

PLAN SYMBOLS

- PROPOSED RIGHT OF WAY _____
- EXISTING RIGHT OF WAY _____
- PERMANENT EASEMENT _____
- TEMPORARY EASEMENT _____
- CONTROL OF ACCESS LINE _____
- PROPERTY LINE _____

- CORPORATE OR CITY LIMITS _____
- RETAINING WALL _____
- RAILROAD _____
- RAILROAD RIGHT-OF-WAY LINE _____
- RIVER OR CREEK _____
- DRY RUN _____
- DRAINAGE DITCH _____
- DRAIN TILE _____
- CULVERT _____
- DROP INLET _____
- GUARD RAIL _____
- BARBED WIRE FENCE _____
- WOVEN WIRE FENCE _____
- CHAIN LINK FENCE _____
- WOODEN FENCE _____
- STONE WALL OR FENCE _____
- HEDGE _____
- RAILROAD CROSSING SIGNAL _____
- RR CROSSING SIGNAL WITH GATE _____
- ELECTRIC WARNING SIGN _____
- MEANDER CORNER _____
- SPRINGS _____
- AREA OF ENVIRONMENTAL SENSITIVITY _____

- TIMBER _____
- ORCHARD _____
- BRUSH _____
- NURSERY _____
- TREE - LEAF BEARING _____
- TREE - EVERGREEN _____
- VALVE _____
- VENT _____
- CATCH BASIN _____
- FIRE HYDRANT _____
- BUILDING (One Story Frame) _____
- F-FRAME C-CONCRETE _____
- S-STONE T-TILE _____
- B-BRICK ST-STUCCO _____
- IRON PIPE OR ROD _____
- MONUMENT (STONE, CONCRETE, OR METAL) _____
- WOODEN HUB _____
- GRAVEL PIT _____
- SAND PIT _____
- BORROW PIT _____
- ROCK QUARRY _____
- UTILITY SYMBOLS
- POWER POLE _____
- TELEPHONE/TELEGRAPH POLE _____
- ANCHOR _____
- STEEL TOWER _____
- UTILITY PEDESTAL _____
- LIGHT POLE _____
- GAS MAIN _____
- WATER MAIN _____
- CONDUIT _____
- CABLE IN CONDUIT _____
- BURIED TV CABLE _____
- BURIED RAILROAD WIRES _____
- BURIED FIBER OPTIC _____
- BURIED COMM. CABLE _____
- BURIED TELEPHONE CABLE _____
- BURIED ELECTRIC CABLE _____
- OVERHEAD UTILITY LINE _____
- OVERHEAD POWER LINE _____
- SEWER, (SANITARY) _____
- SEWER, (STORM) _____
- MANHOLE _____
- HANDHOLE _____

MINNESOTA DEPARTMENT OF TRANSPORTATION ANOKA COUNTY TRANSPORTATION DIVISION

CONSTRUCTION PLAN FOR: GRADING, BITUMINOUS SURFACING, ADA IMPROVEMENTS, STORM SEWER, SIGNALS, SIGNING, PAVEMENT MARKINGS

LOCATED ON CSAH 3 (UNIVERSITY AVE NE) FROM TH 47 TO CSAH 10 SERVICE DR

SEC 31 TWP 31N R 23W
SEC 36 TWP 31N R 24W

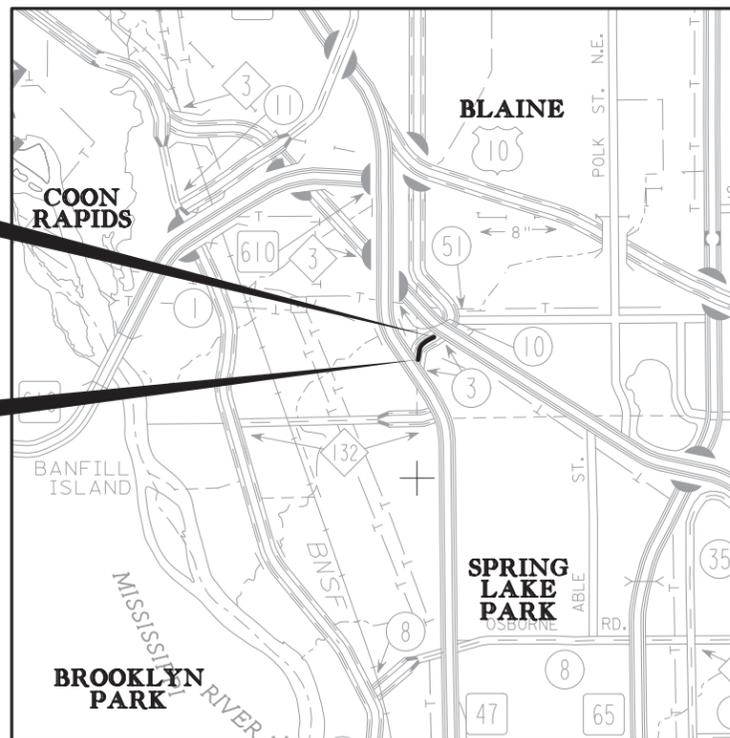
SAP 002-603-005, SAP 106-020-042, & SAP 114-020-063
CSAH 3

GROSS LENGTH 979.64 FT 0.186 MILES
BRIDGES LENGTH N/A FT N/A MILES
EXCEPTIONS LENGTH N/A FT N/A MILES
NET LENGTH 979.64 FT 0.186 MILES

ANOKA COUNTY SAP 002-603-005
CITY OF BLAINE SAP 106-020-042
CITY OF COON RAPIDS SAP 114-020-063
CITY OF BLAINE PROJECT 23-12
CITY OF COON RAPIDS PROJECT 24-12

END SAP 002-603-005
SAP 106-020-042
SAP 114-020-063
CSAH 3 STA 20+55.80

BEGIN SAP 002-603-005
SAP 106-020-042
SAP 114-020-063
CSAH 3 STA 10+76.16



DESIGN DESIGNATION FOR:

ADT (CURRENT YEAR) 2024 15,450
ADT (FUTURE YEAR) 2044 16,950
FUNCTIONAL CLASS OTHER ARTERIAL
NO. OF TRAFFIC LANES 4
NO. OF PARKING LANES 0
SHOULDER WIDTH 0'-12"
R-VALUE 60
TON DESIGN 10 TON
ESALS (2044) 2,051,000
DESIGN SPEED (MPH) 35 MPH

BASED ON STOPPING SIGHT DISTANCE
3.5 FT HEIGHT OF EYE
2.0 FT HEIGHT OF OBJECT

PLAN REVISIONS		
DATE	SHEET NO	APPROVER

SCALES

PLAN	50'
INDEX MAP	5000'
GENERAL LAYOUT	200'



GOVERNING SPECIFICATIONS

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

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

THE PLAN INDICATES THE GENERAL LOCATION OF KNOWN UTILITIES ON THE PROJECT. ALL UTILITY LOCATIONS ARE APPROXIMATE. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL VERIFY ALL UNDERGROUND UTILITY LOCATIONS AND ELEVATIONS WITH THE UTILITY COMPANIES.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-22, ENTITLED "STANDARD GUIDELINES FOR INVESTIGATING AND DOCUMENTING EXISTING UTILITIES".

INDEX

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- 49-62 TRAFFIC CONTROL SIGNAL SYSTEM
- 63-65 REVISE SIGNAL SYSTEM
- 66-69 TEMPORARY SIGNAL SYSTEM
- 70-71 TRAFFIC CONTROL INTERCONNECT

THIS PLAN CONTAINS 71 SHEETS



SIGNATURE: *Michael P. McCurdy* NAME: MICHAEL P. MCCURDY

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

DATE: 3/20/2024 LICENSE NUMBER: 45902

Joseph MacPherson Digitally signed by Joseph MacPherson Date: 2024.04.01 17:21:42 -05'00' DATE: 04/01/2024

APPROVED: ANOKA COUNTY ENGINEER

Daniel Schluender DATE: 4.3.2024

APPROVED: BLAINE CITY ENGINEER

Mark Hansen Digitally signed by Mark Hansen Date: 2024.04.03 12:32:15 -05'00' DATE: 4/3/2024

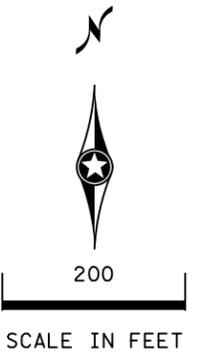
APPROVED: COON RAPIDS CITY ENGINEER

Lucas Lortie Digitally signed by Lucas Lortie Date: 2024.04.15 11:51:09 -05'00' DATE:

DISTRICT STATE AID ENGINEER: Reviewed for Compliance with State Aid Rules/Policy for

Lucas Lortie Digitally signed by Lucas Lortie Date: 2024.04.15 11:52:19 -05'00' DATE:

APPROVED FOR STATE AID FUNDING: STATE AID ENGINEER for



NORTHTOWN VILLAGE
SHOPPING CENTER

CITY OF COON RAPIDS

CITY OF BLAINE

89TH AVE NE

CSAH 51

CSAH 10

SERVICE DR

86TH LN NE

SPRINGBROOK DR

CSAH 3 SB

TH 47

SHEET VIEW 1

SHEET VIEW 2

END S.A.P. 002-603-005
END S.A.P. 106-020-042
END S.A.P. 114-020-063
STA 20+55.80

NORTHTOWN MALL

CSAH 3 NB

BEGIN S.A.P. 002-603-005
BEGIN S.A.P. 106-020-042
BEGIN S.A.P. 114-020-063
STA 10+76.16

LAYOUT SHEET NO./PLAN SHEET NO.		
SHEET VIEW	1	2
INPLACE UTILITY PLAN	6	7
INPLACE TOPOGRAPHY AND REMOVAL PLAN	30	31
CONSTRUCTION PLAN	34	35
PAVEMENT MARKING & SIGNING PLAN - EXISTING	45	46
PAVEMENT MARKING & SIGNING PLAN - PROPOSED	47	48

7:23:49 PM 3/20/24 C:\Users\mccurdy\Documents\2023\1230123\DESIGN\Plan_Sheets\cd1230123_g101.dgn

NO	DATE	DWN	CKD	REVISIONS



I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED 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: MICHAEL P MCCURDY
SIGNATURE: *Michael P. McCurdy*
DATE: 03/20/24 LICENSE #: 45902

GENERAL LAYOUT

S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)

SHEET NO. 2 OF 71 SHEETS

SOIL AND CONSTRUCTION NOTES

1. TOP OF THE GRADING GRADE IS DEFINED AS THE BOTTOM OF THE CLASS 5 AGGREGATE BASE.
2. COMMON EMBANKMENT SHALL CONSIST OF ALL SOILS ENCOUNTERED WITH THE EXCEPTION OF DEBRIS, PEAT, MUCK, AND OTHER ORGANIC OR OTHER UNSTABLE MATERIAL.
3. WHERE CONNECTING TO IN-PLACE PAVEMENT AT THE TERMINI OF PROPOSED NEW CONSTRUCTION, CUT VERTICALLY TO THE BOTTOM OF THE IN-PLACE SURFACING, THEN AT A 1(V):20(H) TAPER TO THE BOTTOM OF THE RECOMMENDED SUBGRADE EXCAVATION.
4. THE INFORMATION SHOWN ON THESE DRAWINGS CONCERNING TYPE AND LOCATION OF PRIVATE UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL-INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATIONS AS TO THE TYPE AND LOCATION OF PRIVATE UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. CONTRACTOR WILL CALL GOPHER STATE ONE A MINIMUM OF 48 HOURS PRIOR TO EXCAVATION.
5. 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. ON THE CONSTRUCTION LIMITS DO NOT INCLUDE AREAS REQUIRED FOR SLOPE ROUNDING.
6. ANY DEBRIS WHICH MAY BE ENCOUNTERED DURING GRADING SHALL BE DISPOSED OF BY THE CONSTRUCTOR OFF THE PROJECT RIGHT OF WAY IN A SUITABLE DISPOSAL AREA AS APPROVED BY THE ENGINEER (INCIDENTAL)
7. OBTAIN COMPACTION OF THE GRADING PORTIONS OF CONSTRUCTION IN ACCORDANCE WITH THE "SPECIFIED DENSITY METHOD" REQUIREMENTS INDICATED IN 2106.
8. OBTAIN COMPACTION OF THE AGGREGATE PORTIONS OF CONSTRUCTION IN ACCORDANCE WITH THE "SPECIFIED DENSITY METHOD" RQUIREMENTS AS INDICATED IN 2211.
9. NO EXTRA PAYMENT WILL BE MADE FOR MOVING, PLACING, OR TEMPORARY STOCKPILING OF EXCAVATION, EMBANKMENT AND/OR BORROW MATERIAL.
10. UNLESS OTHERWISE SPECIFICALLY ALLOWED OR REQUIRED BY THE CONTRACT, BITUMINOUS AND CONCRETE ITEMS DISTURBED BY CONSTRUCTION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND MAY BE RECYCLED OR DISPOSED OF OFF THE RIGHT OF WAY. BITUMINOUS MATERIAL CAN NOT BE USED AS EMBANKMENT.
11. MINIMUM 6" SLOPE DRESSING TO BE PLACED IN ALL DISTURBED AREAS OUTSIDE ROADWAY. PAID FOR AS COMMON EMBANKMENT (CV) OR COMMON TOPSOIL BORROW.
12. PROVIDE A UNIFORM TACK COAT AS DOCUMENTED IN THE MOST CURRENT SPEC. 2357 - BITUMINOUS TACK COAT REQUIREMENTS.
13. PIPE SEWERS CONNECTING MANHOLES AND CATCH BASINS SHALL BE IN ACCORDANCE WITH SPEC. 2503 UNLESS OTHERWISE NOTED.
14. TEMPORARY EROSION CONTROL DEVICES AND THEIR SUGGESTED LOCATIONS HAVE BEEN SHOWN IN THE PLANS ALONG WITH PAY ITEMS FOR THEIR USE. THIS DOES NOT HOWEVER RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITIES TO CONDUCT HIS CONSTRUCTION IN A MANNER THAT WILL CONTROL AS EROSION. RESPONSIBILITY FOR CONTROLLING EROSION AND MAINTENANCE OF EROSION CONTROL AS SET IN MNDOT SPECIFICATIONS 1717, 1803, 2101, 2106, 2573, 2575, AND IS AMENDED BY THE SPECIAL PROVISIONS.
15. 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.
16. ALL STRIPPED TOPSOIL SHALL BE PAID FOR AS "EXCAVATION-COMMON."
17. ALL TOPSOIL PROPOSED FOR USE, WHETHER AVAILABLE FROM THE SITE OR IMPORTED, SHALL MEET THE REQUIREMENTS OF SPEC. 3877.2. SEED, FERTILIZER, AND HYDRAULIC STABILIZED FIBER MATRIX OR BLANKET SHALL BE PLACED OVER TOPSOIL IN ACCORDANCE WITH THE PROJECT PLANS.
18. IN PREPARATION FOR SEED, FERTILIZER AND HYDRAULIC STABILIZED FIBER MATRIX PLACEMENT, THE BEDDING SHALL BE FREE OF ALL STONES, DEBRIS, AND CLODS LARGER THAN TWO INCHES (2").
19. OBTAIN COMPACTION OF ALL BITUMINOUS PORTIONS OF CONSTRUCTION IN ACCORDANCE WITH THE REQUIREMENTS OF SPEC 2360 "MAXIMUM DENSITY METHOD".
20. NO OVER-EXCAVATION WILL BE ALLOWED ON THIS PROJECT.

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

STANDARD PLATES

PLATE NO.	DESCRIPTION
3000M	REINFORCED CONCRETE PIPE (6 SHEETS)
3006H	GASKET JOINT FOR R.C. PIPE (2 SHEETS)
4010I	CONCRETE ADJUSTING RINGS
4024A	48" DIA. PRECAST SHALLOW DEPTH CATCH BASIN - DESIGN SD
4026B	CONCRETE ENCASED CONCRETE ADJUSTING RINGS
4125D	CATCH BASIN FRAME CASTING (FOR SQUARE GRATE) * CASTING NO. 806
4133A	CURB BOX CASTING FOR CATCH BASIN - CASTING NO. 824
4143E	STOOL GRATE & CONCRETE FRAME (MEDIAN DRAINS) - CASTING NO. 731
4154B	CATCH BASIN GRATE CASTING - CASTING NO. 816
7100H	CONCRETE CURB AND GUTTER (DESIGN B AND DESIGN V)
7113A	CONCRETE APPROACH NOSE DETAIL
8000K	TEMPORARY CHANNELIZERS (3 SHEETS)
8118D	SERVICE EQUIPMENT & POLE TRAFFIC CONTROL SIGNALS
8121H	TRANSFORMER BASE AND POLE BASE PLATE (PA85, PA90 AND PA100) (2 SHEETS)
8123G	POLE AND MAST ARM - LUMINAIRES AND TRAFFIC LIGHTS ASSEMBLY (FOR ALL POLE TYPES) (2 SHEETS)
8126L	POLE FOUNDATION (PA90 AND PA100)
8129A	SHIM AND WASHER (TRAFFIC CONTROL SIGNALS AND ROADWAY LIGHTING)

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NO	DATE	DWN	CKD	REVISIONS



I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED 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: MICHAEL P MCCURDY
 SIGNATURE: *Michael P. McCurdy*
 DATE: 03/20/24 LICENSE #: 45902

SOIL AND CONSTRUCTION NOTES
 S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
 SHEET NO. 3 OF 71 SHEETS

STATEMENT OF ESTIMATED QUANTITIES

TAB	SHEET NO	ITEM NO	DESCRIPTION	UNITS	TOTAL ESTIMATED QUANTITY	STATE AID PARTICIPATING				NON-PARTICIPATING	
						SAP 002-603-005 ANOKA COUNTY	SAP 106-020-042 CITY OF BLAINE	SAP 114-020-063 CITY OF COON RAPIDS	SAP 002-603-005 STORM SEWER	CITY OF BLAINE	CITY OF COON RAPIDS
		2021.501	MOBILIZATION	LUMP SUM	1	0.67	0.14	0.14	0.03	0.01	0.01
PM	40	2102.503	PAVEMENT MARKING REMOVAL	LIN FT	75	75					
ST	40	2104.502	REMOVE SIGN	EACH	8	8					
SS	51	2104.502	REMOVE SIGNAL SYSTEM	EACH	1	0.5	0.25	0.25			
ST	40	2104.502	REMOVE SIGN PANEL	EACH	1	1					
A	5	2104.503	SAWING BIT PAVEMENT (FULL DEPTH)	LIN FT	450	450					
A	5	2104.503	REMOVE CURB & GUTTER	LIN FT	177	177					
A	5	2104.504	REMOVE CONCRETE WALK	SQ YD	31	31					
A	5	2104.504	REMOVE BITUMINOUS PAVEMENT	SQ YD	238	238					
		2106.507	EXCAVATION - COMMON	CU YD	70	70					
		2106.507	COMMON EMBANKMENT (CV)	CU YD	20	20					
B	5	2118.507	AGGREGATE SURFACING (CV) CLASS 2	CU YD	8	8					
B,C	5	2211.507	AGGREGATE BASE (CV) CLASS 5	CU YD	72	72					
A	5	2232.504	MILL BITUMINOUS SURFACE (2.0")	SQ YD	1127	581				273	273
A	5	2232.504	MILL BITUMINOUS SURFACE (3.0")	SQ YD	8852	8852					
B	5	2360.509	TYPE SP 12.5 WEARING COURSE MIX (4;F)	TON	1742	1678				32	32
E	38	2503.503	12" DUCTILE IRON PIPE SEWER	LIN FT	90				90		
E	38	2503.503	12" RC PIPE SEWER DES 3006	LIN FT	51				51		
E	38	2503.602	CONNECT INTO EXISTING DRAINAGE STRUCTURE	EACH	1				1		
		2506.502	CONST DRAINAGE STRUCTURE DESIGN SPEC 1	EACH	1	1					
E	38	2506.502	CASTING ASSEMBLY	EACH	3				3		
E	38	2506.503	CONST DRAINAGE STRUCTURE DESIGN SD-48	LIN FT	8				8		
F	38	2511.504	GEOTEXTILE FILTER TYPE 3	SQ YD	6	6					
F	38	2511.507	RANDOM RIPRAP CLASS II	CU YD	1	1					
C	5	2521.518	4" CONCRETE WALK	SQ FT	179	179					
C	5	2521.602	DRILL & GROUT REINF BAR (EPOXY COATED)	EACH	54	54					
C	5	2521.618	CONCRETE CURB RAMP WALK	SQ FT	518	518					
C	5	2531.503	CONCRETE CURB & GUTTER DESIGN B618	LIN FT	40	40					
C	5	2531.503	CONCRETE CURB & GUTTER DESIGN B624	LIN FT	208	128	80				
C	5	2531.618	TRUNCATED DOMES	SQ FT	130	130					
TC	24	2563.601	TRAFFIC CONTROL SUPERVISOR	LUMP SUM	1	0.67	0.14	0.14	0.03	0.01	0.01
TC	24	2563.601	TRAFFIC CONTROL	LUMP SUM	1	0.67	0.14	0.14	0.03	0.01	0.01
TC	24	2563.601	ALTERNATE PEDESTRIAN ROUTE	LUMP SUM	1	0.67	0.14	0.14	0.03	0.01	0.01
TC	24	2563.613	PORTABLE CHANGEABLE MESSAGE SIGN	UNIT DAY	20	20					
ST	40	2564.618	SIGN	SQ FT	83	83					
ST	40	2564.618	SIGN PANEL	SQ FT	9	9					
SS	49	2565.501	EMERGENCY VEHICLE PREEMPTION SYSTEM	LUMP SUM	1		0.5	0.5			
SS	49	2565.501	TRAFFIC CONTROL INTERCONNECT	LUMP SUM	1	1					
SS	49	2565.516	TRAFFIC CONTROL SIGNAL SYSTEM	SYSTEM	1	0.5	0.25	0.25			
SS	49	2565.616	TEMPORARY SIGNAL SYSTEM	SYSTEM	1	0.5	0.25	0.25			
D	5	2573.502	STORM DRAIN INLET PROTECTION	EACH	9	9					
D	5	2573.503	SILT FENCE, TYPE MS	LIN FT	10	10					
D	5	2573.503	SEDIMENT CONTROL LOG TYPE COMPOST	LIN FT	10	10					
D	5	2574.505	SOIL BED PREPARATION	ACRE	0.1	0.1					
D	5	2574.507	COMMON TOPSOIL BORROW	CU YD	46	46					
D	5	2574.508	FERTILIZER TYPE 3	POUND	12	12					
D	5	2575.504	ROLLED EROSION PREVENTION CATEGORY 25	SQ YD	47	47					
D	5	2575.505	SEEDING	ACRE	0.1	0.1					
D	5	2575.508	SEED MIXTURE 25-131	POUND	13	13					
D	5	2575.508	HYDRAULIC MULCH MATRIX	POUND	114	114					
PM	40	2582.503	4" SOLID LINE MULTI COMP	LIN FT	4955	4955					
PM	40	2582.503	4" BROKEN LINE MULTI COMP	LIN FT	300	300					
PM	40	2582.503	8" DOTTED LINE MULTI COMP	LIN FT	48	48					
PM	40	2582.503	4" DBL SOLID LINE MULTI COMP	LIN FT	170	170					
PM	40	2582.503	24" SOLID LINE PREF THERMO GR IN	LIN FT	150	150					
PM	40	2582.518	PAVT MSSG PREF THERMO	SQ FT	215	215					
PM	40	2582.518	CROSSWALK PREF THERMO GR IN	SQ FT	900	900					

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NO	DATE	DWN	CKD	REVISIONS



I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED 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: MICHAEL P MCCURDY
 SIGNATURE: *Michael P. McCurdy*
 DATE: 03/20/24 LICENSE #: 45902

ESTIMATED QUANTITIES
 S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
 SHEET NO. 4 OF 71 SHEETS

REMOVAL TABULATION							A
STATION TO STATION	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	REMOVE CURB & GUTTER (1)	REMOVE BITUMINOUS PAVEMENT	REMOVE CONCRETE WALK (1)	MILL BITUMINOUS SURFACE (3.0")	MILL BITUMINOUS SURFACE (2.0")	
	LIN FT	LIN FT	SQ YD	SQ YD	SQ YD	SQ YD	
SAP 002-603-005							
CSAH 3							
10+76.16 to 14+50					3006		
14+50 to 20+55.43	450	177	238	31	5846	581	
TOTALS	450	177	238	31	8852	581	
NON PARTICIPATING WORK							
86TH LN NE							
						546	
TOTALS						546	

SURFACING MATERIAL TABULATION				B
STATION TO STATION	AGGREGATE SURFACING (CV) CLASS 2	AGGREGATE BASE (CV) CLASS 5	TYPE SP 12.5 WEARING COURSE MIX (4,F) (SPWEB440F)	
	CU YD	CU YD	TON	
SAP 002-603-005				
CSAH 3				
10+76.16 to 14+50			519	
14+50 to 20+55.43	8	49	1159	
TOTALS	8	49	1678	
NON PARTICIPATING WORK				
86TH LN NE				
10+76.16 to 14+50			64	
TOTALS			64	

NOTES:

(1) SAWING OF CONCRETE CURB & GUTTER AND WALK SHALL BE INCIDENTAL.

CONCRETE & ADA CONSTRUCTION TABULATION										C
LOCATION	AGGREGATE BASE (CV) CLASS 5	4" CONCRETE WALK	DRILL & GROUT REINF BAR (EPOXY COATED) (1)			CONCRETE CURB RAMP WALK (ADA)	CONCRETE CURB & GUTTER DESIGN B618	CONCRETE CURB & GUTTER DESIGN B624	TRUNCATED DOMES	
			BACK OF CURB EACH	LANDING EACH	END OF CURB TIE IN EACH				RADIAL	
									SQ FT	LIN FT
SAP 002-603-005										
CSAH 3										
86TH LN										
NW QUADRANT	5		7		2	118		57	33	30'
NE QUADRANT	5		7	6	2	161		51	32	25'
SE QUADRANT	4		7		4	114		44	32	30'
SW QUADRANT	5		7		4	125		56	33	35'
N MEDIAN	2	85			4		20			
S MEDIAN	2	94			4		20			
TOTALS	23	179	28	6	20	518	40	208	130	

NOTES:

(1) NO.4 12" LONG REINFORCING BARS

TEMPORARY EROSION CONTROL AND TURF ESTABLISHMENT TABULATION										D
STATION TO STATION	STORM DRAIN INLET PROTECTION	SILT FENCE, TYPE MS	SEDIMENT CONTROL LOG TYPE COMPOST	SOIL BED PREPARATION	FERTILIZER TYPE 2	ROLLED EROSION PREVENTION CATEGORY 20	SEEDING	SEED MIXTURE 25-131	HYDRAULIC MULCH MATRIX	
	EACH	LIN FT	LIN FT	ACRE	POUND	SQ YD	ACRE	POUND	POUND	
SAP 002-603-005										
10+76.16 to 14+50	5									
14+50 to 20+55.43	4	10	10	0.10	12	47	0.1	13	114	
TOTALS	9	10	10	0.10	12	47	0.1	13	114	

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NO	DATE	DWN	CKD	REVISIONS



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

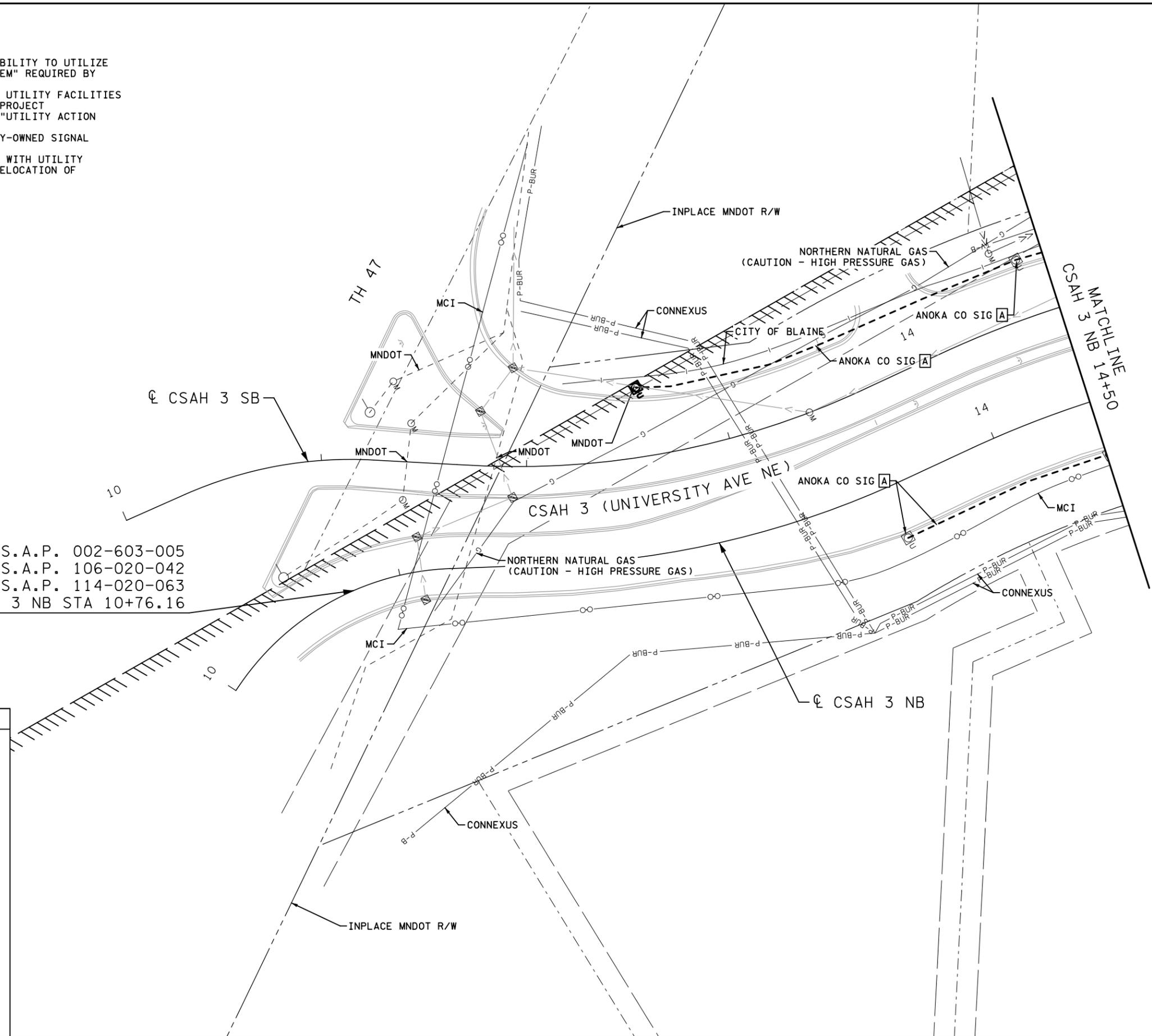
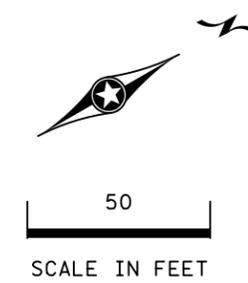
PRINT NAME: MICHAEL P MCCURDY
 SIGNATURE: *Michael P. McCurdy*
 DATE: 03/20/24 LICENSE #: 45902

TABULATIONS
 S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
 SHEET NO. 5 OF 71 SHEETS

GENERAL NOTES:

1. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" REQUIRED BY MINNESOTA STAUTE 216D.
2. THE APPROXIMATE PORTIONS OF EXISTING UTILITY FACILITIES THAT ARE EXPECTED TO BE IMPACTED BY PROJECT CONSTRUCTION ARE SHOWN IN BOLD. SEE "UTILITY ACTION LEGEND" FOR DESCRIPTIONS OF IMPACTS.
3. SEE SIGNAL PLAN FOR DETAILS ON COUNTY-OWNED SIGNAL SYSTEM REMOVALS.
4. CONTRACTOR SHALL COORDINATE DIRECTLY WITH UTILITY OWNERS REGARDING PROTECTION AND/OR RELOCATION OF THEIR FACILITIES.



BEGIN S.A.P. 002-603-005
 BEGIN S.A.P. 106-020-042
 BEGIN S.A.P. 114-020-063
 CSAH 3 NB STA 10+76.16

UTILITY ACTION LEGEND	
[A]	REMOVE BY CONTRACTOR
[B]	RELOCATE
[C]	ADJUST - STORM CONFLICT
[D]	ADJUST - BURY DEPTH

LEGEND	
—F/O -BUR—	FIBER OPTIC BURIED
—T-BUR—	TELEPHONE CABLE BURIED
—O—	COMMUNICATION BURIED
—P-BUR—	POWER LINE BURIED
—G—	GAS MAIN
—S—	SANITARY SEWER
—W—	WATER MAIN
—TMS—	TMS CONDUIT
—E—	EXISTING STORM SEWER
—P—	PROPOSED STORM SEWER
—R/W—	EXISTING RIGHT OF WAY
—E/E—	EXISTING DRAINAGE & UTILITY EASEMENT
—P/L—	PROPERTY LINE
—C/L—	CONSTRUCTION LIMITS

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PRINT NAME: MICHAEL P. MCCURDY
 SIGNATURE: *Michael P. McCurdy*
 DATE: 03/20/24 LICENSE #: 45902

INPLACE UTILITY PLAN
 S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
 SHEET NO. 6 OF 71 SHEETS

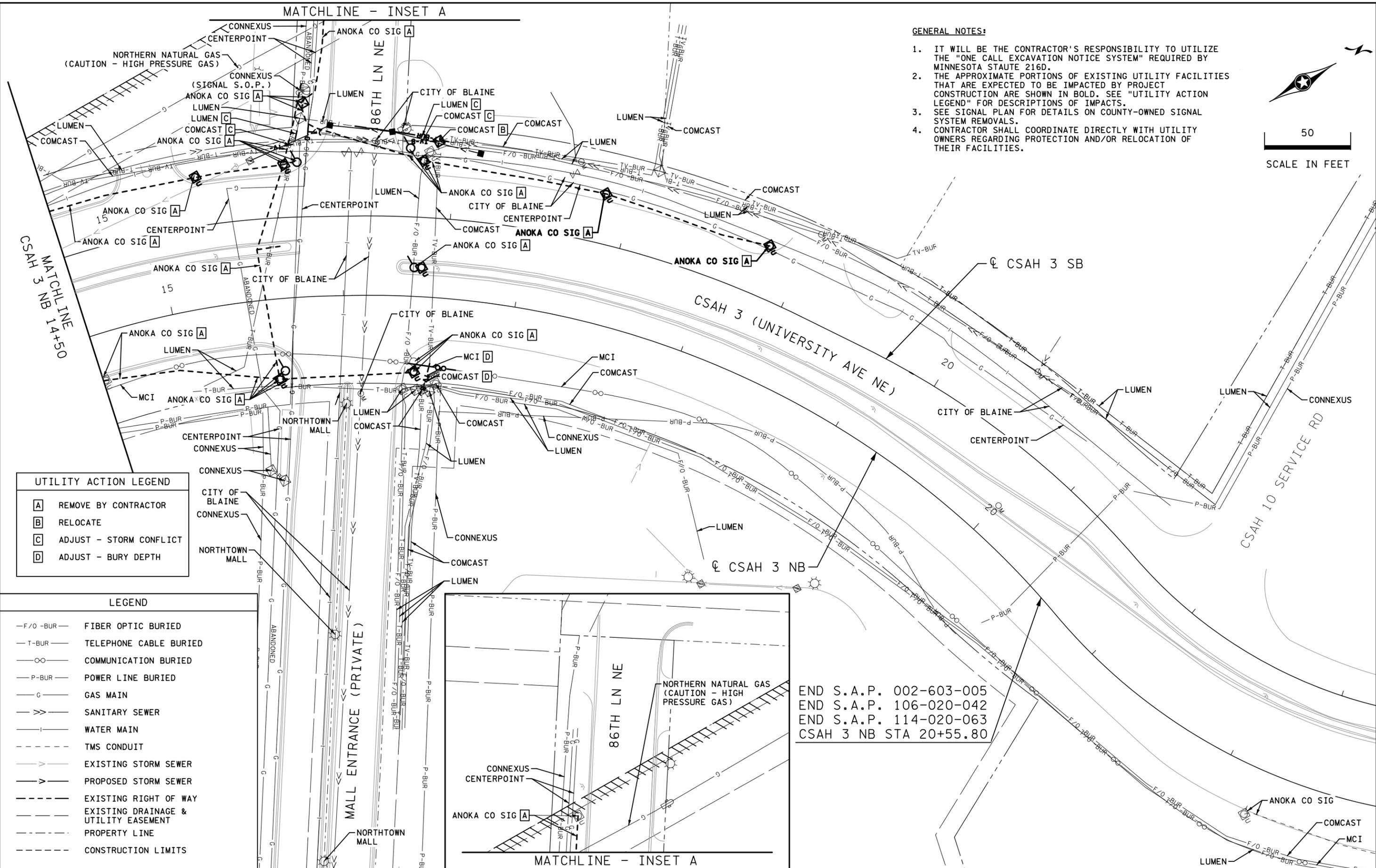
MATCHLINE - INSET A

GENERAL NOTES:

1. IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" REQUIRED BY MINNESOTA STAUTE 216D.
2. THE APPROXIMATE PORTIONS OF EXISTING UTILITY FACILITIES THAT ARE EXPECTED TO BE IMPACTED BY PROJECT CONSTRUCTION ARE SHOWN IN BOLD. SEE "UTILITY ACTION LEGEND" FOR DESCRIPTIONS OF IMPACTS.
3. SEE SIGNAL PLAN FOR DETAILS ON COUNTY-OWNED SIGNAL SYSTEM REMOVALS.
4. CONTRACTOR SHALL COORDINATE DIRECTLY WITH UTILITY OWNERS REGARDING PROTECTION AND/OR RELOCATION OF THEIR FACILITIES.



50
SCALE IN FEET

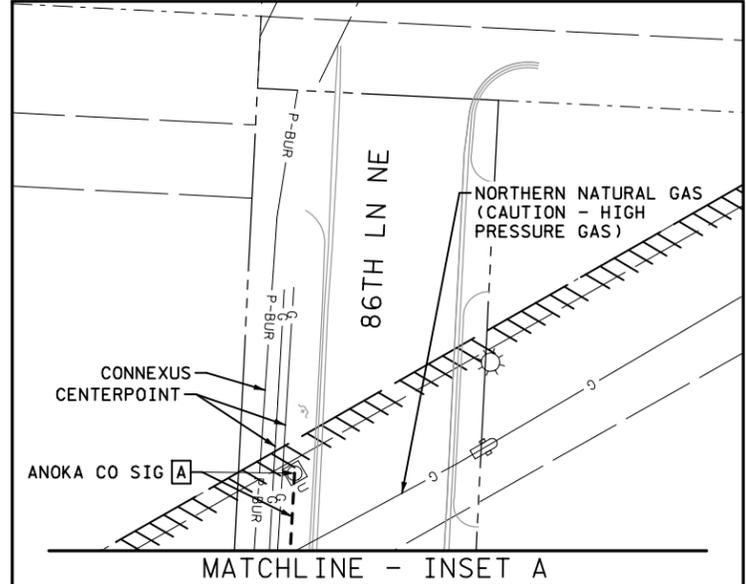


UTILITY ACTION LEGEND

A	REMOVE BY CONTRACTOR
B	RELOCATE
C	ADJUST - STORM CONFLICT
D	ADJUST - BURY DEPTH

LEGEND

— F/O -BUR —	FIBER OPTIC BURIED
— T-BUR —	TELEPHONE CABLE BURIED
— O —	COMMUNICATION BURIED
— P-BUR —	POWER LINE BURIED
— G —	GAS MAIN
— V —	SANITARY SEWER
— I —	WATER MAIN
— - - -	TMS CONDUIT
— V —	EXISTING STORM SEWER
— V —	PROPOSED STORM SEWER
— - - -	EXISTING RIGHT OF WAY
— - - -	EXISTING DRAINAGE & UTILITY EASEMENT
— - - -	PROPERTY LINE
— - - -	CONSTRUCTION LIMITS



END S.A.P. 002-603-005
 END S.A.P. 106-020-042
 END S.A.P. 114-020-063
 CSAH 3 NB STA 20+55.80

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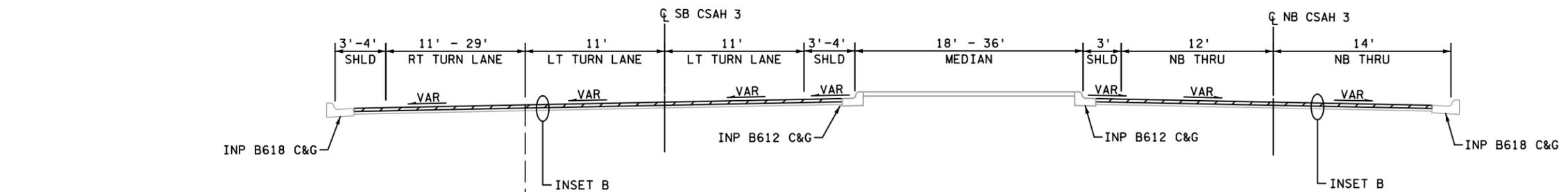


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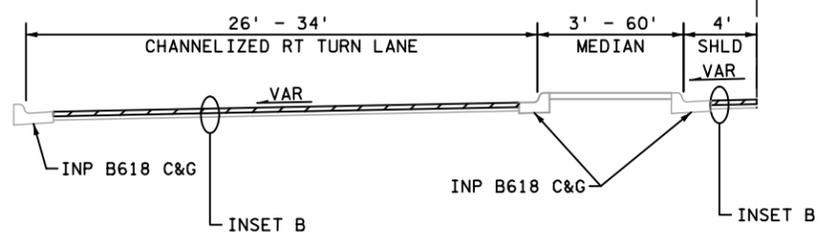
PRINT NAME: MICHAEL P. MCCURDY
 SIGNATURE: *Michael P. McCurdy*
 DATE: 03/20/24 LICENSE #: 45902

INPLACE UTILITY PLAN
 S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

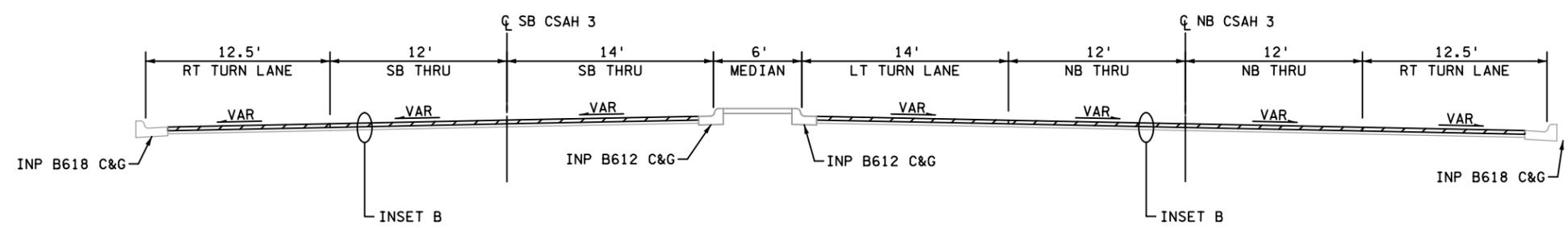
S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
 SHEET NO. 7 OF 71 SHEETS



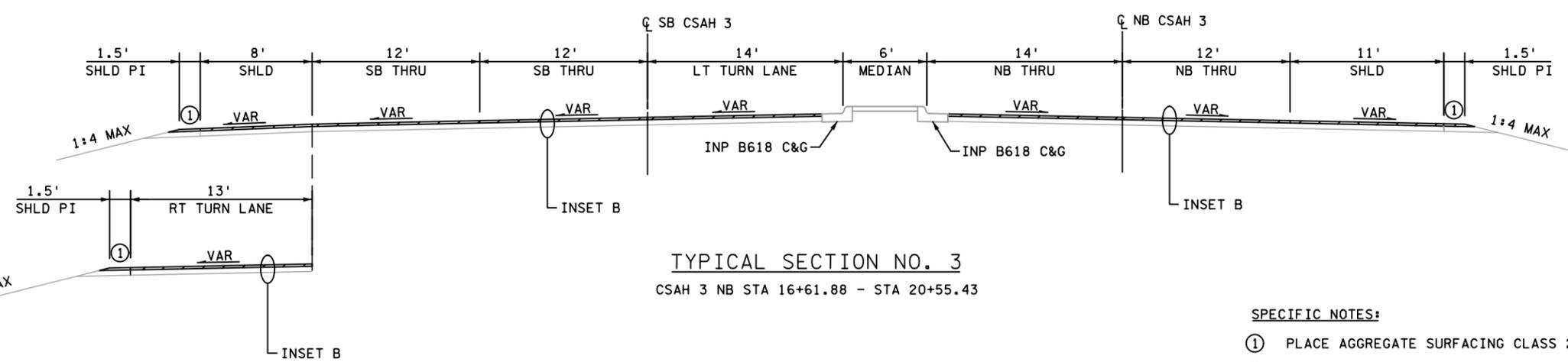
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CSAH 3 NB STA 10+76.16 - STA 12+36.75



CSAH 3 NB STA 10+76.16 - STA 11+53.15

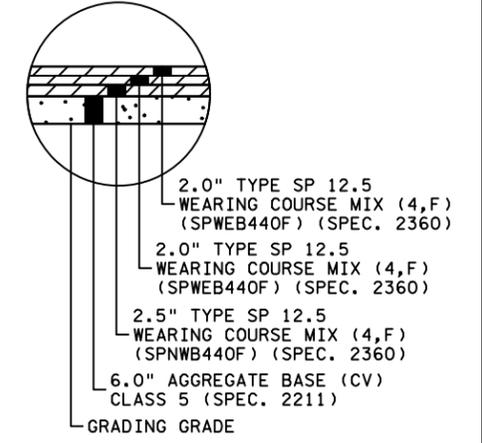


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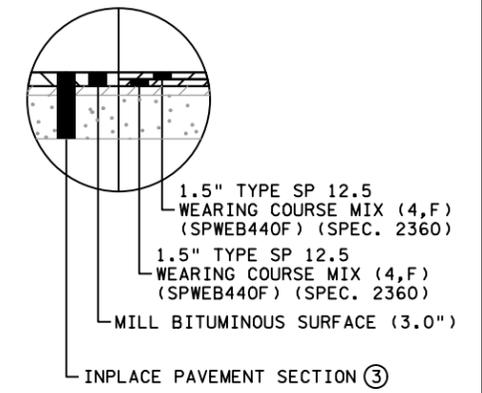


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CSAH 3 NB STA 16+61.88 - STA 20+55.43

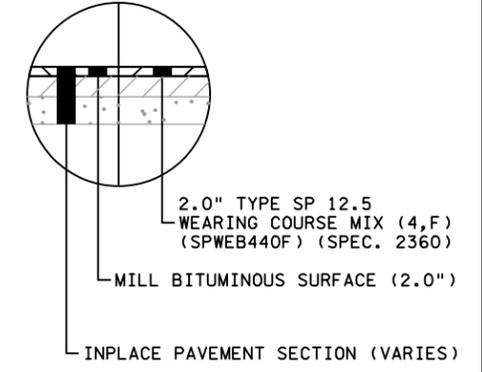
INSET A
BITUMINOUS FULL DEPTH PATCHING ②



INSET B
3.0\"/>



INSET C (NOT SHOWN)
2.0\"/>



SPECIFIC NOTES:

- ① PLACE AGGREGATE SURFACING CLASS 2 TO MATCH PROPOSED OVERLAY SURFACE.
- ② 6.5\"/>
- ③ SOUTH OF 86TH LN: APPROX. 5.5\"/>

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NO	DATE	DWN	CKD	REVISIONS

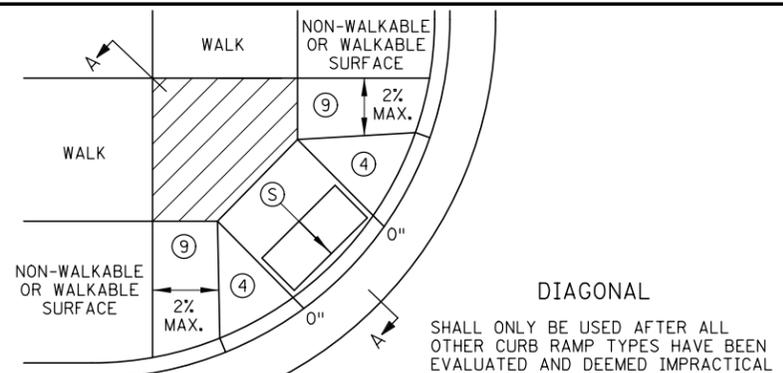
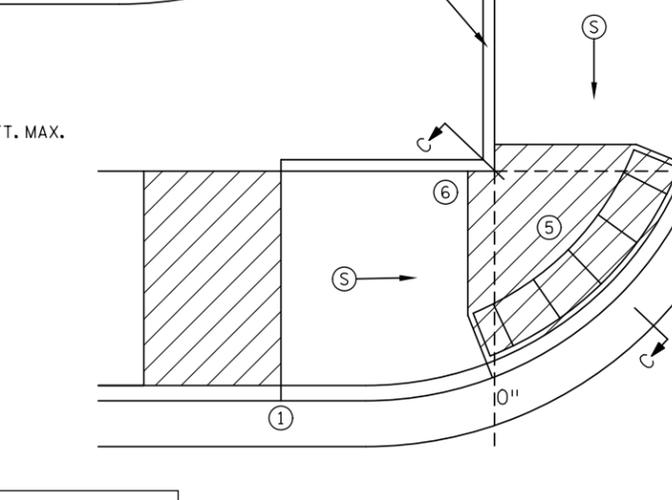
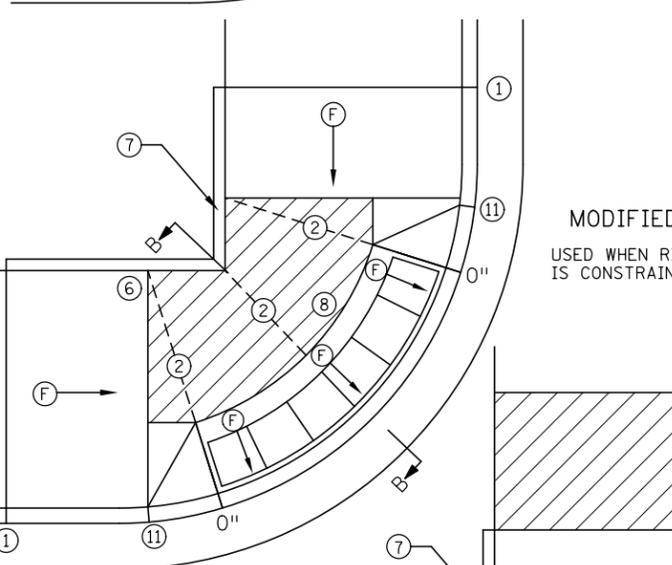
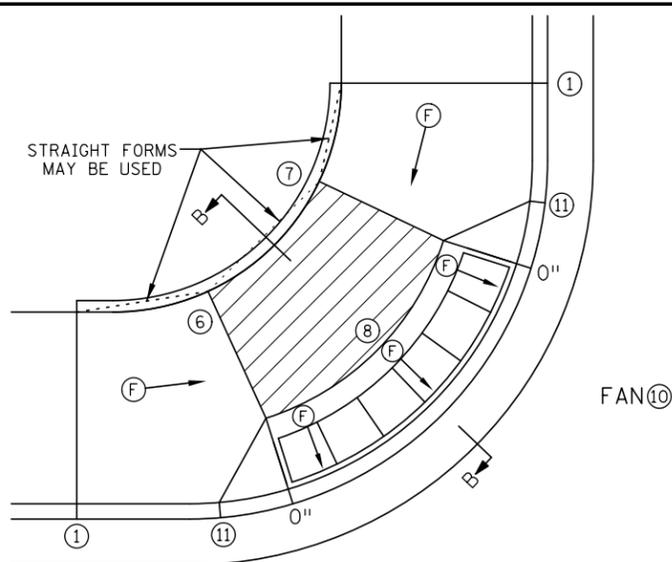
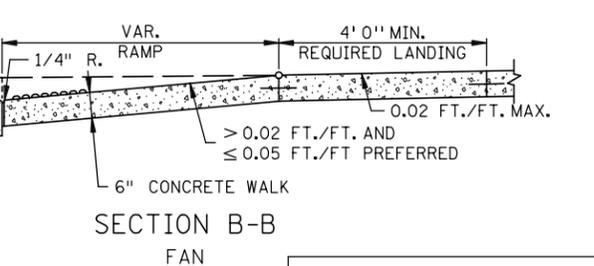
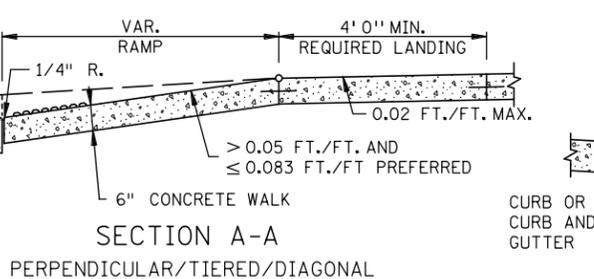
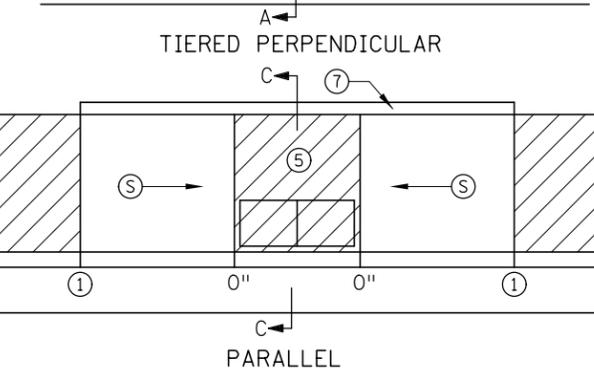
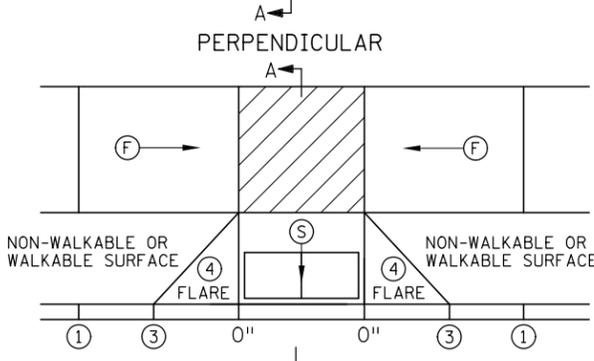
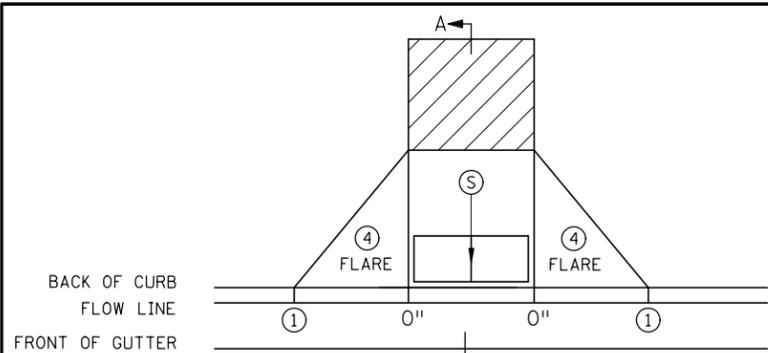


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PRINT NAME: MICHAEL P MCCURDY
SIGNATURE: *Michael P. McCurdy*
DATE: 03/20/24 LICENSE #: 45902

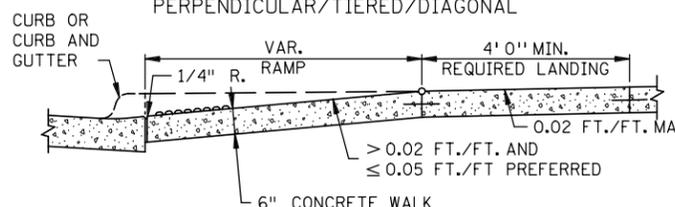
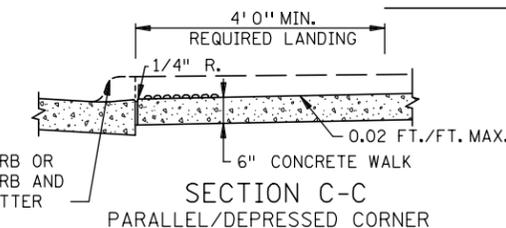
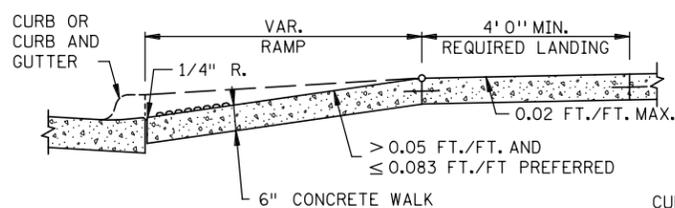
TYPICAL SECTIONS
S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
SHEET NO. 8 OF 71 SHEETS



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 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 SHEET 6 OF 6 FOR ALL SEPARATELY POURED INITIAL LANDINGS.
 - WHEN SIDEWALK IS AT BACK OF CURB, TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE. MAINTAIN POSITIVE BOULEVARD DRAINAGE TO TOP OF CURB.
 - ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.
 - 4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER THE ENTIRE PAR WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK WITH THE EXCEPTION OF 3" MAXIMUM ON EACH OUTSIDE EDGE WHICH ENSURES THE DETECTABLE WARNINGS ARE ENCASED IN CONCRETE WHEN ADJACENT TO TURF. WHEN ADJACENT TO CONCRETE FLARES 0" - 3" OFFSET IS ALLOWED.
 - WHEN DESIGNING OR ORDERING RECTANGULAR DETECTABLE WARNING SURFACES SHOULD BE 6" LESS THAN THE INCOMING PAR. ARC LENGTH OF THE RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.
 - 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.
 - 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 LESS THAN 5% RUNNING SLOPE SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
 - 8 A 7' MIN TOP RADIUS GRADE BREAK IS REQUIRED TO BE CONSTRUCTIBLE.
 - 9 PAVE FULL WALK WIDTH.
 - 10 "S" SLOPES ON FANS SHALL ONLY BE USED WHEN ALL OTHER FEASIBLE OPTIONS HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL.
 - 11 INTERMEDIATE CURB HEIGHTS TAPER SHALL RISE AT 8-10% TO A MINIMUM 3" CURB HEIGHT. REDUCE INTERMEDIATE CURB HEIGHT TO 2+ INCHES IF NECESSARY TO MATCH ADJACENT BOULEVARD OR SIDEWALK GRADES.



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

REVISION:

APPROVED: 11-04-2021

08/02/21

Jeffrey Perkins
OPERATIONS DIVISION

	STANDARD PLAN 5-297.250	1 OF 6
DEPARTMENT OF TRANSPORTATION	THOMAS STYRBICKI STATE DESIGN ENGINEER	APPROVED: 11-04-2021 REVISED:

PEDESTRIAN CURB RAMP DETAILS

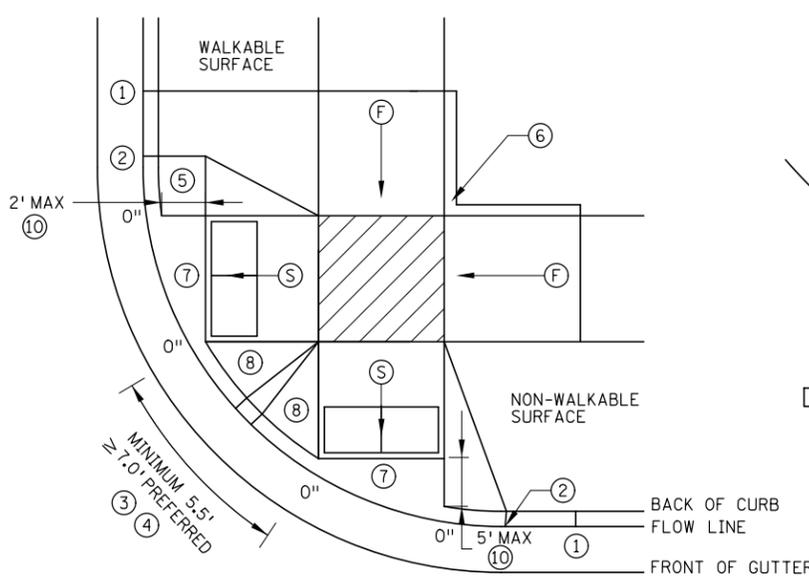
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SHEET NO. 9 OF 71 SHEETS

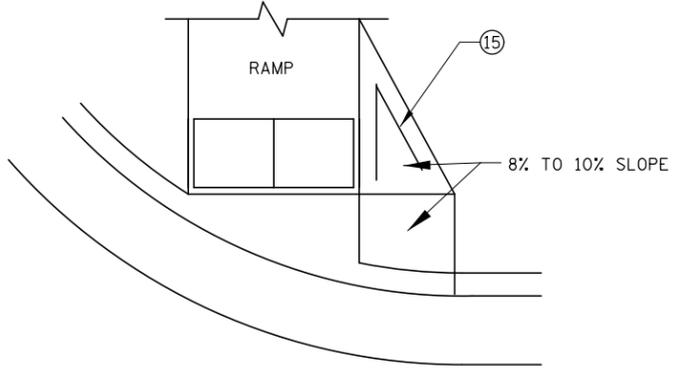
STANDARD PLANS

S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

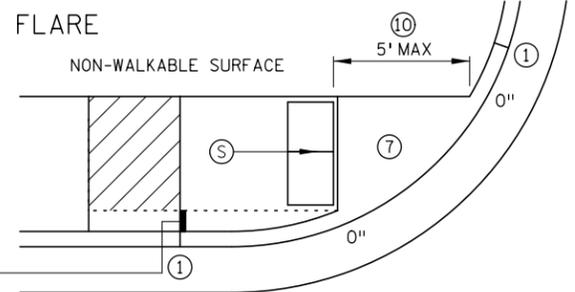
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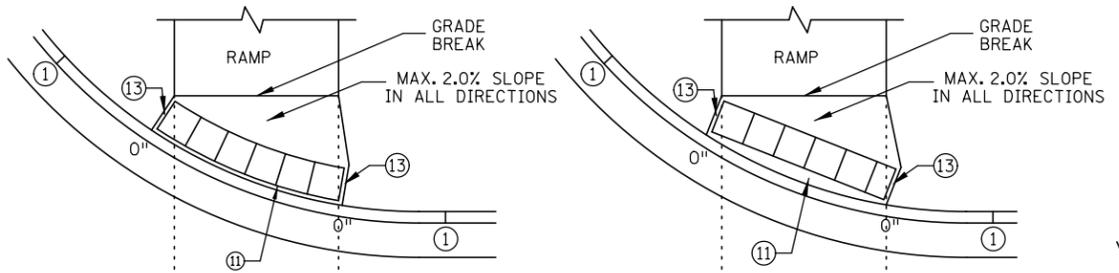
COMBINED DIRECTIONAL



DIRECTIONAL RAMP WALKABLE FLARE

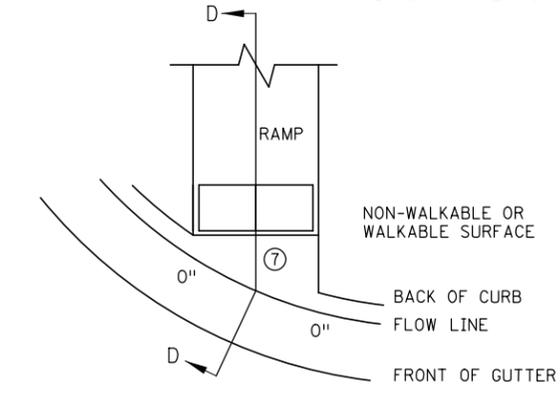


IF NON-CONCRETE BLVD. IS CONSTRUCTED AND IS LESS THAN 2' IN WIDTH AT TOP OF CURB TRANSITION, PAVE CONCRETE RAMP WIDTH TO ADJACENT BACK OF CURB.

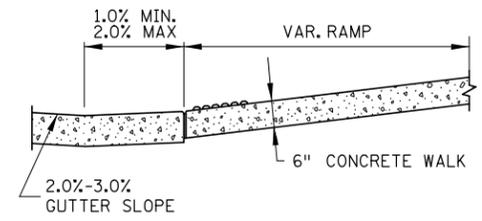


DETECTABLE WARNING PLACEMENT WHEN SETBACK CRITERIA IS EXCEEDED 12

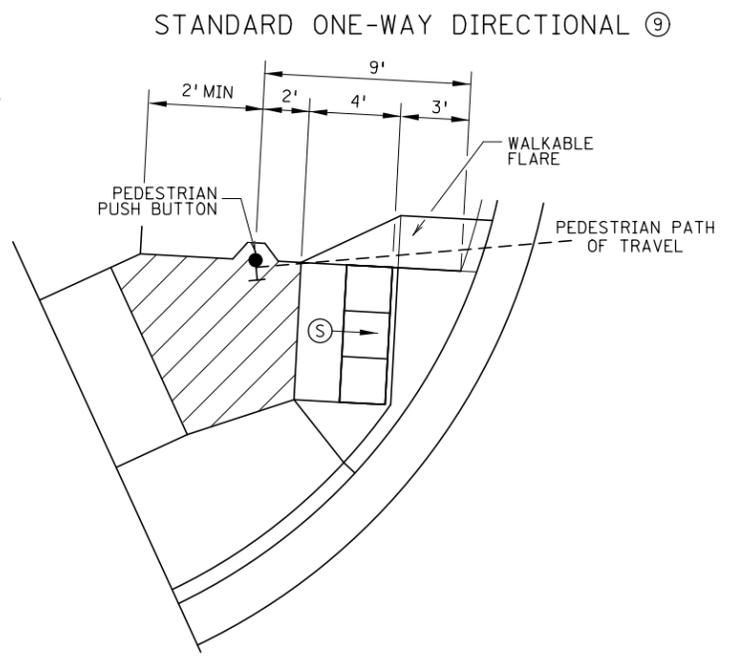
ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB



CURB FOR DIRECTIONAL RAMPS 14



SECTION D-D



SEMI-DIRECTIONAL RAMP 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)

NOTES:

- LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE.
- INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.
- SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS GREATER THAN 5.0%.
- CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOP GRADE BREAK OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.
- ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL. THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH.
- TO ENSURE INITIAL RAMPS AND INITIAL LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS SHALL BE CAST SEPARATELY, FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 AND THE ADA SPECIAL PROVISION (PROSECUTION OF WORK).
- TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.
- WHEN THE BOULEVARD IS 4' WIDE OR LESS, THE TOP OF CURB TAPER SHALL MATCH THE RAMP SLOPES TO REDUCE NEGATIVE BOULEVARD SLOPES FROM THE TOP BACK OF CURB TO THE PAR.
- ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.
- 4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER THE ENTIRE PAR WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK WITH THE EXCEPTION OF 3" MAXIMUM ON EACH OUTSIDE EDGE WHICH ENSURES THE DETECTABLE WARNINGS ARE ENCASED IN CONCRETE WHEN ADJACENT TO TURF. WHEN ADJACENT TO CONCRETE FLARES 0" - 3" OFFSET IS ALLOWED.
- WHEN DESIGNING OR ORDERING RECTANGULAR DETECTABLE WARNING SURFACES SHOULD BE 6" LESS THAN THE INCOMING PAR. ARC LENGTH OF THE RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.
- RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB. SEE NOTES 10 & 11 FOR INFORMATION REGARDING RECTANGULAR DETECTABLE WARNING PLACEMENT.

- 1 MATCH FULL CURB HEIGHT.
- 2 3" HIGH CURB WHEN USING A 3' LONG RAMP
4" HIGH CURB WHEN USING A 4' LONG RAMP.
- 3 3" MINIMUM CURB HEIGHT (5.5' MIN. DISTANCE REQUIRED BETWEEN DOMES)
4" PREFERRED (7' MIN. DISTANCE REQUIRED BETWEEN DOMES).
- 4 THE "BUMP" IN BETWEEN THE RAMPS SHOULD NOT BE IN THE PATH OF TRAVEL FOR COMBINED DIRECTIONAL RAMPS. IF THIS OCCURS MODIFY THE RAMP LOCATION OR SWITCH RAMP TO A FAN/DEPRESSED CORNER.
- 5 WHEN USING CONCRETE PAVED FLARES ON THE OUTSIDE OF DIRECTIONAL RAMPS, AND ADJACENT TO A WALKABLE SURFACE, DIRECTIONAL RAMP FLARES SHALL BE USED. SEE THE DETAIL ON THIS SHEET.
- 6 GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
- 7 MAX. 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK AND DRAIN TO FLOW LINE. SHALL BE CONSTRUCTED INTEGRAL WITH CURB AND GUTTER.
- 8 8% TO 10% WALKABLE FLARE.
- 9 PLACE DOMES AT THE BACK OF CURB WHEN ALLOWABLE SETBACK CRITERIA IS EXCEEDED.
- 10 FRONT EDGE OF DETECTABLE WARNING SHALL BE SET BACK 2' MAXIMUM WHEN ADJACENT TO WALKABLE SURFACE, AND 5' MAXIMUM WHEN ADJACENT TO NON-WALKABLE SURFACE WITH ONE CORNER SET 3" FROM BACK OF CURB. A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.
- 11 RECTANGULAR DETECTABLE WARNINGS MAY BE SETBACK UP TO 9" FROM THE BACK OF CURB WITH CORNERS SET 3" FROM BACK OF CURB. IF 9" SETBACK IS EXCEEDED USE RADIAL DETECTABLE WARNINGS.
- 12 FOR DIRECTIONAL RAMPS WITH THE DETECTABLE WARNINGS PLACED AT THE BACK OF CURB, THE DETECTABLE WARNINGS SHALL COVER THE ENTIRE WIDTH OF THE WALK/PATH. THIS ENSURES A DETECTABLE EDGE AND HELPS ELIMINATE THE CURB TAPER OBSTRUCTING THE PATH OF PEDESTRIAN TRAVEL.
- 13 THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
- 14 TO BE USED FOR ALL DIRECTIONAL RAMPS, EXCEPT WHERE DOMES ARE PLACED ALONG THE BACK OF CURB.
- 15 PLACE 2 NO. 4 BARS 4 INCHES FROM SIDE OF FORMS WITH A MINIMUM 2 INCHES OF CONCRETE COVER ALONG EACH SIDE OF FLARE (INCIDENTAL).

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

REVISION:
 APPROVED: 11-04-2021
 Jeff J. Perkins
 OPERATIONS DIVISION

	STANDARD PLAN 5-297.250	2 OF 6
	APPROVED: 11-04-2021 THOMAS STYRBICKI STATE DESIGN ENGINEER	

PEDESTRIAN CURB RAMP DETAILS

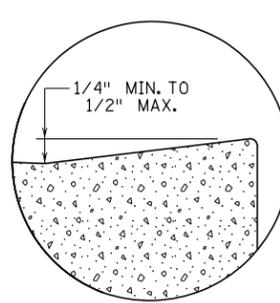
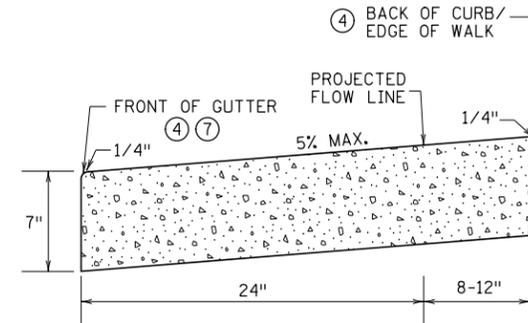
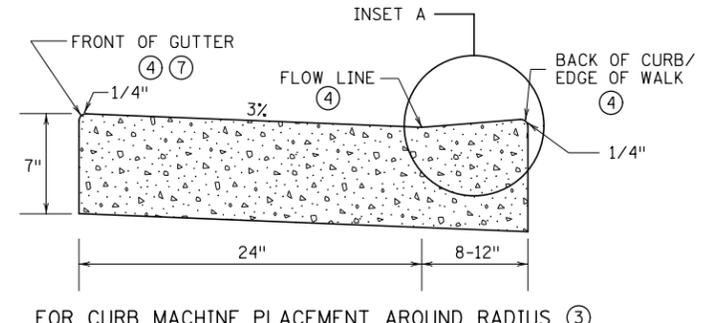
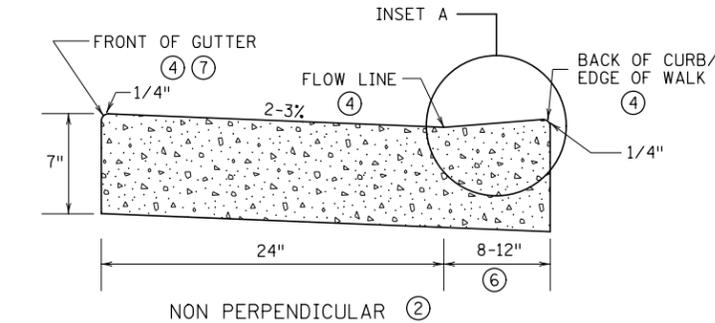
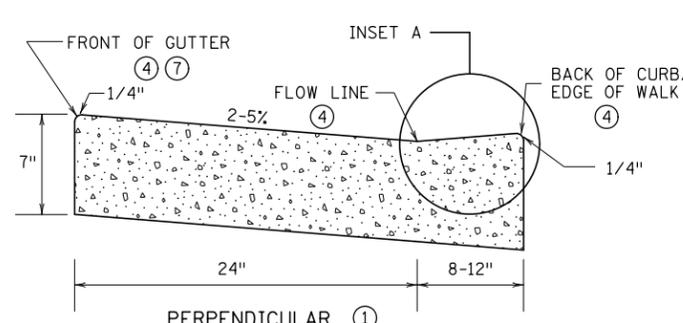
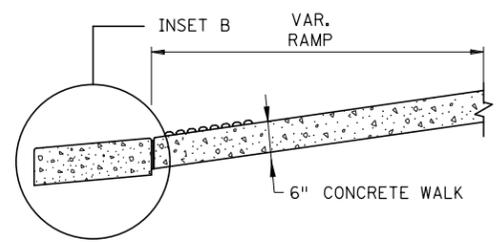
STANDARD PLANS

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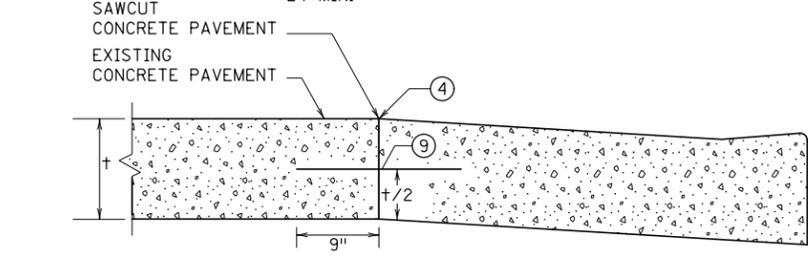
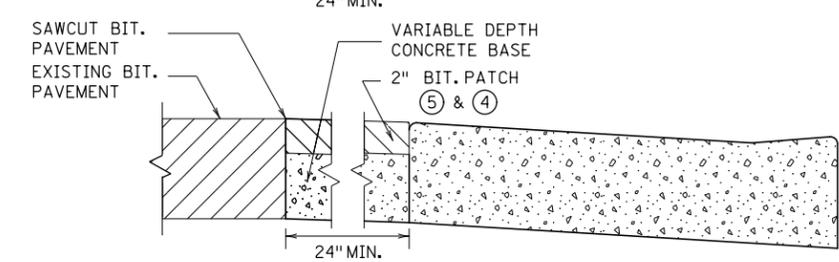
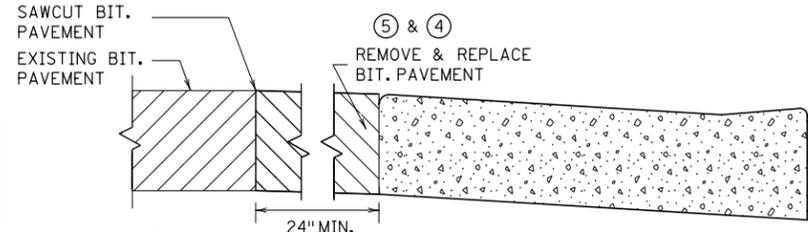
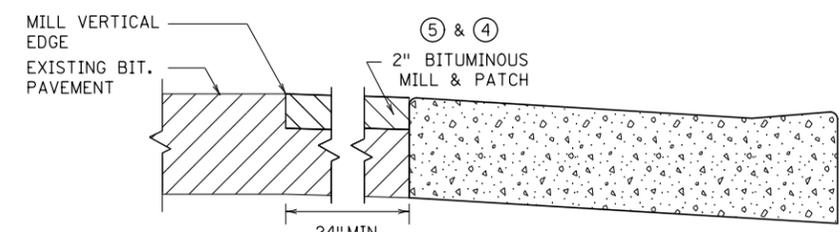
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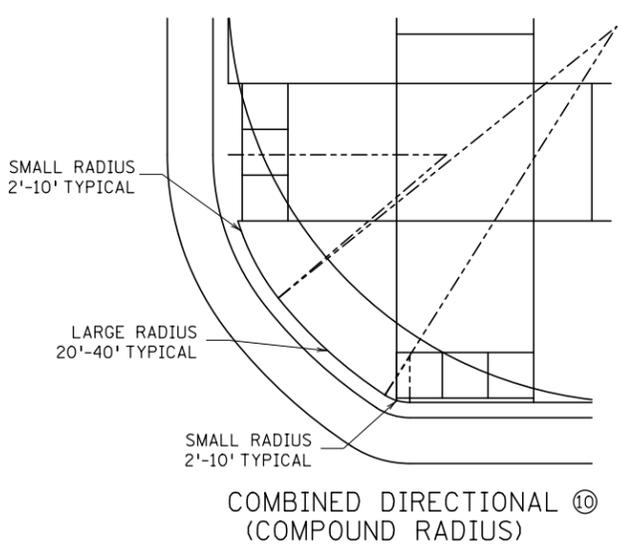
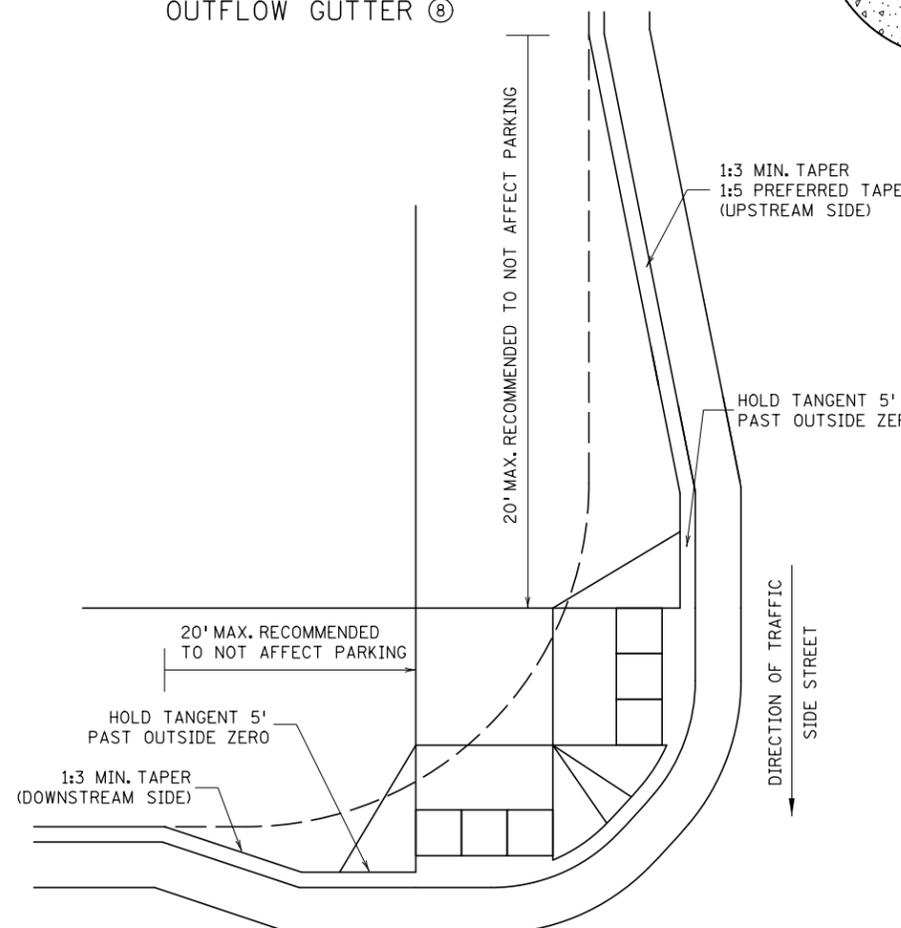
PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL



ONLY ALLOWED PER ENGINEER'S APPROVAL

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

- 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.



COMBINED DIRECTIONAL ⑩ (COMPOUND RADIUS)

ADA CURB EXTENSION WITH COMPOUND RADIUS (BUMP OUT) ⑪

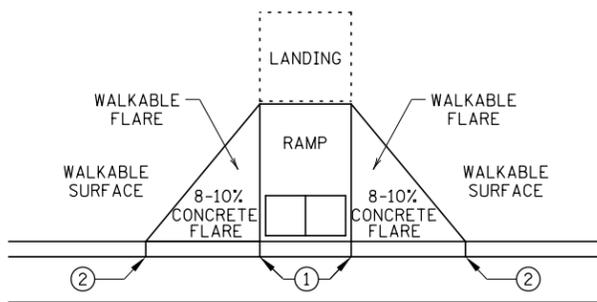
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REVISION:
APPROVED: 11-04-2021
08/02/23
<i>Jeffrey Perkins</i>
JEFFREY PERKINS OPERATIONS DIVISION

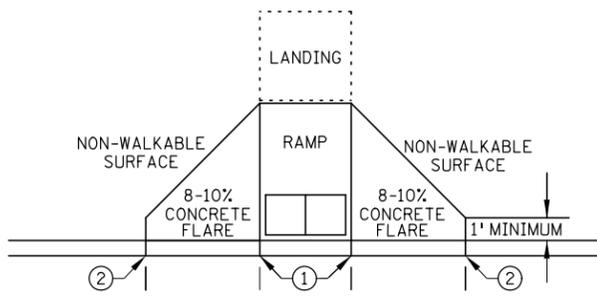
	STANDARD PLAN 5-297.250	3 OF 6
	APPROVED: 11-04-2021 THOMAS STYRBICKI STATE DESIGN ENGINEER	

PEDESTRIAN CURB RAMP DETAILS	
S.A.P. 002-603-005 (CSAH 3/86TH LN NE)	
SHEET NO. 11 OF 71 SHEETS	

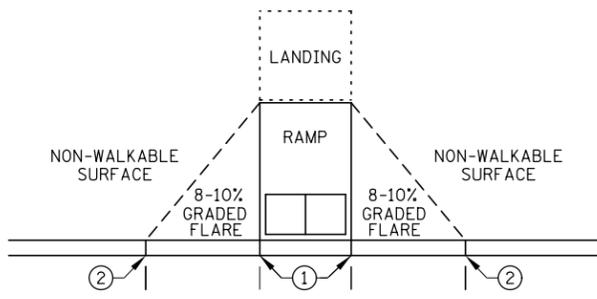
STANDARD PLANS
S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063



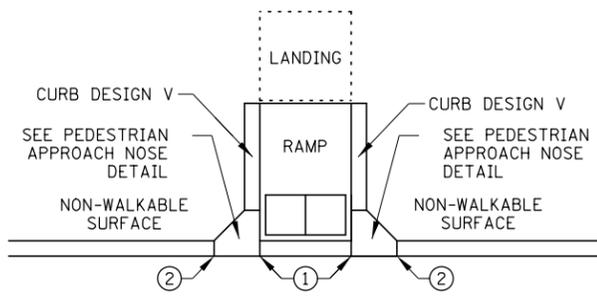
PAVED FLARES
ADJACENT TO WALKABLE SURFACE



PAVED FLARES
ADJACENT TO NON-WALKABLE SURFACE

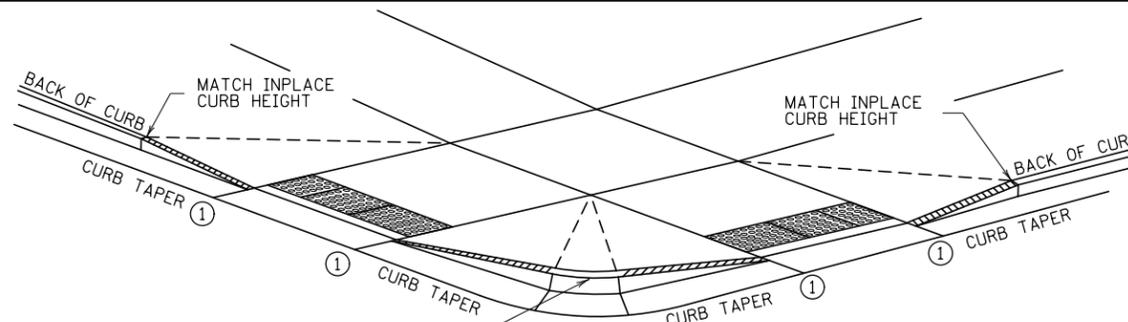


GRADED FLARES



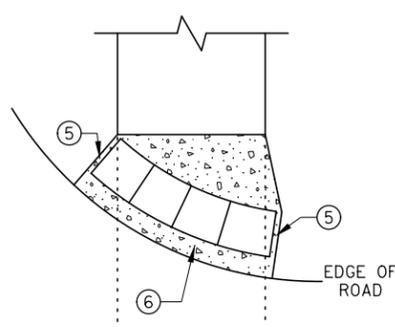
RETURNED CURB ④

TYPICAL SIDE TREATMENT OPTIONS ③ ⑩

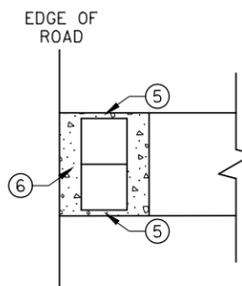


3" MINIMUM CURB HEIGHT, 4" PREFERRED
(MEASURED AT FRONT FACE OF CURB)
FOR A MIN. 6" LENGTH (MEASURED ALONG FLOW LINE)

DETECTABLE EDGE WITH
CURB AND GUTTER ⑦

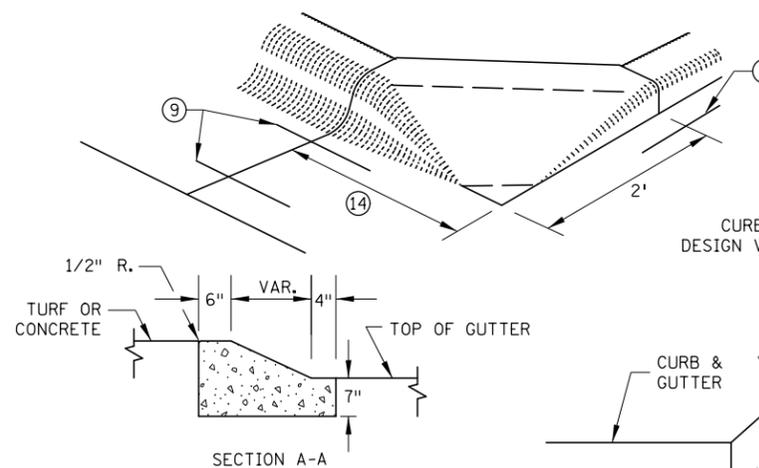


RADIAL DETECTABLE WARNING

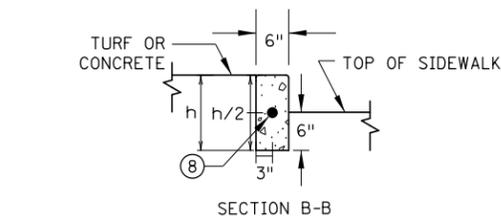


RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER

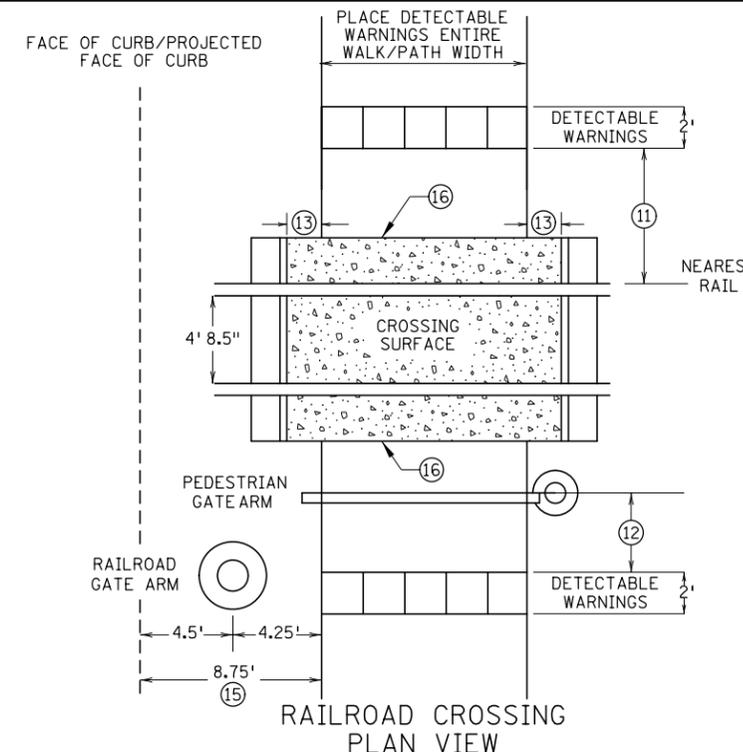


SECTION A-A



SECTION B-B

PEDESTRIAN APPROACH
NOSE DETAIL
(FOR RETURNED CURB
SIDE TREATMENT)



RAILROAD CROSSING
PLAN VIEW

NOTES:

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

REVISION:

APPROVED: 11-04-2021

Jeffrey D. Perkins
JEFFREY PERKINS
OPERATIONS DIVISION



STANDARD PLAN 5-297.250

4 OF 6

Thomas Styrbicki
THOMAS STYRBICKI
STATE DESIGN ENGINEER

APPROVED: 11-04-2021

REVISED:

PEDESTRIAN CURB RAMP DETAILS

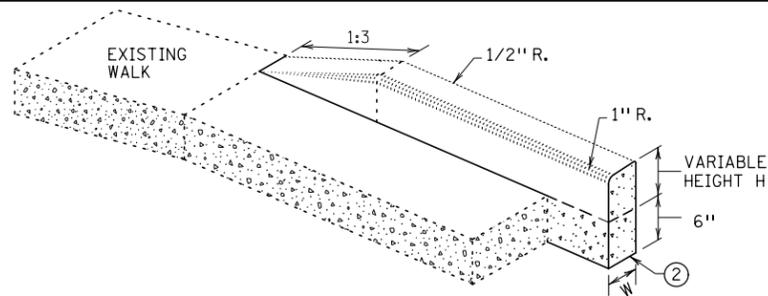
STANDARD PLANS

S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

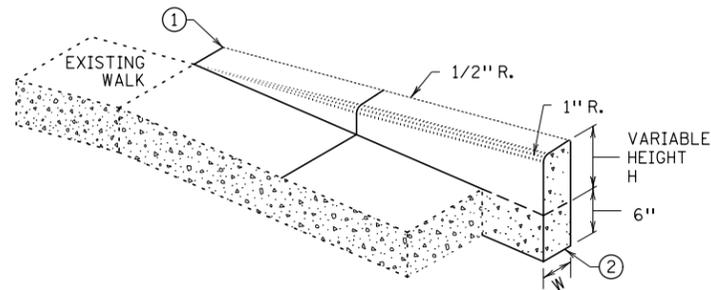
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SHEET NO. 12 OF 71 SHEETS

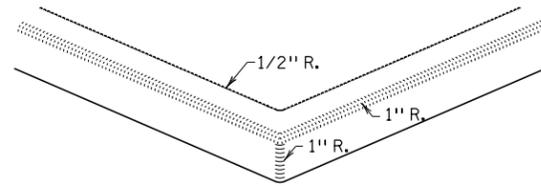
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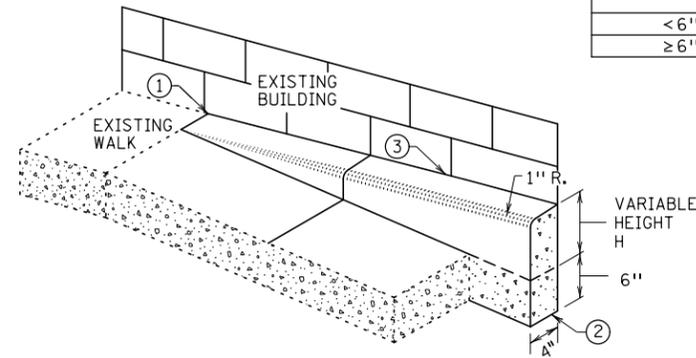
V CURB ADJACENT TO LANDSCAPE
CURB WITHIN SIDEWALK LIMITS



V CURB ADJACENT TO LANDSCAPE
CURB OUTSIDE SIDEWALK LIMITS

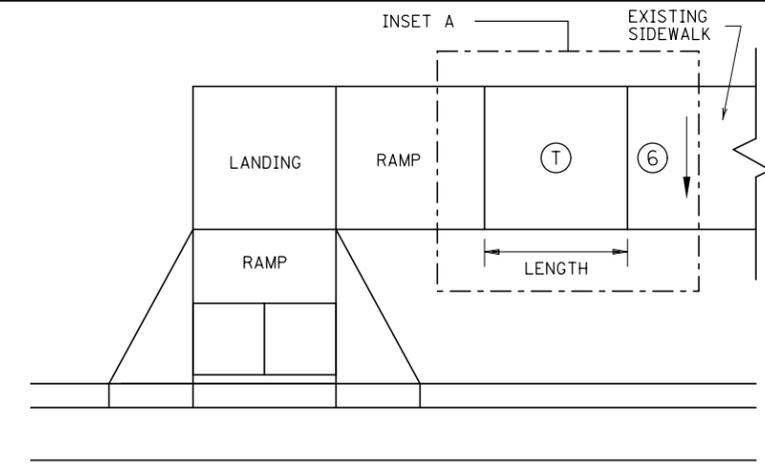


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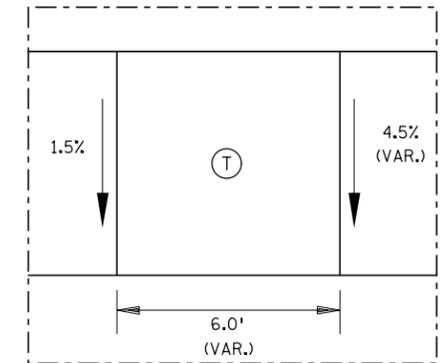


V CURB ADJACENT TO BUILDING
OR BARRIER

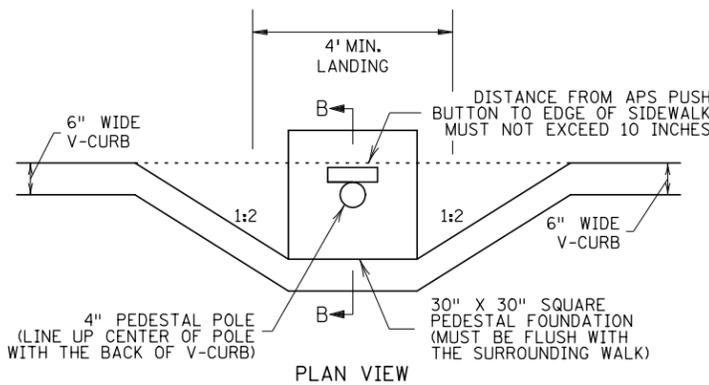
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
< 6"	4"
≥ 6"	6"



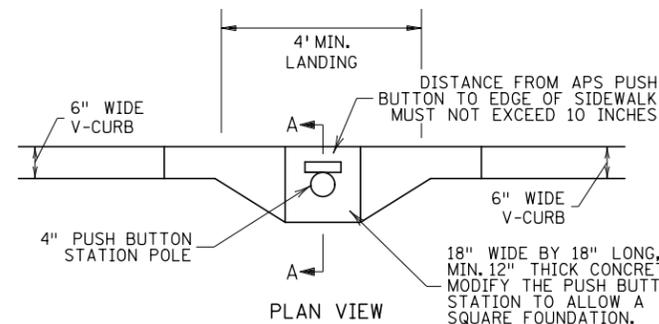
TRANSITION PANEL ④ ⑤



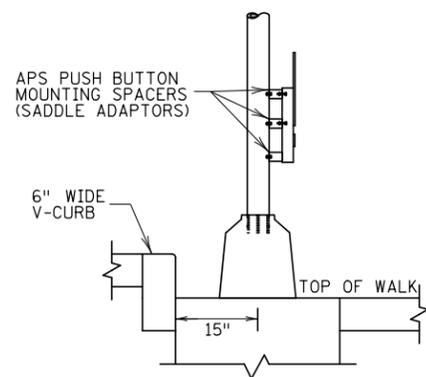
INSET A



PLAN VIEW

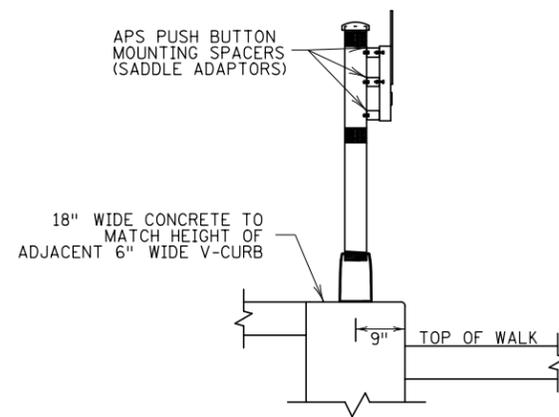


PLAN VIEW



SECTION B-B

SIGNAL PEDESTAL & PUSH BUTTON (V-CURB)



SECTION A-A

PUSH BUTTON STATION (V-CURB)

NOTES:

- A WALKABLE FLARE IS AN 8-10% CONCRETE FLARE THAT IS REQUIRED WHEN THE FLARE IS ADJACENT TO A WALKABLE SURFACE, OR WHEN THE PEDESTRIAN PATH OF TRAVEL OF A PUSH BUTTON TRAVERSES THE FLARE.
- ALL V CURB CONTRACTION JOINTS SHALL MATCH CONCRETE WALK JOINTS.
- WHERE RIGHT-OF-WAY ALLOWS, USE OF V CURB SHOULD BE MINIMIZED. GRADING ADJACENT TURF OR SLOPING ADJACENT PAVEMENT IS PREFERRED.
- V CURB SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.
- V CURB NEXT TO BUILDING SHALL BE A 4" WIDTH AND SHALL MATCH PREVIOUS TOP OF SIDEWALK ELEVATIONS.
- ① END TAPERS AT TRANSITION SECTION SHALL MATCH INPLACE SIDEWALK GRADES.
- ② ALL V CURB SHALL MATCH BOTTOM OF ADJACENT WALK.
- ③ CONSTRUCT USING APPROVED EXPANSION MATERIAL PER MNDOT TYPE A-E EXPANSION. LEAVE A MINIMUM 1/2" TOP GAP AND SEAL WITH MNDOT APPROVED SILICONE PER MNDOT SPEC 3722.
- ④ THE MAX. RATE OF CROSS SLOPE TRANSITIONING IS 1' LINEAR FOOT OF SIDEWALK PER HALF PERCENT CROSS SLOPE. WHEN PAR WIDTH IS GREATER THAN 6' OR THE RUNNING SLOPE IS GREATER THAN 5%, DOUBLE THE CALCULATED TRANSITION LENGTH.
- ⑤ TRANSITION PANELS ARE TO ONLY BE USED AFTER THE RAMP, OR IF NEEDED, LANDING ARE AT THE FULL CURB HEIGHT (TYPICAL SECTION).
- ⑥ EXISTING CROSS SLOPE GREATER THAN 2.0%.

LEGEND

- THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT, IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.
- ⑤ INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
- ④ LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.
- ① TRANSITION PANEL(S) - TO BE USED FOR TRANSITIONING THE CROSS-SLOPE OF A RAMP TO THE EXISTING WALK CROSS-SLOPE. RATE OF TRANSITION SHOULD BE 0.5% PER 1 LINEAR FOOT OF WALK. SEE THIS SHEET FOR ADDITIONAL INFORMATION.

	STANDARD PLAN 5-297.250	5 OF 6
DEPARTMENT OF TRANSPORTATION	APPROVED: 11-04-2021	REVISED:
	THOMAS STYRBICKI STATE DESIGN ENGINEER	

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLANS

S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)

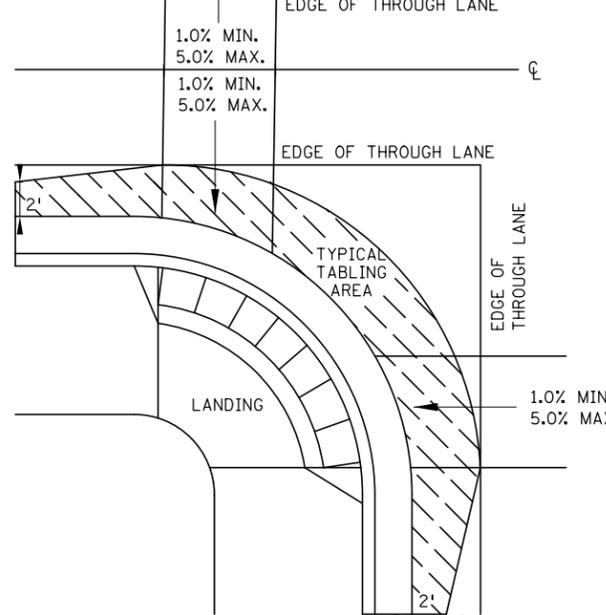
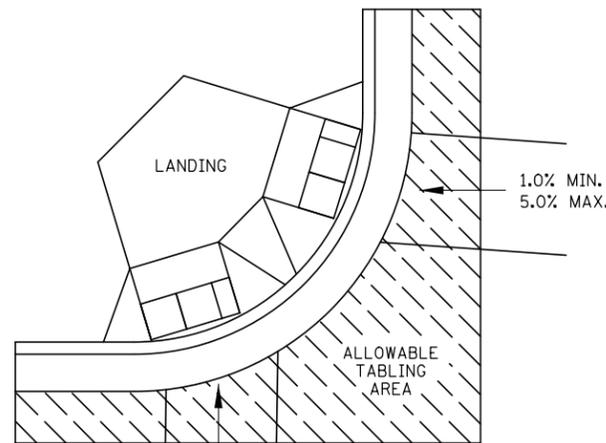
SHEET NO. 13 OF 71 SHEETS

REVISION:

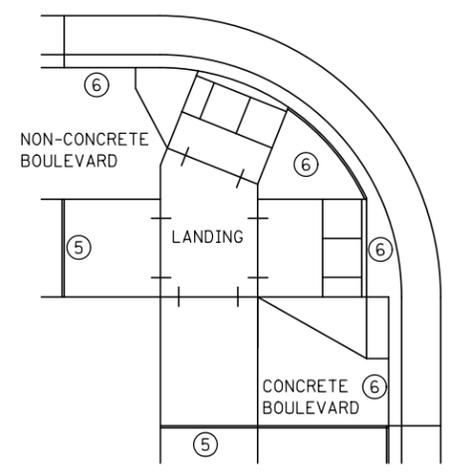
APPROVED: 11-04-2021

JEFFREY J. PERKINS
OPERATIONS DIVISION

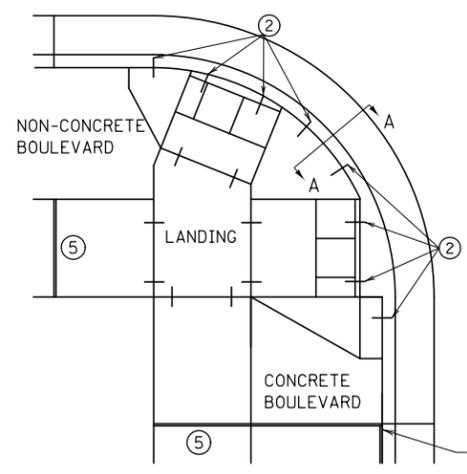
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CURB LINE AND ROAD CROSSING ADJUSTMENTS



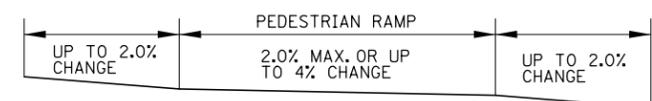
EXPANSION MATERIAL PLACEMENT FOR CONCRETE ROADWAYS



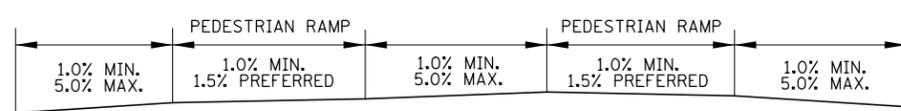
CURB LINE REINFORCEMENT PLACEMENT ON BITUMINOUS ROADWAYS



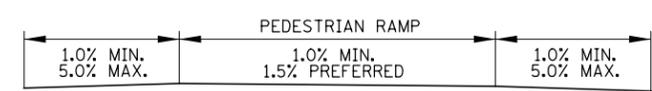
FLOW LINE PROFILE "TABLE" - TWIN PERPENDICULARS



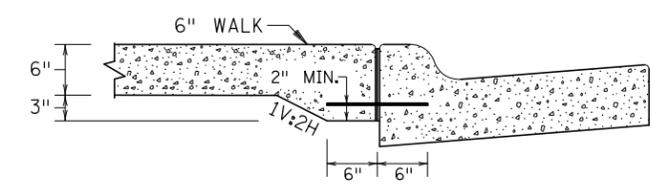
FLOW LINE PROFILE "TABLE" - FAN



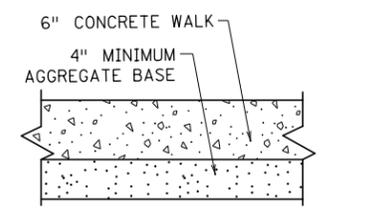
FLOW LINE PROFILE RAISE - TWIN PERPENDICULARS



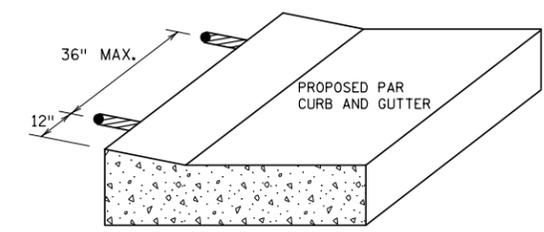
FLOW LINE PROFILE RAISE - FAN



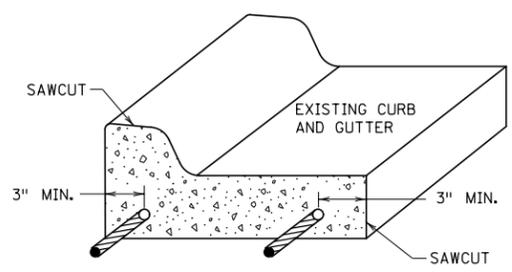
SECTION VIEW A-A THICKENED SECTION THROUGH CURB RAMP FLARES



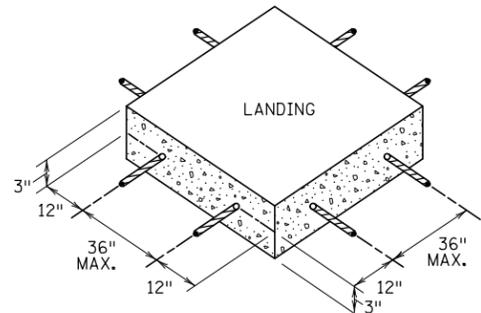
TYPICAL SIDEWALK SECTION WITHIN INTERSECTION CORNER



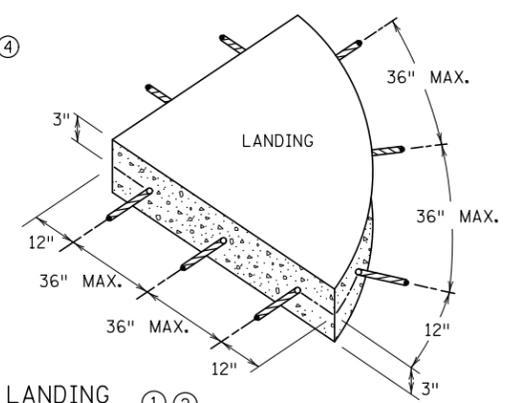
CURB RAMP REINFORCEMENT DETAILS



CURB AND GUTTER REINFORCEMENT



SEPARATE LANDING POUR REINFORCEMENT



NOTES:

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

GENERAL NOTES:

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

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

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

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

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

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

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

REVISION:

APPROVED: 11-04-2021

Jeffrey J. Perkins
JEFFREY PERKINS
OPERATIONS DIVISION

m MINNESOTA
DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.250 6 OF 6

APPROVED: 11-04-2021
REVISOR:

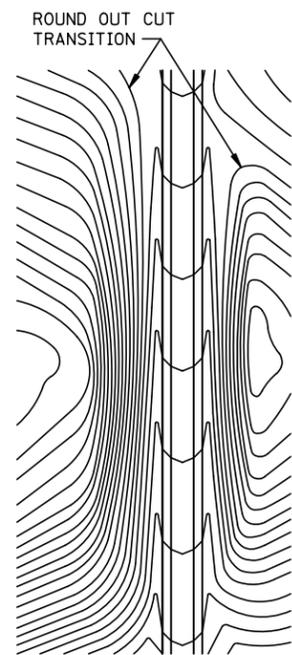
Tom Styrbicki
THOMAS STYRBICKI
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

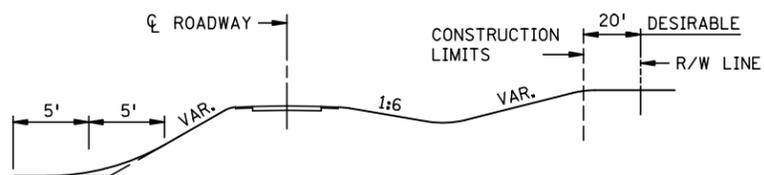
S.A.P. 002-603-005 (CSAH 3/86TH LN NE)

SHEET NO. 14 OF 71 SHEETS

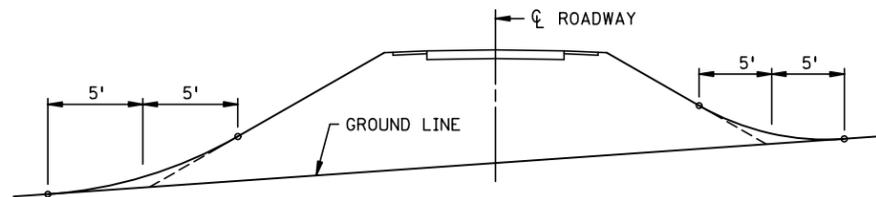
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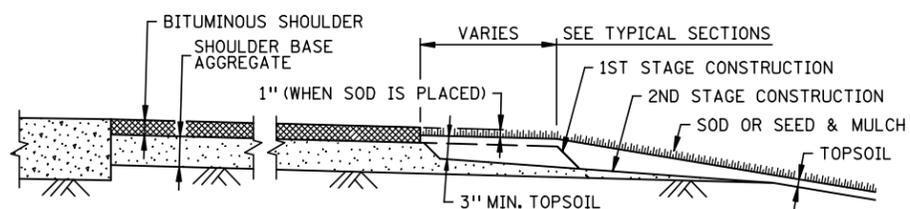
CONTOURING ROAD CUTS



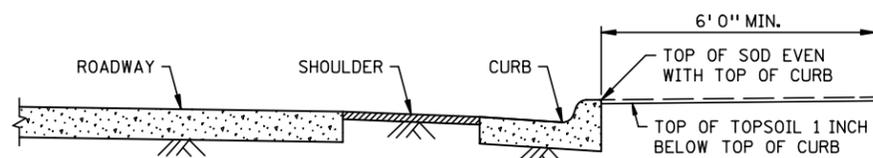
ROUNDING SHOULDERS AND BACKSLOPES



SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES

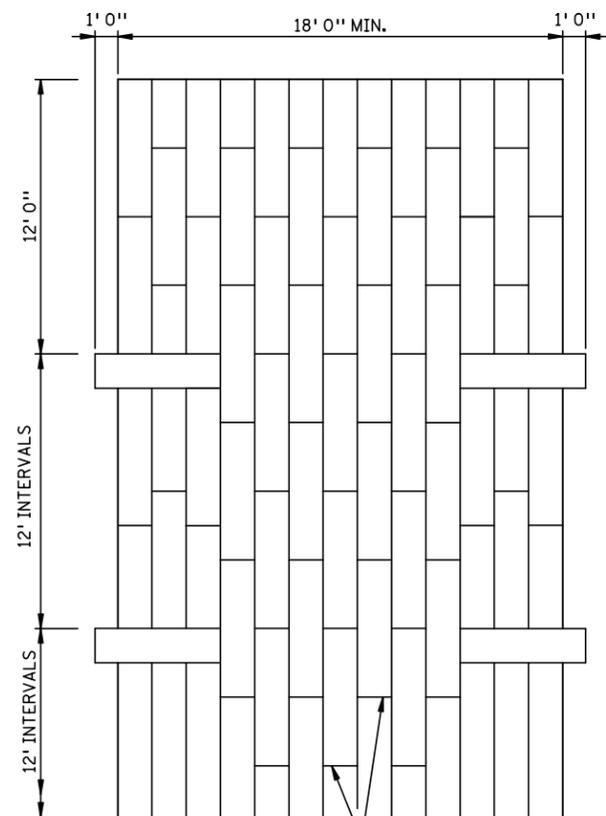


SHAPING AND TOPSOILING INSLOPES

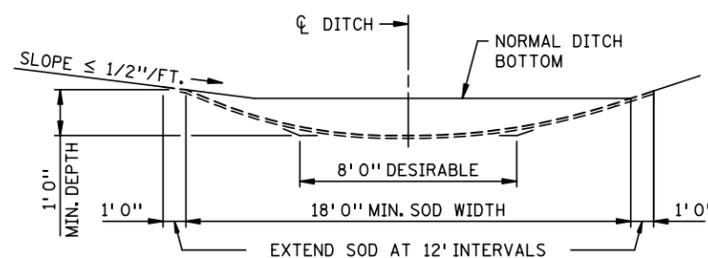


SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED

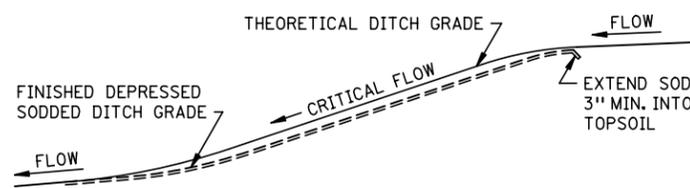
NOTES:
 SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION.
 ① CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.



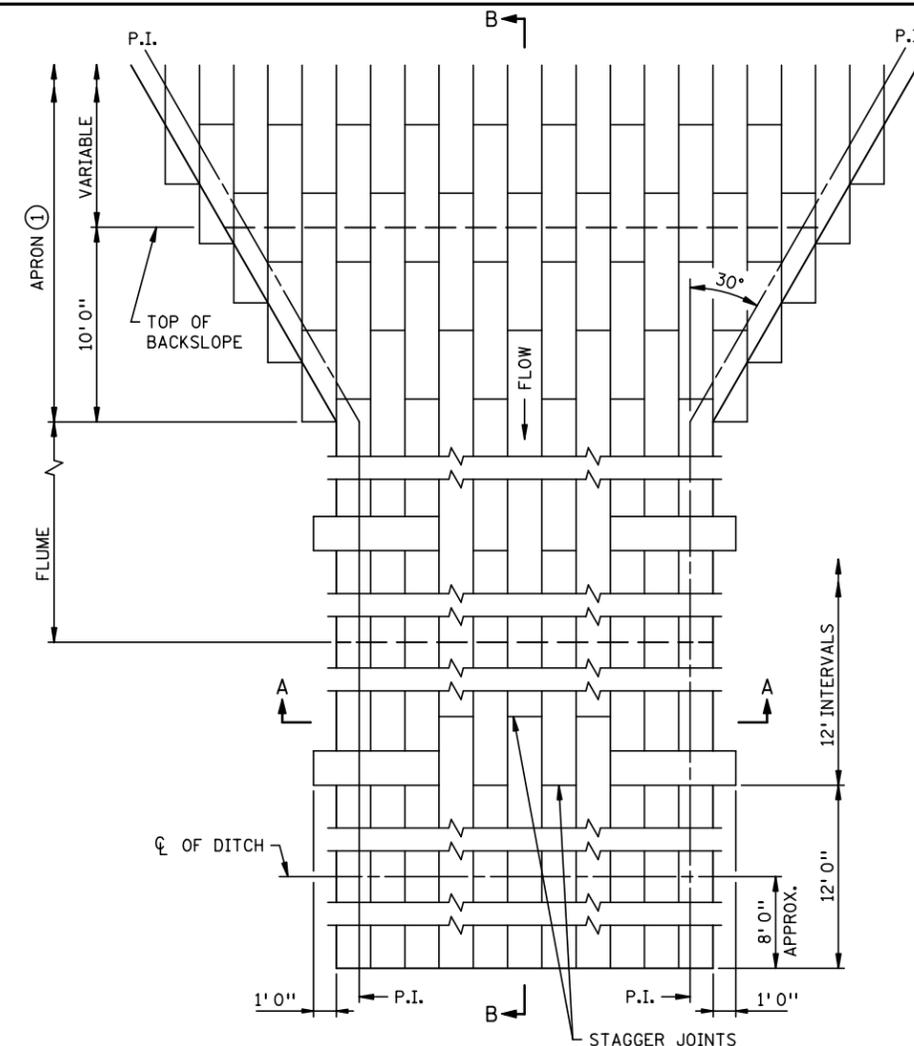
PLAN VIEW



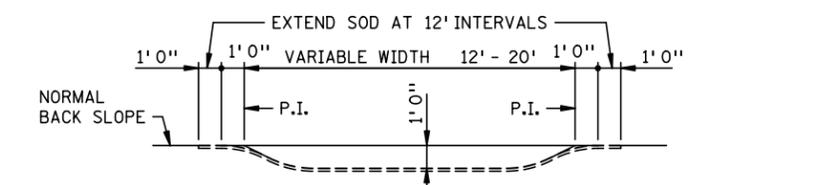
SODDED DITCH CROSS SECTION
 WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 1/2"/FT.),
 FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING.



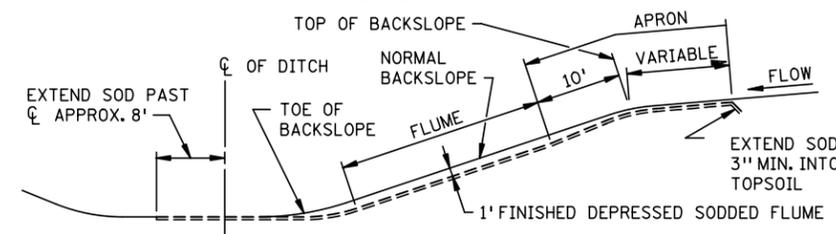
SODDED DITCH DETAILS



PLAN VIEW



SECTION A-A



SECTION B-B
 SODDED FLUME DETAILS



STANDARD PLAN 5-297.404

1 OF 3

THOMAS STYRBICKI
 STATE DESIGN ENGINEER

APPROVED: 2-28-2017
 REVISED:

PERMANENT EROSION CONTROL
 ALONG ROADWAYS, DITCHES AND FLUMES

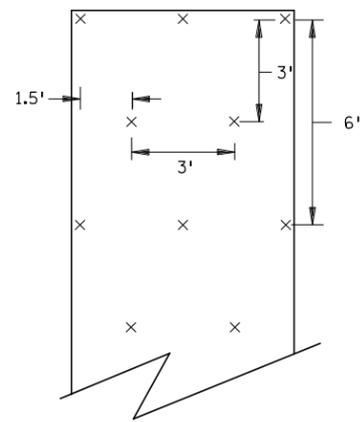
REVISION:
 APPROVED: 2-28-2017
 Chief Environmental Officer

STANDARD PLANS

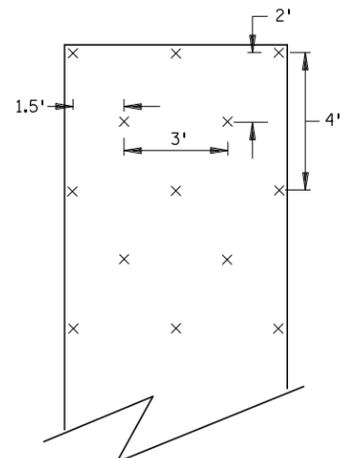
S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
 SHEET NO. 15 OF 71 SHEETS

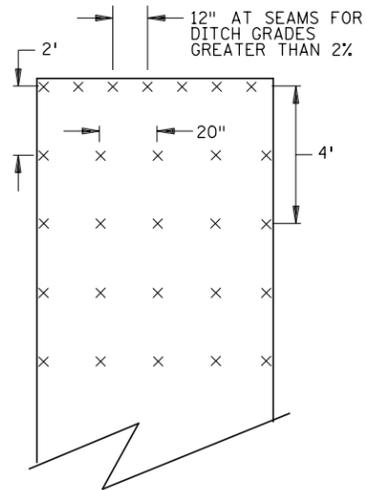
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SLOPES FLATTER THAN 1:2
120 STAPLES PER 100 SQ YD

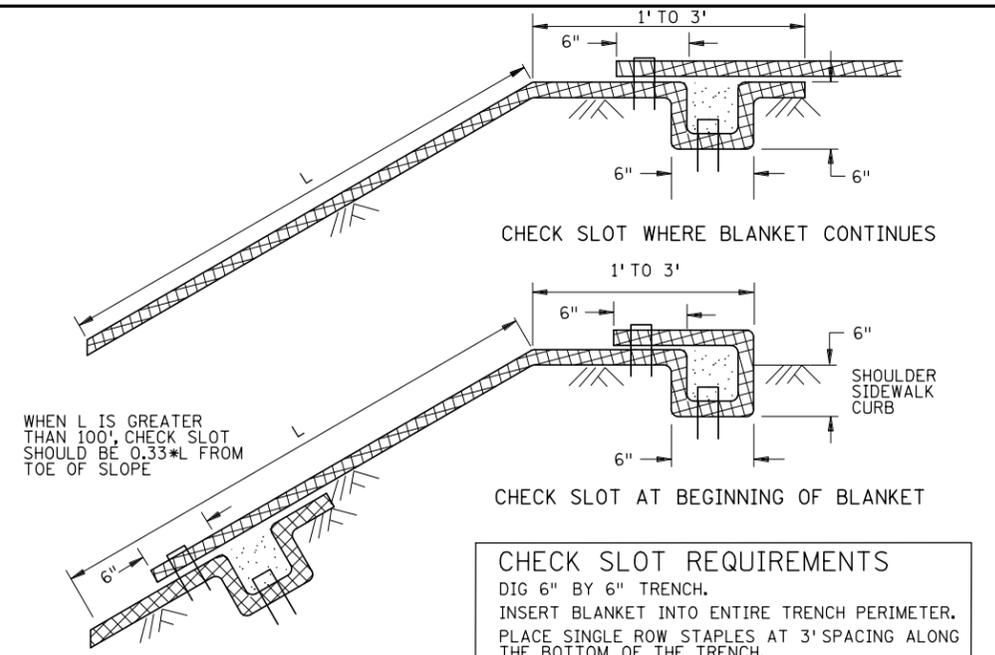


SLOPES 1:2 TO 1:1
170 STAPLES PER 100 SQ YD

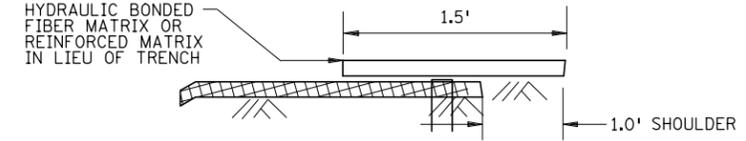


CHANNEL AND DITCH APPLICATIONS
350 STAPLES PER 100 SQ YD

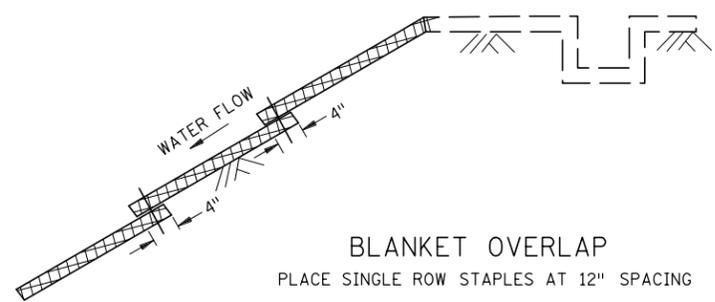
BLANKET STAPLE PATTERN



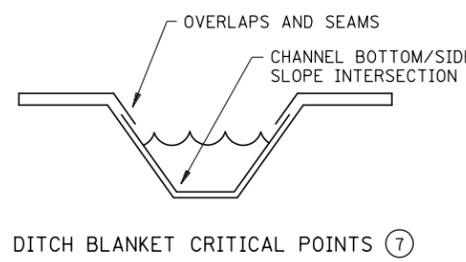
CHECK SLOT REQUIREMENTS
DIG 6" BY 6" TRENCH.
INSERT BLANKET INTO ENTIRE TRENCH PERIMETER.
PLACE SINGLE ROW STAPLES AT 3' SPACING ALONG THE BOTTOM OF THE TRENCH.
BACKFILL TRENCH WITH SOIL AND TAMP.
PLACE SINGLE ROW STAPLES AT 3' SPACING ON OVERLAP.



CHECK SLOT ALTERNATIVE
PLACE SINGLE ROW STAPLES AT 12" SPACING



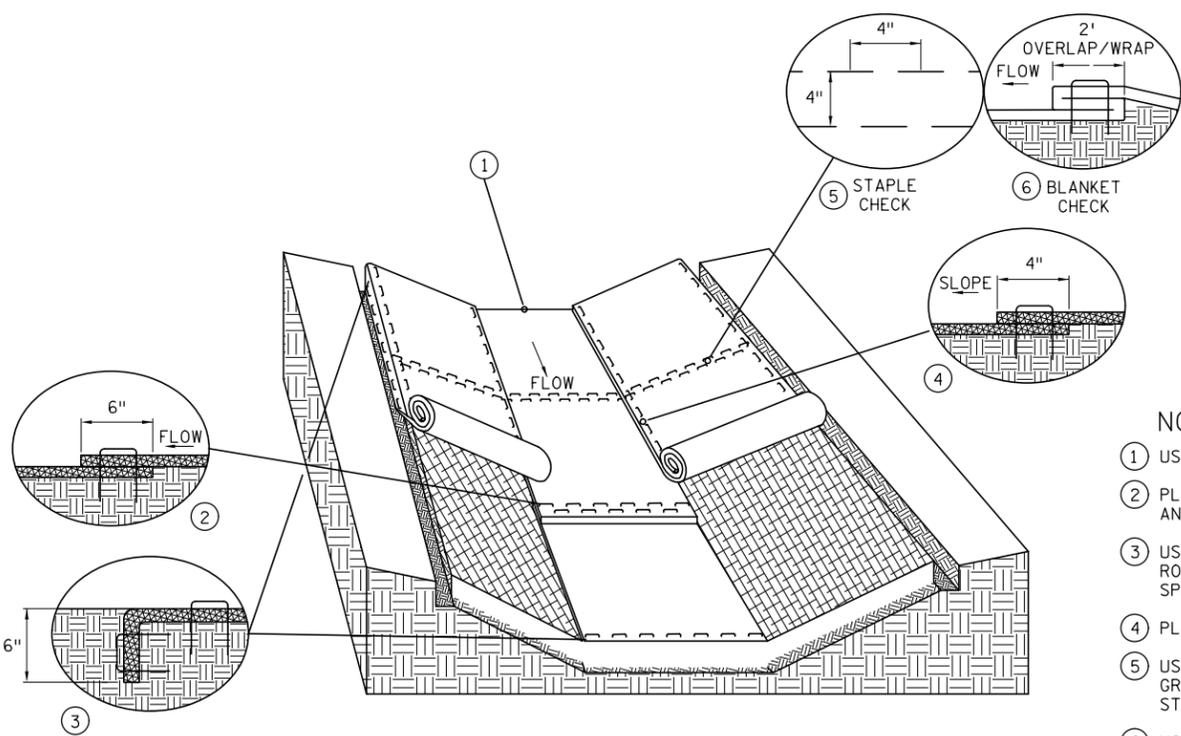
GENERAL BLANKET INSTALLATION REQUIREMENTS
REPP = ROLLED EROSION PREVENTION PRODUCT.
PREPARE SOIL AS PER SPECIFICATION 2574.
LAY PARALLEL OR PERPENDICULAR TO THE DIRECTION OF WATER FLOW.
OVERLAP ADJACENT STRIP EDGES A MINIMUM OF 4".
OVERLAP BLANKET 6" (MINIMUM) AT EACH END. OVERLAP BOTTOM END OF UPPER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



DITCH BLANKET CRITICAL POINTS ⑦

NOTES:

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



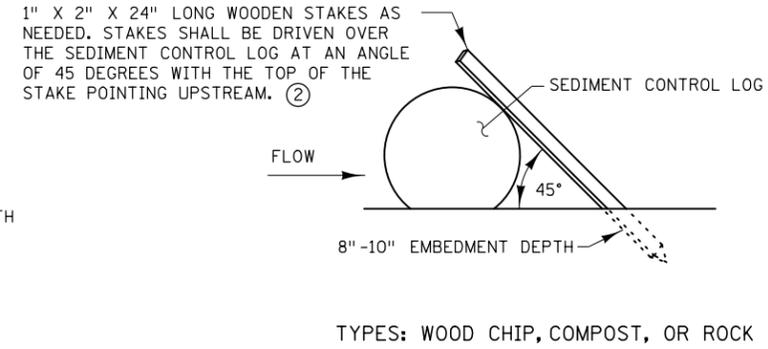
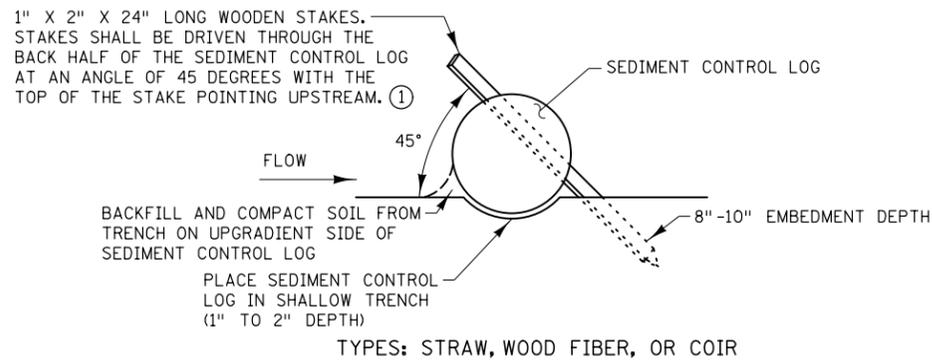
DITCH BLANKET STAPLE DETAIL

REVISION:
APPROVED: JANUARY 8, 2020
Marni Karnowski
MARNI KARNOWSKI
CHIEF ENVIRONMENTAL OFFICER

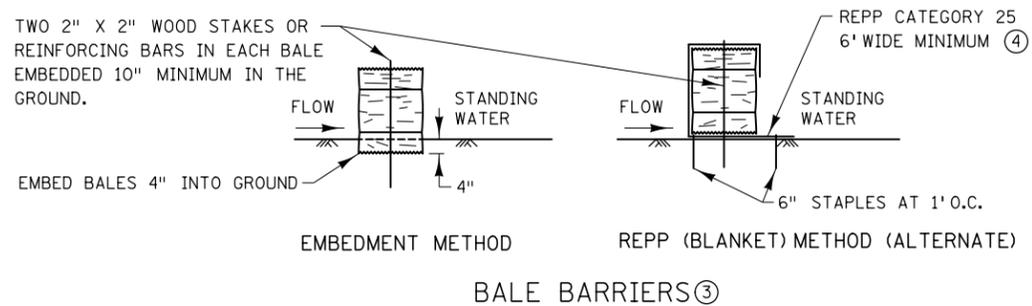
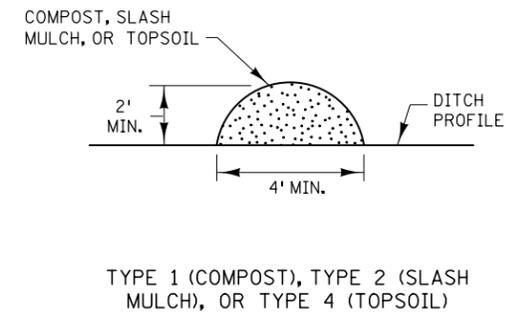
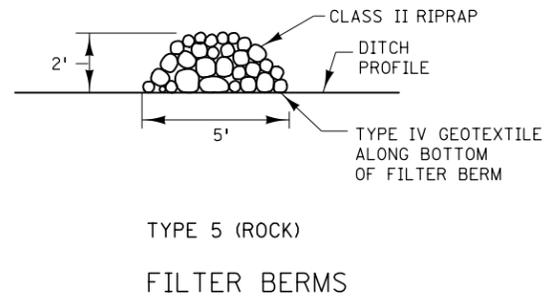
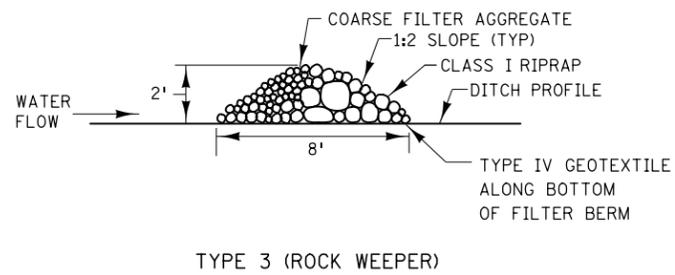
	STANDARD PLAN 5-297.404	3 OF 3
	 APPROVED: 1-8-2020 THOMAS STYRBICKI STATE DESIGN ENGINEER	

PERMANENT EROSION CONTROL
REPP (BLANKET) STAPLE PATTERN FOR SLOPES

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SEDIMENT CONTROL LOGS



NOTES:

REPP = ROLLED EROSION PREVENTION PRODUCT.

SEE SPECS. 2573, 3149, 3874, 3882, 3885, 3886, AND 3897.

- ① SPACE BETWEEN STAKES SHALL BE A MAXIMUM OF 1' FOR DITCH CHECKS OR 2' FOR OTHER APPLICATIONS.
- ② PLACE STAKES AS NEEDED TO PREVENT MOVEMENT OF SEDIMENT CONTROL LOGS PLACED ON SLOPES OR AS NEEDED DUE TO OTHER FACTORS. STAKES SHALL BE INCIDENTAL.
- ③ TO BE USED FOR CRITICAL PERIMETER CONTROL AREAS WHERE STANDING WATER OCCURS (6" MAXIMUM DEPTH). BALES SHALL CONSIST OF TYPE 1 MULCH OF APPROXIMATELY 14" X 18" X 36" LONG. BALES SHALL BE PLACED ON EDGE AND BUTTED TIGHT TO ADJACENT BALES.
- ④ INSTEAD OF TRENCHING, PLACE BALE ON THE REPP (BLANKET) AND WRAP BLANKET AROUND THE BALE. PLACE STAKE THROUGH BALE AND BLANKET.



STANDARD PLAN 5-297.405

2 OF 8

APPROVED: 1-8-2020
 THOMAS STYRBICKI
 STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL
 FILTER BERMS, SEDIMENT CONTROL LOGS, AND BALE BARRIERS

REVISION:

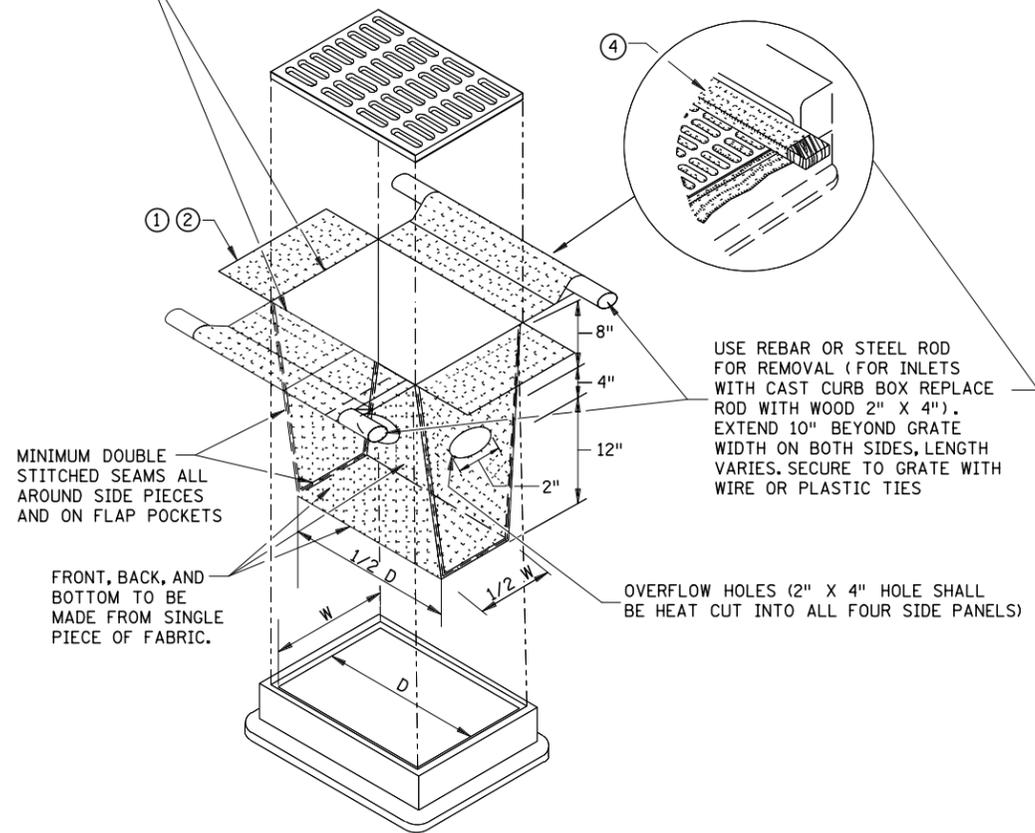
APPROVED: JANUARY 8, 2020
 Marni Karnowski
 MARNI KARNOWSKI
 CHIEF ENVIRONMENTAL OFFICER

STANDARD PLANS
 S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
 SHEET NO. 17 OF 71 SHEETS

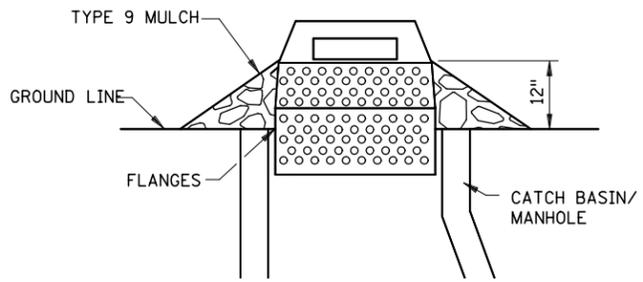
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INLET SPECIFICATIONS AS PER THE PLAN
DIMENSION LENGTH AND WIDTH TO MATCH
FLAP POCKET



FILTER BAG INSERT ③

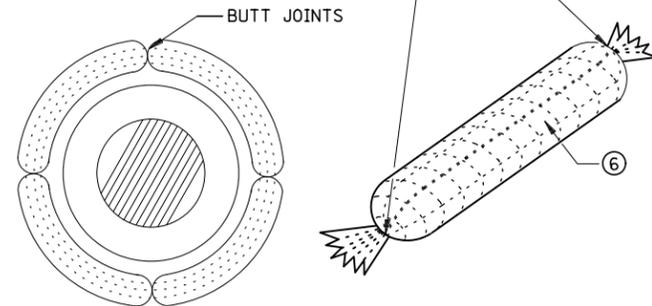
(CAN BE INSTALLED IN ANY INLET TYPE
WITH OR WITHOUT A CURB BOX)



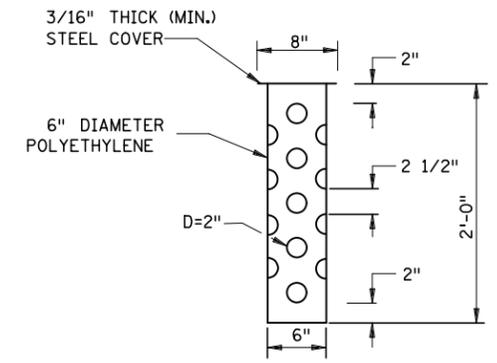
SEDIMENT CONTROL INLET HAT

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

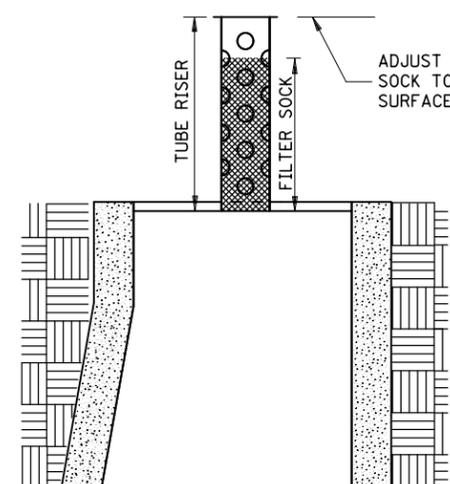
ENDS SECURELY CLOSED TO
PREVENT LOSS OF OPEN GRADED
AGGREGATE FILL. SECURED WITH
50 PSI. ZIP TIE.



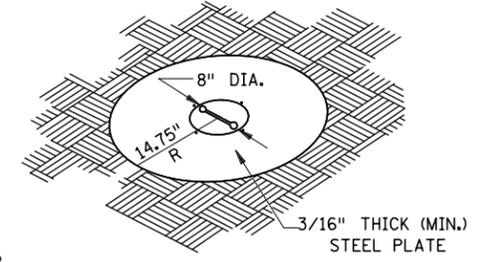
ROCK LOG/COMPOST LOG



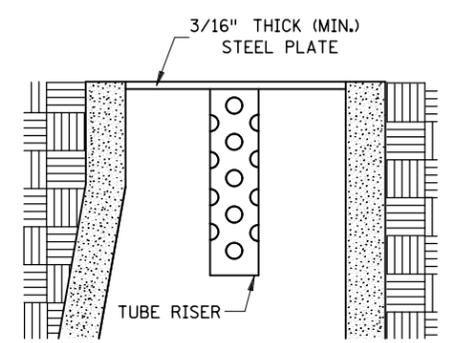
TUBE RISER



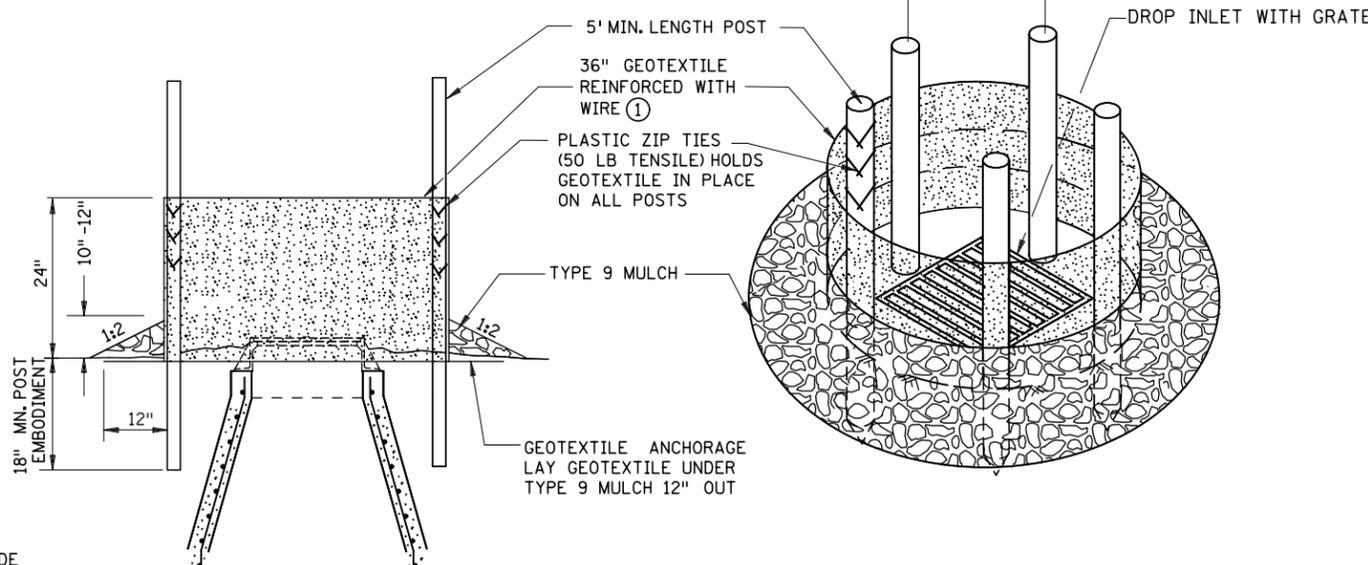
**SECTION
(UP POSITION)**



PERSPECTIVE VIEW



**SECTION
(DOWN POSITION)**



SILT FENCE RING AND ROCK FILTER BERM

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

POP-UP HEAD

NOTES:

- SEE SPECS. 2573, 3137, & 3886.
- DEVICES MUST BE ADJUSTED ACCORDINGLY AS TO NOT CAUSE FLOODING ON ROADWAY THAT WOULD IMPEDE 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 CLEARANCE.
- ④ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2 INCH X 4 INCH OR USE A ROCK SOCK OR SAND BAGS IN PLACE OF THE FLAP POCKETS.
- ⑤ SOCK HEIGHT MUST NOT BE SO HIGH AS TO SLOW DOWN WATER FILTRATION TO CAUSE FLOODING OF THE ROADWAY.
- ⑥ GEOTEXTILE SOCK BETWEEN 4-10 FEET LONG AND 4-6 INCH DIAMETER. SEAM TO BE JOINED BY TWO ROWS OF STITCHING WITH A PLASTIC MESH BACKING OR PROVIDE A HEAT BONDED SEAM (OR APPROVED EQUIVALENT). FILL ROCK LOG WITH OPEN GRADED AGGREGATE CONSISTING OF SOUND DURABLE PARTICLES OF COARSE AGGREGATE CONFORMING TO SPEC. 3137 TABLE 3137-1; CA-3 GRADATION.

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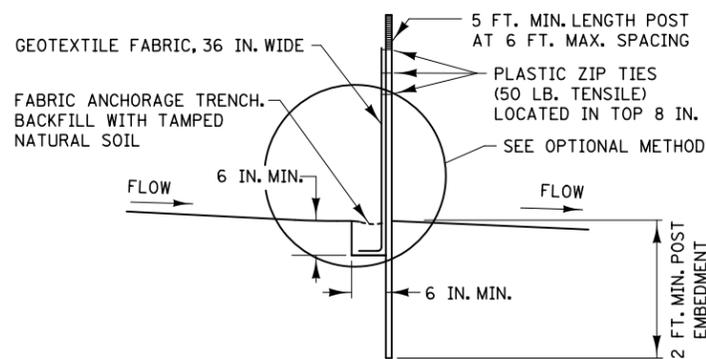
REVISION:
APPROVED: 2-28-2017
[Signature]
CHIEF ENVIRONMENTAL OFFICER

	STANDARD PLAN 5-297.405	4 OF 8
	APPROVED: 2-28-2017 REVISOR: <i>[Signature]</i> THOMAS STYRBICKI STATE DESIGN ENGINEER	

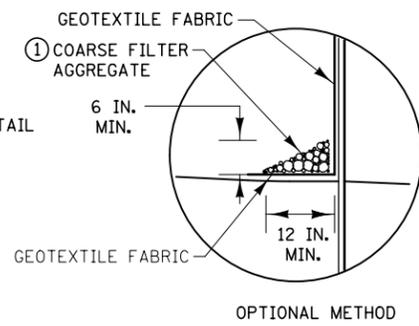
**TEMPORARY SEDIMENT CONTROL
STORM DRAIN INLET PROTECTION**

STANDARD PLANS
S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

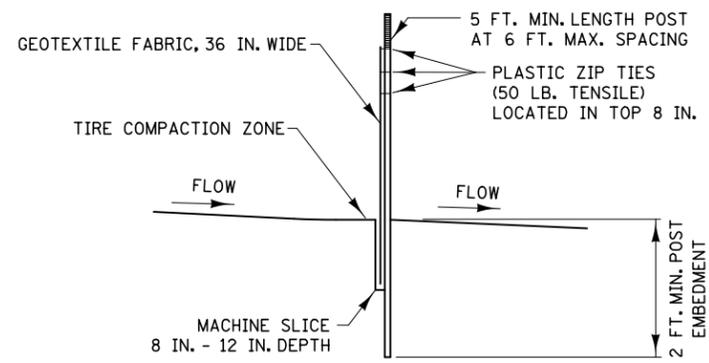
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SHEET NO. 18 OF 71 SHEETS



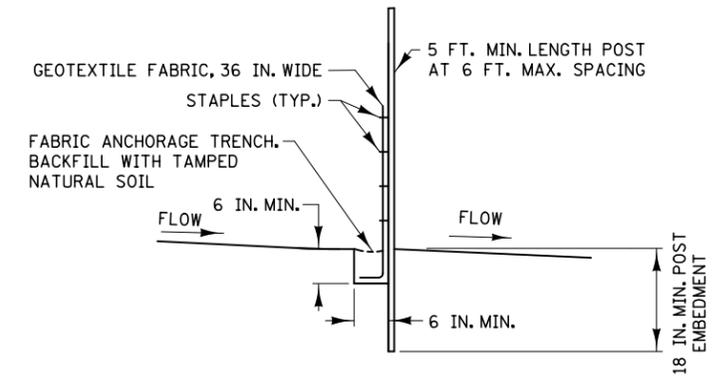
**SILT FENCE TYPE HI ②
(HAND INSTALLED)**



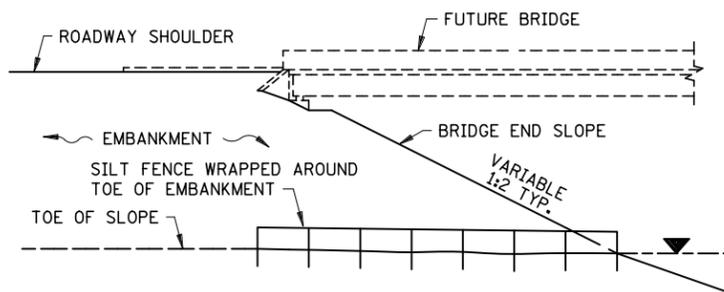
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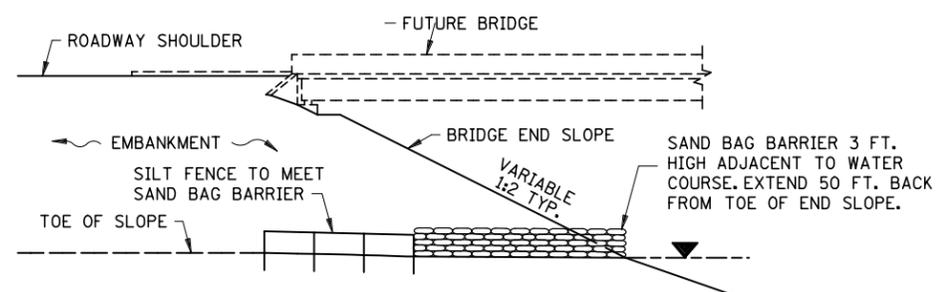
**SILT FENCE TYPE MS ②
(MACHINE SLICED)**



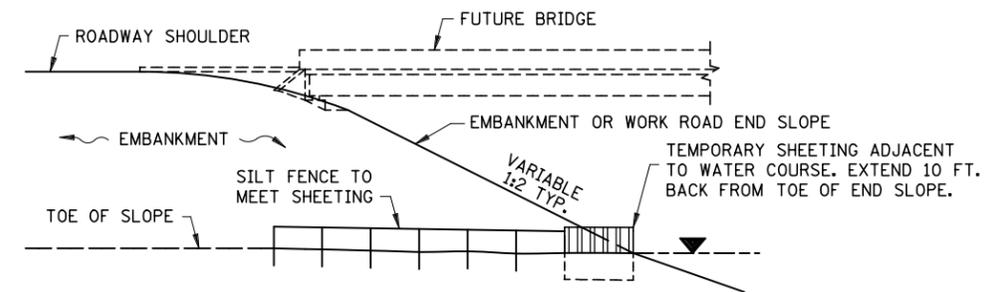
**SILT FENCE TYPE PA ③
(PREASSEMBLED)**



SILT FENCE ONLY ④

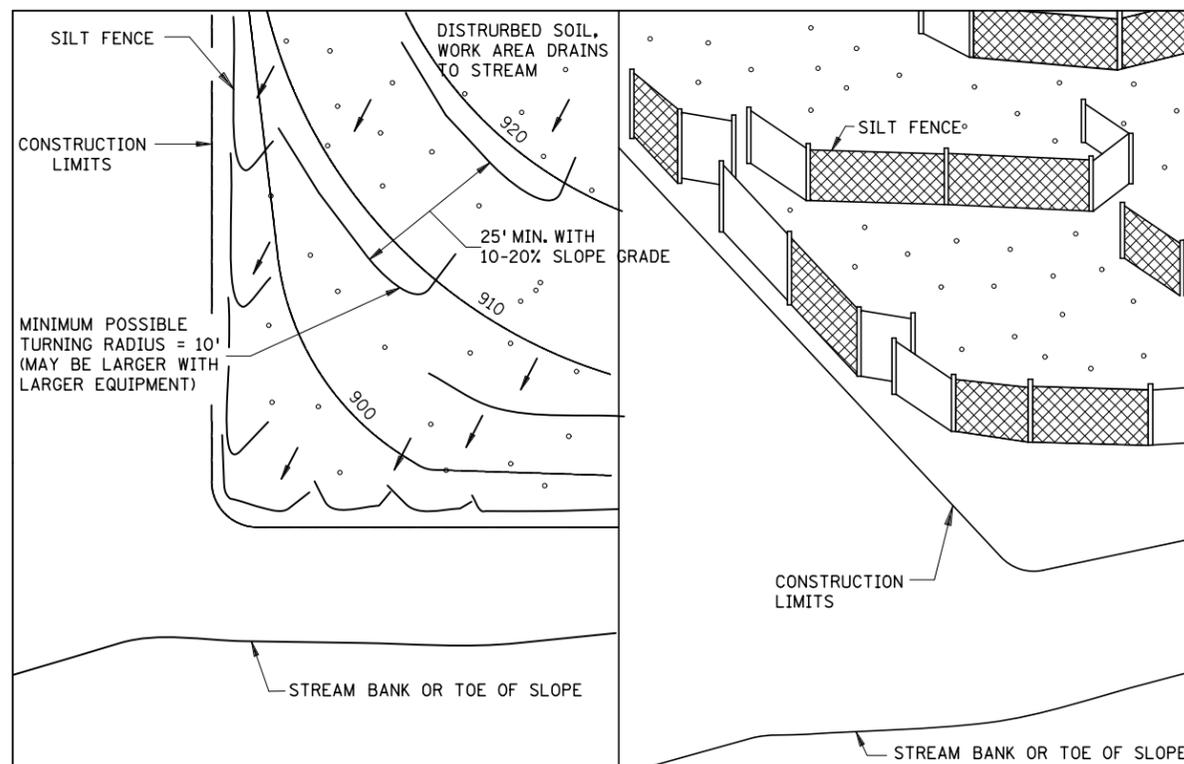


SILT FENCE WITH SAND BAGS ⑤



SILT FENCE WITH SHEETING ⑥

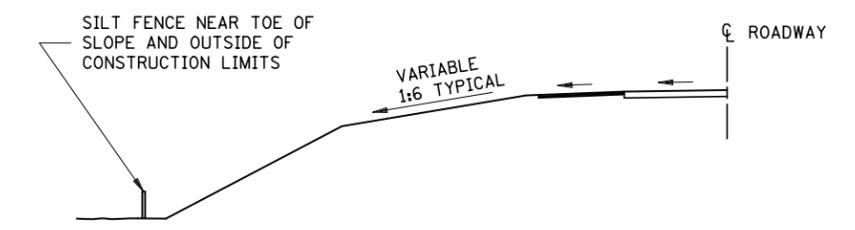
INSTALLATION AT BRIDGE EMBANKMENT ADJACENT TO WATER



PLAN VIEW

PERSPECTIVE VIEW

J-HOOK INSTALLATION



LOCATION AT TOE OF ROADWAY EMBANKMENT

NOTES:

- SEE SPECS. 2573, 3149 & 3886.
- ① COARSE FILTER AGGREGATE (SPEC. 3149) SHALL BE INCIDENTAL.
- ② TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 1 ACRE.
- ③ TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 0.25 ACRE.
- ④ WATER COURSE FLOW VELOCITY: STANDING. CONTRIBUTING SLOPE AREA: 1/2 ACRE.
- ⑤ WATER COURSE FLOW VELOCITY: 1 TO 7 FT./SEC. CONTRIBUTING SLOPE AREA: 1 ACRE.
- ⑥ WATER COURSE FLOW VELOCITY: 8 TO 15 FT./SEC. CONTRIBUTING SLOPE AREA: 3 ACRES.



STANDARD PLAN 5-297.405

6 OF 8

THOMAS STYRBICKI
STATE DESIGN ENGINEER

APPROVED: 2-28-2017
REVISED:

**TEMPORARY SEDIMENT CONTROL
SILT FENCE**

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

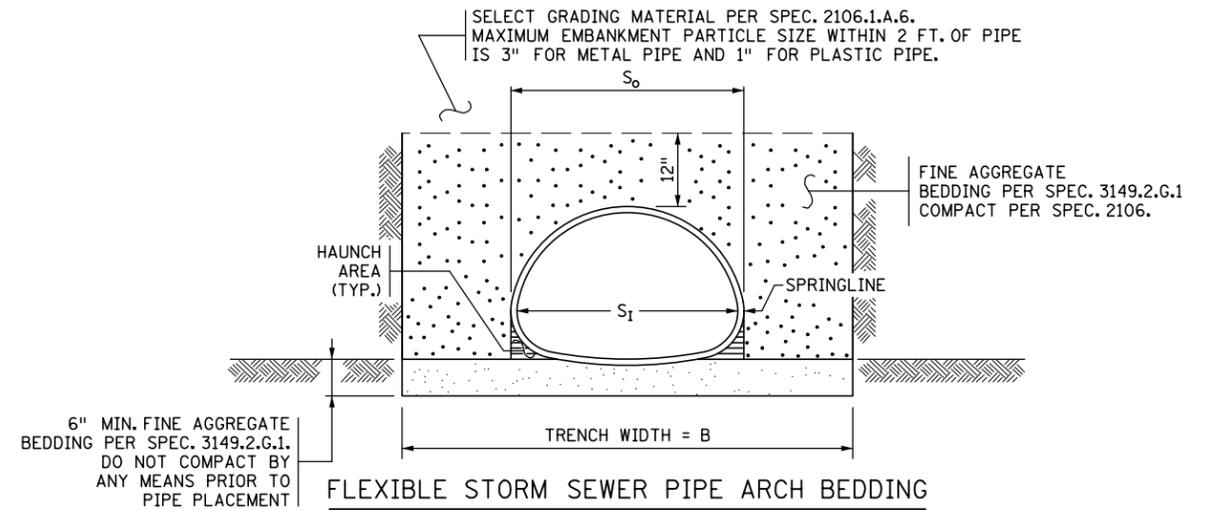
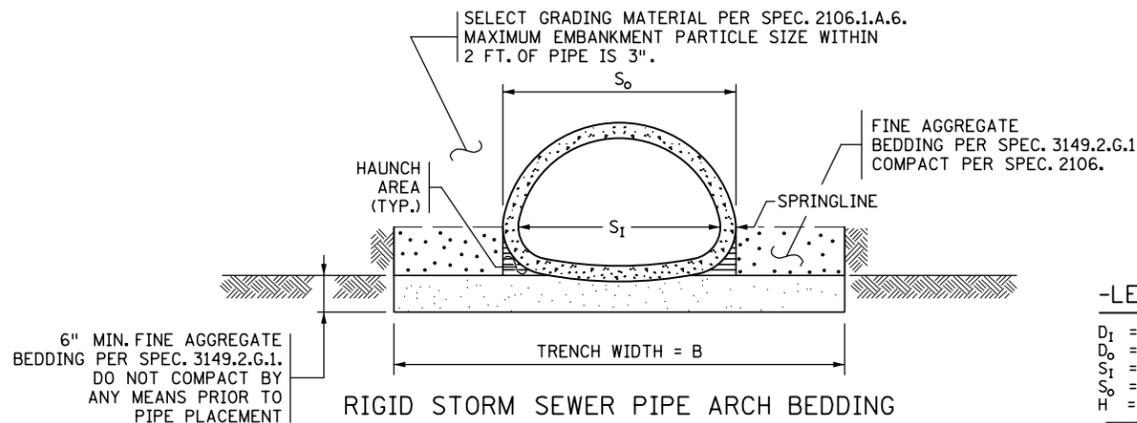
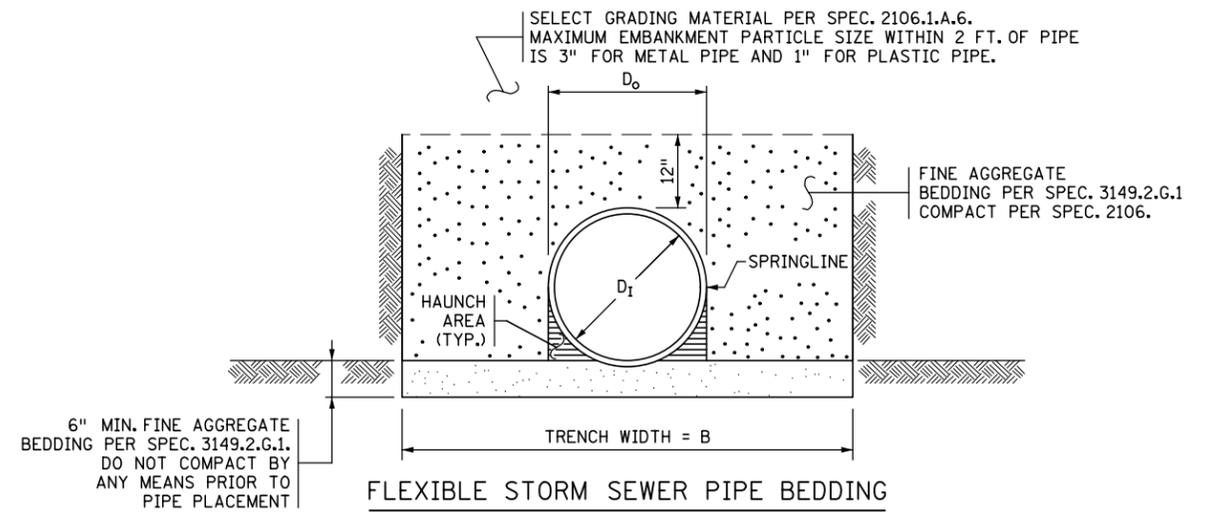
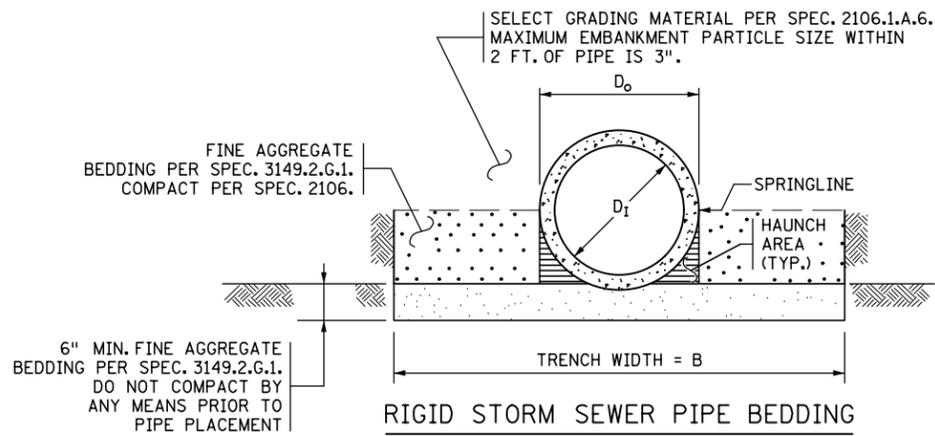
STANDARD PLANS
S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
SHEET NO. 19 OF 71 SHEETS

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TRENCH BASE WIDTH ①②	
PIPE DIA. D_I OR S_I	TRENCH WIDTH B
< 42"	$D_o + 24"$
42" TO 54"	$1.5 \times D_o$
> 54"	$D_o + 36"$

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



-LEGEND-

- D_I = INSIDE DIAMETER OF ROUND PIPE (INCHES).
- D_o = OUTSIDE DIAMETER OF ROUND PIPE (INCHES).
- S_I = INSIDE SPAN OF PIPE-ARCH (INCHES).
- S_o = OUTSIDE SPAN OF PIPE-ARCH (INCHES).
- H = FILL COVER HEIGHT OVER PIPE (FEET).
- = UNDISTURBED SOIL
- = COMPACTED BEDDING
- = LOOSE BEDDING, COMPACTED AFTER PIPE PLACEMENT

CONSTRUCTION SEQUENCE

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

NOTES

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

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

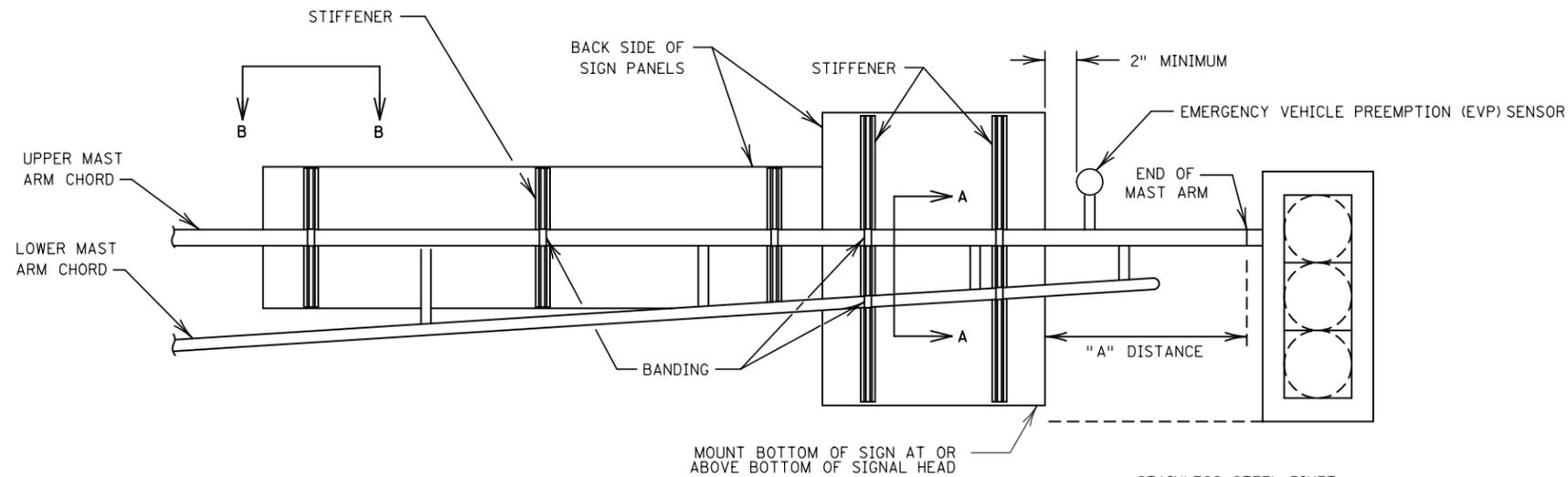
	STANDARD PLAN 5-297.442	1 OF 1
	APPROVED: 01-18-2019 REVISOR: <i>Tom Styrbicki</i> THOMAS STYRBICKI STATE DESIGN ENGINEER	

STANDARD STORM SEWER BEDDING FOR RIGID AND FLEXIBLE PIPE

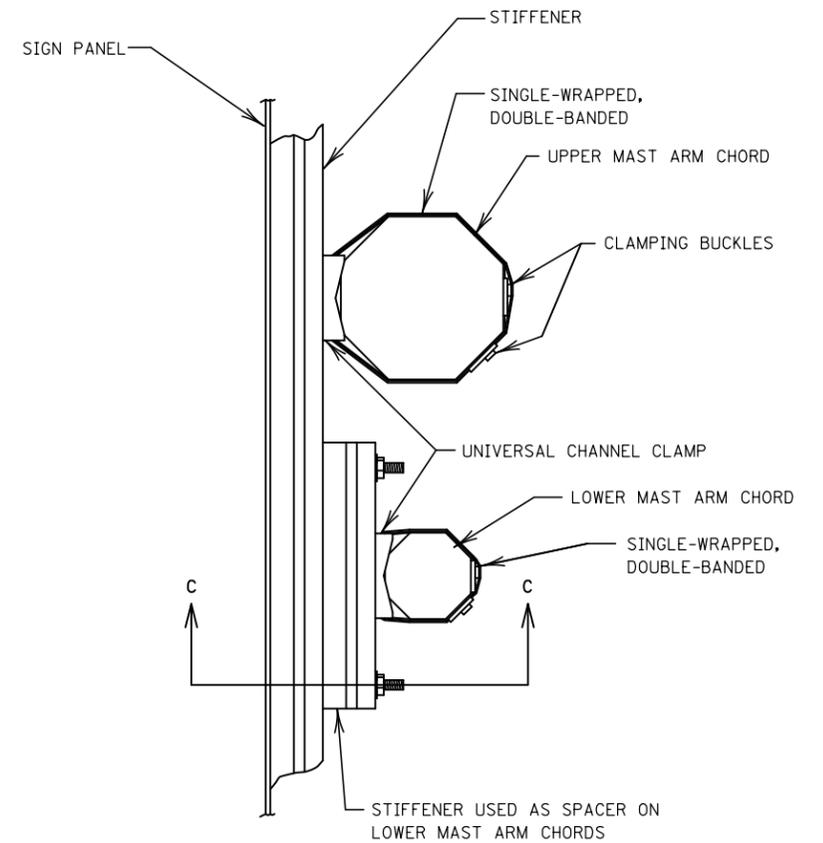
S.A.P. 002-603-005 (CSAH 3/86TH LN NE)

SHEET NO. 20 OF 71 SHEETS

STANDARD PLANS
S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

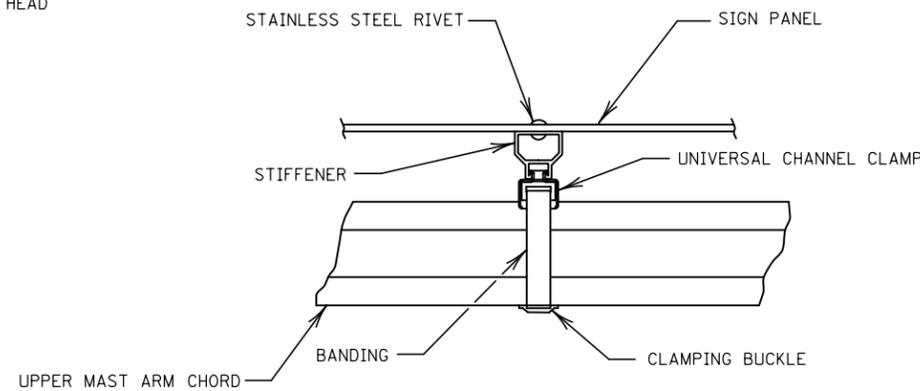


MAST ARM SIGN MOUNTING

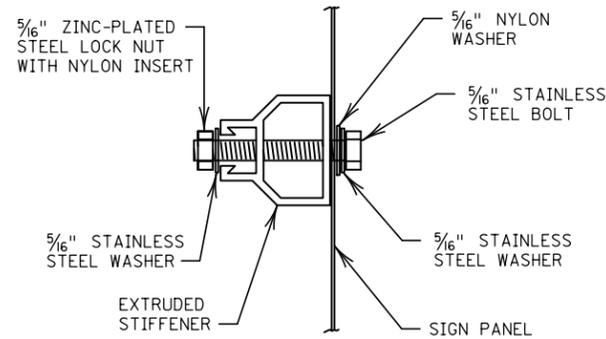


VIEW A-A ①

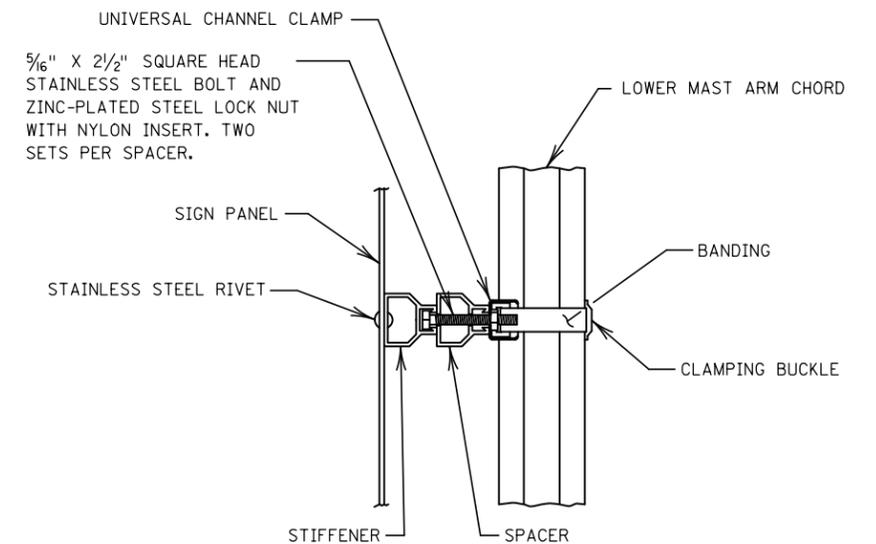
① SIGN PANELS TALLER THAN 36" MUST BE BANDED TO THE LOWER MAST ARM CHORD AT A MINIMUM OF ONE LOCATION. SIGN PANEL SHALL BE BANDED TO THE LOWER MAST ARM AT A LOCATION THAT WILL PROVIDE THE CLOSEST TO PLUMB ALIGNMENT FOR THE SIGN PANEL.



VIEW B-B



BOLT ATTACHMENT
ATTACH AT STANDARD PUNCH CODE LOCATIONS



VIEW C-C

		NUMBER OF EXTRUDED STIFFENERS REQUIRED*													
		PANEL WIDTH													
PANEL HEIGHT	2'	2	2	2	3	3	3	4	4	4	5	5	5	5	
	3'	2	2	2	3	3	3	4	4	5	5	5	5	5	
	4'	2	2	2	3	3	3	4	4	5	5	5	5	6	
	5'	2	2	2	3	4	4	5	5	5	5	5	5	6	
	6'			2	3	4	4	5	5	5	5	5	5	6	
7'				4	4	5	5	5	5	5	5	5	6		

* WHERE SIGN PANEL DIMENSIONS FALL BETWEEN 1' INCREMENTS, USE NEXT HIGHER WIDTH AND/OR HEIGHT DIMENSION.

NOTES:

FURNISH AND INSTALL AT LEAST ONE SPACER FOR EACH SIGN PANEL WHEN PANELS ARE ATTACHED TO THE LOWER MAST ARM CHORD.

AFFIX SIGNS TO UPPER AND LOWER MAST ARM CHORDS WHEN POSSIBLE.

POSITION BOTTOM OF SIGN PANEL AT LEAST 17' ABOVE ROADWAY.

MOUNT SIGN PANELS PLUMB AND SHIM WITH REQUIRED SPACERS AS SHOWN.

PROVIDE SPACING BETWEEN STIFFENERS OF NO MORE THAN 36".

PROVIDE A HORIZONTAL DISTANCE OF NO MORE THAN 12" FROM PANEL EDGE TO STIFFENER.

PROVIDE A VERTICAL DISTANCE OF NO MORE THAN 1" FROM PANEL EDGE TO STIFFENER.

FURNISH AND INSTALL 1/4" STAINLESS STEEL RIVETS 3" FROM THE PANEL EDGE TO ATTACH THE STIFFENERS TO THE SIGN PANELS. FURNISH AND INSTALL 3/16" STAINLESS STEEL RIVETS AT 6" ON CENTER TO ATTACH THE REMAINDER OF THE STIFFENER TO THE SIGN PANEL.

FURNISH TWO TYPE 201 STAINLESS STEEL 3/4" WIDE BY 1/32" THICK STRAPS, EACH WITH CLAMPING BUCKLES AND INSTALL SEPARATELY WITH A SINGLE WRAP AROUND THE MAST ARM CHORD. PLACE THE SECOND BANDING STRAP OVER THE FIRST STRAP AND STAGGER THE CLAMPING BUCKLES SO THE BUCKLES ARE NOT DIRECTLY OVER ONE ANOTHER.

THE "A" DISTANCE IS SHOWN ON THE PLANS. IT IS THE DISTANCE FROM THE END OF THE MAST ARM TO THE EDGE OF EACH SIGN.

REVISION: APRIL 17, 2020

APPROVED: OCTOBER 16, 2019

Brian Sobenson
BRIAN SOBENSON
STATE TRAFFIC ENGINEER



STANDARD PLAN 5-297.731

1 OF 1

Peter A. Harff
PETER A. HARFF
STATE DESIGN ENGINEER

APPROVED: 10-16-2019
REVISED: 4-17-2020

STANDARD PLANS

S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

SIGN MOUNTING DETAILS
FOR SIGNAL MAST ARMS

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)

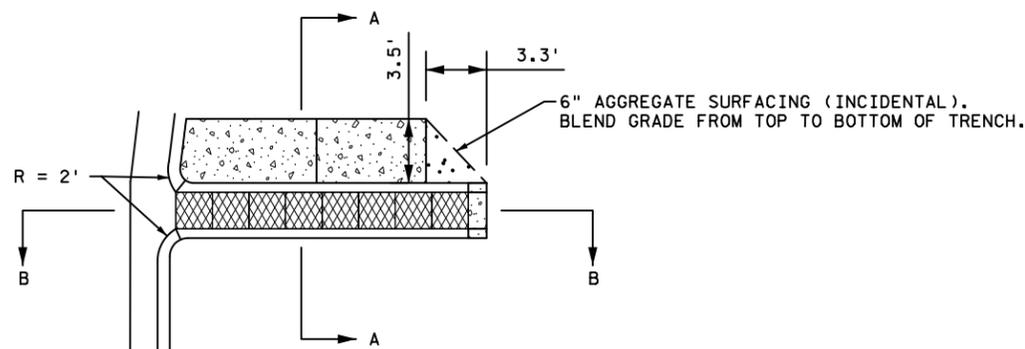
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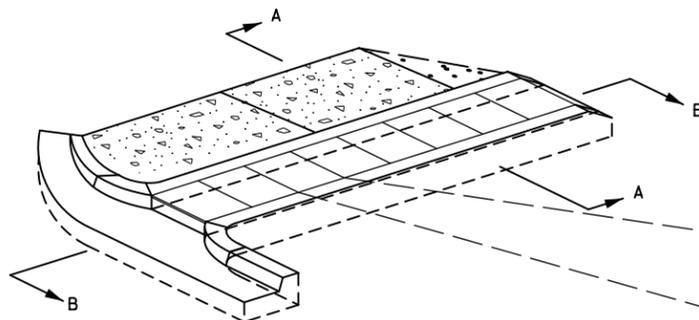
CONCRETE TRENCH FLUME DETAIL

PAID AS CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 1

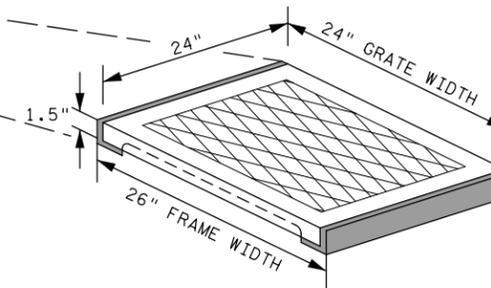
PLAN VIEW



ISOMETRIC VIEW



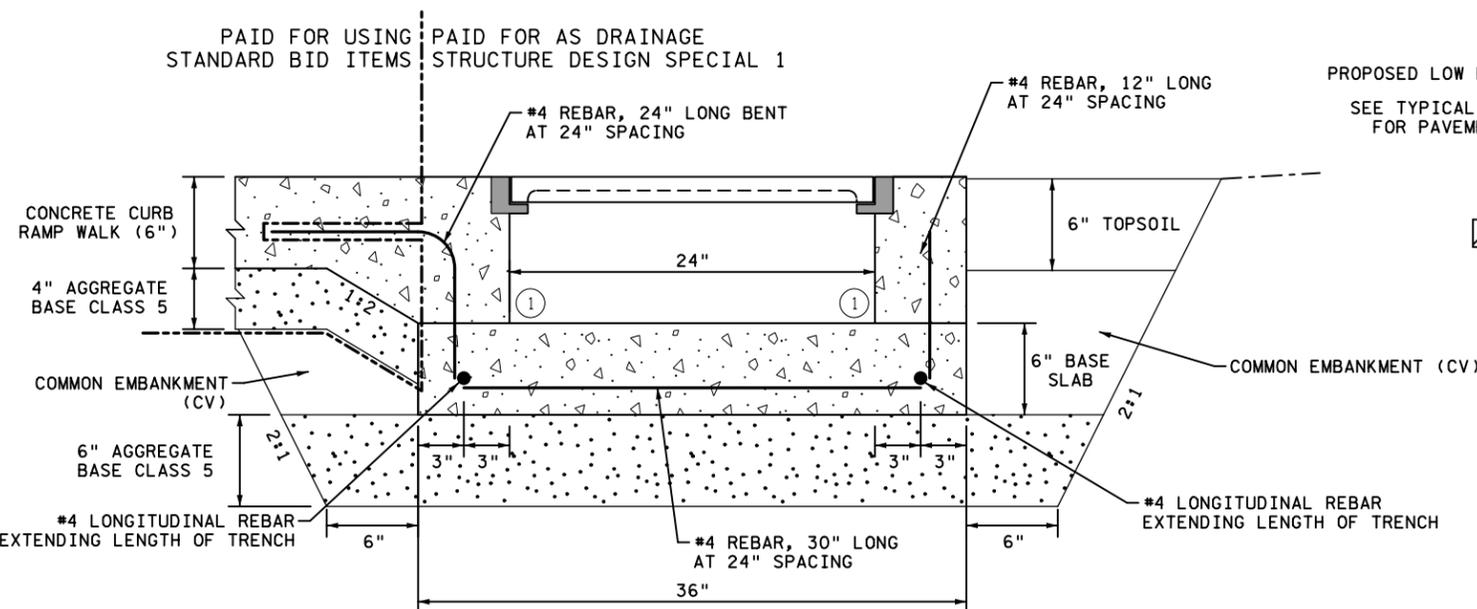
TRENCH GRATE SEGMENT DETAIL



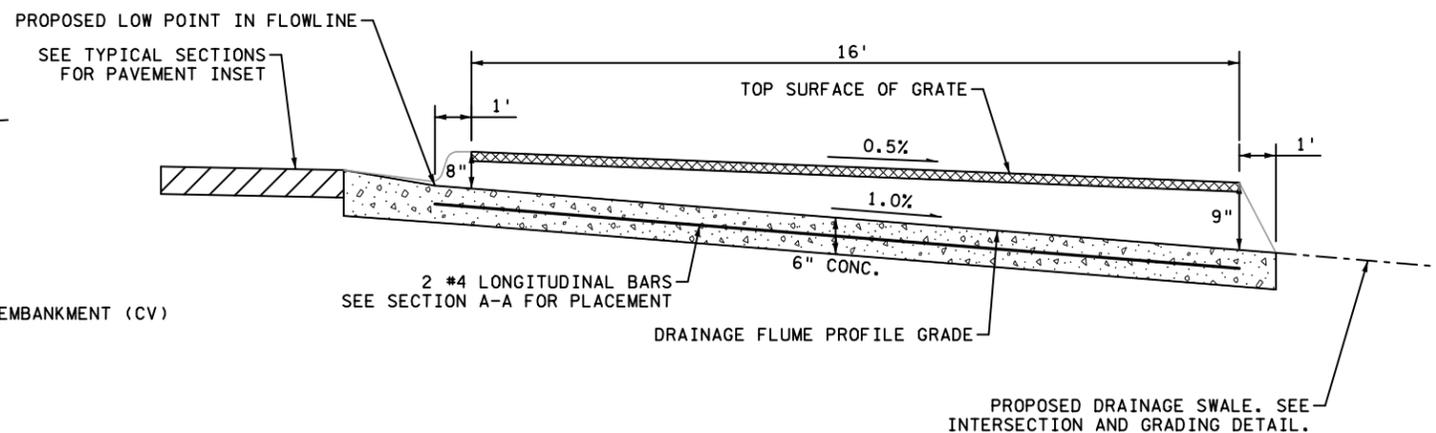
NOTES:

- TRENCH GRATE MATERIAL SHALL BE CAST IRON.
- GRATE SHALL BE SOLID AND SCORED WITH A CROSS-HATCH PATTERN FOR SLIP RESISTANCE.
- BASIS OF DESIGN IS NEENAH FOUNDRY R-4990DX HEAVY DUTY TRENCH FRAME OR APPROVED EQUAL.

SECTION A-A



SECTION B-B



SPECIFIC NOTES:

- ① SEAL JOINT BETWEEN TRENCH BASE AND WALL WITH SILICONE JOINT SEALER.

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NO	DATE	DWN	CKD	REVISIONS
	12/20/23			



I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED 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: MICHAEL P. MCCURDY
 SIGNATURE: *Michael P. McCurdy*
 DATE: 03/20/24 LICENSE #: 45902

MISCELLANEOUS DESIGN DETAILS
 S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
 SHEET NO. 22 OF 71 SHEETS

STAGING NARRATIVE

STAGE 0:

CONSTRUCTION:

- CONSTRUCT TEMPORARY SIGNAL SYSTEM AT THE CSAH 3 / 86TH LANE NE INTERSECTION.

TRAFFIC:

- UTILIZE TEMPORARY LANE CLOSURES PER THE TEMPORARY TRAFFIC CONTROL FIELD MANUAL DURING ACTIVE WORK AS NEEDED TO INSTALL THE TEMPORARY SIGNAL SYSTEM.

STAGE 1:

CONSTRUCTION:

- CONSTRUCT CENTER MEDIANS ON THE NORTH AND SOUTH SIDES OF THE CSAH 3 / 86TH LANE NE INTERSECTION INCLUDING BITUMINOUS PAVEMENT PATCHING.

TRAFFIC:

- THE TEMPORARY SIGNAL SYSTEM IS OPERATIONAL DURING THIS STAGE.
- REDUCE CSAH 3 TO ONE THROUGH LANE IN EACH DIRECTION AND MAINTAIN A LEFT TURN LANE, SINGLE THROUGH LANE, AND RIGHT TURN LANE ON THE NORTH AND SOUTH APPROACHES OF THE CSAH 3 / 86TH LANE NE INTERSECTION.
- MAINTAIN TRAFFIC ON 86TH LANE NE AND THE NORTHTOWN MALL ENTRANCE IN THE EXISTING CONFIGURATION.
- MAINTAIN ONE EAST/WEST PEDESTRIAN CROSSING ON THE NORTH OR SOUTH SIDE OF THE CSAH 3 / 86TH LANE NE INTERSECTION AT ALL TIMES AND MAINTAIN CROSSINGS ON 86TH LANE NE AND THE MALL ENTRANCE LEGS.

STAGE 2:

CONSTRUCTION:

- CONSTRUCT THE CURB AND GUTTER, HARDSCAPE, AND PATCH THE BITUMINOUS PAVEMENT IN ONE QUADRANT AT A TIME AT THE INTERSECTION OF CSAH 3/86TH LANE NE TO ALLOW FOR MAINTAINING VEHICLE AND PEDESTRIAN ACCESS IN THE EAST/WEST AND NORTH/SOUTH DIRECTIONS THROUGH THE INTERSECTION AT ALL TIMES.

TRAFFIC:

- THE TEMPORARY SIGNAL SYSTEM IS OPERATIONAL DURING THIS STAGE. SHIFT TEMPORARY SIGNAL HEADS AS NECESSARY.
- CLOSE THE NORTHBOUND RIGHT TURN LANE ON CSAH 3 AT 86TH LANE AND MAINTAIN A LEFT TURN LANE, THROUGH LANE, AND THRU/RIGHT TURN LANE ON THE NORTHBOUND APPROACH. CLOSE THE NORTHBOUND OUTSIDE SHOULDER AND MAINTAIN TWO NORTHBOUND THROUGH LANES ON THE NORTH SIDE OF THE INTERSECTION.
- CLOSE THE SOUTHBOUND RIGHT TURN LANE ON CSAH 3 AT 86TH LANE AND MAINTAIN A LEFT TURN LANE, THROUGH LANE, AND THRU/RIGHT TURN LANE ON THE SOUTHBOUND APPROACH.
- CLOSE THE TURN LANES AND MAINTAIN A SINGLE THROUGH/TURN LANE IN EACH DIRECTION ON 86TH LANE AND THE MALL ENTRANCE LEGS. SHIFT TRAFFIC AS NEEDED TO COMPLETE THE WORK.
- UTILIZE FLAGGERS AS NEEDED DURING CONSTRUCTION OF STORM SEWER CROSSING 86TH LANE.

STAGE 3:

CONSTRUCTION:

- MILL AND OVERLAY BITUMINOUS PAVEMENT ALONG CSAH 3 BETWEEN TH 47 AND THE CSAH 10 FRONTAGE ROAD.
- INSTALL FINAL PAVEMENT MARKINGS AND SIGNAGE.
- COMPLETE PERMANENT TRAFFIC SIGNAL SYSTEM AND IMPLEMENT TIMING PLAN. REMOVE TEMPORARY SIGNAL SYSTEM.
- COMPLETE TURF ESTABLISHMENT AND CLEAN UP.

TRAFFIC:

- UTILIZE TEMPORARY LANE CLOSURES PER THE TEMPORARY TRAFFIC CONTROL FIELD MANUAL AS NEEDED TO ACCOMMODATE ACTIVE WORK ZONES.
- UTILIZE FLAGGERS AS NEEDED DURING MILLING AND PAVING OPERATIONS.

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NO	DATE	DWN	CKD	REVISIONS



I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED 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: MICHAEL P. MCCURDY
 SIGNATURE: *Michael P. McCurdy*
 DATE: 03/20/24 LICENSE #: 45902

STAGING & TRAFFIC CONTROL PLAN
 S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
 SHEET NO. 23 OF 71 SHEETS

NOTES & GUIDELINES

GENERAL INFORMATION:

1. THE CONTRACTOR SHALL FURNISH, INSTALL AND MAINTAIN THE DEVICES IN THIS TRAFFIC CONTROL PLAN UNLESS OTHERWISE NOTED.
2. FIELD CONDITIONS MAY REQUIRE MODIFICATIONS OF THIS LAYOUT AS DEEMED NECESSARY BY THE ENGINEER.
3. ALL DISTANCES ARE APPROXIMATE.
4. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ANY WORK AREAS NEAR TRAFFIC IN ACCORDANCE WITH THE MN MUTCD.
5. IF THE CONTRACTOR DECIDES TO PERFORM THE CONSTRUCTION WORK IN A SEQUENCE OTHER THAN SHOWN IN THIS TRAFFIC CONTROL PLAN THE CONTRACTOR SHALL PROVIDE COMPLETE REVISED TRAFFIC CONTROL PLANS TO BE APPROVED BY THE ENGINEER.

SIGNING:

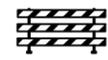
1. ALL TRAFFIC CONTROL DEVICES, INCLUDING OVERHEAD SIGNS, ON ROADS OPEN TO TRAFFIC THAT ARE NOT CONSISTENT WITH TRAFFIC OPERATION SHALL BE COVERED USING RIGID BLACK SIGN COVERS, REMOVED OR REVISED AS DIRECTED BY THE ENGINEER.
2. WHEN SIGNS ARE PLACED, THEY SHALL BE MOUNTED ON POSTS DRIVEN INTO THE GROUND AT THE PROPER HEIGHT AND LATERAL OFFSET AS SHOWN IN THE TYPICAL TEMP SIGN FRAMING & INSTALLATION DETAILS IN THE PLAN. IF THIS IS NOT POSSIBLE THEY WILL BE MOUNTED ON PORTABLE SUPPORTS AS APPROVED BY THE ENGINEER. WHEN THE SIGNS ARE REMOVED THE SIGN POSTS SHALL ALSO BE REMOVED AS SOON AS POSSIBLE.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY EXTRA SIGNING NEEDED TO FACILITATE TRAFFIC SWITCHES OR FOR TRANSITIONING TRAFFIC FROM ONE STAGE TO ANOTHER.
4. ALL ORANGE WARNING AND ORANGE GUIDE SIGNS SHALL BE FABRICATED WITH SIGN SHEETING MATERIAL AS LISTED ON THE MnDOT APPROVED PRODUCT LIST FOR "SHEETING FOR RIGID TEMPORARY WORK ZONE SIGNS".
5. BARRICADES SHALL BE FABRICATED WITH SIGN SHEETING MATERIAL AS LISTED ON THE MnDOT APPROVED PRODUCT LIST FOR BARRICADE SHEETING. NOTE THAT ASTM TYPE VII SHEETING IS NOT ALLOWED ON BARRICADES AFTER JANUARY 1, 2010.
6. LONGITUDINAL DROPOFFS SHALL BE SIGNED AS SHOWN IN THE "TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS" FIELD MANUAL UNLESS OTHERWISE SPECIFIED IN THESE PLANS.
7. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE FINAL SIGNS TO ENSURE THAT THE FINAL SIGNS ARE PLACED AS NEEDED, OR PROVIDE TEMPORARY SIGNING AT THEIR EXPENSE UNTIL THE FINAL SIGNING IS PLACED.

CONSTRUCTION INFORMATION SIGNING:

1. THE CONTRACTOR SHALL USE CONSTRUCTION INFORMATION SIGNING AS SHOWN IN THE PLAN AND WHICH ARE TO BE USED AS FOLLOWS:
 G20-X2 WORK ZONE ADVANCE NOTICE SIGNS WITH THE CORRECT STARTING DATE DISPLAYED BEFORE WORK BEGINS. ONCE WORK BEGINS, THE START DATE LEGEND SHALL BE COVERED BY THE SUGGESTED PLAQUE CONTAINED IN THIS PLAN. IF NO ALTERNATE MESSAGE IS SUGGESTED OR IF DIRECTED BY THE PROJECT ENGINEER, THE CORRECT ESTIMATED FINISH DATE, MONTH, OR SEASON SHALL BE DISPLAYED.
 CONSTRUCTION INFORMATION SIGNING NOT VISIBLE TO THE MOTORING PUBLIC ONCE WORK BEGINS WILL BE MOVED BY THE CONTRACTOR TO A SITE IN ADVANCE OF THE WORK ZONE OR CLOSURE AS DIRECTED BY THE PLAN OR PROJECT ENGINEER.
 USE 620-X1 ADVANCE CLOSURE SIGNS FOR 86TH LN NE AND MALL ENTRANCE APPROACHES AND PLACE 10 DAYS PRIOR TO PLANNED ROAD CONSTRUCTION DATE.
 PLACE PORTABLE CHANGABLE MESSAGE SIGNS ON CSAH 3 APPROACHES 10 DAYS PRIOR TO PLANNED ROAD CONSTRUCTION DATE. PAID FOR AS PART OF PORTABLE CHANGABLE MESSAGE SIGN PAY ITEM.

TRAFFIC CONTROL DEVICES & SYMBOLS LEGEND

SYMBOL DESCRIPTION

-  PROPOSED CONSTRUCTION
-  COMPLETED PROPOSED PAVEMENT
-  TRAFFIC CONTROL SIGN
-  TYPE III BARRICADE = 
-  DRUM-LIKE CHANNELIZER (TYPE B) = 
-  TYPE A FLASHING WARNING LIGHT

STRIPING KEY

-  PAVEMENT MESSAGE (LEFT OR RIGHT ARROW)-PAINT
-  PAVEMENT MESSAGE (THRU-RIGHT ARROW)-PAINT
-  PAVEMENT MESSAGE (LEFT-THRU-RIGHT ARROW)-PAINT
-  INPLACE PAVEMENT MESSAGE (LEFT OR RIGHT ARROW)

INDEX

TRAFFIC CONTROL SHEET NO. DESCRIPTIONS

24	TITLE SHEET
25	TRAFFIC CONTROL TABULATION SHEET
26-29	TRAFFIC CONTROL

TEMPORARY TRAFFIC CONTROL TABULATION		TC
DESCRIPTION	UNIT	TOTAL QUANTITY
TRAFFIC CONTROL SUPERVISOR	LUMP SUM	1
TRAFFIC CONTROL	LUMP SUM	1
ALTERNATE PEDESTRIAN ROUTE	LUMP SUM	1
PORTABLE CHANGABLE MESSAGE SIGN	UNIT DAY	20

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I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED 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: MICHAEL P. MCCURDY
 SIGNATURE: *Michael P. McCurdy*
 DATE: 03/20/24 LICENSE #: 45902

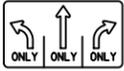
TRAFFIC CONTROL PLAN

S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

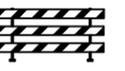
S.A.P. 002-603-005 (CSAH 3/86TH LN NE)

SHEET NO. 24 OF 71 SHEETS

TRAFFIC CONTROL TABULATION SHEET

"R" SERIES			
SIGN	SIGN NO.	COLOR	SIZE IN INCHES
	R3-7L	BLACK ON WHITE	30X30
	R3-8ACA	BLACK ON WHITE	54X30
	R3-8ACD	BLACK ON WHITE	48X30
	R4-7	BLACK ON WHITE	24X30
	R5-1	RED ON WHITE	30X30

"W" SERIES			
SIGN	SIGN NO.	COLOR	SIZE IN INCHES
	W4-2	BLACK ON ORANGE	36X36
	W20-1	BLACK ON ORANGE	36X36
	W20-X3	BLACK ON ORANGE	36X36
	W20-X18	BLACK ON ORANGE	36X36
	W21-X5	BLACK ON ORANGE	36X36

DEVICES			
ITEM	SIGN NO.	COLOR	SIZE
	TYPE B DRUM	WHITE ON ORANGE	
	TYPE C	WHITE ON ORANGE	

"G" SERIES			
SIGN	SIGN NO.	COLOR	SIZE IN INCHES
	G20-X9	BLACK ON ORANGE	30X36

GENERAL NOTES

- ALL SIGNS AND DEVICES SHOWN IN THE TRAFFIC CONTROL TABULATION ARE INCLUDED IN THE TRAFFIC CONTROL LUMP SUM QUANTITY.

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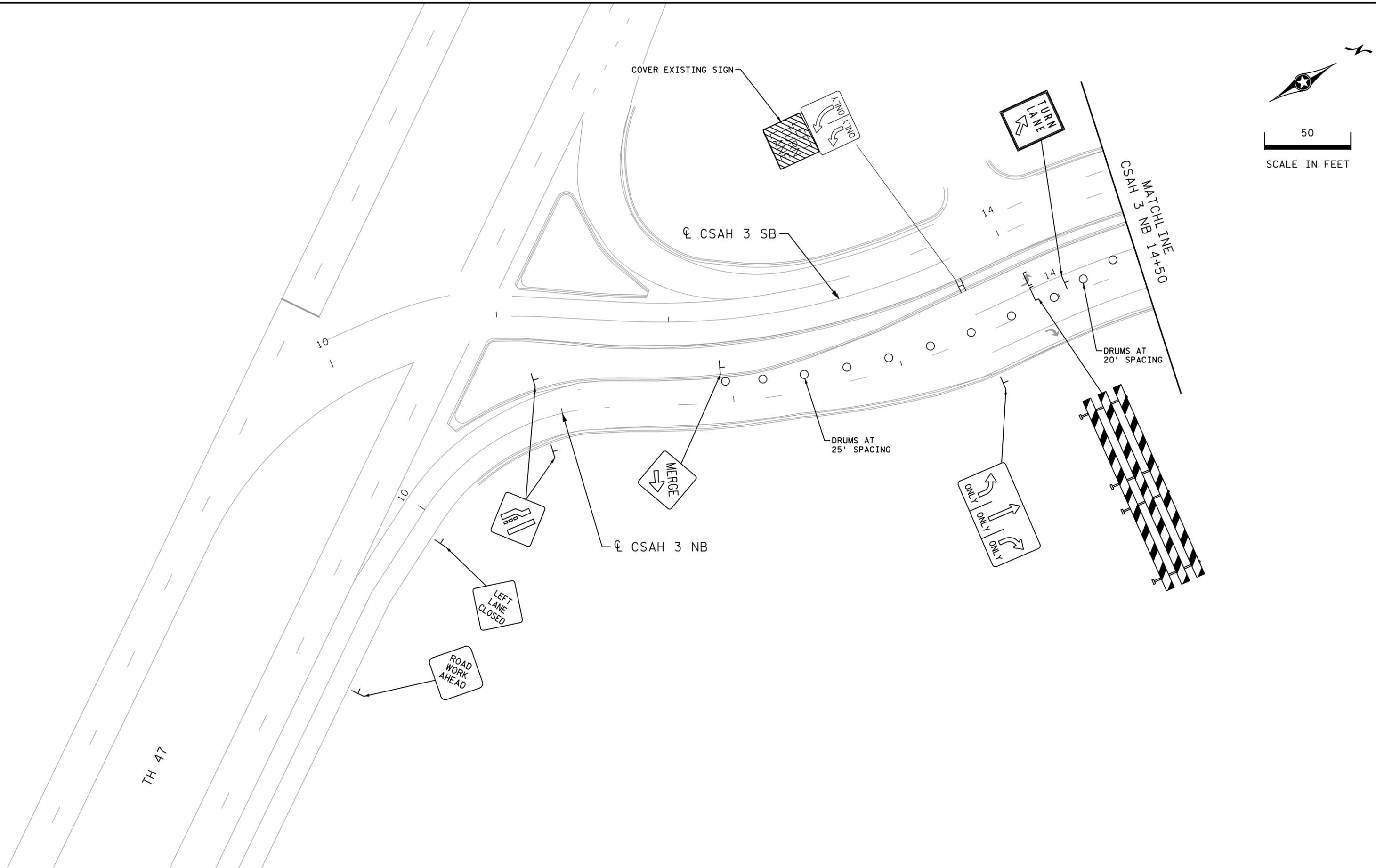
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TRAFFIC CONTROL PLAN
 S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
 SHEET NO. 25 OF 71 SHEETS



50
SCALE IN FEET



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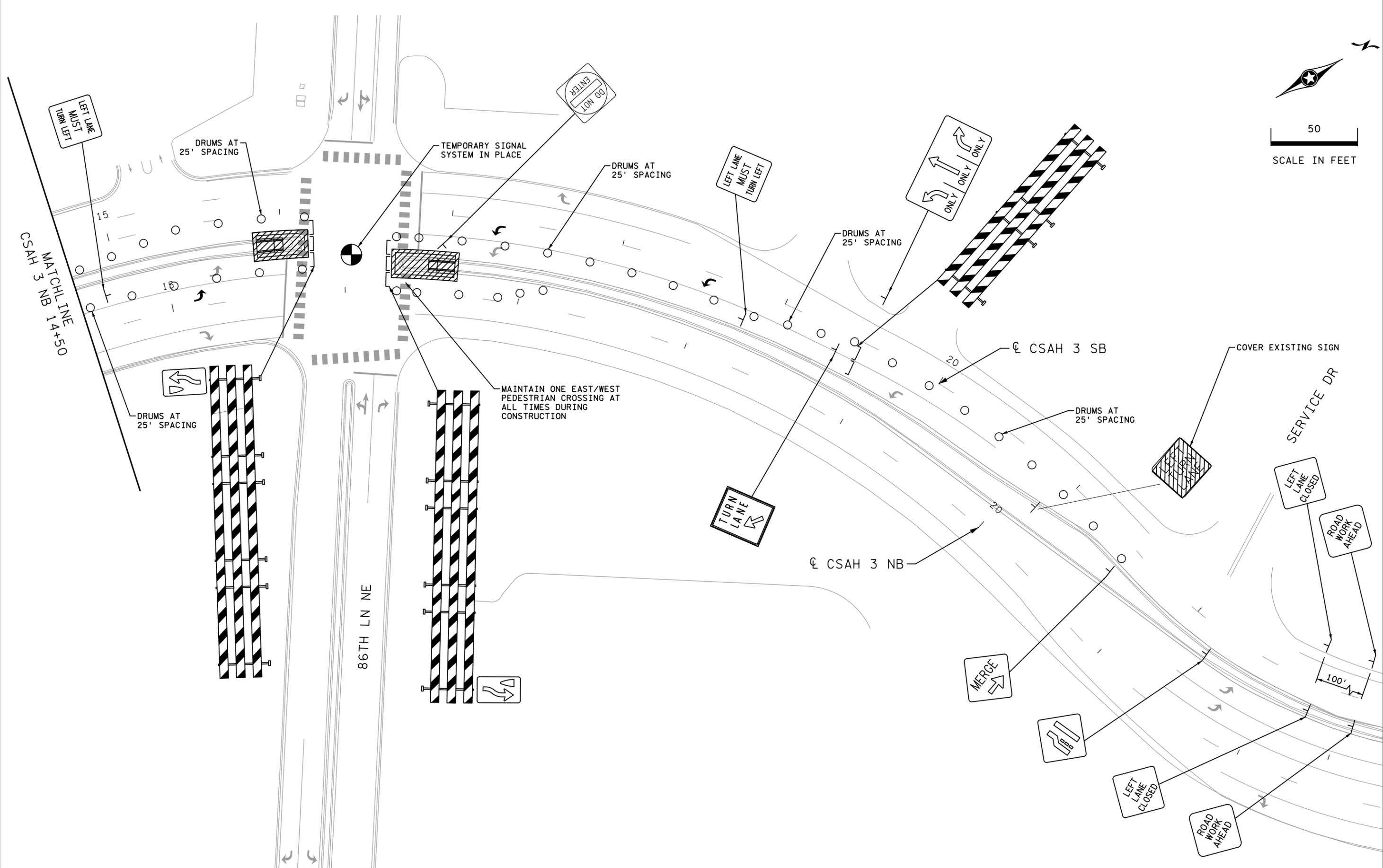
PRINT NAME: MICHAEL P MCCURDY
SIGNATURE: *Michael P. McCurdy*
DATE: 03/20/24 LICENSE #: 45902

TRAFFIC CONTROL PLAN - STAGE 1
S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
SHEET NO. 26 OF 71 SHEETS



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SCALE IN FEET



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TRAFFIC CONTROL PLAN - STAGE 1
S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
SHEET NO. 27 OF 71 SHEETS



50

SCALE IN FEET

CSAH 3 NB 14+50
MATCHLINE

☉ CSAH 3 SB

☉ CSAH 3 NB

DRUMS AT
25' SPACING

COVER EXISTING
SIGN

ROAD
WORK
AHEAD

TURN
LANE
CLOSED

ONLY
ONLY

ONLY
ONLY

TH 47

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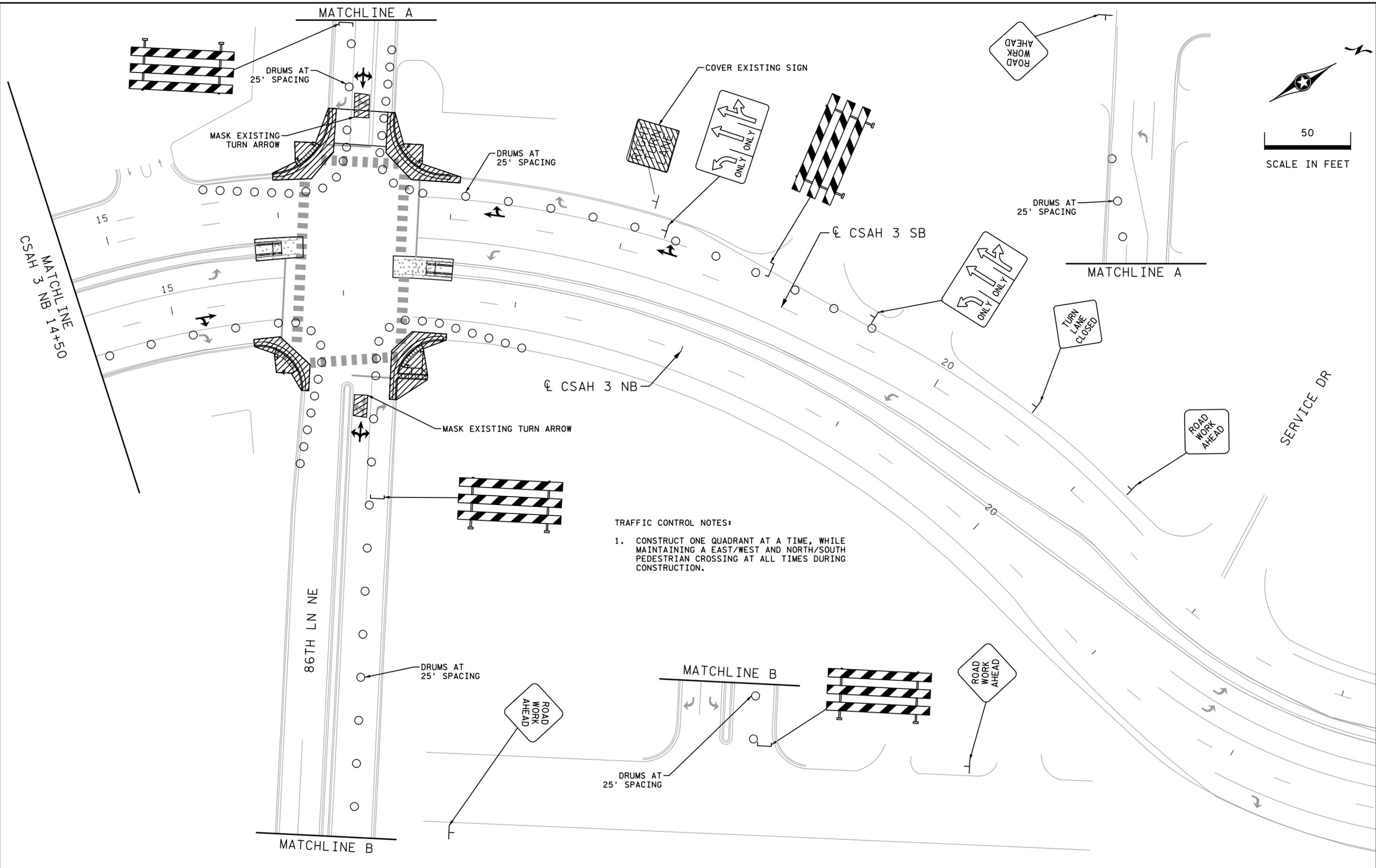
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TRAFFIC CONTROL PLAN - STAGE 2
S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
SHEET NO. 28 OF 71 SHEETS

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TRAFFIC CONTROL NOTES:

1. CONSTRUCT ONE QUADRANT AT A TIME, WHILE MAINTAINING A EAST/WEST AND NORTH/SOUTH PEDESTRIAN CROSSING AT ALL TIMES DURING CONSTRUCTION.

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TRAFFIC CONTROL PLAN - STAGE 2
 S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
 SHEET NO. 29 OF 71 SHEETS

GENERAL NOTES:

1. ALL STATION CALLOUTS REFERENCE THE CSAH 3 NB ALIGNMENT UNLESS OTHERWISE NOTED.
2. SEE PERMANENT PAVEMENT MARKING AND SIGNING PLAN FOR ADDITIONAL REMOVALS.
3. CONTRACTOR TO VERIFY REMOVAL LIMITS WITH ENGINEER PRIOR TO SAWCUTTING.
4. SAWCUTTING OF CONCRETE CURB AND GUTTER IS INCIDENTAL.

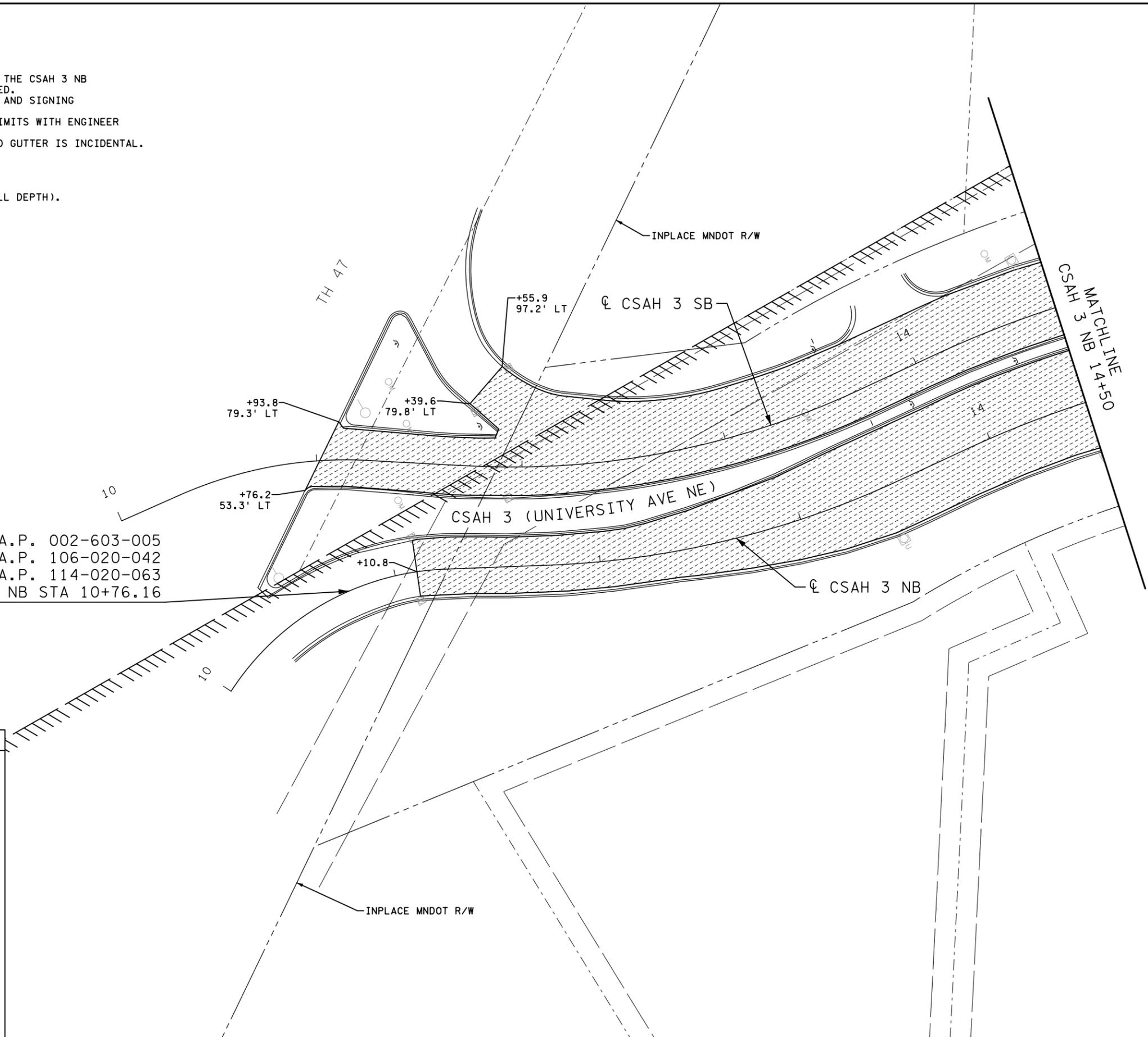
SPECIFIC NOTES:

- ① SAWING BITUMINOUS PAVEMENT (FULL DEPTH).



50
SCALE IN FEET

BEGIN S.A.P. 002-603-005
 BEGIN S.A.P. 106-020-042
 BEGIN S.A.P. 114-020-063
 CSAH 3 NB STA 10+76.16



LEGEND

- REMOVE BITUMINOUS PAVEMENT
- MILL BITUMINOUS SURFACE (3")
- MILL BITUMINOUS SURFACE (2")
- REMOVE CONCRETE WALK
- REMOVE CURB & GUTTER
- EXISTING RIGHT OF WAY
- EXISTING DRAINAGE & UTILITY EASEMENT
- PROPERTY LINE
- CONSTRUCTION LIMITS

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NO	DATE	DWN	CKD	REVISIONS



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 DATE: 03/20/24 LICENSE #: 45902

INPLACE TOPOGRAPHY AND REMOVAL PLAN
 S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
 SHEET NO. 30 OF 71 SHEETS

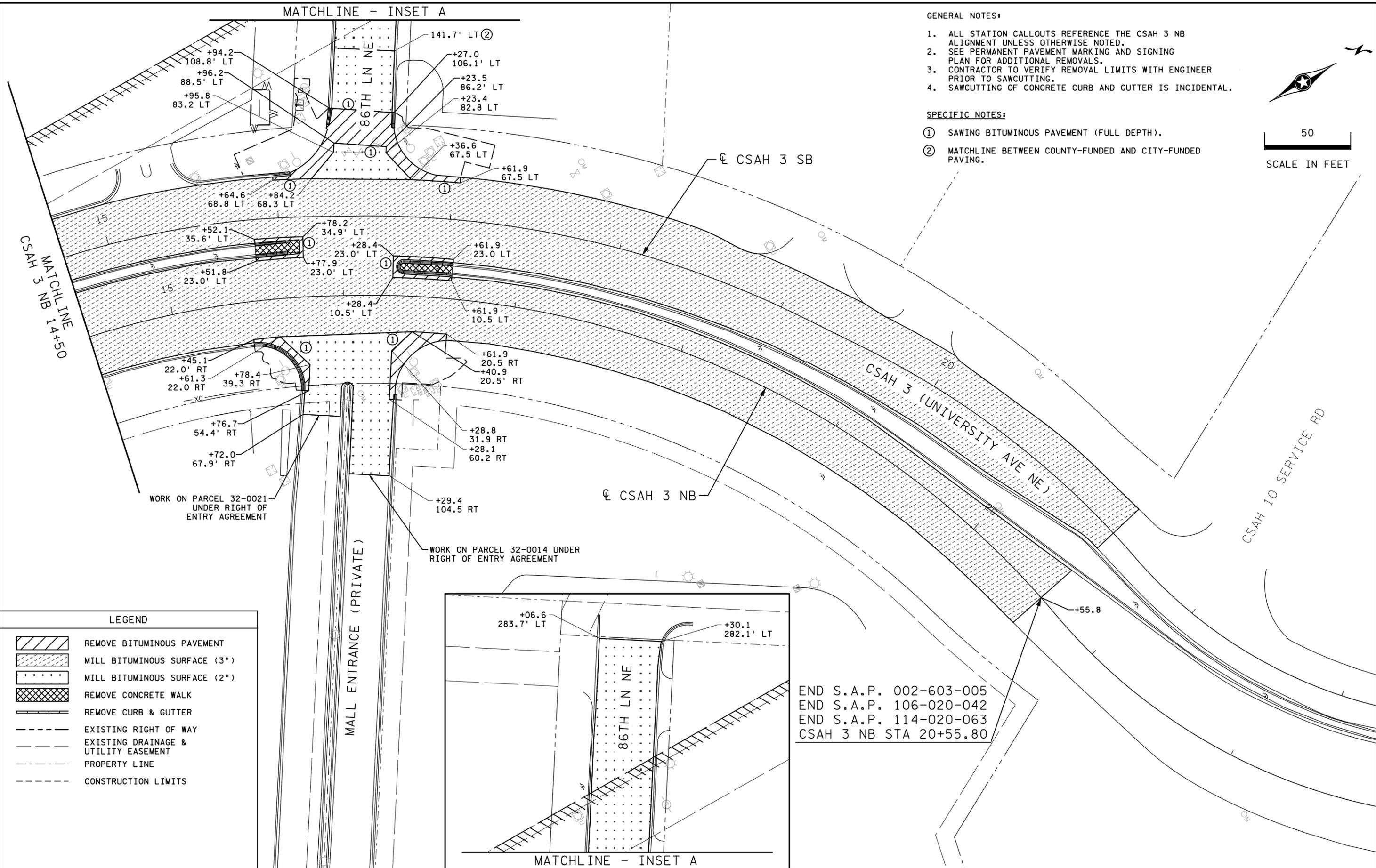
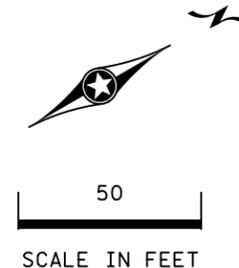
MATCHLINE - INSET A

GENERAL NOTES:

1. ALL STATION CALLOUTS REFERENCE THE CSAH 3 NB ALIGNMENT UNLESS OTHERWISE NOTED.
2. SEE PERMANENT PAVEMENT MARKING AND SIGNING PLAN FOR ADDITIONAL REMOVALS.
3. CONTRACTOR TO VERIFY REMOVAL LIMITS WITH ENGINEER PRIOR TO SAWCUTTING.
4. SAWCUTTING OF CONCRETE CURB AND GUTTER IS INCIDENTAL.

SPECIFIC NOTES:

- ① SAWING BITUMINOUS PAVEMENT (FULL DEPTH).
- ② MATCHLINE BETWEEN COUNTY-FUNDED AND CITY-FUNDED PAVING.



CSAH 3 NB 14+50 MATCHLINE

CSAH 3 (UNIVERSITY AVE NE)

CSAH 10 SERVICE RD

CSAH 3 NB

MALL ENTRANCE (PRIVATE)

86TH LN NE

MATCHLINE - INSET A

END S.A.P. 002-603-005
 END S.A.P. 106-020-042
 END S.A.P. 114-020-063
 CSAH 3 NB STA 20+55.80

LEGEND

- REMOVE BITUMINOUS PAVEMENT
- MILL BITUMINOUS SURFACE (3")
- MILL BITUMINOUS SURFACE (2")
- REMOVE CONCRETE WALK
- REMOVE CURB & GUTTER
- EXISTING RIGHT OF WAY
- EXISTING DRAINAGE & UTILITY EASEMENT
- PROPERTY LINE
- CONSTRUCTION LIMITS

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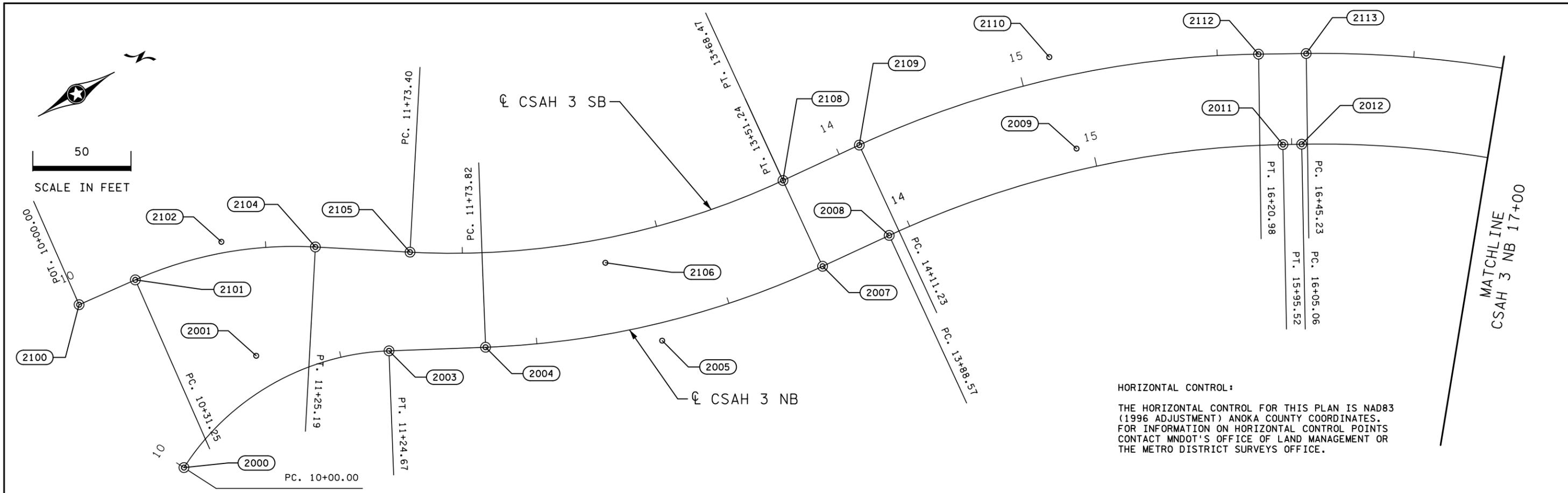


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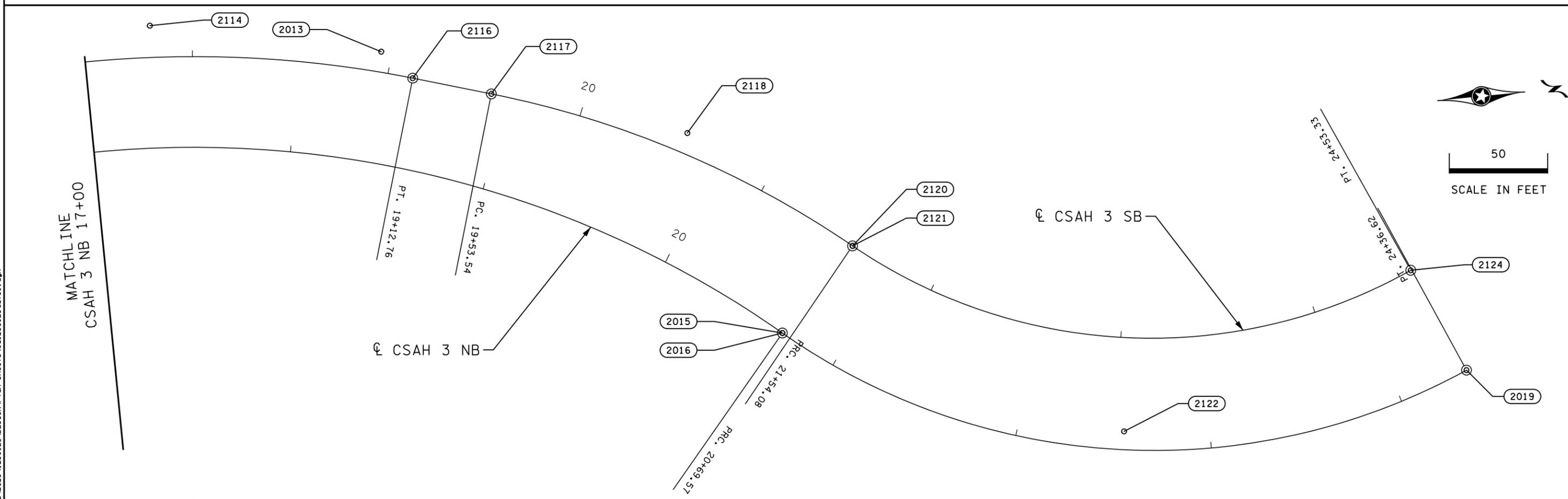
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INPLACE TOPOGRAPHY AND REMOVAL PLAN
 S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
 SHEET NO. 31 OF 71 SHEETS



HORIZONTAL CONTROL:
 THE HORIZONTAL CONTROL FOR THIS PLAN IS NAD83 (1996 ADJUSTMENT) ANOKA COUNTY COORDINATES. FOR INFORMATION ON HORIZONTAL CONTROL POINTS CONTACT MNDOT'S OFFICE OF LAND MANAGEMENT OR THE METRO DISTRICT SURVEYS OFFICE.



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 SIGNATURE: *Michael P. McCurdy*
 DATE: 03/20/24 LICENSE #: 45902

ALIGNMENT PLAN
 S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
 SHEET NO. 32 OF 71 SHEETS

ALIGNMENT TABULATION

POINT NUMBER	POINT	STATION	CIRCULAR CURVE DATA					COORDINATES		AZIMUTH
			DELTA	DEGREE	RADIUS	TANGENT	LENGTH	X	Y	
CSAH 3 NB <INPCSAH3NB>										
2000	PC	10+00.000						499,975.7473	133,880.5264	332° 55' 09.33"
2001	PI	10+67.599	54° 56' 52.93" RT	44° 04' 25.24"	130.000'	67.599'	124.673'	499,944.9732	133,940.7140	PI
2002	CC	①						500,091.4949	133,939.7083	
2003	PT	11+24.673						499,976.5706	134,000.4736	27° 52' 02.27"
2004	PC	11+73.819						499,999.5426	134,043.9201	
2005	PI	12+63.710	22° 41' 29.06" LT	12° 47' 21.25"	448.000'	89.891'	177.426'	500,041.5599	134,123.3866	PI
2006	CC	①						499,603.4960	134,253.3266	
2007	PT	13+51.245						500,049.6693	134,212.9109	5° 10' 33.21"
2008	PC	13+88.572						500,053.0367	134,250.0859	
2009	PI	14+93.547	23° 42' 50.70" RT	11° 27' 32.96"	500.000'	104.975'	206.944'	500,062.5069	134,354.6329	PI
2010	CC	①						500,550.9979	134,204.9792	
2011	PT	15+95.516						500,113.2234	134,446.5438	28° 53' 23.91"
2012	PC	16+05.063						500,117.8357	134,454.9023	
2013	PI	18+53.979	51° 00' 48.21" RT	10° 58' 56.54"	521.707'	248.916'	464.502'	500,238.0943	134,672.8407	PI
2014	CC	①						500,574.6155	134,202.8506	
2015	PRC	20+69.565						500,483.1557	134,716.4779	79° 54' 12.12"
2016	PRC	20+69.565						500,483.1557	134,716.4779	
2017	PI	①	63° 43' 48.30" LT	17° 21' 44.48"	330.000'	205.128'	367.059'	500,685.1066	134,752.4386	PI
2018	CC	①						500,425.3037	135,041.3674	16° 10' 23.82"
2019	PT	24+36.624						500,742.2436	134,949.4481	
CSAH 3 SB <INPCSAH3SB>										
2100	POT	10+00.000						499,877.4853	133,875.6870	6° 12' 12.19"
2101	PC	10+31.246						499,880.8616	133,906.7500	
2102	PI	10+79.103	26° 54' 50.24" RT	28° 38' 52.40"	200.000'	47.857'	93.947'	499,886.0330	133,954.3267	PI
2103	CC	①						500,079.6905	133,885.1383	
2104	PT	11+25.193						499,912.1799	133,994.4094	33° 07' 02.43"
2105	PC	11+73.399						499,938.5174	134,034.7844	
2106	PI	12+72.913	27° 56' 29.22" LT	14° 19' 26.20"	400.000'	99.514'	195.068'	499,992.8875	134,118.1328	PI
2107	CC	①						499,603.4960	134,253.3266	
2108	PT	13+68.467						500,001.8650	134,217.2412	5° 10' 33.21"
2109	PC	14+11.235						500,005.7232	134,259.8341	
2110	PI	15+17.674	24° 02' 07.48" RT	11° 27' 32.96"	500.000'	106.440'	209.749'	500,015.3255	134,365.8399	PI
2111	CC	①						500,503.6844	134,214.7274	
2112	PT	16+20.983						500,067.2715	134,458.7433	29° 12' 40.69"
2113	PC	16+45.233						500,079.1064	134,479.9095	
2114	PI	17+81.529	27° 00' 01.15" RT	10° 05' 32.99"	567.707'	136.296'	267.529'	500,145.6232	134,598.8722	PI
2115	CC	①						500,574.6155	134,202.8506	
2116	PT	19+12.762						500,258.8984	134,674.6701	56° 12' 41.83"
2117	PC	19+53.537						500,292.7864	134,697.3462	
2118	PI	20+55.175	22° 58' 49.74" RT	11° 27' 32.96"	500.000'	101.637'	200.543'	500,377.2571	134,753.8695	PI
2119	CC	①						500,570.8500	134,281.7975	
2120	PRC	21+54.080						500,477.0916	134,772.9282	79° 11' 31.57"
2121	PRC	21+54.080						500,477.0916	134,772.9282	
2122	PI	23+21.169	63° 30' 09.31" LT	21° 13' 14.37"	270.000'	167.089'	299.249'	500,641.2172	134,804.2603	PI
2123	CC	①						500,426.4621	135,038.1388	15° 41' 22.26"
2124	PT	24+53.329						500,686.4022	134,965.1243	

SPECIFIC NOTES:

① ALIGNMENT POINT IS BEYOND PROJECT LIMITS AND WILL NOT BE DEPICTED ON THE ALIGNMENT PLAN VIEW

GENERAL NOTES:

A. <XXXX> INDICATES GEOPAK ALIGNMENT NAME.

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NO	DATE	DWN	CKD	REVISIONS



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ALIGNMENT PLAN
 S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

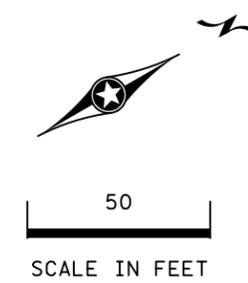
S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
 SHEET NO. 33 OF 71 SHEETS

GENERAL NOTES:

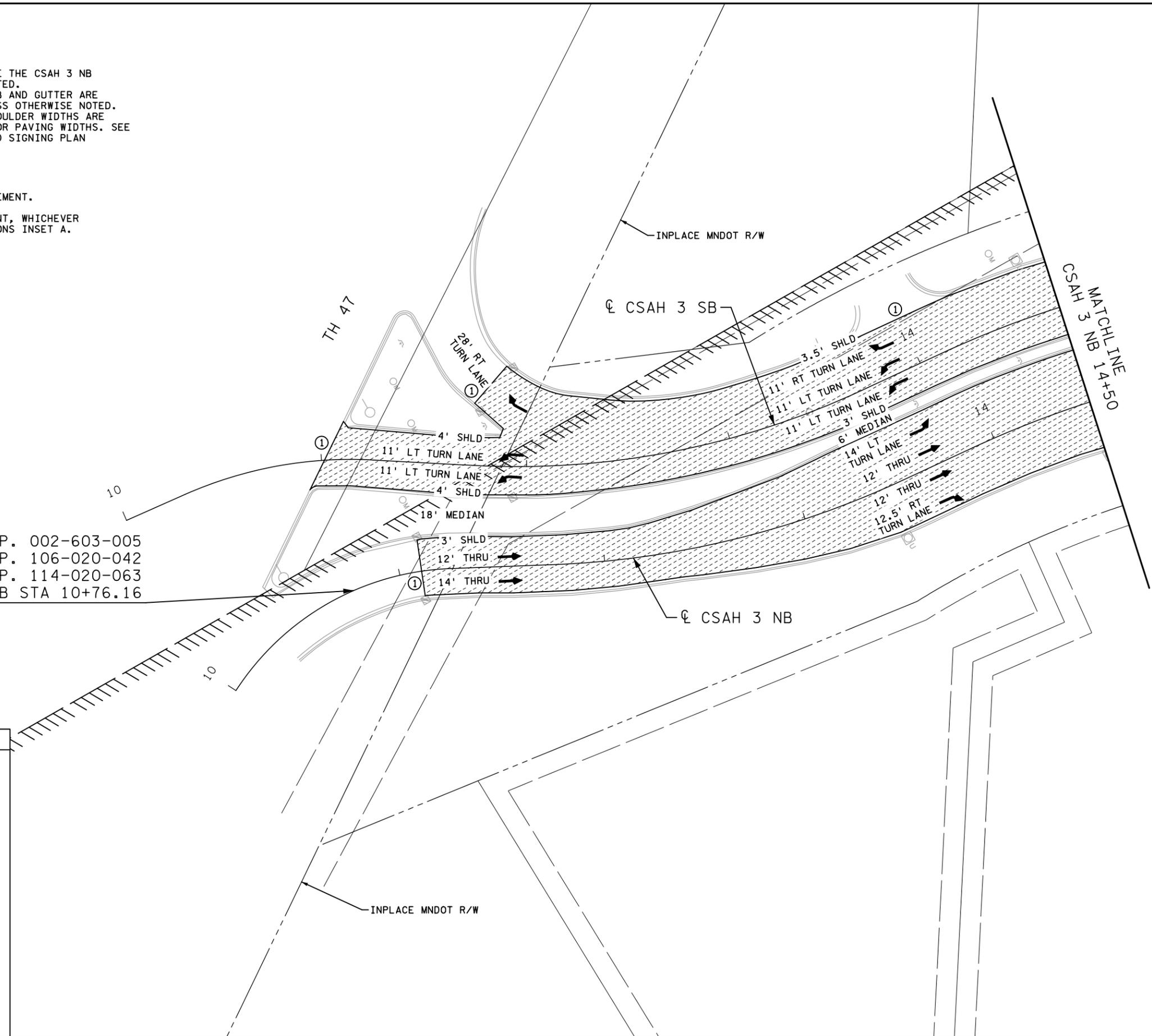
1. ALL STATION CALLOUTS REFERENCE THE CSAH 3 NB ALIGNMENT UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS LOCATED AT CURB AND GUTTER ARE MEASURED TO FACE OF CURB UNLESS OTHERWISE NOTED.
3. DESIGN VALUES FOR LANE AND SHOULDER WIDTHS ARE SHOWN. SEE TYPICAL SECTIONS FOR PAVING WIDTHS. SEE PERMANENT PAVEMENT MARKING AND SIGNING PLAN FOR STRIPE LOCATIONS.

SPECIFIC NOTES:

- ① MATCH EXISTING BITUMINOUS PAVEMENT.
- ② 6.5" OR MATCH EXISTING PAVEMENT, WHICHEVER IS THICKER. SEE TYPICAL SECTIONS INSET A.



BEGIN S.A.P. 002-603-005
 BEGIN S.A.P. 106-020-042
 BEGIN S.A.P. 114-020-063
 CSAH 3 NB STA 10+76.16



LEGEND

- BITUMINOUS PAVEMENT ②
- 3" BITUMINOUS OVERLAY
- 2" BITUMINOUS OVERLAY
- CONCRETE CURB RAMP WALK (ADA)
- CONCRETE CURB & GUTTER
- EXISTING RIGHT OF WAY
- EXISTING DRAINAGE & UTILITY EASEMENT
- PROPERTY LINE
- CONSTRUCTION LIMITS
- TRAFFIC DIRECTION

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CONSTRUCTION PLAN
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S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
 SHEET NO. 34 OF 71 SHEETS

MATCHLINE - INSET A

GENERAL NOTES:

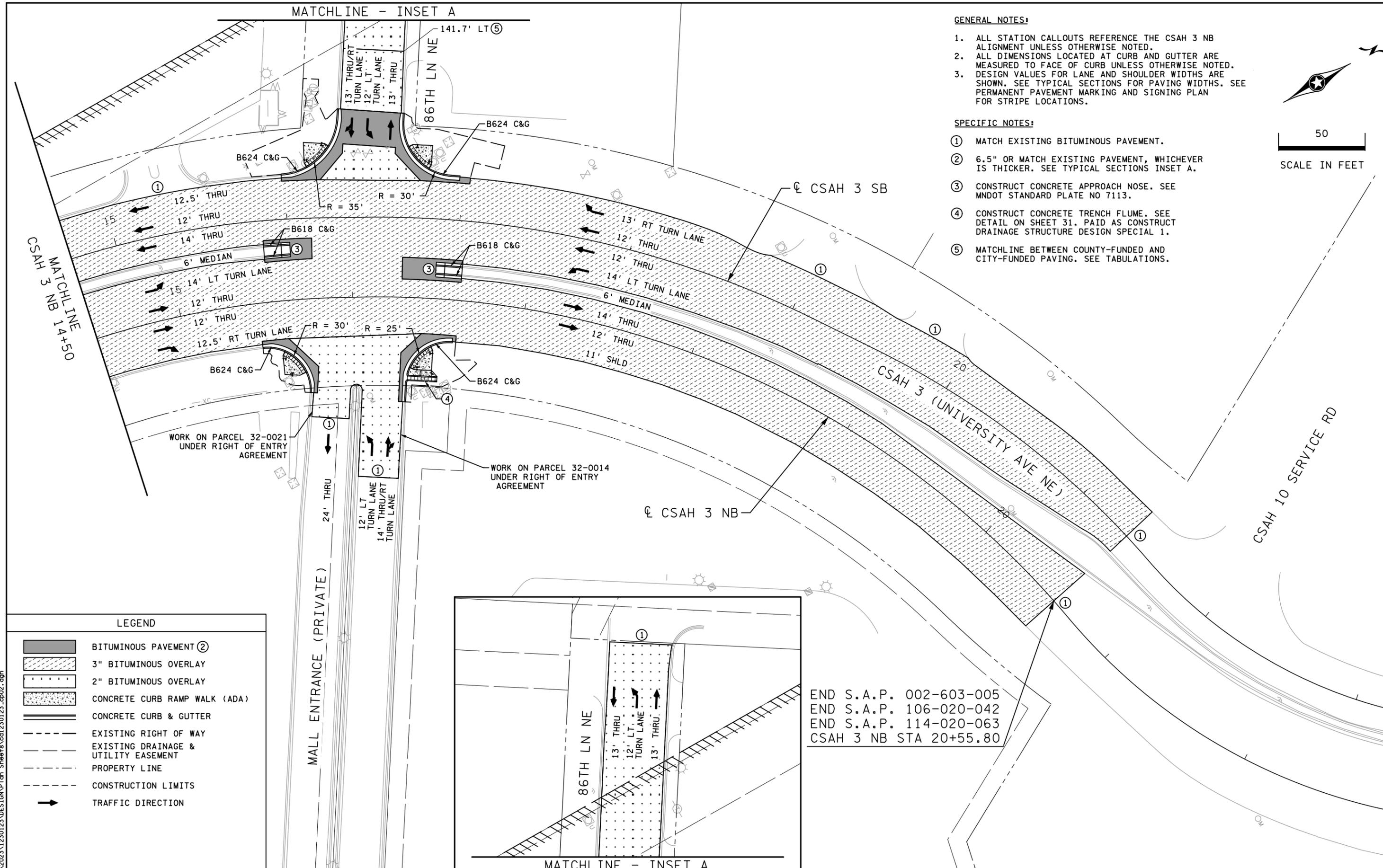
1. ALL STATION CALLOUTS REFERENCE THE CSAH 3 NB ALIGNMENT UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS LOCATED AT CURB AND GUTTER ARE MEASURED TO FACE OF CURB UNLESS OTHERWISE NOTED.
3. DESIGN VALUES FOR LANE AND SHOULDER WIDTHS ARE SHOWN. SEE TYPICAL SECTIONS FOR PAVING WIDTHS. SEE PERMANENT PAVEMENT MARKING AND SIGNING PLAN FOR STRIPE LOCATIONS.



50
SCALE IN FEET

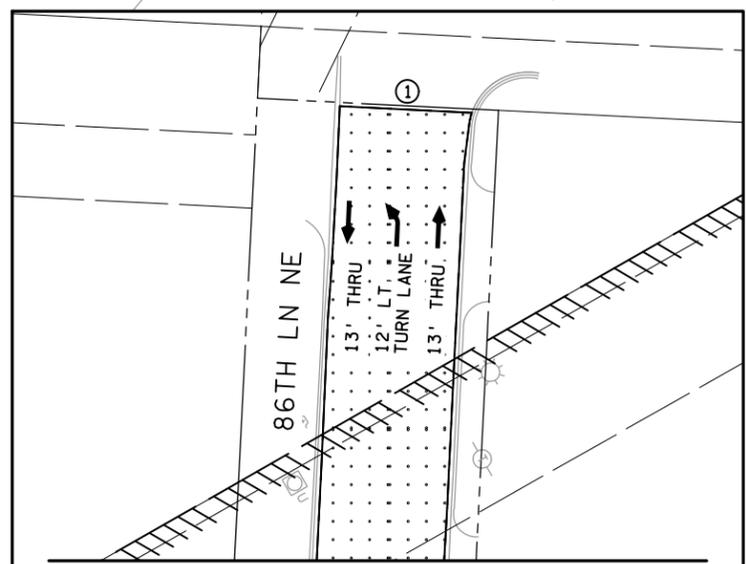
SPECIFIC NOTES:

- ① MATCH EXISTING BITUMINOUS PAVEMENT.
- ② 6.5" OR MATCH EXISTING PAVEMENT, WHICHEVER IS THICKER. SEE TYPICAL SECTIONS INSET A.
- ③ CONSTRUCT CONCRETE APPROACH NOSE. SEE MNDOT STANDARD PLATE NO 7113.
- ④ CONSTRUCT CONCRETE TRENCH FLUME. SEE DETAIL ON SHEET 31. PAID AS CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 1.
- ⑤ MATCHLINE BETWEEN COUNTY-FUNDED AND CITY-FUNDED PAVING. SEE TABULATIONS.



LEGEND

- BITUMINOUS PAVEMENT ②
- 3" BITUMINOUS OVERLAY
- 2" BITUMINOUS OVERLAY
- CONCRETE CURB RAMP WALK (ADA)
- CONCRETE CURB & GUTTER
- EXISTING RIGHT OF WAY
- EXISTING DRAINAGE & UTILITY EASEMENT
- PROPERTY LINE
- CONSTRUCTION LIMITS
- TRAFFIC DIRECTION



END S.A.P. 002-603-005
 END S.A.P. 106-020-042
 END S.A.P. 114-020-063
 CSAH 3 NB STA 20+55.80

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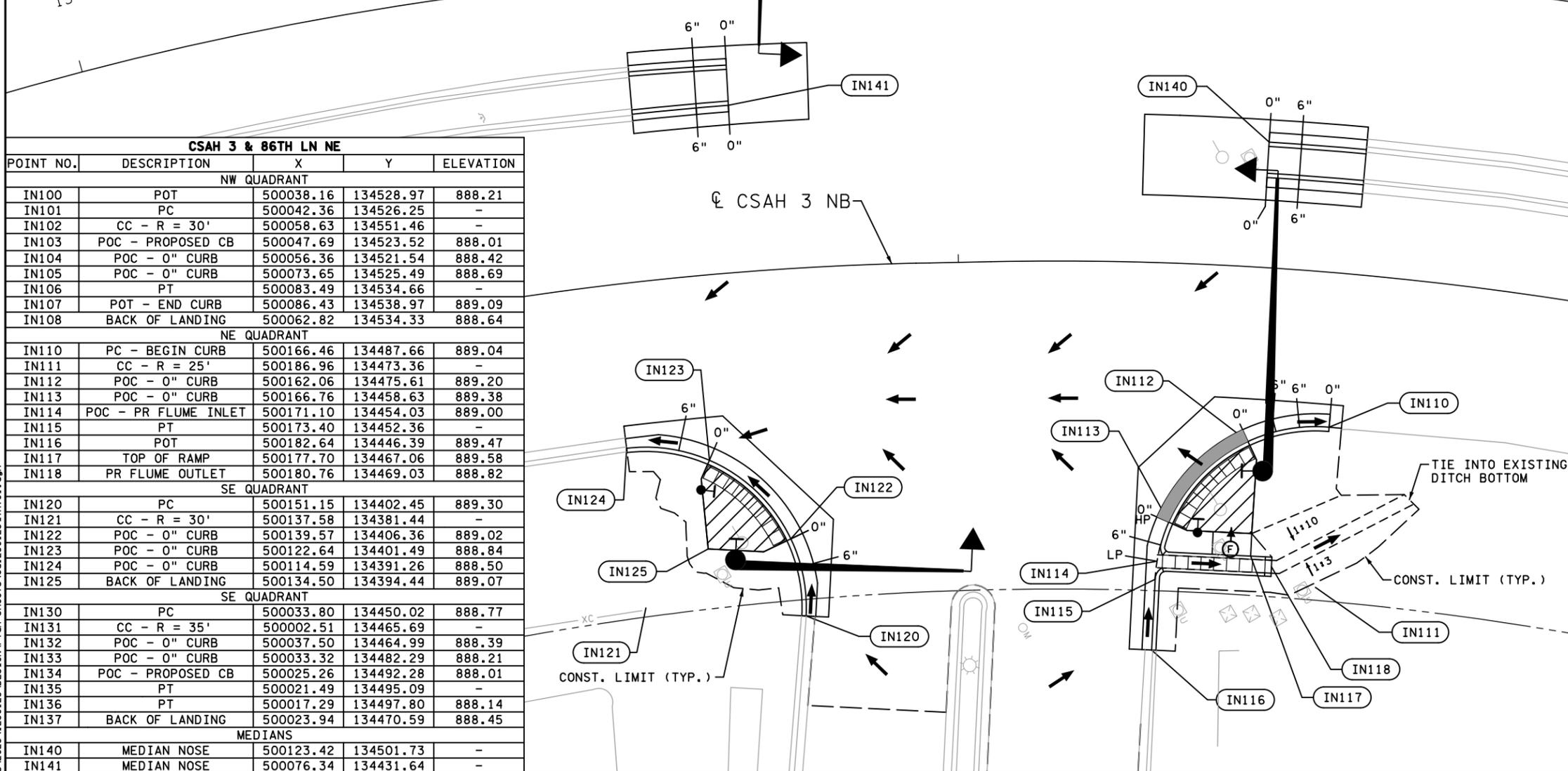
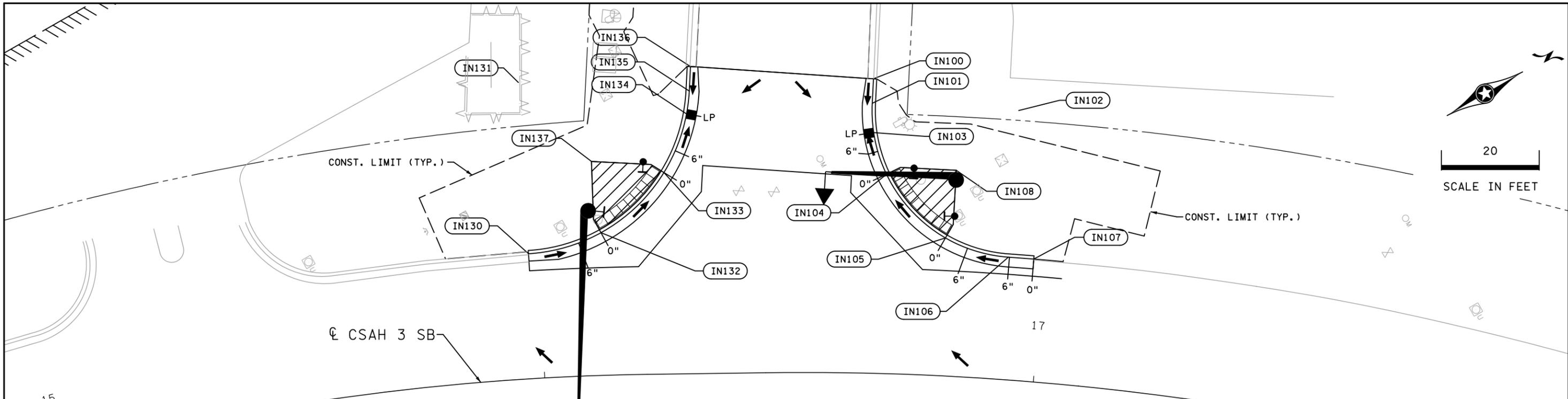


I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: MICHAEL P MCCURDY
 SIGNATURE: *Michael P. McCurdy*
 DATE: 03/20/24 LICENSE #: 45902

CONSTRUCTION PLAN
 S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
 SHEET NO. 35 OF 71 SHEETS



LEGEND

- PROPOSED SIGNAL POLE
- EXISTING/PROPOSED SIGNAL
- PEDESTRIAN PUSH BUTTON STATION
- PEDESTRIAN PUSH BUTTON
- INPLACE PEDESTAL POLE
- PROPOSED SIGNAL CABINET
- EXISTING CABINETS (SCALE TO SIZE)
- CONTROL POINTS AT GUTTER FLOW LINE
- TRUNCATED DOMES (SEE STANDARD PLATE 7038)
- CONSTRUCT CONCRETE CURB & GUTTER
- CONSTRUCT CONCRETE CURB & GUTTER (TIP OUT)
- CURB HEIGHT
- LANDING AREA - 4' X 4' MIN. DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS
- INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- DRAINAGE FLOW ARROW
- 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.

CSAH 3 & 86TH LN NE

POINT NO.	DESCRIPTION	X	Y	ELEVATION
NW QUADRANT				
IN100	POT	500038.16	134528.97	888.21
IN101	PC	500042.36	134526.25	-
IN102	CC - R = 30'	500058.63	134551.46	-
IN103	POC - PROPOSED CB	500047.69	134523.52	888.01
IN104	POC - 0" CURB	500056.36	134521.54	888.42
IN105	POC - 0" CURB	500073.65	134525.49	888.69
IN106	PT	500083.49	134534.66	-
IN107	POT - END CURB	500086.43	134538.97	889.09
IN108	BACK OF LANDING	500062.82	134534.33	888.64
NE QUADRANT				
IN110	PC - BEGIN CURB	500166.46	134487.66	889.04
IN111	CC - R = 25'	500186.96	134473.36	-
IN112	POC - 0" CURB	500162.06	134475.61	889.20
IN113	POC - 0" CURB	500166.76	134458.63	889.38
IN114	POC - PR FLUME INLET	500171.10	134454.03	889.00
IN115	PT	500173.40	134452.36	-
IN116	POT	500182.64	134446.39	889.47
IN117	TOP OF RAMP	500177.70	134467.06	889.58
IN118	PR FLUME OUTLET	500180.76	134469.03	888.82
SE QUADRANT				
IN120	PC	500151.15	134402.45	889.30
IN121	CC - R = 30'	500137.58	134381.44	-
IN122	POC - 0" CURB	500139.57	134406.36	889.02
IN123	POC - 0" CURB	500122.64	134401.49	888.84
IN124	POC - 0" CURB	500114.59	134391.26	888.50
IN125	BACK OF LANDING	500134.50	134394.44	889.07
SE QUADRANT				
IN130	PC	500033.80	134450.02	888.77
IN131	CC - R = 35'	500002.51	134465.69	-
IN132	POC - 0" CURB	500037.50	134464.99	888.39
IN133	POC - 0" CURB	500033.32	134482.29	888.21
IN134	POC - PROPOSED CB	500025.26	134492.28	888.01
IN135	PT	500021.49	134495.09	-
IN136	PT	500017.29	134497.80	888.14
IN137	BACK OF LANDING	500023.94	134470.59	888.45
MEDIANS				
IN140	MEDIAN NOSE	500123.42	134501.73	-
IN141	MEDIAN NOSE	500076.34	134431.64	-

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I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED 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: MICHAEL P. MCCURDY
 SIGNATURE: *Michael P. McCurdy*
 DATE: 03/20/24 LICENSE #: 45902

INTERSECTION DETAILS

S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
 SHEET NO. 36 OF 71 SHEETS

LEGEND

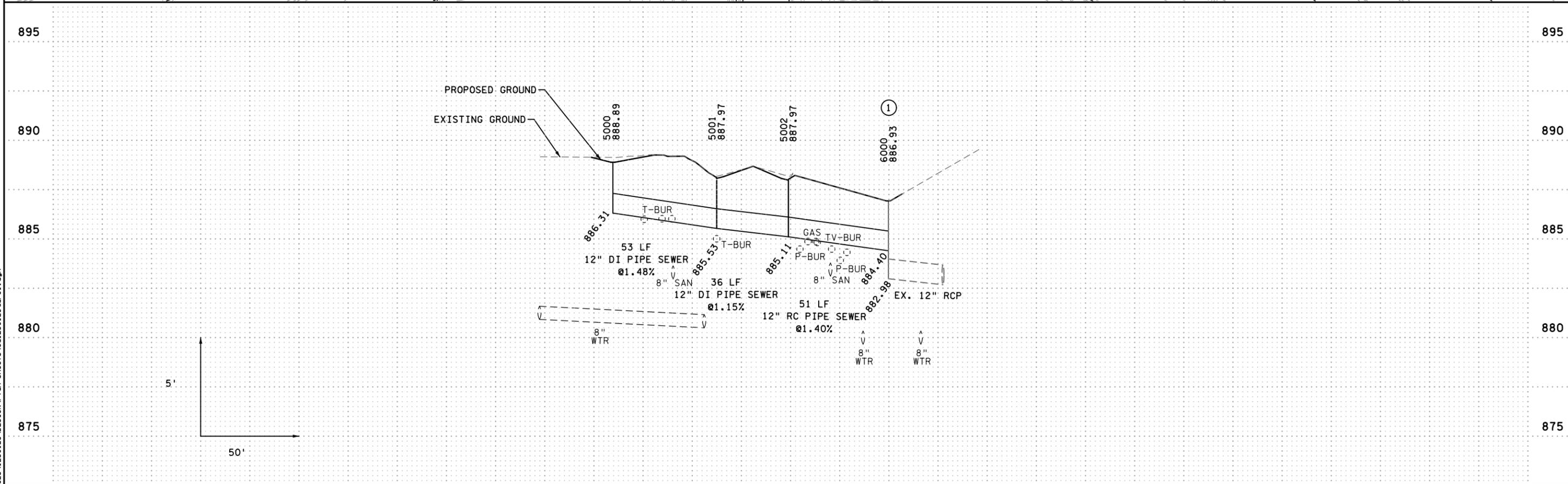
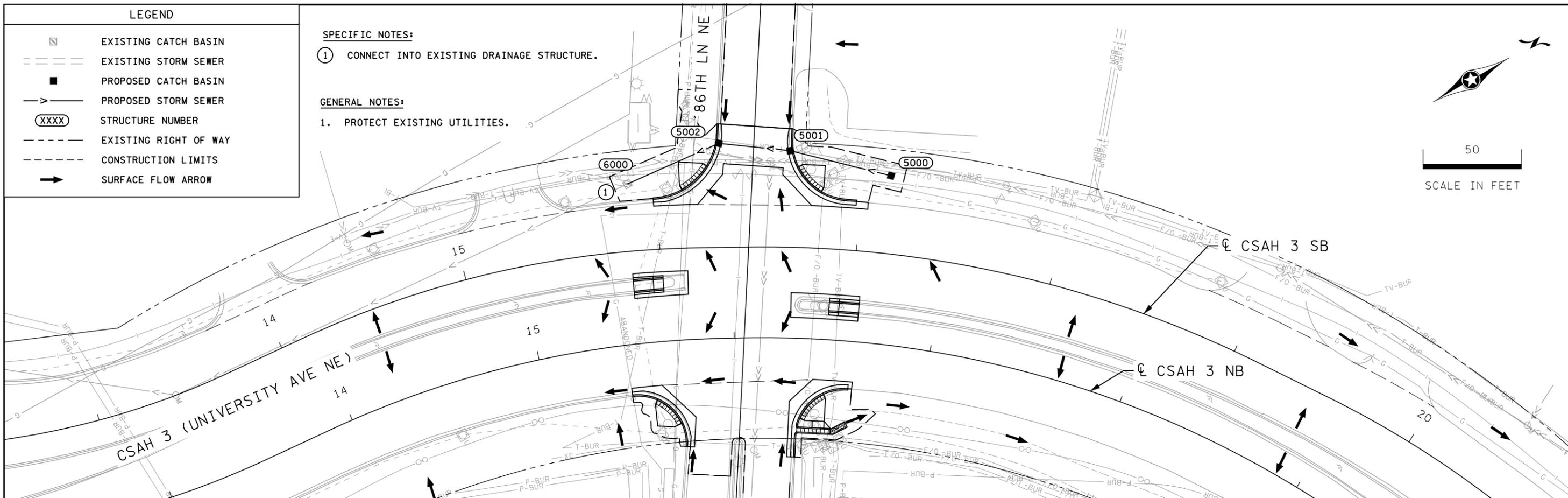
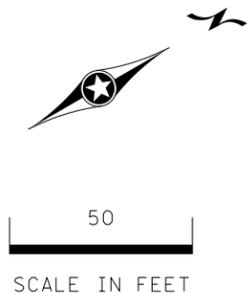
-  EXISTING CATCH BASIN
-  EXISTING STORM SEWER
-  PROPOSED CATCH BASIN
-  PROPOSED STORM SEWER
-  STRUCTURE NUMBER
-  EXISTING RIGHT OF WAY
-  CONSTRUCTION LIMITS
-  SURFACE FLOW ARROW

SPECIFIC NOTES:

- ① CONNECT INTO EXISTING DRAINAGE STRUCTURE.

GENERAL NOTES:

- 1. PROTECT EXISTING UTILITIES.



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I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED 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: MICHAEL P MCCURDY
 SIGNATURE: *Michael P. McCurdy*
 DATE: 03/26/24 LICENSE #: 45902

DRAINAGE PLAN AND PROFILE
 S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
 SHEET NO. 37 OF 71 SHEETS

DRAINAGE TABULATION																		E			
STRUCTURE LOCATION (1)								NEW STRUCTURE CONSTRUCTION					DRAINS TO			CONN. INTO EX. DRAINAGE STRUCTURE	NOTES				
STRUCT. OR APRON POINT NO.	ALIGN.	STATION	OFFSET	COORDINATES		TOP OF CAST. ELEV.	U/S ELEV.	CASTING ASSEMBLY		PAY HEIGHT SD-48	STEPS REQ'D	PIPE SEWER		STRUCT OR APRON OUTLET POINT NO.	SLOPE OF PIPE %			D/S ELEV.	EACH		
				X	Y			TYPE	EACH			LIN FT	DESIGN 3006							12" DI CLASS 52	LIN FT
													12" RC CLASS 5								
SAP 002-603-005																					
CSAH 3																					
5000	INPCSAH3SB	17+13	39.6 LT	500083.90	134560.62	888.89	886.31	M - 11	1	2.6			53	5001	1.48	885.53					
5001	INPCSAH3SB	16+65	48.9 LT	500047.34	134522.58	887.97	885.53	B - 13	1	2.4			37	5002	1.15	885.11					
5002	INPCSAH3SB	16+31	52.8 LT	500025.92	134493.03	887.97	885.11	B - 13	1	2.9		51		6000	1.40	884.40		1			
TOTAL										3	7.9		51	90				1			

NOTES:

(1) STATION, OFFSET, COORDINATES, AND TOP OF CASTING ELEVATIONS FOR EACH POINT NUMBER ARE GIVEN AT THE CENTER OF GRATE OR COVER CASTING. INVERT ELEVATIONS ARE GIVEN AT THE CENTER OF STRUCTURE OR APRON END.

CASTING ASSEMBLY SUMMARY					
ASSEMBLY	RING OR FRAME CASTING	COVER OR GRATE CASTING	CURB BOX	STANDARD PLATE NO.	NO.
B - 13	806			4125	2
		816		4154	
			824	4133	
M - 11	ROUND CONC.			4143	1
		731		4143	
			N/A	N/A	

RANDOM RIPRAP					F
STATION	ALIGNMENT	OFFSET	GEOTEXTILE FILTER TYPE 3	RANDOM RIPRAP CLASS II	REMARKS
			SQ YD	CU YD	
16+52	CSAH 3 NB	46.3 RT	5.6	1.0	12 INCH DEPTH RIPRAP
TOTALS			5.6	1.0	

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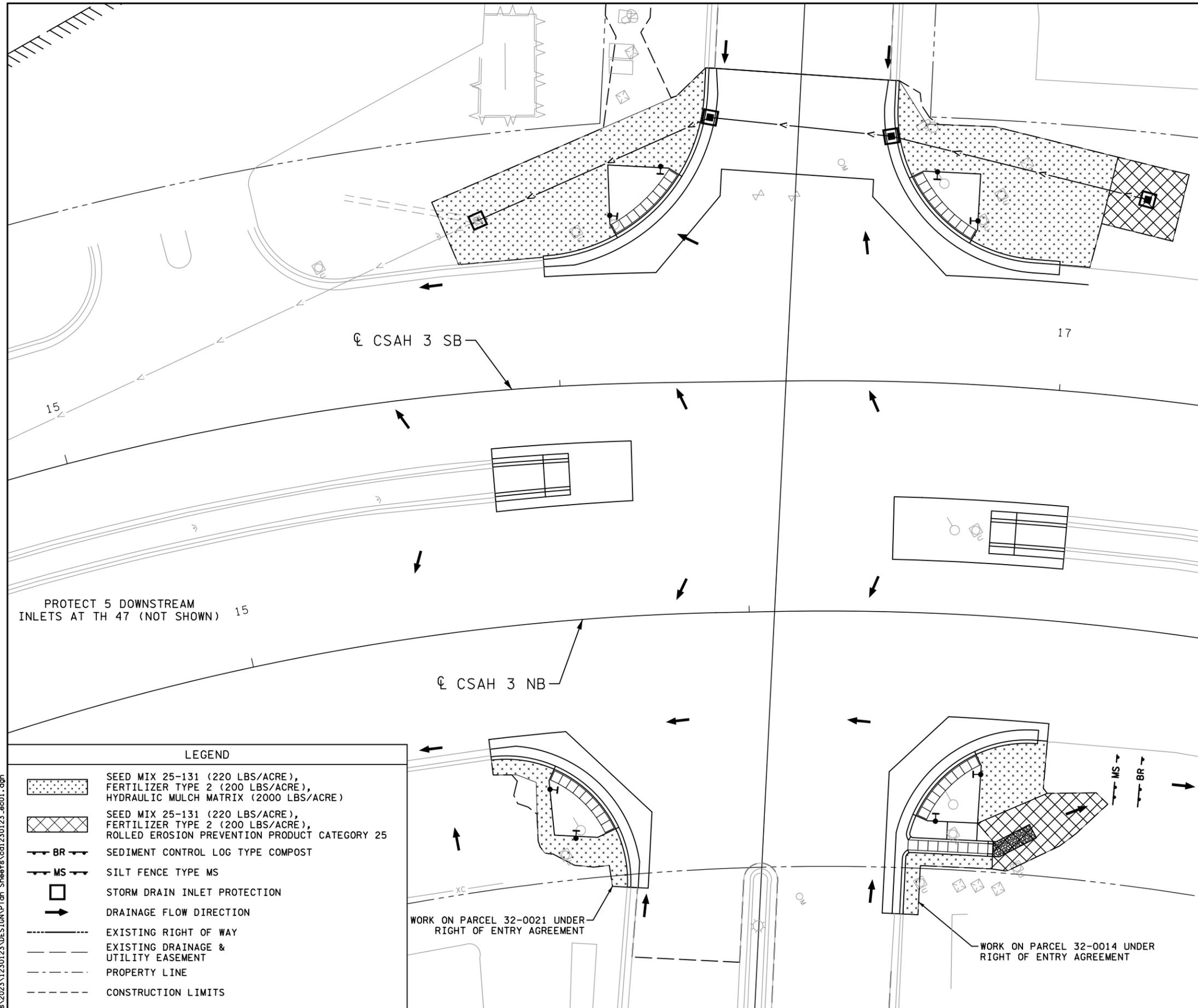
PRINT NAME: MICHAEL P MCCURDY
 SIGNATURE: *Michael P. McCurdy*
 DATE: 03/20/24 LICENSE #: 45902

DRAINAGE TABULATIONS
 S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
 SHEET NO. 38 OF 71 SHEETS



20
SCALE IN FEET



GENERAL NOTES:

1. SEDIMENT CONTROL MUST BE IN PLACE AND APPROVED BY ENGINEER BEFORE ANY PHASE OF CONSTRUCTION CAN BEGIN.
2. TEMPORARY STABILIZATION MEASURES SHALL BE EMPLOYED WITHIN 200' OF THE NORMAL WETTED PERIMETER OF ALL DISCHARGE POINTS WITHIN 24 HOURS. MULCH IS NOT AN APPROVED MEASURE.
3. IN THE EVENT THAT PERMANENT STABILIZATION CANNOT BE IMPLEMENTED WITHIN 7 DAYS AFTER CONSTRUCTION ACTIVITY IN THE DISTURBED AREA HAS CEASED, TEMPORARY STABILIZATION BMPs MUST BE SCHEDULED TO OCCUR WITHIN THAT 7 DAY TIME FRAME (EXCEPT WHERE CALLED OUT BY NOTE 2).
4. ALL STOCKPILES MUST HAVE DOWN GRADIENT PERIMETER CONTROL IMPLEMENTED AND MAINTAINED AT ALL TIMES. STOCKPILES TO RECEIVE TEMPORARY STABILIZATION IF UNWORKED FOR 7 DAYS.
5. STOCKPILES MAY NOT BE PLACED WITHIN ANY DRAINAGE OR CURB LINE UNLESS PROPER BYPASS IS INSTALLED PRIOR TO STOCKPILE PLACEMENT.
6. STABILIZATION OF DISTURBED AREAS SHALL BE DONE BY PERMANENT TURF ESTABLISHMENT WHENEVER POSSIBLE.
7. SLURRY FROM CONCRETE OPERATIONS MUST BE VACUUMED UP IMMEDIATELY. NO CONCRETE WASHOUT SHALL COME IN CONTACT WITH THE GROUND AND MUST BE PROPERLY DISPOSED OF.
8. ALL HAZARDOUS MATERIALS MUST BE KEPT UNDER COVER AND WITHIN PROPER CONTAINMENT WHEN NOT IN USE.
9. A SIGN MUST BE INSTALLED ADJACENT TO EACH CONCRETE WASHOUT FACILITY.
10. THE CONTRACTOR IS TO AMEND THE EROSION CONTROL SHEET TO SHOW THE LOCATIONS OF PROPOSED STOCKPILE LOCATIONS, STAGING/EQUIPMENT PARKING AREAS, AND POTENTIAL EQUIPMENT FUELING AREAS, ETC.
11. A NPDES PERMIT OR SWPPP IS NOT REQUIRED FOR THIS PROJECT BASED ON THE DISTURBED AREA. HOWEVER THE REQUIREMENTS WITHIN THE STANDARD LANGUAGE OF THE SWPPP SHALL BE REQUIRED OF THE CONTRACTOR.
12. ALL EXPOSED SOILS, NOT COVERED WITH PERMANENT STABILIZATION WITHIN 7 DAYS OF COMPLETION OF CONSTRUCTION ACTIVITY, SHALL BE COVERED WITH RAPID STABILIZATION METHOD 3.
13. ALL AREAS DISTURBED BY THE CONTRACTOR OUTSIDE THE CONSTRUCTION LIMITS SHALL BE RESTORED AT THE CONTRACTOR'S EXPENSE.
14. SILT FENCE AND SEDIMENT CONTROL LOGS SHALL FOLLOW, AS CLOSE AS POSSIBLE, TO A SINGLE CONTOUR. IF SEDIMENT DEPOSITS IN WATERS OF THE STATE, THE MATERIAL MUST BE REMOVED WITHIN 7 DAYS.

LEGEND

- SEED MIX 25-131 (220 LBS/ACRE), FERTILIZER TYPE 2 (200 LBS/ACRE), HYDRAULIC MULCH MATRIX (2000 LBS/ACRE)
- SEED MIX 25-131 (220 LBS/ACRE), FERTILIZER TYPE 2 (200 LBS/ACRE), ROLLED EROSION PREVENTION PRODUCT CATEGORY 25
- SEDIMENT CONTROL LOG TYPE COMPOST
- SILT FENCE TYPE MS
- STORM DRAIN INLET PROTECTION
- DRAINAGE FLOW DIRECTION
- EXISTING RIGHT OF WAY
- EXISTING DRAINAGE & UTILITY EASEMENT
- PROPERTY LINE
- CONSTRUCTION LIMITS

WORK ON PARCEL 32-0021 UNDER RIGHT OF ENTRY AGREEMENT

WORK ON PARCEL 32-0014 UNDER RIGHT OF ENTRY AGREEMENT

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I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED 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: MICHAEL P. MCCURDY
SIGNATURE: *Michael P. McCurdy*
DATE: 03/20/24 LICENSE #: 45902

EROSION CONTROL & TURF ESTABLISHMENT PLAN
S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
SHEET NO. 39 OF 71 SHEETS

PAVEMENT MARKING AND SIGNING PLAN

GENERAL INFORMATION:

- SEE 2582 IN THE SPECIAL PROVISIONS FOR PAVEMENT MARKING SPOTTING RESPONSIBILITIES.
- EDGE LINES AND LANE LINES ARE TO BE BROKEN ONLY AT INTERSECTIONS WITH PUBLIC ROADS, AND AT PRIVATE ENTRANCES IF THEY ARE CONTROLLED BY AN AGENCY PLACED YIELD SIGN, STOP SIGN OR TRAFFIC SIGNAL. THE BREAK POINT IS TO BE AT THE START OF THE MAINLINE RADIUS.
- DO NOT APPLY THE PAVEMENT MARKINGS WHEN WEATHER AND OTHER CONDITIONS CAUSE A FILM OF DUST OR DEBRIS TO BE DEPOSITED ON THE PAVEMENT SURFACE AFTER CLEANING AND BEFORE THE MARKING MATERIAL IS APPLIED.
- THE FILLING OF TANKS, POURING OF MATERIALS OR CLEANING OF EQUIPMENT SHALL NOT BE PERFORMED ON UNPROTECTED PAVEMENT SURFACES UNLESS ADEQUATE PROVISIONS ARE MADE TO PREVENT SPILLAGE OF MATERIAL.

PERMANENT PAVEMENT MARKING TABULATION				PM
TAB	SHEET NO	ITEM	UNIT	TOTAL MARKINGS QUANTITY
		PAVEMENT MARKING REMOVAL	LIN FT	75
PM-A	43	4" SOLID LINE MULTI-COMPONENT	LIN FT	4955
PM-A	43	4" BROKEN LINE MULTI-COMPONENT	LIN FT	300
PM-A	43	8" DOTTED LINE MULTI-COMPONENT	LIN FT	48
PM-A	43	4" DOUBLE SOLID LINE MULTI-COMPONENT	LIN FT	170
PM-A	43	24" SOLID LINE PREFORM THERMO GROUND IN	LIN FT	150
PM-B	43	PAVEMENT MESSAGE PREFORM THERMOPLASTIC	SQ FT	215
		CROSSWALK PREFORM THERMOPLASTIC GROUND IN	SQ FT	900

GENERAL INFORMATION:

- MOUNTING HEIGHT IS MINIMUM (WITH A + 6 INCH TOLERANCE).
- SEE CURRENT MNDOT STANDARD SIGNS AND MARKINGS MANUAL FOR STANDARD SIGN DESIGNS, SPLICE PLATES, STRINGERS AND PUNCHING CODES.
- SEE PANEL LAYOUTS FOR SIGNS WITH THE CODES "DESIGN".
- SEE DETAILS FOR SIGN STRUCTURE INSTALLATION AND PLACEMENT.
- STANDARD SIGN PANELS ARE LISTED IN THE TABULATIONS WITH TWO DIMENSIONS THAT MAY NOT BE THEIR ACTUAL WIDTH OR HEIGHT, BUT INSTEAD ARE LENGTHS OF THEIR SIDES OR DIAMETER. SEE THE MNDOT STANDARD SIGNS AND MARKING MANUAL FOR ACTUAL DIMENSIONS OF THESE PANELS BASED UPON THE CORRESPONDING DIMENSIONS FROM THE TABULATIONS.
- SIGNS AND DELINEATOR/MARKER TABULATIONS DISPLAY SIGN PANEL AND SUPPORT INFORMATION FOR NEW SIGNS. SIGNS BEING REMOVED OR SALVAGED MAY NOT INCLUDE PANEL OR SUPPORT INFORMATION IN THE TABULATION.
- INSTALL SIGNS AFTER FINAL GRADING IS COMPLETE.

PERMANENT SIGNING SUMMARY					ST
TAB	SHEET NO	ITEM NO	ITEM	UNIT	TOTAL SIGNING QUANTITIES
ST-A	43	2104	REMOVE SIGN	EACH	8
ST-A	43	2104	REMOVE SIGN PANEL	EACH	1
ST-A	43	2564	SIGN	SQ FT	83
ST-A	43	2565	SIGN PANEL	SQ FT	9

STANDARD PLANS	
NUMBER	DESCRIPTION
5-297.731	SIGN MOUNTING DETAILS FOR SIGNAL MAST ARMS

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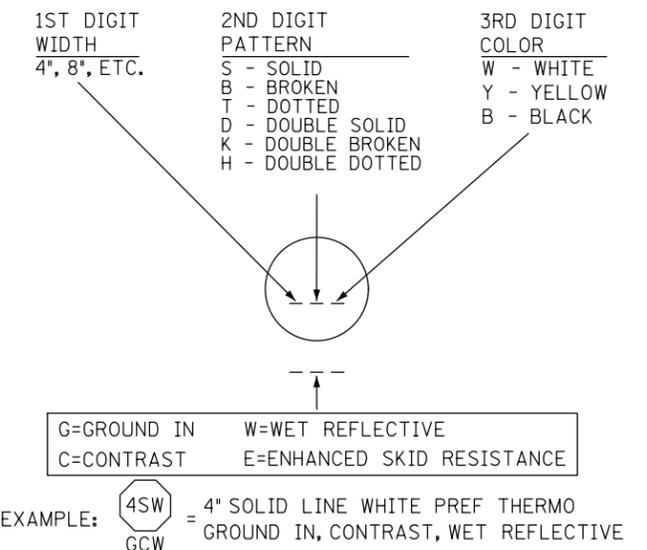
40	TITLE SHEET
41	TABULATIONS & PANEL LAYOUTS
42-44	DETAILS
45-48	ROADWAY LAYOUTS

SYMBOLS & MATERIALS LEGEND

- BROKEN LINE-40' CYCLE (10' LINE, 30' GAP)
- DOTTED LINE-8' CYCLE (2' LINE, 6' GAP), UNLESS SHOWN OTHERWISE IN THE PLAN
- CROSSWALK BLOCK
- PAVEMENT MESSAGE - LEFT ARROW (LA)
- PAVEMENT MESSAGE - RIGHT ARROW (RA)
- PAVEMENT MESSAGE - THRU/RIGHT ARROW (TRA)

STRIPING KEY

- CIRCLE-MULTI COMP
- OCTAGON-PREF THERMO



ABBREVIATIONS

- U-SOIL
- U-CHANNEL IN SOIL
- U-CONC
- U-CHANNEL IN CONCRETE

SIGNING LEGEND

- SIGN
- SIGN BACK TO BACK
- SIGN ON ROUND POST
- MAST ARM

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I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED 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: MICHAEL P. MCCURDY
 SIGNATURE: *Michael P. McCurdy*
 DATE: 03/20/24 LICENSE #: 45902

PAVEMENT MARKING & SIGNING PLAN
 S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

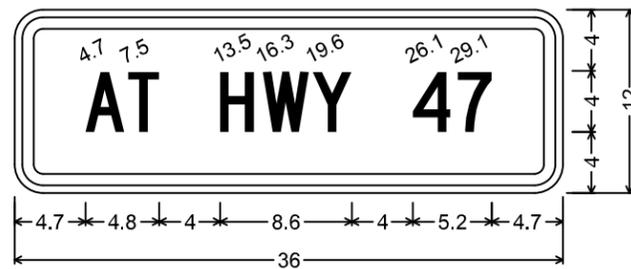
S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
 SHEET NO. 40 OF 71 SHEETS

SIGN AND DELINEATOR / MARKER										ST-A
SIGN NUMBER	PANEL				SUPPORT		REMOVE SIGN EACH	SIGN SQ FT	REMOVE SIGN PANEL EACH	SIGN PANEL SQ FT
	PANEL CODE	LEGEND	SIZE (W x H)	MOUNTING HEIGHT	TYPE	NUMBER OF POSTS				
			INCH	FEET						
SAP 002-603-005										
S-1	R3-5R	RIGHT ONLY	INPLACE				1			
	R3-8ABLA	L-L-R	54 x 30	7	U-SOIL	1		11.25		
S-2	R3-7L	LEFT TURN LANE	INPLACE						1	
	R3-7L	LEFT LANE MUST TURN LEFT	36 x 36	7	U-CONC	1				9.00
	R3-8AB	L-L	INPLACE							
S-3	R3-7R	RIGHT TURN LANE	INPLACE				1			
	R3-7R	RIGHT LANE MUST TURN RIGHT	36 x 36	7	U-SOIL	1		9.00		
S-4	R4-7	KEEP RIGHT	24 x 30	7				5.00		
	OM1-2	TYPE 1 OBJECT MARKER	18 x 18	4	U-CONC	1		2.25		
S-5	R4-7	KEEP RIGHT	24 x 30	7				5.00		
	OM1-2	TYPE 1 OBJECT MARKER	18 x 18	4	U-CONC	1		2.25		
S-6	R5-1	DO NOT ENTER	36 x 36	7	U-CONC	1	1	9.00		
S-7		86TH LN	INPLACE					1		
		UNIVERSITY AVE NE	INPLACE					1		
S-8	R3-7R	RIGHT TURN LANE	INPLACE				1			
	R3-7R	RIGHT LANE MUST TURN RIGHT	36 x 36	7	U-SOIL	1		9.00		
S-9	R3-7L	LEFT TURN LANE	INPLACE				1			
	R3-7L	LEFT LANE MUST TURN LEFT	36 x 36	7	U-CONC	1		9.00		
S-10	R3-7R	RIGHT TURN LANE	INPLACE				1			
	R3-7R	RIGHT LANE MUST TURN RIGHT	36 x 36	7	U-SOIL	1		9.00		
S-11	R3-7R	RIGHT LANE MUST TURN RIGHT	36 x 36	7	U-SOIL	1		9.00		
	DESIGN	AT HWY 47	36 x 12					3.00		
S-12	R7-1	NO PARKING ANY TIME DOUBLE ARROW	INPLACE				1			
SAP 002-603-005 TOTAL							8	83	1	9

PAVEMENT MARKING LINEAR MARKINGS				PM-A
ITEM	UNIT	YELLOW	WHITE	PROJECT TOTAL QTY
		QTY COUNTY 3 SAP 002-603-005	QTY COUNTY 3 SAP 002-603-005	
4" SOLID LINE MULTI-COMPONENT	LIN FT	1900	3055	4955
4" BROKEN LINE MULTI-COMPONENT	LIN FT		300	300
8" DOTTED LINE MULTI-COMPONENT	LIN FT		48	48
4" DOUBLE SOLID LINE MULTI-COMPONENT	LIN FT	170		170
24" SOLID LINE PREFORM THERMO GROUND IN	LIN FT		150	150

PAVEMENT MARKING MESSAGES					PM-B
CODE	MESSAGE	TYPE	AREA SQ FT	PROJECT TOTAL QTY	PROJECT TOTAL AREA
PAVEMENT MESSAGE PREFORM THERMOPLASTIC					
PMA-2L	LT ARROW	STANDARD	15.45	7	108.15
PMA-2R	RT ARROW	STANDARD	15.45	3	46.35
PMA-3R	THRU-RT ARROW	STANDARD	30.09	2	60.18
				SUBTOTAL	214.68

S-6



AT HWY 47;
 1.9" Radius, 0.8" Border, 0.5" Indent, Black on, White;
 "AT HWY 47", C 2K;

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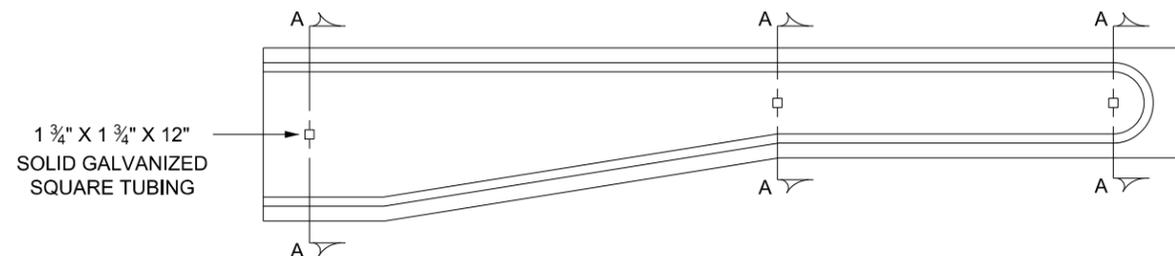
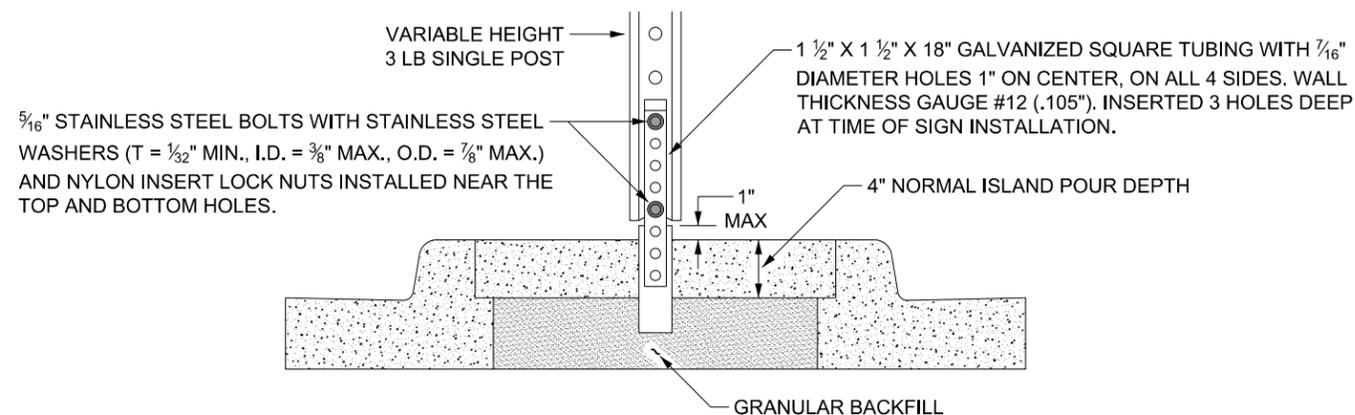
PRINT NAME: MICHAEL P MCCURDY
 SIGNATURE: *Michael P. McCurdy*
 DATE: 03/20/24 LICENSE #: 45902

PAVEMENT MARKING & SIGNING PLAN
 S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

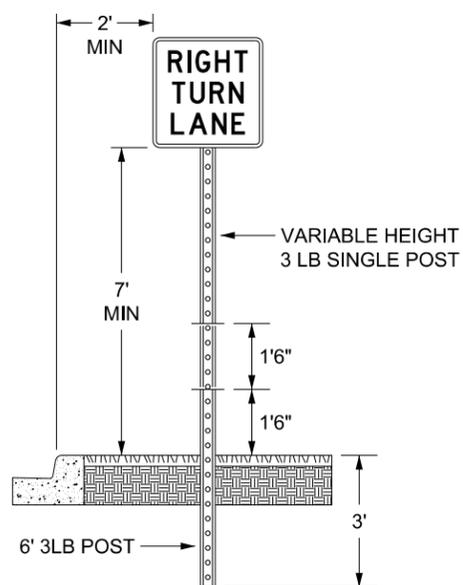
S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
 SHEET NO. 41 OF 71 SHEETS

SIGN INSTALLATION TYPICALS

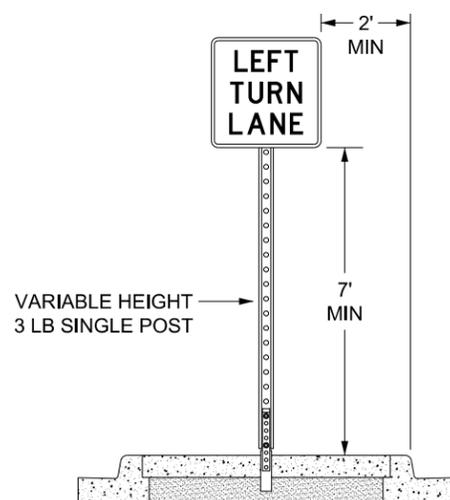
SECTION A-A



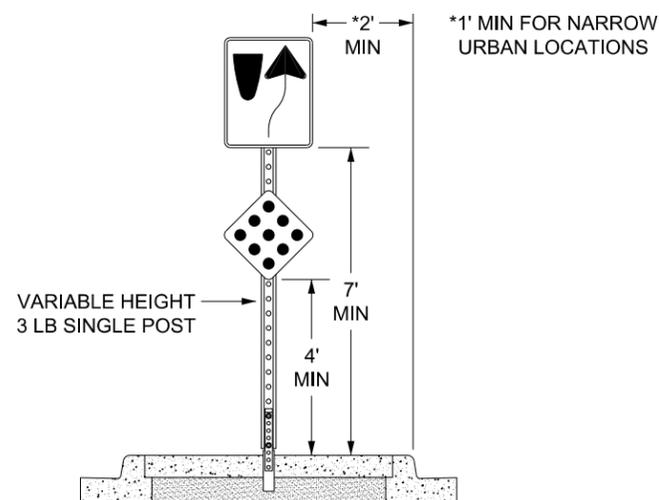
**GROUND POST MOUNT
SIGN INSTALLATION
TYPICAL**



**ISLAND MOUNT
BREAK-AWAY SIGN INSTALLATION
TYPICAL**



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



NOTES:

- TELES PAR INSERT NOT TO BE INSERTED MORE THAN 3 MOUNTING HOLES DEEP INTO BASE. TYPICAL ON ALL SIGN INSTALLATIONS.
- INSTALLATION NEAR SHARED-USE PATHWAY (MN MUTCD):
- THE MINIMUM HEIGHT MEASURED VERTICALLY FROM THE SHARED-USE PATHWAY TO THE BOTTOM OF THE SIGN SHALL BE 7 FEET. IF A SECONDARY SIGN IS MOUNTED BELOW THE PRIMARY SIGN AND IS MOUNTED LESS THAN 7 FEET, IT SHALL NOT PROJECT MORE THAN 4 INCHES INTO THE SHARED-USE PATHWAY.

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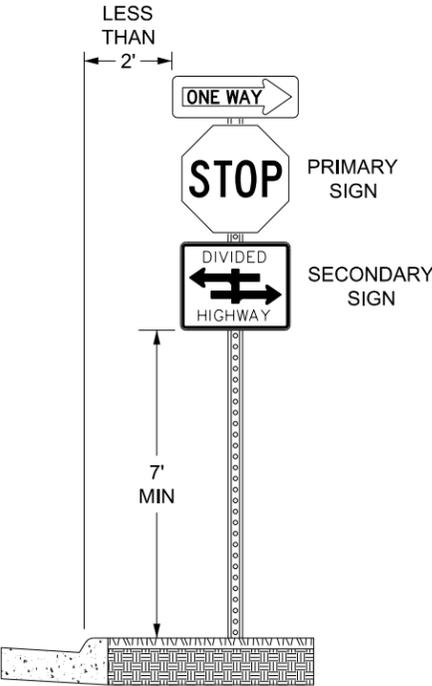
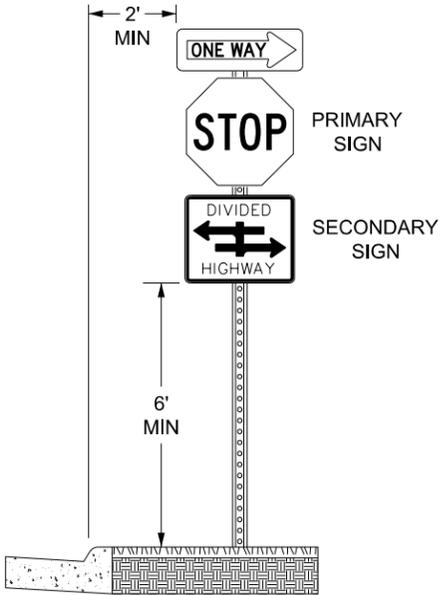
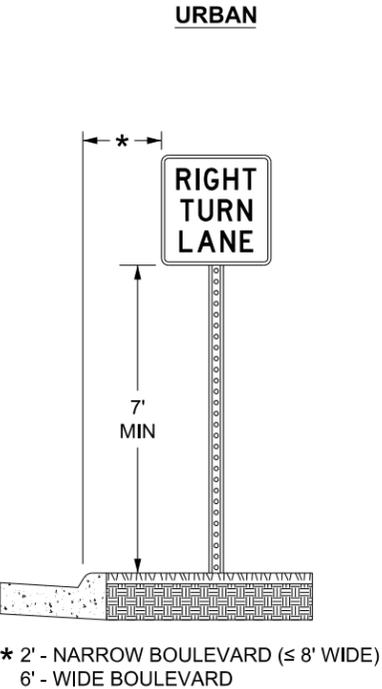
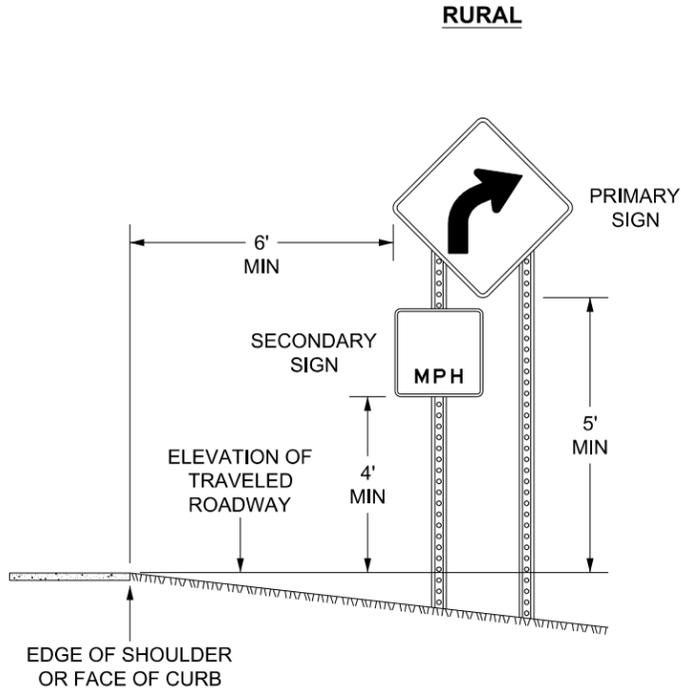
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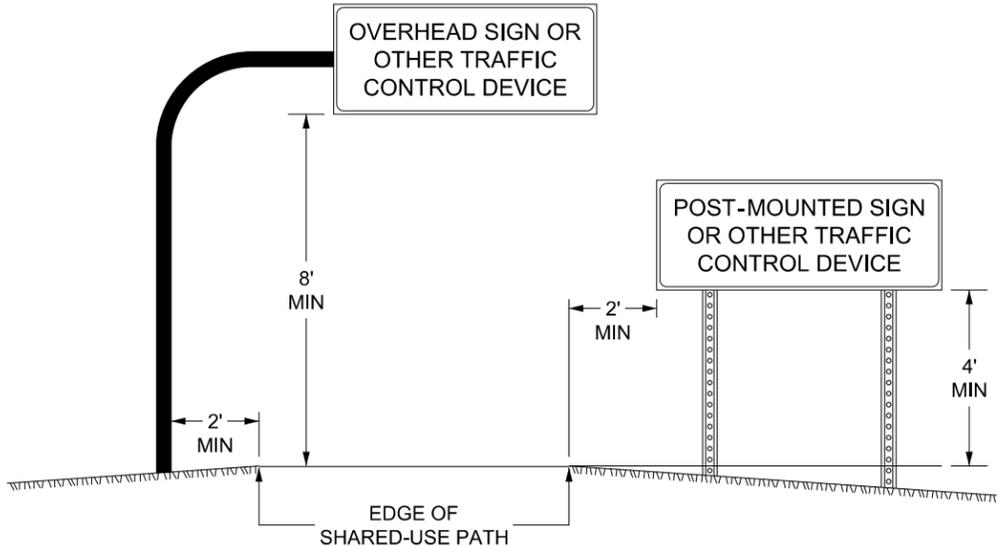
PAVEMENT MARKING & SIGNING PLAN
S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
SHEET NO. 42 OF 71 SHEETS

SIGN PLACEMENT TYPICALS



SHARED-USE PATH



- NOTES:**
- ALL DIMENSIONS ARE MINIMUMS.
 - MAINTAIN A DISTANCE OF 2' BETWEEN TRAFFIC CONTROL DEVICE AND SHARED-USE PATH.
 - 7' SIGN CLEARANCE IF 2' DISTANCE BETWEEN SIGN AND SHARED-USE PATH CANNOT BE MAINTAINED.

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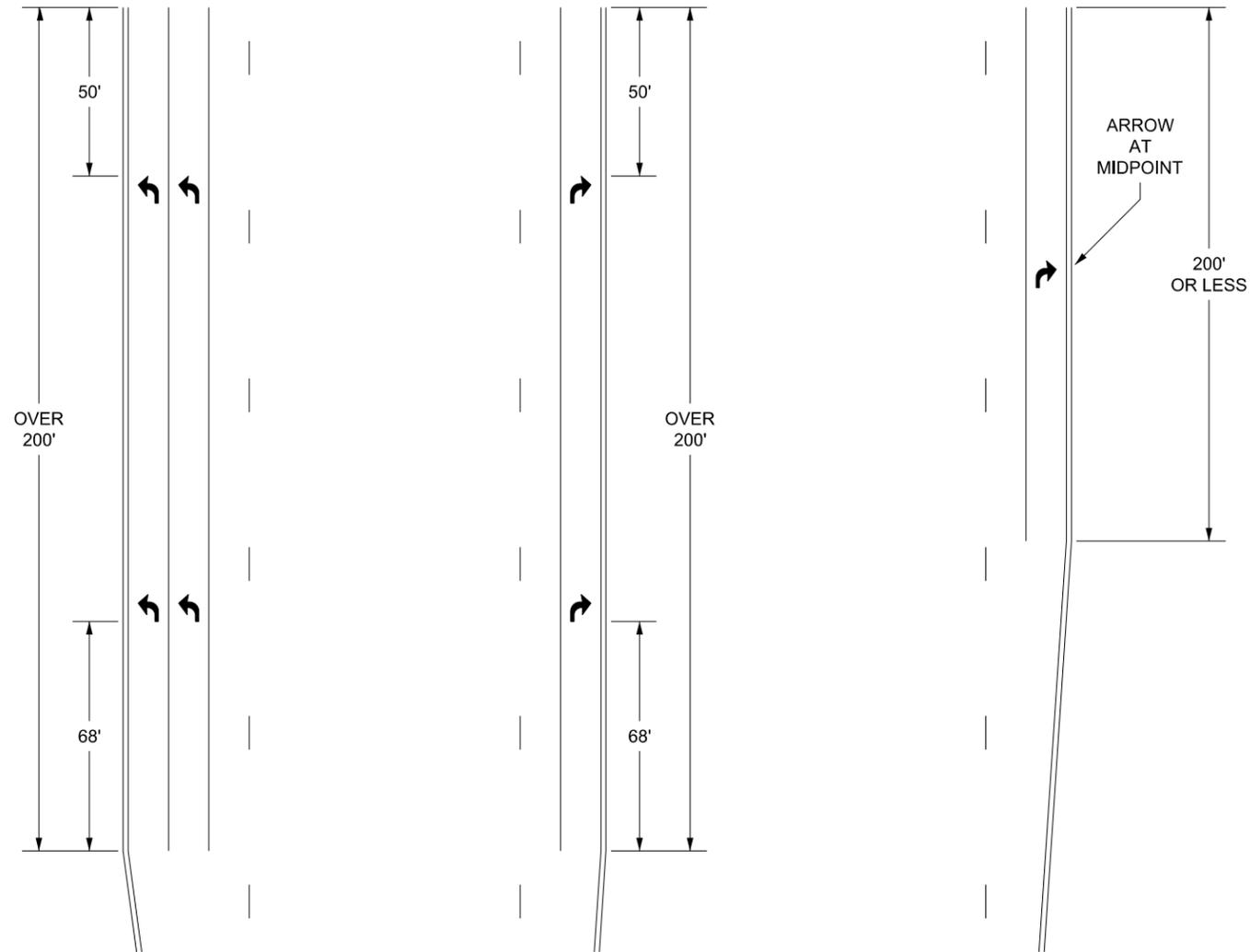
PRINT NAME: MICHAEL P. MCCURDY
 SIGNATURE: *Michael P. McCurdy*
 DATE: 03/20/24 LICENSE #: 45902

PAVEMENT MARKING & SIGNING PLAN
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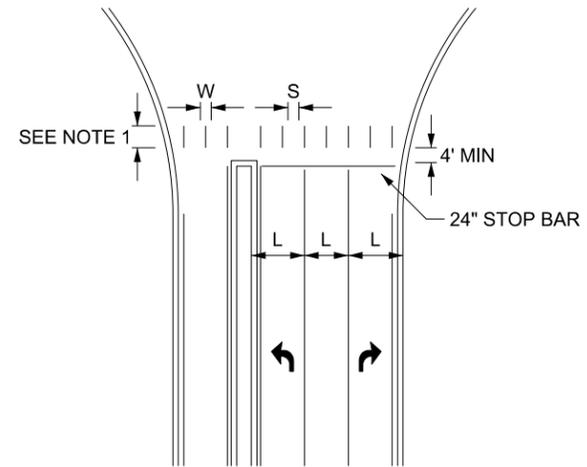
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 SHEET NO. 43 OF 71 SHEETS

PAVEMENT MARKING TYPICALS

TURN LANE ARROW PLACEMENT

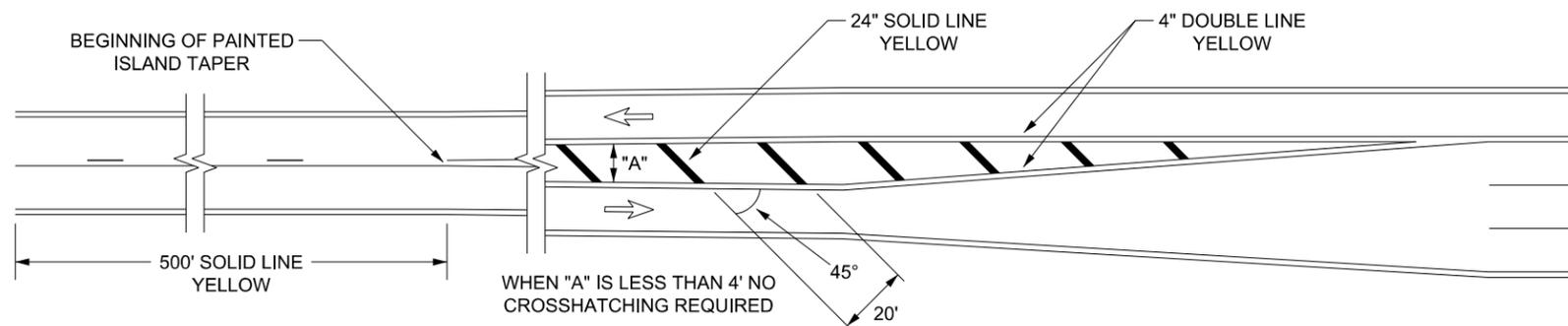


PEDESTRIAN CROSSWALK



(L) WIDTH OF INSIDE LANE	(W) WIDTH OF PAINTED AREAS	(S) 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'

LEFT TURN ISLAND MARKINGS



CROSSWALK NOTES:

1. THE BLOCKS SHALL BE A MINIMUM OF 6' AND AT LEAST AS LONG AS THE TRUNCATED DOMES. FOR FANNED TRUNCATED DOMES THE BLOCKS SHALL BE AT LEAST AS LONG AS THE APPROACHING SIDEWALK OR SHARED-USE PATH.
2. BLOCKS TO BE CENTERED ON CENTERLINE AND LANE LINES.
3. A MINIMUM OF 1.5' CLEAR DISTANCE SHALL BE LEFT ADJACENT TO THE CURB FACE. IF BLOCK FALLS INTO THIS DISTANCE IT MUST BE OMITTED.
4. ON TWO LANE TWO WAY STREETS, USE SPACING SHOWN FOR AN 11' INSIDE LANE.
5. FOR DIVIDED ROADWAYS, ADJUSTMENTS IN SPACING OF THE BLOCKS SHOULD BE MADE IN THE MEDIAN SO THAT THE BLOCKS ARE MAINTAINED IN THEIR PROPER LOCATION ACROSS THE TRAVELED PORTION OF THE ROADWAY.
6. AT SKEWED CROSSWALKS, THE BLOCKS ARE TO REMAIN PARALLEL TO THE LANE LINES.
7. THE BLOCKS SHALL BE PLACED SO THAT THEY ARE NOT LOCATED IN THE WHEEL PATH OF THE VEHICLES.
8. LOCATION OF CROSSWALK BLOCKS, STOP BARS, SIGNAL LOOPS AND PEDESTRIAN RAMPS ARE APPROXIMATE. FINAL LOCATIONS TO BE DETERMINED AND FIELD VERIFIED DURING CONSTRUCTION BY THE FIELD ENGINEER.

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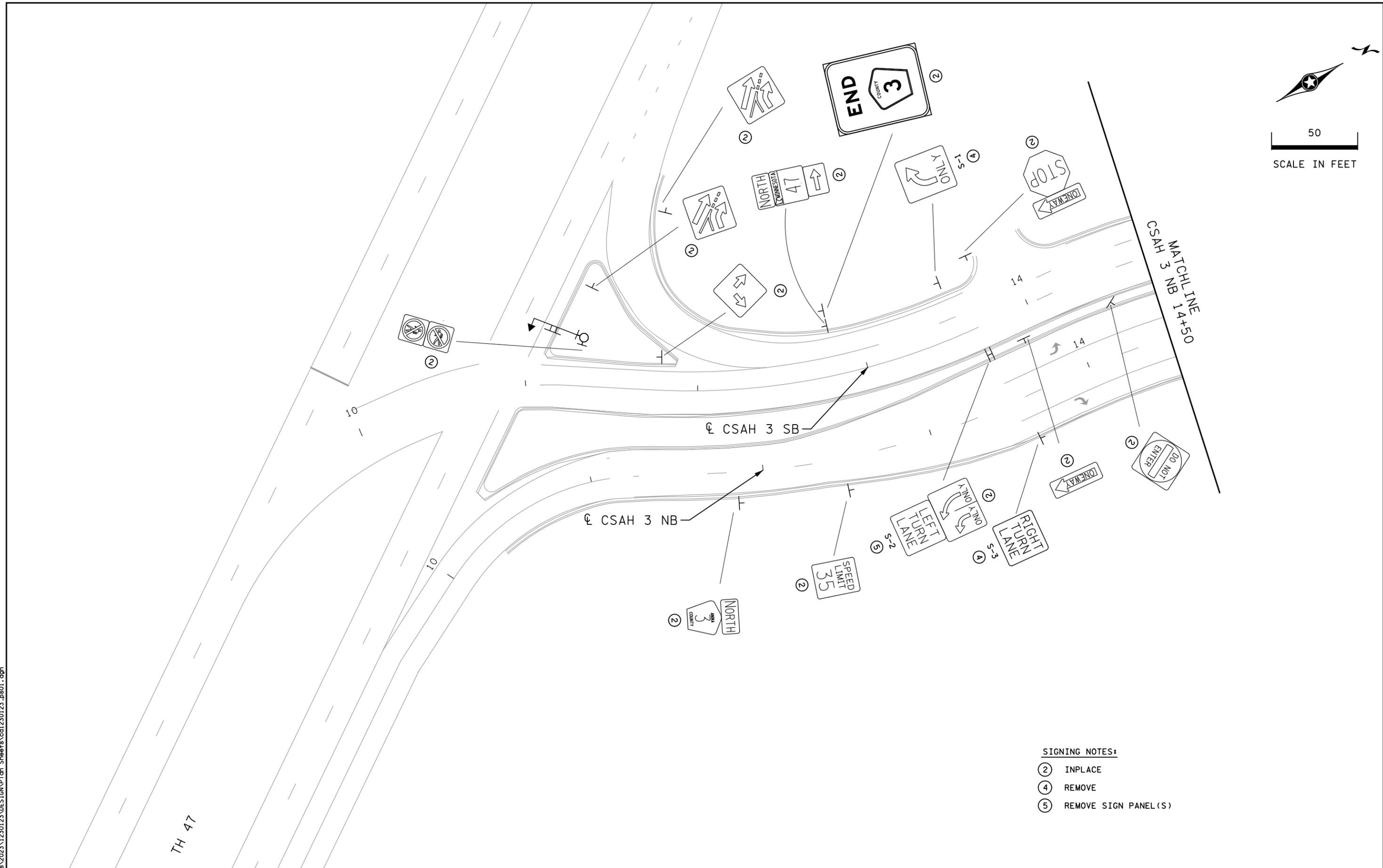
PRINT NAME: MICHAEL P. MCCURDY
 SIGNATURE: *Michael P. McCurdy*
 DATE: 03/20/24 LICENSE #: 45902

PAVEMENT MARKING & SIGNING PLAN
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S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
 SHEET NO. 44 OF 71 SHEETS



50
SCALE IN FEET



- SIGNING NOTES:**
- ② INPLACE
 - ④ REMOVE
 - ⑤ REMOVE SIGN PANEL(S)

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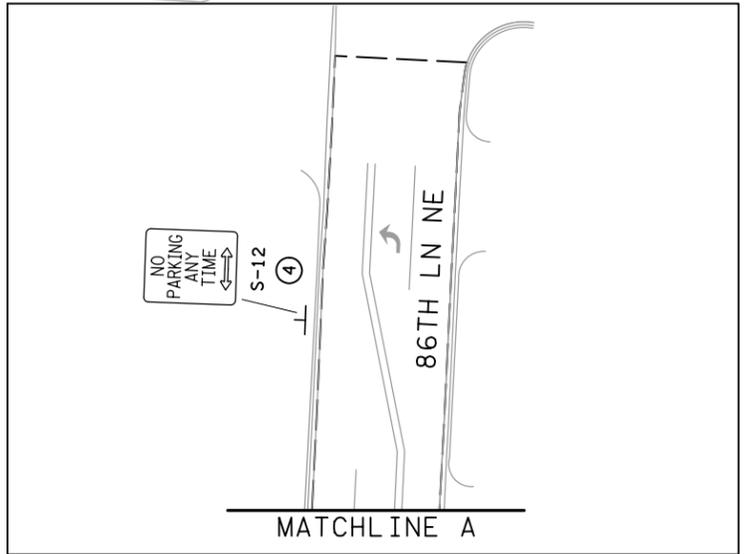
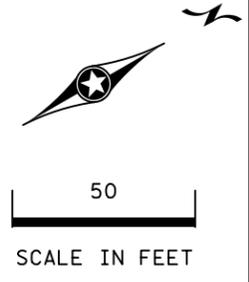
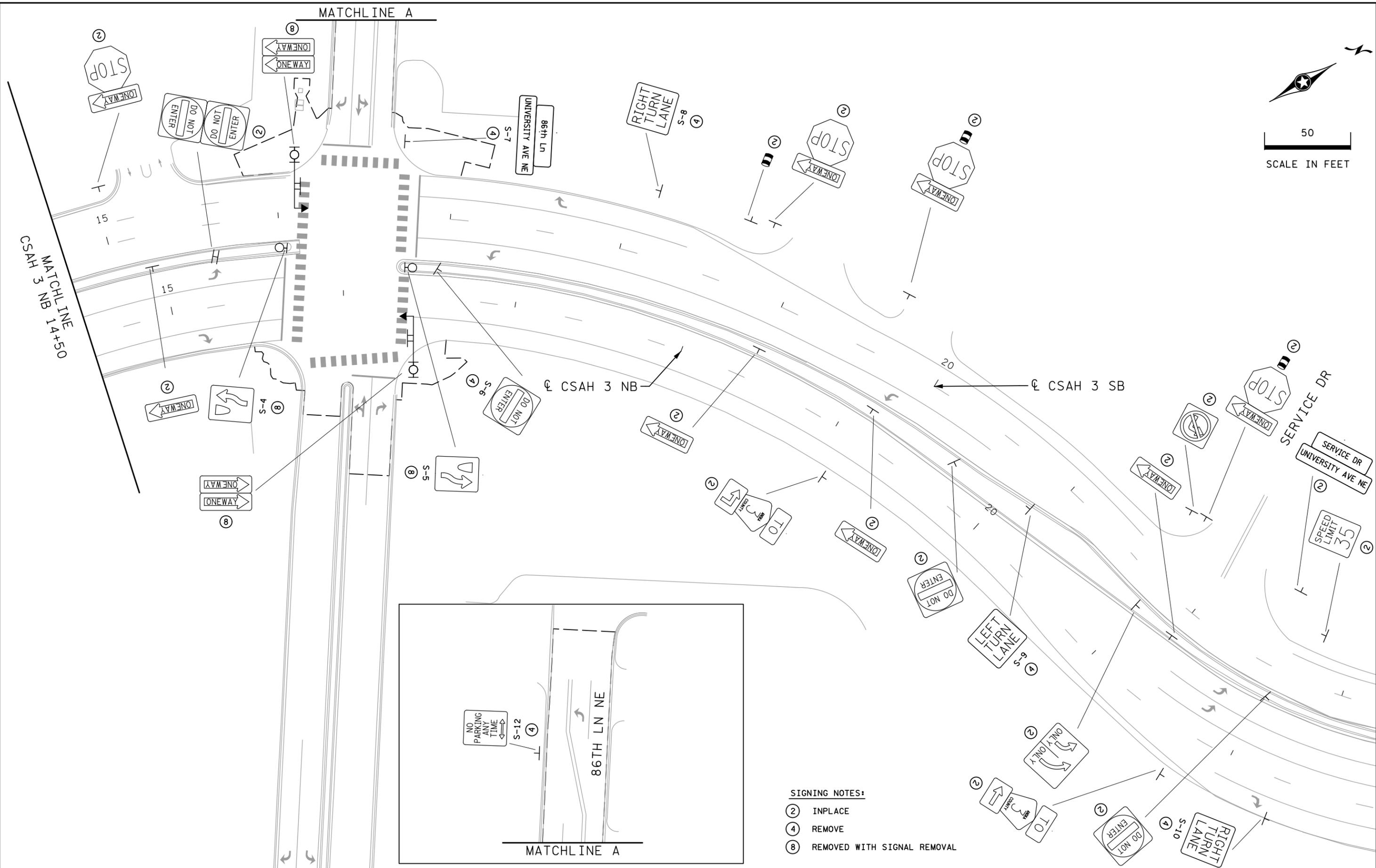
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PAVEMENT MARKING & SIGNING PLAN - EXISTING
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S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
SHEET NO. 45 OF 71 SHEETS

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- SIGNING NOTES:**
- ② INPLACE
 - ④ REMOVE
 - ⑧ REMOVED WITH SIGNAL REMOVAL

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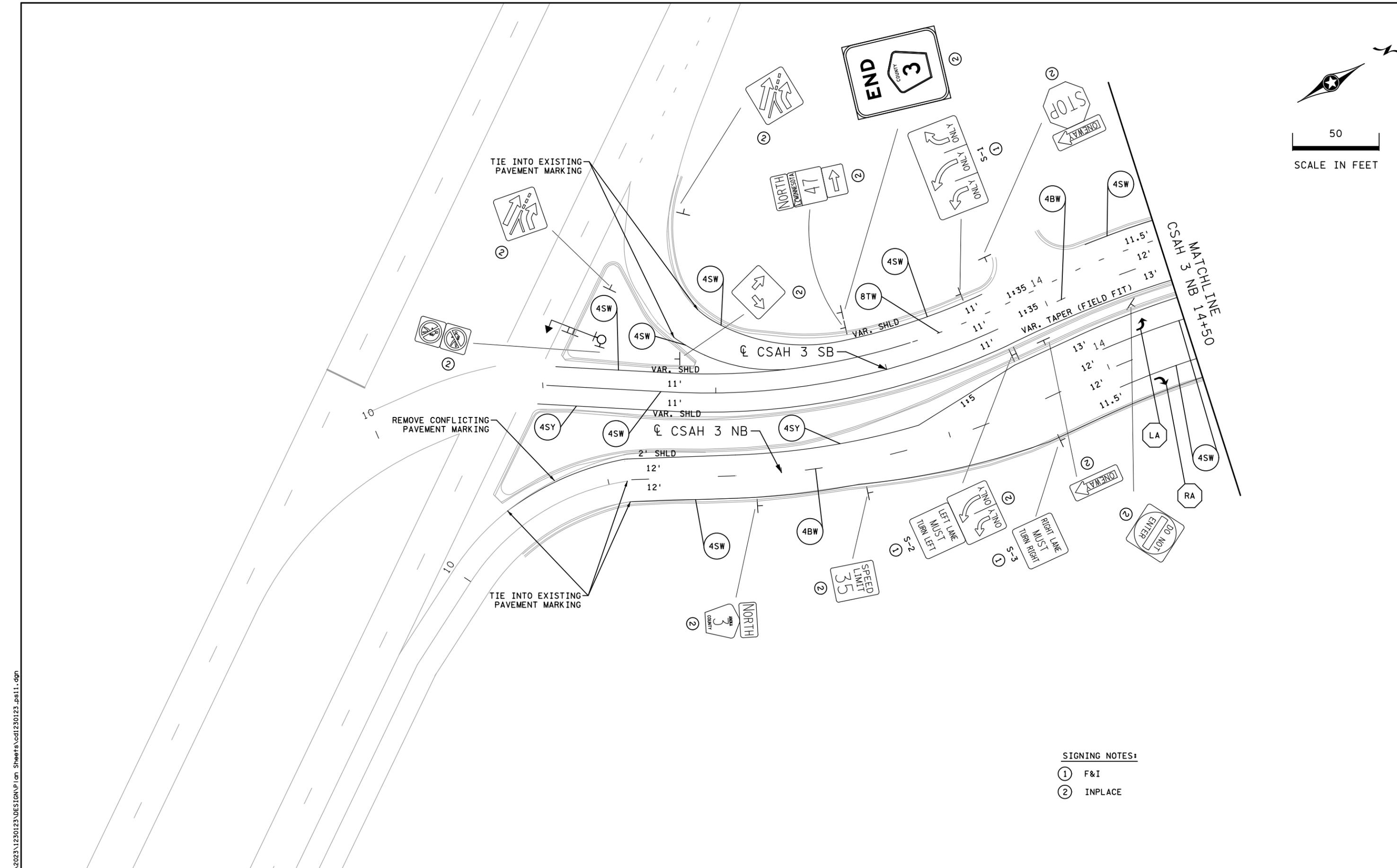
PRINT NAME: MICHAEL P. MCCURDY
 SIGNATURE: *Michael P. McCurdy*
 DATE: 03/20/24 LICENSE #: 45902

PAVEMENT MARKING & SIGNING PLAN - EXISTING
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S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
 SHEET NO. 46 OF 71 SHEETS



50
SCALE IN FEET



SIGNING NOTES:
① F&I
② INPLACE

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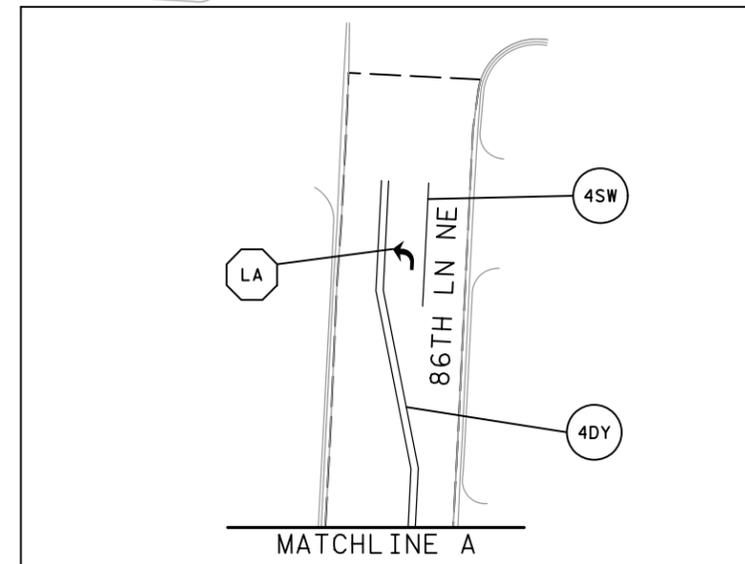
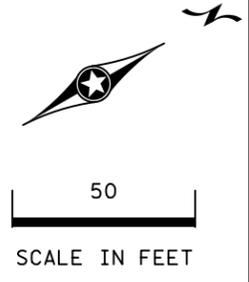
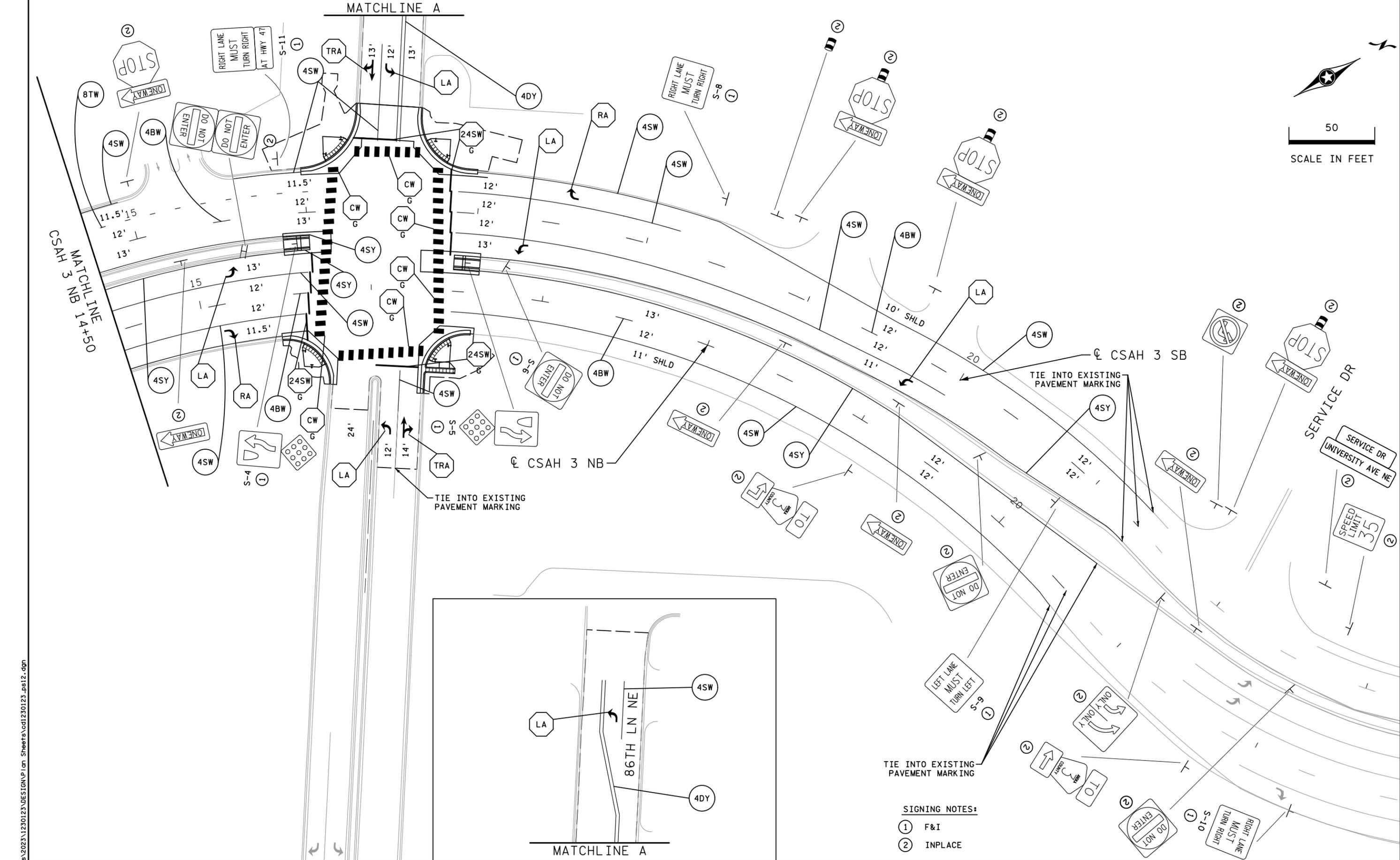


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PAVEMENT MARKING & SIGNING PLAN - PROPOSED
S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
SHEET NO. 47 OF 71 SHEETS



- SIGNING NOTES:**
- ① F&I
 - ② INPLACE

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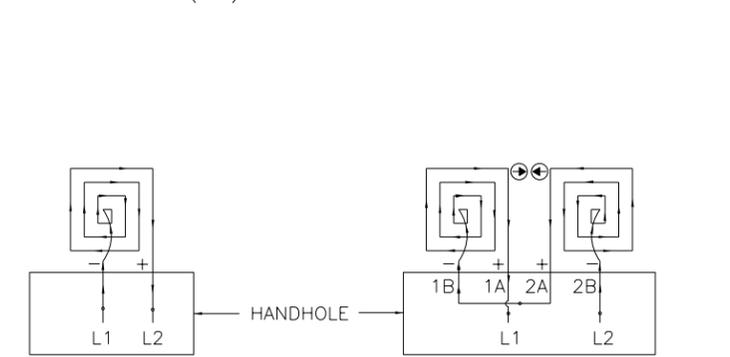
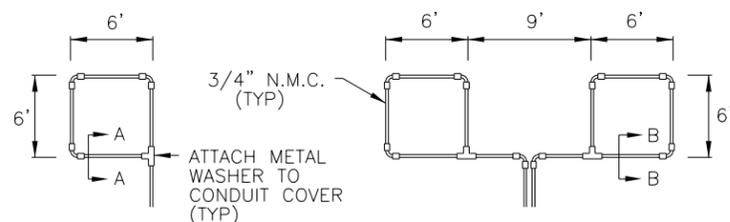


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PAVEMENT MARKING & SIGNING PLAN - PROPOSED
 S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

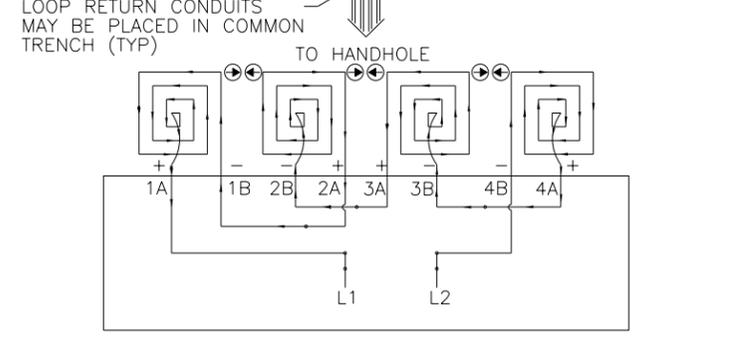
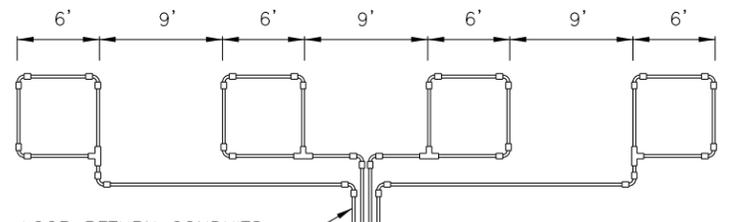
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 SHEET NO. 48 OF 71 SHEETS



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)

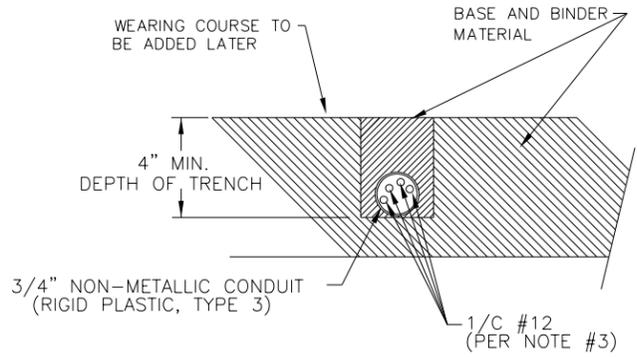


LOOP CONNECTIONS SHALL BE LABELED AND SPLICED
IN THE HANDHOLE AS FOLLOWS:

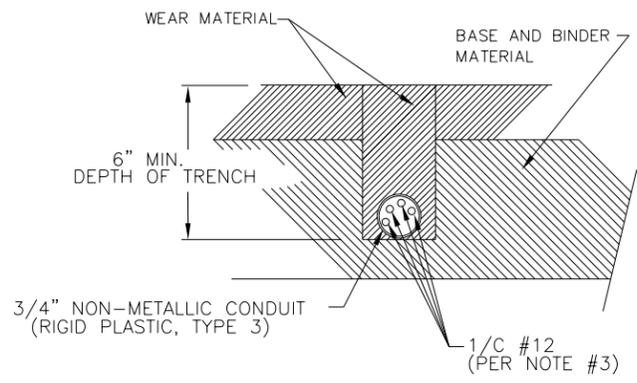
L1 TO 1A 3B TO 4A
1B TO 2A 4B TO L2
2B TO 3A

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

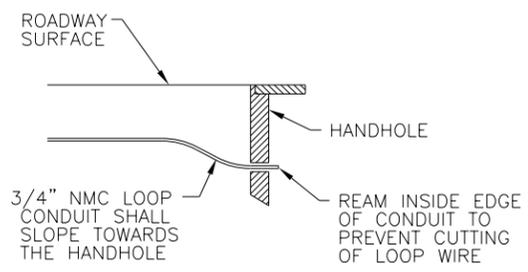
LOOP DETECTOR
DETAIL 'C'
(LOOP PHASING FOR
SERIES CONNECTION)



SECTION A-A
DETAIL FOR LOOP INSTALLATION
IN NEW ROADWAY



SECTION B-B
DETAIL FOR LOOP INSTALLATION
IN EXISTING ROADWAY



DRAINAGE DETAIL

LOOP DETECTOR WIRING

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

LEGEND OF SYMBOLS

CONTROLLER AND SERVICE EQUIP. NO's	(A)
SIGNAL BASE NO.	(1)
SIGNAL FACE NO.	(1-1)
LUMINAIRE NO.	(1)
CONTROLLER AND CABINET	(1)
CONTROLLER AND CABINET - IN PLACE	(1)
HANDHOLE	(1)
HANDHOLE - IN PLACE	(1)
RIGID STEEL CONDUIT (RSC)	(1)
RIGID STEEL CONDUIT (RSC) - IN PLACE	(1)
SIGNAL FACE WITH BACKGROUND SHIELD	(1)
SIGNAL FACE W/O BACKGROUND SHIELD	(1)
SIGNAL FACE - IN PLACE	(1)
PEDESTRIAN INDICATORS	(1)
PEDESTRIAN INDICATORS - IN PLACE	(1)
PEDESTRIAN PUSH BUTTONS ON PEDESTAL OR POLE	(1)
PEDESTRIAN PUSH BUTTON STATION	(1)
TRAFFIC SIGNAL PEDESTAL	(1)
TRAFFIC SIGNAL PEDESTAL - INPLACE	(1)
TRAFFIC SIGNAL POLE AND MAST ARM	(1)
TRAFFIC SIGNAL POLE AND MAST ARM - IN PLACE	(1)
STREET LIGHT POLE AND LUMINAIRE	(1)
STREET LIGHT POLE AND LUMINAIRE - IN PLACE	(1)
MAST ARM AND LUMINAIRE	(1)
MAST ARM AND LUMINAIRE - INPLACE	(1)
WOOD POLE	(1)
WOOD POLE - IN PLACE	(1)
SOURCE OF POWER	(1)
RAILROAD SIGNAL - IN PLACE	(1)
RIGHT OF WAY LINE	(1)
CENTERLINE	(1)
EDGE OF ROADWAY	(1)
SHOULDERLINE	(1)
CURB LINE	(1)
STOP BAR	(1)
EMERGENCY VEHICLE PREEMPTION DETECTOR	(1)

ABBREVIATIONS

3-1(EG)	SIGNAL HEAD PHASE "3" - NO. "1"	P2-1(EG)	PED INDICATION PHASE "2" - NO. "1"
BR. GR.	BARE GROUND	PB	PUSH BUTTON
CH. SW.	CHECK SWITCH	PB2-1(EG)	PUSH BUTTON PHASE "2" - NO. "1"
CLR	CLEAR	PEC	PHOTOELECTRIC CELL
D2-1(EG)	DETECTOR PHASE "2" - NO. "1"	PED	PEDESTRIAN
DWK	DON'T WALK	R	RED
EQG	EQUIPMENT GROUND	R&S	REMOVE AND SALVAGE
EVP	EMERGENCY VEHICLE PRE-EMPTION	RLTA	RED LEFT TURN ARROW
F&I	FURNISH AND INSTALL	RRTA	RED RIGHT TURN ARROW
FL	FLASH/FLASHING	RSC	RIGID STEEL CONDUIT
G	GREEN	SOP	SOURCE OF POWER
GLTA	GREEN LEFT TURN ARROW	SPR	SPARE
GRN	GREEN	ST. LHT	STREET LIGHT
GR. R	GROUND ROD	STA	STATION
GRTA	GREEN RIGHT TURN ARROW	SW	SWITCH
GTHA	GREEN THRU ARROW	SWD	SWITCHED
HH	HANDHOLE	S&R	SALVAGE AND REINSTALL
HPS	HIGH PRESSURE SODIUM	TDW	TELEPHONE DROP WIRE
JB	JUNCTION BOX	WLK	WALK
LUM	LUMINAIRE	YEL	YELLOW
NEU	NEUTRAL	YLTA	YELLOW LEFT TURN ARROW
NMC	NONMETALLIC CONDUIT	YRTA	YELLOW RIGHT TURN ARROW
		YTHA	YELLOW THRU ARROW

CONDUCTOR COLOR CODE

R	RED
O	ORANGE
BL	BLUE
WH	WHITE
R/BLK	RED WITH BLACK TRACER
O/BLK	ORANGE WITH BLACK TRACER
BL/BLK	BLUE WITH BLACK TRACER
WH/BLK	WHITE WITH BLACK TRACER
BLK	BLACK
BLK/WH	BLACK WITH WHITE TRACER
G/BLK	GREEN WITH BLACK TRACER
G	GREEN

SIGNAL SYSTEM & INTERCONNECT TABULATION		SS
DESCRIPTION	UNIT	TOTAL QUANTITY
REMOVE SIGNAL SYSTEM A	EACH	1
TRAFFIC CONTROL INTERCONNECT	LUMP SUM	2
EMERGENCY VEHICLE PREEMPTION SYSTEM	LUMP SUM	1
TRAFFIC CONTROL SIGNAL SYSTEM	SYS	1
TEMPORARY SIGNAL SYSTEM	SYS	1

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PRINT NAME: MICHAEL P. MCCURDY
SIGNATURE: *Michael P. McCurdy*
DATE: 03/26/24 LICENSE #: 45902

TRAFFIC CONTROL SIGNAL SYSTEM
S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

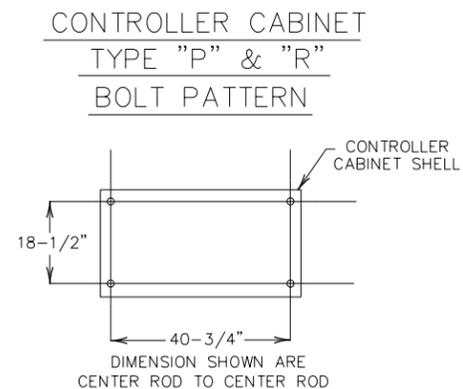
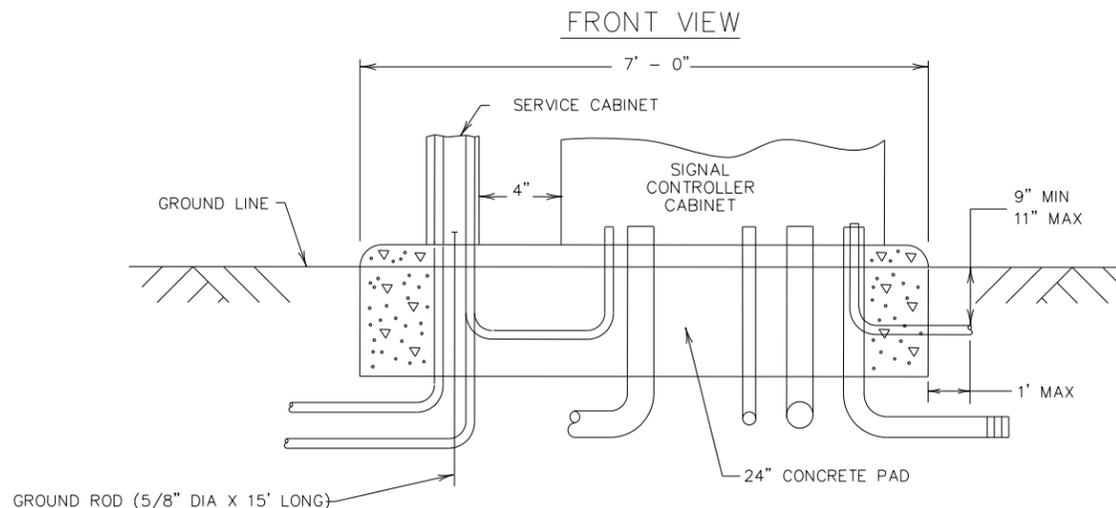
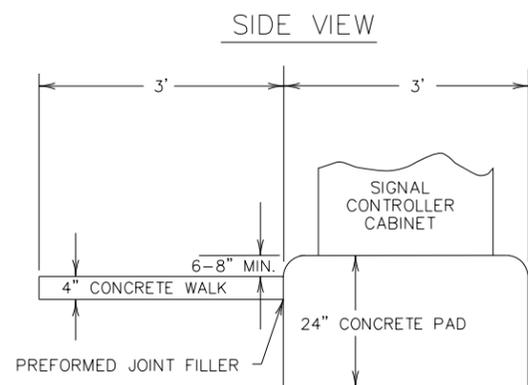
S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
SHEET NO. 49 OF 71 SHEETS

TYPICAL PAD WITH CONTROLLER CABINET AND SERVICE CABINET

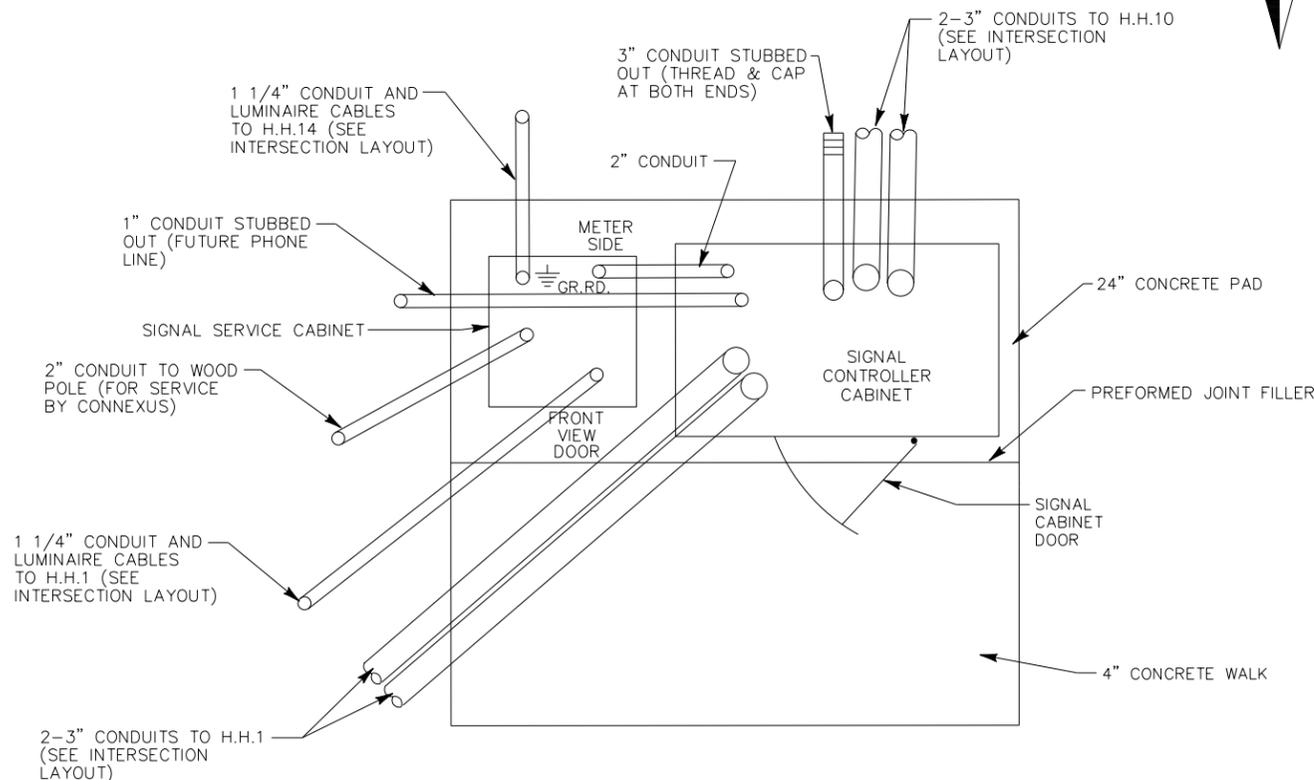
SEE INTERSECTION LAYOUT FOR CABLE INFORMATION (NOT TO SCALE)

NOTES:

1. THE ANCHOR RODS, NUTS AND WASHERS FOR THE COUNTY FURNISHED CONTROLLER AND CABINET SHALL BE FURNISHED BY THE COUNTY AND INSTALLED BY THE CONTRACTOR.
2. THE UPPER PART OF THE NEW EQUIPMENT PAD SHALL BE BEVELLED OR CHAMFERED IN A NEAT MANNER AS DIRECTED BY THE ENGINEER.
3. THE TOP OF THE CONDUITS SHALL BE THREADED AND CAPPED AFTER INSTALLATION (UNTIL CABLES ARE INSTALLED).
4. CONDUIT SHALL PROJECT A MINIMUM OF 2" ABOVE CONCRETE AND SHALL BE LOCATED INSIDE OF THE CABINET WHERE DIRECTED BY THE ENGINEER, BUT SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (SUPPORTING MEMBERS, ETC.).
5. CONCRETE MIX 3F52 OR EQUAL SHALL BE USED FOR THE EQUIPMENT PAD AND SIDEWALK.
6. CONDUITS WITH BOTH ENDS TERMINATING WITHIN THE PAD SHALL NOT BE INSTALLED BELOW THE CONCRETE.
7. THE EXACT LOCATION OF CONDUITS WITHIN THE PAD SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.
8. ANCHOR RODS SHALL PROJECT A MINIMUM OF 3" ABOVE THE CONCRETE BUT SHALL NOT INTERFERE WITH THE CABINET FUNCTIONS (SUPPORTING MEMBERS, ETC.).
9. CONTRACTOR SHALL PROVIDE MINIMUM 4-INCH CLEARANCE BETWEEN CONTROLLER AND SERVICE CABINETS ON THE EQUIPMENT PAD FOUNDATION AS SHOWN.



PLAN VIEW LOCATION



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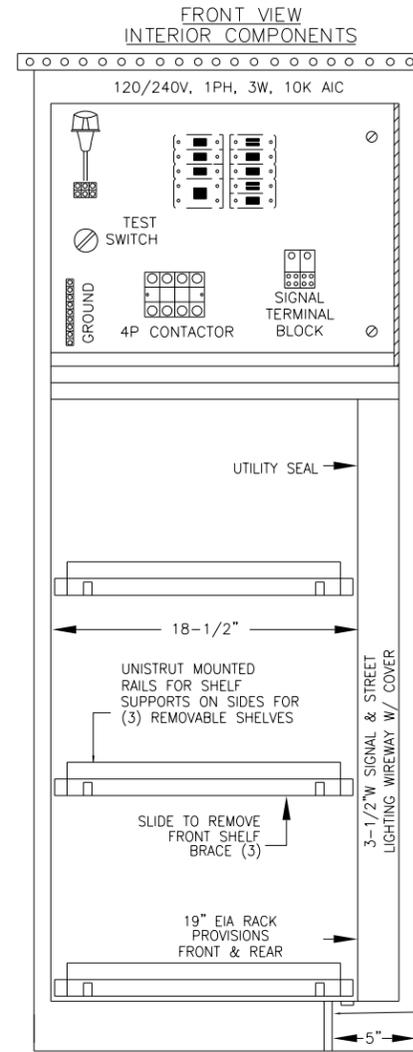
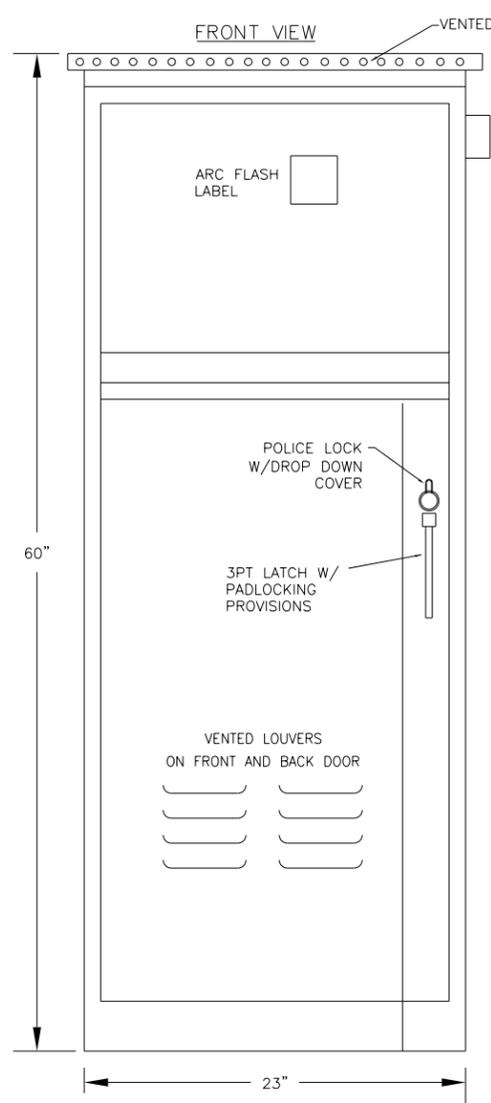


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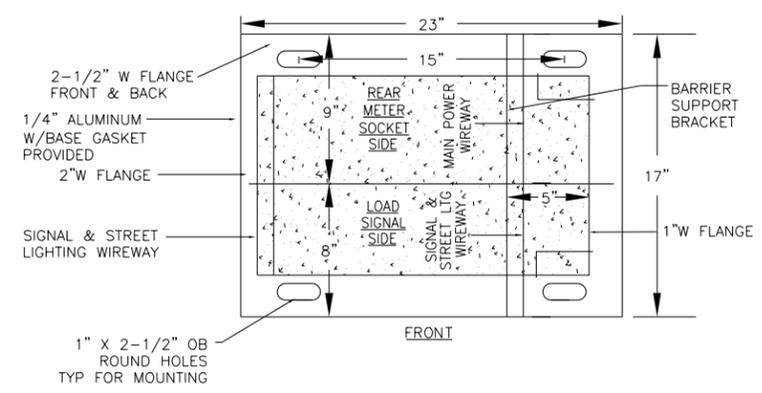
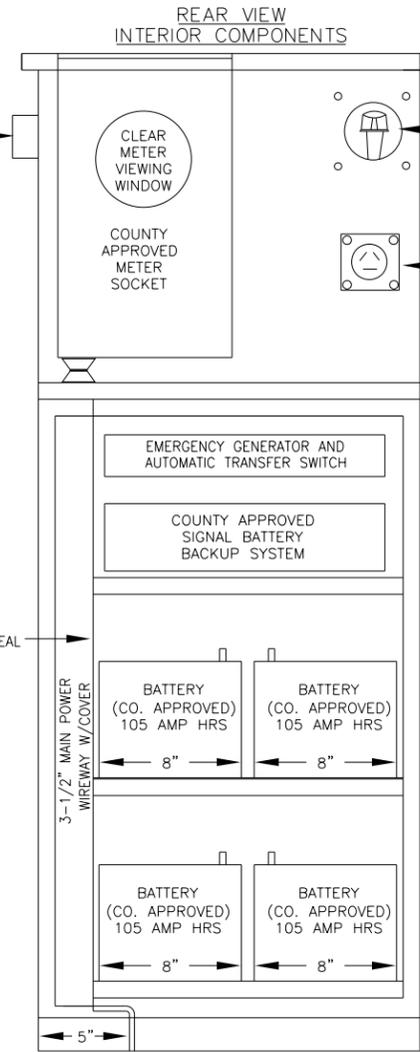
PRINT NAME: MICHAEL P MCCURDY
 SIGNATURE: *Michael P. McCurdy*
 DATE: 03/20/24 LICENSE #: 45902

TRAFFIC CONTROL SIGNAL SYSTEM
 S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
 SHEET NO. 50 OF 71 SHEETS



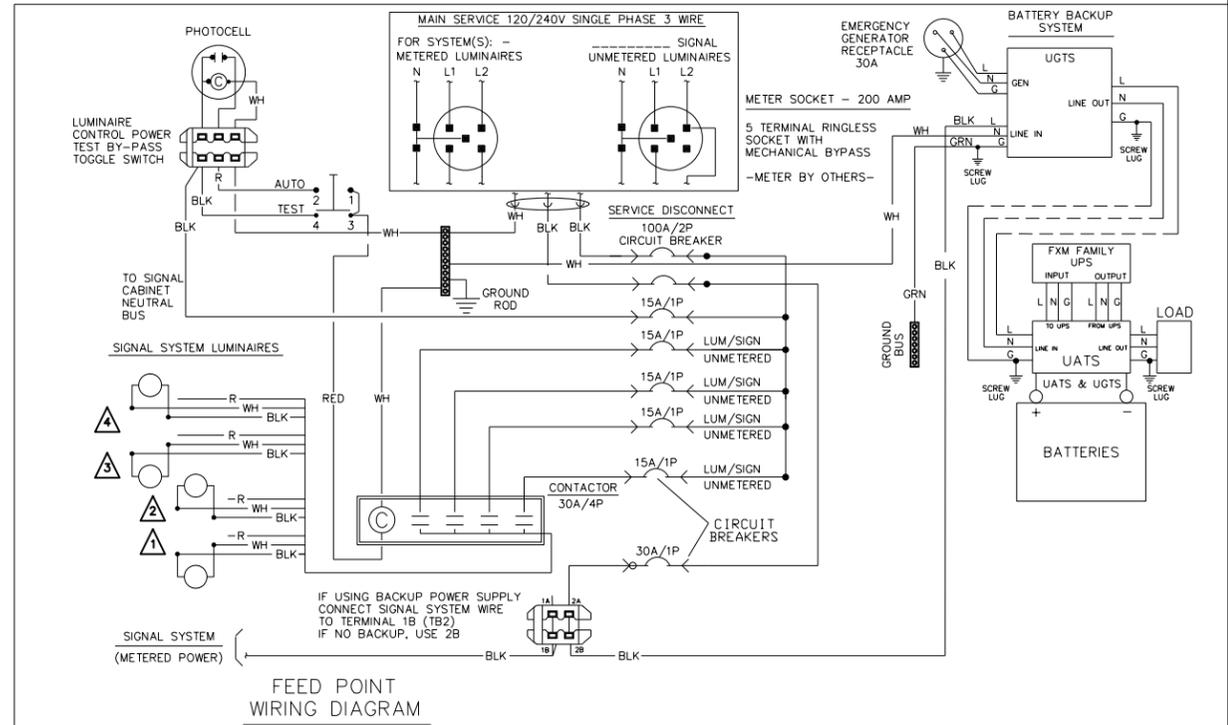
INTERIOR COMPONENTS BEHIND HINGED DEAD FRONT W/ (2)-1/4 TURN LATCHES



CABINET CONSTRUCTION

- NEMA 3R
- 1/8" ALUMINUM 5052-H32
- ANODIZED 30 MINUTE CLEAR
- NEOPRENE GASKETED DOORS
- NON-CORRODING HARDWARE
- ETL LISTED IN ACCORDANCE W/UL508A

SEE SPECIAL PROVISIONS AND STATEMENT OF ESTIMATED QUANTITIES REGARDING SEPARATE PAY ITEM FOR FURNISHING & INSTALLING NEW BATTERY BACK-UP SIGNAL SERVICE CABINET.



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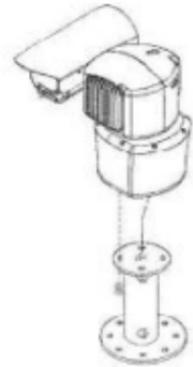
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S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
 SHEET NO. 51 OF 71 SHEETS

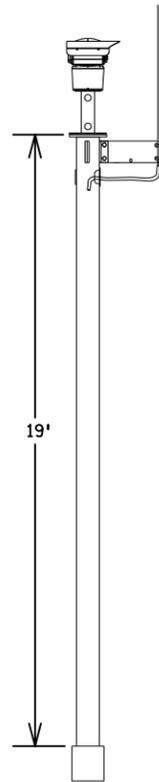
ISOMETRIC VIEW- CAMERA & MOUNT

(COUNTY FURNISHED)



X-400 CAMERA EXTENSION

(USED WHEN A LUMINAIRE IS NOT REQUIRED)



THE TYPICAL D40-9 LUMINAIRE EXTENSION IS NOT USED WHEN THE X6-350/CAM 400 EXTENSION IS REQUIRED

F&I LUMINAIRE/ CAMERA EXTENSION (GALVANIZED, UN-PAINTED). (INCLUDES: LIGHTNING ROD PLATE, AND LIGHTNING ROD.

F&I TINNED BRAIDED GROUND, GROUND ROD, CLAMP #230 AND ANY OTHER MISC. ITEMS REQUIRED)

X6-350/CAM 400 EXTENSION

INSTALL CAMERA & MOUNT (COUNTY FURNISHED)

LIGHTNING ROD & LIGHTNING ROD PLATE

7/16" TINNED BRAIDED GROUND CONDUCTOR (32 STRAND-17 GAUGE COPPER) (INSIDE MAST ARM POLE)

3" x 5" ACCESS OPENING W/COVER PLATE

6'

30' MTG HT FROM GROUND

14'

9'

21'

- F&I CAT 5E (600V RATED) (WITH THE PROPER TERMINATIONS) FROM THE TOP OF THE POLE TO THE SIGNAL CABINET. (NOT TO EXCEED 250' LENGTH)

- F&I 7/16" TINNED BRAIDED GROUND CONDUCTOR (32 STRAND 17 GAUGE COPPER) FROM LIGHTNING ROD TO THE GROUND ROD IN HANDHOLE

7/16" BRAIDED GROUND CONDUCTOR (32 STRAND 17 GAUGE COPPER)

HANDHOLE (SEE LAYOUT)

CLAMP #230 (SEE APL TMS/ITS GROUNDING)

5/8" X 15' GROUND ROD

REQUIRED CABLE TERMINATION: COM CABLE- CAT 5E (600V RATED) SHIELDED -RJ-45 (T-568B)

F/I CAT 5E (300V RATED) (TO CAMERA AT THE TOP OF THE POLE)

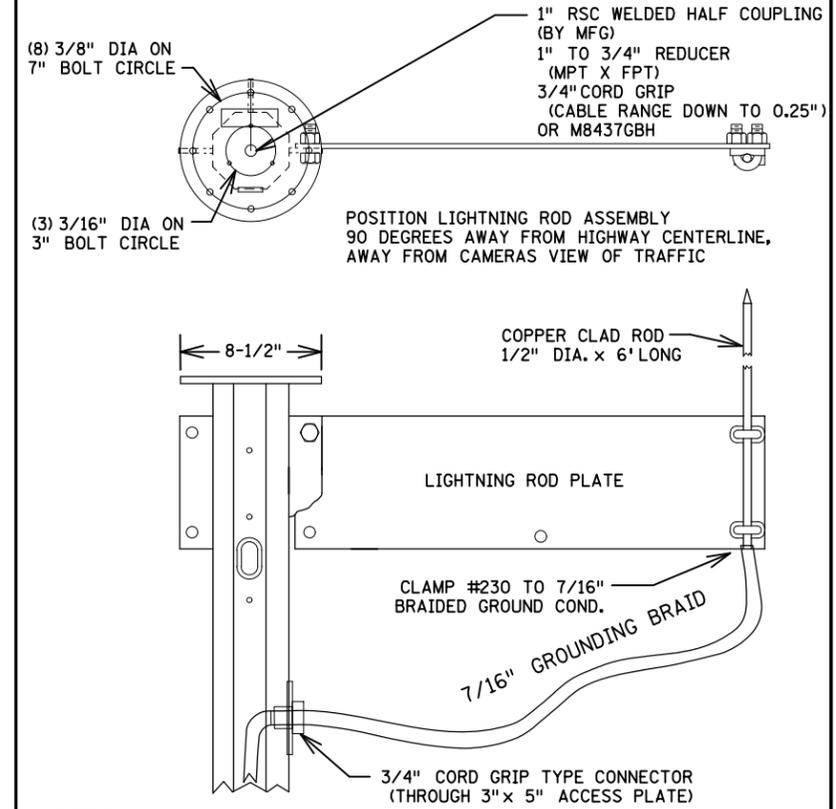
PROPOSED SIGNAL CONTROL CABINET (COUNTY FURNISHED OR INPLACE)

COUNTY FURNISHED & INSTALLED: CAMERA POWER OVER ETHERNET (POE) INJECTOR PATCH CORDS SIGNAL CONTROLLER MMU ETHERNET SWITCH

CONDUIT W/6-SM F/O

CORE DRILL FOR CONDUIT WHERE REQUIRED

EXTENSION TOP & LIGHTNING PROTECTION DETAIL

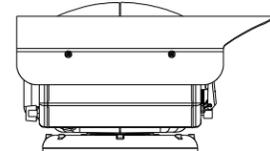


NOTES:

- 1) FURNISH & INSTALL 7/16" TINNED BRAIDED GROUND CONDUCTOR INSIDE MAST ARM POLE AND THROUGH INPLACE CONDUIT TO CLOSEST HANDHOLE (SEE LAYOUT).
- 2) CONTRACTOR SHALL CLAMP #230 7/16" BRAIDED GROUND WIRE TO GROUND ROD IN HANDHOLE.
- 3) NO SPLICES ALLOWED IN 7/16" TINNED BRAIDED GROUND WIRE.
- 4) CONTRACTOR SHALL CUT A 3/4 INCH KNOCK OUT HOLE IN THE INSPECTION PLATE NEAR THE CAMERA AND PLACE A 3/4 INCH CORD GRIP TYPE FITTING TO RUN THE 7/16 INCH TINNED BRAIDED GROUND CONDUCTOR INTO THE POLE.

CAMERA & MOUNT AT TOP OF EXTENSION

IP CAMERA (COUNTY FURNISHED)



GROUND WIRE

F&I MOUNTING BOLTS W/ANTI-SEIZE
(4) 5/16" x 1-1/4" STAINLESS STEEL BOLTS
(4) 5/16" STAINLESS STEEL NUTS
(8) 5/16" STAINLESS STEEL FLAT WASHERS
(3) 5/16" STAINLESS STEEL LOCK WASHERS
(1) 5/16" STAINLESS STEEL INTERNAL TOOTH LOCK WASHER

10" CAMERA MOUNT (COUNTY FURNISHED)

1" TO 3/4" REDUCER (MPT X FPT)
3/4" CORD GRIP (CABLE RANGE DOWN TO 0.25") OR M8437GBH
IN TOP OF LUMINAIRE/ CAMERA EXTENSION

2) CAT 5E CABLE 600V RATED

7/16" BRAIDED GROUND CONDUCTOR (32 STRAND-17 GAUGE COPPER)

1) THE CAMERA IS SUPPLIED WITH 20" CABLE PIGTAIL. IT IS TERMINATED WITH A RJ45 PLUG AS INDICATED ON THE IP CAMERA CONNECTOR DETAIL SHEET.

2) F&I ETHERNET CABLE IN ACCORDANCE WITH 3815.2C.6.d (CAT 5E -300V RATED), BETWEEN THE SIGNAL CONTROL CABINET AND THE TOP OF THE POLE. TERMINATE THE END OF THE CABLE WITH UNSHIELDED RJ-45 (T-568B) CONNECTORS. ALL FIELD TERMINATIONS/CONNECTORS SHALL BE INSTALLED AS RECOMMENDED BY THE MANUFACTURER USING THE SPECIFIED INSTALLATION TOOL(S).

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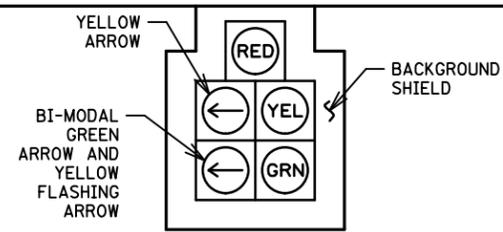
PRINT NAME: MICHAEL P MCCURDY
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TRAFFIC CONTROL SIGNAL SYSTEM

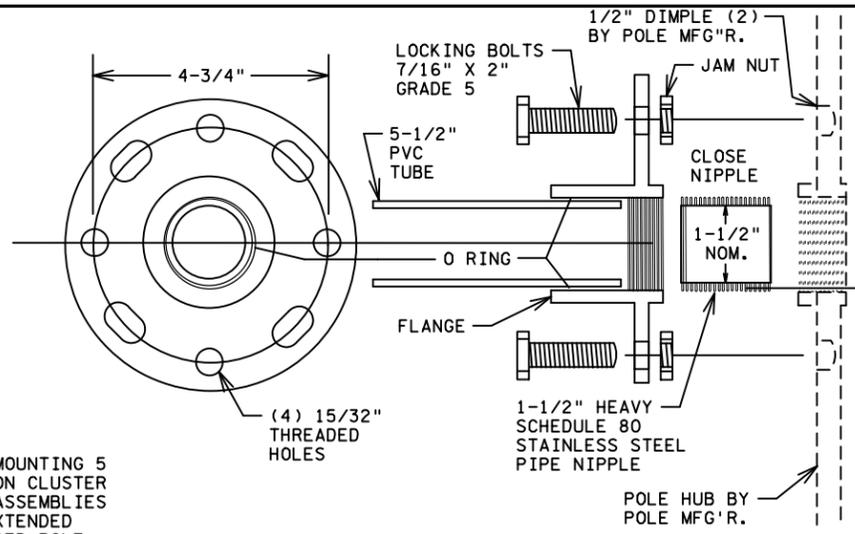
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S.A.P. 002-603-005 (CSAH 3/86TH LN NE)

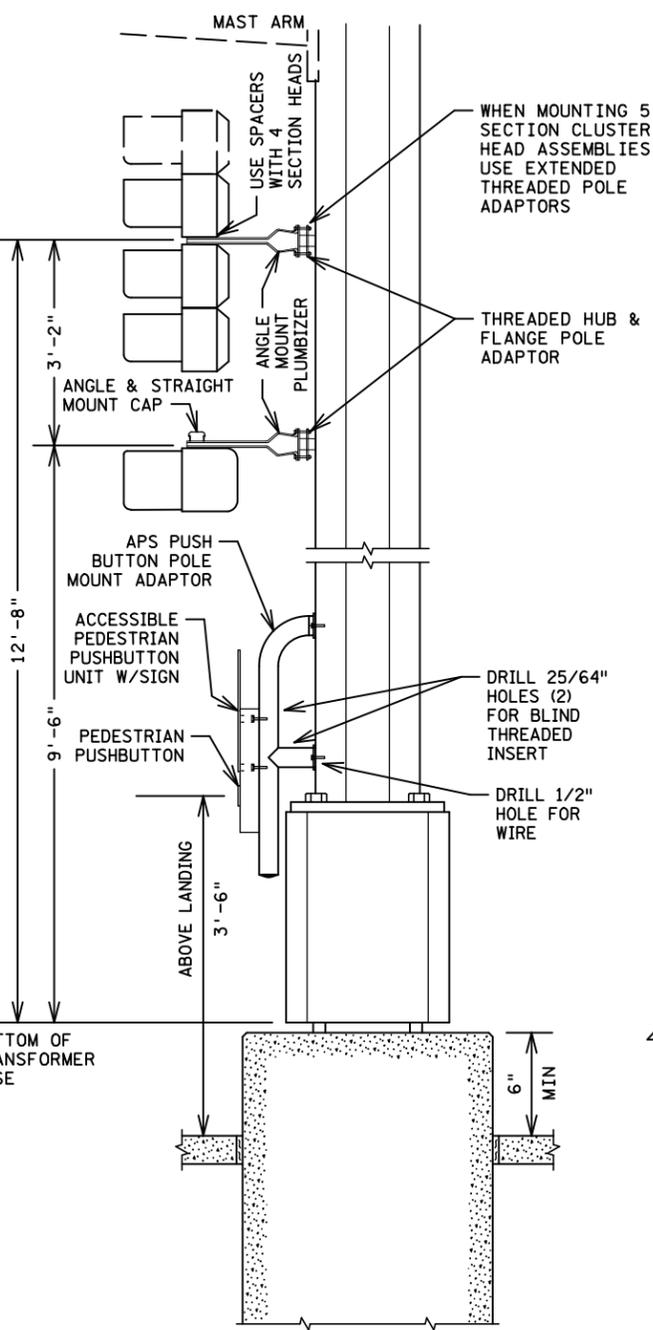
SHEET NO. 52 OF 71 SHEETS



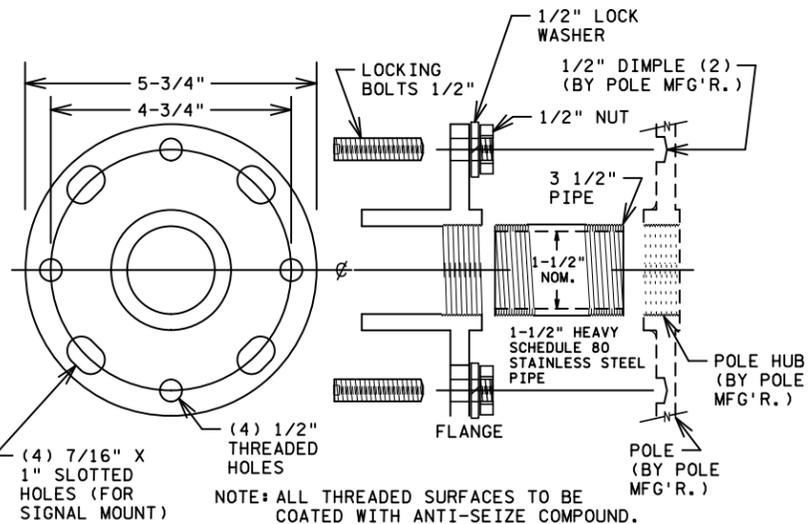
5 SECTION FYA CLUSTER HEAD DETAIL



THREADED HUB AND FLANGE POLE ADAPTOR

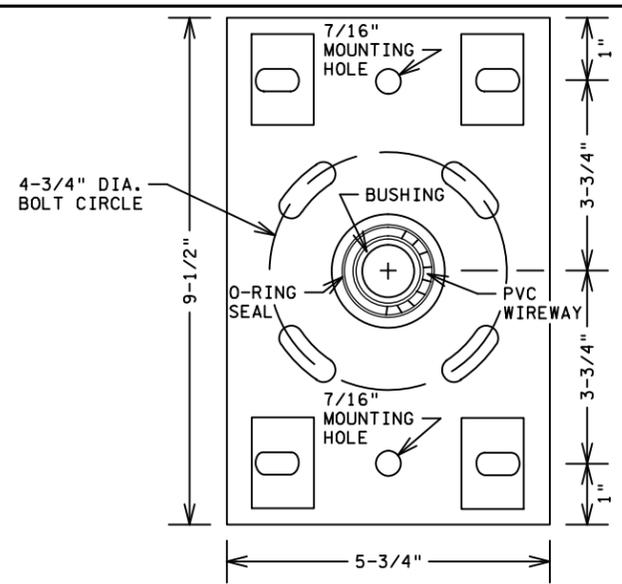


TYPICAL SIGNAL POLE MOUNTING
NOT TO SCALE

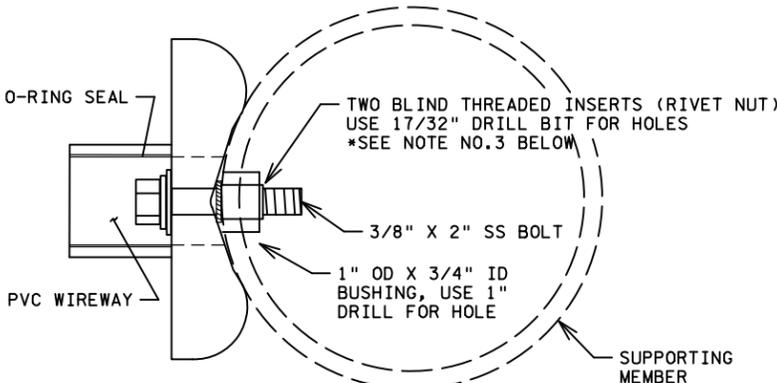


EXTENDED THREADED POLE ADAPTER

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



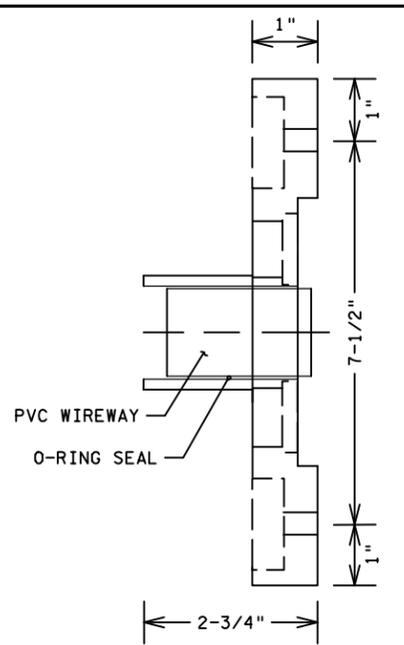
BOLT ON HUB & FLANGE



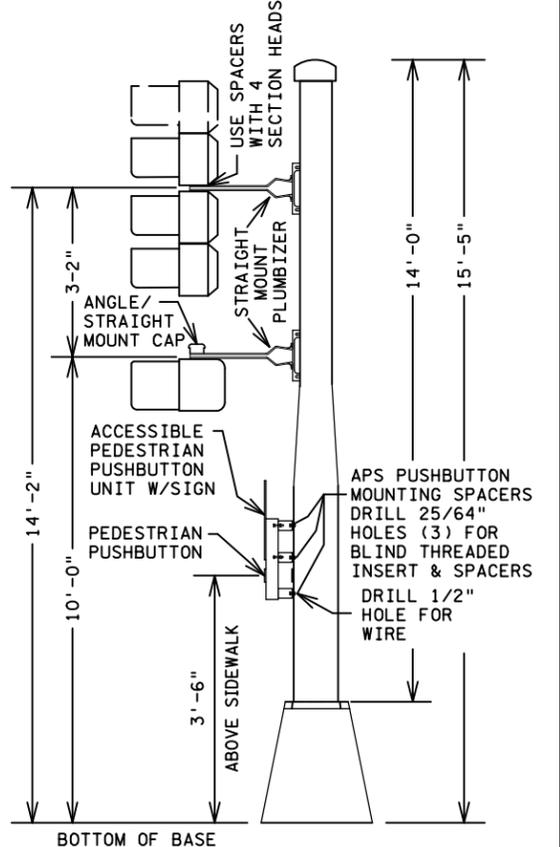
TOP VIEW



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



SIDE VIEW



TYPICAL PEDESTAL MOUNTING
NOT TO SCALE

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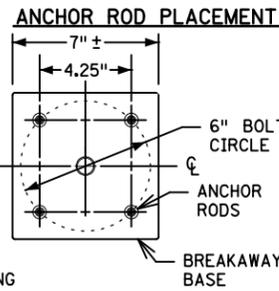
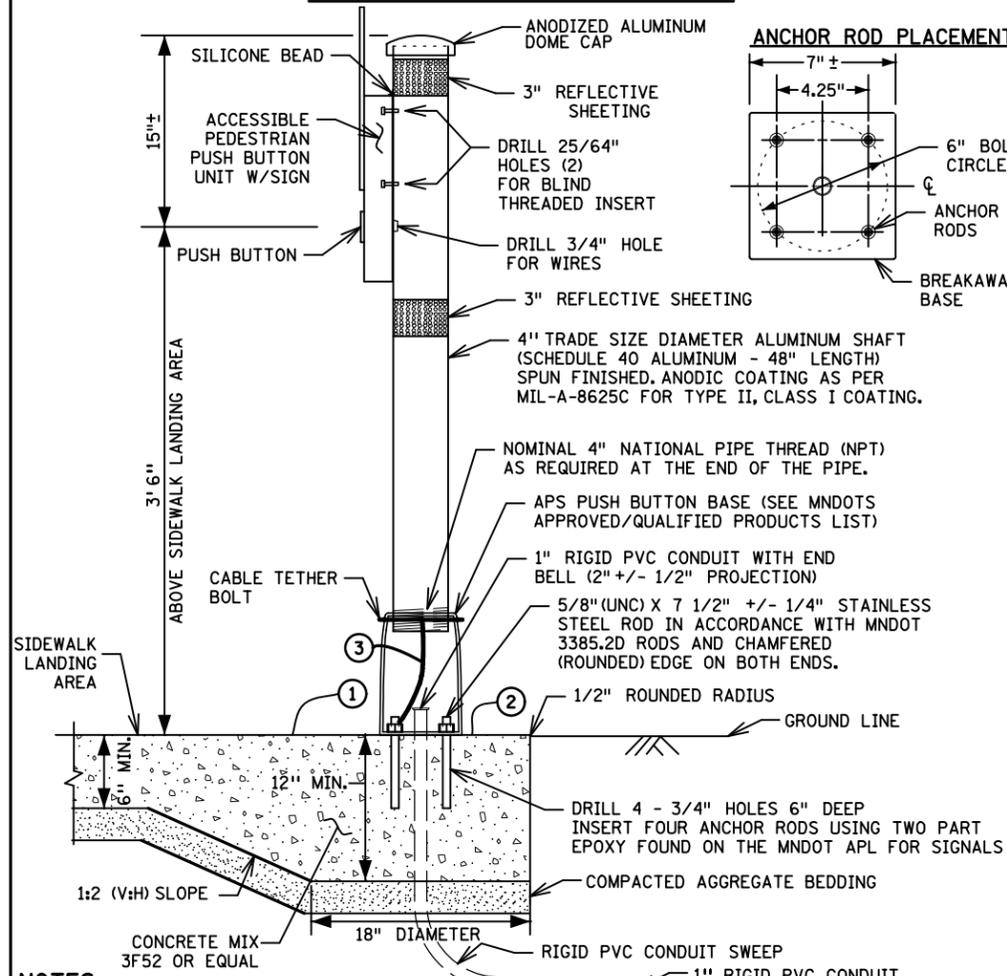
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PRINT NAME: MICHAEL P MCCURDY
SIGNATURE: *Michael P. McCurdy*
DATE: 03/20/24 LICENSE #: 45902

TRAFFIC CONTROL SIGNAL SYSTEM
S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
SHEET NO. 53 OF 71 SHEETS

APS PUSH BUTTON STATION



NOTES:
 PLACEMENT AND ORIENTATION OF THE PUSH BUTTON STATION IS CRITICAL. MOUNT THE BUTTON SO THAT THE FACE IS PARALLEL WITH THE ASSOCIATED CROSSWALK. SCREW IN SHAFT TO A TIGHTENED POSITION BEFORE MOUNTING ACCESSIBLE PEDESTRIAN PUSH BUTTON UNIT TO THE SHAFT.
 ORIENT ACCESS OPENING ON THE BREAKAWAY PEDESTAL DIRECTLY BELOW THE APS BUTTON.
 PLUMB THE PUSH BUTTON STATION WITH LEVELING SHIMS IN ACCORDANCE WITH STANDARD PLATE 8129.
 INSTALL BLIND THREADED INSERTS USING MANUFACTURER'S SPECIFIC INSERTION TOOL.
 USE ZINC PLATED STEEL 1/4 - 20 UNC BLIND THREADED INSERTS SUITABLE FOR MOUNTING ON SURFACE WALL THICKNESS OF .337. APPROVED BLIND INSERTS ARE LISTED ON MNDOT'S APPROVED/QUALITY PRODUCTS LIST WEBSITE FOR TRAFFIC SIGNALS.
 USE APS 1/4 - 20 STAINLESS STEEL MOUNTING BOLTS. APPLY BRUSH ON ANTI SEIZE COMPOUND TO BOLTS PRIOR TO ASSEMBLY.
 APPLY A BEAD OF 100% SILICONE SEALANT ALONG THE TOP OF THE PUSH BUTTON UNIT WHERE IT COMES IN CONTACT WITH THE 4" SHAFT.
 USE WHITE REFLECTIVE SHEETING AT INTERSECTION CORNERS AND YELLOW REFLECTIVE SHEETING IN CENTER MEDIANS. APPROVED TUBE DELINEATOR SHEETING IS LISTED ON MNDOT'S APPROVED/QUALIFIED PRODUCTS LIST WEBSITE FOR SIGNING.
 AN 18" X 6" FIBER FORMING TUBE MAY BE USED FOR THE LOWER HALF OF THE FOUNDATION WHEN CONDITIONS DO NOT ALLOW FOR THE 18" X 6" HOLE TO STAND OPEN.

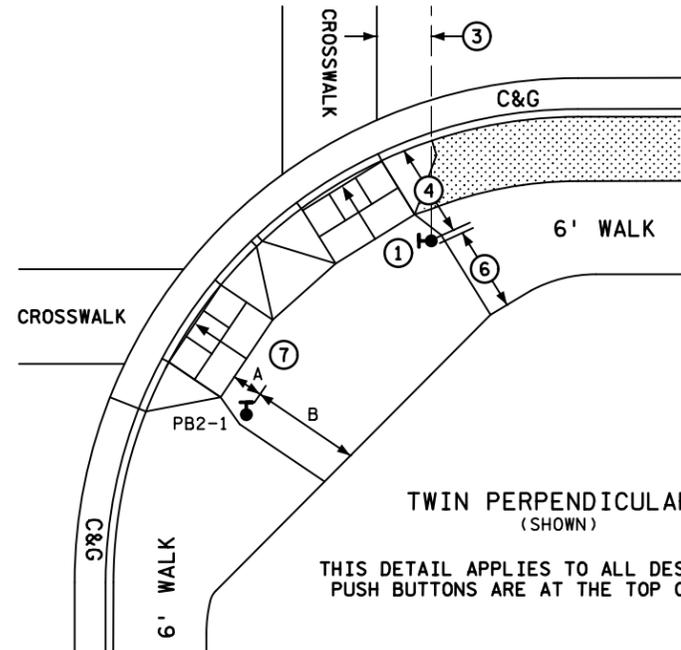
- THE PUSH BUTTON STATION FOUNDATION IS MONOLITHIC (POURED AT ONE TIME) WITH THE SIDEWALK. PROVIDE A 1:2 (V:H) SLOPE GRADE WHERE THE 6" MIN SIDEWALK DEPTH TRANSITIONS TO THE 12" MIN FOUNDATION DEPTH. MAINTAIN THE COMPACTED AGGREGATE BEDDING AND THICKNESS USED FOR THE SIDEWALK THROUGHOUT THE SLOPE AND FOUNDATION GRADING. PROVIDE 1:2 (V:H) SLOPE GRADING 360 DEGREES FOR THE TRANSITION FROM THE SIDEWALK TO THE FOUNDATION WHEN THE FOUNDATION IS NOT LOCATED NEAR EDGE OF SIDEWALK AND IS SURROUNDED BY CONCRETE WALK.
- ENSURE CONCRETE CONTROL JOINTS AND EDGE OF CONCRETE WALK ARE A MINIMUM 9" FROM THE CENTER OF THE PUSH BUTTON FOUNDATION.
- INSTALL THE MANUFACTURER PROVIDED CABLE TETHER ASSEMBLY IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

TYPICAL APS PEDESTRIAN PUSH BUTTON LOCATION

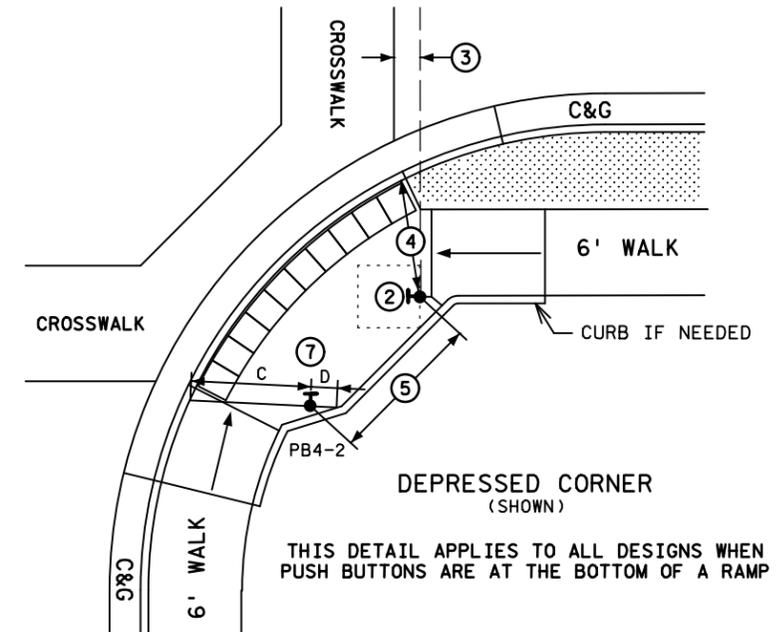
THIS IS A GENERAL DETAIL INTENDED TO SHOW THE REQUIREMENTS OF APS PUSH BUTTON LOCATION. FOR PROJECT SPECIFIC INFORMATION REGARDING PEDESTRIAN RAMP LAYOUT AND PUSH BUTTON LOCATIONS, SEE THE PLAN.

SUPPLEMENTAL GUIDANCE FOR CONSTRUCTING COMPLIANT APS PUSH BUTTONS:

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

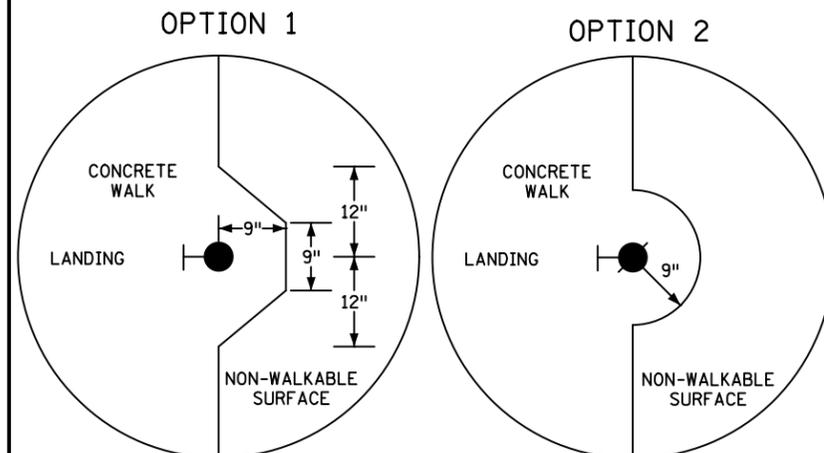


THIS DETAIL APPLIES TO ALL DESIGNS WHEN PUSH BUTTONS ARE AT THE TOP OF A RAMP



THIS DETAIL APPLIES TO ALL DESIGNS WHEN PUSH BUTTONS ARE AT THE BOTTOM OF A RAMP

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



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

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

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TRAFFIC CONTROL SIGNAL SYSTEM

S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)

SHEET NO. 54 OF 71 SHEETS

FROM		TO DEVICE	
SIGNAL SERVICE	1/C 6 EGC	AS SHOWN ON PLAN	
SOP	3-1/C 2	R WH BLK	SIGNAL SERVICE
SIGNAL SERVICE	3-1/C 6	BLK WH G	SIGNAL CABINET
SIGNAL CABINET	(6SM) CABLE		SIGNAL CABINET

SIGNAL CABINET TO DEVICE	
6PR 19	AS SHOWN ON PLAN
COAXIAL CABLE	AS SHOWN ON PLAN
4/C 18	R BLK WH G AS SHOWN ON PLAN
2/C 14	BLK WH OR CLR AS SHOWN ON PLAN
3/C 20	R OR O WH OR YEL BLK OR BL AS SHOWN ON PLAN
CAT 5	AS SHOWN ON PLAN

SIGNAL CABINET TO DEVICE	
6/C 14	R O BL WH BLK/R BLK RED/RLA YEL/YLA GRN/GLA NEU YLA/FYA GLA 4 AND 5 SECTION SIGNAL HEADS
4/C 14	R BLK/R BLK WH RED/DWK YEL/WLK GRN/SPR NEU 3 SECTION HEAD PED HEADS
4/C 14	R BLK/R BLK WH RED YEL GRN NEU 5 SECTION (CLUSTER HEADS ONLY)
4/C 14	R BLK/R BLK WH FYA YLA GLA NEU
3/C 14	BLK G WH EVP LIGHT/AWF LUMINAIRE VIDEO CAMERA ENFORCEMENT LIGHT

NOTES:
ARRANGE AND TERMINATE CONDUCTORS AND CABLES AS SHOWN WITHOUT SPLICE.
NUMBER ONLY MEANS AWG CONDUCTOR SIZE (e.g. 14=14AWG)
1/C MEANS AN INDIVIDUAL CONDUCTOR NOT PART OF A CABLE ASSEMBLY

CABLE LABELING ABBREVIATIONS		
ABBREVIATION	LABEL REFERENCE DSRIPTION & EXAMPLE	COMPONENT
X-Y	INDICATION NUMBER 2-1	SIGNAL HEAD
X-Y	LOOP NUMBER D2-1	DETECTOR
X-Y	PUSH BUTTON NUMBER PB2-1	PUSH BUTTON
X-Y	PED INDICATION NUMBER P2-1	PED INDICATION
X-Y	LUMINAIRE NUMBER L1	LUMINAIRE
X-Y	EVP PHASE NUMBER EVP 2+5	EVP DETECTOR
X-Y	EVP LIGHT PHASE NUMBER EVPL 2+5	EVP CON. LIGHT
X-Y	VIDEO DETECTION PHASE V2-1	VIDEO DETECTION
X-Y	RADAR DETECTION PHASE RD2-1	RADAR DETECTION
SS	SIGNAL SERVICE	SERVICE WIRE
CC	CABINET COMMS	COMMS CABLE
FO	FIBER OPTIC	FIBER CABLE
SPARE Y	SPARE WIRE TO POLE NUMB. SPARE1	SPARE WIRE
ELYZ *	ENFORC. LIGHT POLE & DIRECTION	ENFORCEMENT LIGHT
PTZ1	PTZ CAMERA POLE NUMBER PTZ1	PTZ CAMERA
IC	INTERCONNECT CABLE	INTERCONNECT
EGC	EQUIPMENT GROUNDING CONDUCTOR	GROUND

X = SIGNAL SYSTEM PHASE NUMBER; REFER TO THE PLAN
Y = SIGNAL SYSTEM ASSIGNED COMPONENT NUMBER; REFER TO THE PLAN
Z * = DIRECTION
FURNISH AND INSTALL LABELS ON CABLES WITH ABBREVIATIONS SHOWN ON THIS TABLE AND IN ACCORDANCE WITH THE WIRING DIAGRAM.

WIRE COLOR CODE KEY	
R	Red
O	Orange
BL	Blue
WH	White
BLK	Black
BRN	Brown
CL	Clear
G	Green
R/BLK	Red with Black Stripe
O/BLK	Orange with Black Stripe
BL/BLK	Blue with Black Stripe
WH/BLK	White with Black Stripe
WH/R	White with Red Stripe
BLK/WH	Black with White Stripe
BLK/R	Black with Red Stripe

CONDUCTOR AND CABLE SPECIFICATION CHART		
NUMBER OF CONDUCTORS & AWG SIZE	TYPE	Specification Number
1/C 2	INDIVIDUAL SERVICE CONDUCTORS	3815.2B.1
1/C 6	FEEDER AND BRANCH CONDUCTORS	3815.2B.1
1/C 6 INS.GR.	Grounding Conductors	3815.2B.5
2/C 14	Loop Detector Lead-In Cable	3815.2C.4
3/C 14	Signal Control Cable	3815.2C.3
4/C 14	Signal Control Cable	3815.2C.3
6/C 14	Signal Control Cable	3815.2C.3
12/C 14	Signal Control Cable	3815.2C.3
6PR 19	Telephone Cables Outdoor	3815.2C.6.b
3/C 20	EVP Detector Cable	3815.2C.5

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NO	DATE	DWN	CKD	REVISIONS



I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED 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: MICHAEL P. MCCURDY
SIGNATURE: *Michael P. McCurdy*
DATE: 03/20/24 LICENSE #: 45902

TRAFFIC CONTROL SIGNAL SYSTEM
S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

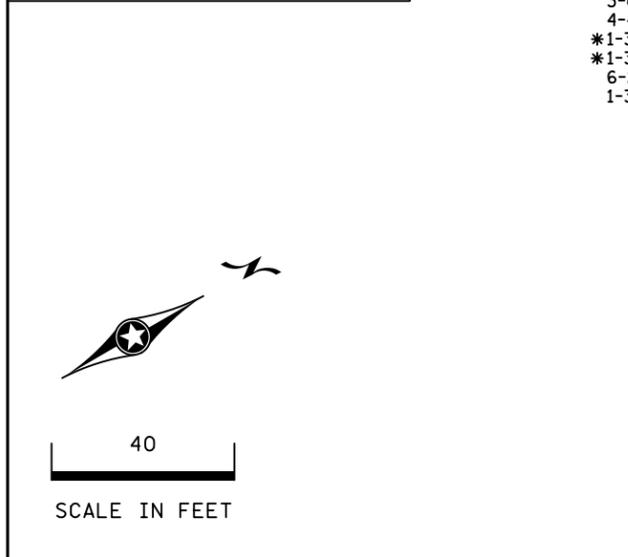
S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
SHEET NO. 55 OF 71 SHEETS

SIGNAL HEAD CHART				
FACE	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	←	←	←	←
6-1, 6-2, 6-3	●	●	●	●
7-1, 7-2	←	←	←	←
8-1, 8-2	●	●	●	●

-ALL SIGNAL INDICATIONS SHALL BE 12" LED
 -ALL SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS AND SHALL HAVE 2" YELLOW REFLECTIVE BORDERS ON ALL SIDES OF BACKGROUND SHIELD
 -FYA DENOTES FLASHING YELLOW ARROW

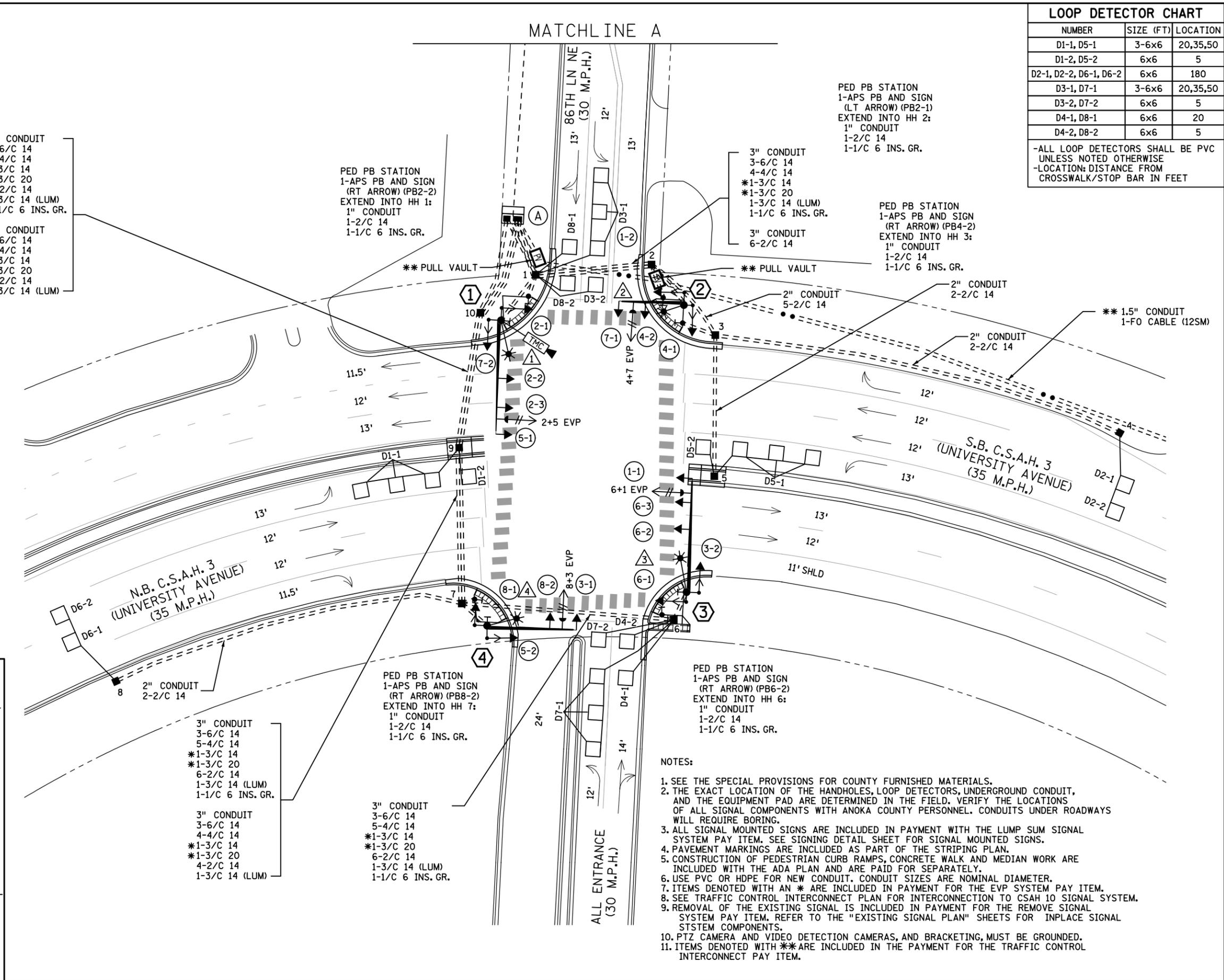
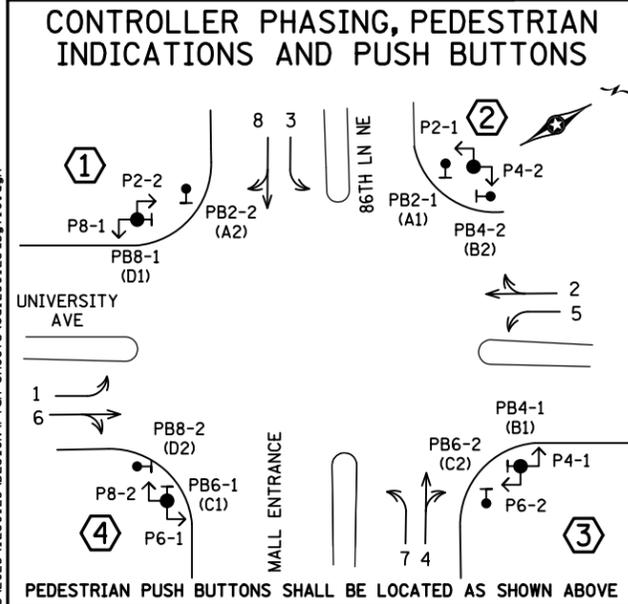
LOOP DETECTOR CHART		
NUMBER	SIZE (FT)	LOCATION
D1-1, D5-1	3-6x6	20,35,50
D1-2, D5-2	6x6	5
D2-1, D2-2, D6-1, D6-2	6x6	180
D3-1, D7-1	3-6x6	20,35,50
D3-2, D7-2	6x6	5
D4-1, D8-1	6x6	20
D4-2, D8-2	6x6	5

-ALL LOOP DETECTORS SHALL BE PVC UNLESS NOTED OTHERWISE
 -LOCATION: DISTANCE FROM CROSSWALK/STOP BAR IN FEET



SIGNAL SYSTEM OPERATION

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 8 PHASE, WITH PHASE(S) 3 & 7 BEING FLASHING YELLOW ARROWS BY TIME OF DAY, AND PHASE(S) 1 & 5 BEING PROTECTED LEFT TURN PHASES. PHASES 1 & 5 ARE OUTFITTED FOR FUTURE FYA OPERATION.
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.



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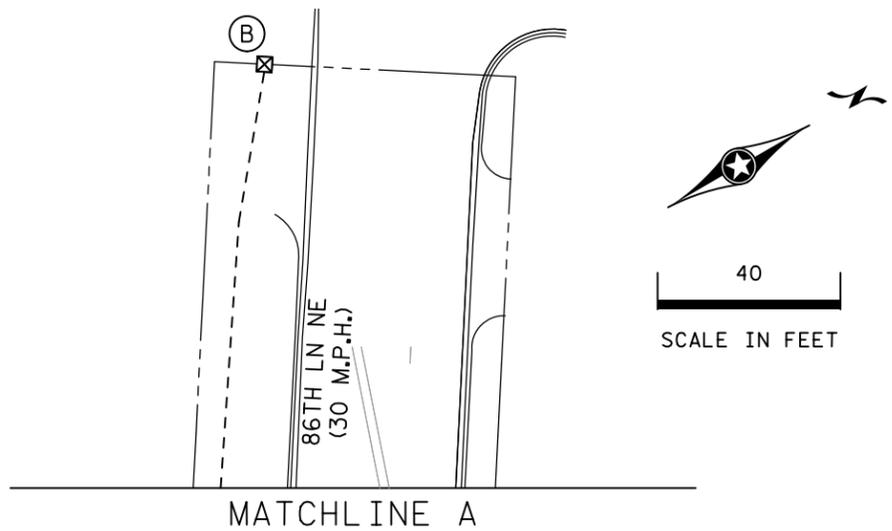
PRINT NAME: MICHAEL P MCCURDY
 SIGNATURE: *Michael P. McCurdy*
 DATE: 03/20/24 LICENSE #: 45902

TRAFFIC CONTROL SIGNAL SYSTEM
 S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
 SHEET NO. 56 OF 71 SHEETS

- NOTES:
- SEE THE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
 - THE EXACT LOCATION OF THE HANDHOLES, LOOP DETECTORS, UNDERGROUND CONDUIT, AND THE EQUIPMENT PAD ARE DETERMINED IN THE FIELD. VERIFY THE LOCATIONS OF ALL SIGNAL COMPONENTS WITH ANOKA COUNTY PERSONNEL. CONDUITS UNDER ROADWAYS WILL REQUIRE BORING.
 - ALL SIGNAL MOUNTED SIGNS ARE INCLUDED IN PAYMENT WITH THE LUMP SUM SIGNAL SYSTEM PAY ITEM. SEE SIGNALING DETAIL SHEET FOR SIGNAL MOUNTED SIGNS.
 - PAVEMENT MARKINGS ARE INCLUDED AS PART OF THE STRIPING PLAN.
 - CONSTRUCTION OF PEDESTRIAN CURB RAMPS, CONCRETE WALK AND MEDIAN WORK ARE INCLUDED WITH THE ADA PLAN AND ARE PAID FOR SEPARATELY.
 - USE PVC OR HDPE FOR NEW CONDUIT. CONDUIT SIZES ARE NOMINAL DIAMETER.
 - ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
 - SEE TRAFFIC CONTROL INTERCONNECT PLAN FOR INTERCONNECTION TO CSAH 10 SIGNAL SYSTEM.
 - REMOVAL OF THE EXISTING SIGNAL IS INCLUDED IN PAYMENT FOR THE REMOVE SIGNAL SYSTEM PAY ITEM. REFER TO THE "EXISTING SIGNAL PLAN" SHEETS FOR INPLACE SIGNAL SYSTEM COMPONENTS.
 - PTZ CAMERA AND VIDEO DETECTION CAMERAS, AND BRACKETING, MUST BE GROUNDED.
 - ITEMS DENOTED WITH ** ARE INCLUDED IN THE PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECT PAY ITEM.

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- 1**
- X=500032.321 Y=134464.956
 PA100 POLE FOUNDATION MODIFIED (14' DEPTH)
 TYPE PA100-A-45-X6-350/CAM 400 EXTENSION (MOUNTED AT 350 DEG) (INCLUDES LIGHTNING ROD, 7/16" GROUND BRAID AND GROUND ROD)
 1-LUMINAIRE-LED (FOR 30' MOUNTING HEIGHT)
 1-PTZ VIDEO CAMERA (COUNTY PROVIDED)
 1-ANGLE MOUNT SIGNAL OVERHEAD AT 0' (5-1)
 2-STRAIGHT MOUNT SIGNALS OVERHEAD AT 11' AND 23' (2-3, 2-2)
 2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG (7-2) (2-1)
 2-ANGLE MOUNT C. D. PED HEADS AT 90 AND 180 DEG (P8-1, P2-2)
 *1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 2+5) (COUNTY PROVIDED)
 1-APS PB AND SIGN (LT ARROW) (PB8-1) AND POLE MOUNTING ADAPTOR
 1-GUIDE SIGN (D-1) (SEE SIGN DETAILS)
 3" CONDUIT INTO HH 1:
 3-6/C 14
 5-4/C 14
 *1-3/C 14
 *1-3/C 20
 1-3/C 14 (LUM)
 1-COM CABLE (CAT5E) (PTZ)
 1-7/16" GROUNDING BRAID (LIGHTNING ROD TO GROUND ROD)
 1-1/C 6 INS. GR.

- 3**
- X=500167.193 Y=134475.279
 PA100 POLE FOUNDATION MODIFIED (14' DEPTH)
 TYPE PA100-A-45-D30-9
 1-LUMINAIRE-LED (FOR 30' MOUNTING HEIGHT)
 1-ANGLE MOUNT SIGNAL OVERHEAD AT 0' (1-1)
 2-STRAIGHT MOUNT SIGNALS OVERHEAD AT 10' AND 21' (6-3, 6-2)
 2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG (3-2) (6-1)
 2-ANGLE MOUNT C. D. PED HEADS AT 90 AND 180 DEG (P4-1, P6-2)
 *1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 6+1) (COUNTY PROVIDED)
 1-APS PB AND SIGN (LT ARROW) (PB4-1) AND POLE MOUNTING ADAPTOR
 1-GUIDE SIGN (D-1) (SEE SIGN DETAILS)
 3" CONDUIT INTO HH 6:
 3-6/C 14
 5-4/C 14
 *1-3/C 14
 *1-3/C 20
 1-3/C 14 (LUM)
 1-1/C 6 INS. GR.

- 2**
- X=500057.225 Y=134527.623
 PA85 POLE FOUNDATION MODIFIED (12' DEPTH)
 TYPE PA85-A-25-D30-9
 1-LUMINAIRE-LED (FOR 30' MOUNTING HEIGHT)
 1-ANGLE MOUNT SIGNAL OVERHEAD AT 0' (7-1)
 1-STRAIGHT MOUNT SIGNAL OVERHEAD AT 11' (4-2)
 2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG (1-2) (4-1)
 2-ANGLE MOUNT C. D. PED HEADS AT 90 AND 180 DEG (P2-1, P4-2)
 *1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 4+7) (COUNTY PROVIDED)
 1-R10-X12 SIGN
 2-GUIDE SIGNS (D-2 AND D-3) (SEE SIGN DETAILS)
 3" CONDUIT INTO HH 2:
 3-6/C 14
 3-4/C 14
 *1-3/C 14
 *1-3/C 20
 1-3/C 14 (LUM)
 1-1/C 6 INS. GR.

- 4**
- X=500138.092 Y=134397.262
 PA90 POLE FOUNDATION MODIFIED (14' DEPTH)
 TYPE PA90-A-35-D30-9
 1-LUMINAIRE-LED (FOR 30' MOUNTING HEIGHT)
 1-ANGLE MOUNT SIGNAL OVERHEAD AT 0' (3-1)
 1-STRAIGHT MOUNT SIGNAL OVERHEAD AT 11' (8-2)
 2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG (5-2) (8-1)
 2-ANGLE MOUNT C. D. PED HEADS AT 90 AND 180 DEG (P6-1, P8-2)
 *1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 8+3) (COUNTY PROVIDED)
 1-APS PB AND SIGN (LT ARROW) (PB6-1) AND POLE MOUNTING ADAPTOR
 1-R10-X12 SIGN
 2-GUIDE SIGNS (D-2 AND D-3) (SEE SIGN DETAILS)
 3" CONDUIT INTO HH 7:
 3-6/C 14
 4-4/C 14
 *1-3/C 14
 *1-3/C 20
 1-3/C 14 (LUM)
 1-1/C 6 INS. GR.

- A** EQUIPMENT PAD (SEE DETAIL SHEET)
 SERVICE CABINET WITH BATTERY BACKUP (SEE DETAIL SHEET)
 CONTROLLER AND CABINET (COUNTY PROVIDED)
 3" CONDUIT TO HH 1:
 3-6/C 14
 5-4/C 14
 *1-3/C 14
 *1-3/C 20
 6-2/C 14
 1- CAT5E TRA MGMT CAM
 1-1/C INS. GR.
- 3" CONDUIT TO HH 10:
 3-6/C 14
 4-4/C 14
 *1-3/C 14
 *1-3/C 20
 6-2/C 14

- GROUND WIRE AND GROUND ROD - MIN 8' STUBBED OUT FROM PAD
 2-2" AND 1-3" CONDUIT STUBBED OUT (CAPPED BOTH ENDS)
 **1.5" CONDUIT TO TMS VAULT:
 **1-FO CABLE (12SM)
 CONTROLLER CABINET TO SERVICE CABINET:
 2" CONDUIT
 3-1/C 6
 CONTROLLER CABINET TO SERVICE CABINET (COMMS):
 2" CONDUIT
 1-6PR 19
 SERVICE CABINET TO GROUND MOUNTED TRANSFORMER:
 2" CONDUIT
 3-1/C 2

- SERVICE CABINET TO HH 1:
 2" CONDUIT
 2-3/C 14 (LUM)
 SERVICE CABINET TO HH 10:
 2" CONDUIT
 2-3/C 14 (LUM)
 SERVICE CABINET TO EXTERNAL GR. RD.:
 1" CONDUIT
 1-1/C 6 INS. GR.
 (SEE EQUIPMENT PAD LAYOUT)

- B** SOP TRANSFORMER (CONNEXUS)
 INPLACE CONDUIT AND
 CABLE TO SERVICE CABINET
 (COORDINATE NEW HOOK-UP)

NOTES:

- ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
- ITEMS DENOTED WITH AN ** ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECT PAY ITEM.
- MODIFIED FOUNDATION DEPTHS DETERMINED VIA GEOTECHNICAL ANALYSIS. SEE SPECIAL PROVISIONS.

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NO	DATE	DWN	CKD	REVISIONS



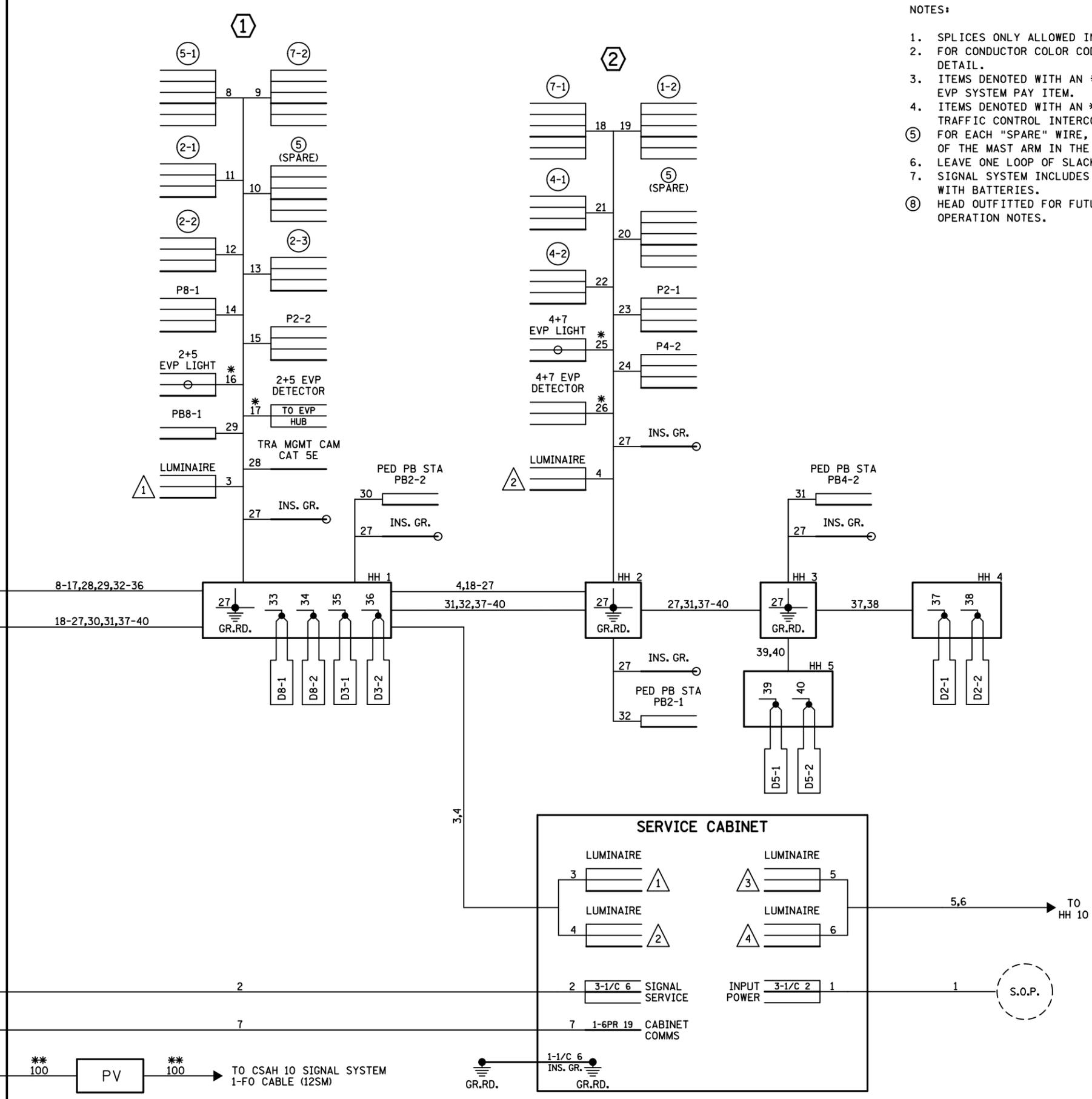
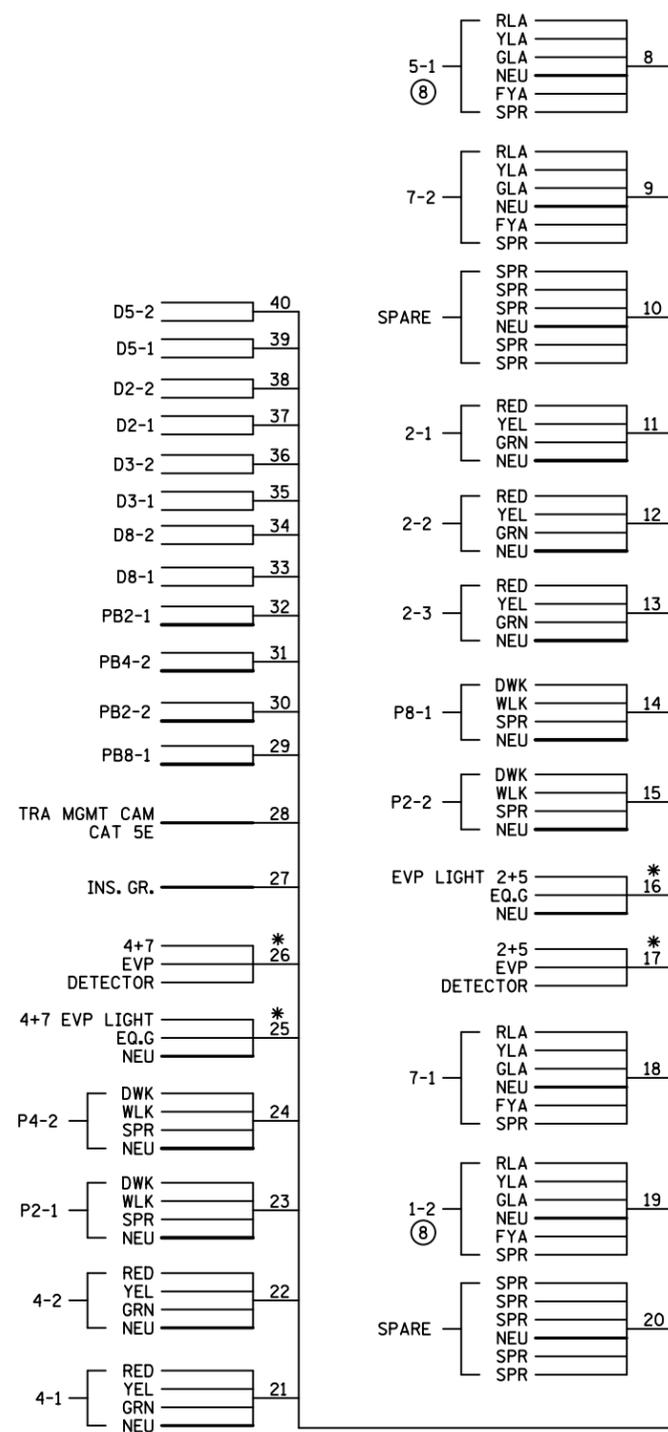
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TRAFFIC CONTROL SIGNAL SYSTEM
 S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
 SHEET NO. 57 OF 71 SHEETS

CONTROLLER CABINET



NOTES:

1. SPLICES ONLY ALLOWED IN LOOP DETECTOR CIRCUITS.
2. FOR CONDUCTOR COLOR CODE SEE TRAFFIC SIGNAL COLOR CODE DETAIL.
3. ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
4. ITEMS DENOTED WITH AN ** ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECTION PAY ITEM.
5. FOR EACH "SPARE" WIRE, COIL ENOUGH WIRE TO REACH THE END OF THE MAST ARM IN THE HANDHOLE NEAREST EACH POLE.
6. LEAVE ONE LOOP OF SLACK FOR EACH CABLE IN THE POLE BASE.
7. SIGNAL SYSTEM INCLUDES BATTERY BACKUP SERVICE CABINET WITH BATTERIES.
8. HEAD OUTFITTED FOR FUTURE FYA OPERATION. SEE SIGNAL OPERATION NOTES.

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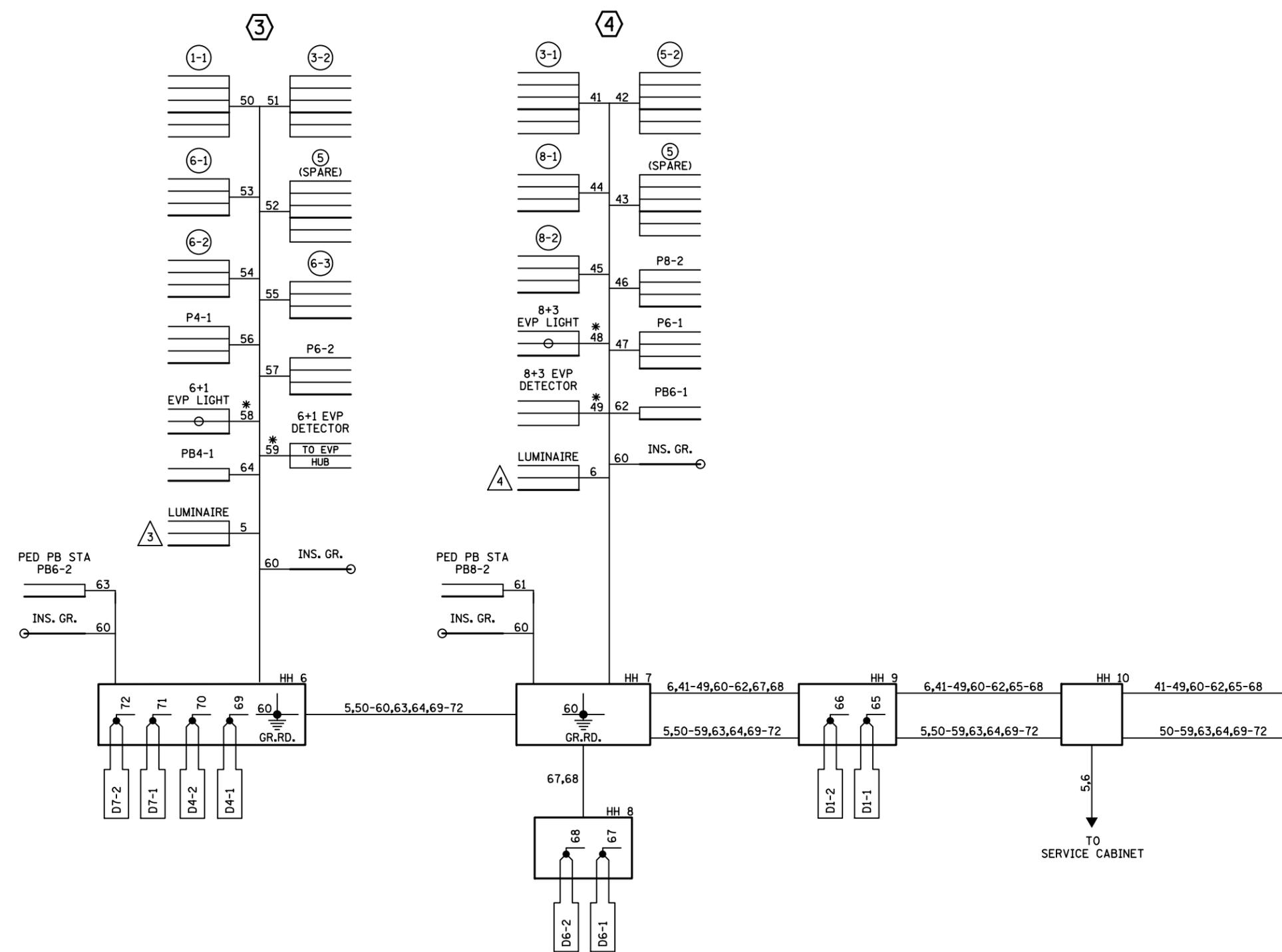
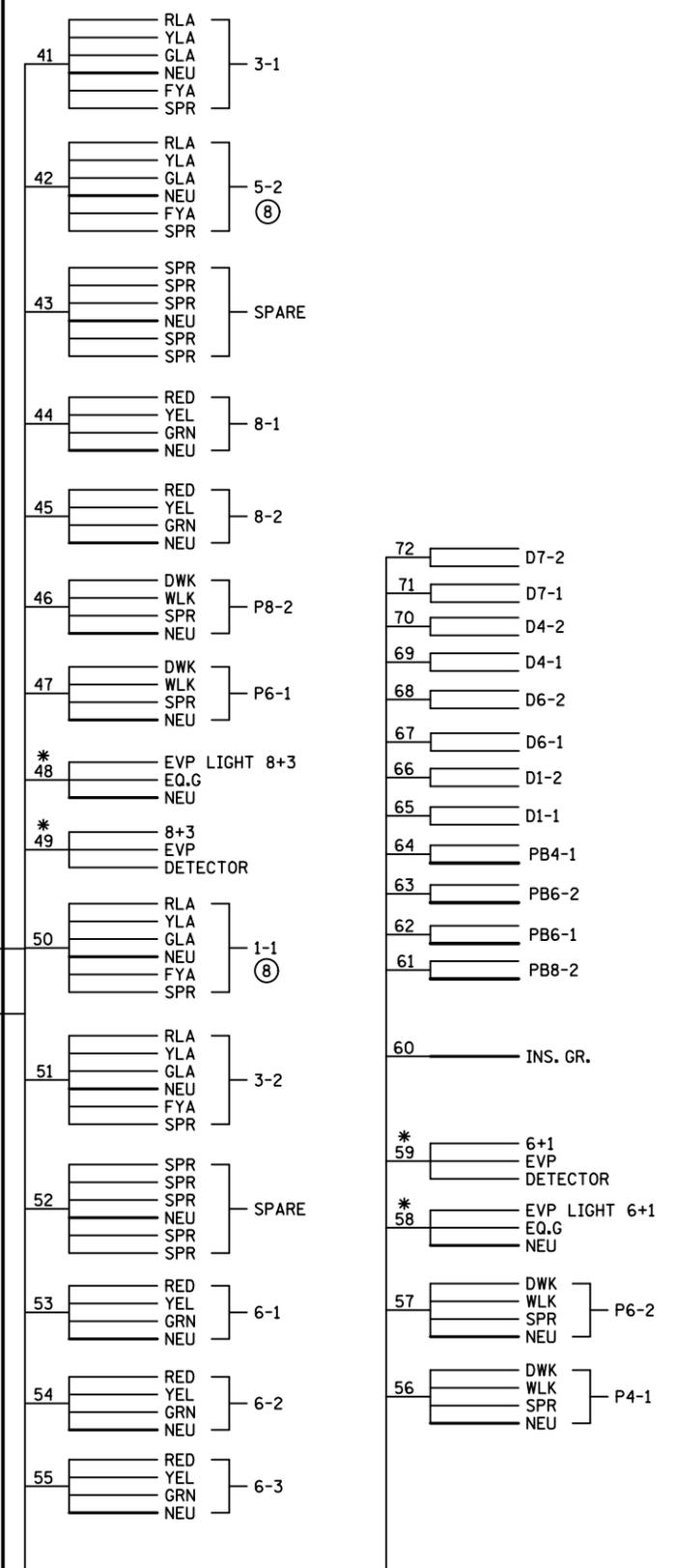
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TRAFFIC CONTROL SIGNAL SYSTEM
 S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

SHEET NO. 58 OF 71 SHEETS
 S.A.P. 002-603-005 (CSAH 3/86TH LN NE)

CONTROLLER CABINET



- NOTES:
- SPLICES ONLY ALLOWED IN LOOP DETECTOR CIRCUITS.
 - FOR CONDUCTOR COLOR CODE SEE TRAFFIC SIGNAL COLOR CODE DETAIL.
 - ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
 - ITEMS DENOTED WITH AN ** ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECTION PAY ITEM.
 - FOR EACH "SPARE" WIRE, COIL ENOUGH WIRE TO REACH THE END OF THE MAST ARM IN THE HANDHOLE NEAREST EACH POLE.
 - LEAVE ONE LOOP OF SLACK FOR EACH CABLE IN THE POLE BASE.
 - SIGNAL SYSTEM INCLUDES BATTERY BACKUP SERVICE CABINET WITH BATTERIES.
 - HEAD OUTFITTED FOR FUTURE FYA OPERATION. SEE SIGNAL OPERATION NOTES.

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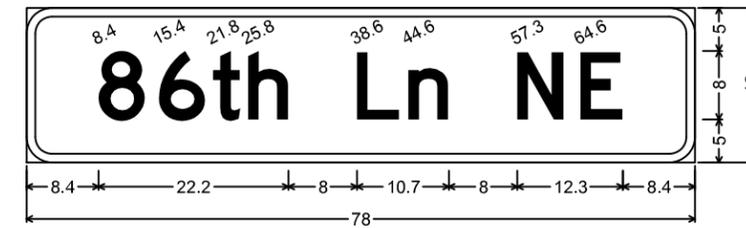
SIGN PANEL DETAILS

SIGN PANELS ON SIGNALS							
POLE NUMBER	"A" DISTANCE (FEET) OR POLE	PANEL				SIZE (INCHES)	AREA (SQ FT)
		QTY	CODE NUMBER	LEGEND			
1	30	1	D-1	86TH LN NE	78 x 18	9.75	
2	0	1	R10-X12	LEFT TURN YIELD ON FLASHING YELLOW ARROW	36 x 42	10.50	
2	7	1	D-3	COUNTY3 DBL	48 x 54	18.00	
2	14	2	D-2	UNIVERSITY AVE	90 x 18	11.25	
3	30	1	D-1	86TH LN NE	78 x 18	9.75	
4	0	1	R10-X12	LEFT TURN YIELD ON FLASHING YELLOW ARROW	36 x 42	10.50	
4	7	1	D-3	COUNTY3 DBL	48 x 54	18.00	
4	14	1	D-2	UNIVERSITY AVE	90 x 18	11.25	

GENERAL NOTES:

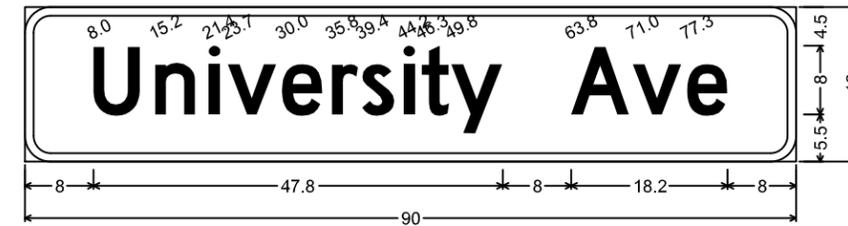
- SEE MnDOT STANDARD SIGNS AND MARKINGS MANUAL FOR STANDARD SIGN DESIGNS, ARROW DETAILS, AND SPLICE PLATE DETAILS.
- FOR NON STANDARD SIGN DESIGNS, LAYOUTS ARE INCLUDED. SIGN PANEL DIMENSIONS ARE IN INCHES.
- SEE STANDARD PLAN 5-297.731 FOR SIGN MOUNTING TO MAST ARM.
- MOUNTING HEIGHT OF POLE MOUNTED SIGN PANELS MUST BE 7 FOOT MINIMUM. MOUNTING HEIGHT IS MEASURED FROM BOTTOM OF SIGN PANEL TO SURFACE IMMEDIATELY BELOW THE SIGN PANEL.
- "A" DISTANCE = DISTANCE FROM THE END OF THE MAST ARM TO THE EDGE OF EACH SIGN PANEL.
- THE SIGNS ON THIS DETAIL SHEET ARE SIGNS THAT ARE MOUNTED ON THE SIGNAL MAST ARM OR SIGNAL POLES. THESE SIGNS ARE INCLUDED IN THE LUMP SUM PAYMENT FOR THE TRAFFIC CONTROL SIGNAL SYSTEM. ADDITIONAL GROUND MOUNTED SIGNS ARE REQUIRED AND ARE INCLUDED WITH THE SIGNING PLAN AND ARE PAID FOR SEPARATELY AS INDICATED WITH THE SIGNING PLAN.

D-1



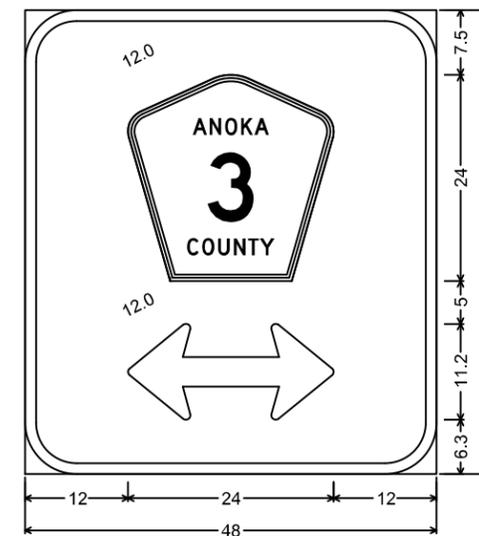
86TH LN NE;
3.0" Radius, 1.0" Border, White on, Green;
"86th Ln NE", D 2K;

D-2



UNIVERSITY AVE;
3.0" Radius, 1.0" Border, White on, Green;
"University Ave", D 2K;

D-3



COUNTY3 DBL;
6.0" Radius, 1.3" Border, White on, Green;
Pentagonal County 3 M1-6M;
Double Headed Arrow 5 - 24.0" 0';

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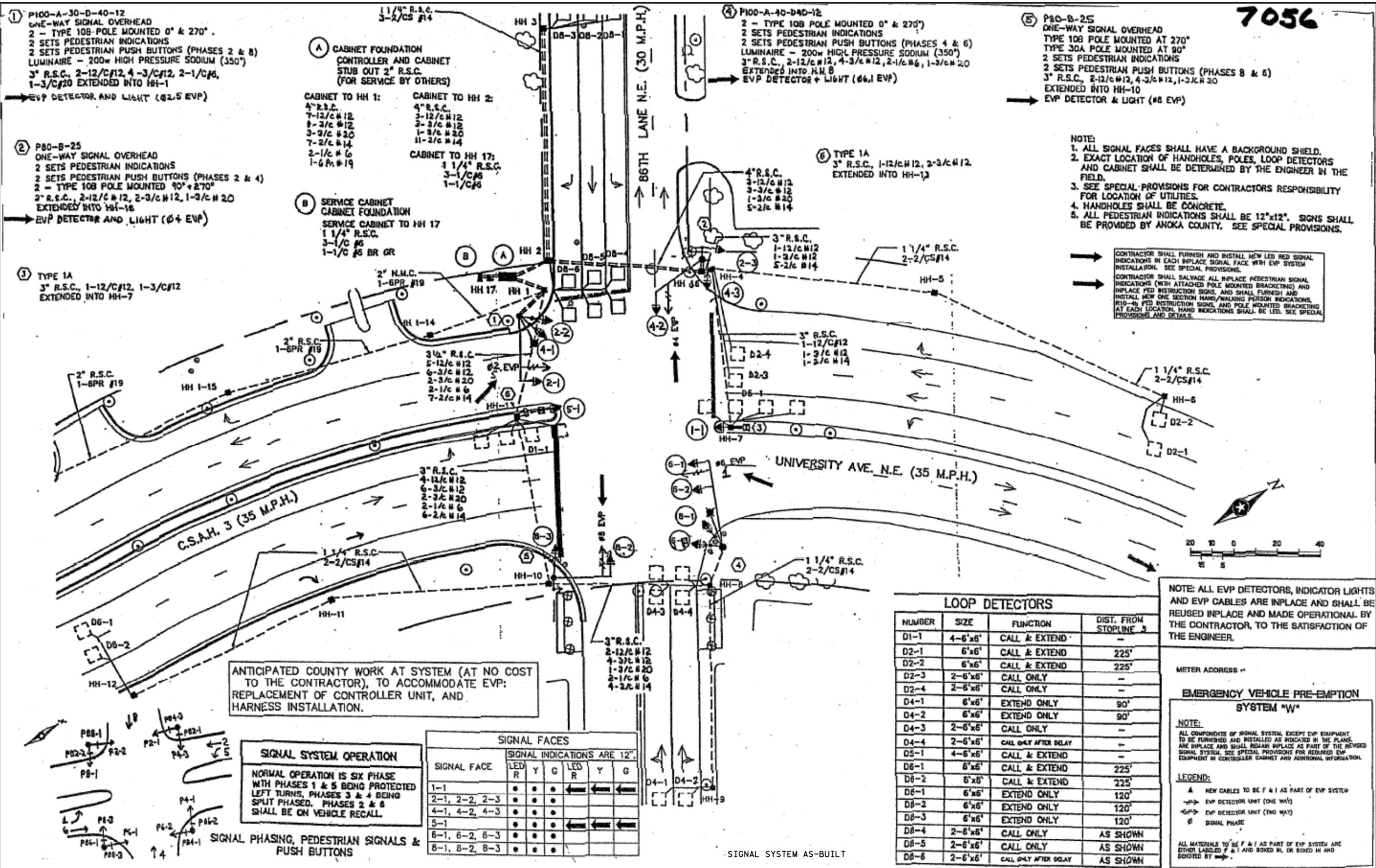


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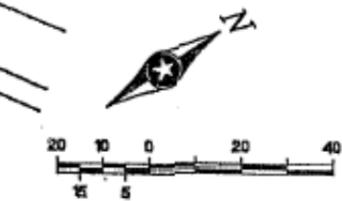
S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
SHEET NO. 60 OF 71 SHEETS



- NOTE:
1. ALL SIGNAL FACES SHALL HAVE A BACKGROUND SHIELD.
 2. EXACT LOCATION OF HANDHOLES, POLES, LOOP DETECTORS AND CABINET SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.
 3. SEE SPECIAL PROVISIONS FOR CONTRACTORS RESPONSIBILITY FOR LOCATION OF UTILITIES.
 4. HANDHOLES SHALL BE CONCRETE.
 5. ALL PEDESTRIAN INDICATIONS SHALL BE 12"x12". SIGNS SHALL BE PROVIDED BY ANOKA COUNTY. SEE SPECIAL PROVISIONS.

CONTRACTOR SHALL FURNISH AND INSTALL NEW LED RED SIGNAL INDICATIONS IN EACH INPLACE SIGNAL FACE WITH EVP SYSTEM INSTALLATION. SEE SPECIAL PROVISIONS.

CONTRACTOR SHALL SALVAGE ALL INPLACE PEDESTRIAN SIGNAL INDICATIONS (WITH ATTACHED POLE MOUNTED BRACKETING) AND INPLACE PED INSTRUCTION SIGNS, AND SHALL FURNISH AND INSTALL NEW ONE SECTION HAND/WALKING PERSON INDICATIONS, R10-4b PED INSTRUCTION SIGNS, AND POLE MOUNTED BRACKETING AT EACH LOCATION. HAND INDICATIONS SHALL BE LED. SEE SPECIAL PROVISIONS AND DETAILS.



NOTE: ALL EVP DETECTORS, INDICATOR LIGHTS AND EVP CABLES ARE INPLACE AND SHALL BE REUSED INPLACE AND MADE OPERATIONAL BY THE CONTRACTOR, TO THE SATISFACTION OF THE ENGINEER.

LOOP DETECTORS			
NUMBER	SIZE	FUNCTION	DIST. FROM STOPLINE
D1-1	4-6'x6'	CALL & EXTEND	-
D2-1	6'x6'	CALL & EXTEND	225'
D2-2	6'x6'	CALL & EXTEND	225'
D2-3	2-6'x6'	CALL ONLY	-
D2-4	2-6'x6'	CALL ONLY	-
D4-1	6'x6'	EXTEND ONLY	90'
D4-2	6'x6'	EXTEND ONLY	90'
D4-3	2-6'x6'	CALL ONLY	-
D4-4	2-6'x6'	CALL ONLY AFTER DELAY	-
D5-1	4-6'x6'	CALL & EXTEND	-
D6-1	6'x6'	CALL & EXTEND	225'
D6-2	6'x6'	CALL & EXTEND	225'
D6-3	6'x6'	EXTEND ONLY	120'
D6-4	6'x6'	EXTEND ONLY	120'
D6-5	2-6'x6'	CALL ONLY	AS SHOWN
D6-6	2-6'x6'	CALL ONLY	AS SHOWN
D6-7	2-6'x6'	CALL ONLY AFTER DELAY	AS SHOWN

METER ADDRESS

EMERGENCY VEHICLE PRE-EMPTION SYSTEM "W"

NOTE: ALL COMPONENTS OF SIGNAL SYSTEM, EXCEPT EVP EQUIPMENT TO BE FURNISHED AND INSTALLED AS INDICATED IN THE PLANS, ARE INPLACE AND SHALL REMAIN INPLACE AS PART OF THE REVISED SIGNAL SYSTEM. SEE SPECIAL PROVISIONS FOR REQUIRED EVP EQUIPMENT IN CONTROLLER CABINET AND ADDITIONAL INFORMATION.

- LEGEND:
- ▲ NEW CABLES TO BE F & I AS PART OF EVP SYSTEM
 - EVP DETECTOR UNIT (ONE WAY)
 - ↔ EVP DETECTOR UNIT (TWO WAY)
 - ⊙ SIGNAL PHASE
- ALL MATERIALS TO BE F & I AS PART OF EVP SYSTEM ARE EITHER LABELED F & I AND BOXED IN, OR BOXED IN AND IDENTIFIED BY →.

ANTICIPATED COUNTY WORK AT SYSTEM (AT NO COST TO THE CONTRACTOR), TO ACCOMMODATE EVP: REPLACEMENT OF CONTROLLER UNIT, AND HARNESS INSTALLATION.

SIGNAL SYSTEM OPERATION

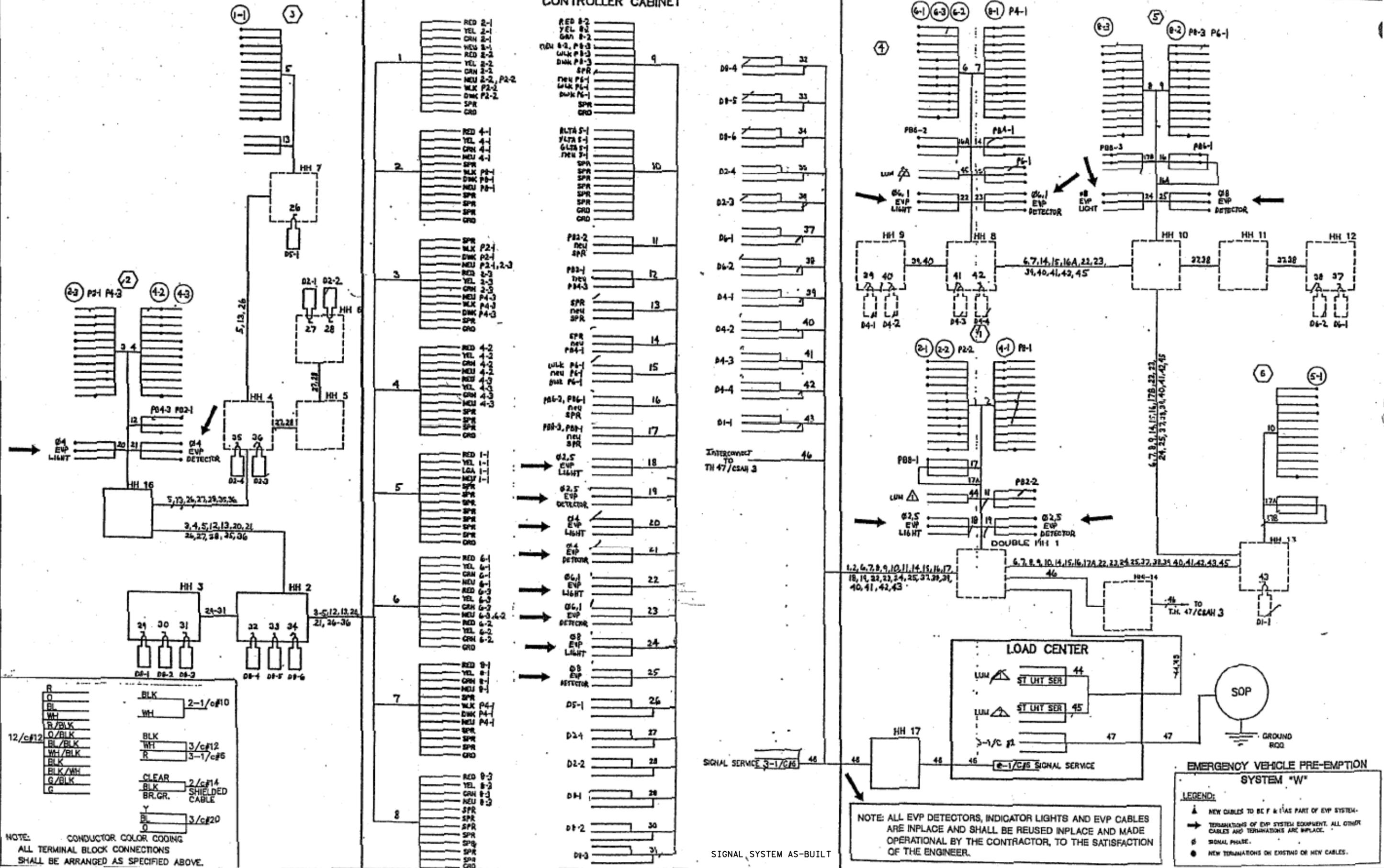
NORMAL OPERATION IS SIX PHASE WITH PHASES 1 & 5 BEING PROTECTED LEFT TURNS, PHASES 3 & 4 BEING SPLIT PHASED. PHASES 2 & 6 SHALL BE ON VEHICLE RECALL.

SIGNAL FACE	SIGNAL INDICATIONS ARE 12"					
	LED R	Y	G	LED R	Y	G
1-1	●	●	●	←	←	←
2-1, 2-2, 2-3	●	●	●			
4-1, 4-2, 4-3	●	●	●			
5-1	●	●	●	←	←	←
6-1, 6-2, 6-3	●	●	●			
8-1, 8-2, 8-3	●	●	●			

SIGNAL PHASING, PEDESTRIAN SIGNALS & PUSH BUTTONS

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CONTROLLER CABINET



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

R	BLK	2-1/c#10
O	WH	
BL	WH	
WH		
R/BLK	BLK	3/c#12
O/BLK	WH	
BL/BLK	R	3-1/c#5
WH/BLK		
BLK	CLEAR	2/c#14
BLK/WH	BLK	SHIELDED
G/BLK	BR.GR.	CABLE
G	Y	
	BL	3/c#20
	O	

NOTE: ALL EVP DETECTORS, INDICATOR LIGHTS AND EVP CABLES ARE INPLACE AND SHALL BE REUSED INPLACE AND MADE OPERATIONAL BY THE CONTRACTOR, TO THE SATISFACTION OF THE ENGINEER.

EMERGENCY VEHICLE PRE-EMPTION SYSTEM "W"

LEGEND:

- ▲ NEW CABLES TO BE F & I AS PART OF EVP SYSTEM.
- TERMINATIONS OF EVP SYSTEM EQUIPMENT. ALL OTHER CABLES AND TERMINATIONS ARE INPLACE.
- ⊕ SIGNAL PHASE.
- NEW TERMINATIONS ON EXISTING OR NEW CABLES.

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SIGNAL HEAD CHART				LOOP DETECTOR CHART		
FACE	R	Y	G	NUMBER	SIZE (FT)	LOCATION
2-1, 2-2, 2-3, 2-4	●	●	●	D2-1, D2-2	6x6	500
6-1.6-2, 6-3, 6-4	●	●	●	▲ D3-1, D3-2 F&I	6x6	180
3-1	●	●	●	▲ D3-3, D3-4 F&I	6x6	10
3-5	●	←	←	D6-1, D6-2	6x6	550
3-3, 3-4	●	←	←			

-ALL SIGNAL INDICATIONS ARE 12" LED
 -ALL SIGNAL HEADS ARE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS

HH 10 TO HH 14:
 4" RSC
 2-12/C #12
 3-5/C #12
 1-3/C #12
 1-3/C #12 (LUM)
 2-2/C #14
 1-3/C #20
 1-6PR #19 (ABANDONED)

HH 14 TO HH 15:
 4" RSC
 4-12/C #12
 3-5/C #12
 2-37C #12 (LUM)
 2-3/C #12
 2-3/C #20
 4-2/C #14
 1-6PR #19 (ABANDONED)

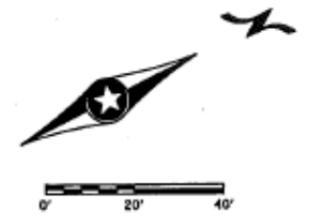
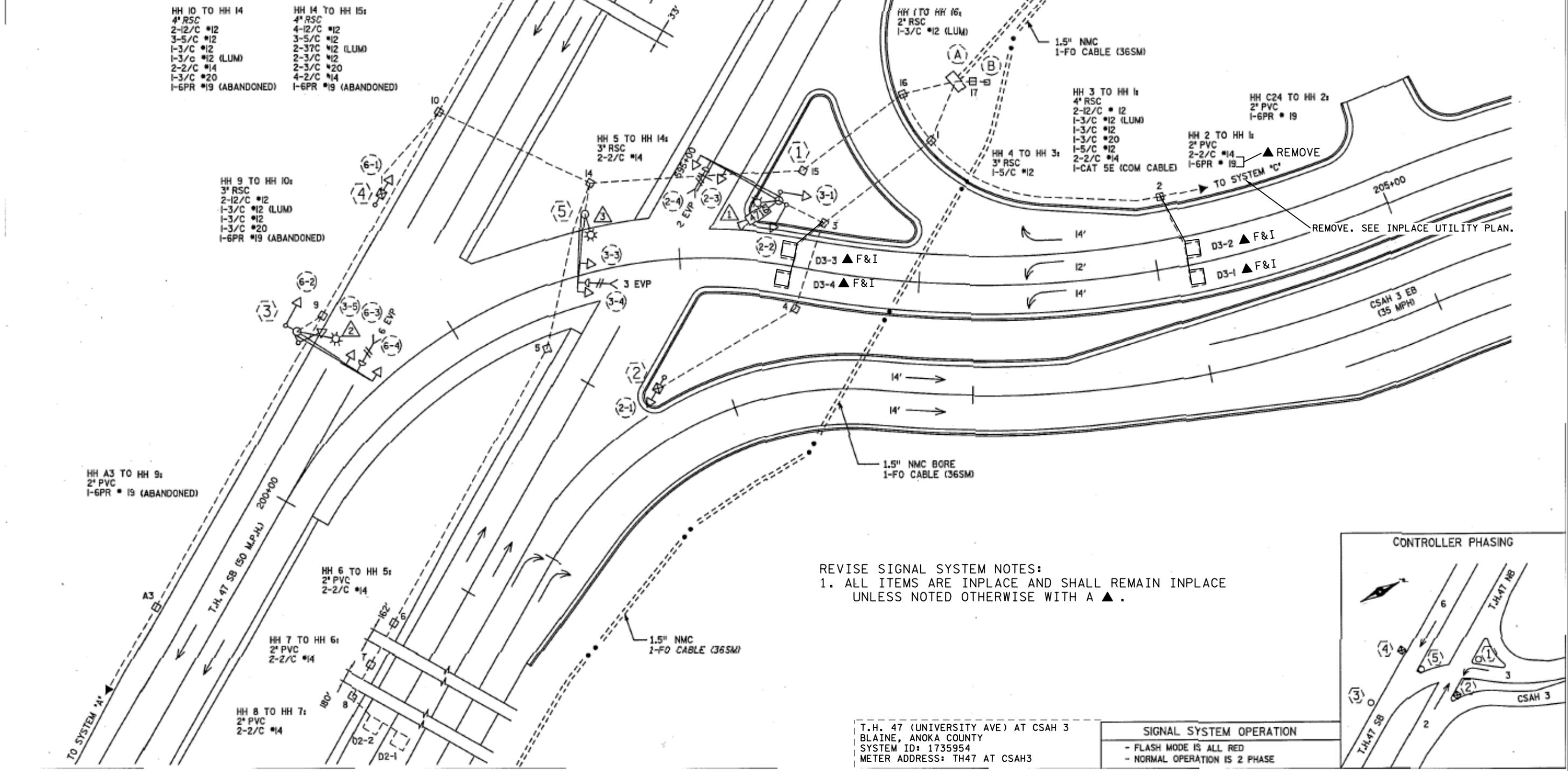
HH 9 TO HH 10:
 3" RSC
 2-12/C #12
 1-3/C #12 (LUM)
 1-3/C #12
 1-3/C #20
 1-6PR #19 (ABANDONED)

HH 18 TO HH 13:
 2" PVC
 2-5/C #12

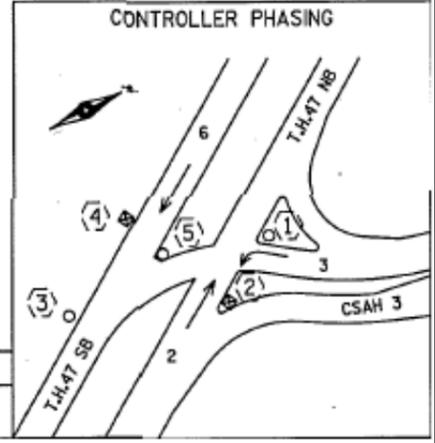
HH 13 TO HH 12:
 2" PVC
 2-2/C #14
 2-5/C #12

HH 12 TO HH 11:
 2" PVC
 2-2/C #14
 2-5/C #12

HH 11 TO HH 10:
 2" PVC
 2-2/C #14
 2-5/C #12



REVISE SIGNAL SYSTEM NOTES:
 1. ALL ITEMS ARE INPLACE AND SHALL REMAIN INPLACE UNLESS NOTED OTHERWISE WITH A ▲.



T.H. 47 (UNIVERSITY AVE) AT CSAH 3
 BLAINE, ANOKA COUNTY
 SYSTEM ID: 1735954
 METER ADDRESS: TH47 AT CSAH3

SIGNAL SYSTEM OPERATION
 - FLASH MODE IS ALL RED
 - NORMAL OPERATION IS 2 PHASE

7:35:06 PM 3/20/2023 2:02:25 PM C:\Users\mccurdy\OneDrive\Documents\2023\1230123\DESIGN\Plan Sheets\cd1230123_sgl225.dgn

NO	DATE	DWN	CKD	REVISIONS

I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED 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: MICHAEL P. MCCURDY
 SIGNATURE: *Michael P. McCurdy*
 DATE: 03/20/24 LICENSE #: 45902

REVISE SIGNAL SYSTEM
 S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
 SHEET NO. 63 OF 71 SHEETS

(4) PEDESTAL FOUNDATION
 TYPE IA
 RIO-6 SIGN (18' x 24')
 1-SIGN R9-3A (NO PED) FACING POLE 5
 EXTEND INTO HH 10:
 2" RSC
 1-5/C #12

(5) PA90 POLE FOUNDATION
 TYPE PA90-A30-D40-9 (DAVIT AT 350 DEG)
 LUM-200W HPS WITH PEC AND CHECK SWITCH
 2-ONE-WAY SIGNALS (OVERHEAD) MOUNTED AT 0' AND 11'
 ONE-WAY EVP DETECTOR AND LIGHT (PHASE 3)
 1-TYPE 10A SIGNAL HEAD MOUNTED AT 270 DEG
 2-SIGNS R9-3a (NO PED) FACING POLES 4 AND 1
 EXTEND INTO HH 14:
 3" RSC
 2-12/C #12
 1-3/C #12 (LUM)
 1-3/C #12
 1-3/C #20

(1) PA90 POLE FOUNDATION
 TYPE PA90-A35-D40-9 (DAVIT AT 350 DEG)
 1-X6-350/CAM 400 EXTENSION (MOUNTED AT 350 DEG, INCLUDES LIGHTNING ROD)
 7/8" GROUND BRAID AND GROUND ROD
 1-VIDEO CAMERA WITH MOUNT
 LUM-200W HPS WITH PED & CHECK SWITCH
 2-ONEWAY SIGNALS (OVERHEAD) MOUNTED AT 0' AND 11'
 ONE WAY EVP DETECTOR AND LIGHT (PHASE 2)
 2-TYPE 10A SIGNAL HEADS POLE MOUNTED AT 180 DEG AND 270 DEG
 2-R9-3a SIGNS (NO PED) FACING POLE 2 AND 5
 RIO-6 SIGN (18'x24')
 EXTEND INTO HH 3:
 3" RSC
 2-12/C #12
 1-3/C #12 (LUM)
 1-3/C #12
 1-3/C #20
 1-7/16 GROUND BRAID TO GROUND ROD
 1-CAT 5E (COM CABLE)

(3) PA90 POLE FOUNDATION
 TYPE PA90-35-D40-9 (DAVIT AT 350 DEG)
 LUM-200 HPS WITH PEC AND CHECK SWITCH
 2-ONE-WAY SIGNALS (OVERHEAD) MOUNTED AT 0' AT 11'
 ONE-WAY EVP DETECTOR AND LIGHT (PHASE 6)
 2-TYPE 10A SIGNAL HEADS POLE MOUNTED AT 0 DEG AND 270 DEG
 1-SIGN R9-3a (NO PED) FACING POLE 2
 EXTEND INTO HH 9:
 3" RSC
 2-12/C #12
 1-3/C #12 (LUM)
 1-3/C #12
 1-3/C #20

(2) PEDESTAL FOUNDATION
 TYPE IA
 2-R9-3a SIGNS (NO PED) FACING POLES 1 AND 3
 RIO-6 SIGN (18' x 24')
 EXTEND INTO HH 4:
 2" RSC
 1-5/C #12

(A) EQUIPMENT PAD (SEE DETAILS)
 CONTROLLER AND CABINET
 SERVICE EQUIPMENT (PAD MOUNTED)
 CONTROLLER CABINET TO HH 14:
 4" RSC
 2-12/C #12
 1-5/C #12
 1-3/C #12
 1-3/C #20
 4-2/C #14
 1-CAT 5E (COM CABLE)
 ▲ REMOVE 1-6PR #19

(B) S.O.P.-PAD MOUNTED TRANSFORMER (BY OTHERS)
 METER TO HH 17:
 2" RSC
 3-1/C #2

CONTROLLER CABINET TO HH 16:
 4" RSC
 4-12/C #12
 3-5/C #12
 2-3/C #12
 4-2/C #14
 2-3/C #20
 1-6PR #19 (ABANDONED)
 CONTROLLER CABINET TO PULL VAULT:
 1-1.5" NMC (IN SPARE 3")
 1-PRE-TERMINATED ARMORED FO PIGTAIL (125M)
 LOAD CENTER TO CONTROLLER CABINET:
 11/4" RSC
 2-1/C #6
 1-1/C #6 BR. GR.
 3" RSC STUB OUT AND CAP ENDS
 LOAD CENTER TO HH 16:
 11/4" RSC
 3-3/C #12 (LUM)
 LOAD CENTER TO HH 17:
 2" RSC
 3-1/C #2

REVISE SIGNAL SYSTEM NOTES:
 1. ALL ITEMS ARE INPLACE AND SHALL REMAIN INPLACE
 UNLESS NOTED OTHERWISE WITH A ▲ .

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NO	DATE	DWN	CKD	REVISIONS

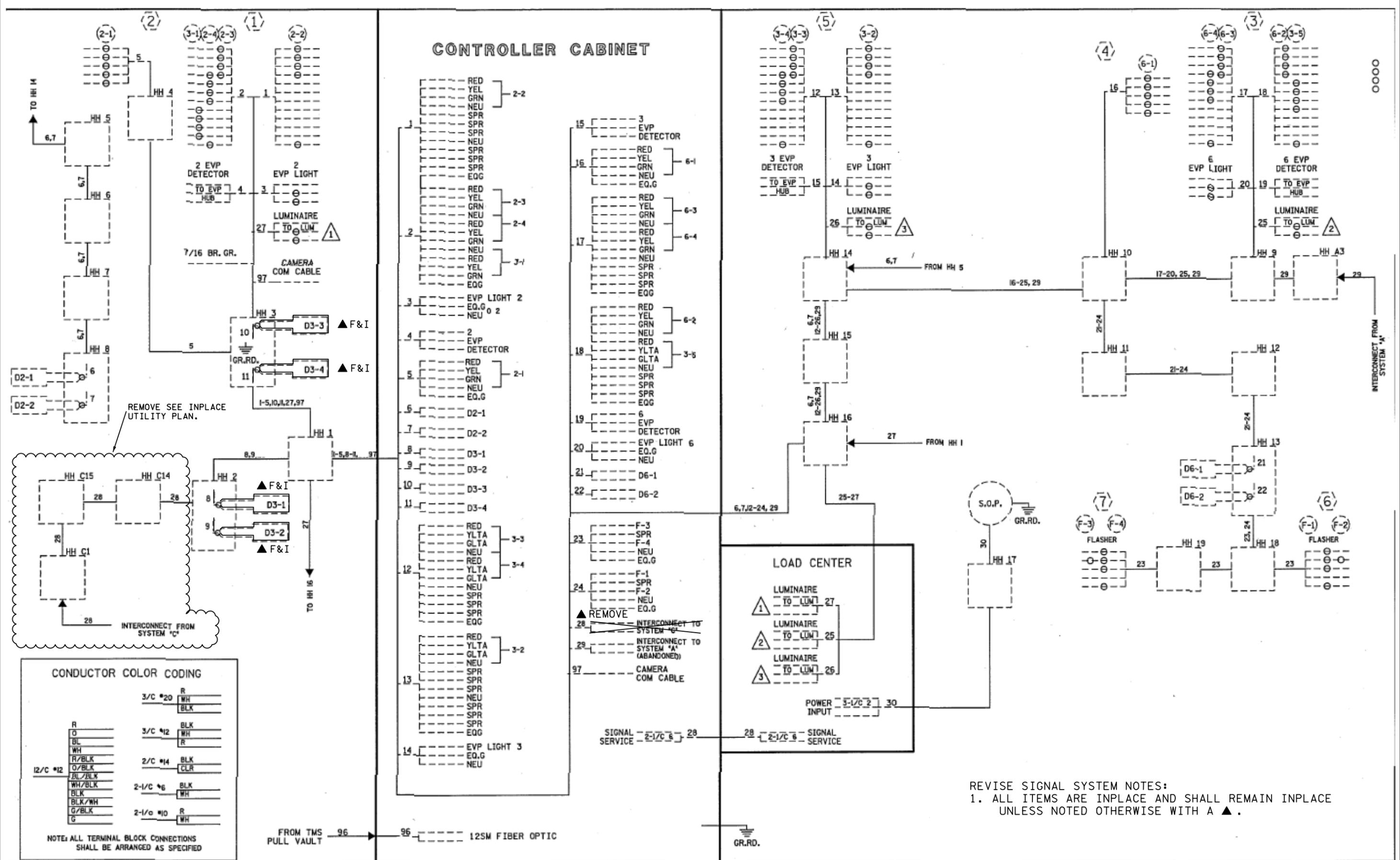


I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: MICHAEL P MCCURDY
 SIGNATURE: *Michael P. McCurdy*
 DATE: 03/20/24 LICENSE #: 45902

REVISE SIGNAL SYSTEM
 S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
 SHEET NO. 64 OF 71 SHEETS



CONTROLLER CABINET

CONDUCTOR COLOR CODING

3/C #20	R	WH
	BLK	
3/C #12	BLK	WH
	R	
2/C #14	BLK	CLR
2-1/C #6	BLK	WH
2-1/c #10	R	WH

NOTE: ALL TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED

REVISION SIGNAL SYSTEM NOTES:
 1. ALL ITEMS ARE INPLACE AND SHALL REMAIN INPLACE UNLESS NOTED OTHERWISE WITH A ▲.

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 3/20/2024
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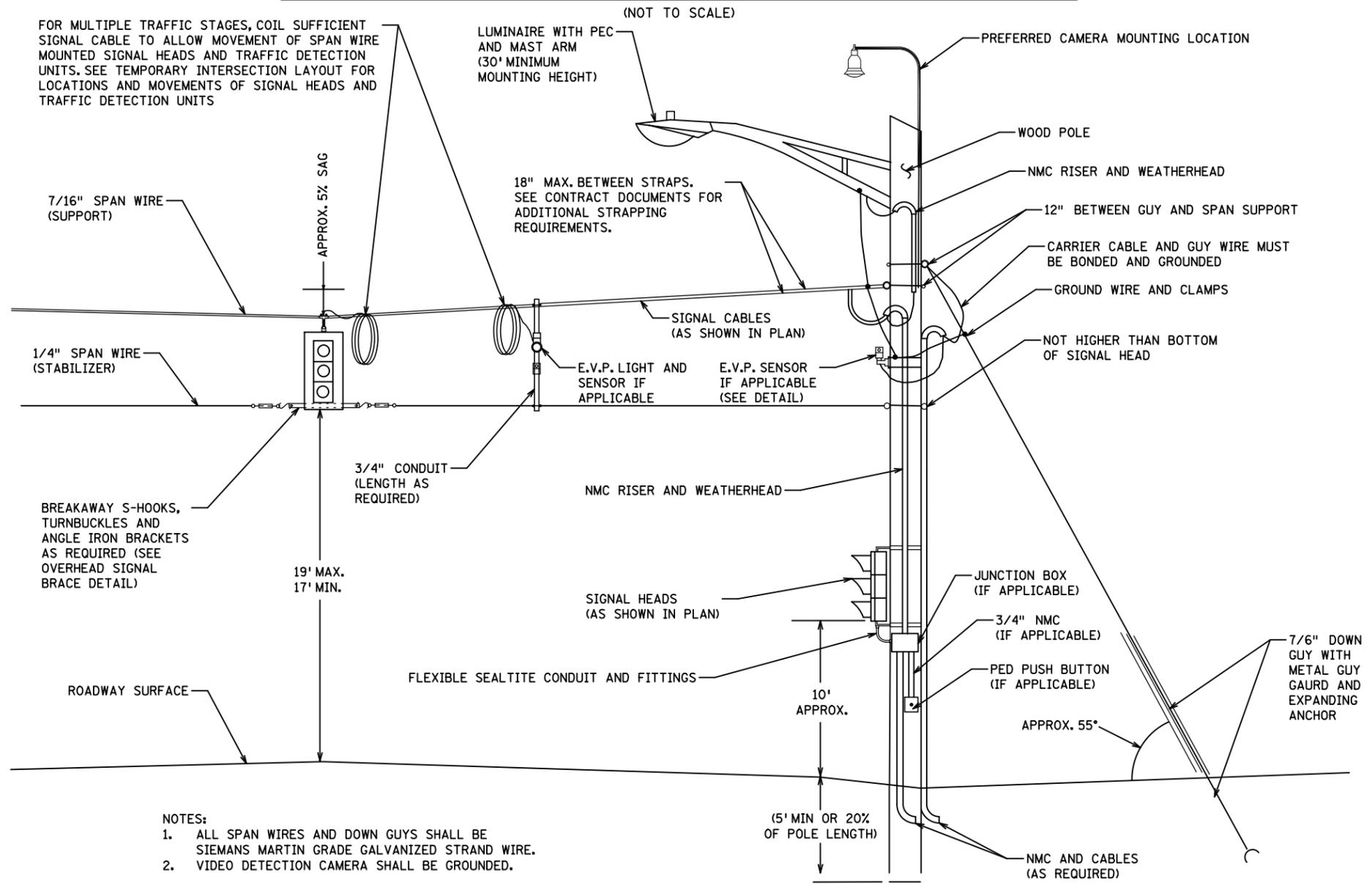
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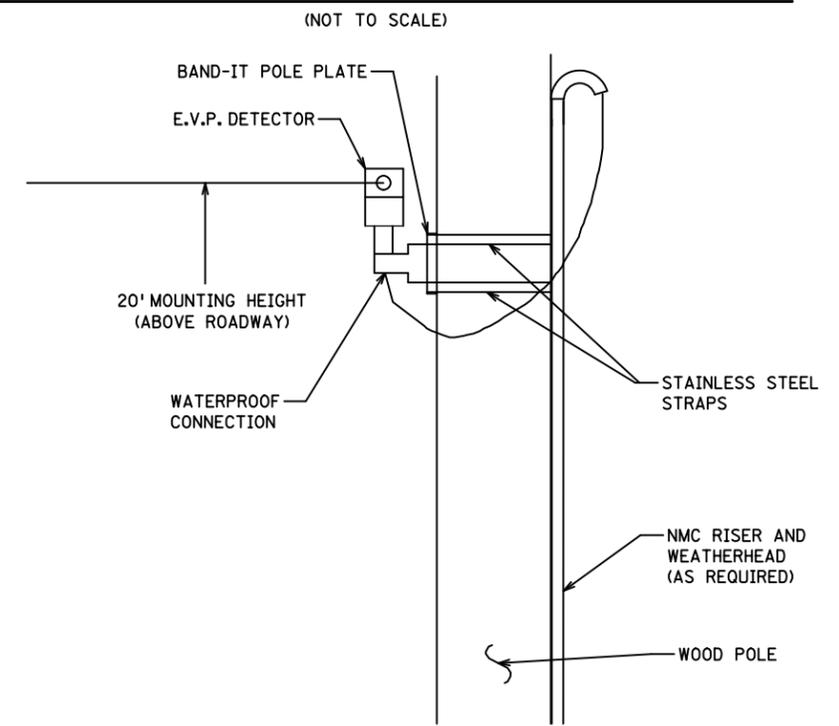
REVISE SIGNAL SYSTEM
 S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
 SHEET NO. 65 OF 71 SHEETS

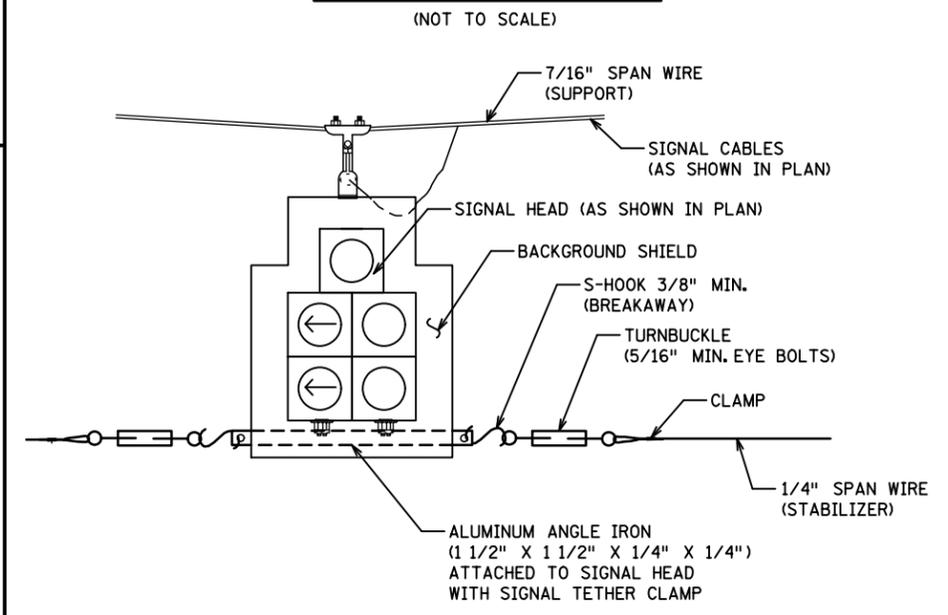
TYPICAL WOOD POLE AND SPAN WIRE MOUNTED TRAFFIC SIGNALS



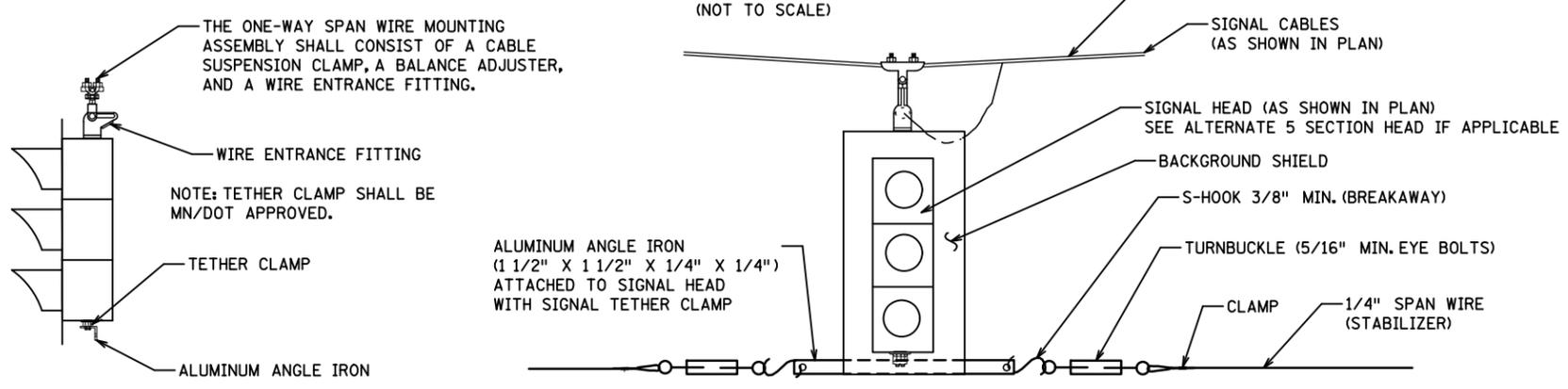
E.V.P. OR TRAFFIC DETECTOR WOOD POLE MOUNT



5 SECTION HEAD OVERHEAD SIGNAL BRACE DETAIL



OVERHEAD SIGNAL BRACE DETAIL



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TEMPORARY SIGNAL SYSTEM

S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

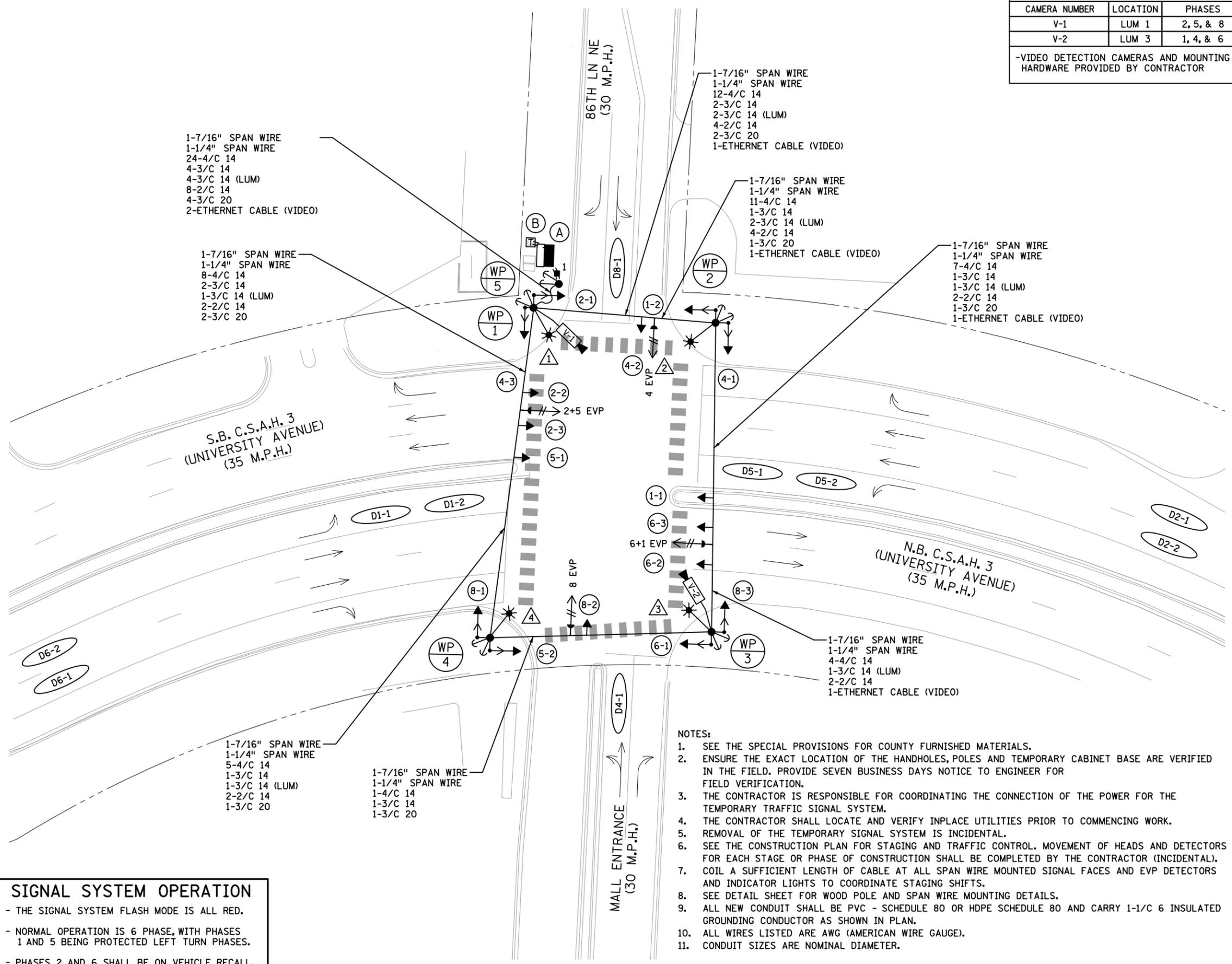
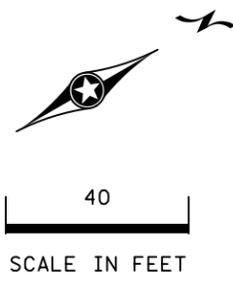
S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
 SHEET NO. 66 OF 71 SHEETS

SIGNAL HEAD CHART			
FACE	R	Y	G
1-1, 1-2	←	←	←
2-1, 2-2, 2-3	●	●	●
4-1, 4-2, 4-2	●	●	●
5-1, 5-2	←	←	←
6-1, 6-2, 6-3	●	●	●
8-1, 8-2, 8-3	●	●	●

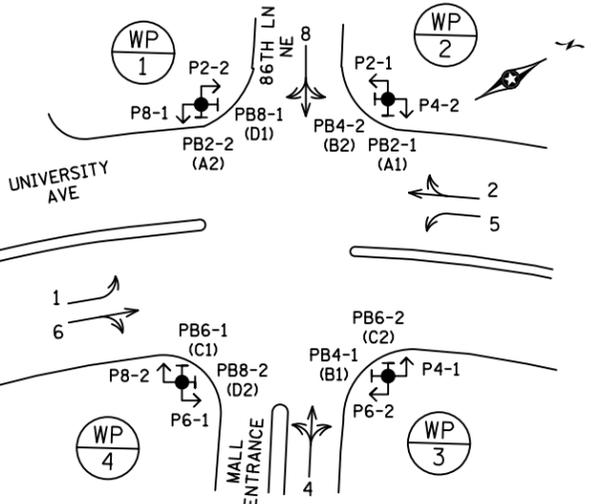
-ALL SIGNAL INDICATIONS SHALL BE 12" LED
-ALL SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS

VIDEO DETECTOR CHART		
CAMERA NUMBER	LOCATION	PHASES
V-1	LUM 1	2, 5, & 8
V-2	LUM 3	1, 4, & 6

-VIDEO DETECTION CAMERAS AND MOUNTING HARDWARE PROVIDED BY CONTRACTOR



CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



SIGNAL SYSTEM OPERATION

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 6 PHASE, WITH PHASES 1 AND 5 BEING PROTECTED LEFT TURN PHASES.
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.

NOTES:

1. SEE THE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
2. ENSURE THE EXACT LOCATION OF THE HANDHOLES, POLES AND TEMPORARY CABINET BASE ARE VERIFIED IN THE FIELD. PROVIDE SEVEN BUSINESS DAYS NOTICE TO ENGINEER FOR FIELD VERIFICATION.
3. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE CONNECTION OF THE POWER FOR THE TEMPORARY TRAFFIC SIGNAL SYSTEM.
4. THE CONTRACTOR SHALL LOCATE AND VERIFY INPLACE UTILITIES PRIOR TO COMMENCING WORK.
5. REMOVAL OF THE TEMPORARY SIGNAL SYSTEM IS INCIDENTAL.
6. SEE THE CONSTRUCTION PLAN FOR STAGING AND TRAFFIC CONTROL. MOVEMENT OF HEADS AND DETECTORS FOR EACH STAGE OR PHASE OF CONSTRUCTION SHALL BE COMPLETED BY THE CONTRACTOR (INCIDENTAL).
7. COIL A SUFFICIENT LENGTH OF CABLE AT ALL SPAN WIRE MOUNTED SIGNAL FACES AND EVP DETECTORS AND INDICATOR LIGHTS TO COORDINATE STAGING SHIFTS.
8. SEE DETAIL SHEET FOR WOOD POLE AND SPAN WIRE MOUNTING DETAILS.
9. ALL NEW CONDUIT SHALL BE PVC - SCHEDULE 80 OR HDPE SCHEDULE 80 AND CARRY 1-1/2" 6 INSULATED GROUNDING CONDUCTOR AS SHOWN IN PLAN.
10. ALL WIRES LISTED ARE AWG (AMERICAN WIRE GAUGE).
11. CONDUIT SIZES ARE NOMINAL DIAMETER.

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TEMPORARY SIGNAL SYSTEM
S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
SHEET NO. 67 OF 71 SHEETS

WP
1

45' WOOD POLE W/ LUMINAIRE DAVIT
2-DOWN GUYS, GUARDS AND ANCHORS
2-TYPE 10B WOOD POLE MOUNTED AT 90 AND 180 DEG
2-PEDESTRIAN PUSH BUTTONS AND SIGNS
1-GRIDSMAIT VIDEO DETECTION UNIT POLE MOUNTED (COUNTY PROVIDED)
LUMINAIRE - LED (FOR 40' MOUNTING HEIGHT)
METAL JUNCTION BOX WITH TERMINAL BLOCK

3" CONDUIT ABOVE JUNCTION BOX TO SPAN WIRES WITH:
4-4/C 14
2-2/C 14
1-ETHERNET CABLE (VIDEO)

1" CONDUIT RISER AND WEATHERHEAD ABOVE SPAN WIRE WITH:
1-3/C 14 (LUM)

WP
2

45' WOOD POLE W/ LUMINAIRE DAVIT
2-DOWN GUYS, GUARDS AND ANCHORS
2-TYPE 10B WOOD POLE MOUNTED AT 90 AND 180 DEG
2-PEDESTRIAN PUSH BUTTONS AND SIGNS
LUMINAIRE - LED (FOR 40' MOUNTING HEIGHT)
METAL JUNCTION BOX WITH TERMINAL BLOCK

3" CONDUIT ABOVE JUNCTION BOX TO SPAN WIRES WITH:
4-4/C 14
2-2/C 14

1" CONDUIT RISER AND WEATHERHEAD ABOVE SPAN WIRE WITH:
1-3/C 14 (LUM)

WP
3

45' WOOD POLE W/ LUMINAIRE DAVIT
2-DOWN GUYS, GUARDS AND ANCHORS
2-TYPE 10B WOOD POLE MOUNTED AT 90 AND 180 DEG
2-PEDESTRIAN PUSH BUTTONS AND SIGNS
1-GRIDSMAIT VIDEO DETECTION UNIT POLE MOUNTED (COUNTY PROVIDED)
LUMINAIRE - LED (FOR 40' MOUNTING HEIGHT)
METAL JUNCTION BOX WITH TERMINAL BLOCK

3" CONDUIT ABOVE JUNCTION BOX TO SPAN WIRES WITH:
4-4/C 14
2-2/C 14
1-ETHERNET CABLE (VIDEO)

1" CONDUIT RISER AND WEATHERHEAD ABOVE SPAN WIRE WITH:
1-3/C 14 (LUM)

WP
4

45' WOOD POLE W/ LUMINAIRE DAVIT
2-DOWN GUYS, GUARDS AND ANCHORS
2-TYPE 10B WOOD POLE MOUNTED AT 90 AND 180 DEG
2-PEDESTRIAN PUSH BUTTONS AND SIGNS
LUMINAIRE - LED (FOR 40' MOUNTING HEIGHT)
METAL JUNCTION BOX WITH TERMINAL BLOCK

3" CONDUIT ABOVE JUNCTION BOX TO SPAN WIRES WITH:
4-4/C 14
2-2/C 14

1" CONDUIT RISER AND WEATHERHEAD ABOVE SPAN WIRE WITH:
1-3/C 14 (LUM)

WP
5

45' WOOD POLE
2-DOWN GUYS, GUARDS AND ANCHORS

2-3" CONDUIT RISER AND WEATHERHEAD FROM HH 1 TO SPAN WIRE WITH:
12-4/C 14 12-4/C 14
2-3/C 14 2-3/C 14
4-2/C 14 4-2/C 14
2-3/C 20 2-3/C 20
1-ETHERNET CABLE 1-ETHERNET CABLE
(VIDEO) (VIDEO)

2" CONDUIT RISER AND WEATHERHEAD FROM HH 1 TO SPAN WIRE WITH:
4-3/C 14 (LUM)

A

F&I: TEMPORARY SIGNAL CABINET BASE
INSTALL: TEMPORARY CABINET AND CONTROLLER (COUNTY PROVIDED)
F&I: CONTROLLER CABINET TO HH 1:
3" CONDUIT 3" CONDUIT
12-4/C 14 12-4/C 14
2-3/C 14 2-3/C 14
4-2/C 14 4-2/C 14
2-3/C 20 2-3/C 20
2-ETHERNET CABLE
(VIDEO)

B

INPLACE: SIGNAL SERVICE CABINET
2" CONDUIT TO SOP TRANSFORMER (CONNEXUS ENERGY)
3-1/C 2
F&I: 2" CONDUIT TO CONTROLLER CABINET:
3-1/C 6
2" CONDUIT TO HH 1:
4-3/C 14 (LUM)

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3/20/24
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NO	DATE	DWN	CKD	REVISIONS



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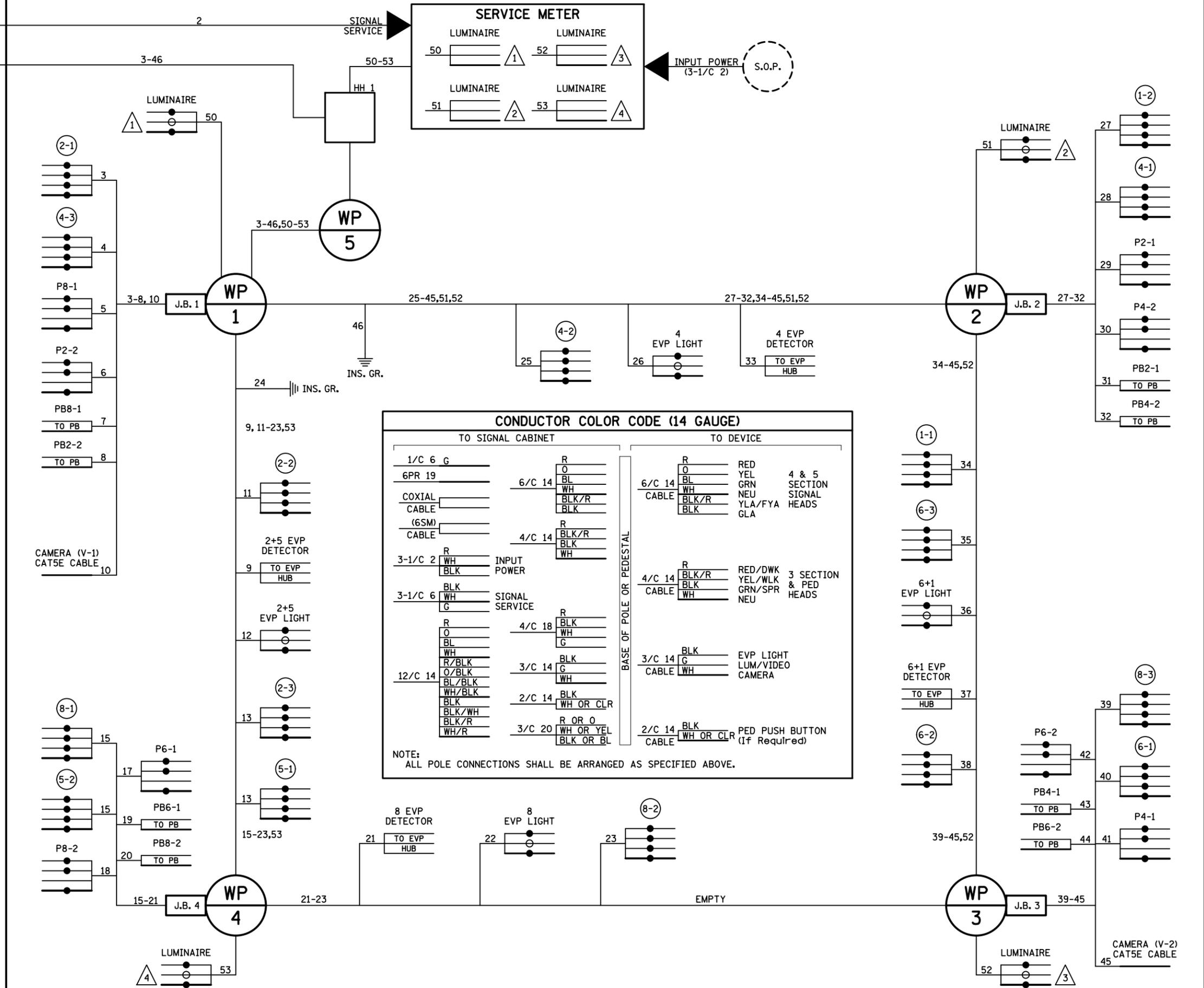
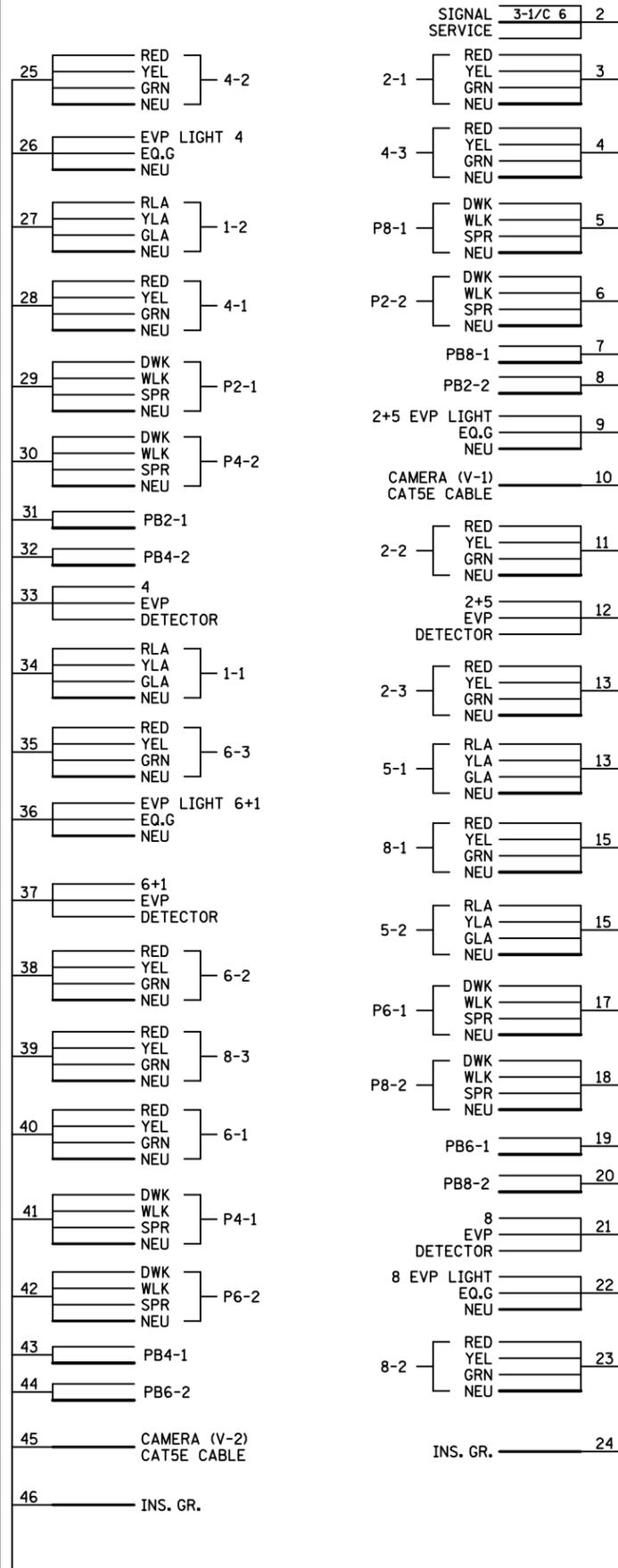
TEMPORARY SIGNAL SYSTEM

S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)

SHEET NO. 68 OF 71 SHEETS

CONTROLLER CABINET



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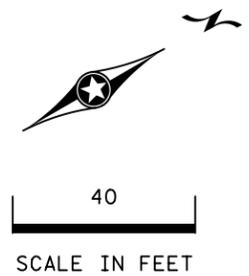


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TEMPORARY SIGNAL SYSTEM
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S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
 SHEET NO. 69 OF 71 SHEETS



CONTROLLER CABINET
 **F&I PATCH PANEL & NETWORK SWITCH

** 1.5" CONDUIT BORED
 1-FO CABLE (12SM)

1.5" CONDUIT
 1-FO CABLE (12SM)

3" CONDUIT
 1-FO CABLE (12SM)

PULL VAULT **

** PULL VAULT

☉ CSAH 3 SB

** 1.5" CONDUIT BORED
 1-FO CABLE (12SM)

** 1.5" CONDUIT BORED
 1-FO CABLE (12SM)

S.B. CSAH 3 (UNIVERSITY AVENUE)
 (35 M.P.H.)

☉ CSAH 3 NB

MATCHLINE
 CSAH 3 NB 20+00

NOTES:

1. THE LOCATION OF PULL VAULTS AND CONDUITS SHOWN IN THE PLAN ARE APPROXIMATE. EXACT LOCATIONS SHALL BE COORDINATED WITH ALL UTILITY FACILITIES IN SIDEWALK AND ROADWAY AND SHALL BE VERIFIED IN THE FIELD BY THE ENGINEER.
2. ALL ITEMS ARE TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNLESS OTHERWISE NOTED.
3. ITEMS DENOTED WITH ** ARE INCLUDED IN THE PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECT PAY ITEM.
4. CONTRACTOR SHALL TERMINATE FIBER OPTIC CABLE WITHIN TRAFFIC SIGNAL CABINETS IN THE CONTRACTOR PROVIDED TERMINATION PANEL. SEE SPECIAL PROVISIONS.
5. DIRECTIONAL BORE INTERCONNECT CONDUIT UNDER ALL HARD SURFACES LIKE SIDEWALKS, ROADS, AND DRIVEWAYS.

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NO	DATE	DWN	CKD	REVISIONS

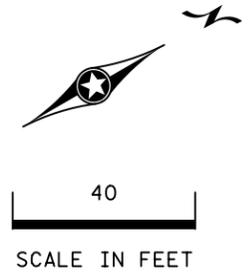


I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME: MICHAEL P MCCURDY
 SIGNATURE: *Michael P. McCurdy*
 DATE: 03/20/24 LICENSE #: 45902

TRAFFIC CONTROL INTERCONNECT
 S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
 SHEET NO. 70 OF 71 SHEETS



MATCHLINE
CSAH 3 NB 20+00

**1.5" CONDUIT BORED
1-FO CABLE (12SM)

SERVICE DR
(30 M.P.H.)

**1.5" CONDUIT
1-FO CABLE (12SM)

**1.5" CONDUIT BORED
1-FO CABLE (12SM)

1.5" CONDUIT **
1-FO CABLE (12SM)

E.B. CSAH 10
(50 M.P.H.)

W.B. CSAH 10
(50 M.P.H.)

EXISTING CONTROLLER CABINET WITH
**NETWORK SWITCH
**F&I PATCH PANEL
UTILIZE INPACE 3" RSC STUBOUT FOR
INTERCONNECT CONDUIT ENTRANCE

**PULL VAULT

UNIVERSITY AVENUE
(35 M.P.H.)

**PULL VAULT

☉ CSAH 3 SB

☉ CSAH 3 NB

E.B. CSAH 10
(50 M.P.H.)

W.B. CSAH 10
(50 M.P.H.)

NOTES:

1. THE LOCATION OF PULL VAULTS AND CONDUITS SHOWN IN THE PLAN ARE APPROXIMATE. EXACT LOCATIONS SHALL BE COORDINATED WITH ALL UTILITY FACILITIES IN SIDEWALK AND ROADWAY AND SHALL BE VERIFIED IN THE FIELD BY THE ENGINEER.
2. ALL ITEMS ARE TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNLESS OTHERWISE NOTED.
3. ITEMS DENOTED WITH ** ARE INCLUDED IN THE PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECT PAY ITEM.
4. CONTRACTOR SHALL TERMINATE FIBER OPTIC CABLE WITHIN TRAFFIC SIGNAL CABINETS IN THE CONTRACTOR PROVIDED TERMINATION PANEL. SEE SPECIAL PROVISIONS.
5. DIRECTIONAL BORE INTERCONNECT CONDUIT UNDER ALL HARD SURFACES LIKE SIDEWALKS, ROADS, AND DRIVEWAYS.

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NO	DATE	DWN	CKD	REVISIONS



I HEREBY CERTIFY THAT THIS SHEET WAS PREPARED 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: MICHAEL P MCCURDY
SIGNATURE: *Michael P. McCurdy*
DATE: 03/20/24 LICENSE #: 45902

TRAFFIC CONTROL INTERCONNECT
S.A.P. 002-603-005 / S.A.P. 106-020-042 / S.A.P. 114-020-063

S.A.P. 002-603-005 (CSAH 3/86TH LN NE)
SHEET NO. 71 OF 71 SHEETS