

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.	100833	1	36	

ARKANSAS DEPARTMENT OF TRANSPORTATION
CONSTRUCTION PLANS FOR STATE HIGHWAY

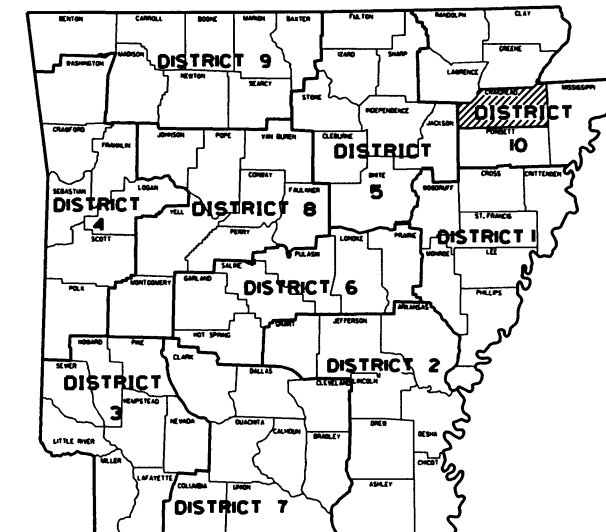
**DITCH AT L.M. 0.25
STR. & APPRS. (S)**

CRAIGHEAD COUNTY
ROUTE 163 SECTION 5

JOB 100833

FED. AID PROJ. NHPP-0016(73)

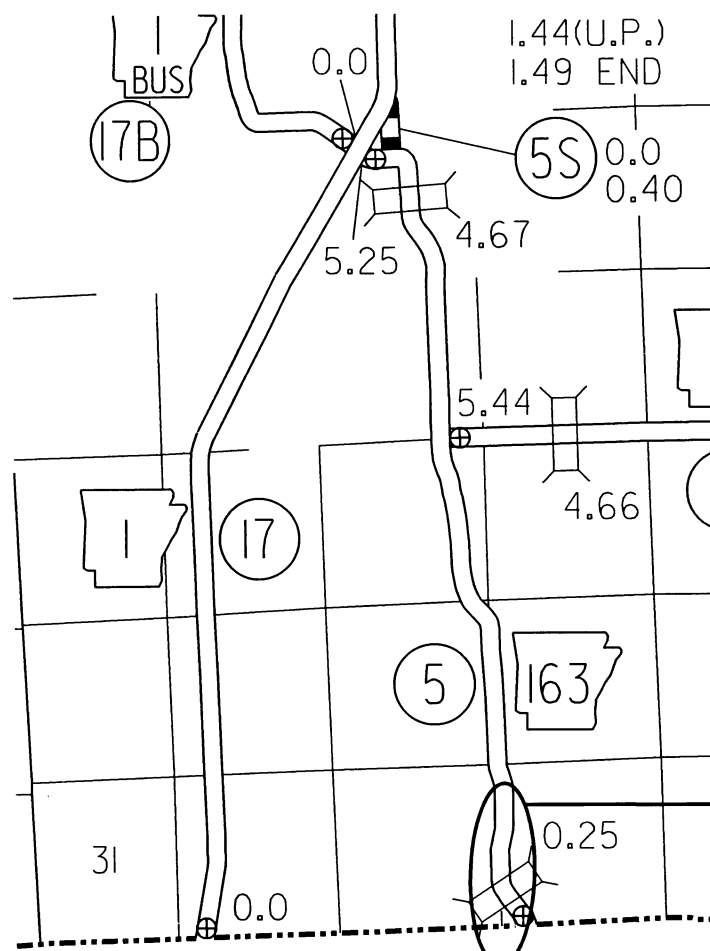
NOT TO SCALE



ARK. HWY. DIST. NO. 10

• DESIGN TRAFFIC DATA •

DESIGN YEAR	-----	2038
2018 ADT	-----	2000
2038 ADT	-----	2500
2038 DHV	-----	275
DIRECTIONAL DISTRIBUTION	-----	60%
TRUCKS	-----	9%
AVERAGE RUNNING SPEED	-----	35 MPH



VICINITY MAP

STRUCTURES OVER 20'-0" SPAN

① STA. 109+00 CONSTRUCT
QUAD 11' x 9' x 88' R.C. BOX CULVERT
WITH 3/4 WINGS LT. AND RT.
Q50= 865 CFS, D.A. = 0.82 SO. MI.
SPAN = 47.42'

PROJECT
LOCATION

R 3 E

R 4 E

T 13
N

T 13
N

R 3 E

R 4 E

STA. 108+60.00
BEGIN JOB 100833
LOG MILE 0.24

STA. 109+60.00
END JOB 100833



APPROVED



12-18-18
DEPUTY DIRECTOR
AND CHIEF ENGINEER

	BEGIN PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	N 35°42' 28.0"	N 35°42' 28.4"	N 35°42' 28.8"
LONGITUDE	W 90°39' 40.8"	W 90°39' 41.1"	W 90°39' 41.4"

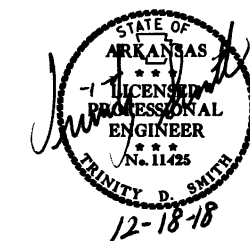
GROSS LENGTH OF PROJECT	100.00	FEET OR	0.019	MILES
NET " " ROADWAY	52.58	" "	0.010	"
NET " " BRIDGES	47.42	" "	0.009	"
NET " " PROJECT	100.00	" "	0.019	"

8/23/2018

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② INDEX OF SHEETS AND STANDARD DRAWINGS



INDEX OF SHEETS

SHEET NO.	TITLE
1	TITLE SHEET
2	INDEX OF SHEETS AND STANDARD DRAWINGS
3	GOVERNING SPECIFICATIONS AND GENERAL NOTES
4 - 5	TYPICAL SECTIONS OF IMPROVEMENT
6 - 12	SPECIAL DETAILS
13 - 16	TEMPORARY EROSION CONTROL DETAILS
17 - 19	MAINTENANCE OF TRAFFIC DETAILS
20	PERMANENT PAVEMENT MARKING DETAILS
21 - 25	QUANTITIES
26	SUMMARY OF QUANTITIES AND REVISIONS
27 - 28	SURVEY CONTROL DETAILS
29 - 30	PLAN AND PROFILE SHEETS
31 - 36	CROSS SECTIONS

ROADWAY STANDARD DRAWINGS

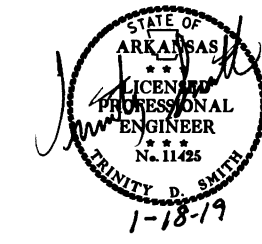
DRWG.NO.	TITLE	DATE
CDP-1	CONCRETE DITCH PAVING	12-08-16
MB-1	MAILBOX DETAILS	11-18-04
PBC-1	PRECAST CONCRETE BOX CULVERTS	01-28-15
PCC-1	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCM-1	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCP-1	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)	02-27-14
PCP-2	PLASTIC PIPE CULVERT (PVC F949)	02-27-14
PM-1	PAVEMENT MARKING DETAILS	06-01-17
PU-1	DETAILS OF PIPE UNDERDRAIN	12-08-16
RCB-1	REINFORCED CONCRETE BOX CULVERT DETAILS	07-26-12
RCB-2	EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS	11-20-03
SE-2	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	10-18-96
TC-1	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	04-13-17
TC-2	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	09-02-15
TC-3	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	09-02-15
TC-4	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	02-27-14
TC-5	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	10-15-09
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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2 GOVERNING SPECS. 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
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
410-1	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
410-2	DEVICES FOR MEASURING DENSITY FOR ROLLING PATTERNS
600-2	INCIDENTAL CONSTRUCTION
604-1	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
605-1	CONCRETE DITCH PAVING
606-1	PIPE CULVERTS FOR SIDE DRAINS
620-1	MULCH COVER
800-1	STRUCTURES
802-3	CONCRETE FOR STRUCTURES
JOB 100833	BIDDING REQUIREMENTS AND CONDITIONS
JOB 100833	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 100833	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 100833	CARGO PREFERENCE ACT REQUIREMENTS
JOB 100833	DELAY IN RIGHT OF WAY OCCUPANCY
JOB 100833	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB 100833	FLEXIBLE BEGINNING OF WORK
JOB 100833	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 100833	MANDATORY ELECTRONIC CONTRACT
JOB 100833	MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB 100833	NESTING SITES OF MIGRATORY BIRDS
JOB 100833	PLASTIC PIPE
JOB 100833	PRICE ADJUSTMENT FOR ASPHALT BINDER
JOB 100833	SETTLEMENT AGREEMENTS
JOB 100833	SHORING FOR CULVERTS
JOB 100833	SOIL STABILIZATION
JOB 100833	STORM WATER POLLUTION PREVENTION PLAN
JOB 100833	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 100833	UTILITY ADJUSTMENTS
JOB 100833	WARM MIX ASPHALT

GENERAL NOTES

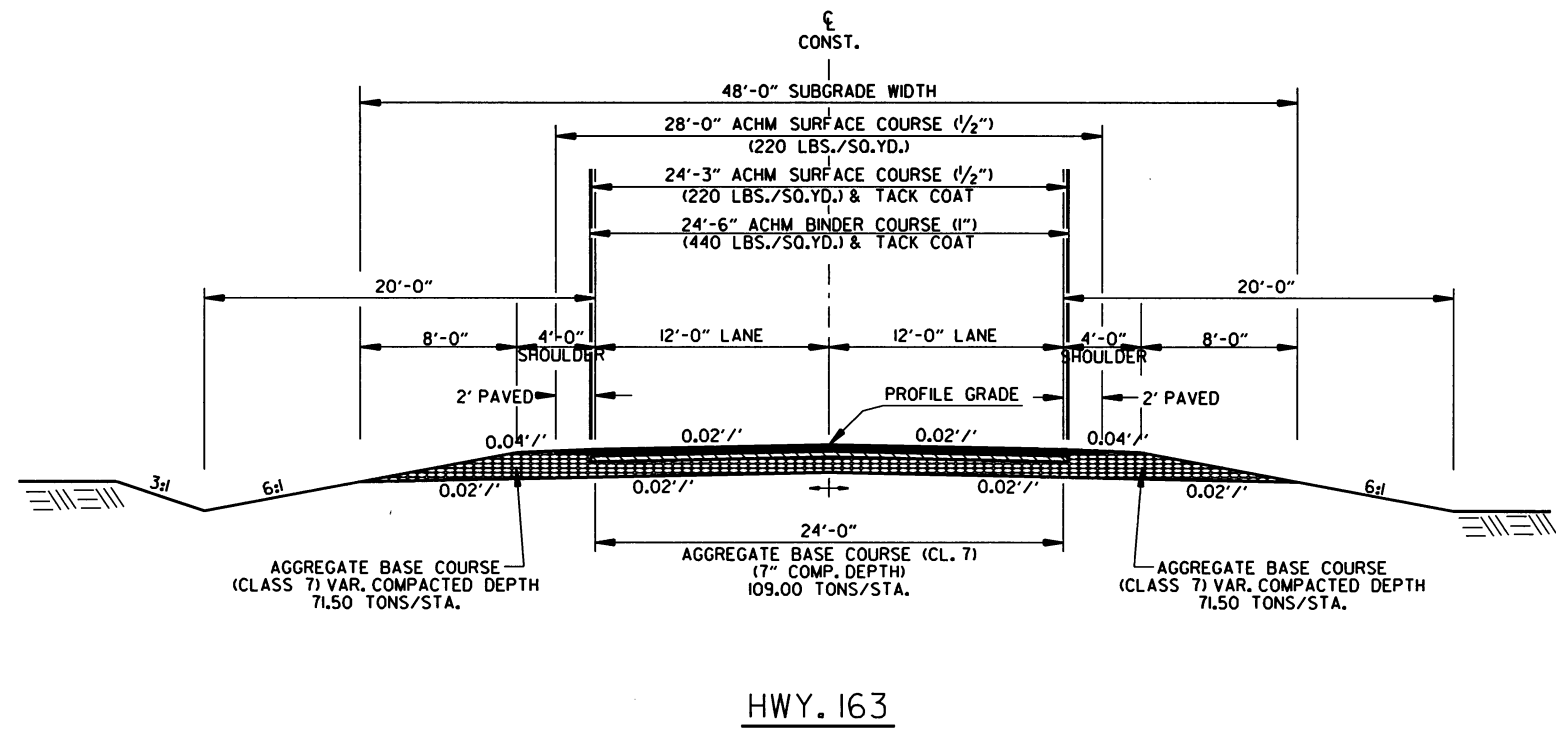
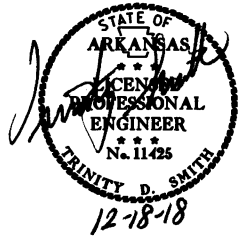
- GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
- ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
- ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
- 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.
- ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
- ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO INSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE CONSTRUCTED INITIALLY, OR IN LIEU THEREOF, THE CONTRACTOR AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.
- 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.
- THIS PROJECT IS COVERED UNDER A SECTION 404 NATIONWIDE 14 PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2014, FOR PERMIT REQUIREMENTS.
- ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
- 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.

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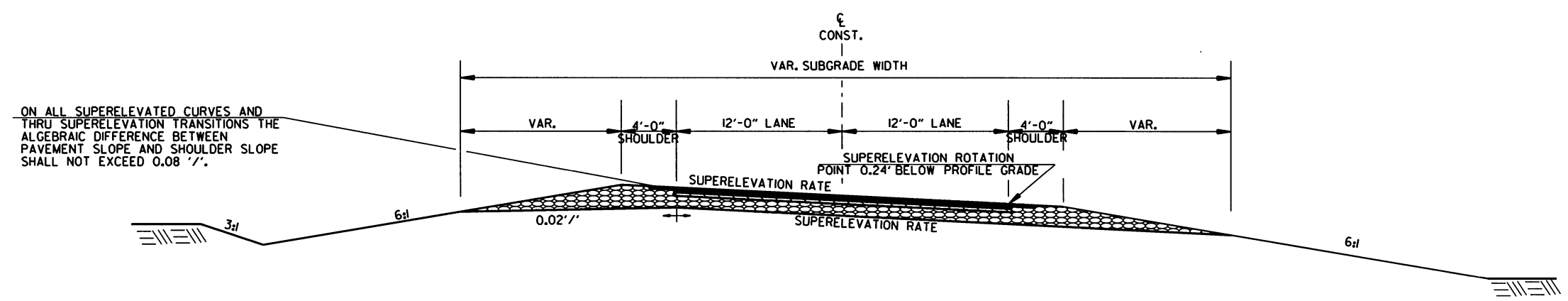
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				6	ARK.			
						100833	4	36

② TYPICAL SECTIONS OF IMPROVEMENT



HWY. 163

NOTES:
 REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
 THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.
 THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.

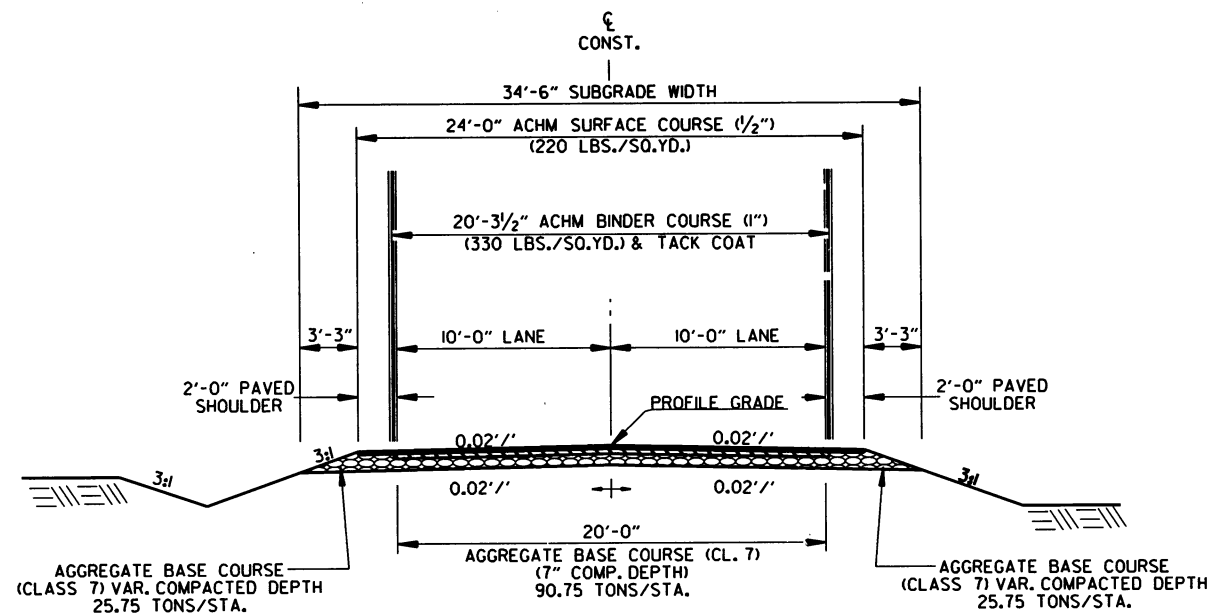


ON ALL SUPERELEVATED CURVES AND THRU SUPERELEVATION TRANSITIONS THE ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08 '/'.

HWY. 163 SUPERELEVATION
 PAVEMENT SECTION IS THE SAME AS SHOWN ABOVE

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				6	ARK.			
				JOB NO. 100833			5	36

② TYPICAL SECTIONS OF IMPROVEMENT

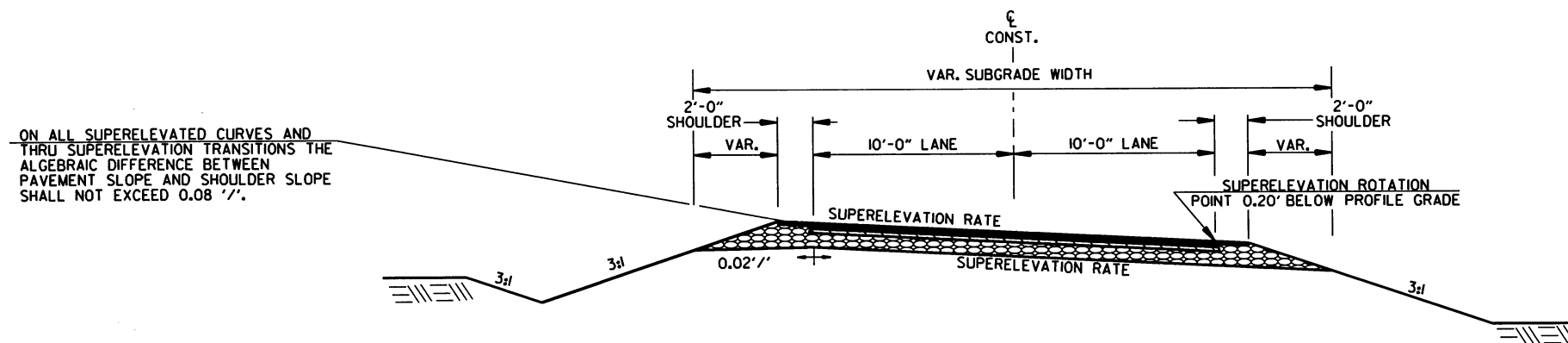


DETOUR

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

THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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



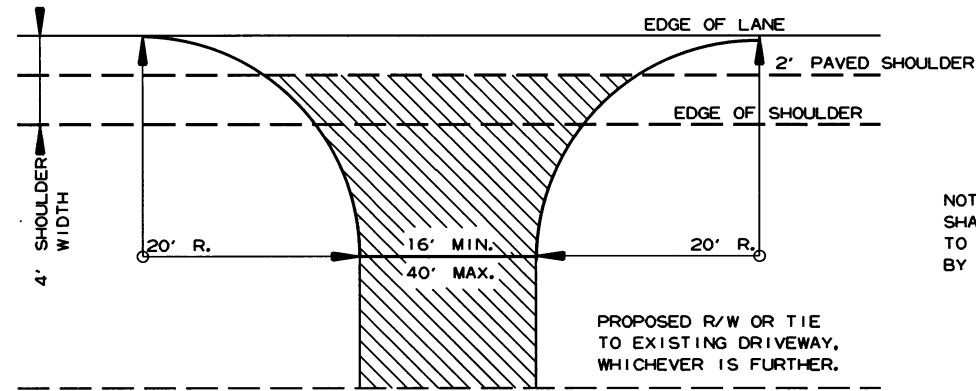
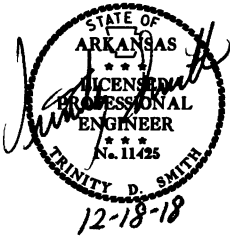
ON ALL SUPERELEVATED CURVES AND THRU SUPERELEVATION TRANSITIONS THE ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08 '/'.

DETOUR SUPERELEVATION

PAVEMENT SECTION IS THE SAME AS SHOWN ABOVE

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							100833	6
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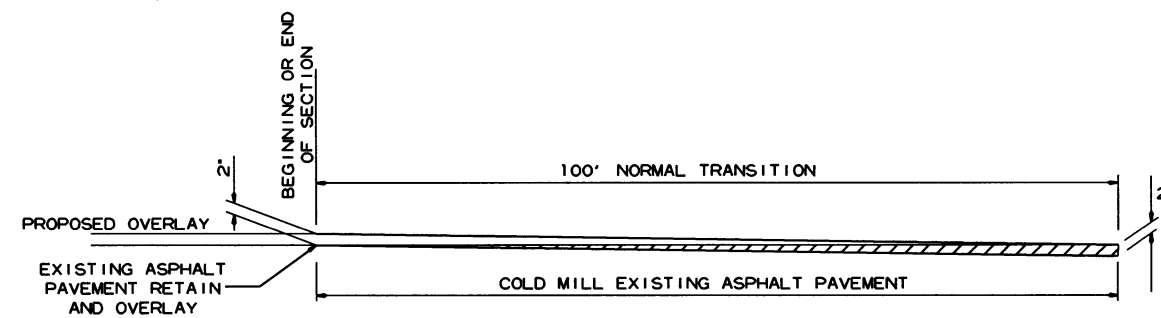
② SPECIAL DETAILS



NOTE: TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS AS DIRECTED BY THE ENGINEER.

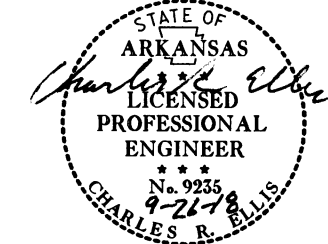
ACHM SURFACE COURSE (1/2") (220 LBS. PER SQ. YD.) AND AGGREGATE BASE COURSE (CLASS 7) 7" COMP. DEPTH IF ASPHALT OR GRAVEL DRIVE EXISTING; OR 6" CONCRETE IF CONCRETE DRIVE EXISTING.

DETAIL FOR DRIVEWAY TURNOUTS
OPEN SHOULDER SECTION
(ARTERIALS)



DETAIL FOR TRANSITIONS

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TABULAR DATA BY: KJF DATE: 09/24/2018
 CHECKED BY: DPT DATE: 9-24-18

Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Gr. 60)."

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT		WINGWALL ANGLE (DEGREE)	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL		FOOTING DIMENSION PARALLEL WITH HDWL		LENGTH OF WINGWALLS		LENGTH OF FOOTING HEEL		CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
								AT HDWL	AT WING END			WING A	WING B	WING A	WING B	WING A	WING B	WING A	WING B		
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WF1	WF2	G1	G2	W1	W2	W3	W4	CU.YD	LBS.
47'-5"	9'-0"	0'-10"	0'-9"	0	3:1	46'-0"	2'-0"	9'-10"	3'-0"	30	30	4'-10"	4'-10"	1'-10"	1'-10"	23'-6"	23'-6"	26'-10 1/8"	26'-10 1/8"	20.00	1546

Min. Bar Lap Length

#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table

#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

OUTLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL DEPTH	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINFORCING STEEL				BOTTOM SLAB REINFORCING STEEL				SIDE WALL REINFORCING STEEL		INTERIOR WALL REINFORCING STEEL		TOP SLAB DISTRIBUTION REINFORCING STEEL		BOTTOM SLAB DISTRIBUTION REINFORCING STEEL		SIDE WALL DISTRIBUTION REINFORCING STEEL		INTERIOR WALL DISTRIBUTION REINFORCING STEEL		CLASS "S" CONCRETE (Includes HDWL)	REINFORCING STEEL (GR 60) (Includes HDWL)			
													"a"	"c"	"d"	"f"	"f0"	"f1"	"g"	"e"	"d1"	"d2"	CU. YDS.	LBS.													

OUTLET SLOPE SECTIONS(S)

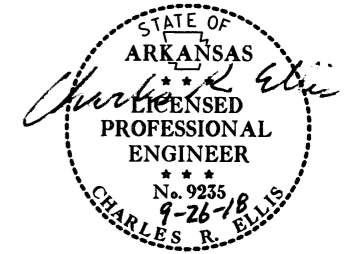
R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINFORCING STEEL				BOTTOM SLAB REINFORCING STEEL				SIDE WALL REINFORCING STEEL		INTERIOR WALL REINFORCING STEEL		TOP SLAB DISTRIBUTION REINF. STEEL	BOTTOM SLAB DISTRIBUTION REINF. STEEL	SIDE WALL DISTRIBUTION REINF. STEEL	INTERIOR WALL DISTRIBUTION REINF. STEEL	CLASS "S" CONCRETE	REINFORCING STEEL (GR. 60)								
											"a"	Bent "b"	"c"	SPACING	NO. REQ'D	"d"	Bent "b1"	"f"	SPACING	NO. REQ'D	"f0"	LENGTH							"f1"	LENGTH	"g"	LENGTH = SL	"e"	LENGTH = SL	"d1"	LENGTH = SL

0.44	128
------	-----

SHEET 2 OF 2
 DETAILS OF R.C. BOX CULVERT
 QUADRUPLE BARREL BOX CULVERT
 Sta. 109+10
 SPECIAL DETAILS

The required number of bars and lengths shown are for estimating purpose only. The actual number and length required shall be determined in field.
 Unless otherwise noted, all dimensions are in inches.

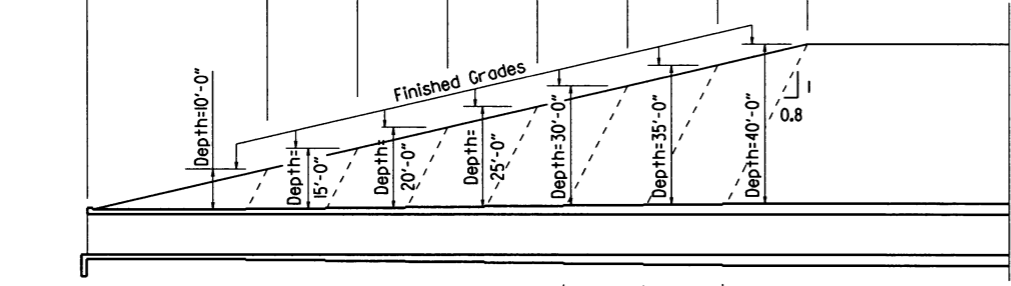
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2½ Slope	20'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"
3½ Slope	30'-0"	15'-0"	15'-0"	15'-0"	15'-0"	15'-0"	15'-0"
4½ Slope	40'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"

Note: For fill depths 10' and under, use Mid-Section full length of box culvert.

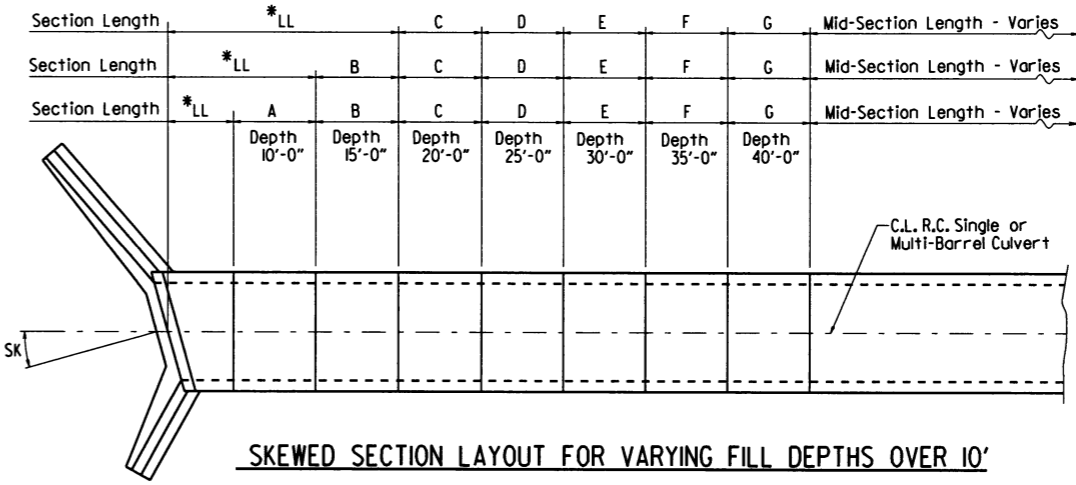
* LL = Skewed End Section Length - See "Skewed End Section Details" Length LL varies with skew angle, overall box width and fill depth and may eliminate the need for some slope section lengths as shown.



Slope Section Length @ 2½ Slope	A=12'-0"	B=6'-0"	C=6'-0"	D=6'-0"	E=6'-0"	F=6'-0"	G=6'-0"	Mid-Section Length - Varies
Slope Section Length @ 3½ Slope	A=22'-0"	B=11'-0"	C=11'-0"	D=11'-0"	E=11'-0"	F=11'-0"	G=11'-0"	Mid-Section Length - Varies
Slope Section Length @ 4½ Slope	A=32'-0"	B=16'-0"	C=16'-0"	D=16'-0"	E=16'-0"	F=16'-0"	G=16'-0"	Mid-Section Length - Varies

LONGITUDINAL SECTION LENGTH SCHEDULE FOR VARYING FILL DEPTHS OVER 10'

Lengths for Non-Skewed Boxes



SKewed SECTION LAYOUT FOR VARYING FILL DEPTHS OVER 10'

GENERAL NOTES:

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 edition) with applicable Supplemental Specifications and Special Provisions. Section and Subsection refer to the Standard Construction Specifications unless otherwise noted in the Plans.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Fifth Edition (2010) with 2010 interim revisions.

LIVE LOADING: HL-93

All concrete shall be Class 5 with a minimum 28-day compressive strength of 3,500 psi and shall be poured in the dry. All exposed corners to have ¼" chamfers.

Reinforcing Steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

Reinforcing Steel Tolerances: The tolerances for reinforcing steel shall meet those listed in 'Manual of Standard Practice' published by Concrete Reinforcing Steel Institute (CRSI) except that the tolerance for truss bars such as Figure 3 on page 7-4 of the CRSI Manual shall be minus zero to plus 1/2 inch.

Excavation and backfilling shall be in accordance with the requirements of Section 801.

Membrane Waterproofing shall conform to the requirements of Section 815. Membrane Waterproofing shall be Type C and as directed by the Engineer applied to all construction joints in the top slab and the sidewalls of R.C. Box culverts and to the construction joint between wingwalls and R.C. Box culvert walls.

Weep Holes in box culvert walls shall have a maximum horizontal spacing of 10'-0" and shall be spaced to clear all reinforcing steel. The drain opening shall be 4" diameter and shall be placed 12" above the top of the bottom slab.

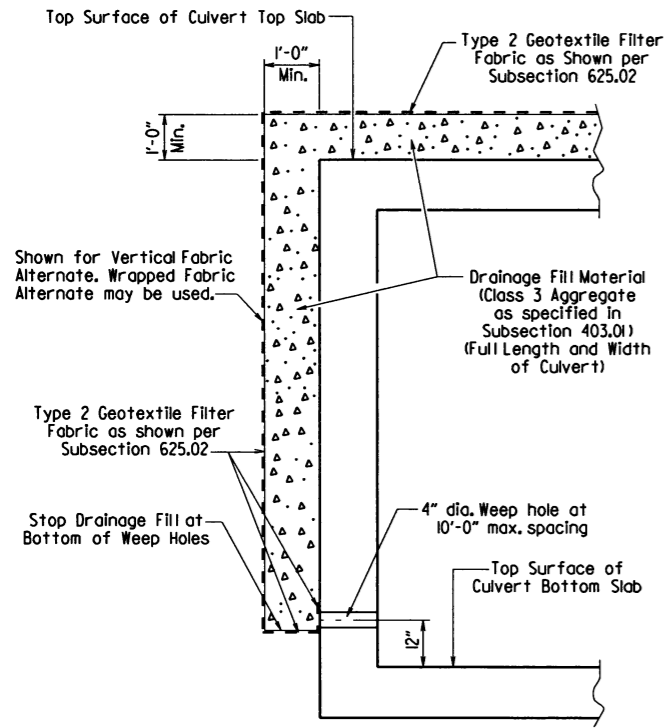
Weep Holes in wingwalls shall have a maximum horizontal spacing of 10'-0" and shall be spaced to clear all reinforcing steel. There shall be a minimum of two (2) weep holes in each wingwall. The drain opening shall be 4" diameter and shall be placed 12" above the top of the wingwall footing.

The barrel components of the culvert may be constructed using continuous pours. For longer culvert construction, the Contractor may use multiple pours with transverse construction joints spaced a minimum of 50 feet apart unless superseded by stage construction or site constraints as approved by the Engineer. Construction joints between footings and walls shall be made only where shown in the Plans. Joints shall be normal to the centerline of barrel and shall be keyed. Longitudinal reinforcing shall be continuous through joints unless shown otherwise. All longitudinal construction joints shall be submitted to the Engineer for approval.

Membrane Waterproofing, Weep Holes, Geotextile Filter Fabric, and Drainage Fill Material will not be paid for directly but shall be considered subsidiary to Class 5 Concrete.

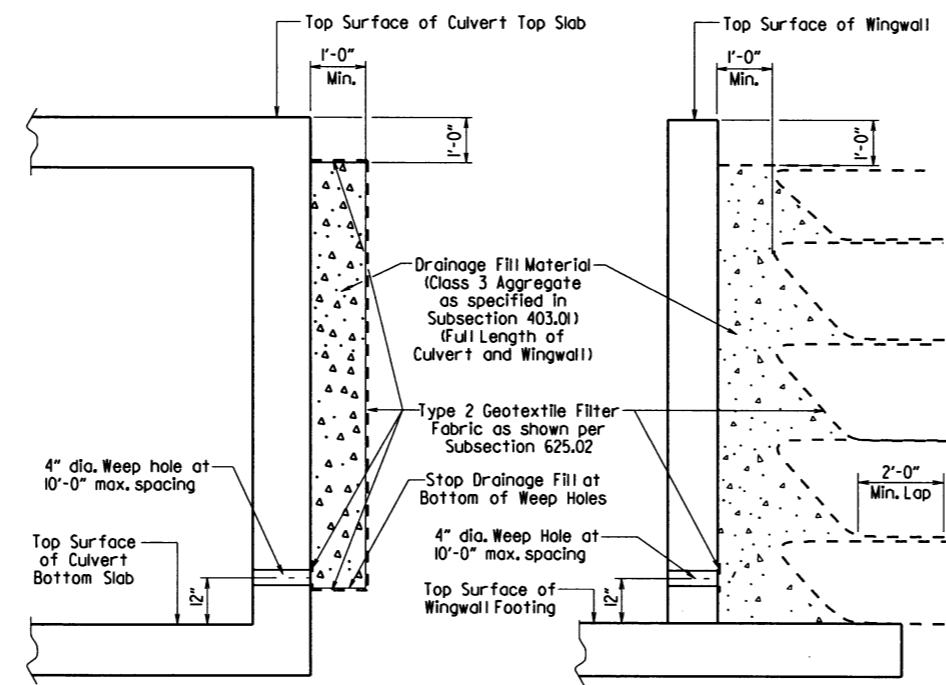
When the top slab of the box culvert serves as finished roadway surface, curing and finishing shall be in accordance with subsections 802.17 and 802.20 for bridge roadway surface and a trowel finish shall be applied in accordance with subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Curing and finishing shall not be paid for directly, but shall be considered incidental to the item "Class 5 Concrete-Roadway". Class 1 Protective Surface Treatment shall be applied to the roadway surface and this work shall be paid for under the unit price bid for "Class 1 Protective Surface Treatment".

When precast reinforced concrete box culverts are substituted for cast in place box culverts, they shall be manufactured according to ASTM C 1577 and meet the requirements of Section 607. When the top slab of the box culvert serves as the finished roadway surface, a precast reinforced concrete box culvert substitution is not allowed.



CULVERT DRAINAGE DETAIL FOR ROCK FILL

This detail shall be used when rock fill is specified for embankment construction.



VERTICAL FABRIC ALTERNATE

(Shown for Culvert, Similar for Wingwall)

WRAPPED FABRIC ALTERNATE

(Shown for Wingwall, Similar for Culvert)

For Details of Excavation and Pay Limits, see Standard Drawing RCB-2.

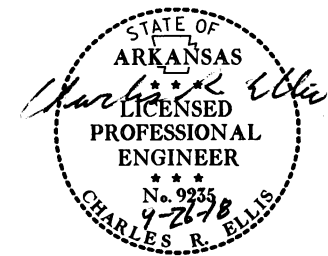
WINGWALL & CULVERT DRAINAGE DETAIL

SHEET 1 OF 4
 GENERAL DETAILS OF R.C. BOX CULVERT
 GENERAL NOTES &
 LONGITUDINAL SECTION LENGTH SCHEDULE
 SPECIAL DETAILS

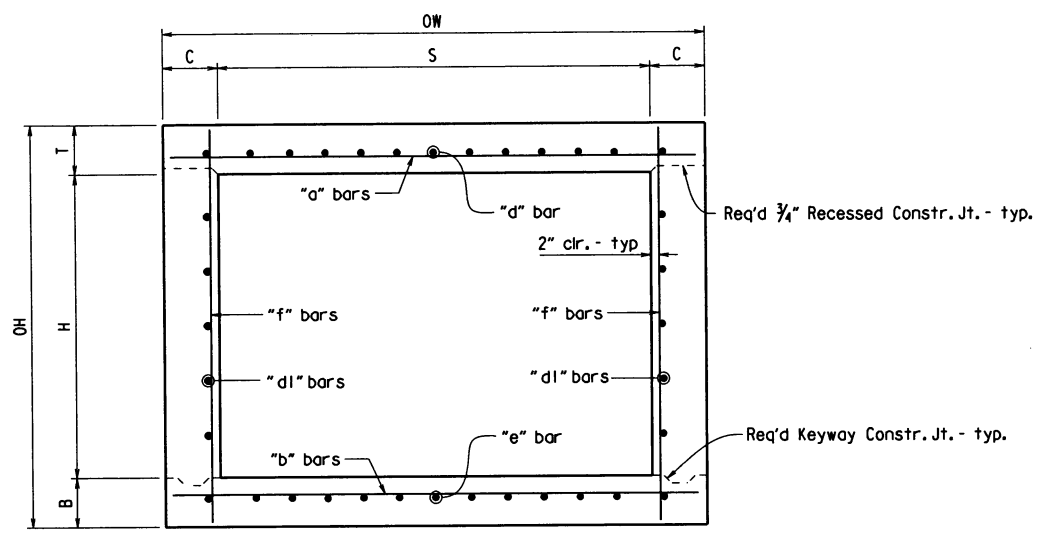
V L14 b100833_culvert.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO.						100833	10	36

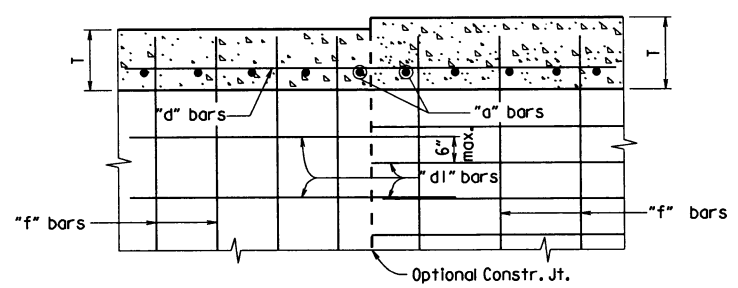
① SPECIAL DETAILS



Note: When top slab of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.

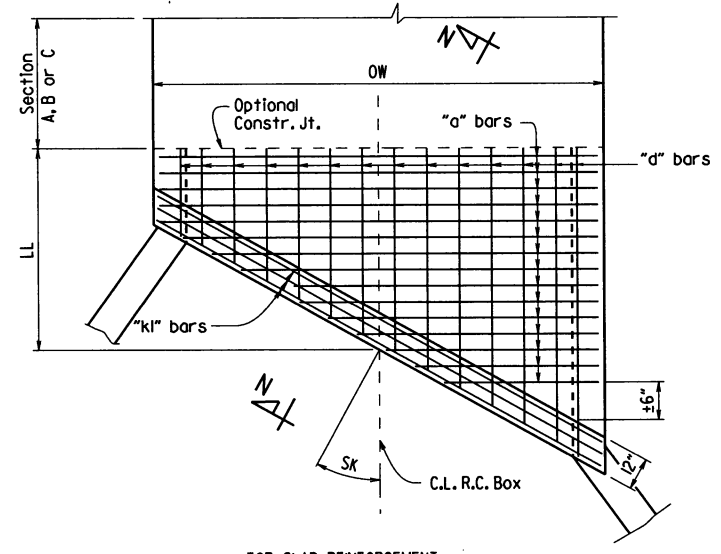


TYPICAL SECTION M-M

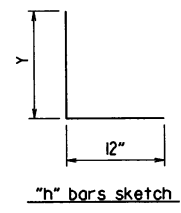


LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

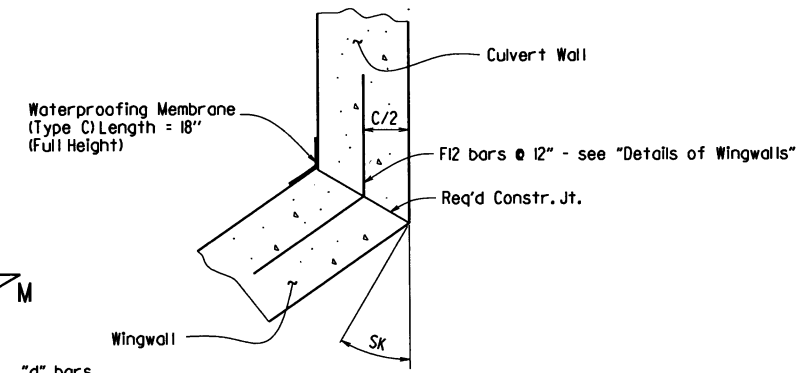
TOP SLAB SHOWN, BOTTOM SLAB SIMILAR



TOP SLAB REINFORCEMENT

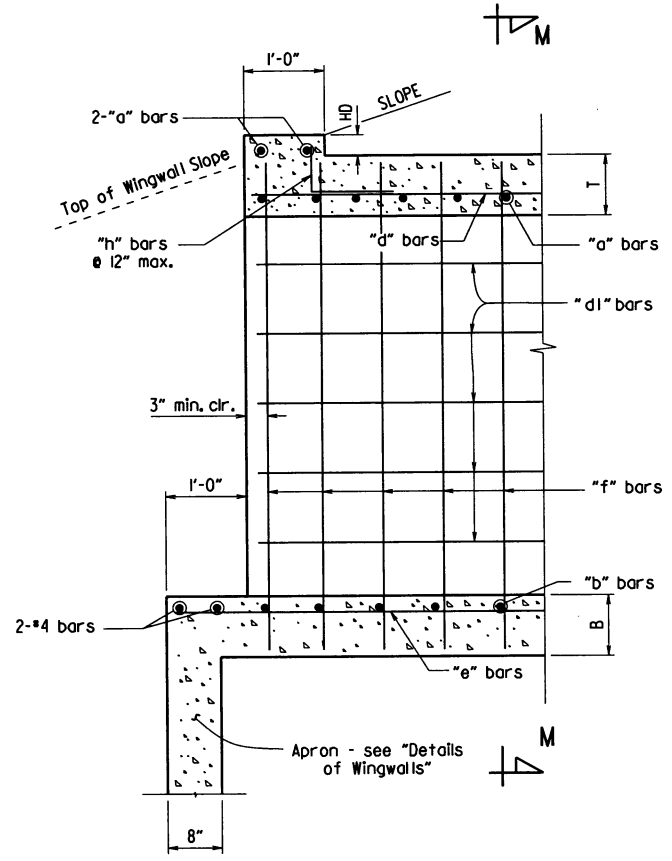


"h" bars sketch



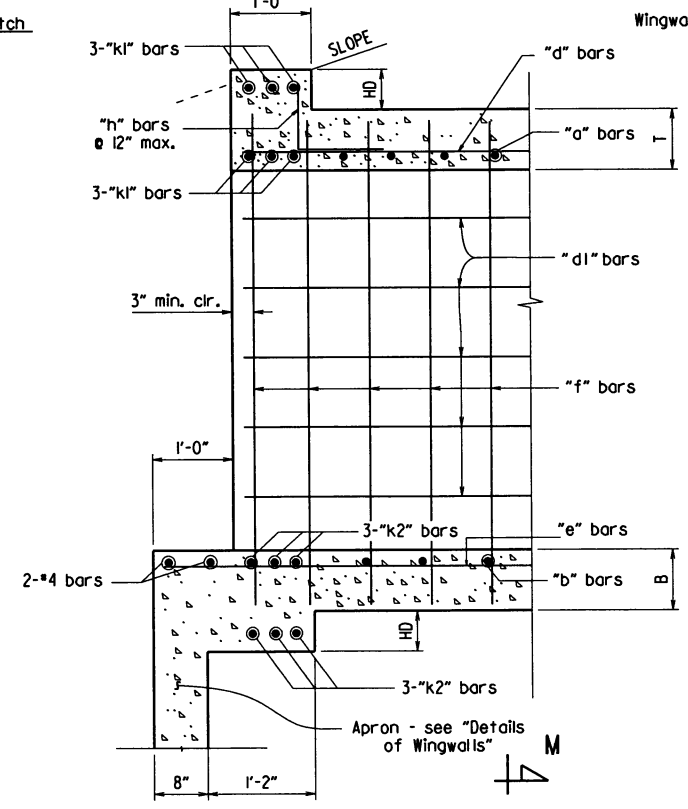
WINGWALL ATTACHMENT

See "Details of Wingwalls" for additional information and wingwall details.



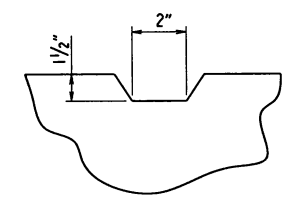
PART LONGITUDINAL SECTION

(Non-Skewed Ends)



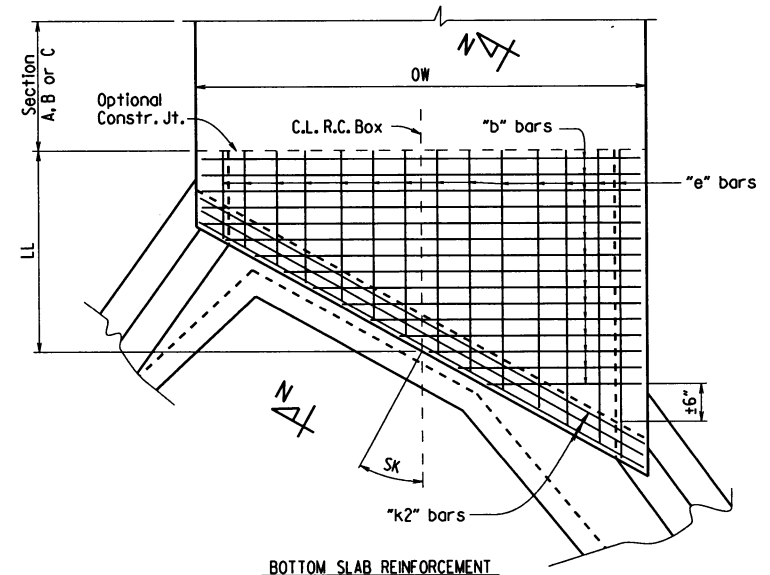
PART LONGITUDINAL SECTION N-N

(Skewed Ends)



TYPICAL KEYWAY DETAIL

(All Construction Joints)



BOTTOM SLAB REINFORCEMENT

SKewed END SECTION DETAILS

SHEET 2 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT

DETAILS OF SINGLE BARREL
R.C. BOX CULVERT

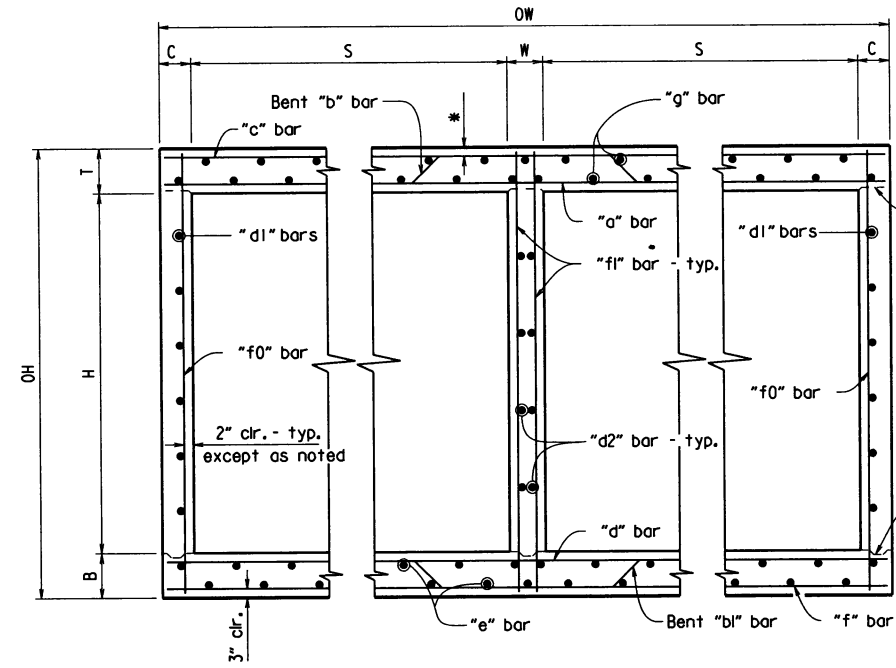
SPECIAL DETAILS



b100833_culvert.dgn

*2" clr. for fill depth (D) greater than 2 ft.
 2 1/2" clr. for fill depth (D) equal to or less than 2 ft.

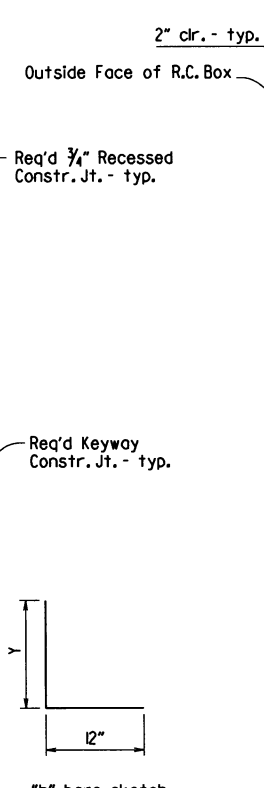
Note: When top slab of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.



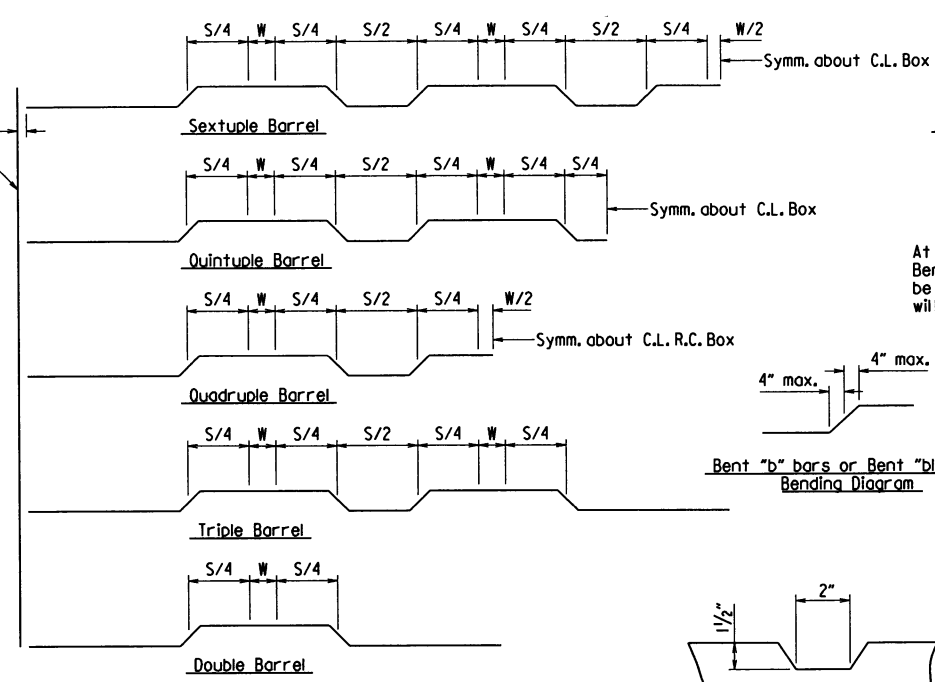
TYPICAL SECTION M-M

Top Slab
 Straight "c" bars shall alternate with Bent "b" bars in top.
 Straight "a" bars shall alternate with Bent "b" bars in bottom.

Bottom Slab
 Straight "d" bars shall alternate with Bent "bl" bars in top.
 Straight "f" bars shall alternate with Bent "bl" bars in bottom.

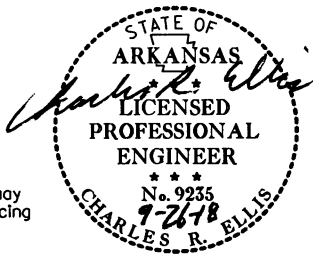


Bent "b" bars or Bent "bl" bars sketch

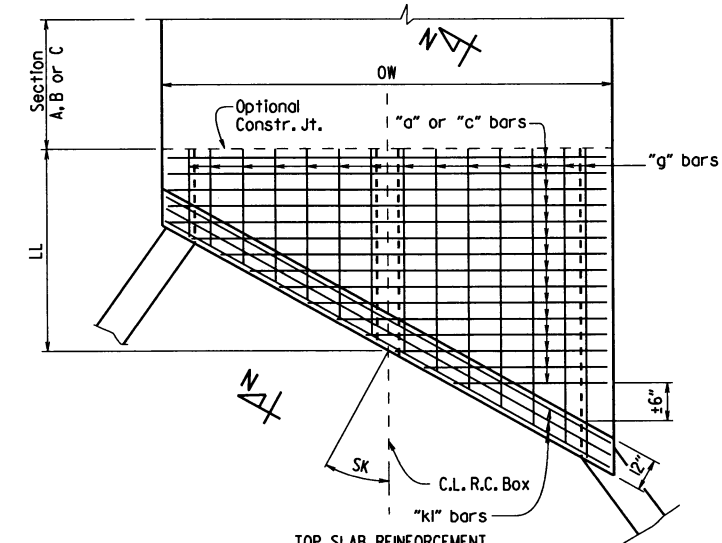


TYPICAL KEYWAY DETAIL
 (All Construction Joints)

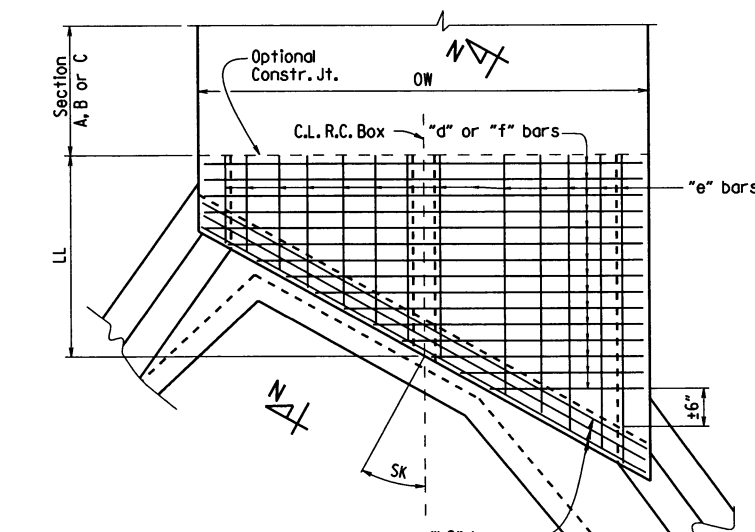
DATE REVISED	DATE FILMED	REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		11	36
JOB NO.						100833	SPECIAL DETAILS	



At the Contractor's option in lieu of providing Bent "b" or Bent "bl" bars, one bar top and bottom of equivalent size may be substituted for each bent bar. Payment for the reinforcing will be based on the weight of the "b" or "bl" bar.

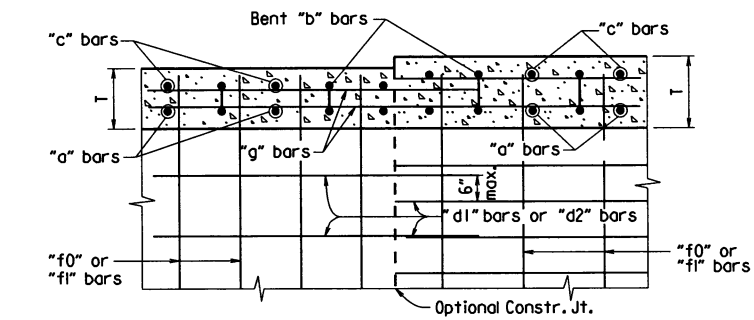


TOP SLAB REINFORCEMENT
 Straight "c" bars in top.
 Straight "a" bars in bottom.

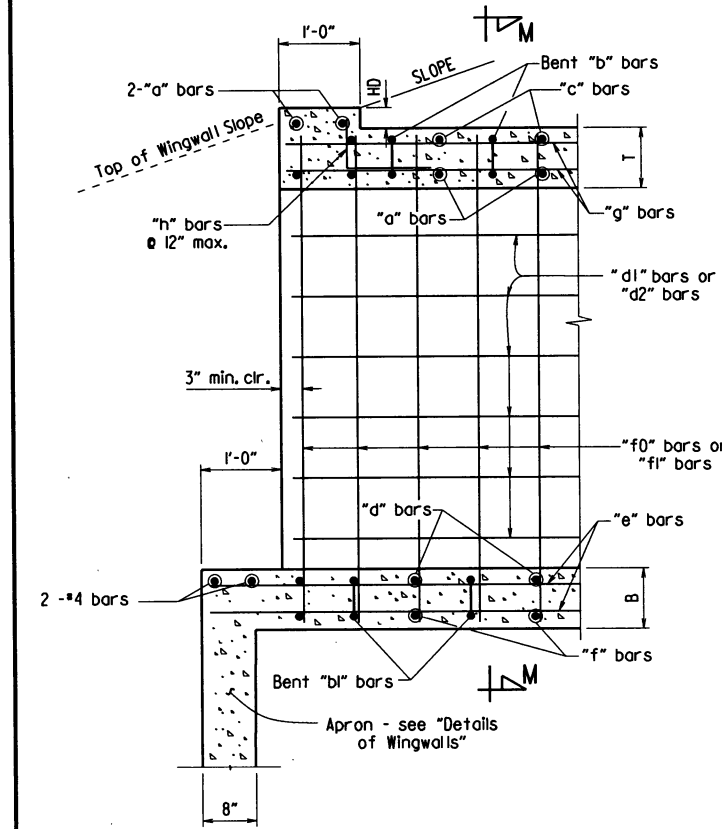


BOTTOM SLAB REINFORCEMENT
 Straight "d" bars in top.
 Straight "f" bars in bottom.

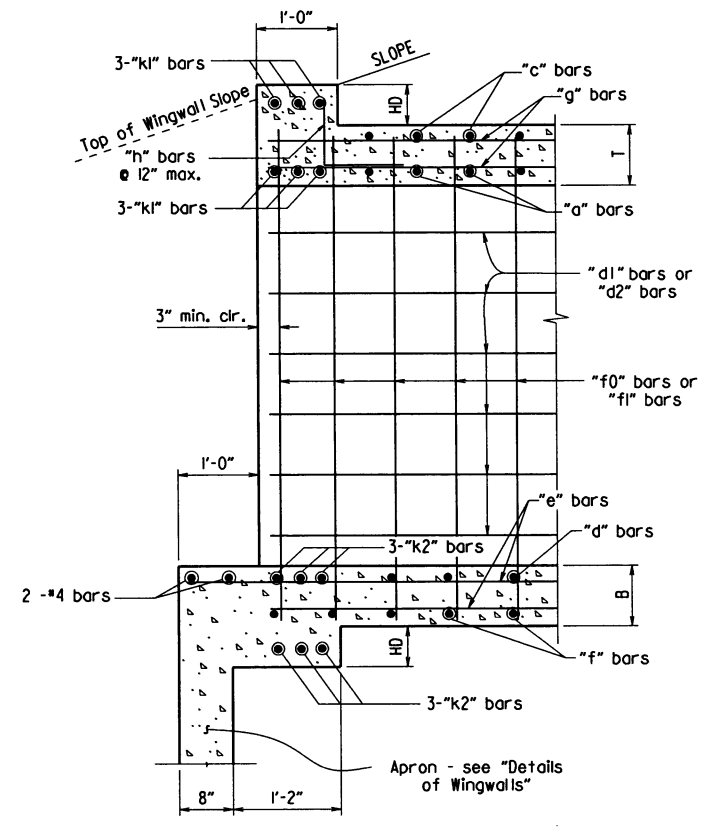
SKewed END SECTION DETAILS



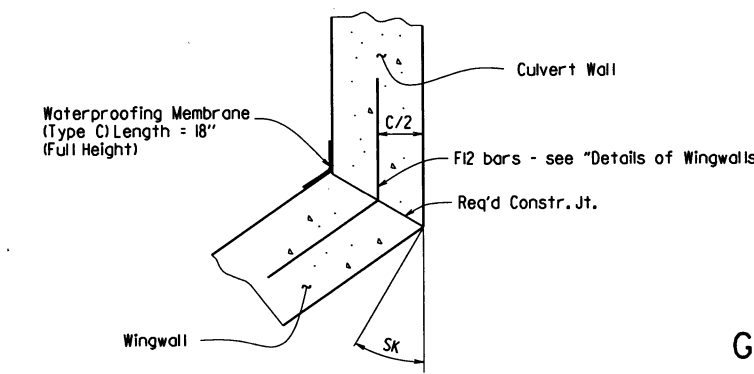
Longitudinal Bar Spacing at individual sections shall be maintained, which may result in noncontact bar laps.
LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS
 TOP SLAB SHOWN, BOTTOM SLAB SIMILAR



PART LONGITUDINAL SECTION
 (Non-Skewed Ends)



PART LONGITUDINAL SECTION N-N
 (Skewed Ends)

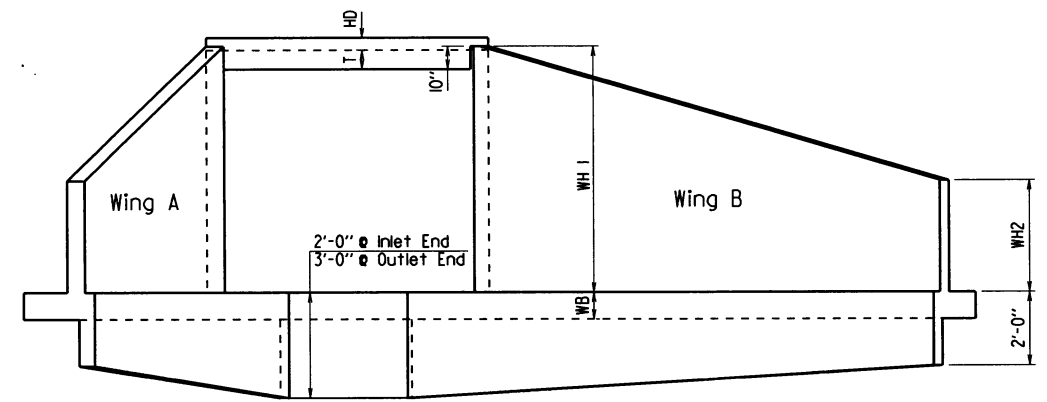
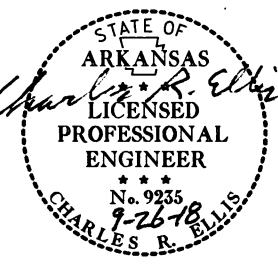


WINGWALL ATTACHMENT
 See "Details of Wingwalls" for additional information and wingwall details.

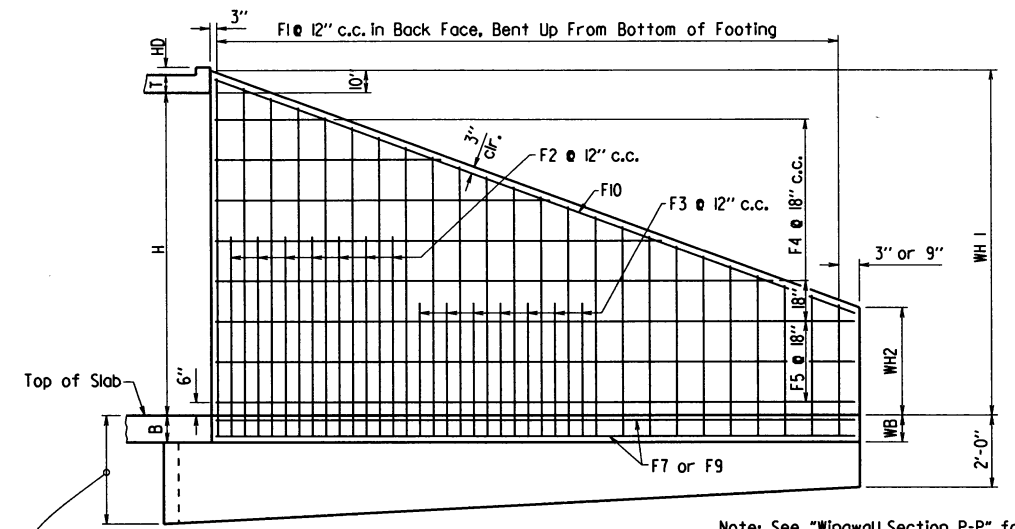
SHEET 3 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT
DETAILS OF MULTI-BARREL R.C. BOX CULVERT
SPECIAL DETAILS

b100833_culvert.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO.	100833	12 36

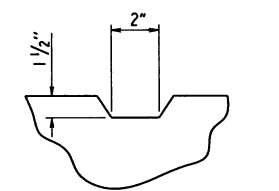


END ELEVATION
Flared Wingwalls Shown

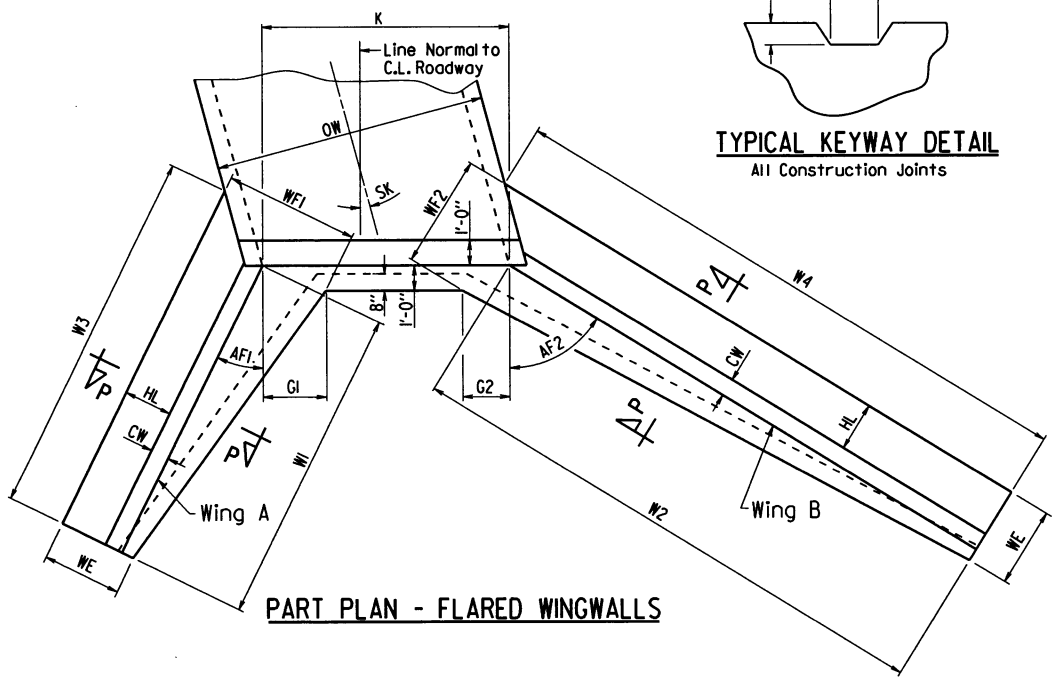


WINGWALL ELEVATION
Showing Back Face Reinforcement

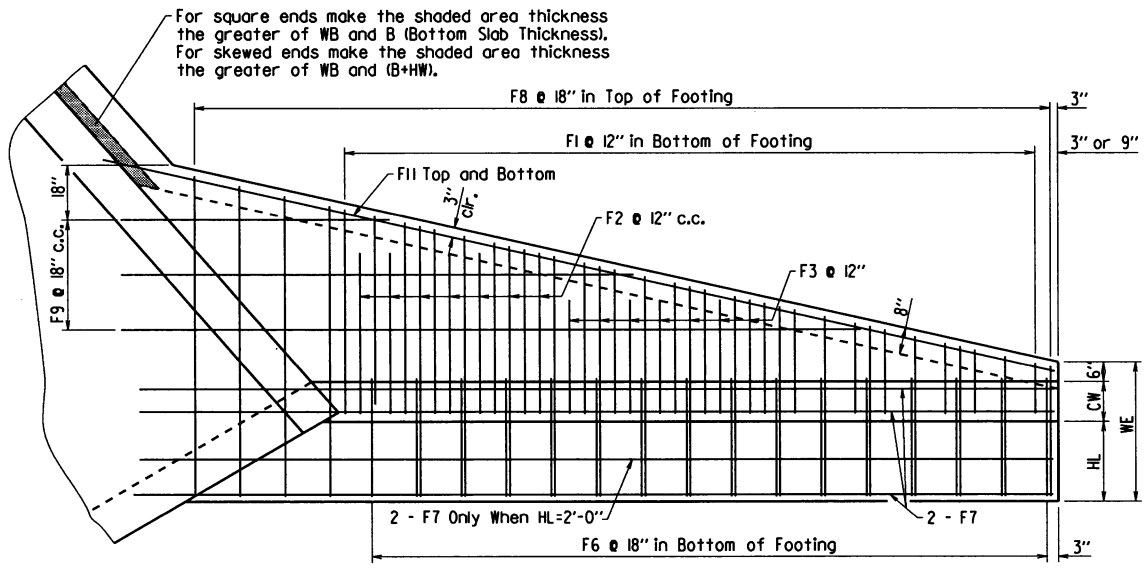
Note: See "Wingwall Section P-P" for additional details and reinforcing.



TYPICAL KEYWAY DETAIL
All Construction Joints

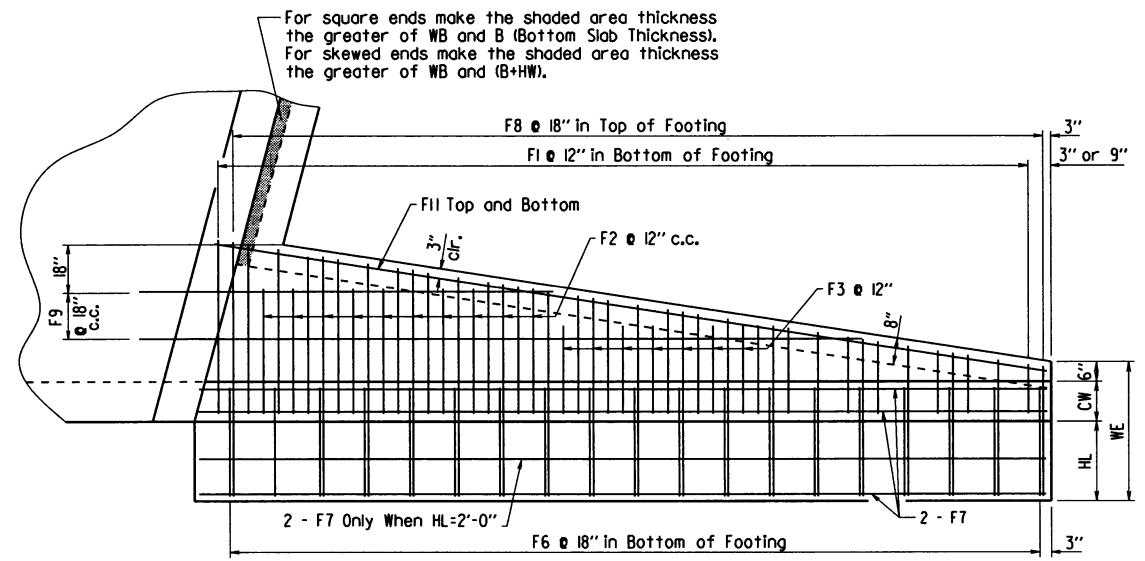


PART PLAN - FLARED WINGWALLS

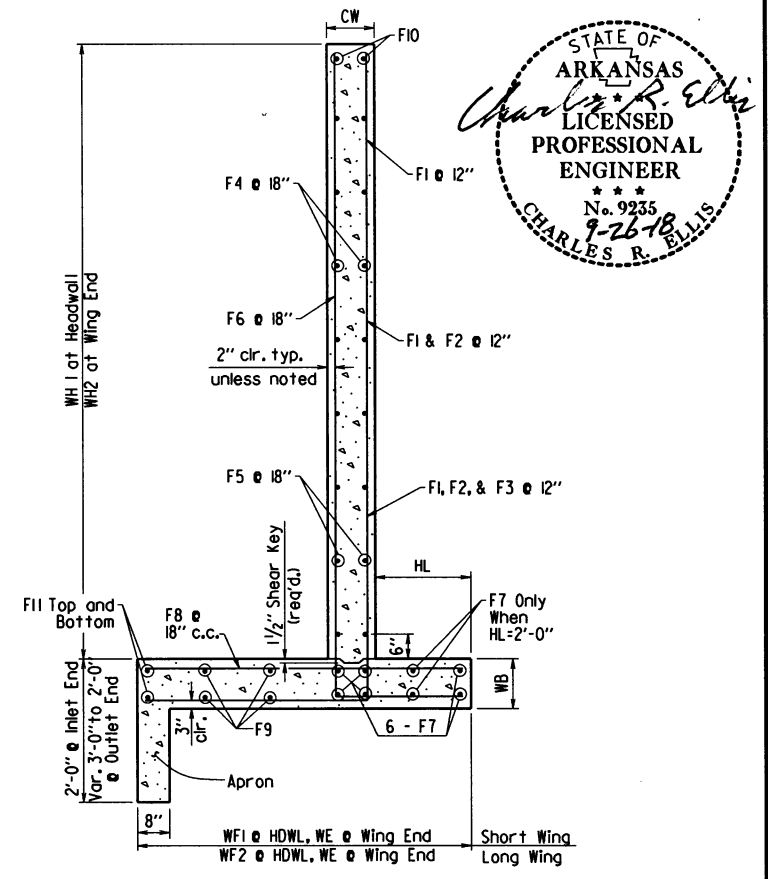


PLAN - FLARED WINGWALLS
Showing Footing Reinforcement

For square ends make the shaded area thickness the greater of WB and B (Bottom Slab Thickness). For skewed ends make the shaded area thickness the greater of WB and (B+HW).

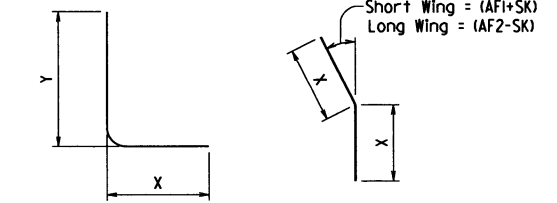


PLAN - PARALLEL WINGWALLS
Showing Footing Reinforcement



WINGWALL SECTION P-P

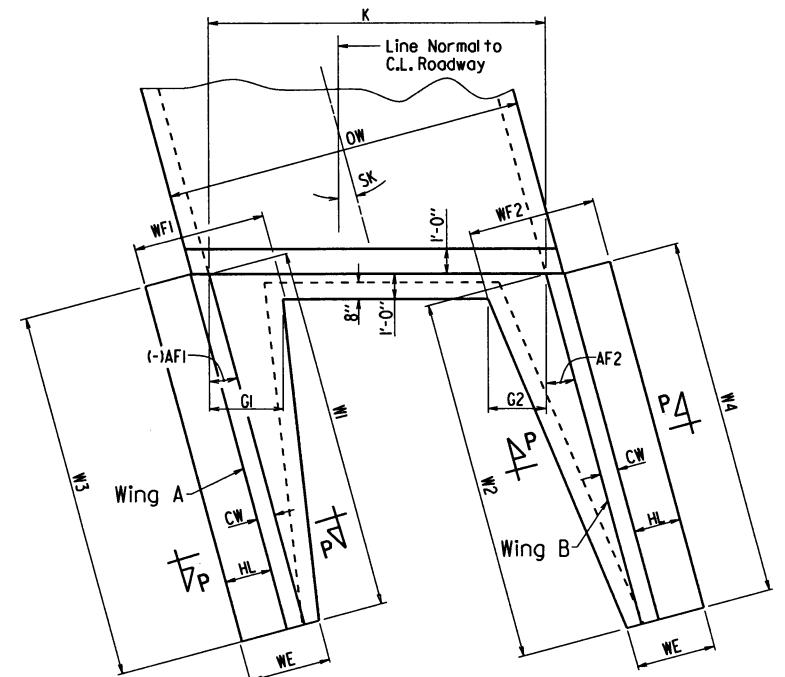
Short Wing = (AF1+SK)
Long Wing = (AF2-SK)



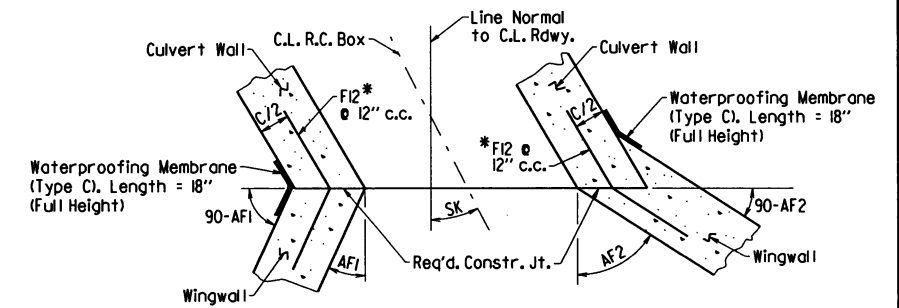
FL, F2, F3, & F6 BARS

***F12 BAR**

*F12 is a straight bar for parallel wingwalls



PART PLAN - PARALLEL WINGWALLS



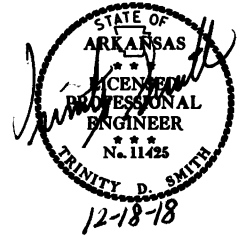
CONSTRUCTION JOINTS
Flared Wingwalls Shown

SHEET 4 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT
DETAILS OF WINGWALLS
SPECIAL DETAILS

b100833_culvert.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. PROJ. DIST. NO.	STATE	FED. PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		13	36
				JOB NO. 100833				

2 TEMPORARY EROSION CONTROL DETAILS

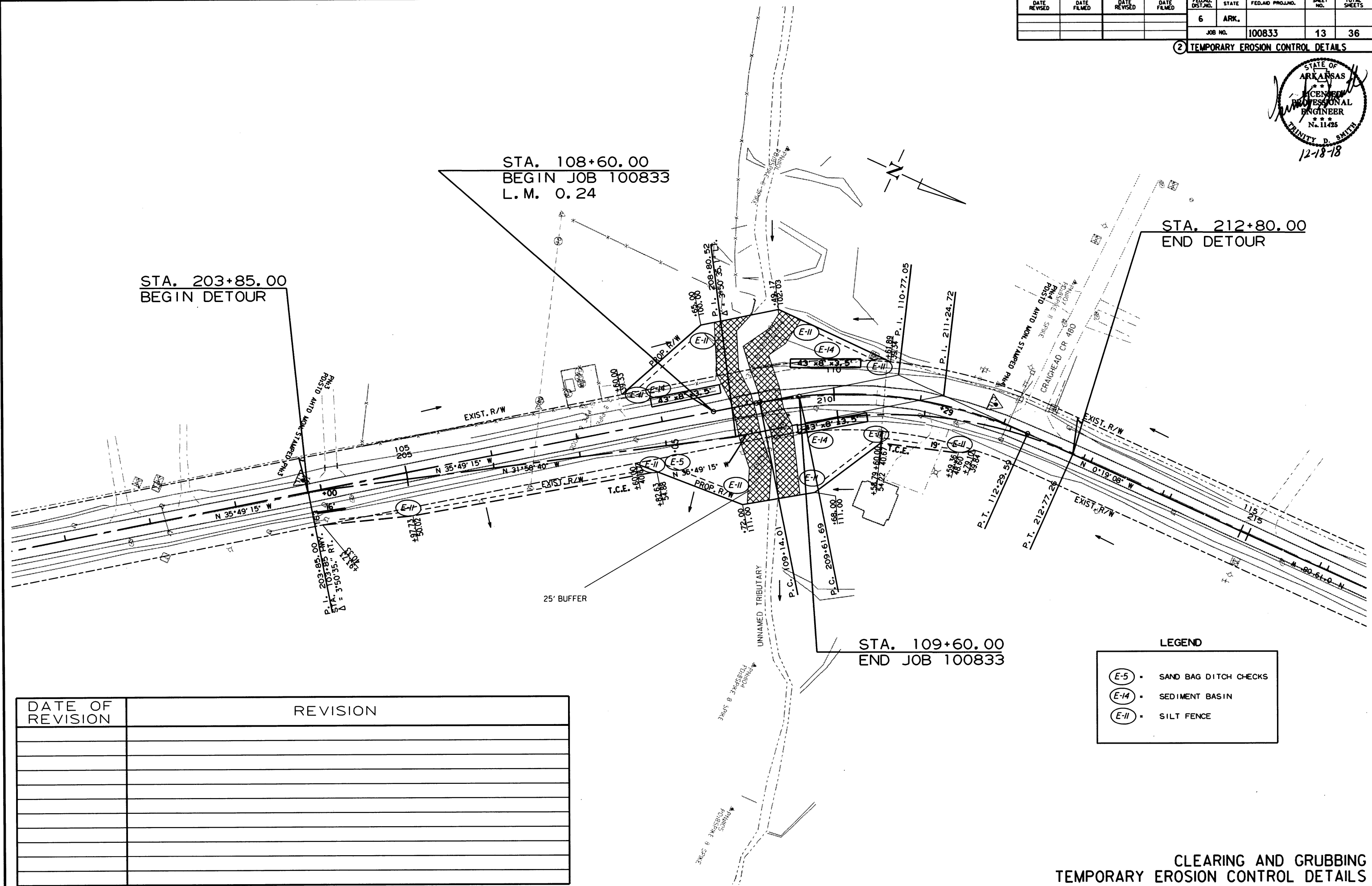


STA. 108+60.00
BEGIN JOB 100833
L.M. 0.24

STA. 212+80.00
END DETOUR

STA. 203+85.00
BEGIN DETOUR

STA. 109+60.00
END JOB 100833



LEGEND

(E-5)	SAND BAG DITCH CHECKS
(E-14)	SEDIMENT BASIN
(E-11)	SILT FENCE

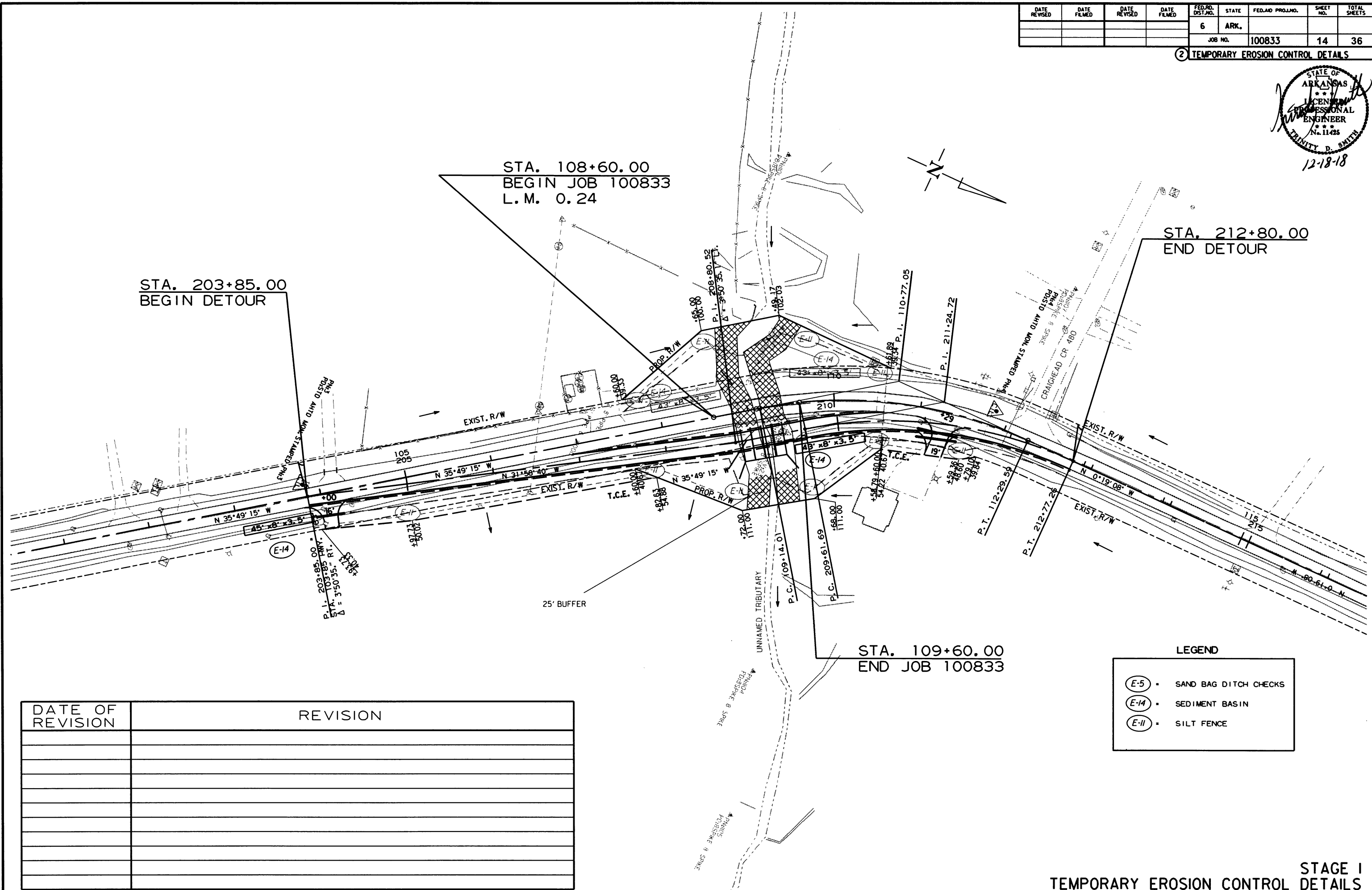
DATE OF REVISION	REVISION

CLEARING AND GRUBBING
TEMPORARY EROSION CONTROL DETAILS

9/14/2018 R100833.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		14	36
				JOB NO.		100833	14	36

② TEMPORARY EROSION CONTROL DETAILS



STA. 203+85.00
BEGIN DETOUR

STA. 108+60.00
BEGIN JOB 100833
L.M. 0.24

STA. 212+80.00
END DETOUR

STA. 109+60.00
END JOB 100833

LEGEND

(E-5)	SAND BAG DITCH CHECKS
(E-14)	SEDIMENT BASIN
(E-11)	SILT FENCE

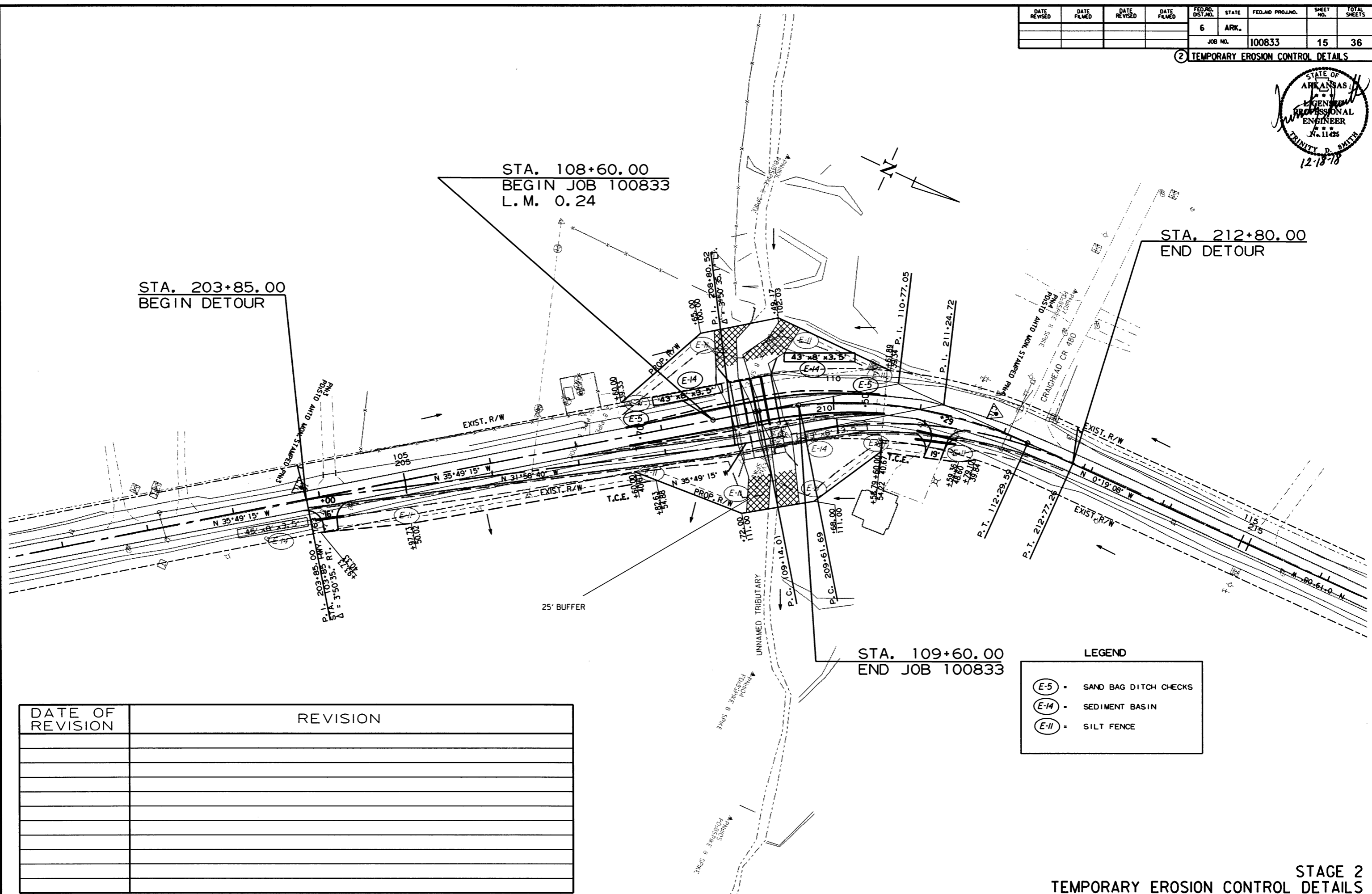
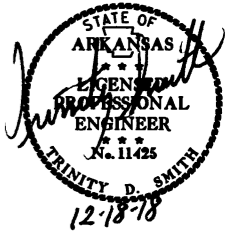
DATE OF REVISION	REVISION

STAGE I
TEMPORARY EROSION CONTROL DETAILS

9/14/2018
R100833.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		15	36
				JOB NO.		100833	15	36

② TEMPORARY EROSION CONTROL DETAILS



STA. 203+85.00
BEGIN DETOUR

STA. 108+60.00
BEGIN JOB 100833
L.M. 0.24

STA. 212+80.00
END DETOUR

STA. 109+60.00
END JOB 100833

LEGEND

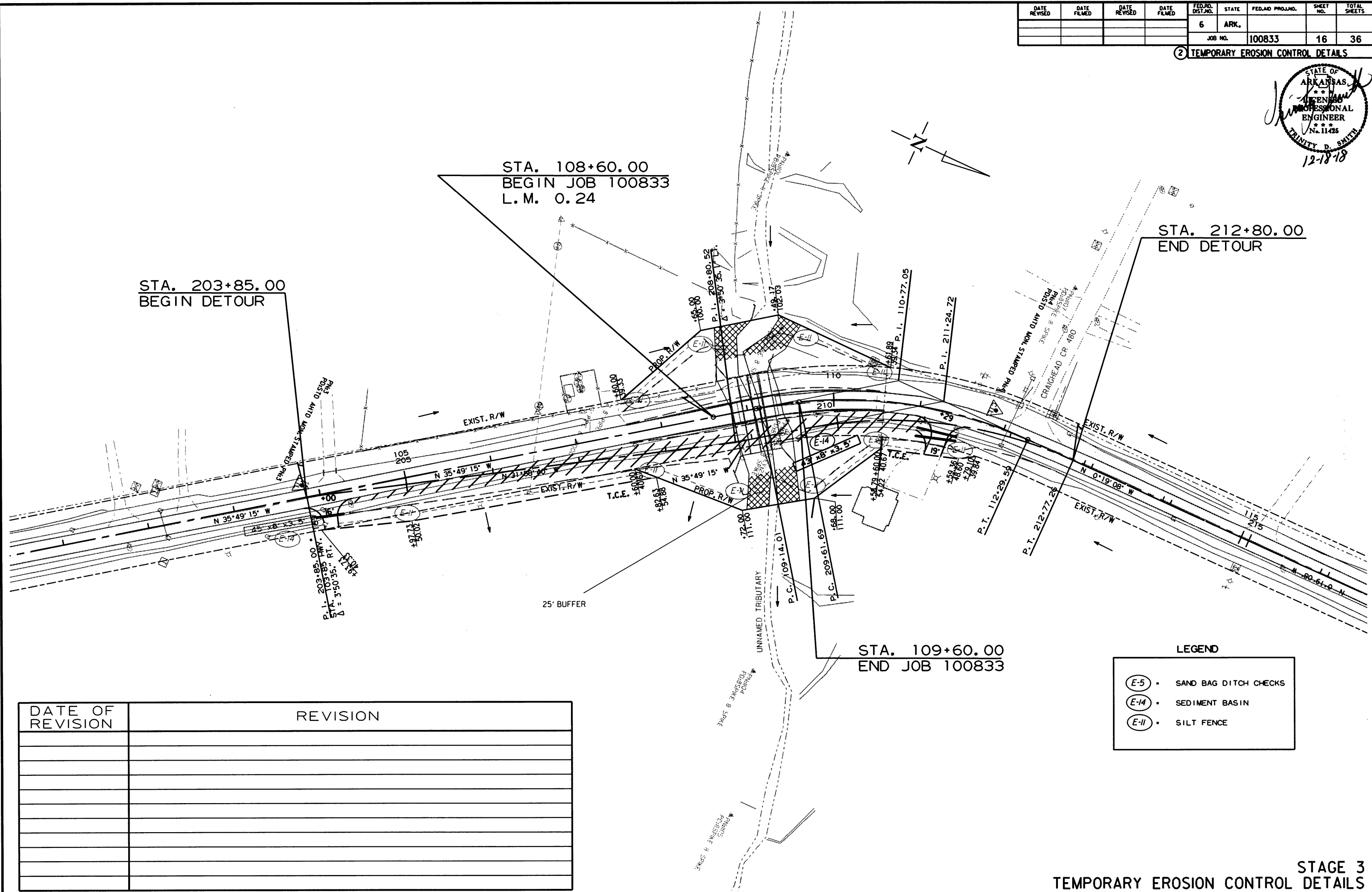
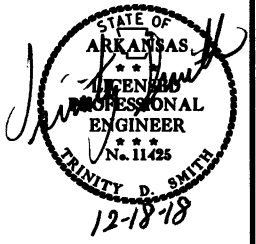
(E-5)	SAND BAG DITCH CHECKS
(E-14)	SEDIMENT BASIN
(E-11)	SILT FENCE

DATE OF REVISION	REVISION

9/14/2018
R100833.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		16	36
				JOB NO.		100833	16	36

② TEMPORARY EROSION CONTROL DETAILS



STA. 203+85.00
BEGIN DETOUR

STA. 108+60.00
BEGIN JOB 100833
L.M. 0.24

STA. 212+80.00
END DETOUR

STA. 109+60.00
END JOB 100833

LEGEND

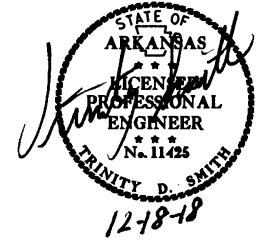
(E-5)	SAND BAG DITCH CHECKS
(E-14)	SEDIMENT BASIN
(E-11)	SILT FENCE

DATE OF REVISION	REVISION

9/14/2018
R100833.DGN

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. 100833	18	36

2 MAINTENANCE OF TRAFFIC DETAILS



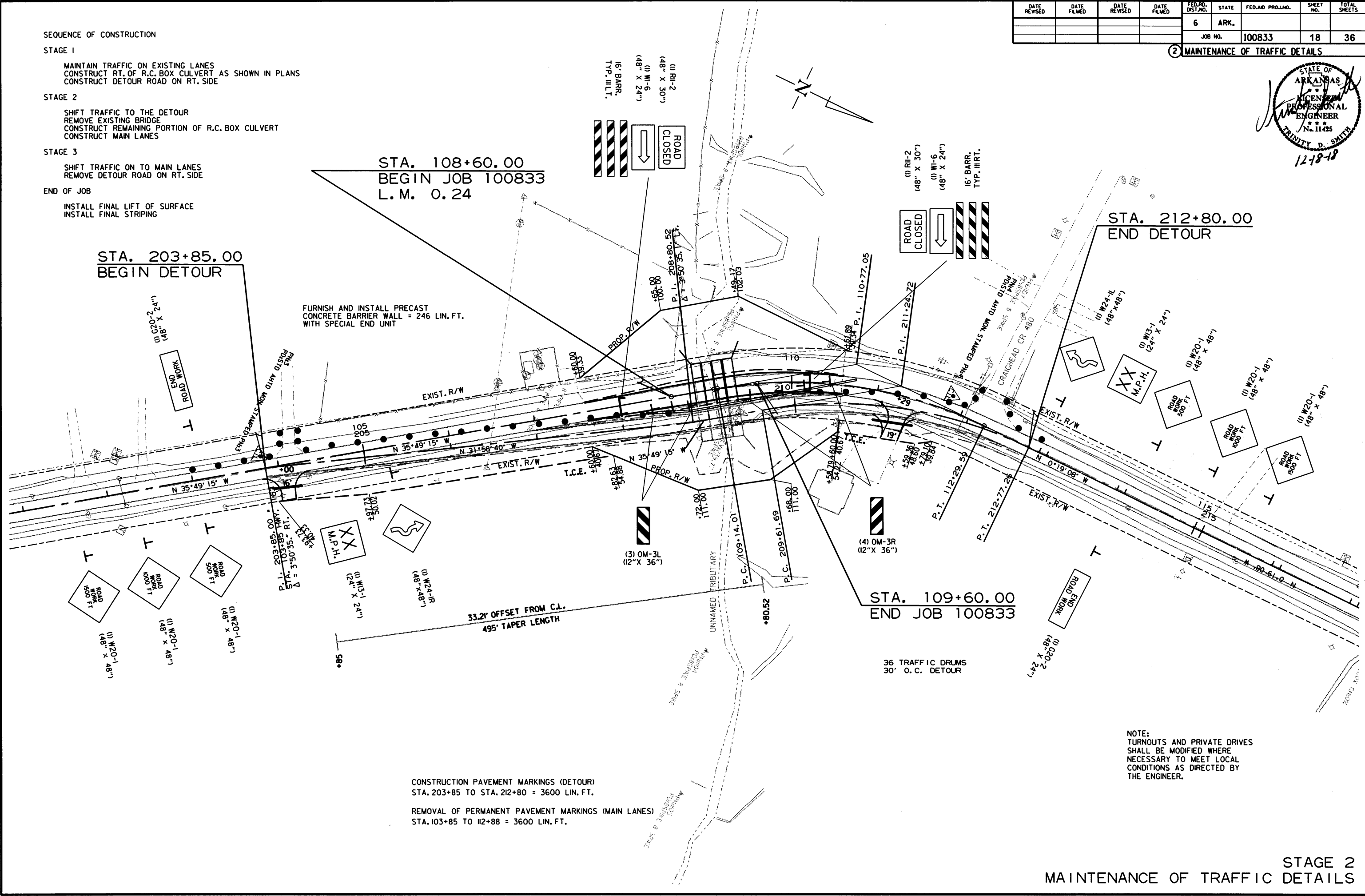
SEQUENCE OF CONSTRUCTION

STAGE 1
 MAINTAIN TRAFFIC ON EXISTING LANES
 CONSTRUCT RT. OF R.C. BOX CULVERT AS SHOWN IN PLANS
 CONSTRUCT DETOUR ROAD ON RT. SIDE

STAGE 2
 SHIFT TRAFFIC TO THE DETOUR
 REMOVE EXISTING BRIDGE
 CONSTRUCT REMAINING PORTION OF R.C. BOX CULVERT
 CONSTRUCT MAIN LANES

STAGE 3
 SHIFT TRAFFIC ON TO MAIN LANES
 REMOVE DETOUR ROAD ON RT. SIDE

END OF JOB
 INSTALL FINAL LIFT OF SURFACE
 INSTALL FINAL STRIPING



FURNISH AND INSTALL PRECAST CONCRETE BARRIER WALL = 246 LIN. FT. WITH SPECIAL END UNIT

33.2' OFFSET FROM C.L.
 495' TAPER LENGTH

CONSTRUCTION PAVEMENT MARKINGS (DETOUR)
 STA. 203+85 TO STA. 212+80 = 3600 LIN. FT.

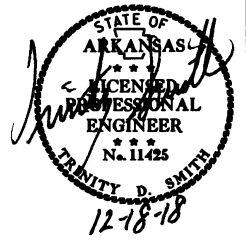
REMOVAL OF PERMANENT PAVEMENT MARKINGS (MAIN LANES)
 STA. 103+85 TO 112+88 = 3600 LIN. FT.

NOTE:
 TURNOUTS AND PRIVATE DRIVES SHALL BE MODIFIED WHERE NECESSARY TO MEET LOCAL CONDITIONS AS DIRECTED BY THE ENGINEER.

STAGE 2
 MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		19	36
				JOB NO. 100833				

② MAINTENANCE OF TRAFFIC DETAILS



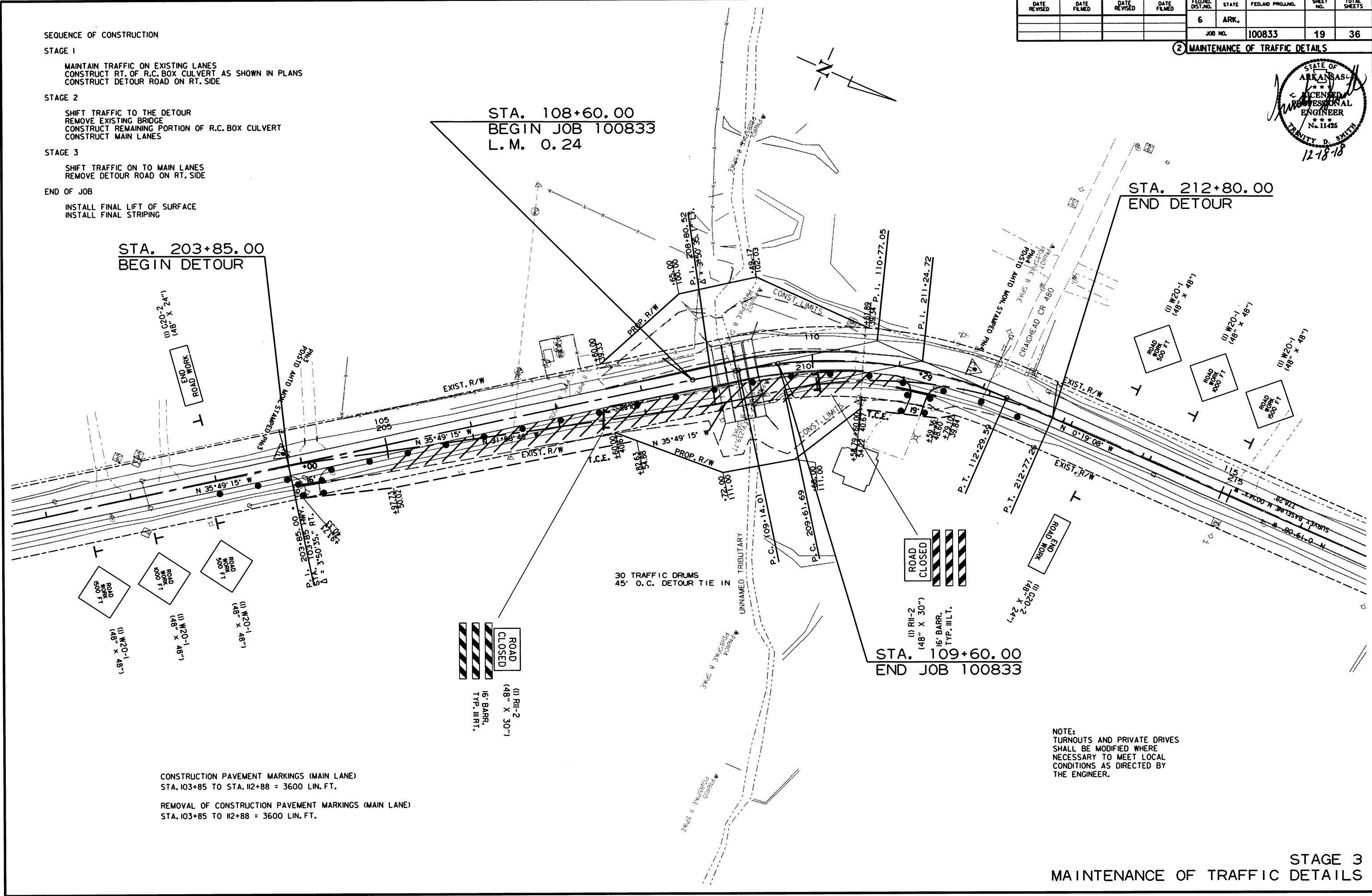
SEQUENCE OF CONSTRUCTION
 STAGE 1
 MAINTAIN TRAFFIC ON EXISTING LANES
 CONSTRUCT RT. OF R.C. BOX CULVERT AS SHOWN IN PLANS
 CONSTRUCT DETOUR ROAD ON RT. SIDE
 STAGE 2
 SHIFT TRAFFIC TO THE DETOUR
 REMOVE EXISTING BRIDGE
 CONSTRUCT REMAINING PORTION OF R.C. BOX CULVERT
 CONSTRUCT MAIN LANES
 STAGE 3
 SHIFT TRAFFIC ON TO MAIN LANES
 REMOVE DETOUR ROAD ON RT. SIDE
 END OF JOB
 INSTALL FINAL LIFT OF SURFACE
 INSTALL FINAL STRIPING

STA. 108+60.00
 BEGIN JOB 100833
 L.M. 0.24

STA. 203+85.00
 BEGIN DETOUR

STA. 212+80.00
 END DETOUR

STA. 109+60.00
 END JOB 100833



30 TRAFFIC DRUMS
 45' O.C. DETOUR TIE IN

ROAD CLOSED
 (1) RII-2
 (48" X 30")
 16' BARR.
 TYP. III RT.

ROAD CLOSED
 (1) RII-2
 (48" X 30")
 16' BARR.
 TYP. III LT.

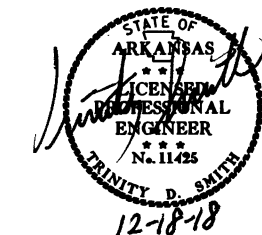
CONSTRUCTION PAVEMENT MARKINGS (MAIN LANE)
 STA. 103+85 TO STA. 112+88 = 3600 LIN. FT.
 REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS (MAIN LANE)
 STA. 103+85 TO 112+88 = 3600 LIN. FT.

NOTE:
 TURNOUTS AND PRIVATE DRIVES
 SHALL BE MODIFIED WHERE
 NECESSARY TO MEET LOCAL
 CONDITIONS AS DIRECTED BY
 THE ENGINEER.

STAGE 3
 MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 100833							20	36

② PERMANENT PAVEMENT MARKING DETAILS



SEQUENCE OF CONSTRUCTION

STAGE 1

MAINTAIN TRAFFIC ON EXISTING LANES
 CONSTRUCT RT. OF R.C. BOX CULVERT AS SHOWN IN PLANS
 CONSTRUCT DETOUR ROAD ON RT. SIDE

STAGE 2

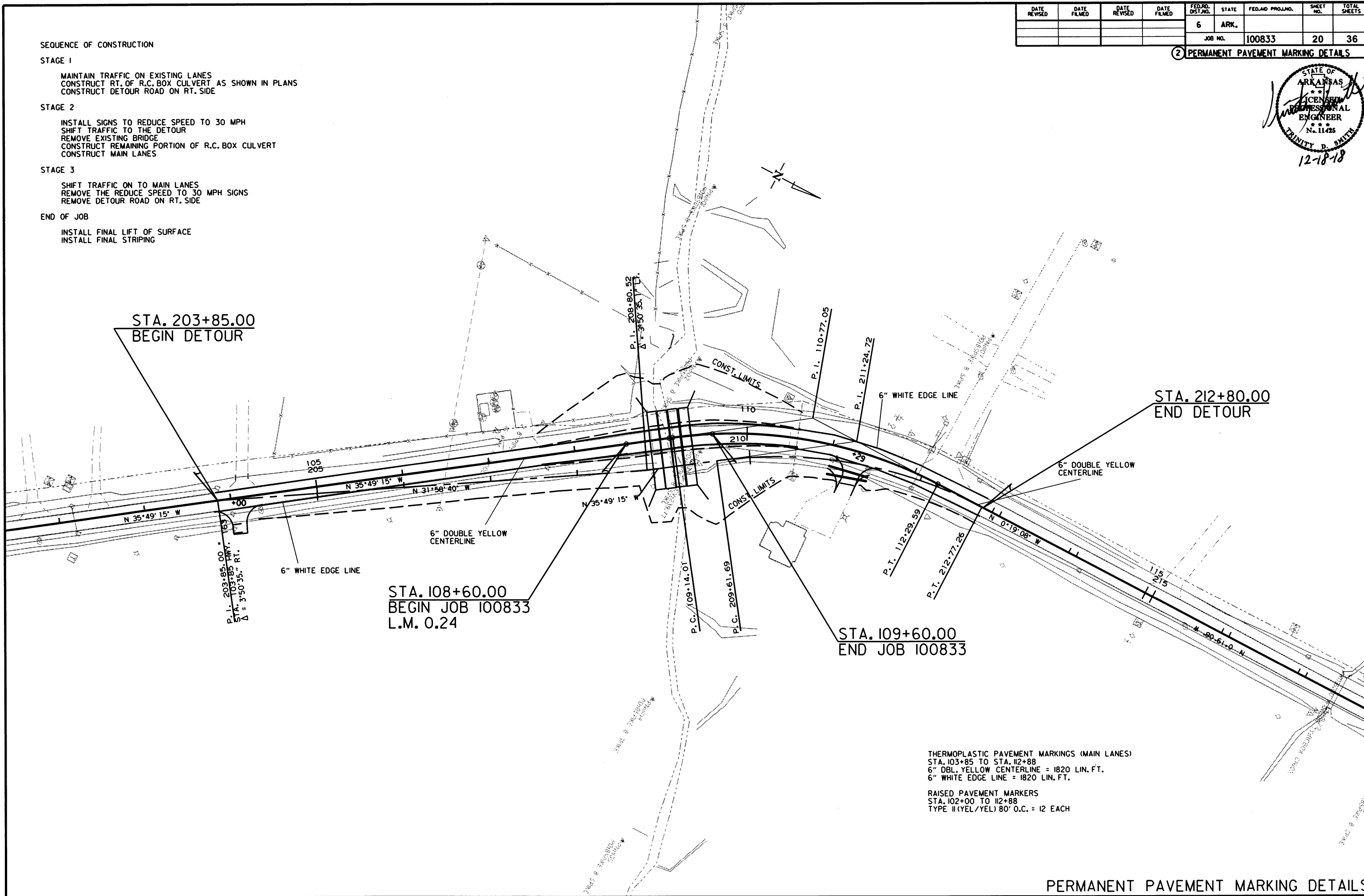
INSTALL SIGNS TO REDUCE SPEED TO 30 MPH
 SHIFT TRAFFIC TO THE DETOUR
 REMOVE EXISTING BRIDGE
 CONSTRUCT REMAINING PORTION OF R.C. BOX CULVERT
 CONSTRUCT MAIN LANES

STAGE 3

SHIFT TRAFFIC ON TO MAIN LANES
 REMOVE THE REDUCE SPEED TO 30 MPH SIGNS
 REMOVE DETOUR ROAD ON RT. SIDE

END OF JOB

INSTALL FINAL LIFT OF SURFACE
 INSTALL FINAL STRIPING



THERMOPLASTIC PAVEMENT MARKINGS (MAIN LANES)
 STA. 103+85 TO STA. 112+88
 6" DBL. YELLOW CENTERLINE = 1820 LIN. FT.
 6" WHITE EDGE LINE = 1820 LIN. FT.

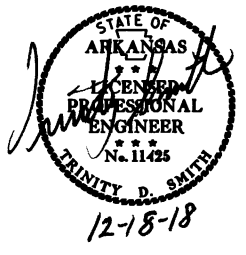
RAISED PAVEMENT MARKERS
 STA. 102+00 TO 112+88
 TYPE II (YEL/YEL) 80' O.C. = 12 EACH

PERMANENT PAVEMENT MARKING DETAILS

8/3/2018
 R100833.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		21	36
				JOB NO. 100833				

② QUANTITIES



ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3	END OF JOB	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)		FURNISHING & INSTALLING PRECAST CONC. BARRIER	RELOCATING PRECAST CONCRETE BARRIER		
								NO.	SQ. FT.			EACH	RIGHT			LEFT	LIN. FT.
W20-1	ROAD WORK 1500 FT.	48"x48"	2	2	2	2	2	2	32.0								
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2	2	2	2	2	32.0								
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2	2	2	2	32.0								
W20-1	ROAD WORK AHEAD	48"x48"	2	2	2	2	2	2	32.0								
G20-2	END ROAD WORK	48"x24"	2	2	2	2	2	2	16.0								
R11-2	ROAD CLOSED	48"x30"	2	2	2	2	2	2	20.0								
OM-3L	OBJECT MARKER	12"x36"	3	3			3	3	9.0								
OM-3R	OBJECT MARKER	12"x36"	4	4			4	4	12.0								
R4-1	DO NOT PASS	36"x48"	2	2	2	2	2	2	24.0								
W21-5a	RIGHT SHOULDER CLOSED	48"x48"	2	2	2	2	2	2	32.0								
W24-1R	DOUBLE REVERSE CURVE RT.	48"x48"		1			1	1	16.0								
W24-1L	DOUBLE REVERSE CURVE LT.	48"x48"		1			1	1	16.0								
W13-1	ADVISORY SPEED PLAQUE	24"x24"		2			2	2	8.0								
W1-6	LARGE ARROW	48"x24"		2			2	2	16.0								
	VERTICAL PANELS		20				20			20							
	TRAFFIC DRUMS		12	36	30		36				36						
	TYPE III BARRICADE-RT. (16')		1	1	1		1					16					
	TYPE III BARRICADE-LT. (16')		1	1	1		1						16				
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		174	60			234							234			
	RELOCATING PRECAST CONCRETE BARRIER			174			174								174		
TOTALS:									297.0	20	36	16	16	234	174		

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

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	STAGE 3	END OF JOB	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS	THERMOPLASTIC PAVEMENT MARKING	
								TYPE II (YEL/YEL)	6"	
									WHITE	YELLOW
					LIN. FT.		LIN. FT.	LIN. FT.		
LIN. FT. - EACH					LIN. FT.		LIN. FT.	EACH	LIN. FT.	
REMOVAL OF PERMANENT PAVEMENT MARKINGS		3600			3600					
CONSTRUCTION PAVEMENT MARKINGS	900	3600	3600			8100				
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS			3600				3600			
RAISED PAVEMENT MARKERS TYPE II (YEL/YEL)				12				12		
THERMOPLASTIC PAVEMENT MARKING WHITE (6")				1820					1820	
THERMOPLASTIC PAVEMENT MARKING YELLOW (6")				1820						1820
TOTALS:					3600	8100	3600	12	1820	1820

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

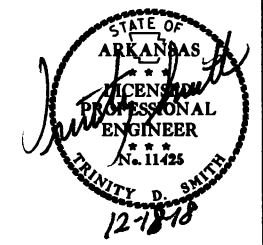
NOTE: THE 6" YELLOW STRIPING QUANTITY HAS BEEN ESTIMATED BASED ON A DOUBLE YELLOW CENTERLINE STRIPE FOR THE ENTIRE PROJECT. THE PROJECT MUST BE MARKED FOR PASSING/NO PASSING ZONES PRIOR TO THE PLACEMENT OF ANY FINAL STRIPING. CONTACT THE MAINTENANCE DIVISION AFTER THE FINAL LIFT OF SURFACE COURSE HAS BEEN PLACED TO SCHEDULE THE ZONING OF THE PROJECT.

QUANTITIES

8/21/2018 R100833.DGN

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	100833		22	36

② QUANTITIES



CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
108+65	110+62	MAIN LANES	2	2
TOTALS:			2	2

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE
			LIN. FT.
107+60	108+88	3 BOARD FENCE ON LT.	182
TOTAL:			182

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	GUARDRAIL
			LIN. FT.
108+84	109+36	MAIN LANE LT.	51
108+84	109+36	MAIN LANE RT.	51
TOTAL:			102

NOTE: THE QUANTITY SHOWN ABOVE FOR THE REMOVAL AND DISPOSAL OF GUARDRAIL SHALL INCLUDE THE REMOVAL AND DISPOSAL OF ALL GUARDRAIL TERMINALS AND TERMINAL ANCHOR POSTS.

REMOVAL AND DISPOSAL OF CULVERTS

STATION	DESCRIPTION	PIPE CULVERTS
		EACH
104+00	18' X 20' CM PIPE CULVERT RT.	1
111+29	18' X 30' CM PIPE CULVERT RT.	1
TOTAL:		2

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

REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)

STATION	STATION	LOCATION	LUMP SUM
108+89	109+34	45' x 25' EXISTING BRIDGE	1.00

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	* SOIL STABILIZATION
			CU. YD.	CU. YD.	TON
103+85	112+88	STAGE 1-MAIN LANES	2222	1221	
108+60	109+60	STAGE 2-MAIN LANES	2056	2433	
103+85	112+88	STAGE 3-MAIN LANES	1883	1024	
ENTIRE PROJECT		APPROACHES		45	
ENTIRE PROJECT		TEMPORARY APPROACHES			
109+00	109+00	ADDL. FOR CHANNEL CHANGE	3375		
ENTIRE PROJECT		TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER			100
TOTALS:			9536	4723	100

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

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

SOIL LOG

STATION	LATITUDE			LONGITUDE			LOCATION	DEPTH FEET	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
	DEG	MIN	SEC	DEG	MIN	SEC						
103+00	35	42	24.70	90	39	38.00	06' RT	0-5	ND	NP	A-4(0)	GRAY
103+00	35	42	24.80	90	39	37.70	21' RT	0-5	27	8	A-4(3)	GRAY
112+00	35	42	32.50	90	39	42.20	06' RT	0-5	32	13	A-6(10)	GRAY
112+00	35	42	32.50	90	39	42.50	21' LT	0-5	29	13	A-6(6)	GRAY
112+00	35	42	32.50	90	39	42.50	21' LT	0-5	30	13	A-6(10)	GRAY

SOIL CHARACTERISTICS TABULATED ABOVE ARE REPRESENTATIVE AT THE LOCATION OF THE SAMPLE, AND FROM SURFACE INDICATIONS ARE TYPICAL FOR THE LIMITS 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.

8/21/2018

R100833.DGN

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.	100833		23	36

② QUANTITIES



EROSION CONTROL

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)	SILT FENCE (E-11)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	BAG	LIN. FT.	CU. YD.	CU. YD.	CU. YD.
ENTIRE PROJECT		CLEARING AND GRUBBING						1.50	1.50	30.6	22	1097	134	134	176
ENTIRE PROJECT		STAGE 1						0.39	0.39	8.0			91	91	91
ENTIRE PROJECT		STAGE 2	0.31	0.62	0.31	31.6	0.31				44		89	89	91
ENTIRE PROJECT		STAGE 3	0.74	1.48	0.74	75.5	0.74						45	45	45
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			3.00	6.00	3.00	306.0	3.00	3.00	3.00	61.2	132	500	150	150	169
TOTALS:			4.05	8.10	4.05	413.1	4.05	4.89	4.89	99.8	198	1597	509	509	572

BASIS OF ESTIMATE:
 LIME2 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.

CONCRETE DITCH PAVING

STATION	STATION	LOCATION	LENGTH	"W"	CONC. DITCH PAVING (TYPE B)	SOLID SODDING	WATER
			LIN. FT.	FEET	SQ. YD.	SQ. YD.	M. GAL.
107+59.50	108+72.00	LT. DITCH	112.50	6.00	75.00	50.00	0.63
109+38.00	110+62.50	LT. DITCH	124.50	6.00	83.00	55.33	0.70
109+57.00	110+62.50	RT. DTICH	105.50	6.00	70.33	46.89	0.59
TOTALS:					228.33	152.22	1.92

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

BENCH MARKS

STATION	LOCATION	BENCH MARKS
		EACH
109+00	MAIN LANE LT. SIDE	1
TOTAL:		1

NOTE: SHOWN FOR INFORMATION ONLY. BENCH MARKS SHALL BE FURNISHED AND PLACED BY STATE FORCES.

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R100833.DGN

QUANTITIES

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.	100833		24	36

② QUANTITIES



4" PIPE UNDERDRAIN

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN. FT.	EACH
108+60	109+60	MAIN LANES	120	2
* ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER			100	2
TOTALS:			220	4

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

MAILBOXES

LOCATION	MAILBOXES	MAILBOX SUPPORTS (SINGLE)
	EACH	EACH
ENTIRE PROJECT	1	1
TOTALS:	1	1

STRUCTURES

STATION	DESCRIPTION	TEMPORARY CULVERTS	SPAN	HEIGHT	LENGTH	CLASS 5 CONCRETE ROADWAY	REINF. STEEL ROADWAY (GRADE 60)	UNCL. EXC. FOR STR. ROADWAY	SOLID SODDING	WATER	STD. DWG. NOS.
		18" LIN. FT.				CU. YD.	POUND	CU. YD.	SQ. YD.	M. GAL.	
204+00	TEMPORARY SIDE DRAIN	38									PCC-1, PCM-1
211+00	TEMPORARY SIDE DRAIN	38									PCC-1, PCM-1
SUBTOTALS:		76									
STRUCTURES OVER 20' - 0" SPAN											
109+00	QUAD 11' X 9' X 88' R.C. BOX CULVERT		11	9	88	474.33	56320	215	23	0.29	SPECIAL DETAILS, RCB-1, RCB-2
SUBTOTALS:						474.33	56320	215	23	0.29	
TOTALS:		76				474.33	56320	215	23	0.29	

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.

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU. YD.
ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	10
TOTAL:	10

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

DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS	STANDARD DRAWINGS
				FEET	SQ. YD.			
104+00	RT.	MAIN LANE	16	57.24	6.30	23.37	28	PCC-1, PCM-1, PCP-1, PCP-2
111+29	RT.	MAIN LANE	19	90.91	10.00	37.12	32	PCC-1, PCM-1, PCP-1, PCP-2
* ENTIRE PROJECT TEMPORARY DRIVES						60.00		
TOTALS:				148.15	16.30	120.49	60	

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.8% MIN. AGGR.....5.2% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

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

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.

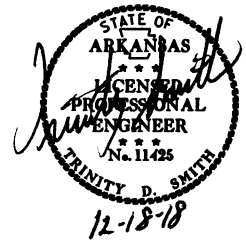
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QUANTITIES

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.	100833		25	36

② QUANTITIES



COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
107+60.00	108+60.00	MAIN LANES	20.00	222.22
109+60.00	110+60.00	MAIN LANES	20.00	222.22
TOTAL:				444.44

NOTE: AVERAGE MILLING DEPTH 1".

ACHM PATCHING OF EXISTING ROADWAY

DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	100
TOTAL:	100

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

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT
		GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	2	4
TOTALS:	2	4

BASIS OF ESTIMATE:
 ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC...25 TON/MILE
 TACK COAT FOR MAINTENANCE OF TRAFFIC.....50 GAL./MILE

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

BASE AND SURFACING

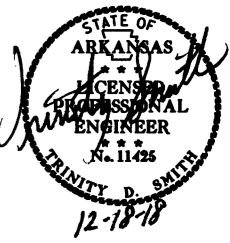
STATION	STATION	LOCATION	LENGTH FEET	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT						ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")											
				TON / STATION	TON	(0.05 GAL. PER SQ. YD.)			(0.17 GAL. PER SQ. YD.)			TOTAL GALLONS	AVG. WID. FEET	SQ. YD.	POUND / SQ. YD.	PG 64-22 TON	AVG. WID. FEET	SQ. YD.	POUND / SQ. YD.	PG 64-22 TON	AVG. WID. FEET	SQ. YD.	POUND / SQ. YD.	PG 64-22 TON	TOTAL PG 64-22 TON		
						TOTAL WID. FEET	SQ. YD.	GALLON	TOTAL WID. FEET	SQ. YD.	GALLON																
MAIN LANES																											
107+60.00	108+60.00	MAIN LANE 100' TRANSITION BEGIN JOB	100.00	80.75	80.75	4.38	48.67	2.43	20.00	222.22	37.78	40.21	2.25	25.00	440.00	5.50	2.13	23.67	220.00	2.60	24.00	266.67	220.00	29.33	31.93		
108+60.00	109+60.00	MAIN LANE	100.00	252.00	252.00	48.75	541.67	27.08	20.00	222.22	37.78	27.08	24.50	272.22	440.00	59.89	24.25	269.44	220.00	29.64	28.00	311.11	220.00	34.22	63.86		
109+60.00	110+60.00	MAIN LANE 100' TRANSITION END JOB	100.00	80.75	80.75	4.38	48.67	2.43	20.00	222.22	37.78	40.21	2.25	25.00	440.00	5.50	2.13	23.67	220.00	2.60	24.00	266.67	220.00	29.33	31.93		
DETOUR																											
203+85.00	207+23.00	DETOUR	338.00	VAR.	283.92	VAR.	402.97	20.15				20.15	VAR.	402.97	330.00	66.49	VAR.	488.22	220.00	53.70					53.70		
207+23.00	210+30.40	DETOUR	307.40	142.25	437.28	20.29	693.02	34.65				34.65	20.29	693.02	330.00	114.35	24.00	819.73	220.00	90.17					90.17		
210+30.40	212+79.00	DETOUR	248.60	VAR.	208.82	VAR.	296.39	14.82				14.82	VAR.	296.39	330.00	48.90	VAR.	359.09	220.00	39.50					39.50		
ADDITIONAL FOR SUPERELEVATION																											
107+60.00	110+60.00	MAIN LANE	300.00	VAR.	55.42																						
207+23.00	210+30.00	DETOUR	307.00	VAR.	20.49																						
TOTALS:					1419.43			2031.39	101.56			444.44	75.56	177.12		1714.60		300.63		1983.82		218.21		844.45		92.88	311.09

BASIS OF ESTIMATE:
 ACHM SURFACE COURSE (1/2").....94.8% MIN. AGGR.....5.2% ASPHALT BINDER
 ACHM BINDER COURSE (1").....95.9% MIN. AGGR.....4.1% ASPHALT BINDER
 MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22
 TACK COAT QUANTITIES WERE CALCULATED USING THE EMULSIFIED ASPHALT RATES. REFER TO SS-400-1 FOR THE RESIDUAL ASPHALT APPLICATION RATES.

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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.			
						100833	27	36

2 SURVEY CONTROL DETAILS



SURVEY CONTROL COORDINATES

Project Name: s100833
 Date: 5/30/2017
 Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL, 160017 - 560002
 PROJECTED TO GROUND.
 Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	501239.0254	1710581.6683	230.198	CTL	STD AHTD MON. STAMPED PN: 1
2	502001.9021	1710608.5662	233.673	CTL	STD AHTD MON. STAMPED PN: 2
3	502614.5410	1710138.4948	240.973	CTL	STD AHTD MON. STAMPED PN: 3
4	503302.7669	1709727.0226	245.698	CTL	STD AHTD MON. STAMPED PN: 4
5	504081.0421	1709723.8114	248.322	CTL	STD AHTD MON. STAMPED PN: 5
6	504851.6114	1709811.4256	266.959	CTL	STD AHTD MON. STAMPED PN: 6
100	515025.3111	1700268.4305	251.352	GPS	AHTD GPS MON 160017
101	494554.8054	1698467.5387	248.159	GPS	AHTD GPS MON 560002
900	513815.8800	1708796.9766	239.548	TBM	CHISLED SQUARE N OF COUNTY RD 472
901	511299.3514	1709655.6836	235.820	TBM	CHISLED SQUARE S OF COUNTY RD 468
902	508164.9820	1709698.2896	240.956	TBM	CHISLED SQUARE 300' N OF COUNTY RD 470
903	493404.3056	1709981.4387	246.758	TBM	CHISLED SQUARE S OF DW HOUSE 4474

*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 0.9999290427 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 ARE STORED UNDER FILE NAME s100833gi.CTL
 HORIZONTAL DATUM: NAD 83 (1997)
 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: 160017 - 560002
 CONVERGENCE ANGLE: 00-46-43 RIGHT AT PN: 4 LT: N 35-44-55 LG: W 090-40-08
 GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

HWY. I63

POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	99+99.50	502312.8468	1710373.5965
8001	PC	109+14.01	503054.3710	1709838.3730
8003	PT	112+29.59	503349.6045	1709742.0476
8004	P.O.E	119+16.90	504036.9021	1709738.2232

DETOUR

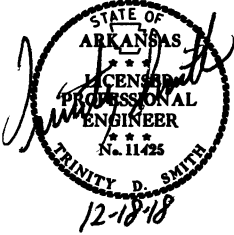
POINT NO.	TYPE	STATION	NORTHING	EASTING
8005	POB	199+99.50	502312.8368	1710373.5965
8006	PI	203+85.00	50265.4194	1710147.9811
8007	PI	208+80.52	503045.7449	1709885.5583
8008	PC	209+61.69	50311.5593	1709838.0548
8010	PT	212+77.26	503406.7928	1709741.7294
8011	POE	219.07.38	504036.9024	1709738.2232

9/18/2018

R100833.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. AID DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. 100833							28	36

2 SURVEY CONTROL DETAILS



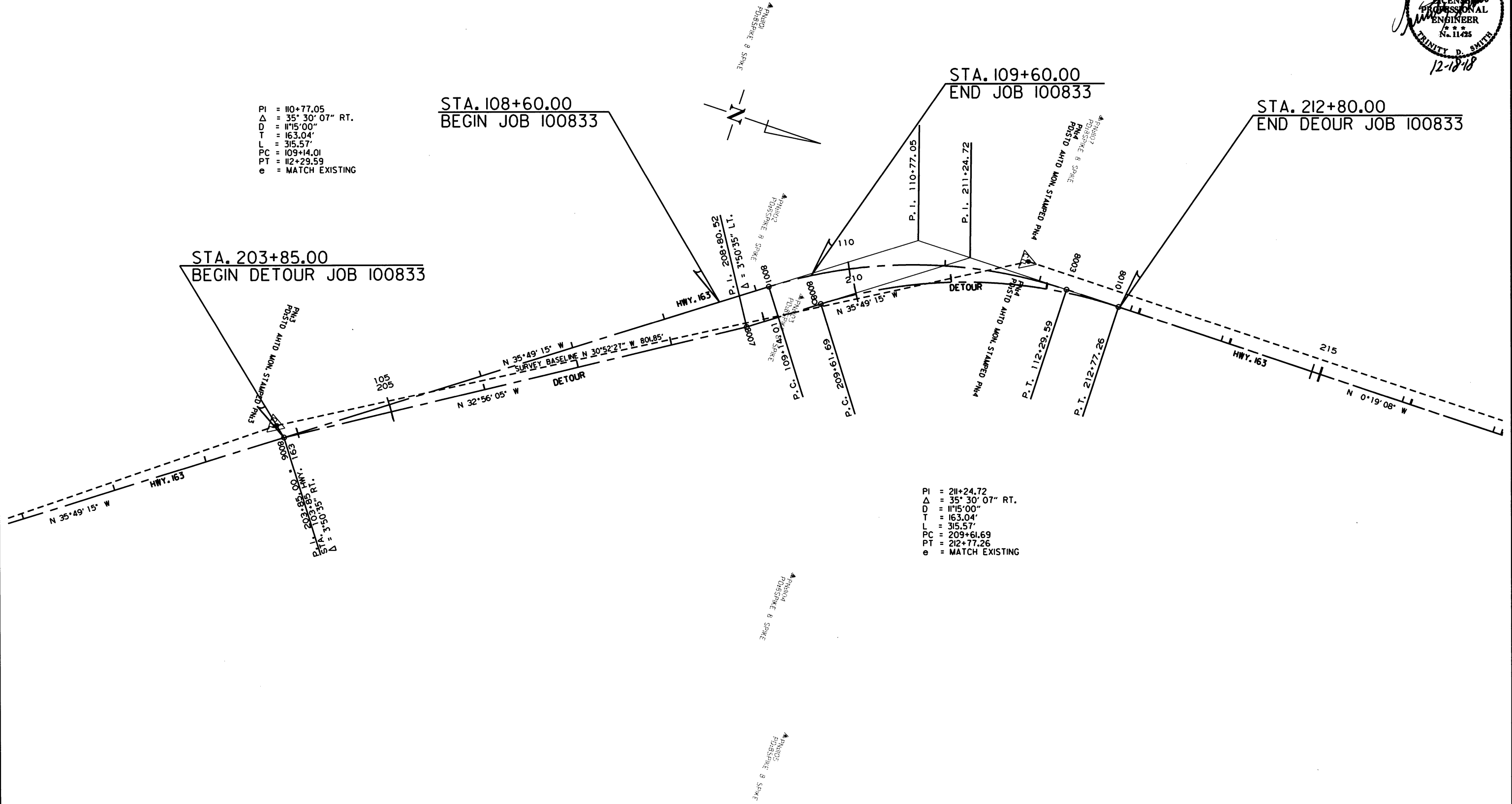
PI = 110+77.05
 Δ = 35° 30' 07" RT.
D = 1115' 00"
T = 163.04'
L = 315.57'
PC = 109+14.01
PT = 112+29.59
e = MATCH EXISTING

STA. 108+60.00
BEGIN JOB 100833

STA. 109+60.00
END JOB 100833

STA. 212+80.00
END DEOUR JOB 100833

STA. 203+85.00
BEGIN DETOUR JOB 100833



PI = 211+24.72
 Δ = 35° 30' 07" RT.
D = 1115' 00"
T = 163.04'
L = 315.57'
PC = 209+61.69
PT = 212+77.26
e = MATCH EXISTING