DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050302	1	21

(2) HWY.167/HWY. 14/HWY. 25 SIGNAL UPGRADE INDEPENDENCE CO.(S)

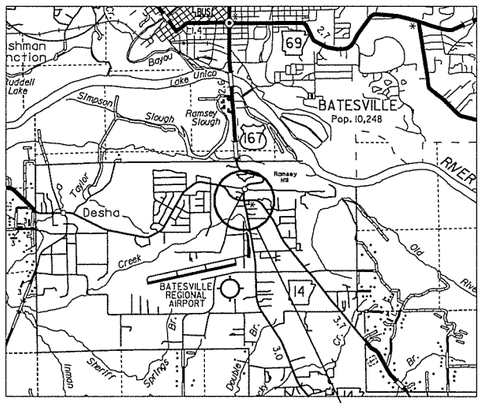
ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS

HWY. 167 / HWY. 14 / HWY. 25 SIGNAL UPGRADE
(INDEPENDENCE CO.) (S)

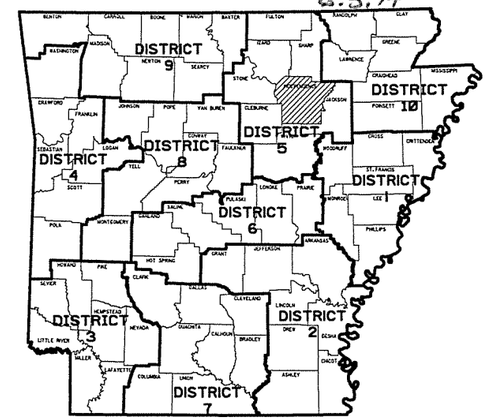
INDEPENDENCE COUNTY
ROUTE 167, SECTION 17
ROUTE 25, SECTION 4
ROUTE 14, SECTION 9
FAP NO. STP-0032 (24)

JOB 050302

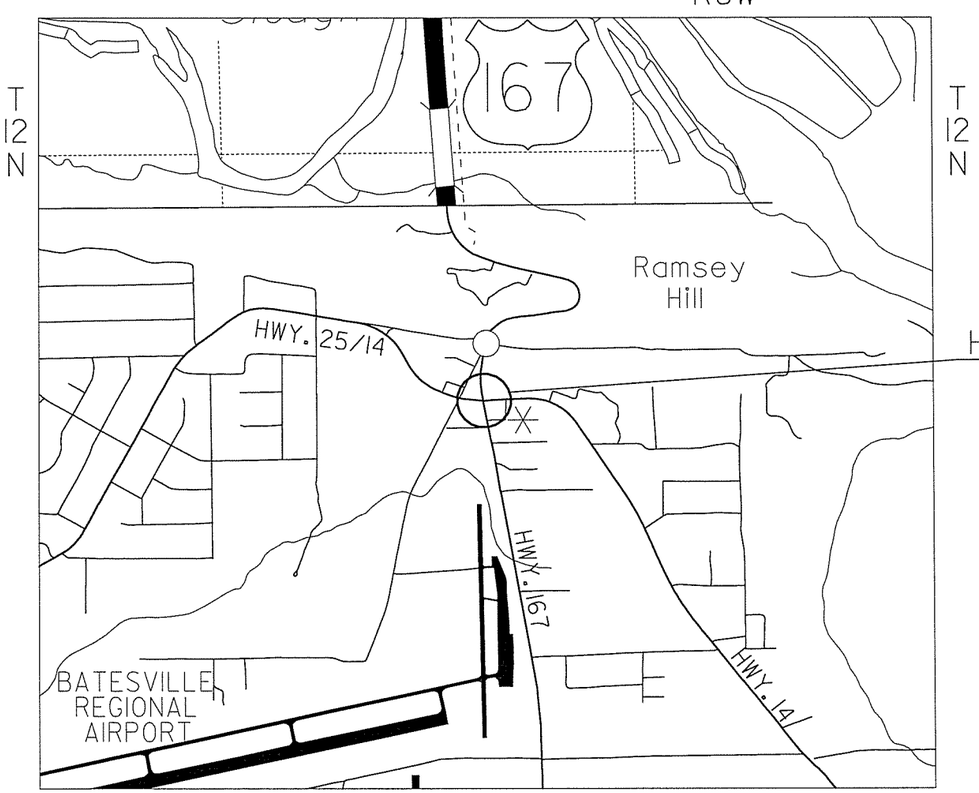
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9418
BRIAN L. VINES
6.5.14



VICINITY MAP — PROJECT LOCATION



ARK. HWY. DIST. NO. 05



HWY. 167/HWY. 14/HWY. 25

MID POINT OF PROJECT
LATITUDE 35°44′ 14.76″ N
LONGITUDE 91°38′ 20.59″ W

CERTIFICATE OF AUTHORIZATION
JACOBS ENGINEERING GROUP, INC.
No. 175
ARKANSAS-ENGINEER

LOCATION:	HWY. 167/HWY. 14/HWY. 25		
CITY:	BATESVILLE		
COUNTY:	INDEPENDENCE		
DISTRICT:	5	SCALE:	DRAWN BY JAB

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JACOBS

T:\Job\WLXM2640 AHTD On-Call 2011 Task Order 0032 Hwy 167 Signal\700 CADD Files\713 Traffic Files\Drawings\t050302_tit.dgn
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SHEET NO.	TITLE	DRAWING NO.	DATE
1	TITLE SHEET		
2	INDEX OF SHEETS, GOVERNING SPECIFICATIONS, AND TRAFFIC SIGNAL NOTES		
3	SUMMARY OF QUANTITIES AND REVISIONS		
4	MAINTENANCE OF TRAFFIC		
5-6	SURVEY CONTROL DETAIL SHEET		
7	PERMANENT PAVEMENT MARKINGS		
8-10	SIGNALIZATION PLANS		
11	CORRIDOR SYSTEM MAP		
12	PAVEMENT MARKING DETAILS	PM-1	9-12-13
13	LOOP DETECTOR INSTALLATION	SD-4	9-12-13
14	CONTROLLER CABINET UTILITY DRAWER	SD-5	9-12-13
15	HEAVY DUTY PULL BOX	SD-6	9-12-13
16	SIGNAL HEAD PLACEMENT	SD-8	9-12-13
17	SERVICE POINT	SD-9	9-12-13
18	STEEL POLE WITH MAST ARM	SD-11	2-27-14
19	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-1	12-15-11
20	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-2	9-12-13
21	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-3	10-15-09

GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON THE PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U.S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.
5. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
6. ALL TREES 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 TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.

GOVERNING SPECIFICATIONS

ARKANSAS STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 2014, AND THE FOLLOWING SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS:

NUMBER	TITLE
ERRATA	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273	SUPPLEMENT - WAGE RATE DETERMINATION
108-1	LIQUIDATED DAMAGES

JOB 050302	CABINET DRAWER ASSEMBLY
JOB 050302	CONCRETE PULL BOX
JOB 050302	DOCUMENTATION OF PAYMENTS MADE TO DISADVANTAGED BUSINESS ENTERPRISES
JOB 050302	ELECTRICAL CONDUCTORS-IN-CONDUIT
JOB 050302	ELECTRICAL CONDUCTORS FOR LUMINAIRES
JOB 050302	INTERNET BIDDING
JOB 050302	LED TRAFFIC SIGNAL HEAD
JOB 050302	LOOP WIRING REVISION 1.4
JOB 050302	LUMINAIRE ASSEMBLY (CUTOFF TYPE)
JOB 050302	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT
JOB 050302	SERVICE POINT ASSEMBLY (TRAFFIC CONTROL DEVICES)
JOB 050302	STREET NAME SIGN (MAST ARM MOUNTED)
JOB 050302	SYSTEM LOCAL CONTROLLER
JOB 050302	UTILITY ADJUSTMENTS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		050302	2	21

(2) INDEX OF SHEETS, GOVERNING SPECS. & TRAFFIC SIGNAL NOTES

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 (EGC) FROM GROUND BAR AT MAIN BREAKER TO CONTROL PANEL AND TO FIRST POLE. SOLIDLY BOND EGC 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 RAINTIGHT 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 AWG 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 ARKANSAS HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARDS AND DETAILS 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 MARKING 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 SPECIAL DETAILS). PAYMENT WILL BE INCLUDED IN SECTION 714, AHTD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
12. ALL 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. 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.
15. 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.
16. 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
17. 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.
18. 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.
19. CONTROLLER CABINET LAYOUT AND ORIENTATION SHALL CONFORM TO ISMA STANDARDS.
20. ON VIDEO PROGRAMMIN 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.
21. 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
22. 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
23. CONTROLLER AND COMMUNICATIONS SHALL BE COMPATIBLE WITH AND CONNECTED TO EXISTING SIEMENS/EAGLE MARC MASTER LOCATED AT THE INTERSECTION OF HWY. 167 AND HWY. 69 AND MDS TRANSNET 900 SPREAD SPECTRUM RADIO SYSTEM IN THE CITY OF BATESVILLE.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9418
BRIAN L. VINES
5.28.14

LOCATION:	HWY. 167/HWY. 14/HWY. 25
CITY:	BATESVILLE
COUNTY:	INDEPENDENCE
DISTRICT:	5 SCALE: NA DRAWN BY JAB

JACOBS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050302	3	21

(2) SUMMARY OF QUANTITIES AND REVISIONS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9418
BRIAN L. VINES
6.5.14

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
601	MOBILIZATION	1.00	LUMP SUM
603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
604	SIGNS	224	SQ. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS	3070	LIN. FT.
SP & 701	SYSTEM LOCAL CONTROLLER TS 2-TYPE 2 (8 PHASES)	1	EACH
704	VEHICLE DETECTOR-RACK MOUNT	1	EACH
704	FEEDER WIRE	4450	LIN. FT.
SP	LOOP WIRING CLASS III (1c/16 A.W.G.)	3274	LIN. FT.
SP & 706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)	11	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)	4	EACH
708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)	813	LIN. FT.
708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)	295	LIN. FT.
708	TRAFFIC SIGNAL CABLE (20C/14 A.W.G.)	584	LIN. FT.
709	GALVANIZED STEEL CONDUIT (1.25")	9	LIN. FT.
710	NON-METALLIC CONDUIT (1")	1051	LIN. FT.
710	NON-METALLIC CONDUIT (1.25")	57	LIN. FT.
710	NON-METALLIC CONDUIT (2")	163	LIN. FT.
710	NON-METALLIC CONDUIT (3")	436	LIN. FT.
SP & 711	CONCRETE PULL BOX (TYPE 1 HD)	12	EACH
SP & 711	CONCRETE PULL BOX (TYPE 2 HD)	6	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (40')	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (44')	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (50')	2	EACH
719	THERMOPLASTIC PAVEMENT MARKING WHITE (4")	1175	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (4")	1630	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (12")	65	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (24")	96	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING (WORDS)	4	EACH
719	THERMOPLASTIC PAVEMENT MARKING (ARROWS)	5	EACH
721	RAISED PAVEMENT MARKERS (TYPE II)	49	EACH
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G.)	66	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G., EGC)	959	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/12 A.W.G., EGC)	356	LIN. FT.
SP	ELECTRICAL CONDUCTORS FOR LUMINAIRES	941	LIN. FT.
SP	LUMINAIRE ASSEMBLY	4	EACH
SP	18" STREET NAME SIGN	4	EACH
SP	LOCAL RADIO WITH ANTENNA	1	EACH
SP	ANTENNA CABLE (TYPE 6)	70	LIN. FT.
SP	SERVICE POINT ASSEMBLY (2 CIRCUITS)	1	EACH
SP	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	1.00	LUMP SUM

REVISIONS

DATE	REVISION	SHEET NUMBER

LOCATION:	HWY. 167/HWY. 14/HWY. 25		
CITY:	BATESVILLE		
COUNTY:	INDEPENDENCE		
DISTRICT:	5	SCALE: NA'	DRAWN BY JAB

JACOBS

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED	
			LIN.FT. - EACH		NO.	SQ. FT.
G20-2	END ROAD WORK	48"x24"	4	4	4	32.0
W20-1	ROAD WORK 1500 FT.	48"x48"	4	4	4	64.0
W20-1	ROAD WORK 1000 FT.	48"x48"	4	4	4	64.0
W20-1	ROAD WORK 500 FT.	48"x48"	4	4	4	64.0
TOTAL:						224.0

DESIGN PARAMETERS

POSTED SPEED LIMIT:
NO POSTED SPEED FOR
45 MPH EAST & WEST APPROACHES
40 MPH NORTH & SOUTH APPROACHES
NO BUS STOPS
NO RAILROAD TRACKS
NO PARKING
NO FIRE STATION
6.0' MIN CLEAR ZONE DISTANCE
(ON CURBED SECTIONS)

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050302	4	21

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9418
BRIAN L. VINES
5.29.14

HWY 14/25
HWY. 167
HWY. 14
OH E
END ROAD WORK G20-2 (48" X 24")
ROAD WORK 500 FT W20-1 (48" X 48")
ROAD WORK 1000 FT W20-1 (48" X 48")
ROAD WORK 1500 FT W20-1 (48" X 48")
100+00 102+00 103+00 104+00 106+00 107+00 108+00

0 30 60 120
GRAPHIC SCALE IN FEET

LOCATION:	HWY. 167/HWY. 14/HWY. 25
CITY:	BATESVILLE
COUNTY:	INDEPENDENCE
DISTRICT:	5 SCALE: DRAWN BY JAB

5/29/2014 ...\Drawings\t050302_mot1.dgn

JACOBS

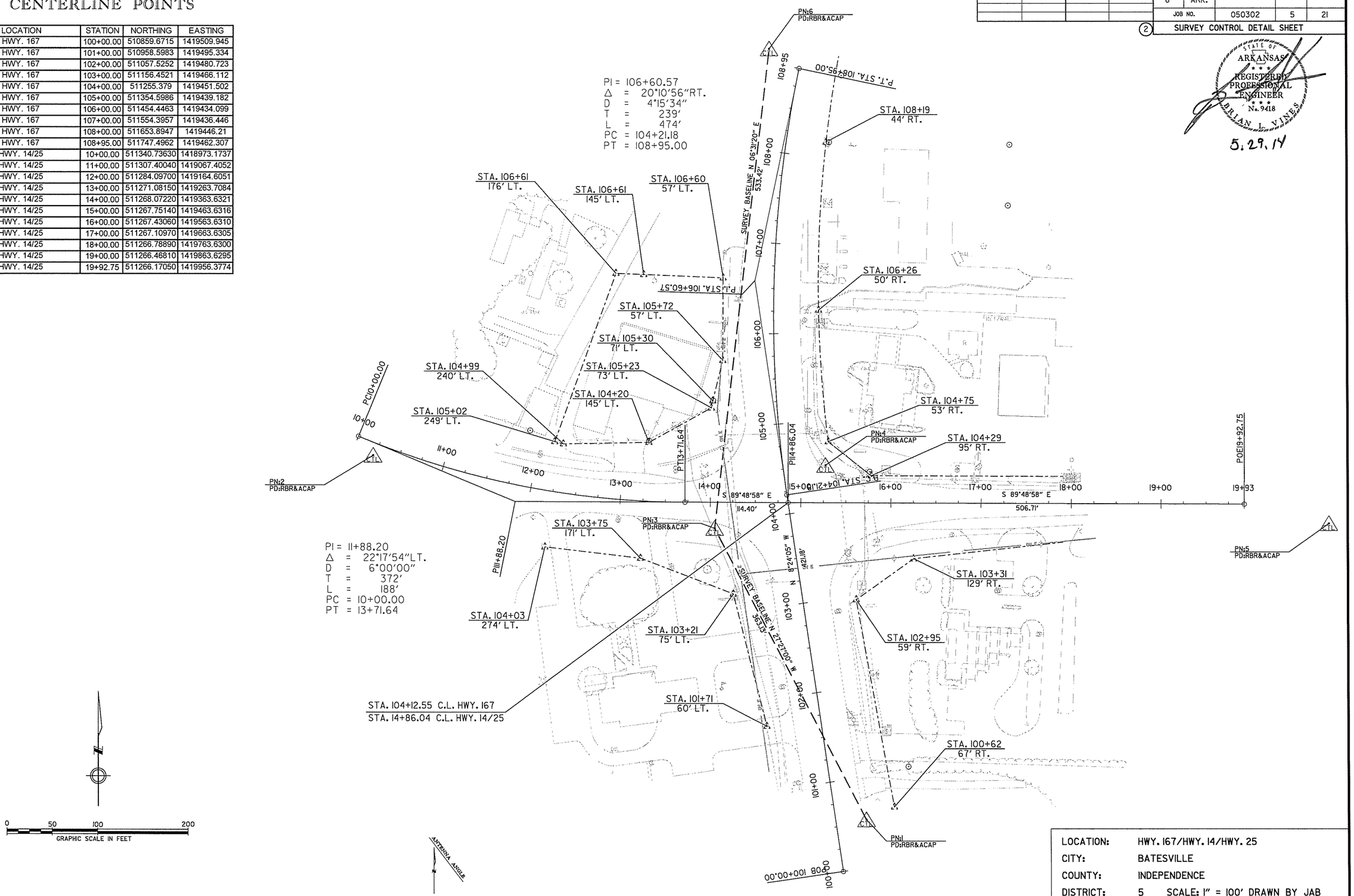
CENTERLINE POINTS

LOCATION	STATION	NORTHING	EASTING
HWY. 167	100+00.00	510859.6715	1419509.945
HWY. 167	101+00.00	510958.5983	1419495.334
HWY. 167	102+00.00	511057.5252	1419480.723
HWY. 167	103+00.00	511156.4521	1419466.112
HWY. 167	104+00.00	511255.379	1419451.502
HWY. 167	105+00.00	511354.5986	1419439.182
HWY. 167	106+00.00	511454.4463	1419434.099
HWY. 167	107+00.00	511554.3957	1419436.446
HWY. 167	108+00.00	511653.8947	1419446.21
HWY. 167	108+95.00	511747.4962	1419462.307
HWY. 14/25	10+00.00	511340.73630	1418973.1737
HWY. 14/25	11+00.00	511307.40040	1419067.4052
HWY. 14/25	12+00.00	511284.09700	1419164.6051
HWY. 14/25	13+00.00	511271.08150	1419263.7084
HWY. 14/25	14+00.00	511268.07220	1419363.6321
HWY. 14/25	15+00.00	511267.75140	1419463.6316
HWY. 14/25	16+00.00	511267.43060	1419563.6310
HWY. 14/25	17+00.00	511267.10970	1419663.6305
HWY. 14/25	18+00.00	511266.78890	1419763.6300
HWY. 14/25	19+00.00	511266.46810	1419863.6295
HWY. 14/25	19+92.75	511266.17050	1419956.3774

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050302	5	21

(2) SURVEY CONTROL DETAIL SHEET

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9418
BRIAN L. VINES
5.29.14



LOCATION:	HWY. 167/HWY. 14/HWY. 25
CITY:	BATESVILLE
COUNTY:	INDEPENDENCE
DISTRICT:	5 SCALE: 1" = 100' DRAWN BY JAB

5/28/2014 ...\drawings\t050302_s01.dgn

JACOBS

SURVEY CONTROL COORDINATES
Project Name: 050302
Date: 1/29/2014
Coordinate System: Arkansas State Plane Coordinates
Based on AHTD GPS PTS *320014 & 320021*
Projected to GRID Coordinates
Units: U.S. Survey Foot

COORDINATES LISTED BELOW ARE GRID!!

Point No.	Northing	SY	Easting	SX	Elevation	SZ	Feature Code	Point Description
1	510917.1031	0.0190	1419535.8470	0.0200	445.24	0.004	CTL	STD AHTD MON. STAMPED PN:1
2	511319.6860	0.0200	1418989.3520	0.0160	454.80	0.004	CTL	STD AHTD MON. STAMPED PN:2
3	511239.3188	0.0210	1419368.5100	0.0180	453.72	0.004	CTL	STD AHTD MON. STAMPED PN:3
4	511309.0352	0.0230	1419491.2090	0.0210	455.32	0.004	CTL	STD AHTD MON. STAMPED PN:4
5	511244.7338	0.0190	1420050.3460	0.0190	461.14	0.004	CTL	STD AHTD MON. STAMPED PN:5
6	511769.2735	0.0210	1419429.0950	0.0180	468.57	0.004	CTL	STD AHTD MON. STAMPED PN:6
100	501752.1786	0.0000	1421777.0090	0.0000	369.48	0.000	GPS	AHTD GPS MON. 320014
101	519805.5483	0.0000	1418749.2820	0.0000	271.00	0.000	GPS	AHTD GPS MON. 320021
900	508759.2767	0.0290	1419867.4320	0.0310	446.24	0.003	TBM	CHISLED SQUARE NORTHEAST COR OF CATCH BA
901	511348.4730	0.0390	1419471.6310	0.0330	455.22	0.070	TBM	AHTD BM DISC 320034
990	-99999.0000	100.0000	-99999.0000	100.0000	379.58	0.000	BM	AHTD BM ARBT1
991	-99999.0000	100.0000	-99999.0000	100.0000	271.66	0.000	BM	NGS BM C 334
992	507035.8531	0.0190	1415878.2650	0.0210	462.24	0.002	BM	CALIBRATION BASELINE PN:150
993	506877.9015	0.0190	1415073.7210	0.0210	453.65	0.000	BM	CALIBRATION BASELINE PN:400
993	506498.5499	0.02	1413142.363	0.022	446.1893	0	BM	CALIBRATION BASELINE PN:1000

*Standard Primary Control Monument - Rebar and Cap - Standard - 5/8"x 24" Rebar with 2"Aluminum Cap stamped: "(include all common information here)" plus other markings indicated in the point description of the individual point. AHTD monuments will be stamped "Arkansas Hwy & Trans Dept" with "PN: ###" & "Job ######". Monuments that are set by Consultants will be stamped "Arkansas Hwy & Trans Dept" with "PN:###", "Job######", & "PS####". The consultant Professional Surveyor in charge will stamp his/her PS license number on the cap.

**Standard GPS Control Point Monument - 5/8" x 48" Rebar with 2.5"Aluminum Cap stamped: "(include all common information here)" plus other markings indicated in the point description of the individual point. These monuments will be stamped "Ark. State Hwy Trans. Dept.", "GPS Survey", & "Point No. ######".

SX, SY, SZ – Represents the standard error estimate of the coordinate values of each point at the 67% confidence level (one sigma) based on the least squares analysis of the control network. See the AASHTO SDMS Technical Data Guide data tag definition for SX:, SY:, and SZ: for additional information. These values shall be used when control points are added and the entire network is reprocessed using least square analysis. A value of 0.001 is defined as fixed (no adjustment) in the least square analysis process. A value of 30 is defined as location by handheld GPS device or scaled from USGS Quadmap.

Reference Control points (1500 series) shall be used to re-establish horizontal datum if the primary control has been destroyed. These reference control points shall not be used for vertical control unless the elevation has been established from the project datum with 3-wire level techiniques.

All additional project control shall be occupied, measured, and adjusted with direct survey ties to at least two of the control points listed in the table above. New survey control shall not be independent of the survey control listed above. This includes horizontal coordinates and elevations.

Positional Accuracy:
Horizontal - GPS (1.0 cm± 1PPM) *PN: 100-101*
Horizontal - Primary (2.0cm± 20PPM): *PN:1-6*
Horizontal - Secondary (3 cm ± 50PPM): *PN:N/A*
Vertical - NGS 1st Order (±4mm x Vdist in km) *PN:991*
Vertical - NGS 2nd Order (±6mm x Vdist in km) *PN:N/A*
Vertical - NGS 3rd Order (±8mm x Vdist in km) *PN:N/A*

Horizontal Datum: NAD 1983 (1997) State Plane Zone: 0301 - North Zone
The adjustment year is based on metadata in the SDMS Control file
A project CAF of: 0.999918449 has been used to compute the above coordinates.
The project CAF shall have a minimum precision of 9 digits right of the decimal.
This CAF is intended for use within the project limits only.
Grid Distance = Ground Distance X CAF
If Coordinates are listed as Ground:
To compute Grid Coordinates, multiply the Ground Coordinates by CAF about the origin of X=0 & Y=0
If Coordinates are listed as Grid:
To compute Ground Coordinates, divide the Grid Coordinates by CAF about the origin of X=0 & Y=0

Vertical Datum: NAVD 1988 based NGS BM:
A project Elevation Factor of: 0.9999800202 has been computed and incorporated in the above CAF.
This is based on the average elevation of the project: 417.71 Feet
3-Wire Leveling techniques have been used to establish elevations on
Points: 1-6, 100-101 From NGS BM C 334

Basis of Bearing: Grid Bearings based on AHTD GPS points: *(List AHTD GPS points used)*
Convergence Angle is: 00 12 36 RIGHT at PN: 4
LT: 35-44-15 N LG: 091-38-20 W
Grid Azimuth = Astronomical Azimuth - Convergence Angle

Note: Information in Italics is for clarification only. It is not to be part of the actual Control Table or Control Detail Sheets.

HWY. 167

POINT TYPE	POINT NAME	STATION	NORTHING	EASTING
POB	8000	100+00.00	510859.6715	1419509.9446
P.C.	8001	104+21.18	511276.3277	1419448.4076
P.I.	8010	106+60.57	511513.1487	1419413.4311
CC	8002		511472.8627	1420779.1126
P.T.	8003	108+95.00	511747.4962	1419462.3067

HWY. 14/25

POINT TYPE	POINT NAME	STATION	NORTHING	EASTING
P.C.	8004	10+00.00	511340.7363	1418973.1737
P.I.	8011	11+88.20	511268.7699	1419147.0698
CC	8005		512223.0883	1419338.3320
P.T.	8006	13+71.64	511268.1661	1419335.2683
P.I.	8008	14+86.04	511267.7962	1419449.6677
POE	8009	19+92.75	511266.1705	1419956.3774

5.29.14

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 9418 NATHAN L. VINES

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED.AID DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		6	21

(2) SURVEY CONTROL DETAIL SHEET JOB NO. 050302

LOCATION: HWY. 167/HWY. 14/HWY. 25
CITY: BATESVILLE
COUNTY: INDEPENDENCE
DISTRICT: 5 SCALE: NA DRAWN BY JAB

JACOBS

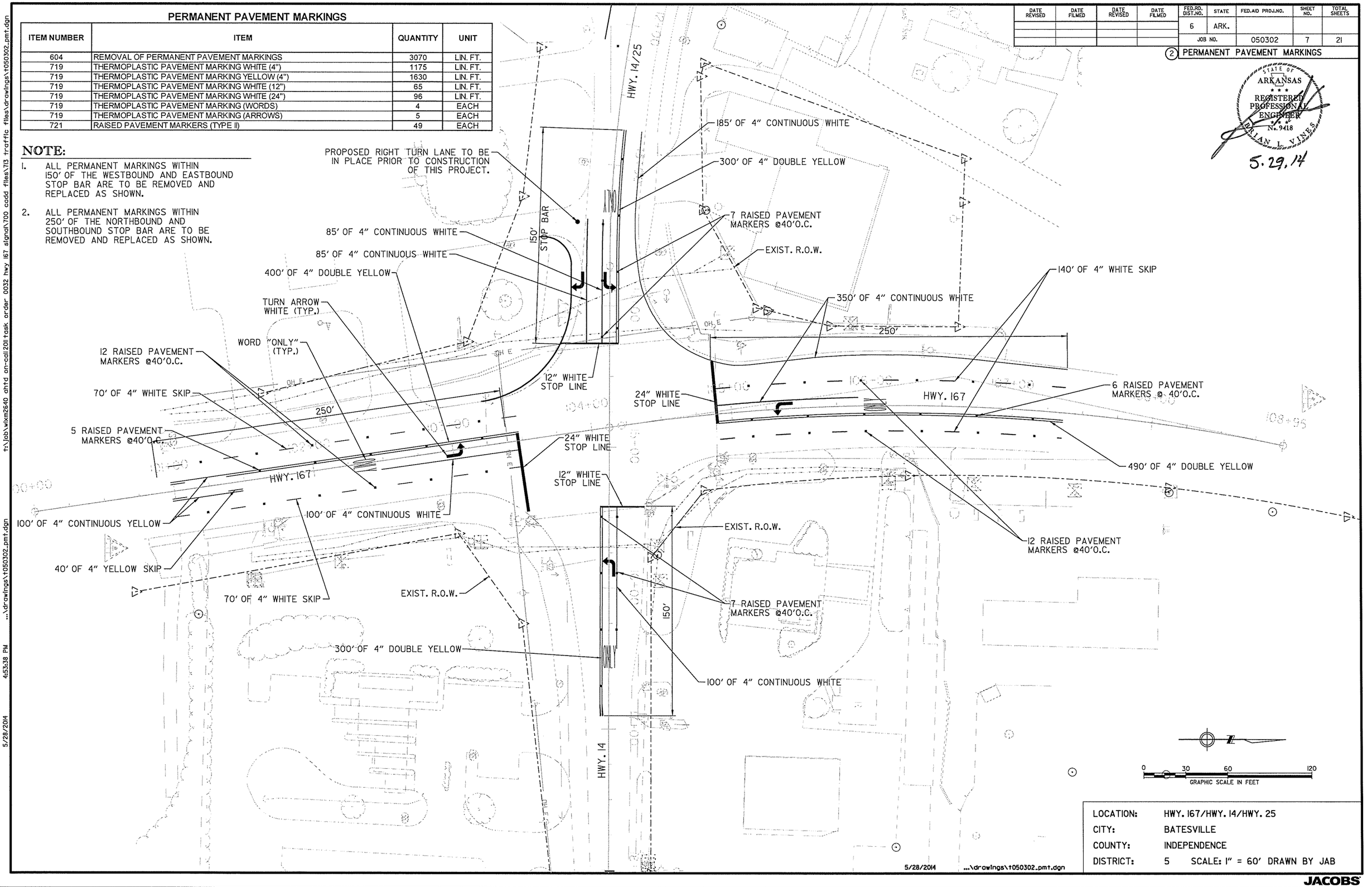
5/28/2014 ...\drawings\t050302_s02.dgn

PERMANENT PAVEMENT MARKINGS

ITEM NUMBER	ITEM	QUANTITY	UNIT
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS	3070	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (4")	1175	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (4")	1630	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (12")	65	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (24")	96	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING (WORDS)	4	EACH
719	THERMOPLASTIC PAVEMENT MARKING (ARROWS)	5	EACH
721	RAISED PAVEMENT MARKERS (TYPE II)	49	EACH

NOTE:

1. ALL PERMANENT MARKINGS WITHIN 150' OF THE WESTBOUND AND EASTBOUND STOP BAR ARE TO BE REMOVED AND REPLACED AS SHOWN.
2. ALL PERMANENT MARKINGS WITHIN 250' OF THE NORTHBOUND AND SOUTHBOUND STOP BAR ARE TO BE REMOVED AND REPLACED AS SHOWN.



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		050302	7	21

(2) PERMANENT PAVEMENT MARKINGS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9418
BRIAN L. VINES
5.29.14

LOCATION:	HWY. 167/HWY. 14/HWY. 25
CITY:	BATESVILLE
COUNTY:	INDEPENDENCE
DISTRICT:	5 SCALE: 1" = 60' DRAWN BY JAB

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JACOBS

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SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
601	MOBILIZATION	1.00	LUMP SUM
603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
SP & 701	SYSTEM LOCAL CONTROLLER TS 2-TYPE 2 (8 PHASES)	1	EACH
704	VEHICLE DETECTOR-RACK MOUNT	1	EACH
704	FEEDER WIRE	4450	LIN. FT.
SP	LOOP WIRING CLASS III (1c/16 A.W.G.)	3274	LIN. FT.
SP & 706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)	11	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)	4	EACH
708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)	813	LIN. FT.
708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)	295	LIN. FT.
708	TRAFFIC SIGNAL CABLE (20C/14 A.W.G.)	584	LIN. FT.
709	GALVANIZED STEEL CONDUIT (1.25")	9	LIN. FT.
710	NON-METALLIC CONDUIT (1")	1051	LIN. FT.
710	NON-METALLIC CONDUIT (1.25")	57	LIN. FT.
710	NON-METALLIC CONDUIT (2")	163	LIN. FT.
710	NON-METALLIC CONDUIT (3")	436	LIN. FT.
SP & 711	CONCRETE PULL BOX (TYPE 1 HD)	12	EACH
SP & 711	CONCRETE PULL BOX (TYPE 2 HD)	6	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (40')	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (44')	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (50')	2	EACH
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G.)	66	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G., EGC)	959	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/12 A.W.G., EGC)	356	LIN. FT.
SP	ELECTRICAL CONDUCTORS FOR LUMINAIRES	941	LIN. FT.
SP	LUMINAIRE ASSEMBLY	4	EACH
SP	18" STREET NAME SIGN	4	EACH
SP	LOCAL RADIO WITH ANTENNA	1	EACH
SP	ANTENNA CABLE (TYPE 6)	70	LIN. FT.
SP	SERVICE POINT ASSEMBLY (2 CIRCUITS)	1	EACH
SP	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT	1.00	LUMP SUM

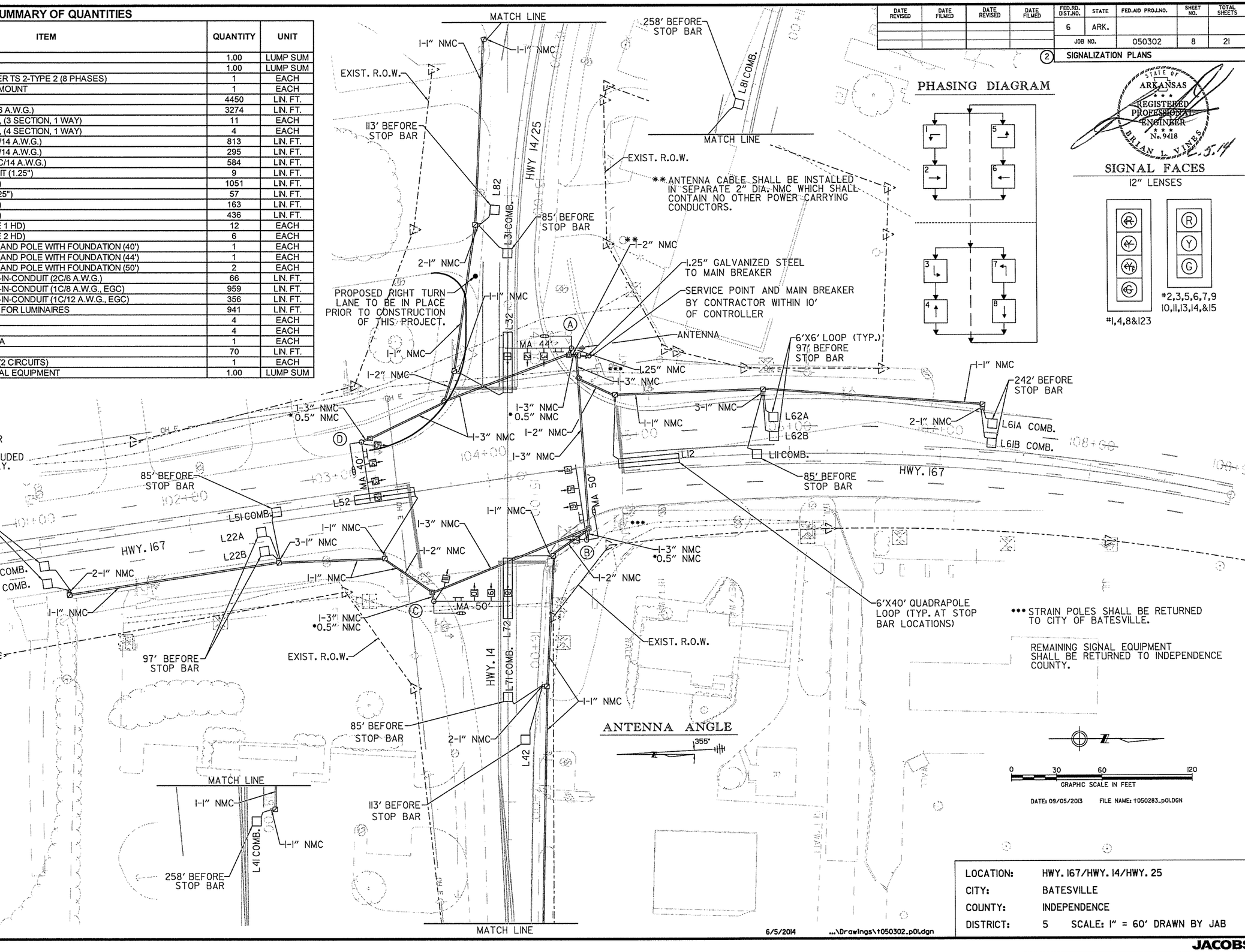
*ALTERNATE BID ITEMS

* 0.50" NMC FOR CONTROLLER OR POLE GROUND ROD CONNECTION. THE COST OF 0.5" NMC IS INCLUDED IN ITEM 701 OR 714 RESPECTIVELY.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050302	8	21

(2) SIGNALIZATION PLANS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9418
BRIAN L. VINES
6.5.14



PHASING DIAGRAM

SIGNAL FACES

12" LENSES

#1,4,8&123

#2,3,5,6,7,9 10,11,13,14,&15

LEGEND

- TYPE I PULL BOX
- TYPE 2 PULL BOX
- CONTROLLER CABINET
- SIGNAL HEAD
- PED. HEAD
- SIGNAL POLE, MAST ARM AND LUMINAIRE ARM
- NMC - NON METALLIC CONDUIT
- VIDEO DETECTOR
- 18" STREET NAME SIGN

DESIGN PARAMETERS

POSTED SPEED LIMIT:
NO POSTED SPEED FOR
45 MPH EAST & WEST APPROACHES
40 MPH NORTH & SOUTH APPROACHES
NO BUS STOPS
NO RAILROAD TRACKS
NO PARKING
NO FIRE STATION
6.0' MIN CLEAR ZONE DISTANCE (ON CURBED SECTIONS)

LOCATION:	HWY. 167/HWY. 14/HWY. 25
CITY:	BATESVILLE
COUNTY:	INDEPENDENCE
DISTRICT:	5 SCALE: 1" = 60' DRAWN BY JAB

6/5/2014 ...\Drawings\t050302_p01.dgn

JACOBS

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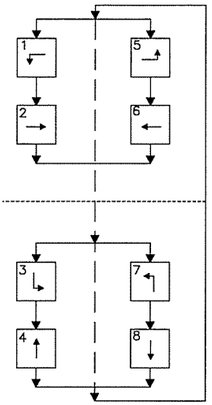
POLE DIMENSIONS

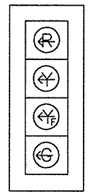
POLE	MAST ARM(S) LENGTH	MAST ARM(S) ORIENTATION ANGLE FROM HAND HOLE (CLOCKWISE)	VERTICAL SHAFT LENGTH	LUM. ARM LENGTH	LUM. ARM(S) ORIENTATION ANGLE FROM HAND HOLE (CLOCKWISE)	STATION (BATESVILLE BLVD.)	OFFSET (BATESVILLE BLVD.)	NORTHING	EASTING
A	44 FT.	270 DEGREES	35'-0"	15'-0"	270 DEGREES	104+65	79' LT.	511310.4669	1419364.1437
B	50 FT.	180 DEGREES	35'-0"	15'-0"	180 DEGREES	104+60	48' RT.	511320.0390	1419490.8107
C	52 FT.	180 DEGREES	35'-0"	15'-0"	180 DEGREES	103+52	73' RT.	511218.8684	1419531.1791
D	46 FT.	180 DEGREES	35'-0"	10'-0"	180 DEGREES	103+20	38' LT.	511171.2150	1419426.0206

PHASING DIAGRAM

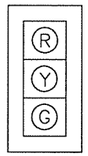


SIGNAL FACES

12" LENSES



*1,4,8&12



*2,3,5,6,7,9 10,11,13,14,&15

* 0.50" NMC FOR CONTROLLER OR POLE GROUND ROD CONNECTION. THE COST OF 0.5" NMC IS INCLUDED IN ITEM 701 OR 714 RESPECTIVELY.

** ANTENNA CABLE SHALL BE INSTALLED IN SEPARATE 2" DIA. NMC WHICH SHALL CONTAIN NO OTHER POWER CARRYING CONDUCTORS.

ANTENNA ANGLE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RO. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		050302	9	21

(2) SIGNALIZATION PLANS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9418
ALAN L. VINES
5.29.14

1-1" NMC
113' BEFORE STOP BAR
L82
85' BEFORE STOP BAR
L31 COMB.
2-1" NMC
HWY. 14/25
PROPOSED RIGHT TURN LANE TO BE IN PLACE PRIOR TO CONSTRUCTION OF THIS PROJECT.
EXIST. R.O.W.
1-1" NMC
L32
1-2" NMC
1-3" NMC
* 0.5" NMC
1-2" NMC
1-3" NMC
1-3" NMC
* 0.5" NMC
1-3" NMC
A
1-2" NMC**
ANTENNA
MA 44'
1.25" GALVANIZED STEEL TO MAIN BREAKER
SERVICE POINT AND MAIN BREAKER BY CONTRACTOR WITHIN 10' OF CONTROLLER
1.25" NMC
1-3" NMC
6'X6' LOOP (TYP.) 97' BEFORE STOP BAR
1-1" NMC
3-1" NMC
L62A
L62B
L61A COMB.
L61B COMB.
1-1" NMC
L12
L11 COMB.
85' BEFORE STOP BAR
HWY. 167
242' BEFORE STOP BAR
D
85' BEFORE STOP BAR
HWY. 167
MA 40'
L52
L51 COMB.
242' BEFORE STOP BAR
L22A
97' BEFORE STOP BAR
L22B
3-1" NMC
L21A COMB.
L21B COMB.
2-1" NMC
1-1" NMC
1-1" NMC
1-2" NMC
1-3" NMC
* 0.5" NMC
C
MA 50'
EXIST. R.O.W.
1-3" NMC
1-1" NMC
MA 50'
L72
HWY. 14
2-1" NMC
L71 COMB.
85' BEFORE STOP BAR
113' BEFORE STOP BAR
L42
1-1" NMC
1-3" NMC
* 0.5" NMC
B
1-2" NMC
EXIST. R.O.W.
1-1" NMC
6'X40' QUADRAPOLE LOOP (TYP. AT STOP BAR LOCATIONS)

LEGEND

- TYPE 1 PULL BOX
- TYPE 2 PULL BOX
- CONTROLLER CABINET
- SIGNAL HEAD
- PED. HEAD
- SIGNAL POLE, MAST ARM AND LUMINAIRE ARM
- NMC - NON METALLIC CONDUIT
- VIDEO DETECTOR
- 18" STREET NAME SIGN

DESIGN PARAMETERS

POSTED SPEED LIMIT:
- NO POSTED SPEED FOR 45 MPH EAST & WEST APPROACHES
- 40 MPH NORTH & SOUTH APPROACHES

NO BUS STOPS
NO RAILROAD TRACKS
NO PARKING
NO FIRE STATION
6.0' MIN CLEAR ZONE DISTANCE (ON CURBED SECTIONS)

0 20 40 80
GRAPHIC SCALE IN FEET

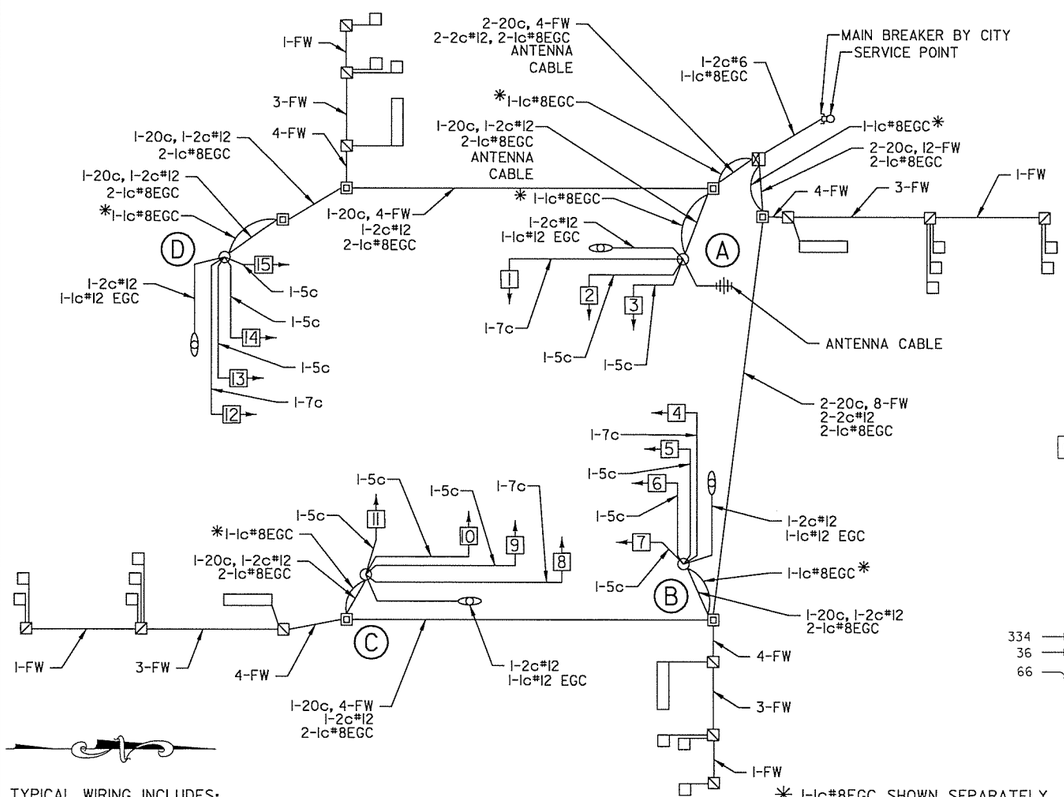
LOCATION:	HWY. 167/HWY. 14/HWY. 25
CITY:	BATESVILLE
COUNTY:	INDEPENDENCE
DISTRICT:	5 SCALE: 1" = 40' DRAWN BY JAB

5/29/2014 ...\Drawings\t050302_p02.dgn

JACOBS

DETECTOR CHART

DETECTOR ASSIGNMENTS				HARDWARE INPUTS BY SUPPLIER			PROGRAM ASSIGNMENTS			COMMENT
							LOCAL		MSTR. SYS. DET.#	
DETECTOR I.D.#	TYPE	TYPE	DET. #	CAB. TRM. #	AMP CHN. #	CON. INP. #	PHS.	SYS. DET.#		
L 11	SB FAR	COMB.	9			V9	1	1		
L 12	SB NEAR	LOCAL	1			V1	1			
L 21A	NB FAR	COMB.	10			V10	2			
L 21B	NB FAR	COMB.	10			V10	2			
L 22A	NB NEAR	LOCAL	1			V2	2	2		
L 22B	NB NEAR	LOCAL	1			V2	2	2		
L 31	EB FAR	COMB.	11			V11	3	3		
L 32	EB NEAR	LOCAL	3			V3	3			
L 41	WB FAR	COMB.	12			V12	4			
L 42	WB NEAR	LOCAL	4			V4	4	4		
L 51	NB FAR	COMB.	13			V13	5			
L 52	NB NEAR	LOCAL	5			V5	5			
L 61A	SB FAR	COMB.	14			V14	6			
L 61B	SB FAR	COMB.	14			V14	6			
L 62A	SB NEAR	LOCAL	6			V6	6	6		
L 62B	SB NEAR	LOCAL	6			V6	6	6		
L 71	WB FAR	COMB.	15			V15	7	7		
L 72	WB NEAR	LOCAL	7			V7	7			
L 81	EB FAR	COMB.	16			V16	8			
L 82	EB NEAR	LOCAL	8			V8	8	8		

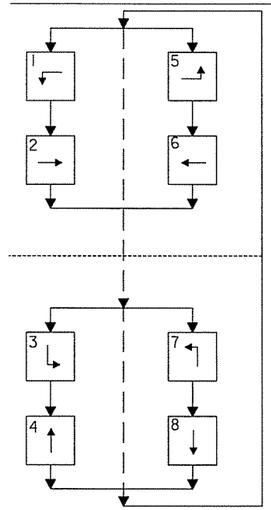


TYPICAL WIRING INCLUDES:

1. SEPARATE 5c/#14 AWG FROM EACH 3 SEC. SIGNAL HEAD TO BASE OF POLE.
2. PROVIDE SEPARATE CONDUIT TO ANTENNA.

✳ I-Ic#8EGC SHOWN SEPARATELY FROM CONTROLLER OR POLE TO NEAREST PULL BOX IS INCLUDED IN ITEM 701 OR 714, RESPECTIVELY.

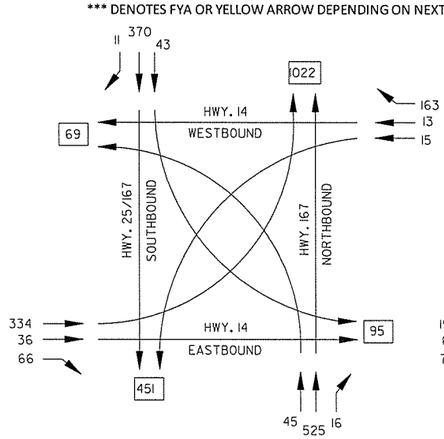
PHASING DIAGRAM



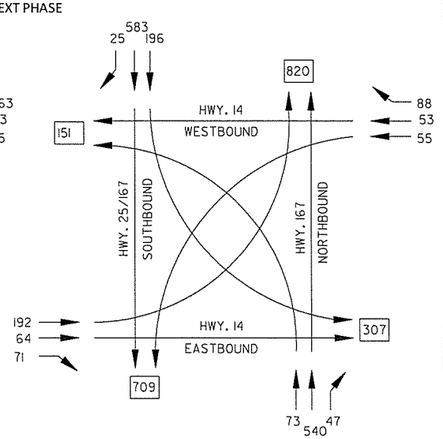
INTERVAL CHART

SIGNAL FACES	INTERSECTION INTERVALS																FLASH SEQ.
	1+5	CLR	1+6	CLR	2+5	CLR	2+6	CLR	3+7	CLR	3+8	CLR	4+7	CLR	4+8	CLR	
1	<R	<R	<R	<R	<R	<R	<R	<R	<G	***	FYA	***	<G	***	FYA	***	<R
2	R	R	R	R	R	R	R	R	R	R	R	R	G	**	G	**	R
3	R	R	R	R	R	R	R	R	R	R	R	R	G	**	G	**	R
4	<G	***	FYA	***	<G	***	FYA	***	<R	<R	<R	<R	<R	<R	<R	<R	<R
5	R	R	R	R	G	**	G	**	R	R	R	R	R	R	R	R	R
6	R	R	R	R	G	**	G	**	R	R	R	R	R	R	R	R	R
7	R	R	R	R	G	**	G	**	R	R	R	R	R	R	R	R	R
8	<R	<R	<R	<R	<R	<R	<R	<R	<G	***	<G	***	FYA	***	FYA	***	<R
9	R	R	R	R	R	R	R	R	R	R	G	**	R	R	G	**	R
10	R	R	R	R	R	R	R	R	R	R	G	**	R	R	G	**	R
11	R	R	R	R	R	R	R	R	R	R	G	**	R	R	G	**	R
12	<G	***	<G	***	FYA	***	FYA	***	<R	<R	<R	<R	<R	<R	<R	<R	<R
13	R	R	G	**	R	R	G	**	R	R	R	R	R	R	R	R	R
14	R	R	G	**	R	R	G	**	R	R	R	R	R	R	R	R	R
15	R	R	G	**	R	R	G	**	R	R	R	R	R	R	R	R	R

* DENOTES GREEN OR YELLOW ARROW DEPENDING ON NEXT PHASE
** DENOTES GREEN OR YELLOW BALL DEPENDING ON NEXT PHASE
*** DENOTES FYA OR YELLOW ARROW DEPENDING ON NEXT PHASE



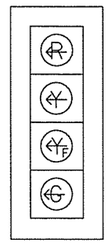
HWY. 167/HWY. 25/HWY. 14
TRAFFIC FLOW DIAGRAM
TRAFFIC VOLUME
A.M. PEAK HOUR



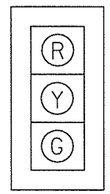
HWY. 167/HWY. 25/HWY. 14
TRAFFIC FLOW DIAGRAM
TRAFFIC VOLUME
P.M. PEAK HOUR

SIGNAL FACES

12" LENSES

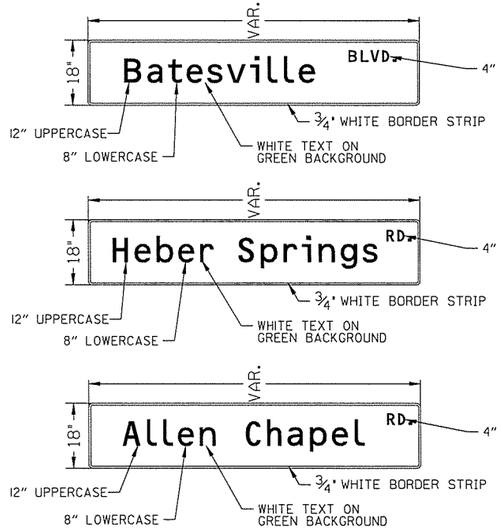


#1,4,8&12



#2,3,5,6,7,9
10,11,13,14,&15

TYPICAL OVERHEAD STREET NAME MARKER MAST ARM MOUNTED



1. REFLECTIVE SHEETING SHALL COMPLY WITH ASTM 4956 TYPE 8 OR TYPE 9 REFLECTIVE SHEETING. SHEETING AND LEGEND SHALL BE APPLIED IN SUCH A MANNER TO PROVIDE WRINKLE AND BUBBLE FREE SURFACES. APPLICATION OF SHEETING IS CAUSE FOR REJECTION OF MATERIALS DUE TO WORKMANSHIP.
2. ALUMINUM SIGN BLANK SHALL BE ALLOY 6061-T6 OR 5052-H38. THE ALUMINUM SIGN SHALL ALSO BE ANODIZED. THE ALUMINUM SHEETING SHOWN WITH 1.5" CORNER RADII. PRIOR TO FABRICATION OF THE SIGNS, THE LAYOUT SHALL FIRST BE APPROVED BY AN AGENT OF THE CITY OF HOPE.
3. SEE STD. DETAIL SHEET FOR MORE INFORMATION FOR MOUNTING ON MAST ARM ASSEMBLY.
4. THE CLEARVIEW 5-W-R FRONT SHALL BE USED FOR ALL LETTERS.
5. STREET NAME "BATESVILLE BLVD." ON POLE A (WESTBOUND) AND POLE C (EASTBOUND). STREET NAME "ALLEN CHAPEL RD." ON POLE B (NORTHBOUND). STREET NAME "HEBER SPRINGS RD." ON POLE D (SOUTHBOUND).

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		050302	10	21

(2) SIGNALIZATION PLANS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9418
BRIAN L. VINES
5.29.14

LOCATION:	HWY. 167/HWY. 14/HWY. 25
CITY:	BATESVILLE
COUNTY:	INDEPENDENCE
DISTRICT:	5 SCALE: NA DRAWN BY JAB

JACOBS

t:\job\wkm2640 ahtd on-call 2011 task order 0032 hwy 167 signal\700 cadd files\713 traffic files\drawings\t050302_p03.dgn ...\drawings\t050302_p03.dgn 5/28/2014 4:53:57 PM 5/28/2014 ...\drawings\t050302_p03.dgn

NOTES:

1. ANTENNA ORIENTATION SHALL BE VERIFIED BY THE CITY OF BATESVILLE.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		050302	II	21

(2) CORRIDOR SYSTEM MAP

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9428
BRIAN L. VINES

5.29.14

HWY. 167 AT HWY. 69
EXISTING MASTER ANTENNA

HWY. 167 AT HWY. 14/25
LOCAL RADIO WITH ANTENNA

BATESVILLE
Pop. 10,248

BATESVILLE REGIONAL

ANTENNA ANGLE
HWY. 167 AT HWY. 14/25

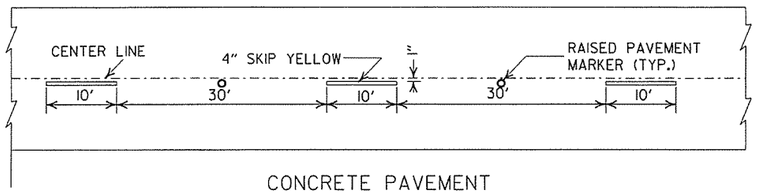
355°

0 1500 3000 6000
GRAPHIC SCALE IN FEET

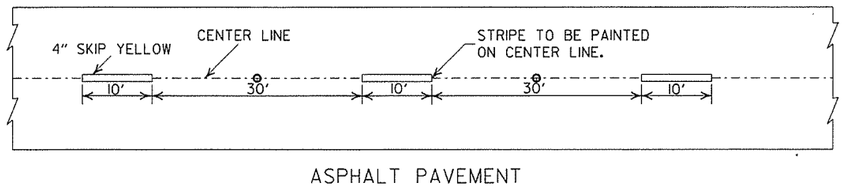
LOCATION:	HWY. 167/HWY. 14/HWY. 25		
CITY:	BATESVILLE		
COUNTY:	INDEPENDENCE		
DISTRICT:	5	SCALE:	DRAWN BY JAB

JACOBS

T:\Job\WLXM2640 AHTD On-Call 2011 Task Order 0032 Hwy 167 Signal\700 CADD Files\713 Traffic Files\Drawings\t050302_corrmap.dgn
...\Drawings\t050302_corrmap.dgn
10:43:09 AM
5/30/2014

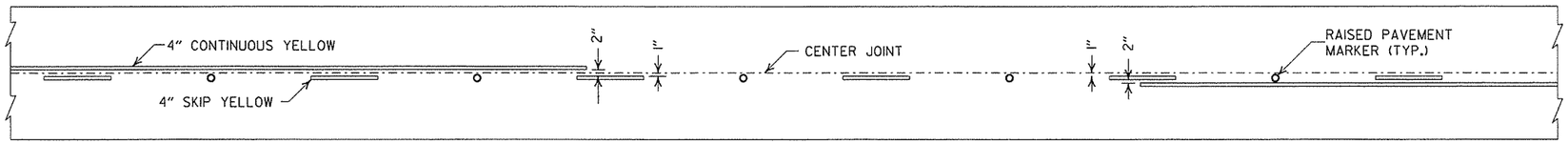


CONCRETE PAVEMENT

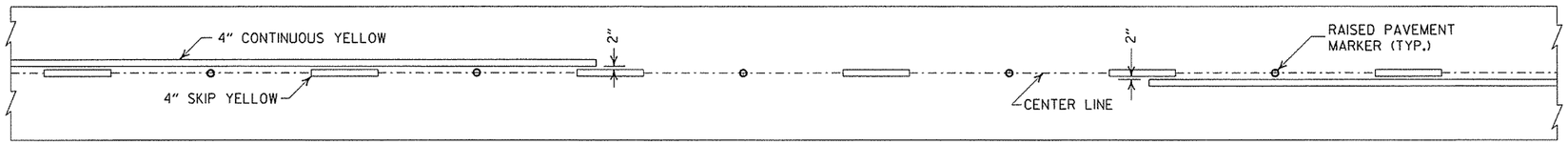


ASPHALT PAVEMENT

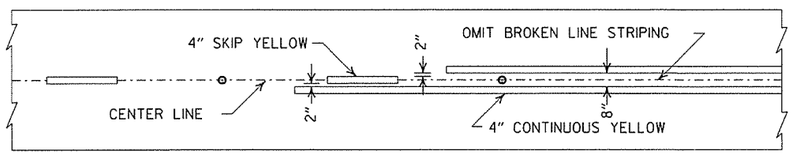
BROKEN LINE STRIPING



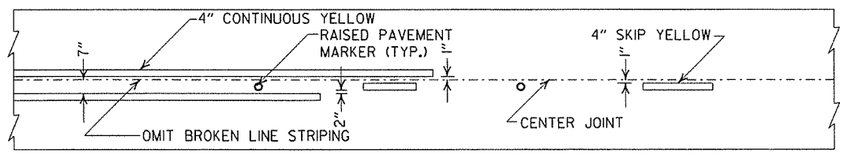
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

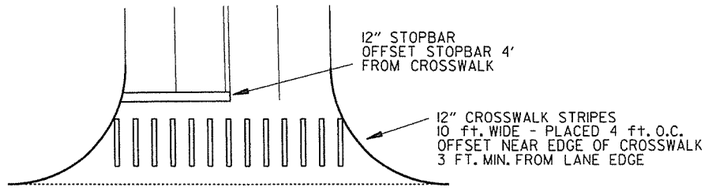


ASPHALT PAVEMENT



CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES



CROSSWALK AND STOPBAR DETAILS

GENERAL NOTES:

THIS DRAWING SHOULD BE CONSIDERED AS TYPICAL ONLY AND THE FINAL LOCATION OF THE STRIPING AND RAISED PAVEMENT MARKERS SHALL BE DETERMINED BY THE ENGINEER.

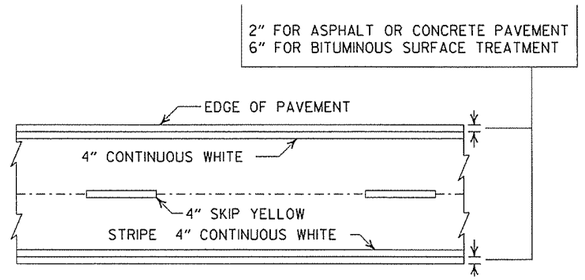
THIS DRAWING SHOULD BE USED IN CONJUNCTION WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST REVISION.

NOTE:

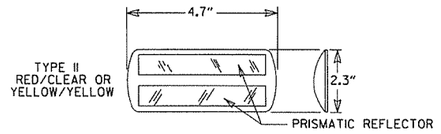
DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE AHTD QUALIFIED PRODUCTS LIST.

NOTES:

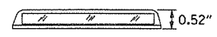
1. ALL LINES SHALL HAVE A WIDTH OF 4 INCHES.
2. THE THICKNESS AND RATE OF PAINT APPLICATION SHALL BE AS SPECIFIED IN SECTION 718 OF THE STANDARD SPECIFICATIONS.
3. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
4. RAISED PAVEMENT MARKERS SHALL BE CENTERED BETWEEN SKIP LINES ON 40 FEET SPACING UNLESS OTHERWISE SHOWN ON THE PLANS.



PAVEMENT EDGE LINE MARKING



NOTE:
THE RED LENS OF THE TYPE II R.P.M. SHALL FACE THE INCORRECT TRAFFIC MOVEMENT.



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

DATE	REVISION	FILMED
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAV'T. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80	DRAWN	1-9-30-80

ARKANSAS STATE HIGHWAY COMMISSION

PAVEMENT MARKING DETAILS

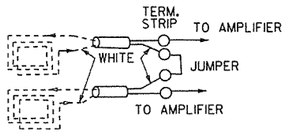
STANDARD DRAWING PM-1

LOOP DETECTOR INSTALLATION AND TESTING

NOTES:

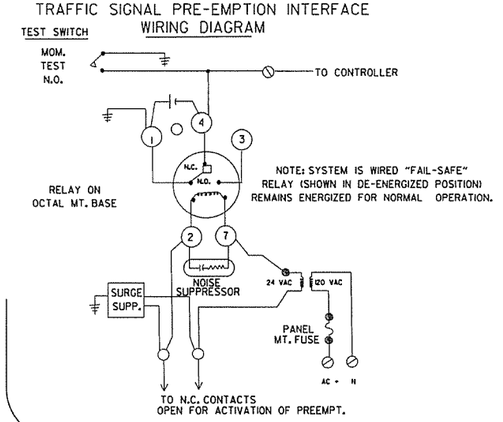
1. LOOPS WITH A PERIMETER GREATER THAN 40' SHALL HAVE TWO TURNS. LOOPS WITH A PERIMETER LESS THAN OR EQUAL TO 40' SHALL HAVE THREE TURNS, UNLESS OTHERWISE NOTED ON THE PLANS. QUADRUPOLE LOOPS SHALL BE TWO TURNS (2-4-2 CONFIGURATION) UNLESS OTHERWISE NOTED.
2. LOOP AND FEEDER WIRE SHALL BE CONTINUOUS WITHOUT SPLICES EXCEPT AT THE LOOP/FEEDER WIRE SPLICE AS SHOWN. SPLICE SHALL BE ROSIN SOLDERED AND WATERPROOFED WITH AN ACCEPTED SPLICE KIT. DRAIN WIRE SHALL BE GROUNDED IN CABINET AND INSULATED AT LOOP TO FEEDER SPLICE.
3. THE LOOP TO FEEDER SPLICE, FEEDER JACKET AND JACKET OF LOOP WIRE IN DUCT SHALL BE COMPLETELY SEALED AND WATERPROOFED.
4. CONTRACTOR MAY MAKE CONNECTIONS TO SIGNAL CABLE AND LOOP TO FEEDER CONNECTION AT TERMINAL STRIPS MOUNTED TO POLE INSIDE HAND HOLD COVER AS SHOWN IN DETAIL. TERMINALS MUST BE EASILY ACCESSIBLE, BUT PROTECTED AGAINST ACCIDENTAL CONTACT. CONNECTION OF POWER CARRYING CIRCUITS MUST BE SEPARATED FROM LOOP OR LOGIC CIRCUITS. ALL CONNECTIONS TO TERMINAL STRIPS SHALL UTILIZE SPADE LUGS OR AS APPROVED BY THE ENGINEER.
5. EACH LOOP SHALL HAVE A SEPARATE "FEEDER WIRE" UNLESS OTHERWISE NOTED. ALL FEEDER WIRES SHALL BE LABELED AS TO LOOP NUMBER AS DESIGNATED ON THE PLANS.
6. ALL LOOP WIRE ENTERING PULL BOXES SHALL BE ENCLOSED IN CONDUIT. EACH LOOP WIRE SHALL ENTER PULL BOX OR POLE BASE THROUGH A SEPARATE PIECE OF ONE INCH (1"O) CONDUIT.
7. LOOP WIRE FROM LOOP TO CONDUIT IS NOT TWISTED. LOOP WIRE IN THE CONDUIT MUST BE TWISTED TWO TO FIVE TURNS PER FOOT.
8. WARRANTY PERIOD FOR LOOPS SHALL NOT COMMENCE UNTIL TESTED BY THE CONTRACTOR AND ACCEPTED BY THE ENGINEER. CONTRACTOR SHALL PERFORM TEST AND PROVIDE A RECORD TO THE ENGINEER AS LISTED IN THE DETECTOR LOOP TESTING PROCEDURE.
9. UNLESS OTHERWISE APPROVED BY THE ENGINEER, BACKER ROD SHALL BE INSTALLED IN SHORT SECTIONS SPACED NOT MORE THAN 18" APART AND WEDGED INTO SLOT TO HOLD CABLE IN PLACE. CABLE SHALL BE TOTALLY ENCAPSULATED IN SEALER.
10. "HOT POUR" SEALER SHALL NOT BE ALLOWED WITH 705-LOOP WIRING IN DUCT.
11. WHERE UNDERGROUND SPLICES OF SIGNAL CABLE ARE REQUIRED, CONNECTIONS SHALL BE SOLDERED AND COMPLETELY WATERPROOFED TO THE SATISFACTION OF THE ENGINEER. WATERPROOFING SHALL EXTEND A MINIMUM OF TWO INCHES PAST THE SIGNAL CABLE JACKET AND SHALL COMPLETELY COVER ALL INDIVIDUAL CONDUCTORS OF THE SIGNAL CABLE. WATERPROOFING DOES NOT APPLY TO CONNECTIONS MADE IN POLE BASES.
12. CONTRACTOR SHALL CONNECT A SEPARATE NEUTRAL FOR EACH LOAD SWITCH REPRESENTED ON EACH SIGNAL POLE. ONLY ONE NEUTRAL IS REQUIRED FOR PEDESTRIAN SIGNALS. A SEPARATE 5C (TYPICAL) IS PROVIDED FOR PEDESTRIAN PUSH BUTTONS.
13. 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 CONTROLLER. CONTROLLER CABINET SHALL BE WIRED SUCH POWER TO LOAD SWITCHES CANNOT BACKFEED TO LOAD SWITCH POWER BUSS DURING FLASH OPERATION.

SERIES CONNECTED LOOPS

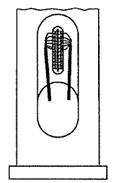


WIND LOOPS COUNTERCLOCKWISE; TAG WIRE EXITING SLOT AND TIE TO WHITE LEAD OF FEEDER WIRE; WHEN LOOPS ARE TIED TO SAME VEHICLE DETECTOR, SERIES CONNECT IN CABINET AS SHOWN.

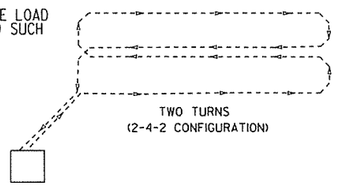
TRAFFIC SIGNAL PRE-EMPTION INTERFACE WIRING DIAGRAM



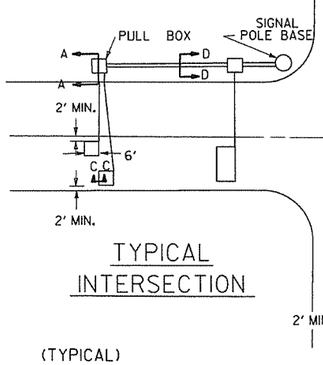
HANDHOLE TERMINAL

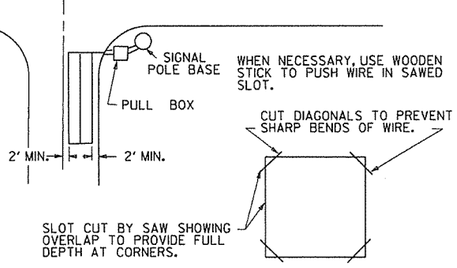


QUADRUPOLE LOOP



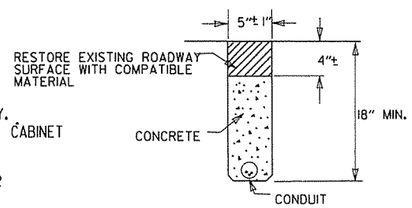
TYPICAL INTERSECTION





TRENCHING DETAIL

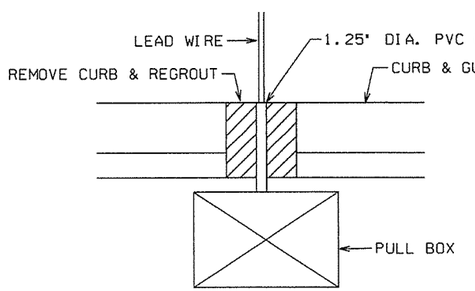
(FOR SAW CUT TRENCH IN ROADWAY)



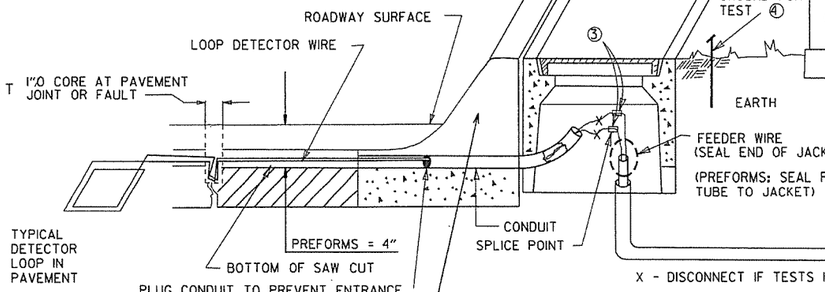
TYPICAL PROCEDURE FOR DETECTOR LOOP TESTING

1. DISCONNECT AND TEST CONTINUITY (< 10 OHMS) IF CONTINUITY IS BAD, GO TO TEST 3
2. TEST INSULATION (@ 500 VOLT TEST > 10 MEG-OHM) IF TESTS 1& 2 ARE GOOD, NO FURTHER TESTING IS NECESSARY. RECORDED RESULTS CONSIST OF TESTS 1& 2 FROM CONTROL CABINET WITH FEEDER WIRE CONNECTED TO LOOP.
3. OPEN SPLICE (DO NOT BREAK CONNECTION) REPEAT TEST 1& 2 IF TEST 3 IS BAD, GO TO TEST 4
4. BREAK SPLICE, INSTALL JUMPER IN CABINET, REPEAT TESTS 1& 2 SEPARATELY FOR FEEDER AND FOR LOOP

FAILURES TYPICALLY RESULT FROM BROKEN WIRE IN PAVEMENT, FAULTY INSULATION OF LOOP OR FEEDER WIRE, OR POORLY INSULATED SPLICE CONNECTION.



NOTE: CONDUIT SHALL BE INSTALLED IN CURB AS SHOWN OR AS DIRECTED BY THE ENGINEER. END OF CONDUIT SHALL BE WATER-TIGHT.



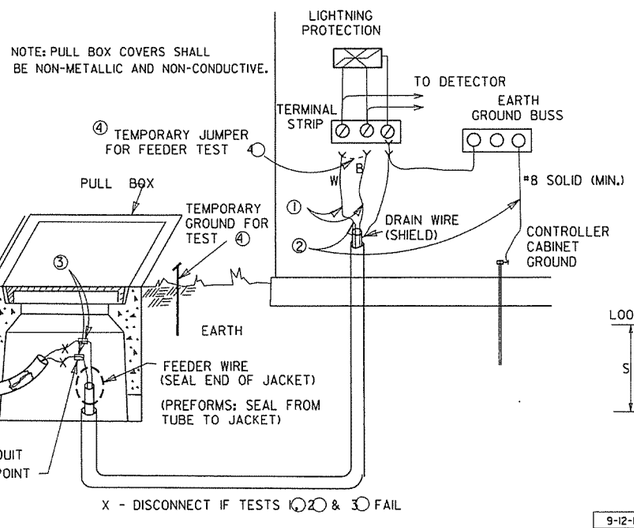
PREFORMS - SAW COMPLETELY THROUGH CURB

ALTERNATE - WHEN INSTALLING PREFORMS ON SUBSTRATE, LEAD-INS MAY BE INSTALLED IN CONDUIT UNDERNEATH THE CURB AND GUTTER.

SECTION A-A

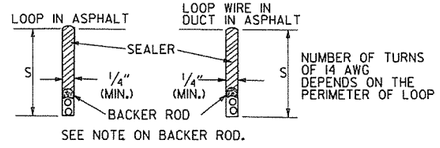
1'-6" CONCRETE COMBINATION CURB AND GUTTER

(TYPICAL)



NOTE: PULL BOX COVERS SHALL BE NON-METALLIC AND NON-CONDUCTIVE.

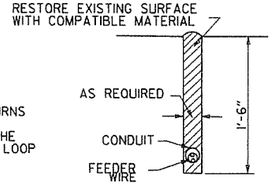
TYPICAL SECTIONS FOR PULSE AND PRESENCE LOOP DETECTORS



SEE NOTE ON BACKER ROD.

SECTION C-C

S=2 1/2" IN ASPHALT
S=1 1/2" IN CONCRETE



SECTION D-D

SPECIAL NOTE

IF FEEDER WIRE JACKET IS LEFT UNSEALED AND WATER IS ALLOWED TO ENTER JACKET, CONTRACTOR WILL BE REQUIRED TO REPLACE FEEDER AT NO COST TO THE DEPARTMENT.

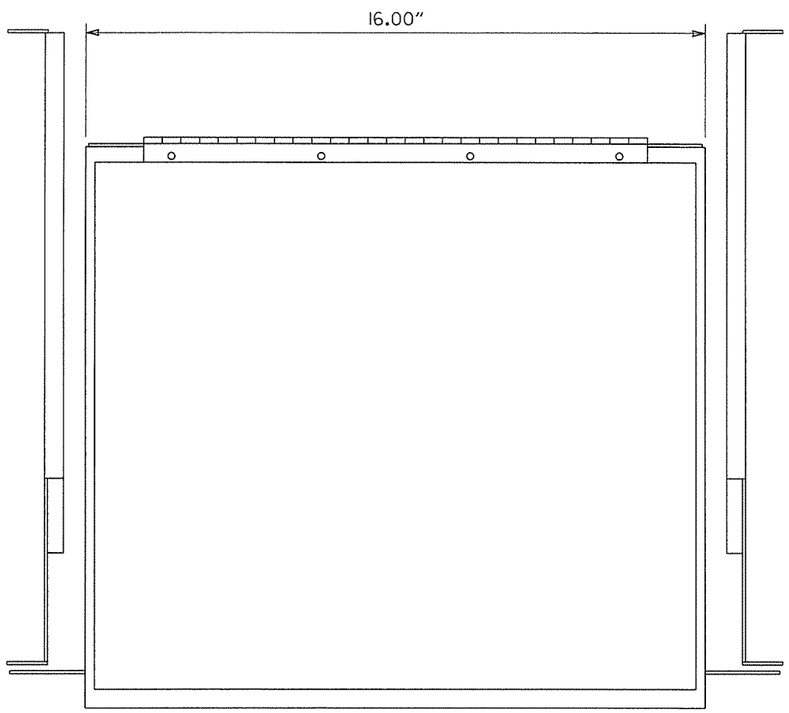
DATE	REVISION	DATE FILM
9-12-13	ISSUED AS STANDARD DRAWING	
5-17-01	REVISED	
4-11-01	REVISED	
2-4-00	REVISED PRE-EMPTION TEST SWITCH	
11-18-98	REVISED NOTES	
11-21-95	ISSUED	

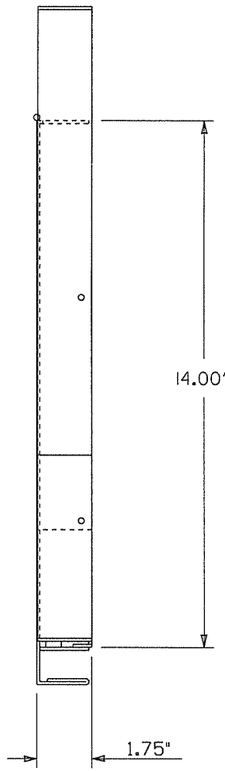
ARKANSAS STATE HIGHWAY COMMISSION

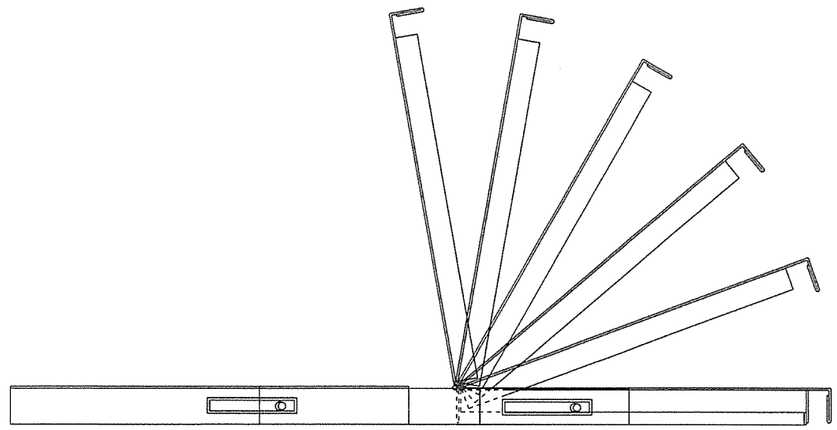
LOOP DETECTOR INSTALLATION

STANDARD DRAWING SD-4

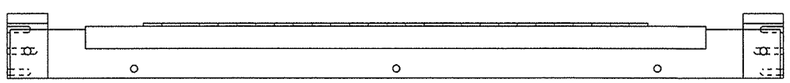
DRAWER PLAN VIEW



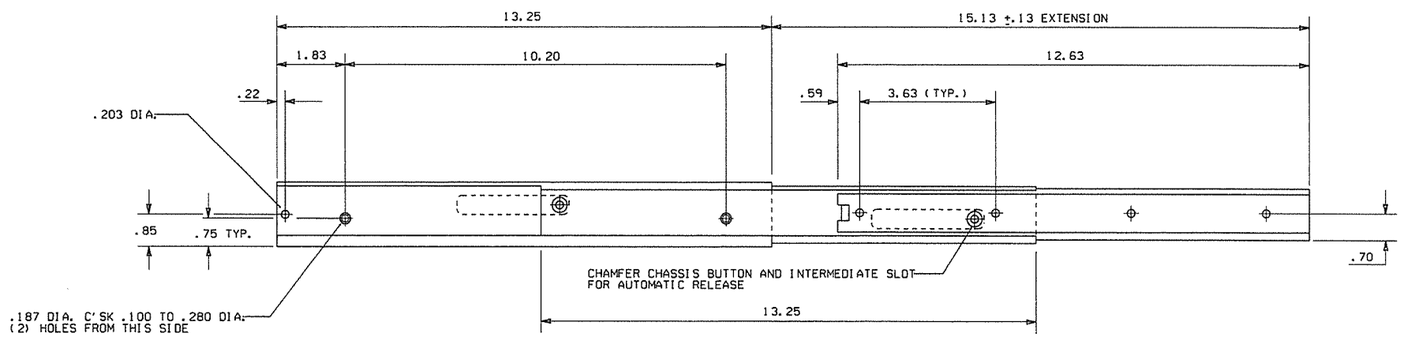




NOTES:
1. RIGHT HAND SLIDE SHOWN, LEFT SLIDE OPPOSITE.
2. GENERAL DEVICES (CC3002-99-0102) OR EQUAL AND CONTAINS (1) RIGHT HAND SLIDE ASSEMBLY, (1) LEFT HAND SLIDE ASSEMBLY.
3. ALL HARDWARE NECESSARY TO FASTEN SLIDE ASSEMBLY TO UNDERSIDE OF CONTROLLER SHELF SHALL BE INCLUDED.



FRONT VIEW



RIGHT SIDE ASSEMBLY

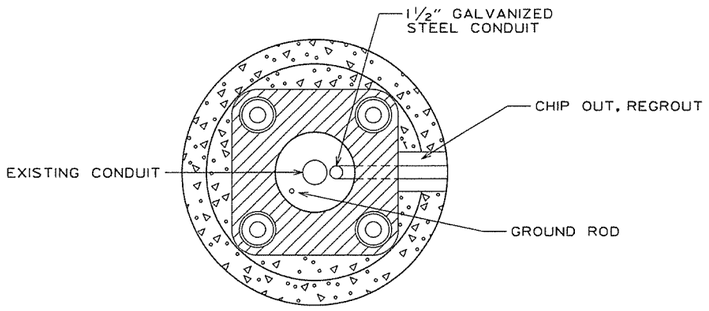
9-12-13	ISSUED AS STANDARD DRAWING	
6-15-05	ISSUED	
DATE	REVISION	DATE FILM

ARKANSAS STATE HIGHWAY COMMISSION

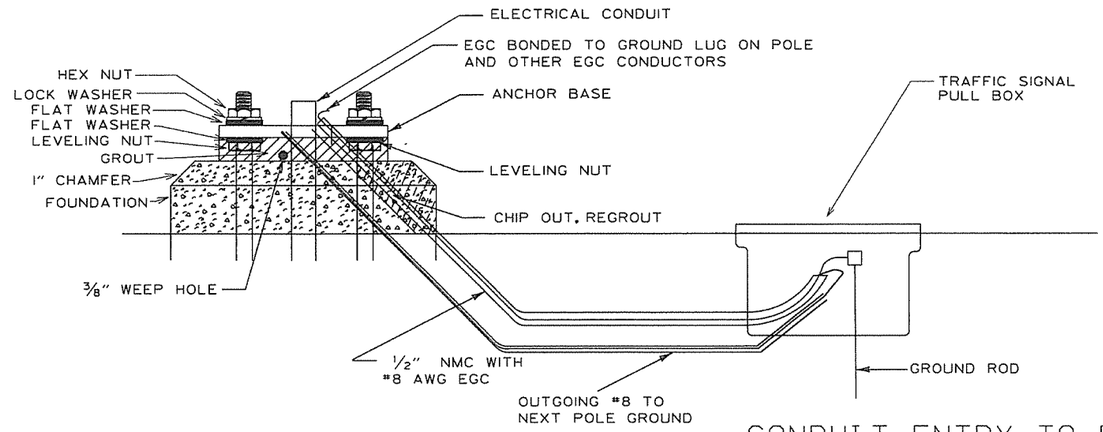
CONTROLLER CABINET
UTILITY DRAWER

STANDARD DRAWING SD-5

CONDUIT ENTRY TO EXISTING POLE BASE

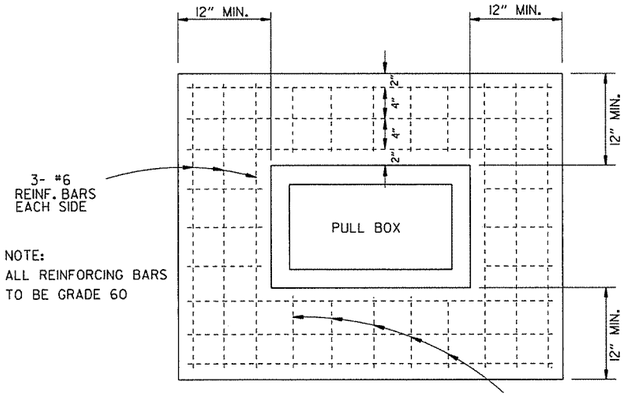


ANCHOR BASE

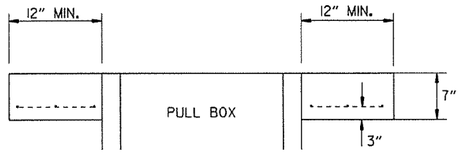


CONDUIT ENTRY TO EXISTING CONTROLLER CABINET

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

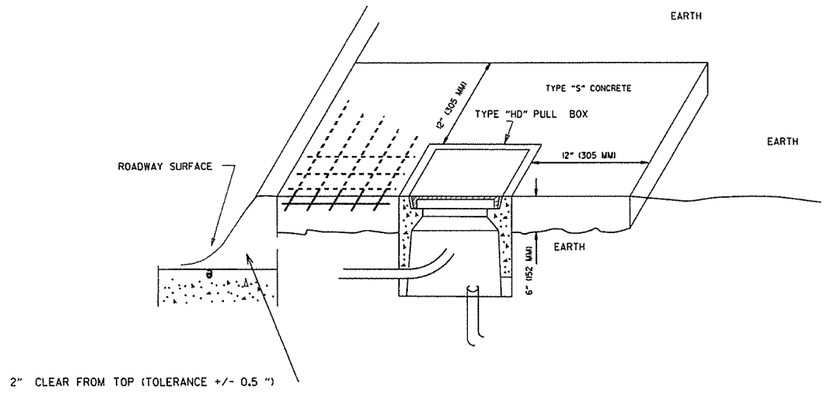


TOP



ELEVATION

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 6" (152 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.

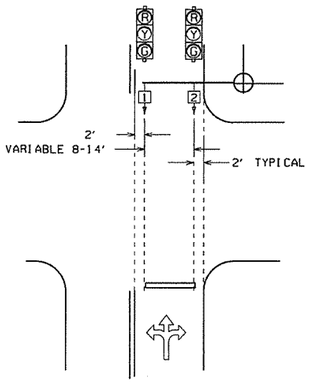
DATE	REVISION	DATE FILM
9-12-13	ISSUED AS STANDARD DRAWING	
5-21-09	REVISED GROUNDING	
7-31-08	ADDED & REVISED CONDUIT ENTRY	
6-23-04	REVISED CLEARANCE AT CURB ENTRY	
1-4-02	ADDED REINFORCING TO BOX APRON	
7-2-01	REVISED	
12-27-99	REVISED NOTES	
11-18-98	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

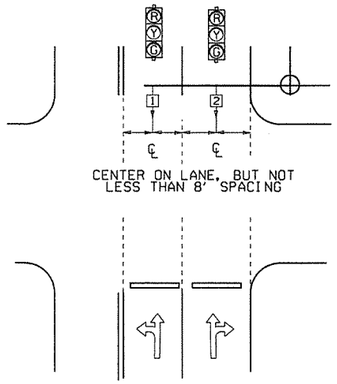
HEAVY DUTY PULL BOX

STANDARD DRAWING SD-6

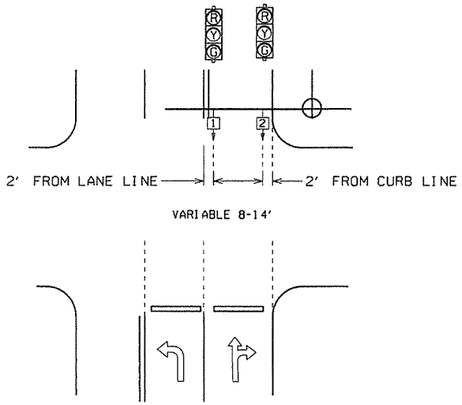
(A)



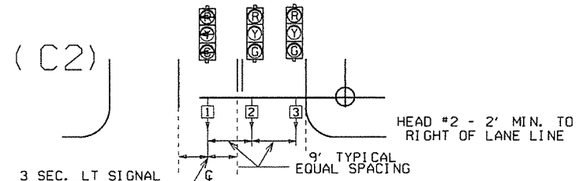
(B)



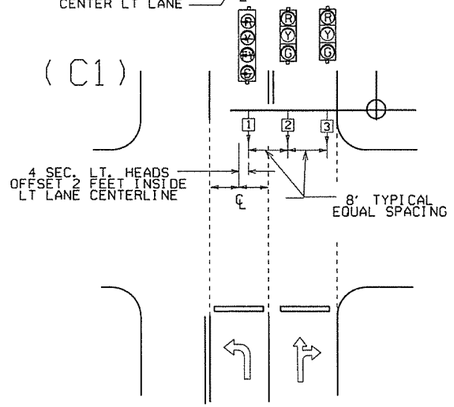
(C)



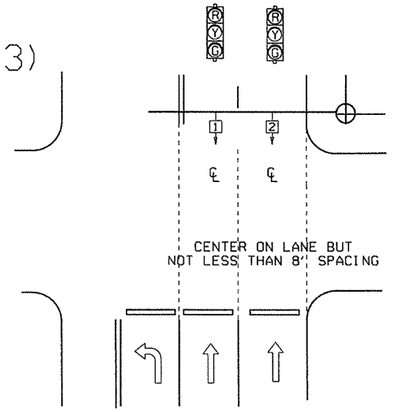
(C2)



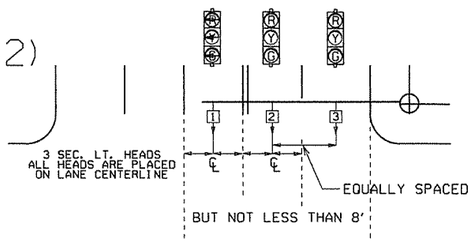
(C1)



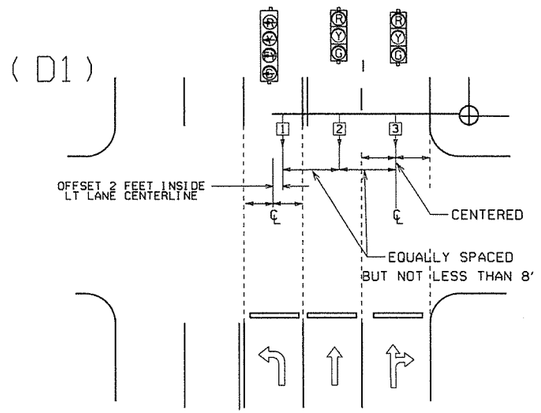
(C3)



(D2)

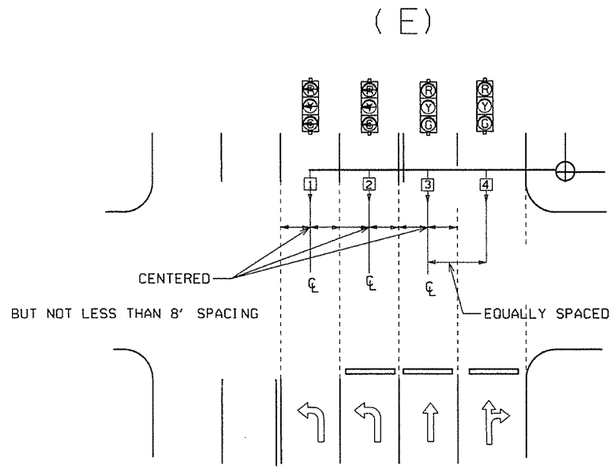


(D1)



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.

(E)



℄ = CENTER OF LANE FROM APPROACH SIDE

GENERAL NOTES:

1. 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.

2. THREE SECTION 'PROTECTED' LEFT TURN HEADS SHOULD BE PLACED ON THE CENTERLINE OF THE APPROACHING LEFT TURN LANE.

3. 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.

4. SIGNAL HEAD SPACING SHALL, IN NO CASE, BE LESS THAN EIGHT (8') FEET BETWEEN HEADS ON CENTER, MEASURED HORIZONTALLY PERPENDICULAR TO THE APPROACH.

5. 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.

6. MAXIMUM MOUNTING HEIGHT OF SIGNAL FACES LOCATED BETWEEN 40 FEET AND 53 FEET FROM STOP BAR SHALL BE IN ACCORDANCE WITH FIGURE 4D-1 OF 2009 MUTCD.

9-12-13	ISSUED AS STANDARD DRAWING	
3-11-10	2009 MUTCD	
12-9-99	ISSUED	
DATE	REVISION	DATE FILM

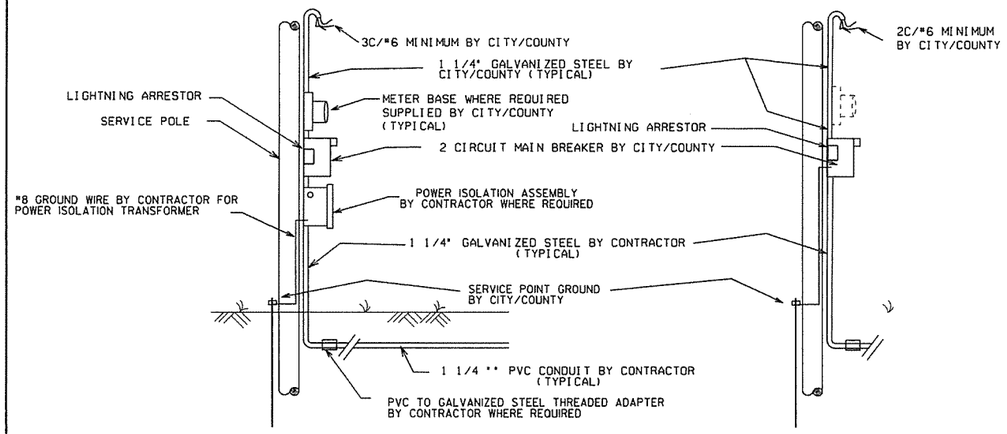
ARKANSAS STATE HIGHWAY COMMISSION

SIGNAL HEAD PLACEMENT

STANDARD DRAWING SD-8

MAIN BREAKER NOT NEAR CONTROLLER CABINET SECONDARY REQUIRED

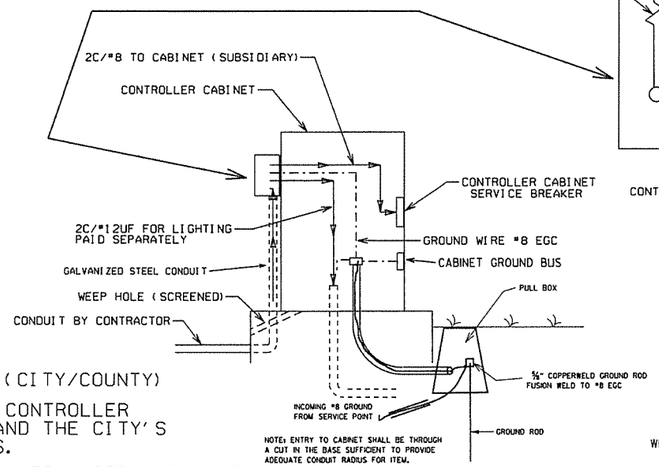
WITH POWER ISOLATION ASSEMBLY

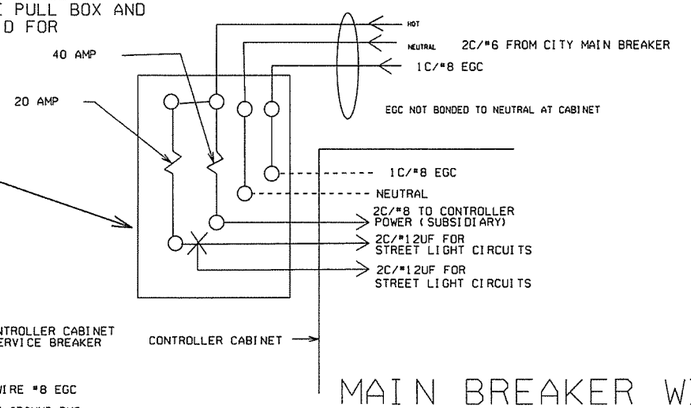


WITHOUT POWER ISOLATION ASSEMBLY

GROUND ROD-A 10' X ⅝" GROUND ROD SHALL BE INSTALLED IN THE PULL BOX FOR EACH POLE AND THE CONTROLLER. PAYMENT FOR THE GROUND ROD AND ½" 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.

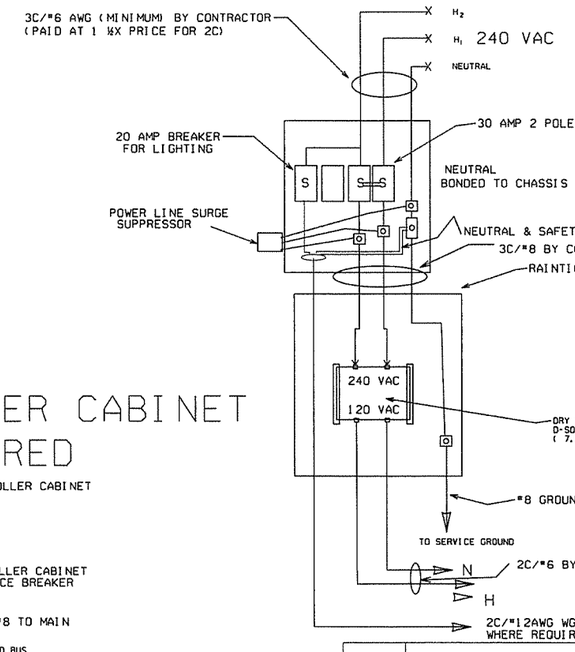
1. ALL SITUATIONS: ELECTRICAL SERVICE SHALL BE PROVIDED BY THE CITY/COUNTY TO A SERVICE POLE WITH EXTERNAL RAINTIGHT BREAKER (MAIN BREAKER) AT A MUTUALLY ACCEPTABLE POINT WITHIN THE RIGHT-OF-WAY. SERVICE POINT INCLUDES GALVANIZED STEEL CONDUIT TO A POINT 18" BELOW GROUND LINE, TWO CIRCUIT MAIN BREAKER, 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.

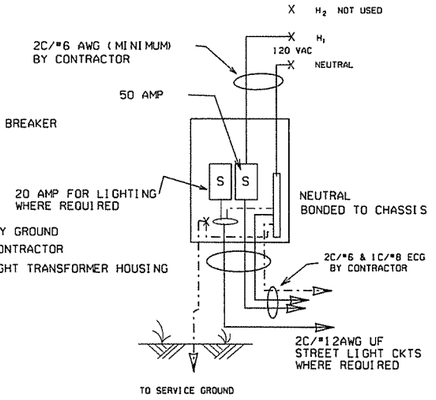
3. MAIN BREAKER NEAR CONTROLLER CABINET: ALL COMPONENTS OF THE SERVICE POINT WITH THE EXCEPTION OF THE WIRE AND WIRING ABOVE THE MAIN BREAKER IS FURNISHED AND INSTALLED BY THE CONTRACTOR. WIRING FROM MAIN BREAKER INCLUDING CONNECTION TO THE UTILITY, IS THE RESPONSIBILITY OF THE CITY/COUNTY. IF METER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

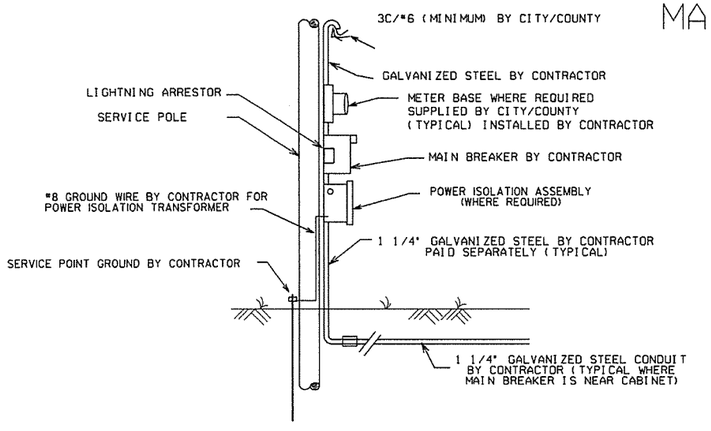


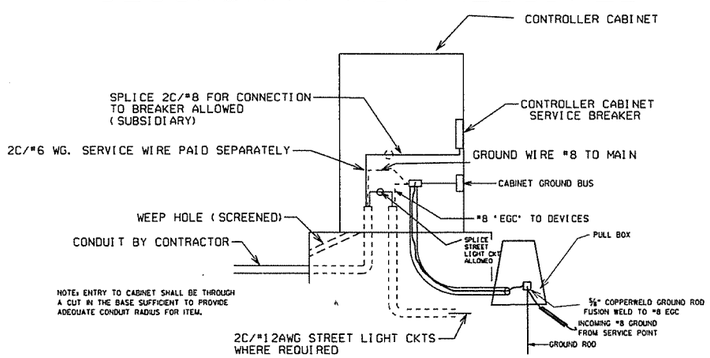
WITHOUT POWER ISOLATION ASSEMBLY
2 CIRCUIT MAIN BREAKER



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

MAIN BREAKER NEAR CONTROLLER CABINET SECONDARY NOT REQUIRED





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 SIGN FACES SHALL BE CONSTRUCTED OF HIGH INTENSITY SHEETING (TYPE III) WITH SILKSCREEN LEGEND AND BORDER.

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 LOAD 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.
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", 36 LB., 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.

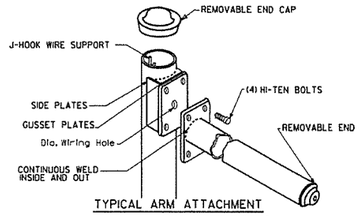
4. POLE/MAST ARM CAP -- POLE AND MAST ARMS CAPS SHALL BE PROVIDED, FABRICATED OF EITHER STEEL OR CAST ALUMINUM.

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).

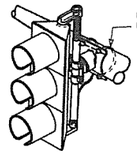
6. POLE/MAST ARM TAPER AND SLOPE - AVERAGE TAPER OF SIGNAL ARMS AND POLE SHALL BE 0.125 TO 0.15 INCHES PER FT.

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.

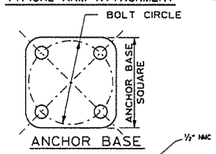
7. NUT COVERS - EACH POLE SHALL INCLUDE A BOLT DOWN NUT COVER FOR EACH ANCHOR BOLT.



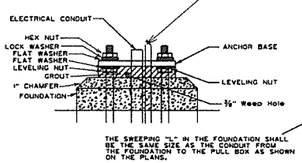
TYPICAL ARM ATTACHMENT

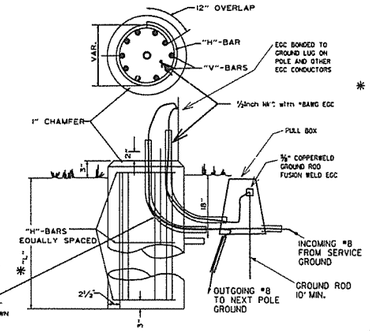


NOTE: THE SIGNAL SHALL BE CONNECTED TO THE MAST ARM BY BRACKETING AS DIRECTED BY THE ENGINEER.



ANCHOR BASE



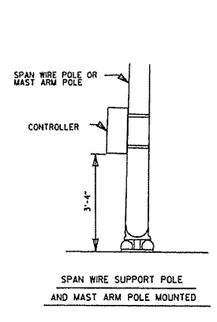


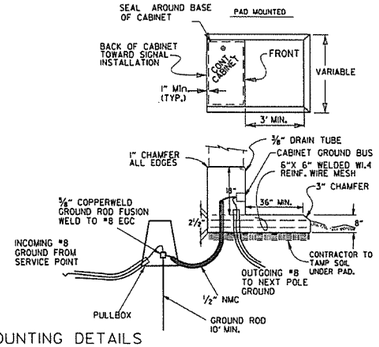
THE GROUND ROD SHALL BE FUSION WELDED TO A 1C/#8 A.W.G. SOLID COPPER GROUND WIRE. ATTACHMENT TO THE PRIMARY GROUND MAY BE BY AN APPROVED CLAMP. THE ROD IS TO BE LOCATED IN THE CONCRETE PULL BOX.

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.	STEEL HORZ.	STEEL 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 GROUTED 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.

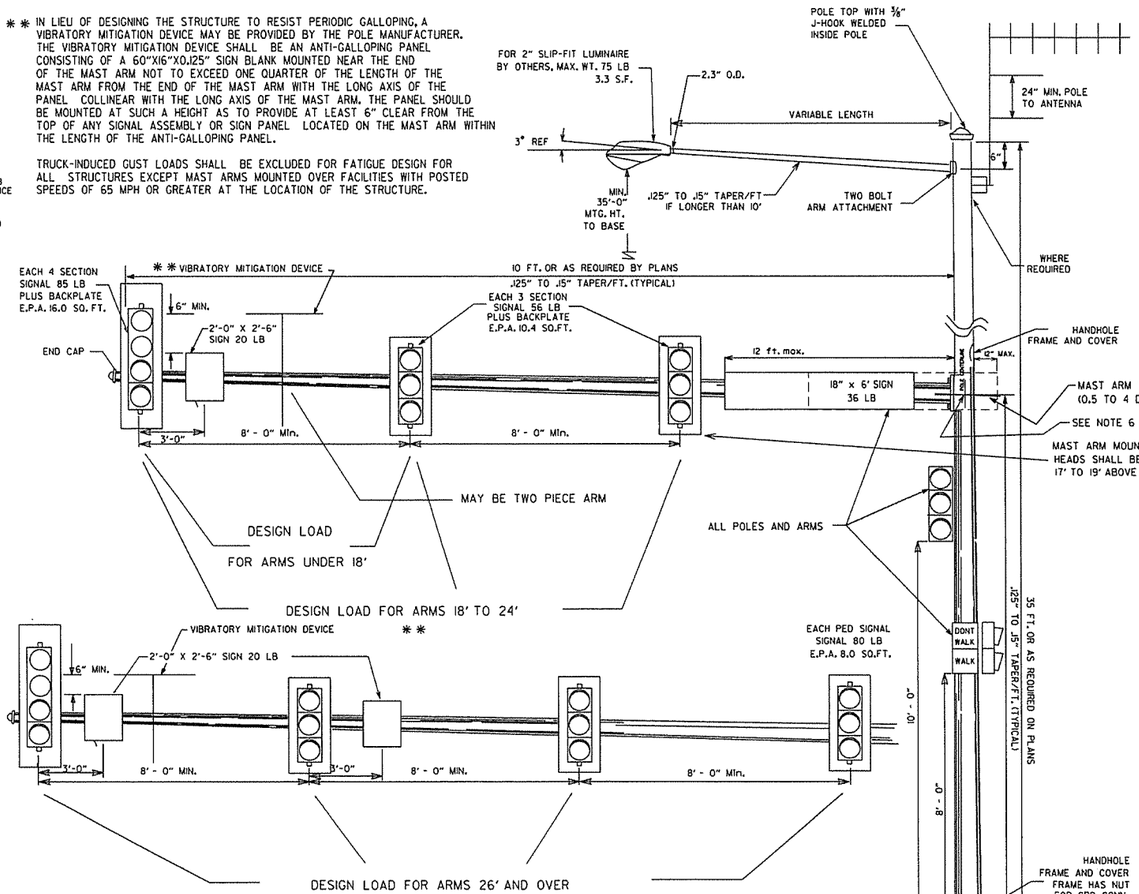
THE CONTRACTOR MAY BE REQUIRED TO ALTER THE FLASHING DISPLAY DURING THE TEMPORARY FLASH PERIOD, AT THE TIME INTERSECTION IS PLACED IN PERMANENT OPERATION, THE FLASH SEQUENCE SHALL THEN BE RETURNED TO THAT INDICATED ON THE PLAN SHEETS. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED FOR THESE ALTERATIONS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

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

* 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.



2-27-14	REVISED NOTES.
9-12-13	ISSUED AS STANDARD DRAWING
7-21-11	REVISED YIELD 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

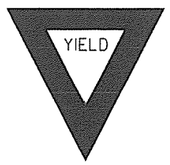
ARKANSAS STATE HIGHWAY COMMISSION

STEEL POLE WITH MAST ARM

R1-1

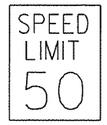
STANDARD 30"X30"
EXPRESSWAY 36"X36"
SPECIAL 48"X48"

R1-2



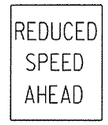
STD. 36"X36"X36"
EXPWY. 48"X48"X48"
FWY. 60"X60"X60"

R2-1



STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R2-5A



STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R2-5C

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R4-1

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R4-2

STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

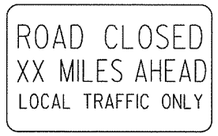
R5-1

STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

RII-2

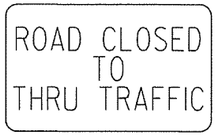
48"X30"

RII-3A



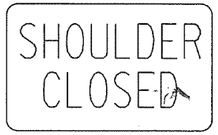
60"X30"

RII-4



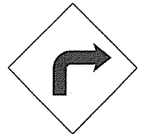
60"X30"

RSP-1



48"X30"

WI-1



STD. 36"X36"
FWY. 48"X48"

WI-2

STD. 36"X36"
FWY. 48"X48"

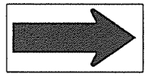
WI-3

STD. 48"X48"

WI-4

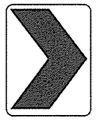
STD. 48"X48"

WI-6



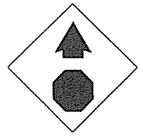
STD. 48"X24"
SPECIAL 60"X30"

WI-8



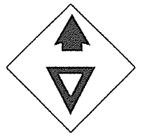
STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

W3-1



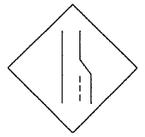
STD. 36"X36"
SPECIAL 48"X48"

W3-2



STD. 36"X36"
SPECIAL 48"X48"

W4-2



STD. 36"X36"
FWY. 48"X48"

W5-1

STD. 36"X36"
SPECIAL 48"X48"

W6-3

EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7

EXPWY. 36"X36"
FWY. 48"X48"

W9-2

STD. 36"X36"
FWY. 48"X48"

WI3-1

STD. 24"X24"

W20-1

STD. 48"X48"

W20-2

STD. 48"X48"

W20-3

STD. 48"X48"

W20-4

STD. 48"X48"

W20-5

STD. 48"X48"

W20-7a

STD. 36"X36"
FWY. 48"X48"

W21-2

STD. 30"X30"
SPECIAL 36"X36"

W21-5

STD. 30"X30"
SPECIAL 36"X36"

W24-1

STD. 36"X36"

WI-4b

STD. 48"X48"

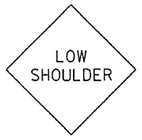
R56-1

STD. 18"X18"

W8-11

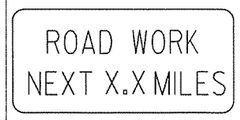
STD. 36"X36"
FWY. 48"X48"

W8-9



STD. 36"X36"
FWY. 48"X48"

G20-1



60"X24"

G20-2

48"X24"

OM-3L OM-3R

12"X36"

M4-9

STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

M4-10

48"X18"

R55-1

36"X60"

* USE 6" C LETTERS
** USE 4" D LETTERS

ADVANCE DISTANCES
(XXXX)

500 FT	½ MILE
1000 FT	¾ MILE
1500 FT	1 MILE
	AHEAD

GENERAL NOTES:

1. ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION.
2. TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START OF CONSTRUCTION OPERATIONS AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS NEEDED AND REMOVED THEREAFTER.
3. EXISTING SIGNS AND CONSTRUCTION SIGNS SHALL BE KEPT IN PROPER POSITION, AND BE CLEAN AND LEGIBLE AT ALL TIMES. SIGNS THAT DO NOT APPLY TO EXISTING CONDITIONS SHALL BE REMOVED. SIGNS THAT ARE DAMAGED, DEFACED, OR THAT ACCUMULATE DIRT DURING CONSTRUCTION SHALL BE CLEANED, REPAIRED, OR REPLACED.
- 4. SIGNS ARE USUALLY MOUNTED ON A SINGLE POST, ALTHOUGH THOSE WIDER THAN 36" OR LARGER THAN 10 SQ. FT. SHALL BE MOUNTED ON TWO POSTS OR ABOVE A TYPE III BARRICADE.
- 5. SIGN POSTS DIRECT BURIED IN SOIL SHALL BE 2 LB. MINIMUM CHANNEL POST OR 4"x4" WOOD POSTS. CHANNEL POSTS SHALL BE PAINTED GREEN. WOOD POSTS SHALL BE PAINTED WHITE. ALL POSTS SHALL BE NEATLY CONSTRUCTED, AND SHALL BE REPLUMBED, CLEANED, OR REPAIRED AS NEEDED FOR THE DURATION OF THE JOB. THERE SHALL NOT BE MORE THAN 2 POSTS IN A 7' PATH FOR WOOD OR CHANNEL POSTS. ANY CHANNEL POST SPLICE SHALL BE IN ACCORDANCE WITH STANDARD DRAWING TC-3.
6. POST MOUNTED SIGNS IN RURAL AREAS SHALL BE CONSTRUCTED WITH THE NEAR EDGE OF THE SIGN FROM 6 TO 12 FEET FROM THE PAVEMENT EDGE. SIGNS IN URBAN AREAS AND BARRICADE MOUNTED SIGNS SHALL BE MOUNTED A MINIMUM OF 2 FEET FROM THE PAVEMENT EDGE.
7. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN URBAN AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN RURAL AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE, EXCEPT A MINIMUM OF 6' SHALL BE USED WHEN MOUNTING AN ADVISORY SIGN BELOW A WARNING SIGN. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR INTERMEDIATE TERM STATIONARY WORK CONDITIONS. THE SIGNS MINIMUM MOUNTING HEIGHT SHALL BE 5'. RETROREFLECTIVE DEVICES SHALL BE USED. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, AND MOBILE CONDITIONS. THEY SHALL BE NO LESS THAN ONE (1) FOOT ABOVE THE TRAVELED WAY. LONG-TERM STATIONARY SIGNS SHALL BE DIRECT BURIED IN SOIL, UNLESS CONDITIONS NECESSITATE THE USE OF PORTABLE SIGNS, OR AS APPROVED BY THE ENGINEER. CONCRETE PADS, CONCRETE OR ROCK BALLAST, OR OTHER SOLID MATERIALS SHALL NOT BE UTILIZED WITH PORTABLE SIGN SUPPORTS.
8. FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
9. MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT.
10. R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN.

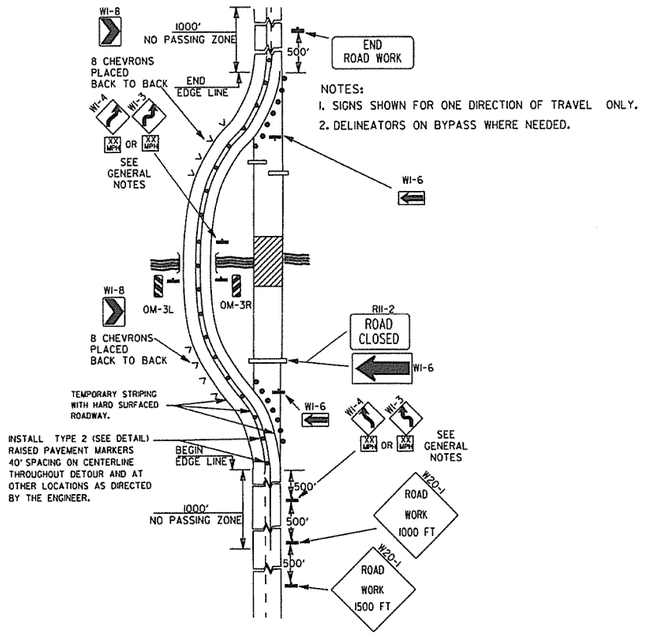
- NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.

DATE	REVISION	FILMED
12-15-11	REVISED W24-1	
11-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
11-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION

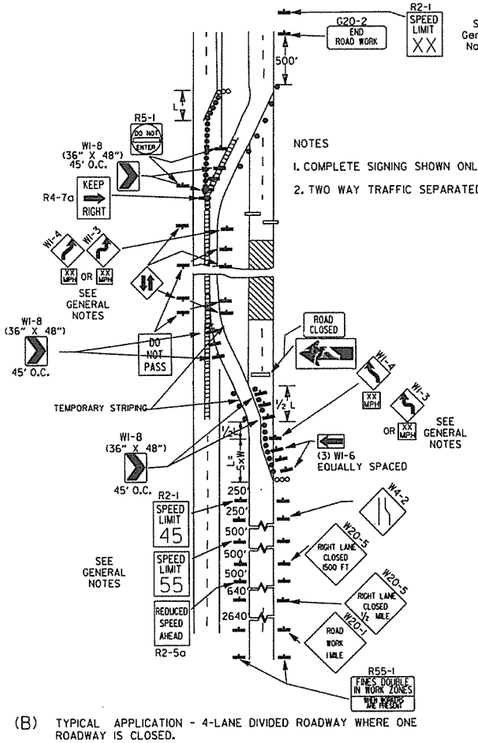
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



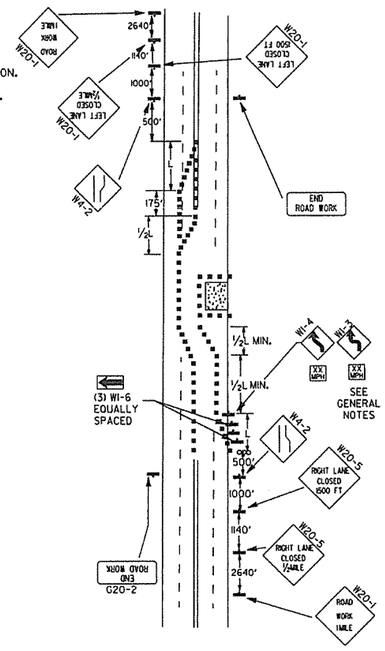
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.

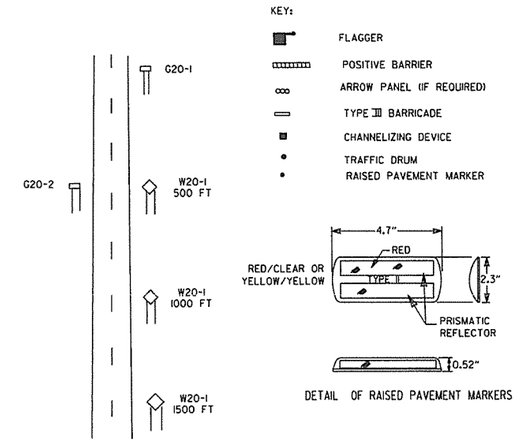


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.

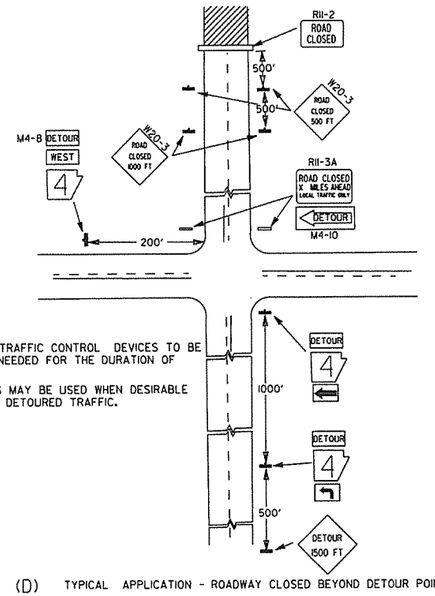


(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



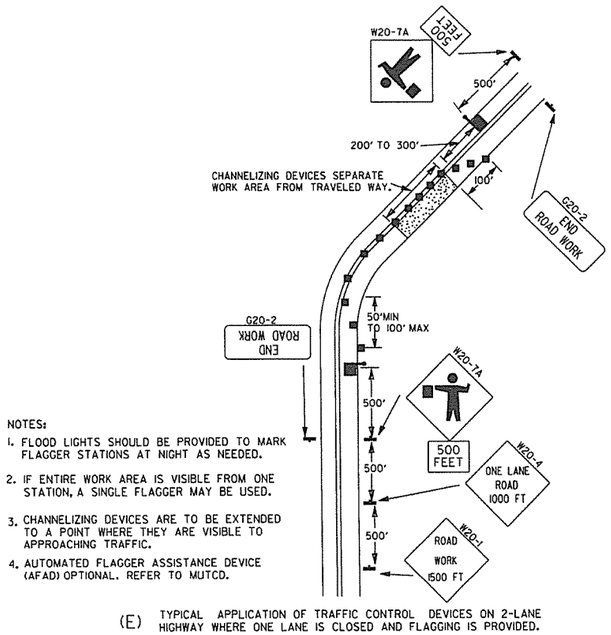
DETAIL OF RAISED PAVEMENT MARKERS

TYPICAL ADVANCE WARNING SIGN PLACEMENT



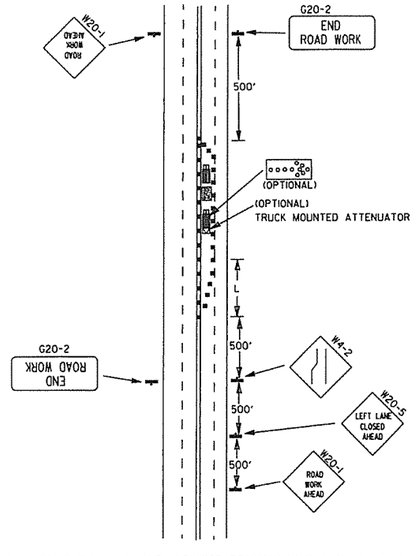
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.



NOTES:
1. FLOOD LIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.
2. IF ENTIRE WORK AREA IS VISIBLE FROM ONE STATION, A SINGLE FLAGGER MAY BE USED.
3. CHANNELIZING DEVICES ARE TO BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
4. AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD) OPTIONAL. REFER TO MUTCD.

(E) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY WHERE ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.



(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

TAPER FORMULAE:

L=SXW FOR SPEEDS OF 45MPH OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40MPH OR LESS.

WHERE:
L= MINIMUM LENGTH OF TAPER.
S= NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.
W= WIDTH OF OFFSET.

GENERAL NOTES:

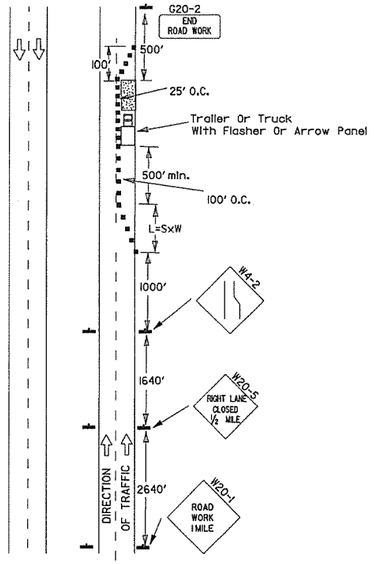
1. ADVISORY SPEED POSTED ON WI-3 OR WI-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE WI-4 WHEN SPEED IS GREATER THAN 30MPH AND WI-3 WHEN 30MPH OR LESS.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE R2-5A SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1 45MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(45) SHALL BE OMITTED. ADDITIONAL R2-1 55MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE.

DATE	REVISION	FILMED
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-11-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON WI-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

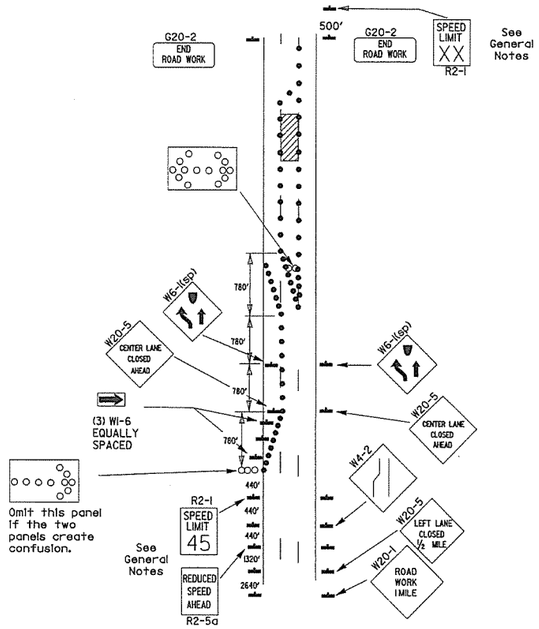
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

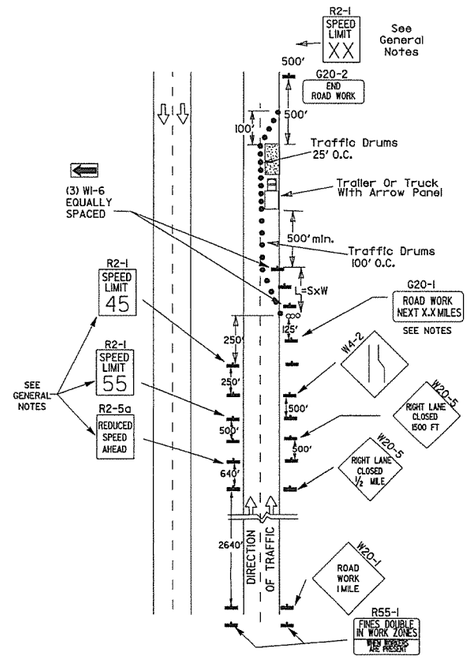
STANDARD DRAWING TC-2



(A) Typical application - daytime maintenance operations of short duration on a 4-lane divided roadway where half of the roadway is closed.



(B) Typical application - 3-lane oneway roadway where center lane is closed.



(C) Typical application - construction operations of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.

KEY:

ooo Arrow Panel (If Required)

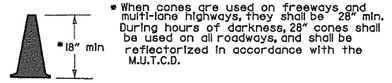
■ Channelizing Device

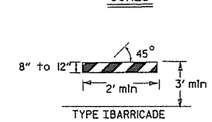
● Traffic drum

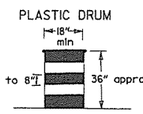
GENERAL NOTES:

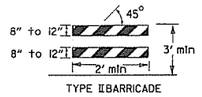
1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the R2-5A shall be installed at that location. Additional R2-1 45mph speed limit signs shall be installed at a maximum of 1mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
3. When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(45) shall be omitted. Additional R2-1 55mph speed limit signs shall be installed at a maximum of 1mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
4. The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit or as directed by the Engineer.
5. Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
6. Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
7. The G20-1 sign will be required on jobs of over two miles in length. When the lane closure is not at the beginning of the project, the G20-1 sign shall be erected 125' in advance of the job limit. Additional W20-1 (1 MILE) signs are not required in advance of lane closures that begin inside the project limits.
8. Flaggers shall use STOP/SLOW paddles for controlling traffic through work zones. Flags may be used only for emergency situations.
9. All plastic drums and cones shall meet the requirements of NCHRP-350 or Manual For Assessing Safety Hardware (MASH).
10. Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.

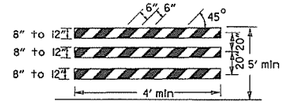
Channelizing devices



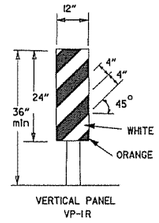


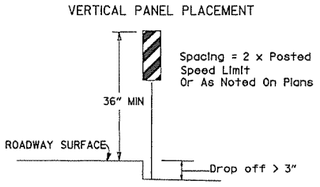


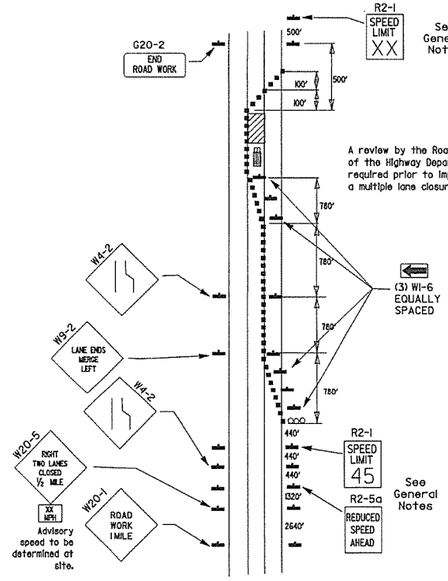




NOTE: For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.







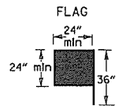
(D) Typical application - closing multiple lanes of a multilane highway.

TRAFFIC CONTROL DEVICES FOR VERTICAL PAVEMENT DIFFERENTIALS

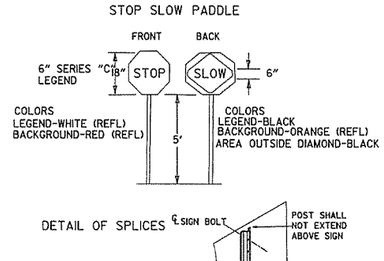
VERTICAL DIFFERENTIAL	LOCATIONS	TRAFFIC CONTROL
1" to 3"	Centerline, lane lines	W8-11
1" to 3"	Edge of shoulder	W8-9
Greater than 3"	Lane lines	Standard lane closure required
Greater than 3"	Edge of traveled lane	*RSP-1 and vertical panels, drums or concrete barrier
Greater than 3"	Edge of shoulder	*Vertical panels, drums or concrete barrier

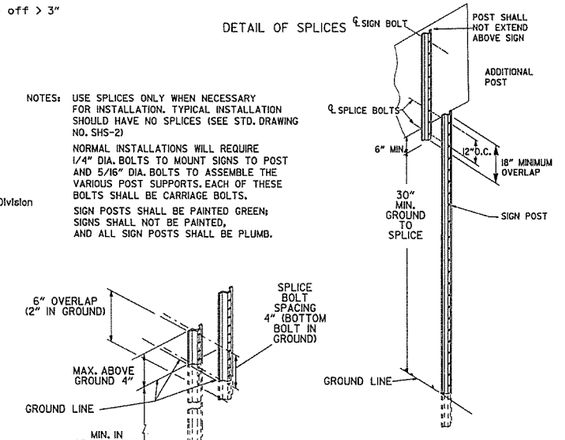
* When shown on the plans concrete barrier will be used.

When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.



Flag shall be of good grade red material





NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2)

NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS.

SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.

DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1 & REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-3