MINNESOTA DEPARTMENT OF TRANSPORTATION
ANOKA COUNTY

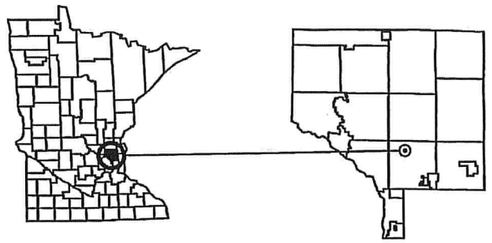
CONSTRUCTION PLAN FOR GRADING, AGG. BASE, BITUMINOUS SURFACING, DRAINAGE, CURB & GUTTER AND SIGNAGE

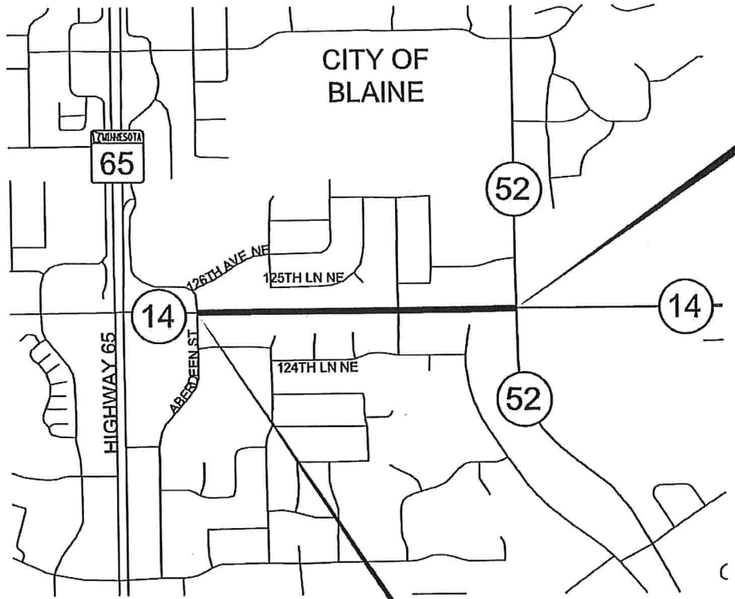
LOCATED ON CSAH 14 BETWEEN ABERDEEN ST NE AND CSAH 52

STATE PROJ. NO. 002-614-041, 106-020-036

C.S.A.H. 14

GROSS LENGTH	3075.93 FEET	0.583 MILES
BRIDGES-LENGTH	0.00 FEET	0.000 MILES
EXCEPTIONS-LENGTH	0.00 FEET	0.000 MILES
NET LENGTH	3075.93 FEET	0.583 MILES





END SAP 002-614-041
SAP 106-020-036
EB CSAH 14 STA. 276+12.00

BEGIN SAP 002-614-041
SAP 106-020-036
EB CSAH 14 STA. 245+36.07

PROJECT LOCATION
CITY OF BLAINE
ANOKA COUNTY
MN/DOT DISTRICT - METRO
SECTION 4, 5, 8, 9
TOWNSHIP 31 NORTH
RANGE 23 WEST

UTILITY QUALITY LEVEL NOTE:

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

PLAN SYMBOLS

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

UTILITY SYMBOLS

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

SCALES

PLAN 0' 100'
PROFILE HORIZONTAL 0' 100'
VERTICAL 0' 10'
X-SECTIONS HORIZONTAL 0' 10'
VERTICAL 0' 10'
INDEX MAP 0' 1500'

DESIGN DESIGNATION (TRAIL)

DESIGN SPEED 20 MPH
STOPPING SIGHT DISTANCE BASED ON:
HEIGHT OF EYE 4.5' HEIGHT OF OBJECT 0.0'
DESIGN SPEED NOT ACHIEVED AT :
STA. _____ TO STA. _____ MPH _____

DESIGN DESIGNATION (CSAH 14)

ESAL 20 2,084,000
R VALUE 51
ADT (2020) 22070
PROJ. ADT (2040) 28560
PROJ. HCADT (2040) 1020
SOIL FACTOR NA
10 TON DESIGN

FUNCTIONAL CLASSIFICATION PRINCIPAL ARTERIAL
NO. OF TRAFFIC LANES 4 NO. OF PARKING LANES 0
DESIGN SPEED 50 MPH
STOPPING SIGHT DISTANCE BASED ON:
HEIGHT OF EYE 3.5' HEIGHT OF OBJECT 2.0'
DESIGN SPEED NOT ACHIEVED AT :
STA. _____ TO STA. _____ MPH _____

GOVERNING SPECIFICATIONS

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

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

INDEX

THIS PLAN CONTAINS 200 SHEETS

APPROVED _____ DATE 12-27-19
ANOKA COUNTY ENGINEER

APPROVED _____ DATE 12.31.19
CITY OF BLAINE ENGINEER

_____ DATE 1-7-20
DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE AID RULES/POLICY

FOR _____ DATE 1-7-20
STATE AID ENGINEER: APPROVED FOR STATE AID FUNDING

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_TSH.dgn 12/10/2019 1:05:30 PM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINT NAME: JORGE R. BERNAL DELGADO
SIGNATURE: _____
DATE: 12-19-19 LICENSE NO. 57216

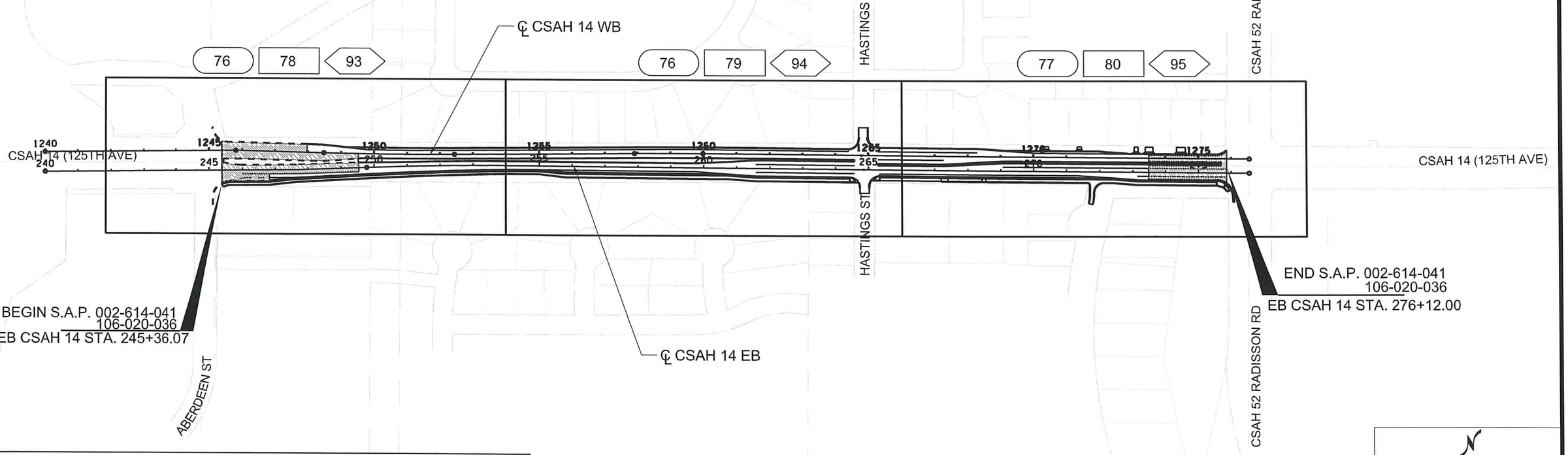
DRAWN BY MP DATE 12/04/19
DESIGN BY JRB DATE 12/04/19
CHECKED BY NJD DATE 12/04/19

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

TITLE SHEET

Sheet 1 of 200 Sheets



LEGEND

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

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_GL.dgn 12/10/2019 1:05:32 PM

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ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

GENERAL LAYOUT

STA XX+XX.XX TO XX+XX.XX

Sheet 2 of 200 Sheets

STATEMENT OF ESTIMATED QUANTITIES

TAB / NOTE	ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL PROJECT QUANTITIES ESTIMATED	ANOKA COUNTY SAP 002-614-041 ROADWAY QUANTITIES ESTIMATED	CITY OF BLAINE SAP 106-020-036 ROADWAY QUANTITIES ESTIMATED	SAP 002-614-041 SAP 106-020-036 DRAINAGE QUANTITIES ESTIMATED
	2011.601	VIBRATION MONITORING	LUMP SUM	1	1		
	2021.501	MOBILIZATION	LUMP SUM	1	0.822	0.052	0.126
	2031.502	FIELD OFFICE TYPE D	EACH	1	0.822	0.052	0.126
A	2101.505	CLEARING	ACRE	0.8	0.8		
A	2101.505	GRUBBING	ACRE	0.8	0.8		
A	2101.524	CLEARING	TREE	42	42		
A	2101.524	GRUBBING	TREE	48	48		
K	2102.503	PAVEMENT MARKING REMOVAL	LIN FT	33787	33787		
K	2102.518	PAVEMENT MARKING REMOVAL	SQ FT	1020	1020		
D	2104.502	REMOVE DRAINAGE STRUCTURE	EACH	16	16		
D	2104.502	REMOVE PIPE APRON	EACH	9	9		
I	2104.502	REMOVE SIGN TYPE C	EACH	22	22		
I	2104.502	REMOVE SIGN TYPE D	EACH	2	2		
X	2104.502	REMOVE HANDHOLE	EACH	7	7		
I	2104.502	SALVAGE SIGN TYPE C	EACH	2	2		
I	2104.502	SALVAGE SIGN TYPE SPECIAL	EACH	2	2		
B / C	2104.503	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	677	677		
D, [1]	2104.503	REMOVE PIPE CULVERTS	LIN FT	250	250		
D	2104.503	REMOVE SEWER PIPE (STORM)	LIN FT	1773	1773		
B	2104.503	REMOVE CURB & GUTTER	LIN FT	4279	4279		
B	2104.503	REMOVE BITUMINOUS CURB	LIN FT	196	196		
C	2104.504	REMOVE CONCRETE DRIVEWAY PAVEMENT	SQ YD	45	45		
C	2104.504	REMOVE BITUMINOUS DRIVEWAY PAVEMENT	SQ YD	387	387		
B	2104.504	REMOVE BITUMINOUS PAVEMENT	SQ YD	17184	17184		
[11]	2104.507	REMOVE RIPRAP	CU YD	18	18		
B	2104.518	REMOVE CONCRETE MEDIAN	SQ FT	4625	4625		
[8]	2104.602	REMOVE MISCELLANEOUS STRUCTURES	EACH	2	2		
DD	2105.507	COMMON EXCAVATION (P)	CU YD	7765	7765		
DD	2105.507	MUCK EXCAVATION	CU YD	4531	4531		
DD	2105.507	SUBGRADE EXCAVATION (P)	CU YD	7098	7098		
DD	2105.507	CHANNEL AND POND EXCAVATION	CU YD	2672	2672		
DD	2105.507	GRANULAR BORROW (LV)	CU YD	5649	5649		
DD	2105.507	SELECT GRANULAR BORROW (LV)	CU YD	2363	2363		
	2105.601	DEWATERING	LUMP SUM	1	1		
DD	2105.607	COMMON BORROW SPECIAL (CV)	CU YD	1062	1062		
G	2112.603	SHOULDER PREPARATION	LIN FT	1142	1142		
[2]	2123.510	DOZER	HOUR	12	12		
[13]	2123.610	STREET SWEEPER (WITH PICKUP BROOM)	HOUR	12	12		
[3]	2130.523	WATER	M GALLON	30	30		
C / G, [4]	2211.507	AGGREGATE BASE (CV) CLASS 5 (P)	CU YD	4987	4583	404	
G	2232.504	MILL BITUMINOUS SURFACE (2.0")	SQ YD	5207	5207		
G	2357.506	BITUMINOUS MATERIAL FOR TACK COAT (P)	GAL	2184	2184		
C / G	2360.509	TYPE SP 9.5 WEARING COURSE MIXTURE (2,B)	TON	709	135	574	
G	2360.509	TYPE SP 12.5 BITUMINOUS MIXTURE FOR PATCHING	TON	220	220		
G, [5]	2360.509	TYPE SP 12.5 NON WEARING COURSE MIXTURE (3,B)	TON	2215	2215		
G	2360.509	TYPE SP 12.5 WEARING COURSE MIXTURE (3,F)	TON	5285	5285		
[9]	2411.618	MODULAR BLOCK RETAINING WALL	SQ FT	529	529		
	2451.507	COARSE AGGREGATE BEDDING (CV)	CU YD	77			77
BB	2451.607	MEDIUM FILTER AGGREGATE (CV)	CU YD	182			182

NOTES:

[1] INCLUDES ALL PIPE AND APRON TYPES/MATERIALS.
[2] SHALL BE USED FOR SLOPE SHAPING AND MISCELLANOUS GRADING ACTIVITIES AS DIRECTED BY ENGINEER.
[3] WATER TO BE USED ONLY FOR DUST CONTROL AS DIRECTED BY ENGINEER IN THE FIELD.
WATER USED FOR COMPACTION AND TURF ESTABLISHMENT SHALL BE INCIDENTAL.
[4] INCLUDES ROAD, TRAIL AND DRIVEWAY QUANTITIES.
[5] INCLUDES TRAIL AND DRIVEWAY QUANTITIES.
[6] CONCRETE NOSE DESIGN SPECIAL PAID FOR AS 6" CONCRETE WALK.
[7] CONTRACTOR SHALL PROVIDE CONSTRUCTION EXIT PLAN SHOWING ALL EXIT LOCATIONS FOR REVIEW AND APPROVAL BY THE ENGINEER.
[8] TO BE USED AT THE ENGINEER'S DIRECTION. INCLUDES REMOVAL OF SIGN, BOULDERS, MISC. LANDSCAPING. SEE REMOVALS SHEET 76 FOR LOCATIONS.
[9] SEE SHEETS 88 AND 89 FOR TABULATION AND DETAILS.
[10] SEE STAGE 1A AND STAGE 2 SHEETS FOR LOCATION DETAILS.
[11] SEE REMOVAL PLAN SHEET 77 FOR LOCATION.
[12] TO BE PERFORMED AT THE ENGINEER'S DIRECTION. SEE REMOVAL PLAN SHEET 77 FOR LOCATION.
[13] TO BE USED AT THE ENGINEER'S DIRECTION.
[14] INCLUDES 4" WHITE, 4" YELLOW AND 6" SOLID LINE CROSSWALK.
(P) PLAN QUANTITY.

NO	DATE	BY	CKD	APPR	REVISION
1	01/06/2020	MP	JB		REVISED PER MnDOT S.A. COMMENTS
2	01/14/2020	MP	JB		ADDED SEQ ITEMS
3	01/24/2020	JB	JB		UPDATED 2360.509 TO TYPE SP 9.5 WEARING COURSE MIX (2,B)
3	01/24/2020	JB	JB		ADDED 2112.603 SHOULDER PREPARATION

NAME: P:\002-614-041\Plan\002-614-041_TAB_P1.dgn 01/30/2020 8:45:33 AM

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PRINT NAME: JORGE R. BERNAL DELGADO
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CHECKED BY NJD DATE 12/04/19

ANOKA COUNTY
HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

STATEMENT OF ESTIMATED QUANTITIES

Sheet 3 of 200 Sheets

STATEMENT OF ESTIMATED QUANTITIES

TAB / NOTE	ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL PROJECT QUANTITIES ESTIMATED	ANOKA COUNTY SAP 002-614-041 ROADWAY QUANTITIES ESTIMATED	CITY OF BLAINE SAP 106-020-036 ROADWAY QUANTITIES ESTIMATED	SAP 002-614-041 SAP 106-020-036 DRAINAGE QUANTITIES ESTIMATED
P	2501.502	18" CS PIPE APRON	EACH	1			1
N	2501.502	15" RC PIPE APRON	EACH	2			2
N	2501.502	18" RC PIPE APRON	EACH	3			3
N / P	2501.502	21" RC PIPE APRON	EACH	2			2
N	2501.502	36" RC PIPE APRON	EACH	1			1
N	2502.503	8" TP PIPE DRAIN	LIN FT	40	40		
N	2502.503	8" PERF TP PIPE DRAIN (MOD)	LIN FT	792	792		
N	2503.503	15" RC PIPE SEWER CLASS V	LIN FT	835			835
N	2503.503	18" RC PIPE SEWER CLASS III	LIN FT	645			645
N	2503.503	21" RC PIPE SEWER CLASS III	LIN FT	145			145
N	2503.503	24" RC PIPE SEWER CLASS III	LIN FT	185			185
N	2503.503	27" RC PIPE SEWER CLASS III	LIN FT	282			282
N	2503.503	30" RC PIPE SEWER CLASS III	LIN FT	300			300
N	2503.503	33" RC PIPE SEWER CLASS III	LIN FT	499			499
N	2503.503	36" RC PIPE SEWER CLASS III	LIN FT	69			69
Q	2503.602	CONNECT TO EXISTING STORM SEWER	EACH	3			3
[12]	2503.603	CLEAN PIPE SEWER	LIN FT	180	180		
W	2504.602	ADJUST HYDRANT	EACH	3		3	
W	2504.602	ADJUST GATE VALVE AND BOX	EACH	6		6	
W	2504.602	ADJUST CURB STOP	EACH	1		1	
E / O / Q	2506.502	CASTING ASSEMBLY	EACH	50		4	46
E	2506.502	ADJUST FRAME & RING CASTING	EACH	8	2	6	
Q	2506.503	CONSTRUCT DRAINAGE STRUCTURE DESIGN G OR H	LIN FT	8.8			8.8
N	2506.503	CONSTRUCT DRAINAGE STRUCTURE DESIGN H	LIN FT	36.9			36.9
N	2506.503	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48-4020	LIN FT	99.8			99.8
N	2506.503	CONSTRUCT DRAINAGE STRUCTURE DESIGN 54-4020	LIN FT	15.4			15.4
N	2506.503	CONSTRUCT DRAINAGE STRUCTURE DESIGN 60-4020	LIN FT	25.5			25.5
N	2506.503	CONSTRUCT DRAINAGE STRUCTURE DESIGN 78-4020	LIN FT	5.4			5.4
E	2506.503	RECONSTRUCT DRAINAGE STRUCTURE	LIN FT	19.6		19.6	
Q	2506.603	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL	LIN FT	6.1			6.1
N / P	2511.504	GEOTEXTILE FILTER TYPE 3	SQ YD	83	83		
N / P	2511.509	RANDOM RIPRAP CLASS II	TON	51	51		
F	2521.518	4" CONCRETE WALK	SQ FT	18986	18986		
F, [6]	2521.518	6" CONCRETE WALK	SQ FT	1506	1074	432	
F	2531.503	CONCRETE CURB & GUTTER DESIGN B424	LIN FT	6247	3124	3124	
F	2531.503	CONCRETE CURB & GUTTER DESIGN D412	LIN FT	92		92	
C	2531.504	6" CONCRETE DRIVEWAY PAVEMENT	SQ YD	54	54		
F	2531.603	CONCRETE CURB & GUTTER DESIGN B418 (MOD)	LIN FT	5067	5067		
F	2531.618	TRUNCATED DOMES	SQ FT	84		84	
Y [10]	2533.503	PORTABLE PRECAST CONCRETE BARRIER DESIGN 8337	LIN FT	3000	3000		
C	2540.602	MAILBOX SUPPORT	EACH	7	7		
C	2540.602	RELOCATE MAIL BOX SUPPORT	EACH	5	5		
X	2550.602	PULL VAULT	EACH	3	3		
X	2550.603	REMOVE CONDUIT	LIN FT	3600	3600		
Y [10]	2554.615	IMPACT ATTENUATOR	ASSEMBLY	12	12		
	2563.601	TRAFFIC CONTROL SUPERVISOR	LUMP SUM	1	0.821	0.052	0.127
	2563.601	TRAFFIC CONTROL (STAGE 1)	LUMP SUM	1	0.821	0.052	0.127
	2563.601	TRAFFIC CONTROL (STAGE 2)	LUMP SUM	1	0.821	0.052	0.127
	2563.601	TRAFFIC CONTROL (STAGE 3)	LUMP SUM	1	0.821	0.052	0.127

NOTES:

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WATER USED FOR COMPACTION AND TURF ESTABLISHMENT SHALL BE INCIDENTAL.
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(P) PLAN QUANTITY.

NO	DATE	BY	CKD	APPR	REVISION
1	01/06/2020	MP	JB		REVISED PER MnDOT S.A. COMMENTS
2	01/14/2020	MP	JB		ADDED SEQ ITEMS

NAME: P:\002-614-041\Plan\002-614-041_TAB_P1.dgn 01/14/2020 9:46:04 AM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINT NAME: JORGE R. BERNAL DELGADO
SIGNATURE:
DATE: 1-14-20 LICENSE NO. 57216

DRAWN BY MP DATE 12/04/19
DESIGN BY JRB DATE 12/04/19
CHECKED BY NJD DATE 12/04/19

ANOKA COUNTY
HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

STATEMENT OF ESTIMATED QUANTITIES

STATEMENT OF ESTIMATED QUANTITIES

TAB / NOTE	ITEM NO.	ITEM DESCRIPTION	UNIT	TOTAL PROJECT QUANTITIES ESTIMATED	ANOKA COUNTY SAP 002-614-041 ROADWAY QUANTITIES ESTIMATED	CITY OF BLAINE SAP 106-020-036 ROADWAY QUANTITIES ESTIMATED	SAP 002-614-041 SAP 106-020-036 DRAINAGE QUANTITIES ESTIMATED
	2563.601	TRAFFIC CONTROL (STAGE 4)	LUMP SUM	1	0.821	0.052	0.127
	2563.601	TRAFFIC CONTROL (STAGE 5)	LUMP SUM	1	0.821	0.052	0.127
	2563.601	TRAFFIC CONTROL (STAGE 6)	LUMP SUM	1	0.821	0.052	0.127
K	2563.602	RAISED PAVEMENT MARKER TEMPORARY	EACH	1294	1294		
K	2563.602	PORTABLE CONCRETE BARRIER DELINEATOR	EACH	250	250		
	2563.610	FLAGGER	HOUR	40	40		
	2563.610	POLICE OFFICER	HOUR	40	40		
K	2563.613	PORTABLE CHANGEABLE MESSAGE SIGN	UNIT DAY	20	20		
I	2564.502	INSTALL SIGN TYPE C	EACH	2	2		
M	2564.518	SIGN PANELS TYPE C	SQ FT	164	164		
M	2564.518	SIGN PANELS TYPE D	SQ FT	25	25		
I	2564.602	INSTALL SIGN TYPE SPECIAL	EACH	2	2		
X	2565.501	TRAFFIC CONTROL INTERCONNECT	LUMP SUM	1	1		
X	2565.602	HANDHOLE	EACH	3	3		
X	2565.602	ADJUST HANDHOLE	EACH	9	9		
X	2565.602	RIGID PVC LOOP DETECTOR 6'X6'	EACH	10	10		
X	2565.603	1.5" NON-METALLIC CONDUIT	LIN FT	3100	3100		
X	2565.603	2" NON-METALLIC CONDUIT	LIN FT	620	620		
X	2565.603	2/C 14 AWG LOOP LEAD-IN	LIN FT	1100	1100		
X	2565.616	TEMPORARY SIGNAL SYSTEM A	SYSTEM	1	1		
X	2565.616	TEMPORARY SIGNAL SYSTEM B	SYSTEM	1	1		
[7]	2573.501	STABILIZED CONSTRUCTION EXIT	LUMP SUM	1	1		
	2573.501	EROSION CONTROL SUPERVISOR	LUMP SUM	1	1		
H	2573.502	STORM DRAIN INLET PROTECTION	EACH	62	62		
H	2573.502	CULVERT END CONTROLS	EACH	4	4		
H	2573.503	SILT FENCE, TYPE MS	LIN FT	1968	1968		
H	2573.503	SEDIMENT CONTROL LOG TYPE WOOD FIBER	LIN FT	30	30		
DD	2574.507	FILTER TOPSOIL BORROW	CU YD	182	182		
H	2574.508	FERTILIZER TYPE 3	POUND	528	528		
H	2574.508	FERTILIZER TYPE 4	POUND	111	111		
H	2575.504	EROSION CONTROL BLANKETS CATEGORY 0	SQ YD	8142	8142		
H	2575.504	EROSION CONTROL BLANKETS CATEGORY 3N	SQ YD	2744	2744		
H	2575.505	SEEDING	ACRE	2.5	2.5		
H	2575.508	SEED MIXTURE 25-121	POUND	74	74		
H	2575.508	SEED MIXTURE 25-151	POUND	35	35		
H	2575.508	SEED MIXTURE 33-261	POUND	6	6		
H	2575.508	SEED MIXTURE 35-241	POUND	21	21		
H	2575.523	RAPID STABILIZATION METHOD 3	M GALLON	13.8	13.8		
K [14]	2581.503	REMOVABLE PREFORM PAVEMENT MARKING TAPE	LIN FT	11916	11916		
K	2581.603	REMOVABLE PREFORM PLASTIC MASK (BLACK)	LIN FT	1649	1649		
K	2582.503	4" SOLID LINE PAINT	LIN FT	46529	46529		
K	2582.503	24" SOLID LINE PAINT	LIN FT	11	11		
K	2582.503	4" BROKEN LINE PAINT	LIN FT	1760	1760		
K	2582.503	4" DOUBLE SOLID LINE PAINT	LIN FT	4549	4549		
L	2582.503	4" SOLID LINE MULTI-COMPONENT	LIN FT	14275	14275		
L	2582.503	4" BROKEN LINE MULTI-COMPONENT	LIN FT	1220	1220		
L	2582.503	8" DOTTED LINE MULTI-COMPONENT	LIN FT	39	39		
L	2582.518	PAVEMENT MESSAGE PREFORM THERMOPLASTIC	SQ FT	140	140		
L	2582.518	CROSSWALK PREFORM THERMOPLASTIC	SQ FT	1584	1584		
L	2582.618	PAVEMENT MARKING SPECIAL	SQ FT	900	900		

NOTES:

[1] INCLUDES ALL PIPE AND APRON TYPES/MATERIALS.
[2] SHALL BE USED FOR SLOPE SHAPING AND MISCELLANOUS GRADING ACTIVITIES AS DIRECTED BY ENGINEER.
[3] WATER TO BE USED ONLY FOR DUST CONTROL AS DIRECTED BY ENGINEER IN THE FIELD.
WATER USED FOR COMPACTION AND TURF ESTABLISHMENT SHALL BE INCIDENTAL.
[4] INCLUDES ROAD, TRAIL AND DRIVEWAY QUANTITIES.
[5] INCLUDES TRAIL AND DRIVEWAY QUANTITIES.
[6] CONCRETE NOSE DESIGN SPECIAL PAID FOR AS 6" CONCRETE WALK.
[7] CONTRACTOR SHALL PROVIDE CONSTRUCTION EXIT PLAN SHOWING ALL EXIT LOCATIONS FOR REVIEW AND APPROVAL BY THE ENGINEER.
[8] TO BE USED AT THE ENGINEER'S DIRECTION. INCLUDES REMOVAL OF SIGN, BOULDERS, MISC. LANDSCAPING. SEE REMOVALS SHEET 76 FOR LOCATIONS.
[9] SEE SHEETS 88 AND 89 FOR TABULATION AND DETAILS.
[10] SEE STAGE 1A AND STAGE 2 SHEETS FOR LOCATION DETAILS.
[11] SEE REMOVAL PLAN SHEET 77 FOR LOCATION.
[12] TO BE PERFORMED AT THE ENGINEER'S DIRECTION. SEE REMOVAL PLAN SHEET 77 FOR LOCATION.
[13] TO BE USED AT THE ENGINEER'S DIRECTION.
[14] INCLUDES 4" WHITE, 4" YELLOW AND 6" SOLID LINE CROSSWALK.
(P) PLAN QUANTITY.

NO	DATE	BY	CKD	APPR	REVISION
1	01/06/2020	MP	JB		REVISED PER MnDOT S.A. COMMENTS
2	01/14/2020	MP	JB		ADDED SEQ ITEMS

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PRINT NAME: JORGE R. BERNAL DELGADO
SIGNATURE:
DATE: 1-14-20 LICENSE NO. 57216

DRAWN BY MP DATE 12/04/19
DESIGN BY JRB DATE 12/04/19
CHECKED BY NJD DATE 12/04/19

ANOKA COUNTY
HIGHWAY DEPT.

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CP 18-10

STATEMENT OF ESTIMATED QUANTITIES

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

STANDARD PLATES

PLATE NO.	DESCRIPTION
3000L	REINFORCED CONCRETE PIPE (5 SHEETS)
3006G	GASKET JOINT FOR R.C. PIPE (2 SHEETS)
3007E	SHEAR REINFORCEMENT FOR PRECAST DRAINAGE STRUCTURES
3022C	PRECAST CONCRETE SAFETY APRON (3 SHEETS)
3040F	CORRUGATED METAL PIPE CULVERT
3100G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3123J	METAL APRON FOR C.S. PIPE
3133D	RIPRAP AT RCP OUTLETS
3134D	RIPRAP AT CSP OUTLETS
3145G	CONCRETE PIPE OR PRECAST BOX CULVERT TIES
4005M	MANHOLE OR CATCH BASIN TYPE A & B CONE SECTIONS PRECAST - DESIGN F
4006L	MANHOLE OR CATCH BASIN PRECAST - DESIGNS G AND H
4010H	CONCRETE SHORT CONE & ADJUSTING RING (SECTIONAL CONCRETE)
4011E	PRECAST CONCRETE BASE
4018A	MANHOLE OR CATCH BASIN (REDUCER CONE SECTION PRECAST) - DESIGN D
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
4125D	CATCH BASIN FRAME CASTING (FOR SQUARE GRATE) – CASTING NO. 806
4134A	CURB BOX CASTING FOR CATCH BASIN (FOR DESIGN B CURBS)- CASTING NO. 825
4143E	STOOL GRATE & CONCRETE FRAME (MEDIAN DRAINS) - CASTING NO. 731
4154B	CATCH BASIN GRATE CASTING - CASTING NO. 816
4180J	MANHOLE OR CATCH BASIN STEP
7038A	DETECTABLE WARNING SURFACE TRUNCATED DOMES
7100H	CONCRETE CURB AND GUTTER (DESIGN B and DESIGN V)
7102K	CONCRETE CURB AND GUTTER (DESIGN D, DESIGN S, AND DESIGN R)
7111J	INSTALLATION OF CATCH BASIN CASTINGS (CONCRETE CURB AND GUTTER)
7113A	CONCRETE APPROACH NOSE DETAIL
8000J	CHANNELIZERS
8150C	INSTALLATION OF CULVERT MARKERS
8337C	TEMPORARY PORTABLE PRECAST CONCRETE BARRIER (TYPE "F") (3 SHEETS)
9000E	APPROACHES AND ENTRANCES - RECOMMENDED STANDARDS
9350A	MAILBOX SUPPORT (SWING-AWAY TYPE)

BASIS OF QUANTITIES

SPEC NO	DESCRIPTION	RATE
2357	BITUMINOUS MATERIAL FOR TACK COAT	0.05 GAL / SQ YD / LIFT
2360	TYPE SP12.5 WEARING COURSE MIXTURE	115 LBS / SQ YD / IN
2360	TYPE SP12.5 NON-WEARING COURSE MIXTURE	115 LBS / SQ YD / IN
2574	FERTILIZER TYPE 3	350 LBS / ACRE
2574	FERTILIZER TYPE 4	150 LBS/ACRE
2575	SEED MIXTURE 25-121	61 LBS / ACRE
2575	SEED MIXTURE 25-151	120 LBS / ACRE
2575	SEED MIXTURE 33-261	35 LBS / ACRE
2575	SEED MIXTURE 35-241	36.5 LBS / ACRE
2575	RAPID STABILIZATION METHOD 3	6 M GALLONS / ACRE

INDEX OF TABULATION CHARTS

NO	DATE	BY	CKD	APPR	REVISION

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STANDARD PLATES
BASIS OF QUANTITIES
INDEX OF TABULATIONS

Sheet 6 of 200 Sheets

EARTHWORK SUMMARY — AA

STATION	EXCAVATION TOTALS			EMBANKMENT VOLUMES			
	COMMON	SUBGRADE	MUCK	TOPSOIL	SUITABLE GRADING	SELECT GRANULAR	MUCK
	CY	CY	CY	CY	CY	CY	CY
CSAH 14							
245+50.00							
246+00.00	16			2	11		
246+50.00	14			2	16		
247+00.00	15			3	12		
247+50.00	12			3	9		
248+00.00	17			4	10		
248+50.00	44	38		3	11	38	
249+00.00	64	71		3	13	71	
249+50.00	107	109		2	15	109	
250+00.00	143	148		2	16	148	
250+50.00	133	143		2	16	143	
251+00.00	120	140		4	15	140	
251+50.00	122	139		6	15	139	
252+00.00	138	137		8	14	137	
252+50.00	147	135		7	13	135	
253+00.00	153	134		6	13	134	
253+50.00	152	132		6	13	132	
254+00.00	143	130		7	13	130	
254+50.00	125	129		8	14	129	
255+00.00	102	129		9	15	129	
255+50.00	91	124		9	16	132	
256+00.00	89	116		10	21	138	
256+50.00	84	112		11	27	140	
257+00.00	80	112		10	33	140	
257+50.00	83	113		10	46	140	
258+00.00	91	113		10	60	140	
258+50.00	99	111		10	69	140	
259+00.00	91	104		8	80	140	
259+50.00	83	101		6	93	140	
260+00.00	84	104		5	101	141	
260+50.00	88	109		5	100	145	
261+00.00	95	114		4	109	152	
261+50.00	101	120		4	117	162	
262+00.00	110	128		5	100	169	
262+50.00	114	136		6	65	170	
263+00.00	169	155		6	30	170	
263+50.00	246	170		6	14	170	
264+00.00	270	170		7	13	170	
264+50.00	217	171		7	15	172	
265+00.00	229	225		7	10	226	
265+50.00	223	224		7	10	224	
266+00.00	145	165		6	20	170	
SUBTOTAL (A)	**4,649**	**4,711**		**246**	**1,403**	**5,205**	

EARTHWORK SUMMARY — AA

STATION	EXCAVATION TOTALS			EMBANKMENT VOLUMES			
	COMMON	SUBGRADE	MUCK	TOPSOIL	SUITABLE GRADING	SELECT GRANULAR	MUCK
	CY	CY	CY	CY	CY	CY	CY
CSAH 14							
266+50.00	124	161		6	26	170	
267+00.00	96	151		6	30	170	
267+50.00	99	143		4	29	170	
268+00.00	99	142		4	29	170	
268+50.00	100	154		5	27	169	
269+00.00	106	156		5	58	165	
269+50.00	110	150	460	6	85	161	444
270+00.00	132	153	914	8	68	161	879
270+50.00	149	154	908	11	54	161	870
271+00.00	150	156	904	12	40	161	867
271+50.00	140	158	898	12	30	161	858
272+00.00	234	160	447	8	54	160	427
272+50.00	326	157		8	84	157	
273+00.00	323	155		10	64	155	
273+50.00	326	158		9	38	158	
274+00.00	246	79		9	32	79	
274+50.00	145			9	40		
275+00.00	100			8	49		
275+50.00	89			9	37		
275+70.62	22			4	5		
SUBTOTAL (B)	**3,116**	**2,387**	**4,531**	**153**	**879**	**2,528**	**4,345**
PROJECT TOTAL	**7,765**	**7,098**	**4,531**	**399**	**2,282**	**7,733**	**4,345**

EARTHWORK TABULATION TOTAL — CC

	EXCAVATION TOTALS			EMBANKMENT VOLUMES			
	COMMON	SUBGRADE	MUCK	TOPSOIL	SUITABLE GRADING	SELECT GRANULAR	MUCK GRANULAR FILL
	CY	CY	CY	CY	CY	CY	CY
PROJECT TOTAL	**7,765**	**7,098**	**4,531**	**399**	**2,282**	**7,733**	**4,345**

POND EXCAVATION SUMMARY — BB

	CHANNEL AND POND EXCAVATION	TOPSOIL	SUITABLE GRADING	CLAY LINER	FILTER TOPSOIL	MEDIUM FILTER AGGREGATE
	CY	CY	CY	CY	CY	CY
POND 100	**2,672**	**127**	**396**	**1,062**	**15**	**182**

NO	DATE	BY	CKD	APPR	REVISION

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EARTHWORK SUMMARY

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DD

EARTHWORK BALANCE

AVAILABLE EXCAVATION (CY)

[1]	COMMON EXCAVATION	7,765	[5]	COMMON EXCAVATION	6,023	(EV) /	1.2	=	5,019	(CV)
			[6]	EXISTING TOPSOIL	1,742	(EV) /	1.1	=	1,584	(CV)
[2]	MUCK EXCAVATION	4,531		MUCK EXCAVATION	4,531	(EV)/	1.1	=	4,119	(CV)
[3]	SUBGRADE EXCAVATION	7,098		SUBGRADE EXCAVATION	7,098	(EV)/	1.2	=	5,915	(CV)
[4]	CHANNEL AND POND EXCAVATION	2,672	[7]	POND EXCAVATION	2,437	(EV) /	1.2	=	2,031	(CV)
			[8]	POND EXISTING TOPSOIL	235	(EV)/	1.1	=	214	(CV)

NEEDED EMBANKMENT (CY)

[9]	SUITABLE GRADING	2,678 (CV)	2,678 (CV)
[10]	TOPSOIL	511 (CV)	511 (CV)
[11]	FILTER TOPSOIL	15 (CV)	15 (CV)
[12]	SUBGRADE	7,733 (CV)	7,733 (CV)
[13]	MUCK GRANULAR FILL	4,345 (CV)	4,345 (CV)

EXCESS (CY)

	NEEDED		AVAILABLE			[14] EXCESS (CY)
TOPSOIL	511	CV)	- 1,797 (CV)	[6] + [8]	=	1,286 (CV)
SUITABLE GRADING	2,678	CV) [9] + [13	- 5,019 (CV)	[5]	=	2,341 (CV)
POND EXCVATION UNSUITABLE		(CV)	- 2,031 (CV)	[7]	=	2,031 (CV)

BORROW (CY)

POND	NEEDED		AVAILABLE					
CLAY LINER	1,062 (CV)	-	(CV)		=	1,062 X 1	1,062 [15]	COMMON BORROW SPECIAL (CV)
MEDIUM FILTER AGGREGATE	182 (CV)	-	(CV)		=	182 X 1	182 [16]	MEDIUM FILTER AGGREGATE (CV)
FILTER TOPSOIL	15 (CV)	-	(CV)		=	15 X 1	15 [17]	FILTER TOPSOIL BORROW (CV)
ROADWAY	**NEEDED**		**AVAILABLE**					
SELECT GRANULAR	7,733 (CV)	-	5,915 (CV)	[12] - [3]	=	1,818 X 1.3	2,363 [18]	SELECT GRANULAR BORROW (LV)
MUCK GRANULAR FILL	4,345 (CV)	-	(CV)	[13]	=	4,345 X 1.3	5,649 [19]	GRANULAR BORROW (LV)

[1)]TOTAL COMMON EXCAVATION FOR PROJECT (INCLUDING TOPSOIL). PAID FOR AS 2105.507 COMMON EXCAVATION.

[2] TOTAL MUCK EXCAVATION FOR PROJECT PAID FOR AS 2105.507 MUCK EXCAVATION.

[3] TOTAL SUBGRADE EXCAVATION FOR PROJECT PAID FOR AS 2105.507 SUBGRADE EXCAVATION. SUBGRADE EXCAVATION MATERIAL IS ASSUMED TO MEET REQUIREMENTS TO BE RE-USED AS SUBGRADE MATERIAL.

[4] TOTAL CHANNEL AND POND EXCAVATION FOR PROJECT PAID FOR AS 2105.507 CHANNEL AND POND EXCAVATION.

[5] WITH THE EXCEPTION OF TOPSOIL, IT IS ASSUMED THAT COMMON EXCAVATION WILL MEET REQUIREMENTS TO BE USED AS SUITABLE GRADING MATERIAL.

[6] FOR ESTIMATING PURPOSES THE DEPTH OF EXISTING TOPSOIL IS CONSIDERED TO BE 4 INCHES. CONTRACTOR SHALL VERIFY PRIOR TO PLACING BID.

[7] EXCESS POND EXCAVATION UNSUITABLE MATERIAL TO BE DISTRIBUTED WITHIN PROJECT CONSTRUCTION LIMITS AT ENGINEER'S DISCRETION. EXCESS MATERIAL NOT DISTRIBUTED SHALL BECOME PROPERTY OF CONTRACTOR, TO BE DISPOSED OF OFFSITE.

[8] FOR ESTIMATING PURPOSES, THE DEPTH OF THE POND EXISTING TOPSOIL IS CONSIDERED TO BE 4 INCHES. CONTRACTOR SHALL VERIFY PRIOR TO PLACING BID.

[9] SUITABLE GRADING QUANTITY INCLUDES ROADWAY EMBANKMENT AND POND GRADING QUANTITIES.

[10] TOPSOIL QUANTITY INCLUDES ROADWAY AND POND GRADING QUANTITIES, EXCLUDING FILTER TOPSOIL.

[11] FILTER TOPSOIL BORROW SHALL BE 12" DEPTH AND SHALL BE PLACED ABOVE A MINIMUM OF 2" MEDIUM FILTER AGGREGATE COVER OVER 8" PERF. TP PIPE DRAIN. SEE POND 100 GRADING SHEET AND SPECIAL PROVISIONS FOR DETAILS.

[12] SUBGRADE QUANTITY NEEDED BEFORE DEDUCTING SUBGRADE EXCAVATION MATERIAL ASSUMED TO BE RE-USED.

[13] MUCK GRANULAR FILL PAID FOR AS 2105.507 GRANULAR BORROW

[14] EXCESS TOPSOIL TO BE DISTRIBUTED WITHIN PROJECT CONSTRUCTION LIMITS AT ENGINEER'S DISCRETION. EXCESS TOPSOIL AND EXCESS GRANULAR MATERIAL NOT DISTRIBUTED SHALL BECOME PROPERTY OF CONTRACTOR, TO BE DISPOSED OF OFFSITE.

[15] QUANTITY FOR POND CLAY LINER. PAID FOR AS 2105.607 COMMON BORROW SPECIAL (CV). SEE POND 100 GRADING SHEET AND SPECIAL PROVISIONS FOR DETAILS.

[16] TOTAL MEDIUM FILTER AGGREGATE FOR PROJECT PAID FOR AS 2451.607 MEDIUM FILTER AGGREGATE (CV). SEE POND 100 GRADING SHEET AND SPECIAL PROVISIONS FOR DETAILS.

[17] TOTAL FILTER TOPSOIL BORROW FOR PROJECT PAID FOR AS 2574.507 FILTER TOPSOIL BORROW (CV). SEE POND 100 GRADING SHEET AND SPECIAL PROVISIONS FOR DETAILS.

[18] TOTAL SELECT GRANULAR BORROW FOR PROJECT PAID FOR AS 2105.507 SELECT GRANULAR BORROW (LV).

[19] TOTAL GRANULAR BORROW FOR PROJECT PAID FOR AS 2105.507 GRANULAR BORROW (LV)

NO	DATE	BY	CKD	APPR	REVISION

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EARTHWORK BALANCE

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1. TOP OF THE GRADING SUBGRADE (GRADING GRADE) IS DEFINED AS THE BOTTOM OF THE CLASS 5 AGGREGATE BASE LAYER.

2. BOTTOM OF THE SUBBASE GRADE SHALL BE DEFINED AS THE BOTTOM OF THE 1' SUBGRADE EXCAVATION (SEE X-SECTIONS FOR DETAILS).

3. SUITABLE GRADING MATERIAL ON THIS PROJECT SHALL CONSIST OF ALL GRANULAR AND FINER GRAINED SOILS ENCOUNTERED WITH THE EXCEPTION OF TOPSOIL, DEBRIS, PEAT, MUCK, ORGANIC MATERIAL AND OTHER UNSTABLE MATERIAL.

4. SELECT GRANULAR MATERIAL SHALL MEET THE REQUIREMENTS OF MnDOT SPEC. 3149.2B2.

5. ALL TOPSOIL STRIPPING WILL BE CONSIDERED TO BE COMMON EXCAVATION.
TOPSOIL SHALL BE DEFINED AS EXISTING SOILS WHICH MEET MnDOT SPEC. 3877 THAT WOULD BE SUITABLE FOR REUSE. STRIP ALL TOPSOIL AND INPLACE SLOPE DRESSING WHERE PRESENT IN AREAS TO BE DISTURBED BY CONSTRUCTION AND REUSE AS SLOPE DRESSING. FOR ESTIMATING PURPOSES, THE DEPTH OF TOPSOIL AVAILABLE IS CONSIDERED TO BE 4 INCHES. CONTRACTOR SHALL VERIFY PRIOR TO PLACING BID.

6. SUITABLE GRADING MATERIAL SHALL BE USED TO BACK FILL THE EMBANKMENT UNDER THE NEW ROADWAY CORE, UP TO THE BOTTOM OF THE GRADING SUBGRADE.

7. SLOPE DRESSING ON THE PROJECT IS DEFINED AS THE TOPSOIL OR OTHER SOIL PLACED DURING PREVIOUS CONSTRUCTION TO PROVIDE A MEDIUM FOR ESTABLISHING TURF.

8. UNSUITABLE SOILS ARE DEFINED AS SOILS WHICH DO NOT MEET OR ARE NOT MANUFACTURED TO MEET ANY OF THE ABOVE DEFINED CATEGORIES, AND ARE THEREFORE NOT REUSABLE AS STRUCTURAL BACKFILL OR EMBANKMENT WITHIN THE ROADWAY CORE.

9. SUITABLE GRADING MATERIAL OBTAINED FROM COMMON EXCAVATION NOT MEETING THE REQUIREMENTS OF MnDOT SPEC. 3149.2B1, SHALL BE USED OUTSIDE THE ROADWAY CORE ON THE PROJECT AS APPROVED BY THE ENGINEER.

10. UNSUITABLE MATERIALS ARE TOPSOILS, PAVEMENT OR CONCRETE DEBRIS, PEAT, MUCK AND ORGANIC OR OTHER UNSTABLE SOILS.

11. UNLESS OTHERWISE SPECIFICALLY ALLOWED OR REQUIRED BY THE CONTRACT, BITUMINOUS AND CONCRETE ITEMS DISTURBED BY CONSTRUCTION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE RECYCLED TO THE EXTENT ALLOWED IN BASE AND SURFACING ITEMS OR DISPOSED OF OUTSIDE THE RIGHT-OF-WAY IN ACCORDANCE WITH SPEC. 2104.3C3.

12. REGULAR EMBANKMENT SHALL BE DEFINED AS ALL GRADING MATERIALS THAT ARE APPROPRIATE FOR REUSE ON THE PROJECT BUT THAT MAY NOT MEET THE REQUIREMENTS OF SUITABLE GRADING MATERIALS. REGULAR EMBANKMENT MAY CONSIST OF GRADING SOILS NOT MEETING GRANULAR SPECIFICATIONS AND THEREFORE NOT SUITABLE FOR REUSE UNDER ROAD CORE.

13. WHERE CONNECTING TO THE INPLACE ROADWAYS AT THE TERMINI OF PROPOSED NEW CONSTRUCTION, CUT VERTICALLY TO THE BOTTOM OF THE INPLACE SURFACING OR TO THE BOTTOM OF THE NEW SURFACING DESIGN, WHICHEVER IS DEEPER, THEN AT A 1:20 TAPER TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION.

14. WHERE MATCHING INTO INPLACE CROSSROADS, CUT VERTICALLY TO THE BOTTOM OF THE INPLACE SURFACING OR TO THE BOTTOM OF NEW SURFACING DESIGN, WHICHEVER IS DEEPER, THEN AT A 1:4 TAPER TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION.

15. WHERE WIDENING ADJACENT TO EXISTING PAVEMENT, CUT VERTICALLY TO THE BOTTOM OF THE CLASS 5 AGGREGATE BASE AND THEN AT A 1V:1/2H SLOPE TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION (AS SHOWN ON THE TYPICAL SECTIONS AND THE CROSS SECTIONS). BACKFILL PROMPTLY TO AVOID UNDERMINING THE EXISTING PAVEMENT.

16. CONTRACTOR SHALL PROVIDE A FULL DEPTH SAWCUT WHERE PLACING NEW PAVEMENT ADJACENT TO INPLACE PAVEMENT TO ENSURE A UNIFORM JOINT. IF NO ITEM FOR THIS WORK IS SPECIFICALLY CALLED OUT, THEN THE WORK SHALL BE INCIDENTAL WITH NO DIRECT COMPENSATION.

18. CONTRACTOR SHALL PROVIDE A UNIFORM BITUMINOUS TACK COAT BETWEEN ALL BITUMINOUS LAYERS AND PRIOR TO PLACING ANY BITUMINOUS MIXTURES ON EXISTING PAVEMENT IN ACCORDANCE WITH SPEC. 2357.

19. EMBANKMENT QUANTITIES SHOWN ON THE EARTHWORK TABULATION REPRESENT ALL EARTHWORK QUANTITIES BELOW THE PROPOSED GRADING GRADE OF ALL PERMANENT ROADWAYS. QUANTITIES REQUIRED ABOVE THE GRADING GRADE ARE PROVIDED IN DETAIL ON THE BITUMINOUS SUMMARY TAB.

20. THE CONSTRUCTION LIMITS AS SHOWN IN THE PLANS REPRESENT THE POINT OF INTERSECTION BETWEEN THE REQUIRED FILL OR CUT SLOPE AND THE EXISTING GROUND LINE AS DEPICTED ON THE CROSS SECTIONS. THE CONSTRUCTION LIMITS DO NOT INCLUDE AREAS REQUIRED FOR SLOPE ROUNDING.

21. DITCH BOTTOMS, TOE OF FILL, CUT RUNOUTS AND THE TOP EDGE OF BACKSLOPES SHALL BE ROUNDED REGARDLESS OF THE SECTION USED ON THE CROSS SECTION SHEETS.

22. ANY DEBRIS WHICH MAY BE ENCOUNTERED DURING GRADING SHALL BE DISPOSED OF BY THE CONTRACTOR OFF THE PROJECT RIGHT OF WAY IN A SUITABLE DISPOSAL AREA AS APPROVED BY THE ENGINEER.

23. UNSUITABLE SOILS NOT USED ON THE PROJECT SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE PROJECT AND DISPOSED OF IN ACCORDANCE WITH MnDOT SPECIFICATIONS.

24. INPLACE BITUMINOUS PAVEMENT RANGES FROM 6" TO 10" THICK (AVERAGE 8"). FOR INFORMATION ONLY, CONTRACTOR MAY VERIFY PAVEMENT DEPTH PRIOR TO PLACING BID. NO WARRANTY IS MADE OR IMPLIED WITH THIS INFORMATION.

25. AGGREGATE BASE MATERIAL SHALL MEET THE REQUIREMENTS OF MnDOT SPEC. 3138, CLASS 5.

26. COMPACTION OF AGGREGATE BASE SHOULD BE IN ACCORDANCE WITH MnDOT "MODIFIED PENETRATION INDEX METHOD." COMPACTION OF SELECT GRANULAR MATERIAL SHOULD BE IN ACCORDANCE WITH MnDOT "SPECIFIED DENSITY METHOD."

27. COMPACTION OF THE MAINLINE BASE AND BINDER BITUMINOUS LIFTS SHALL BE BY THE "SPECIFIED DENSITY METHOD." COMPACTION OF MAINLINE WEAR AND ENTRANCES SHALL BE BY THE "QUALITY COMPACTION METHOD."

28. NO OVER-EXCAVATION WILL BE ALLOWED INSIDE THE COUNTY'S RIGHT OF WAY FOR THIS PROJECT.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_TAB_P1.dgn 12/17/2019 10:08:07 AM

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

PRINT NAME: JORGE R. BERNAL DELGADO

SIGNATURE:

DATE: 12-19-19 LICENSE NO. 57216

DRAWN BY MP DATE 12/04/19

DESIGN BY JRB DATE 12/04/19

CHECKED BY NJD DATE 12/04/19

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

SOILS AND CONSTRUCTION NOTES

CLEARING & GRUBBING SPEC (2101) — A

ALIGNMENT	STATION	OFFSET LEFT	OFFSET RIGHT	CLEARING	GRUBBING	CLEARING	GRUBBING	NOTES
		LIN FT	LIN FT	(TREE)	(TREE)	(ACRE)	(ACRE)	
<<14E_4>>	246+76		57	1	1			
<<14E_4>>	247+03		56	1	1			
<<14E_4>>	257+69		45	1	1			
<<14E_4>>	264+31		40	1	1			
<<14E_4>>	265+72		50	1	1			
<<14E_4>>	267+58		43	1	1			
<<14E_4>>	269+83		39	1	1			
<<14E_4>>	270+07		31	1	1			
<<14E_4>>	270+37		34	1	1			
<<14E_4>>	270+61		35	1	1			
<<14E_4>>	270+99		33	1	1			
<<14E_4>>	271+28		38	1	1			
<<14E_4>>	274+62		64			0.8	0.8	
<<14W_4>>	1260+82	29		1	1			
<<14W_4>>	1262+06	31		1	1			
<<14W_4>>	1262+09	31		1	1			
<<14W_4>>	1263+24	33		1	1			
<<14W_4>>	1263+27	35		1	1			
<<14W_4>>	1263+44	31		1	1			
<<14W_4>>	1263+51	23		1	1			
<<14W_4>>	1263+59	25		1	2			
<<14W_4>>	1263+69	23		1	1			
<<14W_4>>	1264+24	21		1	3			
<<14W_4>>	1265+11	53		1	1			
<<14W_4>>	1265+13	46		1	1			
<<14W_4>>	1265+13	54		1	1			
<<14W_4>>	1265+15	45		1	1			
<<14W_4>>	1265+19	41		1	1			
<<14W_4>>	1266+23	34		1	1			
<<14W_4>>	1266+33	36		1	1			
<<14W_4>>	1266+38	35		1	1			
<<14W_4>>	1266+71	33		0	1			
<<14W_4>>	1266+75	31		0	1			
<<14W_4>>	1266+91	27		1	1			
<<14W_4>>	1269+96	27		1	1			
<<14W_4>>	1270+01	24		1	1			
<<14W_4>>	1270+16	29		1	1			
<<14W_4>>	1270+58	30		1	1			
<<14W_4>>	1270+62	28		1	1			
<<14W_4>>	1270+69	23		1	1			
<<14W_4>>	1270+82	23		1	1			
<<14W_4>>	1270+92	23		1	1			
<<14W_4>>	1271+03	24		2	2			
<<14W_4>>	1271+07	35		1	1			
<<14W_4>>	1271+59	35		0	1			
PROJECT TOTAL				42	48	0.8	0.8	

CLEARING & GRUBBING GENERAL NOTES:
[1] TREES WITHIN THE CONSTRUCTION LIMITS WILL BE DESIGNATED FOR REMOVAL BY THE ENGINEER.
[2] REMOVAL OF MISCELLANEOUS SHRUBS AND LANDSCAPING SHALL BE CONSIDERED INCIDENTAL
[3] STUMPS WITHIN PROPOSED ROADWAY SHALL BE FULLY GRUBBED - NO GRINDING ALLOWED
[4] STUMP GRINDING RESIDUE SHALL BE REMOVED BY CLEAR AND GRUB CONTRACTOR TO THE SATISFACTION OF THE ENGINEER.

REMOVALS AND SAWING — B

ALIGNMENT	STATION TO STATION	REMOVE (SPEC. 2104) BIT. PAVEMENT	CONC. MEDIAN	CURB & GUTTER	BIT CURB	SAWING (SPEC. 2104) BIT. PAVEMENT	NOTES
		SQ YD	SQ FT	LIN FT	LIN FT	LIN FT	
<<14E_4>>	246+82 - 249+53	548		272		291	
<<14E_4>>	247+10 - 249+53		2378	484			[6][2]
<<14E_4>>	249+53 - 254+00	1824	1749	681		26	[1][2][4][5]
<<14E_4>>	254+00 - 254+97	353		97			
<<14E_4>>	254+97 - 266+00	2873					
<<14E_4>>	264+42 - 265+49	269		69		31	[3]
<<14E_4>>	271+68 - 275+81	476					[7]
<<14E_4>>	266+00 - 275+82	2842	498	278			[1][5][6]
<<14W_4>>	1247+97 - 1249+52	371		155		181	
<<14W_4>>	1249+52 - 1254+01	1647		685		14	[4]
<<14W_4>>	1254+01 - 1255+01	370		100			
<<14W_4>>	1255+01 - 1266+01	3162		77	149		
<<14W_4>>	1264+47 - 1265+23	275		144	47		[3]
<<14W_4>>	1266+01 - 1275+82	2174		1237			[4]
<<14E_4>>	259+00 - 264+62	469					[8]
<<14E_4>>	265+11 - 270+91	463					[8]
	TOTAL	17184	4625	4279	196	543	

REMOVAL NOTES:
[1] INCLUDES CONCRETE APPROACH NOSE REMOVAL.
[2] SAWCUT CONCRETE FOR MEDIAN REMOVAL IS INCIDENTAL.
[3] HASTINGS STREET APPROACH.
[4] INCLUDES EDGE AND MEDIAN CURB AND GUTTER.
[5] INCLUDES ALL CONCRETE MEDIAN REMOVAL QUANTITY.
[6] INCLUDES CONCRETE CURB AND GUTTER AND MEDIAN REMOVAL FOR STAGE 2 AND 3 CROSSOVER BYPASS.
[7] REMOVAL QUANTITY FOR BITUMINOUS TRAIL ON EAST END.
[8] FOR TEMPORARY PAVEMENT REMOVAL.

DRIVEWAY REMOVAL, CONSTRUCTION AND MAILBOXES — C

STATION	LOCATION ALIGNMENT	OFFSET FROM		OFFSET TO		DESCRIPTION	SAWCUT BIT	REMOVE BIT	REMOVE CONC	CONSTRUCT WIDTH	CONSTRUCT 3" BIT [2]	CONSTRUCT 4" AGG CL5	CONSTRUCT 6" CONCRETE SPEC. 2521	RELOCATE MAILBOX	MAILBOX SUPPORT	NOTES
							LIN FT	SQYD	SQYD	LIN FT	TON	CU YD	SQ YD	EACH	EACH	
CSAH 14																
266+27	<<14E_4>>	4'	RT	55'	RT	1820 125TH AVE	28	157		20	1	1		1	1	[1]
268+51	<<14E_4>>	6'	RT	39'	RT	1850 125TH AVE	11	69		12	1	0		1	1	[1]
1270+37	<<14W_4>>	11'	LT	33'	LT	1905 125TH AVE	19	38	8	19	3	2	11	1	1	
1271+39	<<14W_4>>	13'	LT	33'	LT	1923 125TH AVE	13	23	8	13	2	1	8	1	1	
1273+11	<<14W_4>>	14'	LT	33'	LT	1927 125TH AVE	11	19	6	12	3	2	8	1	1	
1273+52	<<14W_4>>	15'	LT	33'	LT	1981 125TH AVE	24	38	12	25	7	4	13		1	
1274+48	<<14W_4>>	15'	LT	33'	LT	1991 125TH AVE	28	43	11	28	7	5	14		1	
TOTAL							134	387	45		24	15	54	5	7	

DRIVEWAY NOTES:
[1] NO CONCRETE APRON.
[2] USE TYPE SP 9.5 WEARING COURSE MIXTURE (2,B)

NO	DATE	BY	CKD	APPR	REVISION
2	01/24/2020	JB	JB		UPDATED 2360.509 TO TYPE SP 9.5 WEARING COURSE MIX (2,B)

NAME: P:\002-614-041\Plan\002-614-041_TAB_P1.dgn 01/30/2020 8:45:37 AM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINT NAME: JORGE R. BERNAL DELGADO
SIGNATURE:
DATE: 1-30-20 LICENSE NO. 57216

DRAWN BY MP DATE 12/04/19
DESIGN BY JRB DATE 12/04/19
CHECKED BY NJD DATE 12/04/19

ANOKA COUNTY HIGHWAY DEPT.

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CP 18-10

TABULATIONS

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REMOVE EXISTING STORM SEWER & CULVERTS — D

ALIGNMENT	STATION TO STATION	OFFSET		REMOVE (SPEC 2104)				NOTES
				DRAINAGE STRUCTURE	PIPE APRON	SEWER PIPE (STORM)	PIPE CULVERTS	
		LEFT	RIGHT	(EACH)	(EACH)	(LIN FT)	(LIN FT)	
<<14E_4>>	247+38 - 247+96		33'	3		67		[1] [7]
<<14E_4>>	250+50 - 250+74	22'		1		26		[1] [7]
<<14E_4>>	250+78		27'	1		7		[1] [7]
<<14E_4>>	264+54 - 265+23		25'		2		68	[2] [7]
<<14E_4>>	268+30 - 268+67		19'				37	[3] [7]
<<14E_4>>	272+15 - 272+19		53'-37'				17	[4] [7]
<<14E_4>>	272+46 - 272+49		58'-49'				10	[5] [7]
<<14E_4>>	273+60 - 273+84		37'				24	[3] [7]
<<14E_4>>	275+01 - 275+31		53'-85'		2		46	[6] [7]
<<14E_4>>	275+07 - 275+38		49'-80'		2		48	[6] [7]
<<14W_4>>	1262+70 - 1264+70	17'			1	201		[7]
<<14W_4>>	1264+70 - 1265+00	17'		1		30		[7]
<<14W_4>>	1265+00 - 1267+54	17'-2'		1		254		[7]
<<14W_4>>	1267+54 - 1269+76	2'-7'		1		222		[7]
<<14W_4>>	1269+76 - 1271+75	33'-12'		1	1	199		[7]
<<14W_4>>	1271+75 - 1273+76	12'-20'		2		226		[7]
<<14W_4>>	1273+76 - 1274+76	20'-14'		2		368		[1] [7]
<<14W_4>>	1274+76 - 1274+79	74'L - 14'R		1	1	88		[1] [7]
<<14W_4>>	1274+76 - 1275+60	14'		2		85		[1] [7]
	TOTAL			16	9	1773	250	

REMOVE STORM NOTES:
[1] SEE DRAINAGE TAB FOR NEW STRUCTURE AND PIPE LOCATIONS AND DETAILS.
[2] 18" RCP PIPE CULVERT UNDER HASTINGS ST.
[3] 18" CMP PIPE DRIVEWAY CULVERT. APRON REMOVAL INCIDENTAL.
[4] CUT 18" CMP PIPE CULVERT. SEE CULVERT TABULATION FOR NEW APRON DETAILS.
[5] REMOVE 21" APRON AND PIPE TO CLOSEST JOINT. SEE CULVERT TABULATION FOR NEW APRON DETAILS.
[6] 21" RCP PIPE CULVERT UNDER PATH.
[7] CATCH BASIN AND/OR STORM MANHOLE CASTING REMOVAL INCIDENTAL TO STRUCTURE REMOVAL

SANITARY AND STORM SEWER ADJUSTMENTS/RECONSTRUCTION — E

ALIGNMENT	STATION TO STATION	OFFSET LEB		EXISTING ITEM	OWNER	PROPOSED RIM ELEVATION	EXISTING RIM ELEVATION	ADJUST FRAME & RING CASTING (SPEC. 2506)	RECONSTRUCT STRUCTURE (SPEC. 2506)	CASTING ASSEMBLY (SPEC. 2506)	NOTES
		LEFT	RIGHT			FT	FT	EACH	LIN FT	EACH	
<14E_4>	244+73		38'	SANITARY MH	CITY OF BLAINE		906.68				LEAVE
<14E_4>	244+73 - 245+88			15" PVC SDR 26	CITY OF BLAINE						LEAVE
<14E_4>	245+88		26'	SANITARY MH	CITY OF BLAINE		904.38				LEAVE
<14E_4>	245+88 - 249+88			15" PVC SDR 26	CITY OF BLAINE						LEAVE
<14E_4>	248+56		21'	STORM MH	CITY OF BLAINE	903.37	903.53	1			
<14E_4>	249+88			SANITARY MH	CITY OF BLAINE	904.77	905.12	1			
<14E_4>	249+88 - 251+38			15" PVC SDR 26	CITY OF BLAINE						LEAVE
<14E_4>	250+04		24'	STORM MH	CITY OF BLAINE	904.76	904.6	1			
<14E_4>	251+38		39'	SANITARY MH	CITY OF BLAINE	907.02	906.5		4.5	1	[1]
<14E_4>	251+38			PVC LATERAL	CITY OF BLAINE						LEAVE
<14E_4>	251+70			4" PVC SERVICE	CITY OF BLAINE						LEAVE
<14E_4>	253+24		41'	SANITARY MH	CITY OF BLAINE		907.77				LEAVE
<14E_4>	251+38 - 253+24			15" PVC SDR 26	CITY OF BLAINE						LEAVE
<14E_4>	257+28		39'	SANITARY MH	CITY OF BLAINE	907.84	906.47		4.8	1	[1]
<14E_4>	261+20		33'	SANITARY MH	CITY OF BLAINE	905.72	902.9		5.7	1	[1]
<14E_4>	253+24 - 261+20			15" PVC SDR 26	CITY OF BLAINE						LEAVE
<14E_4>	261+20		31'	SANITARY MH	CITY OF BLAINE	904.32	903.86	1			
<14E_4>	261+20 - 264+77			15" PVC SDR 26	CITY OF BLAINE						LEAVE
<14E_4>	264+77 264+75			15" PVC SDR 26	CITY OF BLAINE						LEAVE
<14E_4>	270+48	53'		SANITARY MH	CITY OF BLAINE		UNKNOWN				[2]
<14E_4>	271+97	55'		SANITARY MH	CITY OF BLAINE		901.28	1			
<14E_4>	271+77		48'	SANITARY MH	CITY OF BLAINE	903.71	902.51		4.6	1	[1]
<14E_4>	271+97 - 271+77			8" DIP CL52	CITY OF BLAINE						LEAVE
<14E_4>	275+18	54'		SANITARY MH	CITY OF BLAINE		900.25	1			
<14E_4>	275+18 - 271+97			8" PVC	CITY OF BLAINE						LEAVE
<14W_4>	1250+75	19'		CB	ANOKA COUNTY	904.91	904.82	1			CB5301
<14W_4>	1250+74		13'	CB	ANOKA COUNTY	904.78	905.15	1			CB5302
					SUBTOTAL (CITY OF BLAINE)			6	19.6	4	
					SUBTOTAL (ANOKA COUNTY)			2			
					PROJECT TOTAL			8	19.6	4	

GENERAL NOTES:
PIPE SIZE AND CLASS OBTAINED FROM CITY AS BUILT PLANS WHERE AVAILABLE.
INFORMATION SHALL BE VERIFIED BY CONTRACTOR.

NOTES:
[1] USE CASTING ASSEMBLY TYPE 'F' FROM CASTING ASSEMBLY SUMMARY, SEE DRAINAGE TABULATIONS SHEET 90.
[2] MANHOLE APPEARS TO BE BURIED UNDER DRIVEWAY CONCRETE APRON. PAID FOR AS ADJUST (EACH) OR RECONSTRUCT (LIN FT) AT ENGINEERS DISCRETION IN THE FIELD

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_TAB_P1.dgn 12/17/2019 10:08:19 AM

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TABULATIONS

Sheet 11 of 200 Sheets

CONCRETE

F

STATION BEGIN	STATION END	ALIGNMENT	OFFSET FROM	OFFSET TO	SPEC. 2531 CONCRETE CURB AND GUTTER B424	SPEC. 2531 CONCRETE CURB AND GUTTER B418 (MOD)	SPEC. 2531 CONCRETE CURB AND GUTTER D412	SPEC. 2521 6" CONCRETE WALK	SPEC. 2521 4" CONCRETE WALK [5]	TRUNCATED DOMES	NOTES
					LIN FT	LIN FT	LIN FT	SQ FT	SQ FT	SQ FT	
246+82	254+00	<14E_4>	34' RT	14' RT	719						
247+27	249+53	<14E_4>	16' LT	16' LT	225				2105		[1]
1247+28	1249+52	<14W_4>	26' RT	16' RT	224						[1]
249+53	249+63	<14E_4>	16' LT	16' LT	10				112		[5]
1249+52	1249+62	<14W_4>	16' RT	15' RT	10						
249+63	254+00	<14E_4>	16' LT	14' LT		438			3329		[5]
1247+97	1254+01	<14W_4>	26' LT	20' LT	604						
1249+62	1254+00	<14W_4>	16' RT	14' RT		439					
254+00	264+75	<14E_4>	14' RT	55' RT	1092						
1254+01	1264+71	<14W_4>	20' LT	55' LT	1093						
254+00	264+53	<14E_4>	14' LT	25' LT		1054		28	9324		[2] [5]
1254+00	1264+54	<14W_4>	14' RT	14' RT		1053					
265+04	266+00	<14E_4>	55' RT	20' RT	119			432		44	[3] [4]
1265+00	1266+00	<14W_4>	55' LT	25' LT	118						
265+33	266+00	<14E_4>	14' LT	14' LT		67	33	28	269		[2] [5]
1265+34	1266+01	<14W_4>	25' RT	25' RT		67	59				
266+00	275+84	<14E_4>	20' RT	35' RT	986						
1266+00	1275+86	<14W_4>	25' LT	27' LT	1047			590		40	[3] [4]
266+00	275+84	<14E_4>	14' LT	25' LT		987		428	3847		[2] [5] [6]
1266+01	1275+62	<14W_4>	25' RT	14' RT		962					
				PROJECT TOTAL	6247	5067	92	1506	18986	84	

CONCRETE NOTES:

[1] QUANTITIES FOR MEDIAN RESTORATION FOR STAGE 2 AND STAGE 3 CROSSOVER.
[2] CONCRETE NOSE DESIGN SPECIAL PAID FOR AS 6" CONCRETE WALK.
[3] 6" CONCRETE QUANTITY FOR CONCRETE PEDESTRIAN RAMPS. RAMPS TO BE CONSTRUCTED TO MEET ADA STANDARDS PER STANDARD PLAN 5-297.250
[4] QUANTITY FOR RADIAL TRUNCATED DOME PLATES (30 FT RADIUS). SEE STANDARD PLATE 7038A FOR DETAILS.
[5] PROPOSED MEDIAN PAID FOR AS 4" CONCRETE WALK.
[6] 6" CONCRETE QUANTITY INCLUDES NOSE DESIGN SPECIAL QUANTITY AND CONCRETE LANDING TO TIE INTO EXISTING PEDESTRIAN RAMP.

AGGREGATE AND BITUMINOUS PAVEMENT

G

ALIGNMENT	STATION TO STATION	BITUMINOUS MAINLINE SPEC. 2211 AGGREGATE BASE (CV) CLASS 5	MAINLINE SPEC. 2357 BITUMINOUS MATERIAL FOR TACK COAT	MAINLINE SPEC. 2360 TYPE SP 12.5 WEAR (3,F)	MAINLINE SPEC. 2360 TYPE SP 12.5 NON-WEAR (3,B)	TRAIL SPEC. 2211 AGGREGATE BASE (CV) CLASS 5	TRAIL SPEC. 2360 TYPE SP 9.5 WEAR (2, B)	MILL AND OVERLAY SPEC. 2232 MILL BITUMINOUS SURFACE (2.0")	MILL AND OVERLAY SPEC. 2357 BITUMINOUS MATERIAL FOR TACK COAT	MILL AND OVERLAY SPEC. 2360 TYPE SP 12.5 WEAR (3,F)	STAGING SPEC. 2211 AGGREGATE BASE (CV) CLASS 5	STAGING SPEC. 2360 TYPE SP 12.5 BIT MIXTURE FOR PATCHING	STAGING SPEC. 2112 SHOULDER PREPARATION [4]	NOTES
		CU YD	GALLON	TON	TON	CU YD	TON	SQ YD	GALLON	TON	CU YD	TON	LIN FT	
<14E_4>	245+36 - 246+82	28				21	29	778	39	89				[1]
<14W_4>	1245+36 - 1247+97	50						1393	70	160				[1]
<14E_4>	246+82 - 254+00	440	181	416	208	103	146	782	39	270	38	59		
<14W_4>	1247+97 - 1254+01	430	188	434	217			352	18	121				
<14E_4>	254+00 - 264+45	883	409	941	470	172	247							
<14W_4>	1254+01 - 1264+42	788	353	811	406									
<14E_4>	264+45 - 265+34	114	58	133	67									
<14W_4>	1264+42 - 1265+29	123	64	147	74									
<14E_4>	265+34 - 266+00	50	22	52	26	11	16							
<14W_4>	1265+29 - 1266+01	76	37	86	43									
<14E_4>	266+00 - 273+50	683	323	743	372	9								
<14E_4>	266+00 - 271+64					88	136							[3]
<14W_4>	1266+01 - 1273+51	625	288	663	332									
<14E_4>	273+50 - 275+86	45						1236	62	142				[1]
<14E_4>	271+64 - 275+55					72	111							[2]
<14W_4>	1273+51 - 1275+87	45						666	33	77				[1]
<14E_4>	259+00 - 264+62										39	81	562	[3]
<14E_4>	265+11 - 270+91										39	80	580	[3]
	PROJECT TOTAL	4380	1923	4426	2215	476	685	5207	261	859	116	220	1142	

BITUMINOUS NOTES:

[1] AGGREGATE BASE QUANTITY FOR CURB AND GUTTER REPLACEMENT.
[2] AGGREGATE BASE AND BITUMINOUS QUANTITY FOR TRAIL REPLACEMENT ON EAST END.
[3] FOR TEMPORARY PAVEMENT PLACED DURING STAGE 1A.
[4] INCLUDES ALL GRADING, EQUIPMENT, TIME AND TRAFFIC CONTROL TO PREPARE SHOULDERS FOR TEMP PAVING TO THE ELEV AND CROSS SLOPE OF EXISTING PAVEMENT.

NO	DATE	BY	CKD	APPR	REVISION
1	01/24/2020	JB	JB		UPDATED 2360.509 TO TYPE SP 9.5 WEARING COURSE MIX (2,B)
2	01/24/2020	JB	JB		UPDATED QUANTITY FOR TYPE SP 12.5 BIT MIXTURE FOR PATCHING

NAME: P:\002-614-041\Plan\002-614-041_TAB_P1.dgn 01/30/2020 8:45:42 AM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINT NAME: JORGE R. BERNAL DELGADO
SIGNATURE:
DATE: 1-30-20 LICENSE NO. 57216

DRAWN BY MP DATE 12/04/19
DESIGN BY JRB DATE 12/04/19
CHECKED BY NJD DATE 12/04/19

ANOKA COUNTY
HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

TABULATIONS

TURF ESTABLISHMENT AND EROSION CONTROL — H

LOCATION			SILT FENCE TYPE MACHINE SLICED	SEEDING	SEED MIXTURE 25-121	SEED MIXTURE 25-151	SEED MIXTURE 33-261	SEED MIXTURE 35-241	SEDIMENT CONTROL LOG TYPE WOOD FIBER	FERTILIZER TYPE 3 (22-5-10)	FERTILIZER TYPE 4 (17-10-7)	CULVERT END CONTROLS	STORM DRAIN INLET PROTECTION	EROSION CONTROL BLANKETS CAT. 0	EROSION CONTROL BLANKETS CAT. 3N	RAPID STABILIZATION METHOD 3 SPEC 2575-3	NOTES
STATION	TO	STATION	LIN FT	ACRE	POUND	POUND	POUND	POUND	LIN FT	POUND	POUND	EACH	EACH	SQ YD	SQ YD	M GALLON	
1245+28	-	1263+20		0.3	18					103			17	1431		1.8	
1263+20	-	1264+70		0.1		4				13			3	179		0.6	
1265+01	-	1265+30		0.1		1				3			1	46		0.6	
1265+30	-	1269+88		0.1	6					37		1	5	509		0.6	
1269+26	-	1270+27	105														
1269+88	-	1275+28		0.1		16				48			5	659		0.6	
LWB TOTAL			**105**	**0.7**	**24**	**21**				**204**		**1**	**31**	**2824**		**4.2**	
245+25	-	250+00	435														
245+25	-	263+19		0.2	15					84		2	16	1164		1.2	
262+00	-	263+19	120														
263+19	-	264+75		0.1		3				10			3	139		0.6	
265+04	-	271+72		0.1		11				32			5	437		0.6	
271+78	-	276+05	293	0.3	17					97		1	7	1344		1.8	
272+01	-	275+35		0.1			3		30		14			451		0.6	
LEB TOTAL			**848**	**0.8**	**32**	**14**	**3**		**30**	**223**	**14**	**3**	**31**	**3535**		**3.6**	
TOP OF POND 100			1015	0.3	18					101				1395		1.8	
POND 100 SLOPE				0.6				21			85				2744	3.6	
POND 100 BOTTOM				0.1			3				12			388		0.6	
POND 100 TOTAL			**1,015**	**1.0**	**18**		**3**	**21**		**101**	**97**			**1,783**	**2,744**	**6.0**	
PROJECT TOTAL			**1968**	**2.5**	**74**	**35**	**6**	**21**	**30**	**528**	**111**	**4**	**62**	**8142**	**2744**	**13.8**	

NOTES:

- 25-121 - APPLICATION RATE 61 LB/ACRE.
- 25-151 - APPLICATION RATE 120 LB/ACRE.
- 33-261 - APPLICATION RATE 35 LB/ACRE. (POND BOTTOM AND WETLAND).
- 35-241 - APPLICATION RATE 36.5 LB/ACRE. (POND SLOPES).
- FERTILIZER TYPE 3 FOR SEED 25-121 AND 25-151. APPLICATION RATE: 350 LB/ACRE.
- FERTILIZER TYPE 4 FOR SEED 33-261 AND 35-241. APPLICATION RATE: 150 LB/ACRE.
- EROSION CONTROL BLANKET TO BE PLACED ON ALL SEEDING AREAS.
- RAPID STABILIZATION METHOD 3 TO BE APPLIED AS NECESSARY, AS DIRECTED BY ENGINEER.

TEMPORARY BARRIER — Y

PORTABLE PRECAST CONC BARRIER DES 8337											
ALIGNMENT	STAGE	BEGIN			END			LENGTH	BARRIER SECTIONS	IMPACT ATTENUATOR ASSEMBLY	NOTES
		STATION	OFFSET	LT/RT	STATION	OFFSET	L/R	LIN FT			
14E_4	1A	25788.64	3	RT	26423.87	0	RT	636	51	2	[1][2][3]
14E_4	1A	26546.88	3	LT	26596.78	5	LT	50	4	2	[1][2][3]
14E_4	1A	26671.78	5	LT	26809.15	3	LT	138	12	2	[1][2]
14E_4	1A	26884.14	2	LT	27549.96	12	RT	667	54	2	[1][2][3]
							TOTAL STAGE 1A	1491	121	8	
14E_4	2	25961.8	17	LT	26817.54	17	LT	857	69	2	[1][2][3]
14E_4	2	26902.84	24	LT	27551.02	52	LT	652	53	2	[1][2][3]
							TOTAL STAGE 2	1509	122	4	
							PROJECT TOTAL	**3000**	**243**	**12**	

[1] LENGTH OF BARRIER DOES NOT INCLUDE IMPACT ATTENUATOR.
[2] TEMPORARY IMPACT ATTENUATOR TEST LEVEL 3. SHALL BE THE SAME CROSS SECTION OF BARRIER.
[3] USE 15:1 TAPER AT ENDS AS SHOWN IN STAGING PLAN.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_TAB_P1.dgn 01/06/2020 1:50:22 PM

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ANOKA COUNTY
ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

TABULATIONS

UTILITY OWNERS — R

CITY OF BLAINE
10801 TOWN SQUARE DRIVE NE
BLAINE, MN 55449
CONTACT STEFAN HIGGINS
ASSISTANT CITY ENGINEER
TEL: 763-717-2722

COMCAST
4255 LEXINGTON AVE STE 100
ARDEN HILLS, MN 55126
CONTACT LUKE BASTIL
TEL: 651-493-5405

CONNEXUS ENERGY
14601 RAMSEY BLVD NW
RAMSEY, MN
CONTACT GREGORY PLUMEDAHL
TEL: 763-286-1225

MCI-VERIZON
MASTEC
CONTACT

XCEL ENERGY GAS
5363 260TH ST N
WYOMING, MN 55303
CONTACT SCOTT WIDMER
TEL: 651-261-3087

ANOKA COUNTY SIGNALS
1440 BUNKER LAKE BLVD NW
ANDOVER, MN 55304
CONTACT MARK LEKSON
SIGNALS - CONSTRUCTION
TEL 763-324-3139

CENTURYLINK
TERRATECH LLC.
CONTACT CHARLES DAHER
TEL: 612-298-2825

ARVIG
CONTACT CURTIS OLSON
TEL: 320-256-0251

CENTER POINT ENERGY GAS
700 WEST LINDEN AVE
PO BOX 1165
MINNEAPOLIS, MN 55440-1165
CONTACT TRAVIS DENZEL
TEL: 612-321-5207

GREAT RIVER ENERGY
12300 ELM CREEK BOULEVARD
MAPLE GROVE, MN 55369-4718
CONTACT MICHELLE MACMILLAN
TEL: 763-445-5984

SIGNAL SYSTEMS — S

STATION BEGIN	STATION END	OFFSET FROM LEB			REMARKS	SIZE & ITEM
245+45	252+36	48 RT	TO	37 RT	ADJUST	2" CONDUIT 1-12 SM FO CABLE
252+36	254+00	37 RT	TO	27 RT	ADJUST	2" CONDUIT 1-12 SM FO CABLE
245+45		49 RT			ADJUST	HANDHOLE
245+46		44 RT			ADJUST	HANDHOLE
263+91		12 RT			ADJUST	HANDHOLE
254+00	266+00	27 RT	TO	7 RT	ADJUST	2" CONDUIT 1-12 SM FO CABLE
263+91		12 RT			ADJUST	HANDHOLE
266+00	269+01	7 RT	TO	22 RT	ADJUST	2" CONDUIT 1-12 SM FO CABLE
271+14		16 RT			ADJUST	HANDHOLE
269+01	272+68	22 RT	TO	28 RT	ADJUST	2" CONDUIT 1-12 SM FO CABLE
272+68	275+51	28 RT	TO	33 RT	ADJUST	2" CONDUIT 1-12 SM FO CABLE
275+51		33 RT			ADJUST	HANDHOLE
275+40		17 LT			ADJUST	LOOP DETECTOR
275+75		17 LT			ADJUST	LOOP DETECTOR
275+54		27 LT			ADJUST	MEDIAN HANDHOLE

GAS — T

STATION BEGIN	STATION END	ALIGN	OFFSET				REMARKS	SIZE & ITEM
245+33	246+36	<14E_4>	41 RT	TO	38	RT	UNDER TRAIL	6" ST
246+36	246+36	<14E_4>	38 RT	TO	30	RT	UNDER TRAIL/ROAD	6" ST
246+36	250+80	<14E_4>	30 RT	TO	19	RT	UNDER ROAD	6" ST
250+80	252+27	<14E_4>	19 RT	TO	23	RT	VERIFY FOR CONFLICT/RELOCATE	6" ST
252+27	259+78	<14E_4>	23 RT	TO	25	RT	UNDER TRAIL	6" ST
259+78	261+58	<14E_4>	25 RT	TO	25	RT	VERIFY FOR CONFLICT/RELOCATE	6" ST
261+58	265+00	<14E_4>	25 RT	TO	23	RT	VERIFY FOR CONFLICT/RELOCATE	6" ST
265+00	272+45	<14E_4>	23 RT	TO	22	RT	UNDER TRAIL	6" ST
272+45	273+01	<14E_4>	22 RT	TO	22	RT	UNDER TRAIL	6" ST
273+01	275+87	<14E_4>	22 RT	TO	21	RT	VERIFY FOR CONFLICT/RELOCATE	6" ST
1245+35	1248+13	<14W_4>	39 LT	TO	44	LT	VERIFY FOR CONFLICT	8" ST
1248+13	1248+21	<14W_4>	44 LT	TO	47	LT	VERIFY	8" ST
1248+21	1248+57	<14W_4>	47 LT	TO	48	LT	VERIFY	8" ST
1248+57	1248+84	<14W_4>	48 LT	TO	48	LT	VERIFY	8" ST
1248+84	1249+45	<14W_4>	48 LT	TO	46	LT	VERIFY	8" ST
1249+45	1249+55	<14W_4>	46 LT	TO	48	LT	VERIFY FOR CONFLICT/RELOCATE	8" ST
1249+55	1249+63	<14W_4>	48 LT	TO	48	LT	VERIFY FOR CONFLICT/RELOCATE	8" ST
1249+63	1249+64	<14W_4>	48 LT	TO	18	LT	RELOCATE	4" PVC
1249+64	1250+49	<14W_4>	18 LT	TO	20	LT	RELOCATE	4" PVC
1250+49	1253+51	<14W_4>	20 LT	TO	19	LT	RELOCATE	4" PVC
1253+51	1255+00	<14W_4>	19 LT	TO	18	LT	RELOCATE	4" PVC
1255+00	1259+79	<14W_4>	18 LT	TO	17	LT	RELOCATE	4" PVC
1259+79	1268+28	<14W_4>	16 LT	TO	25	LT	RELOCATE	4" PVC
1268+28	1269+89	<14W_4>	25 LT	TO	27	LT	RELOCATE	4" PVC
1269+89	1275+85	<14W_4>	27 LT	TO	34	LT	RELOCATE	4" PVC
1249+80	1249+80	<14W_4>	19 LT	TO	6	LT	RELOCATE	3" ST
1249+80	1273+51	<14W_4>	6 LT	TO	18	LT	RELOCATE	3" ST
1273+51	1275+46	<14W_4>	18 LT	TO	20	LT	RELOCATE	3" ST
1275+46	1275+46	<14W_4>	19 LT	TO	32	LT	RELOCATE	3" ST

- GAS LINE ON SOUTH SIDE IS HIGH PRESSURE STEEL. TO BE RELOCATED OUTSIDE OF AREAS IN CONFLICT WITH STORM SEWER, CURB AND GUTTER OR MUCK EXCAVATION AREAS.
- SEE CROSS SECTIONS AND CONSTRUCTION PLANS FOR DETAILS

POWER — U

STATION	OFFSET (FT)		ITEM IN PLACE	UTILITY OWNER	REMARKS
250+31	45	RT	TRANSMISSION POLE	GRE	[1]
250+89	37	RT	POLE	CONNEXUS ENERGY	[2]
251+23	40	RT	POLE	CONNEXUS ENERGY	[2]
251+70	42	RT	POLE	CONNEXUS ENERGY	[2]
253+97	42	RT	POLE	CONNEXUS ENERGY	[2]
257+36	38	RT	POLE	CONNEXUS ENERGY	[2]
260+71	33	RT	POLE	CONNEXUS ENERGY	[2]
263+86	30	RT	GUY ANCHOR	CONNEXUS ENERGY	[2]
264+07	30	RT	POLE	CONNEXUS ENERGY	[2]
264+59	28	RT	POLE	CONNEXUS ENERGY	[2]
265+66	27	RT	POLE	CONNEXUS ENERGY	[2]
267+44	25	RT	POLE	CONNEXUS ENERGY	[2]
269+83	35	RT	POLE	CONNEXUS ENERGY	[2]
271+70	34	RT	POLE	CONNEXUS ENERGY	[2]
271+61	61	RT	POLE	CONNEXUS ENERGY	[2]
274+47	34	RT	POLE	CONNEXUS ENERGY	[2]
274+62	42	RT	GUY ANCHOR	CONNEXUS ENERGY	[2]
274+61	55	RT	POLE	CONNEXUS ENERGY	[2]
274+80	34	RT	GUY ANCHOR	CONNEXUS ENERGY	[2]
274+66	43	RT	CABINET	CONNEXUS ENERGY	
274+85	48	RT	CABINET	CONNEXUS ENERGY	
1269+89	27	LT	POLE	CONNEXUS ENERGY	[2]

[1] SEE SPECIAL PROVISIONS FOR WORK NEAR TRANSMISSION POLE WITHIN GREAT RIVER ENERGY EASEMENT
[2] POLES LOCATED ON PROPOSED TRAIL SHALL BE RELOCATED AT LEAST 2' FROM EDGE OF BITUMINOUS

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_TAB_P1.dgn 12/17/2019 10:08:32 AM

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SAP 002-614-041
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INPLACE UTILITY TABULATIONS

Sheet 14 of 200 Sheets

TELEPHONE / FIBER OPTIC / CABLE TV — V

ALIGNMENT	STATION		OFFSET		INPLACE FACILITY	UTILITY OWNER	REMARKS
	BEGIN	END	FT	RT/LT			
<14E_4>	247+79		41	RT	SPLICE BOX/PEDESTAL	CENTURYLINK	VERIFY CONFLICT/RELOCATE
<14E_4>	249+77		43	RT	MANHOLE/VAULT	CENTURYLINK	VERIFY CONFLICT/RELOCATE
<14E_4>	247+79	249+77	41-43	RT	CONDUIT AND FIBER	CENTURYLINK	VERIFY CONFLICT/RELOCATE
<14E_4>	249+77	251+12	43-38	RT	CONDUIT AND FIBER	CENTURYLINK	VERIFY CONFLICT/RELOCATE
<14E_4>	251+12		38	RT	SPLICE BOX/PEDESTAL	CENTURYLINK	VERIFY CONFLICT/RELOCATE
<14E_4>	251+12	253+95	38-37	RT	CONDUIT AND FIBER	CENTURYLINK	VERIFY CONFLICT/RELOCATE
<14E_4>	253+95		37	RT	SPLICE BOX/PEDESTAL	CENTURYLINK	VERIFY CONFLICT/RELOCATE
<14E_4>	253+95	255+44	37-48	RT	CONDUIT AND FIBER	CENTURYLINK	VERIFY CONFLICT/RELOCATE
<14E_4>	255+44		48	RT	MANHOLE/VAULT	CENTURYLINK	VERIFY CONFLICT/RELOCATE
<14E_4>	255+44	263+13	48-40	RT	CONDUIT AND FIBER	CENTURYLINK	VERIFY CONFLICT/RELOCATE
<14E_4>	263+13		40	RT	MANHOLE/VAULT	CENTURYLINK	VERIFY CONFLICT/RELOCATE
<14E_4>	263+13		37	RT	MANHOLE/VAULT	CENTURYLINK	VERIFY CONFLICT/RELOCATE
<14E_4>	263+13	264+02	37-26	RT	CONDUIT AND FIBER	CENTURYLINK	VERIFY CONFLICT/RELOCATE
<14E_4>	264+02		26	RT	PEDESTAL	CENTURYLINK	RELOCATE
<14E_4>	264+02	267+45	26-25	RT	SPLICE BOX/PEDESTAL	CENTURYLINK	RELOCATE
<14E_4>	267+45	271+77	25-22	RT	CONDUIT AND FIBER	CENTURYLINK	RELOCATE
<14E_4>	271+77		22	RT	HANDHOLE	CENTURYLINK	RELOCATE
<14E_4>	271+77	275+00	22-38	RT		CENTURYLINK	RELOCATE
<14E_4>	275+00		38	RT	MANHOLE/VAULT	CENTURYLINK/COMCAST	RELOCATE
<14E_4>	275+00	274+89	38-45	RT		CENTURYLINK	RELOCATE
<14E_4>	274+89		45	RT	SPLICE BOX/PEDESTAL	CENTURYLINK/COMCAST	RELOCATE
<14W_4>	1245+29		67	LT	SPLICE BOX/PEDESTAL	CENTURYLINK	LEAVE
<14W_4>	1245+61		38	LT	SPLICE BOX/PEDESTAL	CENTURYLINK	LEAVE
<14W_4>	1245+29	1245+61	67-38	LT	CONDUIT AND FIBER	CENTURYLINK	LEAVE
<14W_4>	1245+61	1249+86	38-48	LT	CONDUIT AND FIBER	CENTURYLINK	LEAVE
<14W_4>	1249+86		48	LT	SPLICE BOX/PEDESTAL	CENTURYLINK	LEAVE
<14W_4>	1249+86	1264+31	48-18	LT	CONDUIT AND FIBER	CENTURYLINK	RELOCATE OUTSIDE OF ROAD CORE
<14W_4>	1264+31		18	LT	SPLICE BOX/PEDESTAL	CENTURYLINK	RELOCATE OUTSIDE OF CLEAR ZONE
<14W_4>	1269+88		27	LT	SPLICE BOX/PEDESTAL	CENTURYLINK	LEAVE
<14W_4>	1264+31	1269+88	18-27	LT	CONDUIT AND FIBER	CENTURYLINK	RELOCATE OUTSIDE OF ROAD CORE
<14W_4>	1274+15		38	LT	SPLICE BOX/PEDESTAL	CENTURYLINK	LEAVE
<14W_4>	1269+88	1274+15	27-38	LT	CONDUIT AND FIBER	CENTURYLINK	LEAVE
<14W_4>	1274+17		37	LT	SPLICE BOX/PEDESTAL	CENTURYLINK	LEAVE
<14W_4>	1274+17	1275+83	37-57	LT	CONDUIT AND FIBER	CENTURYLINK	LEAVE

WATER - CITY OF BLAINE — W

ALIGNMENT	STATION		OFFSET		ADJUST	INPLACE ITEM	REMARKS
	BEGIN	END	FT	RT/LT			
<14E_4>	245+46	245+51				16" MAIN - 30" STEEL CASING	LEAVE
<14E_4>	245+51	249+93	92-67	LT		16" DIP CL52	LEAVE
<14E_4>	249+93		78	LT		HYDRANT	LEAVE
<14E_4>	249+93	255+56	67-62	LT		16" DIP CL52	LEAVE
<14E_4>	255+56		62	LT	1	GATE VALVE	ADJUST
<14E_4>	254+86					1" COPPER SERVICE	[1]
<14E_4>	255+56	256+76	62-68	LT		16" DIP CL52	LEAVE
<14E_4>	256+76		68	LT	1	HYDRANT	ADJUST
<14E_4>	256+76	265+17	68-54	LT		16" DIP CL52	
<14E_4>	265+17		54	LT	1	GATE VALVE	ADJUST
<14E_4>	264+73	264+73	60-150	LT		6" DIP CL52	LEAVE
<14E_4>	264+67		41	RT	1	GATE VALVE	ADJUST
<14E_4>	264+63		40	RT	1	HYDRANT	ADJUST
<14E_4>	265+17	271+88	54-61	LT		16" DIP CL52	LEAVE
<14E_4>	271+88	275+76	61-65	LT		16" DIP CL52	LEAVE
<14E_4>	271+88		61	LT	1	GATE VALVE	ADJUST - SEE CONSTRUCTION PLANS
<14E_4>	271+88	271+88	61-68	LT			LEAVE
<14E_4>	271+88		68	LT	1	WSO	ADJUST [2]
<14E_4>	272+43	272+43	62-74	LT			LEAVE
<14E_4>	272+43		62	LT		WSO	LEAVE
<14E_4>	274+78	274+78	64-97	LT			LEAVE
<14E_4>	274+78		97	LT		GATE VALVE	LEAVE
<14E_4>	275+27	275+27	64-83	LT			LEAVE
<14E_4>	275+27		83	LT		HYDRANT	LEAVE
<14E_4>	272+06	272+06	61-57	LT			LEAVE
<14E_4>	272+06		57	LT	1	GATE VALVE	ADJUST
<14E_4>	271+65		79	RT	1	GATE VALVE	ADJUST
<14E_4>	271+63		77	RT	1	HYDRANT	ADJUST
<14E_4>	272+06	271+65	57	LT		8" DIP	LEAVE
				TOTAL	10		

[1] OBTAINED FROM CITY OF BLAINE AS BUILT PLANS. CONTRACTOR SHALL VERIFY LOCATION IN FIELD.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_TAB_P1.dgn 12/17/2019 10:08:37 AM

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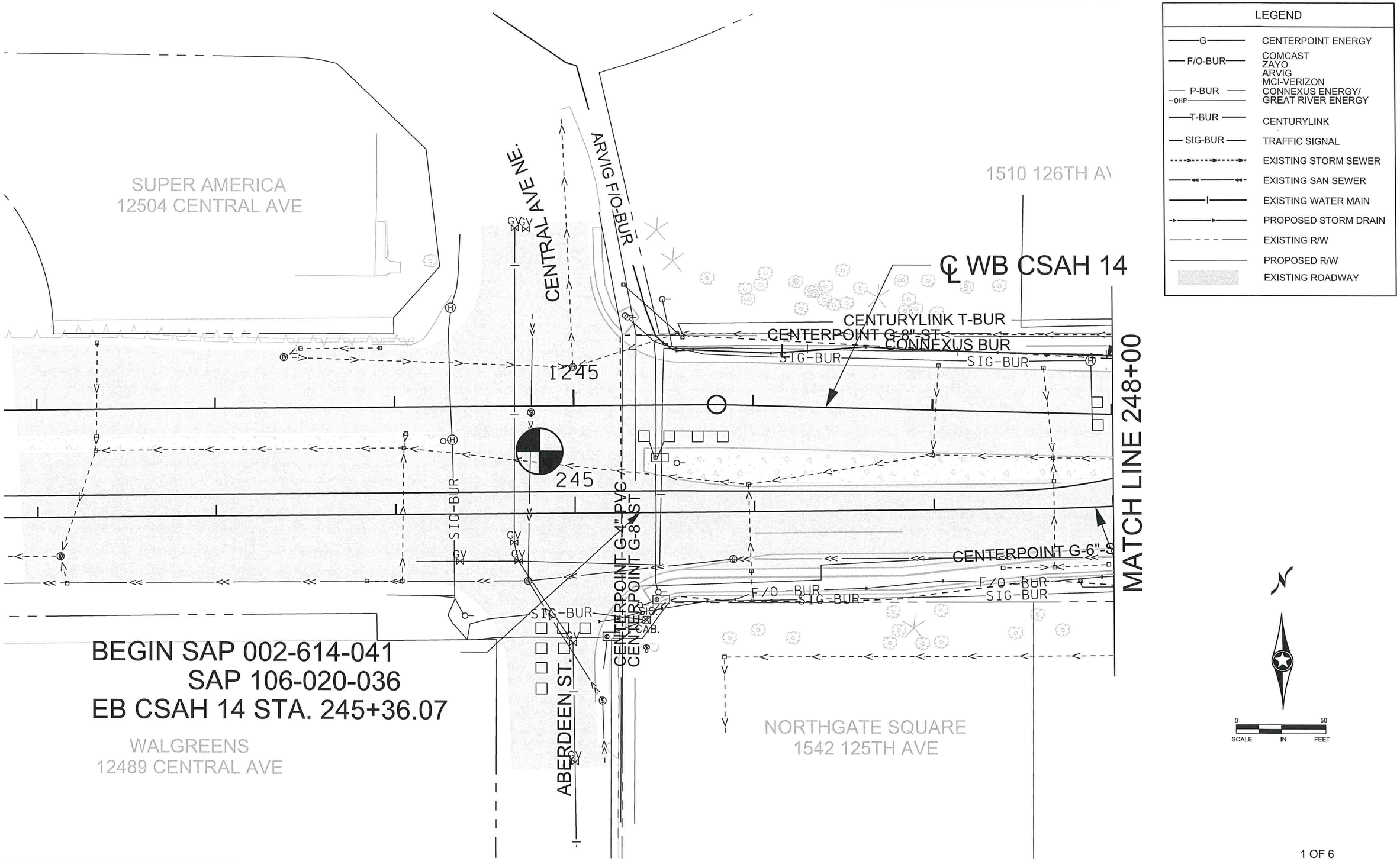
INPLACE UTILITY TABULATIONS



1 OF 6

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INPLACE UTILITY PLAN

STA BEG TO 248+00

Sheet 16 of 200 Sheets

LEGEND

G	CENTERPOINT ENERGY
F/O-BUR	COMCAST ZAYO ARVIG MCI-VERIZON
P-BUR	CONNEXUS ENERGY/
OHP	GREAT RIVER ENERGY
T-BUR	CENTURYLINK
SIG-BUR	TRAFFIC SIGNAL
	EXISTING STORM SEWER
	EXISTING SAN SEWER
	EXISTING WATER MAIN
	PROPOSED STORM DRAIN
	EXISTING R/W
	PROPOSED R/W
	EXISTING ROADWAY

4

CONST. LIMITS

CONNEXUS BUR

CONNEXUS BUR

MATCH LINE 248+00

GRE
90' EASEMENT

OHP

1620 125TH LN

1634 125TH LN

1648 125TH LN

1662 125TH LN

CONNEXUS BUR

EXISTING R/W

CENTURYLINK T-BUR

1250

CENTERPOINT G-4"-PVC

CENTERPOINT G-3"-ST

CENTERPOINT G-4"-PVC

CENTERPOINT G-3"-

MATCH LINE 254+00

250

CONNEXUS BUR

CENTERPOINT G-6"-ST

CENTERPOINT G-6"-ST

SIG-BUR

SIG-BUR

CENTERPOINT

F/O-BUR

CONNEXUS OHP

F/O-BUR

F/O-BUR

F/O-BUR

CENTURYLINK T-BUR

SIG-BUR

F/O-BUR

CENTURYLINK T-BUR

CENTURYLINK T-BUR

SIG-BUR

CONST. LIMITS

℄ EB CSAH 14

EXISTING R/W

CENTURYLINK F/O-BUR

OHP

12482 DAVENPORT ST

12494 DAVENPORT ST

GRE
90' EASEMENT

OHP

OHP

NORTHGATE SQUARE
1542 125TH AVE

12481 DAVENPORT ST

N

0 50
SCALE IN FEET

2 OF 6

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_UT_P2.dgn 12/10/2019 1:06:56 PM

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

PRINT NAME: JORGE R. BERNAL DELGADO

SIGNATURE:

DATE: 12-20-19 LICENSE NO. 57216

DRAWN BY MP DATE 12/04/19

DESIGN BY JRB DATE 12/04/19

CHECKED BY NJD DATE 12/04/19

ANOKA COUNTY

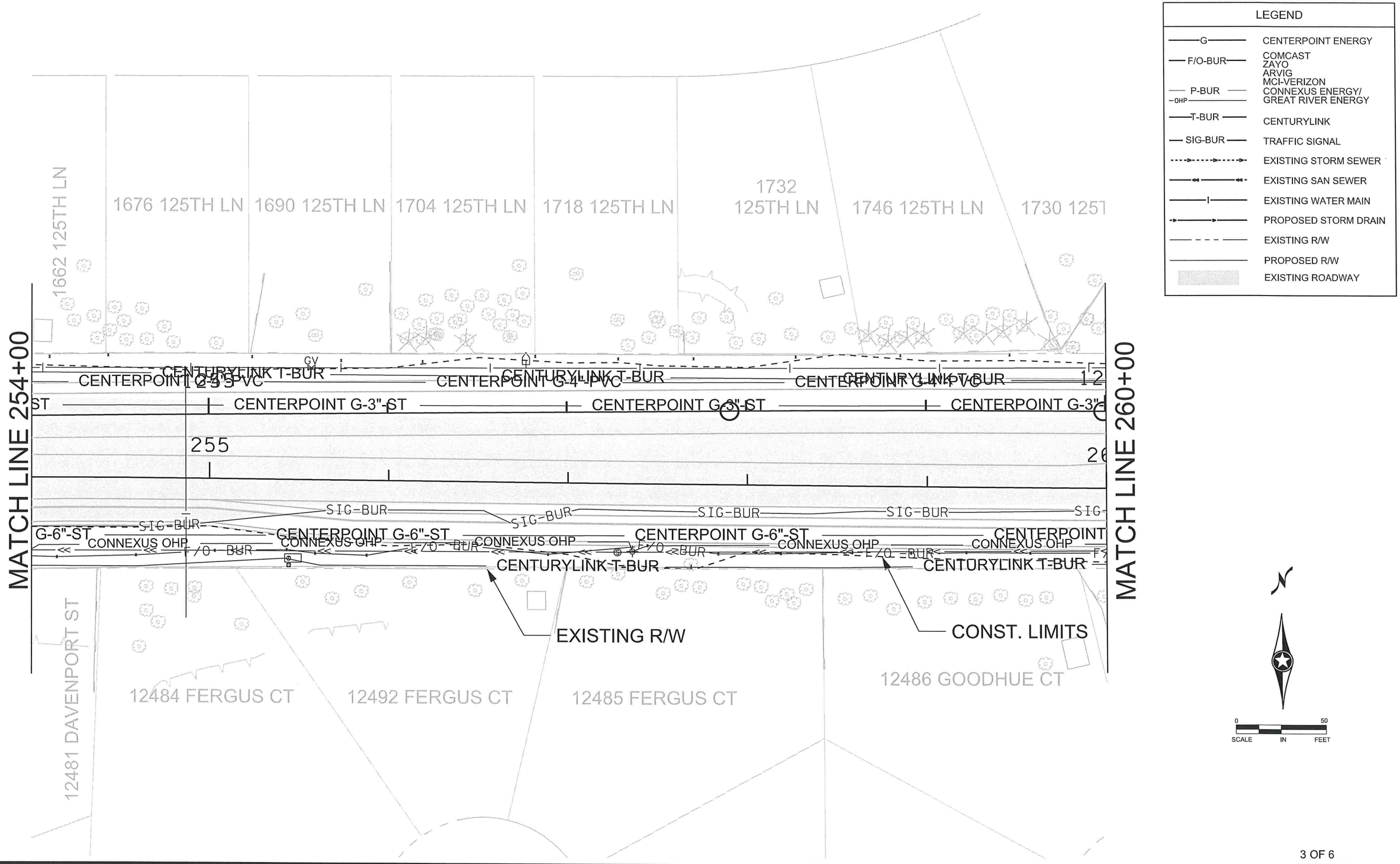
ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

INPLACE UTILITY PLAN

STA 248+00 TO 254+00

Sheet 17 of 200 Sheets



3 OF 6

NO	DATE	BY	CKD	APPR	REVISION

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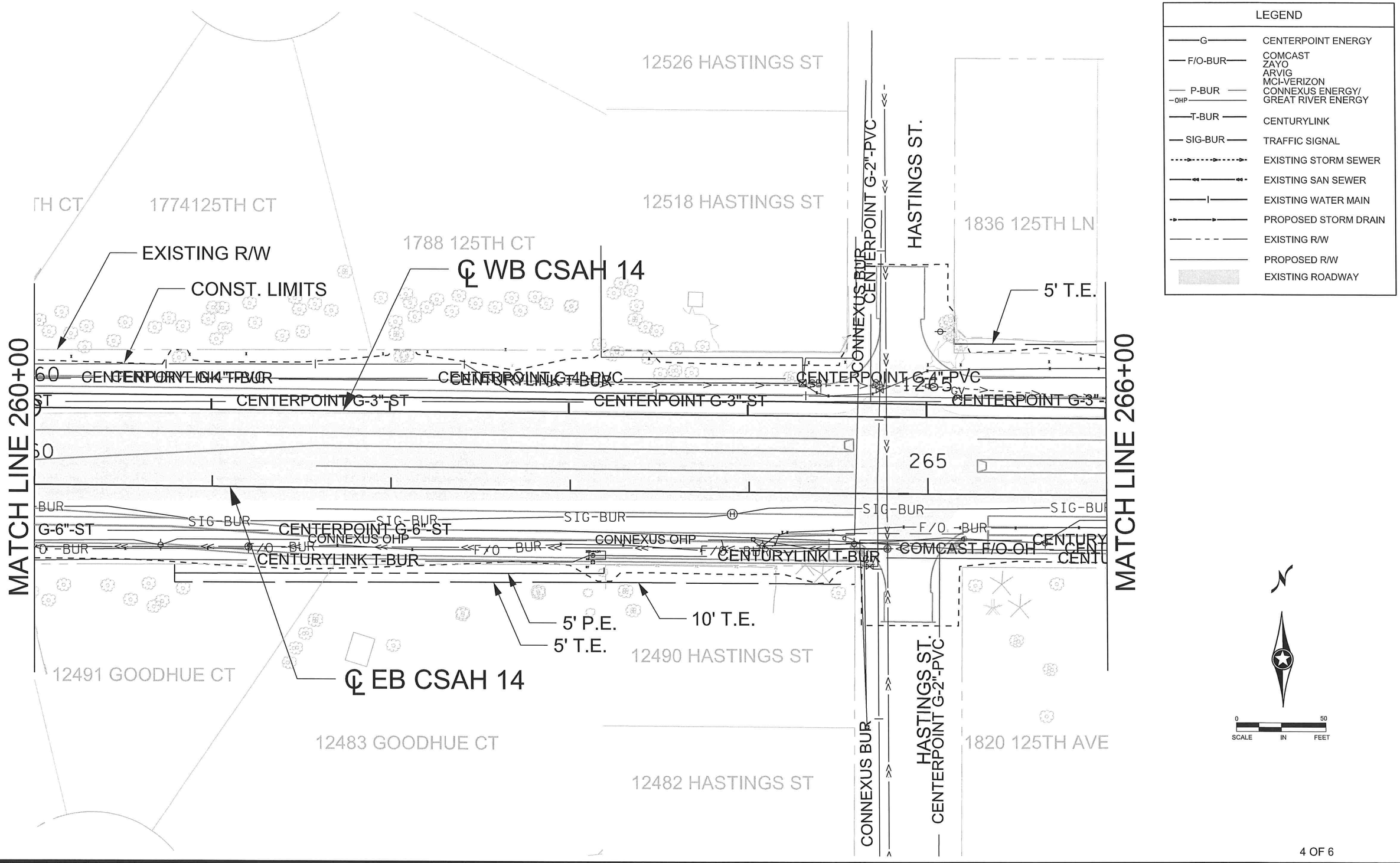
SAP 002-614-041
SAP 106-020-036
CP 18-10

INPLACE UTILITY PLAN

STA 254+00 TO 260+00

Sheet 18 of 200 Sheets



4 OF 6

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_UT_P4.dgn 12/10/2019 1:06:58 PM

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

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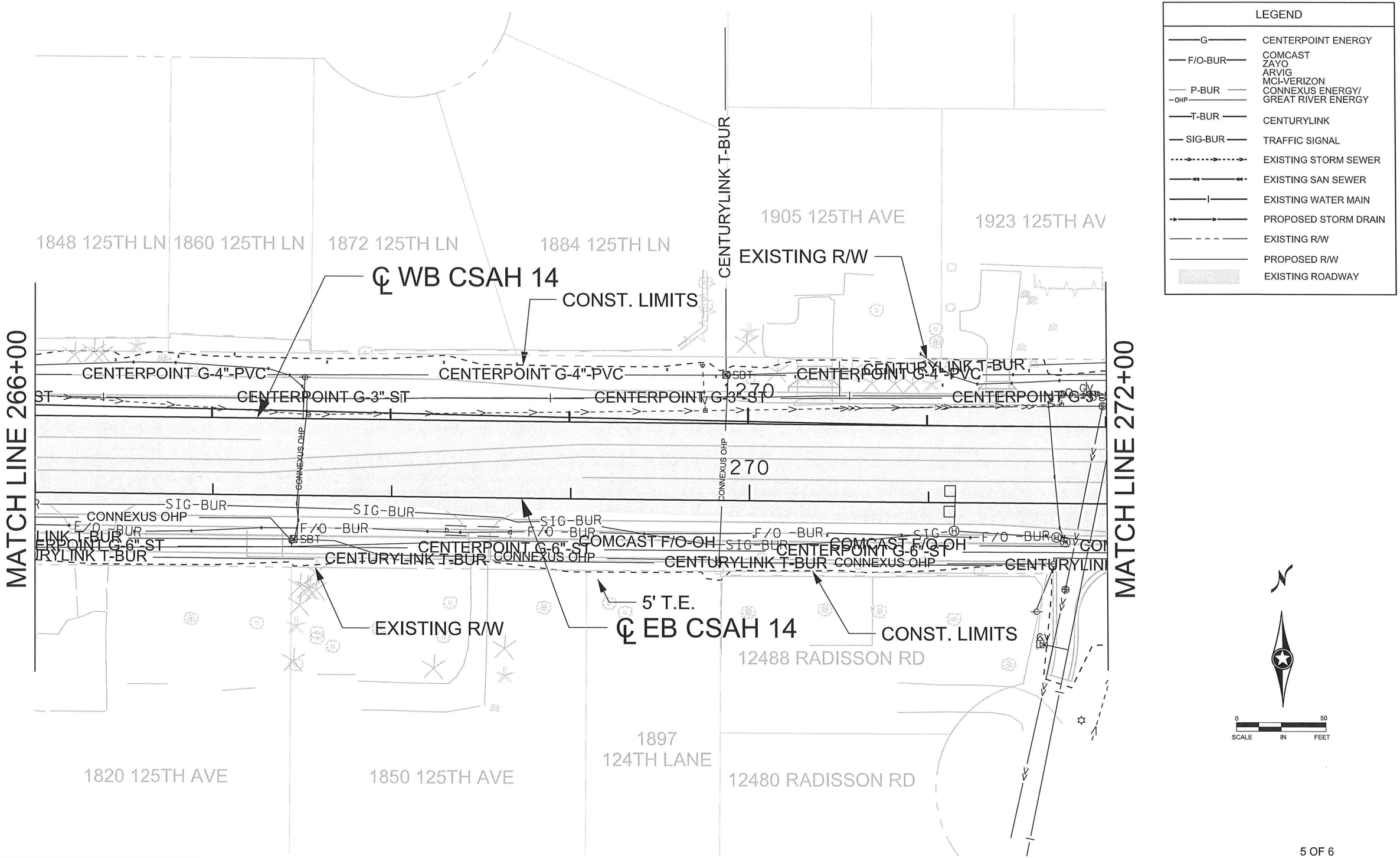
ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

INPLACE UTILITY PLAN

STA 260+00 TO 266+00

Sheet 19 of 200 Sheets



5 OF 6

NO	DATE	BY	CKD	APPR	REVISION

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

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CHECKED BY NJD DATE 12/04/19

ANOKA COUNTY

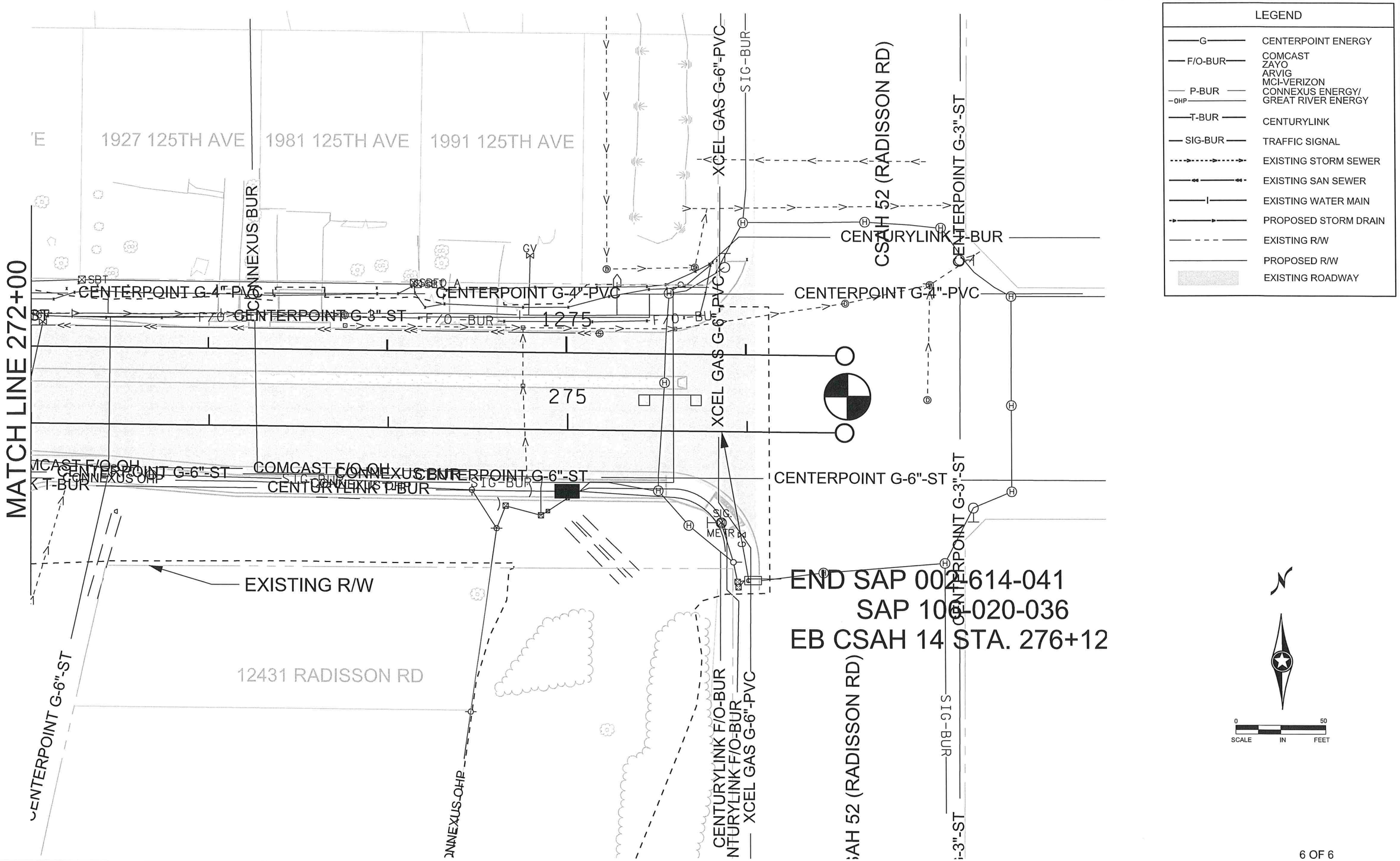
ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

INPLACE UTILITY PLAN

STA 266+00 TO 272+00

Sheet 20 of 200 Sheets



6 OF 6

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_UT_P6.dgn 12/10/2019 1:07:00 PM

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

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SIGNATURE:

DATE: 12-10-19 LICENSE NO. 57216

DRAWN BY	MP	DATE	12/04/19
DESIGN BY	JRB	DATE	12/04/19
CHECKED BY	NJD	DATE	12/04/19

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

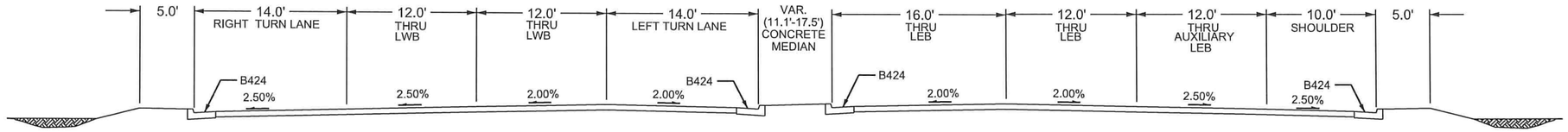
INPLACE UTILITY PLAN

STA 272+00 TO END

Sheet 21 of 200 Sheets

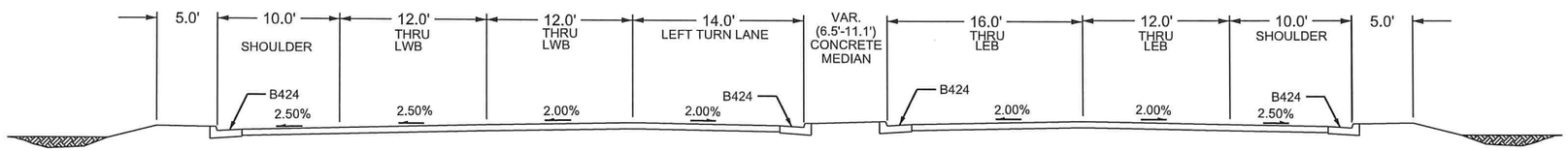
C.S.A.H. 14 (125TH AVE NE) EXISTING

STA. 245+36.07-247+71.12



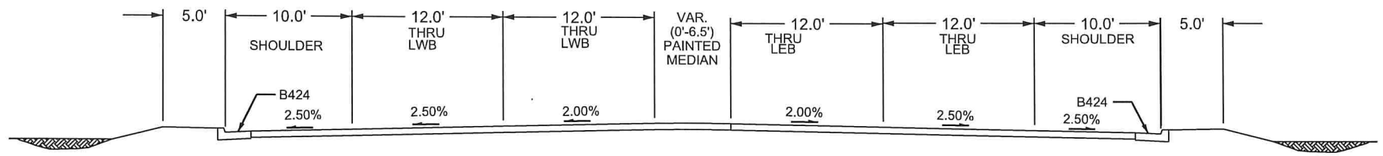
C.S.A.H. 14 (125TH AVE NE) EXISTING

STA. 247+71.12 - 251+86.09



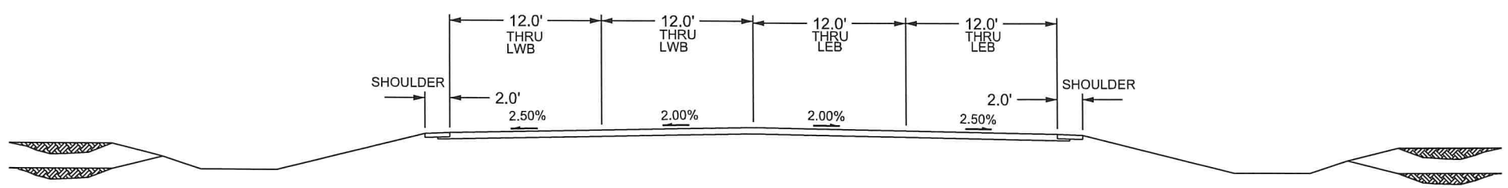
C.S.A.H. 14 (125TH AVE NE) EXISTING

STA. 251+86.09 - 255+00.00



C.S.A.H. 14 (125TH AVE NE) EXISTING

STA. 255+00.00 - 262+65.36



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_TYP.dgn 12/10/2019 1:07:02 PM

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

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ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

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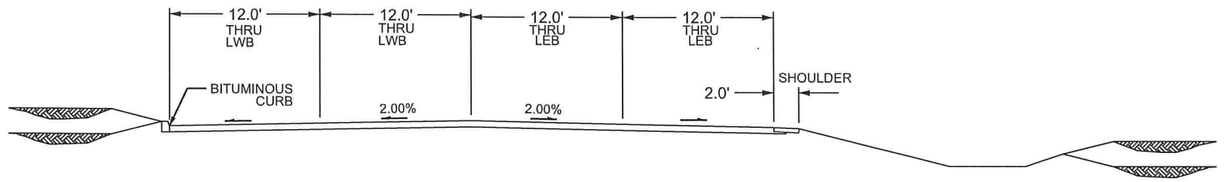
SAP 106-020-036
CP 18-10

EXISTING TYPICAL SECTIONS

Sheet 22 of 200 Sheets

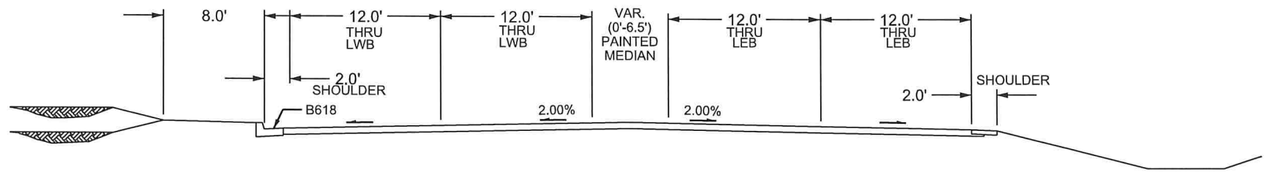
C.S.A.H. 14 (125TH AVE NE) EXISTING

STA. 262+65.36 - 267+00.00



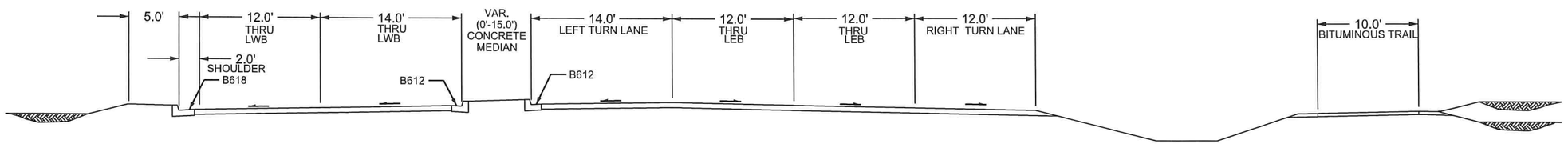
C.S.A.H. 14 (125TH AVE NE) EXISTING

STA. 267+00.00 - 273+16.00



C.S.A.H. 14 (125TH AVE NE) EXISTING

STA. 273+16.00 - 276+00.00



2 OF 2

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_TYP.dgn 12/10/2019 1:07:02 PM

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ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

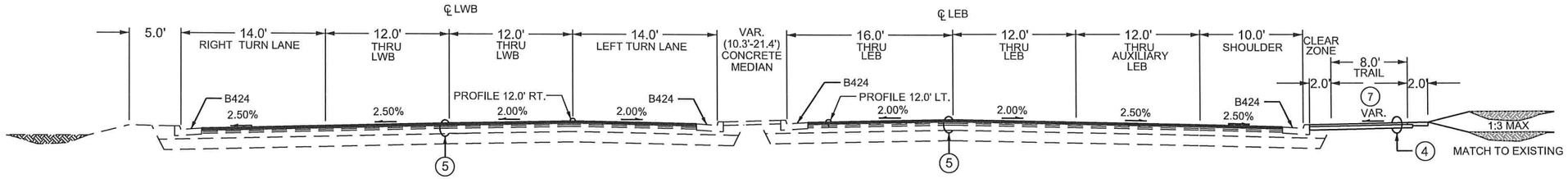
SAP 002-614-041
SAP 106-020-036
CP 18-10

EXISTING
TYPICAL SECTIONS

Sheet 23 of 200 Sheets

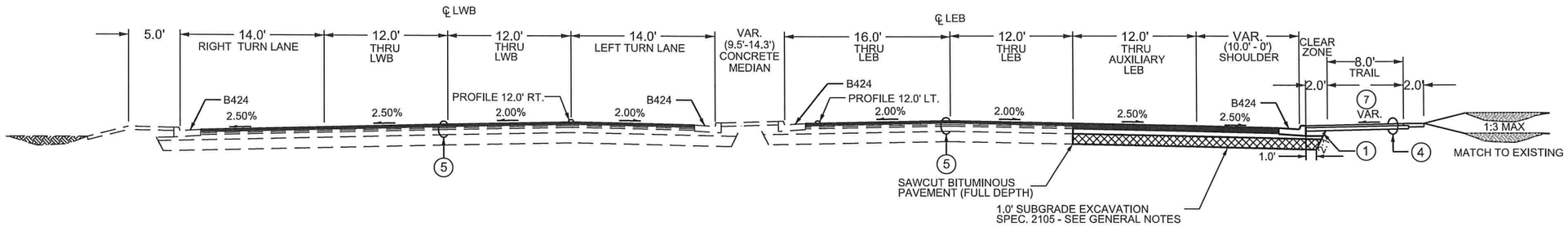
C.S.A.H. 14 (125TH AVE NE) PROPOSED

STA. 245+36.07-246+81.93



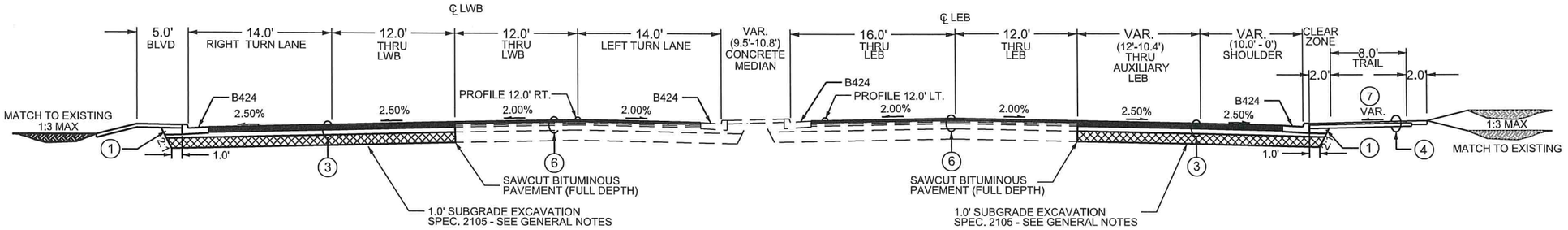
C.S.A.H. 14 (125TH AVE NE) PROPOSED

STA. 246+81.93 - 247+97.92



C.S.A.H. 14 (125TH AVE NE) PROPOSED

STA. 247+97.92 - 249+52.62



GENERAL NOTES:

- SEE CONSTRUCTION PLANS FOR TURN LANE LOCATIONS
- ALL CROSS SLOPES ARE EXPRESSED AS A PERCENT
- UNLESS OTHERWISE SPECIFIED, THE GRADING GRADE CROSS SLOPES SHALL BE THE SAME AS THE FINISHED SURFACE OF THE MAINLINE.
- UNLESS OTHERWISE SPECIFIED, CLASS 5 AGGREGATE WILL EXTEND 1' BEYOND BACK OF CURB.
- 4.0" TOPSOIL & SEED ON ALL DISTURBED AREAS
- ALL STATIONING BASED ON EB ALIGNMENT 14_EB (EB CSAH 14) UNLESS OTHERWISE NOTED
- UNLESS OTHERWISE SPECIFIED CLASS 5 AGGREGATE WILL EXTEND 6" BEYOND THE EDGE OF BITUMINOUS TRAIL
- TRAIL CROSS SLOPE SHALL BE 2% MAX AT DRIVEWAYS
- 1.0' SUBGRADE EXCAVATION SHALL BE THE BLENDING OF THE EXISTING SUBGRADE AS TO UNIFY THE SOILS AT LEAST 1.0' BENEATH THE GRADING GRADE. PAID FOR AS 2105.507 - (SUBGRADE EXCAVATION).

NOTES:

1. SUITABLE MATERIAL
2. SEE DETAILS "A" AND "B" PAGE 30
3. SEE INSET "A" PAGE 30
4. SEE INSET "B" PAGE 30
5. SEE INSET "C" PAGE 30
6. SEE INSET "D" PAGE 30
7. SEE CROSS SECTIONS FOR TRAIL CROSS SLOPES

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_TYP.dgn 12/10/2019 1:07:03 PM

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ANOKA COUNTY HIGHWAY DEPT.

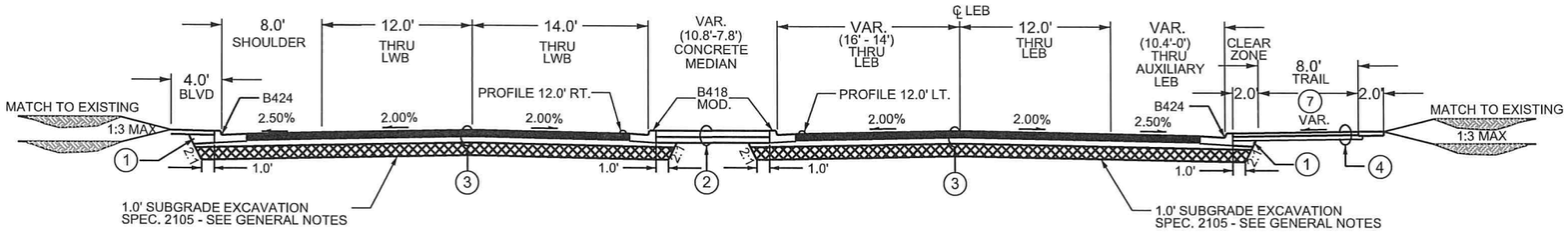
SAP 002-614-041
SAP 106-020-036
CP 18-10

PROPOSED TYPICAL SECTIONS

Sheet 24 of 200 Sheets

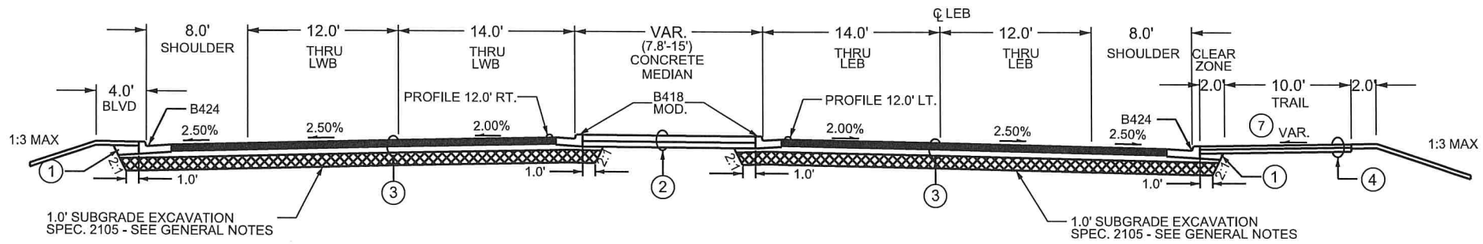
C.S.A.H. 14 (125TH AVE NE) PROPOSED

STA. 249+52.62 - 255+00.00



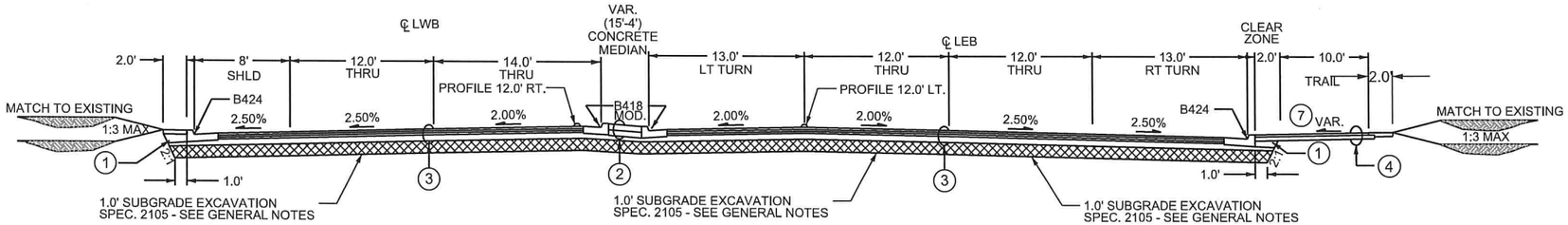
C.S.A.H. 14 (125TH AVE NE) PROPOSED

STA. 255+00.00 - 259+78.10



C.S.A.H. 14 (125TH AVE NE) PROPOSED

EB STA. 259+78.10 - STA. 273+50.00



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NOTES:

1. SUITABLE MATERIAL
2. SEE DETAILS "A" AND "B" PAGE 30
3. SEE INSET "A" PAGE 30
4. SEE INSET "B" PAGE 30
5. SEE INSET "C" PAGE 30
6. SEE INSET "D" PAGE 30
7. SEE CROSS SECTIONS FOR TRAIL CROSS SLOPES

NO	DATE	BY	CKD	APPR	REVISION

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ANOKA COUNTY HIGHWAY DEPT.

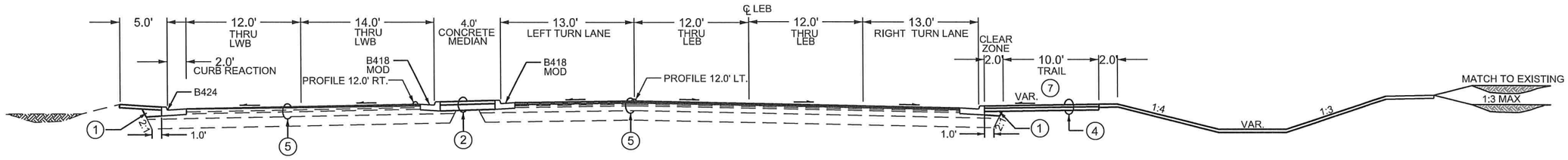
SAP 002-614-041
SAP 106-020-036
CP 18-10

PROPOSED TYPICAL SECTIONS

Sheet 25 of 200 Sheets

C.S.A.H. 14 (125TH AVE NE) PROPOSED

EB STA. 273+50.00 - STA. 275+86.05



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NOTES:

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3. SEE INSET "A" PAGE 30
4. SEE INSET "B" PAGE 30
5. SEE INSET "C" PAGE 30
7. SEE CROSS SECTIONS FOR TRAIL CROSS SLOPES

NO	DATE	BY	CKD	APPR	REVISION
1	01-06-2020	JB	JB		UPDATED MEDIAN WIDTH PER MnDOT S.A. COMMENTS

NAME: P:\002-614-041\Plan\002-614-041_TYP.dgn 01/06/2020 1:04:20 PM

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ANOKA COUNTY

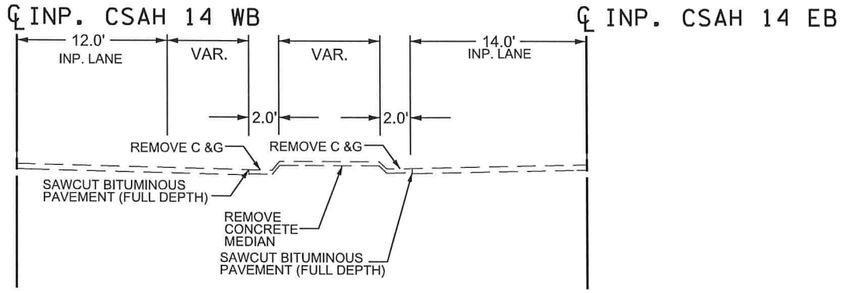
ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

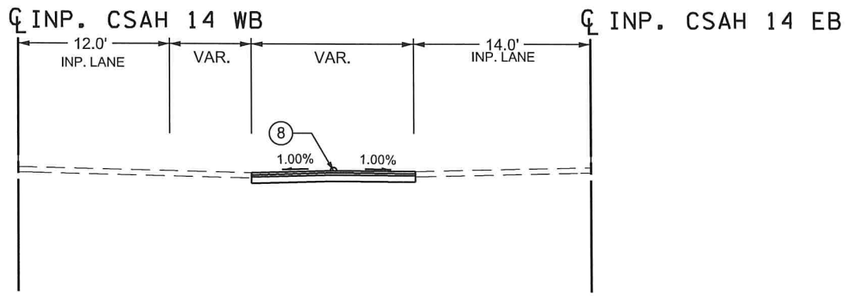
PROPOSED TYPICAL SECTIONS

Sheet 26 of 200 Sheets

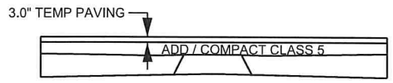
STAGE 2 AND STAGE 3 CROSSOVER
CONCRETE MEDIAN REMOVAL



STAGE 2 AND STAGE 3 CROSSOVER
CROSSOVER CONSTRUCTION



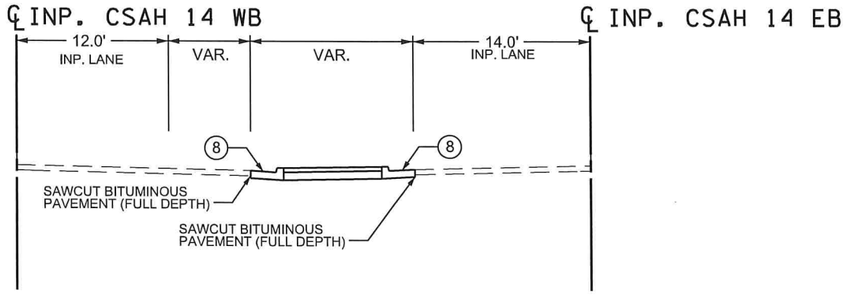
CROSSOVER CONSTRUCTION AND RESTORATION



-- RESTORATION --

REMOVE TEMP PAVING / EXCESS CL5, INSTALL CONCRETE CURB AND 4.0" CONCRETE MEDIAN FOLLOWING DETAIL "A"

CROSSOVER RESTORATION
CONCRETE MEDIAN RESTORATION



NOTES:

(7) SEE INSET "D" PAGE 30

(8) USE B424 CURB AND GUTTER ON WEST END CONCRETE MEDIAN RESTORATION TO MATCH EXISTING. USE DETAIL "A" FOR CONCRETE MEDIAN RESTORATION ON EAST END OF PROJECT.

GENERAL NOTES:

- SEE STAGING AND TRAFFIC CONTROL PLANS FOR LANE CLOSURE DETAILS.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_TYP.dgn 12/10/2019 1:07:04 PM

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SAP 002-614-041
SAP 106-020-036
CP 18-10

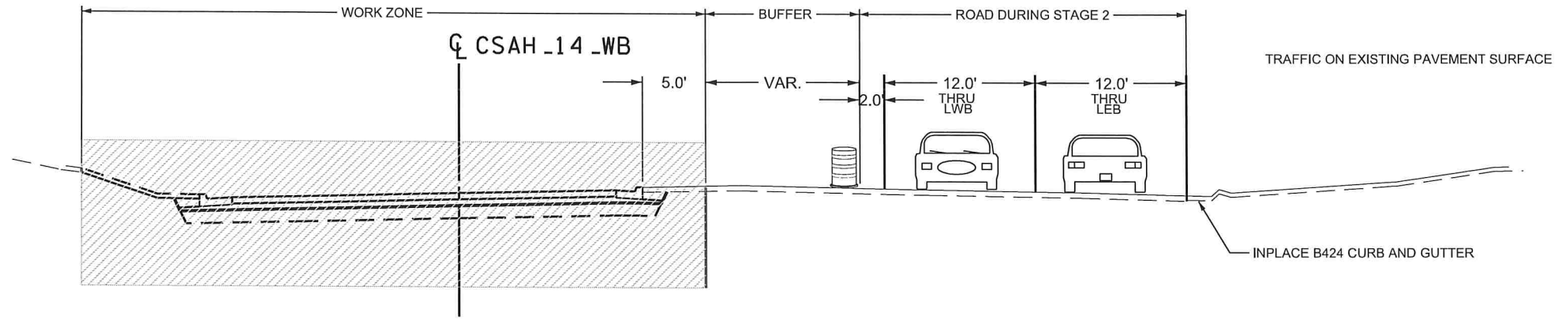
TYPICAL SECTIONS STAGE CONSTRUCTION

Sheet 27 of 200 Sheets

C.S.A.H. 14 (125TH AVE NE)

STAGE 2

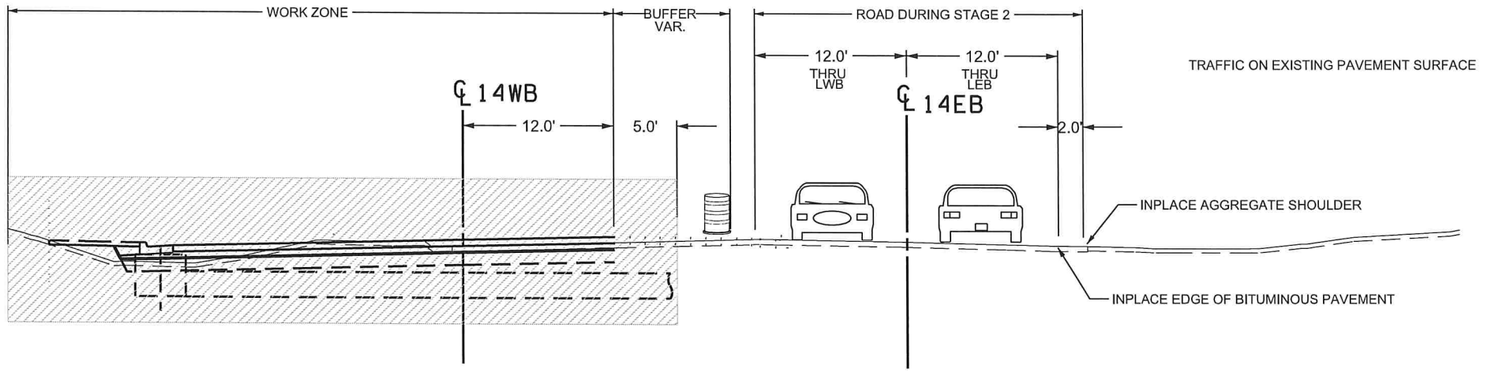
CONSTRUCTION JOINT BEHIND CURB AND GUTTER



C.S.A.H. 14 (125TH AVE NE)

STAGE 2

CONSTRUCTION JOINT AT LANE LINE



STORM SEWER INSTALLATION AT CONSTRUCTION JOINT WHEN NO CURB AND GUTTER INSTALLED

EXTEND PIPE 5 FT
BEYOND CONSTRUTION JOINT
TO CONNECT AT LATER STAGE.
PLACE TEMPORARY BULKHEAD
AT PIPE END.
(INCIDENTAL)

C.S.A.H. 14 (125TH AVE NE)

STAGE 3

GENERAL NOTES:

- SEE ALIGNMENT AND STAGING PLANS FOR LANE CONFIGURATIONS AT EACH STAGE

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_TYP.dgn 12/10/2019 1:07:04 PM

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

PRINT NAME: JORGE R. BERNAL DELGADO

SIGNATURE:

DATE: 12-20-19 LICENSE NO. 57216

DRAWN BY MP DATE 12/04/19

DESIGN BY JRB DATE 12/04/19

CHECKED BY NJD DATE 12/04/19

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

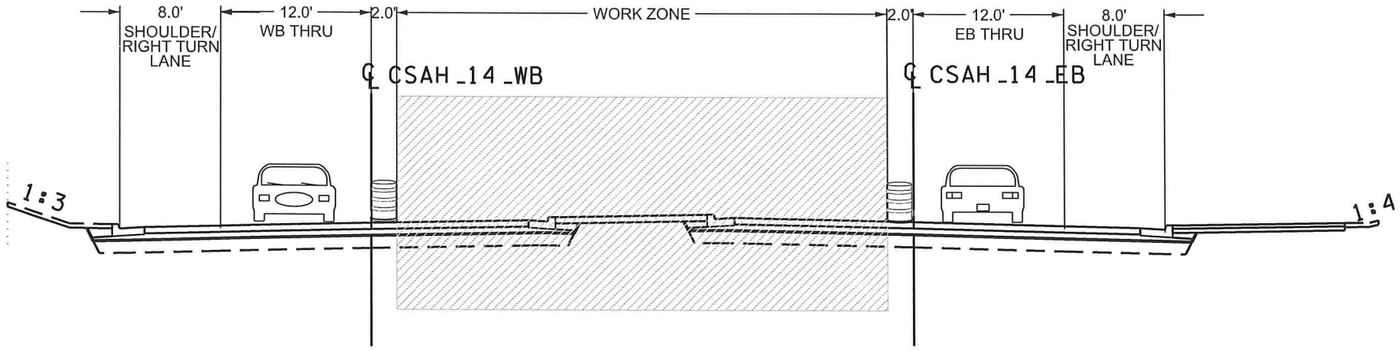
TYPICAL SECTIONS
STAGE CONSTRUCTION

Sheet 28 of 200 Sheets

C.S.A.H. 14 (125TH AVE NE)

STAGE 4

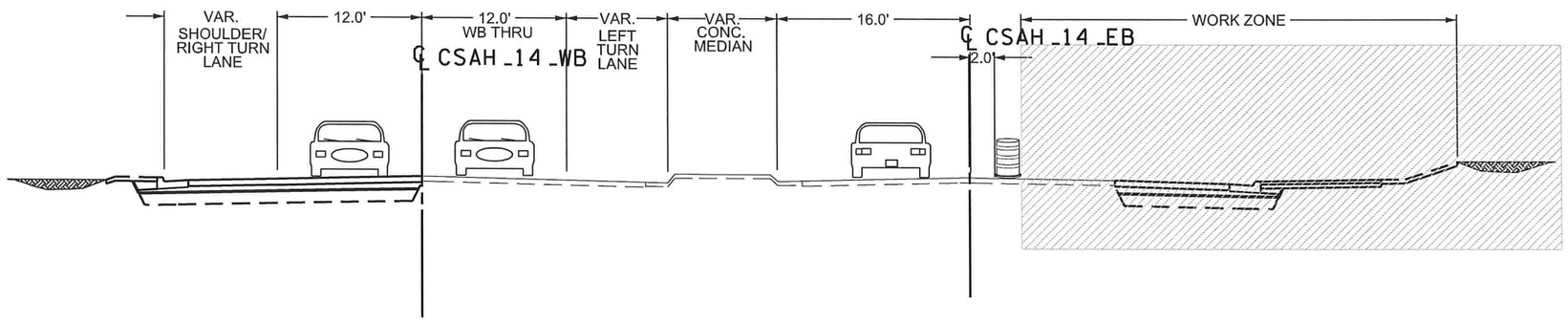
MEDIAN RESTORATION AND CONCRETE FLATWORK



C.S.A.H. 14 (125TH AVE NE)

STAGE 5

WEST TERMINUS



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_TYP.dgn 12/10/2019 1:07:05 PM

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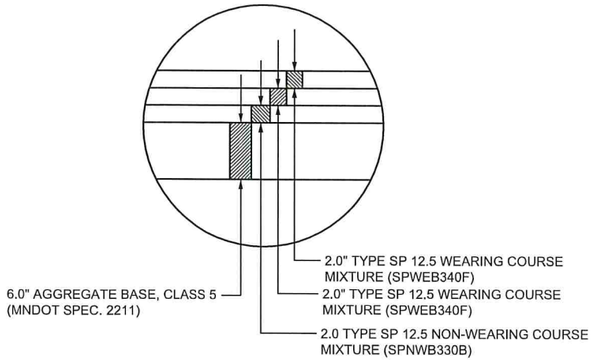
SAP 002-614-041
SAP 106-020-036
CP 18-10

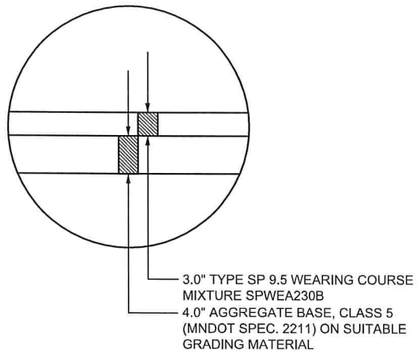
TYPICAL SECTIONS
STAGE CONSTRUCTION

Sheet 29 of 200 Sheets

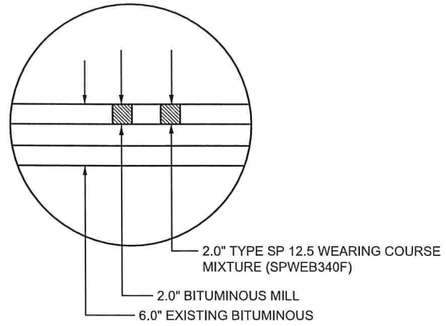
INSET "A"
RECONSTRUCTION
MAINLINE AND SHOULDERS



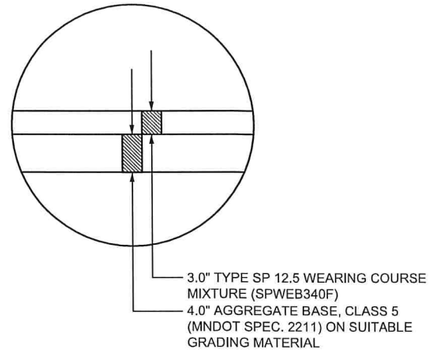
INSET "B"
BITUMINOUS TRAIL AND DRIVEWAYS



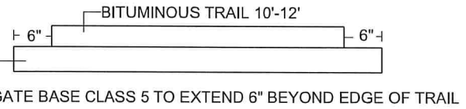
INSET "C"
2.0" MILL & OVERLAY



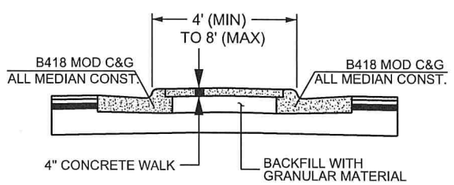
INSET "D"
CROSSOVER



BITUMINOUS TRAIL

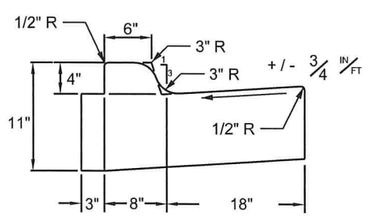


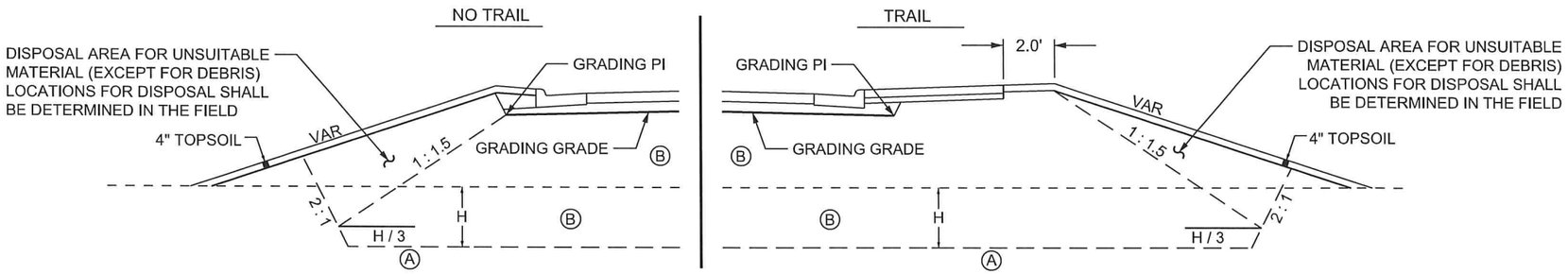
DETAIL "A"
4' TO 8' MEDIAN



FOR MEDIAN WIDER THAN 8' EXTEND SUBGRADE MATERIAL 1 FT FROM THE BACK OF THE CURB AND USE 2:1 TAPER TO THE BOTTOM OF THE CURB

DETAIL "B"
B418 MODIFIED CURB & GUTTER

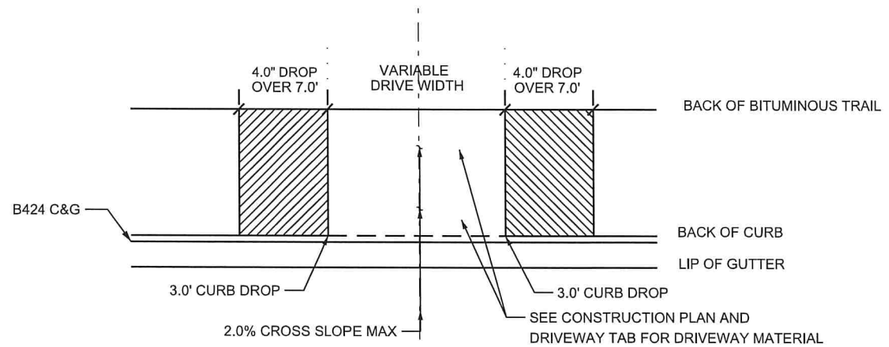




MUCK EXCAVATION

Ⓐ SEE PROFILES AND CROSS SECTIONS FOR MUCK EXCAVATION LOCATIONS AND DEPTH.
Ⓑ BACKFILL WITH GRANULAR MATERIAL.

RESIDENTIAL DRIVEWAY DETAIL
ADJACENT TO TRAIL NO APRON



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_TYP.dgn 12/10/2019 1:07:05 PM

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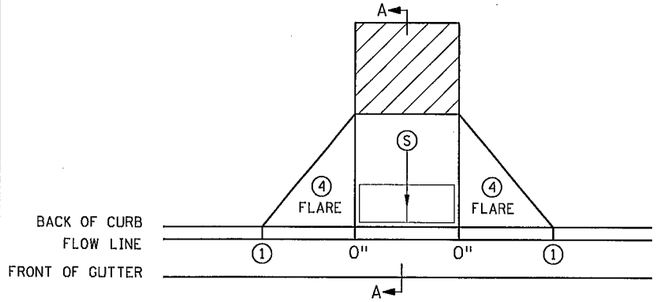
ANOKA COUNTY HIGHWAY DEPT.

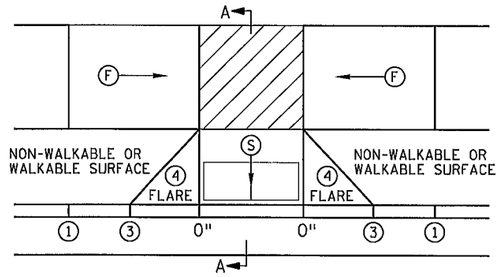
SAP 002-614-041
SAP 106-020-036
CP 18-10

TYPICAL SECTIONS INSETS AND DETAILS

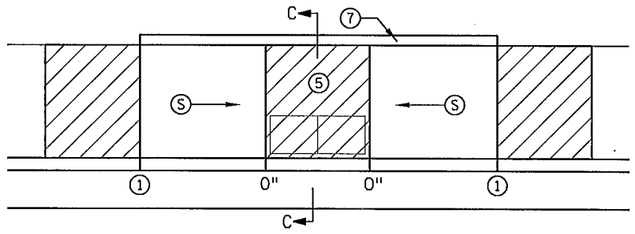
Sheet 30 of 200 Sheets



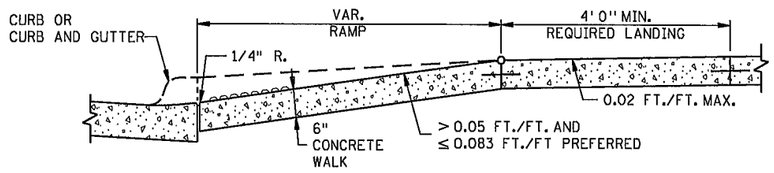
PERPENDICULAR



TIERED PERPENDICULAR

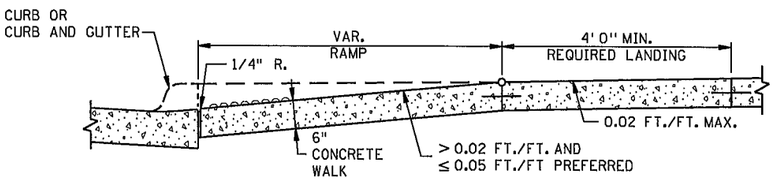


PARALLEL



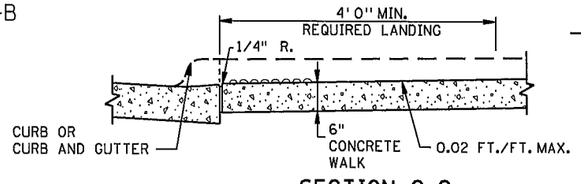
SECTION A-A

PERPENDICULAR/TIERED/DIAGONAL



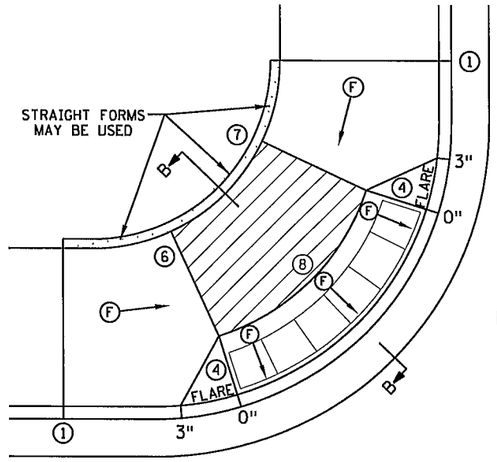
SECTION B-B

FAN

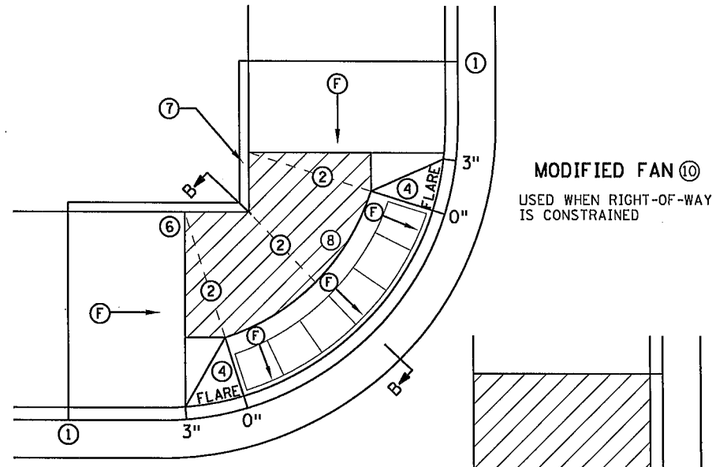


SECTION C-C

PARALLEL/DEPRESSED CORNER

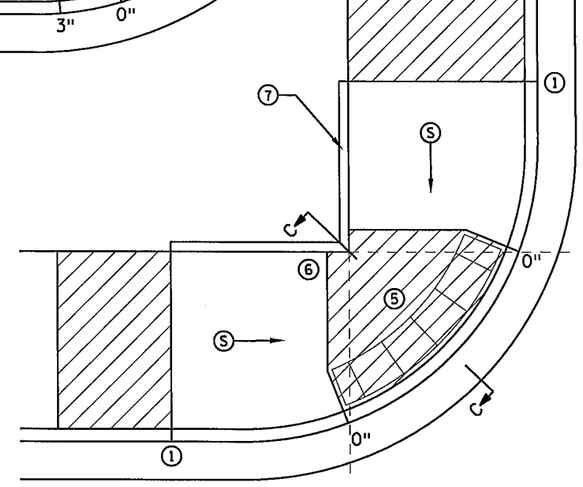


FAN⑩

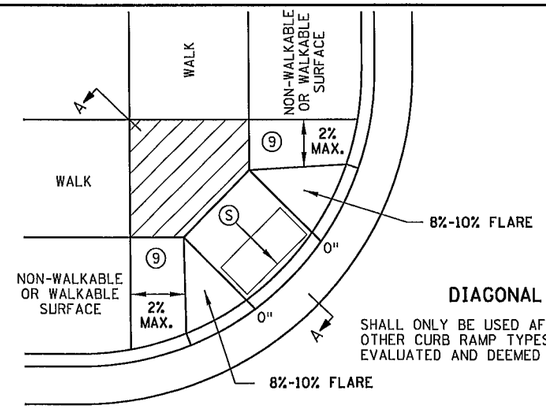


MODIFIED FAN ⑩

USED WHEN RIGHT-OF-WAY IS CONSTRAINED



DEPRESSED CORNER



DIAGONAL

SHALL ONLY BE USED AFTER ALL OTHER CURB RAMP TYPES HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL

NOTES:

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

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

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

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

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

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

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

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

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

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

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

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

LEGEND

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

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

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

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.

X" CURB HEIGHT

REVISION:

APPROVED: JANUARY 23, 2017

OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

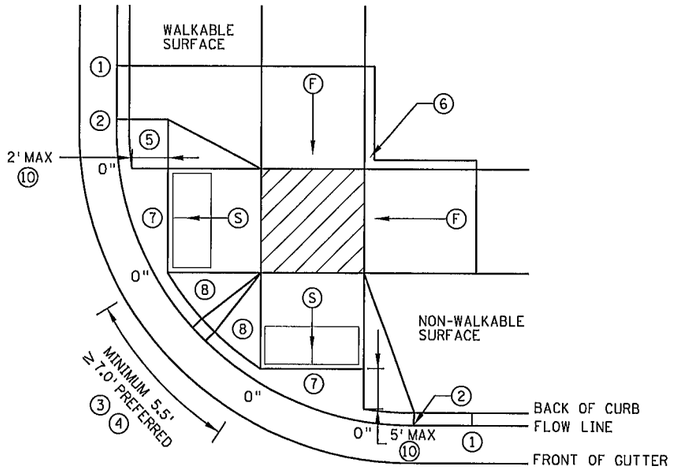
STANDARD PLAN 5-297.250 | 1 OF 6

APPROVED: 1-23-2017
REVISED:

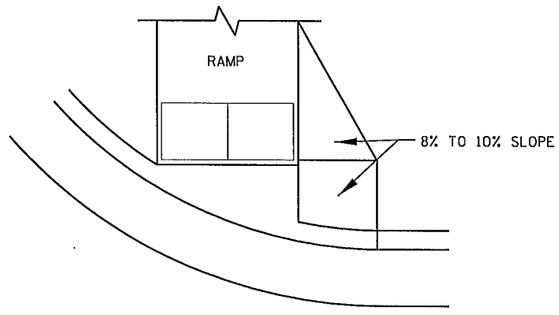
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

SAP 002-614-041
SAP 106-020-036 CP 18-10



COMBINED DIRECTIONAL ⑨



DIRECTIONAL RAMP WALKABLE FLARE

NOTES:

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

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

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

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

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

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

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

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

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

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

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

① MATCH FULL CURB HEIGHT.

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

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

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

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

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

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

⑧ 8% TO 10% WALKABLE FLARE.

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

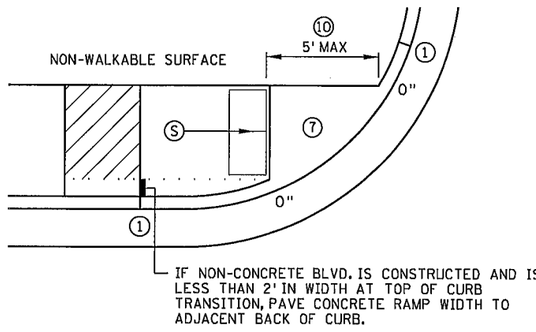
⑩ FRONT EDGE OF DETECTABLE WARNING SHALL BE SET BACK 2' MAXIMUM WHEN ADJACENT TO WALKABLE SURFACE, AND 5' MAXIMUM WHEN ADJACENT TO NON-WALKABLE SURFACE WITH ONE CORNER SET 3" FROM BACK OF CURB. A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD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

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

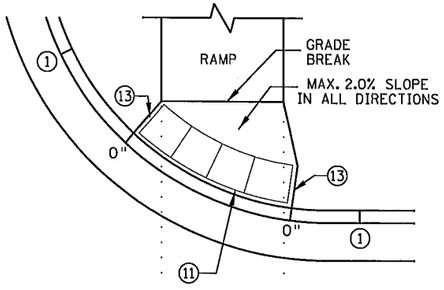
⑫ FOR DIRECTIONAL RAMPS WITH THE DETECTABLE WARNINGS PLACED AT THE BACK OF CURB, THE DETECTABLE WARNINGS SHALL COVER THE ENTIRE WIDTH OF THE WALK/PATH. THIS ENSURES A DETECTABLE EDGE AND HELPS ELIMINATE THE CURB TAPER OBSTRUCTING THE PATH OF PEDESTRIAN TRAVEL.

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

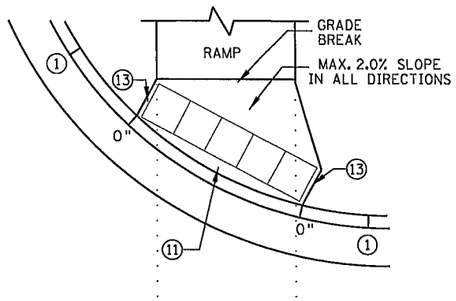
⑭ TO BE USED FOR ALL DIRECTIONAL RAMPS, EXCEPT WHERE DOMES ARE PLACED ALONG THE BACK OF CURB.

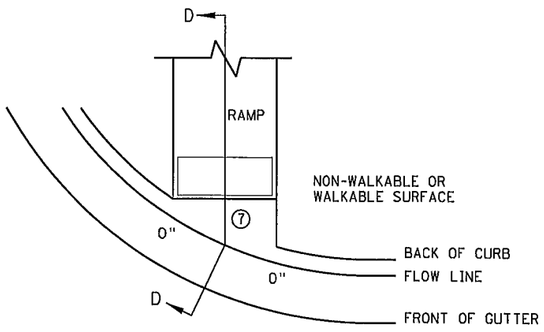


STANDARD ONE-WAY DIRECTIONAL ⑨

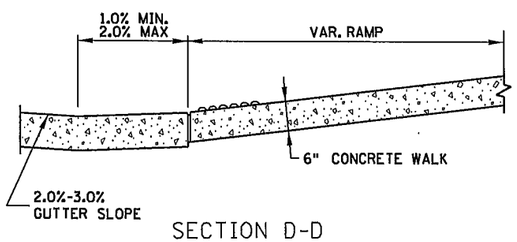


ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB

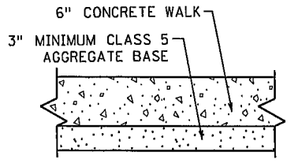




CURB FOR DIRECTIONAL RAMPS ⑭



SECTION D-D



TYPICAL SIDEWALK SECTION WITHIN INTERSECTION CORNER

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%.
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.
X" CURB HEIGHT

REVISION:

APPROVED: JANUARY 23, 2017

OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.250 | 2 OF 6

APPROVED: 1-23-2017
REVISED:

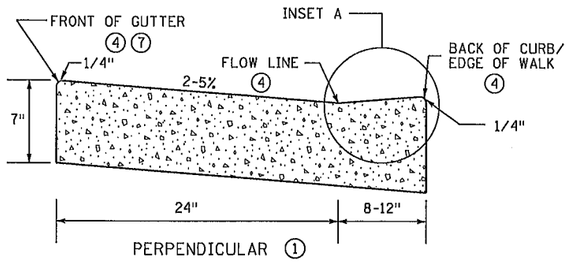
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

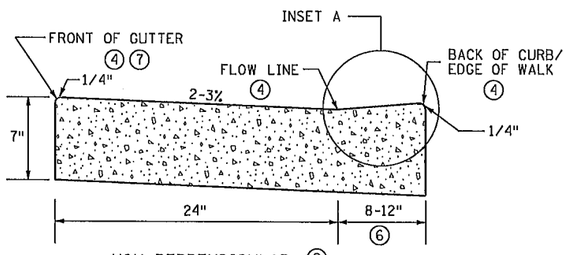
SAP 002-614-041
SAP 106-020-036 CP 18-10

SHEET NO. 32 OF 200 SHEETS

FILE NAME: 002-614-041_STD_PED.dgn

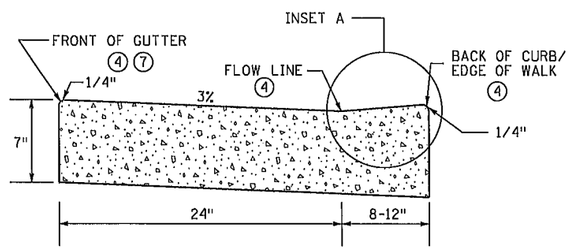


PERPENDICULAR ①

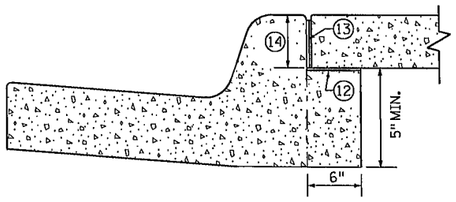


NON PERPENDICULAR ②

PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL

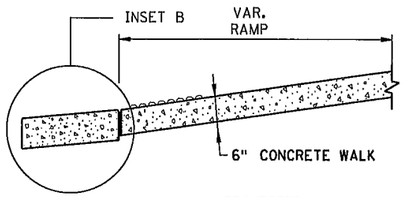


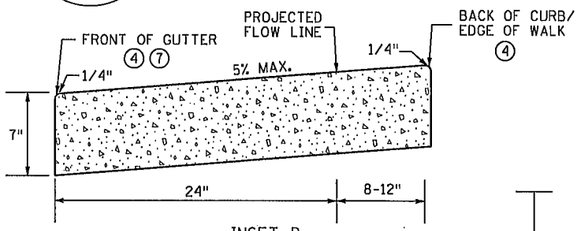
FOR CURB MACHINE PLACEMENT AROUND RADIUS ③
(REGARDLESS OF RAMP TYPE)



OPTIONAL SILL CURB WHEN SIDEWALK IS AT BACK OF CURB

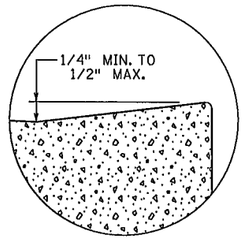
CONCRETE SILL TO BE USED ONLY WHEN SPECIFIED IN THE PLAN.



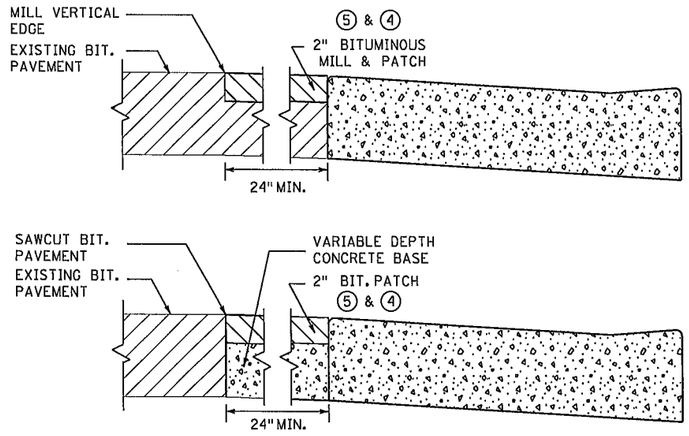


INSET B

OUTFLOW GUTTER ⑧



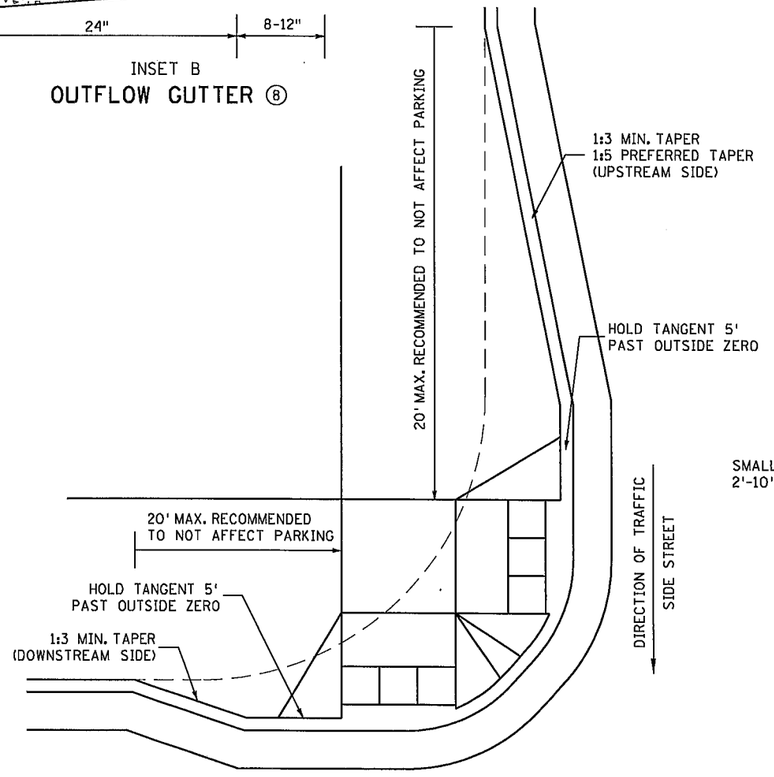
INSET A



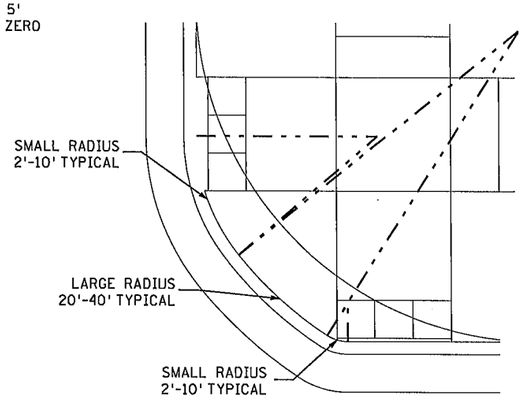
ONLY ALLOWED PER ENGINEER'S APPROVAL

PAVEMENT TREATMENT OPTIONS IN FRONT OF CURB & GUTTER

FOR USE ON CURB RAMP RETROFITS



ADA CURB EXTENSION WITH COMPOUND RADIUS (BUMP OUT) ⑪



COMBINED DIRECTIONAL ⑩
(COMPOUND RADIUS)

NOTES:

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

NO PONDING SHALL BE PRESENT IN THE PAR.

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

① FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: PERPENDICULAR, TIERED PERPENDICULAR, PARALLEL, AND DIAGONAL RAMPS.

② FOR USE AT CURB RAMPS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED NON PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: FANS & DEPRESSED CORNERS.

③ BEGIN GUTTER SLOPE TRANSITION 10' OUTSIDE OF ALL CURB RAMPS.

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

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

⑥ VARIABLE WIDTH FOR DIRECTIONAL CURB APPLICATIONS. SEE SHEET 2 FOR DIRECTIONAL CURB SLOPE REQUIREMENTS.

⑦ TOP FRONT OF GUTTER SHALL BE CONSTRUCTED FLUSH WITH PROPOSED ADJACENT PAVEMENT ELEVATION. TOP 1.5" OF THE GUTTER FACE MUST BE A FORMED EDGE. PAR GUTTER SHALL NOT BE OVERLAID.

⑧ SHOULD BE USED AT VERTICALLY CONSTRAINED AREAS WHEN AT A DRAINAGE HIGH POINT OR SUPER ELEVATED ROADWAY SEGMENTS.

⑨ DRILL AND GROUT NO. 4 EPOXY-COATED 18" LONG TIE BARS AT 30" CENTER TO CENTER INTO EXISTING CONCRETE PAVEMENT 1' MINIMUM FROM ALL JOINTS.

⑩ HELPS PROVIDE TWO SEPARATE RAMPS, REDUCES THE DOME SETBACK LENGTH AND MINIMIZES DIRECTIONAL CURB. THIS RADIUS DESIGN CLOSELY FOLLOWS THE TURNING VEHICLE PATH WHILE OPTIMIZING CURB RAMP LENGTH.

⑪ CURB EXTENSIONS SHOULD BE USED IN VERTICALLY CONSTRAINED AREAS, USUALLY IN DOWNTOWN ROADWAY SEGMENTS WHERE ON-STREET PARKING IS AVAILABLE. CURB EXTENSIONS SHOULD BE CONSIDERED FOR APS INTERSECTIONS WHERE SPACE IS LIMITED. PUSH BUTTONS MUST MEET APS CRITERIA AS DESCRIBED IN THE PUSH BUTTON LOCATION DETAIL SHEET.

⑫ PLACE BOND BREAKER BETWEEN WALK AND TOP OF SILL.

⑬ 1/2" PREFORMED JOINT FILLER PER MNDOT SPEC. 3702.

⑭ DIMENSION TO BE SAME AS SIDEWALK THICKNESS, 4" MIN.

REVISION:

APPROVED: JANUARY 23, 2017

OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.250 | 3 OF 6

APPROVED: 1-23-2017
REVISED:

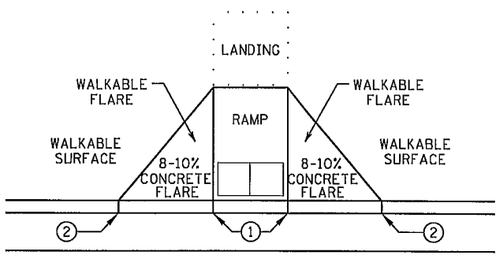
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

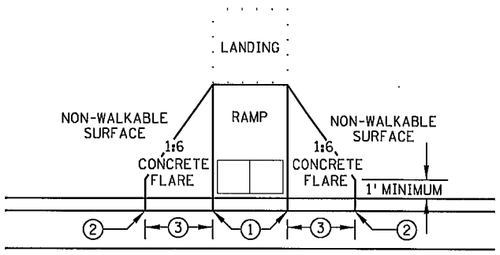
SAP 002-614-041
SAP 106-020-036 CP 18-10

SHEET NO. 33 OF 200 SHEETS

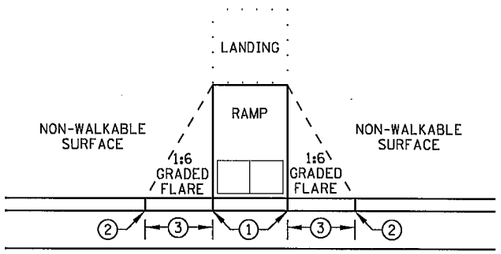
FILE NAME: 002-614-041_STD_PED.dgn



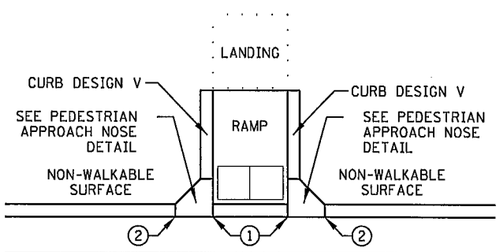
PAVED FLARES
ADJACENT TO WALKABLE SURFACE



PAVED FLARES
ADJACENT TO NON-WALKABLE SURFACE

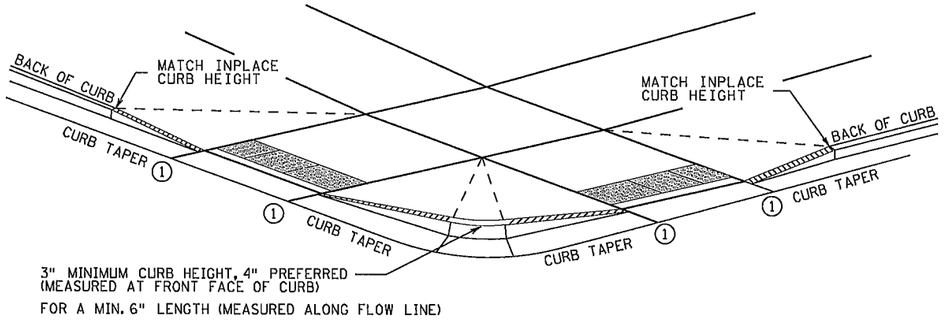


GRADED FLARES

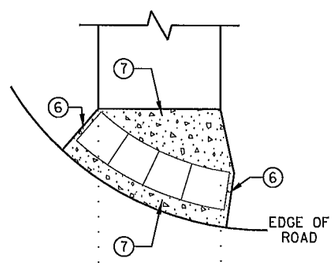


RETURNED CURB ⑤

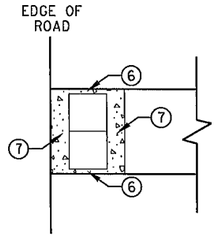
TYPICAL SIDE TREATMENT OPTIONS ④ ⑪



DETECTABLE EDGE WITH ⑧ CURB AND GUTTER

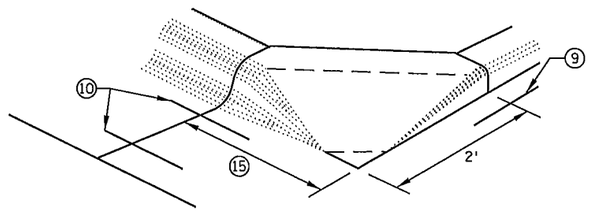


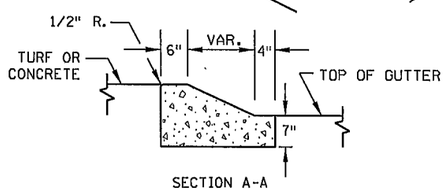
RADIAL DETECTABLE WARNING



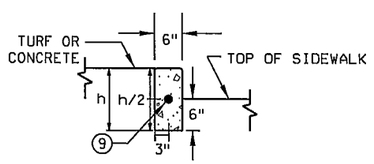
RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER

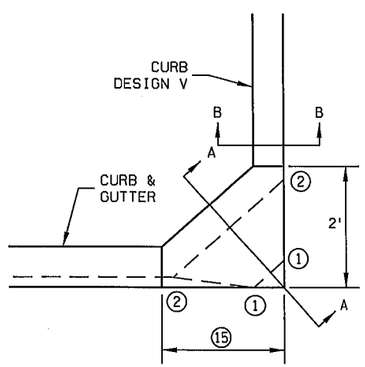




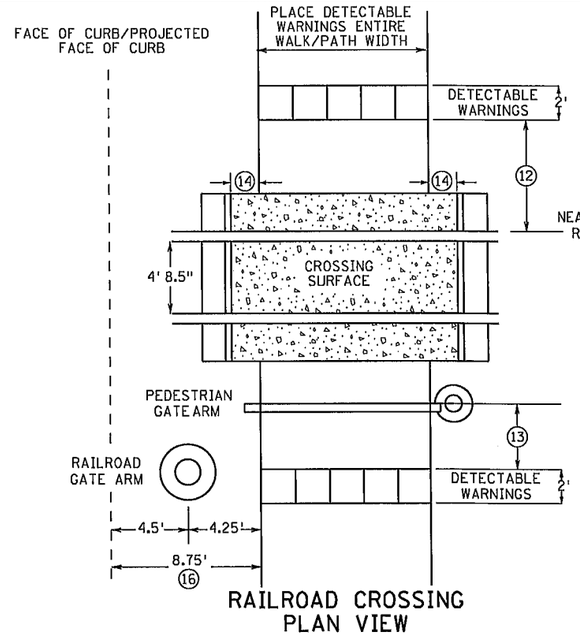
SECTION A-A



SECTION B-B



PEDESTRIAN APPROACH NOSE DETAIL
(FOR RETURNED CURB SIDE TREATMENT)



RAILROAD CROSSING PLAN VIEW

NOTES:

SEE STANDARD PLATE 7038 AND THIS SHEET FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.

A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.

CONCRETE FLARE LENGTHS ADJACENT TO NON-WALKABLE SURFACES SHOULD BE LESS THAN 8' LONG MEASURED ALONG THE RAMPS FROM THE BACK OF CURB.

① 0" CURB HEIGHT.

② FULL CURB HEIGHT.

③ 2' FOR 4" HIGH CURB AND 3' FOR 6" HIGH CURB.

④ SIDE TREATMENTS ARE APPLICABLE TO ALL RAMP TYPES AND SHOULD BE IMPLEMENTED AS NEEDED AS FIELD CONDITIONS DICTATE. THE ENGINEER SHALL DETERMINE THE RAMP SIDE TREATMENTS BASED ON MAINTENANCE OF BOTH ROADWAY AND SIDEWALK, ADJACENT PROPERTY CONSIDERATIONS, AND MITIGATING CONSTRUCTION IMPACTS.

⑤ TYPICALLY USED FOR MEDIANS AND ISLANDS.

⑥ WHEN NO CONCRETE FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE EDGE OF ROADWAY. MAINTAIN 3" MAX. BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.

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

⑧ ALL CONSTRUCTED CURBS MUST HAVE A CONTINUOUS DETECTABLE EDGE FOR THE VISUALLY IMPAIRED. THIS DETECTABLE EDGE REQUIRES DETECTABLE WARNINGS WHEREVER THERE IS ZERO-INCH HIGH CURB. CURB TAPERS ARE CONSIDERED A DETECTABLE EDGE WHEN THE TAPER STARTS WITHIN 3" OF THE EDGE OF THE DETECTABLE WARNINGS AND UNIFORMLY RISES TO A 3-INCH MINIMUM CURB HEIGHT. ANY CURB NOT PART OF A CURB TAPER AND LESS THAN 3 INCHES IN HEIGHT IS NOT CONSIDERED A DETECTABLE EDGE AND THEREFORE IS NOT COMPLIANT WITH ACCESSIBILITY STANDARDS.

⑨ DRILL AND GROUT 1 - NO. 4 12" LONG REINFORCEMENT BAR (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE V CURB.

⑩ DRILL AND GROUT 2 - NO. 4 12" LONG REINFORCEMENT BARS (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE CURB AND GUTTER.

⑪ SIDE TREATMENT EXAMPLES SHOWN ARE WHEN THE INITIAL LANDING IS APPROXIMATELY LEVEL WITH THE FULL HEIGHT CURB (I.E. 6' LONG RAMP FOR 6" HIGH CURB). WHEN THE INITIAL LANDING IS MORE THAN 1" BELOW FULL HEIGHT CURB REFER TO SHEETS 1 & 2 TO MODIFY THE CURB HEIGHT TAPERS AND MAINTAIN POSITIVE BOULEVARD DRAINAGE.

⑫ NEAREST EDGE OF DETECTABLE WARNING SURFACES SHALL BE PLACED 12' MINIMUM TO 15' MAXIMUM FROM THE NEAREST RAIL. FOR SKEWED RAILWAYS IN NO INSTANCE SHALL THE DETECTABLE WARNING BE CLOSER THAN 12' MEASURED PERPENDICULAR TO THE NEAREST RAIL.

⑬ WHEN PEDESTRIAN GATES ARE PROVIDED, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE SIDE OF THE GATES OPPOSITE THE RAIL, 2' FROM THE APPROACHING SIDE OF THE GATE ARM. THIS CRITERIA GOVERNS OVER NOTE ⑫.

⑭ CROSSING SURFACE SHALL EXTEND 2' MINIMUM PAST THE OUTSIDE EDGE OF WALK OR SHARED-USE PATH.

⑮ 3' FOR MEDIANS AND SPLITTER ISLANDS. NOSE CAN BE REDUCED TO 2' ON FREE RIGHT ISLANDS.

⑯ SIDEWALK TO BE PLACED 8.75' MIN. FROM THE FACE OF CURB/PROJECTED FACE OF CURB. THIS ENSURES MIN. CLEARANCE BETWEEN THE SIDEWALK AND GATE ARM COUNTERWEIGHT SUPPORTS.

REVISION:

APPROVED: JANUARY 23, 2017
OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

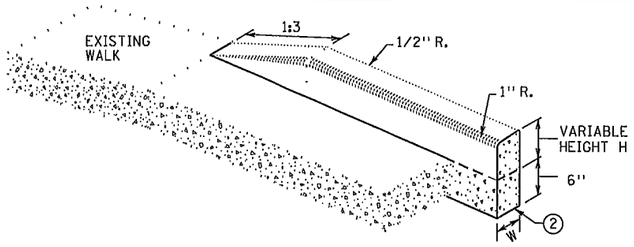
STANDARD PLAN 5-297.250 | 4 OF 6

APPROVED: 1-23-2017
REVISED:

STATE DESIGN ENGINEER

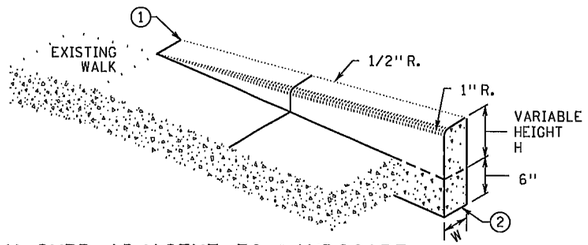
PEDESTRIAN CURB RAMP DETAILS

SAP 002-614-041
SAP 106-020-036 CP 18-10



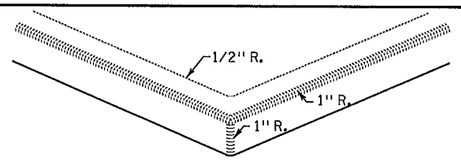
V CURB ADJACENT TO LANDSCAPE

CURB WITHIN SIDEWALK LIMITS

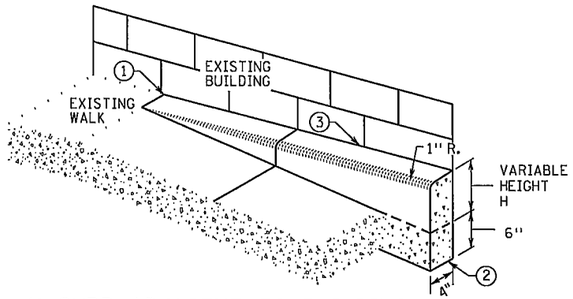


V CURB ADJACENT TO LANDSCAPE

CURB OUTSIDE SIDEWALK LIMITS

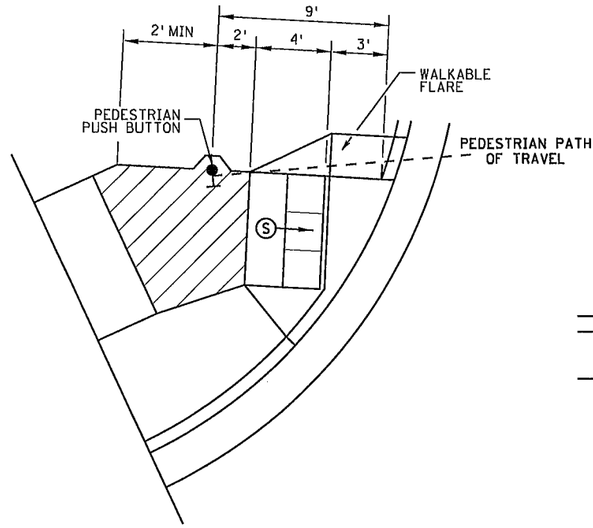


V CURB INTERSECTION



V CURB ADJACENT TO BUILDING OR BARRIER

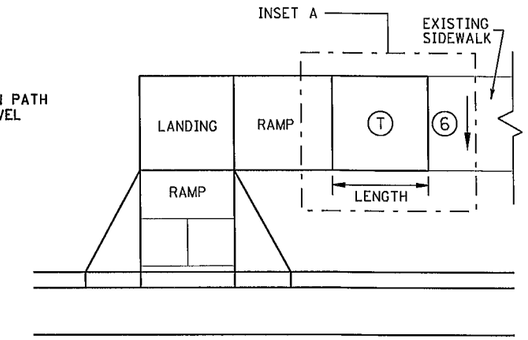
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
<6"	4"
≥6"	6"

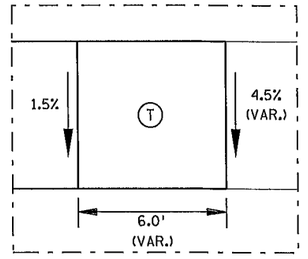


SEMI-DIRECTIONAL RAMP (3,4,9)

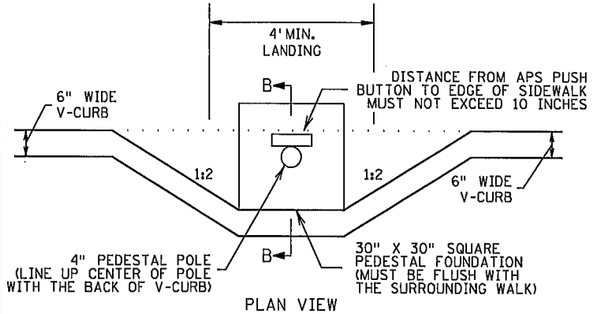
3' DOME SETBACK, 4' LONG RAMP AND PUSH BUTTON 9' FROM THE BACK OF CURB

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

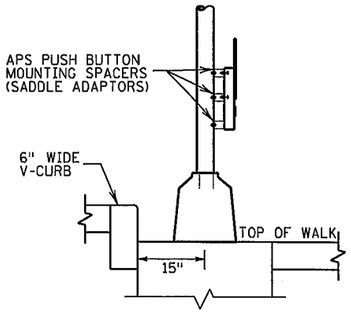




TRANSITION PANEL ④⑤

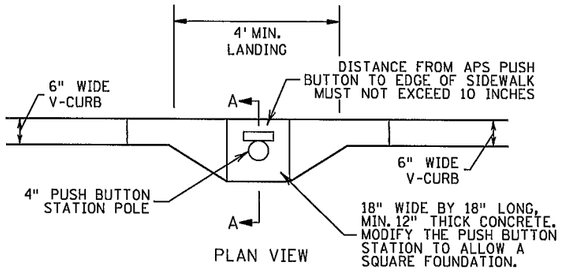


PLAN VIEW

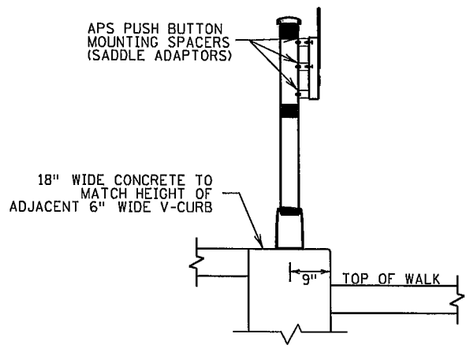


SECTION B-B

SIGNAL PEDESTAL & PUSH BUTTON (V-CURB)



PLAN VIEW



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

④ THE MAX. RATE OF CROSS SLOPE TRANSITIONING IS 1' LINEAR FOOT OF SIDEWALK PER HALF PERCENT CROSS SLOPE. WHEN PAR WIDTH IS GREATER THAN 6' OR THE RUNNING SLOPE IS GREATER THAN 5%, DOUBLE THE CALCULATED TRANSITION LENGTH.

⑤ TRANSITION PANELS ARE TO ONLY BE USED AFTER THE RAMP, OR IF NEEDED, LANDING ARE AT THE FULL CURB HEIGHT (TYPICAL SECTION).

⑥ EXISTING CROSS SLOPE GREATER THAN 2.0%.

LEGEND

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

Ⓢ 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.

Ⓣ 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.

REVISION:

APPROVED: JANUARY 23, 2017

OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.250 | 5 OF 6

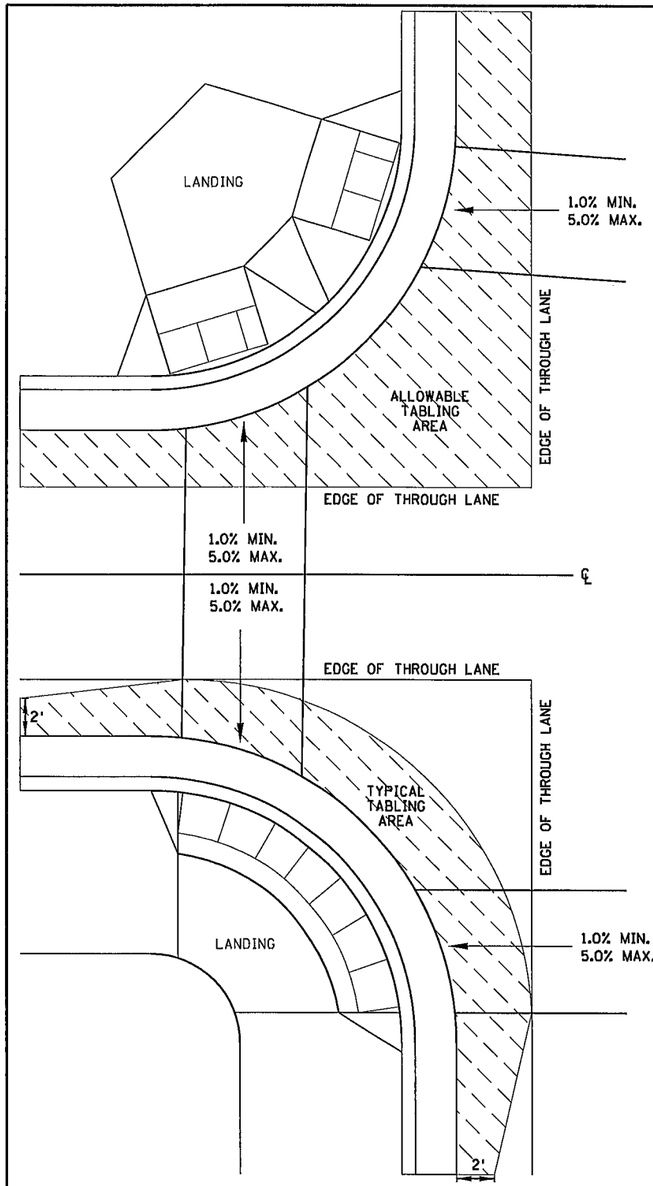
APPROVED: 1-23-2017

REVISED:

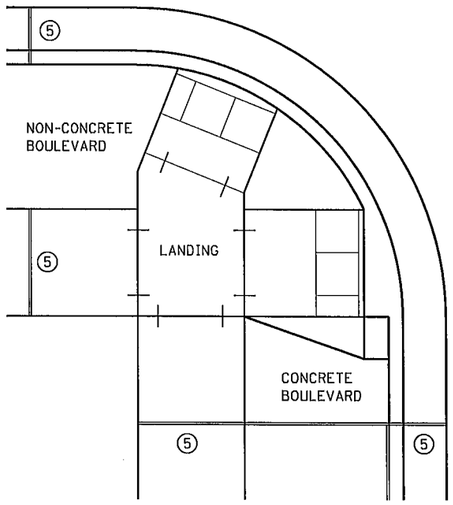
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

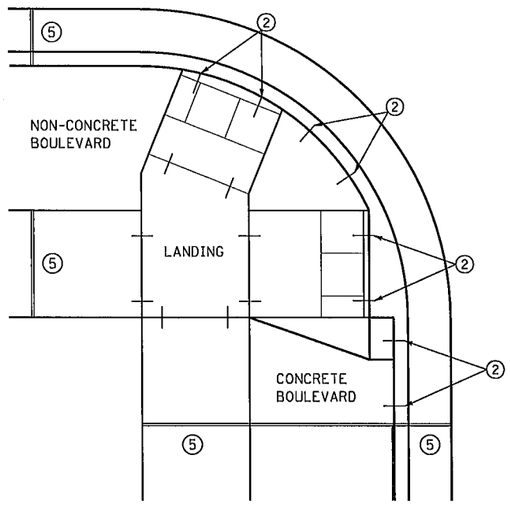
SAP 002-614-041
SAP 106-020-036 CP 18-10



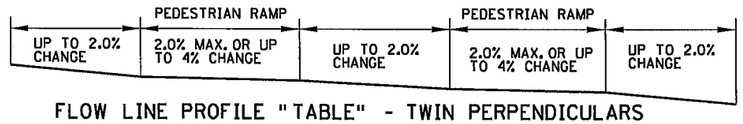
CURB LINE AND ROAD CROSSING ADJUSTMENTS



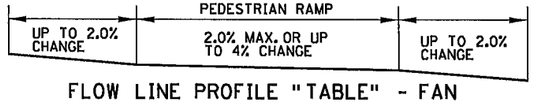
EXPANSION MATERIAL PLACEMENT FOR CONCRETE AND BITUMINOUS ROADWAYS



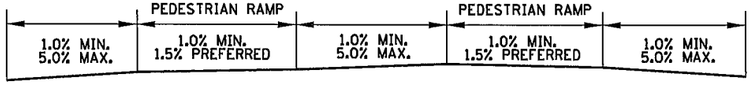
OPTIONAL CURB LINE REINFORCEMENT PLACEMENT ON BITUMINOUS ROADWAYS ④



FLOW LINE PROFILE "TABLE" - TWIN PERPENDICULARS

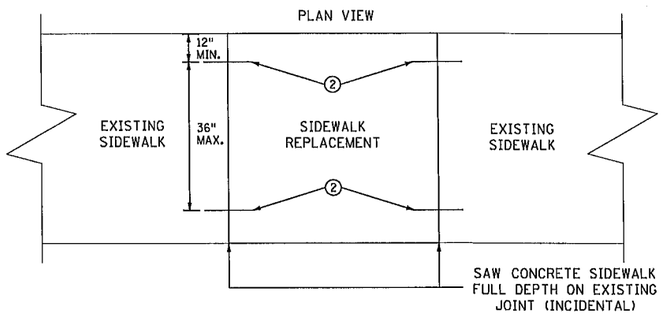


FLOW LINE PROFILE "TABLE" - FAN



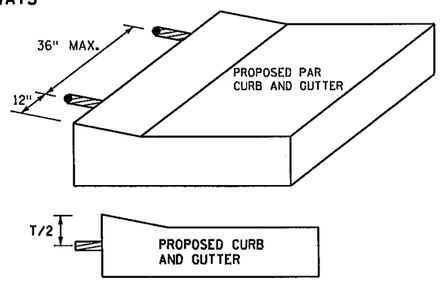
FLOW LINE PROFILE RAISE - TWIN PERPENDICULARS

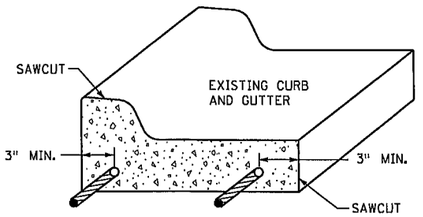
FLOW LINE PROFILE RAISE - FAN



OPTIONAL SIDEWALK REINFORCEMENT

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

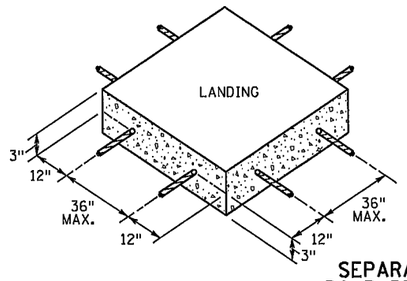


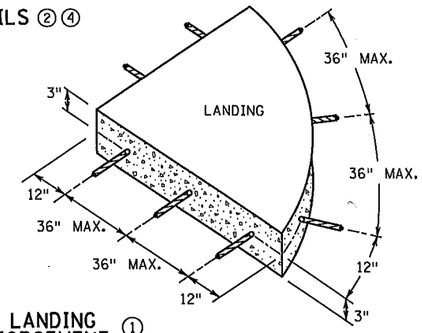


FOR USE ON CURB RAMP RETROFITS

CURB AND GUTTER REINFORCEMENT ③

OPTIONAL CURB LINE REINFORCEMENT DETAILS ②④





SEPARATE LANDING POUR REINFORCEMENT ①

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

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

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

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

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

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

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

NOTES:

① TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, ALL INITIAL LANDINGS AT A TOP OF A RAMPED SURFACE (RUNNING SLOPE GREATER THAN 2%) SHALL BE FORMED AND PLACED SEPARATELY IN AN INDEPENDENT CONCRETE POUR. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON THIS SHEET FOR ALL SEPARATELY POURED INITIAL LANDINGS.

② DRILL AND GROUT NO. 4 12" LONG REINFORCEMENT BARS AT 36" MAXIMUM CENTER TO CENTER (EPOXY COATED). BARS TO BE ADJUSTED TO MATCH RAMP GRADE.

③ DRILL AND GROUT 2 - NO. 4 X 12" LONG REINFORCEMENT BARS (EPOXY COATED). REINFORCEMENT REQUIRED FOR ALL CONSTRUCTION JOINTS WITHIN RADIUS.

④ THIS OPTIONAL CURB LINE REINFORCEMENT DETAIL SHOULD ONLY BE USED ON BITUMINOUS ROADWAYS WHEN SPECIFIED IN THE PLAN.

⑤ 1/2 IN. PREFORMED JOINT FILLER MATERIAL PER MNDOT SPEC. 3702.

REVISION:

APPROVED: JANUARY 23, 2017

OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.250 | 6 OF 6

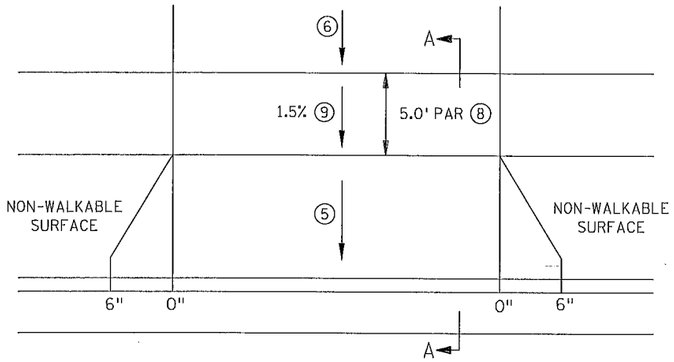
APPROVED: 1-23-2017

REVISED:

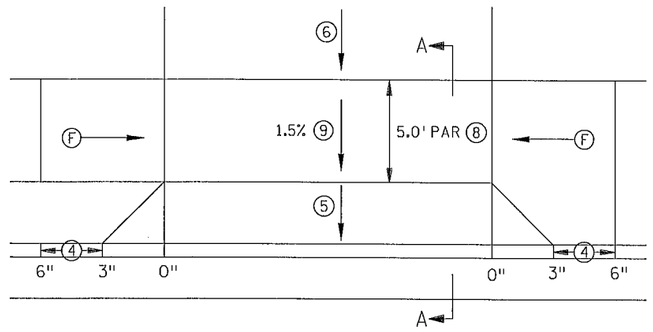
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

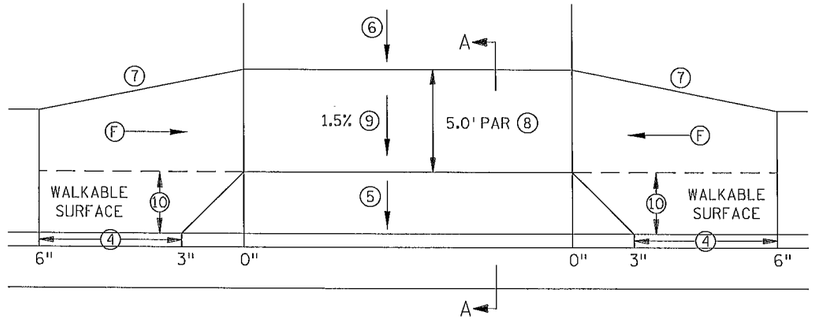
SAP 002-614-041
SAP 106-020-036 CP 18-10



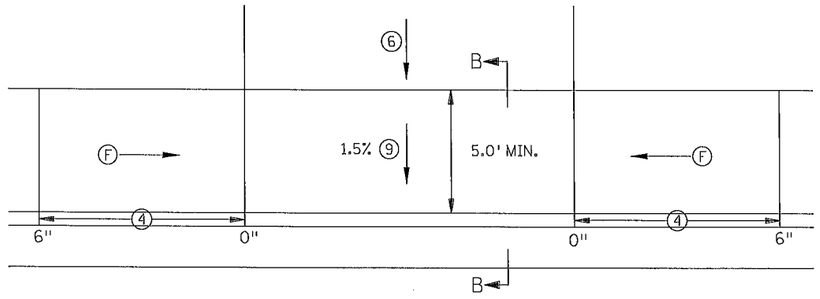
PERPENDICULAR DRIVEWAY ①



TIERED PERPENDICULAR DRIVEWAY ②



TIERED PERPENDICULAR OFFSET DRIVEWAY



PARALLEL DRIVEWAY ③

NOTES:

IN NO CASE SHALL SIDEWALK PROFILES EXCEED 5.0%, EXCEPT SIDEWALK PROFILES CAN MATCH ROADWAY GRADE IF ROADWAY GRADE IS GREATER THAN 5.0%. RAMPS FOR DRIVEWAYS ARE REQUIRED TO FOLLOW THE ABOVE SIDEWALK CRITERIA.

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

DRIVEWAY TYPES FROM MOST PREFERRED TO LEAST PREFERRED ARE AS FOLLOWS: PERPENDICULAR, TIERED PERPENDICULAR, TIERED PERPENDICULAR OFFSET & PARALLEL.

① TO BE USED WHEN THE DRIVEWAY PAR IS LEVEL WITH OR ABOVE THE TOP OF CURB, RESULTING IN A CONTINUOUS PAR PROFILE.

② TO BE USED WHEN THE DRIVEWAY PAR IS BELOW THE ROADWAY CURB HEIGHT. THIS DRIVEWAY TYPE CAN BE USED FOR BOTH PAVED (AS SHOWN) AND GRASS BOULEVARDS.

③ SHOULD BE USED FOR NEGATIVE SLOPED DRIVEWAYS. DW CURB TYPE 2 CURB SHOULD BE USED TO RAISE PAR ABOVE GUTTER AND REDUCE "ROLLER COASTER" EFFECT. 4" HIGH ROADWAY CURB SHOULD BE USED TO REDUCE "ROLLER COASTER" EFFECT ESPECIALLY WHEN MULTIPLE DRIVEWAYS ARE PRESENT.

④ TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

⑤ 8% MAX. PREFERRED, 10% MAX. FOR COMMERCIAL AND 12% MAX. FOR RESIDENTIAL. SEE GENERAL NOTES ON SHEET 2 FOR MORE INFORMATION.

⑥ 8% MAX. PREFERRED, SEE SHEET 2 FOR MORE INFORMATION.

⑦ 1:3 MIN. 1:5 PREFERRED FOR DRIVEWAY RETROFIT PROJECTS. 1:10 PREFERRED FOR SIDEWALK REPLACEMENT PROJECTS.

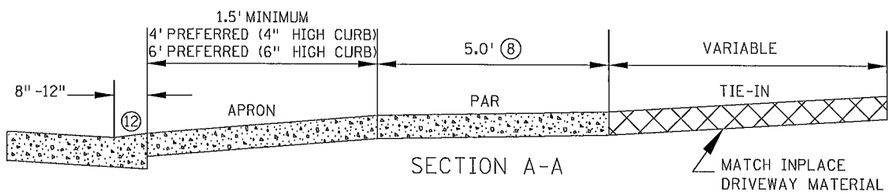
⑧ 5.0' MIN. PAR WIDTH IS THE STANDARD THROUGH DRIVEWAYS. IF FEASIBLE WIDEN DRIVEWAY PAR WIDTH TO MATCH APPROACHING SIDEWALK PAR WIDTHS. IN VERTICALLY CONSTRAINED AREAS PAR WIDTHS CAN INCREMENTALLY BE REDUCED TO 4.5' OR 4' MIN AFTER ALL OTHER OPTIONS HAVE BEEN APPLIED.

⑨ THE PEDESTRIAN ACCESS ROUTE, MAY NOT EXCEED 0.02 FT./FT. AS CONSTRUCTED.

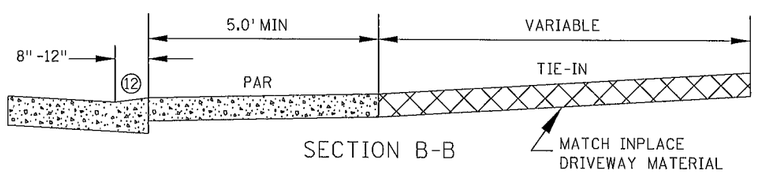
⑩ SIDEWALK OFFSET TO BE LESS THAN OR EQUAL TO HALF THE APPROACHING SIDEWALK WIDTH.

⑪ VALLEY GUTTER APRON TO BE POURED INTEGRAL WITH THE CURB AND GUTTER. SEE SHEET 2 FOR MORE INFORMATION.

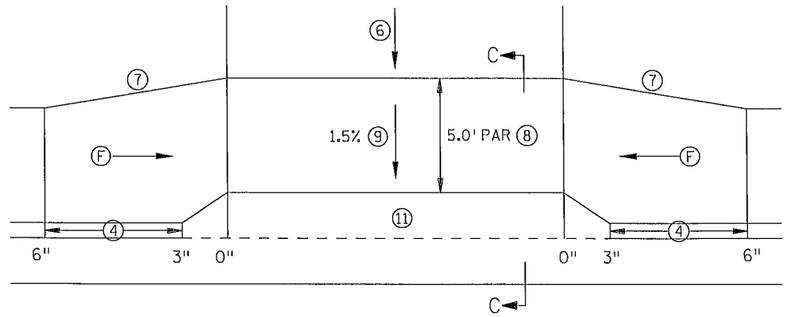
⑫ SEE SHEET 2 FOR CURB TYPE INFORMATION.



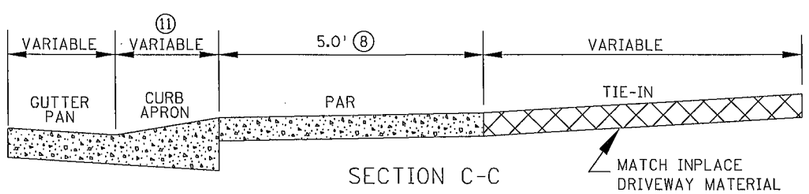
SECTION A-A



SECTION B-B



VALLEY GUTTER DRIVEWAY



SECTION C-C

LEGEND	
Ⓕ	INDICATES DRIVEWAY 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"	CURB HEIGHT (INCHES)

REVISION:
APPROVED: JANUARY 23, 2017
OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

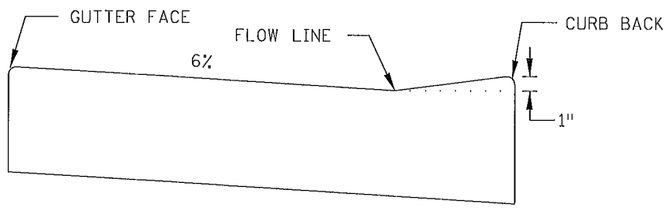
STANDARD PLAN 5-297.254 | 1 OF 4

APPROVED: 1-23-2017
REVISED:

STATE DESIGN ENGINEER

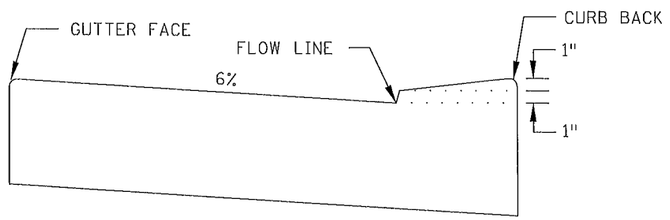
DRIVEWAY AND SIDEWALK DETAILS

SAP 002-614-041
SAP 106-020-036
CP 18-10



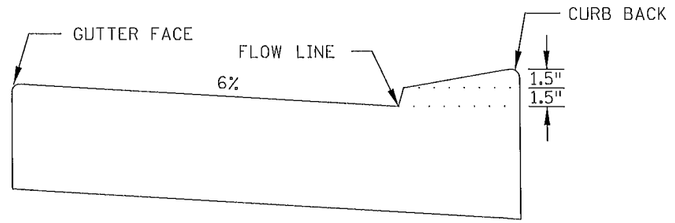
DW CURB STANDARD

STANDARD CURB AT DRIVEWAY



DW CURB TYPE 2

VERTICALLY CONSTRAINED



DW CURB TYPE 3

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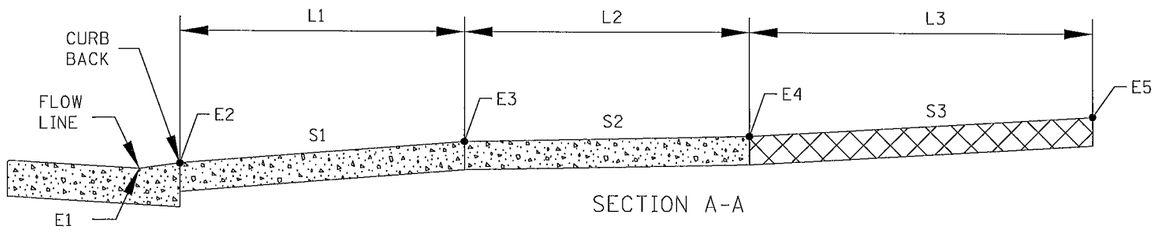
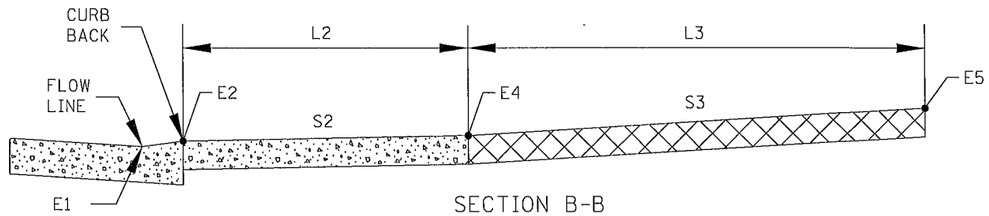


SECTION A-A

(REFER TO PREVIOUS SHEET)



SECTION B-B

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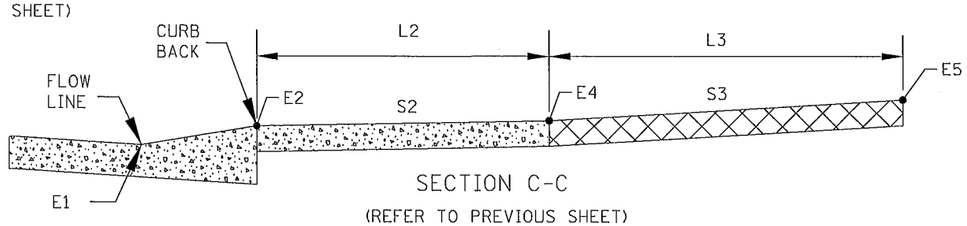
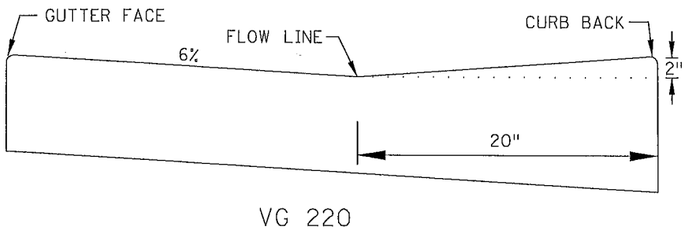


SECTION C-C

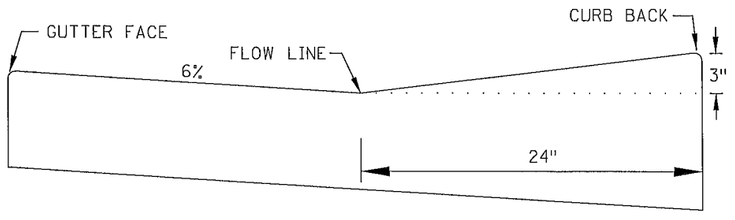
(REFER TO PREVIOUS SHEET)

DRIVEWAY TABULATION ①

STATION	SIDE	DRIVEWAY TYPE	CURB TYPE ③	E1	E2	L1 FT	S1 %	E3	L2 FT	S2 ② %	E4	L3 FT	S3 %	EXISTING %	E5	COMMENTS



VG 220



VG 324

VALLEY GUTTER CURB

OTHER CURB HEIGHTS & CURB APRON LENGTHS CAN BE USED

NOTES:

DW CURB STANDARD SHALL BE USED WHEN THE DRIVEWAY ACTS AS A PEDESTRIAN RAMP. THE MAX. APRON SLOPE MUST ADHERE TO ADA CRITERIA AS WELL. DW CURB STANDARD SHOULD BE USED IF THERE IS ON STREET PARKING.

WHERE ROADWAY DRAINAGE IS A CONCERN (NEGATIVE SLOPED APRON) DW CURB TYPE 2 CAN BE USED TO HELP KEEP THE WATER ON PUBLIC RIGHT OF WAY.

S1 8% MAX PREFERRED, 10% MAX. COMMERCIAL AND 12% MAX. RESIDENTIAL. IF EXISTING GRADES ARE STEEPER DO NOT MAKE GRADES APPRECIABLY WORSE BY USING BEST PRACTICES SUCH AS DRIVEWAY CURB HEIGHTS, EXTENDING L3 AND/ OR STEEPEN S3.

DW CURB TYPE 3 SHALL ONLY BE USED IN EXTREME TIE-IN CASES.

S3 8% MAX PREFERRED, IF THIS SLOPE IS EXCEEDED OR IS CONTINUED FOR MORE THAN 5' ANALYZE THE NEED FOR VERTICAL CURVE(S). SEE ROAD DESIGN MANUAL, CHAPTER 5, FOR GEOMETRIC DESIGNS OF DRIVEWAYS.

① EXAMPLE SHOWN TO BE INCLUDED IN PLAN FOR EACH DRIVEWAY.

② SHOULD BE DESIGNED AT 1.5%.

③ DW CURB STANDARD SHALL BE THE STARTING POINT FOR ALL PERPENDICULAR AND TIERED DRIVEWAYS. DW CURB TYPES 2 AND 3 SHALL ONLY BE USED AFTER UTILIZING BEST PRACTICES SUCH AS MAXIMIZING S1, S3, AND L3.

REVISION:

APPROVED: JANUARY 23, 2017

OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.254 | 2 OF 4

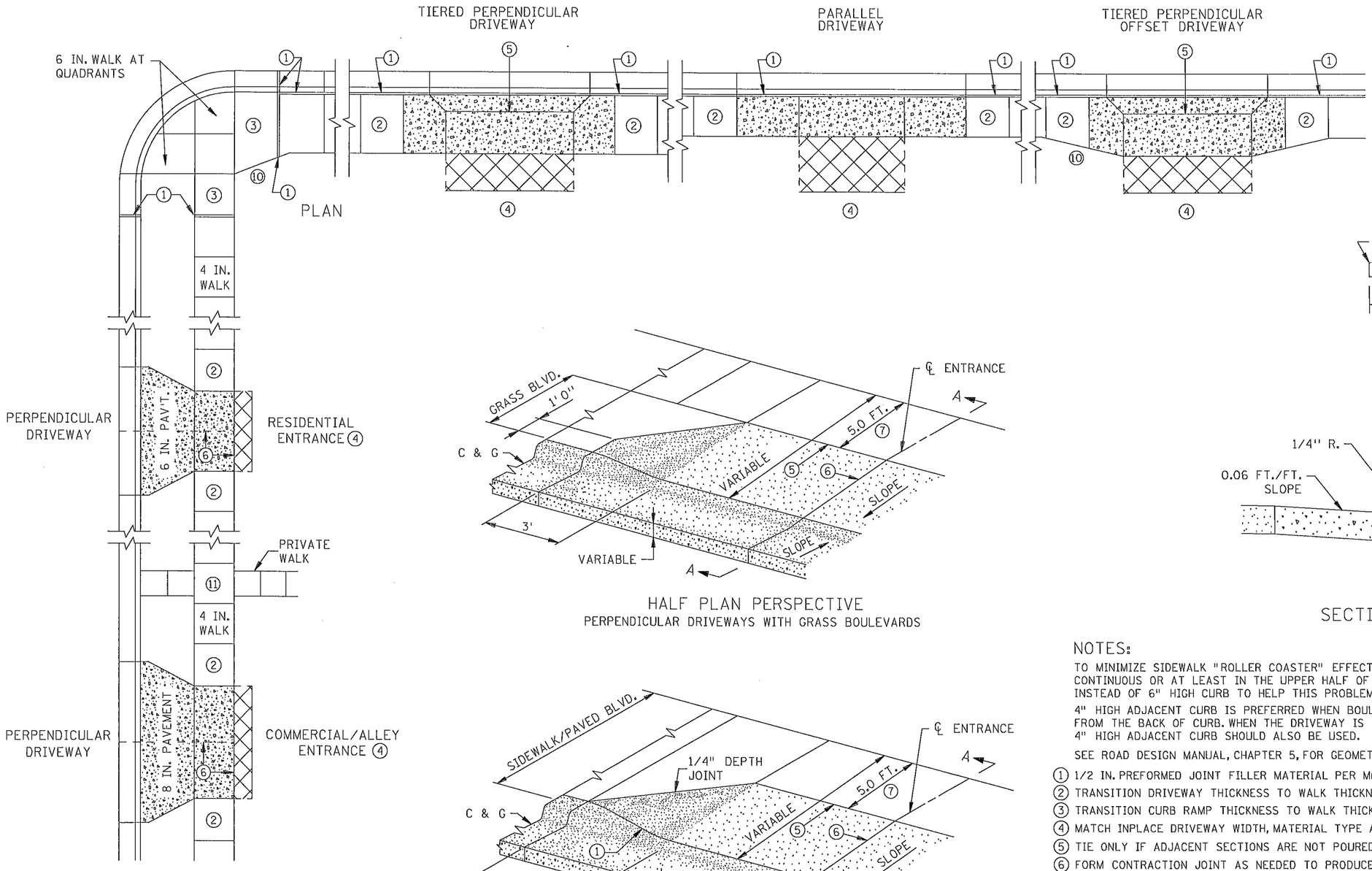
APPROVED: 1-23-2017

REVISED:

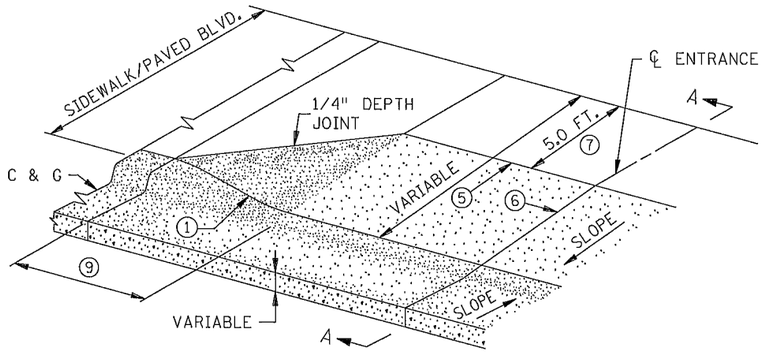
STATE DESIGN ENGINEER

DRIVEWAY AND SIDEWALK DETAILS

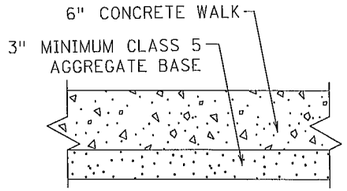
SAP 002-614-041
SAP 106-020-036
CP 18-10



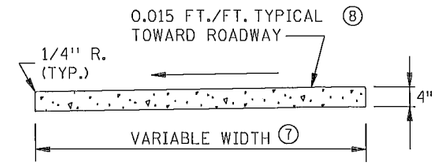
HALF PLAN PERSPECTIVE
PERPENDICULAR DRIVEWAYS WITH GRASS BOULEVARDS



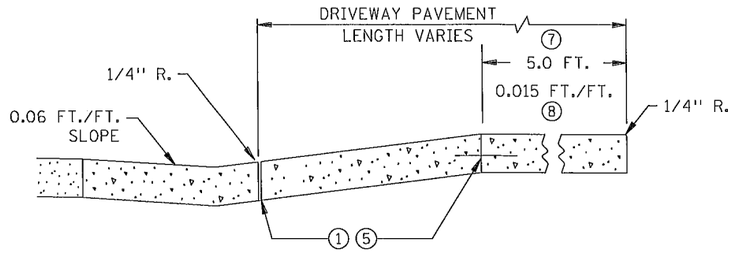
HALF PLAN PERSPECTIVE
PERPENDICULAR DRIVEWAYS WITH CONCRETE BOULEVARDS AND ALL TIERED DRIVEWAYS



SECTION THRU CURB RAMP



SECTION THRU WALK



SECTION A-A
SECTION THRU DRIVEWAY

NOTES:

TO MINIMIZE SIDEWALK "ROLLER COASTER" EFFECT IT IS DESIRABLE TO KEEP THE PAR ELEVATION CONTINUOUS OR AT LEAST IN THE UPPER HALF OF CURB HEIGHT. 4" HIGH CURB SHOULD BE USED INSTEAD OF 6" HIGH CURB TO HELP THIS PROBLEM WHEN APPLICABLE.

4" HIGH ADJACENT CURB IS PREFERRED WHEN BOULEVARDS 4' OR LESS ARE PRESENT MEASURED FROM THE BACK OF CURB. WHEN THE DRIVEWAY IS SLOPING DOWN FROM THE ROADWAY (NEGATIVE) 4" HIGH ADJACENT CURB SHOULD ALSO BE USED.

SEE ROAD DESIGN MANUAL, CHAPTER 5, FOR GEOMETRIC DESIGN OF DRIVEWAYS.

① 1/2 IN. PREFORMED JOINT FILLER MATERIAL PER MnDOT SPEC. 3702, EXCEPT AT GRASS BOULEVARDS.
② TRANSITION DRIVEWAY THICKNESS TO WALK THICKNESS.
③ TRANSITION CURB RAMP THICKNESS TO WALK THICKNESS.
④ MATCH INPLACE DRIVEWAY WIDTH, MATERIAL TYPE AND THICKNESS.
⑤ TIE ONLY IF ADJACENT SECTIONS ARE NOT POURED MONOLITHICALLY. SEE SECTION A-A.
⑥ FORM CONTRACTION JOINT AS NEEDED TO PRODUCE APPROXIMATELY SQUARE PANELS (MAXIMUM WIDTH 15 FT. BETWEEN JOINTS).
⑦ 5.0' MIN. PAR WIDTH IS THE STANDARD THROUGH DRIVEWAYS. IF FEASIBLE WIDEN DRIVEWAY PAR WIDTH TO MATCH APPROACHING SIDEWALK PAR WIDTHS. IN VERTICALLY CONSTRAINED AREAS PAR WIDTHS CAN INCREMENTALLY BE REDUCED TO 4.5' OR 4' MIN AFTER ALL OTHER OPTIONS HAVE BEEN APPLIED.
⑧ THE PEDESTRIAN ACCESS ROUTE CROSS-SLOPE, SHALL NOT EXCEED 0.02 FT./FT. AS CONSTRUCTED.
⑨ 8% TO 10% FLARES SHALL BE USED WHEN ADJACENT TO WALKABLE SURFACES AND FOR ALL TIERED DRIVEWAYS WITH GRASS BOULEVARDS.
⑩ 1:10 MIN. SIDEWALK OFFSET TAPER REQUIRED FOR SIDEWALK REPLACEMENT PROJECTS. 1:3 MIN. AND 1:5 MIN. PREFERRED SIDEWALK OFFSET TAPER FOR DRIVEWAY REPLACEMENT.
⑪ LANDING REQUIRED, SEE NEXT SHEET FOR MORE INFORMATION.

REVISION:

APPROVED: JANUARY 23, 2017
OPERATIONS ENGINEER

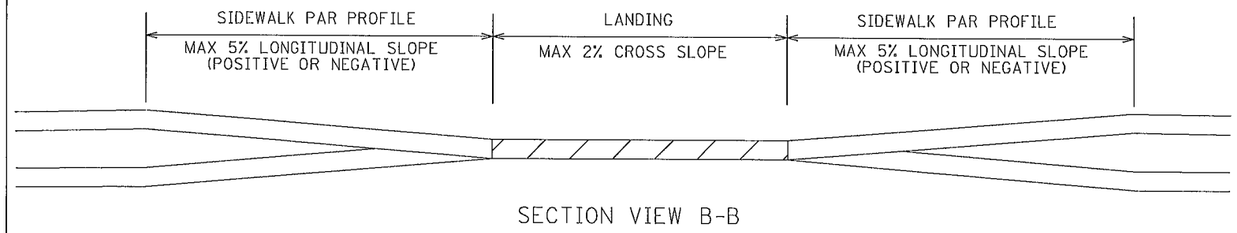
MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.254 | 3 OF 4

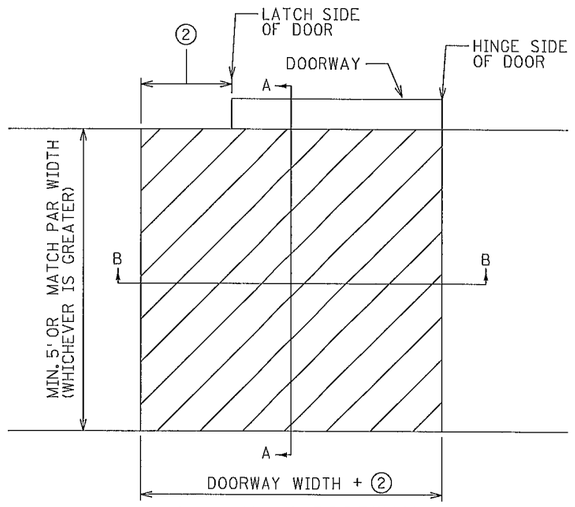
APPROVED: 1-23-2017
REVISED:
STATE DESIGN ENGINEER

DRIVEWAY AND SIDEWALK DETAILS

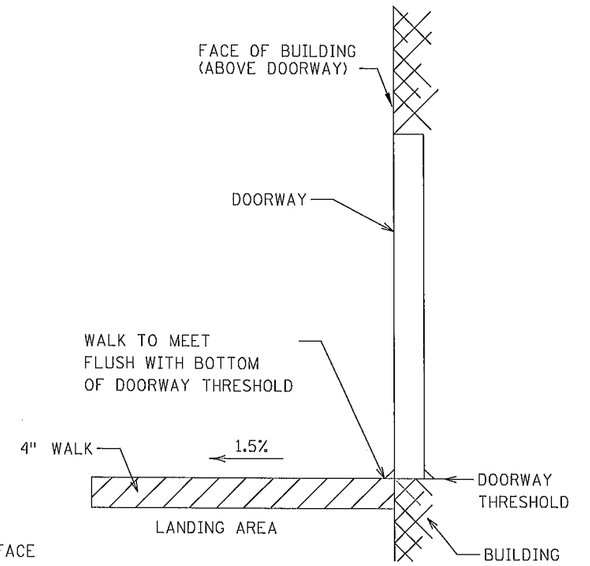
SAP 002-614-041
SAP 106-020-036
CP 18-10



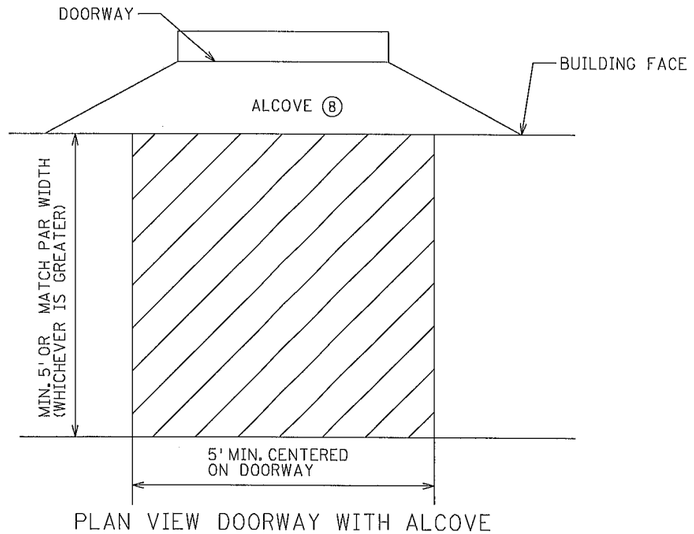
SECTION VIEW B-B



PLAN VIEW DOORWAY

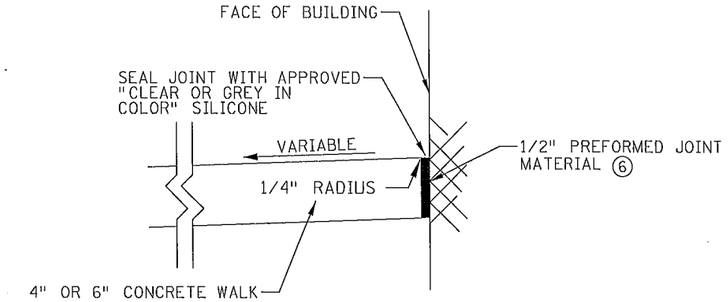


SECTION VIEW A-A

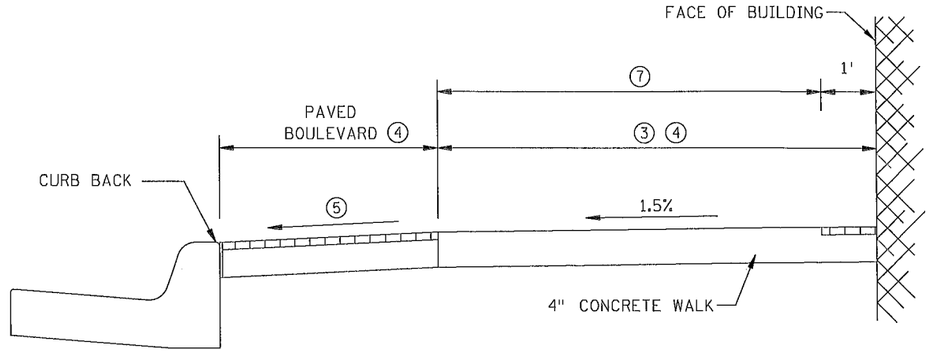


PLAN VIEW DOORWAY WITH ALCOVE

SIDEWALK LANDING REQUIREMENTS ①



BUILDING JOINT SEAL (INCIDENTAL)



DOWNTOWN SIDEWALK TYPICAL SECTION

NOTES:

FIELD ADJUST SIDEWALK PROFILES TO MEET ALL DOORWAY THRESHOLDS.

SIDEWALK MUST MAINTAIN POSITIVE DRAINAGE AWAY FROM THE BUILDING TO THE ROADWAY.

SEE SPECIAL PROVISIONS FOR SILICONE SPECIFICATIONS.

① LANDING CRITERIA IS REQUIRED FOR ALL DOORS, PRIVATE WALKS AND STEPS.

② 18" MIN. WHEN DOOR SWINGS OUTWARD FROM BUILDING.
12" MIN WHEN DOOR SWINGS INWARD FROM BUILDING.

③ 6' MIN. PAR REQUIRED WHEN ADJACENT TO BUILDINGS.

④ 2/3 PAR TO 1/3 BOULEVARD SHOULD BE USED WHEN FEASIBLE.

⑤ 1%-5% FOR THE MAJORITY OF THE BLOCK, WITH EXCEPTIONS UP TO 8% IN CONSTRAINED AREAS. 10% MAX. FOR SHORT SECTIONS ALLOWED TO ACCOUNT FOR FIELD TOLERANCES.

⑥ FURNISH AND INSTALL BACKER ROD OF APPROPRIATE DIAMETER.

⑦ TO MINIMIZE VIBRATION AND ROLLING RESISTANCE, AREA SHOULD BE FREE OF PAVERS, STAMPED CONCRETE, AND/OR EXCESSIVE JOINTING.

⑧ 2% MAX. PER BUILDING CODE. IF GREATER THAN 2%, FLATTEN AS FEASIBLE.

LEGEND

LANDING - ALL SLOPES TO BE LESS THAN 2%

OPTIONAL AESTHETIC TREATMENT

REVISION:
APPROVED: JANUARY 23, 2017
OPERATIONS ENGINEER

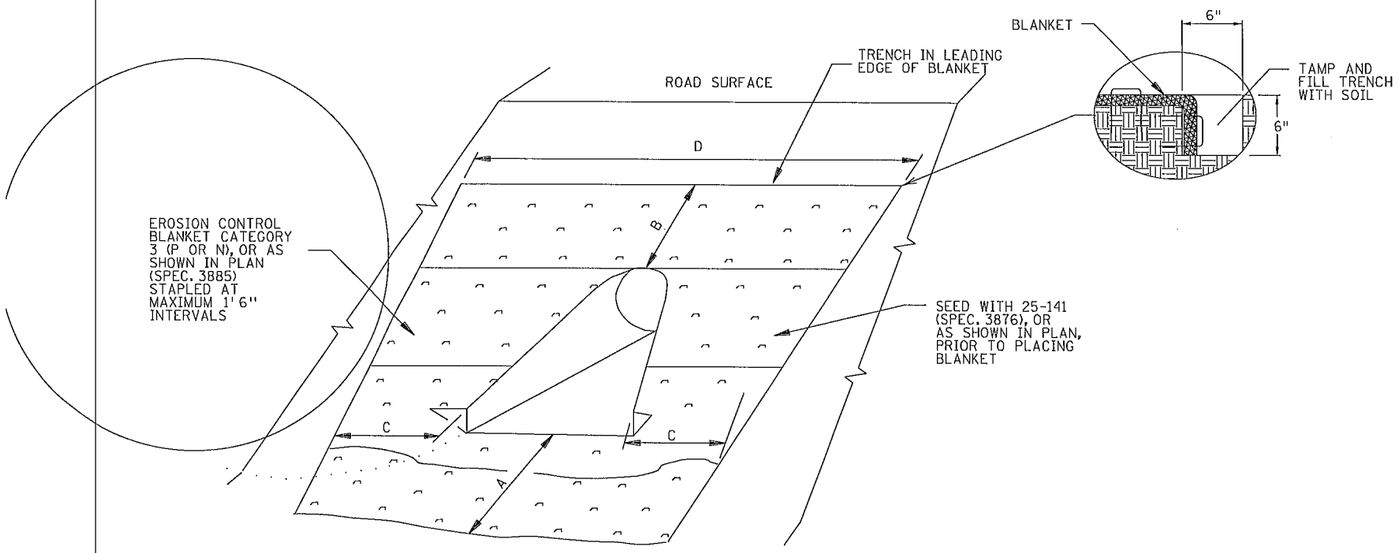
MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.254	4 OF 4
APPROVED: 1-23-2017 REVISED:	
STATE DESIGN ENGINEER	

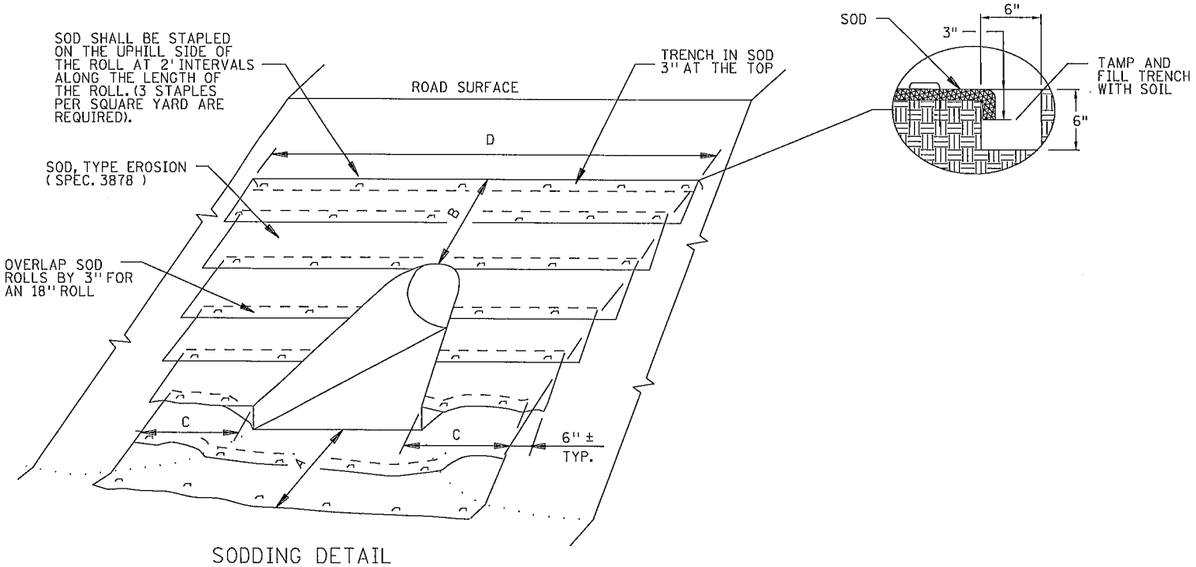
DRIVEWAY AND SIDEWALK DETAILS

SAP 002-614-041
SAP 106-020-036
CP 18-10

SHEET NO. 40 OF 200 SHEETS



EROSION CONTROL BLANKET & SEED DETAIL



SODDING DETAIL

CULVERT INLET APRON ①

CULVERT DIAMETER ②	SOD OR EROSION CONTROL BLANKET (SQ. YDS.)						"A"	"B"	"C"	"D"
	CIRCULAR AND ARCH PIPE METAL APRON (PLATE 3123, PLATE 3122)	CIRCULAR AND ARCH PIPE CONCRETE APRON (PLATE 3100, PLATE 3110)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON 1:4 SLOPE (PLATE 3148)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON 1:6 SLOPE (PLATE 3148)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:6 SLOPE (PLATE 3128)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:4 SLOPE (PLATE 3128)				
15"	9	9	8	8	N/A	N/A	3'	1.5'	3'	13'
18"	13	12	12	14	16	N/A	3'	3'	3'	16'
21"	14	14	14	16	18	14	3'	3'	3'	17'
24"	16	15	16	19	21	17	3'	3'	3'	18'
27"	N/A	20	N/A	N/A	N/A	N/A	3'	4.5'	3'	20'
30"	23	22	25	30	32	N/A	3'	4.5'	3'	22'
36"	34	34	39	48	51	37	4.5'	4.5'	4.5'	27'
42"	43	40	51	64	N/A	N/A	4.5'	6'	4.5'	30'
48"	54	50	66	82	N/A	N/A	4.5'	7.5'	4.5'	34'
54"	65	58	81	102	N/A	N/A	4.5'	9'	4.5'	37'
60"	69	59	91	115	N/A	N/A	4.5'	9'	4.5'	39'
66"	69	63	N/A	N/A	N/A	N/A	4.5'	9'	4.5'	39'
72"	78	72	99	122	N/A	N/A	4.5'	10.5'	4.5'	41'

CULVERT OUTLET APRON ①

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

NOTES:

AREA SHOWN IN SQUARE YARDS IS FOR ONE CULVERT END.

QUANTITIES ARE CALCULATED TO INCLUDE SOD REQUIRED TO PROVIDE A 3" OVERLAP ON ALL 18" WIDE ROLLS. THIS ALLOWS FOR SHRINKAGE OF THE SOD.

FOR PIPE ARCHES USE EQUIVALENT PIPE DIAMETER TO APPROXIMATE AREA.

FOR CORRUGATED POLYETHYLENE PIPE METAL APRON (PLATE 3129), USE THE METAL APRON COLUMN (PLATE 3123).

AREAS AND DIMENSIONS ARE APPROXIMATE AND ARE BASED ON APRON SIDE SLOPES OF NO STEEPER THAN 1:2, UNLESS INDICATED AS FOR SAFETY APRONS.

CARE SHOULD BE TAKEN IN SELECTING SOD TO STABILIZE THE APRON. RIP-RAP SHOULD BE USED FOR FLOW VELOCITIES GREATER THAN 6 FPS.

① ADDITIONAL QUANTITIES MAY BE SHOWN IN THE PLAN OR REQUIRED BY THE ENGINEER.

② FOR ARCH PIPE USE CLOSEST CIRCULAR PIPE DIAMETER AND APRON SLOPE. (DIAMETERS LARGER THAN 72" REQUIRE SPECIAL DESIGNS.)

REVISION:

APPROVED: 2-28-2017

CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.404 | 2 OF 3

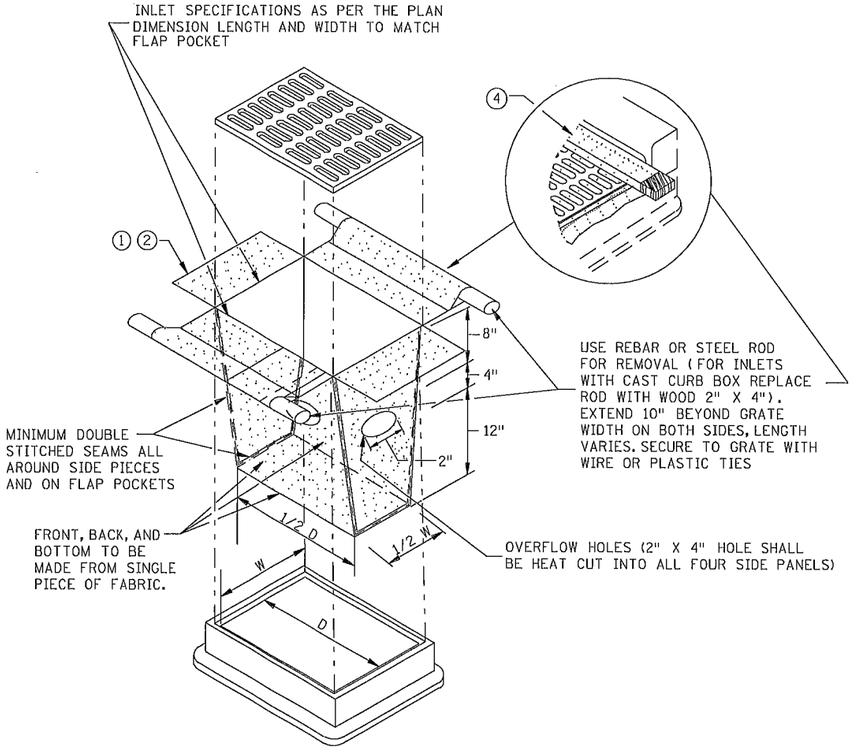
APPROVED: 2-28-2017

REVISED:

STATE DESIGN ENGINEER

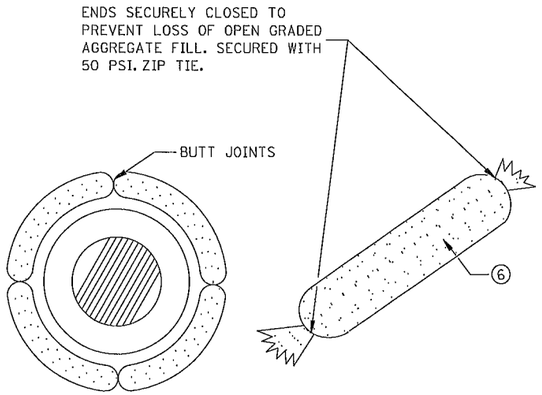
PERMANENT EROSION CONTROL
TURF ESTABLISHMENT DETAIL AT CULVERT ENDS

SAP 002-614-041
SAP 106-020-036
CP 18-10

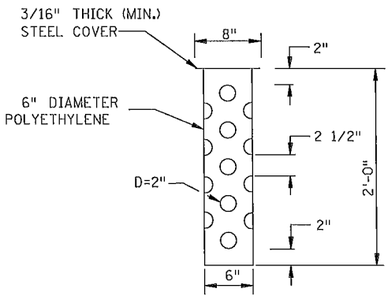


FILTER BAG INSERT ③

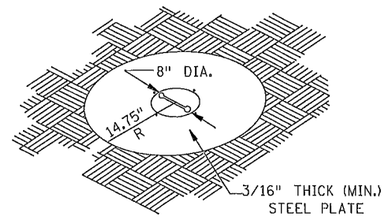
(CAN BE INSTALLED IN ANY INLET TYPE
WITH OR WITHOUT A CURB BOX)



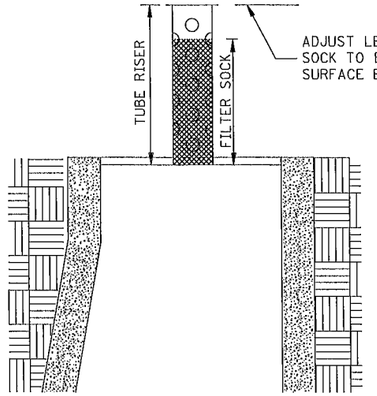
ROCK LOG/COMPOST LOG



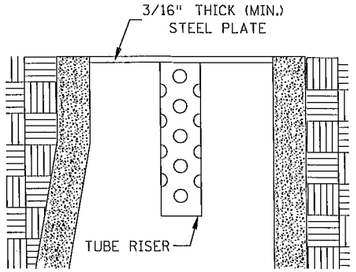
TUBE RISER



PERSPECTIVE VIEW

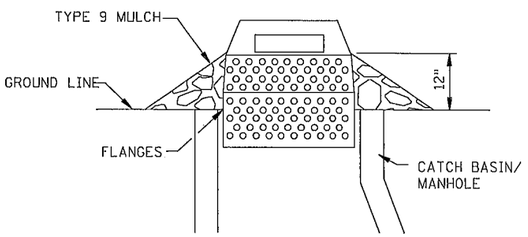


SECTION
(UP POSITION)



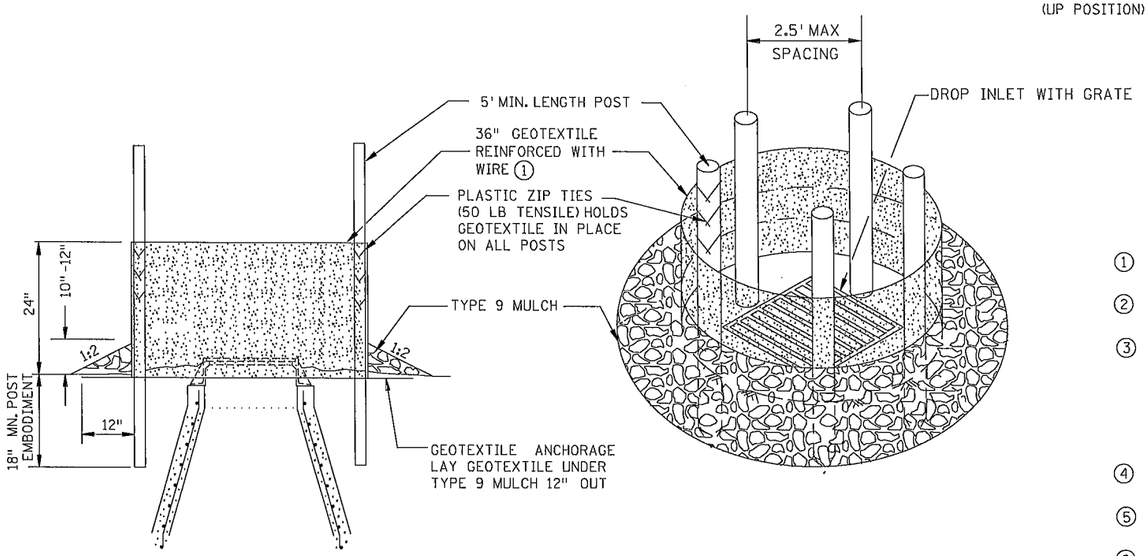
SECTION
(DOWN POSITION)

POP-UP HEAD



SEDIMENT CONTROL INLET HAT

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



SILT FENCE RING AND ROCK FILTER BERM

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

NOTES:
SEE SPECS. 2573, 3137, & 3886.

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

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

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

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

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

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

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

REVISION:
APPROVED: 2-28-2017
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 4 OF 8

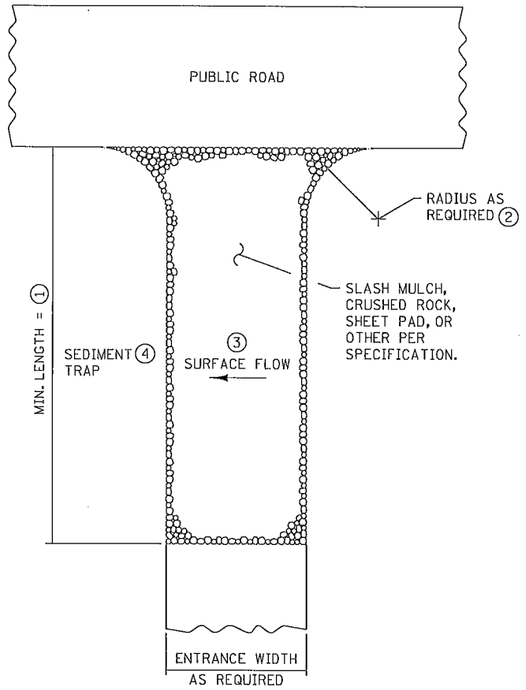
APPROVED: 2-28-2017

REVISED:

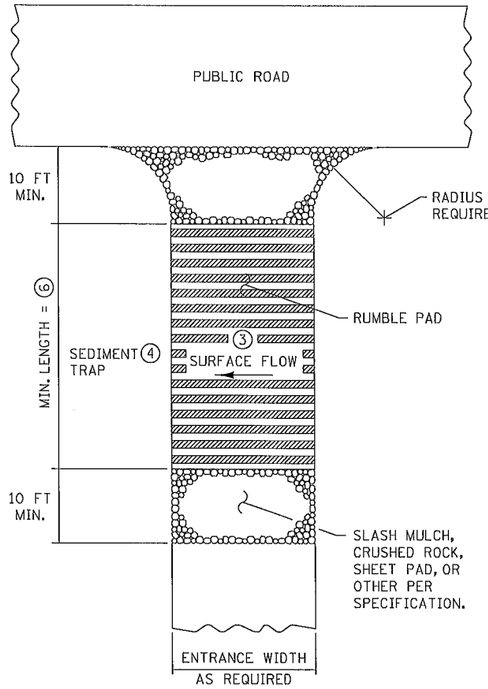
STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL
STORM DRAIN INLET PROTECTION

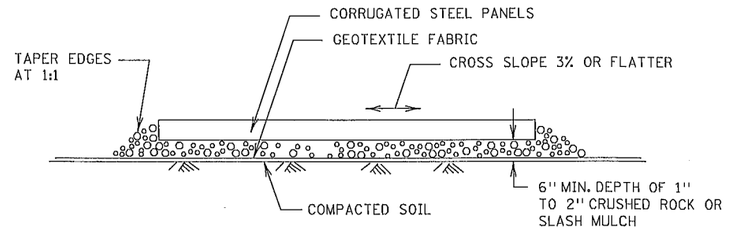
SAP 002-614-041
SAP 106-020-036
CP 18-10



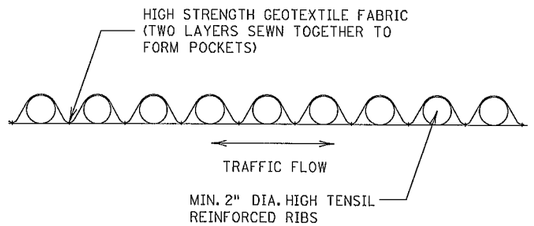
SLASH MULCH, CRUSHED ROCK, OR SHEET PAD CONSTRUCTION EXIT ⑤⑦



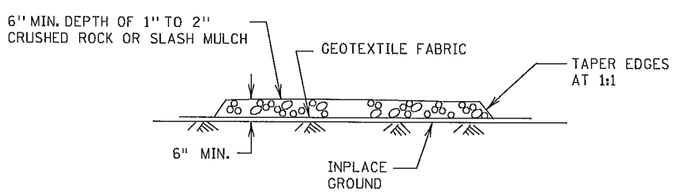
RUMBLE PAD CONSTRUCTION EXIT ⑤⑦



RUMBLE PAD



SHEET PAD



SLASH MULCH OR CRUSHED ROCK

NOTES:

SEE SPECS. 2573 & 3882.

(1) MINIMUM LENGTH SHALL BE THE GREATER OF 50 FEET OR A LENGTH SUFFICIENT TO ALLOW A MINIMUM OF 5 TIRE ROTATIONS ON THE PROVIDED PAD. MINIMUM LENGTH SHALL BE CALCULATED USING THE LARGEST TIRE WHICH WILL BE USED IN TYPICAL OPERATIONS.

(2) PROVIDE RADIUS OR WIDEN PAD SUFFICIENTLY TO PREVENT VEHICLE TIRES FROM TRACKING OFF OF PAD WHEN LEAVING SITE.

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

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

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

(6) MINIMUM LENGTH OF RUMBLE PAD SHALL BE 20 FEET, OR AS REQUIRED TO REMOVE SEDIMENT FROM TIRES. IF SIGNIFICANT SEDIMENT IS TRACKED FROM THE SITE, THE RUMBLE PAD SHALL BE LENGTHENED OR THE DESIGN MODIFIED TO PROVIDE ADDITIONAL VIBRATION. WASH-OFF LENGTH SHALL BE AS REQUIRED TO EFFECTIVELY REMOVE CONSTRUCTION SEDIMENT FROM VEHICLE TIRES.

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

REVISION:

APPROVED: 2-28-2017
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 5 OF 8

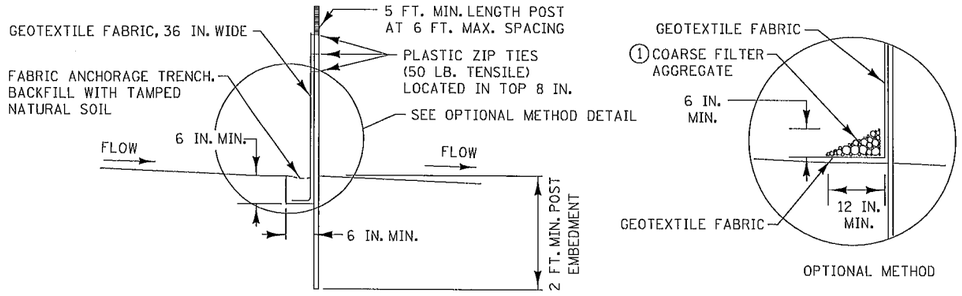
APPROVED: 2-28-2017
REVISED:

STATE DESIGN ENGINEER

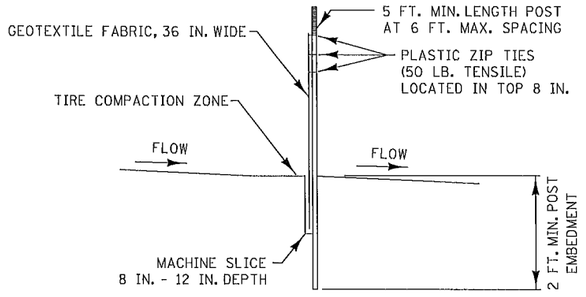
TEMPORARY SEDIMENT CONTROL
STABILIZED CONSTRUCTION EXIT

SAP 002-614-041
SAP 106-020-036
CP 18-10

SHEET NO. 43 OF 200 SHEETS



SILT FENCE TYPE HI ②
(HAND INSTALLED)



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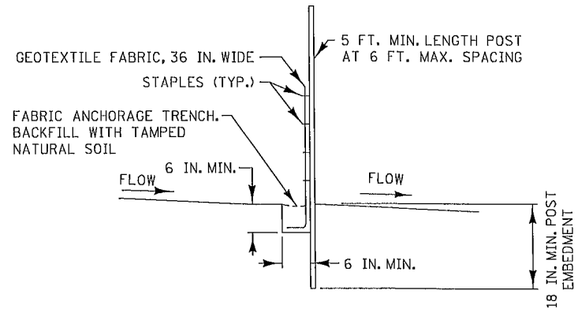
(MACHINE SLICED)



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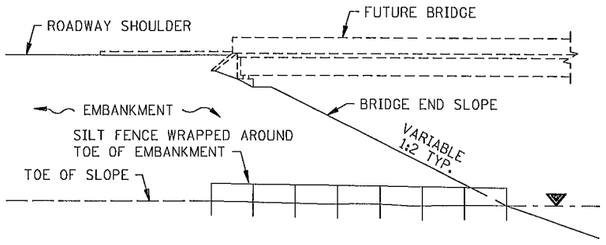
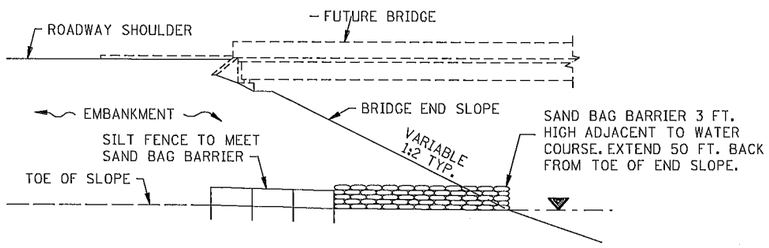
(PREASSEMBLED)

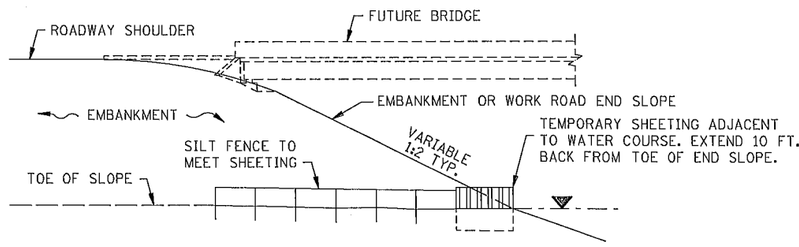


SILT FENCE ONLY ④

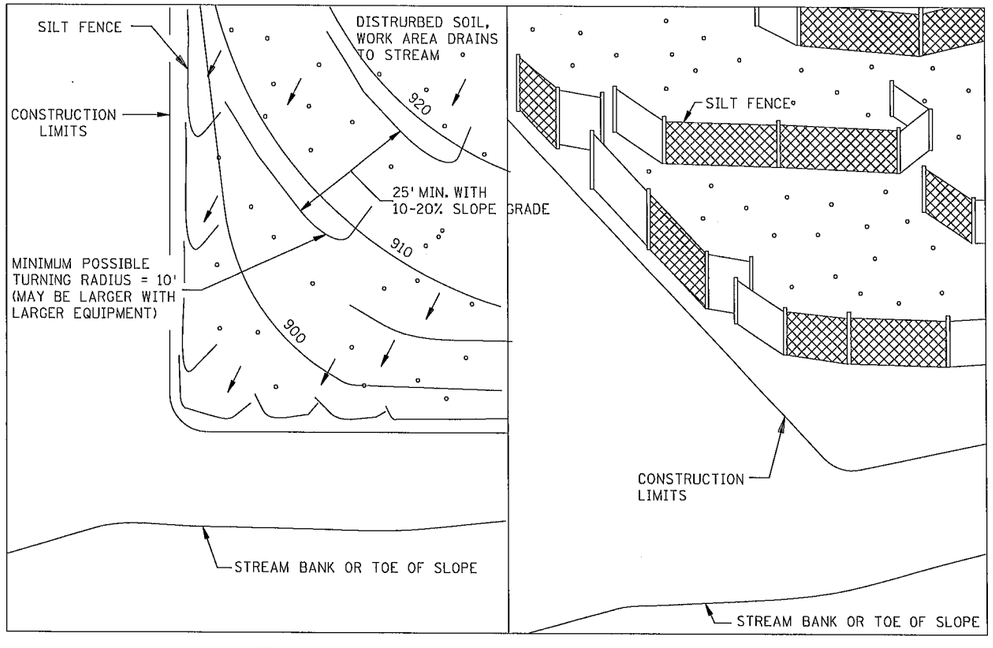


SILT FENCE WITH SAND BAGS ⑤

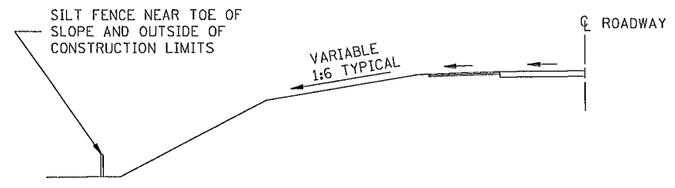
INSTALLATION AT BRIDGE EMBANKMENT ADJACENT TO WATER



SILT FENCE WITH SHEETING ⑥



J-HOOK INSTALLATION



LOCATION AT TOE OF ROADWAY EMBANKMENT

NOTES:

SEE SPECS. 2573, 3149 & 3886.

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

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

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

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

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

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

REVISION:

APPROVED: 2-28-2017
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 6 OF 8

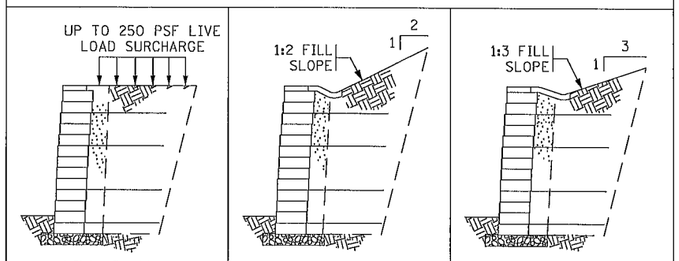
APPROVED: 2-28-2017
REVISED:

STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL
SILT FENCE

SAP 002-614-041
SAP 106-020-036
CP 18-10

LOADING CASES



250 PSF - LL SURCHARGE — CASE 1

1:2 SLOPED FILL — CASE 3

1:3 SLOPED FILL — CASE 4

CASE 2 IS OMITTED INTENTIONALLY

NOTES TO CONTRACTOR:

APPROVED COMBINATIONS OF MODULAR BLOCK UNIT AND SOIL REINFORCEMENT PRODUCTS LIST WITH MBW REINFORCEMENT CLASS NOTED ARE HELD AND MAINTAINED BY THE FOUNDATIONS UNIT, AND POSTED AT http://www.mrr.dot.state.mn.us/geotechnical/foundations/foundations.asp UNDER FOUNDATIONS UNIT. ONLY APPROVED PRODUCT COMBINATIONS, INCLUDING BLOCK PRODUCED FROM APPROVED SOURCES MEETING DURABILITY AND QUALITY CONTROL REQUIREMENTS, MAY BE USED IN STANDARD DESIGNS.

PROVIDE DETAILED DRAWINGS FOR CONSTRUCTION CONTAINING:

- SUBMIT, WITH THE DETAILED DRAWINGS, A COPY OF Mn/DOT STANDARD SHEETS FOR LOADING CASE(S) USED WITH OPTIONS USED MARKED IN THE TABLE.
- ELEVATION VIEW WITH REINFORCEMENT PLACEMENT REQUIREMENTS, WALL FACING LAYOUT, AND GEOMETRIC INFORMATION. TOP OF WALL MAY EXTEND UP TO 4" ABOVE PLAN TOP OF WALL ELEVATION.
- PLAN VIEW WITH BOTTOM AND TOP OF WALL ALIGNMENT, AND PLAN LIMITS OF WALL ALIGNMENT.
- CROSS SECTIONS DETAILING BATTER, REINFORCEMENT, VERTICAL SPACING, REINFORCEMENT LENGTHS, SUBSURFACE DRAINAGE, SURFACE DRAINAGE, AND WATER RUNOFF COLLECTION ABOVE WALL.
- REINFORCEMENT LAYOUT: REINFORCEMENT SHALL BE PLACED AT 100% COVERAGE RATIO. REINFORCEMENT ELEVATIONS SHALL BE CONSISTENT ACROSS LENGTH OF WALL STRUCTURE.
- NOTE BLOCK, REINFORCEMENT, AND FILL PLACEMENT METHODS AND REQUIREMENTS.
- DETAIL ALL WALL FILL PENETRATIONS AND WALL FACE PENETRATIONS. DETAIL REINFORCEMENT AND/OR WALL FACING UNIT PLACEMENT AROUND PENETRATIONS.
- DETAILS THAT ARE SPECIFIC TO VENDOR PRODUCTS AND THEIR INTERACTION WITH OTHER PROJECT COMPONENTS.
- LIST INFORMATION ON APPROVED COMBINATION OF MBW UNIT AND GEOSYNTHETIC REINFORCEMENT, INCLUDING Mn/DOT CLASSIFICATION CODE, NOMINAL BLOCK WIDTH, PROPERTIES FOR FIELD IDENTIFICATION, AND INSTALLATION INSTRUCTIONS.
- DETAILS OF CAP UNITS AND INSTALLATION/FASTENING INSTRUCTIONS FOR THE CAPS. CAP UNITS SHALL BE SET IN A BED OF ADHESIVE DESIGNED TO WITHSTAND MOISTURE AND TEMPERATURE EXTREMES, REMAIN FLEXIBLE, AND SHALL BE SPECIFICALLY FORMULATED FOR BONDING MASONRY TO MASONRY.
- CERTIFICATION BY PROFESSIONAL ENGINEER THAT THE CONSTRUCTION LAYOUT MEETS THE REQUIREMENTS OF PLANS AND Mn/DOT MSEW STANDARDS. DEVIATION FROM STANDARD DESIGN TABLES ARE PERMITTED BY VALUE ENGINEERING SUBMITTAL ONLY ON PROJECTS WITH OVER 5000 SQ. FT. OF WALL.

DEFINITION OF TERMS		
MBW	=	MODULAR BLOCK WALL
LL	=	LIVE LOAD
C.I.P.	=	CAST-IN-PLACE
H	=	WALL HEIGHT
S	=	VERTICAL REINFORCEMENT SPACING
REINFORCEMENT COVERAGE RATIO	=	WIDTH OF SOIL REINFORCEMENTS TO HORIZONTAL SPACING (100% COVERAGE RATIO REQUIRED)

DESIGN CRITERIA

DESIGN CRITERIA FOLLOWS THE AASHTO SPECIFICATION FOR HIGHWAY BRIDGES (16TH EDITION WITH 1998 INTERIMS) EXCEPT FOR THE DEVIATIONS NOTED BELOW. DESIGN CRITERIA ARE IN ACCORDANCE WITH Mn/DOT POLICY, AS RECORDED IN THE Mn/DOT ROAD DESIGN MANUAL.

A. THE MINIMUM REINFORCEMENT LENGTH IS 4 FT. OR 0.7H, WHICHEVER IS GREATER.
B. THE REINFORCEMENT FILL FRICTION ANGLE IS 35°.
C. THE ALLOWABLE CONNECTION LOAD, AT A GIVEN NORMAL LOAD, IS COMPUTED AS THE ULTIMATE CONNECTION STRENGTH REDUCED BY A SAFETY FACTOR EQUAL TO 2.0.
D. THE LATERAL EARTH PRESSURE COMPUTATION FOR EXTERNAL STABILITY CALCULATIONS USES AN INTERFACE ANGLE SET EQUAL TO THE RETAINED BACKFILL ANGLE.
E. THE LATERAL EARTH PRESSURE COMPUTATION FOR INTERNAL STABILITY CALCULATIONS INCORPORATES THE EFFECTS OF WALL FACE BATTER.

MINIMUM FACTORS OF SAFETY:
OVERTURNING: 2.0
SLIDING: 1.5
ECCENTRICITY: $e < L/6$
BEARING CAPACITY: 2.5
DEEP SEATED STABILITY: 1.3

BEARING:
A. SEE FOUNDATION REPORT FOR ALLOWABLE SOIL BEARING PRESSURE.
B. CASES 1 AND 4 - ALLOWABLE SOIL BEARING CAPACITY (ULTIMATE BEARING CAPACITY REDUCED BY A SAFETY FACTOR OF 2.5) OF 2000 PSF IS REQUIRED FOR WALLS UP TO 10 FT. IN HEIGHT. FOR WALLS GREATER THAN 10 FT. IN HEIGHT, THE REQUIRED ALLOWABLE BEARING CAPACITY IS EQUAL TO: 2000 PSF + (H-10)(625 PSF) WITH H IN FEET.
C. CASE 3 - ALLOWABLE SOIL BEARING CAPACITY (ULTIMATE BEARING CAPACITY REDUCED BY A SAFETY FACTOR OF 2.5) OF 2500 PSF IS REQUIRED FOR WALLS UP TO 10 FT. IN HEIGHT. FOR WALLS GREATER THAN 10 FT. IN HEIGHT, THE REQUIRED ALLOWABLE BEARING CAPACITY IS EQUAL TO: 2500 PSF + (H-10)(850 PSF) WITH H IN FEET.

REINFORCED WALL FILL CHARACTERISTICS:
A. SELECT GRANULAR MATERIAL MODIFIED FOLLOWING SPEC. 3149.2B.2. MODIFICATION: SELECT GRANULAR MATERIAL MODIFIED, FOR SPECIAL USE IN EMBANKMENT OR BACKFILL CONSTRUCTION OR OTHER SPECIFIED PURPOSES, MAY BE ANY PIT-RUN OR CRUSHER-RUN MATERIAL THAT IS GRADED FROM COARSE TO FINE, SUCH THAT 100% OF THE MATERIAL MUST PASS THE 2" SIEVE, AND THAT THE RATIO OF THE PORTION PASSING THE #200 SIEVE DIVIDED BY THE PORTION PASSING THE 1" SIEVE MAY NOT EXCEED 10% BY MASS (THAT IS: "200/1" RATIO)
B. INTERNAL ANGLE OF FRICTION (Φ_r) = 35°
C. COHESION (C) = 0
D. MOIST UNIT WEIGHT (γ_r) = 125 PSF

COARSE FILTER AGGREGATE CHARACTERISTICS:
A. COARSE FILTER AGGREGATE TO MEET SPEC. 3149.2H. INCIDENTAL, NO DIRECT PAYMENT WILL BE MADE.

RETAINED BACKFILL CHARACTERISTICS:
A. INTERNAL ANGLE OF FRICTION (Φ_b) = 30°
B. COHESION (C) = 0
C. MOIST UNIT WEIGHT (γ_b) = 120 PSF

FOUNDATION SOILS CHARACTERISTICS:
A. INTERNAL ANGLE OF FRICTION (Φ_f) = 30°
B. COHESION (C) = 0
C. UNIT WEIGHT (γ_f) = 120 PSF

SAMPLE ESTIMATED QUANTITIES FOR MODULAR BLOCK WALLS ③

		UNIT	QUANTITY
	STRUCTURE EXCAVATION CLASS ___	CU. YD.	
	SELECT GRANULAR MATERIAL MODIFIED (CV)	CU. YD.	
	STRUCTURAL CONCRETE (1A43)	CU. YD.	
①②	MODULAR BLOCK RETAINING WALL	SQ. FT.	
	TYPE I GEOTEXTILE FABRIC	SQ. YD.	

① VERTICAL FACE AREA OF MODULAR BLOCK AS MEASURED FROM PLAN TOP OF WALL TO 2 FT. BELOW FINISHED GRADE AT BOTTOM OF WALL.

② PAY ITEM FOR MBW WALLS SHALL BE 2411.

③ REFER TO TABULATIONS / ESTIMATE SHEETS FOR QUANTITIES.

NOTES TO DESIGNER:

HEIGHT AND LOCATION RESTRICTIONS FOR ISSUES SUCH AS FREEZE-THAW DURABILITY ARE GOVERNED BY APPROPRIATE TECHNICAL MEMORANDUMS. CURRENT GOVERNING TECH. MEMO. NO.: 14-03-MAT-01.

IN ADDITION TO THE STANDARD SHEETS, PLAN AND FRONT ELEVATION VIEWS OF THE MODULAR BLOCK RETAINING WALLS SHALL BE INCLUDED IN THE PLANS. THE PLAN VIEW MUST SHOW ALIGNMENT BASELINE, LIMITS OF BOTTOM OF WALL ALIGNMENT, AND LIMITS OF TOP OF WALL ALIGNMENT AS ALIGNMENTS VARY WITH BATTER OF WALL SYSTEM ACTUALLY SUPPLIED. THE FRONT ELEVATION MUST IDENTIFY BOTTOM AND TOP OF WALL ELEVATIONS, EXISTING GRADES, AND FINISHED GRADES.

IF THE WALL IS CURVED, THE RADIUS AT THE BOTTOM AND THE TOP OF EACH WALL SEGMENT AND THE P.C. AND P.T. STATION POINTS OFF OF BASELINE AND LIMITS OF BOTTOM AND TOP OF WALL ALIGNMENT MUST BE SHOWN.

REFERENCE STANDARD PLATES AND PROVIDE DETAILS FOR TRAFFIC BARRIERS, CURB AND GUTTER, HANDRAILS AND FENCING AS REQUIRED BY PROJECT CONDITIONS. SEE AASHTO AND Mn/DOT DESIGN MANUALS, STANDARD PLATES AND DETAILS FOR REQUIREMENTS.

SURFACE DRAINAGE PATTERNS SHALL BE SHOWN IN THE PLAN VIEW. PROVIDE DIMENSIONS FOR WIDTH AND DEPTH OF THE DRAINAGE SWALE AS WELL AS THE TYPE OF IMPERVIOUS LINER MATERIAL. SURFACE WATER RUNOFF SHOULD BE COLLECTED ABOVE AND DIVERTED AROUND WALL FACE.

DETAIL LINES AND GRADES OF THE INTERNAL DRAINAGE COLLECTION PIPE. DETAIL OR NOTE THE DESTINATION OF INTERNAL WALL DRAINS AS WELL AS THE METHOD OF TERMINATION (DAYLIGHT END OF PIPE OR CONNECTION INTO HYDRAULIC STRUCTURE). THE SPACING FOR DRAIN PIPE OUTLET SHALL NOT BE MORE THAN 250 FT.

SOFT SOILS AND/OR HIGH WATER CONDITIONS (DEFINED AS GROUNDWATER WITHIN A DEPTH EQUAL TO THE WALL HEIGHT H) MAY NOT BE SUITABLE FOR APPLICATION OF STANDARD DESIGNS AND REQUIRE SPECIAL CONSIDERATION BY THE FOUNDATIONS UNIT.

STANDARD DESIGN CHARTS ARE NOT APPLICABLE TO:
- PROJECT/SITES WHERE FOUNDATION SOILS SHEAR STRENGTH AND/OR BEARING CAPACITY DO NOT MEET OR EXCEED VALUES USED IN THE DEVELOPMENT OF STANDARD DESIGN CHARTS.
- PROJECTS WITH A LARGE QUANTITY OF FACE AREA WHERE PROJECT SPECIFIC DESIGNS ARE RECOMMENDED, AS DEFINED IN Mn/DOT ROAD DESIGN MANUAL.
- WHERE SLOPES IN FRONT OF WALL ARE STEEPER THAN 1:3.
- WHERE MAXIMUM WALL HEIGHT EXCEEDS 12 FT.
- WHERE WALLS ARE TIERED.
- WALLS WITH NOISE WALLS.

IF USING CONCRETE RAILING, INCLUDE STANDARD BRIDGE DETAIL "CONCRETE RAILING (TYPE F)" IN PLAN SET.

PROVIDE PROJECT SPECIFIC AESTHETIC REQUIREMENTS INCLUDING COLOR AND FASCIA SURFACING IN THE SPECIAL PROVISIONS.

CHAPTER 9 OF THE Mn/DOT "ROAD DESIGN MANUAL" CONTAINS GUIDELINES, TRAFFIC SAFETY AND OTHER ASPECTS.

GENERAL NOTES:

UTILITIES:
EXISTING AND PROPOSED UTILITIES ARE SHOWN IN THE GRADING PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING FACILITIES AND SHALL EXERCISE CARE IN ADJACENT CONSTRUCTION.

EXCAVATION AND EARTHWORK:
ALL EXCAVATION AND EMBANKMENT WORK SHALL CONFORM TO Mn/DOT 2451.

CAST-IN-PLACE CONCRETE:
ALL CONCRETE SHALL CONFORM TO Mn/DOT 2461, EXCEPT AS NOTED.

CONSTRUCTION:
CONSTRUCTION SHALL BE IN ACCORDANCE WITH Mn/DOT 2411, EXCEPT AS NOTED.

GEOMETRICS AND GRADES:
DATA FOR BASELINE GEOMETRY IS TABULATED FOR WALL ALIGNMENT, SEE LAYOUT SHEETS. WALL ALIGNMENT REFERENCE IS ALONG FRONT FACE OF WALL.

THE FILL SLOPE CONVENTION OF 1 VERTICAL TO HORIZONTAL IS USED IN THIS PLAN.

COMPACTION REQUIREMENTS:
COMPACT REINFORCED WALL FILL IN ACCORDANCE WITH Mn/DOT SPEC. 2105.3F1 UNLESS RECOMMENDED OTHERWISE BY THE SOILS ENGINEER.

REVISION:

APPROVED: DECEMBER 1, 2014
DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.640 — 1 OF 1

APPROVED: 12-1-2014
REVISED:

STATE DESIGN ENGINEER

MODULAR BLOCK RETAINING WALL

GENERAL NOTES

SAP 002-614-041
SAP 106-020-036 CP 18-10

MODULAR BLOCK WALL REINFORCEMENT LAYOUT

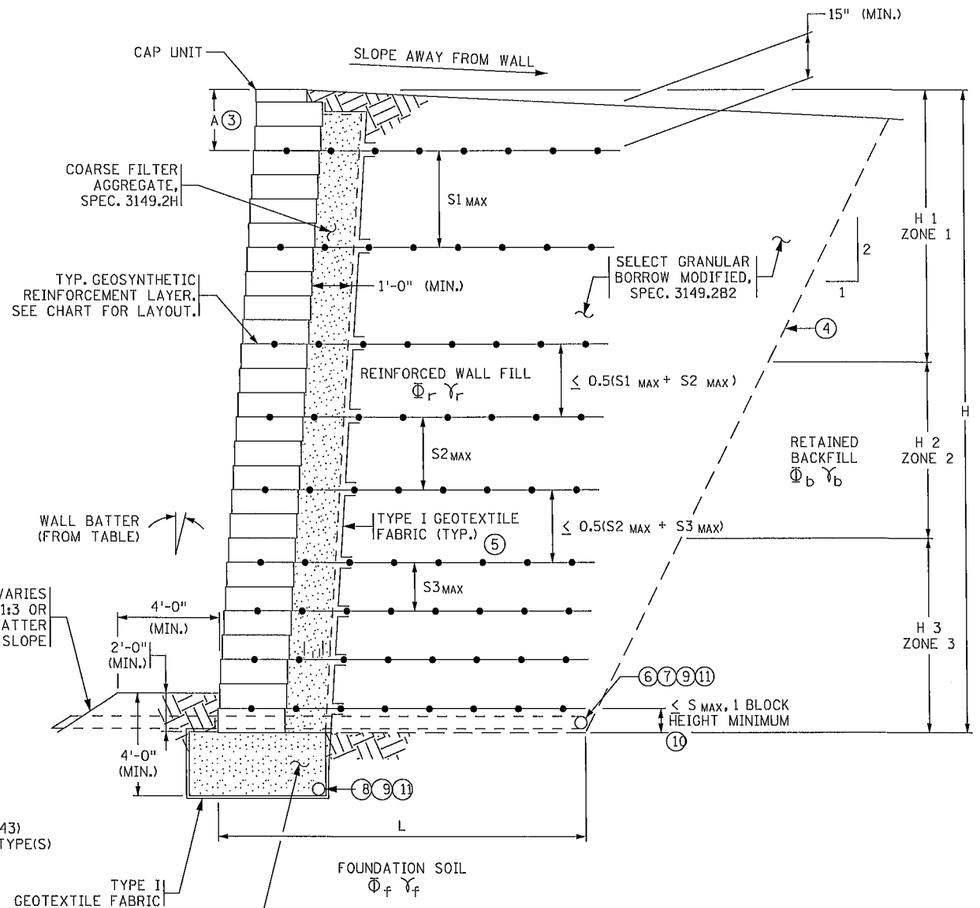
CASE 1 - LEVEL BACKFILL WITH 250 PSF SURCHARGE

MBW REINFORCEMENT CLASS	STRENGTH OF SOIL REINF. (PLF) LG. TERM (T_{al})	STRENGTH OF SOIL REINF. (PLF) DESIGN (T_a)	① MINIMUM REINFORCEMENT LENGTH, L (FT.)	MAXIMUM WALL HEIGHT (FT.)	② NOMINAL BLOCK WIDTH (IN.)	WALL BATTER RANGE (DEGREES)		③ MAXIMUM UNREINFORCED WALL HT, A (IN.)	ZONE 1 H1 (FT.)	ZONE 1 $S1_{MAX}$ (IN.)	ZONE 2 H2 (FT.)	ZONE 2 $S2_{MAX}$ (IN.)	ZONE 3 H3 (FT.)	ZONE 3 $S3_{MAX}$ (IN.)
							<							
MBW-700	1050	700	0.7 H	12.0	12	0	3	15	7.9	24	4.1	16		
						3	7	16	9.8	24	2.2	16		
						7	10	18	11.5	24	0.5	16		
						10	15	18	12.0	24				
					21	0	3	32	4.9	32	3.0	24	4.1	16
						3	7	32	4.9	32	4.9	24	2.2	16
						7	10	32	5.9	32	6.1	24		
						10	15	32	7.2	32	4.8	24		
MBW-1050	1575	1050	0.7 H	12.0	12	0	3	15	12.0	24				
						3	7	16	12.0	24				
						7	10	18	12.0	24				
						10	15	18	12.0	24				
					21	0	3	36	5.9	42	4.9	32	1.2	24
						3	7	40	8.5	42	3.5	32		
						7	10	42	9.8	42	2.2	32		
						10	15	42	9.8	42	2.2	32		
MBW-1400	2100	1400	0.7 H	12.0	12	0	3	15	12.0	24				
						3	7	16	12.0	24				
						7	10	18	12.0	24				
						10	15	18	12.0	24				
					21	0	3	36	6.6	48	3.3	42	2.1	32
						3	7	40	8.2	48	3.8	42		
						7	10	48	9.8	48	2.2	42		
						10	15	48	9.8	48	2.2	42		

INSTRUCTIONS TO CONTRACTOR:

USE AS MANY ZONES AS WALL HEIGHT REQUIRES, STARTING WITH ZONE 1 AND ADDING ADDITIONAL ZONES TO THE BOTTOM OF THE WALL AS NEEDED TO MAKE UP THE TOTAL WALL HEIGHT (H) NEEDED.

REINFORCEMENT CLASS, NOMINAL BLOCK WIDTH AND WALL BATTER ARE GENERALLY THE CONTRACTOR'S OPTION TO SELECT FROM Mn/DOT APPROVED PRODUCTS LISTS LOCATED AT www.mrr.dot.state.mn.us/geotechnical/foundations/foundations.asp.



TYPICAL SECTION

CASE 1

NOT TO SCALE

NOTES TO CONTRACTOR:

① OR 4 FT. MINIMUM, WHICHEVER IS GREATER.

② WIDTH - AS MEASURED FROM FRONT TO BACK FACE OF BLOCK UNIT.

③ MAXIMUM DISTANCE FROM TOP OF WALL TO FIRST REINFORCEMENT LAYER. UNREINFORCED WALLS ARE NOT INCLUDED IN THIS STANDARD BUT MAY BE CONSTRUCTED UP TO AT LEAST THE HEIGHT GIVEN IN THE TABLE FOR A GIVEN NOMINAL BLOCK WIDTH AND THE SPECIFIED FILL MATERIALS CONTAINED IN THIS STANDARD.

④ PAY LIMITS OF STRUCTURAL EXCAVATION. ACTUAL EXCAVATION SLOPE IS DETERMINED BY OSHA REGULATIONS AND IN-SITU SOILS; EXCAVATION BEYOND "LIMITS OF STRUCTURAL EXCAVATION" AT CONTRACTOR'S EXPENSE.

⑤ THE WRAP LENGTH FOR GEOTEXTILE FABRIC SHALL NOT BE MORE THAN 6".

⑥ INSPECT EXCAVATION SLOPES FOR ACTIVE SEEPAGE AND PLACE ADDITIONAL DRAINS WHERE SEEPAGE OCCURS AS DIRECTED BY THE ENGINEER.

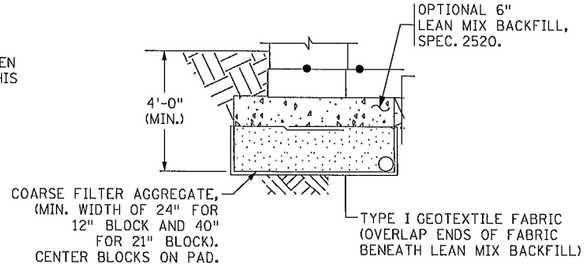
⑦ PLACE DRAIN AT BOTTOM OF REINFORCED SOIL IF PIPE CAN BE SLOPED TO OUTLET. DO NOT OUTLET ONTO A SIDEWALK.

⑧ IF PIPE AT THIS ELEVATION CANNOT BE SLOPED TO DRAIN, OMIT DRAIN AND USE "CONCRETE PAD WITHOUT DRAIN" DETAIL.

⑨ 4" THERMOPLASTIC PERFORATED PIPE, SPEC. 3245, WRAP WITH TYPE I GEOTEXTILE, SPEC. 3733 (TYP.) INSTALLATION AS PER SPEC. 2502, WITH PRECAST CONCRETE HEAD WALL AT OUTLET.

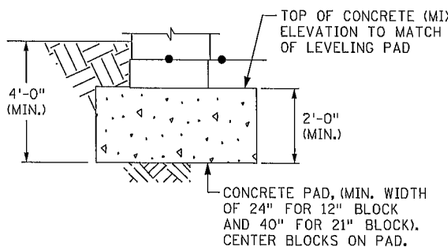
⑩ S_{MAX} = 0.5 $S1_{MAX}$ IF THE WALL HEIGHT IS WITHIN ZONE 1.
S_{MAX} = 0.5 $S2_{MAX}$ IF THE WALL HEIGHT IS WITHIN ZONE 2.
S_{MAX} = 0.5 $S3_{MAX}$ IF THE WALL HEIGHT IS WITHIN ZONE 3.

⑪ THE REINFORCED WALL FILL DRAIN MAY BE CONNECTED INTO FOOTING DRAIN, INSTEAD OF OUT LETTING THROUGH THE WALL, IF CAPACITY IS ADEQUATE TO TRANSMIT THE FLOW.



OPTIONAL CONCRETE LEVELING PAD

NOT TO SCALE



CONCRETE PAD WITHOUT DRAIN

NOT TO SCALE

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

MINNESOTA DEPARTMENT OF TRANSPORTATION

STATE DESIGN ENGINEER

STANDARD PLAN 5-297.641 | 1 OF 1

APPROVED: 8-6-2014

REVISED:

MODULAR BLOCK RETAINING WALL

SOIL REINFORCEMENT FOR LEVEL FILL, CASE 1

SAP 002-614-041
SAP 106-020-036 CP 18-10

SHEET NO. 46 OF 200 SHEETS

MODULAR BLOCK WALL REINFORCEMENT LAYOUT

CASE 3 - 1:2 FILL SLOPE

MBW REINFORCEMENT CLASS	STRENGTH OF SOIL REINF. (PLF) LG. TERM (T_{al})	STRENGTH OF SOIL REINF. (PLF) DESIGN (T_a)	① MINIMUM REINFORCEMENT LENGTH, L (FT.)	MAXIMUM WALL HEIGHT (FT.)	② NOMINAL BLOCK WIDTH (IN.)	WALL BATTER RANGE (DEGREES) ≥	WALL BATTER RANGE (DEGREES) <	③ MAXIMUM UNREINFORCED WALL HT, A (IN.)	ZONE 1 H1 (FT.)	ZONE 1 $S1_{MAX}$ (IN.)	ZONE 2 H2 (FT.)	ZONE 2 $S2_{MAX}$ (IN.)	ZONE 3 H3 (FT.)	ZONE 3 $S3_{MAX}$ (IN.)
MBW-700	1050	700	0.7 H	12.0	12	0	3	24	4.9	24	5.6	16	1.5	8
						3	7	24	5.9	24	6.1	16		
						7	10	24	9.2	24	2.8	16		
						10	15	24	9.8	24	2.2	16		
					21	0	3	24	4.9	24	5.6	16	1.5	8
						3	7	24	5.9	24	6.1	16		
						7	10	32	4.6	32	5.2	24	2.2	16
						10	15	32	7.2	32	4.3	24	0.5	16
MBW-1050	1575	1050	0.7 H	12.0	12	0	3	24	10.8	24	1.2	18		
						3	7	24	12.0	24				
						7	10	24	12.0	24				
						10	15	24	12.0	24				
					21	0	3	32	6.9	32	3.9	24	1.2	18
						3	7	36	5.6	42	3.3	32	3.1	24
						7	10	42	6.6	42	3.9	32	1.5	24
						10	15	42	8.5	42	3.0	32	0.5	24
MBW-1400	2100	1400	0.7 H	12.0	12	0	3	24	12.0	24				
						3	7	24	12.0	24				
						7	10	24	12.0	24				
						10	15	24	12.0	24				
					21	0	3	42	8.9	42	3.1	32		
						3	7	42	10.8	42	1.2	32		
						7	10	42	12.0	42				
						10	15	42	11.5	42	0.5	32		

NOTES TO CONTRACTOR:

① OR 4 FT. MINIMUM, WHICHEVER IS GREATER.

② WIDTH - AS MEASURED FROM FRONT TO BACK FACE OF BLOCK UNIT.

③ MAXIMUM DISTANCE FROM TOP OF WALL TO FIRST REINFORCEMENT LAYER. UNREINFORCED WALLS ARE NOT INCLUDED IN THIS STANDARD BUT MAY BE CONSTRUCTED UP TO AT LEAST THE HEIGHT GIVEN IN THE TABLE FOR A GIVEN NOMINAL BLOCK WIDTH AND THE SPECIFIED FILL MATERIALS CONTAINED IN THIS STANDARD.

④ PAY LIMITS OF STRUCTURAL EXCAVATION. ACTUAL EXCAVATION SLOPE IS DETERMINED BY OSHA REGULATIONS AND IN-SITU SOILS; EXCAVATION BEYOND "LIMITS OF STRUCTURAL EXCAVATION" AT CONTRACTOR'S EXPENSE.

⑤ THE WRAP LENGTH FOR GEOTEXTILE FABRIC SHALL NOT BE MORE THAN 6".

⑥ INSPECT EXCAVATION SLOPES FOR ACTIVE SEEPAGE AND PLACE ADDITIONAL DRAINS WHERE SEEPAGE OCCURS AS DIRECTED BY THE ENGINEER.

⑦ PLACE DRAIN AT BOTTOM OF REINFORCED SOIL IF PIPE CAN BE SLOPED TO OUTLET. DO NOT OUTLET ONTO A SIDEWALK.

⑧ IF PIPE AT THIS ELEVATION CANNOT BE SLOPED TO DRAIN, OMIT DRAIN AND USE "CONCRETE PAD WITHOUT DRAIN" DETAIL.

⑨ 4" THERMOPLASTIC PERFORATED PIPE, SPEC. 3245, WRAP WITH TYPE I GEOTEXTILE, SPEC. 3733 (TYP.) INSTALLATION AS PER SPEC. 2502, WITH PRECAST CONCRETE HEAD WALL AT OUTLET.

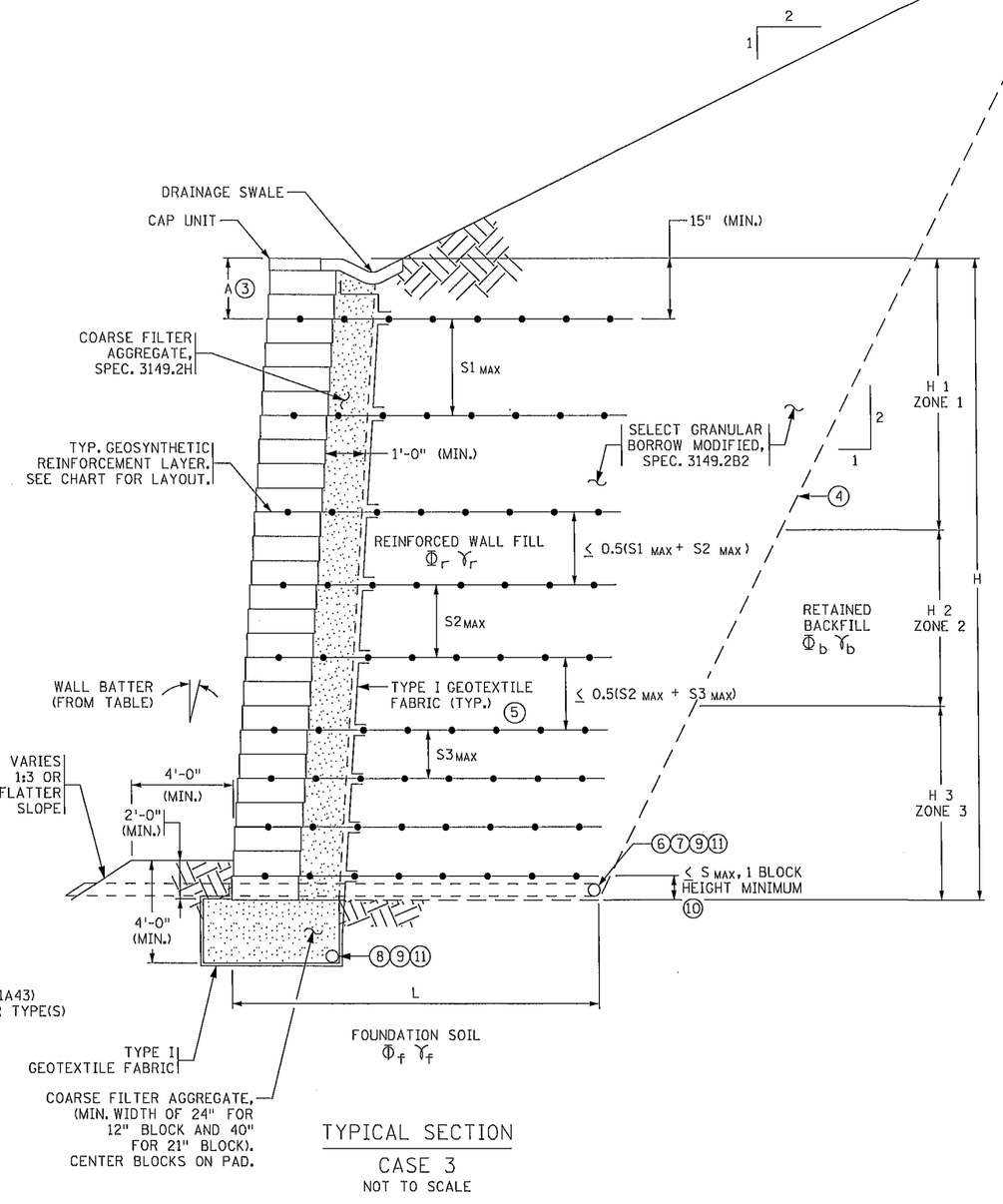
⑩ S_{MAX} = 0.5 $S1_{MAX}$ IF THE WALL HEIGHT IS WITHIN ZONE 1.
S_{MAX} = 0.5 $S2_{MAX}$ IF THE WALL HEIGHT IS WITHIN ZONE 2.
S_{MAX} = 0.5 $S3_{MAX}$ IF THE WALL HEIGHT IS WITHIN ZONE 3.

⑪ THE REINFORCED WALL FILL DRAIN MAY BE CONNECTED INTO FOOTING DRAIN, INSTEAD OF OUT LETTING THROUGH THE WALL, IF CAPACITY IS ADEQUATE TO TRANSMIT THE FLOW.

INSTRUCTIONS TO CONTRACTOR:

USE AS MANY ZONES AS WALL HEIGHT REQUIRES, STARTING WITH ZONE 1 AND ADDING ADDITIONAL ZONES TO THE BOTTOM OF THE WALL AS NEEDED TO MAKE UP THE TOTAL WALL HEIGHT (H) NEEDED.

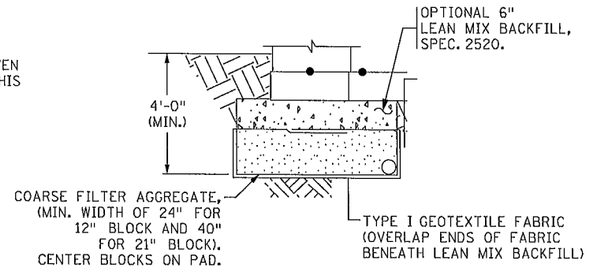
REINFORCEMENT CLASS, NOMINAL BLOCK WIDTH AND WALL BATTER ARE GENERALLY THE CONTRACTOR'S OPTION TO SELECT FROM Mn/DOT APPROVED PRODUCTS LISTS LOCATED AT www.mrr.dot.state.mn.us/geotechnical/foundations/foundations.asp.



TYPICAL SECTION

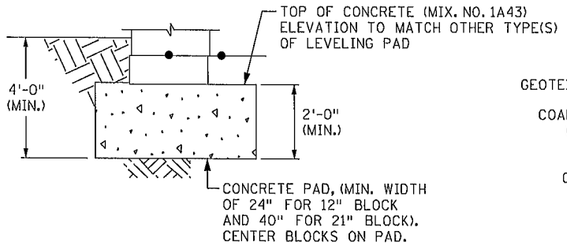
CASE 3

NOT TO SCALE



OPTIONAL CONCRETE LEVELING PAD

NOT TO SCALE



CONCRETE PAD WITHOUT DRAIN

NOT TO SCALE

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

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.643 | 1 OF 1

APPROVED: 8-6-2014

REVISED:

STATE DESIGN ENGINEER

MODULAR BLOCK RETAINING WALL

SOIL REINFORCEMENT FOR 1:2 FILL SLOPE, CASE 3

SAP 002-614-041
SAP 106-020-036 CP 18-10

SHEET NO. 47 OF 200 SHEETS

MODULAR BLOCK WALL REINFORCEMENT LAYOUT

CASE 4 - 1:3 FILL SLOPE

MBW REINFORCEMENT CLASS	STRENGTH OF SOIL REINF. (PLF) LG. TERM (T_{al})	STRENGTH OF SOIL REINF. (PLF) DESIGN (T_a)	① MINIMUM REINFORCEMENT LENGTH, L (FT.)	MAXIMUM WALL HEIGHT (FT.)	② NOMINAL BLOCK WIDTH (IN.)	WALL BATTER RANGE (DEGREES) ≥	WALL BATTER RANGE (DEGREES) <	③ MAXIMUM UNREINFORCED WALL HT, A (IN.)	ZONE 1 H1 (FT.)	ZONE 1 $S1_{MAX}$ (IN.)	ZONE 2 H2 (FT.)	ZONE 2 $S2_{MAX}$ (IN.)	ZONE 3 H3 (FT.)	ZONE 3 $S3_{MAX}$ (IN.)
MBW-700	1050	700	0.7 H	12.0	12	0	3	24	8.5	24	3.5	16		
						3	7	24	9.2	24	2.8	16		
						7	10	24	11.2	24	0.8	16		
						10	15	24	12.0	24				
					21	0	3	32	4.6	32	3.9	24	3.5	16
						3	7	32	5.2	32	3.9	24	2.9	16
						7	10	32	5.2	32	5.9	24	0.9	16
						10	15	32	5.9	32	6.1	24		
MBW-1050	1575	1050	0.7 H	12.0	12	0	3	24	12.0	24				
						3	7	24	12.0	24				
						7	10	24	12.0	24				
						10	15	24	12.0	24				
					21	0	3	42	5.6	42	3.3	32	3.1	24
						3	7	42	8.2	42	2.6	32	1.2	24
						7	10	42	8.5	42	3.5	32		
						10	15	42	9.8	42	2.2	32		
MBW-1400	2100	1400	0.7 H	12.0	12	0	3	24	12.0	24				
						3	7	24	12.0	24				
						7	10	24	12.0	24				
						10	15	24	12.0	24				
					21	0	3	42	8.9	42	3.1	32		
						3	7	42	10.8	42	1.2	32		
						7	10	42	12.0	42				
						10	15	42	12.0	42				

NOTES TO CONTRACTOR:

① OR 4 FT. MINIMUM, WHICHEVER IS GREATER.

② WIDTH - AS MEASURED FROM FRONT TO BACK FACE OF BLOCK UNIT.

③ MAXIMUM DISTANCE FROM TOP OF WALL TO FIRST REINFORCEMENT LAYER. UNREINFORCED WALLS ARE NOT INCLUDED IN THIS STANDARD BUT MAY BE CONSTRUCTED UP TO AT LEAST THE HEIGHT GIVEN IN THE TABLE FOR A GIVEN NOMINAL BLOCK WIDTH AND THE SPECIFIED FILL MATERIALS CONTAINED IN THIS STANDARD.

④ PAY LIMITS OF STRUCTURAL EXCAVATION. ACTUAL EXCAVATION SLOPE IS DETERMINED BY OSHA REGULATIONS AND IN-SITU SOILS; EXCAVATION BEYOND "LIMITS OF STRUCTURAL EXCAVATION" AT CONTRACTOR'S EXPENSE.

⑤ THE WRAP LENGTH FOR GEOTEXTILE FABRIC SHALL NOT BE MORE THAN 6".

⑥ INSPECT EXCAVATION SLOPES FOR ACTIVE SEEPAGE AND PLACE ADDITIONAL DRAINS WHERE SEEPAGE OCCURS AS DIRECTED BY THE ENGINEER.

⑦ PLACE DRAIN AT BOTTOM OF REINFORCED SOIL IF PIPE CAN BE SLOPED TO OUTLET. DO NOT OUTLET ONTO A SIDEWALK.

⑧ IF PIPE AT THIS ELEVATION CANNOT BE SLOPED TO DRAIN, OMIT DRAIN AND USE "CONCRETE PAD WITHOUT DRAIN" DETAIL.

⑨ 4" THERMOPLASTIC PERFORATED PIPE, SPEC. 3245, WRAP WITH TYPE I GEOTEXTILE, SPEC. 3733 (TYP.) INSTALLATION AS PER SPEC. 2502, WITH PRECAST CONCRETE HEAD WALL AT OUTLET.

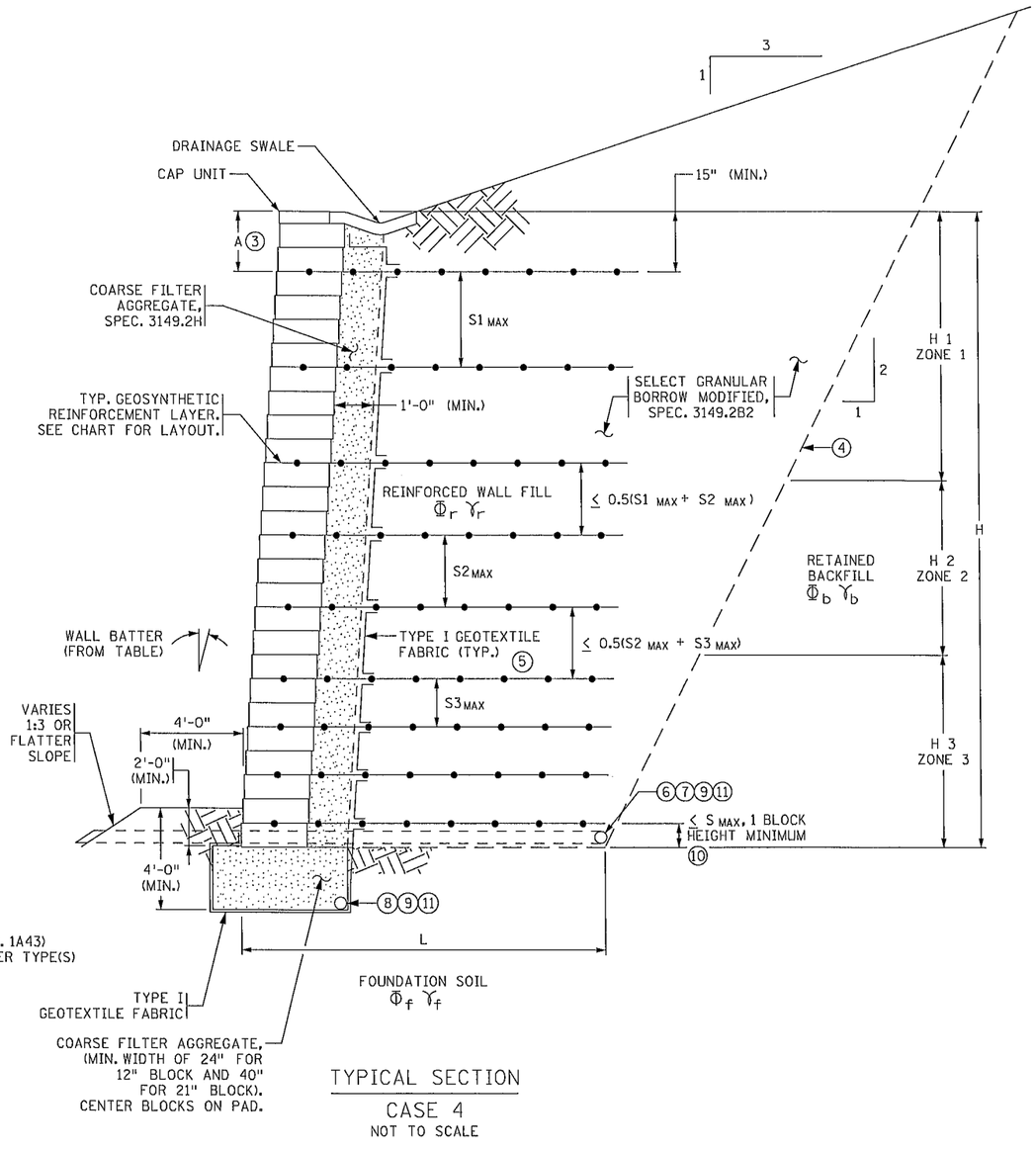
⑩ S_{MAX} = 0.5 $S1_{MAX}$ IF THE WALL HEIGHT IS WITHIN ZONE 1.
S_{MAX} = 0.5 $S2_{MAX}$ IF THE WALL HEIGHT IS WITHIN ZONE 2.
S_{MAX} = 0.5 $S3_{MAX}$ IF THE WALL HEIGHT IS WITHIN ZONE 3.

⑪ THE REINFORCED WALL FILL DRAIN MAY BE CONNECTED INTO FOOTING DRAIN, INSTEAD OF OUT LETTING THROUGH THE WALL, IF CAPACITY IS ADEQUATE TO TRANSMIT THE FLOW.

INSTRUCTIONS TO CONTRACTOR:

USE AS MANY ZONES AS WALL HEIGHT REQUIRES, STARTING WITH ZONE 1 AND ADDING ADDITIONAL ZONES TO THE BOTTOM OF THE WALL AS NEEDED TO MAKE UP THE TOTAL WALL HEIGHT (H) NEEDED.

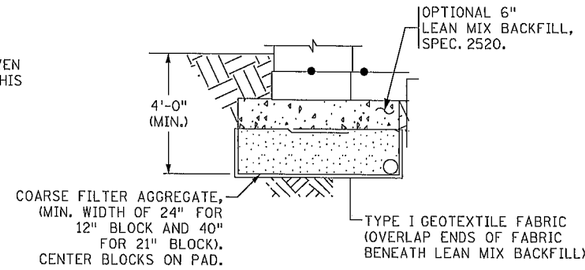
REINFORCEMENT CLASS, NOMINAL BLOCK WIDTH AND WALL BATTER ARE GENERALLY THE CONTRACTOR'S OPTION TO SELECT FROM Mn/DOT APPROVED PRODUCTS LISTS LOCATED AT www.mrr.dot.state.mn.us/geotechnical/foundations/foundations.asp.



TYPICAL SECTION

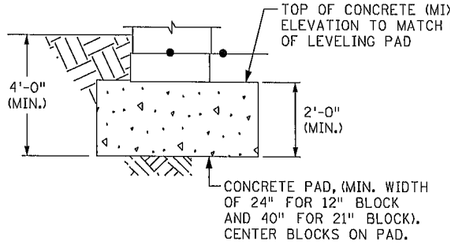
CASE 4

NOT TO SCALE



OPTIONAL CONCRETE LEVELING PAD

NOT TO SCALE



CONCRETE PAD WITHOUT DRAIN

NOT TO SCALE

REVISION:

APPROVED: 8-6-2014

DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.644 | 1 OF 1

APPROVED: 8-6-2014

REVISED:

STATE DESIGN ENGINEER

MODULAR BLOCK RETAINING WALL

SOIL REINFORCEMENT FOR 1:3 FILL SLOPE, CASE 4

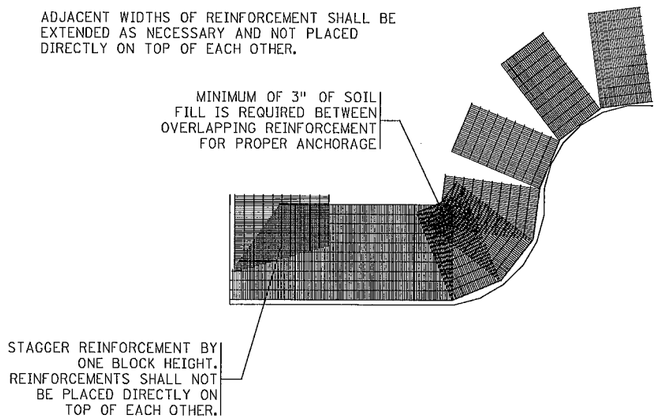
SAP 002-614-041
SAP 106-020-036 CP 18-10

SHEET NO. 48 OF 200 SHEETS

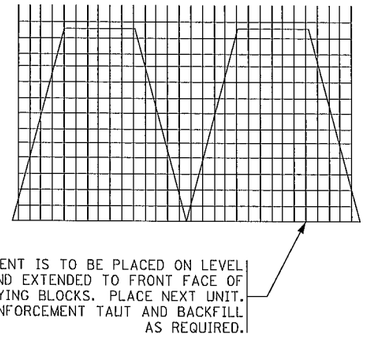
NOTES:

CORRECT ORIENTATION OF GEOSYNTHETIC TO OBTAIN PROPER STRENGTH SHALL BE DETAILED ON CONTRACTOR DRAWINGS.

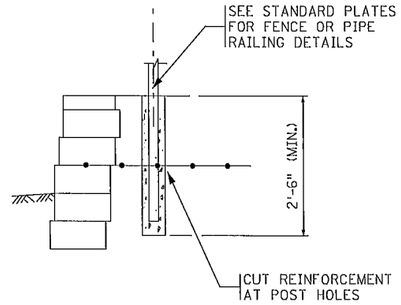
ADJACENT WIDTHS OF REINFORCEMENT SHALL BE EXTENDED AS NECESSARY AND NOT PLACED DIRECTLY ON TOP OF EACH OTHER.



REINFORCEMENT PLACEMENT AROUND CURVES AND CORNERS

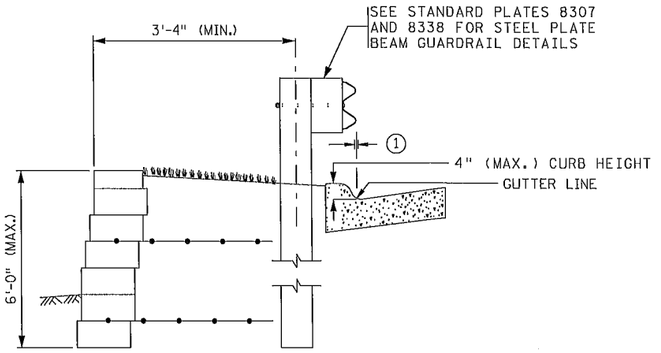


REINFORCEMENT PLACEMENT BETWEEN BLOCK UNITS

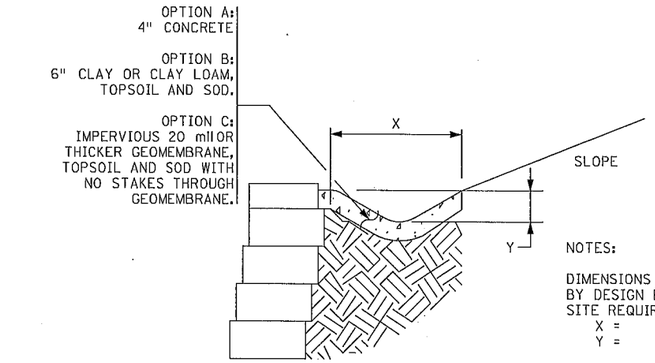


POST DETAIL

TYPICAL HANDRAIL AND/OR FENCE POST



STEEL PLATE BEAM GUARDRAIL DETAIL 1

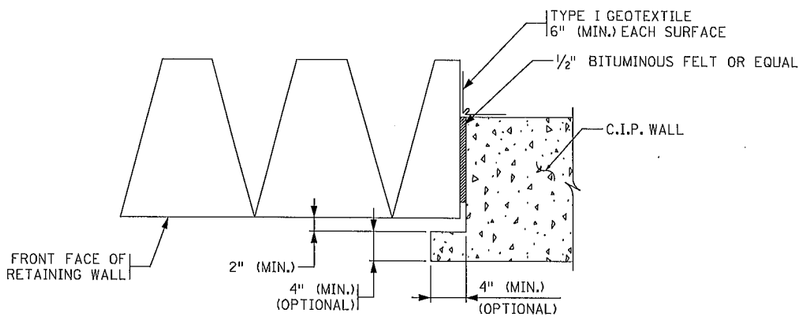


NOTES:

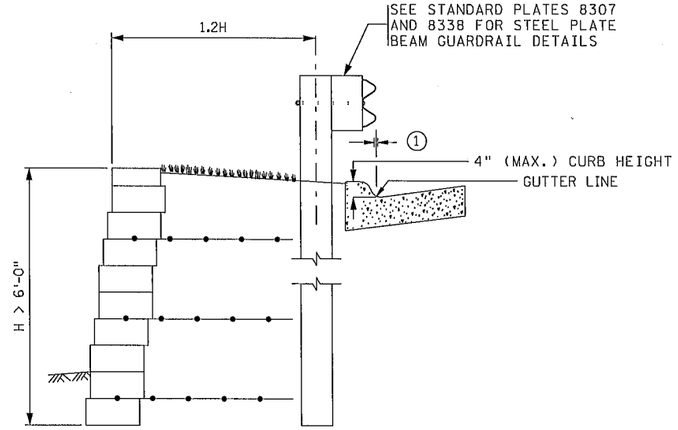
DIMENSIONS TO BE DETERMINED BY DESIGN ENGINEER BASED ON SITE REQUIREMENTS.
X =
Y =

SEE PLAN VIEW FOR SURFACE DRAINAGE PATTERNS.

TYPICAL DRAIN SWALE DETAIL



CONNECTION DETAIL AT JUNCTURE OF MSEW AND C.I.P. STRUCTURE



STEEL PLATE BEAM GUARDRAIL DETAIL 2

(AADT SHALL BE LESS THAN 5000)
STEEL PLATE BEAM GUARDRAIL SHOWN.

NOTES:

(1) USE CAUTION WHEN PLACING CURB WITH GUARDRAIL. CURBS ADVERSELY AFFECT THE PERFORMANCE OF THE GUARDRAIL. GENERALLY PLACE CURB DIRECTLY BELOW GUARDRAIL. SEE PLANS OR REFER TO STANDARD PLAN 5-297.601 (2). FOR CURB LOCATIONS ON NCHRP REPORT NO. 350 APPROVED BRIDGE TRANSITIONS, SEE STANDARD PLANS 5-297.603, .605, .606 ETC..

REVISION:

APPROVED: 8-6-2014

DIRECTOR, OFFICE OF MATERIALS AND ROAD RESEARCH

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.645 | 1 OF 1

APPROVED: 8-6-2014

REVISED:

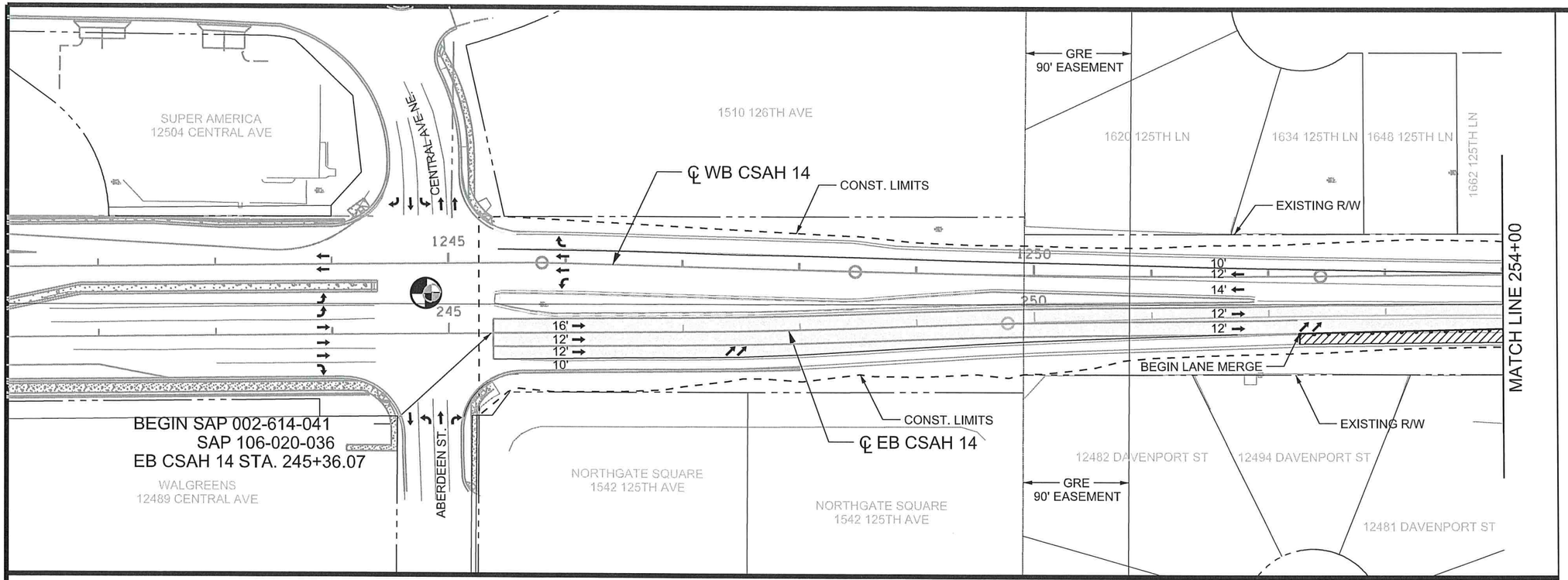
STATE DESIGN ENGINEER

MODULAR BLOCK RETAINING WALL

DETAILS

SAP 002-614-041
SAP 106-020-036 CP 18-10

SHEET NO. 49 OF 200 SHEETS



LEGEND

- STAGE 1A CONSTRUCTION
- LANE/SHOULDER CLOSURE
- STORM SEWER WORK
- BARRELS / 2' BUFFER
- GENERAL TRAFFIC FLOW 12' MIN. LANE WIDTH. SEE TRAFFIC CONTROL PLAN FOR DETAILS
- TEMPORARY PORTABLE CONCRETE BARRIER STAGE 1A
- IMPACT ATTENUATOR

SEE TAB Y FOR BARRIER AND ATTENUATOR LOCATION DETAILS

STAGE 1A CONSTRUCTION NOTES:

1. STAGE 1A USES EXISTING LANE CONFIGURATION.

2. WB TEMPORARY LANE CLOSURES. EB TRAFFIC REDUCED TO SINGLE LANE.

3. INSTALL STORM SEWER TRUNK LINE IN DESIGNATED WORK ZONE AND CATCH BASINS. INSTALL ONE SECTION OF PIPE FOR OUT OF CATCHBASINS. LEADS TO BE INSTALLED AT LATER STAGES.

4. GRADE POND 100 AND DITCH.

5. POUR CURB AND GUTTER ON NORTH AND SOUTH SIDE OF CSAH 14 NEAR WEST PROJEC TERMINUS.

6. STABILIZE VEGETATION AND SOIL STOCKPILES WITHIN 7 DAYS OF ROUGH GRADING OR INACTIVITY. ADDITIONAL TEMPORARY AND PERMANENT EROSION CONTROL AS DIRECTED BY ENGINEER.

7. STATIONING FOR BARRIER BASED OFF EB CSAH 14 ALIGNMENT.

STAGE 1A TRAFFIC NOTES:

1. MAINTAIN AT A MINIMUM ONE 12 FT LANE IN EACH DIRECTION. SEE TRAFFIC CONTROL PLANS FOR LANE CLOSURE CONFIGURATION.

2. SEE SIGNAL STAGING PLANS FOR DETAILS ON SIGNAL OPERATION AT ABERDEEN STREET AND CSAH 52(RADISSON RD.)

N

0 100
SCALE IN FEET

1 OF 2

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_STG1A_P1.dgn 12/10/2019 1:07:26 PM

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

PRINT NAME: JORGE R. BERNAL DELGADO

SIGNATURE:

DATE: 12-26-19 LICENSE NO. 57216

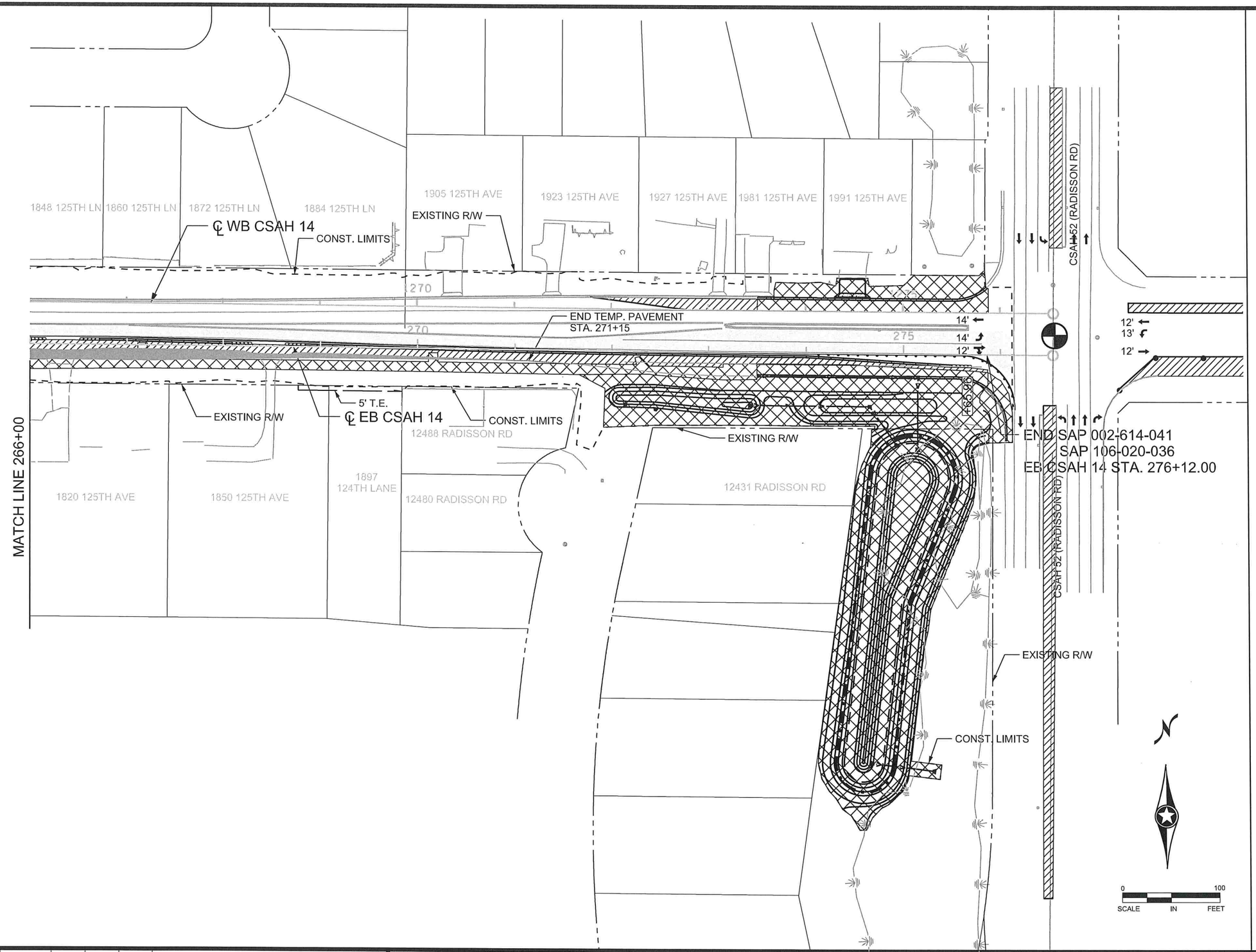
DRAWN BY	MP	DATE	12/04/19
DESIGN BY	JRB	DATE	12/04/19
CHECKED BY	NJD	DATE	12/04/19

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

STAGING PLAN
STAGE 1A

Sheet 50 of 200 Sheets



LEGEND

- STAGE 1A CONSTRUCTION
- LANE/SHOULDER CLOSURE
- STORM SEWER WORK
- BARRELS / 2' BUFFER
- GENERAL TRAFFIC FLOW 12' MIN. LANE WIDTH. SEE TRAFFIC CONTROL PLAN FOR DETAILS
- TEMPORARY PORTABLE CONCRETE BARRIER STAGE 1A
- IMPACT ATTENUATOR

SEE TAB Y FOR BARRIER AND ATTENUATOR LOCATION DETAILS

STAGE 1A CONSTRUCTION NOTES:

1. STAGE 1A USES EXISTING CSAH14 LANE CONFIGURATION.

2. WB TEMPORARY LANE CLOSURES. EB TRAFFIC REDUCED TO SINGLE LANE.

3. INSTALL STORM SEWER TRUNK LINE IN DESIGNATED WORK ZONE AND CATCH BASINS. INSTALL ONE SECTION OF PIPE OUT OF CATCHBASINS FOR LEADS TO BE CONNECTED AT LATER STAGES.

4. GRADE POND 100 AND DITCH.

5. POUR CURB AND GUTTER ON NORTH AND SOUTH SIDE OF CSAH 14 NEAR EAST PROJEC TERMINUS AS MARKED BY ENGINEER.

6. STABILIZE VEGETATION AND SOIL STOCKPILES WITHIN 7 DAYS OF ROUGH GRADING OR INACTIVITY. ADDITIONAL TEMPORARY AND PERMANENT EROSION CONTROL AS DIRECTED BY ENGINEER.

7. CONTRACTOR TO COORDINATE DIRECTLY WITH PROPERTY OWNERS OF PROPERTIES WITHIN WORK ZONE TO ALLOW ADEQUATE ACCESS DURING CONSTRUCTION. CONTRACTOR TO PROVIDE A MINIMUM 24 HR NOTICE TO PROPERTY OWNERS.

STAGE 1A TRAFFIC NOTES:

1. MAINTAIN AT A MINIMUM ONE 12 FT LANE IN EACH DIRECTION. SEE TRAFFIC CONTROL PLANS FOR LANE CLOSURE CONFIGURATION.

2. SEE SIGNAL STAGING PLANS FOR DETAILS ON SIGNAL OPERATION AT ABERDEEN STREET AND CSAH 52(RADISSON RD.)

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_STG1A_P2.dgn 12/10/2019 1:07:28 PM

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

PRINT NAME: JORGE R. BERNAL DELGADO

SIGNATURE:

DATE: 12-20-19 LICENSE NO. 57216

DRAWN BY	MP	DATE 12/04/19
DESIGN BY	JRB	DATE 12/04/19
CHECKED BY	NJD	DATE 12/04/19

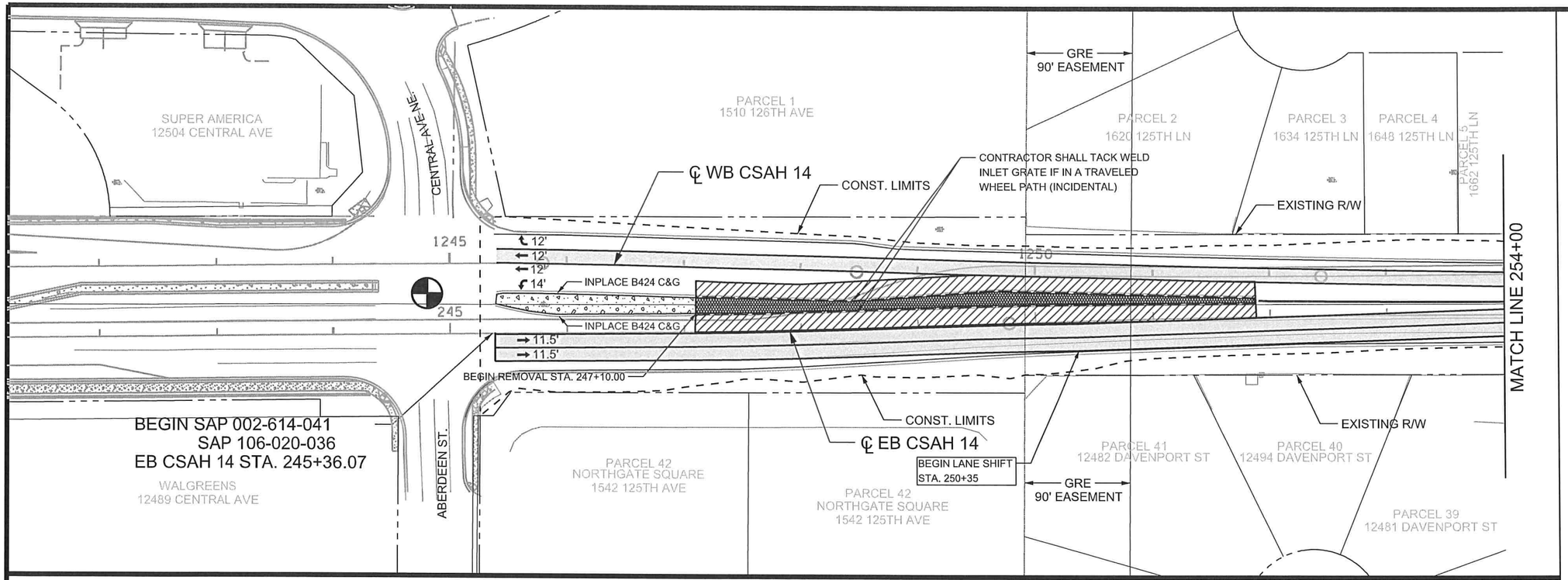
ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

STAGING PLAN
STAGE 1A

Sheet 51 of 200 Sheets



LEGEND

- REMOVE CONCRETE MEDIAN
- LANE/SHOULDER CLOSURE
- BARRELS / 2' BUFFER
- GENERAL TRAFFIC FLOW 12' MIN. LANE WIDTH. SEE TRAFFIC CONTROL PLAN FOR DETAILS

STAGE 1B CONSTRUCTION NOTES:

1. LANE REDUCTION ON BOTH DIRECTIONS OF TRAFFIC.

2. TEMPORARY LANE CLOSURES ON INSIDE LANES FOR REMOVALS AND PAVING OF CROSSOVERS.

3. REMOVE CONCRETE CURB, GUTTER AND MEDIAN AS MARKED BY ENGINEER.

4. PATCH AND PAVE LOCATIONS FOR CROSSOVER.

STAGE 1B TRAFFIC NOTES:

1. MAINTAIN AT A MINIMUM ONE 12 FT LANE IN EACH DIRECTION. SEE TRAFFIC CONTROL PLANS FOR LANE CLOSURE CONFIGURATION.

2. SEE SIGNAL STAGING PLANS FOR DETAILS ON SIGNAL OPERATION AT ABERDEEN STREET AND CSAH 52(RADISSON RD.)

N

0 100
SCALE IN FEET

1 OF 2

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_STG1B_P1.dgn 12/10/2019 1:07:29 PM

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

PRINT NAME: JORGE R. BERNAL DELGADO

SIGNATURE:

DATE: 12-20-19 LICENSE NO. 57216

DRAWN BY MP DATE 12/04/19

DESIGN BY JRB DATE 12/04/19

CHECKED BY NJD DATE 12/04/19

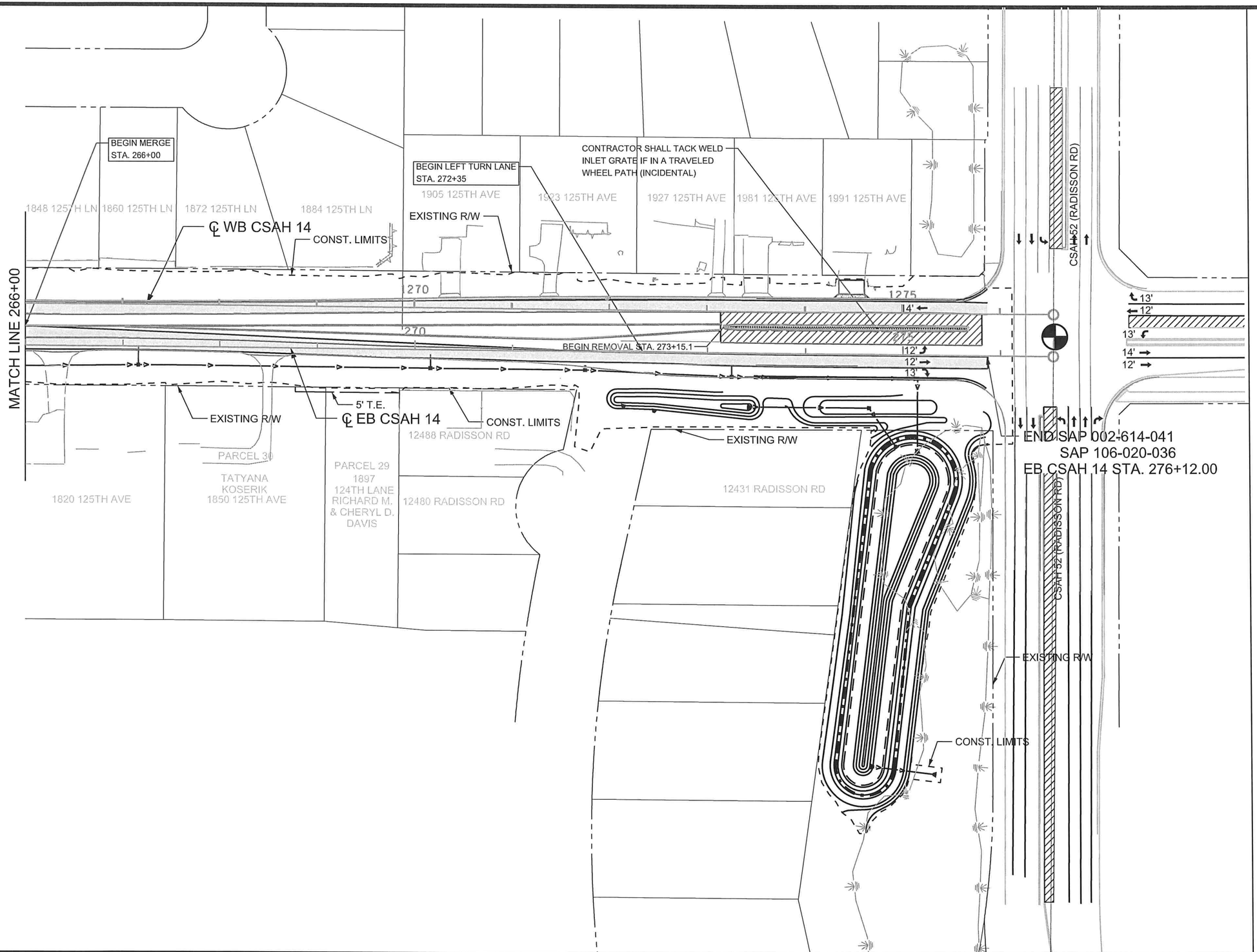
ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

STAGING PLAN
STAGE 1B

Sheet 52 of 200 Sheets



LEGEND

- STAGE 1A CONSTRUCTION
- LANE/SHOULDER CLOSURE
- BARRELS / 2' BUFFER
- GENERAL TRAFFIC FLOW 12' MIN. LANE WIDTH. SEE TRAFFIC CONTROL PLAN FOR DETAILS

STAGE 1B CONSTRUCTION NOTES:

1. LANE REDUCTION ON BOTH DIRECTIONS OF TRAFFIC.
2. TEMPORARY LANE CLOSURES ON INSIDE LANES FOR REMOVALS AND PAVING OF CROSSOVERS.
3. REMOVE CONCRETE CURB, GUTTER AND MEDIAN AS MARKED BY ENGINEER.
4. PATCH AND PAVE LOCATIONS FOR CROSSOVER.

STAGE 1B TRAFFIC NOTES:

1. MAINTAIN AT A MINIMUM ONE 12 FT LANE IN EACH DIRECTION. SEE TRAFFIC CONTROL PLANS FOR LANE CLOSURE CONFIGURATION.
2. SEE SIGNAL STAGING PLANS FOR DETAILS ON SIGNAL OPERATION AT ABERDEEN STREET AND CSAH 52(RADISSON RD.)

N

0 100
SCALE IN FEET

2 OF 2

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_STG1B_P2.dgn 12/10/2019 1:07:31 PM

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

PRINT NAME: JORGE R. BERNAL DELGADO

SIGNATURE:

DATE: 12-20-19 LICENSE NO. 57216

DRAWN BY MP DATE 12/04/19

DESIGN BY JRB DATE 12/04/19

CHECKED BY NJD DATE 12/04/19

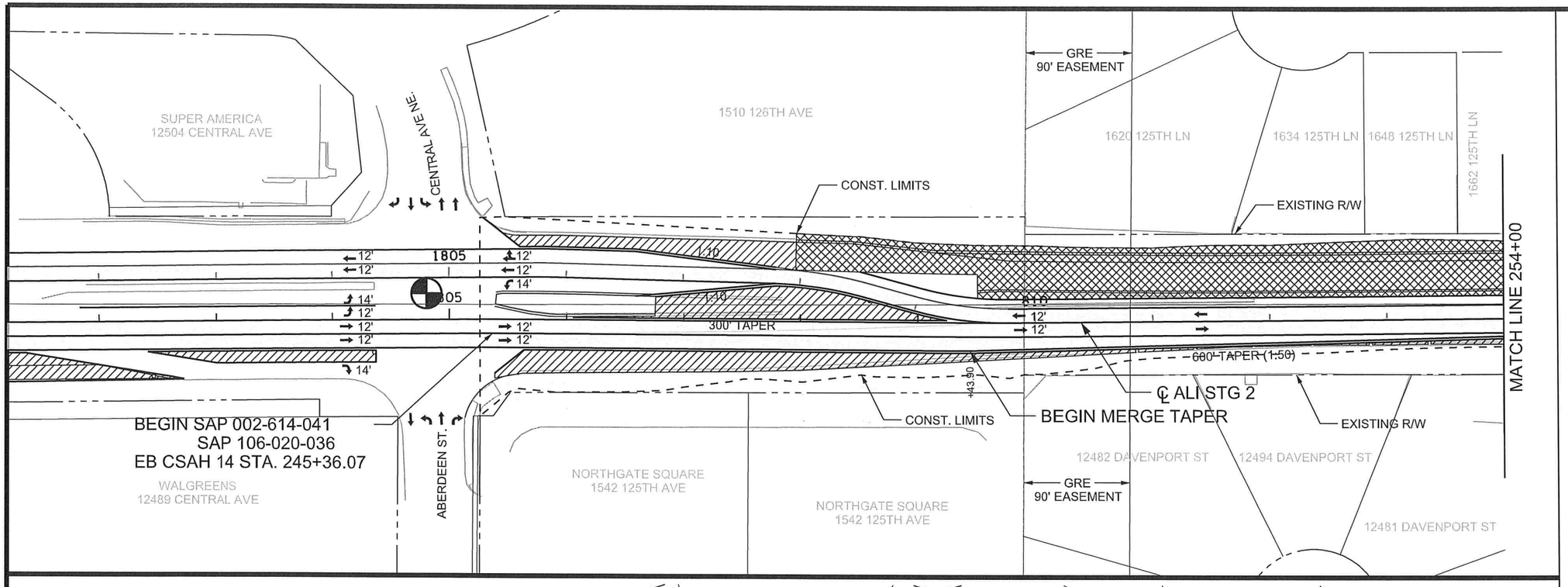
ANOKA COUNTY

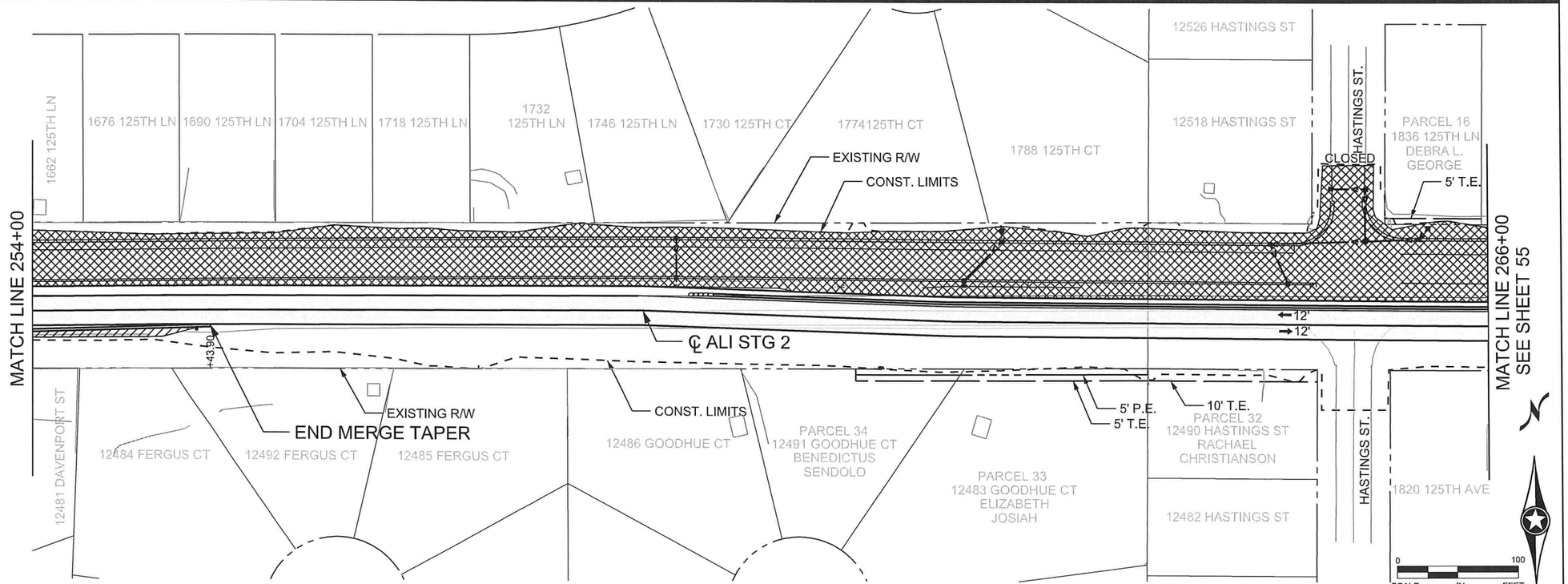
ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

STAGING PLAN
STAGE 1B

Sheet 53 of 200 Sheets





LEGEND

- STAGE 2 CONSTRUCTION
- PROPOSED CURB & GUTTER
- LANE/SHOULDER CLOSURE
- STORM SEWER WORK
- BARRELS / VAR. (8' MIN) CONSTRUCTION BUFFER
- GENERAL TRAFFIC FLOW 12' MIN. LANE WIDTH. SEE TRAFFIC CONTROL PLAN FOR DETAILS
- TEMPORARY PORTABLE CONCRETE BARRIER STAGE 1A
- IMPACT ATTENUATOR

SEE TAB Y FOR BARRIER AND ATTENUATOR LOCATION DETAILS

STAGE 2 CONSTRUCTION NOTES:

1. EAST BOUND AND WEST BOUND TRAFFIC SHALL RUN ALONG SOUTH SIDE OF INPLACE CSAH 14.

2. SEE ALIGNMENT TABULATION SHEET FOR STAGE 2 ALIGNMENTS. STAGE 2 ALIGNMENT GENERALLY FOLLOWS EDGE OF INSIDE LANE WHEN ROAD DIVIDED AND CENTERLINE THROUGH CONSTRUCTION ZONE.

3. HASTINGS STREET ACCESS ON NORTH SIDE OF CSAH14 TO BE CLOSED TIGHT DURING CONSTRUCTION.

4. CONTRACTOR TO COORDINATE AND MAINTAIN ACCESS TO PROPERTIES ALONG CONSTRUCTION ZONE THROUGHOUT STAGE CONSTRUCTION.

5. CLEARING, GRUBBING AND REMOVALS AS MARKED BY ENGINEER, SEE REMOVAL PLANS SHEET FOR DETAILS.

6. INSTALL STORM SEWER LINE ALONG NORTH SIDE OF CSAH 14.

7. INSTALL CATCH BASINS ALONG LWB MEDIAN AND STUB PIPE TO BE CONNECTED DURING FOLLOWING STAGES.

8. STABILIZE VEGETATION AND SOIL STOCKPILES WITHIN 7 DAYS OF ROUGH GRADING OR INACTIVITY. ADDITIONAL TEMPORARY AND PERMANENT EROSION CONTROL AS DIRECTED BY ENGINEER.

STAGE 1A TRAFFIC NOTES:

1. MAINTAIN BUFFER BETWEEN EDGE OF TRAVELED LANE AND WORK ZONE SEE STAGE 2 TYPICAL SECTIONS SHEET

2. SEE SIGNAL STAGING PLANS FOR DETAILS ON SIGNAL OPERATION AT ABERDEEN STREET AND CSAH 52(RADISSON RD.)

1 OF 2

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_STG2_P1.dgn 12/10/2019 1:07:32 PM

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ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

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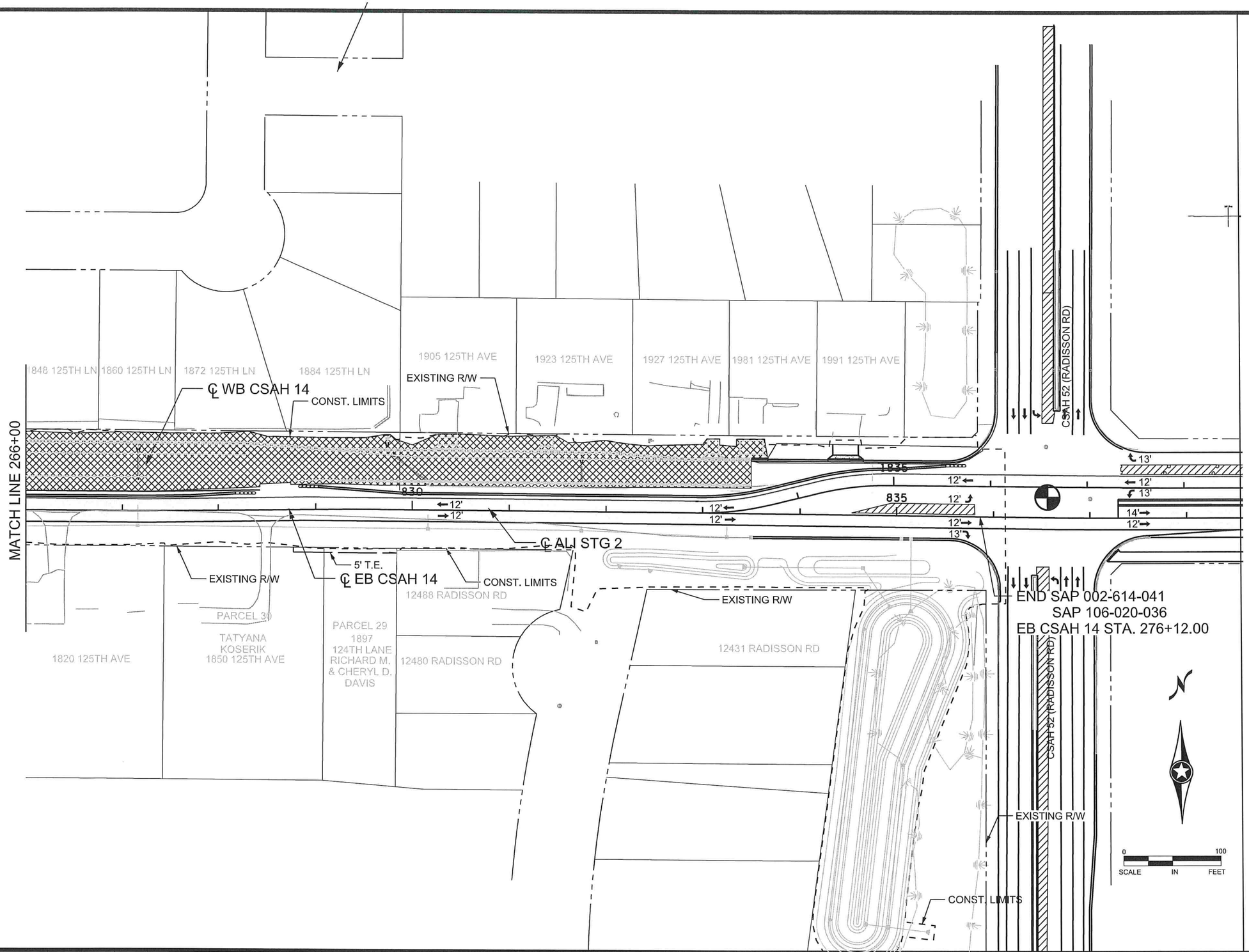
SAP 106-020-036
CP 18-10

STAGING PLAN
STAGE 2

Sheet 54 of 200 Sheets



LEGEND

- STAGE 2 CONSTRUCTION
- PROPOSED CURB & GUTTER
- LANE/SHOULDER CLOSURE
- STORM SEWER WORK
- BARRELS / VAR. (8' MIN) CONSTRUCTION BUFFER
- GENERAL TRAFFIC FLOW 12' MIN. LANE WIDTH. SEE TRAFFIC CONTROL PLAN FOR DETAILS
- TEMPORARY PORTABLE CONCRETE BARRIER STAGE 2
- IMPACT ATTENUATOR

STAGE 2 CONSTRUCTION NOTES:

1. EAST BOUND AND WEST BOUND TRAFFIC SHALL RUN ALONG SOUTH SIDE OF INPLACE CSAH 14.

2. SEE ALIGNMENT TABULATION SHEET FOR STAGE 2 ALIGNMENTS. STAGE 2 ALIGNMENT GENERALLY FOLLOWS EDGE OF INSIDE LANE WHEN ROAD DIVIDED AND CENTERLINE THROUGH CONSTRUCTION ZONE.

3. HASTINGS STREET ACCESS ON NORTH SIDE OF CSAH14 TO BE CLOSED TIGHT DURING CONSTRUCTION.

4. CONTRACTOR TO COORDINATE AND MAINTAIN ACCESS TO PROPERTIES ALONG CONSTRUCTION ZONE THROUGHOUT STAGE CONSTRUCTION.

5. CLEARING, GRUBBING AND REMOVALS AS MARKED BY ENGINEER, SEE REMOVAL PLANS SHEET FOR DETAILS.

6. INSTALL STORM SEWER LINE ALONG NORTH SIDE OF CSAH 14.

7. INSTALL CATCH BASINS ALONG LWB MEDIAN AND STUB PIPE TO BE CONNECTED DURING FOLLOWING STAGES.

8. STABILIZE VEGETATION AND SOIL STOCKPILES WITHIN 7 DAYS OF ROUGH GRADING OR INACTIVITY. ADDITIONAL TEMPORARY AND PERMANENT EROSION CONTROL AS DIRECTED BY ENGINEER.

9. LENGHT OF BARRIER DOES NOT INCLUDE IMPACT ATTENUATORS. IMPACT ATTENUATORS SHALL BE THE SAME CROSS SECTION OF BARRIER

STAGE 2 TRAFFIC NOTES:

1. MAINTAIN BUFFER BETWEEN EDGE OF TRAVELED LANE AND WORK ZONE SEE STAGE 2 TYPICAL SECTIONS SHEET

2. SEE SIGNAL STAGING PLANS FOR DETAILS ON SIGNAL OPERATION AT ABERDEEN STREET AND CSAH 52(RADISSON RD.)

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_STG2_P2.dgn 12/10/2019 1:07:35 PM

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DESIGN BY JRB DATE 12/04/19

CHECKED BY NJD DATE 12/04/19

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

STAGING PLAN
STAGE 2

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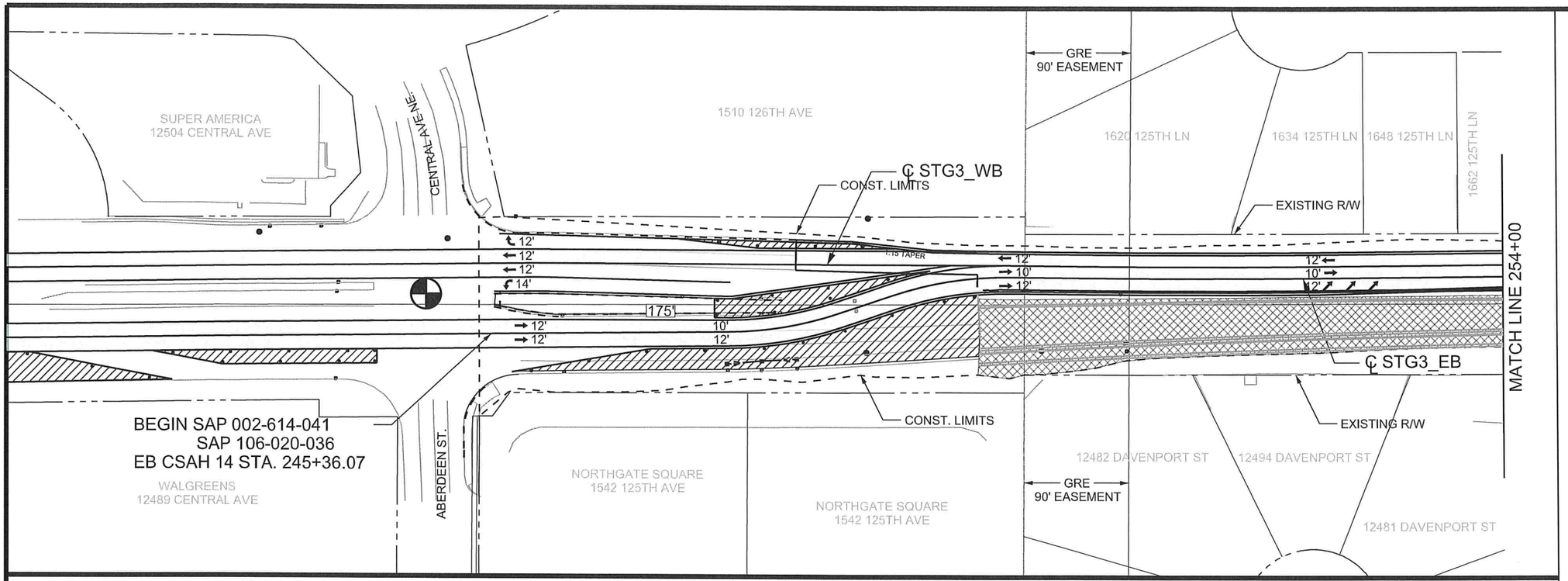

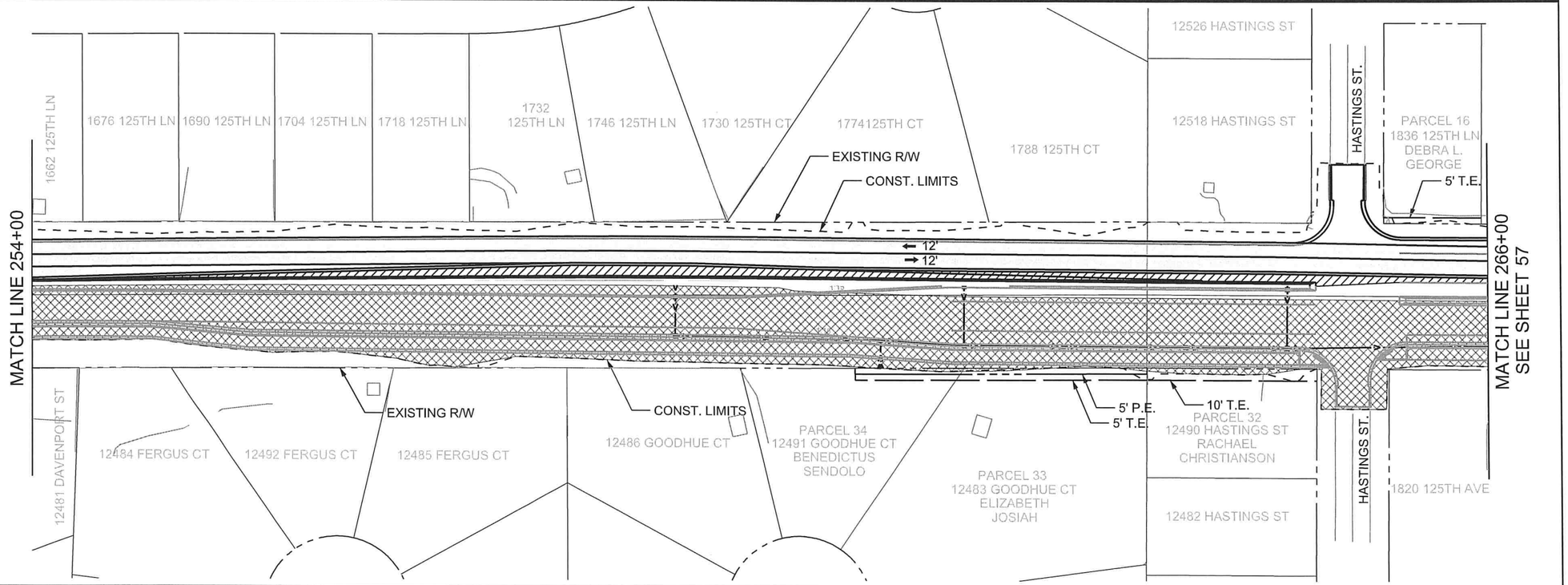

LEGEND

- STAGE 2 CONSTRUCTION
- PROPOSED CURB & GUTTER
- LANE/SHOULDER CLOSURE
- STORM SEWER WORK
- BARRELS / VAR. (8' MIN) CONSTRUCTION BUFFER
- GENERAL TRAFFIC FLOW 10' MIN. LANE WIDTH. SEE TRAFFIC CONTROL PLAN FOR DETAILS

STAGE 3 CONSTRUCTION NOTES:

1. EAST BOUND AND WEST BOUND TRAFFIC SHALL RUN ALONG NORTH SIDE OF INPLACE CSAH 14.

2. SEE ALIGNMENT TABULATION SHEET 70 FOR STAGE 3 ALIGNMENTS. STAGE 3 ALIGNMENTS GENERALLY FOLLOW CENTERLINE AND CONVERGE AT THE WORK ZONE AFTER CROSSOVER

3. HASTINGS STREET ACCESS ON SOUTH SIDE OF CSAH14 TO BE CLOSED TIGHT DURING CONSTRUCTION.

4. CONTRACTOR TO COORDINATE AND MAINTAIN ACCESS TO PROPERTIES ALONG CONSTRUCTION ZONE THROUGHOUT STAGE CONSTRUCTION.

5. CLEARING, GRUBBING AND REMOVALS AS MARKED BY ENGINEER, SEE REMOVAL PLANS SHEET76 FOR DETAILS.

6. CONSTRUCT REMAINING STORM SEWER AND CONNECT TO PREVIOUSLY CONSTRUCTED LINE ALONG SOUTH SIDE OF CSAH 14.

7. STABILIZE VEGETATION AND SOIL STOCKPILES WITHIN 7 DAYS OF ROUGH GRADING OR INACTIVITY. ADDITIONAL TEMPORARY AND PERMANENT EROSION CONTROL AS DIRECTED BY ENGINEER.

STAGE 3 TRAFFIC NOTES:

1. MAINTAIN BUFFER BETWEEN EDGE OF TRAVELED LANE AND WORK ZONE SEE STAGE 3 TYPICAL SECTIONS SHEET 28

2. SEE SIGNAL STAGING PLANS FOR DETAILS ON SIGNAL OPERATION AT ABERDEEN STREET AND CSAH 52(RADISSON RD.)

SCALE 0 100 IN FEET

1 OF 2

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_STG3_P1.dgn 12/10/2019 1:07:37 PM

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DRAWN BY	MP	DATE	12/04/19
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CHECKED BY	NJD	DATE	12/04/19

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

STAGING PLAN
STAGE 3

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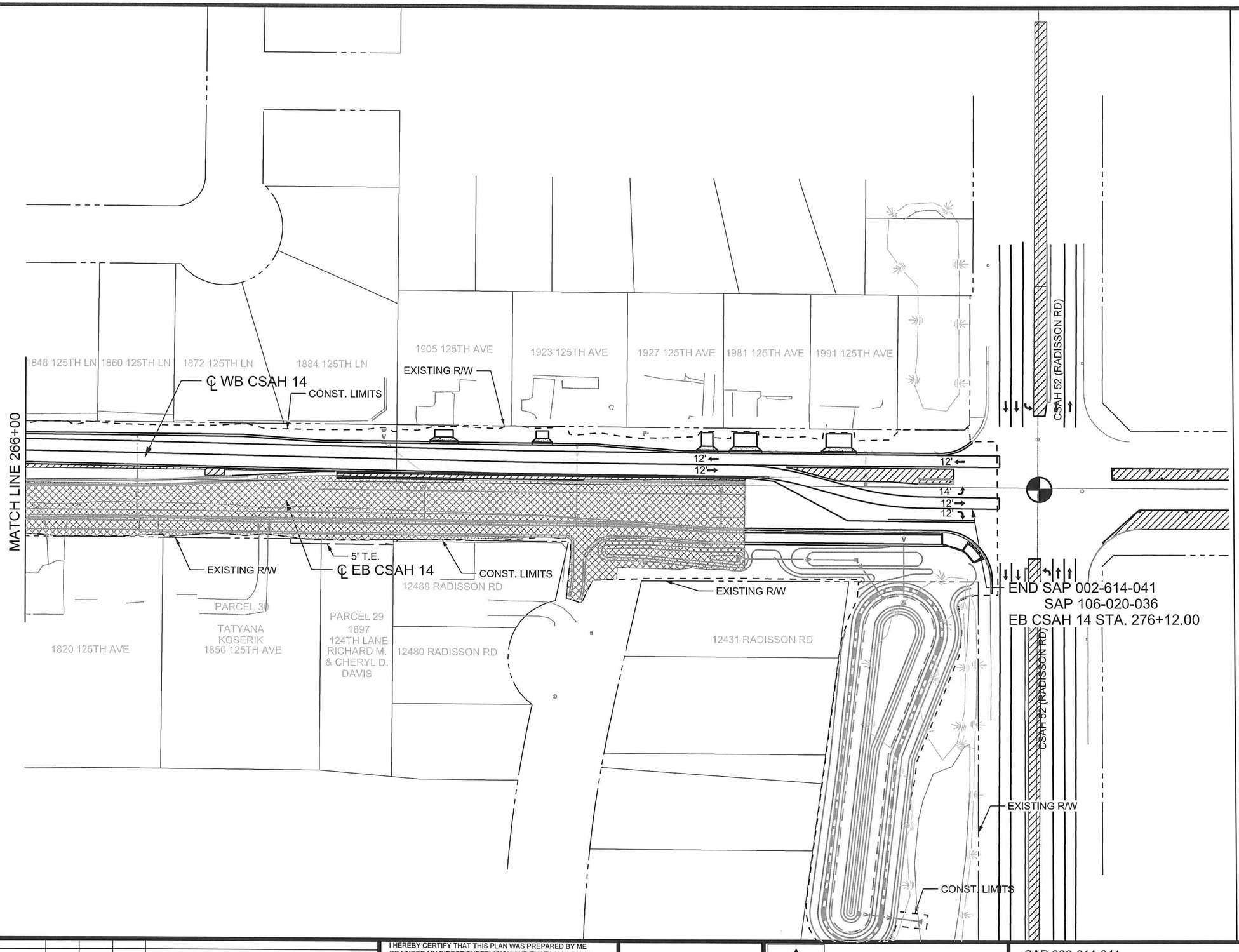

LEGEND

- STAGE 2 CONSTRUCTION
- PROPOSED CURB & GUTTER
- LANE/SHOULDER CLOSURE
- STORM SEWER WORK
- BARRELS / VAR. (8' MIN) CONSTRUCTION BUFFER
- GENERAL TRAFFIC FLOW 10' MIN. LANE WIDTH. SEE TRAFFIC CONTROL PLAN FOR DETAILS

STAGE 3 CONSTRUCTION NOTES:

1. EAST BOUND AND WEST BOUND TRAFFIC SHALL RUN ALONG SOUTH SIDE OF INPLACE CSAH 14.

2. SEE ALIGNMENT TABULATION SHEET 70 FOR STAGE 3 ALIGNMENTS. STAGE 3 ALIGNMENTS GENERALLY FOLLOW CENTERLINE AND SPLITS AT THE WORK ZONE CROSSOVER

3. HASTINGS STREET ACCESS ON SOUTH SIDE OF CSAH14 TO BE CLOSED TIGHT DURING CONSTRUCTION.

4. CONTRACTOR TO COORDINATE AND MAINTAIN ACCESS TO PROPERTIES ALONG CONSTRUCTION ZONE THROUGHOUT STAGE CONSTRUCTION.

5. CLEARING, GRUBBING AND REMOVALS AS MARKED BY ENGINEER, SEE REMOVAL PLANS SHEET76 FOR DETAILS.

6. CONSTRUCT REMAINING STORM SEWER AND CONNECT TO PREVIOUSLY CONSTRUCTED LINE ALONG SOUTH SIDE OF CSAH 14.

7. STABILIZE VEGETATION AND SOIL STOCKPILES WITHIN 7 DAYS OF ROUGH GRADING OR INACTIVITY. ADDITIONAL TEMPORARY AND PERMANENT EROSION CONTROL AS DIRECTED BY ENGINEER.

STAGE 3 TRAFFIC NOTES:

1. MAINTAIN BUFFER BETWEEN EDGE OF TRAVELED LANE AND WORK ZONE SEE STAGE 3 TYPICAL SECTIONS SHEET 28

2. SEE SIGNAL STAGING PLANS FOR DETAILS ON SIGNAL OPERATION AT ABERDEEN STREET AND CSAH 52(RADISSON RD.)

N

0 100
SCALE IN FEET

2 OF 2

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_STG3_P2.dgn 12/10/2019 1:07:39 PM

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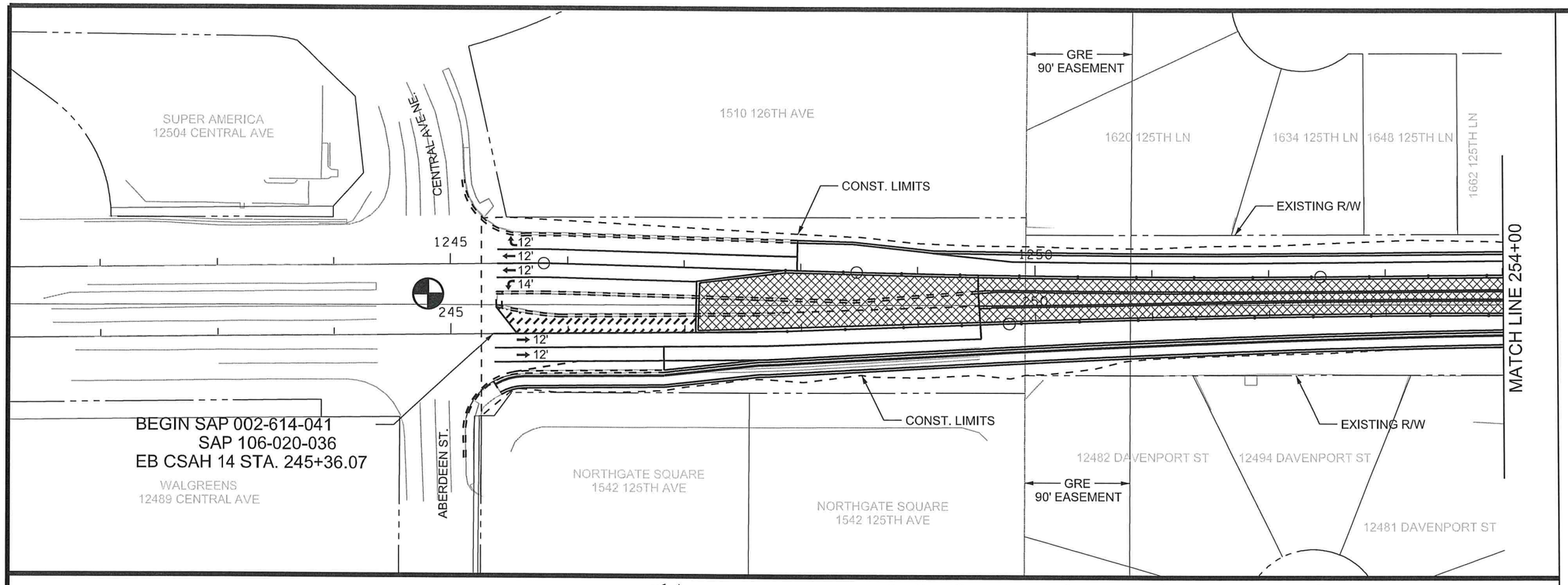
ANOKA COUNTY

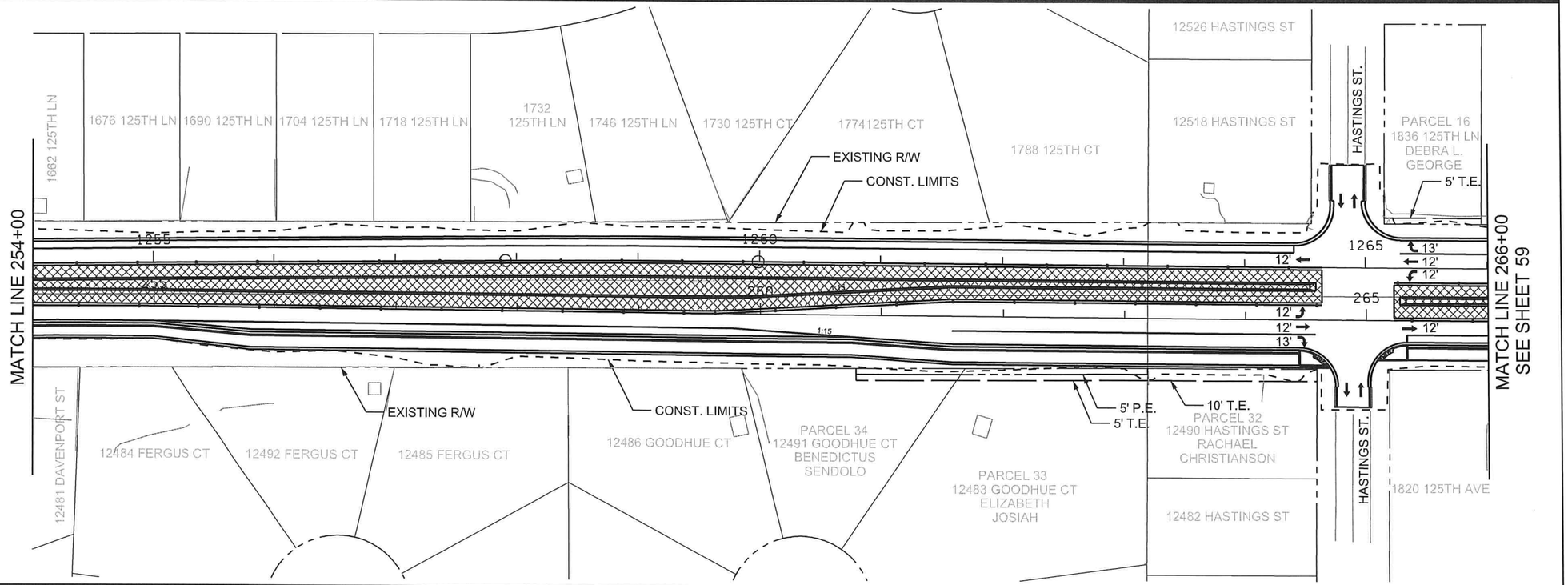
ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

STAGING PLAN
STAGE 3

Sheet 57 of 200 Sheets





LEGEND

- STAGE 4 CONSTRUCTION
- PROPOSED CURB & GUTTER

STAGE 4 CONSTRUCTION NOTES:

1. REMOVE BITUMINOUS PAVEMENT FROM CROSSOVER.
2. CONCRETE MEDIAN FLATWORK THROUGHOUT PROJECT AND CONCRETE MEDIAN RESTORATION AT BOTH ENDS OF PROJECT.

STAGE 4 TRAFFIC NOTES:

1. MAINTAIN AT LEAST ONE 12' MINIMUM LANE OF TRAFFIC IN BOTH DIRECTIONS OF TRAVEL

N

SCALE 0 100 IN FEET

1 OF 1

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_STG5_P1.dgn 12/10/2019 1:07:41 PM

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ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

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CP 18-10

STAGING PLAN
STAGE 4

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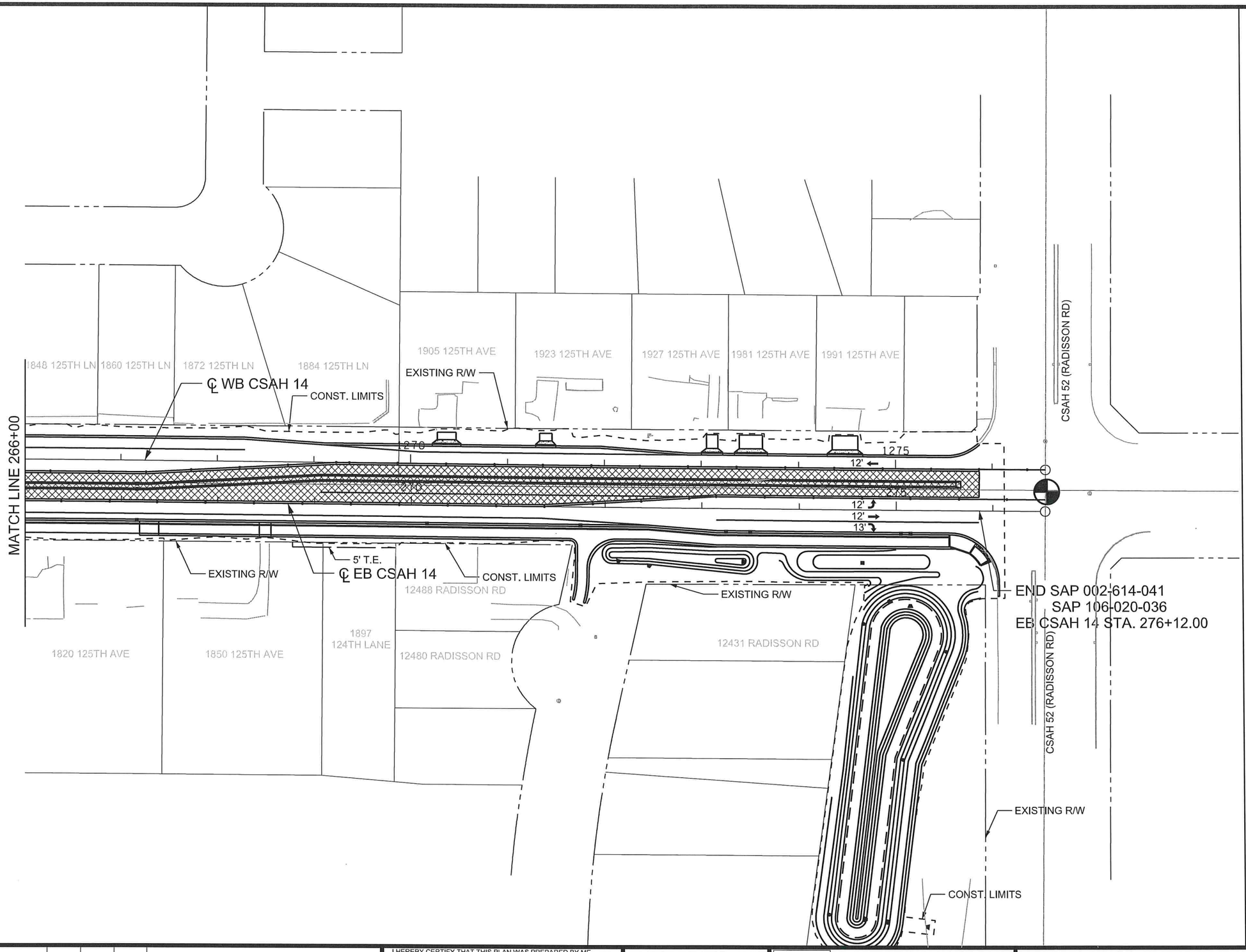

LEGEND

STAGE 4 CONSTRUCTION

PROPOSED CURB & GUTTER

STAGE 4 CONSTRUCTION NOTES:

1. CONSTRUCT CONCRETE MEDIAN AT EAST TERMINUS.

2. HASTINGS STREET ACCESS OPEN ON BOTH DIRECTIONS OF TRAVEL.

STAGE 4 TRAFFIC NOTES:

1. MAINTAIN AT LEAST ONE 12' MINIMUM LANE OF TRAFFIC IN EACH DIRECTION

N

0 100

SCALE IN FEET

2 OF 2

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_STG5_P2.dgn 12/10/2019 1:07:42 PM

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ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

STAGING PLAN
STAGE 4

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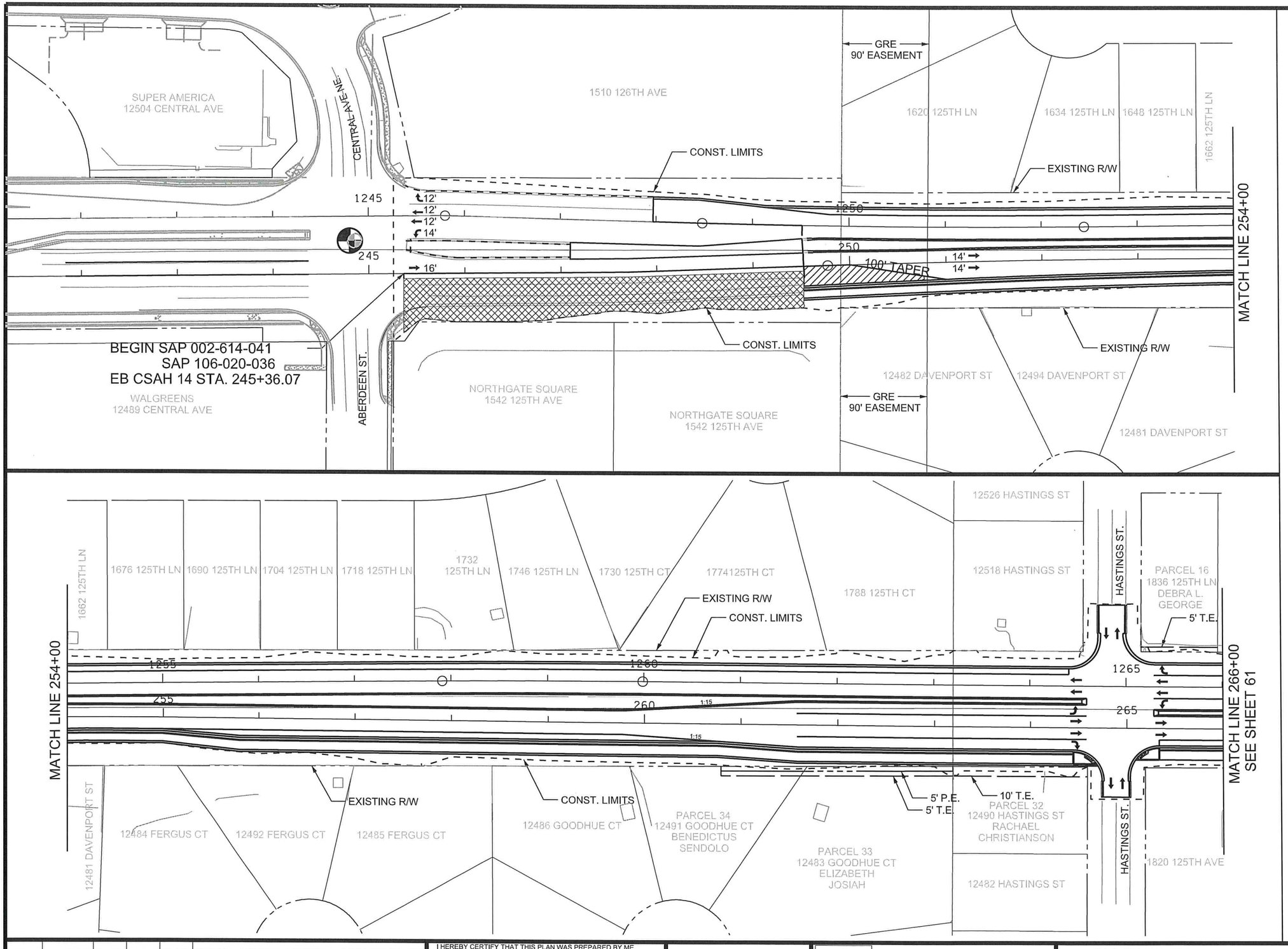

LEGEND

- STAGE 5 CONSTRUCTION
- PROPOSED CURB & GUTTER
- PROPOSED STORM SEWER

STAGE 5 CONSTRUCTION NOTES:

1. CONSTRUCT TRAIL AND ROAD SECTION ON SOUTH SIDE OF CSAH 14 WEST TERMINUS.

2. HASTINGS STREET ACCESS OPEN ON BOTH DIRECTIONS OF TRAVEL.

3. CLEARING AND GRUBBING AS NEEDED.

4. RELOCATE CATCH BASIN STRUCTURES AND CONNECT TO EXISTING STORM SEWER.

5. STABILIZE VEGETATION AND SOIL STOCKPILES WITHIN 7 DAYS OF ROUGH GRADING OR INACTIVITY. ADDITIONAL TEMPORARY AND PERMANENT EROSION CONTROL AS DIRECTED BY ENGINEER.

STAGE 5 TRAFFIC NOTES:

1. MAINTAIN AT LEAST ONE 12' MINIMUM LANE OF TRAFFIC AT WORK ZONE LOCATION

SCALE 0 100 IN FEET

1 OF 2

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_STG4_P1.dgn 12/10/2019 1:07:43 PM

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STAGING PLAN
STAGE 5

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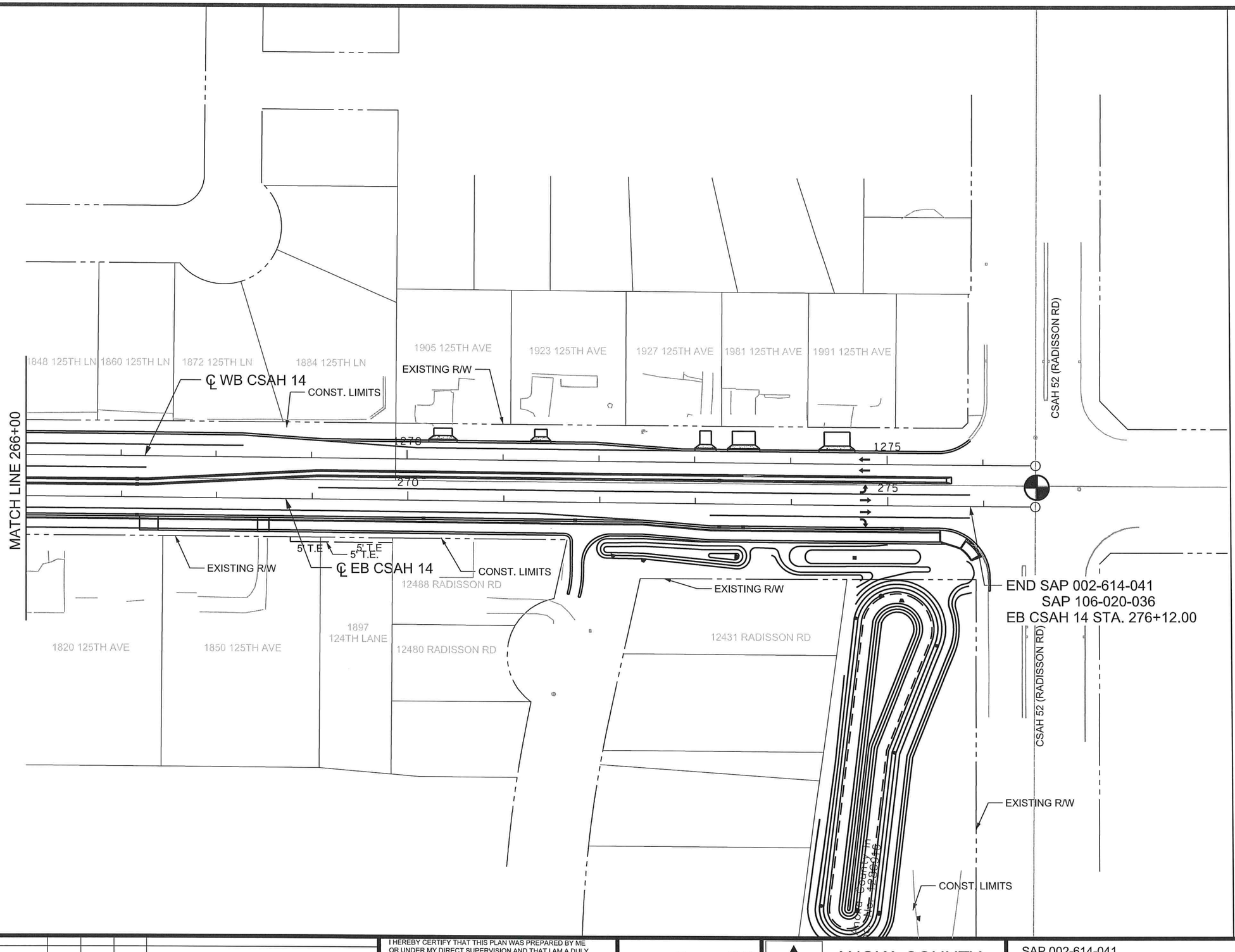

LEGEND

PROPOSED CURB & GUTTER

STAGE 5 CONSTRUCTION NOTES:

1. HASTINGS STREET ACCESS OPEN IN BOTH DIRECTIONS OF TRAVEL.

2. STABILIZE VEGETATION AND SOIL STOCKPILES WITHIN 7 DAYS OF ROUGH GRADING OR INACTIVITY. ADDITIONAL TEMPORARY AND PERMANENT EROSION CONTROL AS DIRECTED BY ENGINEER.

STAGE 5 TRAFFIC NOTES:

1. MAINTAIN AT LEAST ONE 12' MINIMUM LANE OF TRAFFIC IN EACH DIRECTION AT WORK ZONE LOCATION.

2 OF 2

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_STG4_P2.dgn 12/10/2019 1:07:45 PM

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ANOKA COUNTY HIGHWAY DEPT.

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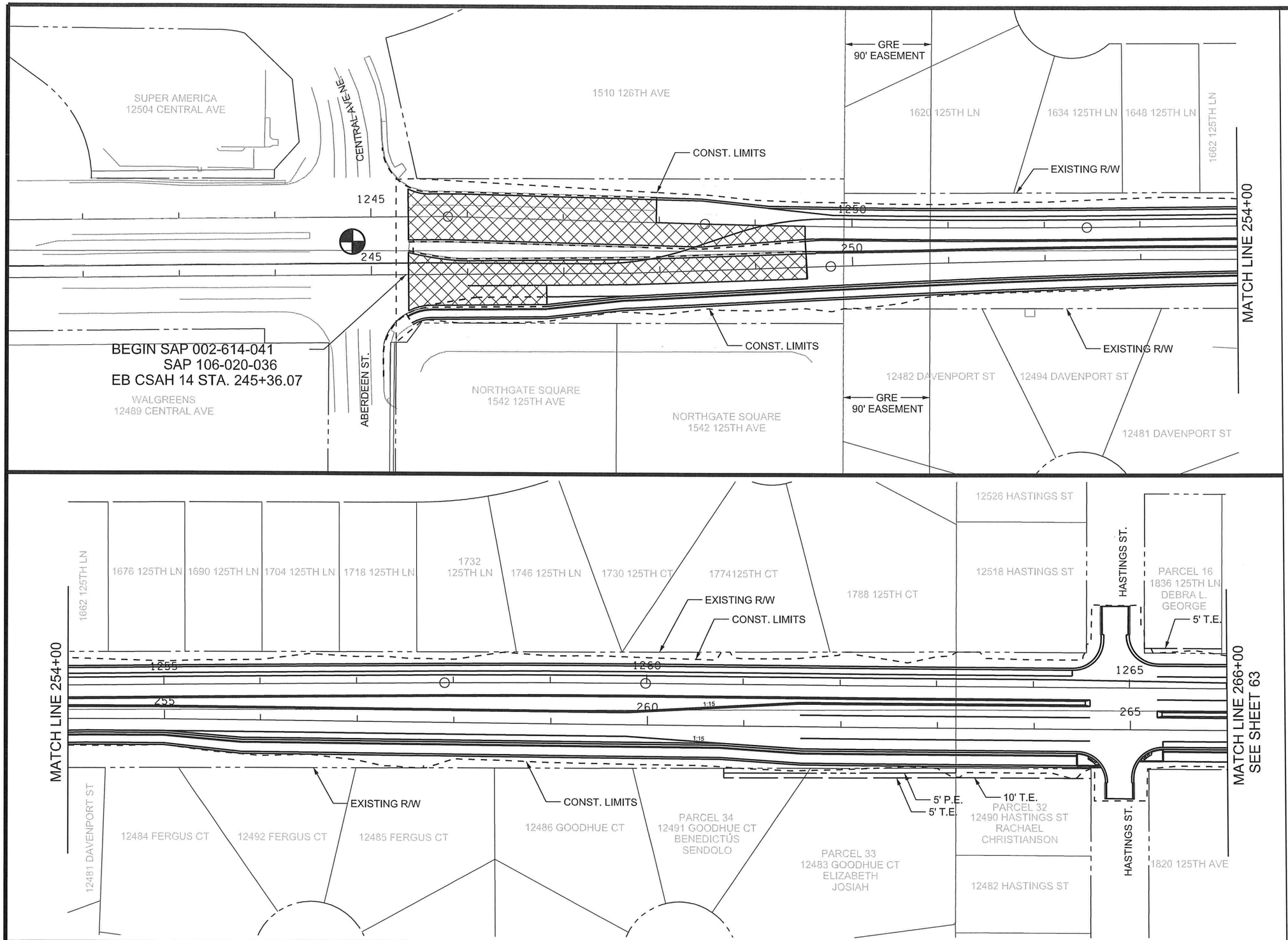
SAP 106-020-036
CP 18-10

STAGING PLAN
STAGE 5

Sheet 61 of 200 Sheets



LEGEND

- STAGE 6 CONSTRUCTION
- PROPOSED CURB & GUTTER

STAGE 6 CONSTRUCTION NOTES:

1. MILL TOP 2" OF EXISTING PAVEMENT AT LOCATIONS NEAR PROJECT TERMINI AS MARKED BY ENGINEER.
2. PAVE FINAL BITUMINOUS COURSE THROUGHOUT PROJECT LIMITS.
3. TRAFFIC LIMITED TO ONE 12' LANE PER DIRECTION DURING MILL AND PAVE OPERATION.
4. USE FIELD MANUAL LAYOUTS FOR MILLING AND PAVING OPERATIONS.

STAGE 6 TRAFFIC NOTES:

1. MAINTAIN AT LEAST ONE 12' MINIMUM LANE OF TRAFFIC INI EACH DIRECTION OF TRAVEL.

N

SCALE 0 100 IN FEET

1 OF 2

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_STG6_P1.dgn 12/10/2019 1:07:46 PM

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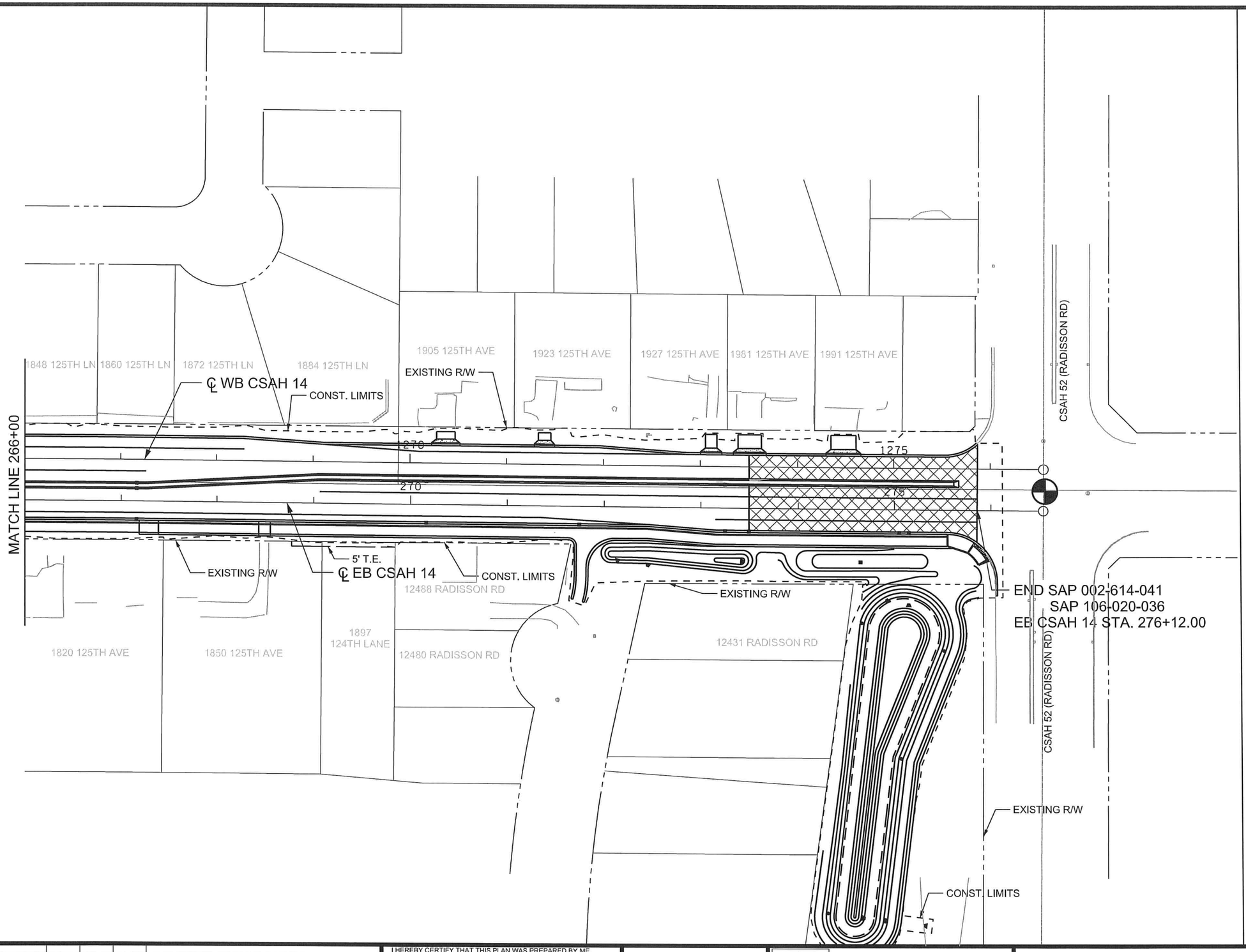
SAP 106-020-036
CP 18-10

STAGING PLAN
STAGE 6

Sheet 62 of 200 Sheets



LEGEND

STAGE 6 CONSTRUCTION

PROPOSED CURB & GUTTER

STAGE 6 CONSTRUCTION NOTES:

1. MILL TOP 2" OF EXISTING PAVEMENT AT LOCATIONS NEAR PROJECT TERMINI AS MARKED BY ENGINEER.

2. PAVE FINAL BITUMINOUS COURSE THROUGHOUT PROJECT LIMITS.

3. TRAFFIC LIMITED TO ONE 12' LANE PER DIRECTION DURING MILL AND PAVE OPERATION.

4. USE FIELD MANUAL LAYOUTS FOR MILLING AND PAVING OPERATIONS.

STAGE 6 TRAFFIC NOTES:

1. MAINTAIN AT LEAST ONE 12' MINIMUM LANE OF TRAFFIC INI EACH DIRECTION OF TRAVEL.

2. SEE TRAFFIC CONTROL PLANS AND SIGNAL STAGING PLANS FOR MORE INFORMATION.

2 OF 2

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_STG6_P2.dgn 12/10/2019 1:07:48 PM

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ANOKA COUNTY

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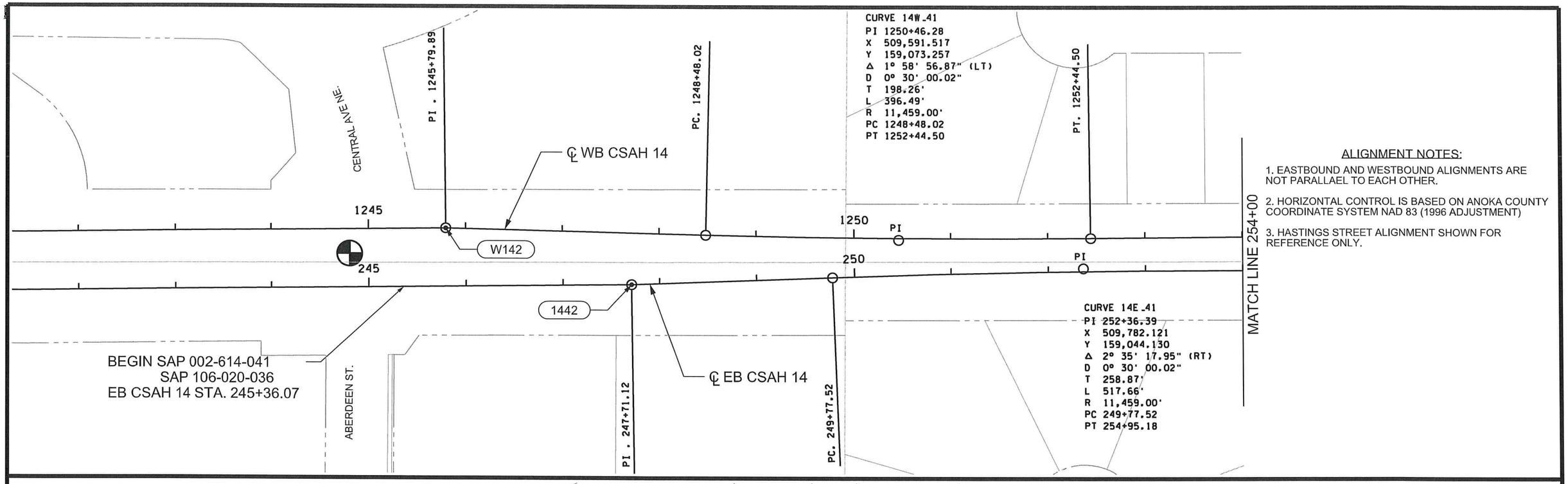
SAP 002-614-041
SAP 106-020-036
CP 18-10

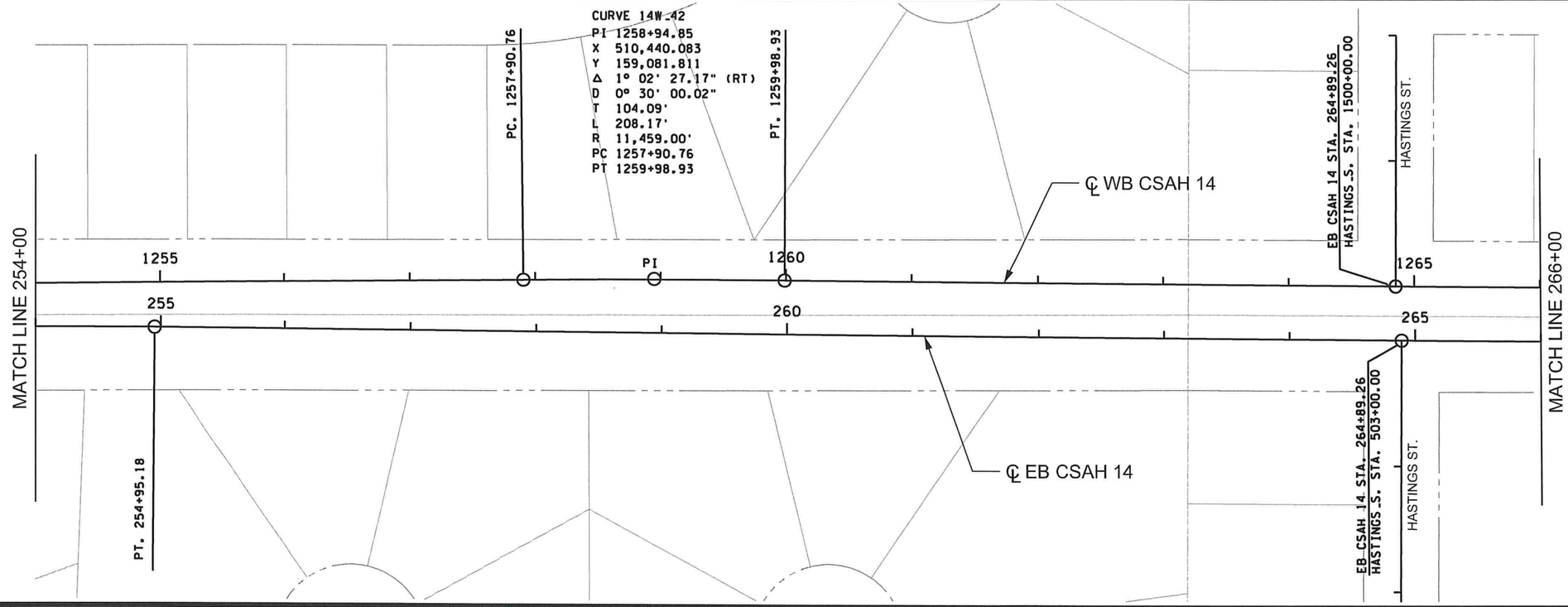
STAGING PLAN
STAGE 6

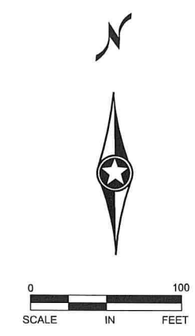
Sheet 63 of 200 Sheets



ALIGNMENT NOTES:

1. EASTBOUND AND WESTBOUND ALIGNMENTS ARE NOT PARALLAEL TO EACH OTHER.
2. HORIZONTAL CONTROL IS BASED ON ANOKA COUNTY COORDINATE SYSTEM NAD 83 (1996 ADJUSTMENT)
3. HASTINGS STREET ALIGNMENT SHOWN FOR REFERENCE ONLY.





1 OF 2

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_AL4_P1.dgn 12/10/2019 1:07:49 PM

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

PRINT NAME: JORGE R. BERNAL DELGADO

SIGNATURE:

DATE: 12-20-19 LICENSE NO. 57216

DRAWN BY MP DATE 12/04/19

DESIGN BY JRB DATE 12/04/19

CHECKED BY NJD DATE 12/04/19

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

ALIGNMENT PLAN

STA 245+36.07 TO 266+00.00

Sheet 64 of 200 Sheets

MATCH LINE 266+00

℄ WB CSAH 14

℄ EB CSAH 14

1270

1275

270

275

POT. 1276+55.21
CSAH 52 (RADISSON RD)

W143

1443

END SAP 002-614-041
SAP 106-020-036
EB CSAH 14 STA. 276+12.00

POT. 276+54.26
CSAH 52 (RADISSON RD)

N

0 100
SCALE IN FEET

2 OF 2

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_AL4_P2.dgn 12/10/2019 1:07:50 PM

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ANOKA COUNTY

ANOKA COUNTY
HIGHWAY DEPT.

SAP 002-614-041
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CP 18-10

ALIGNMENT PLAN

STA 266+00.00 TO 275+86.05

Sheet 65 of 200 Sheets

1 OF 2

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_AL4_P3.dgn 12/10/2019 1:07:51 PM

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DESIGN BY	JRB	DATE	12/04/19
CHECKED BY	NJD	DATE	12/04/19

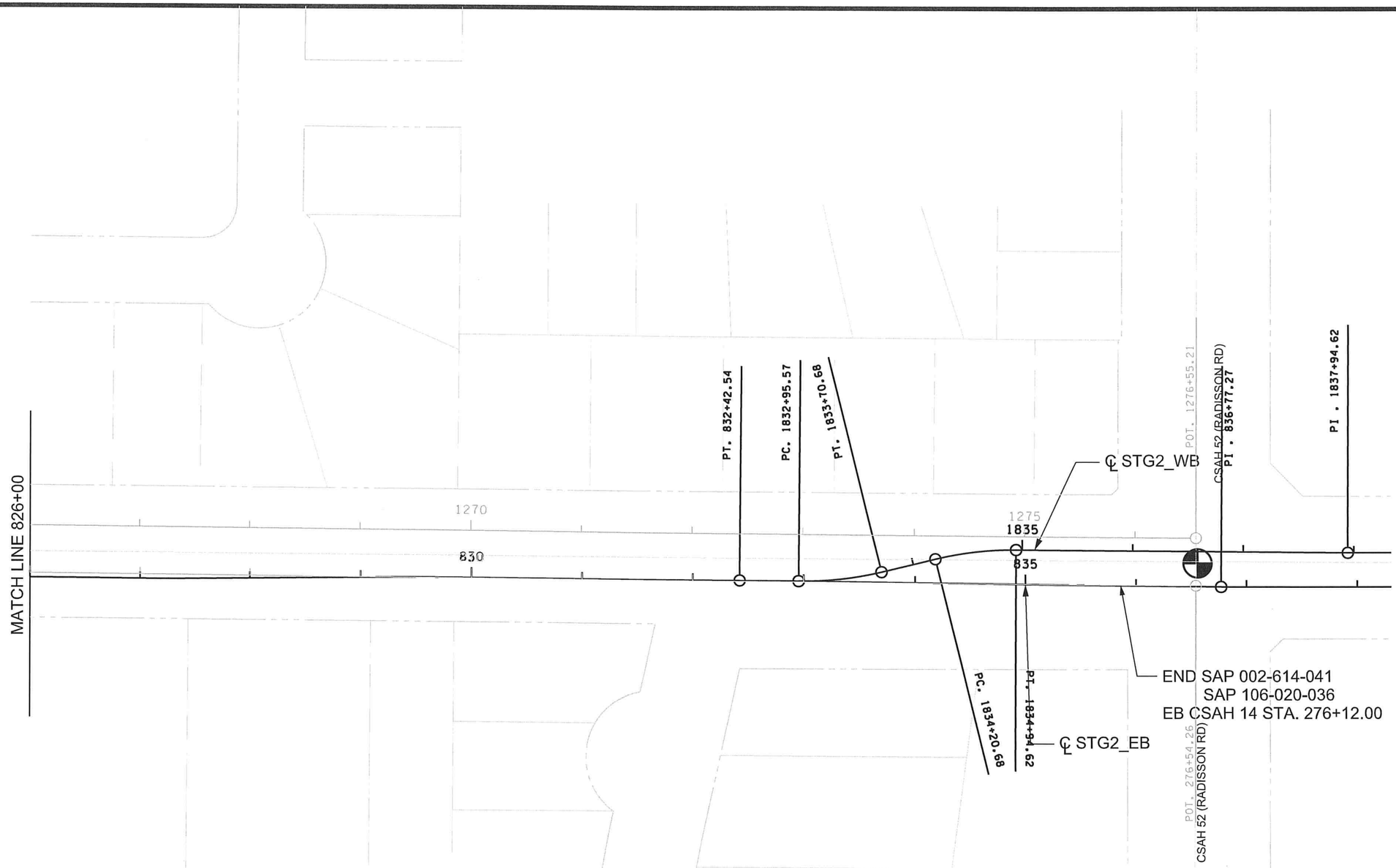
ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

STAGE 2
ALIGNMENT PLAN
STA 805+42.01 TO 826+00.00

Sheet 66 of 200 Sheets



2 OF 2

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_AL4_P4.dgn 12/10/2019 1:07:51 PM

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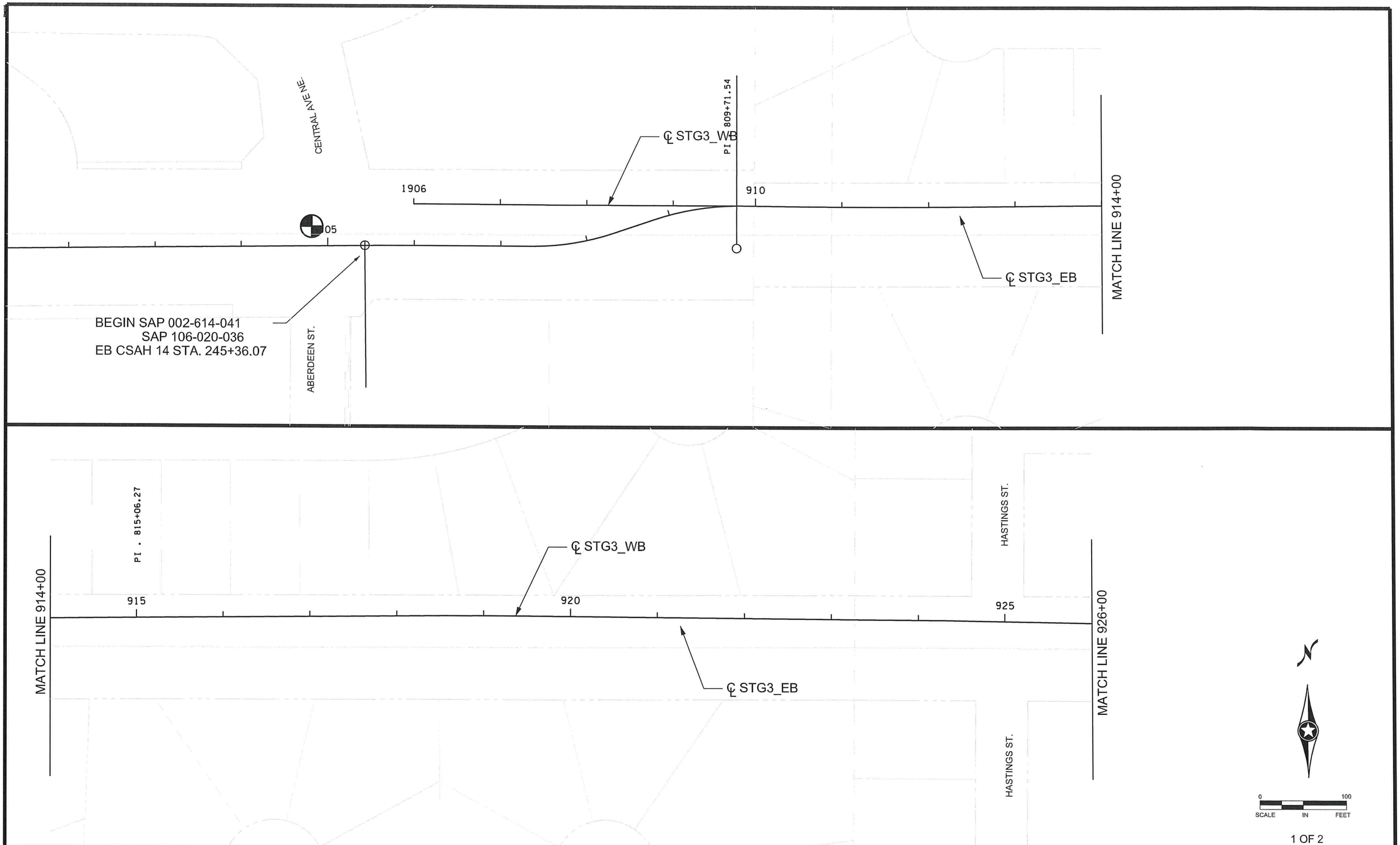
ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

STAGE 2
ALIGNMENT PLAN
STA 826+00.00 TO 838+00.00

Sheet 67 of 200 Sheets



1 OF 2

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_AL4_P5.dgn 12/10/2019 1:07:58 PM

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

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SIGNATURE:

DATE: 12-20-19 LICENSE NO. 57216

DRAWN BY MP DATE 12/04/19

DESIGN BY JRB DATE 12/04/19

CHECKED BY NJD DATE 12/04/19

ANOKA COUNTY

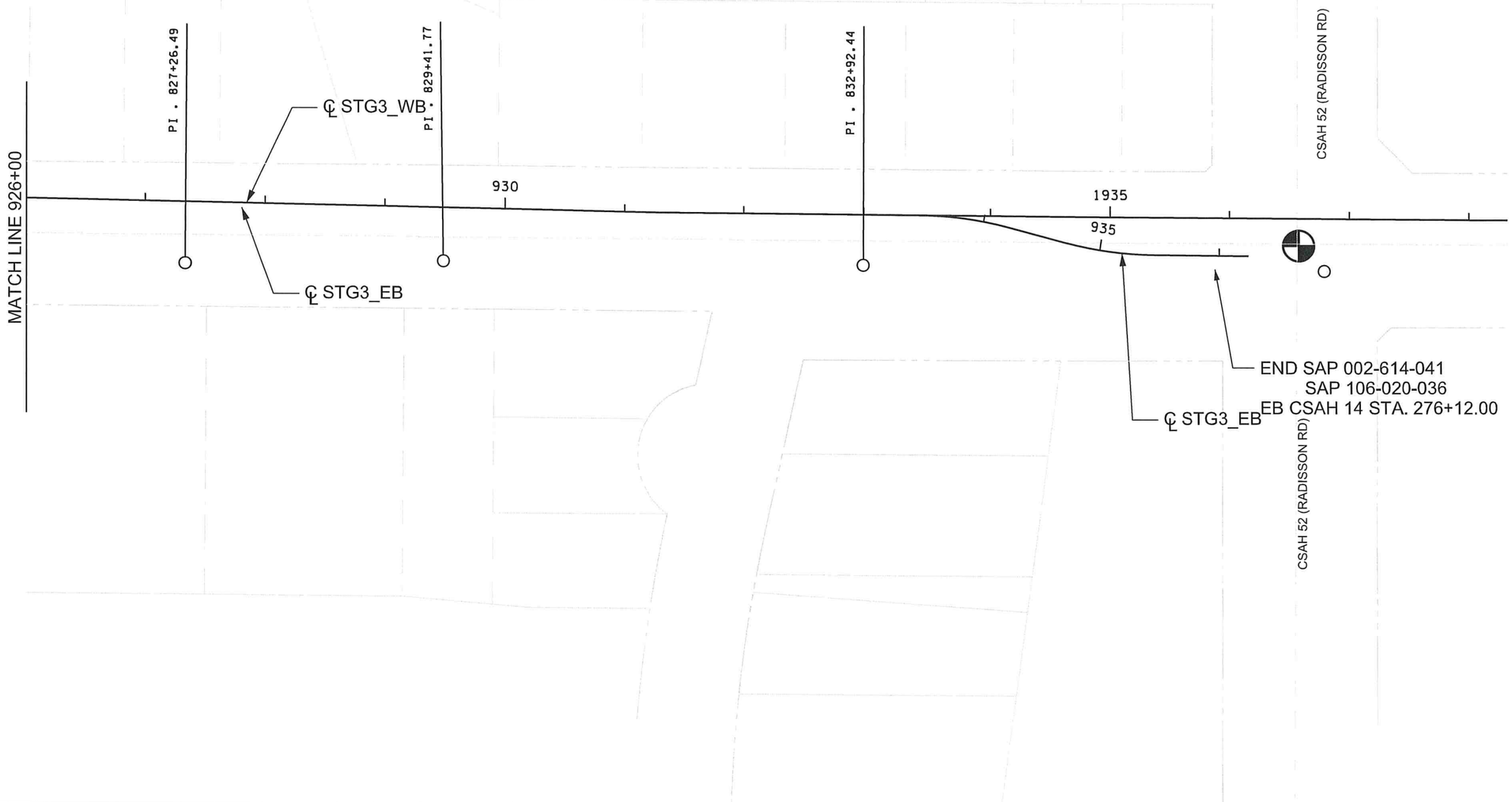
ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

STAGE 3
ALIGNMENT PLAN

STA 905+42.01 TO 926+07.05

Sheet 68 of 200 Sheets



2 OF 2

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_AL4_P6.dgn 12/10/2019 1:07:59 PM

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

PRINT NAME: JORGE R. BERNAL DELGADO

SIGNATURE: [signature]

DATE: 12-20-19 LICENSE NO. 57216

DRAWN BY MP DATE 12/04/19

DESIGN BY JRB DATE 12/04/19

CHECKED BY NJD DATE 12/04/19

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

STAGE 3
ALIGNMENT PLAN

STA 926+07.05 TO 938+00.00

Sheet 69 of 200 Sheets

ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	E	N	
℄ C.S.A.H. 14 EASTBOUND <14E_4>										
1441	POT	240+00.000						508,546.1008	159,018.0771	
1442	POT	247+71.122						509,317.1725	159,026.8784	
	PC	249+77.518						509,523.4269	159,034.5315	N 87° 52' 29.98" E
14E_41	PI	252+36.391	2° 35' 17.95" RT	0° 30' 00.02"	11,459.000'	258.872'	517.657'	509,782.1214	159,044.1305	PI
	CC							509,948.3249	147,583.4118	
	PT	254+95.175						510,040.9854	159,042.0372	S 89° 32' 12.07" E
1443	POT	276+54.263						512,200.0023	159,024.5782	

ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	E	N	
℄ C.S.A.H. 14 WESTBOUND <14W_4>										
W141	POT	1240+00.000						508,545.4160	159,078.0733	
W142	POT	1245+79.886						509,125.2644	159,084.6919	
	PC	1248+48.015						509,393.3129	159,078.1180	S 88° 35' 42.37" E
14W_41	PI	1250+46.279	1° 58' 56.87" LT	0° 30' 00.02"	11,459.000'	198.263'	396.487'	509,591.5168	159,073.2571	PI
	CC							509,674.2603	170,533.6734	
	PT	1252+44.503						509,789.7702	159,075.2556	N 89° 25' 20.76" E
	PC	1257+90.759						510,335.9985	159,080.7620	N 89° 25' 20.76" E
14W_42	PI	1258+94.848	1° 02' 27.17" RT	0° 30' 00.02"	11,459.000'	104.090'	208.173'	510,440.0827	159,081.8113	PI
	CC							510,451.5084	147,622.3442	
	PT	1259+98.932						510,544.1689	159,080.9696	S 89° 32' 12.07" E
W143	POT	1276+55.172						512,200.3542	159,067.5768	

ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	E	N	
℄ HASTINGS STREET NORTH <HASTINGS_N>										
HS1	POT	500+00.000						511,032.5067	158,734.0094	
HS2	POT	503+00.000						511,035.0329	159,033.9988	
℄ HASTINGS STREET SOUTH <HASTINGS_S>										
HN1	POT	1500+00.000						511,030.4027	159,077.0376	
HN2	POT	1502+00.000						511,032.1533	159,277.0300	

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_ALT4_P1.dgn 12/10/2019 1:08:00 PM

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PRINT NAME: JORGE R. BERNAL DELGADO

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ANOKA COUNTY

HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

ALIGNMENT TABULATION
CSAH 14

STA 245+06.38 TO 275+86.05

Sheet 70 of 200 Sheets

ALIGNMENT TABULATION

℄ STAGE 2 EASTBOUND <STG2_EB>

POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	E	N	
ST20011	POT	800+00.000						508,545.9731	159,031.3050	
ST20012	POT	805+42.012						509,087.9599	159,036.5364	
ST20013	POT	809+71.545						509,517.4885	159,034.7048	
ST20014	POT	815+06.271						510,052.1906	159,039.8485	
ST20015	POT	819+00.000						510,445.9178	159,040.9986	
ST20016	POT	821+58.123						510,703.9059	159,032.6763	
ST20017	POT	827+26.486						511,272.2505	159,028.0804	
ST20018	POT	829+41.771						511,487.5203	159,030.6446	
ST20019	POT	832+92.439						511,838.1806	159,028.2525	
ST20020	POT	836+77.269						512,222.9815	159,023.5524	
	PC	842+04.581						512,750.2934	159,022.9468	S 89° 56' 03.09" E
STG2_EB1	PI	843+50.026	1° 26' 57.13" LT	0° 29' 53.61"	11,500.000'	145.445'	290.874'	512,895.7380	159,022.7797	PI
	CC							512,763.5023	170,522.9392	
	PRC	844+95.455						513,041.1403	159,026.2911	N 88° 36' 59.78" E
	PRC	844+95.455						513,041.1403	159,026.2911	N 88° 36' 59.78" E
STG2_EB2	PI	846+67.982	1° 43' 08.44" RT	0° 29' 53.61"	11,500.000'	172.527'	345.028'	513,213.6168	159,030.4563	PI
	CC							513,318.7784	147,529.6430	
	PT	848+40.483						513,386.1407	159,029.4457	S 89° 39' 51.78" E
	PC	852+69.400						513,815.0506	159,026.9333	S 89° 39' 51.78" E
STG2_EB3	PI	853+95.155	1° 15' 10.93" RT	0° 29' 53.61"	11,500.000'	125.755'	251.501'	513,940.8037	159,026.1967	PI
	CC							513,747.6883	147,527.1306	
	PRC	855+20.901						514,066.5107	159,022.7103	S 88° 24' 40.85" E
	PRC	855+20.901						514,066.5107	159,022.7103	S 88° 24' 40.85" E
STG2_EB4	PI	856+46.656	1° 15' 10.93" LT	0° 29' 53.61"	11,500.000'	125.755'	251.501'	514,192.2176	159,019.2239	PI
	CC							514,385.3330	170,518.2900	
	PT	857+72.401						514,317.9707	159,018.4873	S 89° 39' 51.78" E
ST20021	POT	862+93.002						514,838.5627	159,015.4378	

ALIGNMENT TABULATION

℄ STAGE 2 WESTBOUND (WEST CROSSOVER)<STG2_WB_W>

POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	E	N	
STW2	POT	1800+00.000						508,545.5762	159,066.0743	
STW3	POT	1805+79.647						509,125.1858	159,072.6902	
	PC	1807+79.539						509,325.0178	159,067.7893	S 88° 35' 42.37" E
STG2_WB_W1	PI	1808+15.109	13° 31' 24.64" RT	19° 05' 54.94"	300.000'	35.570'	70.809'	509,360.5769	159,066.9173	PI
	CC							509,317.6626	158,767.8795	
	PT	1808+50.348						509,394.9461	159,057.7541	S 75° 04' 17.73" E
	PC	1809+00.348						509,443.2586	159,044.8735	S 75° 04' 17.73" E
STG2_WB_W2	PI	1809+41.122	15° 28' 46.45" LT	19° 05' 54.94"	300.000'	40.774'	81.051'	509,482.6561	159,034.3697	PI
	CC							509,520.5421	159,334.7480	
	PT	1809+81.399						509,523.4280	159,034.7619	N 89° 26' 55.82" E

ALIGNMENT TABULATION

℄ STAGE 2 WESTBOUND(EAST CROSSOVER) <STG2_WB_E>

POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	E	N	
	PC	1832+95.570						511,841.3070	159,028.2143	S 89° 18' 00.76" E
STG2_WB_E1	PI	1833+33.324	14° 20' 43.70" LT	19° 05' 54.94"	300.000'	37.754'	75.113'	511,879.0580	159,027.7532	PI
	CC							511,844.9710	159,328.1919	
	PT	1833+70.683						511,915.7461	159,036.6600	N 76° 21' 15.54" E
	PC	1834+20.683						511,964.3348	159,048.4558	N 76° 21' 15.54" E
STG2_WB_E2	PI	1834+57.842	14° 07' 18.32" RT	19° 05' 54.94"	300.000'	37.159'	73.941'	512,000.4449	159,057.2223	PI
	CC							512,035.1099	158,756.9239	
	PT	1834+94.624						512,037.6026	159,056.9135	S 89° 31' 26.14" E
STWE2	POT	1837+94.624						512,337.5922	159,054.4208	
	PC	1842+07.254						512,750.2216	159,053.9469	S 89° 56' 03.09" E
STG2_WB_E3	PI	1842+85.207	0° 46' 39.22" RT	0° 29' 55.48"	11,488.000'	77.953'	155.904'	512,828.1746	159,053.8573	PI
	CC							512,737.0265	147,565.9545	
	PRC	1843+63.157						512,906.1192	159,052.7100	S 89° 09' 23.86" E
	PRC	1843+63.157						512,906.1192	159,052.7100	S 89° 09' 23.86" E
STG2_WB_E4	PI	1844+14.167	0° 30' 27.91" LT	0° 29' 51.74"	11,512.000'	51.010'	102.019'	512,957.1235	159,051.9591	PI
	CC							513,075.5651	170,563.4628	
	PT	1844+65.176						513,008.1325	159,051.6603	S 89° 39' 51.78" E
	PC	1852+73.964						513,816.9064	159,046.9228	S 89° 39' 51.78" E
STG2_WB_E5	PI	1853+99.851	1° 15' 10.93" LT	0° 29' 51.74"	11,512.000'	125.887'	251.763'	513,942.7908	159,046.1854	PI
	CC							513,884.3390	170,558.7253	
	PRC	1855+25.727						514,068.6611	159,048.2010	N 89° 04' 57.29" E
	PRC	1855+25.727						514,068.6611	159,048.2010	N 89° 04' 57.29" E
STG2_WB_E6	PI	1856+51.351	1° 15' 10.93" RT	0° 29' 55.48"	11,488.000'	125.624'	251.238'	514,194.2691	159,050.2124	PI
	CC							514,252.5990	147,561.6736	
	PT	1857+76.965						514,319.8910	159,049.4766	S 89° 39' 51.78" E
STWE3	POT	1862+95.828						514,838.7443	159,046.4373	

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_ALT4_P1.dgn 12/10/2019 1:08:00 PM

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ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

ALIGNMENT TABULATION
STAGE 2

STA 800+00.00 TO 862+93.00

Sheet 71 of 200 Sheets

ALIGNMENT TABULATION

℄ STAGE 3 EASTBOUND <STG3_EB>

POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	E	N	
ST30008	POT	900+00.000						508,544.9072	159,030.1915	
ST30009	POT	905+52.760						509,097.6317	159,036.4299	
ST30010	POT	907+27.847						509,272.7185	159,036.4060	
	PC	907+40.766						509,285.6373	159,036.5518	N 89° 21' 12.05" E
STG3_EB1	PI	907+86.486	17° 55' 06.31" LT	19° 45' 25.80"	290.000'	45.720'	90.693'	509,331.3543	159,037.0678	PI
	CC							509,282.3644	159,326.5333	
	PT	908+31.459						509,374.6950	159,051.6241	N 71° 26' 05.74" E
	PC	908+81.459						509,422.0932	159,067.5432	N 71° 26' 05.74" E
STG3_EB2	PI	909+30.752	18° 04' 11.13" RT	18° 28' 57.03"	310.000'	49.293'	97.767'	509,468.8207	159,083.2371	PI
	CC							509,520.7914	158,773.6748	
	PT	909+79.226						509,518.1115	159,083.6632	N 89° 30' 16.87" E
	PC	909+85.951						509,524.8366	159,083.6484	S 89° 15' 08.38" E
STG3_EB3	PI	911+18.387	1° 19' 30.86" LT	0° 30' 01.28"	11,451.000'	132.435'	264.859'	509,657.2608	159,081.9202	PI
	CC							509,674.2603	170,533.6734	
	PT	912+50.811						509,789.6896	159,083.2552	N 89° 25' 20.76" E
	PC	917+97.067						510,335.9178	159,088.7616	N 89° 25' 20.76" E
STG3_EB4	PI	919+01.229	1° 02' 27.17" RT	0° 29' 58.77"	11,467.000'	104.162'	208.319'	510,440.0747	159,089.8116	PI
	CC							510,451.5084	147,622.3442	
	PT	920+05.385						510,544.2336	159,088.9693	S 89° 32' 12.07" E
ST30011	POT	924+32.528						510,971.3623	159,085.5153	
ST30012	POT	931+26.035						511,664.7360	159,071.9081	
	PC	933+46.035						511,884.7288	159,070.1291	S 89° 32' 12.07" E
STG3_EB5	PI	933+83.911	14° 23' 29.21" RT	19° 05' 54.94"	300.000'	37.876'	75.353'	511,922.6036	159,069.8228	PI
	CC							511,882.3029	158,770.1389	
	PT	934+21.389						511,959.2138	159,060.1126	S 75° 08' 42.87" E
	PC	934+71.389						512,007.5428	159,047.2941	S 75° 08' 42.87" E
STG3_EB6	PI	935+08.636	14° 09' 17.90" LT	19° 05' 54.94"	300.000'	37.247'	74.115'	512,043.5452	159,037.7450	PI
	CC							512,084.4537	159,337.2677	
	PT	935+45.504						512,080.7897	159,037.2901	S 89° 18' 00.76" E
ST30013	POT	936+24.638						512,159.9178	159,036.3236	

ALIGNMENT TABULATION

℄ STAGE 3 WESTBOUND<STG3_WB>

POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	E	N	
STE36	POT	1906+00.000						509,144.3326	159,084.4863	
	PC	1909+80.505						509,524.8366	159,083.6484	S 89° 15' 08.38" E
STG3_WB1	PI	1911+12.940	1° 19' 30.86" LT	0° 30' 01.28"	11,451.000'	132.435'	264.859'	509,657.2608	159,081.9202	PI
	CC							509,674.2603	170,533.6734	
	PT	1912+45.364						509,789.6896	159,083.2552	N 89° 25' 20.76" E
	PC	1917+91.620						510,335.9178	159,088.7616	N 89° 25' 20.76" E
STG3_WB2	PI	1918+95.782	1° 02' 27.17" RT	0° 29' 58.77"	11,467.000'	104.162'	208.319'	510,440.0747	159,089.8116	PI
	CC							510,451.5084	147,622.3442	
	PT	1919+99.939						510,544.2336	159,088.9693	S 89° 32' 12.07" E
STE37	POT	1924+27.082						510,971.3623	159,085.5153	
STE38	POT	1931+20.589						511,664.7360	159,071.9081	
STE39	POT	1938+00.125						512,344.2504	159,066.4132	
	PC	1942+06.111						512,750.2353	159,065.9469	S 89° 56' 03.09" E
STG3_WB3	PI	1942+84.145	0° 46' 39.22" RT	0° 29' 53.61"	11,500.000'	78.034'	156.067'	512,828.2698	159,065.8572	PI
	CC							512,737.0265	147,565.9545	
	PRC	1943+62.177						512,906.2958	159,064.7087	S 89° 09' 23.86" E
	PRC	1943+62.177						512,906.2958	159,064.7087	S 89° 09' 23.86" E
STG3_WB4	PI	1944+13.134	0° 30' 27.91" LT	0° 29' 53.61"	11,500.000'	50.957'	101.913'	512,957.2470	159,063.9586	PI
	CC							513,075.5651	170,563.4628	
	PT	1944+64.090						513,008.2028	159,063.6601	S 89° 39' 51.78" E
	PC	1952+72.878						513,816.9767	159,058.9226	S 89° 39' 51.78" E
STG3_WB5	PI	1953+98.633	1° 15' 10.93" LT	0° 29' 53.61"	11,500.000'	125.755'	251.501'	513,942.7298	159,058.1860	PI
	CC							513,884.3390	170,558.7253	
	PRC	1955+24.378						514,068.4690	159,060.1995	N 89° 04' 57.29" E
	PRC	1955+24.378						514,068.4690	159,060.1995	N 89° 04' 57.29" E
STG3_WB6	PI	1956+50.133	1° 15' 10.93" RT	0° 29' 53.61"	11,500.000'	125.755'	251.501'	514,194.2081	159,062.2130	PI
	CC							514,252.5990	147,561.6736	
	PT	1957+75.879						514,319.9613	159,061.4764	S 89° 39' 51.78" E
STE40	POT	1962+94.544						514,838.6181	159,058.4382	

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_ALT4_P1.dgn 12/10/2019 1:08:01 PM

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

PRINT NAME: JORGE R. BERNAL DELGADO

SIGNATURE:

DATE: 12-20-19 LICENSE NO. 57216

DRAWN BY MP DATE 12/04/19

DESIGN BY JRB DATE 12/04/19

CHECKED BY NJD DATE 12/04/19

ANOKA COUNTY

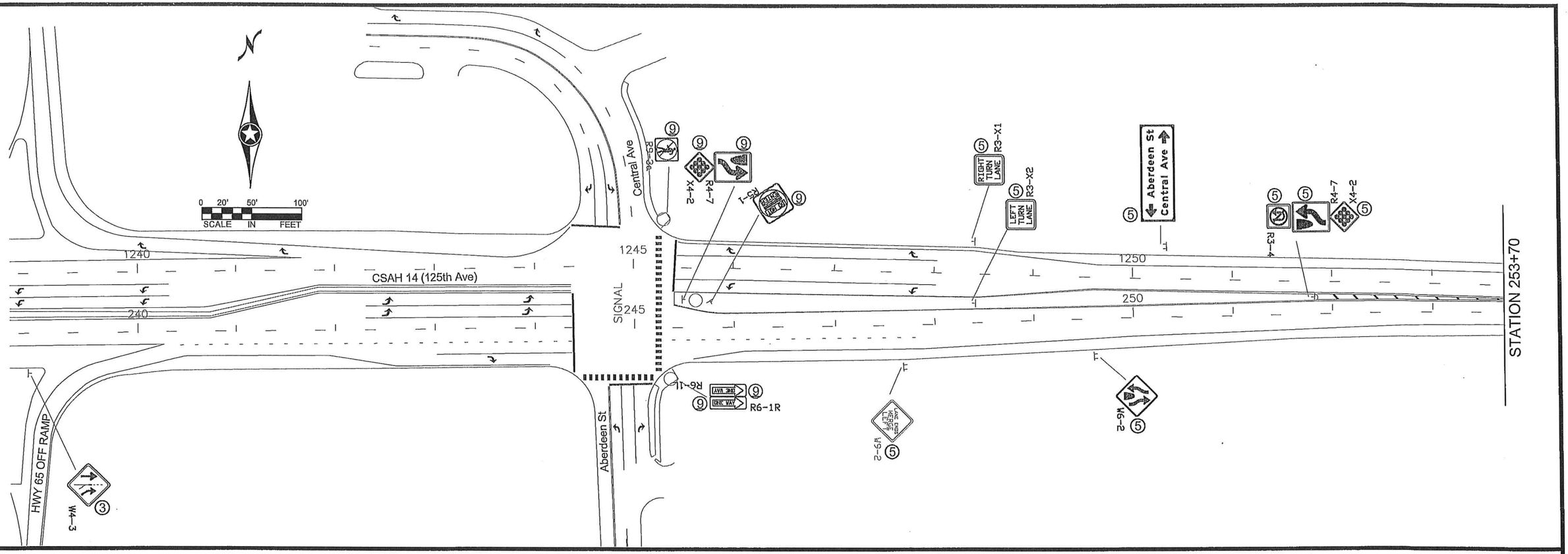
ANOKA COUNTY HIGHWAY DEPT.

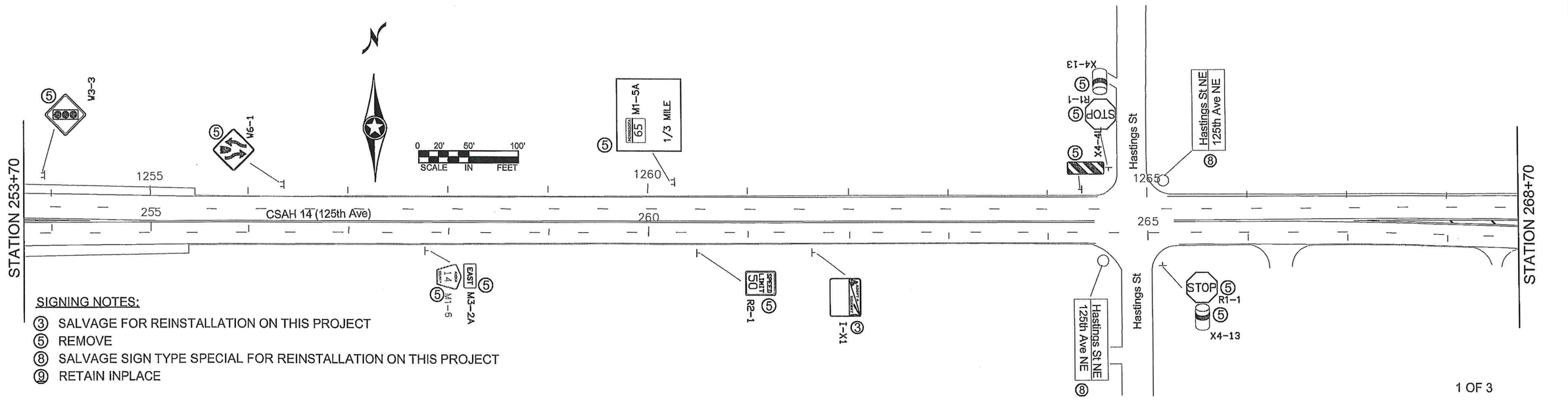
SAP 002-614-041
SAP 106-020-036
CP 18-10

ALIGNMENT TABULATION
STAGE 3

STA 900+00.00 TO 903+03.37

Sheet 72 of 200 Sheets





SIGNING NOTES:

③ SALVAGE FOR REINSTALLATION ON THIS PROJECT
⑤ REMOVE
⑧ SALVAGE SIGN TYPE SPECIAL FOR REINSTALLATION ON THIS PROJECT
⑨ RETAIN INPLACE

1 OF 3

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Base\TRAFFIC\Existing Signing and Striping.dwg

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINT NAME: JOSEPH J. MACPHERSON, P.E.
SIGNATURE:
DATE: 11-25-19
LICENSE NO. 46732

DRAWN BY FL DATE 10/21/19
DESIGN BY FL DATE 10/21/19
CHECKED BY JM DATE 10/25/19

ANOKA COUNTY
HIGHWAY DEPT.

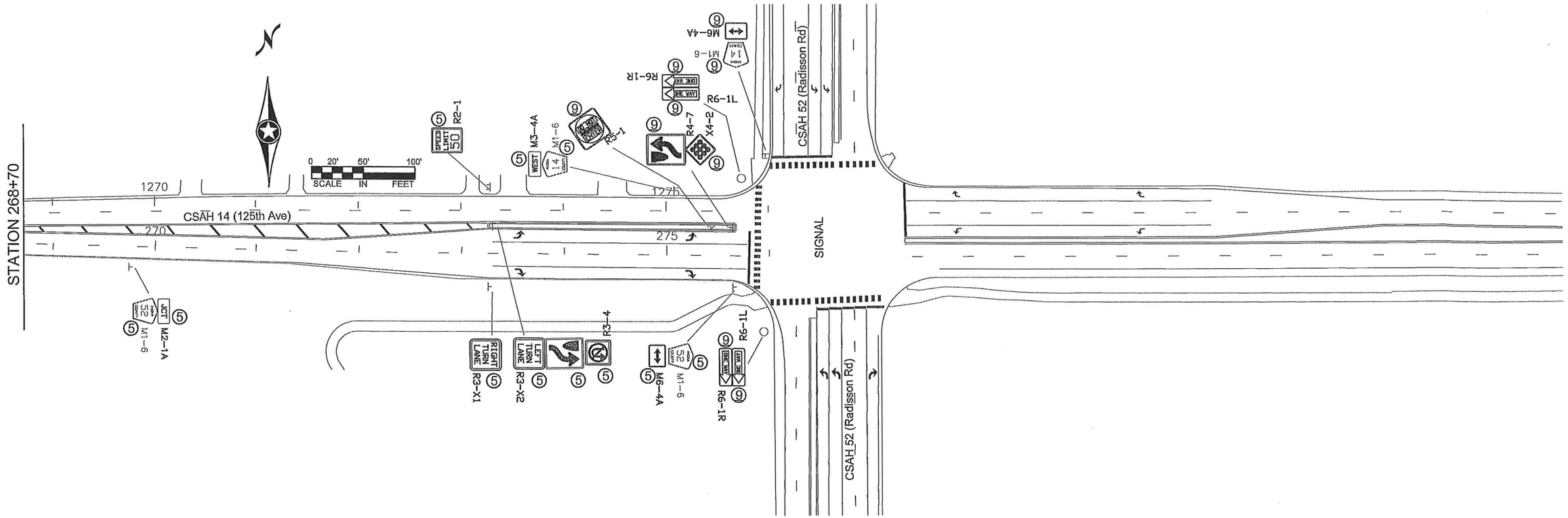
SAP 002-614-041
SAP 106-020-036
CP 18-10

EXISTING
SIGNING & STRIPING

Sheet 73 of 200 Sheets

SIGNING NOTES:

③ SALVAGE FOR REINSTALLATION ON THIS PROJECT
⑤ REMOVE
⑧ SALVAGE SIGN TYPE SPECIAL FOR REINSTALLATION ON THIS PROJECT
⑨ RETAIN INPLACE



2 OF 3

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Base\TRAFFIC\Existing Signing and Striping.dwg

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINT NAME: JOSEPH J. MACPHERSON, P.E.
SIGNATURE:
DATE: 12-27-19 LICENSE NO. 46732

DRAWN BY FL DATE 10/21/19
DESIGN BY FL DATE 10/21/19
CHECKED BY JR DATE 10/25/19

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

EXISTING SIGNING & STRIPING

Sheet 74 of 200 Sheets

EXISTING SIGN TAB

STATION	ADDRESS/ DESCRIPTION (NOTES)	REMOVE SIGN TYPE C	REMOVE SIGN TYPE D	SALVAGE SIGN TYPE C	SALVAGE SIGN TYPE SPECIAL (1)	INSTALL SIGN TYPE C	INSTALL SIGN TYPE SPECIAL (1)	SIGN NUMBER	SIGN LEGEND
		EACH	EACH	EACH	EACH	EACH	EACH		
238+90	EB			1		1		W4-3	Added Lane
245+35	EB	1						R6-1R	One Way
								R6-1L	One Way
247+70	EB	1						W9-2	Ln Ends Merge Left
1248+40	Median	1						R3-X2	Left Turn Lane
1248+40	WB	1						R3-X1	Right Turn Lane
249+60	EB	1						W6-2	Divided Hwy Ends
1250+35	WB		1						Adv Street Sign
1251+80	Median	1						R4-7	Keep Right
								R3-4	No U-Turn
								X4-2	Type 1 Object Mkr
1253+90	WB	1						W3-3	Signal Ahead
1256+40	WB	1						W6-1	Divided Highway
257+75	EB	1						M3-2A	East
								M1-6	Route Marker 14
1260+30	WB		1						TH 65 1/3 Mile
260+50	EB	1						R2-1	Speed Limit 50
261+60	EB			1		1		I-X1	Adopt A Highway
1264+35	WB	1						X4-4L	Type 3 Object Mkr
264+40	EB				1		1		Street Sign
1264+60	WB	1						R1-1	30" Stop
								X4-13	Delineator
265+10	EB	1						R1-1	30" Stop
								X4-13	Delineator
1265+15	WB				1		1		Street Sign
269+70	EB	1						M2-1A	Jct
								M1-6	Route Marker 52
273+25	EB	1						R3-X1	Right Turn Lane
273+30	Median	1						R4-7	Keep Right
								R3-4	No U-Turn
								R3-X2	Left Turn Lane
1273+30	WB	1						R2-1	Speed Limit 50
1275+10	WB	1						M3-4A	West
								M1-6	Route Marker 14
1275+45	Median	1						R5-1	Do Not Enter
1275+60	WB	1						R6-1R	One Way
								R6-1L	One Way
1275+65	Median	1						R4-7	Keep Right
								X4-2	Type 1 Object Mkr
275+65	EB	1						M1-6	Route Marker 52
								M6-4A	Double Arrow
	TOTAL	22	2	2	2	2	2		

CONSTRUCTION NOTES:

1. SIGN TYPE SPECIAL ARE TO REMAIN VISIBLE AT ALL TIMES. SHALL BE PAID BY EACH, WHEN RELOCATION IS REQUIRED.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Base\TRAFFIC\Existing Signing and Striping.dwg

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PRINT NAME: JOSEPH J. MACPHERSON, P.E.

SIGNATURE:

DATE: 12-27-19 LICENSE NO. 46732

DRAWN BY FL DATE 10/21/19

DESIGN BY FL DATE 10/21/19

CHECKED BY JR DATE 10/25/19

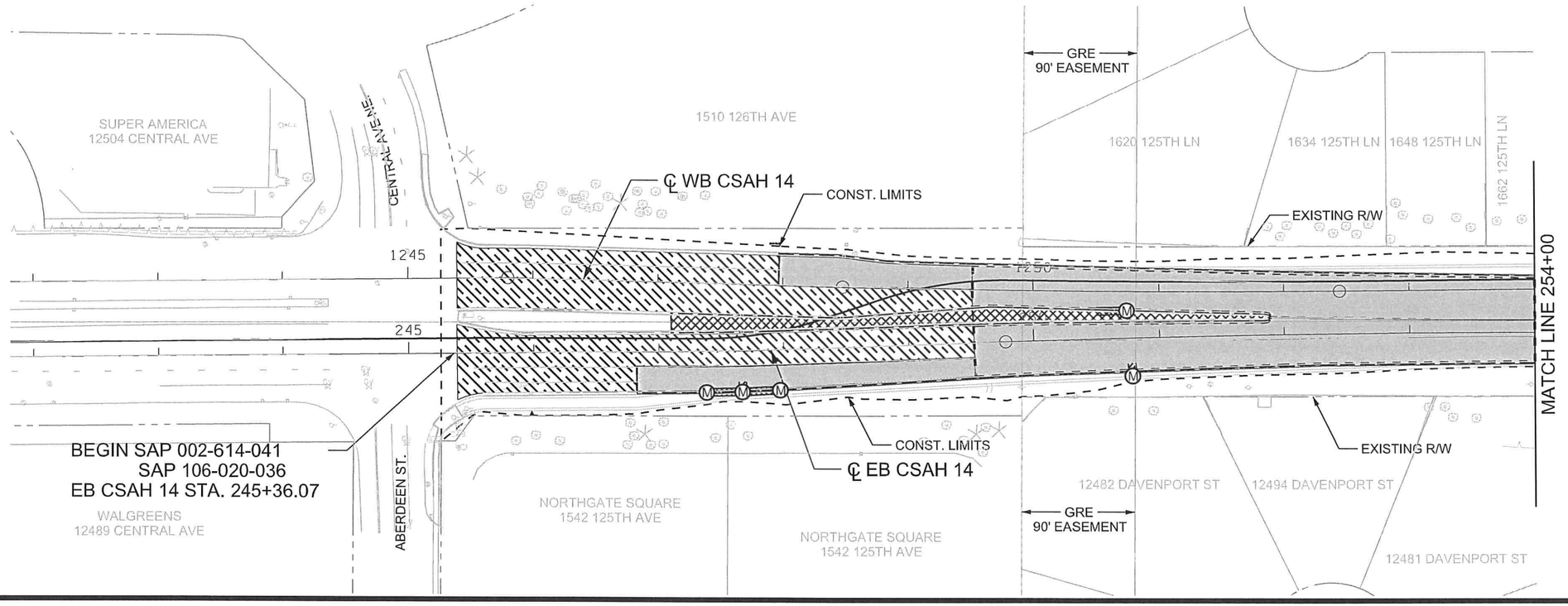
ANOKA COUNTY

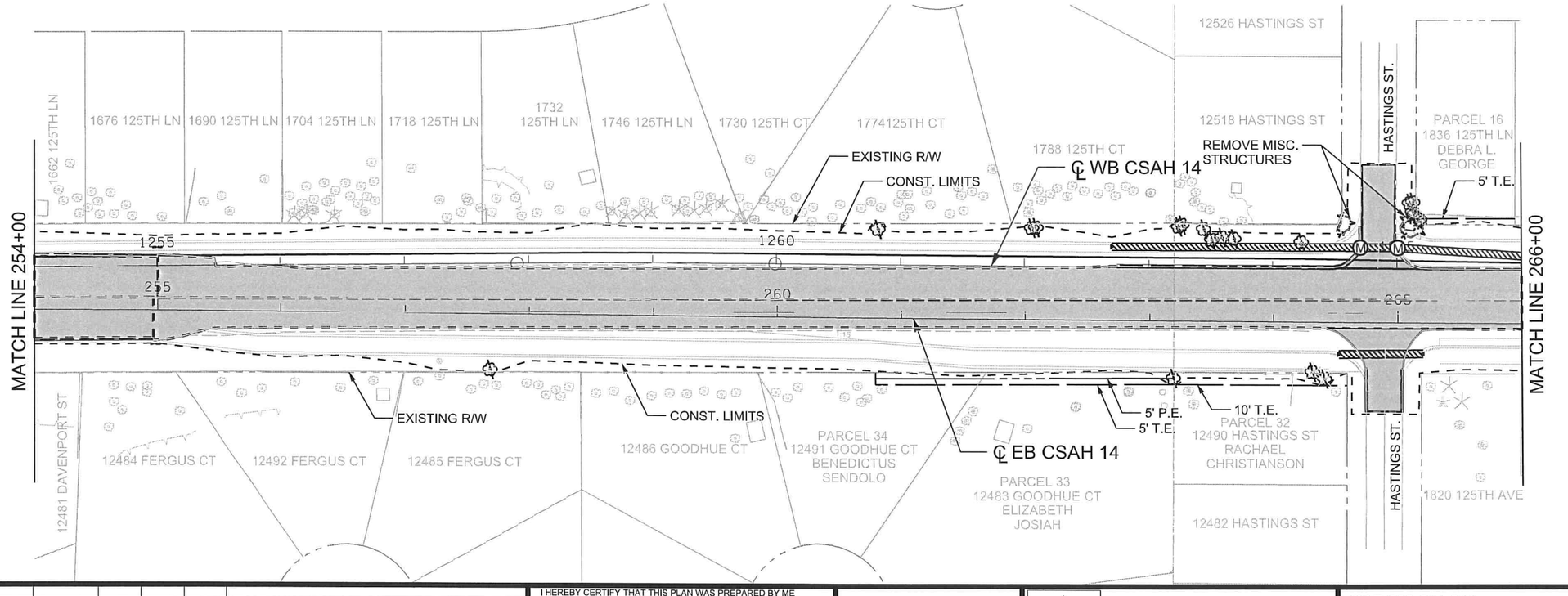
ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

EXISTING SIGNING & STRIPING

Sheet 75 of 200 Sheets





LEGEND

- REMOVE BITUMINOUS PAVEMENT
- REMOVE CONCRETE MEDIAN
- MILL AND OVERLAY BITUMINOUS PAVEMENT
- REMOVE STORM SEWER / PIPE CULVERTS
- Ⓜ REMOVE DRAINAGE STRUCTURE
- REMOVE CURB AND GUTTER
- REMOVE BITUMINOUS CURB
- TREE REMOVAL BY EACH
- SAWING BITUMINOUS PAVEMENT
- CONSTRUCTION LIMIT
- TEMPORARY EASEMENT
- PERMANENT EASEMENT

REMOVAL NOTES:

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

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

REMOVE MISC. STRUCTURES INCLUDES BOULDERS, SIGNS AND LANDSCAPING AS DIRECTED BY ENGINEER.

ALL PRIVATE UTILITIES TO BE RELOCATED BY OTHERS AS REQUIRED.

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

N

0 100
SCALE IN FEET

1 OF 2

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_RM4_P1.dgn 12/10/2019 1:08:02 PM

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

PRINT NAME: JORGE R. BERNAL DELGADO

SIGNATURE:

DATE: 12-20-19 LICENSE NO. 57216

DRAWN BY MP DATE 12/04/19

DESIGN BY JRB DATE 12/04/19

CHECKED BY NJD DATE 12/04/19

ANOKA COUNTY

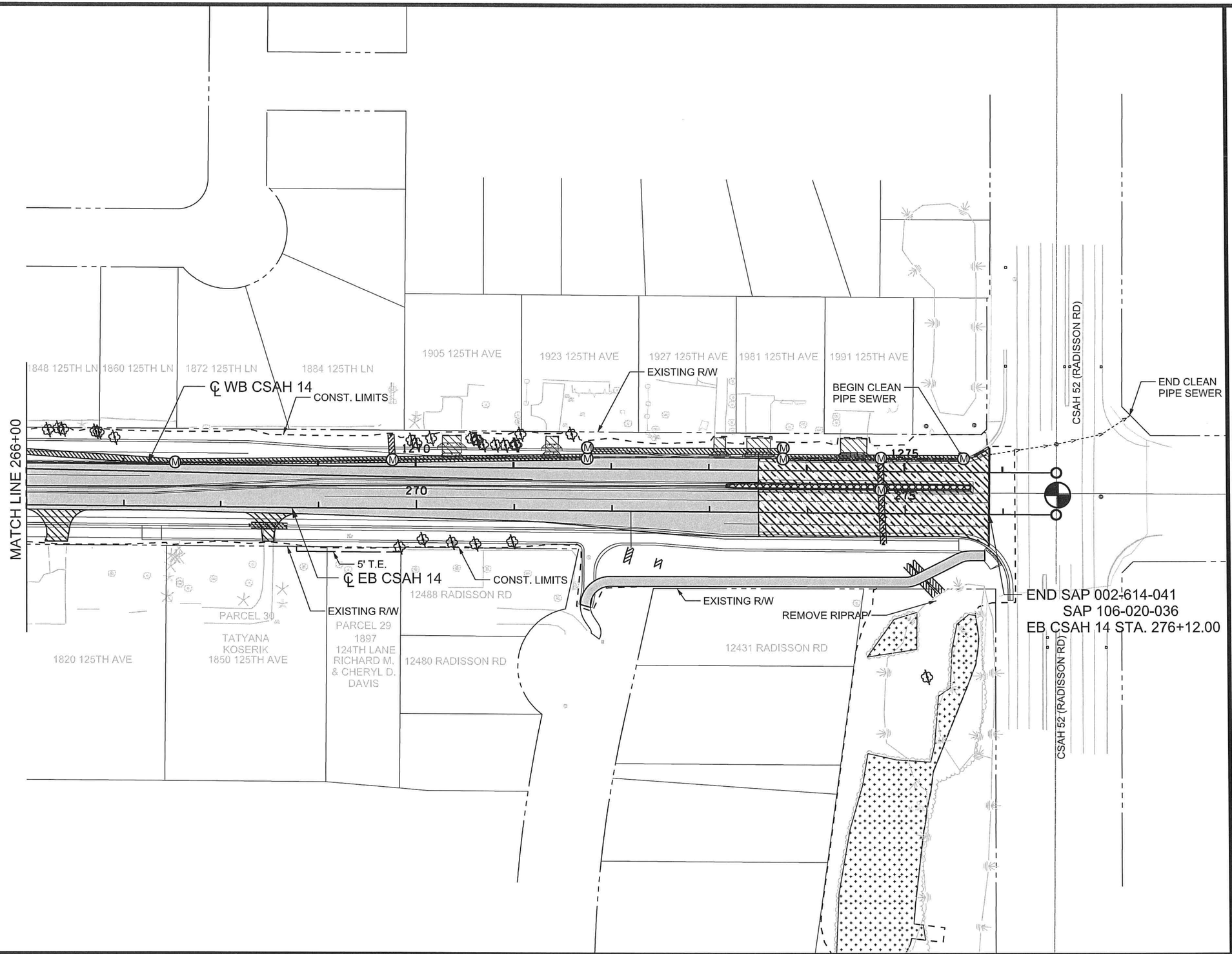
ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

REMOVAL PLAN

STA 245+36.07 TO 266+00.00

Sheet 76 of 200 Sheets



LEGEND

- REMOVE BITUMINOUS PAVEMENT
- REMOVE CONCRETE MEDIAN
- MILL AND OVERLAY BITUMINOUS PAVEMENT
- CLEAR & GRUB (ACRE)
- REMOVE STORM SEWER / PIPE CULVERTS
- Ⓜ REMOVE DRAINAGE STRUCTURE
- REMOVE CURB AND GUTTER
- TREE REMOVAL BY EACH
- SAWING BITUMINOUS PAVEMENT
- CONSTRUCTION LIMIT
- TEMPORARY EASEMENT
- SOIL BORING

REMOVAL NOTES:

REFER TO TRAFFIC SIGNAL PLANS FOR TRAFFIC SIGNAL EQUIPMENT REMOVALS.

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

REMOVE TRAIL ON WEST END OF THE PROJECT AS MARKED BY ENGINEER AND SHOWN ON PLAN

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

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

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

N

0 100
SCALE IN FEET

2 OF 2

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_RM4_P2.dgn 12/10/2019 1:08:04 PM

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

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SIGNATURE:

DATE: 12-20-19 LICENSE NO. 57216

DRAWN BY MP DATE 12/04/19

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CHECKED BY NJD DATE 12/04/19

ANOKA COUNTY

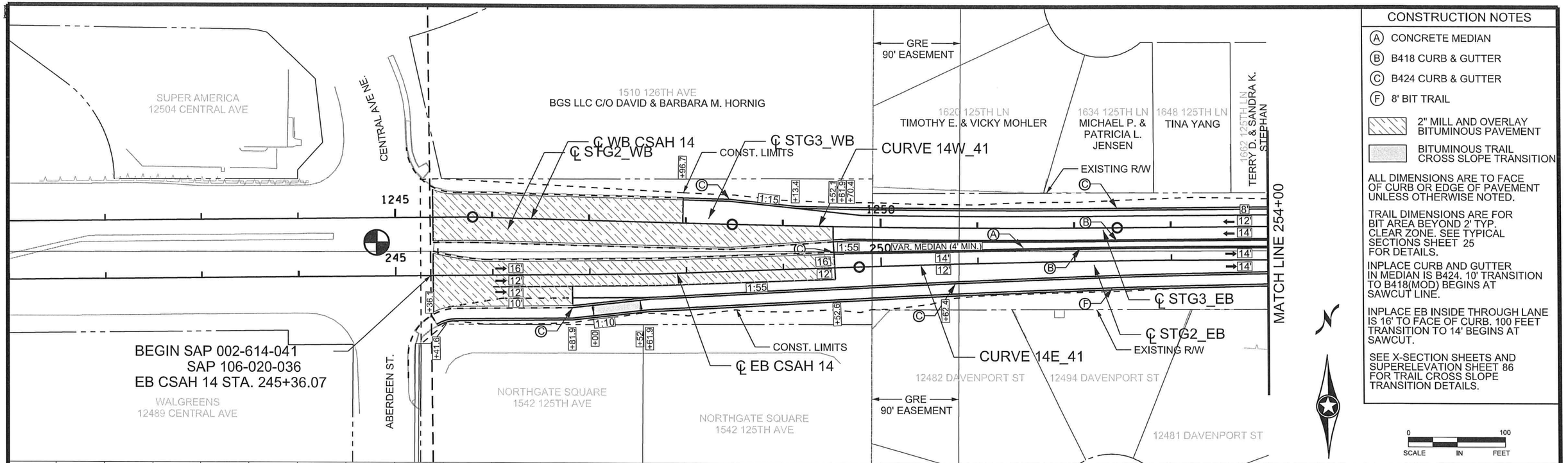
ANOKA COUNTY HIGHWAY DEPT.

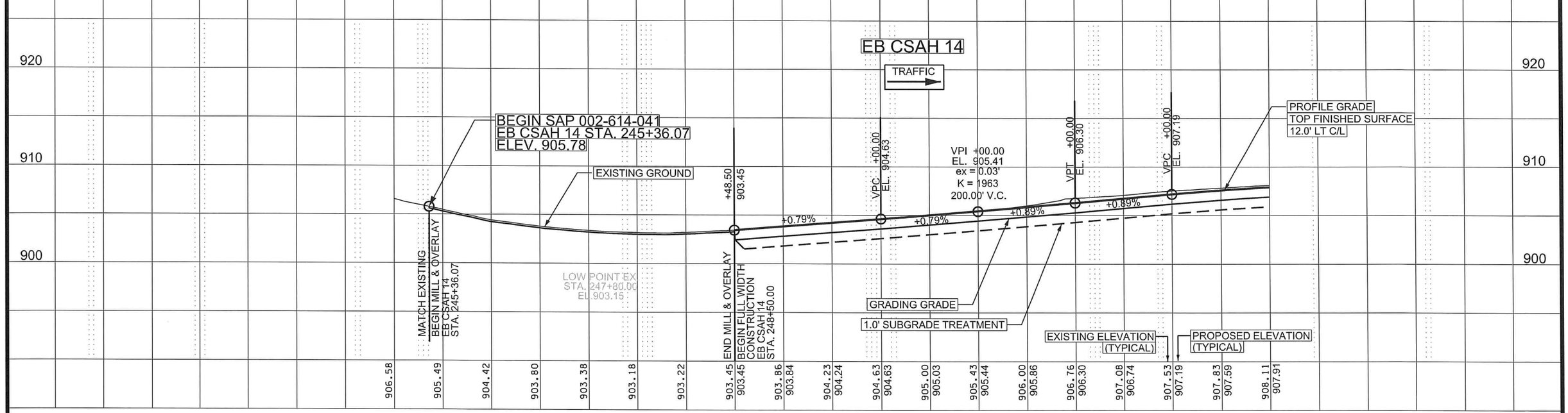
SAP 002-614-041
SAP 106-020-036
CP 18-10

REMOVAL PLAN

STA 266+00.00 TO 276+86.05

Sheet 77 of 200 Sheets





1 OF 3

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_PP4_P1.dgn 12/10/2019 1:08:05 PM

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

PRINT NAME: JORGE R. BERNAL DELGADO

SIGNATURE:

DATE: 12-20-19 LICENSE NO. 57216

DRAWN BY MP DATE 12/04/19

DESIGN BY JRB DATE 12/04/19

CHECKED BY NJD DATE 12/04/19

ANOKA COUNTY

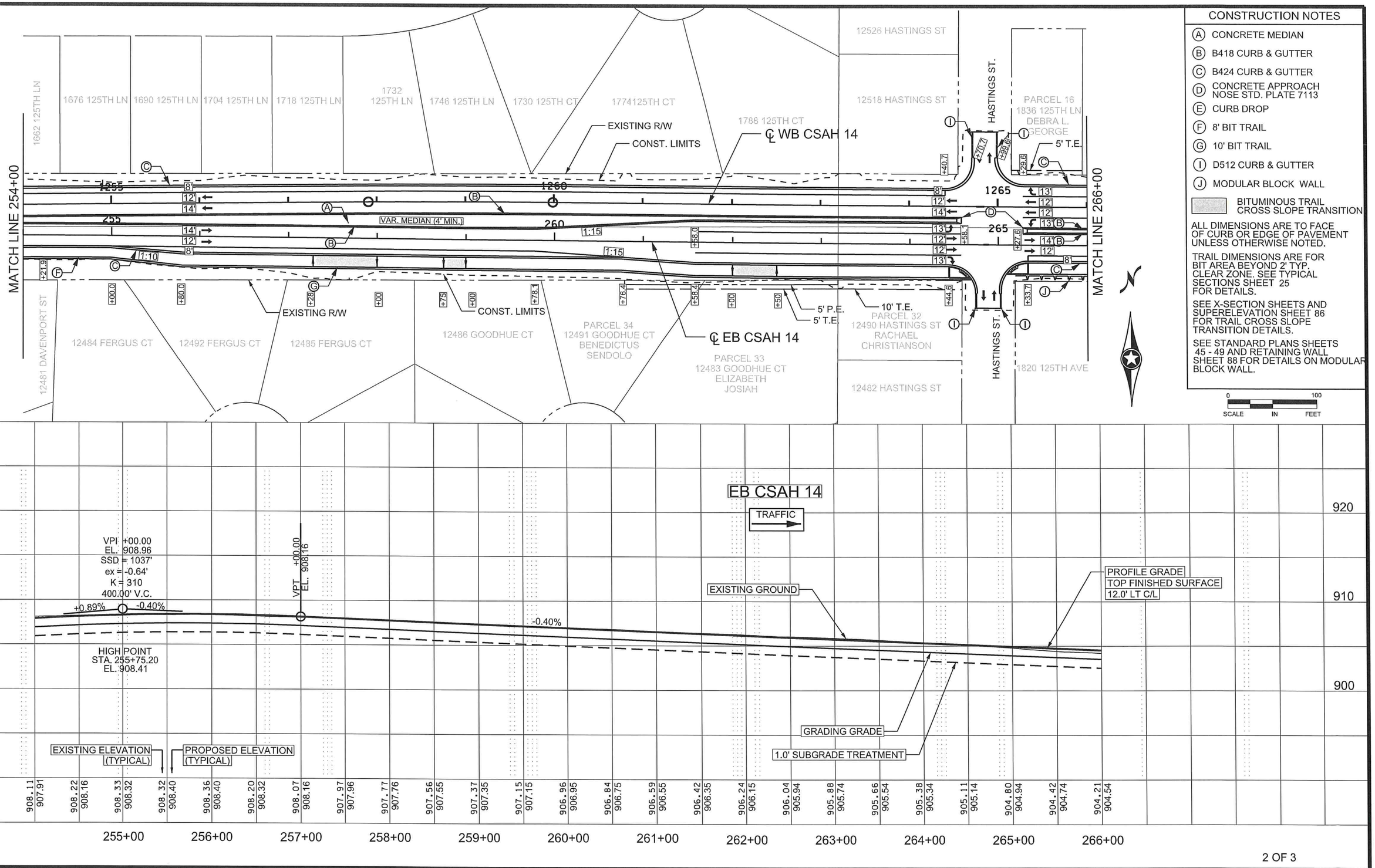
ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

CONSTRUCTION PLAN AND PROFILE

STA 245+00.00 TO 254+00.00

Sheet 78 of 200 Sheets



CONSTRUCTION NOTES

- (A) CONCRETE MEDIAN
- (B) B418 CURB & GUTTER
- (C) B424 CURB & GUTTER
- (D) CONCRETE APPROACH NOSE STD. PLATE 7113
- (E) CURB DROP
- (F) 8' BIT TRAIL
- (G) 10' BIT TRAIL
- (I) D512 CURB & GUTTER
- (J) MODULAR BLOCK WALL

BITUMINOUS TRAIL CROSS SLOPE TRANSITION

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

TRAIL DIMENSIONS ARE FOR BIT AREA BEYOND 2' TYP. CLEAR ZONE. SEE TYPICAL SECTIONS SHEET 25 FOR DETAILS.

SEE X-SECTION SHEETS AND SUPERELEVATION SHEET 86 FOR TRAIL CROSS SLOPE TRANSITION DETAILS.

SEE STANDARD PLANS SHEETS 45 - 49 AND RETAINING WALL SHEET 88 FOR DETAILS ON MODULAR BLOCK WALL.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_PP4_P2.dgn 12/10/2019 1:08:07 PM

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

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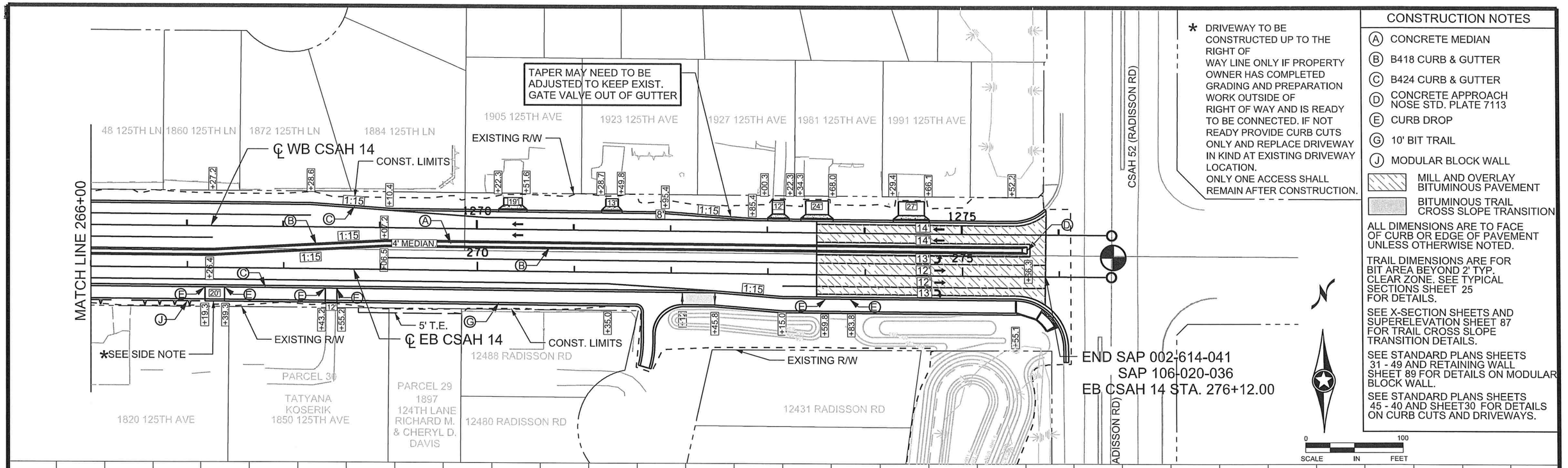
ANOKA COUNTY HIGHWAY DEPT.

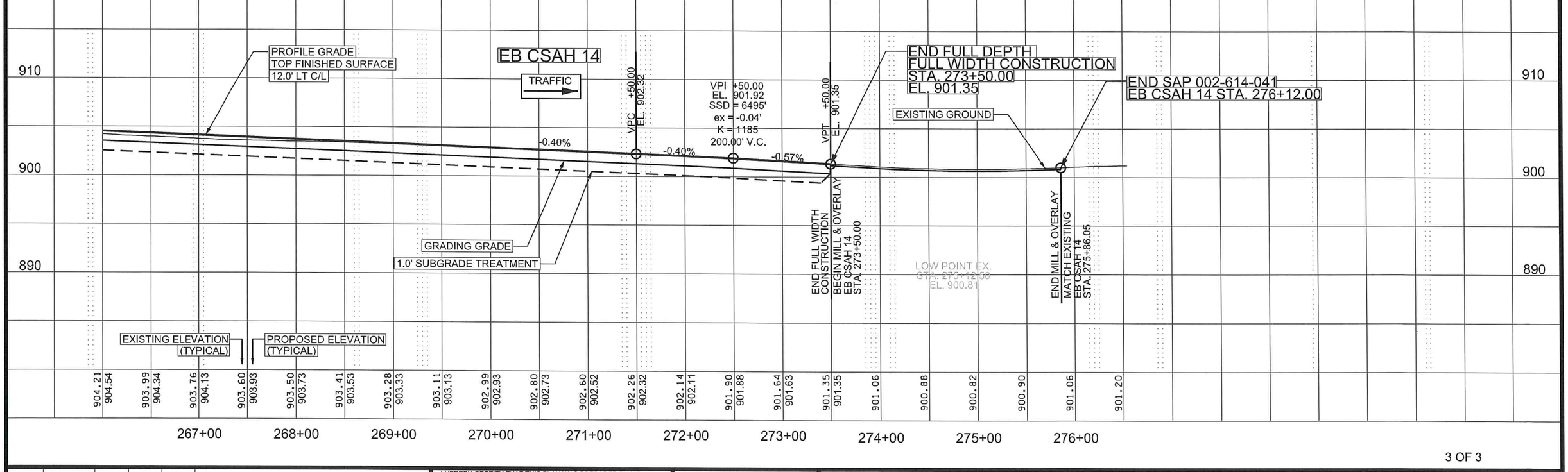
SAP 002-614-041
SAP 106-020-036
CP 18-10

CONSTRUCTION PLAN AND PROFILE

STA 254+00.00 TO 266+00.00

Sheet 79 of 200 Sheets





3 OF 3

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_PP4_P3.dgn 12/10/2019 1:08:09 PM

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

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DRAWN BY MP DATE 12/04/19

DESIGN BY JRB DATE 12/04/19

CHECKED BY NJD DATE 12/04/19

ANOKA COUNTY

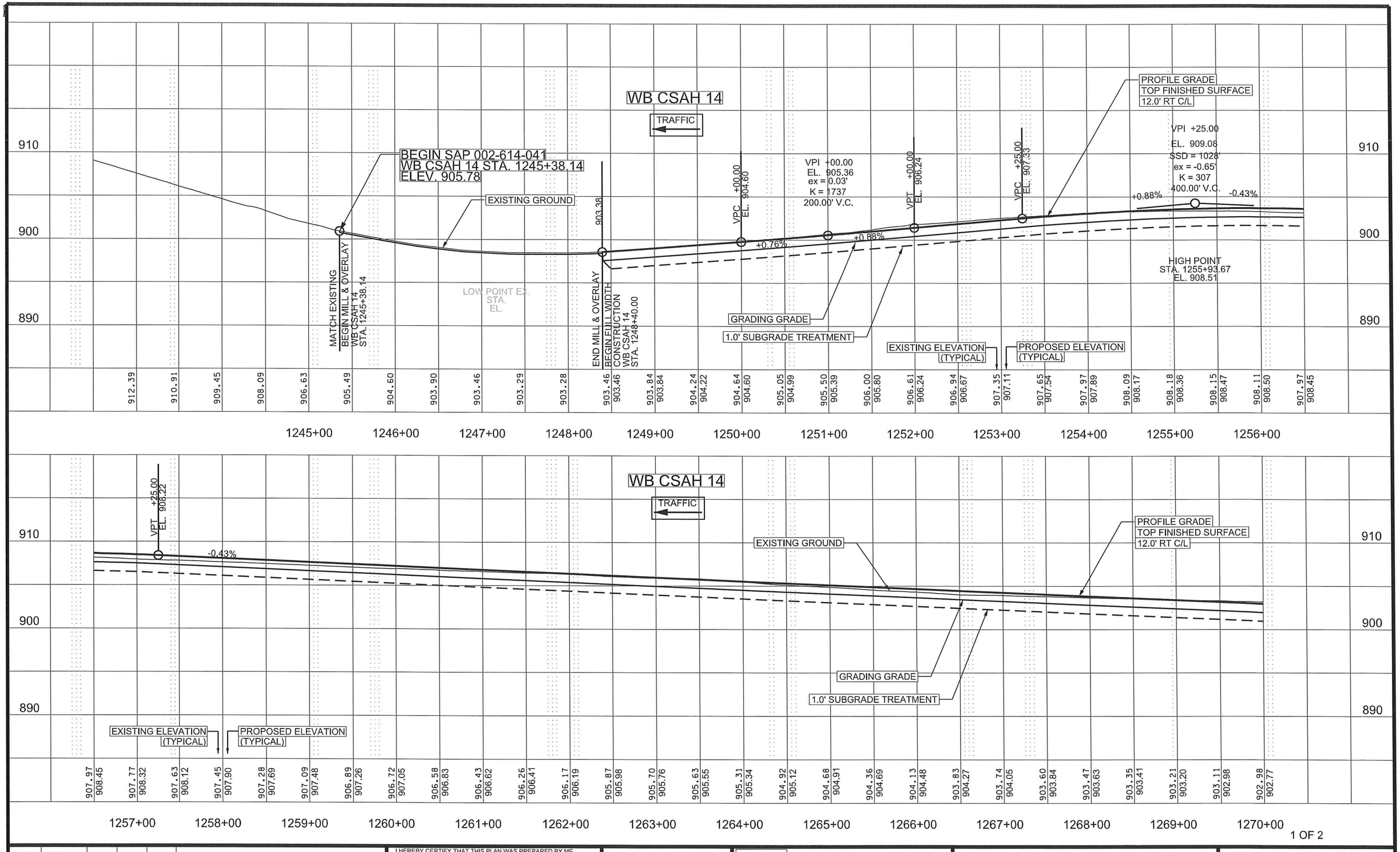
ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

CONSTRUCTION PLAN AND PROFILE

STA 266+00.00 TO 275+86.05

Sheet 80 of 200 Sheets



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_PR4_P1.dgn 12/10/2019 1:08:10 PM

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PRINT NAME: JORGE R. BERNAL DELGADO

SIGNATURE:

DATE: 12-20-19 LICENSE NO. 57216

DRAWN BY MP DATE 12/04/19

DESIGN BY JRB DATE 12/04/19

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ANOKA COUNTY

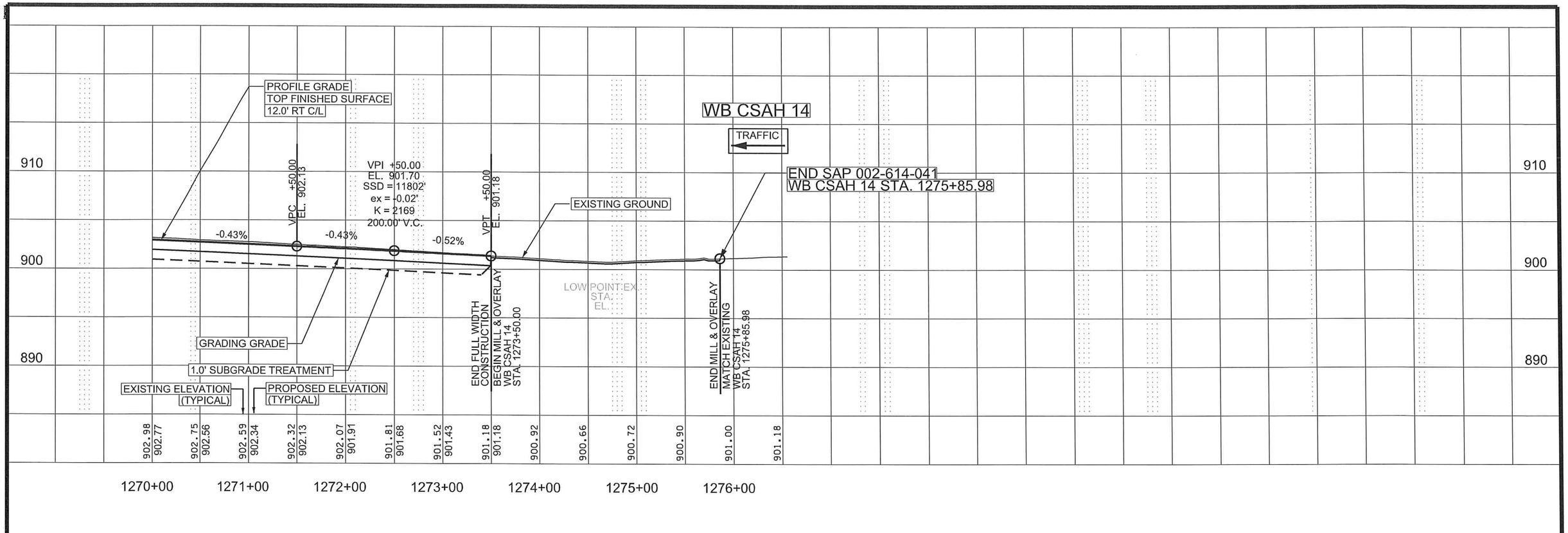
ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

PROFILES

STA 1245+38.14 TO 1270+00.00

Sheet 81 of 200 Sheets



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_PR4_P2.dgn 12/10/2019 1:08:12 PM

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

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SIGNATURE:

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DRAWN BY MP DATE 12/04/19

DESIGN BY JRB DATE 12/04/19

CHECKED BY NJD DATE 12/04/19

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

WB CSAH 14
PROFILES

STA 1270+00.00 TO 1275+85.98

Sheet 82 of 200 Sheets

LEGEND	
999.99	EXISTING SPOT ELEVATION
999.99	PROPOSED SPOT ELEVATION
2.00	PROPOSED LANE SLOPE (%)
- - -	SAWCUT

EXISTING R/W

CONST. LIMITS

1:15

1:55

1:10

CONST. LIMITS

EXISTING R/W

N

0 30

SCALE IN FEET

1 OF 3

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_INT4_P1.dgn 12/10/2019 1:08:14 PM

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SIGNATURE:

DATE: 12-20-19 LICENSE NO. 57216

DRAWN BY	MP	DATE	12/04/19
DESIGN BY	JRB	DATE	12/04/19
CHECKED BY	NJD	DATE	12/04/19

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

INTERSECTION DETAILS
ABERDEEN STREET

Sheet 83 of 200 Sheets

12518 HASTINGS ST

1836 125TH

LEGEND

999.99	EXISTING SPOT ELEVATION
999.99	PROPOSED SPOT ELEVATION
2.00	PROPOSED LANE SLOPE (%)
- - -	SAWCUT

HASTINGS ST (N.W. QUAD)
STATION / OFFSETS ARE FROM 14W_4

GRID LAYOUT		RAD. POINT LOC.		OFFSET 3' B/C		B424 CURB			
AREA	DESC.	STATION	OFFSET	STATION	OFFSET	BIT @ LIP	HUB ELEV.	TOP OF CURB	C / F
C	50' RAD. F/C	1264+40.67	50.00						
	CB235	1264+20.65	18	1264+20.65	23.61	*904.50*		**904.69**	
C1	BEG.	1264+40.65	18	1264+40.67	23.61	*904.62*		**904.81**	
C2	1/4 PT	1264+52.99	20.11	1264+50.78	25.62	*904.68*		**904.87**	
C3	MID PT	1264+63.71	26.91	1264+59.34	31.35	*904.74*		**904.93**	
C4	3/4 PT/LP	1264+70.99	37.44	1264+65.06	39.92	*904.8*		**904.99**	
C5	END	1264+73.56	50	1264+67.06	50.03	*904.86*		**905.05**	

HASTINGS ST (N.E. QUAD)
STATION / OFFSETS ARE FROM 14W_4

GRID LAYOUT		RAD. POINT LOC.		OFFSET 3' B/C		B424 CURB			
AREA	DESC.	STATION	OFFSET	STATION	OFFSET	BIT @ LIP	HUB ELEV.	TOP OF CURB	C / F
D	50' RAD. F/C	1265+29.60	55.00						
D1	BEG.	1264+96.56	55	1265+03.21	55.08	*904.97*		**905.16**	
D2	1/4 PT	1264+99.13	42.42	1265+05.21	44.93	*904.76*		**904.95**	
D3	MID PT	1265+06.47	31.85	1265+10.91	36.37	*904.55*		**904.74**	
D4	3/4 PT	1265+17.25	25.06	1265+19.54	30.6	*904.34*		**904.53**	
D5	END	1265+29.60	23	1265+29.60	28.61	*904.13*		**904.32**	

B424 TO D412 TRANSITION

B424 TO D412 TRANSITION

B424 TO D412 TRANSITION

B424 TO D412 TRANSITION

5' TE

CONST. LIMITS

EX. R/W

EX. R/W

CONST. LIMITS

5' PE

5' TE

10' TE

HASTINGS ST (S.W. QUAD)
STATION / OFFSETS ARE FROM 14E_4

GRID LAYOUT		POINT LOC.		OFFSET 3' B/C		B424 CURB			
POINT	DESC.	STATION	OFFSET	STATION	OFFSET	BIT @ LIP	HUB ELEV.	TOP OF CURB	C / F
A	30' RAD. F/C	264+44.63	55.00						
A1	4" CURB HT	264+37.63	23.00	264+37.63	28.61	*904.52*		**904.79**	
A2	0" CURB HT/BEG.	264+44.63	23.00	264+44.63	28.61	*904.51*		**904.45**	
A3	1/4 PT	264+56.88	25.44	264+54.73	30.62	*904.33*		**904.27**	
A4	MID PT	264+67.25	32.38	264+63.29	36.34	*904.16*		**904.10**	
A5	0" CURB HT	264+68.33	33.50	264+64.62	36.86	*904.13*		**904.07**	
A6	4" CURB HT	264+70.70	36.45	264+70.70	36.45	*904.08*		**904.35**	
A7	3/4 PT	264+74.20	42.77	264+69.01	44.91	*903.80*		**904.07**	
A8	END RADIUS.	264+76.63	55.02	264+71.02	55.01	*903.29*		**903.56**	
A9	HASTINGS TIE PT					*902.90*			

HASTINGS ST (S.E. QUAD)
STATION / OFFSETS ARE FROM 14E_4

GRID LAYOUT		RAD. POINT LOC.		OFFSET 3' B/C		B424 CURB			
AREA	DESC.	STATION	OFFSET	STATION	OFFSET	BIT @ LIP	HUB ELEV.	TOP OF CURB	C / F
B	30' RAD. F/C	265+33.67	50.00						
B1	HASTINGS TIE PT	265+02.62	71.53	265+07.23	71.54	*902.84*		**903.03**	
B2	CG TRANS	265+01.66	55.00	265+07.27	55.01	*903.51*		**903.70**	
B3	BEGIN RADIUS	265+01.67	49.92	265+07.28	49.93	*903.57*		**903.76**	
B4	1/4 PT	265+04.13	37.70	265+09.31	39.86	*903.70*		**903.89**	
B5	4" CURB HT	265+07.60	31.44	265+12.17	34.70	*903.77*		**903.96**	
B6	0" CURB HT	265+09.98	28.49	265+14.14	32.26	*903.82*		**904.01**	
B7	MID PT	265+11.07	27.34	265+15.04	31.32	*903.85*		**904.04**	
B8	3/4 PT	265+21.46	20.43	265+23.59	25.61	*904.02*		**904.21**	
B9	0" CURB HT/END R.	265+33.67	18.00	265+33.67	23.61	*904.20*		**904.39**	
B10	4" CURB HT	265+40.69	18.00	265+40.67	23.61	*904.17*			

SCALE 0 30 IN FEET

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_INT4_P2.dgn 12/10/2019 1:08:16 PM

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

PRINT NAME: JORGE R. BERNAL DELGADO

SIGNATURE:

DATE: 12-20-19 LICENSE NO. 57216

DRAWN BY MP DATE 12/04/19

DESIGN BY JRB DATE 12/04/19

CHECKED BY NJD DATE 12/04/19

ANOKA COUNTY HIGHWAY DEPT.

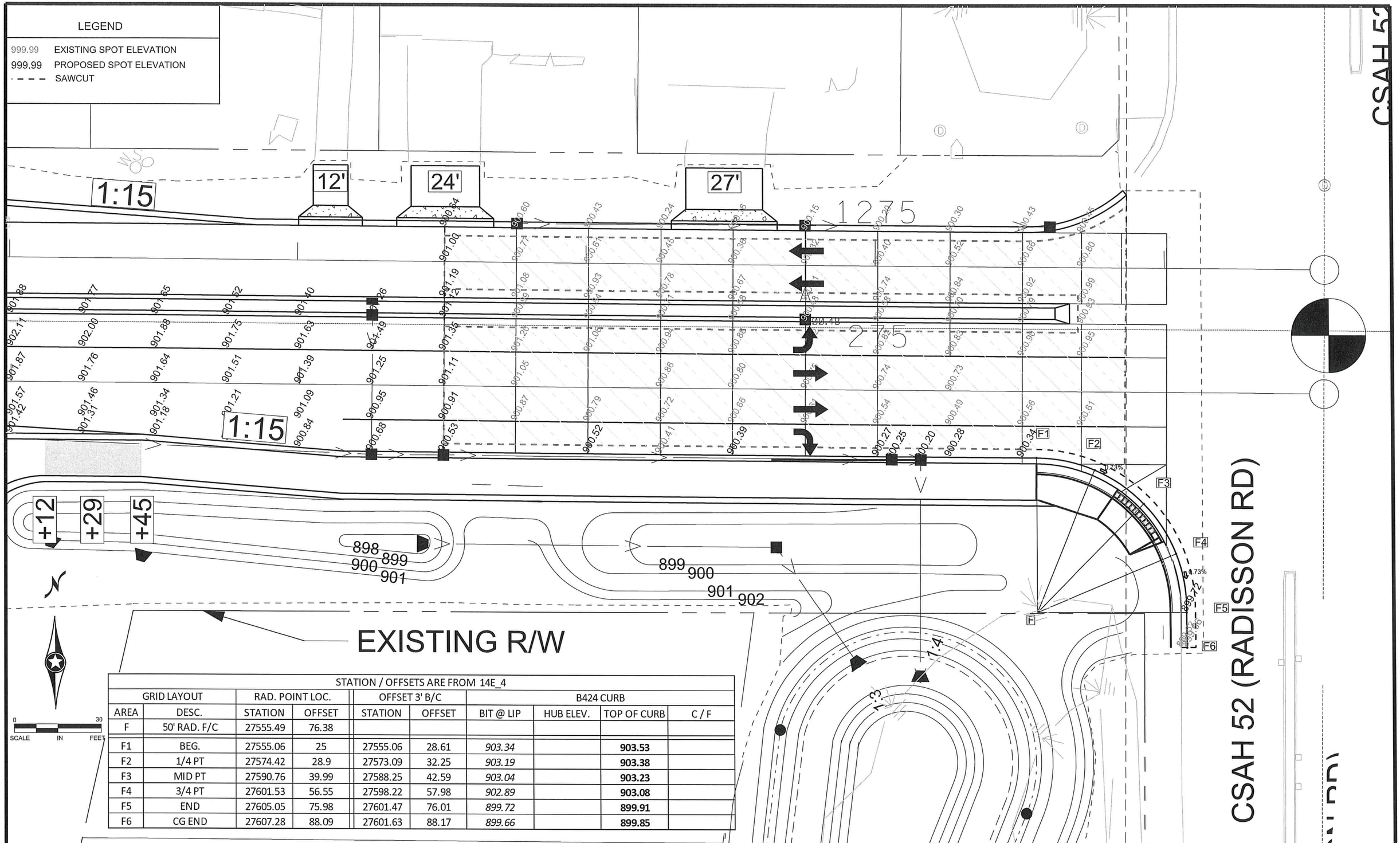
SAP 002-614-041
SAP 106-020-036
CP 18-10

INTERSECTION DETAILS
HASTINGS ST.

Sheet 84 of 200 Sheets

LEGEND

999.99	EXISTING SPOT ELEVATION
999.99	PROPOSED SPOT ELEVATION
- - -	SAWCUT



STATION / OFFSETS ARE FROM 14E_4									
GRID LAYOUT		RAD. POINT LOC.		OFFSET 3' B/C		B424 CURB			
AREA	DESC.	STATION	OFFSET	STATION	OFFSET	BIT @ LIP	HUB ELEV.	TOP OF CURB	C / F
F	50' RAD. F/C	27555.49	76.38						
F1	BEG.	27555.06	25	27555.06	28.61	*903.34*		**903.53**	
F2	1/4 PT	27574.42	28.9	27573.09	32.25	*903.19*		**903.38**	
F3	MID PT	27590.76	39.99	27588.25	42.59	*903.04*		**903.23**	
F4	3/4 PT	27601.53	56.55	27598.22	57.98	*902.89*		**903.08**	
F5	END	27605.05	75.98	27601.47	76.01	*899.72*		**899.91**	
F6	CG END	27607.28	88.09	27601.63	88.17	*899.66*		**899.85**	

SCALE 0 30 IN FEET

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_INT4_P3.dgn 12/10/2019 1:08:19 PM

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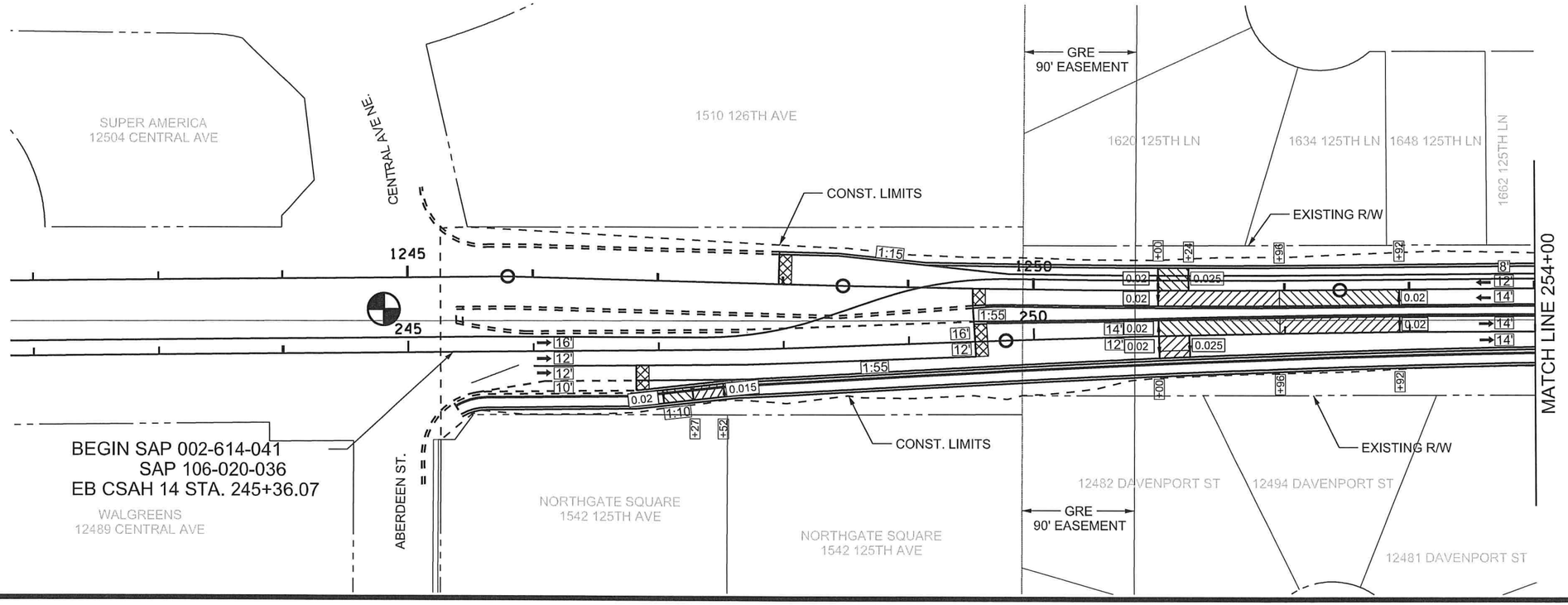
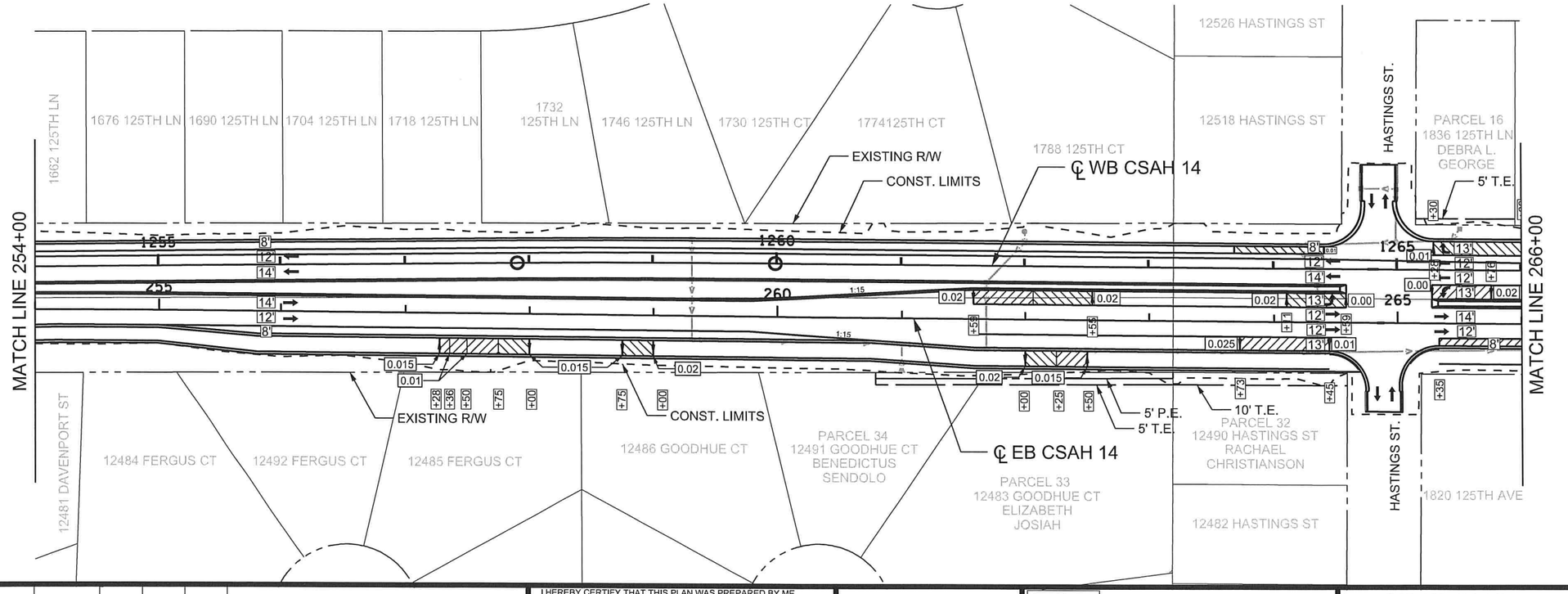
CP 18-10

INTERSECTION DETAILS
CSAH 52

Sheet 85 of 200 Sheets





LEGEND

- SUPERELEVATION TRANSITION
- MATCH TO EXISTING

NOTES:

1. ALL CROSS SLOPES ARE IN FEET PER FEET.
2. STATIONING FOR EAST BOUND CSAH 14 BASED ON EAST BOUND ALIGNMENT.
3. STATIONING FOR WEST BOUND CSAH 14 BASED ON WEST BOUND ALIGNMENT.
4. SEE INTERSECTION DETAIL PLANS FOR MORE INFORMATION.

N

0 100
SCALE IN FEET

1 OF 2

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_SE4_P1.dgn 12/10/2019 1:08:22 PM

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

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DESIGN BY JRB DATE 12/04/19

CHECKED BY NJD DATE 12/04/19

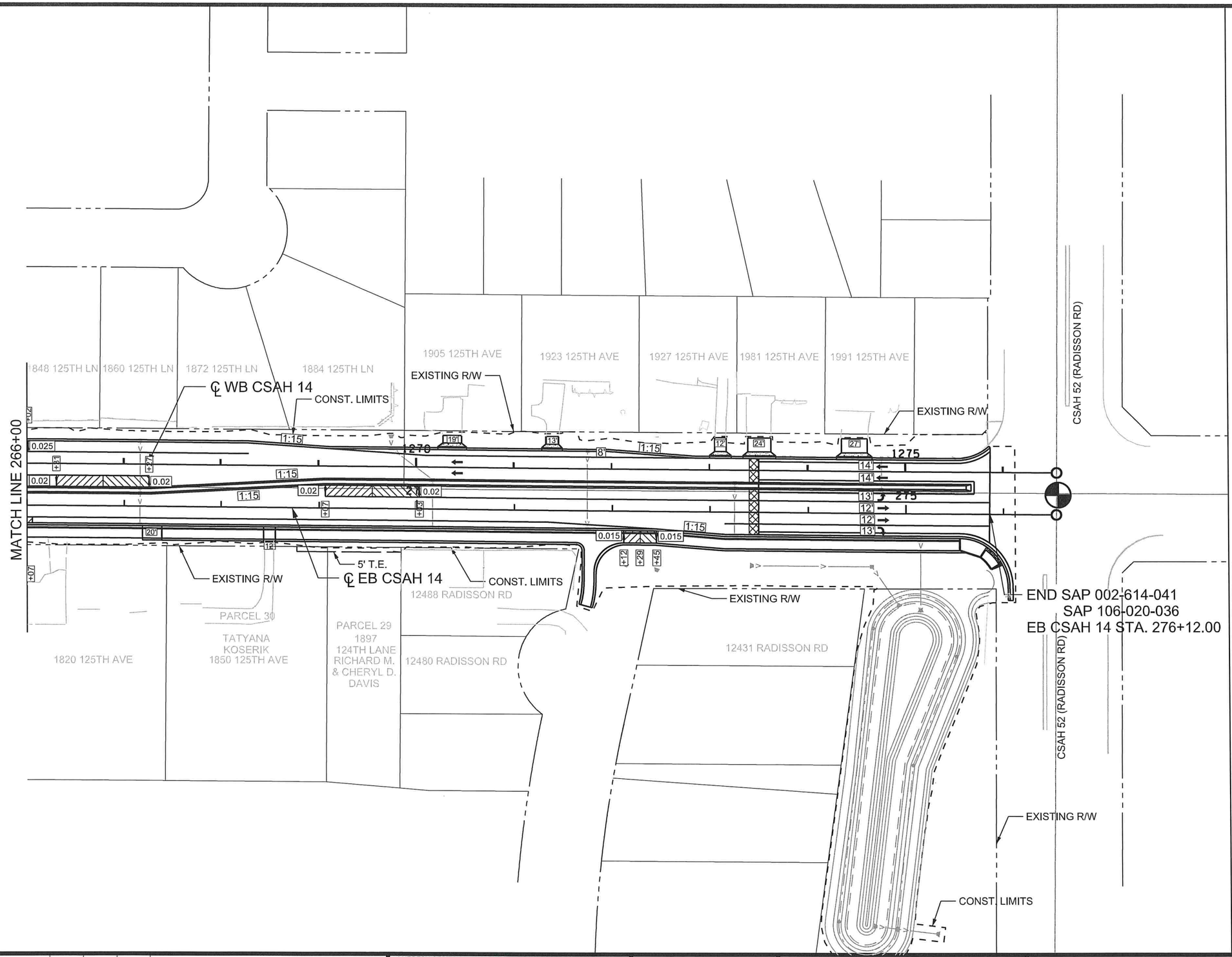
ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

SUPERELEVATION PLAN

STA 245+36.07 TO 266+00.00

Sheet 86 of 200 Sheets



LEGEND

- SUPERELEVATION TRANSITION
- MATCH TO EXISTING

NOTES:

1. ALL CROSS SLOPES ARE IN FEET PER FEET.
2. STATIONING FOR EAST BOUND CR 132 BASED ON EAST BOUND ALIGNMENT.
3. STATIONING FOR WEST BOUND CR 132 BASED ON WEST BOUND ALIGNMENT.
4. SEE INTERSECTION DETAIL PLANS FOR MORE INFORMATION.

N

0 100
SCALE IN FEET

2 OF 2

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_SE4_P2.dgn 12/10/2019 1:08:23 PM

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ANOKA COUNTY HIGHWAY DEPT.

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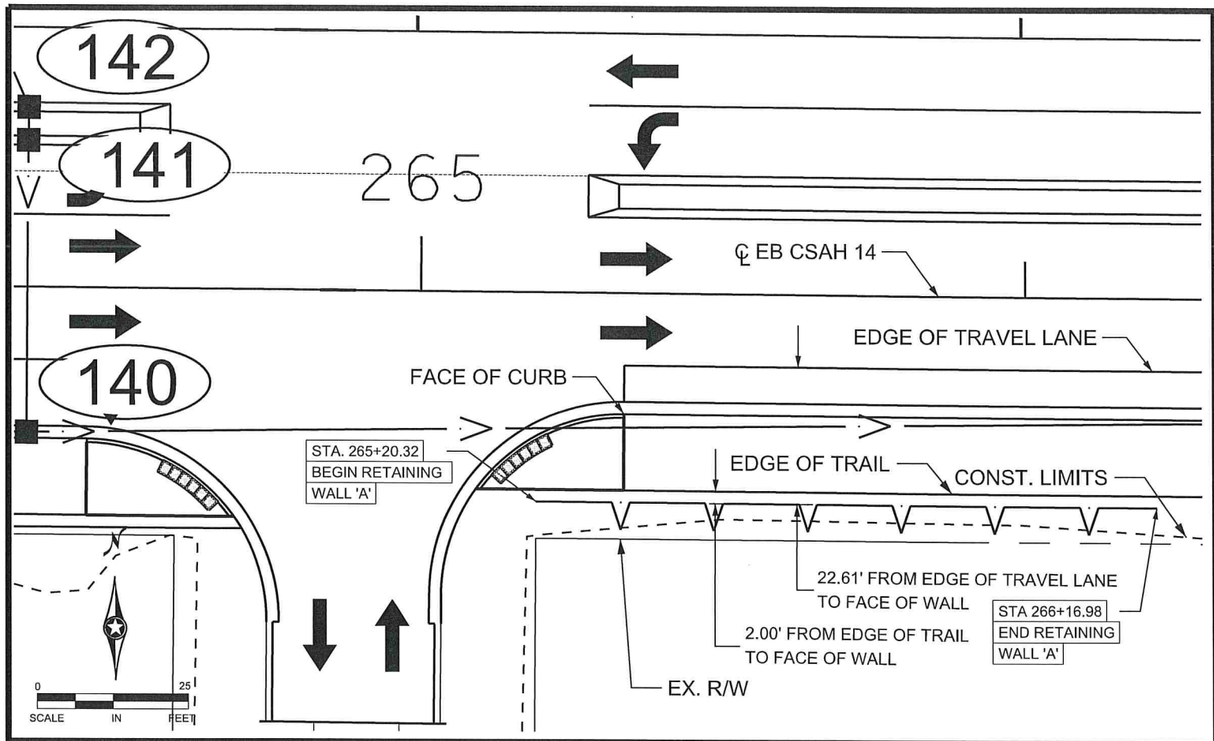
SAP 106-020-036
CP 18-10

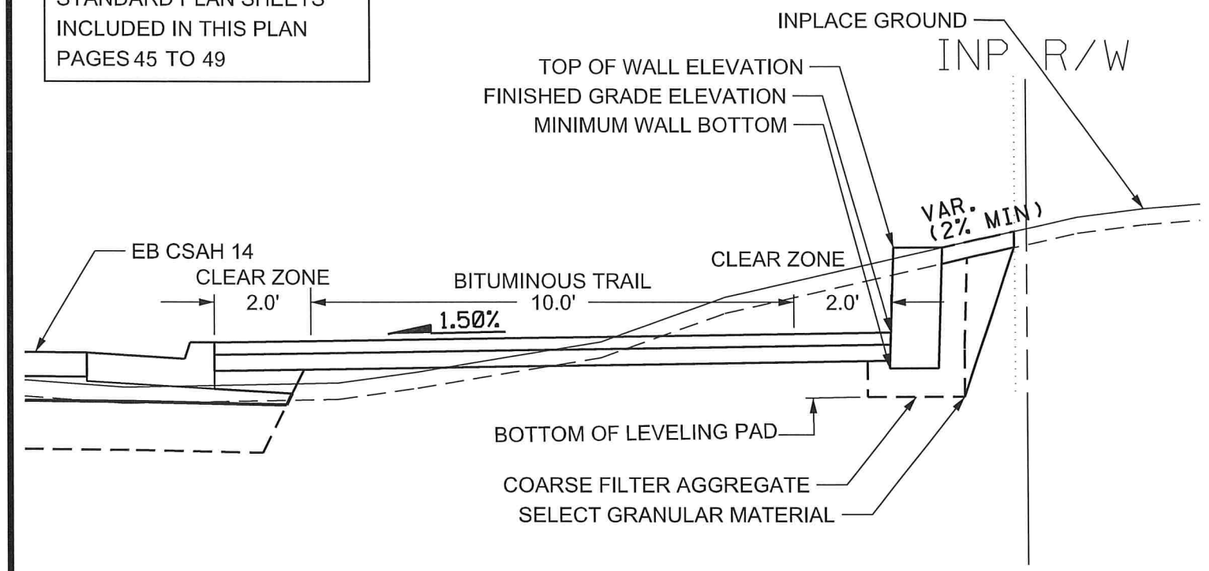
SUPERELEVATION PLAN

STA 266+00.00 TO 276+86.05

Sheet 87 of 200 Sheets

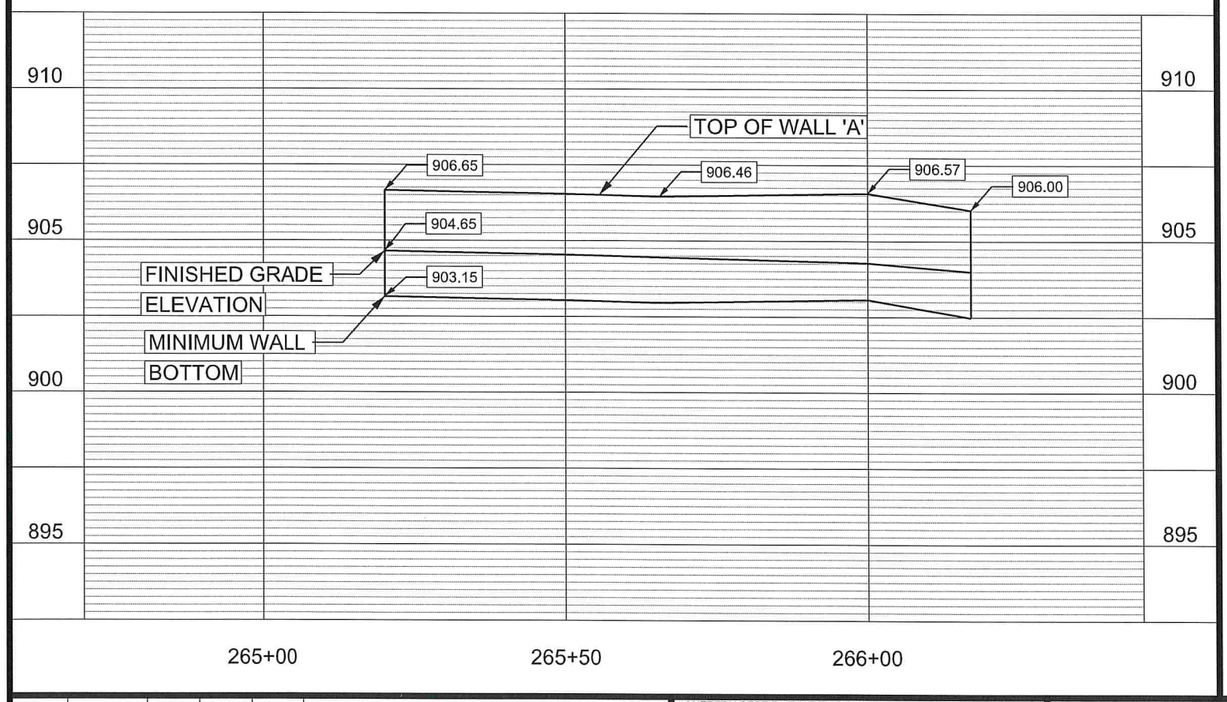


NOTE: SEE RETAINING WALL STANDARD PLAN SHEETS INCLUDED IN THIS PLAN PAGES 45 TO 49



COMMON FILL/EXCAVATION, SELECT GRANULAR MATERIAL AND COARSE FILTER AGGREGATE SHALL BE INCIDENTAL

NOT TO SCALE



NOTE: SEE SPECIAL PROVISIONS SPEC. 2411 OF THIS PLAN & PROPOSAL.

WALLS MUST BE PROVIDED BY AN APPROVED MNDOT SUPPLIER.
WALLS MUST BE NATURAL GREY IN COLOR.
WALLS MUST BE OF COBBLESTONE APPEARANCE.
DESIGN MUST BE APPROVED BY THE ENGINEER.

MODULAR BLOCK WALL DATA - WALL 'A'

STATION	OFFSET	ALIGN	FINISHED GRADE (FRONT FACE)	TOP OF WALL	BOTTOM OF WALL [1]	HEIGHT	AREA (SQ FT)
265+20.32	34.61	14_E4	904.65	906.65	903.15	3.50	14
265+50.00	34.61	14_E4	904.54	906.54	903.04	3.50	104
265+65.60	34.61	14_E4	904.46	906.46	902.96	3.50	55
266+00.00	34.61	14_E4	904.28	906.28	902.78	3.50	125
266+16.98	34.61	14_E4	904.00	906.00	902.50	3.50	66
					RETAINING WALL 'A' TOTAL AREA		**364**

[1] BOTTOM OF WALL 1.5' MINIMUM BELOW GROUND ELEVATION.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_RW_1.dgn 12/10/2019 1:08:25 PM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
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SIGNATURE:
DATE: 12-20-19 LICENSE NO. 57216

DRAWN BY MP DATE 12/04/19
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CHECKED BY NJD DATE 12/04/19

ANOKA COUNTY

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SAP 002-614-041
SAP 106-020-036
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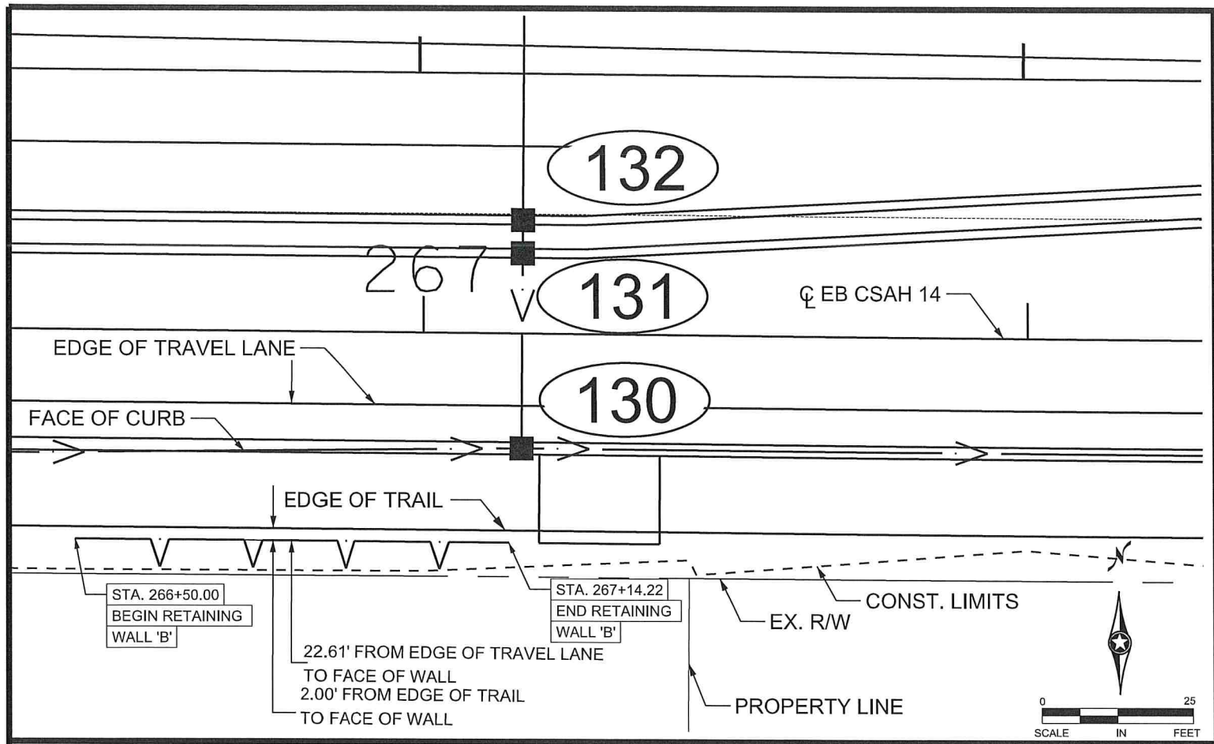
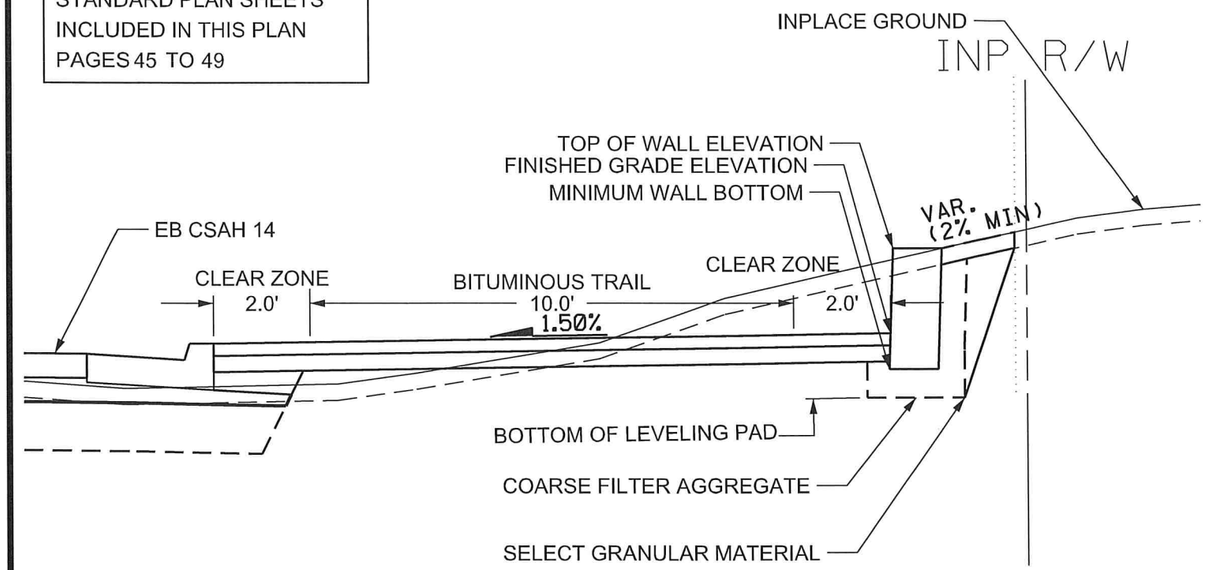
RETAINING WALL " A "

Sheet 88 of 200 Sheets

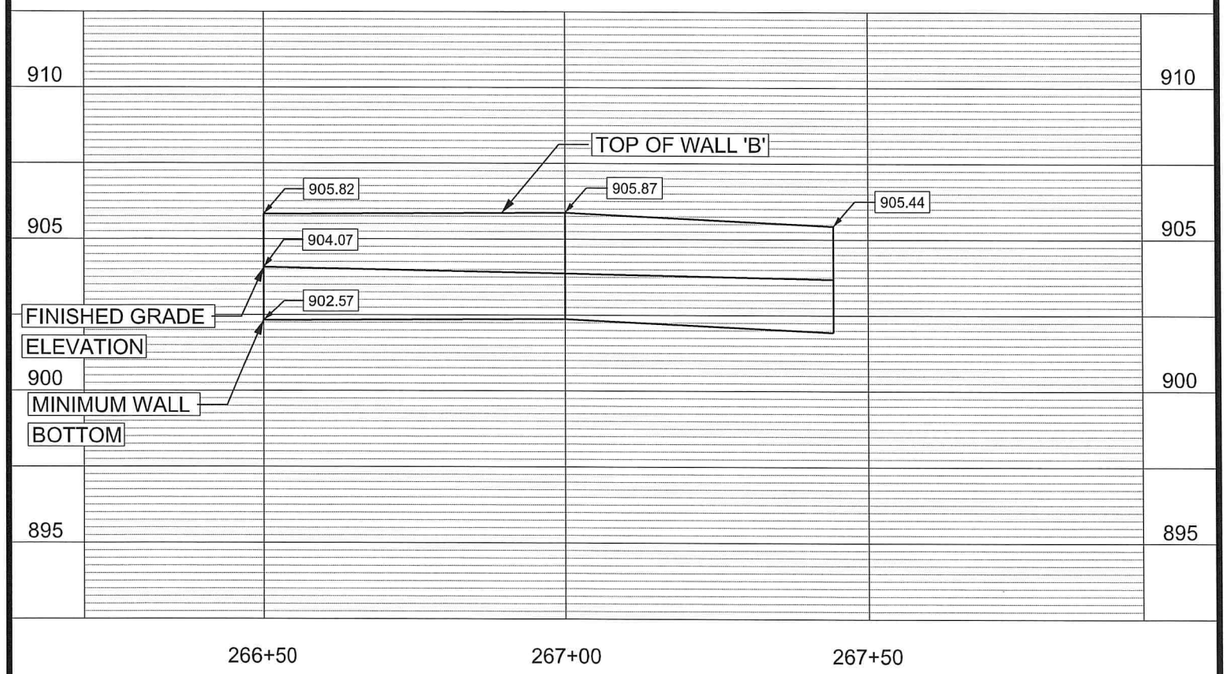


NOTE: SEE RETAINING WALL STANDARD PLAN SHEETS INCLUDED IN THIS PLAN PAGES 45 TO 49



COMMON FILL/EXCAVATION, SELECT GRANULAR MATERIAL AND COARSE FILTER AGGREGATE SHALL BE INCIDENTAL

NOT TO SCALE



NOTE: SEE SPECIAL PROVISIONS SPEC. 2411 OF THIS PLAN & PROPOSAL.

WALLS MUST BE PROVIDED BY AN APPROVED MNDOT SUPPLIER.
WALLS MUST BE NATURAL GREY IN COLOR.
WALLS MUST BE OF COBBLESTONE APPEARANCE.
DESIGN MUST BE APPROVED BY THE ENGINEER.

MODULAR BLOCK WALL DATA - WALL 'B'

STATION	OFFSET	ALIGN	FINISHED GRADE (FRONT FACE)	TOP OF WALL	BOTTOM OF WALL [1]	HEIGHT	AREA (SQ FT)
266+50.00	34.61	14_E4	904.07	905.82	902.57	3.25	44
267+00.00	34.61	14_E4	903.87	905.87	902.37	3.50	94
267+14.22	34.61	14_E4	903.69	905.44	902.19	3.25	27
					RETAINING WALL 'B' TOTAL AREA		**165**

[1] BOTTOM OF WALL 1.5' MINIMUM BELOW GROUND ELEVATION.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_RW_2.dgn 12/10/2019 1:08:26 PM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINT NAME: JORGE R. BERNAL DELGADO
SIGNATURE:
DATE: 12-20-19 LICENSE NO. 57216

DRAWN BY MP DATE 12/04/19
DESIGN BY JRB DATE 12/04/19
CHECKED BY NJD DATE 12/04/19

ANOKA COUNTY

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SAP 002-614-041
SAP 106-020-036
CP 18-10

RETAINING WALL " B "

Sheet 89 of 200 Sheets

DRAINAGE TABULATION SUMMARY — N

	PAY HEIGHT						STORM SEWER											EROSION CONTROL BLANKETS CAT. 0	RANDOM RIPRAP CLASS II	GEOTEXTILE FABRIC TYPE 3	CONNECT TO EX STORM
	H	48-4020	54-4020	60-4020	78-4020	SPECIAL	15" RCP CL V	15" RCP APRON	18" RCP CL III	18" RCP APRON	21" RCP CL III	21" RCP APRON	24" RCP CL III	27" RCP CL III	30"RCP CL III	33" RCP CL III	36" RCP CL III	36" RCP APRON			
	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	EACH	LIN FT	EACH	LIN FT	EACH	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	EACH	SQ YD	CU YD	SQ YD	EACH
SYSTEM 100 SUBTOTAL (A)	21.6	89.4	15.4	25.5	5.4	6.1	743	2	460	3	145	1	185	282	300	499	69	1	42	42	36	
SYSTEM 300 SUBTOTAL (B)	6.0	6.8					32		185													1
SYSTEM 500 SUBTOTAL (C)	9.3	3.6					60															2
PROJECT TOTAL	36.9	99.8	15.4	25.5	5.4	6.1	835	2	645	3	145	1	185	282	300	499	69	1	42	42	36	3

GENERAL NOTES:
- PIPE LENGTHS DO NOT INCLUDE APRON LENGTH.
- SLOPES CALCULATED FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE, OR CENTER OF STRUCTURE TO END OF APRON.
- STATION AND OFFSET FOR EACH STRUCTURE GIVEN AT CENTER OF GRATE/CASTING FOR CATCH BASINS AND MANHOLES, AND AT APRON ENDS FOR APRONS.
- INVERT ELEVATIONS GIVEN AT CENTER OF STRUCTURE OR END OF APRON.
- IF STEPS REQUIRED, STRUCTURE TO INCLUDE MANHOLE STEPS 16" ON CENTER. SEE MnDOT STANDARD PLATE 4180.
- SEE TAB P FOR CULVERT INFORMATION.
- TIE LAST THREE JOINTS AT APRON END. FURNISHING AND INSTALLING PIPE TIES SHALL BE CONSIDERED INCIDENTAL.
- SEE MN/DOT STANDARD PLATE 3145.
- PAY HEIGHT = TOP OF PRECAST - LOWEST INVERT + 0.7' FOR BASE.
- **ADJUSTING RINGS ARE INCIDENTAL.**

CASTING ASSEMBLY SUMMARY — O

ASSEMBLY	DESCRIPTION	RING OR FRAME CASTING	COVER OR GRATE CASTING	STANDARD PLATE NO.	QUANTITY	NOTES
B	MEDIAN W/O CURB BOX		R-3448-C	4154	15	
C	OUTER W/ CURB BOX		R-3250-DVSP	4154, 4160	3	
D	OUTER W/O CURB BOX		R-3250-EVSP		20	
E	BEEHIVE				3	
F	MANHOLE	700-7	716	4104; 4110	1	
SPECIAL	MANHOLE					[1] [2]
				TOTAL	42	

[1] SEE POND 100 GRADING SHEET FOR GRATE INFORMATION.
[2] SPECIAL CASTING PAID FOR AS PART OF CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL.

CULVERT TABULATION — P

STATION FROM	STATION TO	OFFSET	INVERT ELEVATION INLET	INVERT ELEVATION OUTLET	SLOPE %	18" CS PIPE APRON EACH	21" RCP APRON EACH	RANDOM RIPRAP CL II CU YD	GEOTEXTILE FILTER TYPE 3 SQ YD	NOTES
272+15		53' R		899.50	EXIST.	1		5	23	[1]
272+46		58' R		900.87	EXIST.		1	5	24	[2]
					TOTAL	1	1	9	47	

NOTES:
[1] FOR 18" CMP PIPE CULVERT. SEE REMOVAL TABULATION FOR PIPE REMOVAL DETAILS.
[2] FOR 21" RCP PIPE CULVERT. SEE REMOVAL TABULATION FOR PIPE REMOVAL DETAILS.

GENERAL NOTES:
- STATION AND OFFSET FOR EACH STRUCTURE GIVEN AT APRON ENDS.
- INVERT ELEVATIONS GIVEN AT END OF APRON.
- FOR RIPRAP AND GEOTEXTILE FABRIC INSTALLATION SEE MN/DOT STANDARD PLATE 3134D.

DRAINAGE TAB - SYSTEM 300 — Q

STRUCTURE NO. FLOWS FROM	STRUCTURE NO. FLOWS TO	ALIGN	CENTER OF CASTING STATION	CENTER OF CASTING O/S	CENTER OF CASTING L / R	DRAINAGE STRUCTURES TYPE	DESIGN	PAY HEIGHT H LIN FT	PAY HEIGHT 48-4020 LIN FT	CASTING ASSEMBLY TYPE	STEPS REQ'D	STORM SEWER TOP OF CASTING ELEVATION	OUTLET ELEVATION	DOWN STREAM INLET	SLOPE %	15" RCP CL V LIN FT	18" RCP CL III LIN FT	CONNECT TO EX STORM EACH	NOTES
315	310	14W_4	1275+60.44	57	R	CB	48-4020		3.9	D		900.23	896.43					1	
320	315	14W_4	1274+75.64	14	R	CB	48-4020		2.9	C		899.86	897.06	896.43	0.74		85		
321	320	14W_4	1273+76.08	13	R	CB	H	3.1		D		900.42	897.42	897.06	0.36		100		
325	320	14E_4	274+74.89	24	R	CB	H	2.9		B		900.50	897.70	897.42	0.86	32			
DRAINAGE SUBTOTAL (A)								6.0	6.8	4						32	185	1	

SUBSURFACE DRAINAGE AT POND 100 — Q

FLOWS FROM	FLOWS TO	ALIGN	STATION	OFFSET	TOP OF CASTING ELEV.	INVERT ELEV.	F & I CASTING ASSEMBLY	PAY HEIGHT DESIGN G OR H	8" TP PIPE DRAIN LIN FT	8" PERF TP PIPE DRAIN (MOD) LIN FT	NOTES
198	MH1								8	87	[1] [2]
MH1	MH2	14E_4	274+32.19	417' R.	897.58	895.50	A-7D	2.2	8	293	[2]
MH2	MH3	14E_4	274+66.76	118' R.	897.58	895.50	A-7D	2.2	8	140	[2]
MH3	MH4	14E_4	275+51.79	146' R.	897.58	895.50	A-7D	2.2	8	112	[2]
MH4	198	14E_4	275+07.67	257' R.	897.58	895.50	A-7D	2.2	8	160	[2]
							TOTAL	4	8.8	40	792	

NOTES:
[1] OVERFLOW STRUCTURE. SEE DRAINAGE TAB - POND 100 FOR INFORMATION.
[2] SEE POND 100 GRADING SHEET FOR SUBSURFACE DRAINAGE LAYOUT.

NO	DATE	BY	CKD	APPR	REVISION
1	01/06/2020	MP	JB		UPDATED QUANTITIES PER MnDOT S.A. COMMENTS

NAME: P:\002-614-041\Plan\002-614-041_DR4_TAB_P1.dgn 01/06/2020 1:15:35 PM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINT NAME: JORGE R. BERNAL DELGADO
SIGNATURE:
DATE: 1-6-20 LICENSE NO. 57216

DRAWN BY MP DATE 12/04/19
DESIGN BY MP DATE 12/04/19
CHECKED BY NJD DATE 12/04/19

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

DRAINAGE TABULATIONS

Sheet 90 of 200 Sheets

DRAINAGE TAB - POND 100

STRUCTURE NO.			CENTER OF CASTING			DRAINAGE STRUCTURES										STORM SEWER																EROSION CONTROL BLANKETS CAT. 0	RIPRAP CLASS II	GEOTEXTILE FILTER TYPE 3	Q NOTES
								PAY HEIGHT																													
FLOWS FROM	FLOWS TO	ALIGN	STATION	O/S	L / R	TYPE	DESIGN	H	48-4020	54-4020	60-4020	78-4020	SPECIAL	CASTING ASSEMBLY TYPE	STEPS REQ'D	TOP OF CASTING ELEVATION	OUTLET ELEVATION	DOWN STREAM INLET	SLOPE %	15" RCP CL V	15" RCP APRON	18" RCP CL III	18" RCP APRON	21" RCP CL III	21" RCP APRON	24" RCP CL III	27" RCP CL III	30"RCP CL III	33" RCP CL III	36" RCP CL III	36" RCP APRON				
								LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT							LIN FT	EACH	LIN FT	EACH	LIN FT	EACH	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	EACH	SQ YD	CU YD	SQ YD	
199	198	14E_4				INLET	APRON									N/A	893.50	893.63	-0.50			19	1									12		22	
198	197	14E_4				SPECIAL	SPECIAL						6.1	SPECIAL	YES	N/A	895.45	895.40	0.24					15											
197	WETLAND	14E_4				OUTLET	APRON									N/A	895.40								1							5	24	
EMERGENCY SPILLWAY		14E_4	275+01.79	393	R											899.00	898.00															16		
182	181	14E_4	273+41.05	55	R	INLET	APRON							APRON		899.00	897.50	896.00	1.21			118	1								12		22	[1]
181	180	14E_4	274+65.27	55	R	BH	48-4020		2.9					E		898.50	896.00	895.50	1.00			44												[1]
180	POND	14E_4	274+94.10	96	R	OUTLET	APRON									N/A	895.50						1									4	22	
100	POND	14E_4				OUTLET	N/A									N/A	894.72													1		11	46	[1]
110	100	14E_4	275+15.00	24	R	CB	78-4020					5.4		C	YES	900.20	894.80	894.72	0.10										69					[1]
111	110	14E_4	275+05.00	24	R	CB	54-4020			5.1				C	YES	900.25	895.08	895.05	0.30										10					[1]
114	111	14E_4	273+50.00	24	R	CB	54-4020			4.8				D	YES	900.37	895.54	895.08	0.30										155					[1]
115	114	14E_4	273+25.05	24	R	CB	60-4020				4.8			D	YES	900.51	895.62	895.54	0.30										25					
116	115	14E_4	273+25.05	24	L	CB	48-4020		4.0					B		901.36	897.51	897.26	0.50	48														
117	116	14W_4	1273+25.95	13	R	CB	H	3.4						B		901.17	897.92	897.91	0.30	6														
120	115	14E_4	271+74.80	19	R	CB	60-4020				5.2			D	YES	901.37	896.07	895.62	0.30										150					
125	120	14E_4	270+16.26	19	R	CB	60-4020				5.4			D	YES	902.01	896.55	896.07	0.30										159					
126	125	14E_4	270+16.26	24	L	CB	48-4020		4.3					B		902.73	898.60	898.47	0.30	43														
127	126	14W_4	1270+17.16	13	R	CB	48-4020		4.1					B		902.57	898.62	898.60	0.30	6														
130	125	14E_4	267+16.26	19	R	CB	54-4020			5.5				D	YES	903.30	897.70	896.80	0.30									300						
131	130	14E_4	267+16.26	13	L	CB	48-4020		4.5					B		903.94	899.59	899.50	0.30	32														
132	131	14W_4	1267+17.16	24	R	CB	48-4020		4.4					B		903.85	899.61	899.59	0.30	6														
140	130	14E_4	264+34.63	24	R	CB	60-4020				5.5			D	YES	904.37	898.79	897.95	0.30								282							
141	140	14E_4	264+34.63	24	L	CB	48-4020		5.7					B	YES	904.96	899.44	899.29	0.30					48										
142	141	14W_4	1264+35.53	13	R	CB	48-4020		5.5					B	YES	905.05	899.70	899.69	0.30			6												
144	140	14E_4	263+50.78	24	R	CB	48-4020		4.2					D		904.71	900.50	900.25	0.30							84								
145	144	14E_4	262+50.01	24	R	CB	48-4020		4.3					D		905.10	900.80	900.50	0.30							101								
150	145	14E_4	261+68.41	24	R	CB	48-4020		4.0					D		905.30	901.30	901.05	0.30					82										
151	150	14E_4	261+68.35	24	L	CB	48-4020		4.3					B		906.14	901.94	901.80	0.30	48														
152	151	14W_4	1261+69.26	13	R	CB	48-4020		4.4					B		906.19	901.96	901.94	0.30	6														
155	150	14E_4	261+00.00	21	R	CB	48-4020		3.5					D		905.70	902.20	901.55	0.95			68												
157	155	14E_4	260+99.99	44	R	INLET	APRON							APRON		904.40	903.15	902.45	3.01	17	1										9		18	
160	155	14E_4	259+31.18	19	R	CB	48-4020		3.6					D		906.38	902.75	902.20	0.32			169												
161	160	14E_4	259+31.18	13	L	CB	48-4020		4.1					B		907.10	903.09	903.00	0.30	32														
162	161	14W_4	1259+31.92	13	R	CB	48-4020		4.2					B		907.21	903.14	903.09	0.30	16														
215	120	14W_4	1271+75.70	18	L	CB	H	3.2						D		901.17	897.92	897.68	0.30	80														
220	127	14W_4	1269+74.34	19	L	CB	48-4020		3.2					D		902.03	898.78	898.62	0.30	54														
221	220	14W_4	1269+74.38	33	L	INLET	APRON							APRON		900.84	899.59	898.78	5.74	8	1										9		18	
225	132	14W_4	1267+17.16	24	L	CB	H	3.2						D		903.00	899.75	899.61	0.30	48														
230	234	14W_4	1265+43.61	24	L	CB	48-4020		3.4					D		903.88	900.46	900.33	0.30	45														
231	230	14W_4	1265+50.78	33	L	BH	H	2.6						E		902.75	900.50	900.46	0.30	12														
232	234	14W_4	1264+99.13	65	L	CB	48-4020		3.5					B		904.96	901.63	901.11	1.21	43														
233	232	14W_4	1264+71.27	65	L	CB	H	3.4						B		904.96	901.71	901.63	0.30	28														
234	236	14W_4	1264+99.13	22	L	MH	48-4020		4.1					F		904.28	900.33	900.06	0.34	79														
236	142	14W_4	1264+20.67	19	L	CB	60-4020				4.6			D	YES	904.46	899.81	899.70	0.30			36												
245	152	14W_4	1262+00.00	19	L	CB	48-4020		3.2					D		905.34	902.09	901.96	0.30	45														
247	245	14W_4	1262+00.00	28	L	BH	H	2.6						E		904.37	902.12	902.09	0.31	9														
250	162	14W_4	1259+31.92	19	L	CB	H	3.2						D		906.49	903.24	903.14	0.30	32														
DRAINAGE SUBTOTAL (A)								21.6	89.4	15.4	25.5	5.4	6.1	38						743	2	460	3	145	1	185	282	300	499	69	1	42	36	172	

REFER TO STANDARD PLATE 3133D FOR RIPRAP AT RCP APRONS.
SEE POND 100 GRADING AND DETAILS SHEET 97 FOR OUTLET CONTROL STRUCTURE AND OVERFLOW DETAILS.
SPECIAL STRUCTURE PAID AS CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL. WEIR AND GRATE ARE INCIDENTAL TO STRUCTURE. SEE POND 100 GRADING AND DETAILS SHEET 97 FOR MORE DETAILS.

NOTES:
[1] PROVIDE COARSE AGGREGATE BEDDING AS DIRECTED BY ENGINEER. PAID FOR AS COARSE AGGREGATE BEDDING (CV) 2451.507.

DRAINAGE TAB - SYSTEM 500

STRUCTURE NO.			CENTER OF CASTING			DRAINAGE STRUCTURES									CONNECT TO EX STORM	Q NOTES
								PAY HEIGHT								
FLOWS FROM	FLOWS TO	ALIGN	STATION	O/S	L / R	TYPE	DESIGN	H	48-4020	CASTING ASSEMBLY TYPE	TOP OF CASTING ELEVATION	OUTLET ELEVATION	DOWN STREAM INLET	SLOPE %	15" RCP CL V	
								LIN FT	LIN FT						LIN FT	EACH	
5301	5302	14W_4	1250+75.27	19	L	CB					904.91	901.81	901.34	1.47			[1]
5302	5315	14W_4	1250+74.20	13	R	CB	48-4020			B	904.78	901.34	899.64	0.75			[2]
5303	5302	14E_4	250+77.12	19	R	CB	H	2.8		D	904.53	901.72	901.34	0.88		1	[3]
5304	5305	14E_4	247+95.93	24	R	CB	H	3.2		C	902.77	899.48	899.39	0.30	30		
5305	5319	14E_4	247+66.87	25	R	CB	48-4020		3.6	C	902.77	899.14	899.02	0.30		1	[3]
5306	5305	14E_4	247+37.29	27	R	CB	H	3.3		C	902.79	899.48	899.39	0.30	30		
DRAINAGE SUBTOTAL (B)								9.3	3.6	5					60	2	

[1] EXISTING STRUCTURE, FOR REFERENCE ONLY.
[2] EXISTING STRUCTURE. ROTATE TOP OF PRECAST TO ALIGN WITH PROPOSED FACE OF CURB. IF TOP OF PRECAST IS DAMAGED, REPAIR PAID FOR AS RECONSTRUCT PER L.F. AS DIRECTED BY ENGINEER IN THE FIELD.
[3] CONSTRUCT OVER EXISTING PIPE. CONTRACTOR SHALL VERIFY EXISTING PIPE INVERTS IN THE FIELD.

NO	DATE	BY	CKD	APPR	REVISION
1	01/06/2020	MP	JB		UPDATED QUANTITIES PER MnDOT S.A. COMMENTS
2	01/14/2020	MP	JB		ADDED NOTE [1] TO DRAINAGE TAB - POND 100

NAME: P:\002-614-041\Plan\002-614-041_DR4_TAB_P1.dgn 01/14/2020 9:46:21 AM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINT NAME: JORGE R. BERNAL DELGADO
SIGNATURE:
DATE: 1-14-20 LICENSE NO. 57216

DRAWN BY MP DATE 12/04/19
DESIGN BY MP DATE 12/04/19
CHECKED BY NJD DATE 12/04/19

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

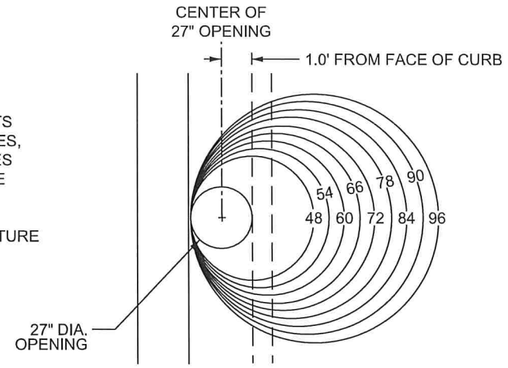
DRAINAGE TABULATIONS

TABLE A

4020 DIAMETER	* OFFSET FEET
48"	0.79
54"	1.08
60"	1.29
66"	1.58
72"	1.79
78"	2.08
84"	2.29
90"	2.58
96"	2.88
102"	3.17
108"	3.29
120"	3.79

WHERE THE 4020 DIAMETER CONFLICTS WITH OTHER STRUCTURES OR UTILITIES, ROTATE THE STRUCTURE 180 DEGREES TO PROVIDE CLEARANCE. THIS MAY BE ADJUSTED IN THE FIELD.

* OFFSET IS FROM CENTER OF STRUCTURE TO CENTER OF OPENING.

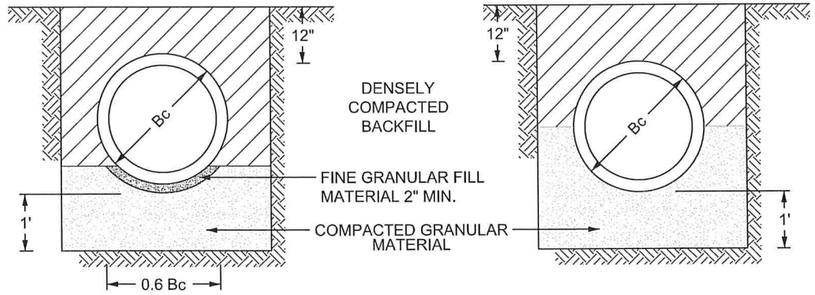


USE FOR 4020

THE FOLLOWING PLACEMENT LOCATIONS SHALL BE USED WITH CONCRETE CURB AND GUTTER.

1. THE CENTER OF GRATE STATION AND OFFSET LOCATION IS GIVEN IN DRAINAGE TABULATION.
2. THE OFFSET FROM THE CENTER OF STRUCTURE TO THE CENTER OF GRATE IS GIVEN IN TABLE "A" TO THE LEFT FOR 4020 STRUCTURES. OFFSET FOR 4005 STRUCTURES IS 0.9 FT.
3. THE CENTER OF OPENING IS 1.0 FT TOWARD THE ROADWAY FROM THE FACE OF CURB.
4. THE STRUCTURES THAT HAVE STEPS SHALL BE LOCATED ON THE ROADSIDE OF THE 27" OPENING AND MUST BE EASILY ACCESSIBLE. THE STEP LOCATION MAY NEED TO BE ADJUSTED IF THERE IS A LARGE PIPE DIRECTLY BELOW THE OPENING.

STRUCTURE LOCATION



SHAPED SUBGRADE WITH GRANULAR FOUNDATION (FOR GRANULAR SOILS)

CLASS B

B_f = 1.9

GRANULAR FOUNDATION FOR COHESIVE SOILS

NOTES:

FOR CLASS B BEDDINGS, SUBGRADES SHOULD BE EXCAVATED OR OVER EXCAVATED IF NECESSARY, SO A UNIFORM FOUNDATION FREE OF PROTRUDING ROCKS MAY BE PROVIDED.

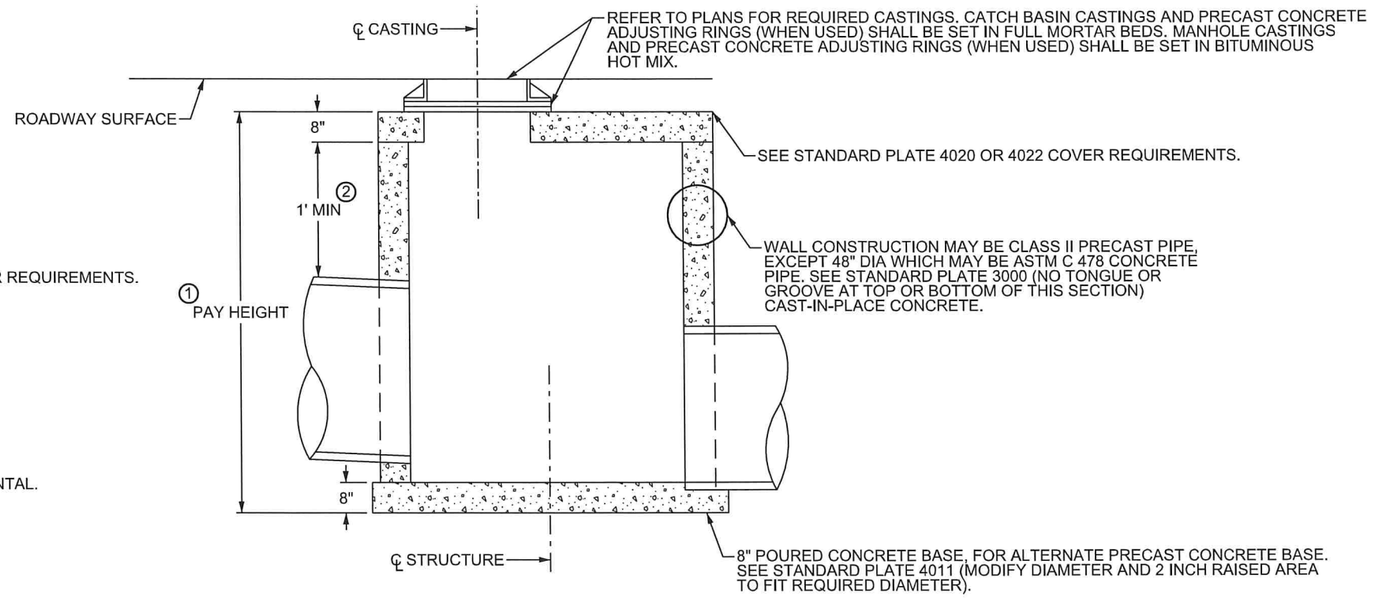
PIPE BEDDING FOR PIPE LAID IN TRENCHES WHERE UNSUITABLE SOILS ARE ENCOUNTERED IS INCIDENTAL.

A MINIMUM OF ONE FOOT OF GRANULAR FOUNDATION SHALL BE PLACED BELOW BOTTOM OF PIPE. SEE SPECIFICATIONS.

LEGEND

Bc = OUTSIDE DIAMETER
H = BACKFILL COVER ABOVE TOP OF PIPE
D = INSIDE DIAMETER
d = DEPTH OF BEDING MATERIAL BELOW PIPE

TRENCH BEDDING CLASS B



NOTES:

① REFER TO DRAINAGE TABS FOR HEIGHT AND DIAMETER REQUIREMENTS.

② 1 FT MINIMUM FOR PRECAST.

GENERAL NOTES:

EQUIVALENT STEEL AREA IN WIRE MESH PER STANDARD PLATE 3000 MAY BE USED.

REINFORCEMENT AS PER SPEC 3301, GRADE 60.

ADJUSTING RINGS FOR NEW CASTINGS SHALL BE INCIDENTAL.

NOT TO SCALE

DRAINAGE STRUCTURE DESIGN 4020

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_DR_DET.dgn 12/10/2019 1:08:43 PM

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

PRINT NAME: JORGE R. BERNAL DELGADO

SIGNATURE:

DATE: 12-20-19 LICENSE NO. 57216

DRAWN BY MP DATE 12/04/19

DESIGN BY JRB DATE 12/04/19

CHECKED BY NJD DATE 12/04/19

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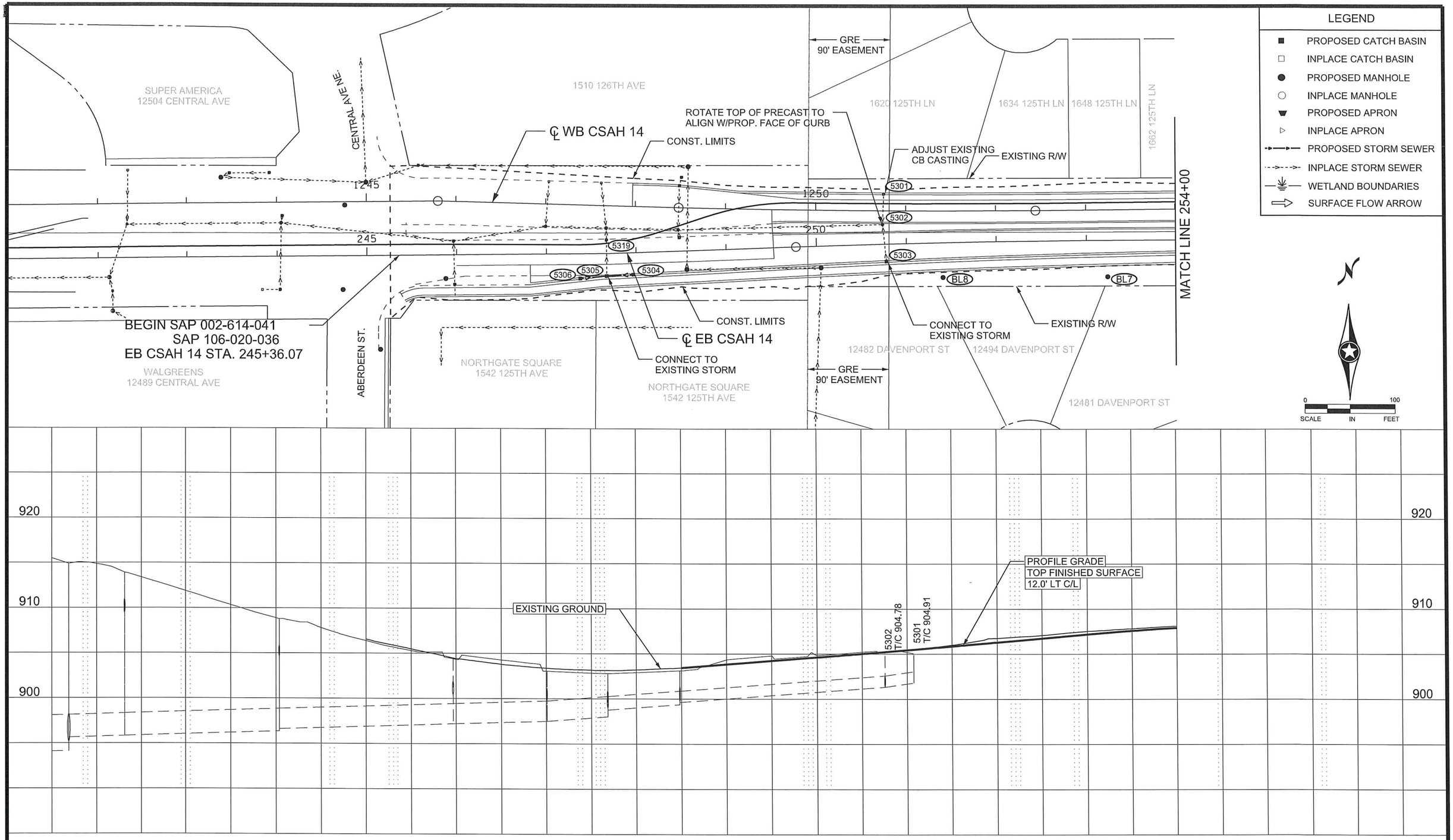
DRAINAGE DETAILS

Sheet 92 of 200 Sheets



1 OF 3

NO	DATE	BY	CKD	APPR	REVISION

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

PRINT NAME: JORGE R. BERNAL DELGADO

SIGNATURE:

DATE: 12-20-19 LICENSE NO. 57216

DRAWN BY	MP	DATE	12/04/19
DESIGN BY	MP	DATE	12/04/19
CHECKED BY	NJD	DATE	12/04/19

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SAP 002-614-041
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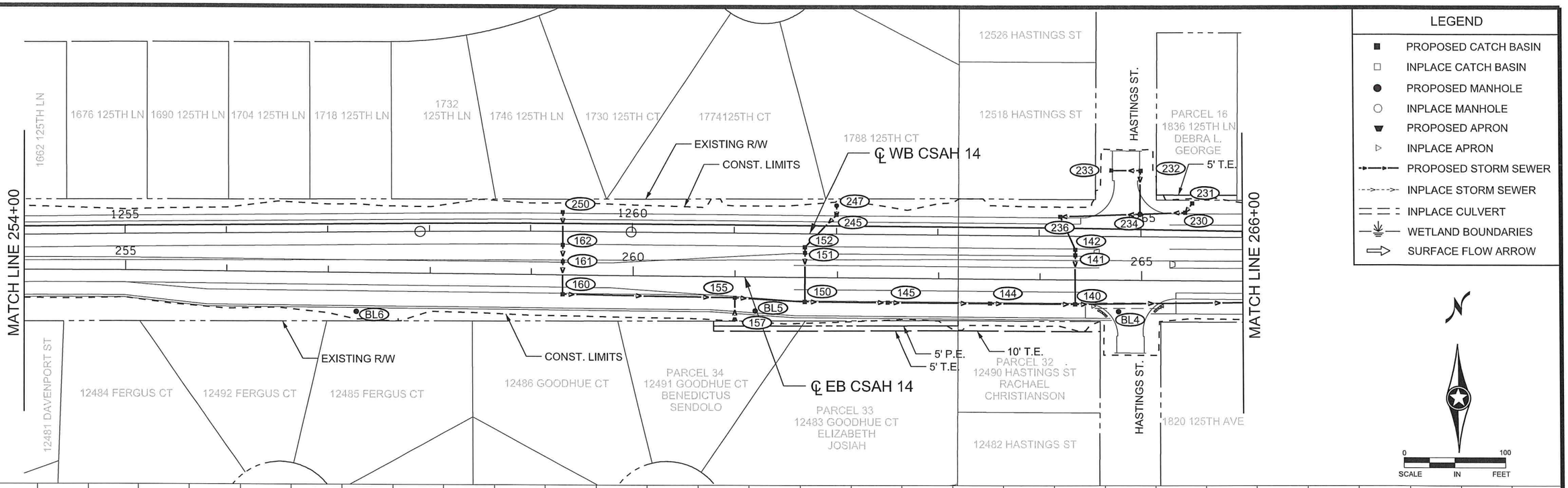
DRAINAGE PLAN

STA 245+00.00 TO 254+00.00

Sheet 93 of 200 Sheets



2 OF 3

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_DR4_P2.dgn 12/10/2019 1:08:46 PM

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

PRINT NAME: JORGE R. BERNAL DELGADO

SIGNATURE:

DATE: 12-20-19 LICENSE NO. 57216

DRAWN BY MP DATE 12/04/19

DESIGN BY MP DATE 12/04/19

CHECKED BY NJD DATE 12/04/19

ANOKA COUNTY

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SAP 106-020-036
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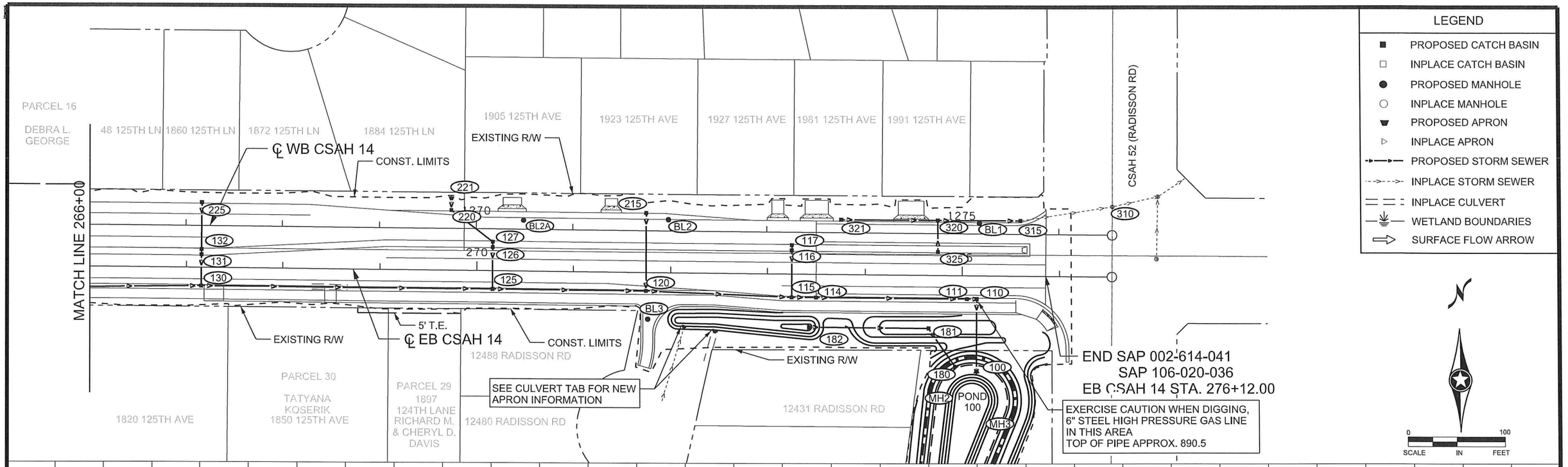
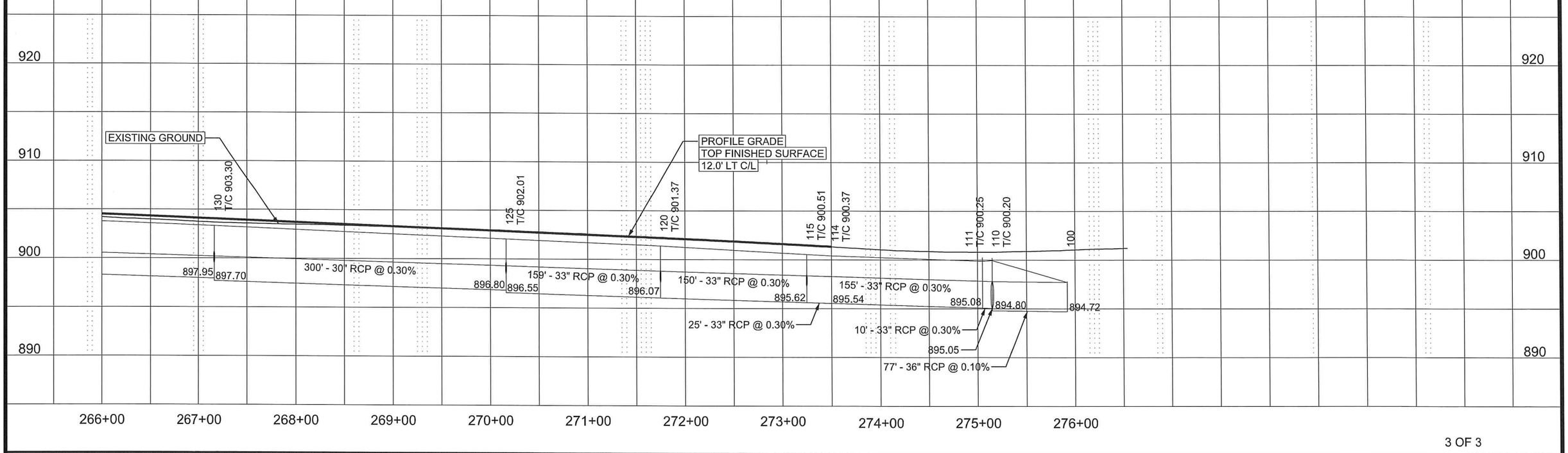
DRAINAGE PLAN

STA 254+00.00 TO 266+00.00

Sheet 94 of 200 Sheets





3 OF 3

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_DR4_P3.dgn 12/10/2019 1:08:48 PM

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

PRINT NAME: JORGE R. BERNAL DELGADO

SIGNATURE:

DATE: 12-20-19 LICENSE NO. 57216

DRAWN BY MP DATE 12/04/19

DESIGN BY MP DATE 12/04/19

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ANOKA COUNTY

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CP 18-10

DRAINAGE PLAN

STA 266+00.00 TO 275+86.05

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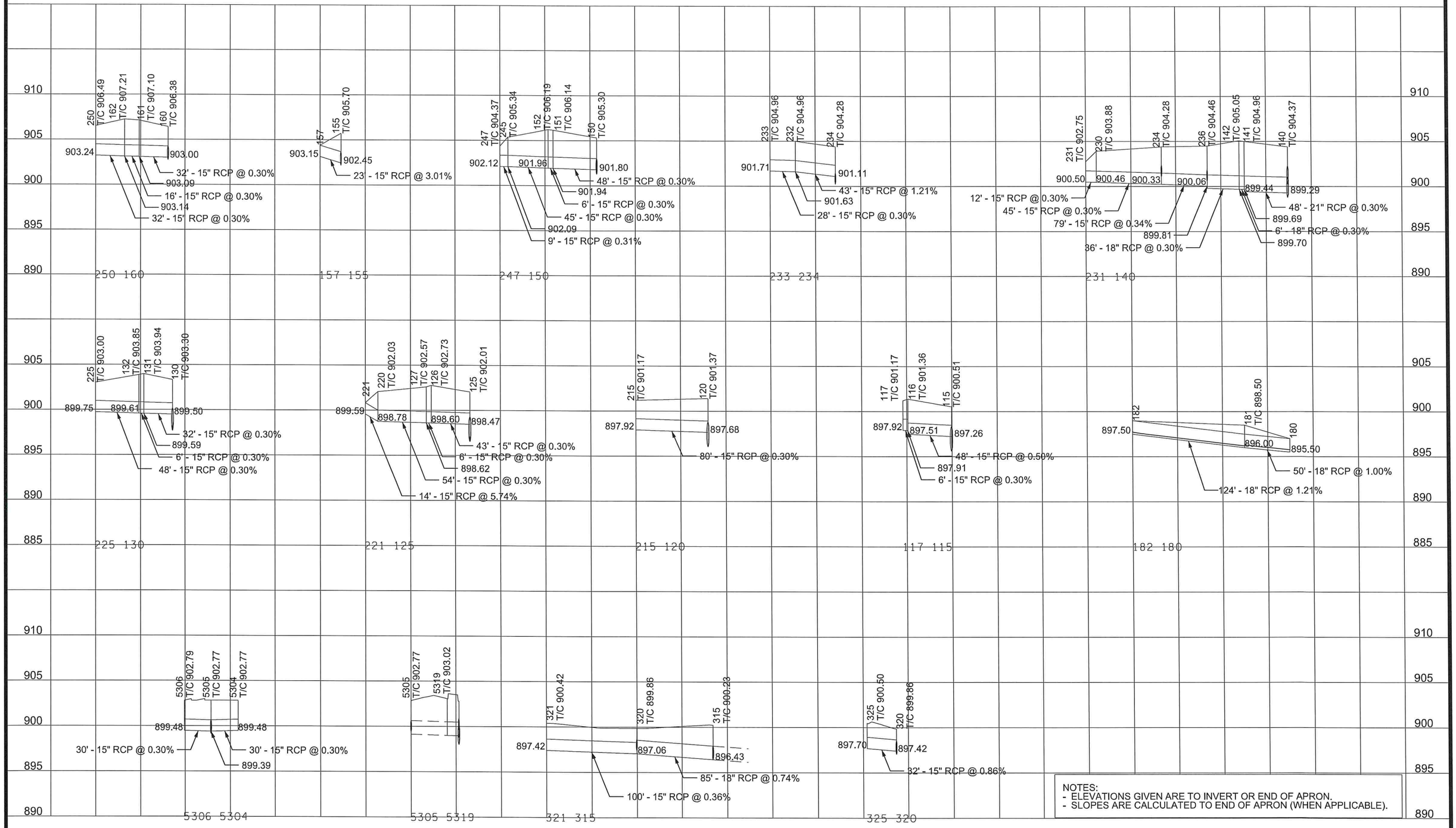

NOTES:
- ELEVATIONS GIVEN ARE TO INVERT OR END OF APRON.
- SLOPES ARE CALCULATED TO END OF APRON (WHEN APPLICABLE).

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_DR_LEADS.dgn 12/10/2019 1:08:49 PM

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

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ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
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DRAINAGE LEADS

Sheet 96 of 200 Sheets

LEGEND

POND 100 CALCULATIONS
BOTTOM = 891.50
NWL = 895.50
HWL=899.00
APPROXIMATE WATER TABLE = 895.50
ACCUMULATED RAINFALL = 2.5"
CONTRIBUTING DRAINAGE AREA = 13.09 AC.
RUNOFF COEFFICIENT WEIGHTED AVG. SCS = 66

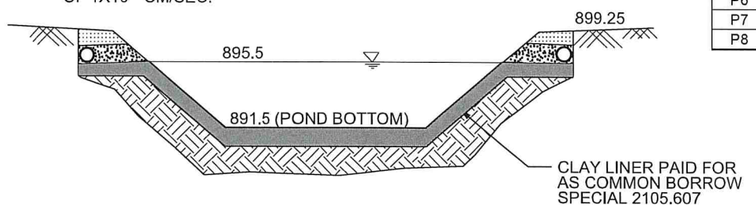
POND 100 TOTAL DEAD POOL REQUIRED = 0.541 AC.-FT.

POND 100 CUMULATIVE VOLUME AT NWL = 0.657 AC.-FT.

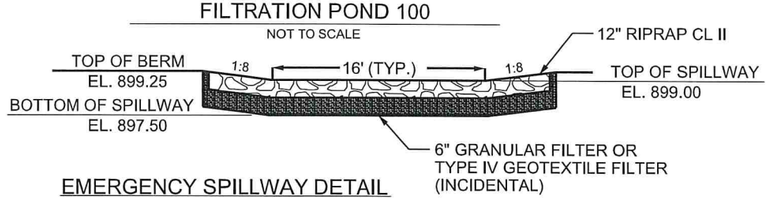
POND 100 NOTES:
POND SHALL BE LINED WITH 18 INCH CLAY (755 CU YD) TO PREVENT INFILTRATION. THIS WORK IS PAID FOR AS COMMON BORROW SPECIAL (CV).

POND OUTLETS ARE TO BE CLEANED AT THE CONCLUSION OF CONSTRUCTION.

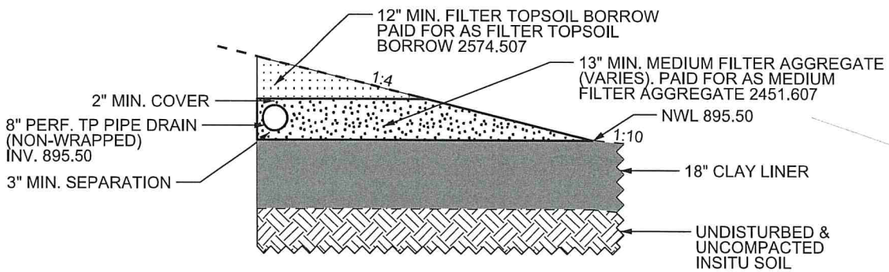
THE CLAY LINER SHALL HAVE A MAXIMUM HYDRAULIC CONDUCTIVITY OF $1X10^{-5}$ CM/SEC.



CLAY LINED
FILTRATION POND 100
NOT TO SCALE



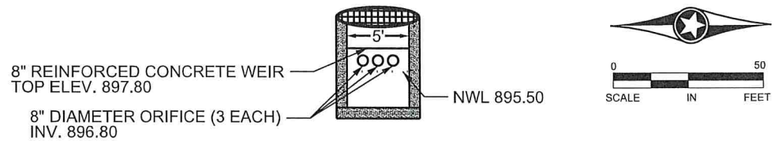
EMERGENCY SPILLWAY DETAIL

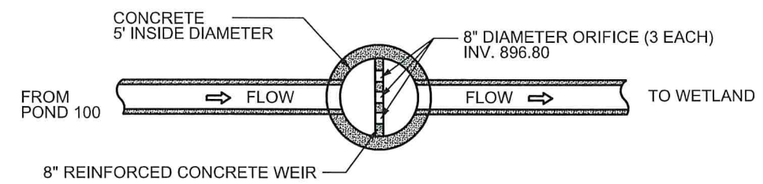


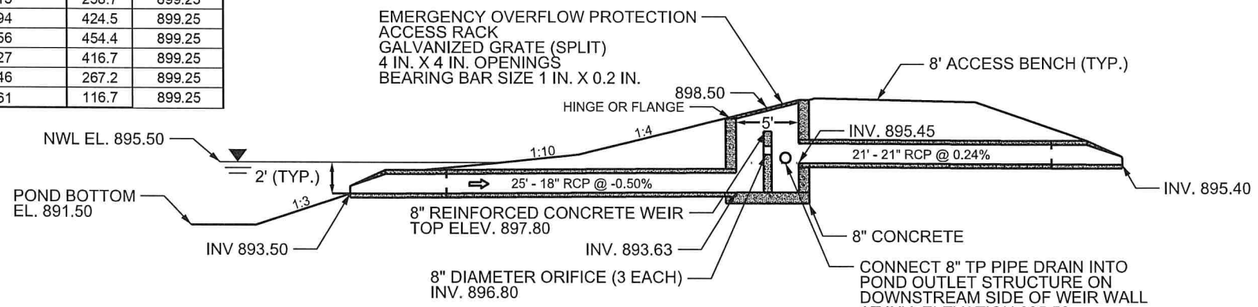
PERFORATED PIPE TRENCH DETAIL
FILTRATION POND 100
NOT TO SCALE

NOTES:
- CONTOURS ARE SHOWN TO FINISHED GRADE.
- GRANULAR CUSHION LAYER/GEOTEXTILE FILTER FOR EMERGENCY SPILLWAY IS INCIDENTAL.
- SEE MN/DOT STANDARD PLATE # 3133D FOR RIP RAP AT RCP OUTLET DETAILS.
- PLACE PERFORATED PIPE WITH PERFORATIONS DOWN.
- TP PIPE DRAIN WITHIN 4 FEET OF CONNECTION TO A MH OR OUTLET STRUCTURE SHALL BE NON-PERFORATED. DETAILS OF CONNECTION AND COUPLING TO PIPE SHALL BE APPROVED BY THE PROJECT ENGINEER. SEE SHEET 90 FOR TABULATION.

POINT	ALIGNMENT <14E_4> STATION	OFFSET LIN FT	ELEVATION
D1	272+01	48.4	900
D2	292+07	41.9	900
D3	272+47	41.3	900
D4	273+09	44.0	900
D5	273+43	43.5	900
D6	273+54	54.4	900
D7	273+43	64.4	900
D8	272+46	55.4	900
D9	272+07	54.9	900
D10	274+22	61.2	899
D11	274+15	54.2	899
D12	274+21	47.2	899
D13	275+27	46.0	899
D14	275+35	53.2	899
D15	275+27	60.5	899
P1	275+26	80.3	899.25
P2	275+57	147.8	899.25
P3	275+13	258.7	899.25
P4	274+94	424.5	899.25
P5	274+56	454.4	899.25
P6	274+27	416.7	899.25
P7	274+46	267.2	899.25
P8	274+61	116.7	899.25



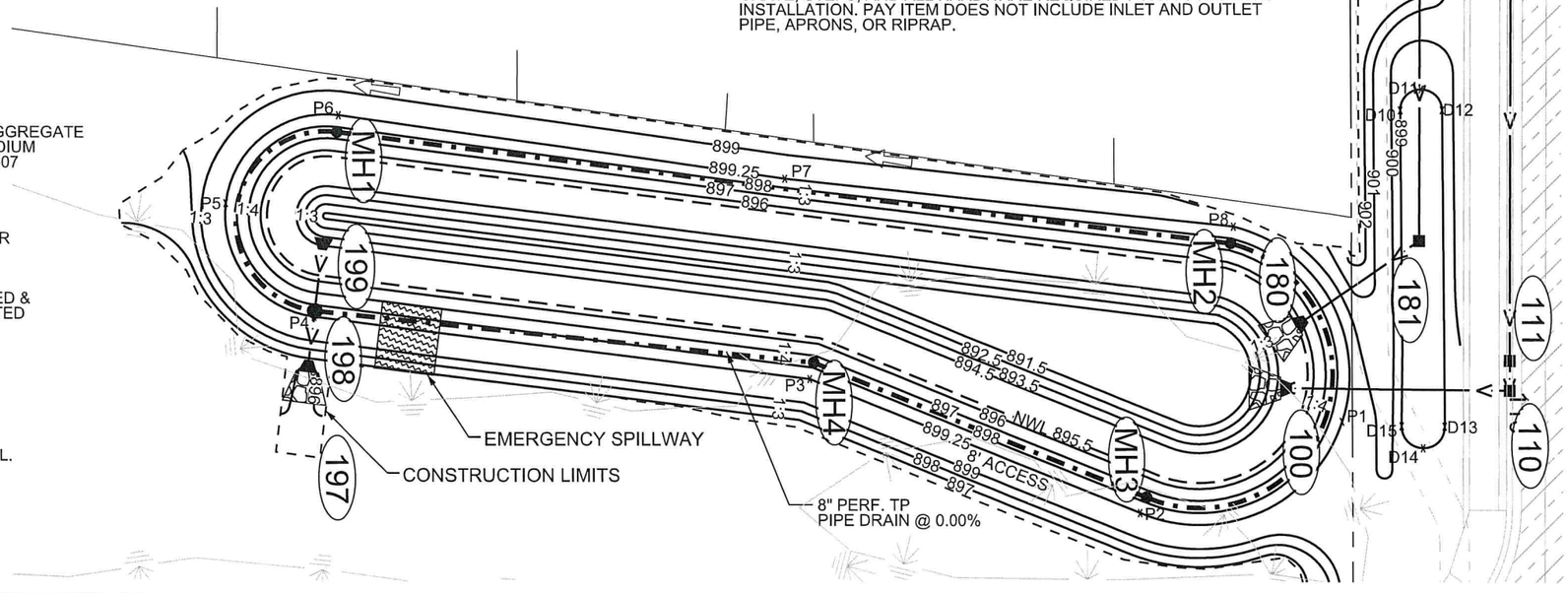




A POST CONSTRUCTION TEST ON THE FILTRATION BASIN WILL BE CONDUCTED BY FILLING THE BASIN TO A MINIMUM DEPTH OF 6 INCHES ABOVE NORMAL WATER LEVEL WITH WATER AND MONITOR THE TIME NECESSARY TO DRAIN. THE COON CREEK WATERSHED DISTRICT SHALL BE NOTIFIED PRIOR TO THE TEST TO WITNESS THE RESULTS.

POND OVERFLOW STRUCTURE #198 [1]
NOT TO SCALE

[1] PAID FOR AS CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL. PAY ITEM CONSISTS OF CONCRETE STRUCTURE AND BASE, WEIR, GRATE, STEPS, AND ALL HARDWARE REQUIRED FOR A COMPLETE INSTALLATION. PAY ITEM DOES NOT INCLUDE INLET AND OUTLET PIPE, APRONS, OR RIPRAP.



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_POND100.dgn 12/20/2019 3:55:28 PM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINT NAME: JORGE R. BERNAL DELGADO
SIGNATURE:
DATE: 12-23-19 LICENSE NO. 57216

DRAWN BY MP DATE 12/04/19
DESIGN BY JRB DATE 12/04/19
CHECKED BY NJD DATE 12/04/19

ANOKA COUNTY
HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

POND 100
GRADING AND DETAILS

Sheet 97 of 200 Sheets

PROJECT LOCATION AND GENERAL INFORMATION
THIS PROJECT IS LOCATED ON CSAH 14 BETWEEN ABERDEEN STREET AND RADISSON ROAD IN THE CITY OF BLAINE. THE PROJECT LIES IN THE COON CREEK WATERSHED DISTRICT.

THIS PROJECT ADDS CURB AND GUTTER, MEDIAN, TRAIL, AND DRAINAGE STRUCTURES TO ROADWAY. THE PROJECT WILL PRIMARILY CONSIST OF GRADING, PLACING AGGREGATE BASE, BITUMINOUS PAVING, CURB AND GUTTER, STORM SEWER CONSTRUCTION & STORM WATER PONDING.

THIS PROJECT WILL DISTURB 9.45 ACRES OF SOILS AND CREATE POTENTIAL FOR SEDIMENT DISCHARGE FROM THE SITE.

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

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

LONG TERM OPERATION AND MAINTENANCE
THE CITY OF BLAINE STREETS DEPARTMENT ARE RESPONSIBLE FOR THE LONG TERM OPERATION AND MAINTENANCE OF THE PERMANENT STORMWATER MANAGEMENT AND SNOW REMOVAL OPERATIONS ALONG THE PROPOSED TRAIL.

Dan Schluender
City of Blaine
10801 Town Square Drive NE
Blaine, MN 55449
Phone: 763-785-6158

RECEIVING SURFACE WATERS, DISCHARGE TO IMPAIRED WATERS & SPECIAL WATERS
THE FOLLOWING TABLE IDENTIFIES ALL SURFACE WATERS WITHIN 1 MILE OF THE PROJECT DISTURBED SOIL BOUNDARIES, WHICH WILL RECEIVE STORMWATER RUNOFF FROM THE CONSTRUCTION SITE, DURING OR AFTER CONSTRUCTION.

STORMWATER FROM A DISCHARGE POINT ON THE PROJECT THAT FLOWS TO A SURFACE WATER IDENTIFIED AS IMPAIRED AND/OR SPECIAL MUST INCLUDE THE FOLLOWING ADDITIONAL BMP REQUIREMENTS:
1) ALL EXPOSED SOIL AREAS MUST BE STABILIZED AS SOON AS POSSIBLE TO LIMIT SOIL EROSION, BUT IN NO CASE MORE THAN SEVEN (7) DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED.
2) TEMPORARY SEDIMENT BASINS OR PERMANENT PONDS MUST BE USED FOR COMMON DRAINAGE LOCATIONS THAT SERVE AN AREA WITH FIVE (5+) OR MORE ACRES DISTURBED AT ONE TIME.

RECEIVING SURFACE WATERS WITHIN 1 MILE OF PROJECT		
NAME OF WATER BODY	SPECIAL	IMPAIRED
COUNTY DITCH 41	NO	NO
COUNTY DITCH 59	NO	NO
COUNTY DITCH 60	NO	NO

DISTURBED SOIL AREA
TOTAL DISTURBED SOILS AREA FOR THIS PROJECT IS **9.45 ACRES**

IMPERVIOUS SOIL AREA
EXISTING AREA OF IMPERVIOUS SURFACE IS **6.46 ACRES.**

POST CONSTRUCTION AREA OF IMPERVIOUS SURFACE IS **8.27 ACRES.**

SOIL TYPES
THE PREDOMINANT SOIL TYPE FOUND ON THIS PROJECT IS SAND.

SEDIMENT CONTROL PRACTICES
TEMPORARY STOCKPILED TOPSOIL BERMS MUST INCLUDE PERIMETER BMPs AS PROVIDED IN THE PLAN AT LOCATIONS WHERE CONSTRUCTION STORMWATER DRAINS FROM THE PROJECT.

IN ORDER TO MAINTAIN SHEET FLOW AND MINIMIZE RILLS AND/OR GULLIES, THERE SHALL BE NO UNBROKEN SLOPE LENGTH GREATER THAN 75 FEET FOR SLOPES WITH A GRADE OF 1:3 OR STEEPER.

ALL STORM DRAIN INLETS MUST BE PROTECTED BY APPROPRIATE BMPs DURING CONSTRUCTION UNTIL ALL SOURCES WITH POTENTIAL DISCHARGE TO THE INLET HAVE BEEN STABILIZED.

VEHICLE TRACKING OF SEDIMENT FROM THE CONSTRUCTION SITE MUST BE MINIMIZED. STREET SWEEPING MUST BE USED IF SEDIMENT IS BEING TRACKED OFF THE CONSTRUCTION SITE.

POLLUTION PREVENTION MEASURES
THE CONTRACTOR WILL IMPLEMENT THE POLLUTION PREVENTION MANAGEMENT MEASURES AS DIRECTED IN THE NPDES PERMIT PART IV.F AS PERTAINING TO SOLID WASTE, HAZARDOUS MATERIALS EXTERNAL TRUCK WASHING, AND CONCRETE WASHOUT ONSITE.

THESE MANAGEMENT MEASURES FOR POLLUTION PREVENTION WILL BE STRICTLY ENFORCED.

CONSTRUCTION PHASING
SILT FENCE AND/OR OTHER SUITABLE PERIMETER BMPs AS PROVIDED IN THE PLANS WILL BE INSTALLED PRIOR TO THE START OF ANY LAND DISTURBING ACTIVITY. CONSTRUCTION WILL BE REQUIRED TO BE PHASED SO THAT ALL DOWN GRADIENT SEDIMENT CONTROL MEASURES ARE INSTALLED PRIOR TO OR IN CONJUNCTION WITH ANY SOIL DISTURBING ACTIVITIES.

WHEN TOPSOIL IS DISTURBED, THE TOPSOIL WILL BE STRIPPED AND STOCKPILED IN SOIL BERMS AT THE TOE OF THE STRIPPED SLOPES ALONG THE PROJECT LIMITS. TEMPORARY VEGETATION WILL BE ESTABLISHED ON THE STOCKPILED TOPSOIL BERMS WITH RAPID STABILIZATION AS PROVIDED IN THE PLAN.
STOCKPILED TOPSOIL BERMS WILL NOT BE PLACED IN ANY STORMWATER CONVEYANCES.

AFTER STRIPPING THE TOPSOIL, THE EXPOSED SOIL INSLOPES WILL BE STABILIZED WITH DISK ANCHORED TYPE 3 MULCH AND SEED WITHIN 7 DAYS OR RAPID STABILIZATION 7 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS BEEN TEMPORARILY OR PERMANENTLY CEASED.

TEMPORARY SEDIMENT BASINS
THIS ROAD CONSTRUCTION PROJECT AS DESIGNED DOES NOT MEET ANY OF THE TEMPORARY SEDIMENT BASIN DISTURBED AREA THRESHHOLD REQUIREMENTS. IF PERMANENT POND LOCATIONS ARE CONSTRUCTED PRIOR TO DISCHARGE, TEMPORARY SEDIMENT BASINS WILL NOT BE REQUIRED.

PERMANENT STORMWATER MANAGEMENT SYSTEM
ALL STORMWATER MUST BE DISCHARGED IN A MANNER THAT DOES NOT CAUSE NUISANCE CONDITIONS, EROSION IN RECEIVING WATERS OR ON DOWNSLOPE PROPERTIES, OR INUNDATION IN WETLANDS CAUSING A SIGNIFICANT ADVERSE IMPACT TO THE WETLAND.

THIS ROAD CONSTRUCTION PROJECT HAS A GREATER THAN 1 ACRE INCREASE IN IMPERVIOUS AREA.

PROJECT CONTACTS

MPCA	NPDES	LAUREL MEZNER	218-316-3889
MPCA	EMERGENCY	STATE DUTY OFFICER	800-422-0798
DNR	NOT REQUIRED		
COE	NOT REQUIRED		
ANOKA COUNTY DESIGN SWPPP PREPARATION	U OF MN DESIGN OF SWPPP EXPIRES 5/22	MICHELLE PRITCHARD	763-324-3162
ANOKA COUNTY PROJECT REPRESENTATIVE	U OF MN SITE MANAGEMENT EXPIRES 5/20	HARRY GRAMS	763-238-8966
EROSION CONTROL SUPERVISOR (CONTRACTOR)			

EROSION PREVENTION PRACTICES
ALL EXPOSED SOIL AREAS MUST BE STABILIZED AS SOON AS POSSIBLE TO LIMIT SOIL EROSION, BUT IN NO CASE MORE THAN 7 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED. FOR ALL AREAS WHERE DISTURBED SOILS DRAIN TO AN IMPAIRED OR SPECIAL WATER, THE EXPOSED SOIL MUST BE STABILIZED NO LATER THAN 7 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT AREA HAS CEASED. SEE THE IMPAIRED & SPECIAL WATERS SECTION SPECIAL OR IMPAIRED WATER.

THE NORMAL WETTED PERIMETER OF ANY TEMPORARY OR PERMANENT DRAINAGE DITCH OR SWALE THAT DRAINS WATER FROM ANY PORTION OF THE CONSTRUCTION SITE, OR DIVERTS WATER AROUND THE SITE, MUST BE STABILIZED WITHIN 200 LINEAL FEET FROM THE POINT OF DISCHARGE INTO ANY SURFACE WATER. STABILIZATION OF THE LAST 200 FEET MUST BE COMPLETED WITHIN 24 HOURS AFTER CONNECTING TO A SURFACE WATER.

PIPE CULVERT OUTLETS MUST BE PROVIDED WITH TEMPORARY OR PERMANENT ENERGY DISSIPATION WITHIN 24 HOURS AFTER CONNECTION TO A SURFACE WATER. THIS WILL INCLUDE DRAINAGE DITCHES THAT DRAIN WATER FROM ANY PORTION OF THE CONSTRUCTION SITE.

LOCATION OF SWPPP REQUIREMENTS

REQUIREMENT	PLAN		MN/DOT SPECIFICATION	SPECIAL PROVISION
	TITLE	LOCATION		
NPDES PERMIT COMPLIANCE			1701, 1702, &1717	1717 (AIR, LAND & WATER) 1717 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT)
CERTIFIED PERSONNEL IN EROSION AND SEDIMENT CONTROL SITE MANAGEMENT			1506, 1717, & 2573	1717 (AIR, LAND & WATER) 1717 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT)
CHAIN OF RESPONSIBILITY	AGENCY CONTACTS		1506, 1717, & 2573	
PROJECT SCHEDULE / WEEKLY EROSION & SEDIMENT CONTROL SCHEDULE / COMPLETING INSPECTION / MAINTENANCE LOG	AGENCY CONTACTS		1717 & 2573	1717 (AIR, LAND & WATER) 1717 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT)
SWPPP PREPARATION	AGENCY CONTACTS			
SITE MAP / RECEIVING WATERS / DIRECTION OF FLOW	EROSION CONTROL PLAN		1717	
PROJECT SPECIFIC CONSTRUCTION STAGING	STAGING PLANS		1717	1717 (AIR, LAND & WATER) 1717 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT) 1806 (DETERMINATION AND EXTENSION OF CONTRACT TIME)
TEMPORARY EROSION AND SEDIMENT CONTROL BMP LOCATIONS, INSTALLATION, TIMING OF INSTALLATION AND TYPE OF BMP	EROSION CONTROL PLAN, TABULATION CHARTS		2573 & 2525	2575 (RAPID STABILIZATION SPECIFICATION)
ADDITIONAL TEMPORARY AND/OR PERMANENT EROSION AND SEDIMENT CONTROL BMPs NOT PROVIDED OR SHOWN IN THE PLAN	SWPPP NARRATIVE		1717, 2573, & 2575	1717 (AIR, LAND & WATER) 1717 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT) 2575 (RAPID STABILIZATION SPECIFICATION)
MAINTENANCE OF EROSION AND SEDIMENT CONTROL DEVICES, REMOVAL OF TRACKED SEDIMENT, REMOVAL OF DEVICES			1717 & 2573	1514 (MAINTENANCE DURING CONSTRUCTION) 1717 (LAND AIR & WATER) 1717 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT)
DEWATERING			2105.3B, & 2451.3C	DEWATERING MAY ALSO REQUIRE DNR PERMIT. NO DEWATERING IS ANTICIPATED FOR THIS PROJECT
FINAL STABILIZATION	TURF ESTABLISHMENT PLAN, TABULATION CHARTS		1717, 2573, & 2575	1717 (AIR, LAND & WATER) 1717 (NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT)
TEMPORARY EROSION AND SEDIMENT CONTROL DETAILS	EROSION CONTROL DETAILS		2575	2575 (RAPID STABILIZATION SPECIFICATION)
PERMANENT EROSION CONTROL DETAILS	EROSION CONTROL DETAILS		2575	2575 (CONTROLLING EROSION AND ESTABLISHING VEGETATION)

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_SWPPP.dgn 12/10/2019 1:08:56 PM

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINT NAME: JORGE R. BERNAL DELGADO
SIGNATURE:
DATE: 12-20-19 LICENSE NO. 57216

DRAWN BY MP DATE 12/04/19
DESIGN BY JRB DATE 12/04/19
CHECKED BY NJD DATE 12/04/19

ANOKA COUNTY
HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

SWPPP NARRATIVE

Sheet 98 of 200 Sheets

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

Training

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

Name of on-site personnel trained	
Dates of training	
Name of instructor(s)	
Entity providing training	
Content of training course or workshop	

Amending the SWPPP

The SWPPP must be amended to record changes or modifications to permanent BMPs or other storm water treatment systems and removals of temporary BMPs. Changes to temporary BMPs may be recorded on this sheet. Include a brief description of the problem, location, nature of alteration, and comments. This record is to be retained for three years after project completion.

Date Reported	Plan Location (sheet)	Project Location (station)	Problem, solution, and notes

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_SWPPP.dgn 12/10/2019 1:09:09 PM

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PRINT NAME: JORGE R. BERNAL DELGADO

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ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
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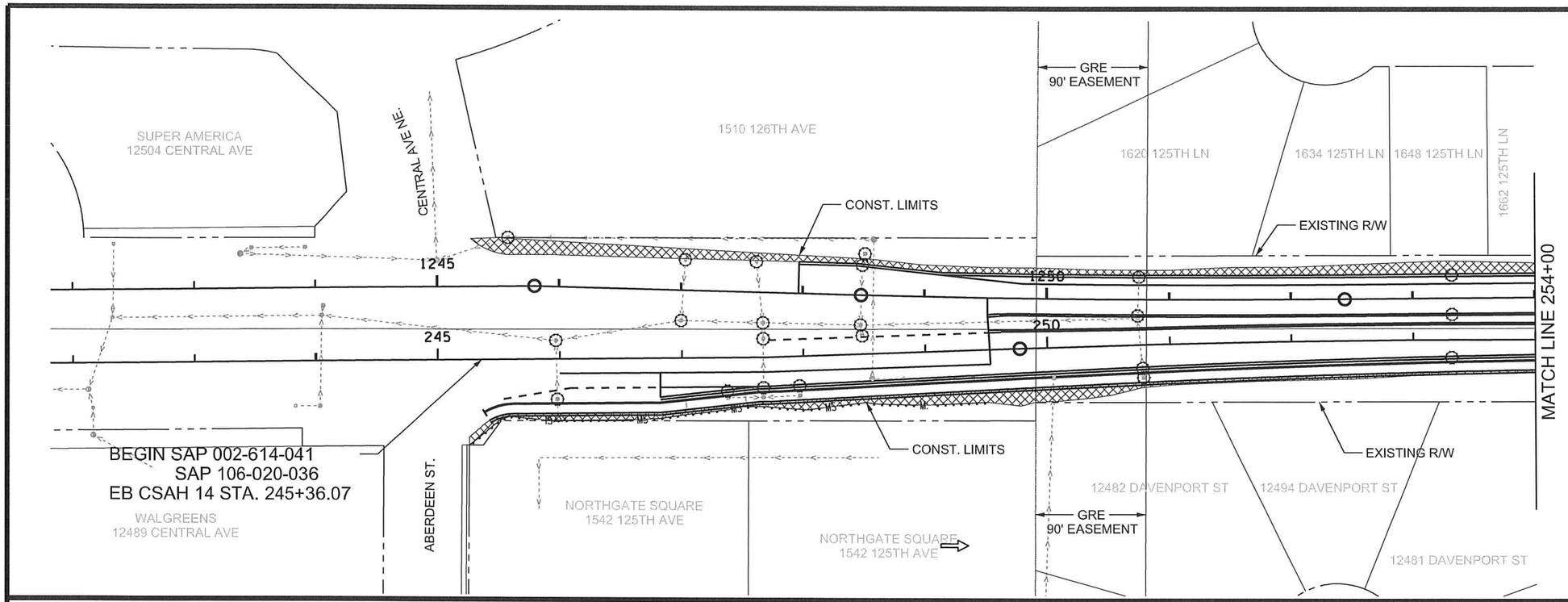
CP 18-10

SWPPP NARRATIVE



LEGEND

- PROPOSED CATCH BASIN
- INPLACE CATCH BASIN
- PROPOSED MANHOLE
- INPLACE MANHOLE
- PROPOSED APRON
- INPLACE APRON
- PROPOSED STORM SEWER
- INPLACE STORM SEWER
- INPLACE CULVERT
- MS — SILT FENCE, TYPE MACHINE SLICED
- RIPRAP (CLASS II UNLESS OTHERWISE NOTED)
- Ⓢ SOD APRON INLET OR OUTLET
- CULVERT END TREATMENT
- STORM DRAIN INLET PROTECTION
- WETLAND BOUNDARIES
- SURFACE FLOW ARROW
- SEEDING MIX 25-121 FERT. TYPE 3 (22-5-10) EROSION CONTROL BLANKET TYPE 0
- SEEDING MIX 25-151 FERT. TYPE 3 (22-5-10) EROSION CONTROL BLANKET TYPE 0
- SEEDING MIX 33-261 FERT. TYPE 4 (17-10-7) EROSION CONTROL BLANKET TYPE 0
- SEEDING MIX 35-241 FERT. TYPE 4 (17-10-7) EROSION CONTROL BLANKET TYPE 0

NOTES

1. THE CONTRACTOR SHALL CONSTRUCT WASHED GRAVEL ENTRANCES AT POINTS OF EXIT FROM THE WORK AREA ONTO EXISTING BITUMINOUS PAVEMENT AS DIRECTED BY THE ENGINEER.
2. SILT FENCE SHALL FOLLOW A SINGLE CONTOUR AS CLOSELY AS POSSIBLE .
3. SILT FENCE SHALL BE CLEANED OUT OR REPLACED WHEN SEDIMENT REACHES 8" OR $\frac{1}{3}$ OF SILT FENCE HEIGHT.
4. WHEN SEDIMENT DEPOSITS IN A WATER OF THE STATE, THE MATERIAL MUST BE REMOVED WITHIN 7 DAYS.
5. IF SILT DEPOSITS IN THE ANOKA COUNTY RIGHT-OF-WAY, THE CONTRACTOR IS RESPONSIBLE FOR ITS REMOVAL.
6. STABILIZE VEGETATION AND SOIL STOCKPILES WITHIN 7 DAYS OF ROUGH GRADING OR INACTIVITY. ADDITIONAL TEMPORARY AND PERMANENT EROSION CONTROL AS DIRECTED BY ENGINEER.

NO	DATE	BY	CKD	APPR	REVISION
NAME: P:\002-614-041\Plan\002-614-041_EC4_P1.dgn					12/10/2019 1:09:16 PM

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

PRINT NAME: JORGE R. BERNAL DELGADO

SIGNATURE:

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DESIGN BY JRB DATE 12/04/19

CHECKED BY NJD DATE 12/04/19

ANOKA COUNTY

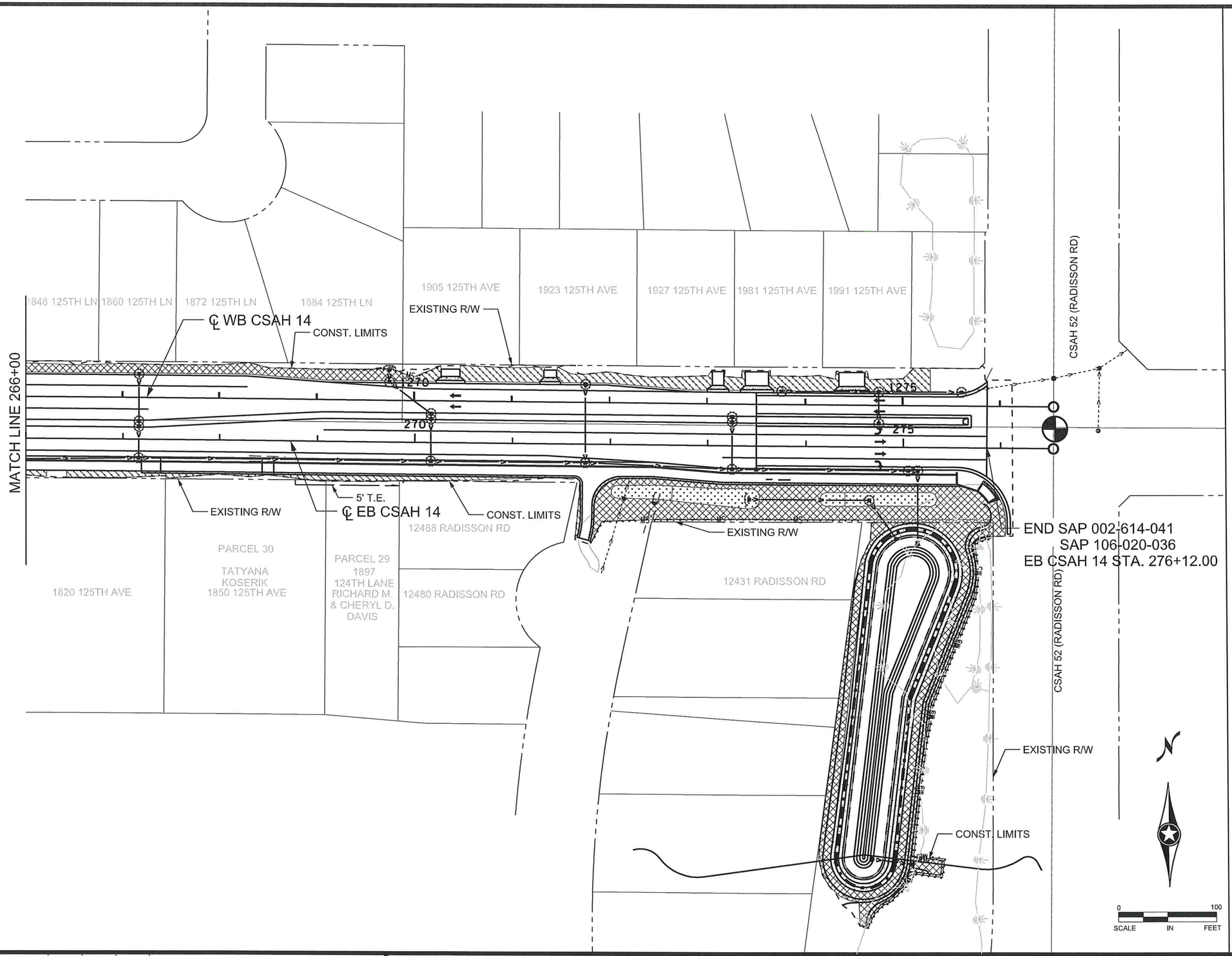
ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

EROSION CONTROL PLAN

STA 245+36.07 TO 266+00.00

Sheet 100 of 200 Sheets



LEGEND

- PROPOSED CATCH BASIN
- INPLACE CATCH BASIN
- PROPOSED MANHOLE
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- PROPOSED STORM SEWER
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NOTES

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6. STABILIZE VEGETATION AND SOIL STOCKPILES WITHIN 7 DAYS OF ROUGH GRADING OR INACTIVITY. ADDITIONAL TEMPORARY AND PERMANENT EROSION CONTROL AS DIRECTED BY ENGINEER.

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_EC4_P2.dgn 12/18/2019 8:47:36 AM

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

PRINT NAME: JORGE R. BERNAL DELGADO

SIGNATURE:

DATE: 12-26-19 LICENSE NO. 57216

DRAWN BY MP DATE 12/04/19

DESIGN BY JRB DATE 12/04/19

CHECKED BY NJD DATE 12/04/19

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

EROSION CONTROL PLAN

STA 266+00.00 TO 276+86.05

Sheet 101 of 200 Sheets

STAGE 1A TRAFFIC CONTROL NOTES: (TYP.)

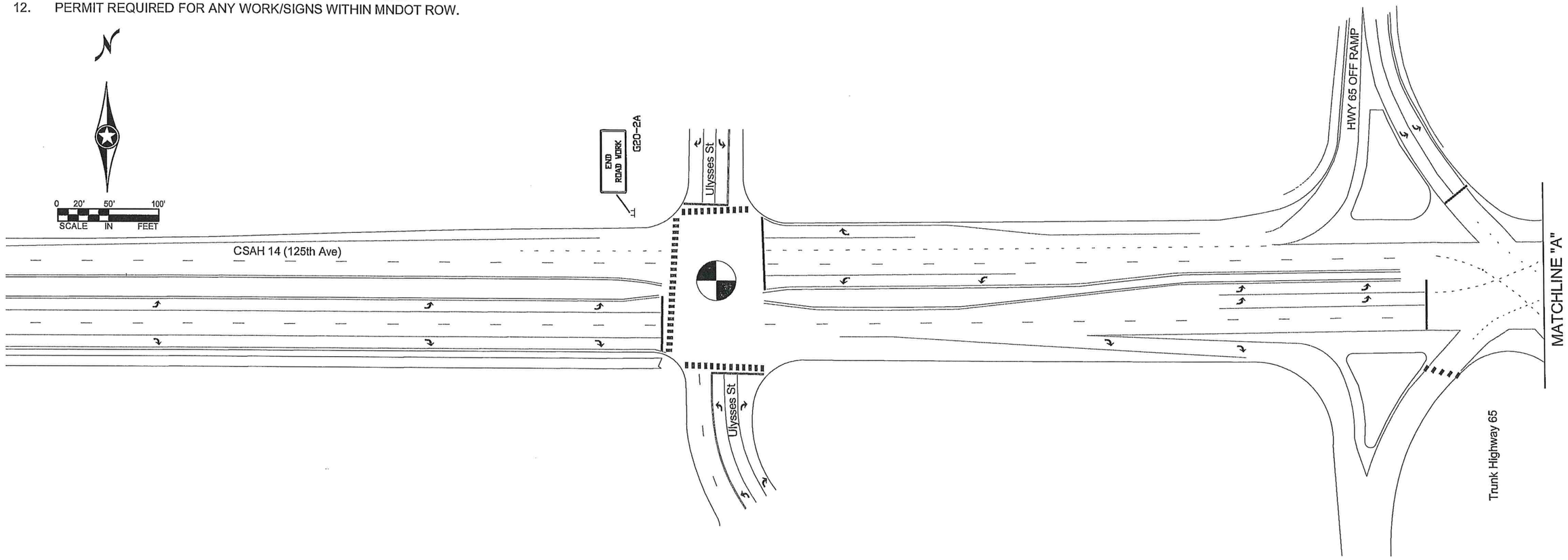
1. THE CONTRACTOR SHALL SUPPLY AND INSTALL THE PORTABLE CHANGEABLE MESSAGE SIGNS (CMS) A MINIMUM OF TEN DAYS PRIOR TO ACTUAL COMMENCEMENT OF ROAD WORK, TO A LOCATION AS SPECIFIED BY THE ENGINEER. SIGNS TO BE REMOVED WHEN ROAD WORK BEGINS. PAYMENT SHALL BE MADE AS PER ITEM 2563.613 PORTABLE CHANGEABLE MESSAGE SIGN BY THE UNIT/DAY.
2. SIGNAL SYSTEMS REMAIN IN FULL OPERATION ON CSAH 14 AT ABERDEEN ST AND CSAH 14 AT CSAH 52.
3. TEMPORARY TRAFFIC BARRIER SHALL BE PLACED. ATTENUATORS ON EACH LEADING END & UPSTREAM END OF BARRIER. WHITE TRPMs SHALL BE PLACED ON THE BARRIER SPACED EVERY 12'6". JERSEY BARRIER SHALL BE PLACED IN ACCORDANCE WITH THE MOST RECENT EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
4. IF A 2' MINIMUM BETWEEN BARRIER AND EDGELINE CANNOT BE MET, BARRIER MUST BE ANCHORED 6" MINIMUM.
5. REMOVE ALL CONFLICTING PAVEMENT MARKINGS WITHIN THE CONSTRUCTION LIMITS. BLACK REMOVABLE PREFORMED PLASTIC MARKING TAPE SHALL BE USED ON ALL CONFLICTING PAVEMENT MARKINGS OUTSIDE OF THE CONSTRUCTION LIMITS AND AS INDICATED ON THE PLAN SHEETS.
6. ADD TRPMs SPACED EVERY 10 FEET IN TAPER/TRANSITION AREAS.
7. SIGN COVERS SHALL BE A RIGID PANEL, NO PLASTIC, BURLAP, ROPE, ETC.
8. ALL SIGNS SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
9. ACCESS SHALL BE MAINTAINED TO ALL STREETS AND DRIVEWAY ACCESS LOCATIONS IN THE CONSTRUCTION AREA WITH THE EXCEPTION OF STREET CLOSURES.
10. FOR RELOCATING TRAFFIC SIGNS DURING CONSTRUCTION, AS DIRECTED BY THE ENGINEER, RELOCATION INCIDENTAL TO TRAFFIC CONTROL.
11. ALL TEMPORARY TRAFFIC CONTROL SETUPS SHALL BE IN ACCORDANCE WITH THE MOST RECENT EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS - FIELD MANUAL OF THE SAME MANUAL.
12. PERMIT REQUIRED FOR ANY WORK/SIGNS WITHIN MNDOT ROW.

STAGE 1A CONSTRUCTION NOTES: (TYP.)

1. PLACE TEMPORARY TRAFFIC BARRIER AT DESIGNATED LOCATIONS AND AS DIRECTED BY ENGINEER.
2. REMOVE BITUMINOUS TRAIL AS MARKED BY ENGINEER.
3. INSTALL STORM SEWER PIPE AND CATCHBASINS ON THE SOUTH SIDE OF CSAH 14, PLATE AND COVER STRUCTURES FOR LATER STAGE INSTALLATIONS.
4. GRADE INFILTRATION DITCH AND POND.
5. AFTER GRADING WORK IS COMPLETED, PLACE SILT FENCE AROUND POND/DITCH AND KEEP EQUIPMENT OUTSIDE OF DITCH/PONDS TO PREVENT COMPACTION AND REDUCTION OF INFILTRATION RATES.
6. POUR CURB AND GUTTER ON THE NORTH AND SOUTH SIDE OF CSAH 14.
7. AFTER STORM SEWER INSTALLATION BRING TRAIL UP TO GRADING GRADE.
8. MAINTAIN ACCESS TO PROPERTIES AT ALL TIMES.

STAGE 1A TRAFFIC NOTES: (TYP.)

1. WORK SHALL NOT BE PERFORMED ON BOTH SIDES OF THE ROAD CONCURRENTLY.
2. WORK MAY BE PERFORMED UNDER FLASHING RED SIGNAL OPERATION FROM 9:00 AM TO 3:30 PM ONLY WITH PRIOR APPROVAL FROM ENGINEER.



1 OF 6

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Base\TRAFFIC\STG 1A.dwg

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINT NAME: JOSEPH J. MACPHERSON, P.E.
SIGNATURE:
DATE: 12-2-19 LICENSE NO. 46732

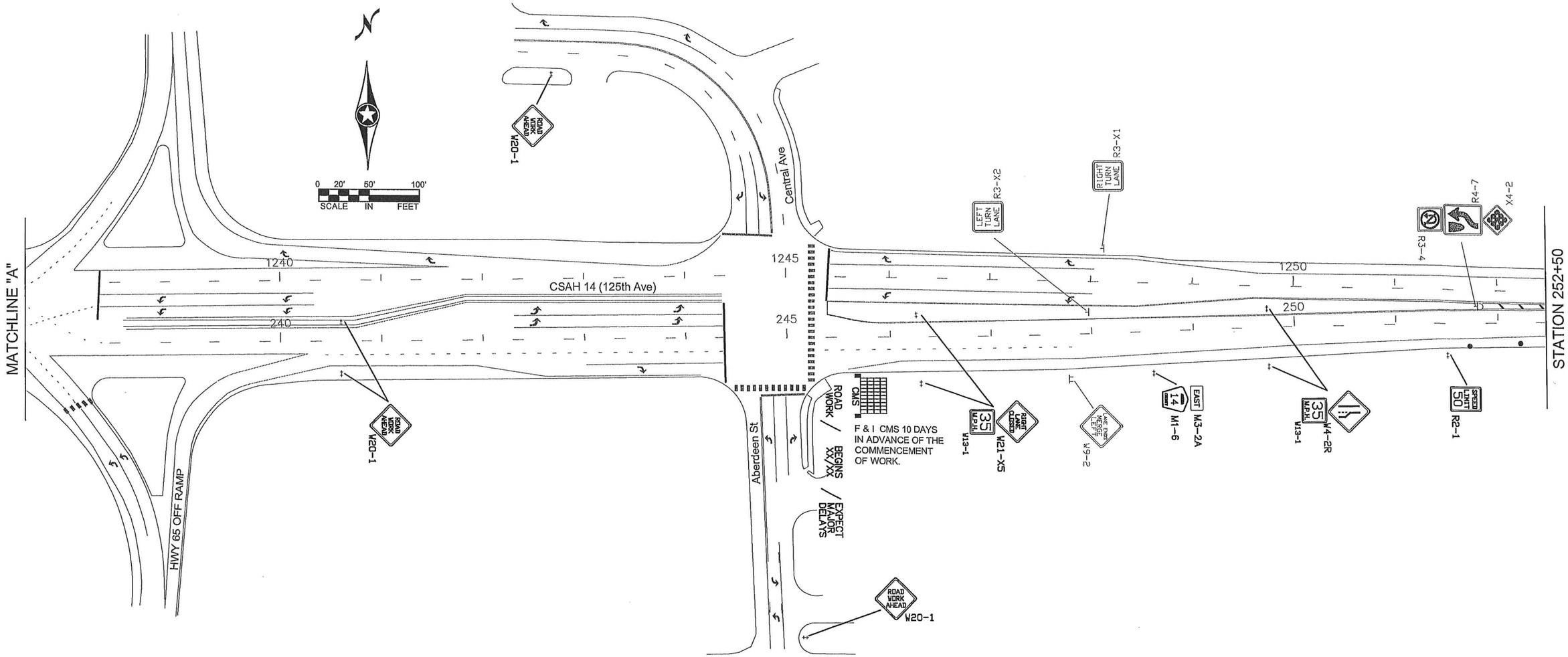
DRAWN BY FL DATE 10/21/19
DESIGN BY FL DATE 10/21/19
CHECKED BY JR DATE 10/25/19

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

TRAFFIC CONTROL STAGE 1A

Sheet 102 of 200 Sheets



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ANOKA COUNTY
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CP 18-10

TRAFFIC CONTROL
STAGE 1A

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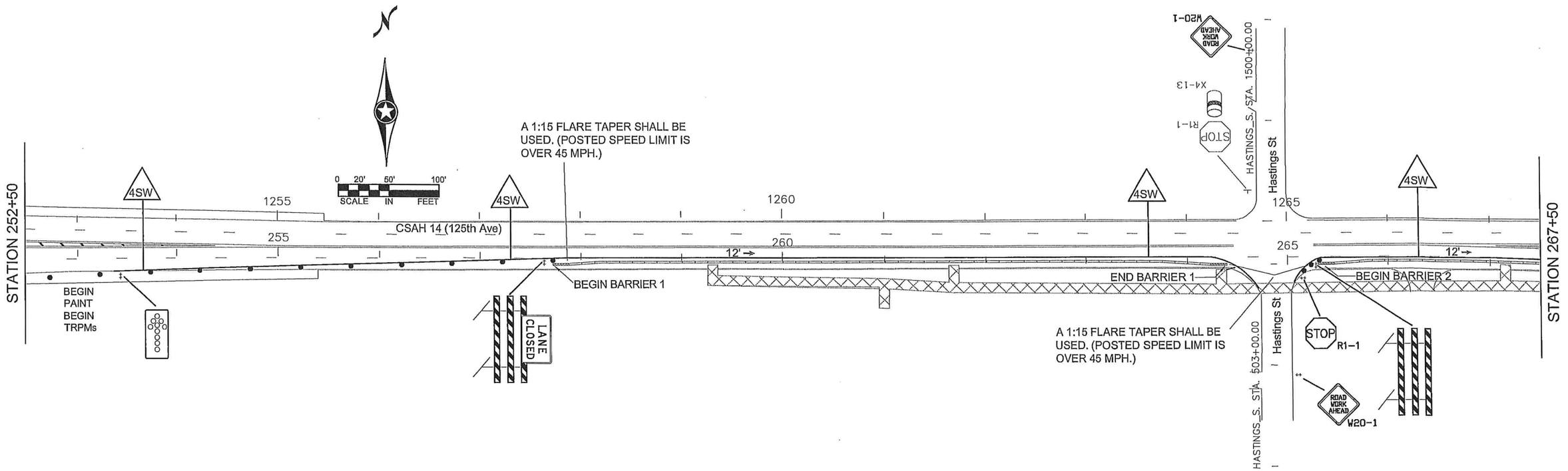
STRIPING KEY:

CIRCLE - MULTI COMP

SQUARE - POLY PREFORM

TRIANGLE - PAINT

PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING



3 OF 6

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TRAFFIC CONTROL
STAGE 1A

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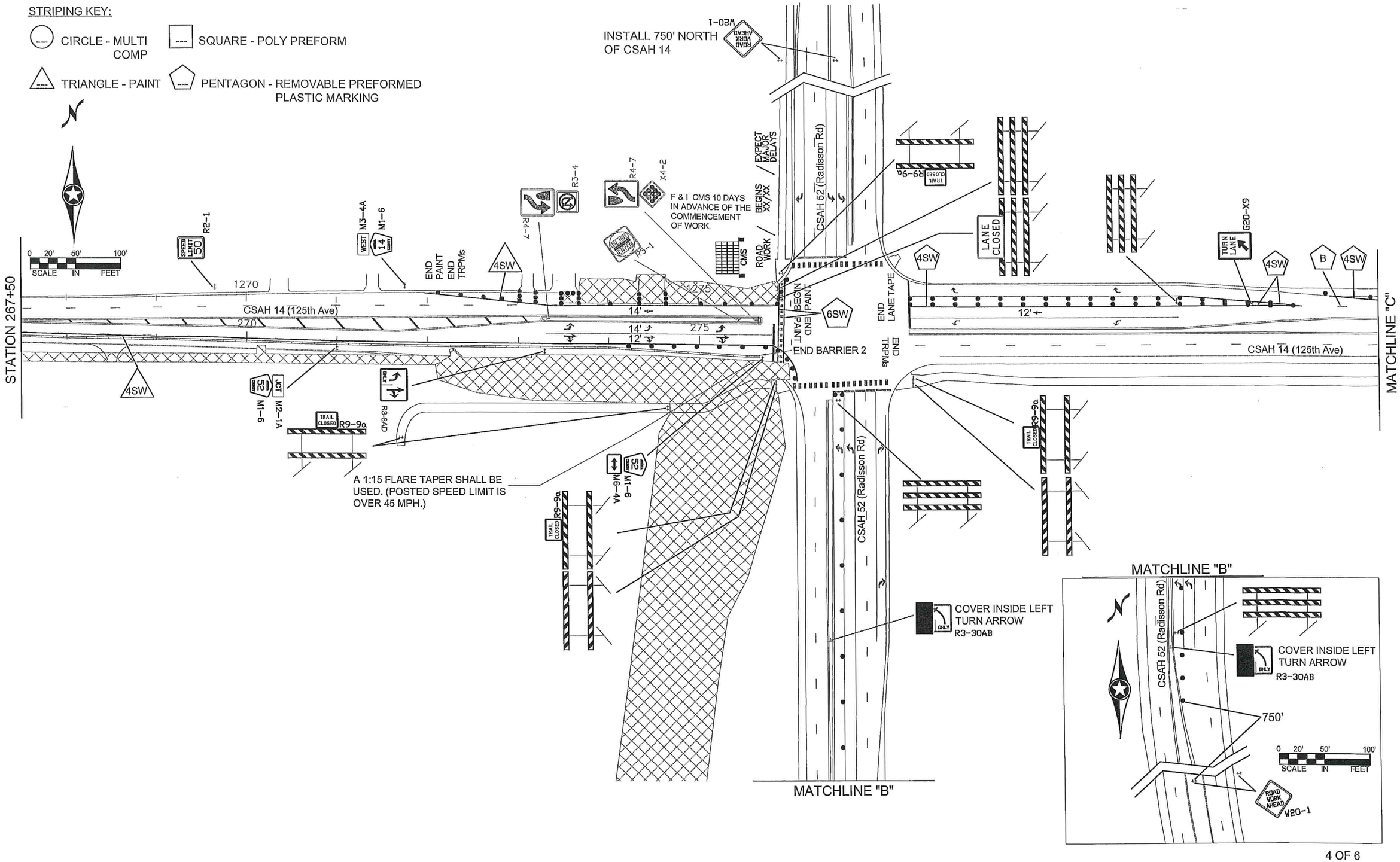

4 OF 6

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TRAFFIC CONTROL STAGE 1A

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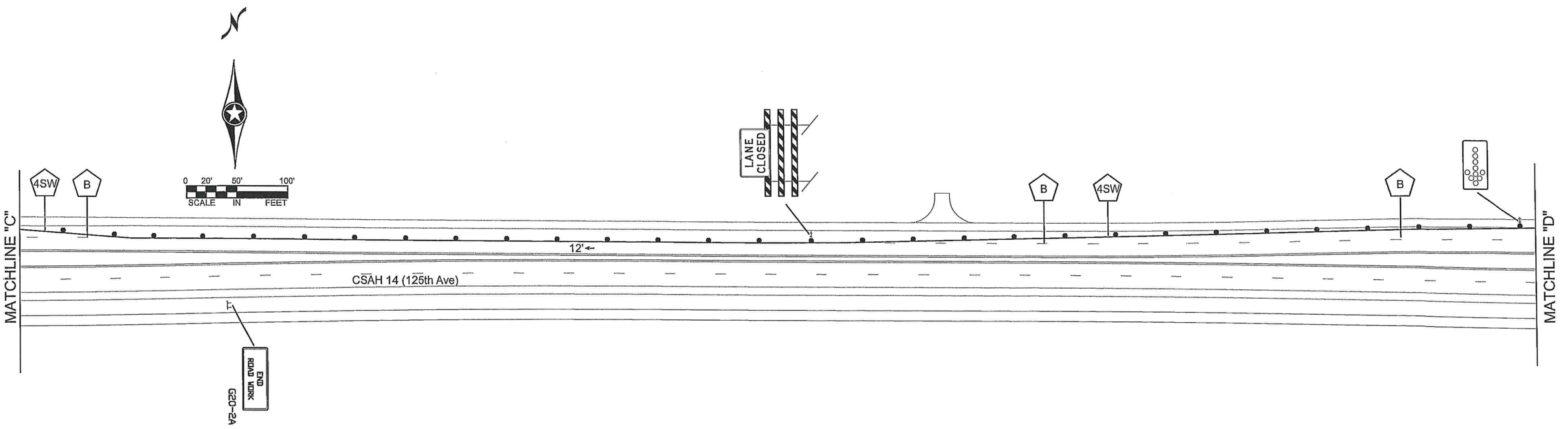

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TRAFFIC CONTROL
STAGE 1A

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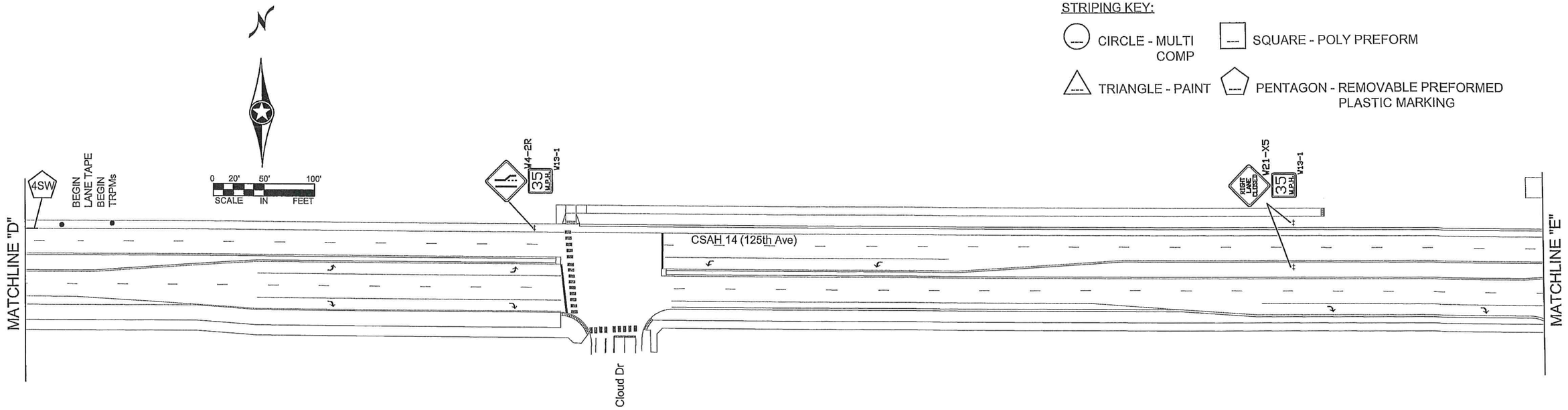

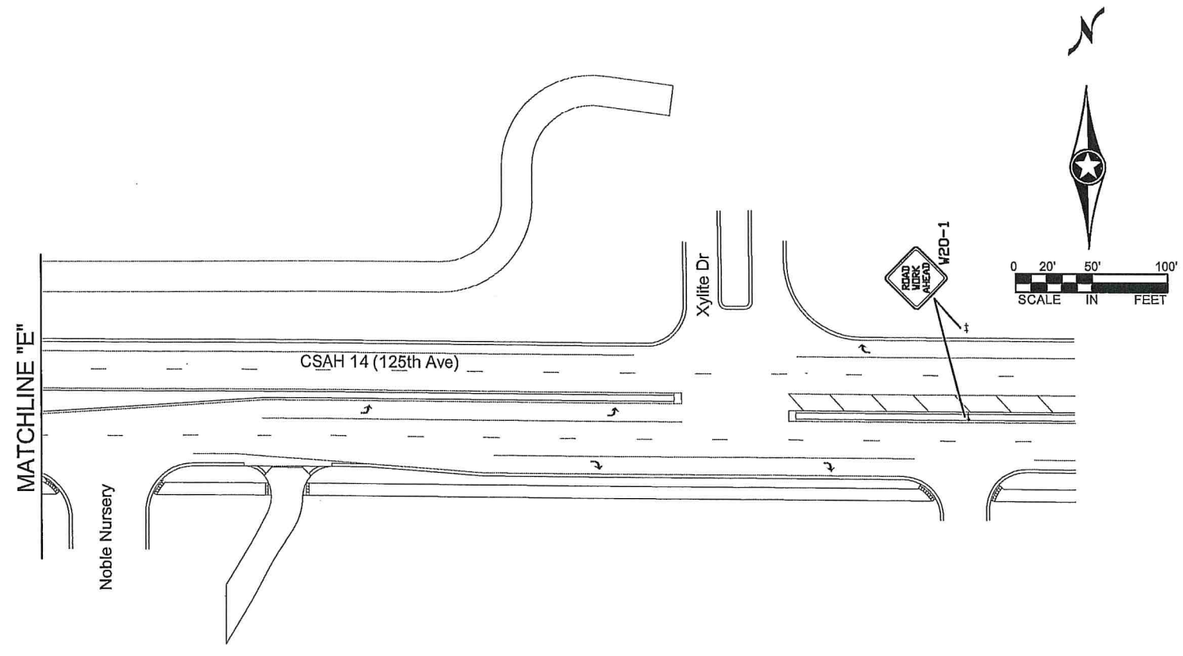

6 OF 6

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ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
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CP 18-10

TRAFFIC CONTROL
STAGE 1A

Sheet 107 of 200 Sheets

STAGE 1B TRAFFIC CONTROL NOTES: (TYP.)

1. SIGNAL SYSTEMS REMAIN IN FULL OPERATION ON CSAH 14 AT ABERDEEN ST AND CSAH 14 AT CSAH 52.
2. REMOVE ALL CONFLICTING PAVEMENT MARKINGS WITHIN THE CONSTRUCTION LIMITS. BLACK REMOVABLE PREFORMED PLASTIC MARKING TAPE SHALL BE USED ON ALL CONFLICTING PAVEMENT MARKINGS OUTSIDE OF THE CONSTRUCTION LIMITS AND AS INDICATED ON THE PLAN SHEETS.
3. ADD TRPMs SPACED EVERY 10 FEET IN TAPER/TRANSITION AREAS.
4. SIGN COVERS SHALL BE A RIGID PANEL, NO PLASTIC, BURLAP, ROPE, ETC.
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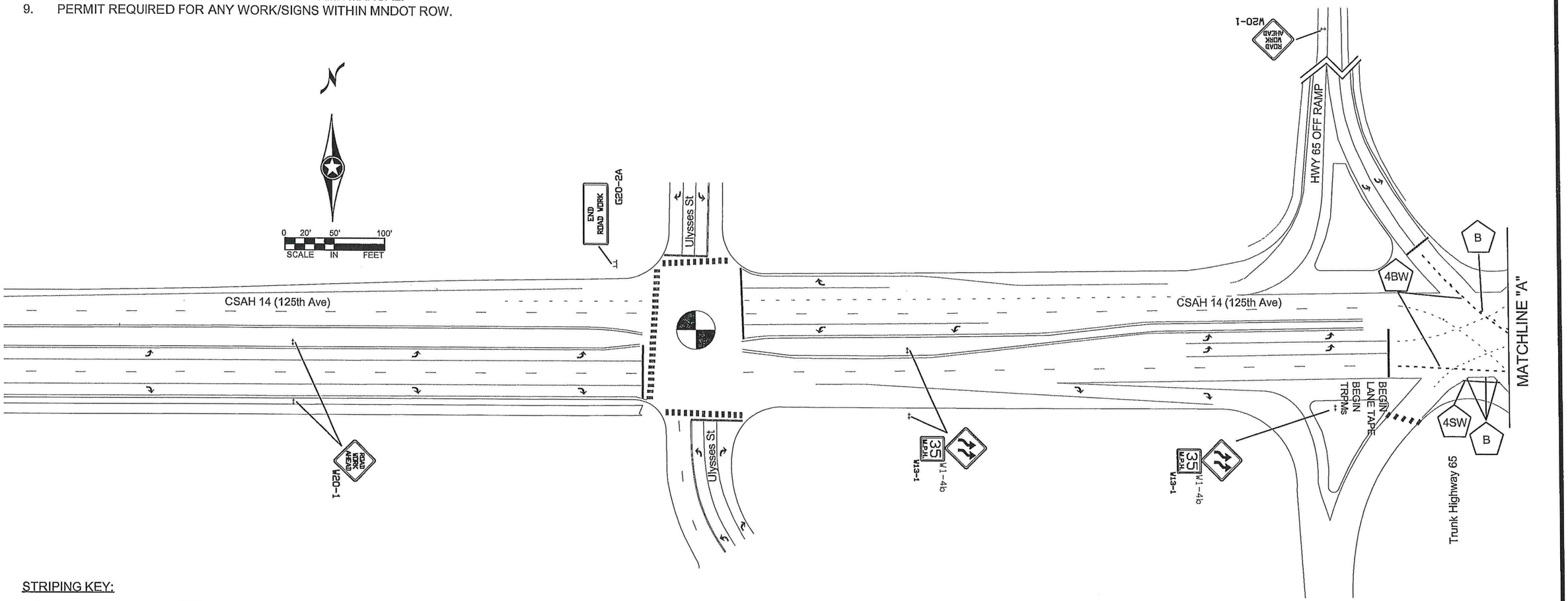
7. FOR RELOCATING TRAFFIC SIGNS DURING CONSTRUCTION, AS DIRECTED BY THE ENGINEER, RELOCATION INCIDENTAL TO TRAFFIC CONTROL.
8. ALL TEMPORARY TRAFFIC CONTROL SETUPS SHALL BE IN ACCORDANCE WITH THE MOST RECENT EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS - FIELD MANUAL OF THE SAME MANUAL.
9. PERMIT REQUIRED FOR ANY WORK/SIGNS WITHIN MNDOT ROW.

STAGE 1B CONSTRUCTION NOTES: (TYP.)

1. CONCRETE MEDIAN REMOVAL IN PREPARATION OF STAGE 2 TRAFFIC CONFIGURATION.
2. MAINTAIN 1 FULL 12' LANE OF TRAFFIC IN EACH DIRECTION.



STRIPING KEY:

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TRAFFIC CONTROL STAGE 1B

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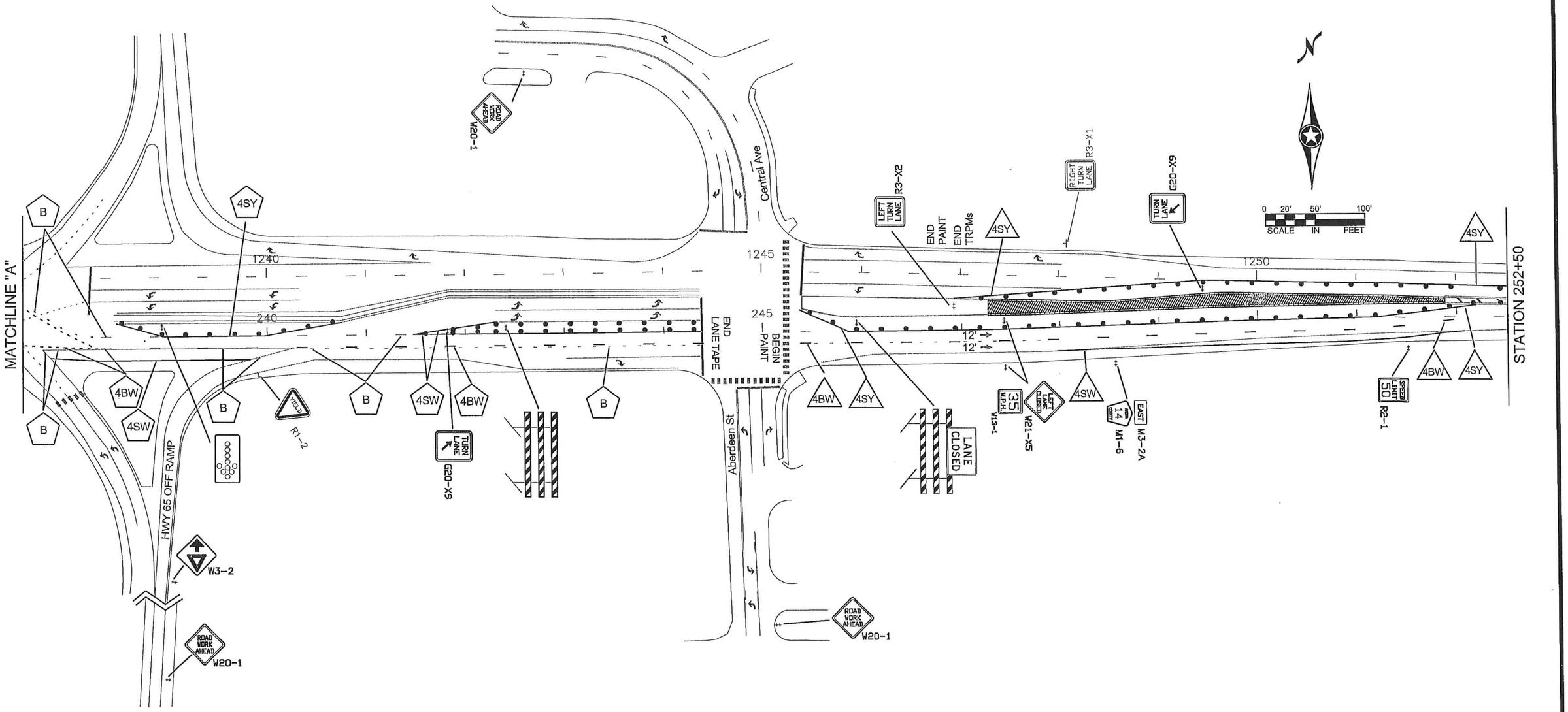

2 OF 6

NO	DATE	BY	CKD	APPR	REVISION

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TRAFFIC CONTROL
STAGE 1B

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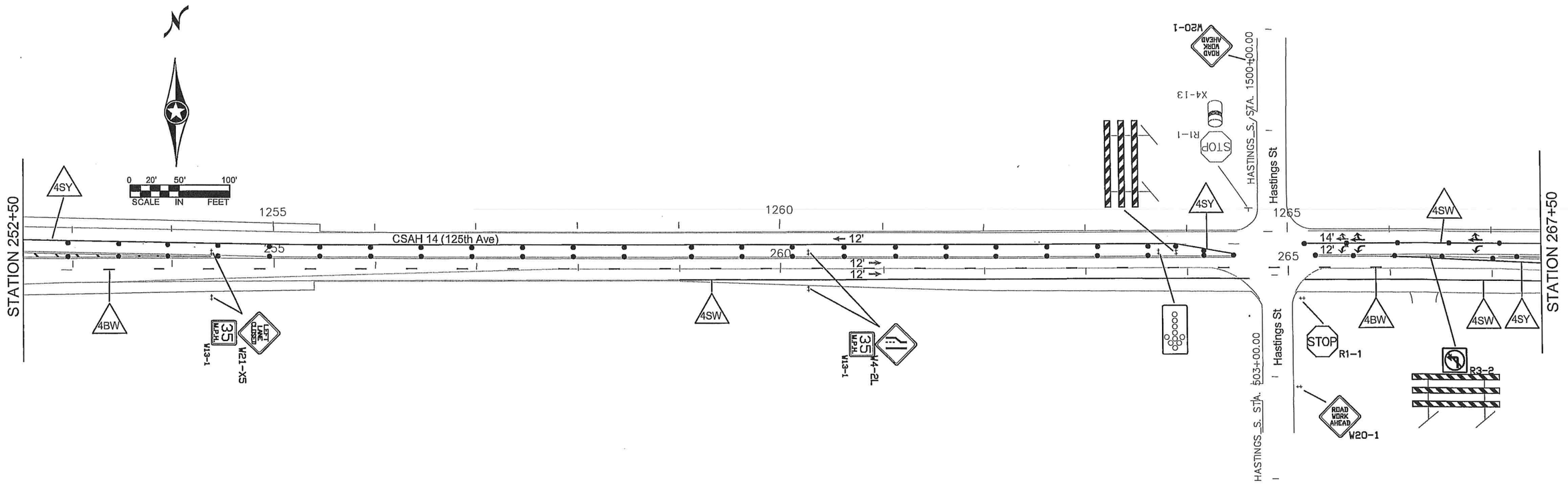

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TRAFFIC CONTROL
STAGE 1B

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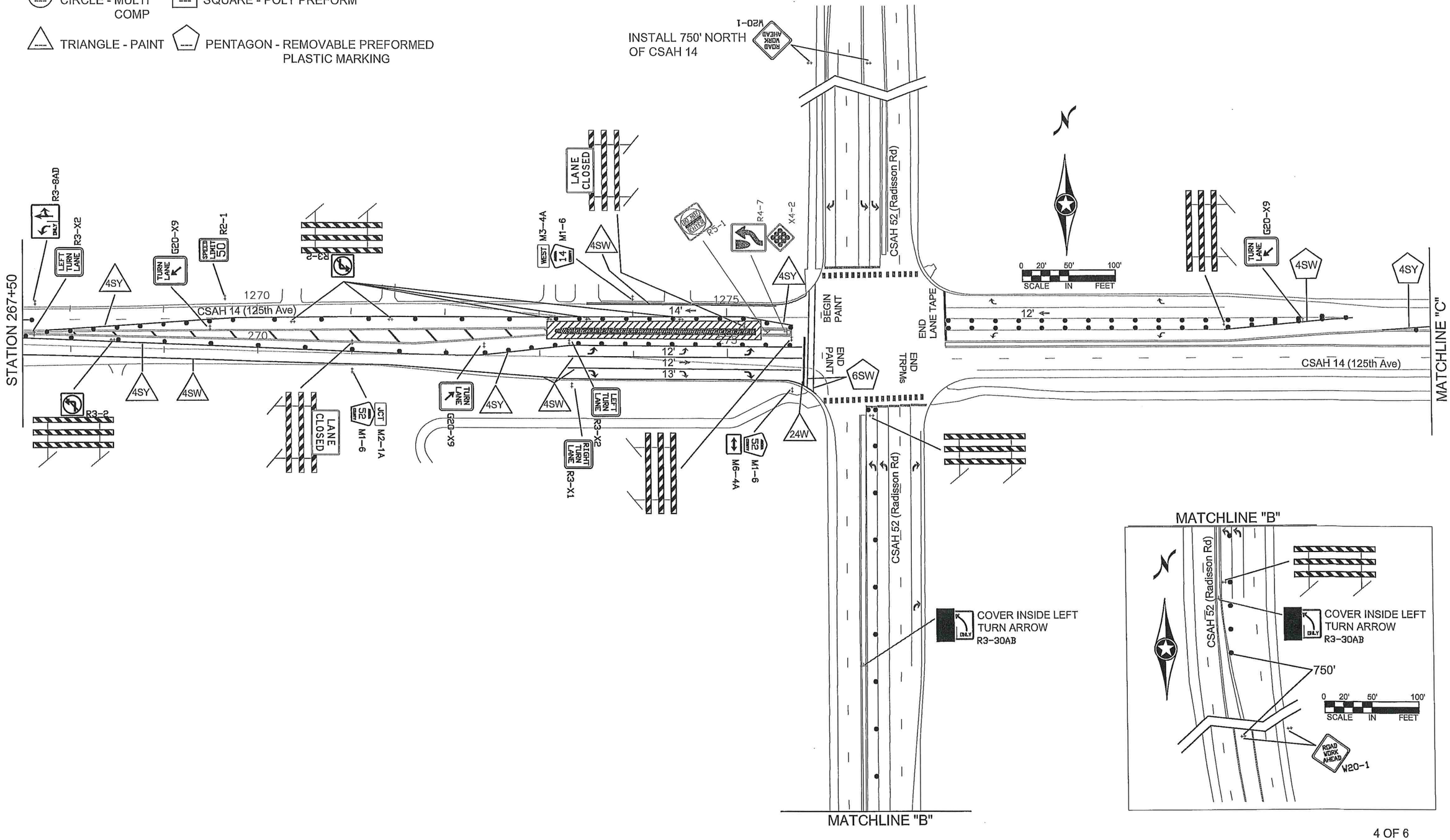

4 OF 6

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TRAFFIC CONTROL
STAGE 1B

Sheet 111 of 200 Sheets

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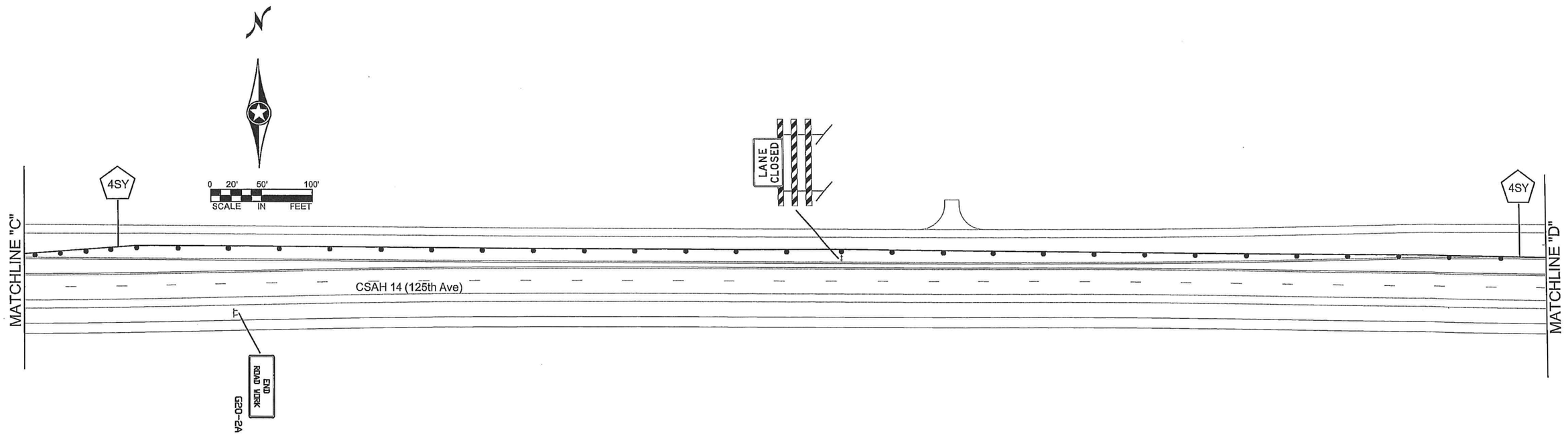

5 OF 6

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TRAFFIC CONTROL
STAGE 1B

Sheet 112 of 200 Sheets

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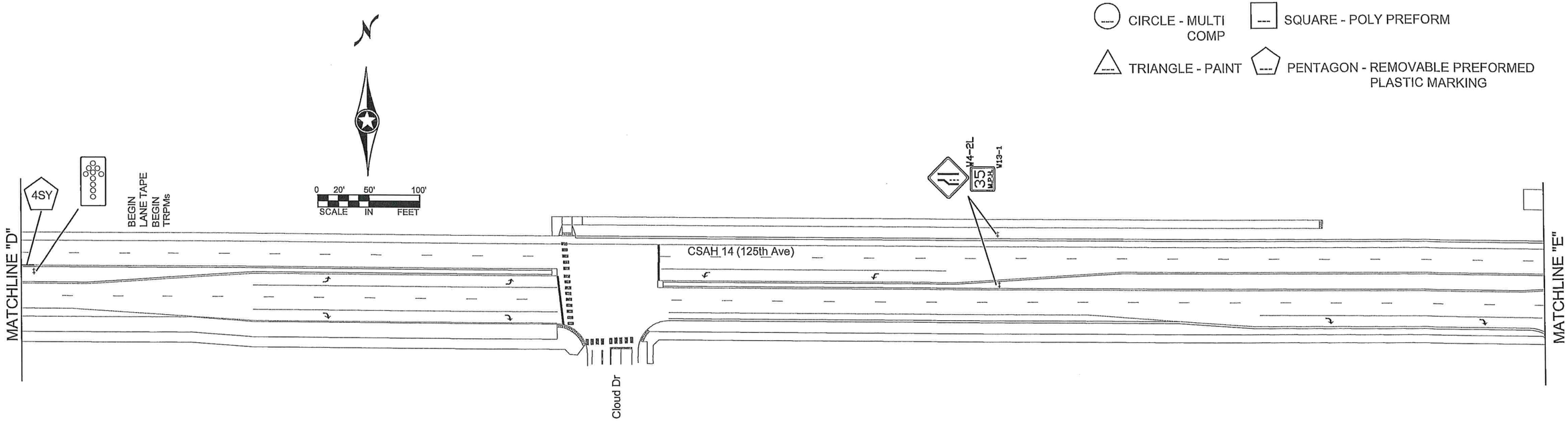

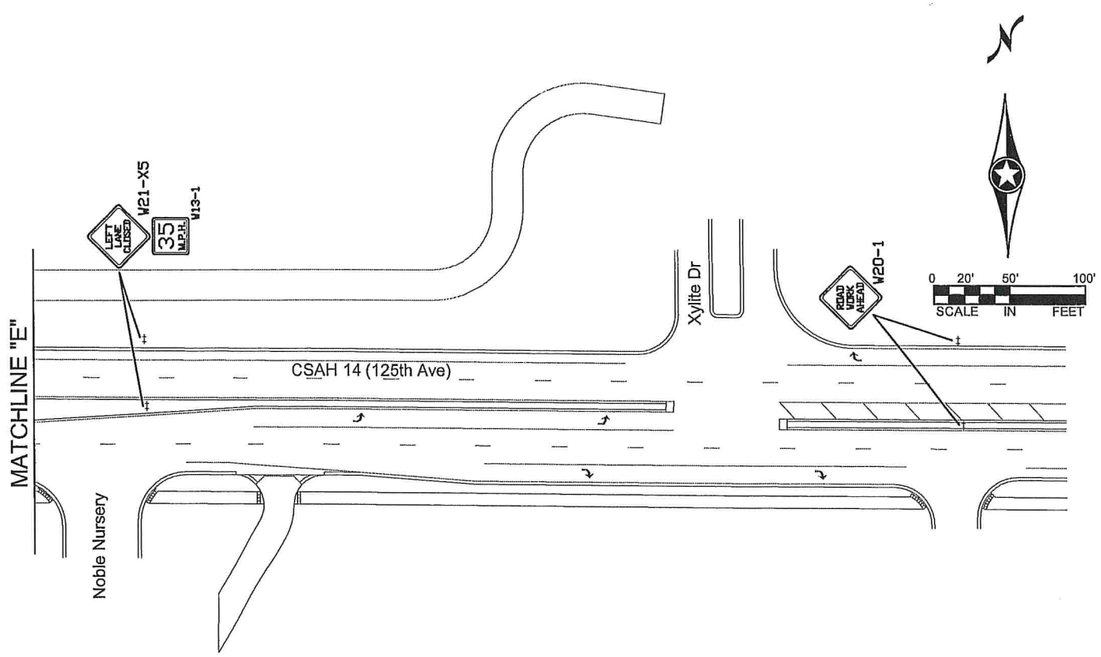

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TRAFFIC CONTROL
STAGE 1B

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STAGE 2 TRAFFIC CONTROL NOTES: (TYP.)

1. SIGNAL SYSTEMS REMAIN IN FULL OPERATION ON CSAH 14 AT ABERDEEN ST AND CSAH 14 AT CSAH 52.
2. TEMPORARY TRAFFIC BARRIER SHALL BE PLACED. ATTENUATORS ON EACH LEADING END & UPSTREAM END OF BARRIER. WHITE TRPMs SHALL BE PLACED ON THE BARRIER SPACED EVERY 12'6". JERSEY BARRIER SHALL BE PLACED IN ACCORDANCE WITH THE MOST RECENT EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
3. IF A 2' MINIMUM BETWEEN BARRIER AND EDGELINE CANNOT BE MET, BARRIER MUST BE ANCHORED 6" MINIMUM.
4. REMOVE ALL CONFLICTING PAVEMENT MARKINGS WITHIN THE CONSTRUCTION LIMITS. BLACK REMOVABLE PREFORMED PLASTIC MARKING TAPE SHALL BE USED ON ALL CONFLICTING PAVEMENT MARKINGS OUTSIDE OF THE CONSTRUCTION LIMITS AND AS INDICATED ON THE PLAN SHEETS.
5. ADD TRPMs SPACED EVERY 10 FEET IN TAPER/TRANSITION AREAS.
6. SIGN COVERS SHALL BE A RIGID PANEL, NO PLASTIC, BURLAP, ROPE, ETC.
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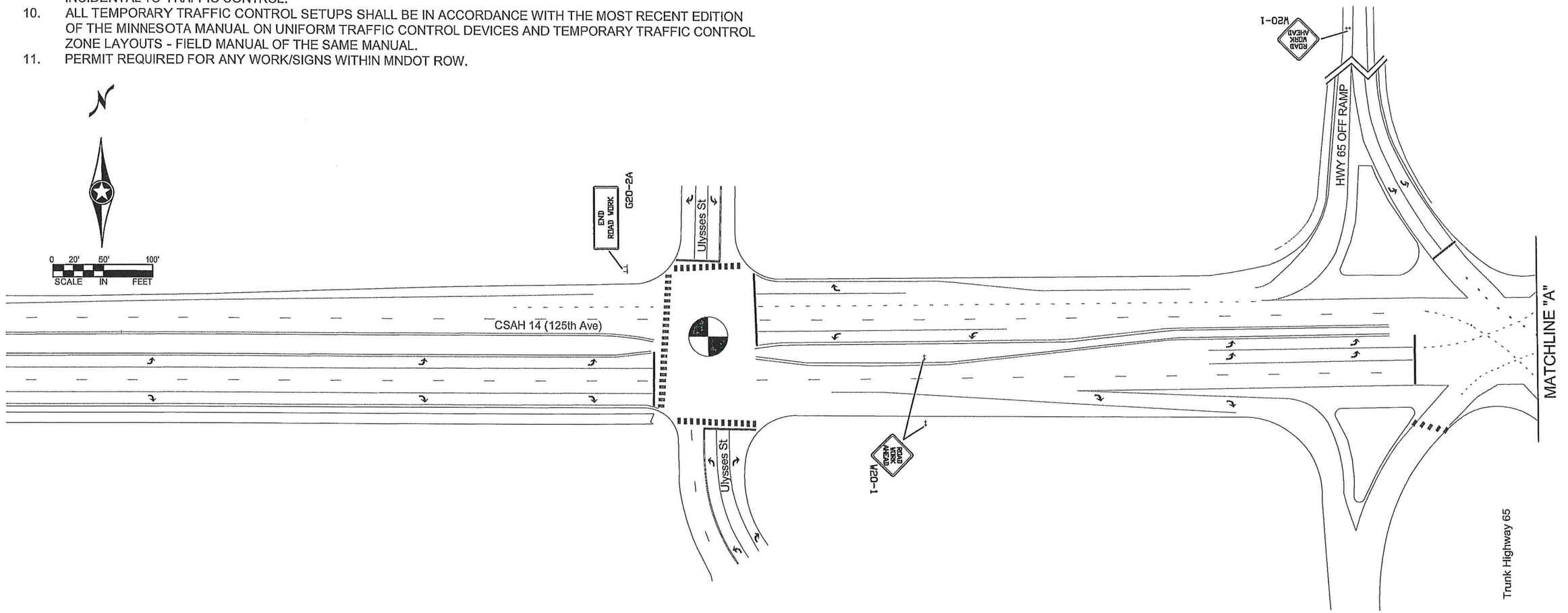
11. PERMIT REQUIRED FOR ANY WORK/SIGNS WITHIN MNDOT ROW.

STAGE 2 CONSTRUCTION NOTES: (TYP.)

1. SEE ALIGNMENT PLANS FOR STAGE 2 ALIGNMENT (ALI STG 2).
2. 2 LANE 2 WAY TRAFFIC ON SOUTH SIDE.
3. MAINTAIN AT LEAST ONE 12 FOOT LANE IN EACH DIRECTION OF TRAVEL.
4. STATIONING FOR MERGE TAPER BASED ON EB 14 ALIGNMENT.
5. FULL DEPTH CONSTRUCTION ON NORTH SIDE OF CSAH 14.
6. INSTALL STORM SEWER SYSTEM AS MARKED.
7. POUR CURB AND GUTTER WITHIN STAGE 2 LIMITS.
8. EXTEND PIPES AT LEAST 1 SECTION SOUTH OF MEDIAN CATCH BASINS TO ALLOW CONNECTION ON LATER STAGES.
9. AT LEFT TURN LANE LOCATION PLACE CONSTRUCTION JOINT ALONG EDGE OF LANE TO TIE IN AT LATER STAGE.
10. CONSTRUCT HASTINGS STREET NORTH APPROACH.
11. ACCESS TO NORTH HASTINGS STREET CLOSED DURING CONSTRUCTION ON THIS STAGE.
12. PLACE TEMPORARY TRAFFIC BARRIER AT DESIGNATED LOCATIONS AND AS DIRECTED BY ENGINEER.



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TRAFFIC CONTROL STAGE 2

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STRIPING KEY:

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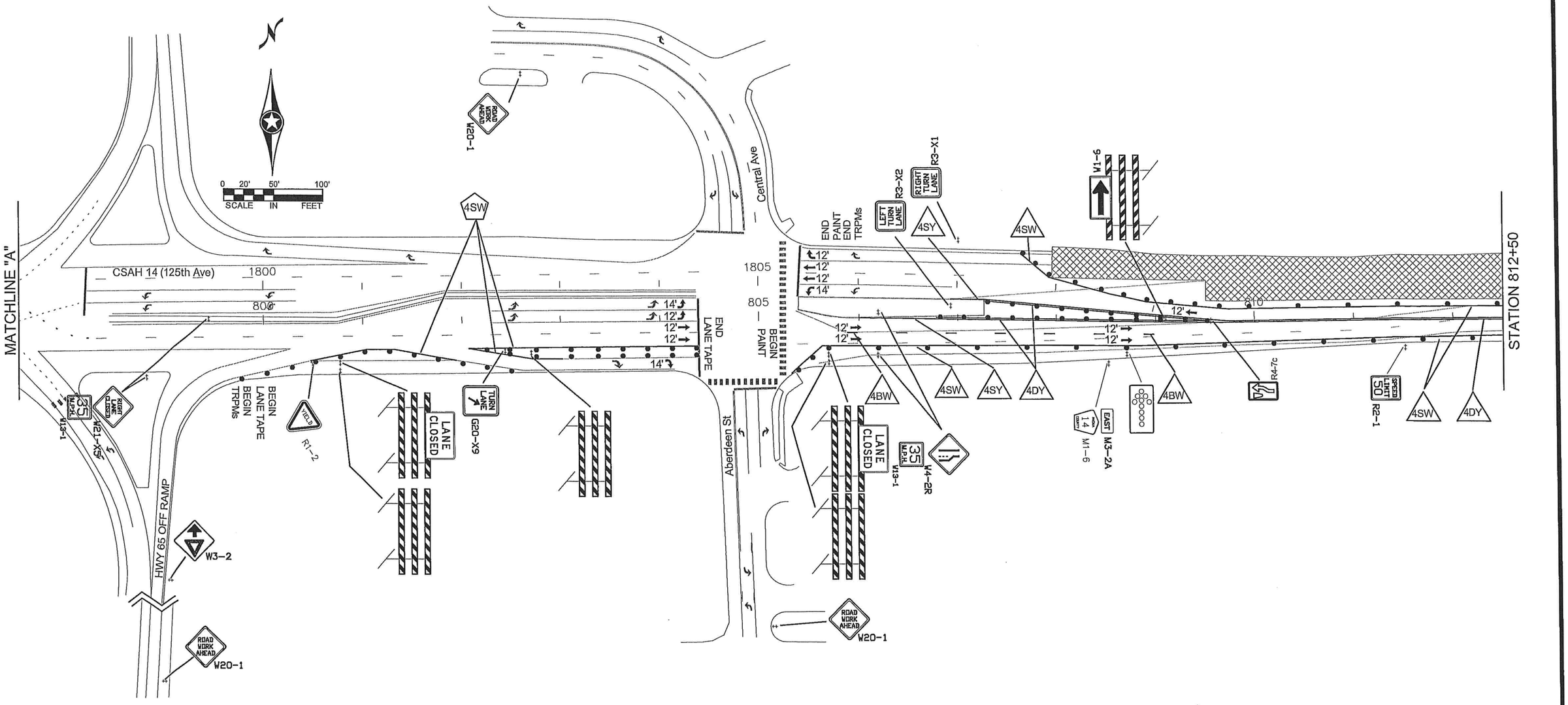
TRIANGLE - PAINT

PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING



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

PRINT NAME: JOSEPH J. MACPHERSON, P.E.

SIGNATURE:

DATE: 12/27/19 LICENSE NO. 46732

DRAWN BY FL DATE 10/21/19

DESIGN BY FL DATE 10/21/19

CHECKED BY JJR DATE 10/25/19

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

TRAFFIC CONTROL STAGE 2

Sheet 115 of 200 Sheets

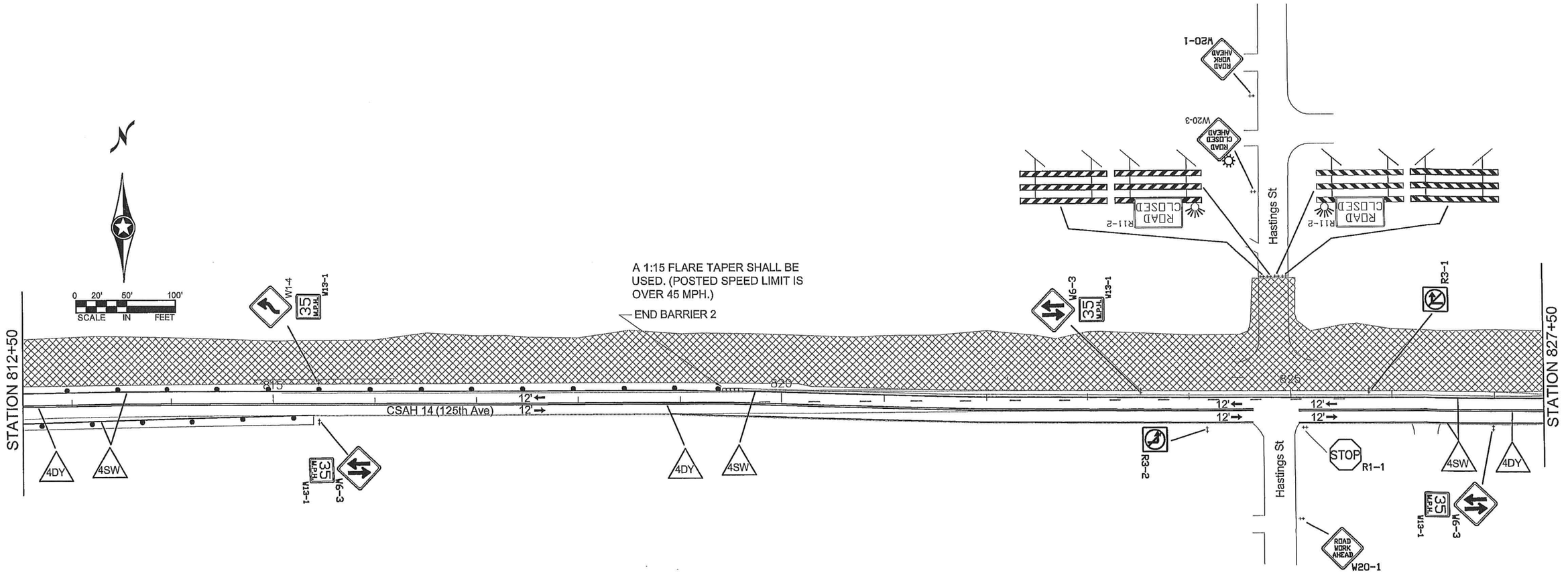
STRIPING KEY:

CIRCLE - MULTI COMP

SQUARE - POLY PREFORM

TRIANGLE - PAINT

PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING



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TRAFFIC CONTROL
STAGE 2

Sheet 116 of 200 Sheets

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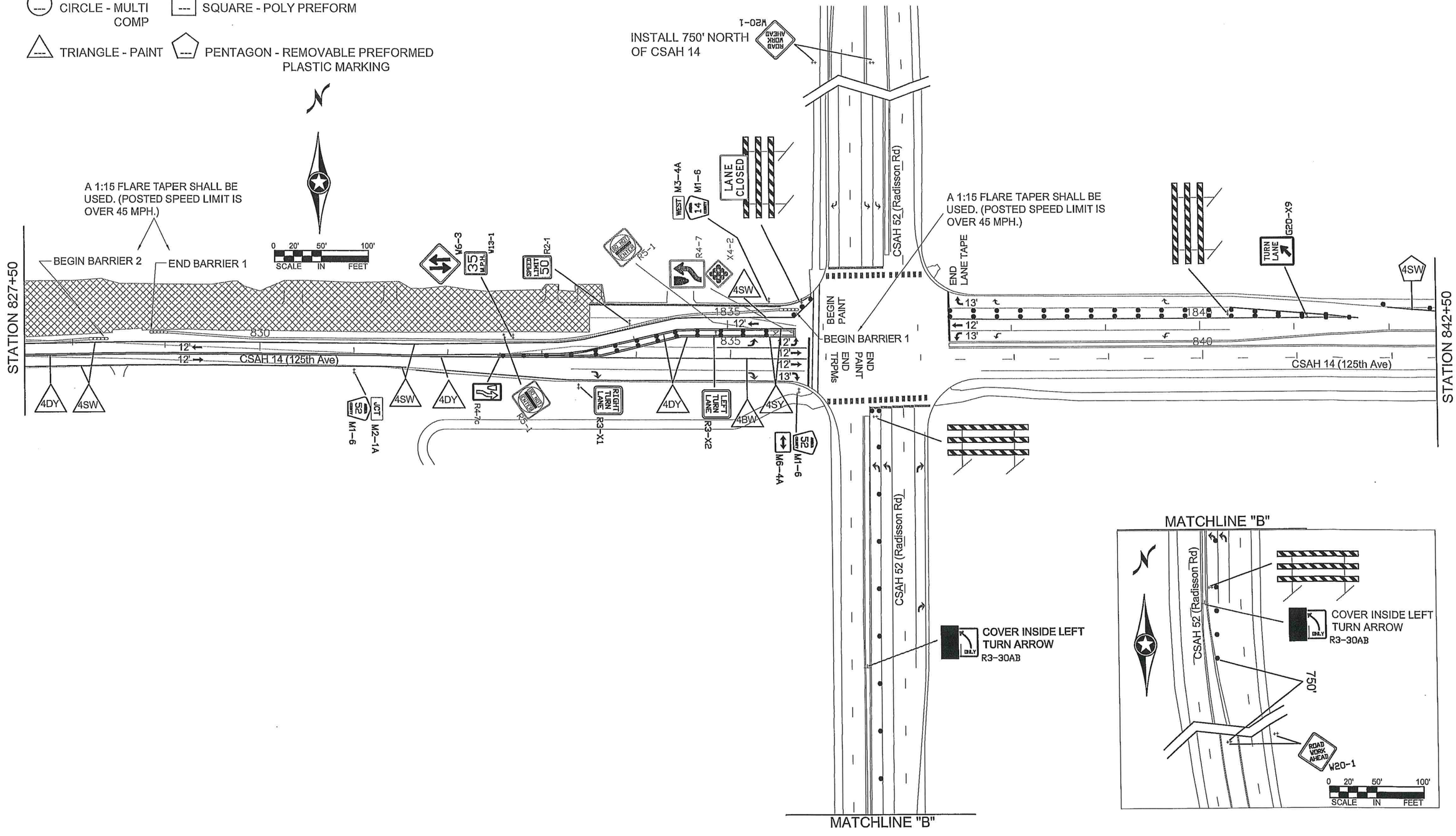

4 OF 6

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TRAFFIC CONTROL
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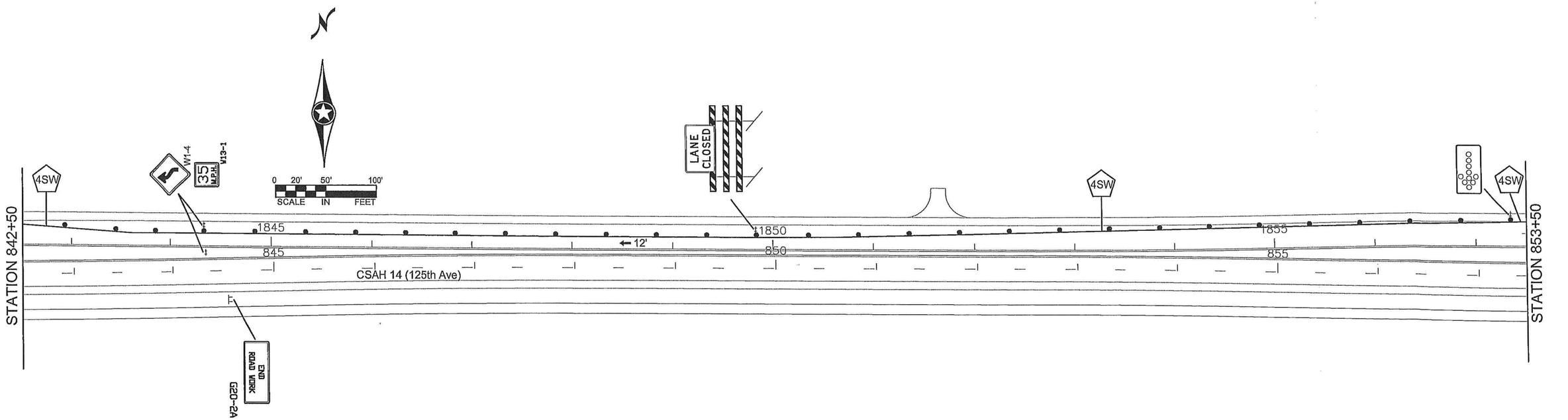

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TRAFFIC CONTROL
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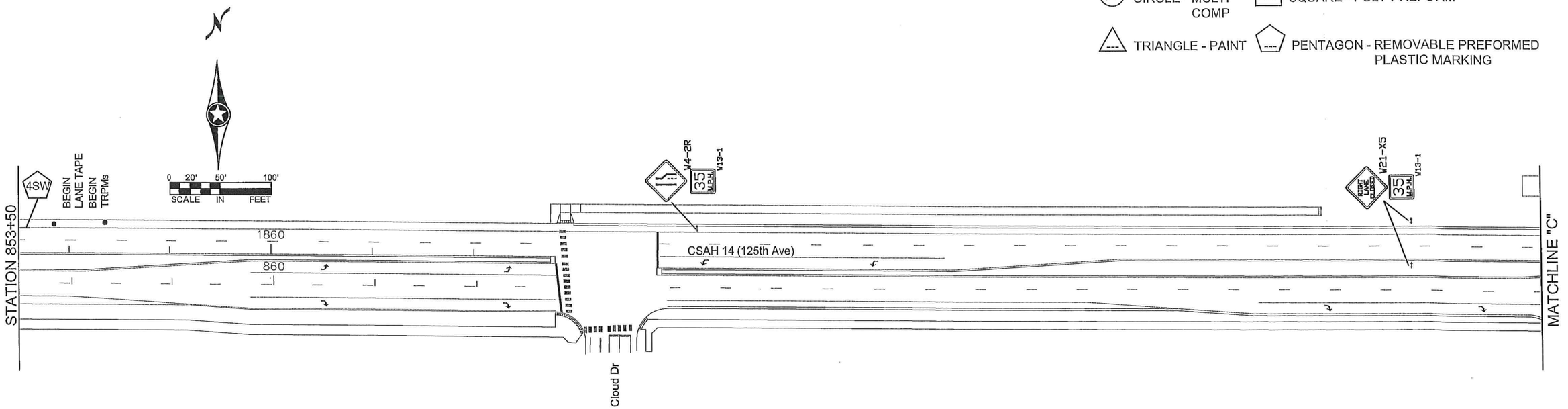

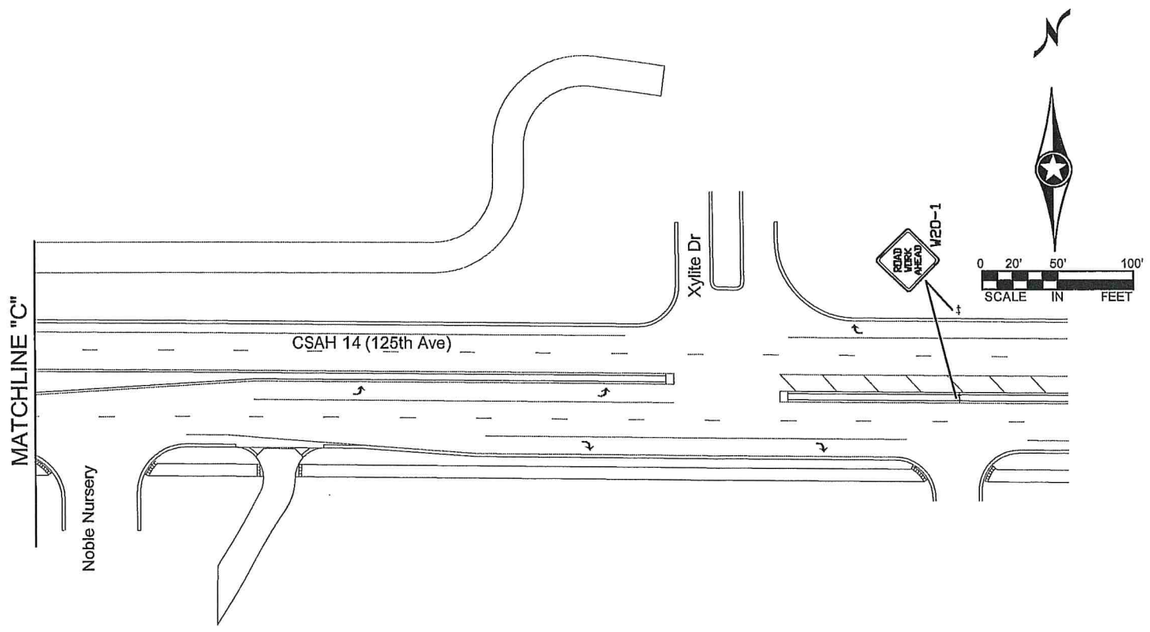

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SAP 002-614-041
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CP 18-10

TRAFFIC CONTROL
STAGE 2

Sheet 119 of 200 Sheets

STAGE 3 TRAFFIC CONTROL NOTES: (TYP.)

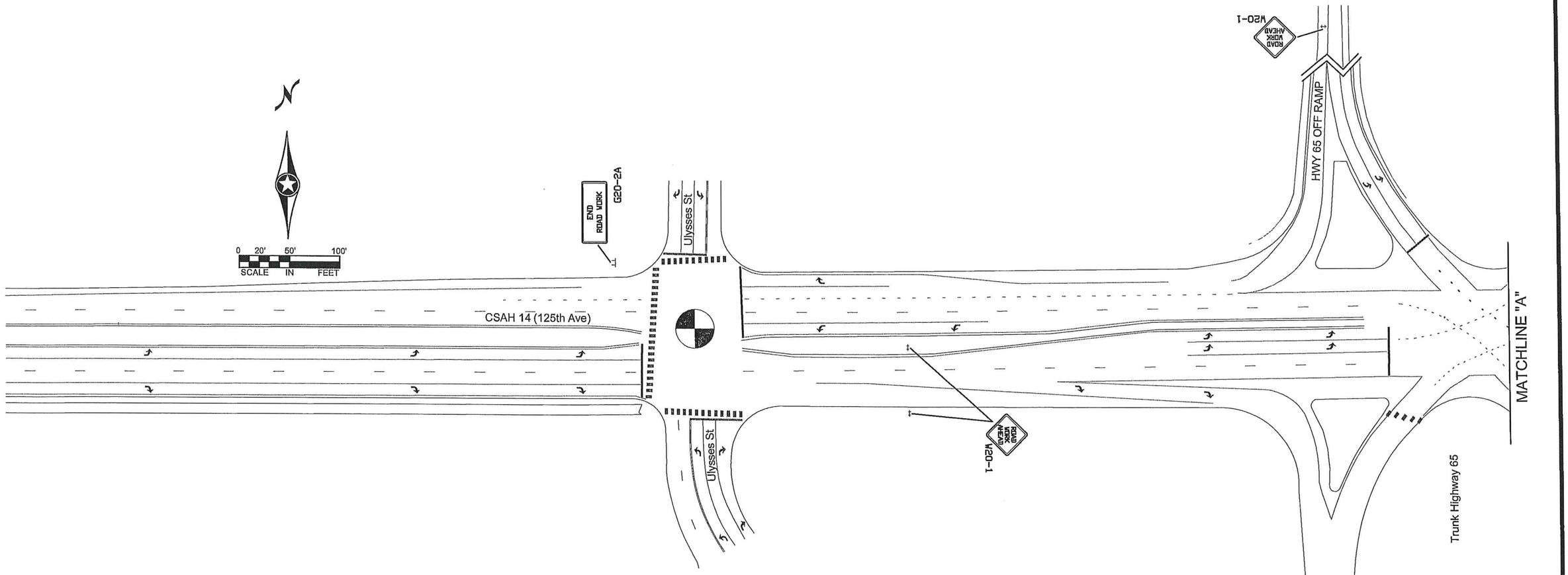
1. SIGNAL SYSTEMS REMAIN IN FULL OPERATION ON CSAH 14 AT ABERDEEN ST AND CSAH 14 AT CSAH 52.
2. REMOVE ALL CONFLICTING PAVEMENT MARKINGS WITHIN THE CONSTRUCTION LIMITS. BLACK REMOVABLE PREFORMED PLASTIC MARKING TAPE SHALL BE USED ON ALL CONFLICTING PAVEMENT MARKINGS OUTSIDE OF THE CONSTRUCTION LIMITS AND AS INDICATED ON THE PLAN SHEETS.
3. ADD TRPMs SPACED EVERY 10 FEET IN TAPER/TRANSITION AREAS.
4. SIGN COVERS SHALL BE A RIGID PANEL, NO PLASTIC, BURLAP, ROPE, ETC.
5. ALL SIGNS SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
6. ACCESS SHALL BE MAINTAINED TO ALL STREETS AND DRIVEWAY ACCESS LOCATIONS IN THE CONSTRUCTION AREA WITH THE EXCEPTION OF STREET CLOSURES.
7. FOR RELOCATING TRAFFIC SIGNS DURING CONSTRUCTION, AS DIRECTED BY THE ENGINEER, RELOCATION INCIDENTAL TO TRAFFIC CONTROL.
8. ALL TEMPORARY TRAFFIC CONTROL SETUPS SHALL BE IN ACCORDANCE WITH THE MOST RECENT EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS - FIELD MANUAL OF THE SAME MANUAL.
9. PERMIT REQUIRED FOR ANY WORK/SIGNS WITHIN MNDOT ROW.

STAGE 3 CONSTRUCTION NOTES: (TYP.)

1. SEE ALIGNMENT PLANS FOR STAGE 3 ALIGNMENT (ALI STG 3).
2. FULL DEPTH CONSTRUCTION ON SOUTH SIDE OF CSAH 14.
3. INSTALL STORM SEWER SYSTEM AND CONNECT TO STORM SEWER PREVIOUSLY INSTALLED DURING STAGE 1A.
4. POUR CURB AND GUTTER WITHIN STAGE 3 LIMITS.
5. CONSTRUCT HASTINGS STREET SOUTH APPROACH.
6. ACCESS TO HASTINGS STREET SOUTH CLOSED DURING CONSTRUCTION ON THIS STAGE.

STAGE 3 TRAFFIC NOTES: (TYP.)

1. TRAFFIC ON BINDER COURSE ON FINISHED NORTH SIDE OF CSAH 14.
2. MAINTAIN 2 LANES OF THRU TRAFFIC ON EB CSAH 14 AT ABERDEEN STREET PAST SIGNAL, REDUCE LANE WIDTH TO 10' AFTER SIGNAL AND MERGE INSIDE LANE AFTER CROSSOVER USING MERGE TAPER AS SHOWN TO 2 LANE 2 WAY CONFIGURATION.



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SAP 002-614-041
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TRAFFIC CONTROL STAGE 3

Sheet 120 of 200 Sheets

STRIPING KEY:

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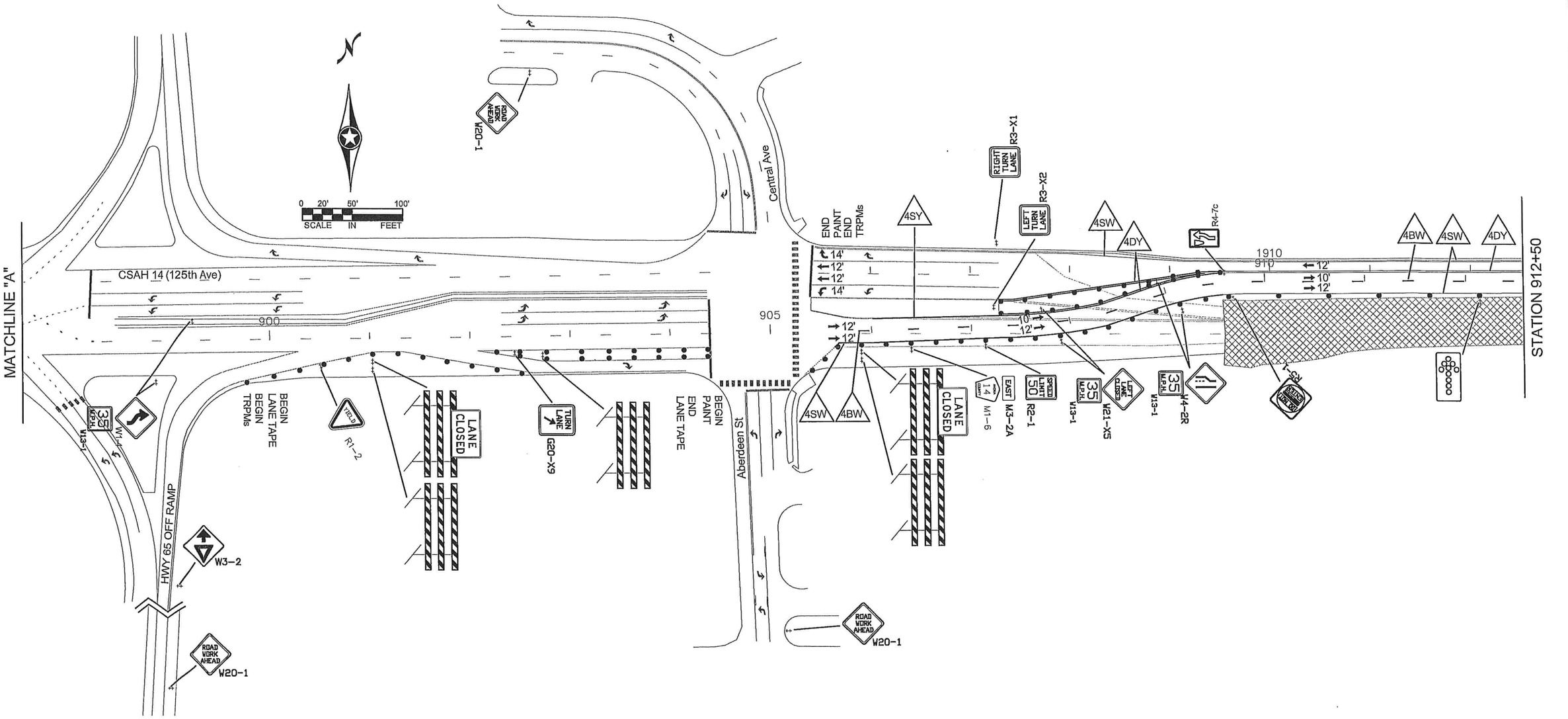

2 OF 6

NO	DATE	BY	CKD	APPR	REVISION

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TRAFFIC CONTROL
STAGE 3

Sheet 121 of 200 Sheets

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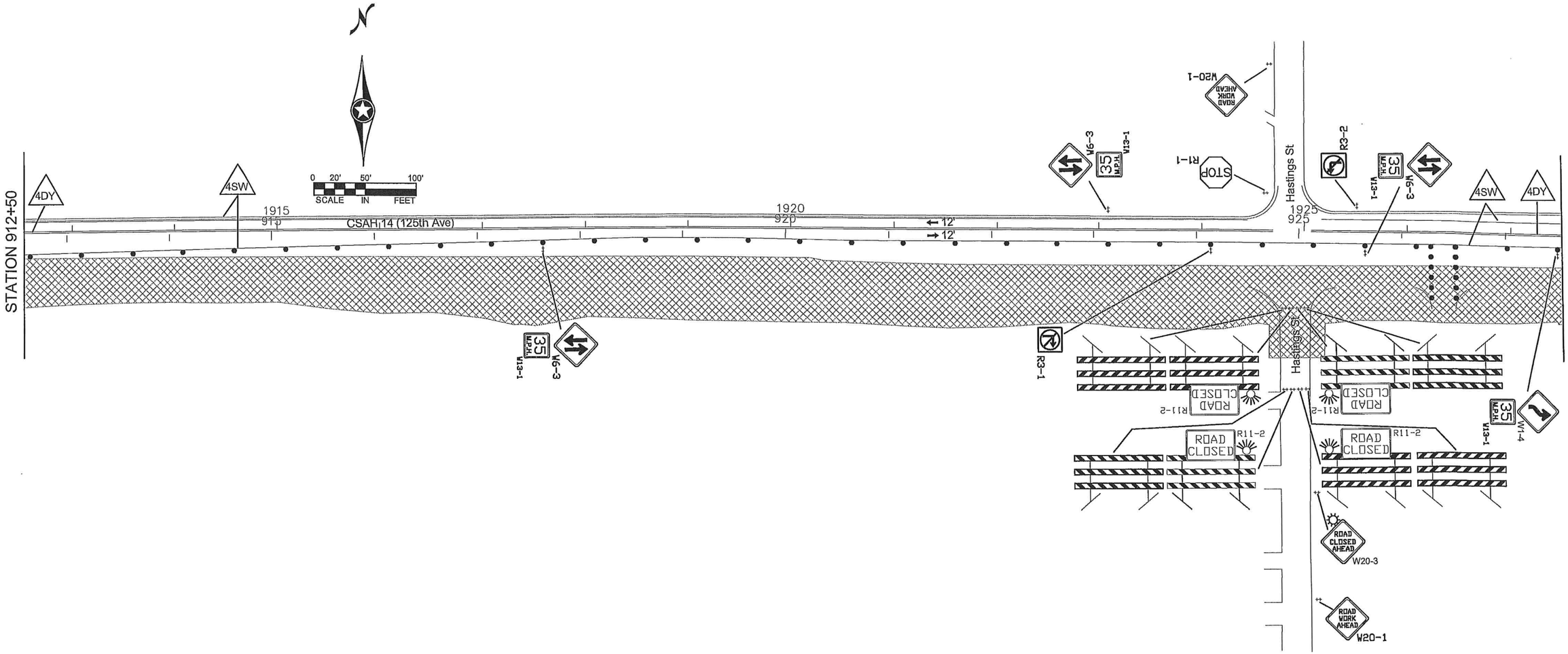

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TRAFFIC CONTROL STAGE 3

Sheet 122 of 200 Sheets

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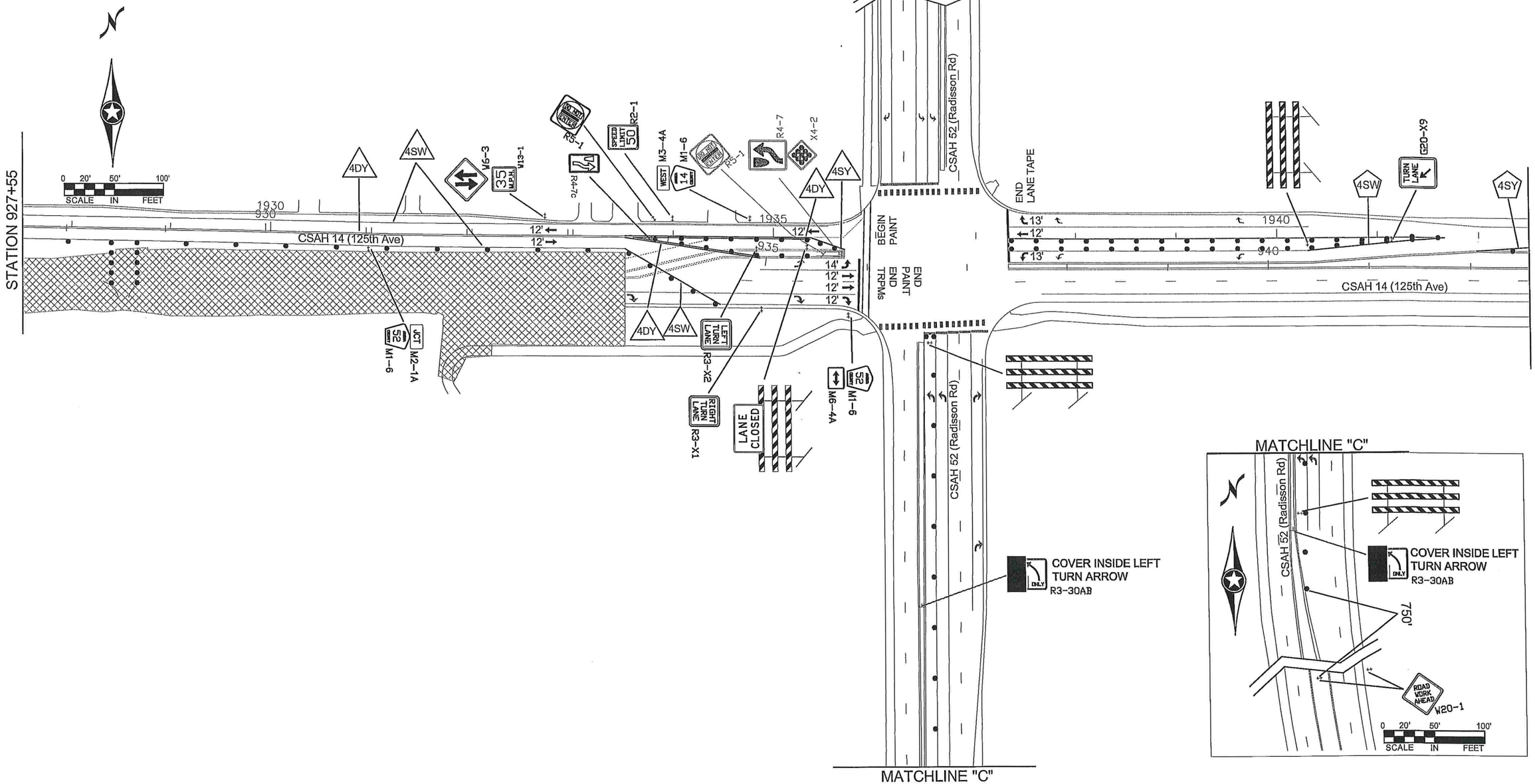

4 OF 6

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TRAFFIC CONTROL STAGE 3

Sheet 123 of 200 Sheets

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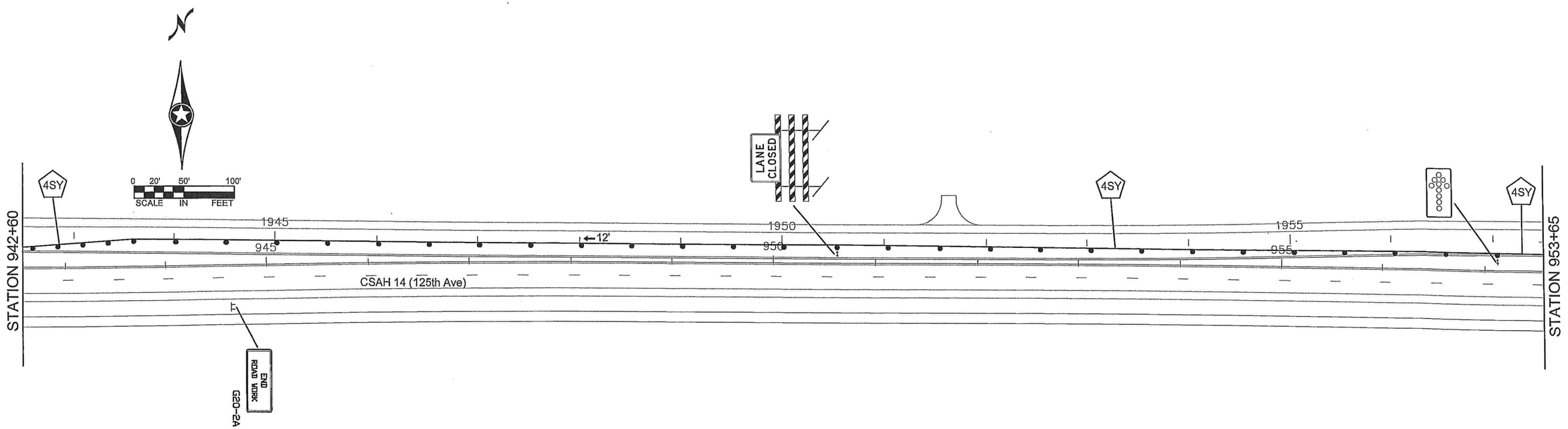

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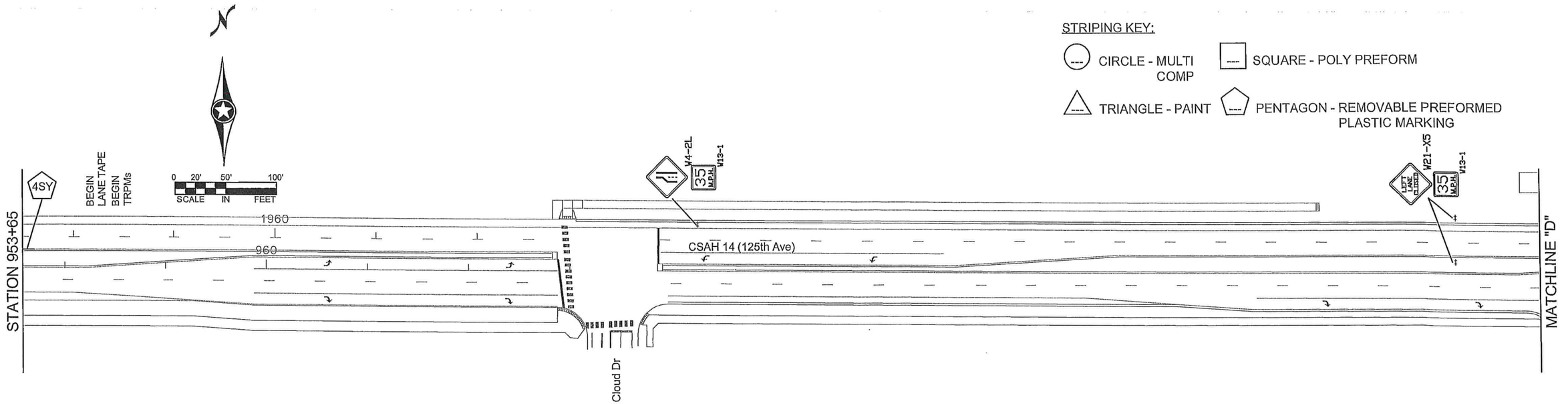
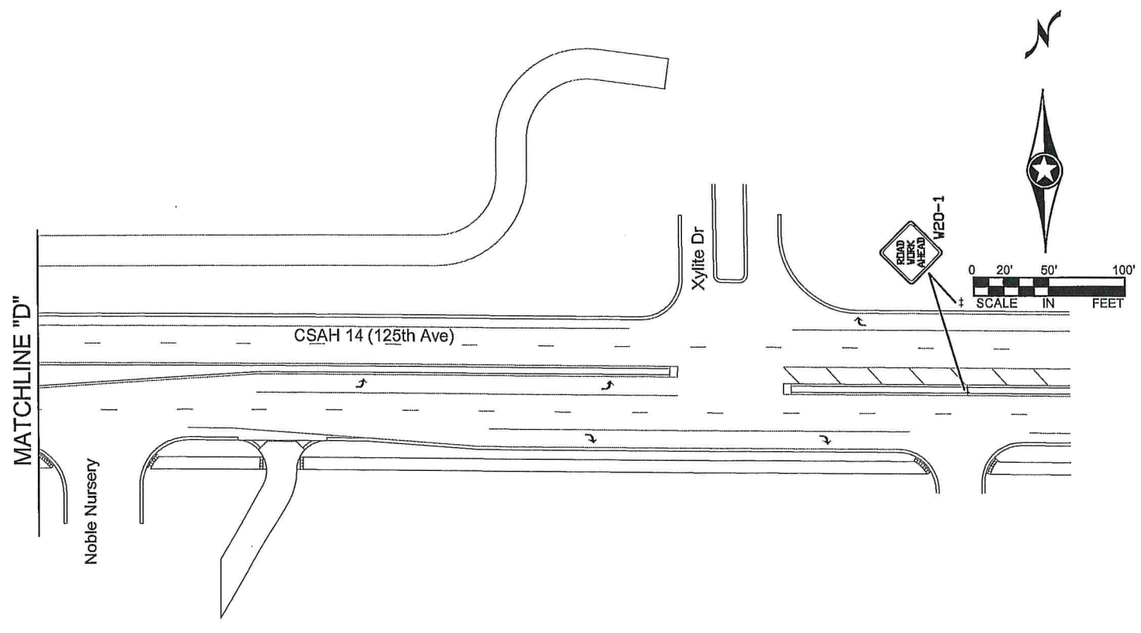
TRAFFIC CONTROL
STAGE 3

Sheet 124 of 200 Sheets





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TRAFFIC CONTROL
STAGE 3

Sheet 125 of 200 Sheets

STAGE 4 TRAFFIC CONTROL NOTES: (TYP.)

1. SIGNAL SYSTEMS REMAIN IN FULL OPERATION ON CSAH 14 AT ABERDEEN ST AND CSAH 14 AT CSAH 52.
2. REMOVE ALL CONFLICTING PAVEMENT MARKINGS WITHIN THE CONSTRUCTION LIMITS. BLACK REMOVABLE PREFORMED PLASTIC MARKING TAPE SHALL BE USED ON ALL CONFLICTING PAVEMENT MARKINGS OUTSIDE OF THE CONSTRUCTION LIMITS AND AS INDICATED ON THE PLAN SHEETS.
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9. PERMIT REQUIRED FOR ANY WORK/SIGNS WITHIN MNDOT ROW.

STAGE 4 CONSTRUCTION NOTES: (TYP.)

1. CONCRETE MEDIAN RESTORATION AT CROSSOVER LOCATIONS.
2. CONCRETE MEDIAN FLATWORK.
3. INSIDE LANE CLOSURES.
4. TRAFFIC REDUCED TO ONE LANE IN EACH DIRECTION.

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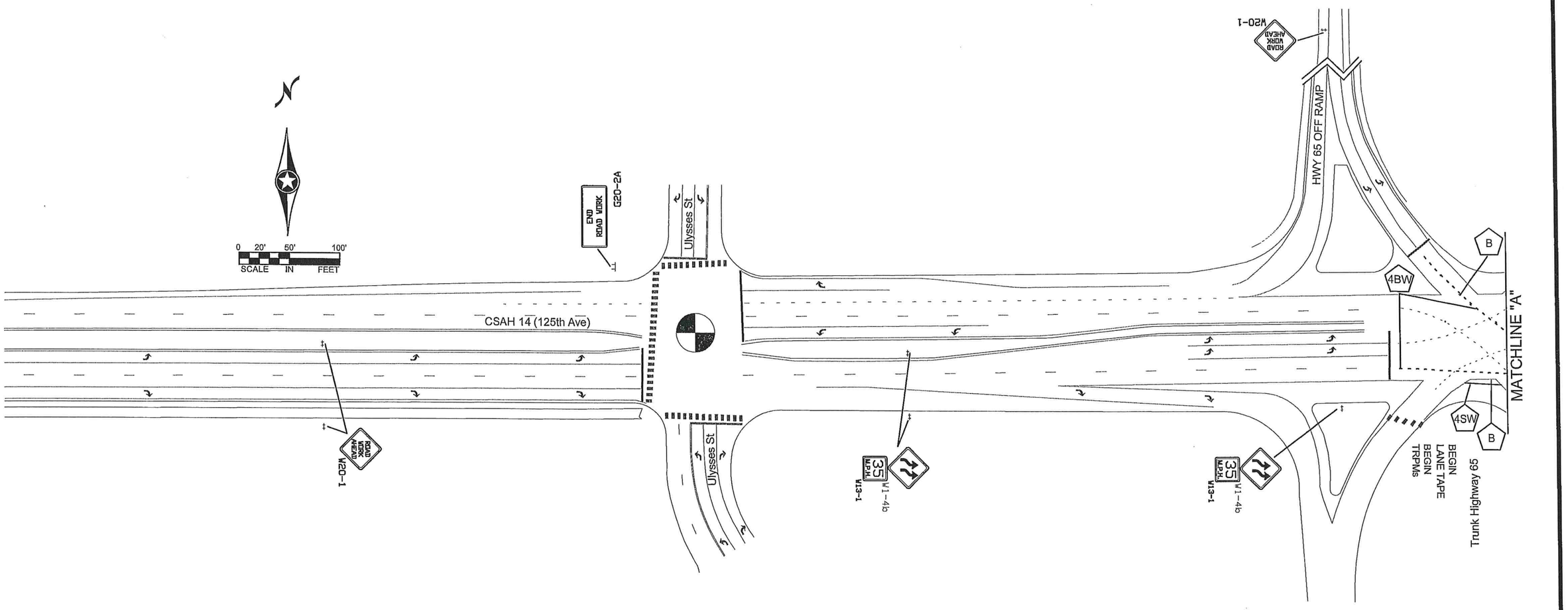

1 OF 6

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TRAFFIC CONTROL
STAGE 4

Sheet 126 of 200 Sheets

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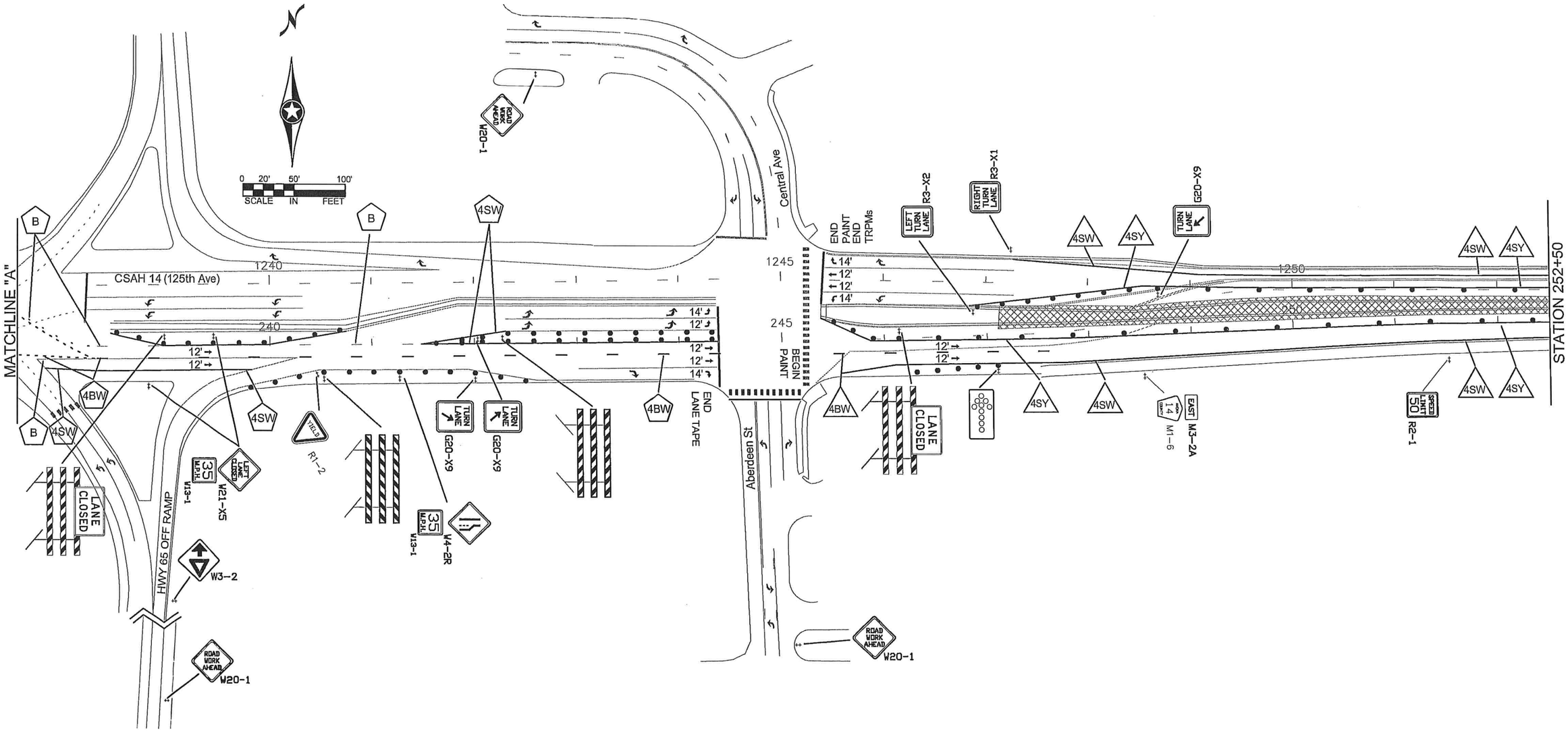

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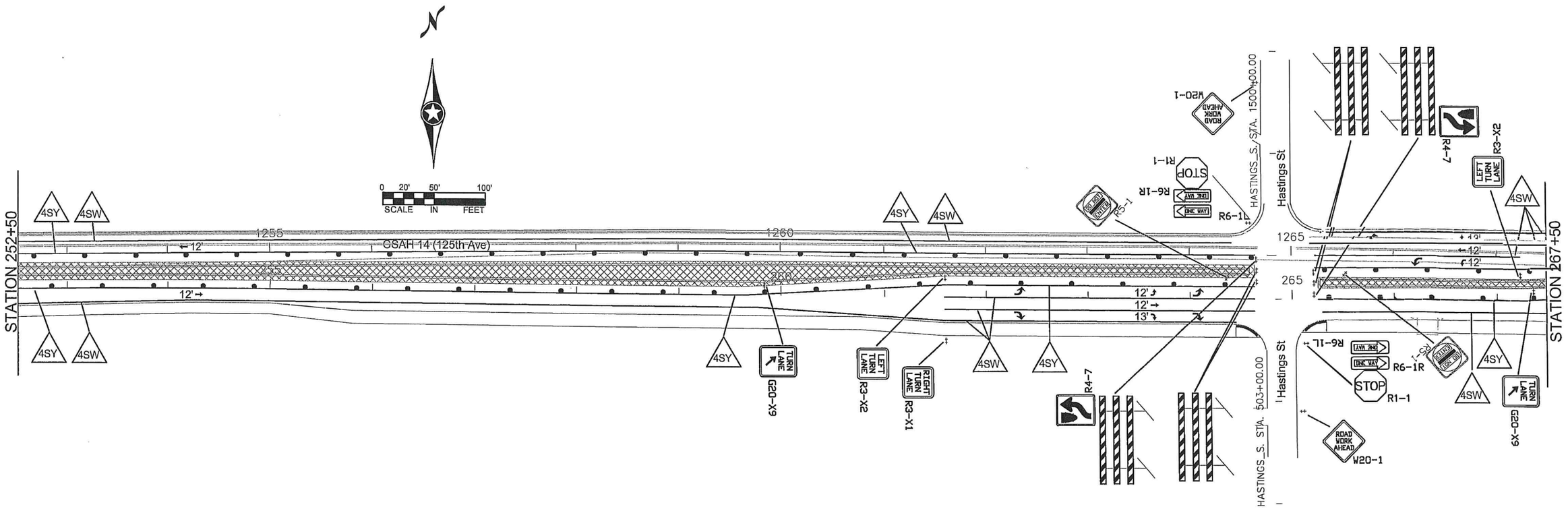

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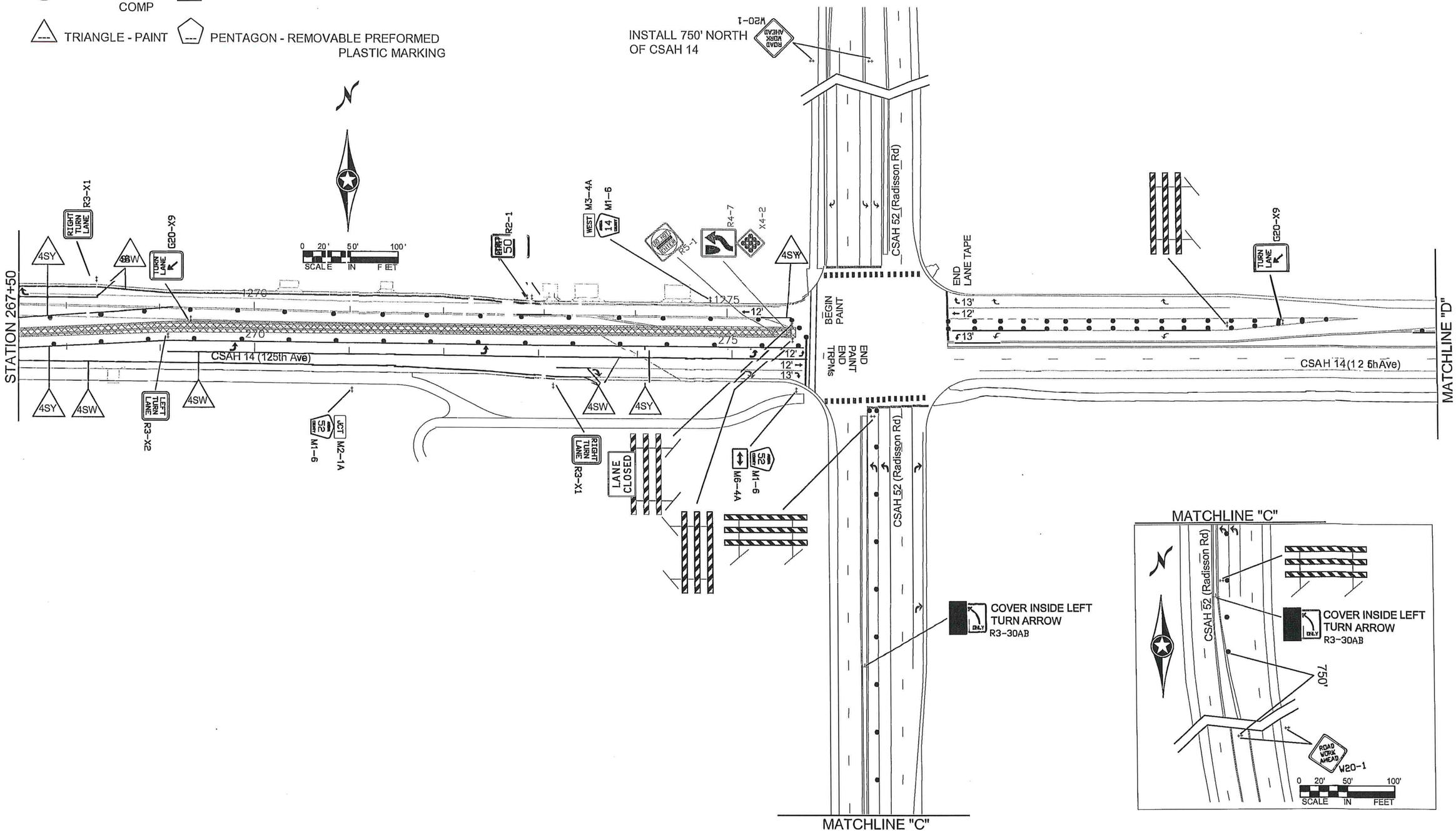

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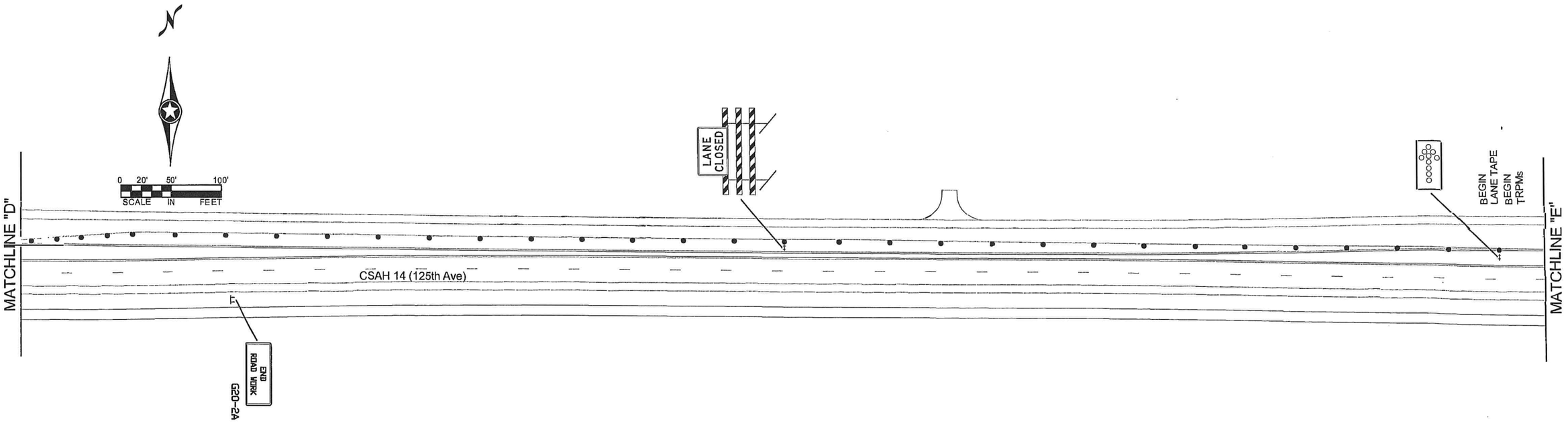

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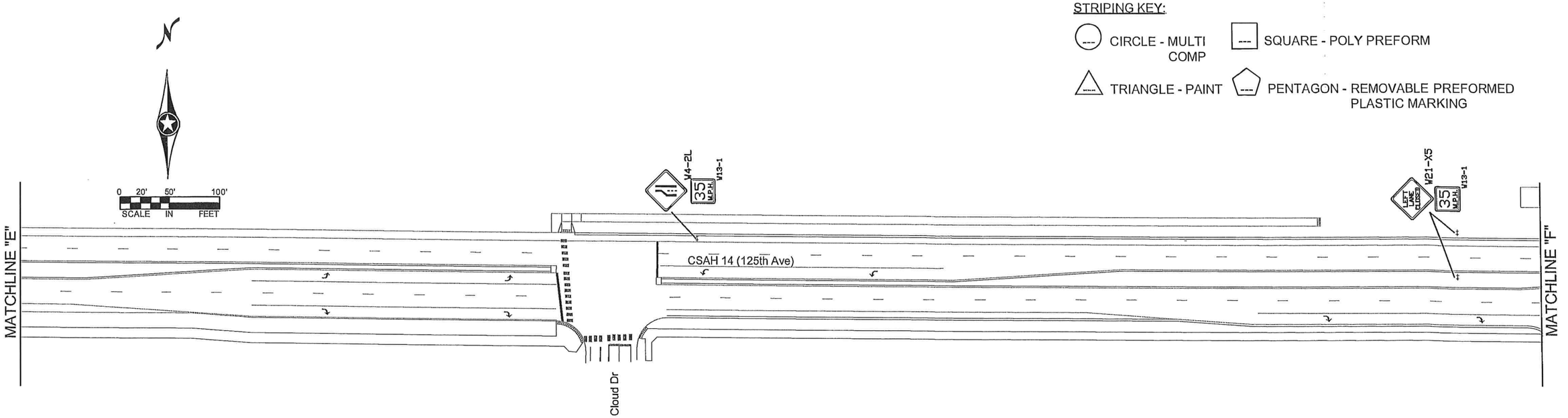
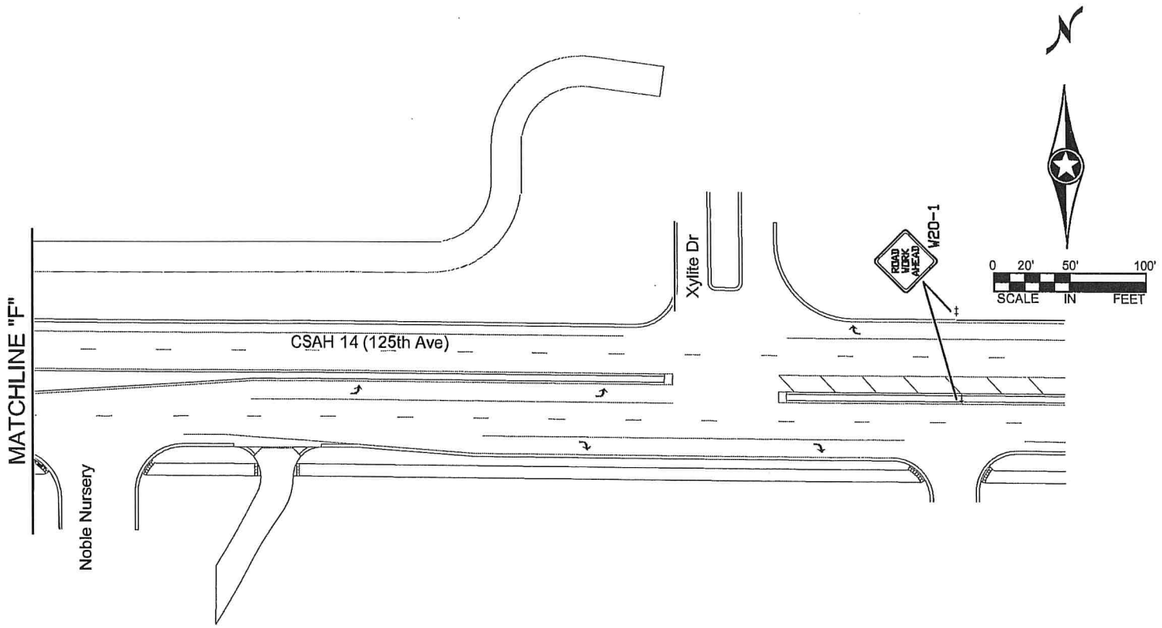
PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING





6 OF 6

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Base\TRAFFIC\STG 4.dwg

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

PRINT NAME: JOSEPH D MACPHERSON, P.E.

SIGNATURE:

DATE: 12-27-19 LICENSE NO. 46732

DRAWN BY FL DATE 10/21/19

DESIGN BY FL DATE 10/21/19

CHECKED BY JP DATE 10/25/19

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

TRAFFIC CONTROL
STAGE 4

Sheet 131 of 200 Sheets

STAGE 5 TRAFFIC CONTROL NOTES: (TYP.)

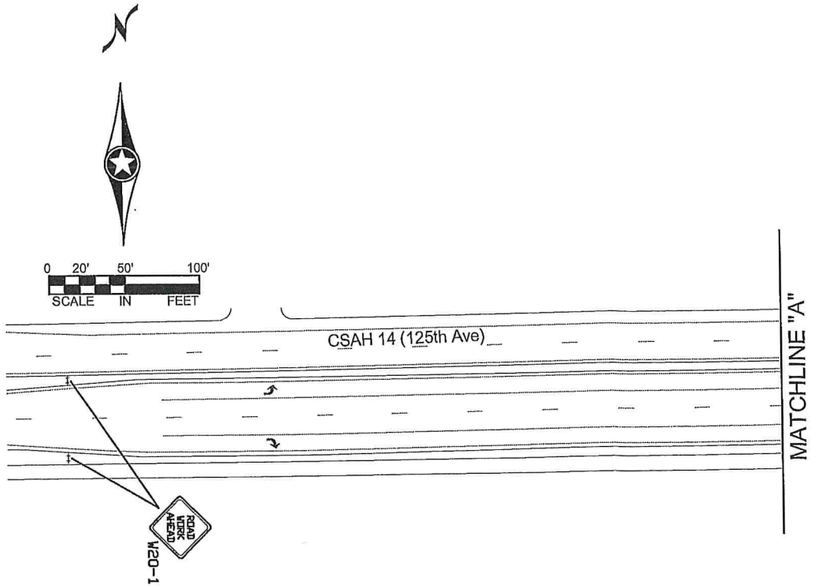
1. SIGNAL SYSTEMS REMAIN IN FULL OPERATION ON CSAH 14 AT ABERDEEN ST AND CSAH 14 AT CSAH 52.
2. REMOVE ALL CONFLICTING PAVEMENT MARKINGS WITHIN THE CONSTRUCTION LIMITS. BLACK REMOVABLE PREFORMED PLASTIC MARKING TAPE SHALL BE USED ON ALL CONFLICTING PAVEMENT MARKINGS OUTSIDE OF THE CONSTRUCTION LIMITS AND AS INDICATED ON THE PLAN SHEETS.
3. ADD TRPMs SPACED EVERY 10 FEET IN TAPER/TRANSITION AREAS.
4. SIGN COVERS SHALL BE A RIGID PANEL, NO PLASTIC, BURLAP, ROPE, ETC.
5. ALL SIGNS SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
6. ACCESS SHALL BE MAINTAINED TO ALL STREETS AND DRIVEWAY ACCESS LOCATIONS IN THE CONSTRUCTION AREA WITH THE EXCEPTION OF STREET CLOSURES.
7. FOR RELOCATING TRAFFIC SIGNS DURING CONSTRUCTION, AS DIRECTED BY THE ENGINEER, RELOCATION INCIDENTAL TO TRAFFIC CONTROL.
8. ALL TEMPORARY TRAFFIC CONTROL SETUPS SHALL BE IN ACCORDANCE WITH THE MOST RECENT EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS - FIELD MANUAL OF THE SAME MANUAL.
9. PERMIT REQUIRED FOR ANY WORK/SIGNS WITHIN MNDOT ROW.

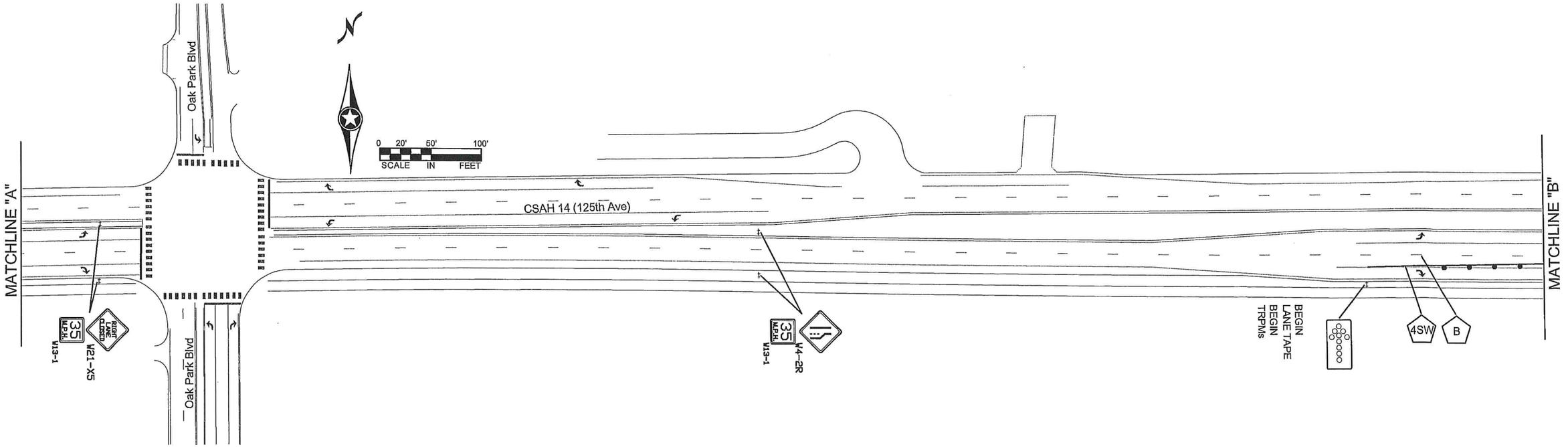
STAGE 5 CONSTRUCTION NOTES: (TYP.)

1. MEDIAN OPENINGS SHALL BE BROUGHT UP TO GRADE AND BARRELED TIGHT.
2. CONSTRUCT WEST END OF PROJECT, FULL DEPTH CONSTRUCTION ON SOUTH SIDE OF CSAH 14.
3. POUR CURB AND GUTTER, MOVE CATCH BASIN STRUCTURES AND CONNECT TO EXISTING STORM SEWER.
4. FULL DEPTH ROAD CONSTRUCTION ON THE SOUTHERN MOST LANE ONLY.
5. TRAFFIC REDUCED TO 1 LANE EB AT WORK ZONE.

STAGE 5 TRAFFIC NOTES: (TYP.)

1. LANE REDUCTION ON WEST END OF PROJECT. OUTSIDE LANES CLOSED.
2. MAINTAIN A 12' LANE EASTBOUND.





1 OF 5

NO	DATE	BY	CKD	APPR	REVISION

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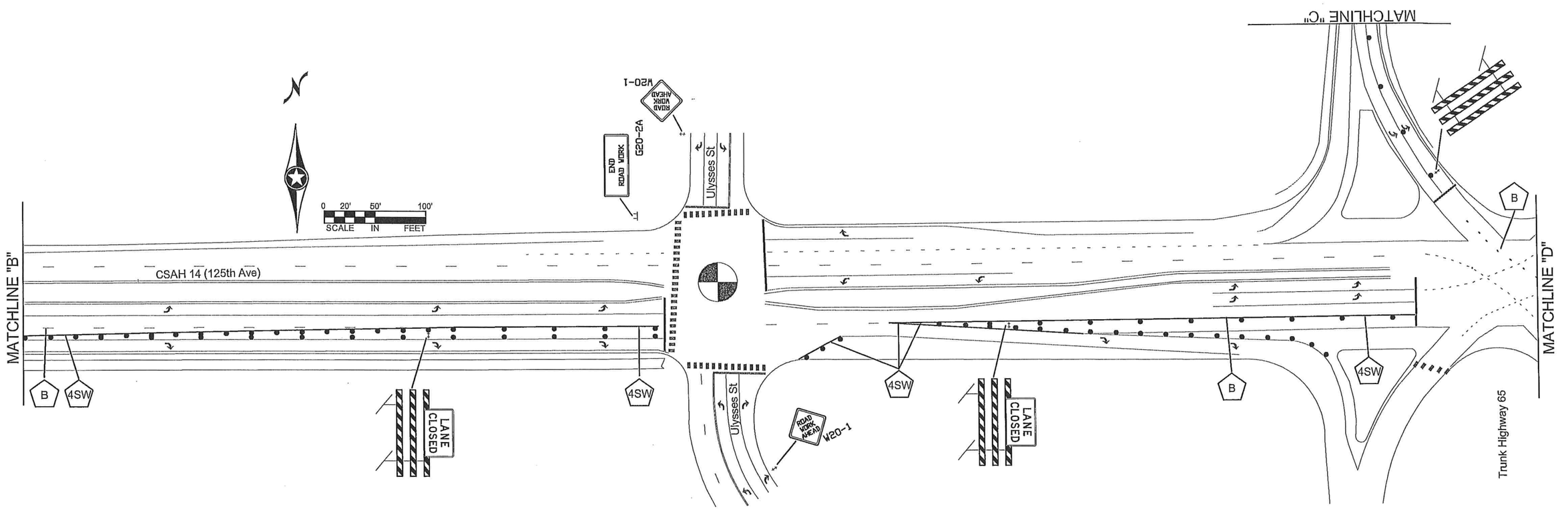
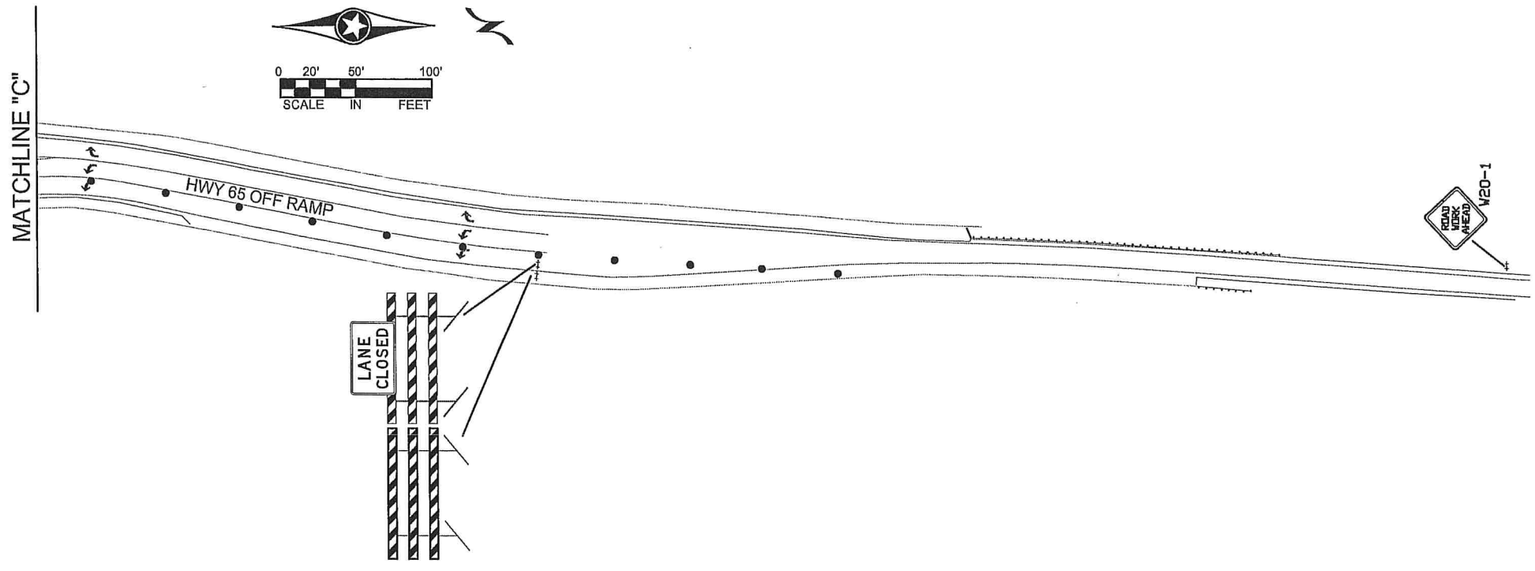
SAP 002-614-041
SAP 106-020-036
CP 18-10

TRAFFIC CONTROL STAGE 5

Sheet 132 of 200 Sheets





STRIPING KEY:

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

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Base\TRAFFIC\STG 5.dwg

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SAP 002-614-041
SAP 106-020-036
CP 18-10

TRAFFIC CONTROL
STAGE 5

Sheet 133 of 200 Sheets

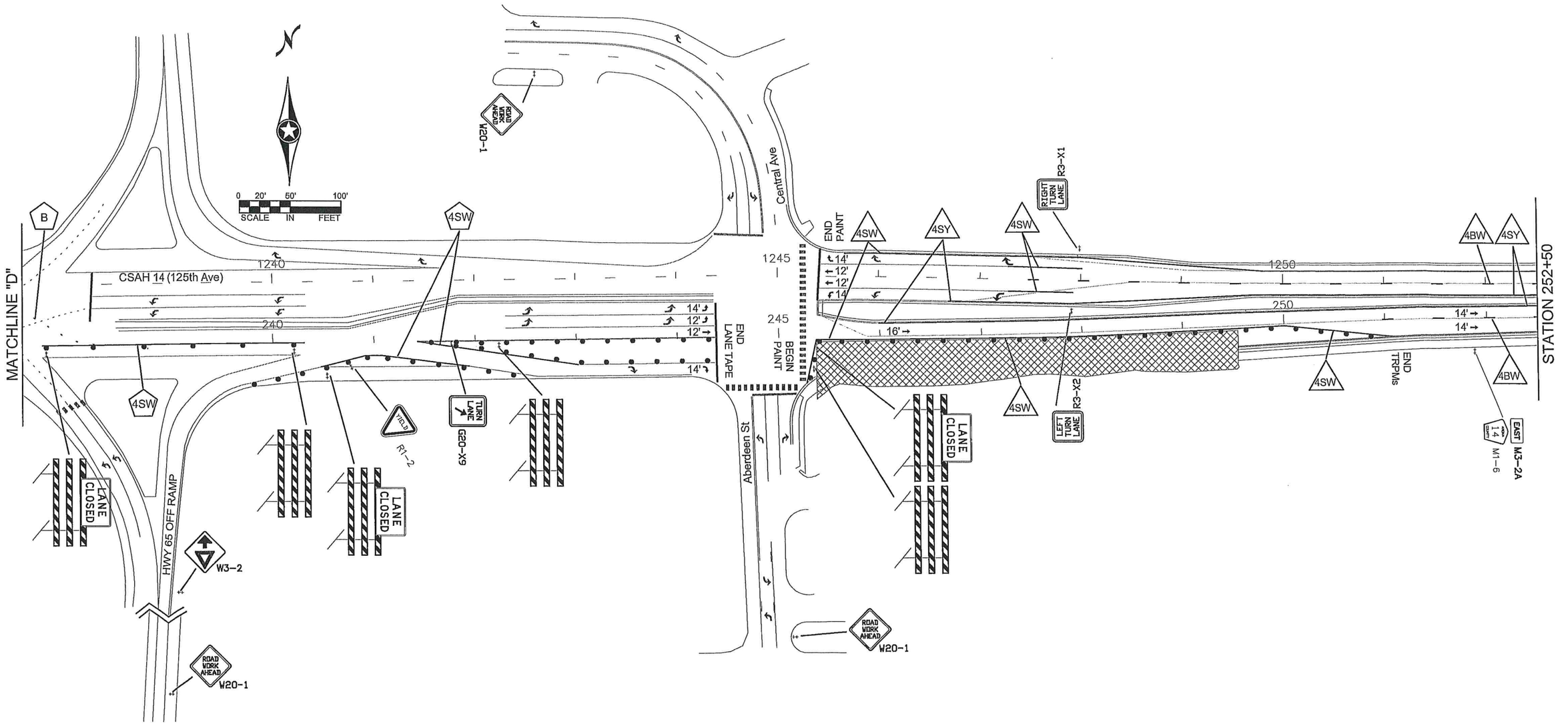
STRIPING KEY:

CIRCLE - MULTI COMP

SQUARE - POLY PREFORM

TRIANGLE - PAINT

PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING



3 OF 5

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Base\TRAFFIC\STG 5.dwg

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ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
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TRAFFIC CONTROL
STAGE 5

Sheet 134 of 200 Sheets

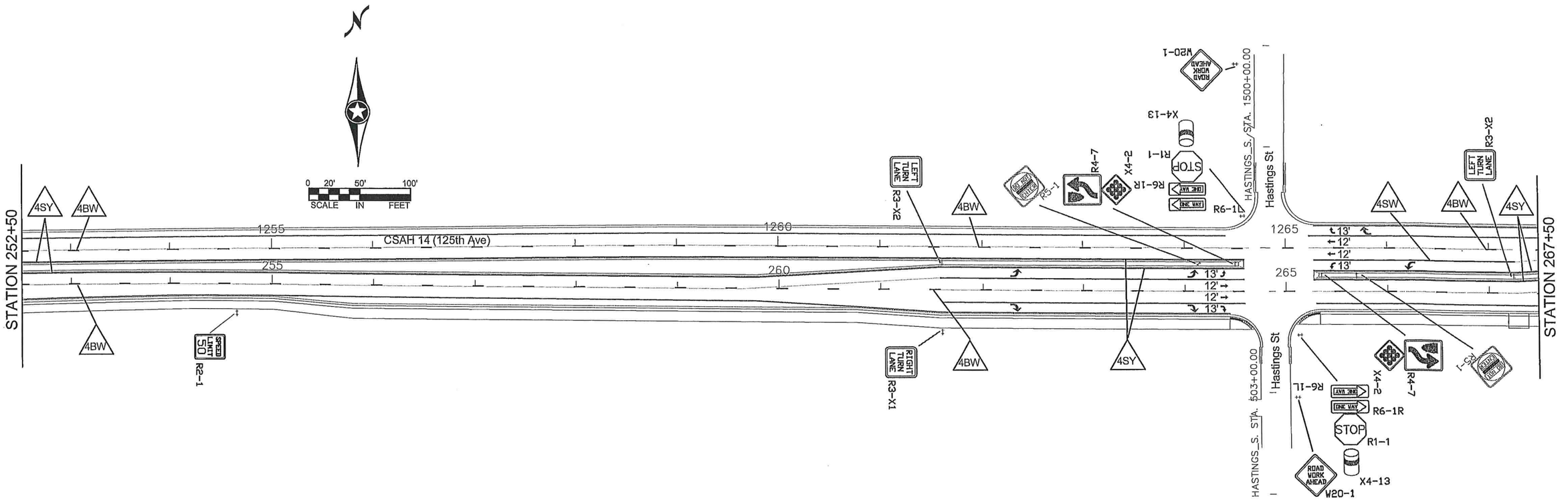
STRIPING KEY:

CIRCLE - MULTI COMP

SQUARE - POLY PREFORM

TRIANGLE - PAINT

PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING



4 OF 5

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Base\TRAFFIC\STG 5.dwg

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ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
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TRAFFIC CONTROL
STAGE 5

Sheet 135 of 200 Sheets

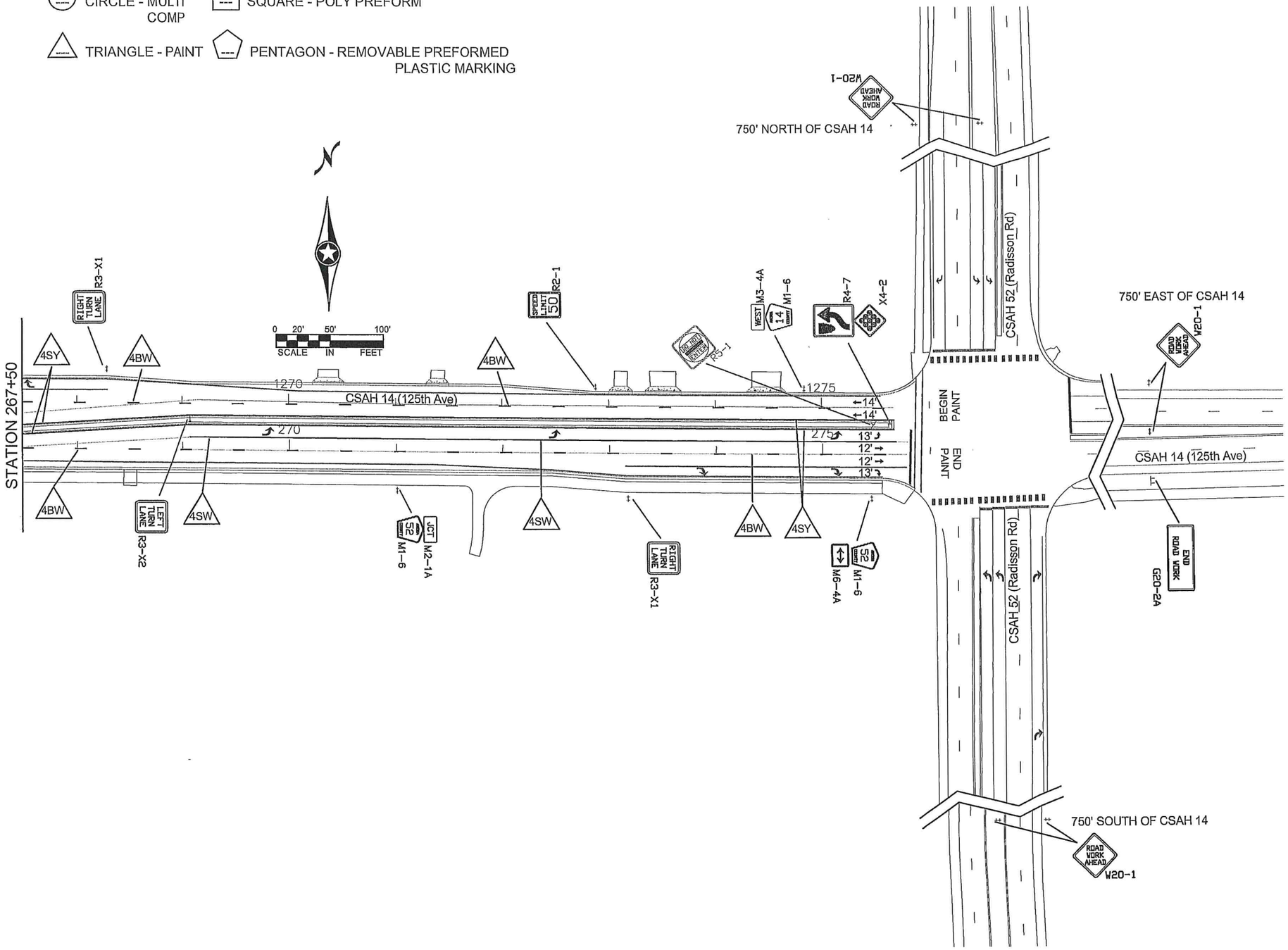
STRIPING KEY:

CIRCLE - MULTI COMP

SQUARE - POLY PREFORM

TRIANGLE - PAINT

PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING



5 OF 5

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Base\TRAFFIC\STG 5.dwg

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ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

TRAFFIC CONTROL
STAGE 5

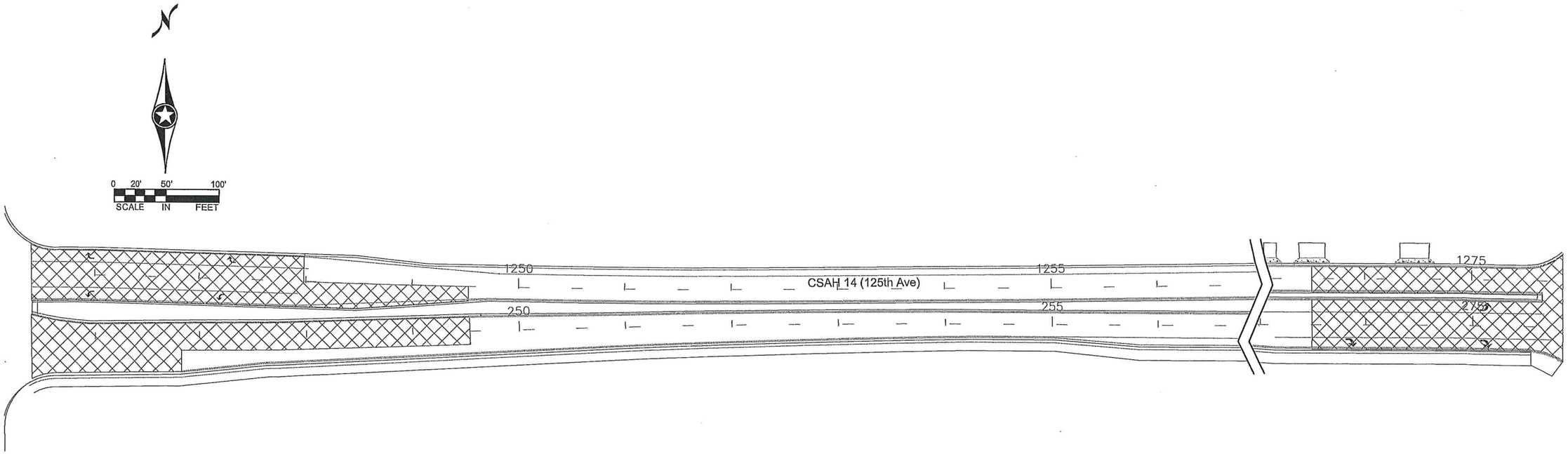
Sheet 136 of 200 Sheets

STAGE 6 TRAFFIC CONTROL NOTES: (TYP.)

1. REFER TO THE MOST RECENT MINNESOTA TEMPORARY TRAFFIC CONTROL FIELD MANUAL FOR TRAFFIC CONTROL DURING A MOBILE OPERATION.
2. PERMIT REQUIRED FOR ANY WORK/SIGNS WITHIN MNDOT ROW.

STAGE 6 CONSTRUCTION NOTES: (TYP.)

1. MILL AND OVERLAY AT CSAH 14 AND ABERDEEN ST AND CSAH 14 AND CSAH 52.
2. FINAL LIFT OF BITUMINOUS WILL BE PLACED THROUGHOUT ENTIRE PROJECT LIMITS.



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Base\TRAFFIC\STG 6.dwg

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ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

TRAFFIC CONTROL
STAGE 6

Sheet 137 of 200 Sheets

J

STAGING SIGN QUANTITIES

M.U.T.C.D. CODE	SIZE	INSERT	QTY. STG. 1A	QTY. STG. 1B	QTY. STG. 2	QTY. STG. 3	QTY. STG. 4	QTY. STG. 5
R6-1L	36" x 12"	ONE WAY	0	0	0	0	2	0
R6-1R	36" x 12"	ONE WAY	0	0	0	0	2	0
R1-1	30" x 30"	STOP	1	1	1	1	2	0
R4-7c	18" x 30"		0	0	2	2	0	0
R5-1	30" x 30"	DO NOT ENTER	0	0	1	2	2	0
R2-1	24" x 30"	SPEED LIMIT 50	1	1	1	2	2	1
R3-X1	30" x 30"	RIGHT TURN LANE	0	1	2	2	4	0
R3-X2	30" x 30"	LEFT TURN LANE	0	3	2	2	4	0
R3-8AD	36" x 30"	ONLY	1	1	0	0	0	0
R1-2	30" x 30"	YIELD	0	1	1	1	1	1
R3-1	24" x 24"		0	0	1	1	0	0
R3-2	24" x 24"		0	0	1	1	0	0
M3-2A	24" x 12"	EAST	1	1	1	1	1	1
M3-2A	24" x 12"	WEST	0	0	0	1	1	0
M1-6	24" x 24"	ANOKA COUNTY 14	1	1	1	2	2	1
M2-1A	21" x 15"	JCT	1	1	1	1	1	0
M1-6	24" x 24"	ANOKA COUNTY 52	2	2	2	2	2	0
M6-4A	21" x 15"		1	1	1	1	1	0

M.U.T.C.D. CODE	SIZE	INSERT	QTY. STG. 1A	QTY. STG. 1B	QTY. STG. 2	QTY. STG. 3	QTY. STG. 4	QTY. STG. 5
W3-2	48" x 48"		0	1	1	1	1	1
W20-1	36" x 36"	ROAD WORK AHEAD	2	1	1	1	1	0
	48" x 48"		10	13	13	13	13	16
W21-X5	36" x 36"	RIGHT LANE CLOSED	0	0	1	0	0	1
	48" x 48"		4	0	3	0	2	1
W13-1	24" x 24"	35 M.P.H.	4	0	4	0	2	2
W21-X5	48" x 48"	LEFT LANE CLOSED	0	6	0	4	4	0
W13-1	24" x 24"	35 M.P.H.	0	7	0	4	4	0
W4-2R	48" x 48"		3	0	3	0	1	2
W13-1	24" x 24"	35 M.P.H.	3	0	3	0	1	2
W4-2L	36" x 36"		0	0	0	1	0	0
	48" x 48"		0	4	0	2	1	0
W13-1	24" x 24"	35 M.P.H.	0	4	0	3	1	0
FLASHER			0	0	1	1	0	0
W20-3	48" x 48"	ROAD CLOSED AHEAD	0	0	1	1	0	0
W1-4R	48" x 48"		0	0	1	1	0	0
W13-1	24" x 24"	35 M.P.H.	0	0	1	1	0	0
W1-4R	36" x 36"		0	0	2	1	0	0
	48" x 48"		0	0	2	1	0	0
W13-1	24" x 24"	35 M.P.H.	0	0	2	2	0	0

M.U.T.C.D. CODE	SIZE	INSERT	QTY. STG. 1A	QTY. STG. 1B	QTY. STG. 2	QTY. STG. 3	QTY. STG. 4	QTY. STG. 5
W1-4b	48" x 48"		0	3	0	0	3	0
W13-1	24" x 24"	35 M.P.H.	0	3	0	0	3	0
W6-3	48" x 48"		0	0	4	4	0	0
W13-1	24" x 24"	35 M.P.H.	0	0	4	4	0	0
G20-X9	30" x 36"	TURN LANE	1	0	2	1	1	1
G20-X9	30" x 36"	TURN LANE	0	5	0	1	6	0
R9-9a	24" x 18"	TRAIL CLOSED	3	0	0	0	0	0
SIDEWALK BARRICADE			5	0	0	0	0	0
R9-9a	24" x 18"	TRAIL CLOSED	2	0	0	0	0	0
SIDEWALK BARRICADE			2	0	0	0	0	0
R11-2	48" x 30"	ROAD CLOSED	0	0	1	2	0	0
R11	48" x 30"	LANE CLOSED	0	4	0	2	4	1
W1-6	48" x 24"		0	0	1	0	0	0
R4-7	24" x 30"		0	0	0	0	2	0
R3-2	24" x 24"		0	7	0	0	0	0
FLASHER			0	0	1	2	0	0
TYPE III	8 FOOT		2	17	5	9	15	3

NOTES:

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

NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Base\TRAFFIC\Staging Sign Quantities.dwg

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ANOKA COUNTY
HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

STAGING
SIGN QUANTITIES

Sheet 138 of 200 Sheets

J — STAGING SIGN QUANTITIES

M.U.T.C.D. CODE	SIZE	INSERT	QTY. STG. 1A	QTY. STG. 1B	QTY. STG. 2	QTY. STG. 3	QTY. STG. 4	QTY. STG. 5
R11-2	48" x 30"	ROAD CLOSED	0	0	1	2	0	0
R11	48" x 30"	LANE CLOSED	3	0	4	2	0	5
FLASHER			0	0	1	2	0	0
TYPE III	8 FOOT		6	0	10	9	1	8
REFLECTORIZED REBOUNDABLE DRUM			142	275	212	236	257	148
G20-2A	48" x 24"	END ROAD WORK	2	2	2	2	2	2
FLASHING ARROWBOARD			2	0	2	1	1	1
			0	3	0	1	1	0
CMS sign to be installed a minimum of ten days prior to actual commencement of road work. Signs to be removed when road work begins.		CMS	2 10 DAYS	0	0	0	0	0

K — TEMPORARY PAVEMENT MARKING TABULATION

PAVEMENT MARKING REMOVAL 4" SOLID WHITE PAINT	LIN FT	14757
PAVEMENT MARKING REMOVAL 4" SOLID DOUBLE YELLOW PAINT	LIN FT	1653
PAVEMENT MARKING REMOVAL 4" SOLID YELLOW PAINT	LIN FT	17142
PAVEMENT MARKING REMOVAL (ARROWS) SOLID WHITE	SQ FT	750
PAVEMENT MARKING REMOVAL 8" BROKEN LINE WHITE	LIN FT	51
PAVEMENT MARKING REMOVAL 24" SOLID YELLOW	LIN FT	184
PAVEMENT MARKING REMOVAL 3' X 6' CROSSWALK SOLID WHITE	SQ FT	270
RAISED PAVEMENT MARKER TEMPORARY **SPACED EVERY 10 FEET**	EACH	1294
PORTABLE CONCRETE BARRIER DELINEATOR - WHITE **SPACED EVERY 12'6"**	EACH	250
REMOVABLE BLACK MASK	LIN FT	1649
REMOVABLE POLY PREFORM MARKING (4" WHITE)	LIN FT	8347
REMOVABLE POLY PREFORM MARKING (4" YELLOW)	LIN FT	3359
4" SOLID LINE WHITE - PAINT	LIN FT	25419
4" SOLID LINE YELLOW - PAINT	LIN FT	21110
4" SOLID LINE DOUBLE YELLOW - PAINT	LIN FT	4549
4" BROKEN LINE WHITE - PAINT	LIN FT	1760
6" SOLID LINE WHITE CROSSWALK	LIN FT	210
24" SOLID WHITE STOP BAR	LIN FT	11
PORTABLE CHANGEABLE MESSAGE SIGN	UDAY	20

NOTES:

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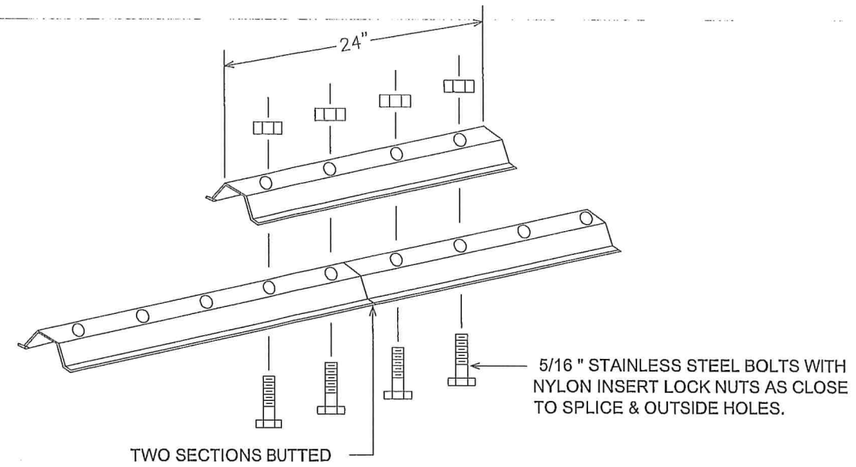
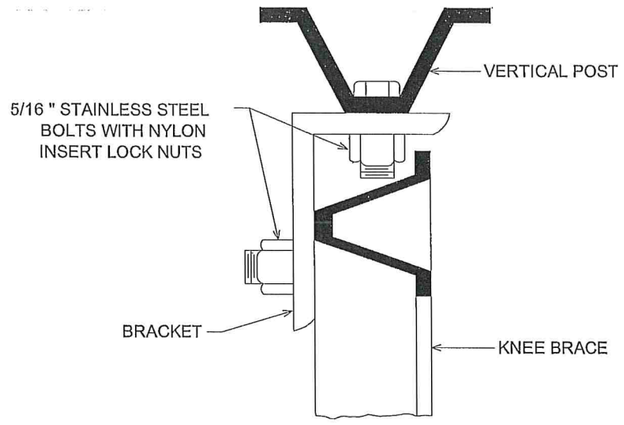
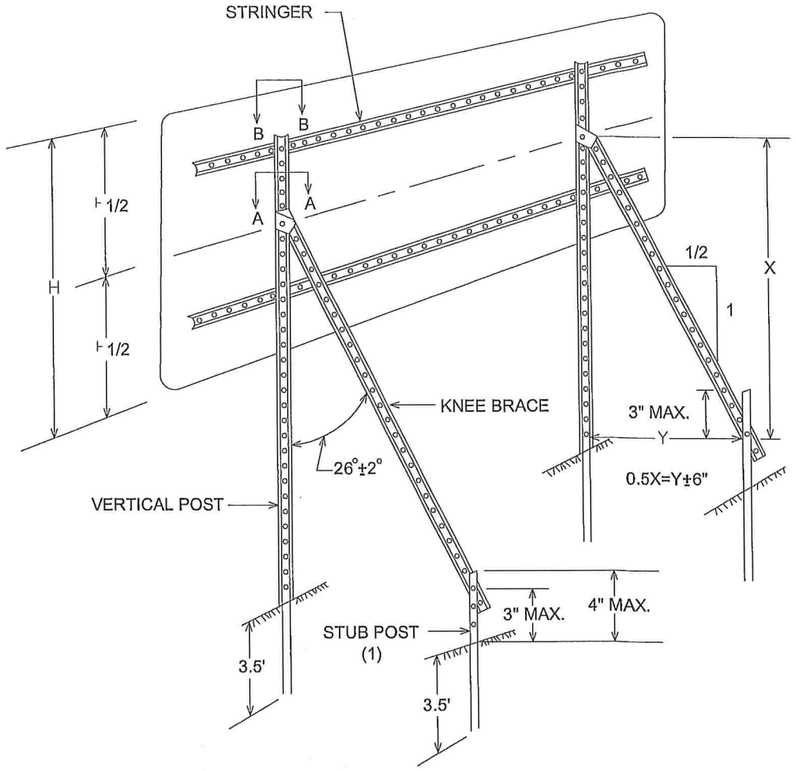
STAGING SIGN QUANTITIES



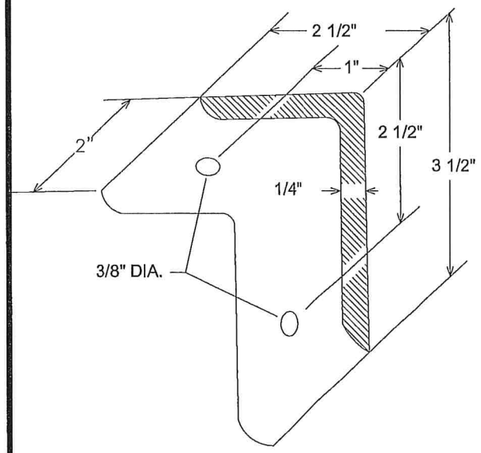
LATERAL BRACE OR STRINGER SPLICE DETAIL (EXPLODED VIEW)



SECTION A-A

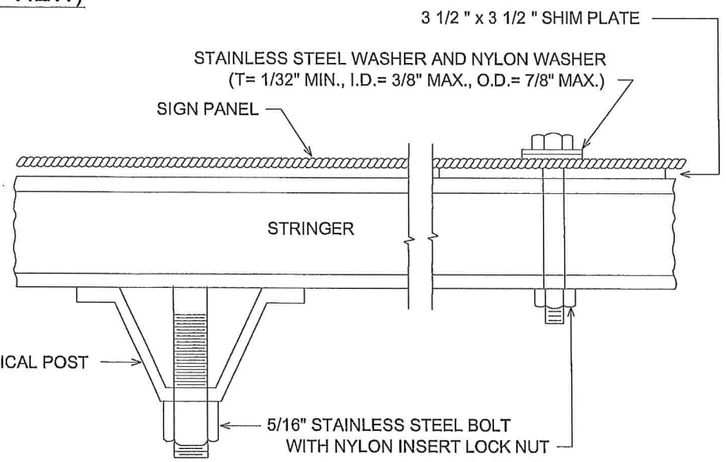


TYPICAL "A-FRAME" INSTALLATION TYPE "D" SIGNS

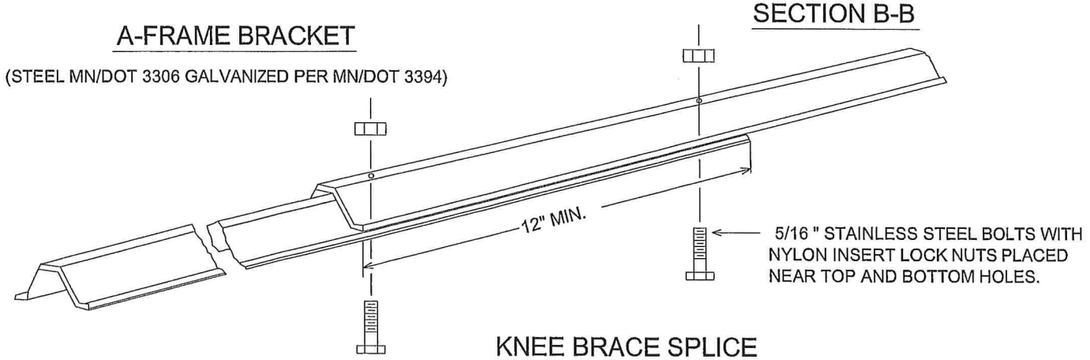


A-FRAME BRACKET

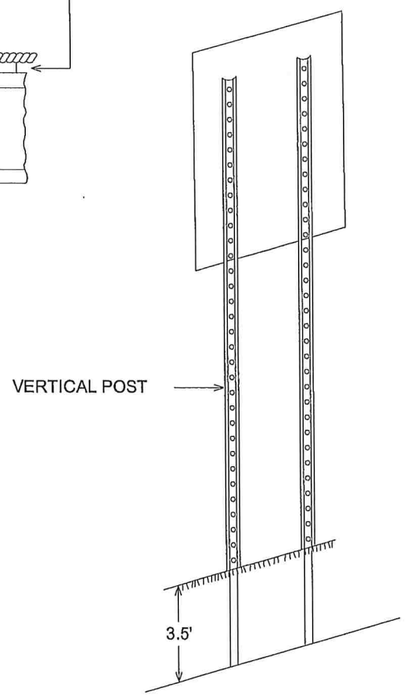
(STEEL MN/DOT 3306 GALVANIZED PER MN/DOT 3394)



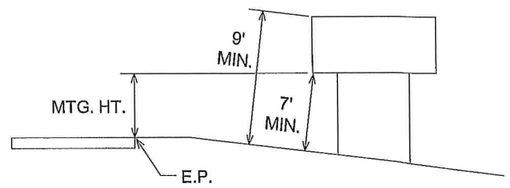
SECTION B-B



KNEE BRACE SPLICE



TYPICAL INSTALLATION 36" AND LARGER TYPE "C" SIGNS



TYPICAL MOUNTING

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

TYPE C & D SIGN STRUCTURAL DETAILS

NO	DATE	BY	CKD	APPR	REVISION

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SIGNATURE:
DATE: 12-27-19 LICENSE NO. 46732

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DESIGN BY FL DATE 10/21/19
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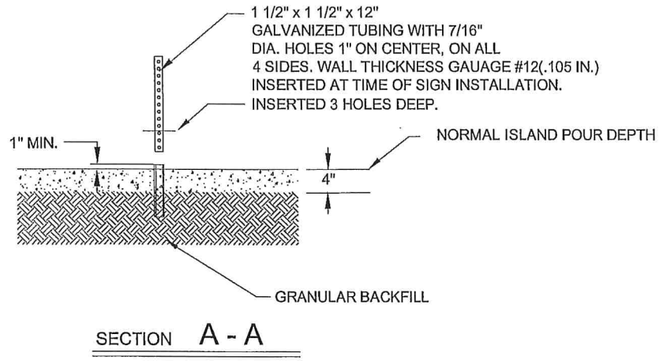
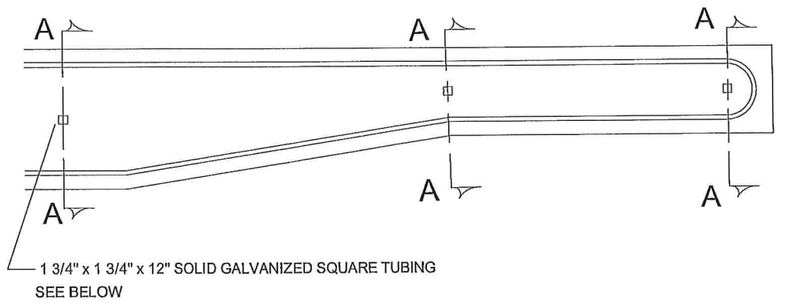
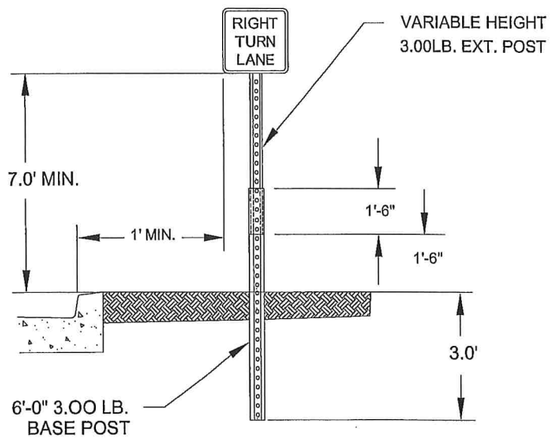


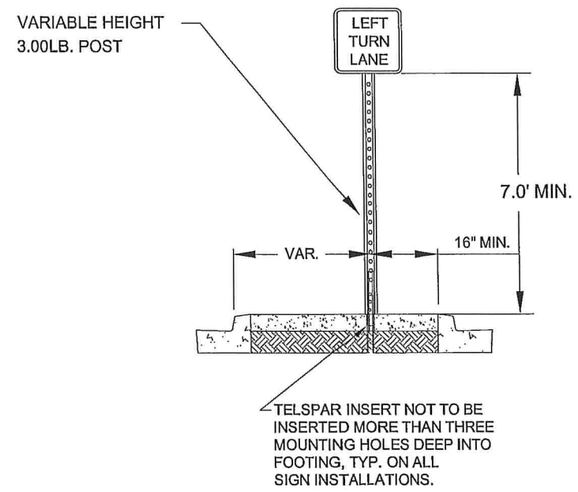
SECTION A - A



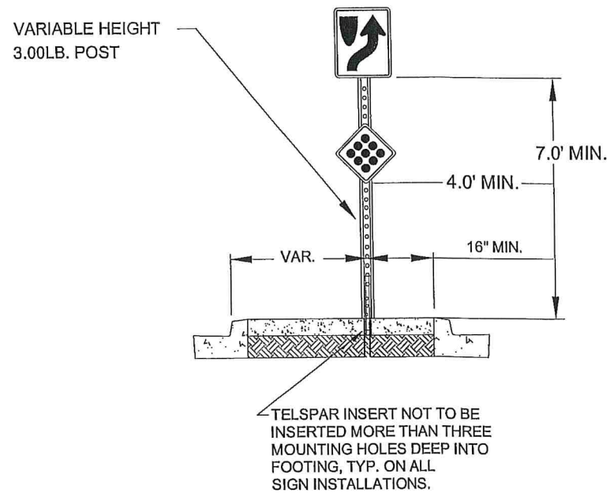
GROUND POST MOUNT SIGN
INSTALLATION TYPICAL



ISLAND MOUNT BREAK-AWAY SIGN
INSTALLATION TYPICAL



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



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DETAILS

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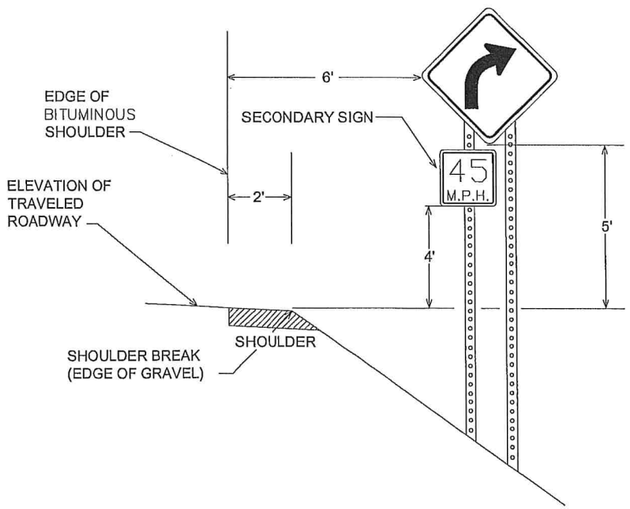
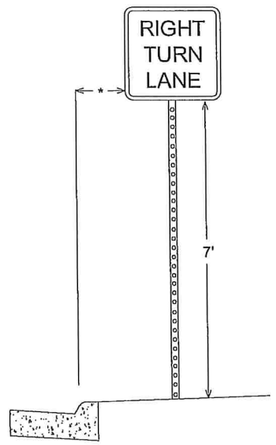
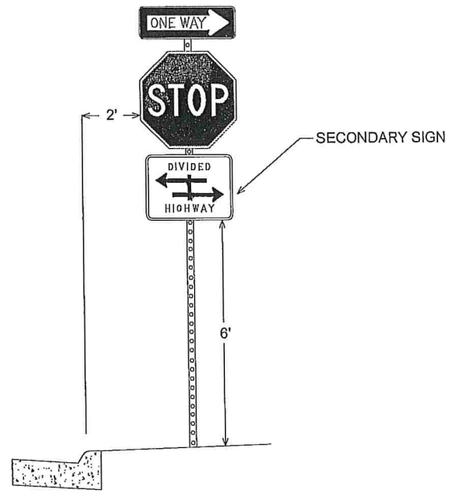
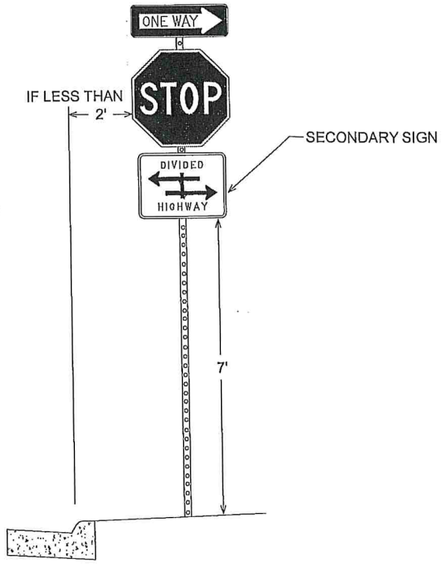
TYPICAL SIGN PLACEMENT (RURAL)



TYPICAL SIGN PLACEMENT (URBAN)



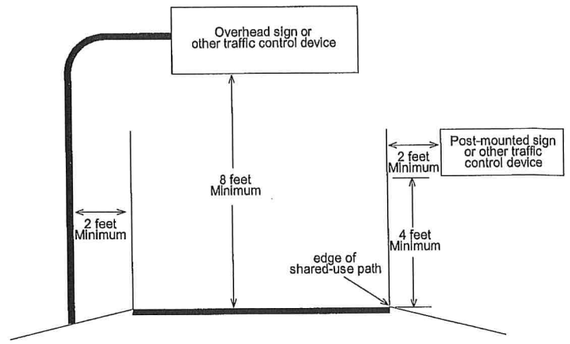




* 2' - NARROW BOULEVARD (< 8' WIDE)
6' - WIDE BOULEVARD

NOTES:

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



TYPICAL SIGN PLACEMENT SHARED-USE PATH

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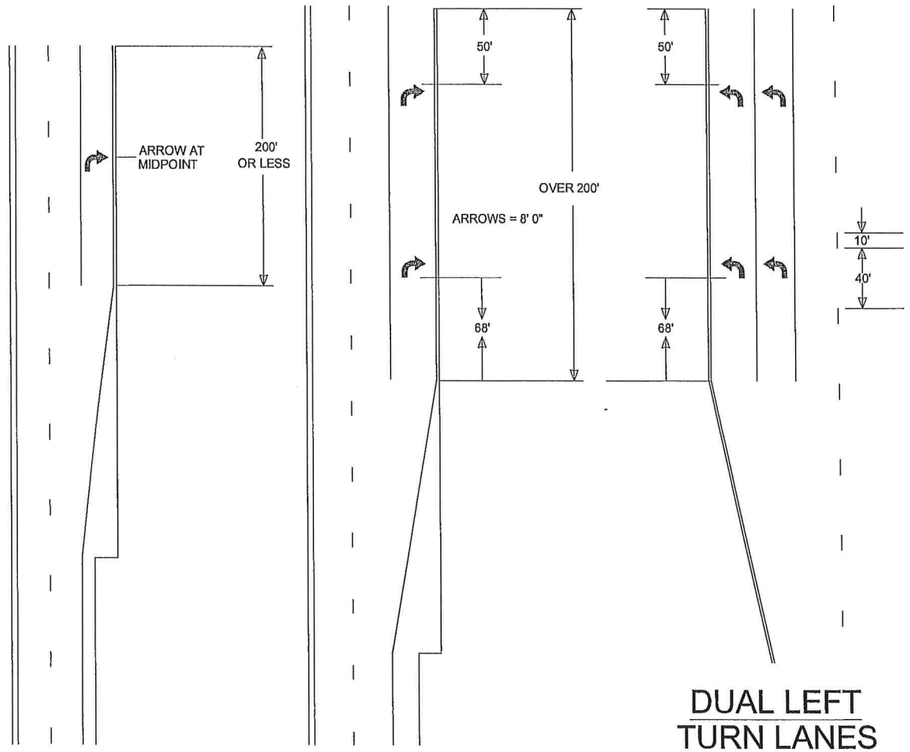
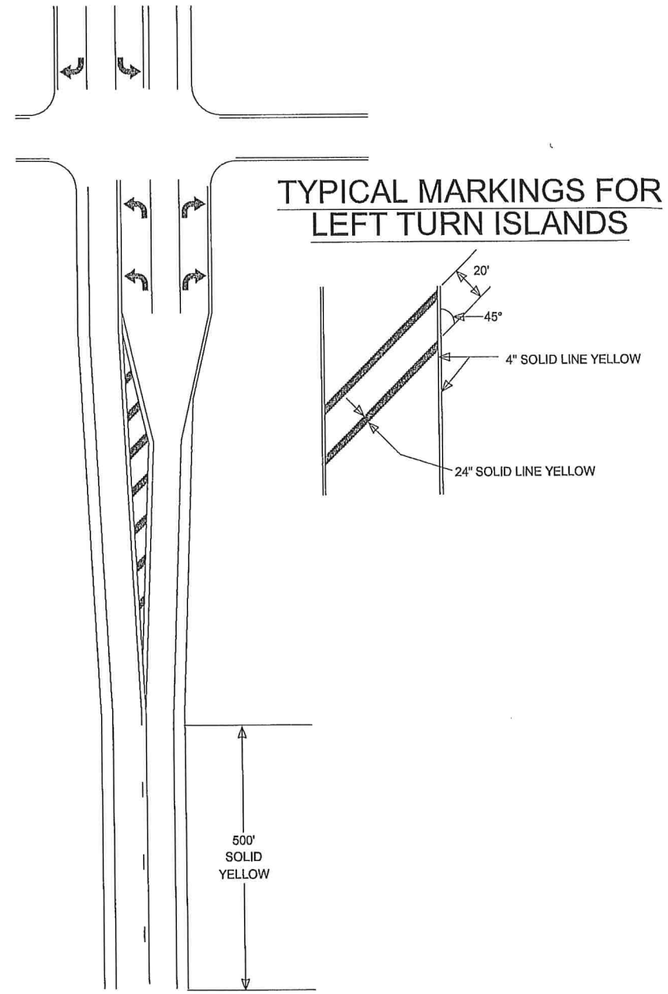
TYPICAL MESSAGE PLACEMENT FOR TURN LANES



DUAL LEFT TURN LANES

TYPICAL MARKINGS FOR LEFT TURN ISLANDS



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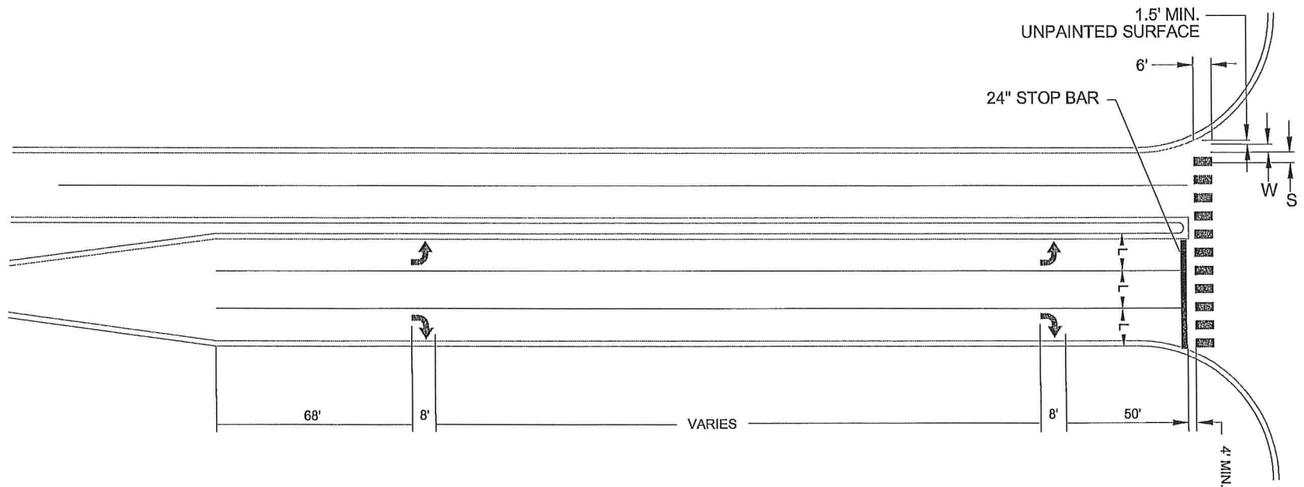
MARKINGS FOR PEDESTRIAN CROSSWALKS



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

NOTES: CROSSWALKS:

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

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

3.) ZEBRA CROSSWALKS ARE TO BE PARALLEL TO THE DRIVING LANE OR LANES. EVEN IF THE STREET IS ON AN ANGLE TO THE INTERSECTION.

4.) A MIN. OF 1.5' (450mm) CLEAR DISTANCE MUST BE LEFT ADJACENT TO THE CURB. IF LAST PAINTED AREA FALLS INTO THIS AREA, IT MUST BE OMITTED.

5.) ON TWO LANE STREETS, USE SPACING SHOWN FOR AN 11' (3.3mm) INSIDE LANE.

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SIGNING & STRIPING DETAILS

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PERMANENT PAVEMENT MARKING PLAN
NOTES AND GUIDELINES

GENERAL INFORMATION:
THE ENGINEER'S INVOLVEMENT IN THE APPLICATION OF THE MATERIAL SHALL BE LIMITED TO FIELD CONSULTATION AND INSPECTION. ANOKA COUNTY HIGHWAY DEPARTMENT WILL PLACE NECESSARY "SPOTTING" AT APPROPRIATE POINTS TO PROVIDE HORIZONTAL CONTROL FOR STRIPING AND TO DETERMINE NECESSARY STARTING AND CUTOFF POINTS. LONGITUDINAL JOINTS, PAVEMENT EDGES AND EXISTING MARKINGS MAY SERVE AS HORIZONTAL CONTROL WHEN SO DIRECTED.

EDGE LINES AND LANE LINES ARE TO BE BROKEN ONLY AT INTERSECTIONS WITH PUBLIC ROADS AND AT PRIVATE ENTRANCES IF THEY ARE CONTROLLED BY A YIELD SIGN, STOP SIGN OR TRAFFIC SIGNAL. THE BREAK POINT IS TO BE AT THE START OF THE RADIUS FOR THE INTERSECTION OR AT MARKED STOP LINES OR CROSSWALKS.

A TOLERANCE OF $\frac{1}{4}$ INCH UNDER OR $\frac{1}{4}$ INCH OVER THE SPECIFIED WIDTH WILL BE ALLOWED FOR STRIPING PROVIDED THE VARIATION IS GRADUAL AND DOES NOT DETRACT FROM THE GENERAL APPEARANCE. BROKEN LINE SEGMENTS MAY VARY UP TO ONE-HALF FOOT FROM THE SPECIFIED LENGTHS PROVIDED THE OVER AND UNDER VARIATIONS ARE REASONABLY COMPENSATORY. ALIGNMENT DEVIATIONS FROM THE CONTROL GUIDE SHALL NOT EXCEED 1 INCH. MATERIAL SHALL NOT BE APPLIED OVER LONGITUDINAL JOINTS. ESTABLISHMENT OF APPLICATION TOLERANCES SHALL NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY TO COMPLY AS CLOSELY AS PRACTICABLE WITH THE PLANNED DIMENSIONS.

MULTI COMPONENT (MULTI COMP):
THE ROAD SURFACE SHALL BE CLEANED AT THE DIRECTION OF THE ENGINEER JUST PRIOR TO APPLICATION. PAVEMENT CLEANING SHALL CONSIST OF AT LEAST BRUSHING WITH A ROTARY BROOM (NON-METALLIC) OR AS RECOMMENDED BY THE MATERIAL MANUFACTURER AND ACCEPTABLE TO THE ENGINEER. NEW PORTLAND CEMENT CONCRETE SURFACES SHALL BE SANDBLAST CLEANED TO REMOVE ANY SURFACE TREATMENT AND/OR LAITANCE ON LOW SPEED (SPEED LIMIT 35 MPH OR LESS) URBAN PORTLAND CEMENT CONCRETE ROADWAYS. SANDBLAST CLEANING SHALL BE USED FOR ALL MULTI COMP PAVEMENT MARKINGS.

THE MULTI COMP MARKING APPLICATION SHALL IMMEDIATELY FOLLOW THE PAVEMENT CLEANING. GLASS BEADS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE MULTI COMP LINE TO PROVIDE AN IMMEDIATE NO-TRACK SYSTEM.

A MULTI COMP LINE SHALL BE APPLIED WITH A MINIMUM THICKNESS OF 20 MILS (WET) AND 4" WIDE . GLASS BEADS SHALL BE APPLIED AT A MINIMUM RATE OF 25LBS POUNDS PER GALLON RATE SUFFICIENT TO ACHIEVE AN ACCEPTABLE NO-TRACK SYSTEM.

OPERATIONS SHALL BE CONDUCTED ONLY WHEN THE ROAD PAVEMENT SURFACE TEMPERATURES ARE 50 DEGREES FAHRENHEIT OR GREATER.

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

PREFORMED THERMOPLASTIC:
THE PREFORMED THERMOPLASTIC MARKINGS SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS ON CLEAN AND DRY SURFACES. SEE SPECIAL PROVISIONS FOR PREFORMED THERMOPLASTIC MARKING SPECIFICATIONS.

PAINT:
AT THE TIME OF APPLYING THE MARKING MATERIAL, THE APPLICATION AREA SHALL BE FREE OF CONTAMINATION. THE CONTRACTOR SHALL CLEAN THE ROADWAY SURFACE PRIOR TO THE LINE APPLICAITON IN A MANNER AND TO THE EXTENT REQUIRED BY THE ENGINEER.

GLASS BEADS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE PAINT LINE.

EXCEPT WHEN USED AS A TEMPORARY MARKING, PAVEMENT MARKINGS SHALL ONLY BE APPLIED IN SEASONABLE WEATHER WHEN AIR TEMPERATURE IS 50 DEGREES FARHENHEIT OR HIGHER AND SHALL NOT BE APPLIED WHEN THE WIND OR OTHER CONDITIONS CAUSE A FILD OR DUST TO BE DEPOSITED ON THE PAVEMENT SURFACE AFTER CLEANING AND BEFORE THE MARKING MATERIAL CAN BE APPLIED.

THE FILLING OF TANKS, POURING OF MATERIALS OR CLEANING OF EQUIPMENT SHALL NOT BE PERFORMED ON UNPROTECTED PAVEMENT SURFACES UNLESS ADEQUATE PROVISIONS ARE MADE TO PREVENT SPILLAGE OF MATERIAL.

SYMBOLS & MATERIALS LEGEND

CROSSWALK BLOCK WHITE-POLY PREFORM

PAVEMENT MESSAGE (LEFT ARROW) POLY PREFORM

STRIPING KEY

CIRCLE - MULTI COMP

SQUARE - POLY PREFORM THERMOPLASTIC

TRIANGLE - PAINT

PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING

1ST DIGIT WIDTH	2ND DIGIT PATTERN	3RD DIGIT COLOR
4", 8", ETC.	S - SOLID	W - WHITE
	B - BROKEN	Y - YELLOW
	D - DOTTED/DOUBLE	B - BLACK

EXAMPLE: (4SW) = 4" SOLID LINE WHITE - MULTI COMP

L — **PAVEMENT MARKING TABULATION**

	ITEM	UNIT	TOTAL QUANTITY
	4" SOLID LINE WHITE - MULTI COMP	LIN FT	8350
1	4" BROKEN LINE WHITE - MULTI COMP	LIN FT	1220
2	8" DOTTED LINE WHITE - MULTI COMP	LIN FT	39
	4" SOLID LINE YELLOW - MULTI COMP	LIN FT	5925
	24" SOLID LINE WHITE - PREFORMED THERMOPLASTIC (PMS*)	SQ FT	900
	3'x6' ZEBRA CROSSWALK - PREFORMED THERMOPLASTIC	SQ FT	1584
	PAVEMENT MESSAGE (RT ARROW) - PREFORMED THERMOPLASTIC	SQ FT	62
	PAVEMENT MESSAGE (LEFT ARROW) - PREFORMED THERMOPLASTIC	SQ FT	78

1 10' STRIPE, 40' GAP
2 3' STRIPE, 12' GAP
* PAVEMENT MARKING SPECIAL

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ANOKA COUNTY HIGHWAY DEPT.

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SAP 106-020-036
CP 18-10

PERMANENT PAVEMENT MARKING PLAN

NOTES: TYP.

- LOCATIONS OF ALL PERMANENT STRIPING AND PAVEMENT MARKINGS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- ALL MAINLINE PERMANENT STRIPING AND PAVEMENT MESSAGES SHALL BE PLACED WITHIN 72 HOURS OF MAINLINE PAVING.
- ALL SEGMENT STRIPE LINES SHALL BE MULTI COMP.
- PERMANENT MESSAGES AND ARROWS SHALL BE PREFORMED THERMOPLASTIC.

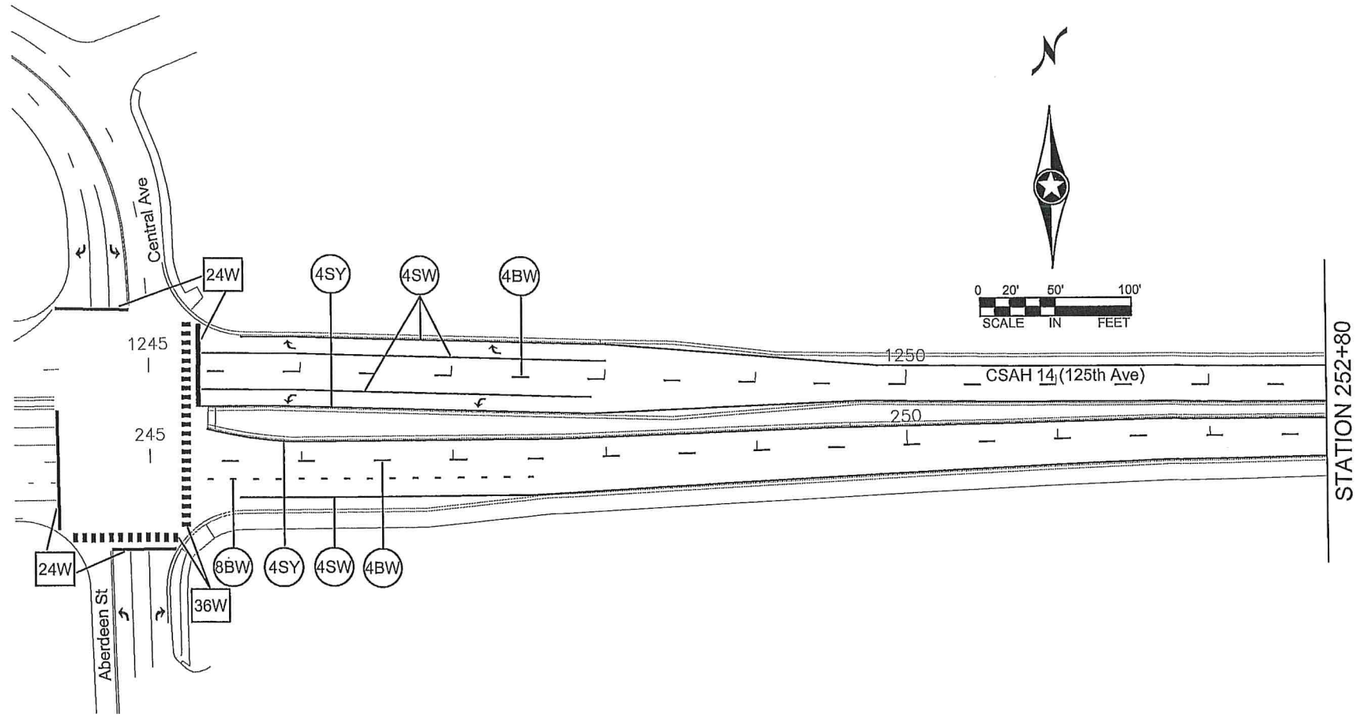
STRIPING KEY:

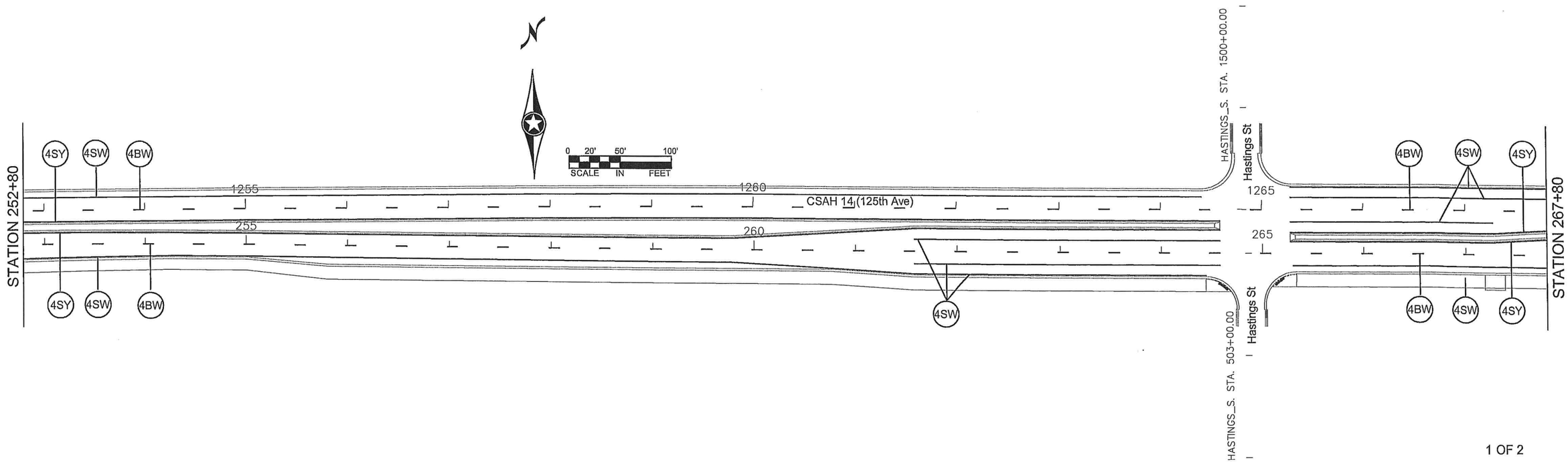
CIRCLE - MULTI COMP

SQUARE - POLY PREFORM

TRIANGLE - PAINT

PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING





1 OF 2

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PERMANENT STRIPING PLAN

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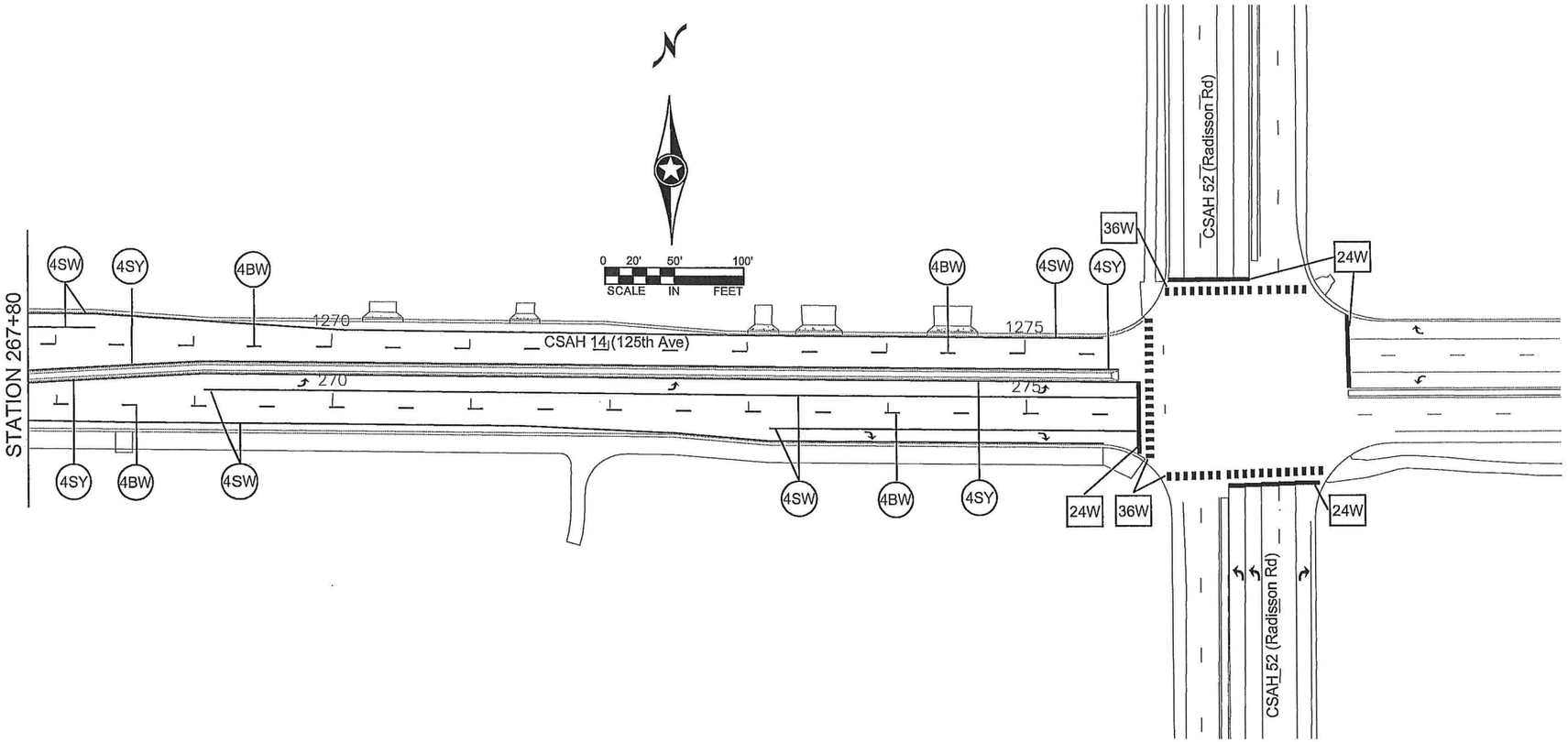
STRIPING KEY:

CIRCLE - MULTI COMP

SQUARE - POLY PREFORM

TRIANGLE - PAINT

PENTAGON - REMOVABLE PREFORMED PLASTIC MARKING



2 OF 2

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PERMANENT STRIPING PLAN

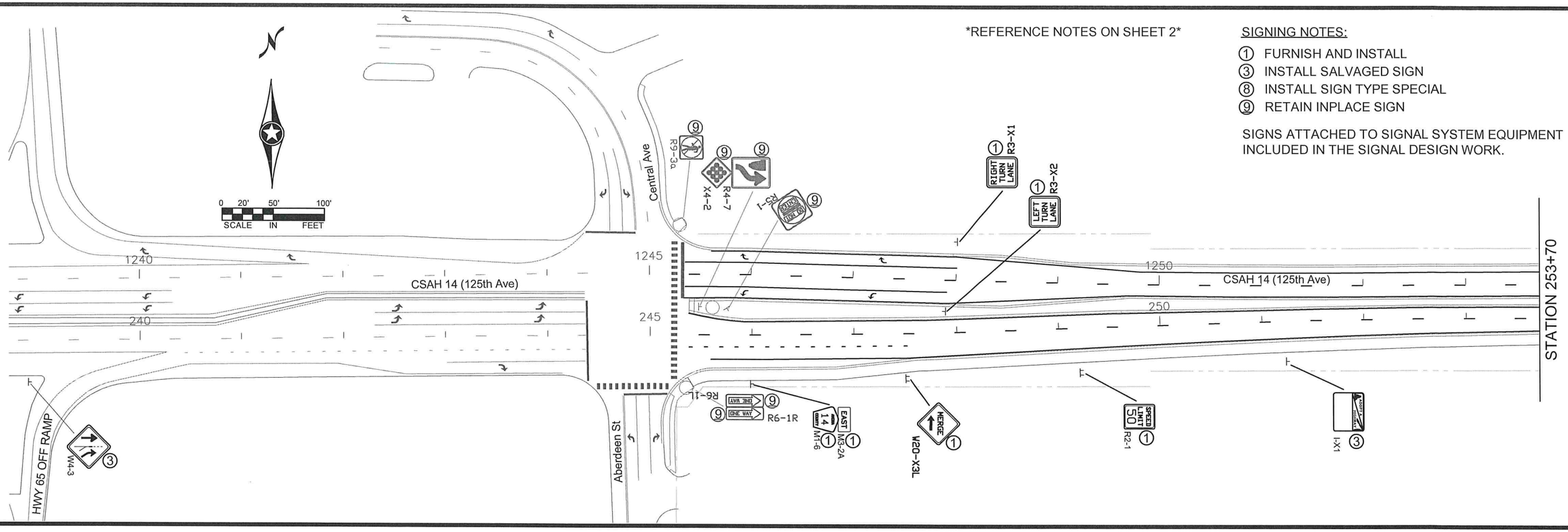
Sheet 147 of 200 Sheets

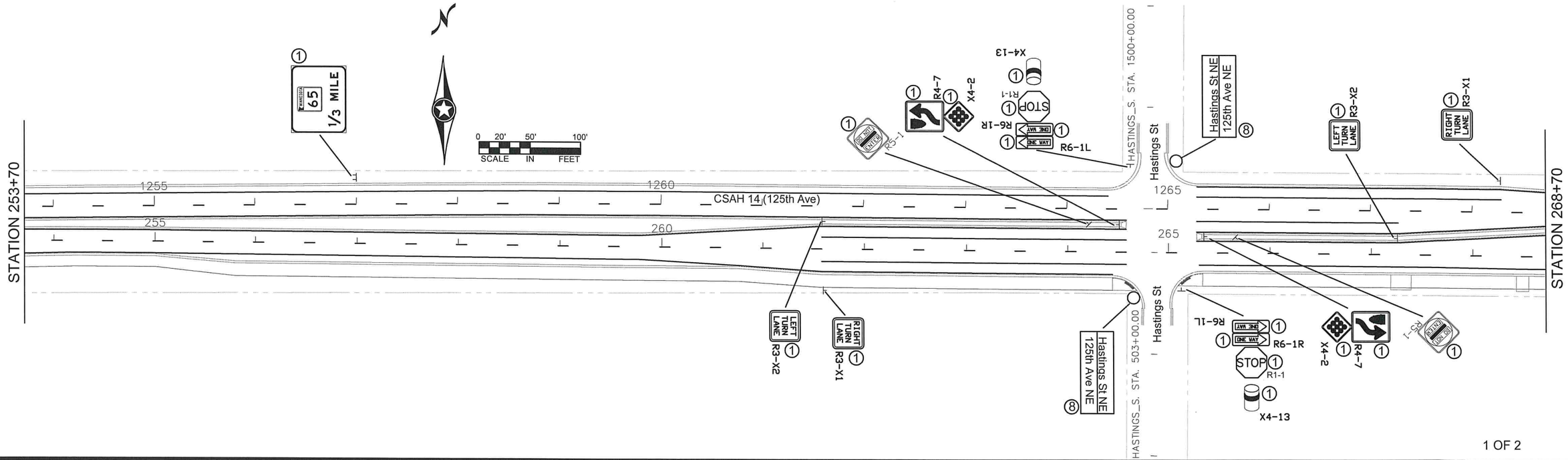
REFERENCE NOTES ON SHEET 2

SIGNING NOTES:

① FURNISH AND INSTALL
③ INSTALL SALVAGED SIGN
⑧ INSTALL SIGN TYPE SPECIAL
⑨ RETAIN INPLACE SIGN

SIGNS ATTACHED TO SIGNAL SYSTEM EQUIPMENT INCLUDED IN THE SIGNAL DESIGN WORK.





1 OF 2

NO	DATE	BY	CKD	APPR	REVISION
1	1/6/20	FL			ADDED MN 65 1\3 MILE TYPE D SIGN PER MNDOT REQUEST

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PERMANENT SIGNING PLAN

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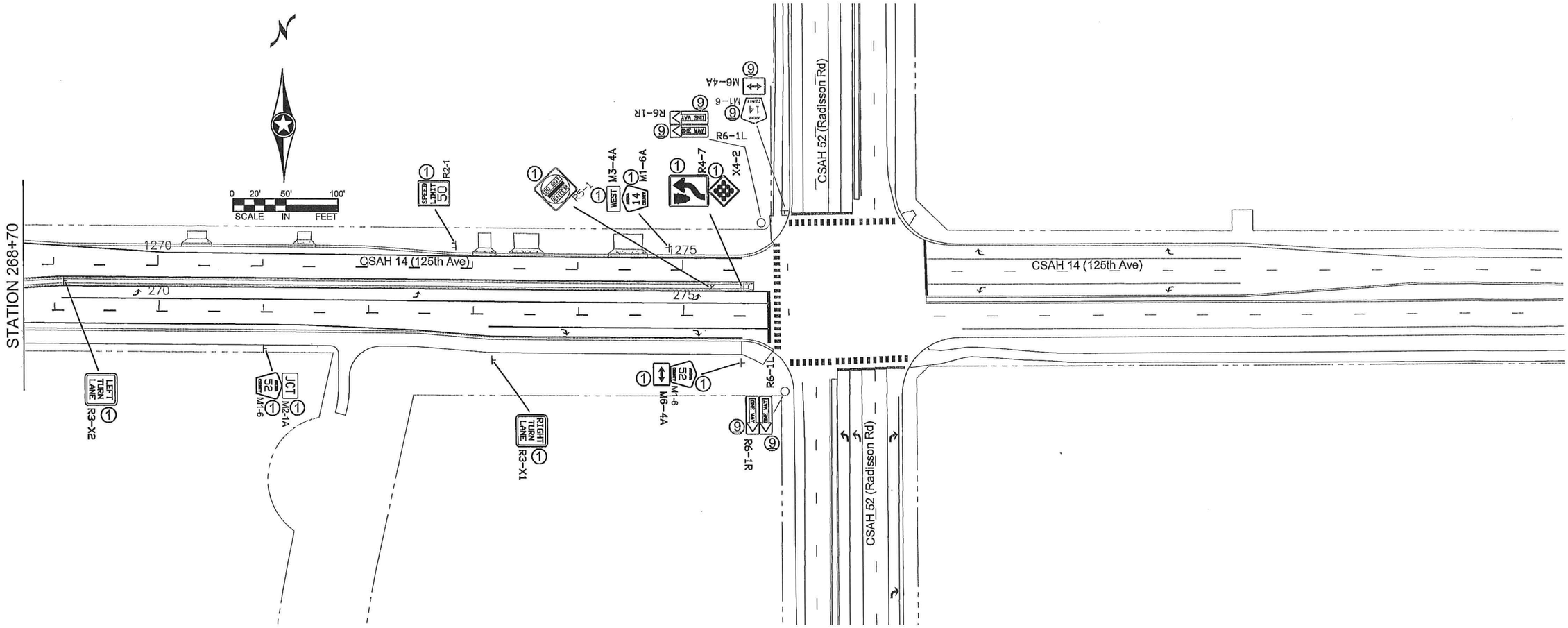
NOTES: TYP.

- ALL TRAFFIC CONTROL DEVICES SHALL CONFORM AND BE PLACED IN ACCORDANCE WITH THE MOST RECENT EDITION OF THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MN MUTCD), INCLUDING PART VI, "FIELD MANUAL", DATED JANUARY 2018.
- SEE PERMANENT SIGN TABULATIONS FOR ADDITIONAL INFORMATION.
- ALL SIGNS SHALL BE FURNISHED AND INSTALLED UNLESS OTHERWISE NOTED.

SIGNING NOTES:

① FURNISH AND INSTALL
③ INSTALL SALVAGED SIGN
⑧ INSTALL SIGN TYPE SPECIAL
⑨ RETAIN INPLACE SIGN

SIGNS ATTACHED TO SIGNAL SYSTEM EQUIPMENT INCLUDED IN THE SIGNAL DESIGN WORK.



2 OF 2

NO	DATE	BY	CKD	APPR	REVISION

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SIGNATURE:

DATE: 12-27-19 LICENSE NO. 46732

DRAWN BY FL DATE 10/21/19

DESIGN BY FL DATE 10/21/19

CHECKED BY JM DATE 10/25/19

ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

PERMANENT SIGNING PLAN

Sheet 149 of 200 Sheets

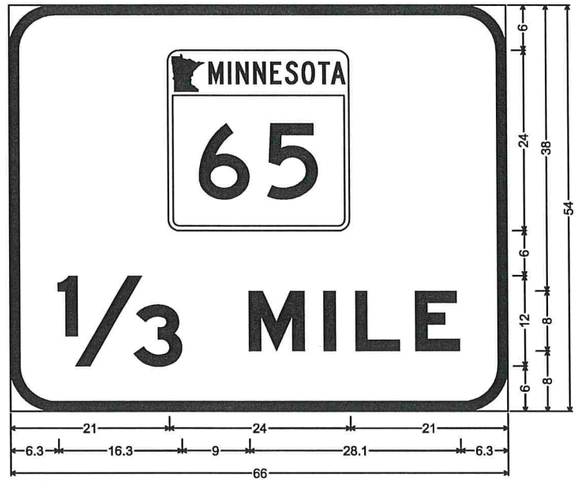
NOTES:

- SIGN INSTALLATION SHALL CONFORM AND BE PLACED IN ACCORDANCE WITH THE MOST RECENT EDITION OF THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL.

M SIGN PANELS

M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY	SQ FT PANEL AREA	SQ FT TOTAL AREA	MOUNTING POST PER INSTALLATION	MOUNTING HEIGHT
R6-1L	36" X 12"	ONE WAY	2	3.00	6.00	1	7.0'
R6-1R	36" X 12"	ONE WAY	2	3.00	6.00		
R1-1	30" X 30"	STOP	2	6.25	12.50		
X4-13	4" diameter X 15"		2	0.42	.84		
R2-1	30" X 36"	SPEED LIMIT 50	2	7.50	15.00	2	7.0'
R3-X1	30" X 30"	RIGHT TURN LANE	4	6.25	25.00	1	7.0'
R3-X1	30" X 30"	LEFT TURN LANE	4	6.25	25.00	1	7.0'
R4-7	24" X 30"		3	5.00	15.00	1	7.0'
X4-2	18" X 18"		3	2.25	6.75		
R5-1	30" X 30"	DO NOT ENTER	3	6.25	18.75	1	7.0'
W20-X3L	48" X 48"	MERGE	1	16.00	16.00	2	7.0'
M3-2A	24" X 12"	EAST	1	2.00	2.00	1	7.0'
M3-4A	24" X 12"	WEST	1	2.00	2.00		
M1-6	24" X 24"	14	2	4.00	8.00		
M2-1A	21" X 15"	JCT	1	2.19	2.19	1	7.0'
M1-6	24" X 24"	52	2	4.00	8.00		
M6-4A	21" X 15"		1	2.19	2.19		
	66" X 54"	MINNESOTA 65 1/3 MILE	1	24.75	24.75	2	7.0'
PROJECT TOTAL			36		195.97		

TYPE D SIGN DETAILS



6.0" Radius, 1.3" Border, White on Green;
State Highway 65 M1-5b; [1/3] E Mod; [MILE] E Mod;

NO	DATE	BY	CKD	APPR	REVISION
1	1/6/20	FL			ADDED MN 65 1\3 MILE TYPE D SIGN PER MNDOT REQUEST

NAME: P:\002-614-041\Base\TRAFFIC\Permanent Signing Quantities.dwg

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

PRINT NAME: JOSEPH J. MACPHERSON, P.E.

SIGNATURE:

DATE: 1-6-20 LICENSE NO. 46732

DRAWN BY FL DATE 10/21/19

DESIGN BY FL DATE 10/21/19

CHECKED BY JR DATE 10/25/19

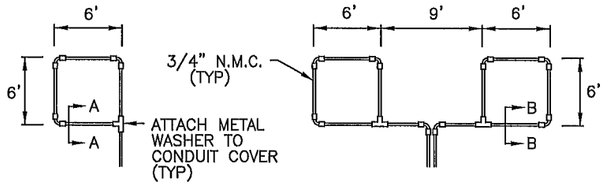
ANOKA COUNTY

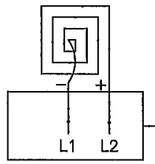
ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

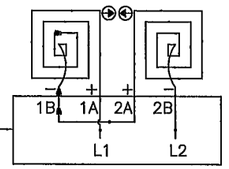
PERMANENT SIGNING QUANTITIES

Sheet 150 of 200 Sheets





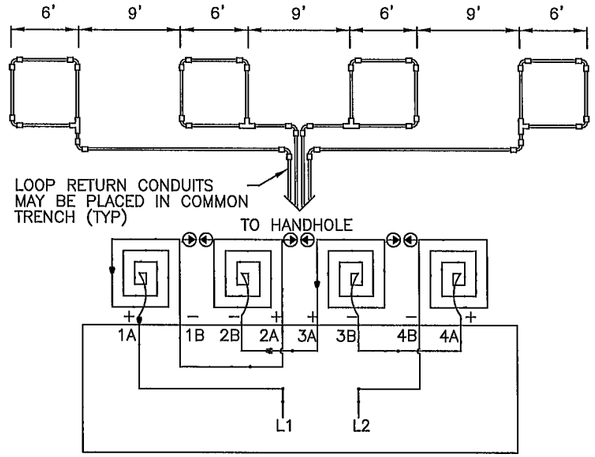
LOOP DETECTOR DETAIL 'A'
(LOOP PHASING FOR SINGLE CONNECTION)



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)

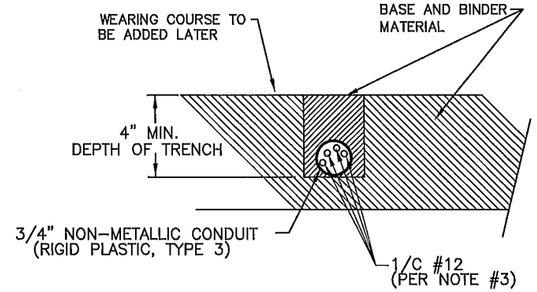


LOOP CONNECTIONS SHALL BE LABELED AND SPLICED IN THE HANDHOLE AS FOLLOWS:

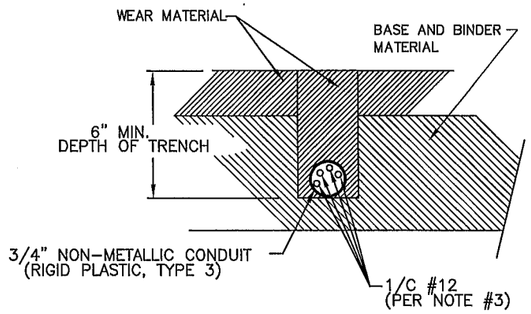
L1 TO 1A
1B TO 2A
2B TO 3A
3B TO 4A
4B TO L2

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

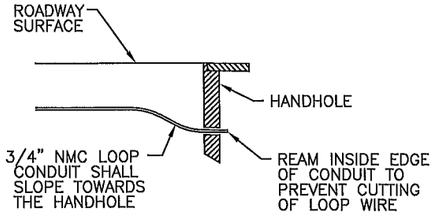
LOOP DETECTOR DETAIL 'C'
(LOOP PHASING FOR SERIES CONNECTION)



SECTION A–A
DETAIL FOR LOOP INSTALLATION IN NEW ROADWAY



SECTION B–B
DETAIL FOR LOOP INSTALLATION IN EXISTING ROADWAY



DRAINAGE DETAIL

LOOP DETECTOR WIRING

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

LEGEND OF SYMBOLS

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

ABBREVIATIONS

3–1(EG)	SIGNAL HEAD PHASE "3" – NO "1"
BR. GR.	BARE GROUND
CH. SW.	CHECK SWITCH
CLR	CLEAR
D2–1(EG)	DETECTOR PHASE "2" – NO. "1"
DWK	DON'T WALK
EQG	EQUIPMENT GROUND
EVP	EMERGENCY VEHICLE PRE–EMPTION
F&I	FURNISH AND INSTALL
FL	FLASH/FLASHING
G	GREEN
GLTA	GREEN LEFT TURN ARROW
GRN	GREEN
GR. R	GROUND ROD
GRTA	GREEN RIGHT TURN ARROW
GTHA	GREEN THRU ARROW
HH	HANDHOLE
HPS	HIGH PRESSURE SODIUM
JB	JUNCTION BOX
LUM	LUMINAIRE
NEU	NEUTRAL
NMC	NONMETALLIC CONDUIT
P2–1(EG)	PED INDICATION PHASE "2" – NO. "1"
PB	PUSH BUTTON
PB2–1(EG)	PUSH BUTTON PHASE "2" – NO. "1"
PEC	PHOTOELECTRIC CELL
PED	PEDESTRIAN
R	RED
R&S	REMOVE AND SALVAGE
RLTA	RED LEFT TURN ARROW
RRTA	RED RIGHT TURN ARROW
RSC	RIGID STEEL CONDUIT
SOP	SOURCE OF POWER
SPR	SPARE
ST. LHT	STREET LIGHT
STA	STATION
SW	SWITCH
SWD	SWITCHED
S&R	SALVAGE AND REINSTALL
TDW	TELEPHONE DROP WIRE
WLK	WALK
YEL	YELLOW
YLTA	YELLOW LEFT TURN ARROW
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

TABULATION OF SIGNAL QUANTITIES

	ITEM NO	ITEM	UNIT	TOTAL ESTIMATED QUANTITY	PARTICIPATION		
					SAP 002–614–041	SAP 106–020–036	LOCAL FUNDS
	2104	REMOVE HANDHOLE	EACH	7	7		
	2550	PULL VAULT	EACH	3	3		
	2550	REMOVE CONDUIT	LF	3600	3600		
	2565	TRAFFIC CONTROL INTERCONNECT	LS	1	1		
	2565	HANDHOLE	EACH	3	3		
	2565	ADJUST HANDHOLE	EACH	9	9		
	2565	RIGID PVC LOOP DETECTOR 6' x 6'	EACH	10	10		
	2565	1.5" NON–METALLIC CONDUIT	LF	3100	3100		
(1)	2565	2" NON–METALLIC CONDUIT	LF	620	620		
	2565	2/C 14 AWG LOOP LEAD–IN	LF	1100	1100		
	2565	TEMPORARY SIGNAL SYSTEM A	SYSTEM	1	1		
	2565	TEMPORARY SIGNAL SYSTEM B	SYSTEM	1	1		

(1) PAY ITEM FOR 2" NON–METALLIC CONDUIT INCLUDES SALVAGING AND REINSTALLATION OF LOOP DETECTOR LEAD–IN CABLE AT ABERDEEN/CENTRAL SIGNAL SYSTEM, AND FOR REMOVAL OF INPLACE LOOP DETECTOR LEAD–IN CABLE AT CSAH 52 SIGNAL SYSTEM.

SIGBASE1.DWG

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

NO.	BY	DATE	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Date: November 15, 2019 Name: John M. Gray, PE Lic. No. 22457

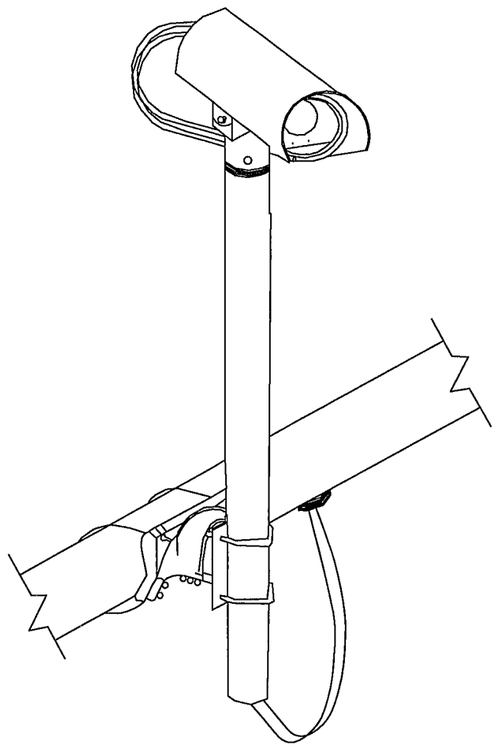
SEH
PHONE: (651) 490–2000
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110

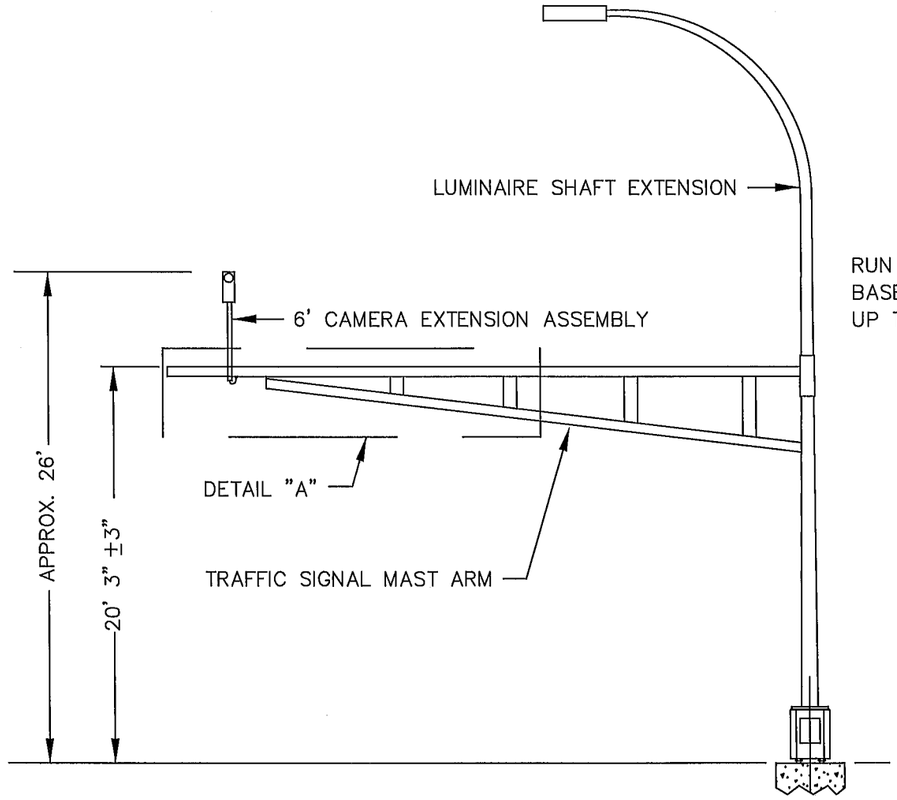
ANOKA COUNTY
CITY OF BLAINE
STATE AID PROJ. 002–614–041
STATE AID PROJ. 106–020–036
BLAINE CITY PROJECT 18–10

SIGNAL REVISIONS AND INTERCONNECT DETAILS
CSAH 14 (125TH AVE) (ABERDEEN ST TO CSAH 52)

FILE NO. ANOKC 122928
SIGNAL SHEET 1 OF 11

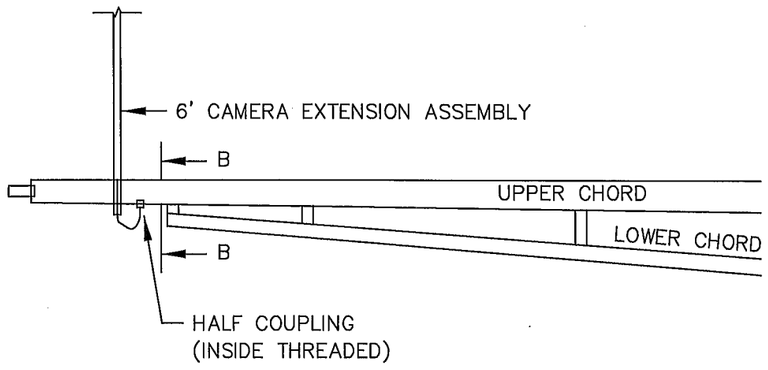
MAST ARM CAMERA INSTALLATION



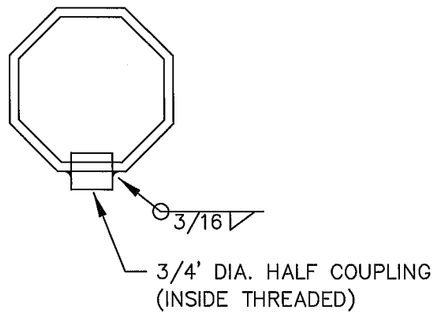


RUN VIDEO DETECTOR CABLES FROM SIGNAL BASE THROUGH INSIDE OF POLE AND MAST ARM UP TO CAMERA (NO SPLICES).

DETAIL "A" (MAST ARM)



SECTION B–B (UPPER CHORD)



NOTES:

1) ALL VIDEO CAMERAS AND CABINET COMPONENTS (EXCEPT CABLES) WILL BE FURNISHED BY COUNTY AND SHALL BE INSTALLED AND MADE OPERATIONAL BY THE CONTRACTOR.
2) CABLES FOR CAMERA OPERATION SHALL BE AS INDICATED IN THE SPECIAL PROVISIONS AND SHALL BE IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF THE MANUFACTURER OF THE VIDEO DETECTION SYSTEM USED.
3) A 3/4" HALF COUPLING, 3/4" PIPE NIPPLE AND CONDUIT OUTLET BODY FOR CAMERA CABLES SHALL BE F&I ON THE UNDER SIDE OF MAST ARM SEE SIGNAL LAYOUT FOR LOCATION OF HUB.
4) CONTRACTOR SHALL FURNISH AND INSTALL ALL REQUIRED CAMERA MOUNTING HARDWARE (ALUMINUM TUBER MOUNTING EXTENSIONS/ALUMINUM MOUNTING BRACKETS/STAINLESS STEEL STRAPS FOR MAST ARM MOUNTING (INCIDENTAL).

SIGBASE1.DWG

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

NO.	BY	DATE	REVISIONS

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Name: John M. Gray, PE
Date: November 15, 2019 Lic. No. 22457

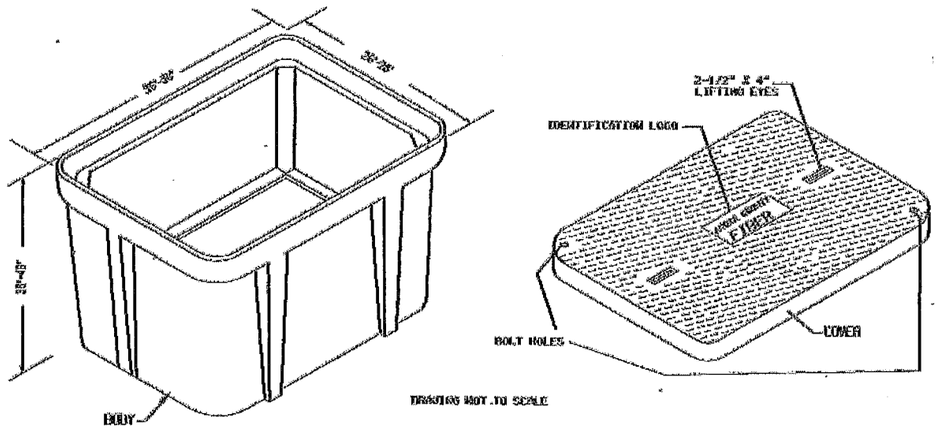
SEH
PHONE: (651) 490-2000
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110

ANOKA COUNTY
CITY OF BLAINE
STATE AID PROJ. 002-614-041
STATE AID PROJ. 106-020-036
BLAINE CITY PROJECT 18-10

SIGNAL REVISIONS AND INTERCONNECT
VIDEO DETECTOR MOUNTING DETAILS
CSAH 14 (125TH AVE) (ABERDEEN ST TO CSAH 52)

FILE NO. ANOKC 122928
SIGNAL SHEET 2 OF 11

FIBER-OPTIC PULLING VAULT DETAIL

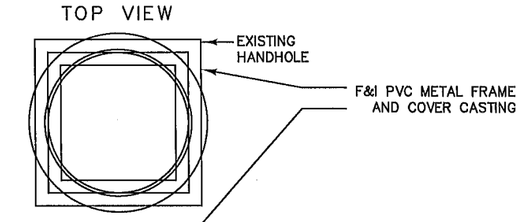


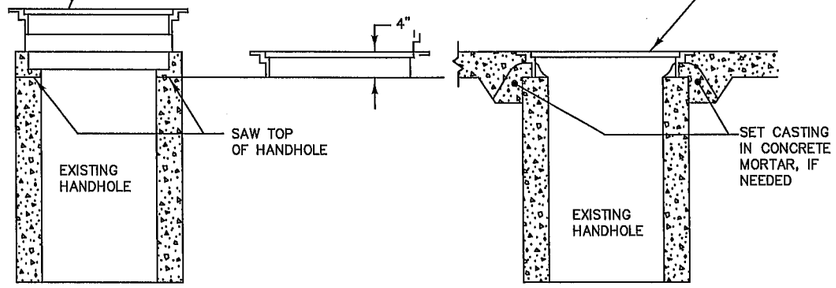
DRAWING NOT TO SCALE

ADJUST SIGNAL HANDHOLE

WHERE EXISTING HANDHOLES ARE REQUIRED TO BE ADJUSTED TO MATCH FINISHED SURROUNDING SIDEWALK OR BOULEVARD GRADE, CONTRACTOR SHALL REMOVE AND DISPOSE OF EXISTING FRAME AND COVER AND SHALL FURNISH AND INSTALL A NEW PVC METAL FRAME AND COVER CONFORMING TO THE DETAILS INCLUDED IN THE SPECIAL PROVISIONS, ON THE EXISTING HANDHOLE STRUCTURE. THIS WORK WILL REQUIRE CUTTING THE TOP OF THE HANDHOLE SO THAT THE TOP OF THE NEW COVER FITS THE ELEVATION OF SURROUNDING SIDEWALK/BOULEVARD. THIS WORK, AND FURNISHING & INSTALLING A NEW METAL FRAME AND COVER WILL BE INCLUDED AS PART OF PAY ITEM FOR "ADJUST HANDHOLE".

TOP VIEW





FRONT VIEW

SIGBASE1.DWG

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

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

Date: November 15, 2019 Name: John M. Gray, PE Lic. No. 22457

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ANOKA COUNTY
CITY OF BLAINE
STATE AID PROJ. 002-614-041
STATE AID PROJ. 106-020-036
BLAINE CITY PROJECT 18-10

SIGNAL REVISIONS AND INTERCONNECT
HANDHOLE/VAULT DETAILS
CSAH 14 (125TH AVE) (ABERDEEN ST TO CSAH 52)

FILE NO. ANOKC 122928
SIGNAL SHEET 3 OF 11

153/200

PVC LOOP DETECTORS				
NUMBER	SIZE (FT.)	LOCATION	FUNCTION	STATUS
D1–1, D5–1, D5–2	2–6x6	10' & 40'	1	INPLACE
D1–2, D5–3, D5–4	2–6x6	5' & 25'	1	INPLACE
D2–1, D2–2, D2–3	6x6	250'	1	INPLACE
D2–4, D2–5	6x6	400'	1	INPLACE
D3–1, D7–1	2–6x6	20' & 50'	1	INPLACE
D3–2, D7–2	2–6x6	5' & 35'	7	INPLACE
D4–1, D4–2	6x6	120'	3,8	INPLACE
D4–3, D8–3	6x6	5'	7	INPLACE
D4–4, D8–4	2–6x6	5' & 20'	1	INPLACE
D6–1, D6–2	6x6	250'	1	F & I
D6–3, D6–4	6x6	400'	1	F & I
D8–1, D8–2	6x6	120'	3,8	INPLACE

LOCATION = DISTANCE FROM STOP BAR TO FRONT OF DETECTOR.

LOOP DETECTORS FUNCTIONS:

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

scale 20 10 0 20 40 feet

N

INSTALL VIDEO DETECTORS (FURNISHED BY COUNTY)				
CAMERA NO.	INTERSECTION APPROACH FACING	SIGNAL POLE (CAMERA) LOCATION	CAMERA MOUNTED AT	MOUNTING HEIGHT
V6/1–1	WB CSAH 14	MAST ARM 3	ON MAST ARM (2' FROM LEFT END)	25'

NOTE: MOUNTING HEIGHT = APPROXIMATE HEIGHT ABOVE ADJACENT GROUND LINE.

TURN OFF INPLACE LOOP DETECTORS (FOR PHASES 1 & 6) IN CONTROLLER CABINET DURING OPERATION OF VIDEO DETECTION (DURING CONSTRUCTION ONLY).

SALVAGE CAMERA BACK TO COUNTY AFTER ALL PERMANENT PHASE 1 & 6 LOOP DETECTORS ARE ABLE TO BE MADE OPERATIONAL.

HH–8 TO HH–8A:
2" CONDUIT–INPLACE (REMOVE)
HH–8 TO HH–8B:
2" CONDUIT – F & I
2–2/c#14–INPLACE (S & I)

HH–13 TO EAST (HH 50):
2" CONDUIT–INPLACE (REMOVE)
(**) 1–12 SM FO CABLE–INPLACE (REMOVE)
HH–80 TO EAST (HH–81):
1.5" CONDUIT–F & I
(**) 1–12 SM FO CABLE–F & I

HH–13 TO EAST:
(**) 2" CONDUIT–INPLACE (CUT & EXTEND INTO NEW HH 80)
(**) 1–12 SM FO CABLE–INPLACE (REMOVE)
(**) 1–12 SM FO CABLE–F & I

SERVICE CABINET TO CONTROLLER CABINET:
2" R.S.C.
3–1/c#6
SERVICE CABINET TO H.H.1:
2" R.S.C.
4–3/c#12 (LUM)
BETWEEN H.H.1 AND H.H.2, AND BETWEEN H.H.1 AND H.H.13:
2" R.S.C.
2–3/c#12 (LUM)
SERVICE CABINET TO H.H.14:
2" R.S.C.
3–1/c#2

INPLACE (MAINTAIN INPLACE)

D6–1 (F & I)
D6–2 (F & I)

F & I HH 80 (FO VAULT)

HH 7–INP (ADJUST)
HH 8–INP (ADJUST)
HH 9–INP (ADJUST)
HH 10–INP (ADJUST)

EVP PHASE 6&1
EVP PHASE 2&5
EVP PHASE 8
EVP PHASE 4 DETECTOR ONLY (POLE MOUNTED)

CENTRAL AVE. POSTED 30 M.P.H.
ABERDEEN ST. POSTED SPEED 30 M.P.H.

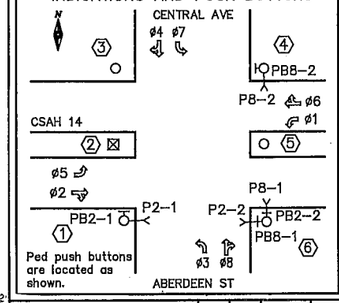
C.S.A.H. 14 W.B.
POSTED SPEED 40 M.P.H.
C.S.A.H. 14 E.B.
POSTED SPEED 40 M.P.H.

2"RSC 2–2/C#14
3"RSC 2–12/C#12 2–3/C#12 6–2/C#14 1–3/C#20
3"RSC 2–12/C#12 3–3/C#12 4–2/C#14 2–3/C#20
3"RSC 3–12/C#12 4–3/C#12 6–2/C#14 2–3/C#20
3"RSC 3–12/C#12 2–3/C#12 10–2/C#14 1–3/C#20
4"RSC 5–12/C#12 7–3/C#12 12–2/C#14 3–3/C#20
2"RSC 1–6/C FIBER OPTIC CABLE 1–1/C#14
2"RSC 1–6/C FIBER OPTIC CABLE 1–1/C#14 2–2/C#14 (D2–4, D2–5)

F & I — 1–3/c#14 (VIDEO)

SEE NEXT SHEET FOR GENERAL NOTES AND DETAILED POLE/CABINET NOTES.

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



SIGNAL SYSTEM OPERATIONS:

- SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 8 PHASE, WITH PHASES 1, 3, 5 & 7 BEING FLASHING YELLOW ARROW OPERATIONS (FLASH BY TIME OF DAY PROGRAMS).
- VEHICLE SIGNAL PHASES 2 & 6 OPERATE ON RECALL.

Ⓒ INPLACE (MAINTAIN INPLACE) — GROUND MOUNTED TRANSFORMER (SOP) EXTENDED INTO H.H.14: 2" R.S.C. 3–1/c#2

WORK BY CONTRACTOR ON VEHICLE SIGNAL HEADS FOR CONSTRUCTION STAGING (INCIDENTAL)						
SIGNAL HEAD	STAGE 1A	STAGE 1B	STAGE 2	STAGE 3	STAGE 4	STAGE 5
2–2	1	1	2	2	1	2
2–3	1	2	1	1	2	1

WORK BY CONTRACTOR:

1 = MAINTAIN INPLACE AND FULLY OPERATIONAL.
2 = COVER SIGNAL HEAD AND MAKE INOPERATIONAL DURING THIS STAGE OF CONSTRUCTION.

ALL SIGNAL HEADS NOT LISTED SHALL BE REUSED AND MAINTAINED INPLACE & IN OPERATION FOR ALL STAGES OF CONSTRUCTION.

ALL WORK BY CONTRACTOR TO COVER SIGNAL HEADS AND MAKE INOPERATIONAL FOR EACH STAGE NOTED ABOVE, AND ALL WORK TO UNCOVER AND MAKE SIGNAL HEADS OPERATIONAL PRIOR TO NEXT STAGE OF CONSTRUCTION IS CONSIDERED INCIDENTAL TO THE "TEMPORARY SIGNAL SYSTEM A" PAY ITEM.

INPLACE LED SIGNAL HEADS				
SIGNAL HEAD #	ALL 12" INDICATIONS R	Y	FYA	G
1–1, 1–2	⇦	⇦	⇦	⇦
2–1, 2–2, 2–3	○	○		○
3–1, 3–2	⇦	⇦		○
4–1, 4–2	○	○		○
5–1, 5–2	⇦	⇦	⇦	⇦
5–3, 5–4	⇦	⇦	⇦	⇦
6–1, 6–2, 6–3	○	○		○
7–1, 7–2	⇦	⇦	⇦	⇦
8–1, 8–2	○	○		○

○⇦ = INPLACE LED (REUSE INPLACE).
FYA = FLASHING YELLOW ARROW

MATCH LINE–STA. 247+90

2017TYA–BASE.DWG

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

NO.	BY	DATE	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Date: November 15, 2019
Name: John M. Gray, PE
Lic. No. 22457

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

ANOKA COUNTY
CITY OF BLAINE
STATE AID PROJ. 002–614–041
STATE AID PROJ. 106–020–036
BLAINE CITY PROJECT 18–10

SIGNAL REVISIONS AND INTERCONNECT
INTERSECTION LAYOUT
CSAH 14 (125TH AVE) AT ABERDEEN ST/CENTRAL AVE

FILE NO. ANOKC 122928
SIGNAL SHEET 4 OF 11
154 / 200

NOTES:

1) ALL ITEMS OF THIS SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, UNLESS OTHERWISE NOTED ON PLANS.
2) LOCATION OF NEW HANDHOLES/VAULTS AND LOOP DETECTORS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
3) CONTRACTOR SHALL PROTECT AND MAINTAIN ALL EXISTING HANDHOLES IN THE VICINITY OF CONSTRUCTION; SHALL ADJUST HANDHOLES 7, 8, 9, AND 10 TO MATCH FINISHED SURROUNDING SIDEWALK/MEDIAN/BOULEVARD GRADE; SHALL REMOVE INPLACE HANDHOLE 8A; AND SHALL FURNISH AND INSTALL NEW HANDHOLE 8B (PVC HANDHOLE WITH METAL FRAME & COVER). HANDHOLE WORK NOTED ABOVE WILL BE MEASURED & PAID FOR SEPARATELY (SEE SPECIAL PROVISIONS & STATEMENT OF ESTIMATED QUANTITIES).
4) ALL LOOP DETECTORS ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE AND OPERATIONAL, EXCEPT AS FOLLOWS: CONTRACTOR SHALL FURNISH AND INSTALL NEW LOOP DETECTORS D6-1, D6-2, D6-3, AND D6-4 IN PVC PER DETAILS INCLUDED ELSEWHERE IN THESE PLANS. LOOP DETECTOR WIRES FOR NEW LOOP DETECTORS SHALL BE CROSS-LINKED POLY-ETHYLENE (XLP) #12 AWG IN 3/4" NMC. LOOP DETECTOR WORK NOTED ABOVE WILL BE MEASURED AND PAID FOR SEPARATELY (SEE SPECIAL PROVISIONS AND STATEMENT OF ESTIMATED QUANTITIES).
5) NEW CONDUIT TO BE FURNISHED AND INSTALLED AS SHOWN IN THE PLANS (FOR BOTH LOOP DETECTOR AND INTERCONNECT RELATED WORK) WILL EACH BE MEASURED AND PAID FOR SEPARATELY (SEE SPECIAL PROVISIONS AND STATEMENT OF ESTIMATED QUANTITIES).

   THE PAY ITEM FOR CONDUIT WORK RELATED TO LOOP DETECTORS WILL INCLUDE ALL LABOR AND MATERIALS NEEDED TO SALVAGE AND REINSTALL EXISTING 2/C#14 CABLES INTO NEW CONDUIT. ALL REMOVALS OF INPLACE CONDUIT (FOR BOTH LOOP DETECTOR AND INTERCONNECT WORK) WILL ALSO BE MEASURED AND PAID FOR SEPARATELY.
6) ANY DAMAGE TO INPLACE TRAFFIC SIGNAL FACILITIES (CONDUIT, CABLES, HANDHOLES, SIGNAL POLES, ETC.), EITHER DUE TO TRAFFIC SIGNAL REVISION WORK OR SIDEWALK/MEDIAN/ROAD CONSTRUCTION WORK, SHALL BE REPAIRED BY CONTRACTOR TO SATISFACTION OF THE ENGINEER, AT NO EXPENSE TO THE COUNTY.
7) CONTRACTOR SHALL MAINTAIN OPERATION OF THE SIGNAL SYSTEM AT ALL TIMES, EXCEPT AS OTHERWISE APPROVED BY ENGINEER.
8) ALL VEHICULAR SIGNAL HEADS ARE INPLACE AND SHALL BE REUSED AND MAINTAINED AS NOTED IN THE "LED SIGNAL HEADS" CHART FOR EACH STAGE OF CONSTRUCTION (ANY MODIFICATIONS TO THESE SIGNAL HEADS DUE TO APPLICABLE TRAFFIC CONTROL AND STAGING WILL BE INCLUDED AS PART OF THE BID ITEM FOR "TEMPORARY SIGNAL SYSTEM A"). SEE SPECIAL PROVISIONS.
9) EACH SIGNAL HEAD HAS A BACKGROUND SHIELD.
10) F & I = NEW, FURNISH AND INSTALL.
    S & I = INPLACE, SALVAGE AND INSTALL.
11) ALL CONDUIT, CABLES AND CONDUCTORS, HANDHOLES, AND LOOP DETECTORS ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, EXCEPT WHERE BOXED IN AND DENOTED OTHERWISE.
12) (**) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR (OR REMOVED AND DISPOSED OF BY CONTRACTOR) UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECT). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.

    REMOVAL OF INTERCONNECT CONDUIT AND HANDHOLES WILL BE MEASURED AND PAID FOR SEPARATELY, AND FURNISHING AND INSTALLING NEW FIBER OPTIC CONDUIT & HANDHOLES (PULL VAULTS) WILL ALSO BE MEASURED AND PAID FOR SEPARATELY.
13) SEE SPECIAL PROVISIONS REGARDING VIDEO DETECTION SYSTEM TO BE FURNISHED BY COUNTY, INSTALLED AND MADE OPERATIONAL BY CONTRACTOR DURING CONSTRUCTION, AND SALVAGED BY THE CONTRACTOR BACK TO COUNTY AFTER PERMANENT LOOP DETECTORS ARE MADE OPERATIONAL (INCLUDED AS PART OF PAY ITEM FOR "TEMPORARY SIGNAL SYSTEM A").
14) VIDEO DETECTOR CABLES (3/C#14) TO BE FURNISHED & INSTALLED BY CONTRACTOR FOR USE DURING CONSTRUCTION SHALL BE COILED IN EACH POLE BASE BY CONTRACTOR AFTER VIDEO DETECTORS ARE SALVAGED BY CONTRACTOR (FOR FUTURE USE BY OTHERS). ALL VIDEO DETECTOR CABLE INSTALLATION WORK IS INCLUDED AS PART OF PAY ITEM FOR "TEMPORARY SIGNAL SYSTEM A".
15) MOVEMENT/REAIMING OF VIDEO CAMERAS, BAGGING AND UNBAGGING SIGNAL HEADS AS NOTED, AND ALL LABOR AND MATERIALS NEEDED TO REVISE SIGNAL SYSTEM DURING CONSTRUCTION SHALL BE INCLUDED IN THE PAY ITEM FOR "TEMPORARY SIGNAL SYSTEM A".
16) SEE CHART ON THIS PLAN SHEET FOR INPLACE SIGNAL HEADS TO BE COVERED AND MADE INOPERATIONAL DURING VARIOUS STAGES OF CONSTRUCTION, FOR SIGNAL LENSES TO BE REPLACED DURING EACH STAGE OF CONSTRUCTION AS NOTED IN PLANS, AND FOR THESE SAME SIGNAL HEADS TO HAVE EXISTING LENSES BE REINSTALLED AND HEADS UNCOVERED AND MADE OPERATIONAL PRIOR TO NEXT STAGE OF CONSTRUCTION (INCLUDED AS PART OF THE "TEMPORARY SIGNAL SYSTEM A" PAY ITEM).

(1) INPLACE (MAINTAIN INPLACE)
- PA90 POLE FOUNDATION
- TYPE PA90-A-40-D40-9 (DAVIT AT 350 DEG)
- LUMINAIRE-250 W HPS
- 2-ONE WAY SIGNALS-OVERHEAD AT 0' & 10'
- 2-ONE WAY SIGNALS-POLE MOUNTED 45/225 DEG
- 1-SET CD PED SIGNALS-POLE MOUNTED 45 DEG
- 1-PEDESTRIAN PUSH BUTTON & R10-3e SIGN
- ONE WAY EVP DETECTOR AND LIGHT-OVERHEAD AT 6' (ø4,7)
- R10-X12 SIGN PANEL-ADJACENT TO 7-1
- TYPE D SIGN PANEL-OVERHEAD AT 15'
- 1-R9-3 (NO PED XING) SIGN-FACING POLE 2
- EXTENDED INTO H.H.2:
- 3" R.S.C.
- 2-12/c#12
- 1-6/c#14
- 2-3/c#12
- 1-3/c#20
- 1-3/c#12 (LUM)

(2) INPLACE (MAINTAIN INPLACE)
- PEDESTAL FOUNDATION
- 15' PEDESTAL POLE, BASE, AND WIND COLLAR
- 2-ONE WAY SIGNALS-POLE MOUNTED
- 2-R9-3 (NO PED XING) SIGNS-FACING POLES 1 AND 3
- 2-R10-X12 SIGN PANELS-POLE MOUNTED (BELOW 1-1, 5-1)
- EXTENDED INTO H.H.4:
- 3" R.S.C.
- 1-12/c#12

(3) INPLACE (MAINTAIN INPLACE)
- PA100 POLE FOUNDATION
- TYPE PA100-A-50-D40-9 (DAVIT AT 350 DEG)
- LUMINAIRE-250 W HPS
- 2-ONE WAY SIGNALS-OVERHEAD AT 0' & 12'
- 2-ONE WAY SIGNALS-POLE MOUNTED 45/225 DEG
- TYPE D SIGN PANEL-OVERHEAD AT 15'
- 2-R9-3 (NO PED XING) SIGNS-FACING POLES 2 AND 4
- ONE WAY EVP DETECTOR AND LIGHT AT 6' (ø6,1)
- EXTENDED INTO H.H.5:
- 3" R.S.C.
- 2-12/c#12
- 1-3/c#12
- 1-3/c#20
- 1-3/c#12 (LUM)

F & I
- 5-FOOT EXTENSION, MAST ARM HUB, & MOUNTING HARDWARE FOR VIDEO CAMERA-LOCATE AT 2' FROM LEFT END OF MAST ARM (FOR MOUNTING ON TRAFFIC SIGNAL MAST ARM)
- 1-3/c#14 (VIDEO)

INSTALL
- VIDEO CAMERA-MAST ARM MOUNTED (FACING WB TRAFFIC) (FURNISHED BY COUNTY) (V6/1-1)

(4) INPLACE (MAINTAIN INPLACE)
- PA100 POLE FOUNDATION
- TYPE PA100-A-50-D40-9 (DAVIT AT 350 DEG)
- LUMINAIRE-250 W HPS
- 2-ONE WAY SIGNALS-OVERHEAD AT 0' & 11'
- 2-ONE WAY SIGNALS-POLE MOUNTED 45/225 DEG
- 1-SET CD PED SIGNALS-POLE MOUNTED 225 DEG
- 1-PEDESTRIAN PUSH BUTTON & R10-3e SIGN
- ONE WAY EVP DETECTOR AND LIGHT-OVERHEAD AT 6' (ø8,3)
- ONE WAY EVP DETECTOR-POLE MOUNTED 135 DEG (ø4,7)
- R10-X12 SIGN PANEL-ADJACENT TO 3-1
- TYPE D SIGN PANEL-OVERHEAD AT 15'
- 1-R9-3 (NO PED XING) SIGN-FACING POLE 3
- EXTENDED INTO H.H.7:
- 3" R.S.C.
- 2-12/c#12
- 2-3/c#12
- 2-3/c#20
- 1-3/c#12 (LUM)

(5) INPLACE (MAINTAIN INPLACE)
- PA85 POLE FOUNDATION
- TYPE PA85-A-10
- 1-ONE WAY SIGNAL AND ANGLE MOUNT-OVERHEAD AT 0'
- 1-ONE WAY SIGNAL-POLE MOUNTED 90 DEG
- R10-X12 SIGN PANEL-ADJACENT TO 5-4
- R4-7 (24"x30") AND X4-2 (18"x18") SIGN PANELS
- 3" R.S.C. INTO H.H.9
- 1-12/c#12
- 1-3/c#12

(6) INPLACE (MAINTAIN INPLACE)
- PA100 POLE FOUNDATION
- TYPE PA100-A-50-D40-9 (DAVIT AT 350 DEG)
- LUMINAIRE-250 W HPS
- 2-ONE WAY SIGNALS-OVERHEAD AT 0' & 12'
- 2-ONE WAY SIGNALS-POLE MOUNTED 45/225 DEG
- 2-SETS CD PED SIGNALS-POLE MOUNTED 45/225 DEG
- 2-PEDESTRIAN PUSH BUTTONS & R10-3e SIGNS
- TYPE D SIGN PANEL-OVERHEAD AT 15'
- ONE WAY EVP DETECTOR AND LIGHT AT 6' (ø2,5)
- EXTENDED INTO H.H.10:
- 3" R.S.C.
- 2-12/c#12
- 2-3/c#12
- 1-3/c#20
- 1-3/c#12 (LUM)

(A)(B) INPLACE (MAINTAIN INPLACE)
- EQUIPMENT PAD FOUNDATION
- CONTROLLER AND CABINET
- SIGNAL SERVICE CABINET
- CONTROLLER CABINET TO H.H.1:
- 2" R.S.C.
- 3-1/c#6
- CONTROLLER CABINET TO H.H.2:
- 4" R.S.C.
- 5-12/c#12
- 1-6/c#14
- 3-3/c#12
- 2-3/c#20
- 15-2/c#14
- 1-6 SM FO CABLE

F & I — 1-3/c#14 (VIDEO)

INPLACE (MAINTAIN INPLACE)
- CONTROLLER CABINET TO H.H.13:
- 4"R.S.C.
- 5-12/c#12
- 5-3/c#12
- 3-3/c#20
- 12-2/c#14

INPLACE (MAINTAIN INPLACE)
- SERVICE CABINET TO CONTROLLER CABINET:
- 2" R.S.C.
- 3-1/c#6
- SERVICE CABINET TO H.H.1:
- 2" R.S.C.
- 4-3/c#12 (LUM)
- BETWEEN H.H.1 AND H.H.2, AND BETWEEN H.H.1 AND H.H.13:
- 2" R.S.C.
- 2-3/c#12 (LUM)
- SERVICE CABINET TO H.H.14:
- 2" R.S.C.
- 3-1/c#2
- 3" R.S.C. STUB OUT FROM CONTROLLER CABINET- EXTENDED INTO H.H.13:

INPLACE — (**) 1-12 SM FO CABLE (REMOVE)

F & I — (**) 1-12 SM FO CABLE

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

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Name: John M. Gray, PE
Date: November 15, 2019 Lic. No. 22457

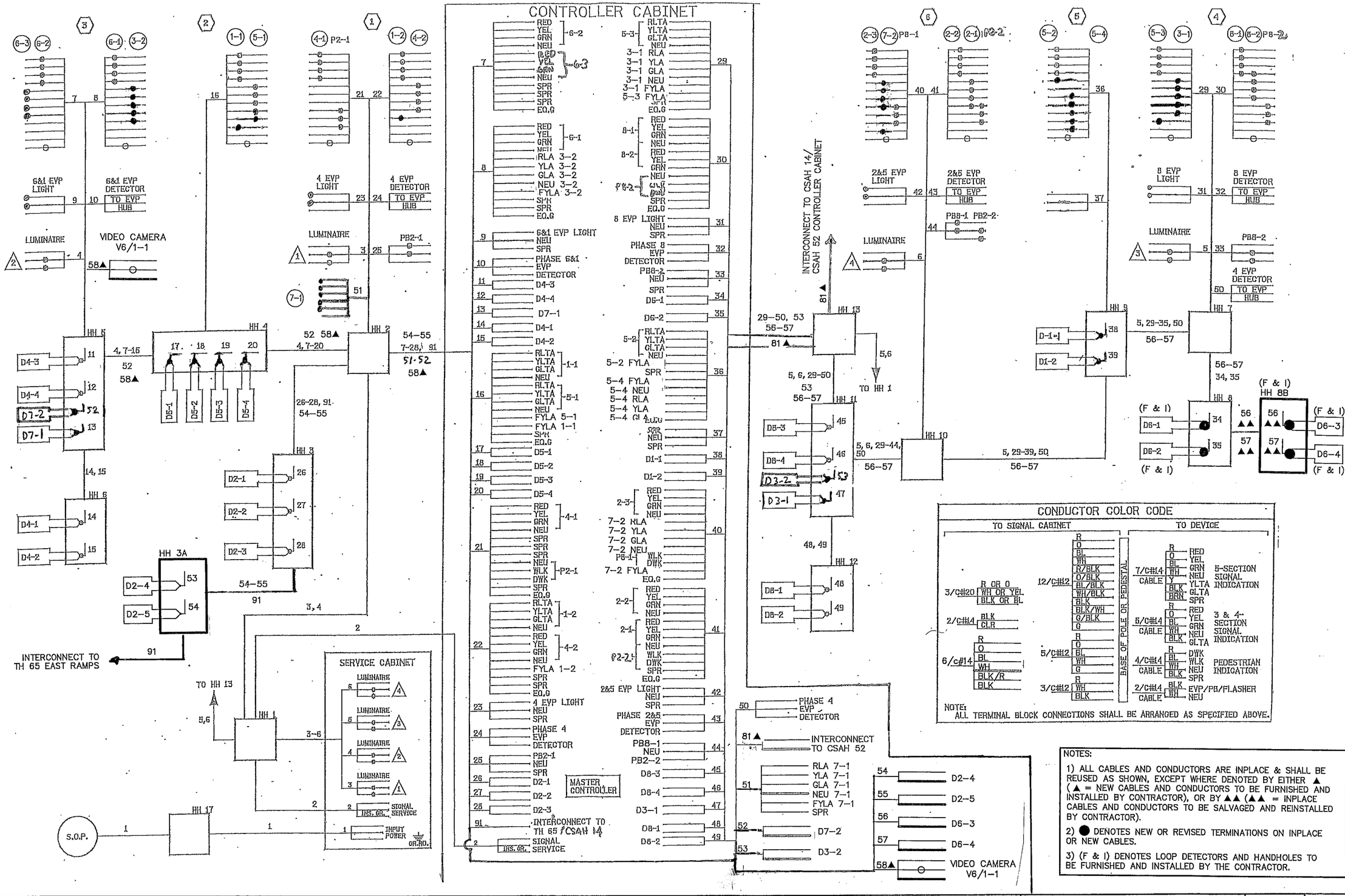
SEH
PHONE: (651) 490-2000
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110

ANOKA COUNTY
CITY OF BLAINE
STATE AID PROJ. 002-614-041
STATE AID PROJ. 106-020-036
BLAINE CITY PROJECT 18-10

SIGNAL REVISIONS AND INTERCONNECT
SIGNAL SYSTEM NOTES
CSAH 14 (125TH AVE) AT ABERDEEN ST/CENTRAL AVE

FILE NO. ANOKC 122928
SIGNAL SHEET 5 OF 11
155/200

2017FYA-BASE.DWG



NOTES:

1) ALL CABLES AND CONDUCTORS ARE INPLACE & SHALL BE REUSED AS SHOWN, EXCEPT WHERE DENOTED BY EITHER ▲ (▲ = NEW CABLES AND CONDUCTORS TO BE FURNISHED AND INSTALLED BY CONTRACTOR), OR BY ▲▲ (▲▲ = INPLACE CABLES AND CONDUCTORS TO BE SALVAGED AND REINSTALLED BY CONTRACTOR).

2) ● DENOTES NEW OR REVISED TERMINATIONS ON INPLACE OR NEW CABLES.

3) (F & I) DENOTES LOOP DETECTORS AND HANDHOLES TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR.

2017FYA-BASE.DWG

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

NO.	BY	DATE	REVISIONS

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3535 VADNAIS CENTER DR.
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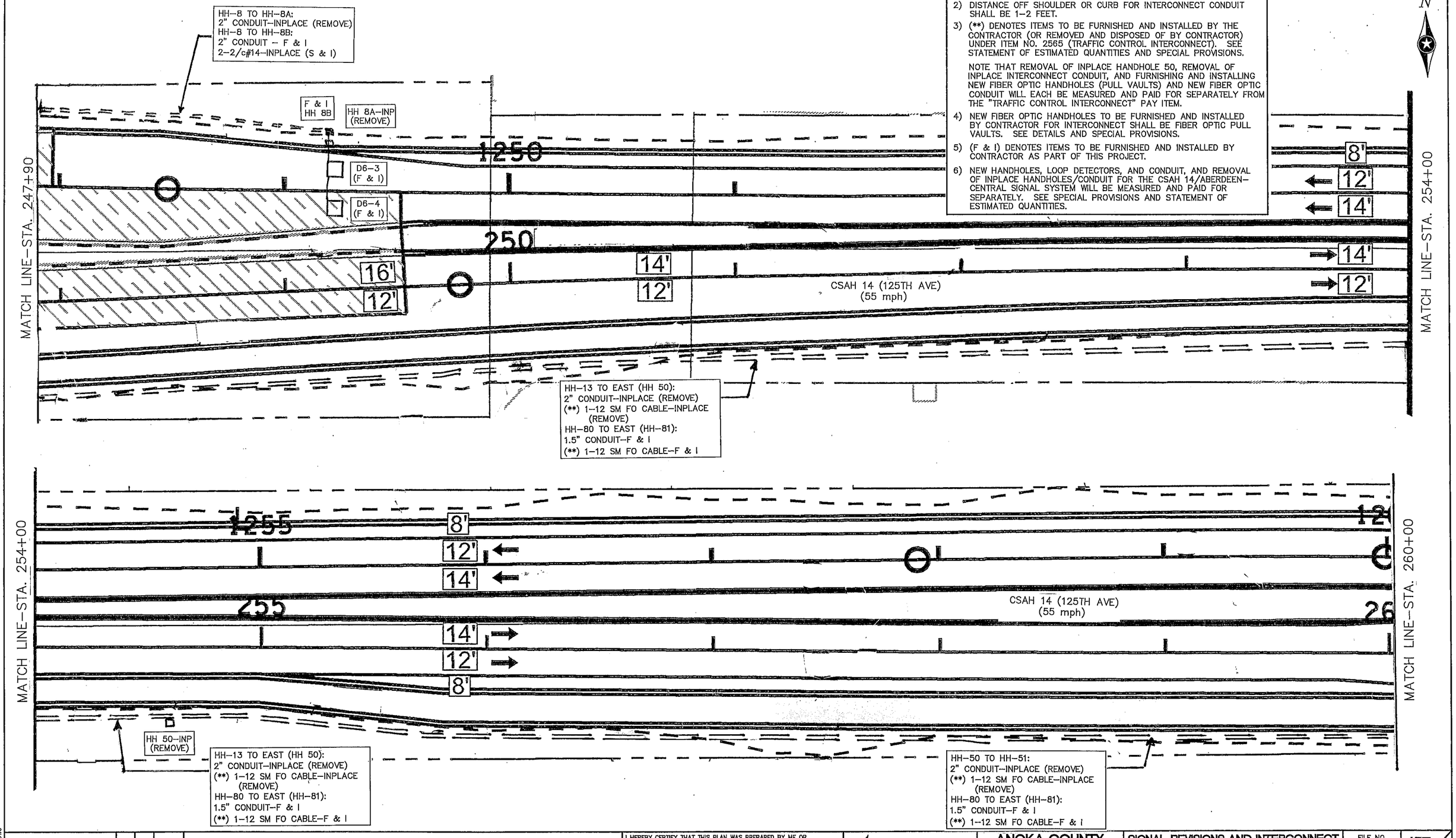
ANOKA COUNTY
CITY OF BLAINE
STATE AID PROJ. 002-614-041
STATE AID PROJ. 106-020-036
BLAINE CITY PROJECT. 18-10

SIGNAL REVISIONS AND INTERCONNECT FIELD WIRING DIAGRAM

CSAH 14 (125TH AVE) AT ABERDEEN ST/CENTRAL AVE

FILE NO. ANOKC 122928
SIGNAL SHEET 6 OF 11

156/200



INTERCONNECT NOTES:

1) IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" (TELEPHONE NUMBER 651–454–0002) AS REQUIRED BY MINNESOTA STATUTE 2160.
2) DISTANCE OFF SHOULDER OR CURB FOR INTERCONNECT CONDUIT SHALL BE 1–2 FEET.
3) (**) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR (OR REMOVED AND DISPOSED OF BY CONTRACTOR) UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECT). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.

   NOTE THAT REMOVAL OF INPLACE HANDHOLE 50, REMOVAL OF INPLACE INTERCONNECT CONDUIT, AND FURNISHING AND INSTALLING NEW FIBER OPTIC HANDHOLES (PULL VAULTS) AND NEW FIBER OPTIC CONDUIT WILL EACH BE MEASURED AND PAID FOR SEPARATELY FROM THE "TRAFFIC CONTROL INTERCONNECT" PAY ITEM.
4) NEW FIBER OPTIC HANDHOLES TO BE FURNISHED AND INSTALLED BY CONTRACTOR FOR INTERCONNECT SHALL BE FIBER OPTIC PULL VAULTS. SEE DETAILS AND SPECIAL PROVISIONS.
5) (F & I) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY CONTRACTOR AS PART OF THIS PROJECT.
6) NEW HANDHOLES, LOOP DETECTORS, AND CONDUIT, AND REMOVAL OF INPLACE HANDHOLES/CONDUIT FOR THE CSAH 14/ABERDEEN–CENTRAL SIGNAL SYSTEM WILL BE MEASURED AND PAID FOR SEPARATELY. SEE SPECIAL PROVISIONS AND STATEMENT OF ESTIMATED QUANTITIES.

20 10 0 20 40
scale feet

N

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

NO.	BY	DATE	REVISIONS

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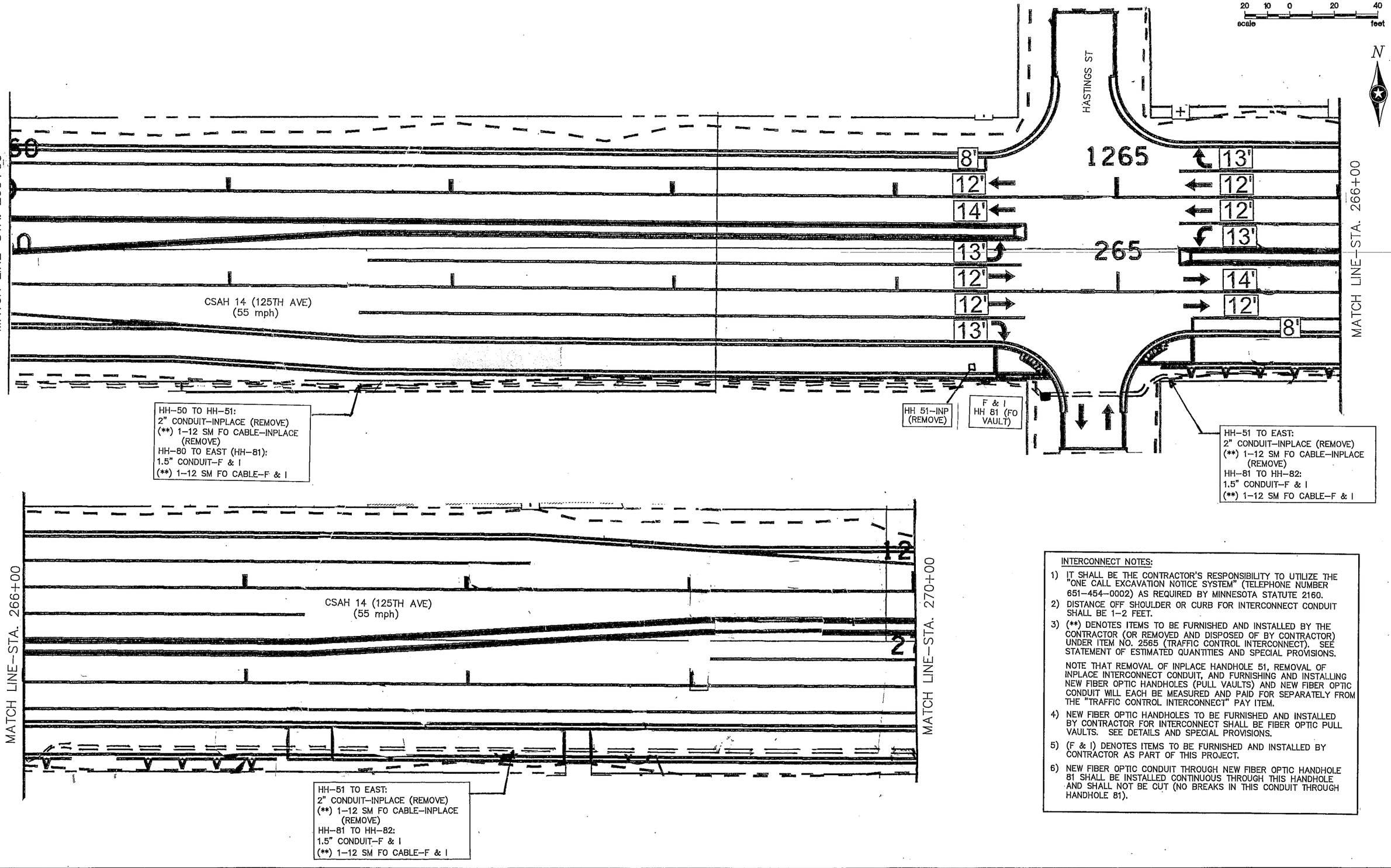
ANOKA COUNTY
CITY OF BLAINE
STATE AID PROJ. 002–614–041
STATE AID PROJ. 106–020–036
BLAINE CITY PROJECT 18–10

SIGNAL REVISIONS AND INTERCONNECT
INTERSECTION LAYOUT
CSAH 14 (125TH AVE) (ABERDEEN ST TO RADISSON RD)

FILE NO. ANOKC 122928
SIGNAL SHEET 7 OF 11

157/200

2017FYA–BASE.DWG



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 216D.
2) DISTANCE OFF SHOULDER OR CURB FOR INTERCONNECT CONDUIT SHALL BE 1–2 FEET.
3) (**) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR (OR REMOVED AND DISPOSED OF BY CONTRACTOR) UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECT). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.

   NOTE THAT REMOVAL OF INPLACE HANDHOLE 51, REMOVAL OF INPLACE INTERCONNECT CONDUIT, AND FURNISHING AND INSTALLING NEW FIBER OPTIC HANDHOLES (PULL VAULTS) AND NEW FIBER OPTIC CONDUIT WILL EACH BE MEASURED AND PAID FOR SEPARATELY FROM THE "TRAFFIC CONTROL INTERCONNECT" PAY ITEM.
4) NEW FIBER OPTIC HANDHOLES TO BE FURNISHED AND INSTALLED BY CONTRACTOR FOR INTERCONNECT SHALL BE FIBER OPTIC PULL VAULTS. SEE DETAILS AND SPECIAL PROVISIONS.
5) (F & I) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY CONTRACTOR AS PART OF THIS PROJECT.
6) NEW FIBER OPTIC CONDUIT THROUGH NEW FIBER OPTIC HANDHOLE 81 SHALL BE INSTALLED CONTINUOUS THROUGH THIS HANDHOLE AND SHALL NOT BE CUT (NO BREAKS IN THIS CONDUIT THROUGH HANDHOLE 81).

2017FYA–BASE.DWG

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

NO.	BY	DATE	REVISIONS

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ANOKA COUNTY
CITY OF BLAINE
STATE AID PROJ. 002–614–041
STATE AID PROJ. 106–020–036
BLAINE CITY PROJECT 18–10

SIGNAL REVISIONS AND INTERCONNECT
INTERSECTION LAYOUT
CSAH 14 (125TH AVE) (ABERDEEN ST TO RADISSON RD)

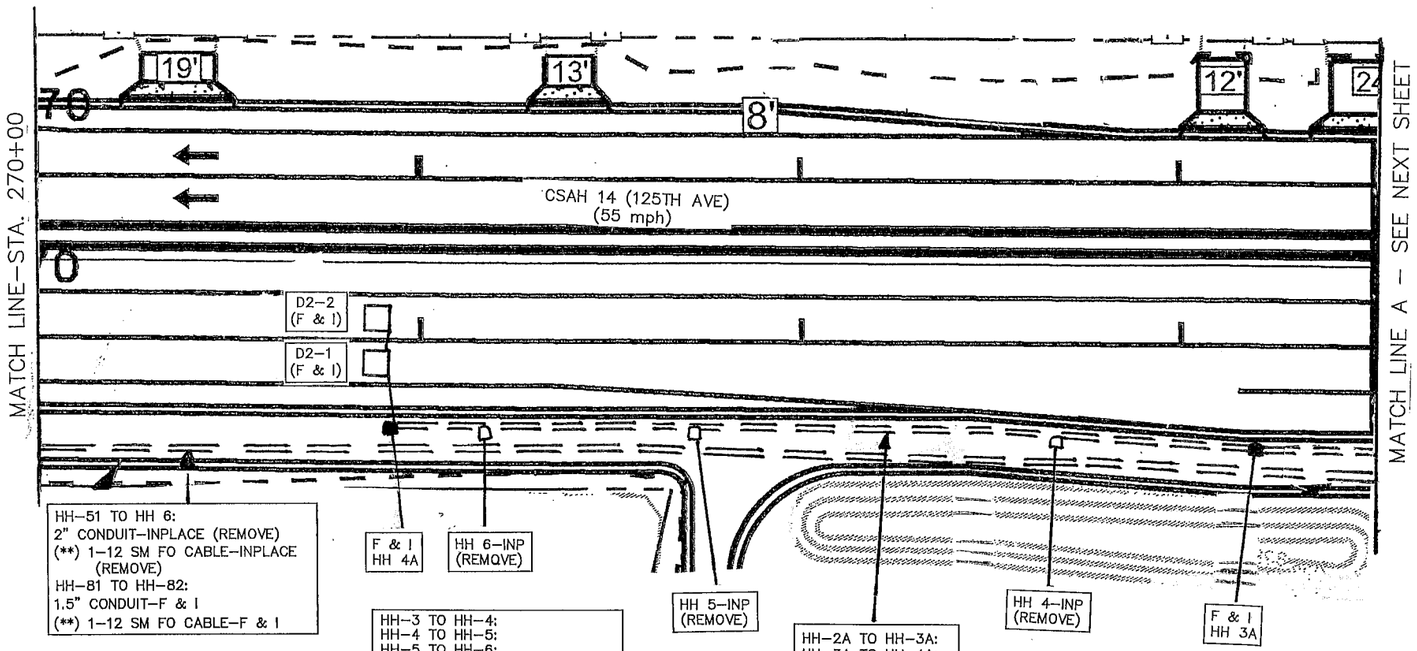
FILE NO. ANOKC 122928
SIGNAL SHEET 8 OF 11

NOTES:

1) ALL ITEMS OF THIS SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, UNLESS OTHERWISE NOTED ON PLANS.
2) LOCATION OF NEW HANDHOLES/VAULTS AND LOOP DETECTORS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
3) CONTRACTOR SHALL PROTECT AND MAINTAIN ALL EXISTING HANDHOLES IN THE VICINITY OF CONSTRUCTION; SHALL ADJUST HANDHOLES 1, 2, 7, 8, AND 25 TO MATCH FINISHED SURROUNDING SIDEWALK/MEDIAN/BOULEVARD GRADE; SHALL REMOVE INPLACE HANDHOLES 3, 4, 5, AND 6; AND SHALL FURNISH AND INSTALL NEW HANDHOLES 3A AND 4A (PVC HANDHOLES WITH METAL FRAMES AND COVERS). HANDHOLE WORK NOTED ABOVE WILL BE MEASURED & PAID FOR SEPARATELY (SEE SPECIAL PROVISIONS & STATEMENT OF ESTIMATED QUANTITIES.
4) ALL LOOP DETECTORS ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE AND OPERATIONAL, EXCEPT AS FOLLOWS: CONTRACTOR SHALL FURNISH AND INSTALL NEW LOOP DETECTORS D2–1, D2–2, D5–1, AND D5–2 IN PVC PER DETAILS INCLUDED ELSEWHERE IN THESE PLANS. LOOP DETECTOR WIRES FOR NEW LOOP DETECTORS SHALL BE CROSS–LINKED POLY–ETHYLENE (XLP) #12 AWG IN 3/4" NMC. LOOP DETECTOR WORK NOTED ABOVE WILL BE MEASURED AND PAID FOR SEPARATELY (SEE SPECIAL PROVISIONS AND STATEMENT OF ESTIMATED QUANTITIES).
5) NEW CONDUIT TO BE FURNISHED AND INSTALLED AS SHOWN IN THE PLANS (FOR BOTH LOOP DETECTOR AND INTERCONNECT RELATED WORK) WILL EACH BE MEASURED AND PAID FOR SEPARATELY (SEE SPECIAL PROVISIONS AND STATEMENT OF ESTIMATED QUANTITIES).

   THE PAY ITEM FOR CONDUIT WORK RELATED TO LOOP DETECTORS WILL INCLUDE ALL LABOR AND MATERIALS NEEDED TO REMOVE AND DISPOSE OF EXISTING 2/C#14 CABLES.
   ALL REMOVALS OF INPLACE CONDUIT (FOR BOTH LOOP DETECTOR AND INTERCONNECT WORK) WILL ALSO BE MEASURED AND PAID FOR SEPARATELY.
6) ANY DAMAGE TO INPLACE TRAFFIC SIGNAL FACILITIES (CONDUIT, CABLES, HANDHOLES, SIGNAL POLES, ETC.), EITHER DUE TO TRAFFIC SIGNAL REVISION WORK OR SIDEWALK/MEDIAN/ROAD CONSTRUCTION WORK, SHALL BE REPAIRED BY CONTRACTOR TO SATISFACTION OF THE ENGINEER, AT NO EXPENSE TO THE COUNTY.
7) CONTRACTOR SHALL MAINTAIN OPERATION OF THE SIGNAL SYSTEM AT ALL TIMES, EXCEPT AS OTHERWISE APPROVED BY ENGINEER.
8) ALL VEHICULAR SIGNAL HEADS ARE INPLACE AND SHALL BE REUSED AND MAINTAINED AS NOTED IN THE "LED SIGNAL HEADS" CHART FOR EACH STAGE OF CONSTRUCTION (ANY MODIFICATIONS TO THESE SIGNAL HEADS DUE TO APPLICABLE TRAFFIC CONTROL AND STAGING WILL BE INCLUDED AS PART OF THE BID ITEM FOR "TEMPORARY SIGNAL SYSTEM B"). SEE SPECIAL PROVISIONS.
9) EACH SIGNAL HEAD HAS A BACKGROUND SHIELD.
10) F & I = NEW, FURNISH AND INSTALL.
    S & I = INPLACE, SALVAGE AND INSTALL.
11) ALL CONDUIT, CABLES AND CONDUCTORS, HANDHOLES, AND LOOP DETECTORS ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, EXCEPT WHERE BOXED IN AND DENOTED OTHERWISE.
12) (**) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR (OR REMOVED AND DISPOSED OF BY CONTRACTOR) UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECT). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.

    REMOVAL OF INTERCONNECT CONDUIT AND HANDHOLES WILL BE MEASURED AND PAID FOR SEPARATELY, AND FURNISHING AND INSTALLING NEW FIBER OPTIC CONDUIT & HANDHOLES (PULL VAULTS) WILL ALSO BE MEASURED AND PAID FOR SEPARATELY.
13) SEE SPECIAL PROVISIONS REGARDING VIDEO DETECTION SYSTEM TO BE FURNISHED BY COUNTY, INSTALLED AND MADE OPERATIONAL BY CONTRACTOR DURING CONSTRUCTION, AND SALVAGED BY THE CONTRACTOR BACK TO COUNTY AFTER PERMANENT LOOP DETECTORS ARE MADE OPERATIONAL (INCLUDED AS PART OF PAY ITEM FOR "TEMPORARY SIGNAL SYSTEM B").
14) VIDEO DETECTOR CABLES (3/C#14) TO BE FURNISHED & INSTALLED BY CONTRACTOR FOR USE DURING CONSTRUCTION SHALL BE COILED IN EACH POLE BASE BY CONTRACTOR AFTER VIDEO DETECTORS ARE SALVAGED BY CONTRACTOR (FOR FUTURE USE BY OTHERS). ALL VIDEO DETECTOR CABLE INSTALLATION WORK IS INCLUDED AS PART OF PAY ITEM FOR "TEMPORARY SIGNAL SYSTEM B".
15) MOVEMENT/REAIMING OF VIDEO CAMERAS, BAGGING AND UNBAGGING SIGNAL HEADS AS NOTED, AND ALL LABOR AND MATERIALS NEEDED TO REVISE SIGNAL SYSTEM DURING CONSTRUCTION SHALL BE INCLUDED IN THE PAY ITEM FOR "TEMPORARY SIGNAL SYSTEM B".
16) SEE CHART ON THIS PLAN SHEET FOR INPLACE SIGNAL HEADS TO BE COVERED AND MADE INOPERATIONAL DURING VARIOUS STAGES OF CONSTRUCTION, FOR SIGNAL LENSES TO BE REPLACED DURING EACH STAGE OF CONSTRUCTION AS NOTED IN PLANS, AND FOR THESE SAME SIGNAL HEADS TO HAVE EXISTING LENSES BE REINSTALLED AND HEADS UNCOVERED AND MADE OPERATIONAL PRIOR TO NEXT STAGE OF CONSTRUCTION (INCLUDED AS PART OF THE "TEMPORARY SIGNAL SYSTEM B" PAY ITEM).



Ⓐ INPLACE (MAINTAIN INPLACE)
- EQUIPMENT PAD FOUNDATION
- CONTROLLER AND CABINET
- SIGNAL SERVICE CABINET
- CONTROLLER CABINET TO H.H.1:
  - 4" R.S.C.: 3–12/c#14, 1–3/c#14, 13–2/c#14, 1–3/c#20, 2" R.S.C.
  - 4" R.S.C.: 3–12/c#14, 1–3/c#14, 2–2/c#14, 1–3/c#20
- 1–6 SM FO CABLE

INPLACE (REMOVE)
- 2–2/c#14 (**) 1–12 SM FO CABLE
- F & I: 2–2/c#14 (**) 1–12 SM FO CABLE

INPLACE (MAINTAIN INPLACE)
- CONTROLLER CABINET TO H.H.25:
  - 4"R.S.C.: 3–12/c#14, 1–3/c#14, 10–2/c#14, 1–3/c#20, 1–12 SM FO CABLE
  - 4"R.S.C.: 3–12/c#14, 1–3/c#14, 7–2/c#14, 1–3/c#20, 1–12 SM FO CABLE

F & I — 1–3/c#14 (VIDEO)

INPLACE (MAINTAIN INPLACE)
- SERVICE CABINET TO CONTROLLER CABINET:
  - 2" R.S.C. (METERED SIGNAL SERVICE)
  - 3–1/c#6
- SERVICE CABINET TO H.H.25:
  - 2" R.S.C. (UNMETERED ST LIGHT SERVICE)
  - 4–3/c#14 (LUM)
  - 2" R.S.C. STUB OUT FROM SERVICE CABINET (FOR POWER BY CONNEXUS)

① INPLACE (MAINTAIN INPLACE)
- PA100 POLE FOUNDATION
- TYPE PA100–A–55–D40–9 (DAVIT AT 350 DEG)
- LUMINAIRE–LED
- 4–ONE WAY SIGNALS–OVERHEAD AT 0', 0', 17' AND 29' FROM END OF MAST ARM
- 2–ONE WAY SIGNALS–POLE MOUNTED 90/180 DEG
- 2–SETS CD PED SIGNALS–POLE MOUNTED 90/180 DEG
- ONE WAY EVP DETECTOR AND LIGHT–OVERHEAD AT 6' (ø4,7)
- 2–R6–1 SIGN PANELS–POLE MOUNTED 0/180 DEG
- TYPE D SIGN PANEL–OVERHEAD AT 32'
- EXTENDED INTO H.H.1:
  - 3" R.S.C.
  - 3–12/c#14
  - 1–3/c#14
  - 1–3/c#20
  - 1–3/c#14 (LUM)

③ INPLACE (MAINTAIN INPLACE)
- PA100 POLE FOUNDATION
- TYPE PA100–A–55–D40–9 (DAVIT AT 350 DEG)
- LUMINAIRE–LED
- 4–ONE WAY SIGNALS–OVERHEAD AT 0', 0', 11' AND 23' FROM END OF MAST ARM
- 2–ONE WAY SIGNALS–POLE MOUNTED 90/180 DEG
- 2–SETS CD PED SIGNALS–POLE MOUNTED 90/180 DEG
- ONE WAY EVP DETECTOR AND LIGHT–OVERHEAD AT 6' (ø6,1)
- 2–R6–1 SIGN PANELS–POLE MOUNTED 0/180 DEG
- TYPE D SIGN PANEL–OVERHEAD AT 26'
- EXTENDED INTO H.H.8:
  - 3" R.S.C.
  - 3–12/c#14
  - 1–3/c#14
  - 1–3/c#20
  - 1–3/c#14 (LUM)

⑤ INPLACE (MAINTAIN INPLACE)
- PA100 POLE FOUNDATION
- TYPE PA100–A–55–D40–9 (DAVIT AT 350 DEG)
- LUMINAIRE–LED
- 4–ONE WAY SIGNALS–OVERHEAD AT 0', 0', 17' AND 29' FROM END OF MAST ARM
- 2–ONE WAY SIGNALS–POLE MOUNTED 90/180 DEG
- 1–SET CD PED SIGNALS–POLE MOUNTED 90 DEG
- ONE WAY EVP DETECTOR AND LIGHT–OVERHEAD AT 6' (ø8,3)
- 2–R6–1 SIGN PANELS–POLE MOUNTED 0/180 DEG
- TYPE D SIGN PANEL–OVERHEAD AT 32'
- EXTENDED INTO H.H.13:
  - 3" R.S.C.
  - 3–12/c#14
  - 1–3/c#14
  - 1–3/c#20
  - 1–3/c#14 (LUM)

② INPLACE (MAINTAIN INPLACE)
- PEDESTRIAN PUSH BUTTON STATION (4" RSC)
- 2–PEDESTRIAN PUSH BUTTONS & SIGNS (R10–4b)
- EXTENDED INTO H.H.1:
  - 1 1/4" RSC
  - 2–2/c#14

④ INPLACE (MAINTAIN INPLACE)
- PEDESTRIAN PUSH BUTTON STATION (4" RSC)
- 2–PEDESTRIAN PUSH BUTTONS & SIGNS (R10–4b)
- EXTENDED INTO H.H.8:
  - 1 1/4" RSC
  - 2–2/c#14

⑥ INPLACE (MAINTAIN INPLACE)
- PEDESTRIAN PUSH BUTTON STATION (4" RSC)
- 1–PEDESTRIAN PUSH BUTTON & SIGN (R10–4b)
- EXTENDED INTO H.H.14:
  - 1 1/4" RSC
  - 1–2/c#14

⑦ INPLACE (MAINTAIN INPLACE)
- PA100 POLE FOUNDATION
- TYPE PA100–A–55–D40–9 (DAVIT AT 350 DEG)
- LUMINAIRE–LED
- 4–ONE WAY SIGNALS–OVERHEAD AT 0', 0', 11' AND 23' FROM END OF MAST ARM
- 2–ONE WAY SIGNALS–POLE MOUNTED 90/180 DEG
- 1–SET CD PED SIGNALS–POLE MOUNTED 180 DEG
- ONE WAY EVP DETECTOR AND LIGHT–OVERHEAD AT 6' (ø2,5)
- 2–R6–1 SIGN PANELS–POLE MOUNTED 0/180 DEG
- TYPE D SIGN PANEL–OVERHEAD AT 26'
- EXTENDED INTO H.H.20:
  - 3" R.S.C.
  - 3–12/c#14
  - 1–3/c#14
  - 1–3/c#20
  - 1–3/c#14 (LUM)

F & I
- 5–FOOT EXTENSION, MAST ARM HUB, & MOUNTING HARDWARE FOR VIDEO CAMERA–LOCATE AT 8' FROM LEFT END OF MAST ARM (FOR MOUNTING ON TRAFFIC SIGNAL MAST ARM)
- 1–3/c#14 (VIDEO)

INSTALL
- VIDEO CAMERA–MAST ARM MOUNTED (FACING EB TRAFFIC) (FURNISHED BY COUNTY) (V2/5–1)

⑧ INPLACE (MAINTAIN INPLACE)
- PEDESTRIAN PUSH BUTTON STATION (4" RSC)
- 1–PEDESTRIAN PUSH BUTTON & SIGN (R10–4b)
- EXTENDED INTO H.H.20:
  - 1 1/4" RSC
  - 1–2/c#14

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

NO.	BY	DATE	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Date: November 15, 2019 Name: John M. Gray, PE Lic. No. 22457

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

ANOKA COUNTY
CITY OF BLAINE
STATE AID PROJ. 002–614–041
STATE AID PROJ. 106–020–036
BLAINE CITY PROJECT 18–10

SIGNAL REVISIONS AND INTERCONNECT INTERSECTION LAYOUT
CSAH 14 (125TH AVE) AT CSAH 52 (RADISSON RD)

FILE NO. ANOKC 122928
SIGNAL SHEET 9 OF 11

2017FYA–BASE.DWG

PVC LOOP DETECTORS				
NUMBER	SIZE (FT.)	LOCATION	FUNCTION	STATUS
D1–1	2–6x6	20' & 50'	1	INPLACE
D1–2	2–6x6	5' & 35'	1	INPLACE
D2–1, D2–2	6x6	475'	1	F & I
D3–1, D3–2	6x6	30'	1	INPLACE
D3–3, D3–4	6x6	0'	1	INPLACE
D4–1, D4–2	6x6	475'	3,8	INPLACE
D4–3	2–6x6	AS SHOWN	7	INPLACE
D4–4, D4–5	2–6x6	5' & 20'	1	INPLACE
D5–1	2–6x6	20' & 50'	1	F & I
D5–2	2–6x6	5' & 35'	1	F & I
D6–1, D6–2	6x6	475'	1	INPLACE
D7–1, D7–2	6x6	30'	1	INPLACE
D7–3, D7–4	6x6	0'	1	INPLACE
D8–1, D8–2	6x6	475'	3,8	INPLACE
D8–3	2–6x6	AS SHOWN	7	INPLACE
D8–4, D8–5	2–6x6	5' & 20'	1	INPLACE

LOCATION = DISTANCE FROM STOP BAR TO FRONT OF DETECTOR.

LOOP DETECTORS FUNCTIONS:

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

INSTALL VIDEO DETECTORS (FURNISHED BY COUNTY)				
CAMERA NO.	INTERSECTION APPROACH FACING	SIGNAL POLE (CAMERA) LOCATION	CAMERA MOUNTED AT	MOUNTING HEIGHT
V2/5–1	EB CSAH 14	MAST ARM 7	ON MAST ARM (8' FROM LEFT END)	25'

NOTE: MOUNTING HEIGHT = APPROXIMATE HEIGHT ABOVE ADJACENT GROUND LINE.

TURN OFF INPLACE LOOP DETECTORS (FOR PHASES 2 & 5) IN CONTROLLER CABINET DURING OPERATION OF VIDEO DETECTION (DURING CONSTRUCTION ONLY).

SALVAGE CAMERA BACK TO COUNTY AFTER ALL PERMANENT PHASE 2 & 5 LOOP DETECTORS ARE ABLE TO BE MADE OPERATIONAL.

20 10 0 20 40
scale feet

N

SEE PREVIOUS SHEET FOR GENERAL NOTES AND DETAILED POLE/CABINET NOTES.

MATCH LINE TO NORTH

H.H.9 TO NORTH:
2" R.S.C.-INPLACE
2-2/c#14-INPLACE
2" R.S.C.-INPLACE
1-6 SM FIBER-OPTIC CABLE-INPLACE

H.H.9 TO H.H.12:
3" R.S.C.-INPLACE
4-2/c#14-INPLACE

H.H.8 TO H.H.9:
3" R.S.C.-INPLACE
9-2/c#14-INPLACE
2" R.S.C.-INPLACE
1-6 SM FIBER-OPTIC CABLE-INPLACE

H.H.13 TO H.H.14:
3" R.S.C.-INPLACE
3-12/c#14-INPLACE
1-3/c#14-INPLACE
1-3/c#20-INPLACE
1-3/c#14 (LUM)-INPLACE

H.H.14 TO H.H.19:
4" R.S.C.-INPLACE
3-12/c#14-INPLACE
1-3/c#14-INPLACE
4-2/c#14-INPLACE
1-3/c#20-INPLACE
1-3/c#14 (LUM)-INPLACE
1-12 SM FIBER-OPTIC CABLE

H.H.14 TO H.H.15A:
2" CONDUIT
2-2/c#14
2" CONDUIT
1-12 SM FIBER-OPTIC CABLE

H.H.7 TO H.H.8:
4" R.S.C.-INPLACE
3-12/c#14-INPLACE
1-3/c#14-INPLACE
11-2/c#14-INPLACE
1-3/c#20-INPLACE
1-3/c#14 (LUM)-INPLACE
2" R.S.C.-INPLACE
1-6 SM FO CABLE-INPLACE

HH 8–INP (ADJUST)
HH 7–INP (ADJUST)
HH 2–INP (ADJUST)
HH 1–INP (ADJUST)
HH 25–INP (ADJUST)
HH 3–INP (REMOVE)

CSAH 14 (125TH AVE NE) (55 MPH)
CSAH 52 (RADISSON RD) (55 MPH)

HH–2 TO HH–3:
HH–3 TO HH–4:
2" RSC–INPLACE (REMOVE)
2–2/c#14–INPLACE (REMOVE)
(**) 1–12 SM FO CABLE–INPLACE (REMOVE)

HH–2A TO HH–3A:
2" CONDUIT – F & I
2–2/c#14 – F & I

HH–81 TO HH–82:
HH–82 TO HH–1:
1.5" CONDUIT–F & I
(**) 1–12 SM FO CABLE–F & I

H.H.2 TO H.H.7:
4" R.S.C.-INPLACE
3-12/c#14-INPLACE
1-3/c#14-INPLACE
13-2/c#14-INPLACE
1-3/c#20-INPLACE
1-3/c#14 (LUM)-INPLACE
2" R.S.C.-INPLACE
1-6 SM FO CABLE-INPLACE

F & I HH 82 (FO VAULT)

H.H.1 TO H.H.2:
4" R.S.C.-INPLACE
3-12/c#14-INPLACE
1-3/c#14-INPLACE
15-2/c#14-INPLACE
1-3/c#20-INPLACE
1-3/c#14 (LUM)-INPLACE
2" R.S.C.-INPLACE
1-6 SM FO CABLE-INPLACE

H.H.1 TO H.H.25:
2" R.S.C.-INPLACE
2-3/c#14 (LUM)-INPLACE

H.H.24 TO H.H.25:
2-4" R.S.C.-INPLACE
6-12/c#14-INPLACE
2-3/c#14-INPLACE
17-2/c#14-INPLACE
2-3/c#20-INPLACE
2-3/c#14 (LUM)-INPLACE
1-12 SM FIBER OPTIC CABLE

F & I — 1–3/c#14 (VIDEO)

HH–25 TO SOUTH:
2" CONDUIT–INPLACE
1–12 SM FO CABLE–INPLACE (TO LAKES/119TH SIGNAL)

H.H.20 TO H.H.21:
2-4" R.S.C.-INPLACE
6-12/c#14-INPLACE
2-3/c#14-INPLACE
8-2/c#14-INPLACE
2-3/c#20-INPLACE
2-3/c#14 (LUM)-INPLACE
1-12 SM FIBER-OPTIC CABLE

F & I — 1–3/c#14 (VIDEO)

H.H.19 TO H.H.20:
4" R.S.C.-INPLACE
3-12/c#14-INPLACE
1-3/c#14-INPLACE
6-2/c#14-INPLACE
1-3/c#20-INPLACE
1-3/c#14 (LUM)-INPLACE
1-12 SM FIBER-OPTIC CABLE

(B) INPLACE—S.O.P. (CONNEXUS) (MAINTAIN INPLACE)

H.H.21 TO H.H.24:
2-4" R.S.C.-INPLACE
6-12/c#14-INPLACE
2-3/c#14-INPLACE
13-2/c#14-INPLACE
2-3/c#20-INPLACE
2-3/c#14 (LUM)-INPLACE
1-12 SM FIBER-OPTIC CABLE

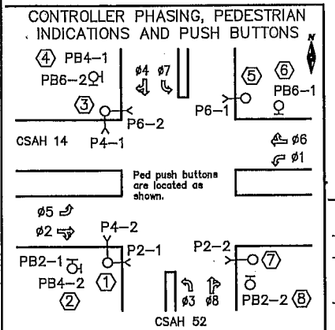
F & I — 1–3/c#14 (VIDEO)

H.H.21 TO SOUTH:
2" R.S.C.-INPLACE
2-2/c#14-INPLACE

MATCH LINE TO SOUTH

MATCH LINE A — SEE PREVIOUS SHEET

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



SIGNAL SYSTEM OPERATIONS:
- SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 8 PHASE, WITH PHASES 1, 3, 5, AND 7 BEING PROTECTED LEFT TURN PHASES.
- VEHICLE SIGNAL PHASES 2 & 6 OPERATE ON RECALL.

WORK BY CONTRACTOR ON VEHICLE SIGNAL HEADS FOR CONSTRUCTION STAGING (INCIDENTAL)						
SIGNAL HEAD	STAGE 1A	STAGE 1B	STAGE 2	STAGE 3	STAGE 4	STAGE 5
2–3	2	1	1	2	1	1
2–4	1	3	2	1	3	1
5–2	1	2	1	1	2	1
6–3	2	1	2	1	1	1
6–4	1	2	1	2	2	1

WORK BY CONTRACTOR:
1 = MAINTAIN INPLACE AND FULLY OPERATIONAL.
2 = COVER SIGNAL HEAD AND MAKE INOPERATIONAL DURING THIS STAGE OF CONSTRUCTION.
3 = REPLACE RYG LENSES WITH RLA–YLA–GLA LENSES AND REVISE SIGNAL HEAD TO BE LEFT TURN SIGNAL DURING THIS STAGE OF CONSTRUCTION (REINSTALL RYG LENSES AFTER THIS STAGE IS COMPLETED).

ALL SIGNAL HEADS NOT LISTED SHALL BE REUSED AND MAINTAINED INPLACE & IN OPERATION FOR ALL STAGES OF CONSTRUCTION.

ALL WORK BY CONTRACTOR TO COVER SIGNAL HEADS AND MAKE INOPERATIONAL FOR EACH STAGE NOTED ABOVE, AND ALL WORK TO UNCOVER AND MAKE SIGNAL HEADS OPERATIONAL PRIOR TO NEXT STAGE OF CONSTRUCTION IS CONSIDERED INCIDENTAL TO THE TEMPORARY SIGNAL SYSTEM "B" PAY ITEM.

INPLACE LED SIGNAL HEADS				
SIGNAL HEAD #	ALL 12" INDICATIONS R	Y	FYA	G
1–1, 1–2, 1–3	⟸	⟸		⟸
2–2, 2–3, 2–4	○	○		○
3–1, 3–2, 3–3	⟸	⟸		⟸
4–2, 4–3, 4–4	○	○		○
5–1, 5–2, 5–3	⟸	⟸		⟸
6–2, 6–3, 6–4	○	○		○
7–1, 7–2, 7–3	⟸	⟸		⟸
8–2, 8–3, 8–4	○	○		○

○⟸ = INPLACE LED (REUSE INPLACE).
FYA = FLASHING YELLOW ARROW

2017FYA–BASE.DWG

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

NO.	BY	DATE	REVISIONS

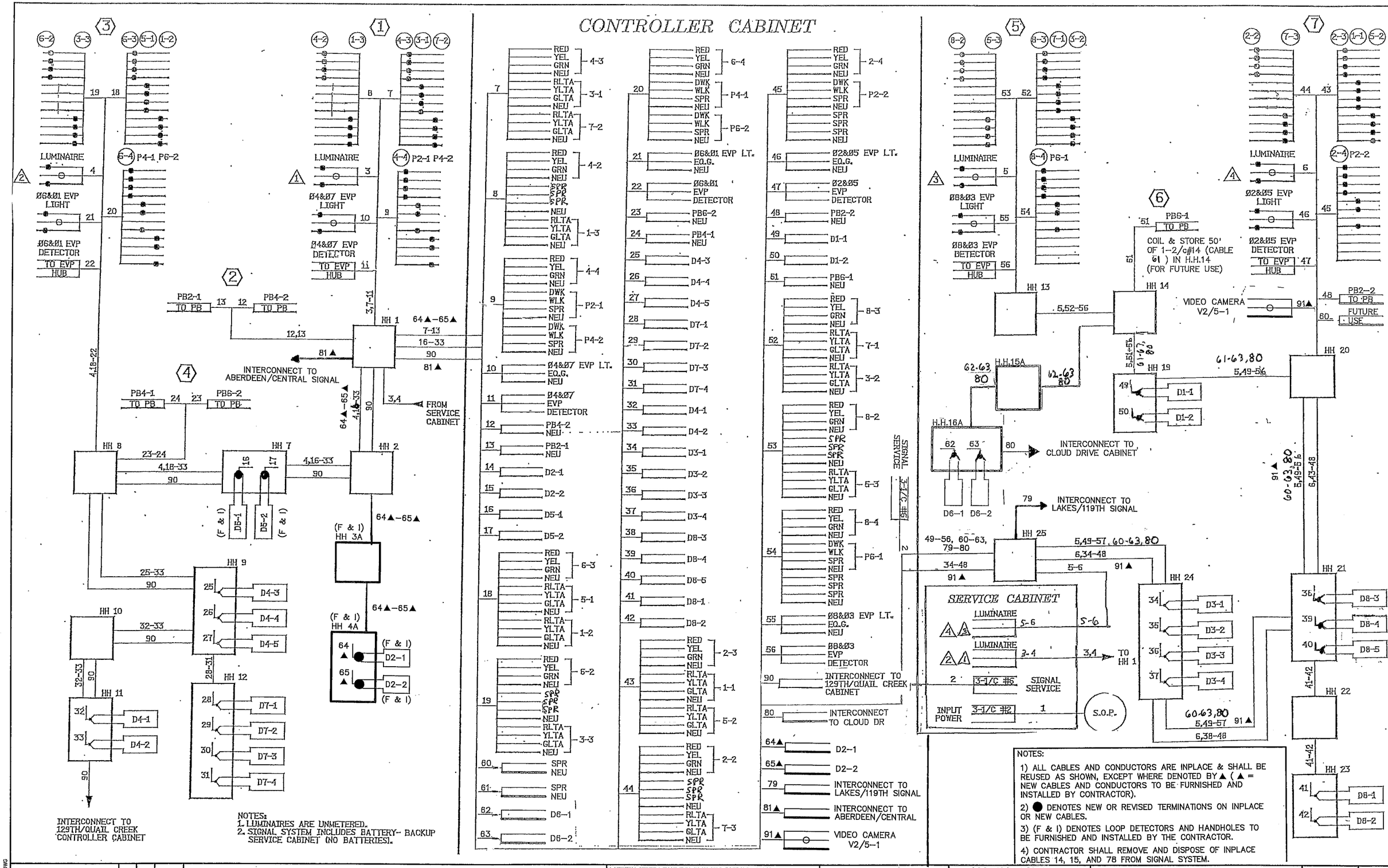
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Date: November 15, 2019 Name: John M. Gray, PE Lic. No. 22457

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

ANOKA COUNTY
CITY OF BLAINE
STATE AID PROJ. 002–614–041
STATE AID PROJ. 106–020–036
BLAINE CITY PROJECT 18–10

SIGNAL REVISIONS AND INTERCONNECT
INTERSECTION LAYOUT
CSAH 14 (125TH AVE) AT CSAH 52 (RADISSON RD)

FILE NO. ANOKC 122928
SIGNAL SHEET 10 OF 11
160/200



2017FYA-BASE.DWG

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

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Date: November 15, 2019 Lic. No. 22457

SEH
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3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110

ANOKA COUNTY
CITY OF BLAINE
STATE AID PROJ. 002-614-041
STATE AID PROJ. 106-020-036
BLAINE CITY PROJECT 18-10

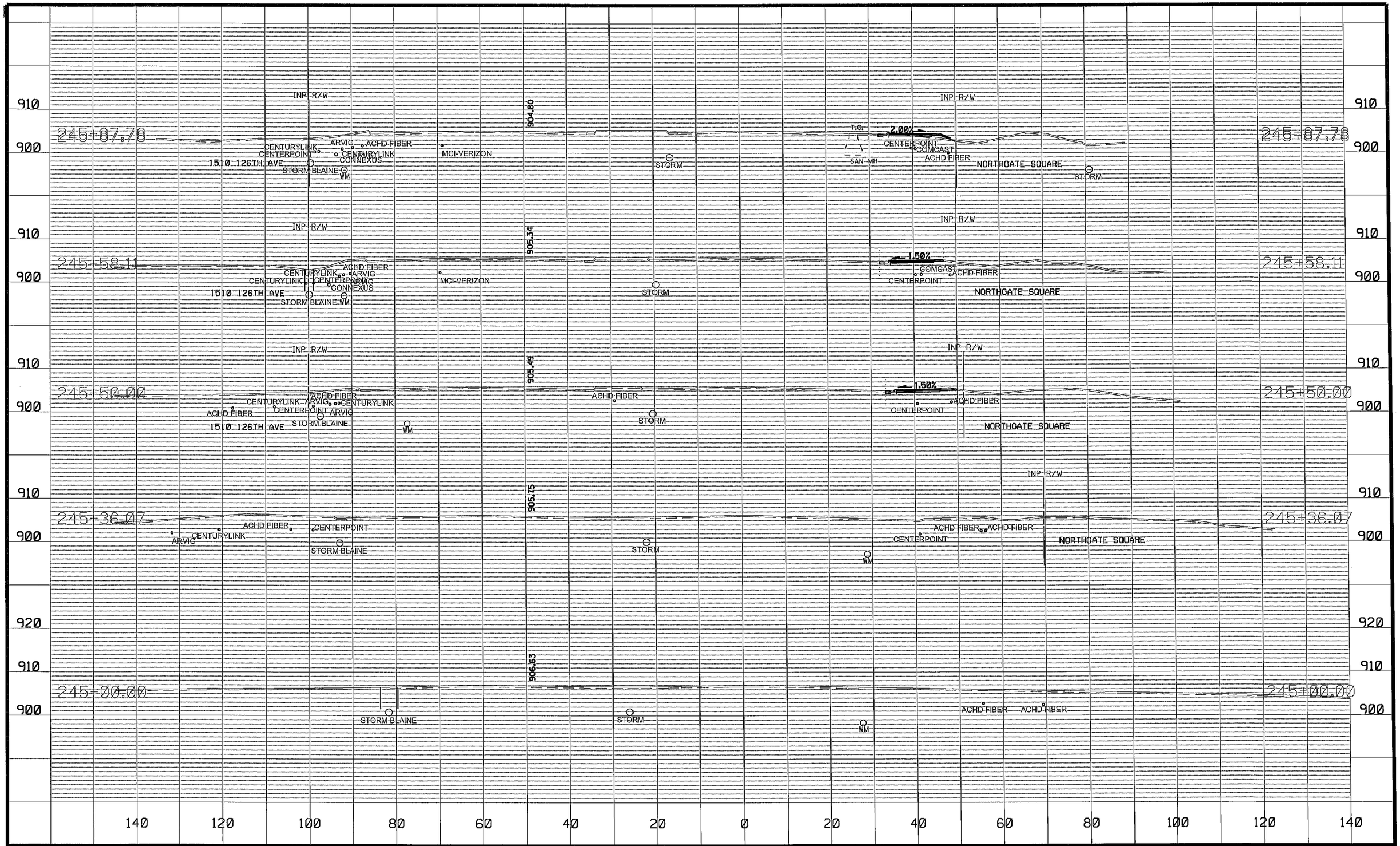
SIGNAL REVISIONS AND INTERCONNECT FIELD WIRING DIAGRAM

CSAH 14 (125TH AVE) AT CSAH 52 (RADISSON RD)

FILE NO. ANOKC 122928

SIGNAL SHEET 11 OF 11

161/200



NO	DATE	BY	CKD	APPR	REVISION

NAME: P:\002-614-041\Plan\002-614-041_XS4_P.dgn 12/10/2019 1:09:20 PM

DRAWN BY MP DATE 12/04/19
DESIGN BY JRB DATE 12/04/19
CHECKED BY NJD DATE 12/04/19

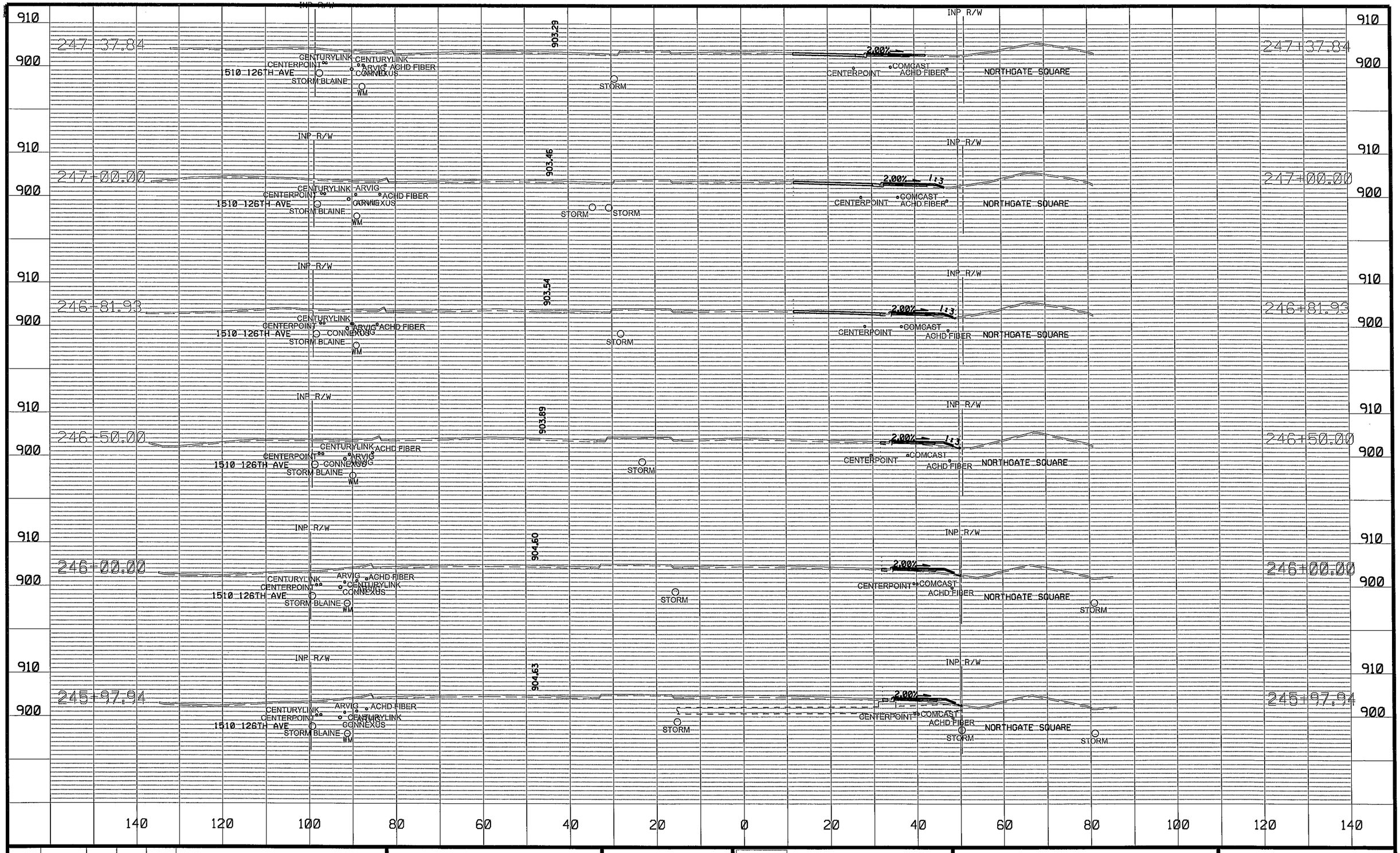
ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

CROSS SECTIONS
STA 245+00.00 TO 245+87.78

Sheet 162 of 200 Sheets



NO	DATE	BY	CKD	APPR	REVISION

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DRAWN BY MP DATE 12/04/19

DESIGN BY JRB DATE 12/04/19

CHECKED BY NJD DATE 12/04/19

ANOKA COUNTY

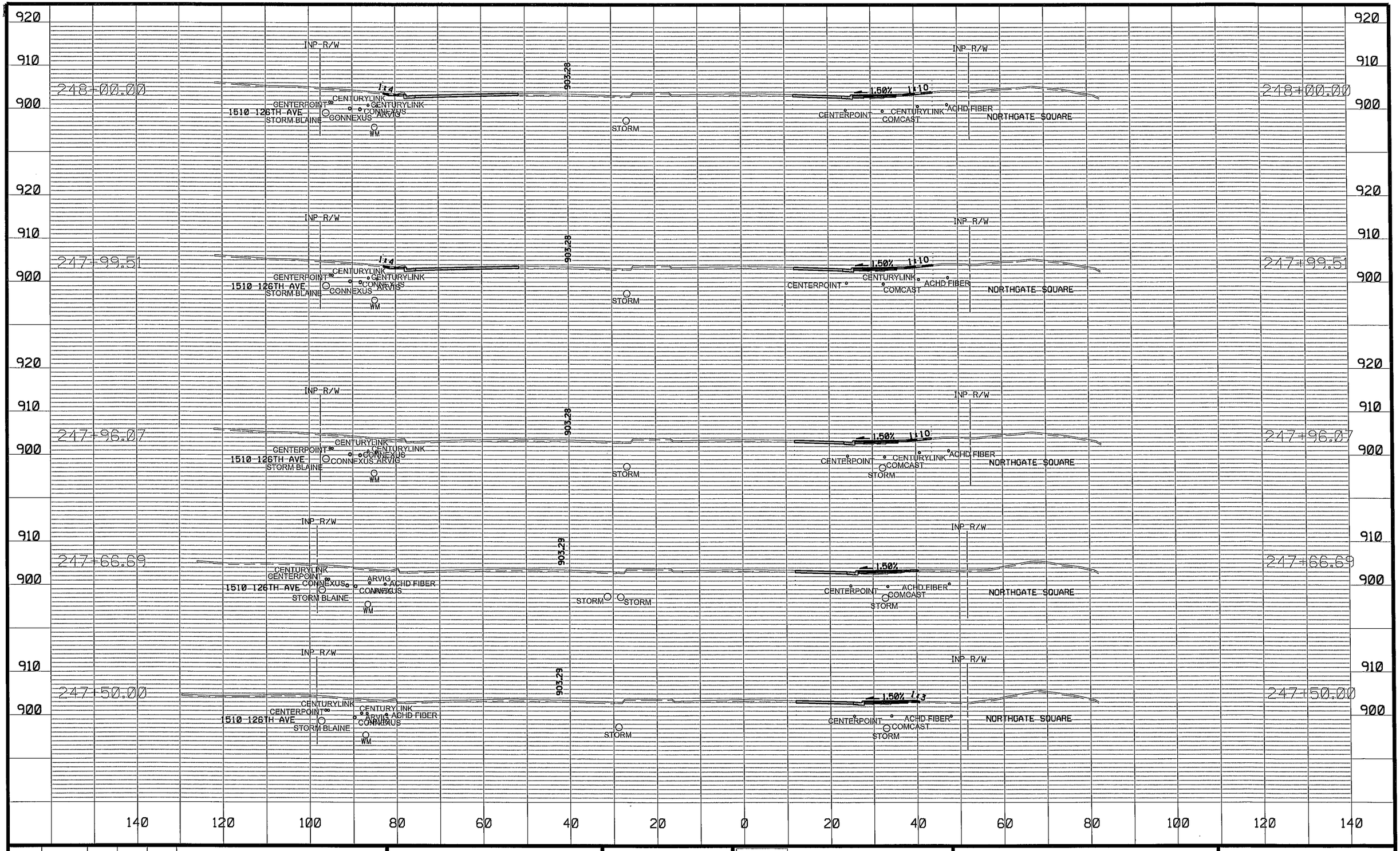
ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

CROSS SECTIONS

STA 245+97.94 TO 247+37.84

Sheet 163 of 200 Sheets



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NAME: P:\002-614-041\Plan\002-614-041_XS4_P.dgn 12/10/2019 1:09:21 PM

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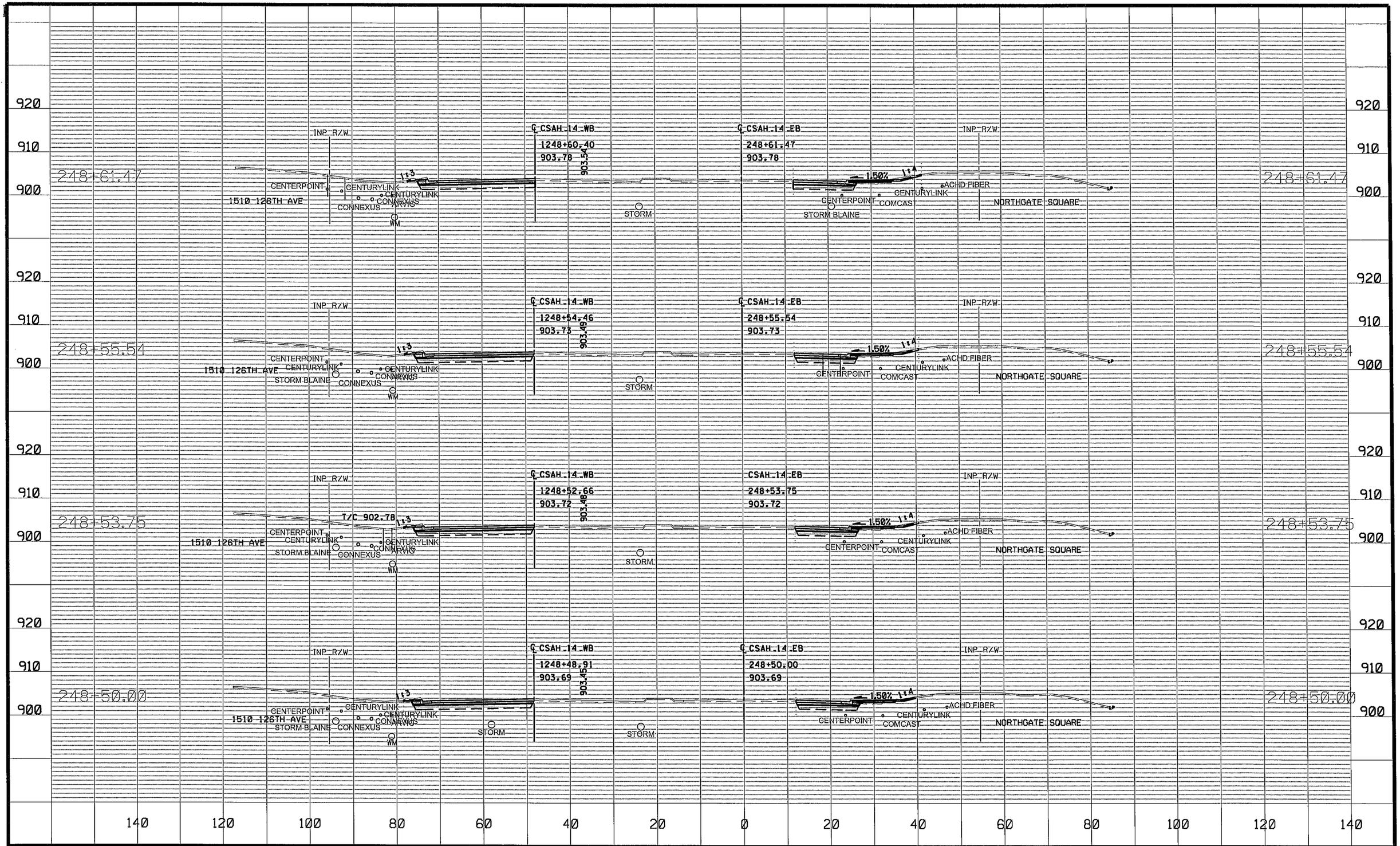
ANOKA COUNTY
HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

CROSS SECTIONS
STA 247+50.00 TO 248+00.00

Sheet 164 of 200 Sheets



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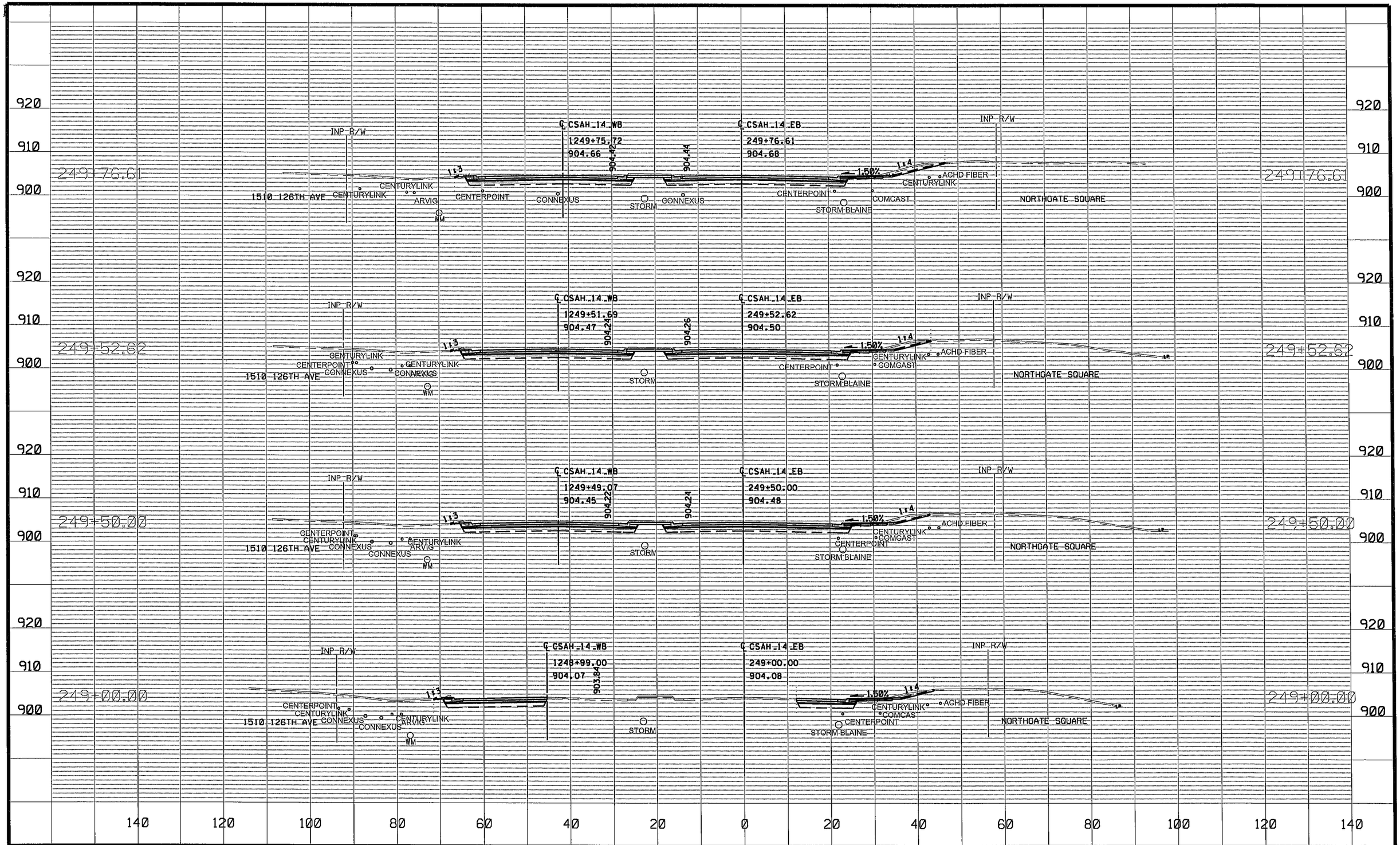
ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

CROSS SECTIONS
STA 248+50.00 TO 248+61.47

Sheet 165 of 200 Sheets



NO	DATE	BY	CKD	APPR	REVISION

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ANOKA COUNTY

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HIGHWAY DEPT.

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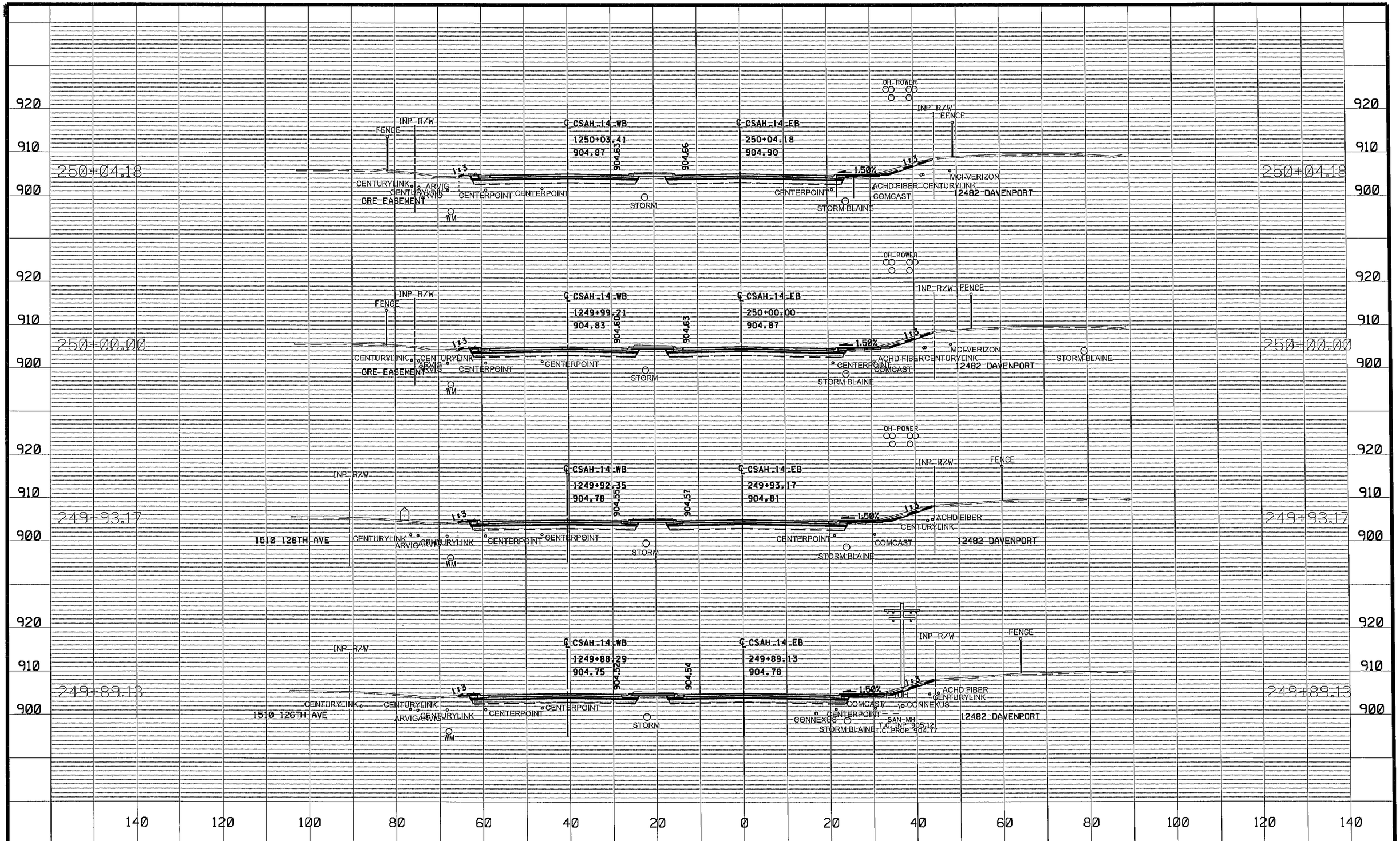
CP 18-10

CROSS SECTIONS
STA 249+00.00 TO 249+76.61

Sheet 166 of 200 Sheets



NO	DATE	BY	CKD	APPR	REVISION

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ANOKA COUNTY

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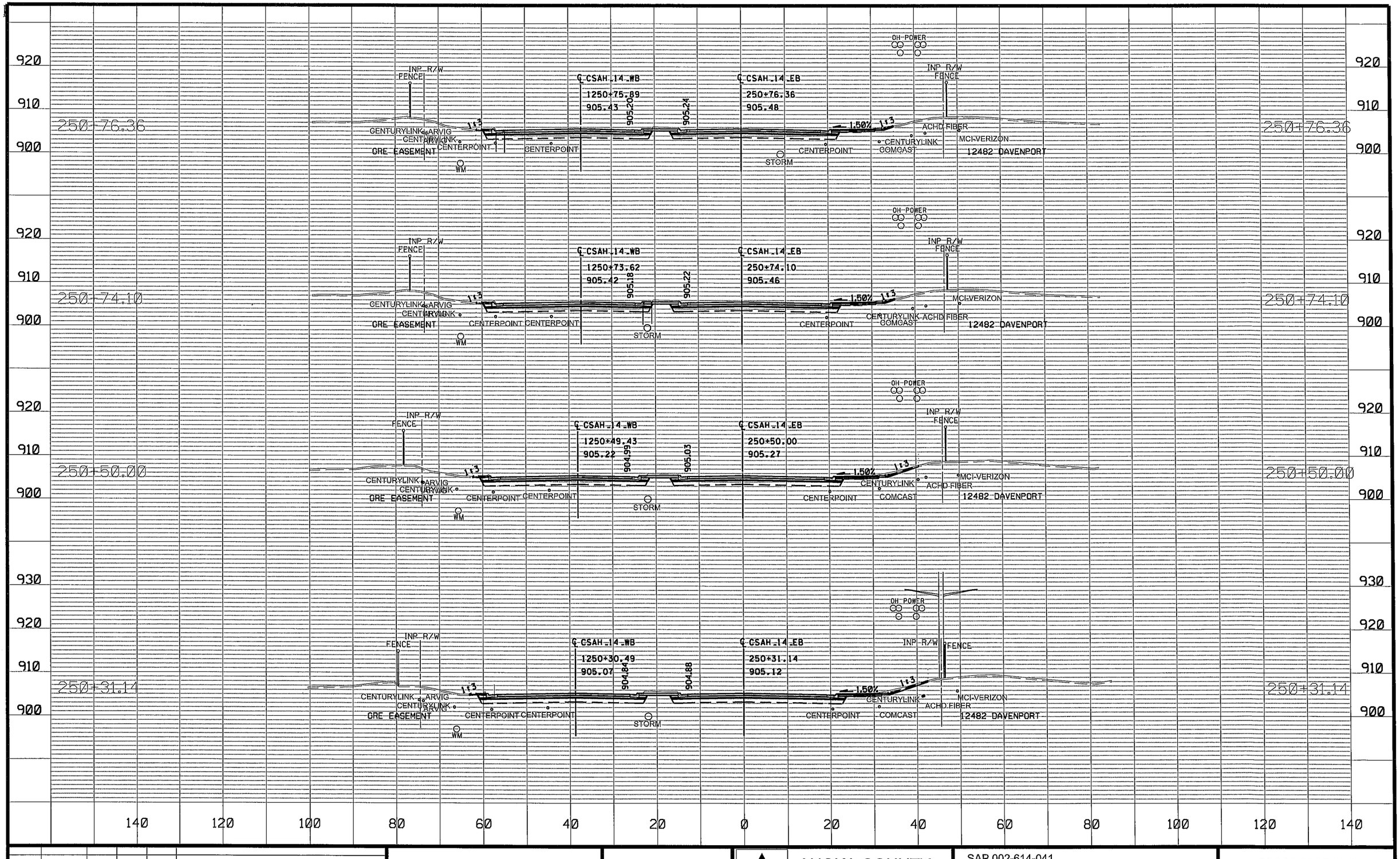
CP 18-10

CROSS SECTIONS

STA 249+89.13 TO 250+04.18

Sheet 167 of 200 Sheets



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ANOKA COUNTY

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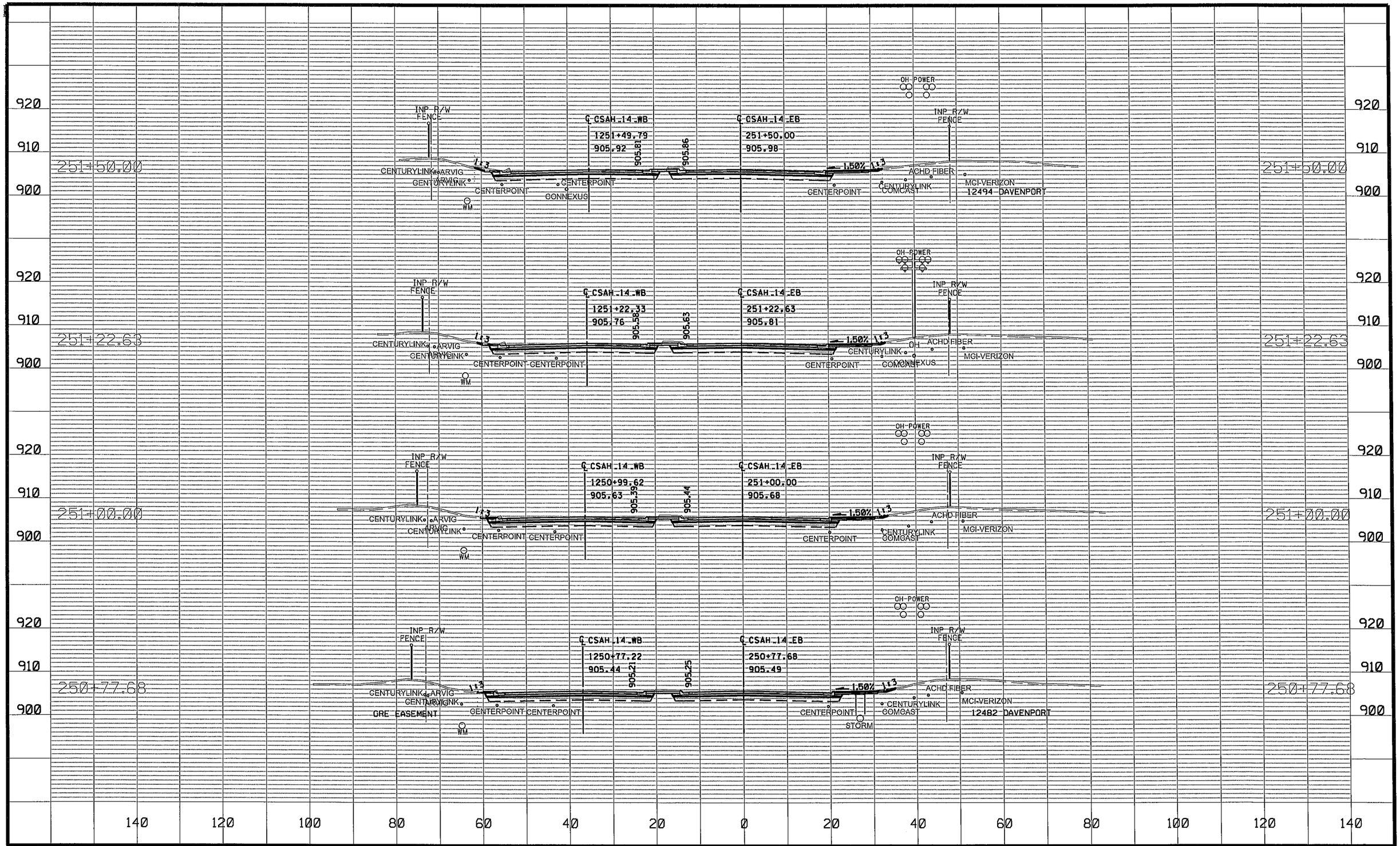
CP 18-10

CROSS SECTIONS

STA 250+31.14 TO 250+76.36

Sheet 168 of 200 Sheets



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CP 18-10

CROSS SECTIONS
STA 250+77.68 TO 251+50.00

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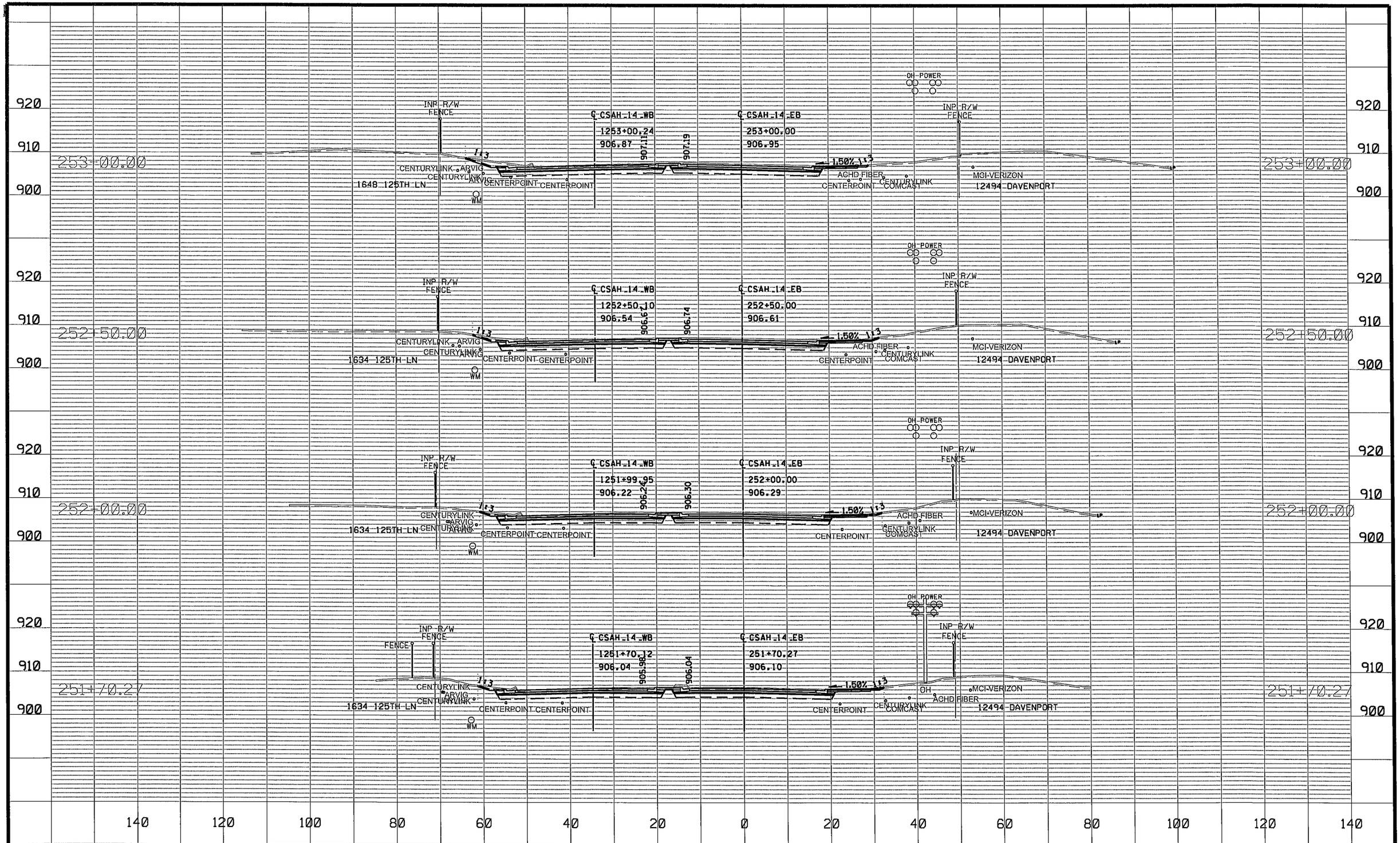

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DESIGN BY JRB DATE 12/04/19
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HIGHWAY DEPT.

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CP 18-10

CROSS SECTIONS
STA 251+70.27 TO 253+00.00

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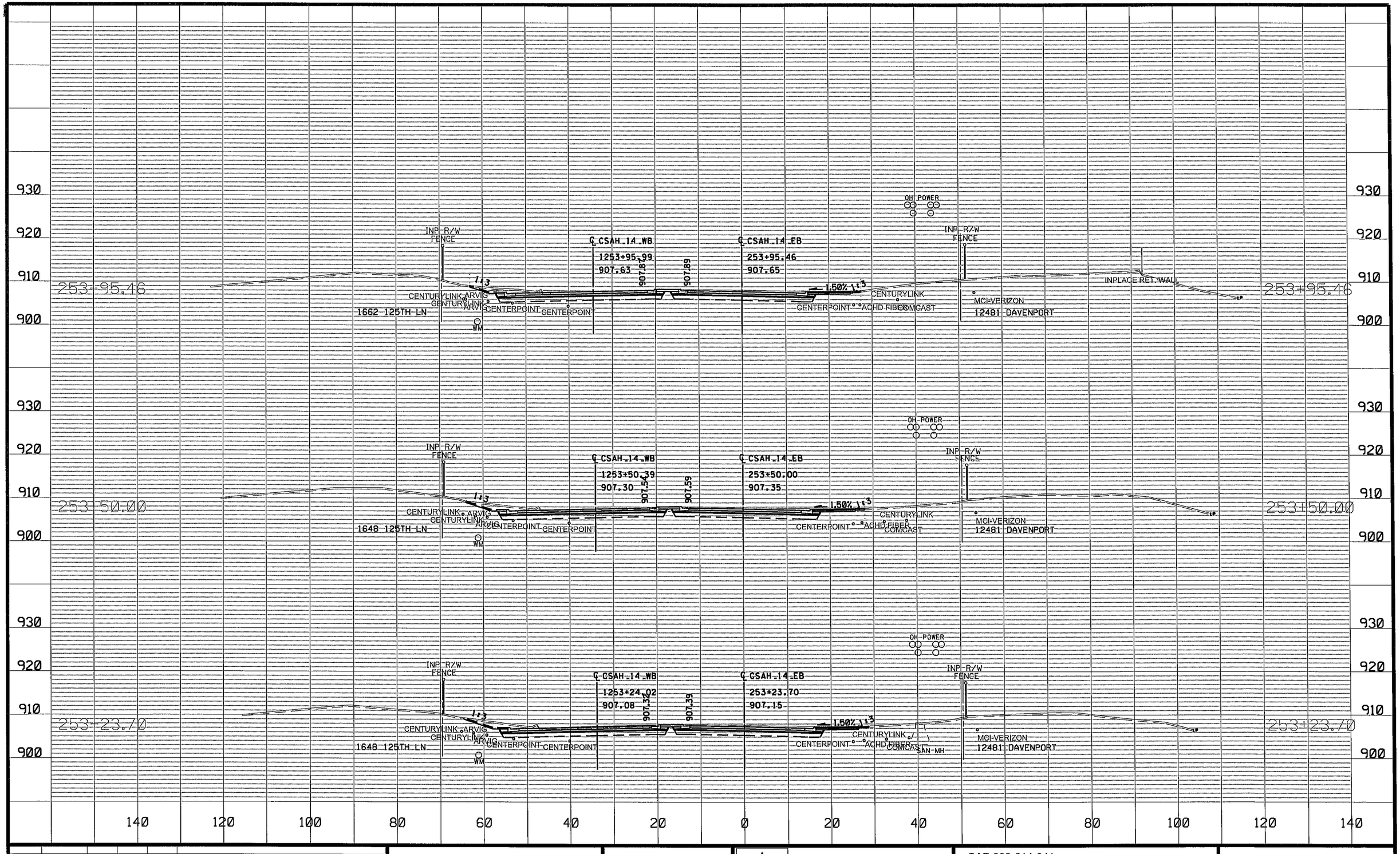

NO	DATE	BY	CKD	APPR	REVISION

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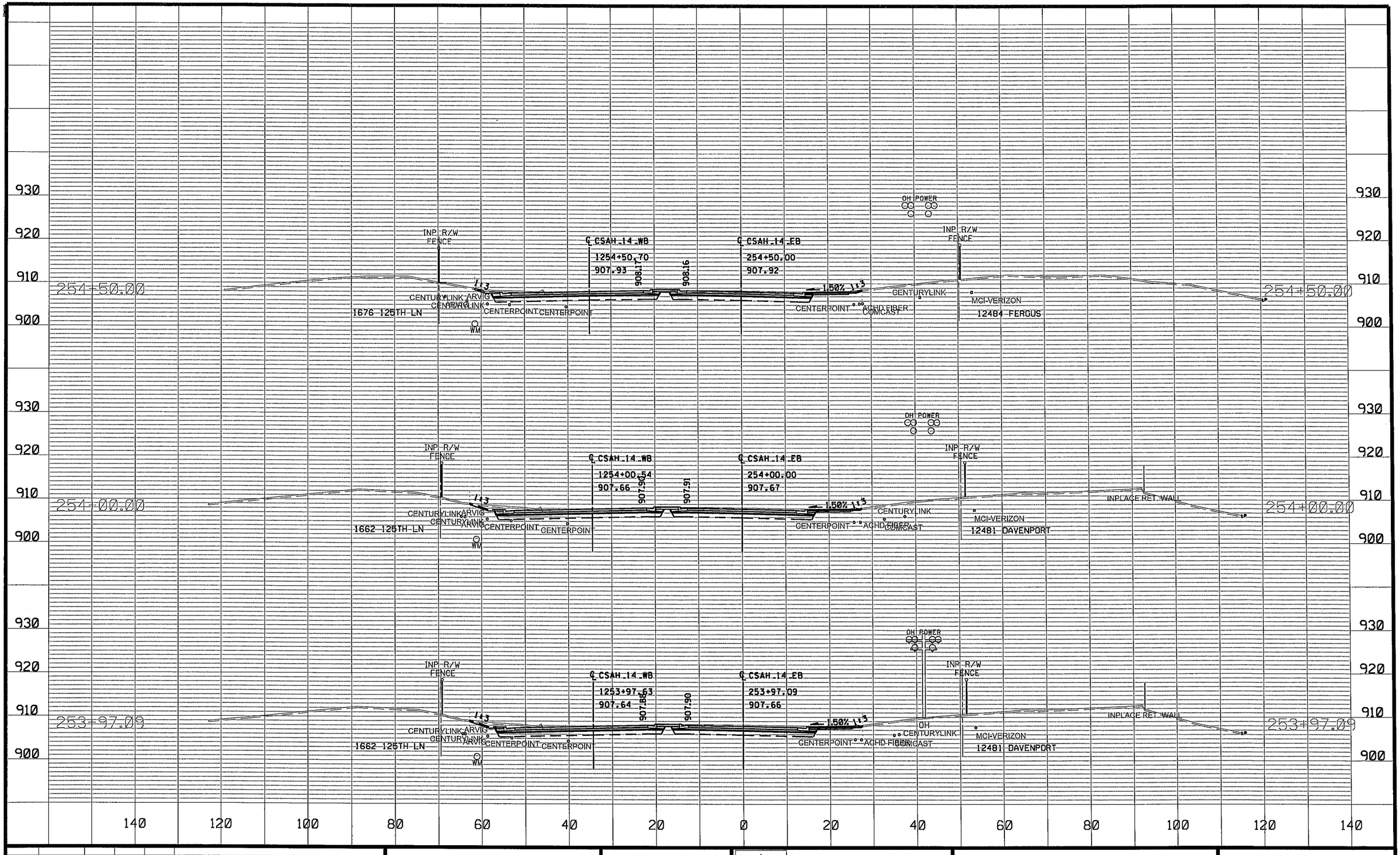
ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

CROSS SECTIONS
STA 253+23.70 TO 253+95.46



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ANOKA COUNTY

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CROSS SECTIONS

STA 253+97.09 TO 254+50.00

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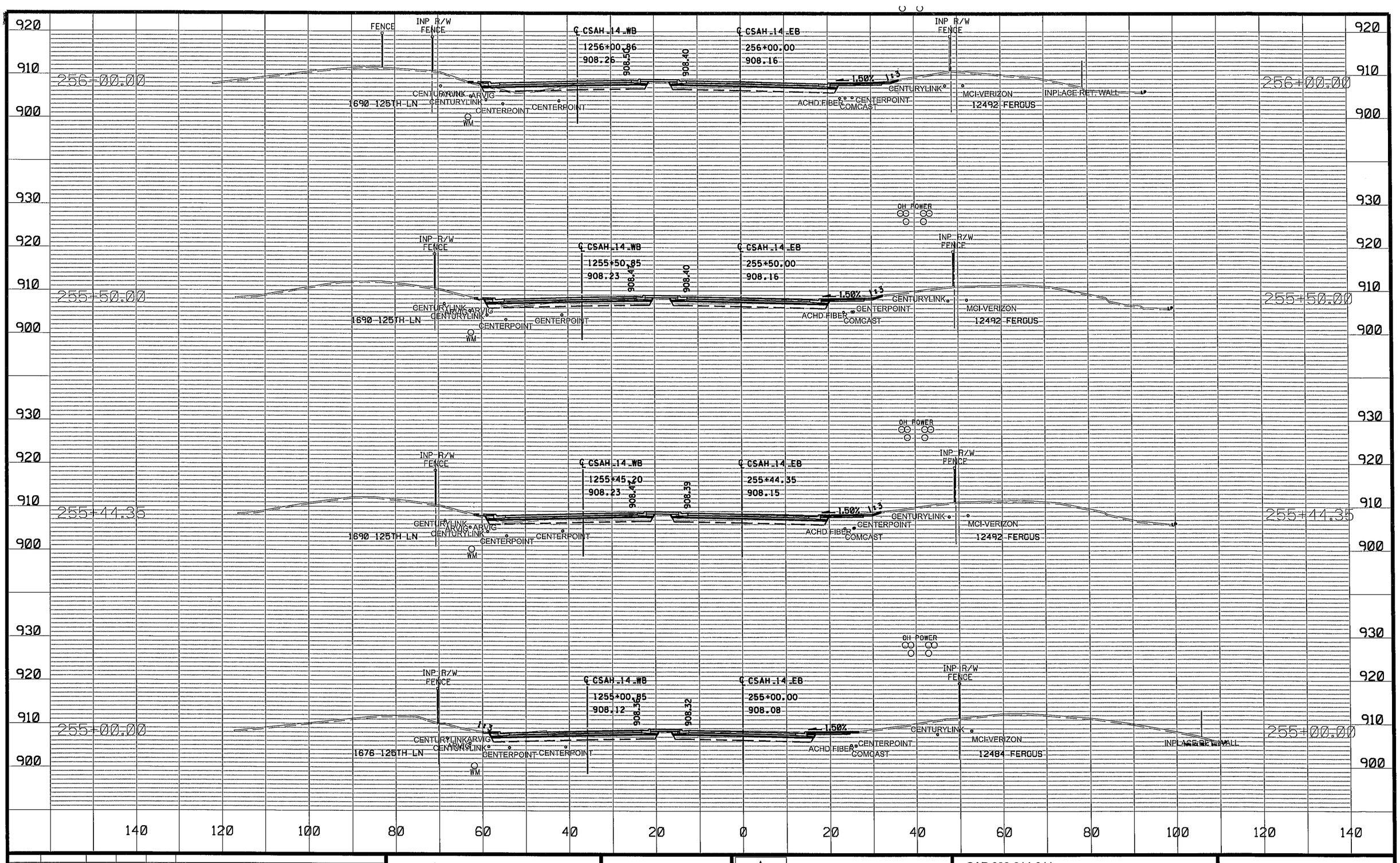

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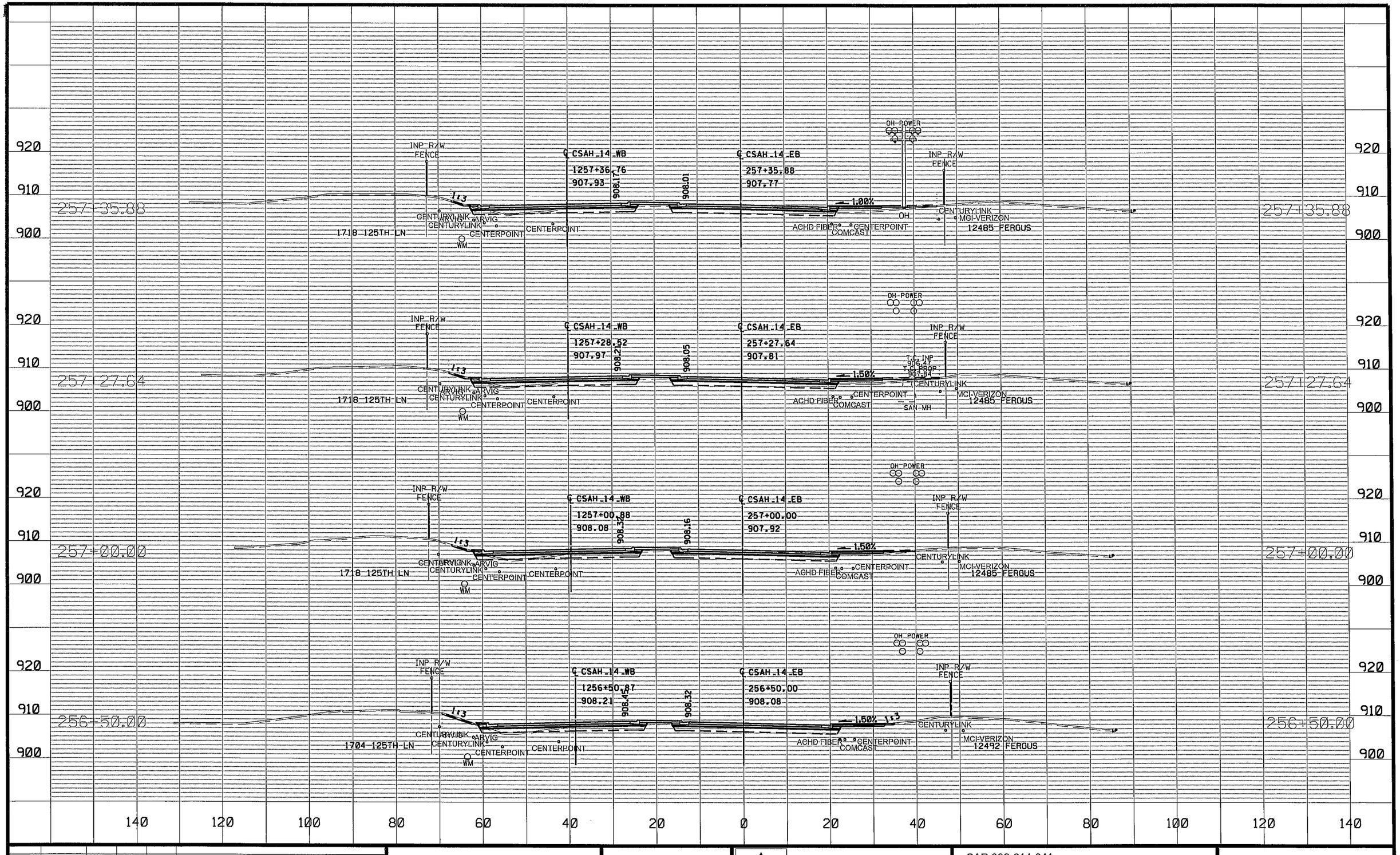
CP 18-10

CROSS SECTIONS
STA 255+00.00 TO 256+00.00

Sheet 173 of 200 Sheets



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HIGHWAY DEPT.

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CP 18-10

CROSS SECTIONS
STA 256+50.00 TO 257+35.88

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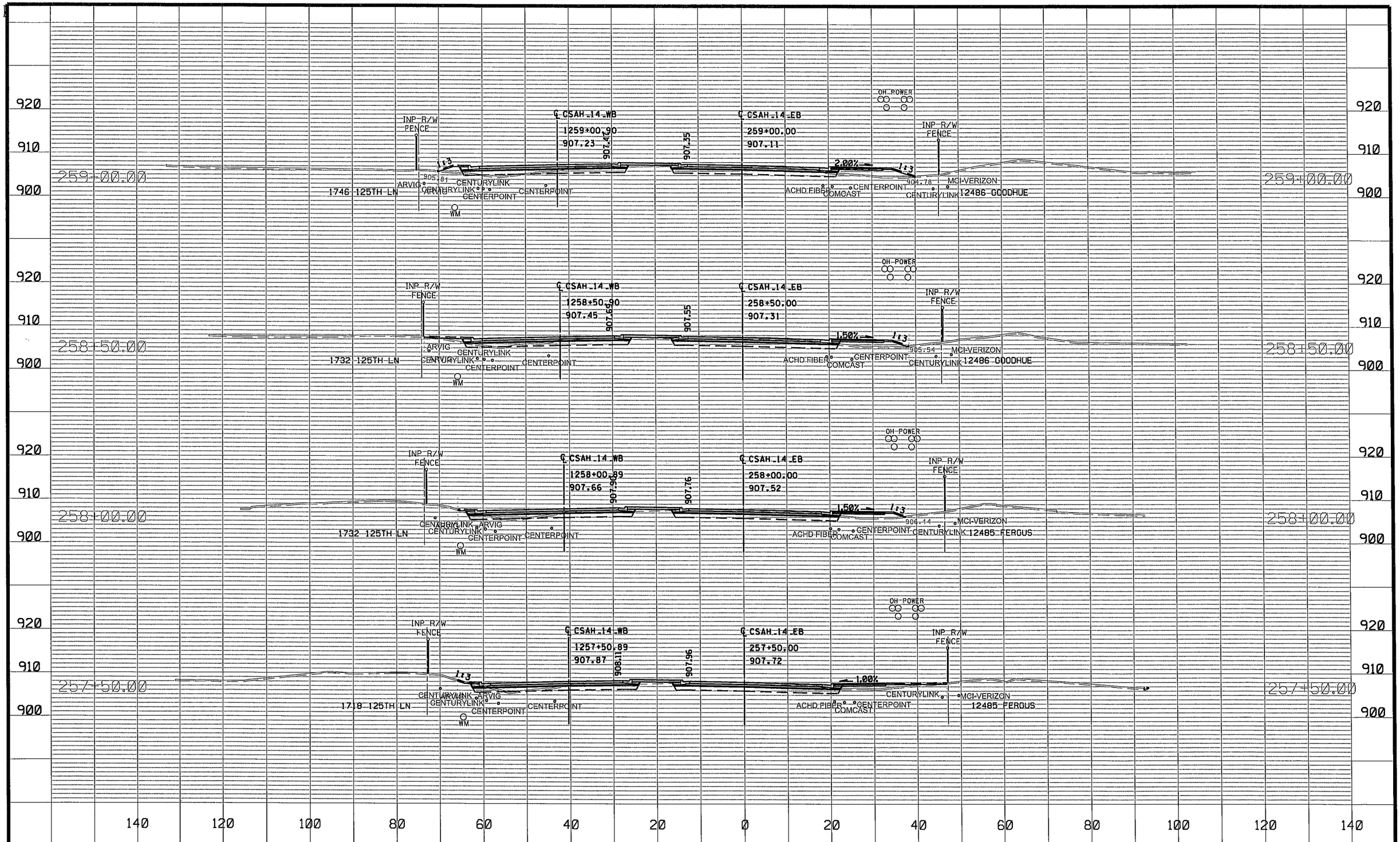

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ANOKA COUNTY

ANOKA COUNTY HIGHWAY DEPT.

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CROSS SECTIONS

STA 257+50.00 TO 259+00.00

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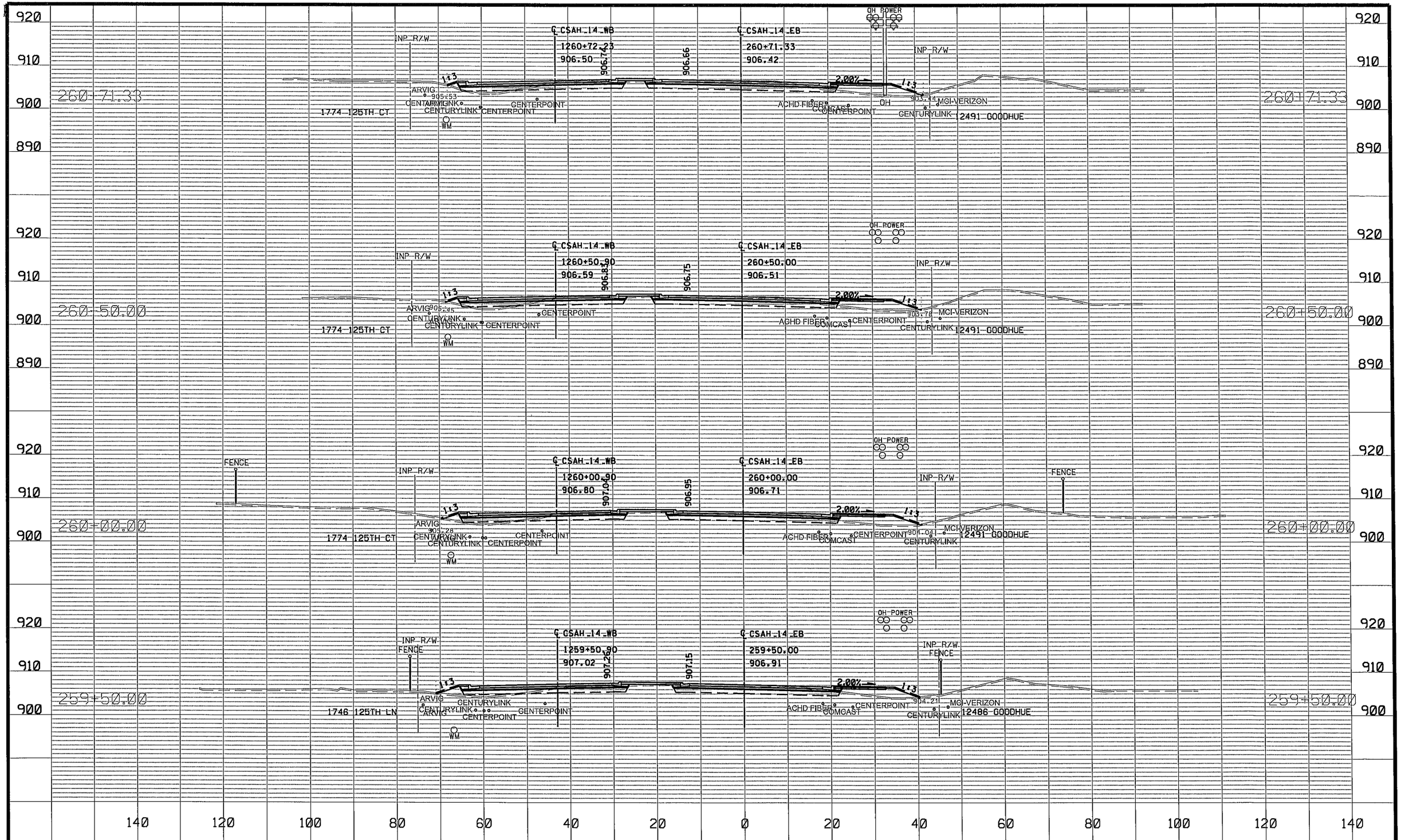

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ANOKA COUNTY

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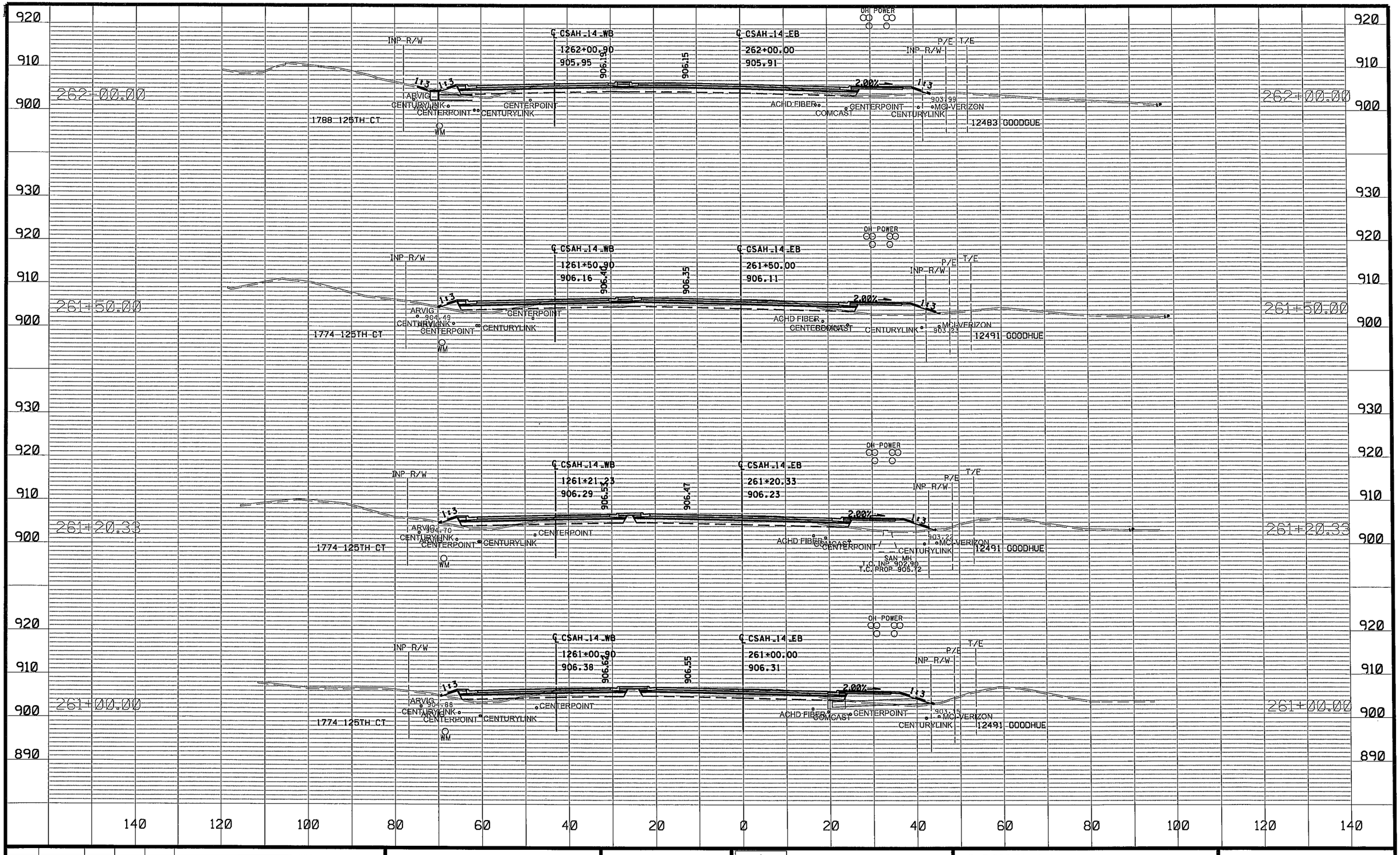
CROSS SECTIONS
STA 259+50.00 TO 260+71.33

Sheet 176 of 200 Sheets



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ANOKA COUNTY

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CP 18-10

CROSS SECTIONS

STA 261+00.00 TO 262+00.00

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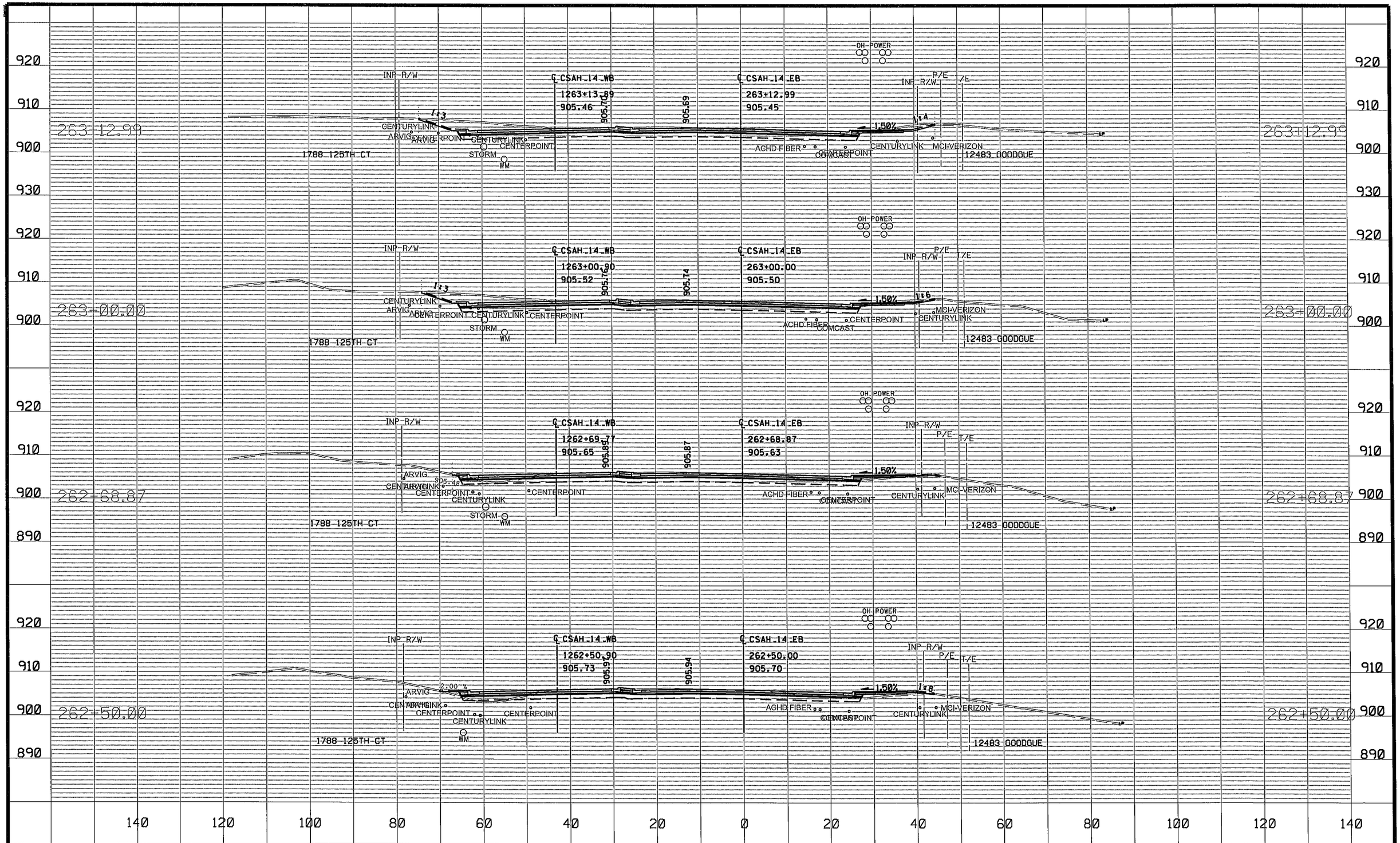

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ANOKA COUNTY

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CP 18-10

CROSS SECTIONS

STA 262+50.00 TO 263+12.99

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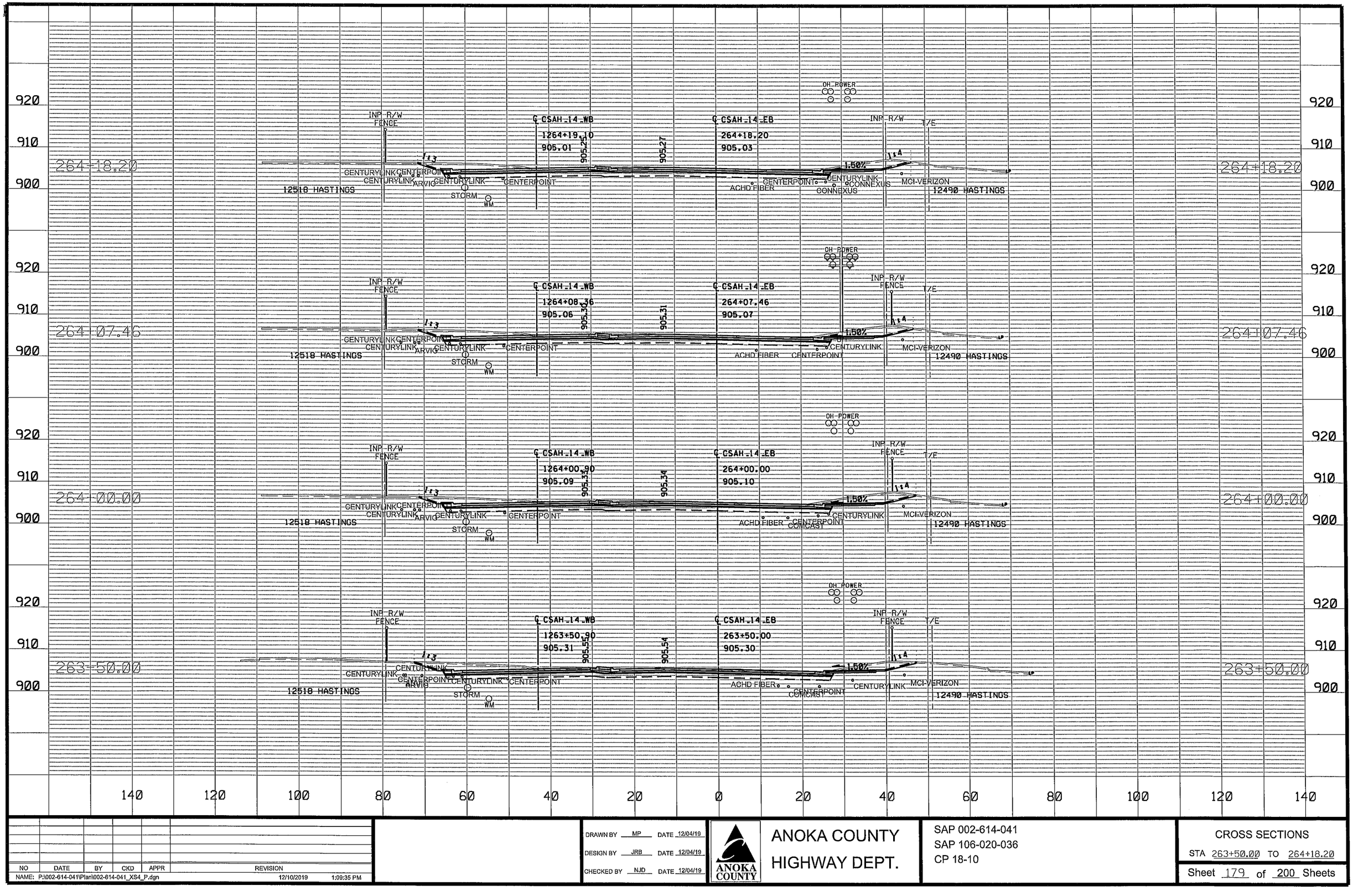

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HIGHWAY DEPT.

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CP 18-10

CROSS SECTIONS
STA 263+50.00 TO 264+18.20

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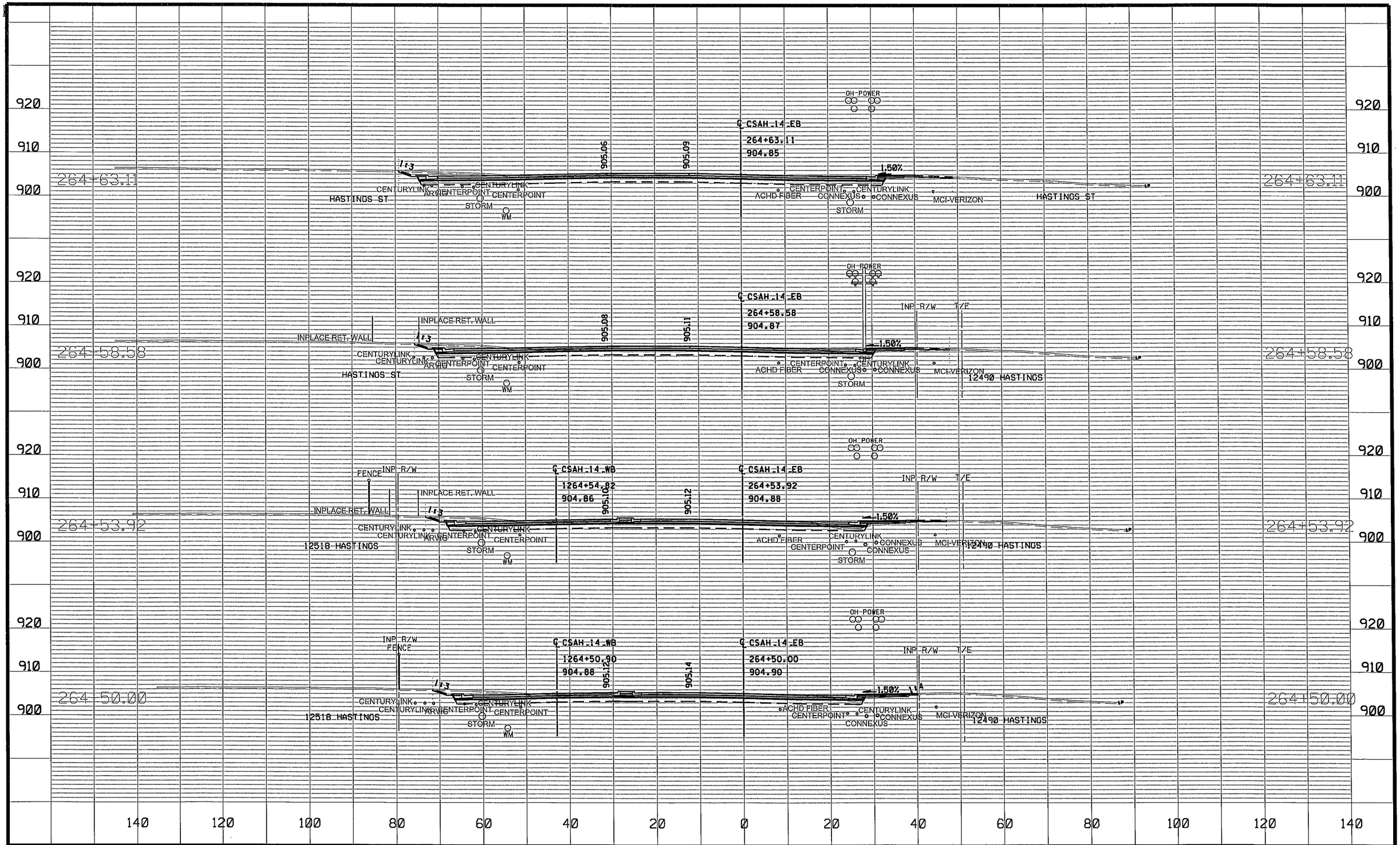

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HIGHWAY DEPT.

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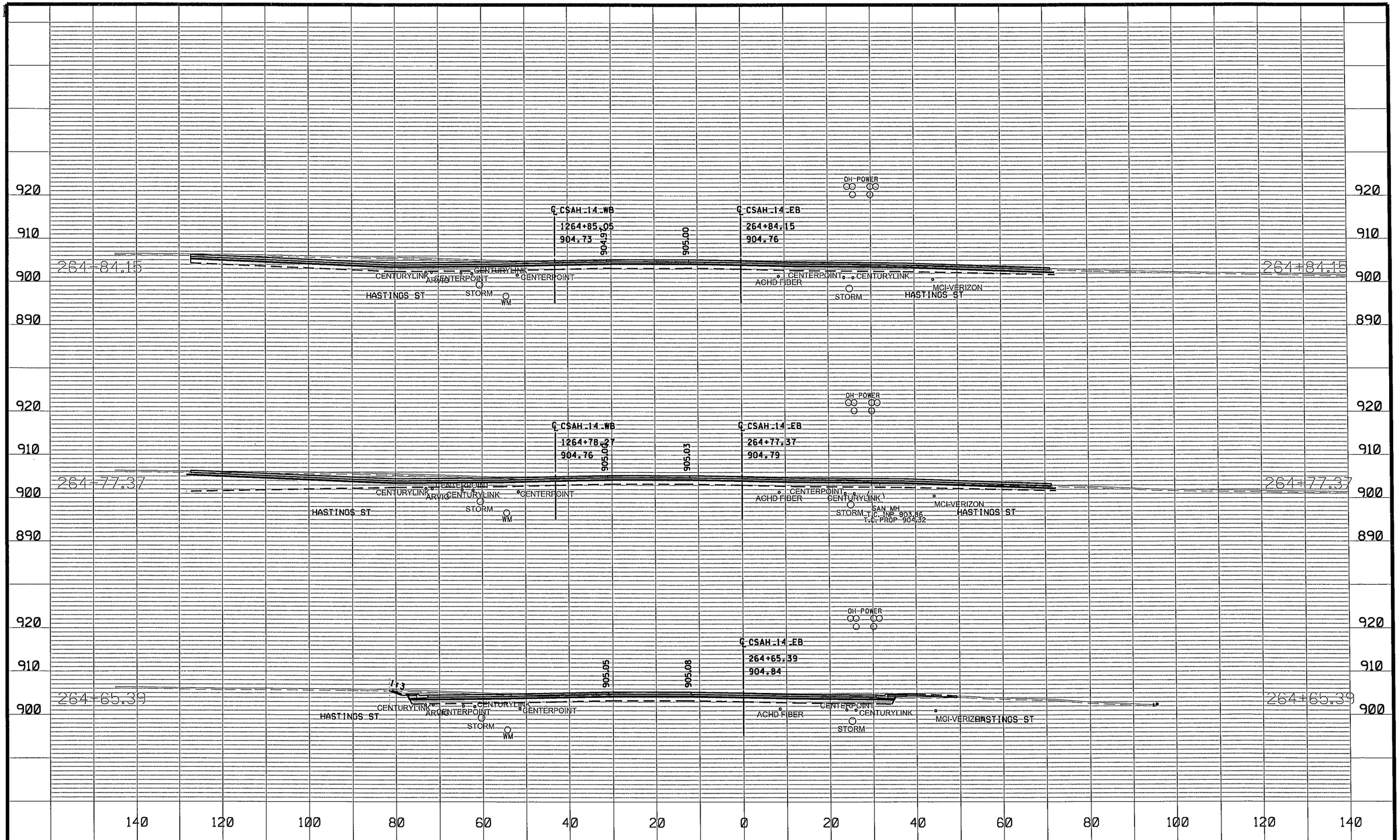
CP 18-10

CROSS SECTIONS
STA 264+50.00 TO 264+63.11

Sheet 180 of 200 Sheets



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ANOKA COUNTY

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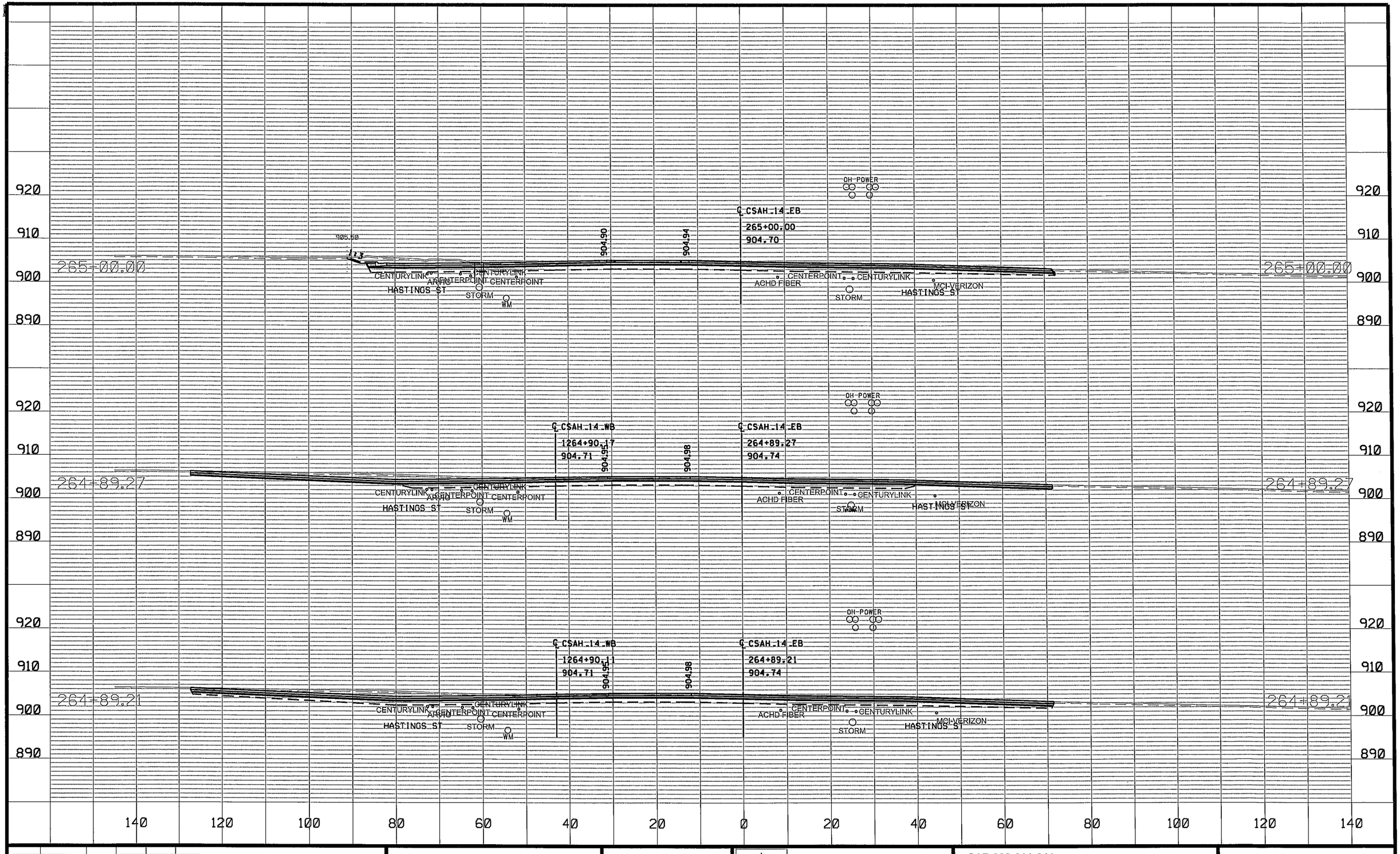
CP 18-10

CROSS SECTIONS

STA 264+65.39 TO 264+84.15

Sheet 181 of 200 Sheets



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ANOKA COUNTY

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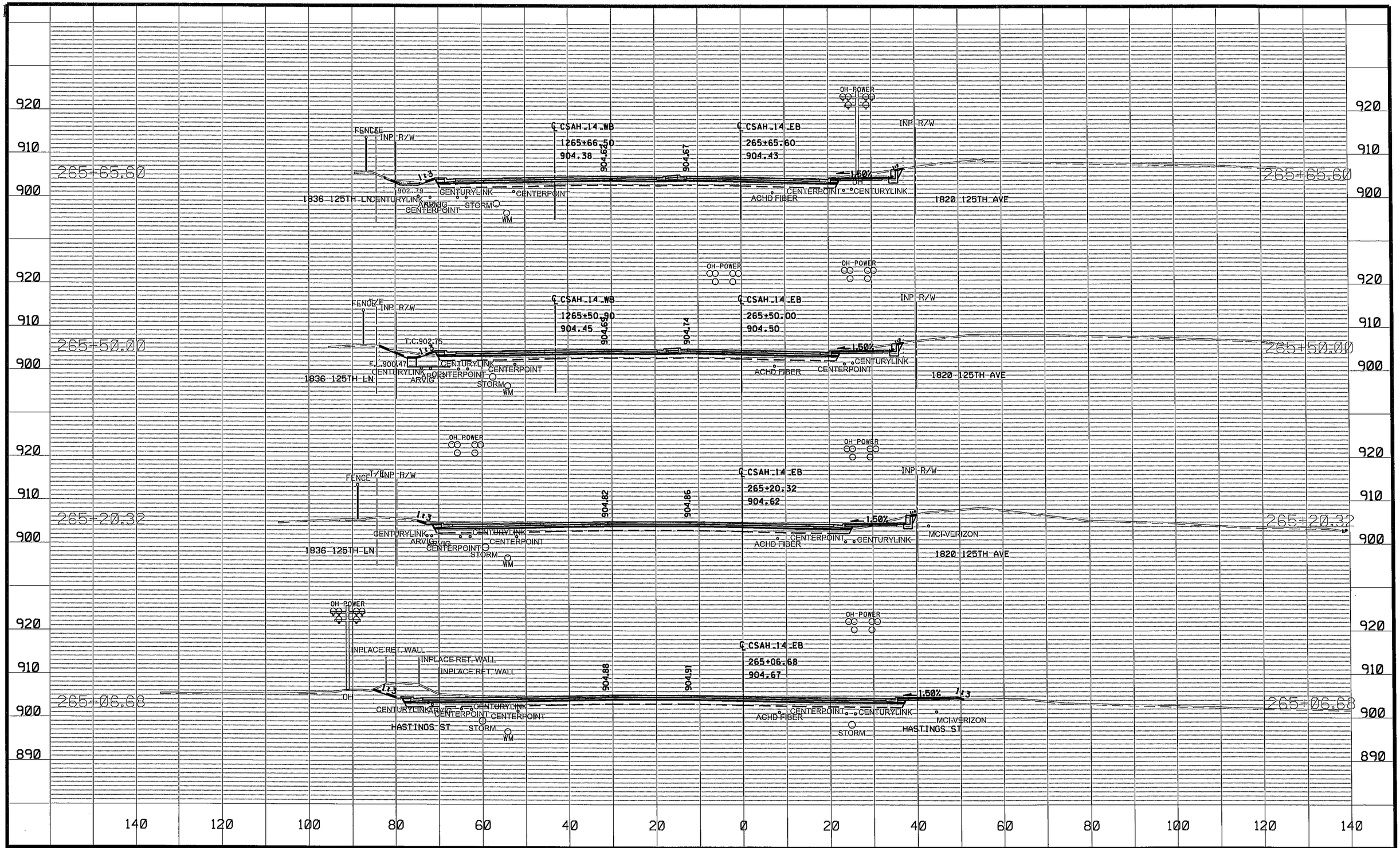
CP 18-10

CROSS SECTIONS
STA 264+89.21 TO 265+00.00

Sheet 182 of 200 Sheets



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HIGHWAY DEPT.

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CP 18-10

CROSS SECTIONS
STA 265+06.68 TO 265+65.60

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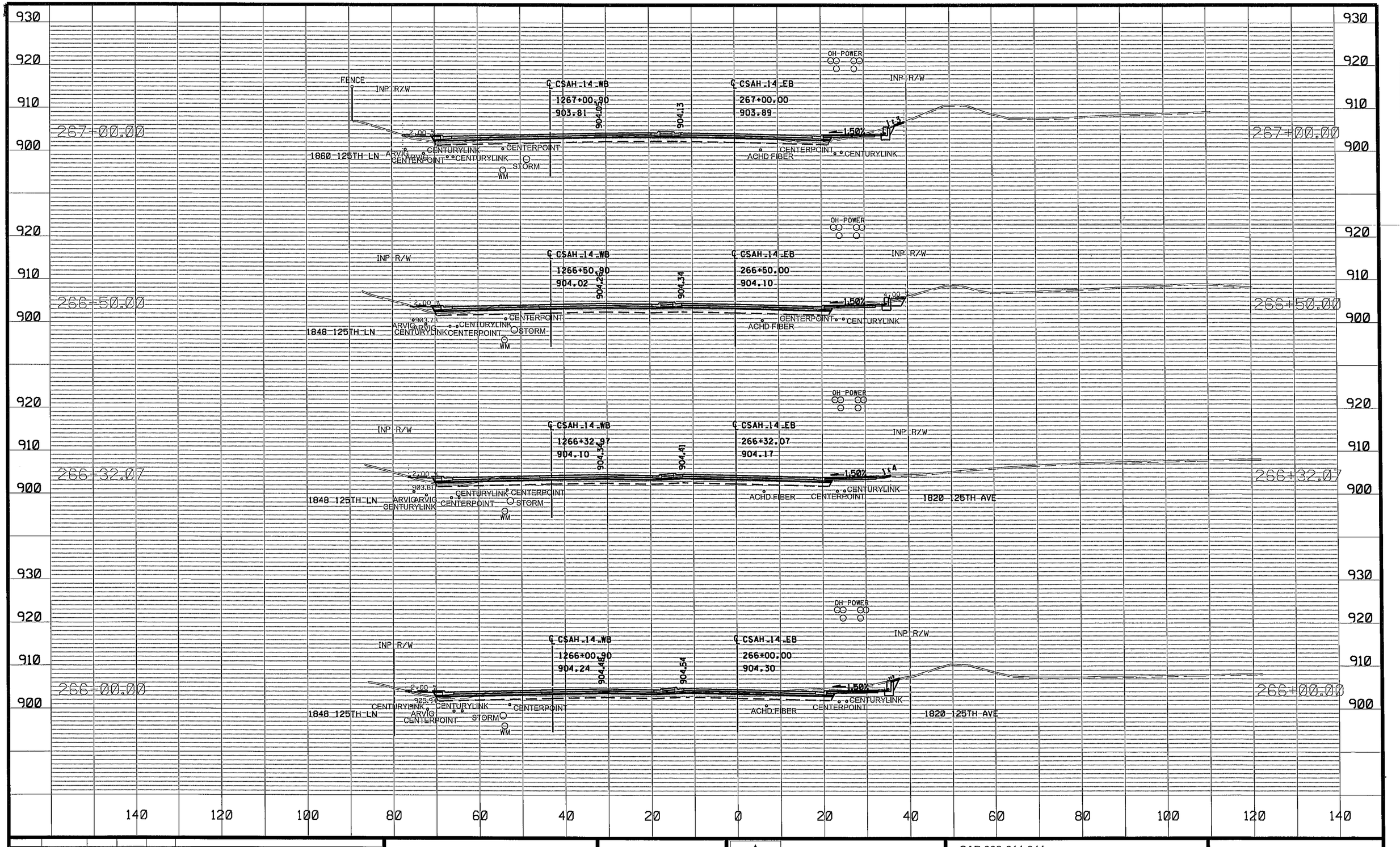

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ANOKA COUNTY
HIGHWAY DEPT.

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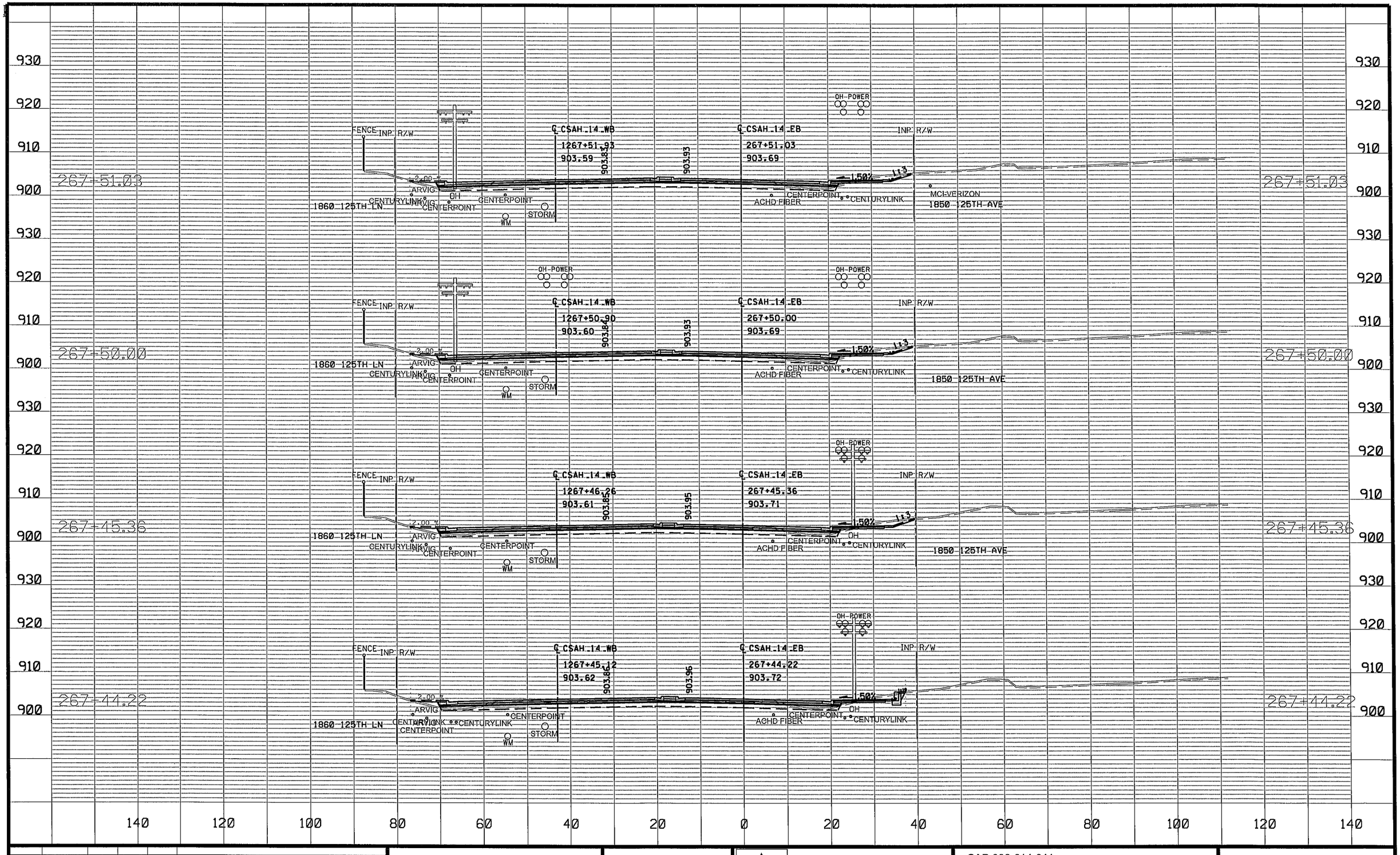
CP 18-10

CROSS SECTIONS
STA 266+00.00 TO 267+00.00



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ANOKA COUNTY

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CP 18-10

CROSS SECTIONS

STA 267+44.22 TO 267+51.03

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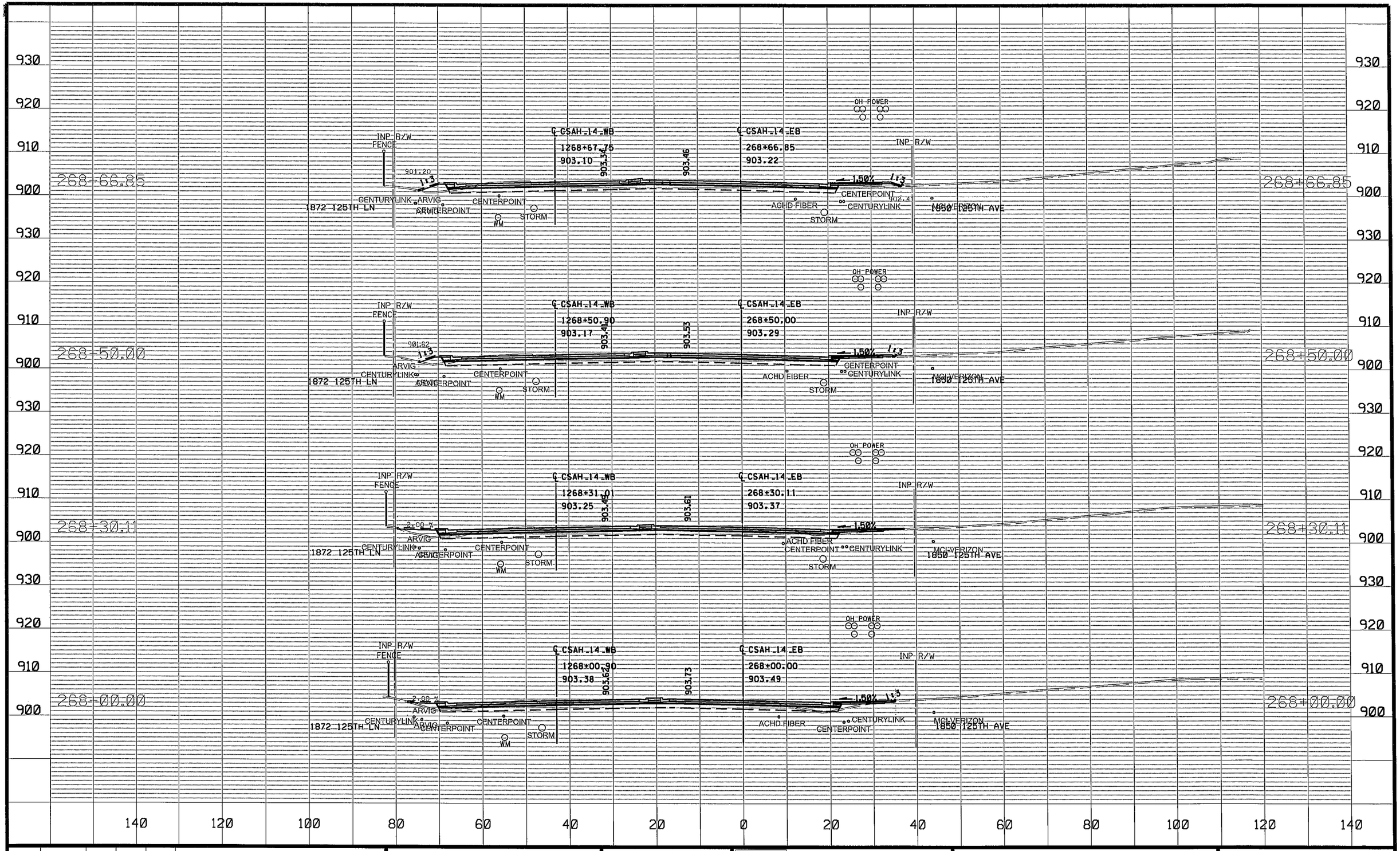

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ANOKA COUNTY

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CROSS SECTIONS
STA 268+00.00 TO 268+66.85

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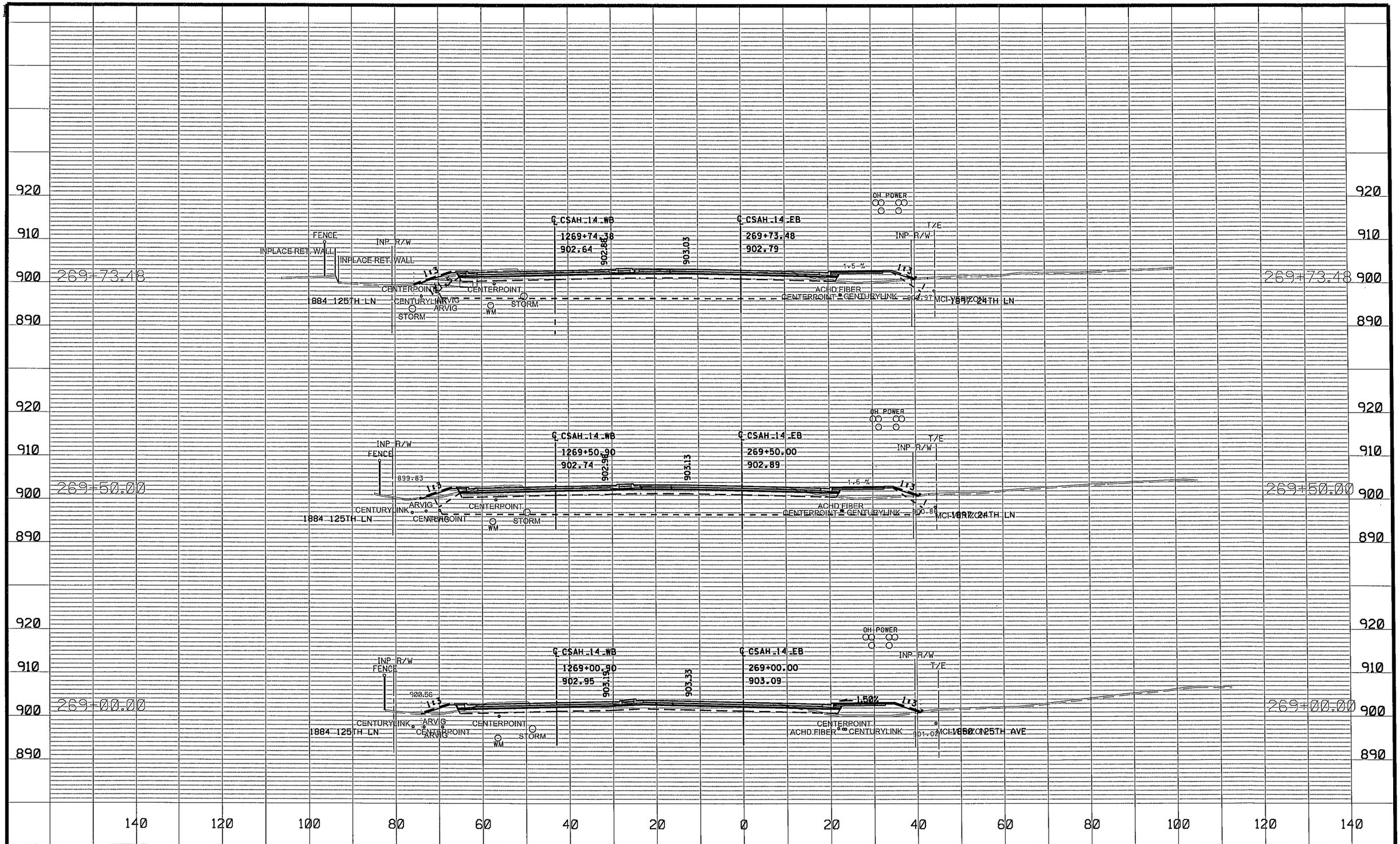

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CROSS SECTIONS
STA 269+00.00 TO 269+73.48

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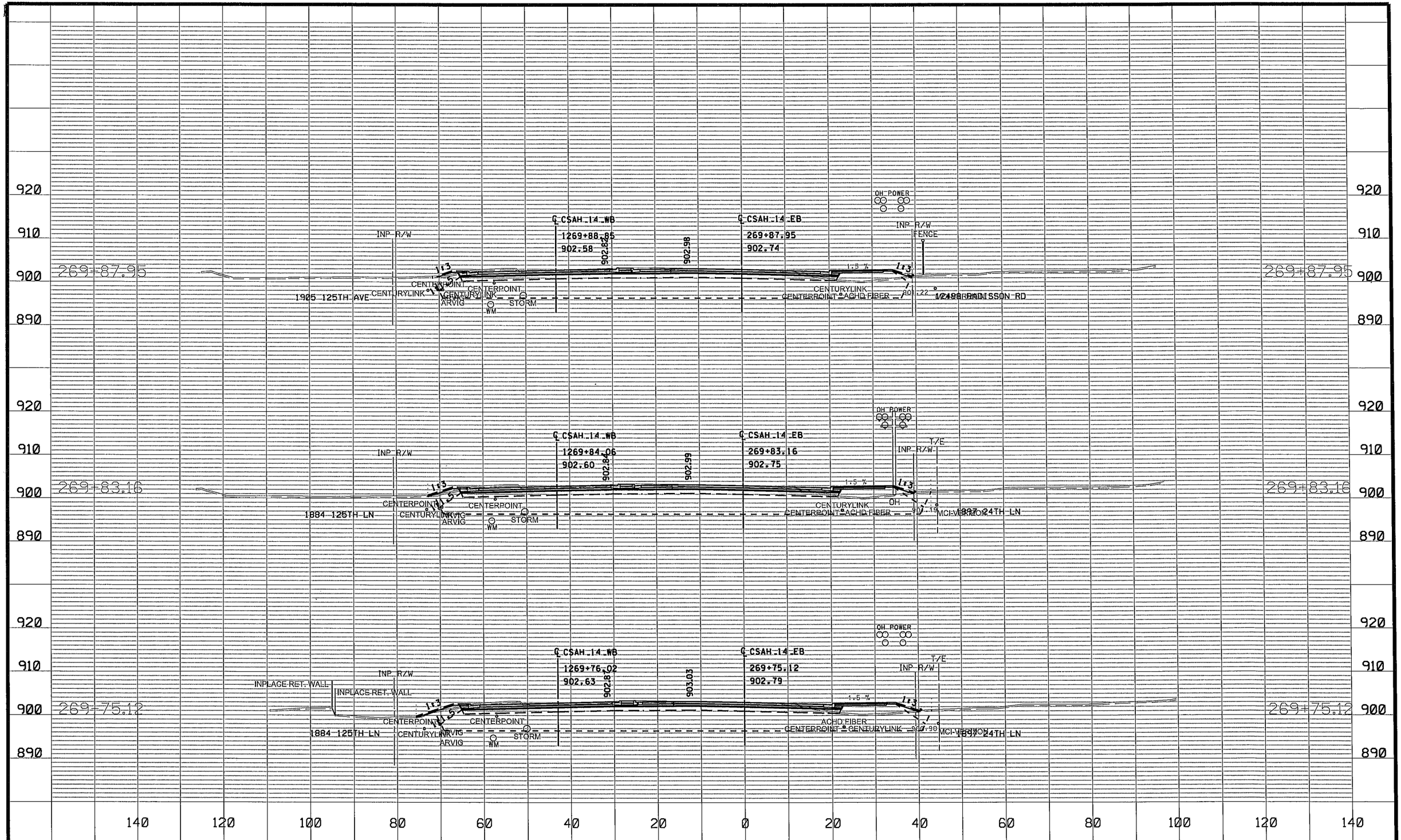

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ANOKA COUNTY

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CROSS SECTIONS

STA 269+75.12 TO 269+87.95

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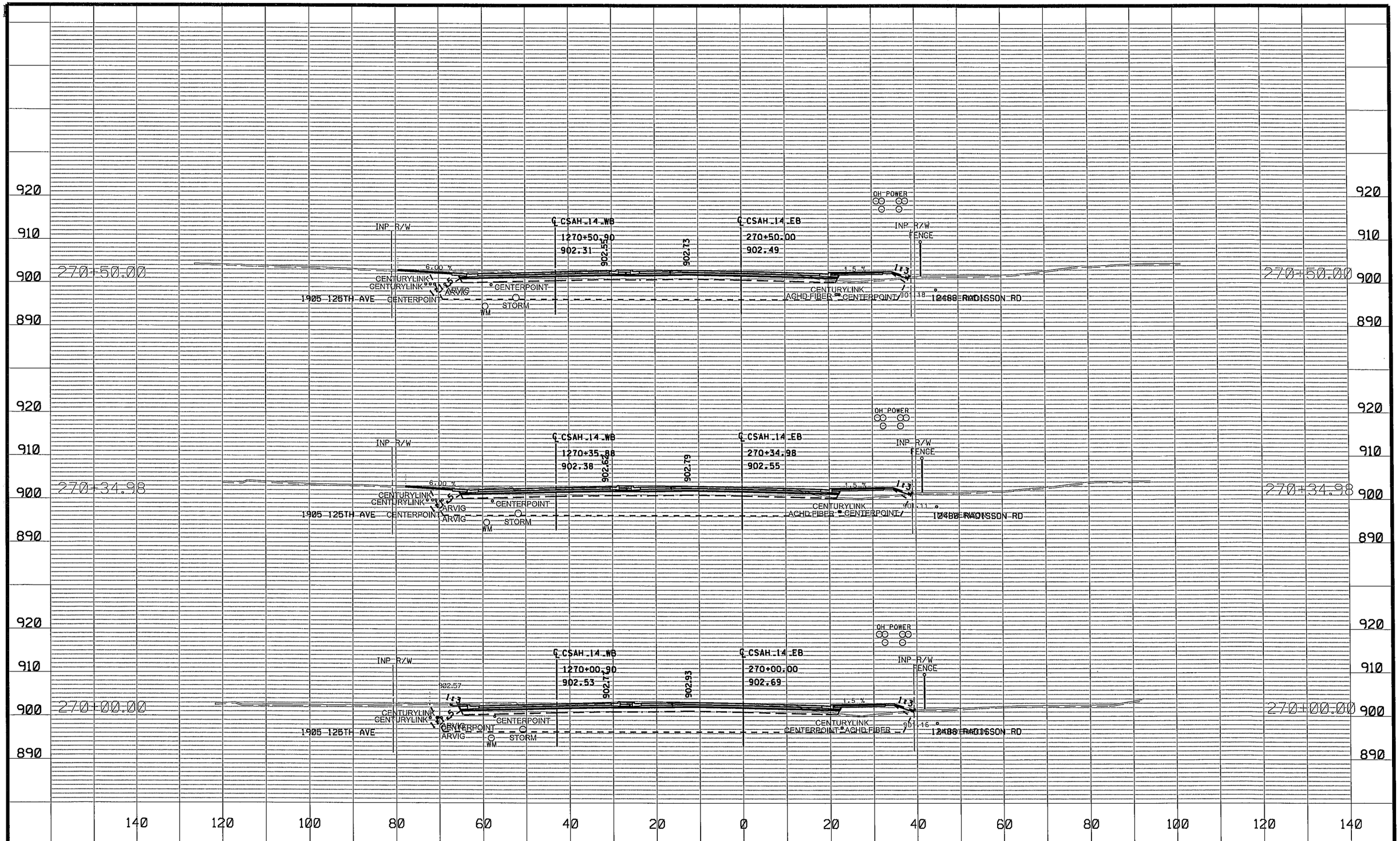

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CROSS SECTIONS

STA 270+00.00 TO 270+50.00

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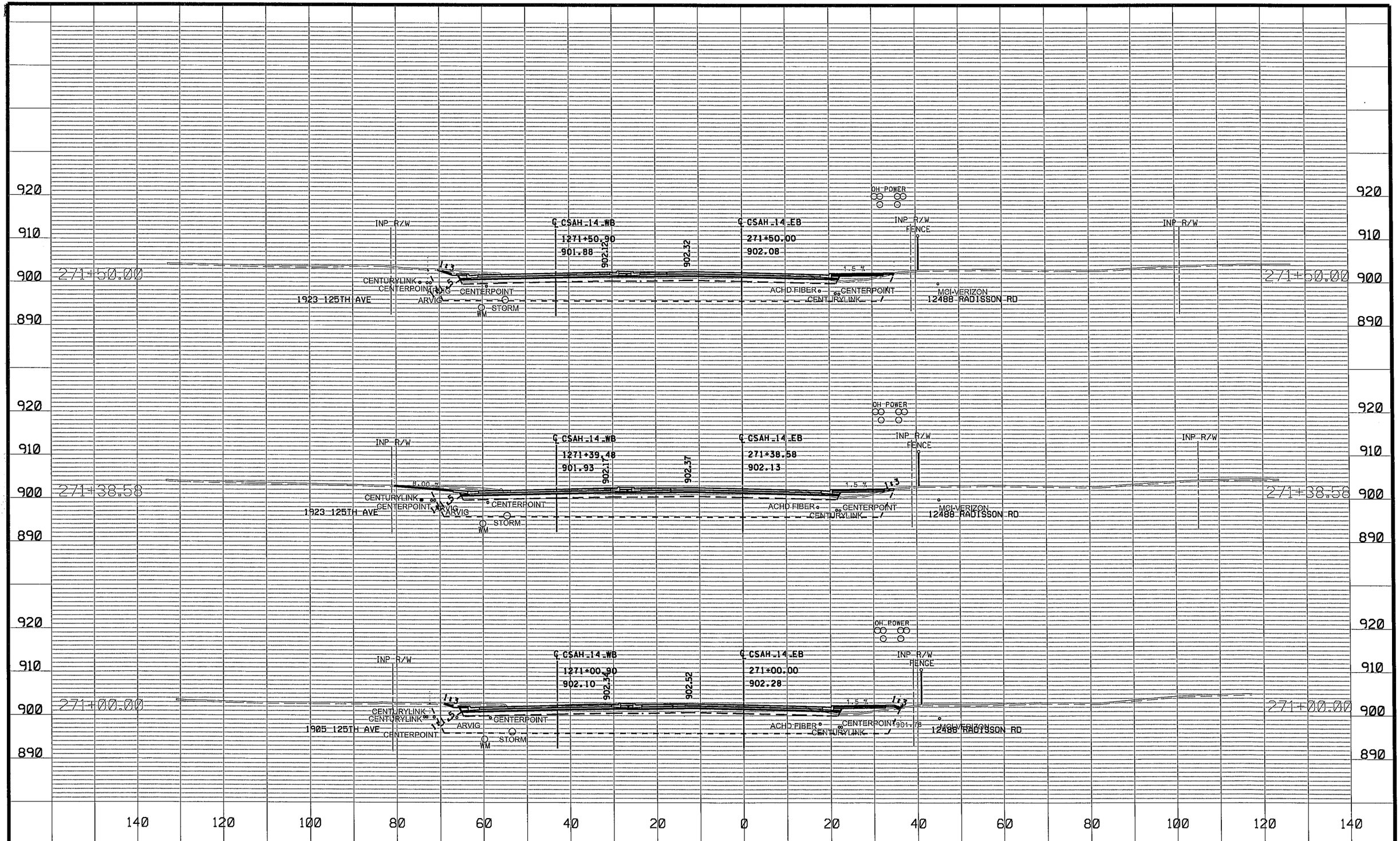

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CROSS SECTIONS
STA 271+00.00 TO 271+50.00

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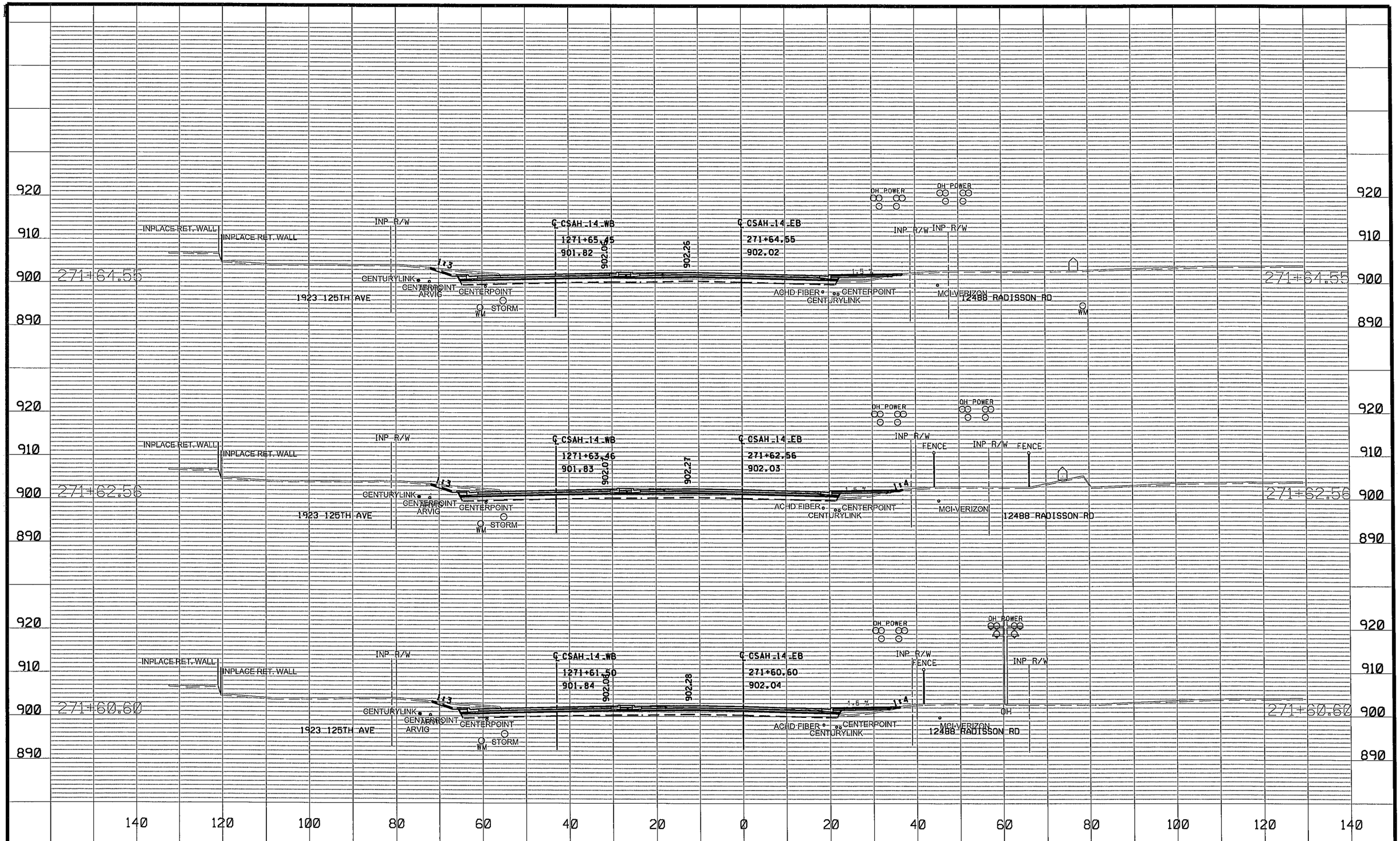

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DRAWN BY MP DATE 12/04/19

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ANOKA COUNTY

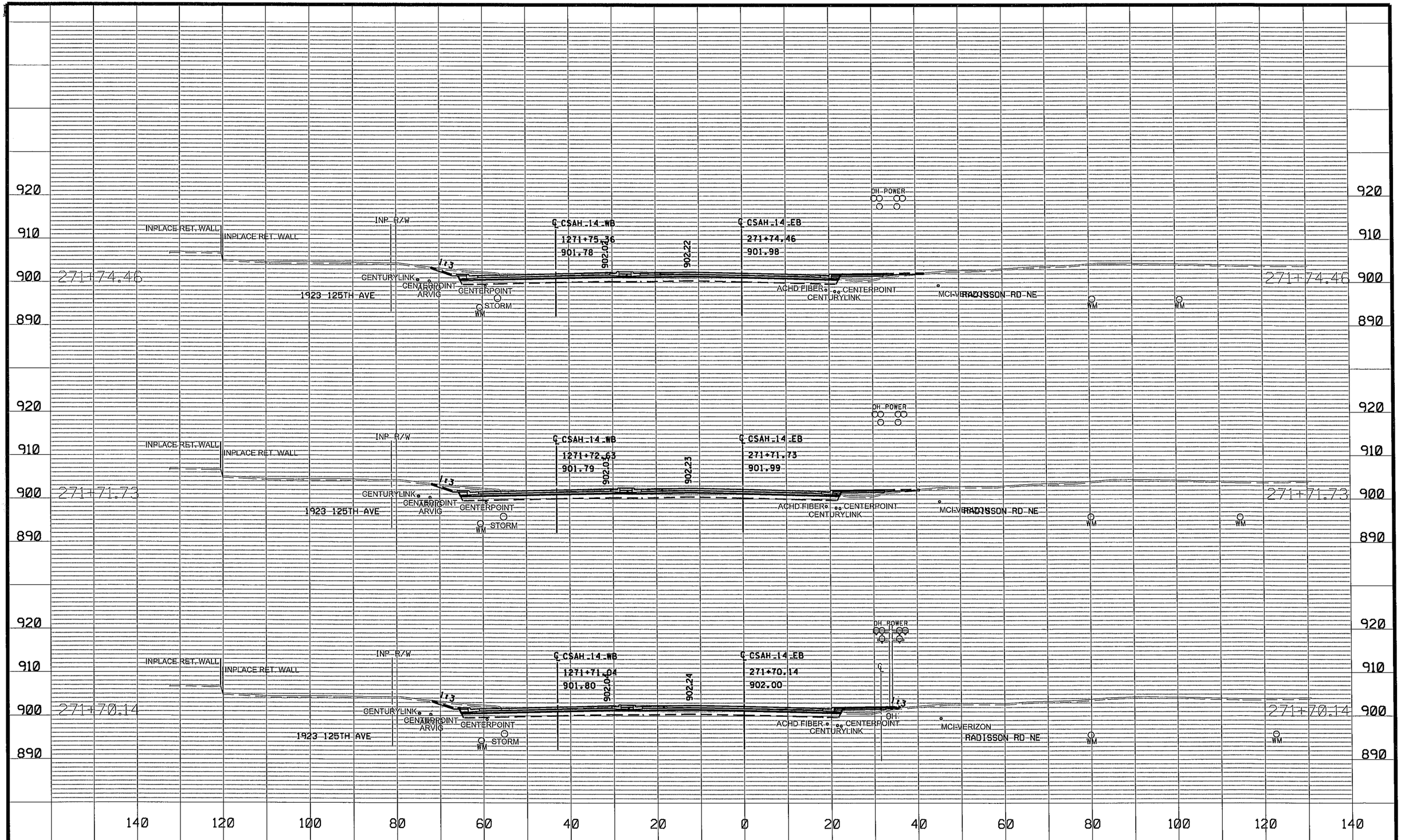
ANOKA COUNTY HIGHWAY DEPT.

SAP 002-614-041
SAP 106-020-036
CP 18-10

CROSS SECTIONS

STA 271+60.60 TO 271+64.55

Sheet 191 of 200 Sheets



NO	DATE	BY	CKD	APPR	REVISION

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DRAWN BY MP DATE 12/04/19
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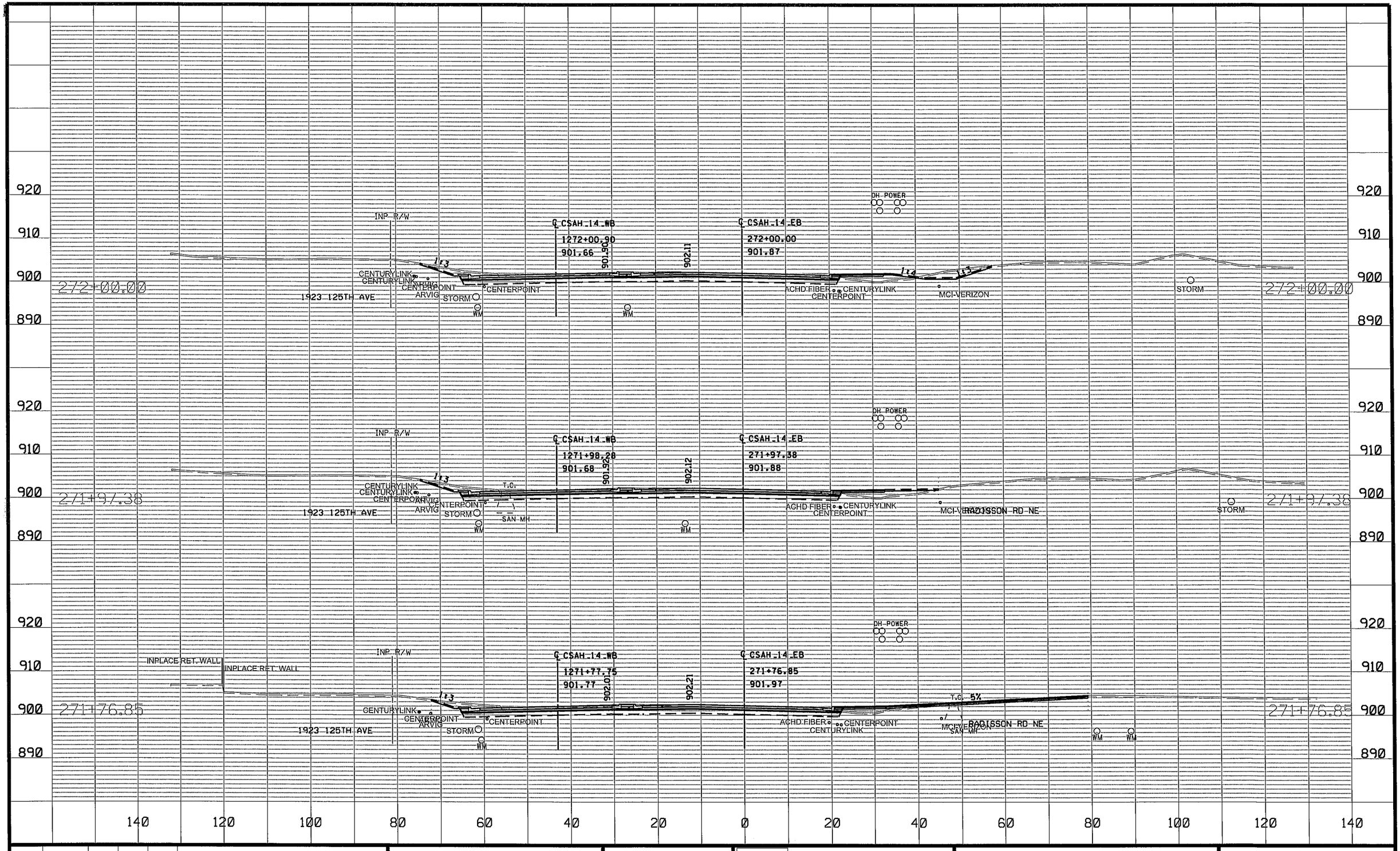
CP 18-10

CROSS SECTIONS
STA 271+70.14 TO 271+74.46

Sheet 192 of 200 Sheets



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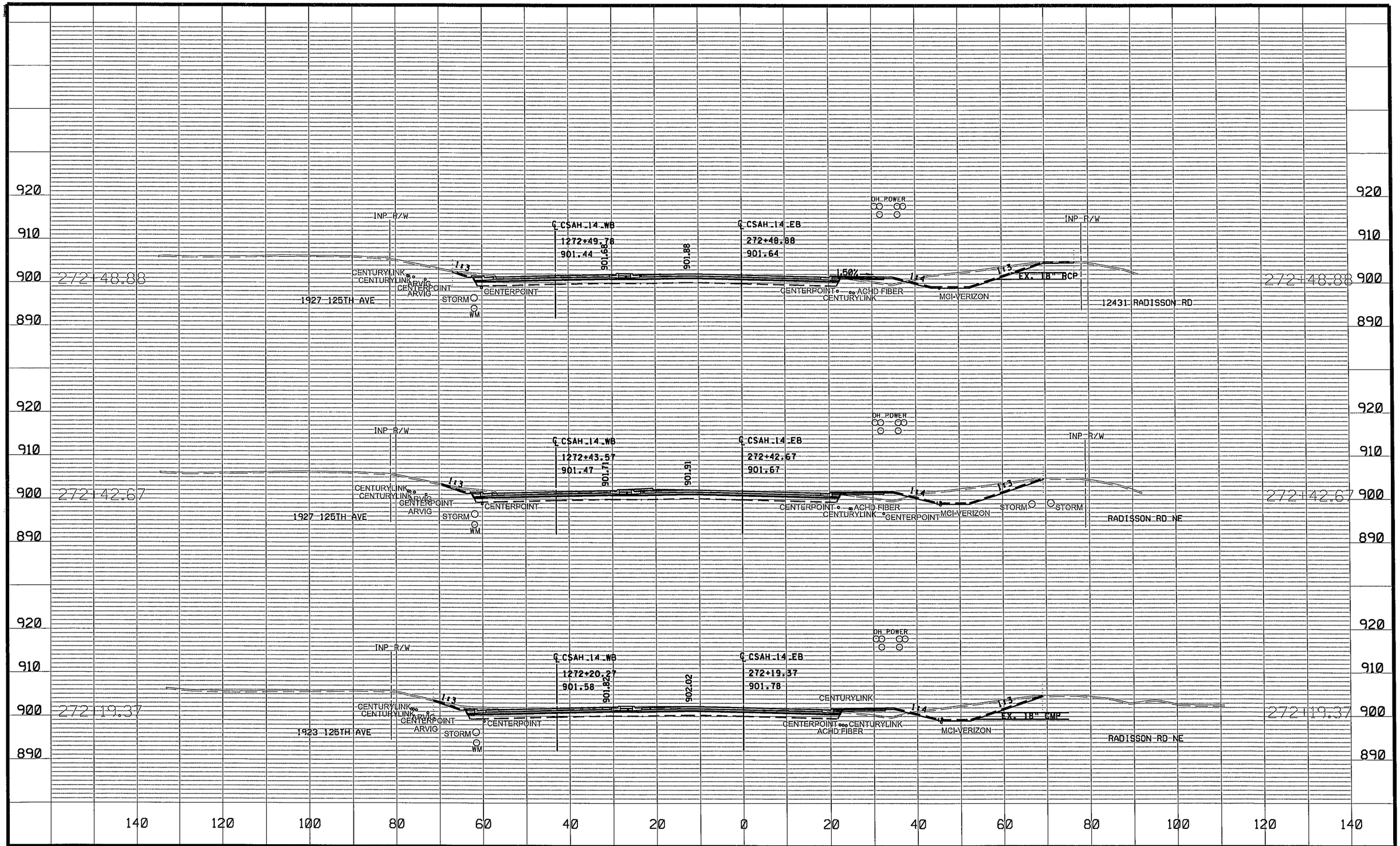
CROSS SECTIONS
STA 271+76.85 TO 272+00.00

Sheet 193 of 200 Sheets



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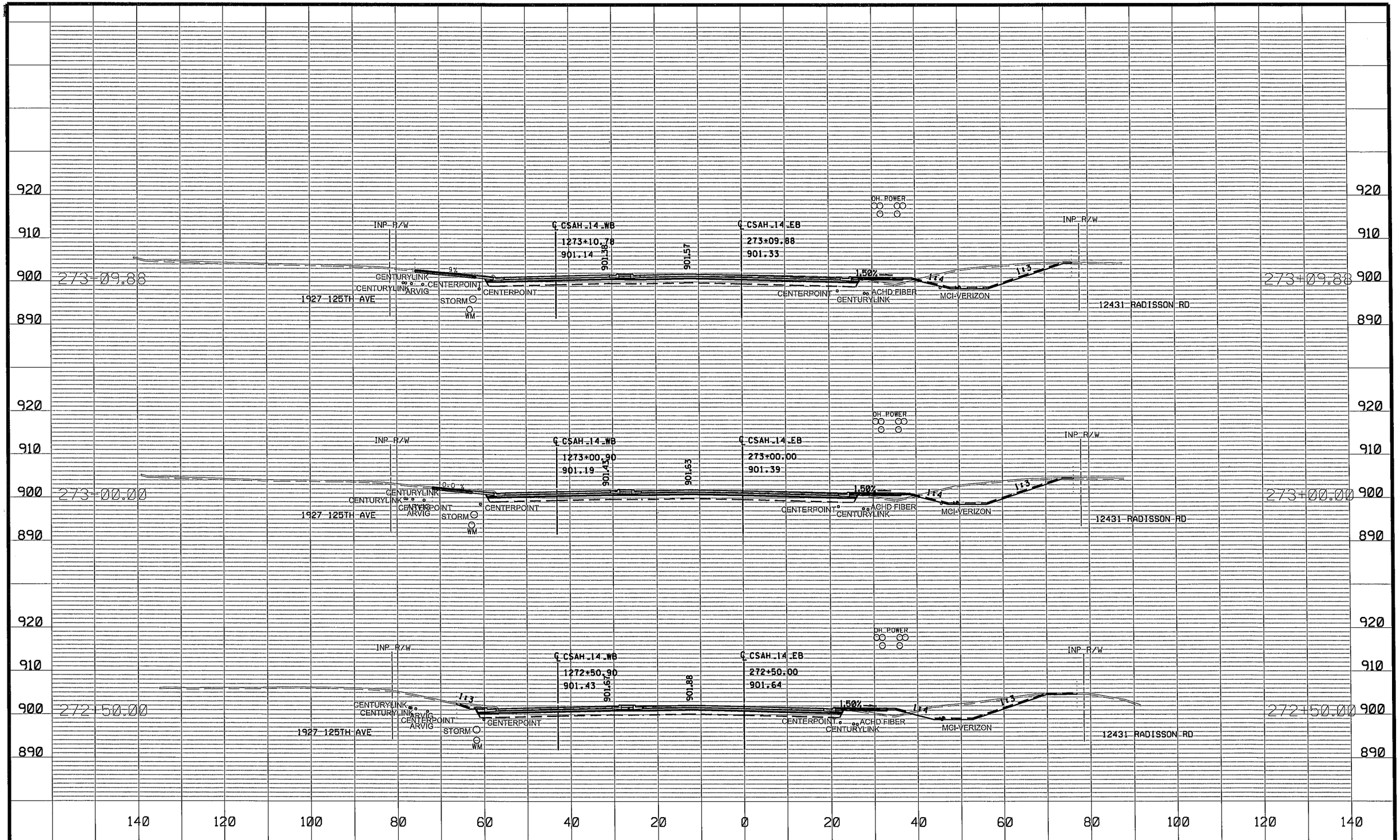
CROSS SECTIONS

STA 272+19.37 TO 272+48.88

Sheet 194 of 200 Sheets



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CROSS SECTIONS

STA 272+50.00 TO 273+09.88

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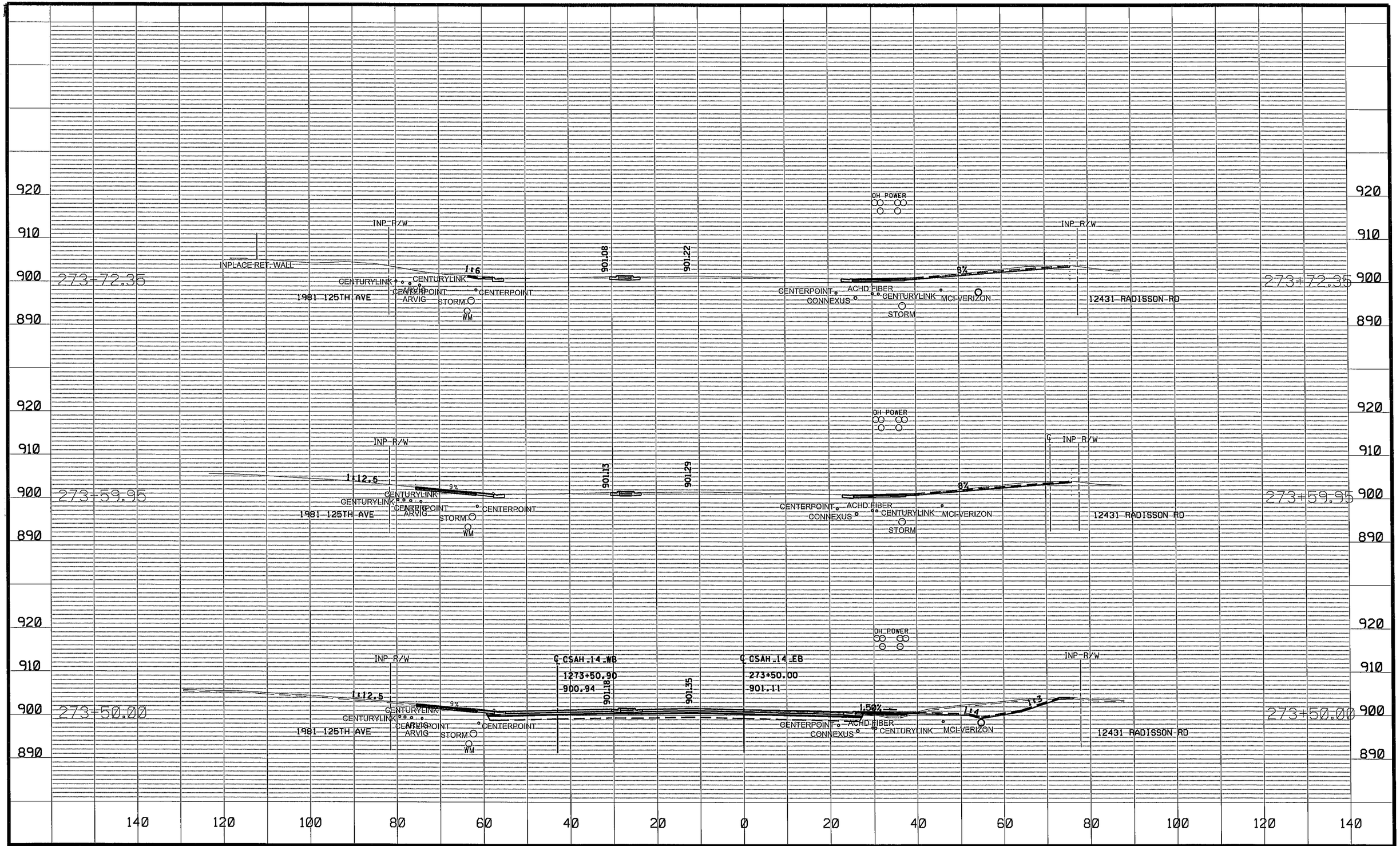

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CROSS SECTIONS
STA 273+50.00 TO 273+72.35

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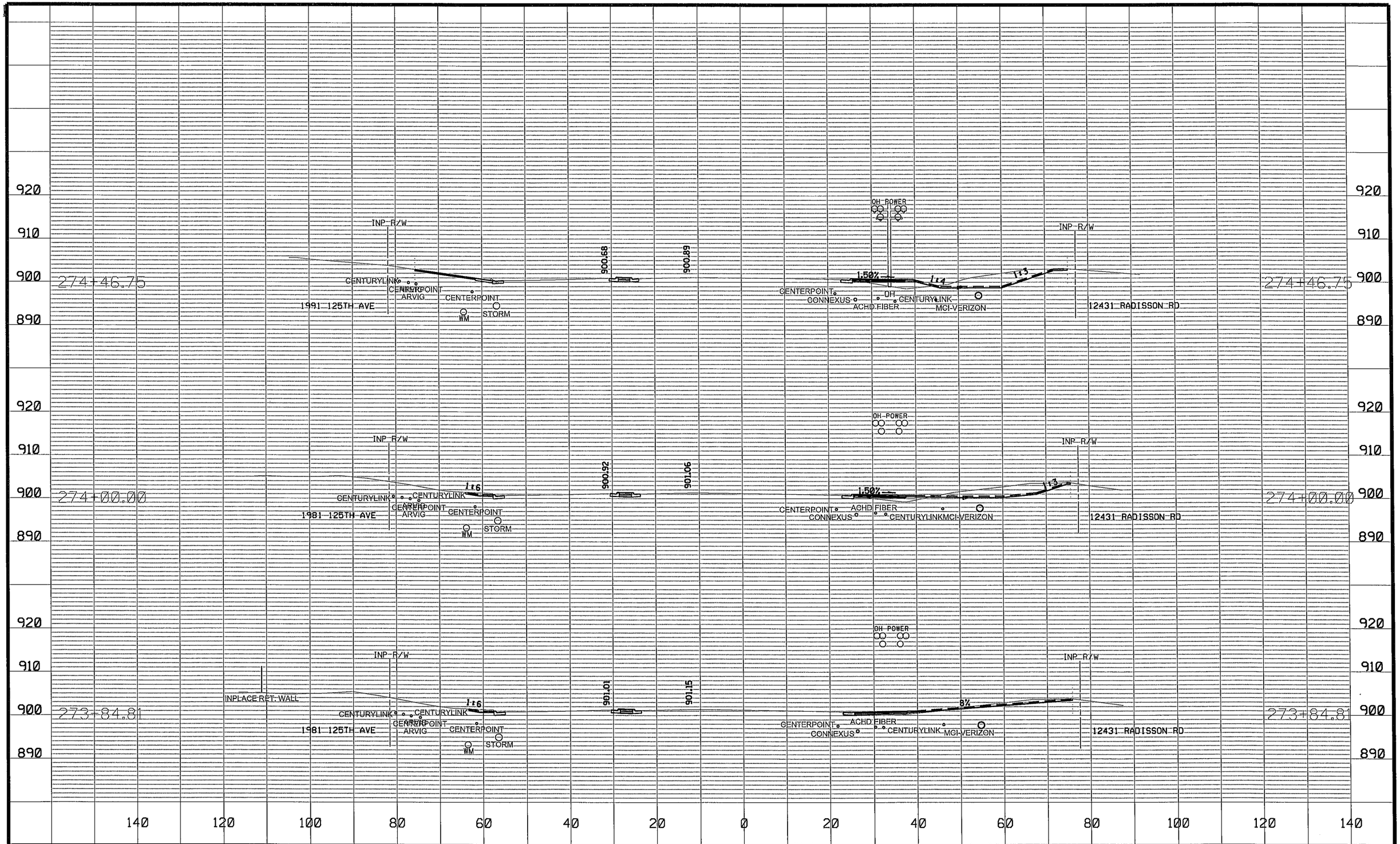

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CROSS SECTIONS
STA 273+84.81 TO 274+46.75

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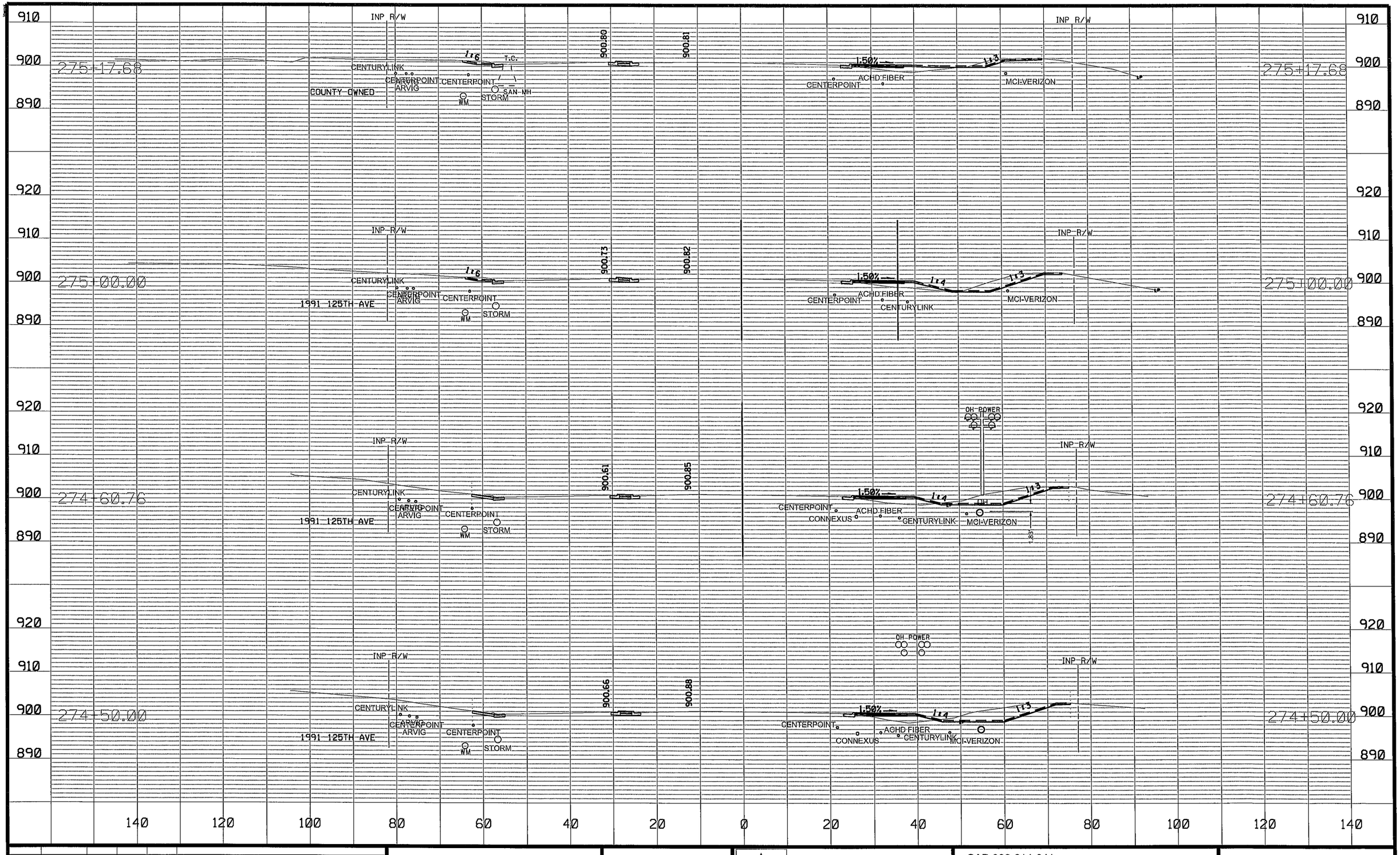

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CROSS SECTIONS

STA 274+50.00 TO 275+17.68

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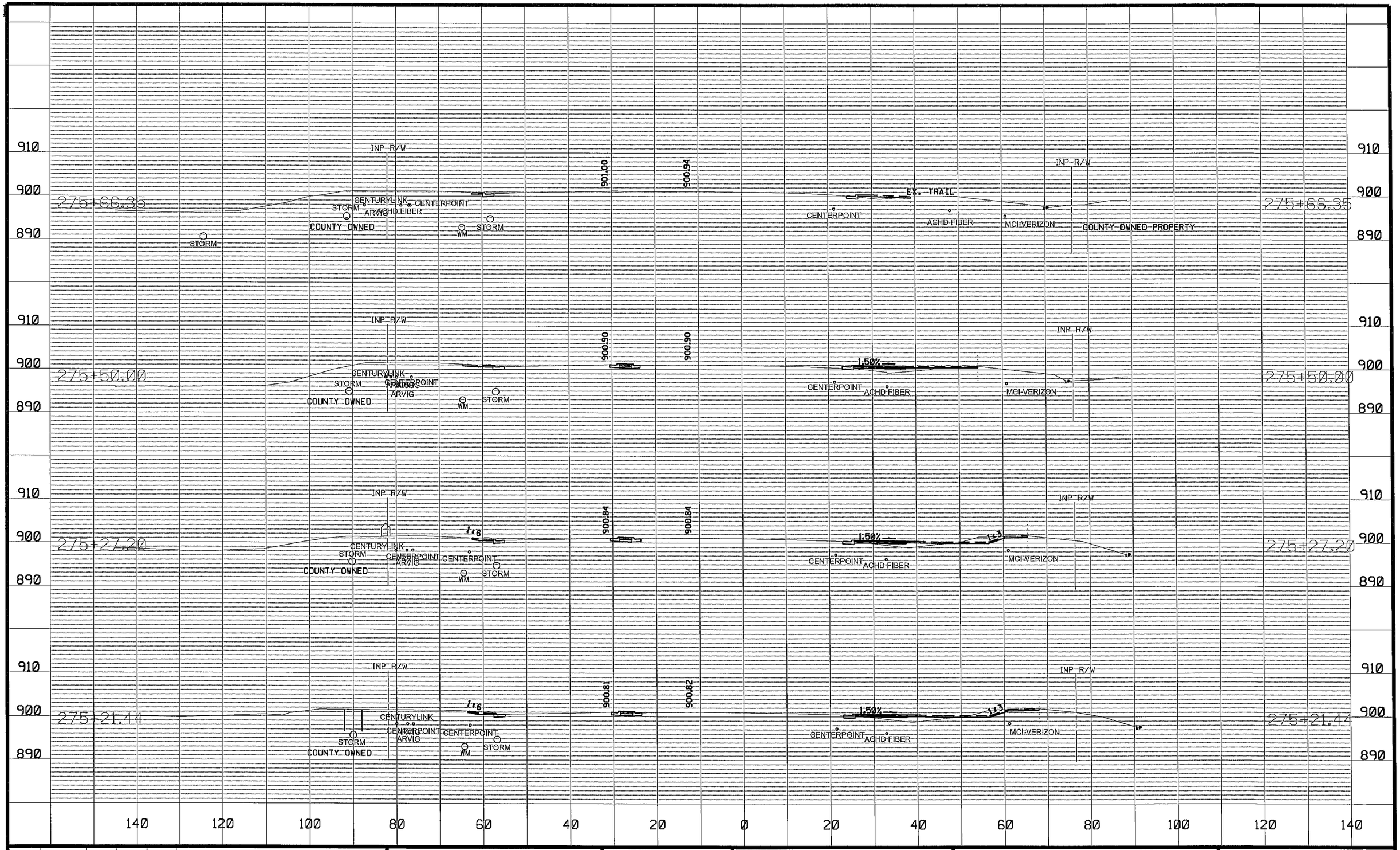

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CROSS SECTIONS
STA 275+21.44 TO 275+66.35

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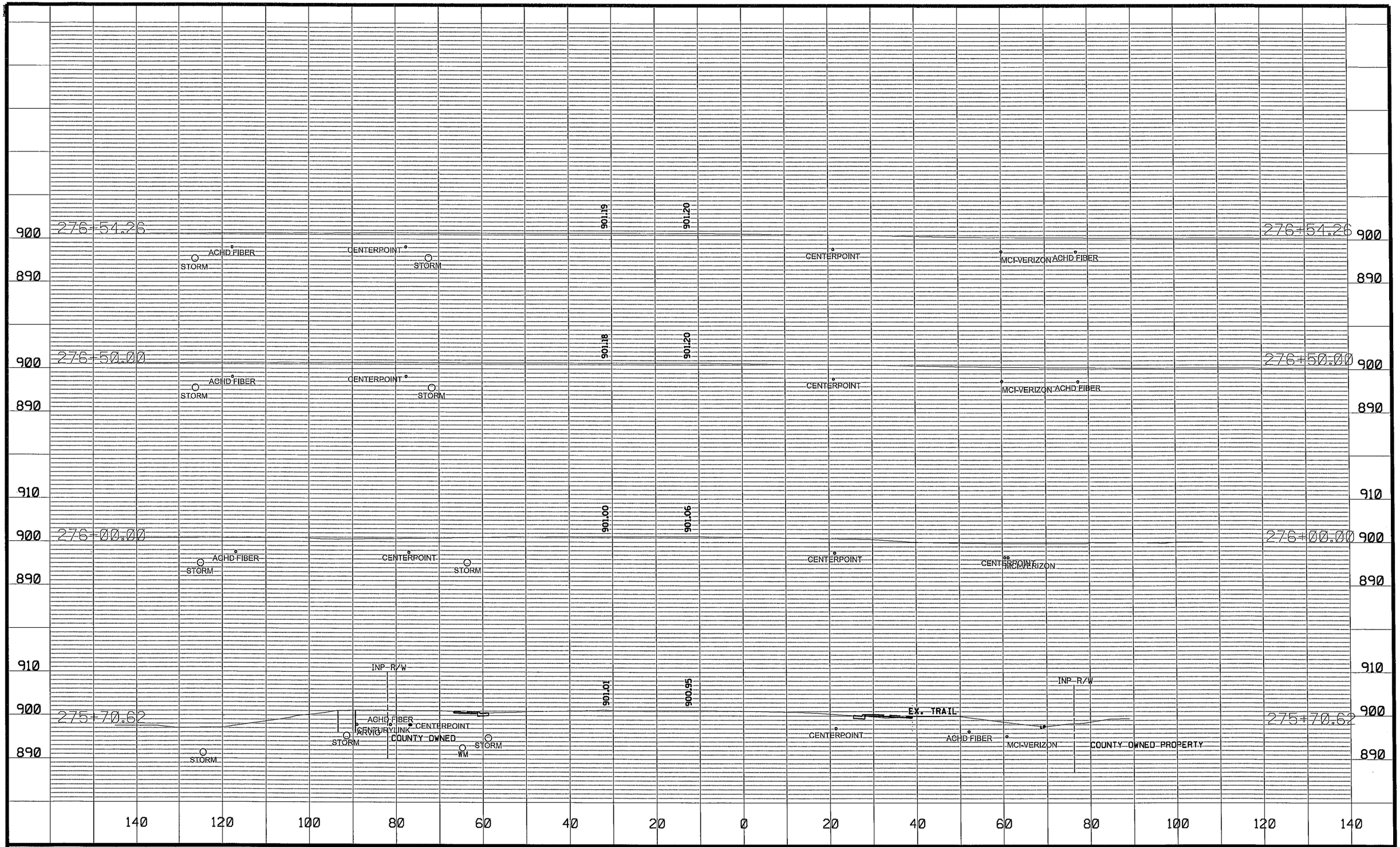

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CROSS SECTIONS
STA 275+70.62 TO 276+54.26

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