

| SIGNAL HEAD CHART | | | | |
|-------------------|---|---|-----|---|
| FACE | R | Y | FYA | G |
| 1-1, 1-2 | ← | ← | ← | ← |
| 2-1, 2-2, 2-3 | ● | ● | ● | ● |
| 3-1, 3-2 | ← | ← | ← | ← |
| 4-1, 4-2 | ● | ● | ● | ● |
| 5-1, 5-2 | ← | ← | ← | ← |
| 6-1, 6-2, 6-3 | ● | ● | ● | ● |
| 7-1, 7-2 | ← | ← | ← | ← |
| 8-1, 8-2 | ● | ● | ● | ● |

-ALL SIGNAL INDICATIONS SHALL BE 12" LED
-ALL SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS
-FYA DENOTES FLASHING YELLOW ARROW

PED PB STATION
1-APS PB AND SIGN (RT ARROW) (PB6-2)
EXTEND INTO HH 26:
1" CONDUIT
1-2/C 14
1-1/2 6 INS. GR.

PED PB STATION
1-APS PB AND SIGN (LT ARROW) (PB4-1)
EXTEND INTO HH 14:
1" CONDUIT
1-2/C 14
1-1/2 6 INS. GR.

INPLACE: 1 1/4" RSC
REMOVE: 1-2/C 14
EXTEND: 1 1/4" RSC TO 26
F&I: 1-2/C 14

4" CONDUIT
3-6/C 16
4-4/C 16
*1-3/C 16
*1-3/C 20
10-2/C 14
2-3/C 16 (LUM)
1-1/2 6 INS. GR.

INPLACE: 1 1/2" CONDUIT
1-FO CABLE (12SM)

4" CONDUIT
3-6/C 16
4-4/C 16
*1-3/C 16
*1-3/C 20
1-3/C 16 (LUM)
1-1/2 6 INS. GR.

INPLACE: 2" RSC
REMOVE: 1-3/C 20
EXTEND: 2" RSC TO HH 1
F&I: 1-3/C 20

**F&I: 1.5" CONDUIT
1-FO ARMORED CABLE (12SM)

**REINSTALL: 1-FO CABLE (12SM)

4" CONDUIT
6-6/C 16
9-4/C 16
*2-3/C 16
*2-3/C 20
16-2/C 14
2-3/C 16 (LUM)
1-CAT 5E (CCTV)
1-1/2 6 INS. GR.

INPLACE: 2" RSC
REMOVE: 1-3/C 20
EXTEND: 2" RSC TO HH 1
F&I: 1-3/C 20

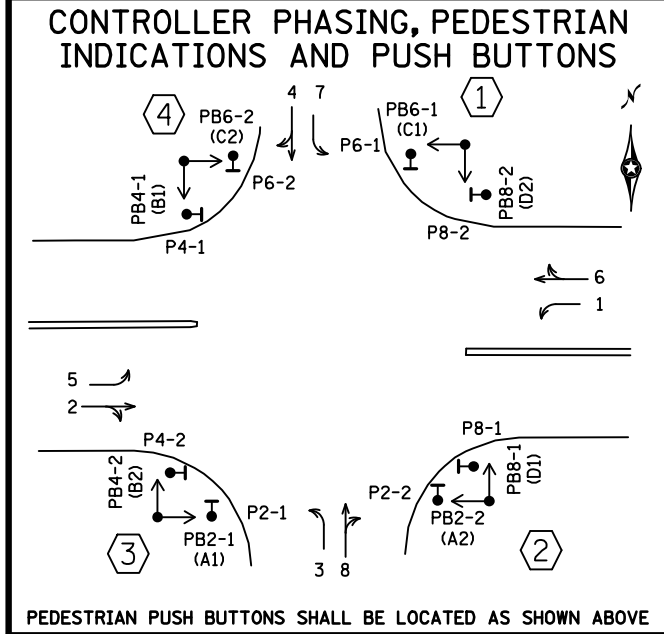
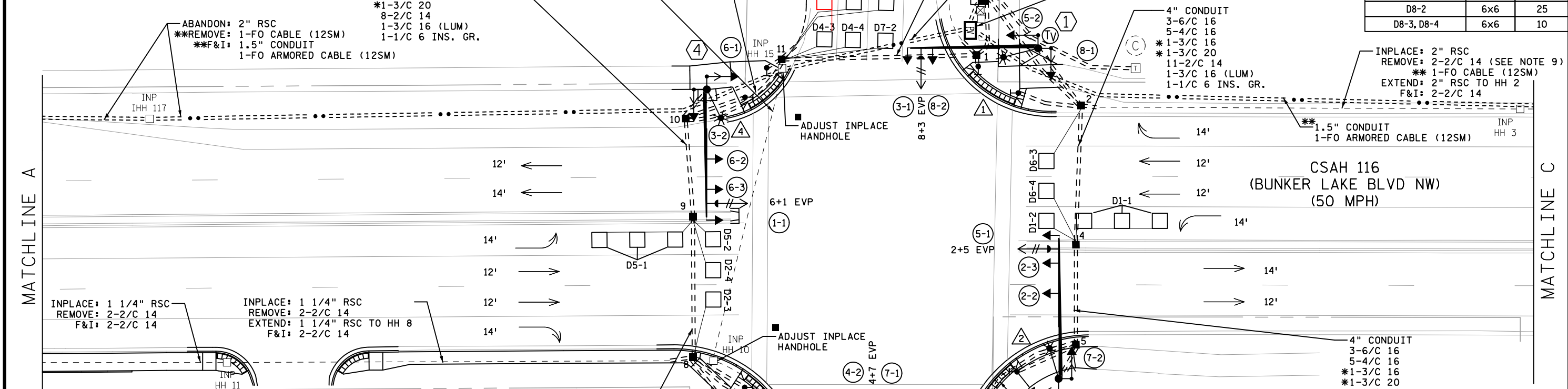
**F&I: 1.5" CONDUIT
1-FO ARMORED CABLE (12SM)

**REINSTALL: 1-FO CABLE (12SM)

PED PB STATION
1-APS PB AND SIGN (RT ARROW) (PB8-1)
EXTEND INTO HH 1:
1" CONDUIT
1-2/C 14
1-1/2 6 INS. GR.

PED PB STATION
1-APS PB AND SIGN (RT ARROW) (PB8-2)
EXTEND INTO HH 2:
1" CONDUIT
1-2/C 14
1-1/2 6 INS. GR.

| LOOP DETECTOR CHART | | |
|---------------------|-----------|------------|
| NUMBER | SIZE (FT) | LOCATION |
| D1-1, D5-1 | 3-6x6 | 25, 40, 55 |
| D1-2, D5-2 | 6x6 | 10 |
| D2-1, D2-2 | 6x6 | 405 |
| D2-3, D2-4 | 6x6 | 25 |
| D2-6, D2-7 | 6x6 | 10 |
| D3-1, D7-1 | 3-6x6 | 25, 40, 55 |
| D3-2, D7-2 | 6x6 | 10 |
| D4-1 | 6x6 | 380 |
| D4-2 | 6x6 | 25 |
| D4-3, D4-4 | 6x6 | 10 |
| D6-1, D6-2 | 6x6 | 405 |
| D6-3, D6-4 | 6x6 | 10 |
| D8-1 | 6x6 | 405 |
| D8-2 | 6x6 | 25 |
| D8-3, D8-4 | 6x6 | 10 |



PED PB STATION
1-APS PB AND SIGN (RT ARROW) (PB4-2)
EXTEND INTO HH 25:
1" CONDUIT
1-2/C 14
1-1/2 6 INS. GR.

PED PB STATION
1-APS PB AND SIGN (LT ARROW) (PB2-1)
EXTEND INTO HH 25:
1" CONDUIT
1-2/C 14
1-1/2 6 INS. GR.

INPLACE: 1 1/2" CONDUIT
1-FO CABLE (12SM)

SIGNAL SYSTEM OPERATION

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

4" CONDUIT
3-6/C 16
4-4/C 16
*1-3/C 16
*1-3/C 20
5-2/C 14
1-3/C 16 (LUM)
1-1/2 6 INS. GR.

PED PB STATION
1-APS PB AND SIGN (RT ARROW) (PB2-2)
EXTEND INTO INP HH 7:
1" CONDUIT
1-2/C 14
1-1/2 6 INS. GR.

INPLACE: 1 1/4" RSC
REMOVE: 1-2/C 14
EXTEND: 1 1/4" RSC TO HH 6
F&I: 1-2/C 14

PED PB STATION
1-APS PB AND SIGN (LT ARROW) (PB8-1)
EXTEND INTO HH 6:
1" CONDUIT
1-2/C 14
1-1/2 6 INS. GR.

PED PB STATION
1-APS PB AND SIGN (RT ARROW) (PB2-2)
EXTEND INTO INP HH 7:
1" CONDUIT
1-2/C 14
1-1/2 6 INS. GR.

- NOTES:**
- SEE THE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
 - THE EXACT LOCATION OF THE HANDHOLES, LOOP DETECTORS, UNDERGROUND CONDUIT, AND THE EQUIPMENT PAD ARE DETERMINED IN THE FIELD. VERIFY THE LOCATIONS OF ALL SIGNAL COMPONENTS WITH ANOKA COUNTY PERSONNEL. CONDUITS UNDER ROADWAYS TYPICALLY REQUIRE BORING.
 - ALL SIGNAL MOUNTED SIGNS ARE INCLUDED IN PAYMENT WITH THE LUMP SUM SIGNAL SYSTEM PAY ITEM. SEE SIGNING DETAIL SHEET FOR MAST ARM MOUNTED SIGNS.
 - SEE CONSTRUCTION PLANS FOR PAVEMENT MARKINGS.
 - CONSTRUCTION OF PEDESTRIAN CURB RAMPS, CONCRETE WALK AND MEDIAN WORK ARE INCLUDED WITH THE ADA PLAN AND ARE PAID FOR SEPARATELY.
 - USE PVC OR HDPE FOR NEW CONDUIT. CONDUIT SIZES ARE NOMINAL DIAMETER.
 - ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EMERGENCY VEHICLE PREEMPTION SYSTEM C PAY ITEM.
 - ITEMS DENOTED WITH AN ** ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECTION PAY ITEM.
 - REMOVAL OF THE EXISTING SIGNAL IS INCLUDED IN THE PAYMENT FOR THE REMOVAL SIGNAL SYSTEM PAY ITEM. REFER TO THE "EXISTING SIGNAL SYSTEM AS BUILT" SHEETS FOR INPLACE SIGNAL SYSTEM COMPONENTS.
 - ALL ITEMS ARE TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNLESS OTHERWISE NOTED.
 - ALL ITEMS DENOTED WITH A ■ ARE TO BE PAID FOR AS INDIVIDUAL PAY ITEMS. SEE STATEMENT OF ESTIMATED QUANTITIES.
 - SEE SECTIONS 1806 (DETERMINATION AND EXTENSION OF CONTRACT TIME) AND 2563 (TRAFFIC CONTROL) IN THE SPECIAL PROVISIONS FOR IMPORTANT TRAFFIC SIGNAL STAGING REQUIREMENTS.

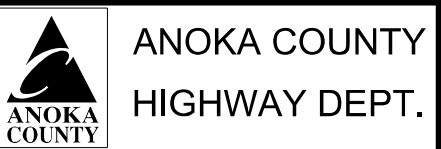
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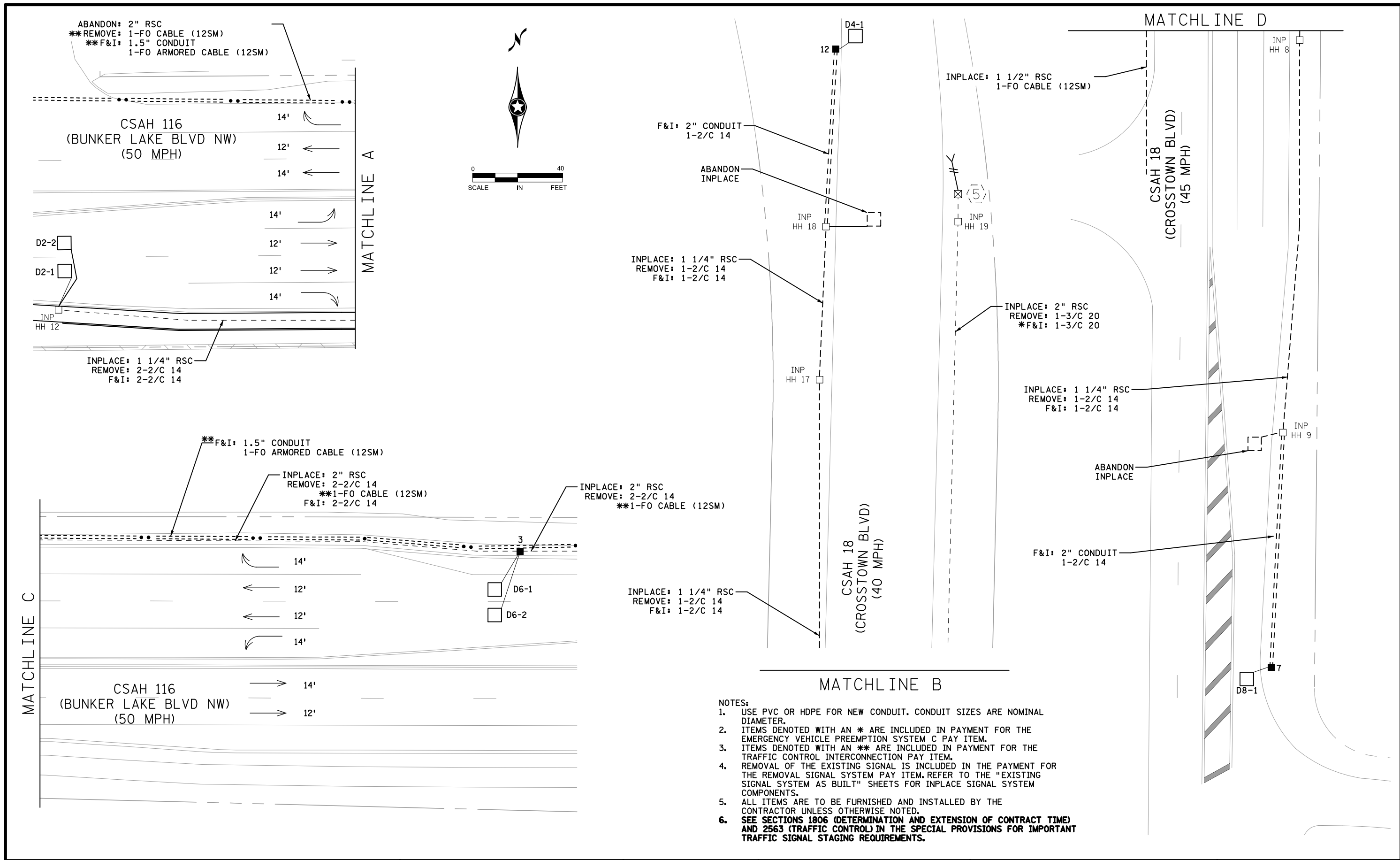
PRINT NAME: NICK VANGUNST
SIGNATURE: *Nick Van Gunst*
DATE: 11/26/24 LICENSE NO. 44683

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CHECKED BY: NHV DATE: 11/26/24



TRAFFIC SIGNAL SYSTEM C LAYOUT
BUNKER LAKE BLVD & CROSSTOWN BLVD
COUNTY PROJECT SAP 002-716-024
CITY PROJECT SAP 198-020-040

CSAH 116 (BUNKER LAKE BLVD) SIGNAL MODIFICATION & ADA IMPROVEMENTS
Sheet 105 of 174 Sheets



- NOTES:
1. USE PVC OR HDPE FOR NEW CONDUIT. CONDUIT SIZES ARE NOMINAL DIAMETER.
 2. ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EMERGENCY VEHICLE PREEMPTION SYSTEM C PAY ITEM.
 3. ITEMS DENOTED WITH AN ** ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECTION PAY ITEM.
 4. REMOVAL OF THE EXISTING SIGNAL IS INCLUDED IN THE PAYMENT FOR THE REMOVAL SIGNAL SYSTEM PAY ITEM. REFER TO THE "EXISTING SIGNAL SYSTEM AS BUILT" SHEETS FOR INPLACE SIGNAL SYSTEM COMPONENTS.
 5. ALL ITEMS ARE TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNLESS OTHERWISE NOTED.
 6. SEE SECTIONS 1806 (DETERMINATION AND EXTENSION OF CONTRACT TIME) AND 2563 (TRAFFIC CONTROL) IN THE SPECIAL PROVISIONS FOR IMPORTANT TRAFFIC SIGNAL STAGING REQUIREMENTS.

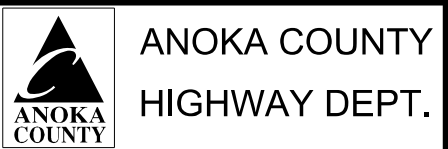
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TRAFFIC SIGNAL SYSTEM C MATCHLINES
 BUNKER LAKE BLVD & CROSSTOWN BLVD
 COUNTY PROJECT SAP 002-716-024
 CITY PROJECT SAP 198-020-040

CSAH 116 (BUNKER LAKE BLVD)
 SIGNAL MODIFICATION
 & ADA IMPROVEMENTS
 Sheet 106 of 174 Sheets

① X:484499.8670
 Y:167292.6043
 PA100 POLE FOUNDATION
 TYPE PA100-A-50-X6-300/CAM 350 EXTENSION (DAVIT AT 350°)
 (INCLUDES LIGHTING ROD, 7/16" GROUND BRAID AND GROUND ROD)
 LUMINAIRE-LED (FOR 30' MOUNTING HEIGHT)
 1-TRAFFIC MANAGEMENT CAMERA WITH MOUNT (COUNTY PROVIDED)
 1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
 1-STRAIGHT MOUNT SIGNAL OVERHEAD AT 10'
 2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG
 2-ANGLE MOUNT C.D. PED HEADS AT 90 AND 180 DEG
 1-R10-X12 SIGN ADJACENT TO HEAD (3-1)
 1-SIGN (BUNKER LAKE BLVD) (SEE SIGN DETAILS)
 ONE WAY EVP DETECTOR AND LIGHT (PHASES 8+3) (COUNTY PROVIDED)
 3" NMC TO HH 2:
 3-6/C 16
 4-4/C 16
 *1-3/C 16
 *1-3/C 20
 1-CAT 5E (CCTV)
 1-3/C 16 (LUM)
 1-1/C 6 INS. GR.

② X:484508.0041
 Y:167161.7616
 PA100 POLE FOUNDATION
 TYPE PA100-A-55-D30-9 (DAVIT AT 350°)
 LUMINAIRE-LED (FOR 30' MOUNTING HEIGHT)
 1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
 2-STRAIGHT MOUNT SIGNAL OVERHEAD AT 11' & 23'
 2-ANGLE MOUNT SIGNAL AT 90 AND 180 DEG
 2-ANGLE MOUNT C.D. PED HEAD AT 90 AND 180 DEG
 1-R10-X12 SIGN ADJACENT TO HEAD (5-1)
 1-SIGN (CROSSTOWN BLVD) (SEE SIGN DETAILS)
 1-R6-1L (36"X12") MOUNTED AT 0°
 1-R6-1R (36"X12") MOUNTED AT 180°
 ONE WAY EVP DETECTOR AND LIGHT (PHASES 2+5)(COUNTY PROVIDED)
 3" NMC TO HH 6:
 3-6/C 16
 5-4/C 16
 *1-3/C 16
 *1-3/C 20
 1-3/C 16 (LUM)
 1-1/C 6 INS. GR.

③ X:484384.7429
 Y:167140.8616
 PA100 POLE FOUNDATION
 TYPE PA100-A-55-D30-9 (DAVIT AT 350°)
 LUMINAIRE-LED (FOR 30' MOUNTING HEIGHT)
 1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
 1-STRAIGHT MOUNT SIGNAL OVERHEAD AT 14'
 2-ANGLE MOUNT SIGNAL AT 90 AND 180 DEG
 2-ANGLE MOUNT C.D. PED HEAD AT 90 AND 180 DEG
 1-R10-X12 SIGN ADJACENT TO HEAD (7-1)
 1-SIGN (BUNKER LAKE BLVD) (SEE SIGN DETAILS)
 ONE WAY EVP DETECTOR AND LIGHT (PHASES 4+7) (COUNTY PROVIDED)
 3" NMC TO HH 25:
 3-6/C 16
 4-4/C 16
 *1-3/C 16
 *1-3/C 20
 1-3/C 16 (LUM)
 1-1/C 6 INS. GR.

④ X:484368.6399
 Y:167276.2944
 PA100 POLE FOUNDATION
 TYPE PA100-A-50-D30-9 (DAVIT AT 350°)
 LUMINAIRE-LED (FOR 30' MOUNTING HEIGHT)
 1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
 2-STRAIGHT MOUNT SIGNAL OVERHEAD AT 11' & 23'
 2-ANGLE MOUNT SIGNAL AT 90 AND 180 DEG
 2-ANGLE MOUNT C.D. PED HEAD AT 90 AND 180 DEG
 1-R10-X12 SIGN ADJACENT TO HEAD (1-1)
 1-SIGN (CROSSTOWN BLVD) (SEE SIGN DETAILS)
 1-R6-1L (36"X12") MOUNTED AT 0°
 1-R6-1R (36"X12") MOUNTED AT 180°
 ONE WAY EVP DETECTOR AND LIGHT (PHASES 2+5) (COUNTY PROVIDED)
 3" NMC TO HH 14:
 3-6/C 16
 5-4/C 16
 *1-3/C 16
 *1-3/C 20
 1-3/C 16 (LUM)
 1-1/C 6 INS. GR.

⑤ INPLACE: PEDESTAL FOUNDATION (EVP)
 10' PEDESTAL POLE AND BASE
 ONE WAY EVP DETECTOR-MOUNT ON TOP
 OF PEDESTAL POLE (PHASE 4)
 2" NMC TO INP HH 19:
 REMOVE: 1-3/C 20
 *F&I: 1-3/C 20

Ⓐ Ⓑ EQUIPMENT PAD (SEE DETAIL SHEET)
 SERVICE CABINET WITH BATTERY BACKUP (SEE DETAIL SHEET)
 TS2 CABINET AND CONTROLLER (COUNTY PROVIDED)
 1-4" NMC TO HH 1: 1-4" NMC TO HH 2:
 3-6/C 16 3-6/C 16
 5-4/C 16 4-4/C 16
 *1-3/C 16 *1-3/C 16
 *1-3/C 20 *1-3/C 20
 5-2/C 14 5-2/C 14

1-4" NMC TO HH 1: 1-4" NMC TO HH 2:
 3-6/C 16 3-6/C 16
 4-4/C 16 5-4/C 16
 *1-3/C 16 *1-3/C 16
 *1-3/C 20 *1-3/C 20
 12-2/C 14 10-2/C 14
 1-1/C 6 INS. GR. 1-1/C 6 INS. GR.

GROUND WIRE AND GROUND ROD - MIN 8' STUBBED OUT FROM PAD
 2-2" AND 1-3" CONDUIT STUBBED OUT (CAPPED BOTH ENDS)
 **1.5" CONDUIT TO TMS VAULT:
 **2-FO ARMORED CABLES (12SM)
 **PULLBACK AND REINSTALL: 1-FO CABLE (12SM) (TO SOUTH)
 CONTROLLER CABINET TO SERVICE CABINET:
 2" CONDUIT
 3-1/C 6
 CONTROLLER CABINET TO SERVICE CABINET (COMMS):
 2" CONDUIT
 1-6PR 19
 SERVICE CABINET TO GROUND MOUNTED TRANSFORMER:
 2" CONDUIT
 3-1/C 2
 SERVICE CABINET TO HH 1:
 2" CONDUIT
 2-3/C 16 (LUM)
 SERVICE CABINET TO HH 2:
 2" CONDUIT
 2-3/C 16 (LUM)
 SERVICE CABINET TO EXTERNAL GR. RD.:
 1" CONDUIT
 1-1/C 6 INS. GR.
 (SEE EQUIPMENT PAD LAYOUT)

Ⓒ INPLACE: GROUND MOUNTED SOP
 F&I: 1-2" CONDUIT TO SERVICE CABINET
 3-1/C 2

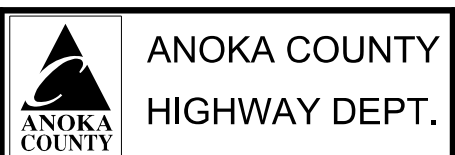
NOTES:

- SEE THE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
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- USE PVC OR HDPE FOR NEW CONDUIT. CONDUIT SIZES ARE NOMINAL DIAMETER.
- ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EMERGENCY VEHICLE PREEMPTION SYSTEM C PAY ITEM.
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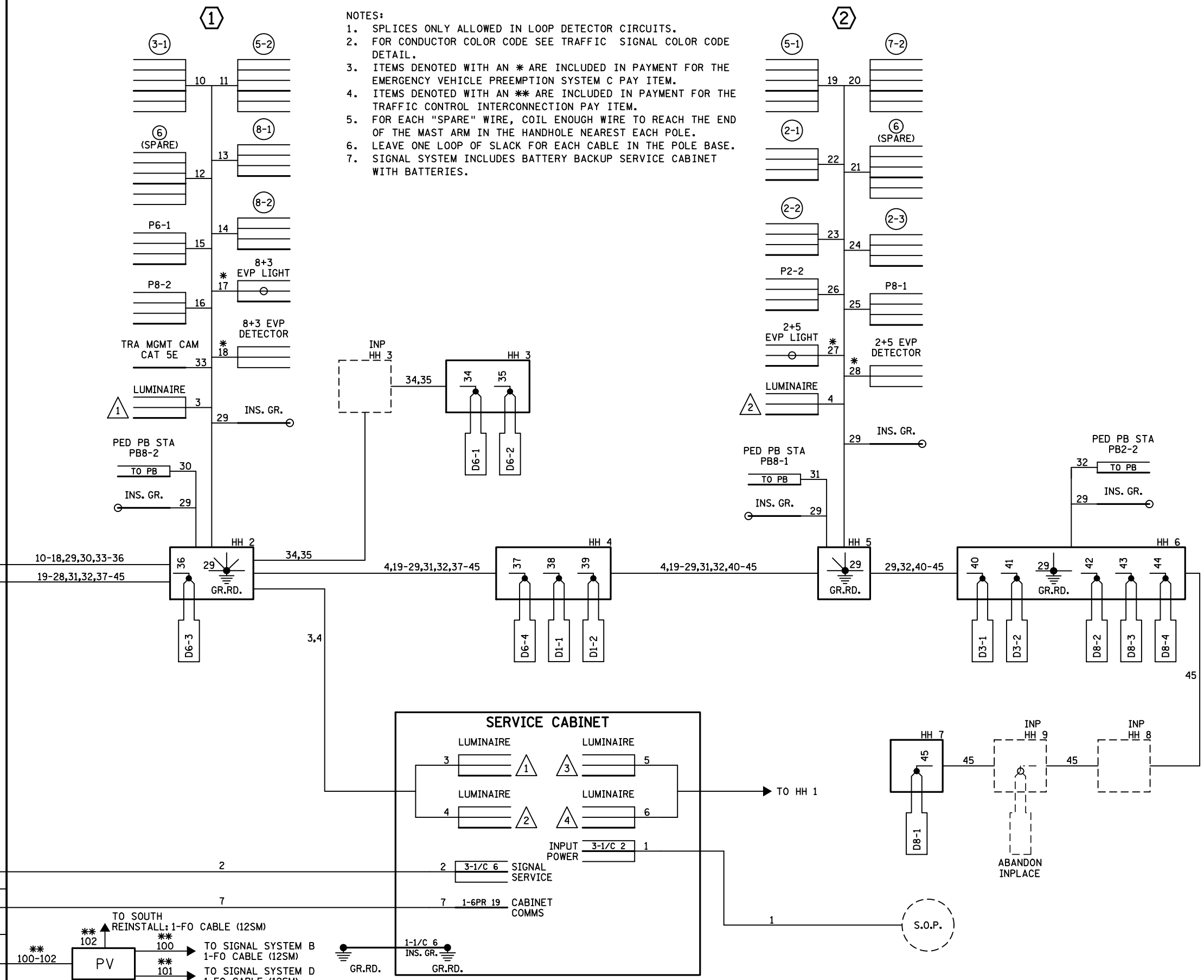
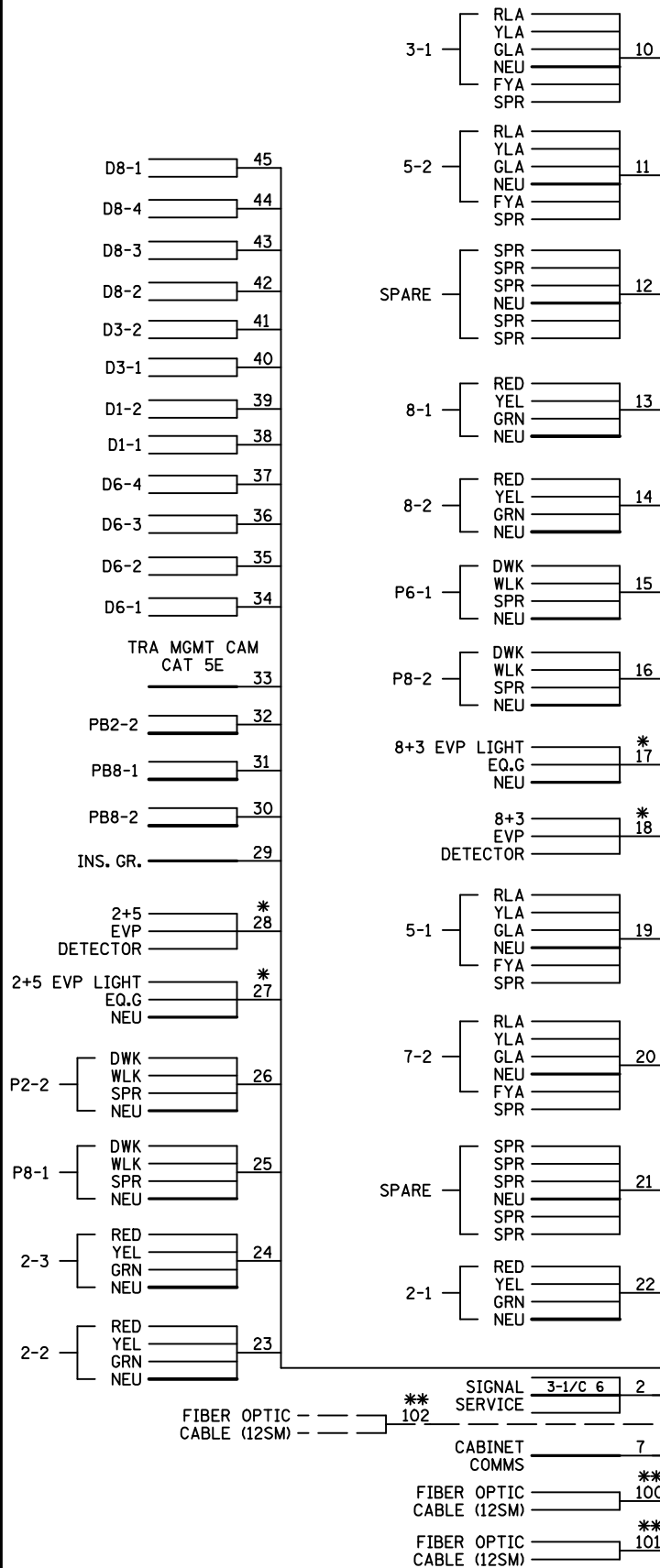
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TRAFFIC SIGNAL SYSTEM C NOTES
 BUNKER LAKE BLVD & CROSSTOWN BLVD
 COUNTY PROJECT SAP 002-716-024
 CITY PROJECT SAP 198-020-040

CSAH 116 (BUNKER LAKE BLVD)
 SIGNAL MODIFICATION
 & ADA IMPROVEMENTS
 Sheet 107 of 174 Sheets

CONTROLLER CABINET



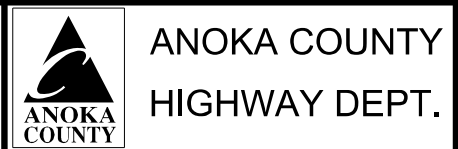
- NOTES:
1. SPLICES ONLY ALLOWED IN LOOP DETECTOR CIRCUITS.
 2. FOR CONDUCTOR COLOR CODE SEE TRAFFIC SIGNAL COLOR CODE DETAIL.
 3. ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EMERGENCY VEHICLE PREEMPTION SYSTEM C PAY ITEM.
 4. ITEMS DENOTED WITH AN ** ARE INCLUDED IN PAYMENT FOR THE TRAFFIC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

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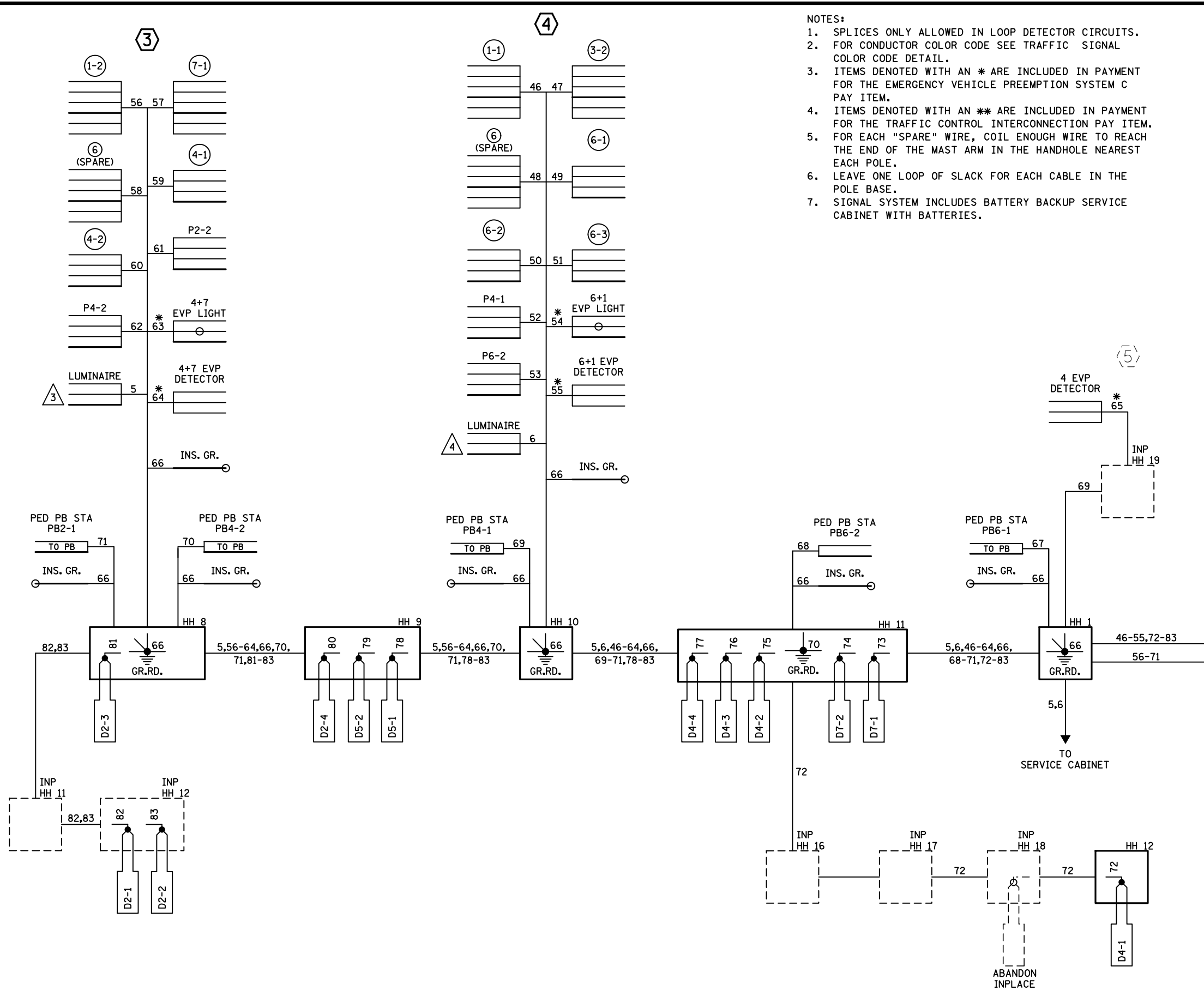
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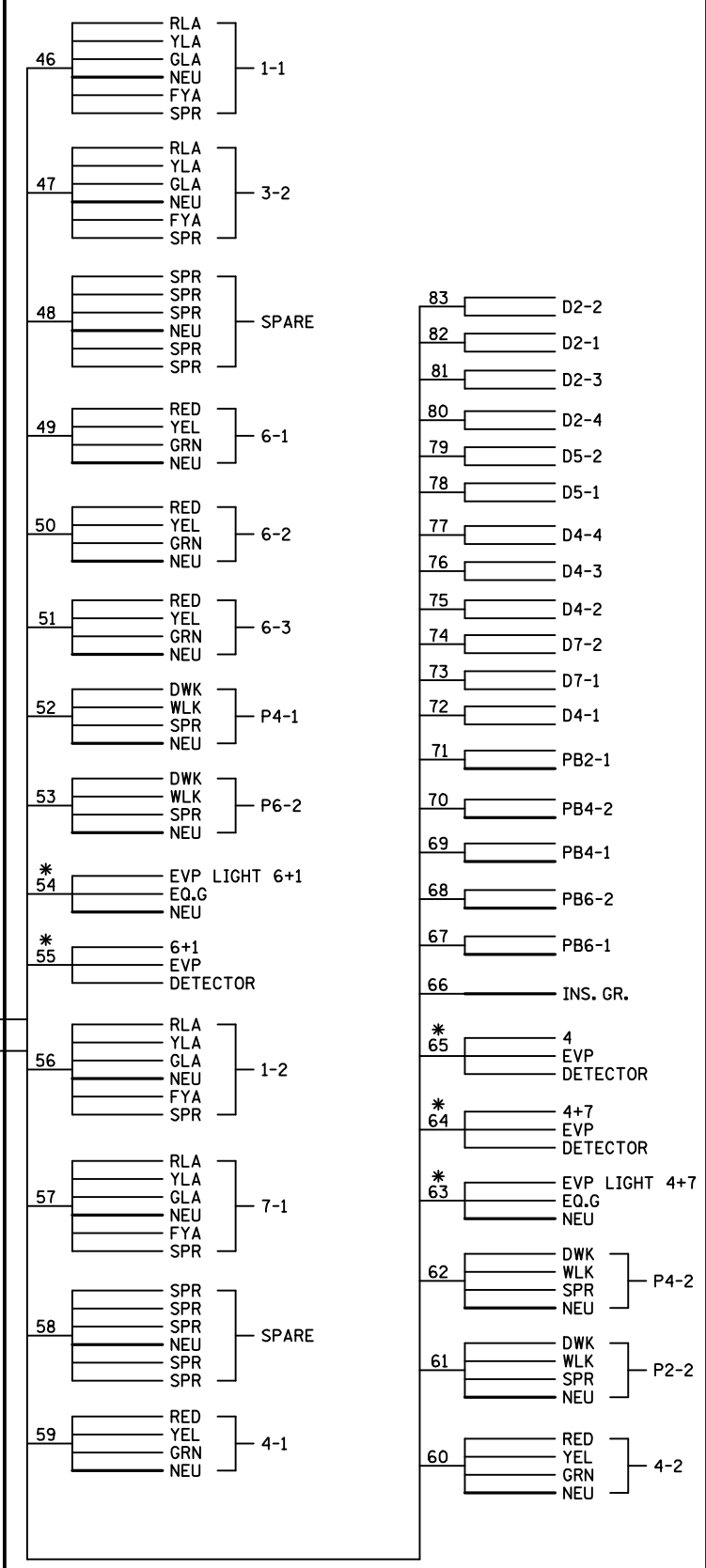
TRAFFIC SIGNAL SYSTEM C WIRING
 BUNKER LAKE BLVD & CROSSTOWN BLVD
 COUNTY PROJECT SAP 002-716-024
 CITY PROJECT SAP 198-020-040

CSAH 116 (BUNKER LAKE BLVD)
 SIGNAL MODIFICATION
 & ADA IMPROVEMENTS
 Sheet 108 of 174 Sheets



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1. SPLICES ONLY ALLOWED IN LOOP DETECTOR CIRCUITS.
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 5. FOR EACH "SPARE" WIRE, COIL ENOUGH WIRE TO REACH THE END OF THE MAST ARM IN THE HANDHOLE NEAREST EACH POLE.
 6. LEAVE ONE LOOP OF SLACK FOR EACH CABLE IN THE POLE BASE.
 7. SIGNAL SYSTEM INCLUDES BATTERY BACKUP SERVICE CABINET WITH BATTERIES.

CONTROLLER CABINET



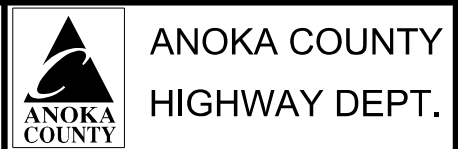
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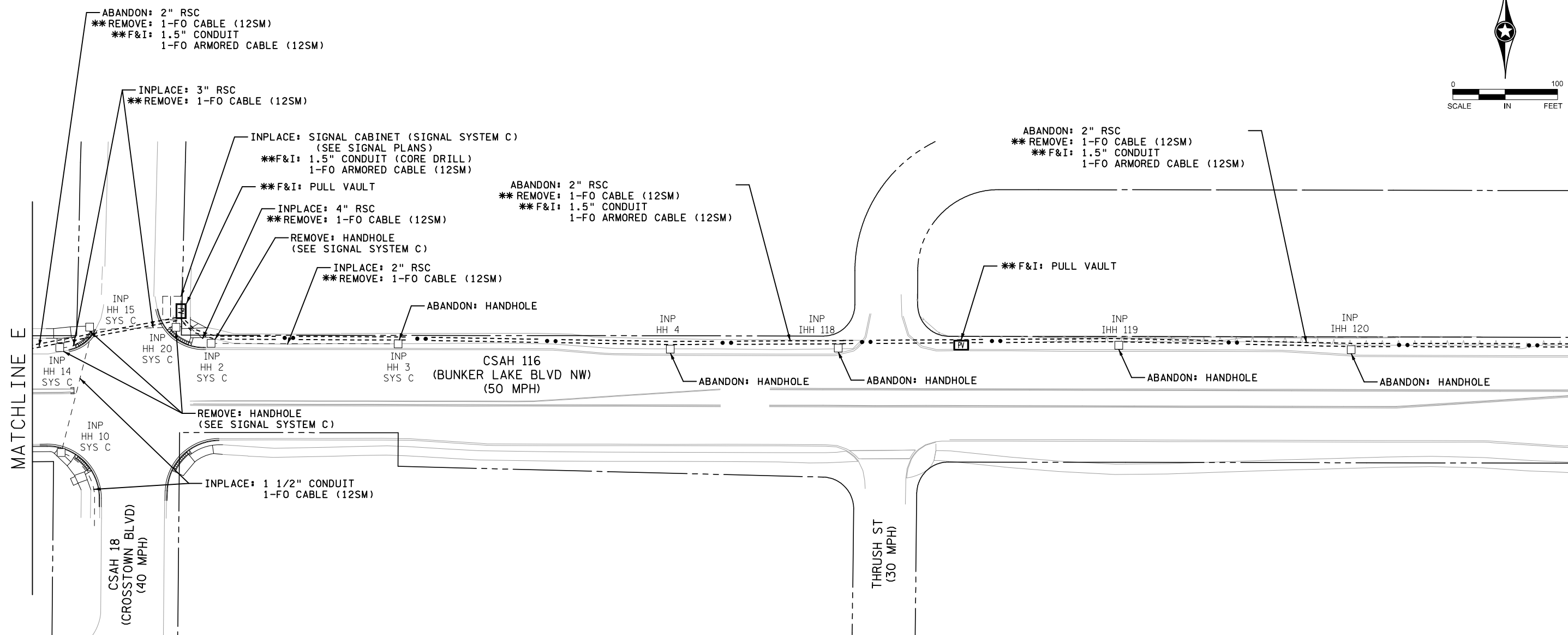
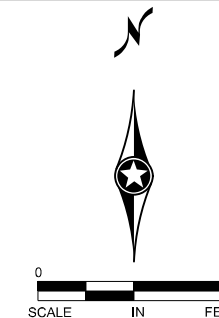
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TRAFFIC SIGNAL SYSTEM C WIRING
 BUNKER LAKE BLVD & CROSSTOWN BLVD
 COUNTY PROJECT SAP 002-716-024
 CITY PROJECT SAP 198-020-040

CSAH 116 (BUNKER LAKE BLVD)
 SIGNAL MODIFICATION
 & ADA IMPROVEMENTS
 Sheet 109 of 174 Sheets



NOTES:

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

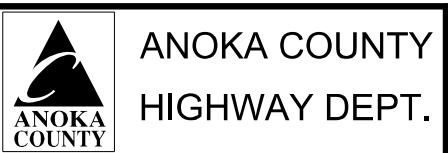
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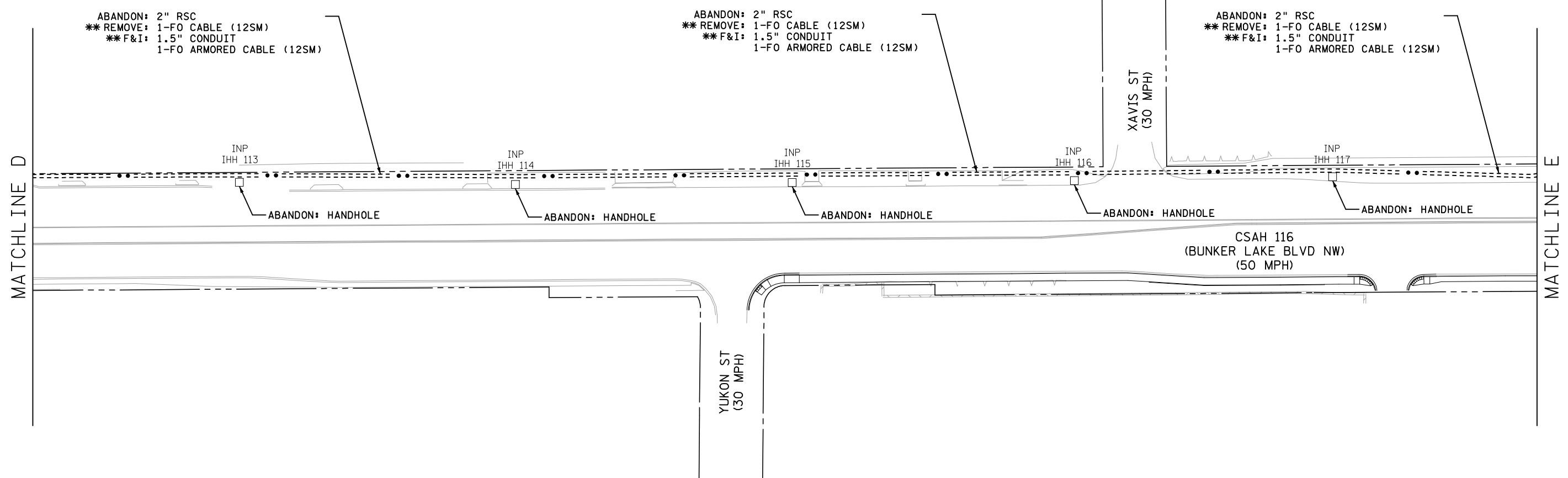
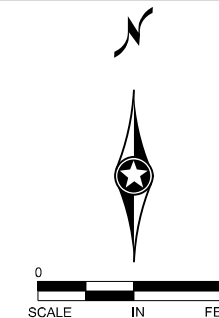
PRINT NAME: NICK VANGUNST
 SIGNATURE: *Nick Van Gunst*
 DATE: 11/26/24 LICENSE NO. 44683

DRAWN BY: KAS DATE 11/26/24
 DESIGN BY: KAS DATE 11/26/24
 CHECKED BY: NHV DATE 11/26/24



TRAFFIC SIGNAL SYSTEM
 INTERCONNECT LAYOUT
 COUNTY PROJECT SAP 002-716-024
 CITY PROJECT SAP 198-020-040

CSAH 116 (BUNKER LAKE BLVD)
 SIGNAL MODIFICATION
 & ADA IMPROVEMENTS
 Sheet 152 of 174 Sheets



NOTES:

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PRINT NAME: NICK VANGUNST

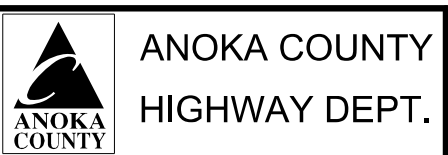
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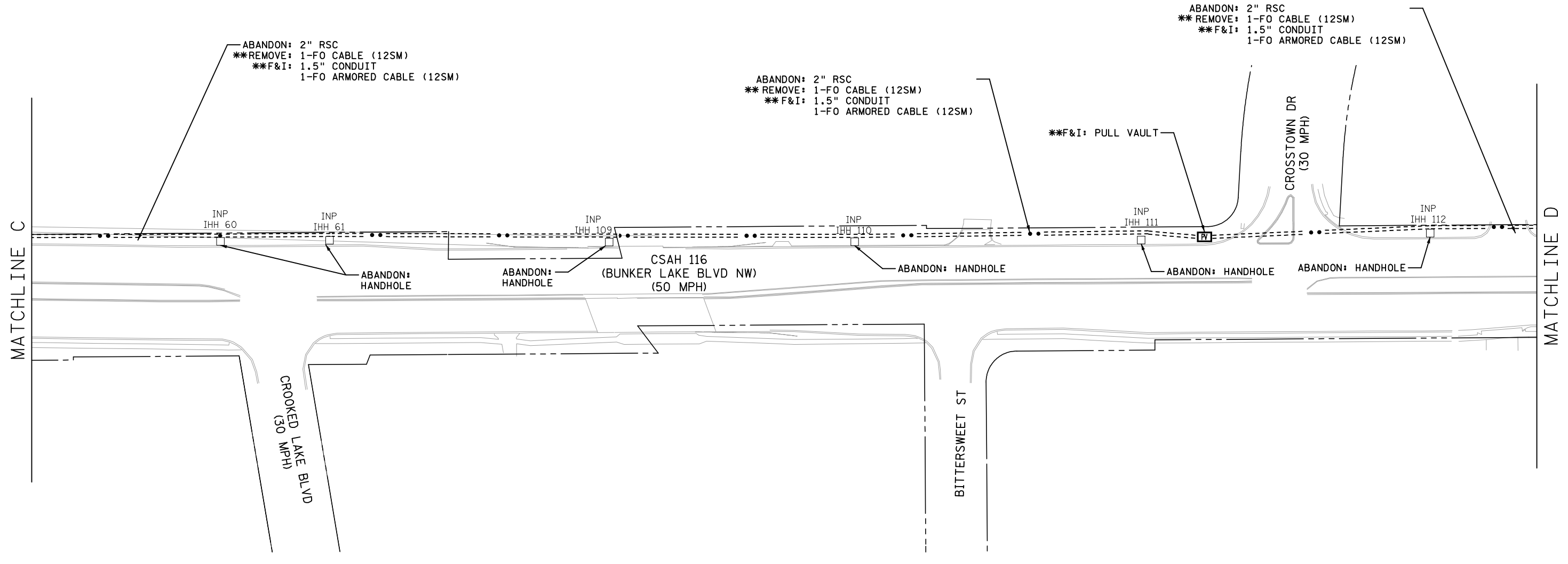
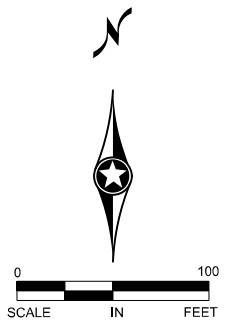


**TRAFFIC SIGNAL SYSTEM
INTERCONNECT LAYOUT**

COUNTY PROJECT SAP 002-716-024
CITY PROJECT SAP 198-020-040

**CSAH 116 (BUNKER LAKE BLVD)
SIGNAL MODIFICATION
& ADA IMPROVEMENTS**

Sheet 151 of 174 Sheets



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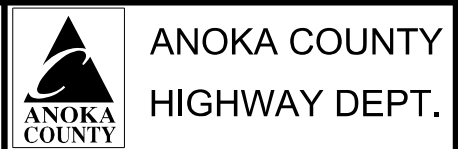
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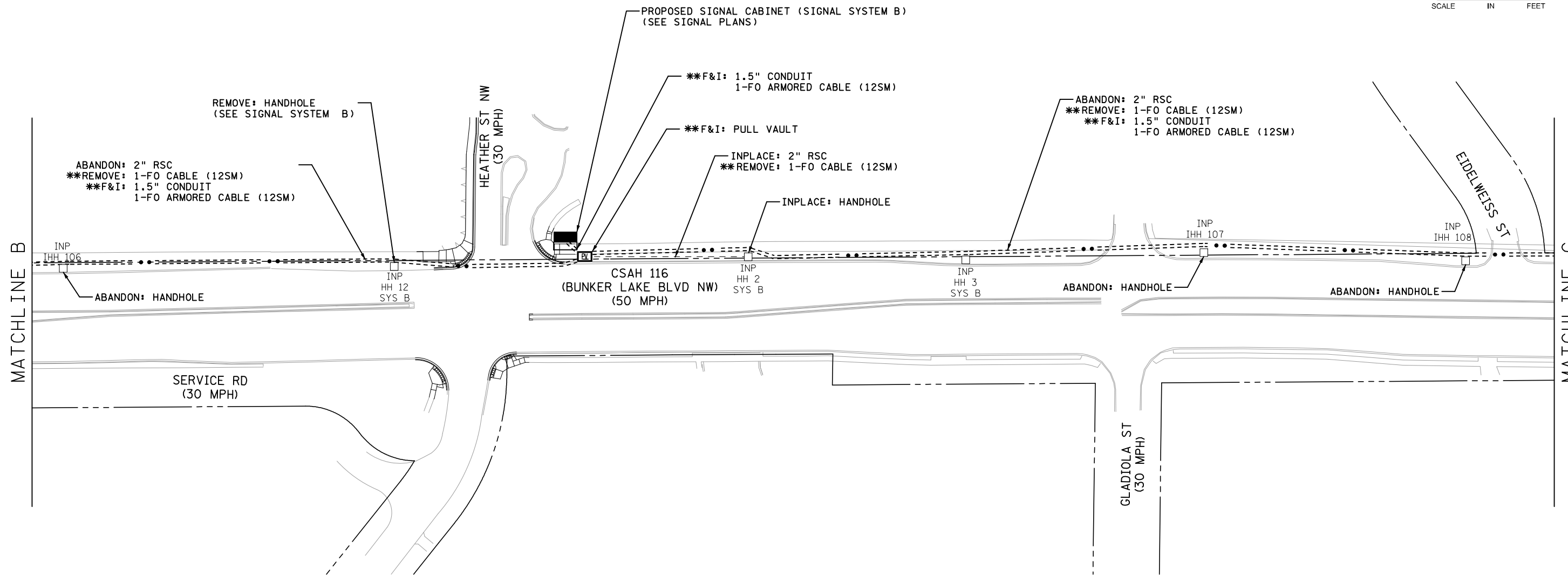
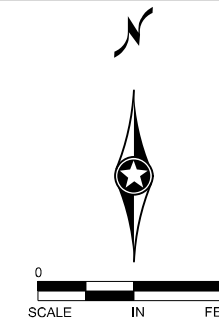


**TRAFFIC SIGNAL SYSTEM
INTERCONNECT LAYOUT**

COUNTY PROJECT SAP 002-716-024
CITY PROJECT SAP 198-020-040

**CSAH 116 (BUNKER LAKE BLVD)
SIGNAL MODIFICATION
& ADA IMPROVEMENTS**

Sheet 150 of 174 Sheets



- NOTES:
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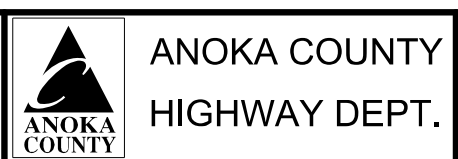
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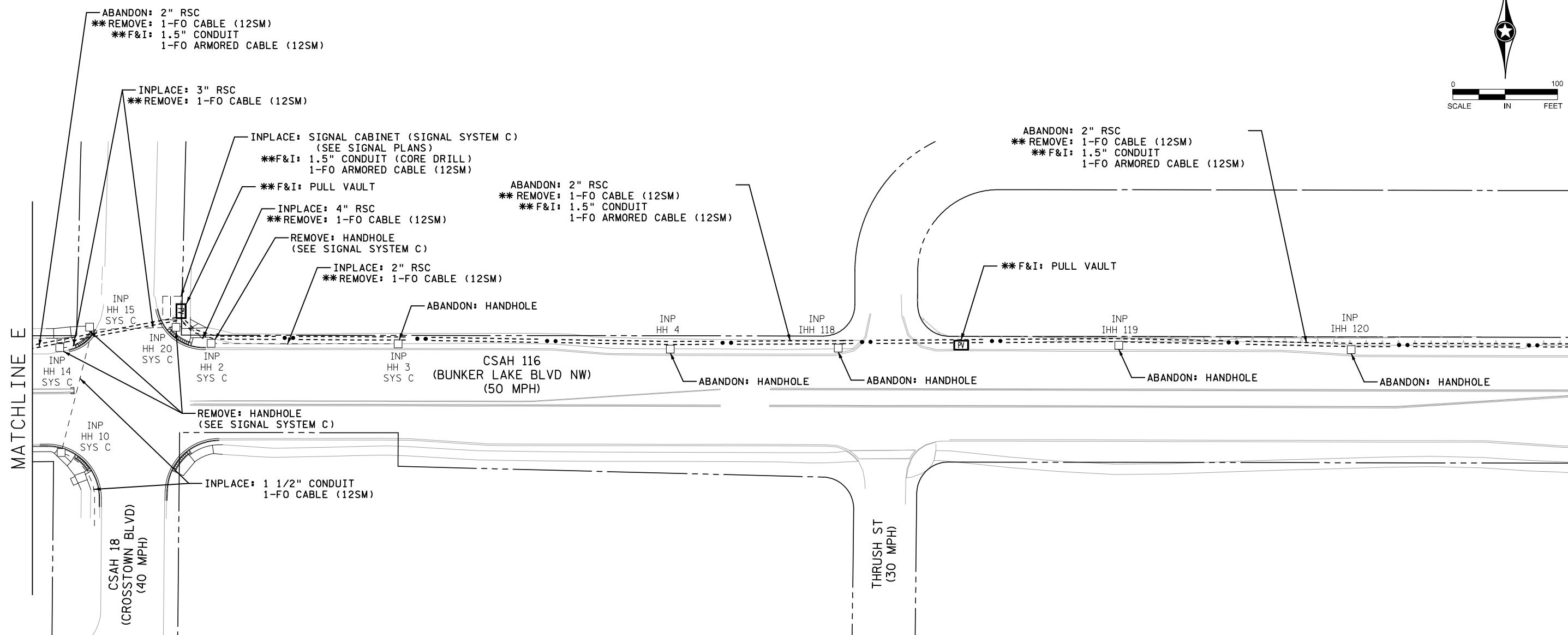
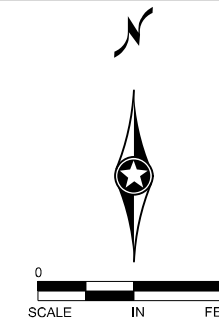
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TRAFFIC SIGNAL SYSTEM
INTERCONNECT LAYOUT
COUNTY PROJECT SAP 002-716-024
CITY PROJECT SAP 198-020-040

CSAH 116 (BUNKER LAKE BLVD)
SIGNAL MODIFICATION
& ADA IMPROVEMENTS

Sheet 149 of 174 Sheets



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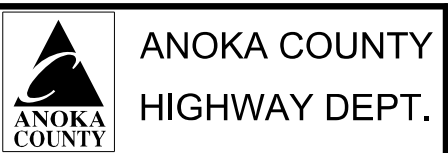
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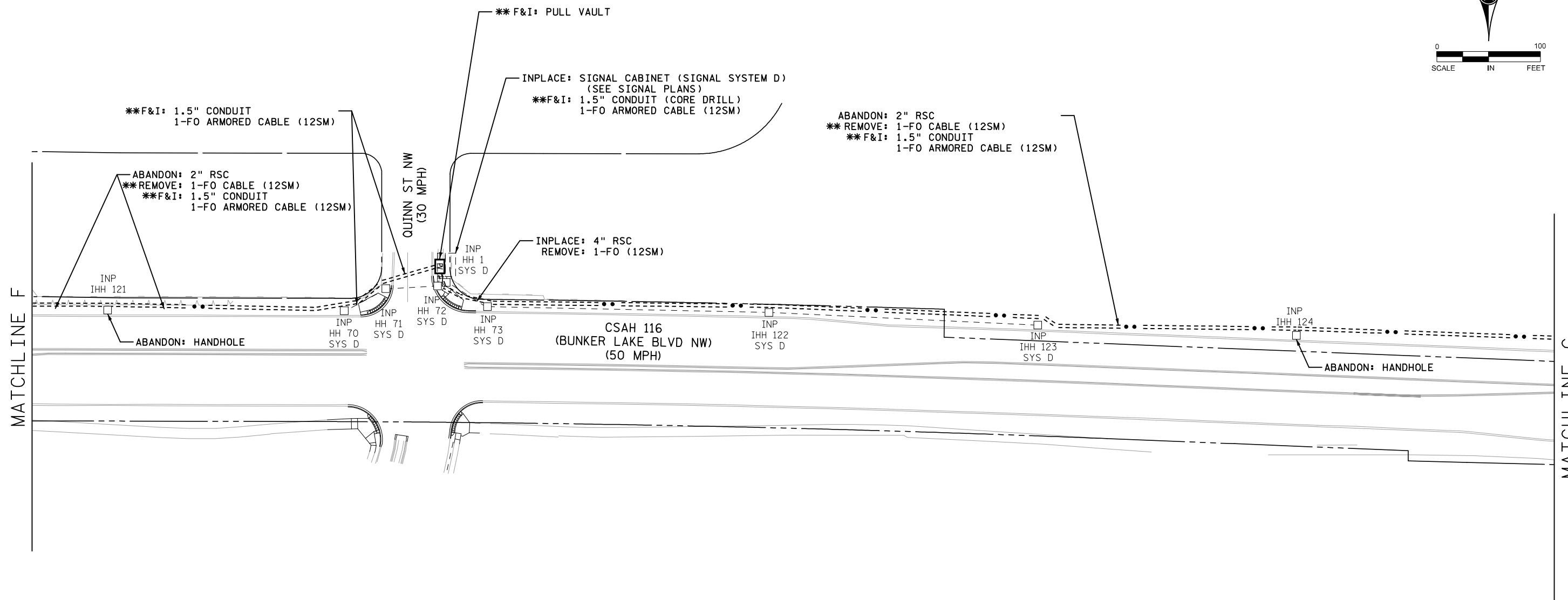
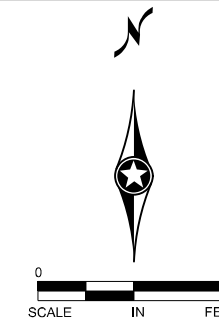
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TRAFFIC SIGNAL SYSTEM
 INTERCONNECT LAYOUT
 COUNTY PROJECT SAP 002-716-024
 CITY PROJECT SAP 198-020-040

CSAH 116 (BUNKER LAKE BLVD)
 SIGNAL MODIFICATION
 & ADA IMPROVEMENTS
 Sheet 152 of 174 Sheets



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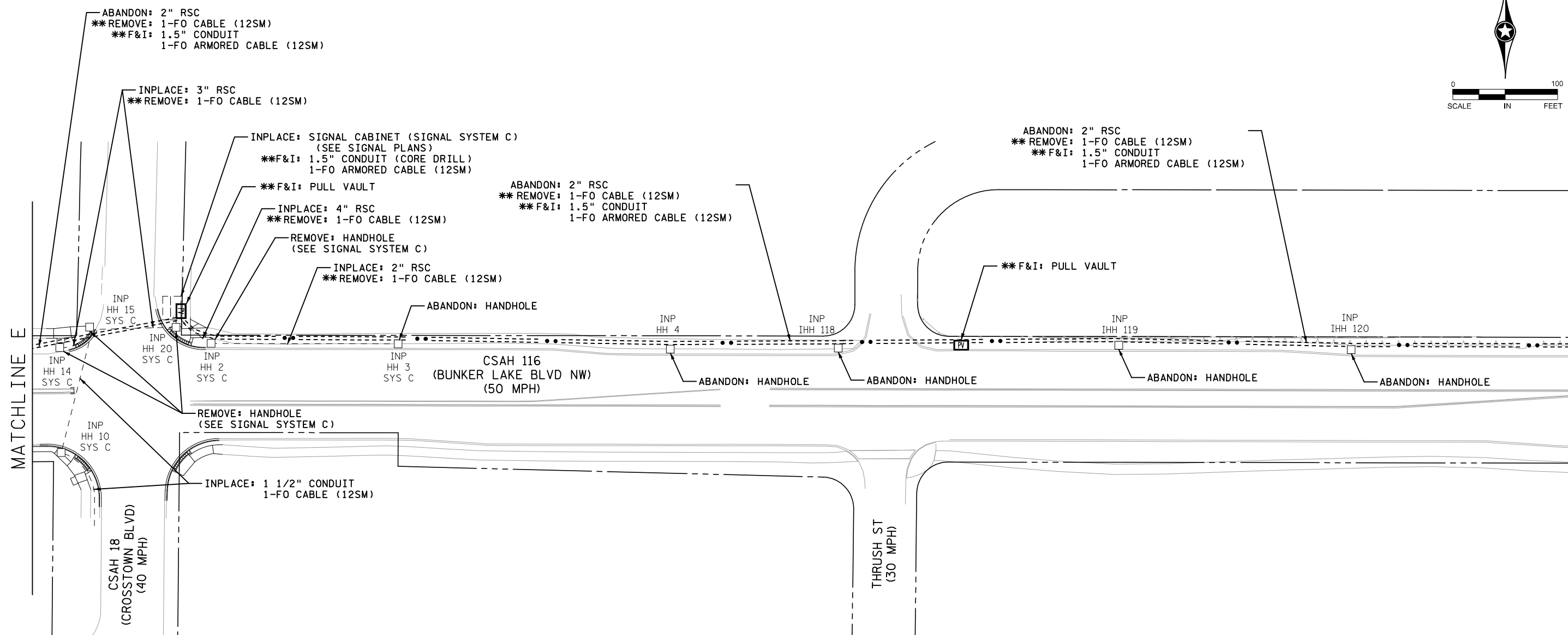
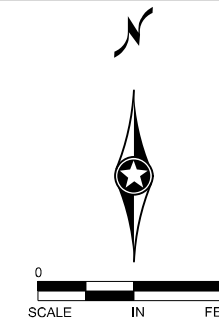
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**ANOKA COUNTY
 HIGHWAY DEPT.**

TRAFFIC SIGNAL SYSTEM
 INTERCONNECT LAYOUT
 COUNTY PROJECT SAP 002-716-024
 CITY PROJECT SAP 198-020-040

CSAH 116 (BUNKER LAKE BLVD)
 SIGNAL MODIFICATION
 & ADA IMPROVEMENTS
 Sheet 153 of 174 Sheets



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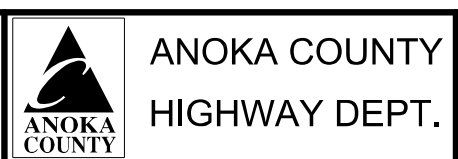
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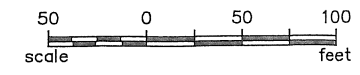
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TRAFFIC SIGNAL SYSTEM
 INTERCONNECT LAYOUT
 COUNTY PROJECT SAP 002-716-024
 CITY PROJECT SAP 198-020-040

CSAH 116 (BUNKER LAKE BLVD)
 SIGNAL MODIFICATION
 & ADA IMPROVEMENTS
 Sheet 152 of 174 Sheets



H.H.105 TO H.H.1:
 (*) 1.5" CONDUIT-F & I (BORE UNDER EXISTING ROADWAY/DRIVEWAYS/WALK)
 (*) 1-12 SM FIBER-OPTIC CABLE-F & I (TO 133RD AVENUE SIGNAL SYSTEM)

H.H.105 TO H.H.106:
 (*) 1.5" CONDUIT-F & I (BORE UNDER EXISTING ROADWAYS/DRIVEWAYS)
 (*) 1-12 SM FIBER-OPTIC CABLE-F & I

MATCH LINE "F" (INTERCONNECT) (TO 133RD AVENUE SIGNAL SYSTEM)

134TH AVENUE

(*) F & I
H.H.105

MATCH LINE - SEE BELOW LEFT

CSAH 18 (COON CREEK BLVD)

135TH AVENUE

INTERCONNECT NOTES:

- 1) IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" (TELEPHONE NUMBER 651-454-0002) AS REQUIRED BY MINNESOTA STATUTE 2160.
- 2) (*) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECT "G"). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 3) NEW HANDHOLES 105-106 REQUIRED TO BE FURNISHED & INSTALLED CONTRACTOR AS PART OF PROJECT SHALL BE PRE-CAST POLYMER CONCRETE STRUCTURES (QUAZITE). SEE DETAILS/SPECIAL PROVISIONS.

H.H.105 TO H.H.106:
 (*) 1.5" CONDUIT-F & I (BORE UNDER EXISTING ROADWAYS/DRIVEWAYS)
 (*) 1-12 SM FIBER-OPTIC CABLE-F & I

H.H.106 TO H.H.10:
 (*) 1.5" CONDUIT-F & I (BORE UNDER EXISTING ROADWAY/DRIVEWAYS/WALK)
 (*) 1-12 SM FIBER-OPTIC CABLE-F & I (TO CSAH 116 SIGNAL SYSTEM)

MATCH LINE - SEE ABOVE RIGHT

135TH LANE

(*) F & I
H.H.106

DRIVEWAY

MATCH LINE "G" (INTERCONNECT) (TO CSAH 116 SIGNAL SYSTEM)

CSAH 18 (COON CREEK BLVD)

STATION PARKWAY

S:\A\A\ANOKA\COMMON\SIGNALS\2017\INTERCONNECT_2017\TRBASE.DWG

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|-----------------|-----|----|------|-----------|
| 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: July 6, 2018 Name: John M. Gray, PE Lic. No. 22457

PHONE: (651) 490-2000
 5535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

ANOKA COUNTY, MN
CITY OF ANDOVER
 SAP 002-030-010

TRAFFIC SIGNAL INTERCONNECT "G"
INTERSECTION LAYOUT
CSAH 18 (COON CREEK BLVD)
(133RD AVE NW TO CSAH 116)

FILE NO.
ANOKC 142312

113
115

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- ALL ITEMS OF THIS SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED, PROTECTED AND MAINTAINED INPLACE, EXCEPT WHERE BOXED IN AND DENOTED BY (*) AND BY F & I (ITEMS TO BE FURNISHED & INSTALLED BY CONTRACTOR).
- SEE SPECIAL PROVISIONS FOR INFORMATION REGARDING LABOR AND MATERIALS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR IN EACH INPLACE TRAFFIC SIGNAL CONTROLLER CABINET AS PART OF THE "TRAFFIC CONTROL INTERCONNECT "G" PAY ITEM.

| N.M.C. LOOP DETECTORS | | | | |
|-----------------------|------------|-----------|----------|---------|
| NUMBER | SIZE (FT.) | LOCATION | FUNCTION | STATUS |
| D1-1 | 2-6x6 | 20' & 50' | 1 | INPLACE |
| D1-2 | 2-6x6 | 5' & 35' | 1 | INPLACE |
| D2-1 | 6x6 | 300' | 1 | INPLACE |
| D2-2 | 6x6 | 300' | 1 | INPLACE |
| D6-1 | 6x6 | 300' | 1 | INPLACE |
| D8-1 | 6x6 | 250' | 3 | INPLACE |
| D8-2 | 6x6 | 250' | 3 | INPLACE |
| D8-3 | 2-8x6 | -5' & 5' | 7 | INPLACE |
| D8-4 | 2-8x6 | -5' & 5' | 1 | INPLACE |

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

- CALL AND EXTEND.
- CALL ONLY
- EXTEND ONLY
- CALL ONLY DENS
- DELAY CALL ONLY
- DELAY CALL ONLY DENSITY
- DELAY CALL IMMEDIATE EXTEND
- CARRY OVER
- ADVISORY

② TYPE PA90-A25 PA90 POLE FOUNDATION ONEWAY SIGNAL OVERHEAD ONEWAY EVP DETECTOR AND LIGHT (6' FROM END OF MASTARM) TYPE 10A AT 0° TYPE 10B AT 270° 1-PEDESTRIAN PUSH BUTTON EXTEND INTO HH 2
 3" RSC
 2-12/C#12
 2-3/C#12
 1-3/C#20

① TYPE PA90-A25-D40-9 (DAVIT AT 350') PA90 POLE FOUNDATION 2-ONEWAY SIGNALS OVERHEAD (0° AND 12° FROM END OF MASTARM) R10-12 (24x30) MOUNTED 3' FROM END OF MASTARM ONEWAY EVP DETECTOR AND LIGHT (6' FROM END OF MASTARM) TYPE 10A AT 270° TYPE 10B AT 0° LUMINAIRE 250 WATT HPS 1-PEDESTRIAN PUSH BUTTON EXTEND INTO HH 12
 3" RSC
 2-12/C#12
 2-3/C#12
 1-3/C#12 (LUM)
 1-3/C#20

H.H.12 TO H.H.104:
 (*) 1.5" CONDUIT-F & I (BORE UNDER EXISTING ROADWAY/DRIVEWAYS/WALK)
 (*) 1-12 SM FIBER-OPTIC CABLE-F & I (TO 131ST AVENUE SIGNAL SYSTEM)

MATCH LINE "F" (INTERCONNECT) (TO CSAH 116 SIGNAL SYSTEM)

H.H.1 TO H.H.105:

(*) 1.5" CONDUIT-F & I (BORE UNDER EXISTING ROADWAY/DRIVEWAYS/WALK)
 (*) 1-12 SM FIBER-OPTIC CABLE-F & I (TO CSAH 116 SIGNAL SYSTEM)

(*) 1-12 SM FIBER-OPTIC CABLE-F & I

Ⓐ CONTROLLER AND CABINET SERVICE CABINET TO HH 1

- 4" RSC
- 3-12/C#12
- 5-3/C#12
- 7-2/C#14
- 2-3/C#20

CONTROLLER CABINET TO HH 12

- 4" RSC
- 3-12/C#12
- 4-3/C#12
- 2-2/C#14
- 1-3/C#20

(*) 1-12 SM FIBER-OPTIC CABLE-F & I

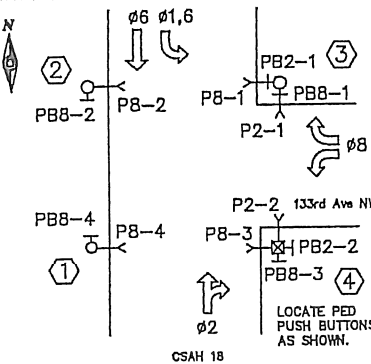
CONTROLLER CABINET TO HH 13

- 1 1/2" RSC
- 3-1/C#6

Ⓑ SERVICE CABINET FOUNDATION SERVICE CABINET TO SOP

- 2" RSC (STUB OUT)
- SERVICE CABINET TO HH 13 (SERVICE)
- 1 1/2" RSC
- 3-1/C#6
- SERVICE CABINET TO HH 1 (LIGHTING)
- 1 1/2" RSC
- 2-3/C#12 (LUM)

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS

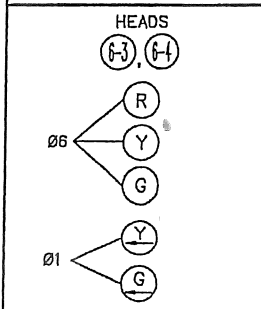


SIGNAL SYSTEM OPERATIONS:

- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
- NORMAL OPERATION SHALL BE 4 PHASE, WITH PHASES 1 BEING A PROTECTED/PERMISSIVE LEFT TURN PHASE.
- VEHICLE SIGNAL PHASES 2 AND 6 SHALL OPERATE ON RECALL.

| SIGNAL FACE | INPLACE SIGNAL FACES | | | | | |
|---------------|----------------------|---|---|---|---|---|
| | LED | R | Y | G | Y | G |
| 2-1, 2-2, 2-3 | ○ | ○ | ○ | ○ | | |
| 6-1, 6-2 | ○ | ○ | ○ | | | |
| 6-3, 6-4 | ○ | ○ | ○ | ← | ← | |
| 8-1, 8-2, 8-3 | ○ | ○ | ○ | | | |

SIGNAL HEAD PHASING



DRAWN BY: JMG
 DESIGNER: JMG
 CHECKED BY: JMG

| 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: July 6, 2018



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

ANOKA COUNTY, MN
 CITIES OF ANDOVER, COON RAPIDS
 SAP 002-030-010

TRAFFIC SIGNAL INTERCONNECT "G"
 INTERSECTION LAYOUT
 CSAH 18 (COON CREEK BLVD)
 AT 133RD AVENUE NW

FILE NO.
 ANOKC 142312

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