

DONAGHEY AVE & ROBINSON AVE

TRAFFIC SIGNAL



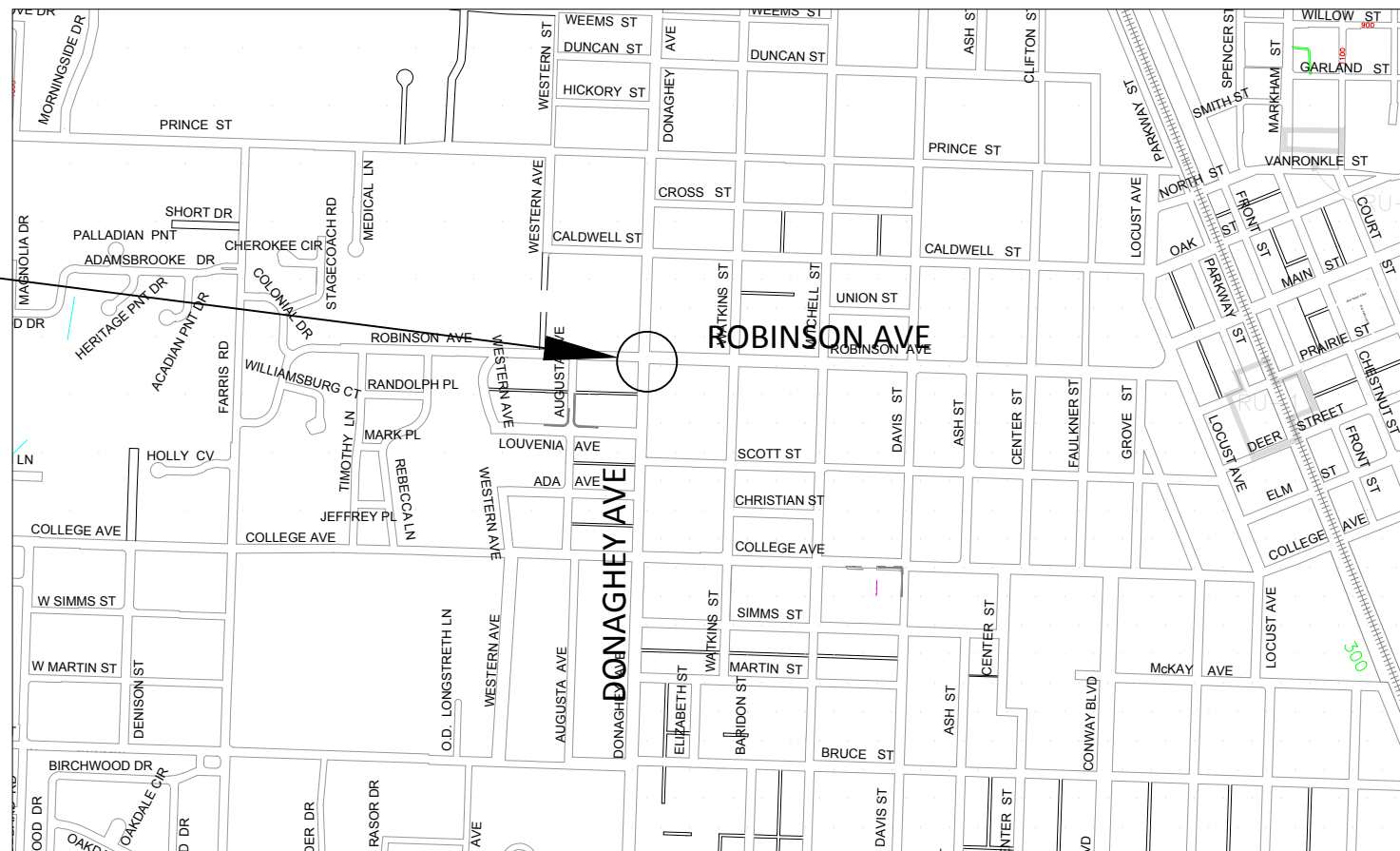
BID PACKAGE

NOTES

1. WORK ON STATE HIGHWAYS MUST CONFORM TO AHTD SPECIFICATIONS.
2. THERE ARE NUMEROUS PUBLIC AND PRIVATE UTILITIES WITHIN AND ADJACENT TO THE LIMITS OF CONSTRUCTION. SOME EXISTING UTILITIES MAY NOT BE SHOWN ON THE PLANS. PRIOR TO BEGINNING ANY TYPE OF EXCAVATION, THE CONTRACTOR SHALL CONTACT THE VARIOUS UTILITY COMPANIES AND MAKE ARRANGEMENTS FOR THE LOCATION OF THE UTILITY ON THE GROUND. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN THE UTILITY MARKINGS UNTIL THEY ARE NO LONGER NEEDED. CONTRACTOR WILL BE RESPONSIBLE FOR ALL DAMAGES AND/OR REPAIR OF THE UTILITIES.
3. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS OF THE ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT.
4. ALL TREES AND OTHER LANDSCAPE MATERIALS THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO INSURE THAT ALL TREES NOT REMOVED SHALL BE PROTECTED DURING THE CONSTRUCTION OPERATIONS.
5. CONTRACTOR SHALL THOROUGHLY FAMILIARIZE HIMSELF WITH ALL UTILITY LINES AND APPURTENANCES REQUIRING ADJUSTMENTS BECAUSE OF THIS CONSTRUCTION. CONTRACTOR SHALL FULLY COORDINATE SUCH ADJUSTMENTS WITH THE INVOLVED UTILITIES AS TO WHO SHALL ADJUST. NO SEPARATE PAYMENT SHALL BE MADE AS A RESULT OF ANY ADJUSTMENTS REQUIRED.
6. ALL EXISTING PAVEMENT AND CURB AND GUTTER OR OTHER EXISTING PHYSICAL FEATURES WHICH CONFLICT WITH THE NEW CONSTRUCTION, SHALL BE REMOVED. NO SEPARATE PAYMENT WILL BE MADE FOR REMOVALS, WHICH WILL BE CONSIDERED SUBSIDIARY TO SITE PREPARATION.
7. EXISTING UTILITY LOCATIONS ARE FROM UTILITY COMPANIES' RECORDS AND/OR ABOVE GROUND INSPECTION.
8. P.E. CERTIFIED SHOP DRAWINGS MUST BE SUBMITTED FOR APPROVAL. CERTIFICATION SHALL ALSO INDICATE COMPLIANCE WITH ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT MATERIAL SPECIFICATION REQUIREMENTS AND CONFORMANCE TO AASHTO DESIGN REQUIREMENTS FOR 90 MPH WIND LOADING FOR SIGNALS, MASTS AND SIGNS AS INDICATED.
9. ALL TRAFFIC SIGNAL EQUIPMENT SHALL COMPLY WITH THE LATEST EDITION OF THE STANDARD SPECIFICATIONS OF THE ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT AND APPLICABLE SPECIAL PROVISIONS.

SHEET	TITLE
1	TITLE SHEET
2	TRAFFIC SIGNAL NOTES AND UNIT ITEMS
3	SIGNALS, MAST ARMS, AND CONDUIT
4	TRAFFIC SIGNAL WIRING DIAGRAM
5	CONTROLLER CABINET UTILITY DRAWER (SD-5)
6	HEAVY DUTY PULL BOX (SD-6)
7	SIGNAL HEAD PLACEMENT (SD-8)
8	SERVICE POINT (SD-9)
9	STEEL POLE WITH MAST ARM (SD-11)
10	SERVICE POINT INSTALLATION WITH SUPPLEMENTAL GROUNDING ARRAY (SD-12)

PROJECT LOCATION



DONAGHEY AVE & ROBINSON AVE
SIGNAL DESIGN

No.	Revision/Issue	Date

TITLE
JOB NUMBER: 16-108

DRAWN BY: JTB	SHEET #:
CHECKED BY: BFV3	1
DATE: 6-28-17	
SCALE: N.T.S.	

TRAFFIC SIGNAL NOTES

1. PERFORM ELECTRICAL WORK IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE NFPA 70 (2014) NATIONAL ELECTRICAL CODE, NFPA 101 (2012) LIFE SAFETY CODE, STATE ELECTRICAL CODE AND LOCAL ELECTRICAL CODE.
 2. EXTEND GREEN EQUIPMENT GROUNDING CONDUCTOR (E.G.C.) FROM GROUND BAR AT MAIN BREAKER TO CONTROL PANEL AND TO FIRST POLE. SOLIDLY BOND E.G.C. TO GROUND LUG OF CONTROL CABINET AND TO POLE GROUND. ENSURE THAT ONLY ONE NEUTRAL-TO-GROUND BOND EXISTS IN THE SYSTEM AND THAT IT IS AT THE MAIN BREAKER.
 3. ELECTRICAL SERVICE SHALL BE PROVIDED BY THE CITY TO A SERVICE POLE WITH EXTERNAL RAINIGHT BREAKER (MAIN BREAKER), GALVANIZED STEEL SERVICE RISER, METER LOOP (IF REQUIRED), AND WEATHERHEAD AT A MUTUALLY ACCEPTABLE POINT WITHIN THE RIGHT-OF-WAY. IF THE SERVICE POINT IS OVER 10 FEET FROM THE CONTROLLER, THE CONTRACTOR SHALL PROVIDE AND INSTALL A SEPARATE TWO CIRCUIT EXTERNAL BREAKER (SECONDARY BREAKER) ON OR NEAR THE TRAFFIC SIGNAL CONTROLLER CABINET AND SHALL INSTALL CONDUIT, ELECTRICAL SERVICE WIRE (2c/#6 USE RATED, WITH GROUND TYPICAL), AND PERFORM WIRING TO TAP INTO THE CITY'S MAIN BREAKER AS PART OF THIS CONTRACT. CONDUIT IS PAID FOR AS A SEPARATE ITEM OF THIS CONTRACT. TWO CIRCUIT BREAKERS, CONSIDERED SUBSIDIARY TO THE CONTROL EQUIPMENT, ARE NEEDED WHERE STREET LIGHTING IS INCLUDED. AS PART OF THE SIGNAL INSTALLATION, STREET LIGHTING CIRCUIT (2c/#12 A.W.G. UF RATED, TYPICAL) SHALL BE KEPT FROM THE CIRCUIT SERVING THE TRAFFIC SIGNAL CONTROL EQUIPMENT FROM THE POINT OF TIE-IN AT THE SECONDARY BREAKER PROVIDED BY THE CONTRACTOR.
 4. CONTRACTOR SHALL CONNECT A SEPARATE NEUTRAL FOR EACH LOAD SWITCH REPRESENTED ON EACH SIGNAL POLE.
 5. TRAFFIC CONTROLLER CABINET AND LAYOUT SHALL BE SUCH THAT IT IS NOT NECESSARY TO SHUT DOWN POWER OR REMOVE LOAD SWITCHES IN ORDER TO EASILY TEST OR MODIFY DETECTOR INPUTS TO THE CONTROLLER.
 6. CONTROLLER CABINET SHALL BE WIRED SUCH THAT DURING FLASH OPERATIONS POWER TO THE LOAD SWITCHES CANNOT BACKFEED TO LOAD SWITCH POWER BUSS.
 7. ALL PARTS OF THIS INSTALLATION SHALL BE IN ACCORDANCE WITH THE AHTD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, STANDARD DRAWINGS AND WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITIONS.
 8. CONDUIT INSTALLED UNDER ROADWAY SURFACES SHALL BE INSTALLED BY PUSHING OR BORING METHODS. IF THE ENGINEER DETERMINES THIS IS NOT FEASIBLE, THEN A TRENCHING METHOD AS SHOWN IN THE DETAILS MAY BE USED.
 9. TRAFFIC SIGNAL POLES SHALL BE GALVANIZED. BACKPLATES SHALL BE SUPPLIED FOR ALL SIGNAL HEADS.
 10. PAVEMENT MARKINGS SHOWN FOR REFERENCE ONLY. SEE PAVEMENT MARKING PLAN SHEETS.
 11. FOUNDATION FOR ALL POLES SHALL BE EXTENDED IF NECESSARY TO ACCOMMODATE THE REQUIREMENTS FOR SIGNAL HEAD CLEARANCE ABOVE ROADWAY ONLY AT LOCATIONS WHERE THE GROUND ELEVATION AT THE POLE IS BELOW THE ELEVATION OF THE ROADWAY (SEE NOTES ON STANDARD DRAWING). PAYMENT WILL BE INCLUDED IN SECTION 714, AHTD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, CURRENT EDITION.
 12. ALL CONCRETE PULL BOXES SHALL BE (TYPE 2 HD) UNLESS OTHERWISE INDICATED. ALL CONDUIT SHALL BE 3" DIAMETER UNLESS SPECIFIED ON PLANS.
 13. CONTRACTOR SHALL NOTIFY ALL EXISTING UTILITY OWNERS BEFORE BEGINNING WORK ON THIS PROJECT.
 14. LUMINAIRE ASSEMBLIES SHALL BE OF THE FULL CUTOFF TYPE.
 15. HARDWARE INPUTS MAY BE DETERMINED BY SUPPLIER. EACH DETECTOR OUTPUT SHALL INPUT THE CONTROLLER THROUGH A SEPARATE INPUT UNLESS OTHERWISE NOTED AND BE PROGRAMMED TO ACTUATE THE ASSOCIATED PHASE. COMBINATION (COMB.) DETECTORS SHALL ALSO BE PROGRAMMED TO PROVIDE VEHICLE COUNT/OCCUPANCY DATA.
 16. THE LOCAL RADIO WITH ANTENNA SHALL BE COMPATIBLE WITH THE EXISTING CLOSED LOOP COORDINATION SYSTEM IN THE CITY.
 17. TO DETERMINE UTILITY CLEARANCES ABOVE THE TRAFFIC SIGNAL POLE, REFER TO THE POLE SCHEDULE FOR VERTICAL SHAFT HEIGHT. WHERE THE POLE SCHEDULE INDICATES THAT A LUMINAIRE ARM WILL BE USED, 38 FEET SHOULD BE USED TO DETERMINE UTILITY CLEARANCE ABOVE THE LUMINAIRE ARM. WHERE THE POLE SCHEDULE INDICATES A TRAFFIC SIGNAL POLE WITHOUT A LUMINAIRE ARM, A HEIGHT OF 21' SHOULD BE USED TO DETERMINE UTILITY CLEARANCE ABOVE THE TRAFFIC SIGNAL MAST ARM. AN ADDITIONAL 6 FEET SHOULD BE USED DIRECTLY ABOVE "VIDEO DETECTOR" AT LOCATIONS SHOWN ON THE SIGNAL PLANS.
 18. THE DESIRABLE MINIMUM DISTANCE FROM THE FACE OF ROADWAY CURB OR SHOULDER EDGE TO THE FACE OF NON-BREAKAWAY POLE OR OBSTRUCTION IS 6 FEET. REFER TO TRAFFIC SIGNAL PLANS FOR SPECIFIC LOCATION OF POLES, CONTROLLER AND ANY OTHER NON-BREAKAWAY OBSTRUCTIONS. REFER TO "DESIGN PARAMETERS, MINIMUM CLEAR ZONE DISTANCE" FOR MINIMUM DISTANCE FROM THE EDGE OF TRAVELED WAY TO THE FACE OF A NON-BREAKAWAY POLE OR OBSTRUCTION. TRAFFIC SIGNAL POLES OR ANY OTHER NON-BREAKAWAY OBSTRUCTION SHALL NOT BE INSTALLED WITHIN THE CLEAR ZONE.
 19. AS DETERMINED BY THE ENGINEER, FOUNDATION EMBEDMENT MAY BE DECREASED BY A MAXIMUM OF TWO FEET IF COMPETENT ROCK IS ENCOUNTERED PRIOR TO ACHIEVING PLAN EMBEDMENT AND AT LEAST HALF OF THE REMAINING PLAN EMBEDMENT LENGTH IS KEYED INTO COMPETENT ROCK.
 20. CONNECTION OF TRAFFIC SIGNAL DISPLAY TO FIELD WIRING SHALL UTILIZE AN APPROVED TERMINAL STRIP BEHIND HAND-HOLE COVER AT BASE OF POLE. TERMINAL STRIP SHALL PROVIDE PROTECTION TO PREVENT EXPOSURE TO THE PUBLIC IN THE EVENT THAT POLE COVER IS MISSING. PAYMENT FOR TERMINAL STRIPS SHALL BE INCLUDED IN ITEM 714--TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION.
 21. CONTROLLER CABINET LAYOUT AND ORIENTATION SHALL CONFORM TO IMSA STANDARDS.
 22. ONE VIDEO PROGRAMMING MODULE SHALL BE PROVIDED FOR AIMING AND SETUP OF DETECTORS IF THE VIDEO SYSTEM CANNOT BE ADJUSTED THROUGH HARDWARE AND SOFTWARE PROVIDED BY ITEMS WITHIN THE JOB.
 23. TRAFFIC SIGNAL CONTRACTOR MUST NOTIFY RESIDENT ENGINEER OR ASSIGNED DEPARTMENT PROJECT INSPECTOR EACH DAY PRIOR TO SIGNAL RELATED WORK. NO WORK ON TRAFFIC SIGNALS WILL BE ALLOWED OR APPROVED WITHOUT THIS PRIOR NOTIFICATION.
 24. ALL STEEL POLES SHALL BE DESIGNED TO MEET THE AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, 4th EDITION (2001) WITH 2003 AND 2006 INTERIMS.
 25. DOOR PANEL TEST PUSH BUTTONS SHALL ACTUATE INDICATED PHASES. DETECTOR ASSIGNMENTS AND/OR SIDE PANEL JUMPERS MAY REQUIRE MODIFICATION.
 26. ALL SYSTEM DETECTOR RACKS AND ASSOCIATED EQUIPMENT SHALL BE PROTECTED BY THE MAIN CONTROLLER CABINET POWER SURGE PROTECTION.
- ADDITIONAL NOTES**
27. THE VIDEO PROCESSOR UNIT SHALL BE ITERIS DETECTION SYSTEM.
 28. VIDEO DETECTORS SHALL BE ITERIS DETECTION SYSTEM HIGH RESOLUTION CAMERAS.
 29. VIDEO CABLE SHALL BE AS RECOMMENDED BY THE MANUFACTURER OF THE VIDEO PROCESSOR UNIT AND COMPATIBLE WITH THE SPECIFIED VIDEO DETECTORS.
 30. THE CONTROLLER CABINET SHALL BE A "P" CABINET MANUFACTURED BY SOUTHERN CABINETS.
 31. TRAFFIC SIGNAL LIGHTS SHALL BE LED VEHICLE TRAFFIC SIGNAL MODULES BY GELCORE CORPORATION OR AN APPROVED EQUAL. LED MODULES SHALL COMPLY WITH ITE LED SPECIFICATION VTCSH PART 2 JULY 1998 AND SHALL BE CERTIFIED EPA ENERGY STAR COMPLIANT.
 32. ALL PEDESTRIAN HEADS SHALL UTILIZE INTERNATIONAL SYMBOLS INSTEAD OF THE WORD MESSAGE DISPLAY.
 33. THE POSITION OF THE DETECTION ZONES MAY BE FIELD ADJUSTED TO ACHIEVE MAXIMUM EFFICIENCY IN COUNT DATA AND VEHICLE ACTUATION, AS APPROVED BY THE ENGINEER.
 34. THERE SHALL BE NO DEVIATION FROM THIS PLAN WITHOUT PRIOR WRITTEN APPROVAL FROM THE ENGINEER.

QUANTITIES			
ITEM NO	ITEM	UNIT	QUANTITY
601	MOBIZATION	LUMP SUM	1
603	MAINTENANCE OF TRAFFIC	LUMP SUM	1
701	SYSTEM LOCAL CONTROLLER*	EACH	1
706	TRAFFIC SIGNAL HEAD(3 SECTION, 1-WAY)*	EACH	10
706	TRAFFIC SIGNAL HEAD (4-SECTION, 1-WAY)*	EACH	2
707	COUNTDOWN PEDESTRIAN SIGNAL HEAD LED*	EACH	4
708	TRAFFIC SIGNAL WIRE (5C/14 A.W.G.)	L.F.	525
708	TRAFFIC SIGNAL WIRE (7C/14 A.W.G.)	L.F.	675
708	TRAFFIC SIGNAL WIRE (20C/14 A.W.G)	L.F.	475
710	NON-METALLIC CONDUIT 3"	L.F.	320
710	NON-METALLIC CONDUIT 1.25"	L.F.	90
711	CONCRETE PULL BOX (TYPE 2)*	EACH	4
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION(32')*	EACH	1
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION(42')*	EACH	1
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION(38')*	EACH	1
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION(35')*	EACH	1
733	VIDEO DETECTOR (CLR)*	EACH	4
733	VIDEO MONITOR (CLR)*	EACH	1
733	VIDEO PROCESSOR, EDGE CARD (4 CAMERA)*	EACH	4
733	VEHICLE DETECTOR RACK*	EACH	1
733	VIDEO CABLE	L.F.	700
SP	ELECTRICAL CONDUCTORS--IN-CONDUIT (1C/8 A.W.G., E.G.C.)	L.F.	500
SP	ELECTRICAL CONDUCTORS--IN-CONDUIT (2C/6 A.W.G., E.G.C.)	L.F.	45
SP	ELECTRICAL CONDUCTORS--IN-CONDUIT (1C/12 A.W.G., E.C.G)	L.F.	150
SP	ELECTRICAL CONDUCTORS FOR LUMINAIRE	L.F.	150
SP	LUMINAIRE ASSEMBLY*	EACH	1
SP	SERVICE POINT ASSEMBLY (SERVICE PEDESTAL ONLY TO BE PROVIDED BY CITY OF CONWAY)	EACH	1

* NOTE: ITEMS DESIGNATED BY "*" WILL BE PROVIDED BY THE CITY OF CONWAY. ALL OTHER ITEMS TO BE PROVIDED BY THE CONTRACTOR.



**DONAGHEY AVE & ROBINSON AVE
SIGNAL DESIGN**

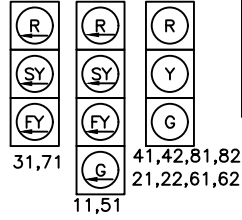
No.	Revision/Issue	Date

NOTES AND QUANTITIES

JOB NUMBER 16-108

DRAWN BY: JTB	SHEET #:
CHECKED BY: Bfv3	2
DATE: 6-28-17	
SCALE: N.T.S.	

SIGNAL DISPLAY



DESIGN PARAMETERS
 POSTED SPEED LIMIT:
 30 MPH NORTHBOUND AND SOUTHBOUND APPROACHES
 30 FOR EASTBOUND AND WESTBOUND APPROACHES
 NO RAILROAD TRACKS
 NO PARKING
 NO FIRE STATION
 4' CLEAR ZONE FROM BACK OF CURB

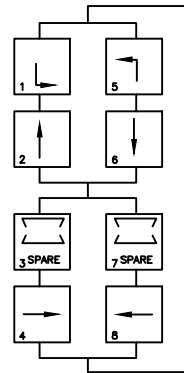


P2,P4,P6,P8

SIGNAL FACES	DONAGHEY AVE & ROBINSON AVE										FLASH SEQ.
	1+5	CLR.	1+6	CLR.	2+5	CLR.	2+6	CLR.	4+8	CLR.	
11	←G	*	←G	*	FY	**	FY	SY	←R	←R	†
21,22	R	R	R	R	G	*	G	Y	R	R	R
31	←R	←R	←R	←R	←R	←R	←R	FY	SY	†	
41,42	R	R	R	R	R	R	R	R	G	Y	R
51	←G	SY	FY	*	←G	**	FY	SY	←R	←R	†
61,62	R	R	G	Y	R	R	G	Y	R	R	R
71	←R	←R	←R	←R	←R	←R	←R	FY	SY	†	
81,82	R	R	R	R	R	R	R	R	G	Y	R

* DENOTES GREEN ARROW OR YELLOW ARROW DEPENDING ON NEXT PHASE
 ** DENOTES FLASHING YELLOW ARROW OR SOLID YELLOW ARROW DEPENDING ON NEXT PHASE

PHASING DIAGRAM



NOTE: ALL CONDUIT SHALL BE BORED
 STREET CUTTING WILL NOT BE PERMITTED

TRAFFIC SIGNAL LEGEND

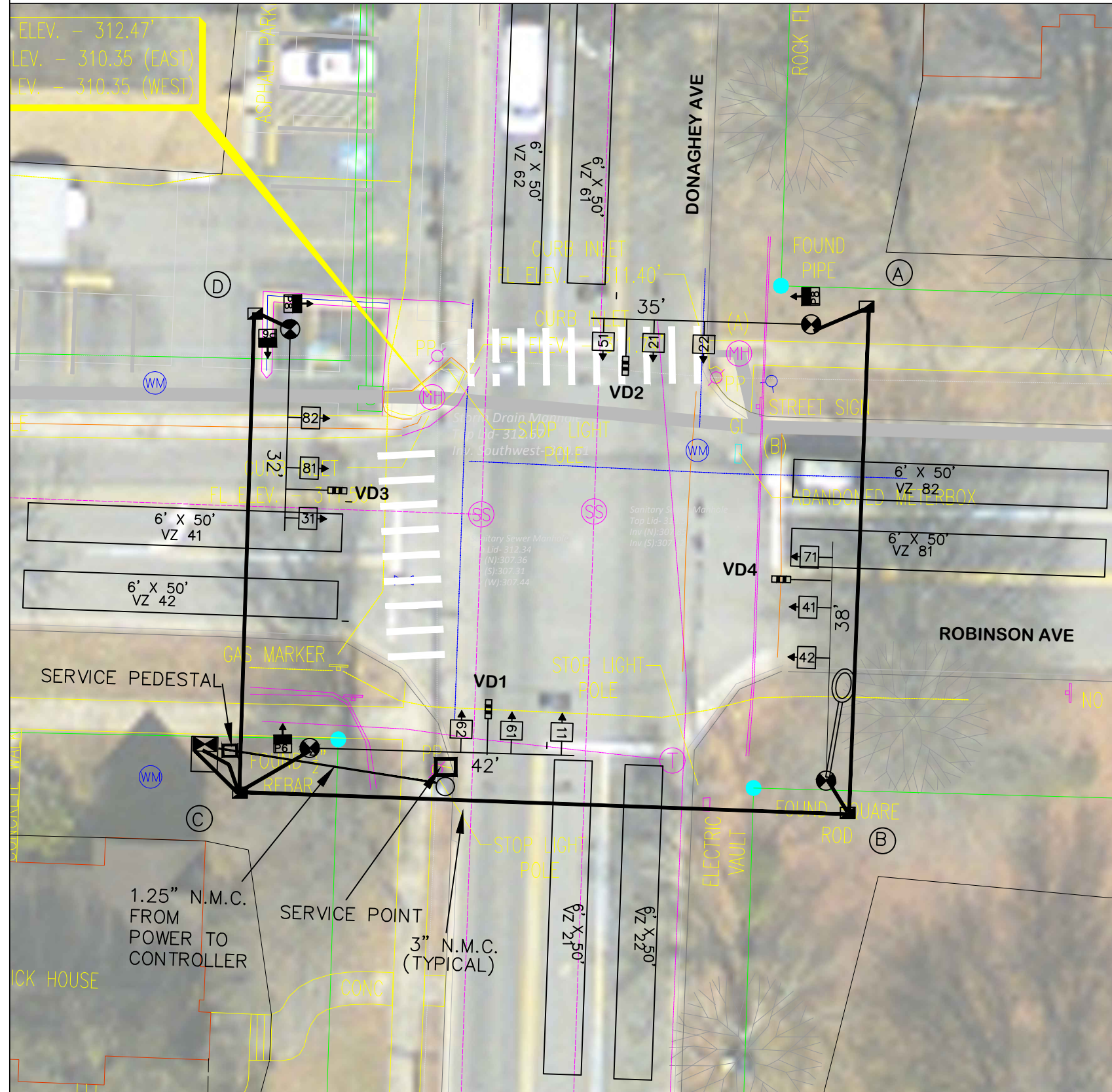
- NEW TRAFFIC SIGNAL CONTROLLER
- NEW JUNCTION BOX
- NEW 3" NON-METALLIC CONDUIT
- NEW 1.25" NON-METALLIC CONDUIT
- NEW OR RELOCATED METAL POLE
- NEW OR RELOCATED MAST ARM AND POLE
- SIGNAL HEAD AND NUMBER
- RELOCATED PEDESTRIAN SIGNAL HEAD AND NUMBER
- EXISTING COBRA HEAD STREET LIGHT
- TRAFFIC SIGNAL POLE W/ PED PUSH BUTTONS
- VIDEO DETECTOR
- BREAKER DISCONNECT BOX
- POLE NUMBER 'n'

POLE - MAST ARM SCHEDULE

POLE	POLE FOUNDATION TYPE	MAST ARM LENGTH	POLE HEIGHT	MA DEGREES CW FROM HANDHOLE	NORTHING	EASTING
A	AHTD	35'	21'*	180°	1176587.68	275157.93
B	AHTD	38'	35'*	180°	1176590.14	275085.52
C	AHTD	42'	21'*	180°	1176508.05	275090.65
D	AHTD	32'	21'*	180°	1176504.54	275157.01

*USING EXISTING POLES

SIGNAGE AND STRIPING TO BE INSTALLED BY THE CITY OF CONWAY.



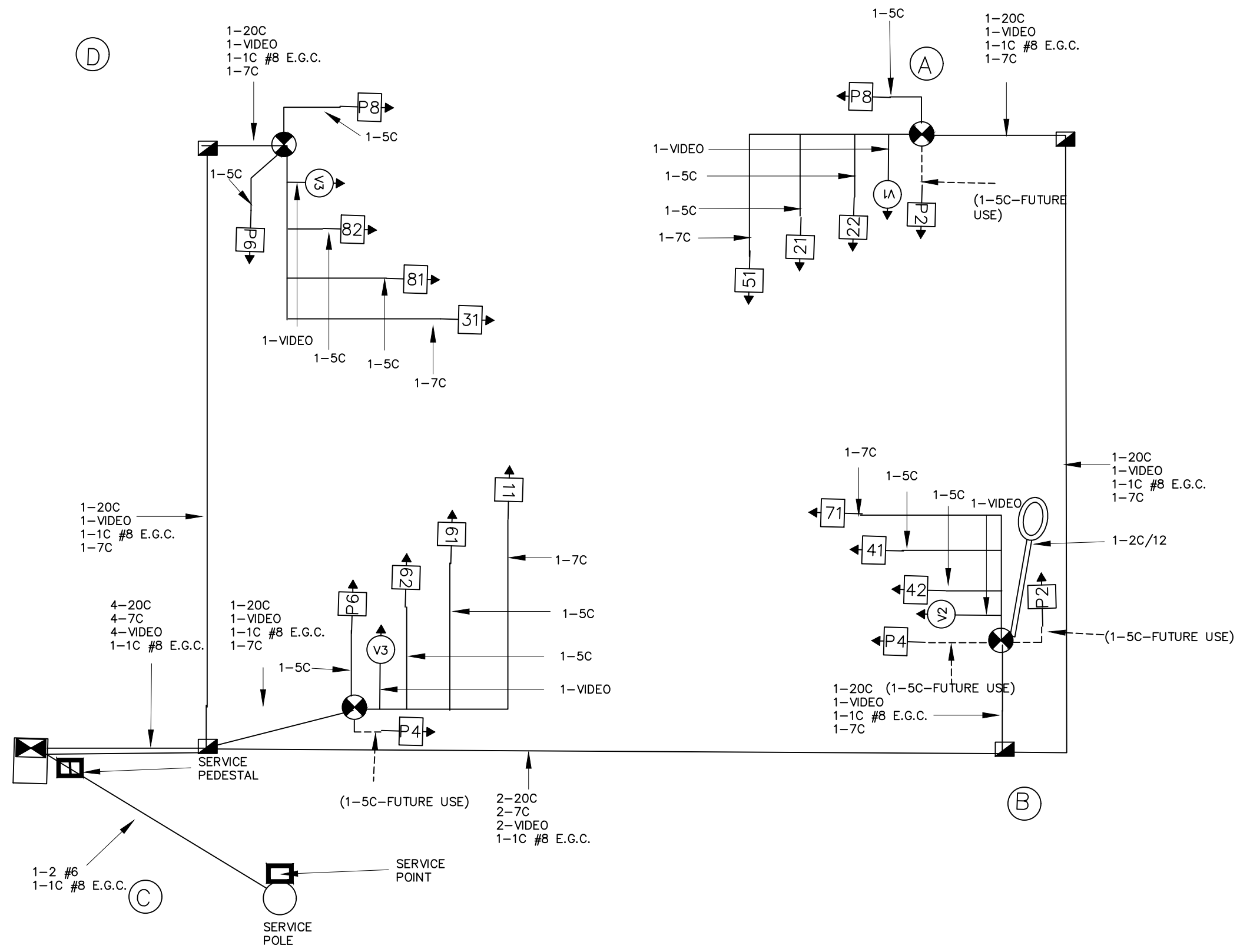
**DONAGHEY AVE & ROBINSON AVE
 SIGNAL DESIGN**

No.	Revision/Issue	Date

SIGNAL PLAN
 JOB NUMBER: 16-108

DRAWN BY: JTB	SHEET #:
CHECKED BY: BFV3	3
DATE: 6-28-17	
SCALE: 1"=20'	

DONAGHEY AVE & ROBINSON AVE
SIGNAL DESIGN

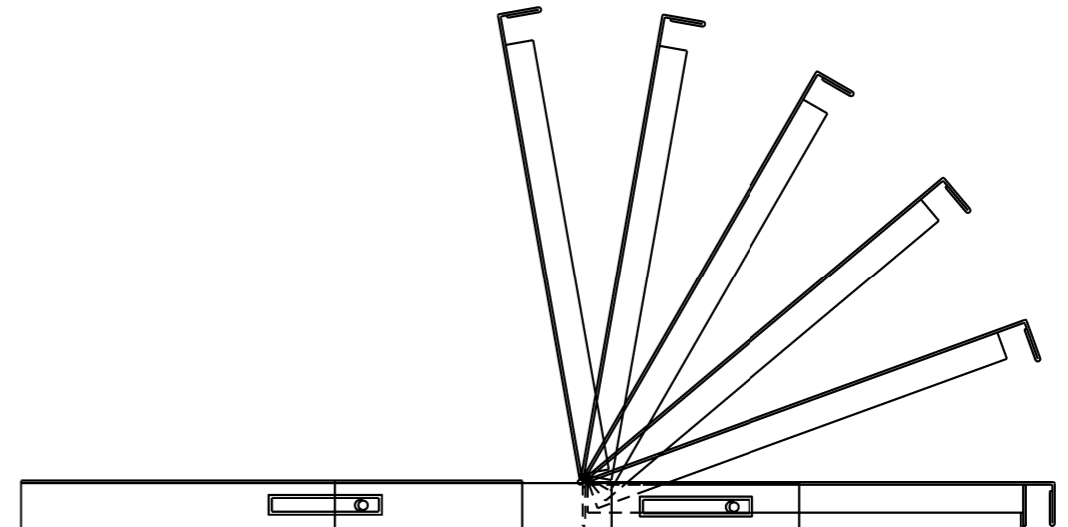
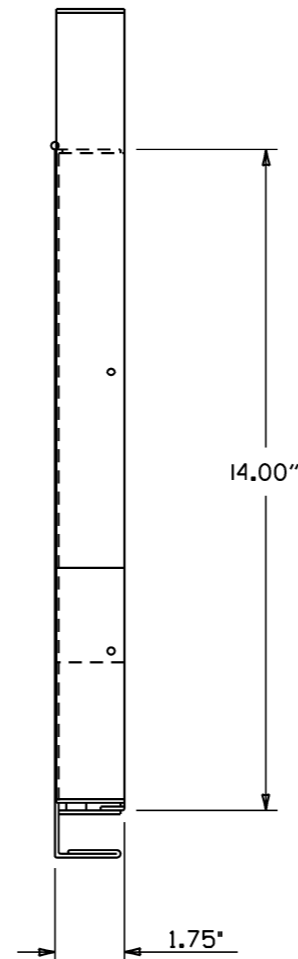
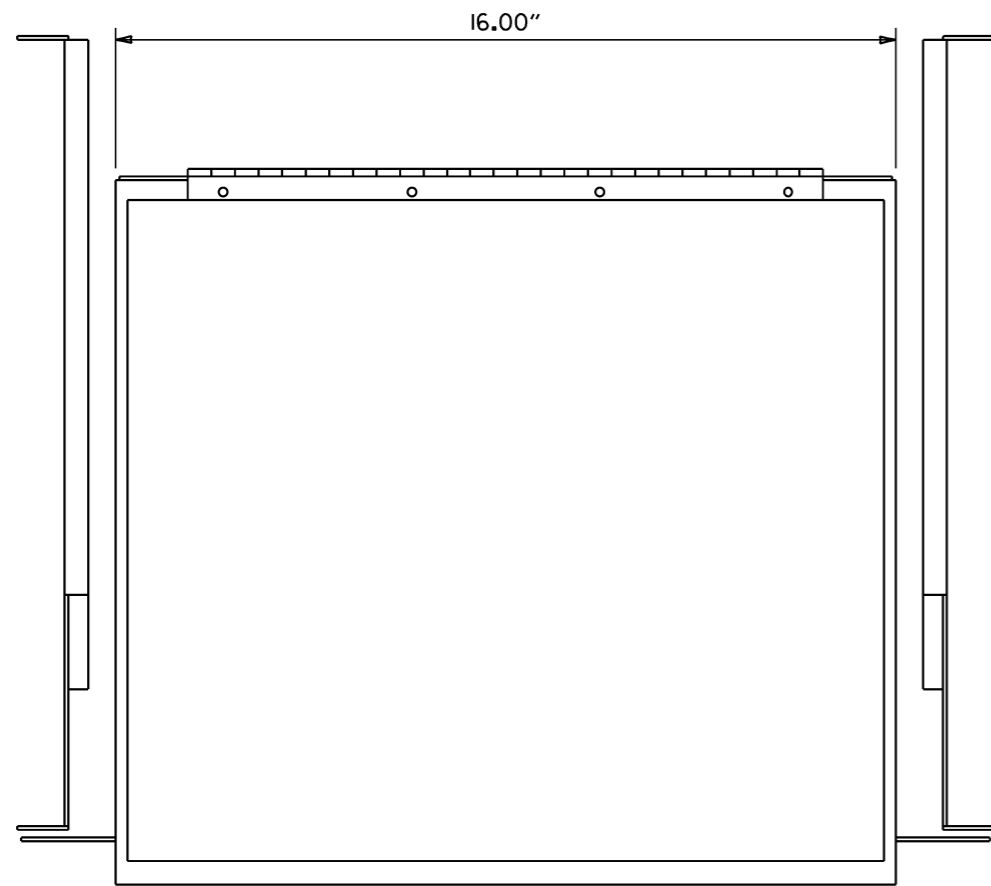


No.	Revision/Issue	Date

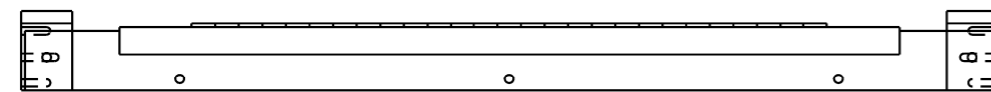
WIRING DIAGRAM
 JOB NUMBER: 16-108

DRAWN BY: JTB CHECKED BY: BFV3 DATE: 6-28-17 SCALE: N.T.S.	SHEET #: 4
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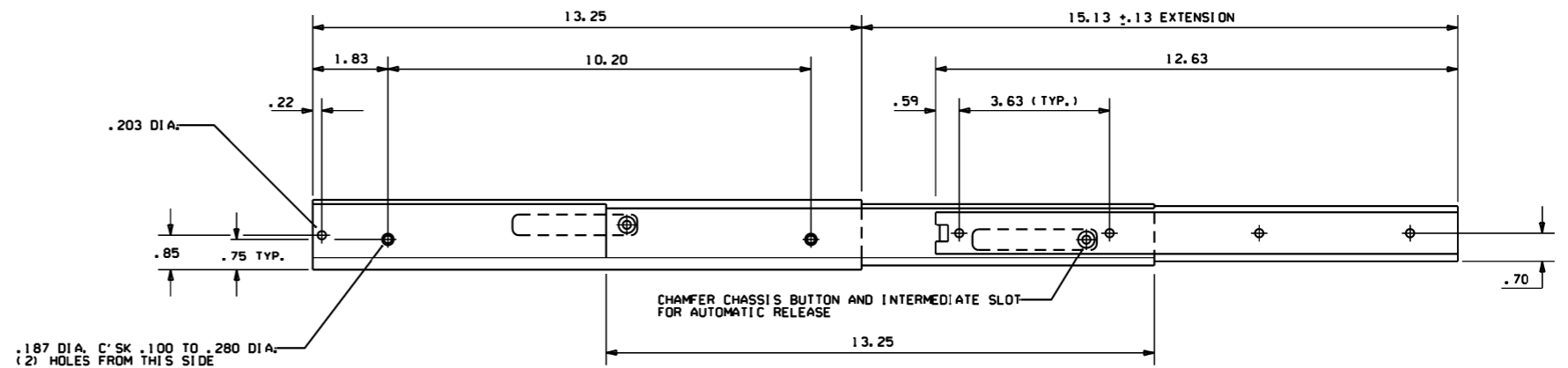
DRAWER PLAN VIEW



- NOTES:
 1. RIGHT HAND SLIDE SHOWN, LEFT SLIDE OPPOSITE.
 2. GENERAL DEVICES (CC3002-99-0102) OR EQUAL AND CONTAINS (1) RIGHT HAND SLIDE ASSEMBLY, (1) LEFT HAND SLIDE ASSEMBLY.
 3. ALL HARDWARE NECESSARY TO FASTEN SLIDE ASSEMBLY TO UNDERSIDE OF CONTROLLER SHELF SHALL BE INCLUDED.



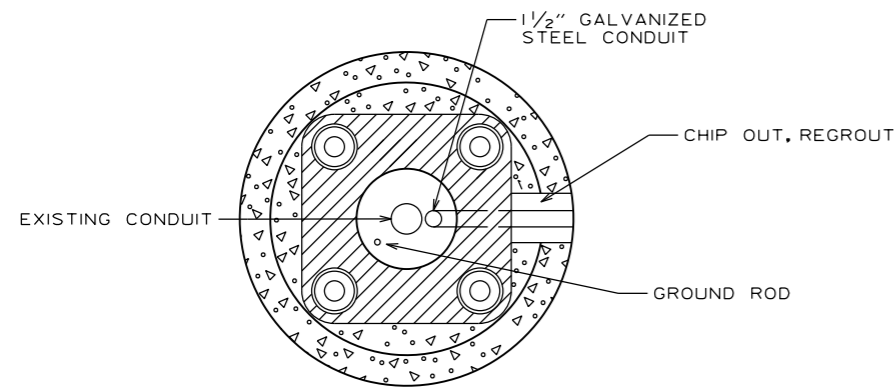
FRONT VIEW



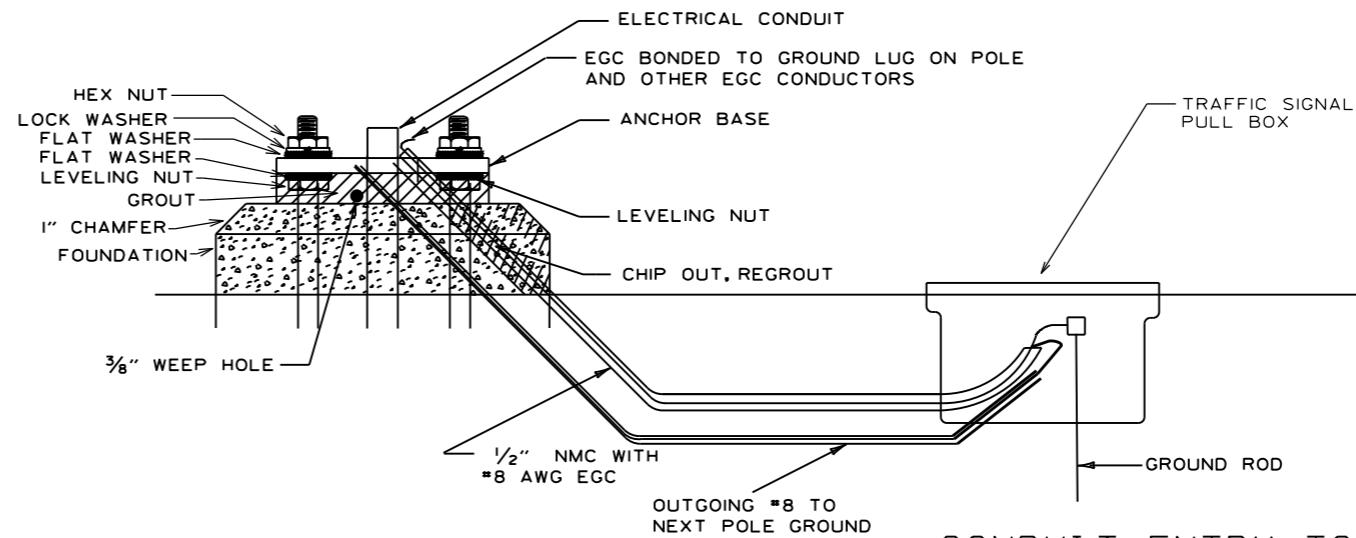
RIGHT SIDE ASSEMBLY

			ARKANSAS STATE HIGHWAY COMMISSION
			CONTROLLER CABINET UTILITY DRAWER
9-12-13	ISSUED AS STANDARD DRAWING		
6-15-05	ISSUED		
DATE	REVISION	DATE FILED	STANDARD DRAWING SD-5

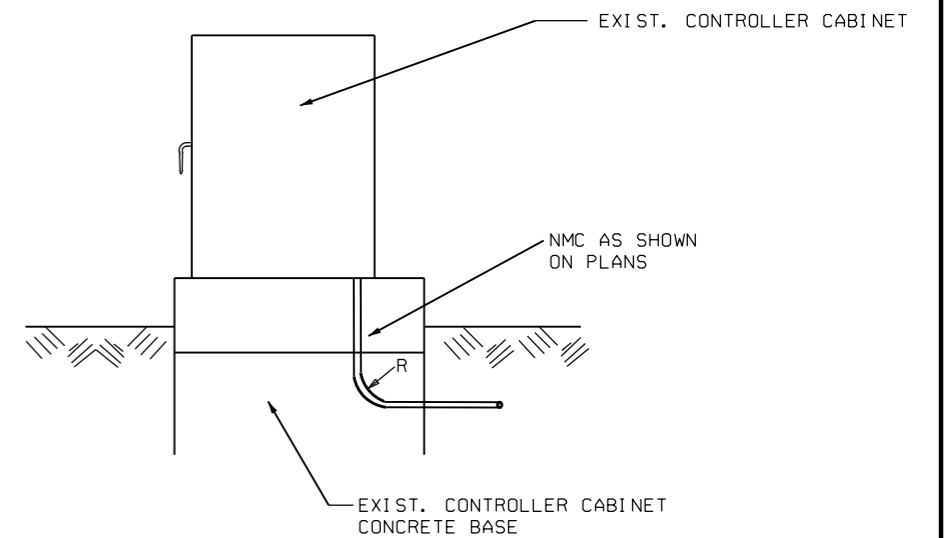
CONDUIT ENTRY TO EXISTING POLE BASE



ANCHOR BASE

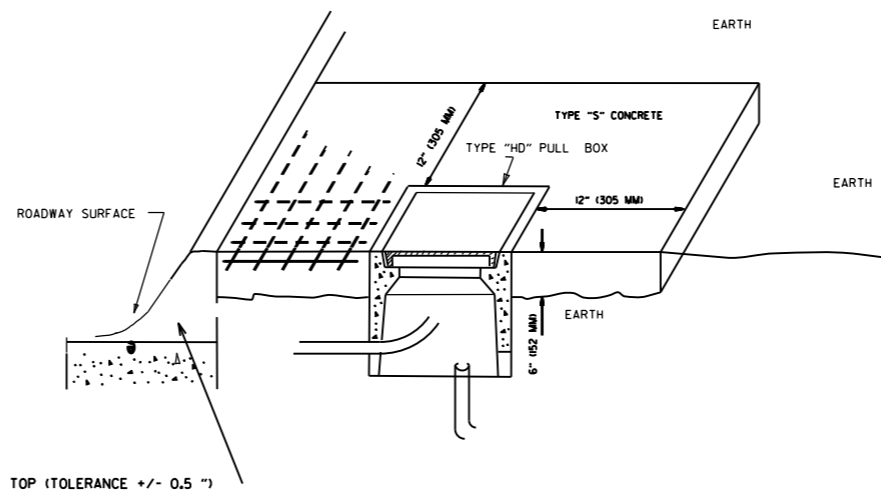


CONDUIT ENTRY TO EXISTING CONTROLLER CABINET

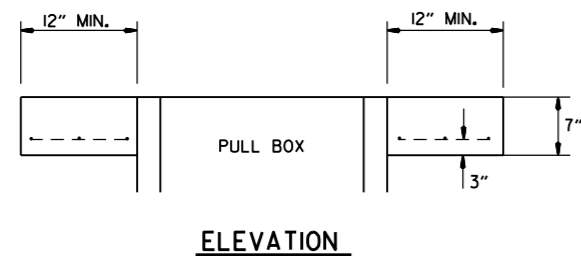
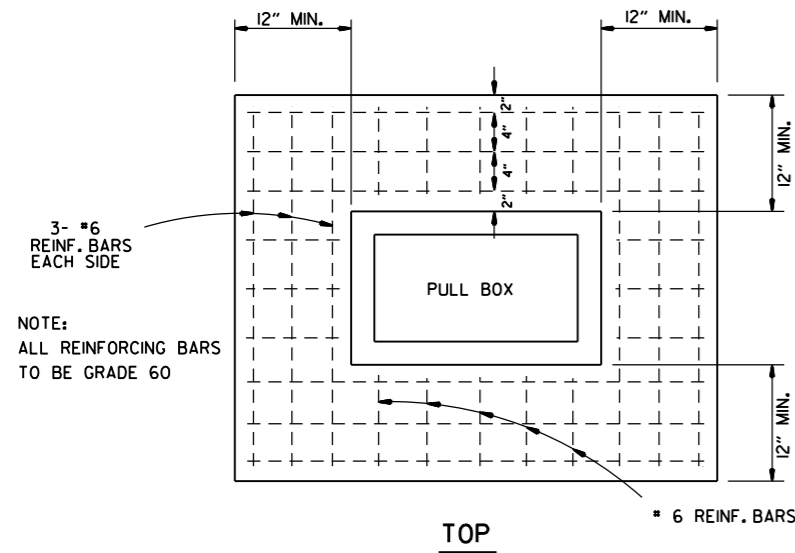


NOTE: ENTRY TO CABINET SHALL BE THROUGH A CUT IN THE BASE SUFFICIENT TO PROVIDE ADEQUATE CONDUIT RADIUS FOR ITEM.

TYPE "HD" CONCRETE PULL BOX DETAIL

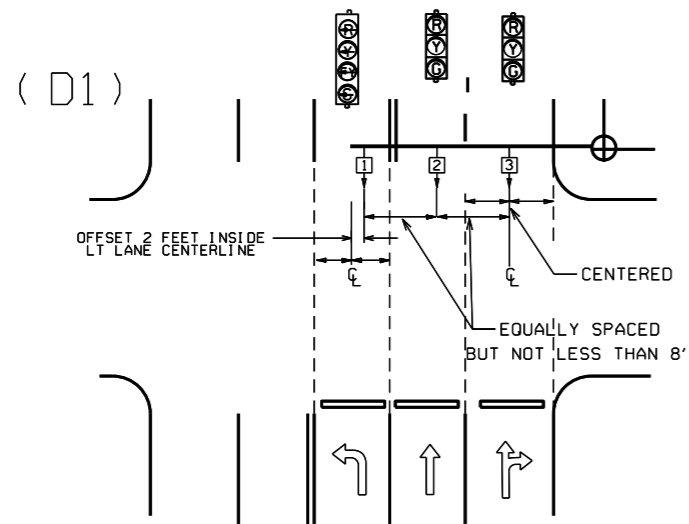
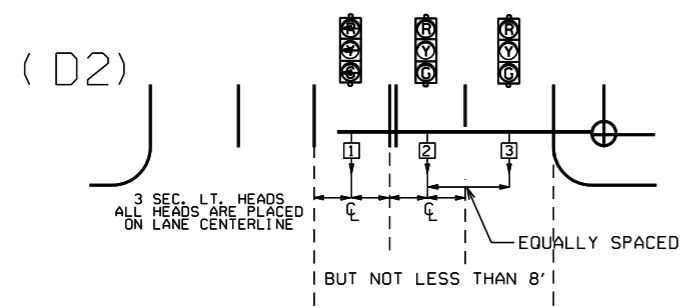
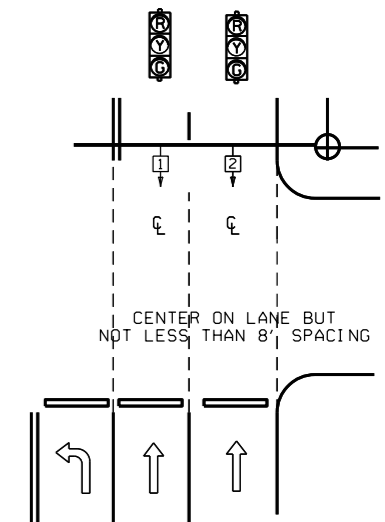
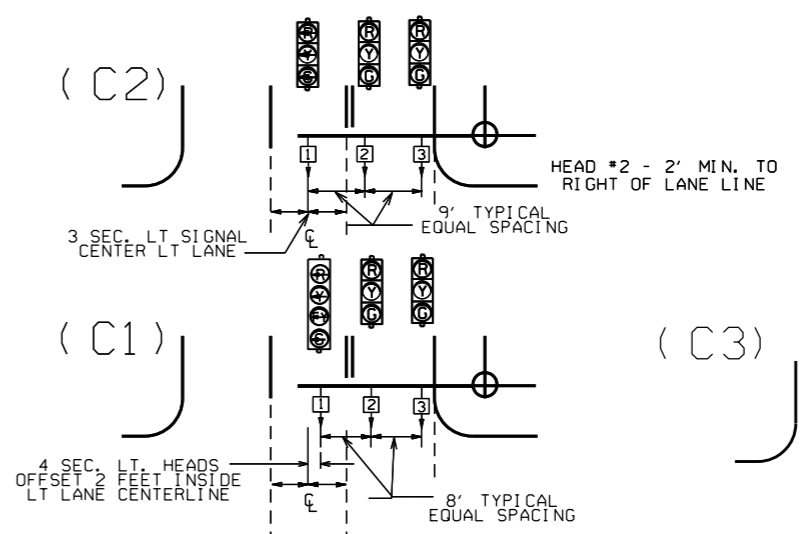
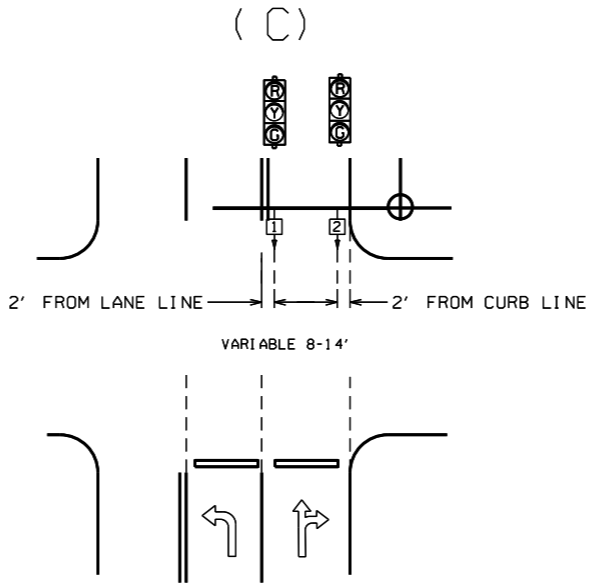
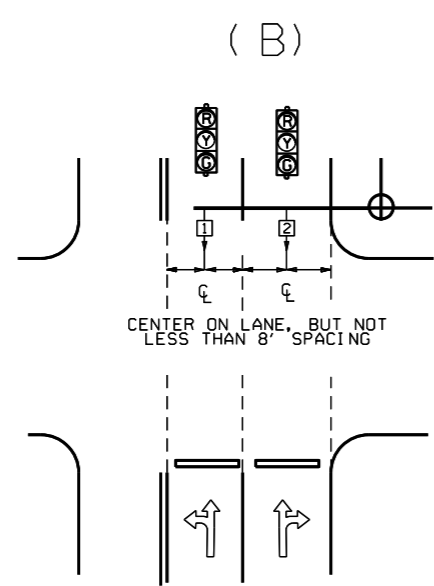
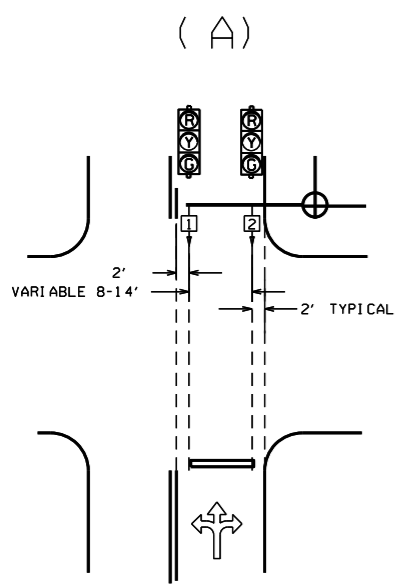


NOTE: ALL TYPE 1 AND TYPE 2 HD PULL BOXES ARE INSTALLED WITH AN APRON OF CONCRETE 12" (305 MM) WIDE AND 7" (178 MM) IN DEPTH. ALL PAYMENT SHALL BE INCLUDED IN THE PRICE OF THE TYPE HD PULL BOX. PULL BOX SHALL BE INSTALLED FLUSH TO SURROUNDING GRADE UNLESS OTHERWISE INSTRUCTED BY THE ENGINEER. THE CONCRETE SHALL BE CLASS "S". THREE #6 REINFORCING BARS IN THE APRON ON ALL SIDES OF THE PULL BOX IS REQUIRED IN CONCRETE.



DATE	REVISION	DATE FILM
9-2-15	REVISED PULL BOX DEPTH	
9-12-13	ISSUED AS STANDARD DRAWING	
5-21-09	REVISED GROUNDING	
7-31-08	ADDED & REVISED CONDUIT ENTRY	
6-23-04	REVISED CLEARANCE AT CURB ENTRY	
1-4-02	ADDED REINFORCING TO BOX APRON	
7-2-01	REVISED	
12-27-99	REVISED NOTES	
11-18-98	ISSUED	

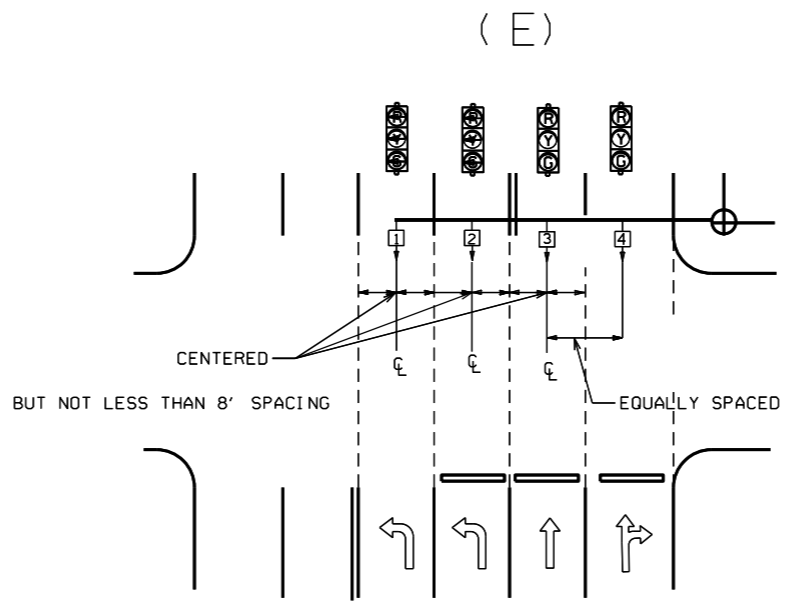
ARKANSAS STATE HIGHWAY COMMISSION		
HEAVY DUTY PULL BOX		
STANDARD DRAWING SD-6		



NOTE: WHERE LEFT TURN HEAD (HEAD 1 ON D1 AND D2) IS NOT CALLED FOR ON PLANS, MAST ARM LENGTH MAY STILL BE ALLOWED FOR FUTURE INSTALLATION. HEADS FOR THROUGH MOVEMENTS SHALL STILL BE ALIGNED WITH THROUGH LANES AS SHOWN ON DETAILS.

GENERAL NOTES:

- FOUR SECTION "PROTECTED/PERMISSIVE" LEFT TURN HEADS SHOULD BE PLACED A MINIMUM OF TWO (2') FEET TO THE RIGHT OF THE CENTERLINE OF THE APPROACHING LEFT TURN LANE.
- THREE SECTION "PROTECTED" LEFT TURN HEADS SHOULD BE PLACED ON THE CENTERLINE OF THE APPROACHING LEFT TURN LANE.
- WHEN IT IS NECESSARY TO PLACE POLES OTHER THAN AS SHOWN ON PLAN SHEET(S) RESULTING IN MAST ARM EXTENDING MORE THAN TWO FEET PAST (TO THE LEFT OF) THE CENTERLINE OF THE APPROACHING LEFT TURN LANE, MAST ARM SHALL BE CUT TO APPROPRIATE LENGTH AS DETERMINED BY THE ENGINEER, AND A NEW END CAP PROVIDED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THIS PRIOR TO INSTALLING THE MAST ARM IF ADDITIONAL COMPENSATION IS REQUIRED.
- SIGNAL HEAD SPACING SHALL, IN NO CASE, BE LESS THAN EIGHT (8') FEET BETWEEN HEADS ON CENTER, MEASURED HORIZONTALLY PERPENDICULAR TO THE APPROACH.
- ALL SIGNAL HEADS SHOWN ON THIS DETAIL SHEET SHALL BE LOCATED ACCORDING TO THE DIMENSIONS SHOWN IN RELATION TO THE APPROACH SIDE OF THE INTERSECTION.
- MAXIMUM MOUNTING HEIGHT OF SIGNAL FACES LOCATED BETWEEN 40 FEET AND 53 FEET FROM STOP BAR SHALL BE IN ACCORDANCE WITH FIGURE 4D-5 OF 2009 MUTCD.



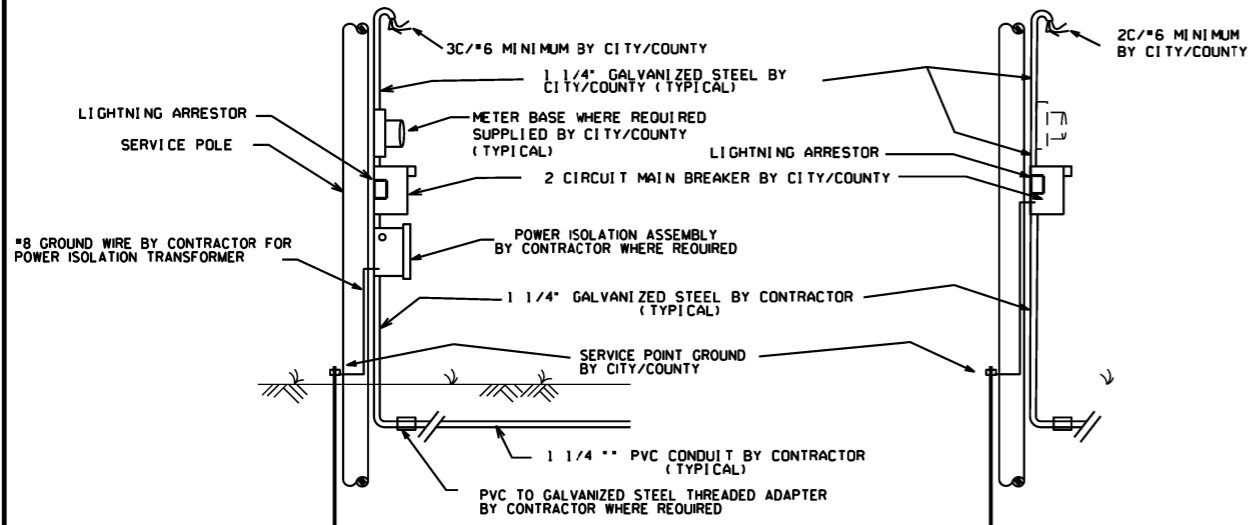
℄ = CENTER OF LANE FROM APPROACH SIDE

12-8-16	REVISED NOTE 6		ARKANSAS STATE HIGHWAY COMMISSION
9-12-13	ISSUED AS STANDARD DRAWING		SIGNAL HEAD PLACEMENT
3-11-10	2009 MUTCD		
12-9-99	ISSUED		
DATE	REVISION	DATE FILM	STANDARD DRAWING SD-8

MAIN BREAKER NOT NEAR CONTROLLER CABINET SECONDARY REQUIRED

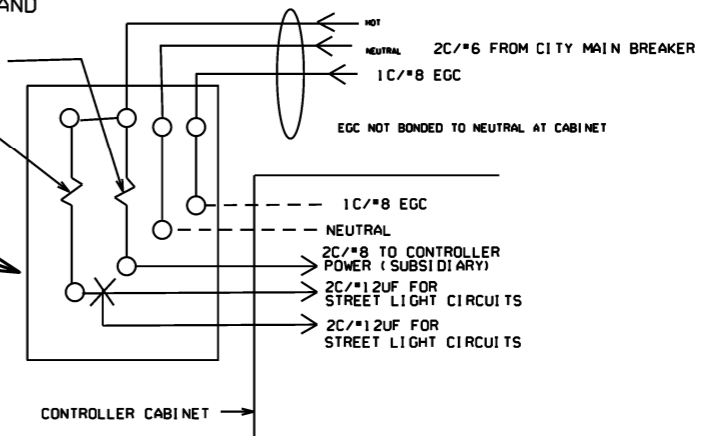
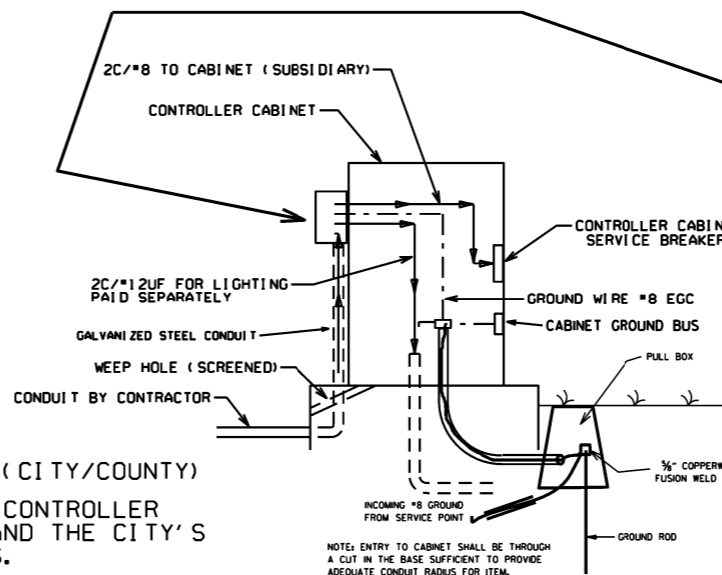
WITH POWER ISOLATION ASSEMBLY

WITHOUT POWER ISOLATION ASSEMBLY



GROUND ROD-A 10' X 3/4" GROUND ROD SHALL BE INSTALLED IN THE PULL BOX FOR EACH POLE AND THE CONTROLLER. PAYMENT FOR THE GROUND ROD AND 1/2" NMC SHALL BE INCLUDED IN ITEM 701. THE PULL BOX AND CONDUCTOR BOX SHALL BE PAID FOR SEPARATELY.

SECONDARY BREAKER BY CONTRACTOR (SUBSIDIARY)



MAIN BREAKER WIRING (TYPICAL)

NOTES TO CONTRACTOR AND AGENCY RESPONSIBLE FOR MAINTENANCE OF THE INTERSECTION (CITY/COUNTY)

ELECTRICAL SERVICE TYPICALLY FALLS INTO TWO CATEGORIES: MAIN BREAKER NEAR CONTROLLER CABINET; AND MAIN BREAKER NOT NEAR CONTROLLER CABINET. THE CONTRACTOR'S AND THE CITY'S OR COUNTY'S RESPONSIBILITY VARIES ACCORDINGLY AS INDICATED ON THESE DETAILS.

1. ALL SITUATIONS: ELECTRICAL SERVICE SHALL BE PROVIDED BY THE CITY/COUNTY TO A SERVICE POLE WITH EXTERNAL RAIN TIGHT BREAKER (MAIN BREAKER) AT A MUTUALLY ACCEPTABLE POINT WITHIN THE RIGHT-OF-WAY. SERVICE POINT INCLUDES GALVANIZED STEEL CONDUIT TO A POINT 18" BELOW GROUND LINE, TWO CIRCUIT MAIN BREAKER, LIGHTNING ARRESTOR, POWER ISOLATION ASSEMBLY WHERE REQUIRED, METER LOOP IF REQUIRED BY LOCAL UTILITY, ELECTRICAL CONDUCTORS AND WEATHERHEAD. WHERE STREET LIGHTING IS INCLUDED AS PART OF SIGNAL INSTALLATION, STREET LIGHTING CIRCUIT (2C/#12 AWG UF RATED, TYPICAL) SHALL BE KEPT SEPARATE FROM THE CIRCUIT SERVING TRAFFIC SIGNAL. SERVICE WIRE AND WIRING FROM THE CONTROLLER TO MAIN BREAKER IS PROVIDED BY THE CONTRACTOR AS A PART OF THIS CONTRACT. WIRE AND WIRING FROM MAIN BREAKER, AND CONNECTION TO THE UTILITY IS THE RESPONSIBILITY OF THE CITY/COUNTY.

2. MAIN BREAKER NOT NEAR CONTROLLER CABINET: THE MAIN BREAKER ASSEMBLY, GALVANIZED STEEL CONDUIT, WEATHERHEAD AND WIRE ABOVE MAIN BREAKER AND CONNECTION TO THE UTILITY SHALL BE PROVIDED BY CITY/COUNTY. CONTRACTOR SHALL PROVIDE AS PART OF CONTRACT SECONDARY BREAKER, CONDUIT, WIRE AND WIRING TO THE MAIN BREAKER.

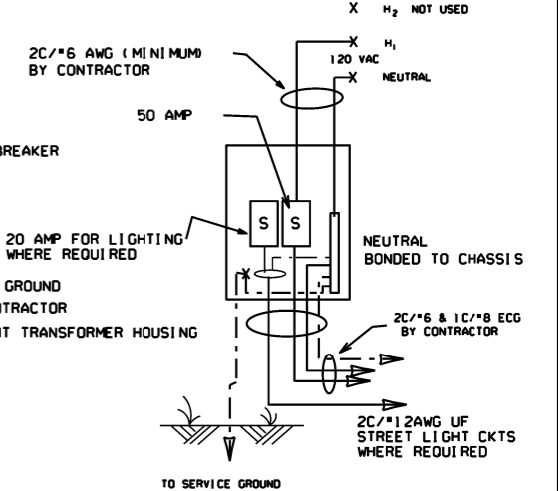
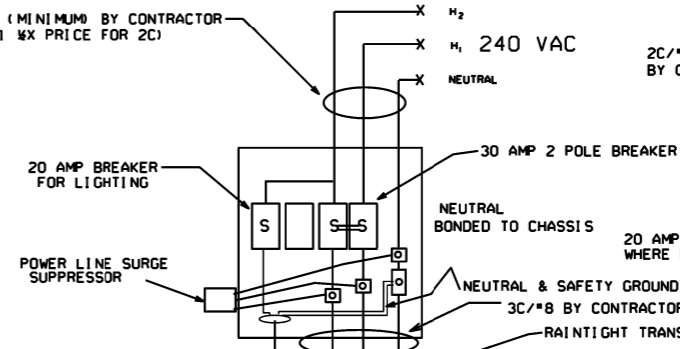
3. MAIN BREAKER NEAR CONTROLLER CABINET: ALL COMPONENTS OF THE SERVICE POINT WITH THE EXCEPTION OF THE WIRE AND WIRING ABOVE THE MAIN BREAKER IS FURNISHED AND INSTALLED BY THE CONTRACTOR. WIRING FROM MAIN BREAKER INCLUDING CONNECTION TO THE UTILITY, IS THE RESPONSIBILITY OF THE CITY/COUNTY. IF METER LOOP IS REQUIRED, METER BASE AND HARDWARE IS PROVIDED BY THE CITY/COUNTY AND INSTALLED BY THE CONTRACTOR.

SERVICE GROUND IS TYPICALLY TIED TO NEUTRAL AT THE MAIN BREAKER. AS SUCH, CONTROLLER GROUND IS NOT TIED TO NEUTRAL AT SECONDARY BREAKER OR IN CONTROLLER CABINET.

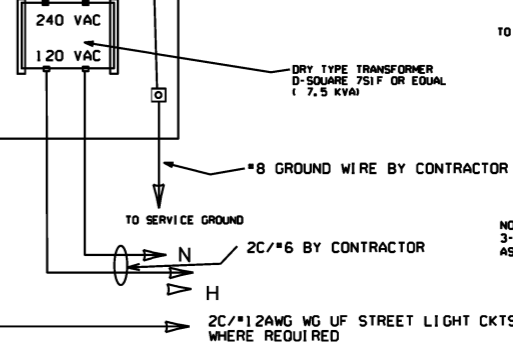
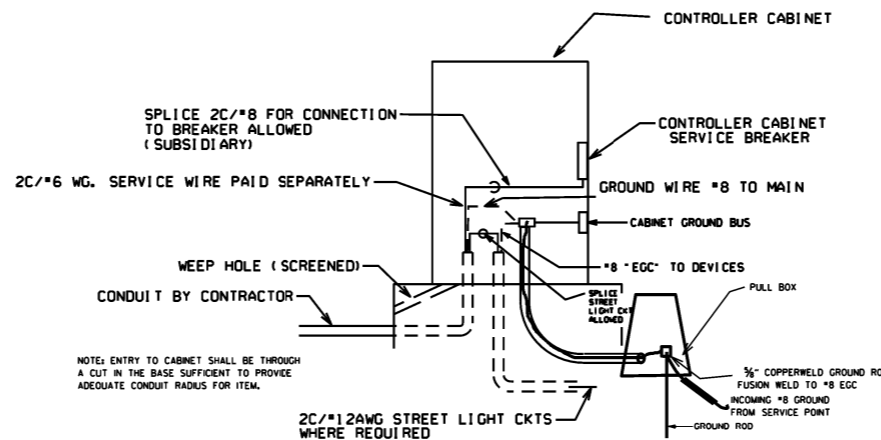
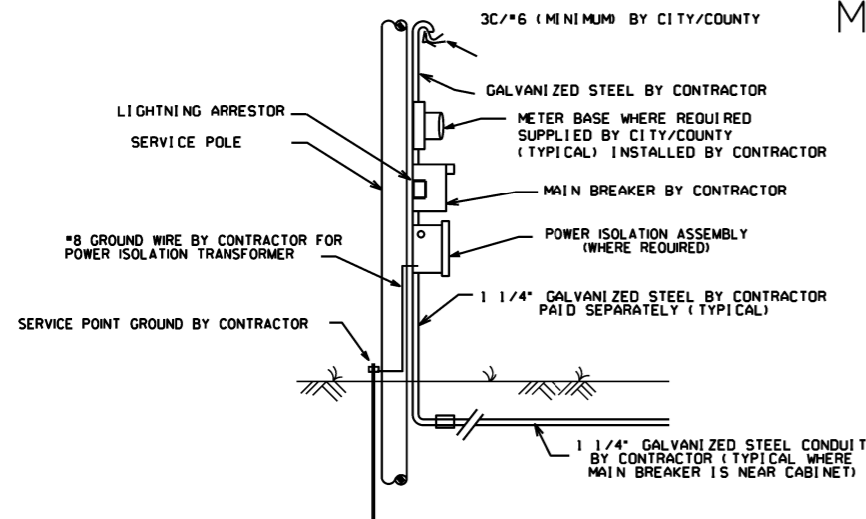
WITH POWER ISOLATION ASSEMBLY
4 CIRCUIT MAIN BREAKER

WITHOUT POWER ISOLATION ASSEMBLY
2 CIRCUIT MAIN BREAKER

3C/#6 AWG (MINIMUM BY CONTRACTOR (PAID AT 1 1/2 X PRICE FOR 2C))



MAIN BREAKER NEAR CONTROLLER CABINET SECONDARY NOT REQUIRED



NOTE: ELECTRICAL GROUND CONDUCTOR (EGC) ADDED 3-3-2003, CONSISTING OF A 1C/#8AWG CU GREEN WIRE AS PER NATIONAL ELECT. CODES.

DATE	REVISION	DATE FILM
9-12-13	ISSUED AS STANDARD DRAWING	
4-18-13	ADDED LIGHTNING ARRESTOR	
5-21-09	REVISED GROUNDING	
7-31-08	REVISED GROUNDING	
3-3-03	ADDED EGC NOTE	
9-26-01	REVISED	
12-27-99	REVISED	
7-28-99	REVISED	
2-5-99	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

SERVICE POINT

STANDARD DRAWING SD-9

NOTES, PED AND TRAFFIC SIGNAL HEAD SIGNS:
EACH ITEM *TRAFFIC SIGNAL HEAD (4 SEC., 1-WAY)* SHALL INCLUDE A SPECIAL SIGN AS SHOWN, ATTACHED TO THE MAST ARM OR SPAN ASSEMBLY 12" TO THE RIGHT OF THE SIGNAL HEAD UNLESS REMOVED WITHIN THE SIGNAL PLAN NOTES.

EACH ITEM *TRAFFIC SIGNAL HEAD (3 SEC., 1-WAY)* TO BE USED AS A LEFT TURN INDICATION ONLY SHALL INCLUDE A SIGN (R10-10) AS SHOWN, ATTACHED TO THE MAST ARM OR SPAN ASSEMBLY 12" TO THE RIGHT OF THE SIGNAL HEAD.

EACH PEDESTRIAN PUSHBUTTON SHALL HAVE ONE R10-3E SIGN ATTACHED TO THE POLE ABOVE THE BUTTON. ALL SIGNS SHALL BE MANUFACTURED IN ACCORDANCE WITH SECTION 723 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

ALL SIGN BLANKS SHALL BE CONSTRUCTED OF ALUMINUM ALLOY (ASTM DESIGNATION B-209, ALLOY 5052-H38) WITH THICKNESS OF 0.100 INCH.

GENERAL NOTES:

1. MAST ARM POLES SHALL BE MOUNTED A MINIMUM OF 4 FT. BEHIND CURB OR SHOULDER.

2. OCTAGONAL POLES AND ARMS MEETING THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS CAN BE INSTALLED IN LIEU OF ROUND. ALL POLES AND ARMS IN A JOB MUST BE THE SAME SHAPE.

3. MINIMUM STRUCTURAL REQUIREMENTS: DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, 4TH EDITION (2001) WITH 2003 AND 2006 INTERIMS.

USE FATIGUE CATEGORY I FOR ALL STRUCTURES ON ROUTES WHERE THE SPEED LIMIT IS 65 MPH AND GREATER AT THE STRUCTURE LOCATION AND ON ROUTES WHERE SPEED LIMIT IS GREATER THAN 45 MPH WITH AN ARM 60' OR LONGER.

USE FATIGUE CATEGORY II FOR STRUCTURES ON ROUTES WITH A SPEED LIMIT LESS THAN 65 MPH AND GREATER THAN 45 MPH WITH ARMS LESS THAN 60' AND ROUTES WITH SPEED LIMITS OF 45 MPH AND LESS WITH AN ARM 60' OR LONGER.

USE FATIGUE CATEGORY III FOR ALL STRUCTURES WHERE SPEED LIMIT IS 45 MPH AND LESS AND ARMS LESS THAN 60'.

CONSTRUCTION SPECIFICATIONS: ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION) WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

BASE WIND SPEED: 90 MPH.

STEEL MEMBERS CONSIDERED MAIN CARRYING MEMBERS WITH A THICKNESS GREATER THAN 1/2" SHALL MEET THE LONGITUDINAL CHARPY V-NOTCH TEST SPECIFIED IN SUBSECTION 807.05 OF THE STANDARD SPECIFICATIONS.

DEAD LOAD: AS A MINIMUM, DESIGN SHALL BE BASED ON THE FIXED ATTACHMENTS SHOWN BELOW OR AS MODIFIED IN THE PLANS.

ALL SIGNAL HEADS TO BE ONE WAY, 12 INCH, AND HAVE 5 IN. BACK PLATES:

HEADS AT END OF ARM - ONE 4 SEC., 85 LB., 16.0 SQ. FT. ONE SIGN MOUNTED 3 FT. FROM SIGNAL * 2' X 0' X 2' * 6', 20 LB. REMAINING HEADS SPACED A 8 FT. * 3 SEC., 56 LB., TWO 5 SEC.; 14.4 SQ. FT. DESIGN TO ACCOMMODATE (INCLUDING 2 HEADS FOR ARMS 10 TO 16 FT.; INCLUDING LB. 2 HEADS FOR ARMS 10 TO 16 FT.; INCLUDING LB. 3 HEADS FOR 18 TO 24 FT. ARMS; 4 HEADS FOR OVER 26 FT. ARMS.

STREET NAME SIGN -- 72" X 18", MOUNTED SUCH THAT OUTSIDE EDGE IS NOT GREATER THAN 12 FT. FROM POLE. DEPENDING UPON POSITION OF SIGNAL HEAD ADJACENT TO POLE, SIGN MAY OVERLAP POLE SHAFT ROADWAY LUMINAIRES (WHERE REQUIRED ON PLAN SHEET) * VARIABLE ARM LENGTH (MAX.), 3.3 SQ. FT., 75 LB. PED SIGNALS -- TWO 2 SEC. 12 INCH MOUNTED 8 FT. FROM BASE OF POLE. POST MOUNTED 3 SEC. SIGNAL HEAD AT 10 FT. ON SIDE OF POLE.

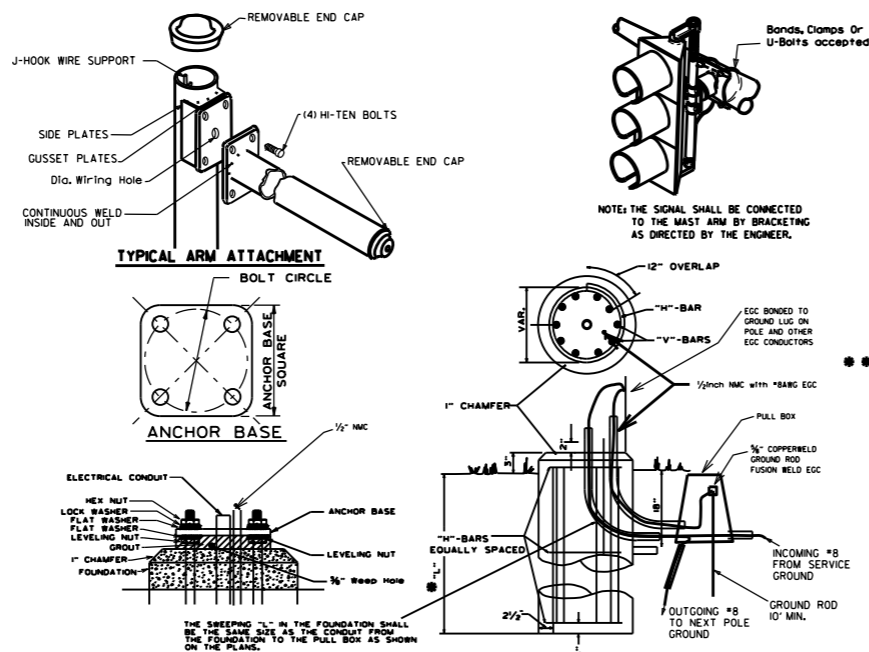
4. POLE/MAST ARM CAP -- POLE AND MAST ARMS CAPS SHALL BE PROVIDED, FABRICATED OF EITHER STEEL OR CAST ALUMINUM.

5. HAND HOLE -- HAND HOLES SHALL BE 4 X 6 INCHES FOR STANDARD, AND 3 X 5 INCHES FOR PED POLES, MINIMUM PLACED APPROXIMATELY 12 INCHES FROM BASE, AND SHALL BE FIXED WITH A BOLT DOWN COVER. A VACUUM FORMED ABS COVER IS AN ACCEPTABLE ALTERNATE TO STEEL. POLES GREATER THAN 21 FT. IN HEIGHT (FOR ROADWAY LUMINAIRE ATTACHMENT) SHALL INCLUDE A HAND HOLD WITHIN 12 INCHES OF MAST ARM(S) ATTACHMENT(S).

6. POLE/MAST ARM TAPER AND SLOPE - AVERAGE TAPER OF SIGNAL ARMS AND POLE SHALL BE 0.125 TO 0.15 INCHES PER FT.

MAST ARM CENTERLINE ANGLE AT ATTACHMENT POINT WITH POLE SHALL MAINTAIN NOT LESS THAN 0.5 DEGREES OR MORE THAN 4 DEGREES POSITIVE SLOPE WITH A LINE PERPENDICULAR TO THE POLE CENTERLINE. THE ARM SHALL MAINTAIN A POSITIVE AFTER IT IS PLACED UNDER LOAD.

7. NUT COVERS - EACH POLE SHALL INCLUDE A BOLT DOWN NUT COVER FOR EACH ANCHOR BOLT.

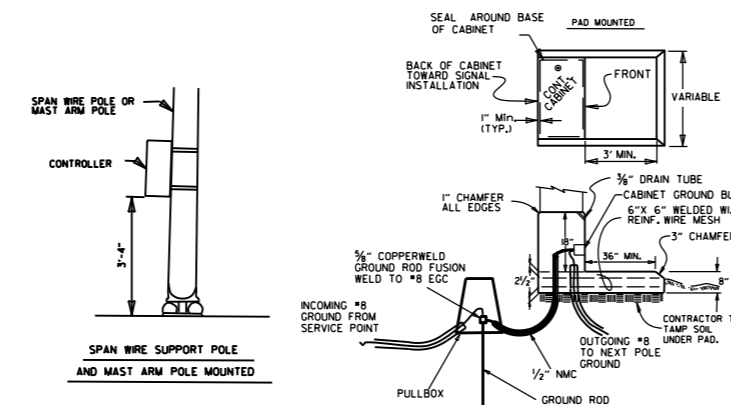


THE GROUND ROD SHALL BE FUSION WELDED TO A 1/2" A.W.G. SOLID COPPER GROUND WIRE. ATTACHMENT TO THE PRIMARY GROUND MAY BE BY AN APPROVED CLAMP. THE ROD IS TO BE LOCATED IN THE CONCRETE PULL BOX.

TYPICAL FOUNDATION DETAILS

POLE FOUNDATION MINIMUM DIMENSIONS AND STEEL REINFORCING. ALL REINFORCING STEEL SHALL BE GRADE 40 MIN.

ARM LENGTH	FDN. DIAMETER	DEPTH * L' *	STEEL		
			VERT.	HORZ.	O/C.
PED	30"	7'-0"	12-#7 (6'-6")	10-#4	8.44'
2' to 12'	30"	10'-6"	12-#7 (10'-0")	15-#4	8.42'
over 12' to 20'	30"	11'-6"	12-#7 (11'-0")	16-#4	8.66'
over 20' to 35'	36"	12'-6"	13-#8 (12'-0")	17-#4	8.88'
over 35' to 50'	36"	13'-6"	13-#8 (13'-0")	19-#4	8.56'
over 50' to 72'	42"	14'-6"	18-#8 (14'-0")	20-#4	8.74'
Twins to 20'	30"	16'-0"	12-#6 (15'-6")	22-#4	8.76'
Twins over 20' to 44'	36"	16'-0"	13-#8 (15'-6")	22-#4	8.76'
Twins over 44' to 50'	42"	16'-0"	18-#8 (15'-6")	22-#4	8.76'
Twins over 50' to 72'	42"	16'-6"	18-#8 (16'-0")	23-#4	8.64'



CONTROLLER CABINET MOUNTING DETAILS

UNLESS OTHERWISE DIRECTED BY THE ENGINEER, CABINET ORIENTATION SHALL BE SUCH THAT THE BACK OF THE CABINET IS PARALLEL TO THE STREET AND POSITIONED TO ALLOW VISIBILITY OF THE SIGNAL DISPLAY WHILE OBSERVING THE CONTROLLER FRONT PANEL.

8. GROUND ROD - A 10' X 5/8" GROUND ROD SHALL BE INSTALLED IN THE PULL BOX FOR EACH POLE AND THE CONTROLLER. PAYMENT FOR THE GROUND ROD AND 1/2" NMC SHALL BE INCLUDED IN ITEM 714 FOR SIGNAL POLES AND ITEM 701 FOR THE CONTROLLER. THE PULL BOX AND CONDUCTOR BOX SHALL BE PAID FOR SEPARATELY.

9. POLE BASE/FOUNDATION - ANCHOR BOLTS SHALL INCLUDE AS A MINIMUM, ONE LEVELING NUT, TWO FLAT WASHERS, ONE LOCK WASHER, AND ONE HEX. NUT, PERIMETER OF ANCHOR BASE SHALL BE GROUDED WITH A 1/4" WEEP HOLE. ALL CONCRETE SHALL BE CLASS 'S' OR GREATER.

10. CONCRETE - ALL CONCRETE FOR CONTROLLER CABINET AND POLE FOUNDATIONS SHALL BE CLASS 'S' OR GREATER.

11. PEDESTRIAN PHASES - PEDESTRIAN MOVEMENTS SHALL BE PUSH BUTTON ACTUATED AND CONCURRENTLY TIMED, UNLESS OTHERWISE INDICATED ON THE PLAN SHEET(S). FURNISHING AND INSTALLING PED PUSH SWITCH SHALL BE CONSIDERED SUBSIDIARY TO THE ITEM PEDESTRIAN SIGNAL HEAD.

SIGNAL OPERATION NOTES:

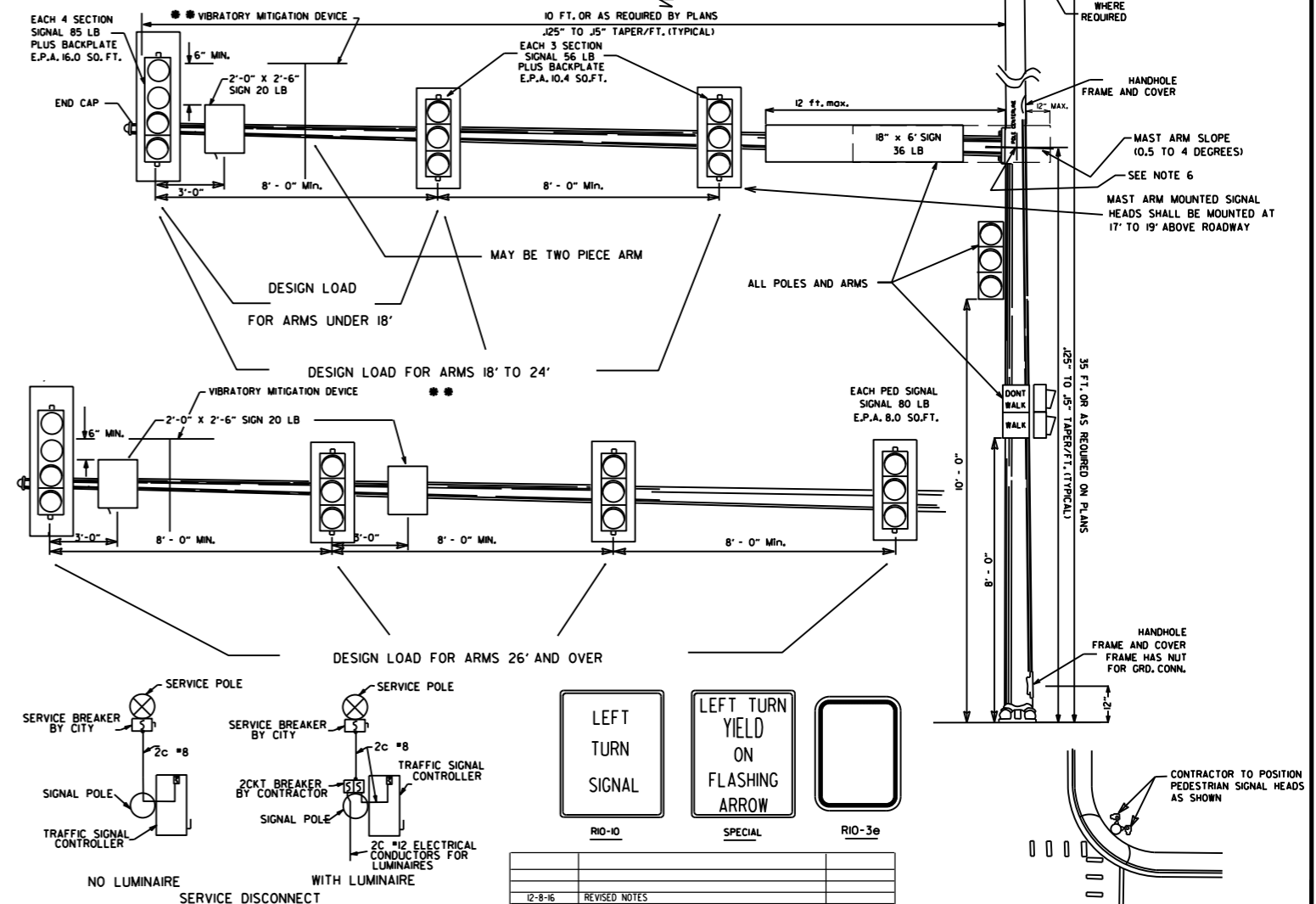
FLASHING OPERATION - PRIOR TO NORMAL OPERATION, SIGNAL SHALL BE FLASHED FOR A PERIOD OF 3 TO 5 WORK DAYS OR AS DIRECTED BY THE ENGINEER. SIGNAL SHALL BE PLACED IN OPERATION ONLY ON A REGULAR WORK DAY, EXCEPT FRIDAY.

THE CONTRACTOR MAY BE REQUIRED TO ALTER THE FLASHING DISPLAY DURING THE TEMPORARY FLASH PERIOD. AT THE TIME INTERSECTION IS PLACED IN PERMANENT OPERATION, THE FLASH SEQUENCE SHALL THEN BE RETURNED TO THAT INDICATED ON THE PLAN SHEETS. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED FOR THESE ALTERATIONS IN FLASH SEQUENCE.

WHEN THE GROUND ELEVATION AT THE POLE IS LOWER THAN THE ROADWAY ELEVATION, THE LENGTH OF FOUNDATION ABOVE THE GROUND MAY BE INCREASED TO PROVIDE THE REQUIRED SIGNAL HEAD CLEARANCE ABOVE THE ROADWAY. WHEN THE REQUIRED LENGTH OF FOUNDATION ABOVE THE GROUND IS 18" OR LESS, NO INCREASE IN DEPTH "L" WILL BE REQUIRED. WHEN THE REQUIRED LENGTH OF FOUNDATION ABOVE THE GROUND IS 5'-6" OR LESS, INCREASE DEPTH "L" BY 1'-0". FOR LENGTHS GREATER THAN 5'-6", DEPTH "L" SHALL BE ADJUSTED AS DIRECTED BY THE ENGINEER. LONGITUDINAL REINFORCING, AS SHOWN IN THE TABLE, SHALL BE PROVIDED FOR THE LENGTH OF THE EXTENDED SHAFT AND #4 TIES SHALL BE PROVIDED AT A SPACING NOT TO EXCEED 9" ON CENTERS. PAYMENT WILL BE IN ACCORDANCE WITH SECTION 714 OF THE STANDARD SPECIFICATIONS.

IN LIEU OF DESIGNING THE STRUCTURE TO RESIST PERIODIC GALLOPING, A VIBRATORY MITIGATION DEVICE MAY BE PROVIDED BY THE POLE MANUFACTURER. THE VIBRATORY MITIGATION DEVICE SHALL BE AN ANTI-GALLOPING PANEL CONSISTING OF A 60"X16"X0.125" SIGN BLANK MOUNTED NEAR THE END OF THE MAST ARM NOT TO EXCEED ONE QUARTER OF THE LENGTH OF THE MAST ARM FROM THE END OF THE MAST ARM WITH THE LONG AXIS OF THE PANEL COLLINEAR WITH THE LONG AXIS OF THE MAST ARM. THE PANEL SHOULD BE MOUNTED AT SUCH A HEIGHT AS TO PROVIDE AT LEAST 6" CLEAR FROM THE TOP OF ANY SIGNAL ASSEMBLY OR SIGN PANEL LOCATED ON THE MAST ARM WITHIN THE LENGTH OF THE ANTI-GALLOPING PANEL.

TRUCK-INDUCED GUST LOADS SHALL BE EXCLUDED FOR FATIGUE DESIGN FOR ALL STRUCTURES EXCEPT MAST ARMS MOUNTED OVER FACILITIES WITH POSTED SPEEDS OF 65 MPH OR GREATER AT THE LOCATION OF THE STRUCTURE.



SPECIAL NOTE: 90 MPH WIND ZONE DESIGN, SEE NOTE 3. MINIMUM STRUCTURAL REQUIREMENTS.

FOR 2" SLIP-FIT LUMINAIRE BY OTHERS, MAX. WT. 75 LB 3.3 S.F.

2.3" O.D.

3" REF

MMJ 35'-0" MTG. HT. TO BASE

.125" TO .15" TAPER/FT IF LONGER THAN 10'

10 FT. OR AS REQUIRED BY PLANS

EACH 4 SECTION SIGNAL 85 LB PLUS BACKPLATE E.P.A. 16.0 SQ. FT.

2'-0" X 2'-6" SIGN 20 LB

8'-0" MIN.

DESIGN LOAD FOR ARMS UNDER 18'

8'-0" MIN.

DESIGN LOAD FOR ARMS 18' TO 24'

8'-0" MIN.

DESIGN LOAD FOR ARMS 26' AND OVER

8'-0" MIN.

8'-0" MIN.

8'-0" MIN.

8'-0" MIN.

8'-0" MIN.

8'-0" MIN.

8'-0" MIN.

8'-0" MIN.

8'-0" MIN.

8'-0" MIN.

8'-0" MIN.

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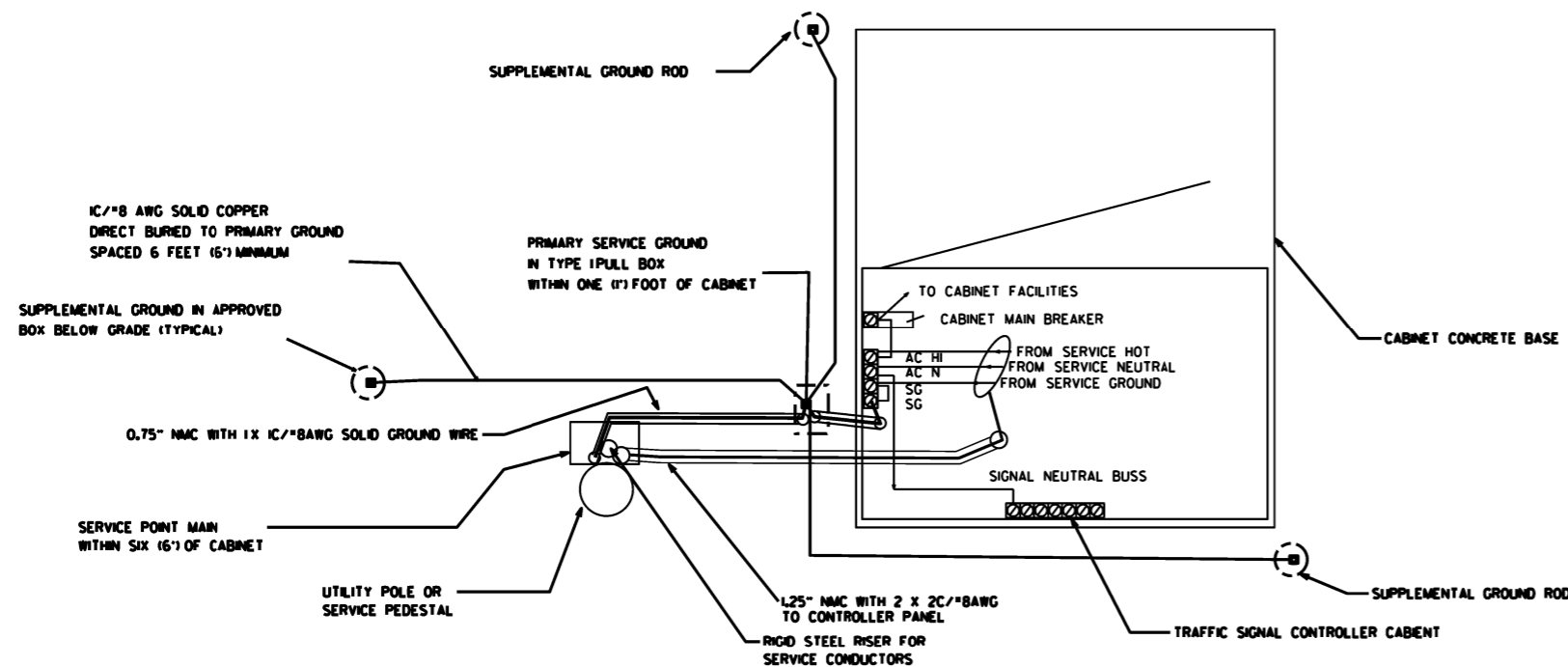
8'-0" MIN.

8'-0" MIN.

8'-0" MIN.

DATE	REVISION	DATE FILM
12-8-16	REVISED NOTES	
2-27-14	REVISED NOTES	
9-12-13	ISSUED AS STANDARD DRAWING	
7-21-11	REVISED VMD, SIGNAL HEADS	
5-21-09	REVISED GROUNDING	
7-31-08	REVISED GROUNDING	
4-25-08	ADDED VIBRATORY MITIGATION DEVICE & NOTES	
4-18-08	REVISED AASHTO NOTES	
4-17-08	REVISED TO 2001 AASHTO STANDARDS	
10-12-04	REVISED CABINET ORIENTATION	
6-23-04	REVISED	
5-11-04	REV. NOTE 3/AASHTO REQUIREMENTS	
6-11-01	REV. NOTES & POLE MAST ARM SLOPE	
4-11-01	REVISED POLE TAPERS	
4-25-00	REV. NOTES & SIGNAL HEAD PLACEMENT	
11-22-99	REVISED FOUNDATION DETAILS	
11-17-98	REVISED DETAILS AND NOTES	
11-21-95	ISSUED	

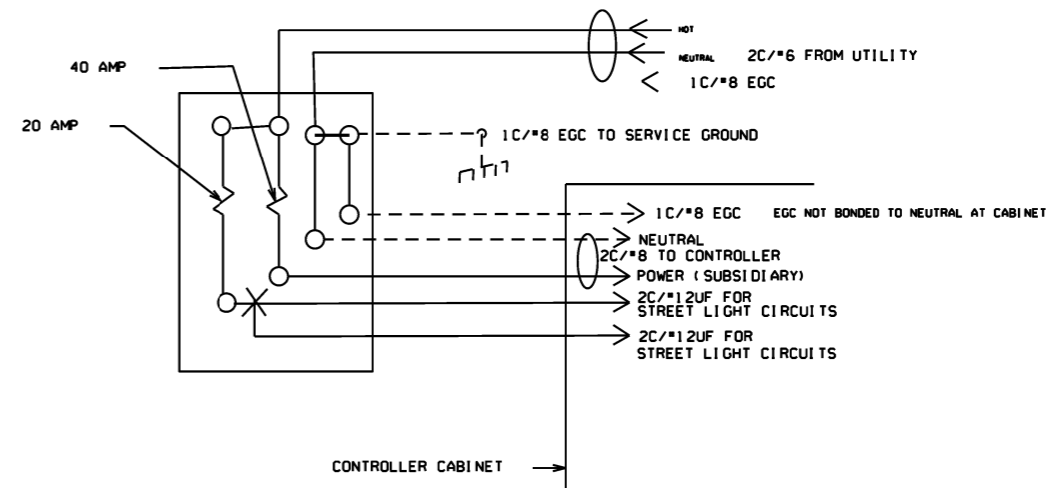
ARKANSAS STATE HIGHWAY COMMISSION
STEEL POLE WITH MAST ARM
STANDARD DRAWING SD-II



1. LOCATION OF SERVICE: TO MEET THE REQUIREMENTS FOR SAFETY AND MAXIMIZE LIGHTNING PROTECTION, THE "SERVICE POINT MAIN" FROM THE UTILITY PRIMARY SERVICE POINT MUST BE WITHIN SIX (6') FEET OF THE TRAFFIC SIGNAL CONTROLLER CABINET. ELECTRICAL SERVICE SHALL BE PROVIDED BY THE CITY/COUNTY TO A SERVICE POLE OR PEDISTAL WITH EXTERNAL RAIN TIGHT BREAKER (MAIN BREAKER) AT A MUTUALLY ACCEPTABLE POINT WITHIN THE RIGHT-OF-WAY. SERVICE POINT INCLUDES GALVANIZED STEEL CONDUIT TO A POINT 18" BELOW GROUND LINE, TWO CIRCUIT MAIN BREAKER, POWER ISOLATION ASSEMBLY WHERE REQUIRED, METER LOOP IF REQUIRED BY LOCAL UTILITY, ELECTRICAL CONDUCTORS AND WEATHERHEAD. WHERE STREET LIGHTING IS INCLUDED AS PART OF SIGNAL INSTALLATION, STREET LIGHTING CIRCUIT (2C/#12 AWG UF RATED, TYPICAL) SHALL BE KEPT SEPARATE FROM THE CIRCUIT SERVING TRAFFIC SIGNAL. SERVICE WIRE AND WIRING FROM THE CONTROLLER TO MAIN BREAKER, AND CONNECTION TO THE UTILITY IS THE RESPONSIBILITY OF THE CITY/COUNTY.

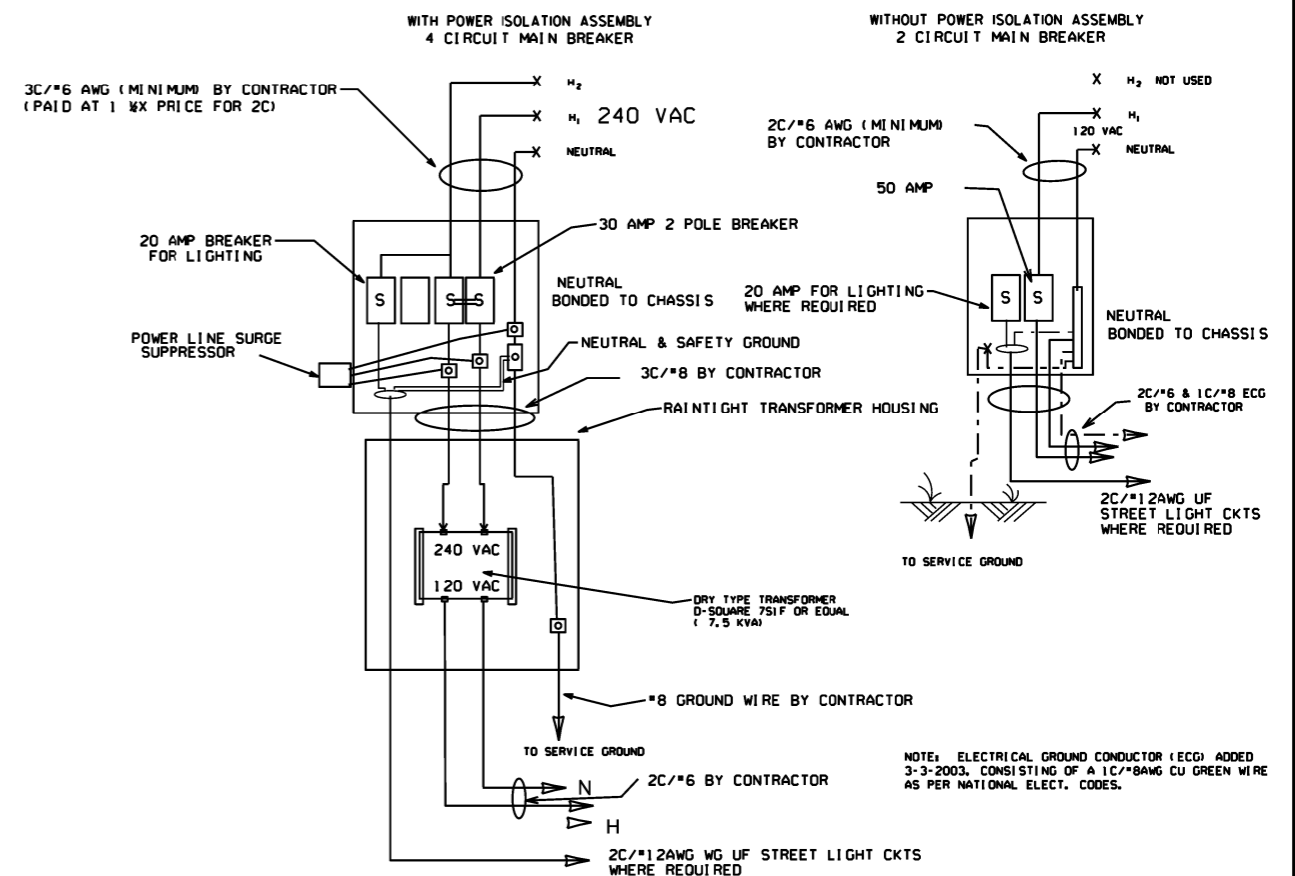
2. METER LOOP: ALL COMPONENTS OF THE SERVICE POINT WITH THE EXCEPTION OF THE WIRE AND WIRING ABOVE THE MAIN BREAKER IS FURNISHED AND INSTALLED BY THE CONTRACTOR. WIRING FROM MAIN BREAKER INCLUDING CONNECTION TO THE UTILITY, IS THE RESPONSIBILITY OF THE CITY/COUNTY. IF METER LOOP IS REQUIRED, METER BASE AND HARDWARE IS PROVIDED BY THE CITY/COUNTY AND INSTALLED BY THE CONTRACTOR.

3. SUPPLEMENTAL GROUND RODS: SUPPLEMENTAL GROUND RODS ARE FUSION WELDED TO 1 C/#8AWG. SOLID COPPER GROUND WIRE. ATTACHMENT TO PRIMARY GROUND MAY BE BY AN APPROVED CLAMP. RODS ARE LOCATED IN A BOX APPROVED BY THE ENGINEER MEETING THE SAME LOADING REQUIREMENTS AS SECTION 711 CONCRETE PULL BOX OF THE STANDARD SPECIFICATION, WITH THE EXCEPTION TO DIMENSIONS. BOX MAY BE EITHER ROUND OR SQUARE APPROXIMATELY SIX (6") INCHES MINIMUM INSIDE DIMENSIONS AND SIX (6") INCHES DEPTH. (STRONGWELL PC0608BA06 WITH PC0608CA00 LID OR EQUAL)



MAIN BREAKER WIRING (TYPICAL)

SERVICE GROUND IS TYPICALLY TIED TO NEUTRAL AT THE MAIN BREAKER. AS SUCH, CONTROLLER GROUND IS NOT TIED TO NEUTRAL AT SECONDARY BREAKER OR IN CONTROLLER CABINET.



NOTE: ELECTRICAL GROUND CONDUCTOR (EGC) ADDED 3-3-2003, CONSISTING OF A 1C/#8AWG CU GREEN WIRE AS PER NATIONAL ELECT. CODES.

			ARKANSAS STATE HIGHWAY COMMISSION
			SERVICE POINT INSTALLATION WITH SUPPLEMENTAL GROUNDING ARRAY
9-12-13	ISSUED AS STANDARD DRAWING		
1-17-08	ISSUED		
DATE	REVISION	DATE	FILM
			STANDARD DRAWING SD-12