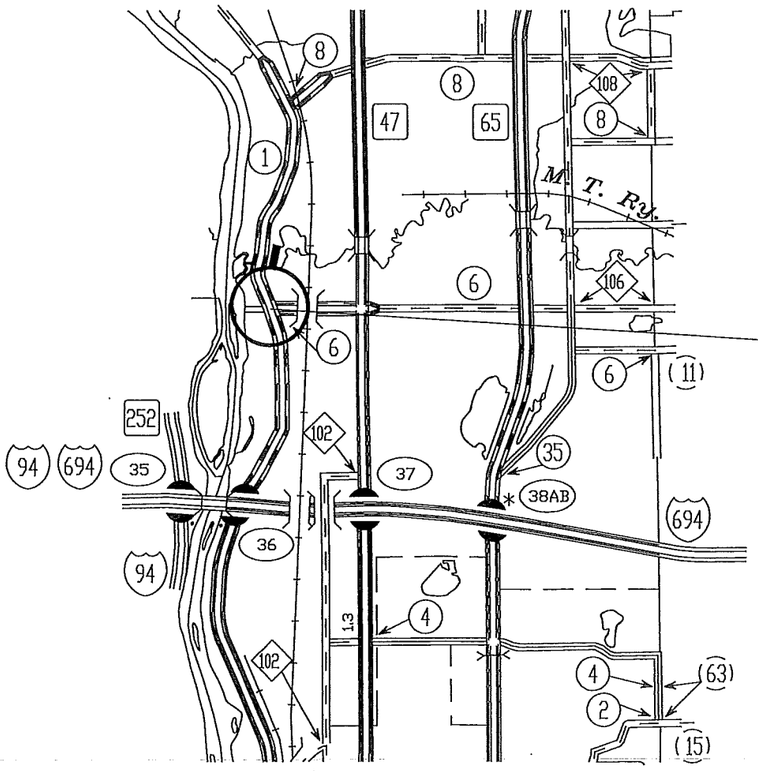
MINNESOTA DEPARTMENT OF TRANSPORTATION

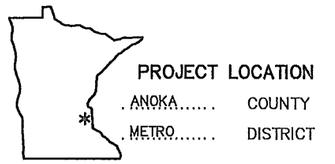
ANOKA COUNTY, MINNESOTA
CITY OF FRIDLEY

CONSTRUCTION PLAN FOR: ONE (1) TRAFFIC CONTROL SIGNAL SYSTEM, SIGNING, STRIPING, AND PEDESTRIAN CURB RAMP IMPROVEMENTS

CSAH 1 (EAST RIVER ROAD) AT CSAH 6 (MISSISSIPPI ST)/MISSISSIPPI WAY

STATE AID PROJECT NO. 002-601-048
STATE AID PROJECT NO. 127-020-030





TRAFFIC SIGNAL SYSTEM

CSAH 1 (EAST RIVER ROAD) AT
CSAH 6 (MISSISSIPPI STREET) / MISSISSIPPI WAY
STATE AID PROJECT NO. 002-601-048
STATE AID PROJECT NO. 127-020-030

PLAN REVISIONS		
DATE	SHEET NO.	APPROVED BY

ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM AND BE INSTALLED IN ACCORDANCE WITH THE MnMUTCD AND PART VI "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS." (CURRENT EDITION).

THE EXACT LOCATION OF UNDERGROUND UTILITIES SUCH AS GAS, TELEPHONE, FIBEROPTIC, ELECTRIC, CABLE TV AND PIPE LINES ARE UNKNOWN. THE CONTRACTOR SHALL CONTACT GOPHER STATE ONE CALL BEFORE COMMENCING EXCAVATION.
GOPHER STATE ONE CALL SYSTEM -- 1-800-252-1166

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL "D". THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 3802, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

GEOMETRICS
DESIGN DESCRIPTION

	CSAH 1 (EAST RIVER RD)	CSAH 6 (MISSISSIPPI ST)	MISSISSIPPI WAY
EXISTING A.D.T. (2017)	14,900	5,500	700
PROJECTED A.D.T. (2037)	22,100	8,200	800
NO. OF TRAFFIC LANES	4	4	2
NO. OF PARKING LANES	0	0	0
DESIGN SPEED (MPH)	40	35	30
POSTED SPEED (MPH)	40	35	30
ROADWAY CLASSIFICATION	ARTERIAL	COLLECTOR	COLLECTOR

PLAN SYMBOLS

STATE LINE
COUNTY LINE
TOWNSHIP OR RANGE LINE
SECTION LINE
QUARTER LINE
SIXTEENTH LINE
RIGHT-OF-WAY LINE
PRESENT RIGHT-OF-WAY LINE
CONTROL OF ACCESS LINE
PROPERTY LINE (Except Land Lines)
VACATED PLATTED PROPERTY
CORPORATE OR CITY LIMITS
TRUNK HIGHWAY CENTER LINE
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 SIGN
RAILROAD CROSSING BELL
ELECTRIC WARNING SIGN
CROSSING GATE
MEANDER CORNER
SPRINGS
MARSH
TIMBER / ORCHARD / BRUSH / NURSERY
CATCH BASIN
FIRE HYDRANT
CATTLE GUARD
OVERPASS (Highway Over)
UNDERPASS (Highway Under)
BRIDGE
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 LINE
TELEPHONE OR TELEGRAPH POLE LINE
JOINT TELEPHONE AND POWER ON POWER POLES / ON TELEPHONE POLES
ANCHOR
STEEL TOWER
STREET LIGHT
PEDESTAL (TELEPHONE CABLE TERMINAL)
GAS MAIN
WATER MAIN
CONDUIT
TELEPHONE CABLE IN CONDUIT
ELECTRIC CABLE IN CONDUIT
TELEPHONE MANHOLE
ELECTRIC MANHOLE
BURIED COMMUNICATION CABLE
BURIED TELEPHONE CABLE
BURIED ELECTRIC CABLE
SEWER, (SANITARY)
SEWER, (STORM)
SEWER MANHOLE
HANDHOLE
CATCH BASIN

SCALE

INDEX MAP	2500'
GENERAL LAYOUT	20'
PED RAMP LAYOUT	10'

GOVERNING SPECIFICATIONS

THE 2016 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

INDEX

THIS PLAN CONTAINS 30 SHEETS.

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.

SIGNATURE: _____ DATE: 5/10/17

PRINTED NAME: JOHN M. GRAY LIC.NO. 22457

SIGNAL DESIGN ENGINEER: I HEREBY CERTIFY THAT THESE SIGNAL PLANS WERE PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, THAT THIS PLAN CONFORMS TO THE MMUTCD (EXCEPT WHERE A VARIANCE HAS BEEN GRANTED), AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: _____ DATE: 5/10/17

PRINTED NAME: JOHN M. GRAY LIC.NO. 22457

APPROVED _____ ANOKA COUNTY ENGINEER DATE 5/16/17

APPROVED _____ CITY OF FRIDLEY ENGINEER DATE 5/25/17

APPROVED For _____ DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE AID RULES/POLICY DATE 6/6/17

APPROVED For _____ APPROVED FOR STATE AID FUNDING: STATE AID ENGINEER DATE 6/6/17

ANOKA COUNTY, MINNESOTA
CITY OF FRIDLEY

TITLE SHEET

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

ONE (1) TRAFFIC CONTROL SIGNAL SYSTEM, SIGNING, STRIPING, AND PEDESTRIAN CURB RAMP IMPROVEMENTS

FILE NO. ANOKC 138701

STATE AID PROJ NO: 002-601-048
STATE AID PROJ NO: 127-020-030

STATEMENT OF ESTIMATED QUANTITIES

	ITEM NO	ITEM	UNIT	TOTAL ESTIMATED QUANTITY	PARTICIPATION		
					SAP 002-601-048	SAP 127-020-030	NON PARTICIPATING
		BASE BID					
	2102.501	PAVEMENT MARKING REMOVAL	SF	792	792		
	2102.502	PAVEMENT MARKING REMOVAL	LF	125	125		
	2104.501	REMOVE CURB & GUTTER	LF	444	444		
(2)	2104.503	REMOVE CONCRETE WALK	SF	2529	2529		
(1)	2104.503	REMOVE BITUMINOUS PAVEMENT	SF	930	930		
	2104.509	REMOVE SIGNAL SYSTEM	EACH	1	0.375	0.625	
(1)	2104.513	SAWING BITUMINOUS PAVEMENT	LF	660	660		
	2104.523	SALVAGE SIGN	EACH	21			21
(4)	2231.502	BITUMINOUS PATCHING MIXTURE	CY	17.4	17.4		
	2521.501	6" CONCRETE WALK	SF	2766	2766		
	2531.501	CONCRETE CURB & GUTTER DESIGN B612	LF	223	223		
	2531.501	CONCRETE CURB & GUTTER DESIGN B618	LF	181	90.5	90.5	
	2531.502	CONCRETE CURB DESIGN V6	LF	112	56	56	
	2531.618	TRUNCATED DOMES	SF	160	160		
	2545.541	SERVICE CABINET	EACH	1	0.375	0.625	
(6)	2563.601	TRAFFIC CONTROL	LS	1	0.6	0.4	
(6)	2563.602	PORTABLE CHANGEABLE MESSAGE SIGN	EACH	4	2.4	1.6	
(6)	2563.610	POLICE OFFICER	HOUR	12	7.2	4.8	
	2564.531	SIGN PANELS TYPE C	SF	162	162		
(5)	2564.531	SIGN PANELS TYPE D (SIGNALS)	SF	109	40.9	68.1	
	2565.511	TRAFFIC CONTROL SIGNAL SYSTEM	SIG. SYS.	1	0.375	0.625	
	2565.513	EMERGENCY VEHICLE PREEMPTION SYSTEM	LS	1		1	
	2565.602	HANDHOLE	EACH	1	0.375	0.625	
	2565.603	2" NON-METALLIC CONDUIT	LF	600	225	375	
	2565.616	TEMPORARY SIGNAL SYSTEM	SYSTEM	1	1		
(3)(6)	2575.602	SITE RESTORATION	EACH	4	2.4	1.6	
	2582.501	PAVT MSSG EPOXY	SF	150	150		
	2582.502	4" SOLID LINE EPOXY	LF	2030	2030		
	2582.502	4" BROKEN LINE EPOXY	LF	270	270		
	2582.502	4" DBLE SOLID LINE EPOXY	LF	200	200		
	2582.502	24" SOLID LINE EPOXY	LF	125	125		
	2582.503	CROSSWALK PREF THERMO	SF	954	954		
		ADD ALTERNATE BID					
(5)	2564.602	INTERNALLY ILLUMINATED SIGN	EACH	4		4	

(1) INCLUDES SAWING AND REMOVAL OF BITUMINOUS PAVEMENT NECESSARY TO ALLOW FOR NEW CONCRETE CURB AND GUTTER AND PEDESTRIAN CURB RAMP INSTALLATIONS.

(2) INCLUDES REMOVAL OF ALL INPLACE PEDESTRIAN CURB RAMPS.

(3) PAY ITEM TO BE USED FOR ALL RESTORATION WORK ON EACH CORNER OF INTERSECTION DUE TO ADA RAMP AND CONDUIT WORK.

(4) INCLUDES PLACEMENT OF BITUMINOUS PAVEMENT WEAR COURSE (MATCHING EXISTING PAVEMENT DEPTH AND TYPE)

(5) SHOULD ADD ALTERNATE BID ITEM BE ACCEPTED AND INCLUDED AS PART OF PROJECT, ITEM NO. 2564.531 (SIGN PANELS TYPE D SIGNALS) WILL BE ELIMINATED FROM THE PROJECT.

(6) PRORATED COSTS (60% COUNTY, 40% CITY) BASED ON OVERALL PROJECT COST SPLITS.

TRAFFIC SIGNAL STANDARD PLATES

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

	PLATE NO.	DESCRIPTION
*	7020 K	CONCRETE CURB DESIGN B, DESIGN V, DESIGN S, DESIGN DR, AND DESIGN BR (2 SHEETS)
*	7038 A	DETECTABLE WARNING SURFACE TRUNCATED DOMES
*	7100 H	CONCRETE CURB & GUTTER (DESIGN B & V)
*	7113 A	CONCRETE APPROACH NOSE DETAIL
*	8000 J	CHANNELIZERS, TYPE A, B, C (3 SHEETS)
*	8118 D	SERVICE EQUIPMENT & POLE-TRAFFIC CONTROL SIGNALS
*	8119 C	GROUND MOUNTED CABINET FOUNDATION
*	8121 H	TRANSFORMER BASE & POLE BASE PLATE (2 SHEETS)
*	8123 G	POLE & MAST ARM-LUMINAIRES & TRAFFIC LIGHTS ASSEMBLY (2 SHEETS)
*	8126 L	POLE FOUNDATION (PA90 & PA100)
*	8129 A	SHIM AND WASHER (TRAFFIC CONTROL SIGNALS AND ROADWAY LIGHTING)

* - APPLIES TO THIS PROJECT

TRAFFIC CONTROL NOTES:

1) ITEM NO. 2563.601 SHALL INCLUDE ALL LABOR AND MATERIALS REQUIRED TO MAINTAIN VEHICULAR AND PEDESTRIAN TRAFFIC THROUGH THE INTERSECTION DURING THE ENTIRE CONSTRUCTION PERIOD. THIS INCLUDES BUT IS NOT LIMITED TO: ALL REQUIRED SIGNS AND SIGN SUPPORTS ("STOP", "STOP AHEAD", "ROAD WORK AHEAD", "LEFT/RIGHT LANE CLOSED", "SIDEWALK CLOSED", ETC.), CONES, BARRELS, STANDARD BARRICADES, ARROW BOARDS, ETC. AS WELL AS SAND BAGS NEEDED TO KEEP SIGNS UPRIGHT AND VISIBLE TO ONCOMING TRAFFIC AND PEDESTRIANS AT ALL TIMES.

2) ALL TRAFFIC CONTROL DEVICES MUST CONFORM TO AND BE INSTALLED IN ACCORDANCE WITH THE "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS" (CURRENT EDITION).

3) ALL TRAFFIC LANES MUST BE KEPT OPEN TO TRAFFIC AT ALL TIMES, EXCEPT FOR ALLOWABLE SHORT TERM LANE CLOSURES TO COMPLETE INSTALLATION OF LOOP DETECTORS AND TRAFFIC SIGNAL POLES, AND ALSO TO COMPLETE CURB AND GUTTER AND SIDEWALK REMOVAL AND INSTALLATION WORK. SHORT TERM LANE CLOSURES ARE LIMITED TO THE HOURS OF 9:00 AM TO 3:00 PM, MONDAY THROUGH THURSDAY, UNLESS OTHERWISE APPROVED BY ENGINEER FOR THESE TIME LIMITS TO BE EXTENDED TO ACCOMMODATE IMMEDIATE WORK AT THE INTERSECTION. LONG TERM LANE CLOSURES WILL NOT BE ALLOWED, UNLESS OTHERWISE APPROVED BY THE ENGINEER.

4) CONTRACTOR MUST PROVIDE, MAINTAIN, COVER (WHEN NOT IN USE) OR TURN AWAY FROM TRAFFIC ALL REQUIRED TRAFFIC CONTROL DEVICES AT ALL TIMES. NOTE THAT ENGINEER WILL SUSPEND WORK IF REQUIRED TRAFFIC CONTROL DEVICES ARE NOT INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE FIELD MANUAL FOR THE APPROPRIATE TRAFFIC CONTROL SITUATIONS.

5) ELECTRIC FLASHING ARROW BOARDS WILL BE REQUIRED TO BE PROVIDED, INSTALLED, AND MAINTAINED FOR ALL SHORT TERM LANE CLOSURES IMPLEMENTED ON EITHER APPROACH OF CSAH 1 (EAST RIVER ROAD) (INCIDENTAL).

6) A SIGNAL SYSTEM MUST BE IN OPERATION AT THE INTERSECTION AT ALL TIMES, EXCEPT FOR ALLOWABLE SHORT TERM DOWN TIME TO CONVERT SIGNAL SYSTEM FROM EXISTING TO TEMPORARY OPERATION AND FROM TEMPORARY TO NEW PERMANENT SIGNAL OPERATION.

7) DURING ANY SIGNAL DOWN TIME, CONTRACTOR MUST PROVIDE, INSTALL, AND MAINTAIN AN ALL-WAY STOP AT THE INTERSECTION (TWO 48" STOP SIGNS AND TWO 48" STOP AHEAD SIGNS ON EACH INTERSECTION APPROACH).

8) ACCESSIBLE BUS STOPS MUST BE MAINTAINED AT ALL TIMES ON EACH INTERSECTION APPROACH WHERE BUSES ARE NOTED TO BE STOPPING AT THE INTERSECTION.

9) CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN, AND REMOVE FOUR (4) PORTABLE CHANGEABLE MESSAGE SIGNS (ONE ON EACH INTERSECTION APPROACH) FOR THE FOLLOWING PERIODS, WITH THE FOLLOWING MESSAGES (INCLUDED AS PART OF PAY ITEM FOR ITEM NO. 2563.602 -- PORTABLE CHANGEABLE MESSAGE SIGN):

   - TEN (10) DAYS IN ADVANCE OF CONSTRUCTION, AND UP UNTIL WHEN THE SIGNAL SYSTEM IS TURNED OFF OR PUT INTO FLASH:
     "SIGNAL WORK / BEGINS (DATE) / EXPECT DELAYS"
   - ONCE SIGNAL SYSTEM IS TURNED OFF OR PUT INTO RED FLASH, DISPLAY THE FOLLOWING MESSAGE THROUGHOUT THIS PERIOD:
     "SIGNAL WORK / ALL WAY STOP AHEAD / EXPECT DELAYS"
   - FOR TWO WEEKS FOLLOWING TURN ON OF NEW SIGNAL SYSTEM, DISPLAY THE FOLLOWING MESSAGE THROUGHOUT THIS PERIOD:
     "TRAFFIC CONTROL CHANGE / NEW SIGNAL AHEAD"

10) A PAY ITEM HAS BEEN INCLUDED FOR THE CONTRACTOR TO PROVIDE THE SERVICES OF A POLICE OFFICER FOR DIRECTING TRAFFIC DURING THOSE PERIODS REQUESTED BY EITHER THE COUNTY OR THE CITY OF FRIDLEY. AN HOURLY RATE SHALL BE ESTABLISHED WITH THIS PAY ITEM FOR USE DURING CONSTRUCTION AT THE DISCRETION OF THE CITY OR COUNTY (ITEM NO. 2563.601 -- POLICE OFFICER).

11) CONTRACTOR MUST PROVIDE TO THE ENGINEER, FOR APPROVAL PRIOR TO BEGINNING ANY CONSTRUCTION, A DETAILED TRAFFIC CONTROL AND STAGING PLAN NOTING TRAFFIC CONTROL DEVICES TO BE USED AND THEIR PLACEMENT, DETAILS SHOWING HOW TRAFFIC WILL BE MAINTAINED DURING CONSTRUCTION, AND ESTIMATED MILESTONE DATES FOR EACH STAGE OF CONSTRUCTION. NO WORK WILL BE ALLOWED ON THE PROJECT UNTIL TRAFFIC CONTROL AND STAGING PLAN IS APPROVED BY THE ENGINEER.

12) SEE DIVISION S OF THE SPECIAL PROVISIONS FOR FURTHER INFORMATION REGARDING TRAFFIC CONTROL TO BE PROVIDED, INSTALLED, MAINTAINED AND REMOVED BY THE CONTRACTOR DURING THE ENTIRE PROJECT.

S.A.P. 002-601-048
S.A.P. 127-020-030

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

NO.	BY	DATE	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Name: John M Gray, PE
Date: May 10, 2017 Lic. No. 22457

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

ANOKA COUNTY, MINNESOTA
CITY OF FRIDLEY

TRAFFIC SIGNAL SYSTEM
STANDARD PLATES AND
STATEMENT OF ESTIMATED QUANTITIES
CSAH 1 AT CSAH 6/MISSISSIPPI WAY

FILE NO. ANOKC 138701
DATE 05/10/2017
2 / 30

S:\AE\A\ANOKC\COMMON\SIGNALS\1-6\138701_SIGBASE-NONRAMPSHEET-ROTATED.DWG

LEGEND OF SYMBOLS

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

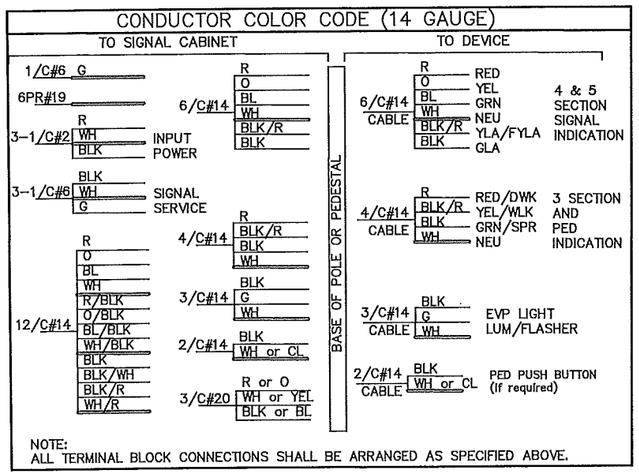
ABBREVIATIONS

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

CONDUCTOR COLOR CODE

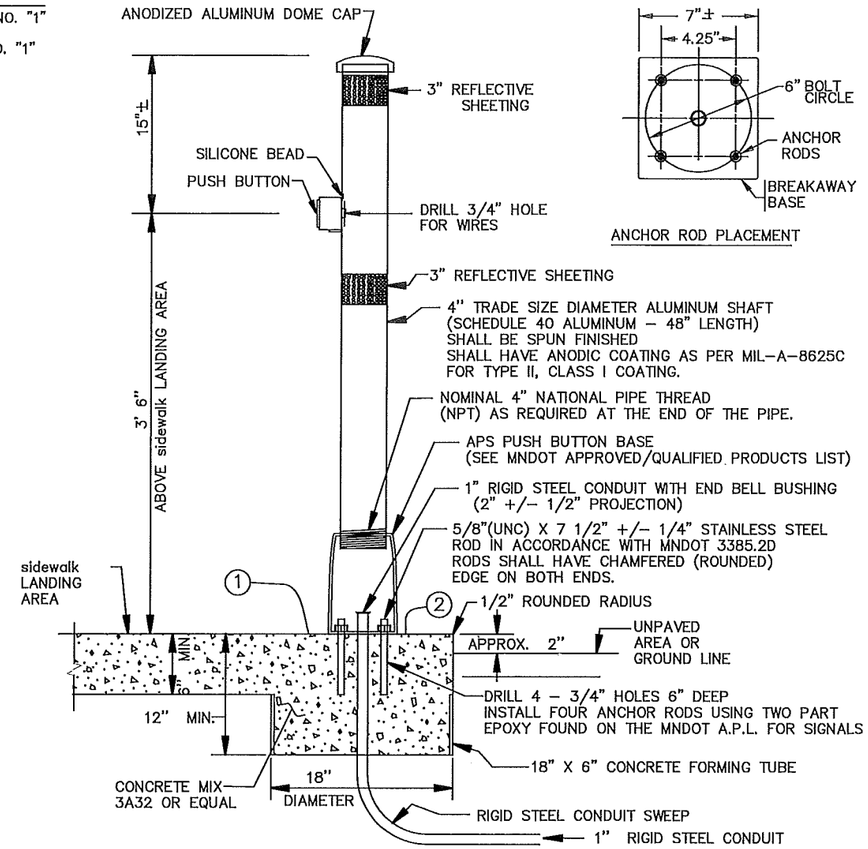
R	RED
O	ORANGE
BL	BLUE
WH	WHITE
R/BLK	RED WITH BLACK TRACER
O/BLK	ORANGE WITH BLACK TRACER
BL/BLK	BLUE WITH BLACK TRACER
WH/BLK	WHITE WITH BLACK TRACER
BLK	BLACK
BLK/WH	BLACK WITH WHITE TRACER
G/BLK	GREEN WITH BLACK TRACER
G	GREEN

CONDUCTOR COLOR CODE (14 GAUGE)



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

PEDESTRIAN PUSH BUTTON STATION DETAILS



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 POST TO A TIGHTENED POSITION BEFORE MOUNTING ACCESSIBLE PEDESTRIAN PUSH BUTTON UNIT TO THE POST.

– 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.

– BLIND THREADED INSERTS (RIVET NUT) MUST BE INSERTED USING MANUFACTURERS SPECIFIC INSTALLATION TOOL. NO OTHER METHOD OF INSTALLATION IS ACCEPTABLE.

– BLIND THREADED INSERTS SHALL BE ZINC PLATED STEEL WITH 1/4 – 20 UNC THREADS. INSERT SHALL BE SUITABLE FOR USE ON A MOUNTING SURFACE WALL THICKNESS OF .337". APPROVED BLIND THREADED INSERTS CAN BE FOUND ON THE MN/DOT QUALIFIED PRODUCTS LIST FOR SIGNALS.

– MOUNTING BOLTS SHALL BE 1/4 – 20 STAINLESS STEEL. 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" POST.

– THE REFLECTIVE SHEETING SHALL BE WHITE AT INTERSECTION CORNERS AND SHALL BE YELLOW WHEN USED IN CENTER MEDIANS. SEE MN/DOT SIGNING QUALIFIED PRODUCTS LIST (QPL) FOR APPROVED TUBE DELINEATOR SHEETING.

– ANTI–SEIZE COMPOUND MUST BE USED ON ALL THREADED BOLTS WHEN INSTALLING PEDESTRIAN PUSH BUTTON STATIONS.

(1) THE PUSH BUTTON STATION FOUNDATION IS CONSTRUCTED AS PART OF THE SIDEWALK. INCREASE THE SIDEWALK THICKNESS TO 12" THICK (MIN.) TO PROVIDE FOR THE PUSH BUTTON STATION FOUNDATION.

(2) ALL JOINTS SHALL BE A MINIMUM OF 9" FROM THE CENTER OF THE PUSH BUTTON FOUNDATION.

S.A.P. 002–601–048
S.A.P. 127–020–030

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

NO.	BY	DATE	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Name: John M Gray, PE
Date: May 10, 2017 Lic. No. 22457

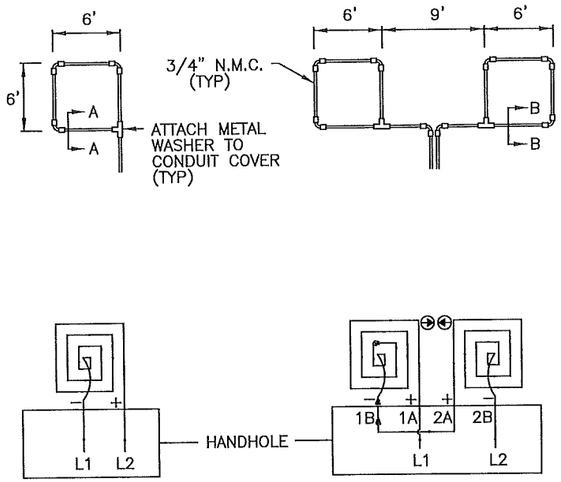
SEH
PHONE: (651) 490–2000
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110

ANOKA COUNTY, MINNESOTA
CITY OF FRIDLEY

TRAFFIC SIGNAL SYSTEM
TRAFFIC SIGNAL DETAILS
CSAH 1 AT CSAH 6/MISSISSIPPI WAY

FILE NO. ANOKC 138701
DATE 05/10/2017
3 / 30

S:\AE\A\ANOKC\COMMON\SIGNALS\1-SIG\138701_SIGBASE-NONRAMPSHEET-ROTATED.DWG



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

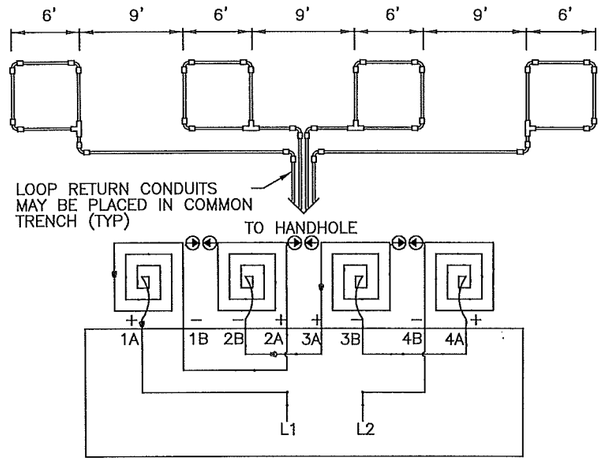
L1 TO 1A
1B TO 2A
2B TO L2

LOOP DETECTOR DETAIL 'A'

(LOOP PHASING FOR SINGLE CONNECTION)

LOOP DETECTOR DETAIL 'B'

(LOOP PHASING FOR SERIES CONNECTION)



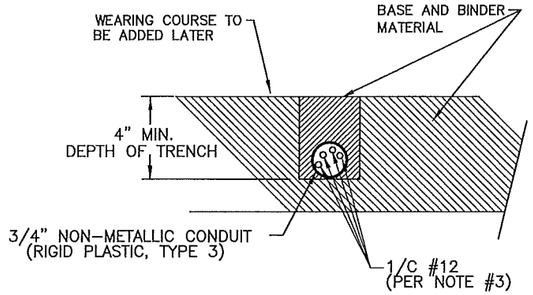
LOOP CONNECTIONS SHALL BE LABELED AND SPLICED IN THE HANDHOLE AS FOLLOWS:

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)

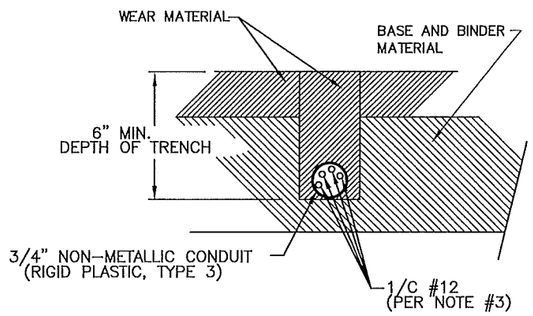
LOOP DETECTOR DETAIL 'C'

(LOOP PHASING FOR SERIES CONNECTION)



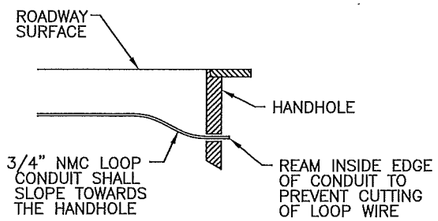
SECTION A–A

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.

S.A.P. 002-601-048
S.A.P. 127-020-030

S:\AE\A\ANOKC\COMMON\SIGNALS\1-6\138701_SIGBASE-NONRAMPSHEET-ROTATED.DWG

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

NO.	BY	DATE	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Name: John M Gray, PE
Date: May 10, 2017
Lic. No. 22457

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

ANOKA COUNTY, MINNESOTA
CITY OF FRIDLEY

TRAFFIC SIGNAL SYSTEM
LOOP DETECTOR DETAILS
CSAH 1 AT CSAH 6/MISSISSIPPI WAY

FILE NO. ANOKC 138701
DATE 05/10/2017
4 / 30

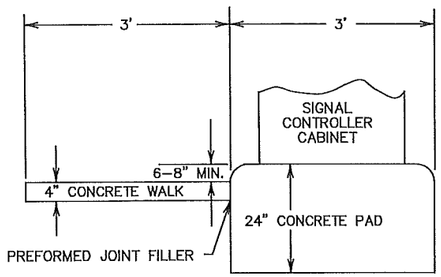
TYPICAL PAD WITH CONTROLLER CABINET AND SERVICE CABINET

SEE INTERSECTION LAYOUT FOR CABLE INFORMATION (NOT TO SCALE)

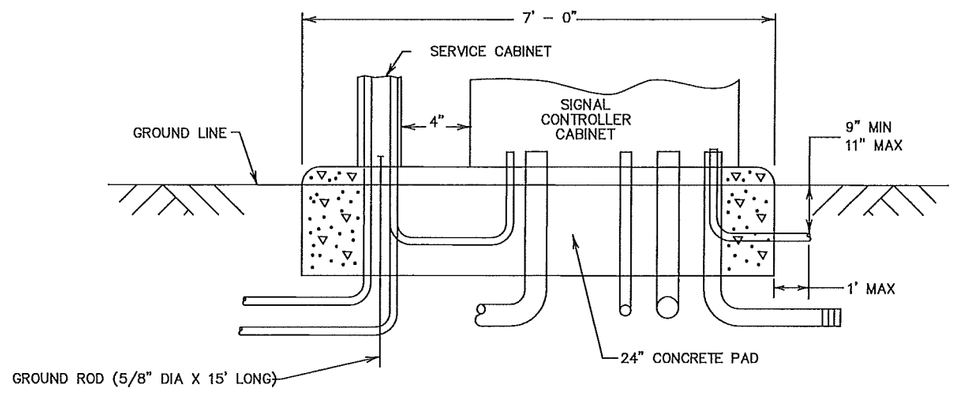
NOTES:

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.

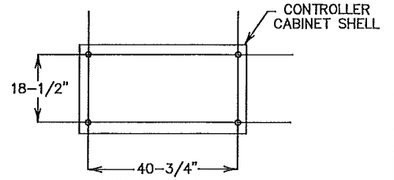
SIDE VIEW



FRONT VIEW

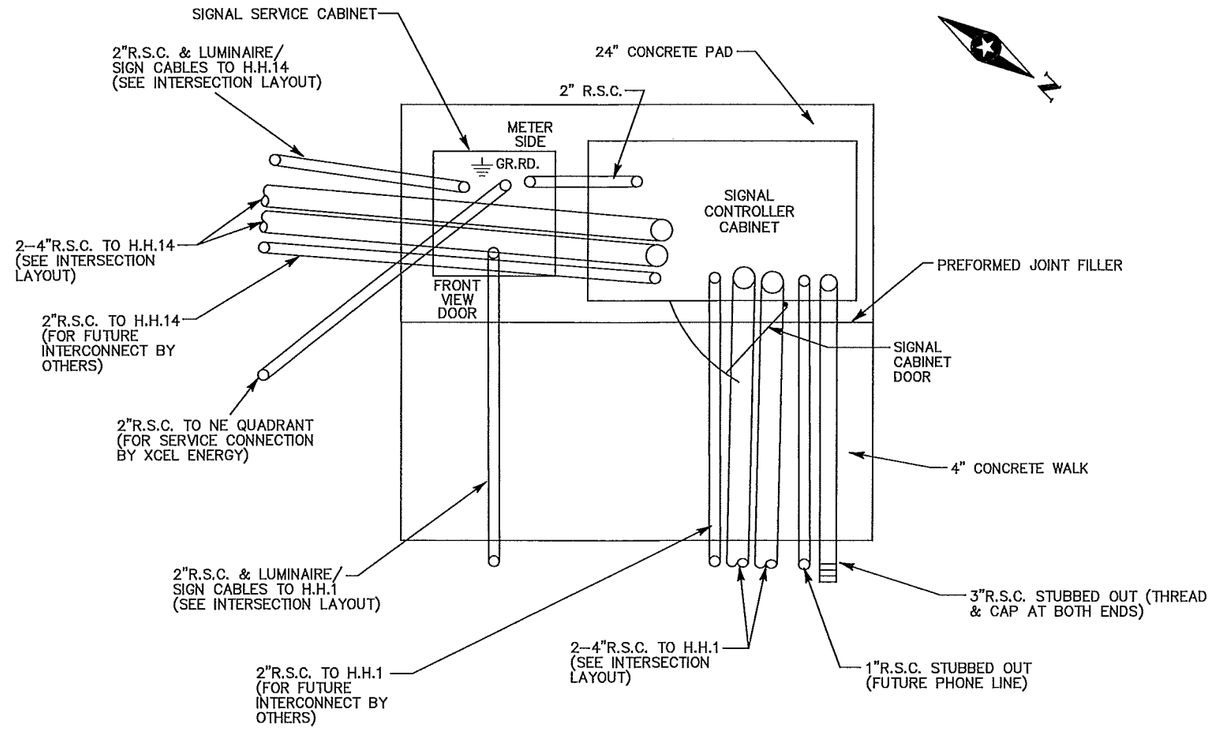


CONTROLLER CABINET TYPE "P" & "R" BOLT PATTERN



PLAN VIEW

CSAH 1 AT CSAH 6/MISSISSIPPI WAY



S.A.P. 002-601-048
S.A.P. 127-020-030

S:\AE\A\ANOKC\COMMON\SIGNALS\1-6\138701_SIGBASE-NONRAMPSHEET-ROTATED.DWG

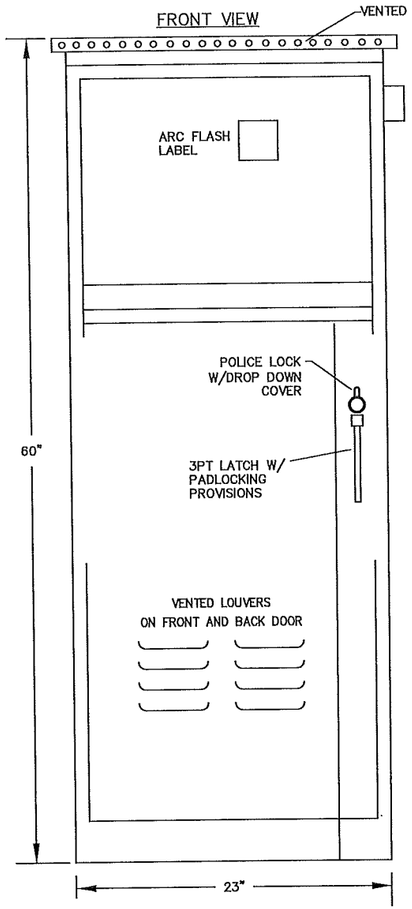
DRAWN BY: JMG DESIGNER: JMG CHECKED BY: JMG DESIGN TEAM	NO.	BY	DATE	REVISIONS	I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA. Date: May 10, 2017 Name: John M Gray, PE Lic. No. 22457

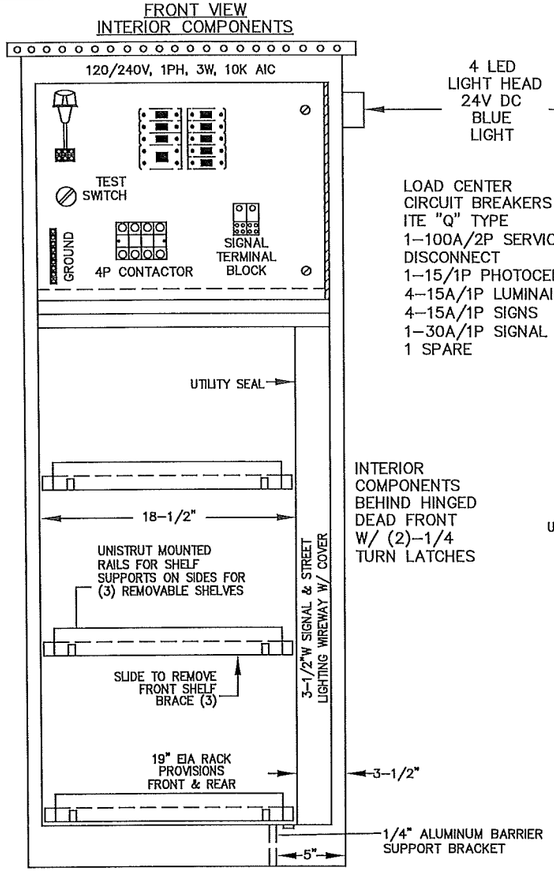
SEH
PHONE: (651) 490-2000
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110

ANOKA COUNTY, MINNESOTA
CITY OF FRIDLEY

TRAFFIC SIGNAL SYSTEM
EQUIPMENT PAD DETAILS
CSAH 1 AT CSAH 6/MISSISSIPPI WAY

FILE NO. ANOKC 138701
DATE 05/10/2017

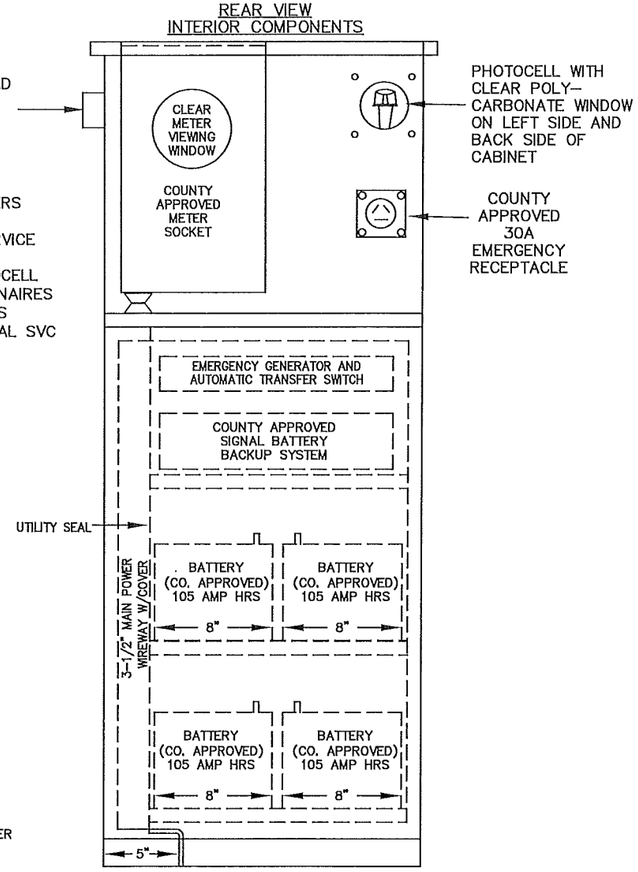


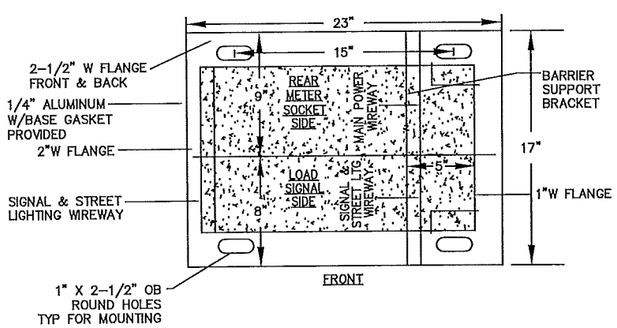


4 LED LIGHT HEAD 24V DC BLUE LIGHT

LOAD CENTER CIRCUIT BREAKERS ITE "Q" TYPE
1-100A/2P SERVICE DISCONNECT
1-15/1P PHOTOCELL
4-15A/1P LUMINAIRES
4-15A/1P SIGNS
1-30A/1P SIGNAL SVC
1 SPARE

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

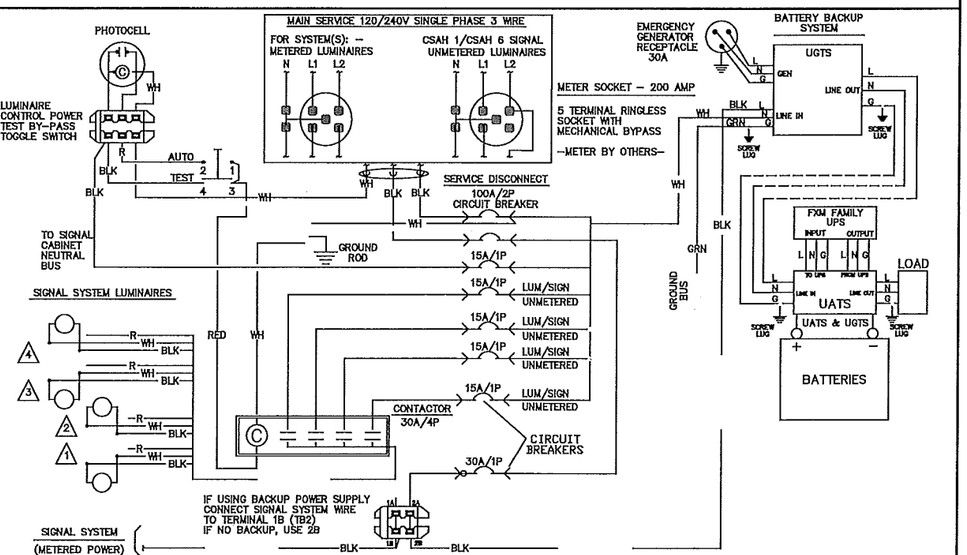




CABINET CONSTRUCTION

-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 CABINETS.

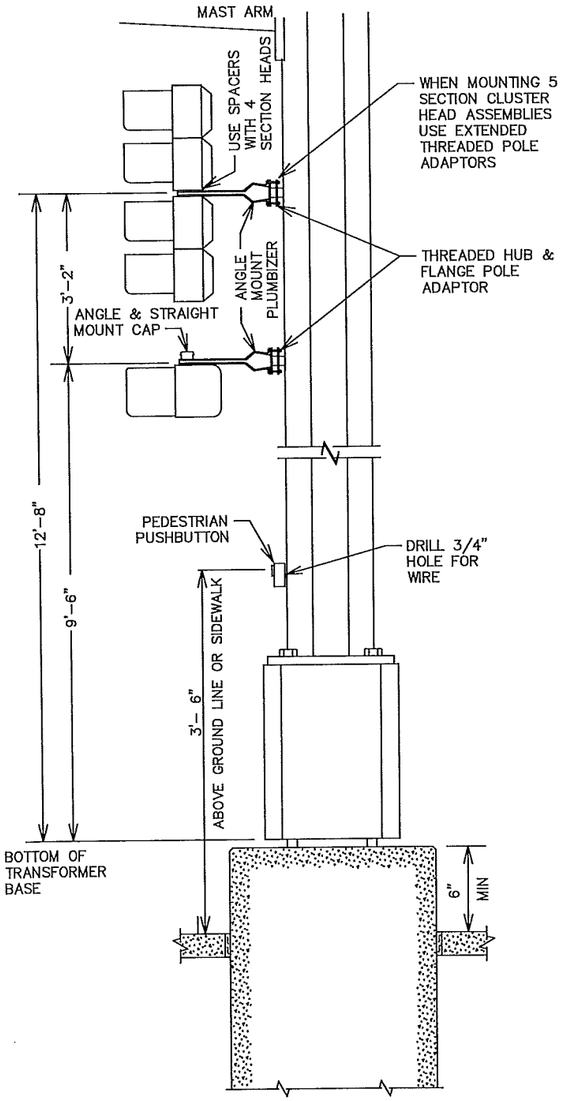


FEED POINT WIRING DIAGRAM

S.A.P. 002-601-048
S.A.P. 127-020-030

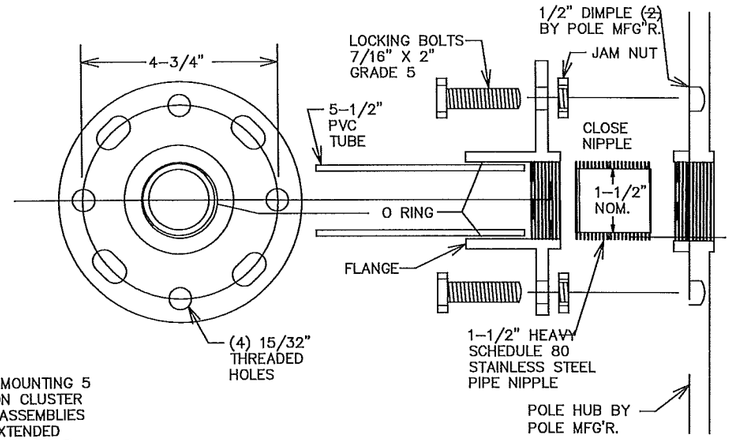
S:\AE\A\ANOKC\COMMON\SIGNALS\1-6\138701_SIGBASE-NONRAMPSHEET-ROTATED.DWG

DRAWN BY: JMG				I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.	SEH PHONE: (651) 490-2000 3535 VADNAIS CENTER DR. ST. PAUL, MN 55110	ANOKA COUNTY, MINNESOTA CITY OF FRIDLEY	TRAFFIC SIGNAL SYSTEM SIGNAL SERVICE CABINET DETAILS CSAH 1 AT CSAH 6/MISSISSIPPI WAY	FILE NO. ANOKC 138701	6
DESIGNER: JMG				Name: John M Gray, PE				DATE 05/10/2017	30
CHECKED BY: JMG				Date: May 10, 2017 Lic. No. 22457					
DESIGN TEAM	NO.	BY	DATE	REVISIONS					

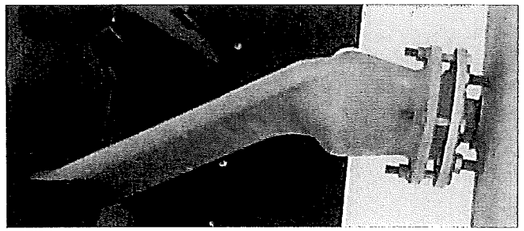


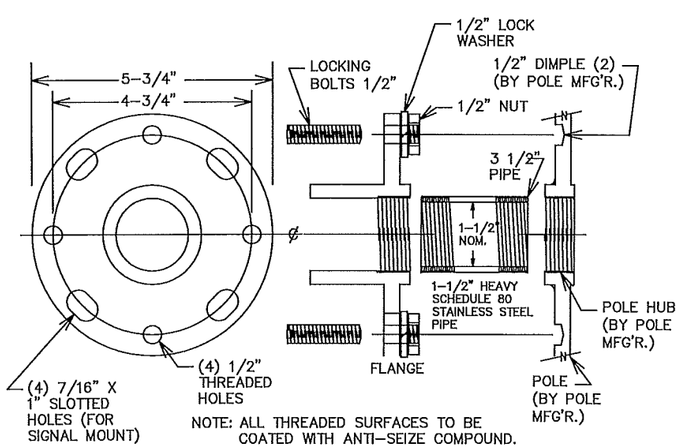
TYPICAL SIGNAL POLE MOUNTING

NOT TO SCALE



THREADED HUB AND FLANGE POLE ADAPTOR

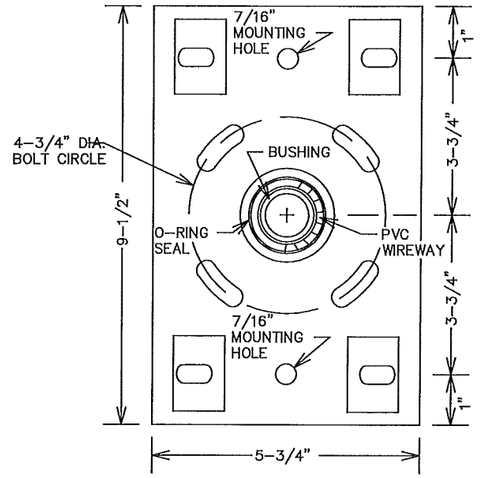




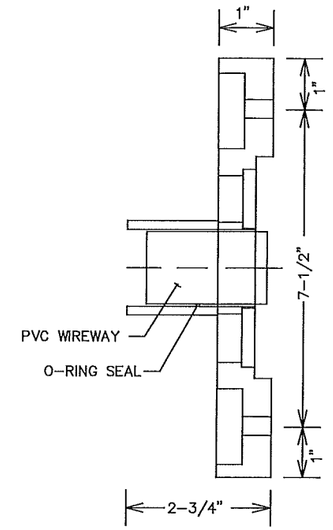
NOTE: ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.

EXTENDED THREADED POLE ADAPTER

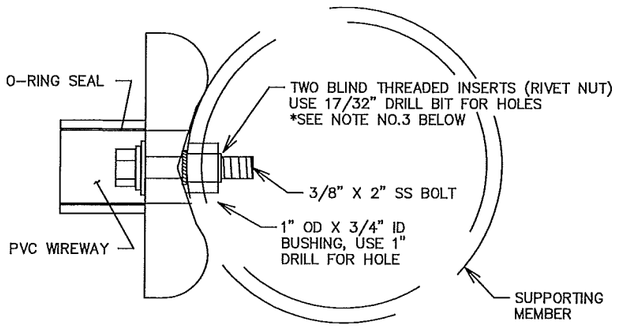
NOTES:
1. ALL THREADED SURFACES TO BE COATED WITH ANTI-SEIZE COMPOUND.
2. USE SIGNAL HEAD MOUNTED SPACERS FOR 4 SECTION POLY HEADS.
3. SEE STANDARD PLATE NUMBER 8123 FOR ADDITIONAL SIGNAL POLE DETAILS.
4. EXTENDED THREADED POLE ADAPTOR ONLY USED WITH 5 SECTION CLUSTER HEADS.



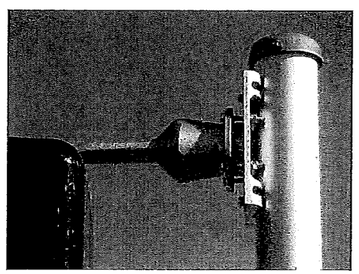
BOLT ON HUB & FLANGE



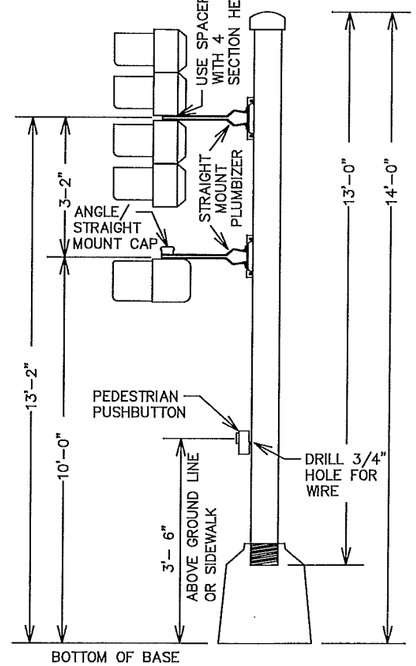
SIDE VIEW



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.



TYPICAL PEDESTAL MOUNTING

NOT TO SCALE

S.A.P. 002-601-048
S.A.P. 127-020-030

S:\SEVA\ANOKC\COMMON SIGNALS\1-6\138701_SIGBASE-NONRAMPSHEET-ROTATED.DWG

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

NO.	BY	DATE	REVISIONS

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

Date: May 10, 2017 Name: John M Gray, PE Lic. No. 22457

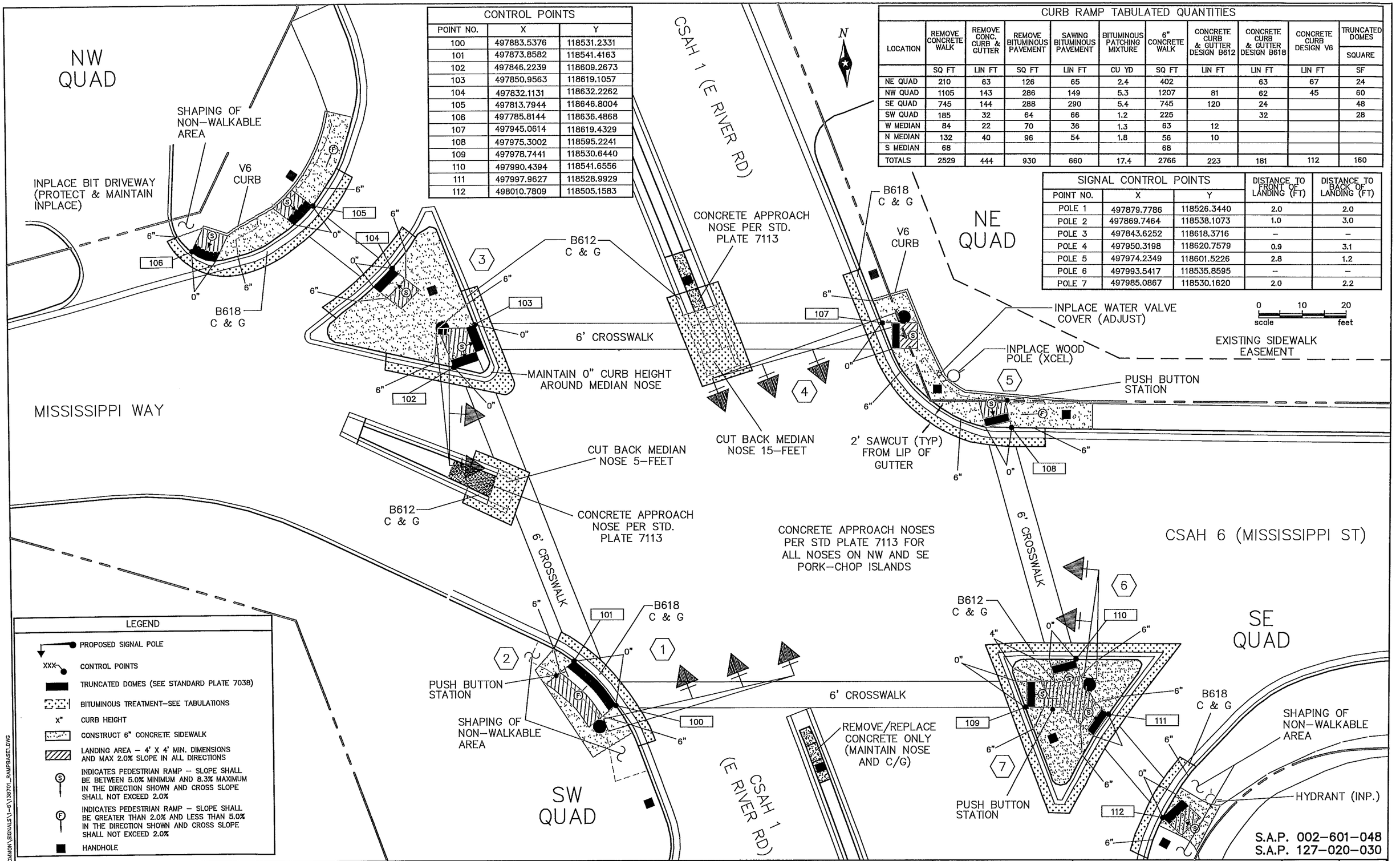
SEH
PHONE: (651) 490-2000
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110

ANOKA COUNTY, MINNESOTA
CITY OF FRIDLEY

TRAFFIC SIGNAL SYSTEM
POLE MOUNT DETAILS
CSAH 1 AT CSAH 6/MISSISSIPPI WAY

FILE NO. ANOKC 138701

DATE 05/10/2017



CONTROL POINTS		
POINT NO.	X	Y
100	497883.5376	118531.2331
101	497873.8582	118541.4163
102	497846.2239	118609.2673
103	497850.9563	118619.1057
104	497832.1131	118632.2262
105	497813.7944	118646.8004
106	497785.8144	118636.4868
107	497945.0614	118619.4329
108	497975.3002	118595.2241
109	497978.7441	118530.6440
110	497990.4394	118541.6556
111	497997.9627	118528.9929
112	498010.7809	118505.1583

CURB RAMP TABULATED QUANTITIES										
LOCATION	REMOVE CONCRETE WALK	REMOVE CONC. CURB & GUTTER	REMOVE BITUMINOUS PAVEMENT	SAWING BITUMINOUS PAVEMENT	BITUMINOUS PATCHING MIXTURE	6" CONCRETE WALK	CONCRETE CURB & GUTTER DESIGN B612	CONCRETE CURB & GUTTER DESIGN B618	CONCRETE CURB DESIGN V6	TRUNCATED DOMES
	SQ FT	LIN FT	SQ FT	LIN FT	CU YD	SQ FT	LIN FT	LIN FT	LIN FT	SQUARE
NE QUAD	210	63	126	65	2.4	402		63	67	24
NW QUAD	1105	143	286	149	5.3	1207	81	62	45	60
SE QUAD	745	144	288	290	5.4	745	120	24		48
SW QUAD	185	32	64	66	1.2	225		32		28
W MEDIAN	84	22	70	36	1.3	63	12			
N MEDIAN	132	40	96	54	1.8	56	10			
S MEDIAN	68					68				
TOTALS	2529	444	930	660	17.4	2766	223	181	112	160

SIGNAL CONTROL POINTS			DISTANCE TO FRONT OF LANDING (FT)	DISTANCE TO BACK OF LANDING (FT)
POINT NO.	X	Y		
POLE 1	497879.7786	118526.3440	2.0	2.0
POLE 2	497869.7464	118538.1073	1.0	3.0
POLE 3	497843.6252	118618.3716	–	–
POLE 4	497950.3198	118620.7579	0.9	3.1
POLE 5	497974.2349	118601.5226	2.8	1.2
POLE 6	497993.5417	118535.8595	–	–
POLE 7	497985.0867	118530.1620	2.0	2.2

LEGEND

- PROPOSED SIGNAL POLE
- XXX — CONTROL POINTS
- TRUNCATED DOMES (SEE STANDARD PLATE 7038)
- BITUMINOUS TREATMENT–SEE TABULATIONS
- X" — CURB HEIGHT
- CONSTRUCT 6" CONCRETE SIDEWALK
- LANDING AREA – 4' X 4' MIN. DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS
- (S) 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%
- (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%
- HANDHOLE

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

NO.	BY	DATE	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Date: May 10, 2017 Name: John M Gray, PE Lic. No. 22457

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

ANOKA COUNTY, MINNESOTA
CITY OF FRIDLEY

CURB RAMP LAYOUT
CSAH 1 AT CSAH 6/MISSISSIPPI WAY

FILE NO. ANOKC 138701
DATE 05/10/2017
8/30

S:\AE\A\ANOKC\COMMON\SIGNALS\1-6\138701_RAMPBASE1.DWG

SOILS AND CONSTRUCTION NOTES AND GUIDELINES:

1) TOP OF "GRADING GRADE" IS HEREBY DEFINED AS THE TOP OF THE GRANULAR MATERIAL OR THE BOTTOM OF THE AGGREGAGE BASE.

2) UNSUITABLE MATERIALS ARE TOPSOILS, OTHER ORGANIC SOILS, SILT SOILS, CLAY LOAM, AND DEBRIS.

3) SUITABLE MATERIALS SHALL BE ALL OTHER MINERAL SOILS ENCOUNTERED ON THE PROJECT OR FROM BORROW, NOT PREVIOUSLY DEFINED AS BEING UNSUITABLE.

4) COMPACTION OF AGGREGATE BASE SHALL BE IN ACCORDANCE WITH THE QUALITY COMPACTION METHOD.

5) BITUMINOUS PATCHING MIXTURE SHALL MEET THE REQUIREMENTS OF MNDOT 2360 TYPE SP 9.5 WEARING COURSE (SPWEA340E).

6) BITUMINOUS PATCHING MIXTURE SHALL BE PLACED AND COMPACTED IN 3" MAXIMUM LIFTS.

7) BITUMINOUS PATCHING MIXTURE SHALL MATCH THE EXISTING ADJACENT BITUMINOUS PAVEMENT THICKNESS.

8) STRIP ALL TOPSOIL AND INPLACE SLOPE DRESSING IN AREAS TO BE DISTURBED BY CONSTRUCTION AND, IF PRACTICAL, STOCKPILE FOR REUSE AS SLOPE DRESSING. SLOPE DRESSING ON THIS PROJECT IS DEFINED AS THE INPLACE TOPSOIL OR OTHER SOIL PLACED DURING PRIOR CONSTRUCTION TO PROVIDE A MEDIUM FOR ESTABLISHING TURF.

9) BITUMINOUS AND CONCRETE ITEMS DISTURBED BY CONSTRUCTION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE RECYCLED TO THE EXTENT ALLOWED IN BASE AND SURFACING ITEMS OR DISPOSED OUTSIDE OF RIGHT OF WAY IN ACCORDANCE WITH MNDOT 2104.

10) CONTRACTOR SHALL CONTACT ALL UTILITIES THAT MAY HAVE FACILITIES IN THE AREA. CONTACT MUST BE MADE THROUGH GOPHER STATE ONE-CALL.

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

12) CONTRACTOR SHALL PROVIDE TACK COAT BETWEEN ALL BITUMINOUS LAYERS AND PRIOR TO PLACING ANY BITUMINOUS MIXTURES ON EXISTING PAVEMENT IN ACCORDANCE WITH MNDOT 2357 (INCIDENTAL).

MISCELLANEOUS NOTES:

1) PROVIDE A SAW CUT FOR ALL SIDEWALK AND CURB AND GUTTER REMOVALS (REMOVE TO NEAREST JOINT) (INCIDENTAL).

   NOTE THAT ALL REMOVAL LIMITS SHOWN ON PLANS FOR SIDEWALK AND CURB AND GUTTER REMOVAL AREAS ARE TO A FIELD VERIFIED CURB JOINT OR TO THE END OF A FULL SIDEWALK PANEL.

2) ALL CURB RAMPS, LANDING AREAS, AND MEDIAN ISLANDS SHALL BE 6" CONCRETE WALK ON 3" CLASS 5 AGGREGATE BASE. ALL EXCAVATION SUBGRADE PREPARATION, AGGREGATE BASE, COMMON BORROW, AND TOPSOIL BORROW SHALL BE INCIDENTAL.

3) ALL DISTURBED AREAS SHALL HAVE 4" MINIMUM TOPSOIL AND SHALL BE TREATED AS FOLLOWS:
   - SEEDING.
   - SEED MIXTURE 25-131 AT A RATE OF 220 LB/ACRE.
   - TYPE 0 EROSION BLANKET.

4) RESTORATION WILL BE MEASURED AND PAID FOR SEPARATELY.

5) ADJUSTING WATER VALVE COVER ON NORTHEAST QUADRANT IN NEW SIDEWALK AREA TO FINISHED SIDEWALK GRADE SHALL BE INCIDENTAL.

6) ALL BITUMINOUS SAWCUTS (FOR REMOVAL OF BITUMINOUS PAVEMENT) ARE 2 FEET FROM LIP OF GUTTER OR 2 FEET FROM END OF EXISTING MEDIAN NOSE. SAWCUTS EXTEND 1 FOOT BEYOND END OF LIMITS FOR CURB AND GUTTER REMOVALS.

S.A.P. 002-601-048
S.A.P. 127-020-030

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

NO.	BY	DATE	REVISIONS

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

Name: John M Gray, PE
Date: May 10, 2017 Lic. No. 22457

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

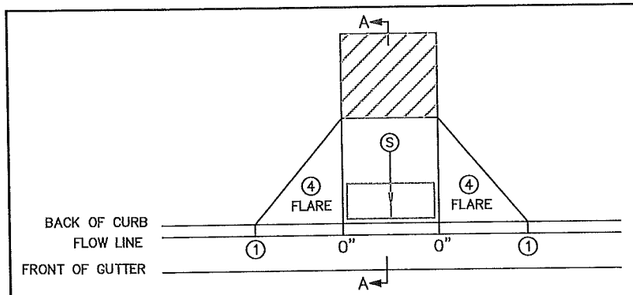
ANOKA COUNTY, MINNESOTA
CITY OF FRIDLEY

CURB RAMP NOTES
CSAH 1 AT CSAH 6/MISSISSIPPI WAY

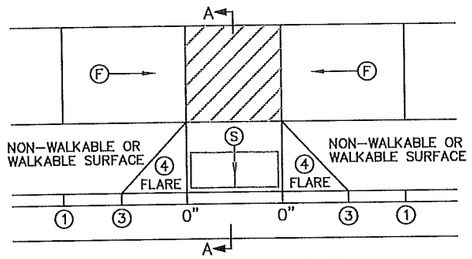
FILE NO. ANOKC 138701
DATE 05/10/2017

9/30

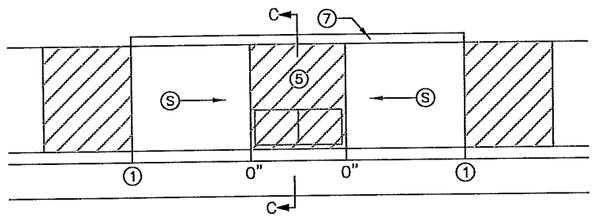
S:\AE\A\ANOKC\COMMON\SIGNALS\1-SI\138701_RAMPBASE1.DWG



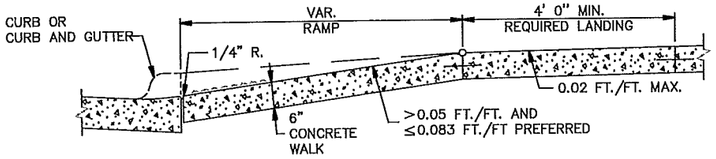
PERPENDICULAR



TIERED PERPENDICULAR

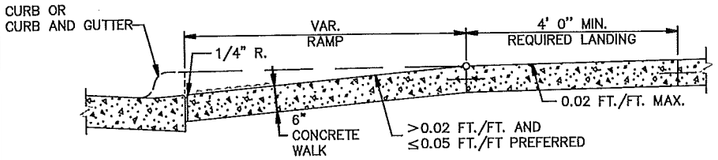


PARALLEL



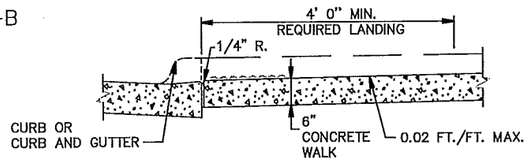
SECTION A–A

PERPENDICULAR/TIERED/DIAGONAL



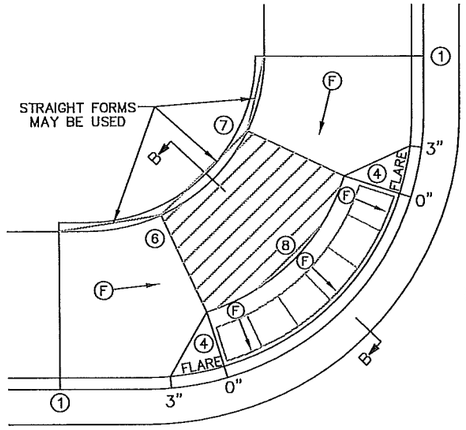
SECTION B–B

FAN

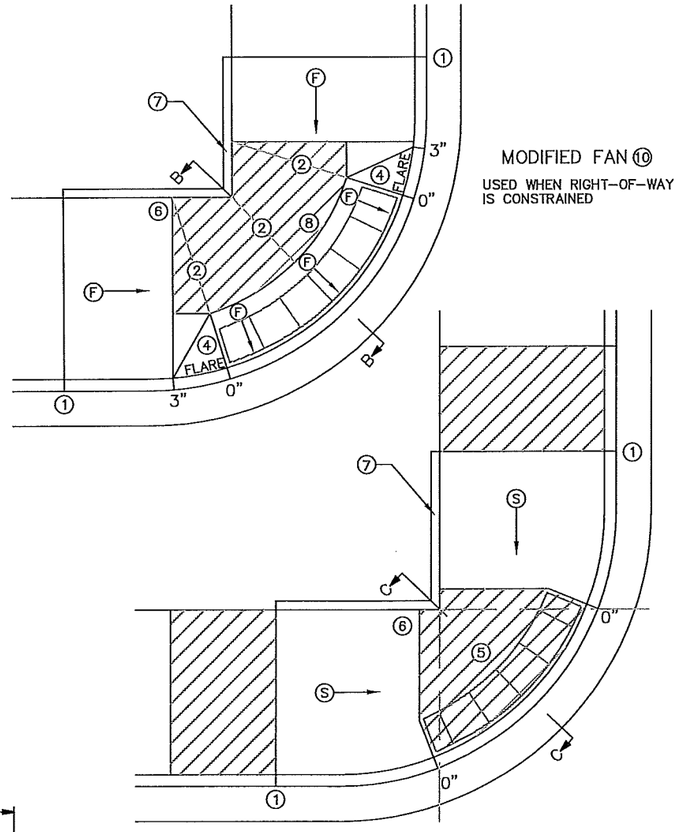


SECTION C–C

PARALLEL/DEPRESSED CORNER



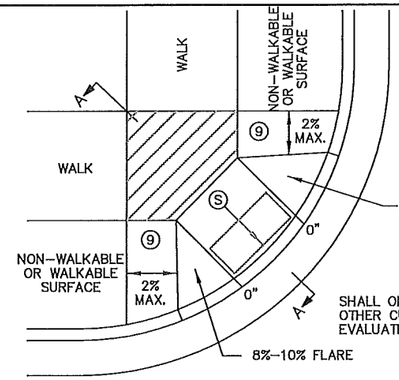
FAN⑩



MODIFIED FAN ⑩

USED WHEN RIGHT–OF–WAY IS CONSTRAINED

DEPRESSED CORNER



DIAGONAL

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

NOTES:

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

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

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

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

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

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

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

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

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

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

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

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

LEGEND

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

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

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

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

X" CURB HEIGHT

REVISION:
APPROVED: JANUARY 23, 2017
OPERATIONS ENGINEER

S.A.P. 002–601–048
S.A.P. 127–020–030

MINNESOTA DEPARTMENT OF TRANSPORTATION

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

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5–297.250 | 1 OF 6

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

NO.	BY	DATE	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Name: John M Gray, PE
Date: May 10, 2017 Lic. No. 22457

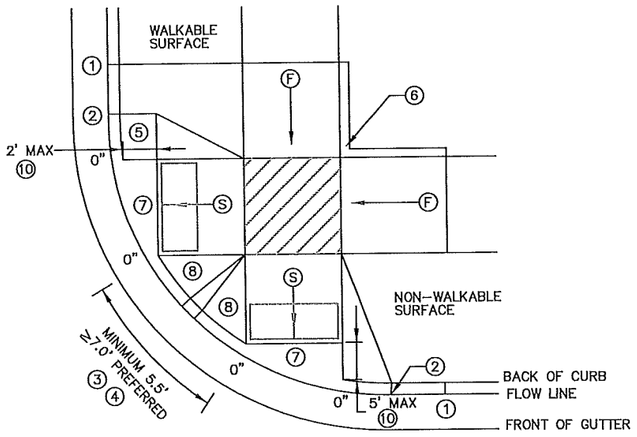
SEH
PHONE: (651) 490–2000
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110

ANOKA COUNTY, MINNESOTA
CITY OF FRIDLEY

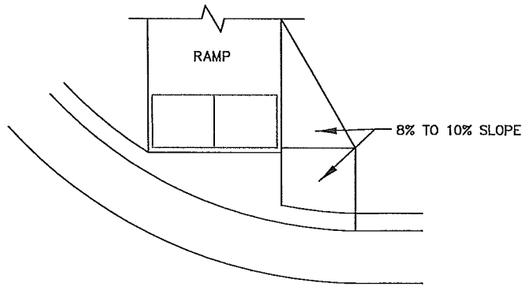
CURB RAMP DETAILS
CSAH 1 AT CSAH 6/MISSISSIPPI STREET

FILE NO. ANOKC 138701
DATE 05/10/2017
10/30

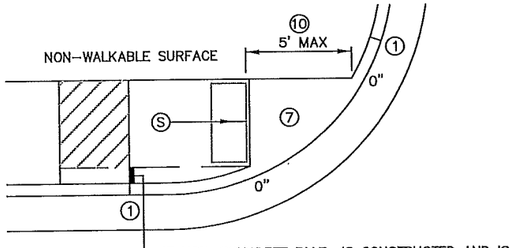
S:\AE\A_ANOKC\COMMON\SIGNALS\1-6\138701_RAMPDET.DWG



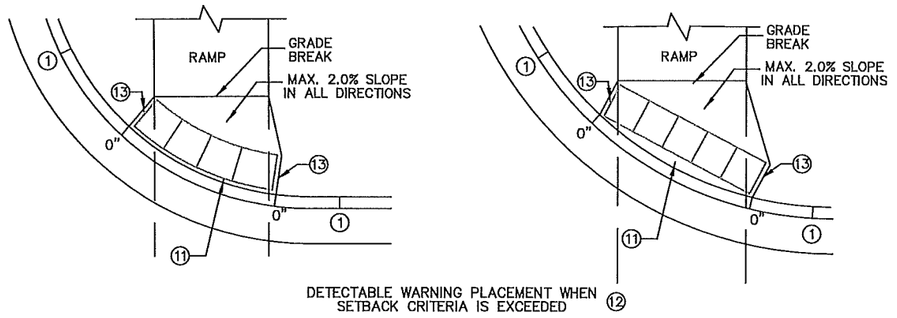
COMBINED DIRECTIONAL ⑨



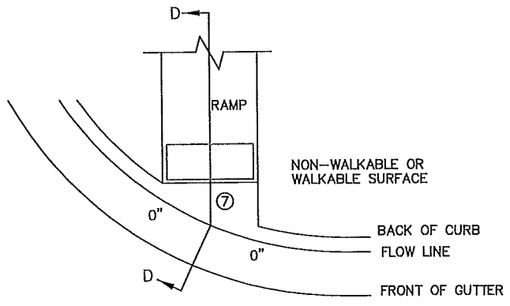
DIRECTIONAL RAMP WALKABLE FLARE

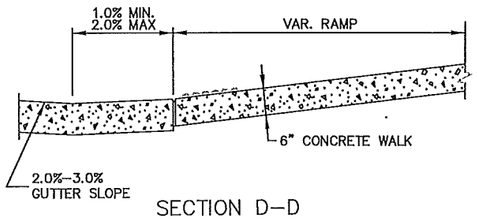


STANDARD ONE-WAY DIRECTIONAL ⑨



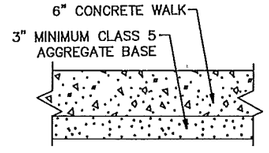
ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB





SECTION D-D

CURB FOR DIRECTIONAL RAMPS ⑭



TYPICAL SIDEWALK SECTION WITHIN INTERSECTION CORNER

NOTES:

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

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

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

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

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

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

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

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

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

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

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

① MATCH FULL CURB HEIGHT.

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

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

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

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

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

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

⑧ 8% TO 10% WALKABLE FLARE.

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

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

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

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

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

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

LEGEND

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

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

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

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

X" CURB HEIGHT

S.A.P. 002-601-048
S.A.P. 127-020-030

REVISION:
APPROVED: JANUARY 23, 2017
OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION
REVISED:
APPROVED: 1-23-2017
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 | 2 OF 6

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

NO.	BY	DATE	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Name: John M Gray, PE
Date: May 10, 2017 Lic. No. 22457

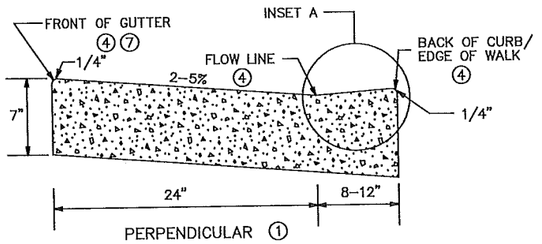
SEH
PHONE: (651) 490-2000
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110

ANOKA COUNTY, MINNESOTA
CITY OF FRIDLEY

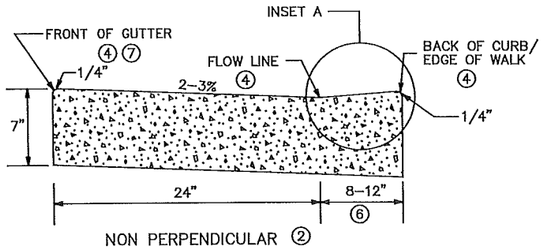
CURB RAMP DETAILS
CSAH 1 AT CSAH 6/MISSISSIPPI STREET

FILE NO. ANOKC 138701
DATE 05/10/2017
11 / 30

S:\AE\A\ANOKC\COMMONSIGNALS\1-6\138701_RAMPDET.DWG

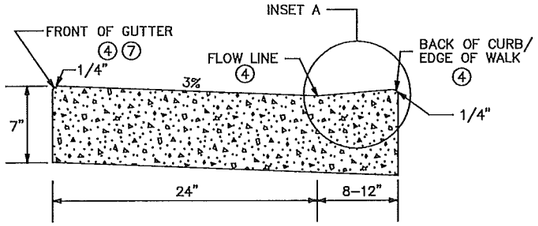


PERPENDICULAR ①

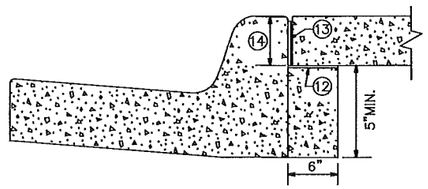


NON PERPENDICULAR ②

PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL

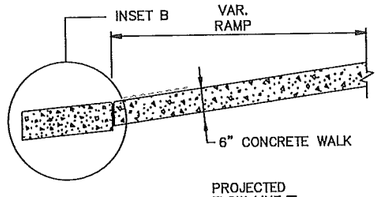


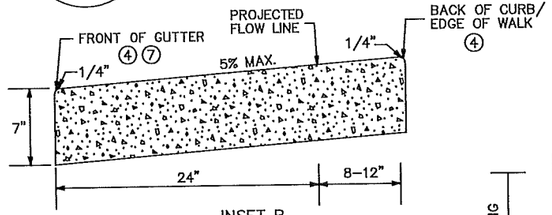
FOR CURB MACHINE PLACEMENT AROUND RADIUS ③
(REGARDLESS OF RAMP TYPE)



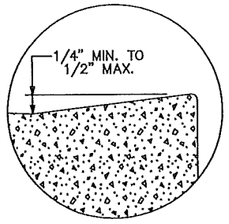
OPTIONAL SILL CURB WHEN SIDEWALK IS AT BACK OF CURB

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

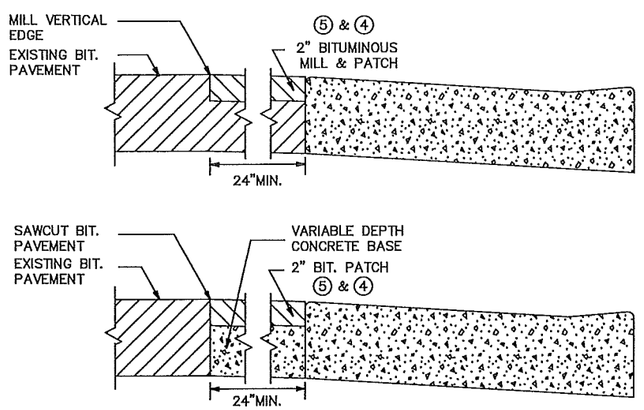




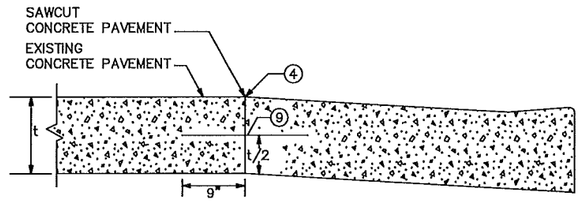
INSET B
OUTFLOW GUTTER ⑧



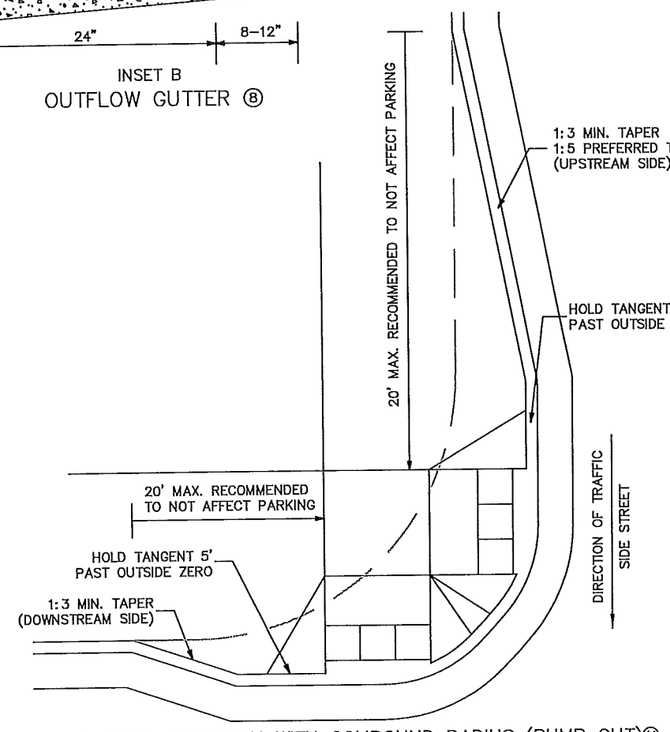
INSET A



ONLY ALLOWED PER ENGINEER'S APPROVAL

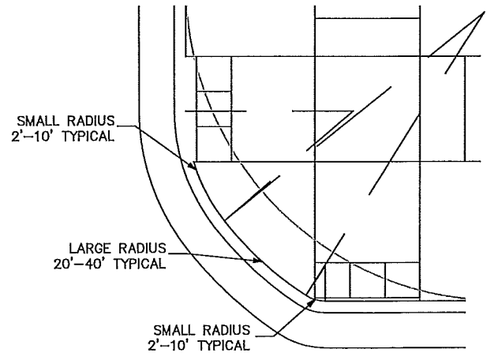


PAVEMENT TREATMENT OPTIONS IN FRONT OF CURB & GUTTER
FOR USE ON CURB RAMP RETROFITS



ADA CURB EXTENSION WITH COMPOUND RADIUS (BUMP OUT)⑪

DIRECTION OF TRAFFIC
MAIN STREET



COMBINED DIRECTIONAL ⑩
(COMPOUND RADIUS)

NOTES:

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

NO PONDING SHALL BE PRESENT IN THE PAR.

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

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

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

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

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

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

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

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

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

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

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

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

⑫ PLACE BOND BREAKER BETWEEN WALK AND TOP OF SILL.

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

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

S.A.P. 002–601–048
S.A.P. 127–020–030

REVISION:
APPROVED: JANUARY 23, 2017
OPERATIONS ENGINEER

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

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5–297.250 | 3 OF 6

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

NO.	BY	DATE	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Date: May 10, 2017
Name: John M Gray, PE
Lic. No. 22457

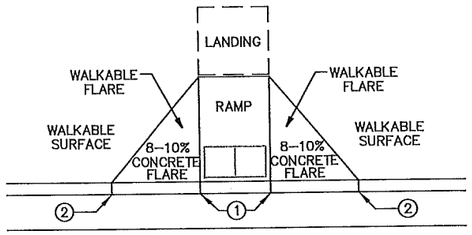
SEH
PHONE: (651) 490–2000
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110

ANOKA COUNTY, MINNESOTA
CITY OF FRIDLEY

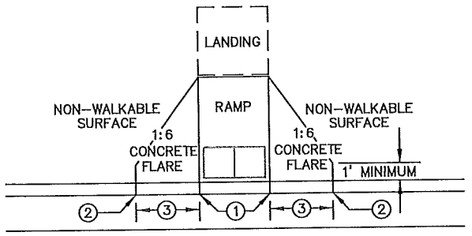
CURB RAMP DETAILS
CSAH 1 AT CSAH 6/MISSISSIPPI STREET

FILE NO. ANOKC 138701
DATE 05/10/2017
12/30

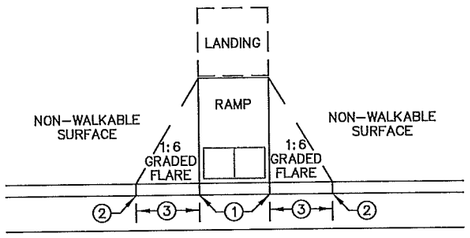
S:\AE\A\ANOKC\COMMON\SIGNALS\1-6\138701_RAMPDET.DWG



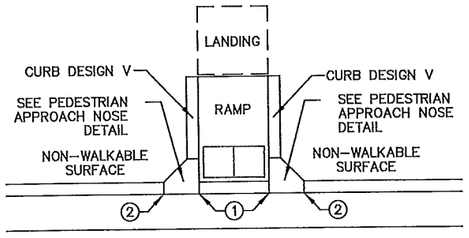
PAVED FLARES
ADJACENT TO WALKABLE SURFACE



PAVED FLARES
ADJACENT TO NON–WALKABLE SURFACE

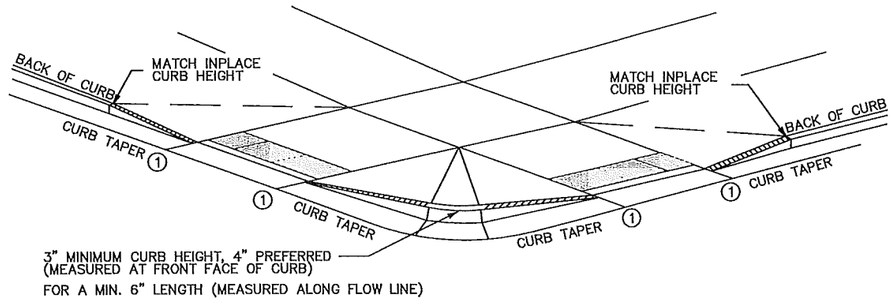


GRADED FLARES

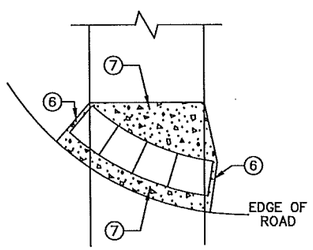


RETURNED CURB ⑤

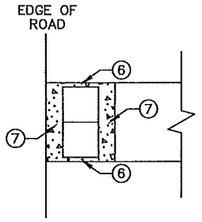
TYPICAL SIDE TREATMENT OPTIONS ④ ⑪



DETECTABLE EDGE WITH ⑧
CURB AND GUTTER

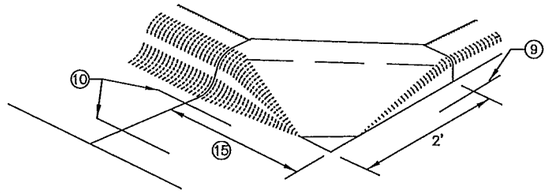


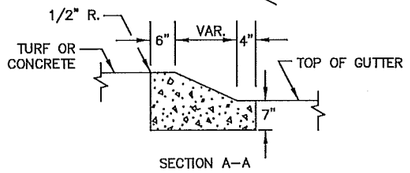
RADIAL DETECTABLE WARNING

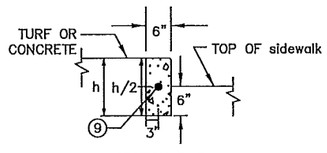


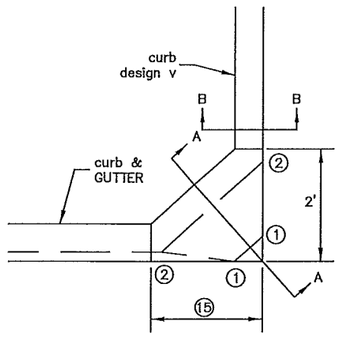
RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER

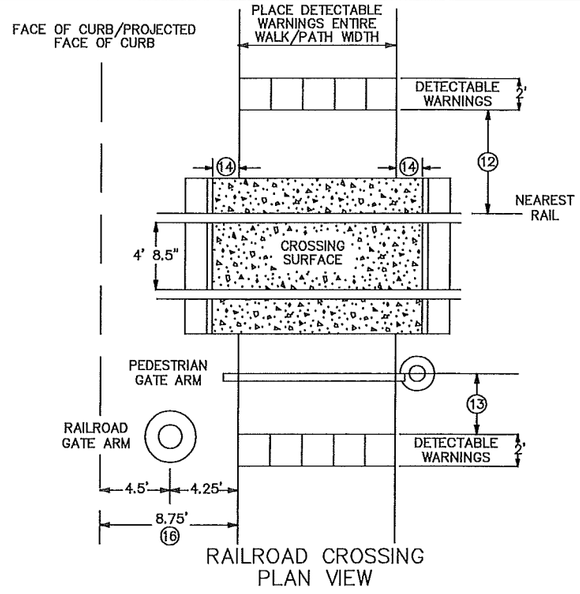








PEDESTRIAN APPROACH
NOSE DETAIL
(FOR RETURNED CURB
SIDE TREATMENT)



RAILROAD CROSSING
PLAN VIEW

NOTES:

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

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

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

① 0" CURB HEIGHT.

② FULL CURB HEIGHT.

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

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

⑤ TYPICALLY USED FOR MEDIANS AND ISLANDS.

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

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

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

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

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

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

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

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

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

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

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

S.A.P. 002–601–048
S.A.P. 127–020–030

REVISION:
APPROVED: JANUARY 23, 2017
OPERATIONS ENGINEER

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

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5–297.250 | 4 OF 6

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

NO.	BY	DATE	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Date: May 10, 2017 Name: John M Gray, PE Lic. No. 22457

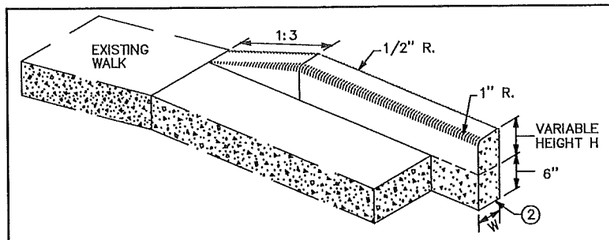
SEH
PHONE: (651) 490–2000
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110

ANOKA COUNTY, MINNESOTA
CITY OF FRIDLEY

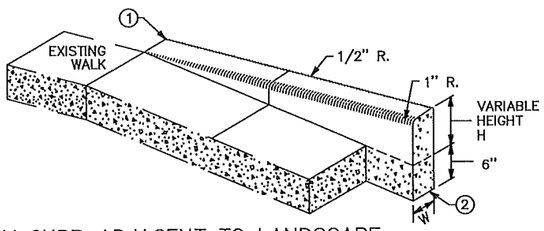
CURB RAMP DETAILS
CSAH 1 AT CSAH 6/MISSISSIPPI STREET

FILE NO. ANOKC 138701
DATE 05/10/2017
13/30

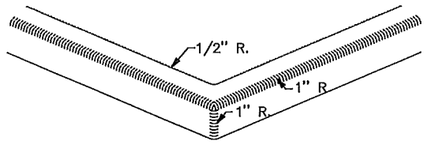
S:\AE\A\ANOKC\COMMON\SIGNALS\1-6\138701_RAMPSET.DWG



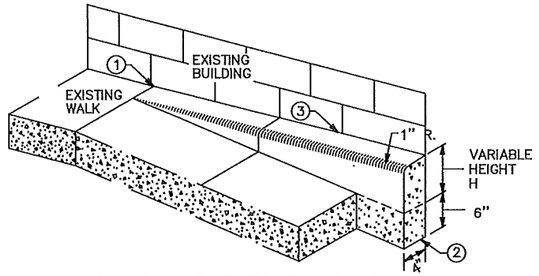
V CURB ADJACENT TO LANDSCAPE
CURB WITHIN SIDEWALK LIMITS



V CURB ADJACENT TO LANDSCAPE
CURB OUTSIDE SIDEWALK LIMITS

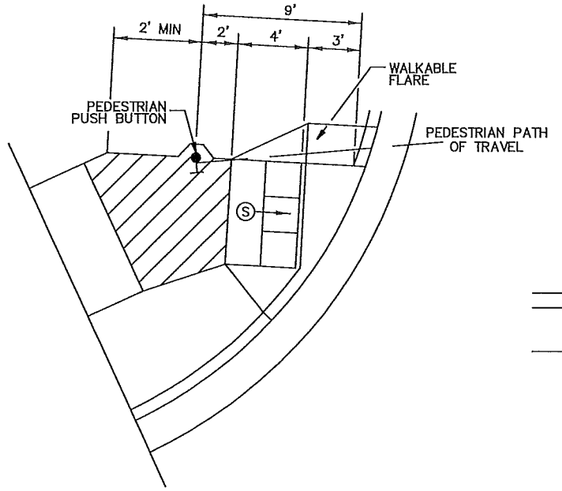


V CURB INTERSECTION



V CURB ADJACENT TO BUILDING OR BARRIER

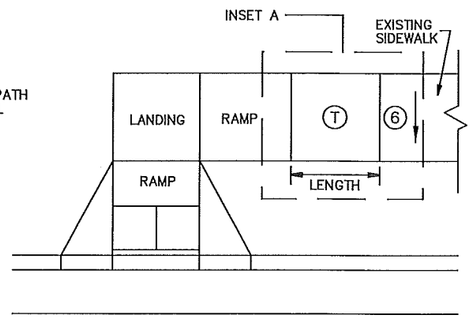
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
< 6"	4"
≥ 6"	6"

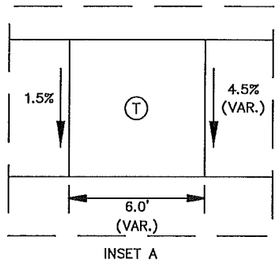


SEMI–DIRECTIONAL RAMP (3,4,9)

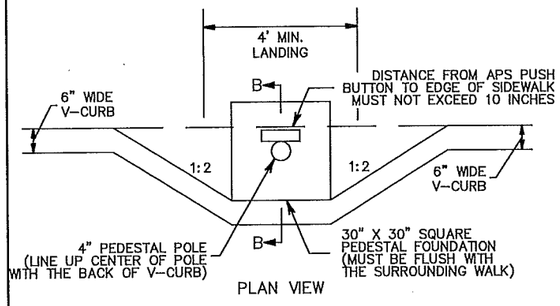
3' DOME SETBACK, 4' LONG RAMP AND PUSH BUTTON 9' FROM THE BACK OF CURB

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

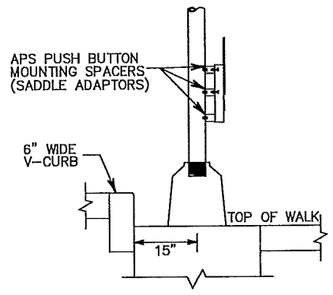




TRANSITION PANEL ④⑤

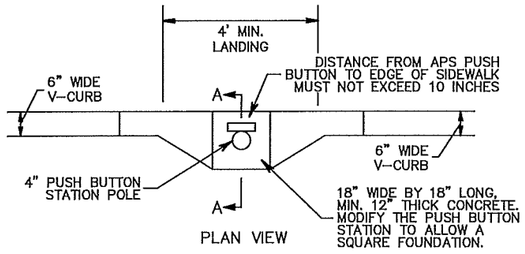


PLAN VIEW

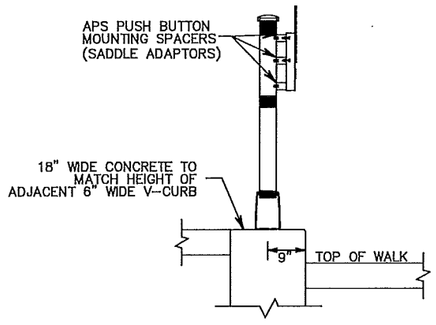


SECTION B–B

SIGNAL PEDESTAL & PUSH BUTTON (V–CURB)



PLAN VIEW



SECTION A–A

PUSH BUTTON STATION (V–CURB)

NOTES:

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

ALL V CURB CONTRACTION JOINTS SHALL MATCH CONCRETE WALK JOINTS.

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

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

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

① END TAPERS AT TRANSITION SECTION SHALL MATCH INPLACE SIDEWALK GRADES.
② ALL V CURB SHALL MATCH BOTTOM OF ADJACENT WALK.
③ EDGE BETWEEN NEW V CURB AND INPLACE STRUCTURE SHALL BE SEALED AND BOND BREAKER SHALL BE USED BETWEEN EXISTING STRUCTURE AND PLACED V–CURB.
④ THE MAX. RATE OF CROSS SLOPE TRANSITIONING IS 1' LINEAR FOOT OF SIDEWALK PER HALF PERCENT CROSS SLOPE. WHEN PAR WIDTH IS GREATER THAN 6' OR THE RUNNING SLOPE IS GREATER THAN 5%, DOUBLE THE CALCULATED TRANSITION LENGTH.
⑤ TRANSITION PANELS ARE TO ONLY BE USED AFTER THE RAMP, OR IF NEEDED, LANDING ARE AT THE FULL CURB HEIGHT (TYPICAL SECTION).
⑥ EXISTING CROSS SLOPE GREATER THAN 2.0%

LEGEND

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

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

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

Ⓣ TRANSITION PANEL(S) – TO BE USED FOR TRANSITIONING THE CROSS–SLOPE OF A RAMP TO THE EXISTING WALK CROSS–SLOPE. RATE OF TRANSITION SHOULD BE 0.5% PER 1 LINEAR FOOT OF WALK. SEE THIS SHEET FOR ADDITIONAL INFORMATION.

REVISION:
APPROVED: JANUARY 23, 2017
OPERATIONS ENGINEER

S.A.P. 002–601–048
S.A.P. 127–020–030

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

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5–297.250 | 5 OF 6

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

NO.	BY	DATE	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Name: John M Gray, PE
Date: May 10, 2017 Lic. No. 22457

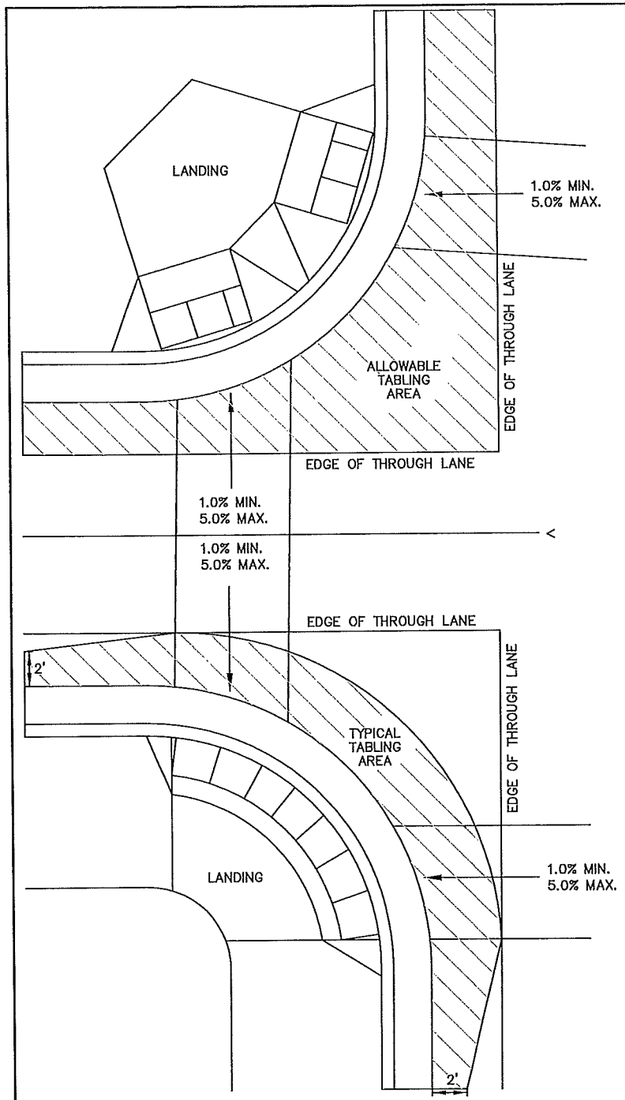
SEH
PHONE: (651) 490–2000
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110

ANOKA COUNTY, MINNESOTA
CITY OF FRIDLEY

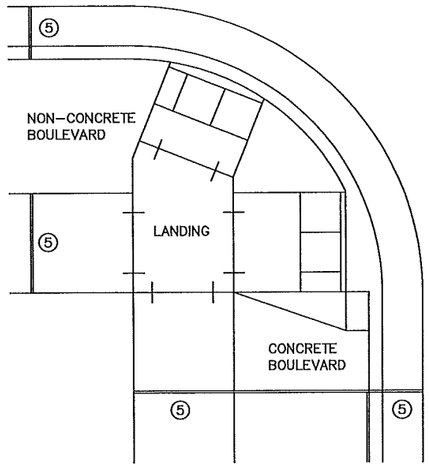
CURB RAMP DETAILS
CSAH 1 AT CSAH 6/MISSISSIPPI STREET

FILE NO. ANOKC 138701
DATE 05/10/2017
14/30

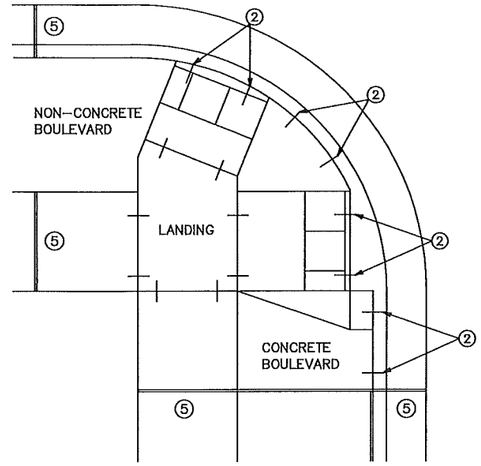
S:\AE\A_ANOKC\COMMON\SIGNALS\1-6\138701_RAMPDET.DWG



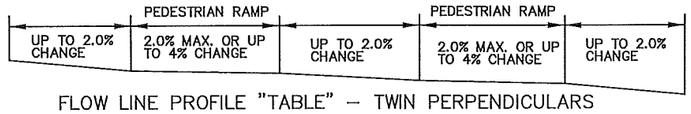
CURB LINE AND ROAD CROSSING ADJUSTMENTS



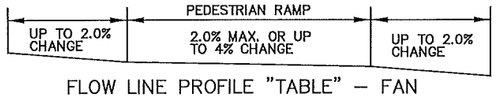
EXPANSION MATERIAL PLACEMENT FOR
CONCRETE AND BITUMINOUS ROADWAYS



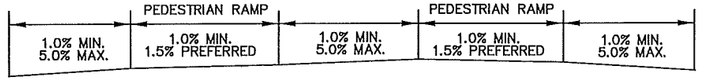
OPTIONAL CURB LINE REINFORCEMENT ④
PLACEMENT ON BITUMINOUS ROADWAYS



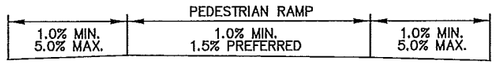
FLOW LINE PROFILE "TABLE" – TWIN PERPENDICULARS



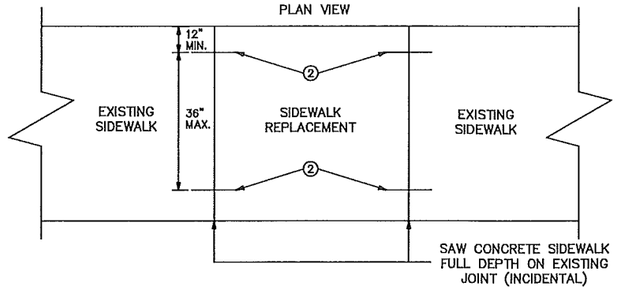
FLOW LINE PROFILE "TABLE" – FAN



FLOW LINE PROFILE RAISE – TWIN PERPENDICULARS

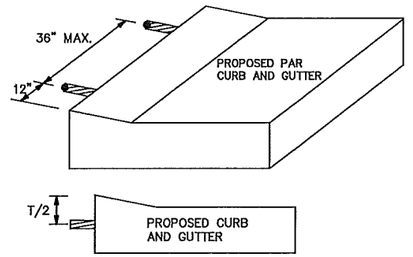


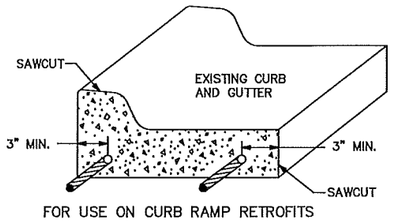
FLOW LINE PROFILE RAISE – FAN



OPTIONAL SIDEWALK REINFORCEMENT

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

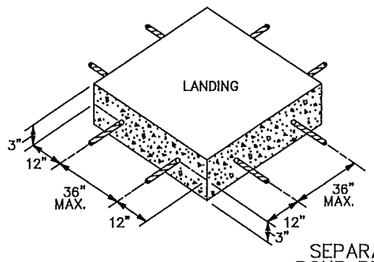


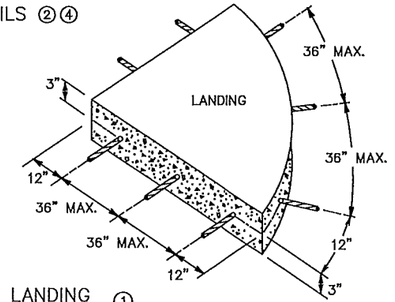


FOR USE ON CURB RAMP RETROFITS

CURB AND GUTTER
REINFORCEMENT ③

OPTIONAL CURB LINE REINFORCEMENT DETAILS ②④





SEPARATE LANDING
POUR REINFORCEMENT ①

NOTES:

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

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

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

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

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

"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

S.A.P. 002–601–048
S.A.P. 127–020–030

REVISION:
APPROVED: JANUARY 23, 2017
OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION
REVISED:
APPROVED: 1–23–2017
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5–297.250 | 6 OF 6

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

NO.	BY	DATE	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Name: John M Gray, PE
Date: May 10, 2017 Lic. No. 22457

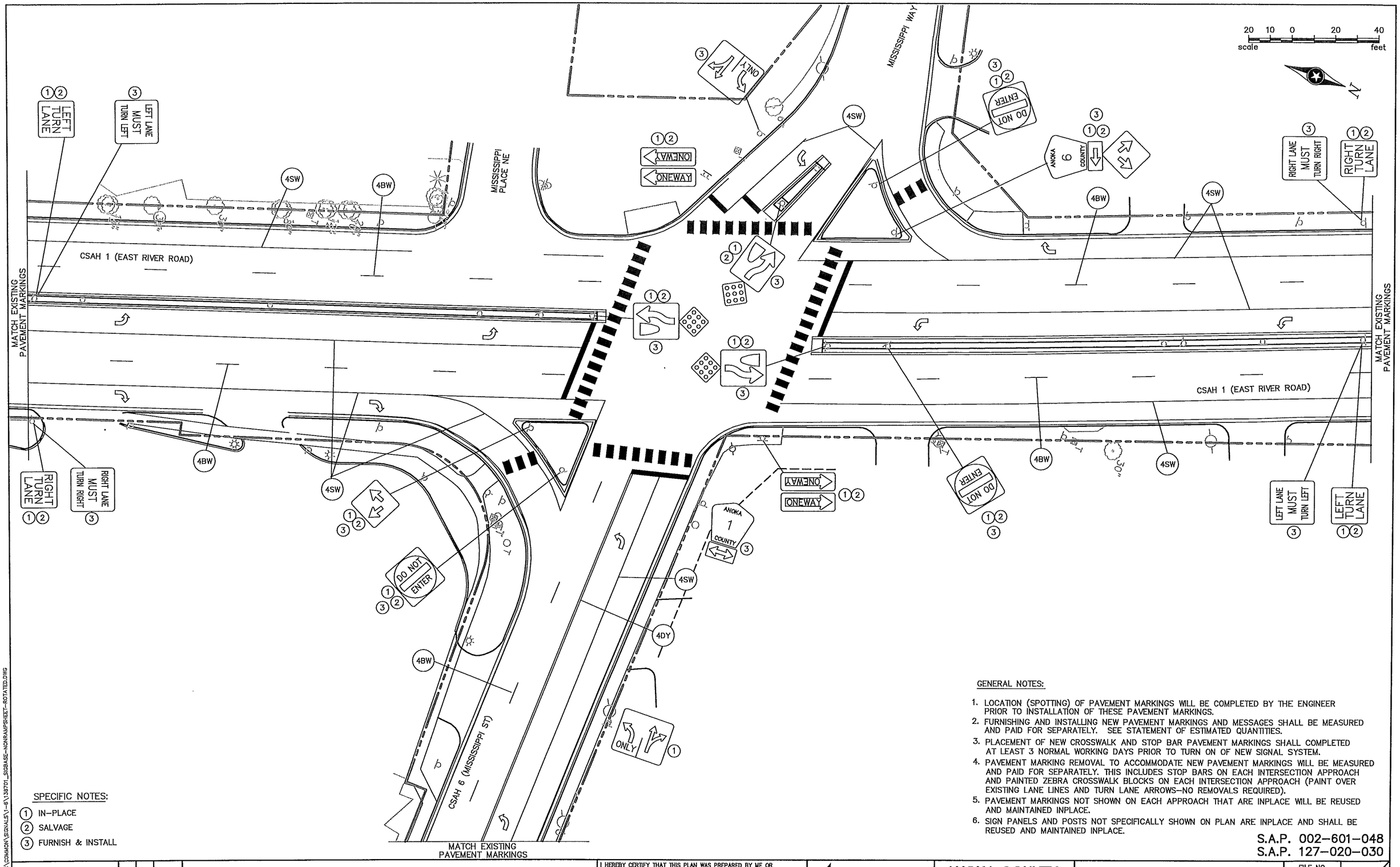
SEH
PHONE: (651) 490–2000
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110

ANOKA COUNTY, MINNESOTA
CITY OF FRIDLEY

CURB RAMP DETAILS
CSAH 1 AT CSAH 6/MISSISSIPPI STREET

FILE NO. ANOKC 138701
DATE 05/10/2017
15 / 30

S:\EV\ANOKC\COMMON\SIGNALSV1-6\138701_RAMPSET.DWG



SPECIFIC NOTES:

(1) IN–PLACE
(2) SALVAGE
(3) FURNISH & INSTALL

GENERAL NOTES:

1. LOCATION (SPOTTING) OF PAVEMENT MARKINGS WILL BE COMPLETED BY THE ENGINEER PRIOR TO INSTALLATION OF THESE PAVEMENT MARKINGS.
2. FURNISHING AND INSTALLING NEW PAVEMENT MARKINGS AND MESSAGES SHALL BE MEASURED AND PAID FOR SEPARATELY. SEE STATEMENT OF ESTIMATED QUANTITIES.
3. PLACEMENT OF NEW CROSSWALK AND STOP BAR PAVEMENT MARKINGS SHALL COMPLETED AT LEAST 3 NORMAL WORKING DAYS PRIOR TO TURN ON OF NEW SIGNAL SYSTEM.
4. PAVEMENT MARKING REMOVAL TO ACCOMMODATE NEW PAVEMENT MARKINGS WILL BE MEASURED AND PAID FOR SEPARATELY. THIS INCLUDES STOP BARS ON EACH INTERSECTION APPROACH AND PAINTED ZEBRA CROSSWALK BLOCKS ON EACH INTERSECTION APPROACH (PAINT OVER EXISTING LANE LINES AND TURN LANE ARROWS–NO REMOVALS REQUIRED).
5. PAVEMENT MARKINGS NOT SHOWN ON EACH APPROACH THAT ARE INPLACE WILL BE REUSED AND MAINTAINED INPLACE.
6. SIGN PANELS AND POSTS NOT SPECIFICALLY SHOWN ON PLAN ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE.

S.A.P. 002–601–048
S.A.P. 127–020–030

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

NO.	BY	DATE	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Date: May 10, 2017 Name: John M Gray, PE Lic. No. 22457

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

ANOKA COUNTY, MINNESOTA
CITY OF FRIDLEY

SIGNING AND STRIPING LAYOUT
CSAH 1 AT CSAH 6/MISSISSIPPI WAY

FILE NO. ANOKC 138701
DATE 05/10/2017
16/30

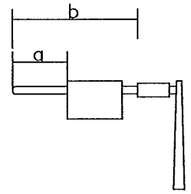
S:\AE\A\ANOKC\COMMON SIGNALS\1-6\138701_SIGBASE-NONRAMPSHEET-ROTATED.DWG

SIGN PANELS TYPE C (FURNISH AND INSTALL)

TOTAL QUANTITY	POSTS NO. & TYPE	POSTS KNEE BRACES QUANTITY	POSTS LENGTH (FT)	MTG HT. (FT)	PANELS SIZE (IN.)	PANELS UNIT AREA (SQ FT)	PANELS TOTAL AREA (PROJECT) (SQ FT)	CODE NO.	PANEL LEGEND
2	1–U	–	13.0	7	30 x 30	6.25	12.50	R3–7L	LEFT LANE MUST TURN LEFT
2	1–U	–	13.0	7	30 x 30	6.25	12.50	R3–7R	RIGHT LANE MUST TURN RIGHT
1	2–U	–	13.0	7	36 x 30	7.50	7.50	R3–8AD	LEFT ONLY AND THRU/RIGHT
3	1–U	–	14.5	8.5	24 x 30	5.00	15.00	R4–7	KEEP RIGHT
3	–	–	Ⓐ	7	18 x 18	2.25	6.75	X4–2	OBJECT MARKER (BLACK/YELLOW)
3	1–U	–	13.5	7	36 x 36	9.00	27.00	R5–1	DO NOT ENTER
4	Ⓑ	–	–	–	42 x 48	14.00	56.00	R10–X12	LEFT TURN YIELD ON FLASHING YELLOW ARROW
1	1–U	–	10.0	4	30 x 30	6.25	6.25	W12–1	DOUBLE ARROW (DOWN)
1	1–U	–	14.0	8.5	24 x 24	4.00	4.00	M1–6	ANOKA COUNTY ROUTE MARKER (1)
1	–		Ⓐ	7	21 x 15	2.19	2.19	M6–4	DOUBLE ARROW
1	1–U	–	13.5	8	24 x 24	4.00	4.00	M1–6	ANOKA COUNTY ROUTE MARKER (6)
1	–	–	Ⓐ	6.5	21 x 15	2.19	2.19	M6–1aL	LEFT ARROW
1	–	–	Ⓐ	4	30 x 30	6.25	6.25	W12–1	DOUBLE ARROW (DOWN)
24							162.13		

SALVAGE SIGNS

TOTAL PROJECT QUANTITY	POSTS NO. & TYPE	PANELS SIZE (IN.)	CODE NO.	PANEL LEGEND
2	1–U	30 x 30	R3–X1	RIGHT TURN LANE
2	1–U	30 x 30	R3–X2	ANOKA COUNTY ROUTE MARKER (7)
3	1–U	24 x 30	R4–7	KEEP RIGHT
3	1–U	30 x 30	R5–1	DO NOT ENTER
2	1–U	36 x 12	R6–1L	ONE WAY (LEFT)
2	Ⓐ	36 x 12	R6–1R	ONE WAY (RIGHT)
1	1–U	30 x 30	W12–1	DOUBLE ARROW (DOWN)
1	Ⓐ	30 x 30	W12–1	DOUBLE ARROW (DOWN)
1	1–U	24 x 24	M1–6	ANOKA COUNTY ROUTE MARKER (6)
1	Ⓐ	21 x 15	M6–1aL	LEFT ARROW
3	Ⓐ	18 x 18	X4–2	OBJECT MARKER
21				



SIGNS FOR TRAFFIC SIGNAL SYSTEM

SIGN PANELS TYPE D (SIGNALS) (BASE BID) (FURNISH & INSTALL)
INTERNALLY ILLUMINATED SIGNS (ADD ALTERNATE BID) (FURNISH & INSTALL)

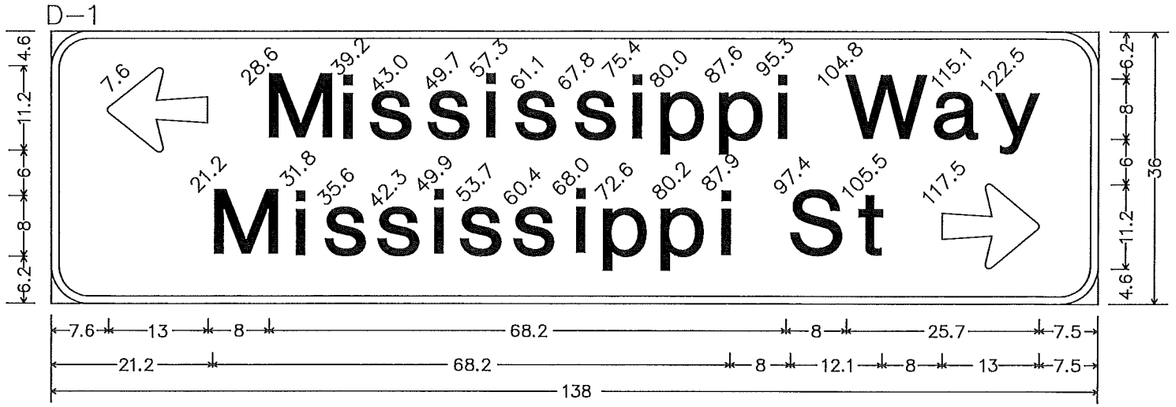
SIGN PANEL	POLE NO.	a (FT)	b (FT)	SIZE (IN)	MOUNTING BRACKET QUANTITY	MOUNTING BRACKET SPACING (1)	UNIT AREA (SQ FT)	NO. REQ.	PANEL LEGEND
D–1	1	–	28'	138 x 36	5	----	34.5	1	Mississippi Way w/LT Arrow, Mississippi St w/RT Arrow
D–2	2	–	16'	120 x 24	4	----	20.0	1	East River Road
D–3	3	–	28'	138 x 36	5	----	34.5	1	Mississippi St w/LT Arrow, Mississippi Way w/RT Arrow
D–4	5	–	14'	120 x 24	4	----	20.0	1	East River Road
TOTAL QUANTITIES							109.0	4	

(1) = SPACING BETWEEN STIFFENERS SHALL NOT EXCEED 36 INCHES AND SHALL BE UNIFORMLY SPACED. SEE STANDARD SIGNS MANUAL, PAGE 105A (REVISION DATE 7/06/2007) FOR BRACKET SPACING REQUIREMENTS.

GENERAL SIGNING NOTES:

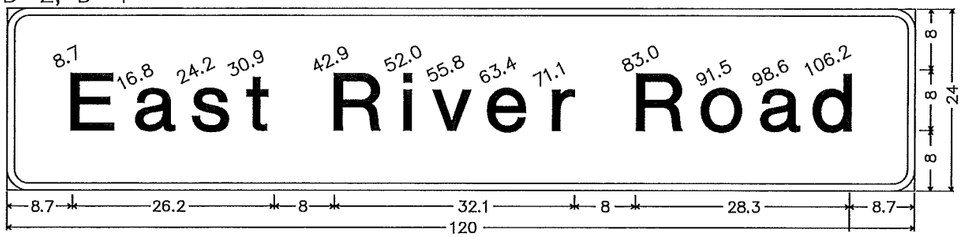
1) COLOR FOR ALL TYPE D SIGNS SHALL BE WHITE LEGEND AND BORDER ON GREEN BACKGROUND, FULLY REFLECTORIZED.
2) CORNERS EXTENDING BEYOND THE BORDER SHALL NOT BE TRIMMED. CORNERS OF STANDARD SIGN PANELS WITH MARGINS SHALL BE TRIMMED.
3) FOR STRUCTURAL DETAILS OF MAST ARM MOUNTED SIGNS, SEE STANDARD SIGNS MANUAL, PAGE 105A (REVISION DATE: 7/06/07), AND SPECIAL PROVISIONS.
4) SEE STANDARD SIGNS MANUAL FOR DETAILED DRAWINGS OF TYPE C SIGN PANELS AND ARROW DETAILS.
5) FURNISHING AND INSTALLING NEW TYPE C SIGNS, AND SALVAGING INPLACE TYPE C SIGNS SHALL BE MEASURED AND PAID FOR SEPARATELY. SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
6) FURNISHING AND INSTALLING NEW STATIC TYPE D SIGNS (BASE BID) OR INTERNALLY ILLUMINATED TYPE D SIGNS (ADD ALTERNATE BID) WILL BE MEASURED AND PAID FOR SEPARATELY. SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
7) FURNISHING AND INSTALLING NEW R10–3e PEDESTRIAN PUSH BUTTON INSTRUCTION SIGNS IS INCIDENTAL. SEE SPECIAL PROVISIONS AND PLANS FOR FURTHER INFORMATION.
8) Ⓐ = SIGN PANEL MOUNTED ON SAME POST WITH OTHER SIGN.
9) Ⓑ = TRAFFIC SIGNAL MAST ARM MOUNTED SIGN PANEL. (MOUNT NEW SIGN PANELS AT 1' FROM LEFT END OF MAST ARM).
10) ALL TRAFFIC CONTROL, MOBILIZATION AND WORK RELATED TO THE INSTALLATION OF THE SIGNING AND PAVEMENT MARKINGS SHOWN IN THE PLANS IS INCIDENTAL.
11) POST LENGTHS ARE APPROXIMATE AND INCLUDE EMBEDMENT, BUT DO NOT INCLUDE ADDITIONAL LENGTH REQUIRED FOR SPLICE.
12) SEE SIGN DETAIL PLAN SHEETS FOR STRUCTURAL DETAILS.
13) MOUNTING HEIGHT IS MINIMUM. SEE DETAIL SHEETS FOR TYPICAL MOUNTING.
14) FOR OVERHEAD STREET NAME SIGNS, PROJECT WILL EITHER INCLUDE STATIC TYPE D SIGN PANELS OR INTERNALLY ILLUMINATED SIGNS (ONLY ONE BID ITEM FOR THESE SIGNS WILL BE ACCEPTED).

D–1



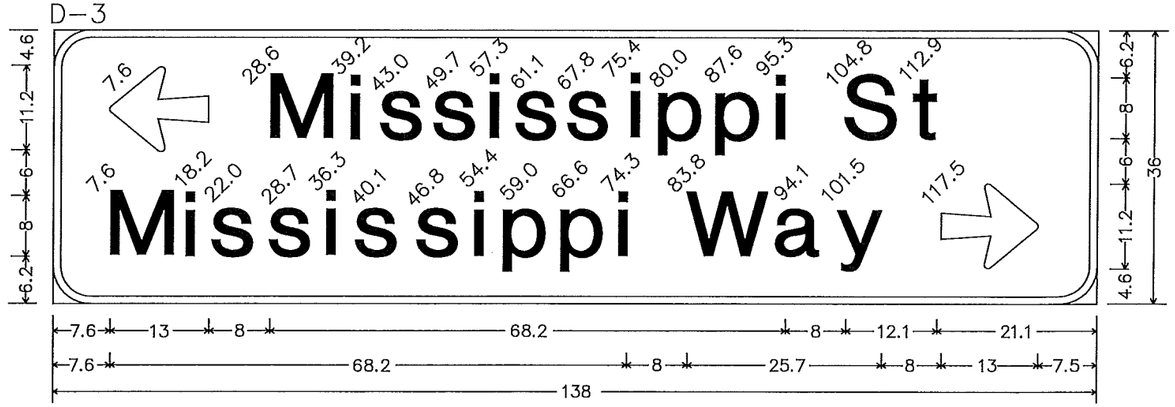
3.0" Radius, 1.0" Border, White on Green
Arrow 5 – 13.0" 180°, (Mississippi Way) E Mod.
(Mississippi St) E Mod., Arrow 5 – 13.0" 0°

D–2, D–4



3.0" Radius, 1.0" Border, White on Green;
[East River Road] E Mod;

D–3



3.0" Radius, 1.0" Border, White on Green
Arrow 5 – 13.0" 180°, (Mississippi St) E Mod.
(Mississippi Way) E Mod., Arrow 5 – 13.0" 0°

S.A.P. 002–601–048
S.A.P. 127–020–030

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

NO.	BY	DATE

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Name: John M Gray, PE
Date: May 10, 2017 Lic. No. 22457

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

ANOKA COUNTY, MINNESOTA
CITY OF FRIDLEY

SIGNING NOTES AND CHARTS
CSAH 1 AT CSAH 6/MISSISSIPPI WAY

FILE NO. ANOKC 138701
DATE 05/10/2017

17 / 30

S:\AE\A\ANOKC\COMMON\SIGNALS\1-6\138701_SIGBASE-NONRAMPSHEET-ROTATED.DWG

STRIPING NOTES & GUIDELINES

GENERAL INFORMATION:

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

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

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

EPOXY:

THE ROAD SURFACE SHALL BE CLEANED AT THE DIRECTION OF THE ENGINEER JUST PRIOR TO APPLICATION. PAVEMENT CLEANING SHALL CONSIST OF AT LEAST BRUSHING WITH A ROTARY BROOM (NON-METALLIC) OR AS RECOMMENDED BY THE MATERIAL MANUFACTURER AND ACCEPTABLE TO THE ENGINEER. NEW PORTLAND CEMENT CONCRETE SURFACES SHALL BE SANDBLAST CLEANED TO REMOVE ANY SURFACE TREATMENTS AND/OR LAITANCE. ON LOW SPEED (SPEED LIMIT 35 OR LESS) URBAN PORTLAND CEMENT CONCRETE ROADWAYS, SANDBLAST CLEANING SHALL BE USED FOR ALL PAVEMENT MARKINGS.

THE EPOXY MARKING APPLICATION SHALL IMMEDIATELY FOLLOW THE PAVEMENT CLEANING. GLASS BEADS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE EPOXY RESIN LINE TO PROVIDE AN IMMEDIATE NO-TRACK SYSTEM.

FOR 15 MIL APPLICATIONS, GLASS BEADS SHALL BE APPLIED AT A RATE OF AT LEAST 25 LB/GAL. THE "NO-TRACKING" CONDITION SHALL BE DETERMINED ON AN APPLICATION OF SPECIFIED THICKNESS TO THE PAVEMENT AND COVERED WITH GLASS BEADS AT THE RATE OF AT LEAST 25 LB/GAL.

OPERATIONS SHALL BE CONDUCTED ONLY WHEN THE ROADWAY PAVEMENT SURFACE TEMPERATURES ARE 50 DEGREES F OR GREATER.

PREFORM THERMOPLASTIC APPLICATION:

MAT TEMPERATURE SHALL BE CHECKED USING A THERMOMETER TO MAKE SURE THE INLAY IS BEING DONE IN THE PROPER TEMPERATURE RANGE. THE TEMPERATURE SHOULD MEASURE BETWEEN 150 DEGREES F (ASPHALT FIRM ENOUGH TO WALK ON) AND 120 DEGREES F. APPLICATION BELOW 120 DEGREES F MAY NOT GET A PROPER INLAY. INLAYS ARE NOT RECOMMENDED AFTER SEPTEMBER 15 AS THE ASPHALT COOLS TOO FAST AT THIS TIME OF YEAR.

NO PRIMERS ARE USED FOR INLAY APPLICATION. DO NOT INSTALL LANE LINES ON AN ASPHALT SEAM. ROLLING OF ALL THE MARKINGS SHOULD BE LENGTHWISE IN THE DIRECTION THEY WERE LAID. FOR CROSSWALKS AND STOP BARS, INITIAL TAMPING WITH THE TAMPING CART IS RECOMMENDED USING ONLY 100 LBS OF WEIGHT.

USE COMPACTION ROLLER TO EMBED (INLAY) MARKINGS INTO PAVEMENT SURFACE. USE MINIMUM SPEED AND WATER ON ROLLER. DO NOT USE VIBRATOR IF MARKING BUCKLES OR DISTORTS SEVERELY IN FRONT OF ROLLER. MAT TEMPERATURE OR ROLLER SPEED MAY BE TOO HIGH.

SYMBOLS & MATERIALS LEGEND

ZEBRA CROSSWALK (WHITE) – 6' x 3' BLOCKS

PAVEMENT MESSAGE (TURN ARROW)–EPOXY

24 INCH SOLID WHITE STOP BAR–EPOXY

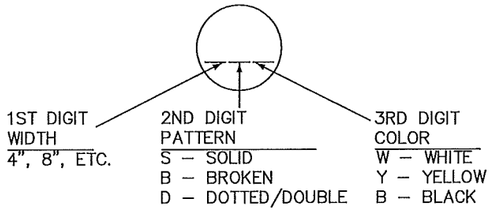
STRIPING KEY

CIRCLE – EPOXY

SQUARE – PREFORM THERMOPLASTIC

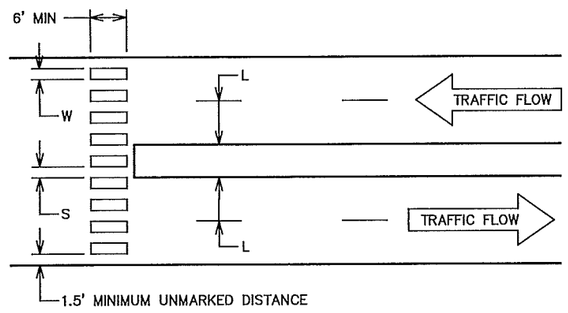
TRIANGLE – PAINT

PENTAGON – REMOVEABLE PREFORMED PLASTIC MARKING



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

CROSSWALK PAVEMENT MARKING DETAIL



WIDTH OF INSIDE LANE (L)	WIDTH OF MARKED AREA (W)	WIDTH OF SPACE (S)
9'	3'	3'
10'	3'	3'
11'	3'	3'
12'	3'	3'
13'	3'	3'

NOTES:
1. CROSSWALK AREAS TO BE CENTERED/ALIGNED ON CENTER LINE AND LANE LINES.
2. A MINIMUM OF 1.5' CLEAR DISTANCE MUST BE LEFT ADJACENT TO CURB. IF LAST MARKED AREA FALLS INTO THIS DISTANCE, IT MUST BE OMITTED.

PAVEMENT MARKING TABULATION

ITEM	UNIT	TOTAL ESTIMATED QUANTITY
PAVEMENT MARKING REMOVAL (STOP BARS)	LIN. FT.	125
PAVEMENT MARKING REMOVAL (ZEBRA CROSSWALK)	SQ. FT.	792
4 INCH SOLID LINE WHITE–EPOXY (LANE LINE)	LIN. FT.	2030
4 INCH BROKEN LINE WHITE–EPOXY (LANE LINE)	LIN. FT.	270
24 INCH SOLID LINE WHITE–EPOXY (STOP BAR)	LIN. FT.	125
4 INCH DOUBLE SOLID LINE YELLOW–EPOXY (CENTER LINE)	LIN. FT.	200
PAVEMENT MESSAGE (LT ARROW)–EPOXY	EACH	7
PAVEMENT MESSAGE (RT ARROW)–EPOXY	EACH	3
CROSSWALK PREFORM THERMOPLASTIC	SQ. FT.	954

NOTE: EACH TURN ARROW IS ASSUMED TO BE 15 SQUARE FEET FOR BIDDING PURPOSES.

S.A.P. 002–601–048
S.A.P. 127–020–030

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

NO.	BY	DATE

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Name: John M Gray, PE
Date: May 10, 2017 Lic. No. 22457

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

ANOKA COUNTY, MINNESOTA
CITY OF FRIDLEY

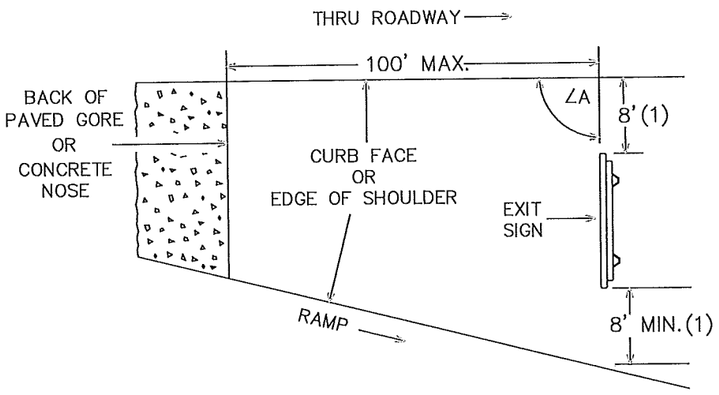
STRIPING NOTES AND TABULATIONS
CSAH 1 AT CSAH 6/MISSISSIPPI WAY

FILE NO. ANOKC 138701
DATE 05/10/2017

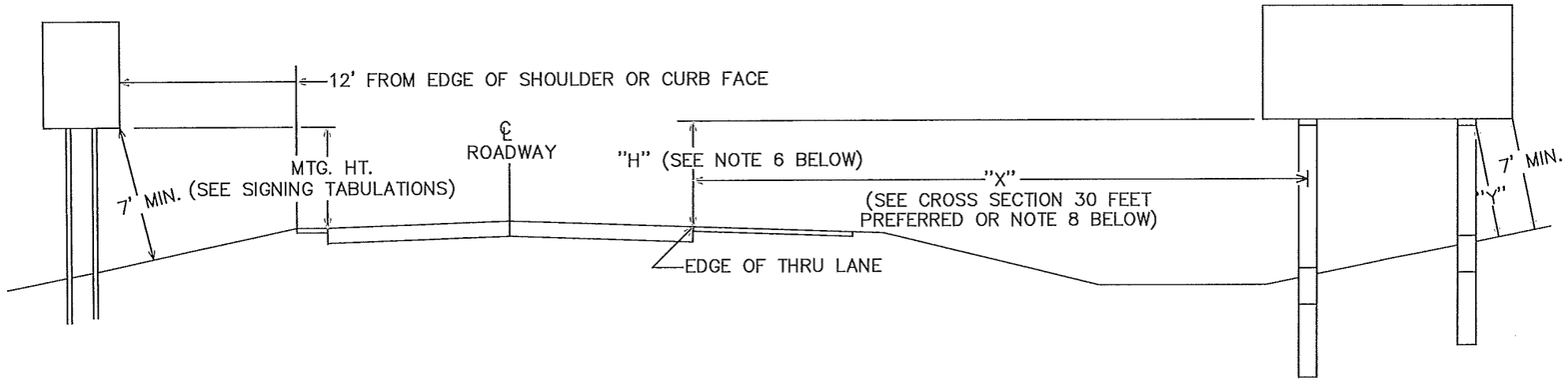
18 / 30

S:\AE\A_ANOKC\COMMON\SIGNALS\1-6\138701_SIGBASE-NONRAMPSHEET-ROTATED.DWG

GORE PLACEMENT

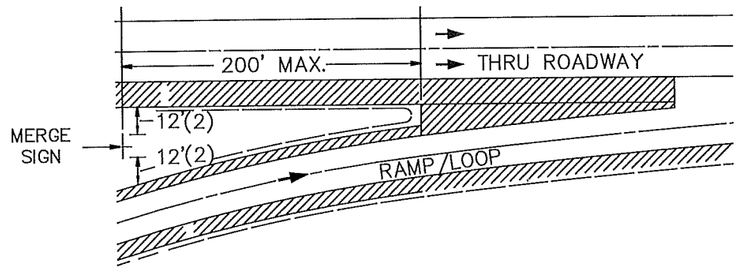


ROADSIDE PLACEMENT



ROUTE MARKER, REGULATORY & WARNING SIGNS – TYPE C
GUIDE SIGNS – TYPE D

GUIDE SIGN – TYPE A



SPECIFIC NOTES:

(1) EXIT SIGNS

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 SIGNS

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, ∠A 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

REVISED: 7-23-15

S.A.P. 002-601-048
S.A.P. 127-020-030

S:\MEV\A\ANOKC\COMMON SIGNALS\1-SV\138701_SIGBASE-NONRAMPSHEET-ROTATED.DWG

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

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: May 10, 2017
Name: John M Gray, PE
Lic. No. 22457

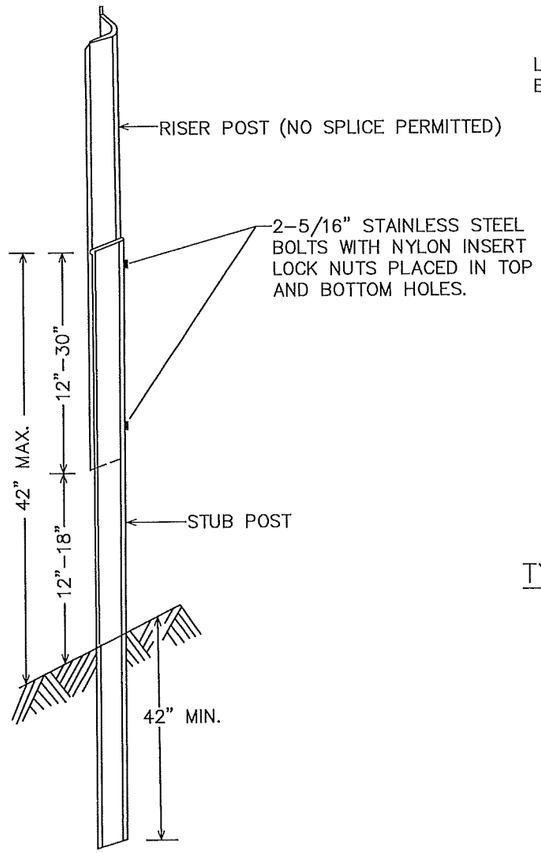
SEH
PHONE: (651) 490-2000
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110

ANOKA COUNTY, MINNESOTA
CITY OF FRIDLEY

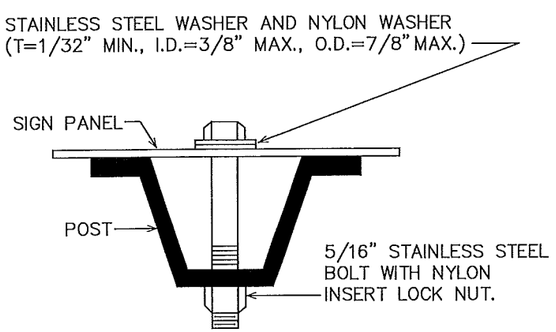
SIGN PLACEMENT DETAILS
CSAH 1 AT CSAH 6/MISSISSIPPI WAY

FILE NO. ANOKC 138701
DATE 05/10/2017

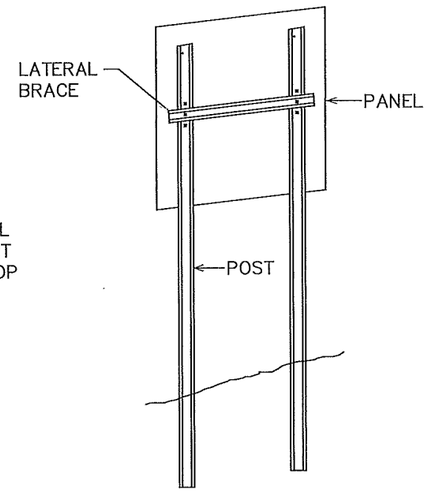
TYPE C & D POST



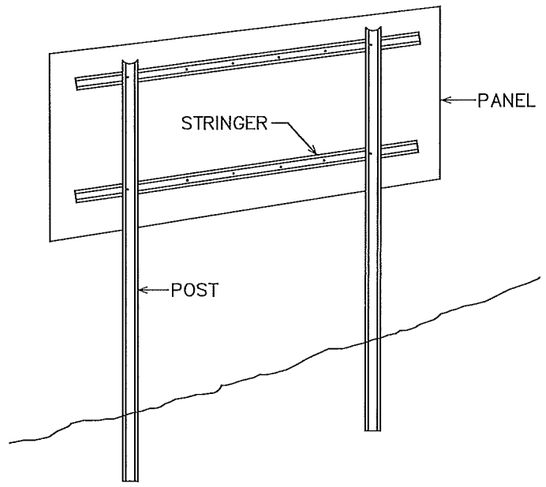
U POST BREAKAWAY SPLICE



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 STANDARD SIGNS MANUAL).
6. MOUNTING (PUNCH CODE) FOR TYPE C SIGN PANELS SHALL BE AS INDICATED IN THE STANDARD SIGNS 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 INTER–FERENCE 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

REVISED: 3–7–2014

S.A.P. 002–601–048
S.A.P. 127–020–030

S:\AE\A\ANOKC\COMMON\SIGNALS\1-6\138701_SIGBASE-NONRAMPSHEET-ROTATED.DWG

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

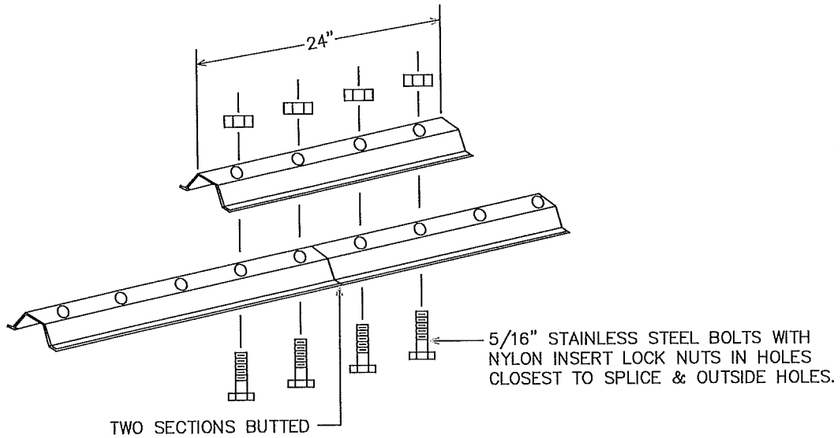
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Date: May 10, 2017 Name: John M Gray, PE Lic. No. 22457

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

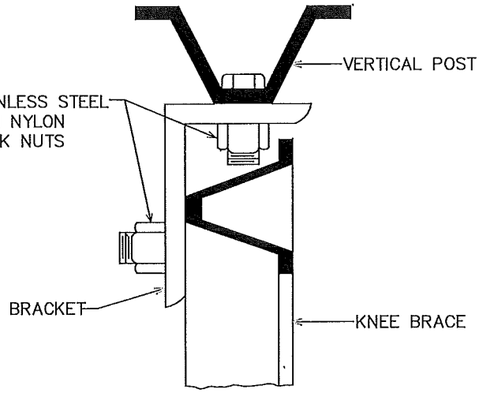
ANOKA COUNTY, MINNESOTA
CITY OF FRIDLEY

SIGN STRUCTURAL DETAILS
CSAH 1 AT CSAH 6/MISSISSIPPI WAY

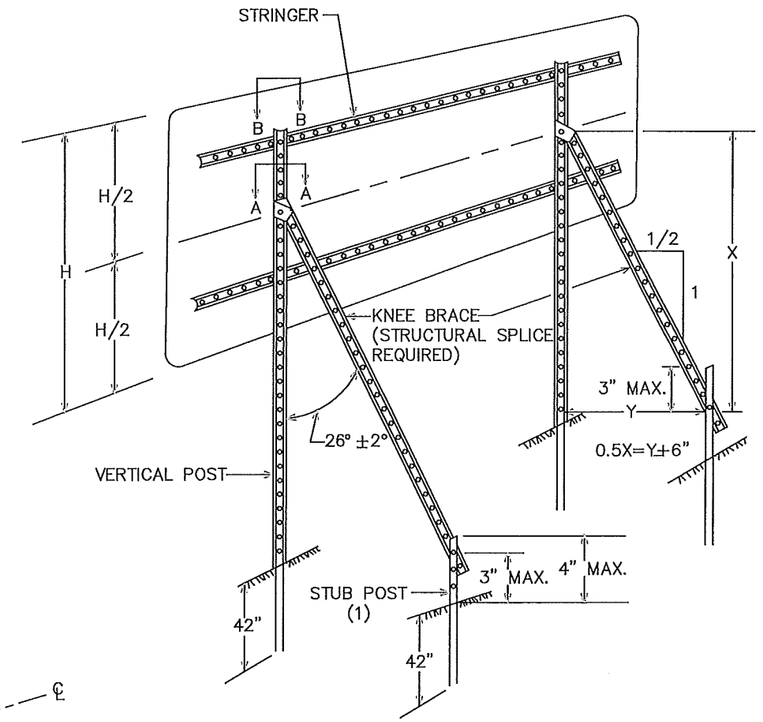
FILE NO. ANOKC 138701
DATE 05/10/2017



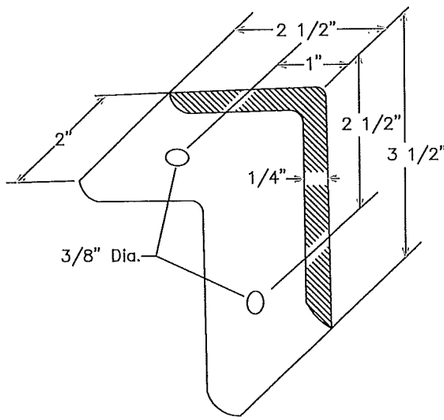
LATERAL BRACE OR STRINGER SPLICE DETAIL (EXPLODED VIEW)



SECTION A–A

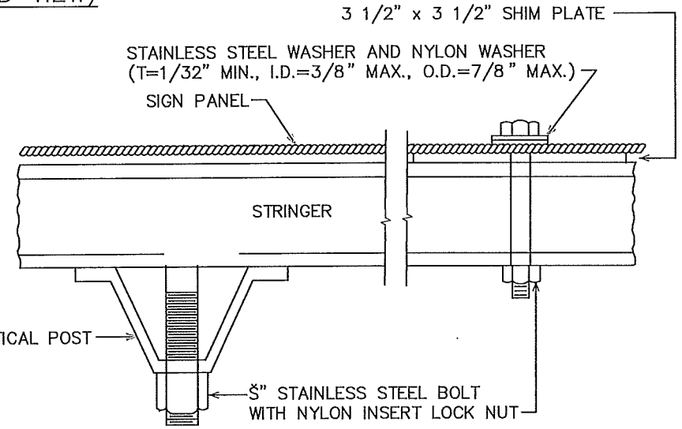


TYPICAL "A–FRAME" INSTALLATION TYPE "D" SIGNS

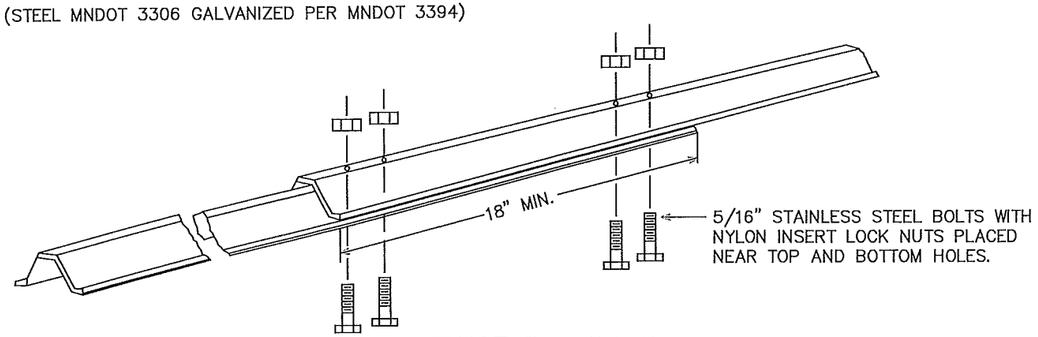


A–FRAME BRACKET

(STEEL MNDOT 3306 GALVANIZED PER MNDOT 3394)



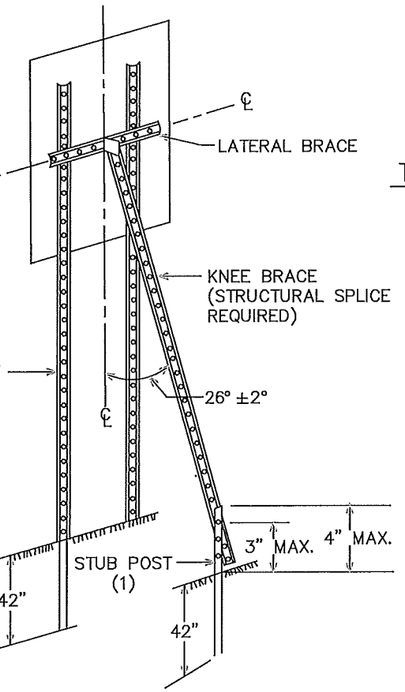
SECTION B–B



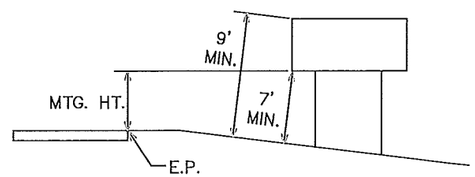
STRUCTURAL SPLICE

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

REVISED: 12–4–2013



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.

TYPE C & D SIGN STRUCTURAL DETAILS

S.A.P. 002–601–048
S.A.P. 127–020–030

S:\AE\A\ANOKCO_COMMON\SIGNALS\1-6\138701_SIGBASE-NONRAMPSHEET-ROTATED.DWG

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

NO.	BY	DATE

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Name: John M Gray, PE
Date: May 10, 2017 Lic. No. 22457

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

ANOKA COUNTY, MINNESOTA
CITY OF FRIDLEY

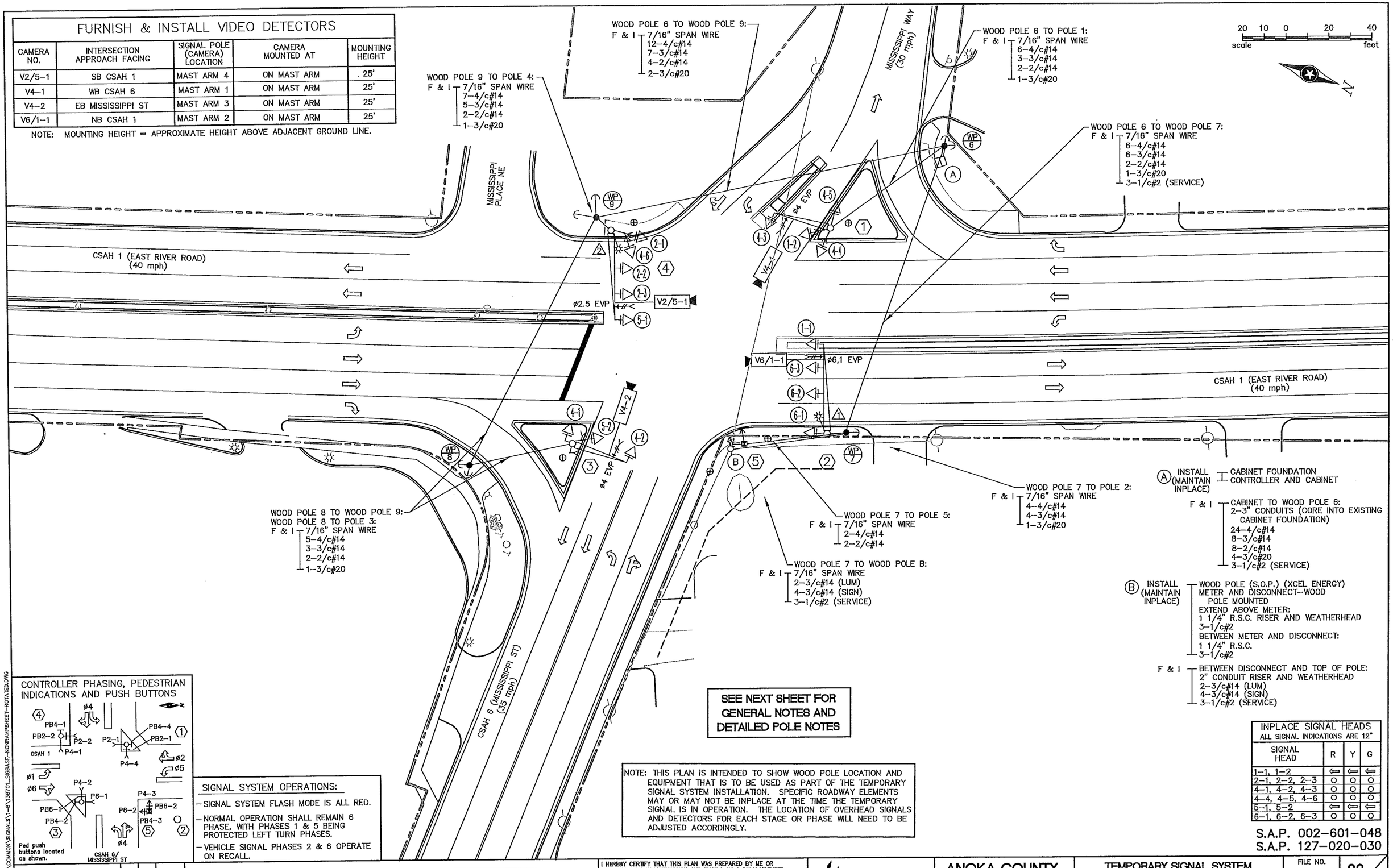
SIGN STRUCTURAL DETAILS
CSAH 1 AT CSAH 6/MISSISSIPPI WAY

FILE NO. ANOKC 138701
DATE 05/10/2017

FURNISH & INSTALL VIDEO DETECTORS

CAMERA NO.	INTERSECTION APPROACH FACING	SIGNAL POLE (CAMERA) LOCATION	CAMERA MOUNTED AT	MOUNTING HEIGHT
V2/5–1	SB CSAH 1	MAST ARM 4	ON MAST ARM	25'
V4–1	WB CSAH 6	MAST ARM 1	ON MAST ARM	25'
V4–2	EB MISSISSIPPI ST	MAST ARM 3	ON MAST ARM	25'
V6/1–1	NB CSAH 1	MAST ARM 2	ON MAST ARM	25'

NOTE: MOUNTING HEIGHT = APPROXIMATE HEIGHT ABOVE ADJACENT GROUND LINE.



(A) INSTALL (MAINTAIN INPLACE) — CABINET FOUNDATION
CONTROLLER AND CABINET

F & I — CABINET TO WOOD POLE 6:
2–3" CONDUITS (CORE INTO EXISTING CABINET FOUNDATION)
24–4/c#14
8–3/c#14
8–2/c#14
4–3/c#20
3–1/c#2 (SERVICE)

(B) INSTALL (MAINTAIN INPLACE) — WOOD POLE (S.O.P.) (XCEL ENERGY) METER AND DISCONNECT–WOOD POLE MOUNTED
EXTEND ABOVE METER:
1 1/4" R.S.C. RISER AND WEATHERHEAD
3–1/c#2
BETWEEN METER AND DISCONNECT:
1 1/4" R.S.C.
3–1/c#2

F & I — BETWEEN DISCONNECT AND TOP OF POLE:
2" CONDUIT RISER AND WEATHERHEAD
2–3/c#14 (LUM)
4–3/c#14 (SIGN)
3–1/c#2 (SERVICE)

SEE NEXT SHEET FOR GENERAL NOTES AND DETAILED POLE NOTES

NOTE: THIS PLAN IS INTENDED TO SHOW WOOD POLE LOCATION AND EQUIPMENT THAT IS TO BE USED AS PART OF THE TEMPORARY SIGNAL SYSTEM INSTALLATION. SPECIFIC ROADWAY ELEMENTS MAY OR MAY NOT BE INPLACE AT THE TIME THE TEMPORARY SIGNAL IS IN OPERATION. THE LOCATION OF OVERHEAD SIGNALS AND DETECTORS FOR EACH STAGE OR PHASE WILL NEED TO BE ADJUSTED ACCORDINGLY.

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS

SIGNAL SYSTEM OPERATIONS:

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

INPLACE SIGNAL HEADS
ALL SIGNAL INDICATIONS ARE 12"

SIGNAL HEAD	R	Y	G
1–1, 1–2	⇦	⇦	⇦
2–1, 2–2, 2–3	O	O	O
4–1, 4–2, 4–3	O	O	O
4–4, 4–5, 4–6	O	O	O
5–1, 5–2	⇦	⇦	⇦
6–1, 6–2, 6–3	O	O	O

S.A.P. 002–601–048
S.A.P. 127–020–030

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

NO.	BY	DATE	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Date: May 10, 2017
Name: John M Gray, PE
Lic. No. 22457

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

ANOKA COUNTY, MINNESOTA
CITY OF FRIDLEY

TEMPORARY SIGNAL SYSTEM
INTERSECTION LAYOUT
CSAH 1 AT CSAH 6/MISSISSIPPI WAY

FILE NO. ANOKC 138701
DATE 05/10/2017
22/30

S:\AE\A\ANOKC\COMMON SIGNALS\1-6\138701_SIGBASE-NONRAMPSHEET-ROTATED.DWG

NOTES:

1) LOCATION OF WOOD POLES SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
2) ALL VEHICLE AND PEDESTRIAN SIGNAL HEADS ARE INPLACE AND SHALL BE REUSED AND MADE OPERATIONAL AS SHOWN.
3) ALL TRAFFIC SIGNAL MATERIALS AND ELECTRICAL EQUIPMENT TO BE FURNISHED AND INSTALLED BY CONTRACTOR FOR THE TEMPORARY SIGNAL SYSTEM SHALL BE APPROVED BY ENGINEER PRIOR TO INSTALLATION AT THE INTERSECTION. SEE SPECIAL PROVISIONS.
4) MOVEMENT/RELOCATION OF TEMPORARY POLE 5 AND VIDEO CAMERAS SHALL BE INCLUDED IN THE PAY ITEM FOR "TEMPORARY SIGNAL SYSTEM". SEE SPECIAL PROVISIONS.
5) RELOCATION OF SPAN WIRES AND CABLES FROM WOOD POLES AND EXISTING SIGNAL POLES, TO WOOD POLES AND NEW PERMANENT SIGNAL POLES (AS NECESSARY) TO ACCOMMODATE SIDEWALK AND SIGNAL CONSTRUCTION WILL BE CONSIDERED INCIDENTAL.
6) SEE SPECIAL PROVISIONS REGARDING VIDEO DETECTION SYSTEM TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR, AND FOR ALL VIDEO DETECTION SYSTEM COMPONENTS TO BE TURNED OVER TO THE COUNTY (FOR THE COUNTY TO OWN) AFTER TEMPORARY SIGNAL SYSTEM IS REMOVED AND NEW PERMANENT SIGNAL SYSTEM IS MADE OPERATIONAL (INCLUDED AS PART OF PAY ITEM FOR "TEMPORARY SIGNAL SYSTEM").
7) (F & I) = ITEMS TO BE FURNISHED & INSTALLED BY CONTRACTOR.
   (S & I) = ITEMS TO BE SALVAGED & INSTALLED BY CONTRACTOR.
8) CONTRACTOR SHALL BAG (AND MAKE IN-OPERATIONAL) ALL VEHICLE SIGNAL HEADS NOT IN USE DURING CONSTRUCTION.
9) CONTRACTOR SHALL MAINTAIN A SIGNAL SYSTEM IN OPERATION AT THIS INTERSECTION AT ALL TIMES, UNLESS OTHERWISE APPROVED BY THE ENGINEER FOR THE SIGNAL SYSTEM TO BE TURNED OFF DURING NON-PEAK TRAFFIC PERIODS (FOR SWITCHOVERS FROM EXISTING SIGNAL SYSTEM TO TEMPORARY SIGNAL SYSTEM, AND FROM TEMPORARY SIGNAL SYSTEM TO NEW PERMANENT SIGNAL SYSTEM).
10) CONTRACTOR SHALL PROTECT AND MAINTAIN ALL ITEMS OF THE EXISTING PERMANENT SIGNAL SYSTEM THAT WILL BE REUSED AS PART OF THE TEMPORARY SIGNAL SYSTEM AND SHALL REPLACE ITEMS DAMAGED DURING CONSTRUCTION WITH NEW ITEMS (AT NO EXPENSE TO THE COUNTY).
11) EXISTING EVP DETECTORS AND CONFIRMATION LIGHTS, AND EXISTING INTERNALLY ILLUMINATED STREET NAME SIGNS SHALL BE REUSED, MAINTAINED INPLACE, AND KEPT IN OPERATION AS PART OF THE TEMPORARY SIGNAL SYSTEM.

(1) INPLACE (MAINTAIN INPLACE)
- A100 POLE FOUNDATION
- TYPE A100-A-25
- ONE WAY SIGNAL-OVERHEAD
- TYPE 10A-POLE MOUNTED 90 DEG
- TYPE 10B-POLE MOUNTED 0/270 DEG
- 2-PEDESTRIAN PUSH BUTTONS & SIGNS
- INTERNALLY ILLUMINATED STREET NAME SIGN
- INTERNALLY ILLUMINATED TYPE C SIGN (MAINTAIN SIGN INPLACE, BUT NOT OPERATIONAL)
- ONE WAY EVP DETECTOR AND LIGHT (ø4)

F & I
- VIDEO CAMERA-MAST ARM MOUNTED (FACING WB TRAFFIC) (V4-1)
- 5-FOOT EXTENSION & MOUNTING HARDWARE FOR VIDEO CAMERA (FOR MOUNTING ON TRAFFIC SIGNAL MAST ARM)

(2) INPLACE (MAINTAIN INPLACE)
- A100 POLE FOUNDATION
- TYPE A100-A-40-T30-9 (DAVIT AT 350 DEG)
- LUMINAIRE
- 3-ONE WAY SIGNALS-OVERHEAD
- TYPE 10A-POLE MOUNTED 270 DEG
- INTERNALLY ILLUMINATED STREET NAME SIGN
- ONE WAY EVP DETECTOR AND LIGHT (ø6,1)

F & I
- VIDEO CAMERA-MAST ARM MOUNTED (FACING NB TRAFFIC) (V6/1-1)
- 5-FOOT EXTENSION & MOUNTING HARDWARE FOR VIDEO CAMERA (FOR MOUNTING ON TRAFFIC SIGNAL MAST ARM)

(3) INPLACE (MAINTAIN INPLACE)
- A100 POLE FOUNDATION
- TYPE A100-A-25
- ONE WAY SIGNAL-OVERHEAD
- TYPE 30A-POLE MOUNTED 90 DEG
- TYPE 10A-POLE MOUNTED 225 DEG
- TYPE 10B-POLE MOUNTED 315 DEG
- 2-PEDESTRIAN PUSH BUTTONS & SIGNS
- INTERNALLY ILLUMINATED STREET NAME SIGN
- INTERNALLY ILLUMINATED TYPE C SIGN (MAINTAIN SIGN INPLACE, BUT NOT OPERATIONAL)
- ONE WAY EVP DETECTOR AND LIGHT (ø4)

F & I
- VIDEO CAMERA-MAST ARM MOUNTED (FACING EB TRAFFIC) (V4-2)
- 5-FOOT EXTENSION & MOUNTING HARDWARE FOR VIDEO CAMERA (FOR MOUNTING ON TRAFFIC SIGNAL MAST ARM)

(4) INPLACE (MAINTAIN INPLACE)
- A100 POLE FOUNDATION
- TYPE A100-A-40-T30-9 (DAVIT AT 350 DEG)
- LUMINAIRE
- 3-ONE WAY SIGNALS-OVERHEAD
- TYPE 20C-POLE MOUNTED 270 DEG
- 2-PEDESTRIAN PUSH BUTTONS & SIGNS
- INTERNALLY ILLUMINATED STREET NAME SIGN
- ONE WAY EVP DETECTOR AND LIGHT (ø2,5)

F & I
- VIDEO CAMERA-MAST ARM MOUNTED (FACING SB TRAFFIC) (V2/5-1)
- 5-FOOT EXTENSION & MOUNTING HARDWARE FOR VIDEO CAMERA (FOR MOUNTING ON TRAFFIC SIGNAL MAST ARM)

(5)
- INPLACE (REMOVE): PEDESTAL FOUNDATION; PEDESTAL POLE AND BASE
- INPLACE (S & I): 2-SETS PEDESTRIAN INDICATIONS; 2-PEDESTRIAN PUSH BUTTONS
- F & I:
  - BARREL MOUNTED 15' PEDESTAL POLE
  - TYPE 4B BRACKETING
  - 2-PEDESTRIAN INSTRUCTION SIGNS (R10-4b)
  - 3/4" CONDUIT AND SLIPFITTER COLLAR ABOVE TOP OF PEDESTAL POLE (TO ACCEPT 7/16" SPAN WIRE INSTALLATION)

(WP 6) F & I
- 50' WOOD POLE-CLASS 2
- 2-SIDEWALK DOWN GUYS, GUY GUARDS, AND SCREW ANCHORS
- 2-3" CONDUIT RISERS AND WEATHERHEADS
- EXTEND 2-3" CONDUIT RISERS INTO CONTROLLER CABINET (SEE CABINET A NOTES)
- 24-4/c#14
- 8-3/c#14
- 8-2/c#14
- 4-3/c#20
- 3-1/c#2 (SERVICE)

(WP 7) F & I
- 50' WOOD POLE-CLASS 2
- 1-SIDEWALK DOWN GUY, GUY GUARD, AND SCREW ANCHOR

(WP 8) F & I
- 50' WOOD POLE-CLASS 2
- 2-SIDEWALK DOWN GUYS, GUY GUARDS, AND SCREW ANCHORS

(WP 9) F & I
- 50' WOOD POLE-CLASS 2
- 2-DOWN GUYS, GUY GUARDS, AND SCREW ANCHORS

S.A.P. 002-601-048
S.A.P. 127-020-030

S:\AE\A\ANOKC\COMMON\SIGNALS\1-SI\138701_SIGBASE-NONRAMPSHEET-ROTATED.DWG

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

NO.	BY	DATE	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Name: John M Gray, PE
Date: May 10, 2017 Lic. No. 22457

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

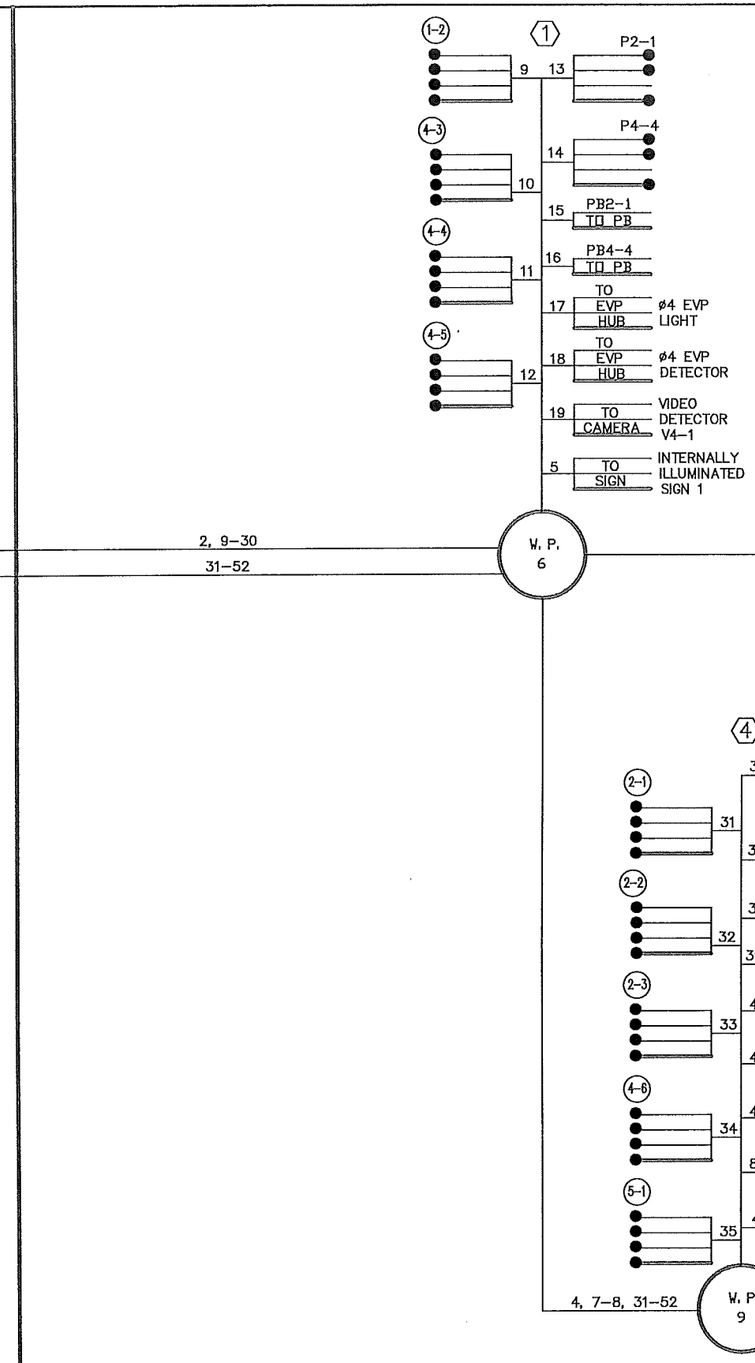
ANOKA COUNTY, MINNESOTA
CITY OF FRIDLEY

TEMPORARY SIGNAL SYSTEM NOTES
CSAH 1 AT CSAH 6/MISSISSIPPI WAY

FILE NO. ANOKC 138701
DATE 05/10/2017

CONTROLLER CABINET

2	SIGNAL
	SERVICE
9	RLA 1-2
	YLA 1-2
	GLA 1-2
	NEU 1-2
10	RED 4-3
	YEL 4-3
	GRN 4-3
	NEU 4-3
11	RED 4-4
	YEL 4-4
	GRN 4-4
	NEU 4-4
12	RED 4-5
	YEL 4-5
	GRN 4-5
	NEU 4-5
13	DWK P2-1
	WLK P2-1
	SPR
	NEU P2-1
14	DWK P4-4
	WLK P4-4
	SPR
	NEU P4-4
15	PB2-1
	NEU
16	PB4-4
	NEU
17	ø4 EVP LT
	EQG
	NEU
18	ø4
	EVP
	DETECTOR
19	VIDEO
	DETECTOR
	V4-1
20	RLA 1-1
	YLA 1-1
	GLA 1-1
	NEU 1-1
21	RED 6-1
	YEL 6-1
	GRN 6-1
	NEU 6-1
22	RED 6-2
	YEL 6-2
	GRN 6-2
	NEU 6-2
23	RED 6-3
	YEL 6-3
	GRN 6-3
	NEU 6-3
24	ø6,1 EVP LT
	EQG
	NEU
25	ø6,1
	EVP
	DETECTOR
26	VIDEO
	DETECTOR
	V6/1-1
27	DWK P4-3
	WLK P4-3
	SPR
	NEU P4-3
28	DWK P6-2
	WLK P6-2
	SPR
	NEU P6-2
29	PB4-3
	NEU
30	PB6-2
	NEU
31	RED 2-1
	YEL 2-1
	GRN 2-1
	NEU 2-1
32	RED 2-2
	YEL 2-2
	GRN 2-2
	NEU 2-2
33	RED 2-3
	YEL 2-3
	GRN 2-3
	NEU 2-3
34	RED 4-6
	YEL 4-6
	GRN 4-6
	NEU 4-6
35	RLA 5-1
	YLA 5-1
	GLA 5-1
	NEU 5-1
36	DWK P2-2
	WLK P2-2
	SPR
	NEU P2-2
37	DWK P4-1
	WLK P4-1
	SPR
	NEU P4-1
38	PB2-2
	NEU
39	PB4-1
	NEU
40	ø2,5 EVP LT
	EQG
	NEU
41	ø2,5
	EVP
	DETECTOR
42	VIDEO
	DETECTOR
	V2/5-1
43	RED 4-1
	YEL 4-1
	GRN 4-1
	NEU 4-1
44	RED 4-2
	YEL 4-2
	GRN 4-2
	NEU 4-2
45	RLA 5-2
	YLA 5-2
	GLA 5-2
	NEU 5-2
46	DWK P4-2
	WLK P4-2
	SPR
	NEU P4-2
47	DWK P6-1
	WLK P6-1
	SPR
	NEU P6-1
48	PB4-2
	NEU
49	PB6-1
	NEU
50	ø4 EVP LT
	EQG
	NEU
51	ø4
	EVP
	DETECTOR
52	VIDEO
	DETECTOR
	V4-2



NOTES:

1) ALL CABLES AND CONDUCTORS ARE NEW AND SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR AS PART OF THE TEMPORARY SIGNAL SYSTEM PAY ITEM (EXCEPT FOR THE POWER CABLE (CABLE 1) WHICH IS INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE.

SEE DETAIL SHEETS FOR CONDUCTOR COLOR CODE CHARTS.

S.A.P. 002-601-048
S.A.P. 127-020-030

S:\ALT\ANOKC\COMMON\SIGNALS\1-6\138701_SIGBASE-NONRAMPSHEET-ROTATED.DWG

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

NO.	BY	DATE	REVISIONS

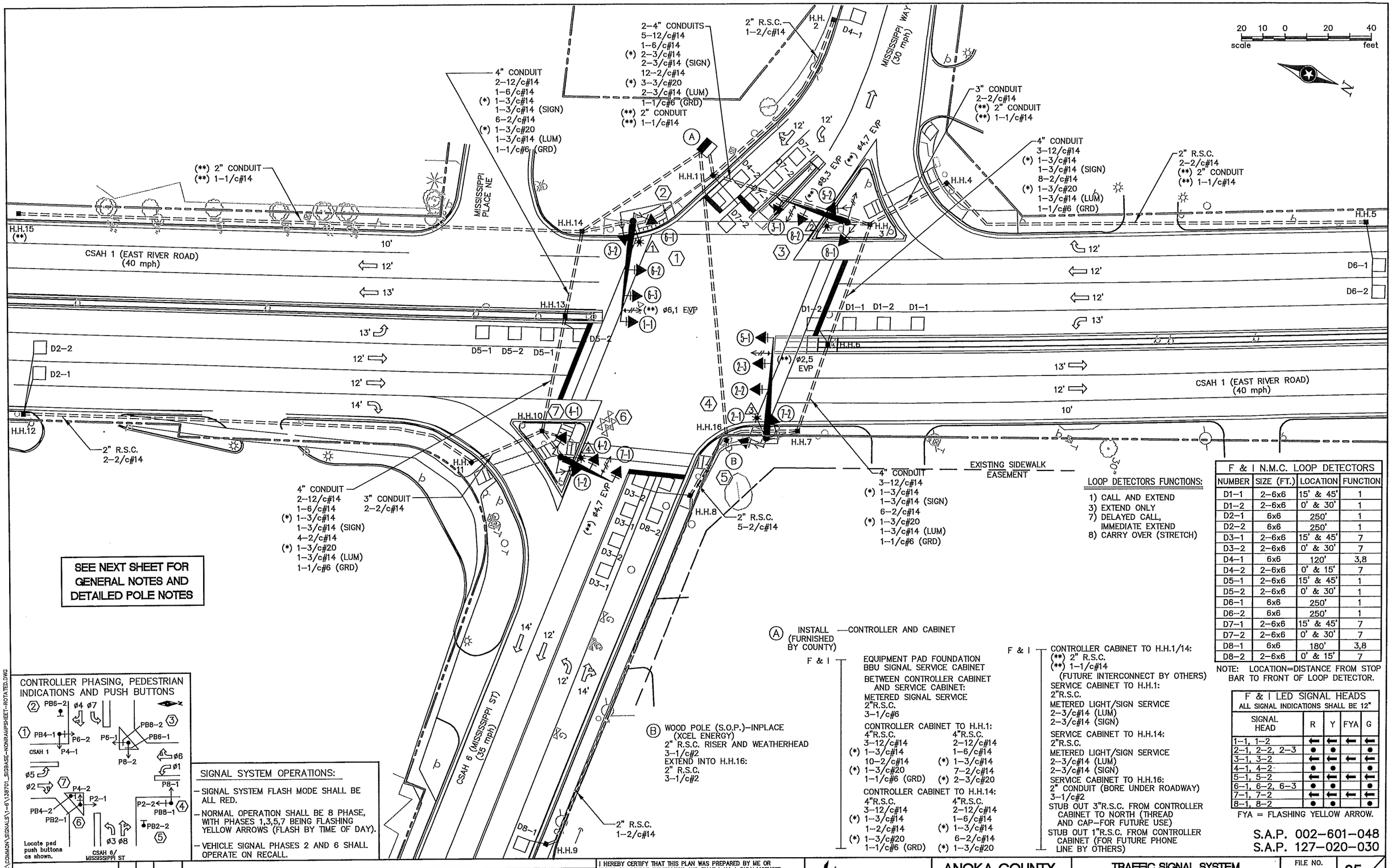
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Date: May 10, 2017
Name: John M Gray, PE
Lic. No. 22457

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

ANOKA COUNTY, MINNESOTA
CITY OF FRIDLEY

TEMPORARY SIGNAL SYSTEM
FIELD WIRING DIAGRAM
CSAH 1 AT CSAH 6/MISSISSIPPI WAY

FILE NO. ANOKC 138701
DATE 05/10/2017
24 / 30



SEE NEXT SHEET FOR GENERAL NOTES AND DETAILED POLE NOTES

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS

SIGNAL SYSTEM OPERATIONS:

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

Ⓐ INSTALL —CONTROLLER AND CABINET (FURNISHED BY COUNTY)

F & I
- EQUIPMENT PAD FOUNDATION
- BBU SIGNAL SERVICE CABINET
- BETWEEN CONTROLLER CABINET AND SERVICE CABINET:
  - METERED SIGNAL SERVICE
  - 2"R.S.C.
  - 3–1/c#6
- CONTROLLER CABINET TO H.H.1:

4"R.S.C.	4"R.S.C.
3–12/c#14	2–12/c#14
(*) 1–3/c#14	1–6/c#14
10–2/c#14	(*) 1–3/c#14
(*) 1–3/c#20	7–2/c#14
1–1/c#6 (GRD)	(*) 2–3/c#20

- CONTROLLER CABINET TO H.H.14:

4"R.S.C.	4"R.S.C.
3–12/c#14	2–12/c#14
(*) 1–3/c#14	1–6/c#14
1–2/c#14	(*) 1–3/c#14
(*) 1–3/c#20	6–2/c#14
1–1/c#6 (GRD)	(*) 1–3/c#20

Ⓑ WOOD POLE (S.O.P.)–INPLACE (XCEL ENERGY)
2" R.S.C. RISER AND WEATHERHEAD
3–1/c#2
EXTEND INTO H.H.16:
2" R.S.C.
3–1/c#2

F & I
- CONTROLLER CABINET TO H.H.1/14:
  - (**) 2" R.S.C.
  - (**) 1–1/c#14
  - (FUTURE INTERCONNECT BY OTHERS)
- SERVICE CABINET TO H.H.1:
  - 2"R.S.C.
  - METERED LIGHT/SIGN SERVICE
  - 2–3/c#14 (LUM)
  - 2–3/c#14 (SIGN)
- SERVICE CABINET TO H.H.14:
  - 2"R.S.C.
  - METERED LIGHT/SIGN SERVICE
  - 2–3/c#14 (LUM)
  - 2–3/c#14 (SIGN)
- SERVICE CABINET TO H.H.16:
  - 2" CONDUIT (BORE UNDER ROADWAY)
  - 3–1/c#2
- STUB OUT 3"R.S.C. FROM CONTROLLER CABINET TO NORTH (THREAD AND CAP–FOR FUTURE USE)
- STUB OUT 1"R.S.C. FROM CONTROLLER CABINET (FOR FUTURE PHONE LINE BY OTHERS)

LOOP DETECTORS FUNCTIONS:

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

F & I N.M.C. LOOP DETECTORS

NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D1–1	2–6x6	15' & 45'	1
D1–2	2–6x6	0' & 30'	1
D2–1	6x6	250'	1
D2–2	6x6	250'	1
D3–1	2–6x6	15' & 45'	7
D3–2	2–6x6	0' & 30'	7
D4–1	6x6	120'	3,8
D4–2	2–6x6	0' & 15'	7
D5–1	2–6x6	15' & 45'	1
D5–2	2–6x6	0' & 30'	1
D6–1	6x6	250'	1
D6–2	6x6	250'	1
D7–1	2–6x6	15' & 45'	7
D7–2	2–6x6	0' & 30'	7
D8–1	6x6	180'	3,8
D8–2	2–6x6	0' & 15'	7

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

F & I LED SIGNAL HEADS
ALL SIGNAL INDICATIONS SHALL BE 12"

SIGNAL HEAD	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	●	●		●

FYA = FLASHING YELLOW ARROW.

S.A.P. 002–601–048
S.A.P. 127–020–030

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

REVISIONS

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

Date: May 10, 2017 Name: John M Gray, PE Lic. No. 22457

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

ANOKA COUNTY, MINNESOTA
CITY OF FRIDLEY

TRAFFIC SIGNAL SYSTEM
INTERSECTION LAYOUT
CSAH 1 AT CSAH 6/MISSISSIPPI WAY

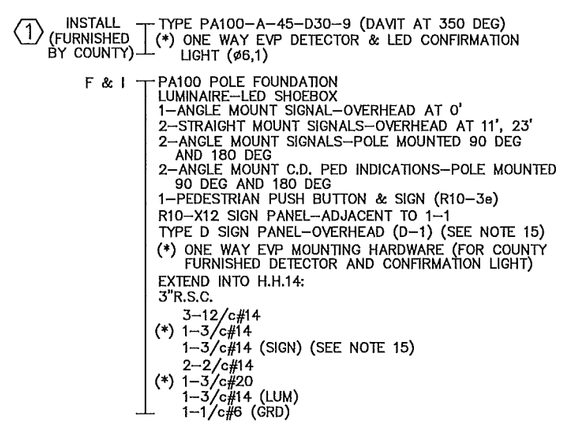
FILE NO. ANOKC 138701
DATE 05/10/2017

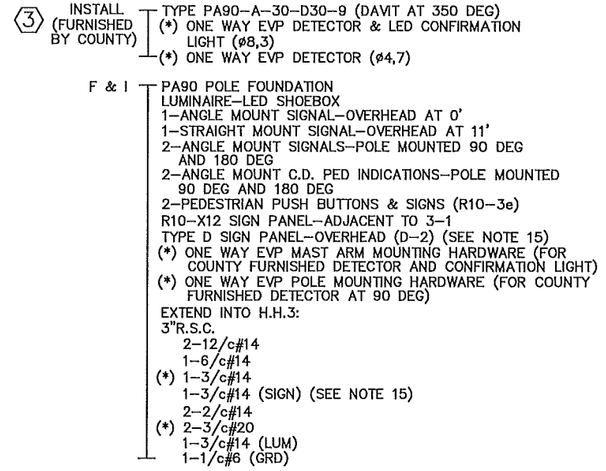
25/30

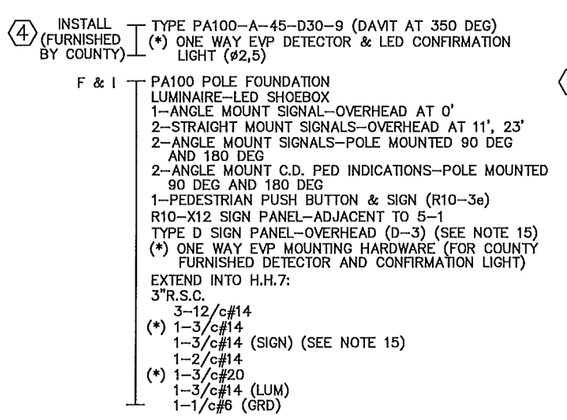
S:\AE\A\ANOKC\COMMON_SIGNALS\1-6\138701_SIGBASE-NONRAMPSHEET-ROTATED.DWG

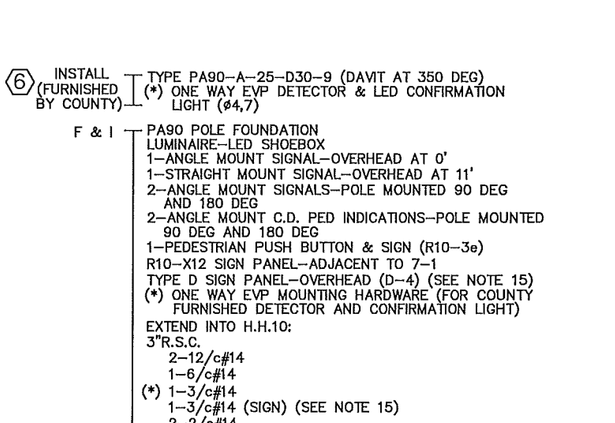
NOTES:

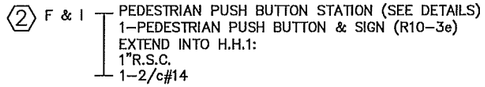
1) LOCATION OF FOUNDATIONS, LOOP DETECTORS, AND HANDHOLES SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
2) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
3) NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS. SEE SPECIAL PROVISIONS.
4) A 3/4" HALF COUPLING, 3/4" PIPE NIPPLE & CONDUIT OUTLET BODY SHALL BE FURNISHED AND INSTALLED 6 FEET FROM END OF EACH MAST ARM (FOR EVP).
5) THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE POWER COMPANY TO ARRANGE FOR THE POWER CONNECTION (XCEL ENERGY). SEE SPECIAL PROVISIONS.
6) EACH PEDESTRIAN INDICATION SHALL BE ONE SECTION LED FILLED COUNTDOWN TIMER "HAND/WALKING PERSON" INDICATION.
7) EACH SIGNAL FACE SHALL HAVE A BACKGROUND SHIELD.
8) SEE DETAILS, SPECIAL PROVISIONS & STATEMENT OF ESTIMATED QUANTITIES REGARDING BATTERY BACK-UP SIGNAL SERVICE CABINET TO BE FURNISHED AND INSTALLED BY CONTRACTOR (SEPARATE FROM ITEM NO. 2565 FOR THIS SIGNAL SYSTEM).
9) LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) IN 3/4" N.M.C. SEE SPECIAL PROVISIONS.
10) (*) DENOTES ITEMS TO BE INCLUDED AS PART OF THE PAY ITEM FOR ITEM NO. 2565 (EMERGENCY VEHICLE PREEMPTION SYSTEM). SEE STATEMENT OF ESTIMATED AND SPECIAL PROVISIONS.
11) ALL ITEMS OF THE COMPLETE SIGNAL AND EVP SYSTEM SHALL BE CONTRACTOR FURNISHED AND INSTALLED UNLESS SPECIFICALLY DENOTED OTHERWISE.
12) (**) DENOTES ITEMS TO BE INCLUDED AS PART OF SEPARATE PAY ITEMS FOR CONDUIT AND HANDHOLES TO BE FURNISHED AND INSTALLED BY CONTRACTOR (FOR FUTURE INTERCONNECT SYSTEM). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
13) SEE SPECIAL PROVISIONS AND STATEMENT OF ESTIMATED QUANTITIES REGARDING REMOVAL AND SALVAGING OF INPLACE SIGNAL SYSTEM (TO BE MEASURED AND PAID FOR SEPARATELY FROM "TRAFFIC CONTROL SIGNAL SYSTEM" PAY ITEM).
14) CONTRACTOR SHALL MAINTAIN OPERATION OF A TRAFFIC SIGNAL SYSTEM AT THIS INTERSECTION AT ALL TIMES, UNLESS OTHERWISE APPROVED BY COUNTY FOR SIGNAL SYSTEM TO BE TURNED OFF FOR CHANGEOVERS BETWEEN SIGNAL SYSTEMS. SEE SPECIAL PROVISIONS, TEMPORARY SIGNAL PLANS, AND STATEMENT OF ESTIMATED QUANTITIES REGARDING TEMPORARY SIGNAL OPERATION.
15) SEPARATE BID ITEMS ARE LISTED FOR MAST ARM MOUNTED STREET NAME SIGNS TO BE PROVIDED AND INSTALLED BY CONTRACTOR. "BASE BID" INCLUDES PAY ITEM FOR PROVIDING AND INSTALLING TYPE D SIGN PANELS AND ALL REQUIRED MOUNTING HARDWARE UNDER ITEM NO. 2564 (SIGN PANELS TYPE D SIGNALS). "ADD ALTERNATE BID" INCLUDES PAY ITEM FOR PROVIDING AND INSTALLING INTERNALLY ILLUMINATED SIGNS (INCLUDING SIGNS, HOUSINGS, BRACKETING, CABLES AND CONDUCTORS, AND ALL OTHER COMPONENTS NECESSARY FOR OPERATION OF THESE SIGNS) UNDER ITEM NO. 2564 (INTERNALLY ILLUMINATED SIGN). SHOULD "ADD ALTERNATE BID" BE ACCEPTED BY COUNTY AND CITY, THE BID ITEM FOR SIGN PANELS TYPE D SIGNALS WILL BE DELETED FROM THE CONTRACT. SEE SPECIAL PROVISIONS AND STATEMENT OF ESTIMATED QUANTITIES.
16) (SIGN) DENOTES MATERIALS AND ELECTRICAL EQUIPMENT INCLUDED AS PART OF INTERNALLY ILLUMINATED SIGN PANEL INSTALLATIONS.

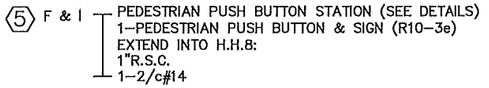


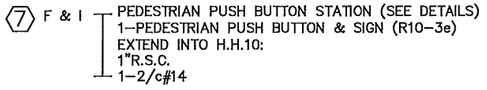












S.A.P. 002-601-048
S.A.P. 127-020-030

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

NO.	BY	DATE	REVISIONS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Date: May 10, 2017
Name: John M Gray, PE
Lic. No. 22457

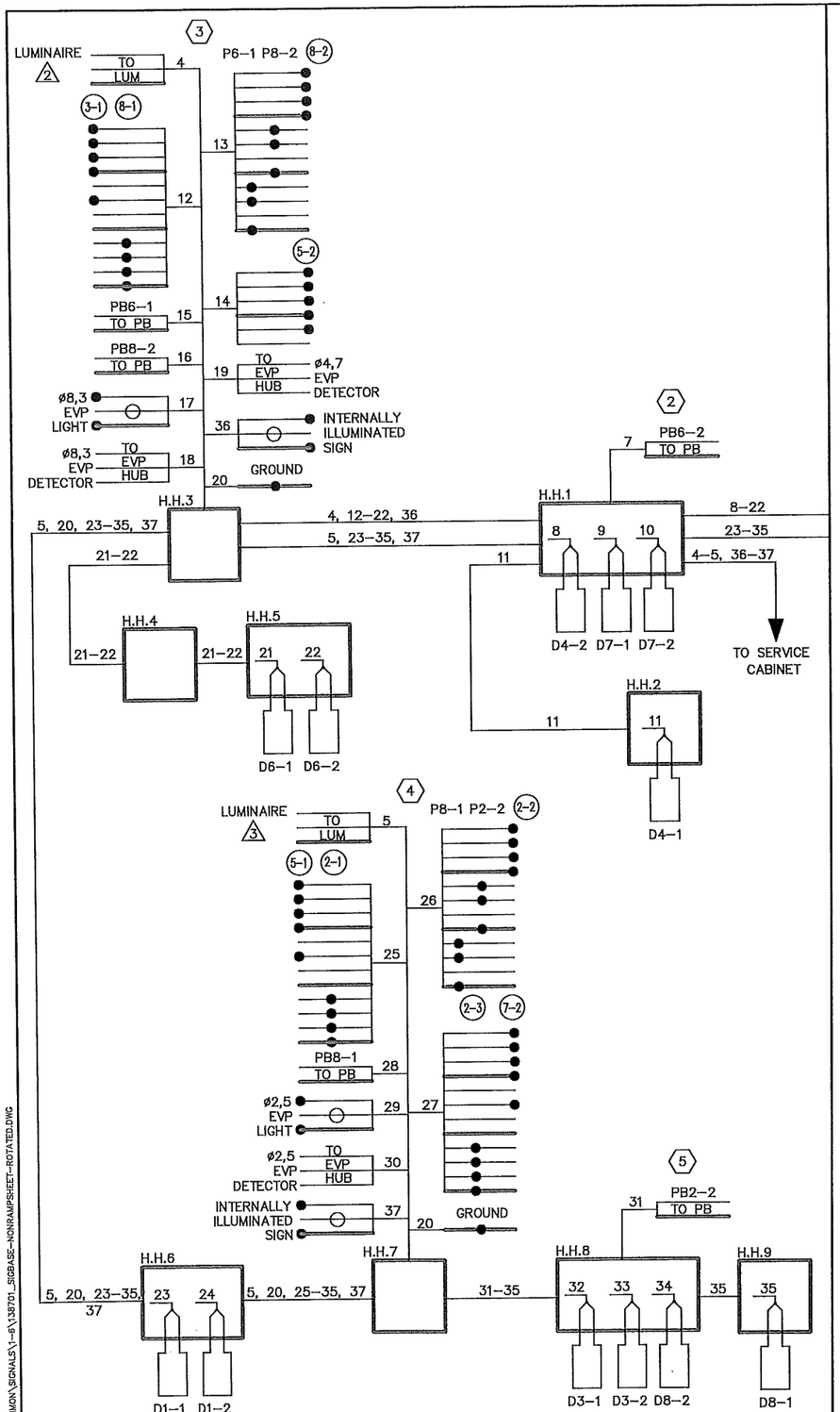
SEH
PHONE: (651) 490-2000
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110

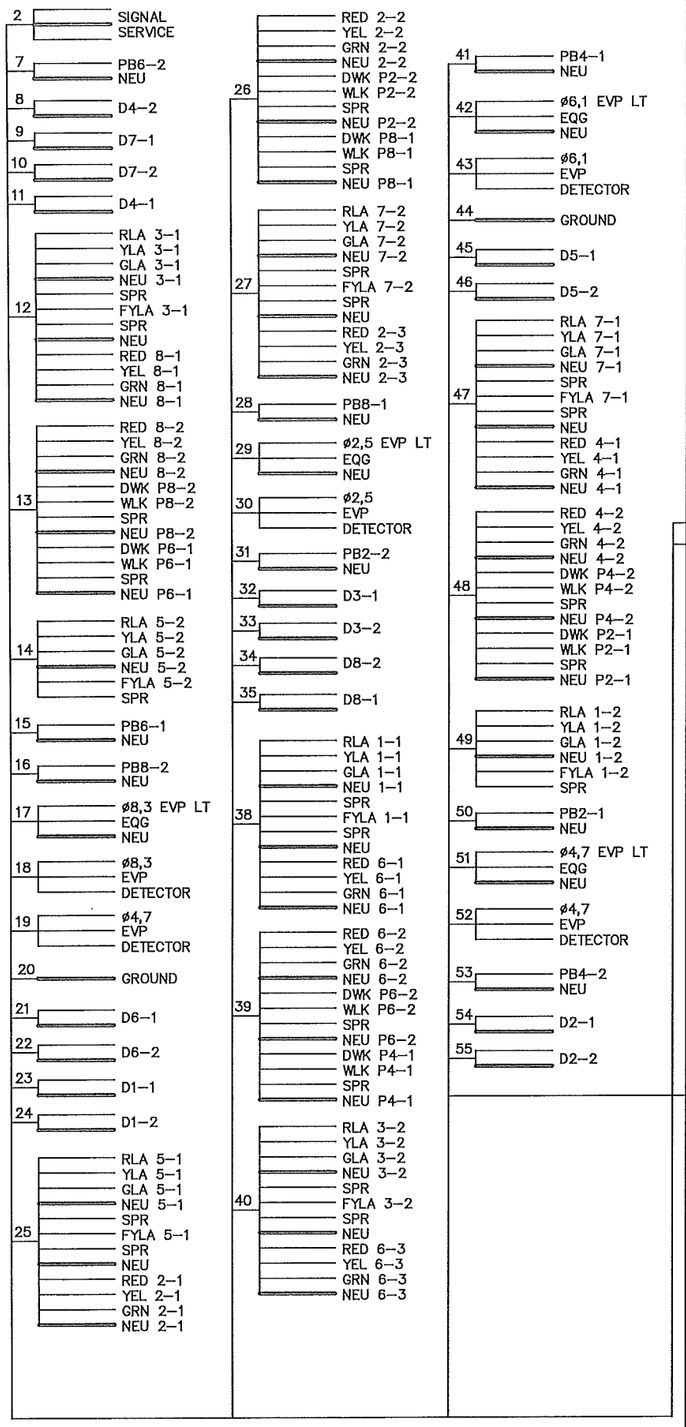
ANOKA COUNTY, MINNESOTA
CITY OF FRIDLEY

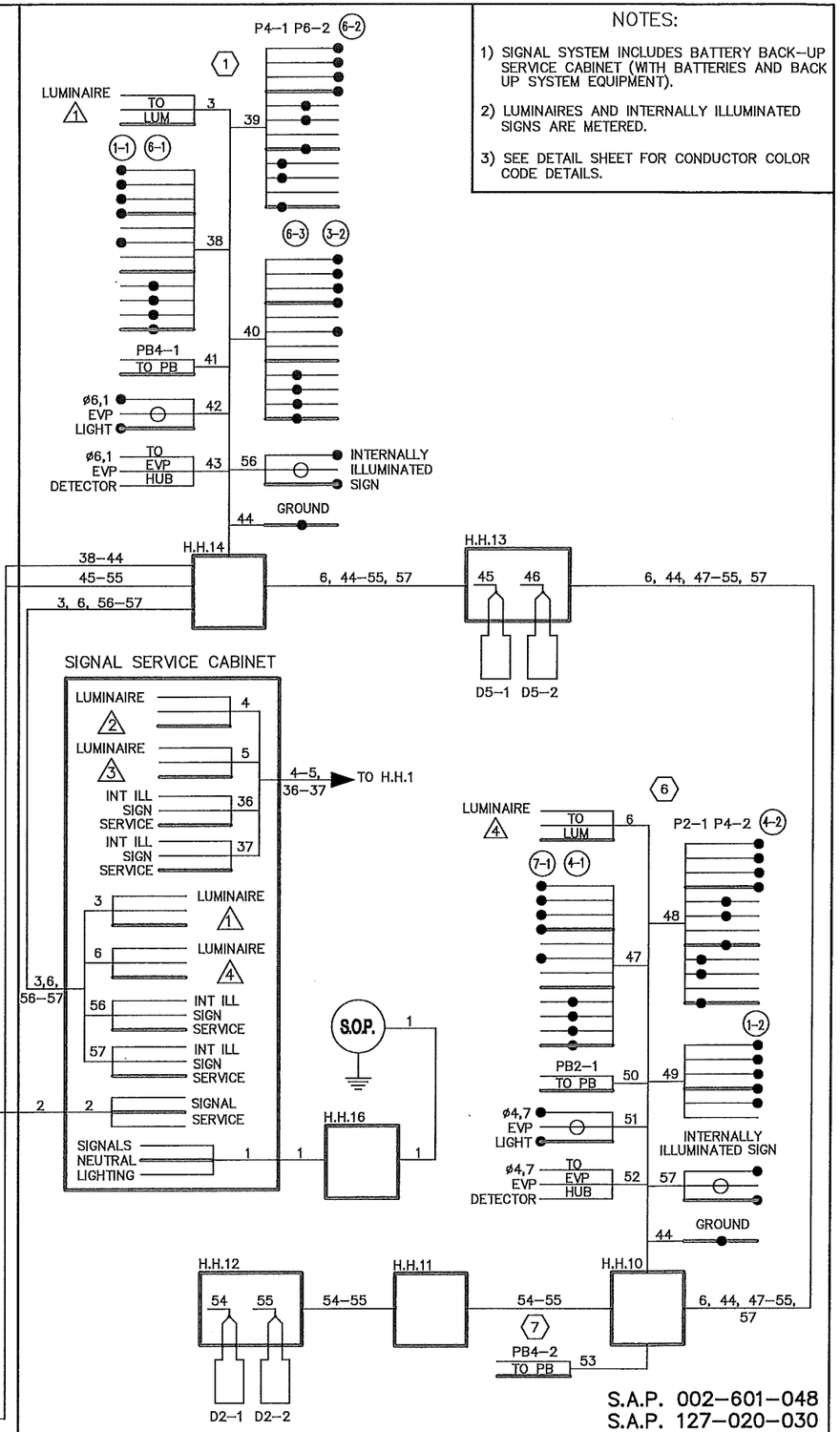
TRAFFIC SIGNAL SYSTEM
POLE AND GENERAL NOTES
CSAH 1 AT CSAH 6/MISSISSIPPI WAY

FILE NO. ANOKC 138701
DATE 05/10/2017
26 / 30

S:\ME\A\ANOKC\COMMON SIGNALS\1-6\138701_SIGBASE-NONRAMPSHEET-ROTATED.DWG







NOTES:

1) SIGNAL SYSTEM INCLUDES BATTERY BACK–UP SERVICE CABINET (WITH BATTERIES AND BACK UP SYSTEM EQUIPMENT).
2) LUMINAIRES AND INTERNALLY ILLUMINATED SIGNS ARE METERED.
3) SEE DETAIL SHEET FOR CONDUCTOR COLOR CODE DETAILS.

S.A.P. 002–601–048
S.A.P. 127–020–030

S:\EVA\ANOKC\COMMON\SIGNALS\1-EV138701_SIGBASE-NONRAMPSHEET-ROTATED.DWG

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

NO.	BY	DATE	REVISIONS

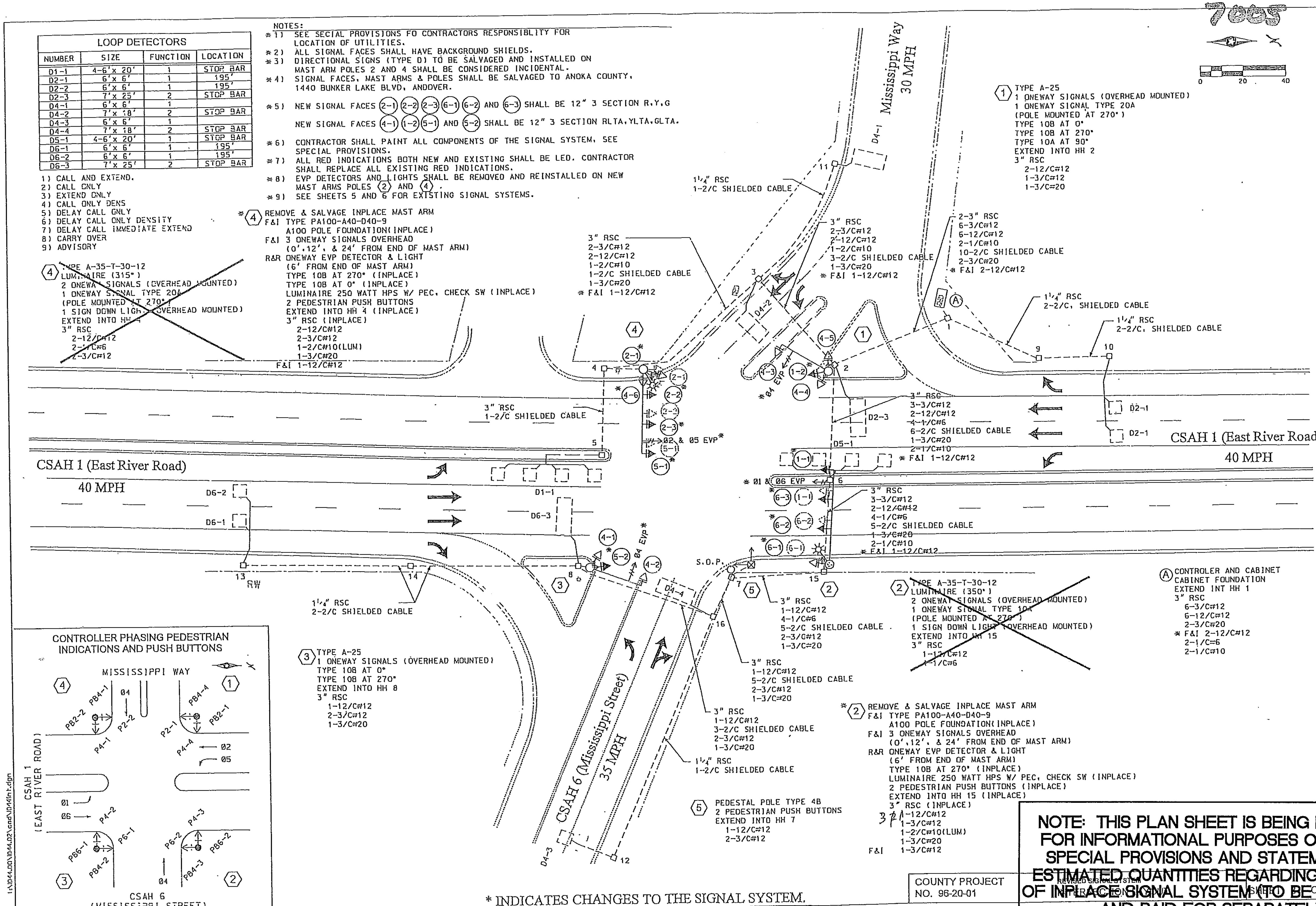
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Date: May 10, 2017
Name: John M Gray, PE
Lic. No. 22457

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

ANOKA COUNTY, MINNESOTA
CITY OF FRIDLEY

TRAFFIC SIGNAL SYSTEM
FIELD WIRING DIAGRAM
CSAH 1 AT CSAH 6/MISSISSIPPI WAY

FILE NO. ANOKC 138701
DATE 05/10/2017
27 / 30



LOOP DETECTORS

NUMBER	SIZE	FUNCTION	LOCATION
D1-1	4-6'x 20'	1	STOP BAR
D2-1	6'x 6'	1	195'
D2-2	6'x 6'	1	195'
D2-3	7'x 25'	2	STOP BAR
D4-1	6'x 6'	1	
D4-2	7'x 18'	2	STOP BAR
D4-3	6'x 6'	1	
D4-4	7'x 18'	2	STOP BAR
D5-1	4-6'x 20'	1	STOP BAR
D6-1	6'x 6'	1	195'
D6-2	6'x 6'	1	195'
D6-3	7'x 25'	2	STOP BAR

1) CALL AND EXTEND.
2) CALL ONLY
3) EXTEND ONLY
4) CALL ONLY DENS
5) DELAY CALL ONLY
6) DELAY CALL ONLY DENSITY
7) DELAY CALL IMMEDIATE EXTEND
8) CARRY OVER
9) ADVISORY

NOTES:

* 1) SEE SECIAL PROVISIONS FO CONTRACTORS RESPONSIBLITY FOR LOCATION OF UTILITIES.
* 2) ALL SIGNAL FACES SHALL HAVE BACKGROUND SHIELDS.
* 3) DIRECTIONAL SIGNS (TYPE D) TO BE SALVAGED AND INSTALLED ON MAST ARM POLES 2 AND 4 SHALL BE CONSIDERED INCIDENTAL.
* 4) SIGNAL FACES, MAST ARMS & POLES SHALL BE SALVAGED TO ANOKA COUNTY, 1440 BUNKER LAKE BLVD, ANDOVER.
* 5) NEW SIGNAL FACES (2-1) (2-2) (2-3) (6-1) (6-2) AND (6-3) SHALL BE 12" 3 SECTION R,Y,G
  NEW SIGNAL FACES (4-1) (1-2) (5-1) AND (5-2) SHALL BE 12" 3 SECTION RLTA,YLTA,GLTA.
* 6) CONTRACTOR SHALL PAINT ALL COMPONENTS OF THE SIGNAL SYSTEM, SEE SPECIAL PROVISIONS.
* 7) ALL RED INDICATIONS BOTH NEW AND EXISTING SHALL BE LED. CONTRACTOR SHALL REPLACE ALL EXISTING RED INDICATIONS.
* 8) EVP DETECTORS AND LIGHTS SHALL BE REMOVED AND REINSTALLED ON NEW MAST ARMS POLES (2) AND (4).
* 9) SEE SHEETS 5 AND 6 FOR EXISTING SIGNAL SYSTEMS.

*(4) REMOVE & SALVAGE INPLACE MAST ARM
F&I TYPE PA100-A40-D40-9
A100 POLE FOUNDATION(INPLACE)
F&I 3 ONEWAY SIGNALS OVERHEAD (0',12', & 24' FROM END OF MAST ARM)
R&R ONEWAY EVP DETECTOR & LIGHT (6' FROM END OF MAST ARM)
TYPE 10B AT 270° (INPLACE)
TYPE 10B AT 0° (INPLACE)
LUMINAIRE 250 WATT HPS W/ PEC, CHECK SW (INPLACE)
2 PEDESTRIAN PUSH BUTTONS
EXTEND INTO HH 4 (INPLACE)
3" RSC (INPLACE)
2-12/C#12
2-3/C#12
1-2/C#10(LUM)
1-3/C#20
F&I 1-12/C#12

(4) TYPE A-35-T-30-12
LUMINAIRE (315°)
2 ONEWAY SIGNALS (OVERHEAD MOUNTED)
1 ONEWAY SIGNAL TYPE 20A (POLE MOUNTED AT 270°)
1 SIGN DOWN LIGHT (OVERHEAD MOUNTED)
EXTEND INTO HH 4
3" RSC
2-12/C#12
2-1/C#6
2-3/C#12

(1) TYPE A-25
1 ONEWAY SIGNALS (OVERHEAD MOUNTED)
1 ONEWAY SIGNAL TYPE 20A (POLE MOUNTED AT 270°)
TYPE 10B AT 0°
TYPE 10B AT 270°
TYPE 10A AT 90°
EXTEND INTO HH 2
3" RSC
2-12/C#12
1-3/C#12
1-3/C#20

(2) TYPE A-35-T-30-12
LUMINAIRE (350°)
2 ONEWAY SIGNALS (OVERHEAD MOUNTED)
1 ONEWAY SIGNAL TYPE 10A (POLE MOUNTED AT 270°)
1 SIGN DOWN LIGHT (OVERHEAD MOUNTED)
EXTEND INTO HH 15
3" RSC
1-12/C#12
1-1/C#6

(3) TYPE A-25
1 ONEWAY SIGNALS (OVERHEAD MOUNTED)
TYPE 10B AT 0°
TYPE 10B AT 270°
EXTEND INTO HH 8
3" RSC
1-12/C#12
2-3/C#12
1-3/C#20

*(2) REMOVE & SALVAGE INPLACE MAST ARM
F&I TYPE PA100-A40-D40-9
A100 POLE FOUNDATION(INPLACE)
F&I 3 ONEWAY SIGNALS OVERHEAD (0',12', & 24' FROM END OF MAST ARM)
R&R ONEWAY EVP DETECTOR & LIGHT (6' FROM END OF MAST ARM)
TYPE 10B AT 270° (INPLACE)
LUMINAIRE 250 WATT HPS W/ PEC, CHECK SW (INPLACE)
2 PEDESTRIAN PUSH BUTTONS (INPLACE)
EXTEND INTO HH 15 (INPLACE)
3" RSC (INPLACE)
1-12/C#12
1-3/C#12
1-2/C#10(LUM)
1-3/C#20
F&I 1-3/C#12

(5) PEDESTAL POLE TYPE 4B
2 PEDESTRIAN PUSH BUTTONS
EXTEND INTO HH 7
1-12/C#12
2-3/C#12

(A) CONTROLER AND CABINET
CABINET FOUNDATION
EXTEND INT HH 1
3" RSC
6-3/C#12
6-12/C#12
2-3/C#20
* F&I 2-12/C#12
2-1/C#6
2-1/C#10

* INDICATES CHANGES TO THE SIGNAL SYSTEM.

COUNTY PROJECT NO. 96-20-01

NOTE: THIS PLAN SHEET IS BEING PROVIDED FOR INFORMATIONAL PURPOSES ONLY. SEE SPECIAL PROVISIONS AND STATEMENT OF ESTIMATED QUANTITIES REGARDING REMOVAL OF INPLACE SIGNAL SYSTEM (TO BE MEASURED AND PAID FOR SEPARATELY).

CSAH 1 (East River Road) & CSAH 6 (Mississippi Street) / Mississippi Way
Fridley, Anoka County, Minnesota

S.A.P. 002-601-048
S.A.P. 127-020-030

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

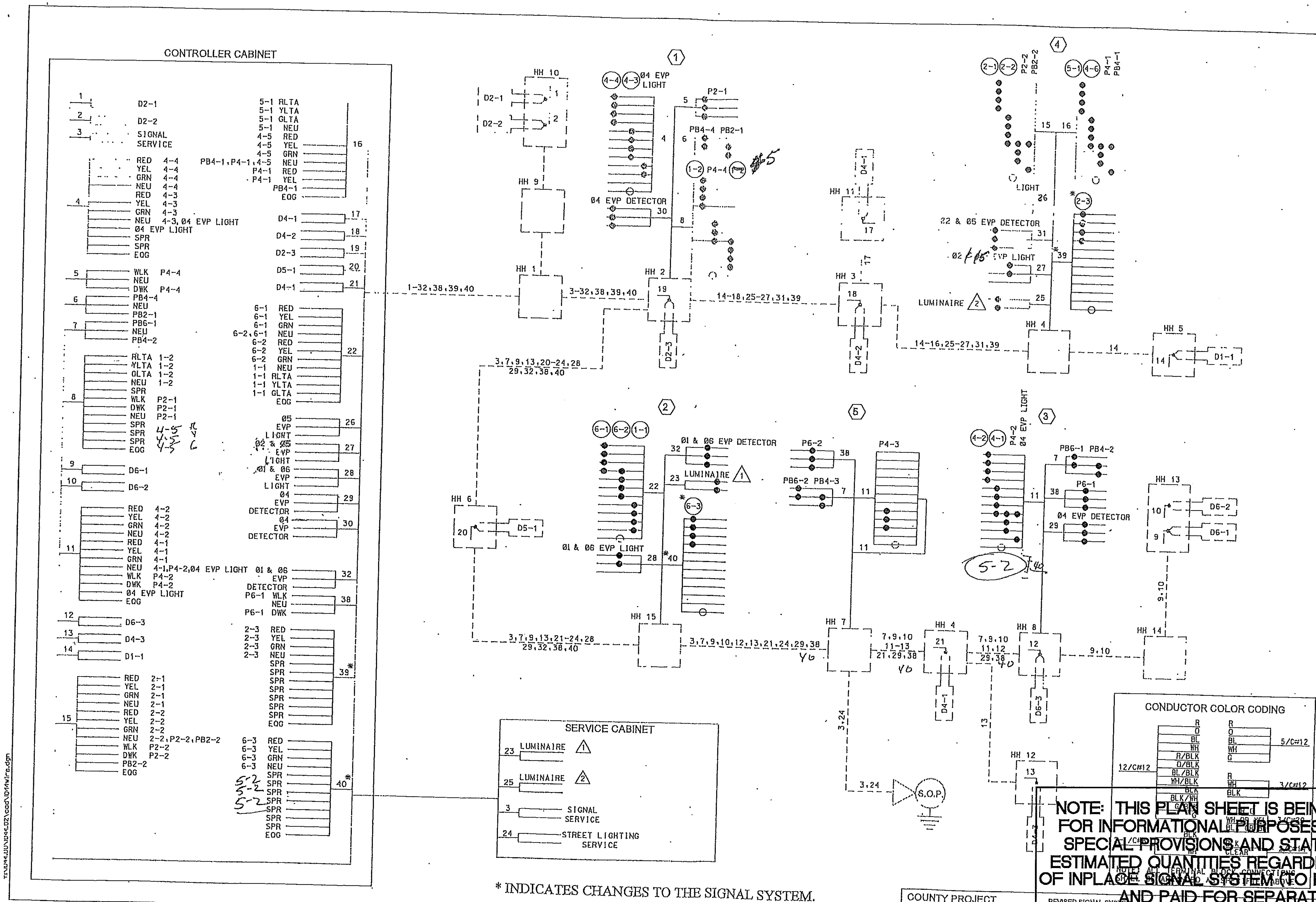
NO. | BY | DATE | REVISIONS

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

ANOKA COUNTY, MINNESOTA
CITY OF FRIDLEY

INPLACE SIGNAL SYSTEM
"FOR INFORMATION ONLY"
CSAH 1 AT CSAH 6/MISSISSIPPI WAY

FILE NO. ANOKC 138701
DATE 05/10/2017



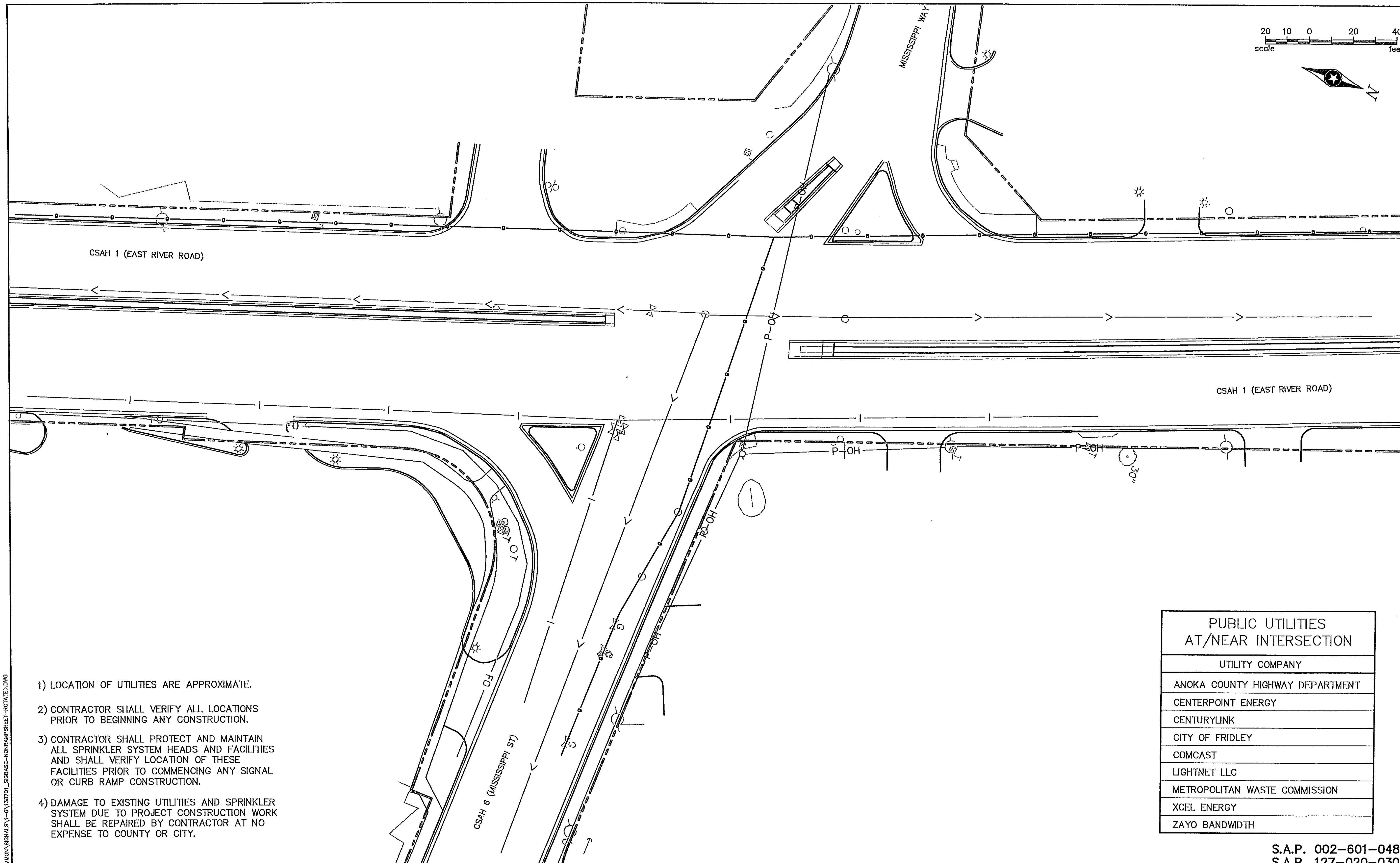
* INDICATES CHANGES TO THE SIGNAL SYSTEM.

CSAH 1 (East River Road)
& CSAH 6 (Mississippi Street)
/ Mississippi Way
Fridley, Anoka County, Minnesota

NOTE: THIS PLAN SHEET IS BEING PROVIDED FOR INFORMATIONAL PURPOSES ONLY. SEE SPECIAL PROVISIONS AND STATEMENT OF ESTIMATED QUANTITIES REGARDING REMOVAL OF INPLACE SIGNAL SYSTEM (TO BE MEASURED AND PAID FOR SEPARATELY).

S.A.P. 002-601-048
S.A.P. 127-020-030

DRAWN BY: JMG DESIGNER: JMG CHECKED BY: JMG DESIGN TEAM	NO.	BY	DATE	REVISIONS	SEH PHONE: (651) 490-2000 3535 VADNAIS CENTER DR. ST. PAUL, MN 55110	ANOKA COUNTY, MINNESOTA CITY OF FRIDLEY	INPLACE SIGNAL SYSTEM "FOR INFORMATION ONLY" CSAH 1 AT CSAH 6/MISSISSIPPI WAY	FILE NO. ANOKC 138701 DATE 05/10/2017	29 / 30



1) LOCATION OF UTILITIES ARE APPROXIMATE.

2) CONTRACTOR SHALL VERIFY ALL LOCATIONS PRIOR TO BEGINNING ANY CONSTRUCTION.

3) CONTRACTOR SHALL PROTECT AND MAINTAIN ALL SPRINKLER SYSTEM HEADS AND FACILITIES AND SHALL VERIFY LOCATION OF THESE FACILITIES PRIOR TO COMMENCING ANY SIGNAL OR CURB RAMP CONSTRUCTION.

4) DAMAGE TO EXISTING UTILITIES AND SPRINKLER SYSTEM DUE TO PROJECT CONSTRUCTION WORK SHALL BE REPAIRED BY CONTRACTOR AT NO EXPENSE TO COUNTY OR CITY.

PUBLIC UTILITIES AT/NEAR INTERSECTION
UTILITY COMPANY
ANOKA COUNTY HIGHWAY DEPARTMENT
CENTERPOINT ENERGY
CENTURYLINK
CITY OF FRIDLEY
COMCAST
LIGHTNET LLC
METROPOLITAN WASTE COMMISSION
XCEL ENERGY
ZAYO BANDWIDTH

S.A.P. 002-601-048
S.A.P. 127-020-030

S:\AE\A\ANOKC\COMMON\SIGNALS\1-6\138701_SIGBASE-NONRAMPSHEET-ROTATED.DWG

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

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

Date: May 10, 2017 Name: John M Gray, PE Lic. No. 22457

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

ANOKA COUNTY, MINNESOTA
CITY OF FRIDLEY

TRAFFIC SIGNAL SYSTEM
UTILITIES
CSAH 1 AT CSAH 6/MISSISSIPPI WAY

FILE NO. ANOKC 138701
DATE 05/10/2017