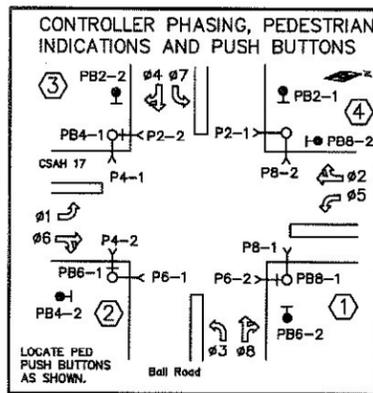
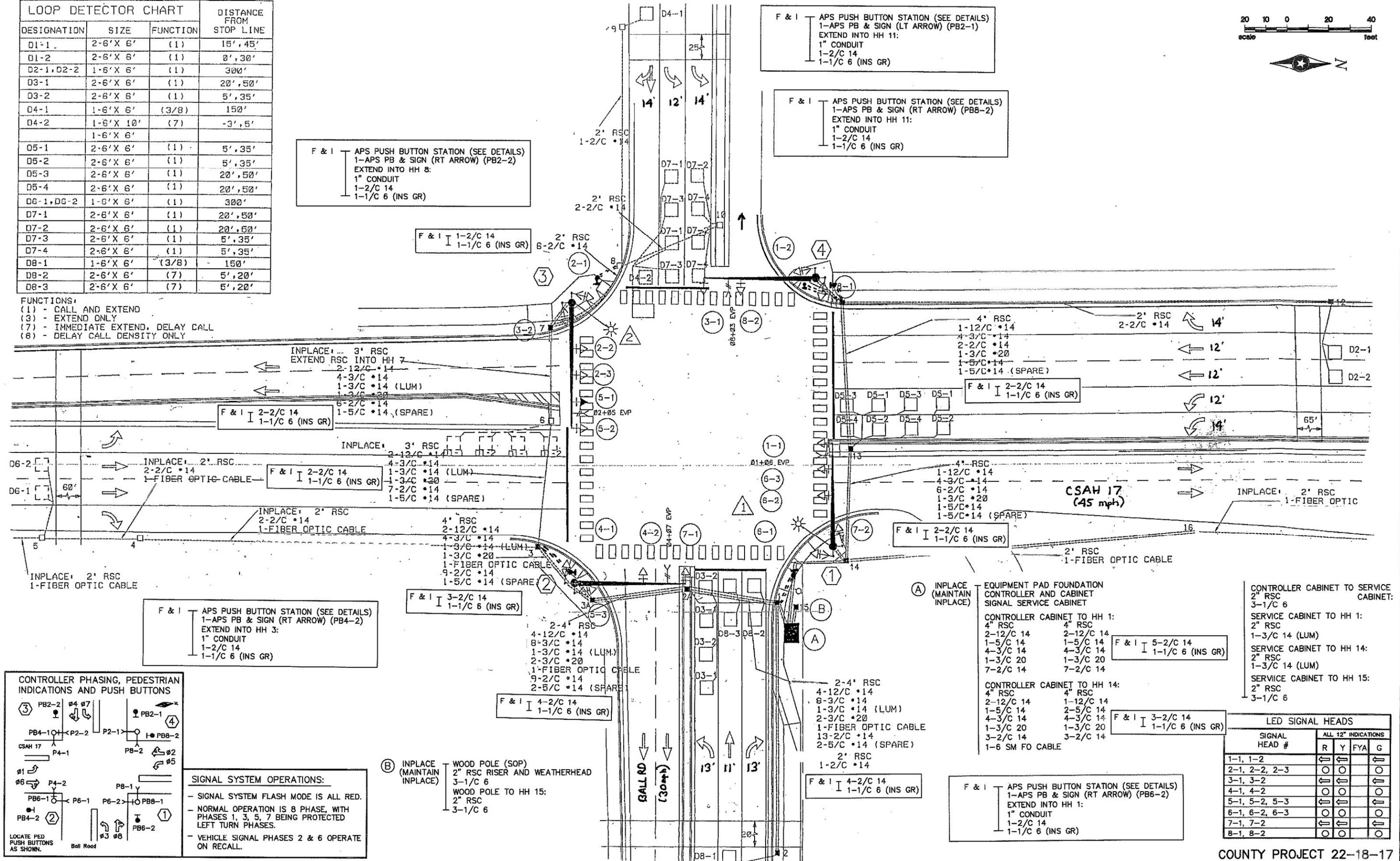
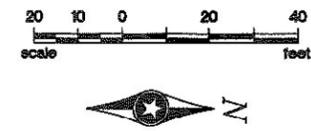


LOOP DETECTOR CHART

DESIGNATION	SIZE	FUNCTION	DISTANCE FROM STOP LINE
D1-1	2-6'X 6'	(1)	15', 45'
D1-2	2-6'X 6'	(1)	0', 30'
D2-1, D2-2	1-6'X 6'	(1)	300'
D3-1	2-6'X 6'	(1)	20', 50'
D3-2	2-6'X 6'	(1)	5', 35'
D4-1	1-6'X 6'	(3/8)	150'
D4-2	1-6'X 10'	(7)	-3', 5'
D5-1	2-6'X 6'	(1)	5', 35'
D5-2	2-6'X 6'	(1)	5', 35'
D5-3	2-6'X 6'	(1)	20', 50'
D5-4	2-6'X 6'	(1)	20', 50'
D6-1, D6-2	1-6'X 6'	(1)	300'
D7-1	2-6'X 6'	(1)	20', 50'
D7-2	2-6'X 6'	(1)	20', 50'
D7-3	2-6'X 6'	(1)	5', 35'
D7-4	2-6'X 6'	(1)	5', 35'
D8-1	1-6'X 6'	(3/8)	150'
D8-2	2-6'X 6'	(7)	5', 20'
D8-3	2-6'X 6'	(7)	5', 20'

FUNCTIONS:
 (1) - CALL AND EXTEND
 (3) - EXTEND ONLY
 (7) - IMMEDIATE EXTEND, DELAY CALL
 (8) - DELAY CALL DENSITY ONLY



SIGNAL SYSTEM OPERATIONS:
 - SIGNAL SYSTEM FLASH MODE IS ALL RED.
 - NORMAL OPERATION IS 8 PHASE, WITH PHASES 1, 3, 5, 7 BEING PROTECTED LEFT TURN PHASES.
 - VEHICLE SIGNAL PHASES 2 & 6 OPERATE ON RECALL.

(B) INPLACE (MAINTAIN INPLACE)
 WOOD POLE (SOP)
 2" RSC RISER AND WEATHERHEAD
 3-1/C 6
 WOOD POLE TO HH 15:
 2" RSC
 3-1/C 6

LED SIGNAL HEADS

SIGNAL HEAD #	ALL 12" INDICATIONS			
	R	Y	FYA	G
1-1, 1-2	←	←	←	←
2-1, 2-2, 2-3	○	○	○	○
3-1, 3-2	←	←	←	←
4-1, 4-2	←	←	←	←
5-1, 5-2, 5-3	←	←	←	←
6-1, 6-2, 6-3	←	←	←	←
7-1, 7-2	←	←	←	←
8-1, 8-2	○	○	○	○

DESIGN TEAM

NO.	BY	DATE

REVISIONS

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

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

ANOKA COUNTY
 CITY OF BLAINE

REVISE SIGNAL SYSTEM 'D'
 INTERSECTION LAYOUT
 CSAH 17 (LEXINGTON AVENUE)
 AT BALL ROAD

FILE NO. ANOKC 122928
 SIGNAL SHEET 17 OF 35
63D
94

REVISE SIGNAL SYSTEM D NOTES:

- 1) ALL ITEMS OF THIS SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, UNLESS BOXED IN AND NOTED OTHERWISE ON PLANS.
- 2) ALL HANDHOLES ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, EXCEPT AS FOLLOWS:
 - ADJUST HANDHOLES 3A, 7, AND 8 FINISHED SURROUNDING SIDEWALK, MEDIAN, OR BOULEVARD GRADE AFTER ALL WORK IS COMPLETED (REUSE EXISTING METAL FRAMES/COVERS).
 - ALL HANDHOLE ADJUSTMENT WORK IS INCLUDED AS PART OF THE PAY ITEM FOR ITEM NO. 2565 (REVISE SIGNAL SYSTEM D). SEE DETAILS & SPECIAL PROVISIONS FOR FURTHER INFORMATION.
- 3) LOCATION OF NEW PUSH BUTTON STATIONS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- 4) ALL CABLES AND CONDUCTORS, CONDUIT, HANDHOLES, AND LOOP DETECTORS ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, EXCEPT WHERE BOXED IN AND DENOTED OTHERWISE.
- 5) LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) 12 AWG IN 3/4" NMC. LOOP DETECTORS IMPACTED BY EITHER CURB RAMP WORK OR MILL/OVERLAY WORK SHALL BE FURNISHED, INSTALLED & MADE OPERATIONAL BY CONTRACTOR TO SATISFACTION OF ENGINEER. SEE DETAILS & SPECIAL PROVISIONS.
- 6) CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING LOOP DETECTOR SPLICE KITS (FOR ANY LOOP DETECTOR BEING REPLACED AS PART OF THIS PROJECT) AND SHALL FURNISH AND INSTALL NEW LOOP DETECTOR SPLICE KITS IN THE ADJACENT HANDHOLE FOR THESE LOOP DETECTORS AS CALLED FOR IN THE SPECIAL PROVISIONS.
- 7) A SEPARATE PAY ITEM HAS BEEN ADDED (2565 - RIGID PVC LOOP DETECTOR 6' x 6') FOR REPLACEMENT OF LOOP DETECTORS, SHOULD THESE LOOP DETECTORS BE REQUIRED TO BE REPLACED BY THE CONTRACTOR EITHER DUE TO MILL/OVERLAY OR CURB RAMP/CURB AND GUTTER WORK THAT CAUSES THE EXISTING LOOP DETECTOR TO BE DAMAGED. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO PROTECT AND MAINTAIN THE EXISTING LOOP DETECTORS (INCLUDING LEAD-IN CONDUITS FROM HANDHOLE TO IN-PAVEMENT LOOP DETECTOR CONDUIT) AND SHALL NOTIFY THE ENGINEER IF THEY ANTICIPATE THAT A LOOP DETECTOR WILL BE DAMAGED DUE TO THEIR WORK. COUNTY WILL PROVIDE INITIAL LOCATION OF THESE LOOP DETECTORS FOR CONTRACTOR TO BE ABLE TO PLAN FOR WORKING AROUND THESE LOOP DETECTORS. SEE SPECIAL PROVISIONS.
- 8) 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 PLACED INTO ALL-RED FLASH DURING NON-PEAK TRAFFIC PERIODS (FOR WORK THAT REQUIRES THE SIGNAL SYSTEM TO BE OUT OF OPERATION OR TO ACCOMMODATE ROAD WORK AT THE INTERSECTION).
- 9) ANY DAMAGE TO INPLACE TRAFFIC SIGNAL FACILITIES (CONDUIT, CABLES, HANDHOLES, SIGNAL POLES, ETC.), DUE TO TRAFFIC SIGNAL OR ROAD WORK, SHALL BE REPAIRED BY CONTRACTOR TO SATISFACTION OF THE ENGINEER, AT NO EXPENSE TO THE COUNTY.
- 10) F & I = NEW, FURNISH AND INSTALL.
S & I = INPLACE, SALVAGE AND INSTALL.

① INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION
 TYPE PA100-A-50-D30-9 (DAVIT AT 350 DEG)
 LUMINAIRE-LED
 3-ONE WAY SIGNALS-OVERHEAD (0', 12', 24')
 ONE WAY (ANGLE MOUNT) SIGNALS AT 90/180 DEG
 2-SETS CD PED INDICATIONS (ANGLE MOUNT) AT 90/180 DEG
 TYPE D SIGN PANEL-OVERHEAD
 ONE WAY EVP DETECTOR & LIGHT-OVERHEAD (ø6,1)
 EXTENDED INTO HH 14:
 3" RSC
 2-12/C 14
 1-5/C 14
 4-3/C 14
 1-3/C 20
 1-3/C 14 (LUM)

INPLACE (SALVAGE) 2-PEDESTRIAN PUSH BUTTONS AT 0/270 DEG
 2-R10-3e METAL SIGNS AT 0/270 DEG
 F & I 1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR AT 270 DEG (PB8-1)
 PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 0/270 DEG)
 1-2/C 14

③ INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION
 TYPE PA100-A-55-D30-9 (DAVIT AT 350 DEG)
 LUMINAIRE-LED
 4-ONE WAY SIGNALS-OVERHEAD (0', 12', 24', 36')
 ONE WAY (ANGLE MOUNT) SIGNALS AT 90/180 DEG
 2-SETS CD PED INDICATIONS (ANGLE MOUNT) AT 90/180 DEG
 TYPE D SIGN PANEL-OVERHEAD
 ONE WAY EVP DETECTOR & LIGHT-OVERHEAD (ø2,5)
 EXTENDED INTO HH 7:
 3" RSC
 2-12/C 14
 1-5/C 14
 4-3/C 14
 1-3/C 20
 1-3/C 14 (LUM)

INPLACE (SALVAGE) 2-PEDESTRIAN PUSH BUTTONS AT 0/270 DEG
 2-R10-3e METAL SIGNS AT 0/270 DEG
 F & I 1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR AT 270 DEG (PB4-1)
 PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 0/270 DEG)
 1-2/C 14

② INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION
 TYPE PA100-A-50
 2-ONE WAY SIGNALS-OVERHEAD (0', 22')
 ONE WAY (ANGLE MOUNT) SIGNALS AT 90/180 DEG
 2-SETS CD PED INDICATIONS (ANGLE MOUNT) AT 90/180 DEG
 TYPE D SIGN PANEL-OVERHEAD
 ONE WAY EVP DETECTOR & LIGHT-OVERHEAD (ø4,7)
 EXTENDED INTO HH 3A:
 3" RSC
 2-12/C 14
 1-5/C 14
 4-3/C 14
 1-3/C 20

INPLACE (SALVAGE) 2-PEDESTRIAN PUSH BUTTONS AT 90/180 DEG
 2-R10-3e METAL SIGNS AT 90/180 DEG
 F & I 1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR AT 270 DEG (PB2-1)
 PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 90/180 DEG)
 1-2/C 14

④ INPLACE (MAINTAIN INPLACE) PA100 POLE FOUNDATION
 TYPE PA100-A-50
 2-ONE WAY SIGNALS-OVERHEAD (0', 17')
 ONE WAY (ANGLE MOUNT) SIGNALS AT 90/180 DEG
 2-SETS CD PED INDICATIONS (ANGLE MOUNT) AT 90/180 DEG
 TYPE D SIGN PANEL-OVERHEAD
 ONE WAY EVP DETECTOR & LIGHT-OVERHEAD (ø8,3)
 EXTENDED INTO HH 11:
 3" RSC
 1-12/C 14
 2-5/C 14
 4-3/C 14
 1-3/C 20

INPLACE (SALVAGE) 2-PEDESTRIAN PUSH BUTTONS AT 0/270 DEG
 2-R10-3e METAL SIGNS AT 0/270 DEG
 F & I PLUG HOLES ON MAST ARM POLE WHERE PUSH BUTTONS USED TO BE (AT 0/270 DEG)

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
 Lic. No. 22457
 Date: May 9, 2022

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 CITY OF BLAINE

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 SIGNAL SYSTEM NOTES
 CSAH 17 (LEXINGTON AVENUE)
 AT BALL ROAD

FILE NO. ANOKC 122928
 SIGNAL SHEET 18 OF 35
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