

ABBREVIATIONS

AWF	ADVANCE WARNING FLASHER
C.D.	COUNT DOWN
D2-1 (e.g.)	DETECTOR (PHASE 2, NO. 1)
DEG	DEGREES
DWK	DON'T WALK
F&I	FURNISH AND INSTALL
FL	FLASH/FLASHING
FYA	FLASHING YELLOW ARROW
FYLA	FLASHING YELLOW LEFT ARROW
GLA	GREEN LEFT ARROW
GRN	GREEN INDICATION
GR. RD.	GROUND ROD
GRA	GREEN RIGHT ARROW
GTA	GREEN THRU ARROW
HH	HANDHOLE
IND	INDICATION
INP	INPLACE
INS. GR.	INSULATED GROUND
JB	JUNCTION BOX
LED	LIGHT EMITTING DIODE
LUM	LUMINAIRE
NEU	NEUTRAL
P1-1 (e.g.)	PEDESTRIAN HEAD (PHASE 1, NO. 1)
PB	PUSH BUTTON
PB2-1 (e.g.)	PUSH BUTTON (PHASE 2, NO. 1)
PED	PEDESTRIAN
PVC	POLYVINYL CHLORIDE (CONDUIT)
RED	RED INDICATION
R&S	REMOVE AND SALVAGE
RLA	RED LEFT TURN ARROW
S&I	SALVAGE AND INSTALL
SOP	SOURCE OF POWER
SPR	SPARE
STA	STATION
WLK	WALK INDICATION
YEL	YELLOW INDICATION
YLA	YELLOW LEFT ARROW
YRA	YELLOW RIGHT ARROW

MINNESOTA DEPARTMENT OF TRANSPORTATION

CONSTRUCTION PLAN FOR RURAL INTERSECTION CONFLICT WARNING SYSTEM (RICWS) AND LIGHTING

AT THE INTERSECTION OF: T.H. XX AT C.R. YY NEAR RICHMOND, MN. (STEARNS COUNTY)

STATE PROJ. NO. XXXX-XXXX

REF POINT XXX+XX.XXX



MINN. PROJECT NO. XXXX-XXXX

GOVERNING SPECIFICATIONS

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

ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MN MUTCD, INCLUDING FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

INDEX

1	TITLE SHEET
2	ESTIMATED QUANTITIES AND GENERAL NOTES
3	CABINET PAD LAYOUT
4-5	SIGN STRUCTURE DETAILS
6	SIGN INSTALLATION DETAILS
7	LIGHTING DETAILS
8-11	RURAL INTERSECTION CONFLICT WARNING SYSTEM (RICWS) PLANS
12	INPLACE UTILITIES
13-16	SIGNING AND STRIPING PLANS AND DETAILS

THIS PLAN CONTAINS 16 SHEETS

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

TYPED NAME
DESIGN SQUAD _____

LIC. NO. XXXXX DATE: _____

AAA,BBB,CCC

SYMBOLS

■	HANDHOLE
—○—	EO.G CONNECTION
—◄	EVP CONFIRMATORY LIGHT
—#→	EVP DETECTOR
—◄#→	EVP DETECTOR AND CONFIRMATORY LIGHT
—●—	SPLICE
↔↔	DOUBLE BEACON (INTERSECTION INSTALLATION)
-----	F & I CONDUIT (SIZE AS NOTED)
△	LUMINAIRE NO.
③	FLASHER SIGN NO.
□	PVC LOOP DETECTOR (SIZE AS NOTED)
⊠	FLASHER AND SIGN POST
⊕	WOOD POLE NO.
■ (A)	CABINET, CONTROLLER, AND SERVICE CABINET
⊙ (B)	SOURCE OF POWER (INPLACE)

FOR PLANS AND UTILITIES SYMBOLS SEE TECHNICAL MANUAL



INDEX MAP XXXX
SCALE IN FEET

STANDARD PLATES - SIGNAL SYSTEMS

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

PLATE NO.	DESCRIPTION	PLATE NO.	DESCRIPTION
▷ 8001	I CHANNELIZERS (3 SHEETS)	▷ 8122	F PEDESTAL AND PEDESTAL BASE (2 SHEETS)
▷ 8107	A RLF EQUIPMENT PAD FOUNDATION LAYOUT (3 SHEETS)	▷ 8123	G POLE AND MAST ARM (2 SHEETS)
▷ 8111	E TRAFFIC SIGNAL BRACKETING (PEDESTAL MOUNTED) (3 SHEETS)	▷ 8126	L POLE FOUNDATION (PA90 AND PA100)
▷ 8112	I PEDESTAL FOUNDATION (TRAFFIC CONTROL SIGNALS)	▷ 8127	E LIGHT FOUNDATION - DESIGN E (2 SHEETS)
▷ 8117	G PRECAST CONCRETE HAND HOLE	▷ 8129	A SHIM AND WASHER
▷ 8118	D SERVICE EQUIPMENT AND POLE TRAFFIC CONTROL SIGNALS	▷ 8130	E SAW CUT LOOP DETECTORS (3 SHEETS)
▷ 8119	C GROUND MOUNTED CABINET FOUNDATION	▷ 8132	B PREFORMED RIGID PVC CONDUIT LOOP DETECTOR (3 SHEETS)
▷ 8120	Q POLE FOUNDATION (PA-85)		
▷ 8121	H TRANSFORMER BASE AND POLE BASE PLATE (2 SHEETS)		

▶ STANDARD PLATES APPLICABLE TO THIS PROJECT

STATE PROJECT NO. XXXX-XX CHARGE IDENTIFIER _____

_____	_____
_____	_____
_____	_____
_____	_____

PLAN REVISIONS		
DATE	SHEET NO.	APPROVED BY

RECOMMENDED FOR APPROVAL _____	CITY OF _____ ENGINEER	DATE: _____
RECOMMENDED FOR APPROVAL _____	_____ COUNTY ENGINEER	DATE: _____
RECOMMENDED FOR APPROVAL _____		DATE: _____
RECOMMENDED FOR APPROVAL _____	DISTRICT TRANSPORTATION ENGINEER	DATE: _____
RECOMMENDED FOR APPROVAL _____	DISTRICT TRAFFIC ENGINEER	DATE: _____
RECOMMENDED FOR APPROVAL _____	STATE PRE- LETTING ENGINEER	DATE: _____
OFFICE OF LAND MANAGEMENT APPROVAL _____	DIRECTOR, LAND MANAGEMENT	DATE: _____
APPROVED _____	STATE DESIGN ENGINEER	DATE: _____
_____	DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE AID RULES/POLICY	DATE: _____
_____	APPROVED FOR STATE AID FUNDING: STATE AID ENGINEER	DATE: _____

I HEREBY CERTIFY THAT THE FINAL FIELD REVISIONS, IF ANY, OF THIS PLAN WERE MADE BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME: _____ LIC. NO. _____ DATE: _____

STATEMENT OF ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	TOTAL ESTIMATED QUANTITIES	PARTICIPATION/COST BREAKDOWN			
				STATE S.P. XXXX-XXXX	COUNTY S.A.P. XXX-XXX-XXX	FEDERAL S.P. XXXX-XX	CITY S.A.P. XXX-XXX-XXX
2011.601	AS BUILT	LUMP SUM					
2021.501	MOBILIZATION	LUMP SUM					
2104.502	SALVAGE SIGN TYPE C	EACH					
2104.502	SALVAGE SIGN TYPE D	EACH					
2563.601	TRAFFIC CONTROL	LUMP SUM					
2564.502	INSTALL SIGN TYPE C	EACH					
2564.502	INSTALL SIGN TYPE D	EACH					
2565.616	FLASHING BEACON SYSTEM	SYSTEM					
2582.503	24" SOLID LINE MULTI-COMP GR IN (WR)	LIN FT					

DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: <u>AAA</u>				
DESIGNER: <u>BBB</u>				
CHECKED BY: <u>CCC</u>				

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

Certified By: _____ Lic. No. XXXXX
 Printed Name: ENGINEER NAME Date: DATE

RICWS SAMPLE PLAN
 T.H. XX AT C.R. YY
 RICHMOND, MN
 STEARNS COUNTY

STATEMENT OF ESTIMATED QUANTITIES
 S.P. XXXX-XXXX (T.H. XX) SHEET NO. 2 OF 16 SHEETS

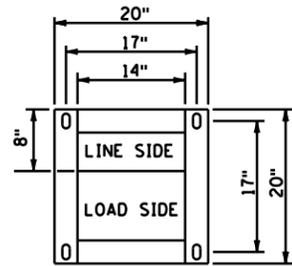
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6/28/2018

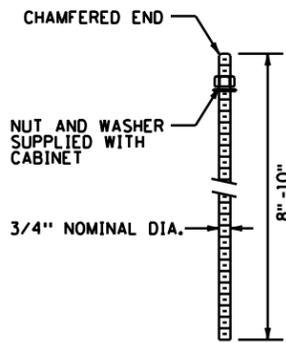
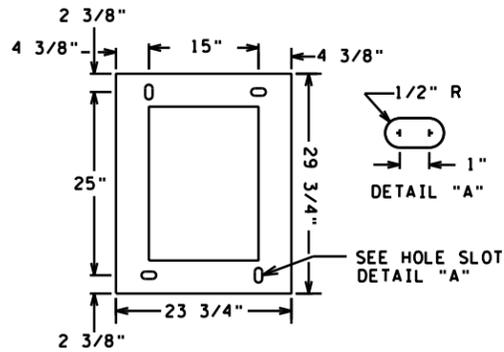
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3 - equipment_pad_layout

RLF SERVICE CABINET BASE

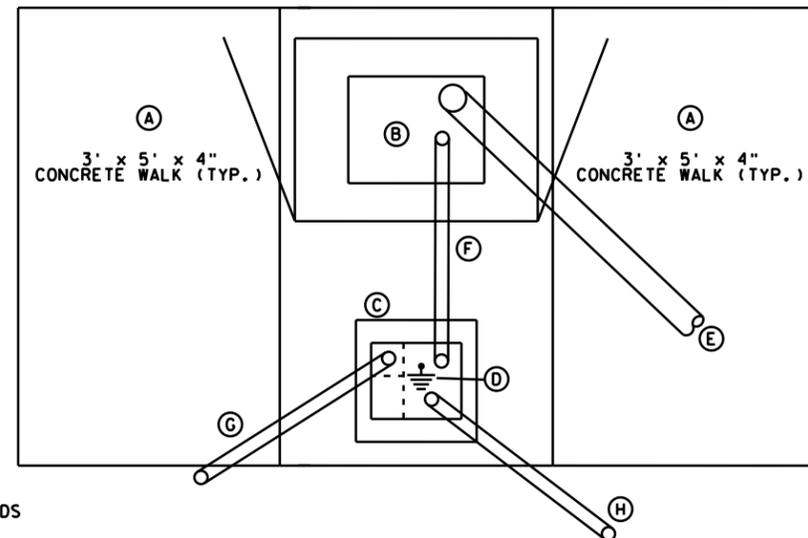


334 CABINET BASE

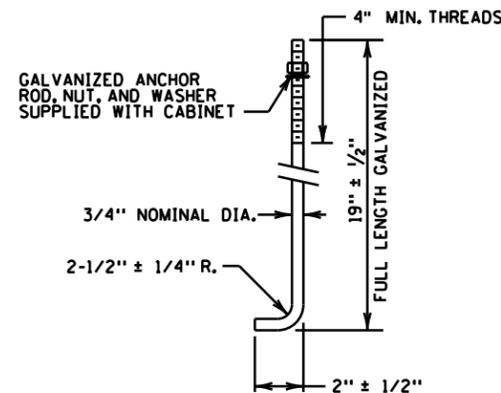
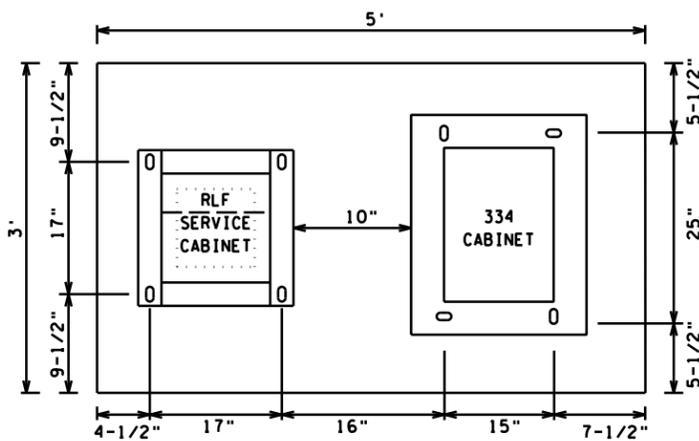


ANCHOR ROD DETAIL FOR PRECAST PAD (SPEC. 3385 TYPE A OR TYPE B AND GALVANIZED PER SPEC 3392)

TYPICAL CABINET INTERSECTION LAYOUT

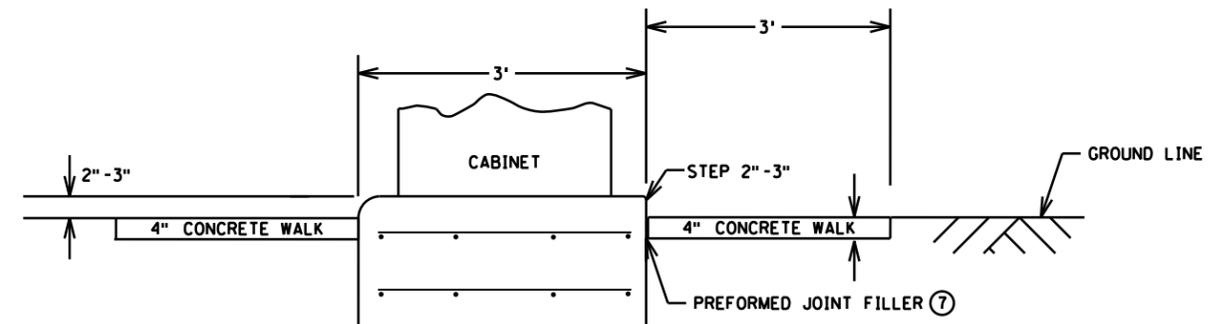


- (A) 3' x 5' x 4" CAST-IN-PLACE CONCRETE WALK
- (B) 334Z STYLE RICWS CABINET LOCATION
- (C) RURAL LIGHTING/FLASHER SERVICE CABINET
- (D) GROUND ROD
- (E) 3" CONDUIT TO HANDHOLE 1 (WITH RICWS FLASHER/DETECTOR CABLES)
- (F) 2" CONDUIT BETWEEN SERVICE CABINET AND RICWS CABINET (WITH SERVICE CABLES)
- (G) 2" CONDUIT FROM SERVICE CABINET TO SOURCE OF POWER (WITH 3-1/2 AWG CABLE)
- (H) 2" CONDUIT FROM SERVICE CABINET TO HANDHOLE 1 (WITH LIGHTING CABLES)

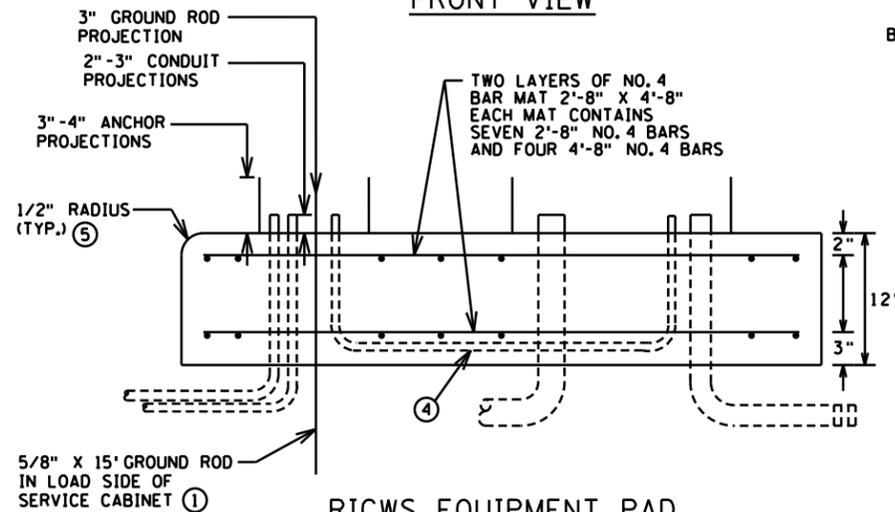


ANCHOR ROD DETAIL FOR CAST IN PLACE (SPEC. 3385 TYPE A OR TYPE B AND GALVANIZED PER SPEC 3392)

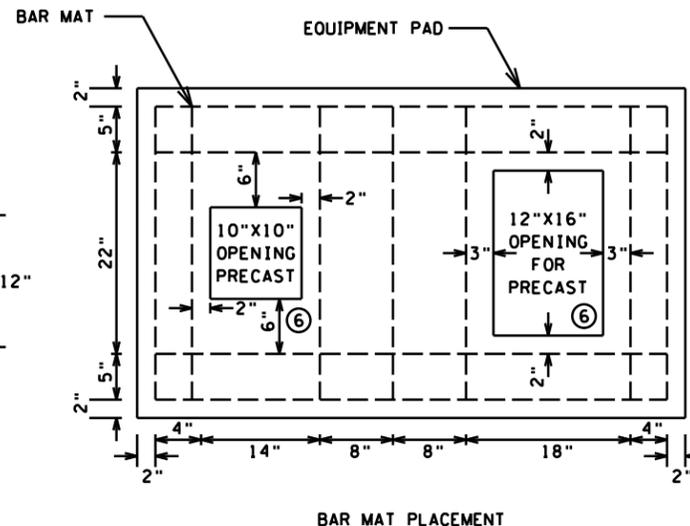
SIDE VIEW



FRONT VIEW



RICWS EQUIPMENT PAD CAST-IN-PLACE OR PRECAST



NOTES:

- CONTRACTOR HAS THE OPTION FOR CAST-IN-PLACE OR PRECAST CONCRETE EQUIPMENT PAD.
- F & I GROUNDING ELECTRODE SYSTEM FOR CAST-IN-PLACE AND PRECAST PAD IN ACCORDANCE WITH STANDARD PLATE 8106 EQUIPMENT PAD B "GROUNDING ELECTRODE SYSTEM" AND 2565.3.F.3 "EQUIPMENT PADS".
 - USE THE ANCHOR RODS, NUTS, AND WASHERS SUPPLIED WITH THE CABINETS FOR A CAST-IN-PLACE PAD. PLACE ANCHOR RODS AS SHOWN. ENSURE ANCHOR RODS MEET THE REQUIREMENTS AS DETAILED.
 - F & I ANCHOR RODS FOR A PRECAST PAD AS SHOWN IF USING A PRECAST PAD. DRILL 7/8 INCH HOLES 4 INCHES - 5 INCHES DEEP AT THE LOCATIONS SHOWN. F & I EPOXY ADHESIVE FROM THE MNDOT APPROVED PRODUCTS LIST INTO 7/8 INCH DRILLED HOLES AS SPECIFIED BY THE MANUFACTURER'S INSTRUCTIONS. USE NUTS AND WASHERS SUPPLIED WITH THE CABINETS.
 - DO NOT PLACE THE CONDUIT RUN BELOW THE CONCRETE PAD WHEN BOTH ENDS OF A CONDUIT RUN TERMINATE WITHIN THE PAD.
 - 1/2 INCH RADIUS ON FORMED EDGES OF THE PAD.
 - PLACE 10"x10" AND 12"x16" OPENINGS IN THE PAD AS SHOWN FOR THE PRECAST EQUIPMENT PAD. FILL THE OPENINGS WITH A MATERIAL APPROVED BY THE ENGINEER AFTER THE CONDUITS AND GROUND RODS HAVE BEEN PLACED.
 - F & I PREFORMED JOINT FILLER BETWEEN THE EQUIPMENT PAD AND THE CONCRETE WALKS. F & I CONCRETE MIX 3F52 FOR CAST-IN-PLACE OR CONCRETE MIX 3Y82 FOR PRECAST. ENSURE CONDUITS ARE LOCATED IN THE CABINET AS SHOWN AND DO NOT INTERFERE WITH CABINET-SUPPORTING MEMBERS OR DIVIDERS. COVER THE TOP OF THE CONDUITS AFTER PLACEMENT UNTIL THE CONDUCTORS ARE PLACED.

DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: AAA				
DESIGNER: BBB				
CHECKED BY: CCC				

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

Certified By: _____ Lic. No. XXXXX
 Printed Name: ENGINEER NAME Date: DATE

RICWS SAMPLE PLAN
 T.H. XX AT C.R. YY
 RICHMOND, MN
 STEARNS COUNTY

CABINET PAD LAYOUT
 S.P. XXXX-XXXX (T.H. XX) SHEET NO. 3 OF 16 SHEETS

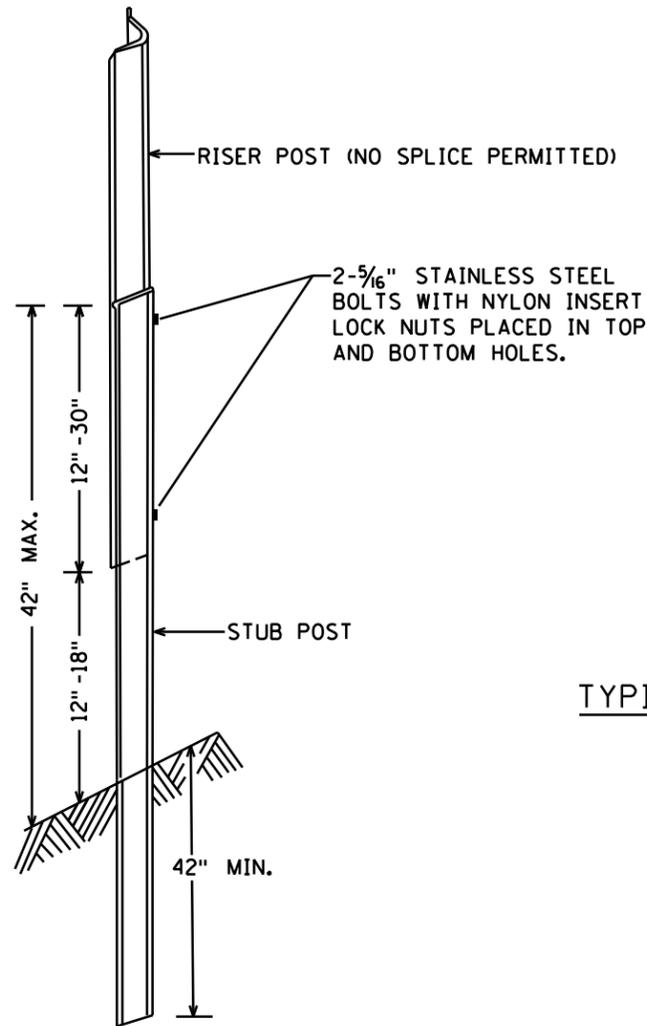
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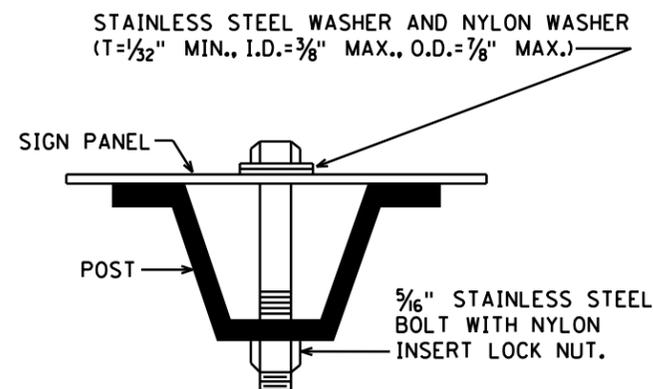
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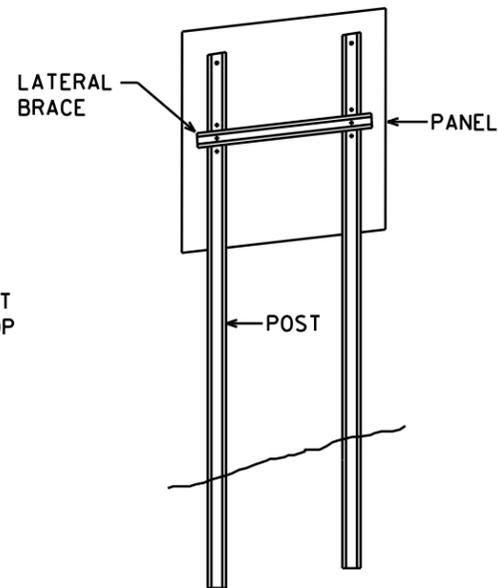
TYPE C & D POST



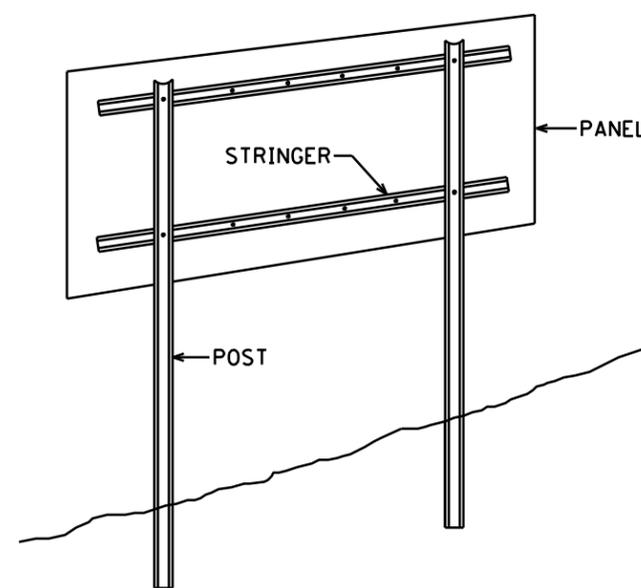
U POST BREAKAWAY SPLICE



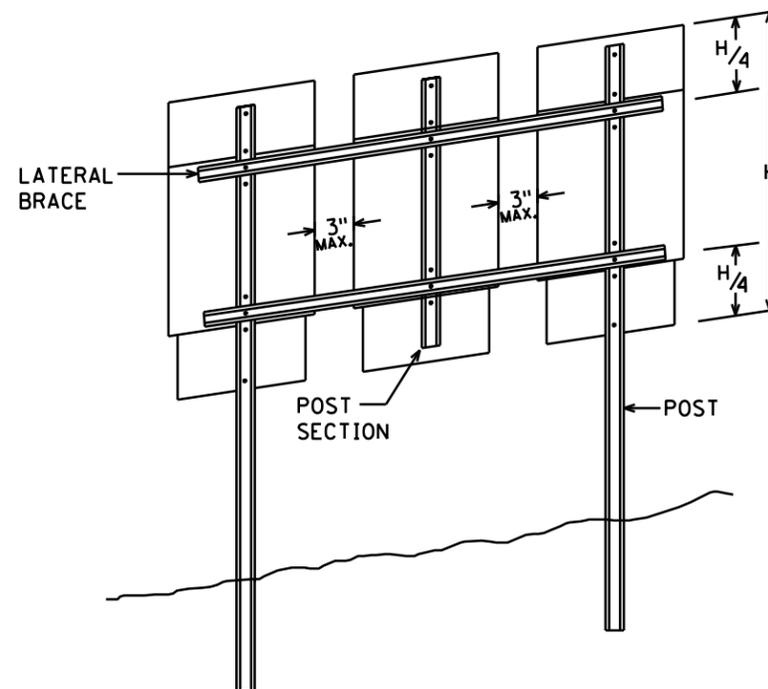
U POST MOUNTING TYPE C SIGNS



TYPICAL TYPE C INSTALLATION



TYPICAL TYPE D INSTALLATION



MODIFIED TYPE C INSTALLATION

NOTES:

1. USE 3 LB/FT STUB POSTS. SHALL CONFORM TO MNDOT 3401.
2. USE 2.5 LB/FT RISER POSTS, STRINGERS, KNEE BRACES AND LATERAL BRACES. ALL SHALL CONFORM TO MNDOT 3401.
3. SEE SIGN DATA SHEETS FOR NUMBER OF POSTS, KNEE BRACES, POST LENGTHS AND SPACINGS, AS DETERMINED FROM TEM CHARTS 6.3 AND 6.4.
4. IF MORE THAN TWO POSTS ARE NEEDED, THE MINIMUM SPACING SHALL BE 45" BETWEEN POSTS.
5. TYPE D SIGN PANELS SHALL BE BOLTED TO STRINGERS AT 24" MAXIMUM INTERVALS IN ACCORDANCE WITH THE TYPE D STRINGER AND PANEL-JOINT DETAIL (SEE MNDOT STANDARD SIGNS AND MARKINGS MANUAL).
6. MOUNTING (PUNCH CODE) FOR TYPE C SIGN PANELS SHALL BE AS INDICATED IN THE MNDOT STANDARD SIGNS AND MARKINGS MANUAL UNLESS OTHERWISE SPECIFIED.
7. ALL RISER (VERTICAL) U POSTS SHALL BE SPLICED. DRIVEN STUB POSTS SHALL BE AT LEAST 7' LONG.
8. USE STAINLESS STEEL 5/16" BOLTS, WASHERS AND NYLON INSERT LOCK NUTS AS SHOWN FOR ALL GROUND MOUNTED AND OVERHEAD MOUNTED SIGNS.
9. STAINLESS STEEL WASHER WITH SAME DIMENSIONS SHALL BE PROVIDED BETWEEN ALL NYLON WASHERS AND BOLT HEADS.
10. BRACING STUBS SHALL BE NO MORE THAN 4' ABOVE GROUND AND EMBEDDED AT LEAST 42".
11. A-FRAME BRACKET SHALL BE STEEL CONFORMING TO MNDOT 3306 AND GALVANIZED IN ACCORDANCE WITH MNDOT 3394.
12. COLLARS SHALL BE USED TO SHIM OVERLAYS AND LEGEND COMPONENTS AWAY FROM PANEL WHERE INTERFERENCE WITH BOLT HEADS IS ENCOUNTERED. MNDOT 3352.2A6.
13. 2 POST TYPE C SIGNS SHALL BE REINFORCED WITH AT LEAST ONE LATERAL BRACE. INSTALLATIONS WHERE THE TOTAL PANEL HEIGHT IS 60" OR MORE SHALL HAVE TWO LATERAL BRACES LOCATED APPROXIMATELY AT THE QUARTER POINTS.
14. WHERE 2 SINGLE POST TYPE C SIGNS ARE INSTALLED SIDE BY SIDE, THEY SHALL BE REINFORCED Laterally BY AT LEAST 2 BRACES, BOLTED AT EACH POST AND LOCATED APPROXIMATELY AT THE QUARTER POINTS.
15. WHERE 3 OR MORE TYPE C SIGNS ARE INSTALLED SIDE BY SIDE, THEY SHALL BE REINFORCED Laterally BY AT LEAST 2 BRACES, BOLTED AT EACH POST AND POST SECTION AND LOCATED APPROXIMATELY AT THE QUARTER POINTS AS SHOWN IN MODIFIED TYPE C INSTALLATION.

TYPE C & D SIGN STRUCTURAL DETAILS

RICWS SAMPLE PLAN
T.H. XX AT C.R. YY
RICHMOND, MN
STEARNS COUNTY

S.P. XXXX-XXXX (T.H. XX)

Sheet 1 of 2

SHEET NO. 4 OF 16 SHEETS

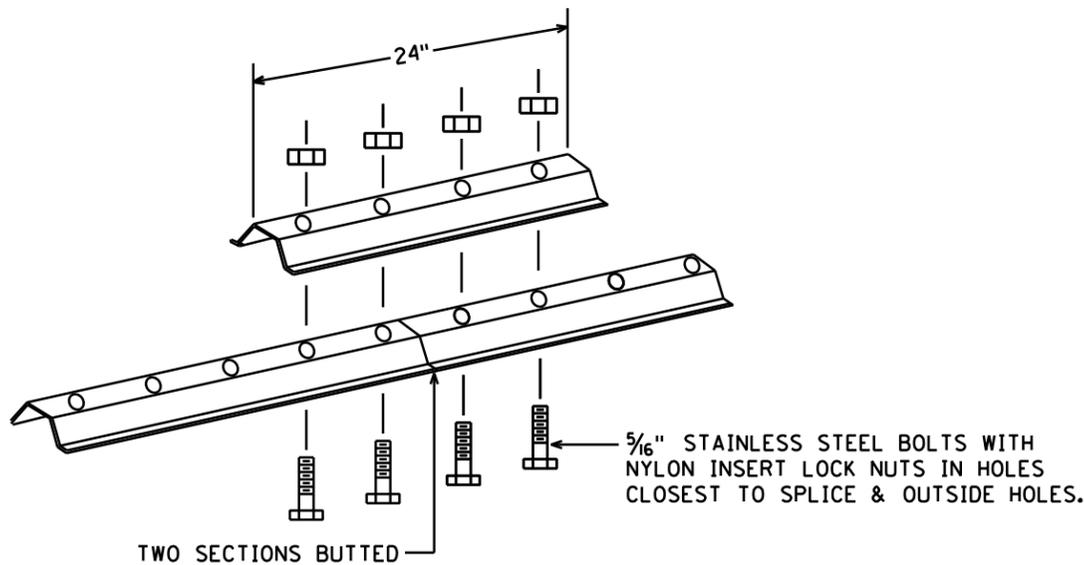
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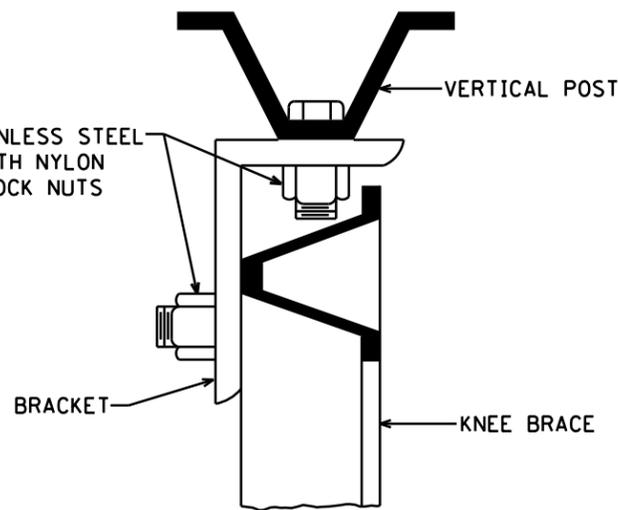
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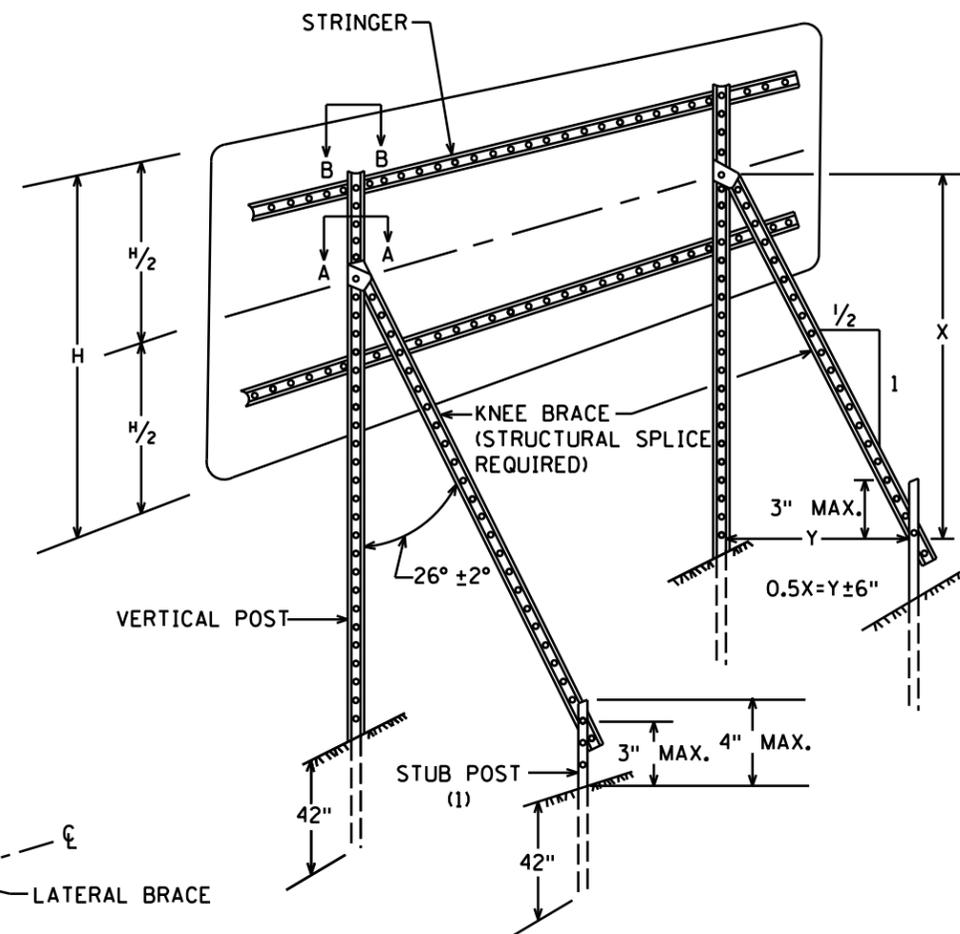
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4-5 - sign_str_details



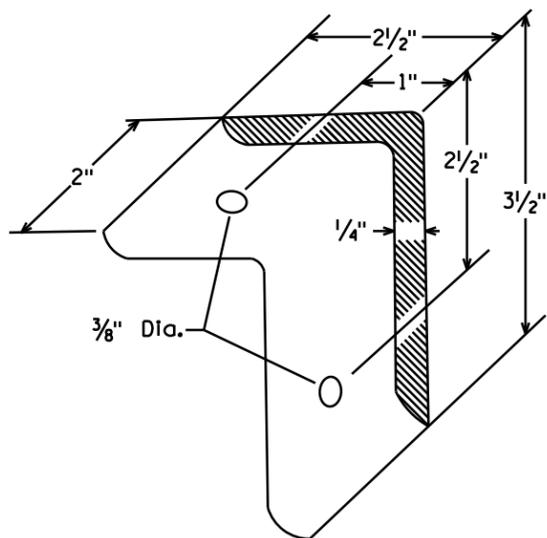
LATERAL BRACE OR STRINGER SPLICE DETAIL (EXPLODED VIEW)



SECTION A-A

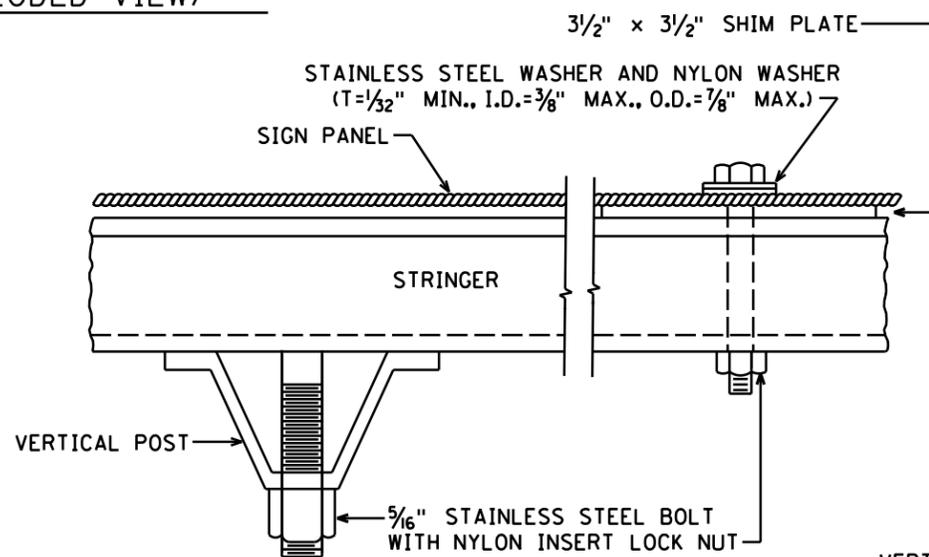


TYPICAL "A-FRAME" INSTALLATION TYPE "D" SIGNS

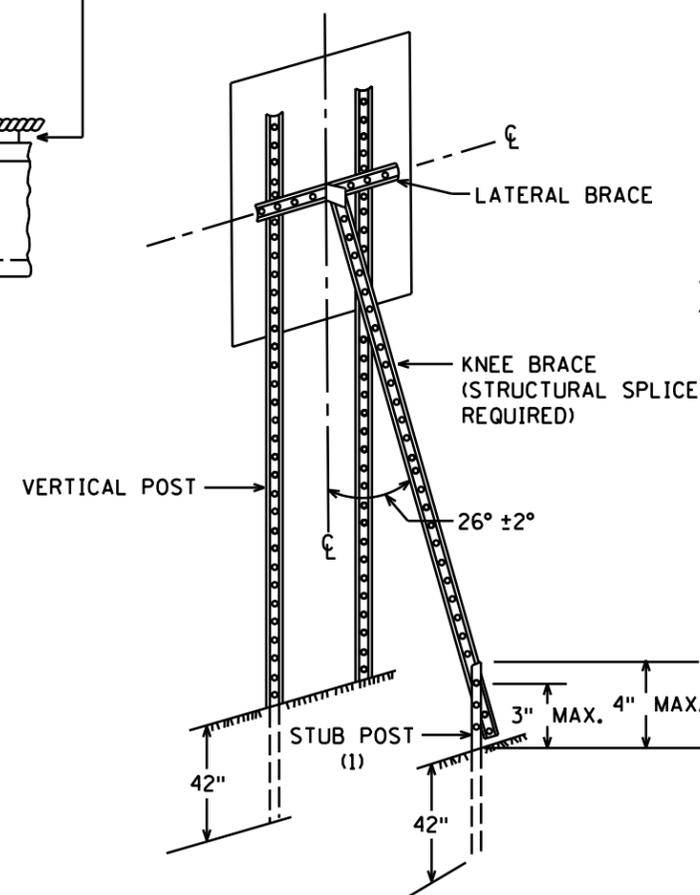


A-FRAME BRACKET

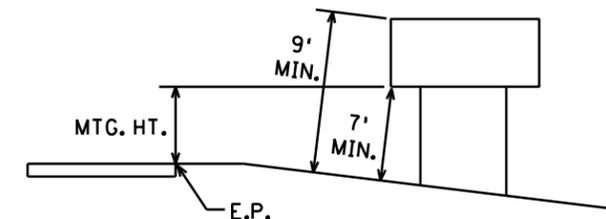
(STEEL MNDOT 3306 GALVANIZED PER MNDOT 3394)



SECTION B-B

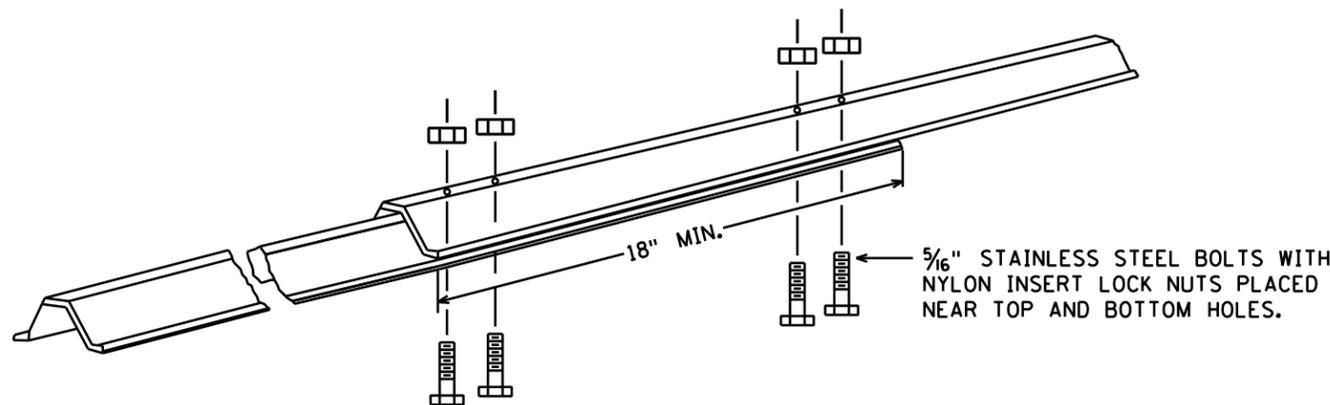


TYPICAL "A-FRAME" INSTALLATION TYPE "C" SIGNS



TYPICAL MOUNTING

(1) OFFSET STUB POST 1' TOWARD ROADWAY RELATIVE TO VERTICAL POST. ATTACH STUB POST AND KNEE BRACE BACK TO BACK.



STRUCTURAL SPLICE

(USE WHEN IT IS NECESSARY TO FABRICATE THE CORRECT LENGTH OF POST FROM TWO PIECES)

REVISED: 5-5-2017

RICWS SAMPLE PLAN
T.H. XX AT C.R. YY
RICHMOND, MN
STEARNS COUNTY

S.P. XXXX-XXXX (T.H. XX)

TYPE C & D SIGN
STRUCTURAL DETAILS

Sheet 2 of 2

SHEET NO. 5 OF 16 SHEETS

3/13/2018

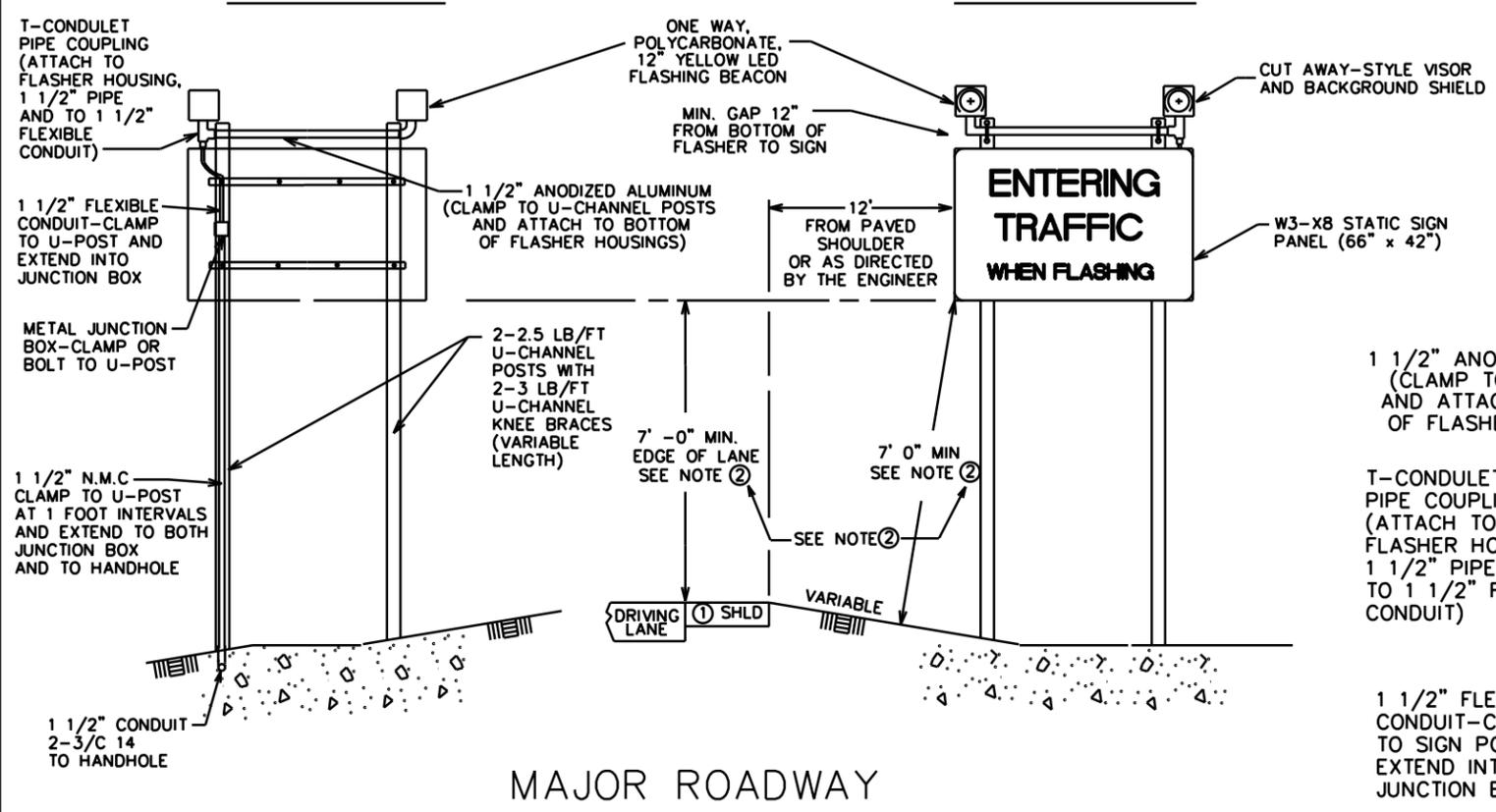
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6 - RIEWS sign details

BACK VIEW

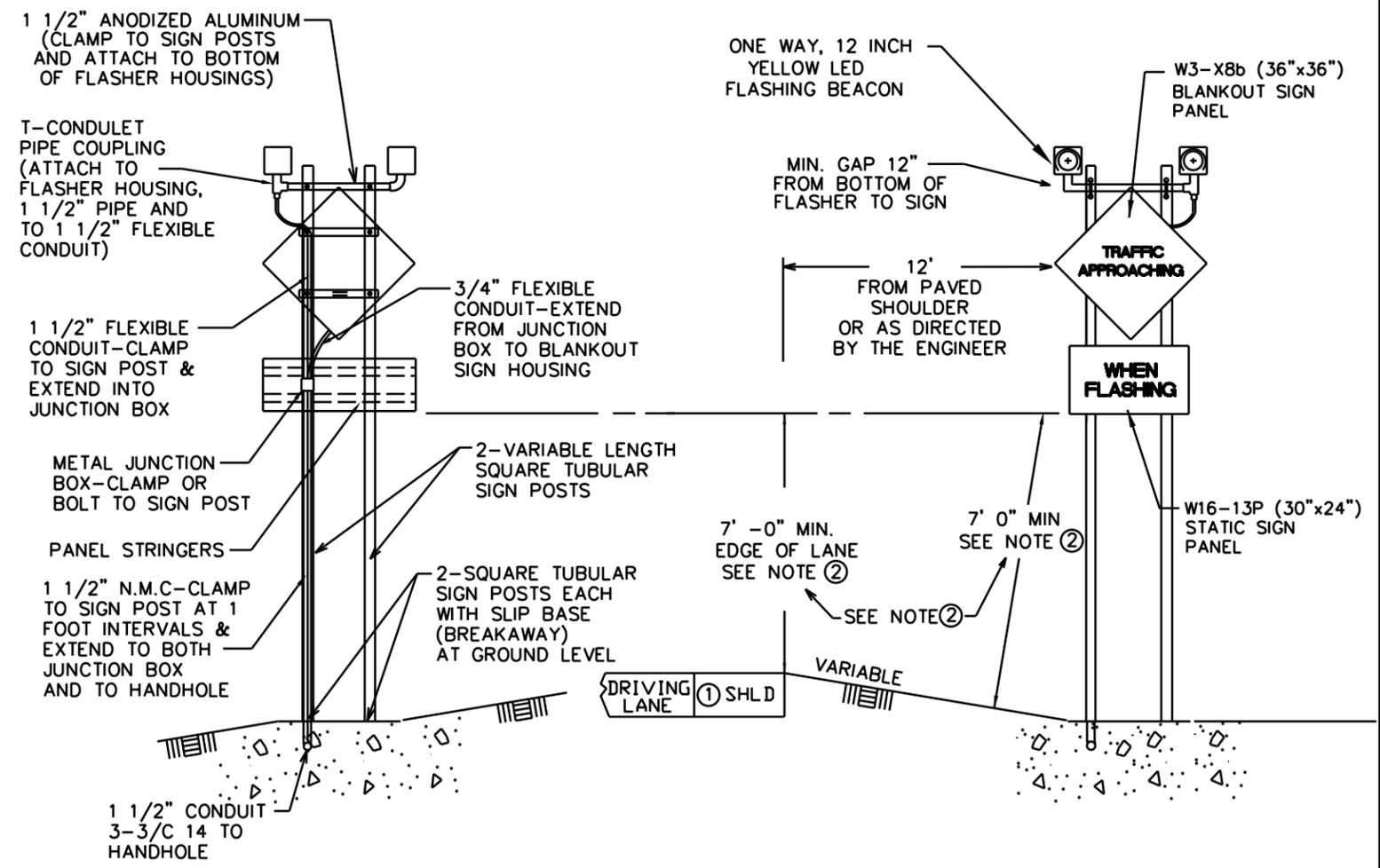
FRONT VIEW



MAJOR ROADWAY

BACK VIEW

FRONT VIEW



MINOR ROADWAY

- NOTES:
- ① WITHOUT PAVED SHOULDER, EDGE OF SIGN SHALL BE 12' - 0" FROM EDGE OF DRIVING LANE.
 - ② CONTRACTOR SHALL MEET BOTH MINIMUM REQUIRED MOUNTING HEIGHTS WITH THE SHORTEST SQUARE TUBE POSTS POSSIBLE OR AS DIRECTED BY THE ENGINEER.

DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: <u>AAA</u>				
DESIGNER: <u>BBB</u>				
CHECKED BY: <u>CCC</u>				

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

Certified By: _____ Lic. No. XXXXX
 Printed Name: ENGINEER NAME Date: DATE

RICWS SAMPLE PLAN
 T.H. XX AT C.R. YY
 RICHMOND, MN
 STEARNS COUNTY

SIGN INSTALLATION DETAILS
 S.P. XXXX-XXXX (T.H. XX) SHEET NO. 6 OF 16 SHEETS

3:13:32 PM

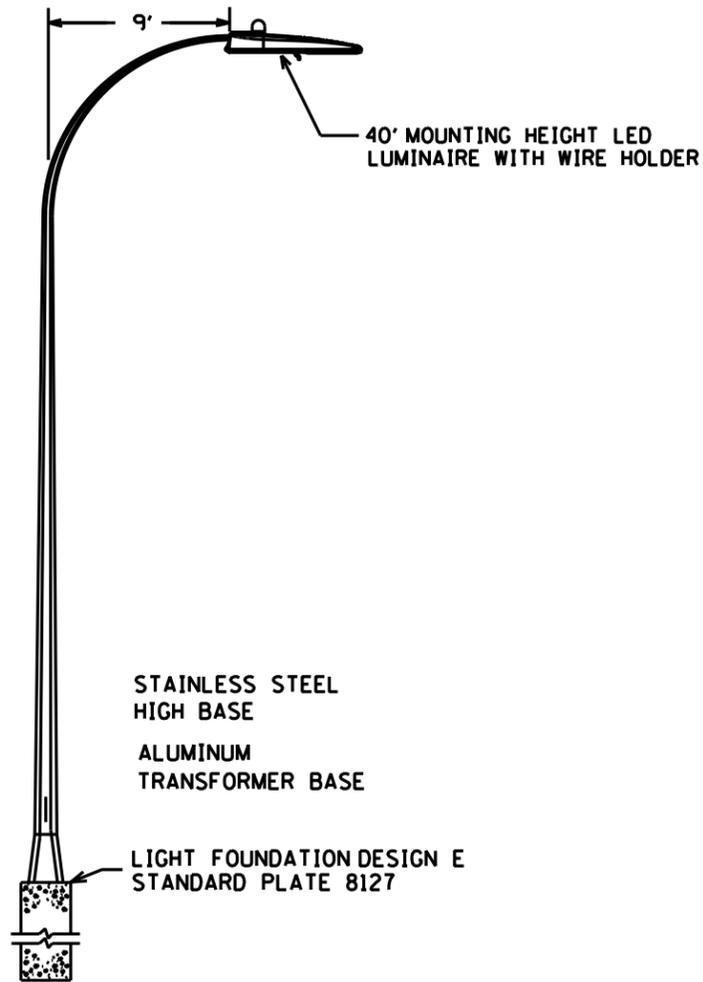
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7 - lighting_detail

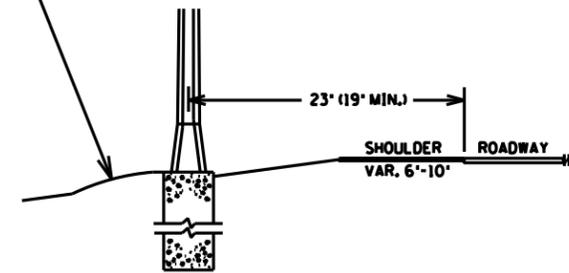
RADIUS CHART (ENGLISH)

MAST ARM LENGTH	RADIUS
6	5
9	8
12	10



LIGHTING UNIT TYPE 9-40
(BREAKAWAY)

FILL AROUND FOUNDATION TOP WITH EXCAVATED DIRT. GRADE DIRT LEVEL WITH BOTTOM OF CONCRETE CHAMFER.



PLACEMENT LIGHTING UNIT TYPE 9-40

USE THE MAXIMUM DISTANCE WHENEVER POSSIBLE, IF THE MINIMUM DISTANCE CANNOT BE OBTAINED CONTACT THE DISTRICT/DIVISION TRAFFIC ENGINEER. LIGHT FOUNDATIONS SHALL BE PLACED IN ACCORDANCE WITH 2545.3F2. DISTANCES SHALL BE MEASURED FROM THE EDGE OF DRIVING LANE OR TURN LANE.

DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: <u>AAA</u>				
DESIGNER: <u>BBB</u>				
CHECKED BY: <u>CCC</u>				

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

Certified By: _____ Lic. No. XXXXX
 Printed Name: ENGINEER NAME Date: DATE

RICWS SAMPLE PLAN
 T.H. XX AT C.R. YY
 RICHMOND, MN
 STEARNS COUNTY

LIGHTING DETAILS
 S.P. XXXX-XXXX (T.H. XX) SHEET NO. 7 OF 16 SHEETS

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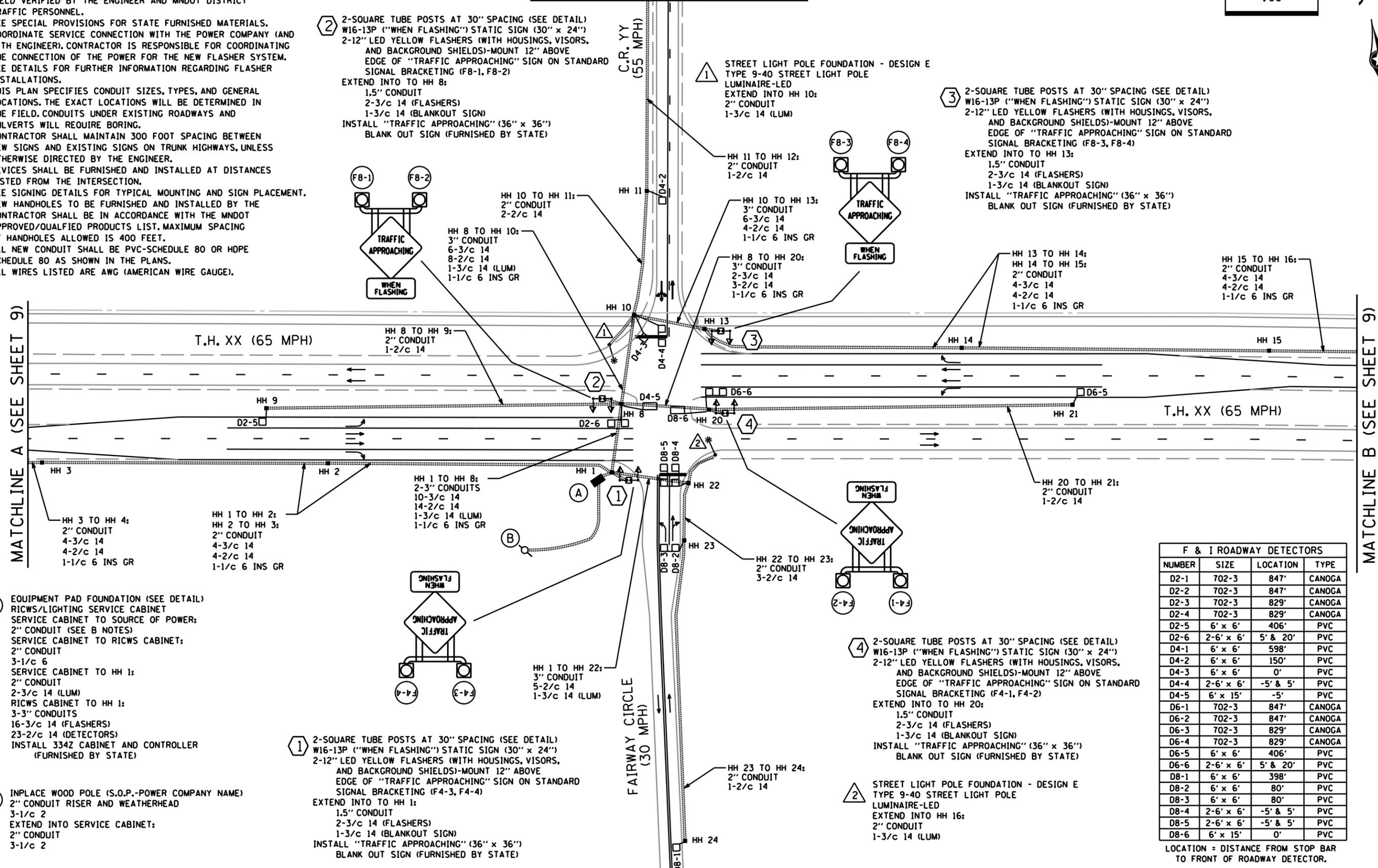
- NOTES:**
- 1) THE EXACT LOCATION OF HANDHOLES, FLASHERS/SIGNS, ROADWAY DETECTORS, AND CABINET PAD SHALL BE FIELD VERIFIED BY THE ENGINEER AND MNDOT DISTRICT TRAFFIC PERSONNEL.
 - 2) SEE SPECIAL PROVISIONS FOR STATE FURNISHED MATERIALS.
 - 3) COORDINATE SERVICE CONNECTION WITH THE POWER COMPANY (AND WITH ENGINEER). CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE CONNECTION OF THE POWER FOR THE NEW FLASHER SYSTEM.
 - 4) SEE DETAILS FOR FURTHER INFORMATION REGARDING FLASHER INSTALLATIONS.
 - 5) THIS PLAN SPECIFIES CONDUIT SIZES, TYPES, AND GENERAL LOCATIONS. THE EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD. CONDUITS UNDER EXISTING ROADWAYS AND CULVERTS WILL REQUIRE BORING.
 - 6) CONTRACTOR SHALL MAINTAIN 300 FOOT SPACING BETWEEN NEW SIGNS AND EXISTING SIGNS ON TRUNK HIGHWAYS, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
 - 7) DEVICES SHALL BE FURNISHED AND INSTALLED AT DISTANCES LISTED FROM THE INTERSECTION.
 - 8) SEE SIGNING DETAILS FOR TYPICAL MOUNTING AND SIGN PLACEMENT.
 - 9) NEW HANDHOLES TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR SHALL BE IN ACCORDANCE WITH THE MNDOT APPROVED/QUALIFIED PRODUCTS LIST. MAXIMUM SPACING OF HANDHOLES ALLOWED IS 400 FEET.
 - 10) ALL NEW CONDUIT SHALL BE PVC-SCHEDULE 80 OR HDPE SCHEDULE 80 AS SHOWN IN THE PLANS.
 - 11) ALL WIRES LISTED ARE AWG (AMERICAN WIRE GAUGE).

MATCHLINE C (SEE SHEET 10)



MATCHLINE A (SEE SHEET 9)

MATCHLINE B (SEE SHEET 9)



② 2-SQUARE TUBE POSTS AT 30" SPACING (SEE DETAIL) W16-13P ("WHEN FLASHING") STATIC SIGN (30" x 24") 2-12" LED YELLOW FLASHERS (WITH HOUSINGS, VISORS, AND BACKGROUND SHIELDS)-MOUNT 12" ABOVE EDGE OF "TRAFFIC APPROACHING" SIGN ON STANDARD SIGNAL BRACKETING (F8-1, F8-2) EXTEND INTO TO HH 8: 1.5" CONDUIT 2-3/c 14 (FLASHERS) 1-3/c 14 (BLANKOUT SIGN) INSTALL "TRAFFIC APPROACHING" (36" x 36") BLANK OUT SIGN (FURNISHED BY STATE)

③ 2-SQUARE TUBE POSTS AT 30" SPACING (SEE DETAIL) W16-13P ("WHEN FLASHING") STATIC SIGN (30" x 24") 2-12" LED YELLOW FLASHERS (WITH HOUSINGS, VISORS, AND BACKGROUND SHIELDS)-MOUNT 12" ABOVE EDGE OF "TRAFFIC APPROACHING" SIGN ON STANDARD SIGNAL BRACKETING (F8-3, F8-4) EXTEND INTO TO HH 13: 1.5" CONDUIT 2-3/c 14 (FLASHERS) 1-3/c 14 (BLANKOUT SIGN) INSTALL "TRAFFIC APPROACHING" (36" x 36") BLANK OUT SIGN (FURNISHED BY STATE)

Ⓐ EQUIPMENT PAD FOUNDATION (SEE DETAIL) RICWS/LIGHTING SERVICE CABINET SERVICE CABINET TO SOURCE OF POWER: 2" CONDUIT (SEE B NOTES) SERVICE CABINET TO RICWS CABINET: 2" CONDUIT 3-1/c 6 SERVICE CABINET TO HH 1: 2" CONDUIT 2-3/c 14 (LUM) RICWS CABINET TO HH 1: 3-3" CONDUITS 16-3/c 14 (FLASHERS) 23-2/c 14 (DETECTORS) INSTALL 334Z CABINET AND CONTROLLER (FURNISHED BY STATE)

Ⓑ INPLACE WOOD POLE (S.O.P.-POWER COMPANY NAME) 2" CONDUIT RISER AND WEATHERHEAD 3-1/c 2 EXTEND INTO SERVICE CABINET: 2" CONDUIT 3-1/c 2

① 2-SQUARE TUBE POSTS AT 30" SPACING (SEE DETAIL) W16-13P ("WHEN FLASHING") STATIC SIGN (30" x 24") 2-12" LED YELLOW FLASHERS (WITH HOUSINGS, VISORS, AND BACKGROUND SHIELDS)-MOUNT 12" ABOVE EDGE OF "TRAFFIC APPROACHING" SIGN ON STANDARD SIGNAL BRACKETING (F4-3, F4-4) EXTEND INTO TO HH 1: 1.5" CONDUIT 2-3/c 14 (FLASHERS) 1-3/c 14 (BLANKOUT SIGN) INSTALL "TRAFFIC APPROACHING" (36" x 36") BLANK OUT SIGN (FURNISHED BY STATE)

④ 2-SQUARE TUBE POSTS AT 30" SPACING (SEE DETAIL) W16-13P ("WHEN FLASHING") STATIC SIGN (30" x 24") 2-12" LED YELLOW FLASHERS (WITH HOUSINGS, VISORS, AND BACKGROUND SHIELDS)-MOUNT 12" ABOVE EDGE OF "TRAFFIC APPROACHING" SIGN ON STANDARD SIGNAL BRACKETING (F4-1, F4-2) EXTEND INTO TO HH 20: 1.5" CONDUIT 2-3/c 14 (FLASHERS) 1-3/c 14 (BLANKOUT SIGN) INSTALL "TRAFFIC APPROACHING" (36" x 36") BLANK OUT SIGN (FURNISHED BY STATE)

② STREET LIGHT POLE FOUNDATION - DESIGN E TYPE 9-40 STREET LIGHT POLE LUMINAIRE-LED EXTEND INTO HH 16: 2" CONDUIT 1-3/c 14 (LUM)

F & I ROADWAY DETECTORS			
NUMBER	SIZE	LOCATION	TYPE
D2-1	702-3	847'	CANOGA
D2-2	702-3	847'	CANOGA
D2-3	702-3	829'	CANOGA
D2-4	702-3	829'	CANOGA
D2-5	6' x 6'	406'	PVC
D2-6	2-6' x 6'	5' & 20'	PVC
D4-1	6' x 6'	598'	PVC
D4-2	6' x 6'	150'	PVC
D4-3	6' x 6'	0'	PVC
D4-4	2-6' x 6'	-5' & 5'	PVC
D4-5	6' x 15'	-5'	PVC
D6-1	702-3	847'	CANOGA
D6-2	702-3	847'	CANOGA
D6-3	702-3	829'	CANOGA
D6-4	702-3	829'	CANOGA
D6-5	6' x 6'	406'	PVC
D6-6	2-6' x 6'	5' & 20'	PVC
D8-1	6' x 6'	398'	PVC
D8-2	6' x 6'	80'	PVC
D8-3	6' x 6'	80'	PVC
D8-4	2-6' x 6'	-5' & 5'	PVC
D8-5	2-6' x 6'	-5' & 5'	PVC
D8-6	6' x 15'	0'	PVC

LOCATION = DISTANCE FROM STOP BAR TO FRONT OF ROADWAY DETECTOR.

DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: <u>AAA</u>				
DESIGNER: <u>BBB</u>				
CHECKED BY: <u>CCC</u>				

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

Certified By: _____ Lic. No. XXXXX
 Printed Name: ENGINEER NAME Date: DATE

RICWS SAMPLE PLAN
T.H. XX AT C.R. YY
RICHMOND, MN
STEARNS COUNTY

RICWS SYSTEM INTERSECTION LAYOUT
S.P. XXXX-XXXX (T.H. XX) SHEET NO. 8 OF 16 SHEETS

3/13/33 PM

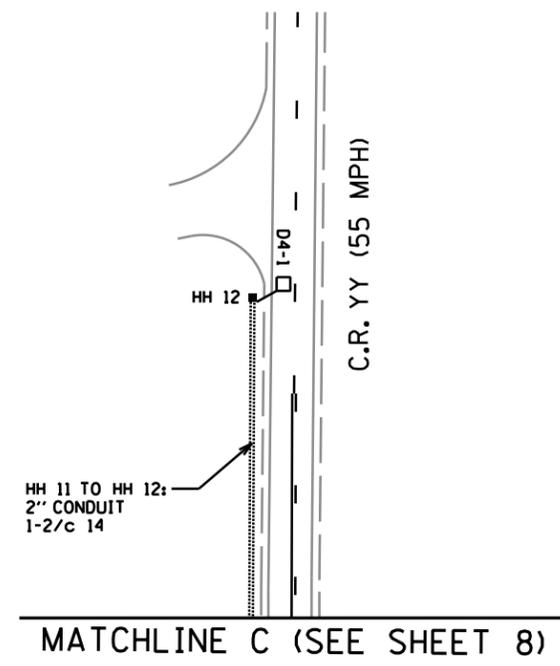
6/28/2018

(USERNAME)

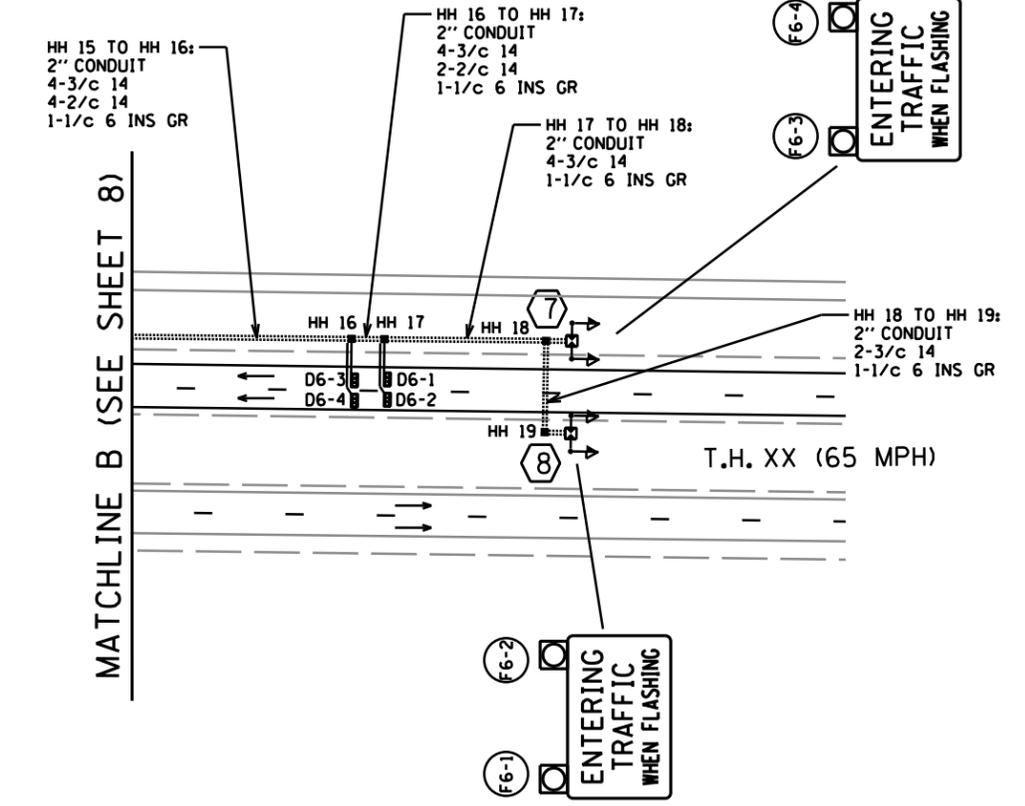
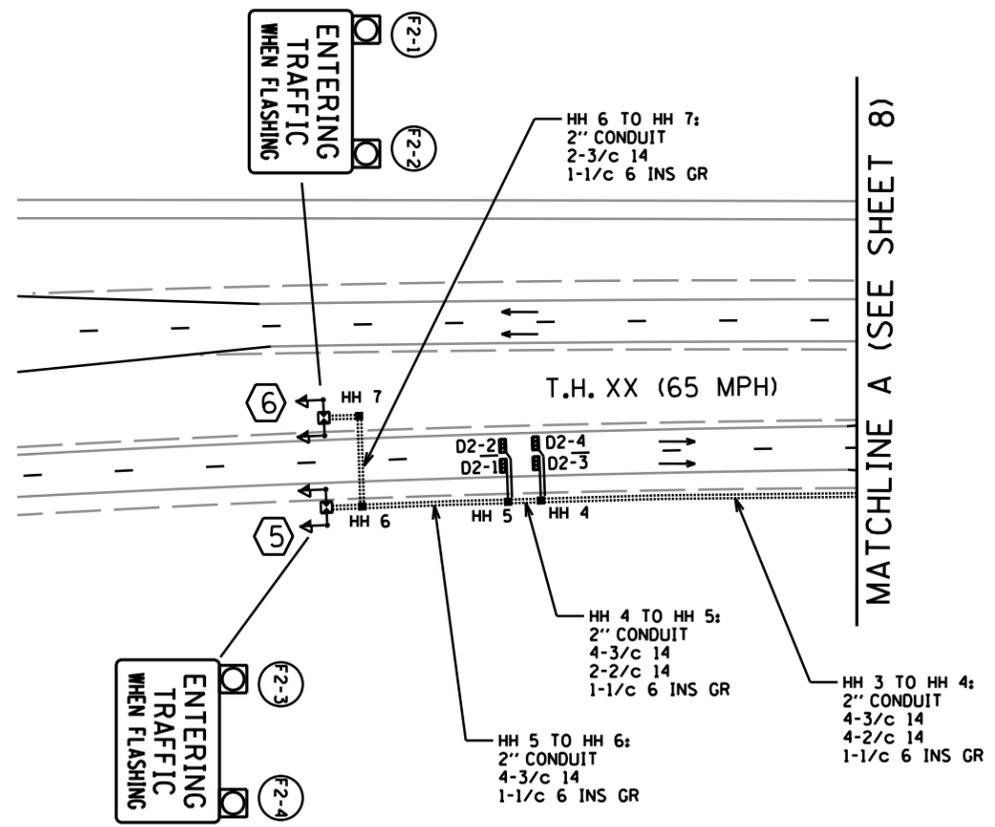
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NOTES:

- 1) THE EXACT LOCATION OF HANDHOLES, FLASHERS/SIGNS, ROADWAY DETECTORS, AND CABINET PAD SHALL BE FIELD VERIFIED BY THE ENGINEER AND MNDOT DISTRICT TRAFFIC PERSONNEL.
- 2) SEE SPECIAL PROVISIONS FOR STATE FURNISHED MATERIALS.
- 3) COORDINATE SERVICE CONNECTION WITH THE POWER COMPANY (AND WITH ENGINEER). CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE CONNECTION OF THE POWER FOR THE NEW FLASHER SYSTEM.
- 4) SEE DETAILS FOR FURTHER INFORMATION REGARDING FLASHER INSTALLATIONS.
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- 10) ALL NEW CONDUIT SHALL BE PVC-SCHEDULE 80 OR HDPE SCHEDULE 80 AS SHOWN IN THE PLANS.
- 11) ALL WIRES LISTED ARE AWG (AMERICAN WIRE GAUGE).



- 7) 2-2.5 LB/FT U-CHANNEL POSTS AT 42" SPACING WITH 2-3 LB/FT U-CHANNEL KNEE BRACES W3-X8 ("ENTERING TRAFFIC WHEN FLASHING") (66" x 42") STATIC SIGN (950' FROM INTERSECTION) 2-12" LED YELLOW FLASHERS (WITH HOUSINGS, VISORS, AND BACKGROUND SHIELDS)-MOUNT 12" ABOVE EDGE OF "ENTERING TRAFFIC" SIGN ON STANDARD SIGNAL BRACKETING (F6-3, F6-4) EXTEND INTO HH 18: 1.5" CONDUIT 2-3/c 14 (FLASHERS)
- 8) 2-2.5 LB/FT U-CHANNEL POSTS AT 42" SPACING WITH 2-3 LB/FT U-CHANNEL KNEE BRACES W3-X8 ("ENTERING TRAFFIC WHEN FLASHING") (66" x 42") STATIC SIGN (950' FROM INTERSECTION) 2-12" LED YELLOW FLASHERS (WITH HOUSINGS, VISORS, AND BACKGROUND SHIELDS)-MOUNT 12" ABOVE EDGE OF "ENTERING TRAFFIC" SIGN ON STANDARD SIGNAL BRACKETING (F6-1, F6-2) EXTEND INTO HH 19: 1.5" CONDUIT 2-3/c 14 (FLASHERS)



- 5) 2-2.5 LB/FT U-CHANNEL POSTS AT 42" SPACING WITH 2-3 LB/FT U-CHANNEL KNEE BRACES W3-X8 ("ENTERING TRAFFIC WHEN FLASHING") (66" x 42") STATIC SIGN (950' FROM INTERSECTION) 2-12" LED YELLOW FLASHERS (WITH HOUSINGS, VISORS, AND BACKGROUND SHIELDS)-MOUNT 12" ABOVE EDGE OF "ENTERING TRAFFIC" SIGN ON STANDARD SIGNAL BRACKETING (F2-3, F2-4) EXTEND INTO HH 6: 1.5" CONDUIT 2-3/c 14 (FLASHERS)

- 6) 2-2.5 LB/FT U-CHANNEL POSTS AT 42" SPACING WITH 2-3 LB/FT U-CHANNEL KNEE BRACES W3-X8 ("ENTERING TRAFFIC WHEN FLASHING") (66" x 42") STATIC SIGN (950' FROM INTERSECTION) 2-12" LED YELLOW FLASHERS (WITH HOUSINGS, VISORS, AND BACKGROUND SHIELDS)-MOUNT 12" ABOVE EDGE OF "ENTERING TRAFFIC" SIGN ON STANDARD SIGNAL BRACKETING (F2-1, F2-2) EXTEND INTO HH 7: 1.5" CONDUIT 2-3/c 14 (FLASHERS)

DESIGN TEAM	NO.	BY	DATE	REVISIONS	I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.	RICWS SAMPLE PLAN T.H. XX AT C.R. YY RICHMOND, MN STEARNS COUNTY	RICWS SYSTEM INTERSECTION LAYOUT S.P. XXXX-XXXX (T.H. XX) SHEET NO. 9 OF 16 SHEETS
DRAWN BY: <u>AAA</u>					Certified By: _____ Lic. No. <u>XXXXX</u>		
DESIGNER: <u>BBB</u>					Printed Name: <u>ENGINEER NAME</u> Date: <u>DATE</u>		
CHECKED BY: <u>CCC</u>							

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6/28/2018

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10 - SGLIC (XX-YY)

40
SCALE IN FEET



T.H. XX (65 MPH)

C.R. YY
(55 MPH)

HH 14

HH 10

HH 13

1

3

2

D4-3

D4-4

D4-5

D6-6

HH 8

D8-6

HH 20

4

D2-6

T.H. XX (65 MPH)

HH 1

D8-5

D8-4

2

(A)

1

HH 22

NOTE: THIS PLAN SHEET IS THE SAME AS SHEET 8, EXCEPT THAT PLAN HAS BEEN ENLARGED TO SHOW THE INTERSECTION IN GREATER DETAIL.

(B)

FAIRWAY
CIRCLE
(30 MPH)

D8-3

D8-2

HH 23

DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: <u>AAA</u>				
DESIGNER: <u>BBB</u>				
CHECKED BY: <u>CCC</u>				

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

Certified By: _____ Lic. No. XXXXX
 Licensed Professional Engineer
 Printed Name: ENGINEER NAME Date: DATE

RICWS SAMPLE PLAN
 T.H. XX AT C.R. YY
 RICHMOND, MN
 STEARNS COUNTY

RICWS INTERSECTION DETAIL
 S.P. XXXX-XXXX (T.H. XX) SHEET NO. 10 OF 16 SHEETS

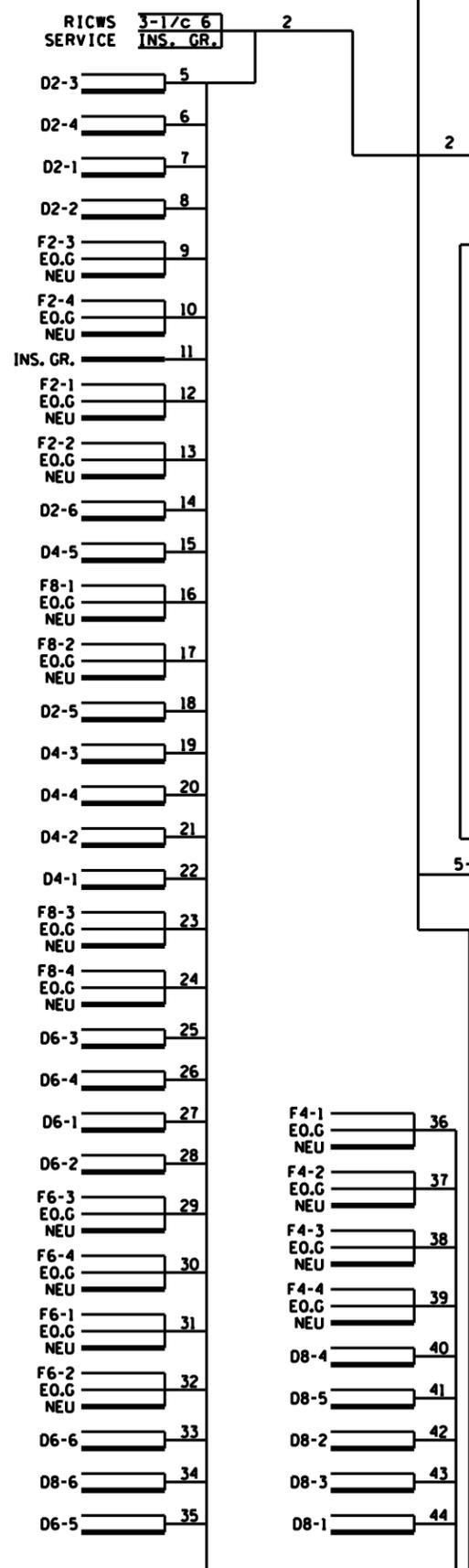
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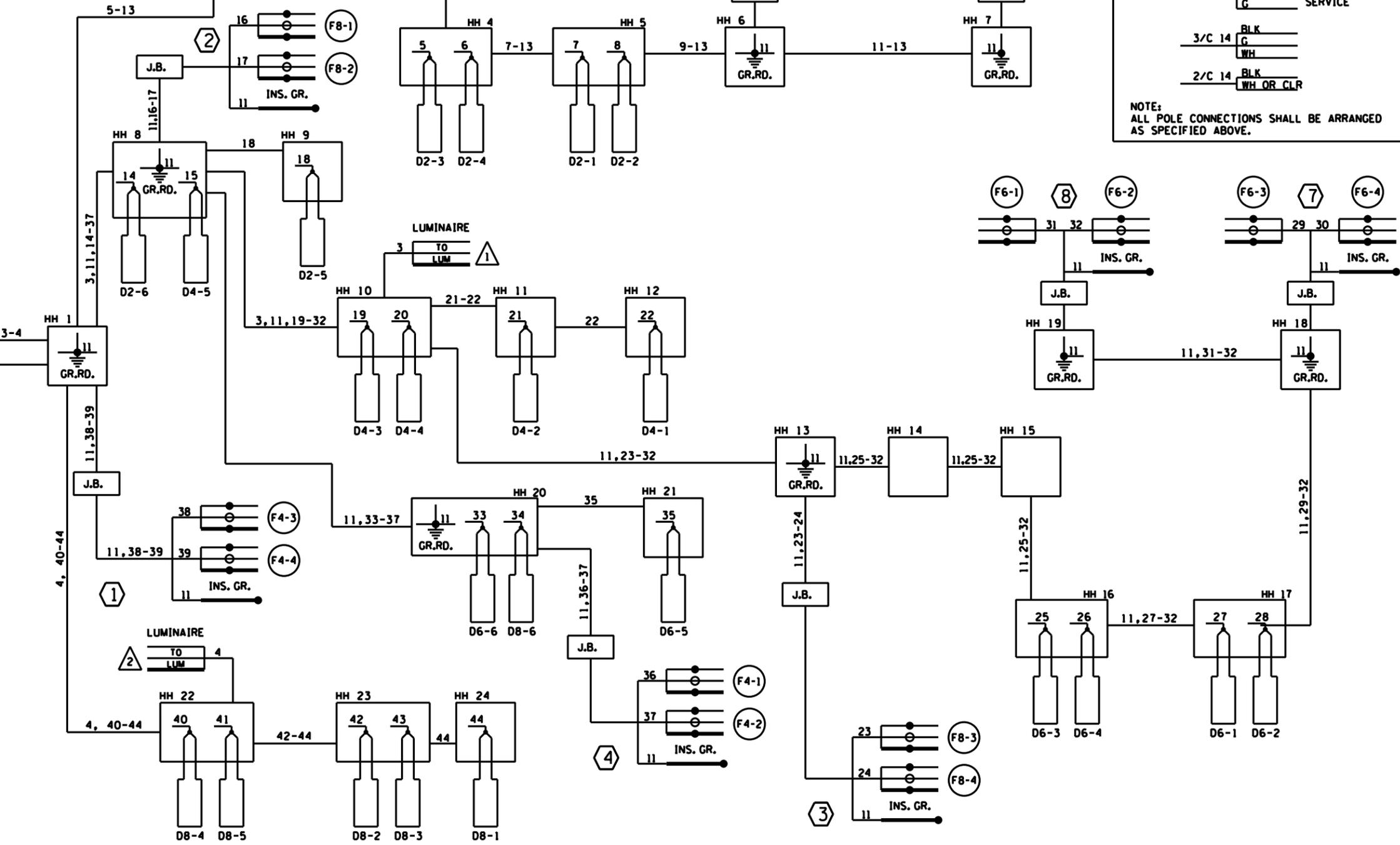
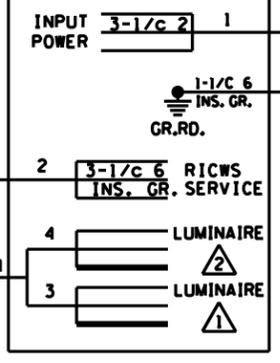
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11 - W01 (XX-YY)

RICWS CABINET



SERVICE CABINET



NOTES:
1) FLASHER SYSTEM AND LUMINAIRES SHALL BE METERED POWER.

CONDUCTOR COLOR CODE (14 GAUGE)	
TO RICWS CABINET/DEVICE	
1/C 6	G
3-1/C 2	R WH BLK
4/C 14	R BLK/R BLK WH
3-1/C 6	BLK WH G
3/C 14	BLK G WH
2/C 14	BLK WH OR CLR

NOTE:
ALL POLE CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.

DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: AAA				
DESIGNER: BBB				
CHECKED BY: CCC				

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Certified By: _____ Lic. No. XXXXX
Printed Name: ENGINEER NAME Date: DATE

RICWS SAMPLE PLAN
T.H. XX AT C.R. YY
RICHMOND, MN
STEARNS COUNTY

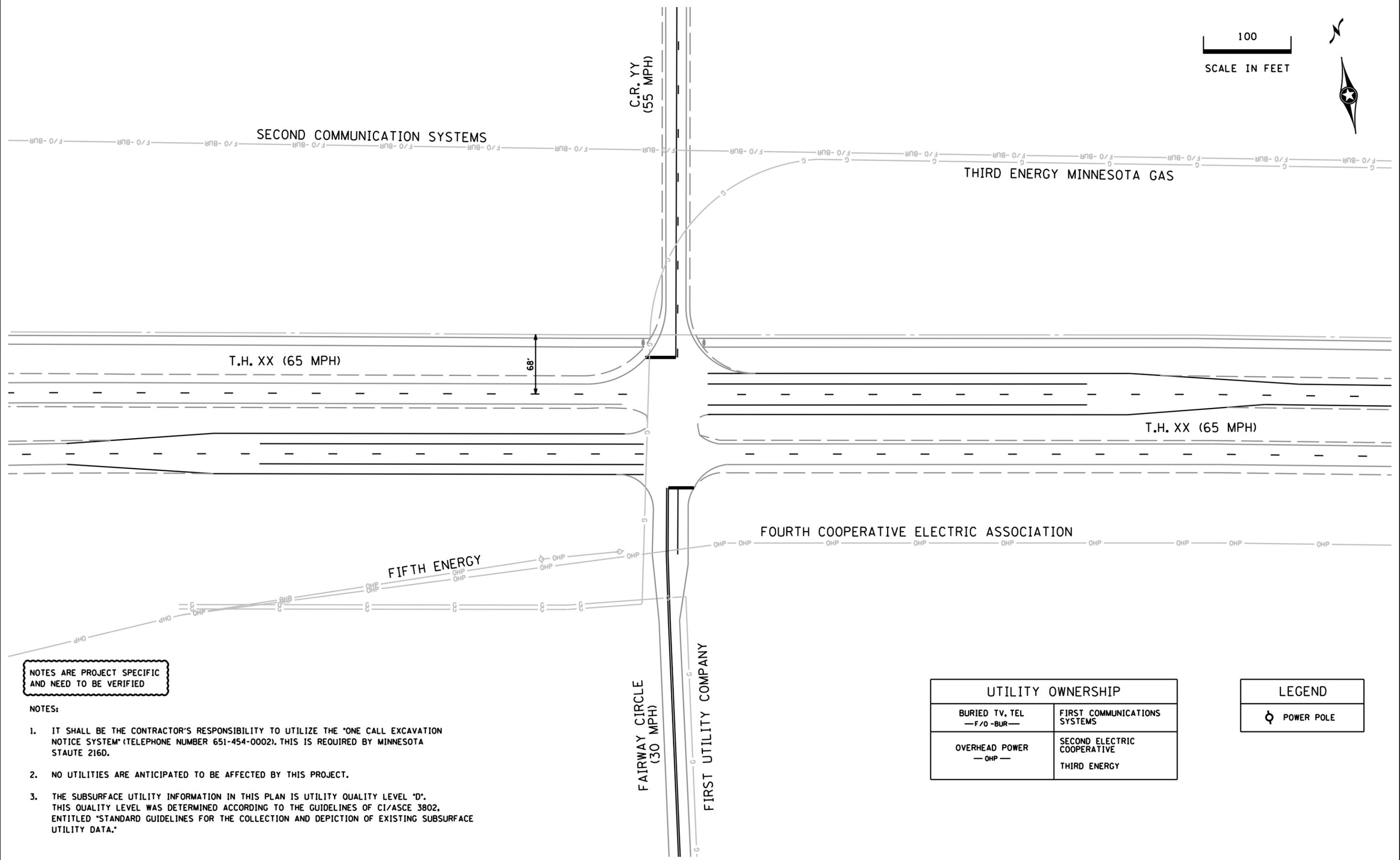
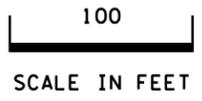
RICWS SYSTEM FIELD WIRING DIAGRAM
S.P. XXXX-XXXX (T.H. XX) SHEET NO. 11 OF 16 SHEETS

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6/28/2018

(USERNAME)

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12 - SGL3 (XX-YY)



NOTES ARE PROJECT SPECIFIC
AND NEED TO BE VERIFIED

- NOTES:
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" (TELEPHONE NUMBER 651-454-0002). THIS IS REQUIRED BY MINNESOTA STAUTE 216D.
 - NO UTILITIES ARE ANTICIPATED TO BE AFFECTED BY THIS PROJECT.
 - THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL "D". THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF C1/ASCE 3802, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

UTILITY OWNERSHIP	
BURIED TV, TEL — F/O -BUR —	FIRST COMMUNICATIONS SYSTEMS
OVERHEAD POWER — OHP —	SECOND ELECTRIC COOPERATIVE THIRD ENERGY

LEGEND	
	POWER POLE

DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: <u>AAA</u>				
DESIGNER: <u>BBB</u>				
CHECKED BY: <u>CCC</u>				

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

Certified By: _____ Lic. No. XXXXX
Printed Name: ENGINEER NAME Date: DATE

RICWS SAMPLE PLAN
T.H. XX AT C.R. YY
RICHMOND, MN
STEARNS COUNTY

INPLACE UTILITIES
S.P. XXXX-XXXX (T.H. XX) SHEET NO. 12 OF 16 SHEETS

PERMANENT PAVEMENT MARKING PLAN

NOTES & GUIDELINES

GENERAL INFORMATION:

THE ENGINEER'S INVOLVEMENT IN THE APPLICATION OF THE MATERIAL SHALL BE LIMITED TO FIELD CONSULTATION AND INSPECTION. THE CONTRACTOR WILL PLACE NECESSARY "SPOTTING" AT APPROPRIATE POINTS TO PROVIDE HORIZONTAL CONTROL FOR STRIPING AND TO DETERMINE NECESSARY STARTING AND CUTOFF POINTS. LONGITUDINAL JOINTS, PAVEMENT EDGES AND EXISTING MARKINGS MAY SERVE AS HORIZONTAL CONTROL WHEN SO DIRECTED.

EDGE LINES AND LANE LINES ARE TO BE BROKEN ONLY AT INTERSECTIONS WITH PUBLIC ROADS AND AT PRIVATE ENTRANCES IF THEY ARE CONTROLLED BY AN AGENCY PLACED YIELD SIGN, STOP SIGN OR TRAFFIC SIGNAL. THE BREAK POINT IS TO BE AT THE START OF THE RADIUS FOR THE INTERSECTION OR AT MARKED STOP LINES OR CROSSWALKS.

A TOLERANCE OF 1/4 INCH UNDER OR 1/4 INCH OVER THE SPECIFIED WIDTH WILL BE ALLOWED FOR STRIPING PROVIDED THE VARIATION IS GRADUAL AND DOES NOT DETRACT FROM THE GENERAL APPEARANCE. BROKEN LINE SEGMENTS MAY VARY UP TO 3 INCHES FROM THE SPECIFIED LENGTHS PROVIDED THE OVER AND UNDER VARIATIONS ARE REASONABLY COMPENSATORY. ALIGNMENT DEVIATIONS FROM THE CONTROL GUIDE SHALL NOT EXCEED 1 INCH. MATERIAL SHALL NOT BE APPLIED OVER LONGITUDINAL JOINTS. ESTABLISHMENT OF APPLICATION TOLERANCES SHALL NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY TO COMPLY AS CLOSELY AS PRACTICABLE WITH THE PLANNED DIMENSIONS.

JUST PRIOR TO THE PLACEMENT OF PAVEMENT MARKINGS THE ROAD SURFACE SHALL BE CLEANED AND FREE OF CONTAMINATION AS RECOMMENDED BY THE MATERIAL MANUFACTURER AND ACCEPTABLE TO THE ENGINEER. PORTLAND CEMENT CONCRETE SURFACES SHALL BE SANDBLAST CLEANED TO REMOVE ANY SURFACE TREATMENTS AND/OR LAITANCE.

APPLY ALL PAVEMENT MARKINGS AS RECOMMENDED BY THE MATERIAL MANUFACTURER.

PERMANENT PAVEMENT MARKINGS SHALL NOT BE PLACED OVER TEMPORARY TAPE MARKINGS.

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.

REFER TO SPECIAL PROVISIONS OR SPEC BOOK FOR GROUND IN/RECESSED PAVEMENT MARKING APPLICATION REQUIREMENTS.

MULTI-COMPONENT LIQUID:

THE ROAD SURFACE SHALL BE CLEANED AT THE DIRECTION OF THE ENGINEER JUST PRIOR TO APPLICATION. PAVEMENT CLEANING SHALL CONSIST OF AT LEAST BRUSHING WITH A ROTARY BROOM (NON-METALLIC) OR AS RECOMMENDED BY THE MATERIAL MANUFACTURER AND ACCEPTABLE TO THE ENGINEER. NEW PORTLAND CEMENT CONCRETE SURFACES SHALL BE SANDBLAST CLEANED TO REMOVE ANY SURFACE TREATMENTS AND/OR LAITANCE.

THE MULTI-COMPONENT LIQUID MARKING APPLICATION SHALL IMMEDIATELY FOLLOW THE PAVEMENT CLEANING. GLASS BEADS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE MULTI-COMPONENT LIQUID PAVEMENT MARKING.

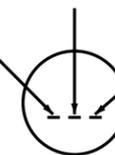
APPLY MULTI-COMPONENT LIQUID MARKINGS WITH A MINIMUM THICKNESS OF 20 MILS; GLASS BEADS SHALL BE APPLIED AT A RATE OF AT LEAST 25 LB/GAL. THE "NO-TRACKING" CONDITION SHALL BE DETERMINED ON AN APPLICATION OF SPECIFIED THICKNESS TO THE PAVEMENT AND COVERED WITH GLASS BEADS AT THE RATE OF AT LEAST 25 LB/GAL.

PAVEMENT MARKINGS SHALL ONLY BE APPLIED IN SEASONABLE WEATHER WHEN AIR AND PAVEMENT SURFACE TEMPERATURES ARE 40°F OR HIGHER AND SHALL NOT BE APPLIED WHEN THE WIND OR OTHER CONDITIONS CAUSE A FILM OF DUST TO BE DEPOSITED ON THE PAVEMENT SURFACE AFTER CLEANING AND BEFORE THE MARKING MATERIAL CAN BE APPLIED.

STRIPING KEY

--- CIRCLE-MULTI COMP

1ST DIGIT WIDTH 4", 8", ETC.	2ND DIGIT PATTERN	3RD DIGIT COLOR
	S - SOLID	W - WHITE
	B - BROKEN	Y - YELLOW
	T - DOTTED	B - BLACK
	D - DOUBLE	
	K - DOUBLE BROKEN	
	H - DOUBLE DOTTED	



G=GROUND IN W=WET REFLECTIVE
C=CONTRAST E=ENHANCED SKID RESISTANCE

EXAMPLE: 4SW = 4" SOLID LINE WHITE PREF THERMO
 GCW = GROUND IN, CONTRAST, WET REFLECTIVE

SALVAGE & INSTALL SIGN TYPE C

SIGN NO.	TOTAL QUANTITY	POSTS			PANEL		PANEL LEGEND
		NO & TYPE	KNEE BRACES QTY	LENGTH FEET	MTG HT (1) FEET	SIZE INCH	
C-201	2	2-U	1	14	7	21 x 15	JCT (WHITE)
					7	24 x 24	STEARNS COUNTY YY
TOTAL	2						

SPECIFIC NOTES:

(1) MOUNTING HEIGHT IS MINIMUM (WITH A +6 INCH TOLERANCE) SEE SHEET 5 FOR TYPICAL MOUNTING.

GENERAL NOTES:

- POST LENGTHS ARE APPROXIMATE AND INCLUDE EMBEDMENT, BUT DO NOT INCLUDE ADDITIONAL LENGTH REQUIRED FOR SPLICE.
- SEE SHEET 16 FOR SIGN PLACEMENT DETAILS.
- SEE SHEETS 4 TO 5 FOR STRUCTURAL DETAILS.
- SEE MNDOT STANDARD SIGNS AND MARKINGS MANUAL FOR PUNCHING CODE AND DETAILED DRAWINGS OF TYPE C SIGN PANELS.

SALVAGE & INSTALL SIGN TYPE D

SIGN NO	QTY	POSTS				MTG HT (1) FEET	PANEL		PANEL LEGEND
		NO & TYPE	KNEE BRACES QTY	SPACING INCH	LENGTH FEET		SIZE INCH		
								EACH	
D-201	1	2-U	2	90	15	7	144 x 48	FAIRWAY CIR RIGHT ARROW	
D-202	1	2-U	2	90	15	7	144 x 48	FAIRWAY CIR LEFT ARROW	
TOTAL	2								

SPECIFIC NOTES:

(1) MOUNTING HEIGHT IS MINIMUM (WITH A +6 INCH TOLERANCE). SEE SHEET 5 FOR TYPICAL MOUNTING.

GENERAL NOTES:

- POST LENGTHS ARE APPROXIMATE AND INCLUDE EMBEDMENT, BUT DO NOT INCLUDE ADDITIONAL LENGTH REQUIRED FOR SPLICE.
- SEE SHEET 16 FOR SIGN PLACEMENT DETAILS.
- SEE SHEETS 4 TO 5 FOR STRUCTURAL DETAILS.
- SEE MNDOT STANDARD SIGNS AND MARKINGS MANUAL FOR TYPE D STRINGER AND PANEL JOINT DETAILS.

DESIGN TEAM	NO.	BY	DATE
DRAWN BY: <u>AAA</u>			
DESIGNER: <u>BBB</u>			
CHECKED BY: <u>CCC</u>			

REVISIONS	

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

Certified By: _____ Lic. No. XXXXX
Printed Name: ENGINEER NAME Date: DATE

RICWS SAMPLE PLAN
T.H. XX AT C.R. YY
RICHMOND, MN
STEARNS COUNTY

SIGNING AND STRIPING NOTES AND TABULATIONS

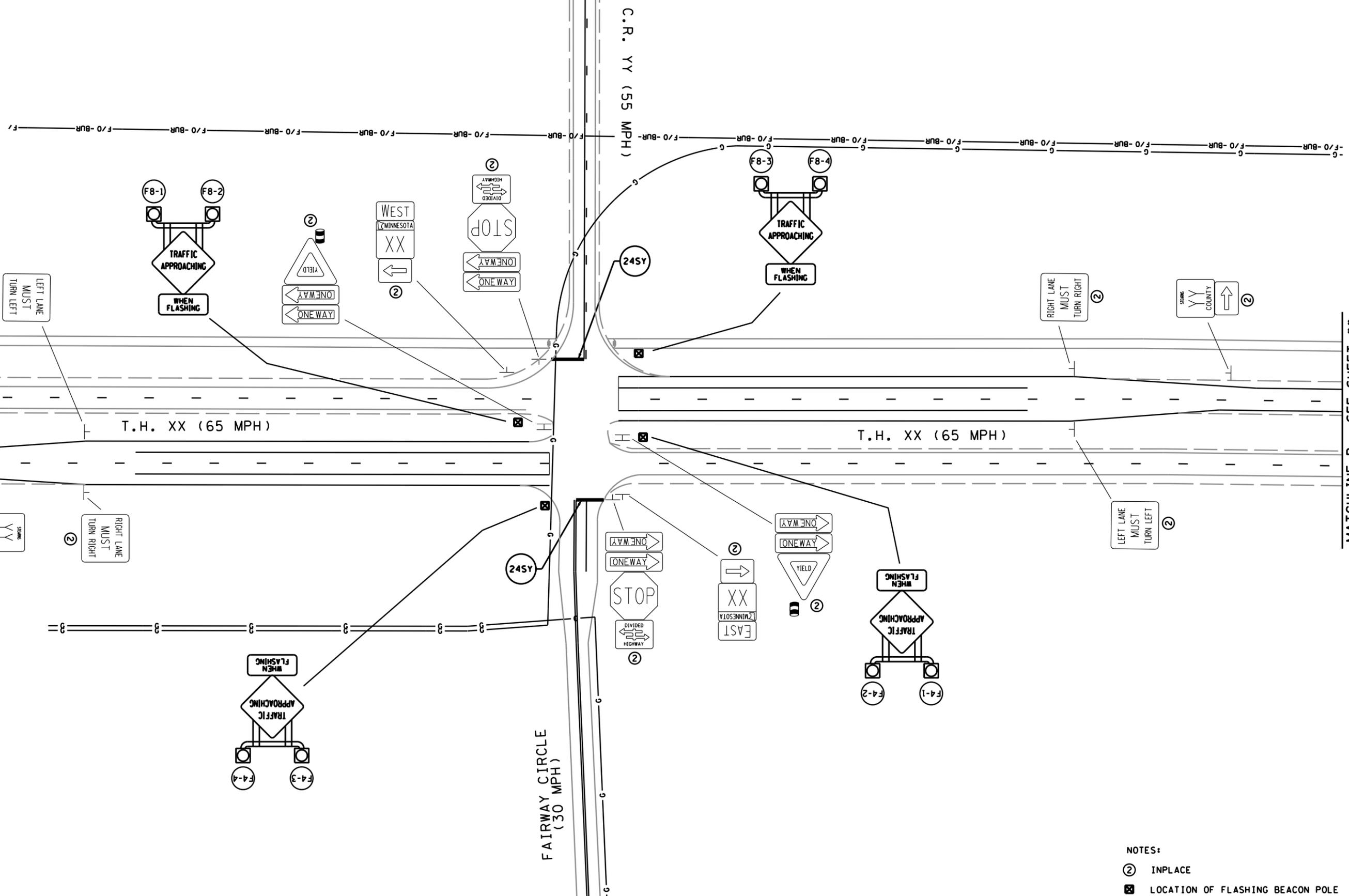
S.P. XXXX-XXXX (T.H. XX) SHEET NO. 13 OF 16 SHEETS

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 14 - SSI (XX-YY)
 6/28/2018 3:13:45 PM



MATCHLINE A - SEE SHEET **

MATCHLINE B - SEE SHEET **



DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: AAA				
DESIGNER: BBB				
CHECKED BY: CCC				

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
 Certified By: _____ Lic. No. **XXXXX**
 Printed Name: **ENGINEER NAME** Date: **DATE**

RICWS SAMPLE PLAN
T.H. XX AT C.R. YY
RICHMOND, MN
STEARNS COUNTY

SIGNING AND STRIPING PLAN
S.P. XXXX-XXXX (T.H. XX) SHEET NO. 14 OF 16 SHEETS

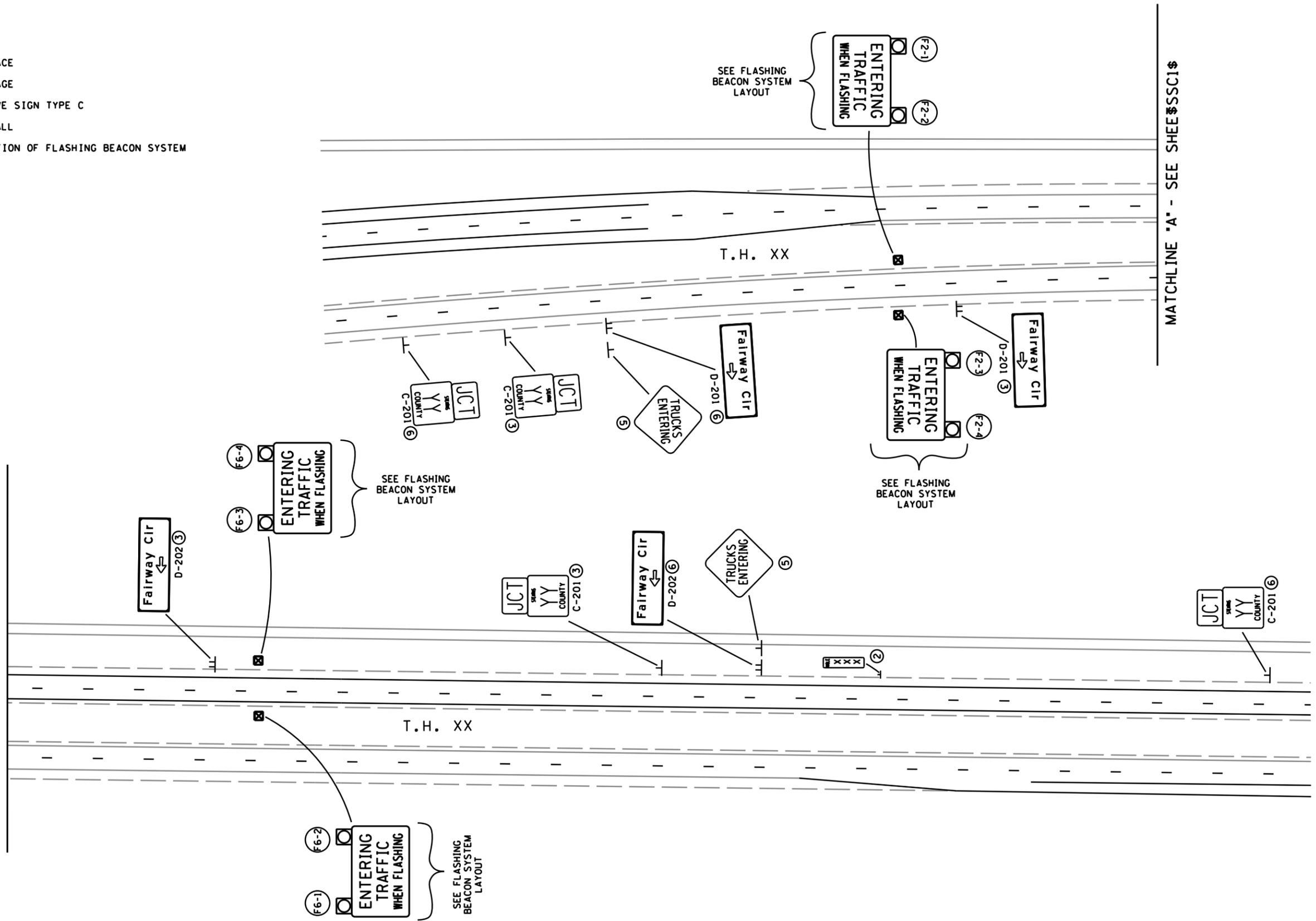
- NOTES:
- ② INPLACE
 - ☒ LOCATION OF FLASHING BEACON POLE

- NOTES:
- ② INPLACE
 - ③ SALVAGE
 - ⑤ REMOVE SIGN TYPE C
 - ⑥ INSTALL
 - ☒ LOCATION OF FLASHING BEACON SYSTEM



MATCHLINE 'B' - SEE SHEE\$SSC1\$

MATCHLINE 'A' - SEE SHEE\$SSC1\$



DESIGN TEAM	NO.	BY	DATE	REVISIONS
DRAWN BY: <u>AAA</u>				
DESIGNER: <u>BBB</u>				
CHECKED BY: <u>CCC</u>				

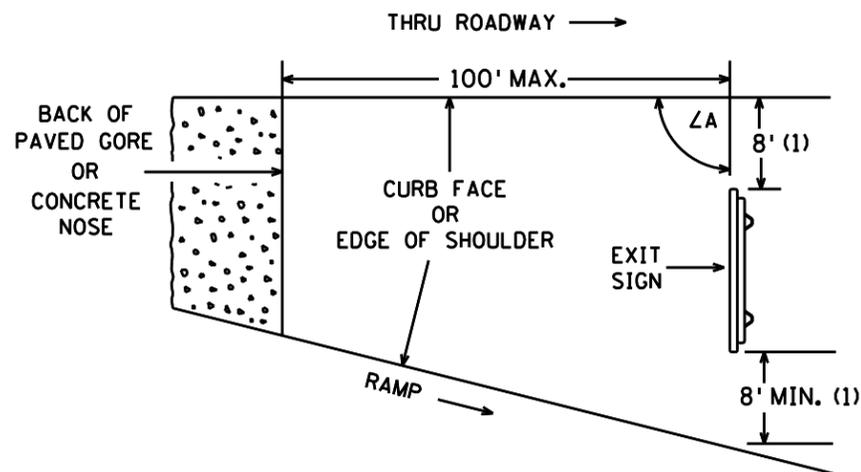
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Certified By: _____ Lic. No. XXXXX
 Printed Name: ENGINEER NAME Date: DATE

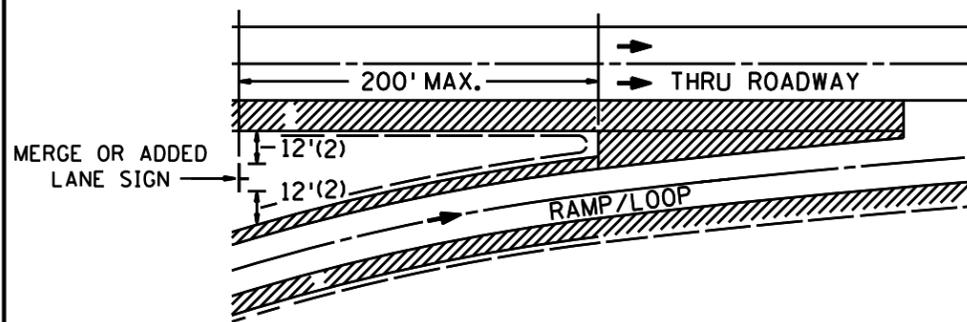
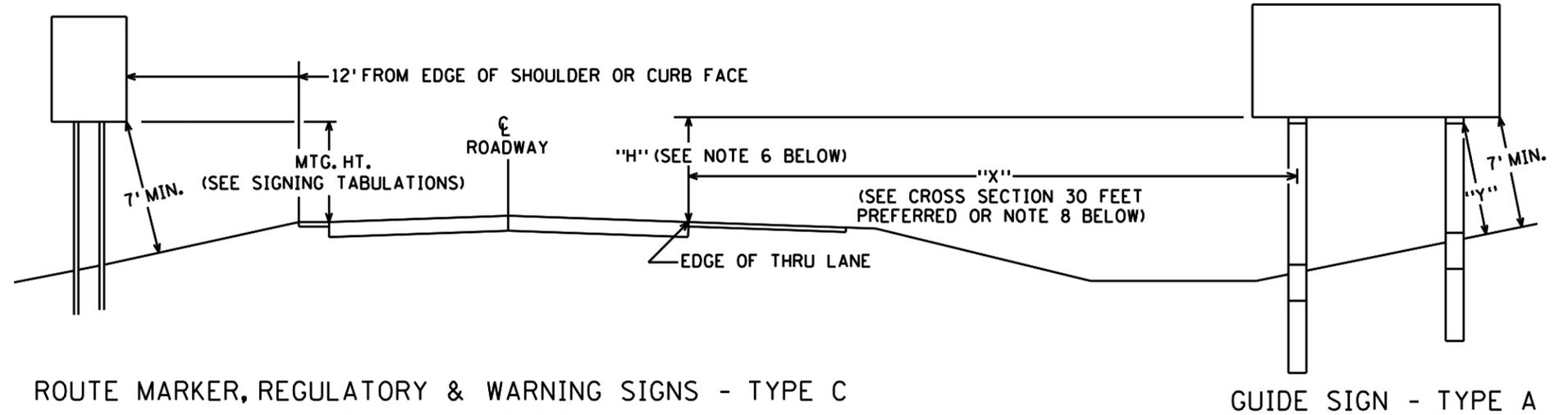
RICWS SAMPLE PLAN
 T.H. XX AT C.R. YY
 RICHMOND, MN
 STEARNS COUNTY

SIGNING AND STRIPING PLAN
 S.P. XXXX-XXXX (T.H. XX) SHEET NO. 15 OF 16 SHEETS

GORE PLACEMENT



ROADSIDE PLACEMENT



SPECIFIC NOTES:

(1) EXIT SIGN

IF THESE OFFSETS CANNOT BE ATTAINED WITHIN 100 FEET OF THE PAVED GORE, A 4 FOOT OFFSET IS ACCEPTABLE. IF THE 4 FOOT OFFSETS CANNOT BE ATTAINED WITHIN 100 FEET OF THE PAVED GORE, CONTACT THE PROJECT ENGINEER.

(2) MERGE OR ADDED LANE SIGN

IF THESE OFFSETS CANNOT BE ATTAINED WITHIN 200 FEET OF THE PAVED GORE, A 4 FOOT OFFSET IS ACCEPTABLE. IF THE 4 FOOT OFFSETS CANNOT BE ATTAINED WITHIN 200 FEET OF THE PAVED GORE, CONTACT THE PROJECT ENGINEER.

NOTES:

1. ALL TYPE C AND D MOUNTING HEIGHTS ARE MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE ELEVATION OF THE NEAR EDGE OF PAVEMENT IN RURAL AREAS OR TO THE TOP OF THE CURB OR IN THE ABSCENCE OF CURB, TO THE NEAR EDGE OF THE TRAVELED WAY.
2. SIGN FACES SHALL BE VERTICAL.
3. OVERHEAD SIGNS SHALL BE POSITIONED AT RIGHT ANGLES TO THE THRU ROADWAY UNLESS OTHERWISE NOTED.
4. TO AVOID SPECULAR GLARE, ΔA SHALL BE APPROXIMATELY 93° FOR SIGNS LOCATED LESS THAN 30' FROM THE EDGE OF THRU LANE AND APPROXIMATELY 92° FOR SIGNS LOCATED 30' OR MORE FROM EDGE OF THRU LANE. THIS APPLIES TO SIGNS TYPE A, C, & D AND INCLUDES SIGNS IN THE GORE.
5. "Y" IS THE PERPENDICULAR DISTANCE FROM THE GROUND LINE TO THE FRICTION FUSE ON THE POST. THIS DISTANCE SHALL BE AT LEAST 7'.
6. WHERE "X" IS LESS THAN 30', "H" SHALL BE 7'. WHERE "X" IS 30' OR GREATER, MINIMUM AND PREFERRED "H" IS 5'.
7. LATERAL CLEARANCES GIVEN APPLY TO RIGHT AND OR LEFT SIDE INSTALLATION.
8. WHEN A TYPE A SIGN IS INSTALLED DIRECTLY BEHIND TRAFFIC BARRIER, THE LEFT EDGE OF THE SIGN PANEL SHALL BE LOCATED A MINIMUM OF 8 FEET BEHIND THE FACE OF THE TRAFFIC BARRIER.

SIGN PLACEMENT

RICWS SAMPLE PLAN
T.H. XX AT C.R. YY
RICHMOND, MN
STEARNS COUNTY

S.P. XXXX-XXXX (T.H. XX)

SHEET NO. 16 OF 16 SHEETS