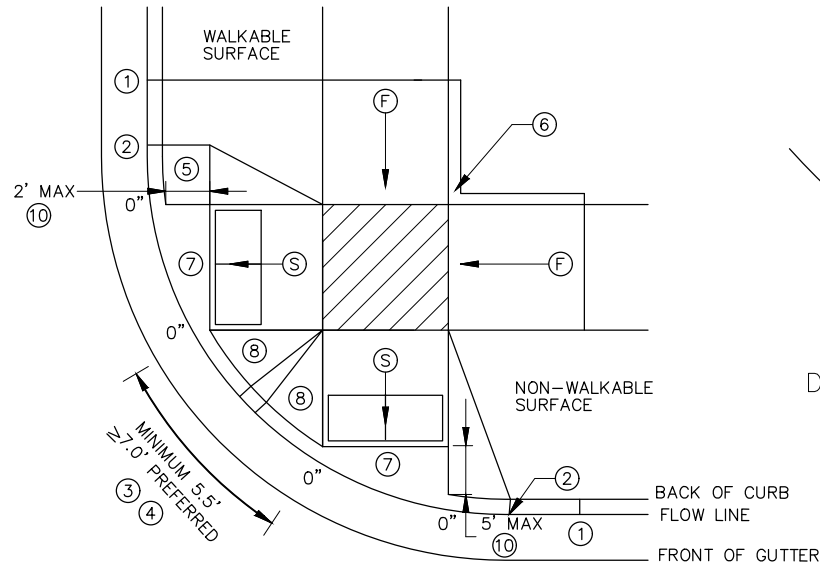
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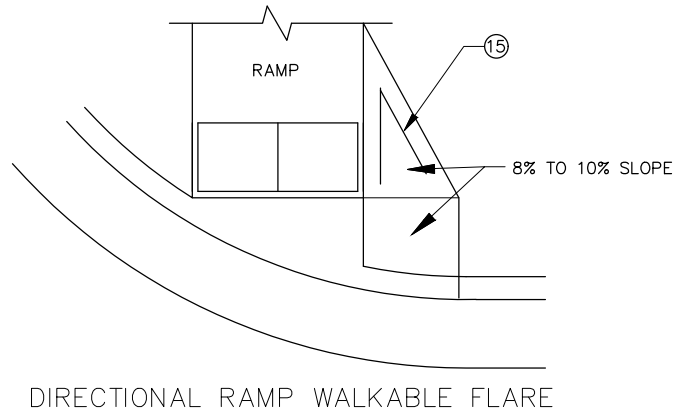
PEDESTRIAN CURB RAMP DETAILS

SHEET NO. 9 OF 63 SHEETS

May 04, 2022 - 4:26pm
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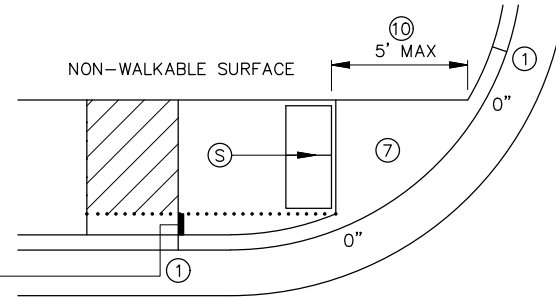


COMBINED DIRECTIONAL

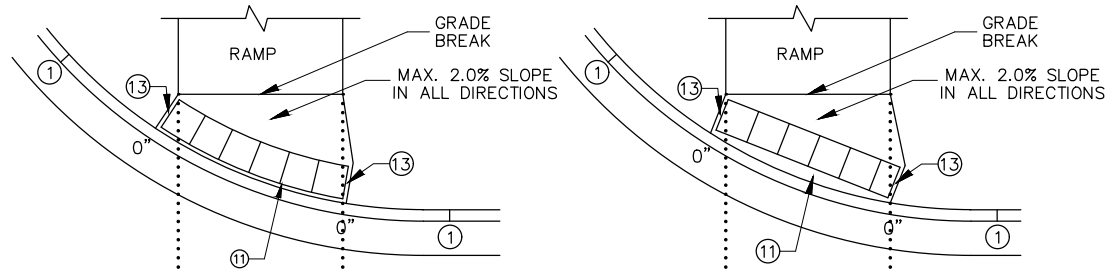


DIRECTIONAL RAMP WALKABLE FLARE

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

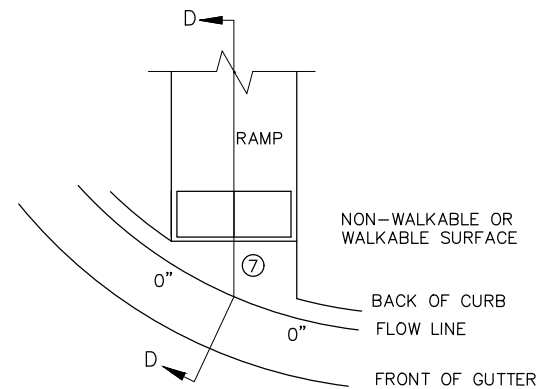


STANDARD ONE-WAY DIRECTIONAL ⑨

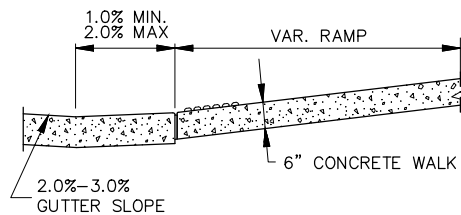


DETECTABLE WARNING PLACEMENT WHEN SETBACK CRITERIA IS EXCEEDED ⑫

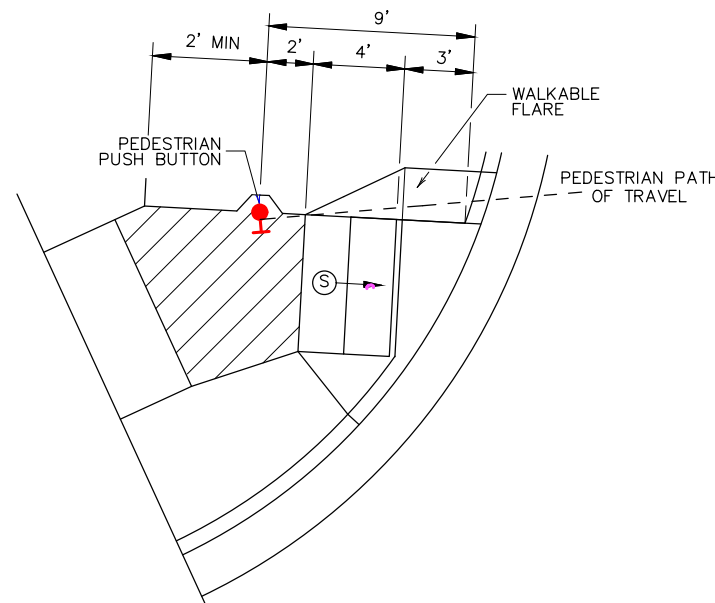
ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB



CURB FOR DIRECTIONAL RAMPS ⑭



SECTION D-D



SEMI-DIRECTIONAL RAMP ③④⑨

3' DOME SETBACK, 4' LONG RAMP AND PUSH BUTTON 9' FROM THE BACK OF CURB
PRIMARILY USED FOR APS APPLICATIONS WHERE THE PAR DOES NOT CONTINUE PAST THE PUSH BUTTON (DEAD-END SIDEWALK)

NOTES:

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

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

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

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

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

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

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

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

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

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER THE ENTIRE PAR WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK WITH THE EXCEPTION OF 3" MAXIMUM ON EACH OUTSIDE EDGE WHICH ENSURES THE DETECTABLE WARNINGS ARE ENCASED IN CONCRETE WHEN ADJACENT TO TURF. WHEN ADJACENT TO CONCRETE FLARES 0' - 3" OFFSET IS ALLOWED.

WHEN DESIGNING OR ORDERING RECTANGULAR DETECTABLE WARNING SURFACES SHOULD BE 6" LESS THAN THE INCOMING PAR. ARC LENGTH OF THE RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.

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

① MATCH FULL CURB HEIGHT.

② 3" HIGH CURB WHEN USING A 3' LONG RAMP
4" HIGH CURB WHEN USING A 4' LONG RAMP.

③ 3" MINIMUM CURB HEIGHT (5.5' MIN. DISTANCE REQUIRED BETWEEN DOMES)
4" PREFERRED (7' MIN. DISTANCE REQUIRED BETWEEN DOMES).

④ THE "BUMP" IN BETWEEN THE RAMPS SHOULD NOT BE IN THE PATH OF TRAVEL FOR COMBINED DIRECTIONAL RAMPS. IF THIS OCCURS MODIFY THE RAMP LOCATION OR SWITCH RAMP TO A FAN/DEPRESSED CORNER.

⑤ WHEN USING CONCRETE PAVED FLARES ON THE OUTSIDE OF DIRECTIONAL RAMPS, AND ADJACENT TO A WALKABLE SURFACE, DIRECTIONAL RAMP FLARES SHALL BE USED. SEE THE DETAIL ON THIS SHEET.

⑥ GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.

⑦ MAX. 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK AND DRAIN TO FLOW LINE. SHALL BE CONSTRUCTED INTEGRAL WITH CURB AND GUTTER.

⑧ 8% TO 10% WALKABLE FLARE.

⑨ PLACE DOMES AT THE BACK OF CURB WHEN ALLOWABLE SETBACK CRITERIA IS EXCEEDED.

⑩ FRONT EDGE OF DETECTABLE WARNING SHALL BE SET BACK 2' MAXIMUM WHEN ADJACENT TO WALKABLE SURFACE, AND 5' MAXIMUM WHEN ADJACENT TO NON-WALKABLE SURFACE WITH ONE CORNER SET 3' FROM BACK OF CURB. A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.

⑪ RECTANGULAR DETECTABLE WARNINGS MAY BE SETBACK UP TO 9' FROM THE BACK OF CURB WITH CORNERS SET 3' FROM BACK OF CURB. IF 9" SETBACK IS EXCEEDED USE RADIAL DETECTABLE WARNINGS.

⑫ FOR DIRECTIONAL RAMPS WITH THE DETECTABLE WARNINGS PLACED AT THE BACK OF CURB, THE DETECTABLE WARNINGS SHALL COVER THE ENTIRE WIDTH OF THE WALK/PATH. THIS ENSURES A DETECTABLE EDGE AND HELPS ELIMINATE THE CURB TAPER OBSTRUCTING THE PATH OF PEDESTRIAN TRAVEL.

⑬ THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.

⑭ TO BE USED FOR ALL DIRECTIONAL RAMPS, EXCEPT WHERE DOMES ARE PLACED ALONG THE BACK OF CURB.

⑮ PLACE 2 NO. 4 BARS 4 INCHES FROM SIDE OF FORMS WITH A MINIMUM 2 INCHES OF CONCRETE COVER ALONG EACH SIDE OF FLARE (INCIDENTAL).

LEGEND

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

⑤ INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.

⑥ INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.

⑦ LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PAR.

X" CURB HEIGHT

REVISION:

APPROVED: 11-04-2021

Jeffrey Perkins
OPERATIONS DIVISION



STANDARD PLAN 5-297.250

2 OF 6

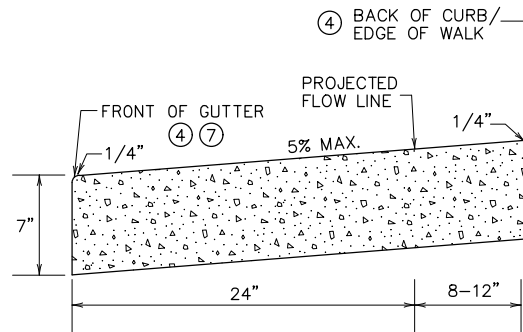
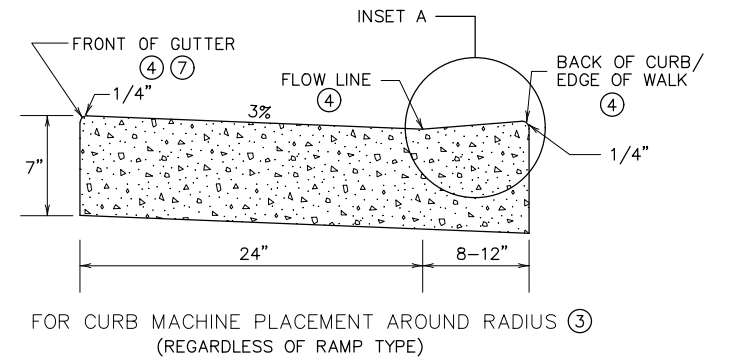
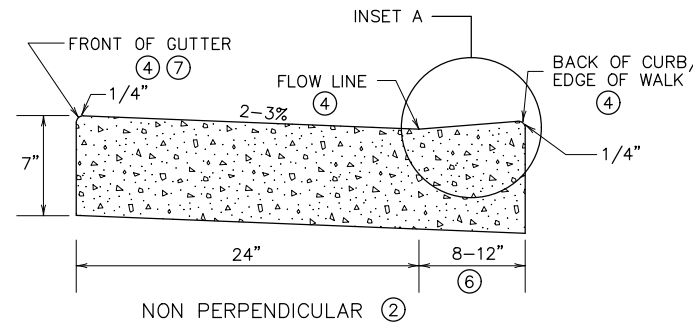
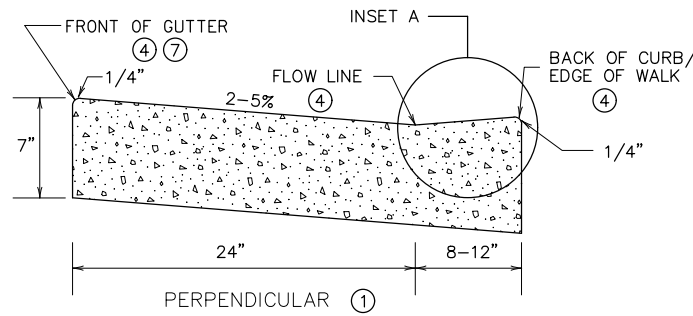
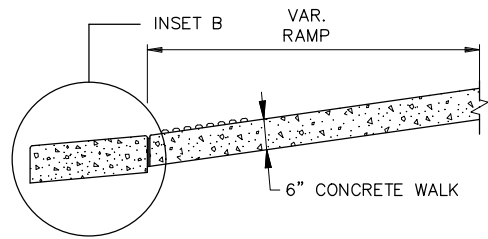
THOMAS STYRBICKI
STATE DESIGN ENGINEER

APPROVED: 11-04-2021
REVISED:

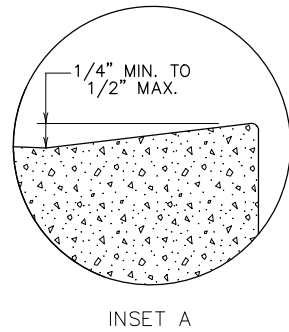
PEDESTRIAN CURB RAMP DETAILS

SHEET NO. 10 OF 63 SHEETS

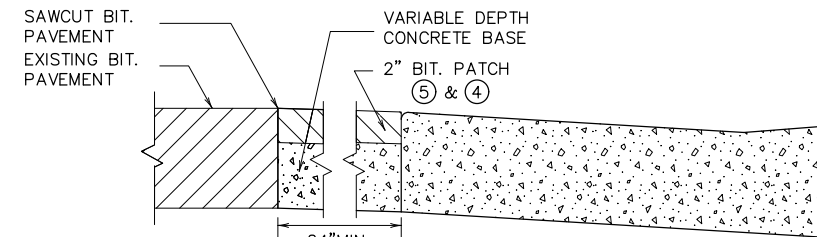
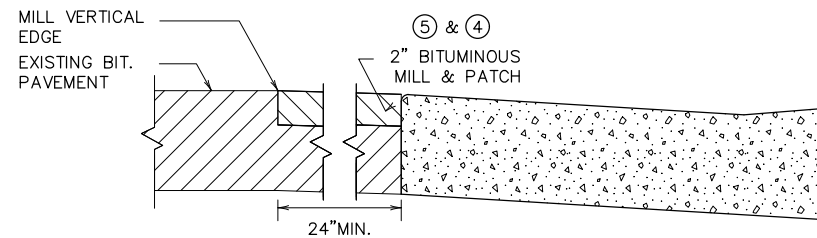
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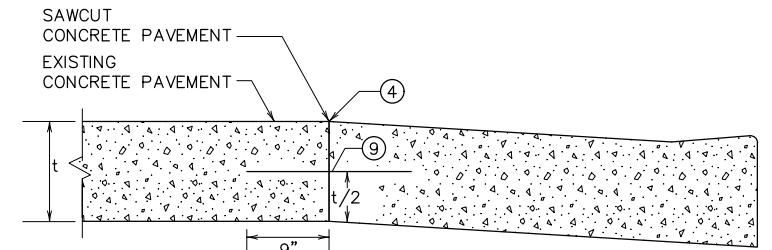
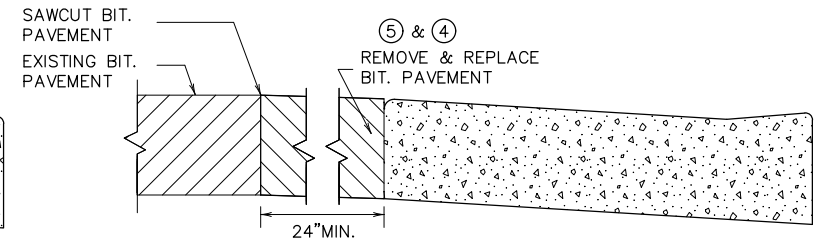
INSET B
OUTFLOW GUTTER ⑧



INSET A



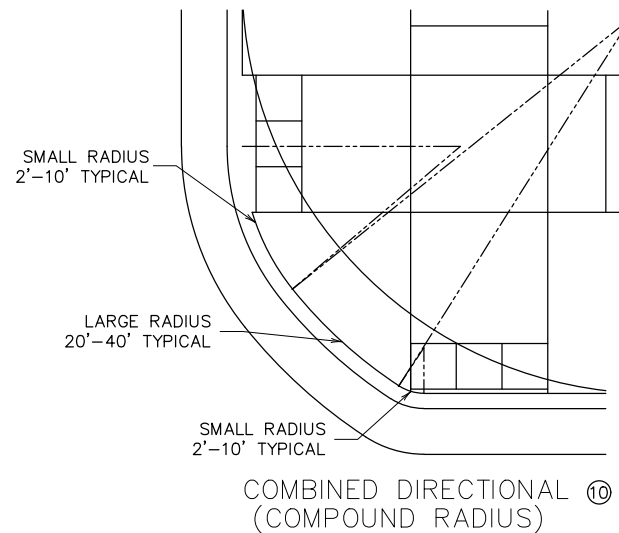
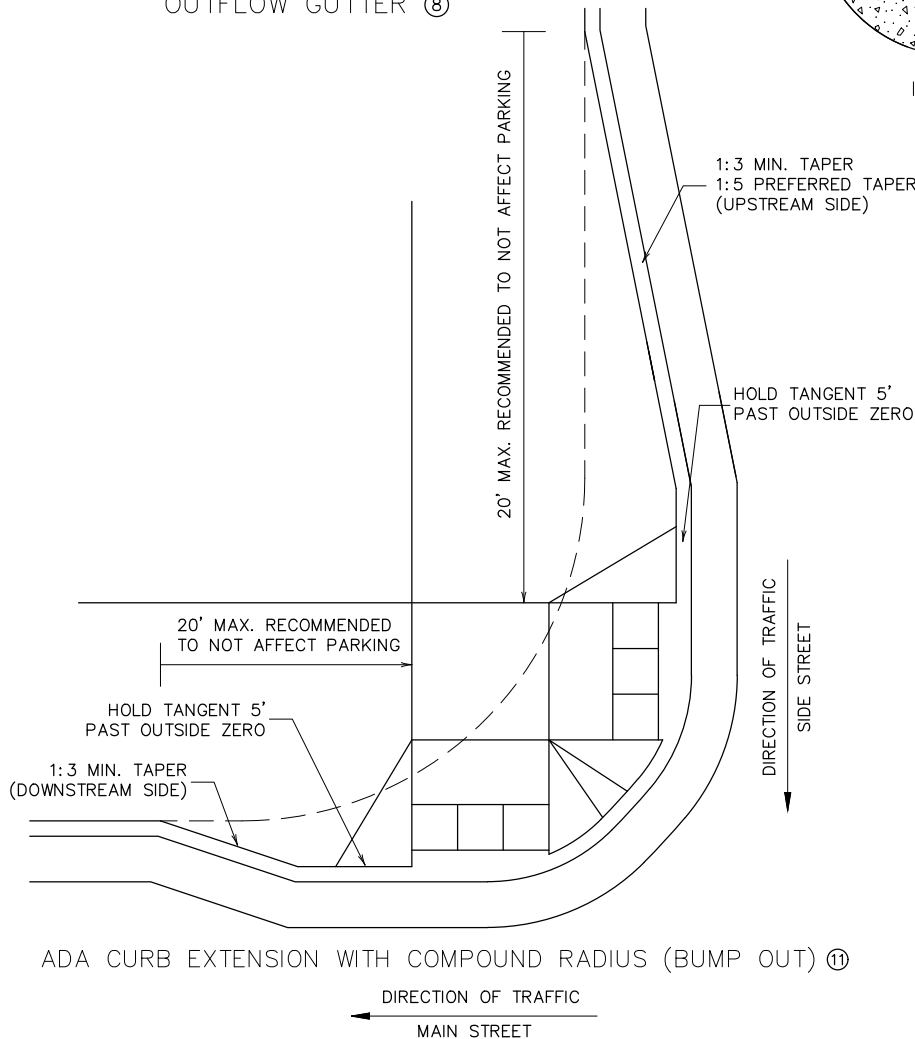
ONLY ALLOWED PER ENGINEER'S APPROVAL



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



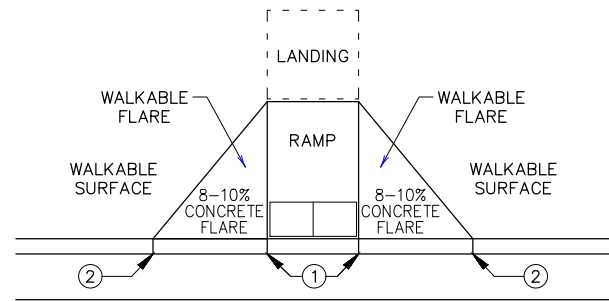
REVISION:
APPROVED: 11-04-2021 Jeffrey Perkins OPERATIONS DIVISION



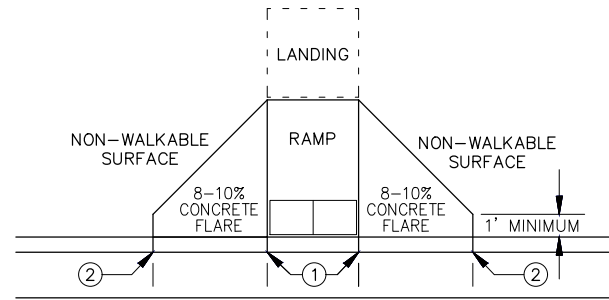
STANDARD PLAN 5-297.250	3 OF 6
APPROVED: 11-04-2021 REVISOR: THOMAS STYRBICKI STATE DESIGN ENGINEER	

PEDESTRIAN CURB RAMP DETAILS

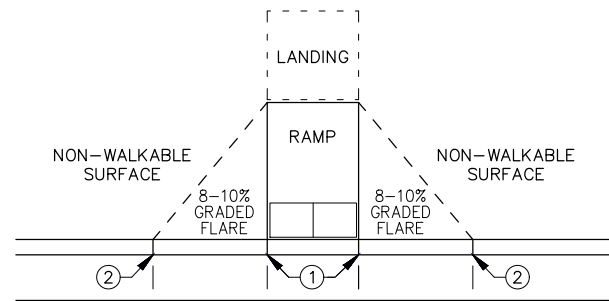
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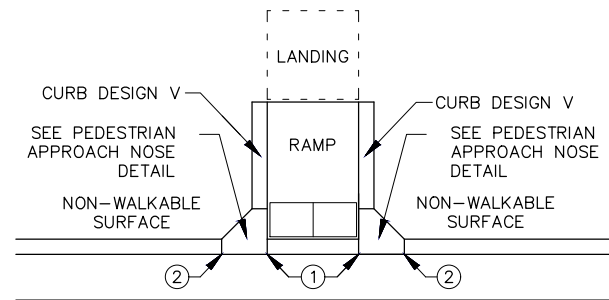
PAVED FLARES
ADJACENT TO WALKABLE SURFACE



PAVED FLARES
ADJACENT TO NON-WALKABLE SURFACE

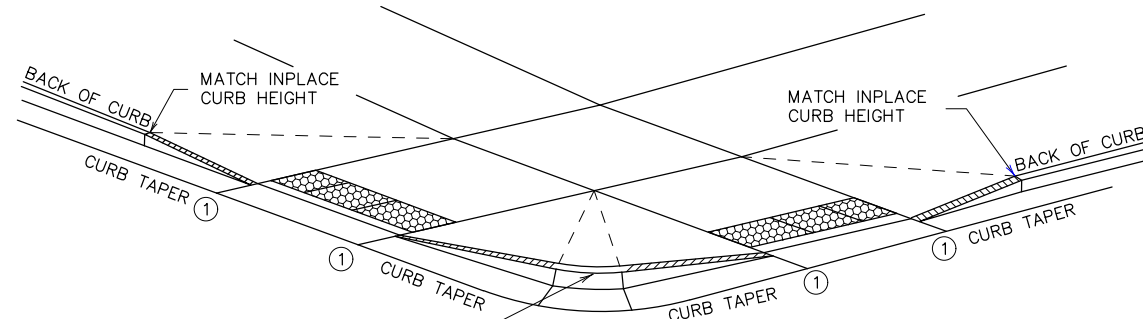


GRADED FLARES



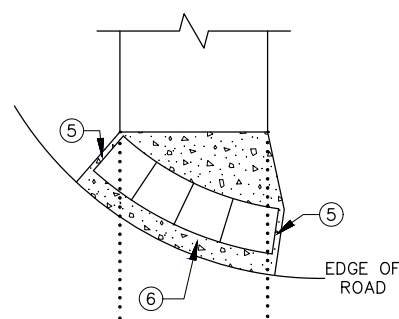
RETURNED CURB ④

TYPICAL SIDE TREATMENT OPTIONS ③ ⑩

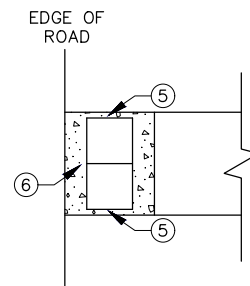


3" MINIMUM CURB HEIGHT, 4" PREFERRED
(MEASURED AT FRONT FACE OF CURB)
FOR A MIN. 6" LENGTH (MEASURED ALONG FLOW LINE)

DETECTABLE EDGE WITH CURB AND GUTTER ⑦

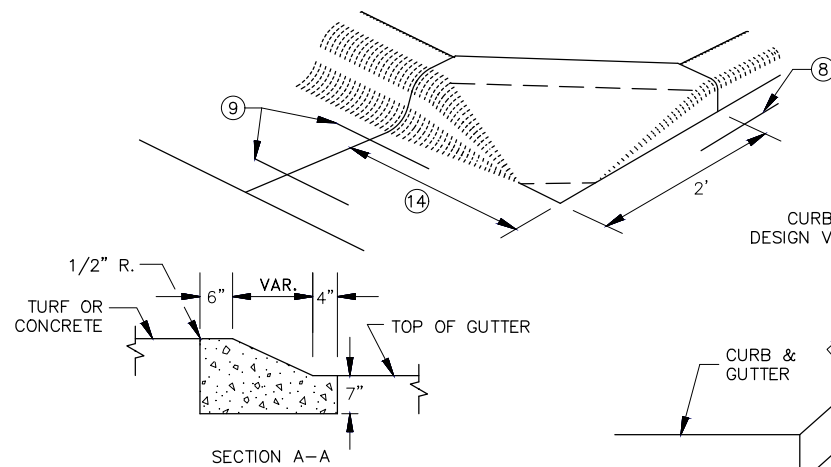


RADIAL DETECTABLE WARNING

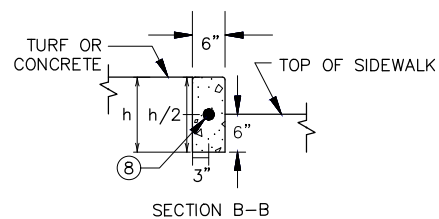


RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER

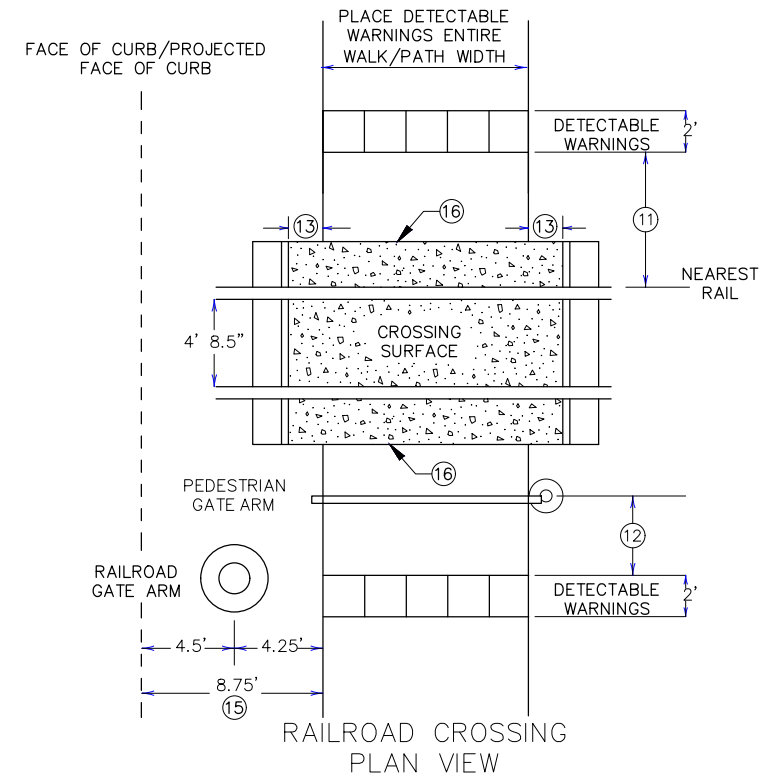


SECTION A-A



SECTION B-B

PEDESTRIAN APPROACH
NOSE DETAIL
(FOR RETURNED CURB
SIDE TREATMENT)



- NOTES:
- INTERMEDIATE CURB HEIGHTS TAPER SHALL RISE AT 8-10% TO A MINIMUM 3 INCH CURB HEIGHT. INCREASE CURB TAPER LENGTH AT LESS THAN 8% OR REDUCE INTERMEDIATE CURB HEIGHT TO 2+ INCHES IF NECESSARY TO MATCH ADJACENT BOULEVARD OR SIDEWALK GRADES.
- SEE STANDARD PLATE 7038 AND THIS SHEET FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.
- A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.
- CONCRETE FLARE LENGTHS ADJACENT TO NON-WALKABLE SURFACES SHOULD BE LESS THAN 8' LONG MEASURED ALONG THE RAMPS FROM THE BACK OF CURB.
- ① 0" CURB HEIGHT. SEE INSET A ON SHEET 3 OF 6.
- ② FULL CURB HEIGHT.
- ③ SIDE TREATMENTS ARE APPLICABLE TO ALL RAMP TYPES AND SHOULD BE IMPLEMENTED AS NEEDED AS FIELD CONDITIONS DICTATE. THE ENGINEER SHALL DETERMINE THE RAMP SIDE TREATMENTS BASED ON MAINTENANCE OF BOTH ROADWAY AND SIDEWALK, ADJACENT PROPERTY CONSIDERATIONS, AND MITIGATING CONSTRUCTION IMPACTS.
- ④ TYPICALLY USED FOR MEDIANS AND ISLANDS.
- ⑤ WHEN NO CONCRETE FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE EDGE OF ROADWAY. MAINTAIN 3" MAX. BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
- ⑥ IF NO CURB AND GUTTER IS PLACED IN RURAL SECTIONS, DETECTABLE WARNINGS SHALL BE PLACED 1' FROM THE EDGE OF BITUMINOUS ROADWAY AND/OR BITUMINOUS SHARED-USE PATH TO PROVIDE VISUAL CONTRAST.
- ⑦ 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.
- ⑧ DRILL AND GROUT 1 - NO. 4 12" LONG REINFORCEMENT BAR (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE V CURB.
- ⑨ DRILL AND GROUT 2 - NO. 4 12" LONG REINFORCEMENT BARS (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE CURB AND GUTTER.
- ⑩ SIDE TREATMENT EXAMPLES SHOWN ARE WHEN THE INITIAL LANDING IS APPROXIMATELY LEVEL WITH THE FULL HEIGHT CURB (I.E. 6' LONG RAMP FOR 6" HIGH CURB). WHEN THE INITIAL LANDING IS MORE THAN 1" BELOW FULL HEIGHT CURB REFER TO SHEETS 1 & 2 TO MODIFY THE CURB HEIGHT TAPERS AND MAINTAIN POSITIVE BOULEVARD DRAINAGE. CONSTRUCT THESE TAPER AT 0"-3" AT 8-10%, THEN LESS THAN 5% FROM 3" CURB TO FULL CURB HEIGHT.
- ⑪ NEAREST EDGE OF DETECTABLE WARNING SURFACES SHALL BE PLACED 12' MINIMUM TO 15' MAXIMUM FROM THE NEAREST RAIL. FOR SKEWED RAILWAYS IN NO INSTANCE SHALL THE DETECTABLE WARNING BE CLOSER THAN 12' MEASURED PERPENDICULAR TO THE NEAREST RAIL.
- ⑫ WHEN PEDESTRIAN GATES ARE PROVIDED, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE SIDE OF THE GATES OPPOSITE THE RAIL, 2' FROM THE APPROACHING SIDE OF THE GATE ARM. THIS CRITERIA GOVERNS OVER NOTE ⑪.
- ⑬ CROSSING SURFACE SHALL EXTEND 2' MINIMUM PAST THE OUTSIDE EDGE OF WALK OR SHARED-USE PATH.
- ⑭ 3' FOR MEDIANS AND SPLITTER ISLANDS. NOSE CAN BE REDUCED TO 2' ON FREE RIGHT ISLANDS.
- ⑮ SIDEWALK TO BE PLACED 8.75' MIN. FROM THE FACE OF CURB/PROJECTED FACE OF CURB. THIS ENSURES MIN. CLEARANCE BETWEEN THE SIDEWALK AND GATE ARM COUNTERWEIGHT SUPPORTS.
- ⑯ CONSTRUCT WITH EXPANSION MATERIAL PER MNDOT SPECIFICATION 3702 TYPES A-E. EXPANSION MATERIAL SHALL MATCH FULL HEIGHT OF ADJACENT CONCRETE.

REVISION:

APPROVED: 11-04-2021

Jeffrey Perkins
OPERATIONS DIVISION



STANDARD PLAN 5-297.250

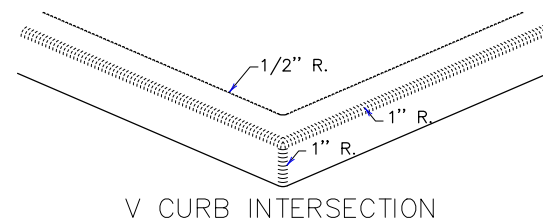
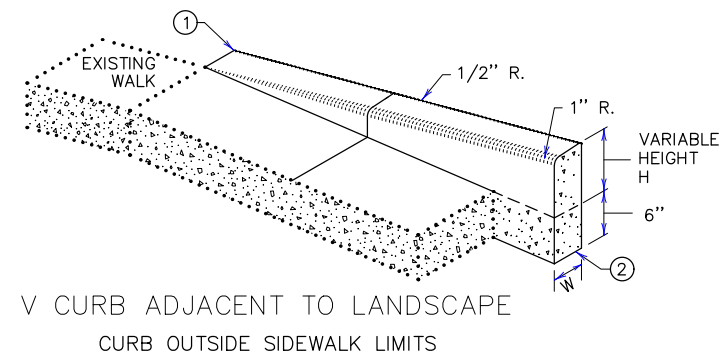
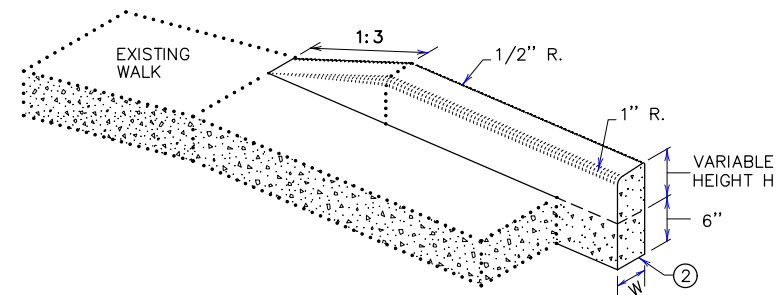
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THOMAS STYRBICKI
STATE DESIGN ENGINEER

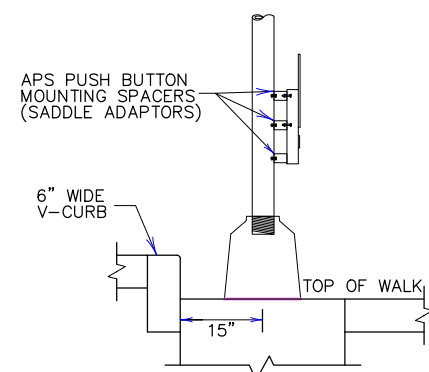
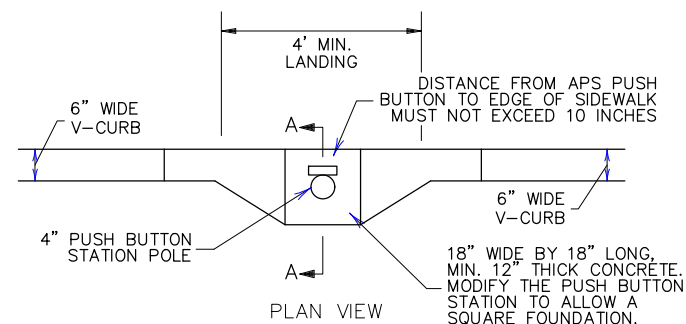
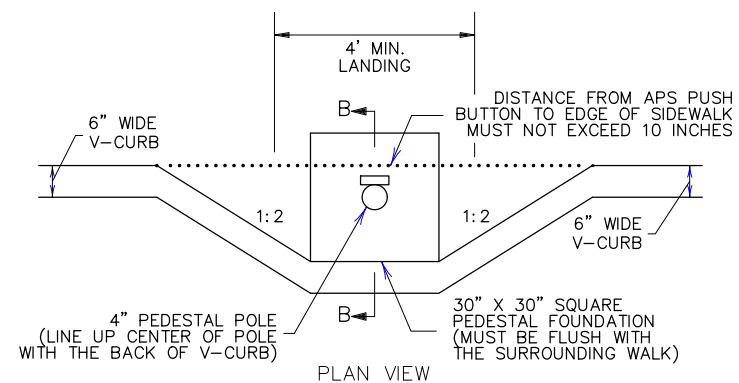
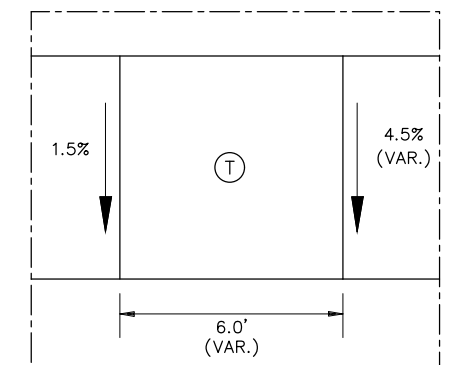
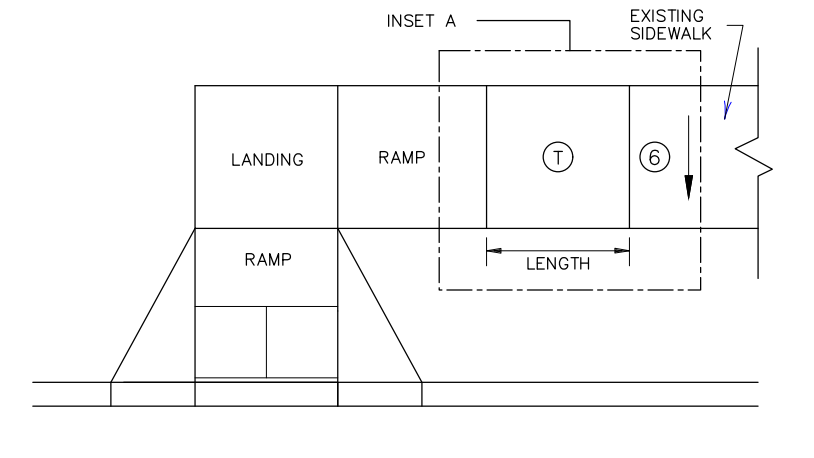
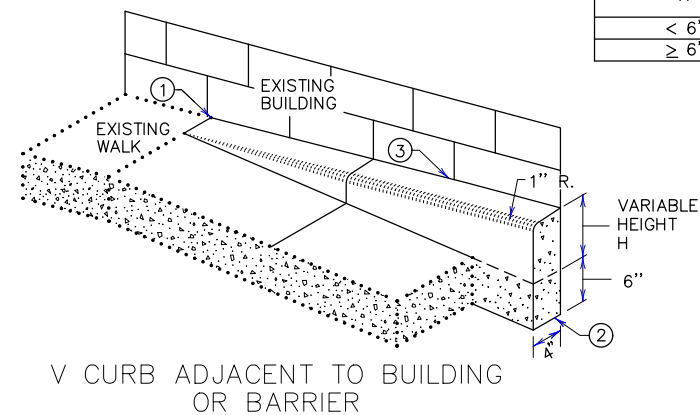
APPROVED: 11-04-2021
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PEDESTRIAN CURB RAMP DETAILS

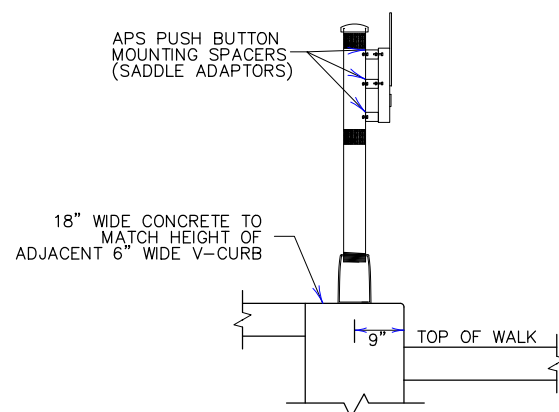
SHEET NO. 12 OF 63 SHEETS



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



SECTION B-B
SIGNAL PEDESTAL & PUSH BUTTON (V-CURB)



SECTION A-A
PUSH BUTTON STATION (V-CURB)

NOTES:

A WALKABLE FLARE IS AN 8-10% CONCRETE FLARE THAT IS REQUIRED WHEN THE FLARE IS ADJACENT TO A WALKABLE SURFACE, OR WHEN THE PEDESTRIAN PATH OF TRAVEL OF A PUSH BUTTON TRAVERSES THE FLARE.

ALL V CURB CONTRACTION JOINTS SHALL MATCH CONCRETE WALK JOINTS.

WHERE RIGHT-OF-WAY ALLOWS, USE OF V CURB SHOULD BE MINIMIZED. GRADING ADJACENT TURF OR SLOPING ADJACENT PAVEMENT IS PREFERRED.

V CURB SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.

V CURB NEXT TO BUILDING SHALL BE A 4" WIDTH AND SHALL MATCH PREVIOUS TOP OF SIDEWALK ELEVATIONS.

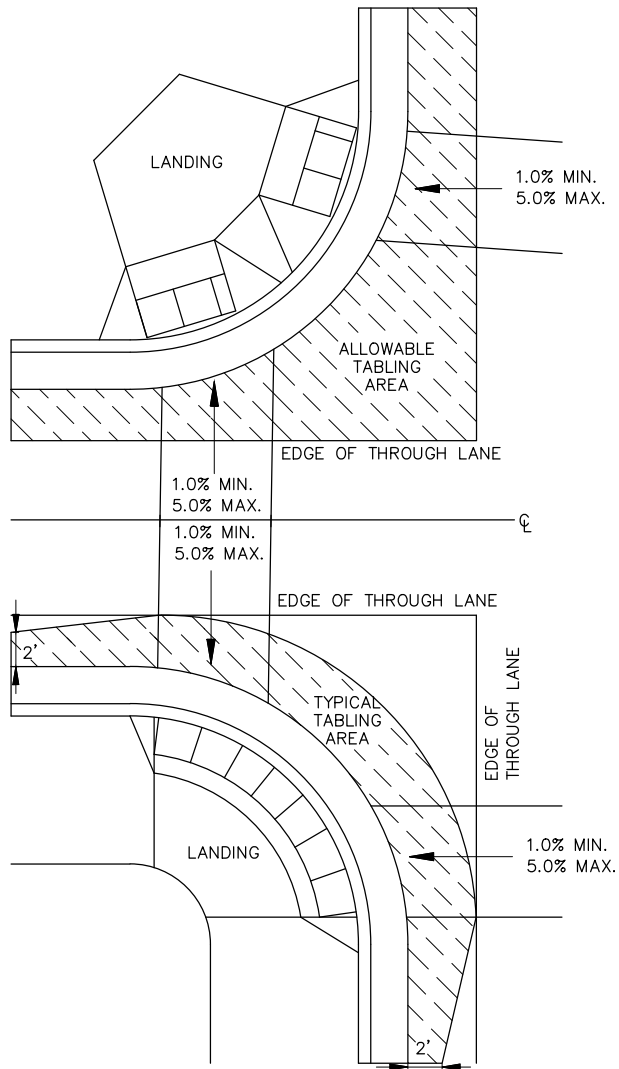
- ① END TAPERS AT TRANSITION SECTION SHALL MATCH INPLACE SIDEWALK GRADES.
- ② ALL V CURB SHALL MATCH BOTTOM OF ADJACENT WALK.
- ③ CONSTRUCT USING APPROVED EXPANSION MATERIAL PER MNDOT TYPE A-E EXPANSION. LEAVE A MINIMUM 1/2" TOP GAP AND SEAL WITH MNDOT APPROVED SILICONE PER MNDOT SPEC 3722.
- ④ THE MAX. RATE OF CROSS SLOPE TRANSITIONING IS 1' LINEAR FOOT OF SIDEWALK PER HALF PERCENT CROSS SLOPE. WHEN PAR WIDTH IS GREATER THAN 6' OR THE RUNNING SLOPE IS GREATER THAN 5%, DOUBLE THE CALCULATED TRANSITION LENGTH.
- ⑤ TRANSITION PANELS ARE TO ONLY BE USED AFTER THE RAMP, OR IF NEEDED, LANDING ARE AT THE FULL CURB HEIGHT (TYPICAL SECTION).
- ⑥ EXISTING CROSS SLOPE GREATER THAN 2.0%.

LEGEND

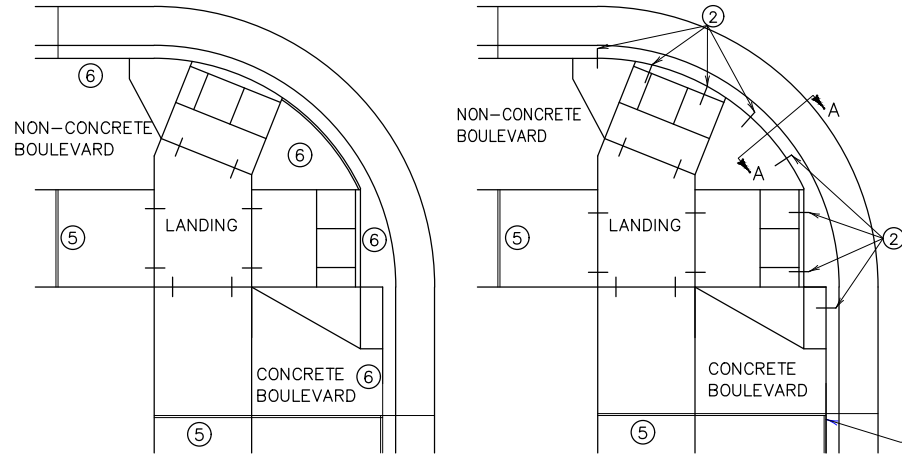
THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

- (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%.
-  LANDING AREA — 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.
- (T) TRANSITION PANEL(S) — TO BE USED FOR TRANSITIONING THE CROSS-SLOPE OF A RAMP TO THE EXISTING WALK CROSS-SLOPE. RATE OF TRANSITION SHOULD BE 0.5% PER 1 LINEAR FOOT OF WALK. SEE THIS SHEET FOR ADDITIONAL INFORMATION.

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CURB LINE AND ROAD CROSSING ADJUSTMENTS

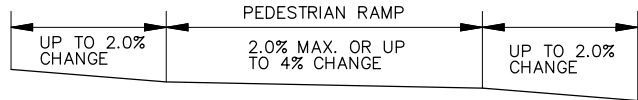


EXPANSION MATERIAL PLACEMENT
FOR CONCRETE ROADWAYS

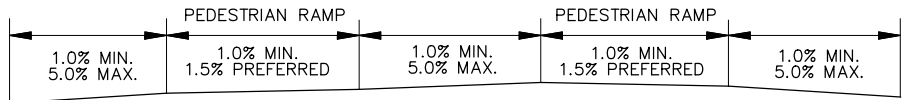
CURB LINE REINFORCEMENT ④
PLACEMENT ON BITUMINOUS ROADWAYS



FLOW LINE PROFILE "TABLE" - TWIN PERPENDICULARS



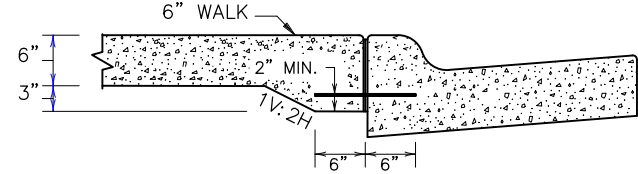
FLOW LINE PROFILE "TABLE" - FAN



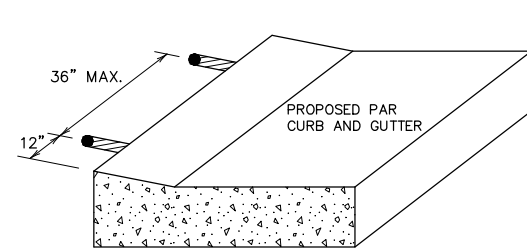
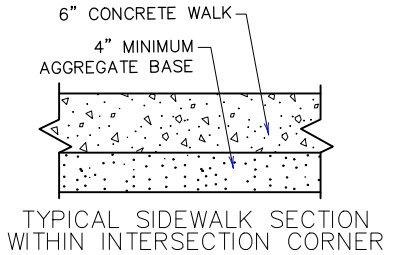
FLOW LINE PROFILE RAISE - TWIN PERPENDICULARS



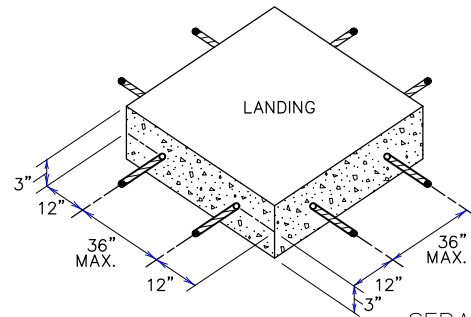
FLOW LINE PROFILE RAISE - FAN



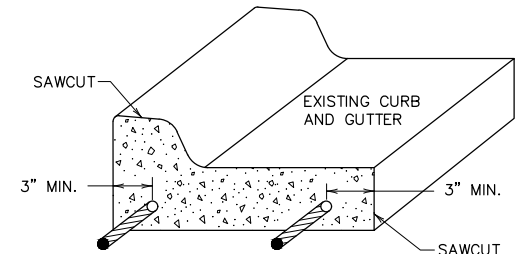
SECTION VIEW A-A
THICKENED SECTION
THROUGH CURB RAMP FLARES



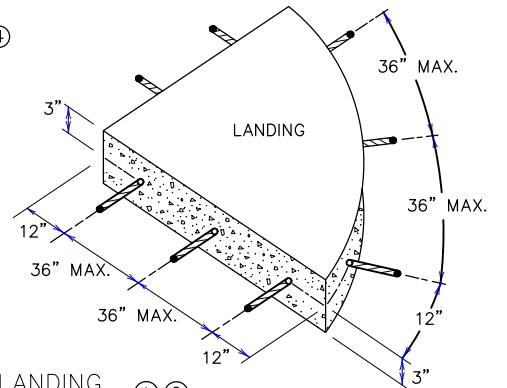
CURB RAMP REINFORCEMENT DETAILS ② ④



SEPARATE LANDING
POUR REINFORCEMENT ① ②



CURB AND GUTTER
REINFORCEMENT ③



GENERAL NOTES:

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

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

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

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

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

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

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

NOTES:

- ① TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, ALL INITIAL LANDINGS AT A TOP OF A RAMPED SURFACE (RUNNING SLOPE GREATER THAN 2%) SHALL BE FORMED AND PLACED SEPARATELY IN AN INDEPENDENT CONCRETE POUR. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON THIS SHEET FOR ALL SEPARATELY POURED INITIAL LANDINGS.
- ② DRILL AND GROUT NO. 4 12" LONG REINFORCEMENT BARS (EPOXY COATED) AT 36" MAXIMUM CENTER TO CENTER MINIMUM 12" SPACING FROM CONSTRUCTION JOINTS. BARS TO BE ADJUSTED TO MATCH RAMP GRADE. BARS TO BE PAID BY EACH.
- ③ DRILL AND GROUT 2 - NO. 4 X 12" LONG (6" EMBEDDED) REINFORCEMENT BARS (EPOXY COATED). REINFORCEMENT REQUIRED FOR ALL CONSTRUCTION JOINTS. BARS TO BE PAID BY EACH.
- ④ THIS CURB LINE REINFORCEMENT DETAIL SHALL BE USED ON BITUMINOUS ROADWAYS. FOR CONCRETE ROADWAYS, SEE NOTE 6.
- ⑤ CONSTRUCT WITH EXPANSION MATERIAL PER MNDOT SPECIFICATION 3702 TYPES A-E. EXPANSION MATERIAL SHALL MATCH FULL HEIGHT OF ADJACENT CONCRETE.
- ⑥ USE AN APPROVED TYPE F (1/4 INCH THICK) SEPARATION MATERIAL. SEPARATION MATERIAL SHALL MATCH FULL HEIGHT DIMENSION OF ADJACENT CONCRETE.

REVISION:

APPROVED: 11-04-2021

Jeffrey Perkins
OPERATIONS DIVISION



STANDARD PLAN 5-297.250

6 OF 6

Thomas Tyrbicki
STATE DESIGN ENGINEER

APPROVED: 11-04-2021

REVISED:

PEDESTRIAN CURB RAMP DETAILS

SHEET NO. 14 OF 63 SHEETS

May 04, 2022 - 4:27pm
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GENERAL NOTES FOR SHEETS 16-23:

- 1. ALL CONTRACTOR TRAFFIC WITHIN THE CITIES OF ANOKA AND ANDOVER SHALL BE LIMITED TO THE PROJECT AREA, DESIGNATED HAUL ROUTES, APPROVED CITY COLLECTOR STREETS OR COUNTY AND STATE HIGHWAYS.
- 2. IF THE REMOVAL PLANS INDICATE THE REMOVAL OF STOP SIGNS, STREET IDENTIFICATION SIGNS OR ANY ESSENTIAL SIGNS OR TRAFFIC CONTROL DEVICES, THE CONTRACTOR SHALL MAINTAIN THESE SIGNS IN PLACE UNTIL THE PERMANENT SIGNS ARE INSTALLED. THESE SIGNS MAY REQUIRE TEMPORARY REMOVAL AND REPLACEMENT TO COMPLETE THE WORK. MAINTENANCE OF THE EXISTING SIGNS SHALL BE INCIDENTAL.
- 3. THE TRAFFIC CONTROL DEPICTED ON SHEETS 16-23 ARE CONSIDERED THE MINIMUM TRAFFIC CONTROL REQUIRED TO COMPLETE THE CONSTRUCTION IN THE REQUIRED PHASES. THE CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIAL AND EQUIPMENT REQUIRED TO PROVIDE A SAFE WORK SPACE AT ALL TIMES. THE TRAFFIC CONTROL PHASES SHOWN DO NOT DEPICT TRAFFIC CONTROL THAT IS REQUIRED FOR CONSTRUCTION OF THE SURFACE MILLING, BITUMINOUS WEARING COURSE, PERMANENT SIGNING, AND STRIPING. CONTRACTOR SHALL PROVIDE LAYOUTS FOR APPROVAL BY THE ENGINEER FOR THESE WORK ITEMS. UNLESS NOTED ON THE TRAFFIC CONTROL PLANS AND PROVIDED FOR ON THE BID FORM ALL TRAFFIC CONTROL REQUIRED TO COMPLETE THIS PROJECT SHALL BE INCIDENTAL TO ITEM 2563-TRAFFIC CONTROL.
- 4. ALL TEMPORARY TRAFFIC CONTROL SIGNS, UNLESS OTHERWISE NOTED SHALL BE CONSTRUCTED ON TWO PERMANENT POSTS. POSTS SHALL BE REMOVED UPON COMPLETION OF THE PROJECT, OR UNTIL NO LONGER NEEDED, AND ALL DISTURBED AREAS SHALL BE RESTORED.
- 5. ALL SIGNS SHALL BE REMOVED WITHIN 48 HOURS AFTER THEY ARE NO LONGER NEEDED OR AS DIRECTED B THE ENGINEER.
- 6. FULL ACCESS AT ALL DRIVEWAYS SHALL BE MAINTAINED AND REMAIN FULLY OPERATIONAL AT ALL TIMES. DRIVEWAYS WITHIN THE WORK SPACE MAY BE CLOSED FOR A SHORT PERIOD OF TIME FOR CONSTRUCTION. CLOSURE OF ALL DRIVEWAYS SHALL BE COORDINATED WITHE THE PROPERTY OWNER AND CITY. DRIVEWAYS SHALL NOT BE CLOSED BEFORE 9:00 A.M. OR AFTER 3:00 P.M. ALL LABOR, MATERIALS AND EQUIPMENT REQUIRED TO MAINTAIN ACCESS SHALL BE INCIDENTAL.
- 7. AS SHOWN ON THE RECONSTRUCTION PLANS, THE ENTIRE STREET NEEDS TO BE CROSSED IN ONE LOCATION TO CONSTRUCT A STORM SEWER CROSSINGS. TRAFFIC CONTROL PHASES SHOWN DO NOT DEPICT TRAFFIC CONTROL THAT IS REQUIRED TO CONSTRUCT THIS CROSSING. CONTRACTOR SHALL PROVIDE LAYOUTS FOR APPROVAL BY THE ENGINEER FOR CONSTRUCTION OF UTILITY CROSSINGS. ALL TRAFFIC CONTROL REQUIRED TO COMPLETE THIS WORK SHALL BE INCIDENTAL TO ITEM 2563-TRAFFIC CONTROL.
- 8. CONTRACTOR SHALL COORDINATE SIGNAL TIMING WITH CITY AND ANOKA COUNTY HIGHWAY DEPARTMENT FOR ALL PHASES OF TRAFFIC.

LEGEND FOR SHEETS 16-23

- WORK SPACE
- TYPE B CHANNELIZER DRUM
- SIGN
- TYPE III BARRICADE

DATE	REVISION

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.


CRAIG J. JOCHUM, P.E.
Date 5/3/22 Lic. No. 23461

DESIGNED BY:
TAE

DRAWN BY:
DMS

CHECKED BY:
CJJ



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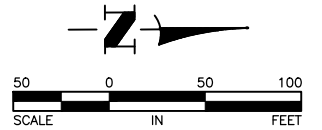
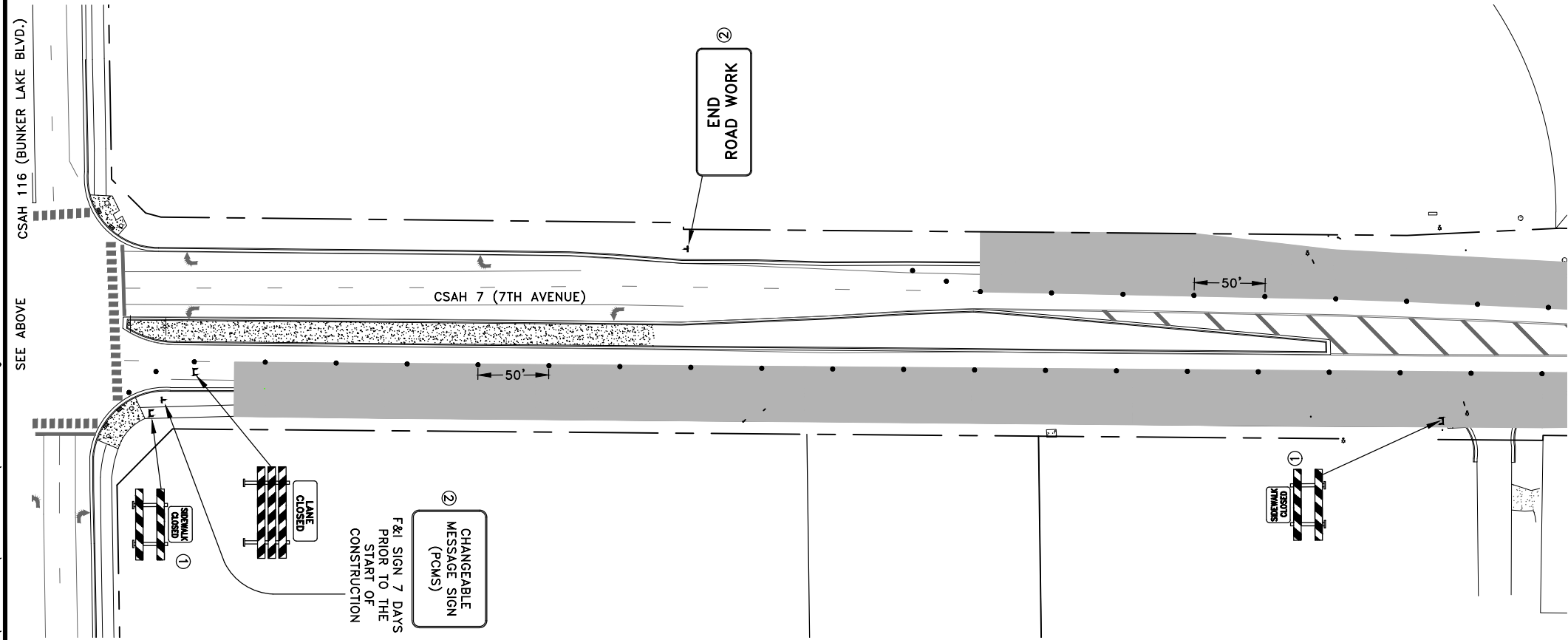
CSAH 7 AND 143RD AVENUE
INTERSECTION IMPROVEMENT PROJECT

TEMPORARY TRAFFIC CONTROL
NOTES AND LEGEND

CITIES OF ANOKA AND ANDOVER, MINNESOTA

SHEET
15
OF
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SHEETS

May 04, 2022 - 4:27pm
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- REFERENCE NOTES:
- ① SIDEWALK BARRICADE SHALL BE PER FIGURE 6K-5.
 - ② SIGN TO REMAIN UNTIL ALL CONSTRUCTION IS COMPLETE.

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Craig J. Jochem
CRAIG J. JOCHUM, P.E.
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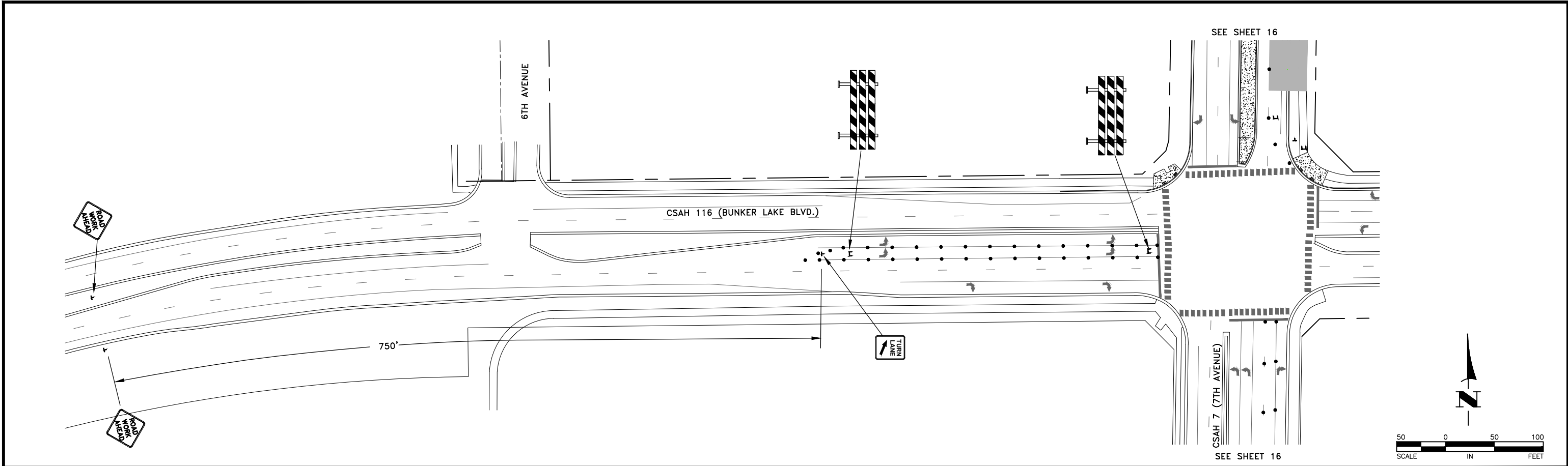
**CSAH 7 AND 143RD AVENUE
INTERSECTION IMPROVEMENT PROJECT**

TRAFFIC CONTROL PHASE 1

CSAH 7 CONSTRUCTION
CITIES OF ANOKA AND ANDOVER, MINNESOTA

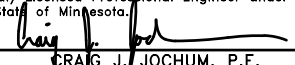
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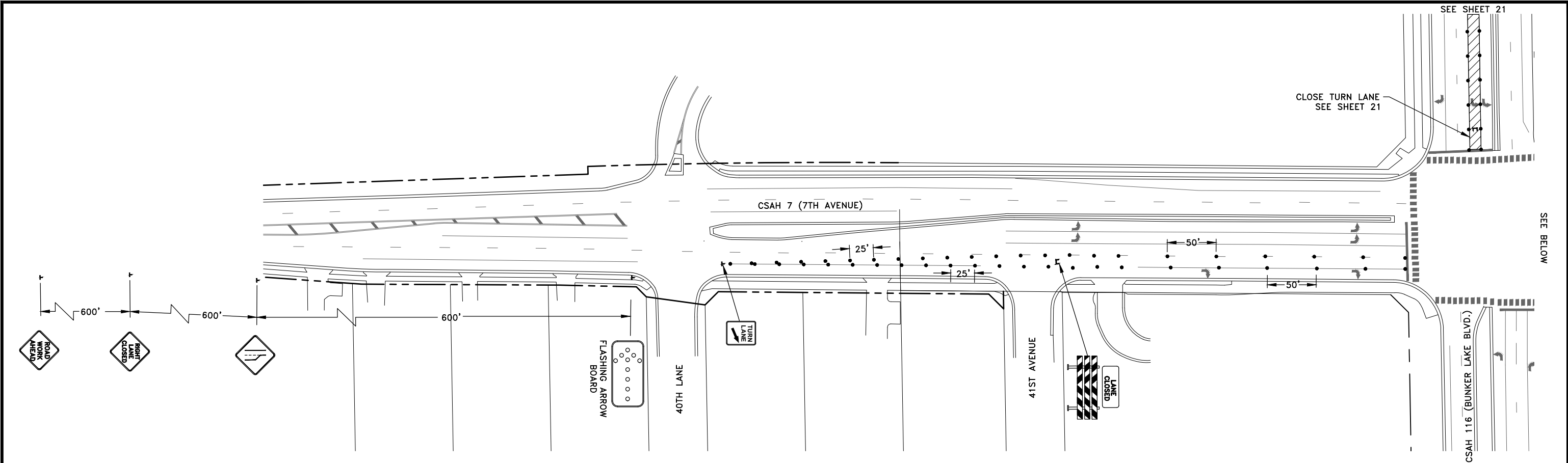
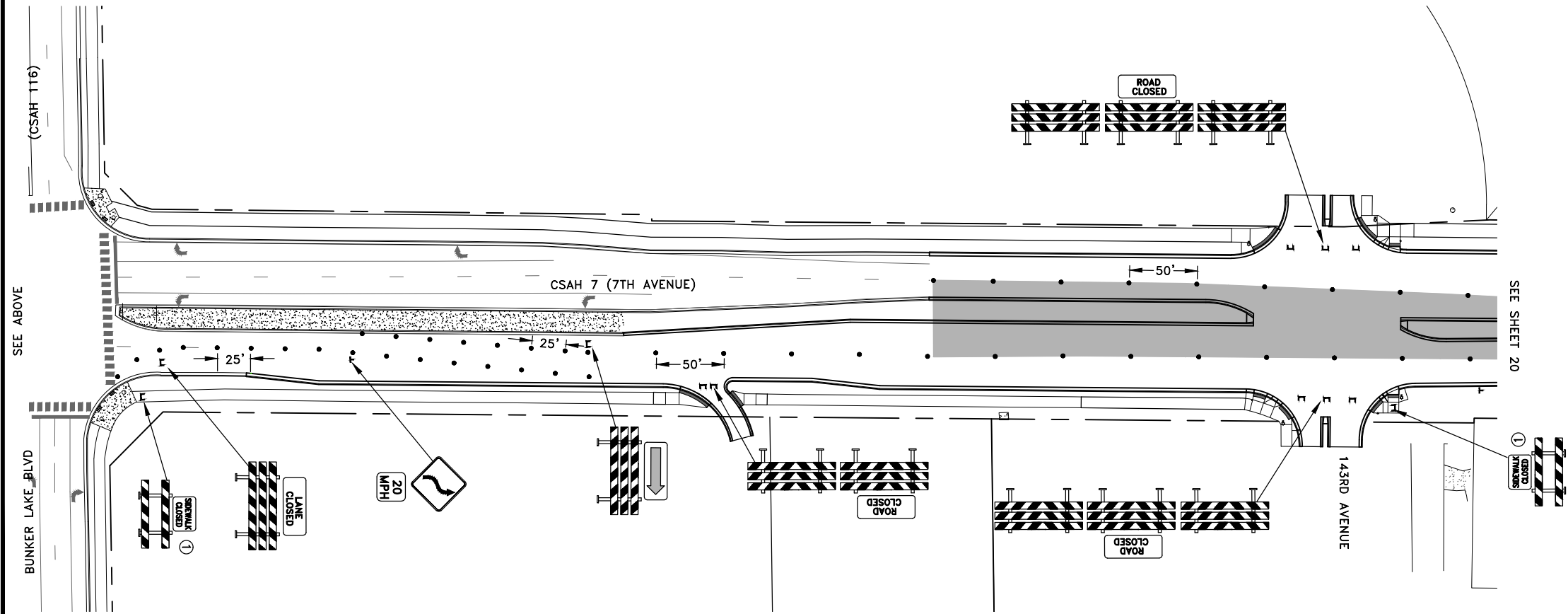
CSAH 7 AND 143RD AVENUE
INTERSECTION IMPROVEMENT PROJECT

TRAFFIC CONTROL PHASE 1

CSAH 7 CONSTRUCTION
CITIES OF ANOKA AND ANDOVER, MINNESOTA

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Craig J. Jochem
CRAIG J. JOCHUM, P.E.
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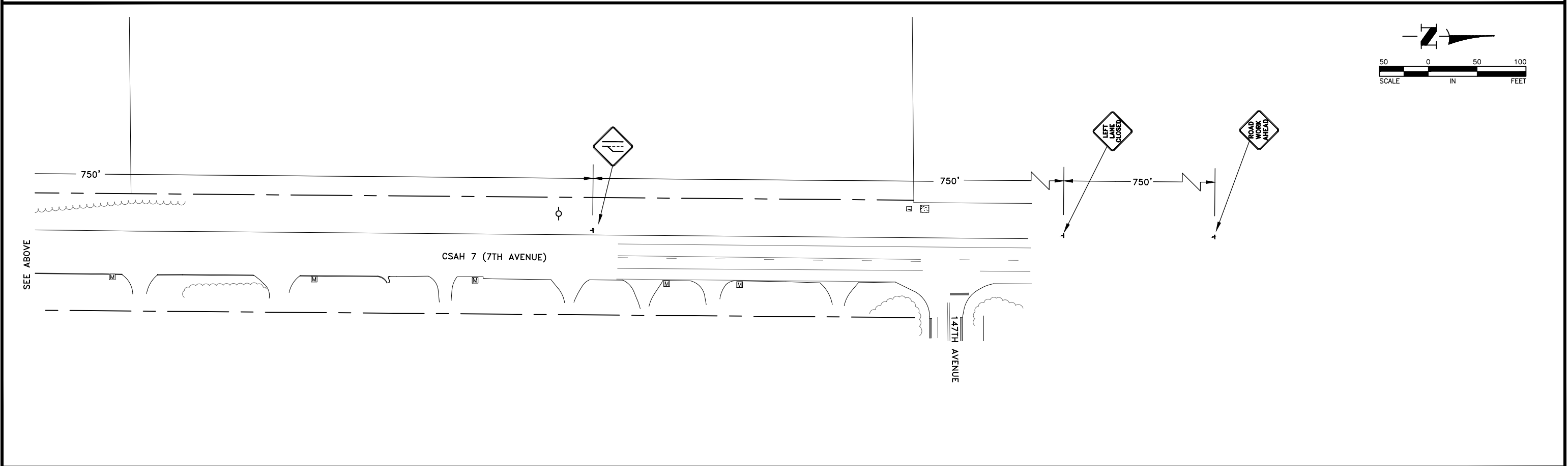
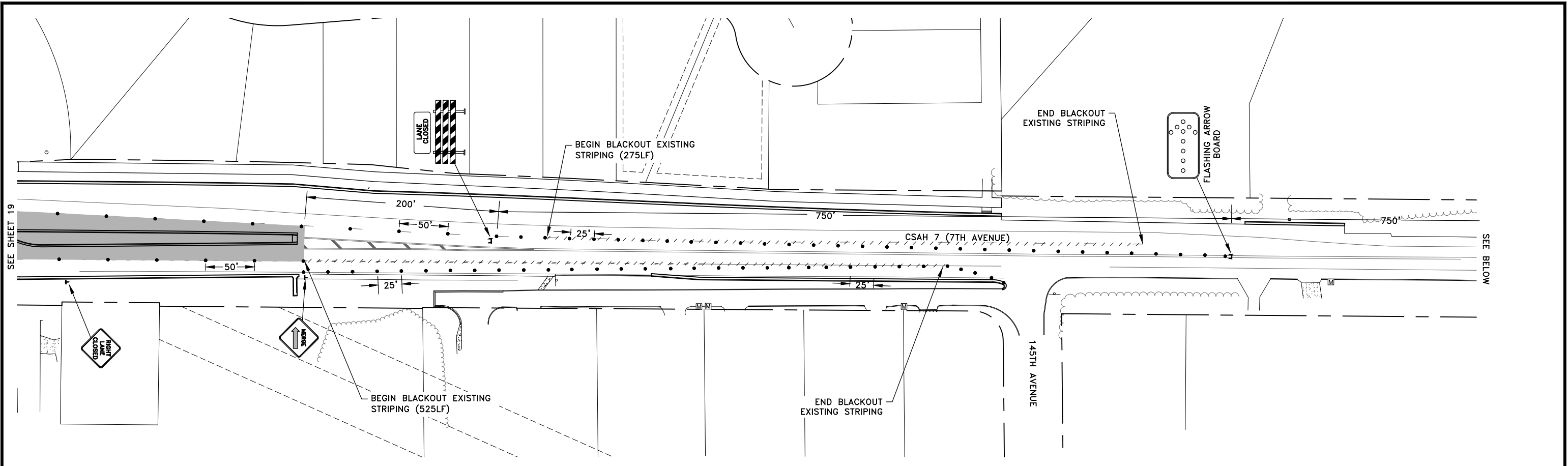
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**CSAH 7 AND 143RD AVENUE
INTERSECTION IMPROVEMENT PROJECT**

TRAFFIC CONTROL PHASE 2
CSAH 7 CONSTRUCTION
CITIES OF ANOKA AND ANDOVER, MINNESOTA

SHEET 19 OF 63 SHEETS
AD303

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Craig J. Jochem
CRAIG J. JOCHUM, P.E.
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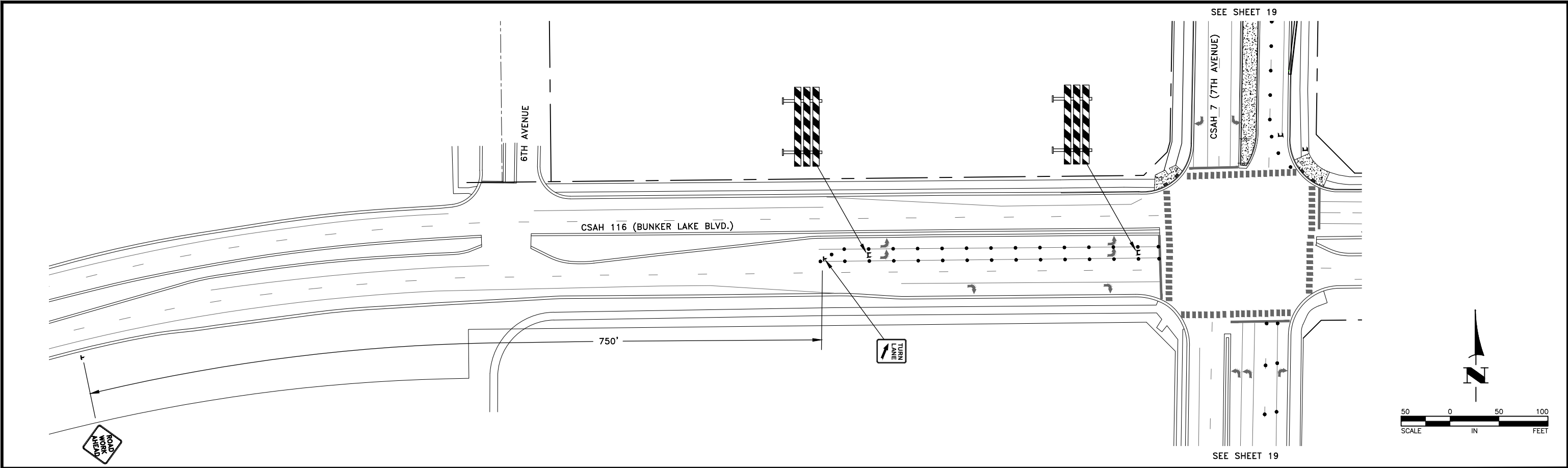
**CSAH 7 AND 143RD AVENUE
INTERSECTION IMPROVEMENT PROJECT**

TRAFFIC CONTROL PHASE 2

**CSAH 7 CONSTRUCTION
CITIES OF ANOKA AND ANDOVER, MINNESOTA**

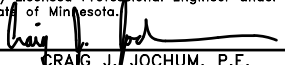
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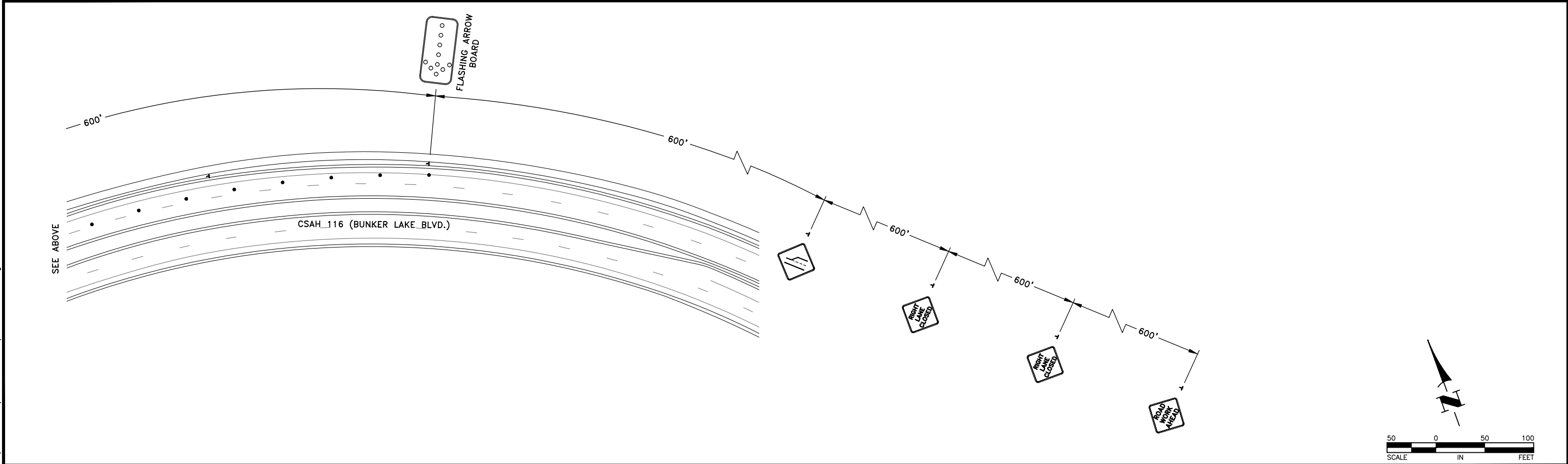
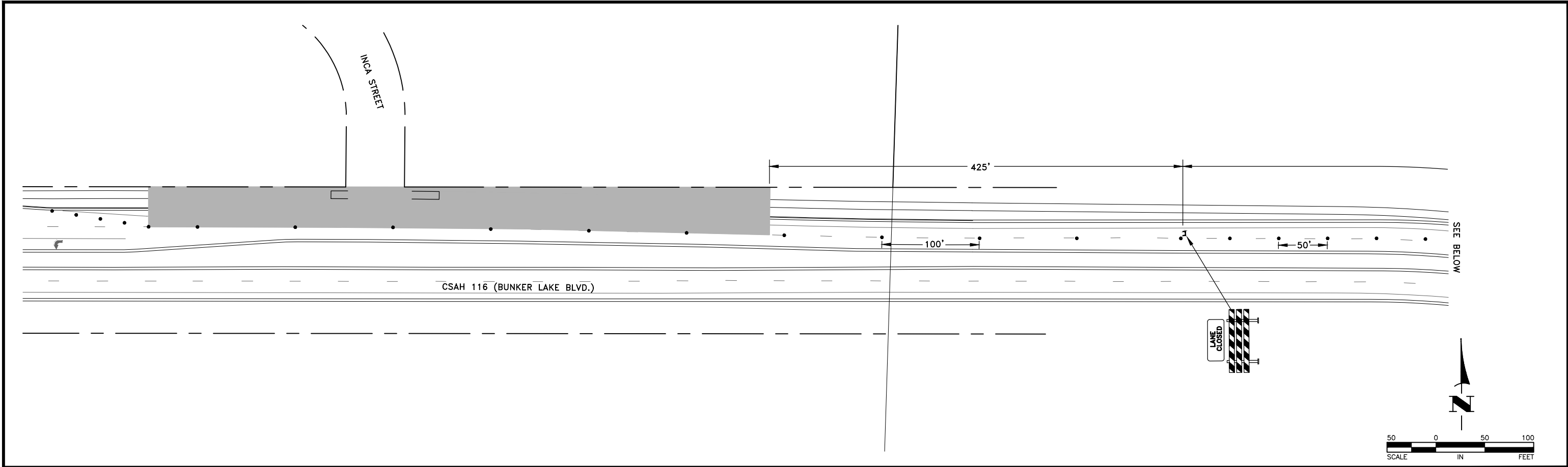
CSAH 7 AND 143RD AVENUE
INTERSECTION IMPROVEMENT PROJECT

TRAFFIC CONTROL PHASE 2

CSAH 7 CONSTRUCTION
CITIES OF ANOKA AND ANDOVER, MINNESOTA

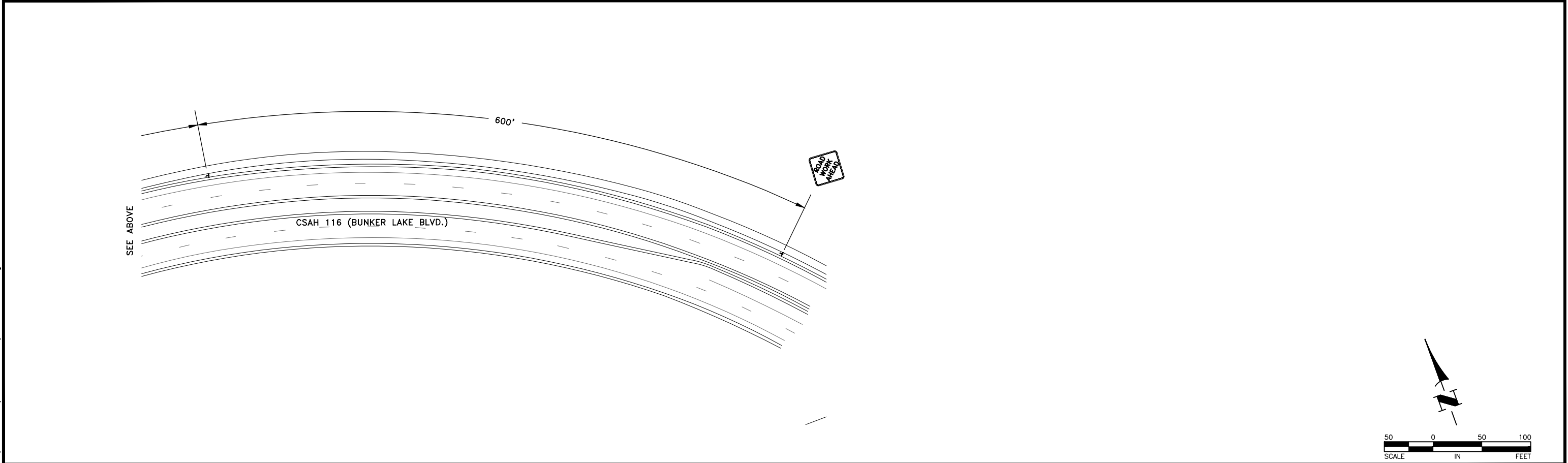
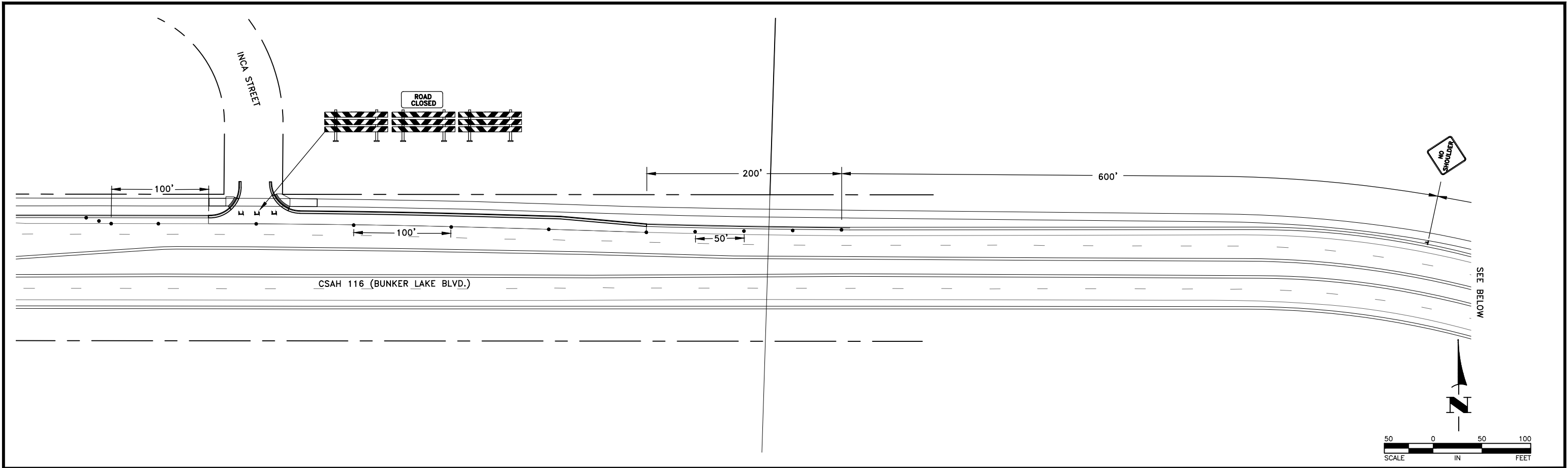
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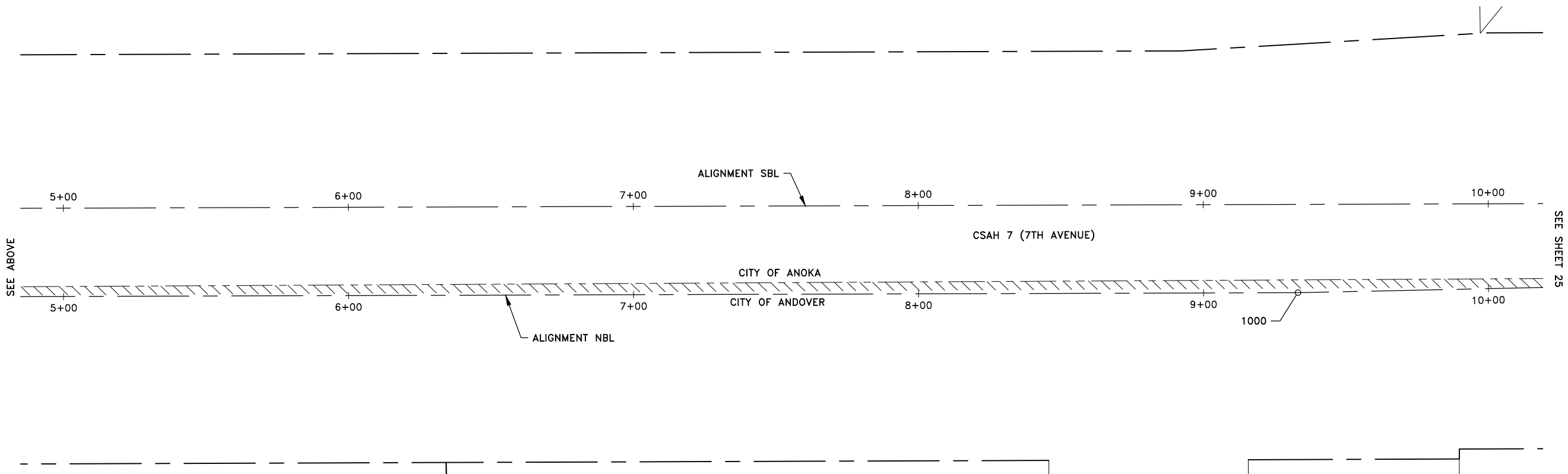
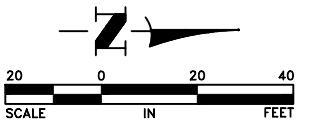
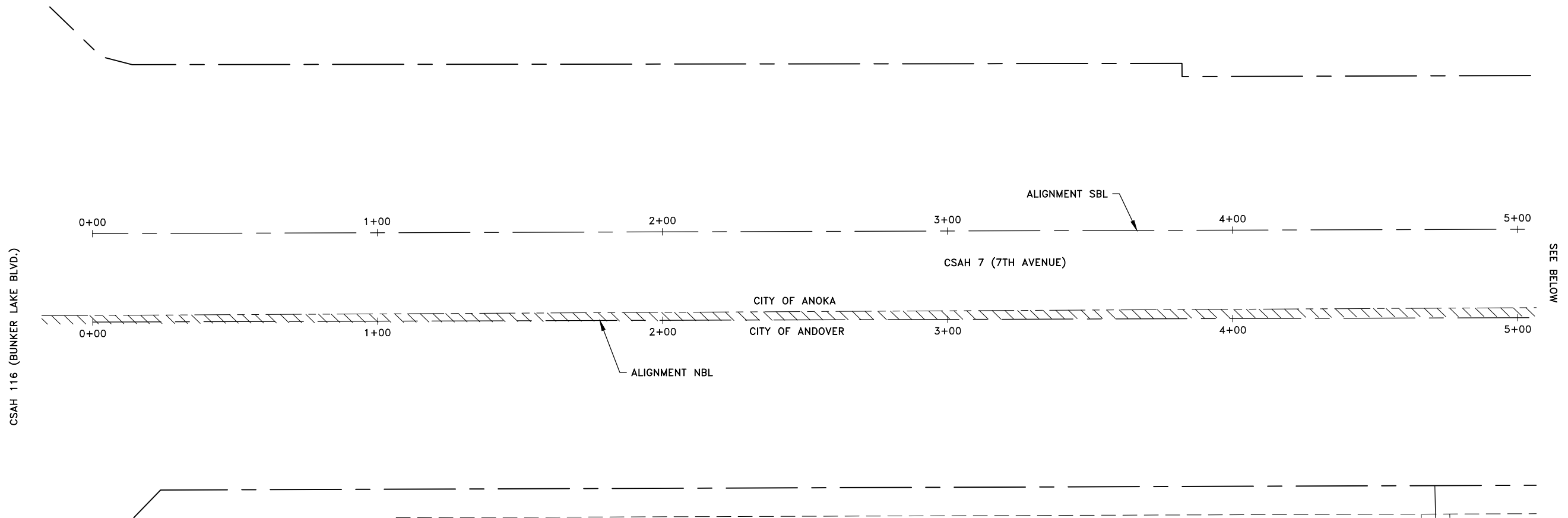
DATE	REVISION	I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota. CRAIG J. JOCHUM, P.E. Date 5/3/22 Lic. No. 23461		DESIGNED BY: TAE		Hakanson Anderson Civil Engineers and Land Surveyors 3601 Thurston Ave., Anoka, Minnesota 55303 763-427-5860 FAX 763-427-0520 www.hakanson-anderson.com	CSAH 7 AND 143RD AVENUE INTERSECTION IMPROVEMENT PROJECT	TRAFFIC CONTROL PHASE 1 CSAH 116 TURN LANE CITIES OF ANOKA AND ANDOVER, MINNESOTA	SHEET 22 OF 63 SHEETS
				DRAWN BY: DMS					
				CHECKED BY: CJJ					

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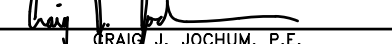
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				DRAWN BY: DMS					
				CHECKED BY: CJJ					

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Date 5/3/22 CRAIG J. JOCHUM, P.E.
Lic. No. 23461

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DMS
CHECKED BY:
CJJ



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**CSAH 7 AND 143RD AVENUE
INTERSECTION IMPROVEMENT PROJECT**

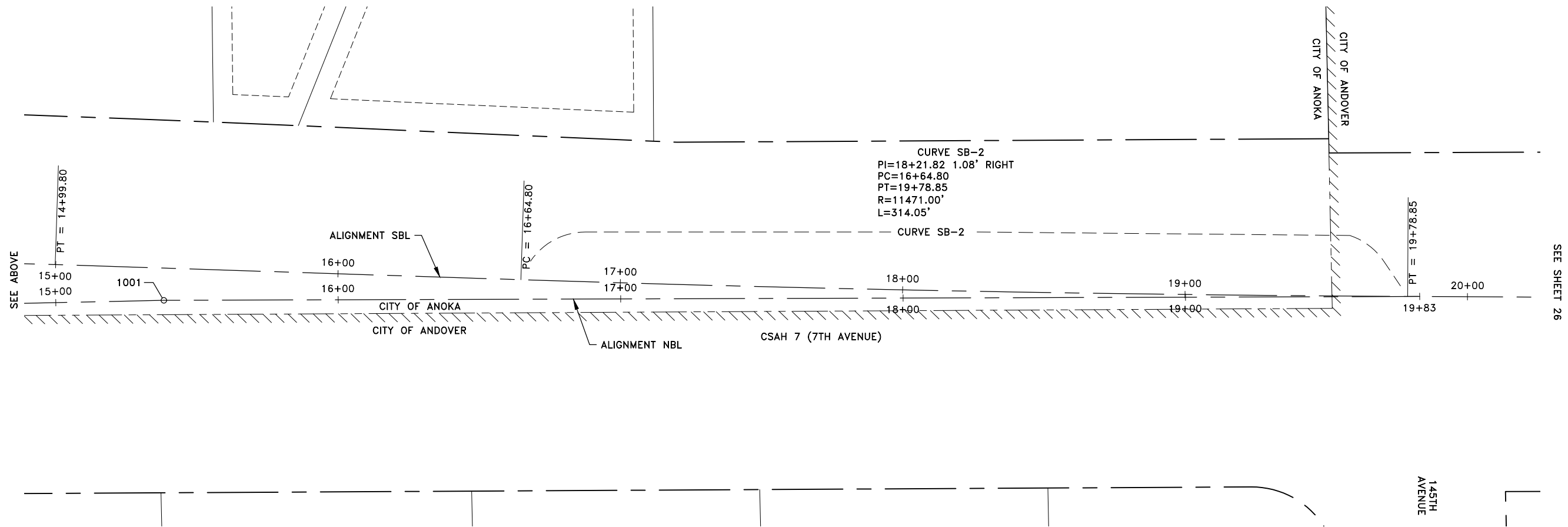
ALIGNMENT PLAN

CSAH 7
CITIES OF ANOKA AND ANDOVER, MINNESOTA

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OF
63
SHEETS

May 04, 2022 - 4:28pm
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SEE SHEET 24



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Graig J. Jochum
GRAIG J. JOCHUM, P.E.
Date 5/3/22 Lic. No. 23461

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DRAWN BY:
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CHECKED BY:
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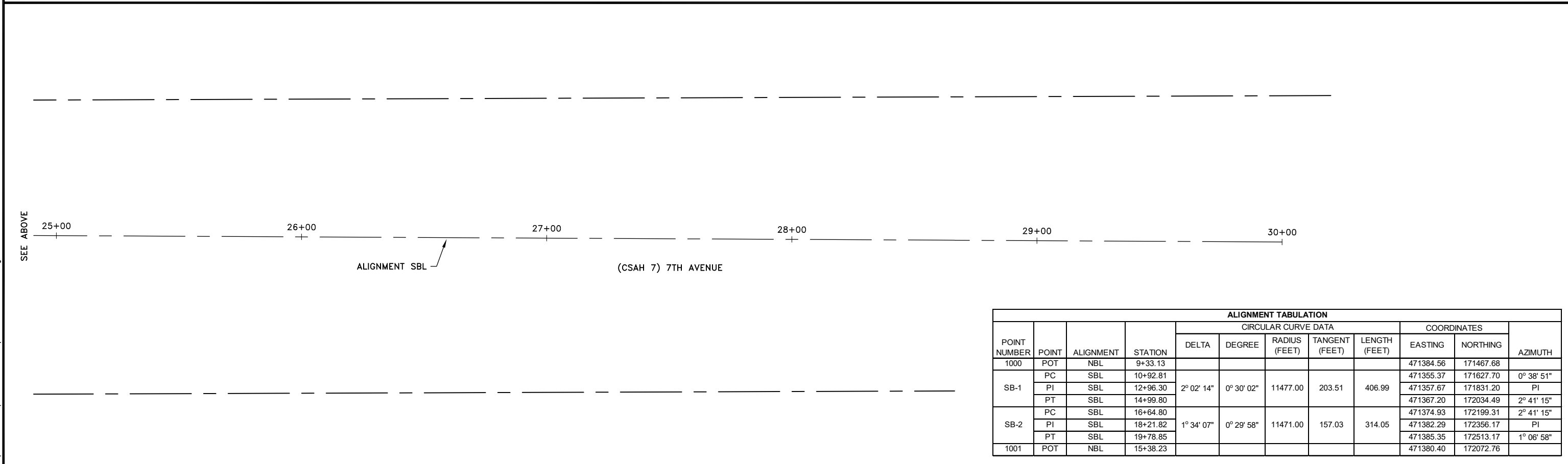
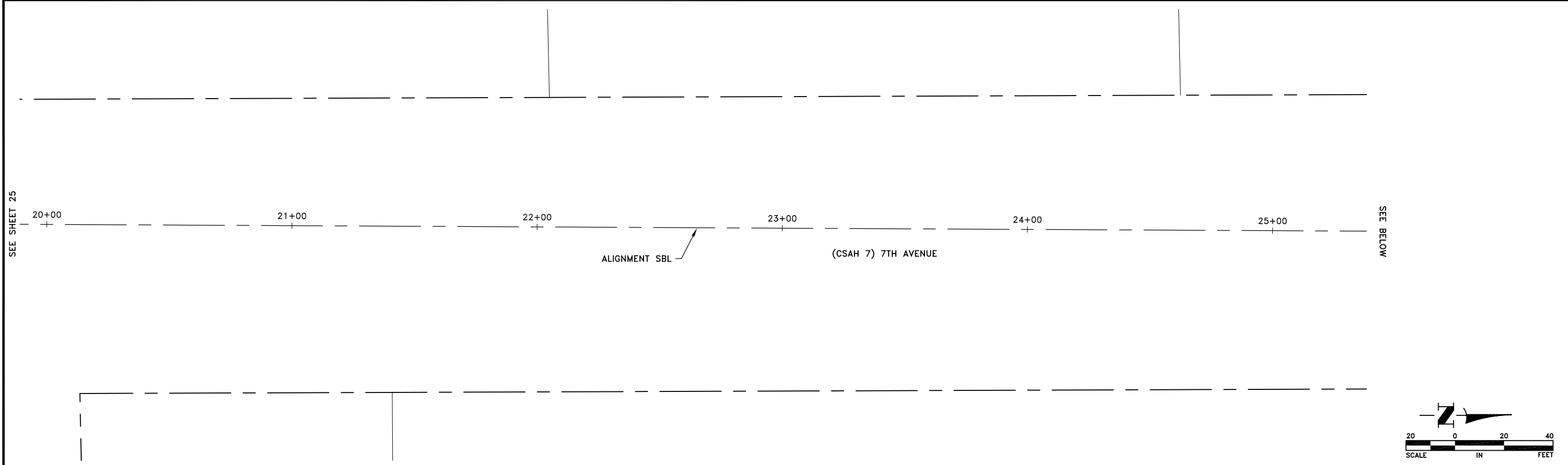
**CSAH 7 AND 143RD AVENUE
INTERSECTION IMPROVEMENT PROJECT**

ALIGNMENT PLAN

CSAH 7
CITIES OF ANOKA AND ANDOVER, MINNESOTA

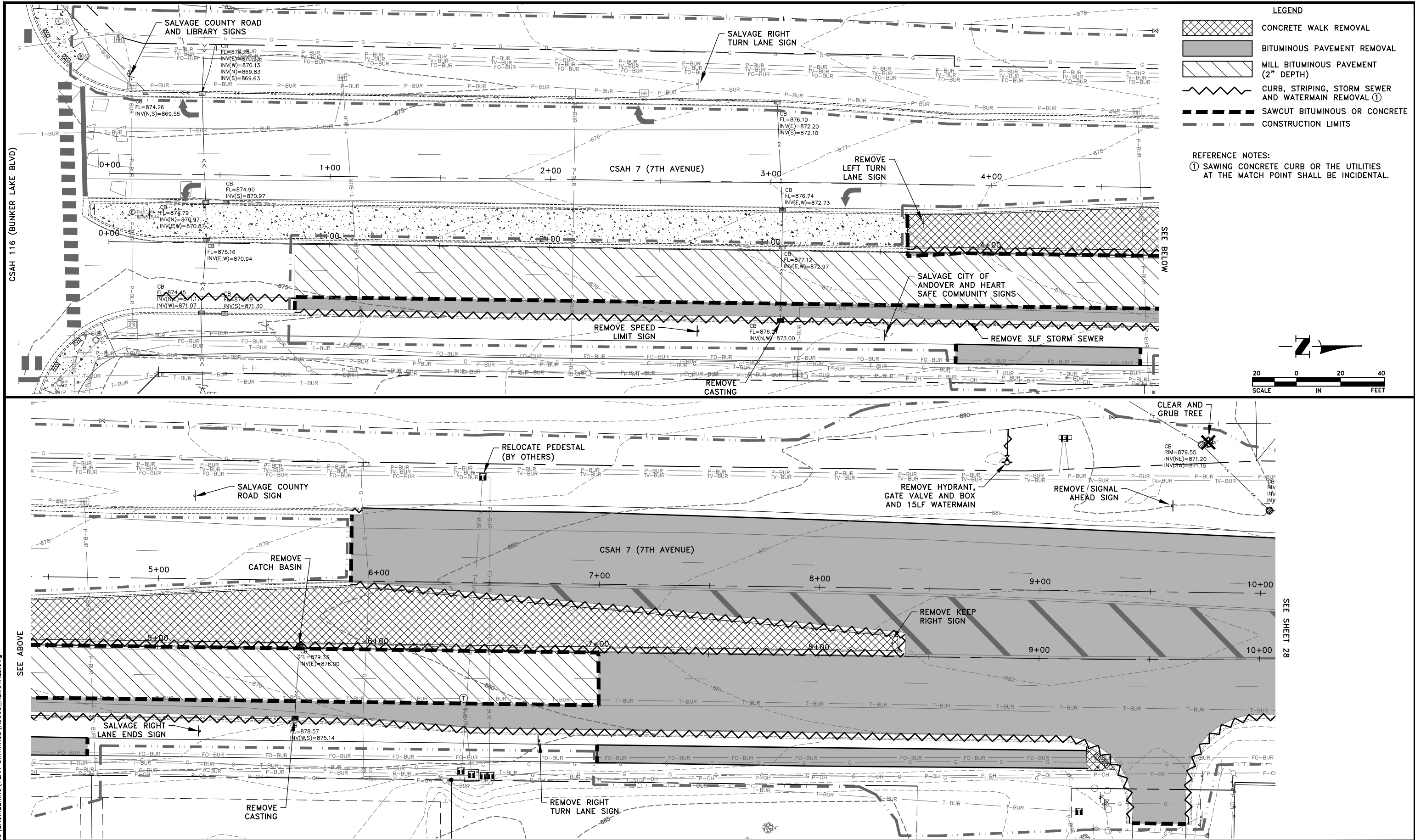
SHEET
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SHEETS

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ALIGNMENT TABULATION											
POINT NUMBER	POINT	ALIGNMENT	STATION	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
				DELTA	DEGREE	RADIUS (FEET)	TANGENT (FEET)	LENGTH (FEET)	EASTING	NORTHING	
1000	POT	NBL	9+33.13						471384.56	171467.68	
	PC	SBL	10+92.81						471355.37	171627.70	0° 38' 51"
	PI	SBL	12+96.30	2° 02' 14"	0° 30' 02"	11477.00	203.51	406.99	471357.67	171831.20	PI
	PT	SBL	14+99.80						471367.20	172034.49	2° 41' 15"
SB-1	PC	SBL	16+64.80						471374.93	172199.31	2° 41' 15"
	PI	SBL	18+21.82	1° 34' 07"	0° 29' 58"	11471.00	157.03	314.05	471382.29	172356.17	PI
	PT	SBL	19+78.85						471385.35	172513.17	1° 06' 58"
	POT	NBL	15+38.23						471380.40	172072.76	
1001	POT	NBL	15+38.23								

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			DRAWN BY: DMS					
			CHECKED BY: CJJ					



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Craig J. Jochem
CRAIG J. JOCHUM, P.E.
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DRAWN BY: DMS
CHECKED BY: CJJ



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**CSAH 7 AND 143RD AVENUE
INTERSECTION IMPROVEMENT PROJECT**

EXISTING TOPOGRAPHY AND REMOVALS PLAN

**CSAH 7
CITIES OF ANOKA AND ANDOVER, MINNESOTA**

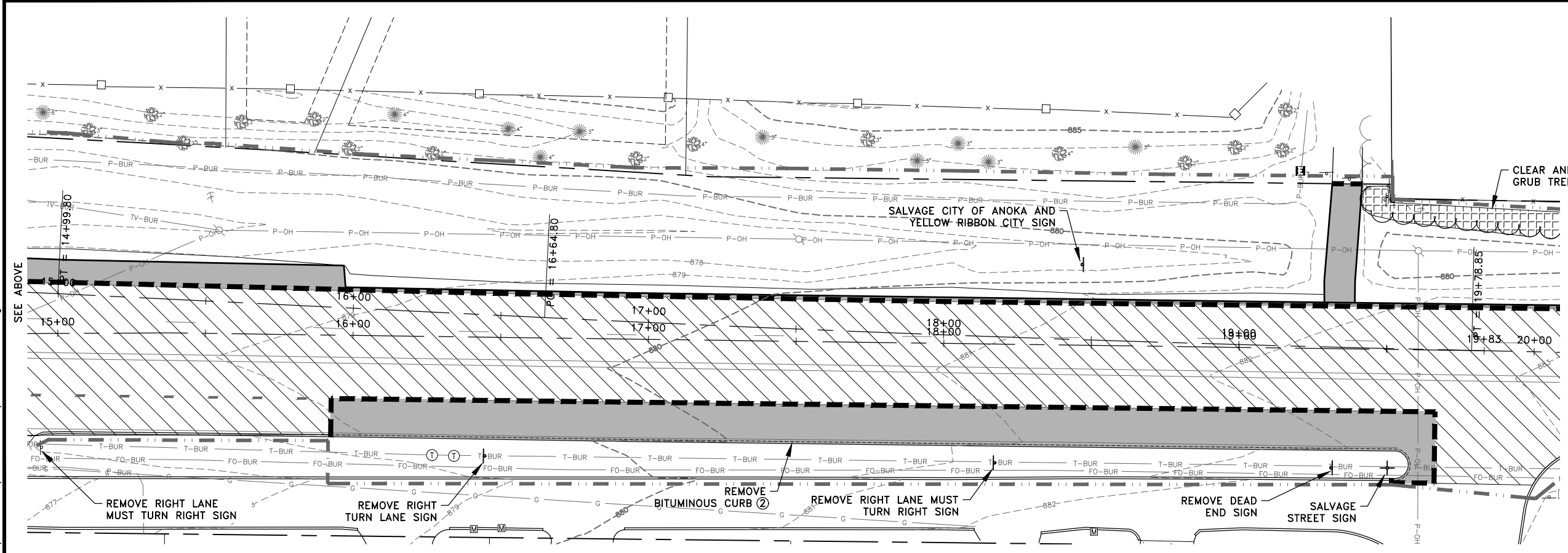
SHEET 27
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SEE SHEET 27

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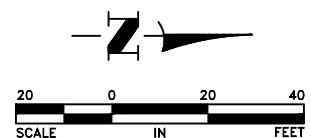


SEE BELOW

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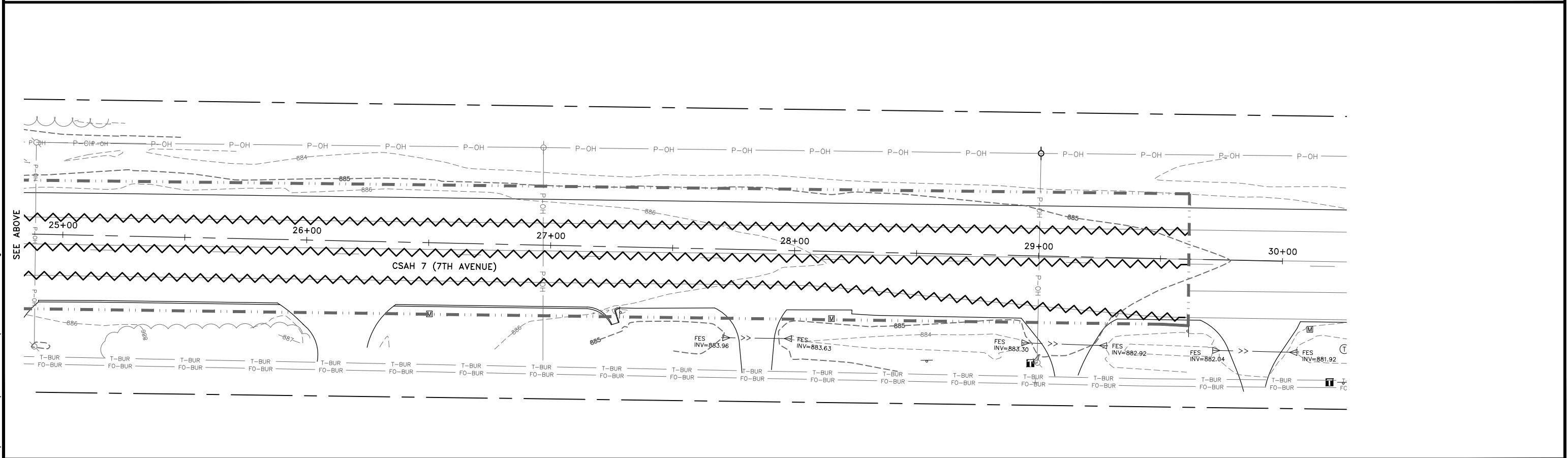
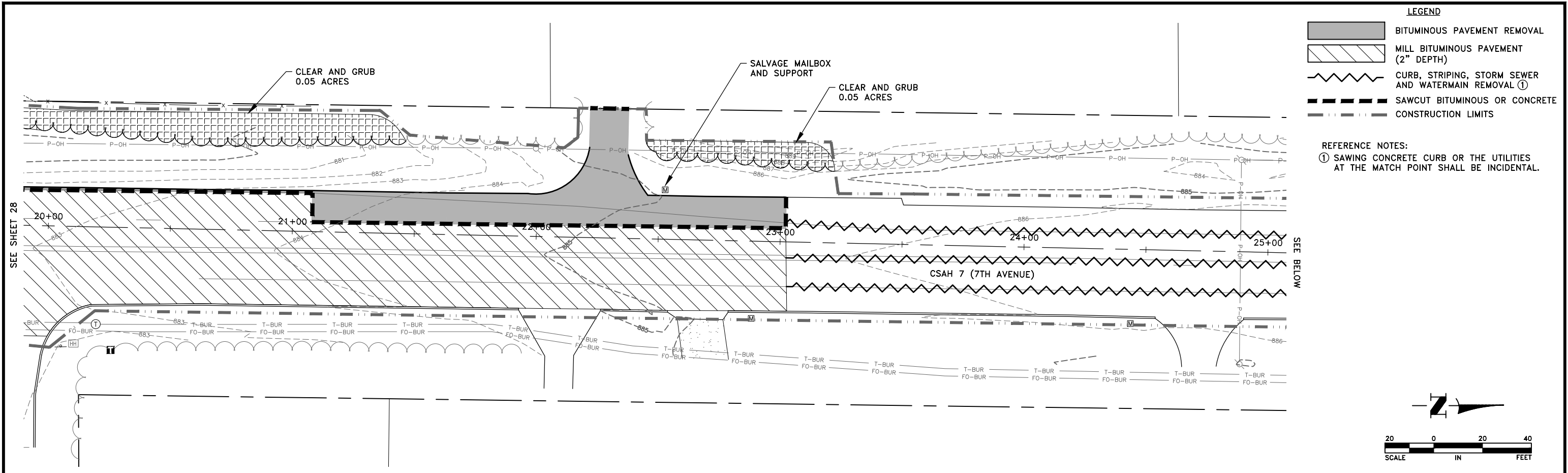
- LEGEND**
- CONCRETE WALK REMOVAL
 - BITUMINOUS PAVEMENT REMOVAL
 - MILL BITUMINOUS PAVEMENT (2" DEPTH)
 - CURB, STRIPING, STORM SEWER AND WATERMAIN REMOVAL ①
 - SAWCUT BITUMINOUS OR CONCRETE
 - CONSTRUCTION LIMITS

- REFERENCE NOTES:**
- ① SAWING CONCRETE CURB OR THE UTILITIES AT THE MATCH POINT SHALL BE INCIDENTAL.
 - ② BITUMINOUS CURB REMOVAL SHALL BE INCIDENTAL.



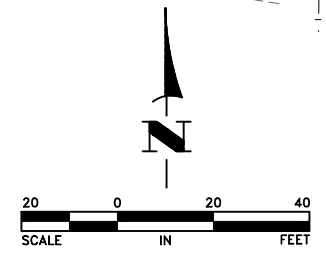
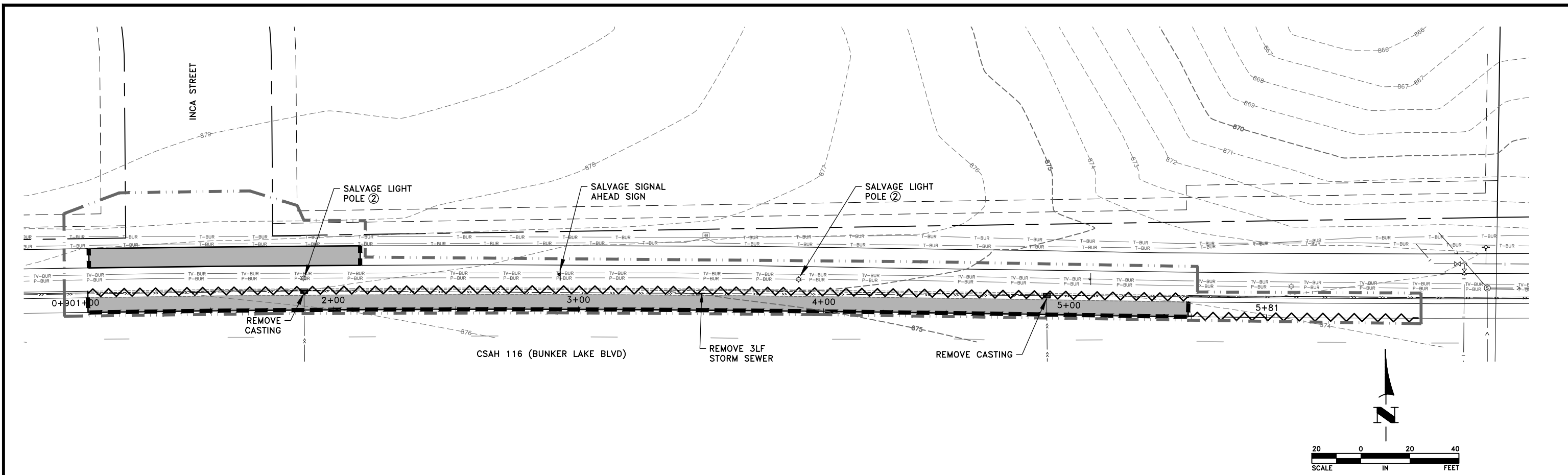
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			DRAWN BY: DMS					
			CHECKED BY: CJJ					

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			DRAWN BY: DMS					
			CHECKED BY: CJJ					
		Date 5/3/22						

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- LEGEND**
- [Solid Gray Box] BITUMINOUS PAVEMENT REMOVAL
 - [Wavy Line] CURB, STRIPING, STORM SEWER AND WATERMAIN REMOVAL ①
 - [Dashed Line] SAWCUT BITUMINOUS OR CONCRETE
 - [Dotted Line] CONSTRUCTION LIMITS

- REFERENCE NOTES:**
- ① SAWING CONCRETE CURB OR THE UTILITIES AT THE MATCH POINT SHALL BE INCIDENTAL.
 - ② THIS WORK SHALL BE PAID PER ITEM 2104-SALVAGE PEDESTAL POLE AND BASE.

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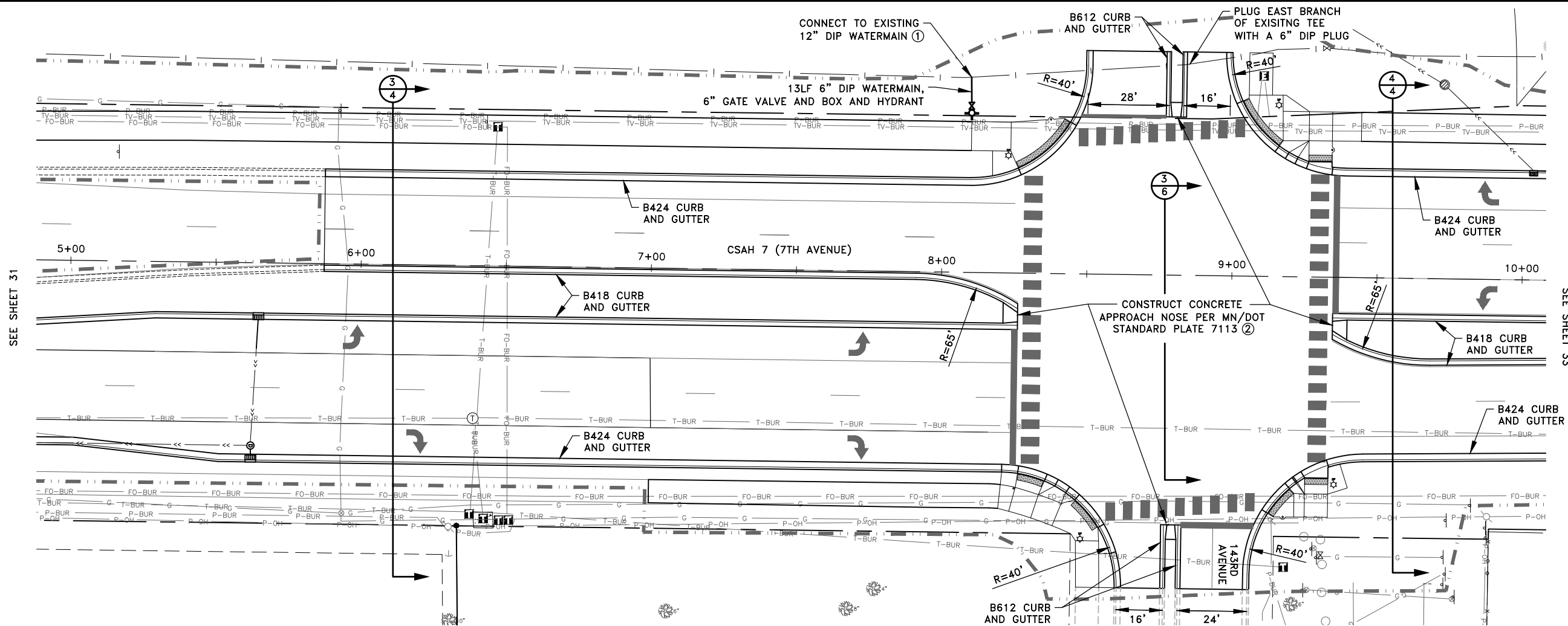
**CSAH 7 AND 143RD AVENUE
INTERSECTION IMPROVEMENT PROJECT**

EXISTING TOPOGRAPHY AND REMOVALS PLAN

**CSAH 116 TURN LANE
CITIES OF ANOKA AND ANDOVER, MINNESOTA**

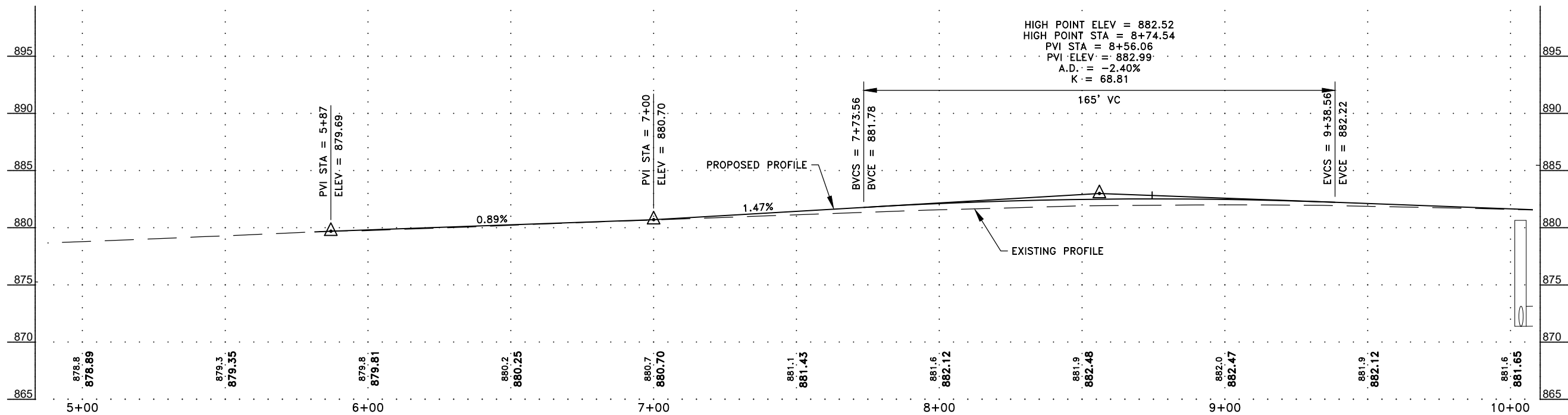
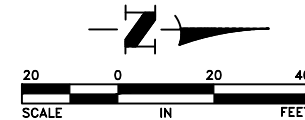
SHEET
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OF
63
SHEETS

May 04, 2022 - 4:29pm
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LEGEND
--- CONSTRUCTION LIMITS

GENERAL NOTES:
1. SEE SHEETS 41-48 FOR STAKING PLANS.
REFERENCE NOTES:
① CONNECT TO EXISTING WATERMAIN BY CUTTING IN A 12\"X6\" DIP TEE AND CONNECTING THE TEE TO THE MAIN WITH A 12\" DIP SLEEVE AND 12\" DIP WATERMAIN. CONTRACTOR WILL BE PAID FOR DUCTILE IRON FITTINGS USED. 12\" DIP USED TO MAKE THE CONNECTION SHALL BE INCIDENTAL.
② CONCRETE APPROACH NOSE SHALL BE PAID PER ITEM 2521-6\" CONCRETE WALK.



DATE	REVISION

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Date 5/3/22
Lic. No. 23461

DESIGNED BY: TAE
DRAWN BY: DMS
CHECKED BY: CJJ



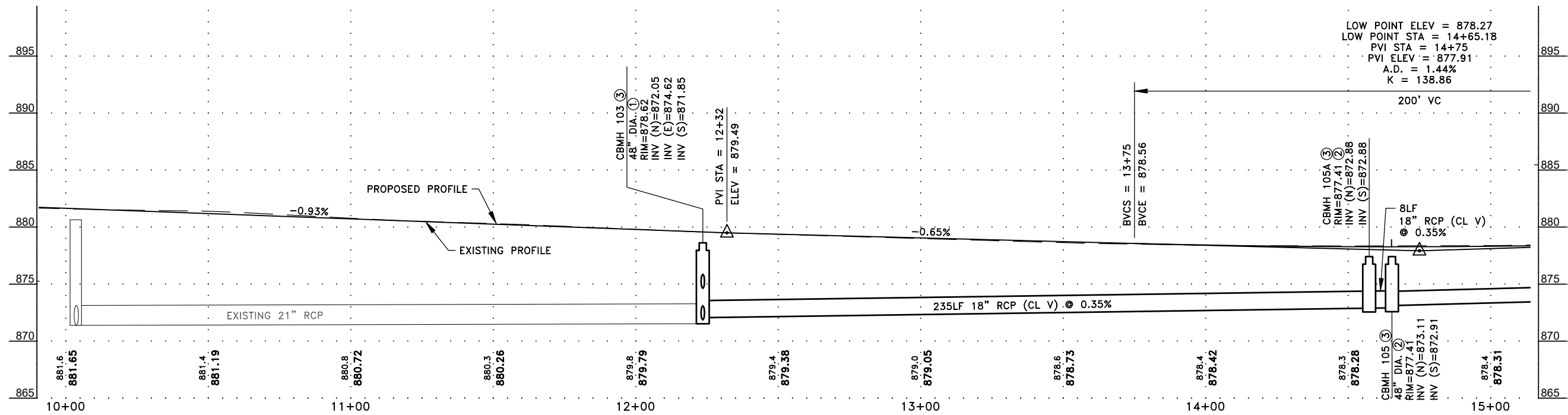
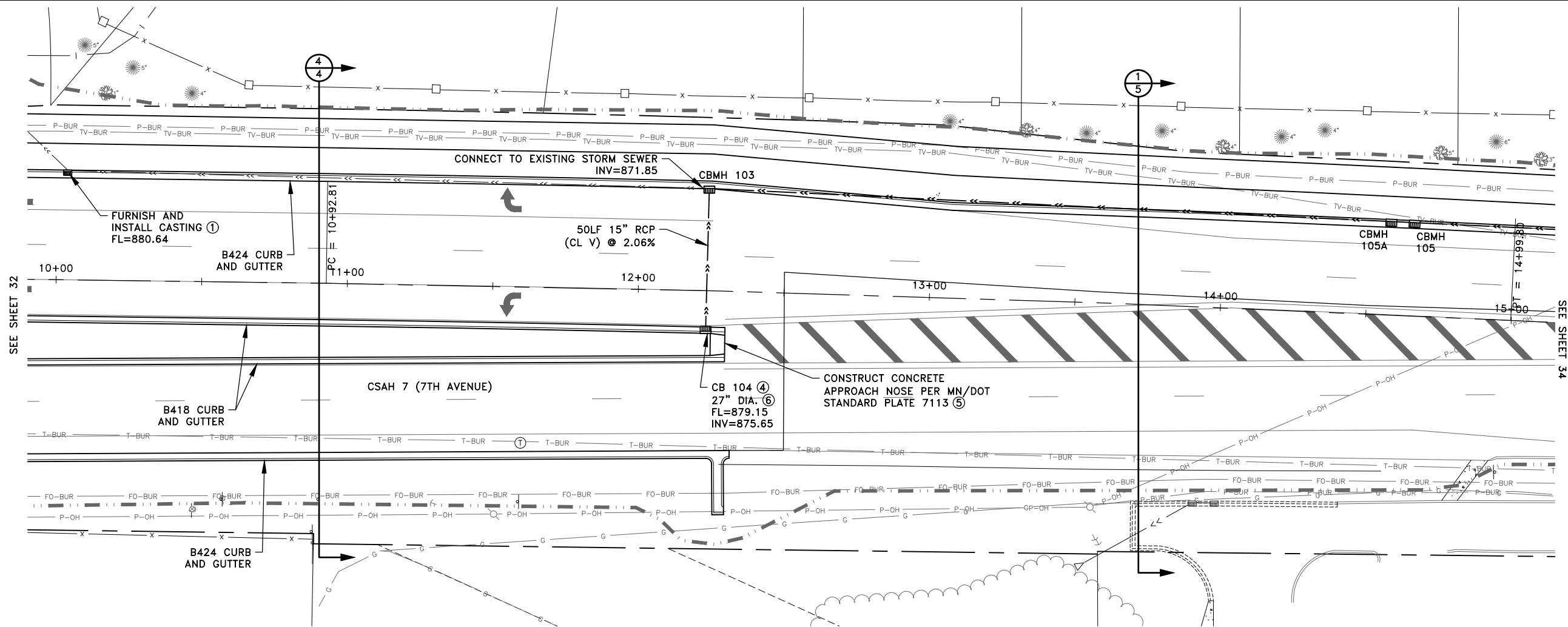
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CSAH 7 AND 143RD AVENUE
INTERSECTION IMPROVEMENT PROJECT

CONSTRUCTION PLAN SOUTHBOUND LANE
CSAH 7
CITIES OF ANOKA AND ANDOVER, MINNESOTA

SHEET 32 OF 63
SHEETS
AD303

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Craig J. Jochem
Date 5/3/22
Lic. No. 23461

DESIGNED BY: TAE
DRAWN BY: DMS
CHECKED BY: CJJ



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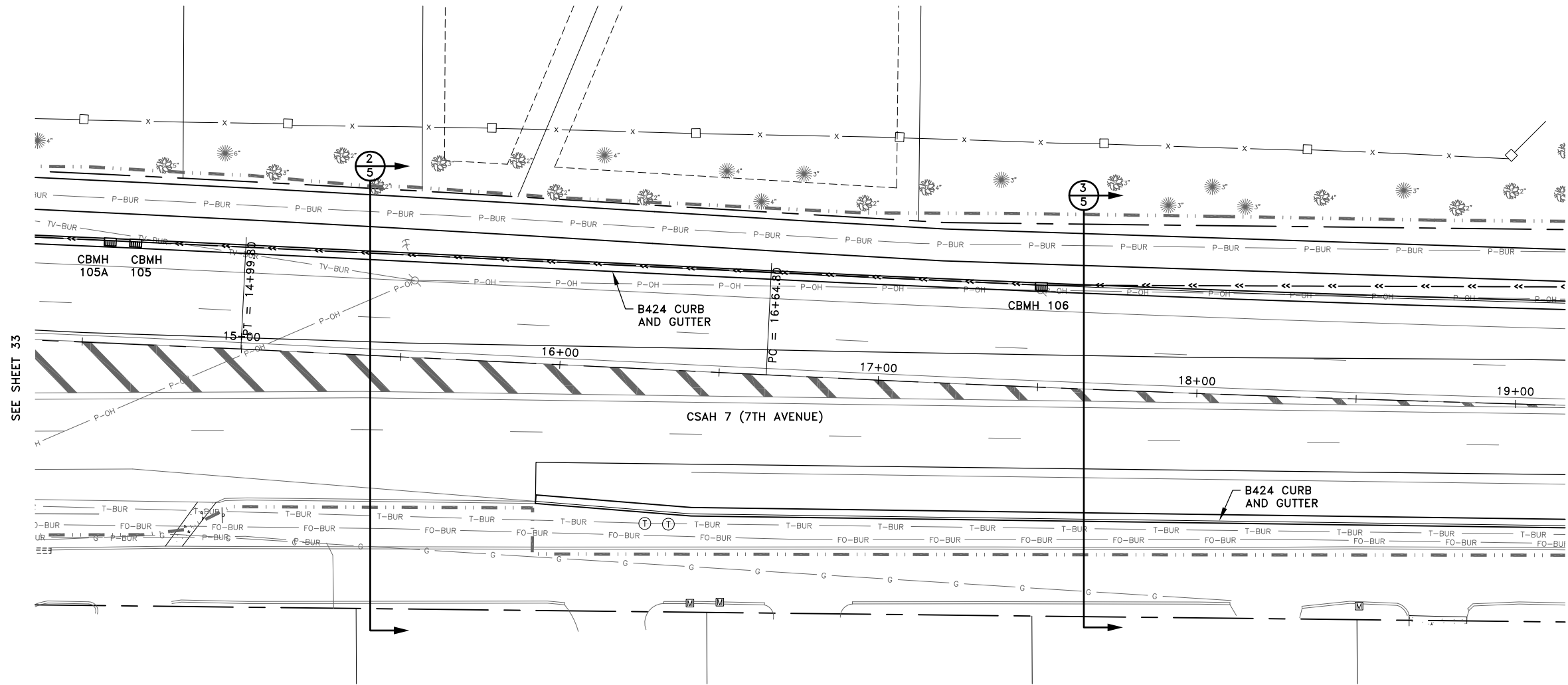
**CSAH 7 AND 143RD AVENUE
INTERSECTION IMPROVEMENT PROJECT**

CONSTRUCTION PLAN SOUTHBOUND LANE

CSAH 7
CITIES OF ANOKA AND ANDOVER, MINNESOTA

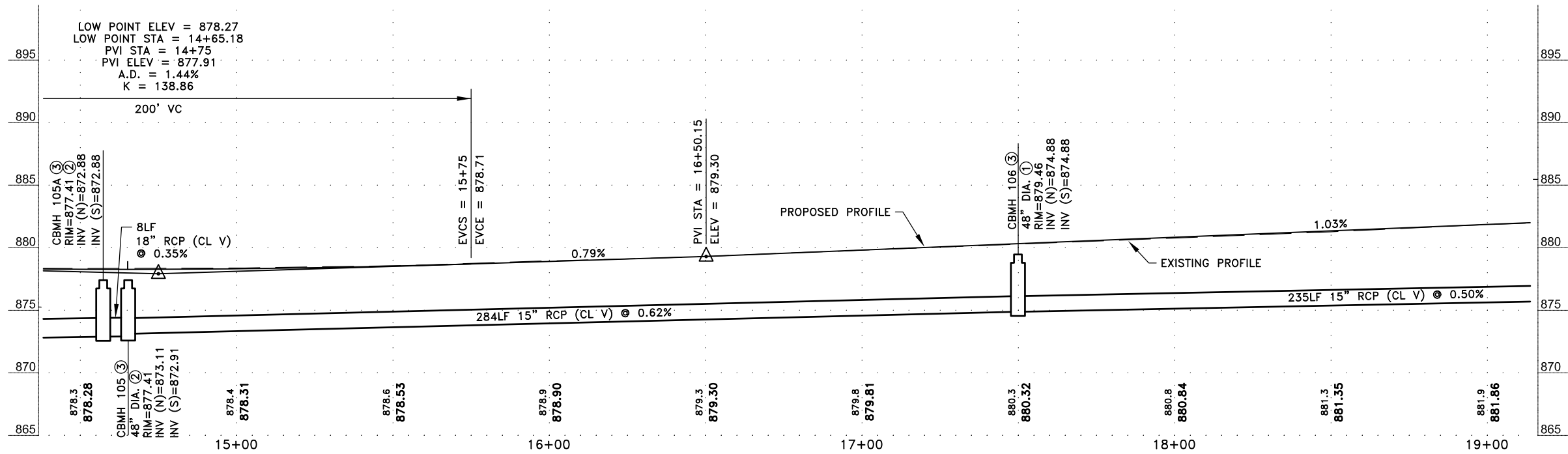
SHEET 33 OF 63 SHEETS
AD303

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LEGEND
--- CONSTRUCTION LIMITS

- GENERAL NOTES:
1. SEE SHEETS 41-48 FOR STAKING PLANS.
REFERENCE NOTES:
① CASTING SHALL BE PER MN/DOT STANDARD PLATES 4125 AND 4154. CASTING SHALL NOT INCLUDE A CURB BOX.
② CASTING SHALL BE PER MN/DOT STANDARD PLATES 4125, 4134 AND 4154.
③ MANHOLE SHALL MEET THE REQUIREMENTS OF MN/DOT STANDARD PLATE 4020.



DATE	REVISION
5/23/22	REVISED STORM SEWER

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Date 5/3/22
Craig J. JOCHUM, P.E.
Lic. No. 23461

DESIGNED BY:
TAE
DRAWN BY:
DMS
CHECKED BY:
CJJ



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**CSAH 7 AND 143RD AVENUE
INTERSECTION IMPROVEMENT PROJECT**

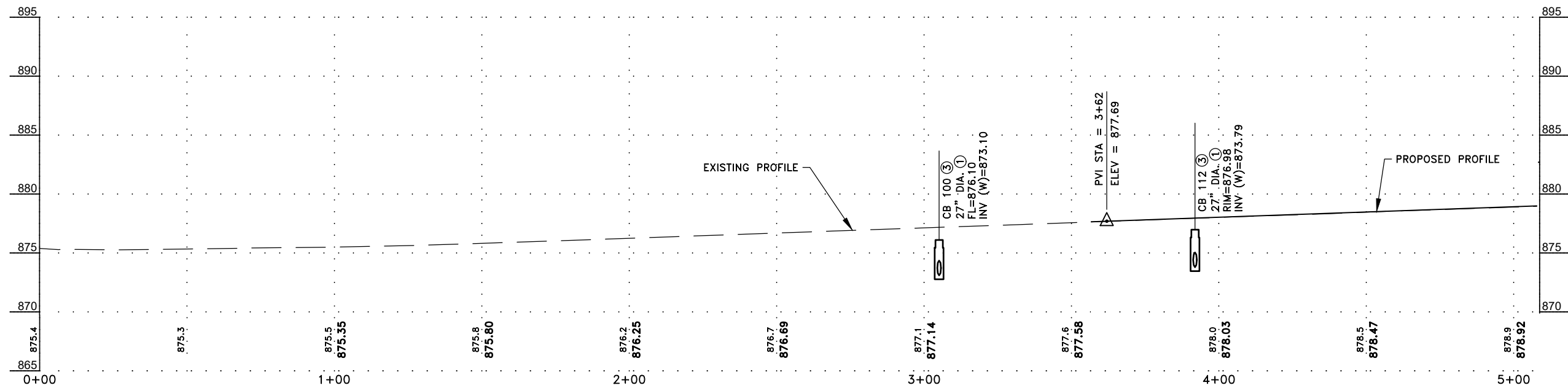
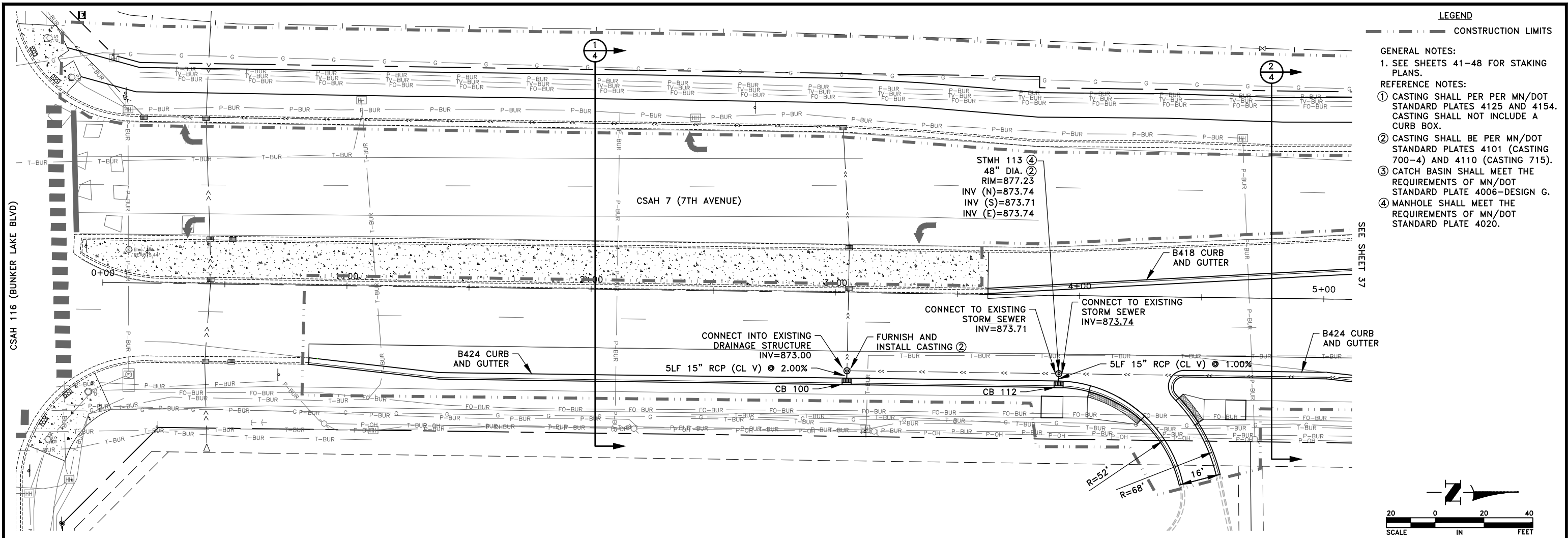
CONSTRUCTION PLAN SOUTHBOUND LANE

CSAH 7
CITIES OF ANOKA AND ANDOVER, MINNESOTA

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DATE	REVISION

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[Signature]
CRAIG J. JOCHUM, P.E.
Date 5/3/22 Lic. No. 23461

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CHECKED BY:
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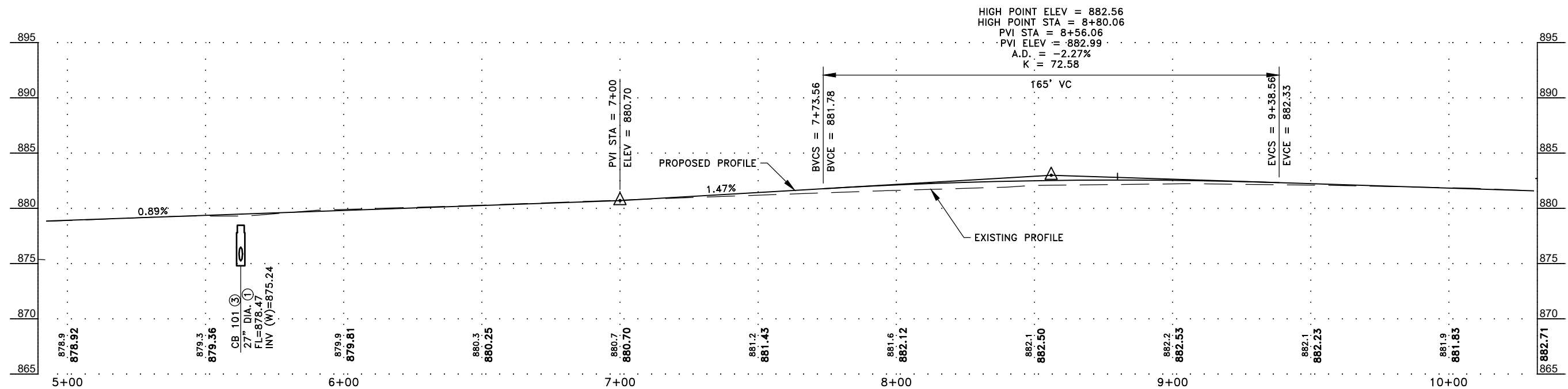
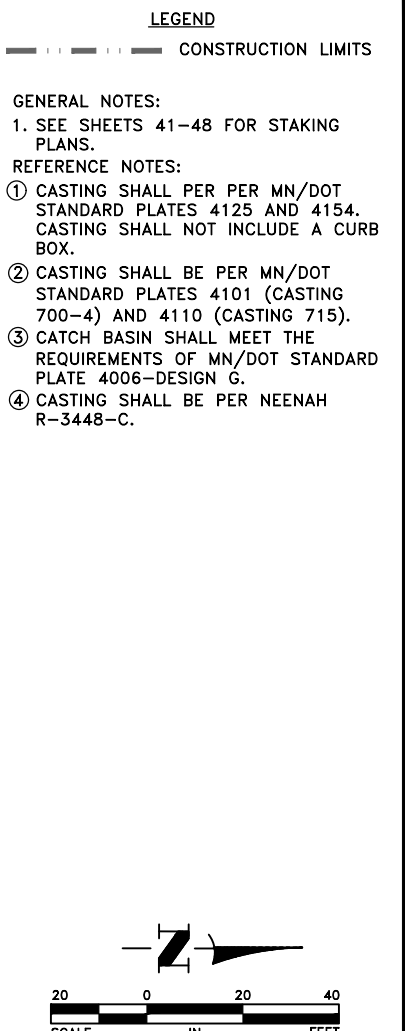
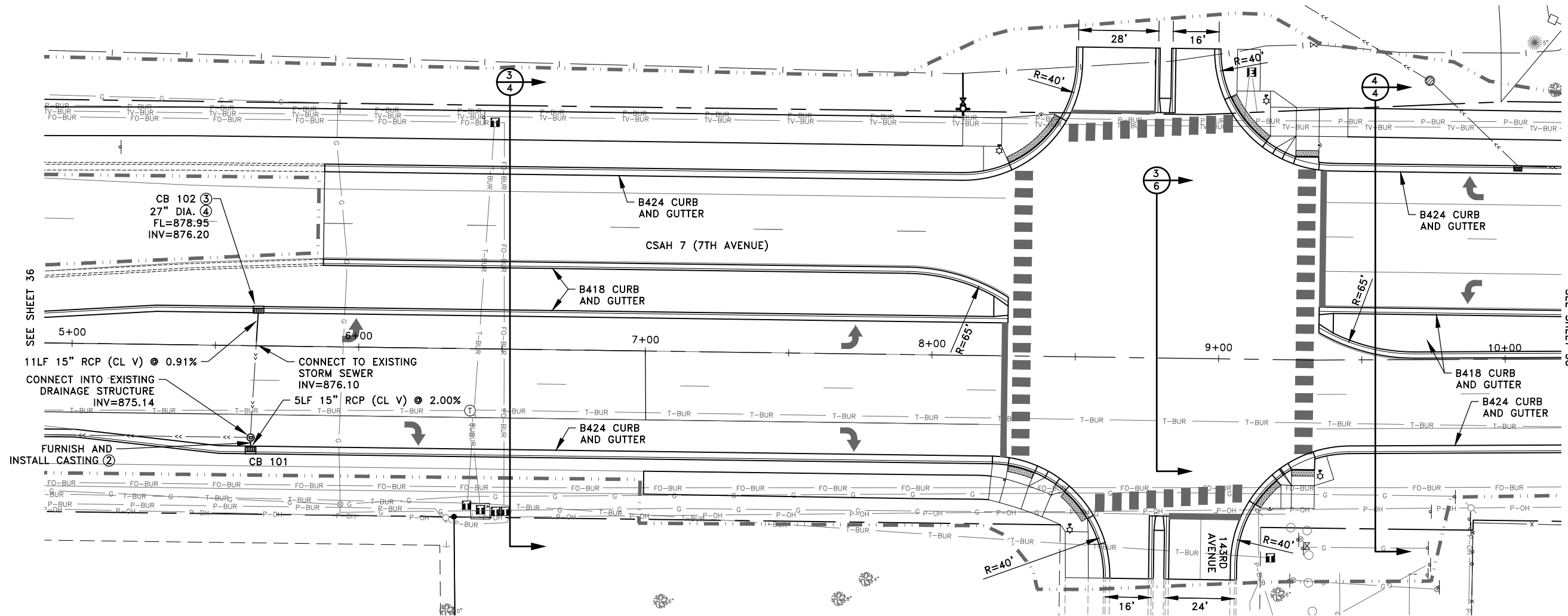
CSAH 7 AND 143RD AVENUE
INTERSECTION IMPROVEMENT PROJECT

CONSTRUCTION PLAN NORTHBOUND LANE
CSAH 7
CITIES OF ANOKA AND ANDOVER, MINNESOTA

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DATE	REVISION

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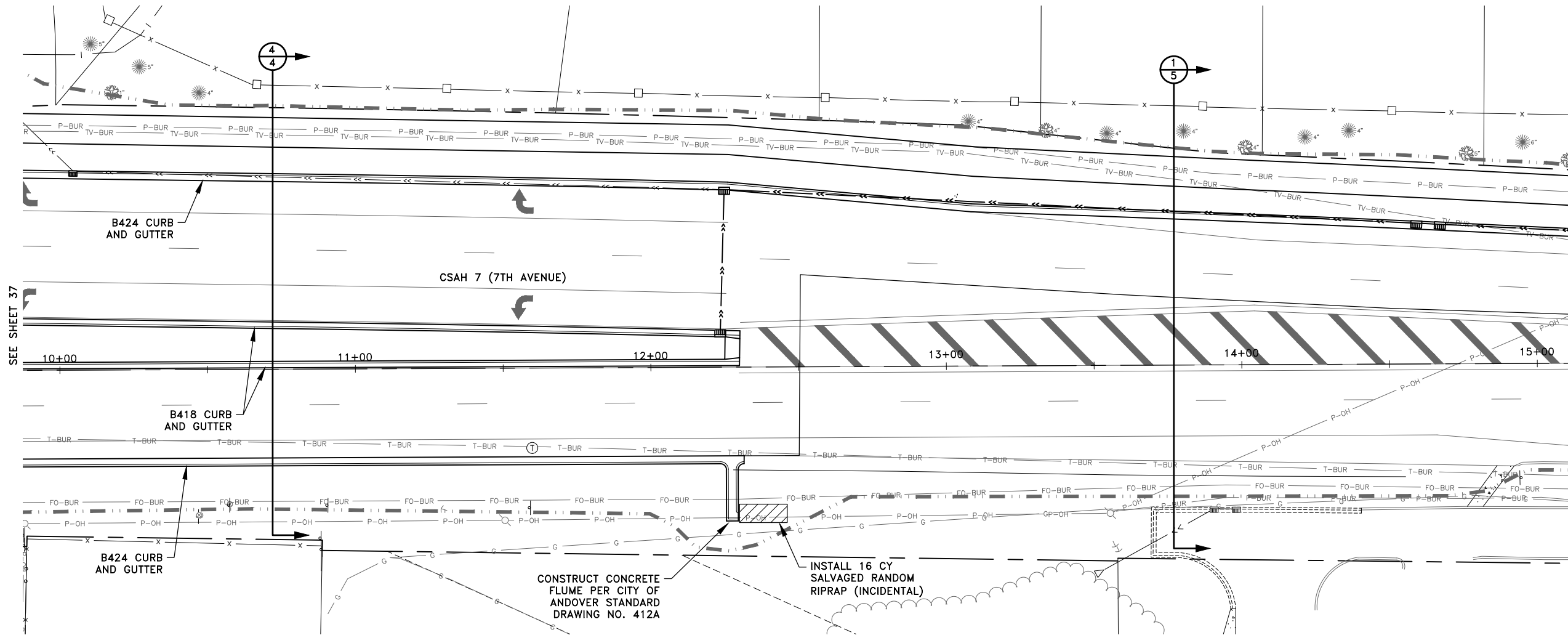
**CSAH 7 AND 143RD AVENUE
INTERSECTION IMPROVEMENT PROJECT**

CONSTRUCTION PLAN NORTHBOUND LANE

**CSAH 7
CITIES OF ANOKA AND ANDOVER, MINNESOTA**

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OF
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SHEETS

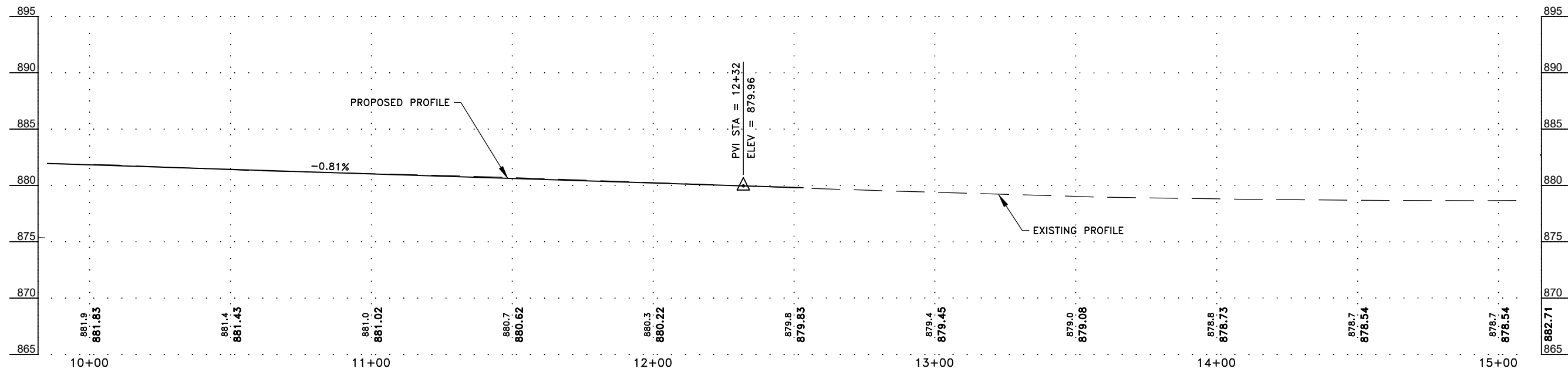
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LEGEND
--- CONSTRUCTION LIMITS

GENERAL NOTES:
1. SEE SHEETS 41-48 FOR STAKING PLANS.

SEE SHEET 37
SEE SHEET 39



DATE	REVISION

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Craig J. Jochem
CRAIG J. JOCHUM, P.E.
Date 5/3/22 Lic. No. 23461

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CHECKED BY:
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**CSAH 7 AND 143RD AVENUE
INTERSECTION IMPROVEMENT PROJECT**

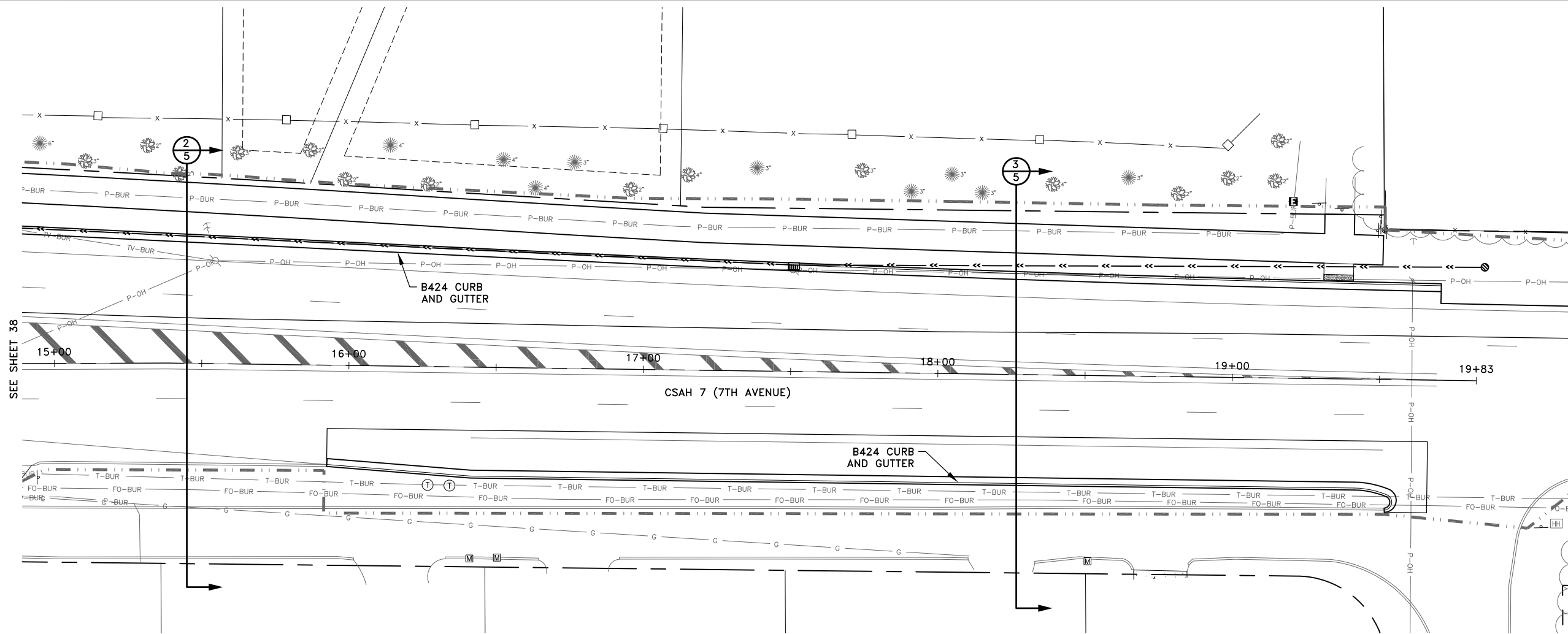
CONSTRUCTION PLAN NORTHBOUND LANE

CSAH 7
CITIES OF ANOKA AND ANDOVER, MINNESOTA

SHEET
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OF
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SHEETS

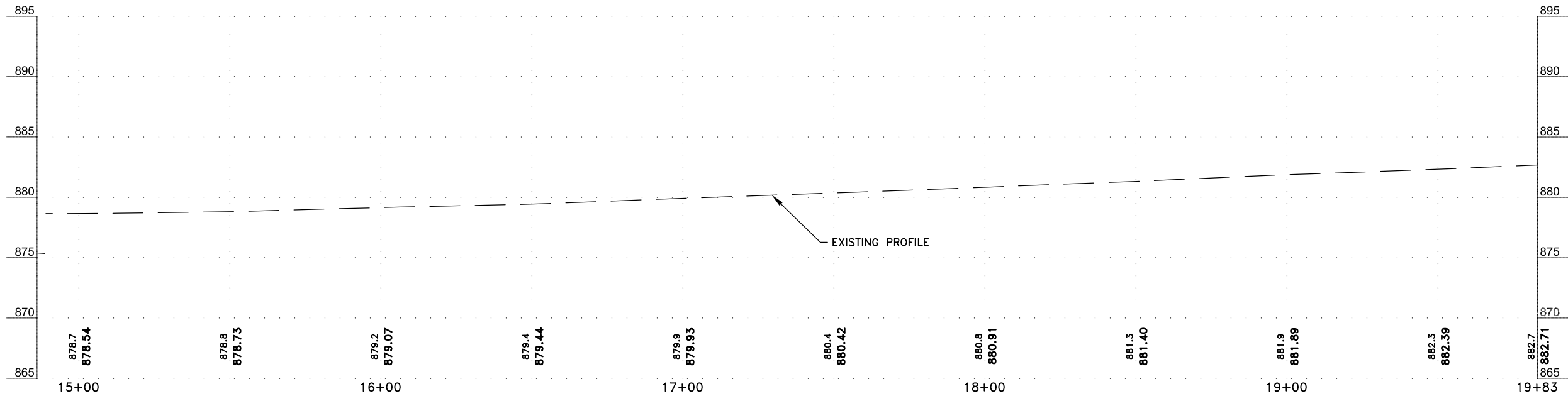
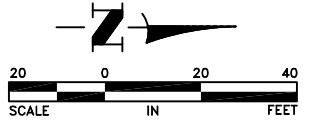
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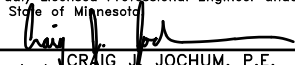
LEGEND
--- CONSTRUCTION LIMITS

GENERAL NOTES:
1. SEE SHEETS 41-48 FOR STAKING PLANS.



DATE	REVISION
5/23/22	REVISED CURB AND STORM SEWER

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CRAIG J. JOCHUM, P.E.
Date 5/3/22 Lic. No. 23461

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DRAWN BY:
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CJJ



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CSAH 7 AND 143RD AVENUE
INTERSECTION IMPROVEMENT PROJECT

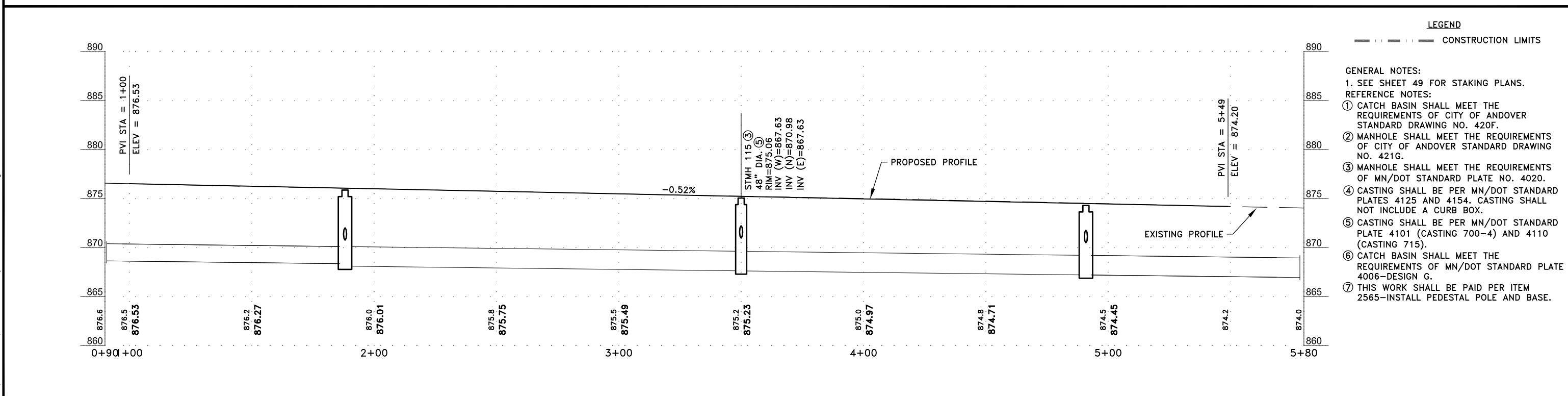
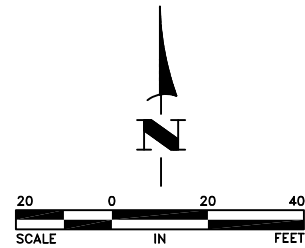
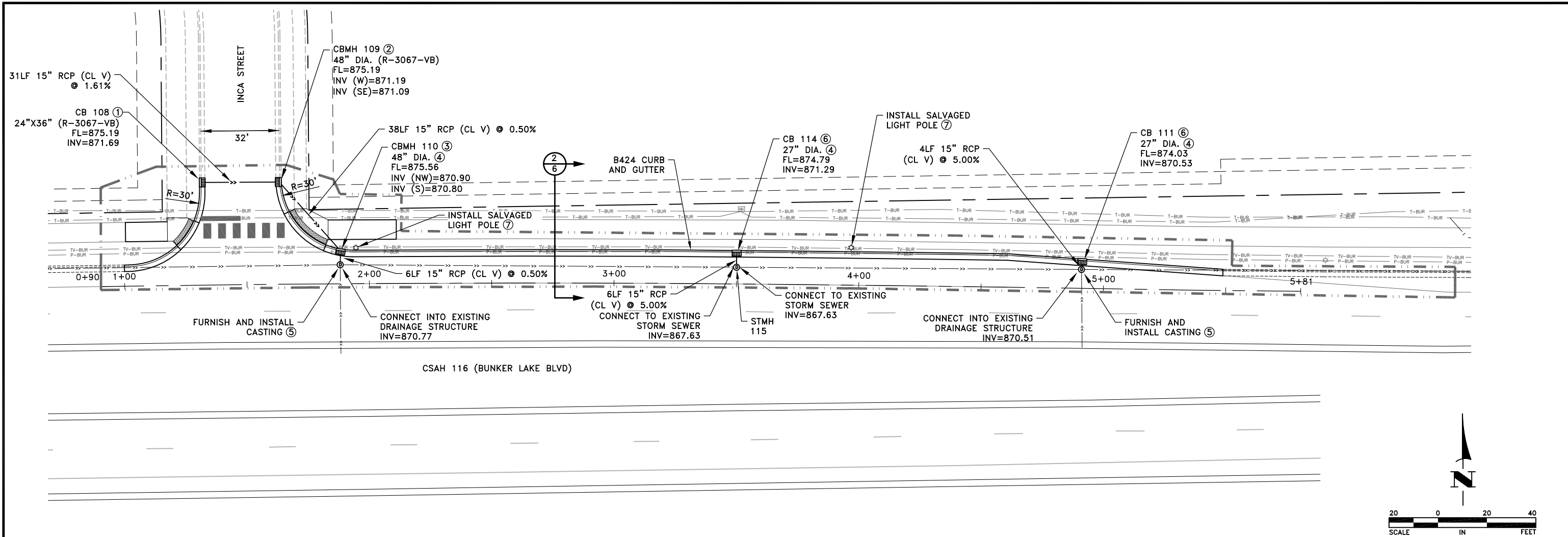
CONSTRUCTION PLAN NORTHBOUND LANE

CSAH 7
CITIES OF ANOKA AND ANDOVER, MINNESOTA

SHEET
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OF
63
SHEETS

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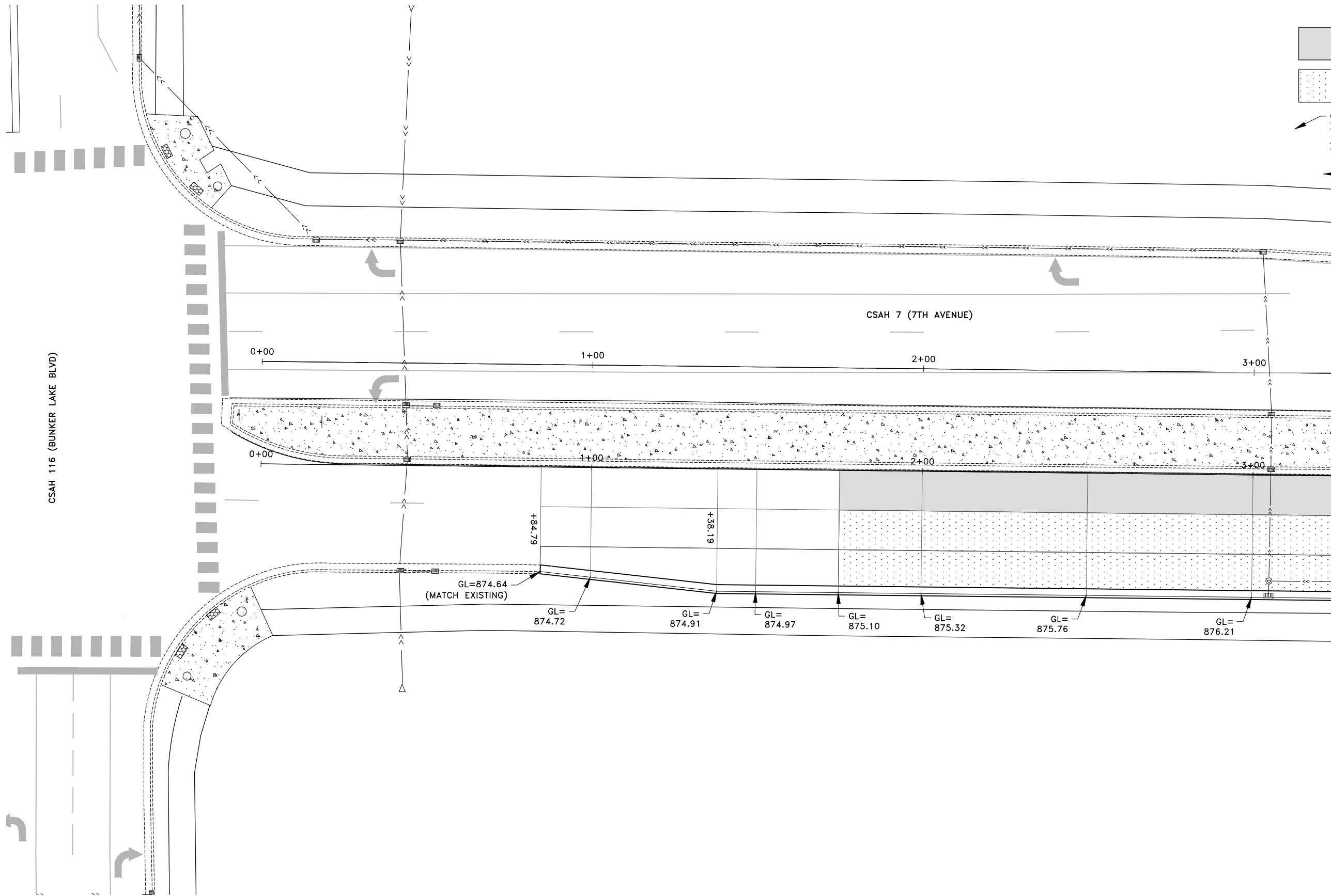
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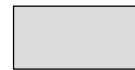
- LEGEND**
- CONSTRUCTION LIMITS
- GENERAL NOTES:**
1. SEE SHEET 49 FOR STAKING PLANS.
- REFERENCE NOTES:**
1. CATCH BASIN SHALL MEET THE REQUIREMENTS OF CITY OF ANDOVER STANDARD DRAWING NO. 420F.
 2. MANHOLE SHALL MEET THE REQUIREMENTS OF CITY OF ANDOVER STANDARD DRAWING NO. 421G.
 3. MANHOLE SHALL MEET THE REQUIREMENTS OF MN/DOT STANDARD PLATE NO. 4020.
 4. CASTING SHALL BE PER MN/DOT STANDARD PLATES 4125 AND 4154. CASTING SHALL NOT INCLUDE A CURB BOX.
 5. CASTING SHALL BE PER MN/DOT STANDARD PLATE 4101 (CASTING 700-4) AND 4110 (CASTING 715).
 6. CATCH BASIN SHALL MEET THE REQUIREMENTS OF MN/DOT STANDARD PLATE 4006-DESIGN G.
 7. THIS WORK SHALL BE PAID PER ITEM 2565-INSTALL PEDESTAL POLE AND BASE.

DATE	REVISION	I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota. Date 5/3/22 Craig J. JOCHUM, P.E. Lic. No. 23461		DESIGNED BY: TAE DRAWN BY: DMS CHECKED BY: CJJ		Hakanson Anderson Civil Engineers and Land Surveyors 3601 Thurston Ave., Anoka, Minnesota 55303 763-427-5860 FAX 763-427-0520 www.hakanson-anderson.com	CSAH 7 AND 143RD AVENUE INTERSECTION IMPROVEMENT PROJECT	CONSTRUCTION PLAN CSAH 116 TURN LANE CITIES OF ANOKA AND ANDOVER, MINNESOTA	SHEET 40 OF 63 SHEETS
5/23/22	REVISED CBMH 110								

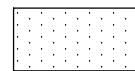
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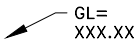
LEGEND



2.00% CROSS SLOPE



2.50% CROSS SLOPE



GL=XXX.XX PROPOSED GUTTER LINE ELEVATION

XXX.XX PROPOSED BITUMINOUS ELEVATION

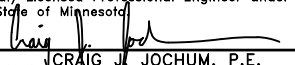
X.XX% PROPOSED SLOPE

SEE SHEET 42



DATE	REVISION

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CRAIG J. JOCHUM, P.E.
Date 5/3/22 Lic. No. 23461

DESIGNED BY:	TAE
DRAWN BY:	DMS
CHECKED BY:	CJJ



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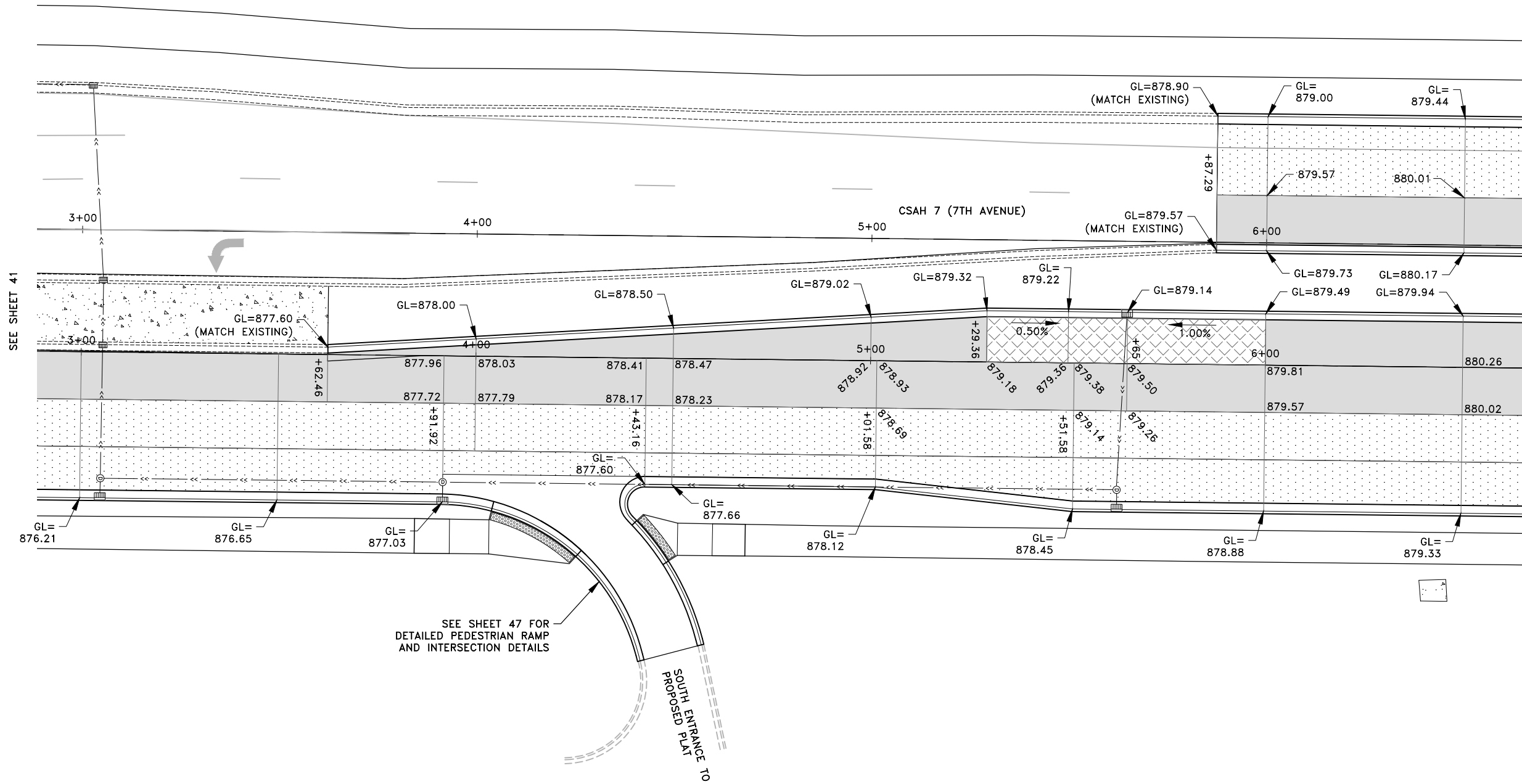
CSAH 7 AND 143RD AVENUE
INTERSECTION IMPROVEMENT PROJECT

STAKING PLAN
CSAH 7
CITIES OF ANOKA AND ANDOVER, MINNESOTA

SHEET 41 OF 63 SHEETS

May 04, 2022 - 4:30pm
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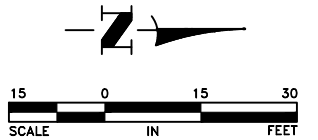
SEE SHEET 41



SEE SHEET 43

LEGEND

- 2.00% CROSS SLOPE
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- SLOPE TRANSITION AREA
- GL= XXX.XX PROPOSED GUTTER LINE ELEVATION
- XXX.XX PROPOSED BITUMINOUS ELEVATION
- X.XX% PROPOSED SLOPE



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Craig J. Jochem
CRAIG J. JOCHUM, P.E.
Date 5/3/22 Lic. No. 23461

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CJJ



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**CSAH 7 AND 143RD AVENUE
INTERSECTION IMPROVEMENT PROJECT**

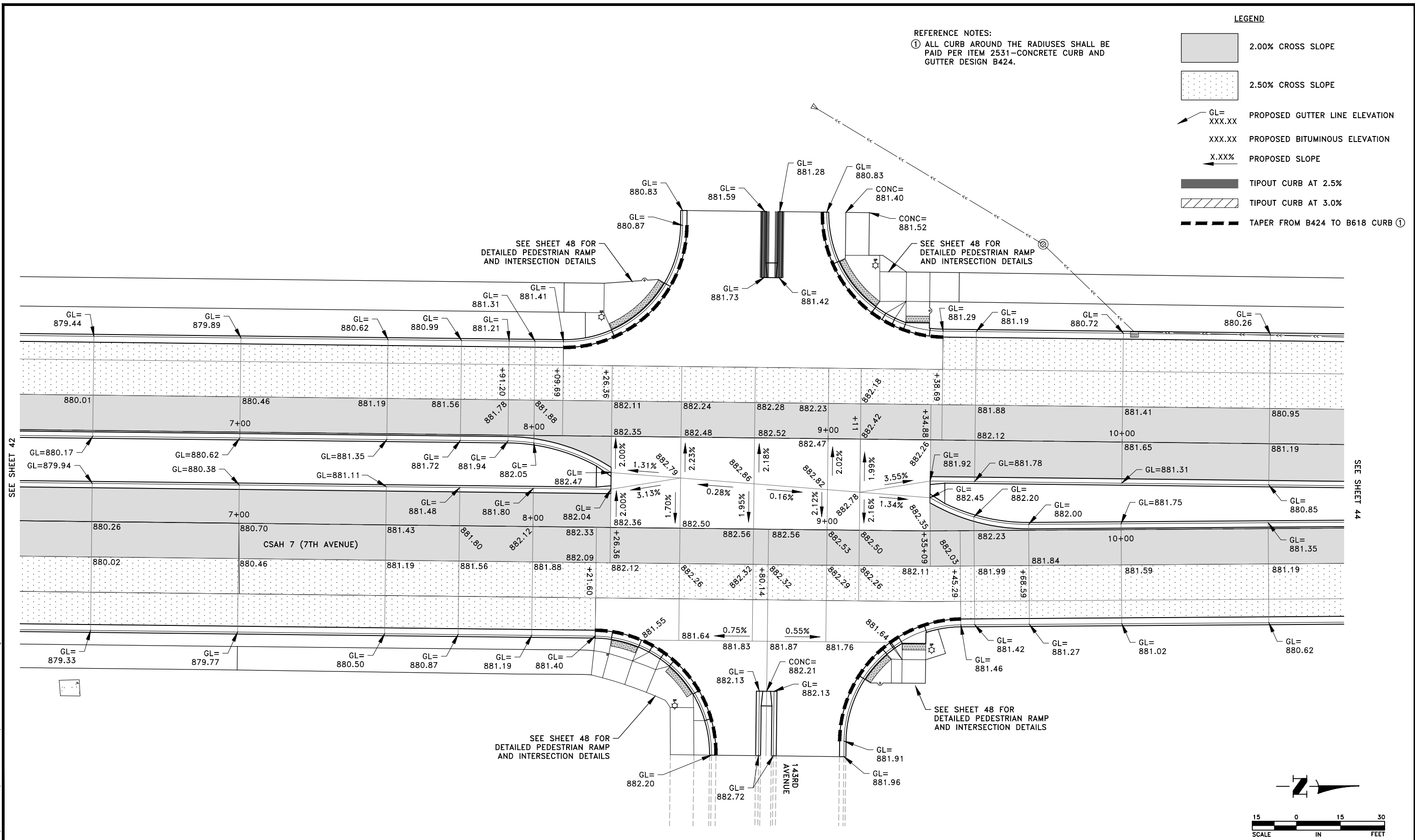
STAKING PLAN

CSAH 7
CITIES OF ANOKA AND ANDOVER, MINNESOTA

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May 04, 2022 - 4:31pm
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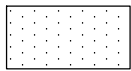
DATE	REVISION	I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.		DESIGNED BY: TAE		Hakanson Anderson Civil Engineers and Land Surveyors 3601 Thurston Ave., Anoka, Minnesota 55303 763-427-5860 FAX 763-427-0520 www.hakanson-anderson.com	CSAH 7 AND 143RD AVENUE INTERSECTION IMPROVEMENT PROJECT	STAKING PLAN CSAH 7 CITIES OF ANOKA AND ANDOVER, MINNESOTA	SHEET 43 OF 63 SHEETS
		CRAIG J. JOCHUM, P.E. Date 5/3/22 Lic. No. 23461		DRAWN BY: DMS					
				CHECKED BY: CJJ					

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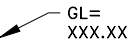
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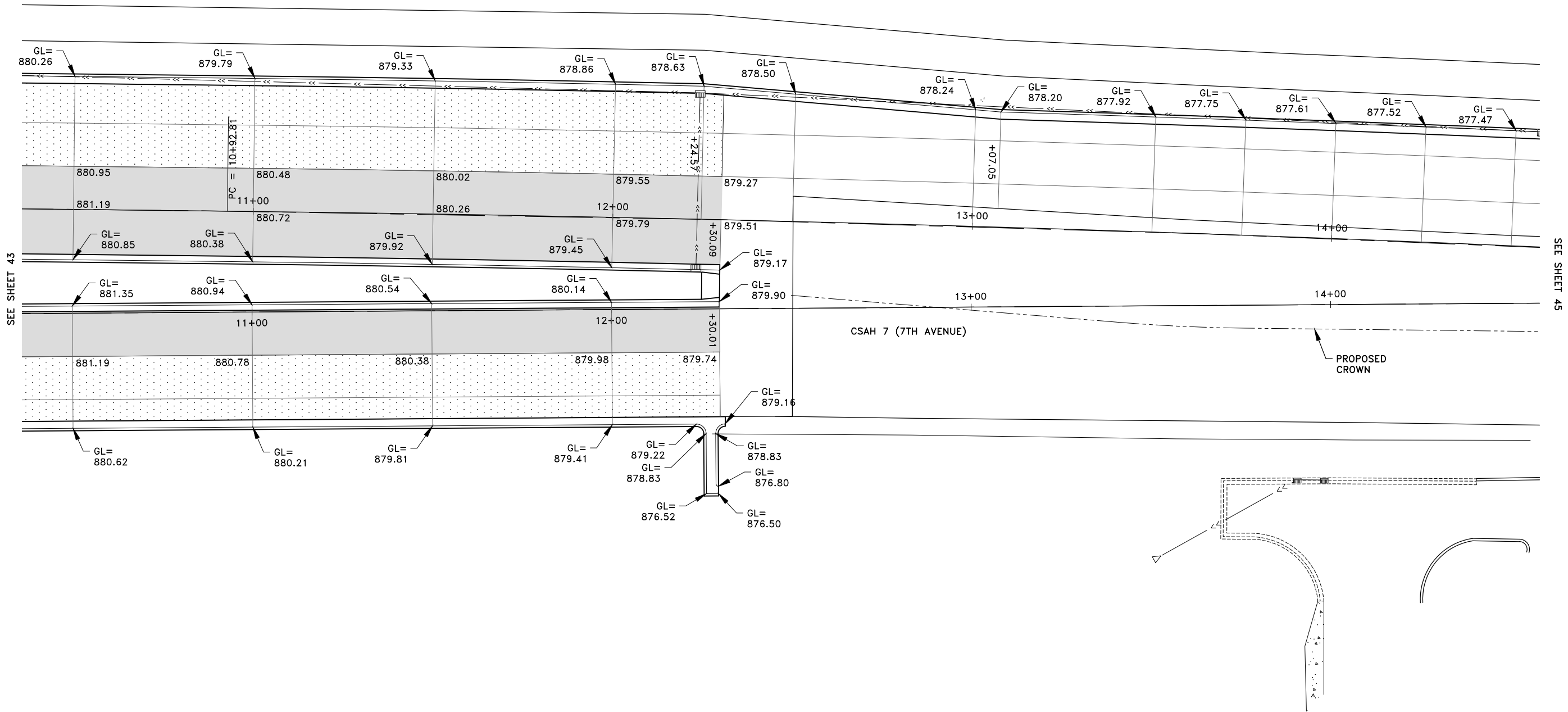
GL=XXX.XX PROPOSED GUTTER LINE ELEVATION

XXX.XX

PROPOSED BITUMINOUS ELEVATION

X.XX%

PROPOSED SLOPE



DATE	REVISION

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Craig J. Jochem
CRAIG J. JOCHUM, P.E.
Date 5/3/22 Lic. No. 23461

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DRAWN BY:
DMS
CHECKED BY:
CJJ



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CSAH 7 AND 143RD AVENUE
INTERSECTION IMPROVEMENT PROJECT

STAKING PLAN
CSAH 7
CITIES OF ANOKA AND ANDOVER, MINNESOTA

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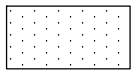
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SEE SHEET 44

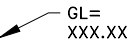
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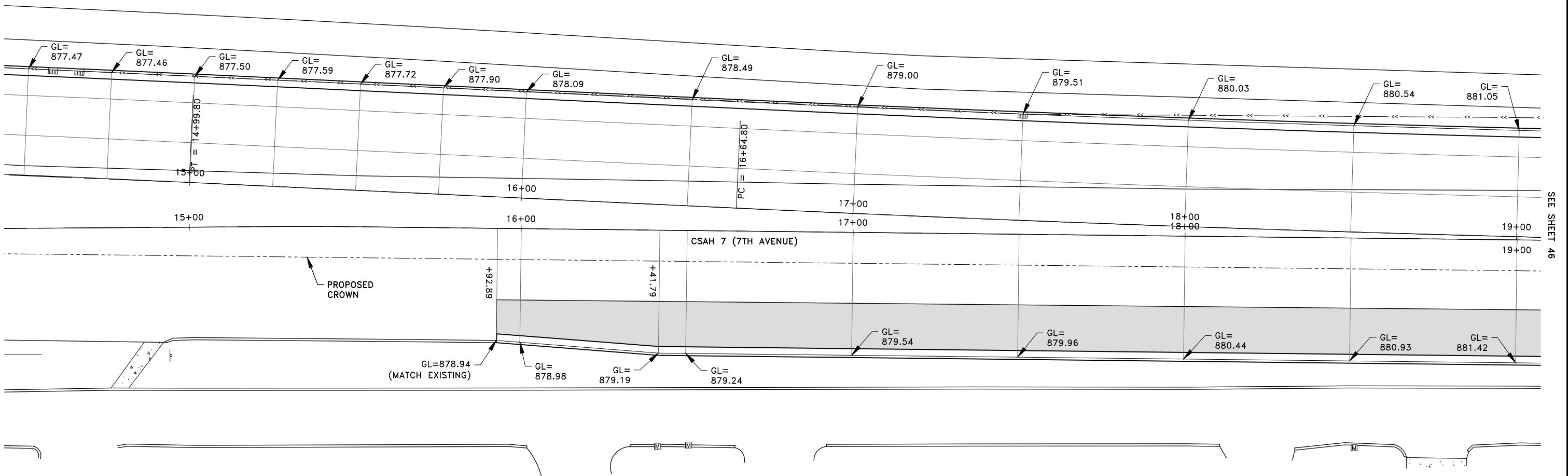
PROPOSED GUTTER LINE ELEVATION

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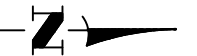
PROPOSED BITUMINOUS ELEVATION

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PROPOSED SLOPE

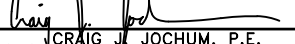


SEE SHEET 46



DATE	REVISION

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Date 5/3/22 Lic. No. 23461

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CSAH 7 AND 143RD AVENUE
INTERSECTION IMPROVEMENT PROJECT

STAKING PLAN
CSAH 7
CITIES OF ANOKA AND ANDOVER, MINNESOTA

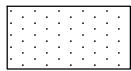
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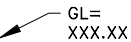
LEGEND



2.00% CROSS SLOPE



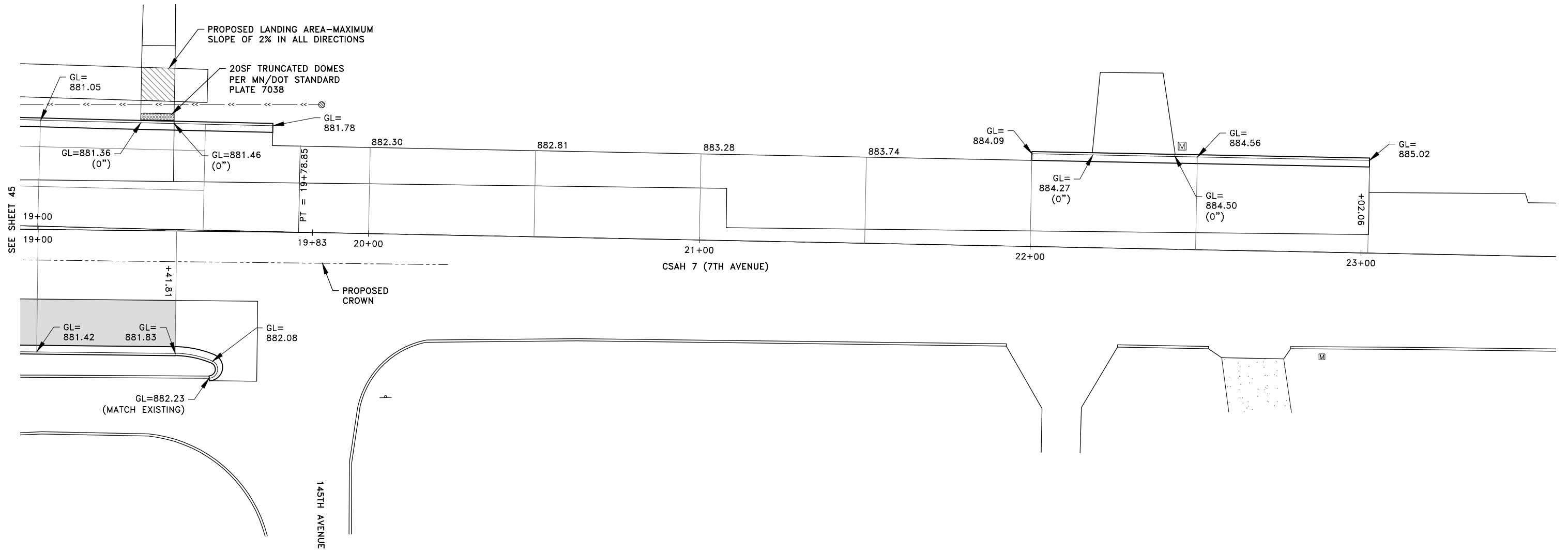
2.50% CROSS SLOPE



GL= XXX.XX PROPOSED GUTTER LINE ELEVATION

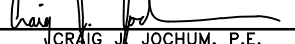
XXX.XX PROPOSED BITUMINOUS ELEVATION

X.XX% PROPOSED SLOPE



DATE	REVISION
5/23/22	REVISED CURB

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CRAIG J. JOCHUM, P.E.
Date 5/3/22 Lic. No. 23461

DESIGNED BY:	TAE
DRAWN BY:	DMS
CHECKED BY:	CJJ



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763-427-5860 FAX 763-427-0520
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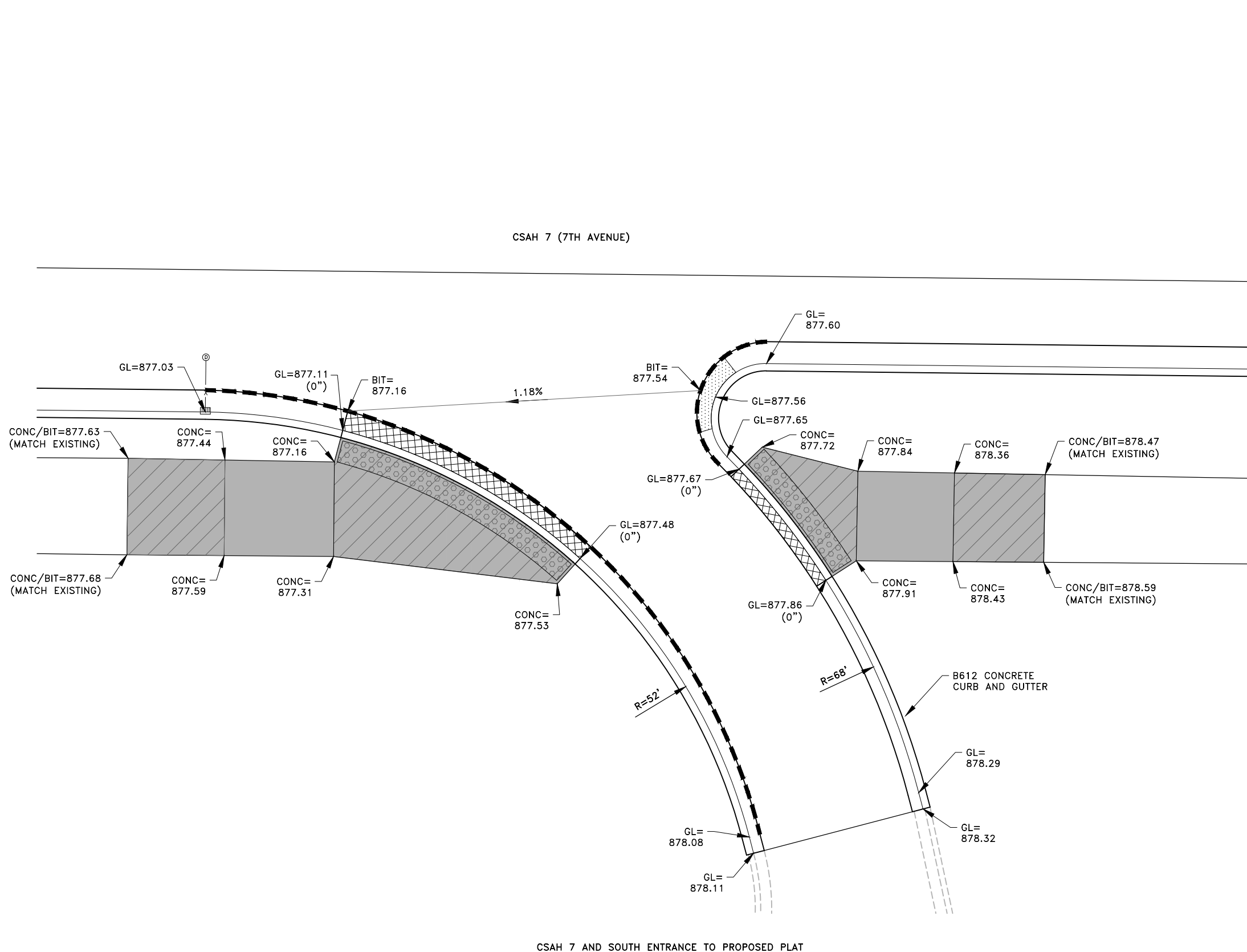
CSAH 7 AND 143RD AVENUE
INTERSECTION IMPROVEMENT PROJECT

STAKING PLAN
CSAH 7
CITIES OF ANOKA AND ANDOVER, MINNESOTA

SHEET
46
OF
63
SHEETS

AD303

May 04, 2022 - 4:31pm
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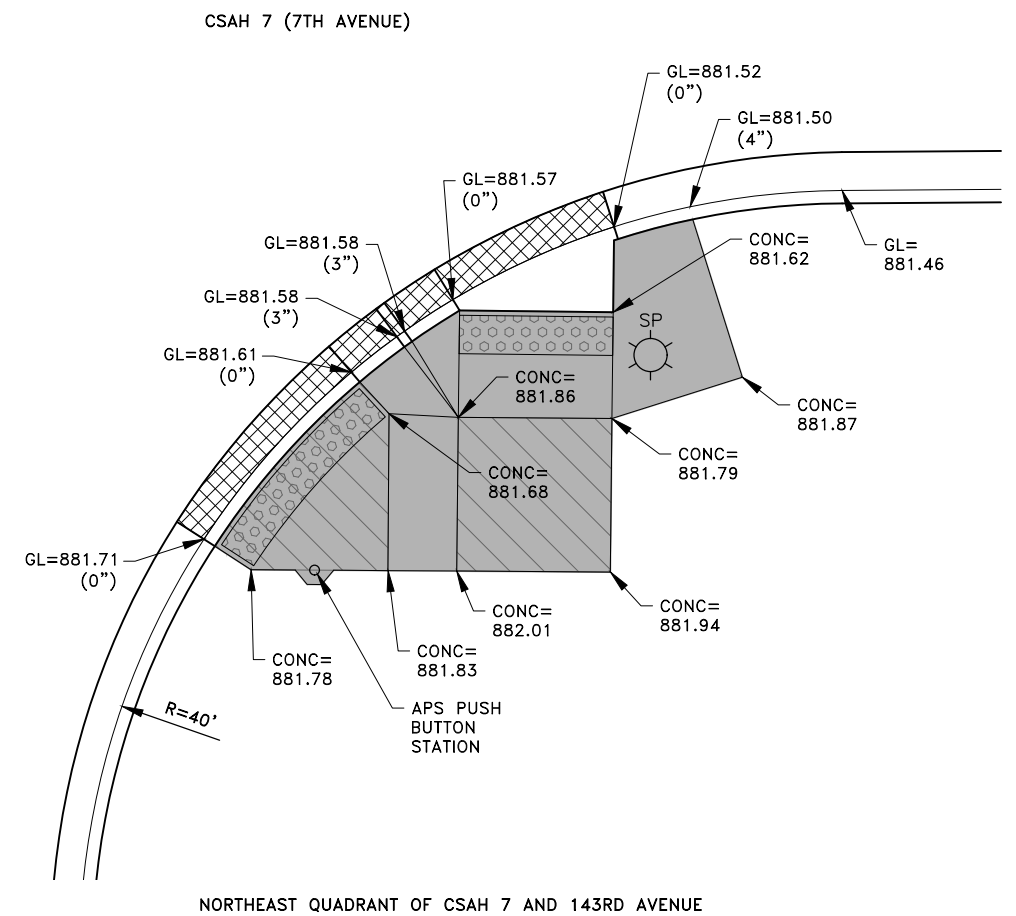
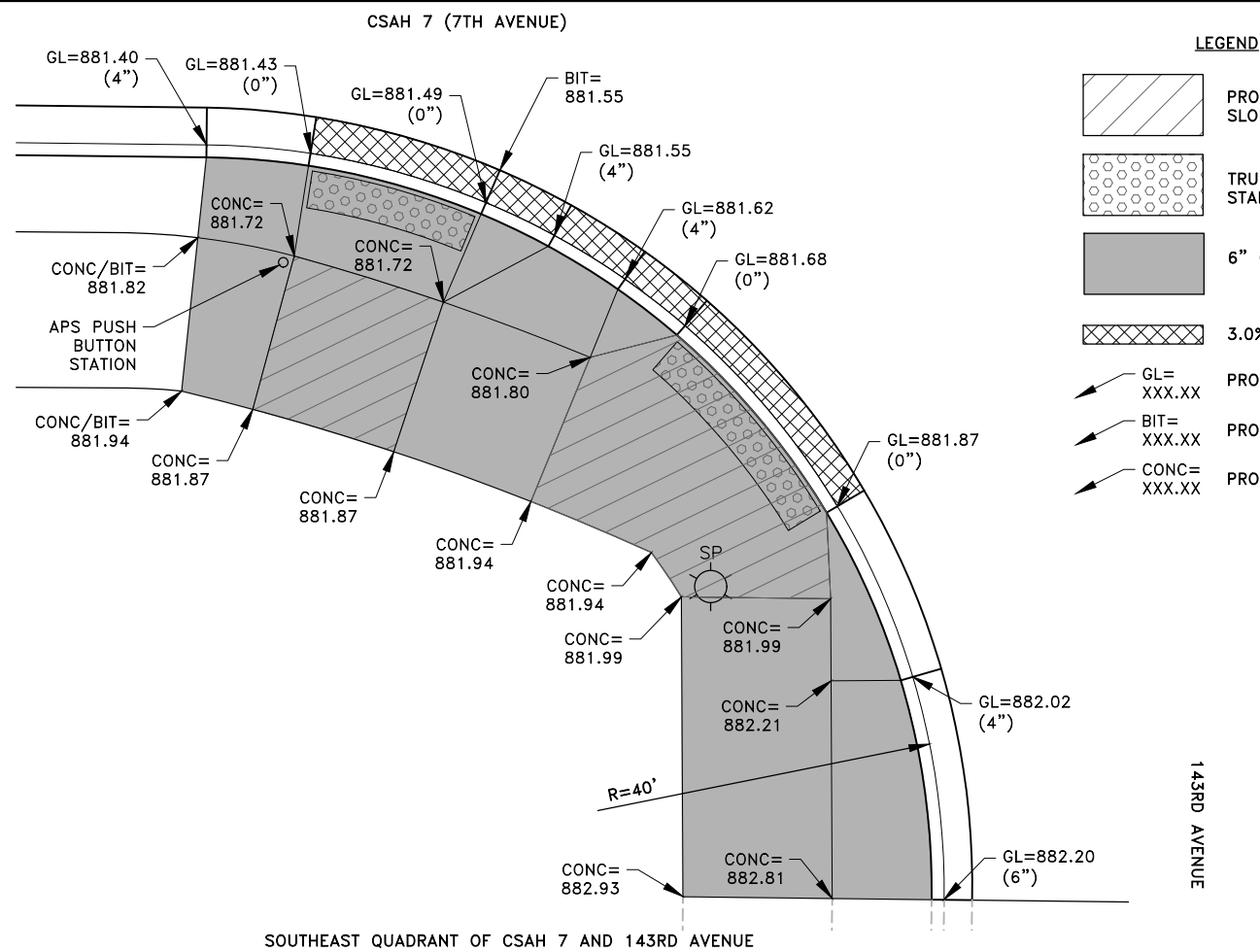
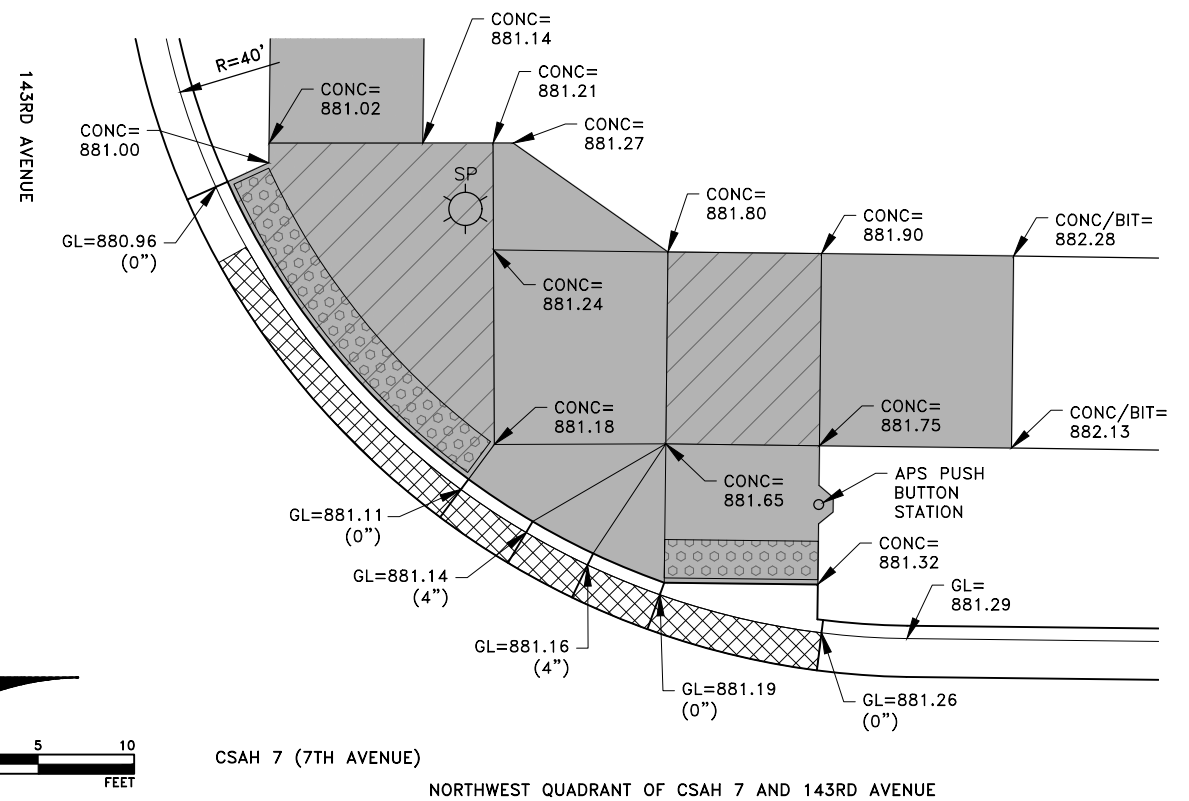
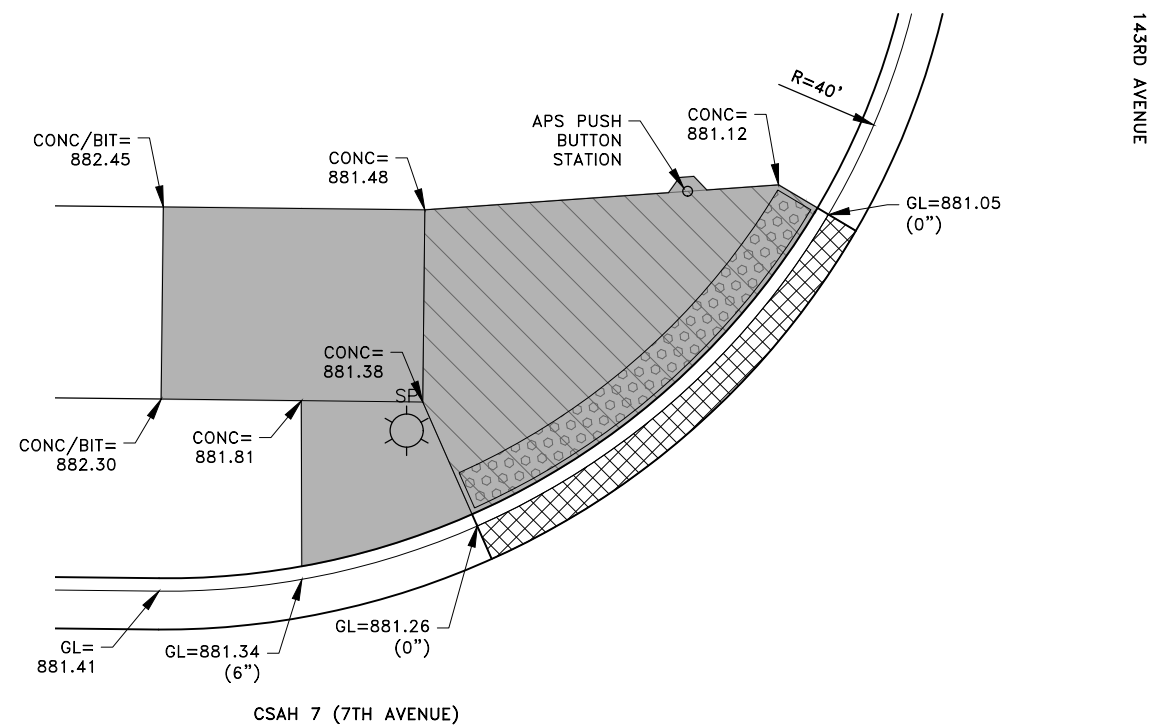


LEGEND

- PROPOSED LANDING AREA—MAXIMUM SLOPE OF 2% IN ALL DIRECTIONS
- TRUNCATED DOMES PER MN/DOT STANDARD PLATE 7038
- 6" CONCRETE WALK
- TIPOUT CURB AT 1.0%
- 3.0% GUTTER SLOPE
- TAPER FROM B424 TO B612 CURB ①
- PROPOSED GUTTER LINE ELEVATION
- PROPOSED BITUMINOUS ELEVATION
- PROPOSED CONCRETE ELEVATION
- PROPOSED SLOPE

REFERENCE NOTES:
① ALL CURB AROUND THE RADIUSSES SHALL BE PAID PER ITEM 2531—CONCRETE CURB AND GUTTER DESIGN B424.

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		DRAWN BY: DMS								
		CHECKED BY: CJJ								



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CSAH 7 AND 143RD AVENUE
INTERSECTION IMPROVEMENT PROJECT

STAKING PLAN

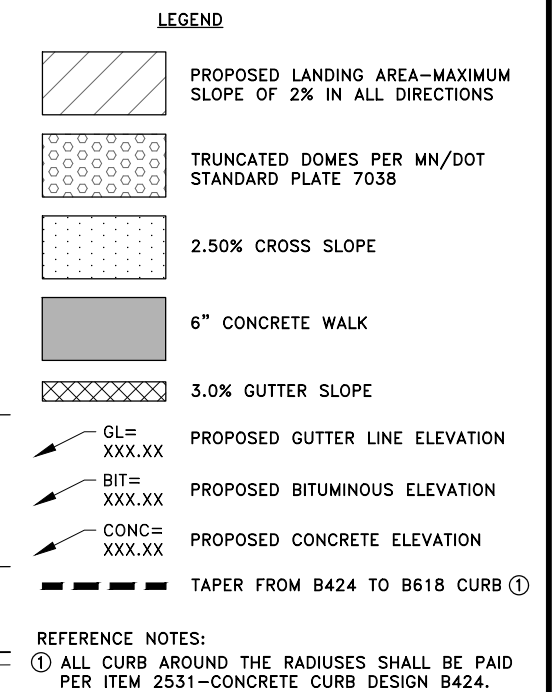
CSAH 7

CITIES OF ANOKA AND ANDOVER, MINNESOTA

HEET
48

OF

63
SHEETS



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CSAH 7 AND 143RD AVENUE
INTERSECTION IMPROVEMENT PROJECT

STAKING PLAN

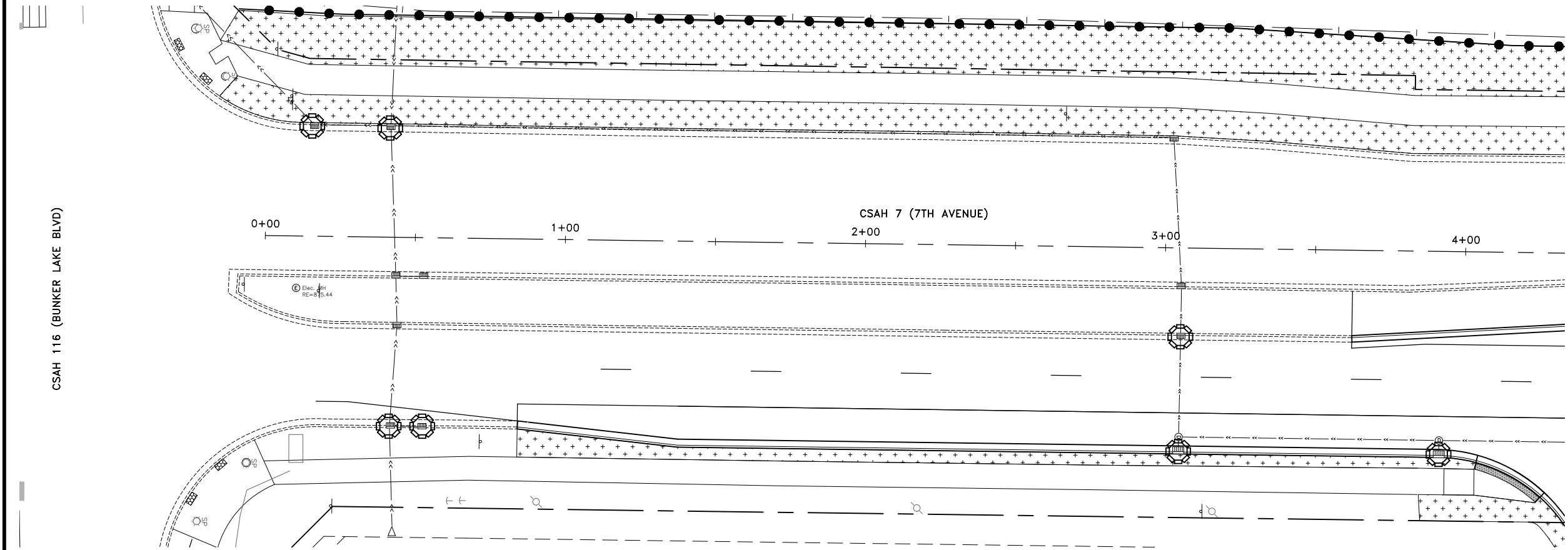
CSAH 116 TURN LANE
CITIES OF ANOKA AND ANDOVER, MINNESOTA

SHEET
49

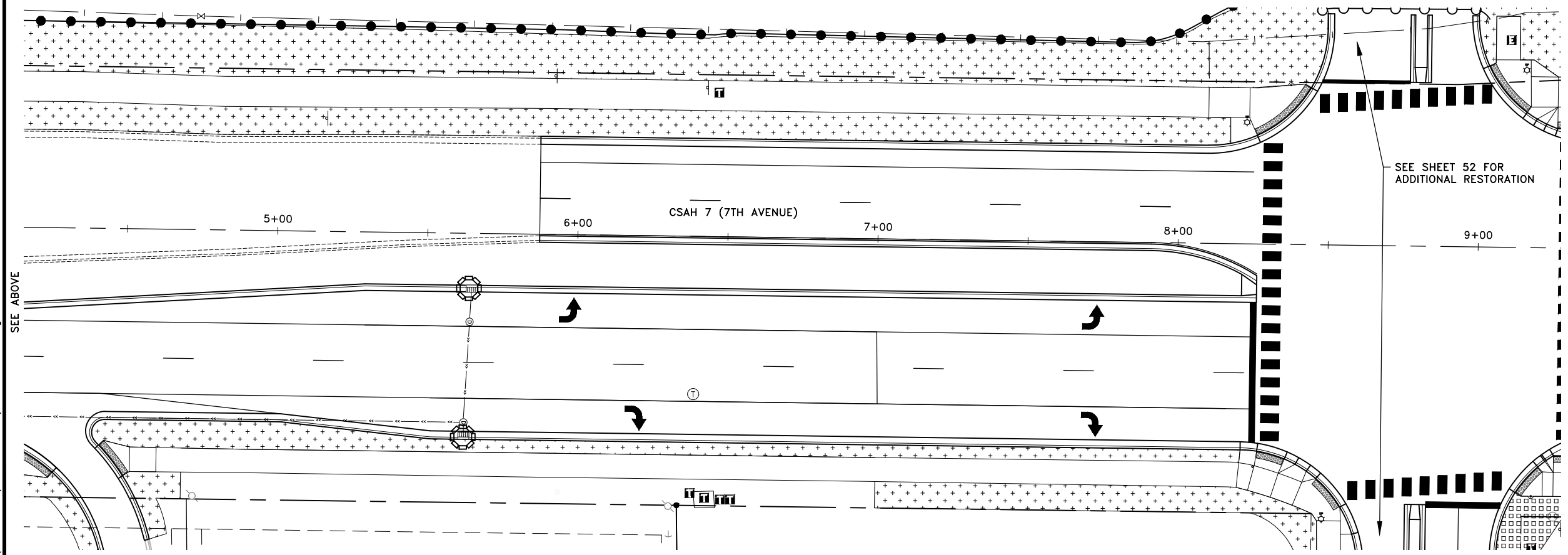
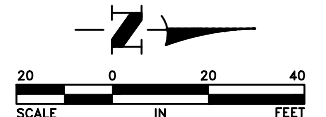
OF

63
SHEETS

May 04, 2022 - 4:31pm
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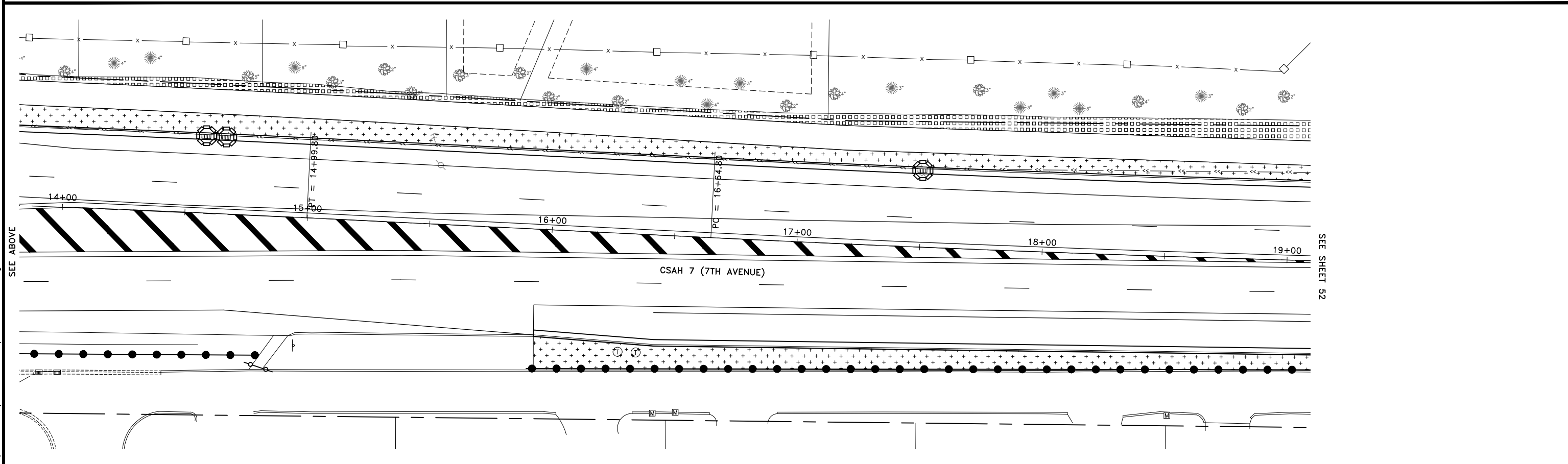
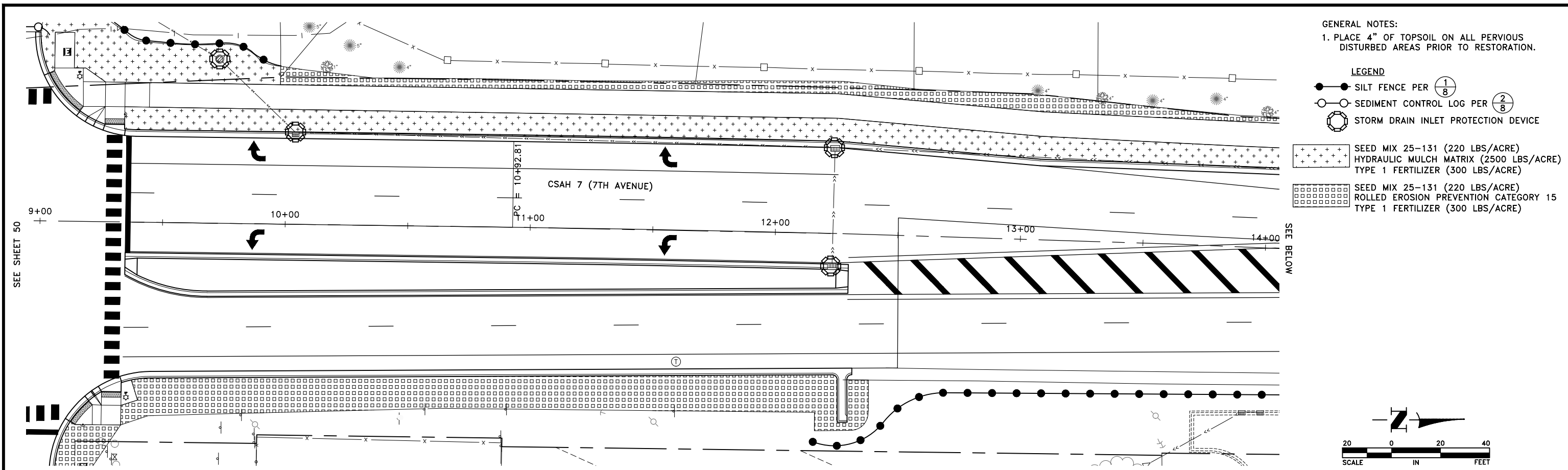


- GENERAL NOTES:
1. PLACE 4" OF TOPSOIL ON ALL PVIOUS DISTURBED AREAS PRIOR TO RESTORATION.
- LEGEND
- SILT FENCE PER $\frac{1}{8}$
 - SEDIMENT CONTROL LOG PER $\frac{2}{8}$
 - STORM DRAIN INLET PROTECTION DEVICE
- SEED MIX 25-131 (220 LBS/ACRE)
HYDRAULIC MULCH MATRIX (2500 LBS/ACRE)
TYPE 1 FERTILIZER (300 LBS/ACRE)
- SEED MIX 25-131 (220 LBS/ACRE)
ROLLED EROSION PREVENTION CATEGORY 15
TYPE 1 FERTILIZER (300 LBS/ACRE)



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		CRAIG J. JOCHUM, P.E. Date 5/3/22 Lic. No. 23461	DRAWN BY: DMS					
			CHECKED BY: CJJ					

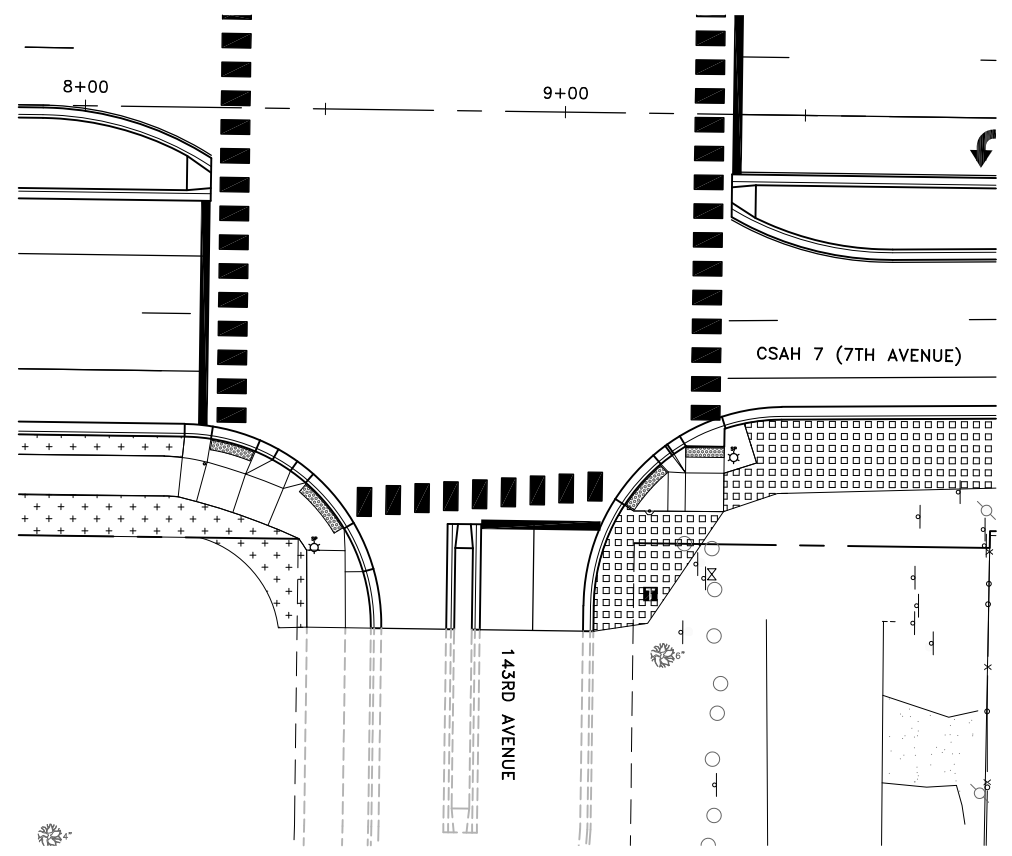
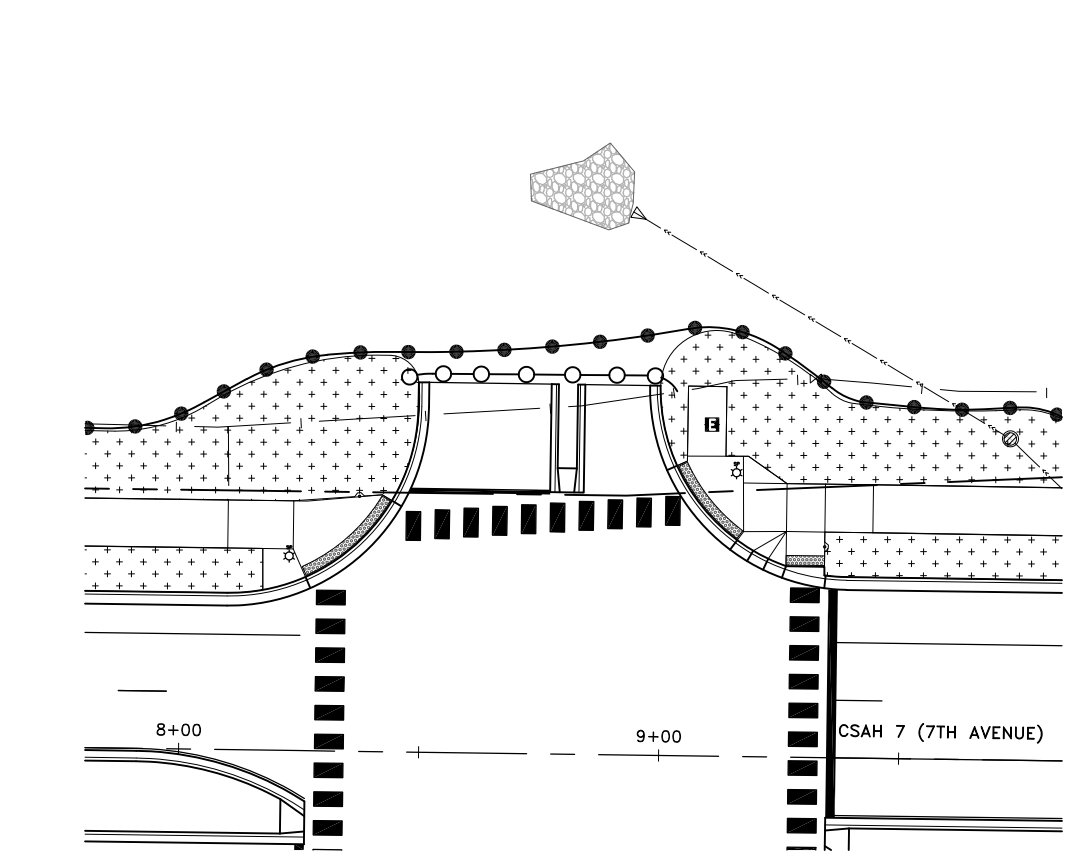
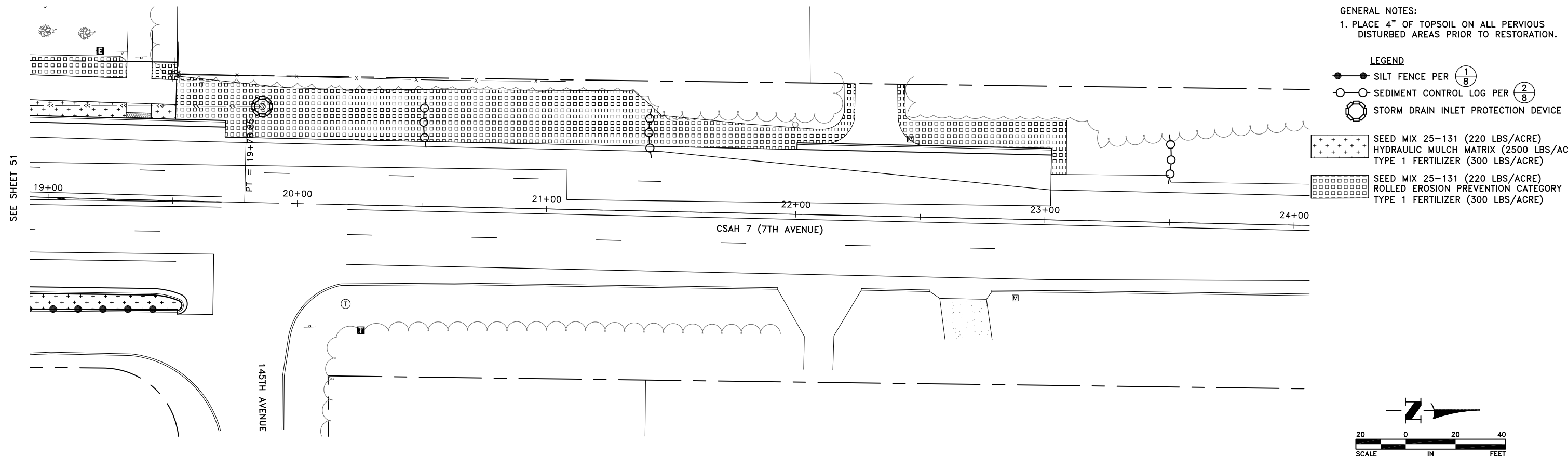
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			DRAWN BY: DMS					
			CHECKED BY: CJJ					

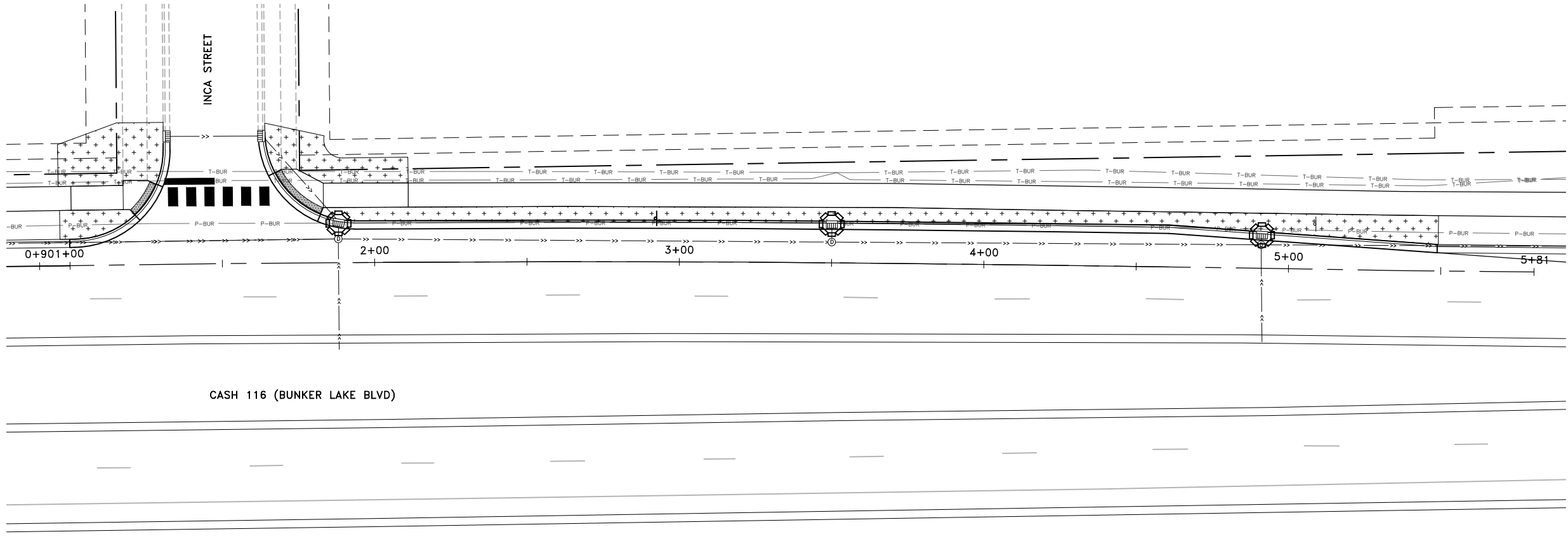
DATE 5/3/22
CRAIG J. JOCHUM, P.E.
Lic. No. 23461

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5/23/22	REVISED CURB AND STORM SEWER		TAE					
			DRAWN BY:					
			DMS					
			CHECKED BY:					
			CJJ					

May 04, 2022 - 4:32pm
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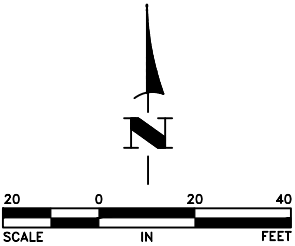
GENERAL NOTES:
1. PLACE 4" OF TOPSOIL ON ALL PERVIOUS
DISTURBED AREAS PRIOR TO RESTORATION.

LEGEND

- SILT FENCE PER $\frac{1}{8}$
- SEDIMENT CONTROL LOG PER $\frac{2}{8}$
- STORM DRAIN INLET PROTECTION DEVICE

SEED MIX 25-131 (220 LBS/ACRE)
HYDRAULIC MULCH MATRIX (2500 LBS/ACRE)
TYPE 1 FERTILIZER (300 LBS/ACRE)

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TYPE 1 FERTILIZER (300 LBS/ACRE)



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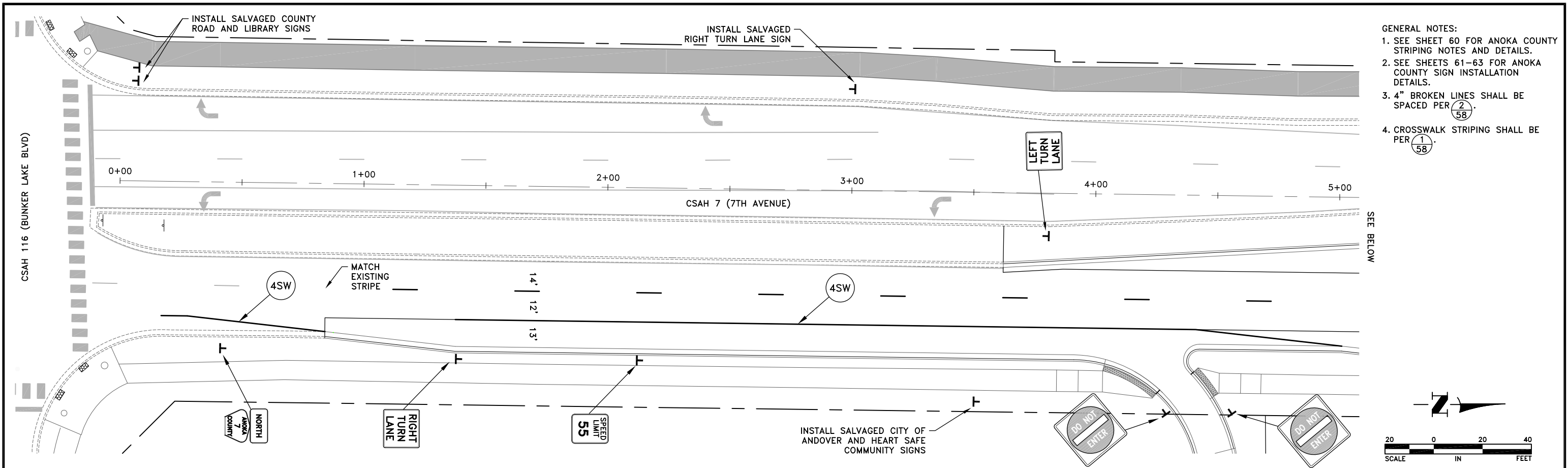
CSAH 7 AND 143RD AVENUE INTERSECTION
IMPROVEMENT PROJECT

SEDIMENT CONTROL AND RESTORATION PLAN

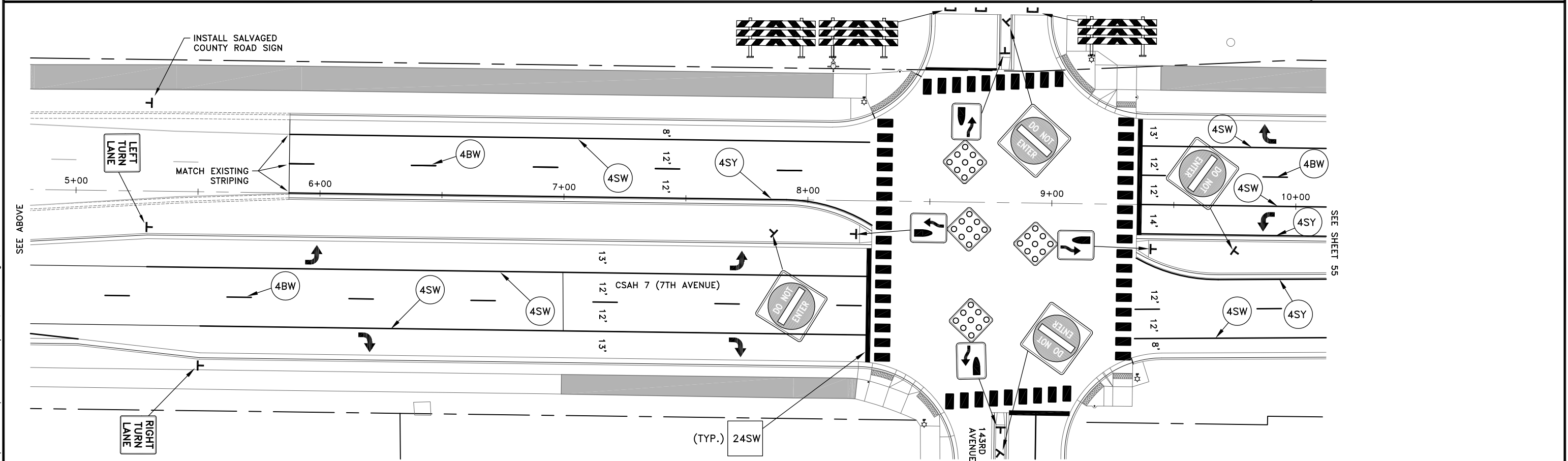
CSAH 116
CITIES OF ANOKA AND ANDOVER, MINNESOTA

SHEET
53
OF
63
SHEETS

May 23, 2022 - 8:45am
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- GENERAL NOTES:
1. SEE SHEET 60 FOR ANOKA COUNTY STRIPING NOTES AND DETAILS.
 2. SEE SHEETS 61-63 FOR ANOKA COUNTY SIGN INSTALLATION DETAILS.
 3. 4" BROKEN LINES SHALL BE SPACED PER $\frac{2}{58}$.
 4. CROSSWALK STRIPING SHALL BE PER $\frac{1}{58}$.

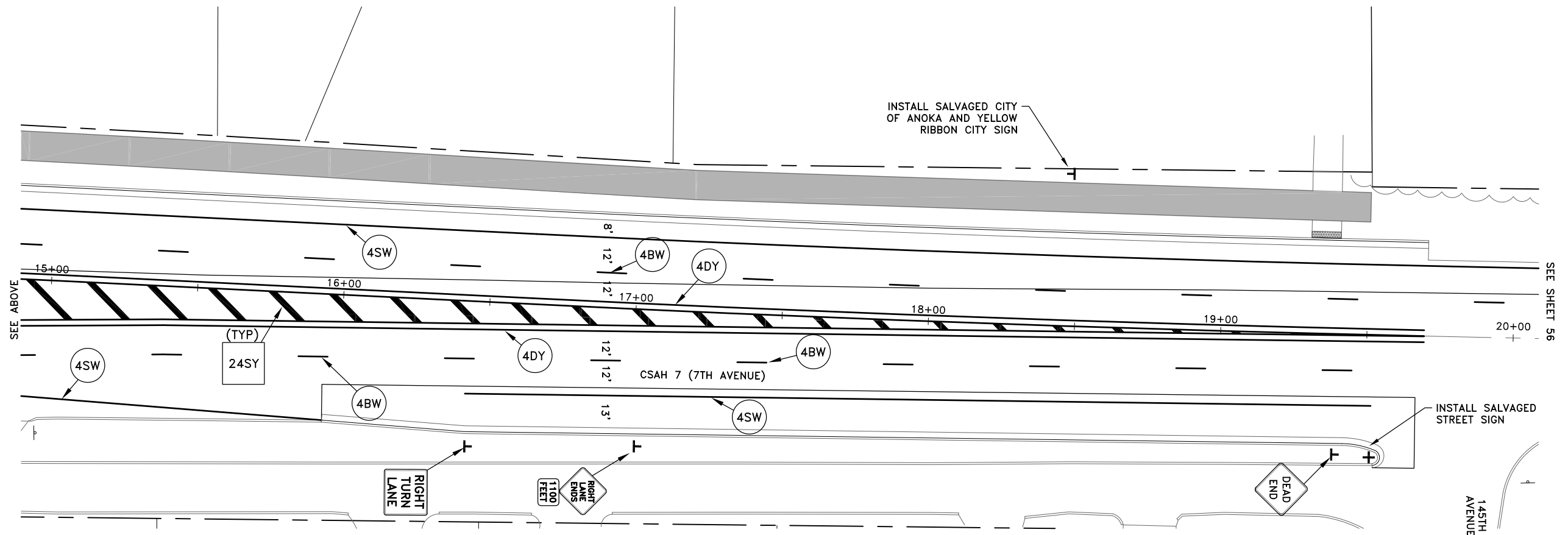
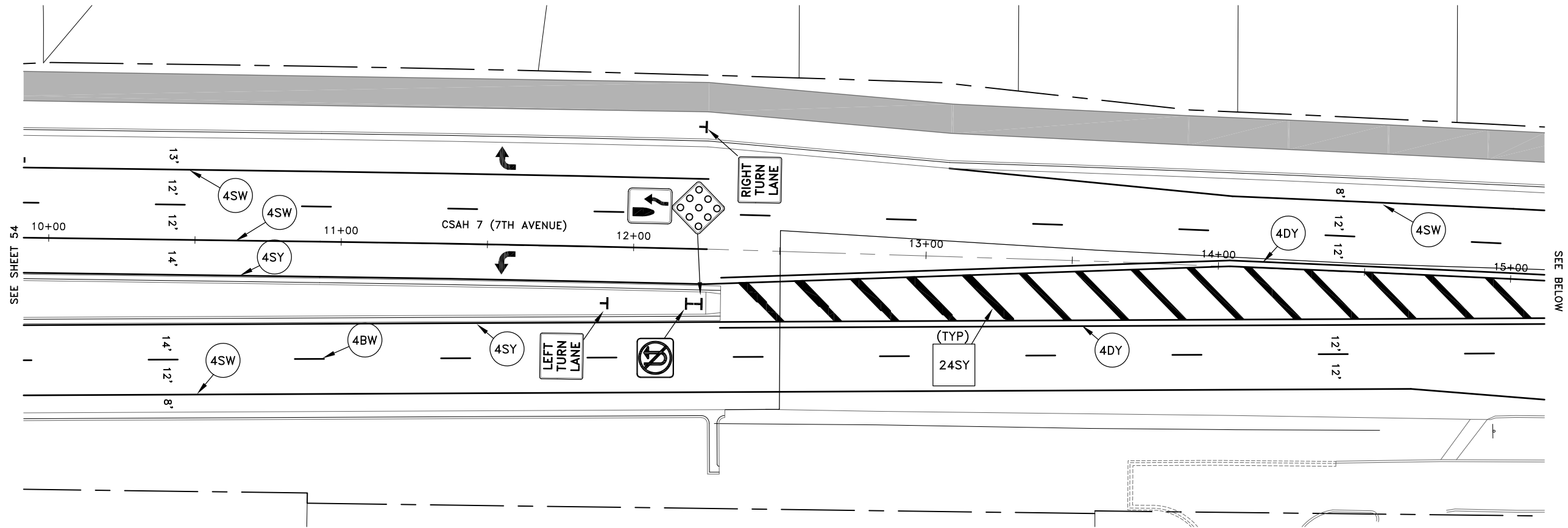


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			DRAWN BY: DMS					
			CHECKED BY: CJJ					

Date 5/3/22

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Lic. No. 23461

- GENERAL NOTES:
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CHECKED BY:
CJJ



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**CSAH 7 AND 143RD AVENUE
INTERSECTION IMPROVEMENT PROJECT**

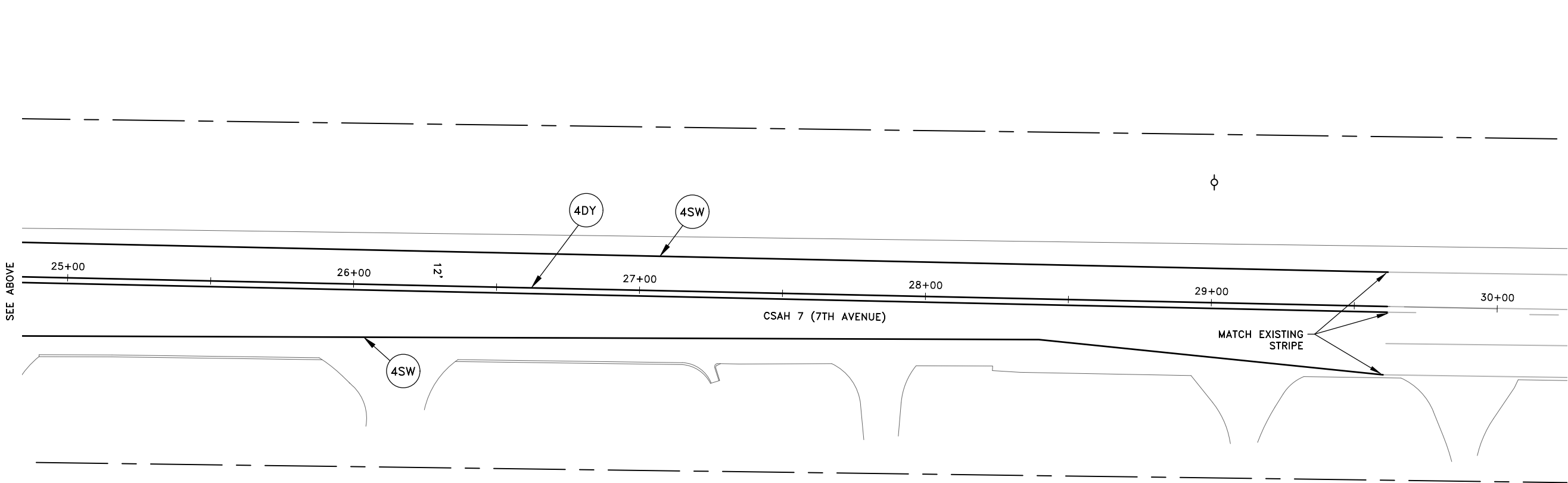
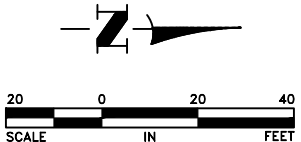
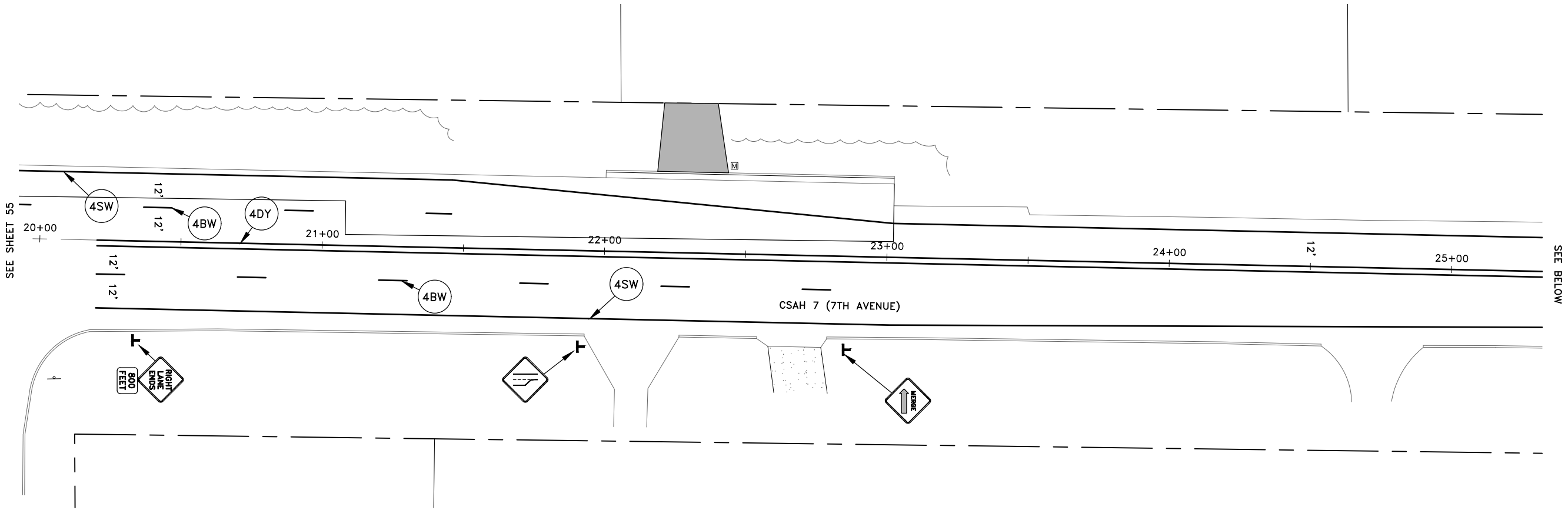
SIGNAGE AND STRIPING PLAN

CSAH 7
CITIES OF ANOKA AND ANDOVER, MINNESOTA

SHEET
55
OF
63
SHEETS

AD303

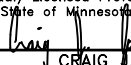
- GENERAL NOTES:
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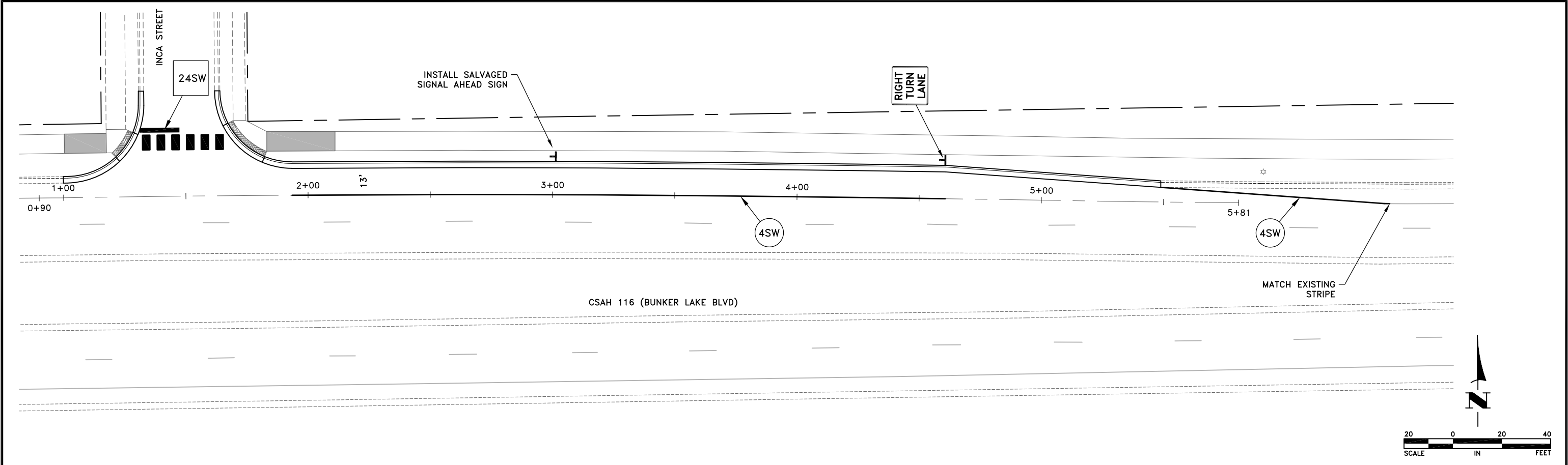
**CSAH 7 AND 143RD AVENUE
INTERSECTION IMPROVEMENT PROJECT**

SIGNAGE AND STRIPING PLAN

**CSAH 7
CITIES OF ANOKA AND ANDOVER, MINNESOTA**

SHEET
56
OF
63
SHEETS

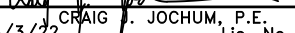
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CSAH 7 AND 143RD AVENUE
INTERSECTION IMPROVEMENT PROJECT

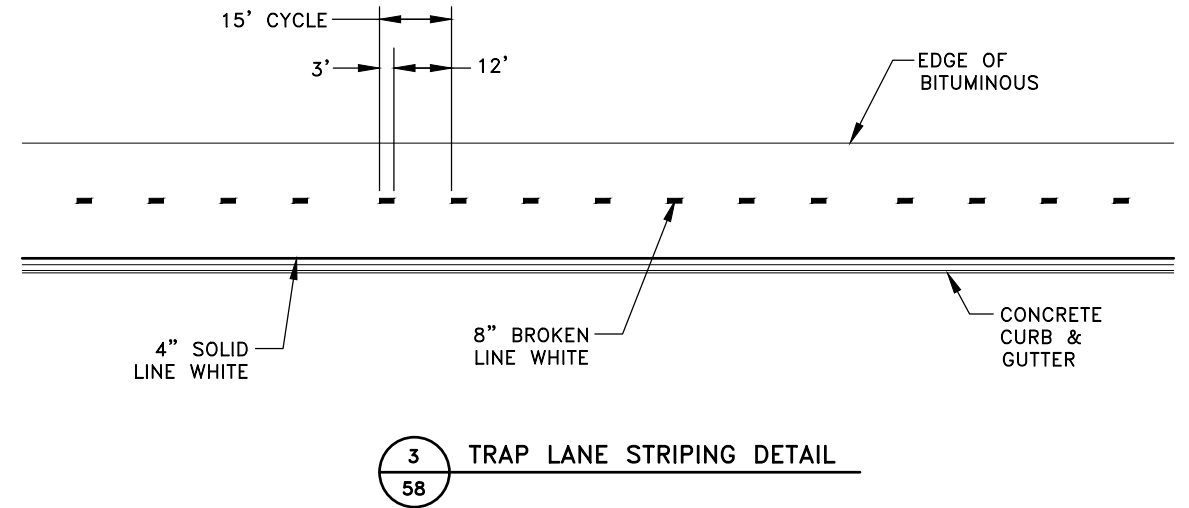
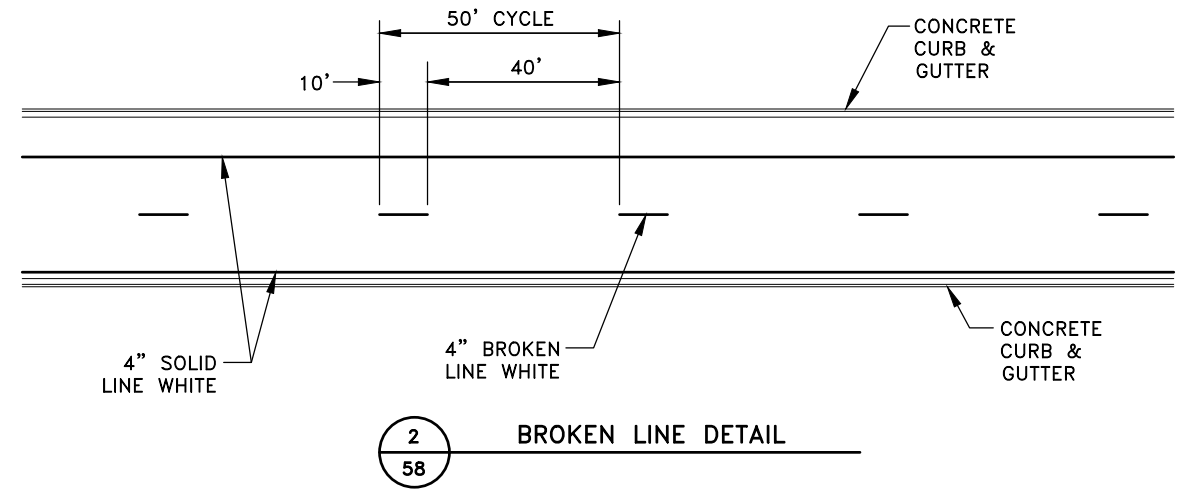
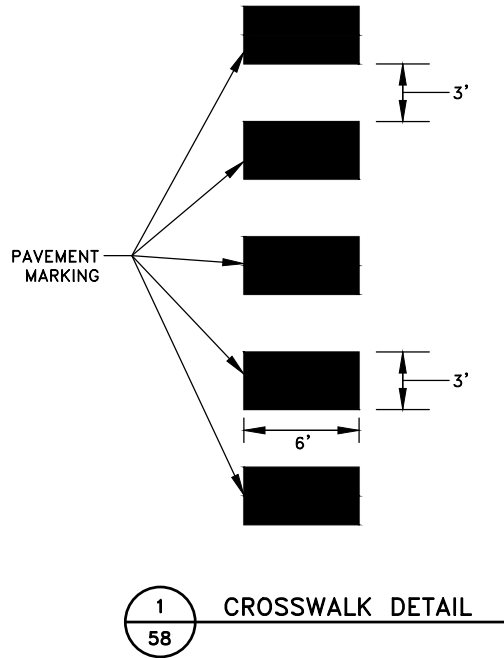
SIGNAGE AND STRIPING PLAN

CSAH 116 TURN LANE
CITIES OF ANOKA AND ANDOVER, MINNESOTA

SHEET 57
OF 63
SHEETS

PERMANENT PAVEMENT MARKING GENERAL NOTES AND GUIDELINES:

1. 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 TO DETERMINE NECESSARY STARTING AND CUTOFF POINTS. LONGITUDINAL JOINTS, PAVEMENT EDGES AND EXISTING MARKINGS MAY SERVE AS HORIZONTAL CONTROL WHEN SO DIRECTED.
2. 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.
3. A TOLERANCE OF 1/4 INCH UNDER OR 1/4 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 1/2 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.
4. 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. THIS WORK SHALL BE INCIDENTAL.
5. 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.
6. FOR 20 MIL APPLICATIONS, GLASS BEADS SHALL BE APPLIED AT A RATE OF AT LEAST 25 LB/GAL. THE "NO-TRACKING" CONDITION SHALL BE DETERMINED ON AN APPLICATION OF SPECIFIED THICKNESS TO THE PAVEMENT AND COVERED WITH GLASS BEADS AT THE RATE OF AT LEAST 25 LB/GAL.
7. ALL MAINLINE PERMANENT STRIPING AND PAVEMENT MESSAGES SHALL BE PLACED WITHIN 72 HOURS OF MAINLINE PAVING. OPERATIONS SHALL BE CONDUCTED ONLY WHEN THE ROAD PAVEMENT SURFACE TEMPERATURES ARE 50 DEGREES (°F) OR GREATER.
8. PERMANENT PAVEMENT MARKINGS SHALL NOT BE PLACED OVER TEMPORARY TAPE MARKINGS.
9. LOCATIONS OF ALL PERMANENT STRIPING AND PAVEMENT MARKINGS ARE APPROXIMATE. EXACT LOCATIONS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
10. TRAFFIC CONTROL FOR STRIPING IS NOT SHOWN ON THE PLANS. CONTRACTOR SHALL PROVIDE ALL TRAFFIC CONTROL IN ACCORDANCE WITH THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

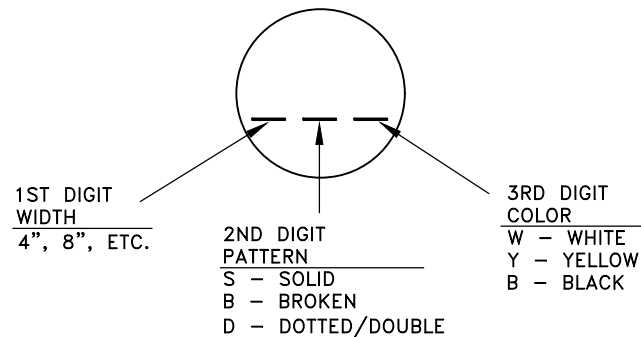


SYMBOLS & MATERIALS LEGEND

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

STRIPING KEY

- CIRCLE - MULTI-COMPONENT LIQUID
- SQUARE - PREFORMED THERMOPLASTIC
- TRIANGLE - PAINT
- PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING



EXAMPLE: **4SW** = 4\"

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CSAH 7 AND 143RD AVENUE
INTERSECTION IMPROVEMENT PROJECT

STRIPING NOTES, LEGEND AND DETAILS
CITIES OF ANOKA AND ANDOVER, MINNESOTA

SHEET **58**
OF **63**
SHEETS

AD303

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SIGN LEGEND	SIGN NUMBER	SIZE (INCHES)	ESTIMATED QUANTITY
	R2-1	30 X 36	1
	R3-4	24 X 24	1
		30 X 30	5
		30 X 30	3
	R4-7	24 X 30	5
	R5-1	30 X 30	6
	W14-1	30 X 30	1
	X4-2	18 X 18 YELLOW ON BLACK OR YELLOW	5

- GENERAL NOTES:
- ALL SIGNS SHALL HAVE TYPE IX SHEETING UNLESS NOTED.
 - SIGNS SHALL BE PAID PER ITEM 2564-SIGN PANELS TYPE C.
 - SIGN COLOR SHALL BE AS SHOWN IN THE MNDOT STANDARD SIGNS MANUAL, UNLESS NOTED.
- REFERENCE NOTES:
- ① MOUNT BACK TO BACK WITH SIGN R4-7.
- ② MOUNT BELOW SIGN R4-7.

DATE	REVISION	I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
		
		Oraig J. NOCHUM, P.E.
		Date <u>5/3/22</u> Lic. No. <u>23461</u>

DESIGNED BY:	TAE
DRAWN BY:	DMS
CHECKED BY:	CJJ



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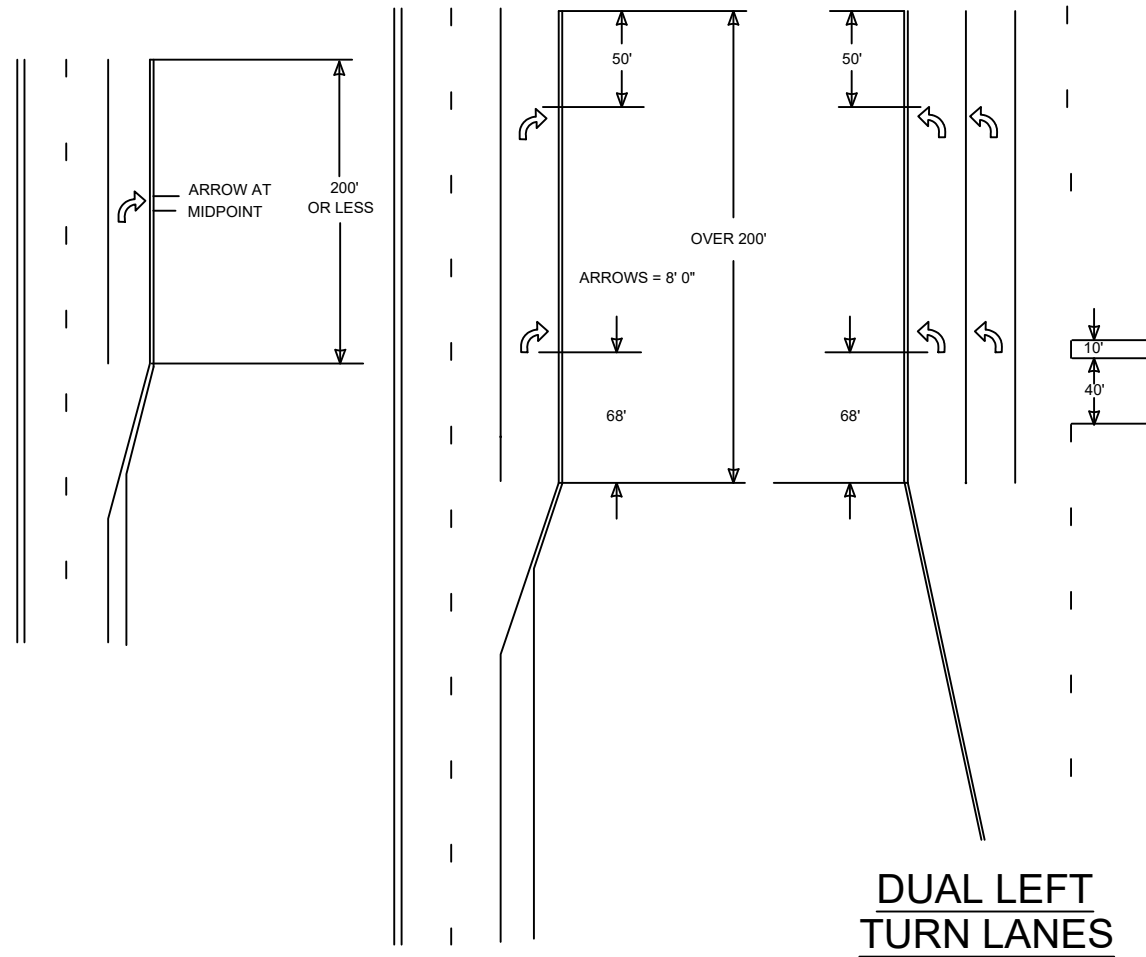
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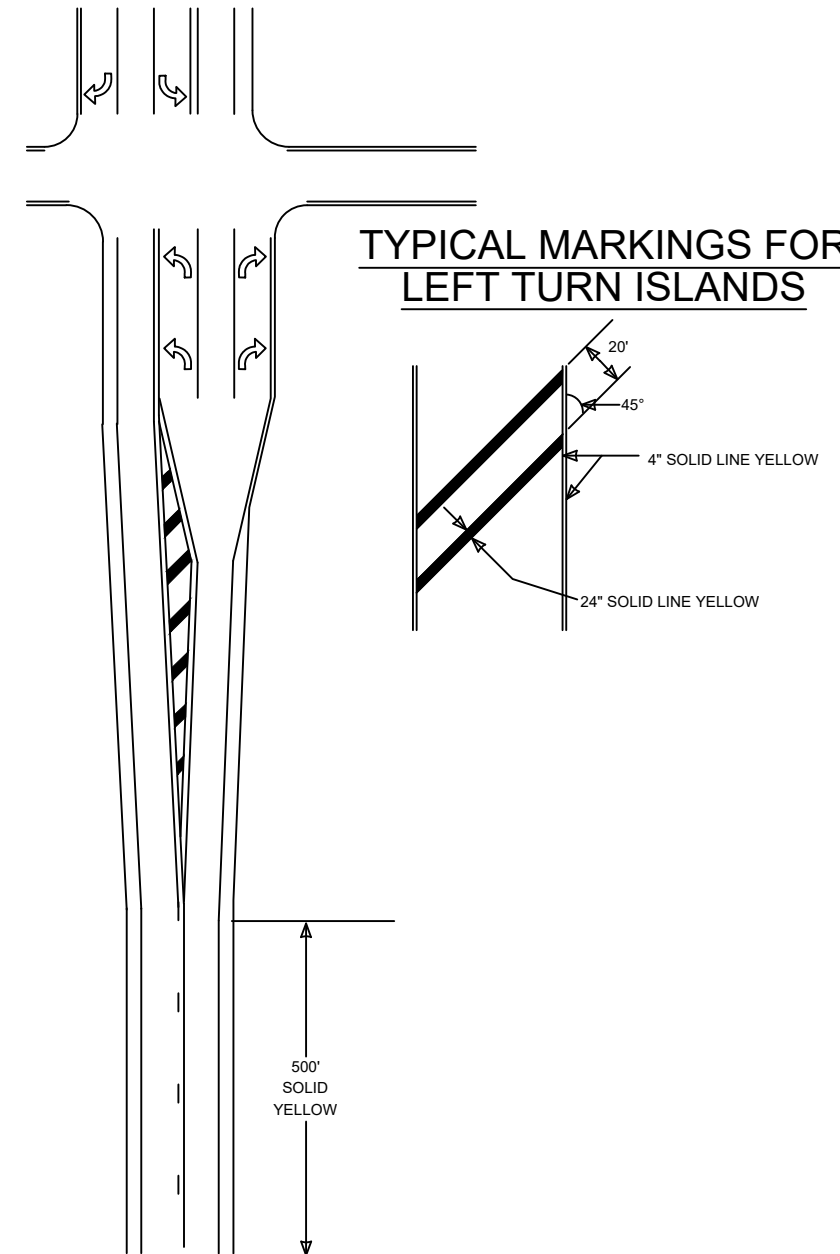
CITIES OF ANOKA AND ANDOVER, MINNESOTA

SHEET
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OF
63
SHEETS

TYPICAL MESSAGE PLACEMENT FOR TURN LANES



TYPICAL MARKINGS FOR LEFT TURN ISLANDS



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Craig J. Jochem
CRAIG J. JOCHUM, P.E.
Date 5/3/22 Lic. No. 23461

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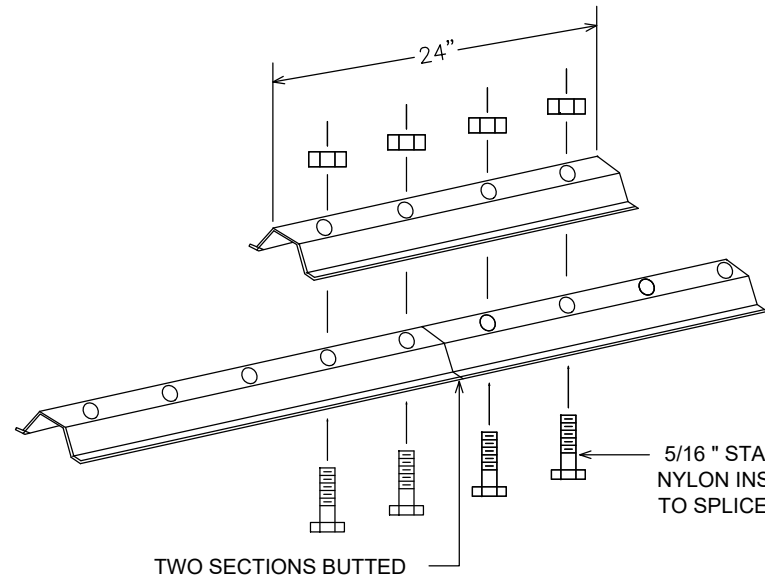
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ANOKA COUNTY HIGHWAY DEPARTMENT
STRIPING DETAILS
CITIES OF ANOKA AND ANDOVER, MINNESOTA

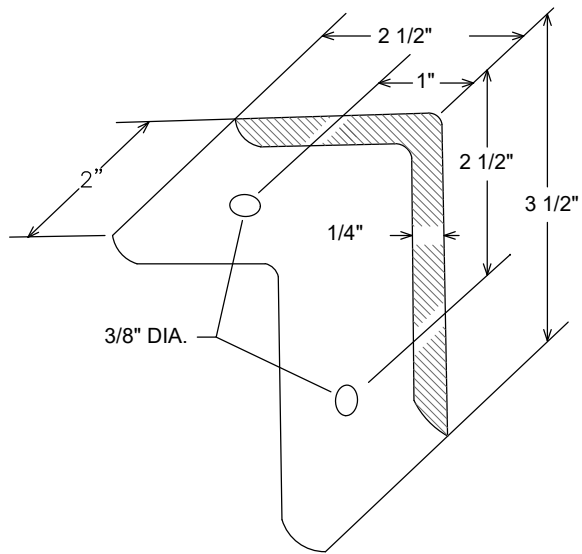
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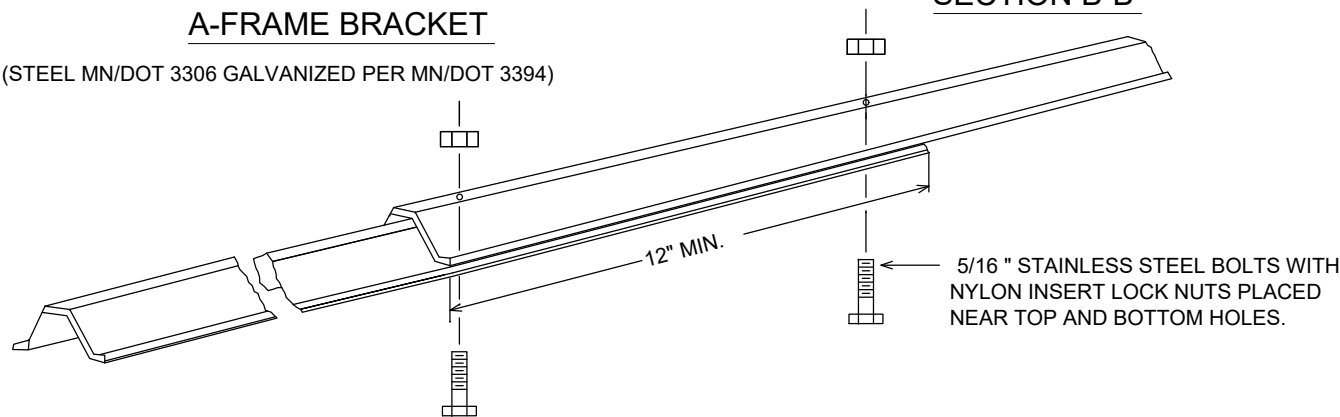


**LATERAL BRACE OR STRINGER
SPLICE DETAIL (EXPLODED VIEW)**

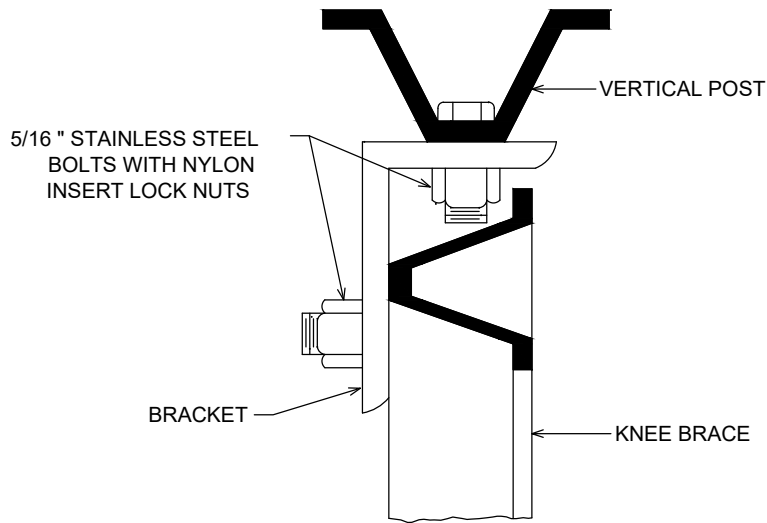


A-FRAME BRACKET

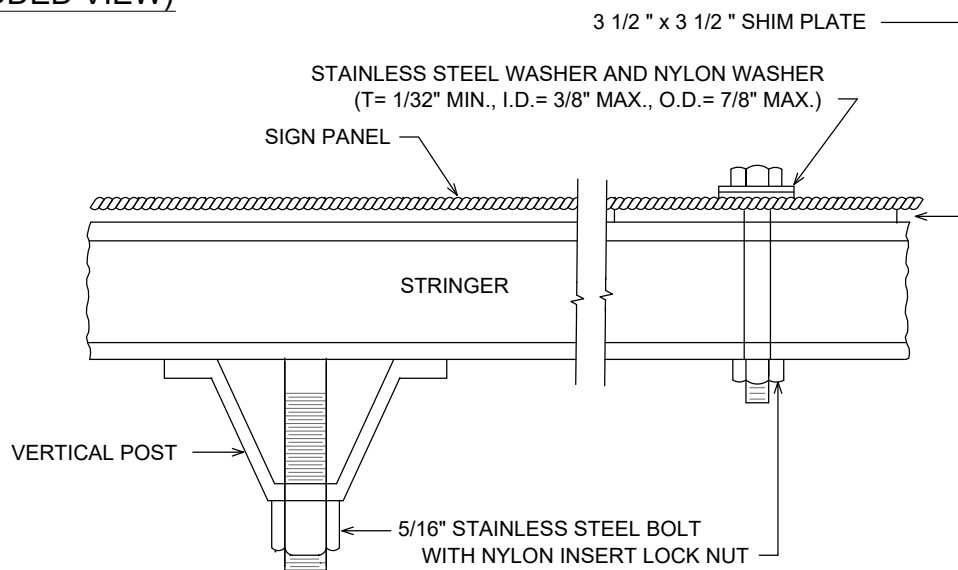
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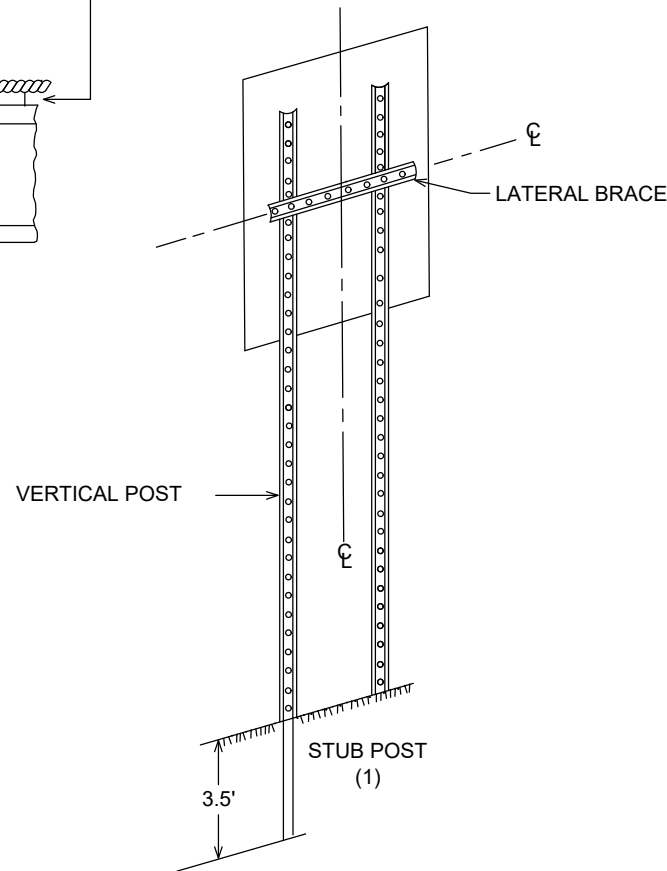
KNEE BRACE SPLICE



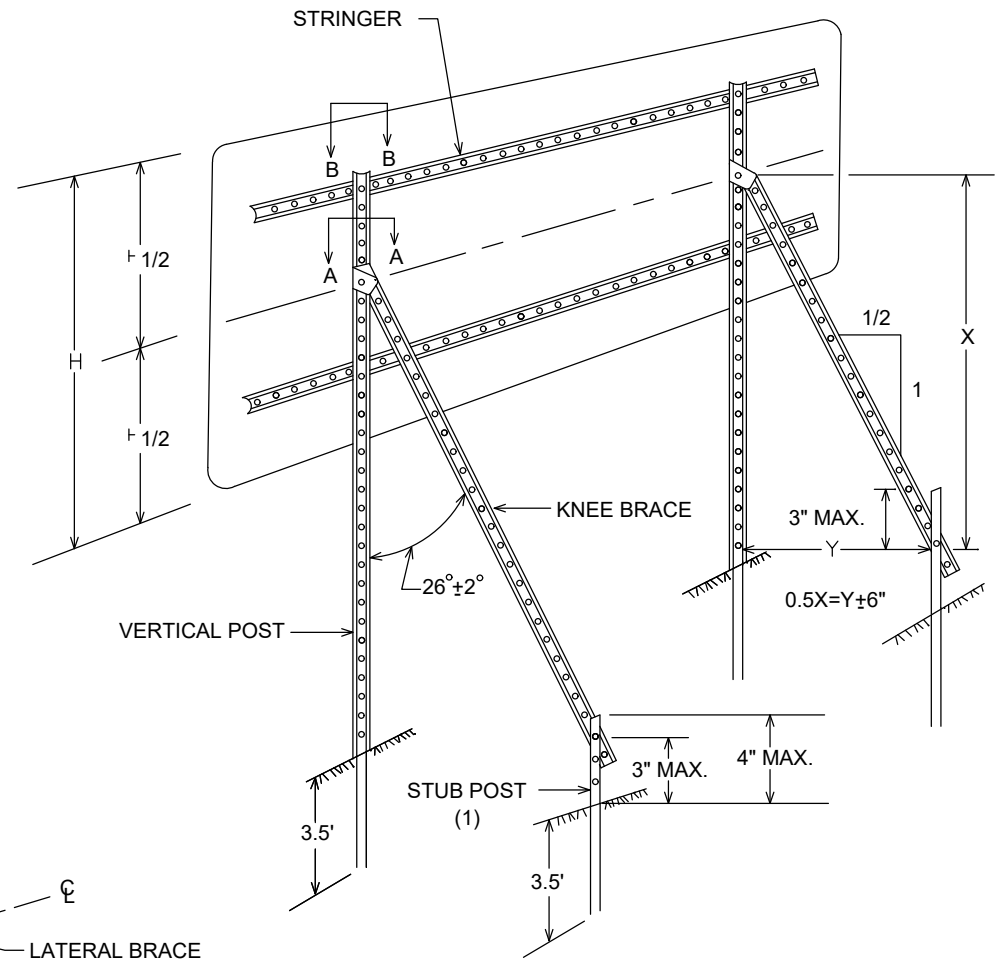
SECTION A-A



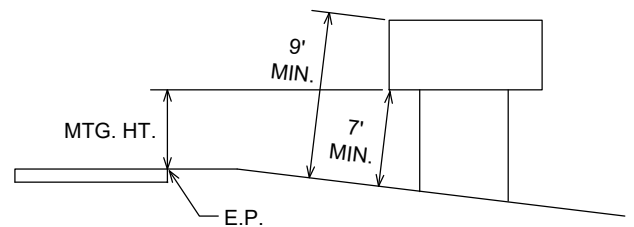
SECTION B-B



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



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



TYPICAL MOUNTING

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

**TYPE C & D SIGN
STRUCTURAL DETAILS**

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CHECKED BY: CJJ



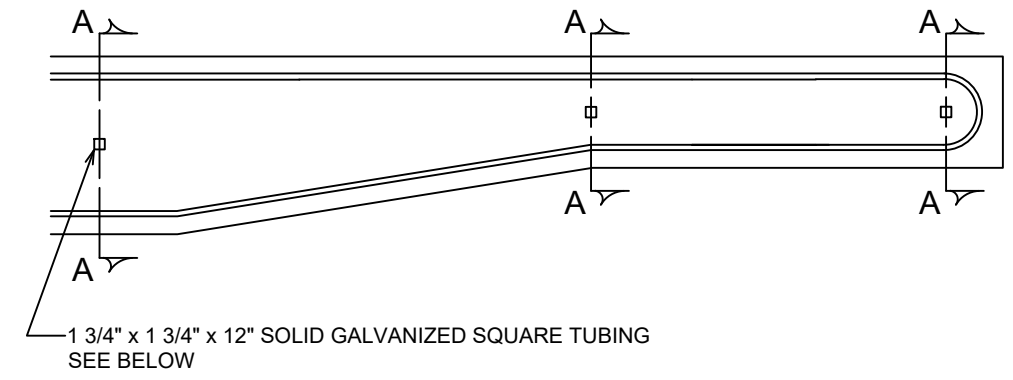
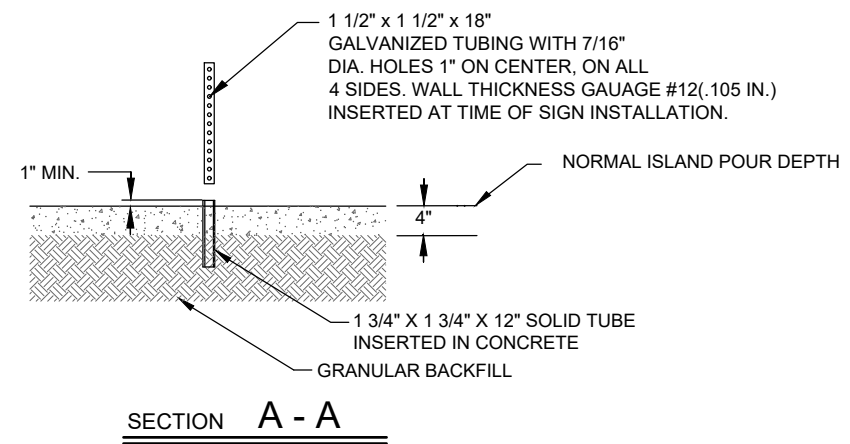
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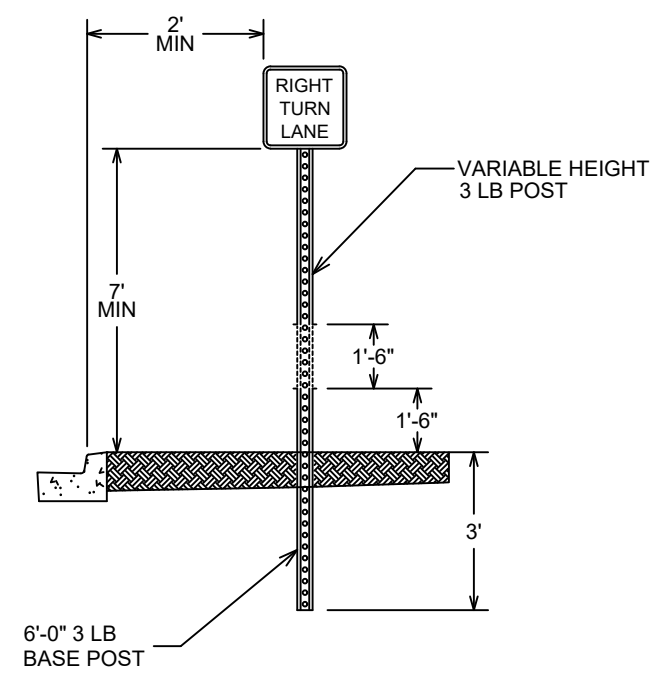
**ANOKA COUNTY HIGHWAY DEPARTMENT
SIGN DETAILS**
CITIES OF ANOKA AND ANDOVER, MINNESOTA

SHEET 61 OF 63
SHEETS

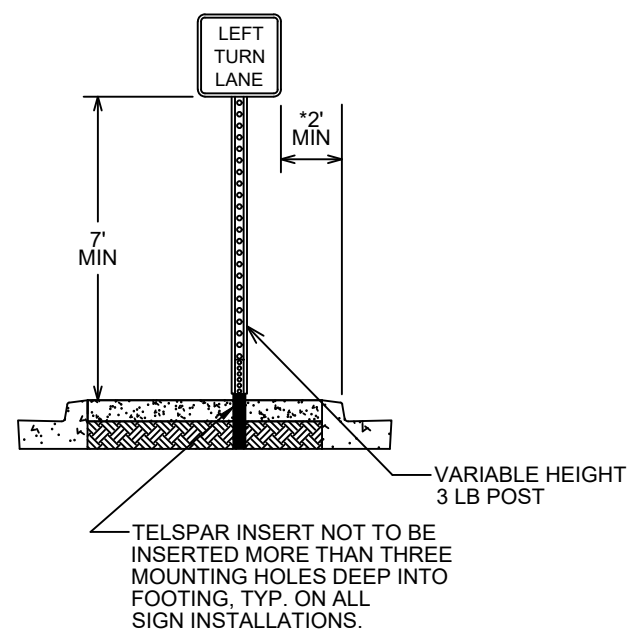
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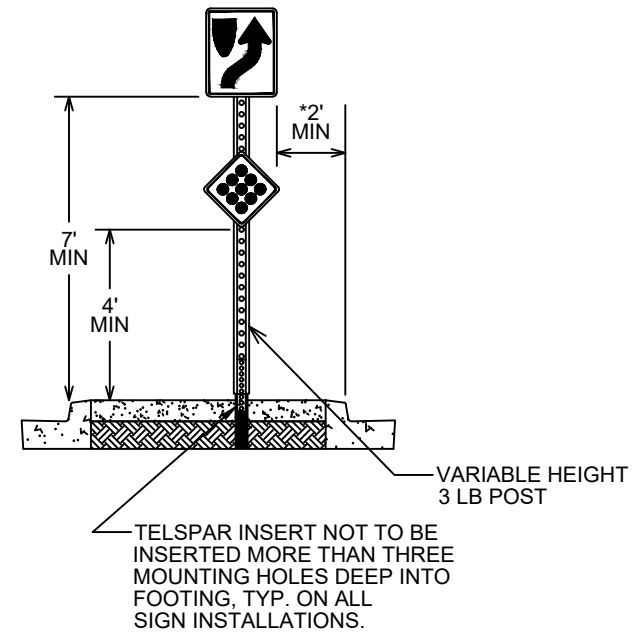
GROUND POST MOUNT SIGN
INSTALLATION TYPICAL



ISLAND MOUNT BREAK-AWAY SIGN
INSTALLATION TYPICAL



ISLAND MOUNT BREAK-AWAY SIGN
SIGN INSTALLATION TYPICAL
KEEP RIGHT/CLUSTER



*1' MIN FOR NARROW URBAN LOCATIONS

INSTALLATION NEAR SIDEWALK (MN MUTCD)
The minimum height, measured vertically from the bottom of the sign to the sidewalk, of signs installed above sidewalks shall be 7 feet. If the bottom of a secondary sign that is mounted below another sign is mounted lower than 7 feet above a pedestrian sidewalk or pathway, the secondary sign shall not project more than 4 inches into the pedestrian facility.

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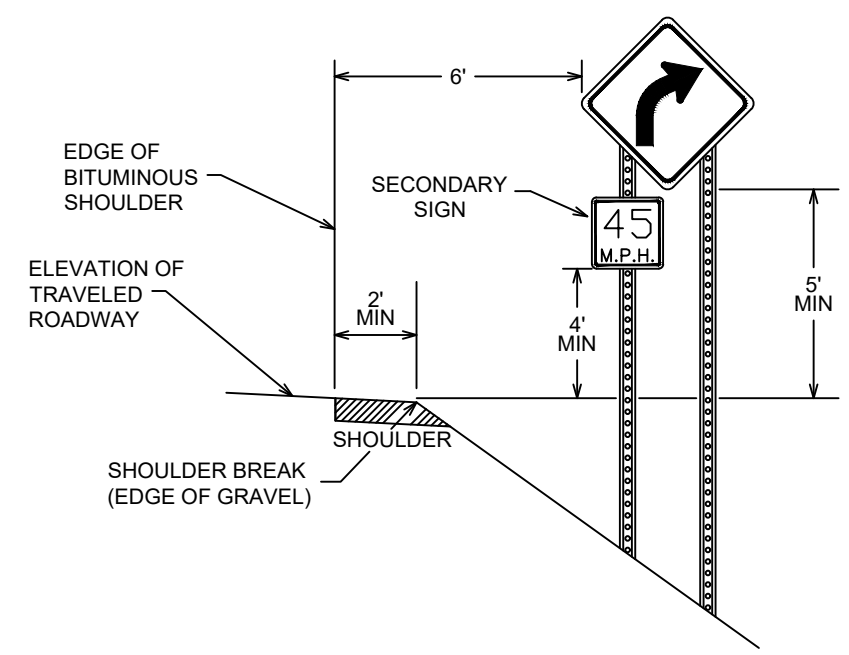
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CITIES OF ANOKA AND ANDOVER, MINNESOTA

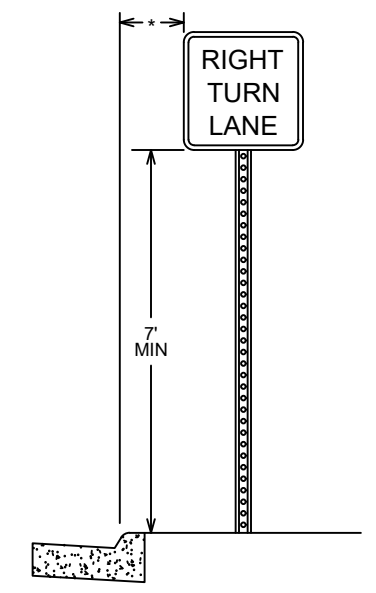
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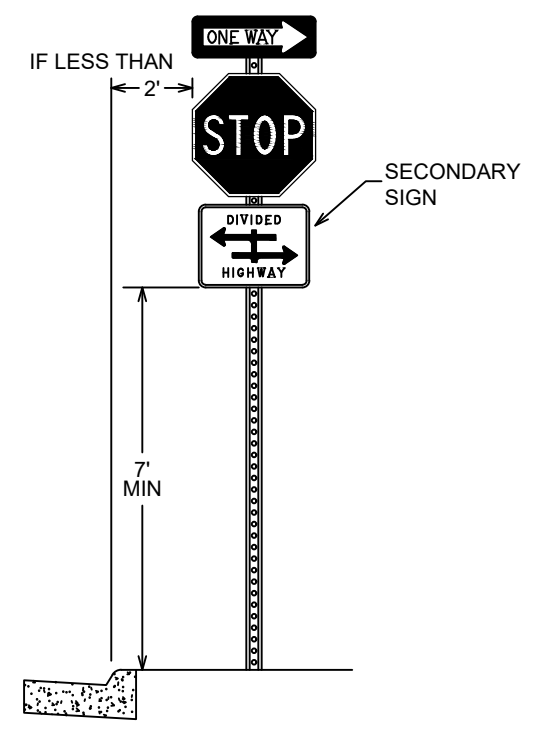
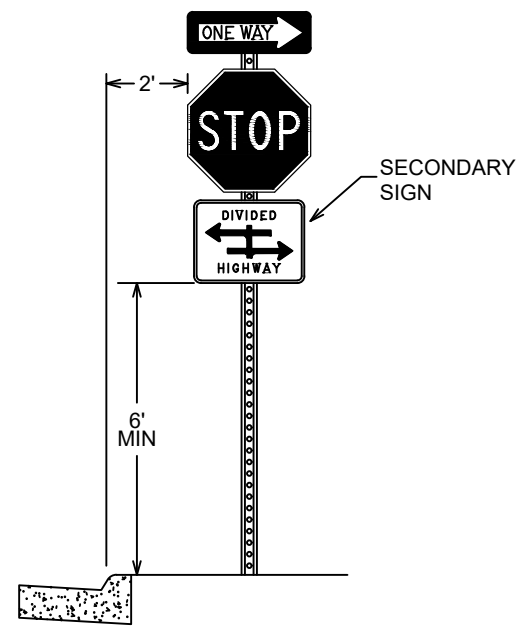
TYPICAL SIGN PLACEMENT
(RURAL)



TYPICAL SIGN PLACEMENT
(URBAN)

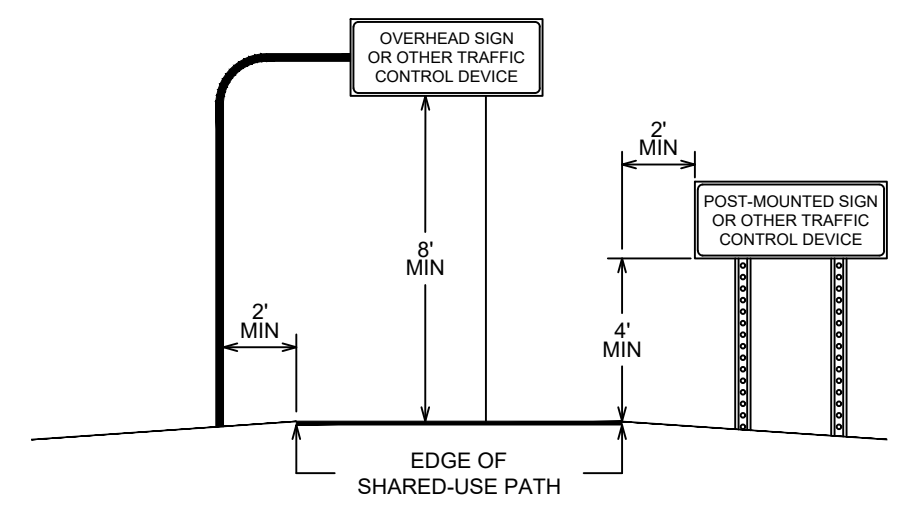


*2' - NARROW BOULEVARD (≤ 8' WIDE)
6' - WIDE BOULEVARD



- NOTES:**
- ALL DIMENSIONS ARE MINIMUMS
 - MAINTAIN A DISTANCE OF 2' BETWEEN SIGNS AND BITUMINOUS TRAIL
 - 7' SIGN CLEARANCE IF A 2' DISTANCE BETWEEN SIGN AND BITUMINOUS TRAIL CANNOT BE MAINTAINED

TYPICAL SIGN PLACEMENT
SHARED-USE PATH



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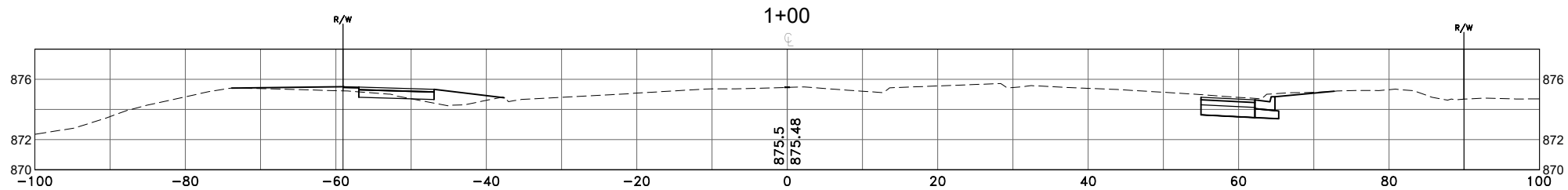
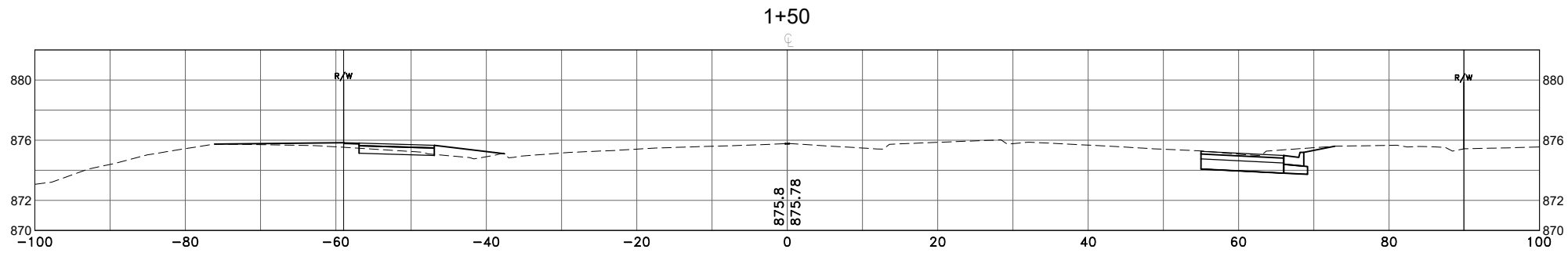
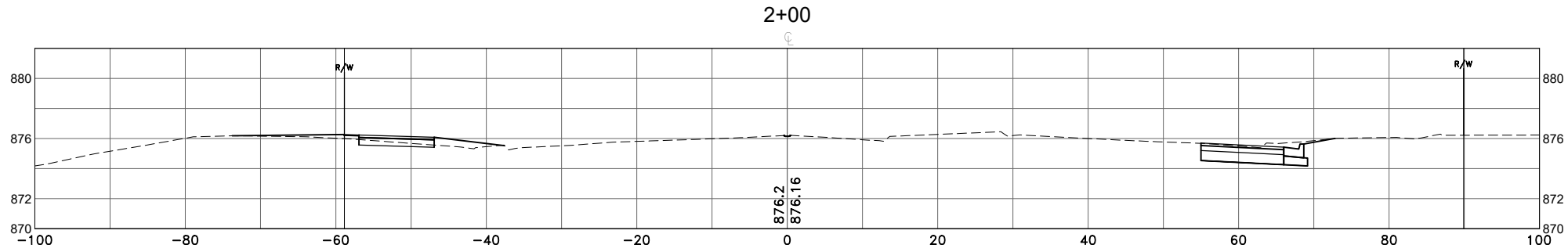
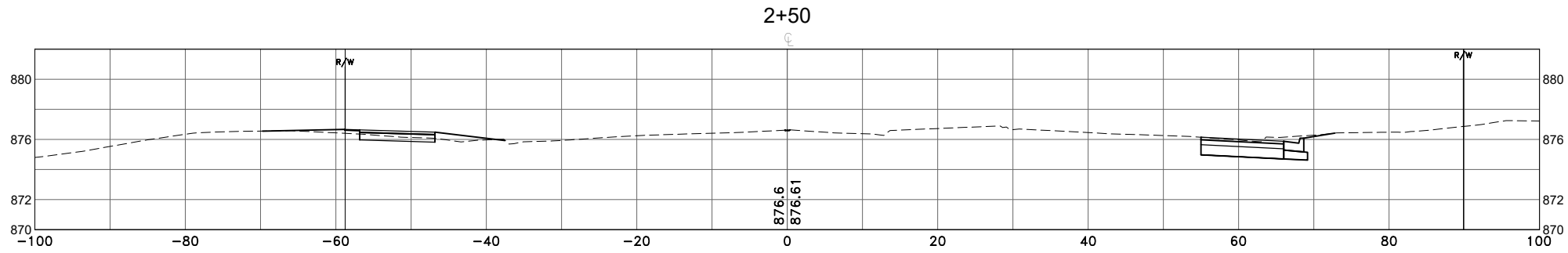
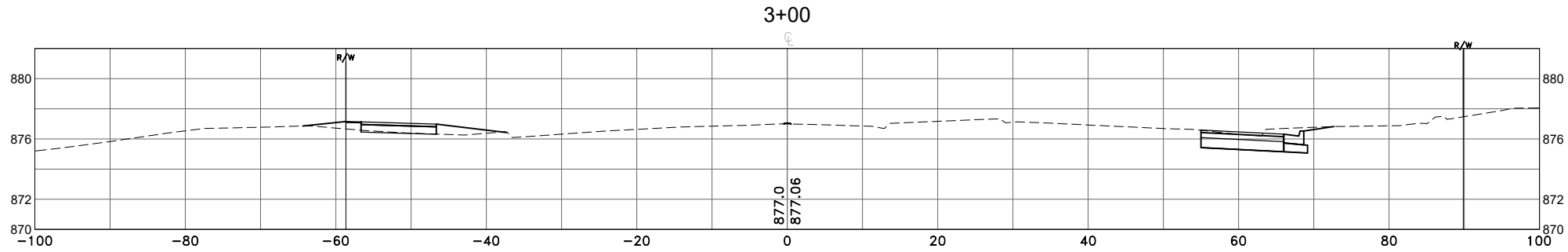
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ANOKA COUNTY HIGHWAY DEPARTMENT
SIGN DETAILS
CITIES OF ANOKA AND ANDOVER, MINNESOTA

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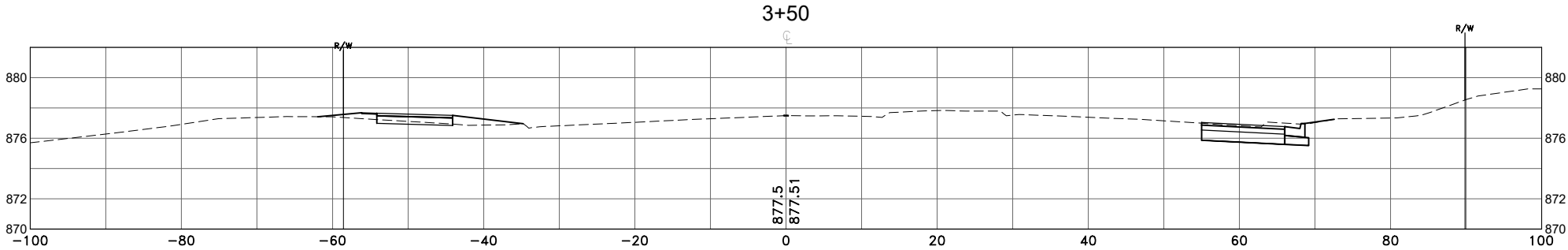
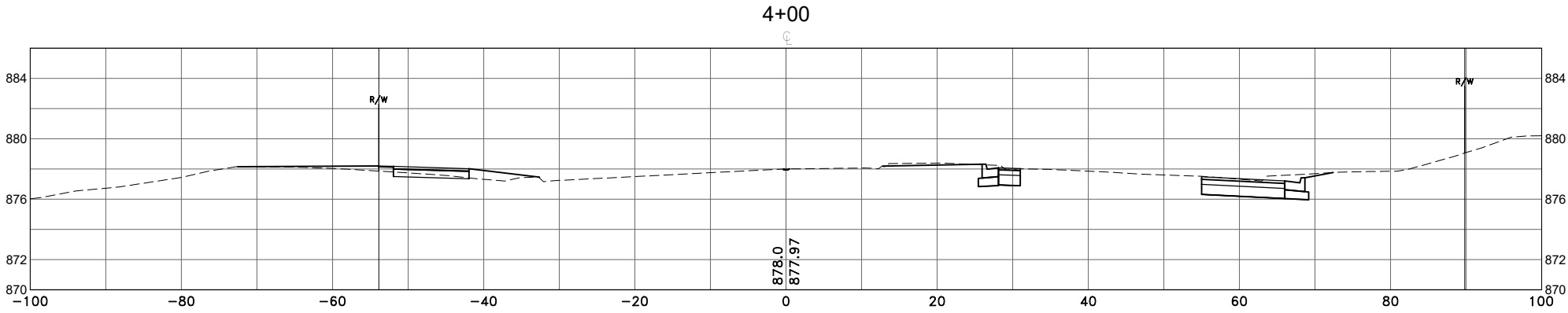
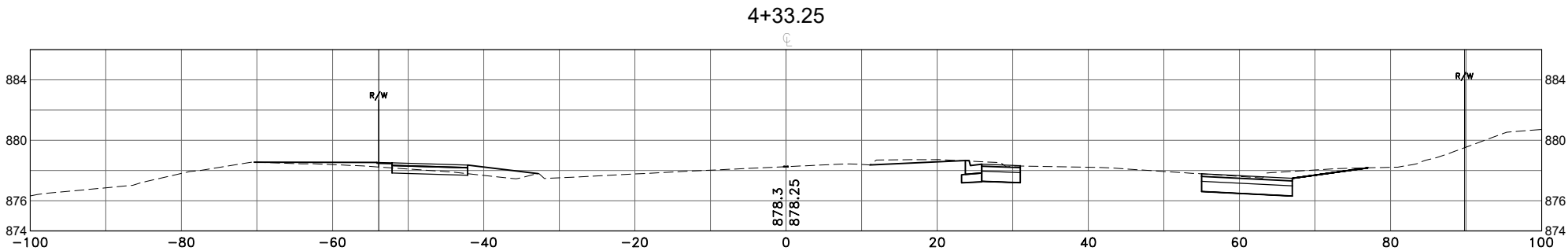
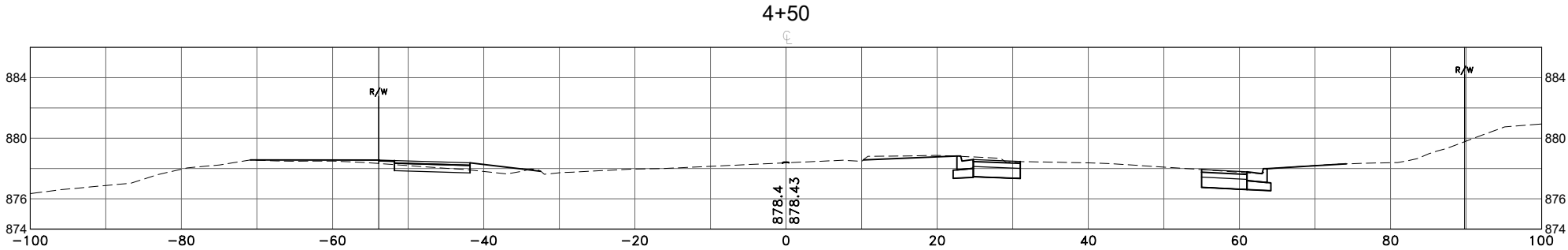
CSAH 7 AND 143RD AVENUE INTERSECTION
IMPROVEMENT PROJECT

CROSS SECTIONS

CSAH 7
CITIES OF ANOKA AND ANDOVER, MINNESOTA

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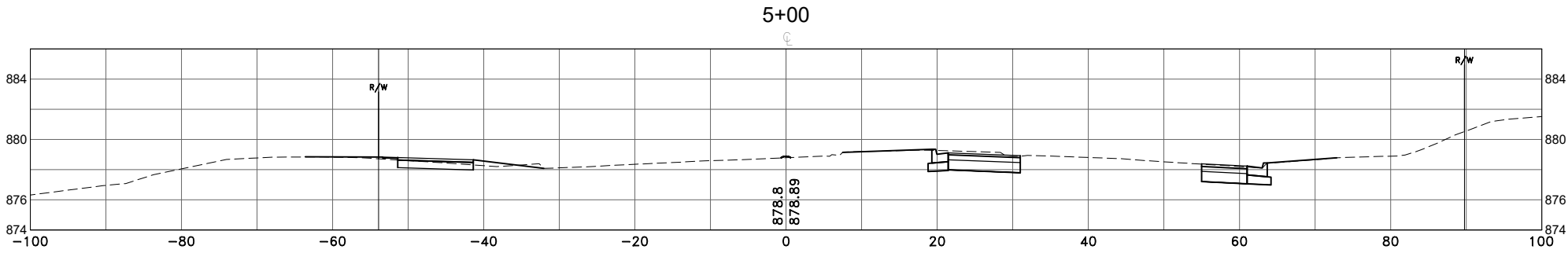
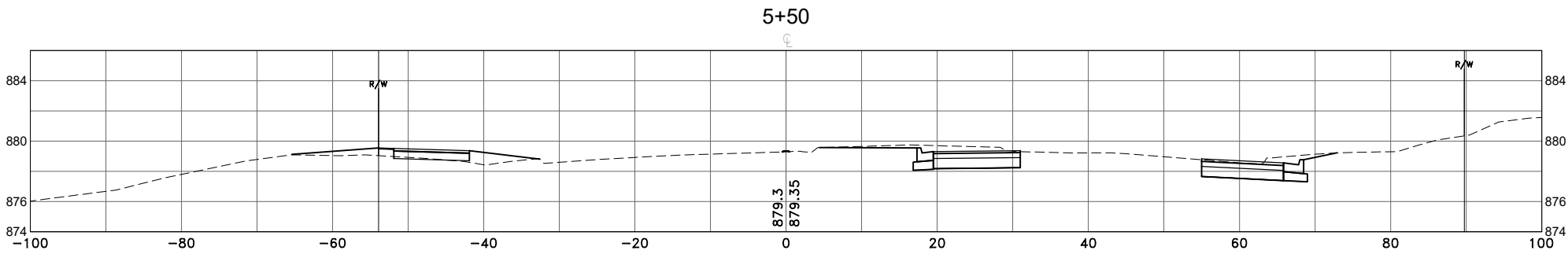
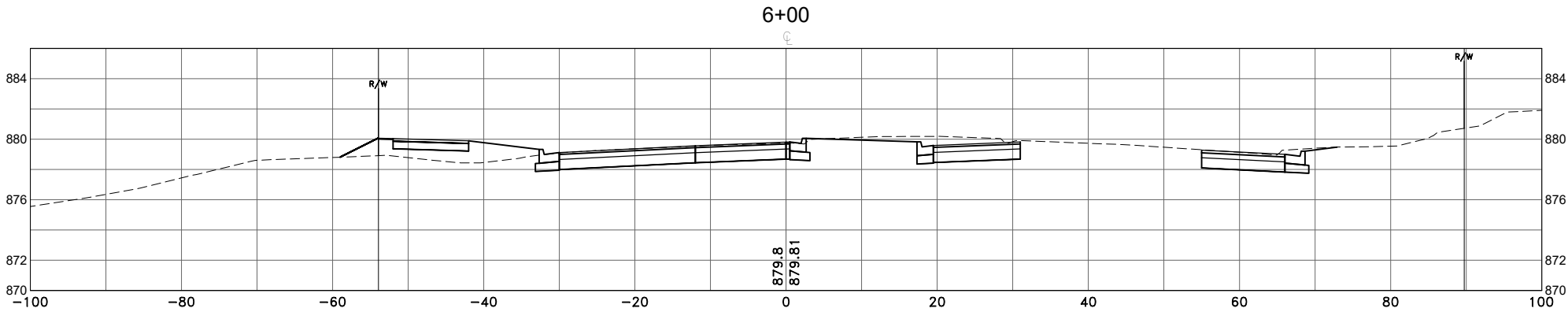
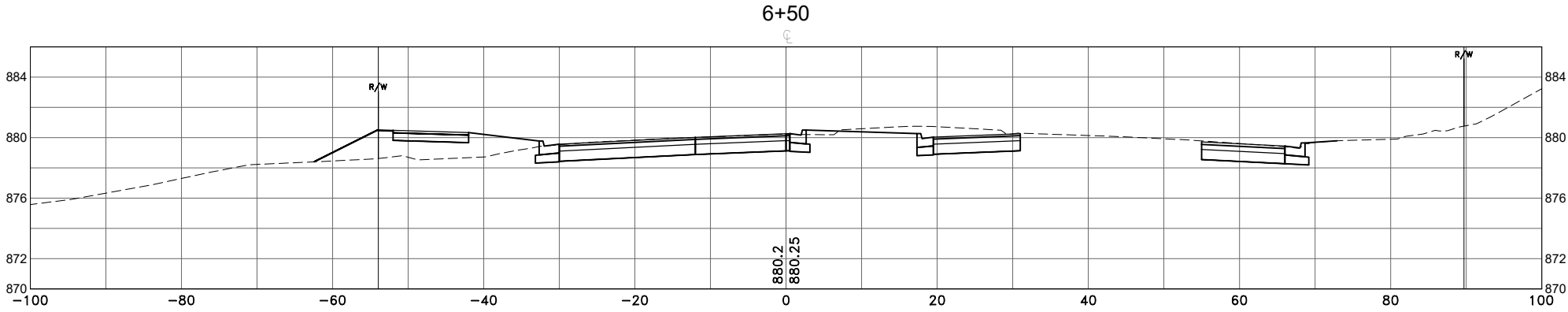
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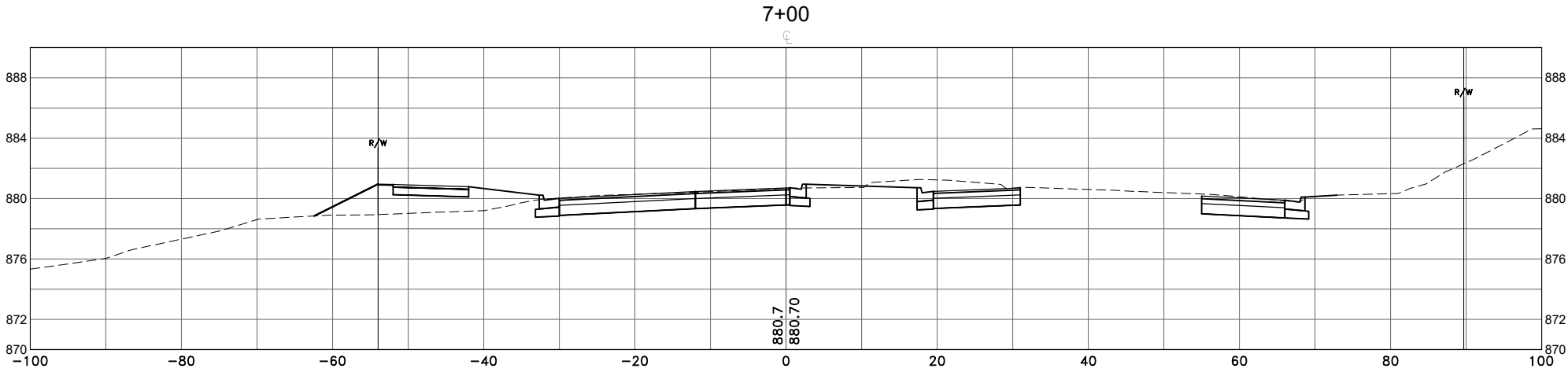
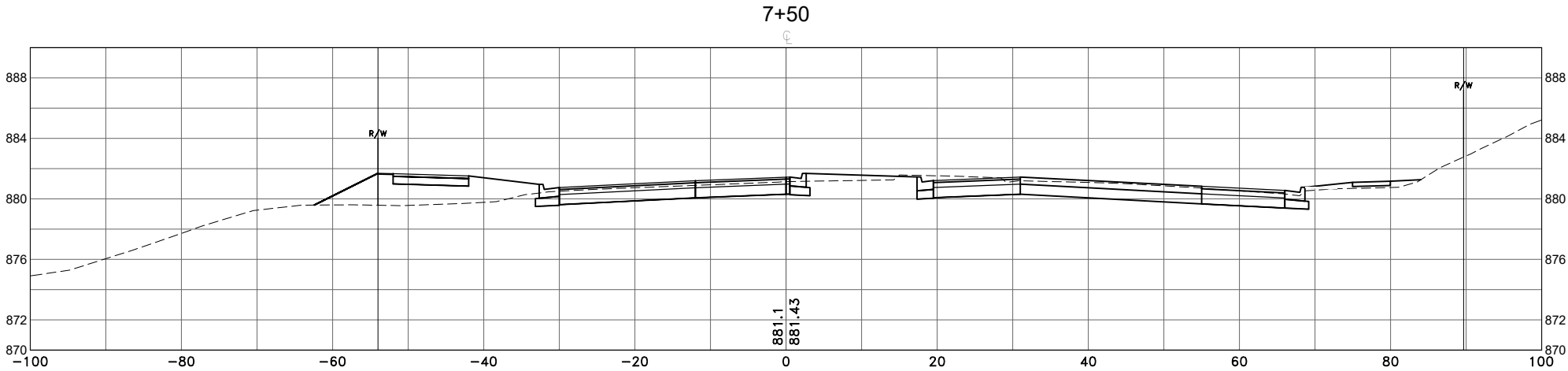
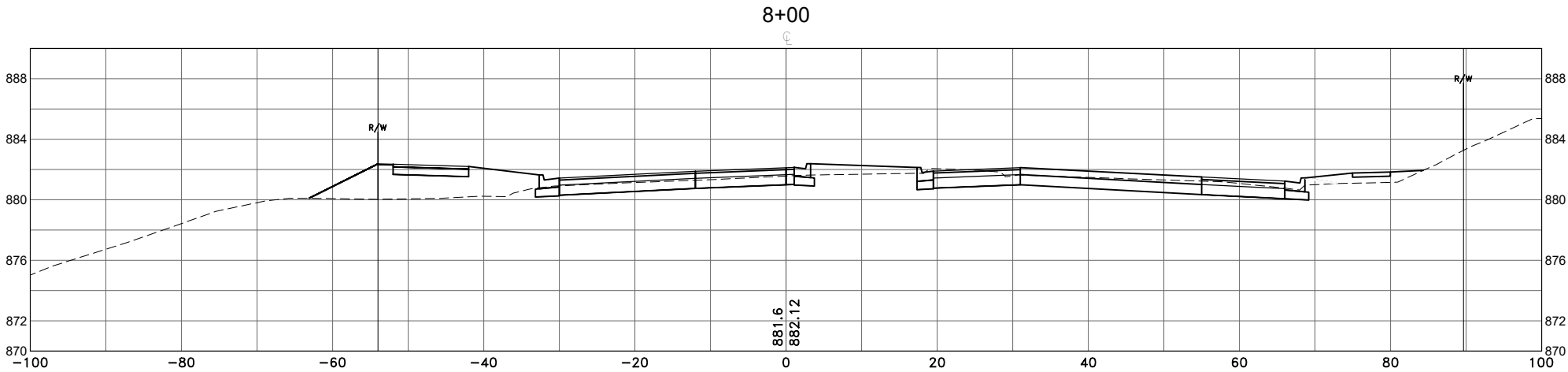
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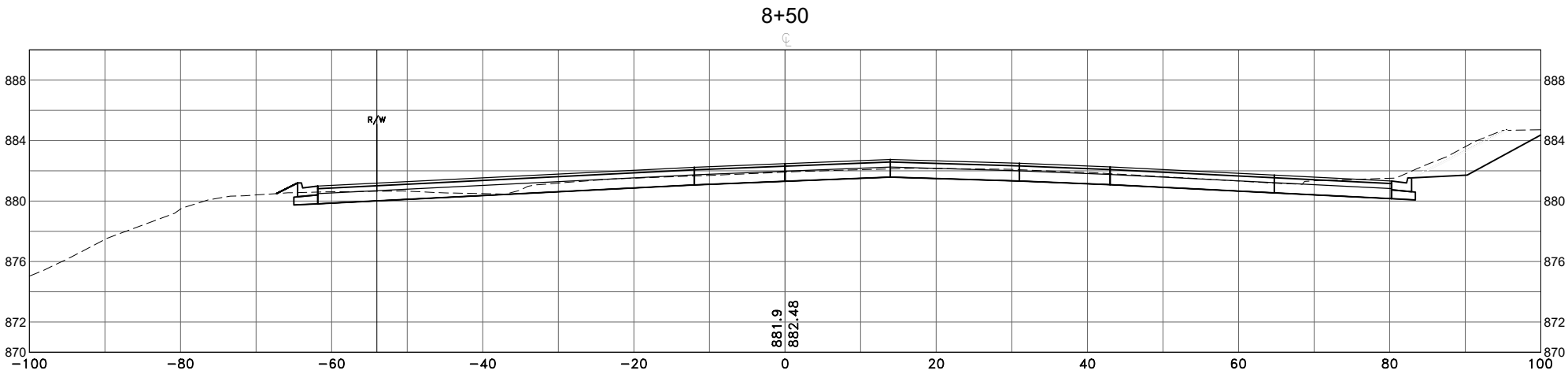
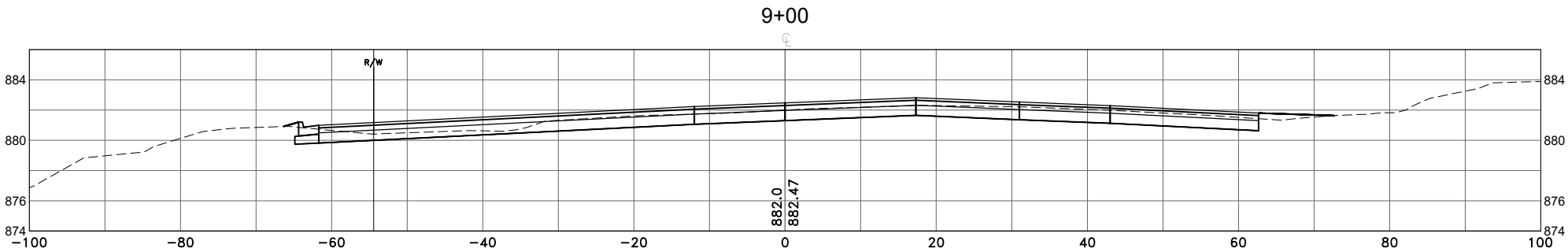
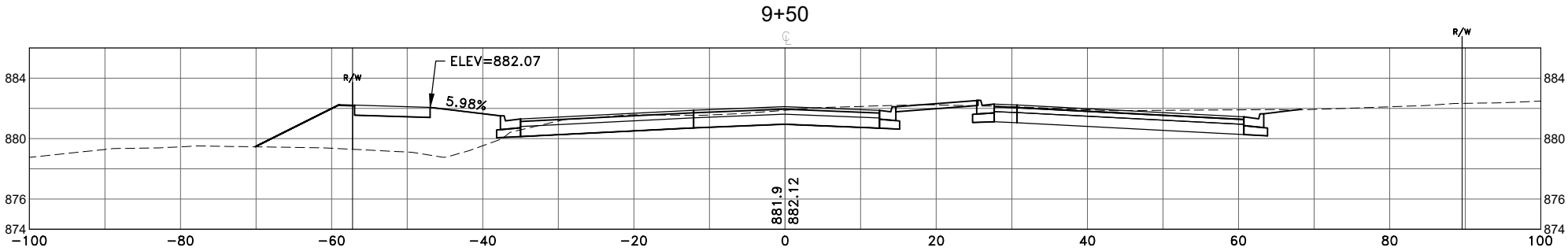
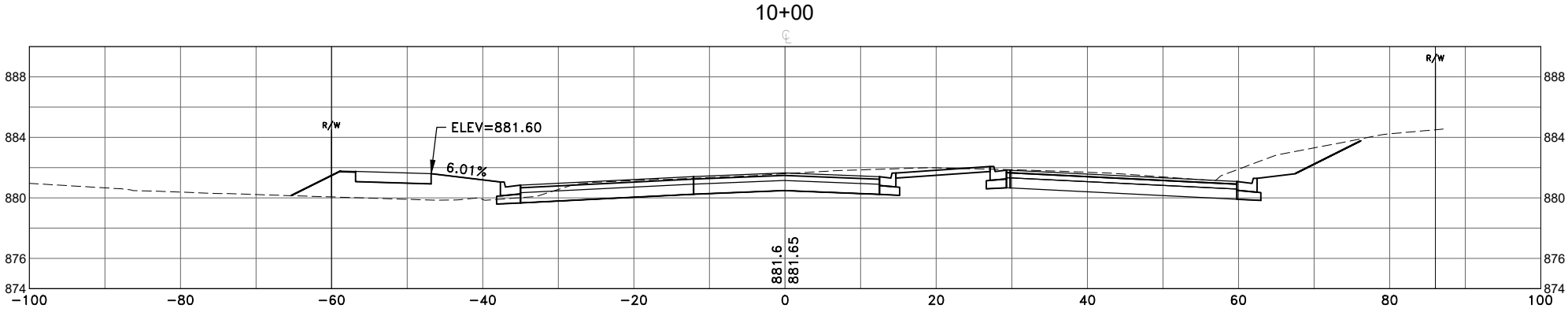
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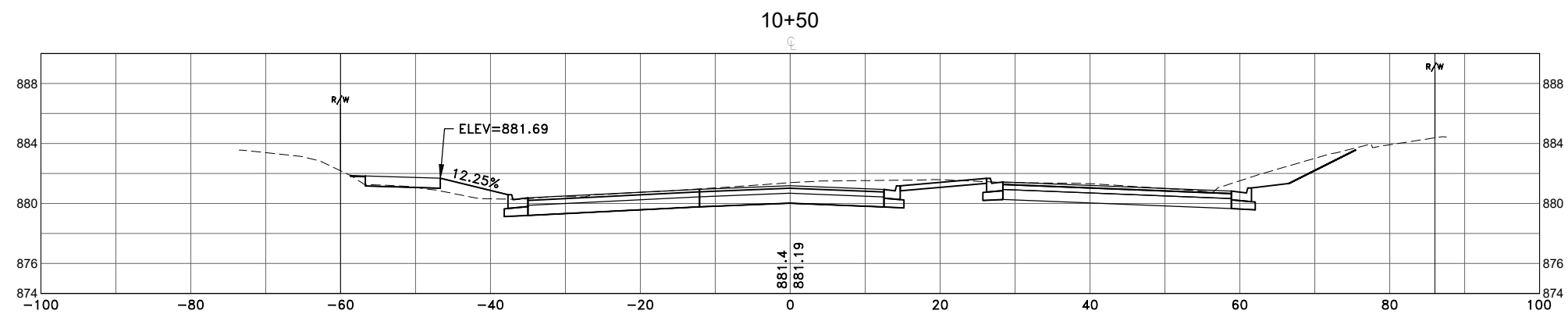
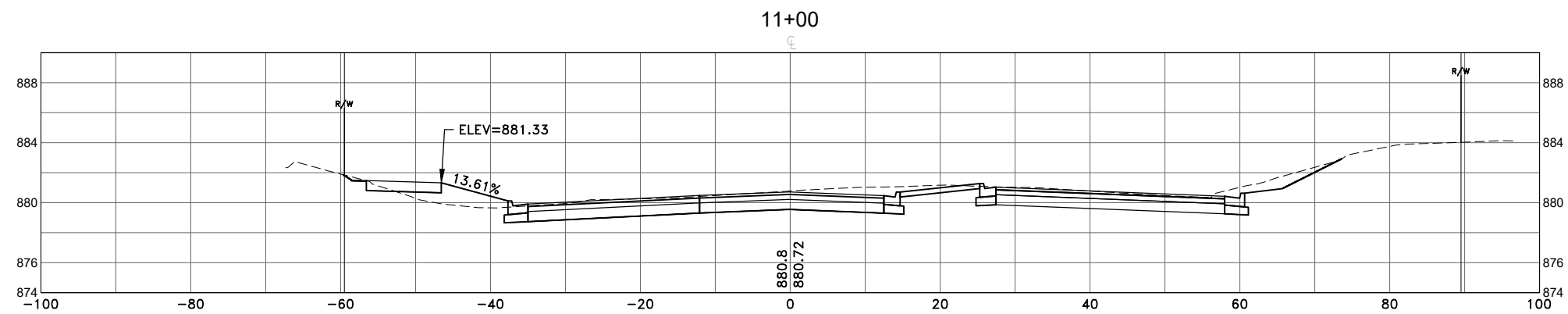
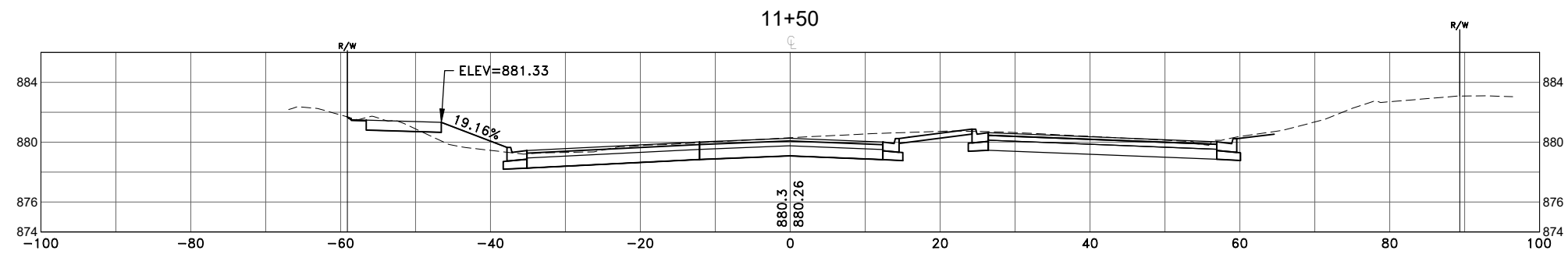
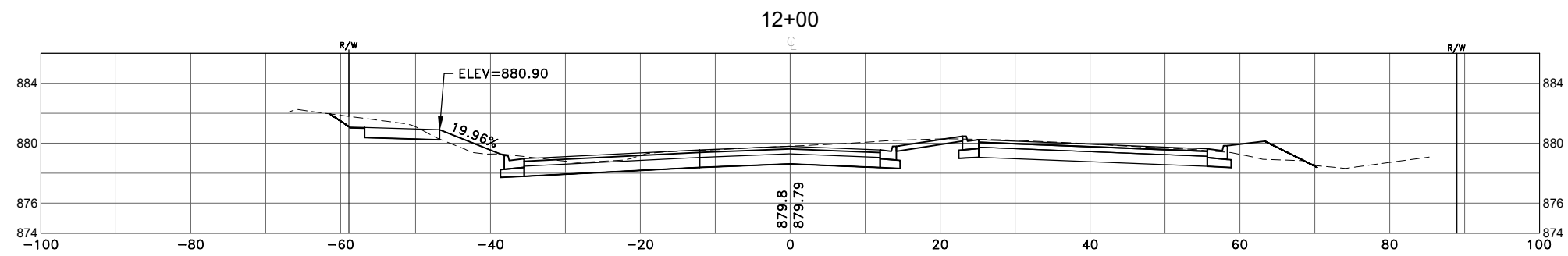
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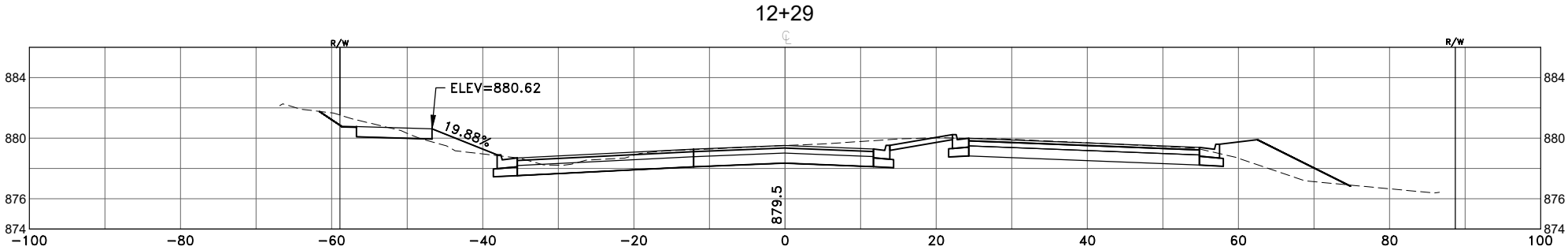
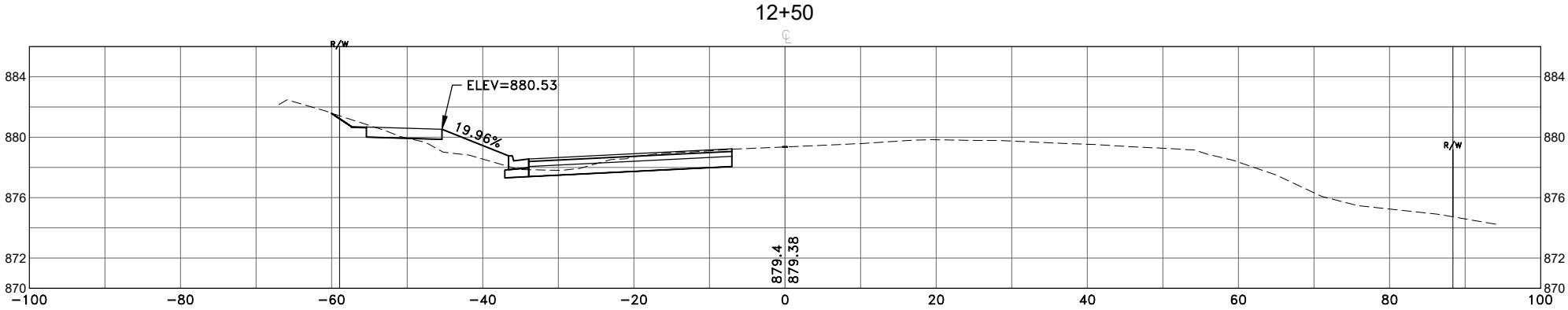
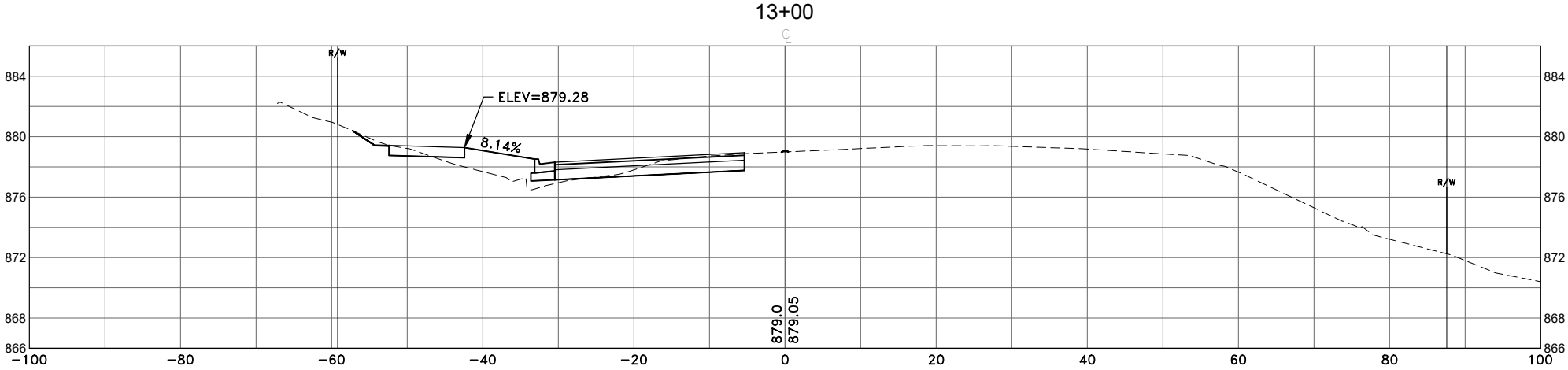
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CSAH 7

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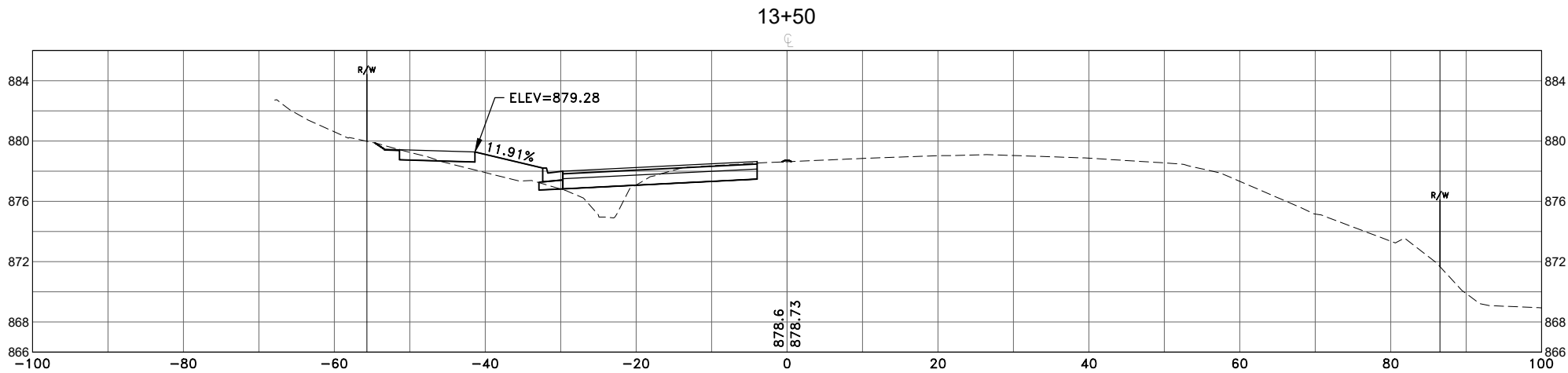
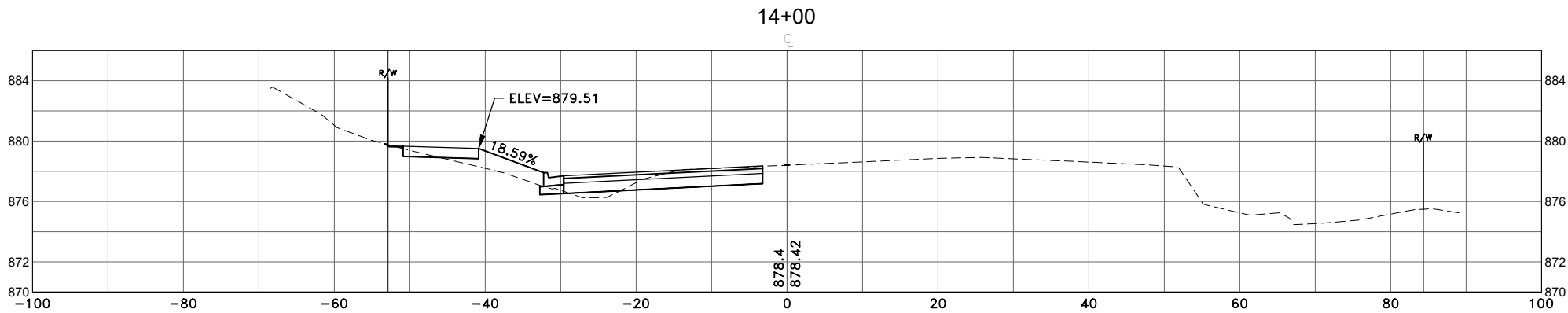
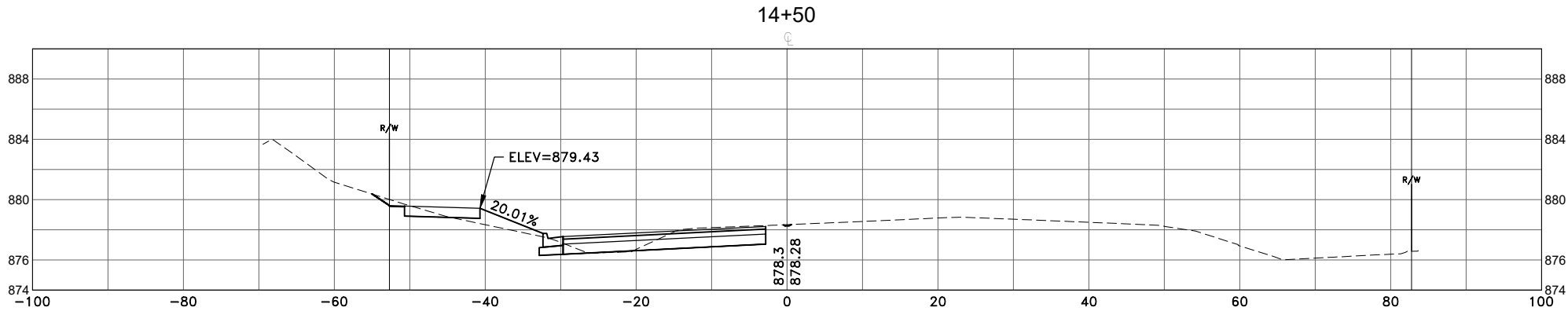
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CSAH 7 AND 143RD AVENUE INTERSECTION
IMPROVEMENT PROJECT

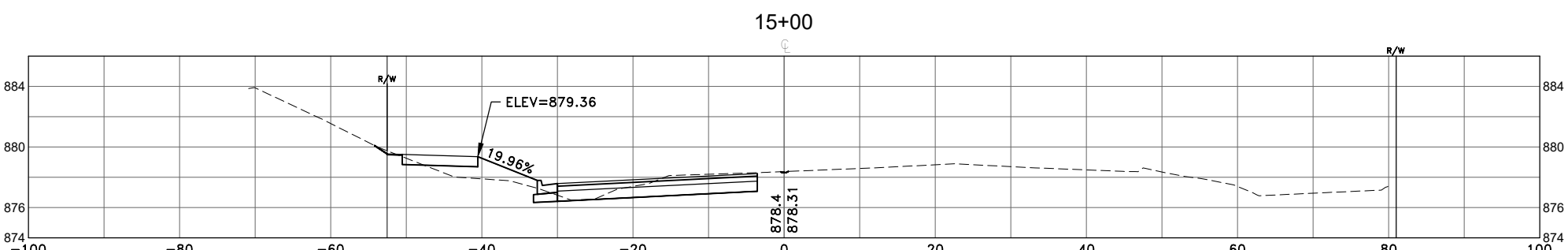
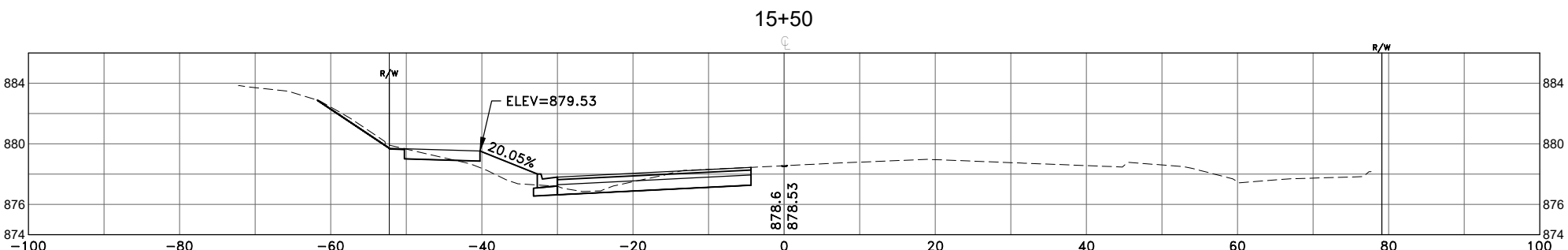
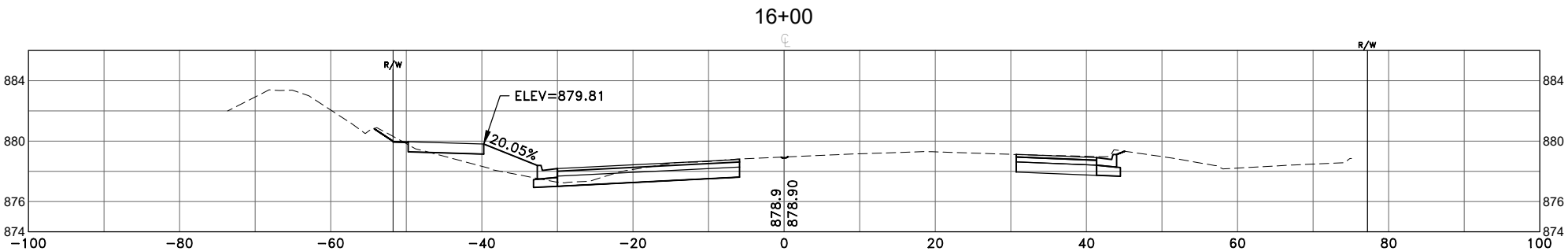
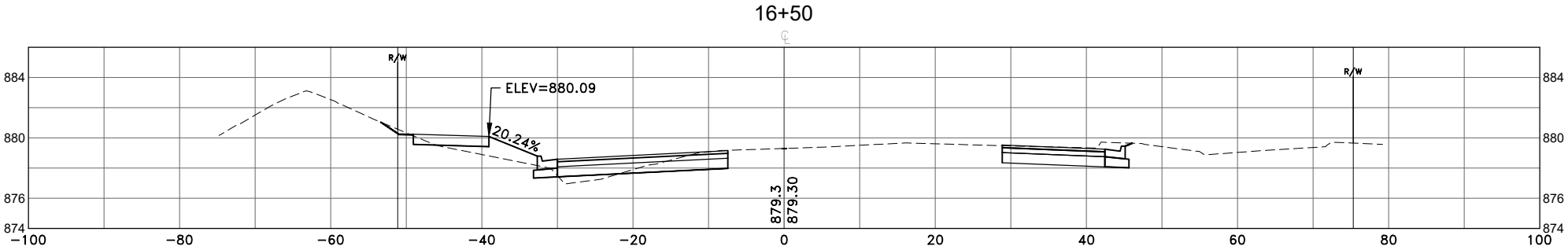
CROSS SECTIONS

CSAH 7
CITIES OF ANOKA AND ANDOVER, MINNESOTA

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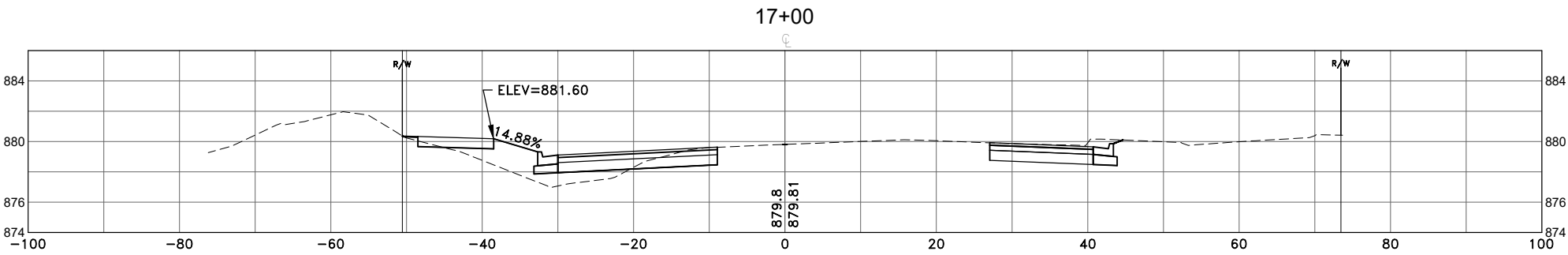
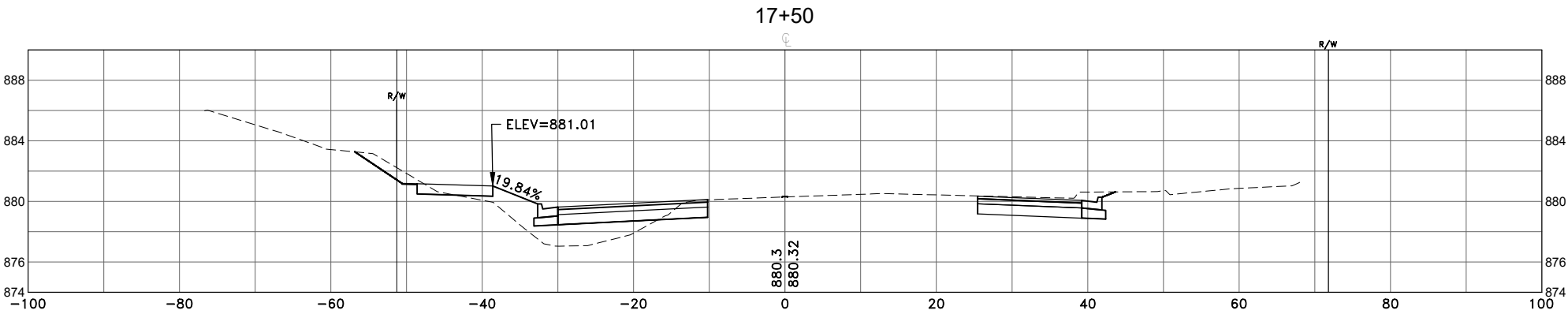
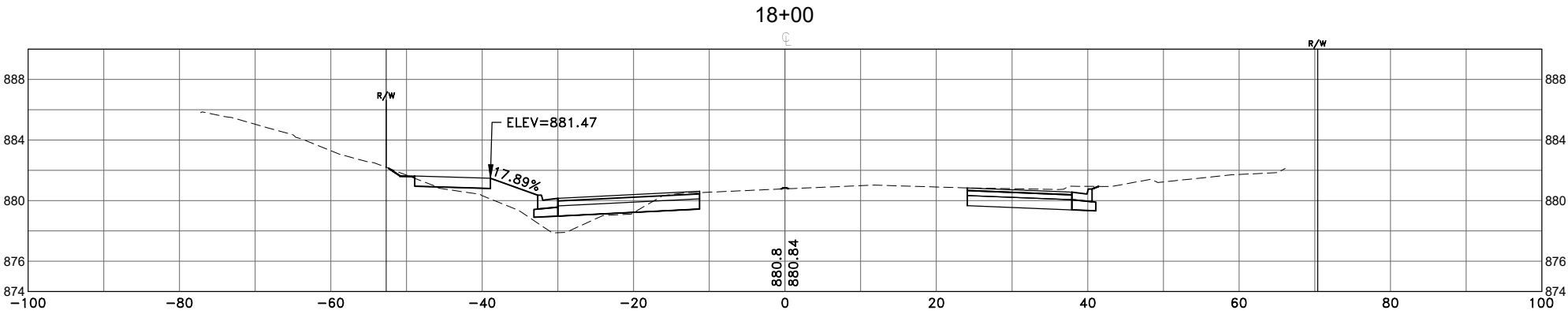
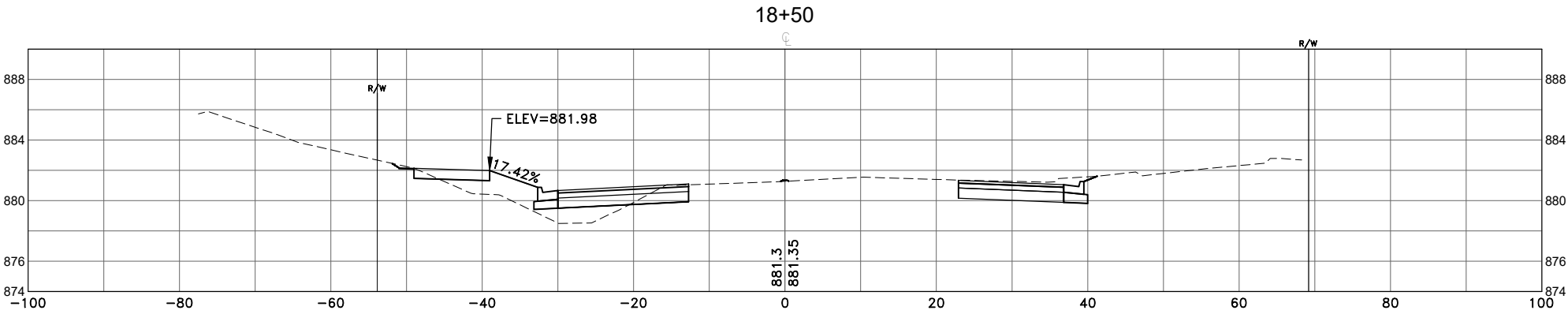
**CSAH 7 AND 143RD AVENUE INTERSECTION
IMPROVEMENT PROJECT**

CROSS SECTIONS

CSAH 7
CITIES OF ANOKA AND ANDOVER, MINNESOTA

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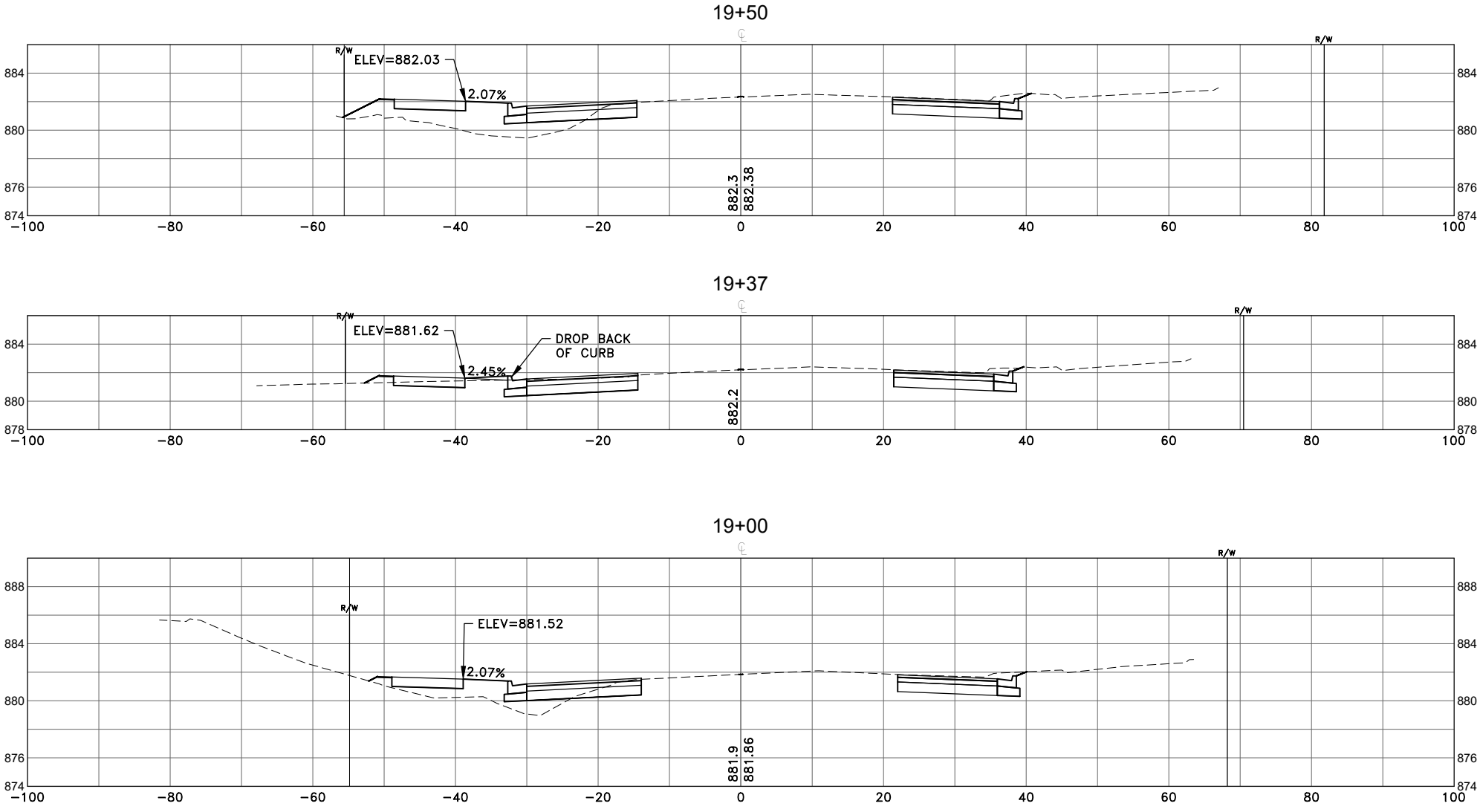
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CSAH 7
CITIES OF ANOKA AND ANDOVER, MINNESOTA

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CITIES OF ANOKA AND ANDOVER, MINNESOTA

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DATE	REVISION
3/16/22	PLAN REVISIONS PER COUNTY REVIEW
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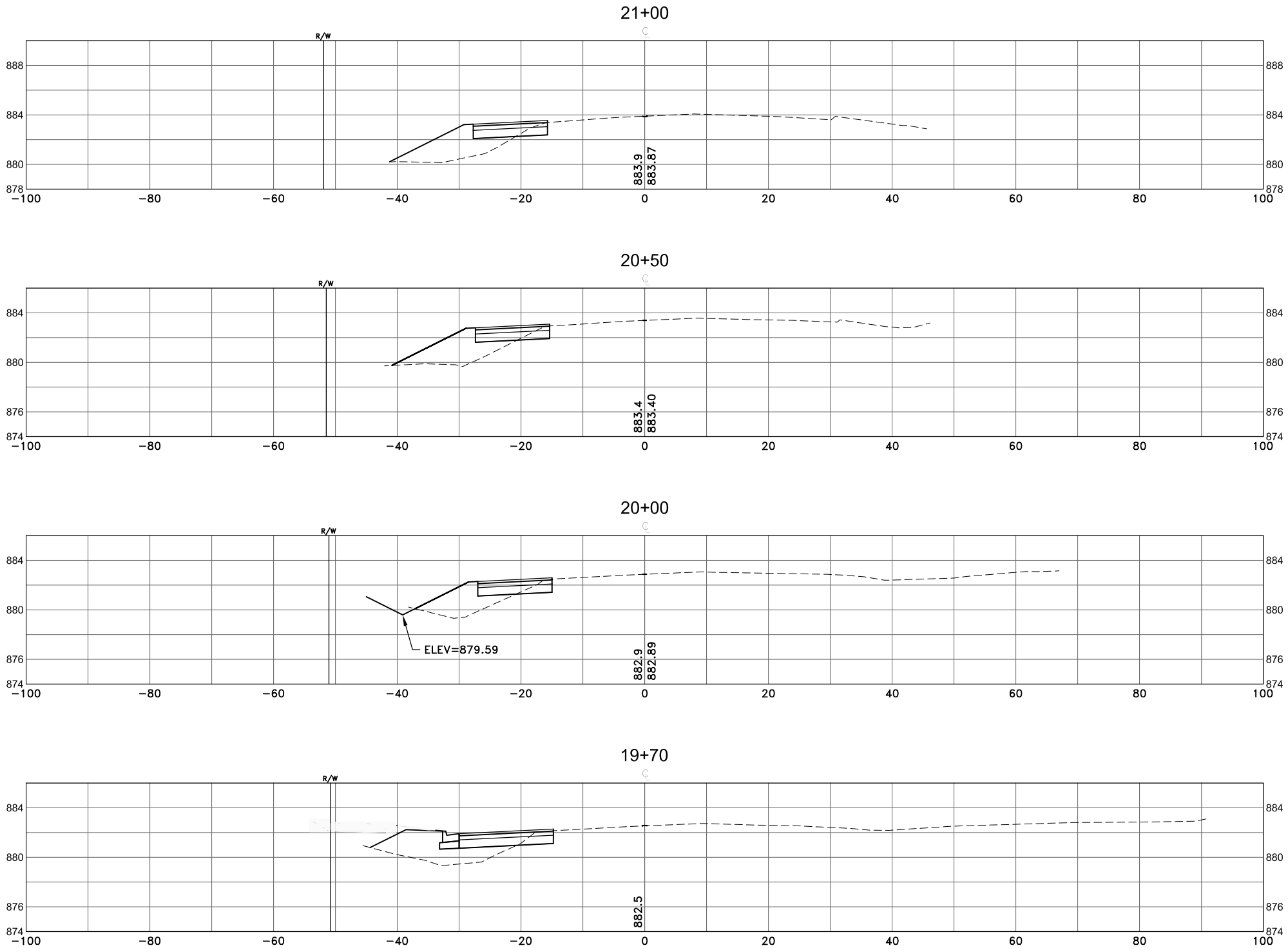
CSAH 7 AND 143RD AVENUE INTERSECTION
IMPROVEMENT PROJECT

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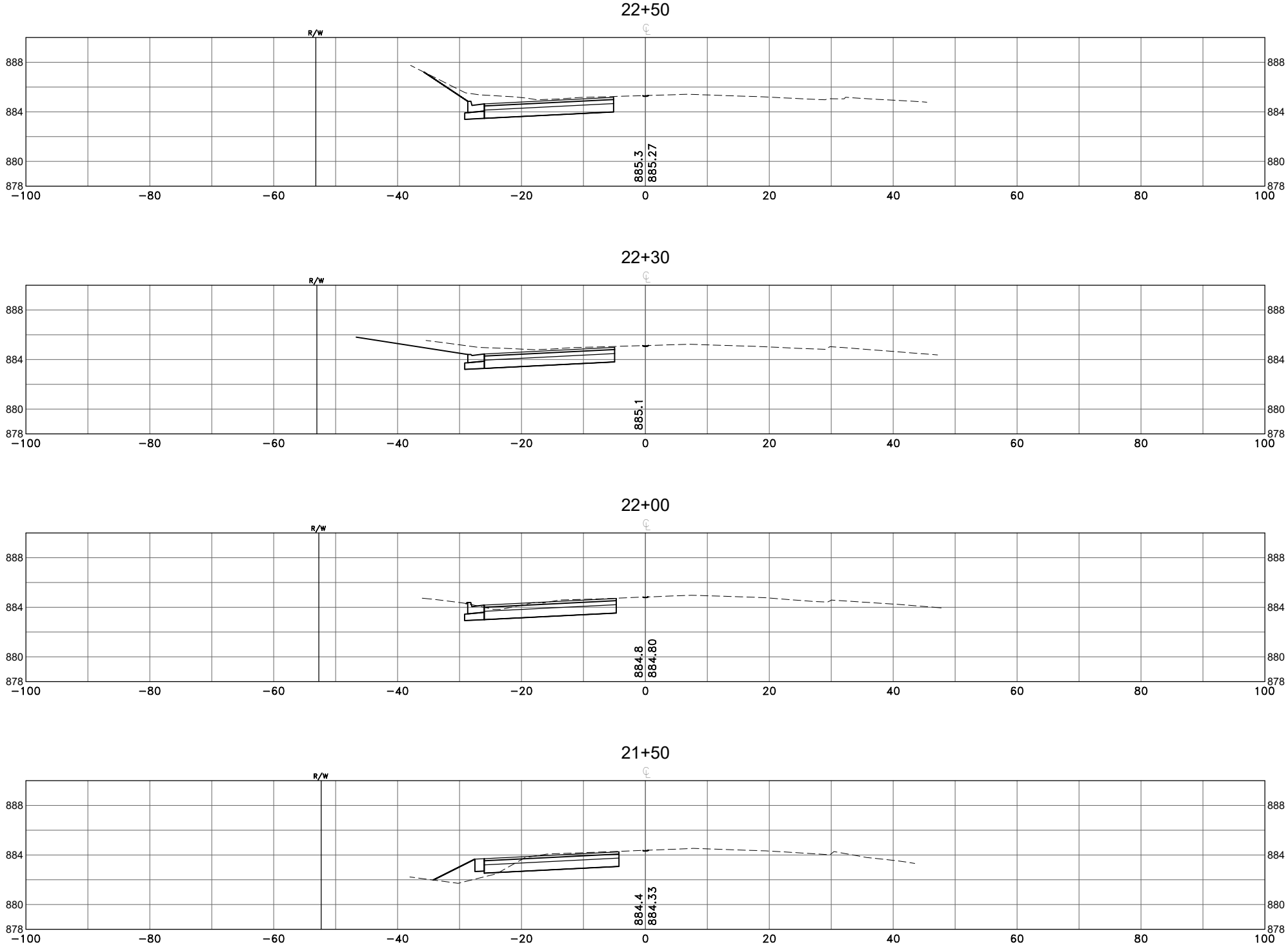
CSAH 7
CITIES OF ANOKA AND ANDOVER, MINNESOTA

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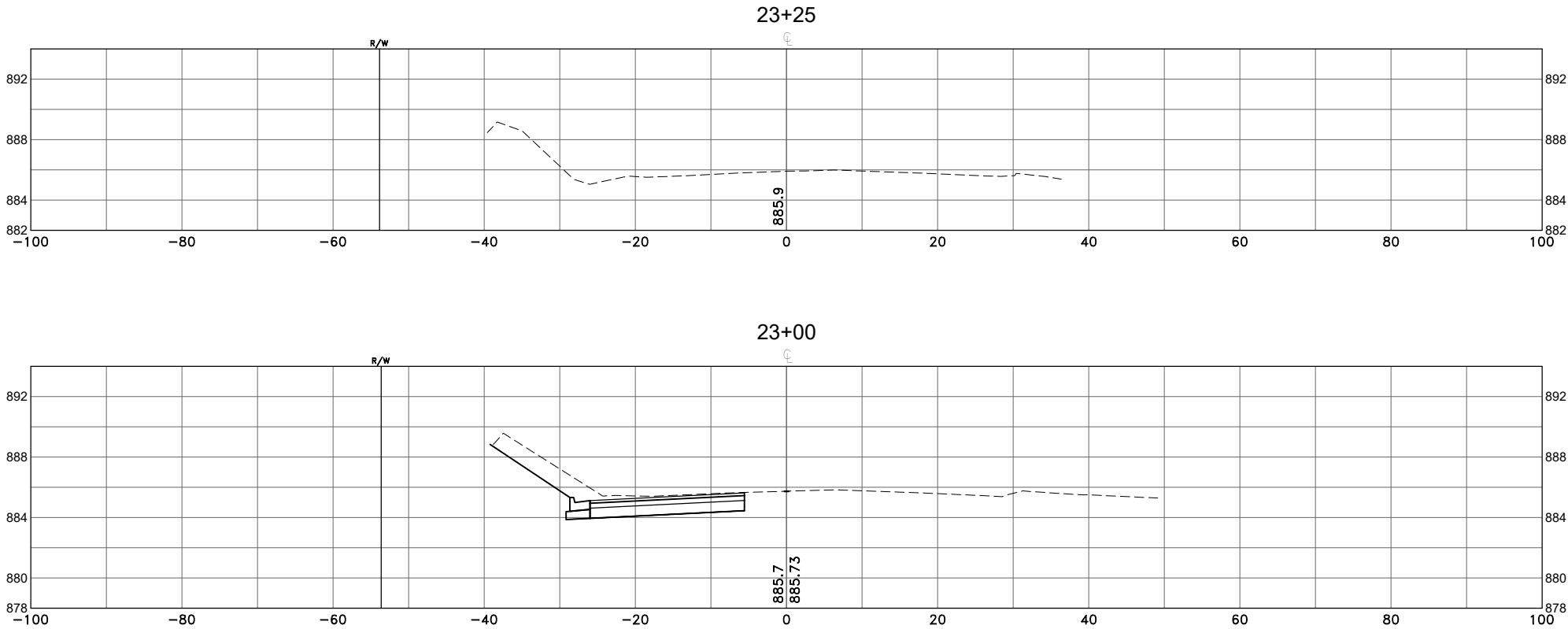
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IMPROVEMENT PROJECT

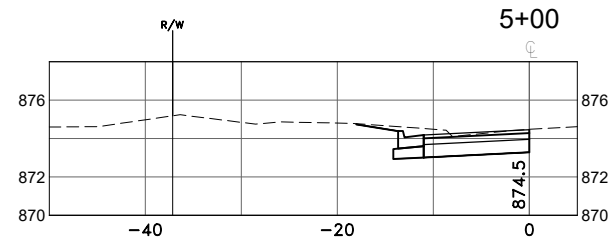
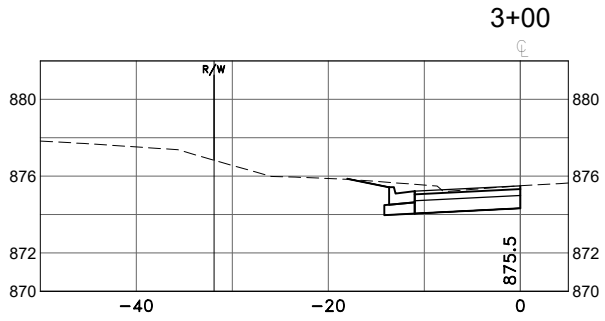
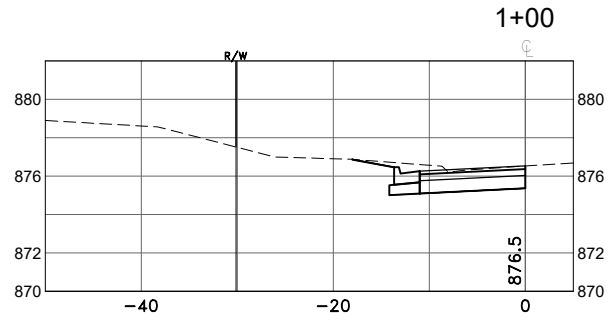
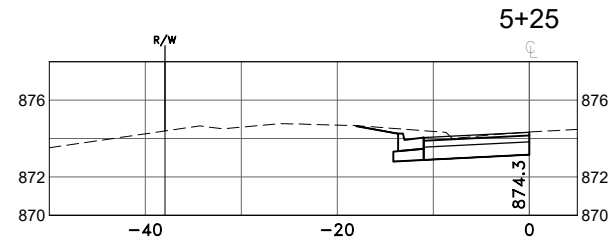
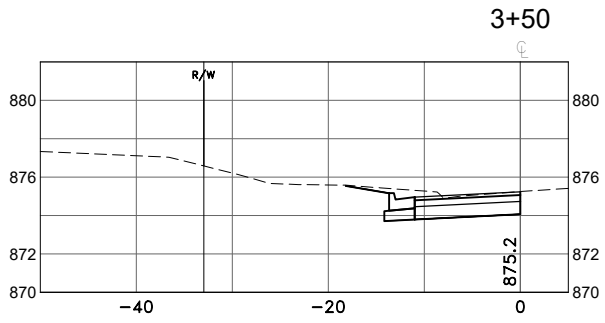
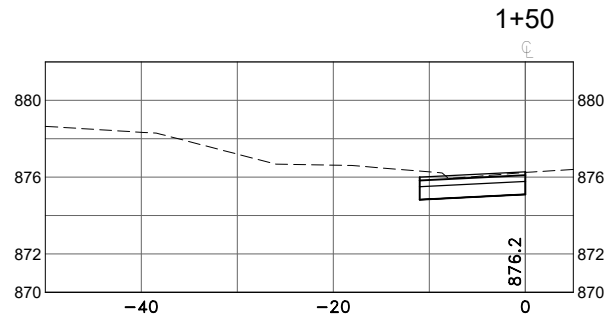
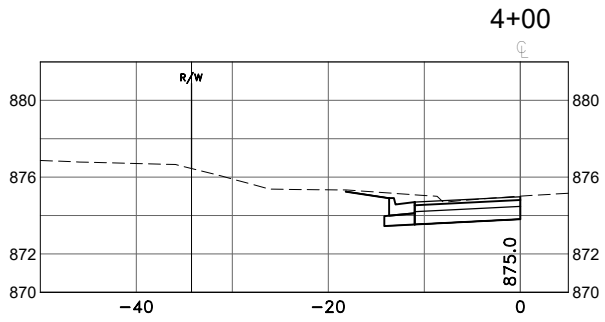
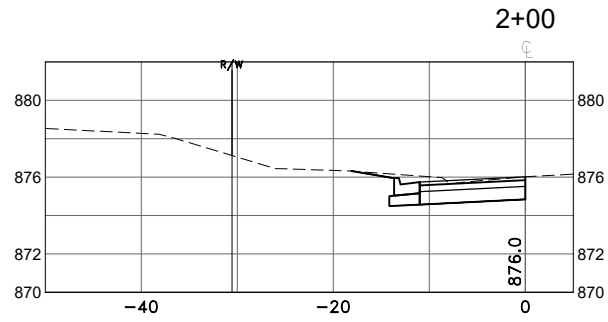
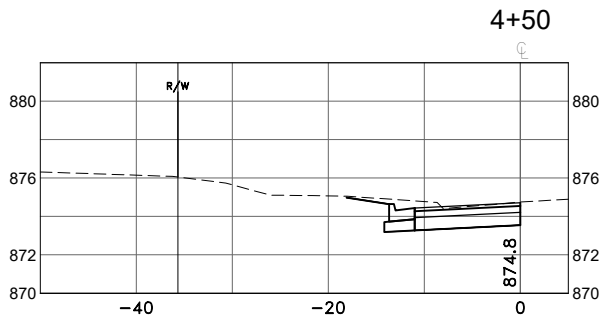
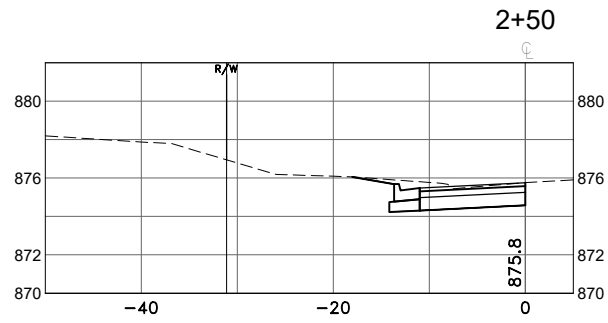
CROSS SECTIONS

CSAH 7
CITIES OF ANOKA AND ANDOVER, MINNESOTA

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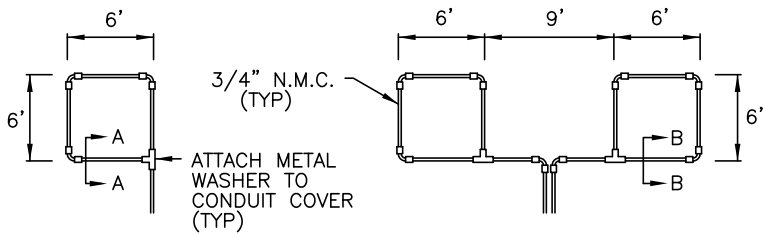


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CSAH 7 AND 143RD AVENUE INTERSECTION
IMPROVEMENT PROJECT

CROSS SECTIONS
CSAH 116 TURN LANE
CITIES OF ANOKA AND ANDOVER, MINNESOTA

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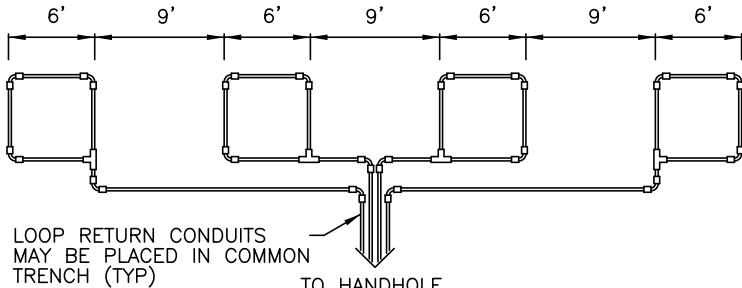


**LOOP DETECTOR
DETAIL 'A'**
(LOOP PHASING FOR
SINGLE CONNECTION)

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

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

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

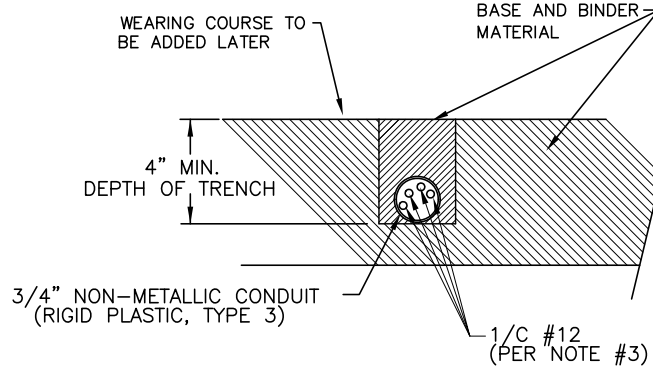


LOOP CONNECTIONS SHALL BE LABELED AND SPLICED
IN THE HANDHOLE AS FOLLOWS:

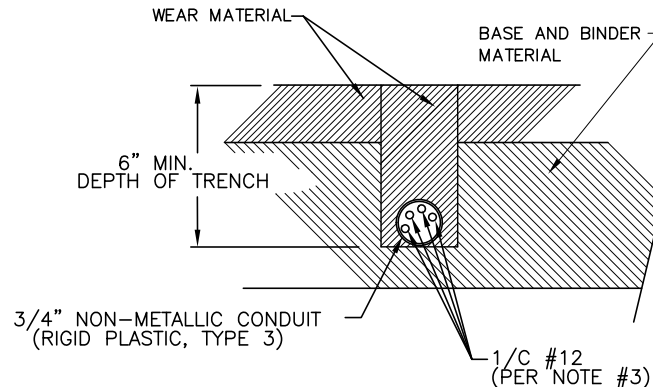
L1 TO 1A 3B TO 4A
1B TO 2A 4B TO L2
2B TO 3A

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

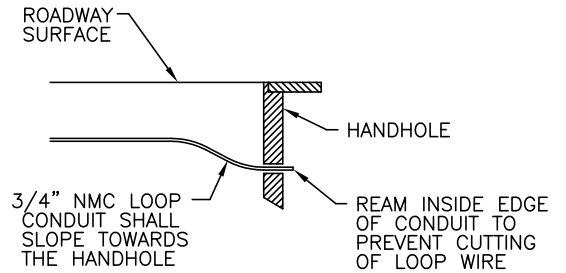
**LOOP DETECTOR
DETAIL 'C'**
(LOOP PHASING FOR
SERIES CONNECTION)



SECTION A-A
DETAIL FOR LOOP INSTALLATION
IN NEW ROADWAY



SECTION B-B
DETAIL FOR LOOP INSTALLATION
IN EXISTING ROADWAY



DRAINAGE DETAIL

LOOP DETECTOR WIRING

- 1) ALL CORNERS SHALL BE 90° CONDUIT BENDS.
- 2) CONNECT WIRES IN HANDHOLES USING SPLICE KIT METHOD DESCRIBED IN THE SPECIAL PROVISIONS.
- 3) LOOP DETECTOR WIRES SHALL BE #12 AWG CROSSED LINKED POLYETHYLENE (XLP). SEE SPECIAL PROVISIONS.
- 4) LOOP LEAD IN WIRES SHALL BE TWISTED A MIN. OF (5) TURNS PER FOOT THROUGH THE CONDUIT TO THE HANDHOLE.
- 5) NMC DESIGNATES NON-METALLIC CONDUIT (SPEC. 3803)
- 6) LOOPS 6' x 6' THRU 6' x 14' SHALL HAVE (4) TURNS.
- 7) LOOPS 6' x 15' AND LARGER SHALL HAVE (2) TURNS.

LEGEND OF SYMBOLS

CONTROLLER AND SERVICE EQUIP. NO's	①
SIGNAL BASE NO.	②
SIGNAL FACE NO.	③
LUMINAIRE NO.	④
CONTROLLER AND CABINET	⑤
CONTROLLER AND CABINET - IN PLACE	⑥
HANDHOLE	⑦
HANDHOLE - IN PLACE	⑧
RIGID STEEL CONDUIT (RSC)	⑨
RIGID STEEL CONDUIT (RSC) - IN PLACE	⑩
SIGNAL FACE WITH BACKGROUND SHIELD	⑪
SIGNAL FACE W/O BACKGROUND SHIELD	⑫
SIGNAL FACE - IN PLACE	⑬
PEDESTRIAN INDICATORS	⑭
PEDESTRIAN INDICATORS - IN PLACE	⑮
PEDESTRIAN PUSH BUTTONS ON PEDESTAL OR POLE	⑯
PEDESTRIAN PUSH BUTTON STATION	⑰
TRAFFIC SIGNAL PEDESTAL	⑱
TRAFFIC SIGNAL PEDESTAL - INPLACE	⑲
TRAFFIC SIGNAL POLE AND MAST ARM	⑳
TRAFFIC SIGNAL POLE AND MAST ARM - IN PLACE	㉑
STREET LIGHT POLE AND LUMINAIRE	㉒
STREET LIGHT POLE AND LUMINAIRE - IN PLACE	㉓
MAST ARM AND LUMINAIRE	㉔
MAST ARM AND LUMINAIRE - INPLACE	㉕
WOOD POLE	㉖
WOOD POLE - IN PLACE	㉗
SOURCE OF POWER	㉘
RAILROAD SIGNAL - IN PLACE	㉙
RIGHT OF WAY LINE	㉚
CENTERLINE	㉛
EDGE OF ROADWAY	㉜
SHOULDERLINE	㉝
CURB LINE	㉞
STOP BAR	㉟
EMERGENCY VEHICLE PREEMPTION DETECTOR	㊱

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
2545	SIGNAL SERVICE CABINET	EACH	1
2565	EMERGENCY VEHICLE PREEMPTION SYSTEM	LUMP SUM	1
2565	TRAFFIC CONTROL INTERCONNECT	LUMP SUM	1
2565	TRAFFIC CONTROL SIGNAL SYSTEM	SYSTEM	1

STANDARD PLATES - SIGNAL SYSTEMS

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

PLATE NO.	DESCRIPTION
8111 E	TRAFFIC SIGNAL BRACKETING (PEDESTAL MOUNTED) (3 SHEETS)
8112 I	PEDESTAL FOUNDATION (FOR TRAFFIC CONTROL SIGNALS)
8118 D	SERVICE EQUIPMENT & POLE-TRAFFIC CONTROL SIGNALS
8119 C	GROUND MOUNTED CABINET FOUNDATION
8121 H	TRANSFORMER BASE & POLE BASE PLATE (2 SHEETS)
8122 F	PEDESTAL AND PEDESTAL BASE (FOR TRAFFIC CONTROL SIGNALS SUPPORT (2 SHEETS)
8123 G	POLE & MAST ARM-LUMINAIRES & TRAFFIC LIGHTS ASSEMBLY (2 SHEETS)
8126 L	POLE FOUNDATION (PA90 & PA100)
8129 A	SHIM AND WASHER (TRAFFIC CONTROL SIGNALS AND ROADWAY LIGHTING)

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

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

John M. Gray Name: John M. Gray, PE
Date: May 9, 2022 Lic. No. 22457

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

SEH

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CITIES OF ANDOVER, ANOKA**

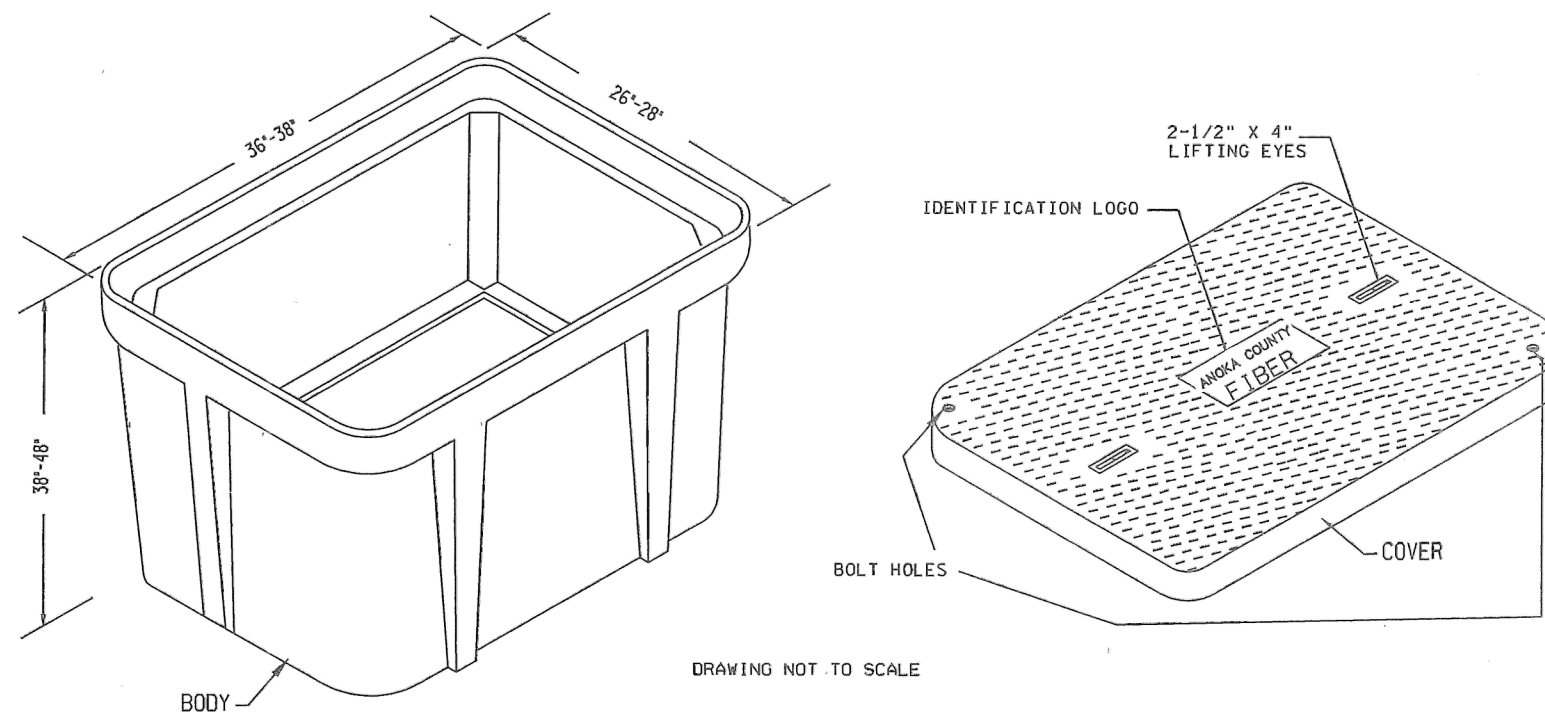
**TRAFFIC CONTROL SIGNAL SYSTEM
DETAILS AND STANDARD PLATES
CSAH 7 (7TH AVENUE NW) AT 143RD AVENUE**

FILE NO.
HAKAN 165435
SIGNAL SHEET
1 OF 13

**S1
S13**

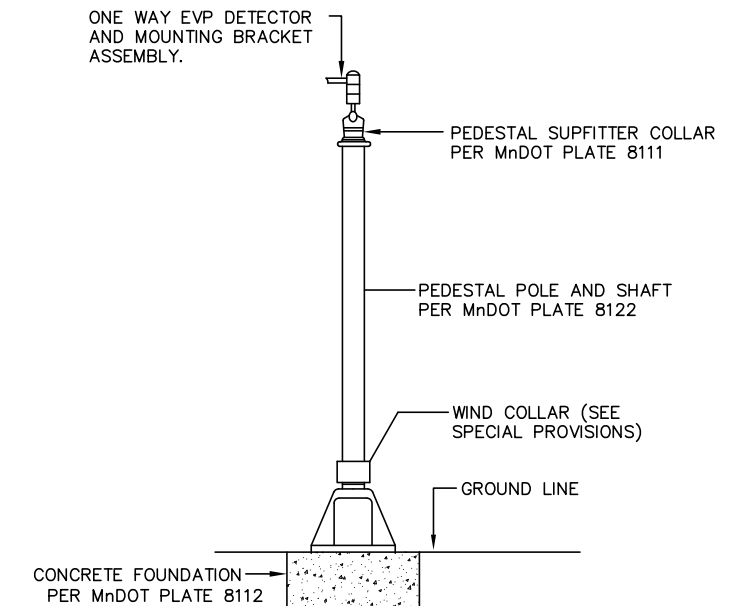
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FIBER-OPTIC PULLING VAULT DETAIL



DRAWING NOT TO SCALE

PEDESTAL POLE MOUNTED EVP DETECTOR DETAIL



CONDUCTOR COLOR CODE (14 GAUGE)					
TO SIGNAL CABINET			TO DEVICE		
1/C#6 G	R	O	R	RED	4 & 5 SECTION SIGNAL INDICATION
6PR#19	6/C#14 BL		O	YEL	
R	WH	BLK/R	BL	GRN	
3-1/C#2	INPUT	BLK	WH	NEU	
BLK	POWER	BLK	BLK/R	YLA/FYLA	3 SECTION AND PED INDICATION
BLK	SIGNAL	R	BLK	GLA	
3-1/C#6			R	RED/DWK	
WH	SERVICE	BLK/R	BLK/R	YEL/WLK	
G		BLK	BLK	GRN/SPR	EVP LIGHT LUM/FLASHER
R	4/C#14	WH	WH	NEU	
O		BLK	3/C#14 BLK		
BL	3/C#14	WH	CABLE WH		
WH	G				PED PUSH BUTTON (if required)
TR/BLK	2/C#14	BLK	2/C#14 BLK		
O/BLK	WH or CL	WH or CL	CABLE WH or CL		
BL/BLK					
WH/BLK					
BLK					
BLK/WH					
BLK/R					
WH/R					
	3/C#20	R or O			
		WH or YEL			
		BLK or BL			

NOTE:
ALL TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.

DRAWN BY: JMG
DESIGNER: JMG
CHECKED BY: JMG

NO.	BY	DATE

REVISIONS

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ANOKA COUNTY, MN
CITIES OF ANDOVER, ANOKA

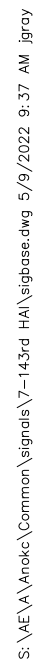
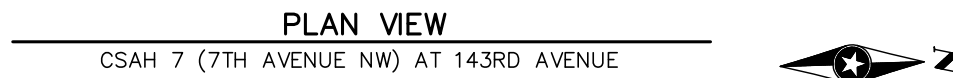
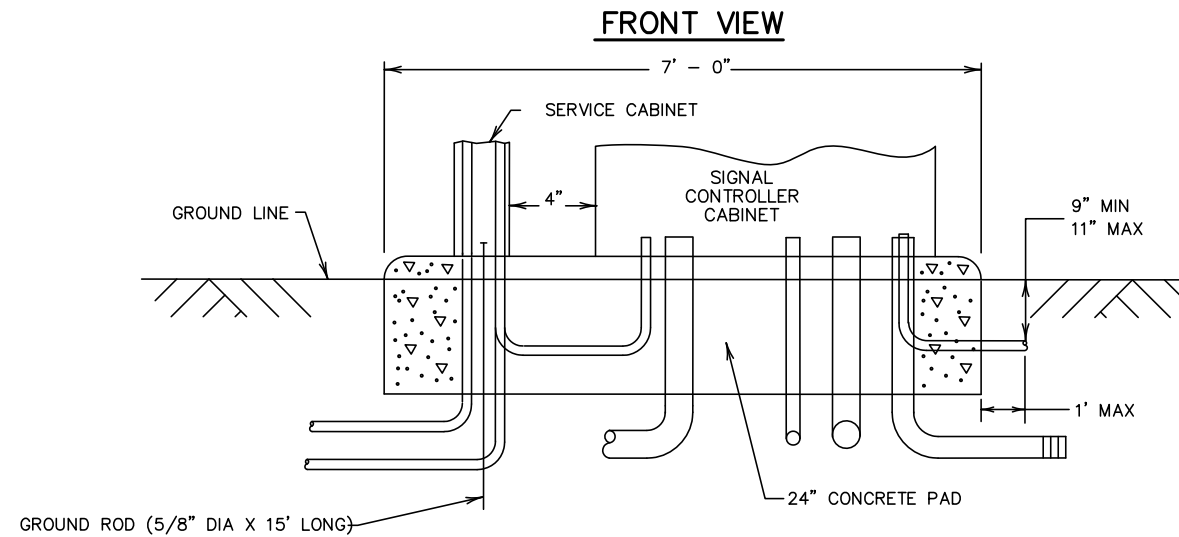
TRAFFIC CONTROL SIGNAL SYSTEM
MISCELLANEOUS DETAILS
CSAH 7 (7TH AVENUE NW) AT 143RD AVENUE

FILE NO.
HAKAN 165435
SIGNAL SHEET
2 OF 13

S2
S13

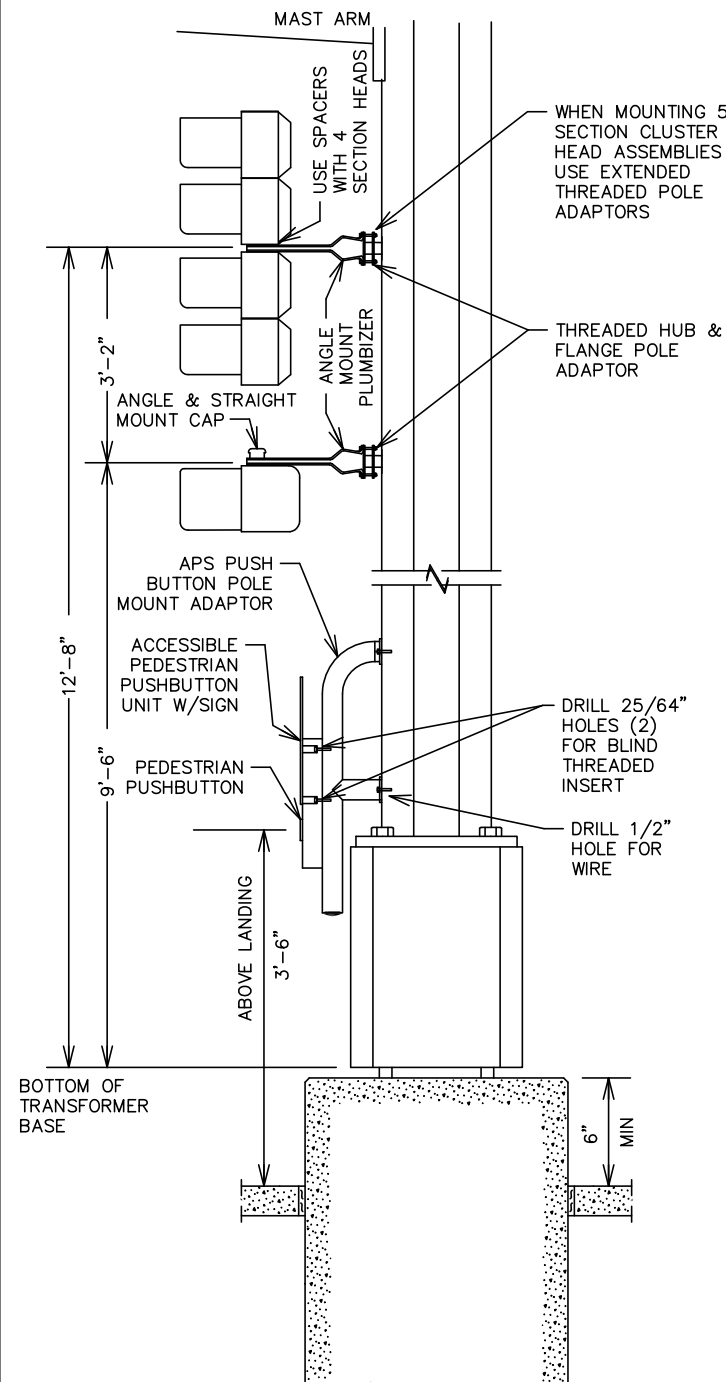
SEE INTERSECTION LAYOUT FOR CABLE INFORMATION (NOT TO SCALE)

1. THE ANCHOR RODS, NUTS AND WASHERS FOR THE CITY FURNISHED CONTROLLER AND CABINET SHALL BE FURNISHED BY THE CITY 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 CONCRETE AND SHALL BE LOCATED INSIDE OF THE CABINET WHERE DIRECTED BY THE ENGINEER, BUT SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (SUPPORTING MEMBERS, ETC.).
5. CONCRETE MIX 3F52 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.

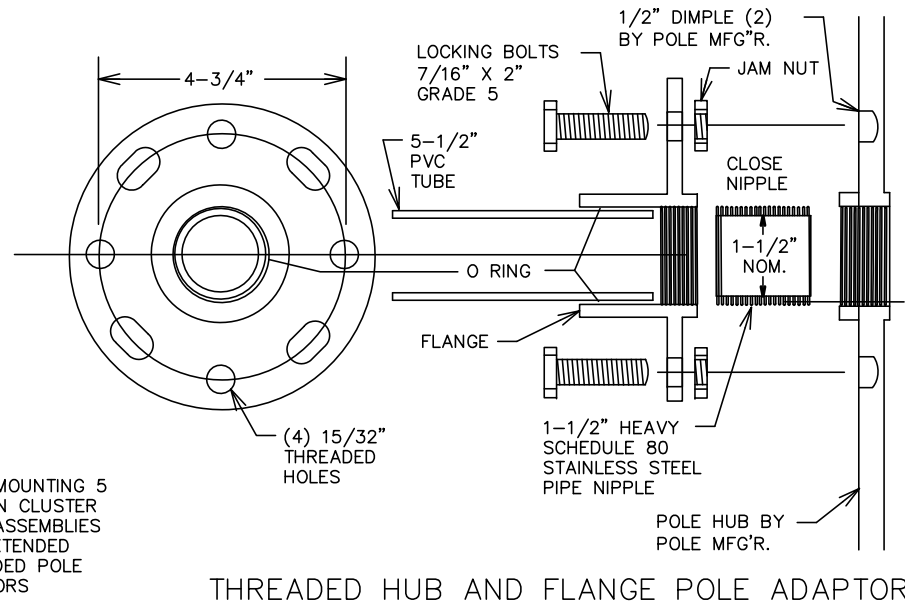


DRAWN BY: JMG					I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.	 Name: John M. Gray, PE Lic. No. 22457	 PHONE: (651) 490-2000 3535 VADNAIS CENTER DR. ST. PAUL, MN 55110	ANOKA COUNTY, MN CITIES OF ANDOVER, ANOKA	TRAFFIC CONTROL SIGNAL SYSTEM EQUIPMENT PAD DETAILS CSAH 7 (7TH AVENUE NW) AT 143RD AVENUE	FILE NO. HAKAN 165435	S3 S13
DESIGNER: JMG				SIGNAL SHEET							
CHECKED BY: JMG											
DESIGN TEAM	NO.	BY	DATE	REVISIONS							

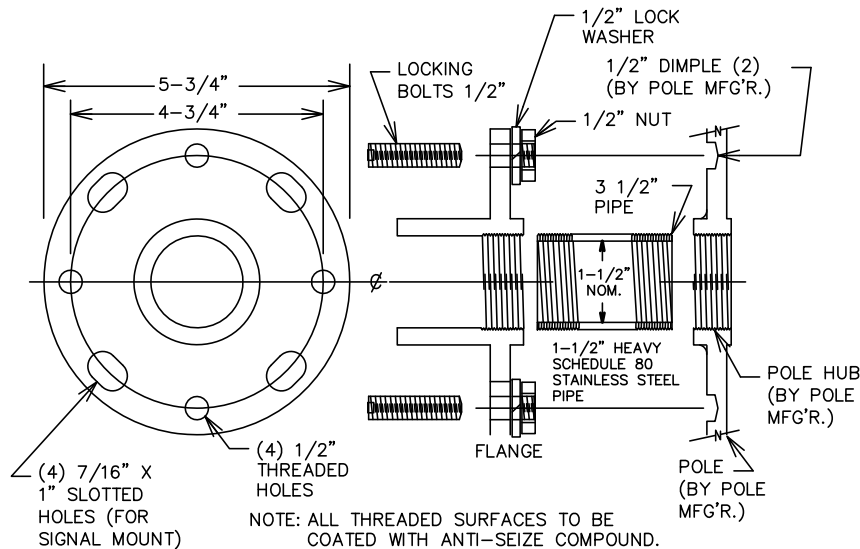
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TYPICAL SIGNAL POLE MOUNTING
NOT TO SCALE

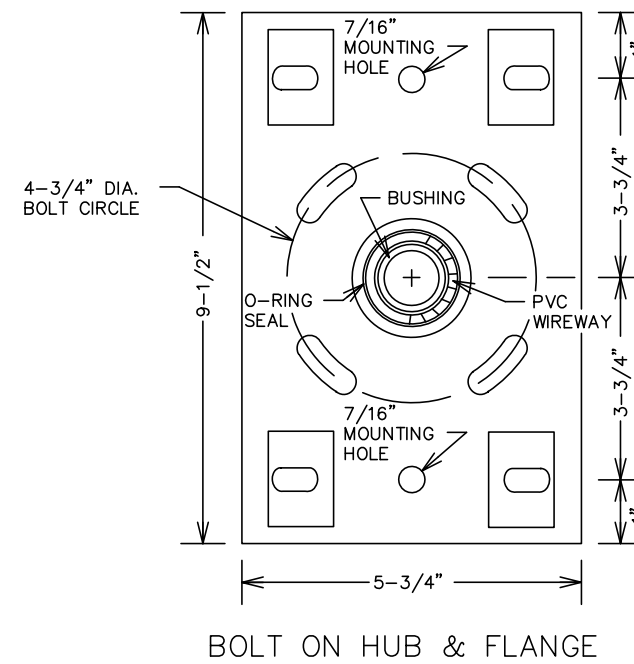


THREADED HUB AND FLANGE POLE ADAPTOR

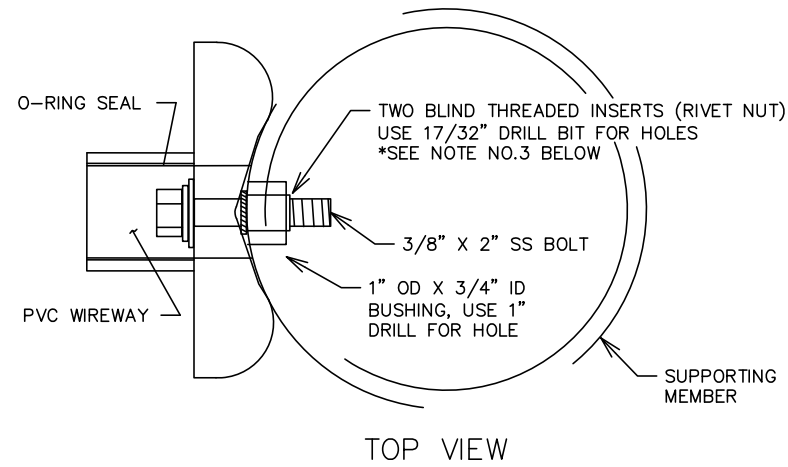


EXTENDED THREADED POLE ADAPTER

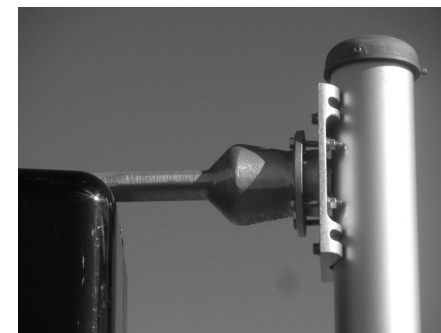
- NOTES:
1. ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.
 2. USE SIGNAL HEAD MOUNTED SPACERS FOR 4 SECTION POLY HEADS.
 3. SEE STANDARD PLATE NUMBER 8123 FOR ADDITIONAL SIGNAL POLE DETAILS.
 4. EXTENDED THREADED POLE ADAPTOR ONLY USED WITH 5 SECTION CLUSTER HEADS.



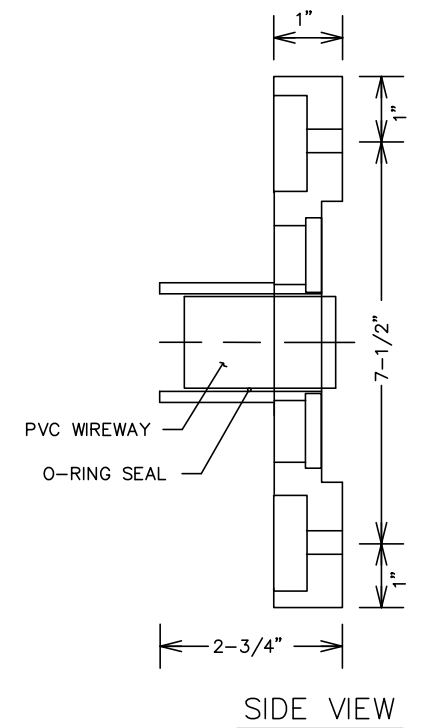
BOLT ON HUB & FLANGE



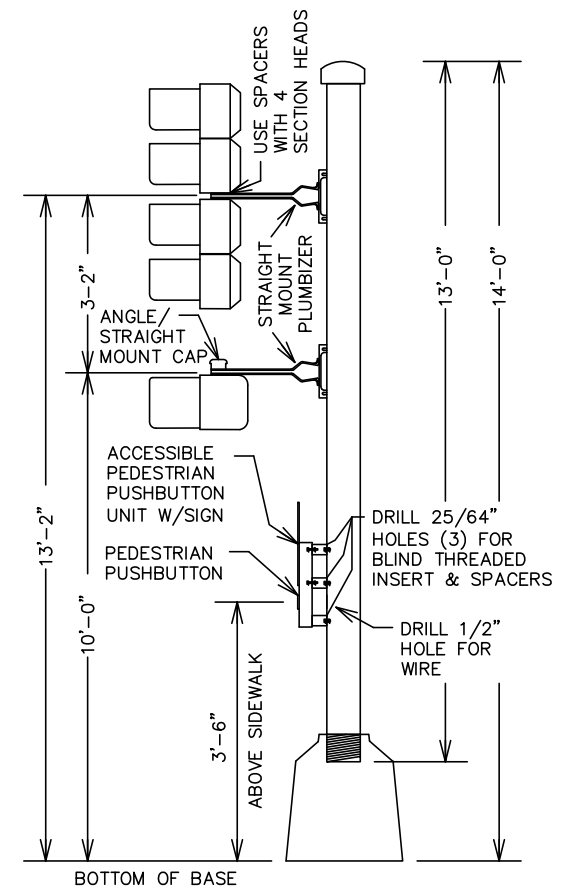
TOP VIEW



- NOTES:
1. ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.
 2. USE SIGNAL HEAD MOUNTED SPACERS FOR 4 SECTION POLY HEADS.
 3. BLIND THREADED INSERTS (RIVET NUT) MUST BE INSERTED USING MANUFACTURERS SPECIFIC INSERTION TOOL. NO OTHER METHOD IS ACCEPTABLE.
 4. SEE STANDARD PLATE NUMBER 8122 FOR ADDITIONAL PEDESTAL POLE DETAILS.



SIDE VIEW



TYPICAL PEDESTAL MOUNTING
NOT TO SCALE

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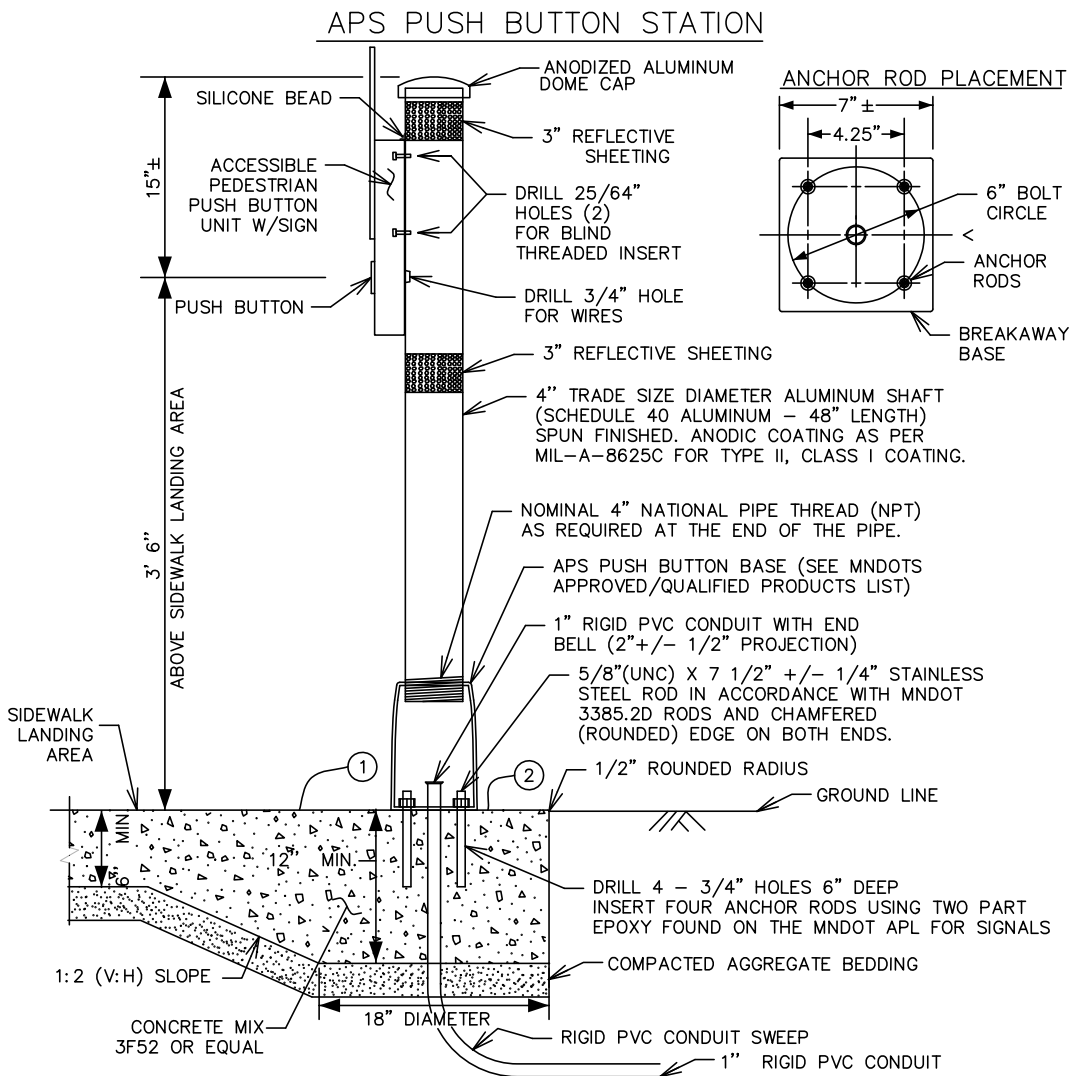
ANOKA COUNTY, MN
CITIES OF ANDOVER, ANOKA

TRAFFIC CONTROL SIGNAL SYSTEM
INTERSECTION LAYOUT
CSAH 7 (7TH AVENUE NW) AT 143RD AVENUE

FILE NO.
HAKAN 165435
SIGNAL SHEET
5 OF 13

S5
S13

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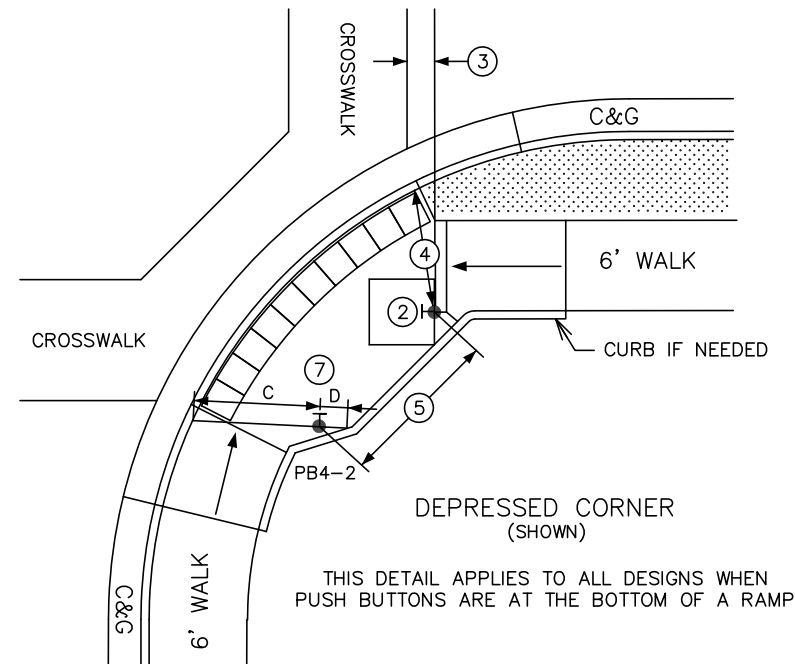
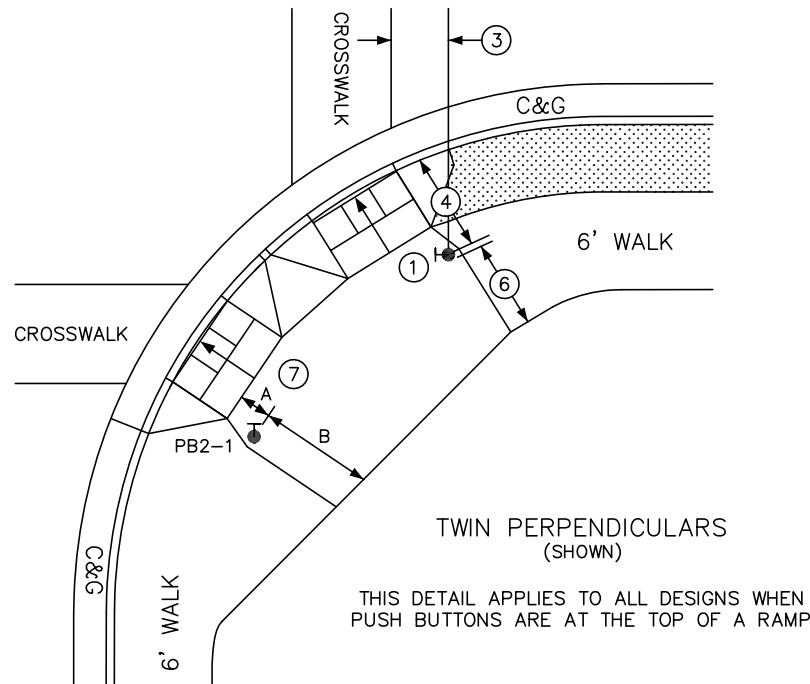
- NOTES:
- PLACEMENT AND ORIENTATION OF THE PUSH BUTTON STATION IS CRITICAL. MOUNT THE BUTTON SO THAT THE FACE IS PARALLEL WITH THE ASSOCIATED CROSSWALK. SCREW IN SHAFT TO A TIGHTENED POSITION BEFORE MOUNTING ACCESSIBLE PEDESTRIAN PUSH BUTTON UNIT TO THE SHAFT.
- ORIENT ACCESS OPENING ON THE BREAKAWAY PEDESTAL DIRECTLY BELOW THE APS BUTTON.
- PLUMB THE PUSH BUTTON STATION WITH LEVELING SHIMS IN ACCORDANCE WITH STANDARD PLATE 8129.
- INSTALL BLIND THREADED INSERTS USING MANUFACTURER'S SPECIFIC INSERTION TOOL.
- USE ZINC PLATED STEEL 1/4 - 20 UNC BLIND THREADED INSERTS SUITABLE FOR MOUNTING ON SURFACE WALL THICKNESS OF .337. APPROVED BLIND INSERTS ARE LISTED ON MNDOT'S APPROVED/QUALITY PRODUCTS LIST WEBSITE FOR TRAFFIC SIGNALS.
- USE APS 1/4 - 20 STAINLESS STEEL MOUNTING BOLTS. APPLY BRUSH ON ANTI SEIZE COMPOUND TO BOLTS PRIOR TO ASSEMBLY.
- APPLY A BEAD OF 100% SILICONE SEALANT ALONG THE TOP OF THE PUSH BUTTON UNIT WHERE IT COMES IN CONTACT WITH THE 4" SHAFT.
- USE WHITE REFLECTIVE SHEETING AT INTERSECTION CORNERS AND YELLOW REFLECTIVE SHEETING IN CENTER MEDIANS. APPROVED TUBE DELINEATOR SHEETING IS LISTED ON MNDOT'S APPROVED/QUALIFIED PRODUCTS LIST WEBSITE FOR SIGNING.
- AN 18" X 6" FIBER FORMING TUBE MAY BE USED FOR THE LOWER HALF OF THE FOUNDATION WHEN CONDITIONS DO NOT ALLOW FOR THE 18" X 6" HOLE TO STAND OPEN.
- THE PUSH BUTTON STATION FOUNDATION IS MONOLITHIC (POURED AT ONE TIME) WITH THE SIDEWALK. PROVIDE A 1:2 (V:H) SLOPE GRADE WHERE THE 6" MIN SIDEWALK DEPTH TRANSITIONS TO THE 12" MIN FOUNDATION DEPTH. MAINTAIN THE COMPACTED AGGREGATE BEDDING AND THICKNESS USED FOR THE SIDEWALK THROUGHOUT THE SLOPE AND FOUNDATION GRADING. PROVIDE 1:2 (V:H) SLOPE GRADING 360 DEGREES FOR THE TRANSITION FROM THE SIDEWALK TO THE FOUNDATION WHEN THE FOUNDATION IS NOT LOCATED NEAR EDGE OF SIDEWALK AND IS SURROUNDED BY CONCRETE WALK.
 - ENSURE CONCRETE CONTROL JOINTS AND EDGE OF CONCRETE WALK ARE A MINIMUM 9" FROM THE CENTER OF THE PUSH BUTTON FOUNDATION.

TYPICAL APS PEDESTRIAN PUSH BUTTON LOCATION

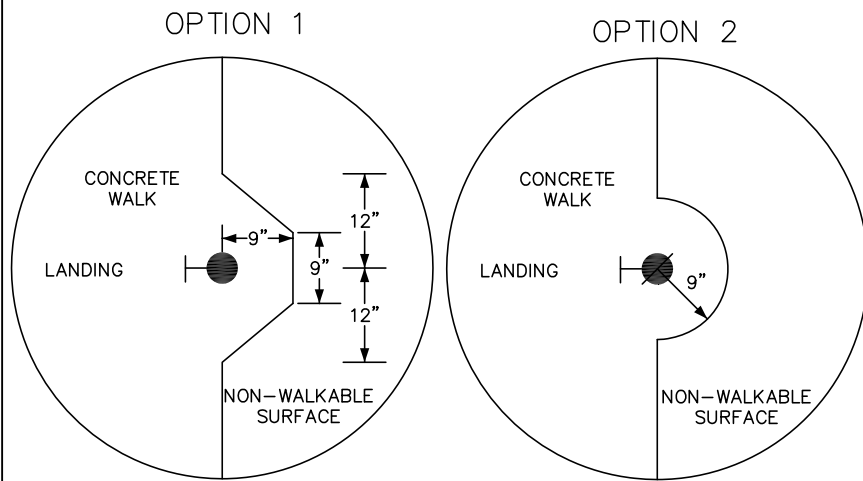
THIS IS A GENERAL DETAIL INTENDED TO SHOW THE REQUIREMENTS OF APS PUSH BUTTON LOCATION. FOR PROJECT SPECIFIC INFORMATION REGARDING PEDESTRIAN RAMP LAYOUT AND PUSH BUTTON LOCATIONS, SEE THE PLAN.

SUPPLEMENTAL GUIDANCE FOR CONSTRUCTING COMPLIANT APS PUSH BUTTONS:

- THE FACE OF THE BUTTON SHALL BE PARALLEL WITH THE OUTSIDE EDGE OF CROSSWALK.
- A MINIMUM 4 FT X 4 FT LANDING AREA SHALL BE PROVIDED ADJACENT TO EACH BUTTON, WITH A 2 PERCENT MAXIMUM SLOPE IN ALL DIRECTIONS.
- BUTTONS SHALL BE WITHIN 5 FT OF THE OUTSIDE EDGE OF THE CROSSWALK.
- BUTTONS SHALL BE BETWEEN 1.5 FT AND 10 FT FROM THE BACK OF CURB OR EDGE OF ROADWAY, MEASURED IN THE DIRECTION OF TRAVEL. STANDALONE PUSH BUTTON STATIONS SHOULD BE 4' MINIMUM FROM THE BACK OF CURB TO AVOID KNOCKDOWNS.
- BUTTONS SHALL BE AT LEAST 10 FT APART.
- PROVIDE A MAINTENANCE ACCESS ROUTE (MAR) WHEREVER POSSIBLE FOR SNOW REMOVAL PURPOSES. A MAR REQUIRES A 6 FT MINIMUM CLEAR DISTANCE BETWEEN A PUSH BUTTON AND ANY OBSTRUCTIONS, INCLUDING BUILDINGS, V-CURB, ELECTRICAL FOUNDATIONS, SIGNAL CABINETS, OR ANOTHER PUSH BUTTON.
- BUTTON SHOULD BE 2 FT MINIMUM FROM RAMP GRADE BREAK AND BACK OF WALK.



CONTRACTOR MUST USE OPTION 1 OR 2 WHEN THE APS PUSH BUTTON IS SHOWN AT THE EDGE OF WALK. OPTION USED (OR SELECTED) MUST BE THE SAME THROUGHOUT THE ENTIRE PROJECT.



SIGNAL CONTROL POINTS			DISTANCE TO FRONT OF LANDING (FT)	DISTANCE TO BACK OF LANDING (FT)
SIGNAL NO.	X	Y		
PB2-1	-	-	A	B
PB4-2	-	-	C	D

- A - DISTANCE MEASURED FROM THE PUSH BUTTON TO THE FRONT OF LANDING/TOP OF RAMP
- B - CLEAR DISTANCE MEASURED FROM THE PUSH BUTTON TO THE BACK OF LANDING/EDGE OF WALK
- C - CLEAR DISTANCE MEASURED FROM THE PUSH BUTTON TO THE OUTSIDE EDGE OF DOMES IN THE DIRECTION OF TRAVEL
- D - CLEAR DISTANCE FROM THE PUSH BUTTON TO THE BACK OF LANDING MEASURED IN THE OPPOSITE DIRECTION OF TRAVEL

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

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Lic. No. 22457
Date: May 9, 2022

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ST. PAUL, MN 55110

SEH

ANOKA COUNTY, MN CITIES OF ANDOVER, ANOKA	TRAFFIC CONTROL SIGNAL SYSTEM APS PUSH BUTTON STATION DETAILS CSAH 7 (7TH AVENUE NW) AT 143RD AVENUE	FILE NO. HAKAN 165435 SIGNAL SHEET 6 OF 13	S6 S13
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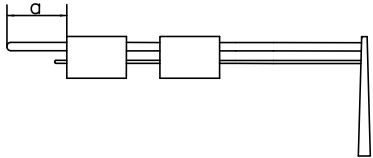
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MAST ARM AND POLE MOUNTED SIGNS SIGN PANELS – TYPE C (F & I)							
POLE NO.	TOTAL QUANTITY	a (FT)	PANELS			CODE NO.	PANEL LEGEND
			SIZE (IN.)	UNIT AREA (SQ FT)	TOTAL AREA (PROJECT) (SQ FT)		
1, 3	2	1'	36 x 42	10.50	42.00	R10-X12	LEFT TURN YIELD ON FLASHING YELLOW
1,2,3,4	4	(1)	36 x 12	3.00	12.00	R6-1L	ONE WAY (LEFT)
1,2,3,4	4	(1)	36 x 12	3.00	12.00	R6-1R	ONE WAY (RIGHT)
TOTAL	10				66.00		

MAST ARM MOUNTED SIGNS SIGN PANELS – TYPE D SIGNALS (F & I)						
SIGN PANEL	POLE NO.	a (FT)	SIZE (IN)	AREA/SIGN (SQ. FT.)	NO. REQ.	PANEL LEGEND
D-1	1	28'	78 x 24	13.00	1	143rd Ave
D-2	2	12'	84 x 24	14.00	1	7th Ave NW
D-3	3	28'	78 x 24	13.00	1	143rd Ave
D-4	4	12'	84 x 24	14.00	1	7th Ave NW
TOTAL QUANTITIES				54.00	4	

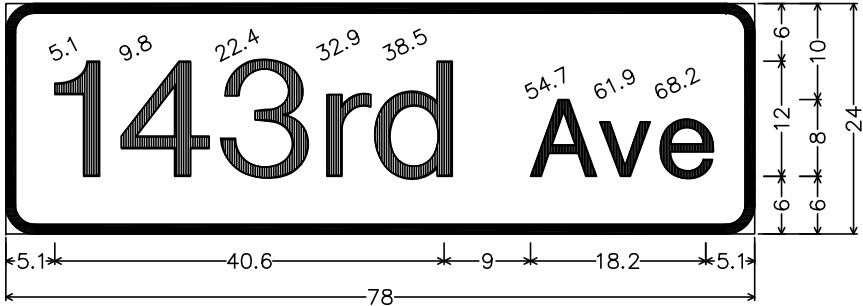
SIGNING NOTES:

- 1) COLOR FOR ALL NEW TYPE D SIGNS SHALL BE WHITE LEGEND AND BORDER ON GREEN BACKGROUND, FULLY REFLECTORIZED.
- 2) SEE CURRENT MnDOT STANDARD SIGNS AND MARKINGS MANUAL FOR STANDARD SIGN DESIGNS, ARROW DETAILS, AND SPLICE PLATE DETAILS.
- 3) FOR NON-STANDARD SIGN DESIGNS, LAYOUTS ARE INCLUDED ELSEWHERE ON THIS PLAN SHEET. ALL SIGN DIMENSIONS ARE IN INCHES.
- 4) SEE STANDARD PLAN 5-297.730 FOR SIGN MOUNTING TO ROUND SUPPORTS (MAST ARM POLES).
SEE STANDARD PLAN 5-297.731 FOR SIGN MOUNTING TO MAST ARM.
- 5) ALL TRAFFIC CONTROL, MOBILIZATION AND WORK RELATED TO THE INSTALLATION OF THE SIGNING SHOWN IN THE PLANS IS INCIDENTAL.
- 6) FURNISHING AND INSTALLING NEW TYPE C AND TYPE D SIGNS WILL BE INCLUDED AS PART OF BID ITEM FOR ITEM NO. 2565 (TRAFFIC CONTROL SIGNAL SYSTEM). SEE SPECIAL PROVISIONS.
- 7) CONTRACTOR SHALL PROVIDE DETAILED SHOP DRAWINGS OF THE NEW TYPE D SIGN PANELS FOR ENGINEER APPROVAL, PRIOR TO FABRICATION OF THESE SIGN PANELS.
- 8) (1) = MOUNT SIGN PANEL ON TRAFFIC SIGNAL MAST ARM POLE (SEE SIGNAL PLAN INTERSECTION LAYOUT FOR LOCATIONS).



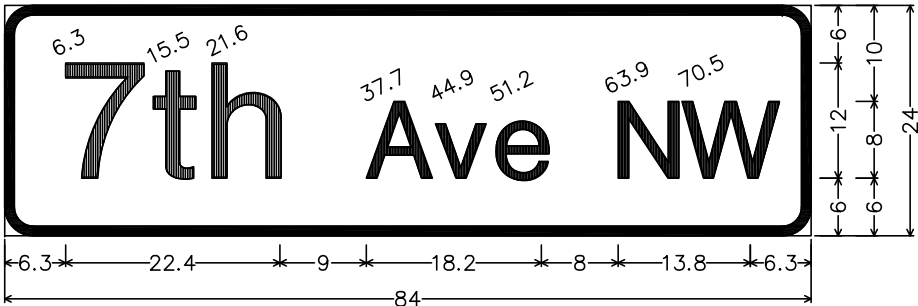
"a" DISTANCE = DISTANCE FROM END OF MAST ARM TO THE EDGE OF THE SIGN PANEL.

D-1, D-3



3.0" Radius, 1.0" Border, White on, Green;
"143rd Ave", D 2K;

D-2, D-4



3.0" Radius, 1.0" Border, White on, Green;
"7th Ave NW", D 2K;

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

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John M. Gray
Date: May 9, 2022

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

SEH

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3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110

ANOKA COUNTY, MN
CITIES OF ANDOVER, ANOKA

TRAFFIC CONTROL SIGNAL SYSTEM
SIGNAL SIGNING DETAILS
CSAH 7 (7TH AVENUE NW) AT 143RD AVENUE

FILE NO.
HAKAN 165435
SIGNAL SHEET
7 OF 13

S7

S13

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PVC LOOP DETECTORS			
NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D1-1	2-6x6	15' & 45'	1
D1-2	2-6x6	0' & 30'	7
D2-1	6x6	475'	1
D2-2	6x6	475'	1
D4-1	(future)	---	3,8
D4-2	2-6x6	0' & 15'	7
D4-3	2-6x6	0' & 15'	1
D5-1	2-6x6	15' & 45'	1
D5-2	2-6x6	0' & 30'	1
D6-1	6x6	475'	1
D6-2	6x6	475'	1
D8-1	6x6	120'	3,8
D8-2	2-6x6	0' & 15'	7
D8-3	2-6x6	0' & 15'	1

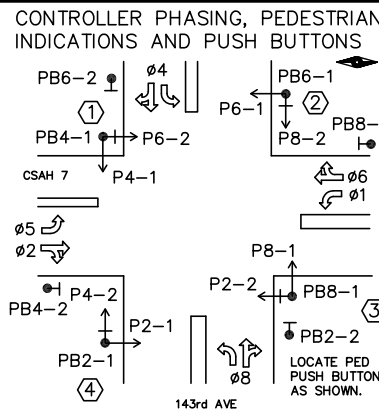
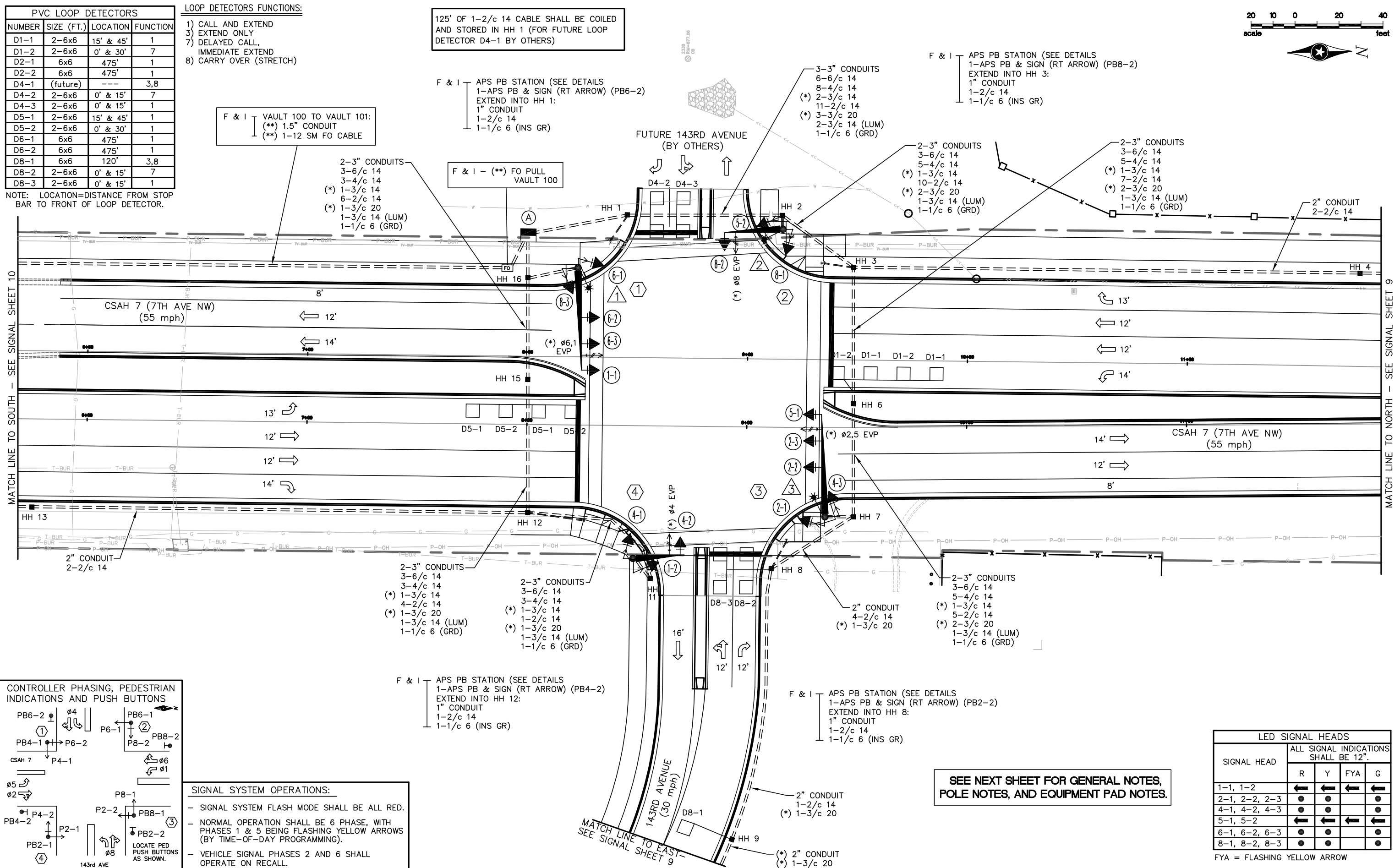
NOTE: LOCATION=DISTANCE FROM STOP BAR TO FRONT OF LOOP DETECTOR.

LOOP DETECTORS FUNCTIONS:

- 1) CALL AND EXTEND
- 3) EXTEND ONLY
- 7) DELAYED CALL, IMMEDIATE EXTEND
- 8) CARRY OVER (STRETCH)

125' OF 1-2/c 14 CABLE SHALL BE COILED AND STORED IN HH 1 (FOR FUTURE LOOP DETECTOR D4-1 BY OTHERS)

20 10 0 20 40
scale feet



SIGNAL SYSTEM OPERATIONS:

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

SEE NEXT SHEET FOR GENERAL NOTES, POLE NOTES, AND EQUIPMENT PAD NOTES.

LED SIGNAL HEADS				
SIGNAL HEAD	ALL SIGNAL INDICATIONS SHALL BE 12".			
	R	Y	FYA	G
1-1, 1-2	←	←	←	←
2-1, 2-2, 2-3	●	●	●	●
4-1, 4-2, 4-3	●	●	●	●
5-1, 5-2	←	←	←	←
6-1, 6-2, 6-3	●	●	●	●
8-1, 8-2, 8-3	●	●	●	●

FYA = FLASHING YELLOW ARROW

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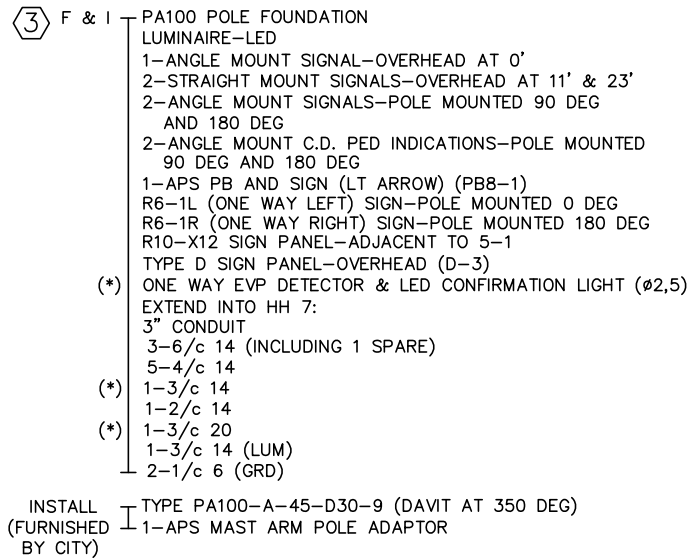
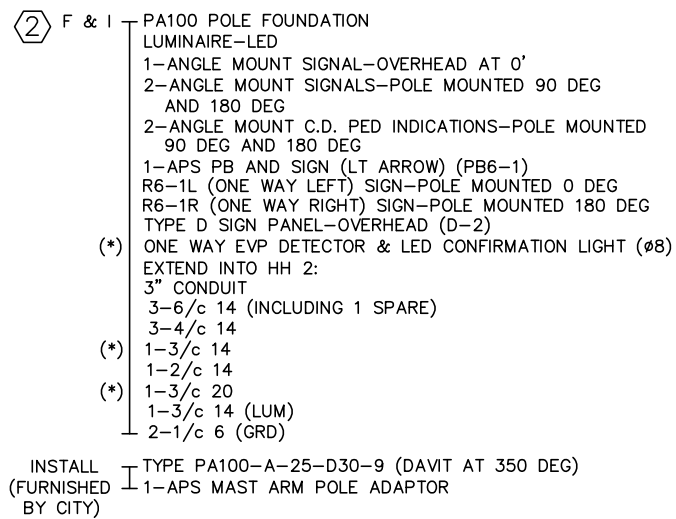
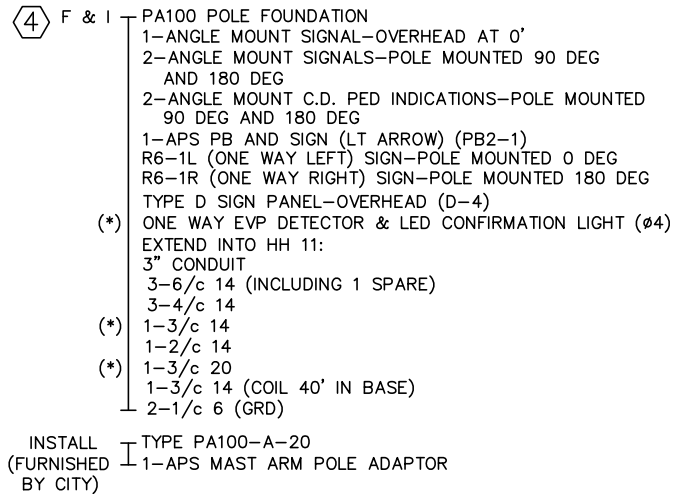
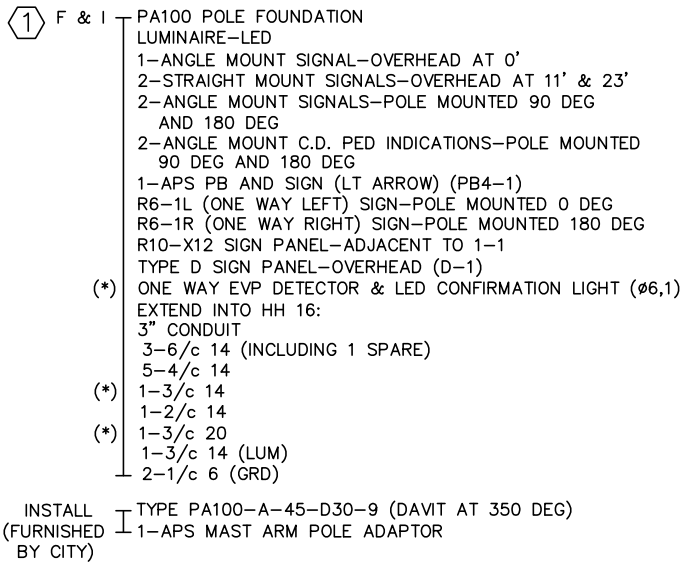
TRAFFIC CONTROL SIGNAL SYSTEM
INTERSECTION LAYOUT
CSAH 7 (7TH AVENUE NW) AT 143RD AVENUE

FILE NO.
HAKAN 165435
SIGNAL SHEET
8 OF 13
S8
S13

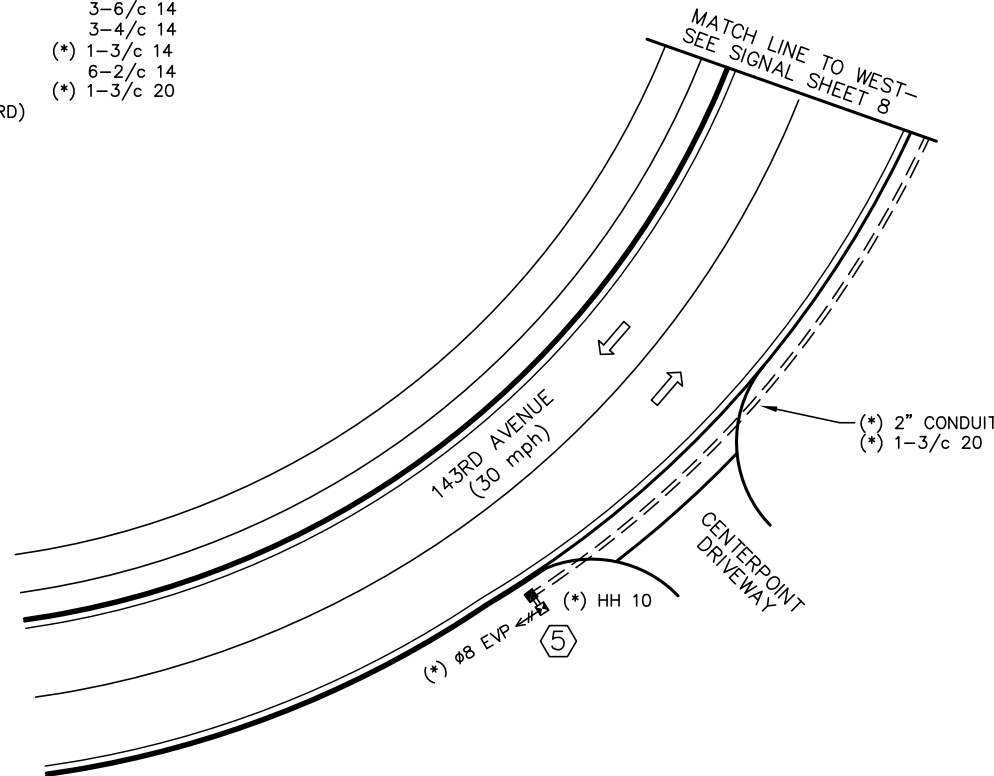
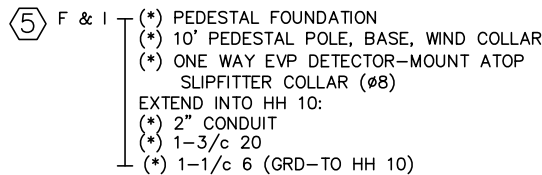
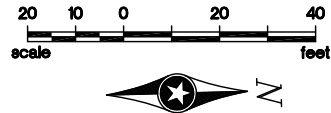
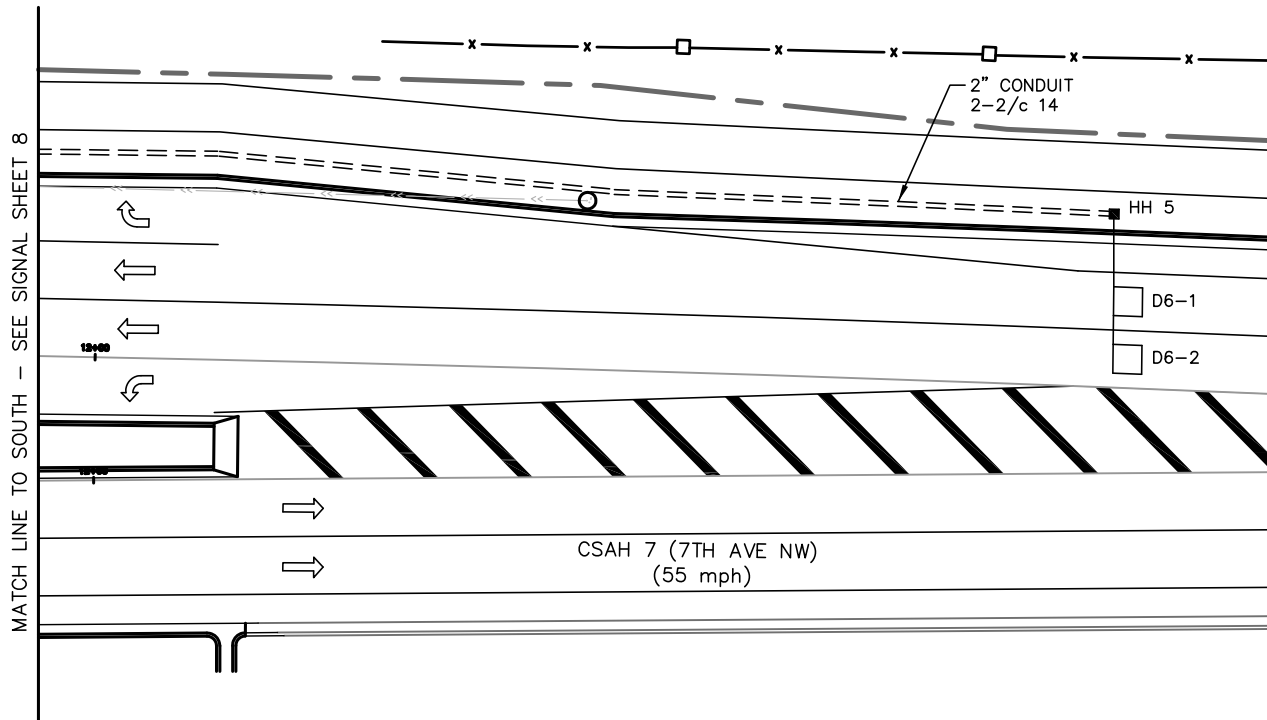
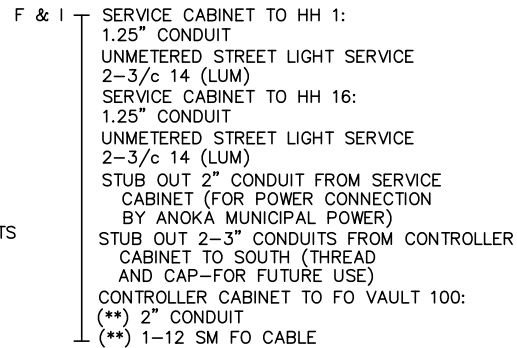
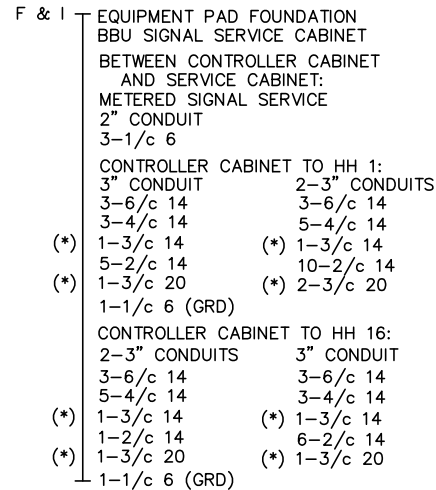
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NOTES:

- 1) LOCATION OF FOUNDATIONS, LOOP DETECTORS, HANDHOLES, AND PUSH BUTTON STATIONS SHALL BE DETERMINED IN FIELD BY THE ENGINEER.
- 2) SEE SPECIAL PROVISIONS FOR CITY AND COUNTY FURNISHED MATERIALS.
- 3) NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS (SEE SPECIAL PROVISIONS).
- 4) A 3/4" HALF COUPLING, 3/4" PIPE NIPPLE & 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 (CITY OF ANOKA). SEE SPECIAL PROVISIONS.
- 6) SEE SPECIAL PROVISIONS & DETAILS REGARDING SIGNS TO BE FURNISHED AND INSTALLED BY CONTRACTOR (INCLUDED AS PART OF THE "TRAFFIC CONTROL SIGNAL SYSTEM" PAY ITEM).
- 7) EACH PEDESTRIAN INDICATION SHALL BE ONE SECTION LED COUNTDOWN TIMER "HAND/WALKING PERSON" INDICATION.
- 8) EACH SIGNAL FACE SHALL HAVE A BACKGROUND SHIELD.
- 9) SEE DETAILS, SPECIAL PROVISIONS & 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).
- 10) LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) #12 AWG IN 3/4" N.M.C. SEE SPECIAL PROVISIONS.
- 11) (*) DENOTES ITEMS TO BE INCLUDED AS PART OF THE PAY ITEM FOR ITEM INO. 2565 (EMERGENCY VEHICLE PREEMPTION SYSTEM). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 12) (**) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECT). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 13) ALL CABLES AND CONDUCTORS SHALL BE NEW (FURNISHED AND INSTALLED BY THE CONTRACTOR).
- 14) NO SPLICING IS ALLOWED ON ANY CABLE OR CONDUCTOR BETWEEN THE CONTROLLER/SERVICE CABINETS AND EACH POLE OR MAST ARM MOUNTED COMPONENT (EXCEPT THAT LOOP DETECTORS SPLICES ARE ALLOWED IN ADJACENT HANDHOLES ONLY).



① INSTALL CONTROLLER AND CABINET
(FURNISHED BY COUNTY)



DRAWN BY: JMG
DESIGNER: JMG
CHECKED BY: JMG

DESIGN TEAM

NO.	BY	DATE

REVISIONS

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Date: May 9, 2022

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



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

ANOKA COUNTY, MN
CITIES OF ANDOVER, ANOKA

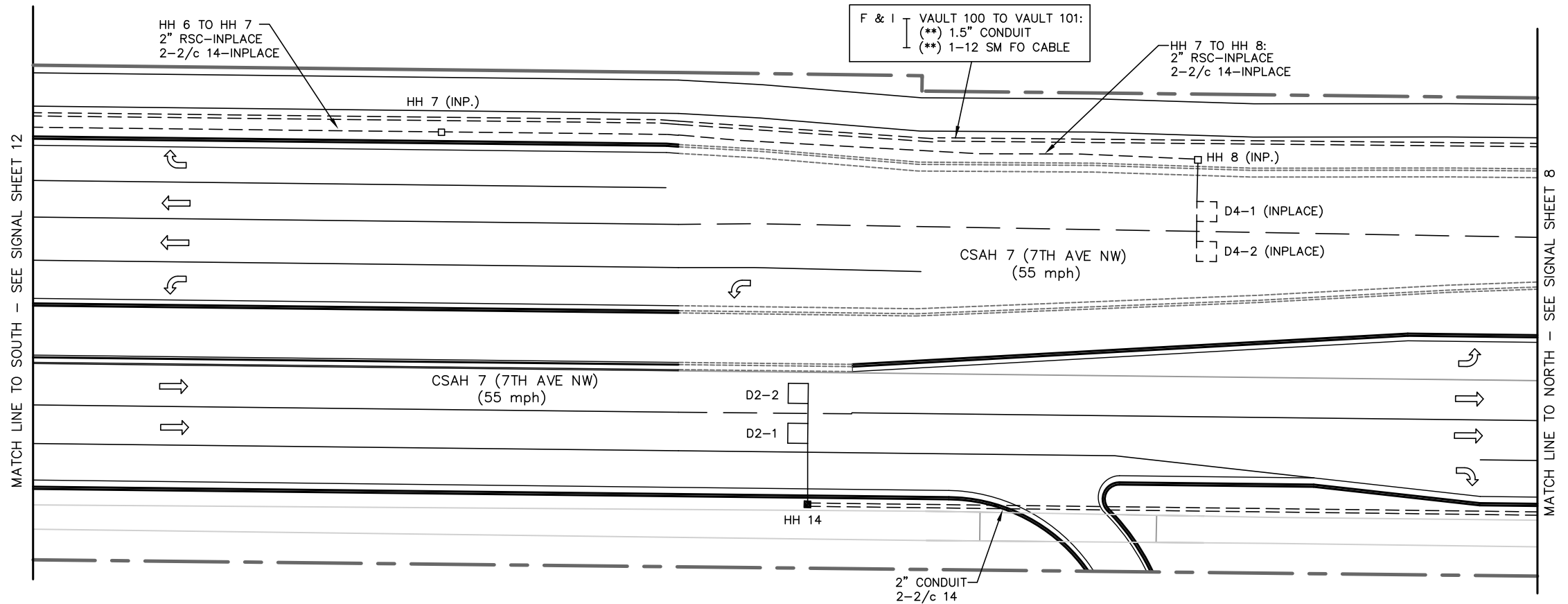
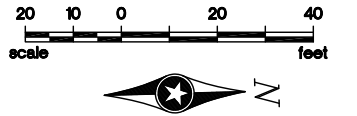
TRAFFIC CONTROL SIGNAL SYSTEM
SIGNAL SYSTEM NOTES
CSAH 7 (7TH AVENUE NW) AT 143RD AVENUE

FILE NO.
HAKAN 165435
SIGNAL SHEET
9 OF 13

S9

S13

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INTERCONNECT NOTES:

- 1) IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" (TELEPHONE NUMBER 651-454-0002) AS REQUIRED BY MINNESOTA STATUTE 2160.
- 2) DISTANCE OFF SHOULDER OR CURB FOR INTERCONNECT CONDUIT SHALL BE AS DETERMINED IN THE FIELD BY THE ENGINEER.
- 3) (**) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECT). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 4) (F & I) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY CONTRACTOR AS PART OF THIS PROJECT.
- 5) ALL COMPONENTS OF THE CSAH 7/CSAH 116 SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE AND IN OPERATION AT ALL TIMES.

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.
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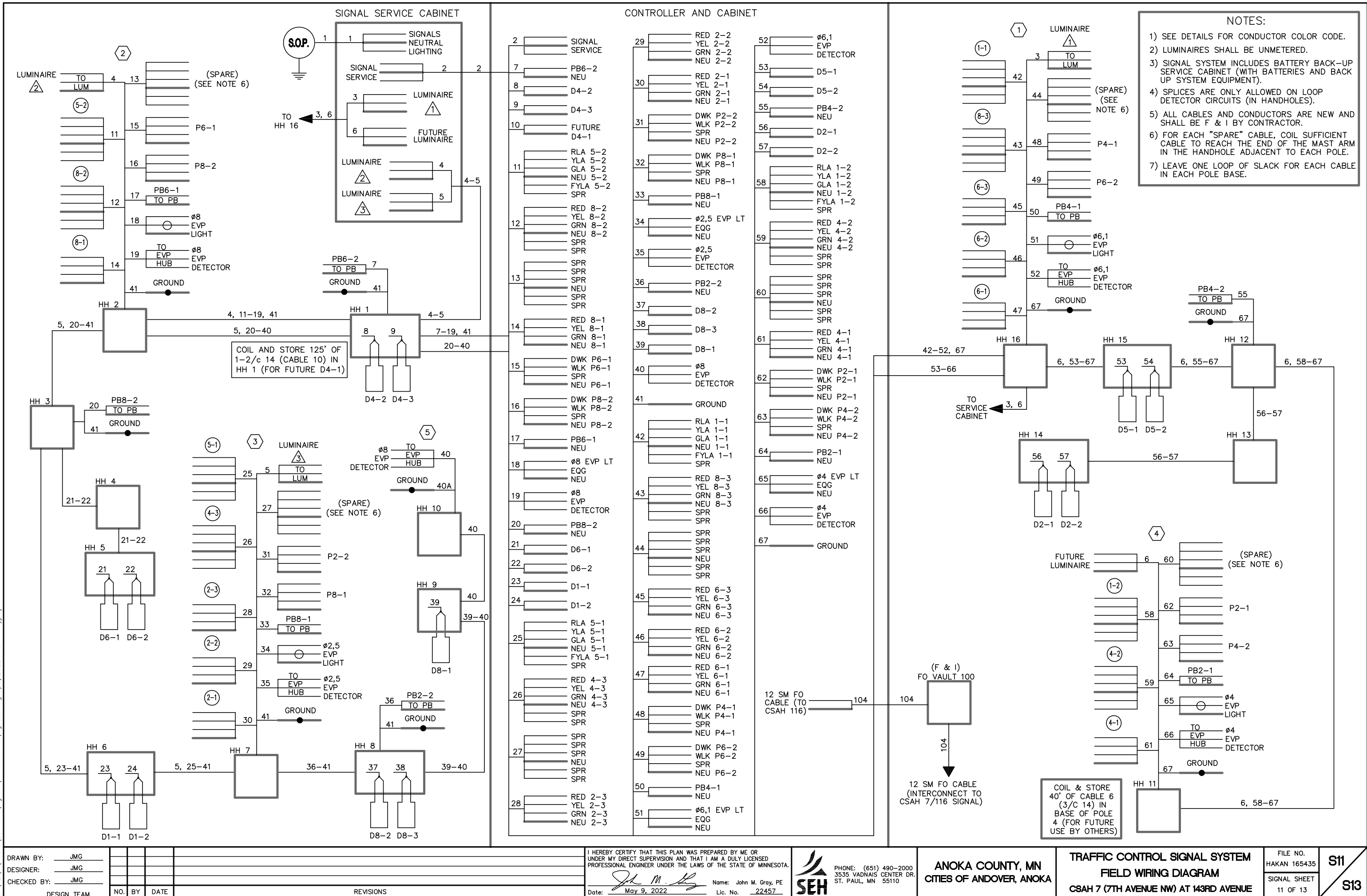
ANOKA COUNTY, MN
CITIES OF ANDOVER, ANOKA

TRAFFIC CONTROL SIGNAL SYSTEM
MATCH LINE FOR INTERCONNECT
CSAH 7 (7TH AVENUE NW) AT 143RD AVENUE

FILE NO.
HAKAN 165435
SIGNAL SHEET
10 OF 13

S10
S13

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INTERCONNECT NOTES:

- 1) IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" (TELEPHONE NUMBER 651-454-0002) AS REQUIRED BY MINNESOTA STATUTE 2160.
- 2) (**) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECT). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 3) ALL ITEMS OF THIS SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED, PROTECTED AND MAINTAINED INPLACE, EXCEPT WHERE BOXED IN AND DENOTED BY BOTH (**) AND BY F & I (ITEMS TO BE FURNISHED & INSTALLED BY CONTRACTOR).
- 4) FIBER OPTIC INTERCONNECT BETWEEN THIS SIGNAL SYSTEM AND SYSTEMS TO THE WEST (CASTLE FIELD), EAST (38TH AVENUE), AND SOUTH (38TH AVENUE) ARE INPLACE AND SHALL BE MAINTAINED INPLACE AND IN OPERATION.

LED SIGNAL FACES

ALL SIGNAL INDICATIONS SHALL BE 12"

SIGNAL FACE	R	Y	FYA	G
1-1, 1-2, 1-3	←	←		→
2-1, 2-2, 2-3, 2-4	●	●		●
3-1, 3-2, 3-3	←	←		→
4-1, 4-2, 4-3, 4-4	●	●		●
5-1, 5-2, 5-3	←	←		→
6-1, 6-2, 6-3, 6-4	●	●		●
7-1, 7-2, 7-3	←	←		→
8-1, 8-2, 8-3, 8-4	●	●		●

MATCH LINE TO NORTH - SEE SIGNAL SHEET 10

F & I VAULT 100 TO VAULT 101:
(**) 1.5" CONDUIT (BORE UNDER ROAD/WALK)
(**) 1-12 SM FO CABLE

H.H.6 TO H.H.7:
2"R.S.C.
2-2/c#14

H.H.6 TO H.H.9:
4"N.M.C.
3-12/c#14
1-3/c#14
1-3/c#20
4-2/c#14
1-3/c#14 (LUM)
1-1/c#6 (GRD)

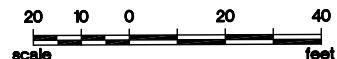
H.H.4 TO H.H.5:
2-4"N.M.C.
7-12/c#14
2-3/c#14
2-3/c#20
10-2/c#14
2-3/c#14 (LUM)
3-1/c#6 (GRD)

H.H.5 TO H.H.6:
4"N.M.C.
4-12/c#14
1-3/c#14
1-3/c#20
9-2/c#14
1-3/c#14 (LUM)
2-1/c#6 (GRD)

N.M.C. LOOP DETECTORS			
NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D1-1	6x6	40'	1
D1-2	6x6	10'	1
D2-1	6x6	475'	1
D2-2	6x6	475'	1
D3-1	6x6	40'	1
D3-2	6x6	40'	1
D3-3	6x6	10'	1
D3-4	6x6	10'	1
D4-1	6x6	475'	3,8
D4-2	6x6	475'	3,8
D4-3	2-6x6	5' & 20'	7
D4-4	2-6x6	5' & 20'	1
D4-5	2-6x6	5' & 20'	1

N.M.C. LOOP DETECTORS			
NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D5-1	6x6	40'	1
D5-2	6x6	40'	1
D5-3	6x6	10'	1
D5-4	6x6	10'	1
D6-1	6x6	400'	1
D6-2	6x6	400'	1
D7-1	6x6	40'	1
D7-2	6x6	10'	1
D8-1	6x6	300'	3,8
D8-2	6x6	300'	3,8
D8-3	2-6x6	5' & 20'	7
D8-4	2-6x6	5' & 20'	1
D8-5	2-6x6	5' & 20'	1

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



LOOP DETECTORS FUNCTIONS:

- 1) CALL AND EXTEND
- 3) EXTEND ONLY
- 7) DELAYED CALL, IMMEDIATE EXTEND
- 8) CARRY OVER (STRETCH)



(B) GROUND MOUNTED TRANSFORMER (S.O.P.)
(CITY OF ANOKA)
EXTEND INTO H.H.20:
2"R.S.C.
3-1/c#2

H.H.11 TO H.H.12:
H.H.12 TO H.H.13:
2"R.S.C.
2-2/c#14

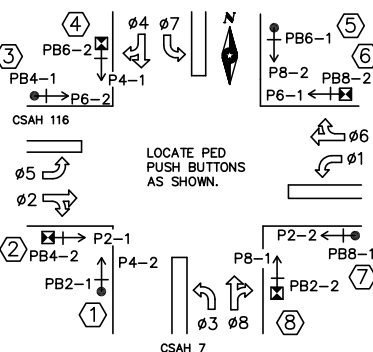
H.H.11 TO H.H.14:
4"N.M.C.
1-12/c#14
3-2/c#14
1-1/c#6 (GRD)

H.H.9 TO H.H.10:
4"N.M.C.
3-12/c#14
1-3/c#14
1-3/c#20
1-2/c#14
1-3/c#14 (LUM)
1-1/c#6 (GRD)

CSAH 116 (BUNKER LAKE BLVD NW)
(55 mph)

CSAH 116 (BUNKER LAKE BLVD NW)
(50 mph)

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



H.H.1 TO H.H.2:
2"R.S.C.
2-2/c#14
1-6 SM/6 MM FIBER-OPTIC CABLE

H.H.19 TO H.H.21:
2"R.S.C.-INPLACE
1-6/c#14 (FLASHER)-INPLACE
1.5" CONDUIT
1-12 SM FO CABLE (TO CSAH 38 SIGNAL)

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 PROTECTED LEFT TURN PHASES.
- VEHICLE SIGNAL PHASES 2 AND 6 SHALL OPERATE ON RECALL.

F & I - (**) FO PULL VAULT 101

H.H.18 TO H.H.19:
2-4"N.M.C.
5-12/c#14
1-3/c#14
1-3/c#20
16-2/c#14
1-3/c#14 (LUM)
3-1/c#6 (GRD)
2"N.M.C.
1-6 SM/6 MM FIBER-OPTIC CABLE

MATCH LINE TO SOUTH

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CITIES OF ANDOVER, ANOKA

TRAFFIC CONTROL INTERCONNECT
INTERSECTION LAYOUT
CSAH 7 AT CSAH 116

FILE NO.
HAKAN 165435
SIGNAL SHEET
12 OF 13

S12
S13

