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.		061457	1	37

(2) HWY. 319 RR SIG. UPGRADE & TRAFFIC SIG. (WARD) (S)

ARKANSAS DEPARTMENT OF TRANSPORTATION

CONSTRUCTION PLANS FOR STATE HIGHWAY

HWY. 319 RR SIG. UPGRADE & TRAFFIC SIG. (WARD) (S)

LONOKE COUNTY

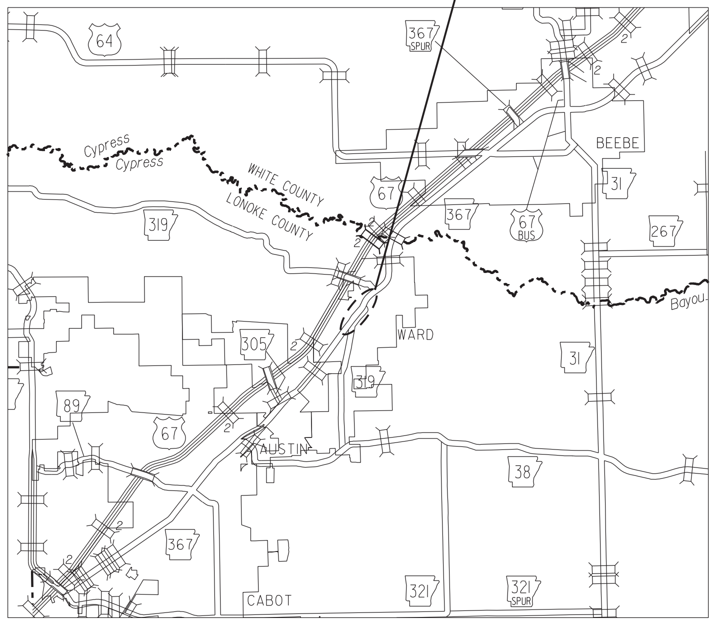
ROUTE 367 SECTION 14
ROUTE 319 SECTION 1

JOB 061457

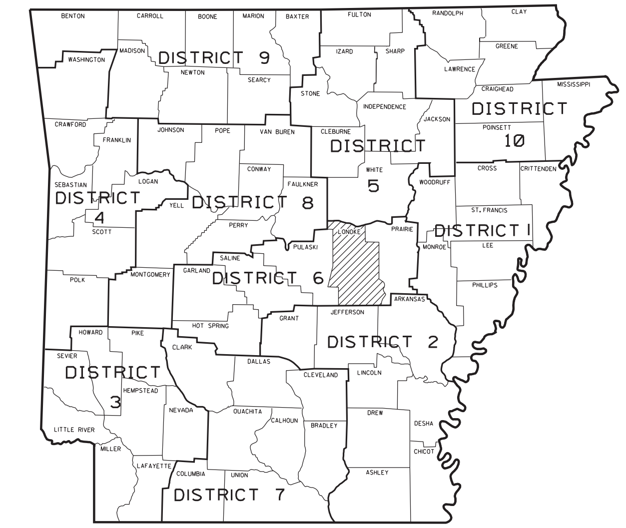
FED. AID PROJ. RPD-STPU-0043(29)

NOT TO SCALE

PROJECT LOCATION

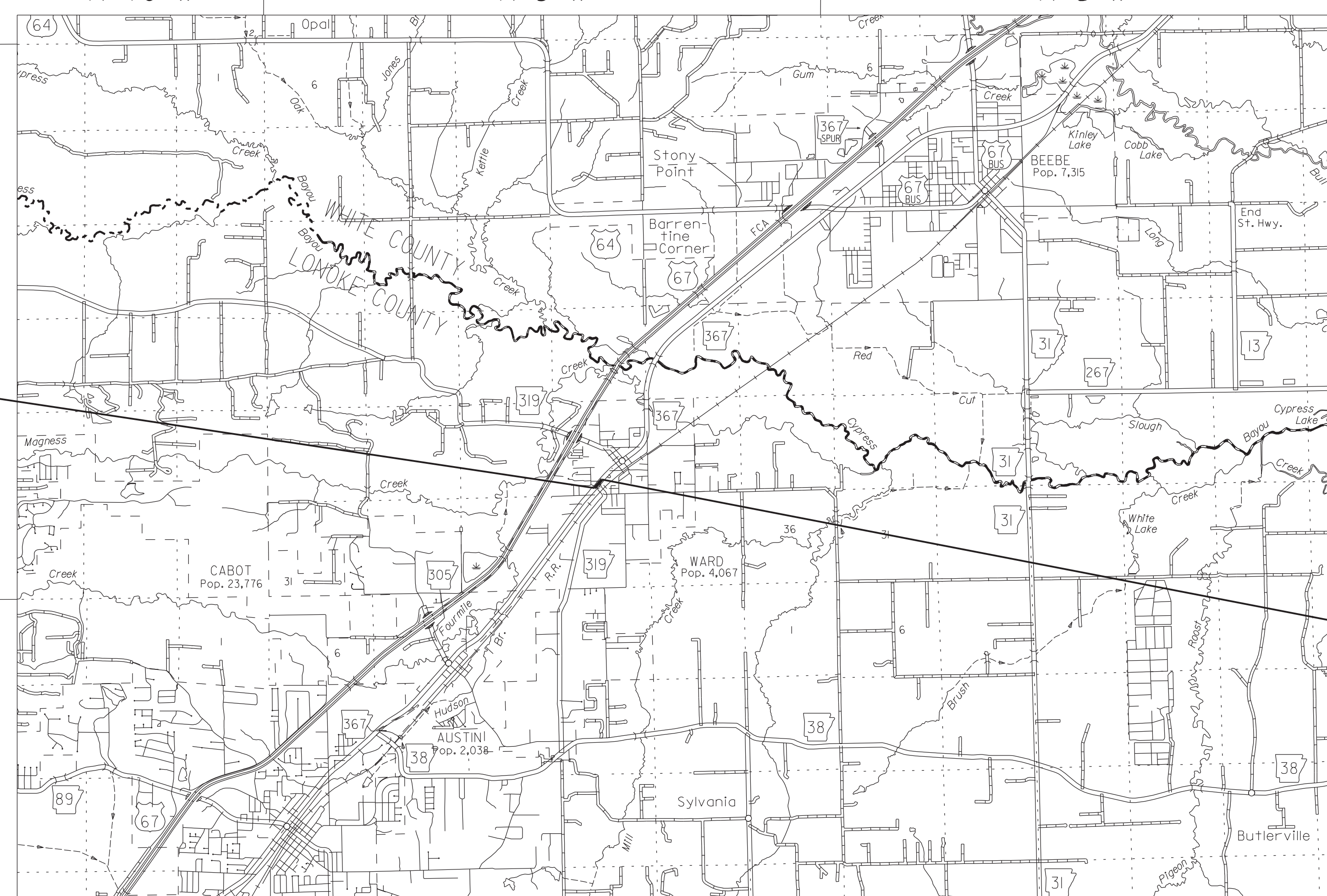


VICINITY MAP



ARKANSAS HIGHWAY DISTRICT 6

R 10 W | R 9 W | R 8 W



R 10 W | R 9 W | R 8 W

STA. 470+93.85
BEGIN JOB 061457
LOG MILE 8.17

STA. 480+43.83
END JOB 061457

· DESIGN TRAFFIC DATA ·

DESIGN YEAR	2040
2020 ADT	5100
2040 ADT	7100
2040 DHV	780
DIRECTIONAL DISTRIBUTION	60%
TRUCKS	3%
DESIGN SPEED	45 MPH

PROJECT COORDINATES

	BEGIN	MID-POINT	END
LATITUDE	N 35°01'31"	N 35°01'34"	N 35°01'39"
LONGITUDE	W 91°57'21"	W 91°57'18"	W 91°57'15"
STATION	470+93.85	475+68.84	480+43.83

GROSS LENGTH OF PROJECT	949.98 FEET OR	0.180 MILES
NET LENGTH OF ROADWAY	949.98 FEET OR	0.180 MILES
NET LENGTH OF BRIDGES	0.00 FEET OR	0.000 MILES
NET LENGTH OF PROJECT	949.98 FEET OR	0.180 MILES

CERTIFICATE OF AUTHORIZATION
GARVER LLC
No. 766
ARKANSAS-ENGINEER

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 8141
NICCI D. TINER

DIGITALLY SIGNED DATE 8/17/2020

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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.		061457	2	37

(2) INDEX OF SHEETS AND STANDARD DRAWINGS

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.12723
SCOTT A. DONALDSON

DIGITALLY SIGNED DATE 8/17/2020

INDEX OF SHEETS

ROADWAY STANDARD DRAWINGS

DRWG.NO.	TITLE	DATE
CDP-1	CONCRETE DITCH FAVING	12-08-16
CG-1	CURBING DETAILS	11-29-07
DR-1	DETAILS OF DRIVEWAYS & ISLANDS	11-07-19
FES-1	FLARED END SECTION	10-18-96
FES-2	FLARED END SECTION	10-18-96
FPC-9	DETAILS OF DROP INLETS & JUNCTION BOXES	11-16-01
FPC-9E	DETAILS OF DROP INLETS (TYPE C)	08-22-02
FPC-9M	DETAILS OF DROP INLET (TYPE MO)	08-22-02
GR-5	GUARDRAIL DETAILS (TYPE C) STREET/ROAD BARRICADE OR TEMPORARY INSTALLLATION	11-07-19
MB-1	MAILBOX DETAILS	11-18-04
PCC-1	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCM-1	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PM-1	PAVEMENT MARKING DETAILS	02-27-20
PU-1	DETAILS OF PIPE UNDERDRAIN	12-08-16
RRS-1	PAVEMENT MARKING FOR RAILROAD CROSSING	12-08-16
SD-5	CONTROLLER CABINET UTILITY DRAWER	09-12-13
SD-6	HEAVY DUTY PULL BOX	11-16-17
SD-8	SIGNAL HEAD PLACEMENT	12-08-16
SD-9	SERVICE POINT	11-07-19
SD-11	STEEL POLE WITH MAST ARM	11-16-17
SE-2	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	11-07-19
SHS-1	STANDARD HIGHWAY SIGNS AND SUPPORTS ASSEMBLIES	09-12-13
SHS-2	U-CHANNEL POST ASSEMBLIES	07-25-19
SI-1	DETAILS OF SPECIAL ITEMS	10-25-18
TC-1	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	11-07-19
TC-2	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	11-07-19
TC-3	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	02-27-20
TEC-1	TEMPORARY EROSION CONTROL DEVICES	11-16-17
TEC-2	TEMPORARY EROSION CONTROL DEVICES	06-02-94
TEC-3	TEMPORARY EROSION CONTROL DEVICES	11-03-94

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10-30-2020			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		061457	3	37

(2) GOVERNING SPECIFICATIONS AND GENERAL NOTES

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
100-3_____ CONTRACTOR'S LICENSE
100-4_____ DEPARTMENT NAME CHANGE
102-2_____ ISSUANCE OF PROPOSALS
108-1_____ LIQUIDATED DAMAGES
108-2_____ WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
110-1_____ PROTECTION OF WATER QUALITY AND WETLANDS
210-1_____ UNCLASSIFIED EXCAVATION
303-1_____ AGGREGATE BASE COURSE
306-1_____ QUALITY CONTROL AND ACCEPTANCE
400-1_____ TACK COATS
400-4_____ DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
400-5_____ PERCENT AIR VOIDS FOR ACHM MIX DESIGNS
400-6_____ LIQUID ANTI-STRIP ADDITIVE
400-7_____ TRACKLESS TACK
404-3_____ DESIGN OF ASPHALT MIXTURES
410-1_____ CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
410-2_____ DEVICES FOR MEASURING DENSITY FOR ROLLING PATTERNS
502-1_____ WELDED WIRE REINFORCEMENT
505-1_____ PORTLAND CEMENT CONCRETE DRIVEWAY
600-2_____ INCIDENTAL CONSTRUCTION
603-1_____ LANE CLOSURE NOTIFICATION
604-1_____ RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
604-3_____ TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES (MASH)
605-1_____ CONCRETE DITCH PAVING
606-1_____ PIPE CULVERTS FOR SIDE DRAINS
620-1_____ MULCH COVER
621-1_____ FILTER SOCKS
632-1_____ CONCRETE ISLAND
634-1_____ CURBING
700-2_____ TRAFFIC CONTROL FACILITIES
723-1_____ GENERAL REQUIREMENTS FOR SIGNS
729-1_____ CHANNEL POST SIGN SUPPORT
JOB 061457__ ACTUATED CONTROLLER
JOB 061457__ BIDDING REQUIREMENTS AND CONDITIONS
JOB 061457__ BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 061457__ BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 061457__ CABINET DRAWER ASSEMBLY
JOB 061457__ CARGO PREFERENCE ACT REQUIREMENTS
JOB 061457__ DELAY IN RIGHT OF WAY OCCUPANCY
JOB 061457__ DOCUMENTATION OF PAYMENTS MADE TO DISADVANTAGED BUSINESS ENTERPRISES
JOB 061457__ EDGE CARD VIDEO PROCESSOR
JOB 061457__ ELECTRICAL CONDUCTORS FOR LUMINAIRES
JOB 061457__ ELECTRICAL CONDUCTORS-IN-CONDUIT
JOB 061457__ EMERGENCY BATTERY BACKUP SYSTEM INSTALLATION
JOB 061457__ ESTABLISHING CONTRACT TIME - WORKING DAY CONTRACT
JOB 061457__ FLEXIBLE BEGINNING OF WORK
JOB 061457__ INSURANCE, CONSTRUCTION, AND FLAGGING REQUIREMENTS ON RAILROAD PROPERTY (UPRR)
JOB 061457__ LED BLANK OUT SIGN
JOB 061457__ LED LUMINAIRE ASSEMBLY (BUG U0 TYPE)
JOB 061457__ LED TRAFFIC SIGNAL HEAD
JOB 061457__ MANDATORY ELECTRONIC CONTRACT
JOB 061457__ MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 061457__ PRICE ADJUSTMENT FOR ASPHALT BINDER
JOB 061457__ PROHIBITION OF CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT
JOB 061457__ RAILROAD PREEMPTION INTERCONNECT SYSTEM
JOB 061457__ RETROREFLECTIVE BACKPLATES
JOB 061457__ SERVICE POINT ASSEMBLY (TRAFFIC CONTROL DEVICES)
JOB 061457__ SHORING FOR CULVERTS
JOB 061457__ SOIL STABILIZATION
JOB 061457__ STORM WATER POLLUTION PREVENTION PLAN
JOB 061457__ STREET NAME SIGN (MAST ARM MOUNTED)
JOB 061457__ SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 061457__ SYSTEM LOCAL CONTROLLER
JOB 061457__ THERMOPLASTIC PAVEMENT MARKING (YIELD LINE)
JOB 061457__ UTILITY ADJUSTMENTS
JOB 061457__ VIDEO DETECTOR (COLOR)
JOB 061457__ WARM MIX ASPHALT

GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON 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 ENSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
7. THE SEQUENCE AS SHOWN ON THE MAINTENANCE OF TRAFFIC PLANS IS A GENERAL OUTLINE FOR THE CONSTRUCTION OF THIS PROJECT, AND IN NO WAY IS IT INTENDED TO COVER EVERY ITEM IN THE PROJECT. ITEMS NOT CRITICAL TO THE CONSTRUCTION SEQUENCE MAY BE CONSTRUCTED IN ANY STAGE AS APPROVED BY THE RESIDENT ENGINEER.
8. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
9. THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAWING ALONG A NEAT LINE. AFTER SAWING, THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOVED IN A MANNER THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.12723
SCOTT A. DONALDSON
DIGITALLY SIGNED 10/30/2020

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WORKSPACE: AHTD
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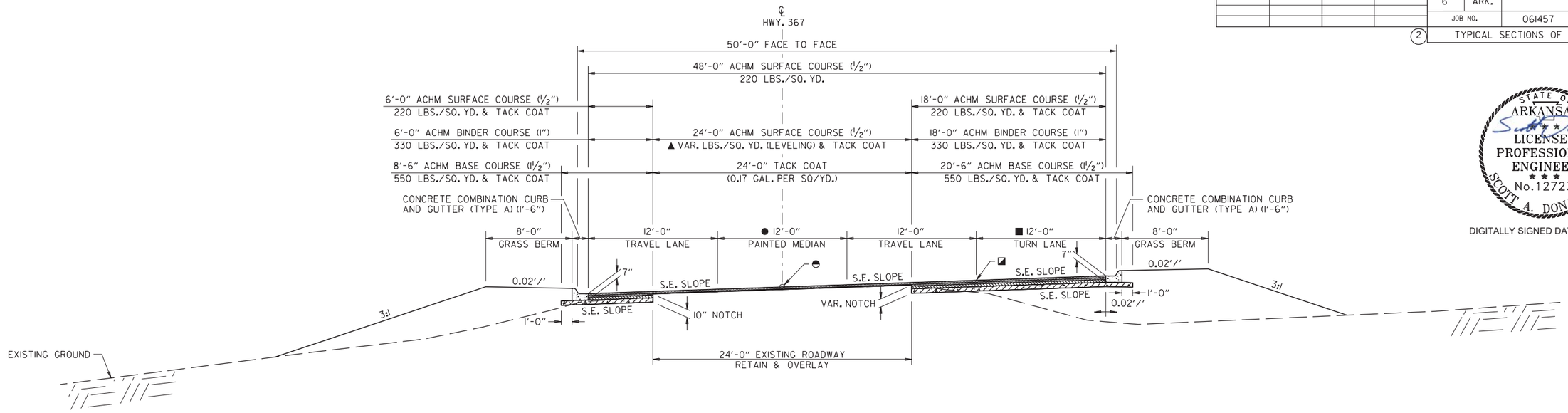
				(2)	TYPICAL SECTIONS OF IMPROVEMENT			



TYPICAL SECTION OF IMPROVEMENT

STA. 470+93.85 TO STA. 475+28.71

● TRANSITION FROM 0'-0" AT STA. 470+93.85 TO 12'-0" AT STA. 473+63.85

■ TRANSITION FROM 0'-0" AT STA. 470+93.85 TO 12'-0" AT STA. 472+73.85

★ TRANSITION FROM 12'-0" AT STA. 477+73.83 TO 0'-0" AT STA. 480+43.83

▲ LEVELING TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

◓ PROFILE GRADE AND POINT OF SUPERELEVATION ROTATION

◪ POINT OF ROTATION FOR RT. TURN LANE

NOTES:

PRIOR TO AND DURING PLACEMENT OF PAVEMENT IN FRONT OF THE CURB AND GUTTER, THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AT ALL TIMES. THE METHOD(S) USED SHALL BE APPROVED BY THE ENGINEER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

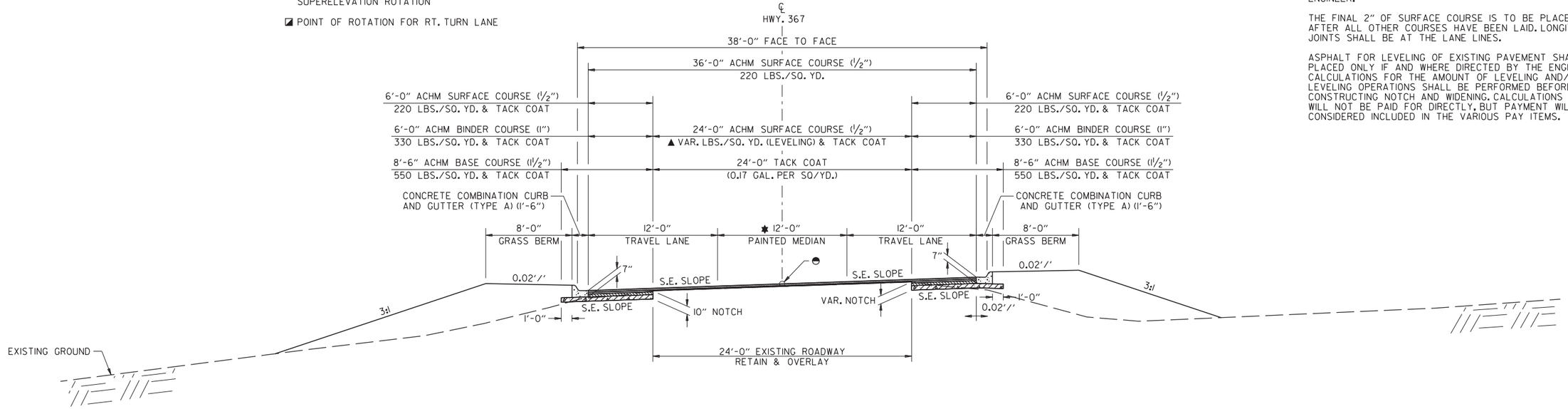
REFER TO CROSS SECTIONS FOR DEVIATIONS FROM NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT THE LANE LINES.

ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.12723
SCOTT A. DONALDSON

DIGITALLY SIGNED DATE 8/17/2020



TYPICAL SECTION OF IMPROVEMENT

STA. 475+28.71 TO STA. 480+43.83

TYPICAL SECTIONS OF IMPROVEMENT

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				JOB NO.		061457	5	37
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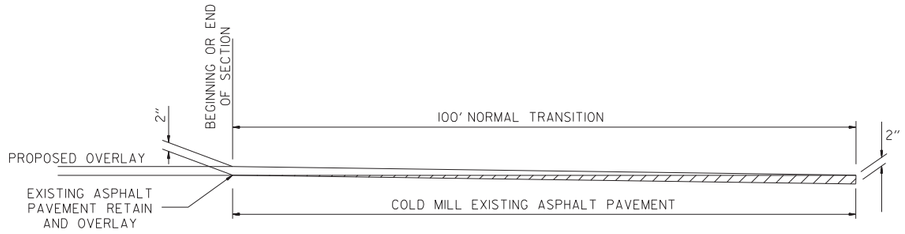
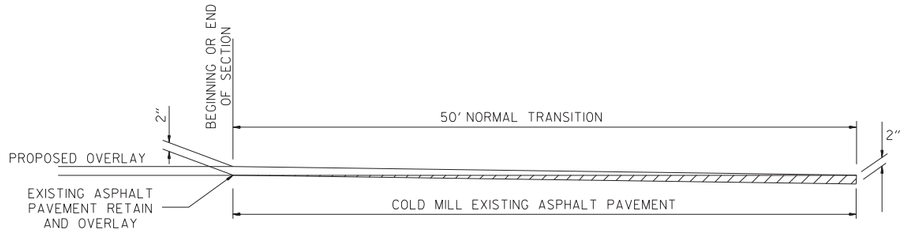


DETAIL FOR TRANSITIONS

HWY. 367

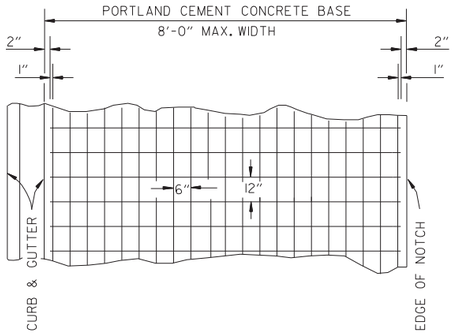


DETAIL FOR TRANSITIONS

HWY. 319
GRIFFIN ST.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.12723
SCOTT A. DONALDSON

DIGITALLY SIGNED DATE 8/17/2020

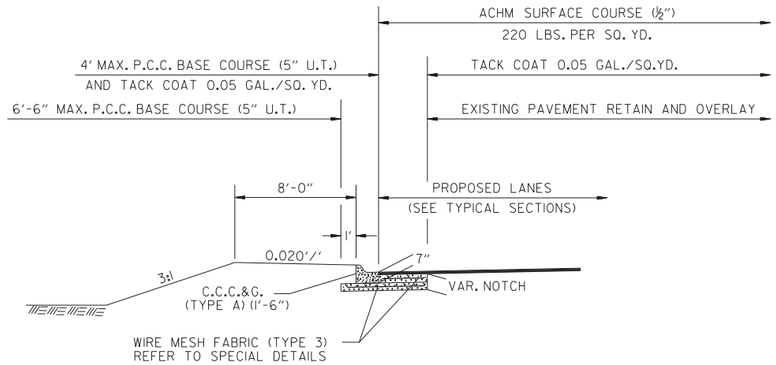


6" X 12" MESH FABRIC (TYPE 3) (W5.5 X W2.9) = 4.26 LBS./SQ.YD.

NOTES:

1. LAP MESH FABRIC MIN. 12" LONGITUDINALLY AND MIN. 6" TRANSVERSELY.
2. MESH FABRIC IS NOT REQUIRED WHEN WIDTH OF PORTLAND CEMENT CONCRETE BASE IS LESS THAN 12".
3. MESH FABRIC (TYPE 3) WILL NOT BE PAID FOR DIRECTLY, BUT FULL COMPENSATION THEREFORE WILL BE CONSIDERED INCLUDED IN THE CONTRACT PRICE BID PER SQ. YD. FOR PORTLAND CEMENT CONCRETE BASE (5" U.T.)

DETAIL OF REINFORCING STEEL FOR PAVEMENT (MESH FABRIC TYPE 3)



P.C.C. BASE WIDENING DETAIL

P.C.C. BASE WIDENING TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

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.		061457	6	37
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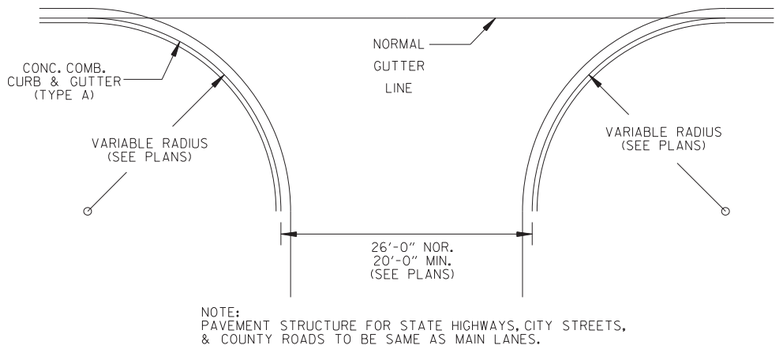
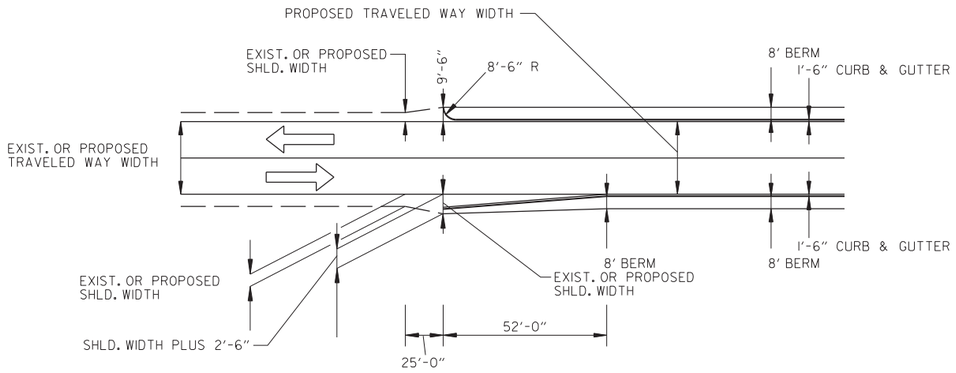


NOTE:
PAVEMENT STRUCTURE FOR STATE HIGHWAYS, CITY STREETS, & COUNTY ROADS TO BE SAME AS MAIN LANES.

DETAIL OF TURNOUTS, ASPHALT STREETS, COUNTY ROADS & STATE HIGHWAYS CURB & GUTTER SECTION

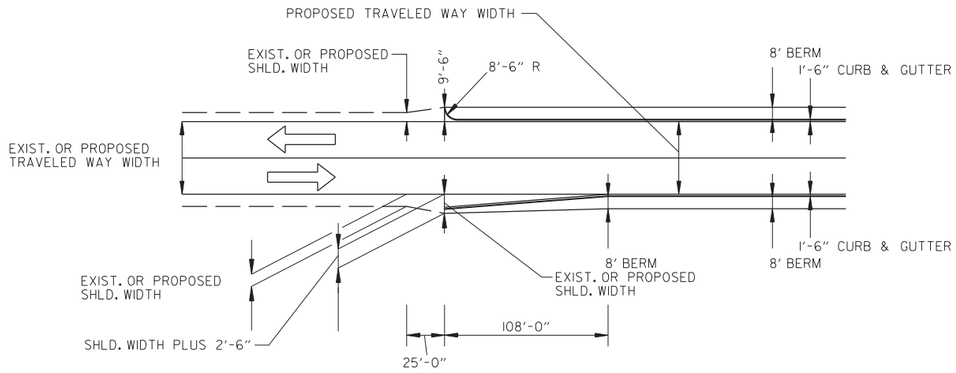
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.12723
SCOTT A. DONALDSON

DIGITALLY SIGNED DATE 8/17/2020



TRANSITION FROM OPEN SHOULDER TO CURB & GUTTER SECTION

HWY. 319



TRANSITION FROM OPEN SHOULDER TO CURB & GUTTER SECTION

HWY. 367

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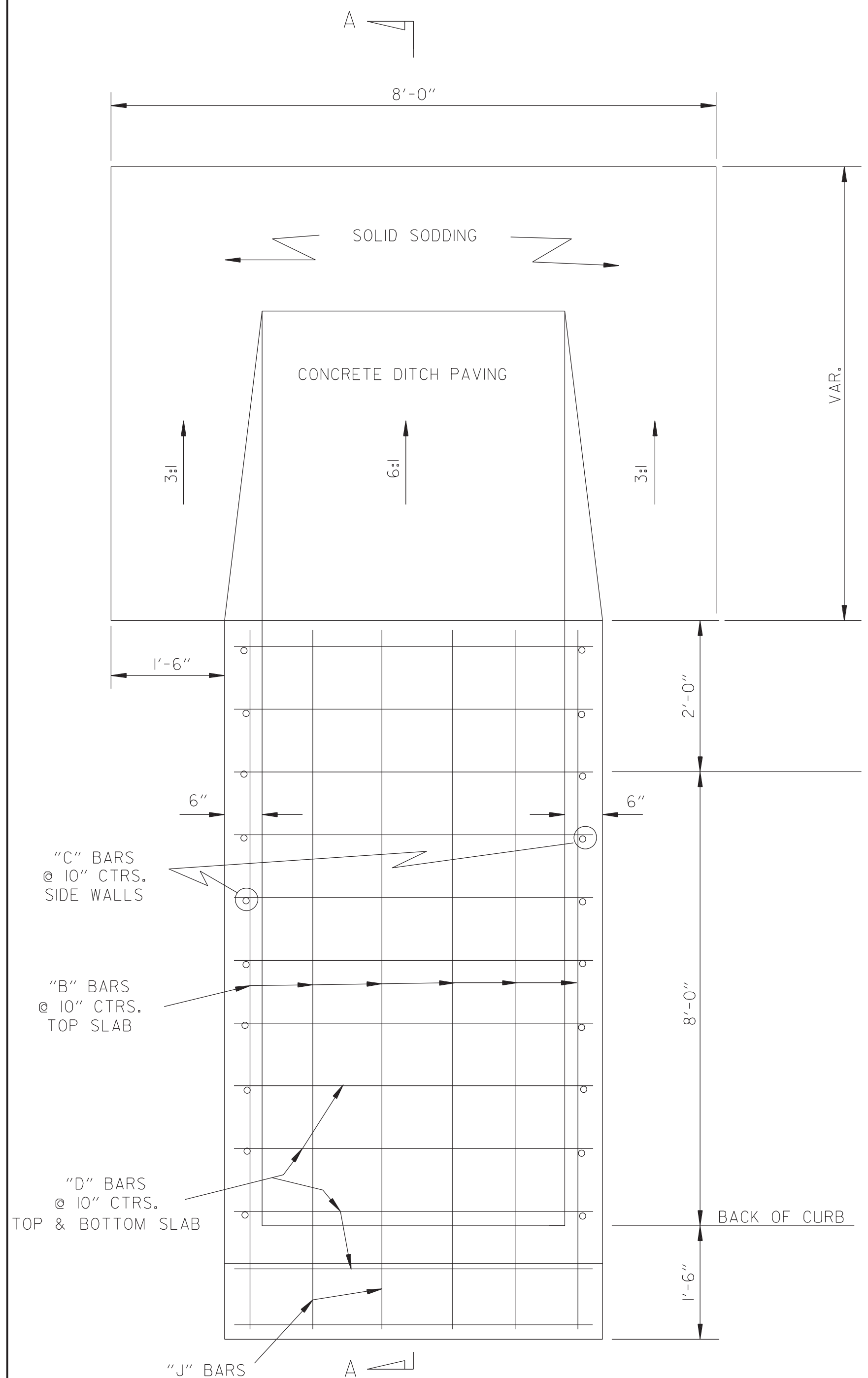
				6	ARK.			
				JOB NO.		061457	7	37

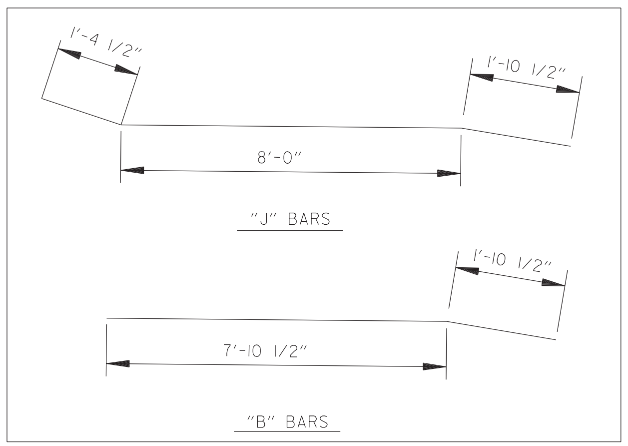
2 SPECIAL DETAILS

DIGITALLY SIGNED DATE 8/17/2020



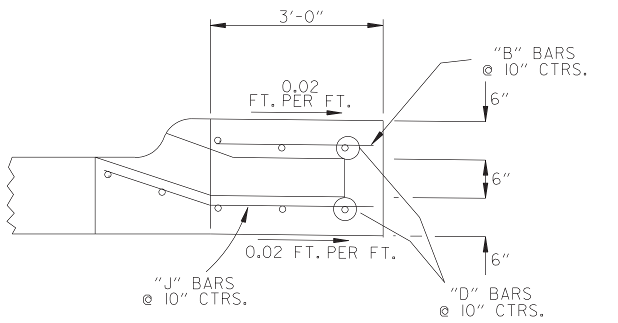
TOP VIEW

BAR DIAGRAM

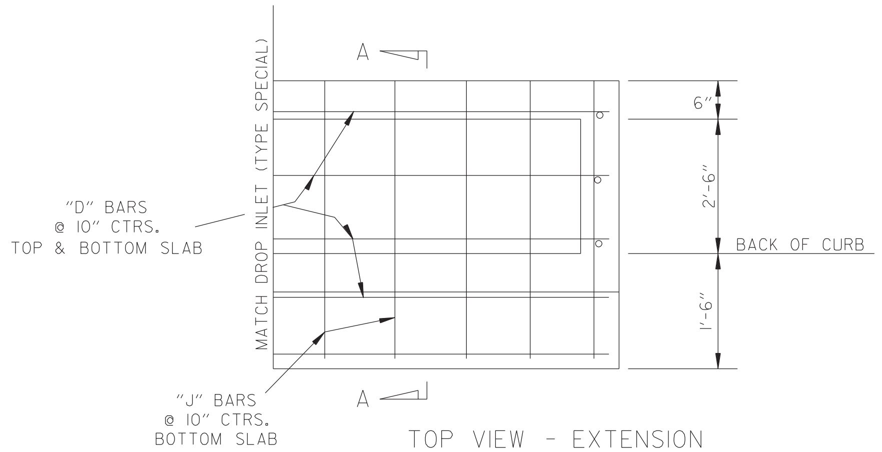


CLASS A CONC.	REINF. STEEL-RDWY. GRADE 60
CU. YDS.	POUND
2.53	207

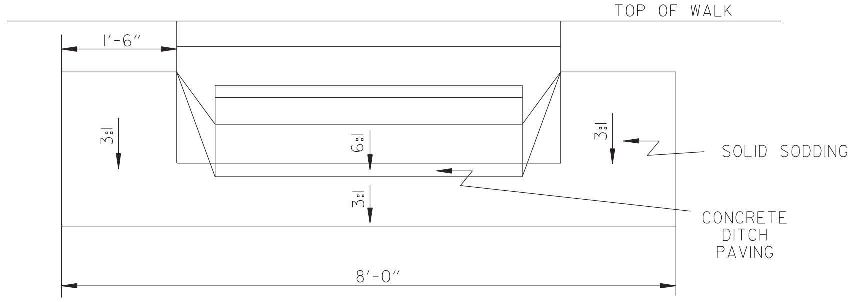
QUANTITIES FOR INFORMATION ONLY
DROP INLET (TYPE SPECIAL)



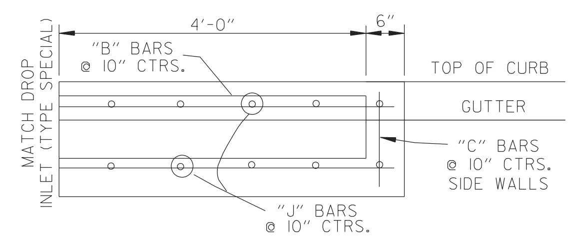
SECTION A-A - EXTENSION



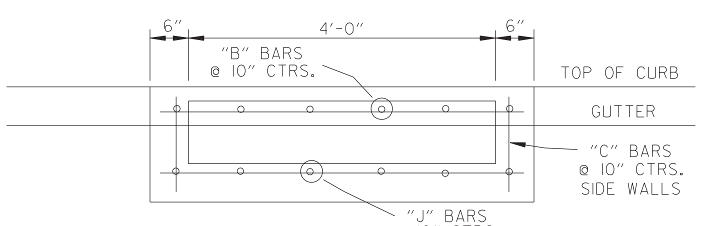
TOP VIEW - EXTENSION



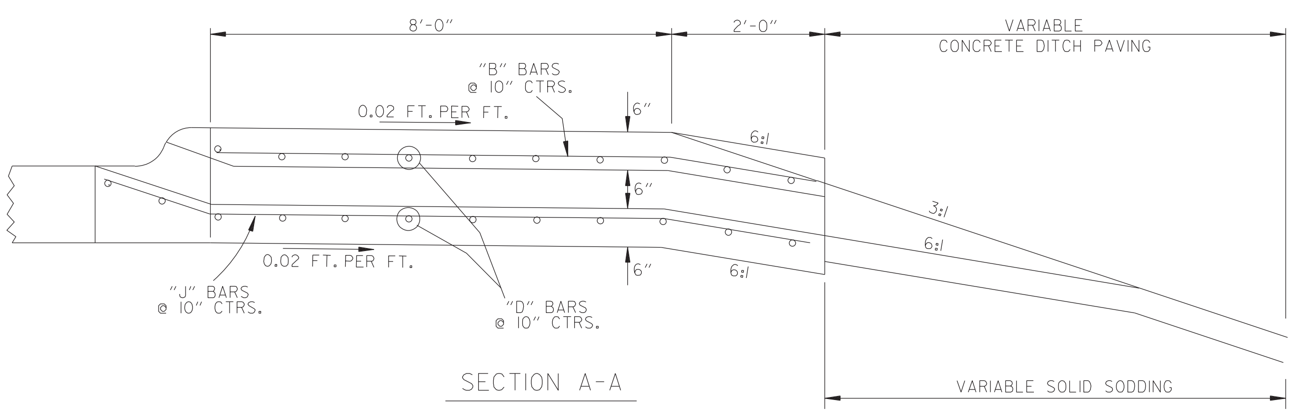
BACK VIEW



FRONT VIEW - EXTENSION



FRONT VIEW



SECTION A-A

GENERAL NOTES:

1. ALL EXPOSED CORNERS TO HAVE 3/4" CHAMFER.
2. ALL REINF. BARS SHALL BE #4 AND HAVE 1 1/2" COVER.
3. DROP INLETS AND EXTENSIONS ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
4. DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
5. PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
6. CONCRETE DITCH PAVING & SOLID SODDING SHALL BE PAID FOR SEPARATELY.
7. CONSTRUCT EXTENSIONS UPSTREAM OF DROP INLET UNLESS OTHERWISE SPECIFIED.

DROP INLET (TYPE SPECIAL)

SPECIAL DETAILS

SADonaldson 8/16/2020 3:33:22 PM
WORKSPACE: AHTD
L:\2017\170I7540 - ARDOT - Ward Traffic Signal\Drawings\r061457_SD_01.dgn
REVISED DATE:

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.		061457	8	37
				(2)	SPECIAL DETAILS			

STATE OF ARKANSAS
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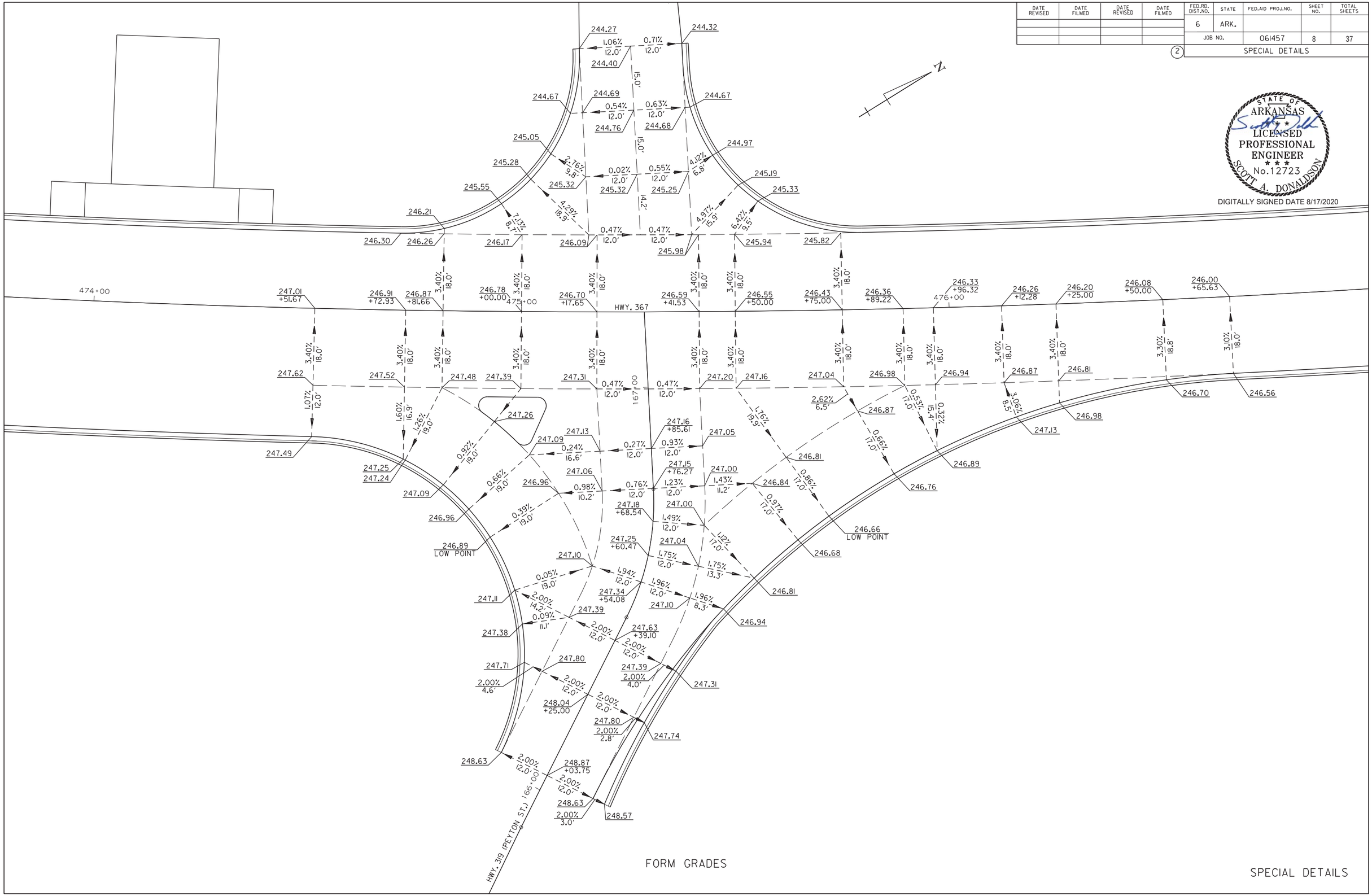
No. 12723
SCOTT A. DONALDSON
DIGITALLY SIGNED DATE 8/17/2020



FORM GRADES

SPECIAL DETAILS

SADonaldson 8/16/2020 3:33:30 PM
WORKSPACE: AHTD
L:\2017\17017540 - ARDOT - Ward Traffic Signal\Drawings\r061457_SD_02.dgn
REVISED DATE:

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.		061457	9	37
				(2)	TEMPORARY EROSION CONTROL DETAILS			

LEGEND

(E-5) = SAND BAG DITCH CHECKS (E-11) = SILT FENCE

(E-13) = FILTER SOCK (18")

NOTE: RETAIN ALL EROSION CONTROL DEVICES UNTIL END OF CONSTRUCTION UNLESS OTHERWISE NOTED.

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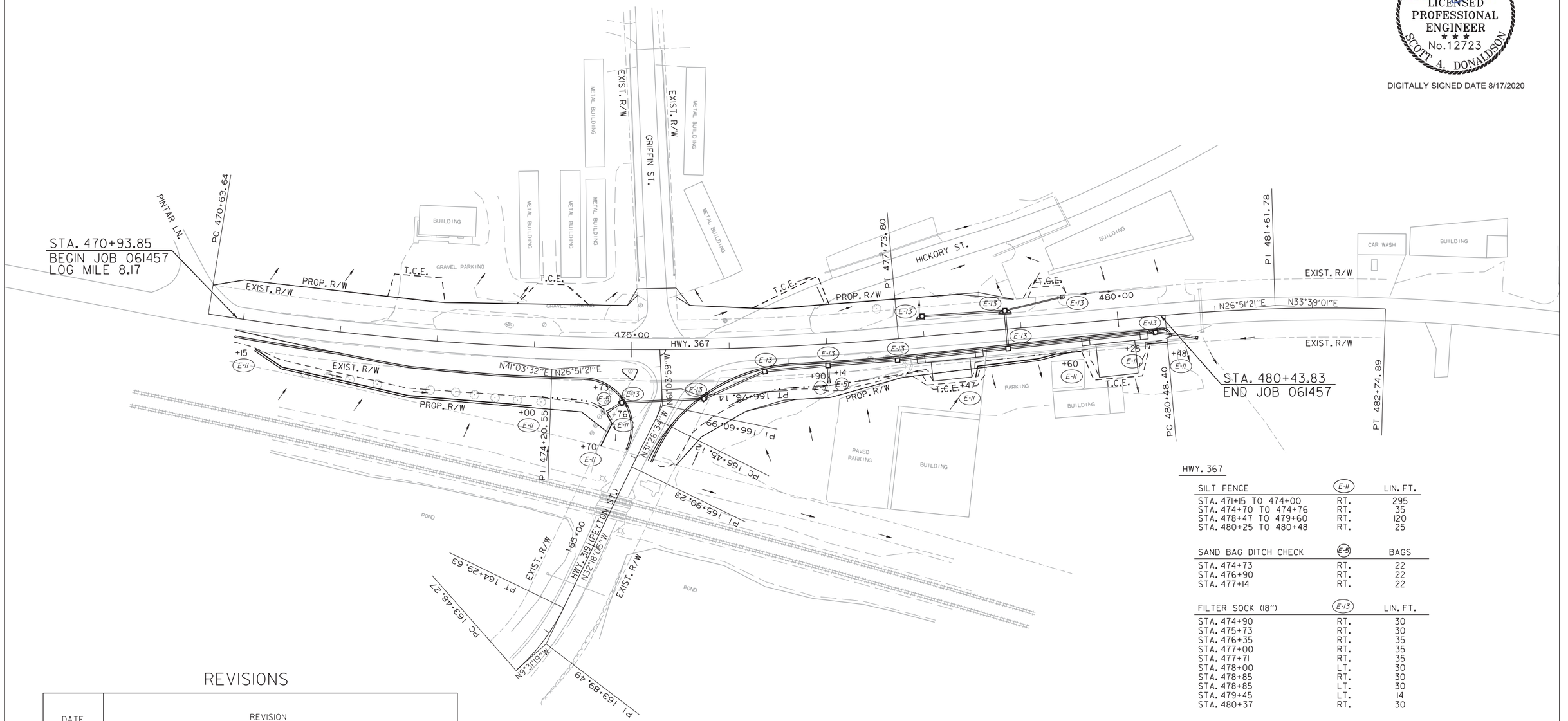


HWY. 367

SILT FENCE (E-11)		LIN. FT.
STA. 471+15 TO 474+00	RT.	295
STA. 474+70 TO 474+76	RT.	35
STA. 478+47 TO 479+60	RT.	120
STA. 480+25 TO 480+48	RT.	25

SAND BAG DITCH CHECK (E-5)		BAGS
STA. 474+73	RT.	22
STA. 476+90	RT.	22
STA. 477+14	RT.	22

FILTER SOCK (18") (E-13)		LIN. FT.
STA. 474+90	RT.	30
STA. 475+73	RT.	30
STA. 476+35	RT.	35
STA. 477+00	RT.	35
STA. 477+71	RT.	35
STA. 478+00	LT.	30
STA. 478+85	RT.	30
STA. 478+85	LT.	30
STA. 479+45	LT.	14
STA. 480+37	RT.	30

REVISIONS

DATE	REVISION

STAGE I
TEMPORARY EROSION CONTROL DETAILS

SADonaldson 8/16/2020 3:33:41PM
WORKSPACE: AHTD
L:\20171107940 ARDOT - Ward Traffic Signal\Drawings\r061457_EC_ST01.dgn
REVISED DATE:

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.		061457	10	37

(2) TEMPORARY EROSION CONTROL DETAILS

LEGEND

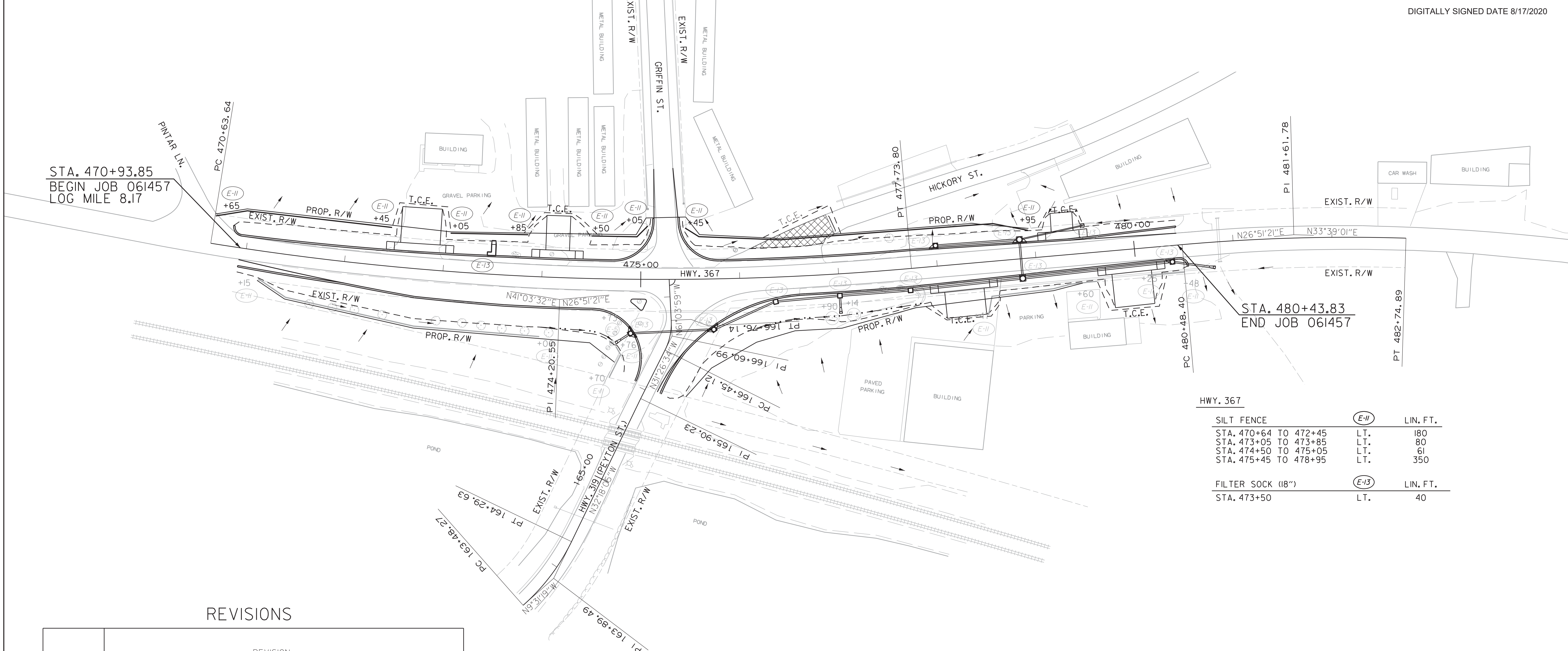
(E-5) = SAND BAG DITCH CHECKS (E-11) = SILT FENCE

(E-13) = FILTER SOCK (18")

OBLITERATE EXISTING PAVEMENT

NOTE: RETAIN ALL EROSION CONTROL DEVICES UNTIL END OF CONSTRUCTION UNLESS OTHERWISE NOTED.

DIGITALLY SIGNED DATE 8/17/2020



HWY. 367

SILT FENCE	(E-11)	LIN. FT.
STA. 470+64 TO 472+45	LT.	180
STA. 473+05 TO 473+85	LT.	80
STA. 474+50 TO 475+05	LT.	61
STA. 475+45 TO 478+95	LT.	350

FILTER SOCK (18")	(E-13)	LIN. FT.
STA. 473+50	LT.	40

REVISIONS

DATE	REVISION

STAGE 2
TEMPORARY EROSION CONTROL DETAILS

SADonaldson 8/16/2020 3:33:47 PM
WORKSPACE: AHTD
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REVISED DATE:

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.	061457	11	37

(2) MAINTENANCE OF TRAFFIC DETAILS

STAGE I
CONSTRUCTION SEQUENCE NOTES

1. MAINTAIN HWY. 367 TRAFFIC ON EXISTING ALIGNMENT.
2. INSTALL ADVANCE WARNING SIGNS AND CHANNELIZING DEVICES AS SHOWN.
3. INSTALL DRAINAGE STRUCTURES AS SHOWN.
4. CONSTRUCT RIGHT PORTION OF HWY. 367 AS SHOWN. PLACE LEVELING COURSE ON EXISTING PAVEMENT UNDER TRAFFIC TO 2" BELOW FINISHED GRADE.
5. PLACE CONSTRUCTION PAVEMENT MARKINGS SHOWN IN STAGE 2 ONCE STAGE I WORK IS COMPLETE.

OBLITERATE EXISTING PAVEMENT

RIGHT SHOULDER CLOSED (4) W21-5a (36" X 36")
BUMP (4) W8-1 (30" X 30")
DO NOT PASS (4) R4-1 (24" X 30")

TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

1" = 100'

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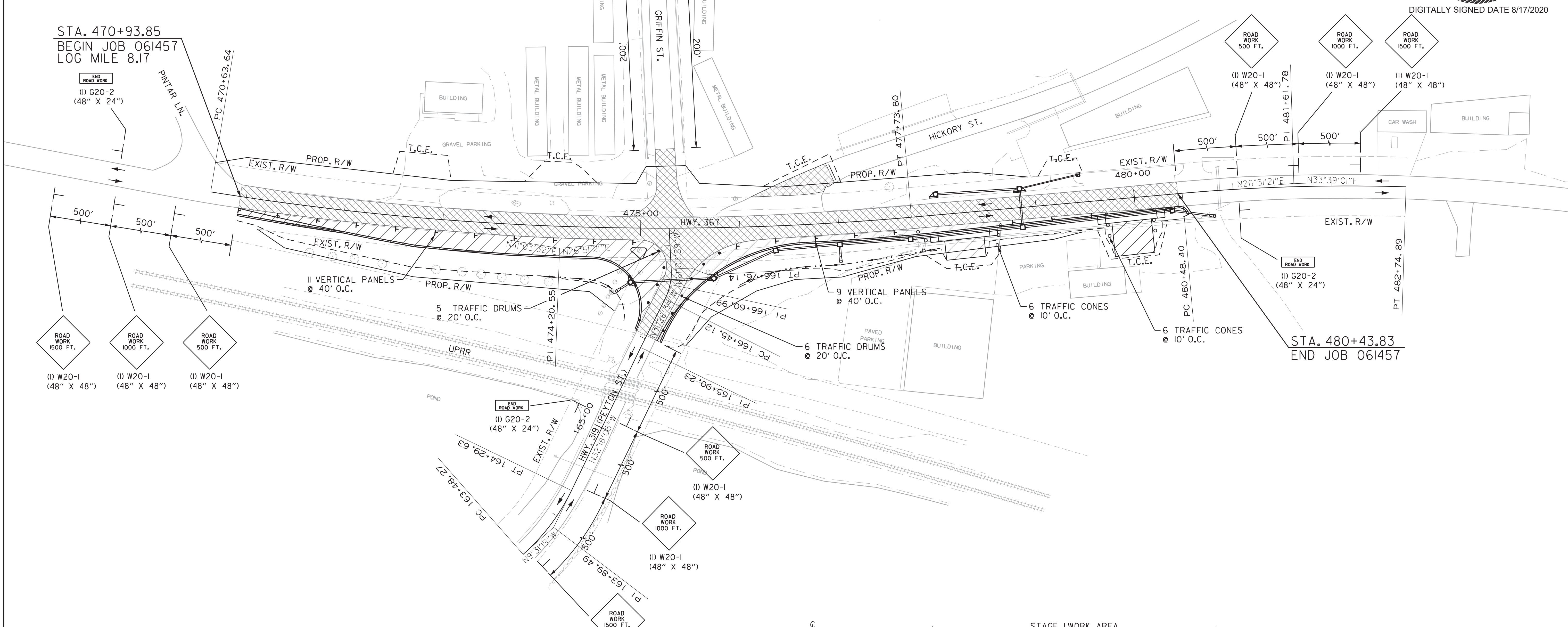


STAGE I CONSTRUCTION

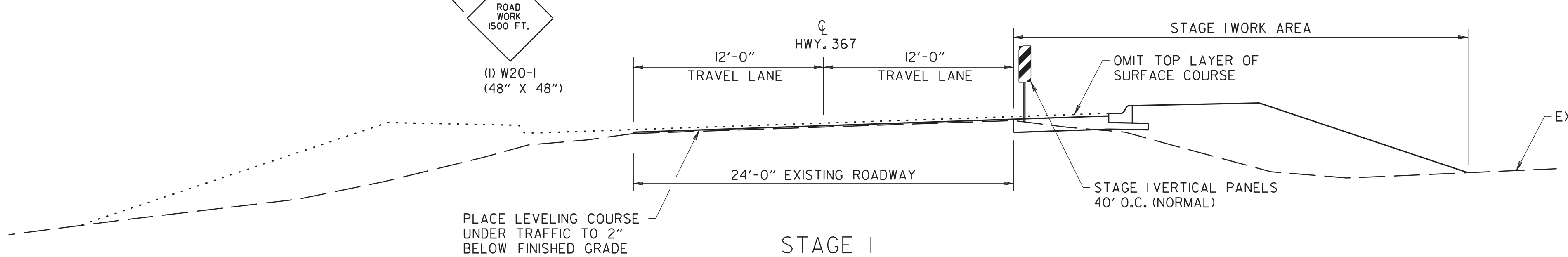
STAGE I OVERLAY UNDER TRAFFIC

STAGE I TRAFFIC

TRAFFIC DRUMS

TRAFFIC CONES

VERTICAL PANELS



STAGE I
TYPICAL SECTION

STAGE I
MAINTENANCE OF TRAFFIC DETAILS

SADonaldson 8/16/2020 3:33:49 PM
WORKSPACE: AHTD
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REVISED DATE:

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.		061457	12	37
				(2)	MAINTENANCE OF TRAFFIC DETAILS			

STAGE 2
CONSTRUCTION SEQUENCE NOTES

1. MAINTAIN HWY. 367 TRAFFIC ON EXISTING ALIGNMENT.
2. INSTALL ADVANCE WARNING SIGNS AND CHANNELIZING DEVICES AS SHOWN.
3. INSTALL DRAINAGE STRUCTURES AS SHOWN.
4. CONSTRUCT LEFT PORTION OF HWY. 367 AS SHOWN.
5. PLACE FINAL 2" OF ACHM SURFACE COURSE AND PLACE PERMANENT PAVEMENT MARKINGS.

RIGHT SHOULDER CLOSED (4) W21-5a (36" X 36")

BUMP (4) W8-1 (30" X 30")

DO NOT PASS (4) R4-1 (24" X 30")

TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

1" = 100'

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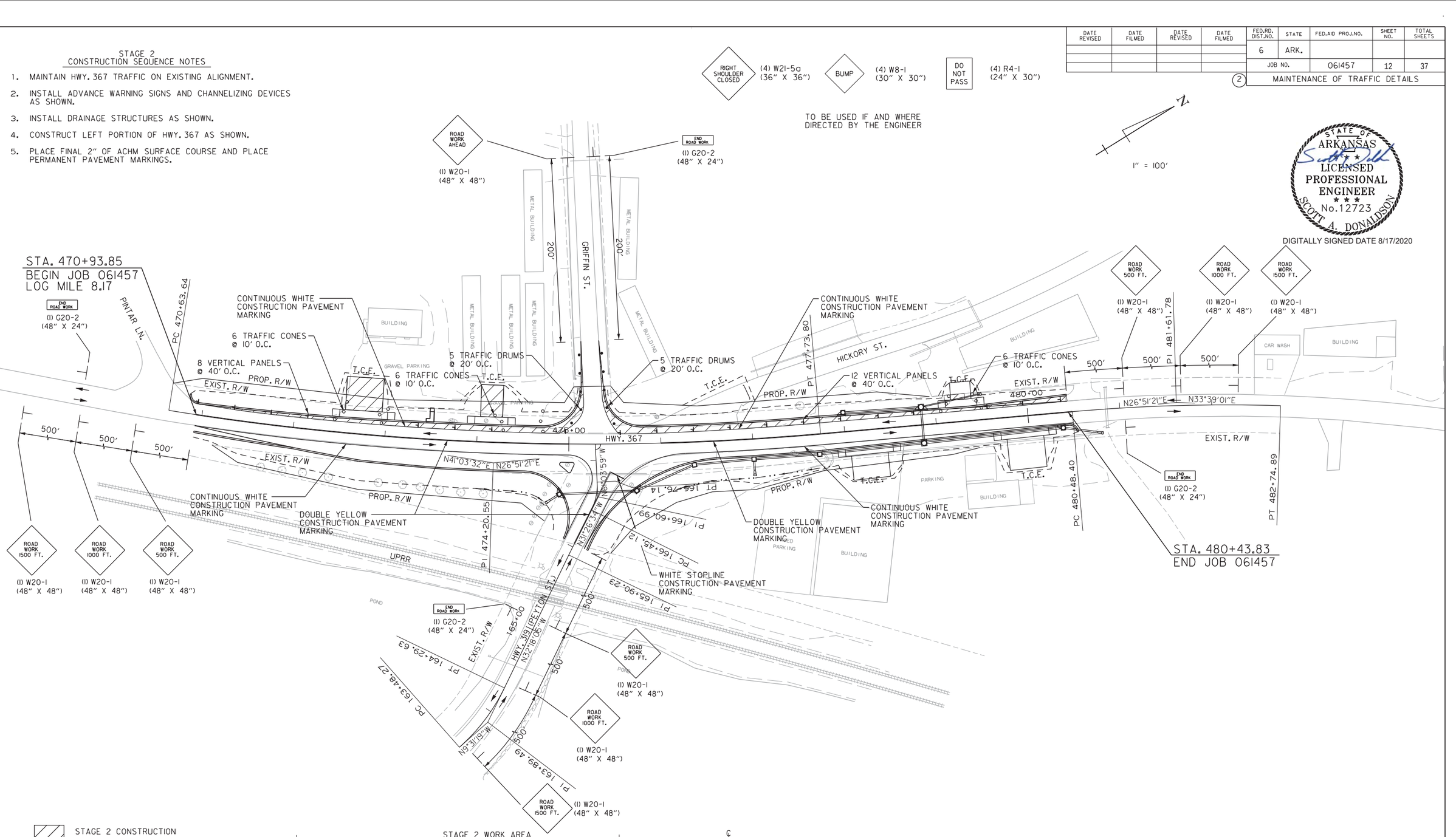
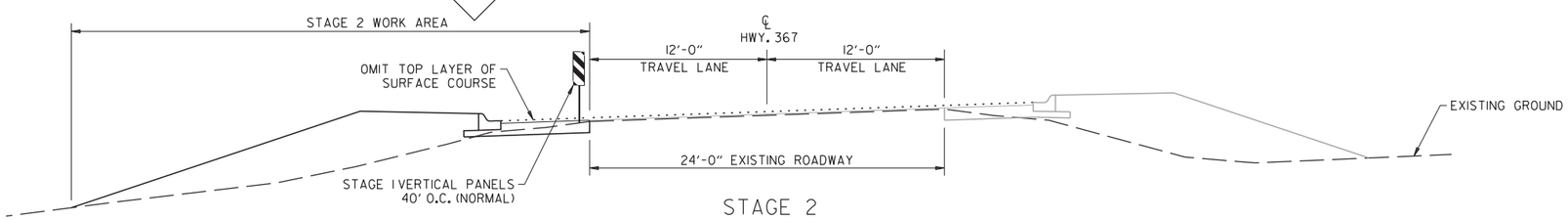
DIGITALLY SIGNED DATE 8/17/2020



STAGE 2 CONSTRUCTION
STAGE 2 TRAFFIC
TRAFFIC DRUMS
TRAFFIC CONES
VERTICAL PANELS



STAGE 2
TYPICAL SECTION

STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

SAdonaldson 8/16/2020 3:33:51PM
WORKSPACE: AHTD
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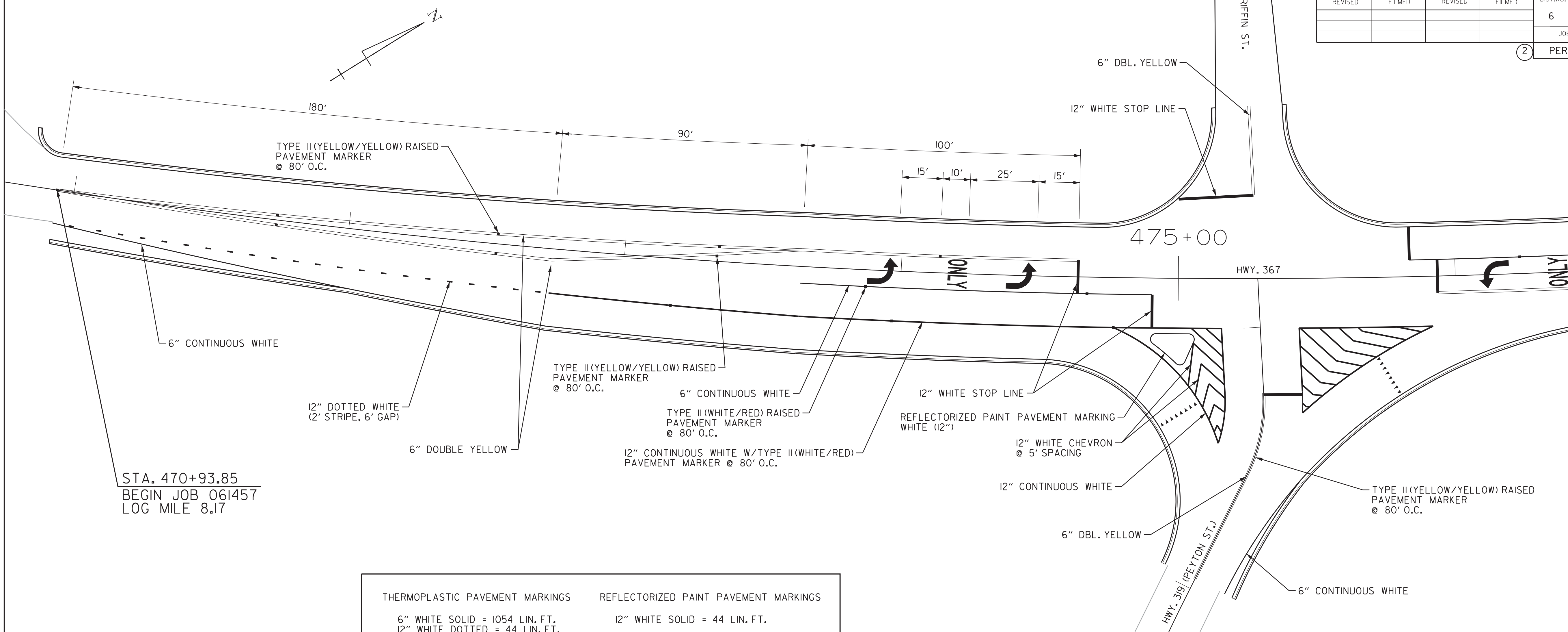
REVISED DATE:

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.		061457	13	37

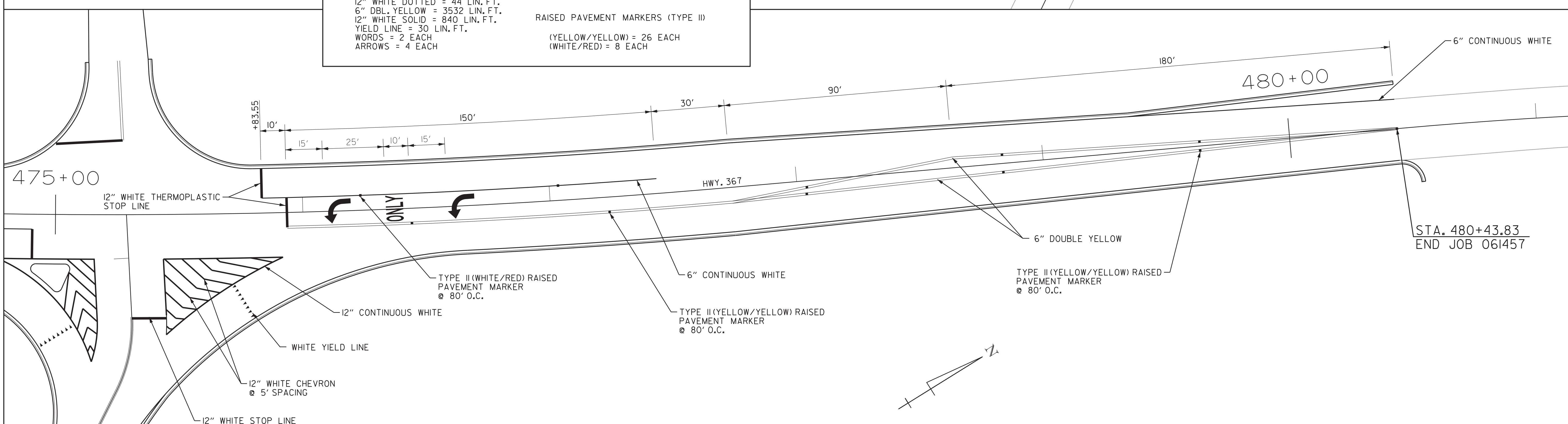
② PERMANENT PAVEMENT MARKING DETAILS



STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No. 12723 SCOTT A. DONALDSON

DIGITALLY SIGNED DATE 8/17/2020

THERMOPLASTIC PAVEMENT MARKINGS	REFLECTORIZED PAINT PAVEMENT MARKINGS
6" WHITE SOLID = 1054 LIN. FT.	12" WHITE SOLID = 44 LIN. FT.
12" WHITE DOTTED = 44 LIN. FT.	
6" DBL. YELLOW = 3532 LIN. FT.	RAISED PAVEMENT MARKERS (TYPE II)
12" WHITE SOLID = 840 LIN. FT.	
YIELD LINE = 30 LIN. FT.	(YELLOW/YELLOW) = 26 EACH
WORDS = 2 EACH	(WHITE/RED) = 8 EACH
ARROWS = 4 EACH	



PERMANENT PAVEMENT MARKING DETAILS

SADonaldson 8/16/2020 3:33:53 PM
WORKSPACE: AHTD
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REVISED DATE:

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.		061457	14	37
				(2)		SOIL BORING LOG		

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SOIL BORING LOG

BORING NO.	APPROX. STATION	SAMPLE DEPTH (ft)	WATER CONTENT (%)	ATTERBERG LIMITS			SIEVE ANALYSIS PERCENT PASSING								USCS CLASS.	AASHTO CLASS.
				LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	2 in.	1 in.	3/4 in.	3/8 in.	#4	#10	#40	#200		
1	479+15, LT.	2.5-3.5	26	29	17	12	---	---	---	---	100	---	---	86	CL	A-6
1	479+15, LT.	6.5-7.5	23	52	17	35	---	---	---	---	100	---	---	90	CH	A-7-6
2	476+90, LT.	0.5-1.5	7	---	---	---	100	92	91	79	68	55	43	20	SM	A-1-b
2	476+90, LT.	2.5-3.5	21	29	17	12	---	---	---	---	100	---	---	84	CL	A-6
3	475+05, RT.	2.5-3.5	23	28	18	10	---	---	---	---	100	---	---	79	CL	A-4
4	472+35, LT.	0.5-1.5	14	---	---	---	100	100	90	89	86	83	75	47	SM	A-4
4	472+35, LT.	2.5-3.5	27	38	19	19	---	---	---	---	100	---	---	83	CL	A-6
4	472+35, LT.	4.5-5.5	19	48	16	32	---	---	---	---	100	---	---	70	CL	A-7-6

SOIL CHARACTERSTICS TABULATED ABOVE ARE REPRESENTATIVE AT THE LOCATION OF THE SAMPLE, AND FROM SURFACE INDICATIONS ARE TYPICAL FOR THE LIMIT SHOWN. THESE DATA ARE SHOWN FOR INFORMATION ONLY. THE STATE WILL NOT BE RESPONSIBLE FOR VARIATIONS IN THE SOIL CHARACTERISTICS AND/OR EXTENT OF SAME DIFFERING FROM THE ABOVE TABULATIONS.

SADonaldson 8/16/2020 3:33:53 PM
WORKSPACE: AHTD
L:\2017\170540 - ARDOT - Ward Traffic Signal\Drawings\r061457.SOIL_LOG.dgn
REVISED DATE:

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.		061457	15	37
				(2)		QUANTITIES		

ADVANCE WARNING SIGNS AND DEVICES - STPU-0043(29)

	SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	MAXIMUN NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	TRAFFIC CONE
				LIN. FT. - EACH			NO.	SQ. FT.	EACH		
	W20-1	ROAD WORK 1500 FT.	48"x48'	3	3	3	3	48.0			
	W20-1	ROAD WORK 1000 FT.	48"x48'	3	3	3	3	48.0			
	W20-1	ROAD WORK 500 FT.	48"x48'	3	3	3	3	48.0			
	W20-1	ROAD WORK AHEAD	48"x48'	1	1	1	1	16.0			
	G20-2	END ROAD WORK	48"x24'	4	4	4	4	32.0			
*	R4-1	DO NOT PASS	24"x30'	4	4	4	4	20.0			
*	W21-5a	RIGHT SHOULDER CLOSED	36"x36'	4	4	4	4	36.0			
*	W8-1	BUMP	30"x30'	4	4	4	4	25.0			
		VERTICAL PANELS		20	20	20			20		
		TRAFFIC DRUMS		11	10	11				11	
		TRAFFIC CONES		12	18	18					18
	TOTALS:							273.0	20	11	18

NOTE: THIS IS A HIGH TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

* QUANTITY ESTIMATE: TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

EROSION CONTROL - STPU-0043(29)

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL								
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS (E-5)	SLT FENCE (E-11)	FILTER SOCK (18") (E-13)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	BAG	LIN. FT.	LIN. FT.	CU.YD.	CU.YD.	CU. YD.
ENTIRE	PROJECT	STAGE 1	0.47	0.94	0.47	47.9	0.47	0.89	0.89	18.2	66	475	299			32
ENTIRE	PROJECT	STAGE 2	0.37	0.74	0.37	37.7	0.37	0.60	0.60	12.2		671	40			26
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			0.21	0.42	0.21	21.4	0.21	0.37	0.37	7.5	22	287	90	20	20	35
TOTALS:			1.05	2.10	1.05	107.0	1.05	1.86	1.86	37.9	88	1433	429	20	20	93

BASIS OF ESTIMATE:
LIME .....2 TONS / ACRE OF SEEDING
WATER.....102.0 M.G. / ACRE OF SEEDING
WATER.....20.4 M.G. / ACRE OF TEMPORARY SEEDING
SAND BAG DITCH CHECKS.....22 BAGS / LOCATION

NOTE: THE TEMPORARY EROSION CONTROL DEVICES SHOWN ABOVE AND ON THE PLANS SHALL BE INSTALLED IN SUCH A SEQUENCE AS TO DETER EROSION AND SEDIMENTATION ON U.S. WATERWAYS AS EXPLAINED BY THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT.

*QUANTITIES ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC - STPU-0043(29)

LOCATION	TON	TACK COAT GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	5	10
TOTALS:	5	10

NOTE: QUANTITIES ARE ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.
BASIS OF ESTIMATE:
ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC...25 TON/MILE
TACK COAT FOR MAINTENANCE OF TRAFFIC.....50 GAL./MILE

REMOVAL AND DISPOSAL OF ITEMS - STPU-0043(29)

STATION	LOCATION	MAILBOXES	CONCRETE PAVEMENT
		EACH	SQ. YD.
473+73	HWY. 367 LT.	1	
477+44	HWY. 367 RT.	1	
477+61	HWY. 367 RT.	1	
477+63	HWY. 367 RT.	1	
479+29	HWY. 367 LT.		36
TOTALS:		4	36

REMOVAL AND DISPOSAL OF CULVERTS - STPU-0043(29)

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
475+51	HWY. 367 RT.	1
479+28	HWY. 367 RT.	1
TOTAL:		2

NOTE: QUANTITIES SHOWN ABOVE SHALL INCLUDE REMOVAL & DISPOSAL OF ALL HEADWALLS AND FLARED END SECTIONS IF APPLICABLE.

EARTHWORK - STPU-0043(29)

	STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	* SOIL STABILIZATION
				CU.YD.		TON
	470+93.85	481+43.83	STAGE 1-MAIN LANES	93	2093	
	470+93.85	481+43.83	STAGE 2-MAIN LANES	111	533	
			HWY. 319		633	
			GRIFFIN ST.		40	
*	ENTIRE	PROJECT	APPROACHES		200	
	ENTIRE	PROJECT	TO BE USED IF AND WHERE			50
			DIRECTED BY THE ENGINEER			
	TOTALS:			204	3499	50

* QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

NOTE: EARTHWORK QUANTITIES SHOWN ABOVE SHALL BE PAID AS PLAN QUANTITY.

EROSION CONTROL MATTING - STPU-0043(29)

STATION	STATION	LOCATION	LENGTH	CLASS 3
			LIN. FT.	SQ. YD.
473+50.00	474+75.00	HWY. 367 ON RT.	125.00	111.11
476+14.88	478+00.00	HWY. 367 ON RT.	185.12	164.55
TOTAL:				275.66

NOTE: AVERAGE WIDTH = 8'-0"

PAVEMENT REPAIR OVER CULVERTS (ASPHALT) - STPU-0043(29)

STATION	LOCATION	WIDTH	LENGTH	TON
		FEET		
478+85	HWY. 367	7.92	24	10
166+65	HWY. 319	7.92	27	12
TOTAL:				22

AVG. DEPTH = 9"

CLEARING AND GRUBBING - STPU-0043(29)

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
470+94	474+50	HWY. 367 RT.	4	4
477+00	478+00	HWY. 367 LT.	1	1
TOTALS:			5	5

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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.		061457	16	37
				(2)		QUANTITIES		

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS - STPU-0043(29)

DESCRIPTION	ENTIRE JOB	CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS		THERMOPLASTIC PAVEMENT MARKING						REFLECTORIZED PAINT PAVEMENT MARKING
			TYPE II (WHITE/RED)	TYPE II (YELLOW/YELLOW)	6" WHITE	6" YELLOW	12" WHITE	YIELD LINE	WORDS	ARROWS	12" WHITE
	LIN. FT. - EACH	LIN.FT.	EACH		LIN. FT.				EACH		LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS	4195	4195									
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED)	8		8								
RAISED PAVEMENT MARKERS TYPE II (YELLOW/YELLOW)	26			26							
THERMOPLASTIC PAVEMENT MARKING WHITE (6")	1054				1054						
THERMOPLASTIC PAVEMENT MARKING YELLOW (6")	3532					3532					
THERMOPLASTIC PAVEMENT MARKING WHITE (12")	884						884				
THERMOPLASTIC PAVEMENT MARKING (YIELD LINE)	30							30			
THERMOPLASTIC PAVEMENT MARKING (WORDS)	2								2		
THERMOPLASTIC PAVEMENT MARKING (ARROWS)	4									4	
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (12")	44										44
TOTALS:		**4195**	**8**	**26**	**1054**	**3532**	**884**	**30**	**2**	**4**	**44**

NOTE: THIS IS A HIGH TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

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ACHM PATCHING OF EXISTING ROADWAY - STPU-0043(29)

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE	25
DIRECTED BY THE ENGINEER	
TOTAL:	**25**

NOTE: QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

STANDARD SIGNS & POSTS - STPU-0043(29)

SIGN NUMBER	DESCRIPTION	SIGN SIZE	MAXIMUM NUMBER REQUIRED	TOTAL REQUIRED	CHANNEL POST SIGN SUPPORT (TYPE U-1)
		IN.	EACH	SQ. FT.	EACH
OM4-1	REFLECTIVE RED DIAMOND OBJECT MARKERS	18"x18"	2	4.5	2
TOTALS:				**4.5**	**2**

GUARDRAIL - STPU-0043(29)

STATION	LOCATION	GUARDRAIL (TYPE C)
		LIN. FT.
476+97.00	HWY. 367 LT.	13
TOTAL:		**13**

COLD MILLING ASPHALT PAVEMENT - STPU-0043(29)

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
469+93.85	470+93.85	HWY. 367	24.00	266.67
480+43.83	481+43.83	HWY. 367	24.00	266.67
475+28.00		HWY. 367 LT. (GRIFFIN ST.)	20.00	111.11
165+53.75	166+03.75	HWY. 319	21.00	116.67
TOTAL:				**761.12**

NOTE: AVERAGE MILLING DEPTH 1".

CONCRETE DITCH PAVING - STPU-0043(29)

STATION	LOCATION	LENGTH	"W"	"B"	CONC. DITCH PAVING (TYPE A)	SOLID SODDING	WATER
		LIN. FT.	FEET	FEET	SQ. YD.	SQ. YD.	M. GAL.
473+50.00	HWY. 357 LT.	4.00	4.50	4.00	2.00	1.78	0.02
TOTALS:					**2.00**	**1.78**	**0.02**

BASIS OF ESTIMATE:
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING.

CONCRETE ISLAND - STPU-0043(29)

STATION	LOCATION	CURB FACE TYPE	CONCRETE ISLAND
			SQ.YD.
475+00	HWY. 367 RT.	C	13
TOTAL:			**13**

MAILBOXES - STPU-0043(29)

STATION	LOCATION	MAILBOXES	MAILBOX SUPPORTS (SINGLE)
		EACH	
473+73	HWY. 367 LT.	1	1
477+44	HWY. 367 RT.	1	1
477+61	HWY. 367 RT.	1	1
477+63	HWY. 367 RT.	1	1
TOTALS:		**4**	**4**

STRUCTURES - STPU-0043(29)

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT (CLASS III)	SIDE DRAIN	PIPE CULVERT STORM DRAIN ALTERNATES 1 & 2	FLARED END SECTIONS FOR R.C. PIPE CULVERTS	DROP INLETS TYPE		DROP INLETS EXT.	JUNCT. BOXES (TYPE E)	YARD DRAINS	SOLID SODDING	WATER	STD. DWG. NOS.
		18"	12"	18"	18"	MO	SPECIAL	4'			SQ.YD.	M.GAL.	
			LIN. FT.			EACH							
473+50	HWY. 367 CONSTRUCT DROP INLET ON LT.						1	1					SPECIAL DETAILS
474+90	HWY. 367 CONSTRUCT DROP INLET ON RT.	91			1	1		2			5	0.06	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1
475+73	HWY. 367 CONSTRUCT DROP INLET ON RT.			65		1		2					FPC-9E, FPC-9M, PCC-1
476+35	HWY. 367 JUNCTION BOX ON RT.			61					1				FPC-9, PCC-1
477+00	HWY. 367 JUNCTION BOX ON RT.	10		68	1				1		5	0.06	FES-1, FES-2, FPC-9, PCC-1
477+71	HWY. 367 JUNCTION BOX ON RT.			110					1				FPC-9E, PCC-1
478+00	HWY. 367 CONSTRUCT DROP INLET ON LT.			81		1		1					FPC-9E, FPC-9M, PCC-1
478+85	HWY. 367 CONSTRUCT DROP INLET ON LT.	34				1		2					FPC-9E, FPC-9M, PCC-1
478+85	HWY. 367 CONSTRUCT DROP INLET ON RT.			148		1							FPC-9E, FPC-M, PCC-1
479+45	HWY. 367 CONSTRUCT YARD DRAIN ON LT.		62							1			FPC-9,PCC-1, PCM-1
480+37	HWY. 367 CONSTRUCT DROP INLET ON RT.	36			1	1		1			5	0.06	FES-1, FES-2, FPC-9E, FPC-9M, PCC-1
* ENTIRE PROJECT TO BE USED IF AND			300							3			FPC-9, PCC-1, PCM-1
WHERE DIRECTED BY THE ENGINEER													
TOTALS:		**171**	**362**	**533**	**3**	**6**	**1**	**9**	**3**	**4**	**15**	**0.18**	

BASIS OF ESTIMATE:
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING

NOTE: FOR R.C. PIPE CULVERT INSTALLATIONS USE TYPE 3 BEDDING UNLESS OTHERWISE SPECIFIED.

NOTE: FOR C.M. PIPE CULVERT INSTALLATIONS USE TYPE 2 BEDDING UNLESS OTHERWISE SPECIFIED.

* QUANTITIES ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

SELECTED PIPE BEDDING - STPU-0043(29)

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
ENTIRE PROJECT TO BE USED IF	
AND WHERE DIRECTED BY THE	100
ENGINEER	
TOTAL:	**100**

NOTE: QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

CONCRETE COMBINATION CURB AND GUTTER - STPU-0043(29)

STATION	STATION	LOCATION	TYPE A (1' 6")
			LIN. FT.
470+84	475+14	HWY. 367 LT.	455
470+94	475+00	HWY. 367 RT.	465
475+38	480+44	HWY. 367 LT.	530
475+20	480+53	HWY. 367 RT.	580
TOTAL:			**2030**

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.		061457	17	37

(2) QUANTITIES

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.12723
SCOTT A. DONALDSON

DIGITALLY SIGNED DATE 8/17/2020

BASE AND SURFACING - STPU-0043(29)

STATION	STATION	LOCATION	LENGTH (FEET)	AGGREGATE BASE COURSE (CLASS 7) TON / STATION	AGGREGATE BASE COURSE (CLASS 7) TON	TACK COAT (0.05 GAL. PER SQ. YD.) TOTAL WID. FEET	TACK COAT (0.05 GAL. PER SQ. YD.) SQ.YD.	TACK COAT (0.05 GAL. PER SQ. YD.) GALLON	TACK COAT (0.17 GAL. PER SQ. YD.) TOTAL WID. FEET	TACK COAT (0.17 GAL. PER SQ. YD.) SQ.YD.	TACK COAT (0.17 GAL. PER SQ. YD.) GALLON	TACK COAT TOTAL GALLONS
MAIN LANES												
469+93.85	470+93.85	HWY. 367 - TRANSITION	100.00						24.00	266.67	45.33	45.33
470+93.85	472+63.91	HWY. 367 - NOTCH & WIDEN, C.C.C. & G. LT. & RT.	170.06			56.14	1060.80	53.04				53.04
472+63.91	472+73.85	HWY. 367 - NOTCH AND WIDEN, C.C.C. & G. LT. & RT.	9.94			85.04	93.92	4.70				4.70
472+73.85	473+63.85	HWY. 367 - NOTCH AND WIDEN, C.C.C. & G. LT. & RT.	90.00			92.16	921.60	46.08				46.08
473+63.85	475+01.02	HWY. 367 - NOTCH AND WIDEN, C.C.C. & G. LT. & RT.	137.17			49.22	750.17	37.51				37.51
475+01.02	475+24.71	HWY. 367 - NOTCH AND WIDEN, C.C.C. & G. LT. & RT.	23.69			VAR.	68.70	3.44				3.44
473+63.85	475+28.71	HWY. 367 - NOTCH AND WIDEN, C.C.C. & G. LT. & RT.	164.86			48.00	879.25	43.96				43.96
475+28.71	475+48.92	HWY. 367 - NOTCH AND WIDEN, C.C.C. & G. LT. & RT.	20.21			48.00	107.79	5.39				5.39
475+48.92	475+67.25	HWY. 367 - NOTCH AND WIDEN, C.C.C. & G. LT. & RT.	18.33			62.10	126.48	6.32				6.32
475+67.26	476+65.63	HWY. 367 - NOTCH AND WIDEN, C.C.C. & G. LT. & RT.	98.37			VAR.	818.44	40.92				40.92
476+65.63	477+73.83	HWY. 367 - NOTCH AND WIDEN, C.C.C. & G. LT. & RT.	108.20			60.94	732.63	36.63				36.63
477+73.83	478+81.46	HWY. 367 - NOTCH AND WIDEN, C.C.C. & G. LT. & RT.	107.63			54.29	649.25	32.46				32.46
478+81.46	480+43.83	HWY. 367 - NOTCH AND WIDEN, C.C.C. & G. LT. & RT.	162.37			30.16	544.12	27.21				27.21
480+43.83	481+43.83	HWY. 367 - TRANSITION	100.00						24.00	266.67	45.33	45.33
SIDE ROADS												
165+53.75	166+03.75	HWY. 319 - TRANSITION	50.00						21.00	116.67	19.83	19.83
166+03.75	166+21.37	HWY. 319 - NOTCH AND WIDEN, C.C.C. & G. LT. & RT.	17.62			36.84	72.12	3.61				3.61
166+21.37	166+87.56	HWY. 319 - NOTCH AND WIDEN, C.C.C. & G. LT. & RT.	66.19			VAR.	1033.79	51.69				51.69
474+71.53	475+15.32	HWY. 367 LT. - NOTCH & WIDEN (GRIFFIN ST. RADIUS)				VAR.	73.12	3.66				3.66
474+71.53	475+79.90	HWY. 367 LT. - (GRIFFIN ST.)				VAR.	201.21	10.06				10.06
475+35.94	475+79.90	HWY. 367 LT. - NOTCH & WIDEN (GRIFFIN ST. RADIUS)				VAR.	49.70	2.49				2.49
475+15.32	475+35.94	HWY. 367 LT. - (GRIFFIN ST. - TRANSITION)	50						20.00	111.11	18.89	18.89
ADDITIONAL FOR LEVELING												
470+93.85	480+43.83	HWY. 367	949.98						24.00	2533.23	430.66	430.66
166+03.75	167+05.59	HWY. 319	101.84						VAR.	367.24	62.43	62.43
475+16.05	475+38.91	HWY. 367 LT. (GRIFFIN ST.)	22.86						VAR.	171.47	29.15	29.15
ADDITIONAL FOR SHOULDER TRANSITIONS												
470+68.85	470+93.85	HWY. 367 RT.	25.00	VAR.	10.64							
480+43.83	480+68.83	HWY. 367 LT.	25.00	VAR.	10.64							
165+78.75	166+03.75	HWY. 319 RT.	25.00	VAR.	4.73							
165+78.75	166+03.75	HWY. 319 LT.	25.00	VAR.	2.53							
475+15.00		HWY. 367 LT. (GRIFFIN ST.)	50.00	VAR.	4.24							
475+35.00		HWY. 367 LT. (GRIFFIN ST.)	50.00	VAR.	4.24							
TOTALS:					**37.02**		**8183.09**	**409.17**		**3833.11**	**651.62**	**1060.79**

STATION	STATION	PCC BASE 5" UNIFORM THICKNESS AVG. WID. FEET	PCC BASE 5" UNIFORM THICKNESS SQ. YD.	PCC BASE 5" UNIFORM THICKNESS AVG. WID. FEET	PCC BASE 5" UNIFORM THICKNESS SQ. YD.	ACHM BASE COURSE (1 1/2") AVG. WID. FEET	ACHM BASE SQ.YD.	ACHM BASE POUND / SQ.YD.	ACHM BASE PG 64-22 TON	ACHM BINDER COURSE (1") AVG. WID. FEET	ACHM BINDER SQ.YD.	ACHM BINDER POUND / SQ.YD.	ACHM BINDER PG 64-22 TON	ACHM SURFACE COURSE (1/2") AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 70-22 TON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 70-22 TON	PG 70-22 TOTAL TON
MAIN LANES																						
469+93.85	470+93.85																	24.00	266.67	220.00	29.33	29.33
470+93.85	472+63.91	2.37	44.78	4.87	92.02	12.87	243.19	550.00	66.88	10.37	195.95	330.00	32.33	10.37	195.95	220.00	21.55	35.40	668.90	220.00	73.58	95.13
472+63.91	472+73.85					25.75	28.44	550.00	7.82	20.75	22.92	330.00	3.78	20.75	22.92	220.00	2.52	43.54	48.09	220.00	5.29	7.81
472+73.85	473+63.85					28.03	280.30	550.00	77.08	23.03	230.30	330.00	38.00	23.03	230.30	220.00	25.33	46.10	461.00	220.00	50.71	76.04
473+63.85	475+01.02					29.61	451.29	550.00	124.10	24.61	375.08	330.00	61.89	24.61	375.08	220.00	41.26					41.26
475+01.02	475+24.71					VAR.	41.10	550.00	11.30	VAR.	34.35	330.00	5.67	VAR.	34.35	220.00	3.78					3.78
473+63.85	475+28.71																	48.00	879.25	220.00	96.72	96.72
475+28.71	475+48.92																	48.00	107.79	220.00	11.86	11.86
475+48.92	475+67.25					9.55	19.45	550.00	5.35	7.05	14.36	330.00	2.37	7.05	14.36	220.00	1.58	48.00	97.76	220.00	10.75	12.33
475+67.26	476+65.63					VAR.	229.26	550.00	63.05	VAR.	174.11	330.00	28.73	VAR.	174.11	220.00	19.15	VAR.	470.22	220.00	51.72	70.87
476+65.63	477+73.83					17.47	210.03	550.00	57.76	12.47	149.92	330.00	24.74	12.47	149.92	220.00	16.49	36.00	432.80	220.00	47.61	64.10
477+73.83	478+81.46					15.27	182.61	550.00	50.22	10.27	122.82	330.00	20.27	10.27	122.82	220.00	13.51	33.75	403.61	220.00	44.40	57.91
478+81.46	480+43.83	6.39	115.28	11.39	205.49													30.16	544.12	220.00	59.85	59.85
480+43.83	481+43.83																	24.00	266.67	220.00	29.33	29.33
SIDE ROADS																						
165+53.75	166+03.75																	21.00	116.67	220.00	12.83	12.83
166+03.75	166+21.37	2.17	4.25	4.67	9.14	7.07	13.84	550.00	3.81	4.57	8.95	330.00	1.48	4.57	8.95	220.00	0.98	27.70	54.23	220.00	5.97	6.95
166+21.37	166+87.56					VAR.	335.46	550.00	92.25	VAR.	282.23	330.00	46.57	VAR.	282.23	220.00	31.05	VAR.	469.33	220.00	51.63	82.68
474+71.53	475+15.32	VAR.	4.07	VAR.	7.93	VAR.	50.81	550.00	13.97	VAR.	36.56	330.00	6.03	VAR.	36.56	220.00	4.02					4.02
474+71.53	475+79.90																	VAR.	201.21	220.00	22.13	22.13
475+35.94	475+79.90	VAR.	6.84	VAR.	1.55	VAR.	36.39	550.00	10.01	VAR.	24.85	330.00	4.10	VAR.	24.85	220.00	2.73					2.73
475+15.32	475+35.94																	20.00	111.11	220.00	12.22	12.22
ADDITIONAL FOR LEVELING																						
470+93.85	480+43.83													24.00	2533.28	220.00	278.66					278.66
166+03.75	167+05.59													VAR.	367.24	VAR.	95.04					95.04
475+16.05	475+38.91													VAR.	171.47	VAR.	21.98					21.98
ADDITIONAL FOR SHOULDER TRANSITIONS																						
470+68.85	470+93.85																	4.25	11.81	220.00	1.30	1.30
480+43.83	480+68.83																	4.25	11.81	220.00	1.30	1.30
165+78.75	166+03.75																	3.25	9.03	220.00	0.99	0.99
165+78.75	166+03.75																	1.31	3.64	220.00	0.40	0.40
475+15.00																		0.96	5.33	221.00	0.59	0.59
475+35.00																		0.96	5.33	222.00	0.59	0.59
TOTALS:			**175.22**		**316.13**		**2122.17**		**583.60**		**1672.40**		**275.96**		**4744.39**		**579.63**		**5646.38**		**621.10**	**1200.73**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2")..................95.1% MIN. AGGR.................4.9% ASPHALT BINDER
ACHM BINDER COURSE (1")........................96.0% MIN. AGGR.................4.0% ASPHALT BINDER
ACHM BASE COURSE (1 1/2")......................96.4% MIN. AGGR.................3.6% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22
TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

DRIVEWAYS & TURNOUTS - STPU-0043(29)

STATION	SIDE	LOCATION	WIDTH (FEET)	**MODIFIED CURB STATION	**MODIFIED CURB STATION	PORTLAND CEMENT CONCRETE DRIVEWAY (SQ. YD.)	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22) SQ. YD.	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22) TON	AGGREGATE BASE COURSE (CLASS 7) TON
472+75	LT.	HWY. 367	40	472+41	473+09	60.44	162.04	17.82	66.17
474+15	LT.	HWY. 367	24	473+89	474+41	46.22	93.28	10.26	38.09
478+25	RT.	HWY. 367	40	477+91	478+59	60.44	118.13	12.99	48.24
479+29	LT.	HWY. 367	22	479+04	479+54	90.54			
479+95	RT.	HWY. 367	40	479+61	480+29	60.44	151.24	16.64	61.76
* ENTIRE PROJECT TEMPORARY DRIVES									75.00
TOTALS:						**318.08**	**524.69**	**57.71**	**289.26**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2")..................95.1% MIN. AGGR...............4.9% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

THE CONTRACTOR, WITH THE APPROVAL OF THE ENGINEER, WILL BE ALLOWED TO SUBSTITUTE A HIGHER PERFORMANCE GRADE ASPHALT SURFACE COURSE FOR DRIVEWAYS AND MINOR SIDE STREET CONSTRUCTION AT NO ADDITIONAL COST TO THE DEPARTMENT.

* QUANTITY ESTIMATED
SEE SECTION 104.03 OF THE STD. SPECS.
TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

** FOR INFORMATION ONLY

4" PIPE UNDERDRAIN - STPU-0043(29)

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS (LIN. FT.)
* ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER			250
TOTALS:			**250**

* NOTE: QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

UNDERDRAINS SHALL BE STUBBED INTO THE PROPOSED DROP INLET IF AND WHERE DIRECTED BY THE ENGINEER. PAYMENT FOR THIS TO BE INCLUDED IN THE UNIT PRICE BID FOR 4" PIPE UNDERDRAIN.

SADonaldson 8/6/2020 3:34:02 PM
WORKSPACE: AHTD
L:\2017\7017540 - ARDOT - Ward Traffic Signal\Drawings\r061457_QTY_ALL.dgn
REVISED DATE:

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-8-2020				6	ARK.			
10-30-2020				JOB NO.		061457	18	37
				(2)	SUMMARY OF QUANTITIES AND REVISIONS			

SUMMARY OF QUANTITIES (BOX 1 OF 2)

ITEM NUMBER	ITEM	STPU-0043(29) QUANTITY	RPD-0043(29) QUANTITY	TOTAL QUANTITY	UNIT
201	CLEARING	5		5	STATION
201	GRUBBING	5		5	STATION
202	REMOVAL AND DISPOSAL OF CONCRETE PAVEMENT	36		36	SQ. YD.
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	2		2	EACH
202	REMOVAL AND DISPOSAL OF MAILBOXES	4		4	EACH
SS & 210	UNCLASSIFIED EXCAVATION	204		204	CU. YD.
210	COMPACTED EMBANKMENT	3499		3499	CU. YD.
SP & 210	SOIL STABILIZATION	50		50	TON
SS & 303	AGGREGATE BASE COURSE (CLASS 7)	326		326	TON
SS & 309	PORTLAND CEMENT CONCRETE BASE (5" UNIFORM THICKNESS)	491		491	SQ. YD.
SS & 401	TACK COAT	1071		1071	GAL.
SP, SS, & 405	MINERAL AGGREGATE INACHM BASE COURSE (1 1/2")	563		563	TON
SP, SS, & 405	ASPHALT BINDER (PG 64-22) IN ACHM BASE COURSE (1 1/2")	21		21	TON
SP, SS, & 406	MINERAL AGGREGATE INACHM BINDER COURSE (1")	265		265	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")	11		11	TON
SP, SS, & 407	MINERAL AGGREGATE INACHM SURFACE COURSE (1/2")	1196		1196	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	3		3	TON
SP, SS, & 407	ASPHALT BINDER (PG 70-22) IN ACHM SURFACE COURSE (1/2")	59		59	TON
412	COLD MILLING ASPHALT PAVEMENT	761		761	SQ. YD.
SP, SS, & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC	5		5	TON
SP, SS, & 415	ACHM PATCHING OF EXISTING ROADWAY	25		25	TON
SS & 505	PORTLAND CEMENT CONCRETE DRIVEWAY	318.08		318.08	SQ. YD.
601	MOBILIZATION	1.00		1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1		1	EACH
SS & 603	MAINTENANCE OF TRAFFIC	1.00		1.00	LUMP SUM
SS & 604	SIGNS	273		273	SQ. FT.
SS & 604	TRAFFIC DRUMS	11		11	EACH
SS & 604	TRAFFIC CONE	18		18	EACH
604	CONSTRUCTION PAVEMENT MARKINGS	4195		4195	LIN. FT.
SS & 604	VERTICAL PANELS	20		20	EACH
SS & 605	CONCRETE DITCH PAVING (TYPE B)	2		2	SQ. YD.
606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	171		171	LIN. FT.
* 606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III) (ALTERNATE NO. 1)	533		533	LIN. FT.
* 606	18" SMOOTH LINED POLYMER PRECOATED METALLIC COATED CORRUGATED STEEL PIPE (ALTERNATE NO. 2)	533		533	LIN. FT.
SS & 606	12" SDE DRAIN	362		362	LIN. FT.
606	18" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	3		3	EACH
606	SELECTED PIPE BEDDING	100		100	CU. YD.
SS & 609	DROP INLETS (TYPE MO)	6		6	EACH
SS & 609	DROP INLETS (TYPE SPECIAL)	1		1	EACH
SS & 609	JUNCTION BOXES (TYPE E)	3		3	EACH
SS & 609	DROP INLET EXTENSIONS (4')	9		9	EACH
SS & 609	YARD DRAINS	4		4	EACH
SS & 611	4" PIPE UNDERDRAINS	250		250	LIN. FT.
615	PAVEMENT REPAIR OVER CULVERTS (ASPHALT)	22		22	TON
SS & 617	GUARDRAIL (TYPE C)	13		13	LIN. FT.
620	LIME	2		2	TON
620	SEEDING	1.05		1.05	ACRE
SS & 620	MULCH COVER	2.91		2.91	ACRE
620	WATER	145.1		145.1	M. GAL.
621	TEMPORARY SEEDING	1.86		1.86	ACRE
621	SILT FENCE	1433		1433	LIN. FT.
621	SAND BAG DITCH CHECKS	88		88	BAG
621	SEDIMENT BASIN	20		20	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN	20		20	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL	93		93	CU. YD.
SS & 621	FILTER SOCK (18")	429		429	LIN. FT.
623	SECOND SEEDING APPLICATION	1.05		1.05	ACRE
624	SOLID SODDING	17		17	SQ. YD.
626	EROSION CONTROL MATTING (CLASS 3)	276		276	SQ. YD.
SS & 632	CONCRETE ISLAND	13		13	SQ. YD.
SS & 634	CONCRETE COMBINATION CURB AND GUTTER (TYPE A) (1' 6")	2030		2030	LIN. FT.
635	ROADWAY CONSTRUCTION CONTROL	1.00		1.00	LUMP SUM
637	MAILBOXES	4		4	EACH
637	MAILBOX SUPPORTS (SINGLE)	4		4	EACH
SP & 701	SYSTEM LOCAL CONTROLLER TS2-TYPE 2 (8 PHASES)		1	1	EACH
SP	RAILROAD PREEMPTION INTERCONNECT SYSTEM		1	1	EACH
SP	BATTERY BACKUP SYSTEM		1	1	EACH
SP	LED BLANK OUT SIGN		1	1	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY.		11	11	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY.		1	1	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (5 SECTION, 1 WAY.		1	1	EACH
708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)		540	540	LIN. FT.
708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)		213	213	LIN. FT.
708	TRAFFIC SIGNAL CABLE (12C/12 A.W.G.)		75	75	LIN. FT.
708	TRAFFIC SIGNAL CABLE (20C/14 A.W.G.)		634	634	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G., E.G.C.)		463	463	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G.)		65	65	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/12 A.W.G.)		795	795	LIN. FT.
SP	ELECTRICAL CONDUCTORS FOR LUMINAIRES		230	230	LIN. FT.
709	GALVANIZED STEEL CONDUIT (2")		20	20	LIN. FT.
710	NON-METALLIC CONDUIT (2")		49	49	LIN. FT.
710	NON-METALLIC CONDUIT (3")		485	485	LIN. FT.
711	CONCRETE PULL BOX (TYPE 2)		1	1	EACH
711	CONCRETE PULL BOX (TYPE 1 HD)		1	1	EACH
711	CONCRETE PULL BOX (TYPE 2 HD)		7	7	EACH

* DENOTES ALTERNATE BID ITEMS.

STATE OF ARKANSAS
Scott Donaldson
LICENSED PROFESSIONAL ENGINEER
No.12723
SCOTT A. DONALDSON

DIGITALLY SIGNED 10/30/2020

SUMMARY OF QUANTITIES (BOX 2 OF 2)

ITEM NUMBER	ITEM	STPU-0043(29) QUANTITY	RPD-0043(29) QUANTITY	TOTAL QUANTITY	UNIT
SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (32')		1	1	EACH
SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (38')		1	1	EACH
SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (44')		1	1	EACH
SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (48')		1	1	EACH
SP	LED LUMINAIRE ASSEMBLY		4	4	EACH
SP	SERVICE POINT ASSEMBLY (2 CIRCUITS)		1	1	EACH
718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (12")	44		44	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (6")	1054		1054	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (12")	884		884	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (6")	3532		3532	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING (WORDS)	2		2	EACH
719	THERMOPLASTIC PAVEMENT MARKING (ARROWS)	4		4	EACH
SP & 719	THERMOPLASTIC PAVEMENT MARKING (YIELD LINE)	30		30	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)	34		34	EACH
SS & 726	STANDARD SIGN	5		5	SQ. FT.
SP	18" STREET NAME SIGN		4	4	EACH
SS & 729	CHANNEL POST SIGN SUPPORT (TYPE U-1)	2		2	EACH
SP & 733	VIDEO DETECTOR (CLR)		7	7	EACH
733	VIDEO CABLE		1193	1198	LIN. FT.
733	VIDEO MONITOR (CLR)		1	1	EACH
SP & 733	VIDEO PROCESSOR, EDGE CARD (2 CAMERA)		4	4	EACH
SP & 733	VEHICLE DETECTOR RACK (16 CHANNEL)		1	1	EACH

REVISIONS

DATE	REVISION	SHEET NUMBER
10/8/2020	ADDED SS 400-7 AND SS 502-1 TO GOVERNING SPECIFICATIONS LIST AND REVISED SS 100-3.	3,18
10/30/2020	ADDED "PROHIBITION OF CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQJIPMENT" SPECIAL PROVISION TO GOVERNING SPECIFICATIONS LIST.	3,18

SADonaldson 10/30/2020 8:35:23 AM
WORKSPACE: AHTD
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REVISED DATE:

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.		061457	19	37
				(2)	SURVEY CONTROL DETAILS			

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.12723
SCOTT A. DONALDSON

DIGITALLY SIGNED DATE 8/17/2020

SURVEY CONTROL COORDINATES

PROJECT NAME: S061457
DATE: 9/25/2018
COORDINATE SYSTEM: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL,
PROJECTED TO GROUND.
UNITS: U.S. SURVEY FOOT

POINT NAME	NORTHING	EASTING	ELEV	FEATURE	DESCRIPTION
1	252210.3620	1325824.6990	244.62	CTL	*ALUM MON
2	252156.9461	1325957.5745	245.60	CTL	*ALUM MON
3	252050.2684	1325892.4400	248.75	CTL	*ALUM MON
100	251227.6703	1325021.7560	252.71	GPS	*STD ARDOT MON. STAMPED PN:100
101	251864.9386	1325586.0700	247.96	GPS	*STD ARDOT MON. STAMPED PN:101
901	252437.4170	1325847.3660	244.61	TBM	*901 CHISELED SQ IN SW
902	252073.3470	1325636.8940	245.46	TBM	*902 CHISELED SQ IN NE CORNER SW

*NOTE - REBAR AND CAP - STANDARD - 5/8" REBAR WITH 2" ALUMINUM CAP STAMPED
*(STANDARD MARKINGS COMMON TO ALL CAPS), OR AS INDICATED
(OTHER MARKINGS INDICATED IN THE POINT DESCRIPTION OF THE INDIVIDUAL POINT).
ALL DISTANCES ARE GROUND.
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT.
A PROJECT CAF OF 0.99997561 HAS BEEN USED TO COMPUTE THE ABOVE GROUND COORDINATES.
THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.
GRID DISTANCE = GROUND DISTANCE X CAF.
GRID COORDINATES CTL FILE WAS NOT CREATED.
HORIZONTAL DATUM: NAD 83 (2011)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE
AT A SPECIFIC POINT.

REFERENCE POINTS (1500 SERIES) ARE TO BE USED TO ESTABLISH CONTROL
IF THE PRIMARY CONTROL POINTS LISTED ABOVE HAVE BEEN DESTROYED.
REFERENCE POINTS ARE NOT TO BE USED FOR VERTICAL CONTROL

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 100 AND 101
CONVERGENCE ANGLE: 00-01-32.5 LEFT AT PN:101
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

ALIGNMENT NAME: HWY. 367

POINT	STATION	TYPE	NORTHING	EASTING
8000	470+63.64	PC	1325556.3468	251804.7762
8002	477+73.80	PT	1325952.0079	252392.3095
8003	480+48.40	PC	1326076.0597	252637.2964
8005	482+74.89	PT	1326190.0990	252832.8186

ALIGNMENT NAME: HWY. 319

POINT	STATION	TYPE	NORTHING	EASTING
8006	163+48.27	PC	1326033.8231	251879.3076
8008	164+29.63	PT	1326004.9762	251954.8046
8009	165+90.23	PI	1325919.1560	252090.5521
8010	166+45.12	PC	1325890.5216	252137.3843
8012	166+76.14	PT	1325868.3595	252158.5964
8013	167+17.60	POE	1325832.0765	252178.6533

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WORKSPACE: AHTD
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REVISED DATE:

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.		061457	20	37

(2) SURVEY CONTROL DETAILS

Scale: 1" = 100'

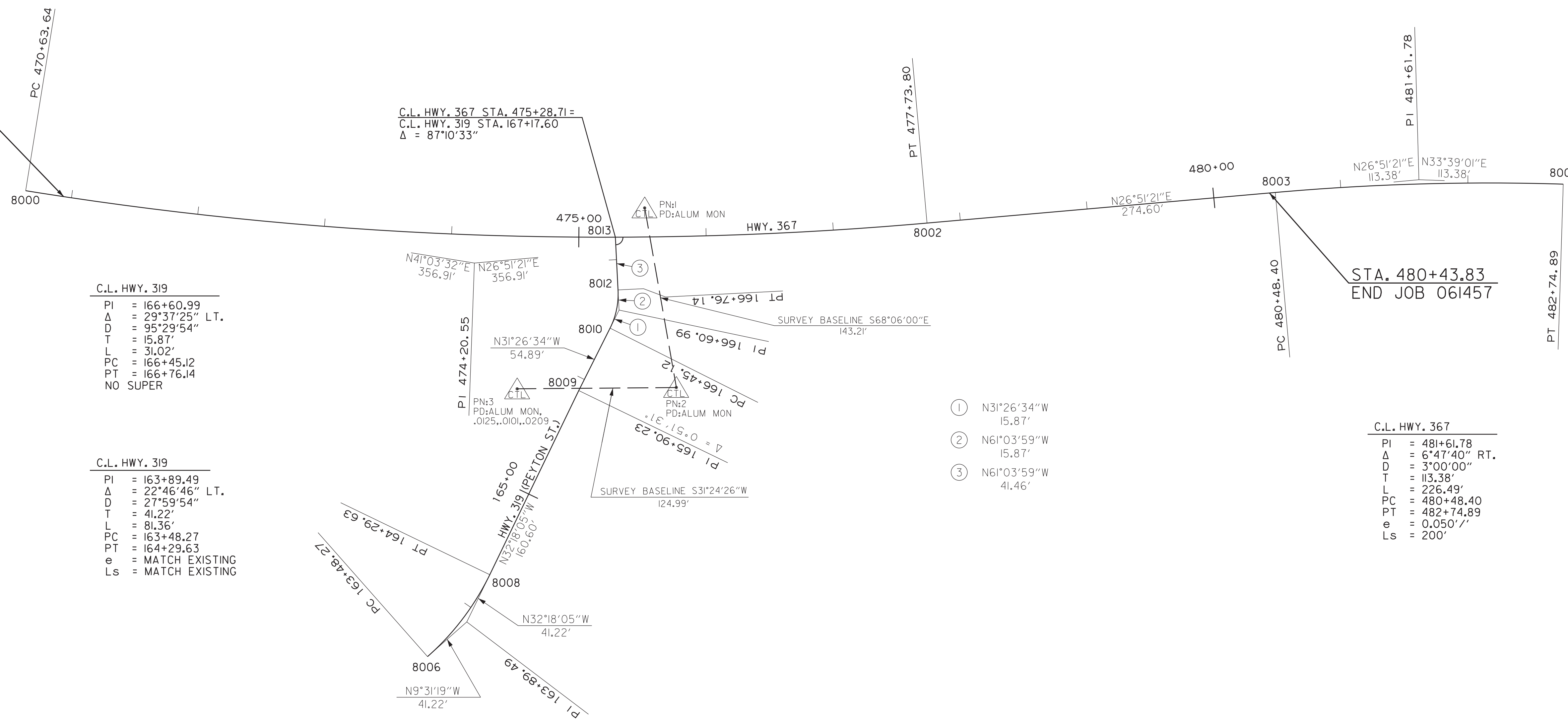
ALL BEARINGS ARE GRID
BASED ON GPS
ALL DISTANCES ARE GROUND

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.12723
SCOTT A. DONALDSON

DIGITALLY SIGNED DATE 8/17/2020

C.L. HWY. 367

PI	= 474+20.55
Δ	= 14°12'11" LT.
D	= 2°00'00"
T	= 356.91'
L	= 710.16'
PC	= 470+63.64
PT	= 477+73.80
e	= 0.034'/'
Ls	= 240'



C.L. HWY. 319

PI	= 166+60.99
Δ	= 29°37'25" LT.
D	= 95°29'54"
T	= 15.87'
L	= 31.02'
PC	= 166+45.12
PT	= 166+76.14
NO SUPER	

C.L. HWY. 319

PI	= 163+89.49
Δ	= 22°46'46" LT.
D	= 27°59'54"
T	= 41.22'
L	= 81.36'
PC	= 163+48.27
PT	= 164+29.63
e	= MATCH EXISTING
Ls	= MATCH EXISTING

C.L. HWY. 367

PI	= 481+61.78
Δ	= 6°47'40" RT.
D	= 3°00'00"
T	= 113.38'
L	= 226.49'
PC	= 480+48.40
PT	= 482+74.89
e	= 0.050'/'
Ls	= 200'

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WORKSPACE: AHTD
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REVISED DATE:

SURVEY CONTROL DETAILS

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.		061457	21	37

(2) PLAN AND PROFILE SHEETS

OBLITERATE EXISTING PAVEMENT

STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.12723 SCOTT A. DONALDSON

DIGITALLY SIGNED DATE 8/17/2020

STA. 473+50 LT. OF C.L.
CONCRETE DITCH PAVING = 2.0 SQ. YD.

STA. 472+75 CONSTRUCT
APPROACH ON LT. = 60 CU. YDS.

STA. 474+15 CONSTRUCT
APPROACH ON LT. = 65 CU. YDS.

STA. 476+97 CONSTRUCT
12.5' GUARDRAIL (TYPE C) 50' LT. WITH
TWO (2) REFLECTIVE RED DIAMOND OBJECT
MARKERS MOUNTED ON U-CHANNEL POSTS
DIRECTLY BEHIND THE GUARDRAIL AT A
HEIGHT OF 4'.

STA. 479+29 CONSTRUCT
APPROACH ON LT. = 5 CU. YDS.

STA. 473+50 CONSTRUCT
DROP INLET ON LT.
WITH 4' EXTENSION
TYPE SPECIAL DROP INLET = 4'x8'
DROP INLET H = 1'-0"

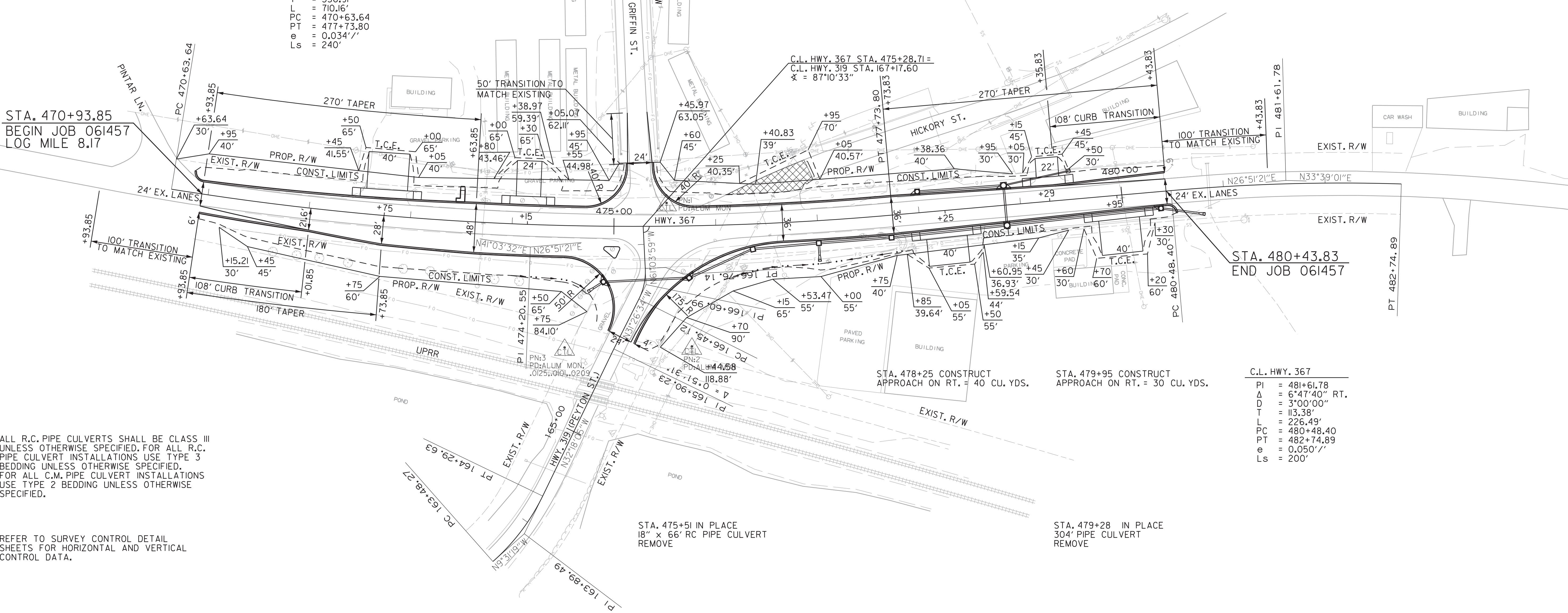
STA. 478+00 CONSTRUCT
DROP INLET ON LT.
WITH 4' EXTENSION
WITH 18" x 81' PIPE OUTLET
TO DROP INLET AT STA. 478+85 LT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4'x4'
DROP INLET H = 4'-2"

STA. 478+85 CONSTRUCT
DROP INLET ON LT.
WITH 4' EXTENSION LT. & RT.
WITH 18" x 34' R.C. PIPE OUTLET
TO JUNCTION BOX AT STA. 478+85 RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4'x4'
DROP INLET H = 4'-0"

STA. 479+50 CONSTRUCT
YARD DRAIN ON LT.
WITH 12"x62' SIDE DRAIN OUTLET
CONNECT TO DROP INLET
AT STA. 478+85 LT.
12" SIDE DRAIN = 62 LIN. FT.

C.L. HWY. 367

PI	= 474+20.55
Δ	= 14°12'11" LT.
D	= 2°00'00"
T	= 356.91'
L	= 710.16'
PC	= 470+63.64
PT	= 477+73.80
e	= 0.034'/'
Ls	= 240'



STA. 478+25 CONSTRUCT
APPROACH ON RT. = 40 CU. YDS.

STA. 479+95 CONSTRUCT
APPROACH ON RT. = 30 CU. YDS.

C.L. HWY. 367

PI	= 481+61.78
Δ	= 6°47'40" RT.
D	= 3°00'00"
T	= 113.38'
L	= 226.49'
PC	= 480+48.40
PT	= 482+74.89
e	= 0.050'/'
Ls	= 200'

ALL R.C. PIPE CULVERTS SHALL BE CLASS III UNLESS OTHERWISE SPECIFIED. FOR ALL R.C. PIPE CULVERT INSTALLATIONS USE TYPE 3 BEDDING UNLESS OTHERWISE SPECIFIED. FOR ALL C.M. PIPE CULVERT INSTALLATIONS USE TYPE 2 BEDDING UNLESS OTHERWISE SPECIFIED.

REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

STA. 475+51 IN PLACE
18" x 66' RC PIPE CULVERT
REMOVE

STA. 479+28 IN PLACE
304' PIPE CULVERT
REMOVE

STA. 474+90 CONSTRUCT
DROP INLET ON RT.
WITH 4' EXTENSION LT. & RT.
WITH 18" x 10' R.C. PIPE INLET W/F.E.S.
AND 18" x 81' R.C. PIPE OUTLET
TO DROP INLET AT STA. 475+73 RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4'x4'
DROP INLET H = 4'-4"

STA. 475+73 CONSTRUCT
DROP INLET ON RT.
WITH 4' EXTENSION LT. & RT.
WITH 18" x 65' PIPE OUTLET
TO JUNCTION BOX AT STA. 476+35 RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4'x4'
DROP INLET H = 4'-6"

STA. 476+35 CONSTRUCT
JUNCTION BOX ON RT.
WITH 18" x 61' PIPE OUTLET
TO JUNCTION BOX AT STA. 477+00 RT.
TYPE E JUNCTION BOX = 4'x4'
DROP INLET H = 5'-1"

STA. 477+00 CONSTRUCT
JUNCTION BOX ON RT.
WITH 18" x 10' R.C. PIPE INLET W/F.E.S.
AND 18" x 68' PIPE OUTLET
TO JUNCTION BOX AT STA. 477+71 RT.
TYPE E JUNCTION BOX = 4'x4'
DROP INLET H = 4'-10"

STA. 477+71 CONSTRUCT
JUNCTION BOX ON RT.
WITH 18" x 110' PIPE OUTLET
TO JUNCTION BOX AT STA. 478+85 RT.
TYPE E JUNCTION BOX = 4'x4'
DROP INLET H = 4'-7"

STA. 478+85 CONSTRUCT
DROP INLET ON RT.
AND 18" x 148' PIPE OUTLET
TO DROP INLET AT STA. 480+37 RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4'x4'
DROP INLET H = 4'-2"

STA. 480+37 CONSTRUCT
DROP INLET ON RT.
WITH 4' EXTENSION
WITH 18" x 36' R.C. PIPE OUTLET W/F.E.S.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4'x4'
DROP INLET H = 4'-0"

HWY. 367

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WORKSPACE: AHTD
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REVISED DATE:

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.		061457	22	37
				(2)	PLAN AND PROFILE SHEETS			

REFER TO SURVEY CONTROL DETAIL SHEETS
FOR HORIZONTAL AND VERTICAL CONTROL DATA.

STA. 470+93.85 BEGIN SUPERELEVATION (MATCH EXIST. 0.048 FT./FT.)
STA. 472+17.38 MAX SUPERELEVATION (0.034 FT./FT.)
STA. 476+43.80 MAX SUPERELEVATION (0.034 FT./FT.)
STA. 478+83.80 END SUPERELEVATION

RT. TURN LANE
STA. 472+73.85 BEGIN SUPERELEVATION (0.034 FT./FT.)
STA. 474+72.93 END SUPERELEVATION (-0.016 FT./FT.)

STA. 478+83.80 BEGIN SUPERELEVATION
STA. 480+43.83 MATCH EXISTING (0.040 FT./FT.)

STATE OF ARKANSAS
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+93.85 | +93.85 | 100' VERTICAL TRANSITION TO MATCH EXISTING
PVI 470+93.85 ELEV. 249.49
-0.78%
PVC 472+75.00 ELEV. 248.07
VC=150.00'
K=483.87
e=0.06'
PVT 474+25.00 ELEV. 247.14
STA. 473+50 TOP ELEV.=247.39
PROFILE GRADE
EXISTING GROUND
PVI 473+50.00 ELEV. 247.49
STA. 478+00 TOP ELEV.=245.49
-0.47%
18" x 81' @ 0.26%
STA. 478+85 TOP ELEV.=245.14
+43.83 | +43.83 | 100' VERTICAL TRANSITION TO MATCH EXISTING
PVI 480+43.83 ELEV. 244.23
STA. 480+43.83 END JOB 061457

STA. 470+93.85
BEGIN JOB 061457
LOG MILE 8.17

F.L. ELEV.=246.39(NW)
F.L. ELEV.=241.31(NE)
F.L. ELEV.=241.10(W)
F.L. ELEV.=241.10(E)

HWY. 367 - LT. SIDE

469+00 470+00 471+00 472+00 473+00 474+00 475+00 476+00 477+00 478+00 479+00 480+00 481+00 482+00 483+00 484+00

STA. 470+93.85 BEGIN SUPERELEVATION (MATCH EXIST. 0.048 FT./FT.)
STA. 472+17.38 MAX SUPERELEVATION (0.034 FT./FT.)
STA. 476+43.80 MAX SUPERELEVATION (0.034 FT./FT.)
STA. 478+83.80 END SUPERELEVATION

RT. TURN LANE
STA. 472+73.85 BEGIN SUPERELEVATION (0.034 FT./FT.)
STA. 474+72.93 END SUPERELEVATION (-0.016 FT./FT.)

STA. 478+83.80 BEGIN SUPERELEVATION
STA. 480+43.83 MATCH EXISTING (0.040 FT./FT.)

+93.85 | +93.85 | 100' VERTICAL TRANSITION TO MATCH EXISTING
PVI 470+93.85 ELEV. 249.49
-0.78%
PVC 472+75.00 ELEV. 248.07
VC=150.00'
K=483.87
e=0.06'
PVT 474+25.00 ELEV. 247.14
EXISTING GROUND
PVI 473+50.00 ELEV. 247.49
STA. 475+73 TOP ELEV.=247.13
STA. 476+35 TOP ELEV.=247.33
STA. 477+00 TOP ELEV.=246.78
STA. 477+71 TOP ELEV.=246.19
STA. 478+85 TOP ELEV.=245.12
STA. 474+90 TOP ELEV.=247.34
-2.14% RT. DT. GRADE
-0.54% RT. DT. GRADE
1.97% RT. DT. GRADE
PROFILE GRADE
-0.47%
18" x 81' @ 0.47%
18" x 65' @ 0.58%
18" x 61' @ 0.51%
18" x 68' @ 0.51%
18" x 110' @ 0.53%
18" x 148' @ 0.53%
18" x 10' @ 1.50%
RT. DT. GR. 474+00.00 244.77
RT. DT. GR. 474+75.00 243.16
RT. DT. GR. 476+41.88 242.46
RT. DT. GR. 477+00.00 242.00
RT. DT. GR. 478+00.00 243.97
+43.83 | +43.83 | 100' VERTICAL TRANSITION TO MATCH EXISTING
STA. 480+37 TOP ELEV.=244.23
PVI 480+43.83 ELEV. 244.23
STA. 480+43.83 END JOB 061457
F.L. OUT=240.08
18" x 36' @ 0.42%

STA. 470+93.85
BEGIN JOB 061457
LOG MILE 8.17

F.L. IN=243.16
F.L. ELEV.=243.01(N)
F.L. ELEV.=243.01(S)
F.L. ELEV.=242.25(N)
F.L. ELEV.=242.25(S)
F.L. ELEV.=241.59(N)
F.L. ELEV.=241.59(S)
F.L. ELEV.=242.63(N)
F.L. ELEV.=242.63(S)
F.L. ELEV.=241.94(N)
F.L. ELEV.=241.94(S)
F.L. ELEV.=241.01(N)
F.L. ELEV.=241.01(S)
F.L. ELEV.=241.01(W)
F.L. ELEV.=240.23(N)
F.L. ELEV.=240.23(S)
F.L. IN=242.00

HWY. 367 - RT. SIDE

469+00 470+00 471+00 472+00 473+00 474+00 475+00 476+00 477+00 478+00 479+00 480+00 481+00 482+00 483+00 484+00

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WORKSPACE: AHTD
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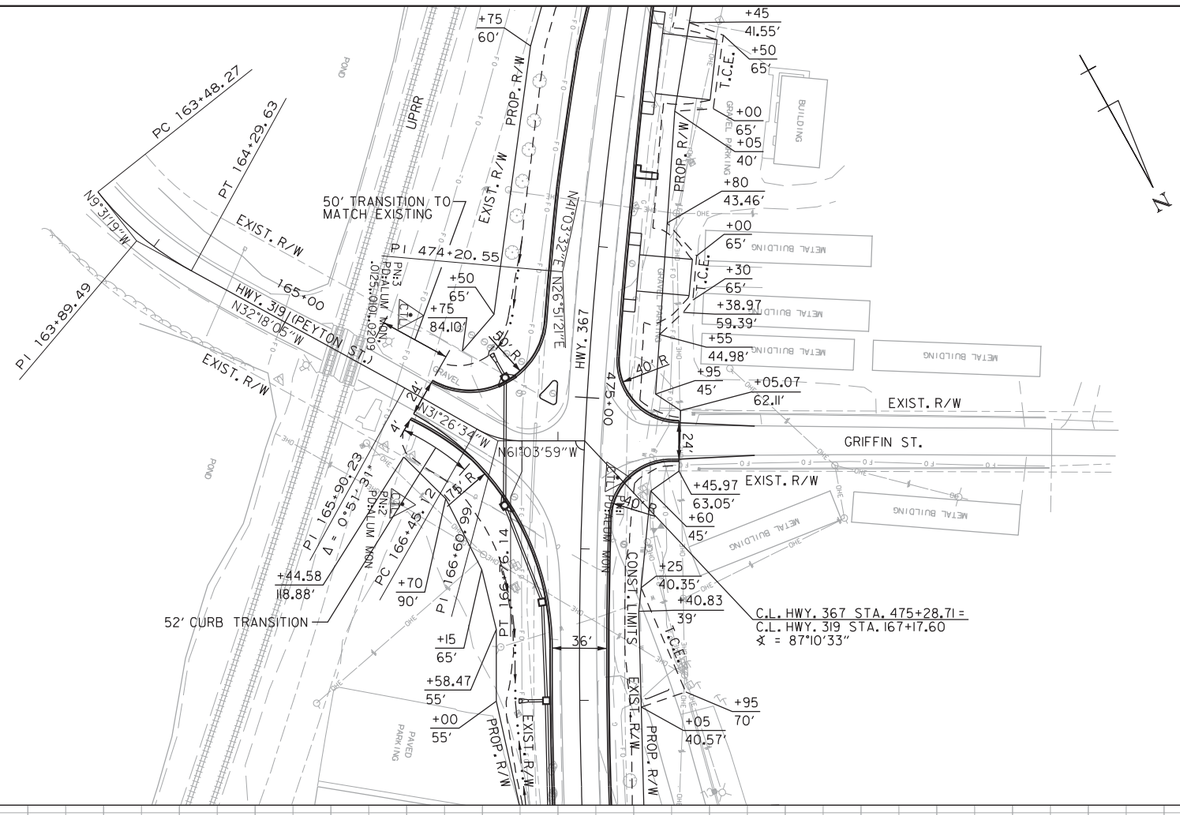
REVISED DATE:

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.		061457	23	37
				(2)	PLAN AND PROFILE SHEETS			

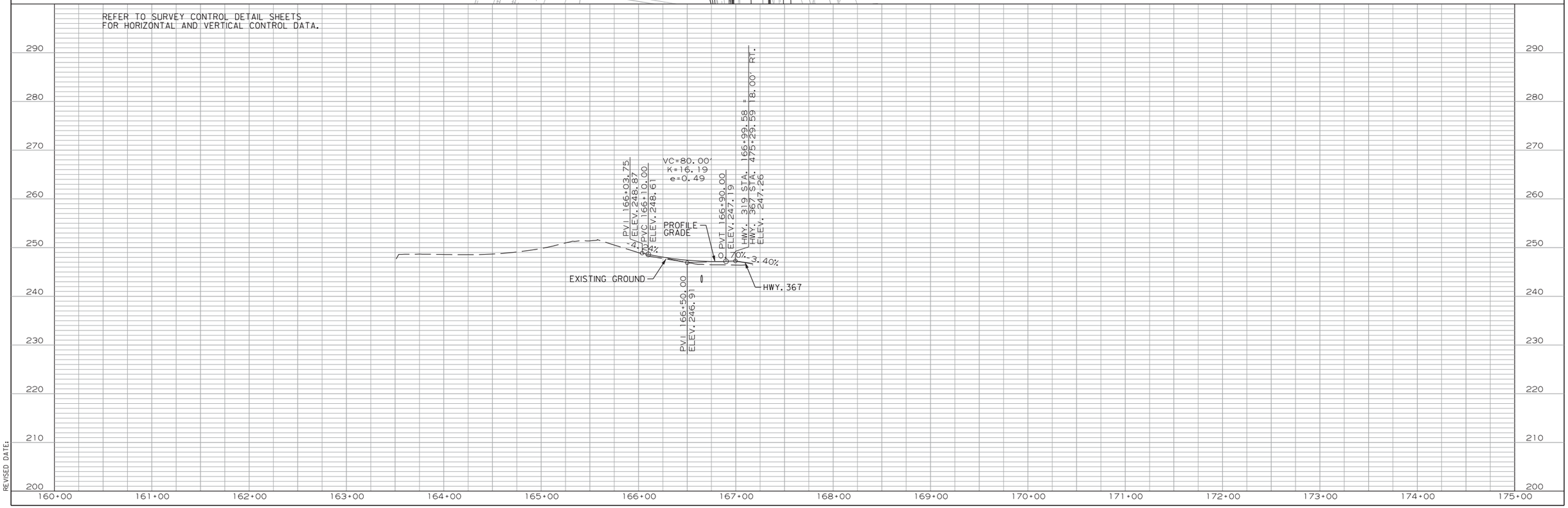
C.L. HWY. 319
PI = 163+89.49
Δ = 22°46'46" LT.
D = 27°59'54"
T = 41.22'
L = 81.36'
PC = 163+48.27
PT = 164+29.63
e = MATCH EXISTING
Ls = MATCH EXISTING

C.L. HWY. 319
PI = 166+60.99
Δ = 29°37'25" LT.
D = 95°29'54"
T = 15.87'
L = 31.02'
PC = 166+45.12
PT = 166+76.14
NO SUPER



HWY. 319

REFER TO SURVEY CONTROL DETAIL SHEETS
FOR HORIZONTAL AND VERTICAL CONTROL DATA.



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WORKSPACE: AHTD
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REVISED DATE:

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 12723
SCOTT A. DONALDSON
DIGITALLY SIGNED DATE 8/17/2020

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.		061457	24	37

(2) TRAFFIC SIGNAL NOTES

TRAFFIC SIGNAL NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE NFPA 70 (CURRENT EDITION) NATIONAL ELECTRICAL CODE, NFPA 101 (CURRENT EDITION) LIFE SAFETY CODE, STATE ELECTRICAL CODE AND LOCAL ELECTRICAL CODE.

2. EXTEND GREEN EQUIPMENT GROUNDING CONDUCTOR (E.G.C.) FROM GROUND BAR AT MAIN BREAKER TO CONTROL PANEL AND TO FIRST POLE. SOLIDLY BOND E.G.C. TO GROUND LUG OF CONTROL CABINET AND TO POLE GROUND. ENSURE THAT ONLY ONE NEUTRAL-TO-GROUND BOND EXISTS IN THE SYSTEM AND THAT IT IS AT THE MAIN BREAKER.

3. ELECTRICAL SERVICE SHALL BE PROVIDED BY THE CITY/COUNTY 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 A.W.G. USE RATED, WITH GROUND TYPICAL), AND PERFORM WIRING TO TAP INTO THE CITY'S/ COUNTY'S MAIN BREAKER AS PART OF THIS CONTRACT. CONDUIT IS PAID FOR AS A SEPARATE ITEM OF THIS CONTRACT. TWO CIRCUIT BREAKERS, CONSIDERED SUBSIDIARY TO THE CONTROL EQUIPMENT, ARE NEEDED WHERE STREET LIGHTING IS INCLUDED. AS PART OF THE SIGNAL INSTALLATION, STREET LIGHTING CIRCUIT (2c/#12 A.W.G. JF 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 STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, STANDARD DRAWINGS AND WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION.

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 STANDARD DRAWINGS 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 PERMANENT PAVEMENT MARKING DETAILS.

11. FOUNDATION FOR ALL POLES SHALL BE EXTENDED IF NECESSARY TO ACCOMMODATE THE REQUIREMENTS FOR SIGNAL HEAD CLEARANCE ABOVE ROADWAY ONLY AT LOCATIONS WHERE THE GROUND ELEVATION AT THE POLE IS BELOW THE ELEVATION OF THE ROADWAY (SEE NOTES ON STANDARD DRAWING). PAYMENT WILL BE INCLUDED IN SECTION 714 TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, CURRENT EDITION.

12. ALL CONCRETE PULL BOXES SHALL BE (TYPE 2 HD) UNLESS OTHERWISE INDICATED. ALL CONDUIT SHALL BE THREE (3") INCH DIAMETER UNLESS SPECIFIED ON PLANS.

13. CONTRACTOR SHALL NOTIFY ALL EXISTING UTILITY OWNERS BEFORE BEGINNING WORK ON THIS PROJECT.

14. LED LUMINAIRE ASSEMBLIES SHALL HAVE A BUG RATING OF U0.

15. HARDWARE INPUTS MAY BE DETERMINED BY SUPPLIER. EACH DETECTOR OUTPUT SHALL INPUT THE CONTROLLER THROUGH A SEPARATE INPUT UNLESS OTHERWISE NOTED AND BE PROGRAMMED TO ACTUATE THE ASSOCIATED PHASE. COMBINATION (COMB.) DETECTORS SHALL ALSO BE PROGRAMMED TO PROVIDE VEHICLE COUNT/OCCUPANCY DATA.

16. 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, THIRTY-EIGHT (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 TWENTY-ONE (21') FEET SHOULD BE USED TO DETERMINE UTILITY CLEARANCE ABOVE THE TRAFFIC SIGNAL MAST ARM. AN ADDITIONAL SIX (6') FEET SHOULD BE USED DIRECTLY ABOVE "VIDEO DETECTOR" AT LOCATIONS SHOWN ON THE SIGNAL PLANS.

17. THE DESIRABLE MINIMUM DISTANCE FROM THE FACE OF ROADWAY CURB OR SHOULDER EDGE TO THE FACE OF NON-BREAKAWAY POLE OR OBSTRUCTION IS SIX (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.

18. 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.

19. CONNECTION OF TRAFFIC SIGNAL DISPLAY TO FIELD WIRING SHALL UTLIZE 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 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, CURRENT EDITION.

20. CONTROLLER CABINET LAYOUT AND ORIENTATION SHALL CONFORM TO IMSA STANDARDS.

21. ONE VIDEO PROGRAMMNG 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.

22. TRAFFIC SIGNAL CONTRACTOR SHALL NOTIFY THE 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.

23. 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.

24. DOOR PANEL TEST PUSH BUTTONS SHALL ACTUATE INDICATED PHASES. DETECTOR ASSIGNMENTS AND/OR SIDE PANEL JUMPERS MAY REQUIRE MODIFICATION.

25. ALL SYSTEM DETECTOR RACKS AND ASSOCIATED EQUIPMENT SHALL BE PROTECTED BY THE MAIN CONTROLLER CABINET POWER SURGE PROTECTION.

26. IN PULL BOXES, POLE BASES, JUNCTION BOXES AND CONTROLLER CABINETS, THE DIRECTION OF EACH CABLE RUN SHALL BE INDICATED BY ATTACHING A PERMANENT TAG OF RIGID PLASTIC OR NON-FERROUS METAL TO THE CONDUIT. TAGS SHALL BE EMBOSSED, STAMPED OR ENGRAVED WITH LETTERS 1/4" OR GREATER IN HEIGHT AND SECURED TO THE CONDUIT WITH NYLON OR PLASTIC TIES. IN INSTANCES WHERE THE CONDUIT OR CONDUIT ENTRANCES ARE NOT VISIBLE OR ACCESSIBLE, A DIRECTION TAG SHALL BE ATTACHED TO EACH CABLE.

27. ALL NON-METALLIC CONDUIT RUNS SHALL HAVE BELL RING FITTINGS INSTALLED ON THE TERMINATING ENDS OF THE CONDUIT. THIS INCLUDES PULL BOXES, POLE BASES, AND TRAFFIC SIGNAL CABINETS.

28. ALL CONCRETE PULL BOXES SHALL BE SET ON A GRAVEL OR CRUSHED STONE BEDDING AS SPECIFIED IN SECTION 711, CONCRETE PULL BOX, OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 2014.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.8141
NICCI D. TINER

DIGITALLY SIGNED DATE 8/17/2020

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WORKSPACE: AHTD
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REVISED DATE:

DATE: 06/24/2020 FILE NAME: t061457_TRAFFIC SIGNAL NOTES.dgn

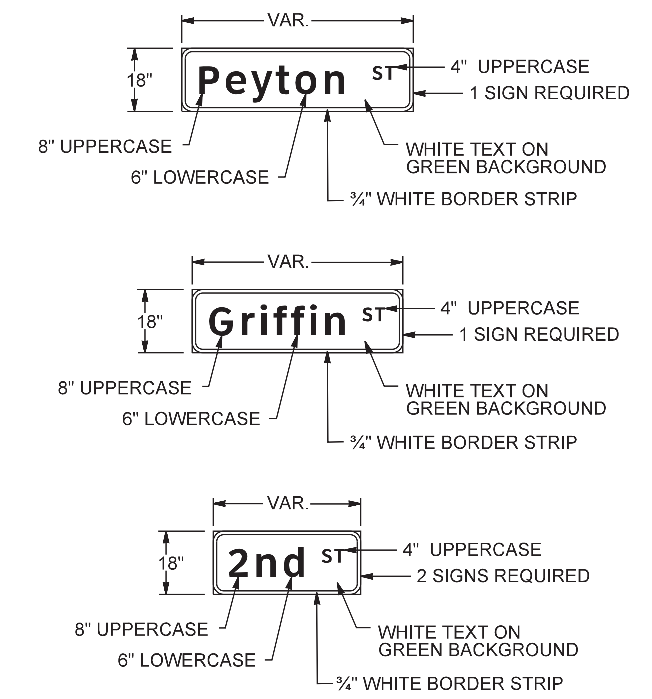
LOCATION: HWY. 367 AT HWY. 319/GRIFFIN ST.
CITY: WARD
COUNTY: LONOKE
DISTRICT: 06 SCALE: N/A DRAWN BY: ARM

TRAFFIC SIGNAL QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
SP & 701	SYSTEM LOCAL CONTROLLER TS2-TYPE 2 (8 PHASES)	1	EACH
SP	RAILROAD PREEMPTION INTERCONNECT SYSTEM	1	EACH
SP	BATTERY BACKUP SYSTEM	1	EACH
SP	LED BLANK OUT SIGN	1	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)	11	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)	1	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (5 SECTION, 1 WAY)	1	EACH
708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)	540	LIN. FT.
708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)	213	LIN. FT.
708	TRAFFIC SIGNAL CABLE (12C/14 A.W.G.)	75	LIN. FT.
708	TRAFFIC SIGNAL CABLE (20C/14 A.W.G.)	634	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/8 A.W.G., E.G.C.)	463	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/6 A.W.G.)	65	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/12 A.W.G.)	795	LIN. FT.
SP	ELECTRICAL CONDUCTORS FOR LUMINAIRES	230	LIN. FT.
709	GALVANIZED STEEL CONDUIT (2")	20	LIN. FT.
710	NON-METALLIC CONDUIT (2")	49	LIN. FT.
710	NON-METALLIC CONDUIT (3")	485	LIN. FT.
711	CONCRETE PULL BOX (TYPE 2)	1	EACH
711	CONCRETE PULL BOX (TYPE 1 HD)	1	EACH
711	CONCRETE PULL BOX (TYPE 2 HD)	7	EACH
SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (32')	1	EACH
SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (38')	1	EACH
SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (44')	1	EACH
SS & 714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (48')	1	EACH
SP	LED LUMINAIRE ASSEMBLY	4	EACH
SP	SERVICE POINT ASSEMBLY (2 CIRCUITS)	1	EACH
SP	18" STREET NAME SIGN	4	EACH
✳ SP & 733	VIDEO DETECTOR (CLR)	7	EACH
733	VIDEO CABLE	1198	LIN. FT.
733	VIDEO MONITOR (CLR)	1	EACH
✳ SP & 733	VIDEO PROCESSOR, EDGE CARD (2 CAMERA)	4	EACH
SP & 733	VEHICLE DETECTOR RACK (16 CHANNEL)	1	EACH

✳ ONE SPARE VIDEO DETECTOR AND ONE SPARE VIDEO PROCESSOR SHALL BE SUPPLIED

OVERHEAD STREET NAME MARKER STANDARD MAST ARM MOUNTED



NOTES:

1. REFLECTIVE SHEETING SHALL COMPLY WITH ASTM 4956 TYPE 8 OR 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 BE ALSO ALODIZED. THE ALUMINUM SHEETING SHALL BE 0.100 INCH NOMINAL THICKNESS AND OF THE SIZE SHOWN WITH 1.5" CORNER RADII. PRIOR TO FABRICATION OF THE SIGNS, THE LAYOUT SHALL FIRST BE APPROVED BY AN AGENT OF THE CITY/ COUNTY.
3. WHEN CROSSROAD HAS TWO NAMES, THE SIGN FOR THE CROSSROAD TO THE LEFT MAY BE INSTALLED ON THE BACKSIDE OF THE MAST ARM ON THE NEARSIDE LEFT POLE. SEE STANDARD DRAWING SHEET FOR MORE INFORMATION FOR MOUNTING ON MAST ARM ASSEMBLY.
4. THE SERIES C 2000 STANDARD ALPHABET SHALL BE USED FOR ALL LETTERS.

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.8141
NICCI D. TINER

DIGITALLY SIGNED DATE 8/17/2020

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WORKSPACE: AHTD
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REVISED DATE:

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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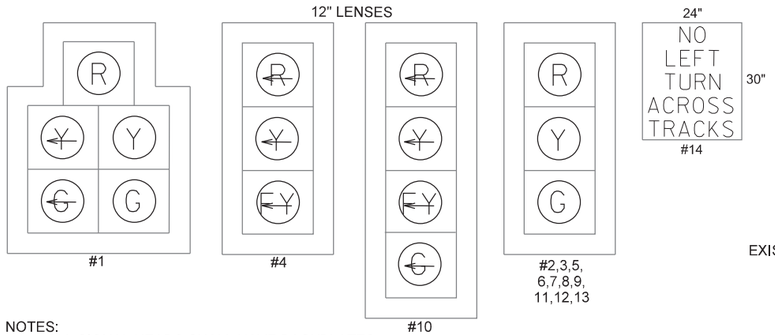
				JOB NO.		061457	26	37
				(2) SIGNALIZATION PLAN SHEET				

SIGNAL FACES



NOTES:
1. ALL SIGNAL HEADS SHALL HAVE BACKPLATES.
2. REFER TO SPECIAL PROVISION "RETROREFLECTIVE BACKPLATES" FOR DETAILS ON REQUIREMENTS FOR BACKPLATES.
3. SIGNAL HEAD 14 WILL ACTIVATE DURING RR PRE-EMPT CLEAR PHASE AND SHALL REMAIN ON THROUGH THE RR PRE-EMPT DWELL PHASE.

DETECTOR SPACING CHART

HWY. 367/2ND ST. VIRTUAL LOOPS		
POSTED SPEED	DISTANCE FROM STOP LINE	
	LEAD VDZ	LAG VDZ
45 MPH	260'	115'
HWY. 319/PEYTON ST. VIRTUAL LOOPS		
POSTED SPEED	DISTANCE FROM STOP LINE	
	LEAD VDZ	LAG VDZ
40 MPH	85'	N/A
GRIFFIN ST. VIRTUAL LOOPS		
POSTED SPEED	DISTANCE FROM STOP LINE	
	LEAD VDZ	LAG VDZ
15 MPH	65'	N/A

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.8141
NICCI D. TINER
DIGITALLY SIGNED DATE 8/17/2020

(HWY. 367/2ND ST.)/ (HWY. 319/PEYTON ST. & GRIFFIN ST.) POLE DIMENSIONS

POLE	MAST ARM	* MAST ARM ANGLE	VERT. SHAFT	LUM. ARM	* LUM. ANGLE
A	32'	180°	35'	15'	180°
B	38'	180°	35'	15'	180°
C	44'	270°	35'	25'	270°
D	48'	270°	35'	15'	270°

* ANGLE MEASURED CLOCKWISE FROM HAND HOLE.

PHASING DIAGRAM

*PHASE ONLY ACTIVATED DURING RR TRACK CLEARANCE GREEN PHASE

RR INTERCONNECT

CONTROLLER AND CABINET SHALL BE WIRED FOR INTERCONNECT TO RAILROAD TO PROVIDE PROGRAMMABLE SEQUENCING AS SHOWN ON SHEET 29.

** INSTALLED BY UNION PACIFIC RAILROAD.

UP - UNION PACIFIC CORP
CROSSING - 437829U
MILE POST - 317.93

SCALE IN FEET
0 30 60 120
DATE: 06/23/2020 FILE NAME: t061457_p01.dgn

LOCATION:	HWY. 367 AT HWY. 319/GRIFFIN ST.
CITY:	WARD
COUNTY:	LONOKE
DISTRICT:	06 SCALE: 1" = 60' DRAWN BY: ARM

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WORKSPACE: AHTD
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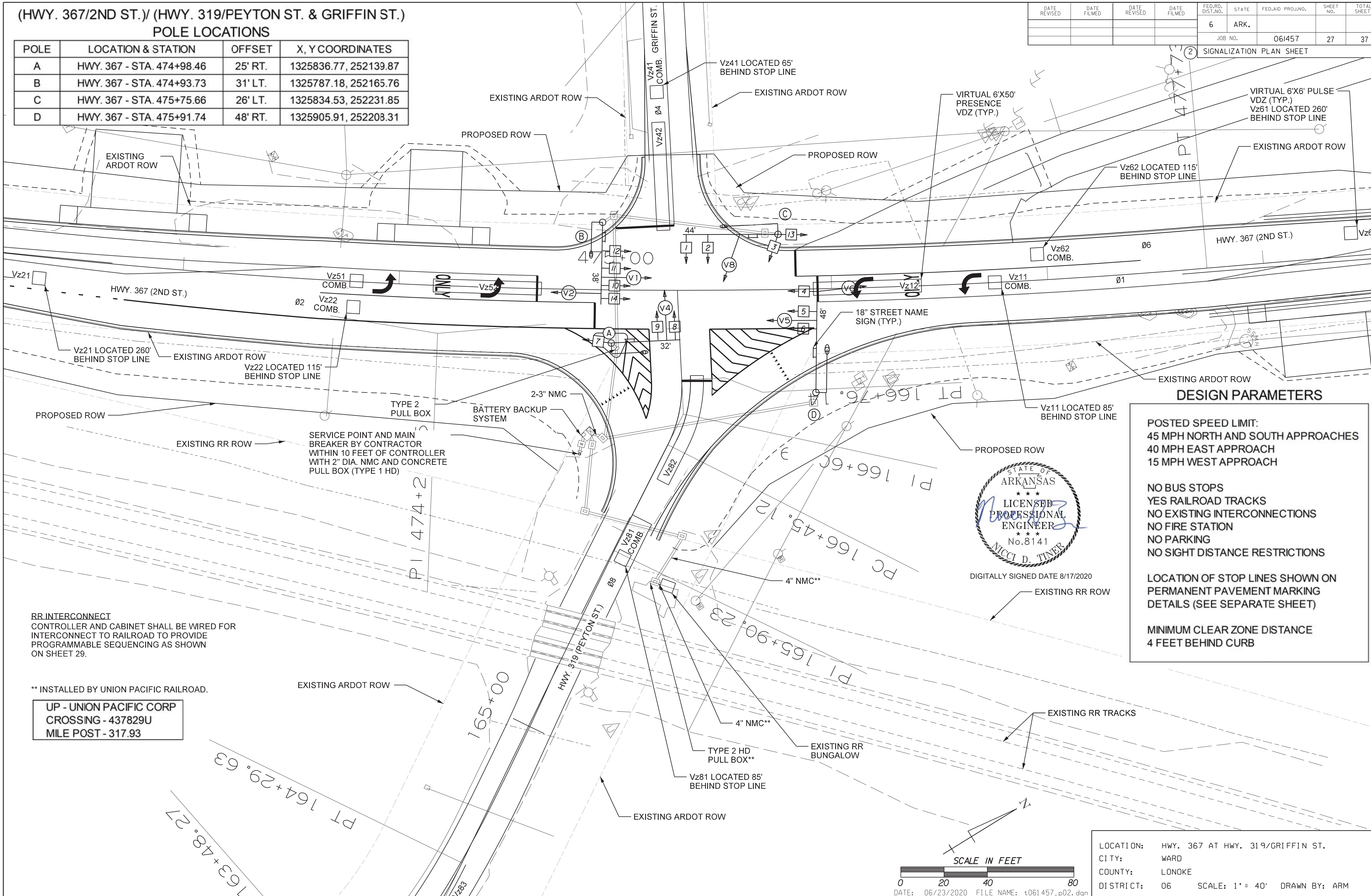
REVISED DATE:

(HWY. 367/2ND ST.)/ (HWY. 319/PEYTON ST. & GRIFFIN ST.)
POLE LOCATIONS

POLE	LOCATION & STATION	OFFSET	X, Y COORDINATES
A	HWY. 367 - STA. 474+98.46	25' RT.	1325836.77, 252139.87
B	HWY. 367 - STA. 474+93.73	31' LT.	1325787.18, 252165.76
C	HWY. 367 - STA. 475+75.66	26' LT.	1325834.53, 252231.85
D	HWY. 367 - STA. 475+91.74	48' RT.	1325905.91, 252203.31

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.	061457	27	37

(2) SIGNALIZATION PLAN SHEET



STATE OF ARKANSAS LICENSED PROFESSIONAL ENGINEER No.8141 NICCI D. TINER

DIGITALLY SIGNED DATE 8/17/2020

DESIGN PARAMETERS

POSTED SPEED LIMIT:
45 MPH NORTH AND SOUTH APPROACHES
40 MPH EAST APPROACH
15 MPH WEST APPROACH

NO BUS STOPS
YES RAILROAD TRACKS
NO EXISTING INTERCONNECTIONS
NO FIRE STATION
NO PARKING
NO SIGHT DISTANCE RESTRICTIONS

LOCATION OF STOP LINES SHOWN ON PERMANENT PAVEMENT MARKING DETAILS (SEE SEPARATE SHEET)

MINIMUM CLEAR ZONE DISTANCE
4 FEET BEHIND CURB

RR INTERCONNECT
CONTROLLER AND CABINET SHALL BE WIRED FOR INTERCONNECT TO RAILROAD TO PROVIDE PROGRAMMABLE SEQUENCING AS SHOWN ON SHEET 29.

** INSTALLED BY UNION PACIFIC RAILROAD.

UP - UNION PACIFIC CORP
CROSSING - 437829U
MILE POST - 317.93

DATE: 06/23/2020 FILE NAME: t061457_p02.dgn

LOCATION:	HWY. 367 AT HWY. 319/GRIFFIN ST.
CITY:	WARD
COUNTY:	LONOKE
DISTRICT:	06 SCALE: 1" = 40' DRAWN BY: ARM

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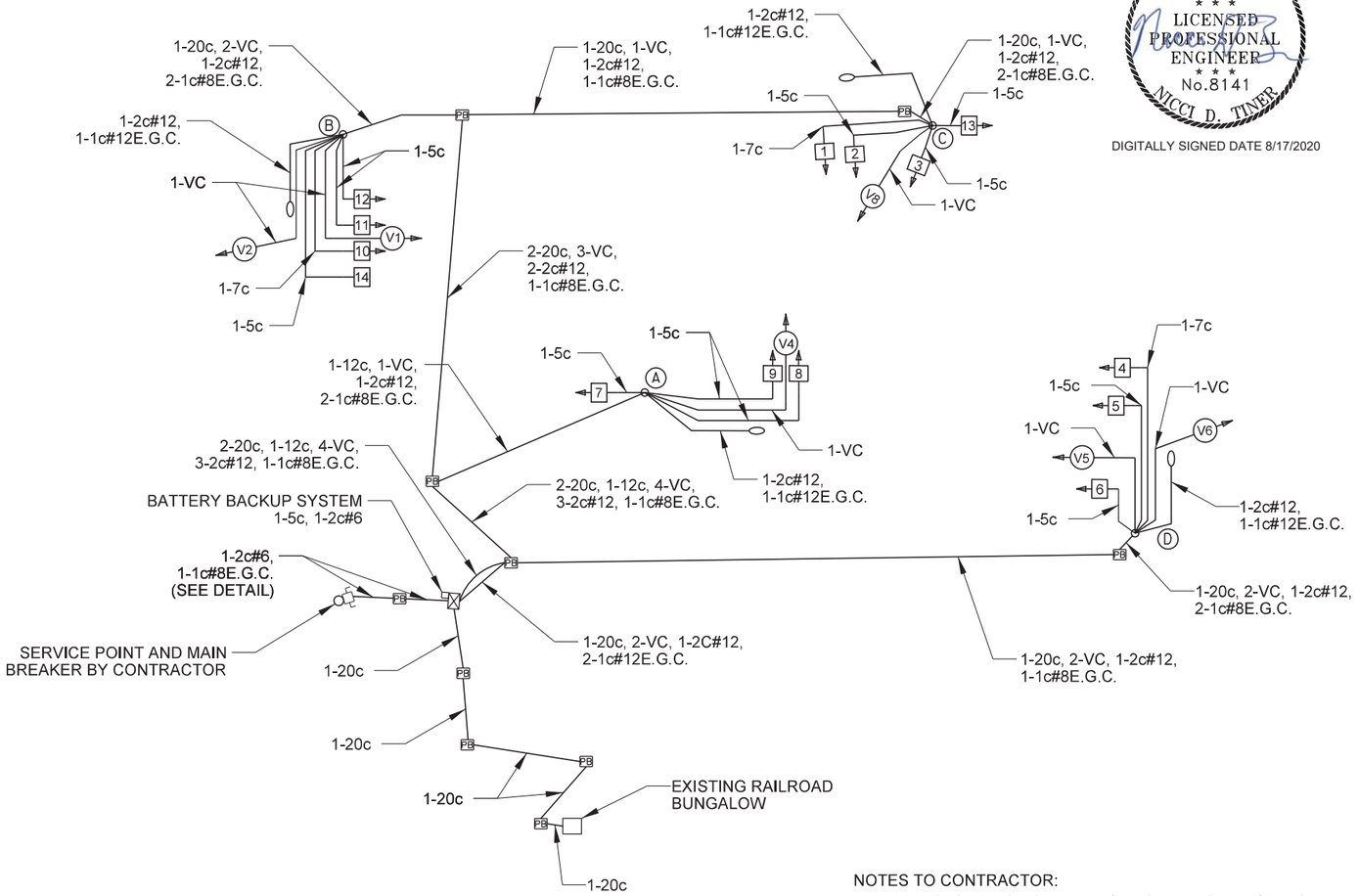
REVISED DATE:

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.		061457	28	37
				(2)	SIGNALIZATION PLAN SHEET			

WIRING DIAGRAM

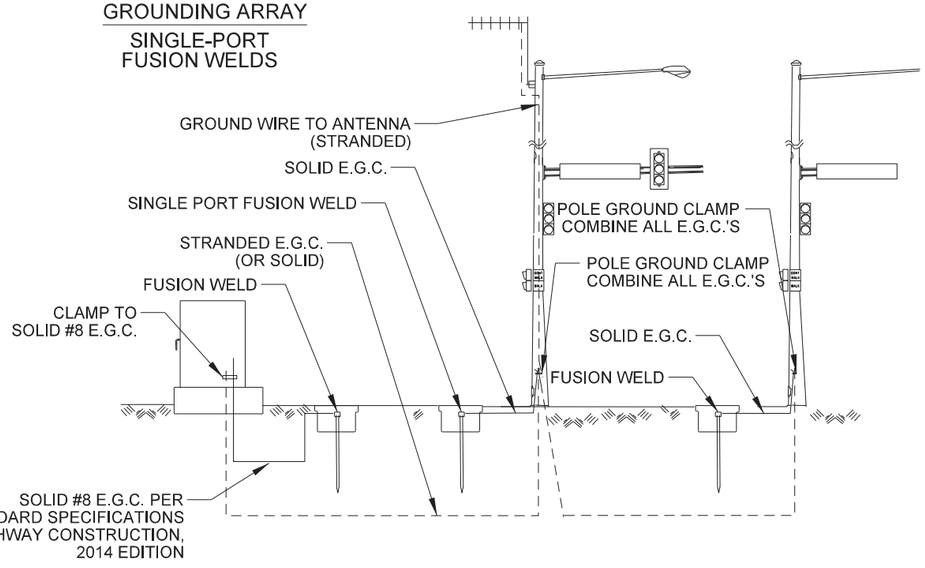


STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.8141
NICCI D. TINER

DIGITALLY SIGNED DATE 8/17/2020

GROUNDING ARRAY

SINGLE-PORT FUSION WELDS



NOTES TO CONTRACTOR:

1. ALL DETECTOR RACK CHANNELS, INCLUDING UNUSED, SHALL BE BROUGHT TO TERMINAL STRIP IN DETECTOR AREA OF CABINET.
2. THE LOCAL GOVERNMENT SHALL BE RESPONSIBLE FOR PROVIDING POWER TO THE SERVICE POINT.
3. SEPARATE 1-20c TO RAILROAD BUNGALOW.

RR INTERCONNECT

CONTROLLER AND CABINET SHALL BE WIRED FOR INTERCONNECT TO RAILROAD TO PROVIDE PROGRAMMABLE SEQUENCING AS SHOWN ON SHEET 29.

DATE: 06/23/2020 FILE NAME: t061457_p03.dgn

LOCATION:	HWY. 367 AT HWY. 319/GRIFFIN ST.
CITY:	WARD
COUNTY:	LONOKE
DISTRICT:	06 SCALE: N/A DRAWN BY: ARM

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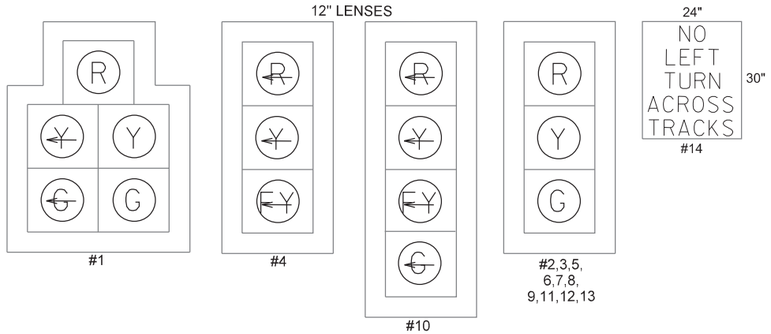
REVISED DATE:

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.		061457	29	37
				(2)	SIGNALIZATION PLAN SHEET			

SIGNAL FACES



NOTES:
1. ALL SIGNAL HEADS SHALL HAVE BACKPLATES.
2. REFER TO SPECIAL PROVISION "RETROREFLECTIVE BACKPLATES" FOR DETAILS ON REQUIREMENTS FOR BACKPLATES.
3. SIGNAL HEAD 14 WILL ACTIVATE DURING RR PRE-EMPT CLEAR PHASE AND SHALL REMAIN ON THROUGH THE RR PRE-EMPT DWELL PHASE.

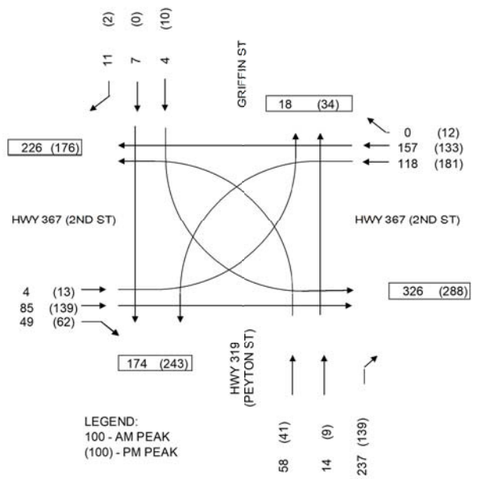
DETECTOR CHART

DETECTOR SYSTEM DESCRIPTION: JOB 061457												
(HWY. 367/2ND ST.)/ (HWY. 319/PEYTON ST. & GRIFFIN ST.) DETECTOR ASSIGNMENTS				HARDWARE INPUTS BY SUPPLIER			PROGRAM ASSIGNMENTS LOCAL		MASTER SYSTEM DETECTOR NUMBERS	COMMENTS	TUBE LENGTHS
DET. ID #	LOCATION DIRECTION	TYPE	DET. #	CAB. TRM. #	AMP CHN. #	CON. IMP. #	PHS	SYSTEM DET. #			
Vz11	SB LEFT TURN ADVANCE	COMB.			1	V9	1	1		CAMERA V1	37"
Vz12	SB LEFT TURN	LOCAL			2	V1	1			CAMERA V1	37"
Vz21	NB ADVANCE	LOCAL			5	V2	2			CAMERA V2	74"
Vz22	NB NEAR	COMB.			6	V10	2	2		CAMERA V5	37"
Vz41	EB ADVANCE	COMB.			9	V12	4	4		CAMERA V4	37"
Vz42	EB NEAR	LOCAL			10	V4	4			CAMERA V4	37"
Vz51	NB LEFT TURN ADVANCE	COMB.			7	V13	2			CAMERA V5	37"
Vz52	NB LEFT TURN	LOCAL			8	V5	2	2		CAMERA V5	37"
Vz61	SB ADVANCE	LOCAL			3	V6	6			CAMERA V6	74"
Vz62	SB NEAR	COMB.			4	V14	6	6		CAMERA V1	37"
Vz81	WB ADVANCE	COMB.			11	V16	8	8		CAMERA V8	37"
Vz82	WB NEAR	LOCAL			12	V8	8			CAMERA V8	37"
					SPARE: 13-16						

CONTROLLER INPUT ABBREVIATIONS:
V = VEHICLE INPUT
D = SYSTEM OR AUXILIARY INPUT
P = PEDESTRIAN INPUT

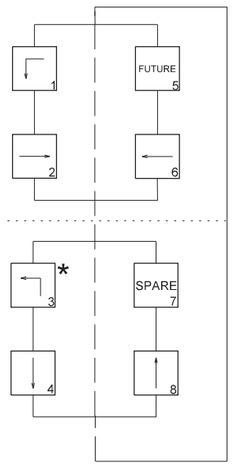
NOTE: "AMP CHN =" REFERS TO THE RACK OUTPUT POSITION.
THIS IS WIRED TO CONTROLLER INPUT DETECTOR NUMBER WHICH IS PROGRAMMED TO ACTUATE THE DESIGNATED PHASE.
EXAMPLE: V9 = SYSTEM DETECTOR 1, V10 = SYSTEM DETECTOR 2

STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No.8141
NICCI D. TINER
DIGITALLY SIGNED DATE 8/17/2020



HWY 319 (PEYTON ST.)/GRIFFIN ST. AT HWY 367 (2ND ST.)
TRAFFIC FLOW DIAGRAM
TRAFFIC VOLUME (PEAK HOUR)

PHASING DIAGRAM



*PHASE ONLY ACTIVATED DURING RR TRACK CLEARANCE GREEN PHASE

INTERVAL CHART

(HWY. 367/2ND ST.)/ (HWY.319/PEYTON ST. & GRIFFIN ST.)											
SIGNAL FACES	NORMAL CYCLE						RR PRE-EMPT CLEAR		DWELL		FLASH SEQ.
	1+6	CLR.	2+6	CLR.	4+8	CLR	3+8	CLR.	2+6	CLR.	
1	R	R	R	R	G	**	~~G~~ G	~~Y~~ Y	R	R	R
2 & 3	R	R	R	R	G	**	G	Y	R	R	R
4	~~FY~~	***	~~FY~~	***	~~R~~	~~R~~	~~R~~	~~R~~	~~FY~~	~~Y~~	~~R~~
5, 6 & 7	R	R	G	Y	R	R	R	R	G	Y	R
8 & 9	R	R	R	R	G	Y	R	R	R	R	R
10	~~G~~	*	~~FY~~	***	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
11, 12 & 13	G	**	G	**	R	R	R	R	G	Y	R
14	BLK	BLK	BLK	BLK	BLK	BLK	NLT	NLT	NLT	NLT	BLK

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

NLT = NO LEFT TURN
BLK = BLANK SIGN

RR INTERCONNECT

CONTROLLER AND CABINET SHALL BE WIRED FOR INTERCONNECT TO RAILROAD TO PROVIDE PROGRAMMABLE SEQUENCING AS SHOWN ON THE INTERVAL CHART.

LOCATION:	HWY. 367 AT HWY. 319/GRIFFIN ST.
CITY:	WARD
COUNTY:	LONOKE
DISTRICT:	06 SCALE: N/A DRAWN BY: ARM

DATE: 06/23/2020 FILE NAME: t061457_p04.dgn

SADonaldson 8/16/2020 3:35:12 PM
WORKSPACE: AHTD
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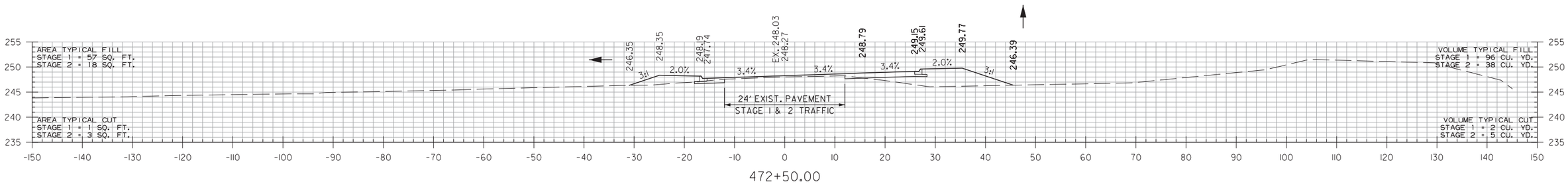
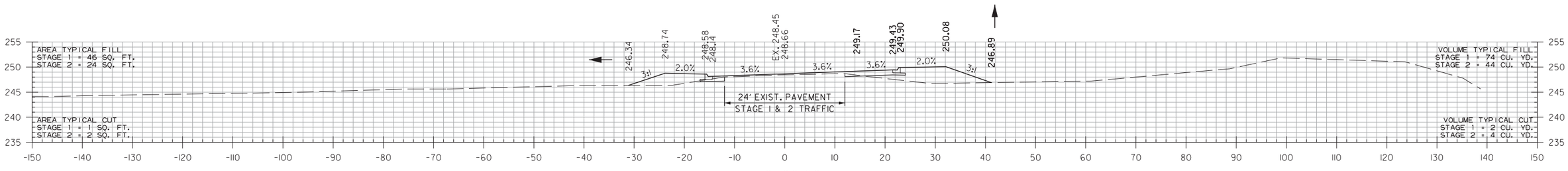
REVISED DATE: _____

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.		061457	30	37
				(2)	CROSS SECTIONS			

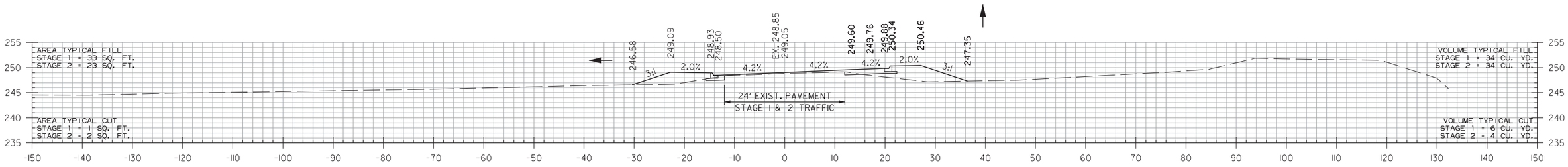


472+50.00

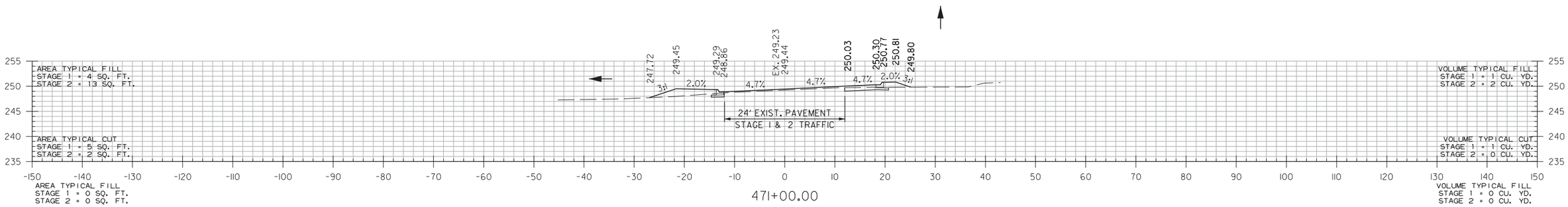
STA. 472+17.38 MAX SUPERELEVATION (0.034 FT./FT.)



472+00.00



471+50.00



AREA TYPICAL FILL
STAGE 1 = 0 SQ. FT.
STAGE 2 = 0 SQ. FT.
AREA TYPICAL CUT
STAGE 1 = 0 SQ. FT.
STAGE 2 = 0 SQ. FT.

471+00.00

VOLUME TYPICAL FILL
STAGE 1 = 0 CU. YD.
STAGE 2 = 0 CU. YD.
VOLUME TYPICAL CUT
STAGE 1 = 0 CU. YD.
STAGE 2 = 0 CU. YD.

STA. 470+93.85 BEGIN SUPERELEVATION (MATCH EXIST. 0.048 FT./FT.)

STA. 470+93.85 BEGIN JOB 061457, END 100' TRANSITION

STA. 469+93.85 BEGIN 100' TRANSITION

STA. 471+00 TO STA. 472+50

SADonaldson 8/16/2020 3:35:30 PM
WORKSPACE: AHTD
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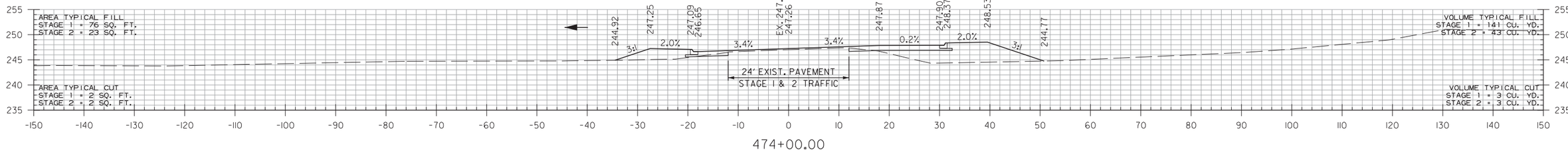
REVISED DATE:

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.		061457	31	37
				(2)	CROSS SECTIONS			

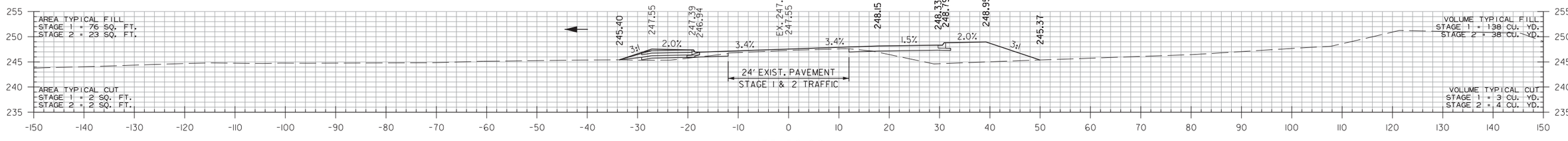
STA. 474+00 BEGIN
-2.14% RT. DT. GR.
ELEV.=244.77



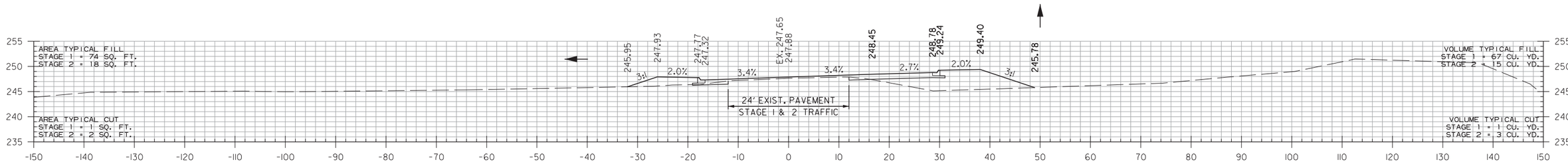
474+00.00

STA. 473+50 CONSTRUCT
DROP INLET ON LT.
WITH 4' EXTENSION
TYPE SPECIAL DROP INLET = 4'x8'
DROP INLET H = 1'-0"

STA. 473+50
TOP ELEV.=247.39

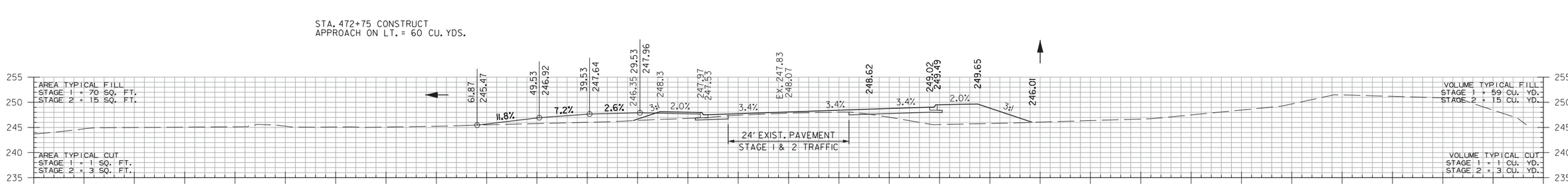


F.L. ELEV.=246.39(NW) 473+50.00



473+00.00

STA. 472+75 CONSTRUCT
APPROACH ON LT. = 60 CU. YDS.



472+75.00

RT. TURN LANE
STA. 472+73.85 BEGIN SUPERELEVATION (0.034 FT./FT.)

STA. 472+75 TO STA. 474+00

SADonaldson 8/16/2020 3:35:30 PM
WORKSPACE: AHTD
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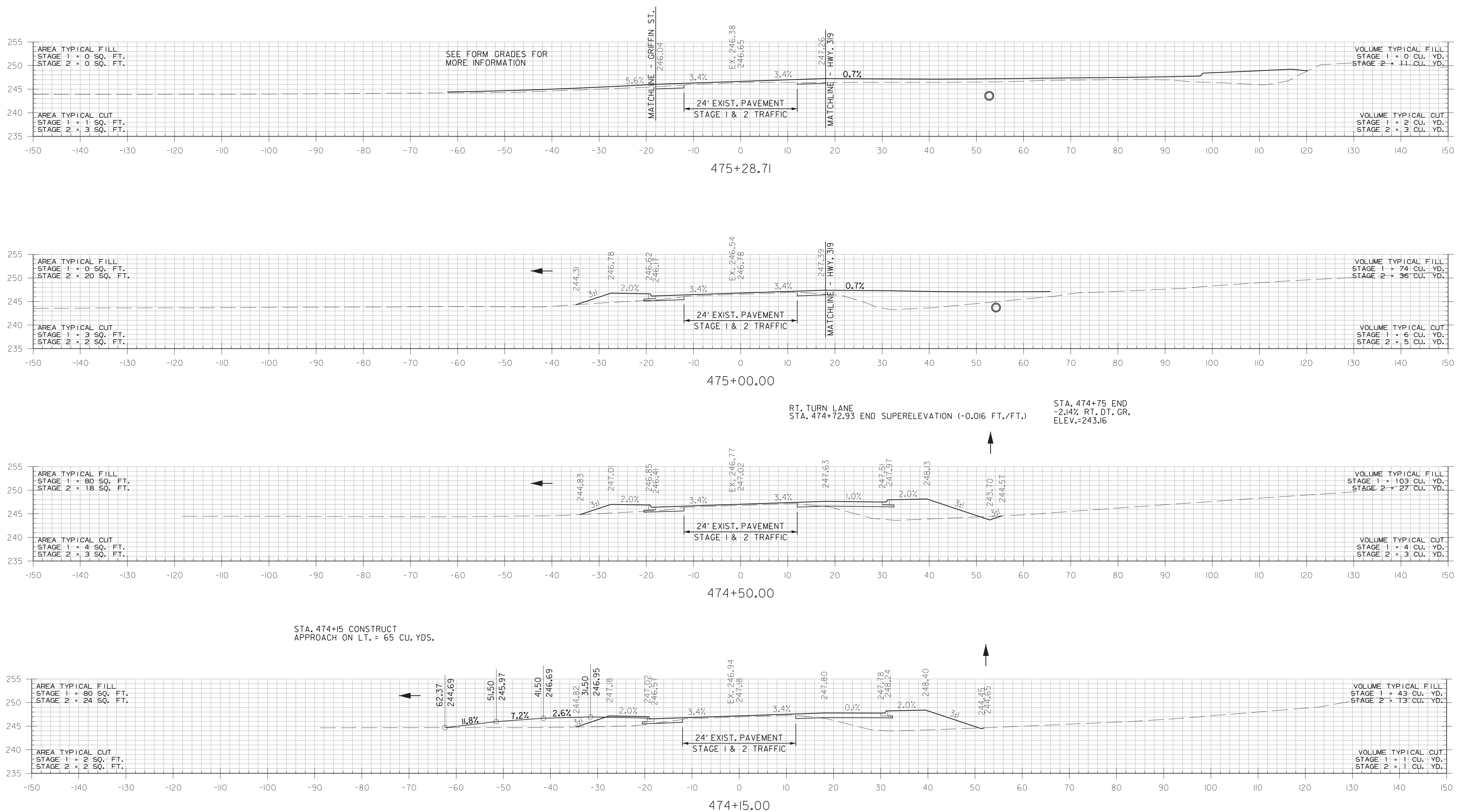
REVISED DATE:

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.		061457	32	37

(2) CROSS SECTIONS



STA. 474+15 TO STA. 475+29

SADonaldson 8/16/2020 3:35:30 PM WORKSPACE: AHTD L:\2017\170\7540 - ARDOT - Ward Traffic Signal\Drawings\r061457_XS_ALL.dgn REVISED DATE:

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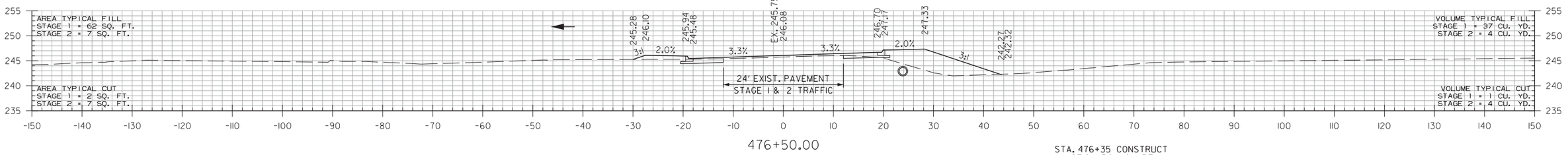
				JOB NO.		061457	33	37
				(2)	CROSS SECTIONS			

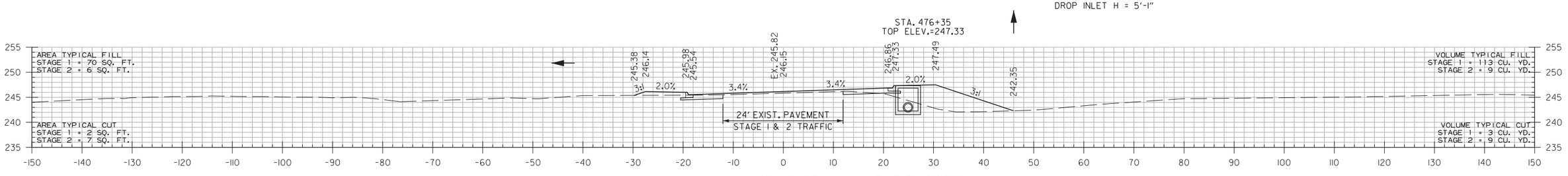


476+50.00

STA. 476+43.80 MAX SUPERELEVATION (0.034 FT./FT.)

STA. 476+35
TOP ELEV.=247.33

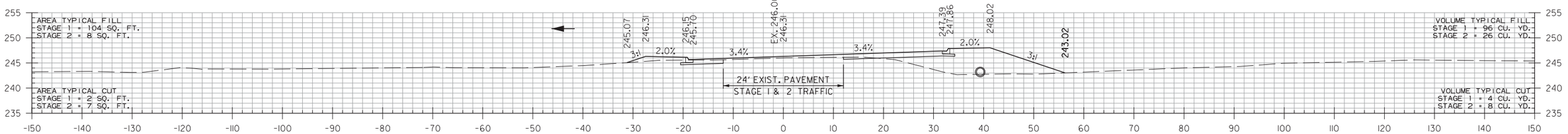
STA. 476+35 CONSTRUCT
JUNCTION BOX ON RT.
WITH 18" x 61' PIPE OUTLET
TO JUNCTION BOX AT STA. 477+00 RT.
TYPE E JUNCTION BOX = 4'x4'
DROP INLET H = 5'-1"



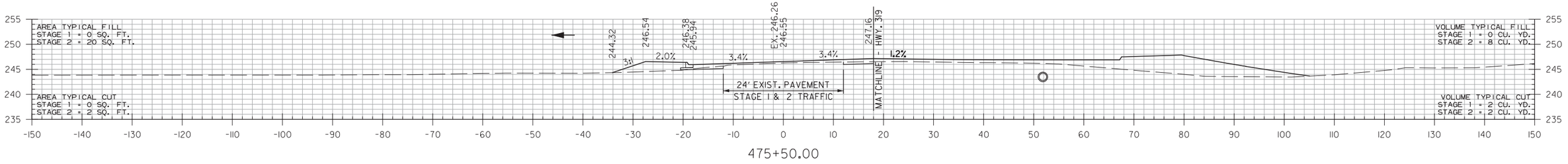
476+35.00

F.L. ELEV.=242.25(N)
F.L. ELEV.=242.25(S)

STA. 476+14.88 BEGIN
-0.54% RT. DT. GR.
ELEV.=242.46



476+00.00



475+50.00

STA. 475+50 TO STA. 476+50

SADonaldson 8/6/2020 3:35:30 PM
WORKSPACE: AHTD
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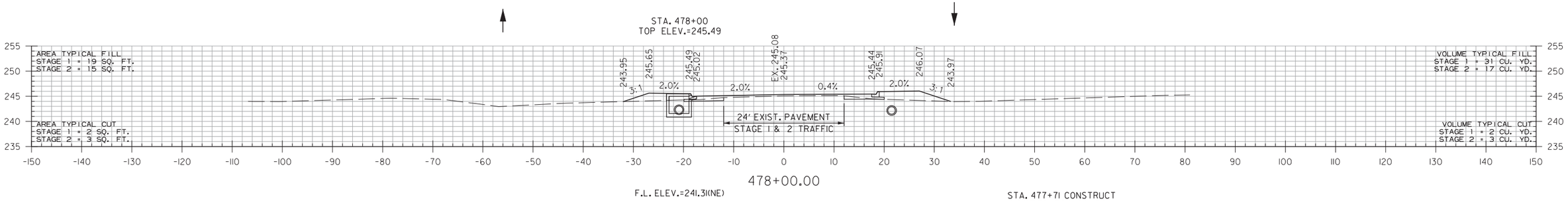
REVISED DATE:

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.		061457	34	37
				(2)	CROSS SECTIONS			

STA. 478+00 CONSTRUCT
DROP INLET ON LT.
WITH 4' EXTENSION
WITH 18" x 81' PIPE OUTLET
TO DROP INLET AT STA. 478+85 LT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4'x4'
DROP INLET H = 4'-2"

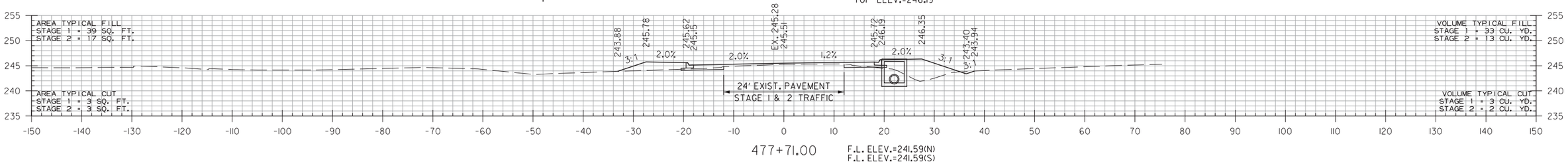
STA. 478+00 END
1.97% RT. DT. GR.
ELEV.=243.97



478+00.00

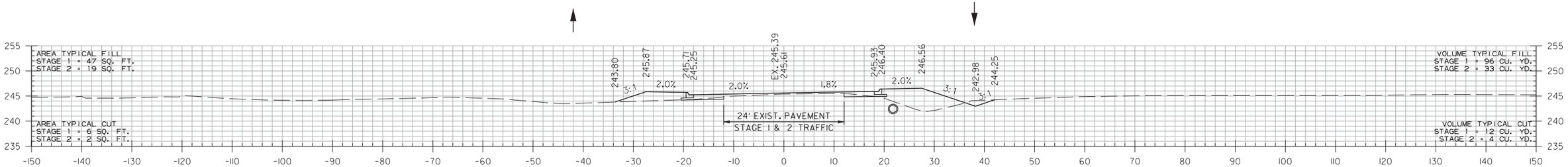
F.L. ELEV.=241.31(NE)

STA. 477+71 CONSTRUCT
JUNCTION BOX ON RT.
WITH 18" x 110' PIPE OUTLET
TO JUNCTION BOX AT STA. 478+85 RT.
TYPE E JUNCTION BOX = 4'x4'
DROP INLET H = 4'-7"



477+71.00

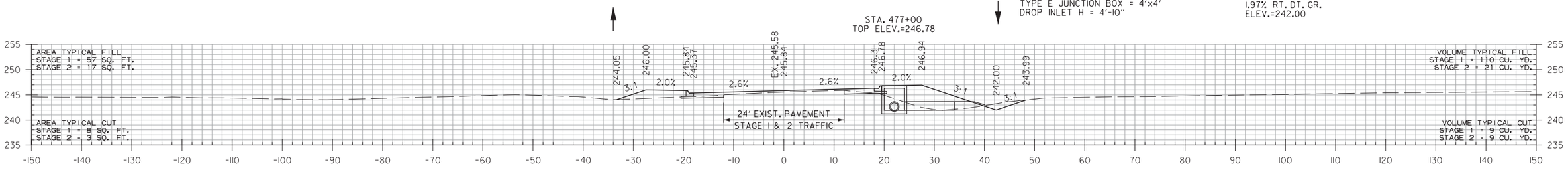
F.L. ELEV.=241.59(N)
F.L. ELEV.=241.59(S)



477+50.00

STA. 477+00 CONSTRUCT
JUNCTION BOX ON RT.
WITH 18" x 10' R.C. PIPE INLET W/F.E.S.
AND 18" x 68' PIPE OUTLET
TO JUNCTION BOX AT STA. 477+71RT.
TYPE E JUNCTION BOX = 4'x4'
DROP INLET H = 4'-10"

STA. 477+00 END
-0.54% RT. DT. GR.
BEGIN
1.97% RT. DT. GR.
ELEV.=242.00



477+00.00

F.L. ELEV.=241.94(N)
F.L. ELEV.=241.94(S)

STA. 477+00 TO STA. 478+00

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REVISED DATE:

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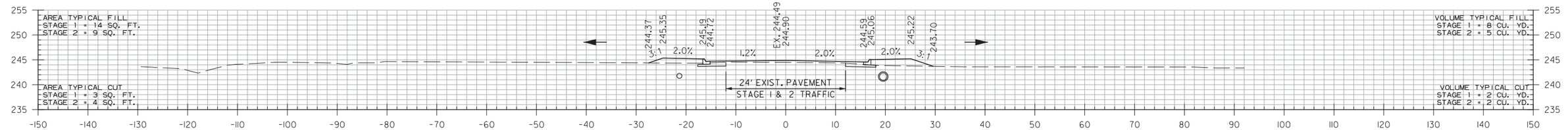
				JOB NO.		061457	35	37
				(2)	CROSS SECTIONS			



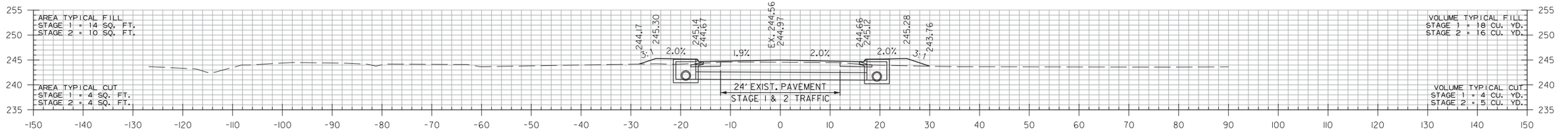
479+00.00

STA. 478+85 CONSTRUCT
DROP INLET ON LT.
WITH 4' EXTENSION LT. & RT.
WITH 18" x 34' R.C. PIPE OUTLET
TO JUNCTION BOX AT STA. 478+85 RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4'x4'
DROP INLET H = 4'-0"

STA. 478+85
TOP ELEV.=245.14

STA. 478+85
TOP ELEV.=245.12

STA. 478+85 CONSTRUCT
DROP INLET ON RT.
AND 18" x 148' PIPE OUTLET
TO DROP INLET AT STA. 480+37 RT.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4'x4'
DROP INLET H = 4'-2"

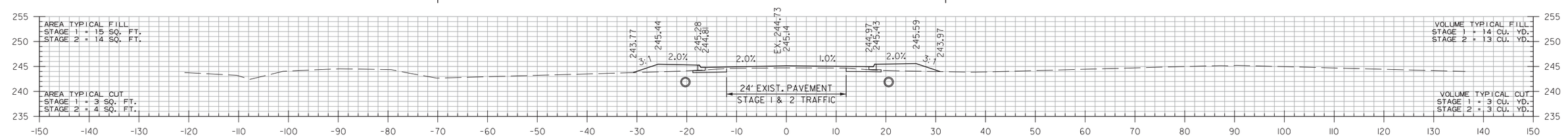


F.L. ELEV.=241.10(W)
F.L. ELEV.=241.10(E)

478+85.00

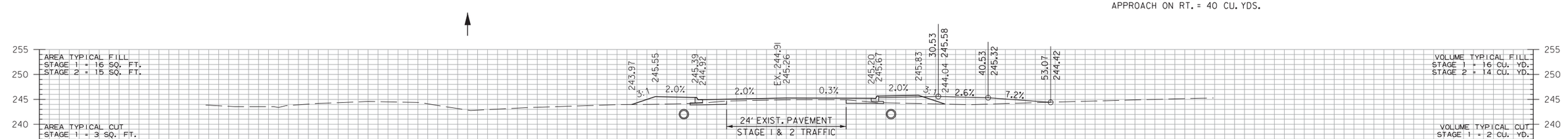
F.L. ELEV.=241.01(N)
F.L. ELEV.=241.01(S)
F.L. ELEV.=241.01(W)

STA. 478+83.80 BEGIN SUPERELEVATION
STA. 478+83.80 END SUPERELEVATION



478+50.00

STA. 478+25 CONSTRUCT
APPROACH ON RT. = 40 CU. YDS.



478+25.00

STA. 478+25 TO STA. 479+00

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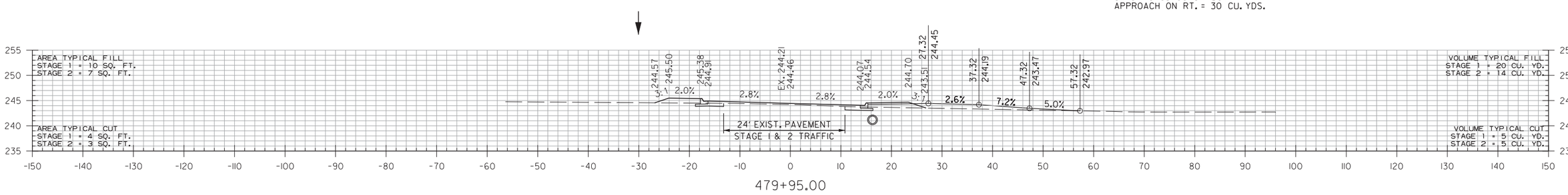
REVISED DATE:

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.		061457	36	37
				(2)	CROSS SECTIONS			

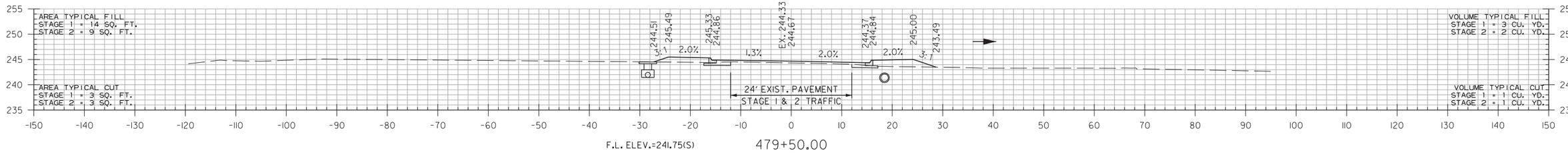
STA. 479+95 CONSTRUCT
APPROACH ON RT. = 30 CU. YDS.



479+95.00

STA. 479+50 CONSTRUCT
YARD DRAIN ON LT.
WITH 12"x62' SIDE DRAIN OUTLET
CONNECT TO DROP INLET
AT STA. 478+85 LT.
12" SIDE DRAIN = 62 LIN. FT.

STA. 479+50
TOP ELEV.=244.51

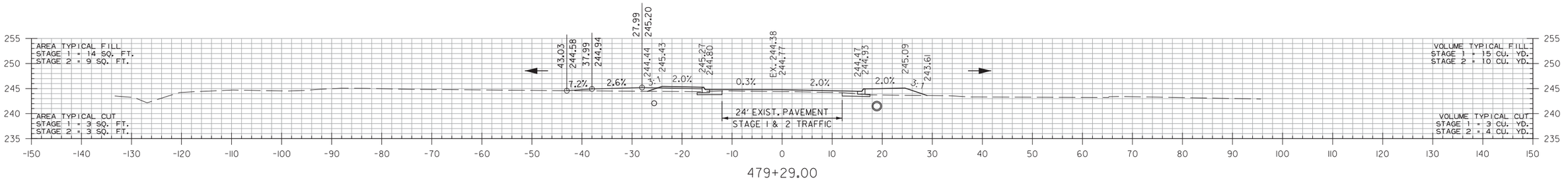


F.L. ELEV.=241.75(S)

479+50.00

479+45.00

STA. 479+29 CONSTRUCT
APPROACH ON LT. = 5 CU. YDS.



479+29.00

STA. 479+29 TO STA. 479+85

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REVISED DATE:

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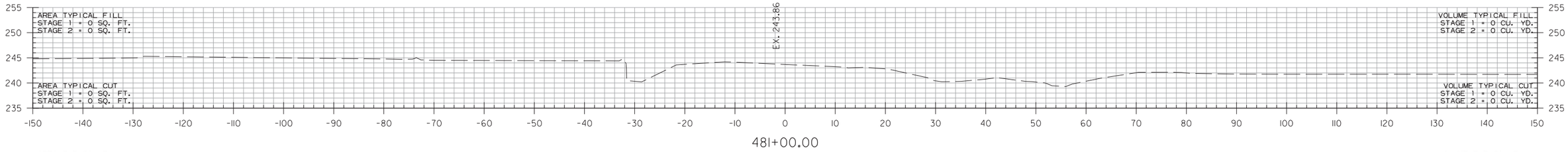
				6	ARK.			
				JOB NO.		061457	37	37
				(2)		CROSS SECTIONS		



481+00.00

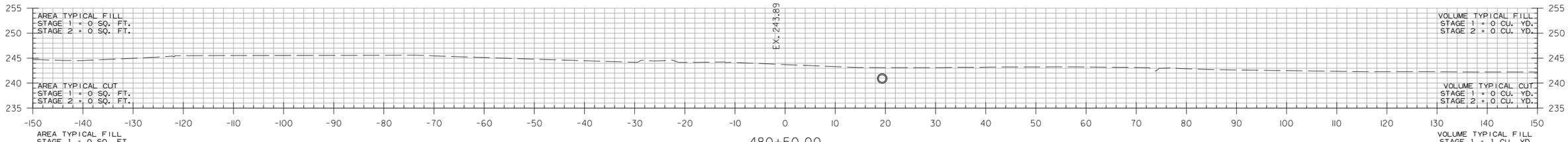
AREA TYPICAL FILL
STAGE 1 = 0 SQ. FT.
STAGE 2 = 0 SQ. FT.

AREA TYPICAL CUT
STAGE 1 = 0 SQ. FT.
STAGE 2 = 0 SQ. FT.

VOLUME TYPICAL FILL
STAGE 1 = 0 CU. YD.
STAGE 2 = 0 CU. YD.

VOLUME TYPICAL CUT
STAGE 1 = 0 CU. YD.
STAGE 2 = 0 CU. YD.

STA. 481+43.83 END 100' TRANSITION



480+50.00

STA. 480+43.83 END JOB 061457, BEGIN 100' TRANSITION

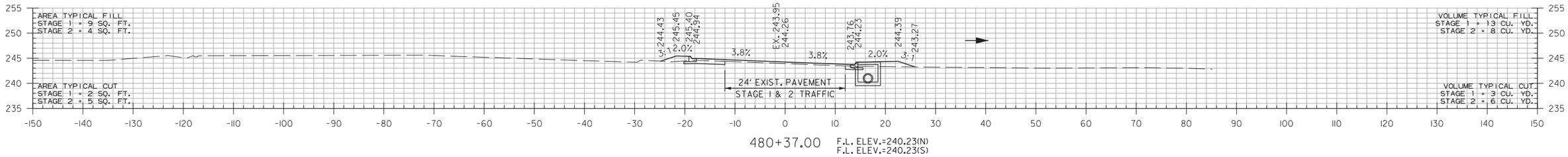
STA. 480+43.83 MATCH EXISTING (0.040 FT./FT.)

STA. 480+37 CONSTRUCT
DROP INLET ON RT.
WITH 4' EXTENSION
WITH 18" x 36' R.C. PIPE OUTLET W/F.E.S.
TYPE MO DROP INLET = 4' DIA.
TYPE C DROP INLET = 4'x4'
DROP INLET H = 4'-0"

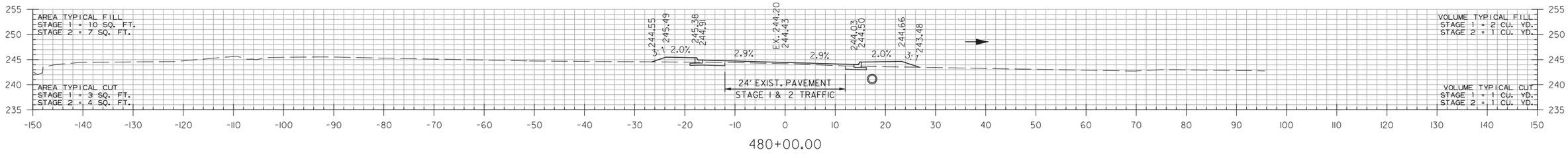
VOLUME TYPICAL FILL
STAGE 1 = 1 CU. YD.
STAGE 2 = 1 CU. YD.

VOLUME TYPICAL CUT
STAGE 1 = 0 CU. YD.
STAGE 2 = 1 CU. YD.

STA. 480+37
TOP ELEV.=244.23



480+37.00 F.L. ELEV.=240.23(N)
F.L. ELEV.=240.23(S)



480+00.00

STA. 480+00 TO STA. 481+00

SADonaldson 8/6/2020 3:35:31 PM
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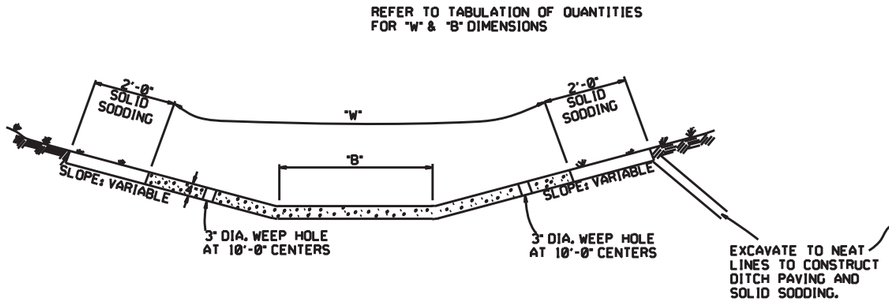
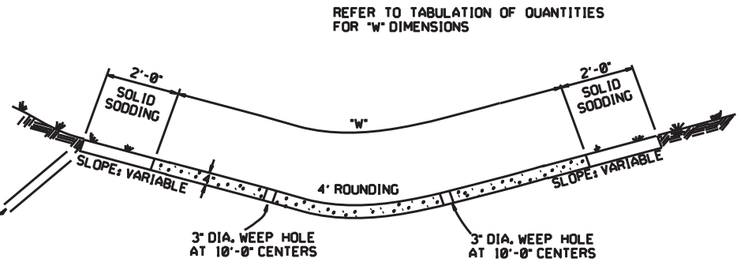
REVISED DATE:

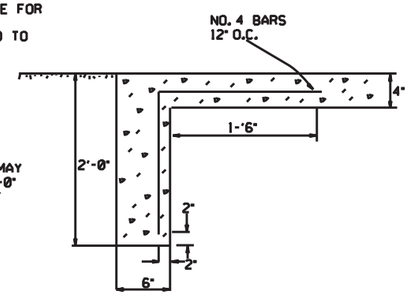


TYPE A



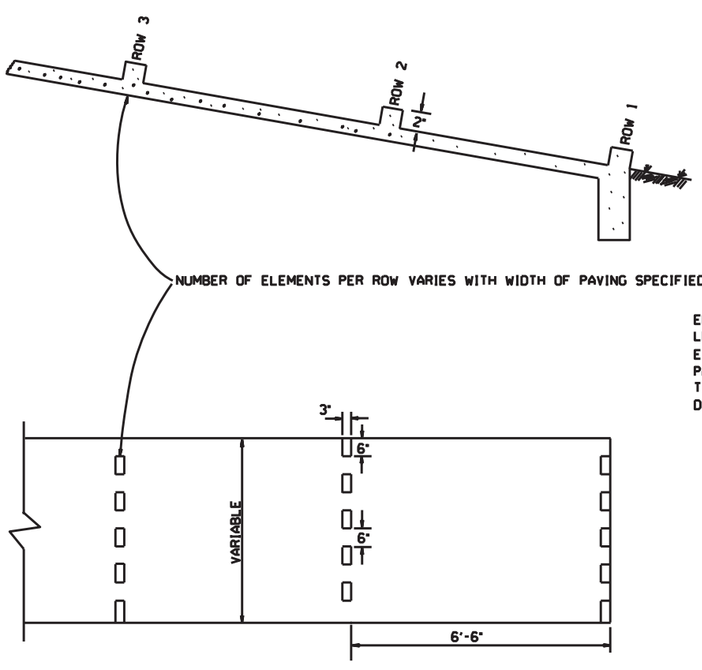
TYPE B

THE STEEL AND ADDITIONAL CONCRETE FOR THE WALLS SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR "CONCRETE DITCH PAVING."



TOE WALL DEPTH MAY BE ALTERED TO 1'-0" WHEN DIRECTED BY THE ENGINEER IN ROCK EXCAVATION

TOE WALL DETAIL FOR CONCRETE DITCH PAVING



ENERGY DISSIPATORS
(NO SCALE)

ENERGY DISSIPATORS TO BE USED FOR THE ENTIRE LENGTH OF DITCH WHEN SLOPE OF DITCH PAVING EXCEEDS 7%. THE DISSIPATORS WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR CONCRETE DITCH PAVING.

GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.

TOE WALLS TO BE CONSTRUCTED FULL WIDTH AT EACH END OF DITCH PAVING, AND POURED MONOLITHICALLY.

SOLID SOD ALONG DITCH PAVING TO BE PLACED WITHIN 14 DAYS OF DITCH PAVING CONSTRUCTION.

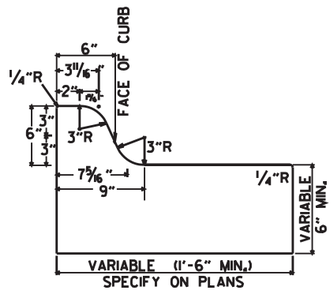
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45° INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

DATE	REVISION	DATE FILM'D
12-8-16	CORRECTED ENERGY DISSIPATOR DRAWING AND NOTE	
11-17-10	ADDED GENERAL NOTE	
6-2-94	ADDED GENERAL NOTE ABOUT SOLID SODDING	
11-30-8	ELIMINATED MIN. ROWS OF ELEMENTS	111-30-89
7-15-88	REVISED DISSIPATOR NOTE	653-7-15-88
4-3-87	REVISED ENERGY DISSIPATOR	671-4-3-87
1-9-87	MODIFIED NOTE ON ENERGY DISS.	532-1-9-87
11-3-86	ADDED NOTE TO ENERGY DISS.	599-12-1-86
11-1-84	ENERGY DISSIPATOR DETAILS ADDED	508-11-1-84
11-1-84	EXCAVATION DETAILS ADDED TYPED A & B	
10-2-72	REVISED AND REDRAWN	508-10-2-72

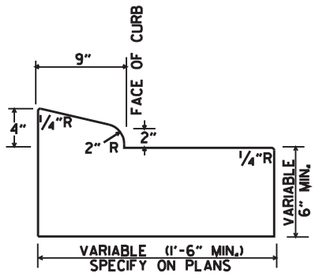
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

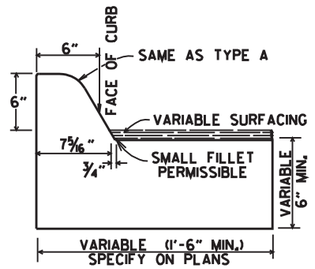
STANDARD DRAWING CDP-1



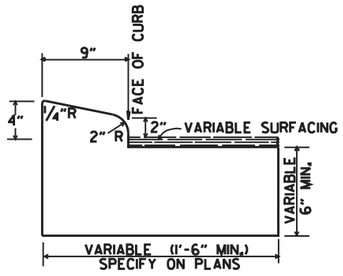
TYPE A



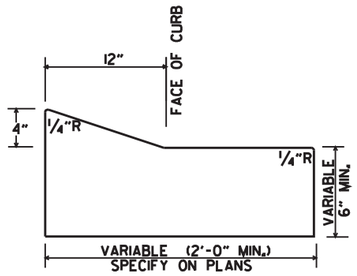
TYPE B-1



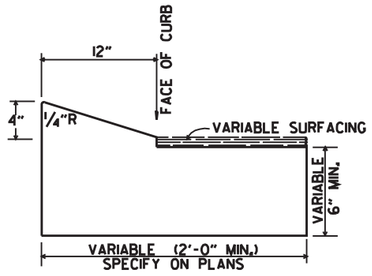
TYPE C



TYPE B-2

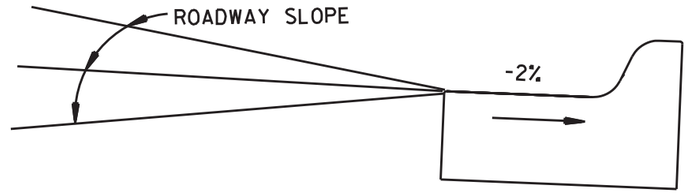


TYPE E-1



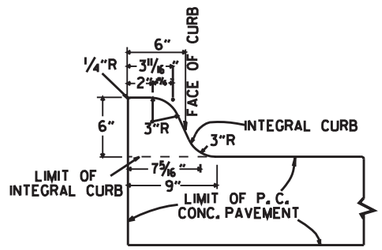
TYPE E-2

CONCRETE COMBINATION CURB AND GUTTER

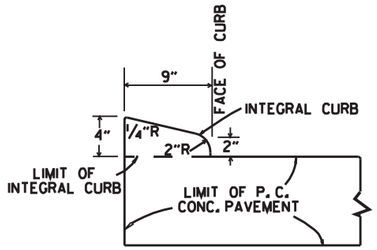


DETAIL OF GUTTER SLOPE

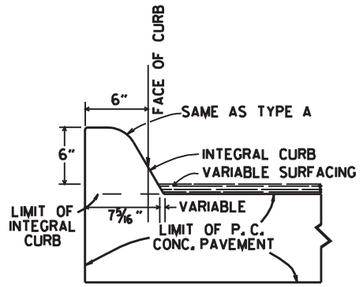
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



TYPE A

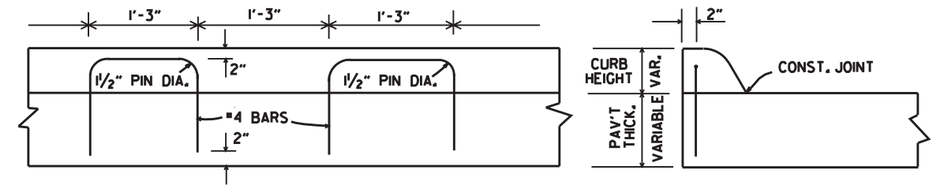


TYPE B

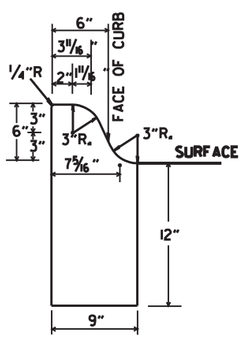


TYPE C

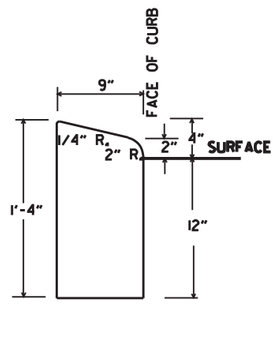
INTEGRAL CURB



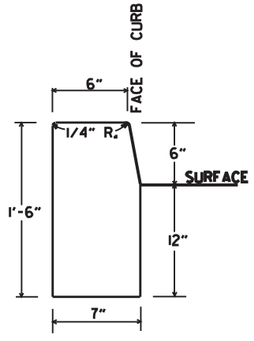
ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



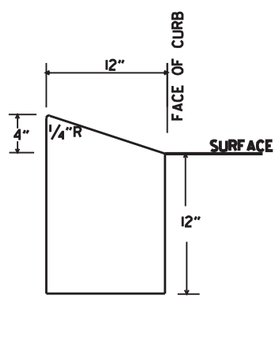
TYPE A



TYPE B

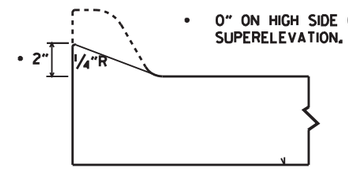


TYPE D



TYPE E

CONCRETE CURB



NOTE: USE MODIFIED CURB AS SPECIFIED ON STD. DR-1. COMPENSATION FOR MODIFIED CURB WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE TYPE OF CURB OR CURB AND GUTTER SPECIFIED.

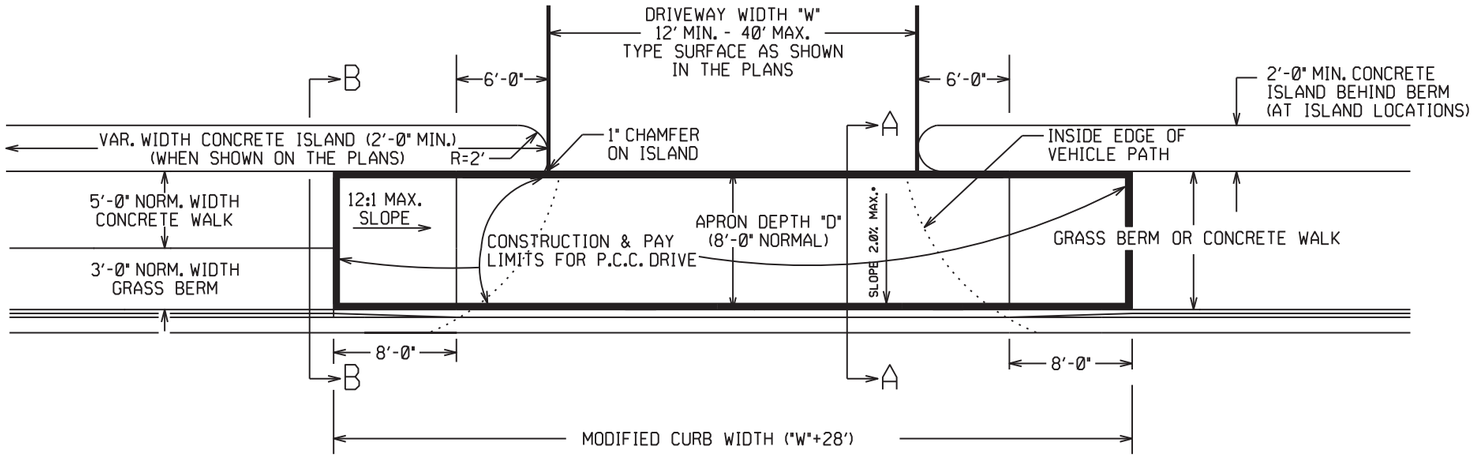
DETAILS OF MODIFIED CURB

DATE	REVISION	DATE FILMED
11-29-07	REVISED GUTTER SLOPE & MODIFIED CURB DETAILS	
11-10-05	ADDED DETAILS OF TYPE E CURBS	
11-16-01	REVISED CONCRETE CURB TYPE B	
11-18-98	REVISED MODIFIED CURB	
6-2-94	ADDED NOTE TO SPECIAL MODIFIED CURB	
8-5-93	CORRECTED GUTTER SLOPE	8-5-93
10-1-92	ADDED DETAILS OF GUTTER SLOPE	10-1-92
5-24-90	ADDED DETAILS OF MODIFIED CURB	5-24-90
11-30-89	VARIBLE DEPTH TYPE A & B I	11-30-89
7-15-88	REVISED MODIFIED CURB	630-7-15-88
11-1-73	REVISED MODIFIED CURB	500-11-1-73
10-2-72	REVISED AND REDRAWN	512-10-2-72

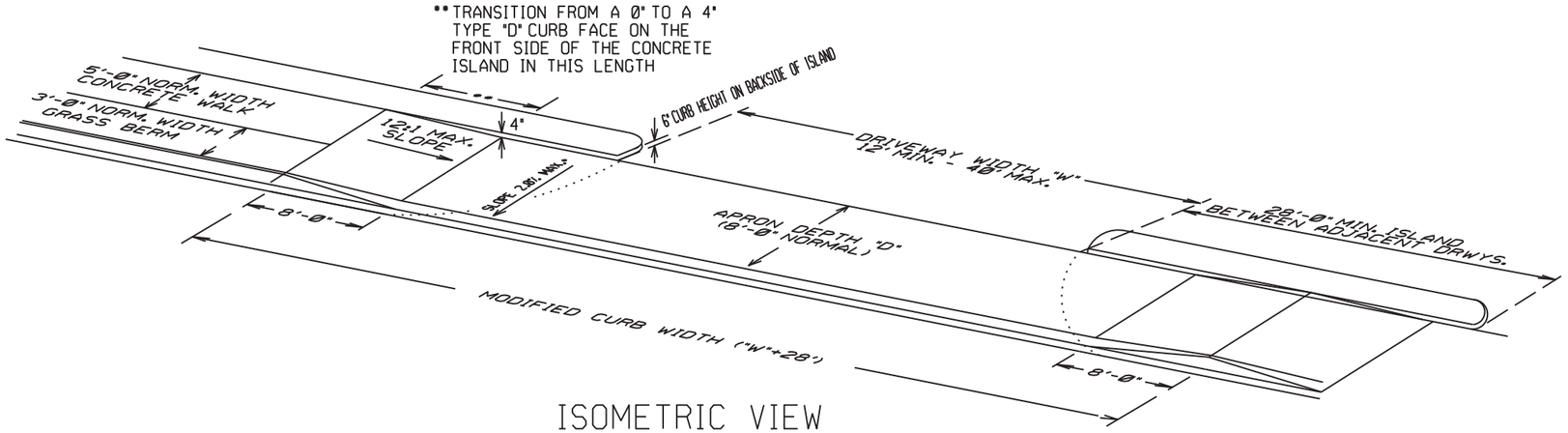
ARKANSAS STATE HIGHWAY COMMISSION

CURBING DETAILS

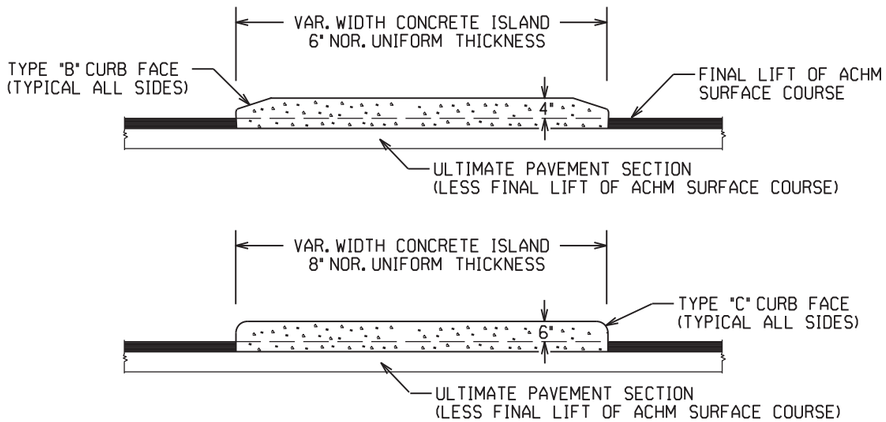
STANDARD DRAWING CG-1



PLAN VIEW

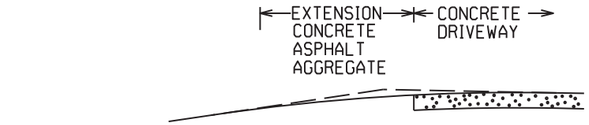


ISOMETRIC VIEW



CURBED ISLANDS FOR CHANNELIZATION

REFER TO PLANS FOR TYPE OF CURB FACE TO BE USED. NO DIRECT PAYMENT WILL BE MADE FOR THE CURB FACES SHOWN ON THE ISLAND DETAILS. PAYMENT FOR THE CURB FACE WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE ITEM "CONCRETE ISLAND".



EXTENSION TYPICAL SECTIONS

1: CONCRETE - 6" P.C. CONCRETE DRIVEWAY

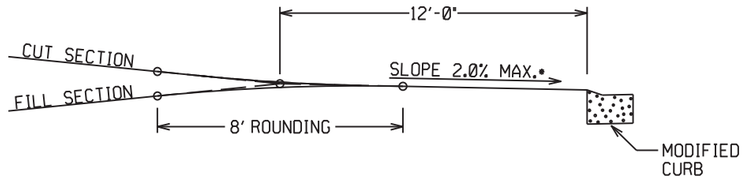
2: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
4" ACHM BINDER COURSE (1") OR
4" ACHM BASE COURSE (1-1/2")

3: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
7" AGGREGATE BASE COURSE

4: AGGREGATE - 6" AGGREGATE BASE COURSE

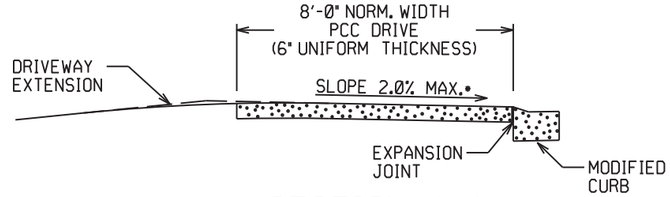
THE TYPE OF EXTENSION SHALL BE AS SHOWN IN THE PLANS. THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER, SUBSTITUTE A LOWER NUMBERED TYPE OF EXTENSION IN LIEU OF THE TYPE SPECIFIED IN THE PLANS, BUT AT NO ADDITIONAL COST TO THE DEPARTMENT.

DRIVEWAY EXTENSION DETAILS

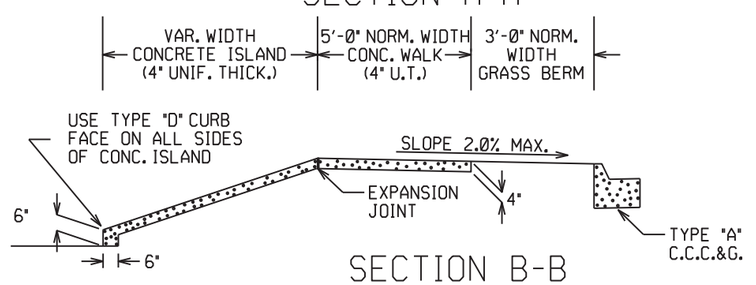


DRIVEWAY VERTICAL ALIGNMENT DETAILS

- NOTE: DRIVEWAYS MAY NOT BE SLOPED AWAY FROM THE ROADWAY UNLESS APPROVED BY THE ENGINEER.



SECTION A-A



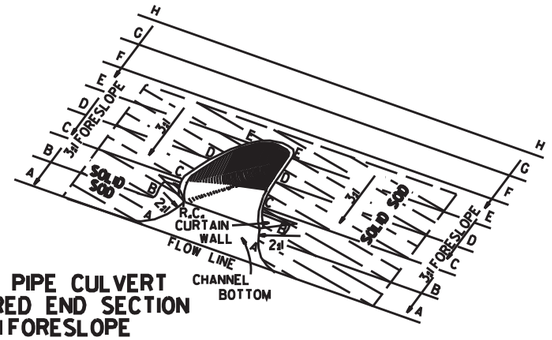
SECTION B-B
CURBED ISLAND BEHIND WALK

DATE REV	DATE FILMED	DESCRIPTION
11-07-19		REVISED WALK DETAILS
2-27-14		REVISED PLAN & ISOMETRIC VIEW
11-29-07		ADDED CHANNELIZATION ISLAND WITH TYPE C CURB FACE & REVISED DRIVEWAY SLOPE NOTE & VERTICAL ALIGNMENT DETAIL
11-10-05		REV. APRON SLOPE & DEPTH OF AGG. BASE.
8-22-02		ADDED ISLAND DETAILS & NOTES
3-30-00		REV. MOD. CURB WIDTH & TRANS. NOTE
11-19-98		REVISED NOTES
11-18-98		REDRAWN AND REISSUED

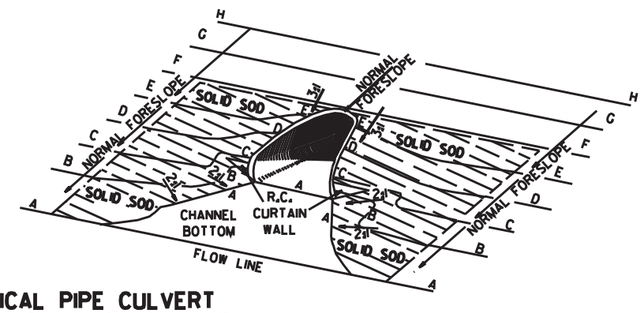
ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DRIVEWAYS & ISLANDS

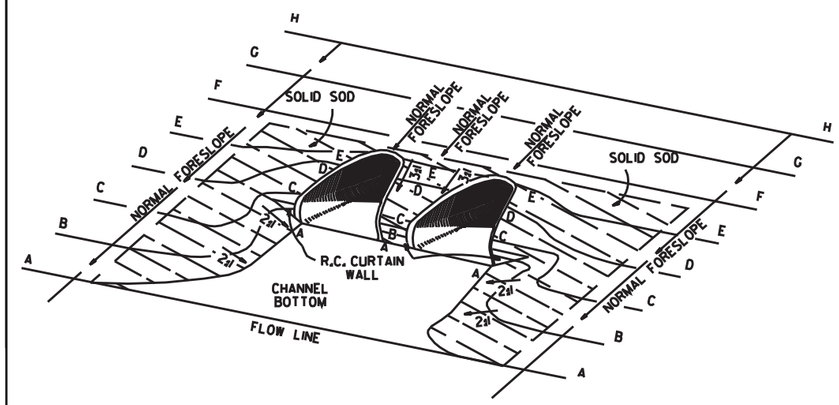
STANDARD DRAWING DR-1



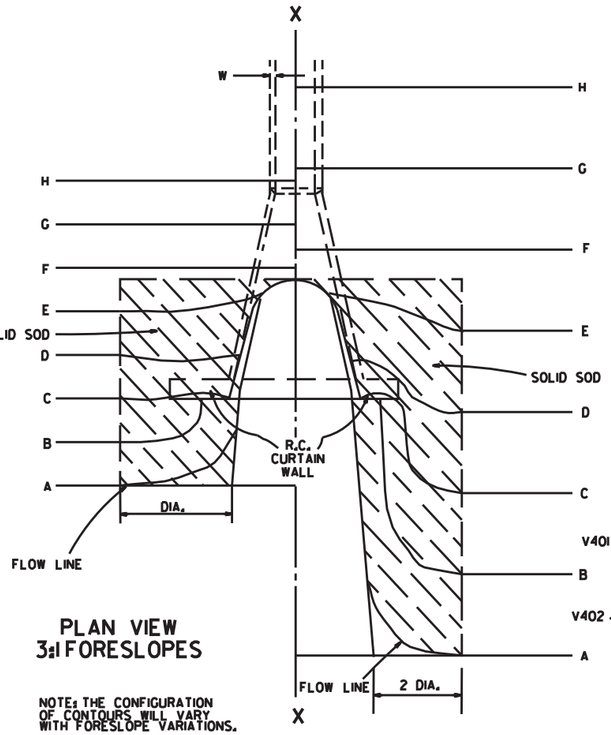
TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



TYPICAL MULTIPLE PIPE CULVERT
WITH FLARED END SECTIONS
& FLATTENED ADJACENT SLOPES



PLAN VIEW
3:1 FORESLOPES

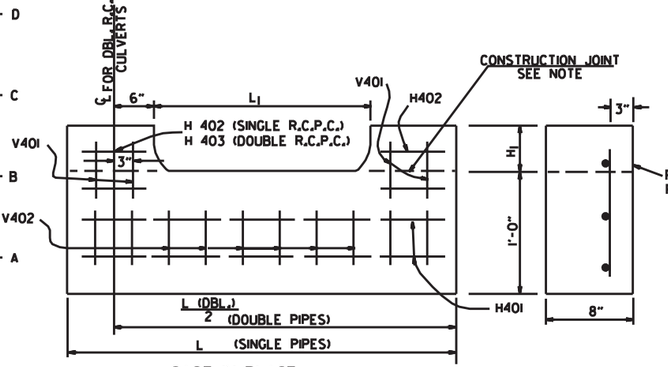
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES

R.C. CURTAIN WALL
DIMENSIONS & QUANTITIES

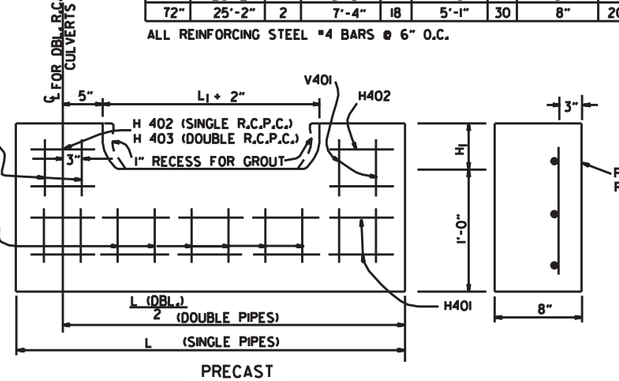
PIPE DIA.	H_1	L_1	L	L (DBL.)/2	SINGLE R.C.P.C.		DOUBLE R.C.P.C.	
					CONC.	REINF. STEEL	CONC.	REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67	59.0
36"	1'-7"	6'-8"	13'-0"	10'-6"	0.58	52.6	0.83	73.9
42"	2'-1½"	7'-3"	15'-6"	12'-0"	0.82	77.1	1.10	100.7
48"	2'-5"	7'-10"	17'-0"	13'-0"	0.98	94.9	1.27	120.4
54"	2'-9½"	8'-5"	18'-6"	14'-0"	1.16	115.8	1.47	143.7
60"	3'-4"	9'-0"	20'-6"	15'-6"	1.47	149.7	1.84	180.3
72"	4'-5"	10'-2"	25'-6"	18'-6"	2.31	232.6	2.73	271.0

NOTE: QUANTITIES SHOWN ARE FOR ONE (1) CURTAIN WALL.



CAST-IN-PLACE

NOTE: THE PORTION OF THE R.C. CURTAIN WALL BENEATH THE FLARED END SECTION (LOWER 1'-0") SHALL BE PLACED MONOLITHICALLY. THE FLARED END SECTION SHALL THEN BE SET IN PLACE & THE REMAINING PORTIONS OF THE R.C. CURTAIN WALL PLACED.



PRECAST

NOTE: THE PRECAST CURTAIN WALL WILL BE SET AND BACKFILLED WITH COMPACTED MATERIAL. THE FLARED END SECTION SHALL THEN BE SET IN PLACE AND THE 1" RECESS FILLED WITH GROUT. WHERE "L" EXCEEDS 11' THE CURTAIN WALL MAY BE CAST IN TWO (2) OR MORE SECTIONS. THE METHOD OF JOINING THE SECTIONS FOR INSTALLATION SHALL BE APPROVED BY THE ENGINEER.

R.C. CURTAIN WALL DETAILS

REINFORCING STEEL SCHEDULE

PIPE DIA.	SINGLE R.C. PIPE CULVERT								DOUBLE R.C. PIPE CULVERT									
	H401		H402		V401		V402		H401		H402		H403		V401		V402	
	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.
18"	7'-8"	2	1'-11½"	4	1'-7½"	8	8"	8	12'-2"	2	1'-11½"	4	8"	2	1'-7½"	10	8"	14
24"	9'-2"	2	2'-2"	4	1'-8½"	10	8"	9	14'-8"	2	2'-2"	4	8"	2	1'-8½"	12	8"	18
30"	10'-8"	2	2'-4½"	4	1'-11½"	10	8"	12	17'-8"	2	2'-4½"	4	8"	2	1'-11½"	14	8"	22
36"	12'-8"	2	2'-10"	6	2'-3"	12	8"	14	20'-8"	2	2'-10"	6	8"	3	2'-3"	14	8"	28
42"	15'-2"	2	3'-9½"	8	2'-9½"	16	8"	15	23'-8"	2	3'-9½"	8	8"	4	2'-9½"	18	8"	30
48"	16'-8"	2	4'-3"	10	3'-1"	18	8"	16	25'-8"	2	4'-3"	10	8"	5	3'-1"	20	8"	32
54"	18'-2"	2	4'-8½"	12	3'-5½"	20	8"	17	27'-8"	2	4'-9"	12	8"	6	3'-5½"	22	8"	34
60"	20'-2"	2	5'-5"	14	4'-0"	24	8"	18	30'-8"	2	5'-5"	14	8"	7	4'-0"	26	8"	36
72"	25'-2"	2	7'-4"	18	5'-1"	30	8"	20	36'-8"	2	7'-4"	18	8"	9	5'-1"	33	8"	40

ALL REINFORCING STEEL #4 BARS @ 6" O.C.

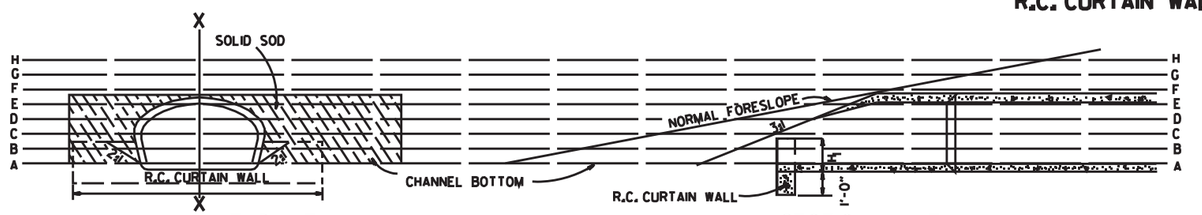
SOLID SODDING

PIPE DIA.	SINGLE R.C.P.C.			DOUBLE R.C.P.C.		
	3:1	4:1	6:1	3:1	4:1	6:1
	SQ. YDS.			SQ. YDS.		
18"	5	7	12	6	8	13
24"	8	12	19	9	13	20
30"	13	18	29	14	19	30
36"	17	26	41	18	28	43
42"	23	35	55	25	37	57
48"	29	46	68	31	48	70
54"	35	57	85	37	59	87
60"	45	62	104	48	65	107
72"	64	92	156	67	95	159

NOTE: QUANTITIES SHOWN ABOVE ARE FOR ONE (1) END OF F.E.S.

GENERAL NOTES

1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE; FOR FORMS, MIXING AND PLACING; FOR EXCAVATION AND BACKFILL, AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED ¾".
3. CONCRETE FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR CLASS A OR S CONCRETE AS PROVIDED IN SECTION 802 OF THE STANDARD SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
4. WELDED WIRE MESH 3 x 3 W10 x W10 MAY BE USED IN LIEU OF REINFORCING BARS.



END VIEW

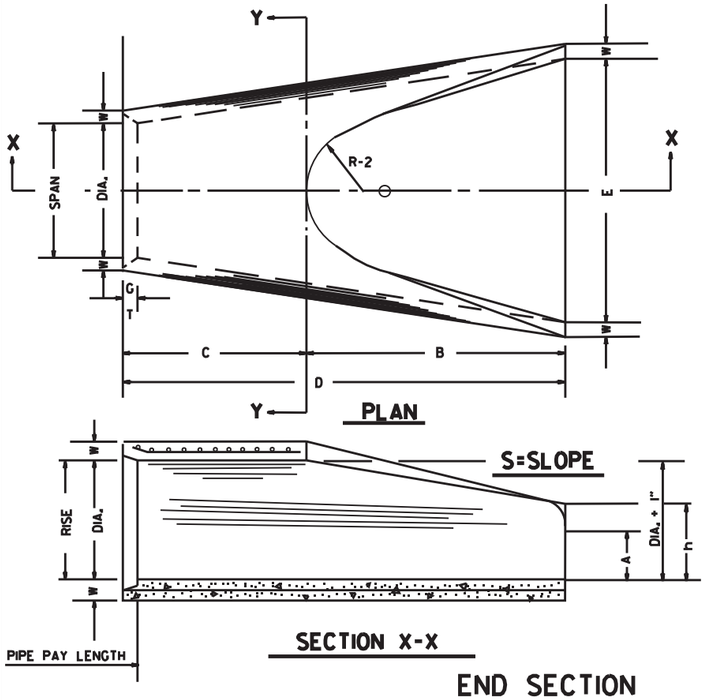
SECTIONAL VIEW "X-X"

DATE	REVISION	FILMED
10-18-96	ADDED NOTE TO SOLID SODDING	
10-12-95	CORRECTED SPELLING	
11- 3-94	ADDED GENERAL NOTE NO. 4	
8-15-91	REV. CURTAIN WALL QUANT. STEEL SCH. & SOLID SOD QUANT.	
3-2-81	ALLOW PRECAST IN 2 OR MORE PIECES CHAMFER EDGES	
5-15-80	ADDED PRECAST WALL & GENERAL NOTES	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

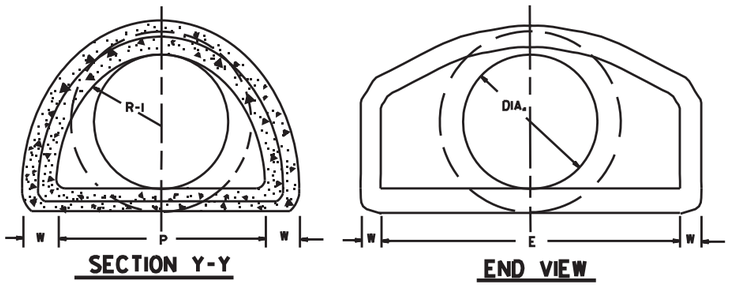
STANDARD DRAWING FES-1



END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS

TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. + 1"	P	R-1	R-2	G-T	WT.	h
18"	2½"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3st	19"	29"	15½"	12"	2"	1000	1'-0½"
24"	3"	9½"	3'-7½"	2'-6"	6'-1½"	4'-0"	3st	25"	33 3/16"	16 11/16"	14"	2½"	1600	1'-1½"
30"	3½"	1'-0"	4'-6"	1'-7¾"	6'-1¾"	5'-0"	3st	31"	37"	18½"	15"	3¼"	1940	1'-4 5/8"
36"	4"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	6'-0"	3st	37"	47 11/16"	24 5/16"	20"	3½"	4100	1'-8"
42"	4½"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3st	43"	53 7/8"	27½"	22"	3½"	5380	2'-2½"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3st	49"	56½"	28½"	22"	3½"	6550	2'-6"
54"	5½"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3st	55"	65½"	33 1/8"	24"	4"	8750	2'-10½"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3st	61"	72½"	36 11/16"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3st	73"	77 11/16"	38 5/16"	24"	5"	13250	4'-6"

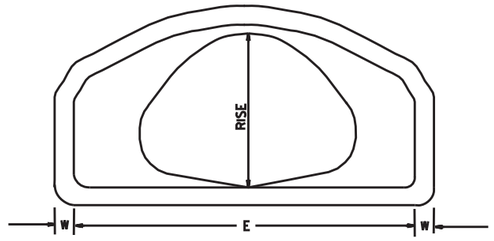


NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

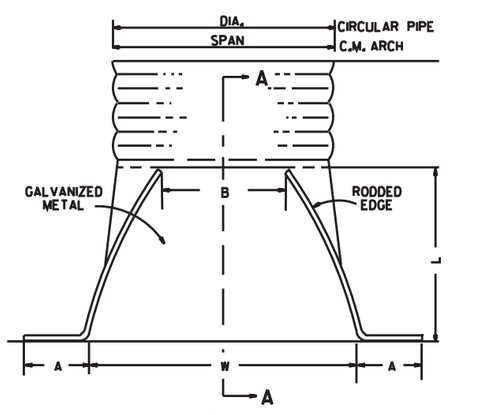
ARCH PIPE

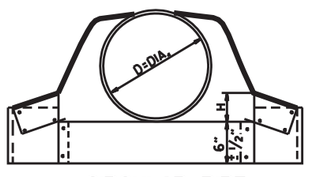
EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½st
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32 1/8"	13"	2½"	2½st
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34 1/8"	14"	2½"	2½st
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36 5/16"	15"	2½"	2½st
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47 11/16"	20"	3"	2½st
36	43¾	44	26⅝	27	4"	10½"	4'-0"	2'-1½"	6'-1½"	6'-6"	54 7/16"	22"	3½"	2½st
42	51⅛	51	31⅝	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½st
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70 3/8"	24"	4¼"	2½st
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72 1/16"	24"	4¾"	2¼st
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 11/16"	24"	5"	2¼st

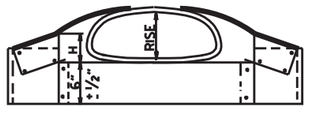
• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.



END VIEW
CONCRETE ARCH PIPE







CIRCULAR PIPE

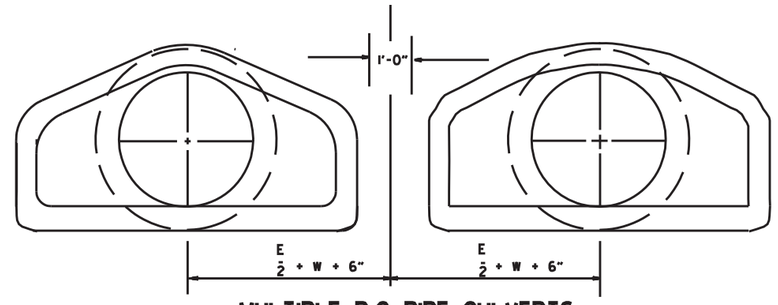
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½st
15	16	7	8	6	26	30	2½st
18	16	8	10	6	31	36	2½st
21	16	9	12	6	36	42	2½st
24	16	10	13	6	41	48	2½st
30	14	12	16	8	51	60	2½st
36	14	14	19	9	60	72	2½st
42	12	16	22	11	69	84	2½st
48	12	18	27	12	78	90	2½st
54	12	18	30	12	84	102	2st
60	12	18	33	12	87	114	1 3/4st
66	12	18	36	12	87	120	1½st
72	12	18	39	12	87	126	1 1/3st

C.M. ARCH PIPE

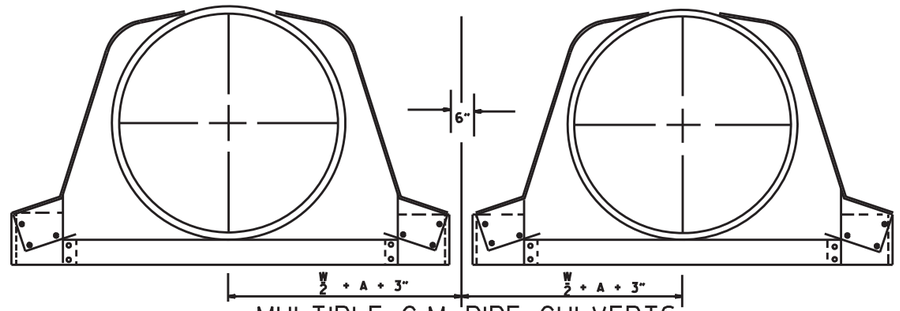
EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½st	16
18"	21	15	7	10	6	23	36	2½st	16
21"	24	18	8	12	6	28	42	2½st	16
24"	28	20	9	14	6	32	48	2½st	16
30"	35	24	10	16	6	39	60	2½st	14
36"	42	29	12	18	8	46	75	2½st	14
42"	49	33	13	21	9	53	85	2½st	12
48"	57	38	18	26	12	63	90	2½st	12
54"	64	43	18	30	12	70	102	2½st	12
60"	71	47	18	33	12	77	114	2½st	12

NOTE: ALTERNATE CONNECTIONS TO THE PIPE CULVERTS, IN ACCORDANCE WITH MANUFACTURER'S STANDARD PRACTICES, MAY BE MADE SUBJECT TO THE APPROVAL OF THE ENGINEER.

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



MULTIPLE R.C. PIPE CULVERTS



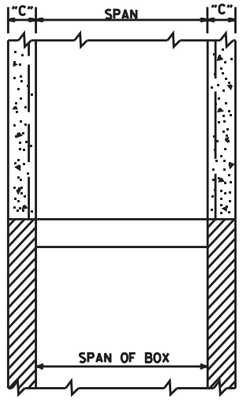
MULTIPLE C.M. PIPE CULVERTS

DATE	REVISION	FILMED
10-18-96	REVISED ASTM REF. TO AASHTO	
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74
5-24-73	CMP END SECTION, SHOW PIPE PAY LENGTH	627-5-24-73
10-2-72	REVISED AND REDRAWN	760-10-2-72

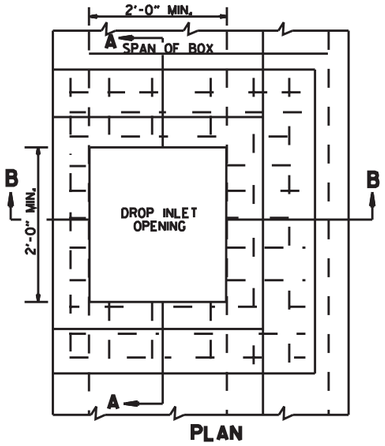
ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

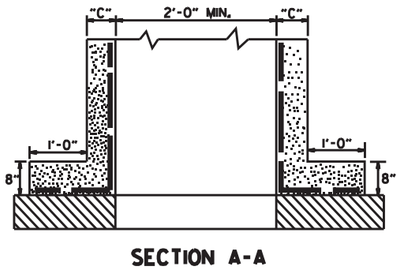
STANDARD DRAWING FES-2



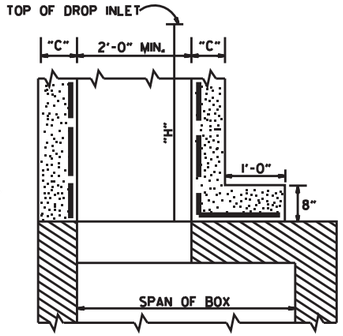
SECTION B-B



PLAN

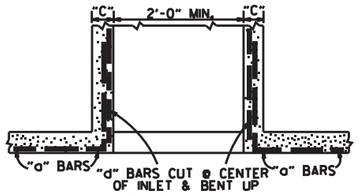


SECTION A-A

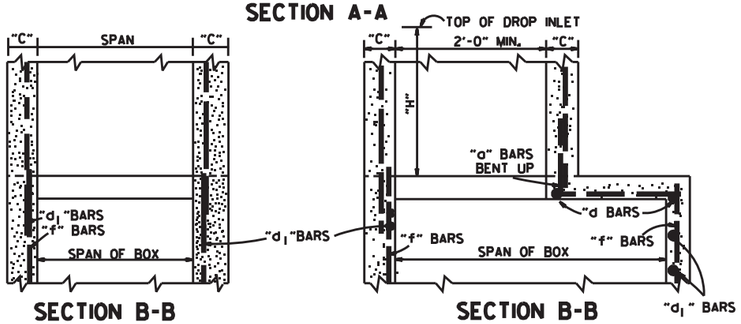


SECTION B-B

METHOD OF CONSTRUCTING DROP INLET ON EXISTING R.C. BOX CULVERT



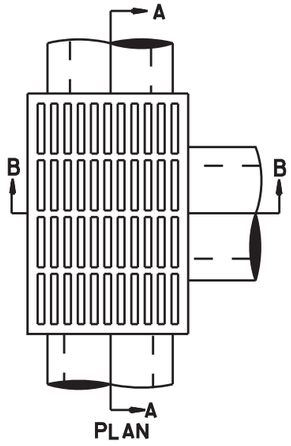
SECTION A-A



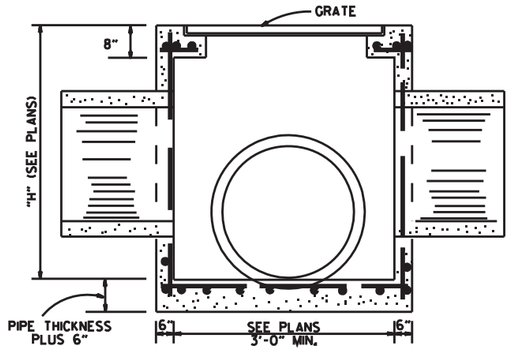
SECTION B-B SECTION B-B

METHOD OF CONSTRUCTING DROP INLET ON NEW R.C. BOX CULVERT

NOTE: "C" DIMENSIONS AND REINFORCING BAR SIZES, SHALL CONFORM TO THOSE SHOWN ON STANDARD DRAWING FOR DROP INLET.

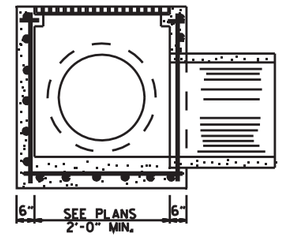


PLAN



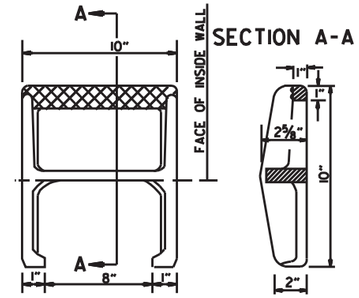
SECTION A-A

NOTE: REINF. BARS TO BE #4 BARS ON 6" CTRS. WITH 1½" MIN. COVER. THIS TYPE DROP INLET TO BE USED WHERE NOT SUBJECTED TO TRAFFIC.



SECTION B-B

DROP INLET (TYPE E)

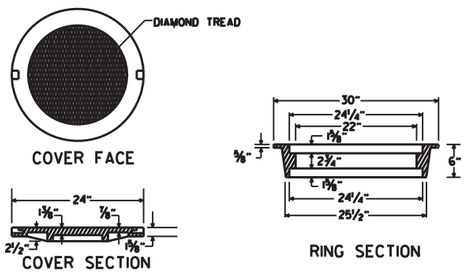


APPROX. WEIGHT = 11 LBS. (CAST IRON)

PLAN

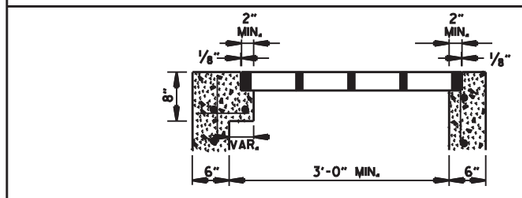
NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

DETAIL OF STEP FOR DROP INLET

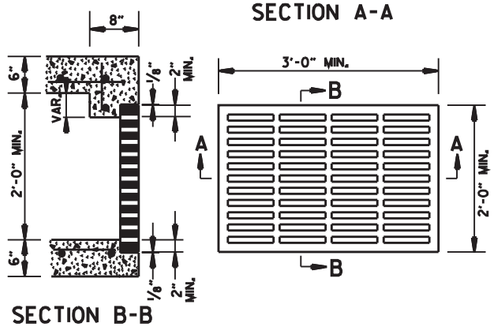


APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER



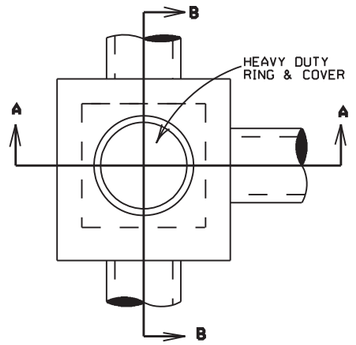
SECTION A-A



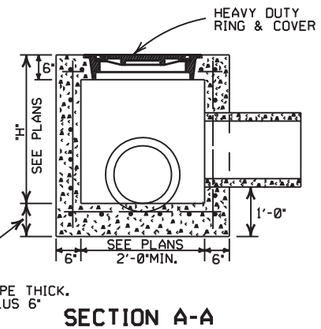
SECTION B-B

APPROXIMATE MINIMUM WATERWAY OPENING = 260 SQ. IN.

GRATE FOR TYPE E DROP INLET

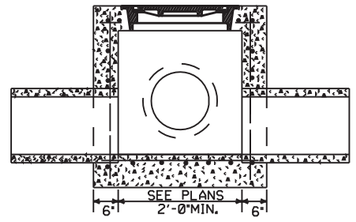


PLAN



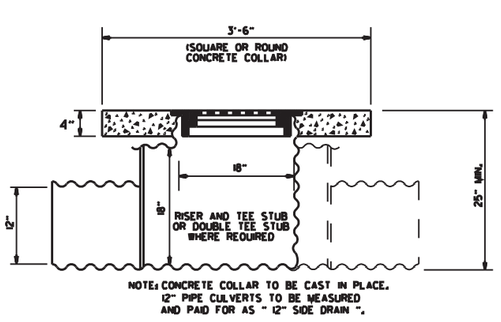
SECTION A-A

NOTE: REINF. BARS TO BE #4 BARS ON 6" CTRS. WITH 1½" MIN. COVER. THIS TYPE JUNCTION BOX TO BE USED WHERE NOT SUBJECTED TO TRAFFIC.

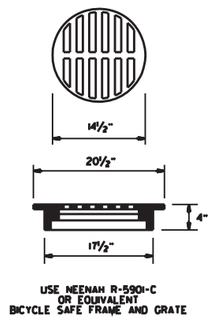


SECTION B-B

JUNCTION BOX (TYPE E)



NOTE: CONCRETE COLLAR TO BE CAST IN PLACE. 12" PIPE CULVERTS TO BE MEASURED AND PAID FOR AS " 12" SIDE DRAIN ".



USE NEENAH R-5901-C OR EQUIVALENT BICYCLE SAFE FRAME AND GRATE

DETAIL OF YARD DRAIN

GENERAL NOTES:

1. ALL EXPOSED CORNERS SHALL BE ¾" CHAMFERED.
2. STEPS SHALL BE INSTALLED ON 16" CENTERS ON ALL INLETS 4'-0" HIGH OR OVER, OR AS APPROVED BY THE ENGINEER.
3. EXPANSION JOINT MATERIAL SHALL BE ¾" PREFORMED FIBER.
4. GRATE OR GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105 CLASS 35B. GRATE MAY BE USED WITHOUT FRAME.
5. GRATE AND FRAME SHALL NOT BE PAINTED.
6. GRATE SHALL BE BICYCLE SAFE.
7. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
8. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
9. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
10. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

DATE REV.	REVISION	DATE FILMED
11-16-01	ADDED NOTE 10	
1-12-00	REVISED HEAVY DUTY RING & COVER	
7-02-98	CHANGED GRATE DETAIL, DELETED DI(TYPE D), REPLACED RING & COVER W/HEAVY DUTY RING & COVER, ADDED JUNCTION BOX (TYPE E)	
6-26-97	ADDED DIMENSION TO TYPE IV-A	
10-18-96	ADDED DETAIL OF YARD DRAIN	
8-15-91	DELETE TYPE IV GRATE	
7-15-88	REVISED STEP DETAIL	
5-20-83	REVISED DETAILS OF GRATES (TYPE IV & IV-A)	
2-4-83	ADDED GENERAL NOTE NO. 4	
3-2-81	ADDED TYPE IV-A GRATE	
5-22-74	DELETED INLET (TYPE F) & GRATE (TYPE III)	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS & JUNCTION BOXES

STANDARD DRAWING FPC-9

4'-0" LENGTH DROP INLET

PIPE SIZE	MIN. WIDTH	HEIGHT 5'-0" CLASS A CONC.	HEIGHT 5'-0" REINF. STEEL	PLUS OR MINUS PER LIN. FT. OF HEIGHT CLASS A CONC.	PLUS OR MINUS PER LIN. FT. OF HEIGHT REINF. STEEL
		CU. YDS.	POUNDS	CU. YDS.	POUNDS
18"	2'-6"	1.77	156	0.28	22
24"	2'-6"	1.79	156	0.28	22
30"	3'-2"	2.39	205	0.30	26
36"	3'-8"	2.63	236	0.32	28
42"	4'-4"	2.95	250	0.34	30
48"	4'-10"	3.21	265	0.36	32

NOTE: QUANTITIES ARE APPROXIMATE AND ARE SHOWN FOR BIDDER INFORMATION ONLY.

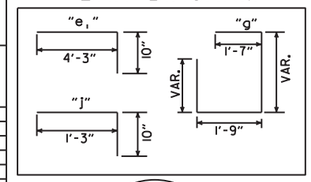
DROP INLET EXTENSION

4'-0" CLASS A CONC.	4'-0" REINF. STEEL	8'-0" CLASS A CONC.	8'-0" REINF. STEEL
CU. YDS.	POUNDS	CU. YDS.	POUNDS
0.58	38	0.87	72
DEDUCT FROM QUANTITY COMPUTED FOR EACH EXTENSION ADDED.			
0.04	3		

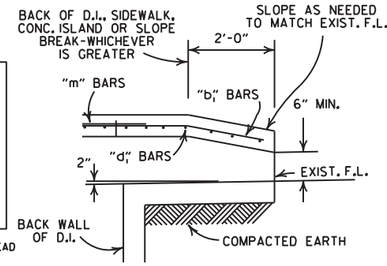
DEDUCT FROM QUANTITY COMPUTED FOR EACH PIPE ENTERING INLET

INSIDE DIA. PIPE	CLASS A CONC.	REINF. STEEL
INCHES	CU. YDS.	POUNDS
18	0.05	2
24	0.09	3
30	0.13	4
42	0.24	8

BAR DIAGRAM

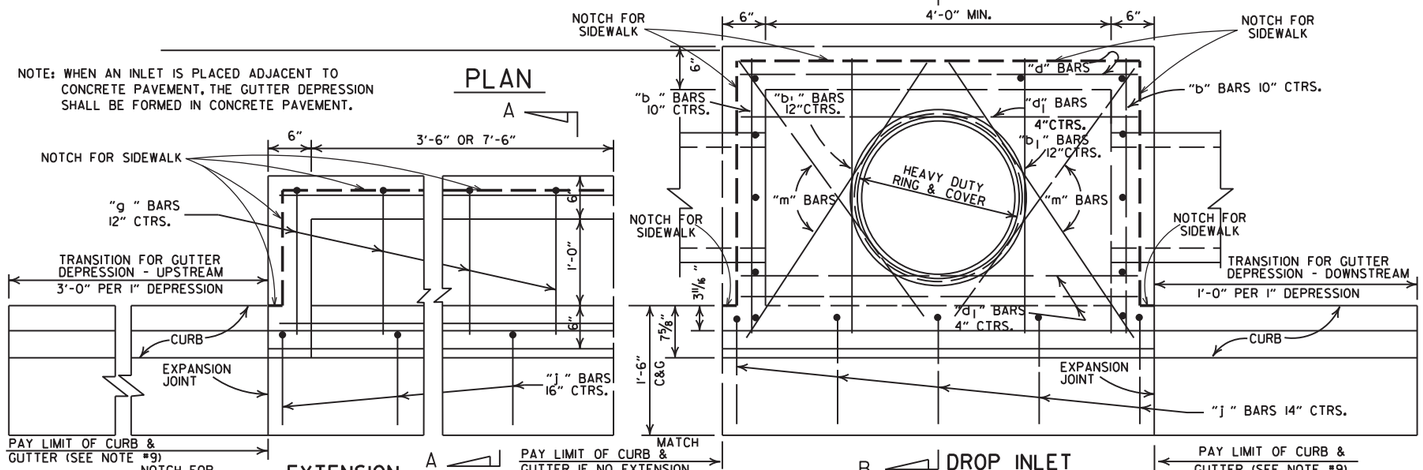


BACK OPENING

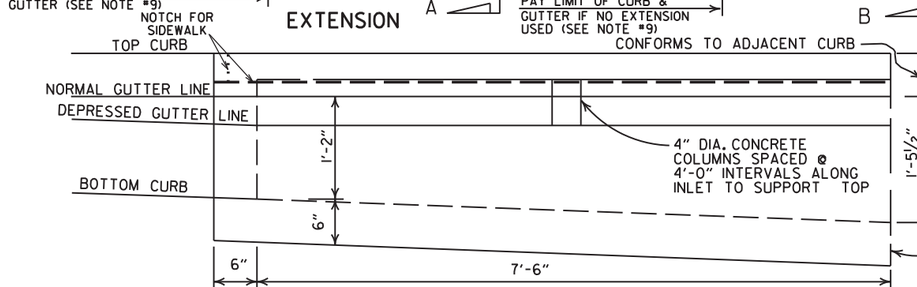


WHEN OPENING IN BACK IS CALLED FOR ON PLANS EXTEND OPENING AS SHOWN IN DETAIL. PAYMENT TO BE INCLUDED IN PRICE BID FOR DROP INLET (TYPE C).

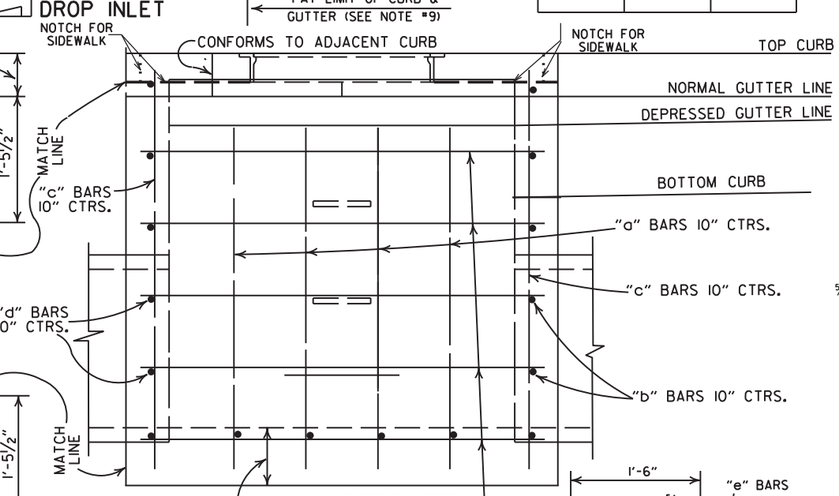
PLAN



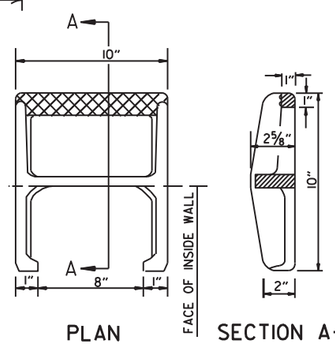
EXTENSION



DROP INLET



ELEVATION

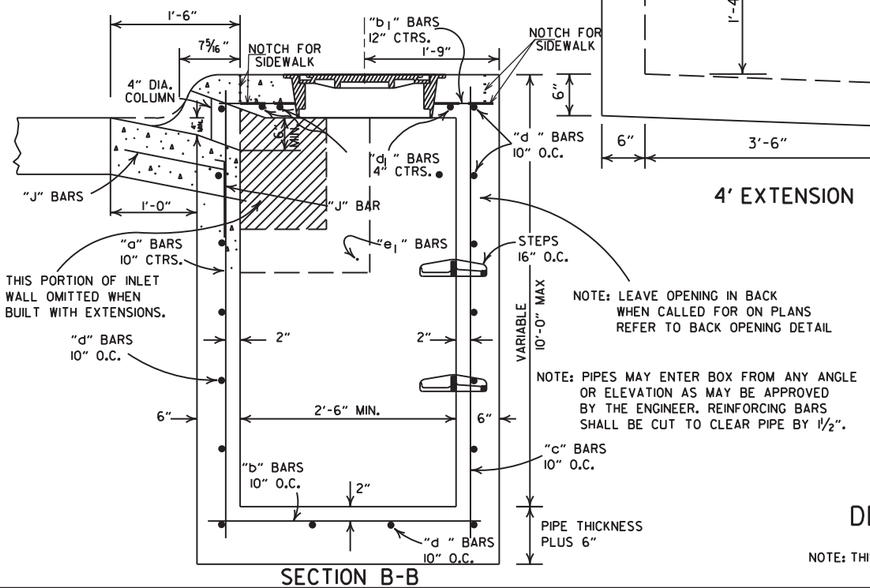


PLAN SECTION A-A

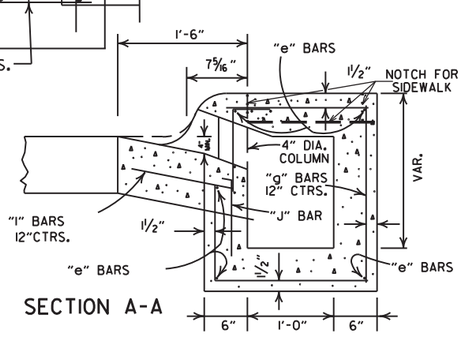
DETAIL OF STEP FOR DROP INLET

APPROX. WEIGHT = 11 LBS. (CAST IRON)

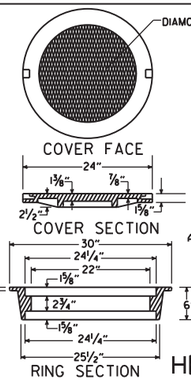
NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.



SECTION B-B



SECTION A-A



APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER

GENERAL NOTES:

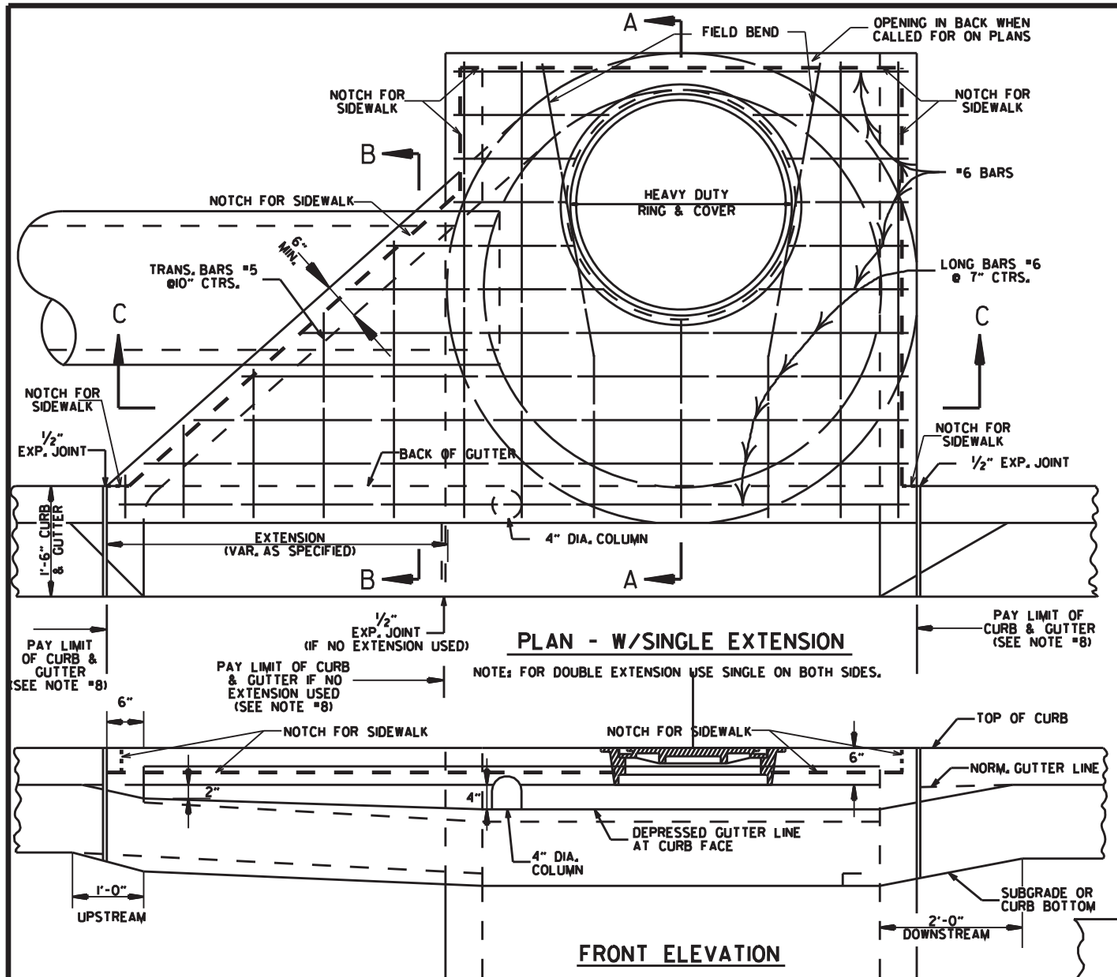
1. ALL EXPOSED CORNERS TO HAVE ¾" CHAMFER.
2. STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" HIGH AND OVER OF AS APPROVED BY THE ENGINEER.
3. ALL REINF. BARS SHALL BE #4 AND HAVE 1½" COVER.
4. DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
5. THIS DROP INLET MAY BE CONSTRUCTED ON NEW OR EXISTING R.C. BOX CULVERT AS SHOWN ON F.P.C.-9.
6. WHEN PLANS CALL FOR DROP INLET OVER 10'-0" HIGH, FLOOR AND WALLS SHALL BE CONSTRUCTED AS SHOWN FOR TYPE "RM" DROP INLET (FPC-9D).
7. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
8. DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
9. PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
10. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
11. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
12. 4"×2" NOTCH SHALL BE FORMED IN ALL DROP INLETS TO SUPPORT SIDEWALK CONSTRUCTION. REFER TO DETAIL OF NOTCH FOR SIDEWALKS.
13. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

DATE REV.	REVISION	DATE FILMED
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13; REVISED SECTION B-B	
1-12-00	CORRECTED DIMENSION ON SECTION B-B & REVISED RING & COVER	
5-13-99	ADDED DETAIL OF NOTCH FOR SIDEWALKS	
7-02-98	REPLACED RING & COVER W/HEAVY DUTY RING & COVER ADDED NOTES 9,10,&11	
10-18-96	CORRECTED SPELLING	
4-26-96	ADDED NOTE 8 & REVISED (4')(8') EXTENSION TITLES	10-18-96
4-1-93	REVISED BACK OPENING & NOTE	
8-15-91	DELETE TYPE IV GRATE	
7-15-88	REVISED STEP DETAIL	
5-20-83	REVISED DETAILS OF GRATES (TYPE IV & IV-A)	
2-4-83	ADDED GENERAL NOTE NO. 4	
3-2-81	ADDED TYPE IV-A GRATE	
5-22-74	DELETED INLET (TYPE F) & GRATE (TYPE III)	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS (TYPE C)

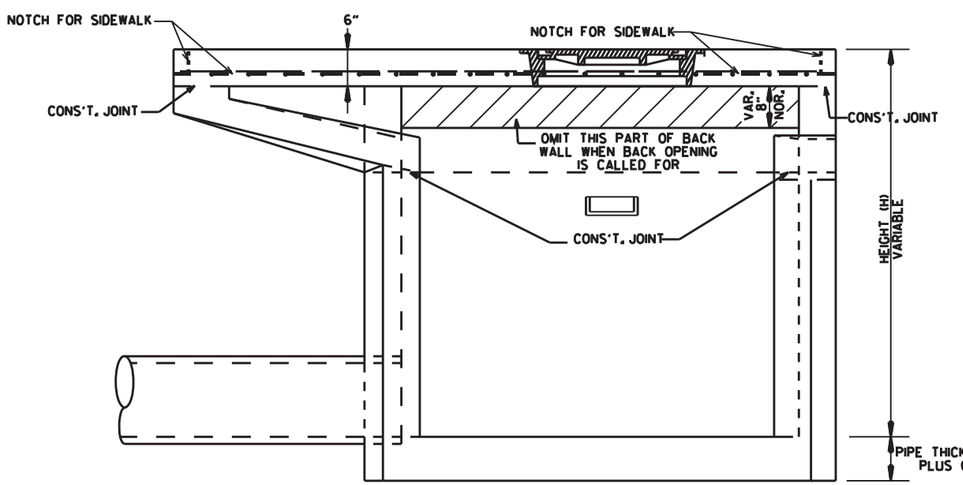
STANDARD DRAWING FPC-9E



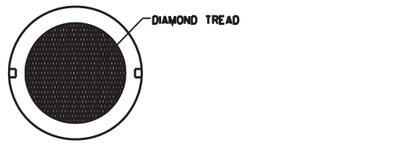
PLAN - W/SINGLE EXTENSION

NOTE: FOR DOUBLE EXTENSION USE SINGLE ON BOTH SIDES.

FRONT ELEVATION



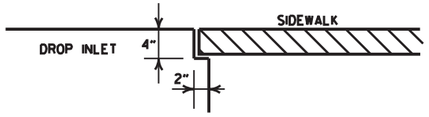
SECTION C-C



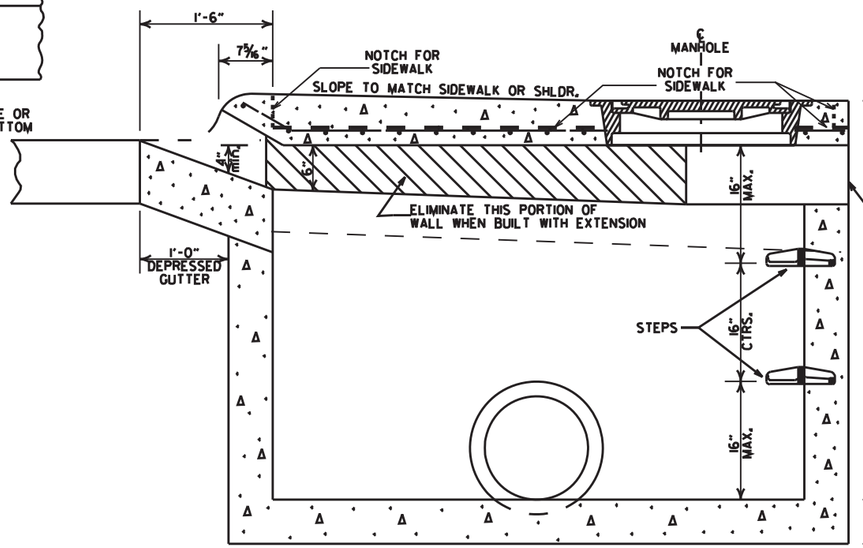
APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER

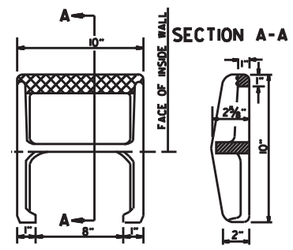
1. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
2. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
3. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.



DETAIL OF NOTCH FOR SIDEWALKS



SECTION A-A

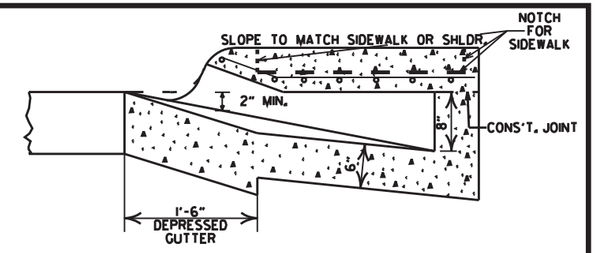


APPROX. WEIGHT = 11 LBS. (CAST IRON)

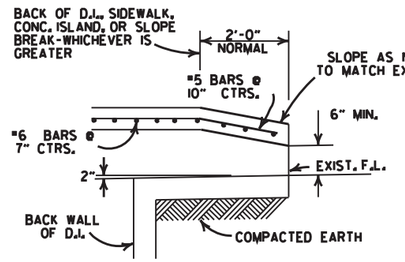
PLAN

NOTE: THIS DETAIL IS TYPICAL, OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

DETAIL OF STEP FOR DROP INLET



SECTION B-B



BACK OPENING

WHEN OPENING IN BACK IS CALLED FOR ON PLANS EXTEND OPENING AS SHOWN IN DETAIL. PAYMENT TO BE INCLUDED IN PRICE BID FOR DROP INLET (TYPE MO).

GENERAL NOTES:

1. ALL EXPOSED CORNERS TO HAVE 3/4" CHAMFER.
2. STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" HIGH AND OVER OR AS DIRECTED BY THE ENGINEER.
3. ALL REINFORCING BARS SHALL BE GRADE 60 AND HAVE MIN. 1/2" COVER.
4. DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
5. 4" DIA. COLUMNS SPACED AT MAX. 4'-0" INTERVALS SHALL BE INSTALLED ALONG INLET AND EXTENSION TO SUPPORT TOP.
6. BASE AND INLET WALLS SHALL BE CAST MONOLITHICALLY.
7. THE THROAT SHALL BE CAST INTEGRALLY WITH THE GUTTER.
8. PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
9. PIPES MAY ENTER DROP INLET FROM ANY ANGLE OR ELEVATION AS MAY BE APPROVED BY THE ENGINEER.
10. APPROPRIATE SIZE TYPE C DROP INLETS MAY BE SUBSTITUTED FOR TYPE MO DROP INLETS AS APPROVED BY THE ENGINEER. PAYMENT TO BE AS DROP INLET (TYPE MO).
11. DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
12. 4"x2" NOTCH SHALL BE FORMED IN ALL DROP INLETS TO SUPPORT SIDEWALK CONSTRUCTION. REFER TO DETAIL OF NOTCH FOR SIDEWALKS.
13. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

LEAVE OPENING IN BACK WHEN CALLED FOR ON PLANS REFER TO BACK OPENING DETAIL

DIA. OF D.I.	DIA. OF OUTLET PIPE	MINIMUM WALL THICKNESS	
		CAST IN PLACE	PRECAST
4' I.D.	12" THRU 27"	6"	5"
5' I.D.	30" THRU 42"	8"	6"
6' I.D.	48" THRU 54"	8"	7"

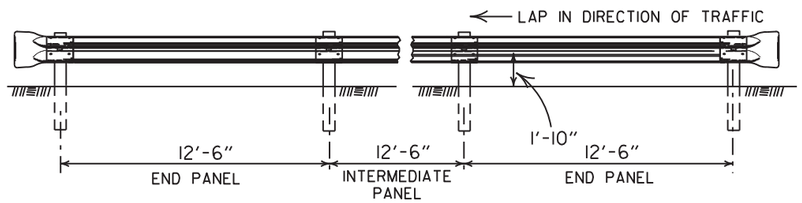
DATE	REVISIONS	DATE FILMED
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13	
1-12-00	REVISED HEAVY DUTY RING & COVER	
5-13-99	ADDED NOTCH DETAIL FOR SIDEWALKS	
7-02-98	REP. NOTE 8, REV. PLAN DET., REV. PICTURE FOR NEW RING & COVER, ADDED HEAVY DUTY RING & COVER AND DETAIL OF STEP FOR DROP INLET	
4-26-96	ADDED NOTE 11 & ADJ. OPENING DIMENSION	
10-12-95	CORRECTED *5 BAR SPACING	
7-20-95	CORRECTED DIAMETER OF D.I. IN BOX	
2-2-95	TYPE C TO MO (OPEN BACK DETAIL)	
11-3-94	REVISED GENERAL NOTES	11-3-94
4-1-93	REV BACK OPEN DETAIL & NOTE	4-1-93
8-14-91	REVISED NOTES 11,12 & ADDED BK.OPEN DETAIL	8-14-91
11-30-89	ADDED NOTE NO. 12	11-30-89
11-21-89	ADDED NOTE 8 & MINIMUM WALL THICKNESS	ALL-11-21-89
7-25-88	ADDED EXTEND NOTE TO SECTION A-A	639-7-25-88
1-14-87	MODIFIED WALL THICKNESS	783-1-14-87
6-12-87	ISSUED	4-6-12-87

ARKANSAS STATE HIGHWAY COMMISSION

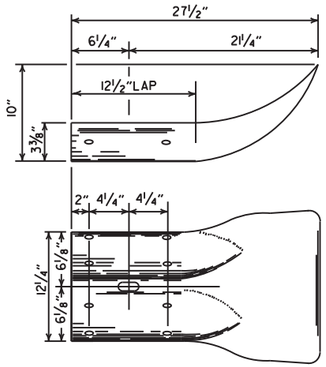
DETAILS OF DROP INLET (TYPE MO)

STANDARD DRAWING FPC-9M

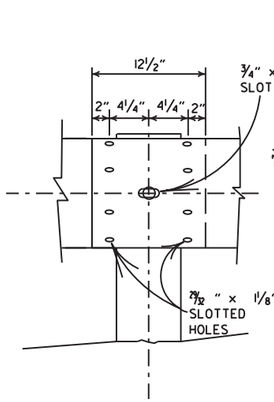
PLAN



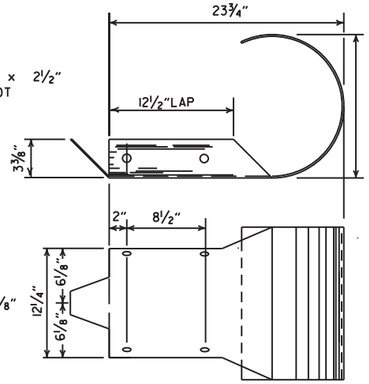
ELEVATION



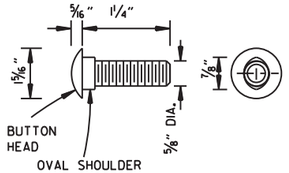
TERMINAL SECTION



RAIL SPLICE

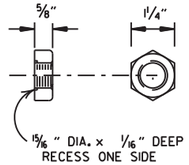


TERMINAL SECTION

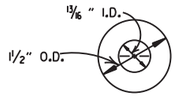


SPLICE BOLT

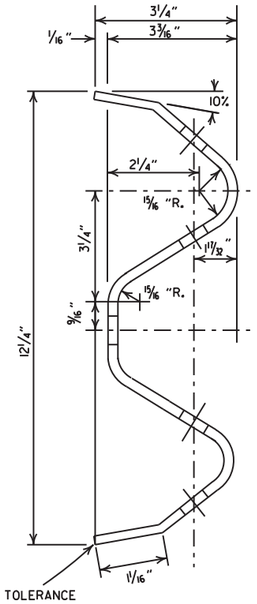
NOTE: POST BOLT SAME EXCEPT LENGTH.



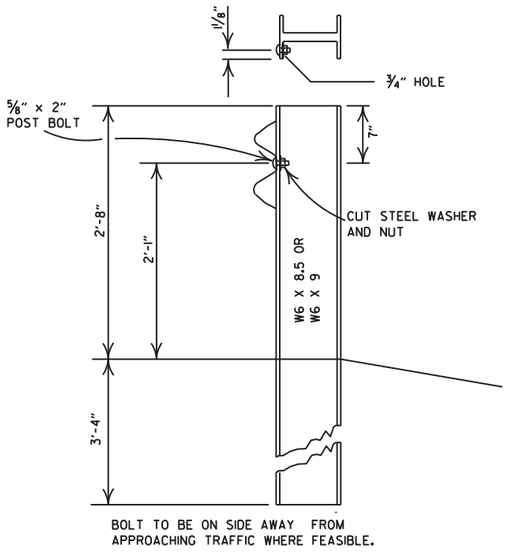
NUT



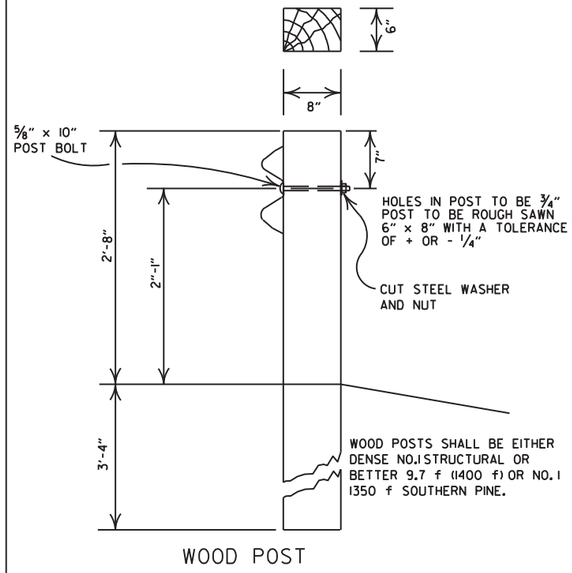
CUT STEEL WASHER



SECTION THRU RAIL



STEEL POST



WOOD POST

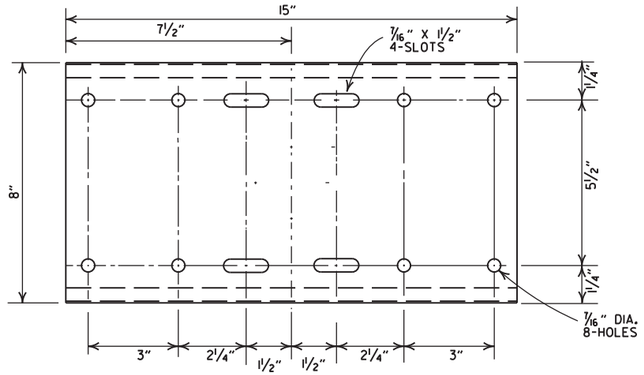
DETAILS OF POST CONNECTIONS

DATE	REVISION	FILMED
11-07-19	RENUMBERED AND RENAMED	
11-16-17	REVISED GUARDRAIL HEIGHT	
07-14-10	RAISED HEIGHT OF GUARDRAIL 1"	
08-22-02	REVISED DIMENSION ON STEEL POST	
11-16-01	REVISED STEEL AND WOOD POST	
08-12-98	REMOVED CONCRETE POST	
10-18-96	CHANGED WOOD POST NOTE	10-18-96
06-02-94	ADDED ALTERNATE STEEL POST SIZE	
08-05-93	REVISED STEEL POSTS SIZE	8-5-93
08-15-91	DELETE STEEL PLATE WASHER & ADDED TYPE C TO TITLE	8-15-91
10-30-87	REMOVED DET. PLCMNT. ON HWY.	555-11-20-87
01-04-83	GRADE FOR WOOD POSTS	679-1-4-83
10-01-77	HARDENED WASHER	922-10-1-72
10-02-72	REVISED & REDRAWN	521-10-2-72

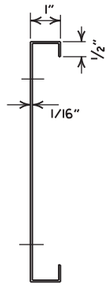
ARKANSAS STATE HIGHWAY COMMISSION

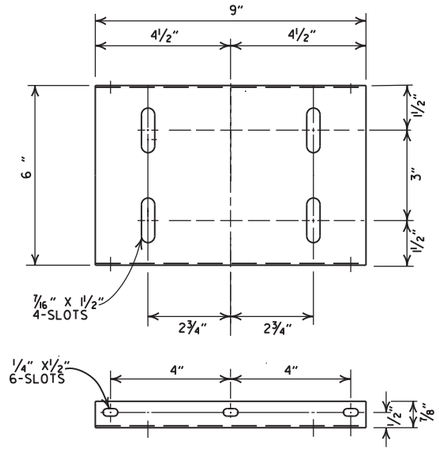
GUARDRAIL DETAILS (TYPE C) STREET / ROAD BARRICADE OR TEMPORARY INSTALLATION

STANDARD DRAWING GR-5

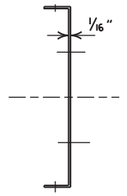


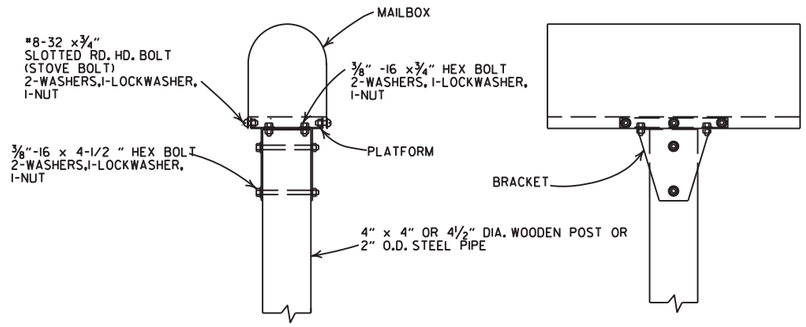
SHELF



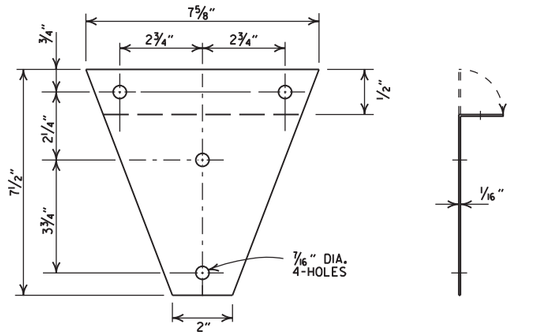


PLATFORM

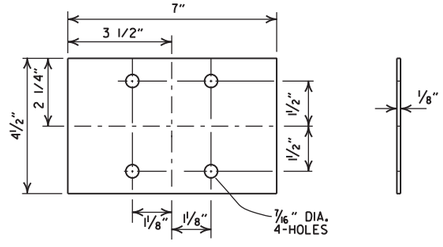




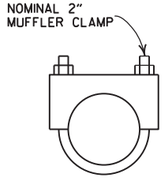
SINGLE INSTALLATION



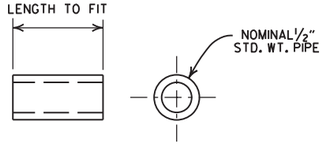
BRACKET



ANTI-TWIST PLATE



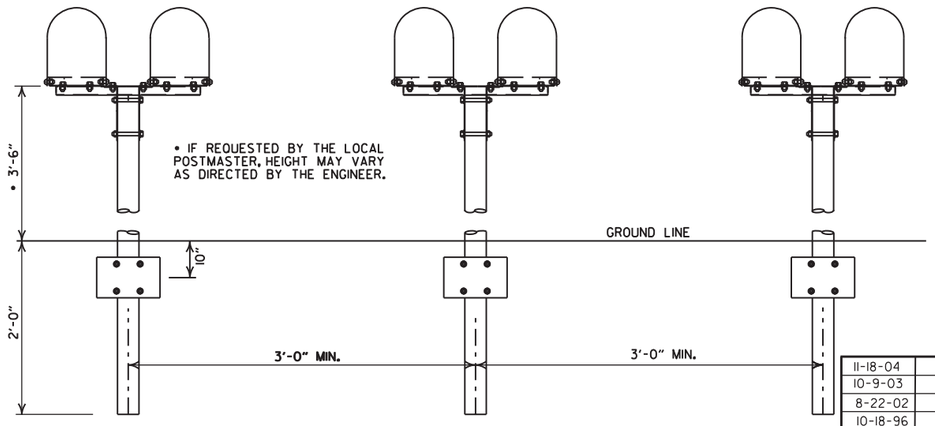
CLAMP



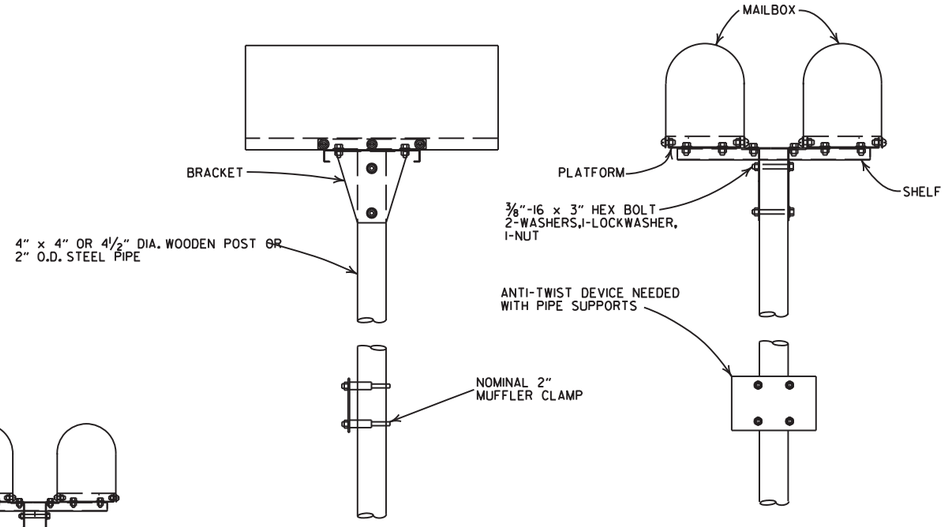
SPACER

GENERAL NOTES

1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED WOOD MAY BE USED WITH WOODEN POSTS. THE WOODEN SHELF, BRACKET & PLATFORM SHALL BE A MINIMUM OF ¾" THICK AND SHALL BE ASSEMBLED WITH BOLTS OF THE APPROPRIATE LENGTH WITH SIX 8 X ¾" FLATHEAD WOOD SCREWS USED TO ATTACH THE MAILBOX TO THE PLATFORM.
4. THE MAILBOX SHELF AND PLATFORM THAT IS SHOWN IS FOR STANDARD SIZE MAILBOXES. THE SHELF AND PLATFORM SIZE SHALL BE MODIFIED TO FIT MAILBOXES OF A DIFFERENT SIZE.
5. METAL PIPE FOR MAILBOX SUPPORT SHALL BE 2" OUTSIDE DIAMETER STEEL WITH A WALL THICKNESS OF 0.145" AND A WEIGHT OF 2.72 LBS PER FT. OUTSIDE DIAMETER AND WEIGHT SHALL HAVE A TOLERANCE OF +/- 5% ACCORDING TO AASHTO M 181.
6. MAILBOX SUPPORT SYSTEM DIFFERING FROM THOSE SHOWN MAY BE USED, PROVIDED THEY ARE ON THE ARDOT QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORTS.



SPACING FOR MULTIPLE POST INSTALLATION



DOUBLE INSTALLATION

DATE	FILMED	REVISION
11-18-04		REVISED NOTES
10-9-03		REVISED NOTE 6
8-22-02		REVISED NOTE 6
10-18-96		CORRECTED AASHTO
10-1-92		CORRECTED SPELLING
9-26-91		NEW PHONE NUMBER
8-15-91		ADDED NOTE
11-30-89		ADJUSTED HEIGHT & ADDED NOTE
2-16-89		DELETED SLOTS FROM SHELF & PLTF
11-17-88	10-1-92	ADJUSTED DIMENSIONS OF STEEL POSTS
7-15-88	20-7-15-88	ISSUED

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS

STANDARD DRAWING MB-1

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	ARDOT NOMINAL	AASHTO M 206	ARDOT NOMINAL
INCHES	INCHES			
15	18	18	11	11
18	22	22	13½	14
21	26	26	15½	16
24	28½	29	18	18
30	36¼	36	22½	23
36	43⅜	44	26⅝	27
42	51⅛	51	31⅝	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87⅛	87
120	154	154	96⅞	97
132	168¾	169	106½	107

THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PERCENT FROM THE VALUES SPECIFIED BY AASHTO M206.

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

EQUIV. DIA.	AASHTO M 207	
	SPAN	RISE
INCHES	INCHES	
18	23	14
24	30	19
27	34	22
30	38	24
33	42	27
36	45	29
39	49	32
42	53	34
48	60	38
54	68	43
60	76	48
66	83	53
72	91	58
78	98	63
84	106	68

THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PERCENT FROM THE VALUES SPECIFIED BY AASHTO M207.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. PLACE AND COMPACT THE HAUNCH AREA UP TO THE MIDDLE OF THE PIPE.
5. COMPLETE BACKFILL ACCORDING TO SUBSECTION 606.03.(f)(1).

NOTE: HAUNCH AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF CONCRETE PIPE.

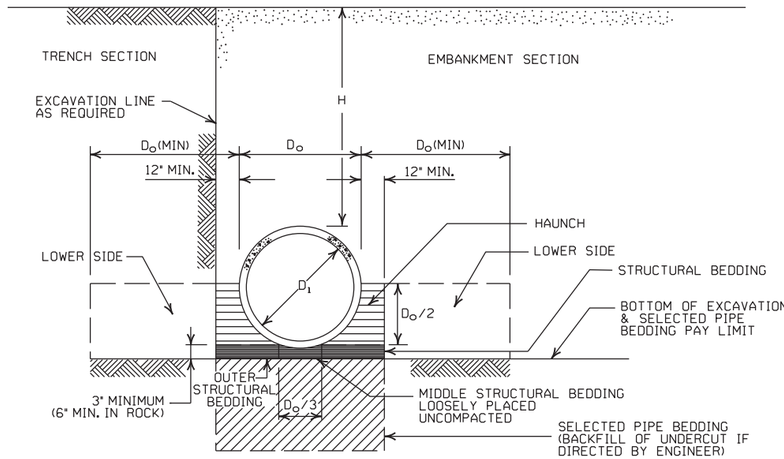
- LEGEND -

D_1 = NORMAL INSIDE DIAMETER OF PIPE
D_o = OUTSIDE DIAMETER OF PIPE
H = FILL COVER HEIGHT OVER PIPE (FEET)
MIN. = MINIMUM
= UNDISTURBED SOIL

INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR HAUNCH AND STRUCTURAL BEDDING
TYPE 1	AGGREGATE BASE COURSE (CLASS 5 OR CLASS 7)
TYPE 2	SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4) OR TYPE 1 INSTALLATION MATERIAL*
TYPE 3**	AASHTO CLASSIFICATION A-1 THRU A-6 SOIL OR TYPE 1 OR 2 INSTALLATION MATERIAL

* SM-3 WILL NOT BE ALLOWED.

** MATERIALS SHALL NOT INCLUDE ORGANIC MATERIALS OR STONES LARGER THAN 3 INCHES.



EMBANKMENT AND TRENCH INSTALLATIONS

1. MATERIAL IN THE HAUNCH AND OUTER STRUCTURAL BEDDING SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. FOR TRENCHES WITH WALLS OF NATURAL SOIL, THE DENSITY OF THE SOIL IN THE LOWER SIDE ZONE SHALL BE AS FIRM AS THE 95% DENSITY REQUIRED FOR THE HAUNCH. IF THE EXISTING SOIL DOES NOT MEET THIS CRITERIA, IT SHALL BE REMOVED AND RECOMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OF MATERIAL USED.
3. FOR EMBANKMENTS, THE MATERIAL IN THE LOWER SIDE ZONE SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

GENERAL NOTES

1. CONCRETE PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. CONCRETE PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. ALL PIPE SHALL CONFORM TO SECTION 606. CIRCULAR R.C. PIPE CULVERTS SHALL CONFORM TO AASHTO M170, R.C. ARCH PIPE CULVERTS SHALL CONFORM TO AASHTO M206 AND HORIZONTAL ELLIPTICAL PIPE CULVERTS SHALL CONFORM TO AASHTO M207.
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. NOT MORE THAN ONE LIFTING HOLE MAY BE PROVIDED IN CONCRETE PIPE TO FACILITATE HANDLING. HOLE MAY BE CAST IN PLACE, CUT INTO THE FRESH CONCRETE AFTER FORMS ARE REMOVED, OR DRILLED. THE HOLE SHALL NOT BE MORE THAN TWO INCHES IN DIAMETER OR TWO INCHES SQUARE. CUTTING OR DISPLACEMENT OF REINFORCEMENT WILL NOT BE PERMITTED. SPALLED AREAS AROUND THE HOLE SHALL BE REPAIRED IN A WORKMANLIKE MANNER. LIFTING HOLE SHALL BE FILLED WITH MORTAR, CONCRETE, OR OTHER METHOD AS APPROVED BY THE ENGINEER.
9. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
10. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS THE HAUNCH), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

MINIMUM HEIGHT OF FILL "H" OVER CIRCULAR R.C. PIPE CULVERTS

	CLASS OF PIPE			
	CLASS III		CLASS IV	CLASS V
INSTALLATION TYPE	TYPE 1 OR 2	TYPE 3	ALL	ALL
PIPE ID (IN.)	FEET			
12-15	2	2.5	2	1
18-24	2.5	3	2	1
27-33	3	4	2	1
36-42	3.5	5	2	1
48	4.5	5.5	2	1
54-60	5	7	2	1
66-78	6	8	2	1
84-108	7.5	8	2	1

NOTE: FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM OF 12" OF PAVEMENT AND/OR BASE.

MAXIMUM HEIGHT OF FILL "H" OVER CIRCULAR R.C. PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE		
	CLASS III	CLASS IV	CLASS V
	FEET		
TYPE 1	21	32	50
TYPE 2	16	25	39
TYPE 3	12	20	30

NOTE: IF FILL HEIGHT EXCEEDS 50 FEET, A SPECIAL DESIGN CONCRETE PIPE WILL BE REQUIRED USING TYPE 1 INSTALLATION.

MINIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
	FEET	
TYPE 2 OR TYPE 3	2.5	1.5

NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS.

NOTE: FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM OF 12" OF PAVEMENT AND/OR BASE.

MAXIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
	FEET	
TYPE 2	13	21
TYPE 3	10	16

NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS.

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECIFICATIONS	
5-18-00	REVISED TYPE 3 BEDDING & ADDED NOTE	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS (INCHES)				
		0.064	0.079	0.109	0.138	0.168
2⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM						
12	1	84	91			
15	1	67	73			
18	1	56	61			
24	1	42	46	59		
30	2	34	36	47		
36	2		30	39	41	
42	2		43	67	70	73
48	2		37	58	61	64
② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, BOLTED, OR HELICAL LOCK-SEAM						
36	1	48	60	88	111	118
42	1	41	51	72	90	102
48	1	36	45	64	77	85
54	2	32	40	59	71	79
60	2	29	36	53	64	71
66	2	26	33	47	58	64
72	2	24	30	44	53	59
78	2		28	41	49	54
84	2		26	38	45	51
90	2		24	35	43	45
96	2		22	33	40	44
102	2			31	38	42
108	2			30	35	39
114	2			28	34	37
120	2			27	32	35

CORRUGATED ALUMINUM PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS IN INCHES				
		0.060	0.075	0.105	0.135	0.164
		2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM				
12	1	45	45			
18	2	30	30	52		
24	2	22	22	39	41	
30	2		18	31	32	34
36	2.5		15	26	27	28
42	2			43	43	44
48	2			40	41	43
54	2			35	37	38
60	2				33	34
66	2					31
72	2					29

CORRUGATED METAL PIPE ARCHES

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL			ALUMINUM		
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)	MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.)	MAX. HEIGHT OF FILL, "H" (FT.)
				INSTALLATION	INSTALLATION		INSTALLATION	INSTALLATION
				TYPE 1	TYPE 1		TYPE 1	TYPE 1
			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM		
15	17x13	3	0.064	2	15	0.060	2	15
18	21x15	3	0.064	2	15	0.060	2	15
21	24x18	3	0.064	2.25	15	0.060	2.25	15
24	28x20	3	0.064	2.5	15	0.075	2.5	15
30	35x24	3	0.079	3	12	0.075	3	12
36	42x29	3½	0.079	3	12	0.105	3	12
42	49x33	4	0.079	3	12	0.105	3	12
48	57x38	5	0.109	3	13	0.135	3	13
54	64x43	6	0.109	3	14	0.135	3	14
60	71x47	7	0.138	3	15	0.164	3	15
66	77x52	8	0.168	3	15			
72	83x57	9	0.168	3	15			
			② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM					
				INSTALLATION	INSTALLATION			
				TYPE 2	TYPE 1	TYPE 2	TYPE 1	
36	40x31	5	0.079	3	2	12	15	
42	46x36	6	0.079	3	2	13	15	
48	53x41	7	0.079	3	2	13	15	
54	60x46	8	0.079	3	2	13	15	
60	66x51	9	0.079	3	2	13	15	
66	73x55	12	0.079	3	2	15	15	
72	81x59	14	0.079	3	2	15	15	
78	87x63	14	0.079	3	2	15	15	
84	95x67	16	0.109	3	2	15	15	
90	103x71	16	0.109	3	2	15	15	
96	112x75	18	0.109	3	2	15	15	
102	117x79	18	0.109	3	2	15	15	
108	128x83	18	0.138	3	2	15	15	

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. COMPLETE STRUCTURAL BACKFILL OPERATION BY WORKING FROM SIDE TO SIDE OF THE PIPE. THE SIDE TO SIDE STRUCTURAL BACKFILL DIFFERENTIAL SHALL NOT EXCEED 24 INCHES OR 1/3 THE SIZE OF THE PIPE, WHICHEVER IS LESS.

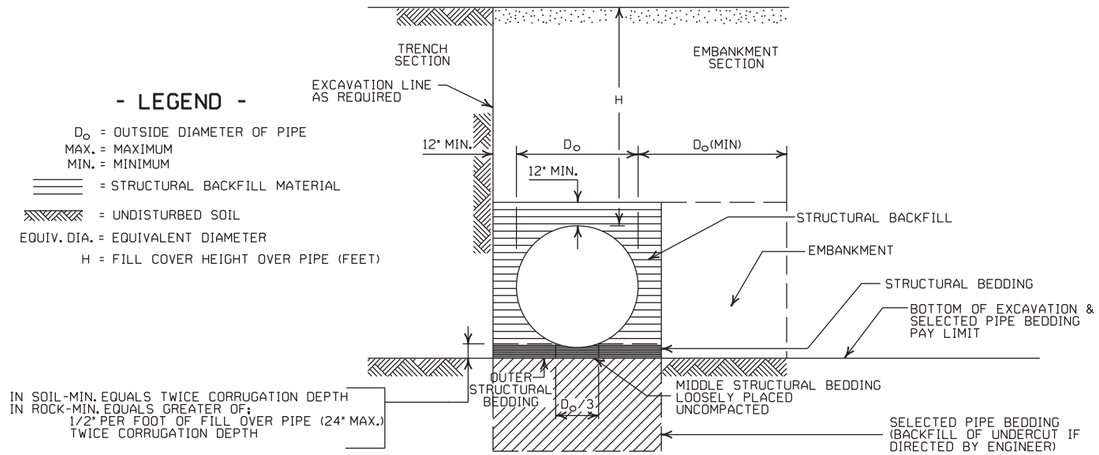
NOTE: STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF METAL PIPE.

INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 1	AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7)
TYPE 2	SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4) OR TYPE 1 INSTALLATION MATERIAL ③

③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

METAL THICKNESS IN INCHES			GAUGE NUMBER
STEEL			
ZINC COATED	UNCOATED	ALUMINUM	
0.064	0.0598	0.060	16
0.079	0.0747	0.075	14
0.109	0.1046	0.105	12
0.138	0.1345	0.135	10
0.168	0.1644	0.164	8



EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE (ROUND).
3. INSTALALTION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2⅔" X ½" CORRUGATION.
4. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 3" X 1" OR 5" X 1" CORRUGATION.

GENERAL NOTES

1. METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. METAL PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. METAL PIPE CULVERT MATERIALS AND INSTALLATIONS SHALL CONFORM TO SECTION 606 AND JOB SPECIAL PROVISION "METAL PIPE".
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
9. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

① FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

② WHERE THE STANDARD 2 2/3"x ½" CORRUGATION AND GAUGE IS SPECIFIED FOR A GIVEN DIAMETER, A PIPE OF THE SAME DIAMETER WITH A 3" x 1" OR 5" x 1" CORRUGATION MAY BE SUBSTITUTED, PROVIDING IT IS GAUGED FOR A FILL HEIGHT CONDITION EQUAL TO OR GREATER THAN THE MAXIMUM FILL HEIGHT CONDITION FOR THE SPECIFIED GAUGE AND CORRUGATION.

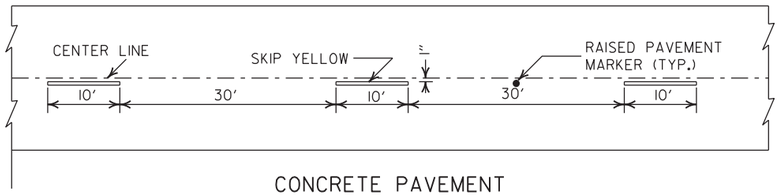
DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECS	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

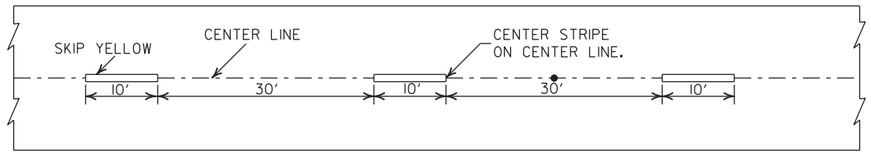
METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

NOTES:
1. REFER TO THE STRIPING DETAILS FOR PAVEMENT MARKING LINE WIDTHS.
2. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
3. RAISED PAVEMENT MARKERS SHALL BE PLACED ON AN 80 FEET SPACING UNLESS OTHERWISE SHOWN IN THE PLANS.

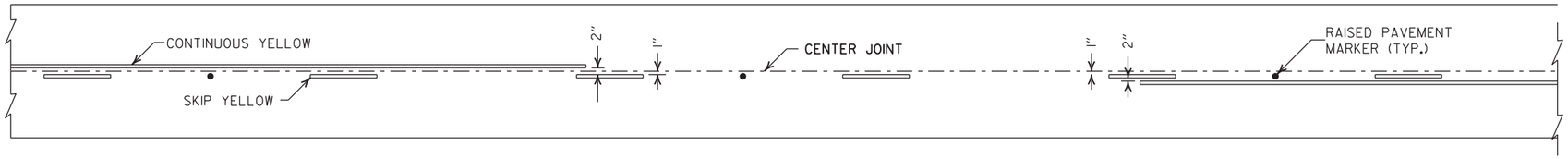


CONCRETE PAVEMENT

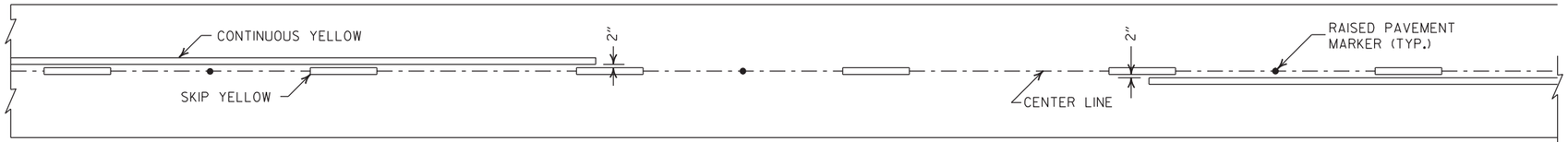


ASPHALT PAVEMENT

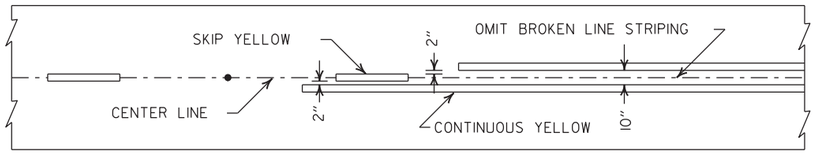
BROKEN LINE STRIPING



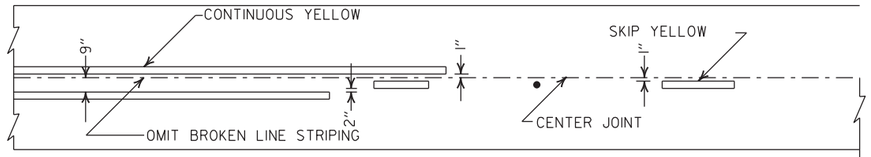
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

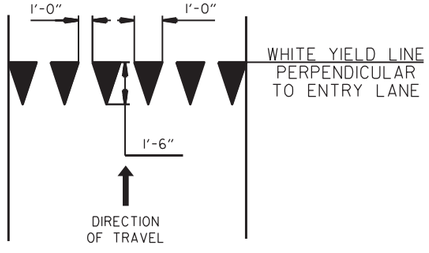


ASPHALT PAVEMENT

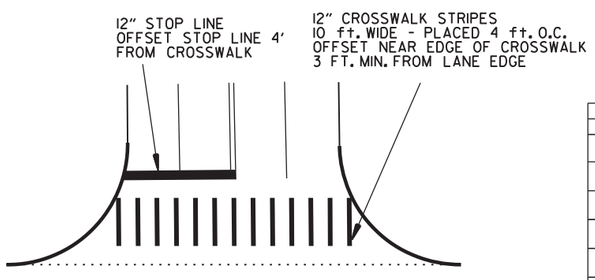


CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

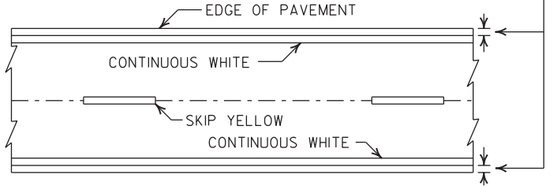


YIELD LINE DETAIL



CROSSWALK AND STOP LINE DETAILS

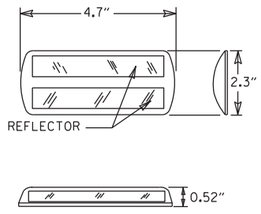
2" FOR ASPHALT OR CONCRETE PAVEMENT
6" FOR BITUMINOUS SURFACE TREATMENT



PAVEMENT EDGE LINE MARKING

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

TYPE II
RED/CLEAR OR
YELLOW/YELLOW



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 ARDOT QUALIFIED PRODUCTS LIST.

DETAIL OF STANDARD RAISED PAVEMENT MARKERS

DATE	REVISION	FILMED
2-27-20	REVISED STOP LINE DETAILS	
6-1-17	ADDED YIELD LINE DETAIL	
5-12-16	REVISED LINE WIDTHS, SPACING, & NOTES	
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

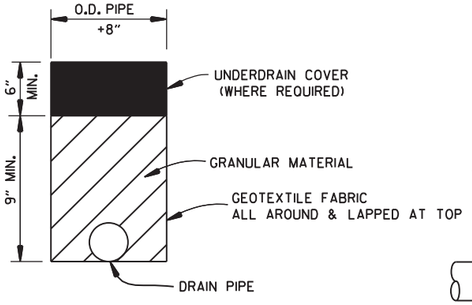
PAVEMENT MARKING DETAILS

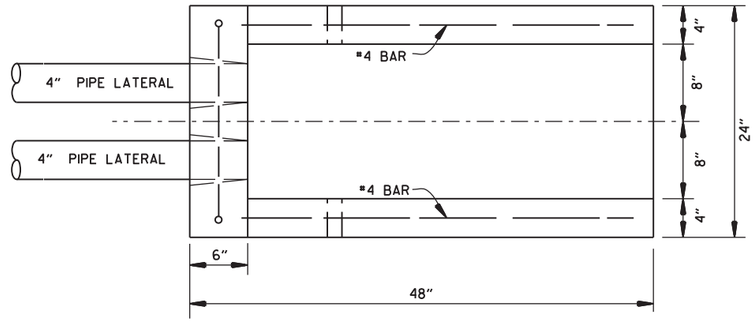
STANDARD DRAWING PM-1

NOTE:

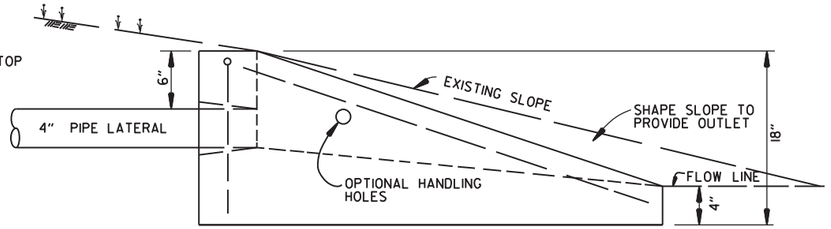
1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

2. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.

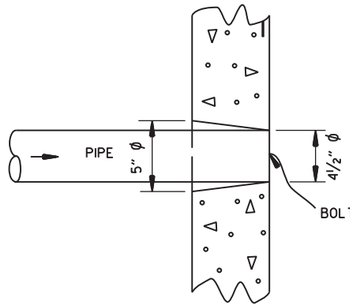




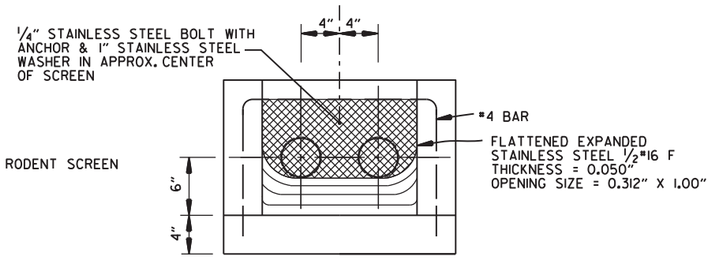
PLAN VIEW



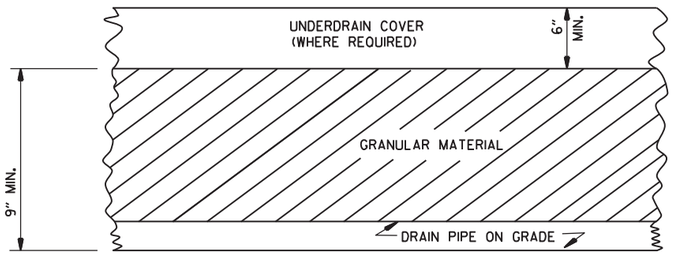
SIDE VIEW



DETAIL OF HOLE FOR 4" PIPE

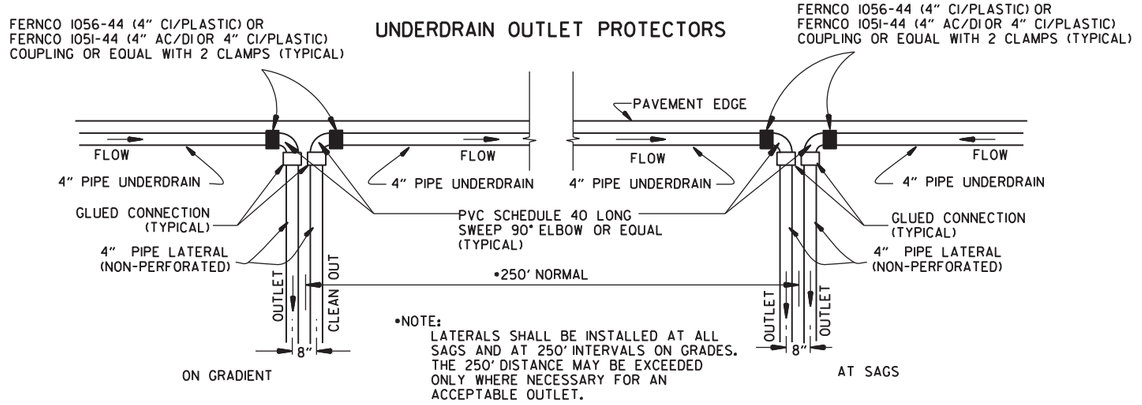


FRONT VIEW
(DETAIL OF RODENT SCREEN)



DETAILS OF PIPE UNDERDRAIN

UNDERDRAIN OUTLET PROTECTORS



DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE

NOTE: PVC PIPE FOR LATERALS SHALL MEET THE REQUIREMENTS OF ASTM D 1785 (LATEST REVISION) FOR SCHEDULE 40 PIPE.

NOTES FOR PIPE UNDERDRAINS

1. GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF SECTION 625 FOR TYPE I. PAYMENT FOR GEOTEXTILE FABRIC AND GRANULAR FILTER MATERIAL SHALL BE INCLUDED IN THE PRICE BID PER LIN. FT. FOR "4" PIPE UNDERDRAINS" IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.

2. 4" NON-PERFORATED SCHEDULE 40 PVC PIPE LATERALS WITH OUTLET PROTECTORS SHALL BE INSTALLED AS SHOWN HEREON. LATERALS WILL BE MEASURED AND PAID FOR AS "4" PIPE UNDERDRAINS." UNDERDRAIN OUTLET PROTECTORS WILL BE MEASURED AND PAID FOR BY THE UNIT IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.

3. EXISTING 4" PIPE UNDERDRAINS MAY BE CONNECTED TO PROPOSED DROP INLETS OR EXTENDED WHERE DIRECTED BY THE ENGINEER. PAYMENT FOR CONNECTING TO DROP INLETS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR "4" PIPE UNDERDRAINS."

4. THE LOCATION OF ALL LATERALS SHALL BE MARKED WITH 4" X 12" PERMANENT PAVEMENT MARKING TAPE (TYPE III WHITE) AT THE OUTSIDE EDGE OF THE SHOULDER, PLACED TRANSVERSE TO TRAFFIC. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

5. PAYMENT FOR THE RODENT SCREEN SHALL BE INCLUDED IN THE PRICE BID PER EACH FOR "UNDERDRAIN OUTLET PROTECTORS."

6. ANY EXISTING UNDERDRAINS THAT INTERFERE WITH INSTALLATION OF THE NEW UNDERDRAIN SYSTEM SHALL BE REMOVED AND DISPOSED OF AS DIRECTED BY THE ENGINEER. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS. EXISTING UNDERDRAIN OUTLET PROTECTORS SHALL BE REMOVED UNDER THE ITEM "REMOVAL AND DISPOSAL OF UNDERDRAIN OUTLET PROTECTORS."

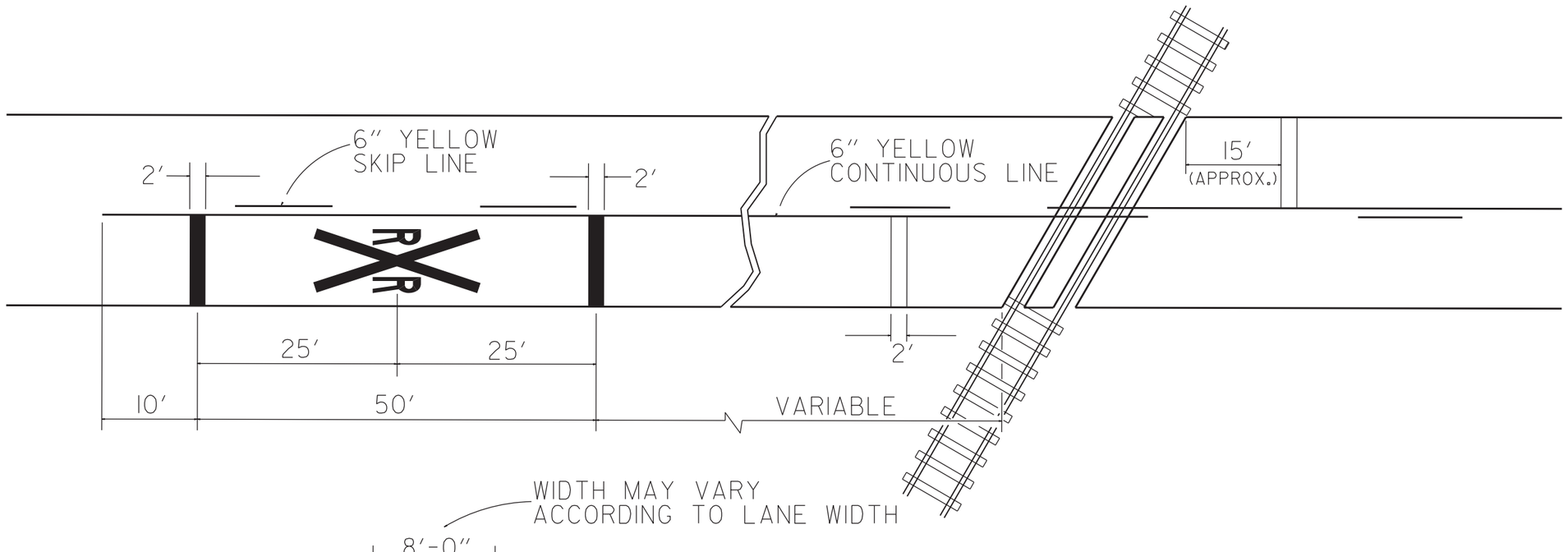
7. AT LOCATIONS WHERE A SINGLE LATERAL IS USED THE CONTRACTOR SHALL HAVE THE FOLLOWING OPTIONS: 1. INSTALL OUTLET PROTECTOR AS SHOWN ON STANDARD DRAWING PU-1 AND GROUT THE UNUSED HOLE OR 2. INSTALL AN OUTLET PROTECTOR WITH A SINGLE HOLE.

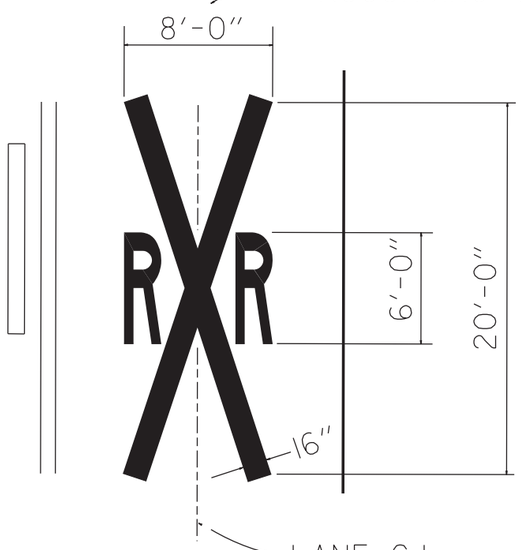
DATE	REVISION	DATE FILMED
12-8-16	ADDED NOTES FOR PIPE UNDERDRAINS, REVISED RODENT SCREEN DETAIL AND NOTES, REMOVED NOTE 1 FOR GRANULAR MATERIAL, ADDED NOTE FOR GEOTEXTILE FABRIC	
4-10-03	REVISED NOTE 3	
1-12-00	REVISED DETAIL OF UNDERDRAIN LATERALS	
11-18-98	REVISED NOTE	
10-18-96	REVISED MIN. DEPTH & GEOTEXTILE FABRIC	
4-26-96	ADDED LATERAL NOTE; 5½" TO 5"	
11-22-95	REVISED LATERALS	
7-20-95	REVISED LATERALS & ADDED NOTE	
11- 3-94	REVISED FOR DUAL LATERALS	11- 3-94
10- 1-92	SUBSTITUTED GEOTEXTILE	10- 1-92
8-15-91	ADDED POLYEDTHYLENE PIPE	8-15-91
11- 8-90	DELETED ALTERNATE NOTE	11- 8-90
1-25-90	ADDED 4" SNAP ADAPTER	1-25-90
11-30-89	DEL. (SUBGRADE); ADDED (WHERE REQUIRED)	11-30-89
7-15-88	ISSUED P.L.M.	647-7-15-88

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1





DETAIL OF PAVEMENT MARKINGS FOR RAILROAD CROSSING

PAVEMENT MARKING TO BE
SYMMETRICAL ABOUT RAILROAD

NOTES:
THE DISTANCE FROM THE RAILROAD CROSSING MARKING TO THE NEAREST TRACK WILL VARY ACCORDING TO THE APPROACH SPEED AND THE SIGHT DISTANCE OF THE VEHICULAR TRAFFIC APPROACHING, BUT PROBABLY SHOULD BE NOT LESS THAN 50 FEET.

A THREE LANE ROADWAY SHOULD BE MARKED WITH A CENTERLANE FOR TWO-LANE APPROACH OPERATION ON THE APPROACH TO A CROSSING.

ON MULTI-LANE ROADS THE TRANSVERSE BANDS SHOULD EXTEND ACROSS ALL APPROACH LANES, AND INDIVIDUAL RXR SYMBOLS SHOULD BE USED IN EACH APPROACH LANE.

REFER TO STANDARD ALPHABET FOR HIGHWAY SIGNS AND MARKINGS FOR RXR SYMBOLS DETAILS.

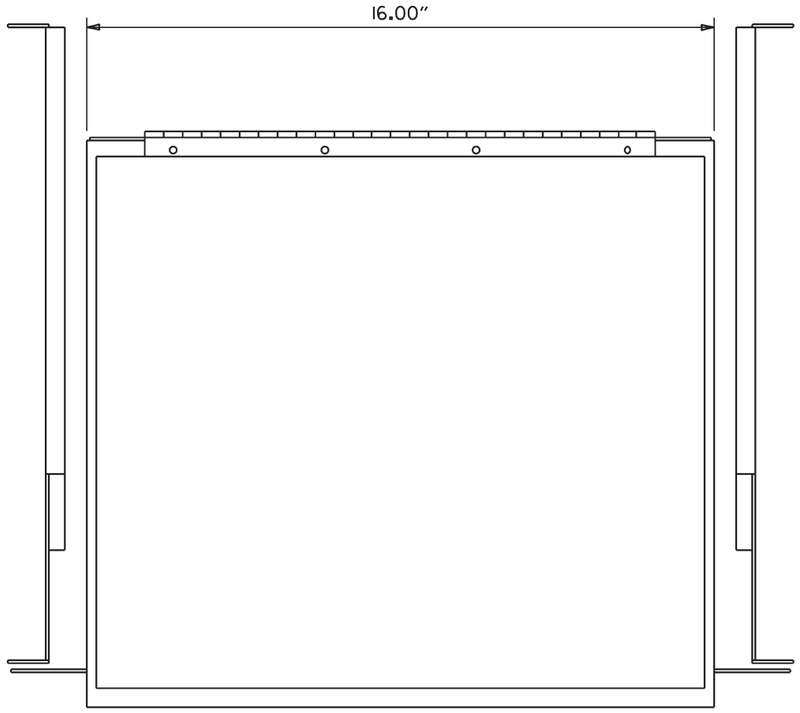
DATE	REVISION	DATE FILMED
12-8-16	REVISED CENTERLINE LABELS	
11-20-08	CORRECTED SPELLING	
4-10-03	REVISED NOTES	
3-2-81	DELETED LETTER & ADDED NOTE	684-3-2-81
7-20-79	STOP LINE CHGD. TO PERP.	636-8-30-79
4-23-75	SHEET RENUMBER	697-4-20-79
4-23-75	REDRAWN	860-4-23-75

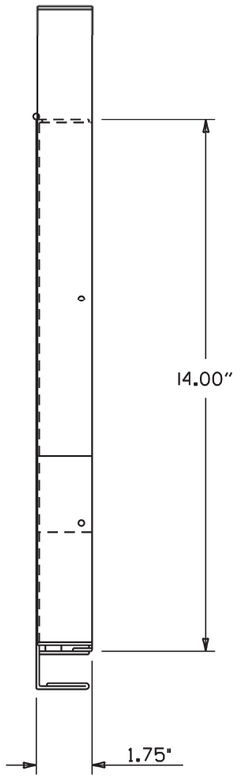
ARKANSAS STATE HIGHWAY COMMISSION

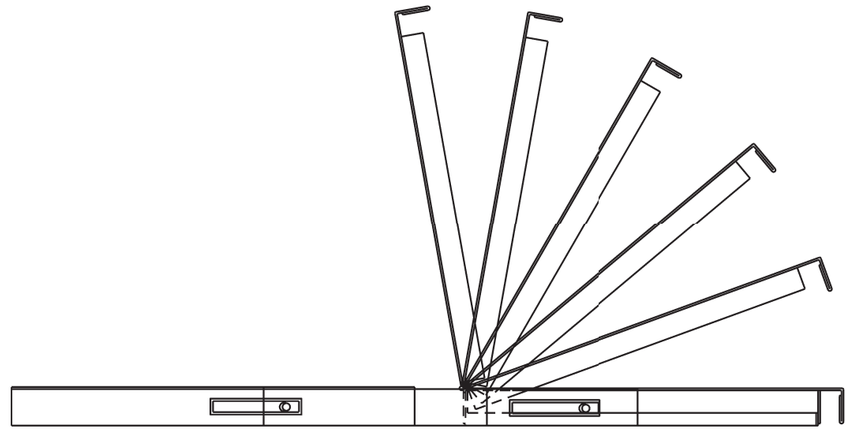
PAVEMENT MARKING
FOR RAILROAD CROSSING

STANDARD DRAWING RRS-1

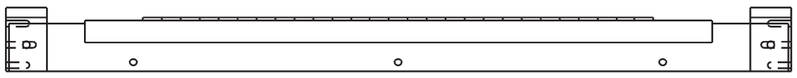
DRAWER PLAN VIEW



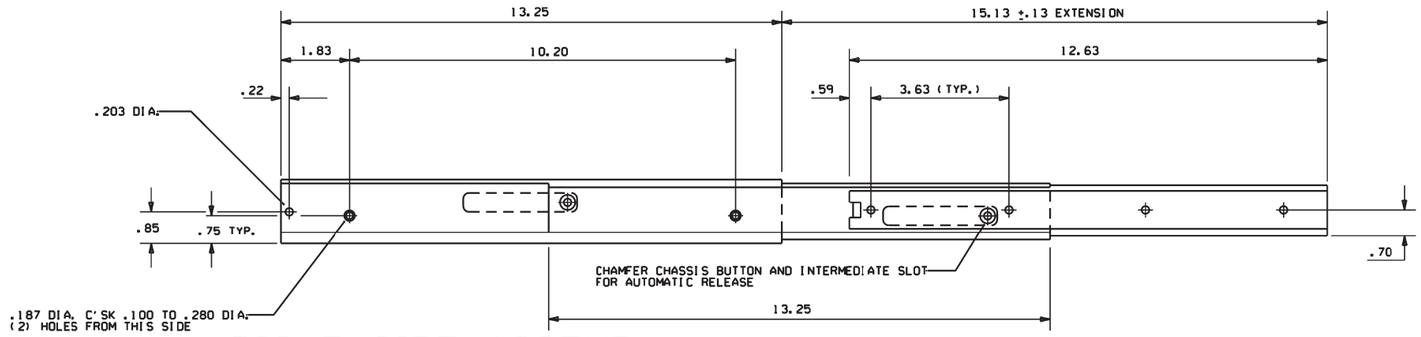




NOTES:
1. RIGHT HAND SLIDE SHOWN. LEFT SLIDE OPPOSITE.
2. GENERAL DEVICES (CC3002-99-0102) OR EQUAL AND CONTAINS (1) RIGHT HAND SLIDE ASSEMBLY, (1) LEFT HAND SLIDE ASSEMBLY.
3. ALL HARDWARE NECESSARY TO FASTEN SLIDE ASSEMBLY TO UNDERSIDE OF CONTROLLER SHELF SHALL BE INCLUDED.



FRONT VIEW



RIGHT SIDE ASSEMBLY

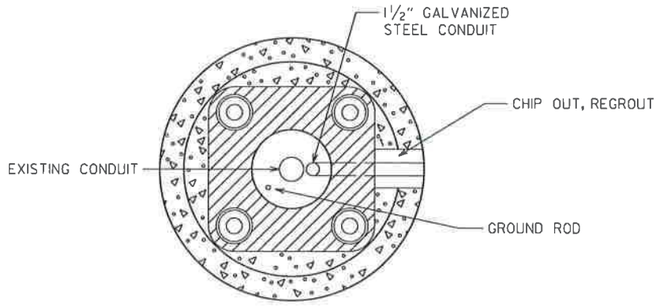
DATE	REVISION	DATE FILM
9-12-13	ISSUED AS STANDARD DRAWING	
6-15-05	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

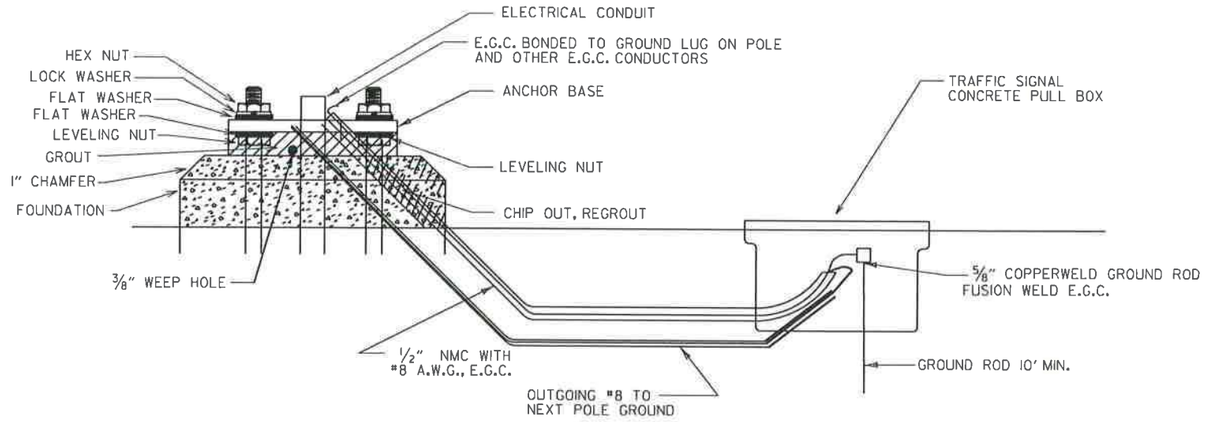
CONTROLLER CABINET UTILITY DRAWER

STANDARD DRAWING SD-5

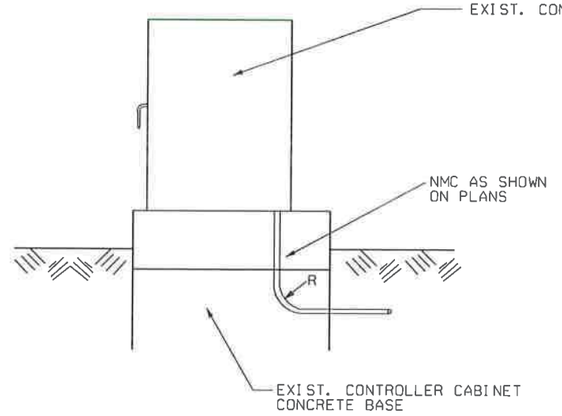
CONDUIT ENTRY TO EXISTING POLE BASE



ANCHOR BASE

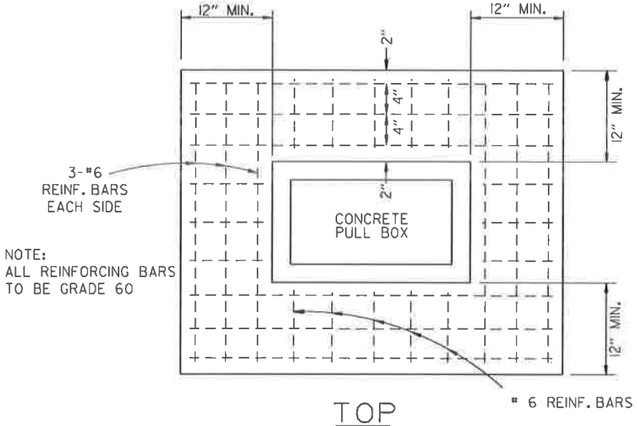


CONDUIT ENTRY TO EXISTING CONTROLLER CABINET

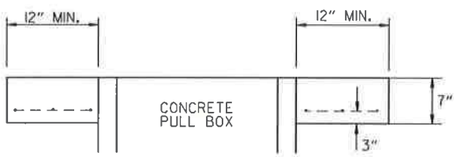


NOTE: ENTRY TO CABINET SHALL BE THROUGH A CUT IN THE BASE SUFFICIENT TO PROVIDE ADEQUATE CONDUIT RADIUS FOR ITEM.

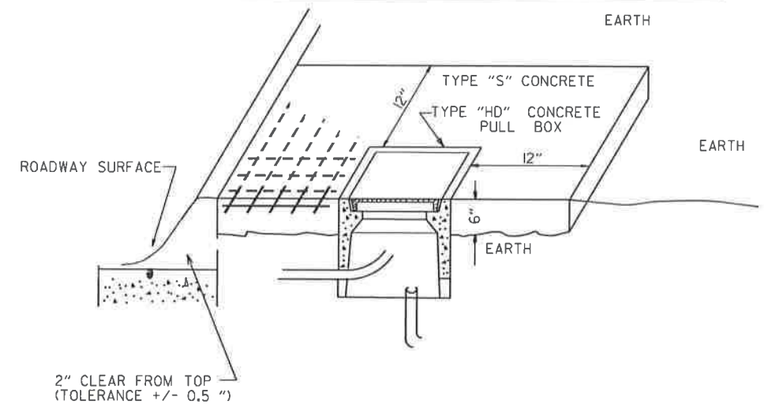
TYPE "HD" CONCRETE PULL BOX DETAIL



TOP



ELEVATION



NOTE:
ALL TYPE I AND TYPE 2 HD CONCRETE PULL BOXES ARE INSTALLED WITH AN APRON OF CONCRETE 12" WIDE AND 7" IN DEPTH. ALL PAYMENT SHALL BE INCLUDED IN THE PRICE OF THE TYPE HD CONCRETE PULL BOX. THE CONCRETE 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 CONCRETE PULL BOX IS REQUIRED IN CONCRETE.

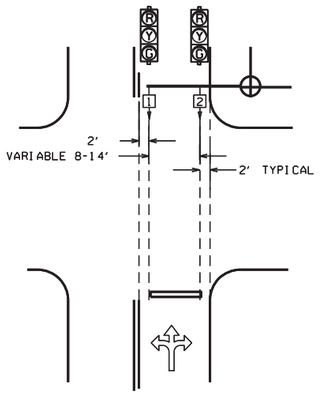
DATE	REVISION	FILMED
11-16-17	REVISED NOTES	
09-02-15	REVISED PULL BOX DEPTH	
09-12-13	ISSUED AS STANDARD DRAWING	
05-21-09	REVISED GROUNDING	
07-31-08	ADDED & REVISED CONDUIT ENTRY	
06-23-04	REVISED CLEARANCE AT CURB ENTRY	
01-04-02	ADDED REINFORCING TO BOX APRON	
07-02-01	REVISED	
12-27-99	REVISED NOTES	
11-18-98	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

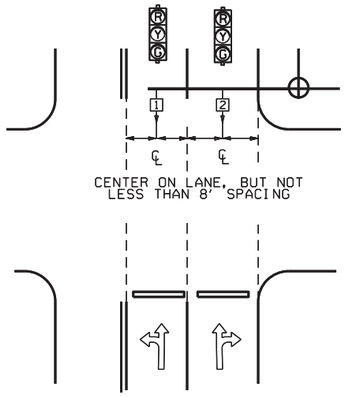
HEAVY DUTY PULL BOX

STANDARD DRAWING SD-6

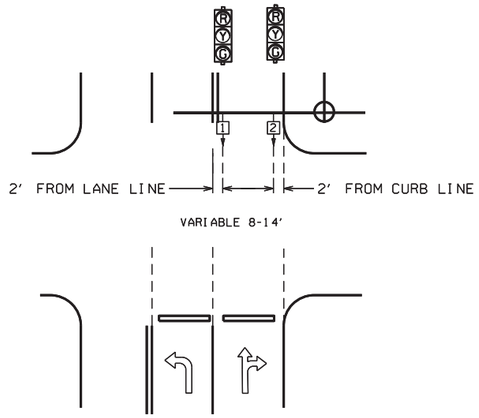
(A)



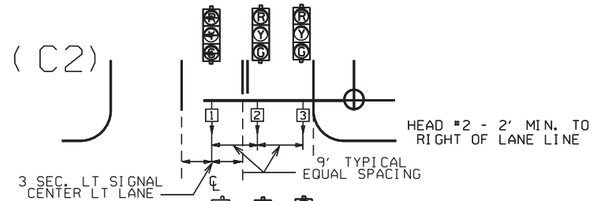
(B)



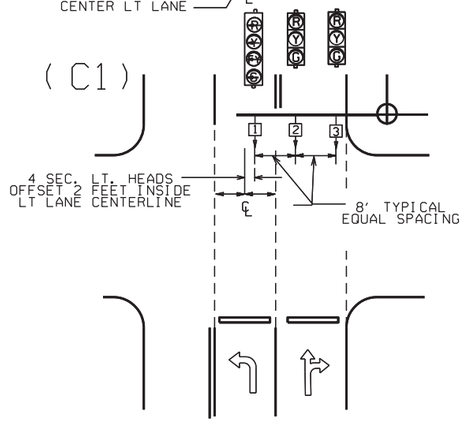
(C)



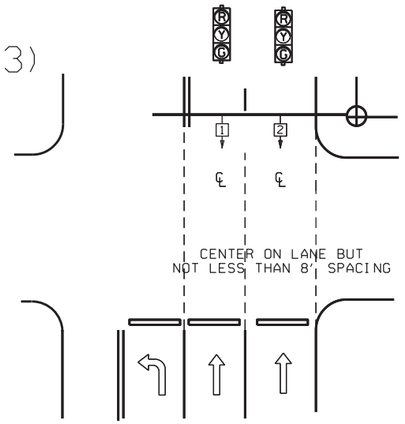
(C2)



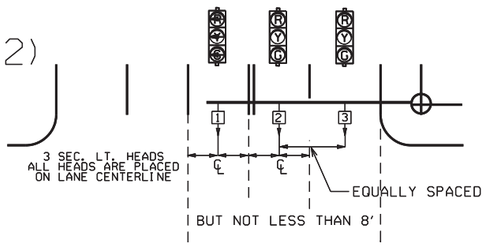
(C1)



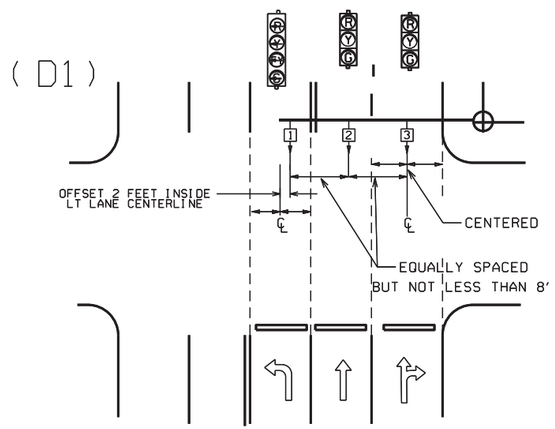
(C3)



(D2)

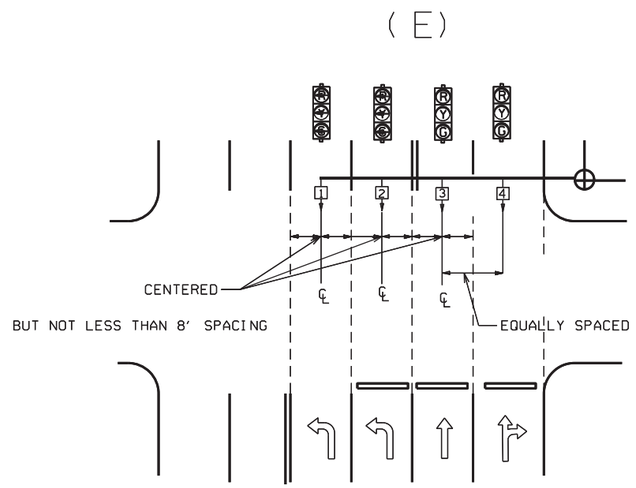


(D1)



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-5 OF 2009 MUTCD.

12-8-16	REVISED NOTE 6	
9-12-13	ISSUED AS STANDARD DRAWING	
3-11-10	2009 MUTCD	
12-9-99	ISSUED	
DATE	REVISION	DATE FILM

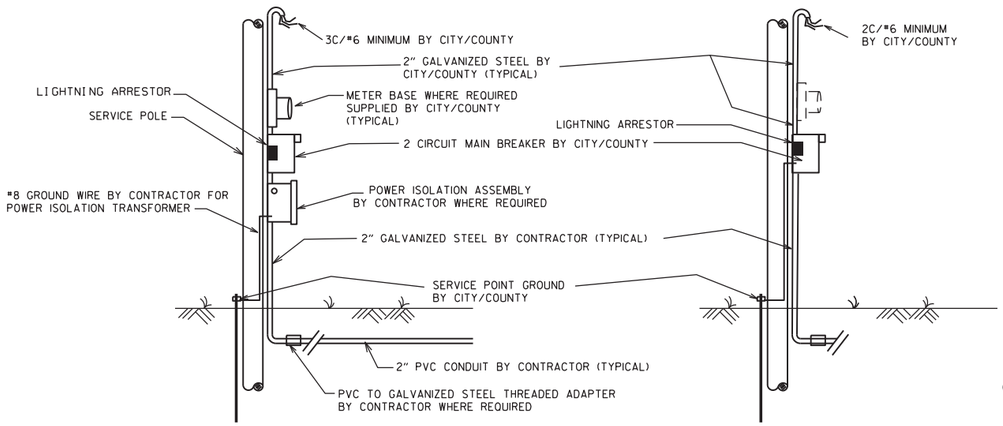
ARKANSAS STATE HIGHWAY COMMISSION

SIGNAL HEAD PLACEMENT

STANDARD DRAWING SD-8

MAIN BREAKER NOT NEAR CONTROLLER CABINET SECONDARY REQUIRED

WITH POWER ISOLATION ASSEMBLY



WITHOUT POWER ISOLATION ASSEMBLY

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/COUNTY'S RESPONSIBILITY VARIES ACCORDINGLY AS INDICATED ON THESE DETAILS.

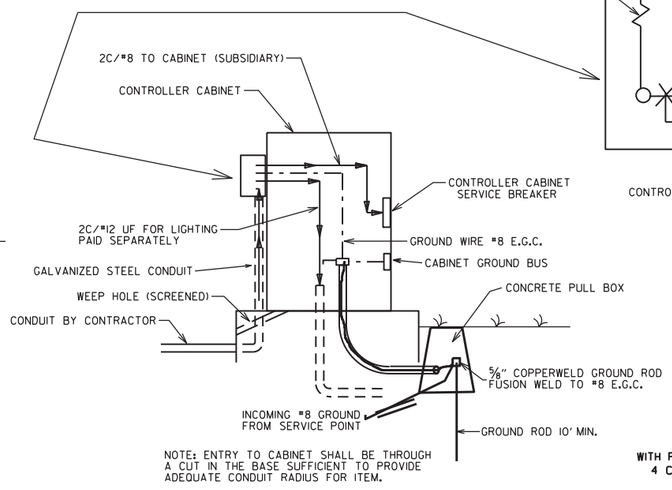
ALL SITUATIONS:
ELECTRICAL SERVICE SHALL BE PROVIDED BY THE CITY/COUNTY TO A SERVICE POLE WITH EXTERNAL RAINTIGHT BREAKER (MAIN BREAKER) AT A MUTUALLY ACCEPTABLE POINT WITHIN THE RIGHT-OF-WAY. SERVICE POINT INCLUDES GALVANIZED STEEL CONDUIT TO A POINT 18" BELOW GROUND LINE, TWO CIRCUIT MAIN BREAKER, LIGHTNING ARRESTOR, POWER ISOLATION ASSEMBLY WHERE REQUIRED, METER LOOP IF REQUIRED BY LOCAL UTILITY COMPANY, ELECTRICAL CONDUCTORS AND WEATHERHEAD. WHERE STREET LIGHTING IS INCLUDED AS PART OF SIGNAL INSTALLATION STREET LIGHTING CIRCUIT (2C/#12 A.W.G. 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.

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.

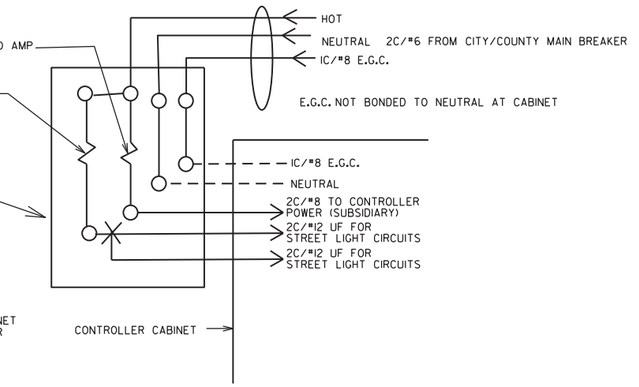
MAIN BREAKER NEAR CONTROLLER CABINET:
ALL COMPONENTS OF THE SERVICE POINT WITH THE EXCEPTION OF THE WIRE AND WIRING ABOVE THE MAIN BREAKER IS FURNISHED AND INSTALLED BY THE CONTRACTOR. WIRING FROM MAIN BREAKER INCLUDING CONNECTION TO THE UTILITY, IS THE RESPONSIBILITY OF THE CITY/COUNTY. IF METER LOOP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

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

SECONDARY BREAKER BY CONTRACTOR (SUBSIDIARY)



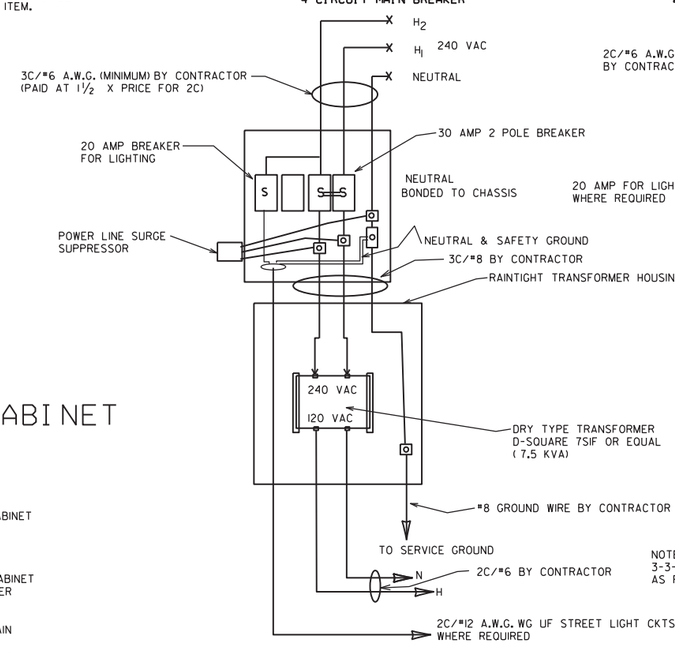
NOTE: ENTRY TO CABINET SHALL BE THROUGH A CUT IN THE BASE SUFFICIENT TO PROVIDE ADEQUATE CONDUIT RADIUS FOR ITEM.



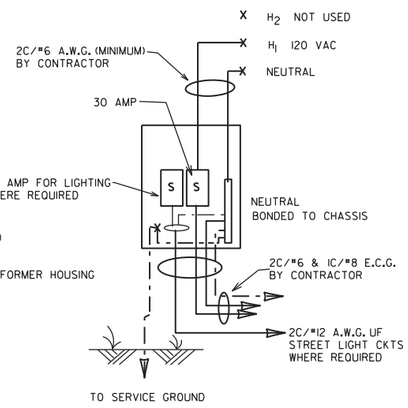
MAIN BREAKER WIRING (TYPICAL)

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

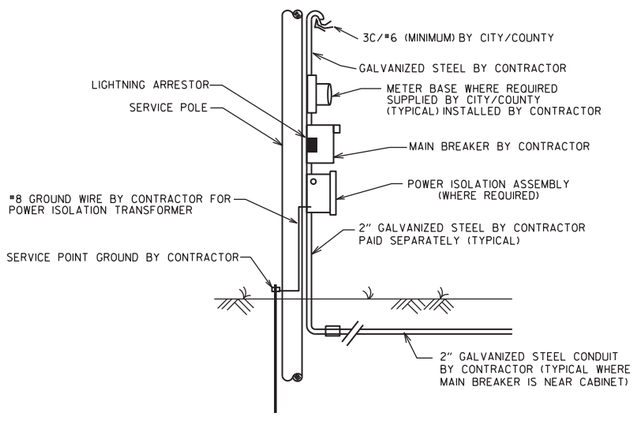
WITH POWER ISOLATION ASSEMBLY
4 CIRCUIT MAIN BREAKER



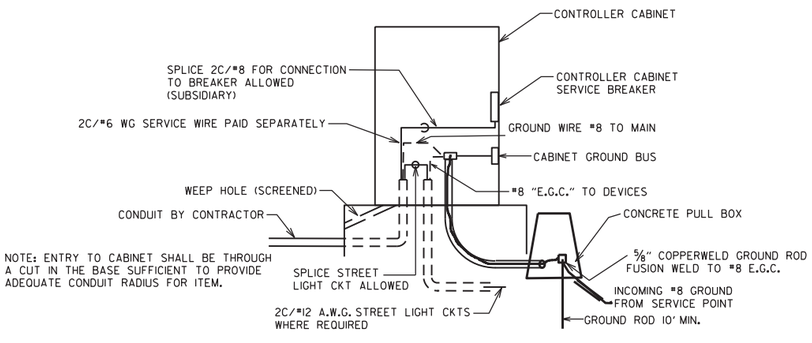
WITHOUT POWER ISOLATION ASSEMBLY
2 CIRCUIT MAIN BREAKER



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



MAIN BREAKER NEAR CONTROLLER CABINET SECONDARY NOT REQUIRED



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

DATE	REVISION	FILMED
11-07-19	REVISED	
11-16-17	REVISED NOTES	
09-12-13	ISSUED AS STANDARD DRAWING	
04-18-13	ADDED LIGHTNING ARRESTOR	
05-21-09	REVISED GROUNDING	
07-31-08	REVISED GROUNDING	
03-03-03	ADDED EGC NOTE	
09-26-01	REVISED	
12-27-99	REVISED	
07-28-99	REVISED	
02-05-99	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

SERVICE POINT

STANDARD DRAWING SD-9

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

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

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

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

GENERAL NOTES:
1. MAST ARM POLES SHALL BE MOUNTED A MINIMUM OF FOUR (4') FEET BEHIND CURB OR SHOULDER.

2. OCTAGONAL POLES AND ARMS MEETING THE REQUIREMENTS OF THE PLANS 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 THE SPEED LIMIT IS GREATER THAN 45 MPH WITH AN MAST ARM OF 60' OR LONGER.

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

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

CONSTRUCTION SPECIFICATIONS:
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 ½" 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, TWELVE (12") INCH AND HAVE FIVE (5") INCH BACK PLATES:

SIGNAL HEADS AT THE END OF MAST ARM - ONE 4 SEC., 85 LB., 14.5 SQ. FT., ONE SIGN MOUNTED 3 FEET FROM SIGNAL HEAD (2'-0" X 2'-6"; 20 LB.) REMAINING SIGNAL HEADS SPACED AT 8 FT. (3 SEC., 56 LB., 8.3 SQ. FT.):
DESIGN TO ACCOMMODATE:
2 SIGNAL HEADS FOR MAST ARMS 10 FT. TO 16 FT.
3 SIGNAL HEADS FOR MAST ARMS 18 FT. TO 24 FT.
4 SIGNAL HEADS FOR MAST ARMS OVER 26 FT.

STREET NAME SIGN - 72" X 18", 36 LB., MOUNTED SUCH THAT OUTSIDE EDGE IS NOT GREATER THAT 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. WT. 75 LB., 3.3 SQ. FT.)
PEDESTRIAN SIGNALS - TWO 1 SEC., 12 INCH MOUNTED 8 FT. FROM BASE OF POLE. POST MOUNTED 3 SEC. SIGNAL HEAD AT 10 FT. ON SIDE OF POLE.

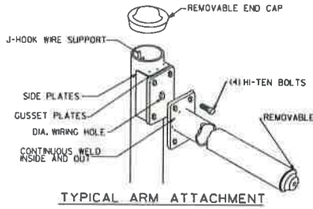
4. POLE/MAST ARM CAP - POLE AND MAST ARM CAPS SHALL BE PROVIDED, FABRICATED OF EITHER STEEL OR CAST ALUMINUM.

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

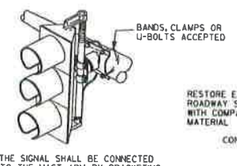
6. POLE/MAST ARM TAPER SLOPE - AVERAGE TAPER OF SIGNAL MAST ARMS AND POLE SHAFT SHALL BE 0.125 TO 0.15 INCHES PER FOOT.

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 MAST ARM SHALL MAINTAIN A POSITIVE SLOPE AFTER IT IS PLACED UNDER LOAD.

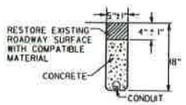
7. NUT COVERS - EACH POLE SHALL INCLUDE A BOLT DOWN NUT COVER FOR EACH ANCHOR BOLT.



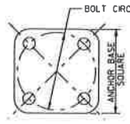
TYPICAL ARM ATTACHMENT



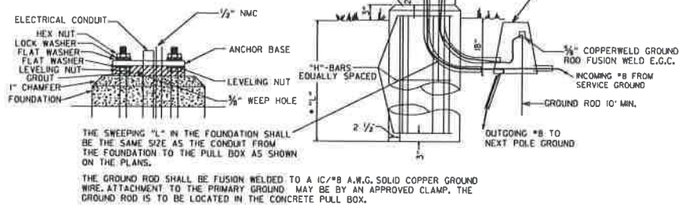
NOTE: THE SIGNAL SHALL BE CONNECTED TO THE MAST ARM BY BRACKETING AS DIRECTED BY THE ENGINEER.



TRENCHING DETAIL
(FOR SAW CUT TRENCH IN ROADWAY)



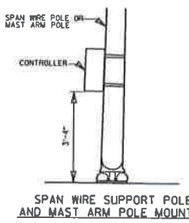
ANCHOR BASE



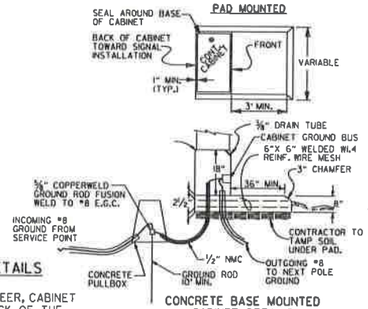
TYPICAL FOUNDATION DETAILS

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

ARM LENGTH	FOUNDATION DIAMETER	DEPTH "L"*	STEEL VERTICAL	STEEL HORIZONTAL	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"



SPAN WIRE SUPPORT POLE AND MAST ARM POLE MOUNTED



CONCRETE BASE MOUNTED CABINET DETAILS

CONTROLLER CABINET MOUNTING DETAILS

NOTE:
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 ⅝" GROUND ROD SHALL BE INSTALLED IN THE CONCRETE PULL BOX FOR EACH POLE AND THE CONTROLLER. PAYMENT FOR THE GROUND ROD AND ½" NMC SHALL BE INCLUDED IN ITEM 714 FOR SIGNAL POLES AND ITEM 701FOR THE CONTROLLER. THE CONCRETE PULL BOX AND CONDUCTOR BOX SHALL BE PAID SEPERATELY.

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 ¼" 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 PEDESTRIAN PUSH SWITCH SHALL BE CONSIDERED SUBSIDIARY TO THE ITEM 707 PEDESTRIAN SIGNAL HEAD.

* 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 TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION OF THE STANDARD SPECIFICATIONS.

** IN LIEU OF DESIGNING THE STRUCTURE TO RESIST PERIODIC GALLOPING, A VIBRATORY MITIGATION DEVICE MAY BE PROVIDED BY THE POLE MANIFACTURER. THE VIBRATORY MITIGATION DEVICE SHALL BE AN ANTI-GALLOPING PANEL CONSISTING OF A 60" X 16" X 0.125" 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 THE HEIGHT AS TO PROVIDE AT LEAST 6" CLEAR FROM THE TOP OF ANY SIGNAL ASSEMBLY OF SIGN PANEL LOCATED ON THE MAST ARM WITHIN THE LENGTH OF THE ANTI-GALLOPING PANEL.

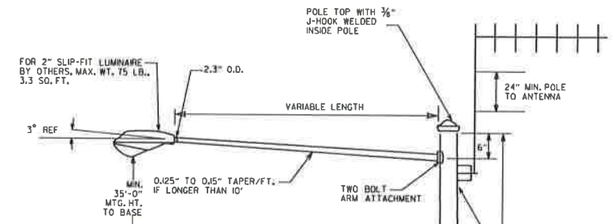
TRUCK-INDUCED GUST LOADS SHALL BE EXCLUDED FOR FATIGUE DESIGN FOR ALL STRUCTURES EXCEPT MAST ARMS MOUNTED OVER FACILITIES WITH POSTED SPEEDS OF 65 MPH OR GREATER AT THE LOCATION OF THE STRUCTURE.

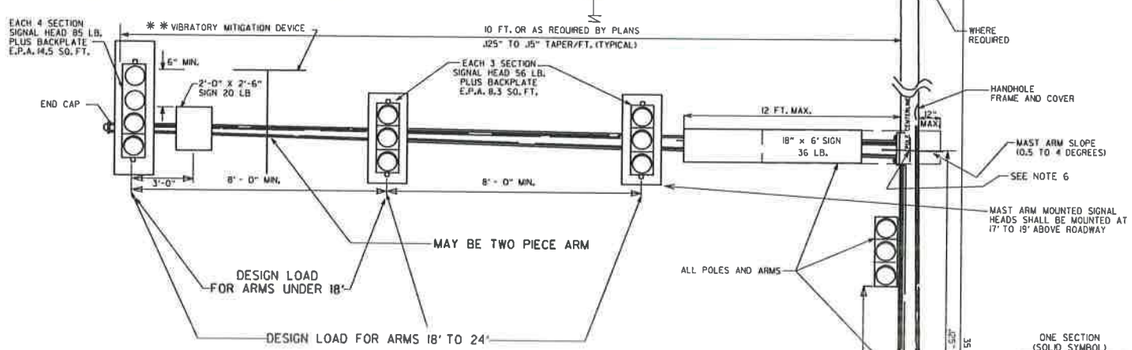
SIGNAL OPERATION NOTES:

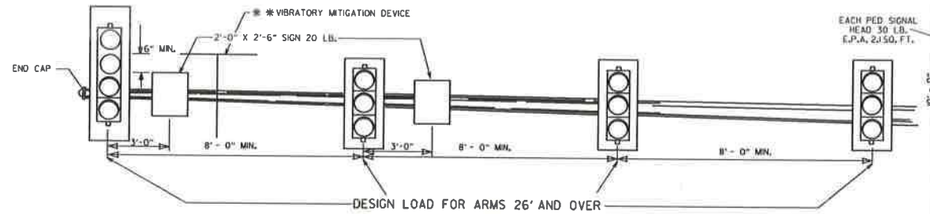
FLASHING OPERATION - PRIOR TO NORMAL OPERATION, SIGNAL SHALL BE FLASHED FOR A PERIOD OF 3 TO 5 WORK DAYS OR AS DIRECTED BY THE ENGINEER. SIGNAL SHALL BE PLACED IN OPERATION ONLY ON A REGULAR WORK DAY, EXCEPT FRIDAY.

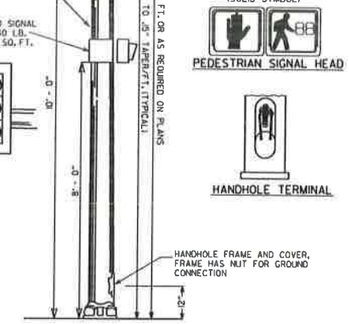
THE CONTRACTOR MAY BE REQUIRED TO ALTER THE FLASHING DISPLAY DURING THE TEMPORARY FLASH PERIOD. AT THE TIME THE INTERSECTION IS PLACED IN PERMANENT OPERATION, THE FLASH SEQUENCE SHALL THEN BE RETURNED TO THAT INDICATED ON THE PLAN SHEETS. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED FOR THESE ALTERATION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

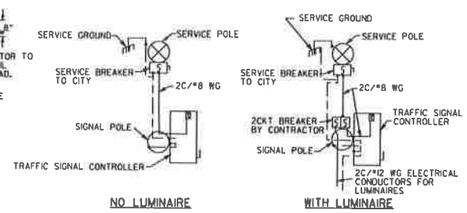
SPECIAL NOTE: 90 MPH WIND ZONE DESIGN, SEE NOTE 3. MINIMUM STRUCTURAL REQUIREMENTS.





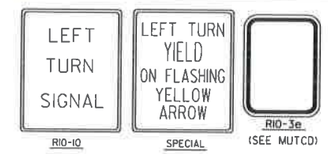






SERVICE DISCONNECT

NOTE: ELECTRICAL GROUND CONDUCTOR IS BONDED TO ALL METAL ENCLOSURES



DATE	REVISION	FILMED
11-16-17	REVISED NOTES, ADDED PEDESTRIAN SIGNAL HEAD DETAIL, ADDED HANDHOLE TERMINAL DETAIL, ADDED TRENCHING DETAIL	
02-27-14	REVISED NOTES.	
09-12-13	ISSUED AS STANDARD DRAWING	
12-08-16	REVISED NOTES	
02-27-14	REVISED NOTES	
09-12-13	ISSUED AS STANDARD DRAWING	
07-21-11	REVISED VMD, SIGNAL HEADS	
05-21-09	REVISED GROUNDING	
07-31-08	REVISED GROUNDING	
04-25-08	ADDED VIBRATORY MITIGATION DEVICE & NOTES	
04-18-08	REVISED AASHTO NOTES	
04-17-08	REVISED TO 2001 AASHTO STANDARDS	
10-12-04	REVISED CABINET ORIENTATION	
06-23-04	REVISED	
05-11-04	REV. NOTE 3/AASHTO REQUIREMENTS	
06-11-01	REV. NOTES & POLE MAST ARM SLOPE	
04-11-01	REVISED POLE TAPERS	
04-25-00	REV. NOTES & SIGNAL HEAD PLACEMENT	
11-22-99	REVISED FOUNDATION DETAILS	
11-17-98	REVISED DETAILS AND NOTES	
11-21-95	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

STEEL POLE WITH MAST ARM

STANDARD DRAWING SD-11

SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH			35 MPH			40 MPH			45 MPH			50 MPH			55 MPH			60 MPH			65 MPH			70 MPH			75 MPH		
	e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)		e	Ls (FT)	
		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE		MINIMUM	DESIRABLE
0° 15'	NC			NC			NC			NC			NC			NC			NC			NC			NC			NC		
0° 30'	NC			NC			NC			NC			NC			NC			RC	96		RC	96		RC	96		0.022	101	
0° 45'	NC			NC			NC			NC			RC	96		RC	96		0.024	106		0.026	110		0.030	120		0.032	125	
1° 00'	NC			NC			NC			RC	90		0.022	101		0.026	110		0.030	120		0.034	130		0.038	139		0.042	149	300
1° 15'	NC			NC			RC	84		0.022	95		0.028	115		0.032	125		0.038	139		0.042	149		0.046	158	300	0.052	173	
1° 30'	NC			RC	78		0.022	88		0.028	108		0.032	125		0.038	139		0.044	154		0.050	168	300	0.056	182		0.062	197	
1° 45'	RC	72		RC	78		0.026	97		0.030	113		0.036	134		0.044	154		0.050	168		0.056	182		0.064	202		0.070	216	
2° 00'	RC	72		0.024	86		0.028	101		0.034	122		0.042	149		0.048	163		0.056	182		0.064	202		0.070	216		0.080	240	
2° 15'	RC	72		0.026	90		0.032	109		0.038	131		0.046	158		0.054	178		0.062	197		0.070	216		0.078	235		0.088	259	350
2° 30'	0.022	75		0.028	94		0.034	113		0.042	140		0.050	168		0.058	187	300	0.068	211		0.076	230		0.086	254	350	0.096	278	
2° 45'	0.024	79		0.030	98		0.038	122		0.046	149	200	0.054	178		0.064	202		0.072	221		0.082	245		0.092	269		0.100	288	400
3° 00'	0.026	83		0.034	105		0.040	126		0.050	158		0.058	187		0.068	211		0.078	235		0.088	259		0.098	283		D MAX = 2° 45'		
3° 15'	0.028	86		0.036	109		0.044	134		0.052	162		0.062	197		0.072	221		0.082	245		0.092	269		0.100	288				
3° 30'	0.030	90		0.038	113		0.046	139		0.056	171		0.066	206		0.076	230		0.086	254		0.096	278		D MAX = 3° 30'					
3° 45'	0.032	93		0.040	117		0.050	147		0.058	176		0.070	216		0.080	240		0.090	264		0.098	283							
4° 00'	0.034	97		0.042	121	200	0.052	151		0.062	185		0.072	221		0.084	250		0.094	274		0.100	288							
4° 15'	0.036	100		0.044	125		0.054	155		0.064	189		0.076	230		0.086	254		0.096	278		D MAX = 4° 15'								
4° 30'	0.036	100		0.046	129		0.056	160		0.068	198		0.078	235		0.090	264		0.098	283										
4° 45'	0.038	104	200	0.048	133		0.060	168		0.070	203		0.082	245		0.092	269		0.100	288										
5° 00'	0.040	108		0.050	137		0.062	172		0.072	207		0.084	250		0.094	274		D MAX = 5° 15'										
5° 30'	0.044	115		0.054	144		0.066	181		0.078	221	250	0.088	259		0.098	283												
6° 00'	0.046	119		0.058	152		0.070	189		0.082	230		0.092	269		0.100	288												
6° 30'	0.050	126		0.062	160		0.074	198		0.086	239		0.096	278	300	D MAX = 6° 30'													
7° 00'	0.052	130		0.064	164		0.078	206		0.090	248		0.098	283															
7° 30'	0.054	133		0.068	172		0.080	210		0.092	252		0.100	288															
8° 00'	0.058	140		0.070	176		0.084	219		0.094	257	300	D MAX = 8° 25'																
8° 30'	0.060	144		0.072	179		0.086	223	250	0.096	261																		
9° 00'	0.062	148		0.076	187		0.088	227		0.098	266																		
9° 30'	0.064	151		0.078	191		0.092	235		0.100	270																		
10° 00'	0.066	155		0.080	195		0.094	240		D MAX = 10° 30'																			
11° 00'	0.070	162		0.084	203		0.096	244																					
12° 00'	0.074	169		0.088	211	250	0.098	248																					
13° 00'	0.076	173		0.090	215		0.100	252	300																				
14° 00'	0.080	180		0.094	222		D MAX = 13° 45'																						
15° 00'	0.082	184		0.096	226																								
16° 00'	0.086	191		0.098	230																								
17° 00'	0.088	194		0.100	234																								
18° 00'	0.090	198	250	D MAX = 19° 30'																									
19° 00'	0.092	202																											
20° 00'	0.094	205																											
21° 00'	0.096	209																											
22° 00'	0.096	209																											
23° 00'	0.098	212																											
24° 00'	0.098	212																											
25° 00'	0.100	216																											
D MAX = 28° 30'																													

GENERAL NOTES

1. ON PAVEMENT WITH TWO-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE INSIDE PAVEMENT EDGE UNLESS OTHERWISE NOTED ON THE PLANS
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED TO OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR L MAY BE ROUNDED IN MULTIPLES OF 25 FT. OR 50 FT. TO PERMIT SIMPLER CALCULATIONS.
4. PAVEMENTS WIDER THAN 2 LANES SHALL HAVE ADDITIONAL TRANSITION LENGTHS AS FOLLOWS:

3 LANE UNDIVIDED - - - - - +20%
4 LANE UNDIVIDED - - - - - +50%
5 LANE UNDIVIDED - - - - - +80%
6 LANE UNDIVIDED - - - - - +100%

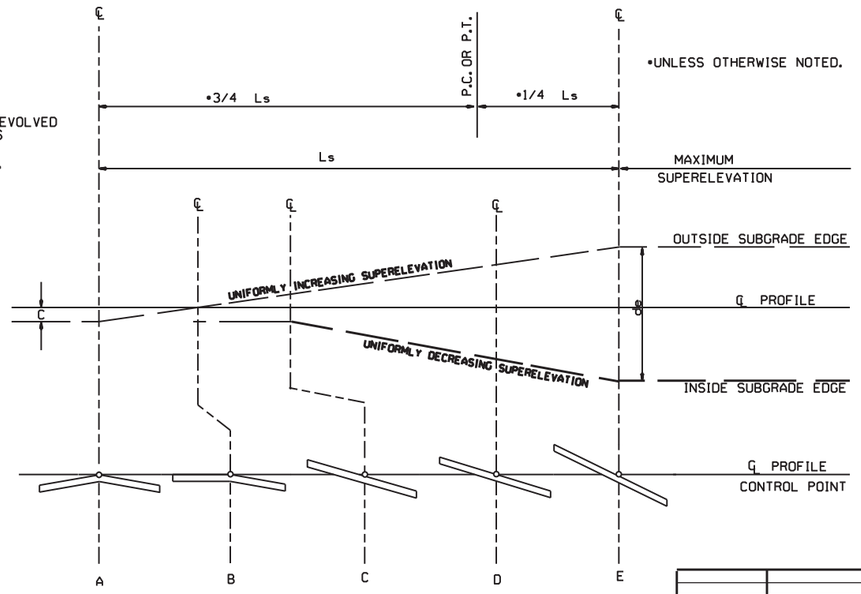
NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

RATE OF SUPERELEVATION SHALL BE COMPUTED ON STRAIGHT LINE METHOD USING APPLICABLE Ls.

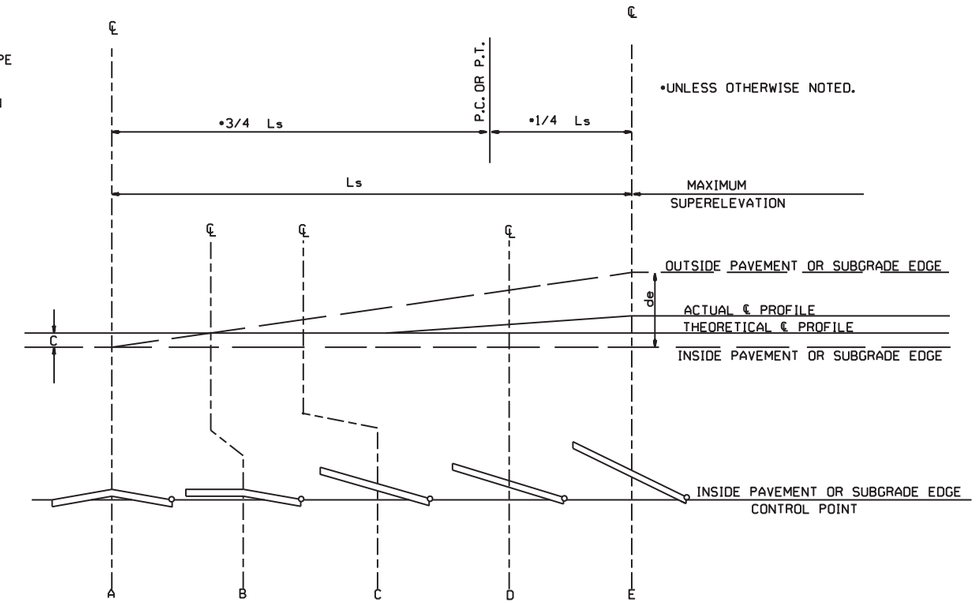
SUPERELEVATION FORMULA = $\frac{Lde}{Ls}$

ABBREVIATIONS

NC - NORMAL CROWN
RC - REVERSE CROWN, SUPERELEVATION AT NORMAL CROWN SLOPE
e - RATE OF SUPERELEVATION (FT. PER FT.)
Ls - LENGTH OF SUPERELEVATION TRANSITION (FT.)
L - DISTANCE FROM BEGINNING OF SUPERELEVATION TRANSITION TO ANY POINT (FT.)
d - WIDTH OF PAVEMENT (FT.) OR WIDTH OF SUBGRADE (FT.)
C - NORMAL CROWN (FT.)



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND INNER SUBGRADE POINT OR INNER PAVEMENT EDGE

NOTE: MAINTAIN NORMAL CROWN ON INSIDE UNTIL SUPERELEVATION EXCEEDS 2C.

DATE	REVISION	DATE FILMED
11-07-19	REVISED SUPERELEVATION TABLE	
10-18-96	ADDED FORMULA	
01-09-87	ISSUED	534-1-9-87

ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2

R1-1
30"X30"

W1-3
30"X30"
(LT. OR RT.)

W1-8
18"X24"

W2-5
30"X30"

W3-1
36"X36"

W5-1
36"X36"

M6-3
21"X15"

R1-2
36"X36"X36"

W1-4
30"X30"
(LT. or RT.)

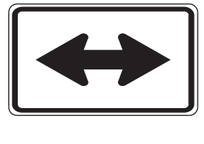
W2-1
30"X30"

S1-1
36"X36"

W3-2
36"X36"

County
Route Marker
M1-6
24"X24"

NOTE: REFLECTORIZED YELLOW LEGEND (COUNTY NAME, ROUTE LETTER & NUMBER) & BORDER ON A BLUE BACKGROUND.



M6-4
21"X15"

R2-1
24"X30"

W1-5
30"X30"
(LT. or RT.)

W2-2
30"X30"

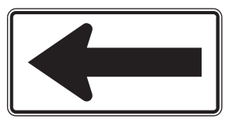
W5-2
36"X36"

W8-3
36"X36"

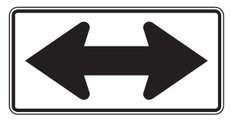
R1-3P
18"X6"

M6-5
21"X15"

W1-1
30"X30"
(LT. or RT.)



W1-6
48"X24"



W1-7
48"X24"

W2-3
30"X30"
(LT. or RT.)

W5-3
36"X36"

W13-1P
18"X18"

M6-1
21"X15"

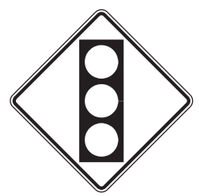
NOTE: ALL M6 SIGNS TO BE MADE WITH REFLECTORIZED YELLOW ARROW & BORDER WITH BLUE BACKGROUND.

M6-6
21"X15"

W1-2
30"X30"
(LT. or RT.)

W2-4
30"X30"

W10-1
36" DIAMETER

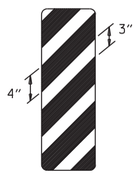


W3-3
36"X36"

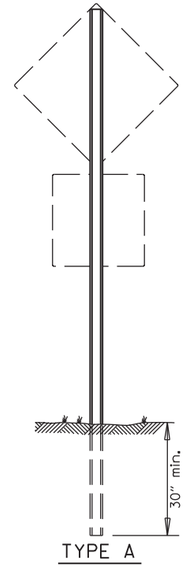
M6-2
21"X15"

S4-3P
24"X8"

S4-2P
24"X10"



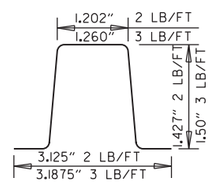
OM-3
12"X36"
(LT. or RT.)



TYPE A

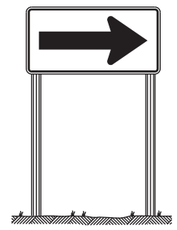
MINIMUM DIMENSIONS SHOWN

SUPPORT SECTION



(U-CHANNEL)
STANDARD SUPPORT
ASSEMBLIES

NOTE: LENGTH OF SIGN POSTS SHALL BE DETERMINED SO AS TO PROVIDE FOR MINIMUM VERTICAL CLEARANCES AS CALLED FOR IN THE SPECIFICATIONS PLUS A MINIMUM VERTICAL PENETRATION OF 30" IN THE SOIL.



TYPE B

TYPE C

MINIMUM WEIGHT

TYPE A & B = 3 LBS./FT.
TYPE C = 2 LBS./FT.

STANDARD HIGHWAY SIGNS

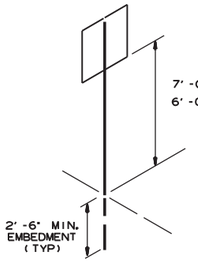
SUPPORT ASSEMBLIES

DATE	REVISION	DATE FILMED
9-12-13	DELETED JOB NO. BLOCK; REVISED RI-3 TO RI-3P	
4-17-08	REVISED SIGN DESIGNATION - W3-1 & W3-2	
4-10-03	REVISED W5-2, W8-3, OM-3; ADDED WI-8	
1-5-81	REDRAWN	960-1-15-81
9-15-78	ADDED WI4-3	877-9-15-78
9-2-76	POST WT.	623-9-3-76
5-3-76	STEEL POST WT. FROM 2#-3#; ADDED S4-2 & S4-3	504-5-3-76
8-12-74	REV. HT. TYPE "C" ASSEMBLY	500-8-21-74
12-21-72	ADDED M6-2,3,4,5,6	500-12-21-72
12-1-72	ISSUED	562-12-1-72

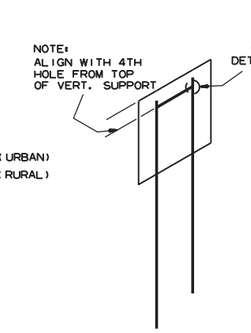
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD HIGHWAY SIGNS AND SUPPORT ASSEMBLIES

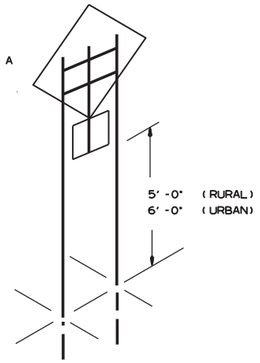
STANDARD DRAWING SHS-1



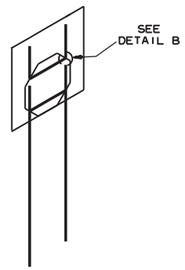
U-1



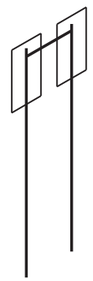
U-2



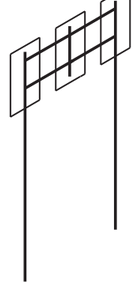
U-2 (A)



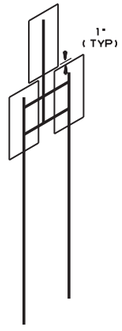
U-2 (B)



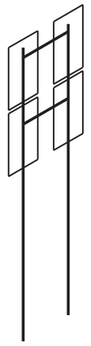
U-2 (1)



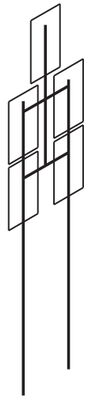
U-2 (2)



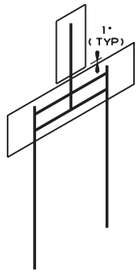
U-2 (3)



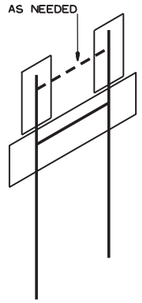
U-2 (4)



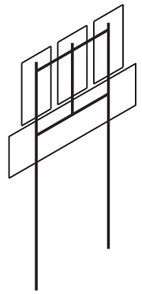
U-2 (5)



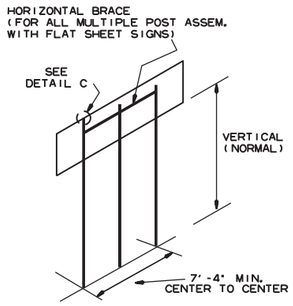
U-2 (6)



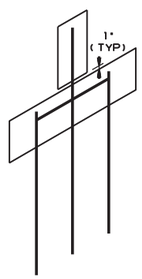
U-2 (7)



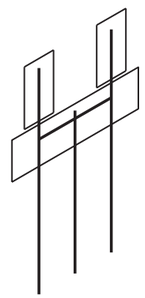
U-2 (8)



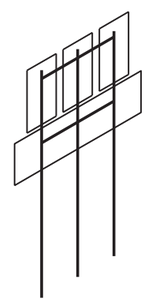
U-3



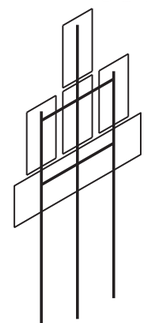
U-3 (1)



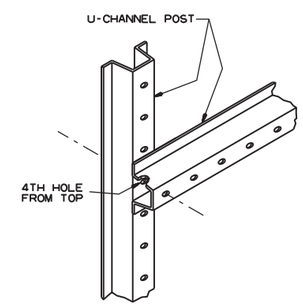
U-3 (2)



U-3 (3)

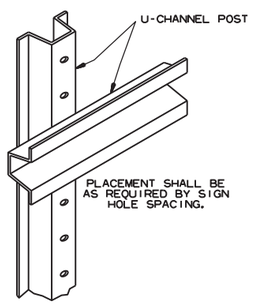


U-3 (4)



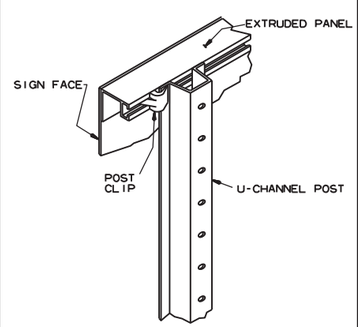
DETAIL A

SHOWING HORIZONTAL BRACE



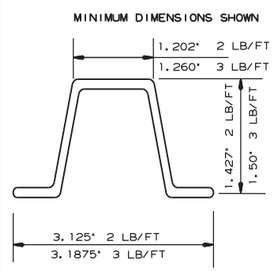
DETAIL B

SHOWING BACK-TO-BACK INSTALLATION



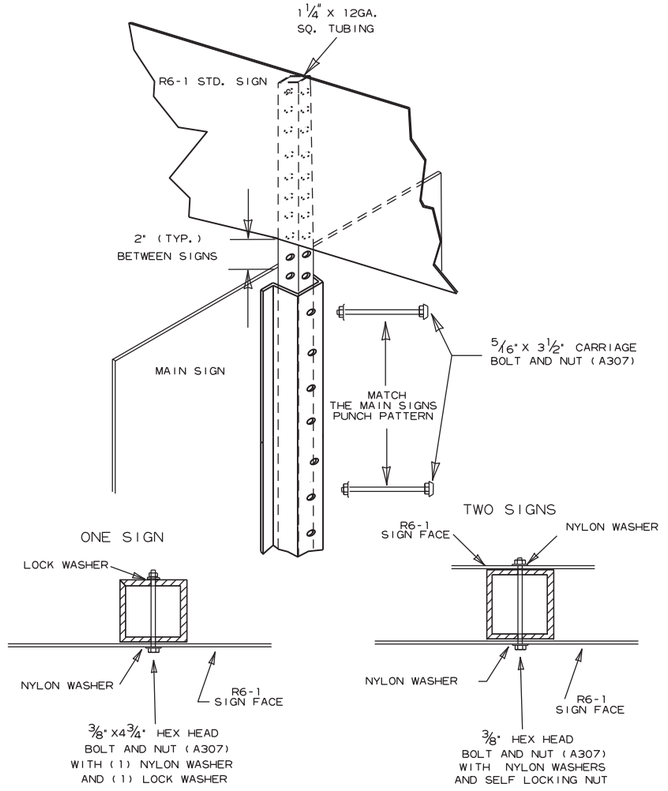
DETAIL C

SHOWING GUIDE SIGN MOUNTING WITH EXTRUDED PANELS



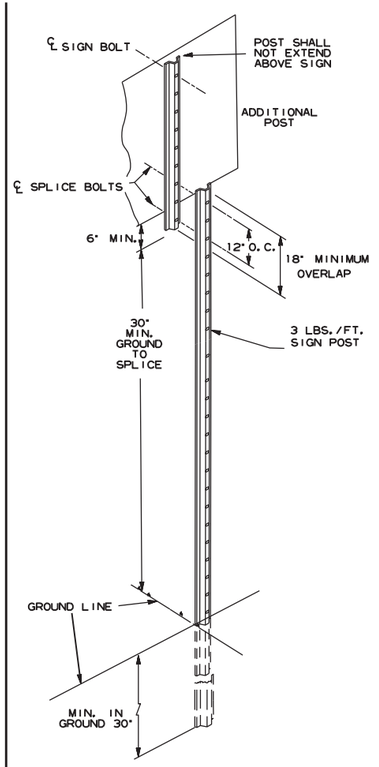
DETAIL C

U-CHANNEL POST



DETAIL E

R6-1 EXTENSION FOR U-CHANNEL POST



DETAIL F

DETAIL OF SPLICES

NOTES:

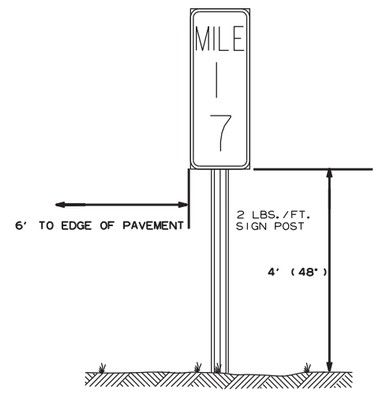
SIGNS AT LEAST 8' IN LENGTH MAY BE INSTALLED ON THREE 3 LB. POST. IN NO CASE SHALL THERE BE MORE THAN TWO 3 LB. POSTS WITHIN A 7' PATH.

SPLICES NECESSARY TO ATTAIN PROPER MOUNTING HEIGHT SHALL BE AS SHOWN IN DETAIL (F).

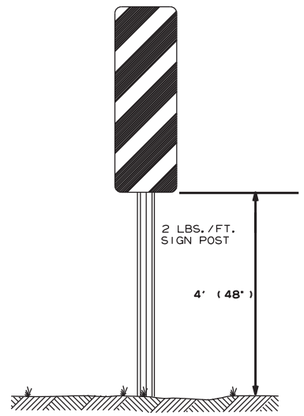
NORMAL INSTALLATIONS WILL REQUIRE 5/16" DIA. CARRIAGE BOLTS TO MOUNT SIGNS TO POST AND TO ASSEMBLE THE VARIOUS POST SUPPORTS.

ALL SIGN POSTS SHALL BE PLUMB.

THE POST FOR "TYPE U" SUPPORTS SHALL BE HOT DIP GALVANIZED.



TYPICAL MILE MARKER INSTALLATION



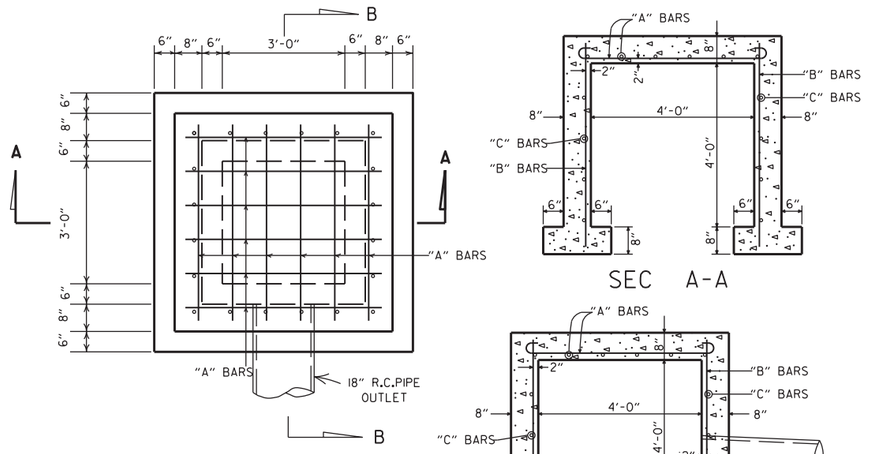
TYPICAL OM-3 INSTALLATION AT EDGE OF OBSTRUCTION

DATE	REVISION	FILMED
7-25-19	REVISED CARRIAGE BOLT WITH MATERIAL REQUIREMENT	
2-27-14	REVISED NOTES.	
9-12-13	REVISED U-2(3), U-2(6), U-3(1), DETAIL D; ADDED DETAILS E & F; ADDED TYPICAL MARKERS	
10-9-03	REMOVED ROUND POST & REVISED SPACING	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL	6-8-95
2-2-95	REDRAWN	2-2-95

ARKANSAS STATE HIGHWAY COMMISSION

U-CHANNEL POST ASSEMBLIES

STANDARD DRAWING SHS-2

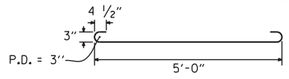


NOTE: MAX FILL HEIGHT ABOVE TOP OF BOX = 13'-0".

STEEL SCHEDULE

BARS	NUMBER	LENGTH	SPACING
"A"	12	6'-0"	10"
"B"	20	5'-0"	10 ½"
"C"	16	5'-0"	12"

ALL STEEL TO BE #4 BARS



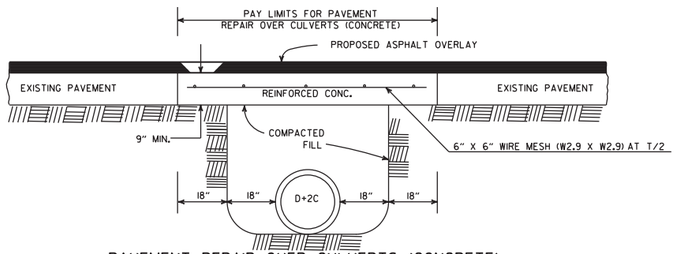
QUANTITIES

CONCRETE 3.31 CU. YDS.
REINFORCING STEEL 168 LB.

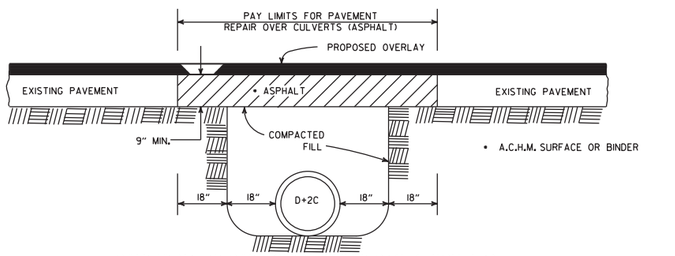
GENERAL NOTE:

THE PAY ITEMS FOR REINFORCED CONCRETE SPRING BOXES SHALL BE FOR THE QUANTITTIES OF CONCRETE OF THE CLASS SPECIFIED, REINFORCING STEEL, EXCAVATION FOR STRUCTURES AND 18" R.C. PIPE CULVERT.

REINFORCED CONCRETE SPRING BOX



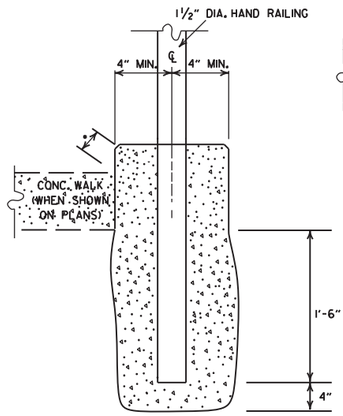
PAVEMENT REPAIR OVER CULVERTS (CONCRETE)



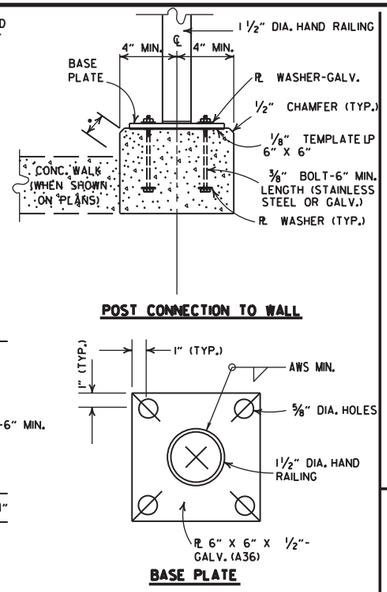
PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS

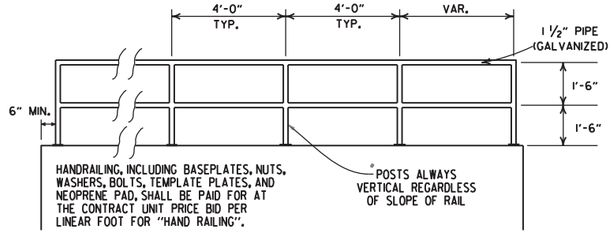
• A 2" MIN. HIGH CURB IS REQUIRED WHEN CONCRETE WALK IS ADJACENT TO THE HAND RAILING. PAYMENT FOR CURB SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR CONCRETE WALKS.



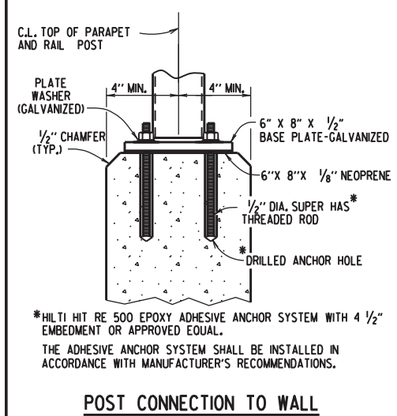
DETAIL OF HAND RAILING SET IN CONCRETE



POST CONNECTION DETAILS



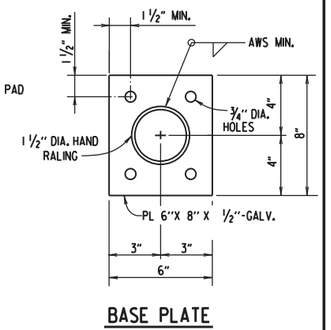
HAND RAILING SHALL CONFORM TO SECTION 633.



*HILTI HIT RE 500 EPOXY ADHESIVE ANCHOR SYSTEM WITH 4 ½" EMBEDMENT OR APPROVED EQUAL.

THE ADHESIVE ANCHOR SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

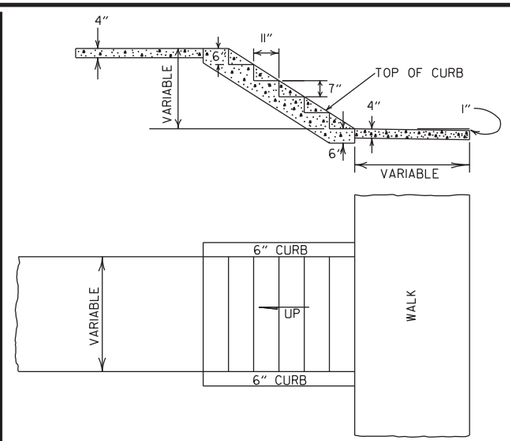
POST CONNECTION TO WALL



BASE PLATE

DETAILS OF ALTERNATE POST ANCHOR SYSTEM (EPOXY ADHESIVE ANCHORS)

HAND RAILING DETAILS



GENERAL NOTES

1. RISE AND TREAD DIMENSIONS OF STEPS MAY BE VARIED AS DIRECTED BY THE ENGINEER, HOWEVER, TREAD WIDTHS SHALL BE 11" MIN. ALL STEPS IN A FLIGHT SHALL HAVE CONSISTENT TREAD & RISER DIMENSIONS.
2. 1" TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE WALKS AT 45' INTERVALS.

DETAILS OF CONCRETE STEPS & WALKS

DATE	REVISION	DATE FILMED
10-25-18	REVISED DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS	
9-12-13	REVISED REINFORCED CONCRETE SPRING BOX	
7-26-12	REMOVED RETAINING WALL DETAILS & REVISED HAND RAILING DETAILS	
4-17-08	REV. JOINT & FOOTING STEP DETAILS	
11-29-07	REVISED RETAINING WALL DRAINAGE	
5-25-06	REVISED PVMT REPAIR OVER CULVERTS (CONC); REVISED REINFORCED CONC SPRING BOX	
10-9-03	REVISED PIPE RAILING DETAILS TO HAND RAILING DETAILS	
4-10-03	REVISED RETAINING WALL DRAWING	
8-22-02	ADDED HAND RAILING DETAIL	
11-16-01	REVISED PVMT REPAIR OVER CULVERTS (CONC); CORRECTED SPELLING IN GENERAL NOTES	
11-18-98	ADDED GENERAL NOTES TO CONCRETE STEPS & WALKS	
7-02-98	ENLARGED PIPE	
4-03-97	ADDED NOTE TO STEEL BAR SCHED.	
10-18-96	CORRECTED SPELLING	
4-26-96	ADD WEEP HOLE;REV. JOINT SPACING IN RET. WALL	
6-2-94	CHANGED CONST. TO CONTRACTION JOINT	
10-1-92	CHANGED MESH FABRIC TO WIRE MESH	10-1-92
8-15-91	DELETED HDWL MODIFICATION DETAIL	8-15-91
11-8-90	DELETED COLD MIX FROM CULV'T. REPAIR	11-8-90
11-30-89	REV. RETAINING WALL STEEL SCHEDULE	11-30-89
11-17-88	V BARS BEHIND ARROW	665-11-17-88
7-15-88	REV. PAVEMENT REPAIR ADDED HDWL. MODS, DEL. PIPE UNDERDRAINS	649-7-15-88
11-1-84	REV. TRENCH FOR PIPE UNDERDRAIN	510-11-1-84
1-4-83	ELIMINATED CONC. CLASS & ADDED CHAMFER NOTE	682-1-4-83
3-2-81	SPELLING OF "UNDERDRAIN"	721-3-2-81
4-20-79	REV. UNDERDRAIN DET& PAVEMENT REPAIR	674-4-20-79
2-2-76	12"MIN. GRAN. MAT'L. OVER PIPE	919-2-2-76
4-10-75	REM. SPECS. FOR GRAN. MAT'L.	568-4-10-75-853
5-22-74	GRANULAR MAT'L. TO BE SB-3	567-5-22-74-740
10-2-72	REVISED AND REDRAWN	564-10-16-72

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF SPECIAL ITEMS

STANDARD DRAWING SI-1

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"

W3-5

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

W3-5a

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

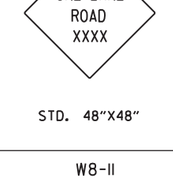
R4-1

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

R4-2

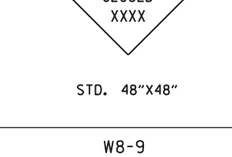
STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R5-1



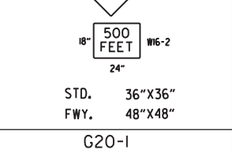
STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

RII-2



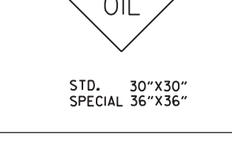
48"X30"

RII-3A



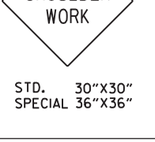
60"X30"

RII-4



60"X30"

W21-5a

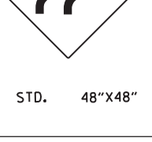


STD. 36"X36"
FWY. 48"X48"

WI-1

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

WI-2

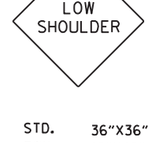


STD. 36"X36"
FWY. 48"X48"

WI-3

STD. 48"X48"

WI-4



STD. 48"X48"

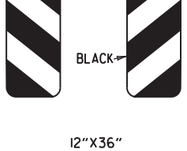
WI-6

STD. 48"X24"
SPECIAL 60"X30"

WI-8

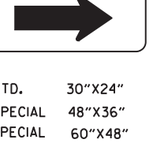
STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

W3-1



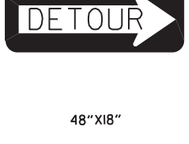
STD. 36"X36"
SPECIAL 48"X48"

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.

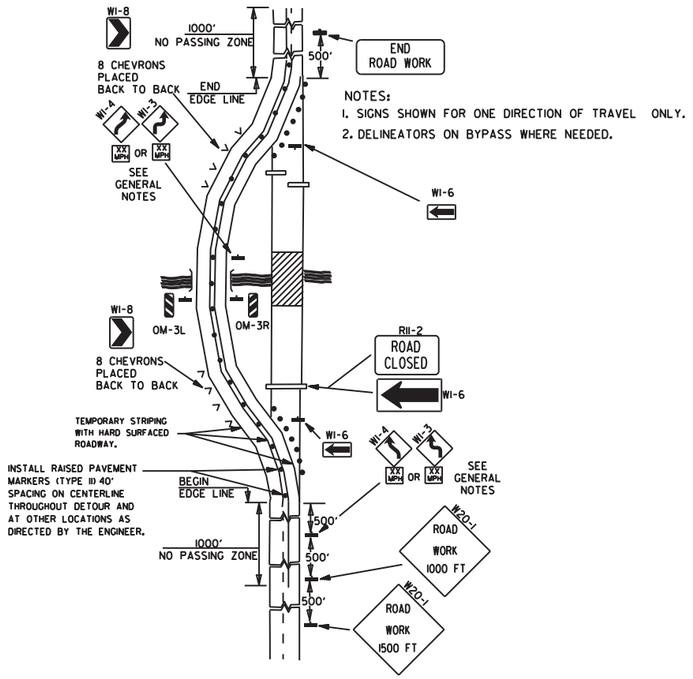
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED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

DATE	REVISION	FILMED
11-07-19	REVISED FOR MASH	
4-13-17	DELETED RSP-1 & ADDED W21-5a	
9-2-15	REVISED REDUCED SPEED LIMIT AHEAD SIGNS REVISED ROAD WORK NEXT XX MILES	
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

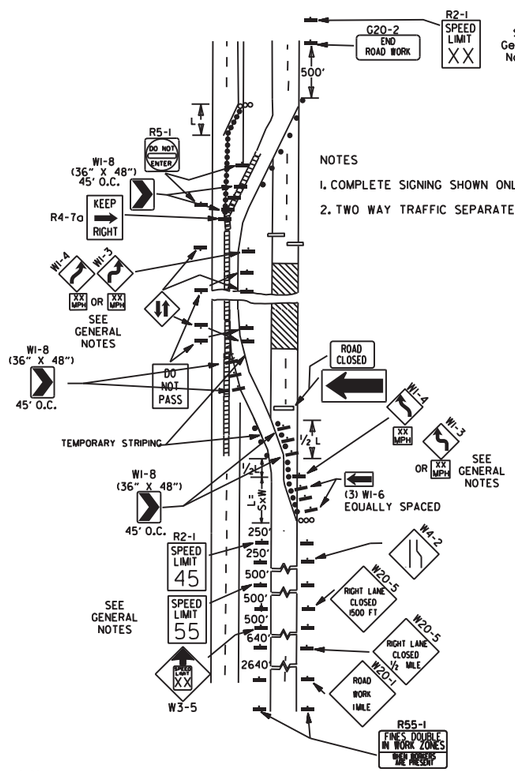
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



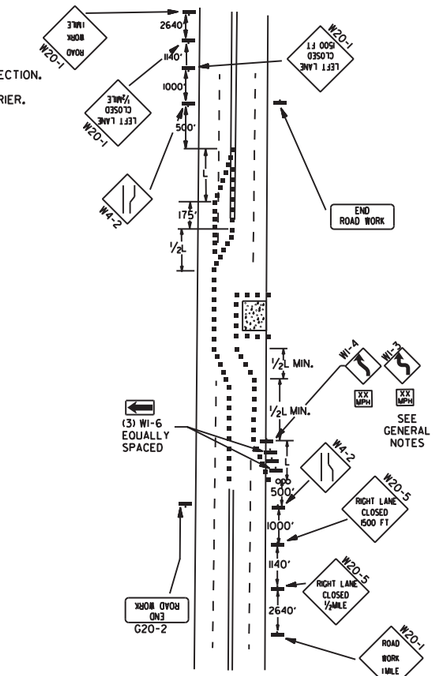
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

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

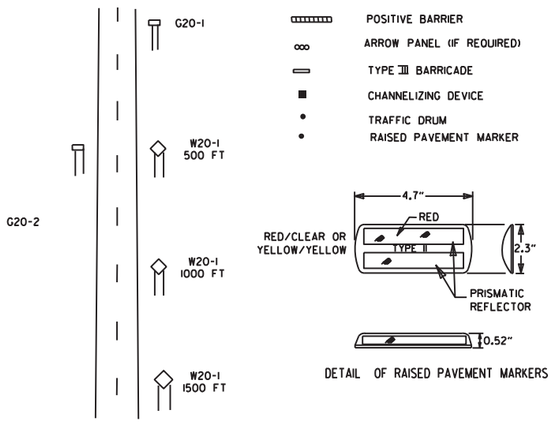


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

(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

TAPER FORMULAE:

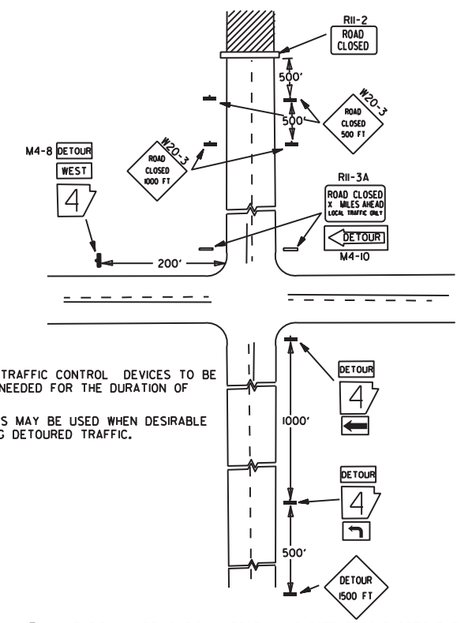
L=SXW FOR SPEEDS OF 45MPH OR MORE.

$L = \frac{WS^2}{60}$ 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.

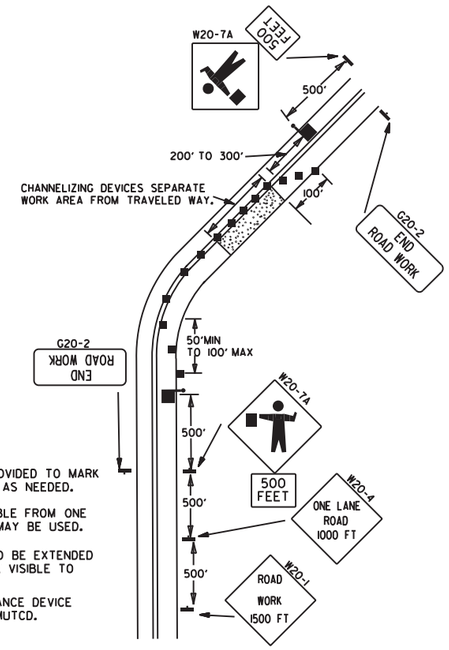
GENERAL NOTES:

1. THE MAINTENANCE DIVISION SHALL CONDUCT A BALL BANK STUDY TO DETERMINE THE ADVISORY SPEED LIMIT PRIOR TO OPENING TO TRAFFIC. THE ADVISORY SPEED WILL BE POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 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 W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-145MPH 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 R2-155MPH 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.
8. 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 ARDOT QUALIFIED PRODUCTS LIST.
9. ALL TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL MEET THE REQUIREMENTS OF THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).



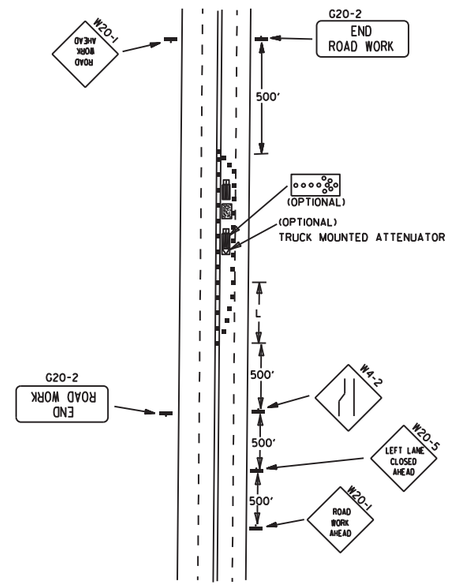
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

(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.



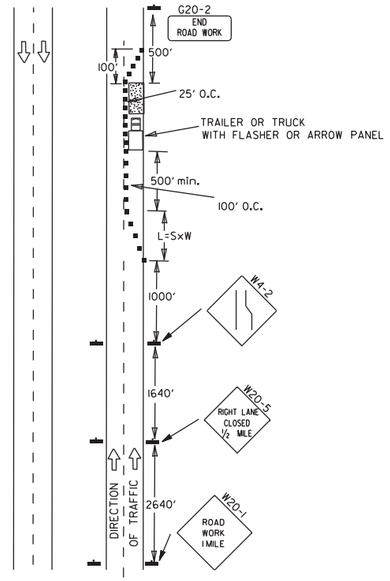
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

11-07-19	REVISED NOTE 1, ADDED NOTE 9	
9-2-15	REVISED NOTE 2, ADDED NOTE 8, REVISED DRAWING (A) & REPLACED R2-5A WITH W3-5	
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 (o) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	
DATE	REVISION	FILMED

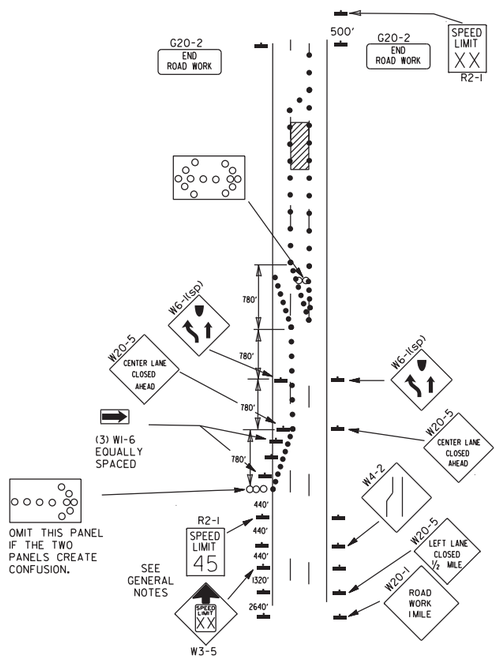
ARKANSAS STATE HIGHWAY COMMISSION

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.

KEY:

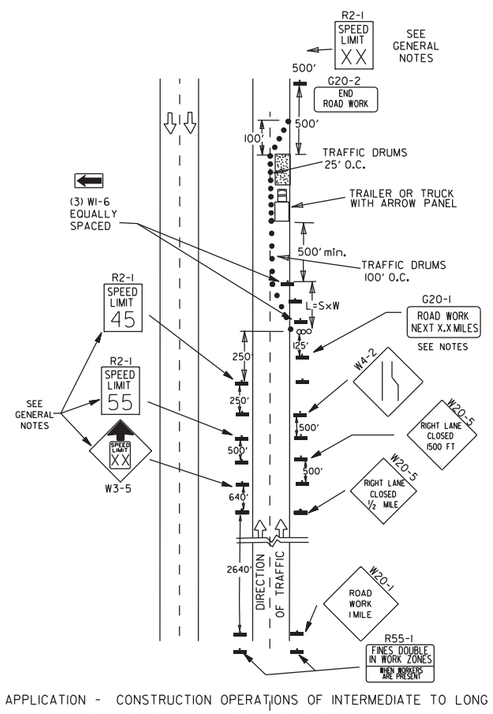
ooo ARROW PANEL (IF REQUIRED)

■ CHANNELIZING DEVICE

● TRAFFIC DRUM

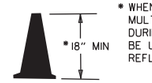
GENERAL NOTES:

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 W3-5 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 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.
11. ALL TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL MEET THE REQUIREMENTS OF THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).



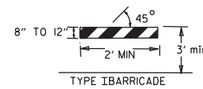
(C) TYPICAL APPLICATION - CONSTRUCTION OPERATIONS OF INTERMEDIATE TO LONG TERM DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.

CHANNELIZING DEVICES



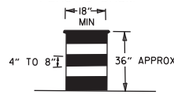
* WHEN CONES ARE USED ON FREEWAYS AND MULTI-LANE HIGHWAYS, THEY SHALL BE 28" MIN. DURING HOURS OF DARKNESS. 28" CONES SHALL BE USED ON ALL ROADWAYS, AND SHALL BE REFLECTORIZED IN ACCORDANCE WITH THE M.U.T.C.D.

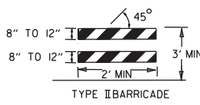
CONES



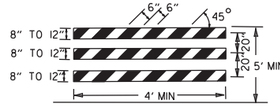
TYPE I BARRICADE

PLASTIC DRUM



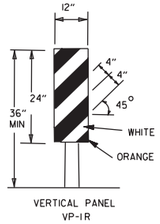


TYPE II BARRICADE



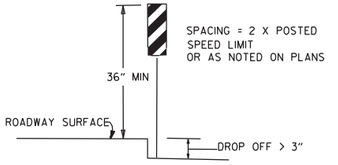
TYPE III BARRICADE

NOTE:
FOR ALL ROAD CLOSURES, THE TYPE III BARRICADES SHALL BE OF SUFFICIENT LENGTH TO EXTEND ACROSS ENTIRE ROADWAY.

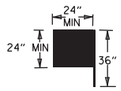


VERTICAL PANEL
VP-1R

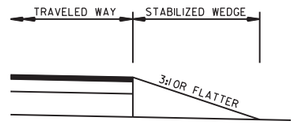
VERTICAL PANEL PLACEMENT



FLAG

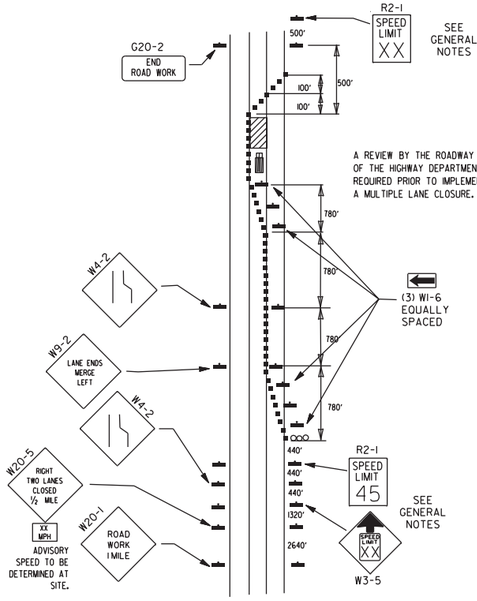


FLAG SHALL BE OF GOOD GRADE RED MATERIAL



STABILIZED WEDGE

NOTE:
MATERIALS FOR THE STABILIZED WEDGE SHALL MEET THE REQUIREMENTS PROVIDED IN SECTION 603.02 OF THE STANDARD SPECIFICATIONS.



A REVIEW BY THE ROADWAY DESIGN DIVISION OF THE HIGHWAY DEPARTMENT WILL BE REQUIRED PRIOR TO IMPLEMENTING A MULTIPLE LANE CLOSURE.

(D) TYPICAL APPLICATION - CLOSING MULTIPLE LANES OF A MULTILANE HIGHWAY.

TRAFFIC CONTROL DEVICES

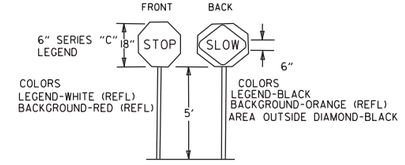
NON-INTERSTATE			
VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL	
		≤ 45 MPH	> 45 MPH
≤ 2"	CENTERLINE	W8-11 AND LANE STRIPING	W8-11 AND LANE STRIPING
> 2"	CENTERLINE	STANDARD LANE CLOSURE	STANDARD LANE CLOSURE
≤ 3"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9, EDGE LINE STRIPING, AND VERTICAL PANELS	W8-9, EDGE LINE STRIPING, AND VERTICAL PANELS
> 3" ≤ 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND VERTICAL PANELS	W8-17, EDGE LINE STRIPING, AND VERTICAL PANELS
> 6" ≤ 18"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS(1)	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS(2)
> 18" ≤ 24"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS(1)	A STABILIZED WEDGE, W8-17, EDGE LINE STRIPING AND TRAFFIC DRUMS(3)
> 24"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	PRECAST CONCRETE BARRIER(4) & EDGE LINES	PRECAST CONCRETE BARRIER(4) & EDGE LINES

INTERSTATE		
VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL
≤ 2"	CENTERLINE	W8-11 AND LANE STRIPING
≤ 2"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9, EDGE LINE STRIPING, AND TRAFFIC DRUMS(2)
> 2" ≤ 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS(2)
> 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	PRECAST CONCRETE BARRIER & EDGE LINES

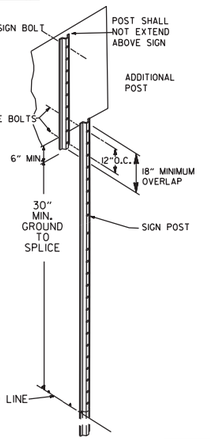
INTERSTATE AND NON-INTERSTATE		
FORESLOPE	HEIGHT	TRAFFIC CONTROL
1:1	> 2 FT	PRECAST CONCRETE BARRIER
2:1	≤ 5 FT	TRAFFIC DRUMS
2:1	> 5 FT	PRECAST CONCRETE BARRIER
Flatter than 2:1	N/A	TRAFFIC DRUMS

GENERAL NOTES:
1. WHEN THE SHOULDER AREA IS USED AS PART OF THE TRAVELED LANE AND THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, THEN VERTICAL PANELS SHALL BE USED.
2. WHEN THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, A STABILIZED WEDGE SHALL BE USED.
3. PRECAST CONCRETE BARRIER WALL CAN BE USED IN LIEU OF A STABILIZED WEDGE, W8-17 SIGN, EDGE LINE STRIPING, AND TRAFFIC DRUMS, IF AND WHERE DIRECTED BY THE ENGINEER.
4. A STABILIZED WEDGE, W8-17 SIGN, EDGE LINE STRIPING, AND TRAFFIC DRUMS CAN BE USED IN LIEU OF PRECAST CONCRETE BARRIER WALL, IF AND WHERE DIRECTED BY THE ENGINEER.
5. W21-5, W21-5a, AND/OR W21-5b SIGNS SHALL BE USED WHERE THE ROADWAY IS UNOBSTRUCTED IF AND WHERE DIRECTED BY THE ENGINEER.

STOP SLOW PADDLE



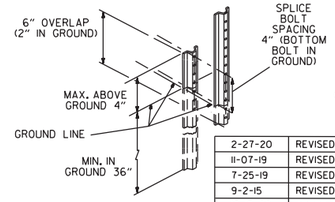
DETAIL OF SPLICES



NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-21)

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
2-27-20	REVISED TRAFFIC CONTROL DEVICES DETAILS	
11-07-19	REVISED NOTE 9, ADDED NOTE 11	
7-25-19	REVISED TRAFFIC CONTROL DEVICES DETAILS	
9-2-15	REVISED NOTE 2 & REPLACED R2-5A WITH W3-5	
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	

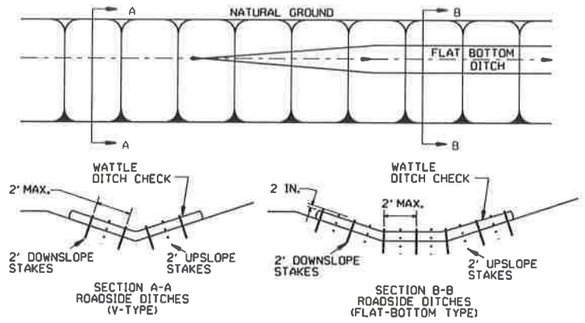
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

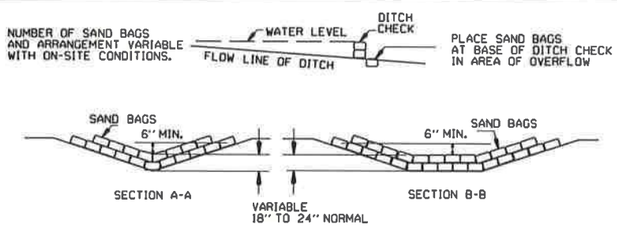
STANDARD DRAWING TC-3

GENERAL NOTES

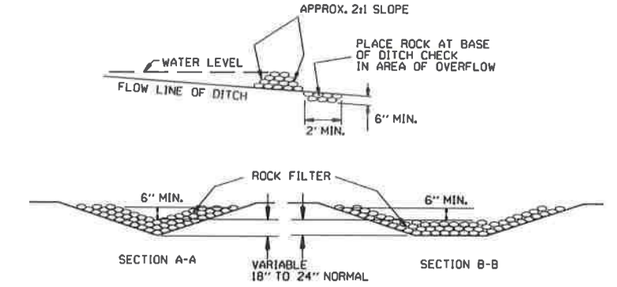
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



SAND BAG DITCH CHECK (E-5)

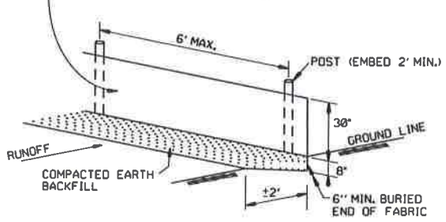


ROCK DITCH CHECK (E-6)

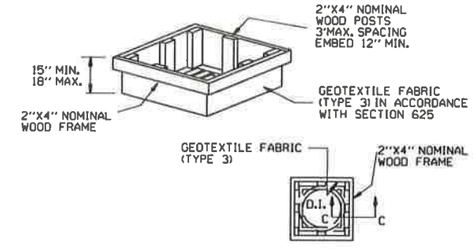
GENERAL NOTES

GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625

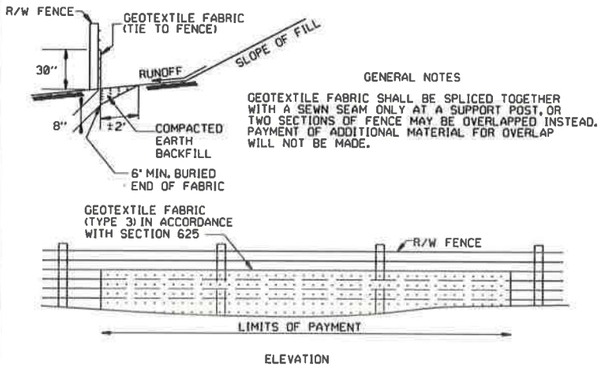
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



SILT FENCE (E-11)



DROP INLET SILT FENCE (E-7)



GENERAL NOTES

GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

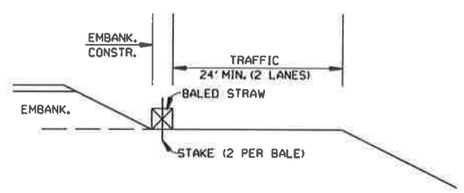
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

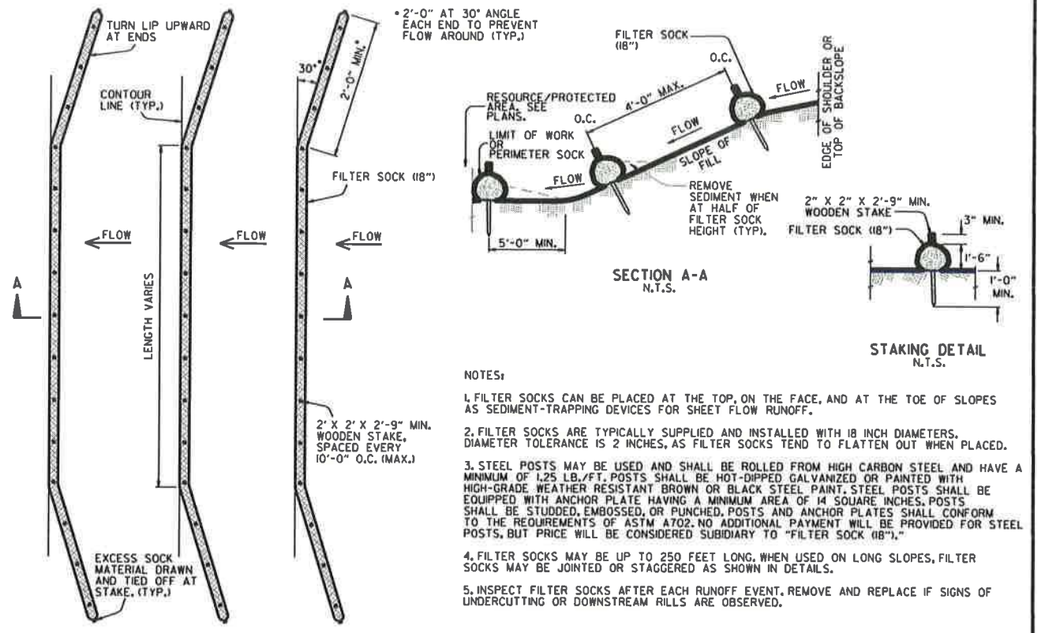
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



BALED STRAW FILTER BARRIER (E-2)



NOTES:

1. FILTER SOCKS CAN BE PLACED AT THE TOP, ON THE FACE, AND AT THE TOE OF SLOPES AS SEDIMENT-TRAPPING DEVICES FOR SHEET FLOW RUNOFF.

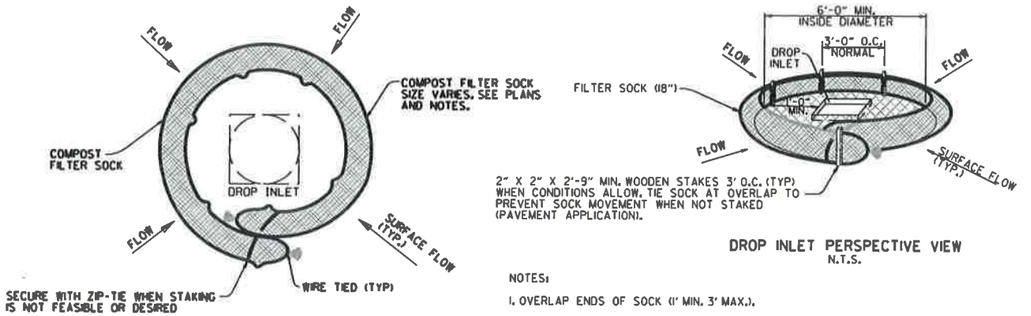
2. FILTER SOCKS ARE TYPICALLY SUPPLIED AND INSTALLED WITH 18 INCH DIAMETERS. DIAMETER TOLERANCE IS 2 INCHES, AS FILTER SOCKS TEND TO FLATTEN OUT WHEN PLACED.

3. STEEL POSTS MAY BE USED AND SHALL BE ROLLED FROM HIGH CARBON STEEL AND HAVE A MINIMUM OF 1.25 LB./FT. POSTS SHALL BE HOT-DIPPED GALVANIZED OR PAINTED WITH HIGH-GRADE WEATHER RESISTANT BROWN OR BLACK STEEL PAINT. STEEL POSTS SHALL BE EQUIPPED WITH ANCHOR PLATE HAVING A MINIMUM AREA OF 14 SQUARE INCHES. POSTS SHALL BE STUDDED, EMBOSSED, OR PUNCHED. POSTS AND ANCHOR PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A702. NO ADDITIONAL PAYMENT WILL BE PROVIDED FOR STEEL POSTS, BUT PRICE WILL BE CONSIDERED SUBIDIARY TO "FILTER SOCK (18")."

4. FILTER SOCKS MAY BE UP TO 250 FEET LONG. WHEN USED ON LONG SLOPES, FILTER SOCKS MAY BE JOINTED OR STAGGERED AS SHOWN IN DETAILS.

5. INSPECT FILTER SOCKS AFTER EACH RUNOFF EVENT. REMOVE AND REPLACE IF SIGNS OF UNDERCUTTING OR DOWNSTREAM RILLS ARE OBSERVED.

FILTER SOCK ALONG SLOPE (E-3)



NOTES:

1. OVERLAP ENDS OF SOCK (1' MIN. 3' MAX.).

2. USE 18" DIA. SOCK IN NON-TRAFFIC AREAS OR AREAS WHERE SAFETY IS NOT A CONCERN.

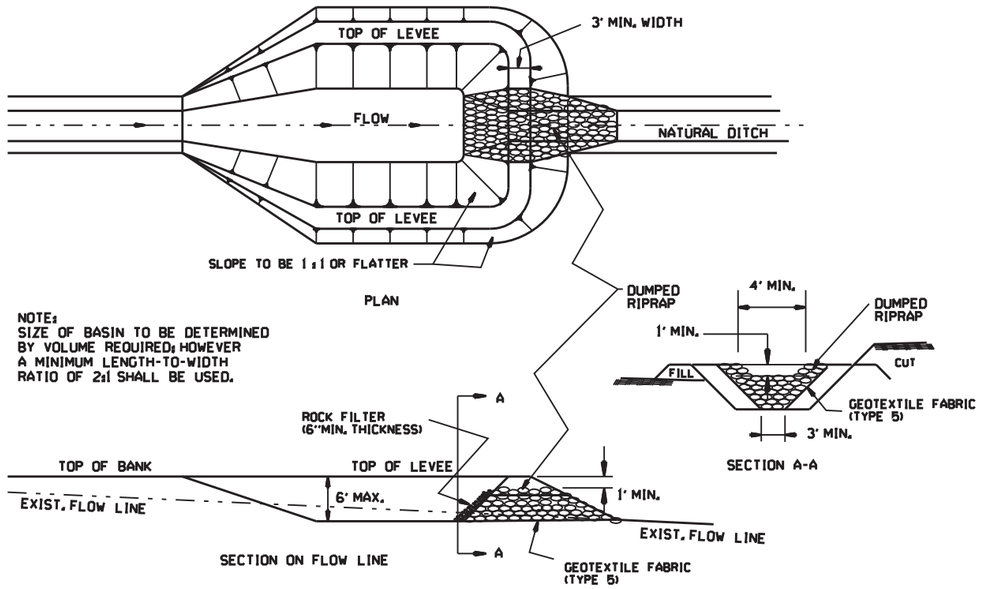
COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)

DATE	REVISION	FILMED
11-16-17	ADDED FILTER SOCK E-3 AND E-13	
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK	
11-18-98	ADDED NOTES	
07-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)	
07-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95
07-15-94	REV. E-4 & E-11 MIN. 13" BURIED END OF FABRIC	
06-02-94	REVISED E-1,4,7 & 11; DELETED E-2 & 3	6-2-94
04-01-93	REDRAWN	
10-01-92	REDRAWN	
08-02-76	ISSUED R.D.M.	298-7-28-76

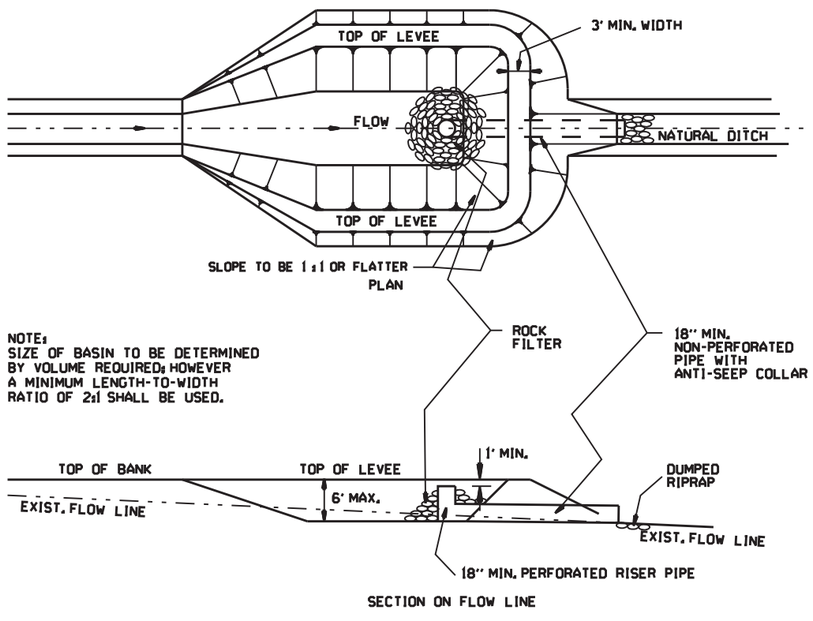
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

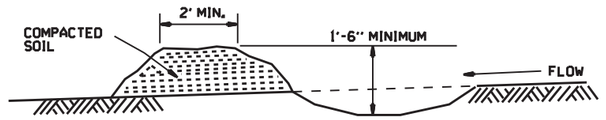
STANDARD DRAWING TEC-1



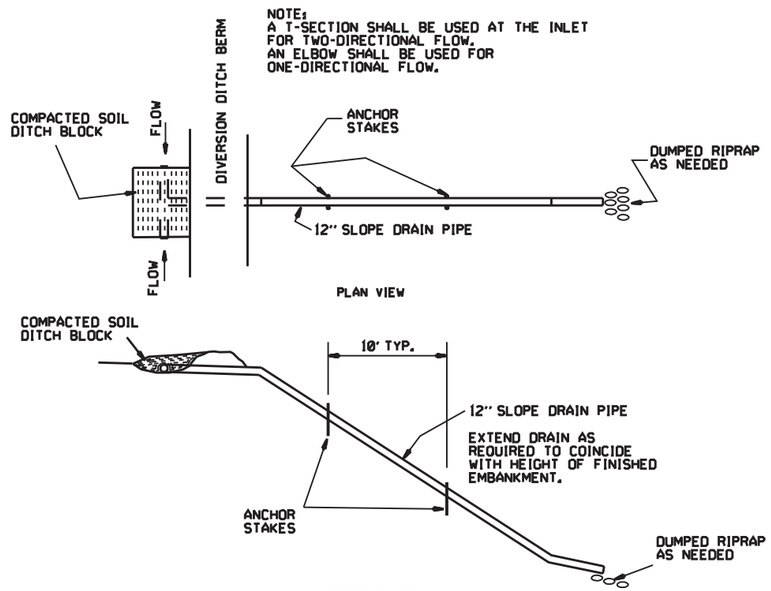
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



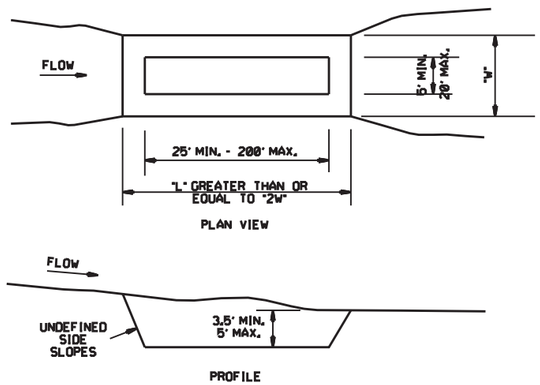
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

DATE	REVISION	FILMED
6-2-94	Revised E-8 & E-12; Added E-14 & Deleted E-13	
4-1-93	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

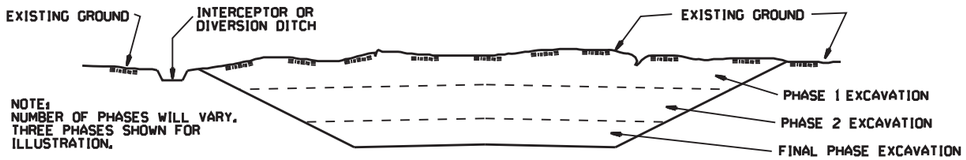
STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

1. PLACE PERIMETER CONTROLS (I.E. SILT FENCES , DIVERSION DITCHES, SEDIMENT BASINS, ETC.)
2. PERFORM CLEARING AND GRUBBING OPERATION.

EXCAVATION



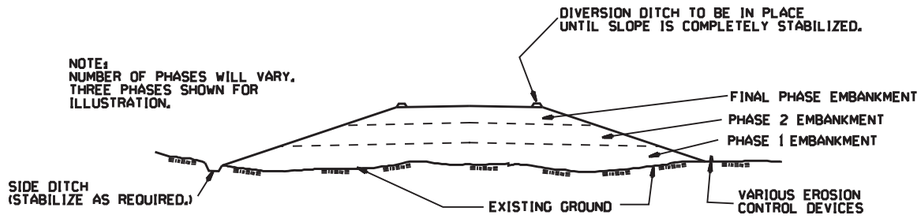
GENERAL NOTE

ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE EXCAVATED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE

1. EXCAVATE AND STABILIZE INTERCEPTOR AND/OR DIVERSION DITCHES.
2. PERFORM PHASE 1 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
3. PERFORM PHASE 2 EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING.
4. PERFORM FINAL PHASE OF EXCAVATION. PLACE PERMANENT OR TEMPORARY SEEDING. STABILIZE DITCHES. CONSTRUCT DITCH CHECKS, DIVERSION DITCHES, SEDIMENT BASINS, OR OTHER EROSION CONTROL DEVICES AS REQUIRED.

EMBANKMENT



GENERAL NOTE

ALL EMBANKMENT SLOPES SHALL BE DRESSED, PREPARED, SEEDED, AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE CONSTRUCTED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 25 FEET, MEASURED VERTICALLY.

CONSTRUCTION SEQUENCE

1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
3. PLACE PHASE 2 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD OF GREATER THAN 21 DAYS.
4. PLACE FINAL PHASE OF EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PLACE DIVERSION DITCHES AND SLOPE DRAINS AND MAINTAIN UNTIL ENTIRE SLOPE IS STABILIZED.

DATE	REVISION	FILMED
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-3