"A FULLY CONTROLLED ACCESS FACILITY"

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

CONSTRUCTION PLANS FOR STATE HIGHWAY

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.		020471	1	346
				②	HWY. 425-HWY. 278 EAST (GR. & STRS.)(MONTICELLO BYPASS)(F)			

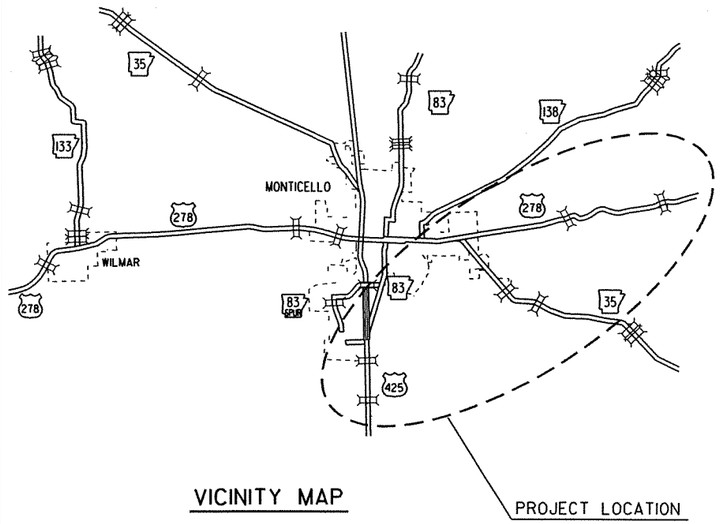
HWY. 425-HWY. 278 EAST (GR. & STRS.) (MONTICELLO BYPASS)(F)

DREW COUNTY

ROUTE 69 SECTION 0

FEDERAL AID PROJ. NCIIP-AI22(I)

JOB 020471

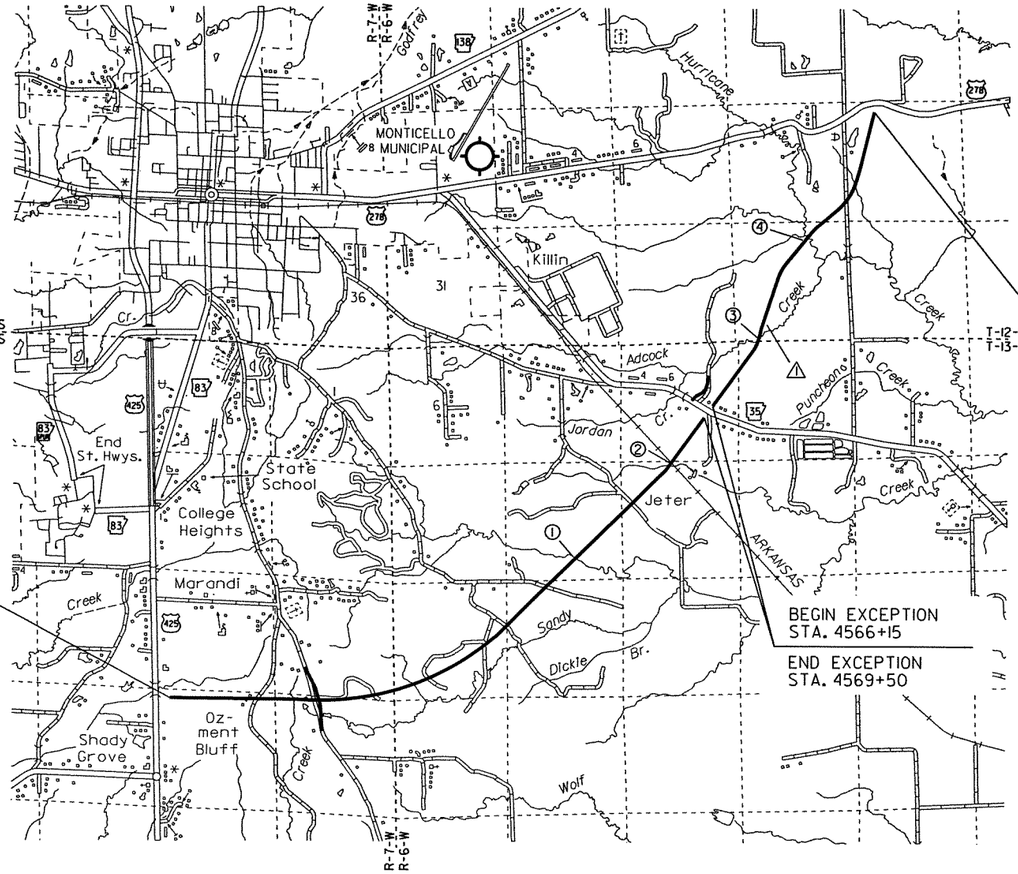


VICINITY MAP

PROJECT LOCATION

0 ¼ ½ 1 MILES

BAR SCALE

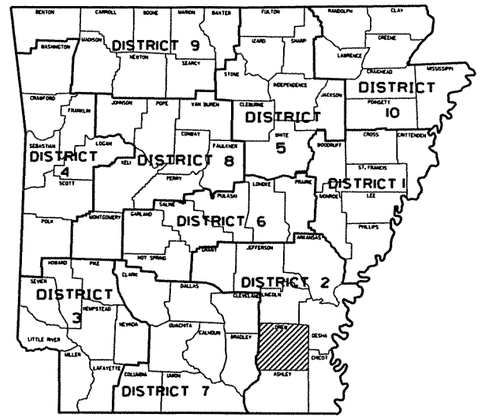


BEGIN JOB 020471
STA. 4270+84.80

END JOB 020471
STA. 4724+60.00

BEGIN EXCEPTION
STA. 4566+15

END EXCEPTION
STA. 4569+50



ARK. HWY. DIST. NO. 2

DESIGN TRAFFIC DATA

DESIGN YEAR	2031
2011 ADT	4000
2031 ADT	5200
2031 DHV	572
DIRECTIONAL DISTRIBUTION	0.60
TRUCKS	14%
DESIGN SPEED	70 MPH

BRIDGE DATA

② UNION PACIFIC RAILROAD OVERPASS
207'-2⅜" BRIDGE LENGTH
STA. 4538+19.90 BR. END
40'-0" CLEAR ROADWAY
205'-0" CONT. COMP.
W-BEAM UNIT (61', 83', 61')
BR. NO. 07180
STA. 4540+27.10 BR. END

STRUCTURES OVER 20'-0" SPAN

① MAIN LANES
STA. 4479+10 - CONSTRUCT
DBL. 9' x 7' x 138' R.C. BOX CULV'T.
(27° RT. FWD. SKEW) (SPAN = 23'- 2 ¼")
050 = 1100 cfs; DA = 1600 ac

③ MAIN LANES
STA. 4602+33 - CONSTRUCT
DBL. 11' x 7' x 180' R.C. BOX CULV'T.
(40° RT. FWD. SKEW) (SPAN = 34'-2⅛")
050 = 1460 cfs; DA = 2750 ac

④ MAIN LANES
STA. 4658+25 - CONSTRUCT
DBL. 11' x 9' x 121' R.C. BOX CULV'T.
(5° LT. FWD. SKEW) (SPAN = 24'-5")
050 = 1950 cfs; DA = 5330 ac

⚠ I-69 EQUATION:
STA. 4610+45.12 BACK=
STA. 4610+50.00 AHEAD

BEGINNING OF PROJECT	MID POINT OF PROJECT	END OF PROJECT
LATITUDE = N 33°34'05"	LATITUDE = N 33°35'12"	LATITUDE = N 33°38'17"
LONGITUDE = W 91°48'01"	LONGITUDE = W 91°48'03"	LONGITUDE = W 91°41'34"

LENGTH OF PROJECT CALCULATED ALONG C.L. I-69

GROSS LENGTH OF PROJECT	45035.32	FEET OR	8.529	MILES
NET " " ROADWAY	44746.33	"	8.474	"
NET " " BRIDGES	288.99	"	0.055	"
NET " " PROJECT	45035.32	"	8.529	"

P.E. JOB 020462
NON-PART.

APPROVED

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 3917
FRANK VOZEL

7/13/11

DEPUTY DIRECTOR
AND CHIEF ENGINEER

06-22-2011 r020471.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.		020471	2	346

(2) INDEX OF SHEETS, GOV SPECS, & GEN NOTES

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NOTE: CROSS SECTIONS NOT NORMALLY INCLUDED IN PLANS SOLD TO PROSPECTIVE BIDDERS, BUT MAY BE HAD UPON REQUEST.

GOVERNING SPECIFICATIONS

ARKANSAS STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, EDITION OF 2003, AND THE FOLLOWING SPECIAL PROVISIONS AND SUPPLEMENTAL SPECIFICATIONS:

NUMBER	TITLE
ERRATA	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273	FHWA-1273 REVISIONS
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 - TRAINING PROGRAM - JOB 020471
FHWA-1273	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273	SUPPLEMENT - WAGE RATE DETERMINATION
100-2	MANUAL FOR ASSESSING SAFETY HARDWARE (MASH)
103-1	DETERMINATION OF DBE PARTICIPATION
105-1	CONSTRUCTION CONTROL MARKINGS
105-2	EQUIPMENT AND MATERIAL STORAGE ON BRIDGE STRUCTURES
107-1	WORKER VISIBILITY
108-1	LIQUIDATED DAMAGES
110-1	PROTECTION OF WATER QUALITY AND WETLANDS
303-1	AGGREGATE BASE COURSE
404-1	PRODUCTION VERIFICATION OF ASPHALT CONCRETE HOT MIX
409-1	MINERAL AGGREGATES
410-3	DENSITY TESTING FOR ACHM LEVELING COURSES AND BOND BREAKERS
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723-1	GENERAL REQUIREMENTS FOR SIGNS
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JOB 020471	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 020471	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 020471	CLEARING AND GRUBBING
JOB 020471	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB 020471	DELAY IN RIGHT-OF-WAY OCCUPANCY
JOB 020471	EXCAVATION AND EMBANKMENT
JOB 020471	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 020471	INSURANCE, CONSTRUCTION, AND FLAGGING REQUIREMENTS ON RAILROAD PROPERTY (UNION PACIFIC RAILROAD AND ARKANSAS MIDLAND RAILROAD)
JOB 020471	INTERNET BIDDING
JOB 020471	NESTING SITES OF MIGRATORY BIRDS
JOB 020471	PARTNERING REQUIREMENTS
JOB 020471	SILICONE JOINT SEALANT
JOB 020471	SOIL STABILIZATION
JOB 020471	STORM WATER POLLUTION PREVENTION PLAN
JOB 020471	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 020471	TEMPORARY SILT DIKE
JOB 020471	TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES LEFT IN PLACE
JOB 020471	UTILITY ADJUSTMENTS
JOB 020471	VALUE ENGINEERING
JOB 020471	WARM MIX ASPHALT
JOB 020471	WELLHEAD PROTECTION

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-22-11

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. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
5. 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 RIGHT OF WAY SHALL BE CLEARED TO 20' LEFT OF THE LEFT CONSTRUCTIONS LIMITS SHOWN ON THE PLANS. ADDITIONALLY, A 10' SWATH SHALL BE CLEARED FOR THE CONSTRUCTION OF THE CONTROL OF ACCESS FENCE.
6. 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.
7. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO 210-UNCLASSIFIED EXCAVATION.
8. THIS PROJECT IS COVERED UNDER AN INDIVIDUAL SECTION 404 PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2003, FOR PERMIT REQUIREMENTS.

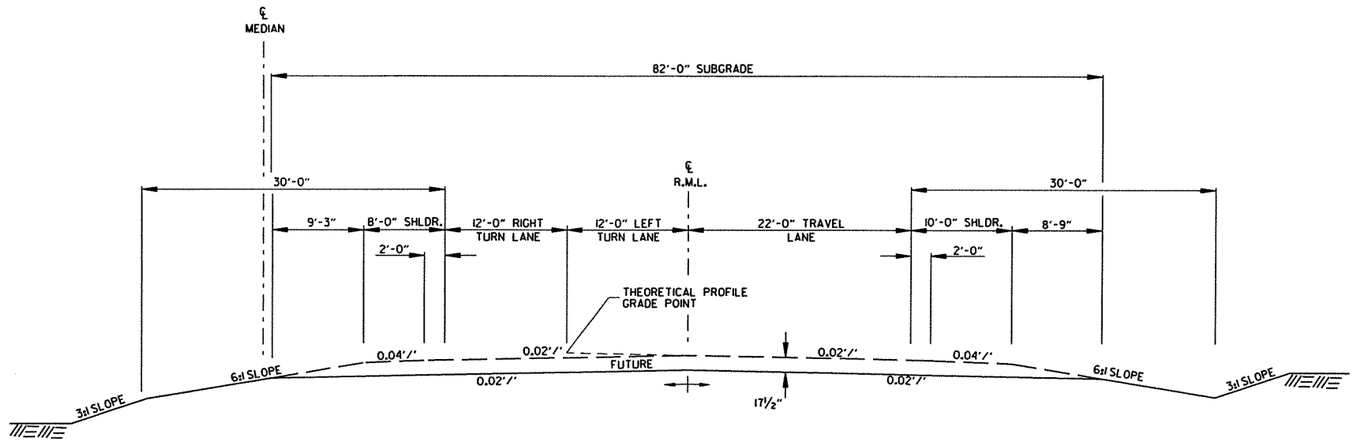
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INDEX OF SHEETS, GOVERNING SPECIFICATIONS, & GENERAL NOTES

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				6	ARK.			
				JOB NO.		020471	3	346

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. PUGETT
7-12-11



RIGHT MAIN LANES - NORMAL CROWN SECTION
STA. 4270+84.80

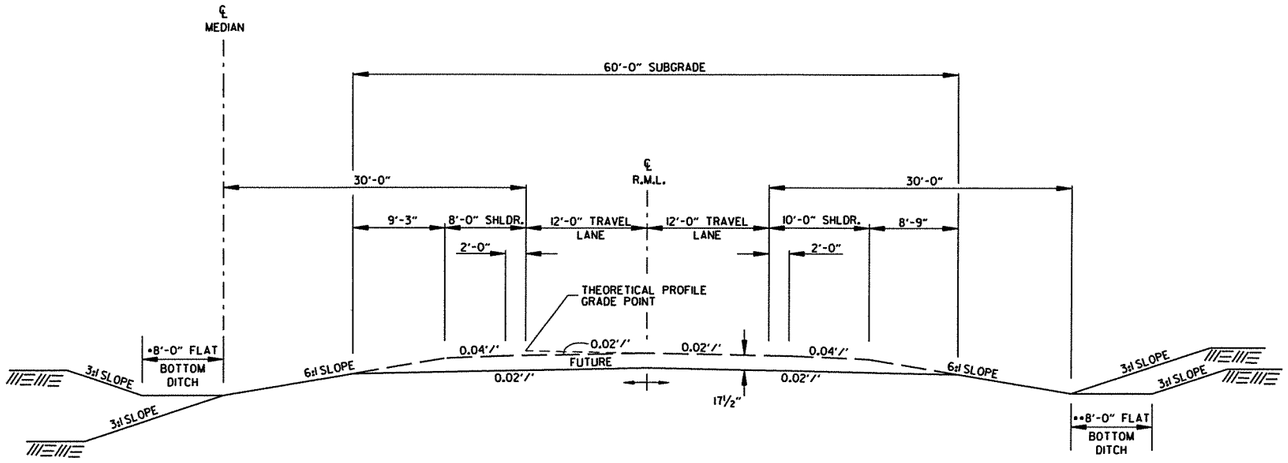
STA. 4270+84.80 TO STA. 4272+64.80 - RIGHT TURN LANE ON LEFT TAPERS FROM 0' TO 12'

STA. 4271+00.00 TO STA. 4272+50.00 - RIGHT THRU LANE TAPERS FROM 22' TO 12'

NOTE:

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.

IT IS INTENDED THAT THE SUBGRADE SHALL BE FINISHED IN CONFORMITY WITH THE LINES, GRADES, AND CROSS SECTIONS SHOWN ON THE PLANS. HOWEVER, A TOLERANCE OF PLUS OR MINUS ONE-TENTH FOOT WILL BE ALLOWED.



RIGHT MAIN LANES - NORMAL CROWN SECTION
STA. 4272+64.80 TO STA. 4353+35.66
STA. 4424+95.37 TO STA. 4561+24.85
STA. 4574+40.00 TO STA. 4585+68.55
STA. 4614+29.51 TO STA. 4619+81.67
STA. 4678+47.69 TO STA. 4722+73.76

• STA. 4427+84.00 TO STA. 4434+00.00
•• STA. 4428+77.50 TO STA. 4434+00.00

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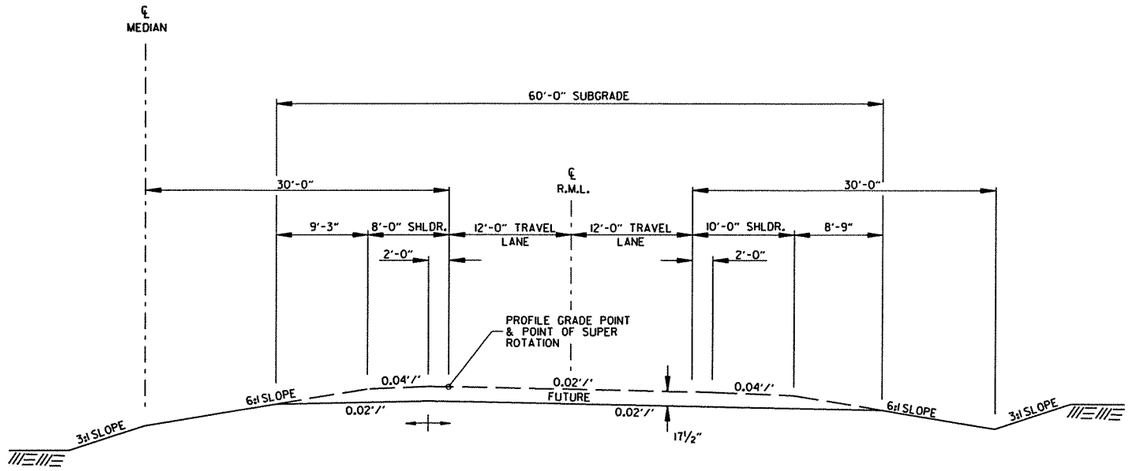
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(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT

7-12-11



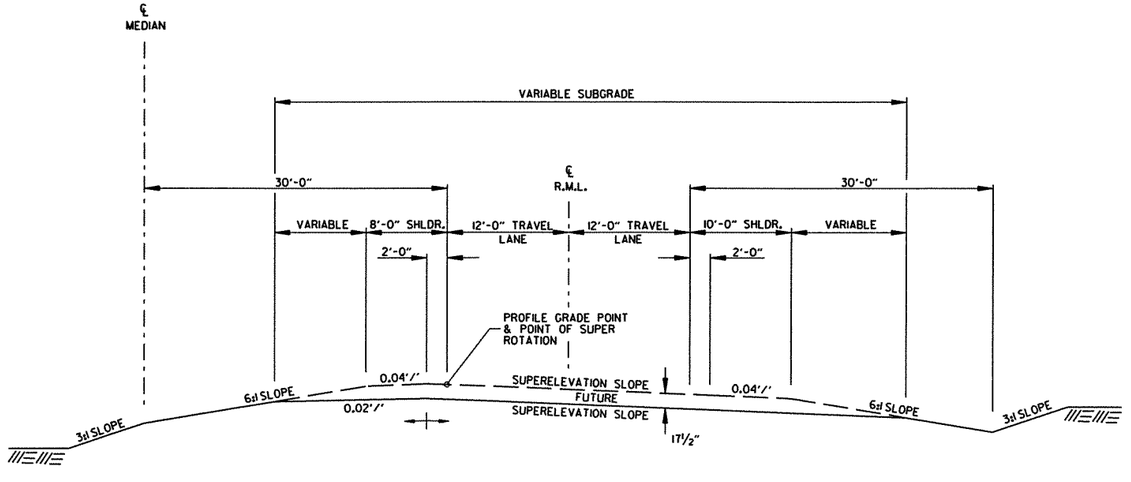
RIGHT MAIN LANES - PLANE SECTION

STA. 4356+85.66
STA. 4421+45.37
STA. 4589+18.55
STA. 4610+79.51
STA. 4623+31.67
STA. 4650+30.03 TO STA. 4656+36.99
STA. 4674+97.69

NOTE:

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RIGHT MAIN LANES - SUPERELEVATION SECTION

STA. 4360+35.66 TO STA. 4417+95.37
STA. 4592+68.55 TO STA. 4607+29.51
STA. 4626+81.67 TO STA. 4646+80.03
STA. 4659+86.99 TO STA. 4671+47.69

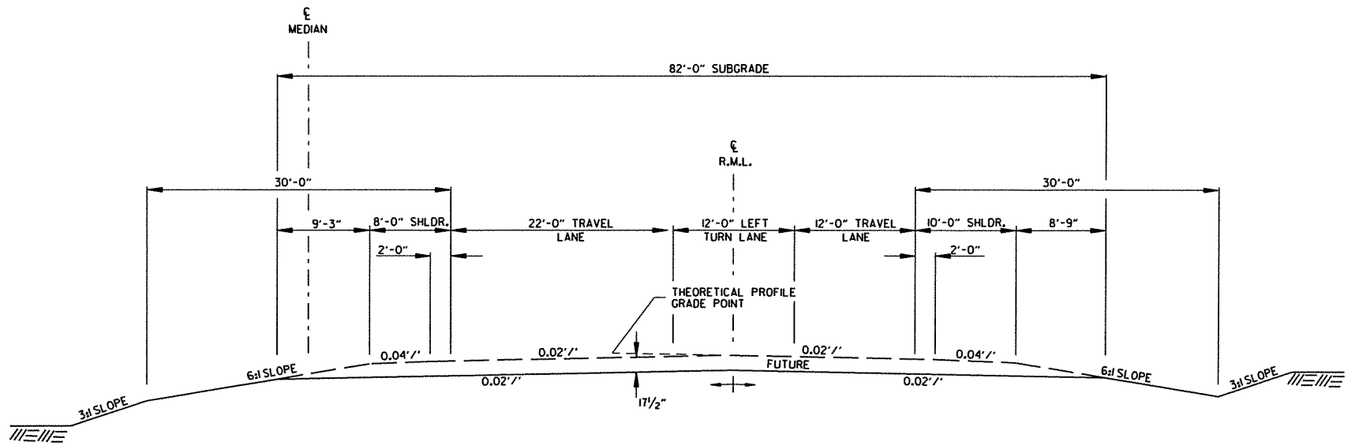
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(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11



RIGHT MAIN LANES - NORMAL CROWN SECTION
STA. 4566+15.00

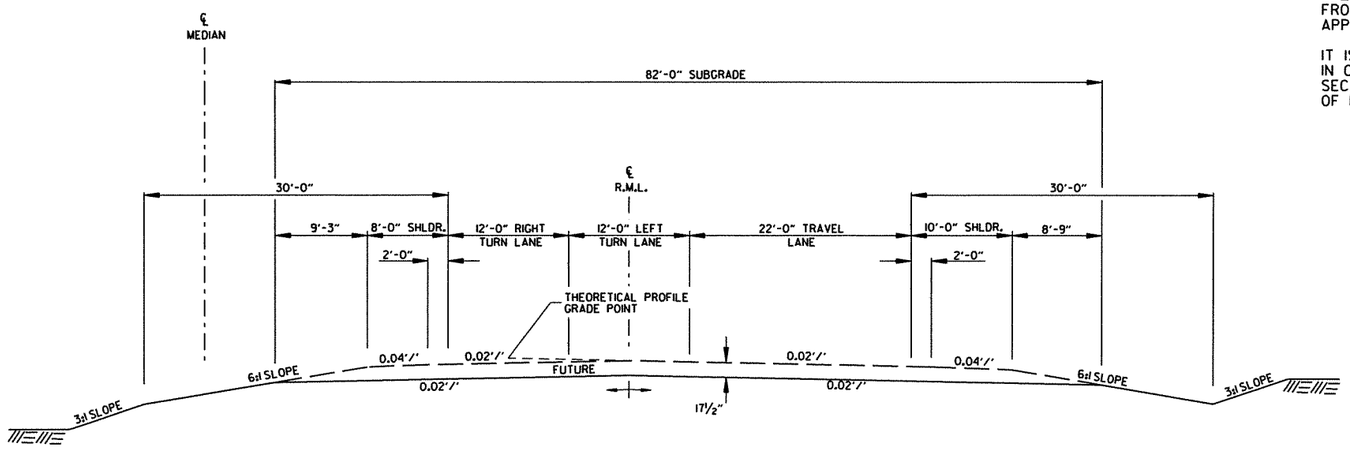
STA. 4561+25.00 TO STA. 4566+15.00 - LEFT TURN LANE TAPERS FROM 0' TO 12'

STA. 4564+65.00 TO STA. 4566+15.00 - LEFT THRU LANE TAPERS FROM 22' TO 12'

NOTE:

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.

IT IS INTENDED THAT THE SUBGRADE SHALL BE FINISHED IN CONFORMITY WITH THE LINES, GRADES, AND CROSS SECTIONS SHOWN ON THE PLANS. HOWEVER, A TOLERANCE OF PLUS OR MINUS ONE-TENTH FOOT WILL BE ALLOWED.



RIGHT MAIN LANES - NORMAL CROWN SECTION
STA. 4569+50.00

STA. 4569+50.00 TO STA. 4574+40.00 - LEFT TURN LANE TAPERS FROM 0' TO 12'

STA. 4569+50.00 TO STA. 4571+00.00 - RIGHT TURN LANE TAPERS FROM 22' TO 12'

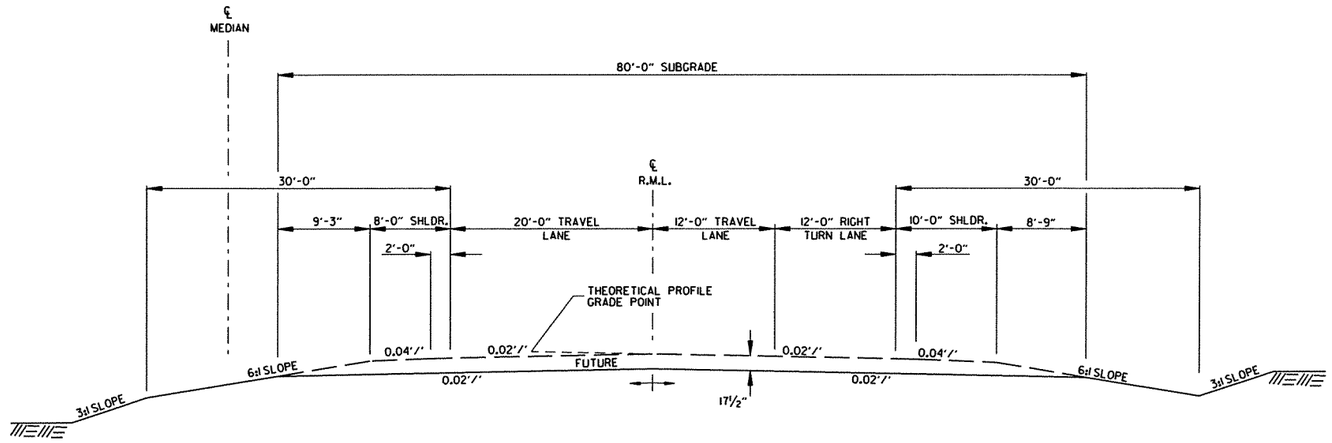
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(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11



RIGHT MAIN LANES - NORMAL CROWN SECTION
STA. 4724+60.00

STA. 4722+73.76 TO STA. 4724+53.76 - RIGHT TURN LANE ON LEFT TAPERS FROM 0' TO 12'

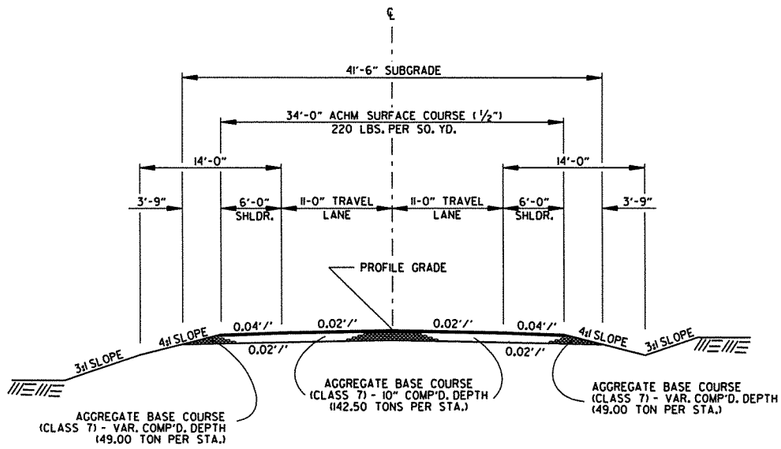
STA. 4723+40 TO STA. 4724+60.00 - LEFT THRU LANE TAPERS FROM 20' TO 12'

NOTE:

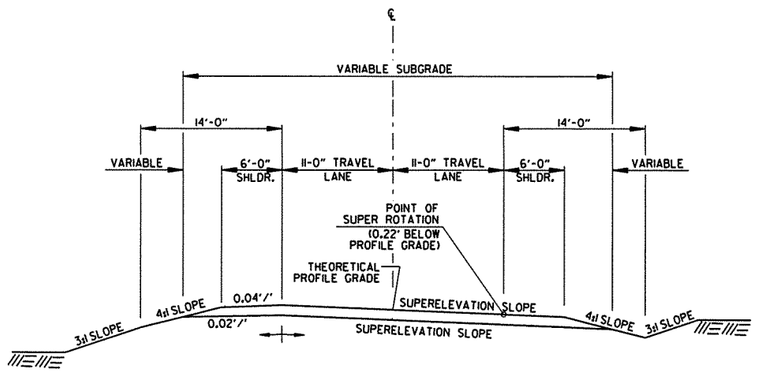
REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

IT IS INTENDED THAT THE SUBGRADE SHALL BE FINISHED IN CONFORMITY WITH THE LINES, GRADES, AND CROSS SECTIONS SHOWN ON THE PLANS. HOWEVER, A TOLERANCE OF PLUS OR MINUS ONE-TENTH FOOT WILL BE ALLOWED.

R020471.DGN 7/5/2011



COUNTY ROAD 36



COUNTY ROAD 36 - SUPERELEVATION SECTION
(PAVEMENT SECTION IS SAME AS SHOWN ABOVE)

NOTE: REVOLVE SUPERELEVATION AROUND INSIDE PAVEMENT EDGE.

NOTES:

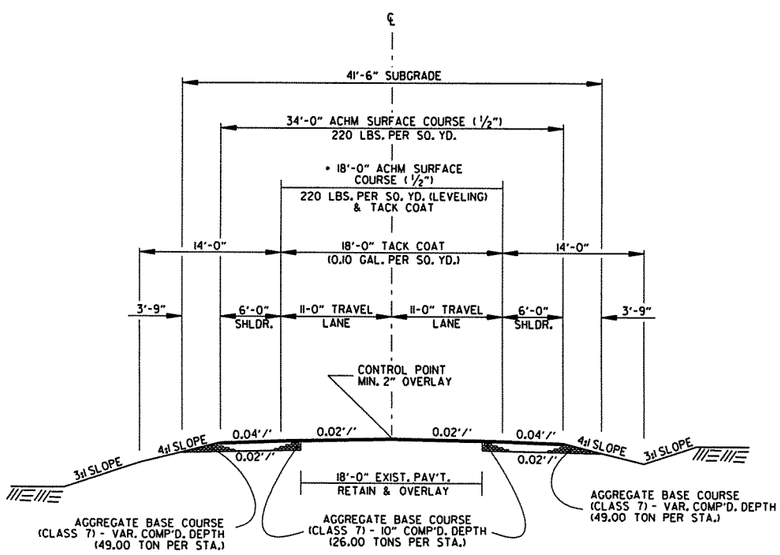
REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

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.

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.

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

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.



COUNTY ROAD 36
NOTCH & WIDENING SECTION

* TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
MICHAEL D. FUGETT
NO. 7405
7-12-11

TYPICAL SECTIONS OF IMPROVEMENT

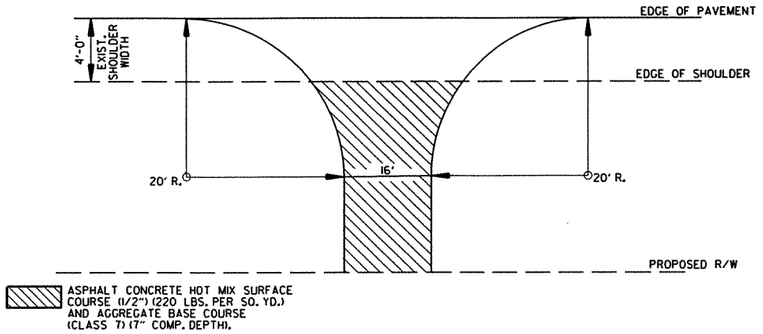
DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		7	346

JOB NO. 020471

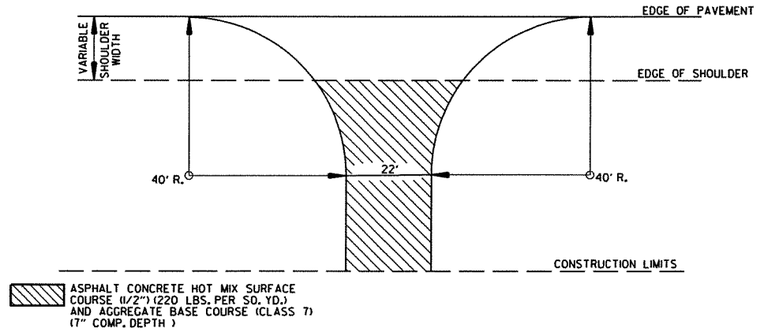
(2) TYPICAL SECTIONS OF IMPROVEMENT

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.		020471	8	346

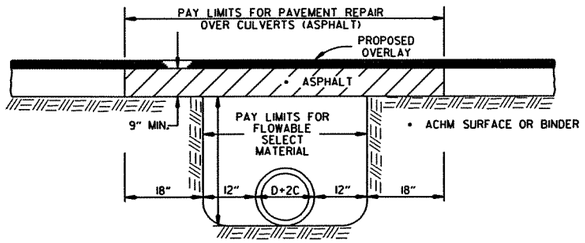
(2) SPECIAL DETAILS



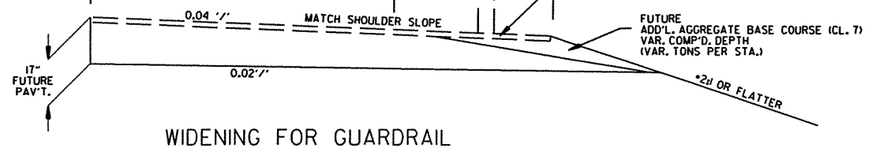
DETAIL FOR HWY. 35 DRIVEWAY TURNOUT



DETAIL FOR COUNTY ROAD 36 TURNOUT

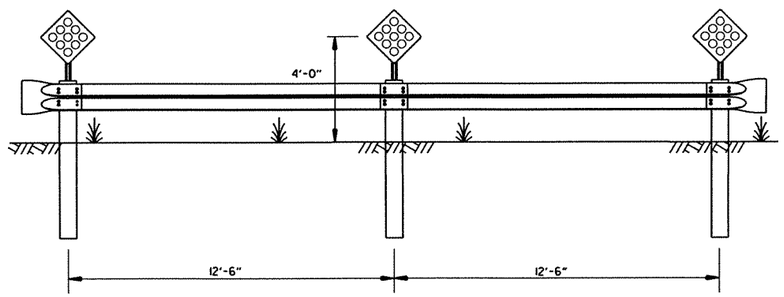


PAVEMENT REPAIR OVER CULVERTS (ASPHALT)



WIDENING FOR GUARDRAIL

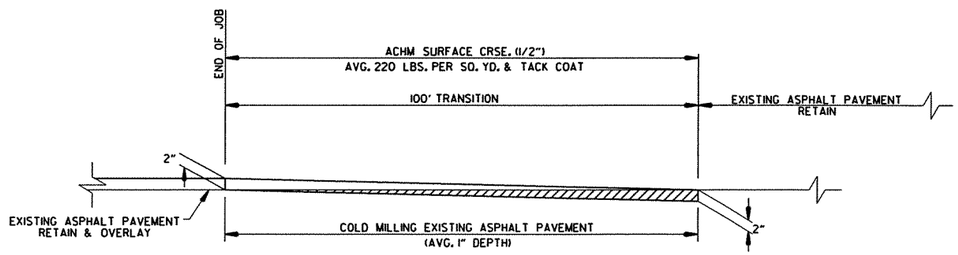
*NOTE: REFER TO STD. DRAWING GR-9A AND CROSS SECTIONS FOR SLOPE REQUIREMENTS BEHIND GUARDRAIL.



CONSTRUCT 25 LIN. FT. TYPE "C" GUARDRAIL WITH 3 RED DIAMOND REFLECTORS MOUNTED ON U-CHANNEL POSTS DIRECTLY BEHIND THE GUARDRAIL AT A HEIGHT OF 4'-0".

ROAD CLOSED DETAIL

TO BE USED WHERE EXISTING ROADS WILL BE PERMANENTLY CLOSED. SEE PLAN SHEETS FOR LOCATIONS SEE STD. DWG. GR-7 FOR MORE DETAILS.



PAVEMENT TRANSITION AT COUNTY ROAD 36

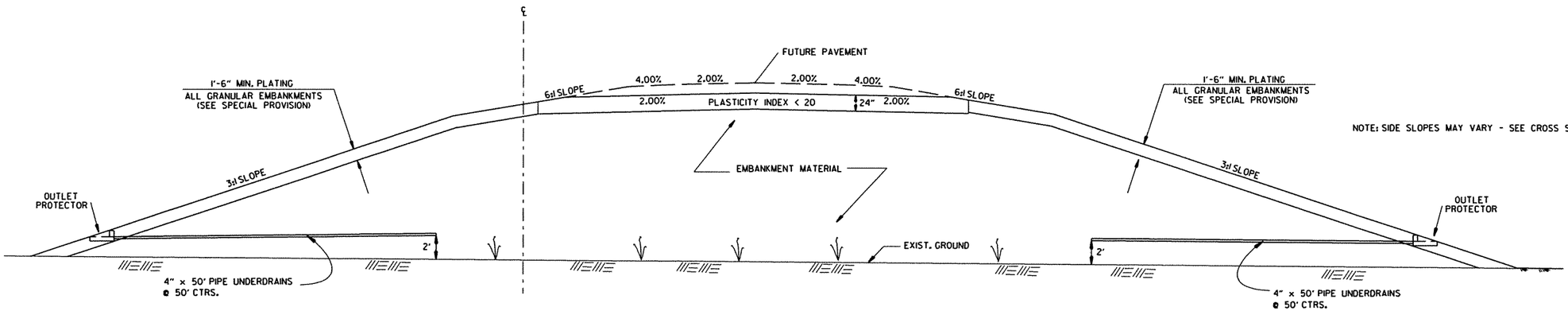
SPECIAL DETAILS

R020471.DGN 7/5/2011

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				JOB NO.		020471	9	346

(2) SPECIAL DETAILS

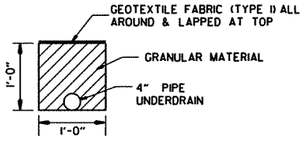
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. PUGETT
7-12-11



NOTE: SIDE SLOPES MAY VARY - SEE CROSS SECTIONS FOR DETAILS.

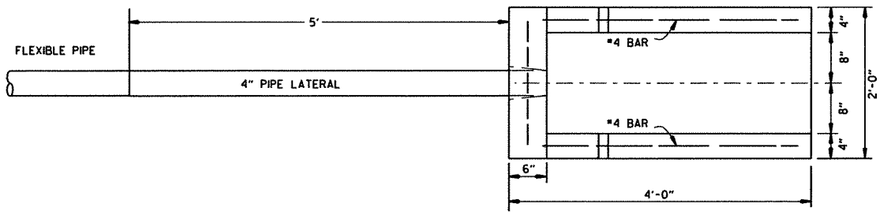
EMBANKMENT DETAIL - (SEE SPECIAL PROVISION)

NOTE: THIS DETAIL SHALL ALSO BE USED FOR ALL EMBANKMENTS CONSTRUCTED WITH GRANULAR FILL THAT HAS P.I. < 6. INTERNAL DRAINAGE SHALL BE PROVIDED AT NO COST TO THE DEPARTMENT.

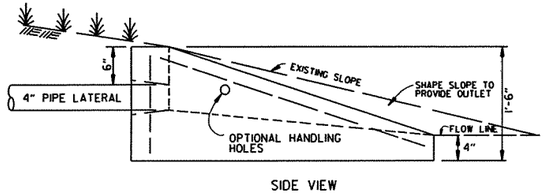


DETAIL OF PIPE UNDERDRAINS

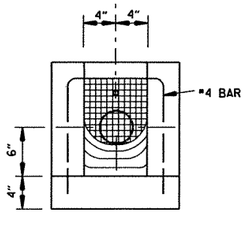
NOTE: 4" PIPE UNDERDRAINS AND OUTLET PROTECTORS AS SHOWN HEREON ARE TO BE INSTALLED AND PAID FOR AS SPECIFIED IN SP- EXCAVATION AND EMBANKMENT



PLAN VIEW



SIDE VIEW



FRONT VIEW

1/4" STAINLESS STEEL BOLT WITH ANCHOR & 1" STAINLESS STEEL WASHER IN APPROXIMATE CENTER OF SCREEN.

FLATTENED EXPANDED STAINLESS STEEL 1/2"16F
THICKNESS = 0.050"
OPENING SIZE = 0.312" X 1.00"

1/4" STAINLESS STEEL BOLT W/ANCHOR & 1" STAINLESS STEEL WASHER IN APPROX. CENTER OF SCREEN.

UNDERDRAIN OUTLET PROTECTORS

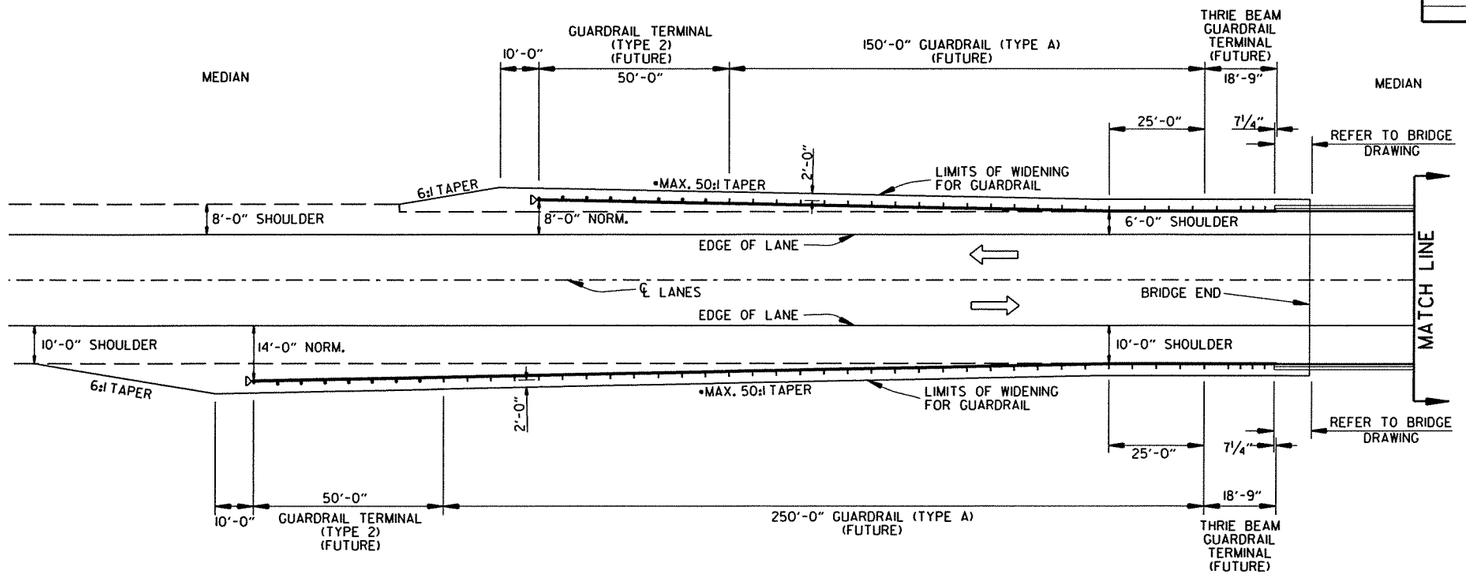
DETAILS OF INTERNAL DRAINAGE FOR EMBANKMENT CONSTRUCTION (REFER TO SP- EXCAVATION AND EMBANKMENT FOR APPLICATION.)

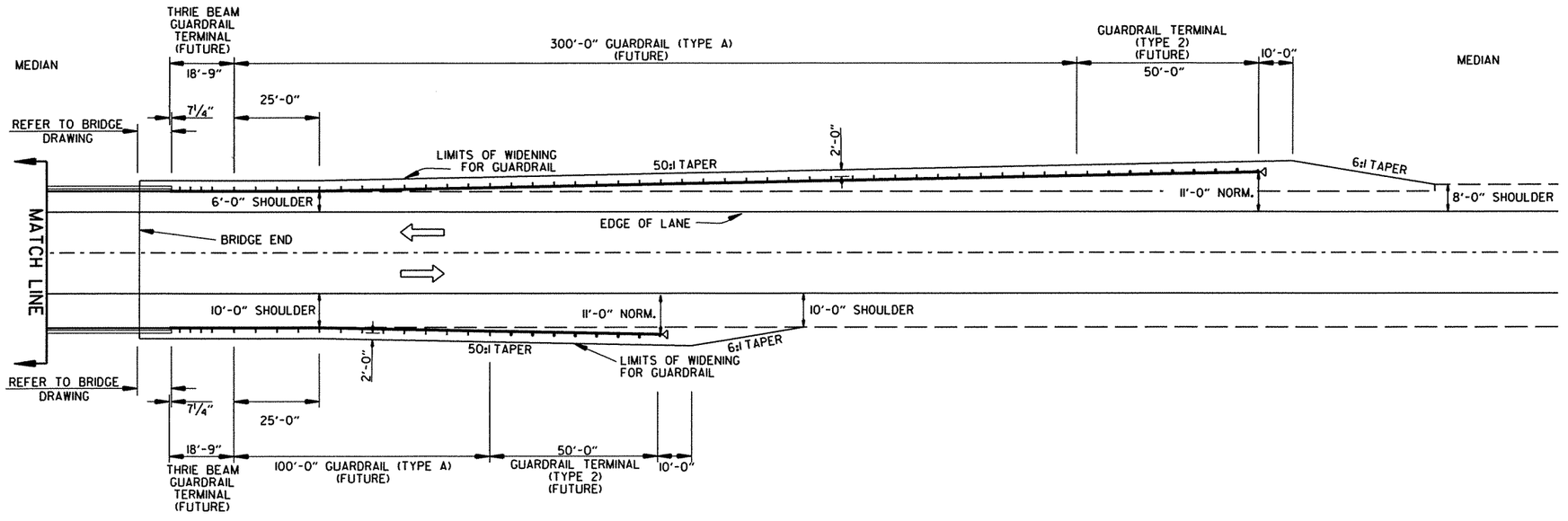
R020471.DGN 7/5/2011

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				6	ARK.			
				JOB NO.		020471	10	346

(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11





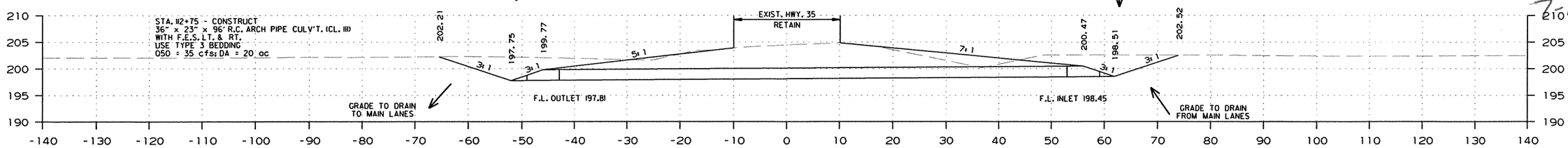
LAYOUT OF GUARDRAIL AT RAILROAD OVERPASS
(SHOWN FOR INFORMATION ONLY)

R020471.DGN 7/5/2011

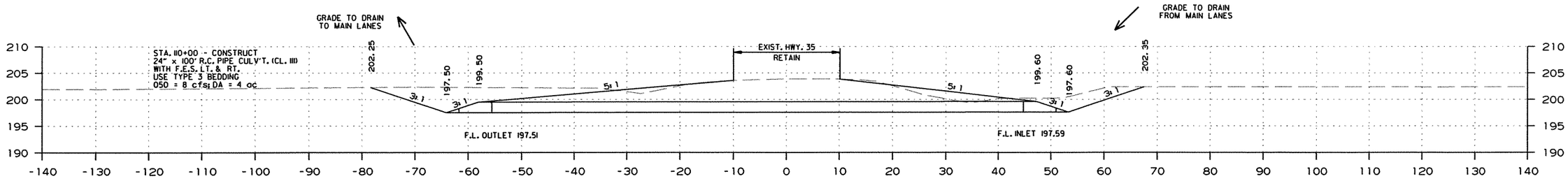
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		020471	11	346

(2) SPECIAL DETAILS

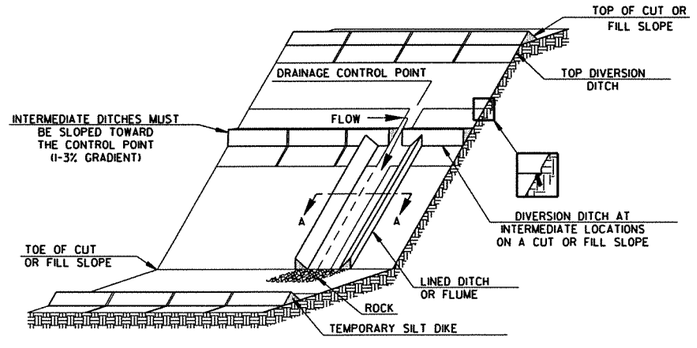
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11



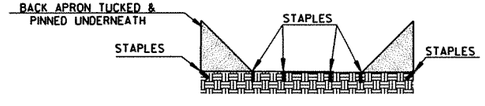
DETAIL OF PIPE CULVERT CONSTRUCTION
HWY. 35 - STA. 112+75



DETAIL OF PIPE CULVERT CONSTRUCTION
HWY. 35 - STA. 110+00



TEMPORARY SILT DIKE INSTALLATION
FOR
DIVERSION DITCH AND/OR DITCH LINER



TEMPORARY DITCH LINER
SECTION A-A

GENERAL NOTES

1. THIS WORK SHALL CONSIST OF FURNISHING, INSTALLING, AND MAINTAINING THE TEMPORARY SILT DIKE. THE DIKES SHALL BE USED AS A CONTINUOUS LINE BARRIER AT THE TOE OF SLOPE OR ACROSS THE ROADWAY DITCH TO CONTAIN SEDIMENT AND MINIMIZE EROSION, OR AS DIRECTED BY THE ENGINEER. THESE DIKES SHALL BE INSTALLED AND LOCATED AS SOON AS CONSTRUCTION WILL ALLOW OR AS DIRECTED BY THE ENGINEER.

2. TEMPORARY SILT DIKE SHALL BE TRIANGULAR SHAPED HAVING A HEIGHT OF AT LEAST 8" TO 10" IN THE CENTER WITH EQUAL SIDES AND A 16" TO 20" BASE. THE TRIANGULAR SHAPED INNER MATERIAL SHALL BE URETHANE FOAM MEETING THE REQUIREMENTS FOR ASTM D-3574. THE OUTER COVER SHALL BE A WOVEN GEOTEXTILE FABRIC PLACED AROUND THE INNER MATERIAL & ALLOWED TO EXTEND BEYOND BOTH SIDES OF THE TRIANGLE 24" TO 36". THIS FABRIC SHOULD BE MILDEW RESISTANT, ROT-PROOF AND RESISTANT TO HEAT AND ULTRAVIOLET RADIATION MEETING REQUIREMENTS FOR SEDIMENT CONTROL IN AASHTO M288. THE DIKES SHALL BE ATTACHED TO THE GROUND WITH WIRE STAPLES. THE STAPLES SHALL BE NO. 11 GAUGE WIRE AND BE AT LEAST 6" TO 8" LONG. STAPLES SHALL BE PLACED AS SHOWN ON THESE DETAILS.
THE CONTRACTOR SHALL INSPECT ALL DIKES AFTER EACH RAINFALL EVENT OF AT LEAST 0.5" OR GREATER. ANY DEFICIENCIES OR DAMAGE SHALL BE REPAIRED BY THE CONTRACTOR. ACCUMULATED SILT OR DEBRIS SHALL BE REMOVED AND RELOCATED AS DIRECTED BY THE ENGINEER. IF THE DIKES ARE DAMAGED OR INADVERTENTLY MOVED DURING THE SILT REMOVAL PROCESS, THE CONTRACTOR SHALL IMMEDIATELY REPLACE AFTER DAMAGE OCCURS.

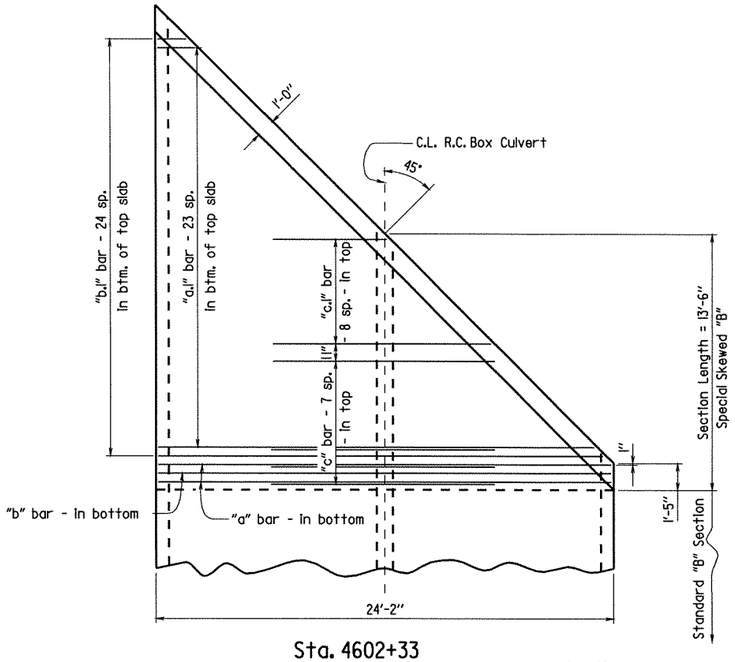
3. ACCEPTED TEMPORARY SILT DIKE, MEASURED AS PROVIDED ABOVE, WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR TEMPORARY SILT DIKE. PRICE BID WILL INCLUDE THE COST OF FURNISHING THE DIKES, INSTALLING, MAINTAINING AND REMOVAL WHEN DIRECTED BY THE ENGINEER.

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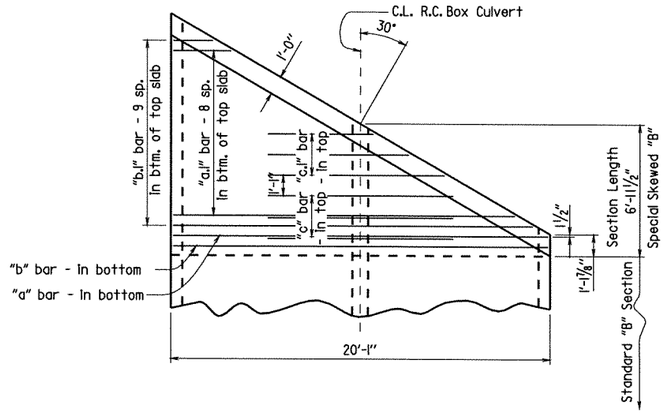
① SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7519
CARL E. FUSELIER
5/7/11



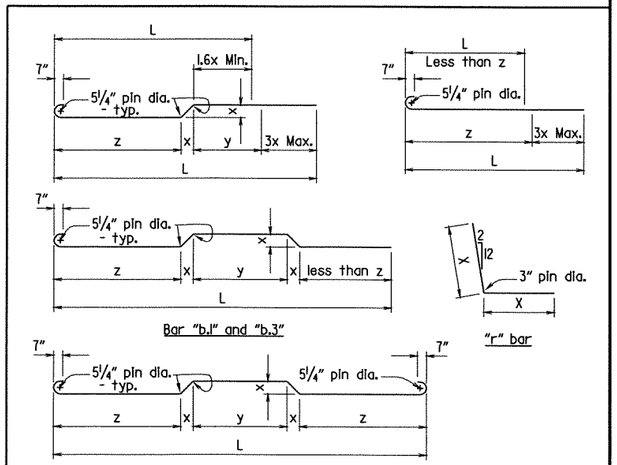
Sta. 4602+33
PART PLAN AT END OF CULVERT
Top Slab Reinforcing - 45° Rt. fwd. skew
Bottom Slab Reinforcing Similar
No Scale

Longitudinal, wall, and headwall reinforcing not shown for clarity. See Std. Dwgs. for details and location of bars not shown.



Sta. 4479+10
PART PLAN AT END OF CULVERT
Top Slab Reinforcing - 30° Rt. fwd. skew
Bottom Slab Reinforcing Similar
No Scale

BENDING DIAGRAMS



MODIFICATION TO STANDARD R.C. BOX CULVERT DRAWINGS

NOTE: To be used in conjunction with Standard Drawing Nos. RCB-1, R-200X-X3, R-230X-2, R-245X-2, W-X303-1, and W-X453-1.
The values for the variable and quantities shown for Special Skewed "B" Section replace values shown in Standard Drawing Nos. R-230X-2 and R245X-2, where these sections are designated on the plans.

BAR LIST FOR SPECIAL SKEWED "B" SECTION

	"a" bar STRAIGHT				"a.1" bar* STRAIGHT					"b" bar BENT - See Bending Diagrams.				"b.1" bar BENT - See Bending Diagrams.					"b.2" bar BENT - See Bending Diagrams.				"b.3" bar BENT - See Bending Diagrams.					"c" bar* STRAIGHT				"c.1" bar STRAIGHT					"d" bar STRAIGHT				"d.1" bar STRAIGHT			
	Size	Spacing	No. Req'd	Length	Size	Spacing	*No. Req'd	Length Max	Length Min	Size	Spacing	No. Req'd	Length	Size	Spacing	No. Req'd	Length Max	Length Min	Size	Spacing	No. Req'd	Length	Size	Spacing	No. Req'd	Length Max	Length Min	Size	Spacing	*No. Req'd	Length	Size	Spacing	No. Req'd	Length Max	Length Min	Size	Spacing	No. Req'd	Length	Size	Spacing	No. Req'd	Length
Sta. 4479+10	#5	13"	2	19'-10"	#5	13"	18	17'-11"	3'-0"	#7	13"	1	21'-7"	#7	13"	10	20'-1"	2'-9"	#7	13"	1	21'-7"	#7	13"	10	20'-1"	2'-9"	#8	13"	6	9'-10"	#8	13"	6	9'-3½"	5'-6½"	#4	12"	25	13'-2"	#4	12"	28	13'-2"
Sta. 4602+33	#6	11"	4	23'-11	#6	11"	48	23'-0"	1'-11½"	#7	11"	1	25'-9"	#7	11"	25	24'-8"	2'-2"	#7	11"	1	25'-10"	#7	11"	25	24'-9"	2'-2"	#8	11"	16	11-10"	#8	11"	14	11'-6"	6'-0"	#4	12"	29	27'-2"	#4	12"	28	27'-2"

*2 Bars Each Length

	"e" bar STRAIGHT				"f" bar STRAIGHT				"k.1" bar STRAIGHT				"k.2" bar STRAIGHT				"r" bar BENT			
	Size	Spacing	No. Req'd	Length	Size	Spacing	No. Req'd	Length	Size	Spacing	No. Req'd	Length	Size	Spacing	No. Req'd	Length	Size	Spacing	No. Req'd	Length
Sta. 4479+10	#4	12"	25	13'-2"	#5	12"	24	8'-8"	#6	--	3	22'-11"	#6	--	4	24'-1"	#4	12"	24	3'-1"
Sta. 4602+33	#4	12"	29	27'-2"	#5	12"	56	9'-0"	#9	--	3	33'-9"	#9	--	4	35'-10"	#4	12"	35	3'-4"

DIMENSIONS AND QUANTITIES FOR SPECIAL SKEWED "B" SECTION

	BARREL DIMENSIONS								QUANTITIES	
	Clear Spans	Clear Height	Overall Width	Thickness of Top Slab	Thickness of Sidewalls	Thickness of Division Wall	Thickness of Bottom Slab	Overall Height	Class "S" Concrete (barrel only) (cu. yd.)	Reinforcing Steel (barrel, apron, and headwall) (lb.)
	S	H	OW	T	C	M	B	OH		
Sta. 4479+10	2@9'	7'	20'-1"	11¼"	7½"	10"	12"	8'-11¼"	13.80	2270
Sta. 4602+33	2@11'	7'	24'-2"	13¼"	8"	10"	14"	9'-3¼"	35.00	6351

	"b" bar					"b.1" bar					
	Size	x	y	z	L	Size	x	y	z	Max. L	Min. L
Sta. 4479+10	#7	7½"	4'-1"	7'-2½"	19'-9"	#7	7½"	4'-1"	7'-2½"	18'-10¾"	2'-1¼"
Sta. 4602+33	#7	9½"	4'-9"	8'-9"	23'-10"	#7	9½"	4'-9"	8'-9"	23'-5¾"	1'-5¾"

	"b.2" bar					"b.3" bar					
	Size	x	y	z	L	Size	x	y	z	Max. L	Min. L
Sta. 4479+10	#7	8¼"	3'-11½"	7'-2½"	19'-9"	#7	7½"	3'-11½"	7'-2½"	18'-10¾"	2'-1¼"
Sta. 4602+33	#7	10¼"	4'-7½"	8'-9"	23'-10"	#7	10¼"	4'-7½"	8'-9"	23'-5¾"	1'-5¾"

	"r" bar		
	Size	x	L
Sta. 4479+10	#4	1'-6½"	3'-1"
Sta. 4602+33	#4	1'-8"	3'-4"

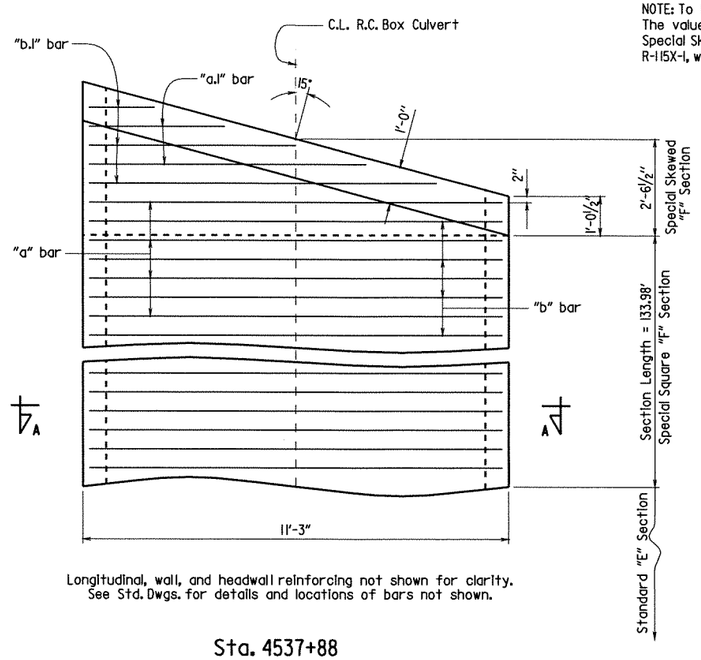
Dimensions are center to center of bars.

SPECIAL DETAILS

b02047l_rcbox.dgn

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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				JOB NO.		020471	13	346

① SPECIAL DETAILS



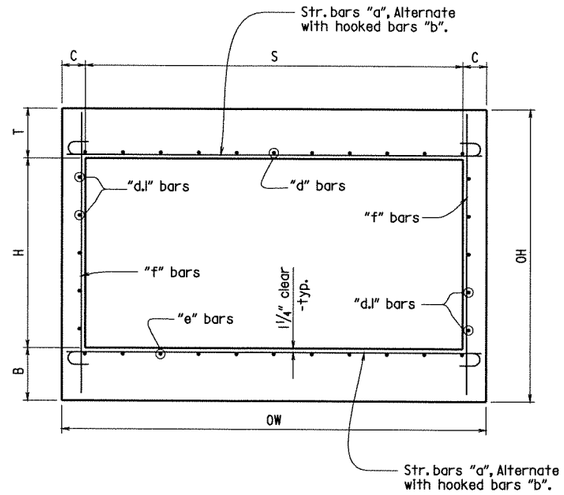
Longitudinal, wall, and headwall reinforcing not shown for clarity. See Std. Dwgs. for details and locations of bars not shown.

Sta. 4537+88

PART PLAN AT END OF CULVERT

Top Slab Reinforcing - 15° Rt. fwd. skew
Bottom Slab Reinforcing Similar
No Scale

NOTE: To be used in conjunction with Standard Drawing Nos. RCB-1, R-100X-X3, R-115X-1, and W-X152-1. The values for the variable and quantities shown for Special Square "F" Section and Special Skewed "F" Sections replace values shown in Standard Drawing Nos. R-100X-X3 and R-115X-1, where these section are designated on the plans.



A-A SECTION

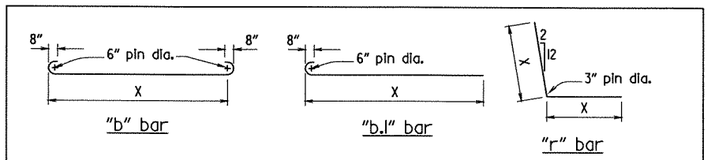
No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER
5/10/11

MODIFICATION TO STANDARD R.C. BOX CULVERT DRAWINGS

	BARREL DIMENSIONS							QUANTITIES		
	Clear Spans	Clear Height	Overall Width	Thickness of Top Slab	Thickness of Sidewalls	Thickness of Bottom Slab	Overall Height	Class "S" Concrete (barrel only)	Reinforcing Steel (barrel, apron, and headwall)	Additional Per Lap
	S	H	OW	T	C	B	OH			
Special Square "F" Section	10'	5'	11'-3"	16¾"	7½"	16¾"	7'-9½"	1.40 cy/ft.	195.5 lb. /ft	55.63 lb.
Special Skewed "F" Section	10'	5'	11'-3"	16¾"	7½"	16¾"	7'-9½"	3.54 cy	735 lb.	--

BENDING DIAGRAMS



"b" bar			"b.l" bar					"r" bar		
Size	X	L	Size	Max. X	Min. X	Max. L	Min. L	Size	X	L
#8	10'-11"	12'-10"	#8	9'-6½"	2'-8"	10'-6"	3'-8"	#4	1'-7"	3'-2"

Dimensions are center to center of bars.

BAR LIST FOR SPECIAL "F" SECTIONS

	"a" bar				"a.l" bar*					"b" bar				"b.l" bar*					"d" bar				"d.l" bar				"e" bar				"f" bar				"k.l" bar				"k.2" bar				"r" bar			
	STRAIGHT									BENT - See Bending Diagram									STRAIGHT								STRAIGHT				STRAIGHT				STRAIGHT				STRAIGHT				BENT			
	Size	Spacing	No. Req'd	Length	Size	Spacing	No. Req'd	Length Max	Length Min	Size	Spacing	No. Req'd	Length	Size	Spacing	No. Req'd	Length Max	Length Min	Size	Spacing	No. Req'd	Length	Size	Spacing	No. Req'd	Length	Size	Spacing	No. Req'd	Length	Size	Spacing	No. Req'd	Length	Size	Spacing	No. Req'd	Length	Size	Spacing	No. Req'd	Length	Size	Spacing	No. Req'd	Length
Special Square "F" Section	#9	11"	**	11'-0"	--	--	--	--	--	#8	11"	**	12'-10"	--	--	--	--	--	#5	12"	11	**Varies	#4	12"	10	**Varies	#5	12"	11	**Varies	#4	10"	8	**Varies	--	--	--	--	--	--	--	--	--	--	--	--
Special Skewed "F" Section	#9	11"	2	11'-0"	#9	11"	4	7'-10"	4'-5"	#8	11"	2	12'-10"	#8	11"	6	10'-6"	3'-8"	#5	12"	11	5'-6"	#4	12"	10	5'-6"	#5	12"	11	5'-6"	#4	10"	8	7'-6"	#7	--	3	11'-4"	#7	--	4	11'-11"	#4	12"	12	3'-2"

*2 Bars Each Length

** The length and no. required of these bars vary with the length of barrel. See Std. Dwg. R-100X-X3 to determine.

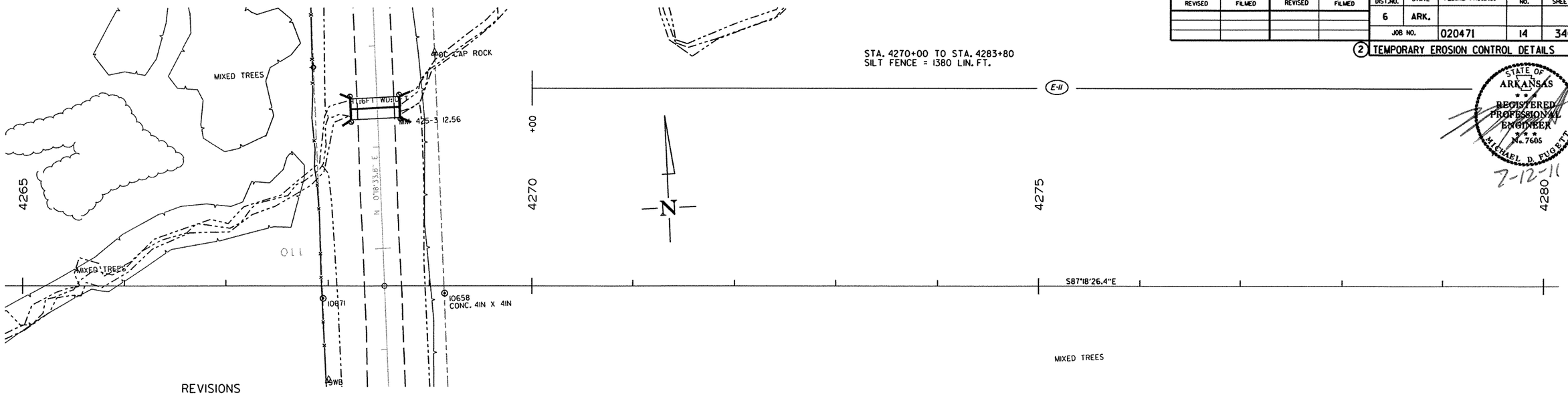
SPECIAL DETAILS

b020471_rcbox.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.		020471	14	346

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11



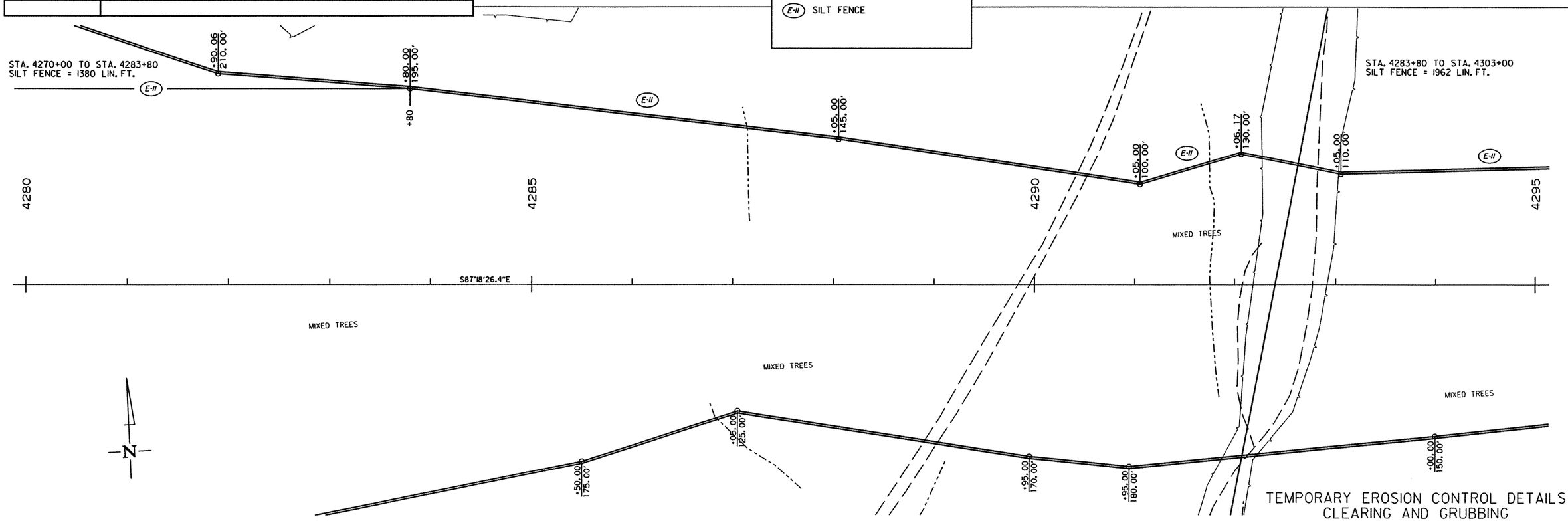
REVISIONS

DATE	REVISION

LEGEND

E-II SILT FENCE

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



TEMPORARY EROSION CONTROL DETAILS
CLEARING AND GRUBBING

R020471.DGN 7/1/2011

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.		020471	15	346

(2) TEMPORARY EROSION CONTROL DETAILS

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11

STA. 4283+80 TO STA. 4303+00
SILT FENCE = 1962 LIN. FT.

MIXED TREES

S87°18'26.4"E

4295 4300 4305 4310

+00 E-II
+40.00 140.00
+80.00 120.00
+45.00 145.00
+95.00 145.00
+00.00 130.00
+00.00 100.00
+50.00 135.00
+00.00 115.00

PONI

REVISIONS

DATE	REVISION

LEGEND

E-II SILT FENCE

STA. 4312+00 TO STA. 4330+00
SILT FENCE = 2596 LIN. FT.

4310 4315 4320 4325

POND

+00 E-II
+00.00 140.00
+05.50 156.85
+00.00 115.00
+65.00 215.00
+10.00 160.00
+12.90 205.00

TEMPORARY EROSION CONTROL DETAILS
CLEARING AND GRUBBING

R020471.DGN 7/1/2011

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.		020471	16	346

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11

STA. 4312+00 TO STA. 4330+00
SILT FENCE = 2596 LIN. FT.

STA. 4329+00 TO STA. 4338+80
SILT FENCE = 1264 LIN. FT.

REVISIONS

DATE	REVISION

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

STA. 4341+90 TO STA. 4388+05
SILT FENCE = 4672 LIN. FT.

LEGEND

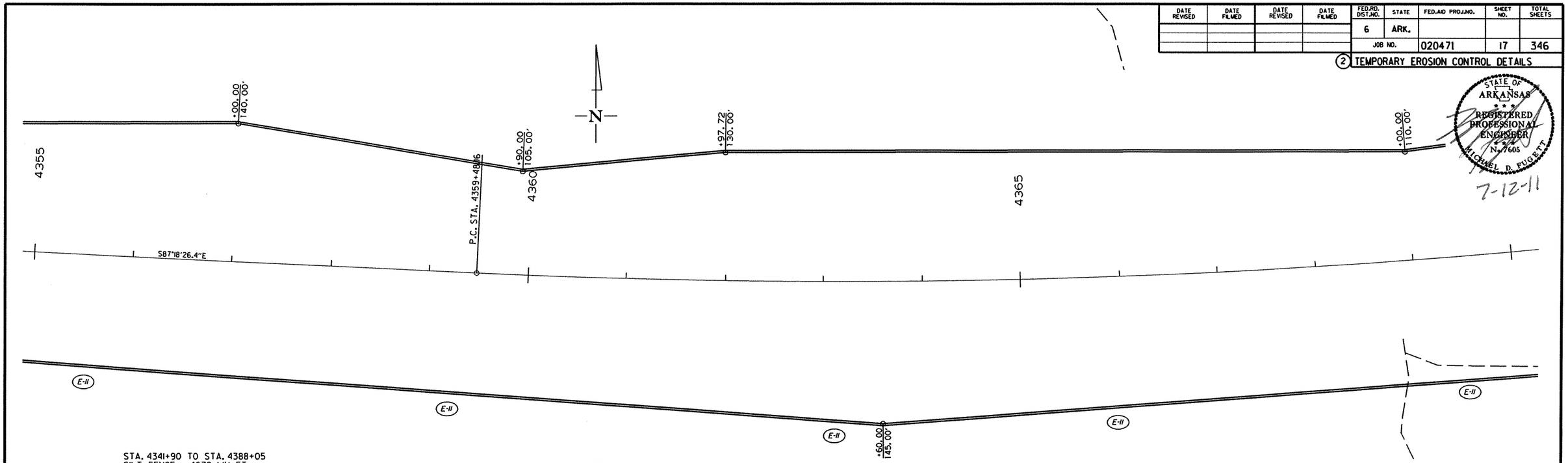
E-II SILT FENCE

TEMPORARY EROSION CONTROL DETAILS
CLEARING AND GRUBBING

R020471.DGN 7/1/2011

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.		020471	17	346

(2) TEMPORARY EROSION CONTROL DETAILS



STA. 4341+90 TO STA. 4388+05
SILT FENCE = 4672 LIN. FT.

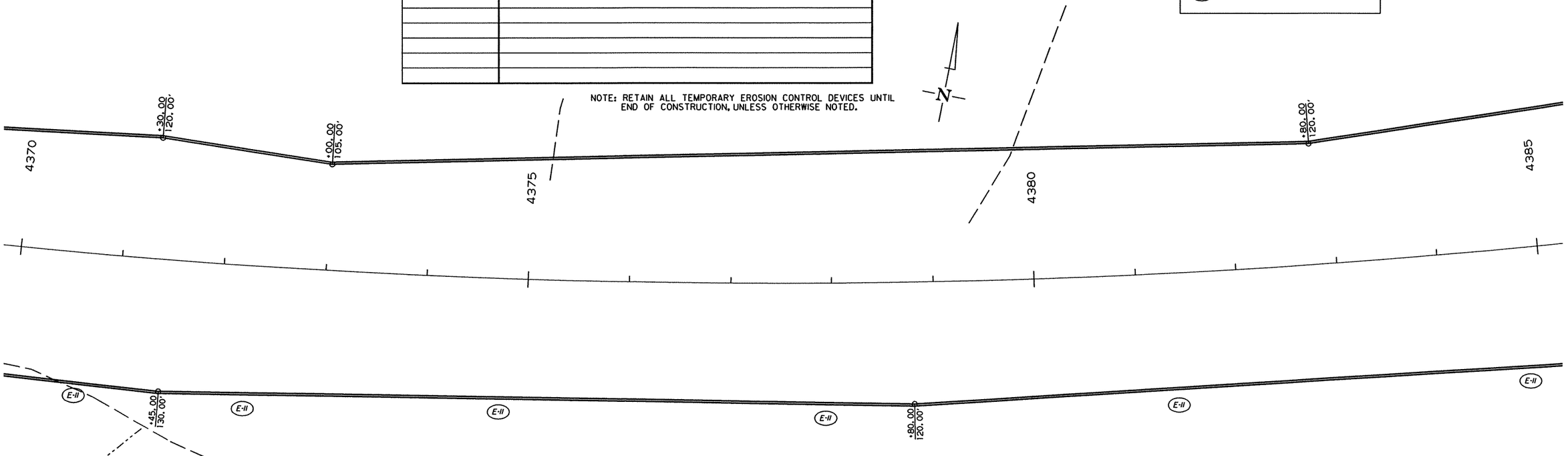
REVISIONS

DATE	REVISION

LEGEND

E-II SILT FENCE

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



STA. 4341+90 TO STA. 4388+05
SILT FENCE = 4672 LIN. FT.

TEMPORARY EROSION CONTROL DETAILS
CLEARING AND GRUBBING

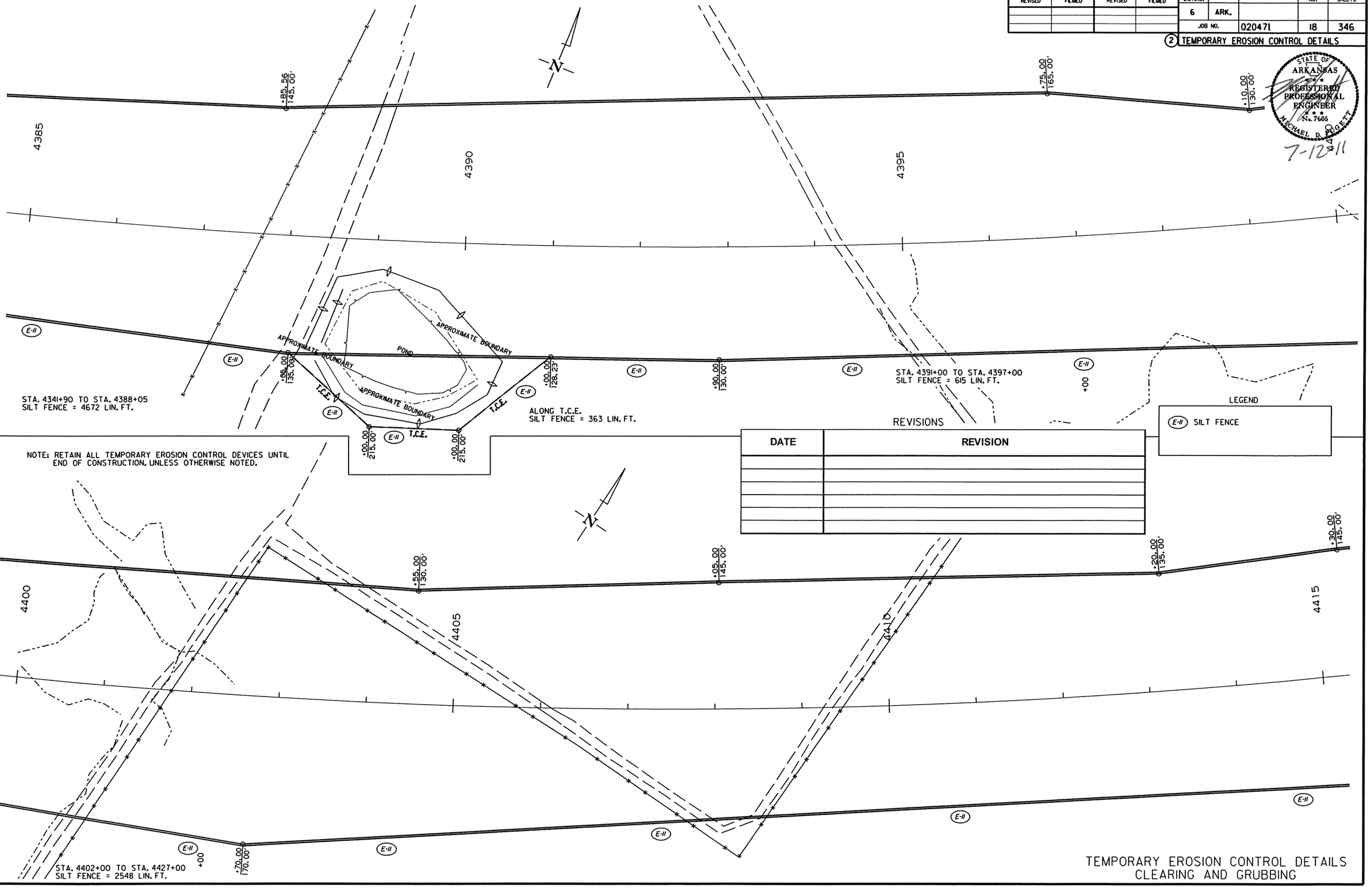
R020471.DGN 7/1/2011

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11

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.		020471	18	346

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. HUGETT
7-12-11



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

REVISIONS

DATE	REVISION

LEGEND

E-II SILT FENCE

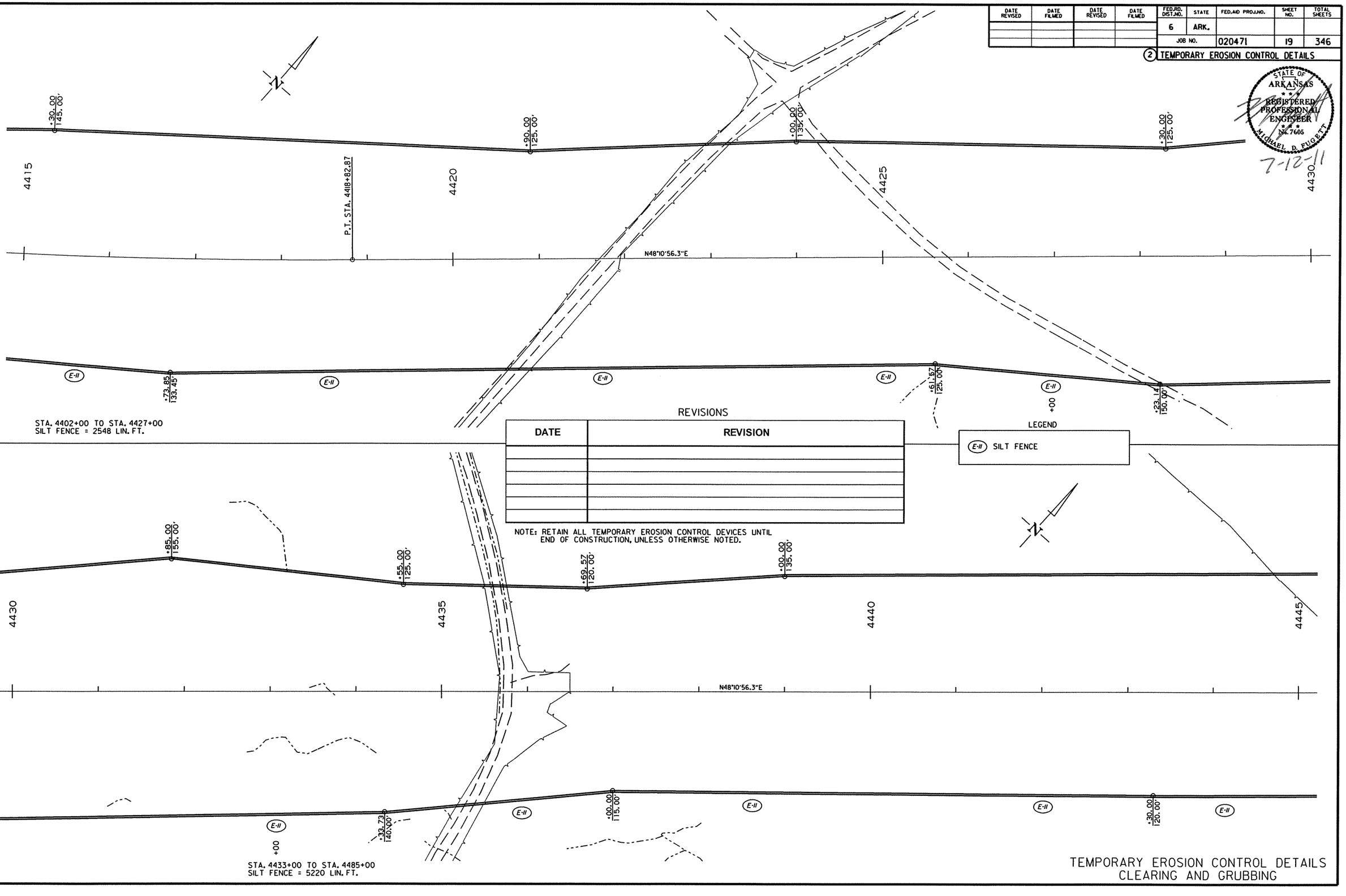
R020471.DGN 7/11/2011

TEMPORARY EROSION CONTROL DETAILS
CLEARING AND GRUBBING

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.		020471	19	346

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11



STA. 4402+00 TO STA. 4427+00
SILT FENCE = 2548 LIN. FT.

REVISIONS

DATE	REVISION

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

LEGEND

E-II SILT FENCE

STA. 4433+00 TO STA. 4485+00
SILT FENCE = 5220 LIN. FT.

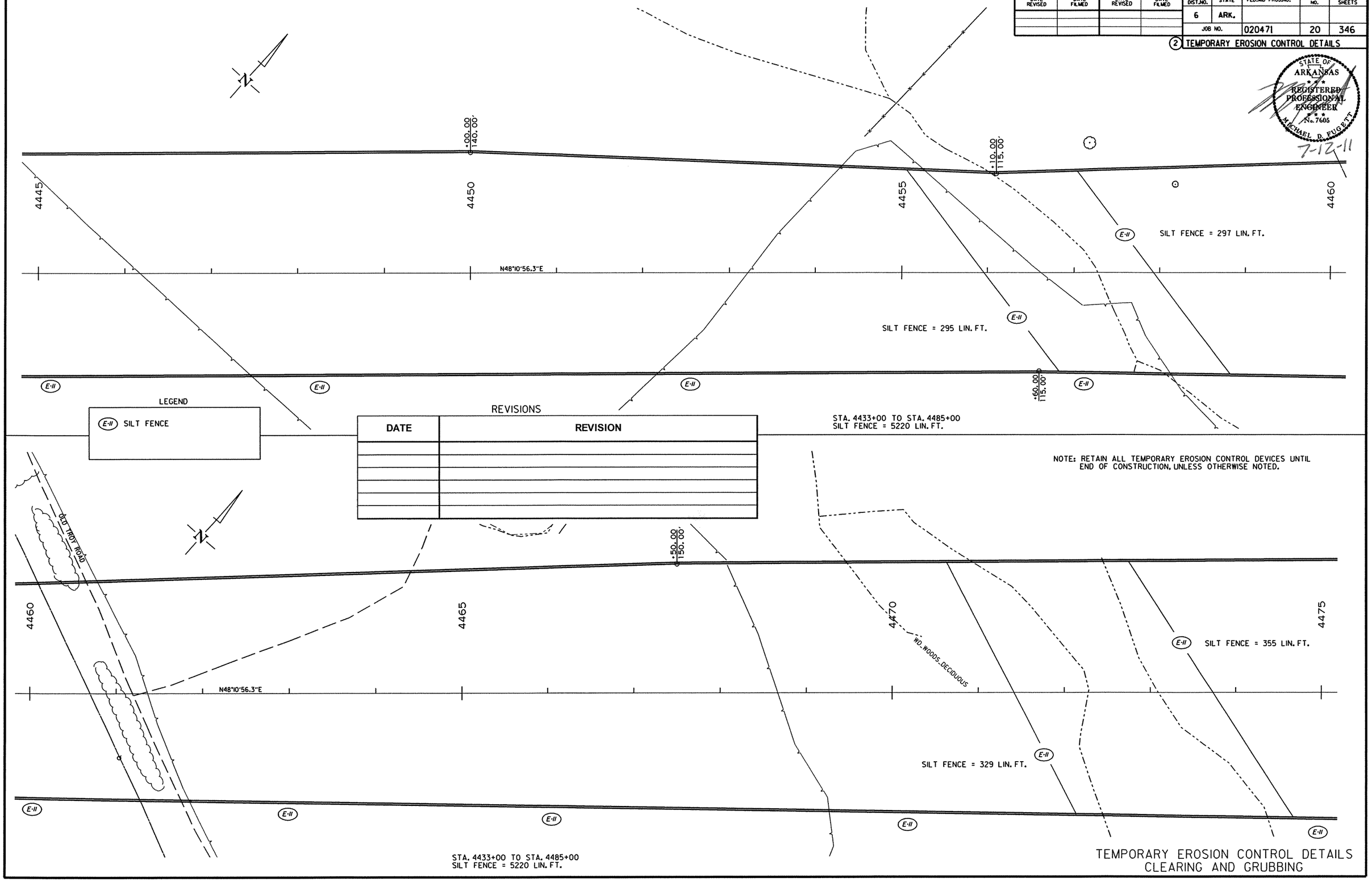
TEMPORARY EROSION CONTROL DETAILS
CLEARING AND GRUBBING

R020471.DGN 7/1/2011

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.		020471	20	346

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11



LEGEND

E-II SILT FENCE

REVISIONS

DATE	REVISION

STA. 4433+00 TO STA. 4485+00
SILT FENCE = 5220 LIN. FT.

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

STA. 4433+00 TO STA. 4485+00
SILT FENCE = 5220 LIN. FT.

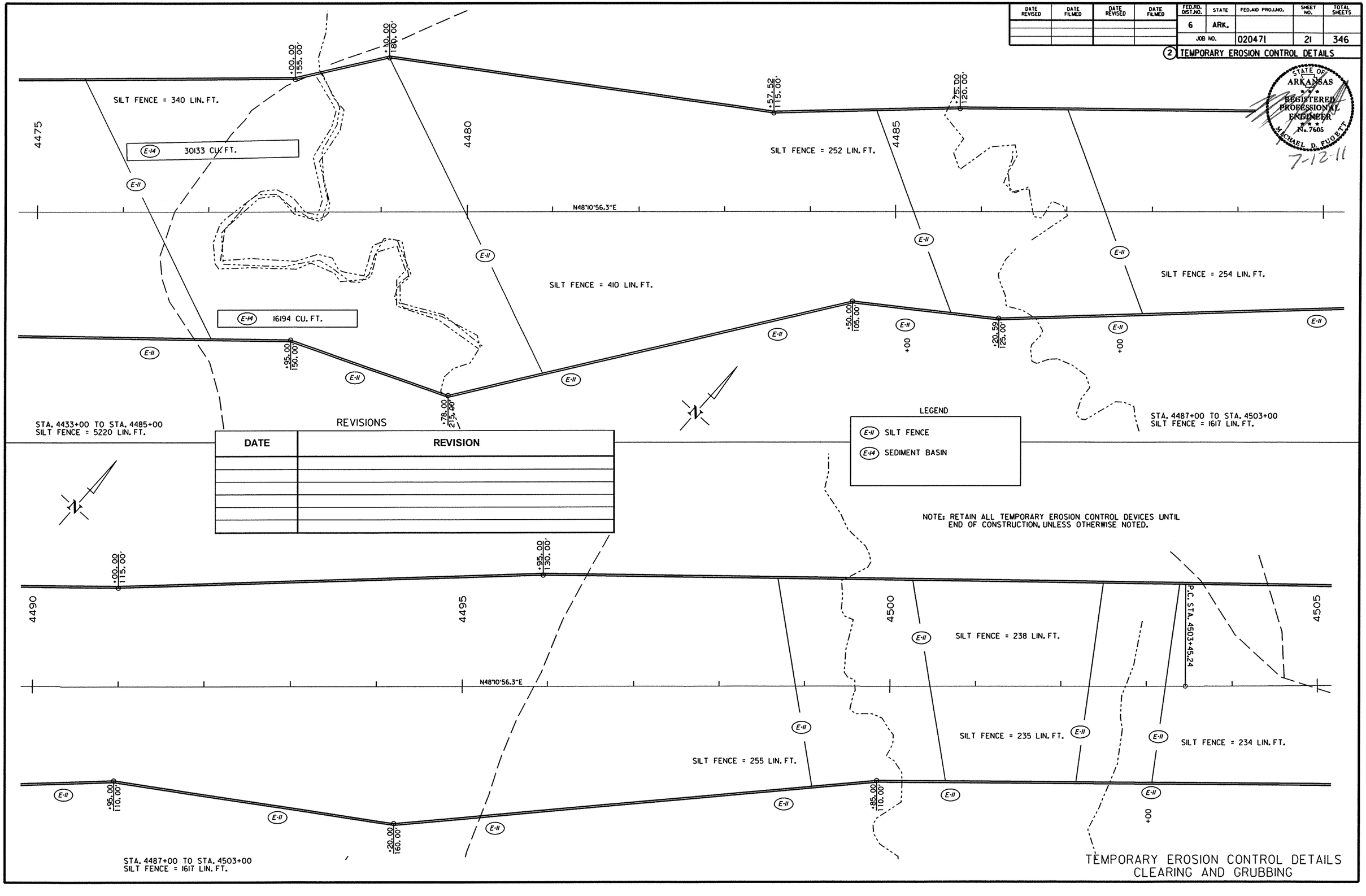
TEMPORARY EROSION CONTROL DETAILS
CLEARING AND GRUBBING

R020471.DGN 7/1/2011

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.		020471	21	346

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. PUGETT
7-12-11



REVISIONS

DATE	REVISION

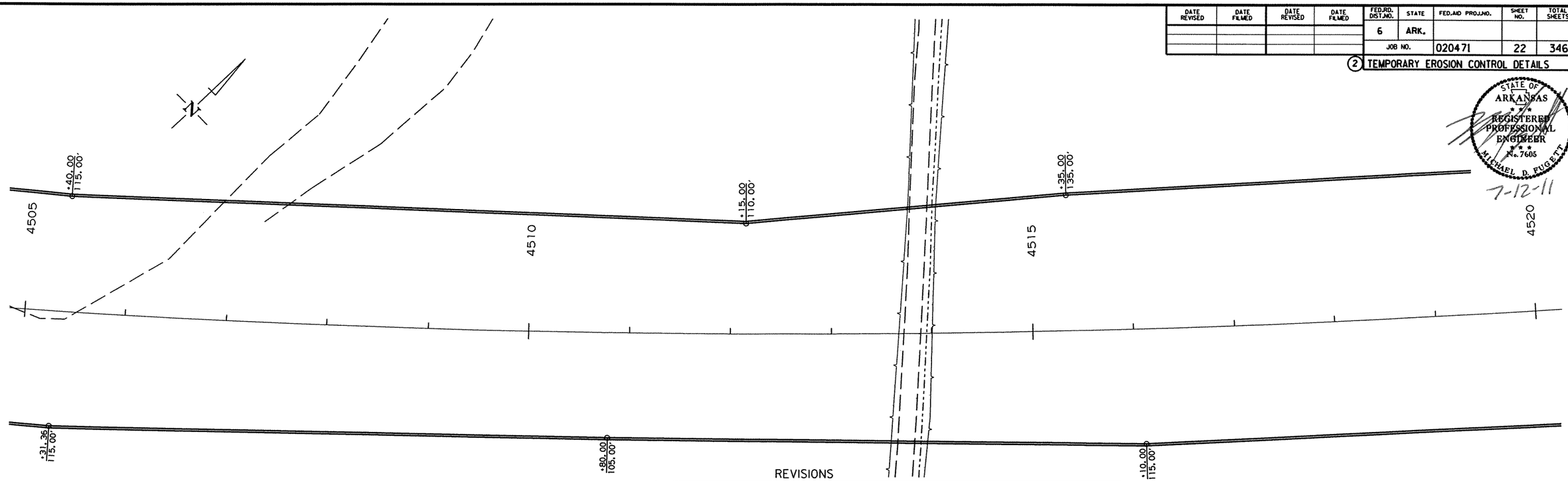
R020471.DGN 7/1/2011

TEMPORARY EROSION CONTROL DETAILS
CLEARING AND GRUBBING

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.		020471	22	346

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11



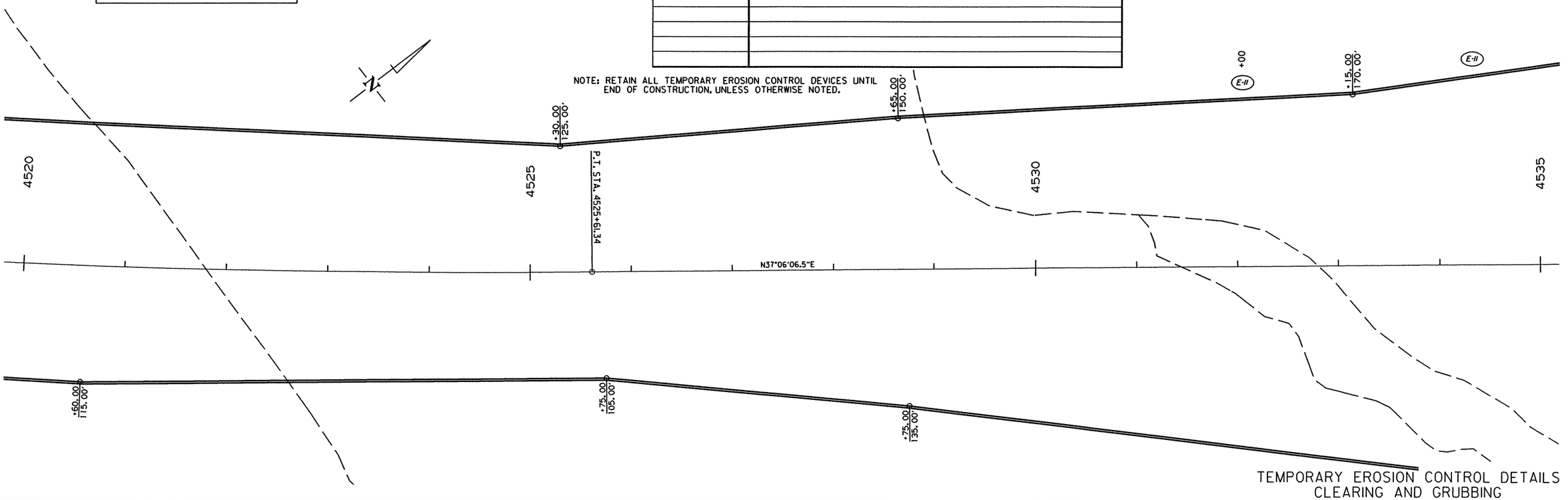
LEGEND

E-II SILT FENCE

REVISIONS

DATE	REVISION

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



TEMPORARY EROSION CONTROL DETAILS
CLEARING AND GRUBBING

R020471.DGN 7/1/2011

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.		020471	23	346

2 TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. TIGETT
7-12-11

STA. 4530+00 TO STA. 4537+00
SILT FENCE = 722 LIN. FT.

E-9 49932 CU. FT.

E-14 25239 CU. FT.

STA. 4539+31.37 TO STA. 4544+00
SILT FENCE = 482 LIN. FT.

N37°06'06.5"E

LEGEND

- E-11 SILT FENCE
- E-9 SEDIMENT BASIN
- E-14 SEDIMENT BASIN

REVISIONS

DATE	REVISION

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

R020471.DGN 7/1/2011

TEMPORARY EROSION CONTROL DETAILS
CLEARING AND GRUBBING

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.		020471	24	346

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11

STA. 4569+00 TO STA. 4578+75
SILT FENCE = 975 LIN. FT.

STA. 4578+75 TO STA. 4600+00
SILT FENCE = 2125 LIN. FT.

REVISIONS

DATE	REVISION

LEGEND

(E-II) SILT FENCE

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

R020471.DGN 7/1/2011

TEMPORARY EROSION CONTROL DETAILS
CLEARING AND GRUBBING

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.		020471	25	346

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11

STA. 4578+75 TO STA. 4600+00
SILT FENCE = 2125 LIN. FT.

E-11 +45.00 270.00' +00

E-11 +85.00 25.00'

4595

4600

E-14 15429 CU. FT.

4605

E-11 +15.00 130.00'

P.T. STA. 4608+17.01

SILT FENCE = 316 LIN. FT.

SILT FENCE = 348 LIN. FT.

E-11 +30.00 140.00'

E-14 10828 CU. FT.

E-11 +15.00 135.00'

E-11 +60.00 135.00'

E-11 +80.00 150.00'

E-11 +00

REVISIONS

DATE	REVISION

LEGEND

E-11 SILT FENCE

E-14 SEDIMENT BASIN

STA. 4609+00 TO STA. 4618+00
SILT FENCE = 1165 LIN. FT.

E-11 +55.00 180.00'

STA. 4617+00 TO STA. 4623+00
SILT FENCE = 610 LIN. FT.

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

E-11 +30.00 160.00'

E-11 +50.00 130.00'

E-11 +00

E-11 +40.00 115.00'

E-11 +70.00 135.00'

E-11 +00

E-11 +80.00 125.00'

4610

4615

4620

4625

N20°44'31.8"E

STA. 4610+50.00 AHEAD =
STA. 4610+45.12 BACK

E-11 +55.00 120.00'

E-11 +00

E-11 +80.00 175.00'

E-11 +00

MIXED TR

STA. 4609+00 TO STA. 4618+00
SILT FENCE = 1165 LIN. FT.

STA. 4623+00 TO STA. 4675+00
SILT FENCE = 5278 LIN. FT.

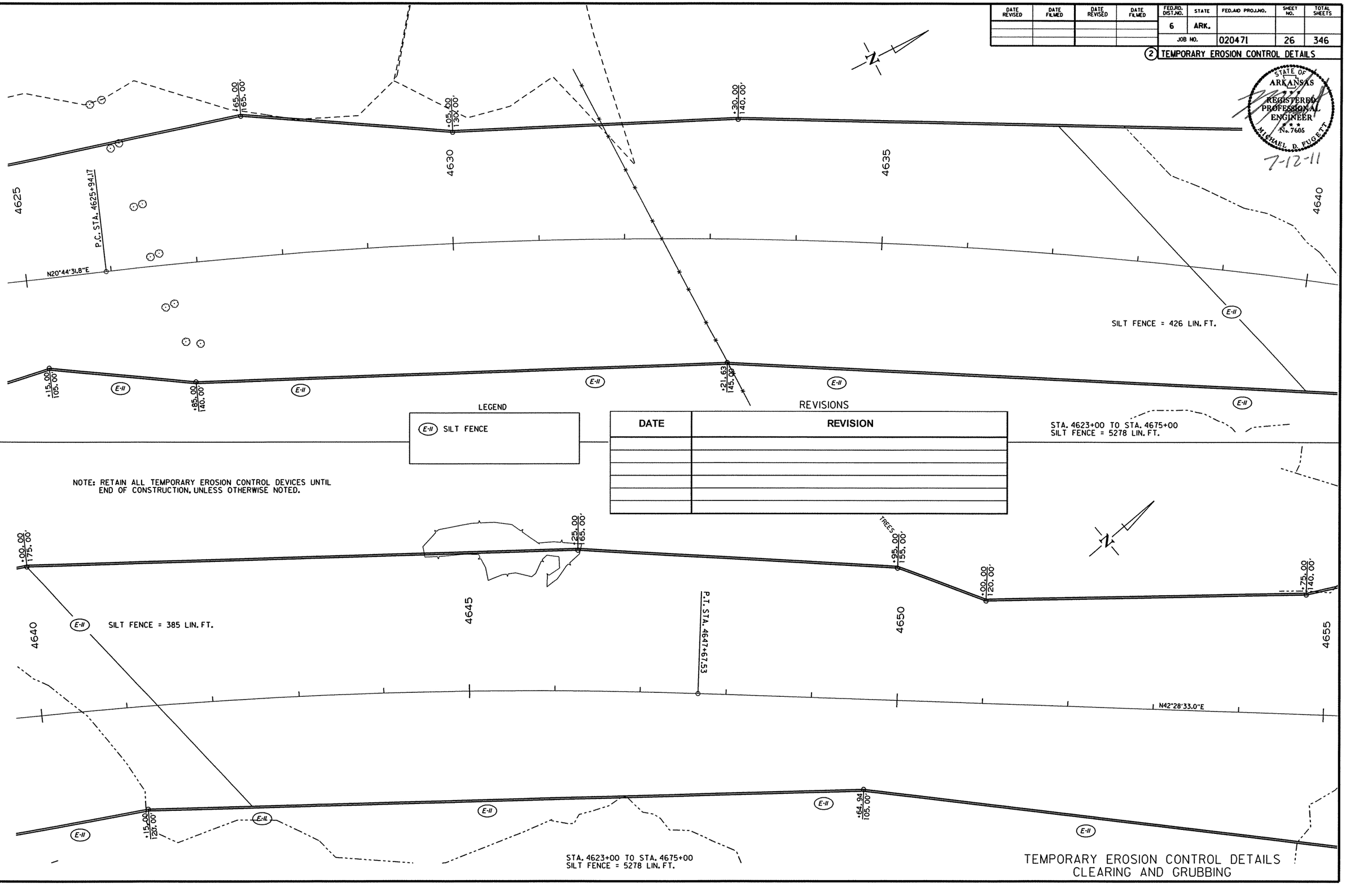
TEMPORARY EROSION CONTROL DETAILS
CLEARING AND GRUBBING

R020471.DGN 7/1/2011

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.		020471	26	346

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11



LEGEND

E-II SILT FENCE

REVISIONS

DATE	REVISION

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

STA. 4623+00 TO STA. 4675+00
SILT FENCE = 5278 LIN. FT.

STA. 4623+00 TO STA. 4675+00
SILT FENCE = 5278 LIN. FT.

TEMPORARY EROSION CONTROL DETAILS
CLEARING AND GRUBBING

R020471.DGN 7/1/2011

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.		020471	27	346

(2) TEMPORARY EROSION CONTROL DETAILS

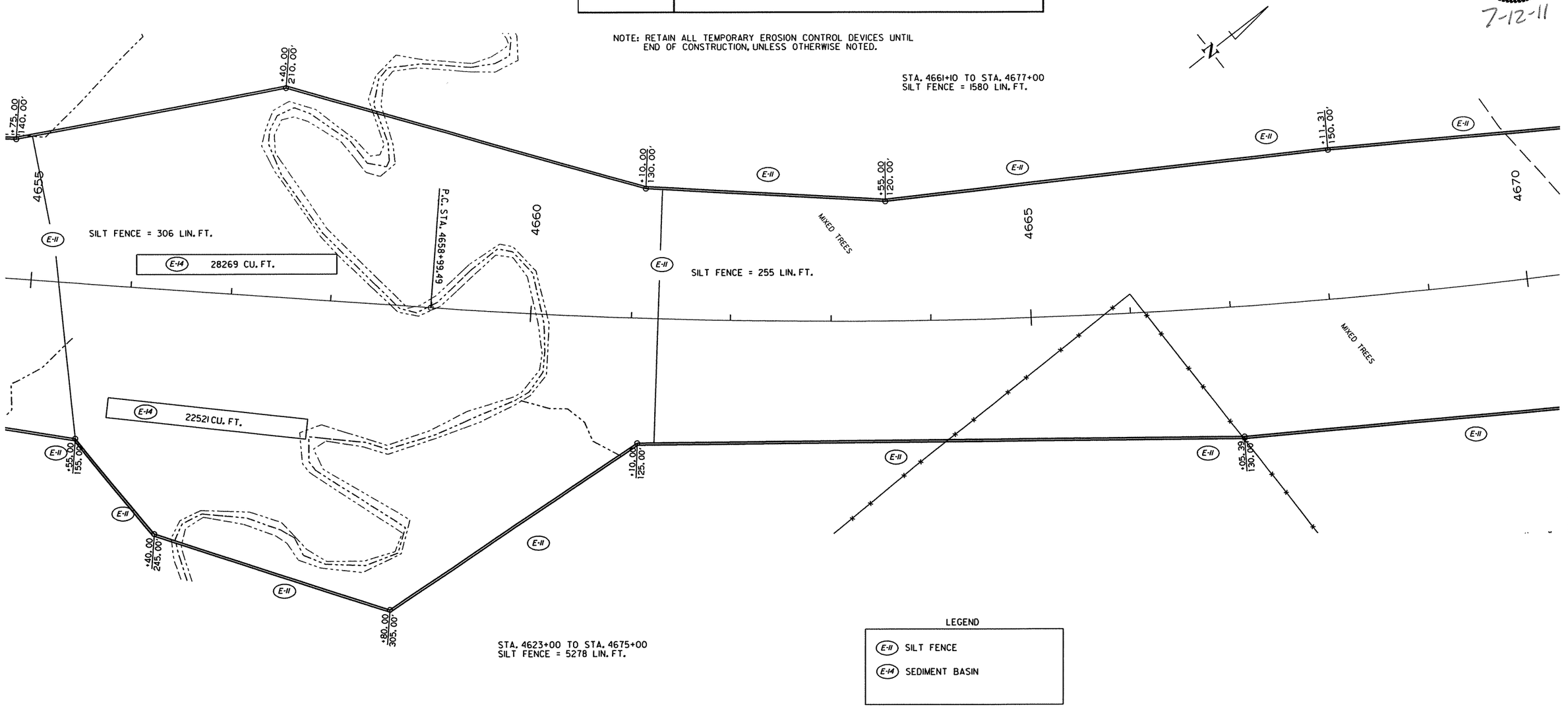
REVISIONS

DATE	REVISION

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. PUGETT
7-12-11

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

STA. 4661+10 TO STA. 4677+00
SILT FENCE = 1580 LIN. FT.



STA. 4623+00 TO STA. 4675+00
SILT FENCE = 5278 LIN. FT.

LEGEND

- E-11 SILT FENCE
- E-14 SEDIMENT BASIN

TEMPORARY EROSION CONTROL DETAILS
CLEARING AND GRUBBING

R020471.DGN 7/1/2011

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.		020471	28	346

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11

STA. 4661+10 TO STA. 4677+00
SILT FENCE = 1580 LIN. FT.

+55.00 145.00'
E-II
+00
+90.00 155.00'
4670
P.T. STA. 4672+35.19
4675
4680
4685
N29°07'07.7"E

E-II
+00.00 135.00'
E-II
+00
+50.00 130.00'

STA. 4623+00 TO STA. 4675+00
SILT FENCE = 5278 LIN. FT.

LEGEND

E-II SILT FENCE

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

REVISIONS

DATE	REVISION

+50.00 175.00'
+10.00 145.00'
+70.00 155.00'
+20.00 125.00'
+10.00 125.00'
+00.00 140.00'
+00.00 125.00'
4685
4690
4700
SILT FENCE = 602 LIN. FT.
E-II
108"X72" 14'X8'-30° ARCH CMP POOR
72"X58" 14'X8' ARCH CMP POOR
S60°00'00"E
N29°07'07.7"E
E-II
SILT FENCE = 572 LIN. FT.

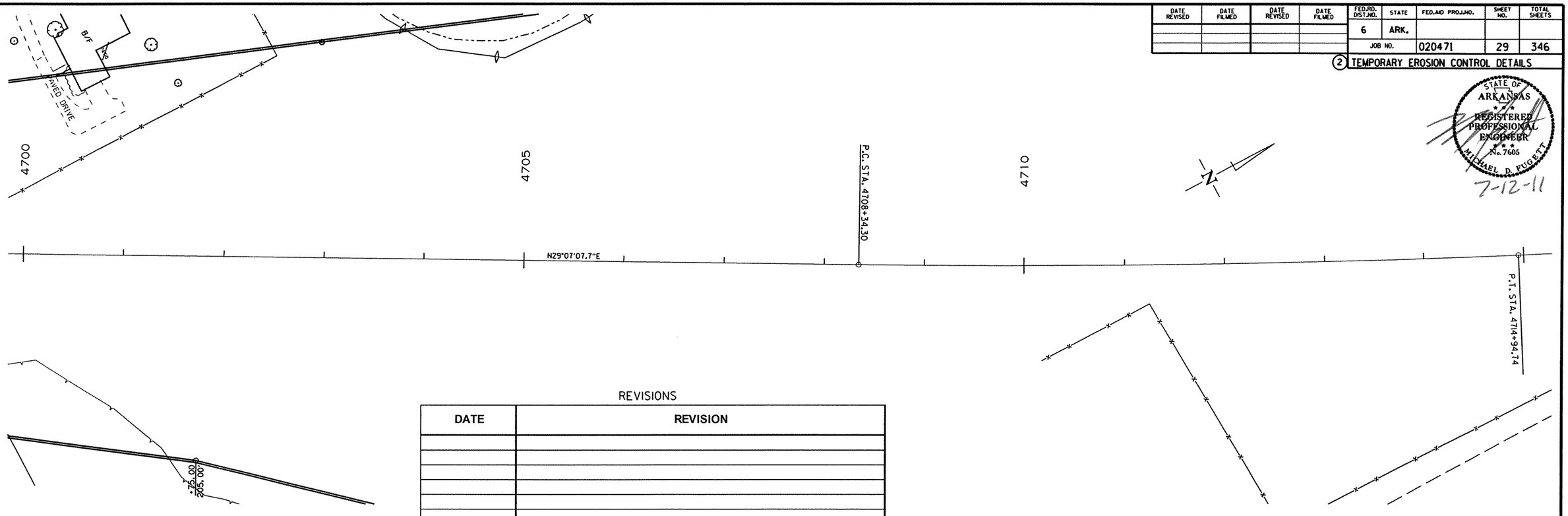
TEMPORARY EROSION CONTROL DETAILS
CLEARING AND GRUBBING

R020471.DGN 7/1/2011

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.		020471	29	346

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11



REVISIONS

DATE	REVISION

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

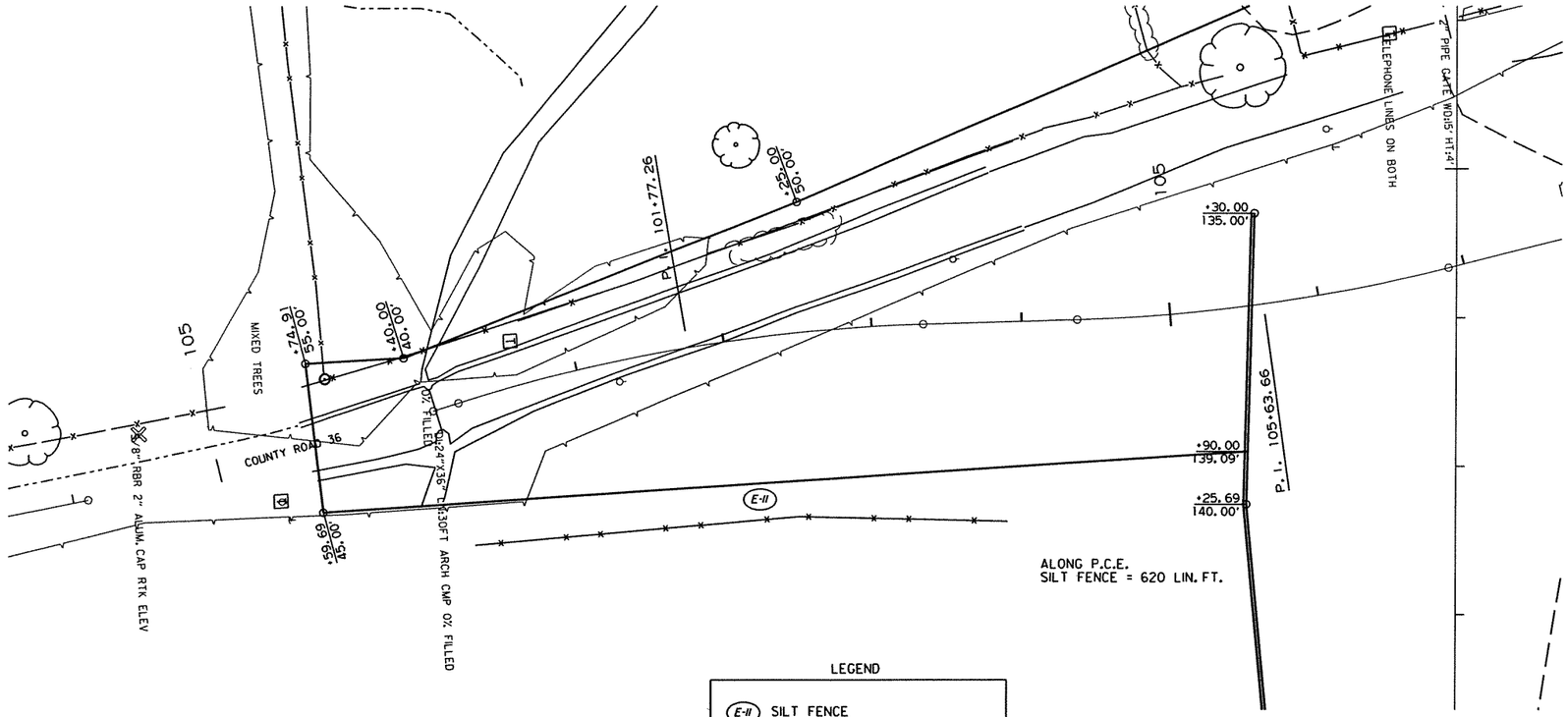
TEMPORARY EROSION CONTROL DETAILS
CLEARING AND GRUBBING

R020471.DGN 7/1/2011

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.		020471	30	346

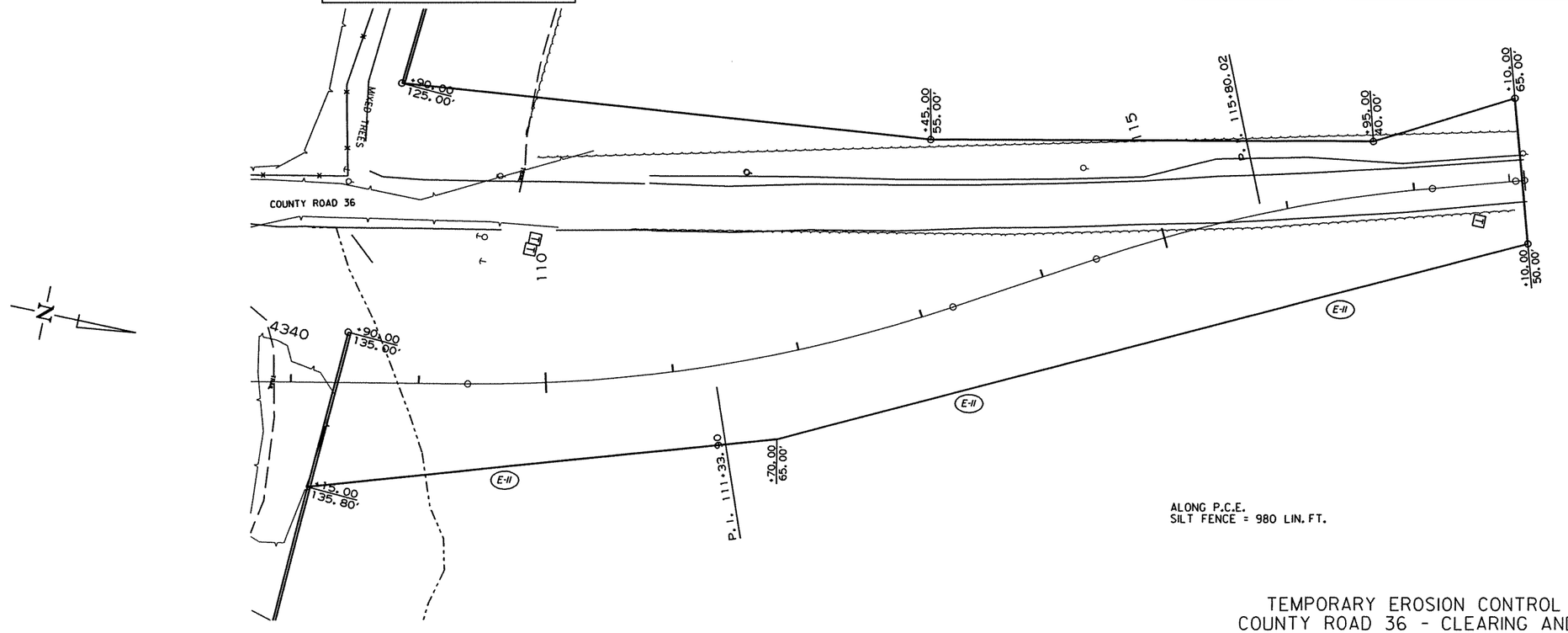
(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11



LEGEND

E-II SILT FENCE



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

REVISIONS

DATE	REVISION

R020471.DGN 7/1/2011

TEMPORARY EROSION CONTROL DETAILS
COUNTY ROAD 36 - CLEARING AND GRUBBING

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.		020471	31	346

(2) TEMPORARY EROSION CONTROL DETAILS

LEGEND

(E-II) SILT FENCE

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11

STA. 105+00 TO STA. 110+00
SILT FENCE = 475 LIN. FT.

REVISIONS

DATE	REVISION

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

TEMPORARY EROSION CONTROL DETAILS
HIGHWAY 35 DRIVEWAY - CLEARING AND GRUBBING

R020471.DGN 7/1/2011

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.		020471	32	346

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11

STA. 4270+84.80
BEGIN JOB 020471

STA. 4268+57.91 42.00' RT. OF I-69 CL =
STA. 109+20.90 HWY. 425 CL
Δ = 87° 37' 00"

HWY. 425
N 0°18'33.8" E
ROCK RIP RAP
MIXED TREES
OIL
10971
425
10658
CONC. 4IN x 4IN
WB
S87°18'26.4"E
MIXED TREES
SPIKE
TRAIL
C.D.P.
4265
4270
4275
4280
4285
4290
4295

LEGEND

E-6	ROCK DITCH CHECK
E-5	SAND BAG DITCH CHECK

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

REVISIONS

DATE	REVISION

+90.06 210.00'
+80.00 195.00'
+05.00 145.00'
+05.00 100.00'
+06.17 130.00'
+05.00 110.00'
+05.00 125.00'
+50.00 175.00'
+95.00 170.00'
+95.00 180.00'
+00.00 150.00'

R020471.DGN 7/1/2011

TEMPORARY EROSION CONTROL DETAILS
STAGE I

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.		020471	33	346

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11

REVISIONS

DATE	REVISION

LEGEND

- (E-6) ROCK DITCH CHECK
- (E-5) SAND BAG DITCH CHECK
- TEMPORARY SILT DIKE

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

STA. 4311+00 TO STA. 4328+00
TEMPORARY SILT DIKE = 2820 LIN. FT.

STA. 4311+00 TO STA. 4328+00
TEMPORARY SILT DIKE = 3310 LIN. FT.

TEMPORARY EROSION CONTROL DETAILS
STAGE I

R020471.DGN 7/1/2011

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.		020471	34	346

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11

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

REVISIONS

DATE	REVISION

LEGEND

- (E-6) ROCK DITCH CHECK
- (E-5) SAND BAG DITCH CHECK
- TEMPORARY SILT DIKE

STA. 4340+75.16 42.00' RT. OF I-69 CL =
STA. 106+51.57 COUNTY ROAD 36 CL
Δ = 77° 27' 54"

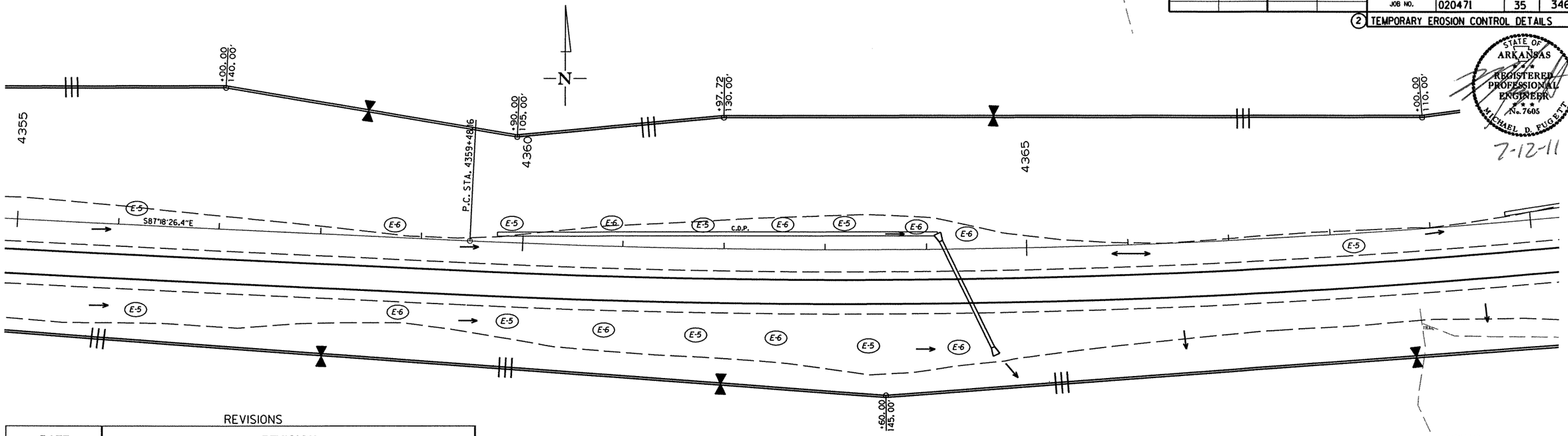
TEMPORARY EROSION CONTROL DETAILS
STAGE I

R020471.DGN 7/1/2011

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.		020471	35	346

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11



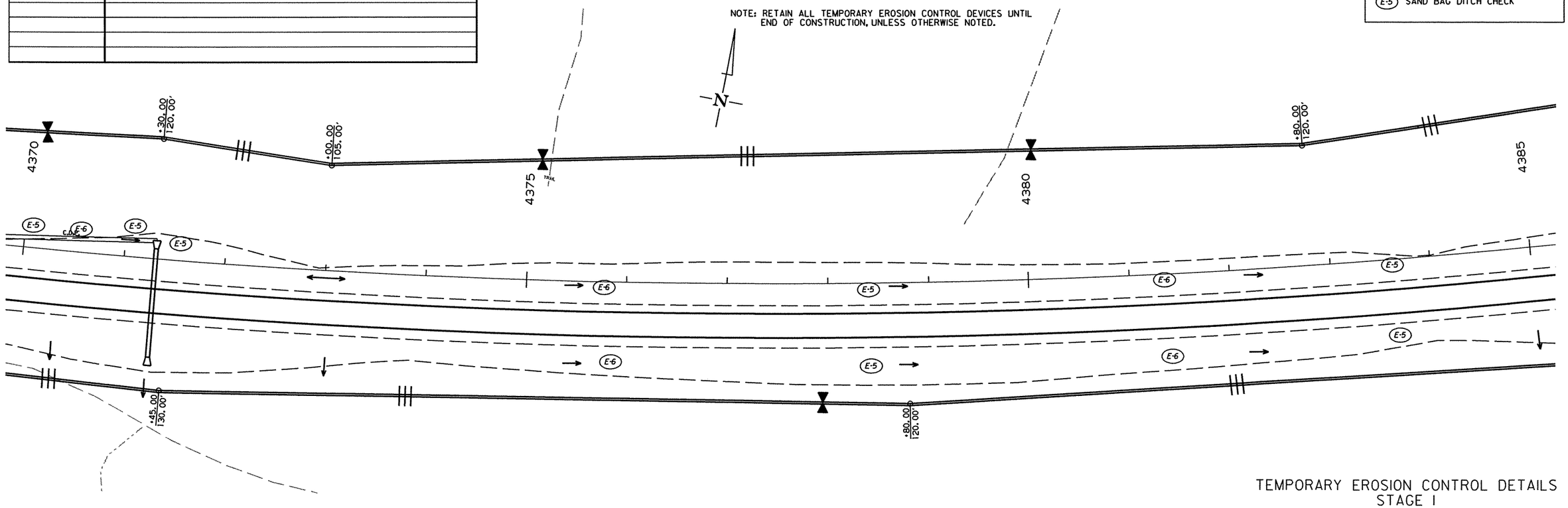
REVISIONS

DATE	REVISION

LEGEND

E-6 ROCK DITCH CHECK
E-5 SAND BAG DITCH CHECK

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



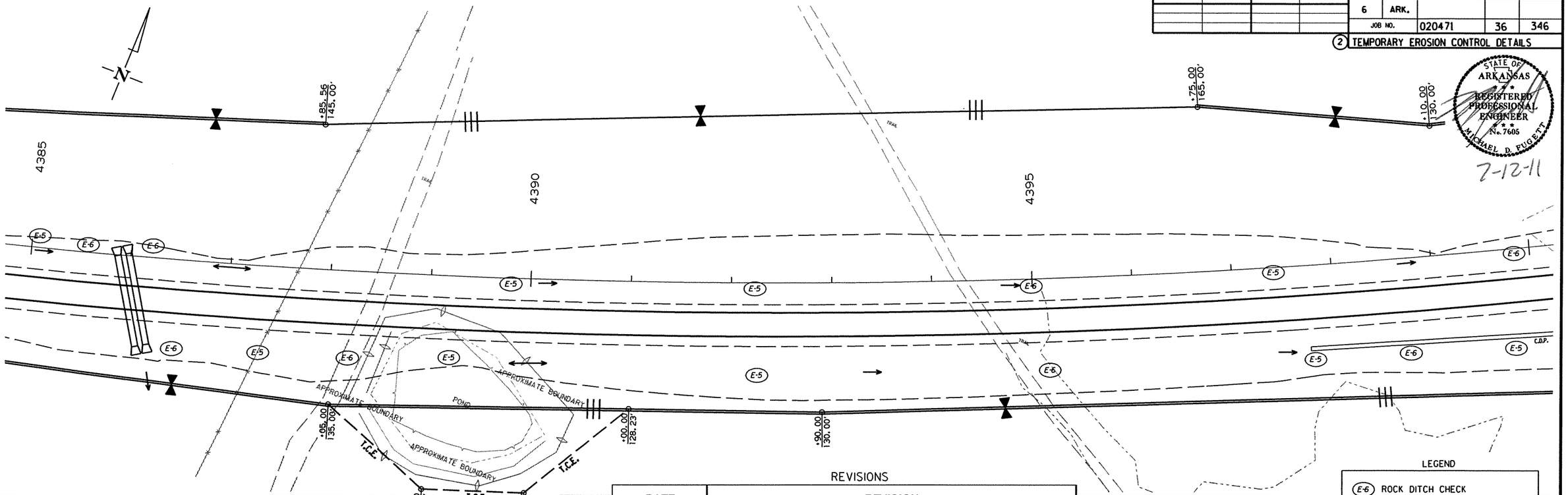
TEMPORARY EROSION CONTROL DETAILS
STAGE I

R020471.DGN 7/1/2011

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.		020471	36	346

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11



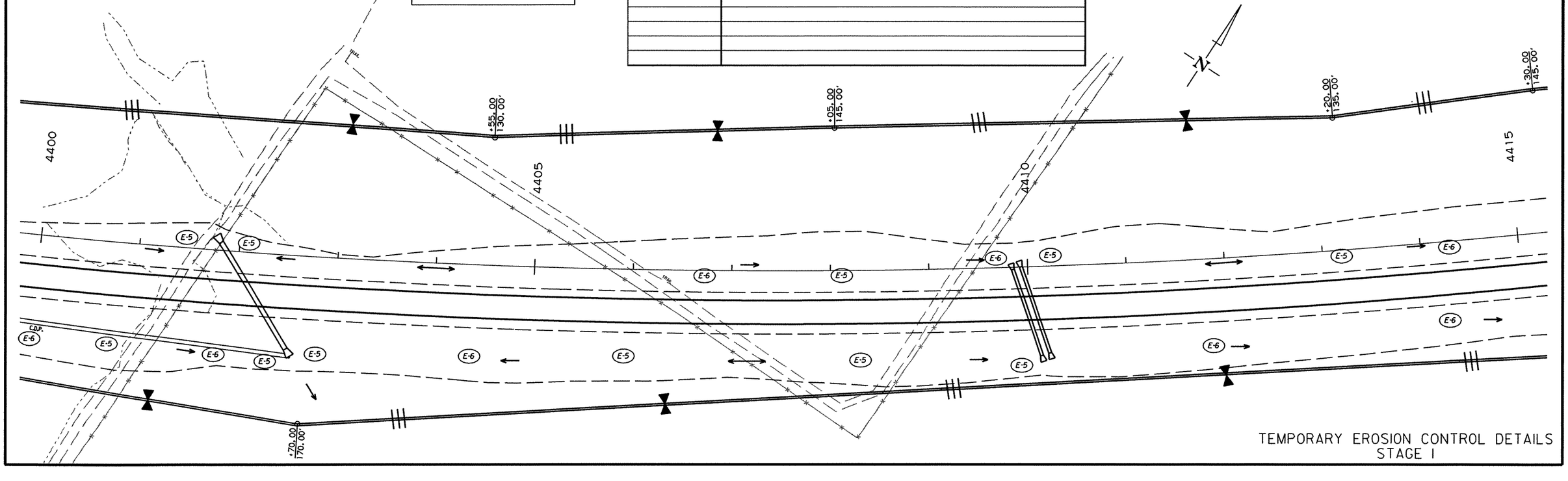
NOTE: RETAIN ALL TEMPORARY EROSION CONTROL DEVICES UNTIL END OF CONSTRUCTION, UNLESS OTHERWISE NOTED.

REVISIONS

DATE	REVISION

LEGEND

E-6 ROCK DITCH CHECK
E-5 SAND BAG DITCH CHECK



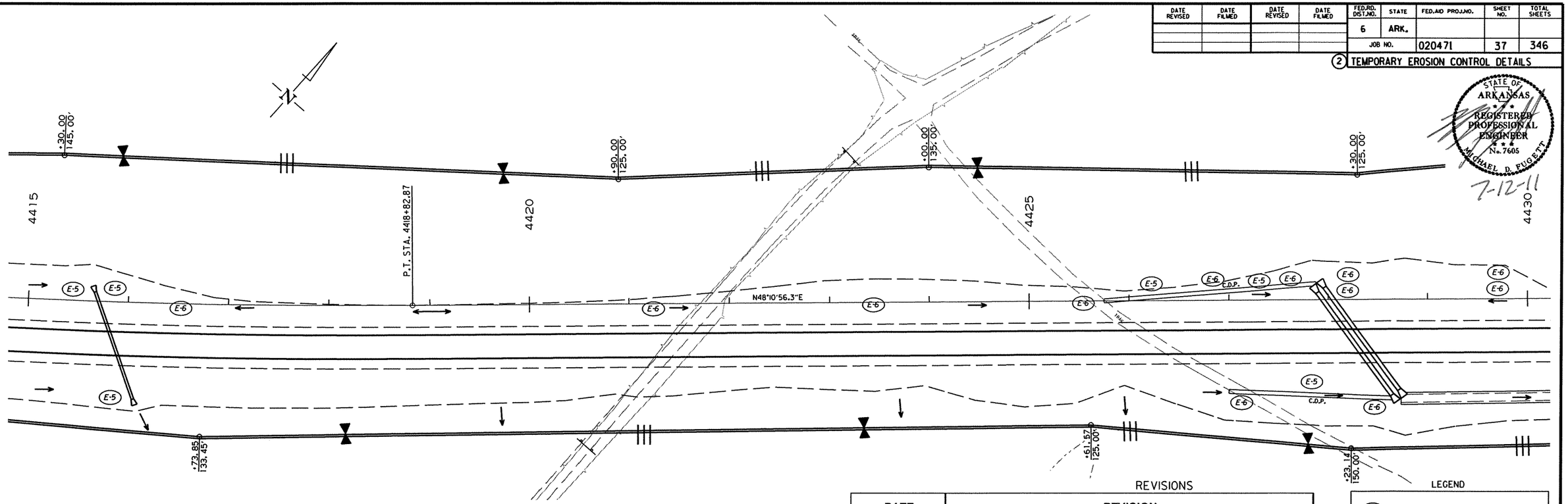
TEMPORARY EROSION CONTROL DETAILS
STAGE I

R020471.DGN 7/1/2011

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.		020471	37	346

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11



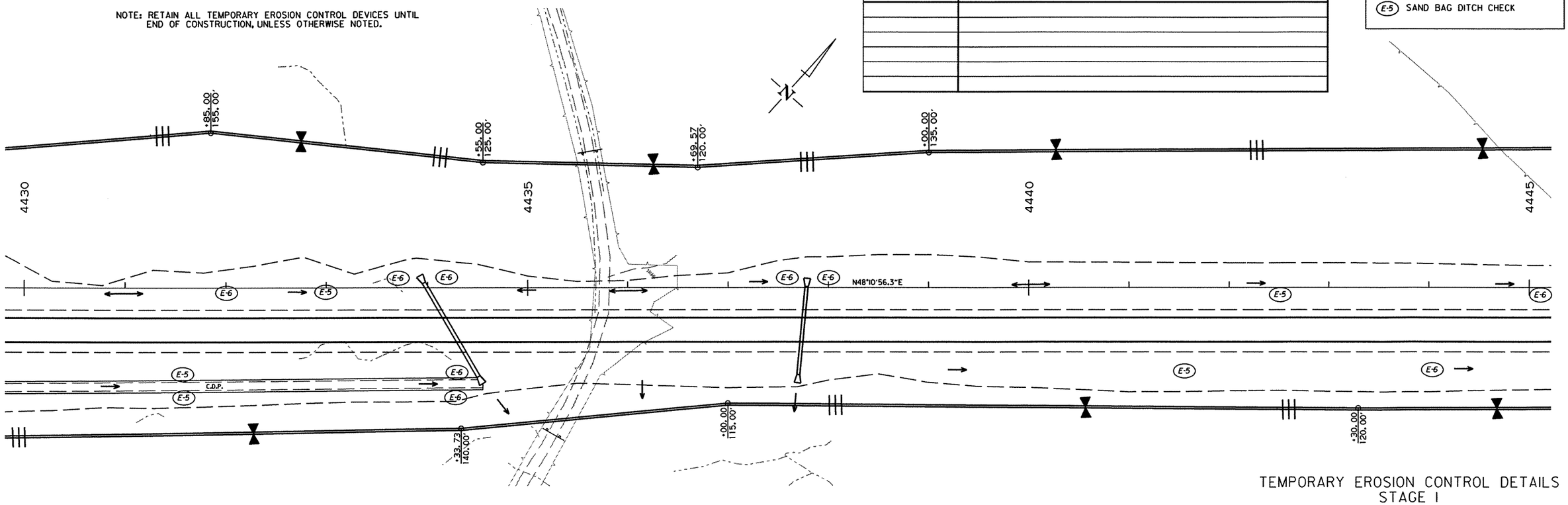
NOTE: RETAIN ALL TEMPORARY EROSION CONTROL DEVICES UNTIL END OF CONSTRUCTION, UNLESS OTHERWISE NOTED.

REVISIONS

DATE	REVISION

LEGEND

(E-6) ROCK DITCH CHECK
(E-5) SAND BAG DITCH CHECK



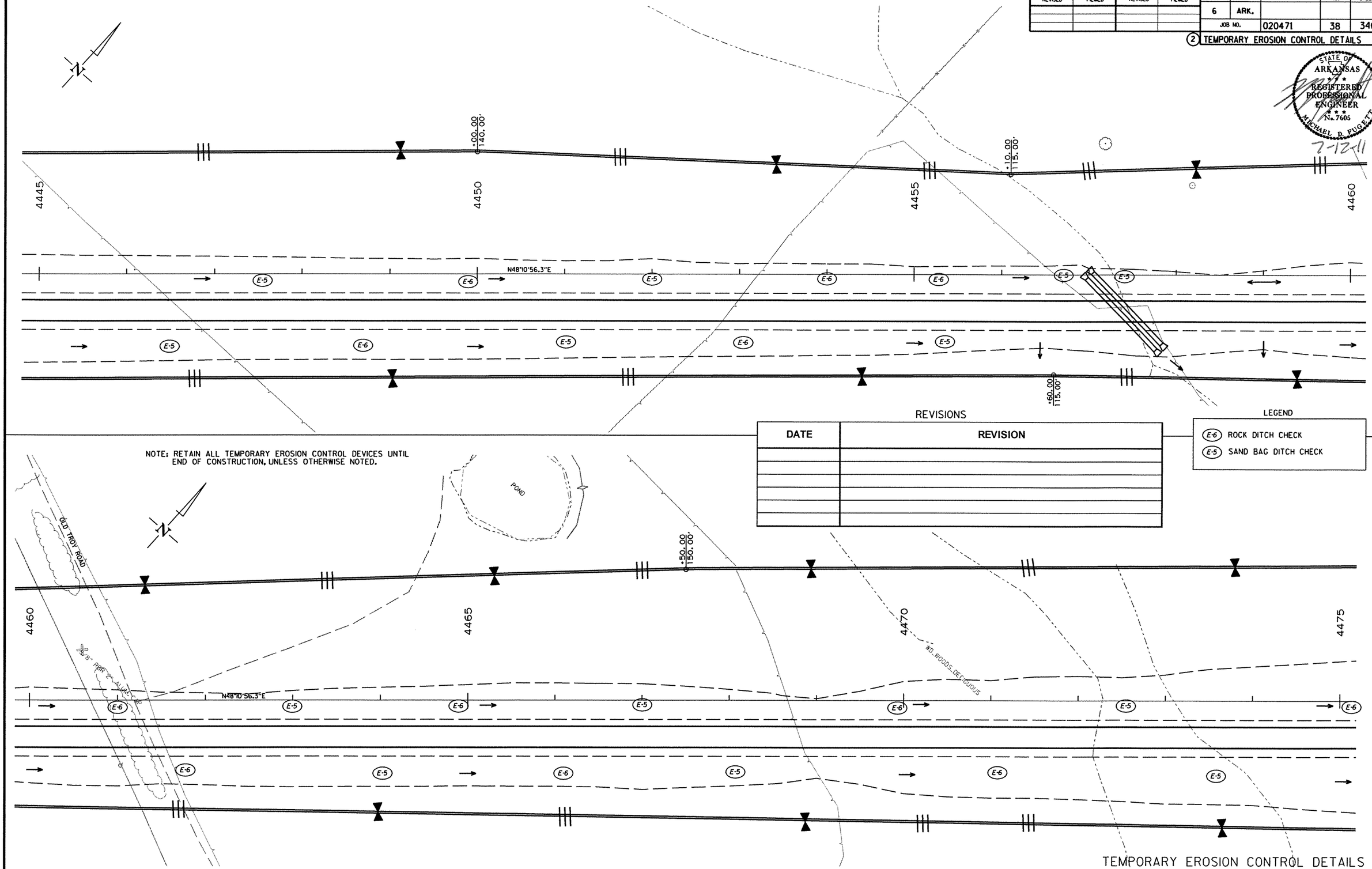
TEMPORARY EROSION CONTROL DETAILS
STAGE I

R020471.DGN 7/1/2011

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.		020471	38	346

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11



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

REVISIONS

DATE	REVISION

LEGEND

- (E-6) ROCK DITCH CHECK
- (E-5) SAND BAG DITCH CHECK

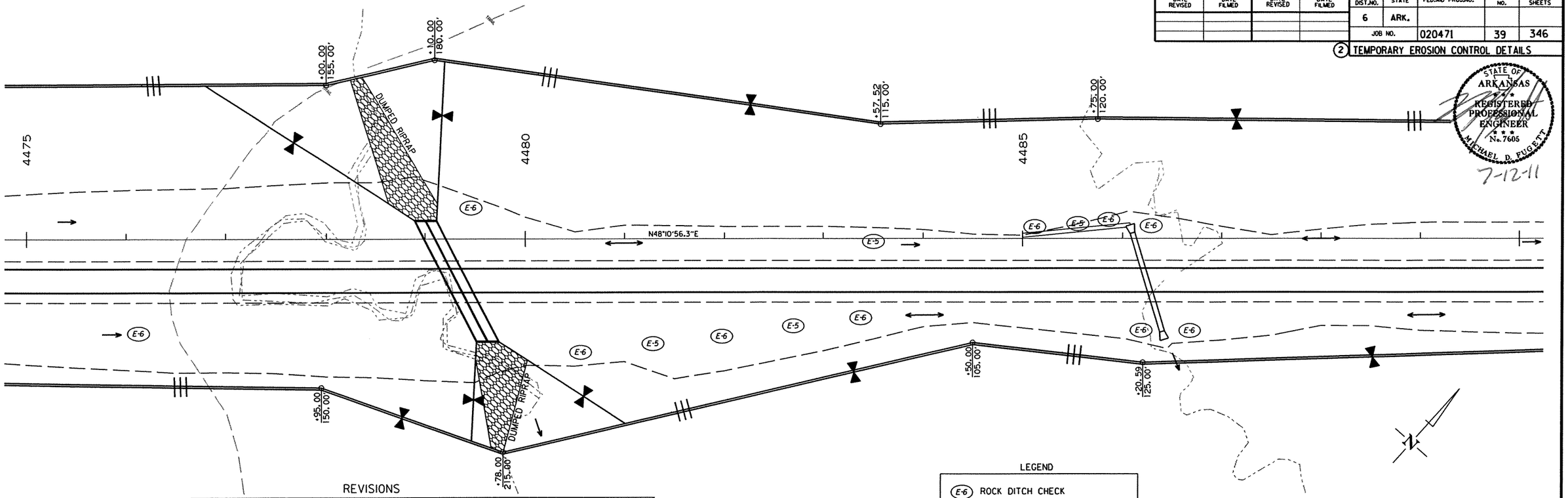
TEMPORARY EROSION CONTROL DETAILS
STAGE I

R020471.DGN 7/1/2011

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.		020471	39	346

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11

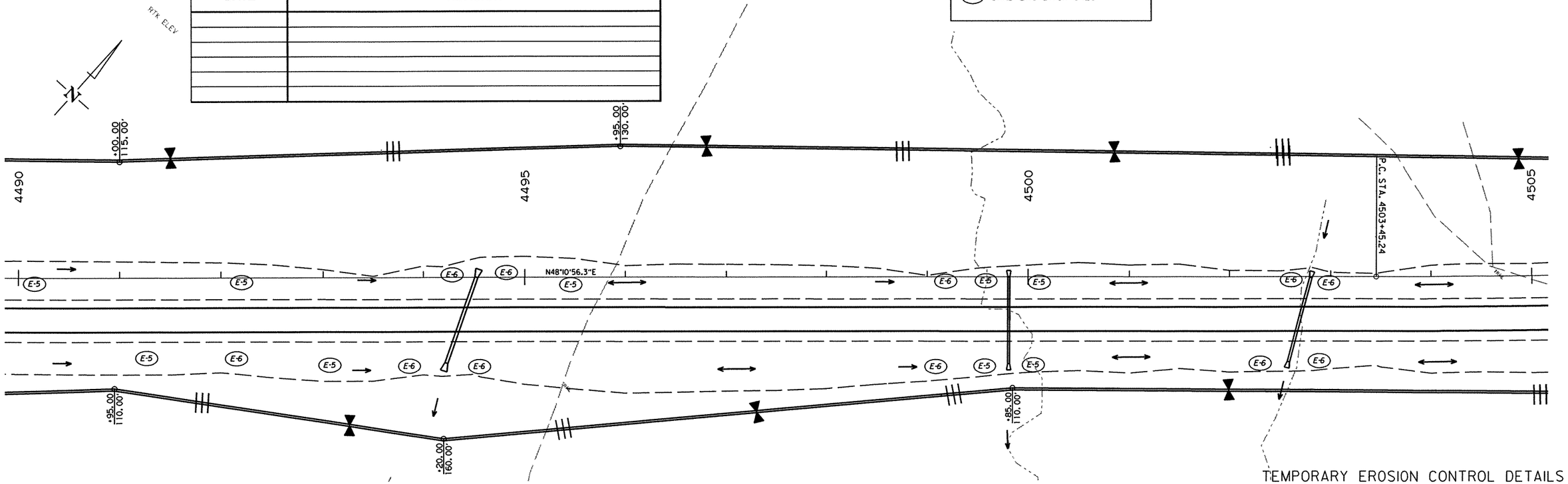


REVISIONS

DATE	REVISION

LEGEND

- (E-6) ROCK DITCH CHECK
- (E-5) SAND BAG DITCH CHECK



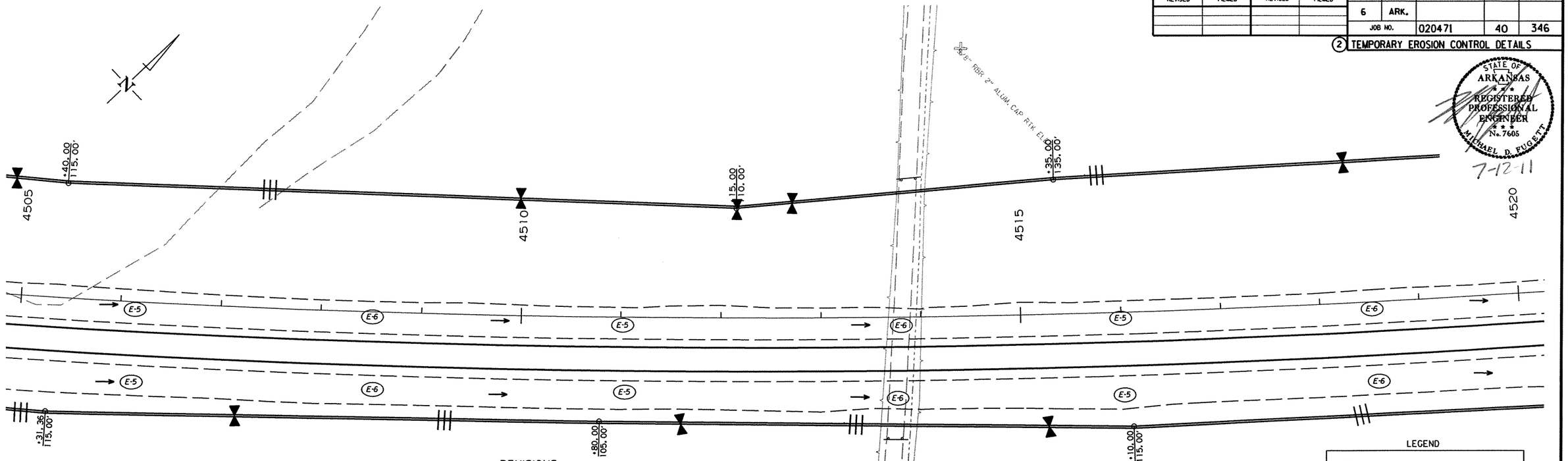
TEMPORARY EROSION CONTROL DETAILS
STAGE I

R020471.DGN 7/1/2011

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.		020471	40	346

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11



REVISIONS

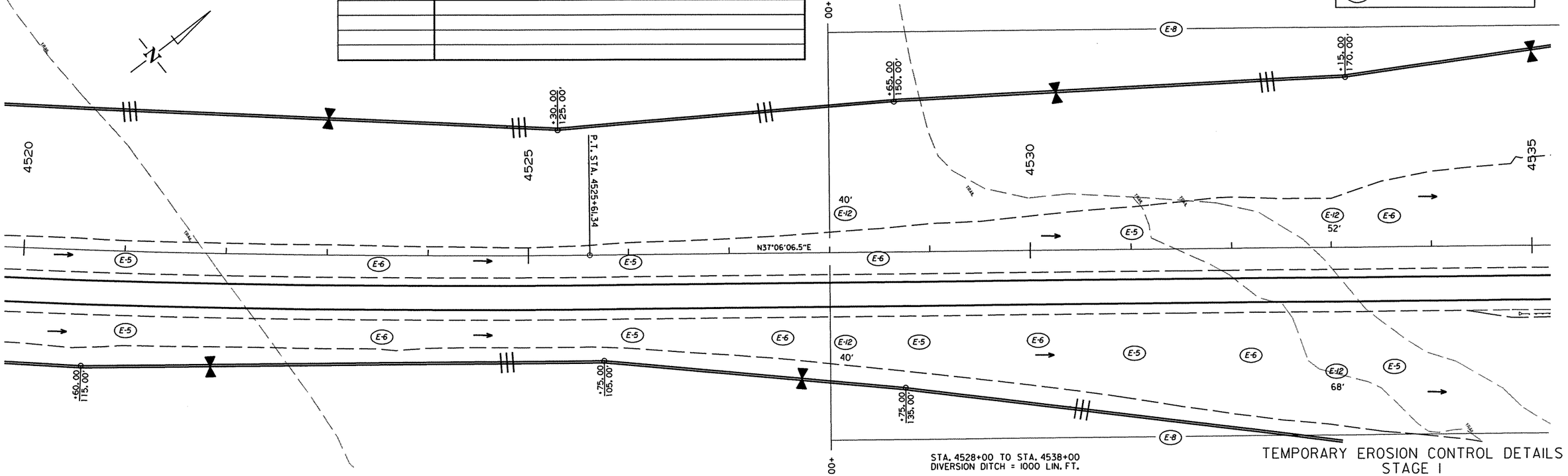
DATE	REVISION

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

LEGEND

- (E-6) ROCK DITCH CHECK
- (E-5) SAND BAG DITCH CHECK
- (E-8) DIVERSION DITCH
- (E-12) SLOPE DRAIN

STA. 4528+00 TO STA. 4538+00
DIVERSION DITCH = 1000 LIN. FT.



STA. 4528+00 TO STA. 4538+00
DIVERSION DITCH = 1000 LIN. FT.

TEMPORARY EROSION CONTROL DETAILS
STAGE I

R020471.DGN 7/1/2011

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.		020471	41	346

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11

STA. 4528+00 TO STA. 4538+00
DIVERSION DITCH = 1000 LIN. FT.

STA. 4540+50 TO STA. 4550+50
DIVERSION DITCH = 1000 LIN. FT.

DUMPED RIPRAP

N37°06'06.5"E

REVISIONS

DATE	REVISION

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

LEGEND

- (E-6) ROCK DITCH CHECK
- (E-5) SAND BAG DITCH CHECK
- (E-8) DIVERSION DITCH
- (E-12) SLOPE DRAIN

R020471.DGN 7/1/2011

TEMPORARY EROSION CONTROL DETAILS
STAGE I

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.		020471	42	346

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-1-11

STA. 4567+80.91 42.00' RT. OF I-69 CL =
STA. 110+20.95 HWY. 35 CL
Δ = 85° 34' 20"

P.I. 109+34.88

P.T. 110+56.77

P.C. 112+63.30

N37°06'06.5"E

S 57°19'33.1" E

P.C. STA. 459+18.05

LEGEND

(E-6) ROCK DITCH CHECK
(E-5) SAND BAG DITCH CHECK

REVISIONS

DATE	REVISION

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

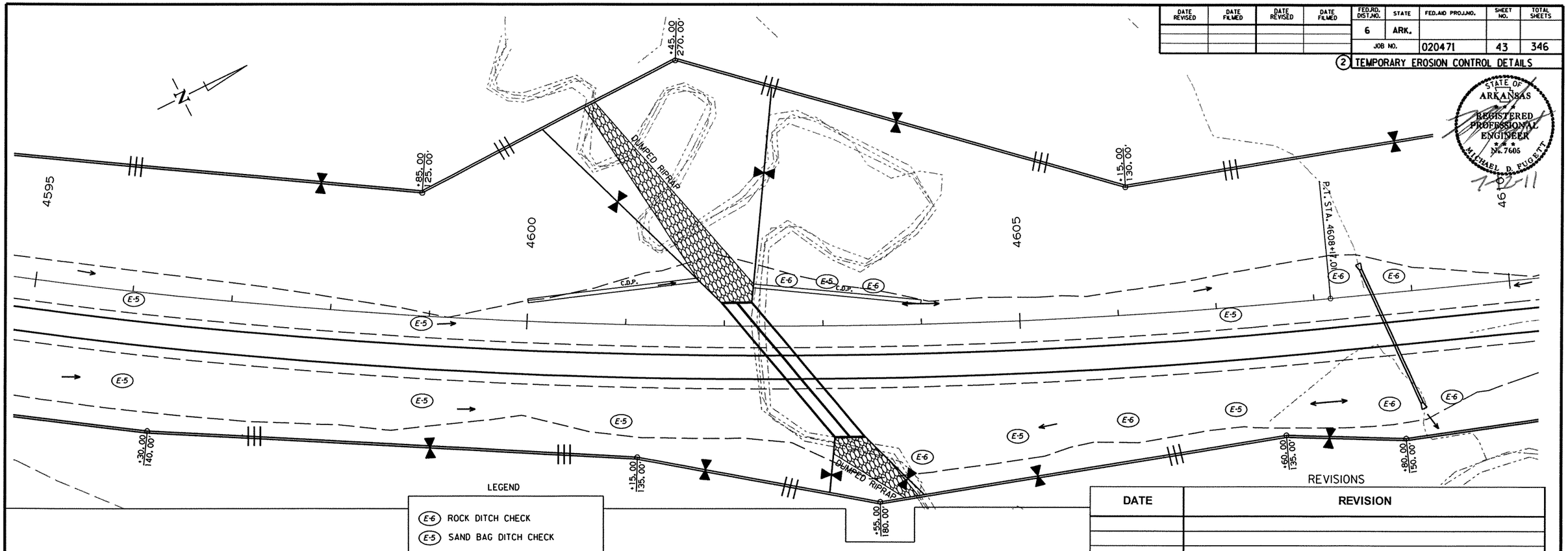
TEMPORARY EROSION CONTROL DETAILS
STAGE 1

R020471.DGN 7/1/2011

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.		020471	43	346

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 7605
MICHAEL D. FUGETT
7/2/11



LEGEND

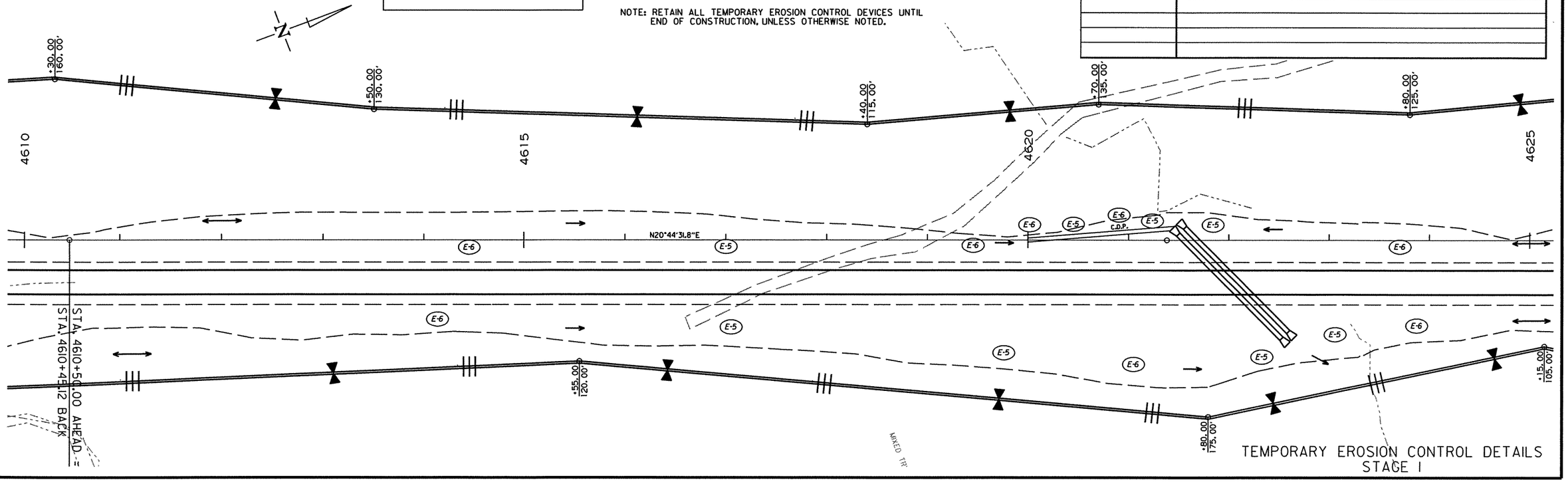
(E-6) ROCK DITCH CHECK

(E-5) SAND BAG DITCH CHECK

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

REVISIONS

DATE	REVISION



TEMPORARY EROSION CONTROL DETAILS
STAGE I

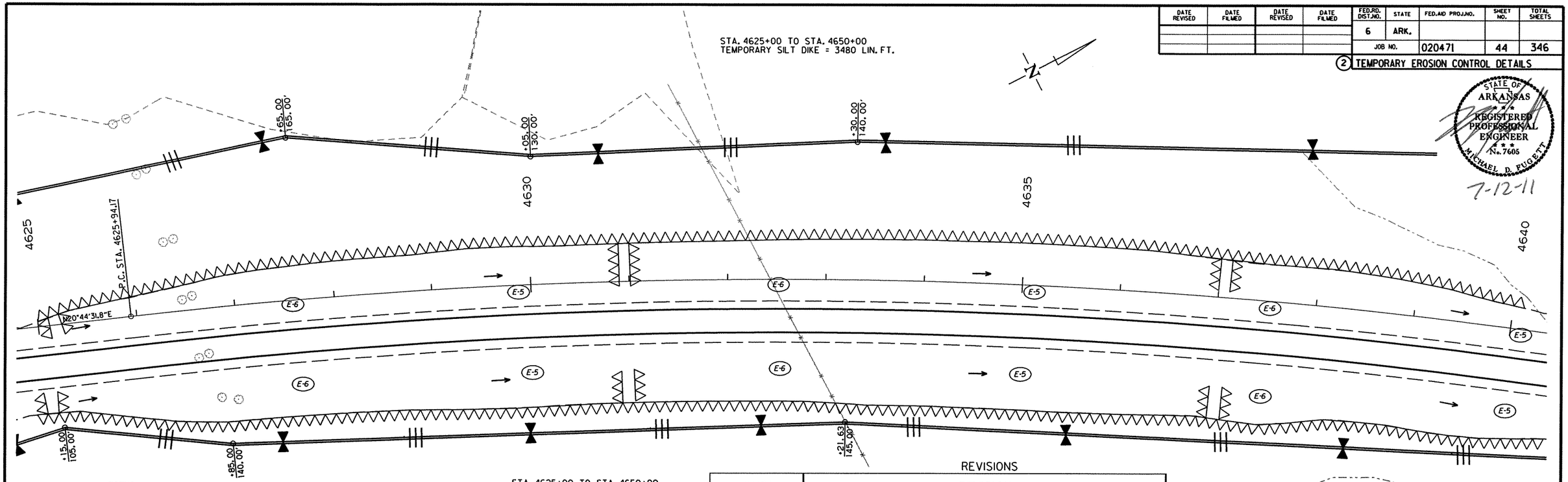
R020471.DGN 7/1/2011

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.		020471	44	346

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11

STA. 4625+00 TO STA. 4650+00
TEMPORARY SILT DIKE = 3480 LIN. FT.



LEGEND

- (E-6) ROCK DITCH CHECK
- (E-5) SAND BAG DITCH CHECK
- TEMPORARY SILT DIKE

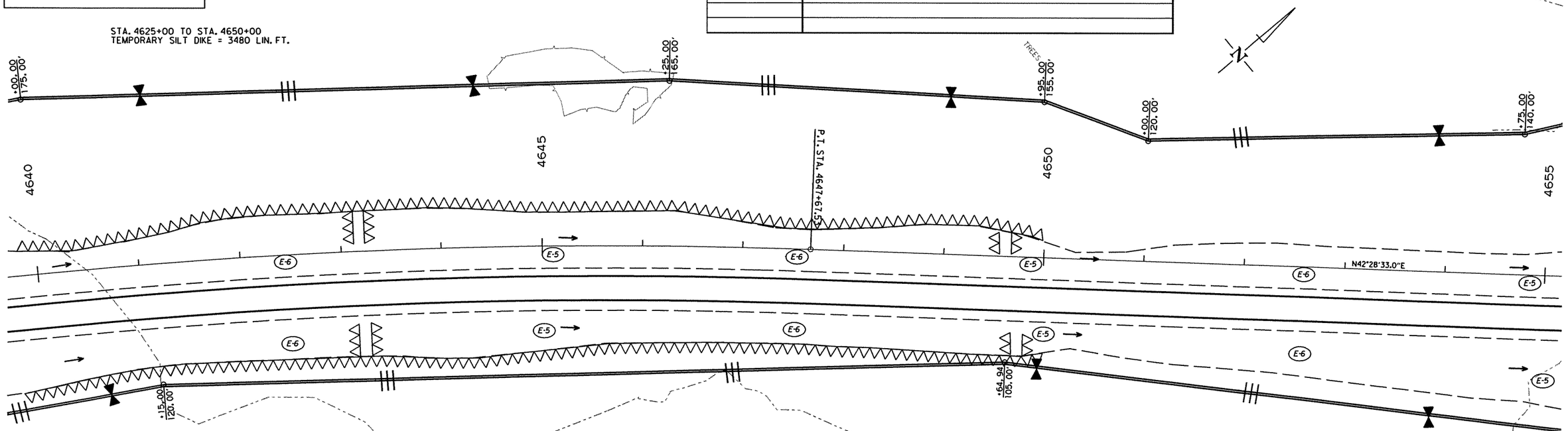
NOTE: RETAIN ALL TEMPORARY EROSION CONTROL DEVICES UNTIL END OF CONSTRUCTION, UNLESS OTHERWISE NOTED.

STA. 4625+00 TO STA. 4650+00
TEMPORARY SILT DIKE = 3410 LIN. FT.

REVISIONS

DATE	REVISION

STA. 4625+00 TO STA. 4650+00
TEMPORARY SILT DIKE = 3480 LIN. FT.



STA. 4625+00 TO STA. 4650+00
TEMPORARY SILT DIKE = 3410 LIN. FT.

TEMPORARY EROSION CONTROL DETAILS
STAGE I

R020471.DGN 7/1/2011

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.		020471	45	346

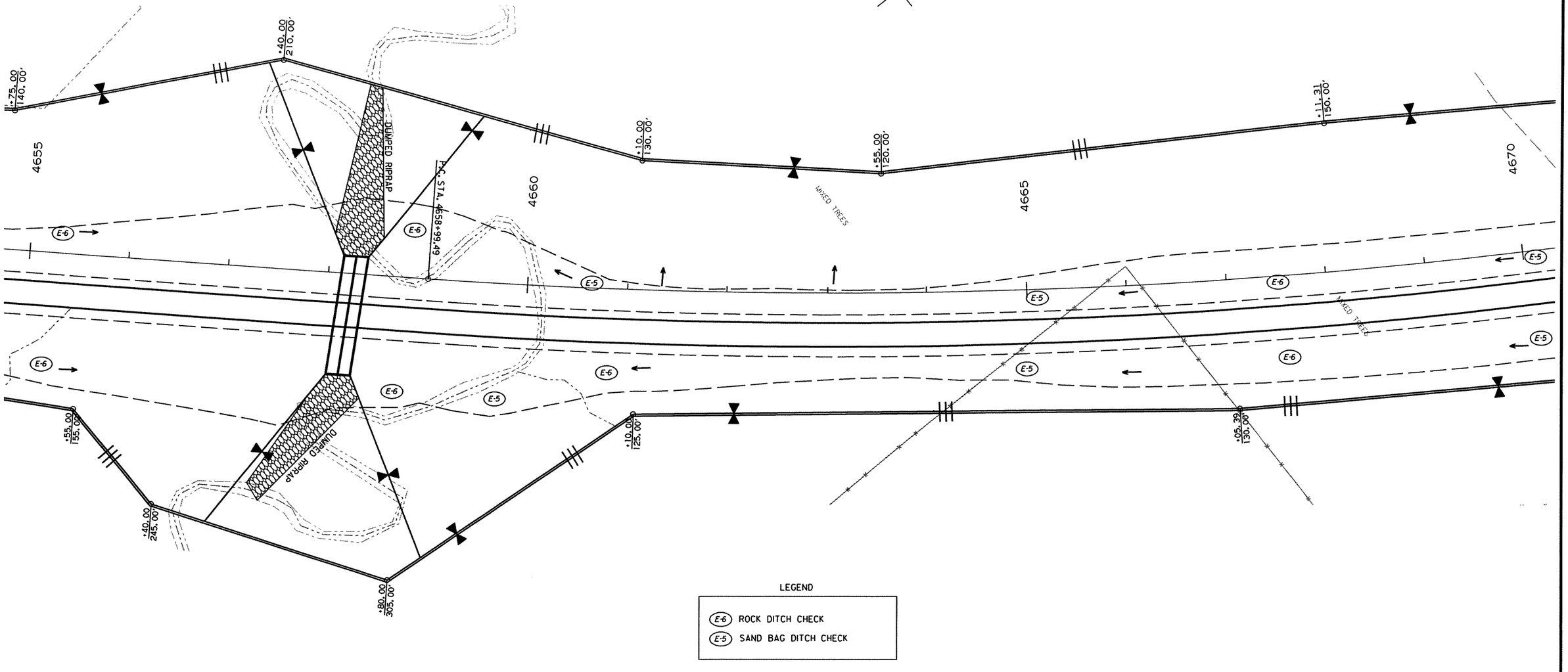
(2) TEMPORARY EROSION CONTROL DETAILS

REVISIONS

DATE	REVISION

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11



LEGEND

E-6	ROCK DITCH CHECK
E-5	SAND BAG DITCH CHECK

TEMPORARY EROSION CONTROL DETAILS
STAGE I

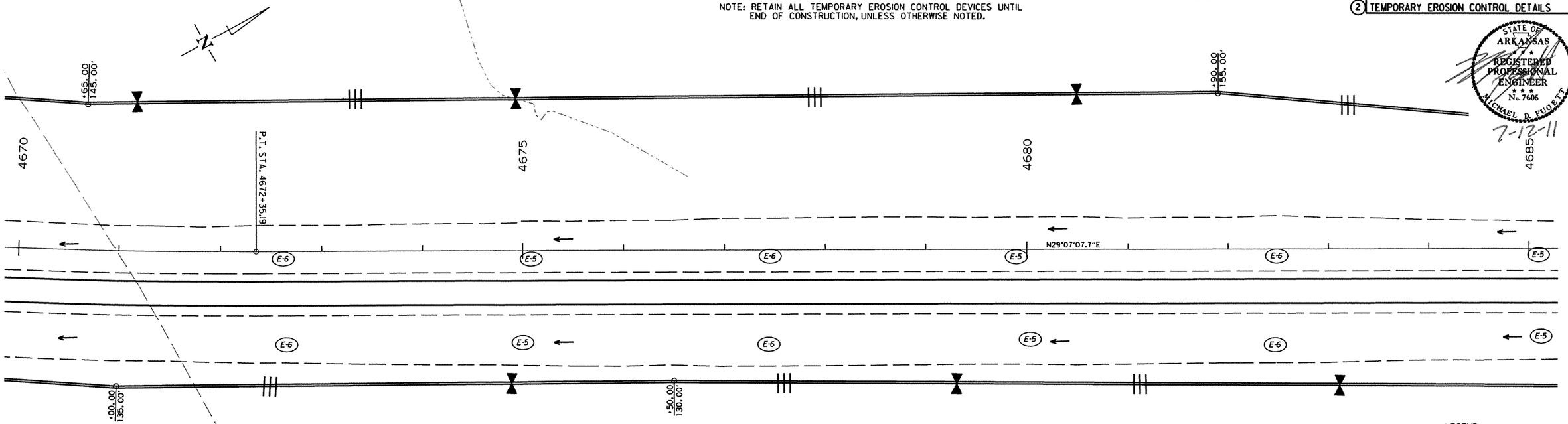
R020471.DGN 7/1/2011

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.		020471	46	346

(2) TEMPORARY EROSION CONTROL DETAILS

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11



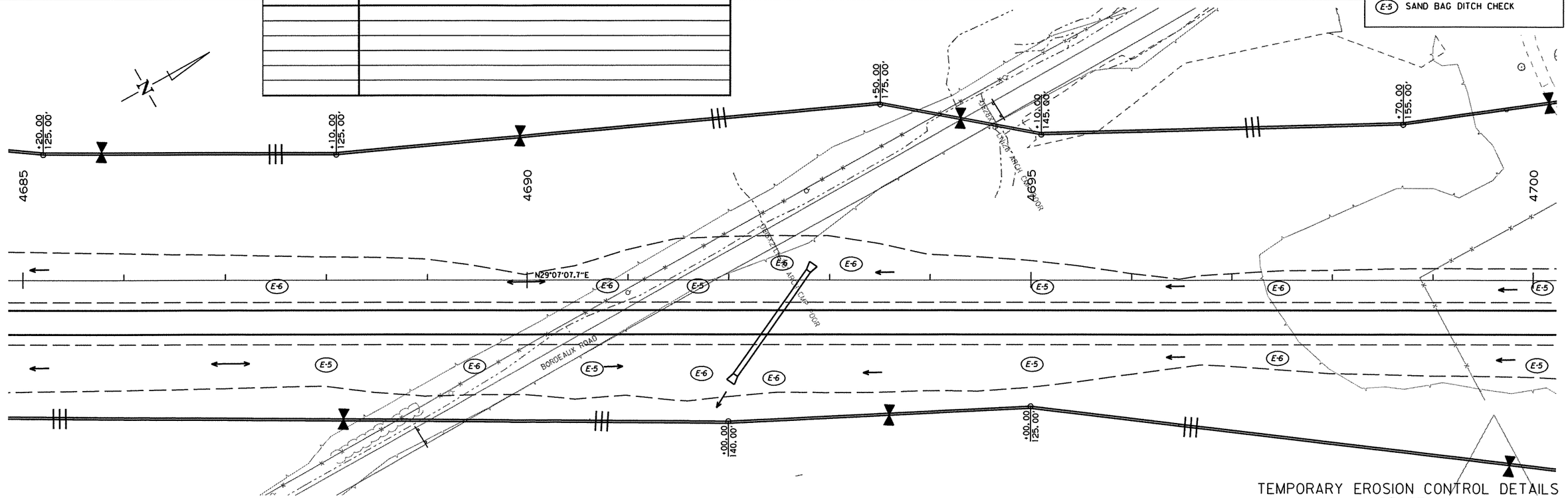
REVISIONS

DATE	REVISION

LEGEND

E-6 ROCK DITCH CHECK

E-5 SAND BAG DITCH CHECK



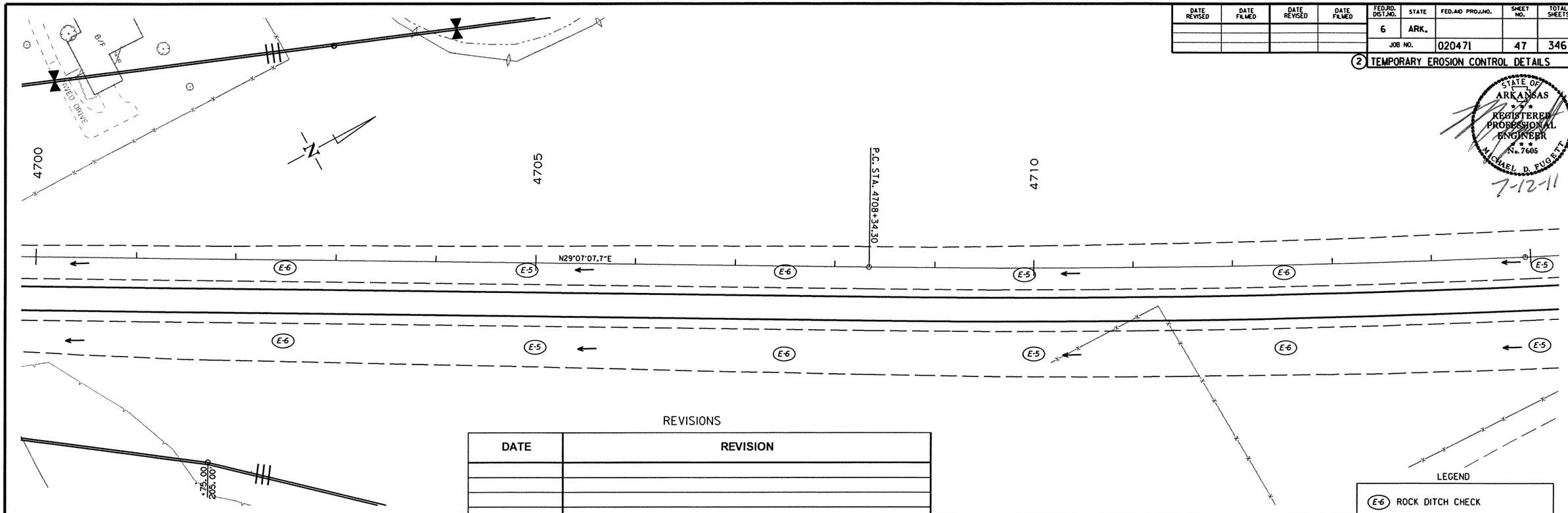
TEMPORARY EROSION CONTROL DETAILS
STAGE I

R020471.DGN 7/1/2011

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.		020471	47	346

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11



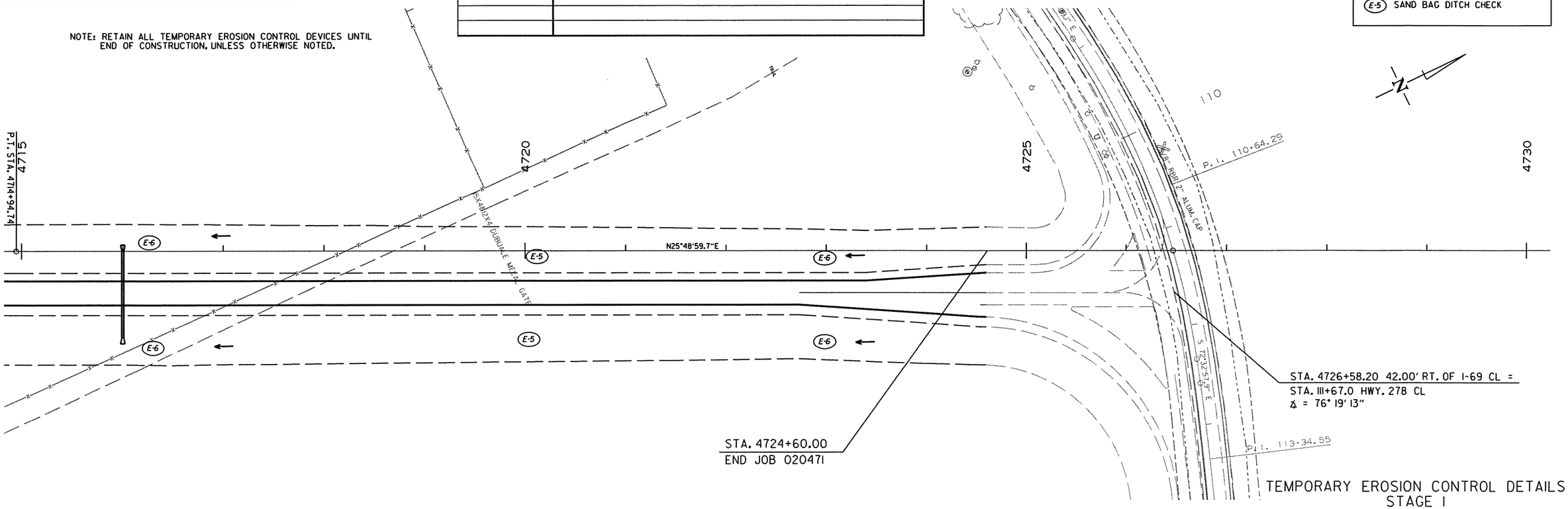
REVISIONS

DATE	REVISION

LEGEND

(E-6) ROCK DITCH CHECK
(E-5) SAND BAG DITCH CHECK

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



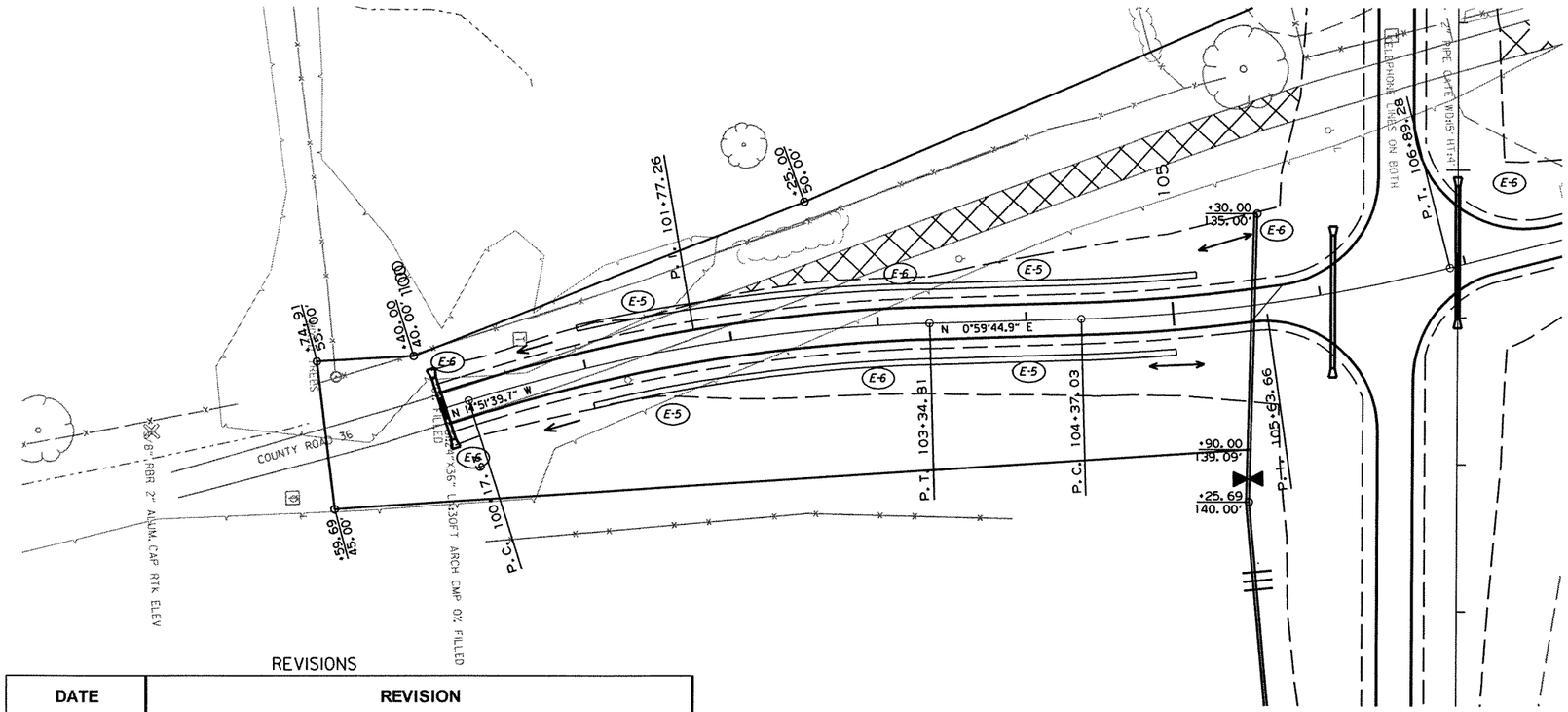
TEMPORARY EROSION CONTROL DETAILS
STAGE I

R020471.DGN 7/1/2011

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.		020471	48	346

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11



REVISIONS

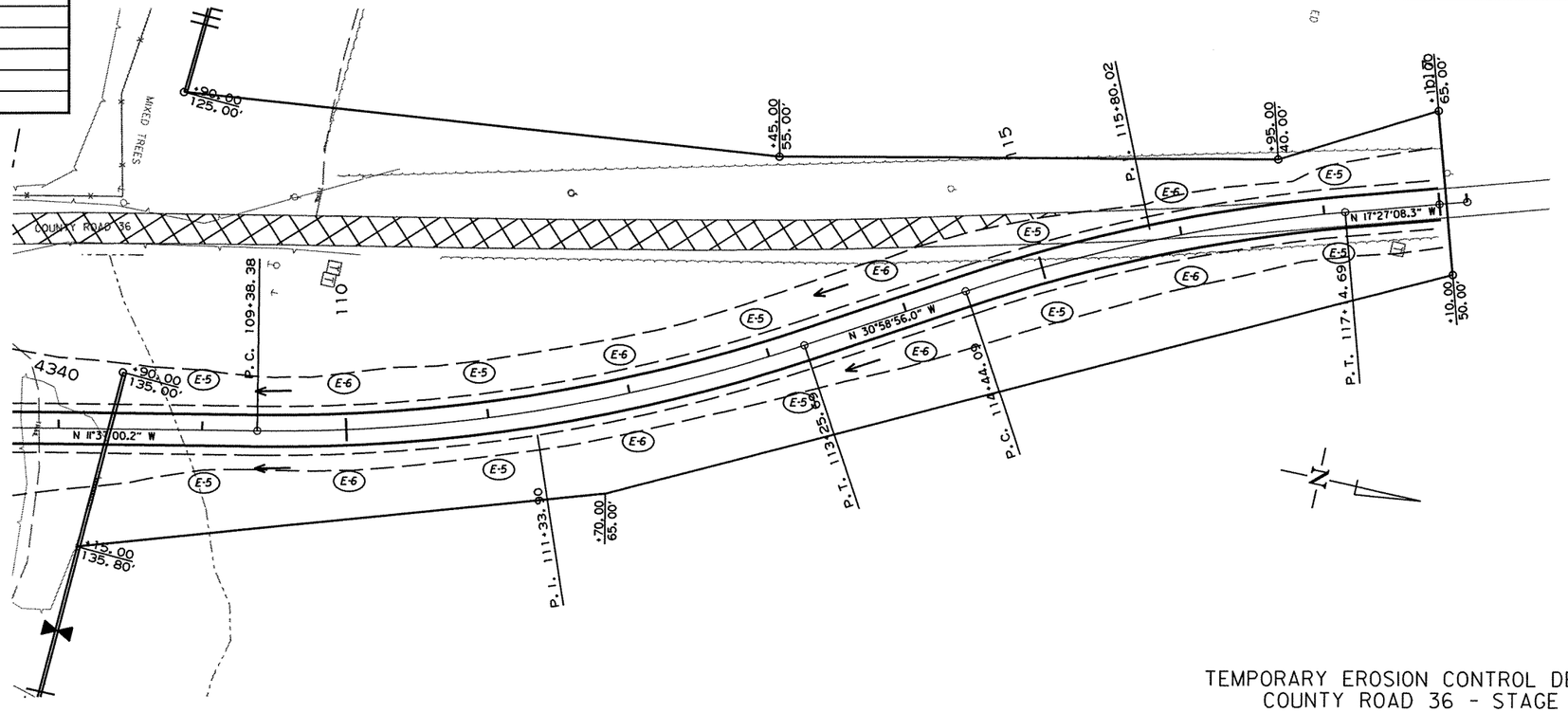
DATE	REVISION

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

LEGEND

E-6 ROCK DITCH CHECK

E-5 SAND BAG DITCH CHECK



TEMPORARY EROSION CONTROL DETAILS
COUNTY ROAD 36 - STAGE I

R020471.DGN 7/1/2011

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.		020471	49	346

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 7605
MICHAEL D. FUGETT
7-12-11

LEGEND

- (E-6) ROCK DITCH CHECK
- (E-5) SAND BAG DITCH CHECK

REVISIONS

DATE	REVISION

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

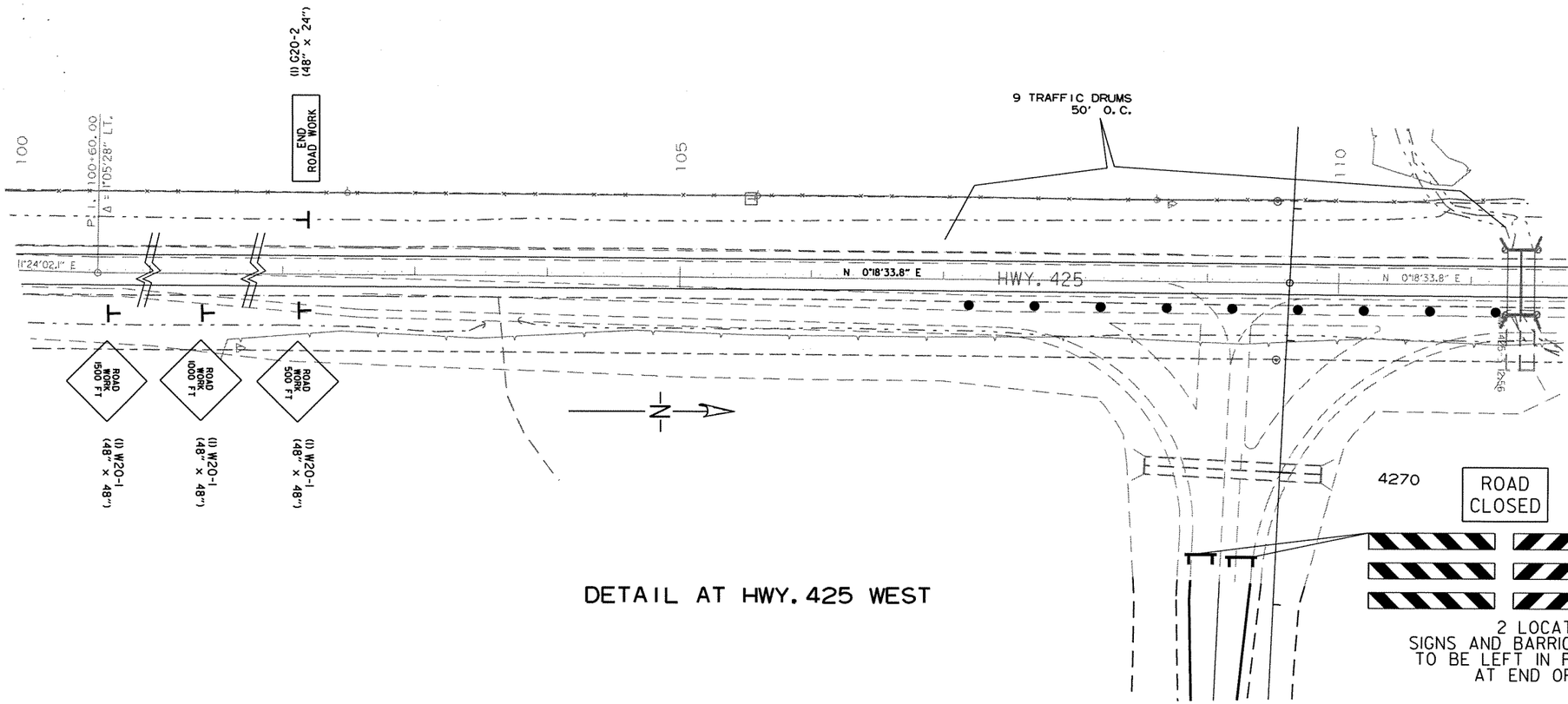
TEMPORARY EROSION CONTROL DETAILS
HIGHWAY 35 DRIVEWAY - STAGE I

R020471.DGN 7/1/2011

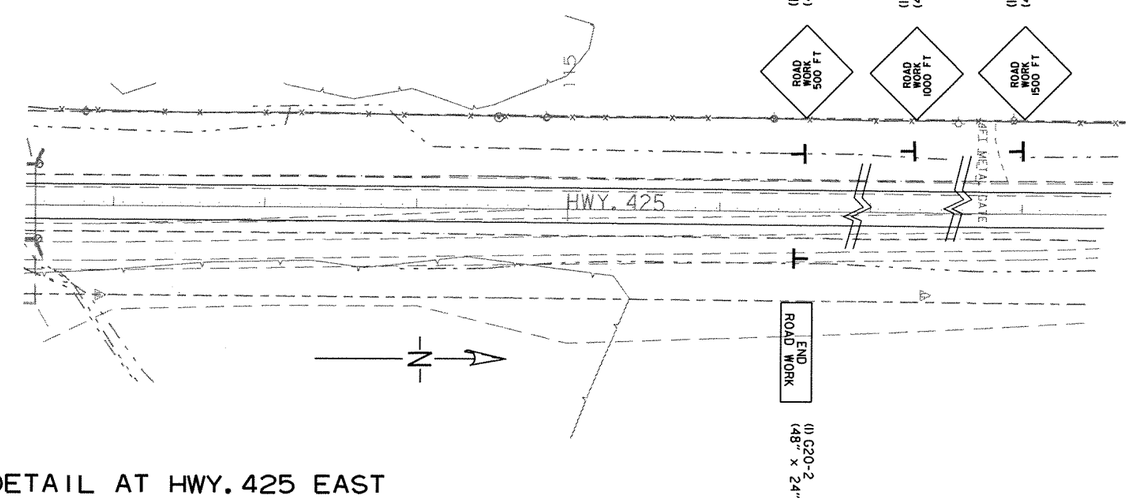
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		020471	50	346

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11



DETAIL AT HWY. 425 WEST



DETAIL AT HWY. 425 EAST

DETAIL AT HWY. 425
MAINTENANCE OF TRAFFIC

APRIL 19 2011 Monticello East MOT.dgn MOT Design

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.		020471	51	346
				(2)	MAINTENANCE OF TRAFFIC			

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11

2 LOCATIONS

ROAD CLOSED

(1) R11-2 (48" X 30")

8' BARR. TYP. III RT.
8' BARR. TYP. III LT.

10 TRAFFIC DRUMS 40' O.C. BOTH SIDES OF EXIST. RD.

9 TRAFFIC DRUMS 40' O.C.

(1) G20-2 (48" x 24")
END ROAD WORK

(1) W20-1 (48" x 48") ROAD WORK 1500 FT
(1) W20-1 (48" x 48") ROAD WORK 1000 FT
(1) W20-1 (48" x 48") ROAD WORK 500 FT

16' BARR. TYP. III RT.

ROAD CLOSED (48" X 30") (1) R11-2

C.R. 36

P.I. 101+77.26

P.C.E.

P.I. 105+69.66

105

4340

12 TRAFFIC DRUMS 40' O.C.

P.I. 115+80.02

115

110

P.C.E.

P.I. 111+33.90

16' BARR. TYP. III LT.

ROAD CLOSED (48" X 30") (1) R11-2

(1) W20-1 (48" x 48") ROAD WORK 1500 FT
(1) W20-1 (48" x 48") ROAD WORK 1000 FT
(1) W20-1 (48" x 48") ROAD WORK 500 FT

END ROAD WORK (1) G20-2 (48" x 24")

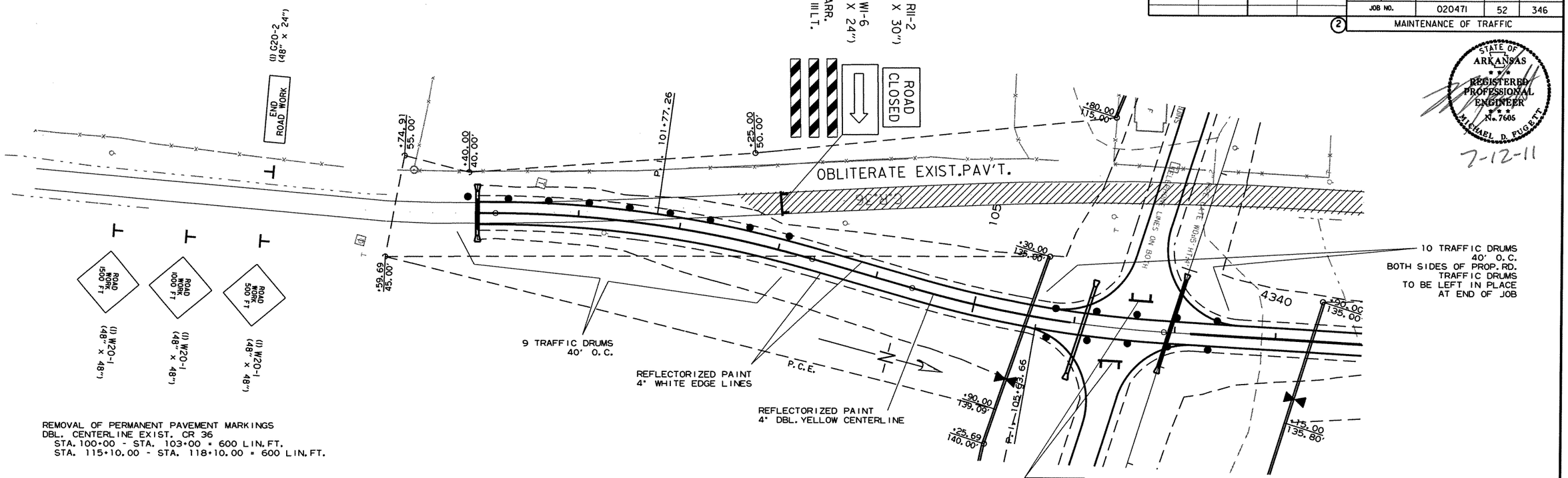
DETAIL AT CR 36 STAGE 1
MAINTENANCE OF TRAFFIC

APRIL 5 2011 Monticello East MOT.dgn MOT Design

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.		020471	52	346

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11



DETAIL AT CR 36 STAGE 2
MAINTENANCE OF TRAFFIC

JULY 5 2011 Monticello East MOT.dgn MOT Design

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.		020471	53	346

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 7605
MICHAEL D. FUGETT
7-12-11

(1) W20-1 (48" x 48")
ROAD WORK 1500 FT
(1) W20-1 (48" x 48")
ROAD WORK 1000 FT
(1) W20-1 (48" x 48")
ROAD WORK 500 FT
(1) G20-2 (48" x 24")
END ROAD WORK

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

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

POB 100+00.00
P.C. 100+46.39
P.T. 102+28.59
P.C. 102+55.31
P.T. 103+97.90
P.C. 108+72.45
P.T. 105+37.53
P.T. 104+10.65
N 60°11'22" E
N 46°04'01.7" E
N 66°16'48.2" E
S 56°23'41" E
105
105
105
N 08°13'26" W
P.I. 111+64.00
1,137.35
O-1
BOX 1POLE
CRAVES-GW
GR DR DRYRAMP
CABLE-TV UTILITY LINE
STANDING WATER
DR SW
CH
C
HISTORY MET
2 W PIPE GATES FLEMISTER RD.
5 TRAFFIC DRUMS 15' O.C.
6 TRAFFIC DRUMS 50' O.C.

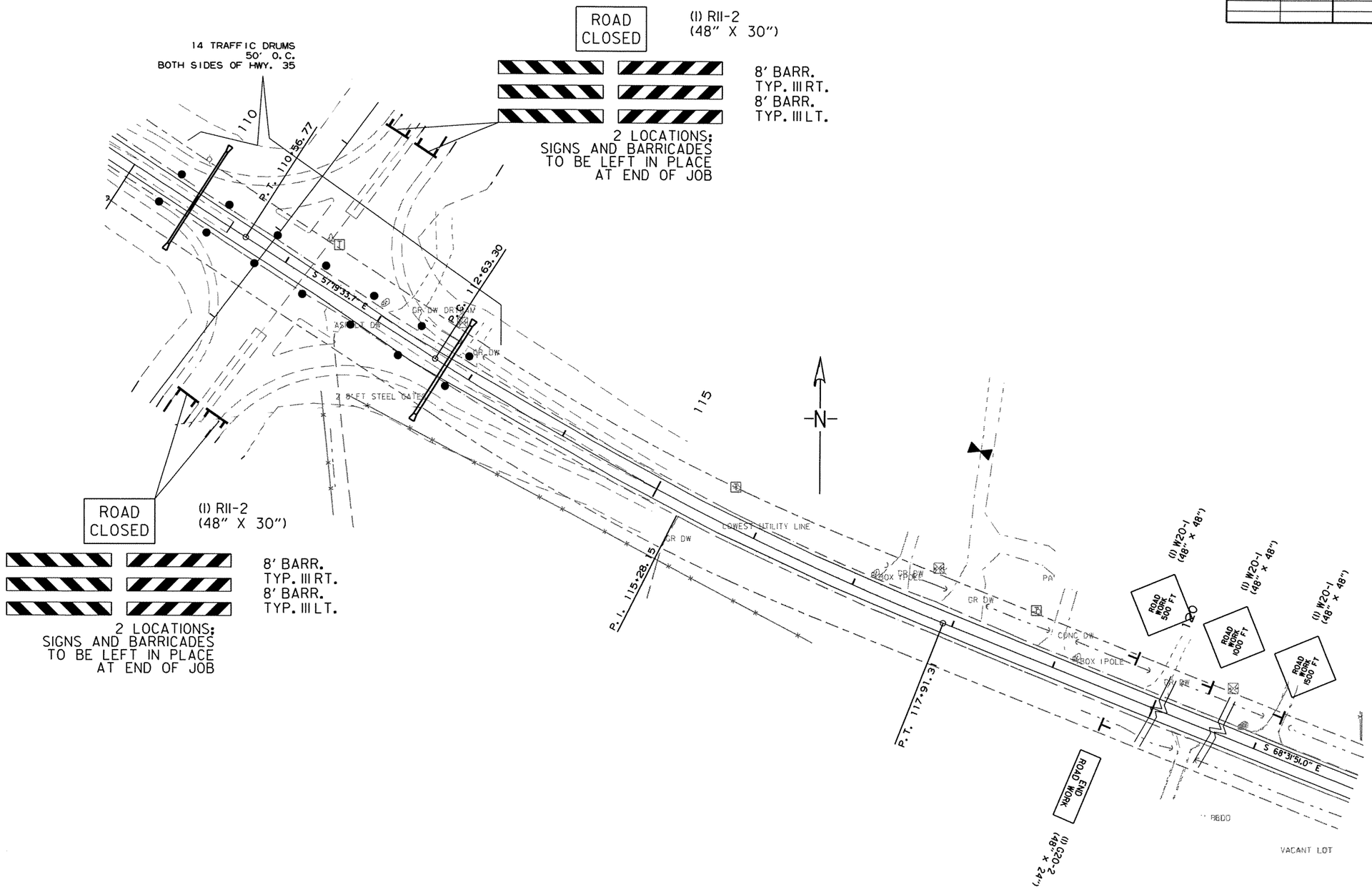
DETAIL AT HWY. 35 WEST AND DRIVEWAY

MAINTENANCE OF TRAFFIC

APRIL 4 2011 Monticello East MOT.dgn MOT Design

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.		020471	54	346
				(2)	MAINTENANCE OF TRAFFIC			

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. RUGETT
7-12-11

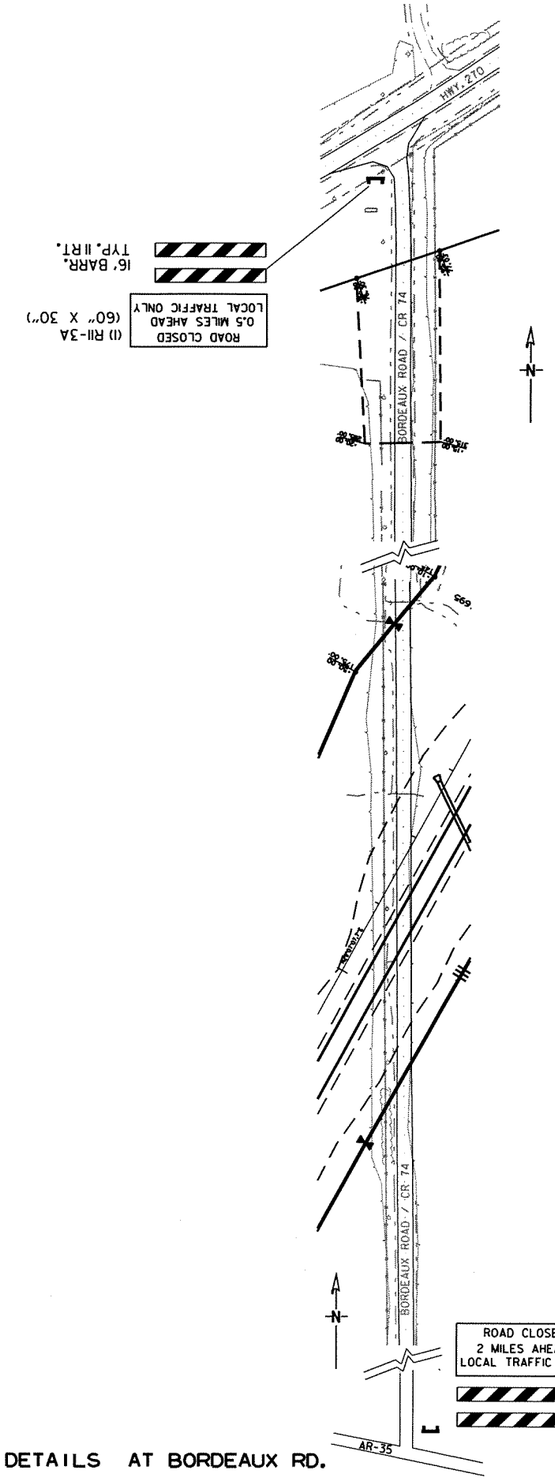


APRIL 19 2011 Monticello East MOT.dgn MOT Design

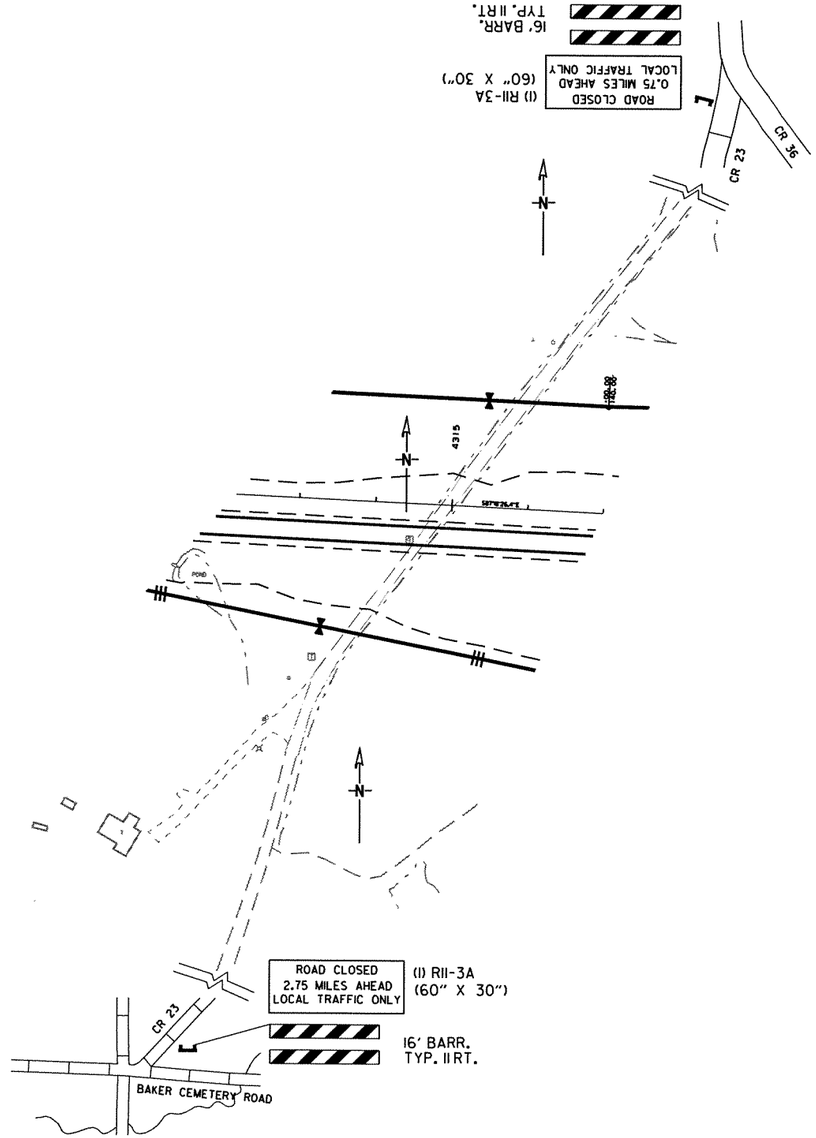
DETAIL AT HWY. 35 EAST
MAINTENANCE OF TRAFFIC

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.		020471	55	346
				(2)	MAINTENANCE OF TRAFFIC			

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. PUGETT
7-12-11



DETAILS AT BORDEAUX RD.



DETAILS AT C.R. 23

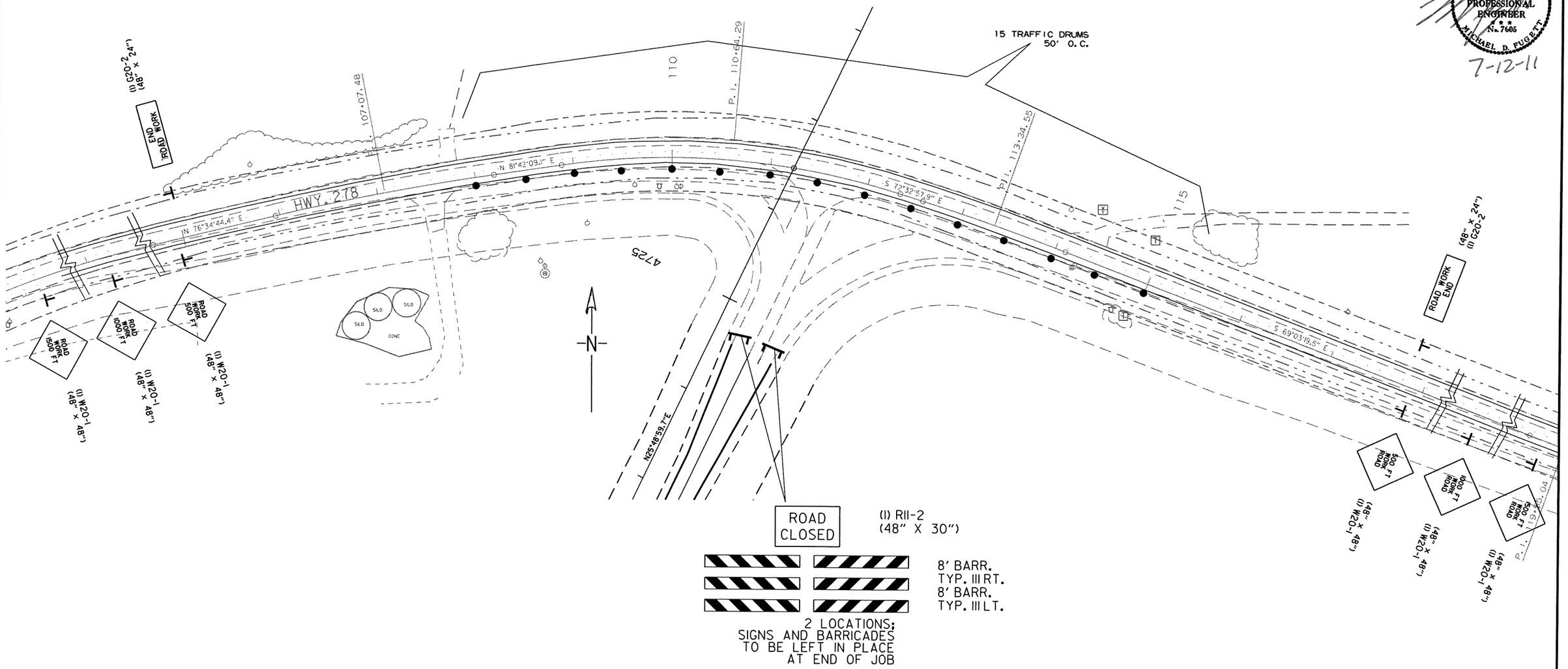
JULY 5 2011 Monticello East MOT.dgn MOT Design

BORDEAUX RD. & C.R. 23
MAINTENANCE OF TRAFFIC

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.		020471	56	346

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11



DETAIL AT HWY. 278 JUNCTION
MAINTENANCE OF TRAFFIC

APRIL 19 2011 Monticello East MOT.dgn MOT Design

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.		020471	57	346

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11

ADVANCE WARNING SIGNS AND DEVICES, CONSTRUCTION PAVEMENT MARKINGS, AND PERMANENT PAVEMENT MARKINGS

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGES		MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		TRAFFIC DRUMS	BARRICADES			REMOVAL OF PERMANENT PAVEMENT MARKINGS	REFLECTORIZED PAINT PAVEMENT MARKINGS 4"	
			1	2					TYPE III		TYPE II		WHITE	YELLOW
									RIGHT	LEFT	RIGHT			
			SQ. FT. - LIN. FT. - EACH			NO.	SQ. FT.	EACH	LIN. FT.					
W20-1	ROAD WORK 1500 FT.	48" x 48"	8	2		8	128.0							
W20-1	ROAD WORK 1000 FT.	48" x 48"	8	2		8	128.0							
W20-1	ROAD WORK 500 FT.	48" x 48"	8	2		8	128.0							
G20-2A	END ROAD WORK	48" x 24"	8	2		8	64.0							
R11-2	ROAD CLOSED	48" x 30"	6	4		6	60.0							
R11-3A	ROAD CLOSED XX MI. AHEAD	60" x 30"	4			4	50.0							
W1-6	LARGE ARROW	48" x 24"		2		2	16.0							
	TRAFFIC DRUMS		80	17	80			80						
	TYPE III BARRICADE-RT. (8')		2		2				16					
	TYPE III BARRICADE-LT. (8')		2		2					16				
	TYPE III BARRICADE-RT. (16')		2	1	2				32					
	TYPE III BARRICADE-LT. (16')		2	1	2					32				
	TYPE II BARRICADE - RT. (16')		4		4						64			
	REMOVAL OF PERMANENT PAVEMENT MARKINGS			1200	1200							1200		
	REFLECTORIZED PAINT PAVEMENT MARKINGS - WHITE (4")			3562	3562								3562	
	REFLECTORIZED PAINT PAVEMENT MARKINGS - YELLOW (4")			3562	3562									3562
TOTALS							574.0	80	48	48	64	1200	3562	3562

COUNTY ROAD 36 IS A LOW VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2003 EDITION.

SIGNS & TRAFFIC CONTROL DEVICES LEFT IN PLACE

SIGN NUMBER	DESCRIPTION	SIGN SIZE	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		TRAFFIC DRUMS	BARRICADES	
							TYPE III	
							RIGHT	LEFT
				NO.	SQ. FT.	EACH	LIN. FT.	
R11-2	ROAD CLOSED	48" x 30"	10	10	100.0			
	TRAFFIC DRUMS		10			10		
	TYPE III BARRICADE-RT. (8')		10				80	
	TYPE III BARRICADE-LT. (8')		10					80
TOTALS					100.0	10	80	80

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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.		020471	58	346

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11

EARTHWORK

STATION	STATION	LOCATION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	SOIL STABILIZATION
			CU. YD.		TON
4270+84.80	4724+60.00	MAIN LANES	704785	308030	3000
4525+00.00	4551+00.00	MAIN LANES - UNDERCUT FOR UNSUITABLE EXISTING MATERIAL	60550	227135	
100+00.00	117+80.63	COUNTY ROAD 36	19300	185	
100+00.00	111+64.00	HWY. 35 DRIVEWAY	4400	685	
4479+10.00		ADD'L FOR CHANNEL CHANGE - R.C. BOX CULV'T.	725		
4537+88.00		ADD'L FOR CHANNEL CHANGE - R.C. BOX CULV'T.	345		
4602+33.00		ADD'L FOR CHANNEL CHANGE - R.C. BOX CULV'T.	1130		
4658+25.00		ADD'L FOR CHANNEL CHANGE - R.C. BOX CULV'T.	1015		
4389+00.00		UNDERCUT EXISTING POND ON RT.	1675	2175	
ENTIRE PROJECT		UNDERCUT EXISTING CREEK AREAS	48945	36850	
102+75.00	114+50.00	OBLITERATION OF EXISTING PAVEMENT - COUNTY ROAD 36	370		
TOTALS			843240	575060	3000

CLEARING & GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
4270+84.80	4323+10.00	MAIN LANES	53	53
4325+00.00	4332+00.00	MAIN LANES	7	7
4339+50.00	4447+00.00	MAIN LANES	108	108
4451+00.00	4458+00.00	MAIN LANES	7	7
4461+00.00	4555+50.00	MAIN LANES	95	95
4569+00.00	4702+50.00	MAIN LANES	134	134
TOTALS			404	404

BASE & SURFACING

STATION	STATION	LOCATION	LENGTH	TACK COAT						TOTAL GALLON	AGGREGATE BASE COURSE (CLASS 7)		ACHM SURFACE COURSE (1/2")			
				0.03 GAL. PER SQ. YD.			0.10 GAL. PER SQ. YD.				TONS/STA.	TONS	AVG. WIDTH	LBS./SQ. YD.	SQ. YD.	TON
				AVG. WIDTH	SQ. YD.	GALLON	AVG. WIDTH	SQ. YD.	GALLON				FEET			
100+10.35	111+64.00	HWY. 35 DRIVEWAY	1153.65								VAR.	1049.93	16.00	220	124.0	13.6
99+00.00	100+00.00	ADDITIONAL FOR COUNTY ROAD 36 TRANSITION	100.00										18.00	220	200.0	22.0
100+00.00	101+42.94	COUNTY ROAD 36 - NOTCH & WIDENING SECTION	142.94	18.00	285.88	8.58	18.00	285.88	28.59	37.17	123.75	176.89	34.00	220	540.0	59.4
101+42.94	115+78.45	COUNTY ROAD 36	1435.51								240.50	3452.40	34.00	220	5423.0	596.5
115+78.45	117+80.63	COUNTY ROAD 36 - NOTCH & WIDENING SECTION	202.18	18.00	404.36	12.13	18.00	404.36	40.44	52.57	123.75	250.20	34.00	220	763.8	84.0
117+80.63	118+80.63	ADDITIONAL FOR COUNTY ROAD 36 TRANSITION	100.00										18.00	220	200.0	22.0
100+00.00	101+50.00	ADD'L. FOR SUPERELEVATION TRANSITION	150.00								2.25	3.38				
101+50.00	102+97.31	ADD'L. FOR SUPERELEVATION	147.31								4.50	6.63				
102+97.31	104+47.31	ADD'L. FOR SUPERELEVATION TRANSITION	150.00								2.25	3.38				
113+84.89	115+34.89	ADD'L. FOR SUPERELEVATION TRANSITION	150.00								2.25	3.38				
115+34.89	116+30.63	ADD'L. FOR SUPERELEVATION	95.74								4.50	4.31				
116+30.63	117+80.63	ADD'L. FOR SUPERELEVATION TRANSITION	150.00								2.25	3.38				
100+00.00	101+42.94	ADDITIONAL FOR COUNTY ROAD 36 LEVELING	142.94										18.00	VAR.	264.1	29.1
115+78.45	117+80.63	ADDITIONAL FOR COUNTY ROAD 36 LEVELING	202.18										18.00	VAR.	358.1	39.4
TOTALS					690.24	20.71		690.24	69.03	89.74		4953.88			7873.0	866.0

BASIS OF ESTIMATE: ACHM SURFACE COURSE (1/2") - MIN. AGG. = 94.7%; ASPH. BINDER (PG 64-22) = 5.3%
Nmax = 115

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	SQ. YD.
			FEET	
99+00.00	100+00.00	COUNTY ROAD 36	22.00	244.4
117+80.63	118+80.63	COUNTY ROAD 36	22.00	244.4
TOTAL				488.8

NOTE: AVG. DEPTH = 1"

BENCH MARK CAPS

LOCATION	EACH
R.C. BOX CULVERT @ STA. 4479+10 - PLACE ON RT. HEADWALL	1
R.C. BOX CULVERT @ STA. 4537+88 - PLACE ON RT. HEADWALL	1
R.C. BOX CULVERT @ STA. 4602+33 - PLACCE ON RT. HEADWALL	1
R.C. BOX CULVERT @ STA. 4658+25 - PLACE ON RT. HEADWALL	1

SHOWN FOR INFORMATIONAL PURPOSES ONLY. BENCH MARKS TO BE FURNISHED, PLACED, AND RECORDED BY STATE FORCES.

SELECTED PIPE BEDDING AND BACKFILL

LOCATION	SELECTED PIPE BEDDING	SELECTED PIPE BACKFILL
	CU. YD.	
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	200	200
TOTALS	200	200

NOTE: QUANTITIES ESTIMATED.
REFER TO SECTION 104.3 OF THE STANDARD SPECIFICATIONS.

R020471.DGN 7/5/2011

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.		020471	59	346

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11

REMOVAL & DISPOSAL ITEMS

STATION	STATION	LOCATION	DESCRIPTION	ABOVEGROUND FUEL TANK SYSTEM	CONCRETE SLABS	GATES	IRRIGATION WELL	PIPE	RISER	SEPTIC SYSTEM
				EACH	SQ. YD.	EACH		LIN. FT.	EACH	
4700+75.00		LT. OF MAIN LANES	CONCRETE SLAB		1541					
4711+66.00		RT. OF MAIN LANES	RISER						1	
4711+66.00	4720+35.00	RT. & LT. OF MAIN LANES	12" PVC PIPE - UNDERGROUND IRRIGATION					1200		
4711+66.00		RT. OF MAIN LANES	12" PVC PIPE - UNDERGROUND IRRIGATION					375		
4720+35.00		LT. OF MAIN LANES	IRRIGATION WELL				1			
4720+20.00		LT. OF MAIN LANES	ABOVE GROUND FUEL TANK SYSTEM WITH CONCRETE SADDLES & CONCRETE PAD	1						
4721+75.00		LT. OF MAIN LANES	CONCRETE SLAB		2250					
4724+10.00		LT. OF MAIN LANES	IRRIGATION WELL				1			
4724+30.00		LT. OF MAIN LANES	8" SUBMERSIBLE WELL				1			
4725+14.00		RT. & LT. OF MAIN LANES	8" PVC PIPE - UNDERGROUND IRRIGATION					650		
119+30.00		LT. OF HWY. 35	SWING ARM GATE			1				
123+25.00		RT. OF HWY. 35	SEPTIC SYSTEM							1
123+75.00		RT. OF HWY. 35	SEPTIC SYSTEM							1
TOTAL				1	3791	1	3	2225	1	2

EROSION CONTROL

STATION	STATION	LOCATION	LIME	SEEDING	MULCH COVER	WATER	SECOND SEEDING APPLICATION	EROSION CONTROL MATTING (CLASS 3)
			TON	ACRE		M. GALLON	ACRE	SQ. YD.
4270+84.80	4724+60.00	MAIN LANES	153.60	76.80	76.80	7833.6	76.80	1781.34
100+00.00	117+80.63	COUNTY ROAD 36	3.02	1.51	1.51	154.0	1.51	
100+00.00	111+64.00	HWY. 35 DRIVEWAY	0.54	0.27	0.27	27.5	0.27	
ENTIRE PROJECT		* TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	39.29	19.65	19.65	2003.8	19.65	445.34
TOTALS			196.45	98.23	98.23	10018.9	98.23	2226.68

BASIS OF ESTIMATE: WATER = 102.0 M. GAL. PER ACRE SEEDING
WATER = 12.6 GAL. PER SQ. YD. SOLID SODDING
LIME = 2 TONS PER ACRE SEEDING

* DENOTES QUANTITIES ESTIMATED.
REFER TO SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

REMOVAL & DISPOSAL OF PIPE CULVERTS

STATION	LOCATION	DESCRIPTION	EACH
100+00.00	COUNTY ROAD 36	36" x 24" x 30' C.M. ARCH PIPE CULV'T.	1
109+75.00	LT. OF COUNTY ROAD 36	18" x 40' C.M. ARCH PIPE CULV'T.	1
105+84.00	LT. OF HWY. 35	24" x 45' C.M. PIPE CULV'T.	1
106+36.00	LT. OF HWY. 35	18" x 25' C.M. PIPE CULV'T.	1
106+50.00	RT. OF HWY. 35	24" x 30' C.M. PIPE CULV'T.	1
107+65.00	LT. OF HWY. 35	18" x 25' C.M. PIPE CULV'T.	1
111+78.00	RT. OF HWY. 35	18" x 20' R.C. PIPE CULV'T.	1
112+88.00	LT. OF HWY. 35	18" x 24' C.M. PIPE CULV'T.	1
115+29.00	RT. OF HWY. 35	24" x 24' C.M. PIPE CULV'T.	1
117+36.00	LT. OF HWY. 35	18" x 24' R.C. PIPE CULV'T.	1
118+03.00	LT. OF HWY. 35	18" x 40' C.M. PIPE CULV'T.	1
118+98.00	LT. OF HWY. 35	18" x 26' C.M. PIPE CULV'T.	1
120+00.00	LT. OF HWY. 35	18" x 30' C.M. PIPE CULV'T.	1
107+55.00	RT. OF HWY. 278	18" x 27' C.M. PIPE CULV'T.	1
TOTAL			14

NOTE: PAYMENT FOR REMOVAL AND DISPOSAL OF PIPE CULVERTS SHALL INCLUDE THE REMOVAL AND DISPOSAL OF ALL HEADWALLS AND FLARED END SECTIONS IF APPLICABLE.

REMOVAL & DISPOSAL OF MAILBOXES

STATION	LOCATION	EACH
107+48.00	LT. OF HWY. 35	1
111+95.00	LT. OF HWY. 35	1
117+14.00	LT. OF HWY. 35	1
119+15.00	LT. OF HWY. 35	1
TOTAL		4

TEMPORARY EROSION CONTROL

STATION	STATION	LOCATION	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS (E-5)	ROCK DITCH CHECKS (E-6)	WATTLES (20")	SILT FENCE (E-11)	DIVERSION DITCH (E-8)	PIPE FOR SLOPE DRAINS (E-12)	TEMPORARY SILT DIKE	SEDIMENT REMOVAL & DISPOSAL	SEDIMENT BASIN (E-9)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	ROCK FILTER FOR SEDIMENT BASIN	DUMPED RIPRAP	GEOTEXTILE FABRIC (TYPE 5)
			ACRE		M. GALLON	BAG	CU. YD.	LIN. FT.					CU. YD.				TON	CU. YD.	SQ. YD.
4270+84.80	4724+60.00	CLEARING AND GRUBBING							43953										
4270+84.80	4724+60.00	STAGE 1	138.83	138.83	2832.1	5192	509			4000	418	13020	715.5	1849.4	5504.1	7353.5	3.6	69.8	64
ENTIRE PROJECT		* TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	34.7	34.7	708.0	59	60	500	10988	1000	105	3255	178.9	462.4	1376.0	1838.4	0.9	17.5	16
TOTALS			173.53	173.53	3540.1	5251	569	500	54941	5000	523	16275	894.4	2311.8	6880.1	9191.9	4.5	87.3	80

BASIS OF ESTIMATE: WATER = 20.4 M. GAL. PER ACRE TEMPORARY SEEDING
SAND BAG DITCH CHECKS = 22 BAGS PER INSTALLATION
ROCK DITCH CHECKS = 2.11 CU. YD. PER INSTALLATION

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

* DENOTES QUANTITIES ESTIMATED.
REFER TO SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

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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.		020471	60	346

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 7605
MICHAEL D. FUGETT
7-12-11

CONCRETE DITCH PAVING

STATION	STATION	LOCATION	"B"	"W"	CONC. DITCH PAVING (TYPE A)	CONC. DITCH PAVING (TYPE B)	SOLID SODDING	WATER
			FEET	FEET	SQ. YD.	SQ. YD.	SQ. YD.	M. GALLON
4287+10.00	4289+75.00	RT. OF MAIN LANES		4		117.78	1060.0	17.7
4333+75.00	4335+23.00	LT. OF MAIN LANES		4		65.78	592.0	9.9
4345+50.00	4350+75.00	LT. OF MAIN LANES		4		233.33	2100.0	35.1
4345+50.00	4349+50.00	RT. OF MAIN LANES		4		177.78	1600.0	26.7
4359+75.00	4364+07.00	LT. OF MAIN LANES		4		192.00	1728.0	28.9
4369+75.00	4371+32.00	LT. OF MAIN LANES		4		69.78	628.0	10.5
4397+75.00	4402+64.00	RT. OF MAIN LANES		4		217.33	1956.0	32.7
4425+75.00	4427+84.00	LT. OF MAIN LANES		4		92.89	836.0	14.0
4427+00.00	4428+77.00	RT. OF MAIN LANES		4		78.67	708.0	11.8
4428+77.00	4434+59.00	RT. OF MAIN LANES	12	8	776.00		3492.0	58.3
4485+00.00	4486+05.00	LT. OF MAIN LANES		4		46.67	420.0	7.0
4580+00.00	4584+00.00	LT. OF MAIN LANES		4		177.78	1600.0	26.7
4600+00.00	4604+00.00	LT. OF MAIN LANES		4		177.78	1600.0	26.7
4620+00.00	4621+38.00	LT. OF MAIN LANES		4		61.33	552.0	9.2
101+00.00	105+15.00	LT. OF COUNTY ROAD 36		4		184.44	1660.0	27.7
101+00.00	105+00.00	RT. OF COUNTY ROAD 36		4		177.78	1600.0	26.7
TOTALS					776.00	2071.12	22132.0	369.6

BASIS OF ESTIMATE: 16.7 GALS. PER SQ. YD. SOLID SODDING

PAVEMENT REPAIR OVER CULVERTS

STATION	LOCATION	PAVEMENT REPAIR OVER CULVERTS (ASPHALT)	TACK COAT (0.03 GALLONS PER SQ. YD.)	FLOWABLE SELECT MATERIAL
		TON	GALLON	CU. YD.
110+00.00	HWY. 35	14.1	2.1	30.3
112+75.00	HWY. 35	16.2	2.4	39.1
100+00.00	COUNTY ROAD 36	17.9	3.3	23.9
TOTALS		48.2	7.8	93.3

FENCE

STATION	LOCATION	STATION	LOCATION	WIRE FENCE (TYPE A)
				LIN. FT.
100+65.00	RT. OF HWY. 425	4338+80.00	RT. OF MAIN LANES	7271.00
4341+90.00	RT. OF MAIN LANES	4538+61.02	RT. OF MAIN LANES	19858.00
4539+31.37	RT. OF MAIN LANES	120+00.00	RT. OF HWY. 35	3261.00
120+00.00	LT. OF HWY. 35	120+00.00	RT. OF HWY. 278	16258.00
118+55.00	RT. OF HWY. 425	4337+90.00	LT. OF MAIN LANES	7195.00
4341+15.00	LT. OF MAIN LANES	4539+22.33	LT. OF MAIN LANES	19728.00
4540+06.19	LT. OF MAIN LANES	102+40.00	RT. OF HWY. 35	2923.00
102+40.00	LT. OF HWY. 35	95+49.01	RT. OF HWY. 278	15480.00
TOTAL				91974.00

DUMPED RIPRAP & FILTER BLANKET

STATION	LOCATION	DUMPED RIPRAP	FILTER BLANKET
		CU. YD.	SQ. YD.
4479+10.00	MAIN LANES - R.C. BOX CULV'T. INLET AND OUTLET	451.0	957
4537+88.00	MAIN LANES - R.C. BOX CULV'T. INLET AND OUTLET	169.7	377
4602+33.00	MAIN LANES - R.C. BOX CULV'T. INLET AND OUTLET	521.0	1144
4658+25.00	MAIN LANES - R.C. BOX CULV'T. INLET AND OUTLET	575.3	1231
TOTALS		1717.0	3709

GUARDRAIL

STATION	LOCATION	GUARDRAIL (TYPE C)	STD. SIGN OM-3 RED DIAMOND REFLECTORIZED END OF ROAD MARKER	CHANNEL POST SIGN SUPPORT (TYPE C)
		LIN. FT.	SQ. FT.	EACH
4313+71.00	RT. OF MAIN LANES	25	6.75	3
4315+98.00	LT. OF MAIN LANES	25	6.75	3
4420+57.00	RT. OF MAIN LANES	25	6.75	3
4423+22.00	LT. OF MAIN LANES	25	6.75	3
4435+26.00	RT. OF MAIN LANES	25	6.75	3
4435+62.00	LT. OF MAIN LANES	25	6.75	3
4513+74.00	RT. OF MAIN LANES	25	6.75	3
4513+89.00	LT. OF MAIN LANES	25	6.75	3
4489+94.00	RT. OF MAIN LANES	25	6.75	3
4694+68.00	LT. OF MAIN LANES	25	6.75	3
TOTALS		250	67.50	30

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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.		020471	61	346

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 7605
MICHAEL D. FUGETT
7-12-11

R.C. BOX CULVERTS

STATION	LOCATION	DESCRIPTION	R.C. BOX CULVERTS SPAN	HEIGHT	LENGTH	UNCLASS. EXCAV. FOR STRUCTURES - ROADWAY	CLASS S CONCRETE - ROADWAY	REINFORCING STEEL - RDWY. (GR. 60)	SOLID SODDING	WATER	STANDARD DRAWINGS
			FEET			CU. YD.		POUND	SQ. YD.	M. GAL.	
4537+88.00	MAIN LANES	CONSTRUCT 10' x 5' x 172' R.C. BOX CULV'T.	10	5	172	130	240.89	33172	7.8	0.1	RCB-1, RCB-2, R-115X-1, R-100X-X3, W-X152-1, W-X15
TOTALS FOR STRUCTURES UNDER 20'-0" SPAN						130	240.89	33172	7.8	0.1	
STRUCTURES OVER 20'-0" SPAN											
4479+10.00	MAIN LANES	CONSTRUCT DBL. 9' x 7' x 138' R.C. BOX CULV'T.	9	7	138	140	275.71	37181	16.2	0.2	RCB-1, RCB-2, R-230X-2, R-200X-X3, W-X303-1, W-X30
4602+33.00	MAIN LANES	CONSTRUCT DBL. 11' x 7' x 180' R.C. BOX CULV'T.	11	7	180	236	490.37	66751	17.1	0.2	RCB-1, RCB-2, R-245X-2, R-200X-X3, W-X453-1, W-X45
4658+25.00	MAIN LANES	CONSTRUCT DBL. 11' x 9' x 121' R.C. BOX CULV'T.	11	9	121	161	353.23	43472	16.7	0.2	RCB-1, RCB-2, R-200X-X3, W-X003-2
TOTALS FOR STRUCTURES OVER 20'-0" SPAN						537	1119.31	147404	50.0	0.6	
TOTALS						667	1360.20	180576	57.8	0.7	

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

STRUCTURES

STATION	LOCATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERTS CLASS III 24"	30"	36"	42"	48"	54"	60"	CLASS IV 30"	54"	CLASS V 30"	FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS 24"	30"	36"	42"	48"	54"	60"	REINFORCED CONCRETE ARCH PIPE CULVERTS CLASS III 29" x 18"	36" x 23"	44" x 27"	59" x 36"	73" x 45"	FLARED END SECTIONS FOR REINFORCED CONCRETE ARCH PIPE CULVERTS 29" x 18"	36" x 23"	44" x 27"	59" x 36"	73" x 45"	SIDE DRAIN 49" x 33"	SOLID SODDING	WATER	STANDARD DRAWINGS
			LIN. FT.										EACH							LIN. FT.					EACH					LIN. FT.	SQ. YD.	M. GAL.	
4278+10.00	MAIN LANES	CONSTRUCT 44" x 27" x 90' R.C. ARCH PIPE CULV'T.																				90										34	0.4	FES-1; FES-2; PCC-1
4287+10.00	MAIN LANES	CONSTRUCT 36" x 94' R.C. PIPE CULV'T.			94										2																	34	0.4	FES-1; FES-2; PCC-1
4297+12.00	MAIN LANES	CONSTRUCT DBL. 36" x 86' R.C. PIPE CULV'T.			172										4																	36	0.5	FES-1; FES-2; PCC-1
4301+60.00	MAIN LANES	CONSTRUCT 30" x 82' R.C. PIPE CULV'T.		82										2																		26	0.3	FES-1; FES-2; PCC-1
4304+40.00	MAIN LANES	CONSTRUCT QUINT. 36" x 23" x 78' R.C. ARCH PIPE CULV'T.																			390					10						34	0.4	FES-1; FES-2; PCC-1
4330+10.00	MAIN LANES	CONSTRUCT 42" x 86' R.C. PIPE CULV'T.				86										2																46	0.6	FES-1; FES-2; PCC-1
4335+28.00	MAIN LANES	CONSTRUCT 24" x 100' R.C. PIPE CULV'T.	100										2																			16	0.2	FES-1; FES-2; PCC-1
4349+50.00	MAIN LANES	CONSTRUCT 54" x 140' R.C. PIPE CULV'T.									140							2														70	0.9	FES-1; FES-2; PCC-1
4364+19.00	MAIN LANES	CONSTRUCT 42" x 118' R.C. PIPE CULV'T.				118										2																46	0.6	FES-1; FES-2; PCC-1
4371+32.00	MAIN LANES	CONSTRUCT 48" x 108' R.C. PIPE CULV'T.					108										2															58	0.7	FES-1; FES-2; PCC-1
4385+93.00	MAIN LANES	CONSTRUCT DBL. 73" x 45" x 92' R.C. ARCH PIPE CULV'T.																						184						4		90	1.1	FES-1; FES-2; PCC-1
4401+87.00	MAIN LANES	CONSTRUCT 54" x 126' R.C. PIPE CULV'T.						126										2														70	0.9	FES-1; FES-2; PCC-1
4409+85.00	MAIN LANES	CONSTRUCT DBL. 36" x 23" x 98' R.C. PIPE CULV'T.																			196					4						28	0.4	FES-1; FES-2; PCC-1
4415+71.00	MAIN LANES	CONSTRUCT 30" x 114' R.C. PIPE CULV'T.		114										2																		26	0.3	FES-1; FES-2; PCC-1
4428+00.00	MAIN LANES	CONSTRUCT DBL. 42" x 128' R.C. PIPE CULV'T.				256										4																50	0.6	FES-1; FES-2; PCC-1
4434+00.00	MAIN LANES	CONSTRUCT 42" x 108' R.C. PIPE CULV'T.				108								2																		26	0.3	FES-1; FES-2; PCC-1
4437+78.00	MAIN LANES	CONSTRUCT 36" x 88' R.C. PIPE CULV'T.			88										2																	34	0.4	FES-1; FES-2; PCC-1
4457+00.00	MAIN LANES	CONSTRUCT DBL. 59" x 36" x 114' R.C. ARCH PIPE CULV'T.																					228							4		58	0.7	FES-1; FES-2; PCC-1
4486+12.00	MAIN LANES	CONSTRUCT 60" x 104' R.C. PIPE CULV'T.							104										2													90	1.1	FES-1; FES-2; PCC-1
4494+52.00	MAIN LANES	CONSTRUCT 36" x 90' R.C. PIPE CULV'T.			90										2																	34	0.4	FES-1; FES-2; PCC-1
4499+81.00	MAIN LANES	CONSTRUCT 24" x 86' R.C. PIPE CULV'T.	86										2																			16	0.2	FES-1; FES-2; PCC-1
4502+80.00	MAIN LANES	CONSTRUCT 30" x 86' R.C. PIPE CULV'T.		86										2																		26	0.3	FES-1; FES-2; PCC-1
4543+70.00	MAIN LANES	CONSTRUCT 30" x 220' R.C. PIPE CULV'T.										220		2																		26	0.3	FES-1; FES-2; PCC-1
4572+00.00	MAIN LANES	CONSTRUCT DBL. 36" x 104' R.C. PIPE CULV'T.			208										4																	36	0.5	FES-1; FES-2; PCC-1
4582+00.00	MAIN LANES	CONSTRUCT 24" x 104' R.C. PIPE CULV'T.	104										2																			16	0.2	FES-1; FES-2; PCC-1
4608+60.00	MAIN LANES	CONSTRUCT 30" x 150' R.C. PIPE CULV'T.								150				2																		26	0.3	FES-1; FES-2; PCC-1
4621+62.00	MAIN LANES	CONSTRUCT DBL. 54" x 146' R.C. PIPE CULV'T.						292										4														74	0.9	FES-1; FES-2; PCC-1
4692+72.00	MAIN LANES	CONSTRUCT 60" x 126' R.C. PIPE CULV'T.							126										2													90	1.1	FES-1; FES-2; PCC-1
4716+00.00	MAIN LANES	CONSTRUCT 24" x 86' R.C. PIPE CULV'T.	86										2																			16	0.2	FES-1; FES-2; PCC-1
106+08.73	COUNTY ROAD 36	CONSTRUCT 29" x 18" x 82' R.C. ARCH PIPE CULV'T.																		82					2							16	0.2	FES-1; FES-2; PCC-1
106+94.76	COUNTY ROAD 36	CONSTRUCT 29" x 18" x 82' R.C. ARCH PIPE CULV'T.																		82					2							16	0.2	FES-1; FES-2; PCC-1
104+00.00	HWY. 35 DRIVEWAY	INSTALL 49" x 33" x 36' PIPE CULV'T. - SIDE DRAIN																													36			PCM-1; PCC-1
110+00.00	HWY. 35	CONSTRUCT 24" x 100' R.C. PIPE CULV'T.	100										2																			16	0.2	FES-1; FES-2; PCC-1
112+75.00	HWY. 35	CONSTRUCT 36" x 23" x 96' R.C. ARCH PIPE CULV'T.																			96					2						26	0.3	FES-1; FES-2; PCC-1
TOTALS			476	282	652	568	108	418	230	150	140	220	10	12	14	8	2	8	4	164	682	90	228	184	4	16	2	4	4	36	1306	16.1	

BASIS OF ESTIMATE: WATER = 12.6 GAL. PER SQ. YD. SOLID SODDING
FOR R.C. PIPE CULV'T. INSTALLATIONS, USE TYPE 3 BEDDING UNLESS OTHERWISE SPECIFIED.
FOR C.M. PIPE CULV'T. INSTALLATIONS, USE TYPE 2 BEDDING UNLESS OTHERWISE SPECIFIED.

R020471.DGN 7/12/2011

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.		020471	62	74
				① 07180 -		QUANTITIES	- 51863	

SCHEDULE OF BRIDGE QUANTITIES - JOB 020471

BRIDGE NO.	CODE NO.	NAME PLATE TITLE	UNIT OF STRUCTURE / ITEM NO.	619	801	802	802	803	804	804	805	805	807	808	812	816	816	816	SP JOB 020471
			ITEM / UNIT	7' STEEL CHAIN LINK FENCE	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	CLASS S CONCRETE-BRIDGE	CLASS S(AE) CONCRETE-BRIDGE	CLASS 1 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL-BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	① CONCRETE PILING (18'' SQ.)	① TEST PILE (18'' SQ.)	STRUCTURAL STEEL IN BEAM SPANS (M 270, GRADE 50W)	ELASTOMERIC BEARINGS	BRIDGE NAME PLATE (TYPE D)	FILTER BLANKET	DUMPED RIPRAP	CONCRETE RIPRAP	SILICONE JOINT SEALANT
				LIN. FT.	CU. YD.	CU. YD.	CU. YD.	GAL.	LB.	LB.	LIN. FT.	LIN. FT.	LB.	CU. IN.	EACH	SQ. YD.	CU. YD.	CU. YD.	LIN. FT.
07180	X171	UNION PACIFIC RAILROAD	BENT NO. 1			33.38		0.3	3900		275	60	757	1426.0		2981	1526	171	
			BENT NO. 2		175	139.23			17173		420			1957.5					
			BENT NO. 3		205	136.24			16647		399	25		1957.5					
			BENT NO. 4			33.35		0.3	3900		225	50	757	1426.0				182	
			205'-0'' CONT. COMP. W-BEAM UNIT	200			259.50	21.3		64090			201806		1				88
TOTALS FOR JOB NO. 020471				200	380	342.20	259.50	21.9	41620	64090	1319	135	203320	6767.0	1	2981	1526	353	88

① Piles shall conform to Std. Dwg. No. 14964.

RICK ELLIS
DESIGN SECTION SUPERVISOR

STATE OF ARKANSAS
Carl L. Fuselier
No. 7510
REGISTERED PROFESSIONAL ENGINEER
CARL L. FUSELIER
6/15/11

BRIDGE ENGINEER

SCHEDULE OF BRIDGE QUANTITIES
HWY. 425-HWY. 278 EAST (GR.&STRS.)
(MONTICELLO BYPASS) (F)
DREW COUNTY

ROUTE 69 SEC. 0

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 1-12-11 FILENAME: b020471_ql.dgn
CHECKED BY: MCB DATE: 2/1/11 SCALE: NONE
DESIGNED BY: — DATE: —

BRIDGE NO. 07180 DRAWING NO. 51863

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	QUANTITY	UNIT
SP & 201	CLEARING	404	STATION
SP & 201	GRUBBING	404	STATION
202	REMOVAL AND DISPOSAL OF ABOVEGROUND FUEL TANK SYSTEM	1	EACH
202	REMOVAL AND DISPOSAL OF CONCRETE SLABS	3791	SQ. YD.
202	REMOVAL AND DISPOSAL OF GATES	1	EACH
202	REMOVAL AND DISPOSAL OF IRRIGATION WELL	3	EACH
202	REMOVAL AND DISPOSAL OF MAILBOXES	4	EACH
202	REMOVAL AND DISPOSAL OF PIPE	2225	LIN. FT.
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS	14	EACH
202	REMOVAL AND DISPOSAL OF RISER	1	EACH
202	REMOVAL AND DISPOSAL OF SEPTIC SYSTEM	2	EACH
206	FLOWABLE SELECT MATERIAL	93	CU. YD.
210	UNCLASSIFIED EXCAVATION	843240	CU. YD.
SP & 210	COMPACTED EMBANKMENT	575060	CU. YD.
SP & 210	SOIL STABILIZATION	3000	TON
SS & 303	AGGREGATE BASE COURSE (CLASS 7)	4954	TON
401	TACK COAT	98	GAL.
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")	820	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")	46	TON
412	COLD MILLING ASPHALT PAVEMENT	489	SQ. YD.
601	MOBILIZATION	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE	1	EACH
602	FURNISHING FIELD LABORATORY	1	EACH
SS & 603	MAINTENANCE OF TRAFFIC	1.00	LUMP SUM
SS & 604	SIGNS	574	SQ. FT.
SP, SS, & 604	SIGNS LEFT IN PLACE	100	SQ. FT.
SS & 604	BARRICADES	160	LIN. FT.
SP, SS, & 604	BARRICADES LEFT IN PLACE	160	LIN. FT.
SS & 604	TRAFFIC DRUMS	80	EACH
SP, SS, & 604	TRAFFIC DRUMS LEFT IN PLACE	10	EACH
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS	1200	LIN. FT.
605	CONCRETE DITCH PAVING (TYPE A)	776	SQ. YD.
605	CONCRETE DITCH PAVING (TYPE B)	2071	SQ. YD.
SS & 606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	476	LIN. FT.
SS & 606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	282	LIN. FT.
SS & 606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)	150	LIN. FT.
SS & 606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS V)	220	LIN. FT.
SS & 606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	652	LIN. FT.
SS & 606	42" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	568	LIN. FT.
SS & 606	48" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	108	LIN. FT.
SS & 606	54" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	418	LIN. FT.
SS & 606	54" REINFORCED CONCRETE PIPE CULVERTS (CLASS IV)	140	LIN. FT.
SS & 606	60" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)	230	LIN. FT.
SS & 606	29" X 18" REINFORCED CONCRETE ARCH PIPE CULVERTS (CLASS III)	164	LIN. FT.
SS & 606	36" X 23" REINFORCED CONCRETE ARCH PIPE CULVERTS (CLASS III)	682	LIN. FT.
SS & 606	44" X 27" REINFORCED CONCRETE ARCH PIPE CULVERTS (CLASS III)	90	LIN. FT.
SS & 606	59" X 36" REINFORCED CONCRETE ARCH PIPE CULVERTS (CLASS III)	228	LIN. FT.
SS & 606	73" X 45" REINFORCED CONCRETE ARCH PIPE CULVERTS (CLASS III)	184	LIN. FT.
SS & 606	49" X 33" SIDE DRAIN	36	LIN. FT.
606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	10	EACH
606	30" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	12	EACH
606	36" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	14	EACH
606	42" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	8	EACH
606	48" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	2	EACH
606	54" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	8	EACH
606	60" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS	4	EACH
606	29" X 18" FLARED END SECTIONS FOR REINFORCED CONCRETE ARCH PIPE CULVERTS	4	EACH
606	36" X 23" FLARED END SECTIONS FOR REINFORCED CONCRETE ARCH PIPE CULVERTS	16	EACH
606	44" X 27" FLARED END SECTIONS FOR REINFORCED CONCRETE ARCH PIPE CULVERTS	2	EACH
606	59" X 36" FLARED END SECTIONS FOR REINFORCED CONCRETE ARCH PIPE CULVERTS	4	EACH
606	73" X 45" FLARED END SECTIONS FOR REINFORCED CONCRETE ARCH PIPE CULVERTS	4	EACH
606	SELECTED PIPE BEDDING	200	CU. YD.
606	SELECTED PIPE BACKFILL	200	CU. YD.
615	PAVEMENT REPAIR OVER CULVERTS (ASPHALT)	48	TON
SS & 617	GUARDRAIL (TYPE C)	250	LIN. FT.
619	WIRE FENCE (TYPE A)	91974	LIN. FT.
620	LIME	196	TON
620	SEEDING	98.23	ACRE
620	MULCH COVER	271.76	ACRE
SS & 620	WATER	13945.4	M. GAL.
621	TEMPORARY SEEDING	173.53	ACRE
621	SILT FENCE	54941	LIN. FT.
621	SAND BAG DITCH CHECKS	5251	BAG
621	DIVERSION DITCH	5000	LIN. FT.
621	ROCK FILTER FOR SEDIMENT BASIN	5	TON
621	SEDIMENT BASIN	9192	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN	9192	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL	894	CU. YD.
621	PIPE FOR SLOPE DRAINS	523	LIN. FT.
621	ROCK DITCH CHECKS	569	CU. YD.
623	SECOND SEEDING APPLICATION	98.23	ACRE
624	SOLID SODDING	23496	SQ. YD.
625	GEOTEXTILE FABRIC (TYPE 5)	80	SQ. YD.
626	EROSION CONTROL MATTING (CLASS 3)	2227	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL	1.00	LUMP SUM
SS & 718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (4")	3562	LIN. FT.
SS & 718	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (4")	3562	LIN. FT.
SS & 726	STANDARD SIGN	68	SQ. FT.
729	CHANNEL POST SIGN SUPPORT (TYPE C)	30	EACH
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	130	CU. YD.
802	CLASS S CONCRETE-ROADWAY	240.89	CU. YD.
804	REINFORCING STEEL-ROADWAY (GRADE 60)	33172	POUND
816	FILTER BLANKET	3709	SQ. YD.
816	DUMPED RIPRAP	1804	CU. YD.
SP	TEMPORARY SILT DIKE	16275	LIN. FT.
SP	WATTLE (20")	500	LIN. FT.
	STRUCTURES OVER 20' SPAN		
619	7' STEEL CHAIN LINK FENCE	200	LIN. FT.
636	BRIDGE CONSTRUCTION CONTROL	1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY	537	CU. YD.
802	CLASS S CONCRETE-ROADWAY	1119.31	CU. YD.
804	REINFORCING STEEL-ROADWAY (GRADE 60)	147404	POUND
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	380	CU. YD.
802	CLASS S CONCRETE-BRIDGE	342.20	CU. YD.
802	CLASS S(AE) CONCRETE-BRIDGE	259.50	CU. YD.
803	CLASS 1 PROTECTIVE SURFACE TREATMENT	21.9	GAL.
804	REINFORCING STEEL-BRIDGE (GRADE 60)	41620	POUND
804	EPOXY COATED REINFORCING STEEL (GRADE 60)	64090	POUND
805	CONCRETE PILING (18" SQUARE)	1319	LIN. FT.
805	TEST PILE (18" SQUARE)	135	LIN. FT.
807	STRUCTURAL STEEL IN BEAM SPANS (M270-GR50W)	203320	POUND
808	ELASTOMERIC BEARINGS	6767.0	CU. IN.
812	BRIDGE NAME PLATE (TYPE D)	1	EACH
816	FILTER BLANKET	2981	SQ. YD.
816	DUMPED RIPRAP	1526	CU. YD.
816	CONCRETE RIPRAP	353	CU. YD.
SP	SILICONE JOINT SEALANT	88	LIN. FT.

REVISION BOX

DATE	REVISION	SHEET NUMBER

SUMMARY OF QUANTITIES & REVISIONS

7-12-11

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
M. MICHAEL D. PUGETT
No. 7605

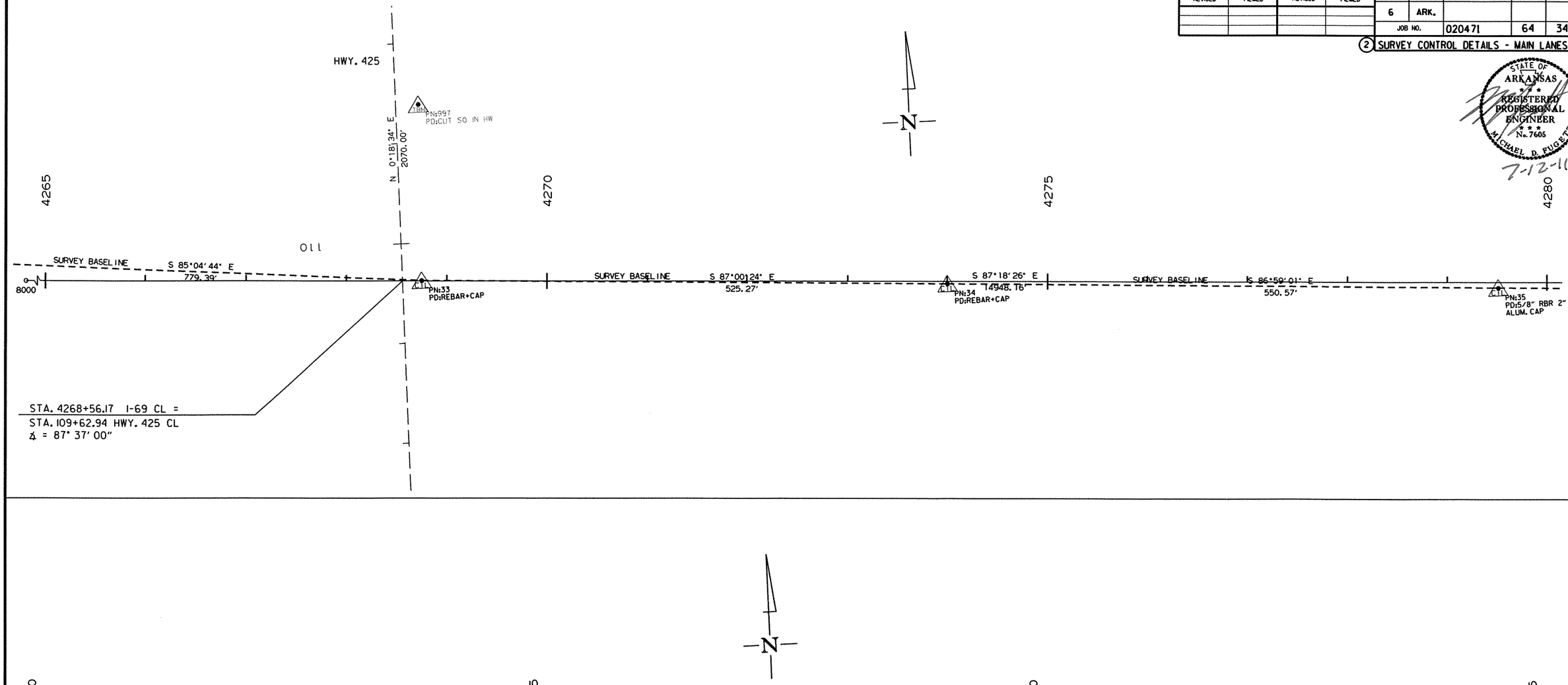
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				6	ARK.		63	346

(2) SUMMARY OF QUANTITIES & REVISIONS — JOB NO. 020471

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.		020471	64	346

(2) SURVEY CONTROL DETAILS - MAIN LANES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11



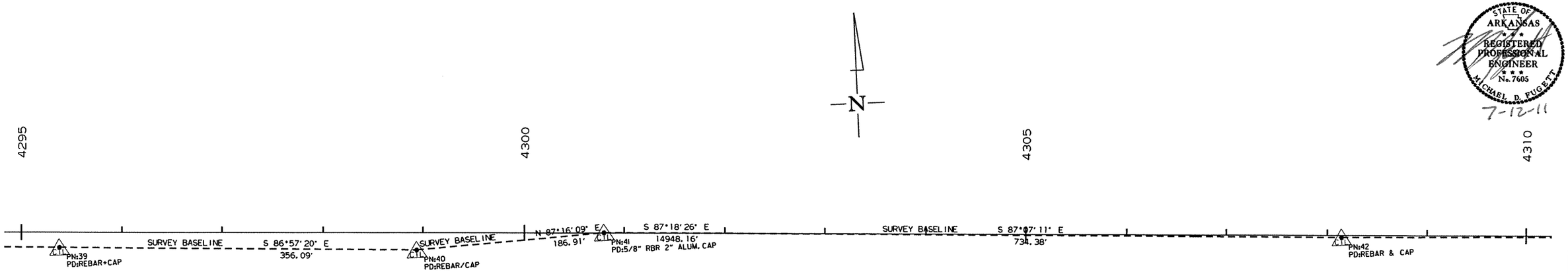
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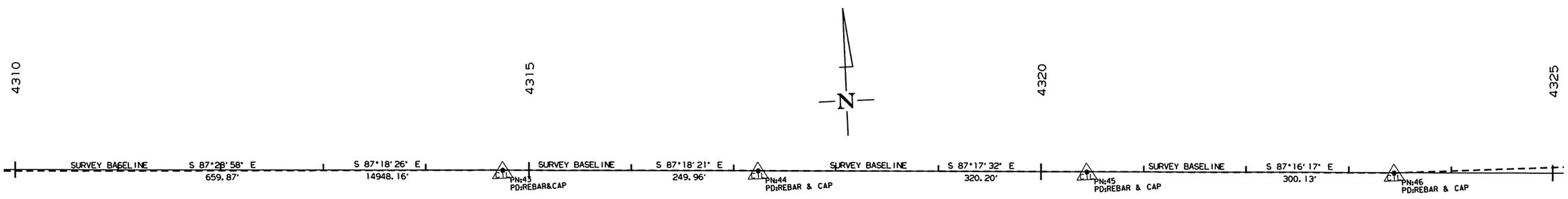
SURVEY CONTROL DETAILS

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.		020471	65	346

(2) SURVEY CONTROL DETAILS - MAIN LANES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11





R020471.DGN 7/1/2011

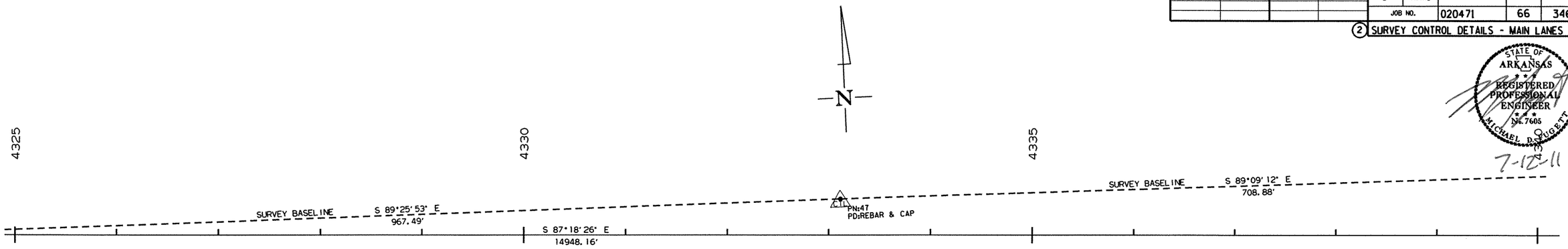
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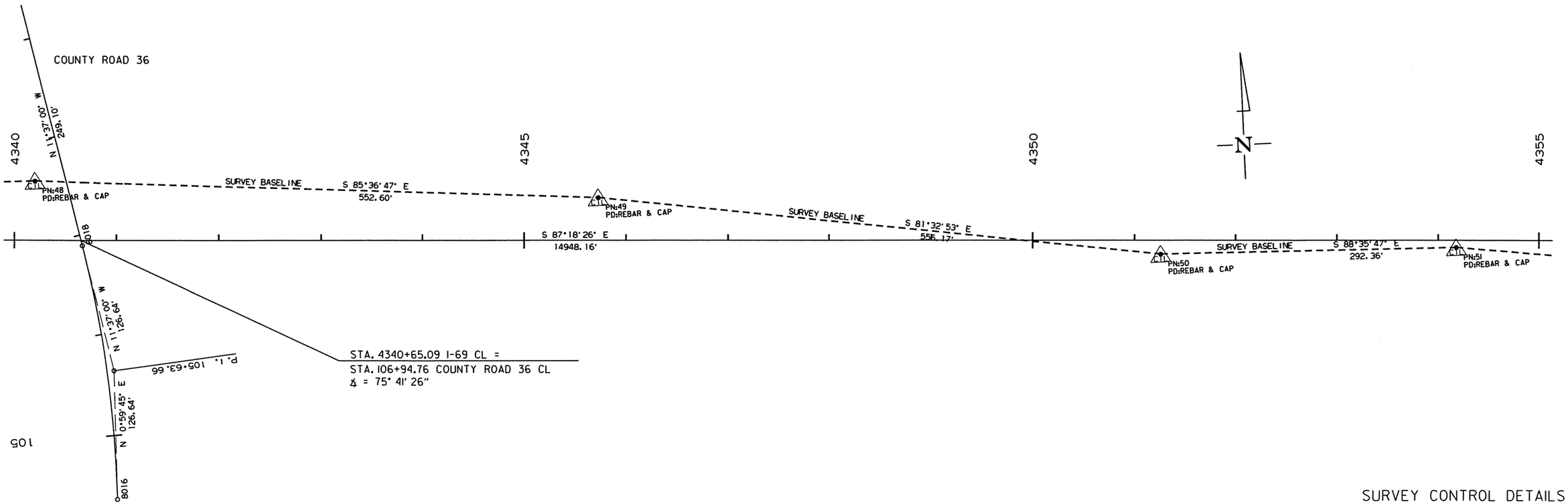
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				6	ARK.			
				JOB NO.		020471	66	346

(2) SURVEY CONTROL DETAILS - MAIN LANES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT

7-12-11





SURVEY CONTROL DETAILS

R020471.DGN 7/1/2011

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.		020471	67	346

(2) SURVEY CONTROL DETAILS - MAIN LANES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-16

N

MAIN LANES
P.I. 4390+74.34
Δ = 44°30'37"LT.
D = 0°45'00"
T = 3126.18'
L = 5934.72'
P.C. 4359+48.16
P.T. 4418+82.88

4355 4360 4365 4370

SURVEY BASELINE S 82°40'51" E 479.37'

8001

SURVEY BASELINE S 87°18'26" E 14948.16'

SURVEY BASELINE S 89°55'44" E 352.38'

SURVEY BASELINE N 84°21'54" E 386.01'

SURVEY BASELINE N 81°22'10" E 364.24'

PN:52 PD:REBAR & CAP

PN:53 PD:REBAR & CAP

PN:54 PD:REBAR & CAP

PN:55 PD:REBAR & CAP

PN:55
PD:REBAR
& CAP

R020471.DGN 7/1/2011

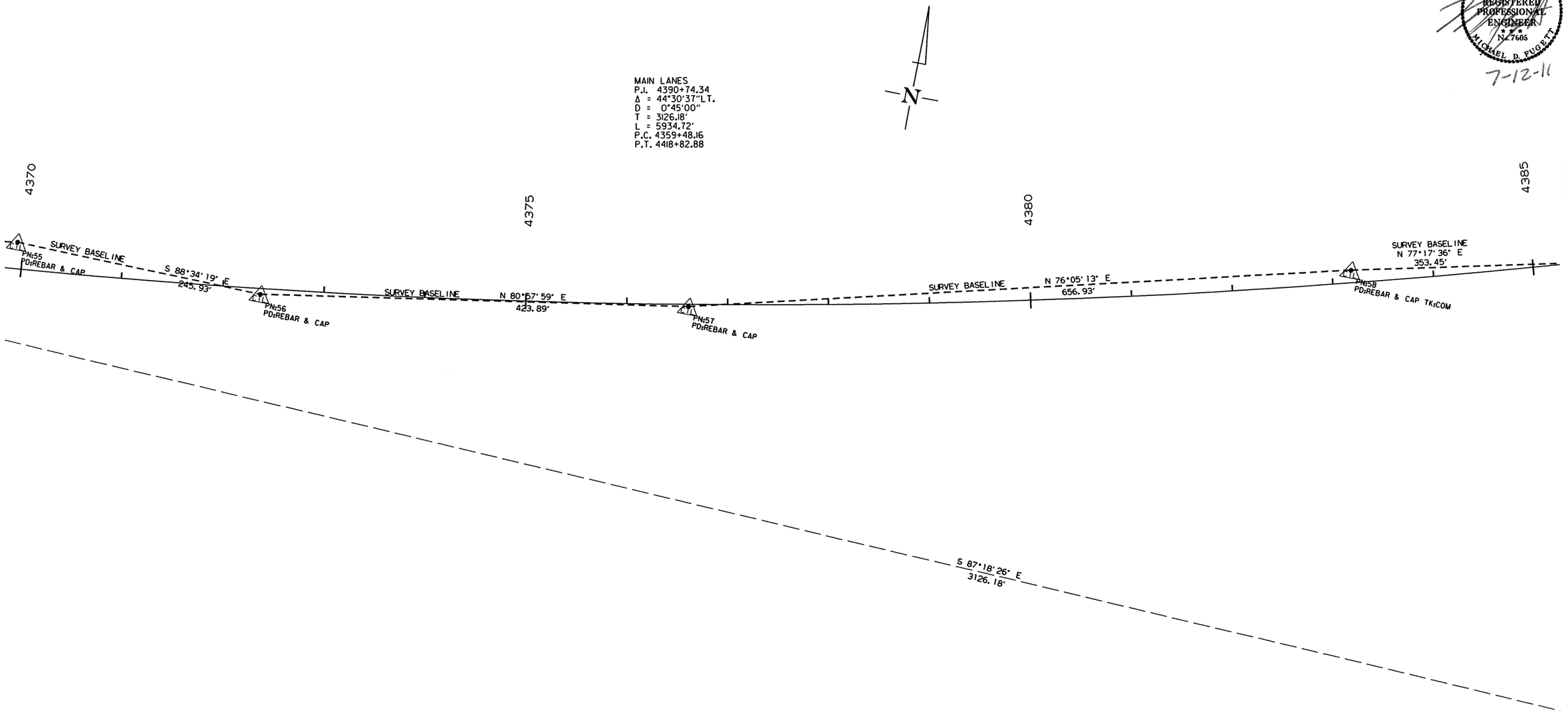
SURVEY CONTROL DETAILS

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.		020471	68	346

(2) SURVEY CONTROL DETAILS - MAIN LANES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
N.7605
MICHAEL D. PUGETT
7-12-11

MAIN LANES
P.I. 4390+74.34
Δ = 44°30'37"LT.
D = 0°45'00"
T = 3126.18'
L = 5934.72'
P.C. 4359+48.16
P.T. 4418+82.88



R020471.DGN 7/1/2011

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.		020471	69	346

(2) SURVEY CONTROL DETAILS - MAIN LANES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL W. DUGGETT

7-12-11

MAIN LANES
P.I. 4390+74.34
Δ = 44°30'37"LT.
D = 0°45'00"
T = 3126.18'
L = 5934.72'
P.C. 4359+48.16
P.T. 4418+82.88

4385 4390 4395

SURVEY BASELINE N 77°17'36" E 353.45'

SURVEY BASELINE N 70°54'57" E 180.83'

PN:59 PD:REBAR & CAP

PN:60 PD:REBAR & CAP

SURVEY BASELINE N 67°25'03" E 593.16'

PN:61 PD:REBAR & CAP

SURVEY BASELINE N 65°08'07" E 370.41'

PN:62 PD:REBAR & CAP

SURVEY BASELINE N 62°24'14" E 341.15'

N 48°10'56" E 3126.18'

P.I. 4390+74.34

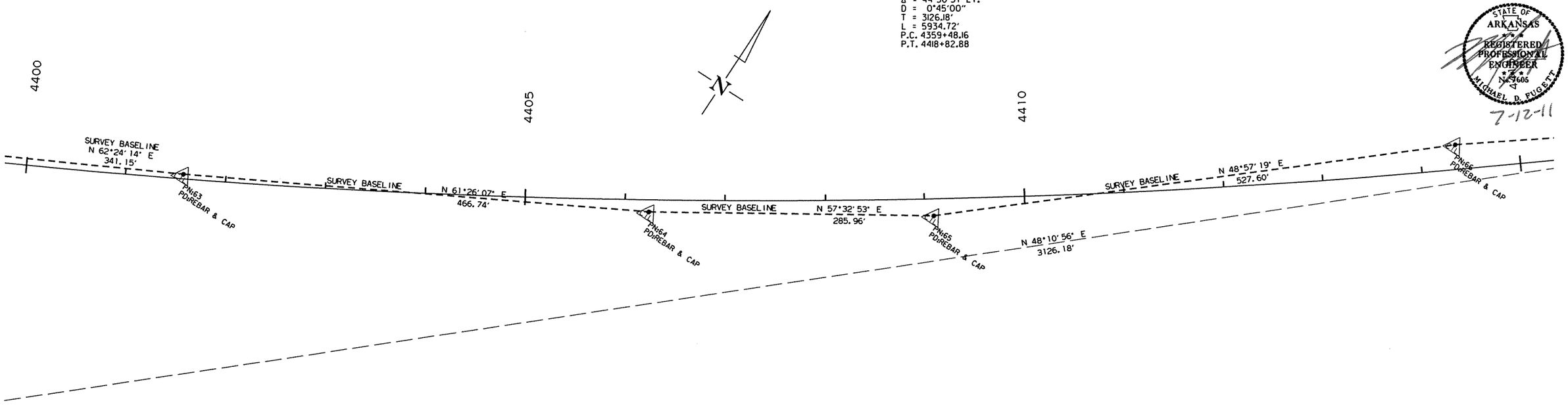
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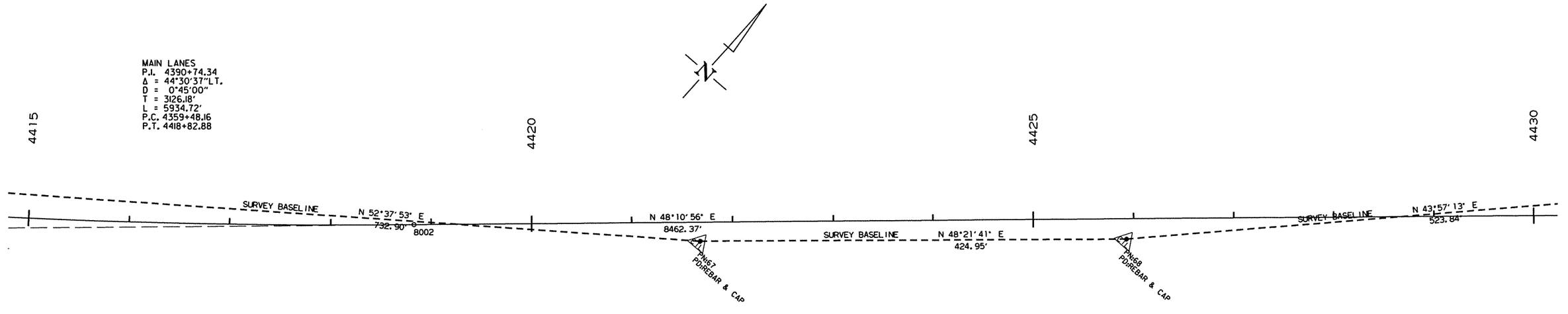
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		020471	70	346

(2) SURVEY CONTROL DETAILS - MAIN LANES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9605
MICHAEL D. PUGETT
7-12-11





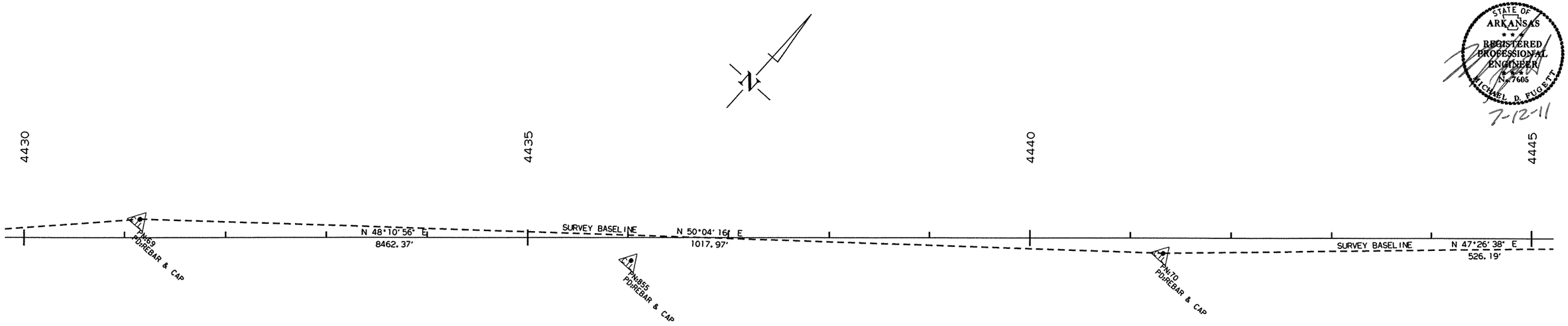
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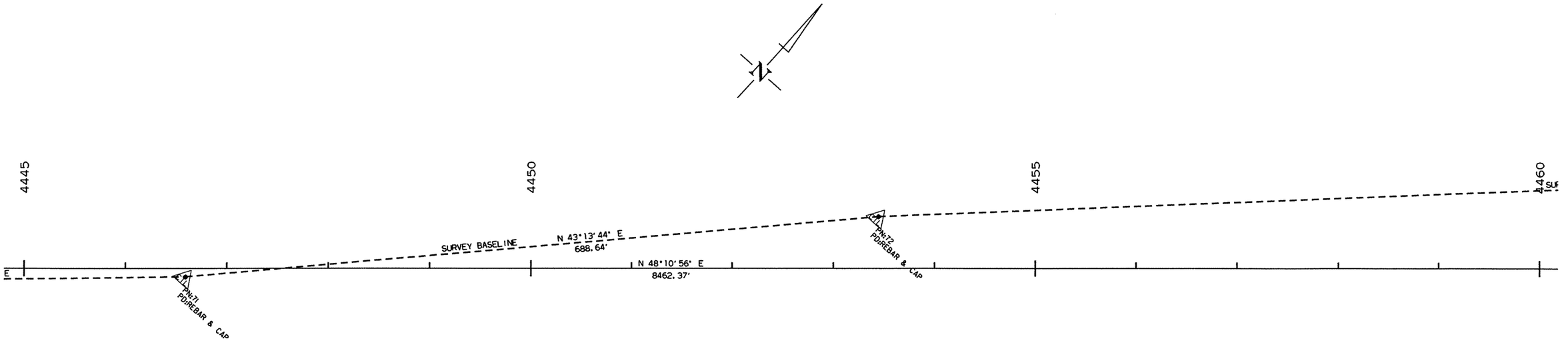
SURVEY CONTROL DETAILS

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.		020471	71	346

(2) SURVEY CONTROL DETAILS - MAIN LANES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11





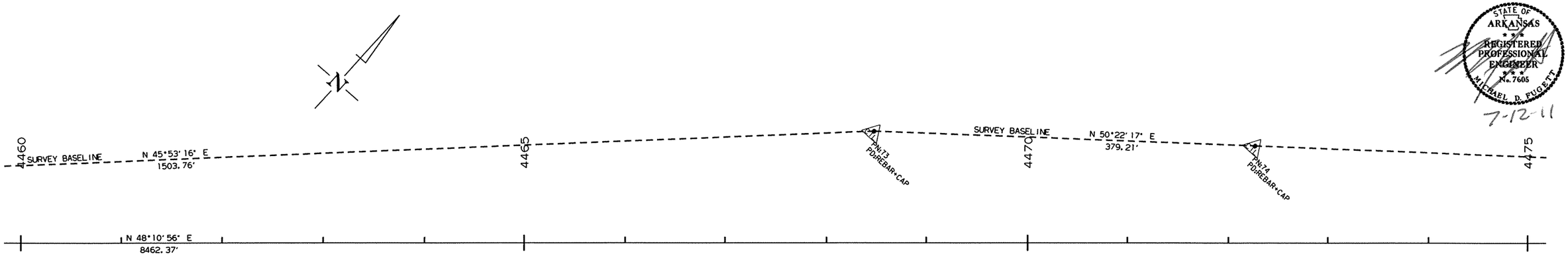
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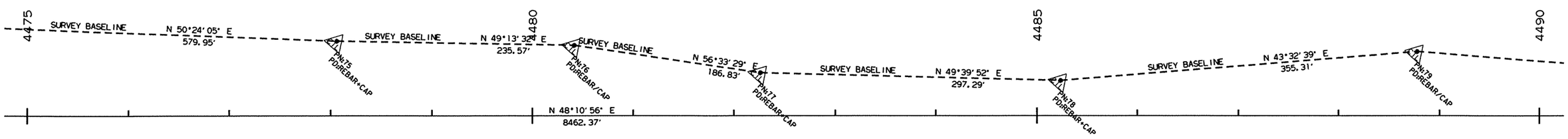
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		020471	72	346

(2) SURVEY CONTROL DETAILS - MAIN LANES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11





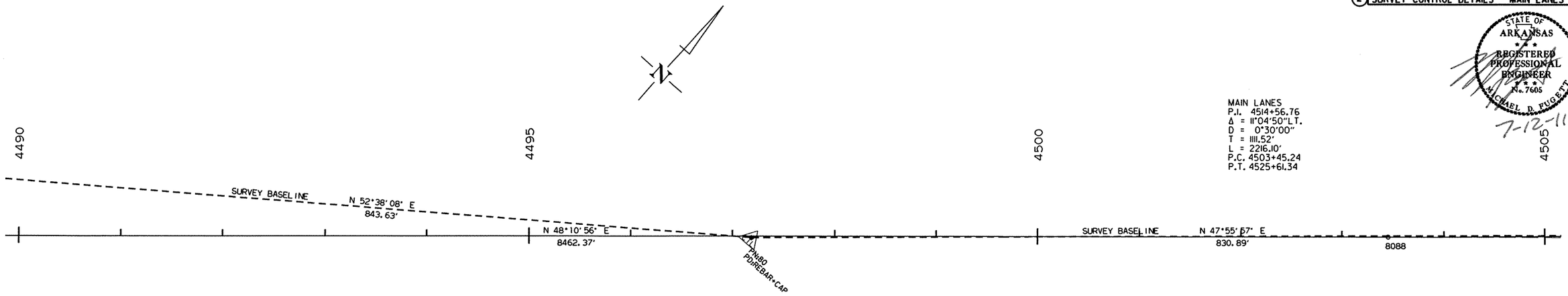
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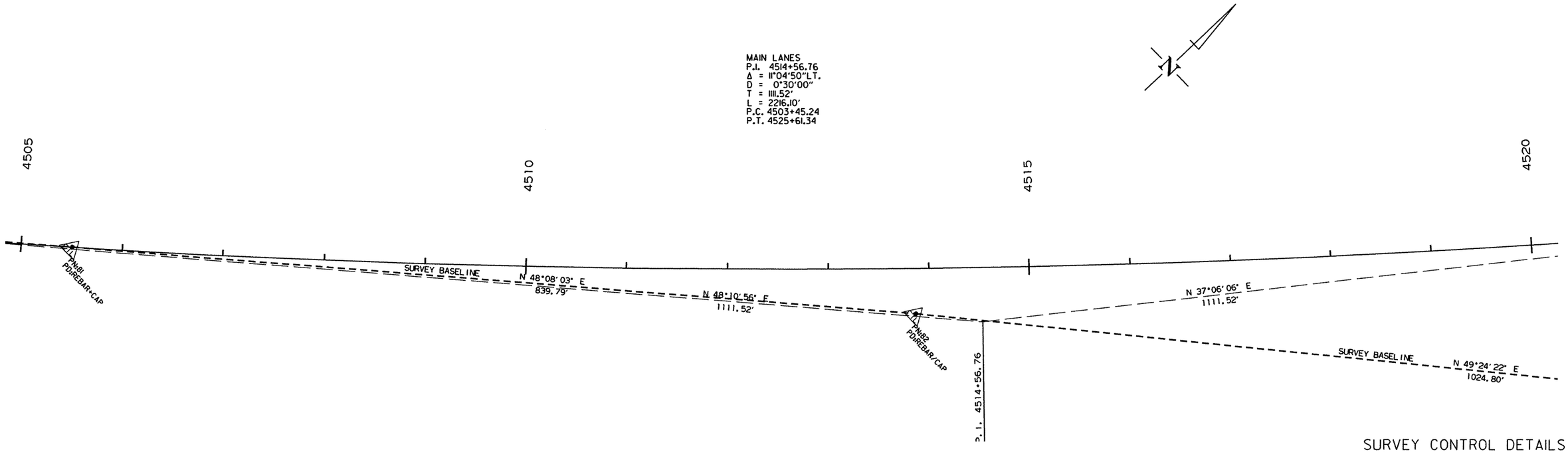
SURVEY CONTROL DETAILS

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.		020471	73	346

(2) SURVEY CONTROL DETAILS - MAIN LANES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11





R020471.DGN 7/1/2011

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.		020471	74	346

(2) SURVEY CONTROL DETAILS - MAIN LANES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. PUGETT
7-12-11

MAIN LANES
P.I. 4514+56.76
Δ = 11°04'50"LT.
D = 0°30'00"
T = 1111.52'
L = 2216.10'
P.C. 4503+45.24
P.T. 4525+61.34

4520 4525 4530 4535

8090

N 37°06'06" E
6619.71'

PN84
FD5/8" RBR 2" ALUM. CAP

PN83
FD5/8" RBR 2" ALUM. CAP

SURVEY BASELINE N 45°27'49" E 786.15'

SURVEY BASELINE N 43°51'30" E 681.94'

PN85
FOREBAR & CAP

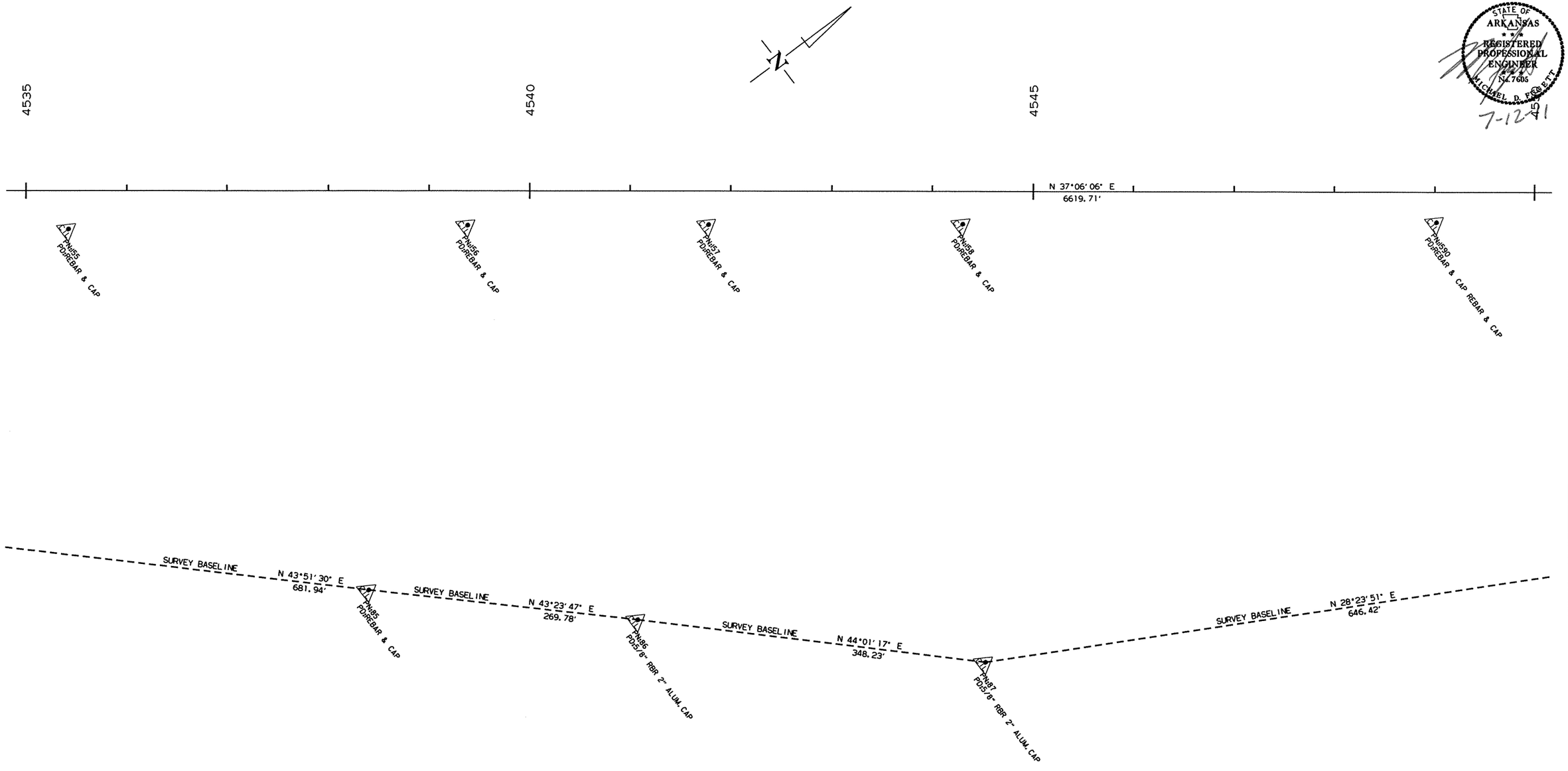
SURVEY CONTROL DETAILS

R020471.DGN 7/1/2011

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.		020471	75	346

(2) SURVEY CONTROL DETAILS - MAIN LANES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FOGLETT
7-12-11



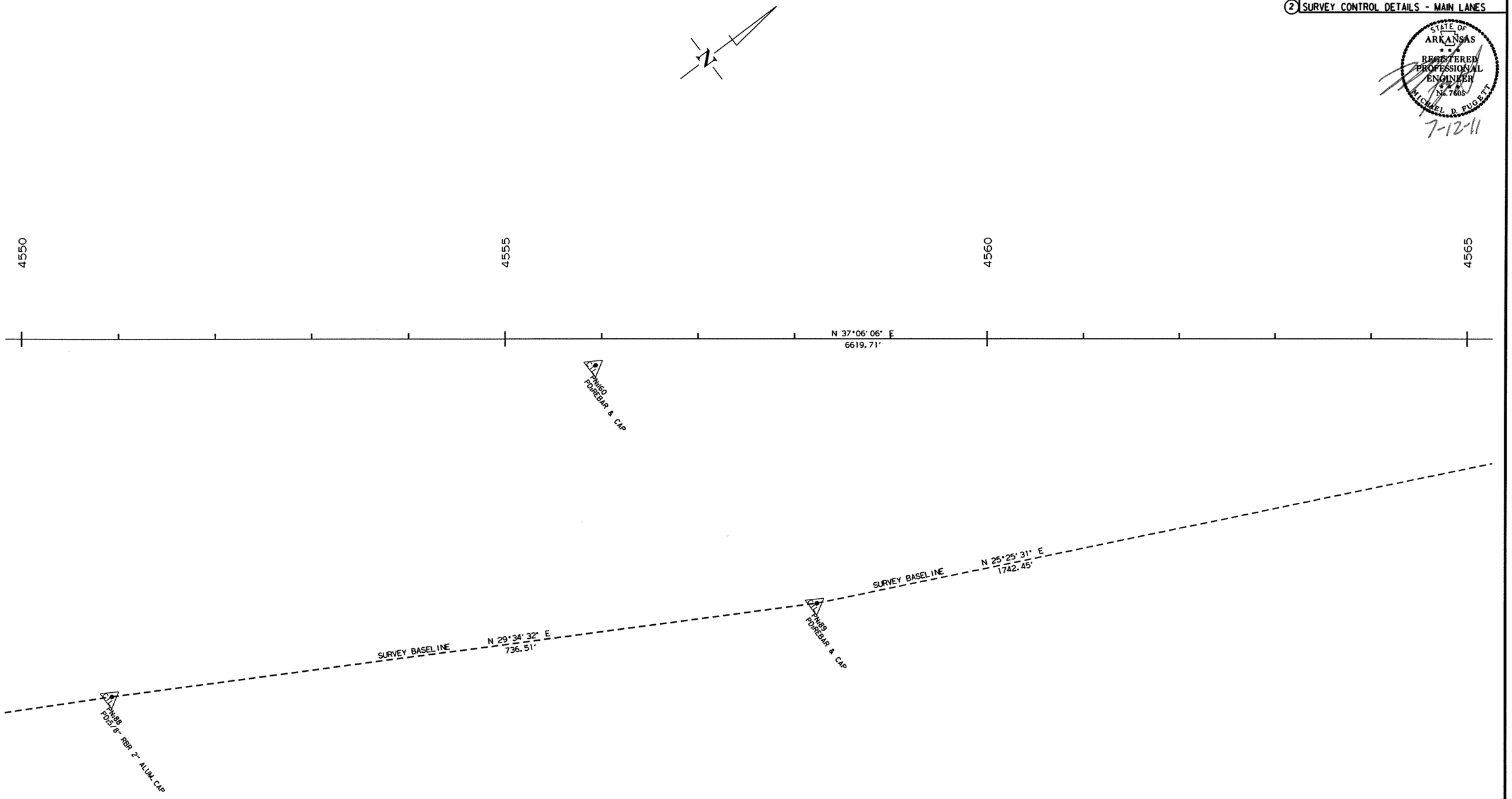
R020471.DGN 7/1/2011

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.		020471	76	346

(2) SURVEY CONTROL DETAILS - MAIN LANES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. PUGETT
7-12-11



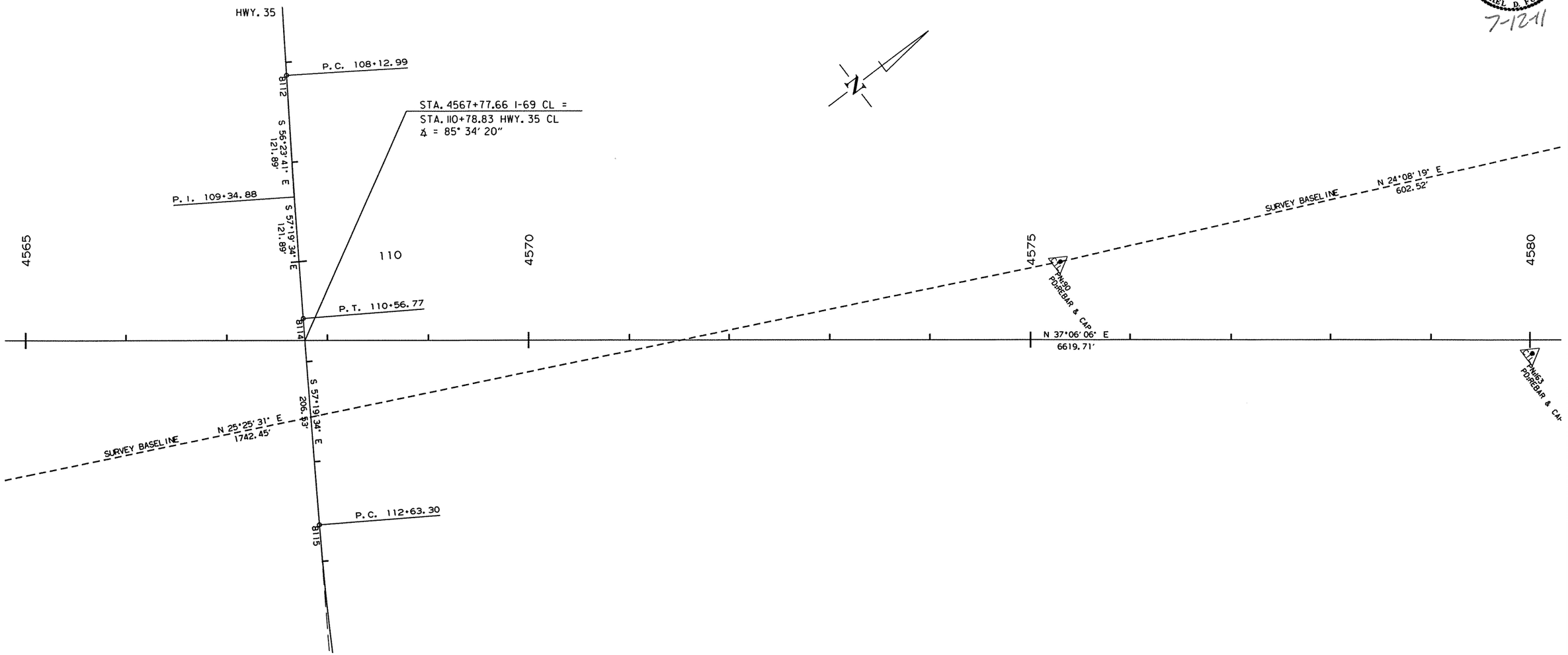
R020471.DGN 7/1/2011

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.		020471	77	346

(2) SURVEY CONTROL DETAILS - MAIN LANES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. PUGETT
7-12-11



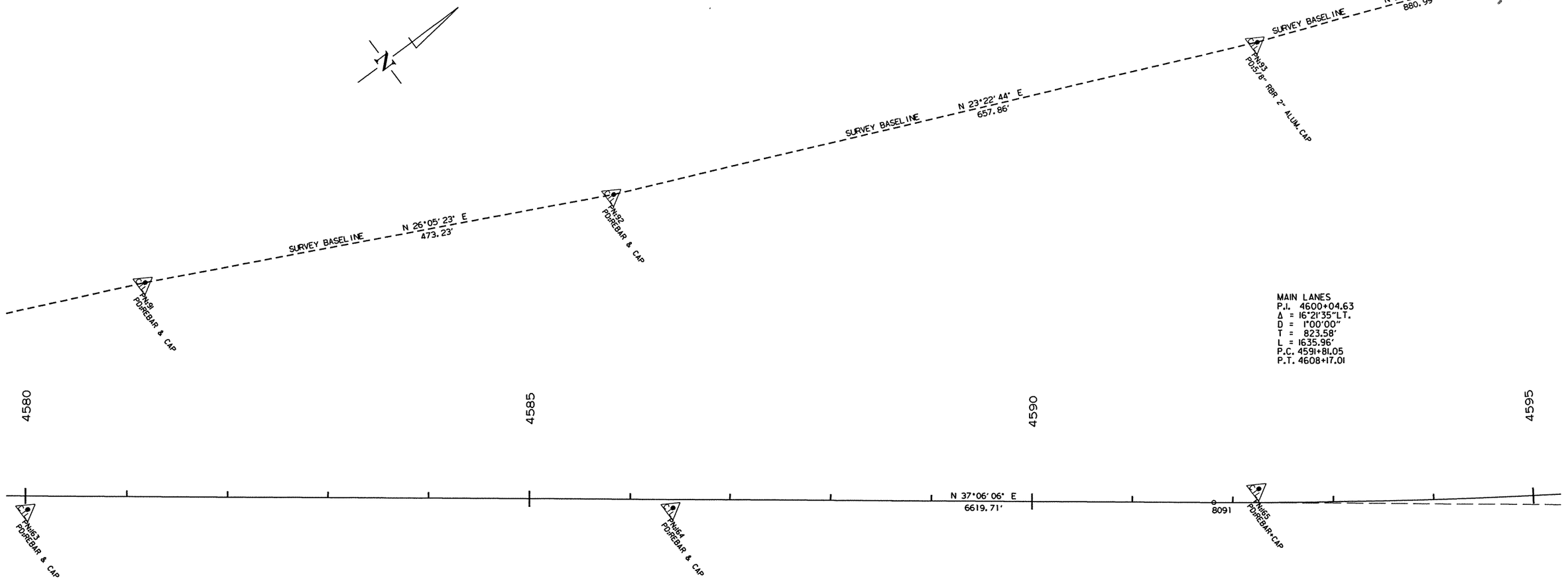
R020471.DGN 7/1/2011

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.		020471	78	346

(2) SURVEY CONTROL DETAILS - MAIN LANES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11



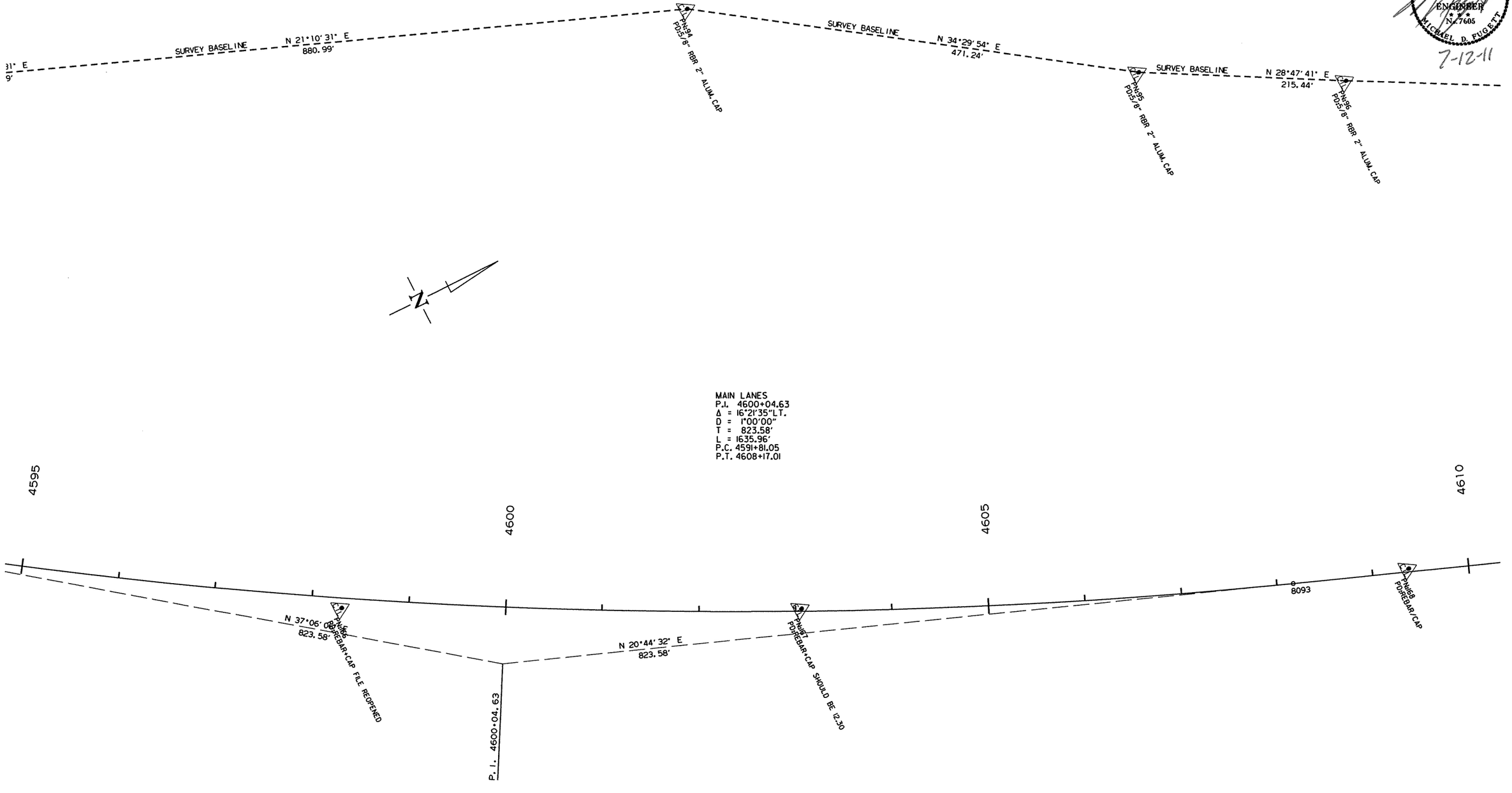
R020471.DGN 7/1/2011

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.		020471	79	346

(2) SURVEY CONTROL DETAILS - MAIN LANES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
N. 7605
MICHAEL D. FUGETT
7-12-11



R020471.DGN 7/1/2011

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.		020471	80	346

(2) SURVEY CONTROL DETAILS - MAIN LANES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11

SURVEY BASELINE N 28°16'32" E 558.96'

SURVEY BASELINE N 26°56'49" E 567.33'

SURVEY BASELINE N 32°13'50" E 304.78'

SURVEY BASELINE N 42°07'04" E 273.55'

PN97 PDS/8" RBR 2" ALUM. CAP

PN98 PDS/8" RBR 2" ALUM. CAP

PN99 PDS/8" RBR 2" ALUM. CAP

N

4610 4615 4620 4625

N 20°44'32" E 1772.28'

PN69 PDS/8" RBR 2" ALUM. CAP

PN70 PDS/8" RBR 2" ALUM. CAP

PN71 PDS/8" RBR 2" ALUM. CAP

STA. 4610+50.00 AHEAD =
STA. 4610+45.12 BACK

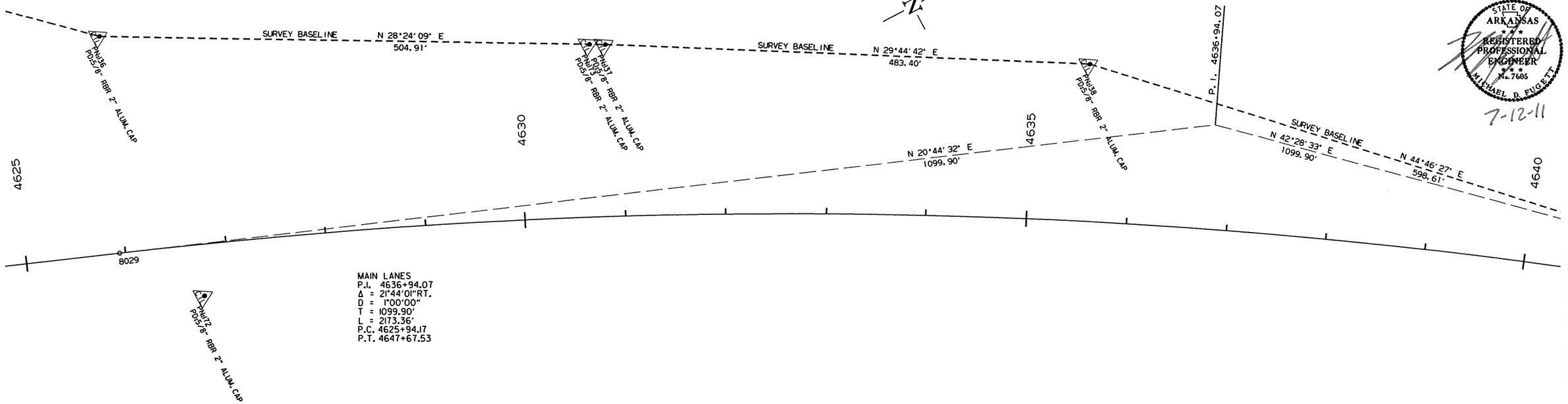
R020471.DGN 7/1/2011

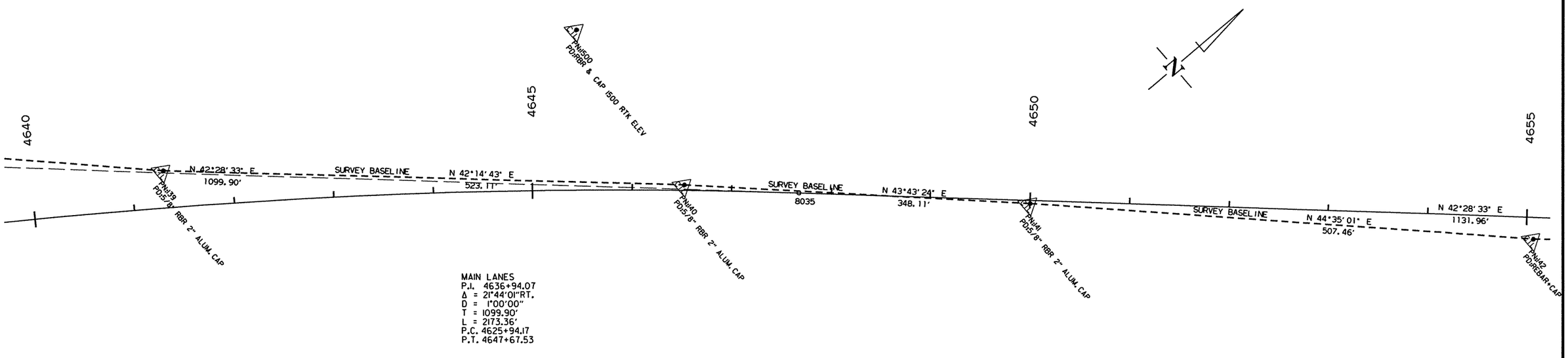
SURVEY CONTROL DETAILS

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.		020471	81	346

(2) SURVEY CONTROL DETAILS - MAIN LANES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11





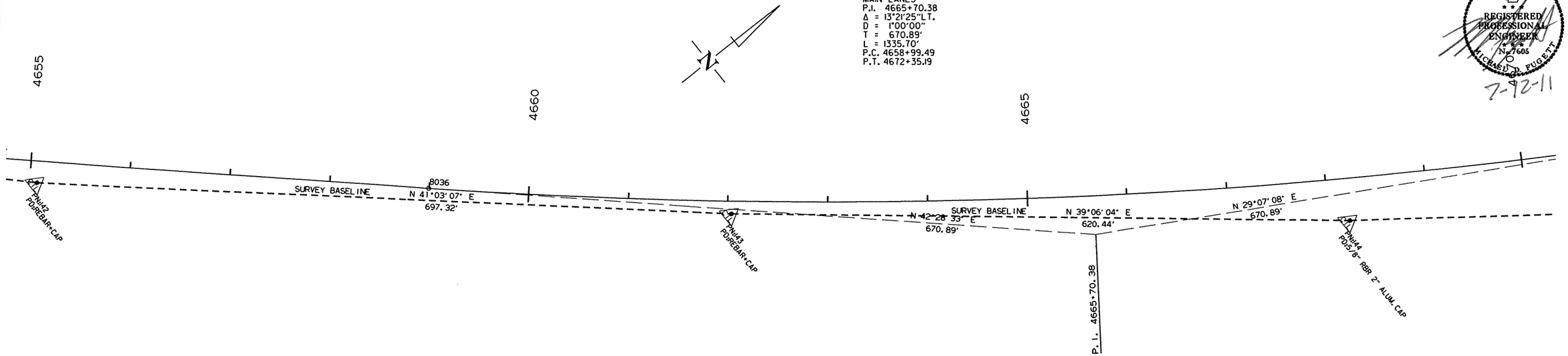
R020471.DGN 7/1/2011

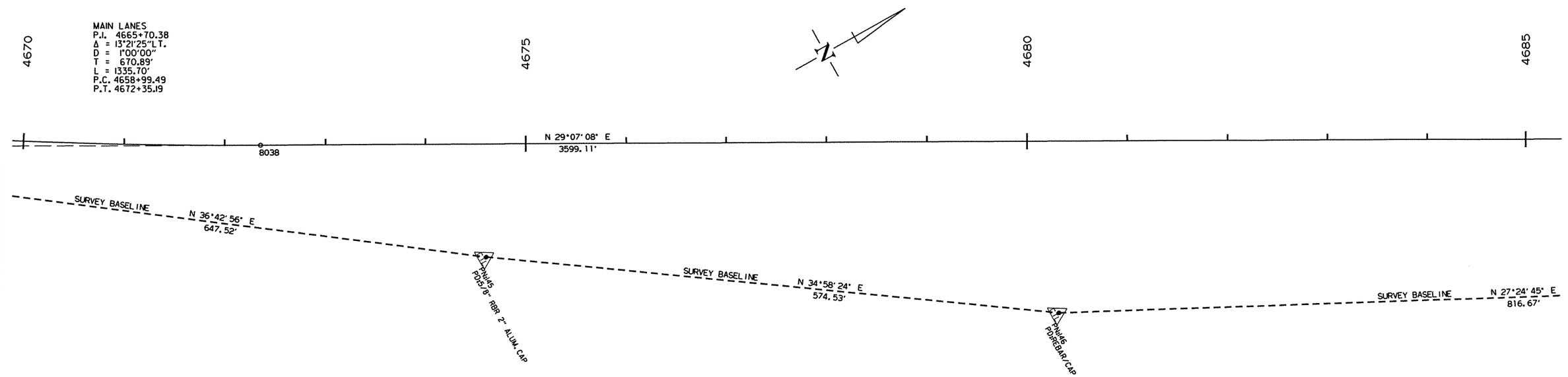
SURVEY CONTROL DETAILS

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.		020471	82	346

(2) SURVEY CONTROL DETAILS - MAIN LANES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11





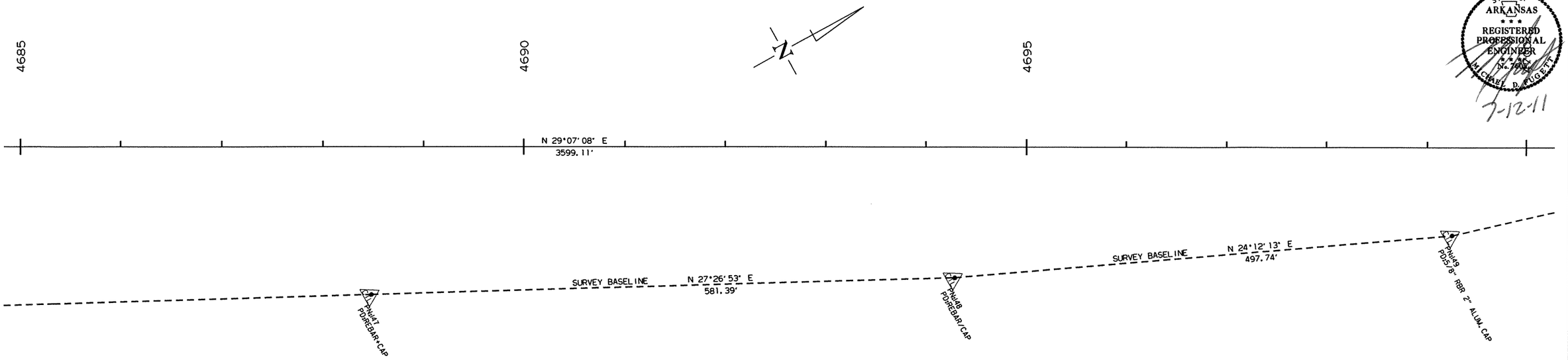
R020471.DGN 7/1/2011

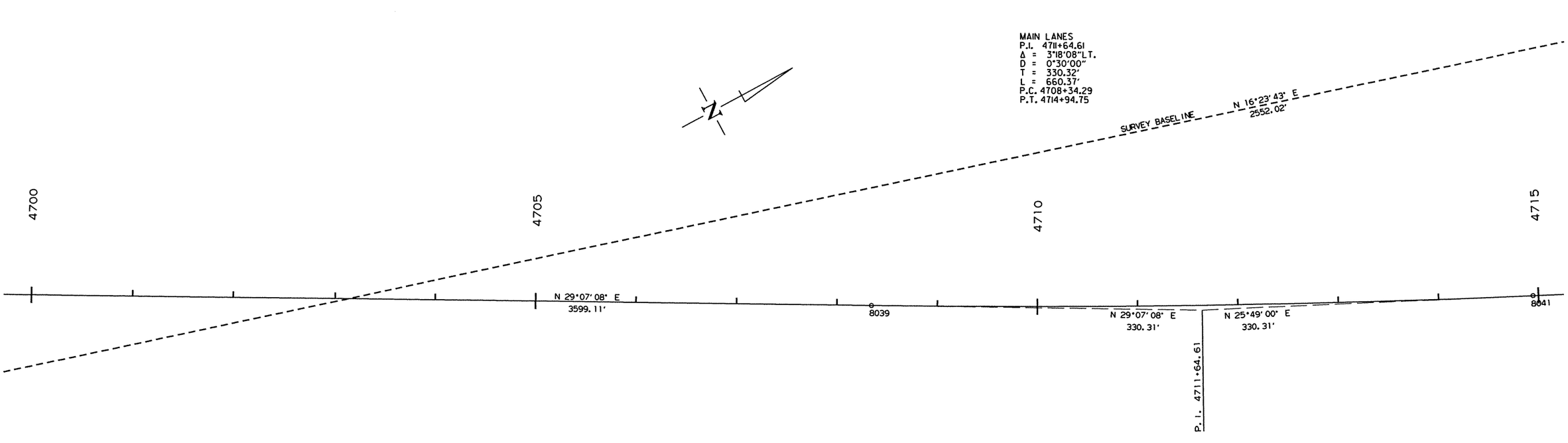
SURVEY CONTROL DETAILS

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.		020471	83	346

(2) SURVEY CONTROL DETAILS - MAIN LANES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7696
MICHAEL D. FIGGETT
7-12-11





R020471.DGN 7/1/2011

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.		020471	84	346

(2) SURVEY CONTROL DETAILS - MAIN LANES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11

HWY. 278

8040 N 76°34'44" E 126.94' 8041

N 76°34'44" E 111.85' 8042 RBR 2" ALUM. CAP TRIG ELEV

P.I. 107+07.48

SURVEY BASELINE N 16°23'43" E 2552.02'

N 81°42'09" E 111.85' 8043

N 81°42'09" E 69.12' 8044

N 81°42'09" E 175.99'

P.I. 110+64.29

S 72°32'58" E 175.99'

8042

S 72°32'58" E 8089 23.96' 8090

S 72°32'58" E 76.25'

P.I. 113+34.55

S 69°03'19" E 76.25' 8092

110

4715 4720 4725

8041 N 25°49'00" E 1761.01' 8042

N

STA. 4726+46.95 I-69 CL =
STA. 111+23.52 HWY. 278 CL
Δ = 73° 21' 13"

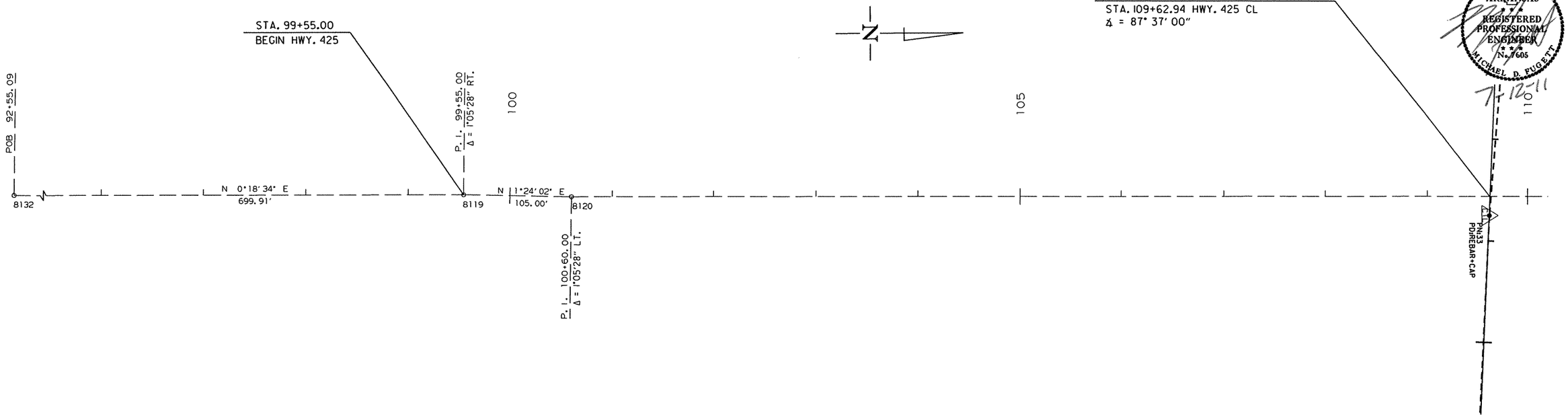
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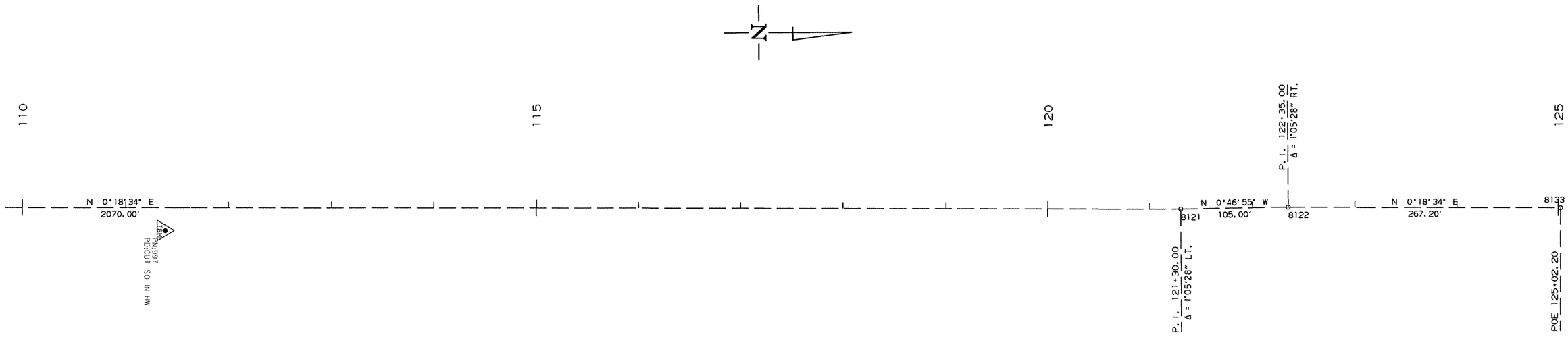
SURVEY CONTROL DETAILS

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.		020471	85	346

(2) SURVEY CONTROL DETAILS - HWY. 425

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. PUGETT
7-12-11





SURVEY CONTROL DETAILS

R020471.DGN 6/22/2011

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.		020471	86	346

(2) SURVEY CONTROL DETAILS - C.R. 36

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11

STA. 100+00.00
BEGIN C.R. 36

POB 100+00.00

N 14°51' 40" W
17.67'

8012

8013

N 14°51' 40" W
159.59'

P.I. 101+77.26

N 0°59' 45" E
159.59'

COUNTY ROAD 36
P.I. 101+77.26
Δ = 15°51'25"RT.
D = 5°00'00"
T = 159.59'
L = 317.14'
P.C. 100+17.67
P.T. 103+34.81

STA. 4340+65.09 I-69 CL =
STA. 106+94.76 COUNTY ROAD 36 CL
Δ = 75° 41' 26"

COUNTY ROAD 36
P.I. 105+63.66
Δ = 12°36'45"LT.
D = 5°00'00"
T = 126.64'
L = 252.25'
P.C. 104+37.03
P.T. 106+89.28

105

N 0°59' 45" E
102.22'

8015

8016

N 0°59' 45" E
126.64'

P.I. 105+63.66

N 11°37' 00" W
126.64'

8018

4340

ALUM. PIN AND PUREBAR & CAP

N 11°37' 00" W
249.10'

8020

110

COUNTY ROAD 36
P.I. 111+33.90
Δ = 19°21'56"LT.
D = 5°00'00"
T = 195.52'
L = 387.31'
P.C. 109+38.38
P.T. 113+25.69

110

N 11°37' 00" W
195.52'

N 30°58' 56" W
195.52'

P.I. 111+33.90

8022

N 30°58' 56" W
118.40'

8023

115

P.I. 115+80.02

N 30°58' 56" W
135.93'

N 17°27' 08" W
135.93'

COUNTY ROAD 36
P.I. 115+80.02
Δ = 13°31'48"RT.
D = 5°00'00"
T = 135.93'
L = 270.60'
P.C. 114+44.09
P.T. 117+14.69

8025

N 17°27' 08" W
65.94'

POE 117+80.63

8026

STA. 117+80.63
END C.R. 36

R020471.DGN 6/22/2011

SURVEY CONTROL DETAILS

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				6	ARK.			
				JOB NO.		020471	87	346

(2) SURVEY CONTROL DETAILS - HWY. 35

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11

N

MATCH LINE

HWY. 35 DRIVEWAY

105

N 66°16'48" E
334.92'

8103

N 66°16'48" E
142.59'

P.I. 103+97.90

N 46°04'02" E
142.59'

8101

HWY. 35 DRIVEWAY
P.I. 103+97.90
Δ = 20°12'47"RT.
D = 7°09'43"
T = 142.59'
L = 282.23'
P.C. 102+55.31
P.T. 105+37.53

HWY. 35 DRIVEWAY

POE 112+00.00

N 8107
0°32'19" W
36.00'

8106

HWY. 35 DRIVEWAY
P.I. 110+37.35
Δ = 66°49'07"LT.
D = 22°55'06"
T = 164.90'
L = 291.55'
P.C. 108+72.45
P.T. 111+64.00

111

N 0°32'19" W
164.90'

P.I. 110+37.35

N 66°16'48" E
164.90'

8104

N 66°16'48" E
334.92'

MATCH LINE

EXIST. HWY. 35
P.I. 109+34.88
Δ = 0°55'52"LT.
D = 0°22'55"
T = 121.89'
L = 243.78'
P.C. 108+12.99
P.T. 110+56.77

STA. 4567+77.66 I-69 CL =
STA. 110+78.83 HWY. 35 CL
Δ = 85° 34' 20"

4570

110

P.C. 108+12.99

P.T. 110+56.77

N 25°25'31" E
1742.45

SURVEY BASELINE

P.C. 112+63.30

POB 100+00.00

N 46°04'02" E
225.31'

P.I. 102+28.59

S 60°11'22" E
46.39'

S 60°11'22" E
182.20'

S 56°23'41" E
182.20'

8108

8109

8100

8111

S 56°23'41" E
402.33'

8112

S 56°23'41" E
121.89'

S 57°19'34" E
121.89'

8114

S 57°19'34" E
206.53'

8115

P.C. 100+46.39

P.T. 104+10.65

P.I. 109+34.88

105

STA. 107+35.00
BEGIN HWY. 35

HWY. 35

EXIST. HWY. 35
P.I. 102+28.59
Δ = 3°47'41"RT.
D = 1°02'30"
T = 182.20'
L = 364.26'
P.C. 100+46.39
P.T. 104+10.65

PK NAIL & WASHER

PNW62
PDREBAR & CAP

SURVEY BASELINE
N 25°25'31" E
1742.45

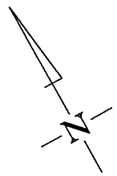
SURVEY CONTROL DETAILS

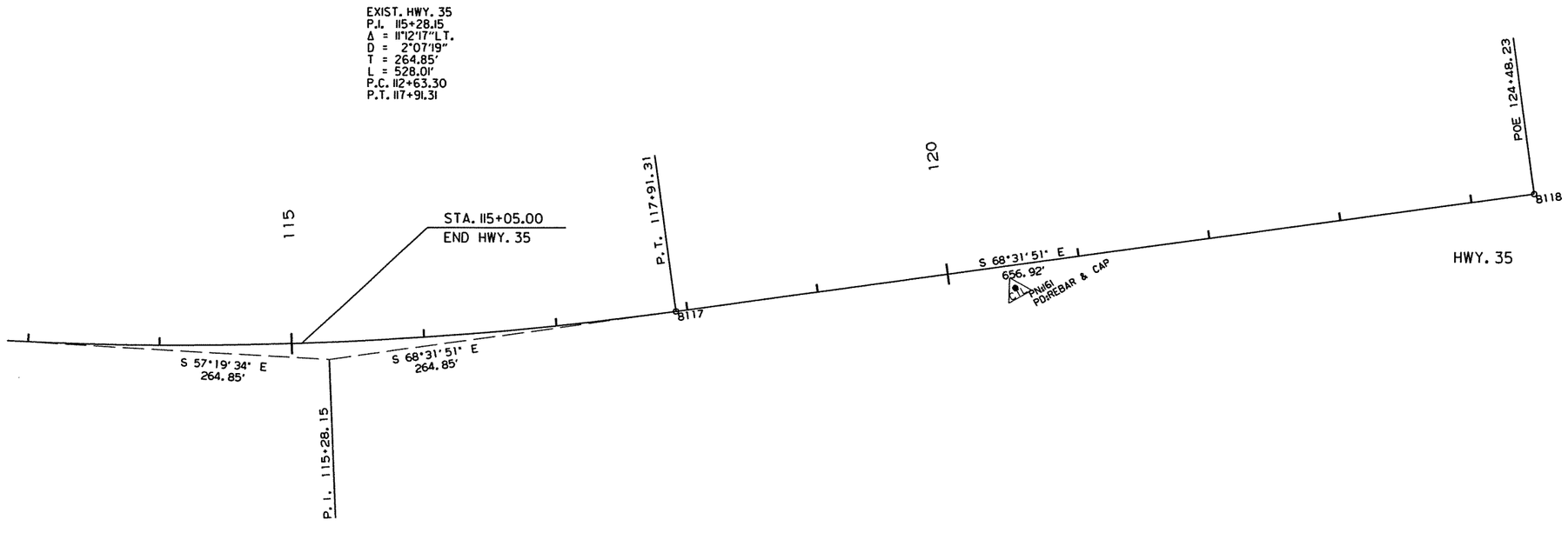
R020471.DGN 6/22/2011

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.		020471	88	346

(2) SURVEY CONTROL DETAILS - HWY. 35

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11





R020471.DGN 6/22/2011

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.		020471	89	346

(2) SURVEY CONTROL DETAILS - HWY. 278

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11

N

HWY. 278
P.I. 102+67.67
Δ = 21°11'10"RT.
D = 5°12'31"
T = 205.72'
L = 406.74'
P.C. 100+61.95
P.T. 104+68.69

HWY. 278
P.I. 107+07.48
Δ = 5°07'25"RT.
D = 2°17'31"
T = 111.85'
L = 223.56'
P.C. 105+95.63
P.T. 108+19.19

HWY. 278
P.I. 110+64.29
Δ = 25°44'53"RT.
D = 7°26'28"
T = 175.99'
L = 346.03'
P.C. 108+88.31
P.T. 112+34.33

HWY. 278
P.I. 113+34.55
Δ = 3°29'38"RT.
D = 2°17'31"
T = 76.25'
L = 152.45'
P.C. 112+58.30
P.T. 114+10.75

STA. 100+61.95
BEGIN HWY. 278

STA. 4726+46.95 I-69 CL =
STA. 111+23.52 HWY. 278 CL
Δ = 73° 21' 13"

HWY. 278
P.I. 119+55.04
Δ = 2°07'45"LT.
D = 2°51'53"
T = 37.16'
L = 74.32'
P.C. 119+17.88
P.T. 119+92.20

HWY. 278
P.I. 124+42.71
Δ = 5°09'36"LT.
D = 2°07'19"
T = 121.66'
L = 243.15'
P.C. 123+21.05
P.T. 125+64.20

STA. 125+64.20
END HWY. 278

SURVEY CONTROL DETAILS

R020471.DGN 6/22/2011

Coordinate System: ARKANSAS STATE PLANE - SOUTH ZONE BASED ON GPS CONTROL.
PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
1	1664412.0065	1398166.5719	191.169	CTL	5/8" RBR 2" ALUM. CAP
2	1664727.6978	1399392.9979	190.338	CTL	5/8" RBR 2" ALUM. CAP
3	1664874.0078	1400475.4356	187.834	CTL	5/8" RBR 2" ALUM. CAP
16	1666171.0105	1405581.9309	195.978	CTL	5/8" RBR 2" ALUM. CAP TRIG ELEV
32	1640581.5620	1372292.5787	260.714	CTL	REBAR•CAP
33	1640514.7021	1373069.0934	263.887	CTL	REBAR•CAP
34	1640487.2726	1373593.6487	268.715	CTL	REBAR•CAP
35	1640458.3020	1374143.4520	276.898	CTL	5/8" RBR 2" ALUM. CAP
36	1640429.7792	1374684.1347	291.167	CTL	5/8" RBR 2" ALUM. CAP
37	1640414.4781	1374971.1919	281.313	CTL	5/8" RBR 2" ALUM. CAP
38	1640406.0175	1375130.8011	300.502	CTL	REBAR•CAP
39	1640374.2465	1375728.3336	300.759	CTL	REBAR•CAP
40	1640355.3341	1376083.9174	296.515	CTL	REBAR/CAP
41	1640364.2393	1376270.6143	299.775	CTL	5/8" RBR 2" ALUM. CAP
42	1640327.3369	1377004.0700	316.536	CTL	REBAR & CAP
43	1640298.3550	1377663.3010	329.720	CTL	REBAR&CAP
44	1640286.6055	1377912.9847	335.278	CTL	REBAR & CAP
45	1640271.4790	1378232.8269	333.092	CTL	REBAR & CAP
46	1640257.1919	1378532.6177	345.846	CTL	REBAR & CAP
47	1640247.5907	1379500.0630	321.350	CTL	REBAR & CAP
48	1640237.1167	1380208.8616	316.739	CTL	REBAR & CAP
49	1640194.8470	1380759.8402	300.009	CTL	REBAR & CAP
50	1640113.1004	1381309.9685	287.051	CTL	REBAR & CAP
51	1640105.9395	1381602.2434	295.539	CTL	REBAR & CAP
52	1640044.8679	1382077.7115	285.060	CTL	REBAR & CAP
53	1640044.4312	1382430.0962	277.275	CTL	REBAR & CAP
54	1640082.3326	1382814.2365	274.653	CTL	REBAR & CAP
55	1640136.9915	1383174.3528	268.257	CTL	REBAR & CAP
56	1640130.8630	1383420.2068	262.895	CTL	REBAR & CAP
57	1640197.4202	1383838.8379	268.371	CTL	REBAR & CAP
58	1640355.3781	1384476.4952	257.987	CTL	REBAR & CAP TK•COM
59	1640433.1246	1384821.2930	247.602	CTL	REBAR & CAP
60	1640492.2468	1384992.1800	255.709	CTL	REBAR & CAP
61	1640720.0262	1385539.8597	260.671	CTL	REBAR & CAP
62	1640875.7747	1385875.9313	253.101	CTL	REBAR & CAP
63	1641033.8070	1386178.2677	237.142	CTL	REBAR & CAP
64	1641256.9805	1386588.1981	249.723	CTL	REBAR & CAP
65	1641410.4247	1386829.5027	245.850	CTL	REBAR & CAP
66	1641756.8732	1387227.4173	241.455	CTL	REBAR & CAP
67	1642201.7028	1387809.8893	235.601	CTL	REBAR & CAP
68	1642484.0515	1388127.4746	235.807	CTL	REBAR & CAP
69	1642861.1625	1388491.0565	232.265	CTL	REBAR & CAP
70	1643514.5352	1389271.6820	233.775	CTL	REBAR & CAP
71	1643870.4034	1389659.2797	228.792	CTL	REBAR & CAP
72	1644372.1652	1390130.9435	223.245	CTL	REBAR & CAP
73	1645418.8795	1391210.6068	216.375	CTL	REBAR•CAP
74	1645660.7423	1391502.6718	205.211	CTL	REBAR•CAP
75	1646030.4055	1391949.5382	205.912	CTL	REBAR•CAP
76	1646184.2539	1392127.9339	217.673	CTL	REBAR/CAP
77	1646287.2135	1392283.8311	216.886	CTL	REBAR•CAP
78	1646479.6389	1392510.4463	209.192	CTL	REBAR•CAP
79	1646737.1807	1392755.2229	216.820	CTL	REBAR/CAP
80	1647249.1640	1393425.7306	214.302	CTL	REBAR•CAP
81	1647805.8680	1394042.5493	213.428	CTL	REBAR•CAP
82	1648366.3318	1394667.9474	210.930	CTL	REBAR/CAP
83	1649033.1622	1395446.1231	208.679	CTL	5/8" RBR 2" ALUM. CAP
84	1649584.5406	1396006.4983	207.231	CTL	5/8" RBR 2" ALUM. CAP
85	1650076.2546	1396478.9991	198.975	CTL	REBAR & CAP
86	1650272.2802	1396664.3484	192.373	CTL	5/8" RBR 2" ALUM. CAP
87	1650522.6859	1396906.3428	201.380	CTL	5/8" RBR 2" ALUM. CAP
88	1651091.3200	1397213.7687	205.203	CTL	5/8" RBR 2" ALUM. CAP
89	1651731.8640	1397577.2854	204.236	CTL	REBAR & CAP
90	1653305.5525	1398325.3813	198.285	CTL	REBAR & CAP
91	1653855.3910	1398571.7812	195.869	CTL	REBAR & CAP
92	1654280.4009	1398779.8979	184.126	CTL	REBAR & CAP
93	1654884.2463	1399040.9420	182.831	CTL	5/8" RBR 2" ALUM. CAP
94	1655705.7549	1399359.1784	179.734	CTL	5/8" RBR 2" ALUM. CAP
95	1656094.1195	1399626.0781	189.181	CTL	5/8" RBR 2" ALUM. CAP
96	1656282.9214	1399729.8500	190.811	CTL	5/8" RBR 2" ALUM. CAP
97	1656775.1870	1399994.6377	179.808	CTL	5/8" RBR 2" ALUM. CAP
98	1657280.9244	1400251.7334	191.412	CTL	5/8" RBR 2" ALUM. CAP
99	1657538.7437	1400414.2835	185.495	CTL	5/8" RBR 2" ALUM. CAP
136	1657741.6505	1400597.7386	186.174	CTL	5/8" RBR 2" ALUM. CAP
137	1658185.7830	1400837.9052	191.970	CTL	5/8" RBR 2" ALUM. CAP
138	1658605.4937	1401077.7421	190.784	CTL	5/8" RBR 2" ALUM. CAP
139	1659030.4374	1401499.3475	185.851	CTL	5/8" RBR 2" ALUM. CAP
140	1659417.6809	1401851.0363	185.342	CTL	5/8" RBR 2" ALUM. CAP
141	1659669.2519	1402091.6387	181.737	CTL	5/8" RBR 2" ALUM. CAP
142	1660030.6794	1402447.8512	169.155	CTL	REBAR•CAP
143	1660556.5411	1402905.8119	175.741	CTL	REBAR•CAP
144	1661038.0221	1403297.1151	185.502	CTL	5/8" RBR 2" ALUM. CAP
145	1661557.0799	1403684.2296	188.203	CTL	5/8" RBR 2" ALUM. CAP
146	1662027.8608	1404013.5486	190.067	CTL	REBAR/CAP
147	1662752.8342	1404389.5407	188.984	CTL	REBAR•CAP
148	1663268.7727	1404657.5283	179.225	CTL	REBAR/CAP
149	1663722.7604	1404861.5924	190.317	CTL	5/8" RBR 2" ALUM. CAP
855	1643155.8056	1388882.2134	224.473	CTL	REBAR & CAP
1500	1659437.3598	1401661.7572	187.735	CTL	RBR & CAP 1500 RTK ELEV
1501	1657991.2048	1403560.9069	186.423	CTL	5• REBAR&CAP IN FIELD RD
1502	1655951.6604	1402119.6066	191.541	CTL	5• REB&CAP STAMPED 1502 RTK ELEV
1503	1654165.4521	1399448.9408	199.287	CTL	ROD&CAP RTK ELEV
1504	1655811.0983	1397981.0192	200.038	CTL	5/8" RBR 2" ALUM. CAP RTK ELEV
1505	1655379.0757	1398265.1322	193.656	CTL	RBR & CAP 1505 RTK ELEV ZC•500
1506	1648621.3243	1298594.4581	127.629	CTL	5/8" RBR 2" ALUM. CAP RTK ELEV
1508	1653983.3442	1312804.3016	108.331	CTL	RBR & CAP IN CLEARING RTK ELEV
1509	1653885.0574	1312992.0433	110.645	CTL	RBR & CAP 1509
1510	1650121.6776	1300990.6292	186.968	CTL	5/8" RBR 2" ALUM. CAP RTK ELEV
1511	1651664.7462	1309504.4251	110.020	CTL	8 SPIKE RTK ELEV
1512	1637061.0462	1294620.8428	179.298	CTL	5/8" RBR 2" ALUM. CAP RTK ELEV
1513	1651722.5366	1310228.5655	111.352	CTL	ROD&CAP ON TRAIL RTK ELEV
1514	1648886.2434	1347602.9684	165.214	CTL	RTK ELEV
1590	1651144.2175	1396826.3723	205.468	CTL	REBAR & CAP REBAR & CAP

*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 0.9999388978 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. S020462G1.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 - 0302-SOUTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 220001A
CONVERGENCE ANGLE: 0-06-41 LEFT
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

I-69

POINT NO.	STATION	NORTHING	EASTING
8000	4210+00.00	1640790.4239	1367200.5350
8001	4359+48.16	1640088.1815	1382132.1909
8002	4418+82.87	1642025.7397	1387584.7719
8029	4625+94.17	1657659.8696	1400799.8030
8035	4647+67.53	1659499.7273	1401932.0893
8036	4658+99.49	1660334.6165	1402696.4764
8038	4672+35.19	1661415.5406	1403475.9865
8039	4708+34.30	1664559.7645	1405227.3913
8041	4714+94.74	1665145.6789	1405531.9792
8042	4732+55.75	1666730.9272	1406298.8839

HWY. 35

POINT NO.	STATION	NORTHING	EASTING
8108	100+00.00	1653240.8761	1397025.9526
8109	100+46.39	1653217.8119	1397066.2078
8111	104+10.65	1653026.3968	1397376.0406
8112	108+12.99	1652803.7180	1397711.1338
8114	110+56.77	1652670.4483	1397915.2609
8115	112+63.30	1652558.9526	1398089.1071
8117	117+91.31	1652319.0346	1398558.5222
8118	124+48.23	1652078.6015	1399169.8621

HWY. 35 DRIVEWAY

POINT NO.	STATION	NORTHING	EASTING
8100	100+00.00	1653156.7009	1397170.2075
8101	102+55.31	1653333.8364	1397354.0675
8103	105+37.53	1653490.1319	1397587.3064
8104	108+72.45	1653624.8579	1397893.9308
8106	111+64.00	1653856.0888	1398043.3532
8107	112+00.00	1653892.0859	1398043.0148

COUNTY ROAD 36

POINT NO.	STATION	NORTHING	EASTING
8012	100+00.00	1639487.5124	1380316.5149
8013	100+17.67	1639504.5898	1380311.9834
8015	103+34.81	1639818.4041	1380273.8265
8016	104+37.03	1639920.6093	1380275.6030
8018	106+89.28	1640171.2703	1380252.3037
8020	109+38.38	1640415.2716	1380202.1432
8022	113+25.69	1640774.4109	1380062.1245
8023	114+44.09	1640875.9160	1380001.1770
8025	117+14.69	1641122.1277	1379890.4359
8026	117+80.63	1641185.0357	1379870.6587

HWY. 425 (SHOWN FOR INFORMATION ONLY)

POINT NO.	STATION	NORTHING	EASTING
8132	92+55.09	1638807.519	1373039.014
8119	99+55.00	1639507.418	1373042.793
8120	100+60.00	1639612.387	1373045.36
8121	121+30.00	1641682.357	1373056.537
8122	122+35.00	1641787.347	1373055.104
8133	125+02.20	1642054.542	1373056.547

HWY. 278 (SHOWN FOR INFORMATION ONLY)

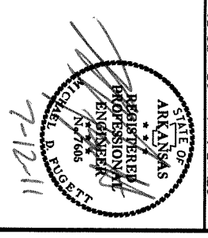
POINT NO.	STATION	NORTHING	EASTING
8027	94+70.72	1665602.8295	1404532.0669
8028	100+61.95	1665938.6142	1405018.6854
8040	104+68.69	1666103.2017	1405388.1110
8041	105+95.63	1666132.6650	1405511.5841
8043	108+19.19	1666174.7682	1405731.0640
8044	108+88.31	1666184.7431	1405799.4610
8089	112+34.33	1666157.3648	1406141.4915
8090	112+58.30	1666150.1792	1406164.3503
8092	114+10.75	1666100.0558	1406308.3047
8093	119+17.88	1665918.7749	1406781.9262
8095	119+92.20	1665893.5042	1406851.8116
8096	123+21.05	1665787.4419	1407163.0910
8098	125+64.20	1665719.4824	1407396.4681
8099	126+08.68	1665708.9821	1407439.6874

SURVEY CONTROL DETAILS

SURVEY CONTROL DETAILS - MAIN LANES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.AID DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		90	346
				JOB NO.		020471		

(2)



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.		020471	91	346

(2) SOIL BORING LOG

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11

SOIL LOG

STATION	LATITUDE	LONGITUDE	LOCATION	DEPTH FEET	A.A.S.H.T.O. CLASSIFICATION	LIQUID LIMIT	PLASTICITY INDEX	REMARKS
4269+00	33°34' 5.40"	91°48' 7.60"	MAIN LANES CENTERLINE	0'-4'	A-7-6(29)	50	35	BROWN
4269+00	33°34' 5.00"	91°47'58.20"	MAIN LANES CENTERLINE	0'-4'	A-6(6)	29	14	BROWN/GRAY
4273+00	33°34' 4.60"	91°47'48.70"	MAIN LANES CENTERLINE	0'-4'	A-7-6(29)	52	36	BROWN/GRAY
4281+00	33°34' 4.20"	91°47'39.30"	MAIN LANES CENTERLINE	0'-4'	A-7-6(24)	47	31	BROWN/GRAY
4289+00	33°34' 3.80"	91°47'29.80"	MAIN LANES CENTERLINE	0'-4'	A-6(8)	34	18	BROWN/GRAY
4297+00	33°34' 3.40"	91°47'20.40"	MAIN LANES CENTERLINE	0'-4'	A-2-4(0)	ND	NP	BROWN/GRAY
4305+00	33°34' 3.00"	91°47'11.00"	MAIN LANES CENTERLINE	0'-4'	A-7-6(22)	47	28	BROWN/GRAY
4313+00	33°34' 2.70"	91°47' 1.50"	MAIN LANES CENTERLINE	0'-4'	A-2-4(6)	ND	NP	BROWN
4313+00	33°34' 2.30"	91°46'52.10"	MAIN LANES CENTERLINE	0'-4'	A-2-4(0)	ND	NP	BROWN
4321+00	33°34' 1.90"	91°46'42.60"	MAIN LANES CENTERLINE	0'-4'	A-2-4(0)	ND	NP	BROWN
4329+00	33°34' 1.60"	91°46'36.80"	MAIN LANES CENTERLINE	0'-4'	A-6(11)	40	20	BROWN
4337+00	33°34' 1.30"	91°46'31.00"	MAIN LANES CENTERLINE	0'-4'	A-7-6(25)	46	27	BROWN
4339+50	33°34' 1.10"	91°46'23.70"	MAIN LANES CENTERLINE	0'-4'	A-6(16)	34	25	BROWN
4339+50	33°34' 0.70"	91°46'14.30"	MAIN LANES CENTERLINE	0'-4'	A-6(11)	35	17	BROWN
4345+00	33°34' 0.90"	91°46' 4.90"	MAIN LANES CENTERLINE	0'-4'	A-4(5)	27	10	BROWN
4353+00	33°34' 1.90"	91°45'55.50"	MAIN LANES CENTERLINE	0'-4'	A-4(4)	26	8	BROWN
4361+00	33°34' 0.70"	91°46'14.30"	MAIN LANES CENTERLINE	0'-4'	A-4(5)	27	10	BROWN
4369+00	33°34' 0.90"	91°46' 4.90"	MAIN LANES CENTERLINE	0'-4'	A-4(1)	23	5	BROWN
4377+00	33°34' 1.90"	91° 45'55.50"	MAIN LANES CENTERLINE	0'-4'	A-4(4)	27	9	BROWN
4385+00	33°34' 3.70"	91°45'46.30"	MAIN LANES CENTERLINE	0'-4'	A-4(0)	21	4	BROWN
4393+00	33°34' 7.10"	91°45'35.20"	MAIN LANES CENTERLINE	0'-4'	A-4(4)	27	9	BROWN
4401+00	33°34' 9.70"	91°45'28.80"	MAIN LANES CENTERLINE	0'-4'	A-4(0)	18	3	BROWN
4409+00	33°34'13.80"	91°45'20.80"	MAIN LANES CENTERLINE	0'-4'	A-6(6)	30	14	BROWN
4417+00	33°34'18.60"	91°45'13.20"	MAIN LANES CENTERLINE	0'-4'	A-6(19)	38	22	BROWN
4425+00	33°34'22.90"	91°45' 6.20"	MAIN LANES CENTERLINE	0'-4'	A-6(8)	32	18	BROWN/GRAY
4433+00	33°34'29.10"	91°44'59.10"	MAIN LANES CENTERLINE	0'-4'	A-6(1)	29	13	BROWN/GRAY
4441+00	33°34'34.40"	91°44'52.00"	MAIN LANES CENTERLINE	0'-4'	A-4(6)	28	10	BROWN
4465+00	33°34'50.20"	91°44'30.80"	MAIN LANES CENTERLINE	0'-4'	A-4(2)	23	5	BROWN/GRAY
4473+00	33°34'55.50"	91°44'23.80"	MAIN LANES CENTERLINE	0'-4'	A-4(1)	21	5	BROWN/GRAY
4481+00	33°35' 0.70"	91°44'16.70"	MAIN LANES CENTERLINE	0'-4'	A-4(3)	23	6	BROWN
4489+00	33°35' 6.00"	91°44' 9.70"	MAIN LANES CENTERLINE	0'-4'	A-6(7)	30	12	BROWN/GRAY
4497+00	33°35'11.20"	91°44' 2.60"	MAIN LANES CENTERLINE	0'-4'	A-4(4)	26	8	BROWN
4505+00	33°35'16.50"	91°43'55.50"	MAIN LANES CENTERLINE	0'-4'	A-6(7)	28	11	BROWN/GRAY
4513+00	33°35'21.80"	91°43'48.50"	MAIN LANES CENTERLINE	0'-4'	A-4(3)	25	8	BROWN/GRAY
4521+00	33°35'27.00"	91°43'41.40"	MAIN LANES CENTERLINE	0'-4'	A-4(1)	23	4	BROWN
4529+00	33°35'32.50"	91°43'34.60"	MAIN LANES CENTERLINE	0'-4'	A-4(0)	ND	NP	GRAY
4537+00	33°35'38.30"	91°43'28.20"	MAIN LANES CENTERLINE	0'-4'	A-4(1)	24	9	BROWN
4545+00	33°35'44.60"	91°43'22.30"	MAIN LANES CENTERLINE	0'-4'	A-6(13)	36	20	BROWN/GRAY
4553+00	33°35'51.10"	91°43'17.00"	MAIN LANES CENTERLINE	0'-4'	A-4(2)	24	5	BROWN/GRAY
4561+00	33°35'57.90"	91°43'12.20"	MAIN LANES CENTERLINE	0'-4'	A-4(3)	25	5	BROWN/GRAY
4567+00	33°36' 5.00"	91°43' 8.00"	MAIN LANES CENTERLINE	0'-4'	A-4(0)	21	3	BROWN/GRAY
4577+00	33°36'12.10"	91°43' 3.90"	MAIN LANES CENTERLINE	0'-4'	A-6(13)	35	16	BROWN/GRAY
4585+00	33°36'19.20"	91°42'59.80'	MAIN LANES CENTERLINE	0'-4'	A-4(0)	ND	NP	BROWN
4593+00	33°36'26.40"	91°42'55.70"	MAIN LANES CENTERLINE	0'-4'	A-4(0)	ND	NP	BROWN
4601+00	33°36'33.50"	91°42'51.60"	MAIN LANES CENTERLINE	0'-4'	A-4(2)	23	5	BROWN
4609+00	33°36'40.60"	91°42'47.40"	MAIN LANES CENTERLINE	0'-4'	A-6(7)	29	12	BROWN
4617+00	33°36'47.70"	91°42'43.20"	MAIN LANES CENTERLINE	0'-4'	A-4(0)	ND	NP	BROWN/GRAY
4625+00	33°36'54.50"	91°42'38.30"	MAIN LANES CENTERLINE	0'-4'	A-4(7)	27	9	BROWN/GRAY
4633+00	33°37' 1.00"	91°42'32.90"	MAIN LANES CENTERLINE	0'-4'	A-4(3)	25	5	BROWN
4641+00	33°37' 7.20"	91°42'27.00"	MAIN LANES CENTERLINE	0'-4'	A-4(1)	23	3	BROWN
4649+00	33°37'13.00"	91°42'20.70"	MAIN LANES CENTERLINE	0'-4'	A-4(4)	25	7	BROWN
4657+00	33°37'18.90"	91°42'14.30"	MAIN LANES CENTERLINE	0'-4'	A-4(9)	30	9	BROWN
4665+00	33°37'24.80"	91°42' 8.00"	MAIN LANES CENTERLINE	0'-4'	A-4(3)	25	5	BROWN
4673+00	33°37'31.00"	91°42' 2.20"	MAIN LANES CENTERLINE	0'-4'	A-4(5)	27	6	BROWN
4681+00	33°37'37.60"	91°41'56.90"	MAIN LANES CENTERLINE	0'-4'	A-4(4)	26	5	BROWN
4689+50	33°37'45.30"	91°41'51.70"	MAIN LANES CENTERLINE	0'-4'	A-6(10)	31	12	BROWN
4697+00	33°37'51.60"	91°41'48.10"	MAIN LANES CENTERLINE	0'-4'	A-4(6)	28	8	BROWN/GRAY
4705+00	33°37'58.90"	91°41'44.60"	MAIN LANES CENTERLINE	0'-4'	A-4(8)	27	10	BROWN/GRAY
4713+00	33°38' 6.50"	91°41'41.70"	MAIN LANES CENTERLINE	0'-4'	A-4(8)	30	10	BROWN/GRAY
4720+00	33°38'13.10"	91°41'39.20"	MAIN LANES CENTERLINE	0'-4'	A-4(8)	29	9	BROWN/GRAY
4725+00	31°38'21.60"	91°41'36.00"	MAIN LANES CENTERLINE	0'-4'	A-4(3)	25	5	BROWN/GRAY

NOTE: SOIL CHARACTERISTICS TABULATED ABOVE ARE REPRESENTATIVE AT THE LOCATION OF THE SAMPLE, AND FROM THE 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.

R020471.DGN 6/22/2011

SOIL BORING LOG

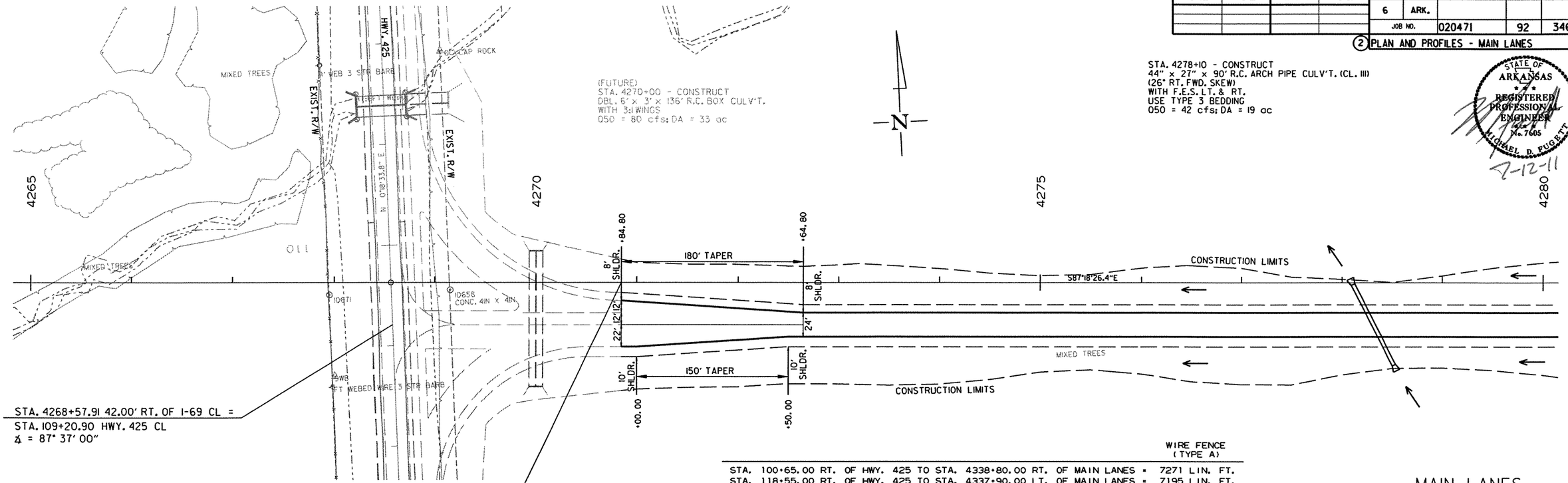
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		020471	92	346

(2) PLAN AND PROFILES - MAIN LANES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11

(FUTURE)
STA. 4270+00 - CONSTRUCT
DBL. 6' x 3' x 136' R.C. BOX CULV'T.
WITH 3:1 WINGS
Q50 = 80 cfs; DA = 33 ac

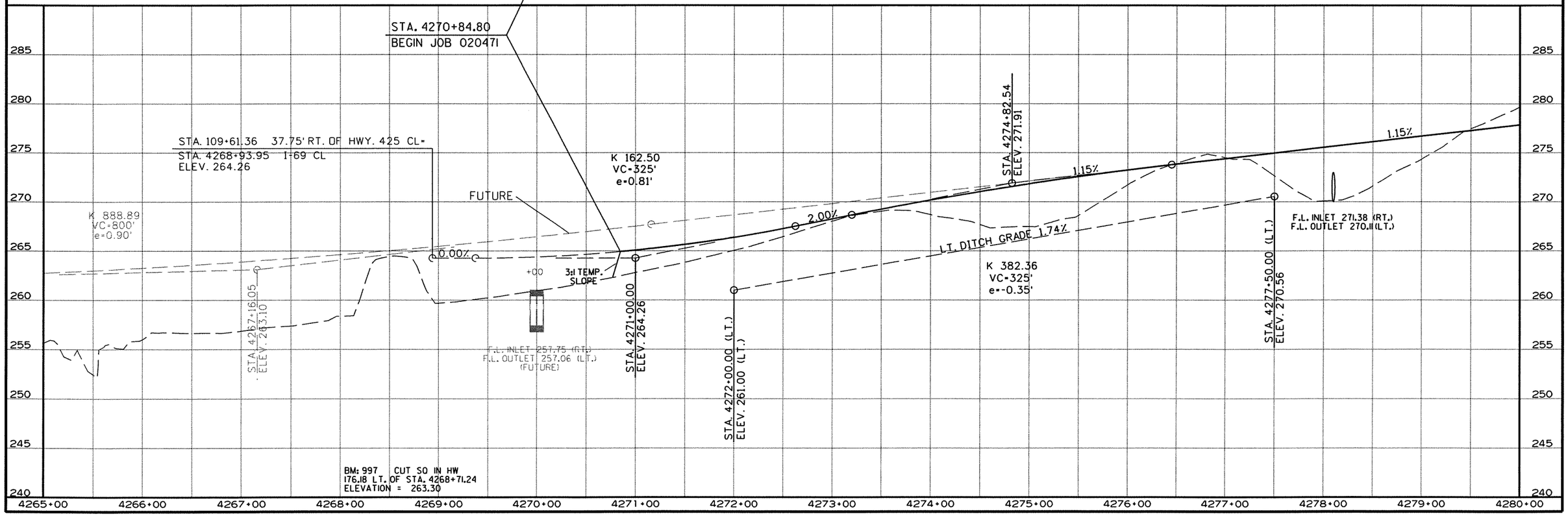
STA. 4278+10 - CONSTRUCT
44" x 27" x 90' R.C. ARCH PIPE CULV'T. (CL. III)
(26° RT. FWD. SKEW)
WITH F.E.S. LT. & RT.
USE TYPE 3 BEDDING
Q50 = 42 cfs; DA = 19 ac



WIRE FENCE (TYPE A)

STA. 100+65.00 RT. OF HWY. 425 TO STA. 4338+80.00 RT. OF MAIN LANES = 7271 LIN. FT.
STA. 118+55.00 RT. OF HWY. 425 TO STA. 4337+90.00 LT. OF MAIN LANES = 7195 LIN. FT.

MAIN LANES



BM: 997 CUT SQ IN HW
176.18 LT. OF STA. 4268+71.24
ELEVATION = 263.30

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				6	ARK.			
				JOB NO.		020471	93	346

(2) PLAN AND PROFILES - MAIN LANES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-7-11

STA. 4287+10 - CONSTRUCT
36" x 94' R.C. PIPE CULV'T. (CL. III)
WITH F.E.S. LT. & RT.
USE TYPE 3 BEDDING
Q50 = 48 cfs; DA = 25 ac

WIRE FENCE (TYPE A)

STA. 100+65.00 RT. OF HWY. 425 TO STA. 4338+80.00 RT. OF MAIN LANES = 7271 LIN. FT.
STA. 118+55.00 RT. OF HWY. 425 TO STA. 4337+90.00 LT. OF MAIN LANES = 7195 LIN. FT.

+90.06 210.00'
+80.00 195.00'
PROPOSED R/W & C/A
+05.00 145.00'
GUARDRAIL (TYPE C)
+05.00 100.00'
+06.17 130.00'
+05.00 110.00'
4280
4285
4290
4295

CONSTRUCTION LIMITS
S87°18'26.4"E
8' SHLDR.
24'
10' SHLDR.
MIXED TREES
C.D.P.
SPIKE
CONSTRUCTION LIMITS
+50.00 175.00'
+05.00 125.00'
GUARDRAIL (TYPE C)
+95.00 170.00'
+95.00 180.00'
PROPOSED R/W & C/A
+00.00 150.00'

STA. 4287+00.00 TO STA. 4289+75 ON RT.
CONCRETE DITCH PAVING (TYPE B) ("W"=4') = 117.78 SQ. YD.

MAIN LANES

STA. 4287+10.00 (RT.)
STA. 4287+10.00 (LT.)
ELEV. 276.80 (LT.)
ELEV. 277.00 (RT.)
1.15%
+00
RT. DITCH GRADE -1.16%
LT. DITCH GRADE -1.13%
RT. DITCH GRADE 3.06%
F.L. INLET 276.98 (RT.)
F.L. OUTLET 276.82 (LT.)
STA. 4285+00.00 (RT.)
STA. 4285+00.00 (LT.)
ELEV. 279.44 (RT.)
ELEV. 279.18 (LT.)
STA. 4289+50.00 (RT.)
ELEV. 284.33

310 305 300 295 290 285 280 275 270 265

4280+00 4281+00 4282+00 4283+00 4284+00 4285+00 4286+00 4287+00 4288+00 4289+00 4290+00 4291+00 4292+00 4293+00 4294+00 4295+00

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				JOB NO.		020471	94	346

(2) PLAN AND PROFILES - MAIN LANES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
14,760
MICHAEL D. PUGETT
7-12-11

STA. 4297+12 - CONSTRUCT
DBL. 36" x 86' R.C. PIPE CULV'T. (CL. III)
(19° LT. FWD. SKEW)
WITH F.E.S. LT. & RT.
USE TYPE 3 BEDDING
050 = 50 cfs; DA = 17 ac
36" R.C. PIPE CULV'T. (CL. III) = 172 LIN. FT.
36" F.E.S = 4 EACH

STA. 4301+60 - CONSTRUCT
30" x 82' R.C. PIPE CULV'T. (CL. III)
WITH F.E.S. LT & RT.
USE TYPE 3 BEDDING
050 = 24 cfs; DA = 10 ac

STA. 4304+40 - CONSTRUCT
QUINT. 36" x 23" x 78' R.C. ARCH
PIPE CULV'T. (CL. III)
WITH F.E.S. LT. & RT.
USE TYPE 3 BEDDING
050 = 90 cfs; DA = 30 ac
36" x 23" R.C. ARCH PIPE = 390 LIN. FT.
36" x 23" F.E.S. = 10 EACH

MIXED TREES
PROPOSED R/W & C/A
CONSTRUCTION LIMITS
S87°18'26.4"E
8" SHLDR.
24'
10' SHLDR.
WIRE FENCE (TYPE A)
+80.00 120.00
+45.00 145.00
+00.00 130.00
+40.00 140.00
+00.00 100.00
+50.00 135.00
+00.00 115.00
4295
4300
4305
4310
POND

STA. 100+65.00 RT. OF HWY. 425 TO STA. 4338+80.00 RT. OF MAIN LANES = 7271 LIN. FT.
STA. 118+55.00 RT. OF HWY. 425 TO STA. 4337+90.00 LT. OF MAIN LANES = 7195 LIN. FT.

MAIN LANES

+12
+40
+60
1.15%
RT. DITCH GRADE -0.52%
LT. DITCH GRADE -0.55%
F.L. INLET 289.96 (RT.)
F.L. OUTLET 289.56 (LT.)
RT. DITCH GRADE 0.11%
LT. DITCH GRADE -0.47%
RT. DITCH GRADE 1.62%
F.L. INLET 295.96 (RT.)
F.L. OUTLET 295.70 (LT.)
LT. DITCH GRADE 0.68%
F.L. INLET 300.48 (RT.)
F.L. OUTLET 300.24 (LT.)

STA. 4295+00.00 (RT.) ELEV. 290.94 (RT.)
STA. 4295+00.00 (LT.) ELEV. 290.68 (LT.)
STA. 4296+80.00 (RT.) ELEV. 290.01
STA. 4297+16.00 (LT.) ELEV. 289.50
STA. 4297+98.40 (RT.) ELEV. 290.14
STA. 4300+00.00 (LT.) ELEV. 296.43
STA. 4301+60.00 (LT.) ELEV. 295.67
STA. 4303+00.00 (LT.) ELEV. 299.26
STA. 4304+40.00 (LT.) ELEV. 300.21
STA. 4305+50.00 (RT.) ELEV. 302.29

320 315 310 305 300 295 290 285 280 275

4295+00 4296+00 4297+00 4298+00 4299+00 4300+00 4301+00 4302+00 4303+00 4304+00 4305+00 4306+00 4307+00 4308+00 4309+00 4310+00

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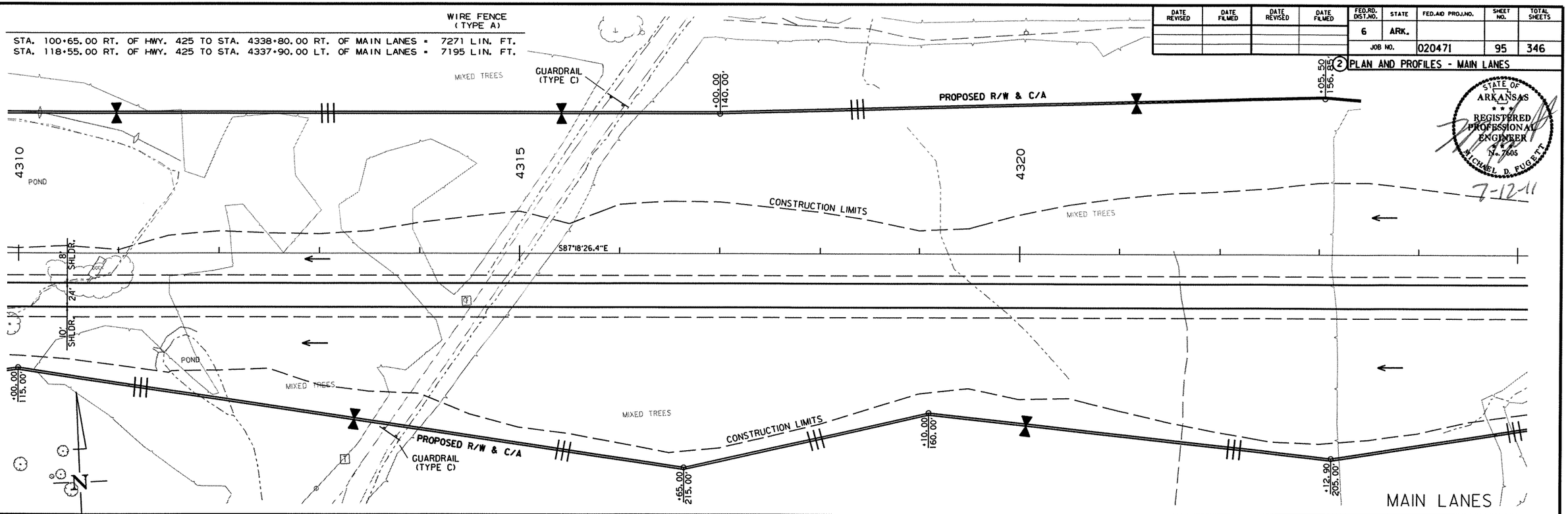
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				6	ARK.			
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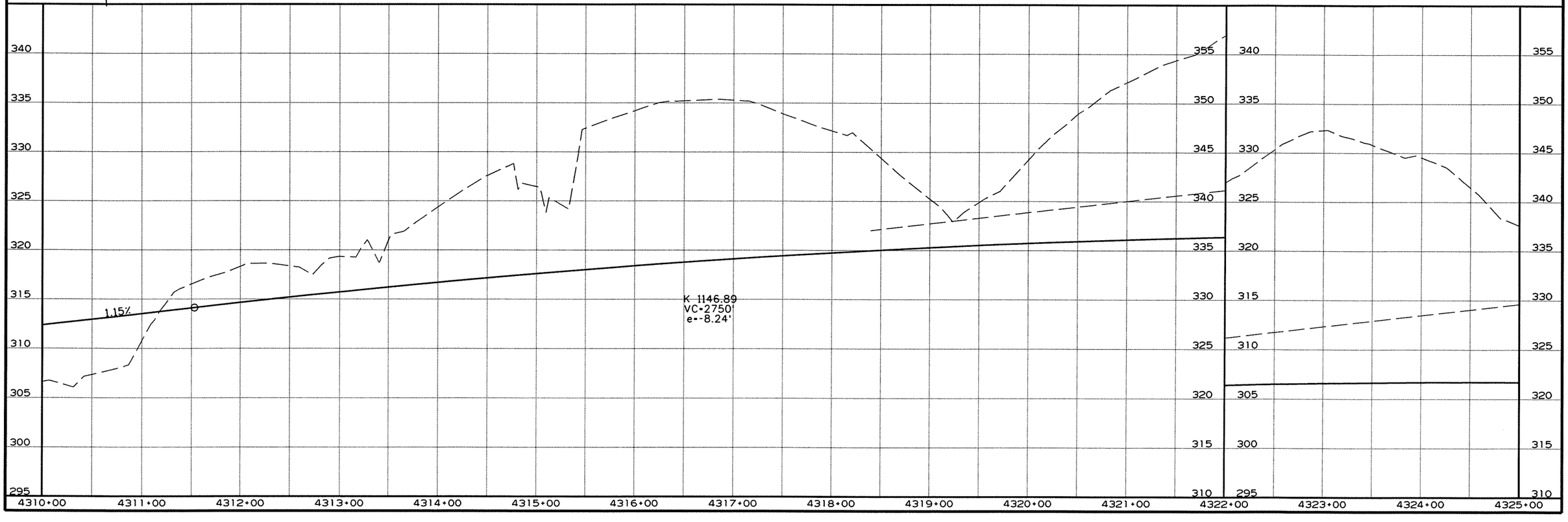
(2) PLAN AND PROFILES - MAIN LANES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11

WIRE FENCE (TYPE A)

STA. 100+65.00 RT. OF HWY. 425 TO STA. 4338+80.00 RT. OF MAIN LANES = 7271 LIN. FT.
STA. 118+55.00 RT. OF HWY. 425 TO STA. 4337+90.00 LT. OF MAIN LANES = 7195 LIN. FT.





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(2) PLAN AND PROFILES - MAIN LANES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-13-11

STA. 4330+10 - CONSTRUCT
42" x 86' R.C. PIPE CULV'T. (CL. III)
(22° RT. FWD. SKEW)
WITH F.E.S. LT. & RT.
USE TYPE 3 BEDDING
Q50 = 61cfs; DA = 35 ac

OBLITERATION OF EXISTING PAVEMENT.

STA. 4333+75 TO STA. 4335+23 ON LT.
CONCRETE DITCH PAVING (TYPE B) ("W"=4') = 65.78 SQ. YD.

STA. 4335+28 - CONSTRUCT
24" x 100' R.C. PIPE CULV'T. (CL. III)
(19° RT. FWD. SKEW)
WITH F.E.S. LT. & RT.
USE TYPE 3 BEDDING
Q50 = 18 cfs; DA = 18 ac

WIRE FENCE (TYPE A)

STA. 100+65.00 RT. OF HWY. 425 TO STA. 4338+80.00 RT. OF MAIN LANES = 7271 LIN. FT.
STA. 118+55.00 RT. OF HWY. 425 TO STA. 4337+90.00 LT. OF MAIN LANES = 7195 LIN. FT.

MAIN LANES

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(2) PLAN AND PROFILES - MAIN LANES

WIRE FENCE (TYPE A)

STA. 4341+90.00 RT. OF MAIN LANES TO STA. 4538+61.02 RT. OF MAIN LANES = 19858 LIN. FT.
STA. 4341+15.00 LT. OF MAIN LANES TO STA. 4539+22.33 LT. OF MAIN LANES = 19728 LIN. FT.

STA. 4340+75.16 42.00' RT. OF I-69 CL =
STA. 106+51.57 COUNTY ROAD 36 CL
Δ = 77° 27' 54"

STA. 4345+50 TO STA. 4350+75 ON LT.
CONCRETE DITCH PAVING (TYPE B) ("W"=4') = 233.33 SQ. YD.

STATE OF ARKANSAS
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No. 7605
MICHAEL D. FUGETT
7-12-11

COUNTY ROAD 36 (E.W.N.)
P.C.E.
P.I. 106+51.57
BOTH
CONSTRUCTION LIMITS
S87°18'26.4"E
C.D.P.
PROPOSED R/W & C/A
4340
4345
4350
+75.00 135.80'
+70.00 140.00'
+50.00 175.00'
+00.00 130.00'
+05.00 115.00'
8' SHLDR.
24'
10' SHLDR.
+00.00 105.00'
+70.00 105.00'
+50.00 155.00'
P.I. 105+63.66
+30.00 135.00'
+90.00 135.00'
+25.69 140.00'
P.C.E.
501
N
OBLITERATION OF EXISTING PAVEMENT.

STA. 4345+50 TO STA. 4349+50 ON RT.
CONCRETE DITCH PAVING (TYPE B) ("W"=4') = 177.78 SQ. YD.

STA. 4349+50 - CONSTRUCT
54" x 140' R.C. PIPE CULV'T. (CL. IV)
WITH F.E.S. LT. & RT.
USE TYPE 3 BEDDING
Q50 = 150 cfs; DA = 79 ac

MAIN LANES

315
310
305
300
295
290
285
280
275
270
-1.25%
RT. DITCH GRADE -5.65%
LT. DITCH GRADE -5.01%
STA. 4345+80.81 (LT.)
ELEV. 300.08
STA. 4346+00.00 (RT.)
ELEV. 299.91
+50
LT. DITCH GRADE 3.83%
F.L. INLET 281.46 (LT.)
F.L. OUTLET 280.26 (RT.)
STA. 4349+50.00 (RT.)
STA. 4349+50.00 (LT.)
ELEV. 280.13 (RT.)
ELEV. 281.60 (LT.)
STA. 4350+50.00 (LT.)
ELEV. 285.43
4340+00
4341+00
4342+00
4343+00
4344+00
4345+00
4346+00
4347+00
4348+00
4349+00
4350+00
4351+00
4352+00
4353+00
4354+00
4355+00

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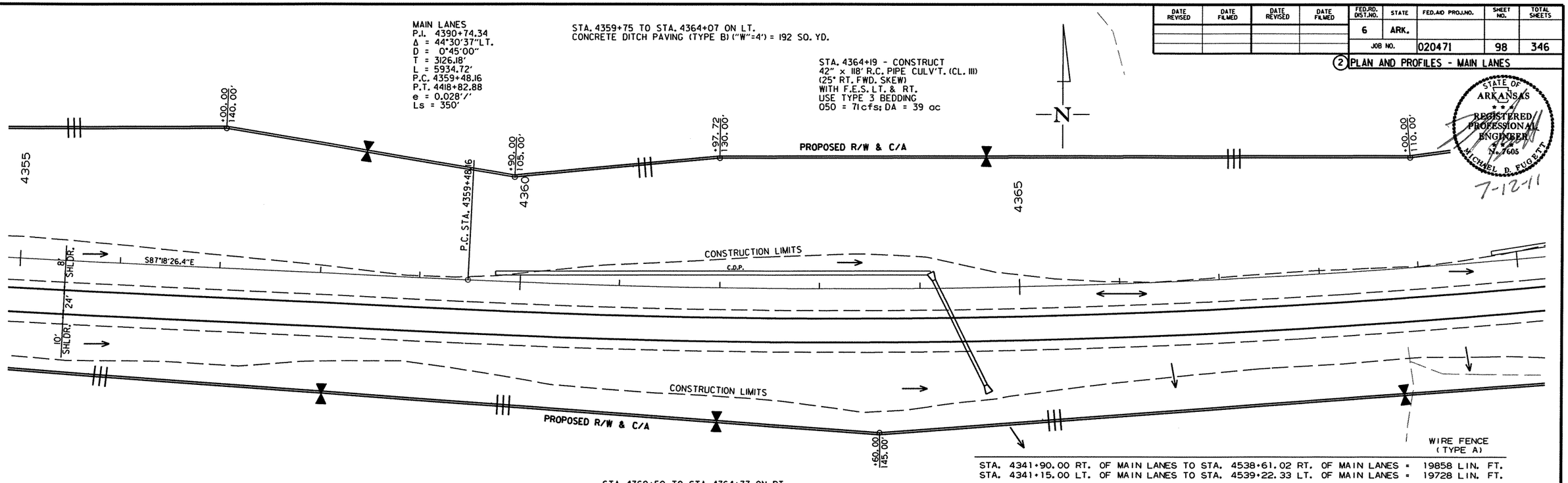
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(2) PLAN AND PROFILES - MAIN LANES

MAIN LANES
P.I. 4390+74.34
Δ = 44°30'37"LT.
D = 0°45'00"
T = 3126.18'
L = 5934.72'
P.C. 4359+48.16
P.T. 4418+82.88
e = 0.028'/'
Ls = 350'

STA. 4359+75 TO STA. 4364+07 ON LT.
CONCRETE DITCH PAVING (TYPE B) ("W"=4') = 192 SQ. YD.

STA. 4364+19 - CONSTRUCT
42" x 118' R.C. PIPE CULV'T. (CL. III)
(25° RT. FWD. SKEW)
WITH F.E.S. LT. & RT.
USE TYPE 3 BEDDING
Q50 = 71cfs; DA = 39 ac



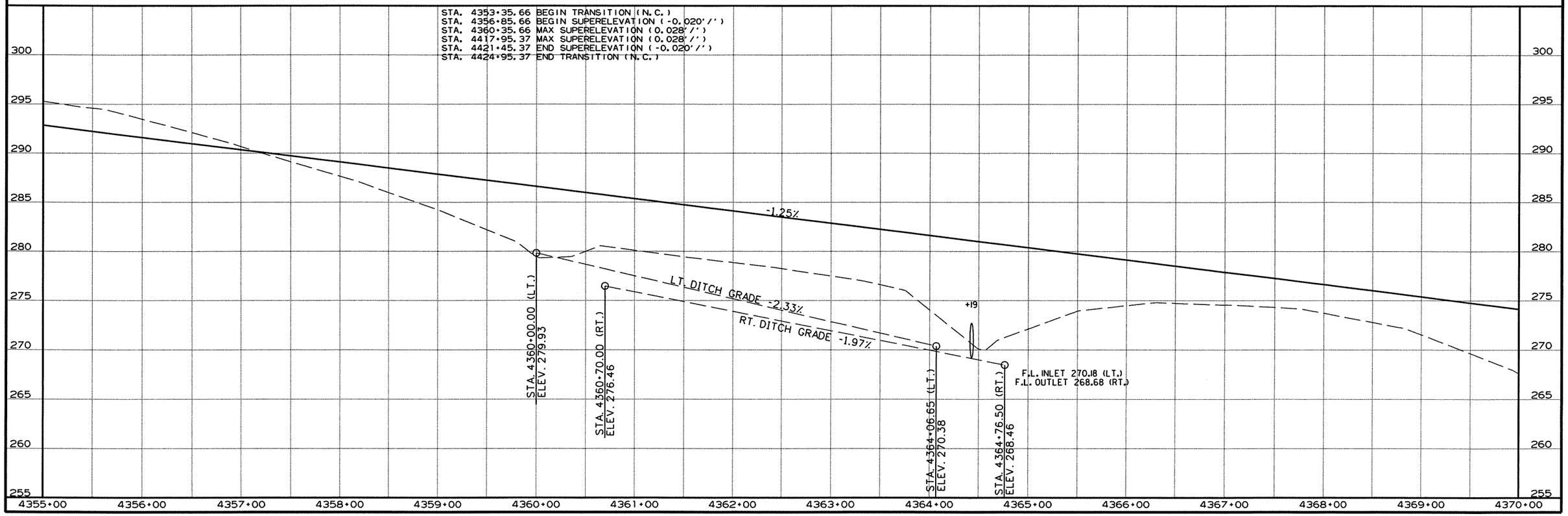
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. PUGETT
7-12-11

STA. 4360+50 TO STA. 4364+77 ON RT.
EROSION CONTROL MATTING (CLASS 3) = 379.56 SQ. YD.

WIRE FENCE (TYPE A)
STA. 4341+90.00 RT. OF MAIN LANES TO STA. 4538+61.02 RT. OF MAIN LANES = 19858 LIN. FT.
STA. 4341+15.00 LT. OF MAIN LANES TO STA. 4539+22.33 LT. OF MAIN LANES = 19728 LIN. FT.

MAIN LANES

STA. 4353+35.66 BEGIN TRANSITION (N.C.)
STA. 4356+85.66 BEGIN SUPERELEVATION (-0.020'/')
STA. 4360+35.66 MAX SUPERELEVATION (0.028'/')
STA. 4417+95.37 MAX SUPERELEVATION (0.028'/')
STA. 4421+45.37 END SUPERELEVATION (-0.020'/')
STA. 4424+95.37 END TRANSITION (N.C.)



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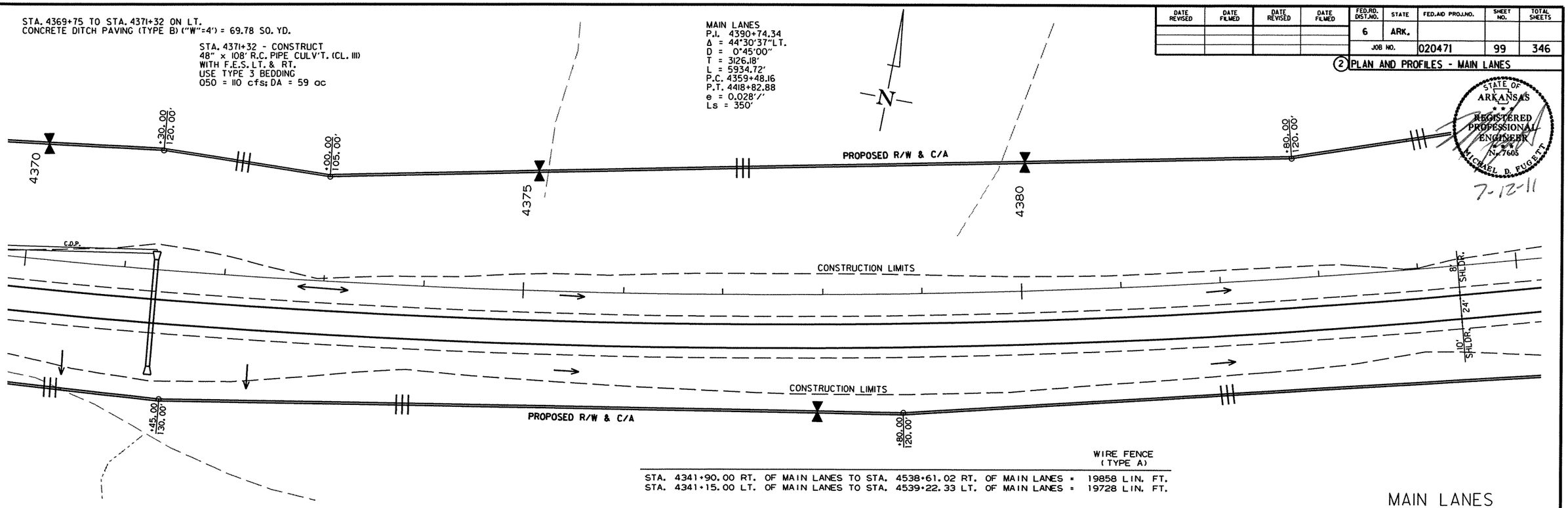
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(2) PLAN AND PROFILES - MAIN LANES

STA. 4369+75 TO STA. 4371+32 ON LT.
CONCRETE DITCH PAVING (TYPE B) ("W"=4') = 69.78 SQ. YD.

STA. 4371+32 - CONSTRUCT
48" x 108' R.C. PIPE CULV'T. (CL. III)
WITH F.E.S. LT. & RT.
USE TYPE 3 BEDDING
Q50 = 110 cfs; DA = 59 ac

MAIN LANES
P.I. 4390+74.34
Δ = 44°30'37" LT.
D = 0°45'00"
T = 3126.18'
L = 5934.72'
P.C. 4359+48.16
P.T. 4418+82.88
e = 0.028'/'
Ls = 350'



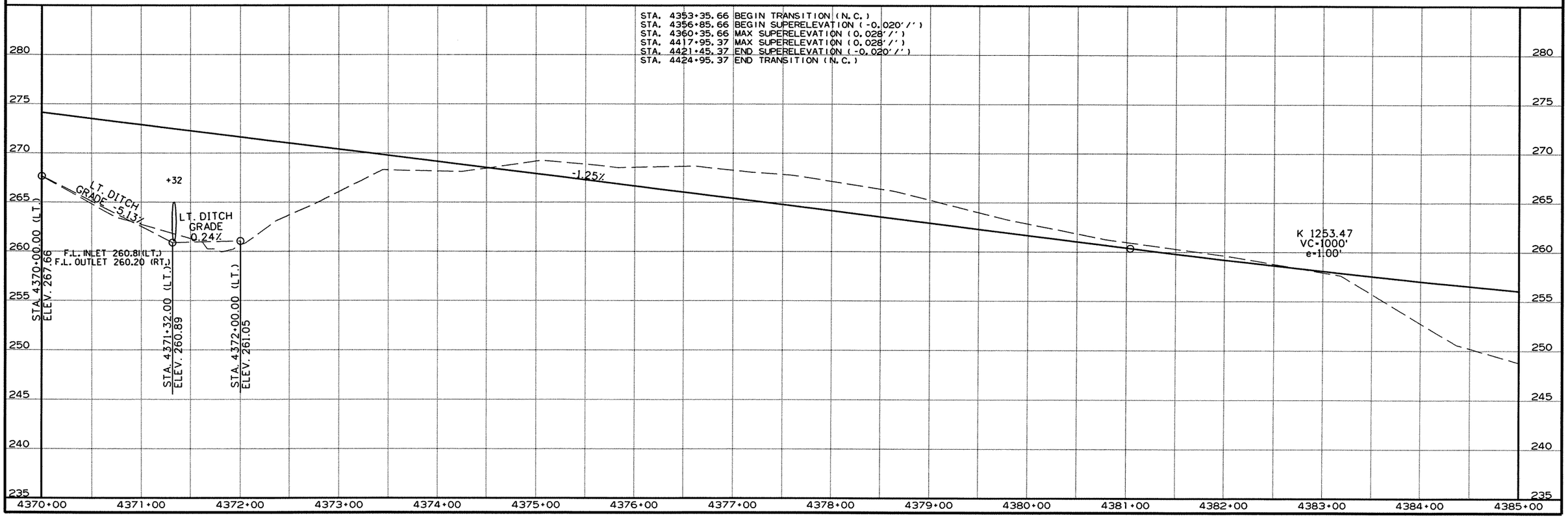
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
N. 7605
MICHAEL D. FUGETT
7-12-11

WIRE FENCE (TYPE A)

STA. 4341+90.00 RT. OF MAIN LANES TO STA. 4538+61.02 RT. OF MAIN LANES = 19858 LIN. FT.
STA. 4341+15.00 LT. OF MAIN LANES TO STA. 4539+22.33 LT. OF MAIN LANES = 19728 LIN. FT.

MAIN LANES

STA. 4353+35.66 BEGIN TRANSITION (N.C.)
STA. 4356+85.66 BEGIN SUPERELEVATION (-0.020'/')
STA. 4360+35.66 MAX SUPERELEVATION (0.028'/')
STA. 4417+95.37 MAX SUPERELEVATION (0.028'/')
STA. 4421+45.37 END SUPERELEVATION (-0.020'/')
STA. 4424+95.37 END TRANSITION (N.C.)



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(2) PLAN AND PROFILES - MAIN LANES

STA. 4385+93 - CONSTRUCT
DBL. 73" x 45" x 92' R.C. ARCH
PIPE CULV'T. (CL. III)
(15° RT. FWD. SKEW)
WITH F.E.S. LT. & RT.
USE TYPE 3 BEDDING
Q50 = 180 cfs; DA = 108 ac
73" x 45" R.C. ARCH PIPE = 184 LIN. FT.
73" x 45" F.E.S. = 4 EACH

MAIN LANES
P.I. 4390+74.34
Δ = 44°30'37"LT.
D = 0°45'00"
T = 3126.18'
L = 5934.72'
P.C. 4359+48.16
P.T. 4418+82.88
e = 0.028'/'
Ls = 350'

STATE OF ARKANSAS
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No. 7605
MICHAEL D. FUGETT
7-12-11

4385 4390 4395

PROPOSED R/W & C/A

+85.56 145.00'

+75.00 165.00'

+10.00 130.00'

CONSTRUCTION LIMITS

8' SHLDR.

24'

10' SHLDR.

WOODS & THICK BRUSH

C.D.P.

APPROXIMATE BOUNDARY

POND

APPROXIMATE BOUNDARY

APPROXIMATE BOUNDARY

+05.00 135.00'

+00.00 128.23'

+90.00 130.00'

PROPOSED R/W & C/A

CONSTRUCTION LIMITS

T.C.E.

T.C.E.

T.C.E.

+00.00 215.00'

+00.00 215.00'

WIRE FENCE (TYPE A)

STA. 4341+90.00 RT. OF MAIN LANES TO STA. 4538+61.02 RT. OF MAIN LANES = 19858 LIN. FT.
STA. 4341+15.00 LT. OF MAIN LANES TO STA. 4539+22.33 LT. OF MAIN LANES = 19728 LIN. FT.

STA. 4397+75 TO STA. 4402+64 ON RT.
CONCRETE DITCH PAVING (TYPE B) ("W"=4') = 217.33 SQ. YD.

MAIN LANES

STA. 4353+35.66 BEGIN TRANSITION (N.C.)
STA. 4356+85.66 BEGIN SUPERELEVATION (-0.020'/')
STA. 4360+35.66 MAX SUPERELEVATION (0.028'/')
STA. 4417+95.37 MAX SUPERELEVATION (0.028'/')
STA. 4421+45.37 END SUPERELEVATION (-0.020'/')
STA. 4424+95.37 END TRANSITION (N.C.)

SPECIAL FLOOD HAZARD AREA -
STA. 4395+00 TO STA. 4440+00

270 265 260 255 250 245 240 235 230 225

STA. 386+03.83
ELEV. 254.13

K 1253.47
VC=1000'
e=1.00'

+93

LT. DITCH GRADE -2.26%

RT. DITCH GRADE 0.92%

-0.45%

RT. DITCH GRADE -3.02%

F.L. INLET 246.67 (LT.)
F.L. OUTLET 246.07 (RT.)

STA. 4385+00.00 (LT.)
ELEV. 248.79

STA. 4385+89.22 (LT.)
ELEV. 246.77

STA. 4386+21.06 (RT.)
ELEV. 245.97

STA. 4390+00.00 (RT.)
ELEV. 249.46

STA. 4398+00.00 (RT.)
ELEV. 245.82

4385+00 4386+00 4387+00 4388+00 4389+00 4390+00 4391+00 4392+00 4393+00 4394+00 4395+00 4396+00 4397+00 4398+00 4399+00 4400+00

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(2) PLAN AND PROFILES - MAIN LANES

STA. 4401+87 - CONSTRUCT
54" x 126' R.C. PIPE CULV'T. (CL. III)
(35° RT. FWD. SKEW)
WITH F.E.S. LT. & RT.
USE TYPE 3 BEDDING
Q50 = 160 cfs; DA = 87 ac

STA. 4399+75 TO STA. 4401+71 ON LT.
EROSION CONTROL MATTING (CLASS 3) = 174.22 SQ. YD.

MAIN LANES
P.I. 4390+74.34
Δ = 44°30'37"LT.
D = 0°45'00"
T = 3126.18'
L = 5934.72'
P.C. 4359+48.16
P.T. 4418+82.88
e = 0.028'/'
Ls = 350'

APPROXIMATE BOUNDARY

STA. 4409+85 - CONSTRUCT
DBL. 36" x 23" x 98' R.C. ARCH PIPE CULV'T. (CL. III)
(17° RT. FWD. SKEW)
WITH F.E.S. LT. & RT.
USE TYPE 3 BEDDING
Q50 = 29 cfs; DA = 14 ac
36" x 23" R.C. ARCH PIPE = 196 LIN. FT.
36" x 23" F.E.S. = 4 EACH

STA. 4412+50 TO STA. 4417+25 ON LT.
EROSION CONTROL MATTING (CLASS 3) = 422.22 SQ. YD.

STATE OF ARKANSAS
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No. 7605
MICHAEL D. FUGETT
7-12-11

4400 4405 4410 4415

+55.00 130.00 +05.00 145.00 +20.00 135.00

PROPOSED R/W & C/A

BOTTOM CREEK

FOUR-DUCT CONC. BODY FOUR DUCT

CAPITAL DRAINAGE DITCH

CONSTRUCTION LIMITS

C.D.P.

8' SHLDR. 24' 10' SHLDR.

CONSTRUCTION LIMITS

PROPOSED R/W & C/A

+70.00 170.00

STA. 4397+75 TO STA. 4402+64 ON RT.
CONCRETE DITCH PAVING (TYPE B) ("W"=4') = 217.33 SQ. YD.

WIRE FENCE (TYPE A)

STA. 4341+90.00 RT. OF MAIN LANES TO STA. 4538+61.02 RT. OF MAIN LANES = 19858 LIN. FT.
STA. 4341+15.00 LT. OF MAIN LANES TO STA. 4539+22.33 LT. OF MAIN LANES = 19728 LIN. FT.

MAIN LANES

STA. 4353+35.66 BEGIN TRANSITION (N.C.)
STA. 4356+85.66 BEGIN SUPERELEVATION (-0.020'/')
STA. 4360+35.66 MAX SUPERELEVATION (0.028'/')
STA. 4417+95.37 MAX SUPERELEVATION (0.028'/')
STA. 4421+45.37 END SUPERELEVATION (-0.020'/')
STA. 4424+95.37 END TRANSITION (N.C.)

SPECIAL FLOOD HAZARD AREA -
STA. 4395+00 TO STA. 4440+00

270 265 260 255 250 245 240 235 230 225

-0.45%

+87 +85

LT. DITCH GRADE -2.34%
RT. DITCH GRADE -3.02%
RT. DITCH GRADE 0.21%
RT. DITCH GRADE 1.26%
LT. DITCH GRADE -1.67%
RT. DITCH GRADE -1.67%
LT. DITCH GRADE 0.64%
RT. DITCH GRADE -0.40%
LT. DITCH GRADE -2.29%

STA. 4400+00.00 (LT.) ELEV. 239.59
STA. 4401+71.43 (LT.) ELEV. 235.58
STA. 4401+71.43 (RT.) ELEV. 234.59
STA. 4402+64.00 (RT.) ELEV. 234.78
F.L. INLET 235.50 (LT.)
F.L. OUTLET 234.86 (RT.)
STA. 4407+00.00 (RT.) ELEV. 240.29
STA. 4407+50.00 (LT.) ELEV. 240.23
STA. 4409+86.00 (LT.) ELEV. 236.28
STA. 4410+20.00 (RT.) ELEV. 234.93
F.L. INLET 236.18 (LT.)
F.L. OUTLET 235.04 (RT.)
STA. 4412+50.00 (LT.) ELEV. 237.66
STA. 4415+00.00 (RT.) ELEV. 233.02

4400+00 4401+00 4402+00 4403+00 4404+00 4405+00 4406+00 4407+00 4408+00 4409+00 4410+00 4411+00 4412+00 4413+00 4414+00 4415+00

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(2) PLAN AND PROFILES - MAIN LANES

WIRE FENCE (TYPE A)

STA. 4341+90.00 RT. OF MAIN LANES TO STA. 4538+61.02 RT. OF MAIN LANES = 19858 LIN. FT.
STA. 4341+15.00 LT. OF MAIN LANES TO STA. 4539+22.33 LT. OF MAIN LANES = 19728 LIN. FT.

MAIN LANES
P.I. 4390+74.34
Δ = 44°30'37"LT.
D = 0°45'00"
T = 3126.18'
L = 5934.72'
P.C. 4359+48.16
P.T. 4418+82.88
e = 0.028'/'
Ls = 350'

STA. 4415+71 - CONSTRUCT
30" x 114' R.C. PIPE CULV'T. (CL. III)
(21° RT. FWD. SKEW)
WITH F.E.S. LT. & RT.
USE TYPE 3 BEDDING
050 = 34 cfs; DA = 16 ac

STA. 4412+50 TO STA. 4417+25 ON LT.
EROSION CONTROL MATTING (CLASS 3) = 422.22 SQ. YD.

STA. 4425+75 TO STA. 4427+84 ON LT.
CONCRETE DITCH PAVING (TYPE B) ("W"=4') = 92.89 SQ. YD.

STA. 4428+00 - CONSTRUCT
DBL. 42" x 128' R.C. PIPE CULV'T. (CL. III)
(36° RT. FWD. SKEW)
WITH F.E.S. LT. & RT.
USE TYPE 3 BEDDING
050 = 150 cfs; DA = 85 ac
42" R.C. PIPE = 256 LIN. FT.
42" F.E.S. = 4 EACH

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+30.00 145.00' | +90.00 125.00' | +00.00 135.00' | +30.00 125.00'

PROPOSED R/W & C/A | GUARDRAIL (TYPE C) | EARTH LOGGING ROAD

4415 | 4420 | 4425 | 4430

P.T. STA. 4418+82.87

CONSTRUCTION LIMITS | N48°10'56.3"E | C.D.P.

8' SHLDR. | 24' | 10' SHLDR. | GRAVEL LOGGING ROAD

+73.85 133.45' | +61.57 125.00' | +23.14 150.00'

STA. 4427+00 TO STA. 4428+77 ON RT.
CONCRETE DITCH PAVING (TYPE B) ("W"=4') = 78.67 SQ. YD.
STA. 4428+77 TO STA 4434+59 ON RT.
CONCRETE DITCH PAVING (TYPE A) ("B"=12') ("W"=8') = 776 SQ. YD.

MAIN LANES

STA. 4353+35.66 BEGIN TRANSITION (N.C.)
STA. 4356+85.66 BEGIN SUPERELEVATION (-0.020'/')
STA. 4360+35.66 MAX SUPERELEVATION (0.028'/')
STA. 4417+95.37 MAX SUPERELEVATION (0.028'/')
STA. 4421+45.37 END SUPERELEVATION (-0.020'/')
STA. 4424+95.37 END TRANSITION (N.C.)

SPECIAL FLOOD HAZARD AREA -
STA. 4395+00 TO STA. 4440+00

255 | 250 | 245 | 240 | 235 | 230 | 225 | 220 | 215 | 210

RT. DITCH GRADE -2.44% | +71 | LT. DITCH GRADE -3.07% | -0.45% | LT. DITCH GRADE -2.29%

STA. 4415+00.00 (RT.)
ELEV. 233.02

STA. 4415+63.41 (LT.)
ELEV. 230.80

STA. 4416+10.30 (RT.)
ELEV. 230.33

F.L. INLET 230.77 (LT.)
F.L. OUTLET 230.37 (RT.)

STA. 4417+00.00 (LT.)
ELEV. 235.00

STA. 4426+00.00 (LT.)
STA. 4426+00.00 (RT.)
ELEV. 231.72 (LT.)
ELEV. 231.97 (RT.)

RT. DITCH GRADE -3.18% | +00 | LT. DITCH GRADE -4.44%

F.L. INLET 223.52 (LT.)
F.L. OUTLET 223.19 (RT.)

LT. DITCH GRADE 0.50% | RT. DITCH GRADE -0.16%

STA. 4427+84.00 (LT.)
ELEV. 223.55

STA. 4428+77.50 (RT.)
ELEV. 223.15

STA. 4430+00.00 (LT.)
ELEV. 224.64

4415+00 | 4416+00 | 4417+00 | 4418+00 | 4419+00 | 4420+00 | 4421+00 | 4422+00 | 4423+00 | 4424+00 | 4425+00 | 4426+00 | 4427+00 | 4428+00 | 4429+00 | 4430+00

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(2) PLAN AND PROFILES - MAIN LANES

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STA. 4432+00 TO STA. 4433+89 ON LT
EROSION CONTROL MATTING (CLASS 3) = 168 SQ. YD.

STA. 4434+00 - CONSTRUCT
42" x 108' R.C. PIPE CULV'T. (CL. III)
(30° RT. FWD. SKEW)
WITH F.E.S. LT. & RT.
USE TYPE 3 BEDDING
050 = 75 cfs; DA = 41 ac

STA. 4437+78 - CONSTRUCT
36" x 88' R.C. PIPE CULV'T. (CL. III)
(5° LT. FWD. SKEW)
WITH F.E.S. LT & RT.
USE TYPE 3 BEDDING
050 = 35 cfs; DA = 17 ac

+85.00
155.00'

+55.00
125.00'

GUARDRAIL (TYPE C)

CLEARING & GRAVEL TIMBER ACCESS RD

+69.57
120.00'

+90.00
135.00'

PROPOSED R/W & C/A

4430 4435 4440 4445

CONSTRUCTION LIMITS

N48°10'56.3"E

WOODS & THICK UNDERBRUSH

8' SHLDR.
24'
10' SHLDR.

C.D.P.

CONSTRUCTION LIMITS

+00.00
115.00'

PROPOSED R/W & C/A

+30.00
120.00'

+33.73
140.00'

GUARDRAIL (TYPE C)

WIRE FENCE (TYPE A)

STA. 4428+77 TO STA 4434+59 ON RT.
CONCRETE DITCH PAVING (TYPE A) ("B"=12') ("W"=8') = 776 SQ. YD.

STA. 4341+90.00 RT. OF MAIN LANES TO STA. 4538+61.02 RT. OF MAIN LANES = 19858 LIN. FT.
STA. 4341+15.00 LT. OF MAIN LANES TO STA. 4539+22.33 LT. OF MAIN LANES = 19728 LIN. FT.

MAIN LANES

SPECIAL FLOOD HAZARD AREA -
STA. 4395+00 TO STA. 4440+00

-0.45%

+00

+78

RT. DITCH GRADE -0.16%

LT. DITCH GRADE -3.44%

LT. DITCH GRADE 1.14%

RT. DITCH GRADE 1.97%

LT. DITCH GRADE -1.40%

LT. DITCH GRADE 1.36%

F.L. INLET 222.48 (LT.)
F.L. OUTLET 222.23 (RT.)

F.L. INLET 222.35 (LT.)
F.L. OUTLET 221.84 (RT.)

STA. 4432+00.00 (LT.) ELEV. 229.02
STA. 4433+89.21 (LT.) ELEV. 222.51
STA. 4434+58.61 (RT.) ELEV. 222.20
STA. 4435+00.00 (LT.) ELEV. 223.77
STA. 4435+50.00 (RT.) ELEV. 224.00
STA. 4436+00.00 (LT.) ELEV. 224.91
STA. 4437+79.25 (LT.) ELEV. 222.41
STA. 4440+00.00 (LT.) ELEV. 225.42

255 250 245 240 235 230 225 220 215 210

4430+00 4431+00 4432+00 4433+00 4434+00 4435+00 4436+00 4437+00 4438+00 4439+00 4440+00 4441+00 4442+00 4443+00 4444+00 4445+00

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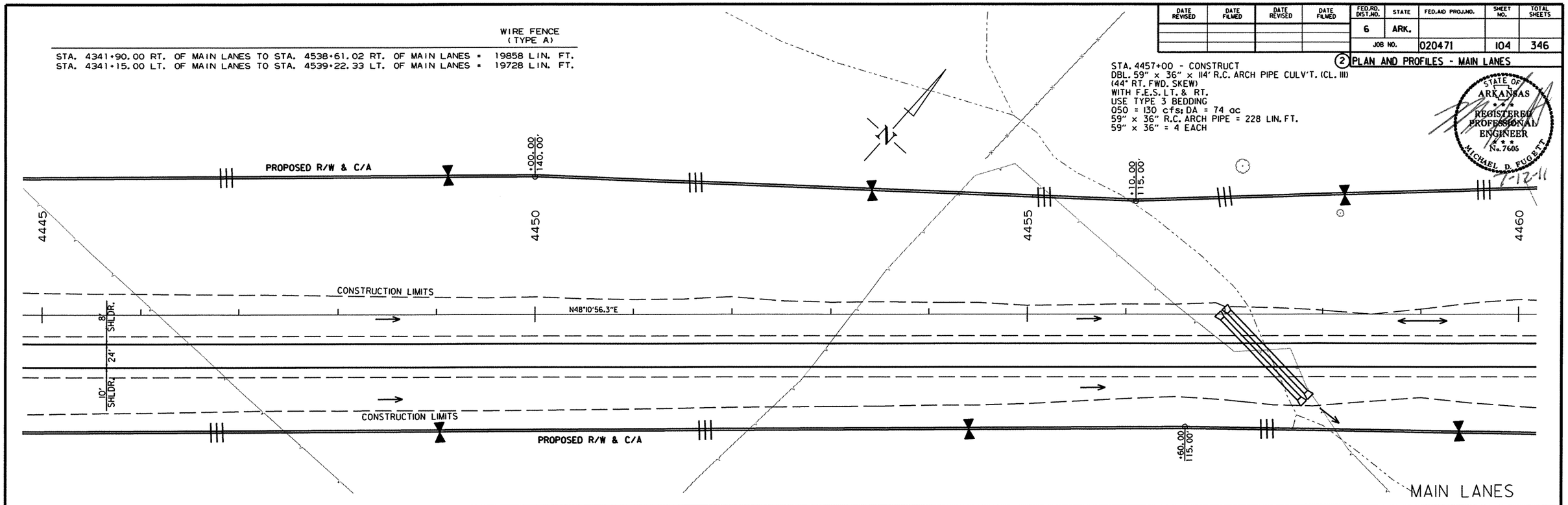
(2) PLAN AND PROFILES - MAIN LANES

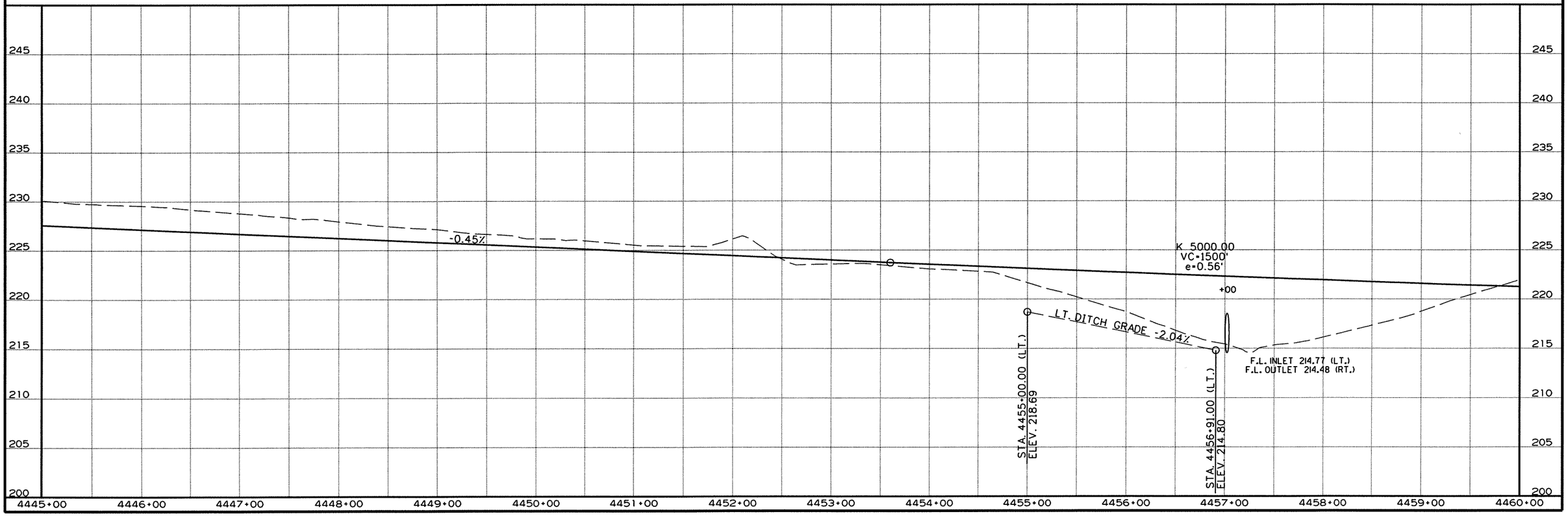
WIRE FENCE (TYPE A)

STA. 4341+90.00 RT. OF MAIN LANES TO STA. 4538+61.02 RT. OF MAIN LANES = 19858 LIN. FT.
STA. 4341+15.00 LT. OF MAIN LANES TO STA. 4539+22.33 LT. OF MAIN LANES = 19728 LIN. FT.

STA. 4457+00 - CONSTRUCT
DBL. 59" x 36" x 114' R.C. ARCH PIPE CULV'T. (CL. III)
(44° RT. FWD. SKEW)
WITH F.E.S. LT. & RT.
USE TYPE 3 BEDDING
050 = 130 cfs; DA = 74 ac
59" x 36" R.C. ARCH PIPE = 228 LIN. FT.
59" x 36" = 4 EACH

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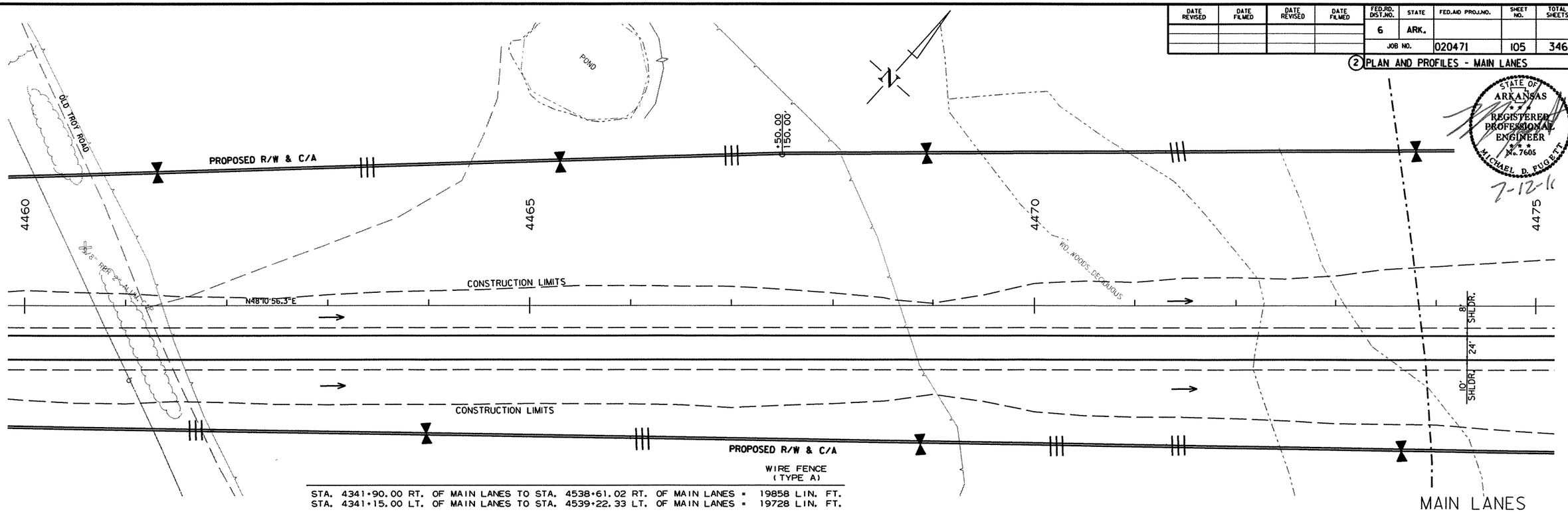


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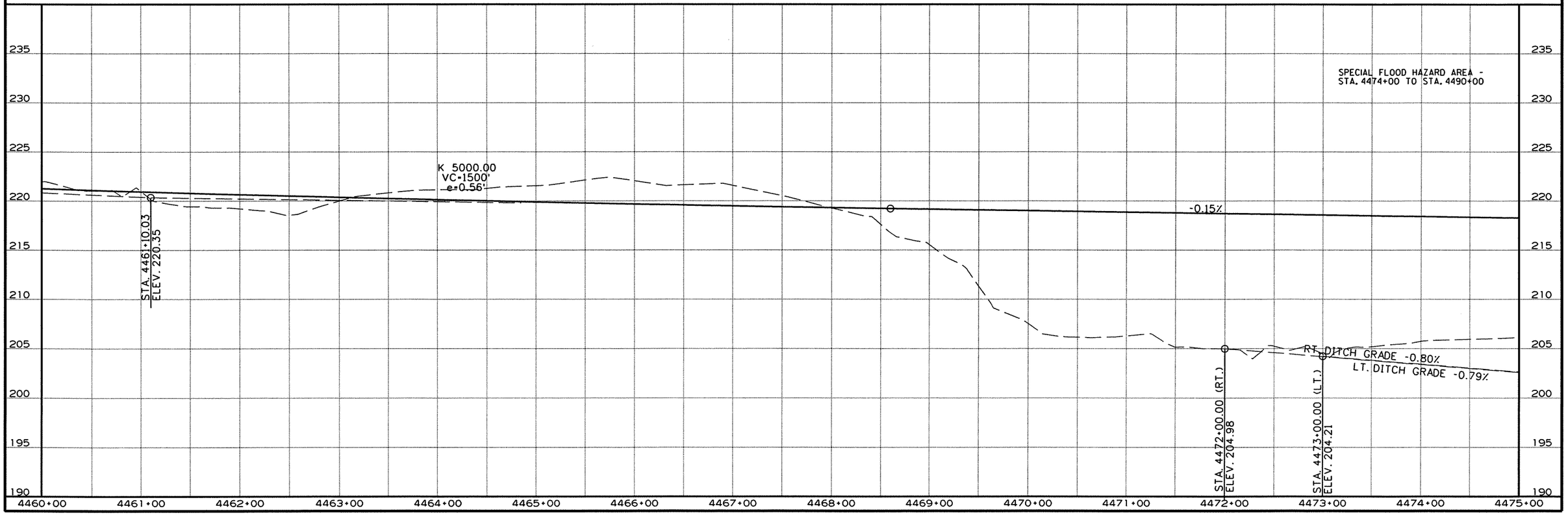
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(2) PLAN AND PROFILES - MAIN LANES

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STA. 4341+90.00 RT. OF MAIN LANES TO STA. 4538+61.02 RT. OF MAIN LANES = 19858 LIN. FT.
STA. 4341+15.00 LT. OF MAIN LANES TO STA. 4539+22.33 LT. OF MAIN LANES = 19728 LIN. FT.



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(2) PLAN AND PROFILES - MAIN LANES

STA. 4479+10 - CONSTRUCT
DBL. 9' x 7' x 138' R.C. BOX CULV'T.
(27° RT. FWD. SKEW)
WITH 3:1 WINGS
050 = 1100 cfs; DA = 1600 ac

WIRE FENCE
(TYPE A)

STA. 4341+90.00 RT. OF MAIN LANES TO STA. 4538+61.02 RT. OF MAIN LANES = 19858 LIN. FT.
STA. 4341+15.00 LT. OF MAIN LANES TO STA. 4539+22.33 LT. OF MAIN LANES = 19728 LIN. FT.

STA. 4485+00 TO STA. 4486+05 ON LT.
CONCRETE DITCH PAVING (TYPE B) ("W"=4') = 46.67 SQ. YD.

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PROPOSED R/W & C/A

DUMPED RIPRAP

CONSTRUCTION LIMITS
N48°10'56.3"E

8' SHLDR.
24'
10' SHLDR.

+00.00 155.00'
+10.00 180.00'
+95.00 150.00'
+78.00 215.00'
+57.52 115.00'
+75.00 120.00'
+50.00 105.00'
+20.59 125.00'

4475
4480
4485

STA. 4480+00 TO STA. 4483+00 ON RT.
EROSION CONTROL MATTING (CLASS 3) = 266.67 SQ. YD.

STA. 4486+12 - CONSTRUCT
60" x 104' R.C. PIPE CULV'T. (CL. III)
(16°30' RT. FWD. SKEW)
WITH F.E.S. LT. & RT.
USE TYPE 3 BEDDING
050 = 180 cfs; DA = 104 ac

MAIN LANES

SPECIAL FLOOD HAZARD AREA -
STA. 4474+00 TO STA. 4490+00

-0.15%

+10

LT. DITCH GRADE 5.66%

RT. DITCH GRADE 3.29%

LT. DITCH GRADE -0.79%
RT. DITCH GRADE -0.80%

+12

LT. DITCH GRADE -6.09%

F.L. INLET 199.44 (LT.)
F.L. OUTLET 198.87 (RT.)

F.L. INLET 204.70 (LT.)
F.L. OUTLET 203.47 (RT.)

STA. 4478+89.00 (LT.)
ELEV. 199.54

STA. 4479+75.13 (RT.)
ELEV. 198.77

STA. 4480+00.00 (LT.)
ELEV. 205.82

STA. 4484+00.00 (RT.)
ELEV. 212.74

STA. 4485+00.00 (LT.)
ELEV. 211.28

STA. 4486+05.00 (LT.)
ELEV. 204.89

NOTE:
FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS AN INTERMITTENT STREAM. THE STREAM BANK ELEVATION IS 201.0 FEET MSL. REFER TO SECTION 110.06(c) OF THE 2003 STANDARD SPECIFICATIONS.

NOTE:
FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS AN INTERMITTENT STREAM. THE STREAM BANK ELEVATION IS 207.0 FEET MSL. REFER TO SECTION 110.06(c) OF THE 2003 STANDARD SPECIFICATIONS.

230 225 220 215 210 205 200 195 190 185

4475+00 4476+00 4477+00 4478+00 4479+00 4480+00 4481+00 4482+00 4483+00 4484+00 4485+00 4486+00 4487+00 4488+00 4489+00 4490+00

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(2) PLAN AND PROFILES - MAIN LANES

RTK ELEV

STA. 4494+52 - CONSTRUCT
36" x 90' R.C. PIPE CULV'T. (CL. III)
(19° LT. FWD. SKEW)
WITH F.E.S. LT. & RT.
USE TYPE 3 BEDDING
Q50 = 36 cfs; DA = 23 ac

STA. 4499+81 - CONSTRUCT
24" x 86' R.C. PIPE CULV'T. (CL. III)
WITH F.E.S. LT. & RT.
USE TYPE 3 BEDDING
Q50 = 12 cfs; DA = 7 ac

MAIN LANES
P.I. 4514+56.76
Δ = 11°04'50" LT.
D = 0°30'00"
T = 1111.52'
L = 2216.10'
P.C. 4503+45.24
P.T. 4525+61.34
e = NO SUPER

STA. 4502+00 TO STA. 4502+82 ON LT.
EROSION CONTROL MATTING (CLASS 3) = 72.89 SQ. YD.

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+00.00
115.00'

PROPOSED R/W & C/A

+95.00
130.00'

4490 4495 4500 4505

P.C. STA. 4503+45.24

CONSTRUCTION LIMITS

N48°10'56.3"E

8' SHLDR.
24'
10' SHLDR.

CONSTRUCTION LIMITS

+95.00
110.00'

+20.00
160.00'

PROPOSED R/W & C/A

+85.00
110.00'

WIRE FENCE
(TYPE A)

STA. 4341+90.00 RT. OF MAIN LANES TO STA. 4538+61.02 RT. OF MAIN LANES = 19858 LIN. FT.
STA. 4341+15.00 LT. OF MAIN LANES TO STA. 4539+22.33 LT. OF MAIN LANES = 19728 LIN. FT.

STA. 4502+80 - CONSTRUCT
30" x 86' R.C. PIPE CULV'T. (CL. III)
(14°30' LT. FWD. SKEW)
WITH F.E.S. LT. & RT.
USE TYPE 3 BEDDING
Q50 = 21 cfs; DA = 12 ac

STA. 4501+50 TO STA. 4502+56 ON RT.
EROSION CONTROL MATTING (CLASS 3) = 94.22 SQ. YD.

MAIN LANES

240 235 230 225 220 215 210 205 200 195

STA. 4492+00.00 (RT.)
ELEV. 211.54

RT. DITCH GRADE -2.08%

STA. 4494+18.74 (RT.)
ELEV. 207.00

+52

STA. 4494+56.30 (LT.)
ELEV. 207.31

LT. DITCH GRADE 2.35%

RT. DITCH GRADE 0.25%

F.L. INLET 207.28 (LT.)
F.L. OUTLET 207.03 (RT.)

STA. 4496+00.00 (LT.)
ELEV. 210.69

-0.15%

STA. 4497+00.00 (RT.)
ELEV. 207.70

RT. DITCH GRADE -0.33%

F.L. INLET 207.31 (LT.)
F.L. OUTLET 206.82 (RT.)

STA. 4499+81.00 (LT.)

+81

STA. 4499+81.00 (RT.)
ELEV. 207.36 (LT.)
ELEV. 206.77 (RT.)

LT. DITCH GRADE 2.17%

STA. 4501+00.00 (LT.)
ELEV. 209.94

STA. 4501+50.00 (RT.)
ELEV. 210.07

STA. 4502+00.00 (LT.)
ELEV. 209.79

LT. DITCH GRADE -3.06%

RT. DITCH GRADE -3.10%

+80

STA. 4502+55.83 (RT.)
ELEV. 206.80

STA. 4502+82.28 (LT.)
ELEV. 207.28

F.L. INLET 207.23 (LT.)
F.L. OUTLET 206.84 (RT.)

4490+00 4491+00 4492+00 4493+00 4494+00 4495+00 4496+00 4497+00 4498+00 4499+00 4500+00 4501+00 4502+00 4503+00 4504+00 4505+00

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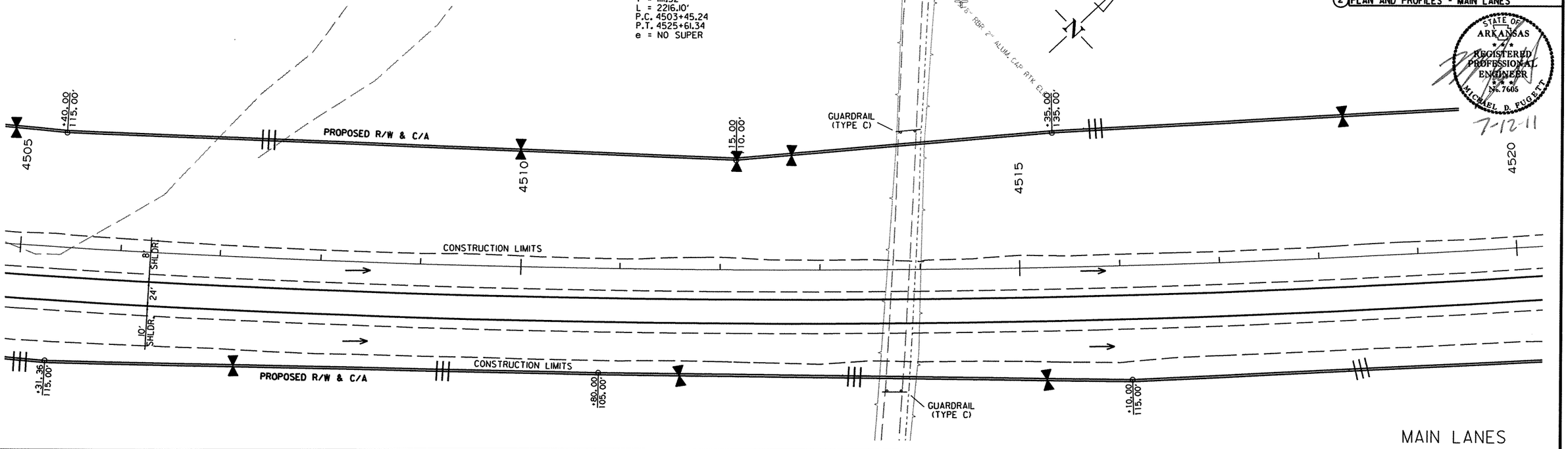
(2) PLAN AND PROFILES - MAIN LANES

WIRE FENCE (TYPE A)

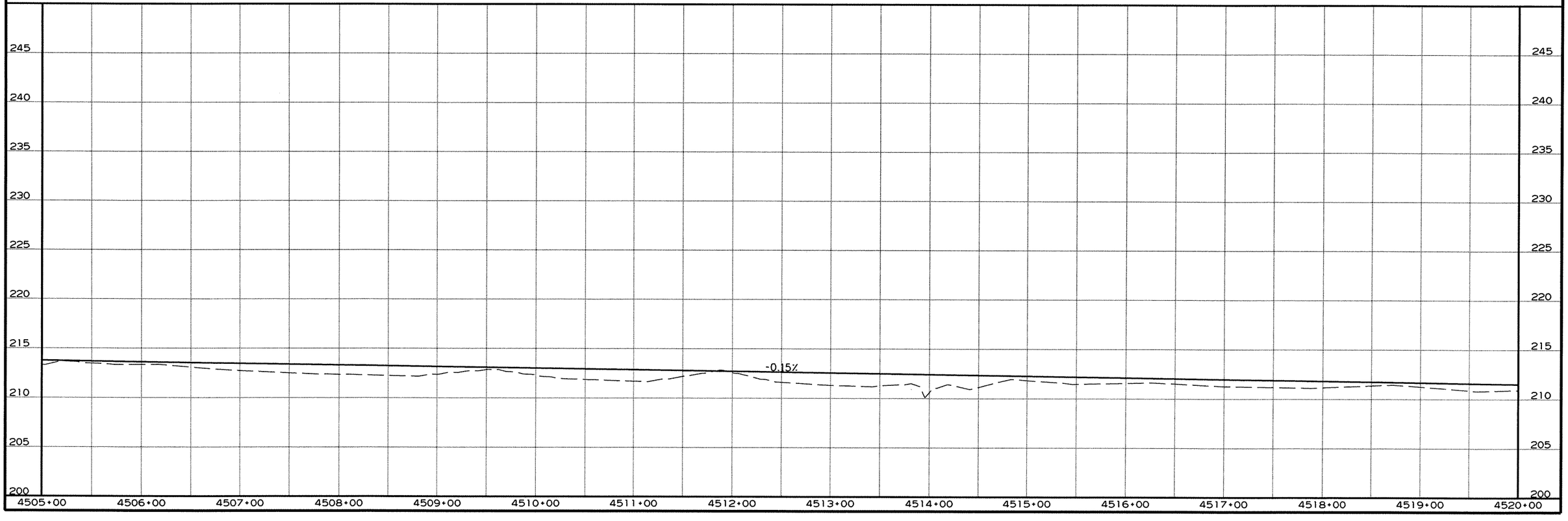
STA. 4341+90.00 RT. OF MAIN LANES TO STA. 4538+61.02 RT. OF MAIN LANES = 19858 LIN. FT.
STA. 4341+15.00 LT. OF MAIN LANES TO STA. 4539+22.33 LT. OF MAIN LANES = 19728 LIN. FT.

MAIN LANES
P.I. 4514+56.76
Δ = 11°04'50"LT.
D = 0°30'00"
T = 1111.52'
L = 2216.10'
P.C. 4503+45.24
P.T. 4525+61.34
e = NO SUPER

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7-12-11



MAIN LANES

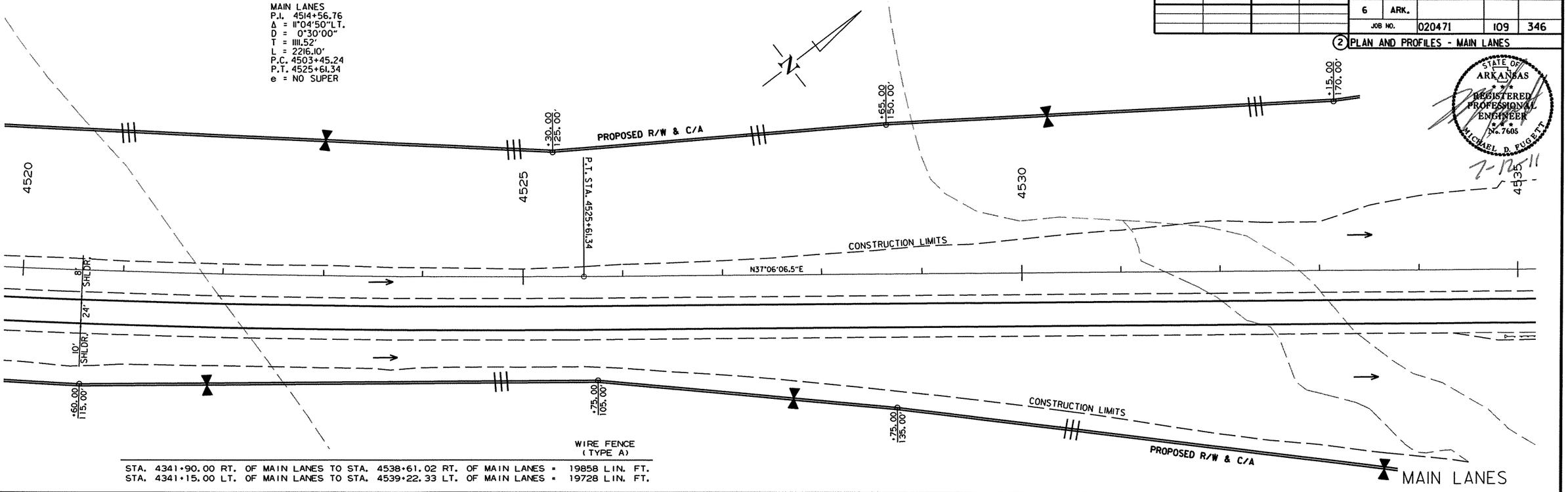


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(2) PLAN AND PROFILES - MAIN LANES

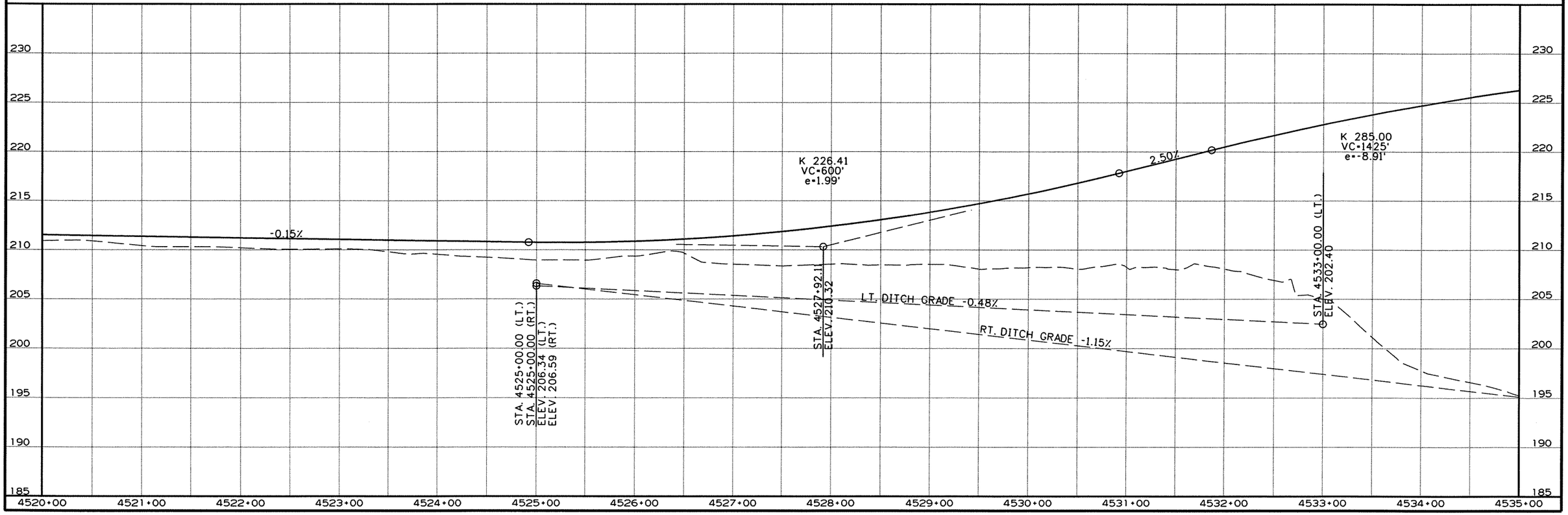
MAIN LANES
P.I. 4514+56.76
Δ = 11°04'50"LT.
D = 0°30'00"
T = 1111.52'
L = 2216.10'
P.C. 4503+45.24
P.T. 4525+61.34
e = NO SUPER



STATE OF ARKANSAS
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No. 7605
MICHAEL D. FUGETT
7-12-11

WIRE FENCE (TYPE A)

STA. 4341+90.00 RT. OF MAIN LANES TO STA. 4538+61.02 RT. OF MAIN LANES = 19858 LIN. FT.
STA. 4341+15.00 LT. OF MAIN LANES TO STA. 4539+22.33 LT. OF MAIN LANES = 19728 LIN. FT.



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				6	ARK.			
				JOB NO.		020471	110	346

(2) PLAN AND PROFILES - MAIN LANES

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STA. 4537+88 - CONSTRUCT
10' x 5' x 172' R.C. BOX CULV'T.
(14° RT. FWD. SKEW)
WITH 2:1 WINGS
050 = 460 cfs; DA = 490 ac

STA. 4543+70 - CONSTRUCT
30" x 220' R.C. PIPE CULV'T. (CL. V)
(23° LT. FWD. SKEW)
WITH F.E.S. LT. & RT.
USE TYPE 3 BEDDING
050 = 34 cfs; DA = 19 ac

STA. 4341+90.00 RT. OF MAIN LANES TO STA. 4538+61.02 RT. OF MAIN LANES = 19858 LIN. FT.
STA. 4341+15.00 LT. OF MAIN LANES TO STA. 4539+22.33 LT. OF MAIN LANES = 19728 LIN. FT.
STA. 4539+31.37 RT. OF MAIN LANES TO STA. 120+00.00 RT. OF HWY. 35 = 3261 LIN. FT.
STA. 4540+06.19 LT. OF MAIN LANES TO STA. 102+40.00 RT. OF HWY. 35 = 2923 LIN. FT.

MAIN LANES

PROPOSED R/W & C/A
DUMPED RIPRAP
EXIST. RR R/W
UNION PACIFIC RAILROAD
MAD BOTTOM CREEK
THICK BRUSH
DIRT LOGGING RD.
CONSTRUCTION LIMITS
N37°06'06.5"E
8' SHLDR.
24'
10' SHLDR.
EARTH LOGGING ROAD
WIRE FENCE (TYPE A)

CONSTRUCT 207'-2⅜" CONT. COMP. W-BEAM UNIT (61', 83', 61' SPANS)
BRIDGE NO. 07180
40'-0" CLEAR ROADWAY

STA. 4538+19.90 BRIDGE END
STA. 4540+27.10 BRIDGE END
STA. 4538+99.17 ELEV. 238.00

K 285.00
VC=1425'
e=-8.91'

K 186.05
VC=400'
e=1.08'

-2.50%

STA. 4536+00.00 (LT.) ELEV. 195.21
STA. 4537+75.74 (LT.) ELEV. 192.17
STA. 4538+22.52 (RT.) ELEV. 191.40
STA. 4542+00.00 (LT.) ELEV. 206.11
STA. 4543+96.05 (LT.) ELEV. 201.20
STA. 4549+68.86 ELEV. 211.26

LT. DITCH GRADE -1.78%
RT. DITCH GRADE -1.15%
LT. DITCH GRADE -2.50%

F.L. INLET 192.13 (LT.)
F.L. OUTLET 191.55 (RT.)

F.L. INLET 201.05 (LT.)
F.L. OUTLET 197.13 (RT.)

NOTE:
FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS AN INTERMITTENT STREAM. THE STREAM BANK ELEVATION IS 194.0 FEET MSL. REFER TO SECTION 110.06(c) OF THE 2003 STANDARD SPECIFICATIONS.

225 220 215 210 205 200 195 190 185 180

4535+00 4536+00 4537+00 4538+00 4539+00 4540+00 4541+00 4542+00 4543+00 4544+00 4545+00 4546+00 4547+00 4548+00 4549+00 4550+00

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WIRE FENCE
(TYPE A)

STA. 4539+31.37 RT. OF MAIN LANES TO STA. 120+00.00 RT. OF HWY. 35 = 3261 LIN. FT.
STA. 4540+06.19 LT. OF MAIN LANES TO STA. 102+40.00 RT. OF HWY. 35 = 2923 LIN. FT.

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(2) PLAN AND PROFILES - MAIN LANES

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+25.00 / 185.00
PROPOSED R/W & C/A
+85.00 / 125.00
4550
4555
4560
N37°06'06.5"E
+65.00
150' TAPER
CONSTRUCTION LIMITS
8' SHLDR.
24'
12'
10' SHLDR.
CONSTRUCTION LIMITS
490' TAPER
+25.00
+30.00 / 140.00
PROPOSED R/W & C/A
+05.00 / 220.00

MAIN LANES

K 186.05
VC=400'
e=1.08'
-0.35%

235 230 225 220 215 210 205 200 195 190

4550+00 4551+00 4552+00 4553+00 4554+00 4555+00 4556+00 4557+00 4558+00 4559+00 4560+00 4561+00 4562+00 4563+00 4564+00 4565+00

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				6	ARK.			
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(2) PLAN AND PROFILES - MAIN LANES

STATE OF ARKANSAS
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STA. 4567+80.91 42.00' RT. OF I-69 CL =
STA. 110+20.95 HWY. 35 CL
Δ = 85° 34' 20"

P. I. 109+34.88

P. T. 110+56.77

STA. 4572+00 - CONSTRUCT
DBL. 36" x 104' R.C. PIPE CULV'T. (CL. III)
(28° LT. FWD. SKEW)
WITH F.E.S. LT. & RT.
USE TYPE 3 BEDDING
Q50 = 70 cfs; DA = 42 ac
36" R.C. PIPE = 208 LIN. FT.
36" F.E.S. = 4 EACH

STA. 4566+15.00
BEGIN EXCEPTION

STA. 4569+50.00
END EXCEPTION

150' TAPER
490' TAPER
CONSTRUCTION LIMITS
N37°06'06.5"E
S 57°19'33.7" E
EXIST. R/W
HWY. 35
8' SHLDR.
10' SHLDR.
22'
24'
12'

WIRE FENCE (TYPE A)

STA. 4539+31.37 RT. OF MAIN LANES TO STA. 120+00.00 RT. OF HWY. 35 =	3261 LIN. FT.
STA. 4540+06.19 LT. OF MAIN LANES TO STA. 102+40.00 RT. OF HWY. 35 =	2923 LIN. FT.
STA. 120+00.00 LT. OF HWY. 35 TO STA. 120+00.00 RT. OF HWY. 278 =	16258 LIN. FT.
STA. 102+40.00 LT. OF HWY. 35 TO STA. 95+49.01 RT. OF HWY. 278 =	15480 LIN. FT.

MAIN LANES

STA. 4566+15.00
ELEV. 205.50
BEGIN EXCEPTION

STA. 4569+50.00
ELEV. 204.32
END EXCEPTION

FUTURE
3:1 TEMP. SLOPE
-0.35%
RT. DITCH GRADE -0.28%
LT. DITCH GRADE -0.91%
LT. DITCH GRADE 2.04%
RT. DITCH GRADE 0.13%
F.L. INLET 195.71 (RT.)
F.L. OUTLET 194.65 (LT.)

STA. 4569+50.00 (RT.)
STA. 4569+50.00 (LT.)
ELEV. 196.39 (RT.)
ELEV. 196.95 (LT.)

STA. 4571+49.00 (RT.)
ELEV. 195.83

STA. 4572+15.00 (LT.)
ELEV. 194.53

STA. 4574+00.00 (LT.)
ELEV. 198.31

STA. 4579+00.00 (RT.)
ELEV. 196.83

BM: 1918 SO. CUT CENTER HW
1425.12 LT. OF STA. 4566+67.73
ELEVATION = 195.12

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(2) PLAN AND PROFILES - MAIN LANES

MAIN LANES
P.I. 4600+04.63
Δ = 16°21'35"LT.
D = 1°00'00"
T = 823.58'
L = 1635.96'
P.C. 4591+81.05
P.T. 4608+17.01
e = 0.037'/'
Ls = 350'

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STA. 4580+00 TO STA. 4584+00 ON LT.
CONCRETE DITCH PAVING (TYPE B) ("W"=4') = 177.78 SQ. YD.

STA. 4582+00 - CONSTRUCT
24" x 104' R.C. PIPE CULV'T. (CL. III)
& F.E.S. ON LT. & RT.
USE TYPE 3 BEDDING
Q50 = 21cfs; DA = 12 ac

WIRE FENCE (TYPE A)

STA. 120+00.00 LT. OF HWY. 35 TO STA. 120+00.00 RT. OF HWY. 278 = 16258 LIN. FT.
STA. 102+40.00 LT. OF HWY. 35 TO STA. 95+49.01 RT. OF HWY. 278 = 15480 LIN. FT.

MAIN LANES

STA. 4585+68.55 BEGIN TRANSITION (N.C.)
STA. 4589+18.55 BEGIN SUPERELEVATION (-0.020'/')
STA. 4592+68.55 MAX SUPERELEVATION (0.037'/')
STA. 4607+29.51 MAX SUPERELEVATION (0.037'/')
STA. 4610+79.51 END SUPERELEVATION (-0.020'/')
STA. 4614+29.51 END TRANSITION (N.C.)

SPECIAL FLOOD HAZARD AREA -
STA. 4592+00 TO STA. 4607+00

-0.35%
LT. DITCH GRADE -3.50%
LT. DITCH GRADE 2.80%
RT. DITCH GRADE 0.34%
RT. DITCH GRADE -0.53%

STA. 4580+00.00 (LT.)
ELEV. 196.22
STA. 4582+00.00 (LT.)
STA. 4582+00.00 (RT.)
ELEV. 189.23 (LT.)
ELEV. 189.81 (RT.)
F.L. INLET 189.76 (RT.)
F.L. OUTLET 189.27 (LT.)
STA. 4584+00.00 (LT.)
ELEV. 194.82
STA. 4589+77.00 (RT.)
ELEV. 192.41

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(2) PLAN AND PROFILES - MAIN LANES

MAIN LANES
P.I. 4600+04.63
Δ = 16°21'35"LT.
D = 1°00'00"
T = 823.58'
L = 1635.96'
P.C. 4591+81.05
P.T. 4608+17.01
e = 0.037'/'
Ls = 350'

STA. 4600+00 TO STA. 4604+00 ON LT.
CONCRETE DITCH PAVING (TYPE B) ("W"=4') = 177.78 SQ. YD.

STA. 4602+33 - CONSTRUCT
DBL. 11' x 7' x 180' R.C. BOX CULV'T.
(40° RT. FWD. SKEW)
WITH 3:1 WINGS
050 = 1460 cfs; DA = 2750 ac

STA. 4608+60 - CONSTRUCT
30" x 150' R.C. PIPE CULV'T. (CL. IV)
(19° RT. FWD. SKEW)
WITH F.E.S. LT. & RT.
USE TYPE 3 BEDDING
050 = 25 cfs: DA = 9 ac

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+45.00 270.00'
+85.00 225.00'
+15.00 130.00'
+30.00 140.00'
+15.00 135.00'
+55.00 180.00'
+60.00 135.00'
+80.00 150.00'

4595 4600 4605

DUMPED RIPRAP
PROPOSED R/W & C/A
CONSTRUCTION LIMITS
C.O.P.
8' SHLDR.
24'
10' SHLDR.
WIRE FENCE (TYPE A)
P.T. STA. 4608+17.01

STA. 120+00.00 LT. OF HWY. 35 TO STA. 120+00.00 RT. OF HWY. 278 = 16258 LIN. FT.
STA. 102+40.00 LT. OF HWY. 35 TO STA. 95+49.01 RT. OF HWY. 278 = 15480 LIN. FT.

MAIN LANES

STA. 4585+68.55 BEGIN TRANSITION (N.C.)
STA. 4589+18.55 BEGIN SUPERELEVATION (-0.020'/')
STA. 4592+68.55 MAX SUPERELEVATION (0.037'/')
STA. 4607+29.51 MAX SUPERELEVATION (0.037'/')
STA. 4610+79.51 END SUPERELEVATION (-0.020'/')
STA. 4614+29.51 END TRANSITION (N.C.)

SPECIAL FLOOD HAZARD AREA -
STA. 4592+00 TO STA. 4607+00

-0.35%
RT. DITCH GRADE -0.53%
LT. DITCH GRADE -5.08%
LT. DITCH GRADE 3.65%
RT. DITCH GRADE 1.43%
RT. DITCH GRADE -2.06%
LT. DITCH GRADE -1.99%

+33
+60

STA. 4600+00.00 (LT.)
STA. 4600+00.00 (RT.)
ELEV. 182.55 (LT.)
ELEV. 187.03 (RT.)

STA. 4601+91.00 (LT.)
ELEV. 172.84

F.L. INLET 172.86 (LT.)
F.L. OUTLET 172.67 (RT.)

STA. 4603+45.00 (RT.)
ELEV. 172.60

STA. 4604+00.00 (LT.)
ELEV. 180.46

STA. 4606+00.00 (LT.)
ELEV. 179.42

STA. 4607+00.00 (RT.)
ELEV. 177.68

F.L. INLET 174.46 (LT.)
F.L. OUTLET 173.54 (RT.)

STA. 4608+46.63 (LT.)
ELEV. 174.51

STA. 4609+03.00 (RT.)
ELEV. 173.49

NOTE:
FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS A PERENNIAL STREAM. THE STREAM BANK ELEVATION IS 174.0 FEET MSL. REFER TO SECTION 110.06(c) OF THE 2003 STANDARD SPECIFICATIONS.

205 200 195 190 185 180 175 170 165 160

4595+00 4596+00 4597+00 4598+00 4599+00 4600+00 4601+00 4602+00 4603+00 4604+00 4605+00 4606+00 4607+00 4608+00 4609+00 4610+00

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(2) PLAN AND PROFILES - MAIN LANES

WIRE FENCE
(TYPE A)

STA. 120+00.00 LT. OF HWY. 35 TO STA. 120+00.00 RT. OF HWY. 278 = 16258 LIN. FT.
STA. 102+40.00 LT. OF HWY. 35 TO STA. 95+49.01 RT. OF HWY. 278 = 15480 LIN. FT.

STA. 4621+62 - CONSTRUCT
DBL. 54" x 146' R.C. PIPE CULV'T. (CL. III)
(45° RT. FWD. SKEW)
WITH F.E.S. LT. & RT.
USE TYPE 3 BEDDING
Q50 = 260 cfs; DA = 250 ac
54" R.C. PIPE = 292 LIN. FT.
54" F.E.S. = 4 EACH

STA. 4620+00 TO STA. 4621+38 ON LT.
CONCRETE DITCH PAVING (TYPE B) ("W"=4') = 61.33 SQ. YD.

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+30.00 (190.00')
+50.00 (130.00')
PROPOSED R/W & C/A
+40.00 (115.00')
+70.00 (135.00')
+80.00 (125.00')
4610
4615
4620
4625
CONSTRUCTION LIMITS
N20°44'31.8"E
C.O.P.
8' SHLDR.
24'
10' SHLDR.
CONSTRUCTION LIMITS
STA. 4610+50.00 AHEAD (ELEV. 189.99) =
STA. 4610+45.12 BACK
+55.00 (120.00')
PROPOSED R/W & C/A
+80.00 (175.00')
+15.00 (105.00')
MIXED TR

MAIN LANES

STA. 4585+68.55 BEGIN TRANSITION (N.C.)
STA. 4589+18.55 BEGIN SUPERELEVATION (-0.020'/')
STA. 4592+68.55 MAX SUPERELEVATION (0.037'/')
STA. 4607+29.51 MAX SUPERELEVATION (0.037'/')
STA. 4610+79.51 END SUPERELEVATION (-0.020'/')
STA. 4614+29.51 END TRANSITION (N.C.)

STA. 4619+81.67 BEGIN TRANSITION (N.C.)
STA. 4623+31.67 BEGIN SUPERELEVATION (-0.020'/')
STA. 4626+81.67 MAX SUPERELEVATION (-0.037'/')
STA. 4646+80.03 MAX SUPERELEVATION (-0.037'/')
STA. 4650+30.03 END SUPERELEVATION (-0.020'/')

205
200
195
190
185
180
175
170
165
160

STA. 4610+45.12 BACK (ELEV. 189.99)
STA. 4610+50.00 AHEAD (ELEV. 189.99) =
-0.35%
STA. 4618+00.00 (RT.)
ELEV. 183.19
STA. 4620+00.00 (LT.)
ELEV. 182.24
RT. DITCH GRADE -2.06%
LT. DITCH GRADE -6.11%
+62
LT. DITCH GRADE -1.17%
RT. DITCH GRADE -0.52%
F.L. INLET 173.78 (LT.)
F.L. OUTLET 173.53 (RT.)
STA. 4621+38.14 (LT.)
ELEV. 173.80
STA. 4622+70.14 (RT.)
ELEV. 173.50
STA. 4623+00.00 (LT.)
ELEV. 175.70
STA. 4623+45.00 (RT.)
ELEV. 173.11

NOTE:
FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS AN INTERMITTENT STREAM. THE STREAM BANK ELEVATION IS 174.0 FEET MSL. REFER TO SECTION 110.06(c) OF THE 2003 STANDARD SPECIFICATIONS.

4610+00 4611+00 4612+00 4613+00 4614+00 4615+00 4616+00 4617+00 4618+00 4619+00 4620+00 4621+00 4622+00 4623+00 4624+00 4625+00

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(2) PLAN AND PROFILES - MAIN LANES

MAIN LANES
P.I. 4636+94.07
Δ = 21°44'01"RT.
D = 1°00'00"
T = 1099.90'
L = 2173.36'
P.C. 4625+94.17
P.T. 4647+67.53
e = 0.037'/'
Ls = 350'

WIRE FENCE
(TYPE A)

STA. 120+00.00 LT. OF HWY. 35 TO STA. 120+00.00 RT. OF HWY. 278 = 16258 LIN. FT.
STA. 102+40.00 LT. OF HWY. 35 TO STA. 95+49.01 RT. OF HWY. 278 = 15480 LIN. FT.

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+65.00
185.00'

+05.00
130.00'

+30.00
140.00'

PROPOSED R/W & C/A

4625

4630

4635

4640

P.C. STA. 4625+94.17

N20°44'31.8"E

CONSTRUCTION LIMITS

5' BARB STEEL TYPE FOUR CO

8' SHLDR.

24'

10' SHLDR.

CONSTRUCTION LIMITS

PROPOSED R/W & C/A

+15.00
105.00'

+85.00
140.00'

+21.63
145.00'

MAIN LANES

STA. 4619+81.67 BEGIN TRANSITION (N.C.)
STA. 4623+31.67 BEGIN SUPERELEVATION (-0.020'/')
STA. 4626+81.67 MAX SUPERELEVATION (-0.037'/')
STA. 4646+80.03 MAX SUPERELEVATION (-0.037'/')
STA. 4650+30.03 END SUPERELEVATION (-0.020'/')

215
210
205
200
195
190
185
180
175
170

-0.35%

K 2857.14
VC=1000'
e=0.44'

STA. 4639+04.48
ELEV. 180.00

4625+00 4626+00 4627+00 4628+00 4629+00 4630+00 4631+00 4632+00 4633+00 4634+00 4635+00 4636+00 4637+00 4638+00 4639+00 4640+00

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(2) PLAN AND PROFILES - MAIN LANES

MAIN LANES
P.I. 4636+94.07
Δ = 21°44'01"RT.
D = 1°00'00"
T = 1099.90'
L = 2173.36'
P.C. 4625+94.17
P.T. 4647+67.53
e = 0.037'/'
Ls = 350'

WIRE FENCE
(TYPE A)

STA. 120+00.00 LT. OF HWY. 35 TO STA. 120+00.00 RT. OF HWY. 278 = 16258 LIN. FT.
STA. 102+40.00 LT. OF HWY. 35 TO STA. 95+49.01 RT. OF HWY. 278 = 15480 LIN. FT.

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MIXED TREES

+00.00
175.00'
PROPOSED R/W & C/A
+25.00
165.00'
+95.00
155.00'
+00.00
120.00'
4640
4645
4650
4655
P.I. STA. 4647+67.53
CONSTRUCTION LIMITS
N42°28'33.0"E
8' SHLDR.
24'
10' SHLDR.
CONSTRUCTION LIMITS
+15.00
120.00'
PROPOSED R/W & C/A
+64.94
105.00'

MAIN LANES

STA. 4619+81.67 BEGIN TRANSITION (N.C.)
STA. 4623+31.67 BEGIN SUPERELEVATION (-0.020'/')
STA. 4626+81.67 MAX SUPERELEVATION (-0.037'/')
STA. 4646+80.03 MAX SUPERELEVATION (-0.037'/')
STA. 4650+30.03 END SUPERELEVATION (-0.020'/')

SPECIAL FLOOD HAZARD AREA -
STA. 4648+00 TO STA. 4663+00

K 2857.14
VC=1000'
e=0.44'

0.00%

RT. DITCH GRADE -0.58%

RT. DITCH GRADE -1.44%

STA. 4645+00.00 (RT.)
ELEV. 175.38

STA. 4650+00.00 (RT.)
ELEV. 172.50

STA. 4652+00.00 (RT.)
ELEV. 169.17

200 195 190 185 180 175 170 165 160 155

4640+00 4641+00 4642+00 4643+00 4644+00 4645+00 4646+00 4647+00 4648+00 4649+00 4650+00 4651+00 4652+00 4653+00 4654+00 4655+00

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(2) PLAN AND PROFILES - MAIN LANES

STA. 4656+00 TO STA. 4658+29 ON LT.
EROSION CONTROL MATTING (CLASS 3) = 203.56 SQ. YD.

STA. 4658+25 - CONSTRUCT
DBL. 11' x 9' x 12' R.C. BOX CULV'T.
(5° LT. FWD. SKEW)
WITH 3:1 WINGS
Q50 = 1950 cfs; DA = 5330 ac

MAIN LANES
P.I. 4665+70.38
Δ = 13°21'25"LT.
D = 1°00'00"
T = 670.89'
L = 1335.70'
P.C. 4658+99.49
P.T. 4672+35.19
e = 0.037'/'
Ls = 350'

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7-12-11

+40.00 210.00
+75.00 140.00
+10.00 130.00
+55.00 120.00
+11.31 150.00
+55.00 155.00
+10.00 125.00
+05.39 130.00
+40.00 245.00
+80.00 305.00

4655
4660
4665

PROPOSED R/W & C/A
CONSTRUCTION LIMITS
DUMPED RIPRAP
P.C. STA. 4658+99.49
MIXED TREES
8' SHLDR.
24'
10' SHLDR.

WIRE FENCE
(TYPE A)

STA. 120+00.00 LT. OF HWY. 35 TO STA. 120+00.00 RT. OF HWY. 278 = 16258 LIN. FT.
STA. 102+40.00 LT. OF HWY. 35 TO STA. 95+49.01 RT. OF HWY. 278 = 15480 LIN. FT.

MAIN LANES

STA. 4656+36.99 BEGIN SUPERELEVATION (-0.020'/')
STA. 4659+86.99 MAX SUPERELEVATION (0.037'/')
STA. 4671+47.69 MAX SUPERELEVATION (0.037'/')
STA. 4674+97.69 END SUPERELEVATION (-0.020'/')
STA. 4678+47.69 END TRANSITION (N.C.)

SPECIAL FLOOD HAZARD AREA -
STA. 4648+00 TO STA. 4663+00

K 2863.63
VC-1000'
e-0.44'

0.00%

STA. 4655+00.00 (LT.)
ELEV. 169.33

STA. 4658+13.39 (RT.)
ELEV. 160.35

+25

STA. 4658+29.11 (LT.)
ELEV. 160.40

STA. 4660+00.00 (LT.)
ELEV. 161.41

STA. 4661+00.00 (RT.)
ELEV. 171.13

STA. 4666+48.32
ELEV. 180.00

STA. 4667+00.00 (RT.)
ELEV. 177.84

LT. DITCH GRADE -2.71%
RT. DITCH GRADE -1.44%
RT. DITCH GRADE 3.76%
LT. DITCH GRADE 0.59%
RT. DITCH GRADE 0.12%

F.L. INLET 160.39 (LT.)
F.L. OUTLET 160.36 (RT.)

NOTE:
FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS A PERENNIAL STREAM. THE STREAM BANK ELEVATION IS 164.0 FEET MSL. REFER TO SECTION 110.06(c) OF THE 2003 STANDARD SPECIFICATIONS.

195 190 185 180 175 170 165 160 155 150

4655+00 4656+00 4657+00 4658+00 4659+00 4660+00 4661+00 4662+00 4663+00 4664+00 4665+00 4666+00 4667+00 4668+00 4669+00 4670+00

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				6	ARK.			
				JOB NO.		020471	119	346

(2) PLAN AND PROFILES - MAIN LANES

MAIN LANES
P.I. 4665+70.38
Δ = 13°21'25"LT.
D = 1°00'00"
T = 670.89'
L = 1335.70'
P.C. 4658+99.49
P.T. 4672+35.19
e = 0.037'/'
Ls = 350'

WIRE FENCE (TYPE A)

STA. 120+00.00 LT. OF HWY. 35 TO STA. 120+00.00 RT. OF HWY. 278 = 16258 LIN. FT.
STA. 102+40.00 LT. OF HWY. 35 TO STA. 95+49.01 RT. OF HWY. 278 = 15480 LIN. FT.

STATE OF ARKANSAS
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MICHAEL D. FUGETT
7-12-11

+65.00 145.00'
+90.00 135.00'
+00.00 135.00'
+50.00 130.00'

PROPOSED R/W & C/A
CONSTRUCTION LIMITS
P.T. STA. 4672+35.19
N29°07'07.7"E
8' SHLDR.
24'
10' SHLDR.

4670 4675 4680 4685

MAIN LANES

STA. 4656+36.99 BEGIN SUPERELEVATION (-0.020'/')
STA. 4659+86.99 MAX SUPERELEVATION (0.037'/')
STA. 4671+47.69 MAX SUPERELEVATION (0.037'/')
STA. 4674+97.69 END SUPERELEVATION (-0.020'/')
STA. 4678+47.69 END TRANSITION (N.C.)

K 2863.63
VC-1000'
e-0.44'

STA. 4675+00.00 (RT.)
ELEV. 178.80

0.35%

RT. DITCH GRADE 0.12%

215 210 205 200 195 190 185 180 175 170

4670+00 4671+00 4672+00 4673+00 4674+00 4675+00 4676+00 4677+00 4678+00 4679+00 4680+00 4681+00 4682+00 4683+00 4684+00 4685+00

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WIRE FENCE
(TYPE A)

STA. 120+00.00 LT. OF HWY. 35 TO STA. 120+00.00 RT. OF HWY. 278 = 16258 LIN. FT.
STA. 102+40.00 LT. OF HWY. 35 TO STA. 95+49.01 RT. OF HWY. 278 = 15480 LIN. FT.

STA. 4692+72 - CONSTRUCT
60" x 126' R.C. PIPE CULV'T. (CL. III)
(35° LT. FWD. SKEW)
WITH F.E.S. LT. & RT.
USE TYPE 3 BEDDING
Q50 = 190 cfs; DA = 110 ac

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.		020471	120	346

(2) PLAN AND PROFILES - MAIN LANES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 7605
MICHAEL D. FUGETT
7-12-11

+20.00 125.00'
+10.00 125.00'
PROPOSED R/W & C/A
+50.00 175.00'
GUARDRAIL (TYPE C)
+10.00 145.00'
+70.00 155.00'
4685
4690
4695
4700
N29°07'07.7"E
8' SHLDR.
24'
10' SHLDR.
CONSTRUCTION LIMITS
CONSTRUCTION LIMITS
PROPOSED R/W & C/A
+00.00 140.00'
+90.00 125.00'
GUARDRAIL (TYPE C)
MAIN LANES

210
205
200
195
190
185
180
175
170
165
STA. 4688+00.00 (RT.)
ELEV. 183.34
STA. 4690+00.00 (LT.)
ELEV. 183.79
STA. 4691+59.59 (RT.)
ELEV. 176.00
STA. 4692+90.60 (LT.)
ELEV. 176.29
STA. 4695+00.00 (LT.)
STA. 4695+00.00 (RT.)
ELEV. 179.02 (LT.)
ELEV. 178.33 (RT.)
STA. 4699+00.00 (RT.)
ELEV. 187.15
0.35%
RT. DITCH GRADE -2.04%
LT. DITCH GRADE -2.58%
RT. DITCH GRADE 0.68%
LT. DITCH GRADE 1.30%
0.35%
RT. DITCH GRADE 0.03%
K 8590.88
VC-6000'
e=-5.24'
+72
4685+00
4686+00
4687+00
4688+00
4689+00
4690+00
4691+00
4692+00
4693+00
4694+00
4695+00
4696+00
4697+00
4698+00
4699+00
4700+00

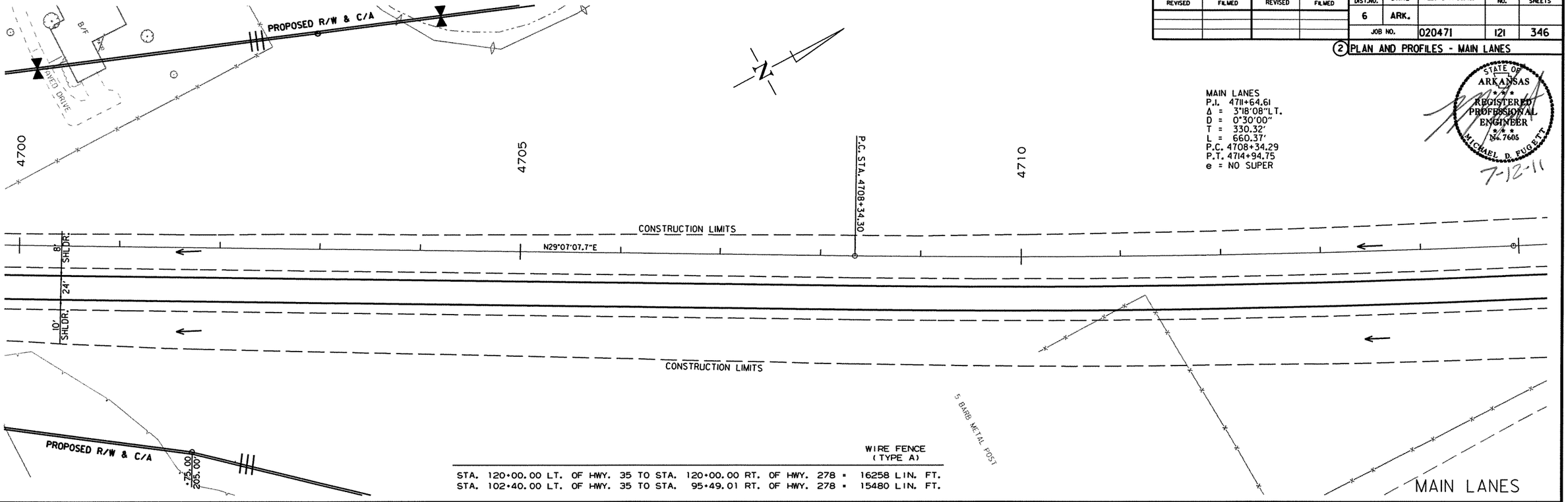
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		020471	121	346

(2) PLAN AND PROFILES - MAIN LANES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 7605
MICHAEL D. FUGETT
7-12-11

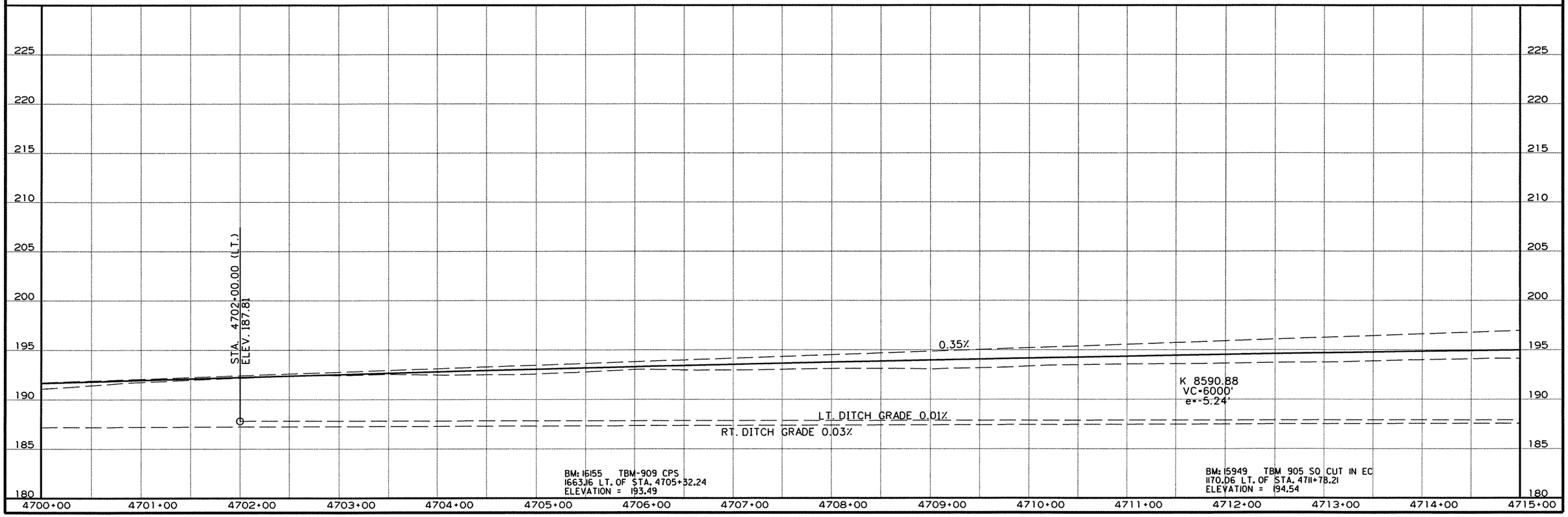
MAIN LANES
P.I. 4711+64.61
Δ = 3°18'08"LT.
D = 0°30'00"
T = 330.32'
L = 660.37'
P.C. 4708+34.29
P.T. 4714+94.75
e = NO SUPER



WIRE FENCE
(TYPE A)

STA. 120+00.00 LT. OF HWY. 35 TO STA. 120+00.00 RT. OF HWY. 278 = 16258 LIN. FT.
STA. 102+40.00 LT. OF HWY. 35 TO STA. 95+49.01 RT. OF HWY. 278 = 15480 LIN. FT.

MAIN LANES



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				6	ARK.			
				JOB NO.		020471	122	346

(2) PLAN AND PROFILES - MAIN LANES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
7605
MICHAEL D. FUGETT
7-12-11

P.T. STA. 4714+94.74

CONSTRUCTION LIMITS

N25°48'59.7"E

40.00

60.00

120' TAPER

8' SHLDR.

12'

24'

12'|12'

20'

10' SHLDR.

180' TAPER

CONSTRUCTION LIMITS

73.76

53.76

5x48 12x4 DUBUQUE MFG. CATTLE GUARD

BARB WIRE FENCE

4720

4725

EXIST. R/W

HWY. 278

50' ½ TELL

110

P.I. 110+64.29

2" ALUM. CAP

S 72°32'51.9" E

P.I. 113+34.55

STA. 4726+58.20 42.00' RT. OF I-69 CL =
STA. 111+67.0 HWY. 278 CL
Δ = 76° 19' 13"

STA. 4716+00 - CONSTRUCT
24" x 86' R.C. PIPE OUTLET (CL. III)
& F.E.S. ON RT.
USE TYPE 3 BEDDING

WIRE FENCE (TYPE A)

STA. 120+00.00 LT. OF HWY. 35 TO STA. 120+00.00 RT. OF HWY. 278 = 16258 LIN. FT.
STA. 102+40.00 LT. OF HWY. 35 TO STA. 95+49.01 RT. OF HWY. 278 = 15480 LIN. FT.

MAIN LANES

STA. 4724+60.00
END JOB 020471

STA. 4716+00.00 (RT.)
STA. 4716+00.00 (LT.)
ELEV. 187.59 (RT.)
ELEV. 187.91 (LT.)

+00

LT. DITCH GRADE 0.01%
RT. DITCH GRADE 0.03%

F.L. INLET 187.88 (LT.)
F.L. OUTLET 187.62 (RT.)

0.07%

STA. 4723+09.79
ELEV. 195.73

K 202.20
VC=175'
e=-0.19'

-0.80%

LT. DITCH GRADE 0.21%
RT. DITCH GRADE 0.21%

STA. 4724+60.00 (RT.)
STA. 4724+60.00 (LT.)
ELEV. 189.42 (RT.)
ELEV. 189.72 (LT.)

STA. 4725+00.00
ELEV. 194.21

K 218.75
VC=175'
e=0.17'

0.00%

STA. 4726+68.45
ELEV. 201.02

FUTURE

STA. 4726+21.15 I-69 CL=
STA. 111+12.23 36.00' RT. OF HWY. 278 CL
ELEV. 194.21

K 8590.88
VC=6000'
e=-5.24'

BM: 15399 906 CPS IN PP
1265.99 RT. OF STA. 4728+39.61
ELEVATION = 195.51

225 220 215 210 205 200 195 190 185 180

4715+00 4716+00 4717+00 4718+00 4719+00 4720+00 4721+00 4722+00 4723+00 4724+00 4725+00 4726+00 4727+00 4728+00 4729+00 4730+00

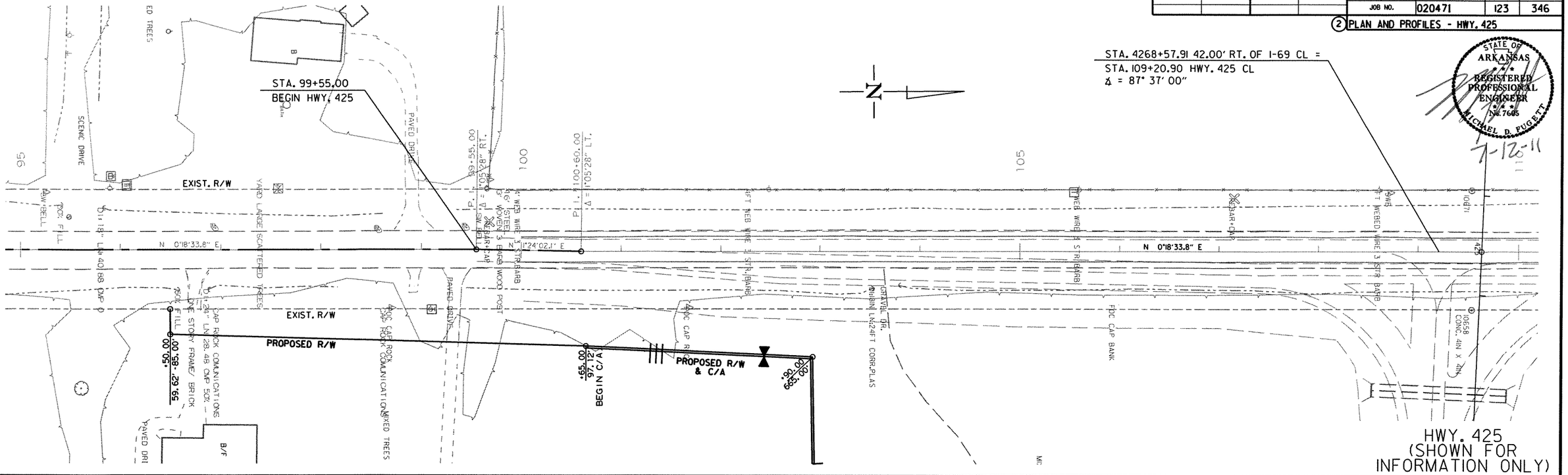
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		020471	123	346

(2) PLAN AND PROFILES - HWY. 425

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11

STA. 4268+57.91 42.00' RT. OF I-69 CL =
STA. 109+20.90 HWY. 425 CL
Δ = 87° 37' 00"



HWY. 425
(SHOWN FOR INFORMATION ONLY)



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				6	ARK.			
				JOB NO.		020471	124	346

(2) PLAN AND PROFILES - HWY. 425

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11

STA. 111+38 - IN PLACE
DBL. 10' x 6' x 50' R.C. BOX CULV'T.
RETAIN

MIXED TREES

EXIST. R/W

N 0°18'33.6" E

4270

EXIST. R/W

PROPOSED R/W & C/A

+55.00
103.07'
BEGIN C/A

PROPOSED R/W

STA. 122+35.00
END HWY. 425

HWY. 425
(SHOWN FOR INFORMATION ONLY)

295
290
285
280
275
270
265
260
255
250

110+00 111+00 112+00 113+00 114+00 115+00 116+00 117+00 118+00 119+00 120+00 121+00 122+00 123+00 124+00 125+00

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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.		020471	125	346

(2) PLAN AND PROFILES - COUNTY ROAD 36

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 7605
MICHAEL D. FUGETT
7-12-11

STA. 101+00 TO STA. 105+15 ON LT.
CONCRETE DITCH PAVING (TYPE B) ("W"=4') = 184.44 SQ. YD.

OBLITERATION OF EXISTING PAVEMENT.

STA. 100+00.00
BEGIN C.R. 36

STA. 109+75 - IN PLACE
18" x 40' C.M. ARCH PIPE CULV'T.
LT. SIDE DRAIN
REMOVE

STA. 106+08.73 - CONSTRUCT
29" x 18" x 82' R.C. ARCH PIPE CULV'T. (CL. III)
110° 15' LT. FWD. SKEW)
WITH F.E.S. LT. & RT.
USE TYPE 3 BEDDING
025 = 3 cfs; DA = 1ac

COUNTY ROAD 36
P.I. 105+63.66
Δ = 12°36'45"LT.
D = 5°00'00"
T = 126.64'
L = 252.25'
P.C. 104+37.03
P.T. 106+89.28
e = NO SUPER

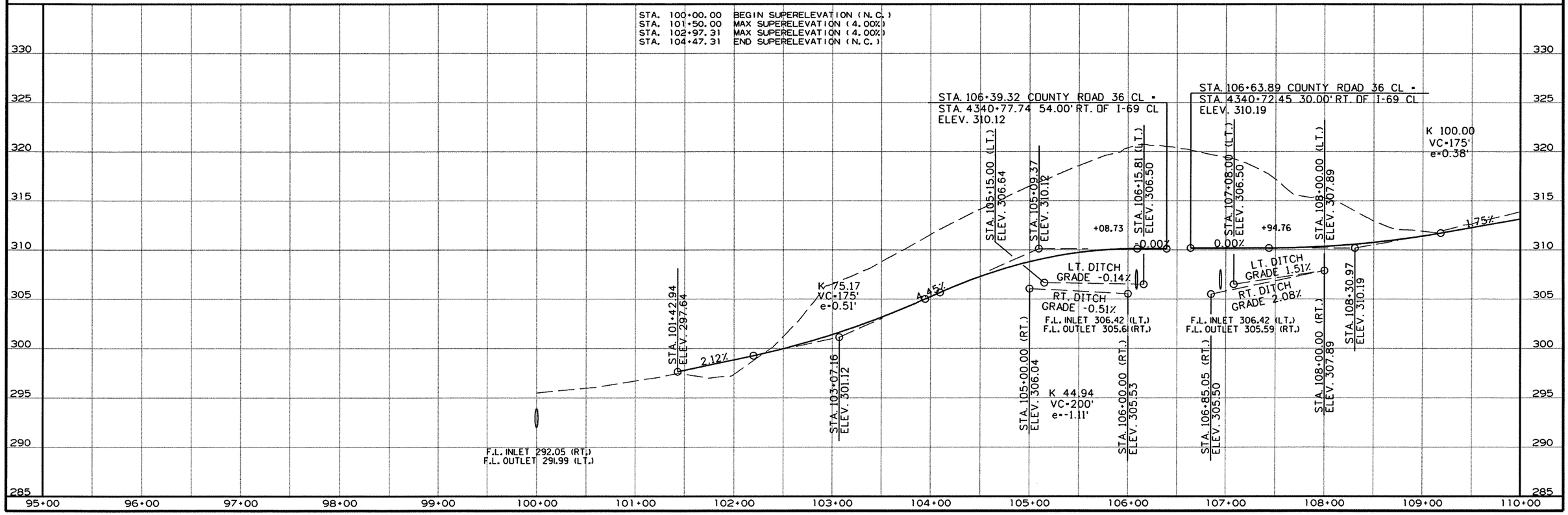
STA. 101+00 TO STA. 105+00 ON RT.
CONCRETE DITCH PAVING (TYPE B) ("W"=4') = 177.78 SQ. YD.

STA. 100+00 - IN PLACE
36" x 24" x 30' C.M. ARCH PIPE CULV'T.
REMOVE & CONSTRUCT
36" x 23" x 44' R.C. ARCH PIPE CULV'T. (CL. III)
WITH F.E.S. LT. & RT.
USE TYPE 3 BEDDING

COUNTY ROAD 36
P.I. 101+77.26
Δ = 15°51'25"RT.
D = 5°00'00"
T = 159.59'
L = 317.14'
P.C. 100+17.67
P.T. 103+34.81
e = 0.040'/'
Ls = 150'

STA. 4340+75.16 42.00' RT. OF I-69 CL =
STA. 106+51.57 COUNTY ROAD 36 CL
Δ = 77° 27' 54"

COUNTY ROAD 36



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				6	ARK.			
				JOB NO.		020471	126	346

(2) PLAN AND PROFILES - COUNTY ROAD 36

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11

STA. 109+75 - IN PLACE
18" x 40' C.M. PIPE CULV'T.
REMOVE

COUNTY ROAD 36
P.I. 111+33.90
Δ = 19°21'56"LT.
D = 5°00'00"
T = 195.52'
L = 387.31'
P.C. 109+38.38
P.T. 113+25.69
e = NO SUPER

PROPOSED R/W
CONSTRUCTION LIMITS
N 30°58'56.0" W
N 17°27'08.3" W
100' PAVEMENT TRANSITION
OLD LOGGING TRAILS
WOS-THICK BRUSH
N-WOOD SHED
OLD LOGGING TRAILS
S-MID 1M-WOOD SHED
OLD LOGGING TRAILS
TO JUNCTION WITH COUNTY RD 35
STA. 117+80.63
END C.R. 36

P.I. 111+33.90
P.T. 113+25.69
P.C. 114+44.09
P.T. 117+4.69
P.I. 115+80.02

COUNTY ROAD 36
P.I. 115+80.02
Δ = 13°31'48"RT.
D = 5°00'00"
T = 135.93'
L = 270.60'
P.C. 114+44.09
P.T. 117+14.69
e = 0.040'/'
Ls = 150'

OBLITERATION OF EXISTING PAVEMENT.

COUNTY ROAD 36

STA. 113+84.89 BEGIN SUPERELEVATION (N.C.)
STA. 115+34.89 MAX SUPERELEVATION (4.00%)
STA. 116+30.63 MAX SUPERELEVATION (4.00%)
STA. 117+80.63 END SUPERELEVATION (N.C.)

K 63.41
VC=250'
e=1.23'
1.75%
5.69%
STA. 115+78.45
ELEV. 329.75
STA. 114+14.06
ELEV. 320.39

345 340 335 330 325 320 315 310 305 300

110+00 111+00 112+00 113+00 114+00 115+00 116+00 117+00 118+00

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				6	ARK.			
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(2) PLAN AND PROFILES - HWY. 35

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
N.7605
MICHAEL D. FUGETT
7-12-11

STA. 105+84 - IN PLACE
24" x 45' C.M. PIPE CULV'T.
LT. SIDE DRAIN
REMOVE

STA. 106+36 - IN PLACE
18" x 25' C.M. PIPE CULV'T.
LT. SIDE DRAIN
REMOVE

STA. 4567+80.91 42.00' RT. OF I-69 CL =
STA. 110+20.95 HWY. 35 CL
Δ = 85° 34' 20"

STA. 107+65 - IN PLACE
18" x 25' C.M. PIPE CULV'T.
LT. SIDE DRAIN
REMOVE

EXIST. HWY. 35
P.I. 109+34.88
Δ = 0°55'52"LT.
D = 0°22'55"
T = 121.89'
L = 243.78'
P.C. 108+12.99
P.T. 110+56.77
MATCH EXIST.

STA. 112+88 - IN PLACE
18" x 24' C.M. PIPE CULV'T.
LT. SIDE DRAIN
REMOVE

EXIST. HWY. 35
P.I. 115+28.15
Δ = 11°12'17"LT.
D = 2°07'19"
T = 264.85'
L = 528.01'
P.C. 112+63.30
P.T. 117+91.31
MATCH EXIST.

STA. 117+36 - IN PLACE
18" x 24' R.C. PIPE CULV'T.
LT. SIDE DRAIN
REMOVE

STA. 118+03 - IN PLACE
18" x 40' C.M. PIPE CULV'T.
LT. SIDE DRAIN
REMOVE

STA. 118+98 - IN PLACE
18" x 26' C.M. PIPE CULV'T.
LT. SIDE DRAIN
REMOVE

STA. 120+00 - IN PLACE
18" x 30' C.M. PIPE CULV'T.
LT. SIDE DRAIN
REMOVE

(FUTURE)
STA. 107+35.00
BEGIN HWY. 35

STA. 112+75 - CONSTRUCT
36" x 23" x 96' R.C. ARCH PIPE CULV'T. (CL. III)
WITH F.E.S. LT. & RT.
USE TYPE 3 BEDDING
Q50 = 35 cfs; DA = 20 ac

STA. 110+00 - CONSTRUCT
24" x 100' R.C. PIPE CULV'T. (CL. III)
WITH F.E.S. LT. & RT.
USE TYPE 3 BEDDING
Q50 = 8 cfs; DA = 4 ac

STA. 106+50 - IN PLACE
24" x 30' C.M. PIPE CULV'T.
RT. SIDE DRAIN
REMOVE

STA. 111+78 - IN PLACE
18" x 20' R.C. PIPE CULV'T.
RT. SIDE DRAIN
REMOVE

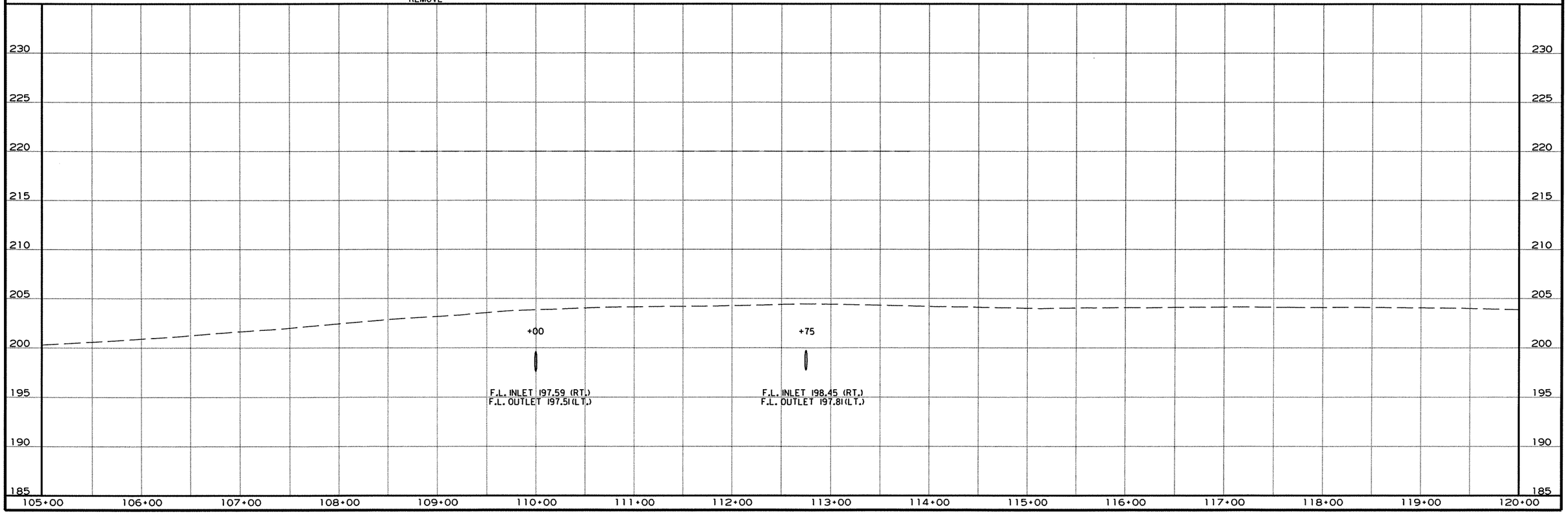
STA. 115+29 - IN PLACE
24" x 24' C.M. PIPE CULV'T.
RT. SIDE DRAIN
REMOVE

(FUTURE)
STA. 115+05.00
END HWY. 35

PROPOSED R/W & C/A

EXIST. R/W

HWY. 35



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(2) PLAN AND PROFILES - HWY. 35

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11

STA. 104+00 - INSTALL
49" x 33" x 36' PIPE CULV'T.
SIDE DRAIN

HWY. 35 DRIVEWAY
P.I. 110+37.35
Δ = 66°49'07"LT.
D = 22°55'06"
T = 164.90'
L = 291.55'
P.C. 108+72.45
P.T. 111+64.00
NO SUPER

STA. 101+67.02 HWY. 35 CL=
STA. 100+00.00 HWY. 35 DRIVEWAY CL
Δ = 75° 00' 00"

POB 100+00.00
PROPOSED R/W
EXIST. R/W
HWY. 35
BEGIN C/A
P.I. 102+28.59
P.C. 102+55.31
P.T. 105+37.53
T.C.E.
CONSTRUCTION LIMITS
N 66°16'48.2" E
N 46°04'01.7" E
105
110
P.C. 108+72.45
P.T. 111+64.00
PROPOSED & C/A
EXIST. R/W
C/A
BOX
POLE
OHP
GR
DRIVEWAY
CULVERT
WOODS & BRUSH
PNU392 POB" SPIKE TRIG ELEVATION
PNU380 POB" SPIKE TRIG ELEVATION
PNU379 POB" SPIKE TRIG ELEVATION
PNU378 POB" SPIKE TRIG ELEVATION
PNU377 POB" SPIKE TRIG ELEVATION
PNU376 POB" SPIKE TRIG ELEVATION
PNU375 POB" SPIKE TRIG ELEVATION
PNU374 POB" SPIKE TRIG ELEVATION
PNU373 POB" SPIKE TRIG ELEVATION
PNU391 POB" SPIKE TRIG ELEVATION
PNU390 POB" SPIKE TRIG ELEVATION
PNU389 POB" SPIKE TRIG ELEVATION
PNU387 POB" SPIKE TRIG ELEVATION

HWY. 35 DRIVEWAY
P.I. 103+97.90
Δ = 20°12'47"RT.
D = 7°09'43"
T = 142.59'
L = 282.23'
P.C. 102+55.31
P.T. 105+37.53
NO SUPER

HWY. 35 DRIVEWAY

STA. 100+09.97 HWY. 35 DRIVEWAY CL=
STA. 101+69.60 9.63' LT. OF HWY. 35 CL
ELEV. 199.17

-1.75%
2.35%
-2.80%
0.00%
K 54.88
VC=225'
e=1.15'
K 58.25
VC=300'
e=1.93'
K 89.29
VC=250'
e=0.87'
STA. 103+89.19
ELEV. 192.53
STA. 107+01.43
ELEV. 199.87
STA. 111+63.65
ELEV. 191.53
STA. 109+99.27
ELEV. 191.53
LT. DITCH GRADE -1.62%
LT. DITCH GRADE 2.56%
F.L. INLET 189.48 (RT.)
F.L. OUTLET 188.61(LT.)
STA. 103+00.00 (LT.)
ELEV. 190.12
STA. 104+00.00 (LT.)
ELEV. 188.50
STA. 104+85.00 (LT.)
ELEV. 190.68

220 215 210 205 200 195 190 185 180 175
100+00 101+00 102+00 103+00 104+00 105+00 106+00 107+00 108+00 109+00 110+00 111+00 112+00 113+00 114+00 115+00

R020471.DGN 7/5/2011

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.		020471	129	346

(2) PLAN AND PROFILES - HWY. 278

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7606
MICHAEL D. PUGETT
7-12-11

STA. 107+55 - IN PLACE
18" x 27' C.M. PIPE CULV'T.
RT. SIDE DRAIN
REMOVE

HWY. 278
P.I. 110+64.29
Δ = 25°44'53"RT.
D = 7°26'28"
T = 175.99'
L = 346.03'
P.C. 108+88.31
P.T. 112+34.33
MATCH EXIST.

HWY. 278
P.I. 107+07.48
Δ = 5°07'25"RT.
D = 2°17'31"
T = 111.85'
L = 223.56'
P.C. 105+95.63
P.T. 108+19.19
MATCH EXIST.

HWY. 278
P.I. 102+67.67
Δ = 21°11'10"RT.
D = 5°12'31"
T = 205.72'
L = 406.74'
P.C. 100+61.95
P.T. 104+68.69
MATCH EXIST.

HWY. 278
P.I. 113+34.55
Δ = 3°29'38"RT.
D = 2°17'31"
T = 76.25'
L = 152.45'
P.C. 112+58.30
P.T. 114+10.75
MATCH EXIST.

STA. 4726+58.20 42.00' RT. OF I-69 CL =
STA. 111+67.0 HWY. 278 CL
Δ = 76° 19' 13"

(FUTURE)
STA. 100+61.95
BEGIN HWY. 278

HWY. 278
(SHOWN FOR
INFORMATION ONLY)

R020471.DGN 6/22/2011

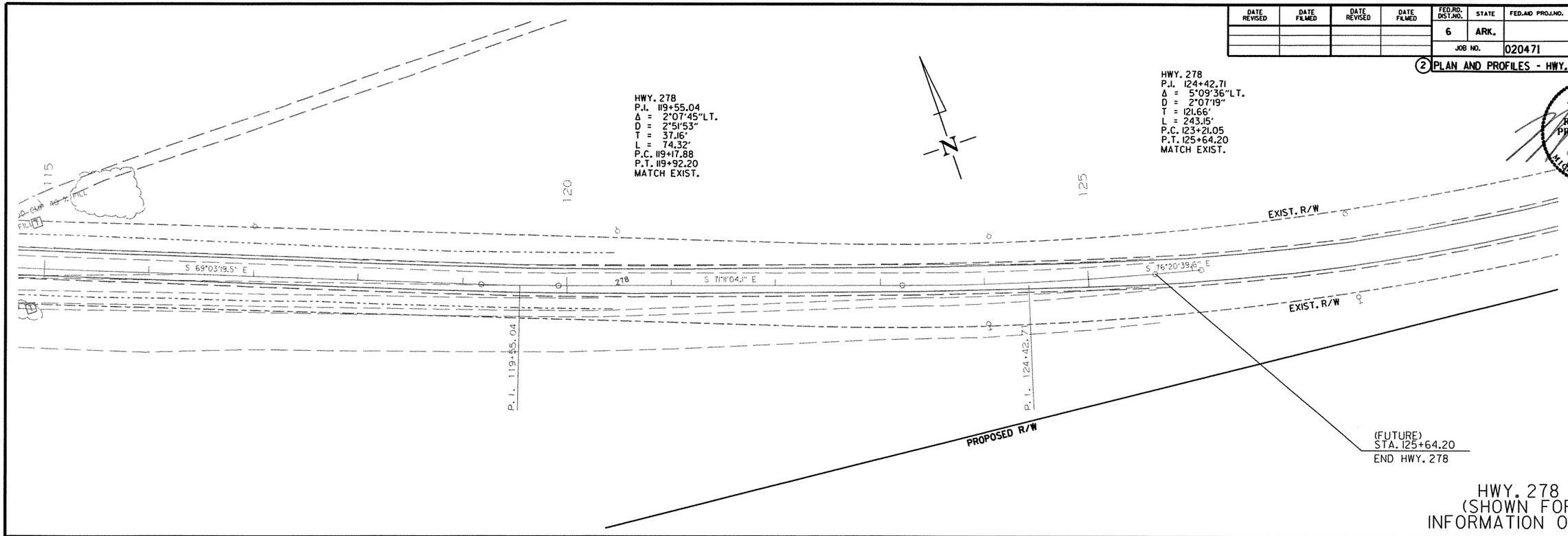
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		020471	130	346

(2) PLAN AND PROFILES - HWY. 278

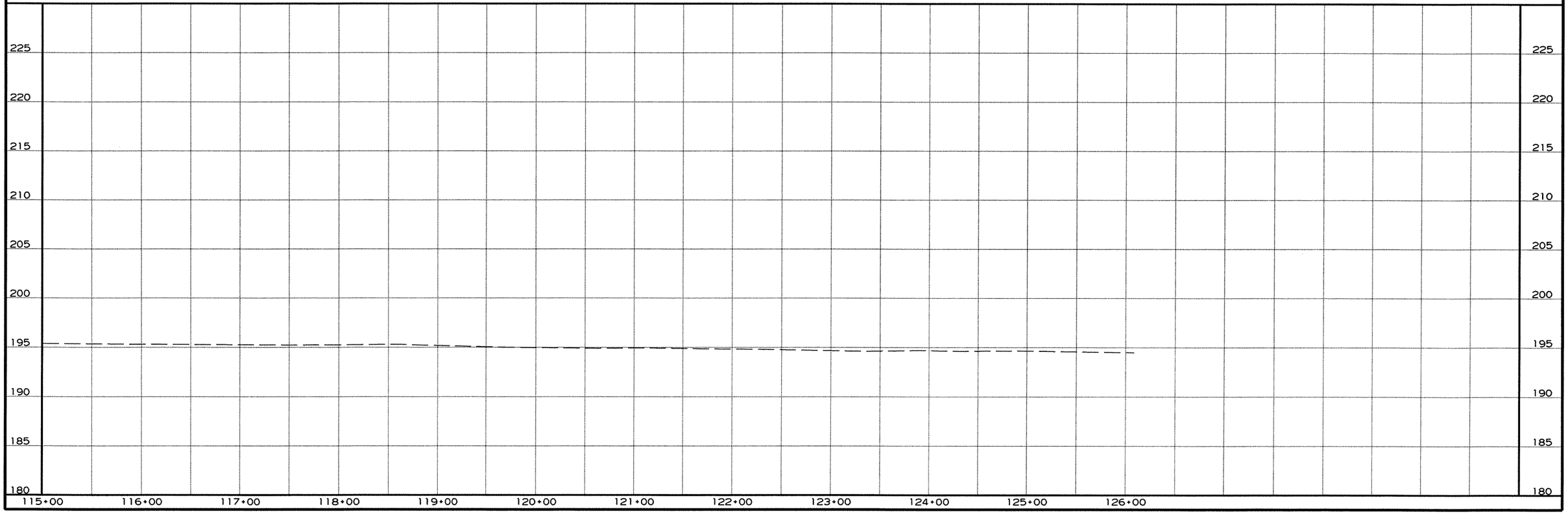
HWY. 278
P.I. 119+55.04
Δ = 2°07'45"LT.
D = 2°51'53"
T = 37.16'
L = 74.32'
P.C. 119+17.88
P.T. 119+92.20
MATCH EXIST.

HWY. 278
P.I. 124+42.71
Δ = 5°09'36"LT.
D = 2°07'19"
T = 121.66'
L = 243.15'
P.C. 123+21.05
P.T. 125+64.20
MATCH EXIST.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11



HWY. 278
(SHOWN FOR
INFORMATION ONLY)

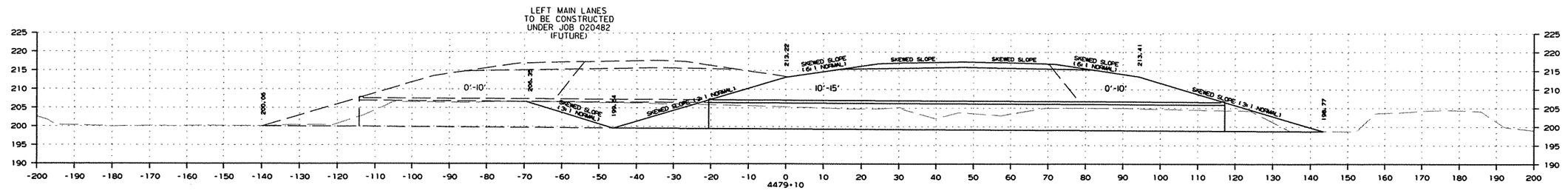


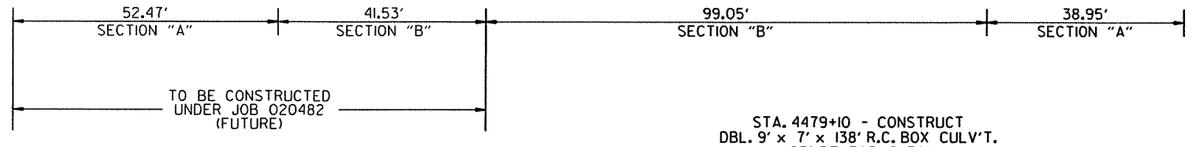
R020471.DGN 6/22/2011

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.		020471	131	346

(2) R.C. BOX CULVERT DIAGRAMS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11





STA. 4479+10 - CONSTRUCT
DBL. 9' x 7' x 138' R.C. BOX CULV'T.
(27° RT. FWD. SKEW)
WITH 3:1 WINGS
050 = 1100 cfs; DA = 1600 ac

DESCRIPTION	LENGTH	CLASS "S" CONCRETE - ROADWAY		REINFORCING STEEL (GR. 60) - ROADWAY		UNCLASSIFIED EXCAVATION FOR STRUCTURES - ROADWAY	SOLID SODDING	WATER
	LIN.FT.	CU.YD. / L.F.	CU. YD.	LBS. / L.F.	LBS.	CU. YD.	SQ.YD.	M.GAL.
SECTION "A"	25.40		46.37		6405.00			
SECTION "A" (STRAIGHT SECTION)	13.55	1.826	24.74	238.13	3226.66	29.83		
SECTION "B" (STRAIGHT SECTION)	92.09	1.768	162.82	256.37	23609.11	84.67		
** SECTION "B"	6.96		13.80		2270.00			
HEADWALLS & APRONS		*		*			5.2	0.1
WINGS			27.98		1474.00		11.0	0.1
LAPS (3 LAPS @ 65.13 LBS. EACH)				*	195.39			
V.I.						12.20		
V.O.						13.23		
TOTALS			275.71		37180.16	139.93	16.2	0.2

* SECTION "A" INCLUDES HEADWALL, APRON, & 1 LAP
SECTION "B" INCLUDES HEADWALL & APRON

** REFER TO "SPECIAL DETAILS" PAGE 13 FOR ADDITIONAL INFORMATION.

USE: 275.71 CU.YD. 37181 LBS. 140 CU.YD.

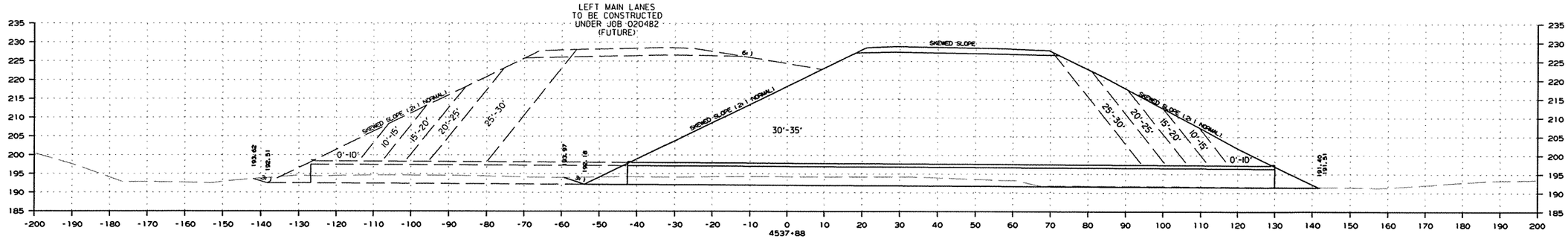
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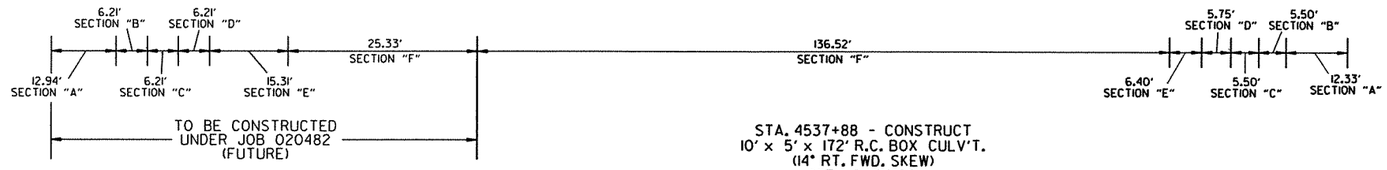
R020471.DGN 7/5/2011

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.		020471	132	346

(2) R.C. BOX CULVERT DIAGRAMS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11





STA. 4537+88 - CONSTRUCT
10' x 5' x 172' R.C. BOX CULV'T.
(14° RT. FWD. SKEW)
WITH 2:1 WINGS
Q50 = 460 cfs; DA = 490 ac

DESCRIPTION	LENGTH	CLASS "S" CONCRETE - ROADWAY		REINFORCING STEEL (GR. 60) - ROADWAY		UNCLASSIFIED EXCAVATION FOR STRUCTURES - ROADWAY	SOLID SODDING	WATER
	LIN.FT.	CU.YD. / L.F.	CU. YD.	LBS. / L.F.	LBS.	CU. YD.	SQ.YD.	M.GAL.
SECTION "A"	12.33		12.09		1808.00	6.34		
SECTION "B"	5.50	1.060	5.83	139.76	768.68	3.06		
SECTION "C"	5.50	1.164	6.40	157.56	866.58	3.43		
SECTION "D"	5.75	1.250	7.19	175.16	1007.17	3.89		
SECTION "E"	6.40	1.360	8.70	195.45	1250.88	4.73		
** SECTION "F" (STRAIGHT SECTION)	133.98	1.400	187.57	195.5	26193.09	99.00		
** SECTION "F"	2.54		3.54		735.00			
HEADWALLS & APRONS		*		*			4.5	0.1
WINGS			9.57		264		3.3	0.0
LAPS (5 LAPS @ 55.63 LBS. EACH)				*	278.15			
V.I.						4.33		
V.O.						4.76		
TOTALS			240.89		33171.55	129.54	7.8	0.1
		USE:	**240.89 CU.YD.**		**33172 LBS.**	**130 CU.YD.**		

* SECTION "A" INCLUDES HEADWALL & APRON
SECTION "F" INCLUDES HEADWALL & APRON

** REFER TO "SPECIAL DETAILS" PAGE 12 FOR ADDITIONAL INFORMATION.

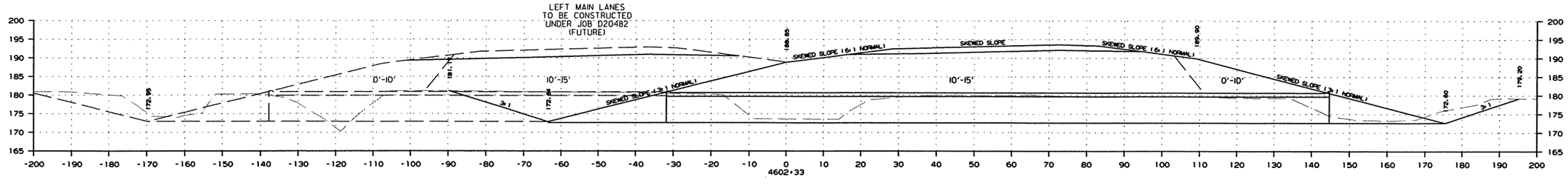
STANDARD DRAWINGS: SPECIAL DETAIL, RCB-1, RCB-2, R-115X-1, R-100X-X3, W-X152-1, W-X15

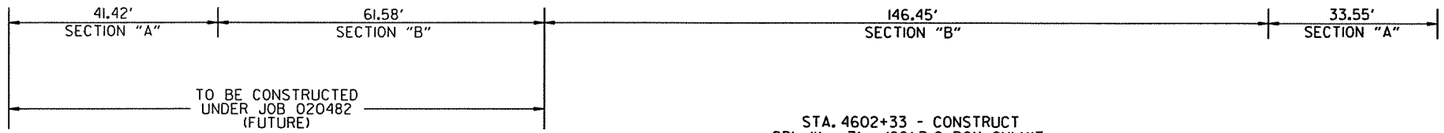
R020471.DGN 7/5/2011

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.		020471	133	346

(2) R.C. BOX CULVERT DIAGRAMS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-12-11





STA. 4602+33 - CONSTRUCT
DBL. 11' x 7' x 180' R.C. BOX CULV'T.
(40° RT. FWD. SKEW)
WITH 3:1 WINGS
050 = 1460 cfs; DA = 2750 ac

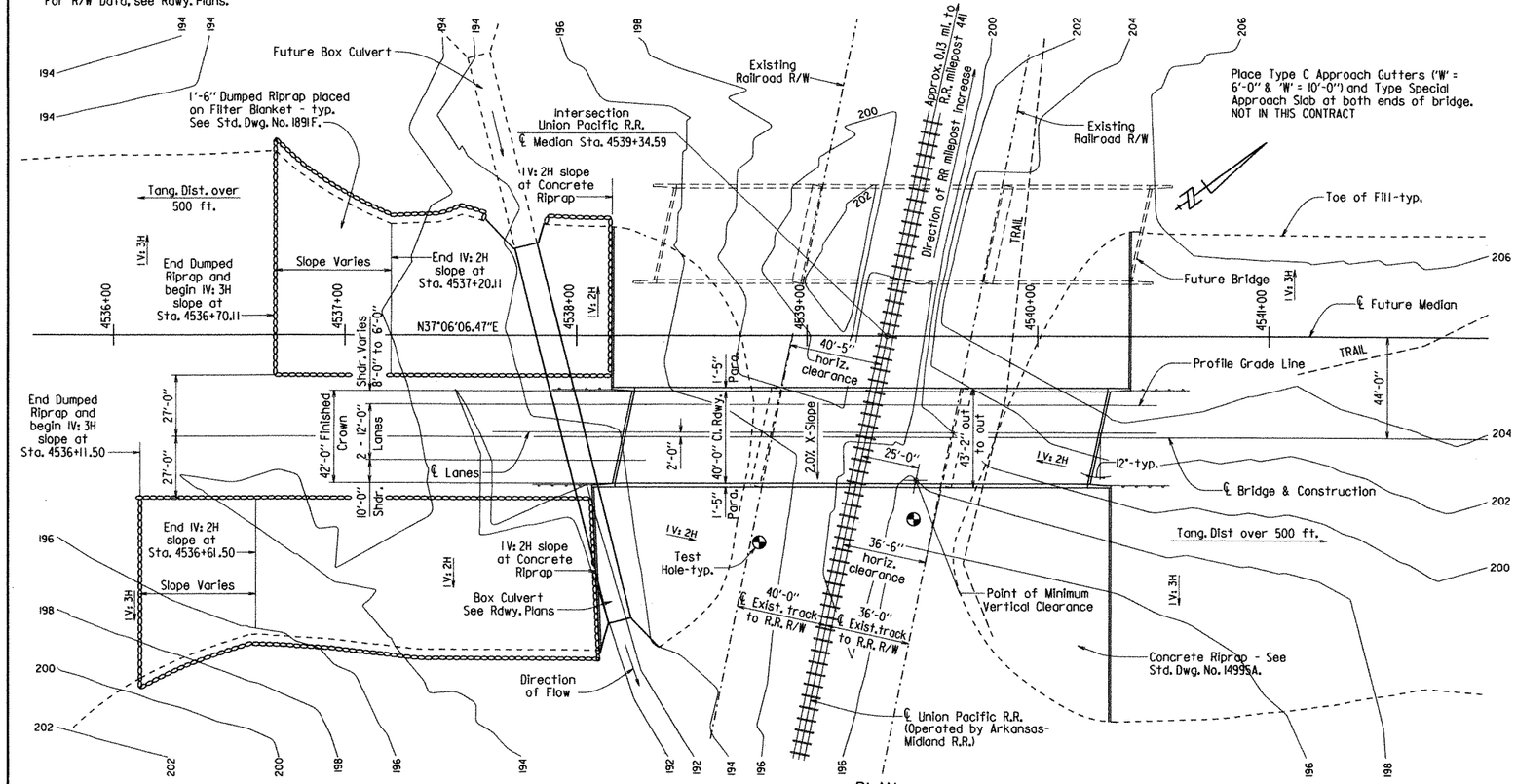
DESCRIPTION	LENGTH	CLASS "S" CONCRETE - ROADWAY		REINFORCING STEEL (GR. 60) - ROADWAY		UNCLASSIFIED EXCAVATION FOR STRUCTURES - ROADWAY	SOLID SODDING	WATER
	LIN.FT.	CU.YD. / L.F.	CU. YD.	LBS. / L.F.	LBS.	CU. YD.	SQ.YD.	M.GAL.
SECTION "A"	31.13		73.77		10402.00			
SECTION "A" (STRAIGHT SECTION)	2.42	2.37	5.74	301.13	728.73	35.11		
SECTION "B" (STRAIGHT SECTION)	132.95	2.594	344.87	357.33	47507.02	172.43		
** SECTION "B"	13.50		35.00		6351.00			
HEADWALLS & APRONS		*		*			11.0	0.1
WINGS			30.99		1475.00		6.1	0.1
LAPS (4 LAPS @ 71.81 LBS. EACH)				*	287.24			
V.I.						13.28		
V.O.						14.58		
TOTALS			490.37		66750.99	235.40	17.1	0.2
* SECTION "A" INCLUDES HEADWALL, APRON, & 1 LAP SECTION "B" INCLUDES HEADWALL & APRON		**USE:**	**490.37 CU.YD.**		**66751 LBS.**	**236 CU.YD.**		
** REFER TO "SPECIAL DETAILS" PAGE 13 FOR ADDITIONAL INFORMATION.								

STANDARD DRAWINGS: SPECIAL DETAIL, RCB-1, RCB-2, R-245X-2, R-200X-X3, W-X453-1, W-X45

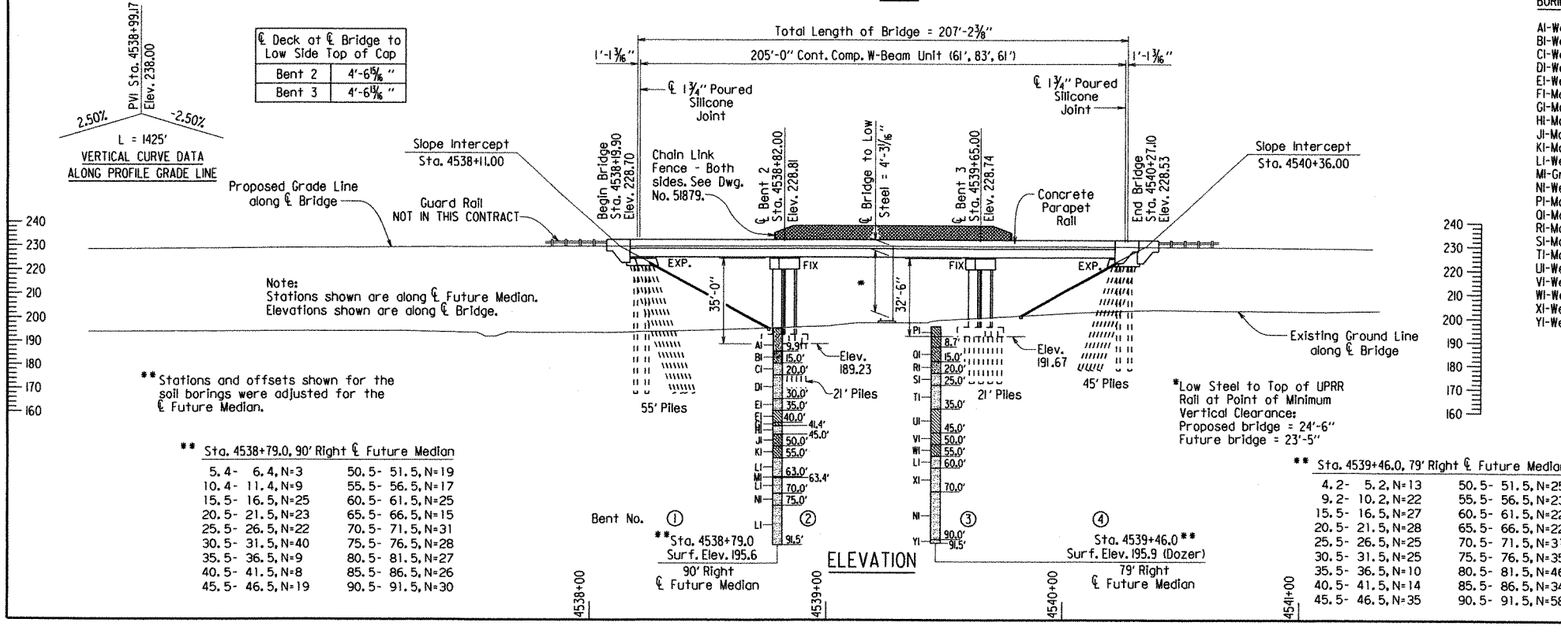
R020471.DGN 7/5/2011

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.		020471		
				①	07180 -	LAYOUT	- 51864	

For R/W Data, see Rdwy. Plans.



PLAN



ELEVATION

**Stations and offsets shown for the soil borings were adjusted for the ℄ Future Median.

** Sta. 4538+79.0, 90' Right ℄ Future Median

5.4- 6.4, N=3	50.5- 51.5, N=19
10.4- 11.4, N=9	55.5- 56.5, N=17
15.5- 16.5, N=25	60.5- 61.5, N=25
20.5- 21.5, N=23	65.5- 66.5, N=15
25.5- 26.5, N=22	70.5- 71.5, N=31
30.5- 31.5, N=40	75.5- 76.5, N=28
35.5- 36.5, N=9	80.5- 81.5, N=27
40.5- 41.5, N=8	85.5- 86.5, N=26
45.5- 46.5, N=19	90.5- 91.5, N=30

** Sta. 4539+46.0, 79' Right ℄ Future Median

4.2- 5.2, N=13	50.5- 51.5, N=25
9.2- 10.2, N=22	55.5- 56.5, N=23
15.5- 16.5, N=27	60.5- 61.5, N=22
20.5- 21.5, N=28	65.5- 66.5, N=22
25.5- 26.5, N=25	70.5- 71.5, N=31
30.5- 31.5, N=25	75.5- 76.5, N=35
35.5- 36.5, N=10	80.5- 81.5, N=46
40.5- 41.5, N=14	85.5- 86.5, N=34
45.5- 46.5, N=35	90.5- 91.5, N=58

GENERAL NOTES

BENCH MARK: Rebar & Cap - 361.37 ft. Right of ℄ Median Sta. 4538+42.50, Elev. 198.98.

CONSTRUCTION SPECIFICATION: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2003 edition) with applicable supplemental specifications and special provisions. Unless otherwise noted, section and subsection numbers in the plans refer to the Standard Construction Specifications.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications (4th edition, 2007 with 2008 and 2009 interims).

LIVE LOADING: HL-93 SEISMIC ZONE: 1

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Class S Concrete (substructure)	f'c = 3,500 psi
Reinforcing Steel (AASHTO M31 or M53, Gr. 60)	fy = 60,000 psi
Structural Steel (AASHTO M270, Gr. 36)	Fy = 36,000 psi
Structural Steel (AASHTO M270, Gr. 50W)	Fy = 50,000 psi

BORING LOGS: Boring logs may be obtained from the Programs and Contracts Division.

CONCRETE PILING: All piling shall be 18" square precast concrete and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 55 tons per pile. Drive piles in Bents 1 & 4 to a minimum penetration of 20' below natural ground. Drive piles in Bent 2 & 3 to a minimum penetration of 20' below bottom of footing. Piles in end bents shall not be driven until embankment to bottom of cap is in place. Lengths of piling shown are assumed for estimating quantities only, actual lengths to be determined in the field. Drive one 60' test pile in Bent 1, one 25' test pile in Bent 3 and one 50' test pile in Bent 4.

FOOTINGS: Footings shall have a minimum cover above the top of footings of 2'-0". Foundations for footings shall be prepared in accordance with Subsection 801.04 and backfilled according to Subsection 801.08.

BRIDGE DECK: The concrete bridge deck shall be given a tine finish as specified for final finishing in Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish.

CLASS 1 PROTECTIVE SURFACE TREATMENT: Class 1 Protective Surface Treatment shall be applied to the roadway surface and to the face and top of the concrete parapet rail.

DETAIL DRAWINGS:	DRAWING NOS.
End Bents	51867-51869
Intermediate Bents	51870-51873
205'-0" Cont. Comp. W-Beam Unit	51874-51880
Elastomeric Bearings	51881
Concrete Piling	14964
Concrete Riprap	14995A

BORING LEGEND

A1-Wet, Very Loose, Brown Sand with Clay and Trace of Gravel
B1-Wet, Loose, Brown Sand with Clay and Gravel
C1-Wet, Medium Dense, Gray Sand with Trace of Gravel
D1-Wet, Medium Dense, Reddish Brown Sand
E1-Wet, Dense, Reddish Brown Sand
F1-Moist, Stiff, Reddish Brown Clay
G1-Moist, Medium Stiff, Reddish Brown Clay
H1-Moist, Medium Dense, Reddish Brown to Brown Sand
J1-Moist, Very Stiff, Reddish Brown Clay with Sand
K1-Moist, Very Stiff, Brown and Gray Sandy Clay
L1-Wet, Medium Dense, Brown Sand
M1-Gravel
N1-Wet, Dense, Brown Sand
P1-Moist, Stiff, Brown Clay with Sand
Q1-Moist, Very Stiff, Brown Clay with Sand
R1-Moist, Medium Dense, Brown Clayey Sand
S1-Moist, Medium Dense, Brown and Gray Sand
T1-Moist to Wet, Medium Dense, Reddish Brown Sand with some Organic Matter
U1-Wet, Stiff, Reddish Brown Clay
V1-Wet, Hard, Reddish Brown Clay
W1-Wet, Very Stiff, Brown and Gray Clay with Sand
X1-Wet, Medium Dense, Brown Sand with Trace of Organic Matter
Y1-Wet, Very Dense, Brown Sand

STATE OF ARKANSAS Carl J. Fuselier REGISTERED PROFESSIONAL ENGINEER No. 7510 CARL J. FUSELIER

BRIDGE ENGINEER

LAYOUT OF BRIDGE OVER UNION PACIFIC RAILROAD HWY. 425-HWY. 278 EAST (GR.&STRS.) (MONTICELLO BYPASS) (F) DREW COUNTY

ROUTE 69 SEC. 0

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

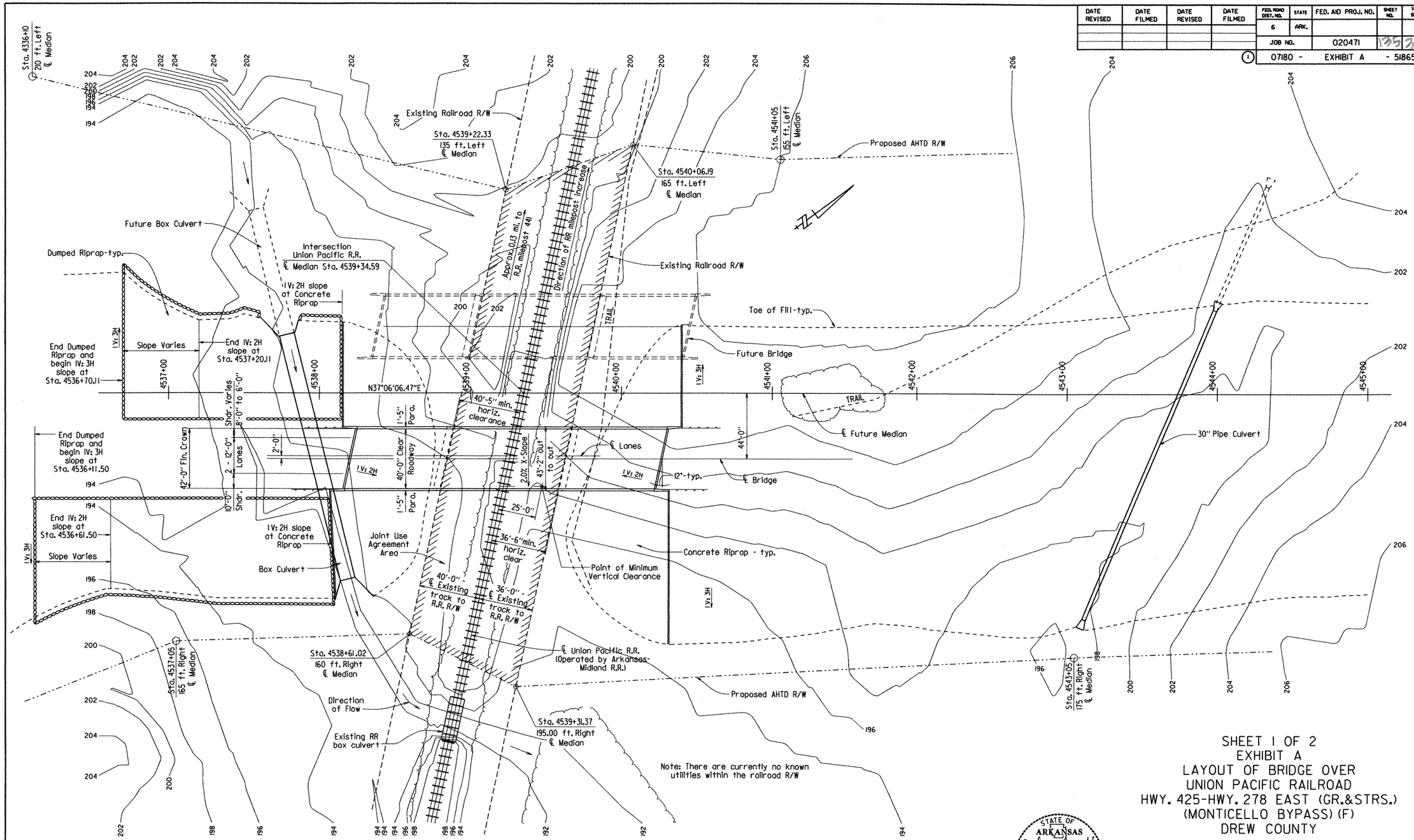
DRAWN BY: KDH DATE: 2-4-10 FILENAME: b020471_ll.dgn

CHECKED BY: CRE DATE: 3-11-10 SCALE: 1" = 30'

DESIGNED BY: CRE DATE: 2-10

BRIDGE NO. 07180 DRAWING NO. 51864

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.		020471	135	346
				07180 -		EXHIBIT A	- 51865	



PLAN

Scale: 1" = 30'

Note: All permanent clearances shall be verified before project closing.

STATE OF ARKANSAS
No. 7610
REGISTERED PROFESSIONAL ENGINEER
CARL G. FUSELIER
4/5/11

BRIDGE ENGINEER

SHEET 1 OF 2
EXHIBIT A
LAYOUT OF BRIDGE OVER
UNION PACIFIC RAILROAD
HWY. 425-HWY. 278 EAST (GR.&STRS.)
(MONTICELLO BYPASS) (F)
DREW COUNTY

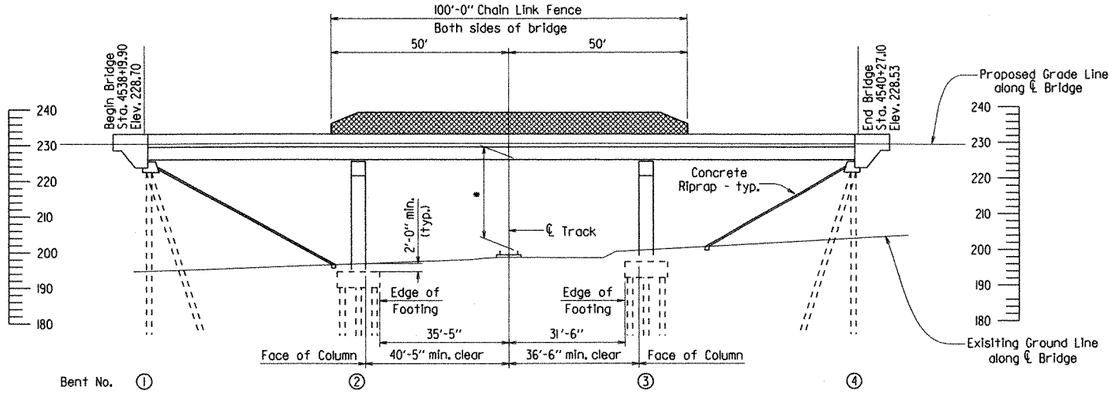
ROUTE 69 SEC. 0

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-4-10
CHECKED BY: CRE DATE: 9-22-10
DESIGNED BY: CRE DATE: 2-2010
FILENAME: b020471_exa.dgn
SCALE: AS NOTED

BRIDGE NO. 07180 DRAWING NO. 51865

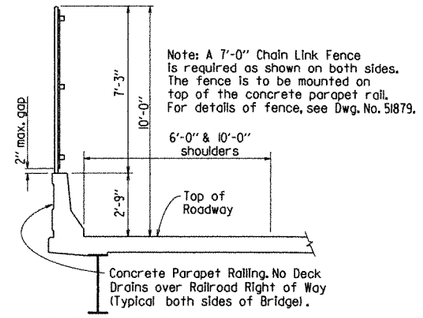
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		020471	190	246
				①	07180 -	EXHIBIT A	- 51866	



ELEVATION SECTION NORMAL TO TRACK

Looking in direction of milepost increase
Scale: 1" = 20'

*Low Steel to Top of UPRR Rail at Point of Minimum Vertical Clearance:
Proposed bridge = 24'-6"
Future bridge = 23'-5"



Note: A 7'-0" Chain Link Fence is required as shown on both sides. The fence is to be mounted on top of the concrete parapet rail. For details of fence, see Dwg. No. 51879.

TYPICAL SECTION

No Scale

TOP OF RAIL ELEVATIONS

Looking in direction of Milepost Increase.
Stations decrease with Milepost Increase

Direction of Railroad Milepost Increase

LEFT RAIL		RIGHT RAIL	
STATION	ELEVATION	STATION	ELEVATION
0+00	210.95	0+00	211.08
1+00	210.56	1+00	210.60
2+00	209.85	2+00	209.89
3+00	208.88	3+00	208.90
4+00	207.60	4+00	207.65
5+00	206.14	5+00	206.22
6+00	204.82	6+00	204.89
7+00	203.52	7+00	203.61
8+00	202.25	8+00	202.32
9+00	201.19	9+00	201.26
① 10+00	200.29	① 10+00	200.35
11+00	199.60	11+00	199.69
12+00	199.25	12+00	199.31
13+00	200.06	13+00	200.11
14+00	201.30	14+00	201.38
15+00	202.63	15+00	202.68
16+00	203.92	16+00	203.98
17+00	204.96	17+00	205.02
18+00	205.21	18+00	205.26
19+00	204.86	19+00	204.93
20+00	204.26	20+00	204.26

The elevations of the existing top-of-rail profile shall be verified by the Contractor prior to beginning construction. Any discrepancies that will decrease the vertical clearance shown in the Elevation Section shall be brought to the attention of the railroad prior to construction.

① ℄ Track Sta. 10+00 =
℄ Median Sta. 4539+34.59

GENERAL NOTES

All demolitions within the Railroad's right-of-way and/or demolition that may impact the Railroad's tracks or operations shall comply with the Railroad's demolition requirements.

Erection over the Railroad's right-of-way shall be designed to cause no interruption to the Railroad's operation. Erection over the Railroad's track(s) shall be developed such that it enables the track(s) to remain open to traffic per the Railroad's requirements.

The Contractor must submit a proposed method of erosion and sediment control and have the method approved by the Railroad prior to beginning any grading on the project site.

Railroad requirements do not allow work within 50 feet of track centerline when a train passes the work site and all personnel must clear the area within 25 feet of the track centerline and secure all equipment when trains are present.

The State shall not plow ice, snow, or sleet over the sides of the structure. In consideration of this practice, the Carrier waives its request for the State to attach splash boards to sides of the structure. This statement is in the State Railroad Agreement.

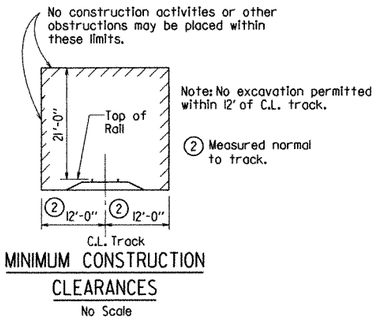
The proposed bridge structure will not significantly change the quantity and/or characteristic of the flow in the railway's ditches and/or drainage structure.

Closed Parapet Railing (No Deck Drains) over Railroad Right of Way on both sides of Bridge.

Construction shall comply with the Union Pacific Railroad requirements noted in Job 020471 Special Provision "Insurance, Construction, and Flagging Requirements on Railroad Property (Union Pacific Railroad)". Any shoring shall comply with UPRR requirements.

Railroad review and approval of Shoring, Erection and Falsework is required. Allow a minimum of four weeks for the review and approval of each submittal.

For Railroad coordination, refer to the Railroad Minimum Requirments of SP Job 020471 "Insurance, Construction and Flagging Requirments on Railroad Property (Union Pacific Railroad)".



MINIMUM CONSTRUCTION CLEARANCES

No Scale

STATE OF ARKANSAS
Carl J. Pueschner
REGISTERED PROFESSIONAL ENGINEER
No. 7510
6/15/11
CARL J. PUESCHNER

BRIDGE ENGINEER

SHEET 2 OF 2
EXHIBIT A
LAYOUT OF BRIDGE OVER UNION PACIFIC RAILROAD
HWY. 425-HWY. 278 EAST (GR.&STRS.) (MONTICELLO BYPASS) (F)
DREW COUNTY

ROUTE 69 SEC. 0

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

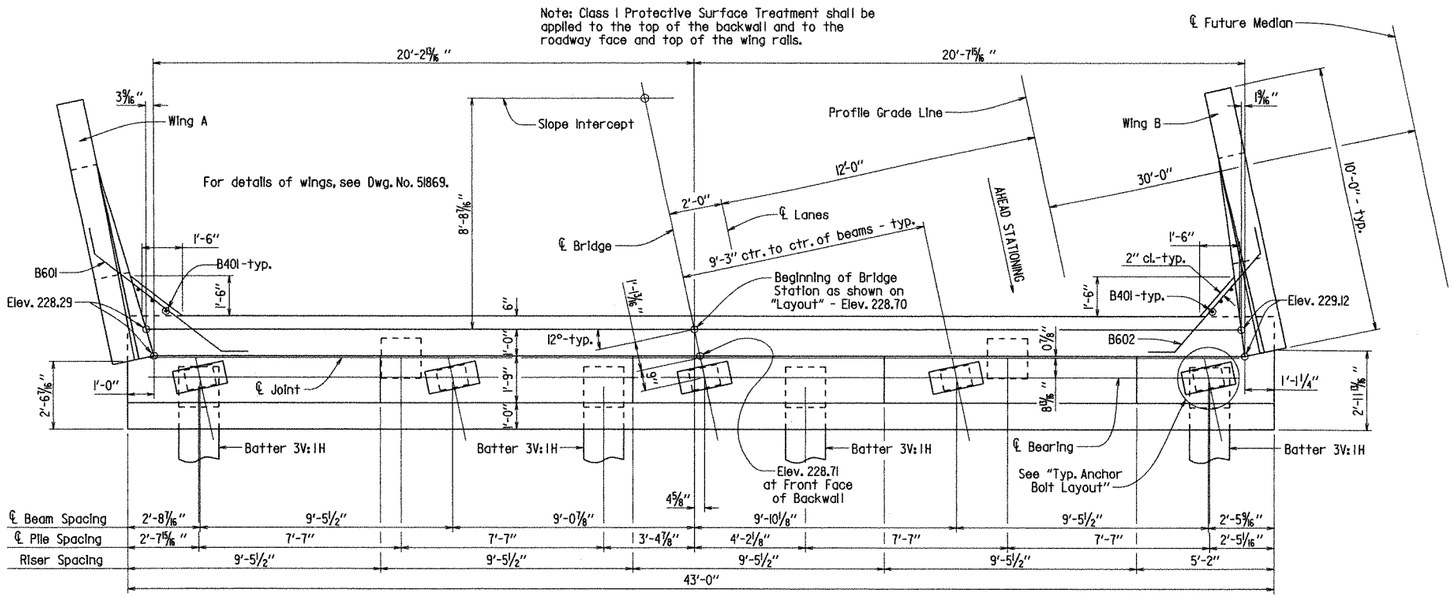
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CHECKED BY: CRE DATE: 9-22-10 SCALE: AS NOTED
DESIGNED BY: CRE DATE: 2-2010

BRIDGE NO. 07180 DRAWING NO. 51866

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.		020471	37	246

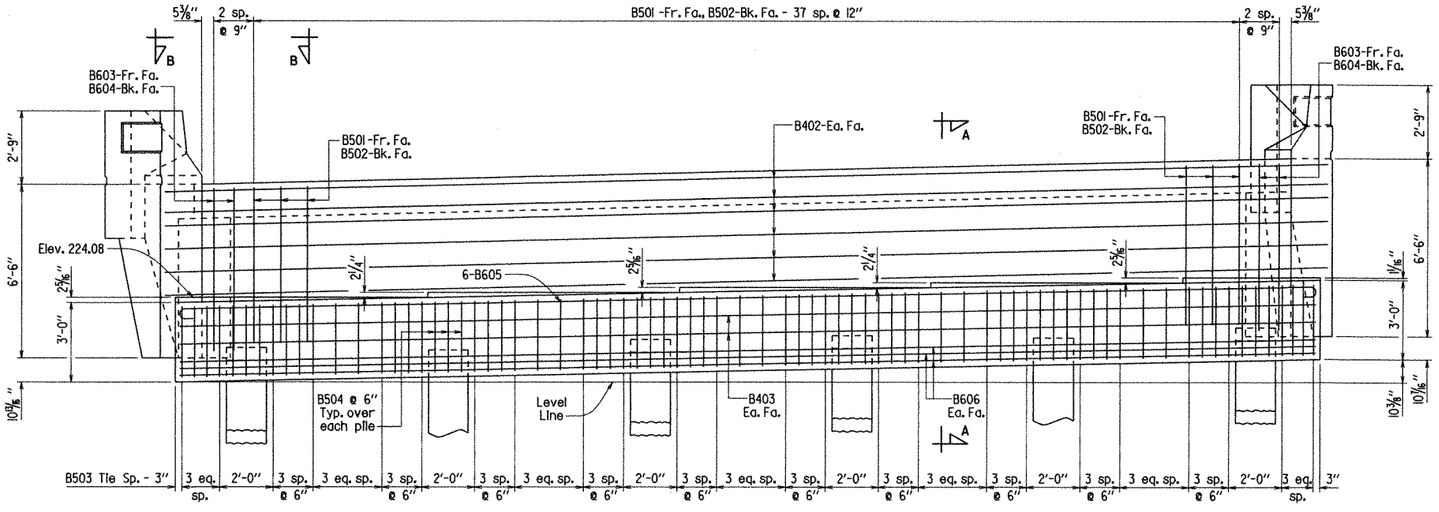
(1) 07180 - END BENTS - 51867

Note: Class I Protective Surface Treatment shall be applied to the top of the backwall and to the roadway face and top of the wing ralls.



PLAN - BENT I

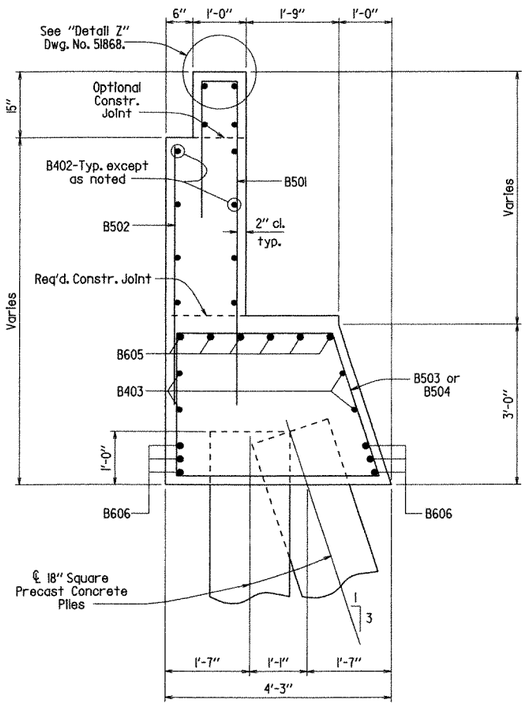
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ELEVATION - BENT I

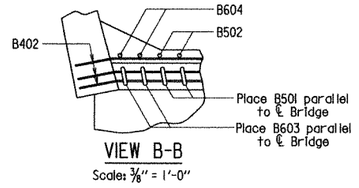
Looking Back

Scale: 3/8" = 1'-0"



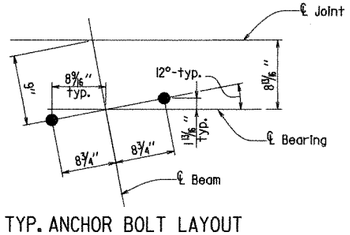
SECTION A-A

Scale: 3/4" = 1'-0"



VIEW B-B

Scale: 3/8" = 1'-0"



TYP. ANCHOR BOLT LAYOUT

No Scale

Note: The profile of the backwall angle shall be established based on the vertical curve in conjunction with the skew.

STATE OF ARKANSAS
CARL J. FUSELIER
REGISTERED PROFESSIONAL ENGINEER
No. 7510
BRIDGE ENGINEER

SHEET 1 OF 3
DETAILS OF END BENTS
UNION PACIFIC RAILROAD

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

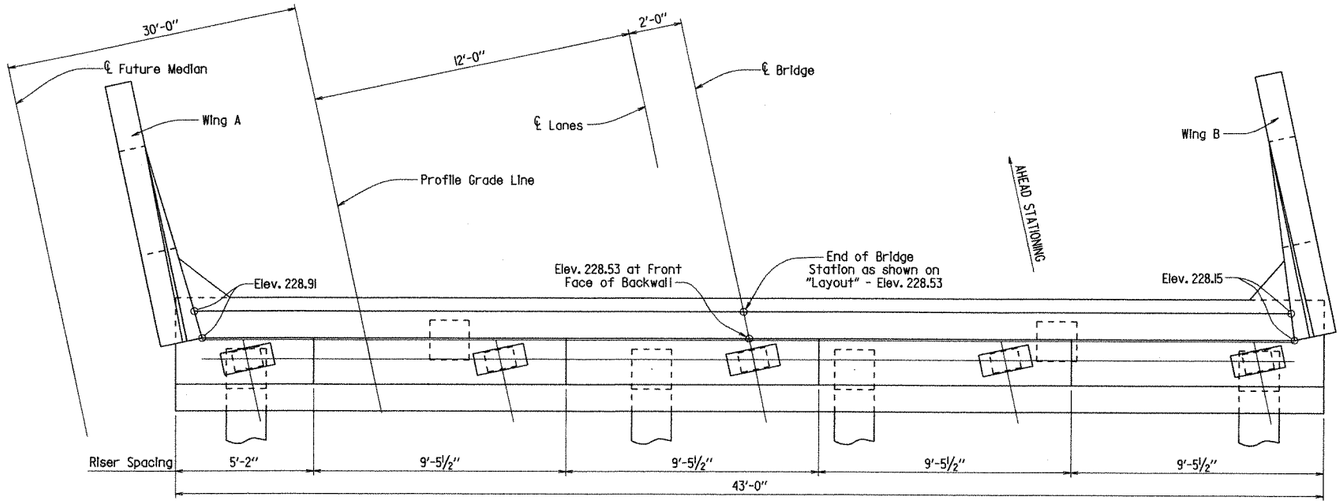
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CHECKED BY: DATE: 12-10-10 SCALE: AS NOTED

DESIGNED BY: DATE: 09-10

BRIDGE NO. 07180 DRAWING NO. 51867

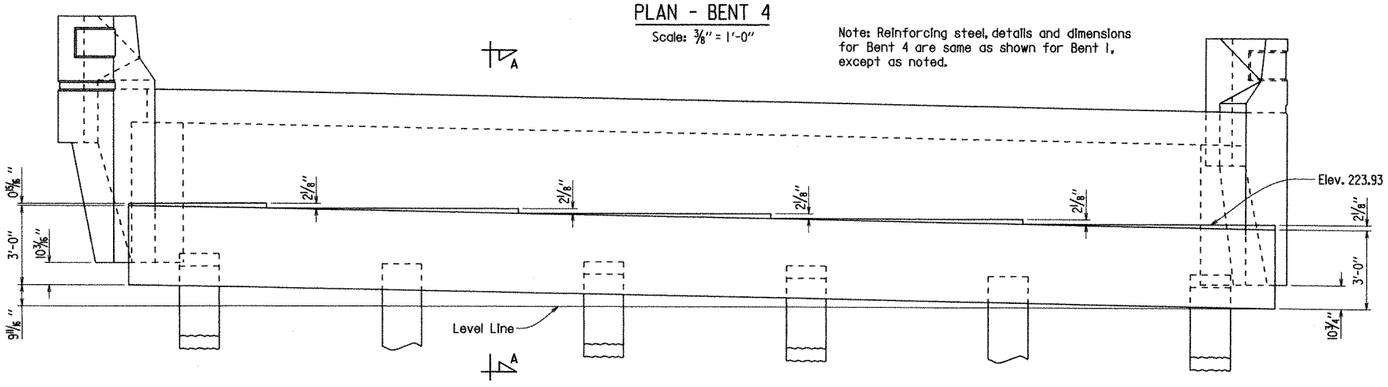
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		020471	1338	340
				(1) 07180 -		END BENTS	- 51868	



PLAN - BENT 4

Scale: ⅜" = 1'-0"

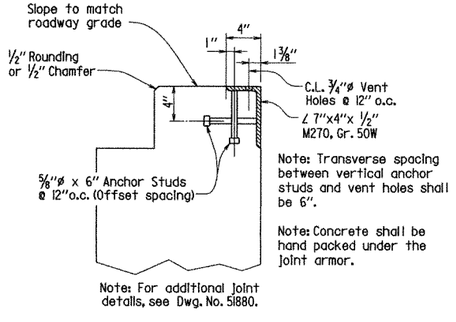
Note: Reinforcing steel, details and dimensions for Bent 4 are same as shown for Bent 1, except as noted.



ELEVATION - BENT 4

Looking Ahead
Scale: ⅜" = 1'-0"

Note: The profile of the backwall angle shall be established based on the vertical curve in conjunction with the skew.



Note: Transverse spacing between vertical anchor studs and vent holes shall be 6".

Note: Concrete shall be hand packed under the joint armor.

Note: For additional joint details, see Dwg. No. 51880.

DETAIL Z

No Scale

GENERAL NOTES

All concrete shall be Class "S" and shall be poured in the dry. All exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60.

No portion of the backwall shall be poured until the beams are in place. Refer to "Expansion Device Installation at End Bents" note, Dwg. No. 51880.

Structural steel in end bents shall be AASHTO M270, Gr. 50W and shall be paid for as "Structural Steel in Beam Spans (M270, Gr. 50W)".

If anchor bolts are drilled into cap, top reinforcing bars shall be placed to avoid damage.

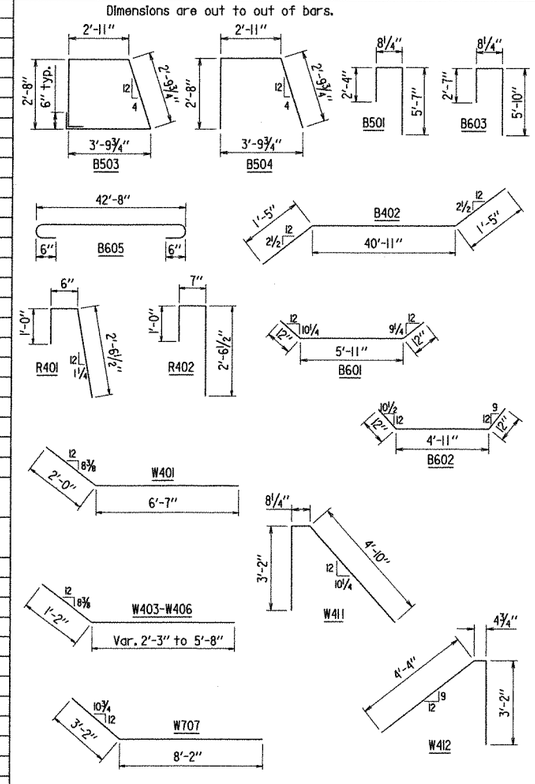
For additional information, see Layout.

BAR LIST-PER BENT

MARK	NO. REQ'D.	LENGTH	P.D.
B401	6	4'-11"	Str.
B402	12	43'-9"	3"
B403	4	42'-8"	Str.
B501	38	8'-5"	3¾"
B502	38	4'-4"	Str.
B503	58	12'-9"	2½"
B504	18	8'-2"	2½"
B601	4	7'-11"	4½"
B602	4	6'-11"	4½"
B603	4	8'-9"	4½"
B604	4	4'-7"	Str.
B605	6	44'-0"	4½"
B606	6	42'-8"	Str.
R401	8	3'-11"	2"
R402	8	4'-0"	2"
R403	12	9'-8"	Str.
R601	20	4'-5"	Str.
R602	6	5'-0"	Str.
W401	8	8'-7"	2"
W402	8	8'-11"	Str.
W403-W406	2 each	Var. 3'-5" to 6'-10"	2"
W407-W410	2 each	Var. 4'-7" to 8'-0"	Str.
W411	3	8'-8"	2"
W412	3	7'-10"	2"
W701	12	9'-8"	Str.
W702	4	6'-8"	Str.
W703	4	6'-0"	Str.
W704	4	5'-4"	Str.
W705	4	4'-8"	Str.
W706	4	4'-0"	Str.
W707	4	11'-4"	5¼"

BENDING DIAGRAMS

Dimensions are out to out of bars.



STATE OF ARKANSAS
CARL L. FUSELIER
REGISTERED PROFESSIONAL ENGINEER
No. 7510
4/15/11

BRIDGE ENGINEER

SHEET 2 OF 3
DETAILS OF END BENTS
UNION PACIFIC RAILROAD

ROUTE SEC.

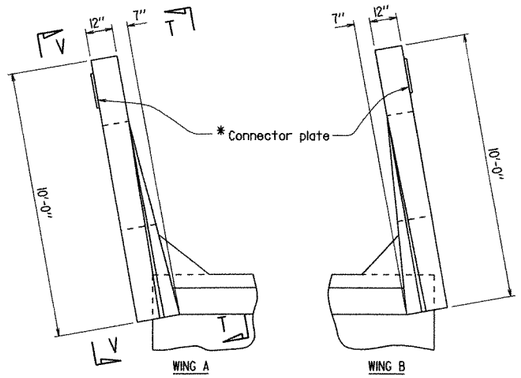
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

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DESIGNED BY: DJH DATE: 09-10

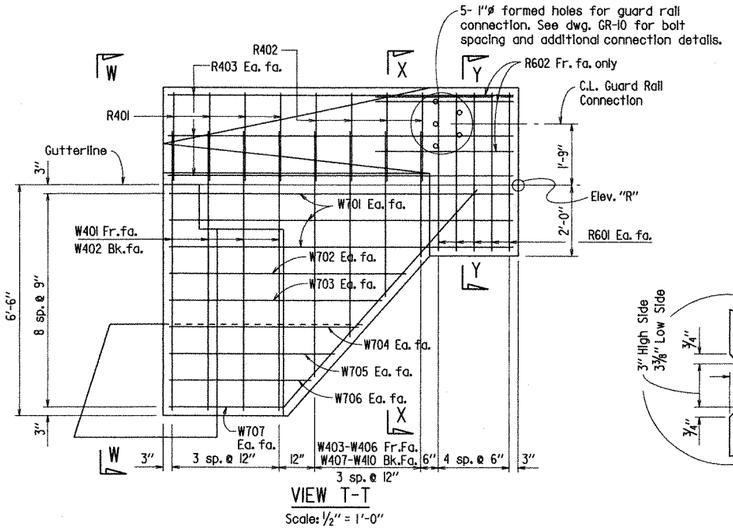
BRIDGE NO. 07180 DRAWING NO. 51868

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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				JOB NO.		020471	139	246
				①	07180 -	END BENTS	- 51869	



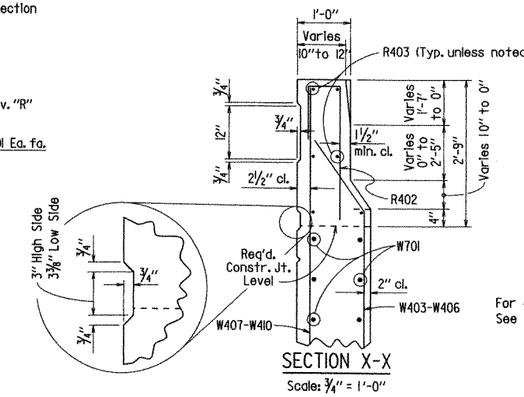
PLAN OF WINGS

Scale: 3/8" = 1'-0"



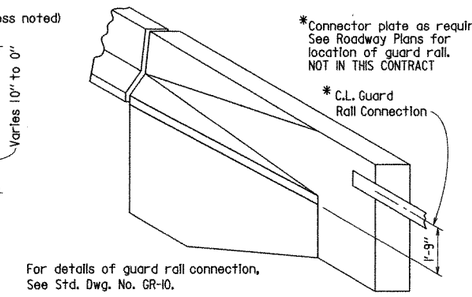
VIEW T-T

Scale: 1/2" = 1'-0"



SECTION X-X

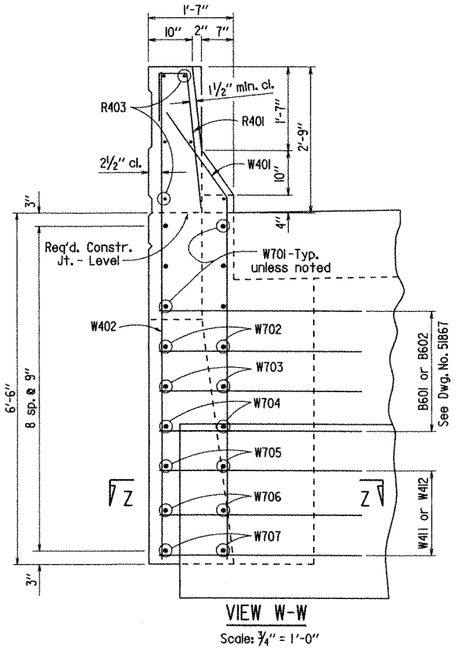
Scale: 3/4" = 1'-0"



For details of guard rail connection, See Std. Dwg. No. GR-10.

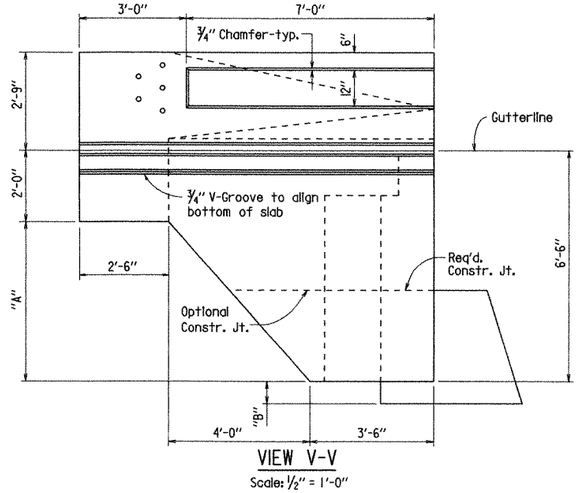
THREE DIMENSIONAL VIEW OF RAIL

No Scale



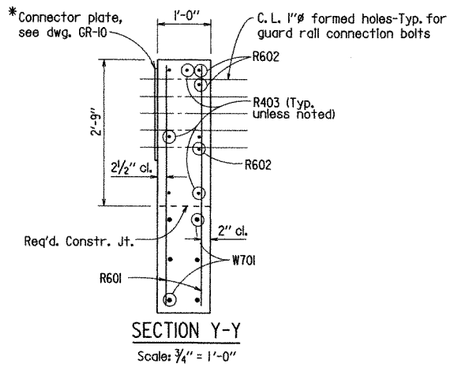
VIEW W-W

Scale: 3/4" = 1'-0"



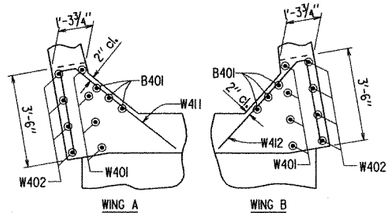
VIEW V-V

Scale: 1/2" = 1'-0"



SECTION Y-Y

Scale: 3/4" = 1'-0"



WING A WING B

SECTION Z-Z

Scale: 3/8" = 1'-0"

TABLE OF VARIABLES

BENT	WING	"A"	"B"	Elev. "R"
1	A	4'-5 5/8"	10 9/16"	228.26
	B	4'-5 5/8"	10 7/16"	229.09
4	A	4'-5 3/8"	10 3/16"	228.86
	B	4'-5 1/2"	10 3/4"	228.11

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER 6/15/11

BRIDGE ENGINEER

SHEET 3 OF 3
DETAILS OF END BENTS
UNION PACIFIC RAILROAD

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

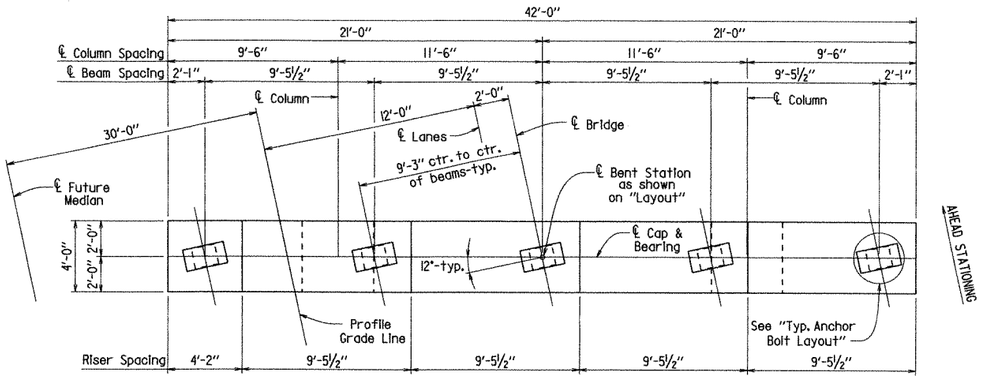
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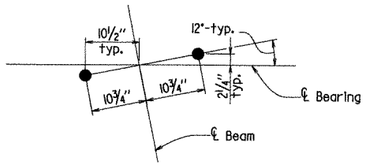
BRIDGE NO. 07180 DRAWING NO. 51869

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.		020471	143	146
				(1) 07180 -		BENT 2	- 51870	



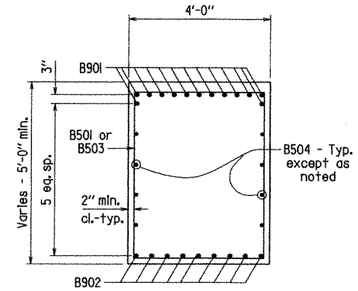
PLAN

Scale: ¼" = 1'-0"



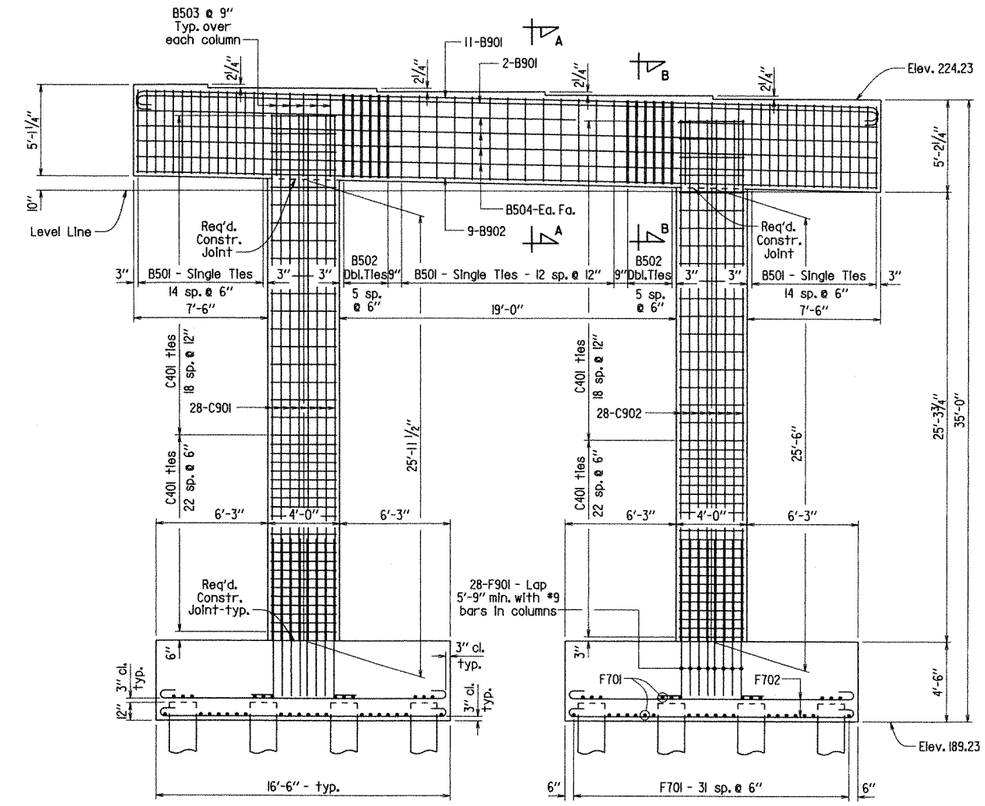
TYP. ANCHOR BOLT LAYOUT

No Scale



SECTION A-A

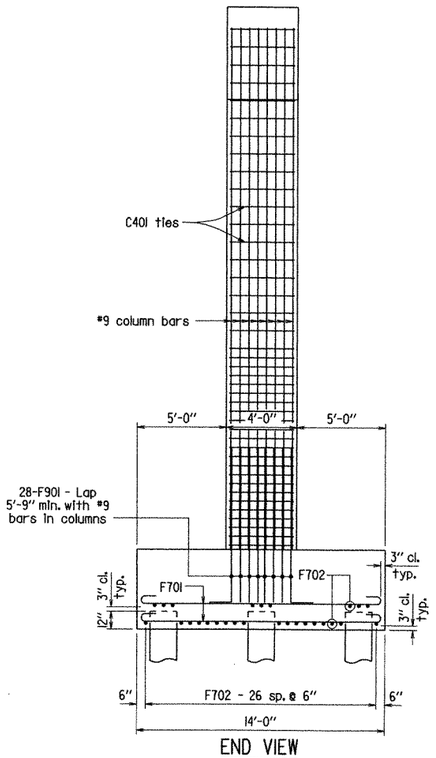
Scale: ½" = 1'-0"



ELEVATION

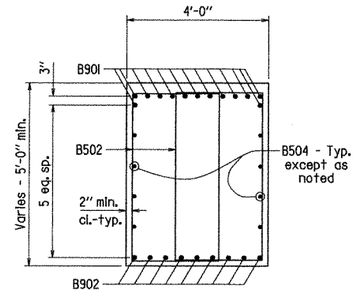
Looking Ahead

Scale: ¼" = 1'-0"



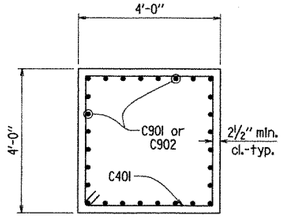
END VIEW

Scale: ¼" = 1'-0"



SECTION B-B

Scale: ½" = 1'-0"



TYP. SECTION THRU COLUMN

Scale: ½" = 1'-0"

STATE OF ARKANSAS
CARL G. FUSELIER
REGISTERED PROFESSIONAL ENGINEER
No. 7510

BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF BENT 2
UNION PACIFIC RAILROAD

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

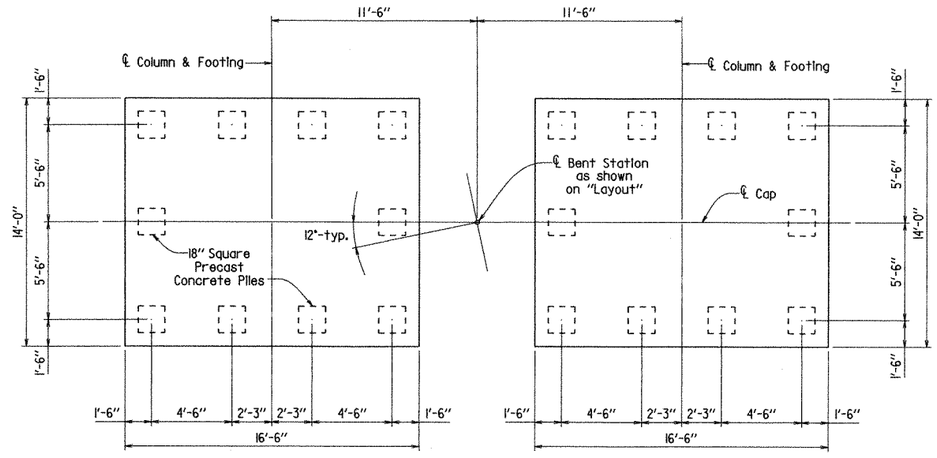
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CHECKED BY: DATE: 01-12-11
DESIGNED BY: DATE: 09-10

FILENAME: b020471_b2l.dgn
SCALE: AS NOTED

BRIDGE NO. 07180

DRAWING NO. 51870

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.		020471	14	24
				(1) 07180 -		BENT 2	- 51871	



PLAN OF FOOTINGS

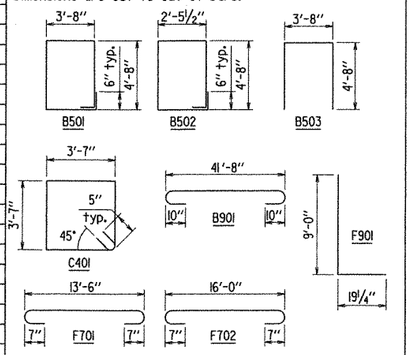
Scale: 1/4" = 1'-0"

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
C401	82	14'-10"	3"
B501	43	17'-2"	2½"
B502	24	14'-9"	2½"
B503	10	12'-10"	2½"
B504	8	41'-8"	Str.
F701	64	15'-2"	5¼"
F702	54	17'-8"	5¼"
B901	13	44'-2"	9"
B902	9	41'-8"	Str.
C901	28	29'-7"	Str.
C902	28	29'-4"	Str.
F901	56	10'-4"	9"

BENDING DIAGRAMS

Dimensions are out to out of bars.



GENERAL NOTES

All concrete shall be Class "S" with a minimum 28 day compressive strength, f'c = 3,500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60 (fy = 60,000 psi).

If anchor bolts are drilled into cap, top reinforcing bars shall be properly placed to avoid damage.

For additional information, see Layout.

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER

BRIDGE ENGINEER

SHEET 2 OF 2
DETAILS OF BENT 2
UNION PACIFIC RAILROAD

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

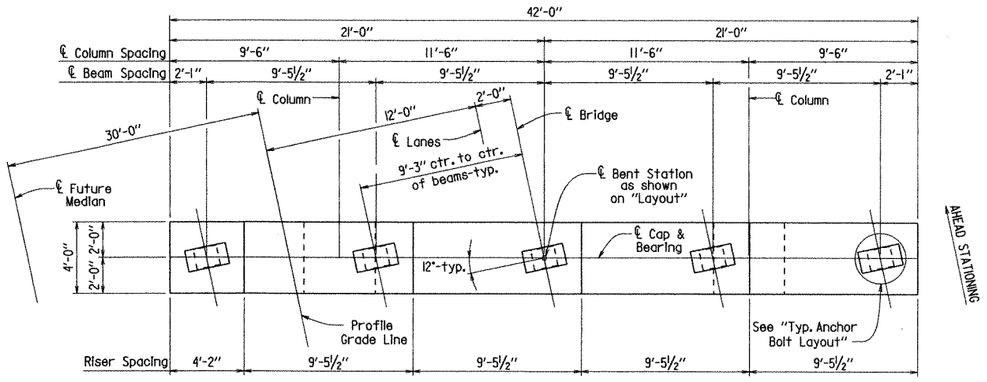
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 12-7-10
CHECKED BY: DJH DATE: 01-12-11
DESIGNED BY: DJH DATE: 09-10

FILENAME: b020471_b21.dgn
SCALE: AS NOTED

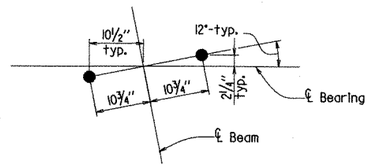
BRIDGE NO. 07180 DRAWING NO. 51871

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.		020471	1	2
				(1) 07180 -		BENT 3	- 51872	



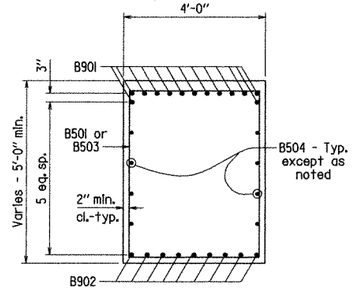
PLAN

Scale: 1/4" = 1'-0"



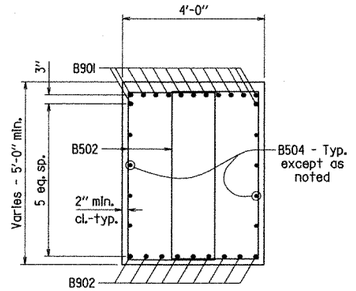
TYP. ANCHOR BOLT LAYOUT

No Scale



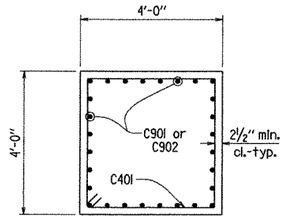
SECTION A-A

Scale: ½" = 1'-0"



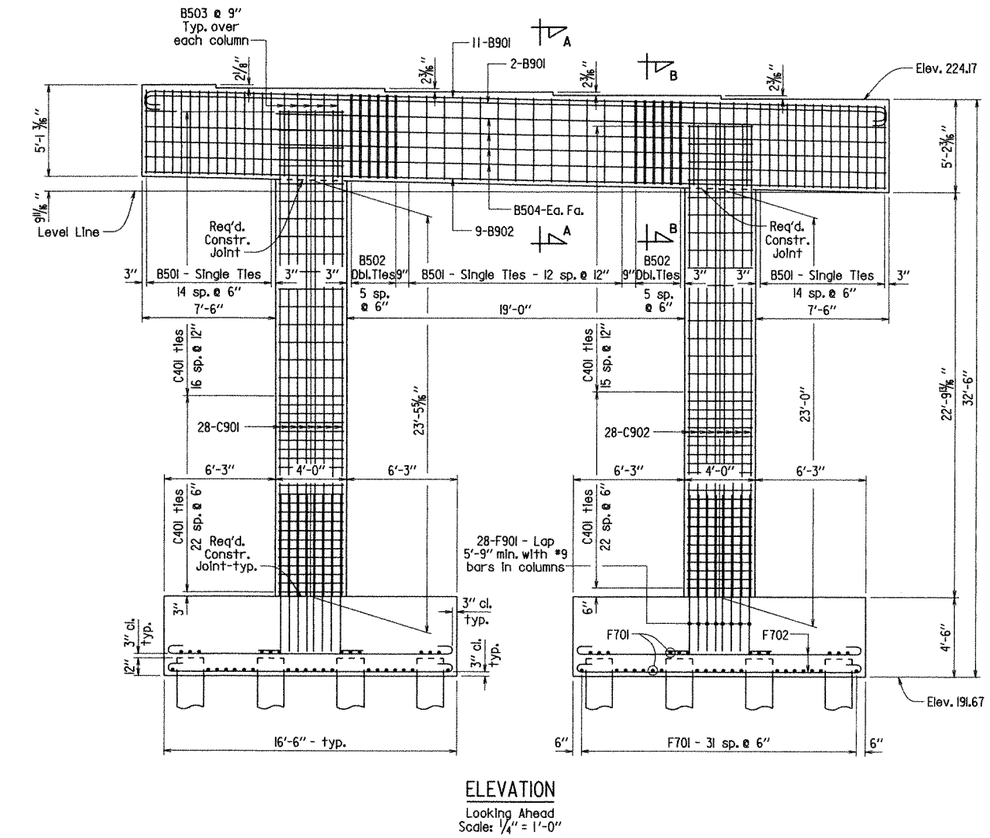
SECTION B-B

Scale: ½" = 1'-0"



TYP. SECTION THRU COLUMN

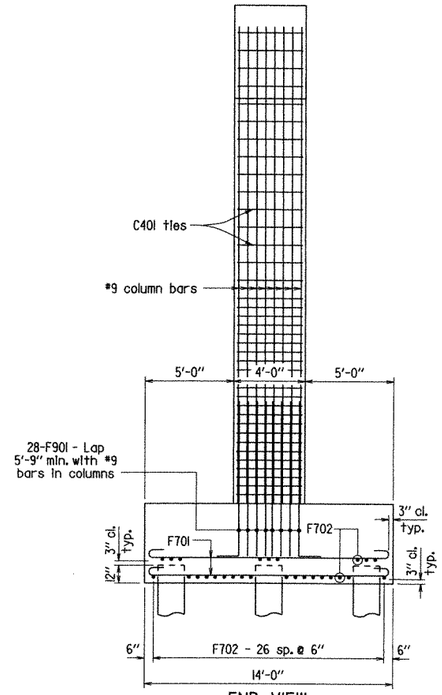
Scale: ½" = 1'-0"



ELEVATION

Looking Ahead

Scale: 1/4" = 1'-0"



END VIEW

Scale: 1/4" = 1'-0"

STATE OF ARKANSAS
Carl L. Fussellier
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BRIDGE ENGINEER

SHEET 1 OF 2
DETAILS OF BENT 3
UNION PACIFIC RAILROAD

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

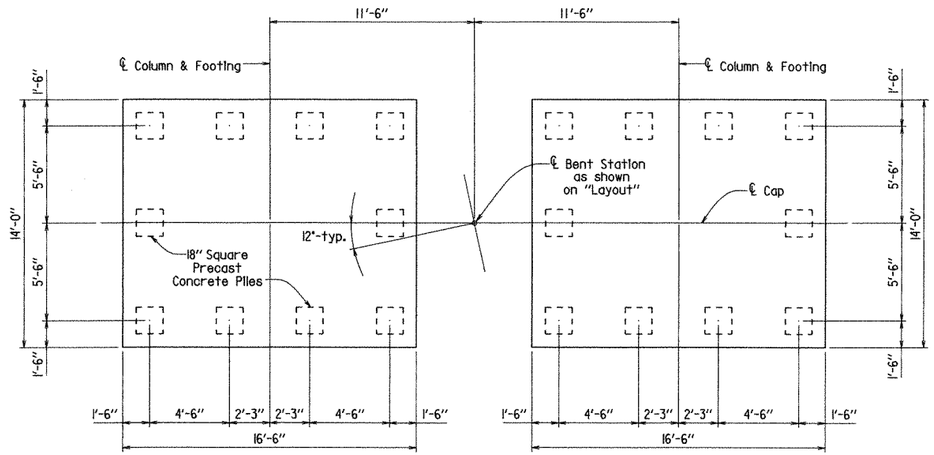
DRAWN BY: KDH DATE: 12-7-10 FILENAME: b020471_b31.dgn

CHECKED BY: DH DATE: 01-12-11 SCALE: AS NOTED

DESIGNED BY: DH DATE: 09-10

BRIDGE NO. 07180 DRAWING NO. 51872

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.		020471	143	346
				(1) 07180 -		BENT 3	- 51873	



PLAN OF FOOTINGS

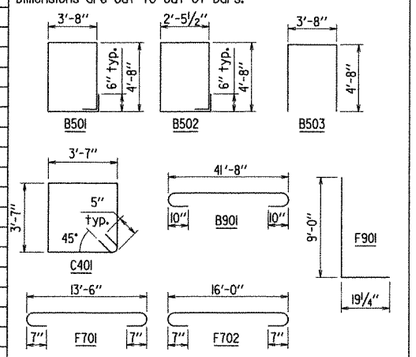
Scale: 1/4" = 1'-0"

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
C401	77	14'-10"	3"
B501	43	17'-2"	2½"
B502	24	14'-9"	2½"
B503	10	12'-10"	2½"
B504	8	41'-8"	Str.
F701	64	15'-2"	5¼"
F702	54	17'-8"	5¼"
B901	13	44'-2"	9"
B902	9	41'-8"	Str.
C901	28	27'-4"	Str.
C902	28	26'-7"	Str.
F901	56	10'-4"	9"

BENDING DIAGRAMS

Dimensions are out to out of bars.



GENERAL NOTES

All concrete shall be Class "S" with a minimum 28 day compressive strength, f'c = 3,500 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60 (fy = 60,000 psi).

If anchor bolts are drilled into cap, top reinforcing bars shall be properly placed to avoid damage.

For additional information, see Layout.

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SHEET 2 OF 2
DETAILS OF BENT 3
UNION PACIFIC RAILROAD

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 12-7-10
CHECKED BY: DJL DATE: 01-13-11
DESIGNED BY: DJL DATE: 09-10

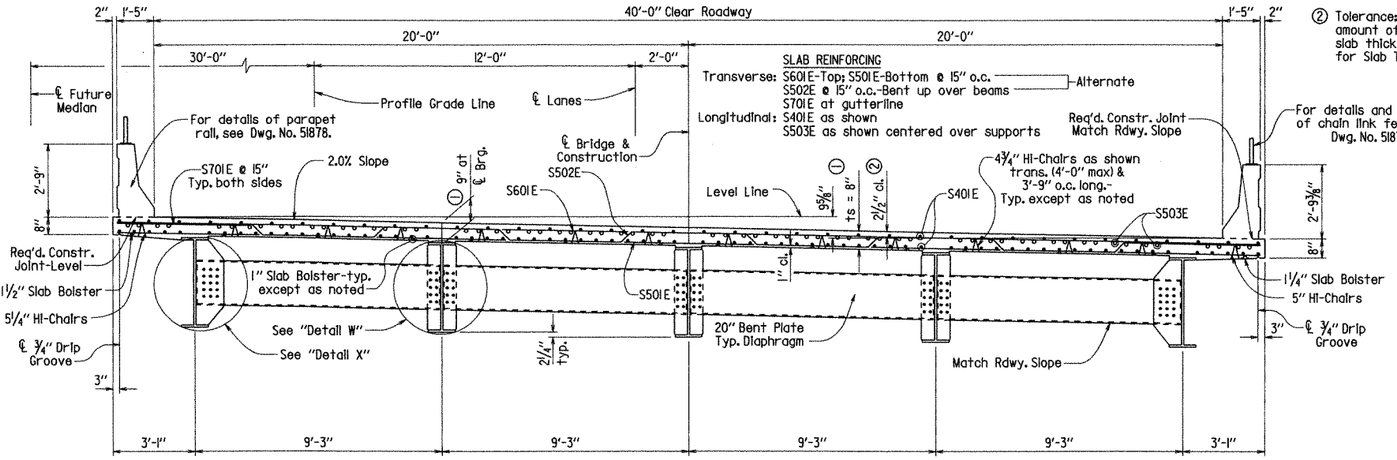
FILENAME: b020471_b31.dgn
SCALE: AS NOTED

BRIDGE NO. 07180 DRAWING NO. 51873

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.		020471	1 of 6	
				①	07180 - 205 FT. UNIT - 51874			

NOTE: Class I Protective Surface Treatment shall be applied to the Roadway Surface and to the Face & Top of the Concrete Parapet Rail.

NOTE: At the Contractor's option, two straight epoxy coated #5 bars may be substituted for bar S502E. Payment for reinforcing will be based on the weight of bar S502E.



SLAB REINFORCING

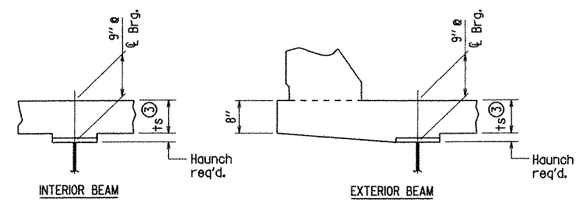
Transverse: S601E-Top; S501E-Bottom @ 15" o.c. —— Alternate
S502E @ 15" o.c.-Bent up over beams
S701E at gutterline
Longitudinal: S401E as shown
S503E as shown centered over supports

① See "Adjustment for Slab Thickness Tolerance".

② Tolerance: Minus = ¼"; Plus equal to the amount of slab thickening used to meet slab thickness tolerance. See "Adjustment for Slab Thickness Tolerance".

TYPICAL ROADWAY SECTION

Looking Ahead
Scale: ⅜" = 1'-0"



③ Tolerance when removable deck forming is used is +½", -¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

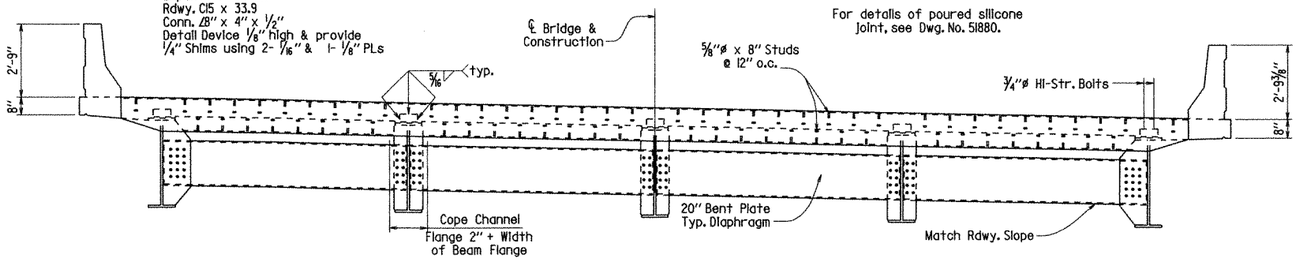
Note : ts = slab thickness as shown in "Typical Roadway Section".

Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance : Minimum - occurs when top flange contacts bottom reinforcing steel; Maximum - top flange thickness plus 1¾". No increase in concrete and structural steel quantities will be made to maintain tolerances.

Tolerances shown are applicable only when removable deck forming is used. See Std. Dwg. No. 14991 for tolerances when permanent steel deck forms are used. Payment for concrete shall be based on removable deck forming.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

No Scale



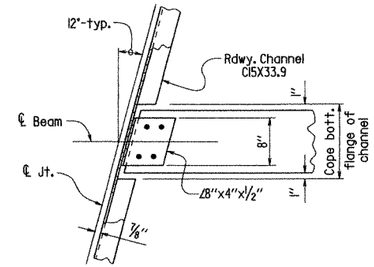
TYPICAL SECTION THRU JOINT

Looking Ahead - Bent 1
Bent 4 Similar
Scale: ⅜" = 1'-0"

TABLE FOR WELD

Material Thickness of Thicker Part Joined (Inches)	Minimum Size of Fillet Weld (Inches)	Single Pass Weld Must Be Used
To ¾" Inclusive	¼"	
Over ¾"	5/16"	

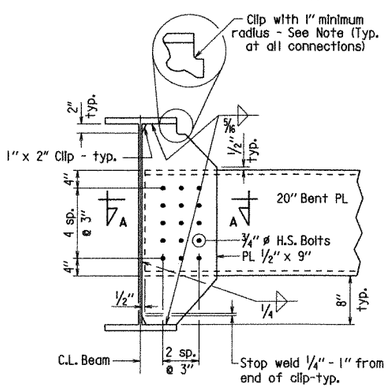
NOTE: When a fillet weld size, as shown on the plans, is larger than the minimum, the first pass shall be that specified for minimum size of fillet weld.



CHANNEL CONNECTION DETAIL

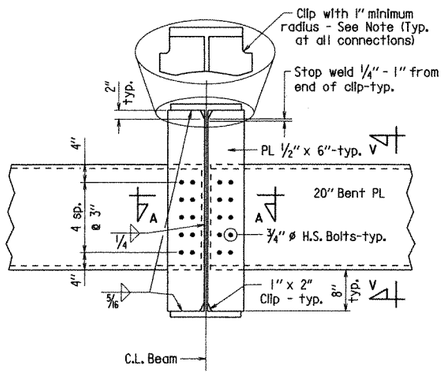
No Scale

Note: If permanent steel deck forms are used, the fabricator shall clip the plate as necessary to accommodate the deck form support.



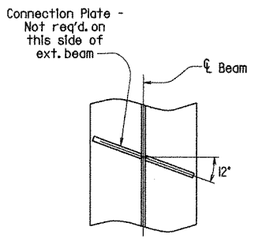
DETAIL X

No Scale



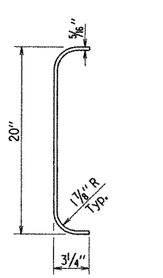
DETAIL W

No Scale



SECTION A-A

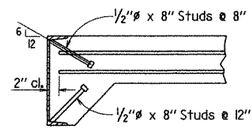
No Scale



Typical cross-section for all 20" bent plate diaphragms.

SECTION V-V

No Scale



Note: As an alternate to 5/8"ø studs, ½"ø x 8" studs spaced as shown may be used. Use weight of 5/8"ø stud as basis of measurement of structural steel in anchors.

DETAILS OF ALTERNATE ANCHORS

No Scale

STATE OF ARKANSAS
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SHEET 1 OF 6
DETAILS OF 205' CONTINUOUS COMPOSITE W-BEAM UNIT UNION PACIFIC RAILROAD

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

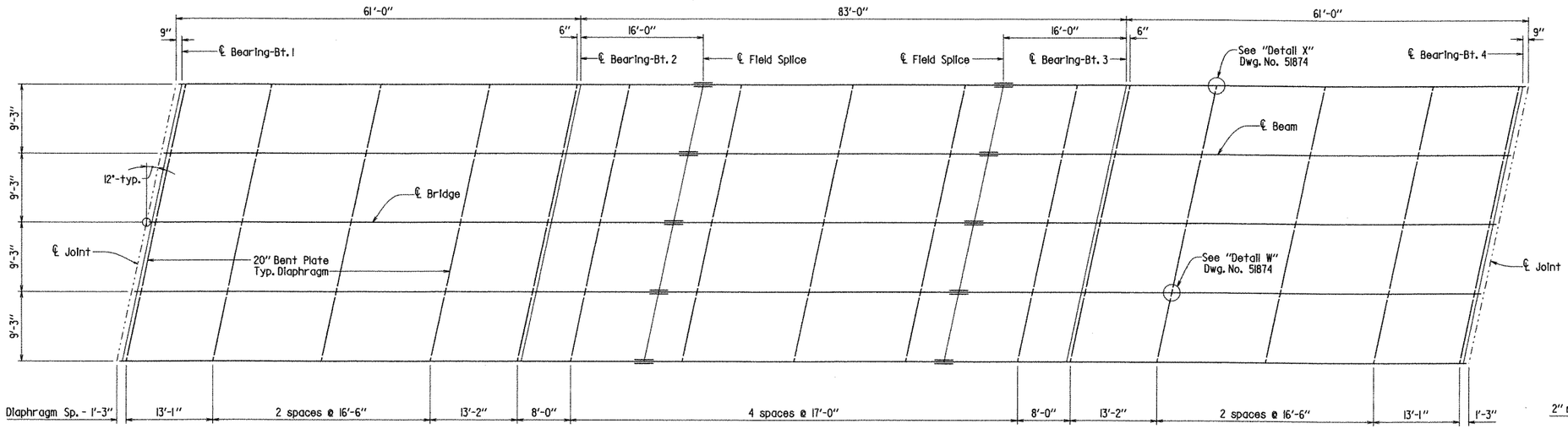
LITTLE ROCK, ARK.

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CHECKED BY: [illegible] DATE: 09-24-10 SCALE: AS NOTED
DESIGNED BY: MCB DATE: 7/10

BRIDGE NO. 07180 DRAWING NO. 51874

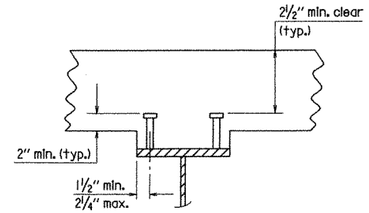
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		020471		
				①	07180 - 205 FT. UNIT - 51875			

Note: Bolted field splices may be eliminated or shop welded splices may be substituted with the approval of the Engineer. Payment will be made on the basis of plan quantities.



FRAMING PLAN

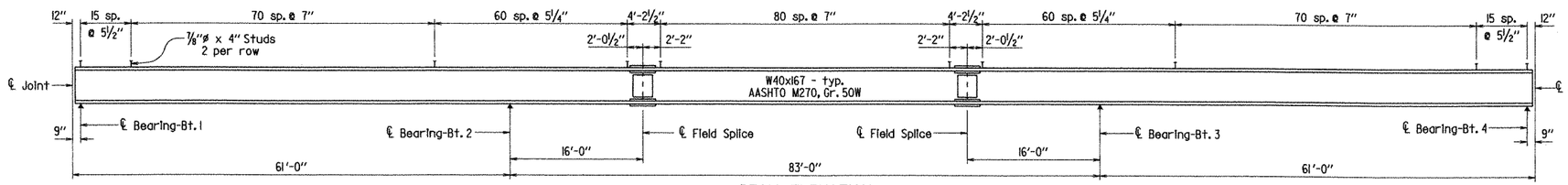
No Scale



Stud Shear Connectors shown shall be ⅞"ø x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer. ¾"ø studs may be used in place of the ⅞"ø studs shown, at the ratio of 1.361 -¾"ø studs in place of one ⅞"ø stud. ⅞"ø studs will be used as basis for measurement of structural steel in shear connectors. Maximum stud spacing = 24".

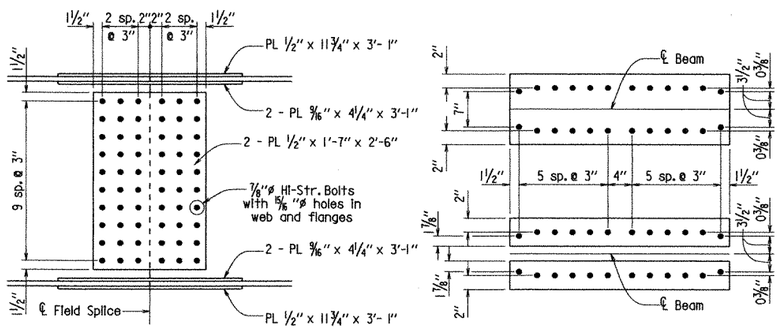
SHEAR CONNECTOR DETAIL

No Scale



BEAM ELEVATION

No Scale



WEB SPLICE

All splice plates shall be AASHTO M270, Gr. 50W.

FLANGE SPLICE

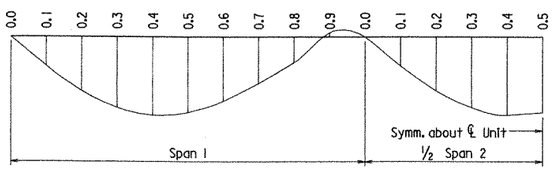
FIELD SPLICE DETAILS

Scale: 1" = 1'-0"

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Int. Bm.	Ext. Bm.	Int. Bm.	Ext. Bm.	Int. Bm.	Ext. Bm.
1	0	0	0	0	0	0	0
	0.1	0.021	0.020	0.125	0.109	0.134	0.118
	0.2	0.038	0.037	0.227	0.199	0.243	0.216
	0.3	0.049	0.047	0.293	0.255	0.314	0.277
	0.4	0.053	0.050	0.313	0.272	0.336	0.296
	0.5	0.048	0.046	0.287	0.250	0.308	0.272
	0.6	0.038	0.036	0.224	0.195	0.240	0.212
	0.7	0.023	0.022	0.137	0.120	0.147	0.130
	0.8	0.009	0.008	0.051	0.044	0.055	0.048
	0.9	-0.001	-0.001	-0.008	-0.007	-0.009	-0.008
½ Span 2	0	0	0	0	0	0	0
	0.1	0.027	0.026	0.161	0.140	0.173	0.152
	0.2	0.069	0.066	0.412	0.359	0.442	0.390
	0.3	0.110	0.106	0.659	0.574	0.707	0.624
	0.4	0.139	0.134	0.834	0.727	0.894	0.790
	0.5	0.150	0.144	0.897	0.782	0.962	0.850

← This table symmetrical about ℄ Unit



DEAD LOAD DEFLECTIONS DIAGRAM

Note
Camber for Dead Load Deflection plus Vertical curve ± ¼" tolerance. Deflections shown are from a chord from ℄ Bearing to ℄ Bearing. Vertical curve corrections not included. Negative sign (-) indicates point above chord.

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SHEET 2 OF 6
DETAILS OF 205' CONTINUOUS COMPOSITE W-BEAM UNIT
UNION PACIFIC RAILROAD

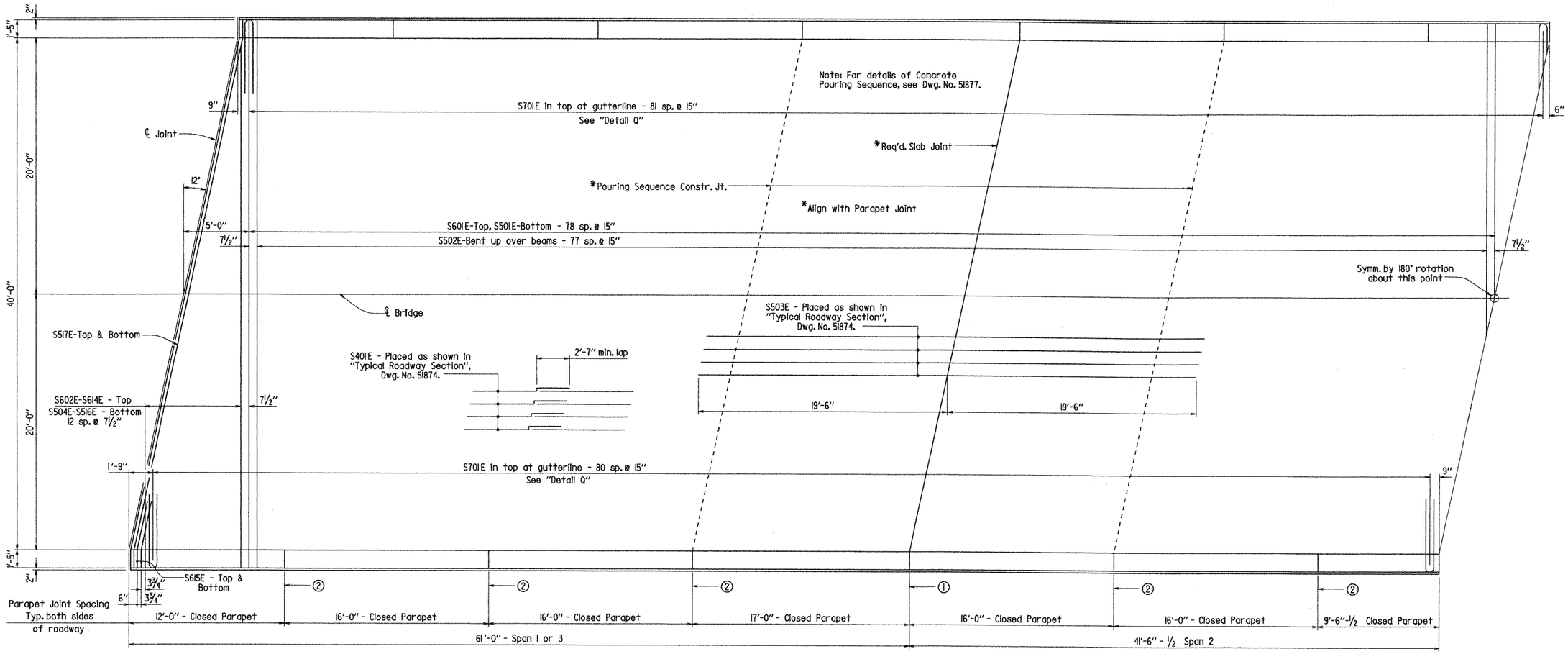
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 9-10-10 FILENAME: b020471_sl2.dgn
CHECKED BY: BJ DATE: 09-24-10 SCALE: AS NOTED
DESIGNED BY: MCB DATE: 7/10

BRIDGE NO. 07180 DRAWING NO. 51875

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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				JOB NO.		020471	146	246
				①	07180 -	205 FT. UNIT	- 51876	

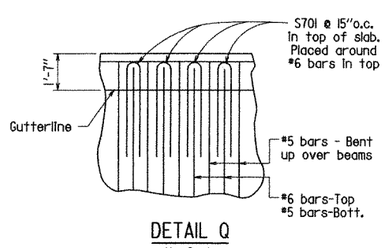


REINFORCING PLAN

Scale: 1/4" = 1'-0"

① ℄ Full-Depth Parapet Joint (¼" - 1" max.) Stop 4" from top of slab

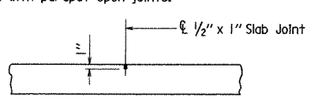
② ℄ Partial-Depth Parapet Joint (¼" - 1" max.) Stop 1'-2" from top of slab



DETAIL Q

No Scale

Use Type 3, 4, or 6 Joint Sealer. See subsections 501.02 (h) and 501.05 (j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class SIAE) Concrete-Bridge. Slab joints shall extend to the outside edge of the deck slab. Slab joints shall be installed before the parapet railing is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations. The joint sealer shall extend across the deck slab (gutterline to gutterline). Slab joints shall align with parapet open joints.



SLAB JOINT DETAIL

No Scale

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SHEET 3 OF 6
DETAILS OF 205' CONTINUOUS COMPOSITE W-BEAM UNIT UNION PACIFIC RAILROAD

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 9-13-10 FILENAME: b020471_sl3.dgn

CHECKED BY: [illegible] DATE: 09-24-10 SCALE: AS NOTED

DESIGNED BY: MCB DATE: 7/10

BRIDGE NO. 07180 DRAWING NO. 51876

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.		020471	14	20
				①	07180 -	205 FT. UNIT	- 51877	

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2003 edition) with applicable supplemental specifications and special provisions.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications (4th Edition, 2007 with 2008 & 2009 interims).

MATERIALS AND STRENGTHS

Class S(AE) Concrete	f'c = 4,000 psi.
Reinforcing Steel (AASHTO M31 or M53, Gr. 60)	fy = 60,000 psi.
Structural Steel (AASHTO M 270, Gr. 50W)	Fy = 50,000 psi.
Structural Steel (AASHTO M 270, Gr. 36)	Fy = 36,000 psi.

CONCRETE: Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted. All concrete shall be Class S(AE) with a minimum 28 day compressive strength f'c = 4,000 psi.

The superstructure details shown are for use when removable deck forming is used and are the basis for measurement of Class S(AE) Concrete. See Standard Drawing No. 14991 for allowable modifications and for tolerances when Permanent Steel Bridge Deck Forms are used.

Concrete in bridge superstructure shall be placed, consolidated and screeded off for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent.

The concrete deck shall be given a tine finish in accordance with subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Movement of the finishing machine across new concrete shall be on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour. Sufficient concrete must be placed ahead of the strike-off to fully load the beam. If a longitudinal strike-off is used, a vertical camber adjustment must be made in the strike-off to account for the future dead load deflection due to the railing. A minimum of 72 hours shall elapse between completion of the slab and the pouring of the parapet railing.

REINFORCING STEEL: All reinforcing steel shall conform to AASHTO M31 or M53, Grade 60. The reinforcing steel is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size to prevent displacement during the course of construction. The wire supports will not be paid for directly, but will be considered subsidiary to the item "Epoxy Coated Reinforcing Steel (Grade 60)".

STRUCTURAL STEEL: Structural steel shall be AASHTO M 270, Grade 50W unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)". Grade 50W steel shall not be painted. All exposed surfaces shall be cleaned in accordance with subsection 807.84(e). Structural steel completely embedded in concrete may be AASHTO M 270, Gr. 36 unless otherwise noted.

Drawings show general features of design only. Shop drawings shall be made in accordance with the specifications, submitted and approval secured before fabrication is begun.

Requests for substitution of structural steel shapes shown with shapes of greater size must be submitted by the Contractor to the Engineer for approval. Steels of equal or greater strengths will be accepted only when shown on the approved shop drawings. Payment will be based on the basis of shapes and materials shown in the plans, and no additional compensation will be made for any adjustments due to substitutions.

Beams and field splice plates are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in subsection 807.05. This work and material will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Beam Spans (M270, Gr. 50W)".

All beams shall be blocked in their true position in the shop with webs horizontal in groups as specified in subsection 807.54(b)(2). The camber, length of sections, distance between bearings and openings of joints shall be measured with the beams in their true position and this information shall become part of the permanent records for this job. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram. All beam dimensions are based on a temperature of 60 degrees F. A tolerance of ¼" +/- is allowed for camber.

Flange field splice plates shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses.

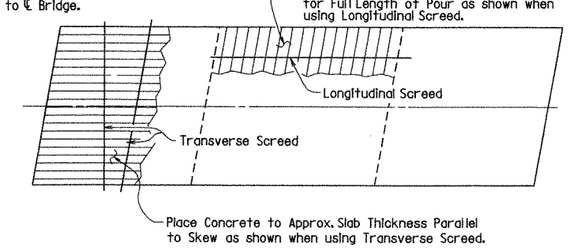
All welding that is to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval. If additional welds are required, whether permanent or temporary, a formal request with detailed drawings shall be submitted to the Engineer for approval; however, additional welds used for attaching falsework support devices or screed rail supports to the structural steel that do not exceed the limitations of subsection 802.13 will not require approval prior to construction. All welding shall conform to subsection 807.26.

Field connections shall be bolted with high-strength bolts and shall be ¾" ø bolts unless otherwise noted. Open holes shall be 15/16 "ø unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior beam webs and on the bottom of the beam flanges. Holes for ¾" ø high-strength bolts may be 15/16 " ø diameter if a washer is supplied for use under both the nut and head of the bolt.

Diaphragms shall be installed as beams are erected. All bolts in diaphragms and field splices shall be installed and tightened in accordance with subsection 807.71 prior to pouring the concrete deck.

All stud shear connectors shall be granular flux filled, solid fluxed, or equal, and automatically end welded in accordance with recommendations of the manufacturer.

Note: At the Contractor's Option, the Transverse Screed may be placed parallel to the skew or perpendicular to ℄ Bridge.



CONCRETE PLACEMENT PROCEDURE

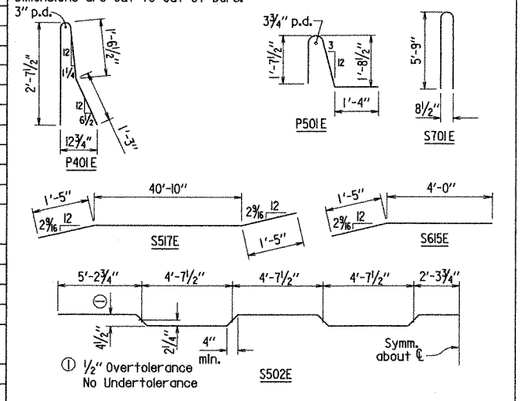
No Scale

BAR LIST

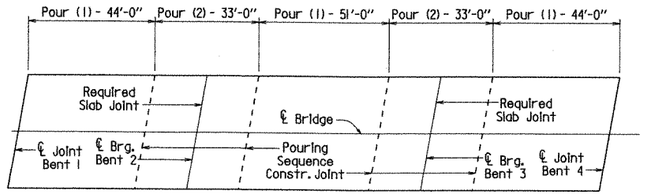
MARK	NO. REQ'D.	LENGTH	P.D.
S401E	648	36'-4"	Str.
P401E	820	5'-6"	3"
P402E	80	5'-6"	Str.
P403E	28	11'-7"	Str.
P404E	112	15'-7"	Str.
P405E	28	16'-7"	Str.
P406E	14	18'-7"	Str.
S501E	157	42'-10"	Str.
S502E	156	43'-8"	3"
S503E	128	39'-0"	Str.
S504E-S516E	2 ea.	Var. 5'-7" to 40'-10"	Str.
S517E	4	43'-8"	3¾"
P501E	820	4'-10"	3¾"
S601E	157	42'-8"	Str.
S602E-S614E	2 ea.	Var. 5'-7" to 40'-10"	Str.
S615E	8	5'-5"	4½"
S701E	326	11'-10"	6¾"

BENDING DIAGRAMS

Dimensions are out to out of bars.



Note: Bars designated with an "E" suffix to be Epoxy Coated.



Note: Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between the end of a pour and the start of an adjacent pour. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

CONCRETE POURING SEQUENCE

No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER
6/15/11

BRIDGE ENGINEER

SHEET 4 OF 6
DETAILS OF 205' CONTINUOUS COMPOSITE W-BEAM UNIT
UNION PACIFIC RAILROAD

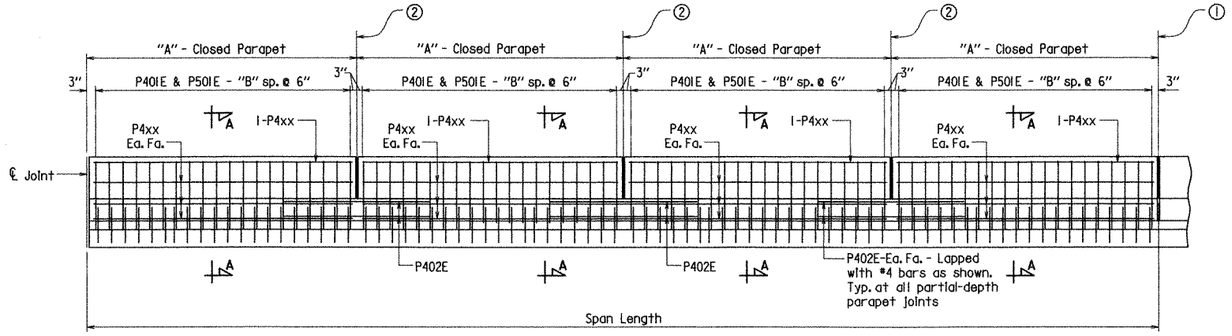
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 9-13-10 FILENAME: b020471_sl4.dgn
CHECKED BY: DJ DATE: 09-24-10 SCALE: AS NOTED
DESIGNED BY: MCB DATE: 7/10

BRIDGE NO. 07180 DRAWING NO. 51877

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.		020471	128	5 of 6
				(1)	07180 - 205 FT. UNIT - 51878			

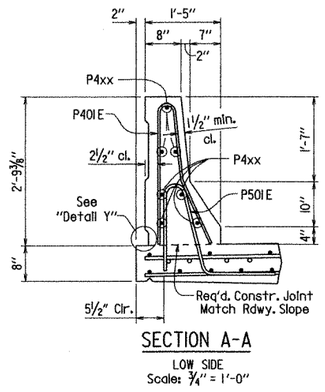


① ℄ Full-Depth Parapet Joint (¼" to 1" max.) as shown in "Reinforcing Plan", Dwg. No. 51876. Stop 4" from top of slab.

DETAILS OF PARAPET RAIL

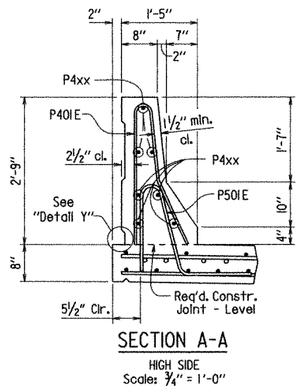
Scale: ⅜" = 1'-0"

② ℄ Partial-Depth Parapet Joint (¼" to 1" max.) as shown in "Reinforcing Plan", Dwg. No. 51876. Stop 1'-2" from top of slab.



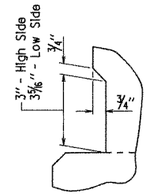
SECTION A-A

LOW SIDE
Scale: ¾" = 1'-0"



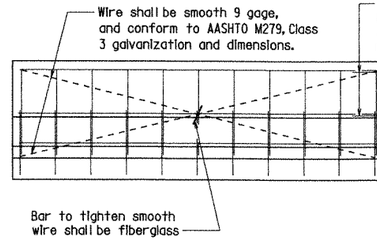
SECTION A-A

HIGH SIDE
Scale: ¾" = 1'-0"



DETAIL Y

No Scale



All panels shall be braced as required to prevent racking. All parapet joints shall be sawed as soon as practical to a minimum width of ¼". To control cracking before sawing, all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

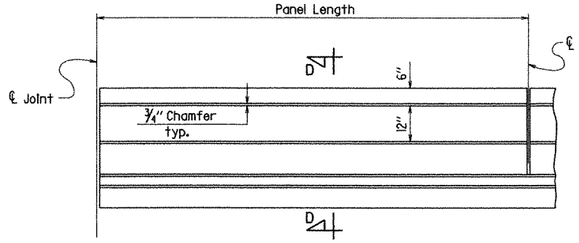
The extruded parapet shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Exposed surface may be given a light brush finish or a Class 3, Textured Coating Finish, in place of the Class 2, Rubbed Finish.

DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

No Scale

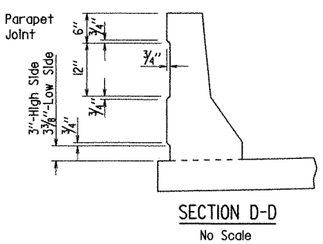
TABLE OF PARAPET RAIL VARIABLES

"A" Closed Parapet	"B"	P4xx Bar
12'-0"	23	P403E
16'-0"	31	P404E
17'-0"	33	P405E
19'-0"	37	P406E



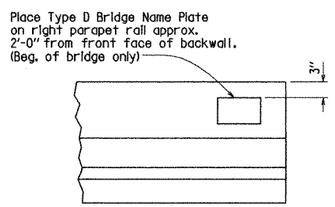
DETAILS OF PARAPET ENHANCEMENT

No Scale



SECTION D-D

No Scale



NAME PLATE DETAIL

No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSELIER
4/15/11

BRIDGE ENGINEER

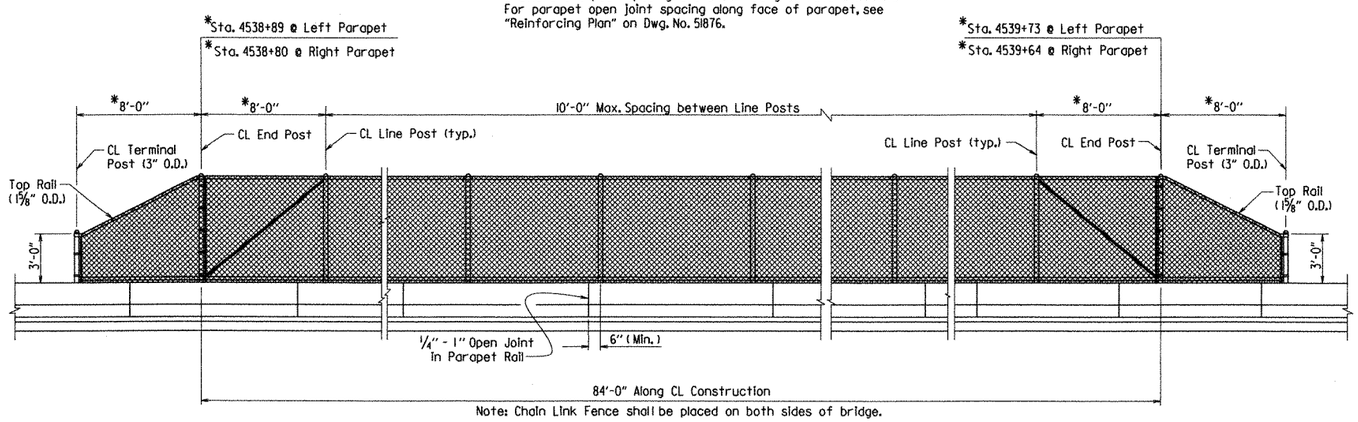
SHEET 5 OF 6
DETAILS OF 205' CONTINUOUS
COMPOSITE W-BEAM UNIT
UNION PACIFIC RAILROAD
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 9-13-10 FILENAME: b020471_sl5.dgn
CHECKED BY: DH DATE: 09-24-10 SCALE: AS NOTED
DESIGNED BY: MCB DATE: 7/10

BRIDGE NO. 07180 DRAWING NO. 51878

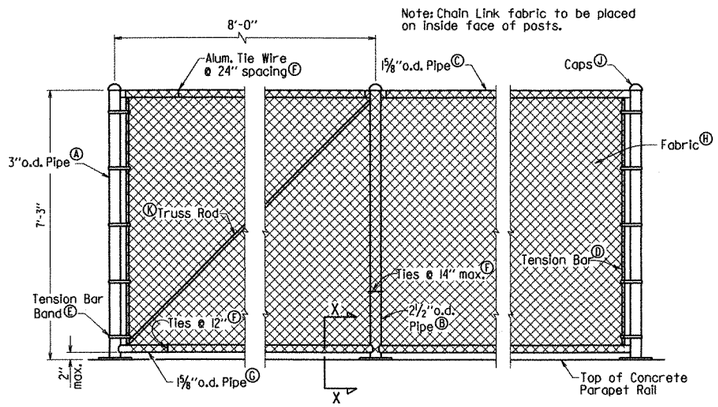
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		020471	149	346
				(1)	07180 -	205 FT. UNIT	- 51879	

*Stations and post spacing are shown along CL Future Median. For parapet open joint spacing along face of parapet, see "Reinforcing Plan" on Dwg. No. 51876.

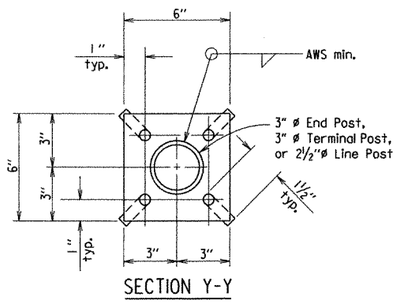


Note: Chain Link Fence shall be placed on both sides of bridge.

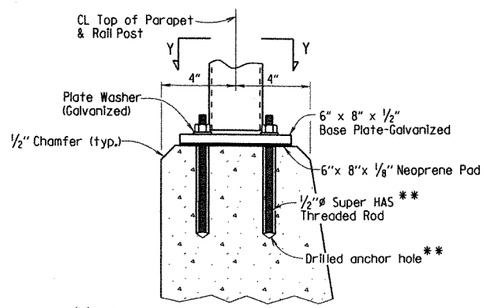
LONGITUDINAL VIEW OF CHAIN LINK FENCE



DETAIL OF CHAIN LINK FENCE



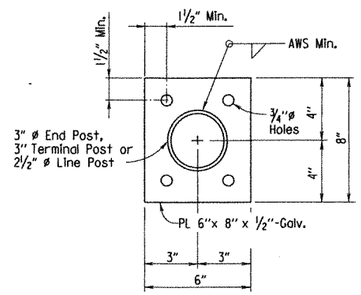
SECTION Y-Y



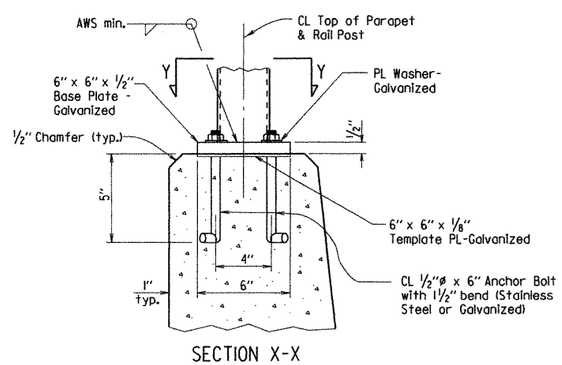
**HILTI HIT RE 500 Epoxy Adhesive Anchor System with 4¼" embedment or approved equal.

The HILTI Adhesive Anchor System shall be installed in accordance with Manufacturer's recommendations.

SECTION X-X



SECTION Y-Y



SECTION X-X

DETAILS OF ALTERNATE POST ANCHOR SYSTEM

(A) END POST: 3" O.D.
(B) LINE POST: 2½" O.D.
(C) TOP RAIL: 1⅝" O.D.
(D) TENSION BAR: ⅜" x ¾" Bar
(E) TENSION BAR BAND: ¾"x .074 w/⅝"ø x 1¼" Bolt (1 Band Top & Bottom w/15" max. spaces)
(F) TIE WIRE: 9 Ga. Aluminum
(G) BOTTOM RAIL: 1⅝" O.D.
(H) FABRIC: 9 Ga. 2" Mesh w/Knucklug or Twisting Selvage
(J) CAPS: All Posts shall be Capped & Shall Conform to ASTM F626-84
(K) TRUSS ROD: Min. of ⅝" Round with Tighteners and Fittings

Note : Chain Link Fence attached to Bridge and including tapered panel section shall be paid for as "7' Steel Chain Link Fence". For additional details of Chain Link Fence, See Standard Drawing WF-3.

Notes:

Fence layout shall conform to the vertical and horizontal bridge alignments. Fence posts shall be set plumb (true vertical position). Parapet rail concrete shall be at least 7 days old before stretching and securing fabric to posts.

Cast in place anchor Bolts shall be of stainless steel or High Strength Steel. Stainless steel anchor bolts shall conform to ASTM A193 or A320-Grade B8 with a minimum yield strength of 80,000 psi. High Strength Steel Anchor Bolts shall conform to AASHTO M164 or ASTM A354-Grade BC Galvanized in accordance with AASHTO M232.

Nuts: Nuts shall conform to ASTM A194-Gr. 8 (Stainless Steel) or AASHTO M164 Galvanized in accordance with AASHTO M232.

Threads: Threads on bolts, Screws, and Nuts shall conform to American Standard Course Series, Class 2 Fit, ASA Specification B1.1.

Washers shall be of High-Strength Steel conforming to AASHTO M270, GR. 36 Galvanized in accordance with AASHTO M232 or of Stainless Steel conforming to ASTM A276 or A167-Type 302.

Base plates shall not be placed upon areas that are improperly finished, deformed, or irregular.

Neoprene pad and template plates shall not be paid for directly, but shall be considered incidental to the unit price bid for item "7' Steel Chain Link Fence".

STATE OF ARKANSAS
Carl J. Puseller
REGISTERED PROFESSIONAL ENGINEER
No. 7510
4/15/11
CARL J. PUSELLER

BRIDGE ENGINEER

SHEET 6 OF 6
DETAILS OF 205' CONTINUOUS COMPOSITE W-BEAM UNIT UNION PACIFIC RAILROAD

ROUTE SEC.

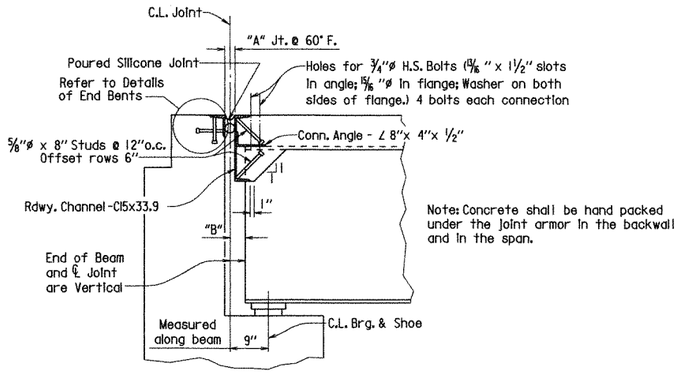
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 9-14-10 FILENAME: b020471_sl6.dgn
CHECKED BY: DJ DATE: 09-24-10 SCALE: NONE
DESIGNED BY: mcb DATE: 7/10

BRIDGE NO. 07180 DRAWING NO. 51879

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.		020471	150340	
				① 07180 -		JOINTS	- 51880	



SECTION THRU JOINT AT BENTS 1 & 4

No Scale

SILICONE JOINT DATA

Bent Number	"A" Width Perpendicular to Joint at 24 Hour Average Temperature ① Of:			"B" Perpendicular to Joint at 60°F	Bumper Plate Size	"D"
	40°F	60°F	80°F			
1 & 4	1 15/16"	1 3/4"	1 9/16"	2 1/8"±	1" x 7/8"	4 1/2"

① The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature. Interpolation of the table may be necessary.

Notes: The temperature limitations recommended by the sealant manufacturer shall be observed.

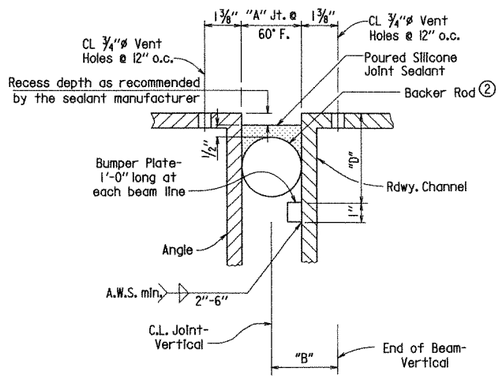
The sealant shall be installed only when the average 24 hour air temperature is between 40° and 80°F.

② BACKER ROD NOTE:

Use an appropriately sized backer rod at the depth shown in the manufacturer's literature based on the joint width at the time of sealing.

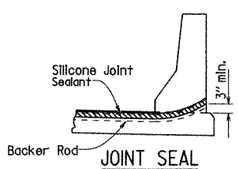
Except as noted, do not install more backer rod than can be sealed in the same day.

The contractor shall verify separation of the backer rod from the joint material after the joint material has set.



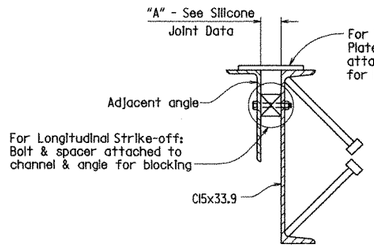
DETAIL OF POURED SILICONE JOINT SEAL

No Scale



JOINT SEAL PLACEMENT AT CURB

No Scale



Note: Each expansion joint device shall be blocked in the Shop by the Fabricator to the dimension "A" shown @ 60°F, and the blocking details shall be shown on the Shop Drawings. Blocking shall be placed within 2 feet of each end of the device and with a maximum spacing of 8 feet.

DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

No Scale

EXPANSION DEVICE INSTALLATION AT END BENTS

The Contractor may elect to install the expansion device for the end bents using one of the following two alternatives:

1) The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the beams erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the backwall concrete, the blocking shall be removed, the opening adjusted for temperature, and the backwall constructed.

2) The backwall shall be poured to the optional construction joint after beams are erected. The blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the remainder of the backwall concrete, the blocking shall be removed and the opening adjusted for temperature. **Backfill shall not be placed behind the backwall until the deck concrete on the adjacent span has been placed.**

STATE OF ARKANSAS
Carl J. Fusselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
CARL J. FUSSELIER
BRIDGE ENGINEER

DETAILS OF JOINTS UNION PACIFIC RAILROAD

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

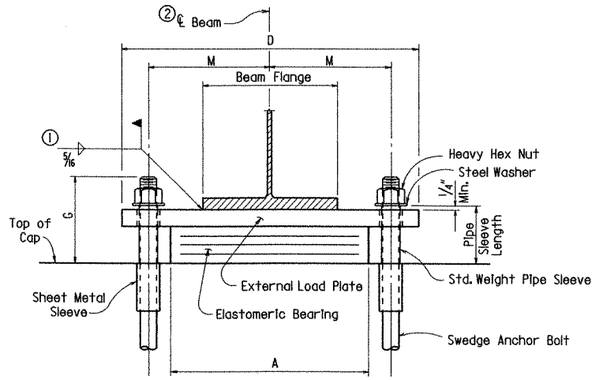
DRAWN BY: KDH DATE: 9-14-10 FILENAME: b020471_jt1.dgn

CHECKED BY: DJ DATE: 09-24-10 SCALE: AS NOTED

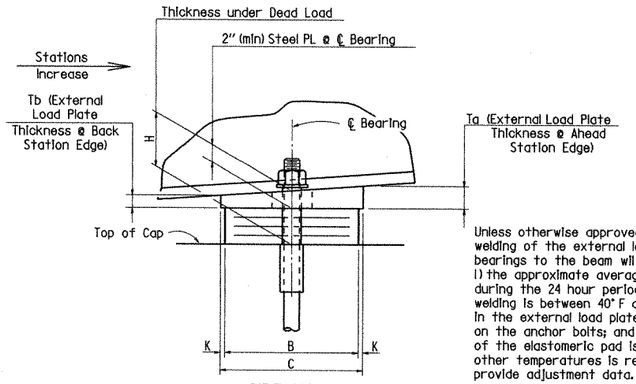
DESIGNED BY: MCB DATE: 7/10

BRIDGE NO. 07180 DRAWING NO. 51880

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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				JOB NO.		020471	51	340
				①	07180 - ELASTO. BRGS. -		5188I	

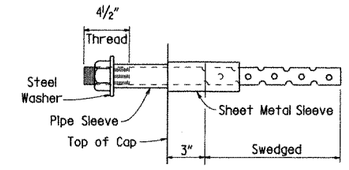


FRONT VIEW



SIDE VIEW

Unless otherwise approved by the Engineer, welding of the external load plate at expansion bearings to the beam will be allowed only when: 1) the approximate average air temperature during the 24 hour period immediately preceding welding is between 40° F and 80° F; and 2) the slots in the external load plate are positioned to center on the anchor bolts; and 3) no horizontal deformation of the elastomeric pad is evident. If welding at other temperatures is required, the Engineer will provide adjustment data.

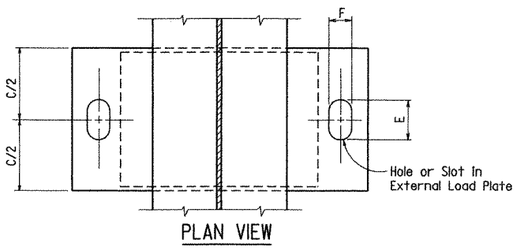


ANCHOR BOLT DETAIL

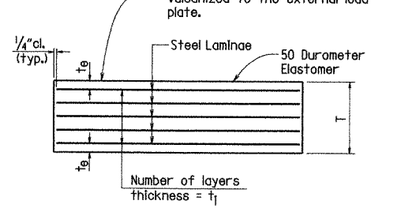
NOTE: Anchor Bolts may be cast in place or drilled and grouted into place. If Anchor Bolts are to be cast in place, the Galvanized Sheet Metal Sleeves will not be required.
If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the masonry. Bolts placed in drilled holes shall be accurately set and fixed using a QPL approved epoxy or non-shrink grout that completely fills the holes. Galvanized Sheet Metal Sleeves will not be paid for directly, but will be considered subsidiary to the item "Structural Steel in Beam Spans (M270, Gr. 50W)".

① Care shall be taken to ensure that the external load plate is in full and complete contact with the beam flange before welding begins.

② ℄ Elastomeric Bearing shall be aligned with ℄ Beam.



PLAN VIEW



t_e = thickness of elastomer cover on top and bottom of pad
t_l = thickness of elastomer between steel laminae
N = number of elastomer layers of thickness t_l

ELASTOMERIC BEARING

GENERAL NOTES

Elastomeric Bearings shall conform to Section 808 and shall be paid for at the unit price bid for "Elastomeric Bearings."

External load plates shall conform to AASHTO M270, Grade 50W. Pipe sleeves shall be ASTM A53, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or AASHTO M 298, Class 50.

External load plates shall be completely fabricated (including bevel and bolt holes) and shall be cleaned before vulcanizing to the elastomeric bearing. The surface in contact with the elastomeric bearing shall be cleaned in accordance with subsection 808.03. Other surfaces shall be blast cleaned in accordance with subsection 807.84(e) for unpainted Grade 50W steel.

Anchor Bolts, Washers and Nuts shall conform to subsection 807.07. The anchor bolt grade of steel shall be as specified in the "Table of Fabricator Variables". Indentations shall be circular with rounded bottoms and staggered as shown in the details.

Pipe Sleeves, Anchor Bolts, Washers and Nuts shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M270, Gr. 50W)". External load plates will not be measured or paid for separately but will be considered included in the unit bid price for "Elastomeric Bearings".

Bearings shall be firmly seated in accordance with Subsection 808.08. This work and materials shall be considered subsidiary to the item "Elastomeric Bearings" and shall not be paid for directly.

TABLE OF FABRICATOR VARIABLES

* Maximum Design Load = Service I Limit State

BRIDGE NO.	LOCATION BENT NO(S).	LOCATION BEAM OR GIRDER NO.	BEARING	NO. of BEARINGS EACH BENT	*MAXIMUM DESIGN LOAD (KIPS)	G	H	ELASTOMERIC PAD A	B	N	t_l	t_e	NO. & THICKNESS OF STEEL LAMINAE	T	EXTERNAL LOAD PLATE C	D	E	F	K	M	T_a	T_b	ANCHOR BOLT: ANCHOR BOLT (ø x L)	GRADE	PIPE SLEEVE SIZE (ø x L)	SHEET METAL SLEEVE SIZE (ø x L)	STEEL WASHER SIZE (O.D.)
07180	1 & 4	All	Exp.	5	107	7 1/8"	4 3/8"	13"	9"	3	1/2"	1/4"	4 @ 12 Gauge	2 7/16"	10"	23"	3 7/8"	2 1/4"	1/2"	8 3/4"	2.00'	2.00'	1 1/2" x 23 3/4"	55	1 1/2" x 4 5/8"	3" x 6"	3"
	2 & 3	All	Fix	5	242	7 3/8"	3 11/16"	16"	13 1/2"	2	1/2"	1/4"	3 @ 12 Gauge	1 13/16"	14 1/2"	28"	3 1/8"	3 1/8"	1/2"	10 3/4"	2.00'	2.00'	2 1/4" x 32"	55	2 1/2" x 4 1/8"	4" x 6"	4"

Tabular Data by : KDH Date: 9-14-10
Checked by : [illegible] Date: 09-24-10
Designed by : mcb Date: 7/10

STATE OF ARKANSAS
Carl J. Fuselier
REGISTERED PROFESSIONAL ENGINEER
No. 7510
6/15/11
CARL J. FUSELIER

BRIDGE ENGINEER

DETAILS OF ELASTOMERIC BEARINGS UNION PACIFIC RAILROAD

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

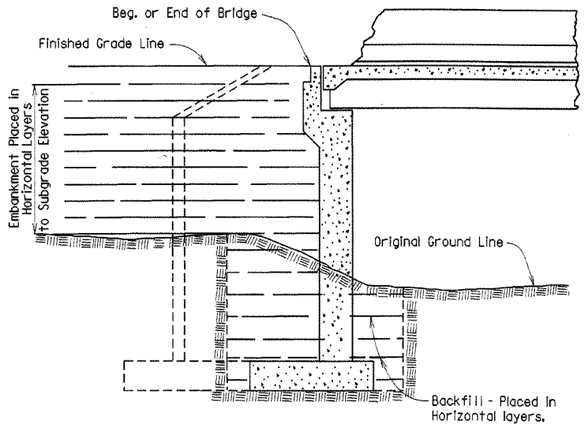
LITTLE ROCK, ARK.

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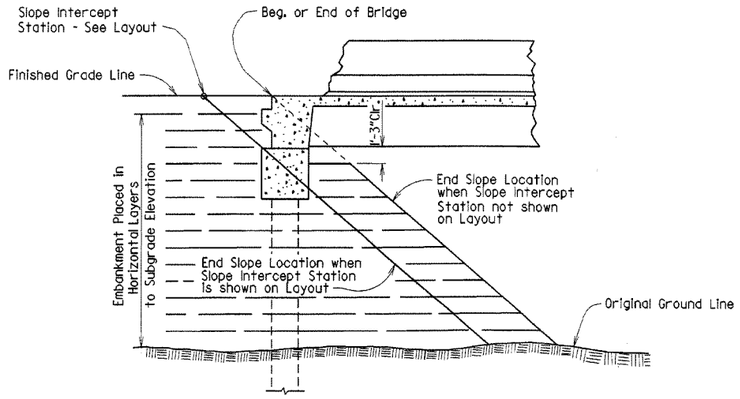
BRIDGE NO. 07180 DRAWING NO. 5188I

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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				JOB NO.				

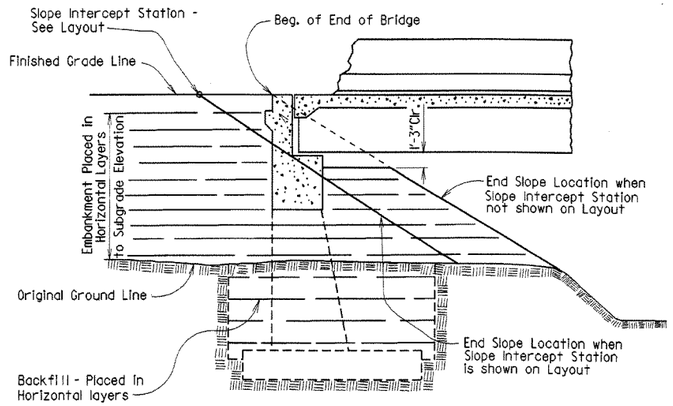
① EMBANKMENT & BACKFILL 1888A



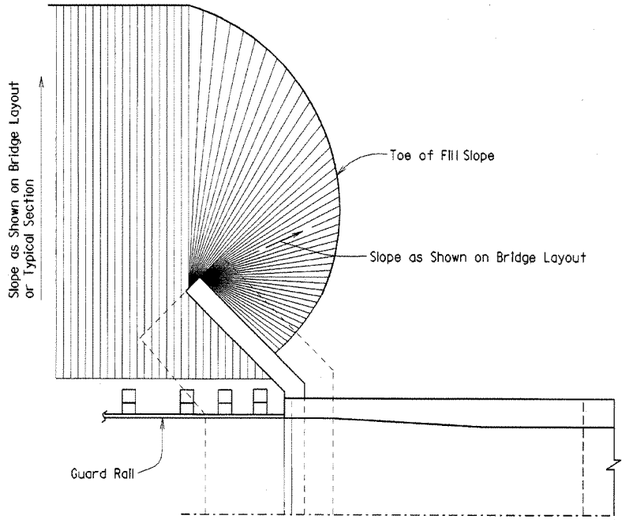
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



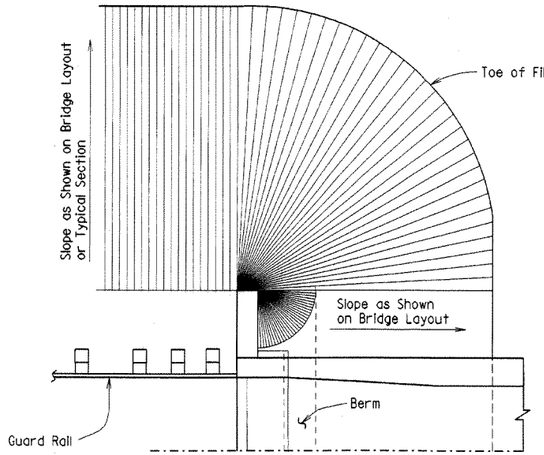
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



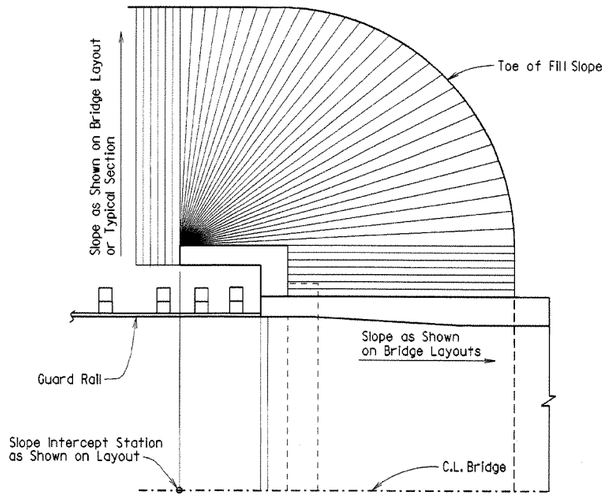
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



VERTICAL WALL ABUTMENTS



SPILL-THROUGH END BENTS WITH STUB WING



SPILL-THROUGH END BENTS WITH TURNBACK WING

SPILL-THROUGH END BENTS WITH TRANSITION WING

METHOD OF DETERMINING FILL SLOPE LOCATION AT BRIDGE ENDS

GENERAL NOTES

The Bridge End Embankment shall be defined as a section of embankment, not less than 20 feet long adjacent to the bridge end, together with the side slopes and slopes under the bridge end including around the end of wingwalls. Embankment adjacent to structures shall be constructed in 4 inch horizontal layers (loose measure) and compacted by the use of mechanical equipment to the satisfaction of the Engineer. Refer to subsections 210.09, 210.10 and 801.08 of the Specifications for construction requirements.

⚠ Revised and redrawn MJT 04-10-2003
Chk'd. By: CJF 04-10-2003

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4337
CHARLES P. BRAND

BRIDGE ENGINEER

EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

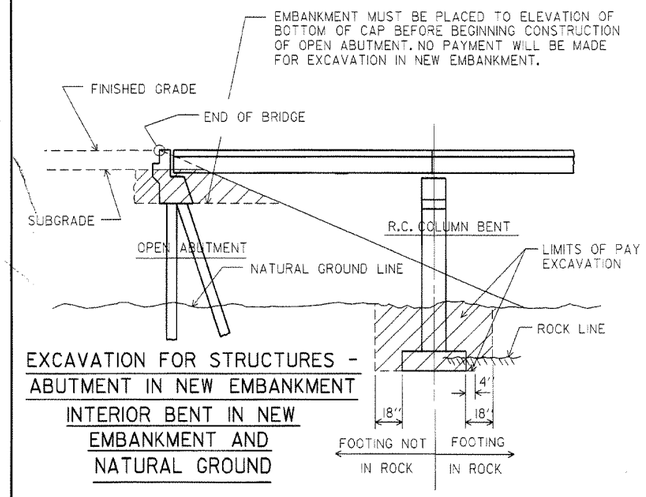
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DESIGNED BY: STD. DATE: ——

BRIDGE NO. DRAWING NO. 1888A

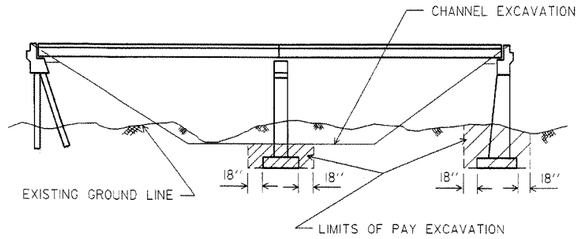
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				JOB NO.				

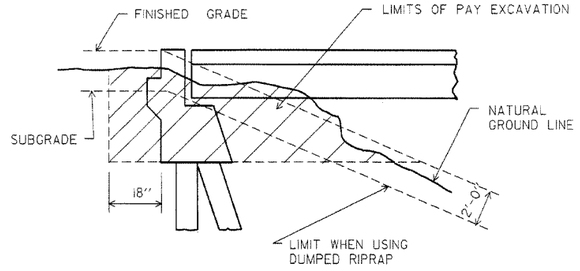
1 RIP. & EXCAV. 1891F



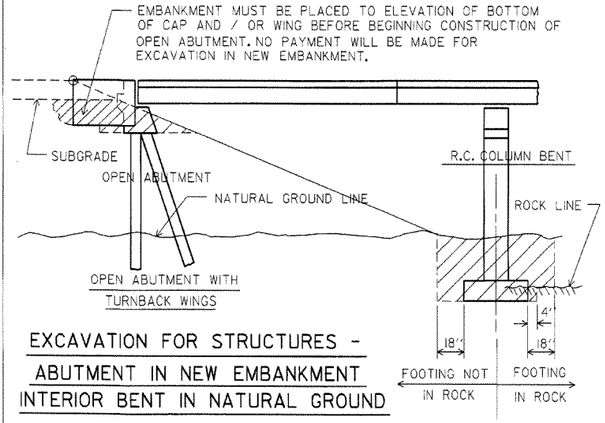
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



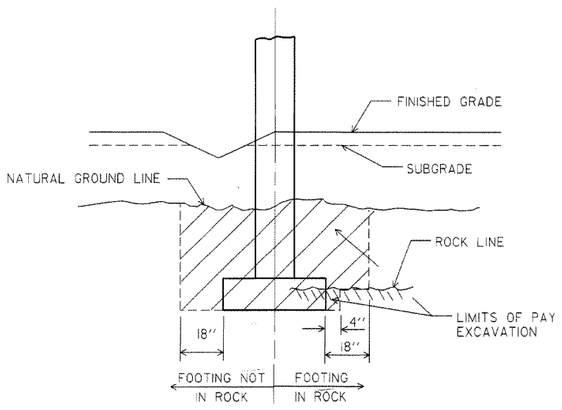
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



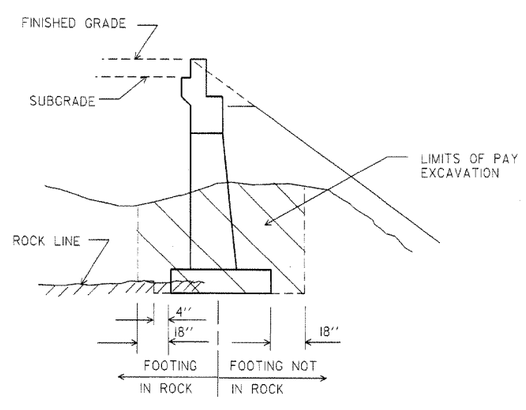
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



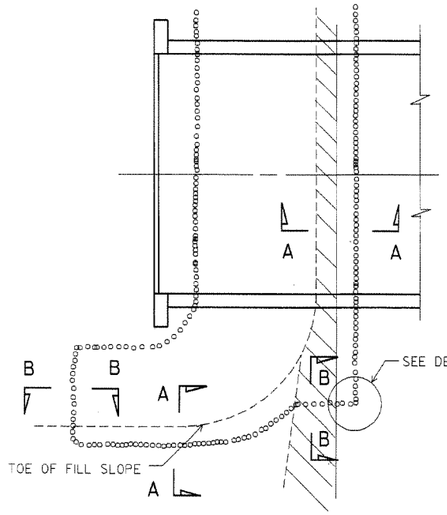
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



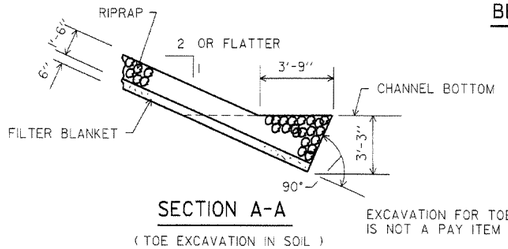
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT



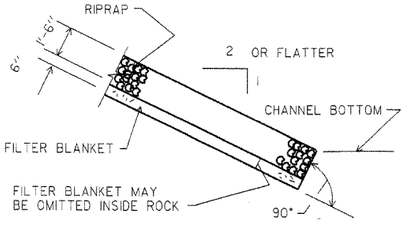
PLAN OF DUMPED RIPRAP



SECTION A-A

(TOE EXCAVATION IN SOIL)

EXCAVATION FOR TOES IS NOT A PAY ITEM



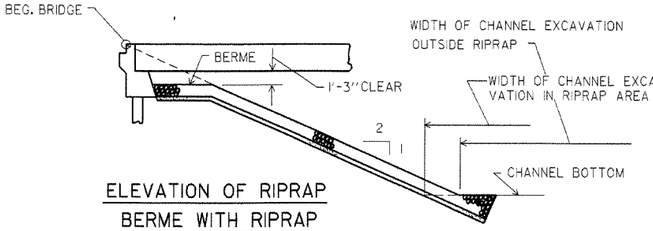
SECTION A-A

(TOE EXCAVATION IN ROCK)

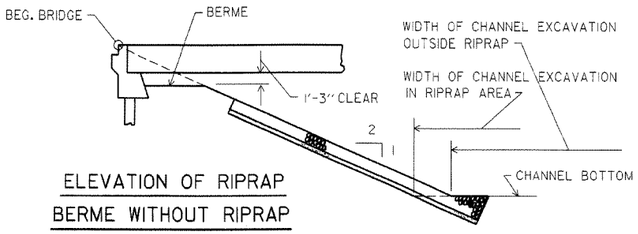
NOTE : USE THIS TYPE OF TOE WHEN ROCK IS ENCOUNTERED WHICH IS IN A STABLE CONDITION.

NOTE : IN LIEU OF AN AGGREGATE FILTER BLANKET, A SYNTHETIC FIBER GEOTEXTILE FABRIC COMPLYING WITH THE REQUIREMENTS OF SUBSECTION 816.02(e) MAY BE USED.

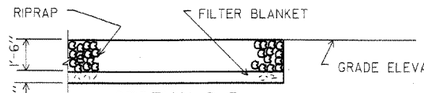
NOTE : DETAILS FOR COMPUTING EXCAVATION FOR STRUCTURES ARE INCLUDED FOR INFORMATION AS TO HOW PLAN QUANTITIES WERE CALCULATED AND FOR USE WHEN ADJUSTING QUANTITIES WHEN CHANGING FOOTING ELEVATION.



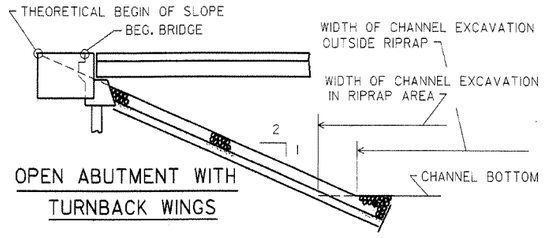
ELEVATION OF RIPRAP BERME WITH RIPRAP



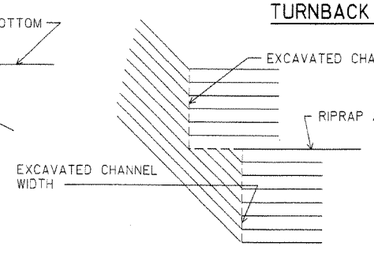
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



SECTION B-B



OPEN ABUTMENT WITH TURNBACK WINGS



DETAIL C

⚠ Revised and redrawn MJT 04-10-2003
Chk'd. By: CJF 04-10-2003

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4337
CHARLES P. BRAND
BRIDGE ENGINEER

DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND DETAILS FOR COMPUTING EXCAVATION FOR STRUCTURES

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY:	MJT	DATE:	04-10-2003	FILENAME:	BI891F.STD
CHECKED BY:	CJF	DATE:	04-10-2003	SCALE:	NO SCALE
DESIGNED BY:	STD.	DATE:	—		

BRIDGE NO. DRAWING NO. 1891F

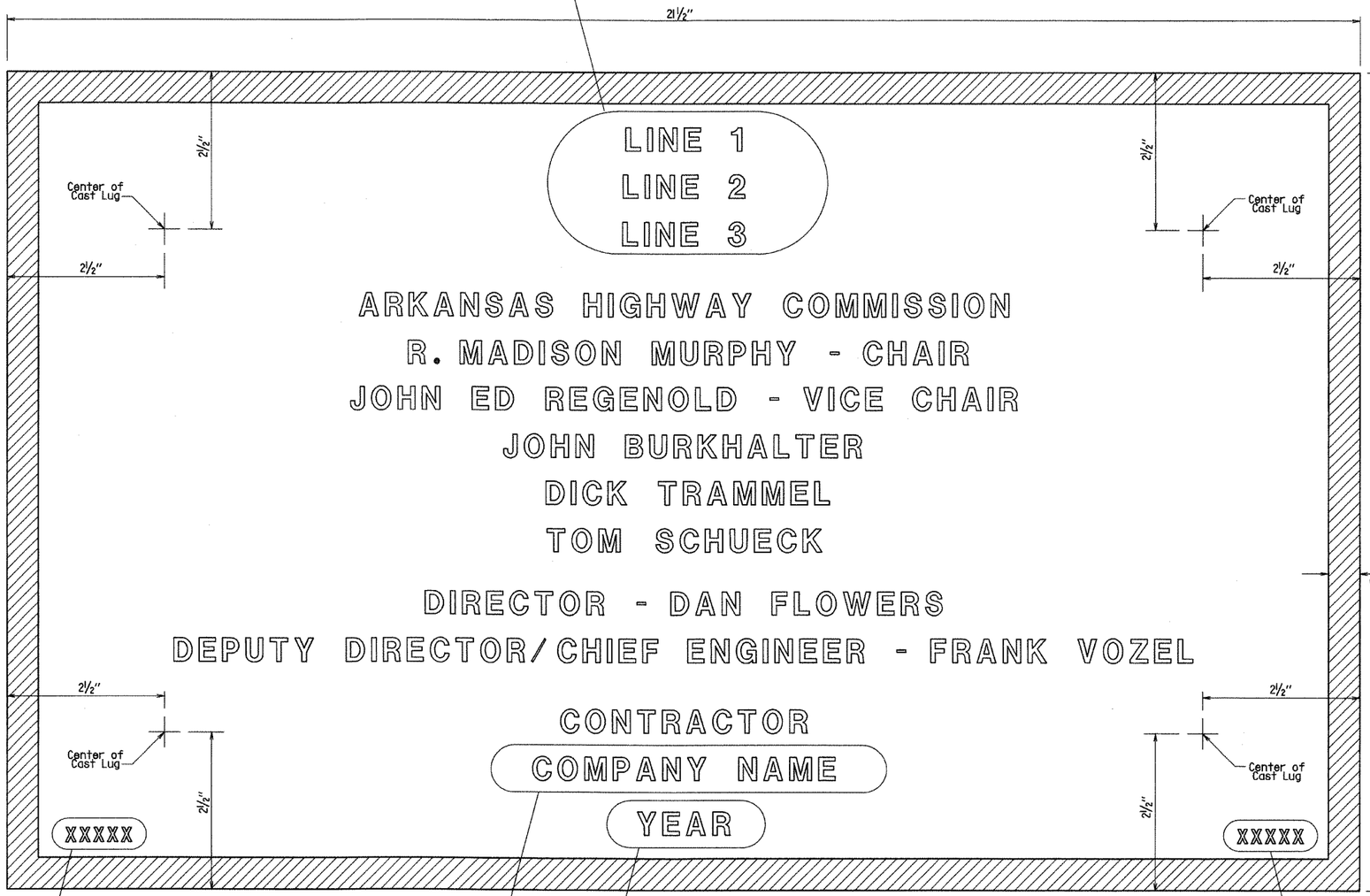
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4-17-07		01-08-09	
8-16-07		11-23-10	
12-10-08		01-25-11	

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6	ARK.		154	
JOB NO.				

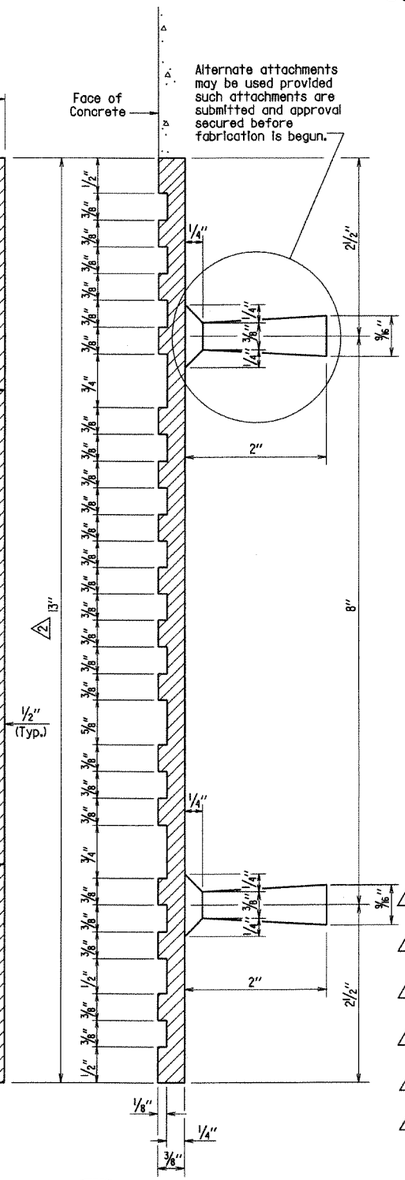
1 NAME PLATE 2387

The name of the bridge as shown on the plans shall be placed on Lines 1 - 3 using 1/8" raised letters and numerals 3/8" high.

	Example 1	Example 2	Example 3	Example 4
Line 1	Red River	Southern	Saline	
Line 2	Relief	Railroad	River	Highway 5
Line 3		Overpass	Relief	



TYPICAL BRIDGE NAME PLATE



GENERAL NOTES

Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, (2003 Edition) with applicable Supplemental Specifications and Special Provisions.

Name plates shall be cast bronze and shall meet the material requirements as specified in Section 812 of the Standard Specifications.

Body of plate shall be 1/4" thick and shall include four tapering cone lugs 3/8" to 9/16"x 2" long. The border and all lettering shall be raised 1/8" above the face of plate and shall be polished.

All lettering shall be plain gothic, square cut and not tapered. The number of plates required and the location and name on the plate for each bridge shall be as designated on the plans.

6 Revised Commission Names 01-25-11 MJT
Checked By: CJF Date: 01-25-11

5 Revised Commission Names 11-23-10 MJT
Checked By: CJF Date: 11-23-10

4 Revised Commission Names 01-08-09 MJT
Checked By: CJF Date: 01-08-09

3 Revised Commission Names 12-10-08 MJT
Checked By: CJF Date: 12-10-08

2 Added Dimension 8-16-07 KDH
Checked By: SWP Date: 8-16-07

1 Revised and Redrawn
4-17-07 KDH Checked By: CJF

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4537
CHARLES P. BRAND

BRIDGE ENGINEER

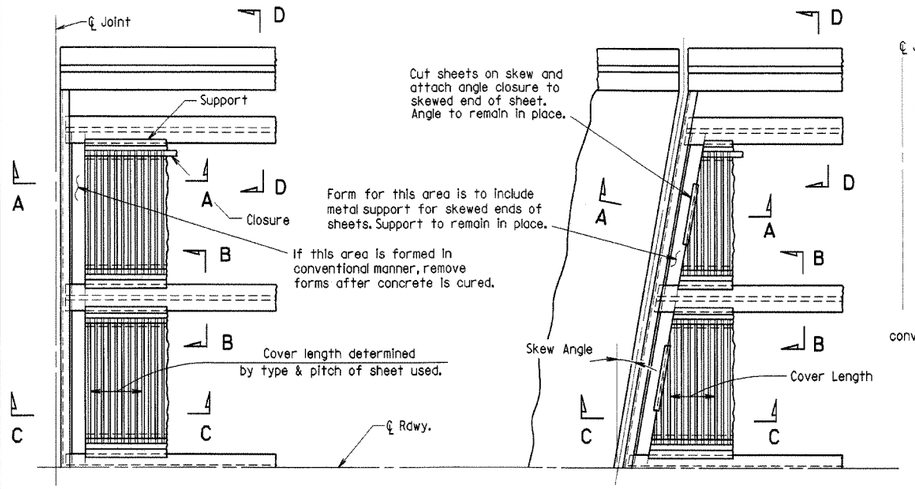
DETAILS OF STANDARD TYPE D
BRIDGE NAME PLATE
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 4-17-07 FILENAME: B2387.STD
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DESIGNED BY: STD. DATE: —

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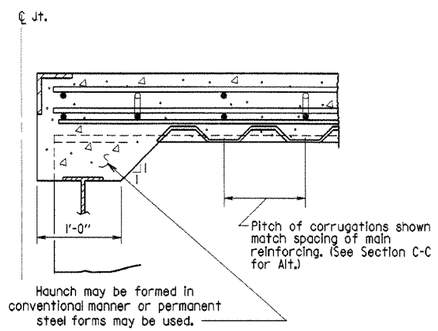
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04-10-2003						JOB NO.				

① BR. DECK FORMS 14991

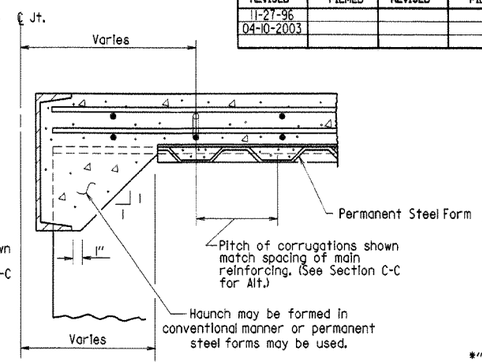


PART PLAN - SQUARE SPAN
3/8" = 1'-0"

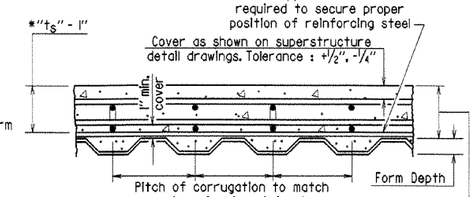
PART PLAN - SKEWED SPAN
3/8" = 1'-0"



SECTION A-A
N.T.S.
(Angle at end of span)

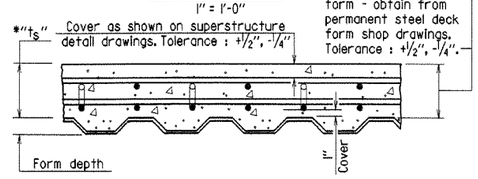


SECTION A-A
N.T.S.
(Channel at end of span)

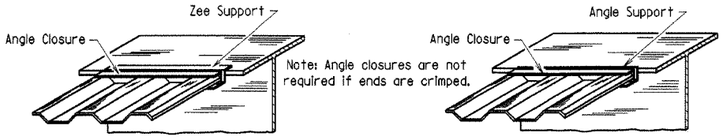


SECTION C-C
1" = 1'-0"

Top of slab to top of permanent steel deck form - obtain from permanent steel deck form shop drawings. Tolerance : +1/2", -1/4".



SECTION C-C - ALTERNATE
1" = 1'-0"
(Applicable when corrugations do not match spacing of main reinforcement)



SKETCH OF PERMISSIBLE SUPPORTS
N.T.S.

*t_s = slab thickness as shown on superstructure detail drawings.

GENERAL NOTES

Permanent steel deck forms may be used at the Contractor's option and shall be at no additional cost to the Department. Such use may result in changes to the dead load deflection of the girder. Any cost for adjustments due to a change in the dead load deflection will be borne by the Contractor. Payment for deck concrete and structural steel will not be increased due to use of permanent steel deck forms.

Permanent steel deck forms shall conform to subsection 802.14(b) of the Standard Specifications. Detailed plans, including detailed calculations and manufacturer's technical brochure, shall be submitted to and approved by the Bridge Engineer before work of forming the bridge deck is started.

Welding of form supports to the tension flange of steel girders will be permitted only in areas where shear connectors are used. When welding is not allowed, the method of fastening Z or ∠ supports to the flange must be approved by the Bridge Engineer.

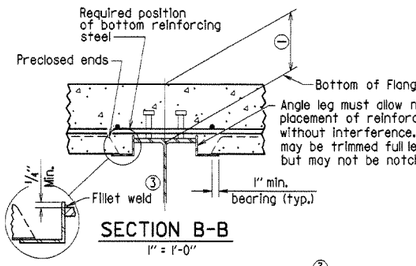
Form sheets shall be fastened to supporting members and to each other with galvanized metal screws sufficient in size and number to provide a secure attachment. Alternate methods of attachment must be approved by the Bridge Engineer.

When the pitch of form corrugations match the reinforcing spacing, transversely align form sheets across the bridge to maintain the correct orientation of continuous reinforcing bars in the corrugations.

Bar support rods, when used, shall be sized and spaced to adequately support the bottom reinforcing mat at the required position.

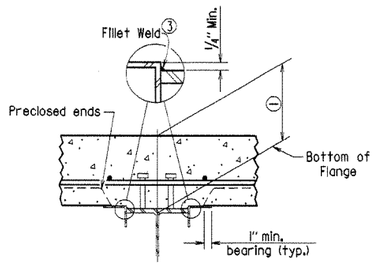
High chairs shall be sized to support the top mat of reinforcing at the proper position. High chairs shall be placed at locations shown on the detail drawings.

⚠2 Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2003 Edition), with applicable supplemental specifications and special provisions.

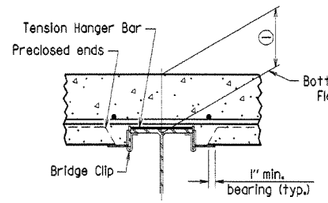


SECTION B-B
1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)

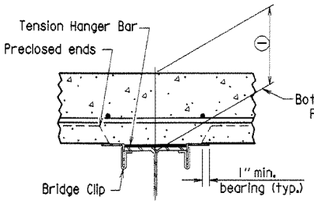
③ Minimum weld: 1/8" x 1" @ 18". More weld may be required; maximum length per weld = 1 1/2" (typ.)



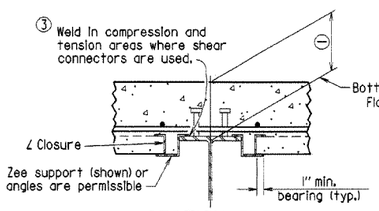
SECTION B-B
1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



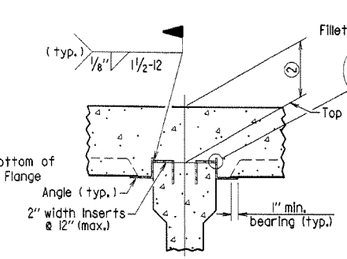
SECTION B-B
1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are not used)



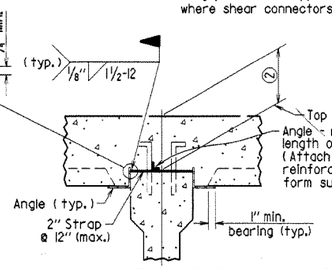
SECTION B-B
1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are not used)



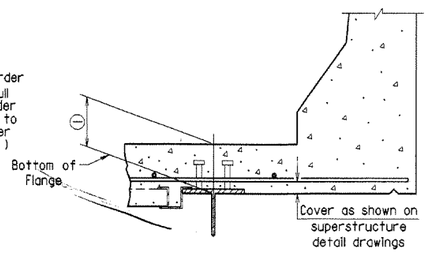
SECTION B-B
1" = 1'-0"
(Showing ∠ Closure)



SECTION B-B
(FOR CONCRETE GIRDERS)
1" = 1'-0"
(Showing support by insert cast in girder)



SECTION B-B
(FOR CONCRETE GIRDERS)
1" = 1'-0"
(Showing support by Strap)



SECTION D-D
1" = 1'-0"
Note: Only Bottom Reinforcing is shown.

① Distance from top of slab to bottom of top flange as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances : Minimum - occurs when either the top flange or the support angle leg contacts the bottom reinforcing steel; Maximum = t_s + 1 3/4" + flange thickness. See Section C-C for slab thickness tolerance between adjacent girder flanges.

② Distance from top of slab to top of girder as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances : Minimum - occurs when either the top of girder or the support angle leg contacts the bottom reinforcing steel; Maximum - value shown on the superstructure detail drawings when removable forms are used. See Section C-C for slab thickness tolerance between adjacent girder flanges.

⚠1 Redrawn and revised 11/27/96; MJT

⚠2 Revised for 2003 AHTD Construction Specifications and CPB Seal. MJT 04-10-2003
Chk'd. By: C.J.F 04-10-2003

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4337
CHARLES P. BRAND
BRIDGE ENGINEER

DETAILS OF PERMISSIBLE TYPE PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

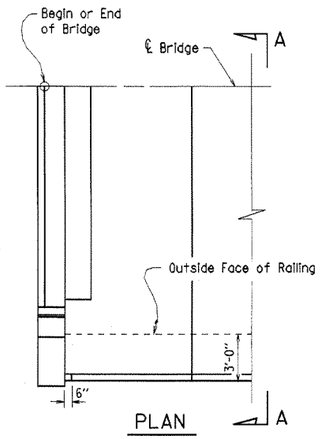
DRAWN BY: MJT DATE: 10-17-96
CHECKED BY: CPB DATE: 10-17-96
DESIGNED BY: STD. DATE: —
SCALE: as noted

BRIDGE NO. DRAWING NO. 14991

BI499I.STD

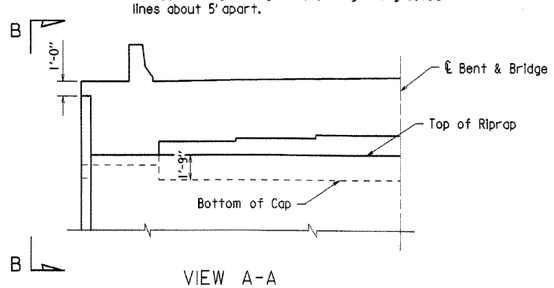
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
04-10-2003				6	ARK.		156	
				JOB NO.				

1 RIPRAP & PILE - 14995A

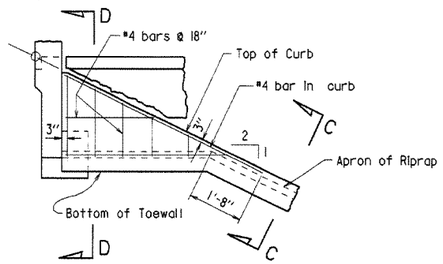


PLAN

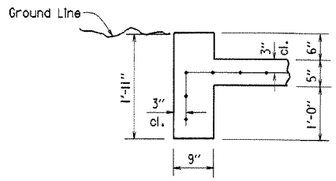
Note:
Sloped surfaces of concrete riprap to be marked off into blocks (construction joints optional) with an approved grooving tool, spacing the grooved lines about 5' apart.



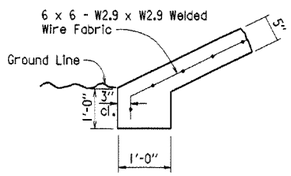
VIEW A-A



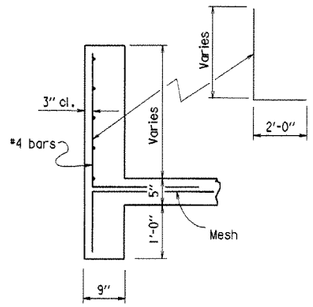
VIEW B-B



SECTION C-C

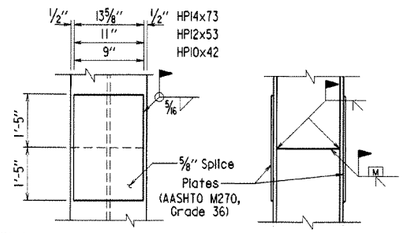


TOE WALL



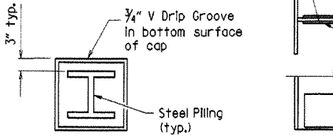
SECTION D-D

DETAILS OF CONCRETE RIPRAP

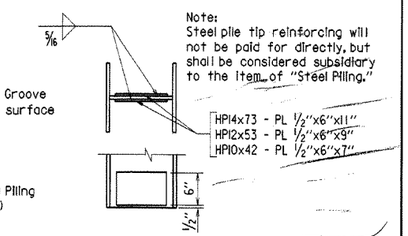


Note:
The contractor may for his own convenience and at this own expense provide as many as three splices per pile for steel bearing piling. Minimum spacing between splices shall be 5 ft.

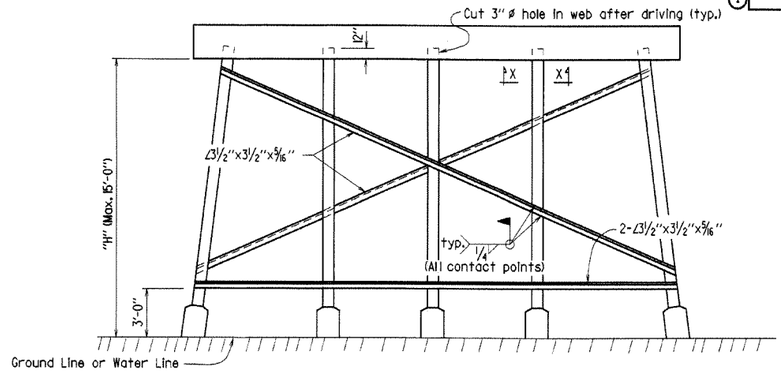
PILE SPLICE DETAIL
Scale : 1" = 1'-0"



VIEW X-X



REINFORCING DETAIL FOR STEEL PILE TIP
Scale : 1" = 1'-0"



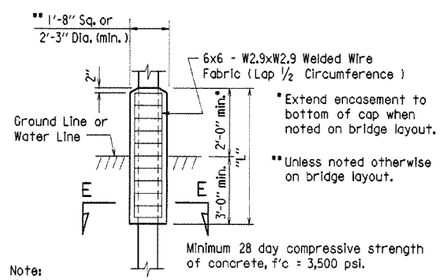
Note:
All bracing shall be cut and welded in the field. Each brace shall be furnished in one piece. Payment shall be made under Item 807.

Omit bottom bracing where "H" is less than 10 ft. Omit all bracing where "H" is less than 5 ft.

Note:
Where required by the bridge layout sheet, pile encasements shall be constructed.

Omit bracing (and V-groove in cap) where pile encasement is extended to bottom of bent cap.

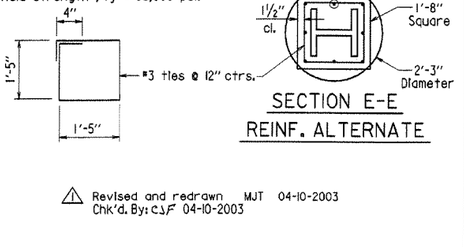
TYPICAL BRACING FOR INT. STEEL PILE BENTS



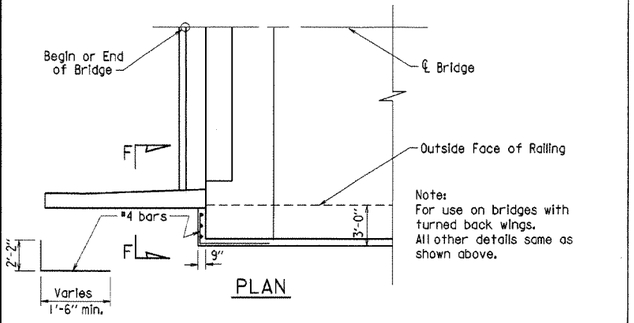
Note:
If concrete cannot be placed in the dry, seal concrete may be deposited under water. Concrete & welded wire fabric or reinforcing in encasements shall be paid for at the contract unit price per linear foot bid for "Pile Encasement."

PILE ENCASEMENT DETAIL

Reinforcing Alternate
#3 Vertical - 8 per encasement
#3 ties @ 12" ctrs.
Yield Strength , fy = 60,000 psi.

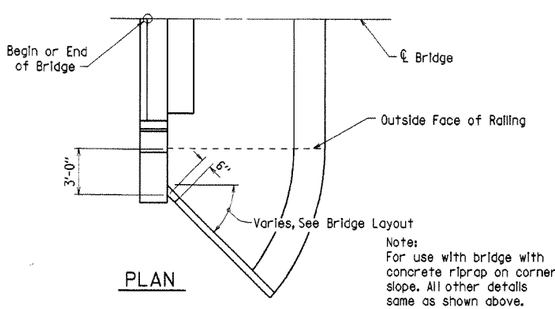


SECTION E-E
REINF. ALTERNATE



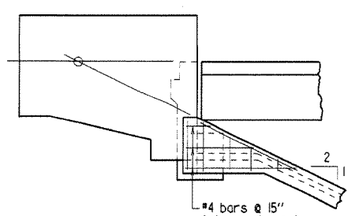
PLAN

Note:
For use on bridges with turned back wings. All other details same as shown above.

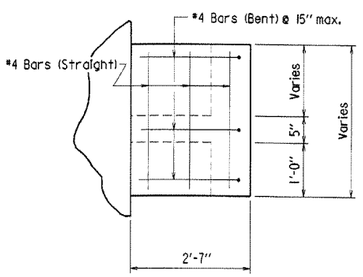


PLAN

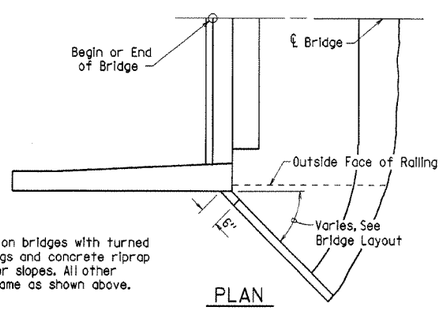
Note:
For use with bridge with concrete riprap on corner slope. All other details same as shown above.



ELEVATION



SECTION F-F



PLAN

Note:
For use on bridges with turned back wings and concrete riprap on corner slopes. All other details same as shown above.

⚠1 Revised and redrawn MJT 04-10-2003
Chk'd. By: CJF 04-10-2003

DETAILS OF CONCRETE RIPRAP
AND MISC. DETAILS OF STEEL PILING

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

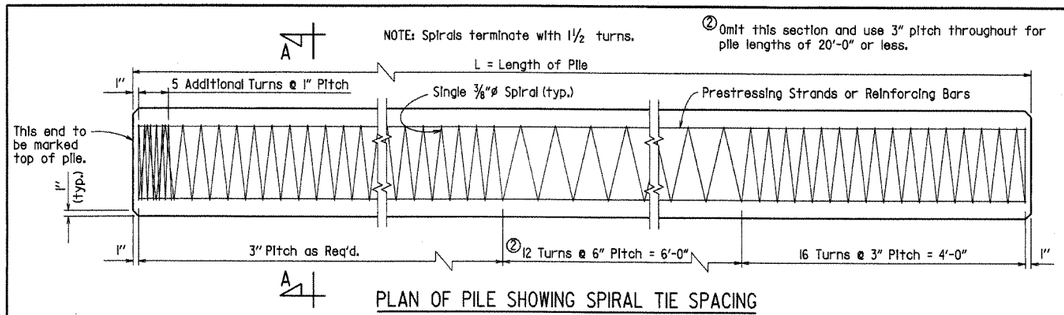
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4337
CHARLES P. BRAND

BRIDGE ENGINEER

DRAWN BY: MJT DATE: 04-10-2003 FILENAME: BI4995A.STD
CHECKED BY: CJF DATE: 04-10-2003 SCALE: No Scale or As Noted
DESIGNED BY: STD. DATE: —

BRIDGE NO. DRAWING NO. 14995A

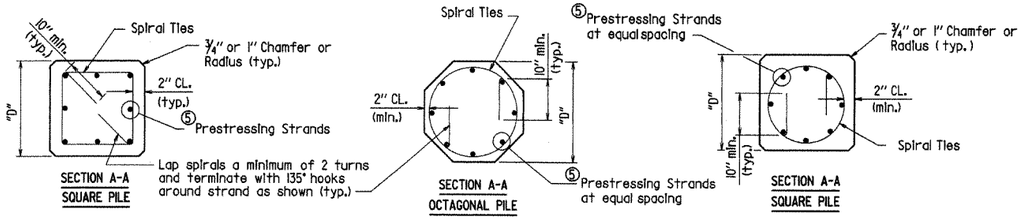
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
12-10-2009				6	ARK.		157	
				JOB NO.				
				①		CONCRETE PILES		14964



For anchorage of pile to bent, see Bent Details.

PLAN OF PILE SHOWING SPIRAL TIE SPACING

NOTE: Strand location shall be symmetrical about the axis of the pile with no more than one strand difference between any two adjacent sides. Circular spiral ties are required for odd number of strands.



PRESTRESSED CONCRETE PILES

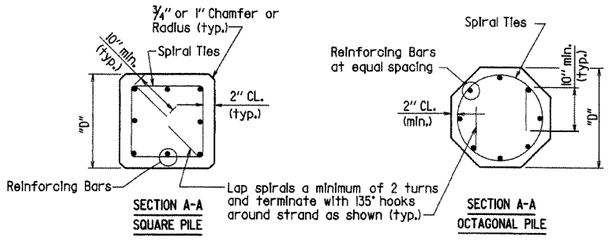
① Number based on initial pre-stress force of "B" x Ultimate Tensile Stress, Prestress Losses and min. 700 psi Unit Prestress on concrete after Losses.

"B" — 0.75 Low Relaxation; 0.70 Stress-Relieved

⑤ See table "Prestressed Concrete Pile Properties" for actual number of strands per pile size.

PRESTRESSED CONCRETE PILE PROPERTIES

	Grade	Strand Diameter	① Number of Strands per Size "D" 16" Oct.	18" Oct.	④ 14" Sq.	16" Sq.	18" Sq.	Minimum Ultimate Tensile Strength Per Strand (Lbs.)	Initial Prestressing Force Per Strand (Lbs.)
Stress-Relieved	250	7/16"	11	13	10	13	16	27,000	18,900
		½"	8	10	8	10	12	36,000	25,200
	270	7/16"	9	11	8	12	14	31,000	21,700
		½"	7	9	6	8	10	41,300	28,900
Low Relaxation	250	7/16"	9	11	8	11	14	27,000	20,200
		½"	7	9	6	8	10	36,000	27,000
	270	7/16"	8	10	7	9	12	31,000	23,300
		½"	6	8	6	7	9	41,300	31,000

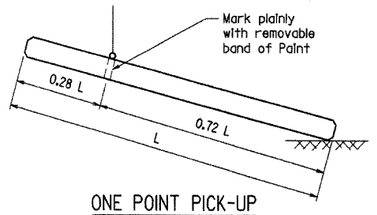


NON-PRESTRESSED CONCRETE PILES

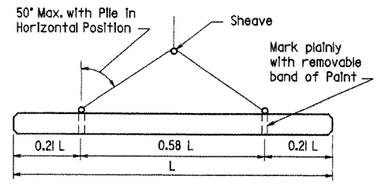
NON-PRESTRESSED PILE REINFORCING

Pile Size	No. Req'd.	Bar Size
16" Oct.	8	# 7
18" Oct.	8	# 7
④ 14" Sq.	8	# 7
16" Sq.	8	# 7
18" Sq.	8	# 8

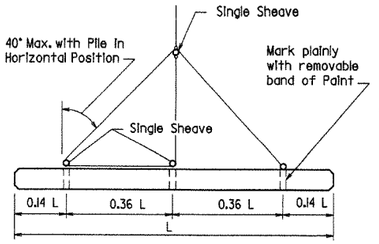
④ 14" sq. piles to be used in Seismic Performance Zone 1 only.



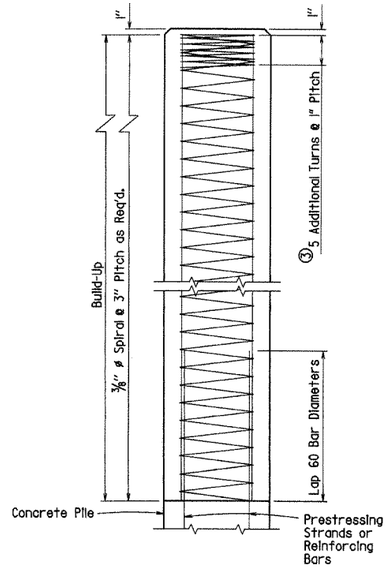
ONE POINT PICK-UP



TWO POINT PICK-UP



THREE POINT PICK-UP



BUILD-UP

③ The five additional turns of spiral reinforcing may be omitted for build-up without additional driving.

MAXIMUM PICKUP LENGTHS "L"

Type of Pick-Up	Prestressed 16" Oct.	18" Oct.	Non-Prestressed 16" or 18" Oct.	Prestressed ④ 14" Sq.	16" Sq.	18" Sq.	Non-Prestressed ④ 14" Sq.	16" Sq.	18" Sq.
One Point	52'	55'	46'	55'	59'	63'	52'	51'	55'
Two Point	75'	80'	67'	79'	84'	90'	75'	74'	79'
Three Point	105'	112'	93'	110'	117'	126'	104'	103'	111'

GENERAL NOTES:

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2003 Edition) with applicable Supplemental Specifications and Special Provisions.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Fourth Edition.

SEISMIC PERFORMANCE ZONES: 1 & 2

The Contractor may use prestressed piles or non-prestressed piles. Either type will be measured and paid for at the contract unit price bid for "Concrete Piling".

SPIRAL REINFORCING: Spiral reinforcing shall be steel wire meeting the requirements of AASHTO M 32 or M 225 or shall be plain round steel bars meeting the requirements of AASHTO M 31 or M 53, Gr. 60.

MANUFACTURE, TRANSPORTATION AND STORAGE: Shipment of piles from the plant site or pile driving will not be permitted until the required minimum compressive strength is reached, and in no case less than 10 days after pouring the concrete. Prestressed piles may be removed from the casting bed to nearby storage any time after transfer of stress. See Section 802 "Concrete for Structures" of the Standard Specifications for additional information.

⚠ Unless otherwise approved by the Engineer, all protruding or exposed pile lifting or transporting devices above the finished ground shall be removed after pile driving is complete. Removal shall be a minimum of 1" below the surface of the pile and the cavity shall be filled with a non-shrink grout listed on the Department's QPL.

FORMS: For forming exterior of piles, the use of steel forms on concrete-founded casting beds is required unless otherwise approved by the Engineer. Side forms may have a maximum drift on each side not exceeding ¼" per foot.

TOLERANCES: Pile ends shall be plane surfaces perpendicular to the longitudinal axis of pile with a maximum tolerance of ⅛" per foot transversely.

The maximum sweep (deviation from straightness measured from end to end of the pile, while not subject to bending forces) shall not exceed ⅛" in 10 feet.

BUILD-UPS: To provide for build-ups of piles where authorized by the Engineer, concrete shall be cut back to expose the reinforcing steel for a distance sufficient to provide a lap of 60 diameters of the reinforcing bars required for build-up. Reinforcing for build-ups shall be the reinforcing shown for non-prestressed piles.

INSTALLATION, MEASUREMENT AND PAYMENT: See Section 805 "Piling" of the Standard Specifications.

ADDITIONAL NOTES FOR PRESTRESSED PILES ONLY:

CONCRETE: Concrete in prestressed piles shall be Class S(AE) and shall have a minimum compressive strength (f'c) of 5,000 psi at 28 days. Compressive strength at transfer of the prestressing force shall be not less than 4,000 psi. Concrete in build-ups shall have a minimum compressive strength of 4,000 psi and shall be cured for a minimum of 10 days.

PRESTRESSING REINFORCING: Seven-wire stress-relieved or low relaxation strands shall conform to the general requirements of AASHTO M 203. Broken wires within individual strands will be permitted up to 2% of the total number of wires in each pile, providing that there is not more than one broken wire per strand. Two or more broken wires per strand will be cause for replacement of the strand, even though the two broken wires are within the 2% limitation.

ADDITIONAL NOTES FOR NON-PRESTRESSED PILES ONLY:

All concrete shall be Class S(AE) and shall have a minimum compressive strength (f'c) of 4,000 psi at 28 days.

All longitudinal reinforcing bars shall be deformed bars and shall conform to the requirements of AASHTO M 31 or M 53, GR. 60.

⚠ Added paragraph to General Notes KDH 12-10-2009
Checked by: CJF Date: 12-10-2009

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4337
CHARLES P. BRAND
BRIDGE ENGINEER

STANDARD DETAILS OF CONCRETE PILES IN SEISMIC PERFORMANCE ZONES 1 & 2

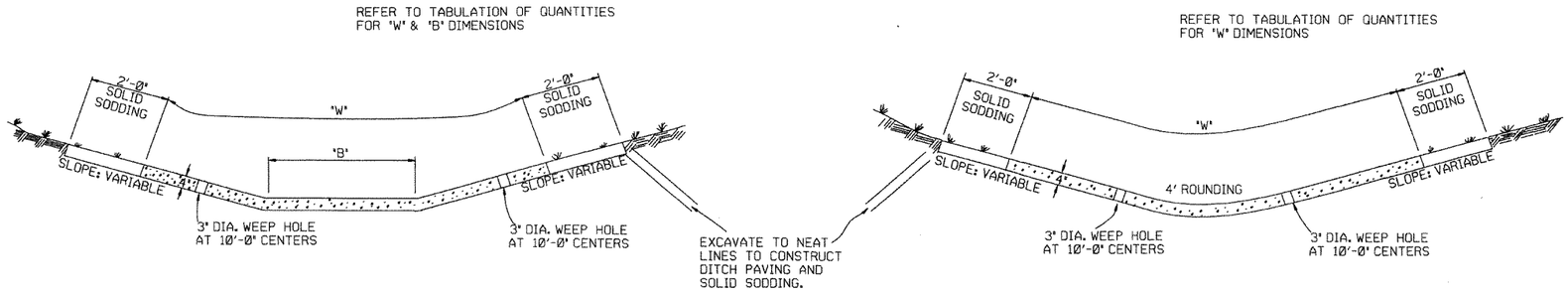
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KWY DATE: 1-17-08 FILENAME: bl4964_std.dgn
CHECKED BY: JAC DATE: 1-17-08 SCALE: no scale
DESIGNED BY: Std. DATE: ——

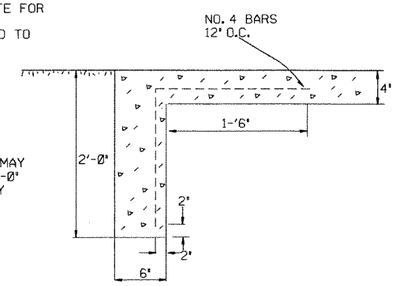
BRIDGE NO. DRAWING NO. 14964



TYPE A

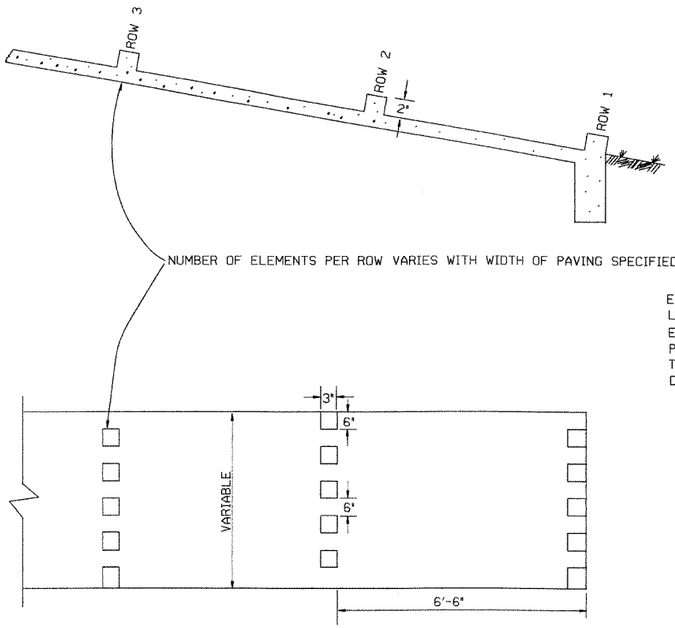
TYPE B

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 UNCLUDED 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.

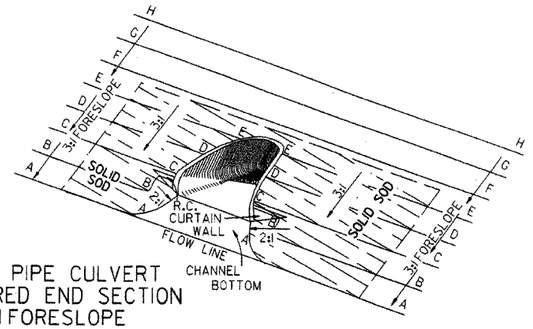
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

DATE	REVISION	DATE FILM'D
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

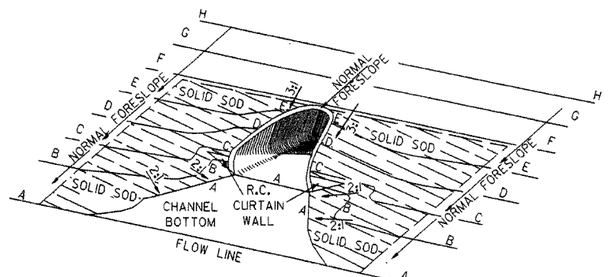
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

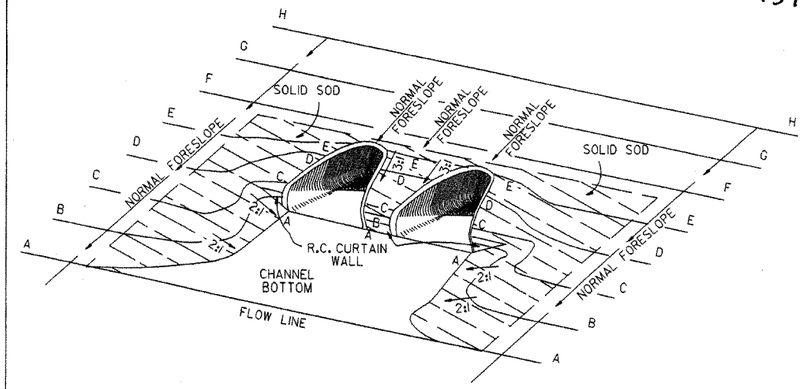
STANDARD DRAWING CDP-1



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

R.C. CURTAIN WALL
DIMENSIONS & QUANTITIES

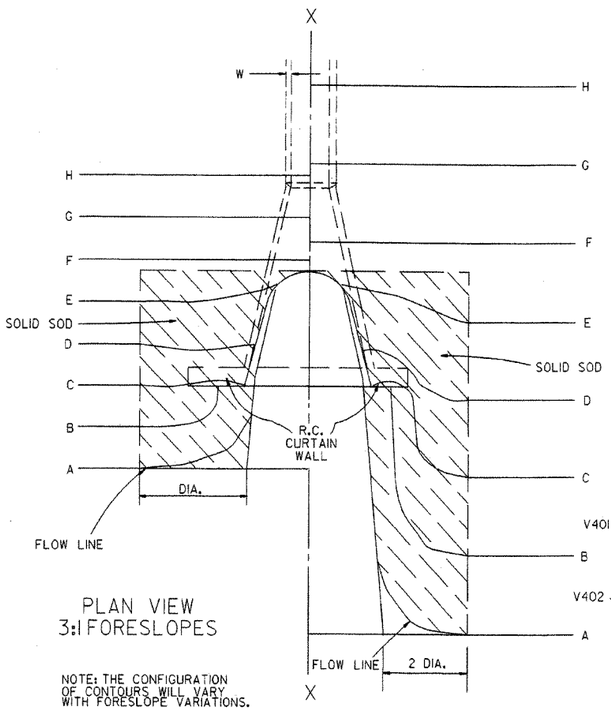
PIPE DIA.	H_1	L_1	L	L (DBL.) / 2	SINGLE R.C.P.C. CONC. CU. YDS.	SINGLE R.C.P.C. REINF. STEEL LBS.	DOUBLE R.C.P.C. CONC. CU. YDS.	DOUBLE R.C.P.C. REINF. STEEL LBS.
18"	1'-11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0	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.

REINFORCING STEEL SCHEDULE

PIPE DIA.	SINGLE R.C. PIPE CULVERT H401 L	H401 NO.	H402 L	H402 NO.	V401 L	V401 NO.	V402 L	V402 NO.	DOUBLE R.C. PIPE CULVERT H401 L	H401 NO.	H402 L	H402 NO.	H403 L	H403 NO.	V401 L	V401 NO.	V402 L	V402 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

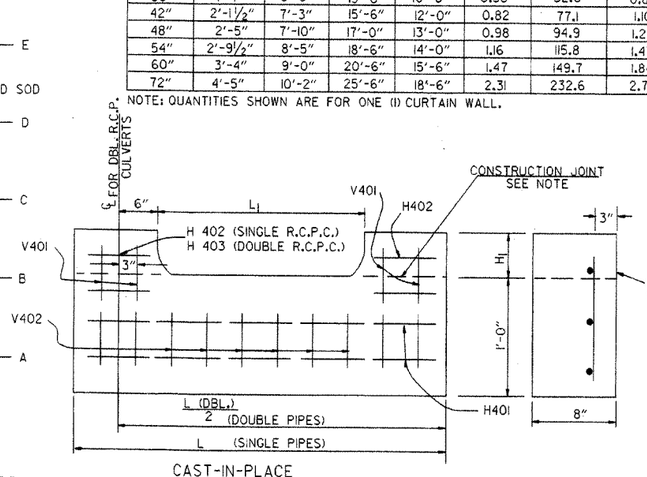
ALL REINFORCING STEEL #4 BARS @ 6" O.C.



PLAN VIEW
3:1 FORESLOPES

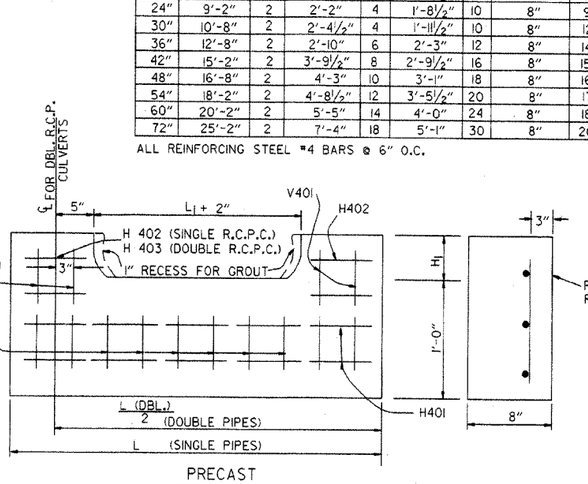
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES



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

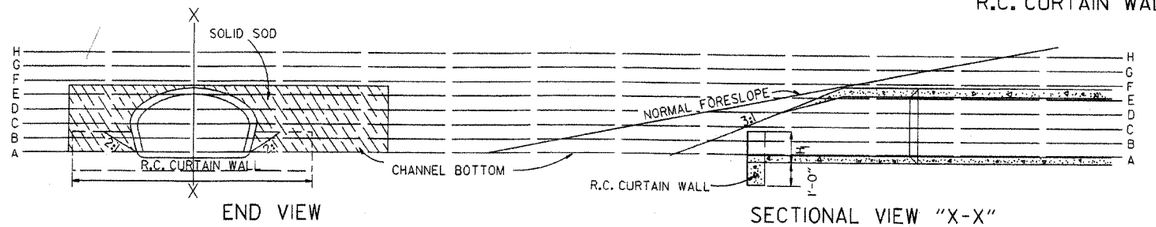
SOLID SODDING

PIPE DIA.	SINGLE R.C.P.C. 3:1	4:1	6:1	DOUBLE R.C.P.C. 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"	36	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

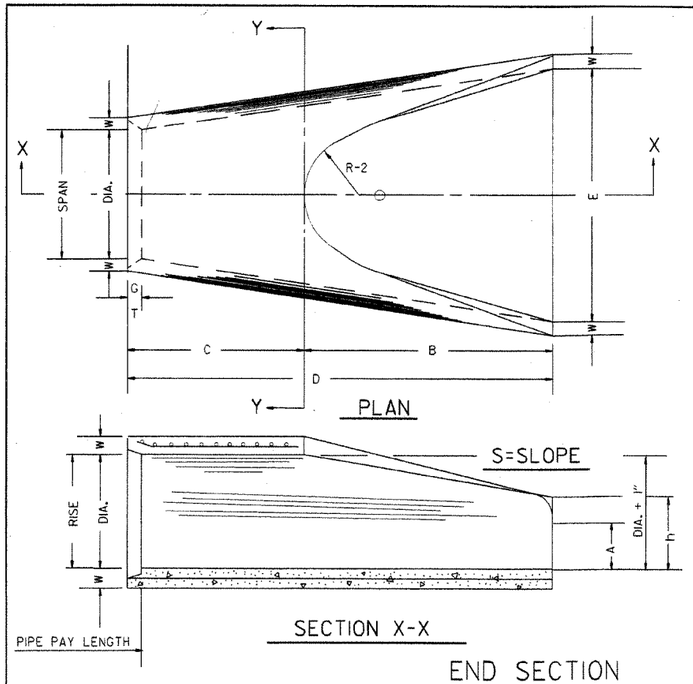
SECTIONAL VIEW "X-X"

DATE	REVISION	FILMED
10-18-96	ADDED NOTE TO SOLID SODDING	10-18-96
10-12-95	CORRECTED SPELLING	
11-3-94	ADDED GENERAL NOTE NO. 4	
8-16-91	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

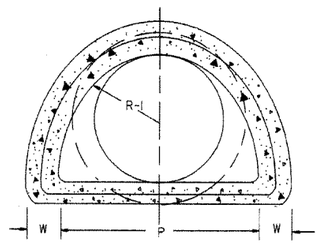
STANDARD DRAWING FES-1



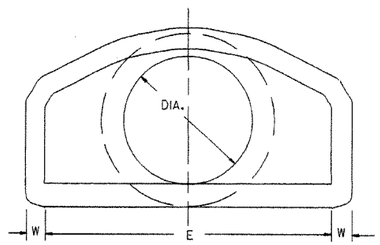
END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS

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"	3:1	19"	29"	15½"	12"	2"	1000	1'-0½"
24"	3"	9½"	3'-7½"	2'-6"	6'-11½"	4'-0"	3:1	25"	33 3/16"	16 13/16"	14"	2½"	1600	1'-1½"
30"	3½"	1'-0"	4'-6"	1'-7¾"	6'-1¾"	5'-0"	3:1	31"	37"	18½"	15"	3½"	1940	1'-4⅝"
36"	4"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	6'-0"	3:1	37"	47 13/16"	24 5/16"	20"	3½"	4100	1'-8"
42"	4½"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	53⅜"	27½"	22"	3½"	5380	2'-2½"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3:1	49"	56½"	28½"	22"	3½"	6550	2'-6"
54"	5½"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3:1	55"	65½"	33⅛"	24"	4"	8750	2'-10½"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72½"	36 11/16"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77 13/16"	38 15/16"	24"	5"	13250	4'-6"



SECTION Y-Y



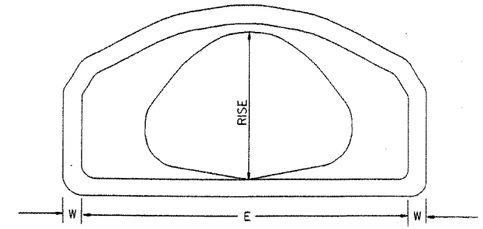
END VIEW

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

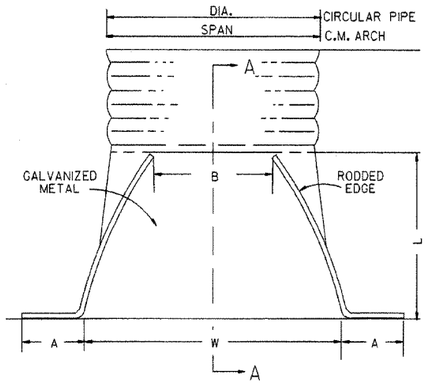
ARCH PIPE

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"	2½:1
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅛"	13"	2½"	2½:1
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅛"	14"	2½"	2½:1
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36 1/16"	15"	2½"	2½:1
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47 13/16"	20"	3"	2½:1
36	43¾	44	26⅝	27	4"	10½"	4'-0"	2'-1½"	6'-1½"	6'-6"	54⅞"	22"	3½"	2½:1
42	51⅛	51	31 5/16	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½:1
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70 5/16"	24"	4¼"	2½:1
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72 1/16"	24"	4¾"	2½:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 13/16"	24"	5"	2½:1

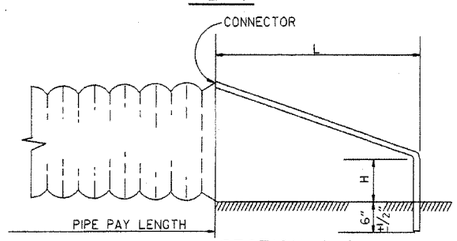
• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.



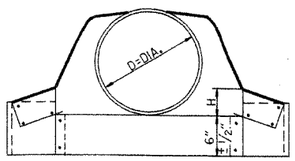
END VIEW
CONCRETE ARCH PIPE



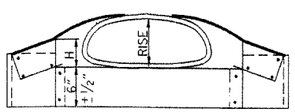
PLAN



SECTION A-A



CIRCULAR PIPE



C.M. ARCH PIPE

CIRCULAR PIPE

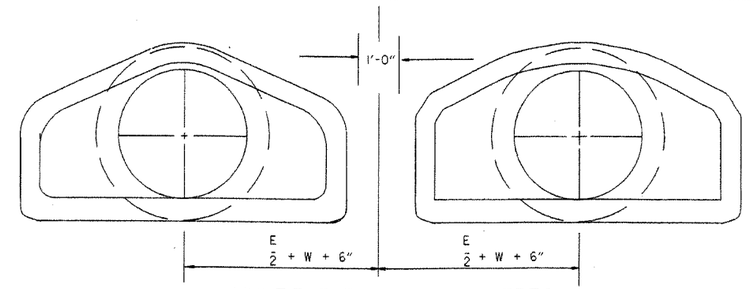
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½:1
15	16	7	8	6	26	30	2½:1
18	16	8	10	6	31	36	2½:1
21	16	9	12	6	36	42	2½:1
24	16	10	13	6	41	48	2½:1
30	14	12	16	8	51	60	2½:1
36	14	14	19	9	60	72	2½:1
42	12	16	22	11	69	84	2½:1
48	12	18	27	12	78	90	2½:1
54	12	18	30	12	84	102	2:1
60	12	18	33	12	87	114	1¾:1
66	12	18	36	12	87	120	1½:1
72	12	18	39	12	87	126	1 1/3:1

C.M. ARCH PIPE

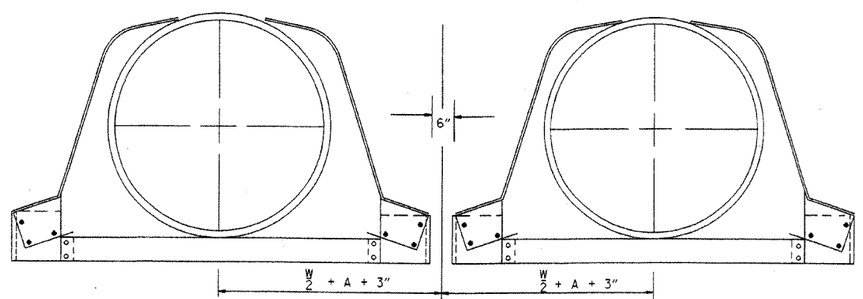
EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½:1	16
18"	21	15	7	10	6	23	36	2½:1	16
21"	24	18	8	12	6	28	42	2½:1	16
24"	28	20	9	14	6	32	48	2½:1	16
30"	35	24	10	16	6	39	60	2½:1	14
36"	42	29	12	18	8	46	75	2½:1	14
42"	49	33	13	21	9	53	85	2½:1	12
48"	57	38	18	26	12	63	90	2½:1	12
54"	64	43	18	30	12	70	102	2½:1	12
60"	71	47	18	33	12	77	114	2½:1	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	10-18-96
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 COMMISION

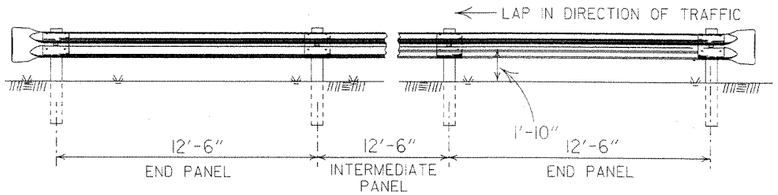
FLARED END SECTION

STANDARD DRAWING FES-2

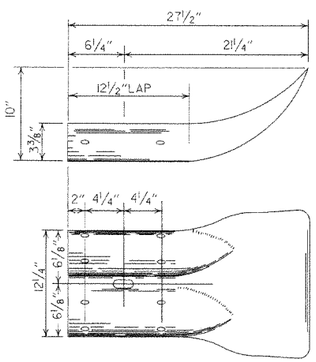
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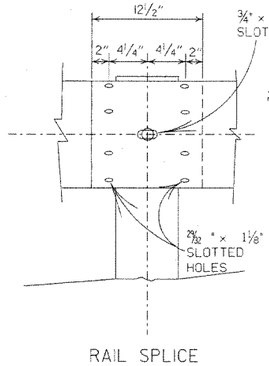
PLAN



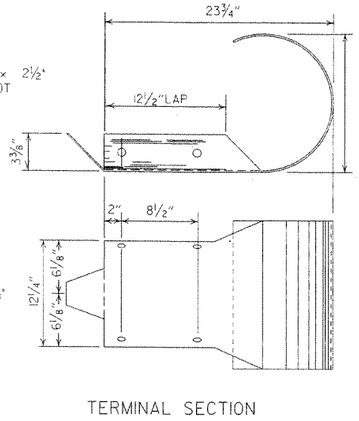
ELEVATION



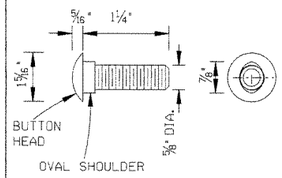
TERMINAL SECTION



RAIL SPLICE

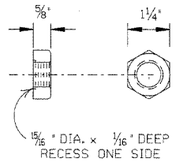


TERMINAL SECTION

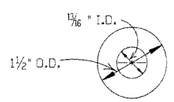


SPLICE BOLT

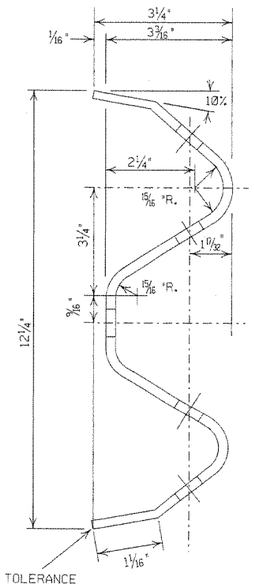
NOTE: POST BOLT SAME EXCEPT LENGTH.



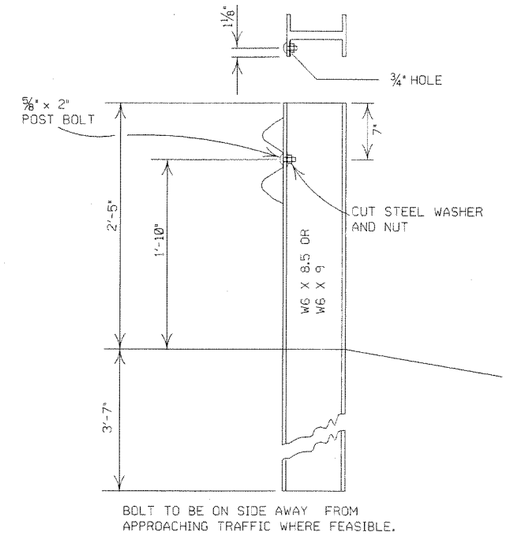
NUT



CUT STEEL WASHER

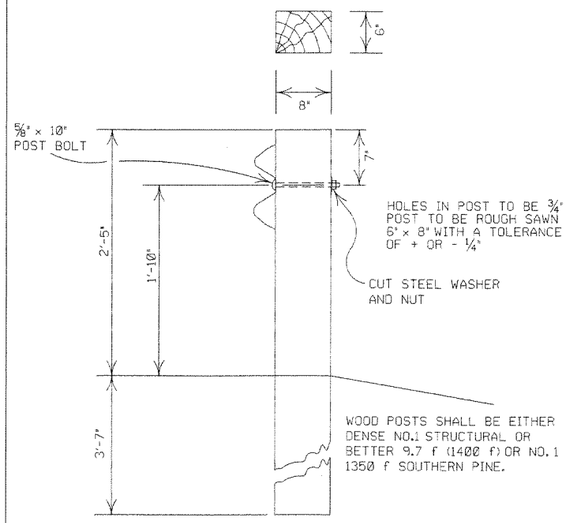


SECTION THRU RAIL



BOLT TO BE ON SIDE AWAY FROM APPROACHING TRAFFIC WHERE FEASIBLE.

STEEL POST



WOOD POST

DETAILS OF POST CONNECTIONS

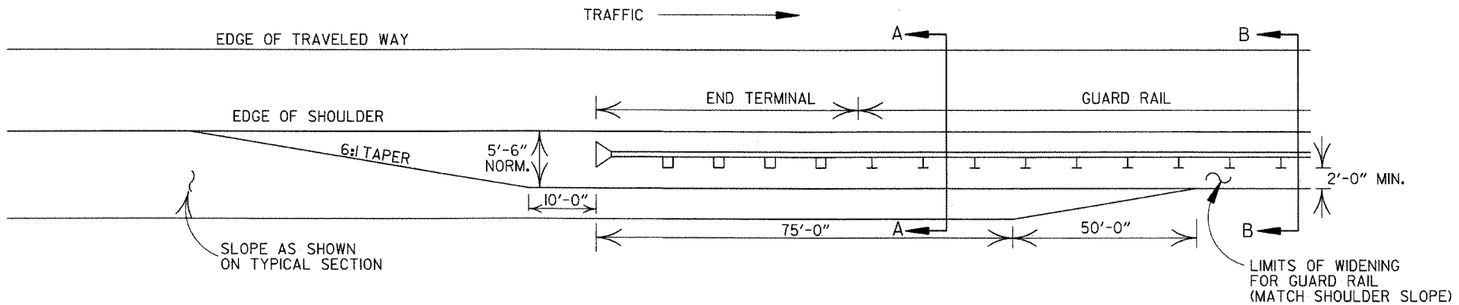
DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
8-22-02	REVISED DIMENSION ON STEEL POST	
11-16-01	REVISED STEEL AND WOOD POST	
8-12-98	REMOVED CONCRETE POST	
10-18-96	CHANGED WOOD POST NOTE	10-18-96
6-2-94	ADDED ALTERNATE STEEL POST SIZE	
8-5-93	REVISED STEEL POSTS SIZE	8-5-93
8-15-91	DELETE STEEL PLATE WASHER & ADDED TYPE C TO TITLE	8-15-91
10-30-87	REMOVED DET. PLCMNT. ON HWY.	555-11-20-87
1-4-83	GRADE FOR WOOD POSTS	679-1-4-83
10-1-77	HARDENED WASHER	922-10-1-72
10-2-72	REVISED & REDRAWN	521-10-2-72

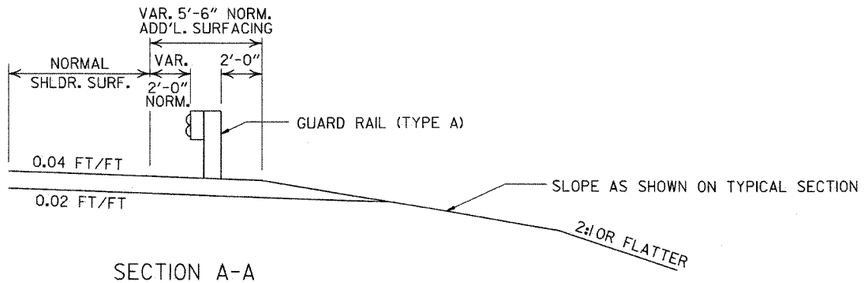
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS (TYPE C)

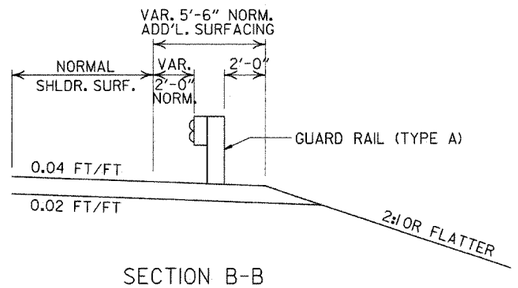
STREET / ROAD BARRICADE OR TEMPORARY INSTALLATION

STANDARD DRAWING GR-7





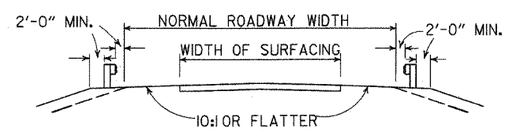
SECTION A-A



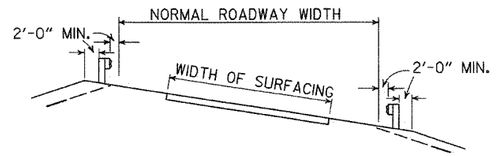
SECTION B-B

DETAILS OF WIDENING FOR GUARD RAIL

NOTE: NORMAL SECTION TO BE WIDENED APPROX. 5'-6" EACH SIDE TO SUPPORT GUARD RAIL.

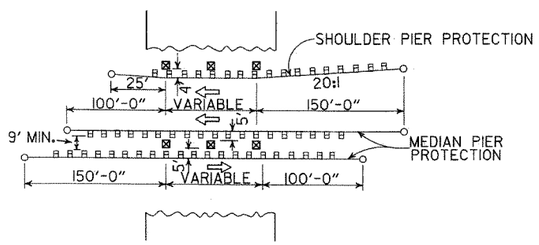


SECTION ON TANGENT



SECTION ON CURVE

DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY



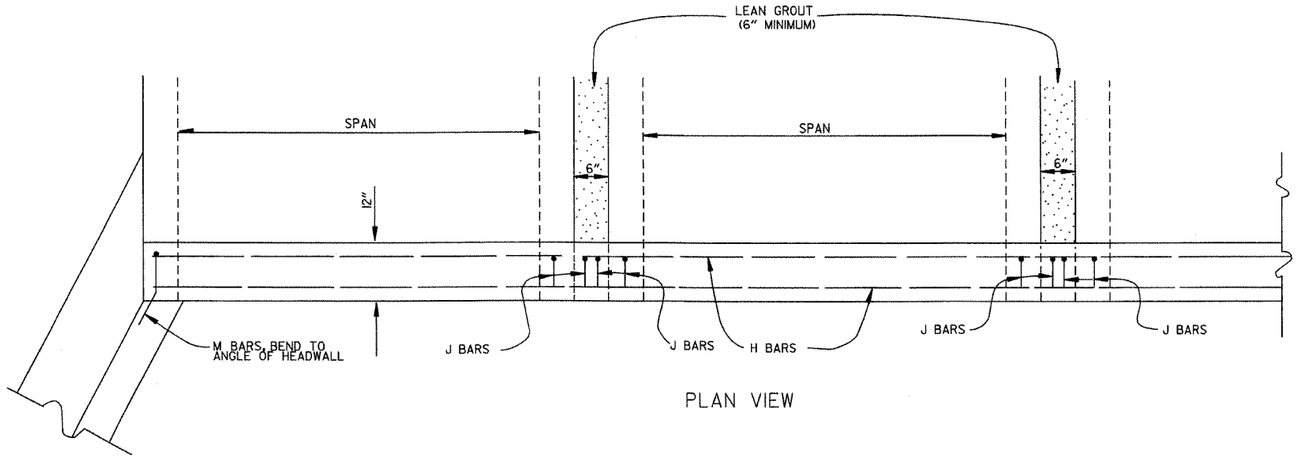
METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

DATE	REVISION	DATE FILM
4-17-08	MINOR REVISION	
11-10-05	DRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

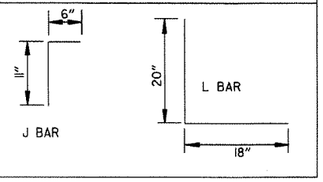
STANDARD DRAWING GR-9A



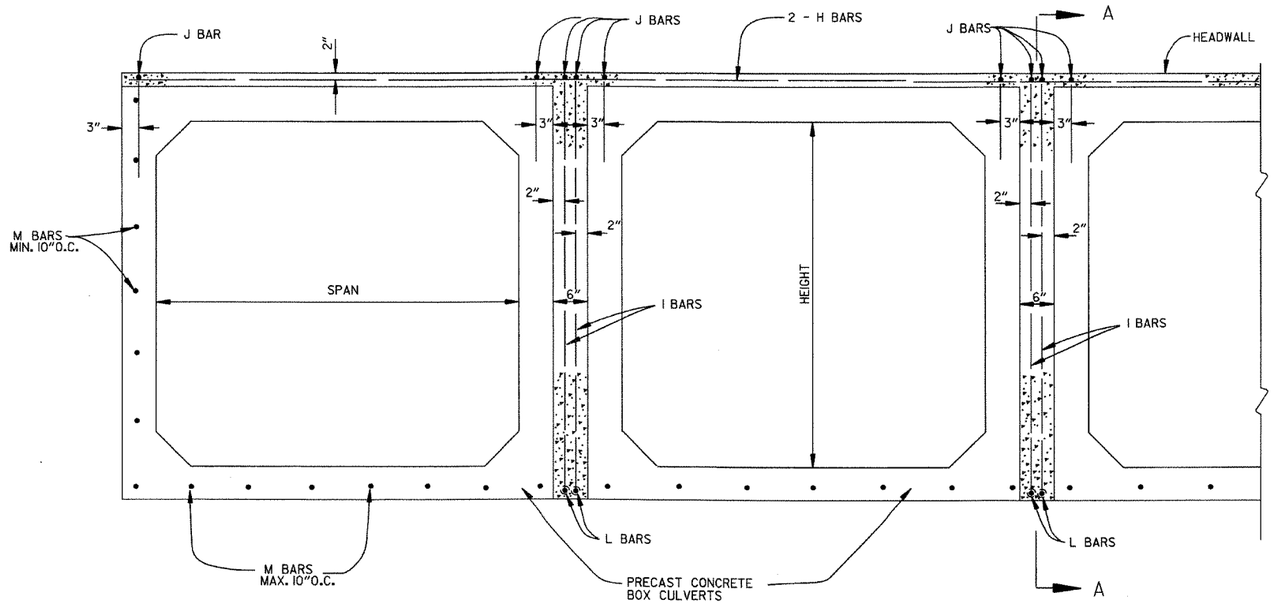
PLAN VIEW

BAR LIST

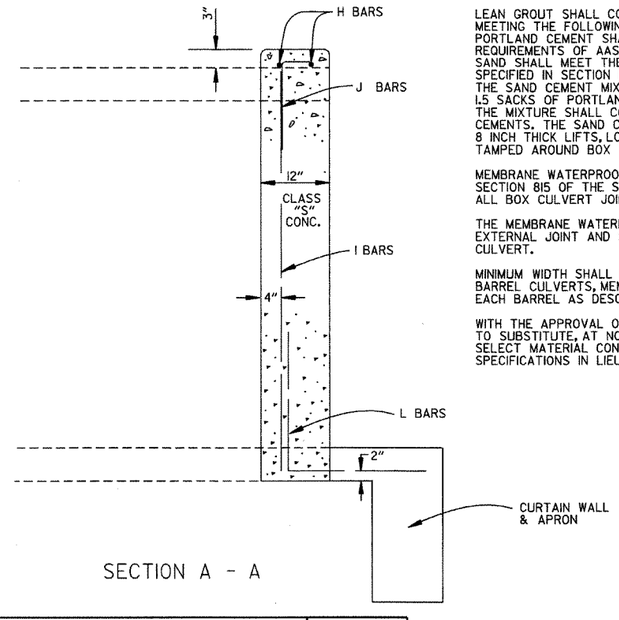
BAR	NO.	SIZE	LENGTH	BAR BENDING DIAGRAM
H	2	#4	•	
I	•	#4	•	
J	•	#4	1'-5"	
L	•	#4	3'-2"	
M	•	#4	1'-8"	



• NOTE: LENGTH AND NUMBER OF BARS VARIES WITH SIZE OF CULVERT



END VIEW



SECTION A - A

GENERAL NOTES

WINGS, CURTAIN WALLS AND APRONS SHALL BE TIED TO THE PRECAST CULVERT SECTION BY CASTING BARS IN CULVERT END SECTIONS AS SHOWN OR BY DOWELING AND GROUTING. J BARS AND M BARS SHALL BE EMBEDDED A MINIMUM OF 10" IN PRECAST BOX.

WINGS, FOOTINGS, APRONS AND CURTAIN WALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE APPLICABLE STANDARD WING DRAWING, STEEL AND CONCRETE QUANTITIES WILL BE ADJUSTED TO FIT THE IN-PLACE WIDTH & HEIGHT OF THE PRECAST CONCRETE BOX CULVERTS.

ALL EXPOSED CORNERS TO HAVE 3/4" CHAMFERS.

WINGWALLS AND FOOTINGS MAY BE ADJUSTED IN THE FIELD AS DIRECTED BY THE ENGINEER.

ALL CONCRETE, REINFORCING STEEL, LEAN GROUT, LABOR, MATERIALS AND EQUIPMENT REQUIRED FOR INSTALLING PRECAST BOX CULVERTS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR THE ITEMS AS SPECIFIED IN SECTION 607 OF THE STANDARD SPECIFICATIONS.

LEAN GROUT SHALL CONSIST OF A SAND CEMENT MIXTURE MEETING THE FOLLOWING REQUIREMENTS:
PORTLAND CEMENT SHALL BE TYPE I AND SHALL MEET THE REQUIREMENTS OF AASHTO M 85.
SAND SHALL MEET THE REQUIREMENTS OF FINE AGGREGATE AS SPECIFIED IN SECTION 802.02 OF THE STANDARD SPECIFICATIONS.
THE SAND CEMENT MIXTURE SHALL CONSIST OF NOT LESS THAN 1.5 SACKS OF PORTLAND CEMENT PER TON OF MATERIAL MIXTURE.
THE MIXTURE SHALL CONTAIN SUFFICIENT WATER TO HYDRATE THE CEMENTS. THE SAND CEMENT MIXTURE SHALL BE PLACED IN MAXIMUM 8 INCH THICK LIFTS, LOOSE MEASURE, AND THOROUGHLY RODDED AND TAMPED AROUND BOX TO THOROUGHLY FILL ALL VOIDS.

MEMBRANE WATERPROOFING CONFORMING TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS SHALL BE APPLIED TO ALL BOX CULVERT JOINTS.

THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EXTERNAL JOINT AND SHALL EXTEND 1 FOOT DOWN THE SIDES OF THE CULVERT.

MINIMUM WIDTH SHALL BE 12" (6" ON EACH SIDE OF JOINT). ON MULTIPLE BARREL CULVERTS, MEMBRANE WATERPROOFING SHALL BE APPLIED TO EACH BARREL AS DESCRIBED ABOVE.

WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, FLOWABLE SELECT MATERIAL CONFORMING TO SECTION 206 OF THE STANDARD SPECIFICATIONS IN LIEU OF LEAN GROUT.

DATE	REVISION	DATE FILMED
10-15-09	ADDED GENERAL NOTE	
11-10-05	REVISED SPACING OF "M" BARS	
4-10-03	REVISED GENERAL NOTES	
10-18-96	CORRECTED AASHTO REF.	
10-1-92	ADDED NOTE FOR MEMBRANE WATERPROOFING	
8-15-91	ADDED NOTE FOR LEAN GROUT	
11- 8-90	REVISED FOR 1991 SPECS	
11-30-89	ISSUED; JABE	

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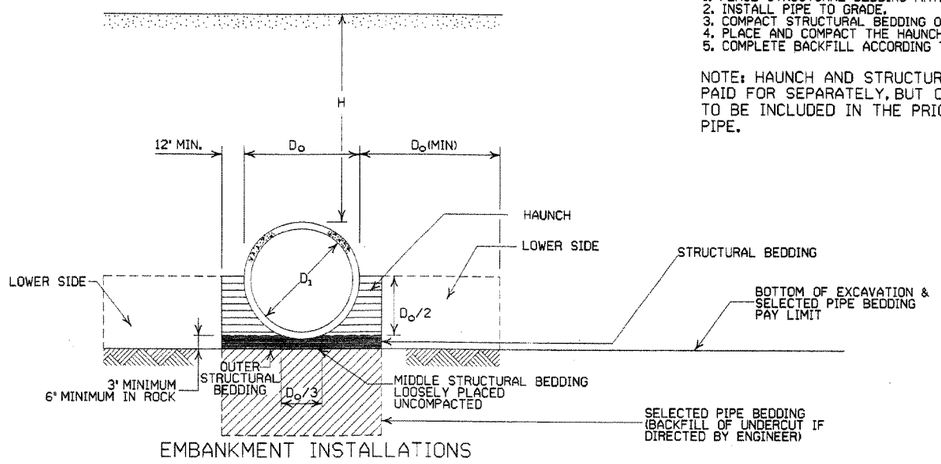
PRECAST CONCRETE BOX CULVERTS

STANDARD DRAWING PBC-1

CONSTRUCTION SEQUENCE

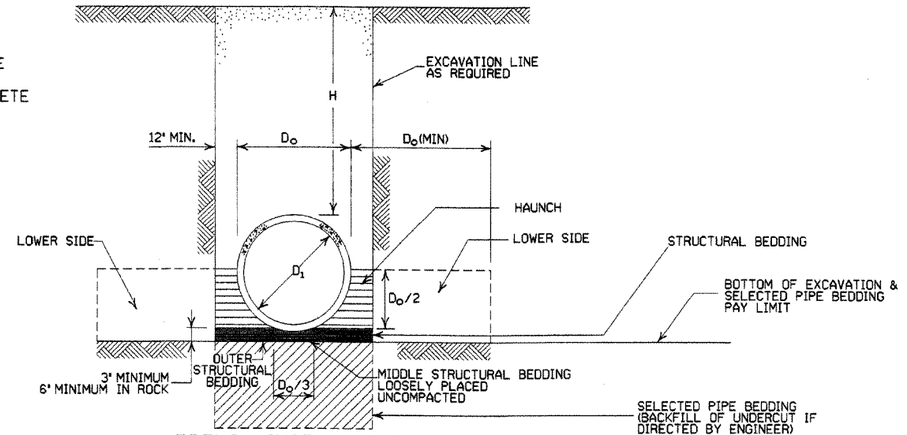
1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. PLACE AND COMPACT THE HAUNCH AREA UP TO THE MIDDLE OF THE PIPE.
5. COMPLETE BACKFILL ACCORDING TO SPECIFICATIONS.

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.



EMBANKMENT INSTALLATIONS

1. MATERIAL IN THE LOWER SIDE, HAUNCH, AND OUTER STRUCTURAL BEDDING SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.



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.

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	•SPAN		• RISE	
	AASHTO M 206	AHD NOMINAL	AASHTO M 206	AHD 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	43¾	44	26⅝	27
42	51⅛	51	31 1/16	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	77¼	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 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.

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-3) OR TYPE 1 INSTALLATION MATERIAL
TYPE 3	AASHTO CLASSIFICATION A-1 THRU A-6 SOIL OR TYPE 1 OR 2 INSTALLATION MATERIAL

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

MAXIMUM HEIGHT OF FILL OVER R.C. PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE		
	CLASS III	CLASS IV	CLASS V
	FEET		
TYPE 1	21	32	50
TYPE 2	17	27	41
TYPE 3	13	20	32

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

GENERAL NOTES

1. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
2. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
4. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE.
5. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
6. 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.
7. 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.
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 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.'

- 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

DATE	REVISION	DATE FILMED
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) H-20 LOADING

PIPE DIAMETER (INCHES)	MINUMUM COVER TOP OF PIPE TO TOP OF SUBGRADE (INCHES)	MAX. FILL HEIGHT ABOVE TOP OF PIPE (FEET)							
		METAL THICKNESS IN INCHES							
		0.064	0.079	0.109		0.138		0.168	
				ROUND	ELONG.	ROUND	ELONG.	ROUND	ELONG.
		2⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL							
12	12	84	91						
15	12	67	73						
18	12	56	61						
24	12	42	46	59					
30	12	34	36	47					
36•	12		30	39		41			
42•	12		43	46	67	48	70	50	73
48•	12		37	45	58	46	61	47	64
		3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION** RIVETED, WELDED, HELICAL, OR BOLTED							
36	12	48	60	78	88	89	111	101	131
42	12	41	51	64	72	71	90	79	102
48	12	36	45	57	64	61	77	66	85
54	12	32	40	52	59	55	71	59	79
60•	12	29	36	49	53	51	64	54	71
66	12	26	33	47		49	58	51	64
72•	12	24	30	44		47	53	49	59
78	12		28	41		46	49	47	54
84•	12		26	38		45		46	51
90	12		24	35		43		45	
96•	12		22	33		40		44	
102	24			31		38		42	
108•	24			30		35		39	
114	24			28		34		37	
120•	24			27		32		35	

• MAX. FILL CAN BE INCREASED IN THESE DIAMETER PIPES BY USING THE NEXT LARGER CORRUGATION. REFER TO 'CORRUGATED METAL PIPE', REVISED 1970, PUBLISHED BY U.S. DEPARTMENT OF TRANSPORTATION, F.H.W.A., B.P.R.

•• WHERE THE STANDARD 2 ⅔ x ½' CORRUGATION AND GAUGE IS SPECIFIED FOR A GIVEN DIAMETER A 3' x 1' OR 5' x 1' CORRUGATION PIPE OF THE SAME DIAMETER 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 GAGE AND CORRUGATION

CORRUGATED ALUMINUM PIPE (ROUND) H-20 LOADING

PIPE DIAMETER (INCHES)	MINUMUM COVER TOP OF PIPE TO TOP OF SUBGRADE (INCHES)	MAX. FILL HEIGHT 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				
12	12	45	45			
18	12	30	30	52		
24	12	22	22	39	41	
30	12	18	18	31	32	34
36	12		15	26	27	28
42	12		26	43	43	44
48	12			40	41	43
54	12			35	37	38
60	12				33	34
66	12				30	31
72	12					29

EQUIVALENT METAL THICKNESSES AND GAUGES

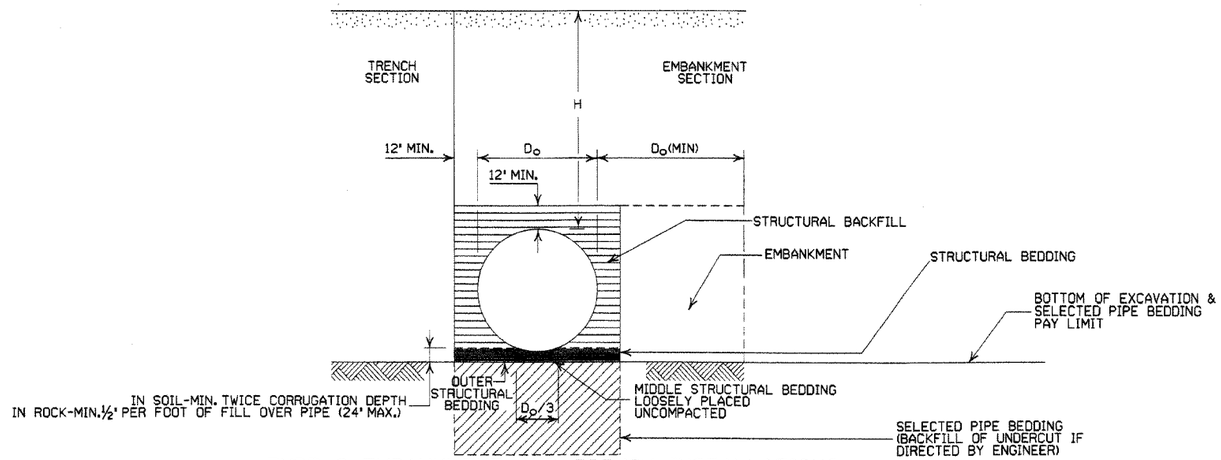
METAL THICKNESS IN INCHES			GAUGE NUMBER
STEEL			
ZINC COATED	UNCOATED	ALUMINUM	
0.064	0.0598	0.060	16
0.079	0.0747	0.075	14
0.109	0.1046	0.105	12
0.138	0.1345	0.135	10
0.168	0.1644	0.164	8
0.188	0.1838		7
0.218	0.2145		5
0.249	0.2451		3
0.280	0.2758		1

CORRUGATED METAL PIPE ARCHES (H - 20 LOADING)

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	MIN. COVER TOP OF PIPE TO TOP OF SUBGRADE FOR 2 TONS PER SQ. FT. (INCHES)	STEEL			ALUMINUM		
				MINIMUM THICKNESS REQUIRED INCHES	MAX. FILL HEIGHT ABOVE TOP OF PIPE(IN FT.) FOR THE FOLLOWING CORNER BEARING PRESSURE IN TONS PER SQ. FT.		MINIMUM THICKNESS REQUIRED INCHES	MAX. FILL HEIGHTS ABOVE TOP OF PIPE(IN FT.) FOR THE FOLLOWING CORNER BEARING PRESSURE IN TONS PER SQ. FT.	
					2 TONS	3 TONS[1]		2 TONS	3 TONS[1]
			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL				2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL		
15	17×13	3	12	0.064	13	15+	0.060	15	
18	21×15	3	12	0.064	12	15+	0.060	14	
21	24×18	3	12	0.064	10	15+	0.060	12	15+
24	28×20	3	12	0.064	10	15	0.060	10	15+
30	35×24	3	12	0.079	9	14	0.075	9	14
36	42×29	3½	12	0.079	9	13	0.075	9	13
42	49×33	4	12	0.079	8	12	0.105	8	12
48	57×38	5	12	0.109	8	12	0.135	8	12
54	64×43	6	12	0.109	8	12	0.135	8	12
60	71×47	7	12	0.138	8	12	0.164	8	12
66	77×52	8	12	0.168	8	12	0.164	8	12
72	83×57	9	12	0.168	9	13			
			3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION** RIVETED, WELDED, OR HELICAL						
36	40×31	5	12	0.079	15	15+			
42	46×36	6	12	0.079	15	15+			
48	53×41	7	12	0.079	15	15+			
54	60×46	8	12	0.079	15	15+			
60	66×51	9	12	0.079	15	15+			
66	73×55	12	12	0.079	15	15+			
72	81×59	14	18	0.079	15	15+			
78	87×63	14	18	0.079	14	15+			
84	95×67	16	18	0.109	13	15+			
90	103×71	16	24	0.109	12	15+			
96	112×75	18	24	0.109	11	15+			
102	117×79	18	24	0.109	10	15			
108	128×83	18	24	0.138	9	14			

1 WHERE BEARING PRESSURE EXCEEDING 2 TONS PER SQUARE FOOT IS REQUIRED FOR GIVEN FILL HEIGHTS, THE FOUNDATION MATERIAL SHALL BE INVESTIGATED TO DETERMINE THE BEARING CAPACITY.

•• WHERE THE STANDARD 2 ⅔ x ½' CORRUGATION AND GAUGE IS SPECIFIED FOR A GIVEN DIAMETER, A 3' x 1' OR 5' x 1' CORRUGATION PIPE OF THE SAME DIAMETER 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.



TYPE 2 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.

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.

INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 2	•SELECTED MATERIALS (CLASS SM-1, SM-2 OR SM-3)

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL

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.

GENERAL NOTES

1. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
2. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
4. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE.
5. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
6. 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.
7. 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.'
8. 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 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.'

- LEGEND -

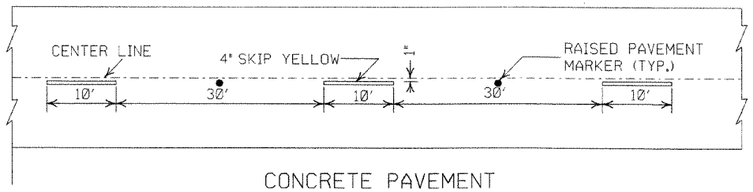
D_o = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM
= STRUCTURAL BACKFILL MATERIAL
= UNDISTURBED SOIL
ELONG. = ELONGATED
EQUIV. DIA. = EQUIVALENT DIAMETER
H = FILL COVER HEIGHT OVER PIPE (FEET)

DATE	REVISION	DATE FILMED
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

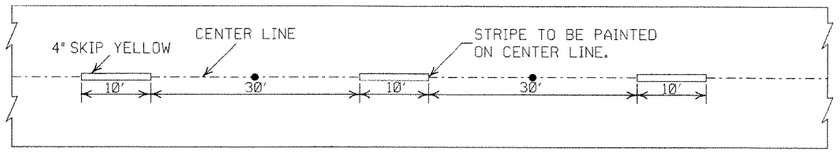
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METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

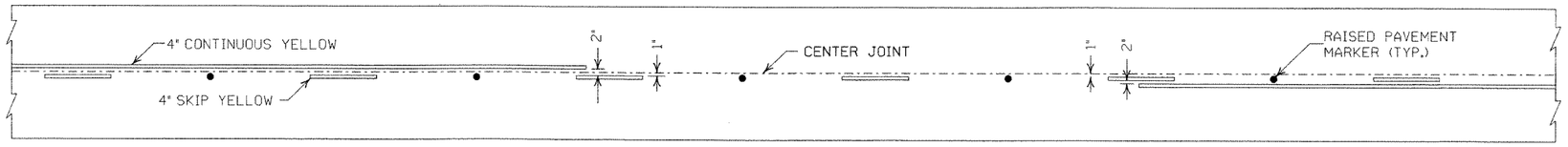


CONCRETE PAVEMENT

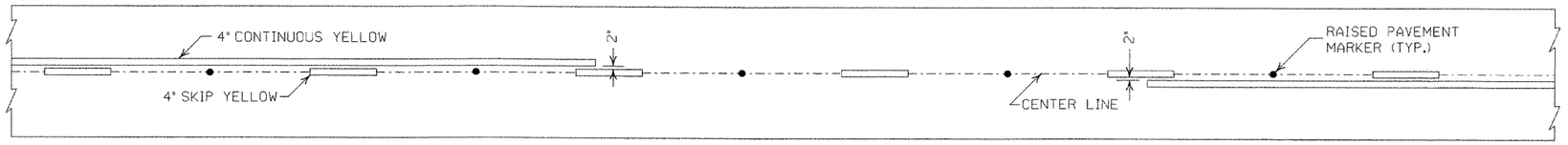


ASPHALT PAVEMENT

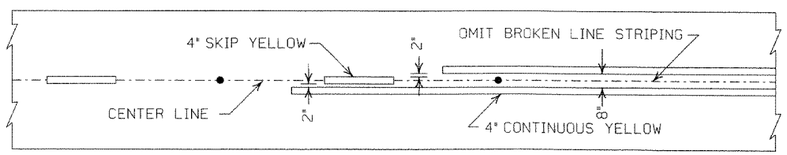
BROKEN LINE STRIPING



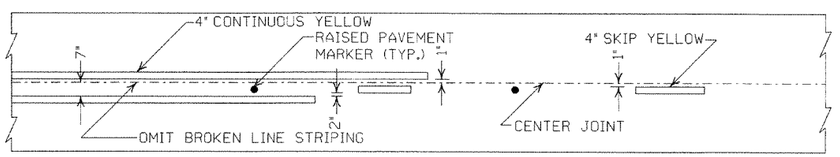
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

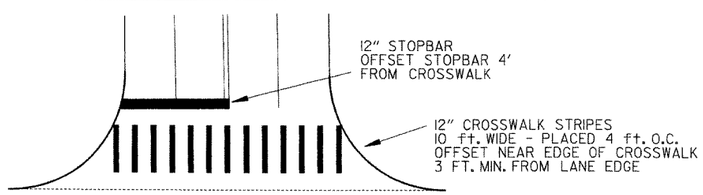


ASPHALT PAVEMENT



CONCRETE PAVEMENT

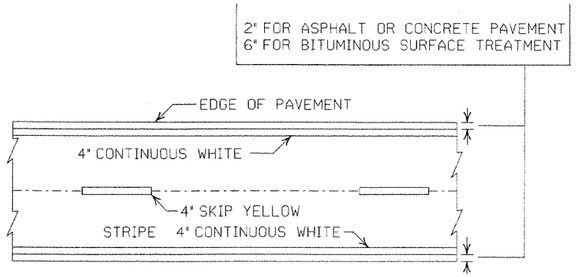
STRIPING AT ADJACENT NO PASSING LANES



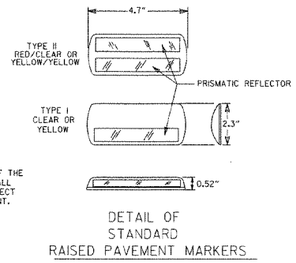
CROSSWALK AND STOPBAR DETAILS

NOTES:

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



PAVEMENT EDGE LINE MARKING



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

DETAIL OF STANDARD RAISED PAVEMENT MARKERS

GENERAL NOTES:

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

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

NOTE:

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

DATE	REVISION	FILMED
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

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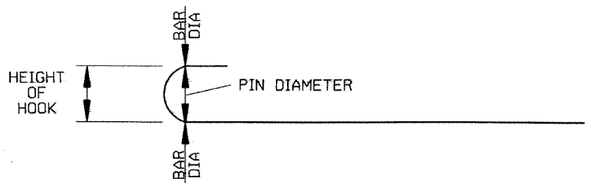
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

STEEL FABRICATION: REINFORCING STEEL FABRICATION SHALL CONFORM TO THE DIMENSIONS LISTED IN THE TABLE BELOW:

BAR SIZE	PIN DIAMETER	HOOK EXTENSION "K"
3	2¼"	4"
4	3 "	4½"
5	3¾"	5"
6	4½"	6"
7	5¼"	7"
8	6"	8"

IF THE OVERALL HEIGHT OF THE HOOK (SEE DIAGRAM BELOW) FOR A "b", "b1", "b2" or "b3" BENT BAR IS GREATER THAN THE CORRESPONDING TOP OR BOTTOM SLAB THICKNESS, LESS 2¾ INCHES, EACH BENT BAR SHALL BE REPLACED WITH ONE HOOKED BAR AND ONE STRAIGHT BAR, USING LENGTHS AS SHOWN IN THE TABLE BELOW. THE TWO BARS SHALL BE THE SAME DIAMETER AS, AND PLACED AT THE SAME SPACING AS, THE "b", "b1", "b2" OR "b3" BENT BARS THEY REPLACE.



NOTE: DIMENSIONS OF BARS ARE MEASURED OUT TO OUT OF BARS.

OVERALL HEIGHT OF HOOKED BAR DIAGRAM

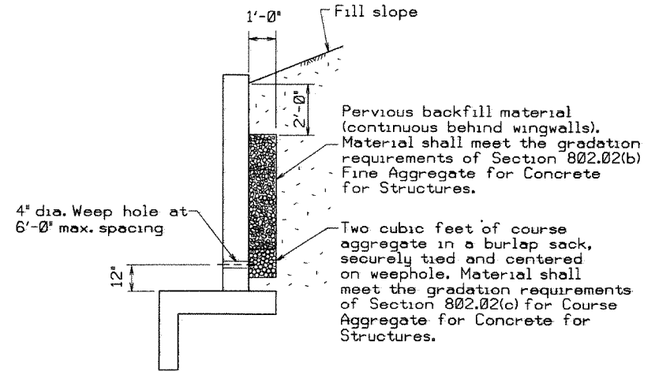
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

FOR SKEWED CULVERTS, THE REPLACEMENT STRAIGHT BAR MAY HAVE TO BE CUT IN FIELD TO FIT.

REPLACEMENT BAR LENGTHS TABLE

BAR SIZE: "b", "b1", "b2" OR "b3"	LENGTH OF HOOKED BAR	LENGTH OF STRAIGHT BAR
#4	L + 1'-0"	SEE "c" BAR LENGTH
#5	L + 1'-2"	SEE "c" BAR LENGTH
#6	L + 1'-4"	SEE "c" BAR LENGTH
#7	L + 1'-8"	SEE "c" BAR LENGTH
#8	L + 1'-10"	SEE "c" BAR LENGTH
#9	L + 2'-6"	SEE "c" BAR LENGTH

L = "OW" - 3 INCHES



WINGWALL DRAINAGE DETAIL

REINFORCED CONCRETE BOX CULVERT GENERAL NOTES

CONCRETE SHALL BE CLASS S WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI.

REINFORCING STEEL SHALL BE AASHTO M 31 OR M 53, GRADE 60.

CONSTRUCTION AND MATERIALS FOR WINGWALL DRAINAGE, INCLUDING WEEP HOLES AND GRANULAR MATERIAL, SHALL BE SUBSIDIARY TO THE BID ITEM, "CLASS S CONCRETE".

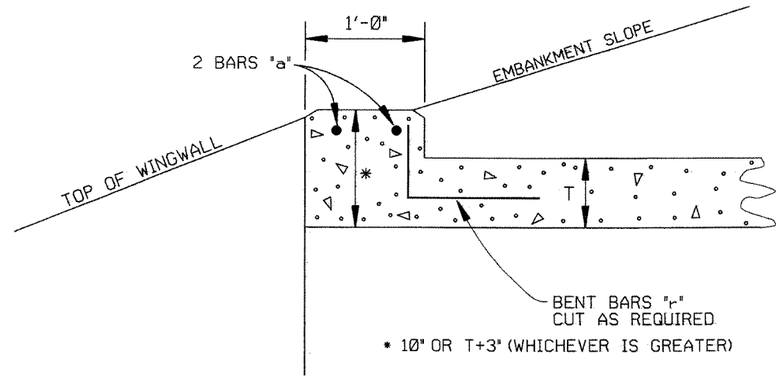
MEMBRANE WATERPROOFING SHALL CONFORM TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS.

MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

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 ½ INCH.

WEEP HOLES IN WINGWALLS: THE MAXIMUM HORIZONTAL SPACING OF WEEP HOLES IN WINGWALLS SHALL BE 6'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND PLACED 12" ABOVE TOP OF WINGWALL FOOTING.

THE REQUIREMENTS SHOWN ON THIS DRAWING SHALL SUPERCEDE THE CORRESPONDING REQUIREMENTS ON ALL REINFORCED CONCRETE BOX CULVERT STANDARD DRAWINGS.



NOTE: FOR ALL SKEWED R.C. BOX CULVERTS THE LENGTH "K" OF THE MODIFIED HEADWALL SHALL BE EQUAL TO THE ROADWAY LENGTH "RL". THE ENDS OF THE HEADWALL SHALL BE CONSTRUCTED PARALLEL TO THE SKEW ANGLE OF THE BOX CULVERT.

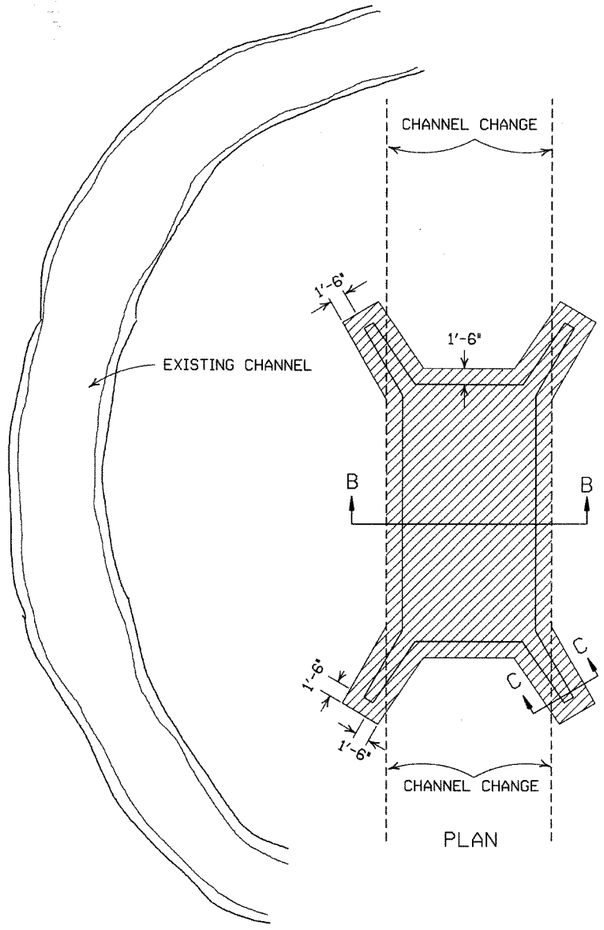
R.C. BOX CULVERT HEADWALL MODIFICATIONS

DATE	REVISION	DATE FILMED
05-25-06	REV. GEN. NOTES AND DETAILS FOR WEEP HOLES; BAR DIAGRAM	
8-16-01	ADDED WINGWALL DRAINAGE DETAIL/EDITED GEN. NOTES	
10-18-96	REV. ASTM REF. TO AASHTO & ADDED BAR DIAGRAM	
10-12-95	MOVED SOLID SODDING DETAIL TO RCB-2	
6-2-94	ADDED SOLID SODDING PLAN DETAIL	
8-5-93	REVISED PIN DIAMETER TO SPECS.	
8-15-91	DRAWN AND ISSUED	

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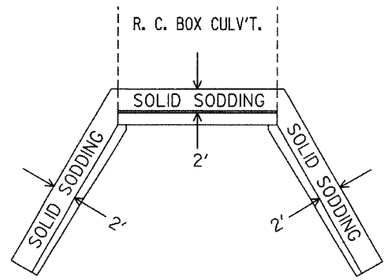
REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1



PLAN

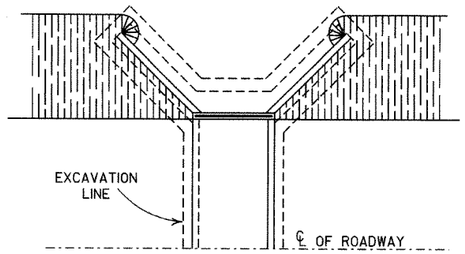
SOLID SODDING



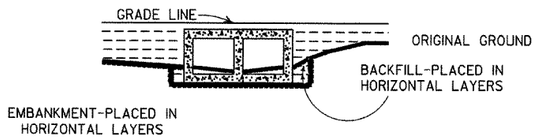
PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

NOTE: LENGTH MEASURED ALONG THE CENTER OF 2' STRIP OF SOLID SODDING.

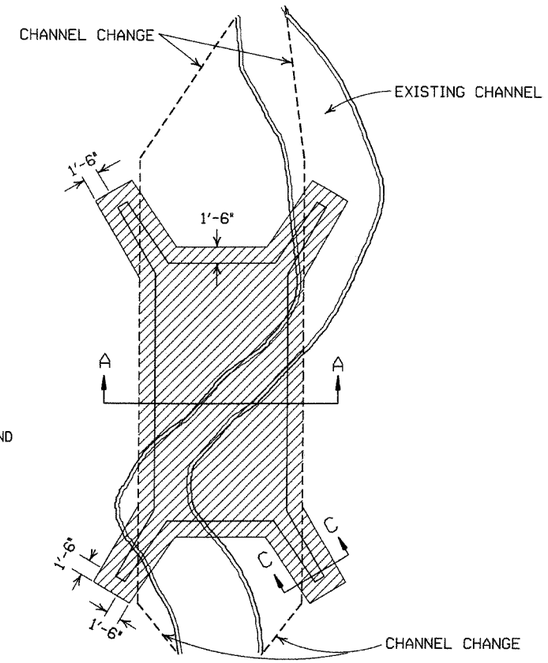


PLAN

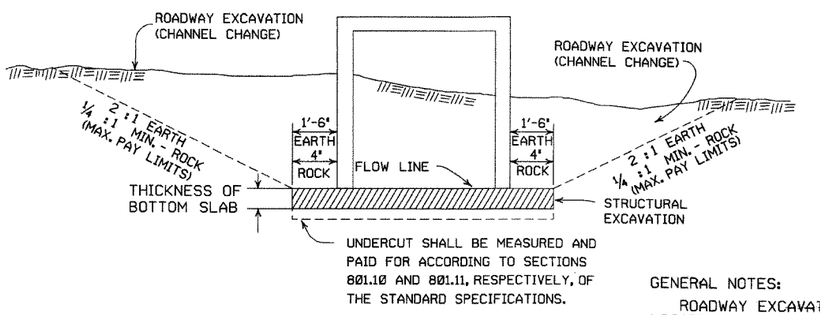


LONGITUDINAL SECTION

BACKFILL DETAILS FOR BOX CULVERT

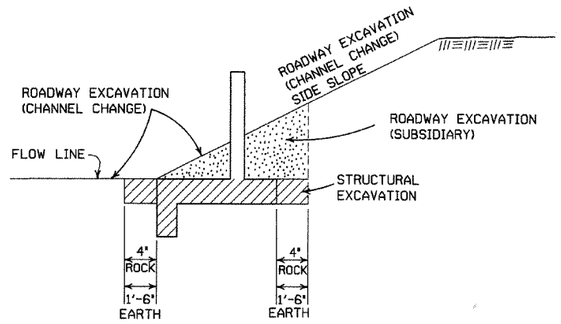


PLAN

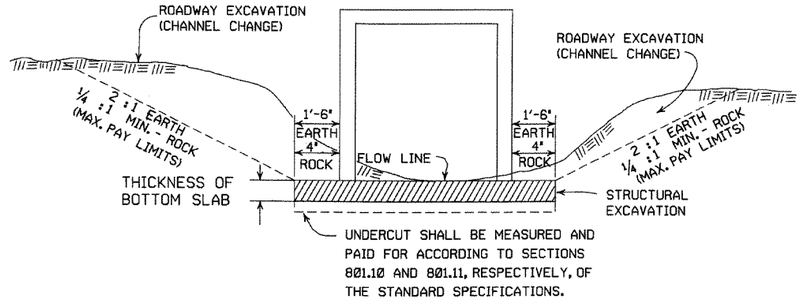


SECTION B-B

DETAILS FOR NEW CHANNELS



SECTION C-C



SECTION A-A

DETAILS THROUGH EXISTING CHANNELS

GENERAL NOTES:

ROADWAY EXCAVATION (CHANNEL CHANGE) WILL BE PAID FOR AT R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS ACTUALLY CUT AND WILL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS ABOVE THE FLOW LINE. ROADWAY EXCAVATION (CHANNEL CHANGE) SHALL BE MEASURED BY CROSS SECTIONS AND VOLUMES COMPUTED BY AVERAGE END AREA METHOD. ALL CHANNEL CHANGES SHALL BE BROUGHT TO GRADE PRIOR TO MAKING ANY EXCAVATION FOR STRUCTURES.

EXCAVATION FOR STRUCTURES WILL BE PAID FOR AT ALL R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS SHOWN AND SHALL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS BELOW THE CHANNEL FLOW LINE.

ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.

DATE	REVISION	FILMED
11-20-03	REVISED SECTION A-A NOTE	
8-22-02	REVISED SECTION B-B NOTE	
10-12-95	COMBINED 1891B AND 1888A	
1-4-83	REVISED GENERAL NOTES AND ADDED MAXIMUM PAY LIMIT NOTES.	674-1-4-83
2-2-76	EXCAV. PAY LIMITS	917-2-2-76
10-2-72	REVISED AND REDRAWN	564-10-16-72

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EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS

STANDARD DRAWING RCB-2

SUPERELEVATION TABLE FOR ONE - WAY TRAFFIC

DEGREE OF CURVE	30 MPH e	30 MPH Ls (FT) MINIMUM	30 MPH Ls (FT) DESIRABLE	40 MPH e	40 MPH Ls (FT) MINIMUM	40 MPH Ls (FT) DESIRABLE	50 MPH e	50 MPH Ls (FT) MINIMUM	50 MPH Ls (FT) DESIRABLE	55 MPH e	55 MPH Ls (FT) MINIMUM	55 MPH Ls (FT) DESIRABLE	60 MPH e	60 MPH Ls (FT) MINIMUM	60 MPH Ls (FT) DESIRABLE	65 MPH e	65 MPH Ls (FT) MINIMUM	65 MPH Ls (FT) DESIRABLE	70 MPH e	70 MPH Ls (FT) MINIMUM	70 MPH Ls (FT) DESIRABLE
0° 15′	N. C.			N. C.			N. C.			N. C.			N. C.			N. C.			N. C.		
0° 30′	N. C.			N. C.			N. C.			N. C.			N. C.			N. C.			N. C.		
0° 45′	N. C.			N. C.			R. C.			R. C.			R. C.			R. C.			R. C.		
1° 00′	N. C.			N. C.			0.021			0.022			0.023			0.025			0.028		
1° 15′	N. C.			R. C.			0.026			0.026			0.026			0.028			0.031		
1° 30′	N. C.			0.021			0.031			0.032			0.030			0.033			0.037		
1° 45′	N. C.			0.025			0.036			0.037			0.037			0.041			0.046		
2° 00′	R. C.			0.028	175		0.040	200		0.043	225		0.043	250		0.048	250		0.054	275	
2° 15′	R. C.			0.031			0.045			0.048			0.049			0.055			0.062		
2° 30′	0.021			0.034			0.049			0.053			0.055			0.061			0.070		
2° 45′	0.023			0.037			0.053			0.058			0.061			0.067			0.078	300	
3° 00′	0.025			0.040			0.057			0.063			0.067			0.072			0.085	315	400
3° 15′	0.027	150		0.043			0.061			0.067	230		0.072	260		0.077	315		0.091	335	
3° 30′	0.029			0.046			0.065	205		0.072	245		0.078	275		0.083	335		0.096	350	
3° 45′	0.031		250	0.049			0.069	215		0.076	255		0.082	285		0.088	350		0.098	360	450
4° 00′	0.033			0.051			0.072	225		0.080	265		0.086	295		0.093	365		0.100	360	
4° 30′	0.037			0.056			0.078	240		0.087	280		0.093	305		0.096	315				
5° 00′	0.040			0.061			0.083	250		0.091	295		0.098	320		0.099	350				
5° 30′	0.043			0.066	185		0.088	260		0.094	300	400									
6° 00′	0.046			0.070	190		0.092	270		0.096	305										
6° 30′	0.050			0.074	200		0.095	280	350	0.100	315										
7° 00′	0.053			0.078	210		0.098	285													
7° 30′	0.056			0.081	215		0.099	290													
8° 00′	0.058			0.084	220		0.100	290													
8° 30′	0.061			0.087	225	300															
9° 00′	0.063			0.089	230																
10° 00′	0.068	160		0.094	235																
11° 00′	0.072	170		0.097	250																
12° 00′	0.076	175		0.099	250																
13° 00′	0.080	180		0.100	250																
14° 00′	0.083	190																			
15° 00′	0.086	195																			
16° 00′	0.089	200																			
17° 00′	0.091	200																			
18° 00′	0.093	205																			
19° 00′	0.095	210																			
20° 00′	0.097	215	300																		
21° 00′	0.098	215																			
22° 00′	0.099	215																			
23° 00′	0.099	215																			
24° 00′	0.100	220																			

D MAX = 24° 45′ | D MAX = 13° 15′ | D MAX = 8° 15′ | D MAX = 6° 30′ | D MAX = 5° 15′ | D MAX = 4° 15′ | D MAX = 3° 30′

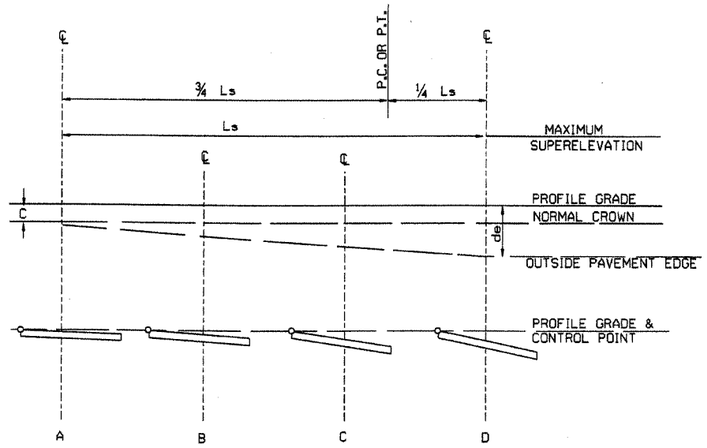
GENERAL NOTES

1. ON PAVEMENT WITH ONE-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE PROFILE GRADE POINT.
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR L_s MAY BE ROUNDED IN MULTIPLES OF 25 FT. OR 50 FT. TO PERMIT SIMPLER CALCULATIONS.
4. MINIMUM L_s VALUES MAY BE USED FOR RAMPS; DESIRABLE VALUES SHALL APPLY TO MAIN LANES.
5. DIVIDED PAVEMENTS WIDER THAN 4 LANES SHALL HAVE ADDITIONAL TRANSITION LENGTHS AS FOLOWS:

6 LANE DIVIDED---------+20%
8 LANE DIVIDED---------+50%

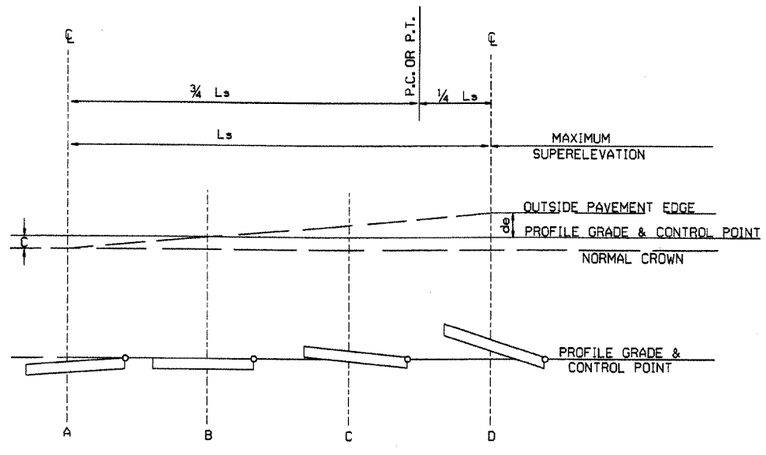
ABBREVIATIONS

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



ONE-WAY TRAFFIC
INSIDE LANE

SUPERELEVATION FORMULA = $S = -\frac{L(de-C)}{L_s} - C$



ONE-WAY TRAFFIC
OUTSIDE LANE

SUPERELEVATION FORMULA = $S = +\frac{L(de+C)}{L_s} - C$

DATE	REVISION	DATE FILMED
01-09-87	ISSUED	578-1-15-87

ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR ONE-WAY TRAFFIC

STANDARD DRAWING SE-1

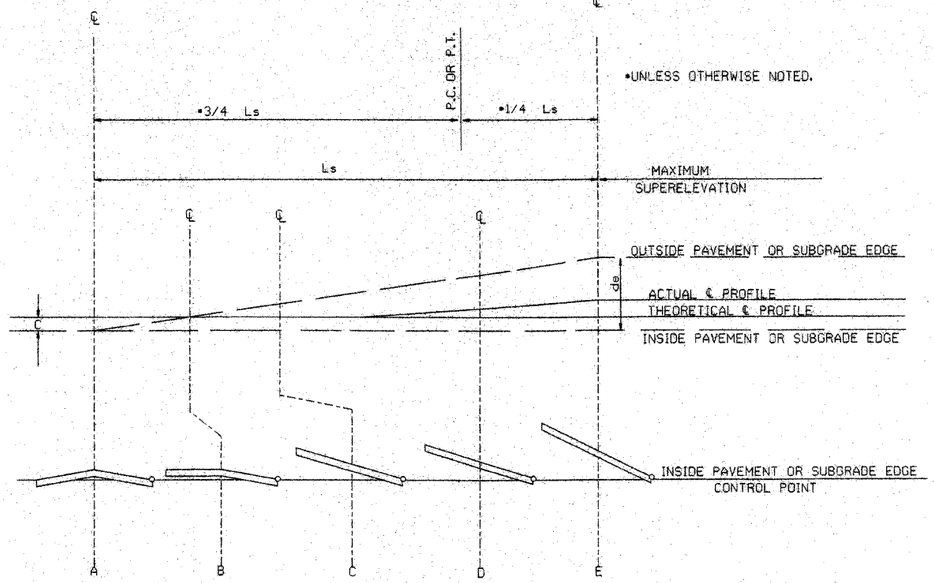
SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH e	30 MPH Ls (FT) MINIMUM	30 MPH Ls (FT) DESIRABLE	40 MPH e	40 MPH Ls (FT) MINIMUM	40 MPH Ls (FT) DESIRABLE	50 MPH e	50 MPH Ls (FT) MINIMUM	50 MPH Ls (FT) DESIRABLE	55 MPH e	55 MPH Ls (FT) MINIMUM	55 MPH Ls (FT) DESIRABLE	60 MPH e	60 MPH Ls (FT) MINIMUM	60 MPH Ls (FT) DESIRABLE	70 MPH e	70 MPH Ls (FT) MINIMUM	70 MPH Ls (FT) DESIRABLE
0° 15′	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 30′	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 45′	N.C.			N.C.			R.C.			0.022			0.023			0.028		
1° 00′	N.C.			N.C.			0.021			0.026			0.030			0.037		
1° 15′	N.C.			R.C.			0.026			0.032			0.037			0.046		
1° 30′	N.C.			0.021			0.031	200		0.037	225		0.043	250		0.054	275	300
1° 45′	N.C.			0.025	175		0.036			0.043			0.049			0.062		
2° 00′	R.C.			0.028			0.040			0.048			0.055			0.070		
2° 15′	R.C.			0.031			0.045		250	0.053			0.061			0.078	300	350
2° 30′	0.021			0.034			0.049			0.058			0.067			0.085	315	
2° 45′	0.023			0.037			0.053			0.063			0.072			0.091	335	
3° 00′	0.025			0.040		200	0.057			0.067	230		0.077	260		0.096	350	400
3° 15′	0.027			0.043			0.061			0.072	245		0.082	275		0.098	360	
3° 30′	0.029			0.046			0.065	205		0.076	255		0.086	285		0.100	360	
3° 45′	0.031			0.049			0.069	215		0.080	265		0.090	295				
4° 00′	0.033			0.051			0.072	225		0.083	270		0.093	305	350			
4° 30′	0.037			0.056			0.078	240		0.087	280		0.096	315				
5° 00′	0.040			0.061			0.083	250		0.091	295		0.098	320				
5° 30′	0.043			0.066	185		0.088	260		0.094	300	350						
6° 00′	0.046			0.070	190		0.092	270		0.096	305							
6° 30′	0.050			0.074	200		0.095	280	300	0.100	315							
7° 00′	0.053			0.078	210		0.098	285										
7° 30′	0.056			0.081	215		0.099	290										
8° 00′	0.058			0.084	220		0.100	290										
8° 30′	0.061			0.087	225	250												
9° 00′	0.063			0.089	230													
10° 00′	0.068	160		0.094	235													
11° 00′	0.072	170		0.097	250													
12° 00′	0.076	175		0.099	250													
13° 00′	0.080	180		0.100	250													
14° 00′	0.083	190																
15° 00′	0.086	195																
16° 00′	0.089	200																
17° 00′	0.091	200																
18° 00′	0.093	205																
19° 00′	0.095	210																
20° 00′	0.097	215	250															
21° 00′	0.098	215																
22° 00′	0.099	215																
23° 00′	0.099	215																
24° 00′	0.100	220																

D MAX = 24° 45′ | D MAX = 13° 15′ | D MAX = 8° 15′ | D MAX = 6° 30′ | D MAX = 5° 15′ | D MAX = 3° 30′

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 INNER SUBGRADE POINT OR INNER PAVEMENT EDGE

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

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

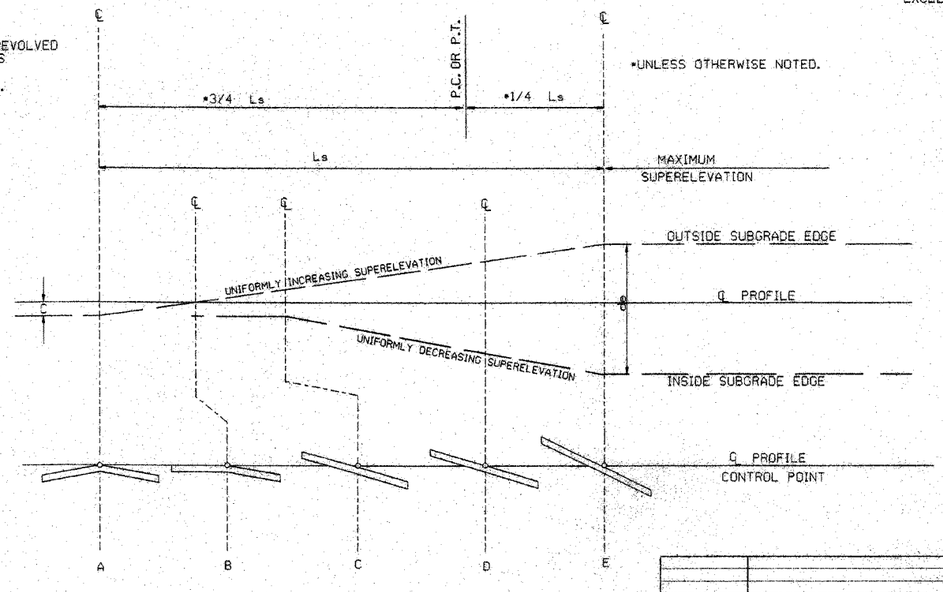
GENERAL NOTES

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.



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

DATE	REVISION	DATE FILMED
10-18-96	ADDED FORMULA	10-18-96
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

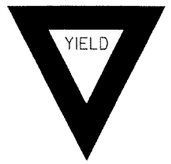
FILE STDSE2.DGN

R1-1



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

R1-2



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

R2-1



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

R2-5A



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

R2-5C



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

R4-1



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

R4-2



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

R5-1



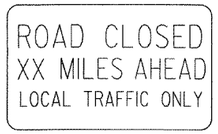
STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

R11-2



48"X30"

R11-3A



60"X30"

R11-4



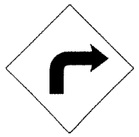
60"X30"

RSP-1



48"X30"

W1-1



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

W1-2



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

W1-3



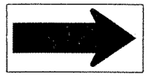
STD. 48"X48"

W1-4



STD. 48"X48"

W1-6



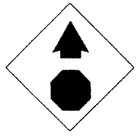
STD. 48"X24"
SPECIAL 60"X30"

W1-8



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

W3-1



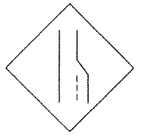
STD. 36"X36"
SPECIAL 48"X48"

W3-2



STD. 36"X36"
SPECIAL 48"X48"

W4-2



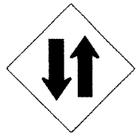
STD. 36"X36"
FWY. 48"X48"

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"

W13-1



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



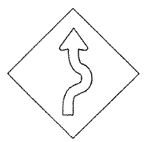
STD. 30"X30"
SPECIAL 36"X36"

W21-5



STD. 30"X30"
SPECIAL 36"X36"

W24-1



STD. 36"X36"

W1-4b



STD. 48"X48"

R56-1



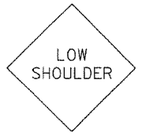
STD. 18"X18"

W8-11



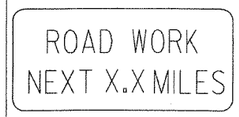
STD. 36"X36"
FWY. 48"X48"

W8-9



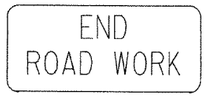
STD. 36"X36"
FWY. 48"X48"

G20-1



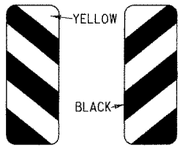
60"X24"

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

FINES DOUBLE
IN WORK ZONES *

WHEN WORKERS
ARE PRESENT **

36"X60"

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

ADVANCE DISTANCES
(XXXX)

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

GENERAL NOTES:

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

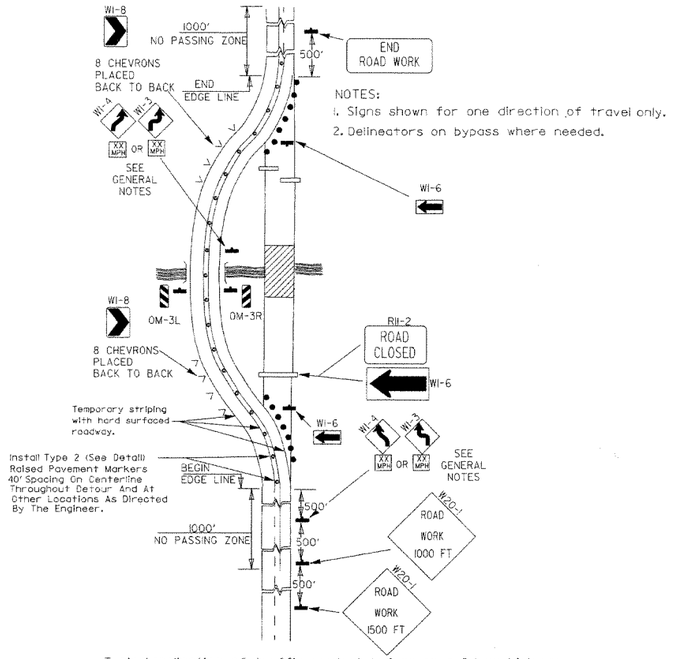
* NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY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

DATE	REVISION	FILMED
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	

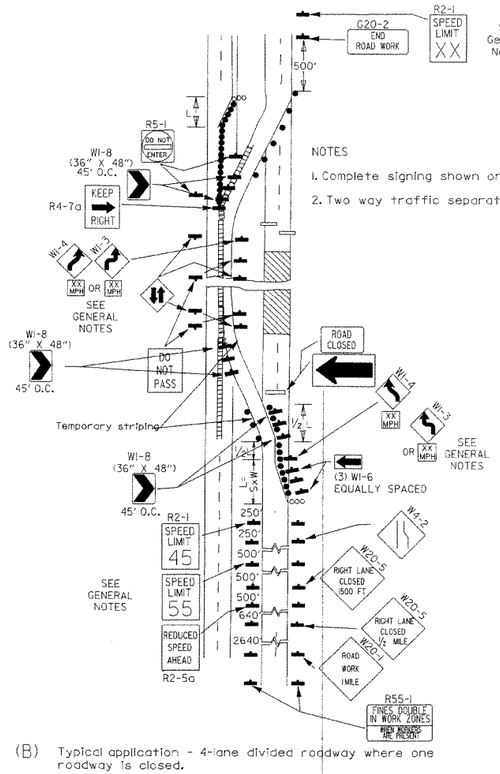
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

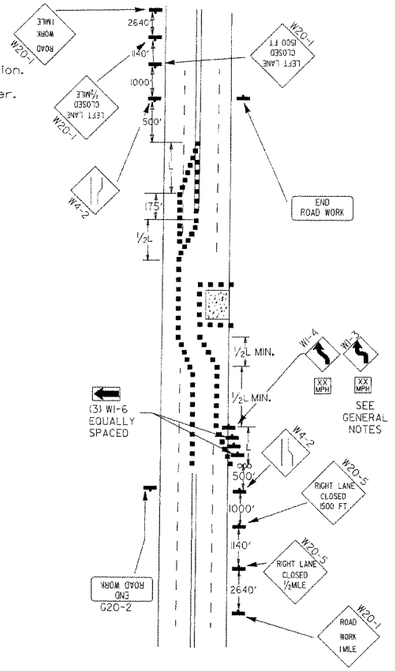
STANDARD DRAWING TC-1



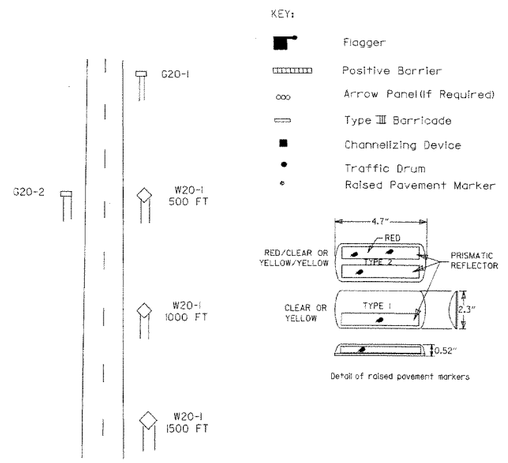
(A) Typical application of traffic control devices on a 2-lane highway where the entire roadway is closed and a bypass detour is provided.



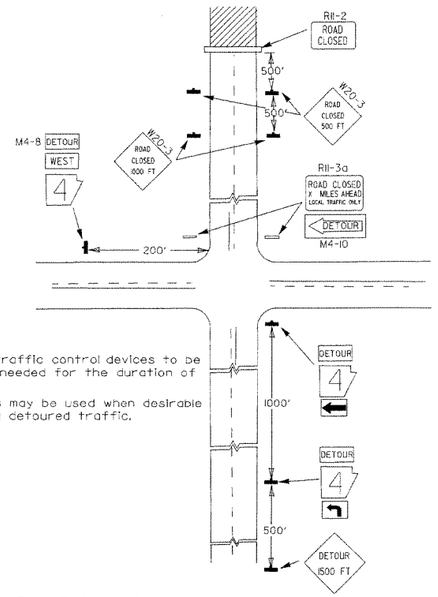
(B) Typical application - 4-lane divided roadway where one roadway is closed.



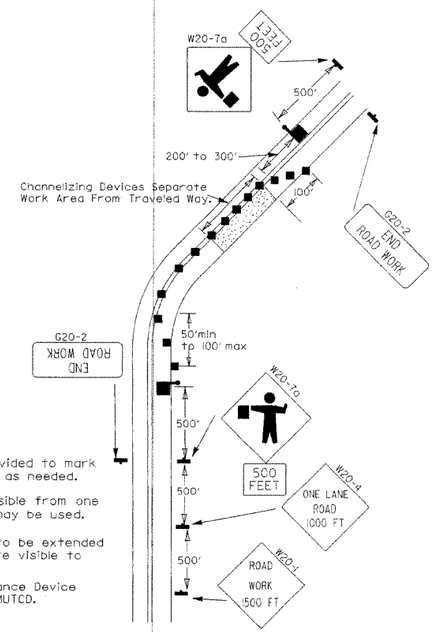
(C) Typical application - 4-lane undivided roadway where half of the roadway is closed.



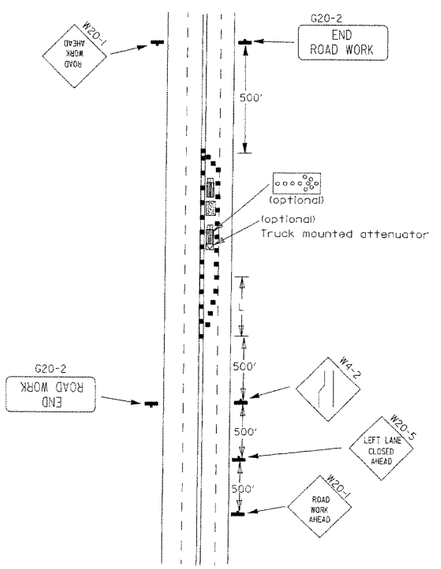
Typical advance warning sign placement



(D) Typical application - roadway closed beyond detour point.



(E) Typical application of traffic control devices on 2-lane highway where one lane is closed and flagging is provided.



(F) Typical application - 4-lane undivided roadway with inside lane closed.

Taper formulae:

$L = S \times W$ for speeds of 45mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40mph or less.

Where:

L= Minimum length of taper.

S= Numerical value of posted speed limit prior to work or 85th percentile speed.

W= Width of offset.

GENERAL NOTES:

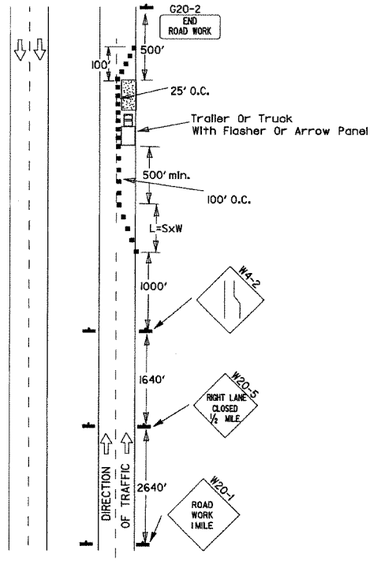
1. Advisory speed posted on WI-3 or WI-4 curve warning signs to be determined at site. Use WI-4 when speed is greater than 30mph and WI-3 when 30mph or less.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the R2-5A shall be installed at that location. Additional R2-1 45mph speed limit signs shall be installed at a maximum of 1 mile 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 1 mile intervals. At the end of the work area a R2-1(xx) shall be installed to match original speed limit.
4. The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit, or as directed by the Engineer.
5. Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
6. Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
7. Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.

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

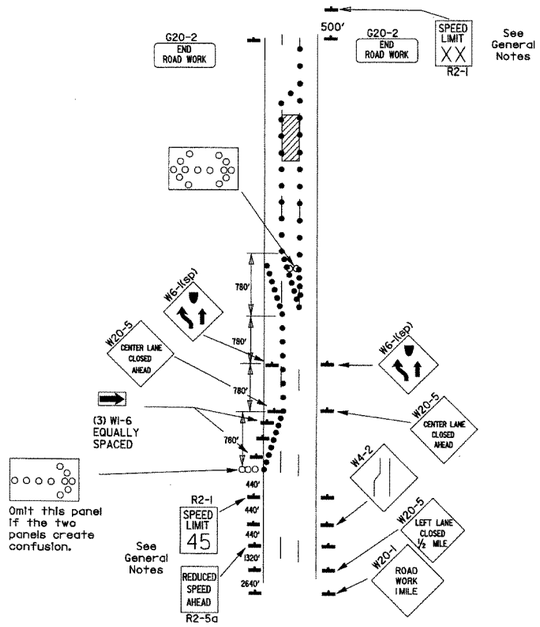
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

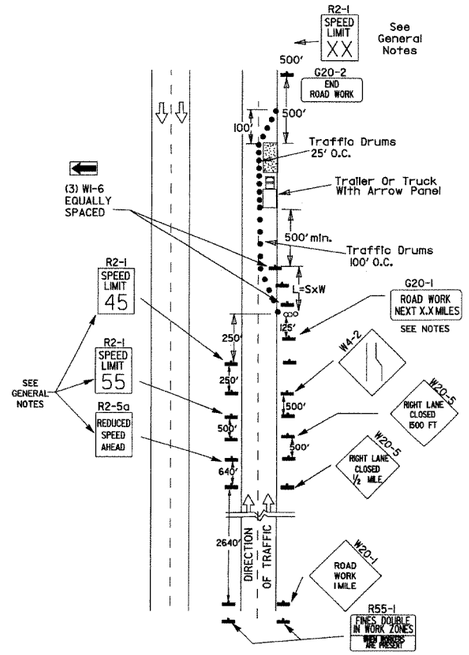
STANDARD DRAWING TC-2



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



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



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

KEY:

ooo Arrow Panel (If Required)

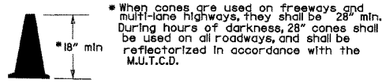
■ Channelizing Device

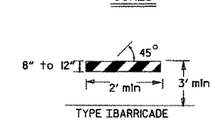
● Traffic drum

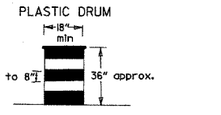
GENERAL NOTES:

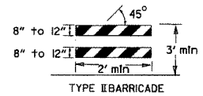
1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the R2-5A shall be installed at that location. Additional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

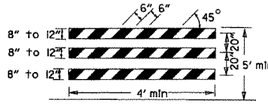
Channelizing devices



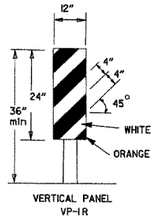








NOTE:
For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.

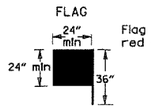


TRAFFIC CONTROL DEVICES FOR VERTICAL PAVEMENT DIFFERENTIALS

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

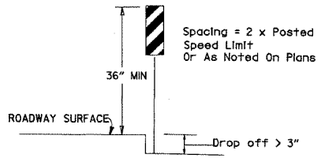
* When shown on the plans concrete barrier will be used.

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

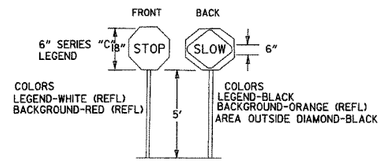


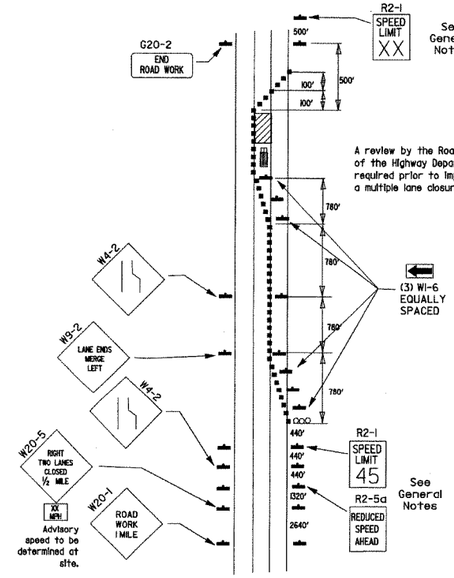
Flag shall be of good grade red material

VERTICAL PANEL PLACEMENT



STOP SLOW PADDLE





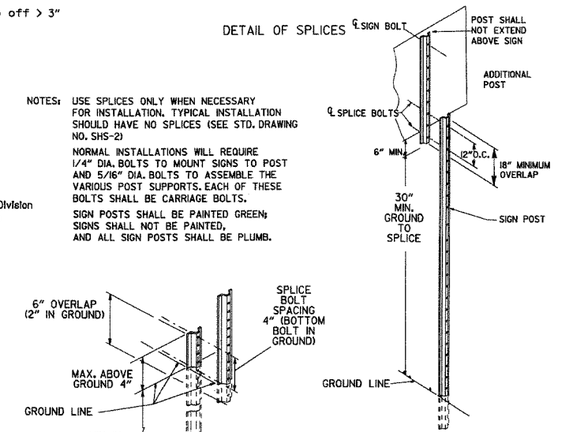
(D) Typical application - closing multiple lanes of a multilane highway.

DETAIL OF SPLICES

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

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

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



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

ARKANSAS STATE HIGHWAY COMMISSION

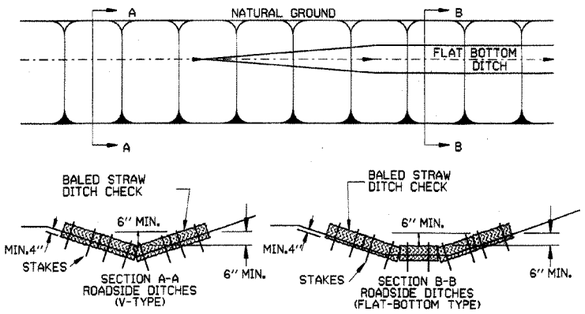
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-3

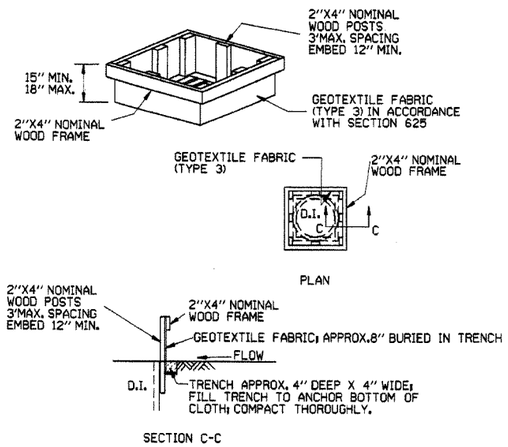
GENERAL NOTES

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.

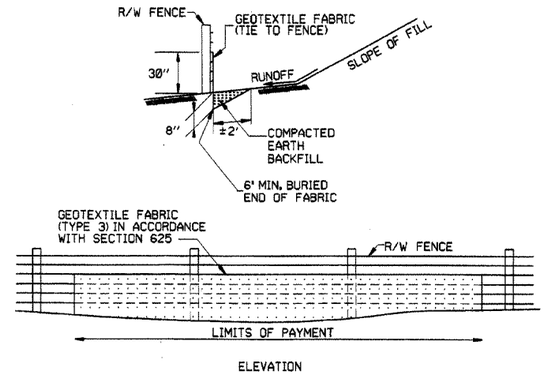
2. STRAW BALES SHALL BE KEYED INTO SOIL A MINIMUM OF 4' AND NO GAPS SHALL BE LEFT BETWEEN BALES.



BALED STRAW DITCH CHECK (E-1)



DROP INLET SILT FENCE (E-7)



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

GENERAL NOTES

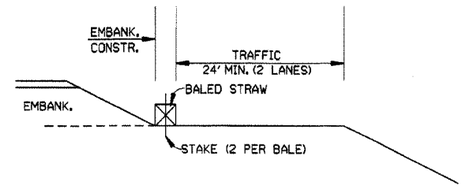
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

GENERAL NOTES

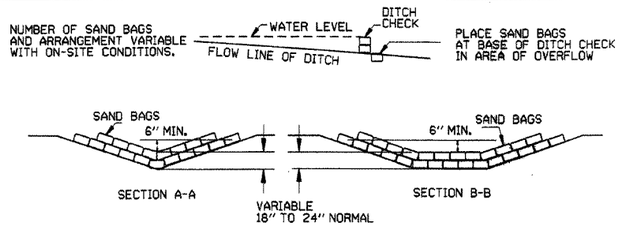
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.

2. NO GAPS SHALL BE LEFT BETWEEN BALES.

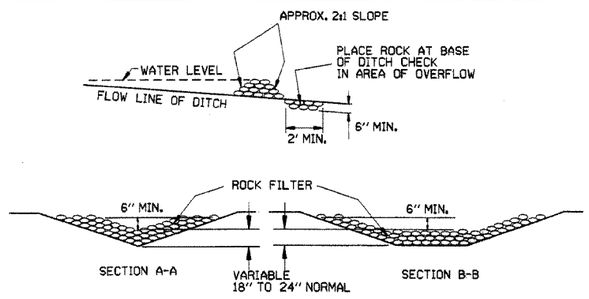
3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



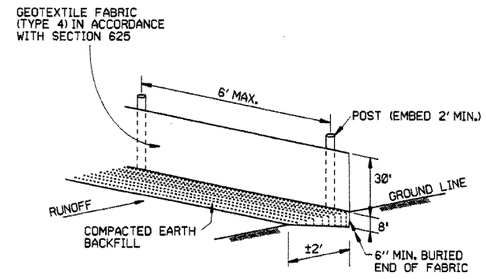
BALED STRAW FILTER BARRIER (E-2)



SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)



SILT FENCE (E-11)

GENERAL NOTES

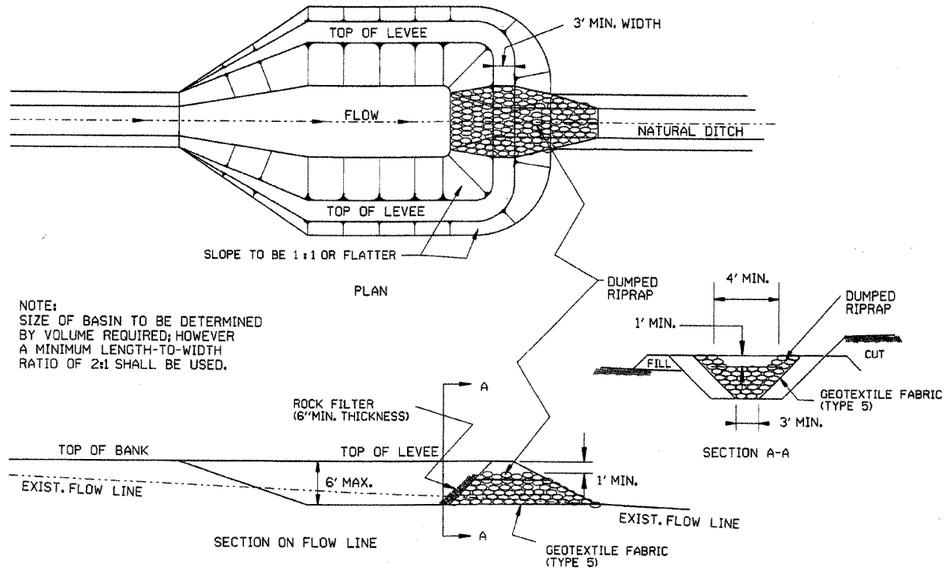
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

DATE	REVISION	FILMED
11-18-98	ADDED NOTES	11-18-98
7-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)	
7-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95
7-15-94	Rev. E-4 & E-11 Min. 13' Buried End of Fabric	
6-2-94	Revised E-1,4,7, & 11; Deleted E-2 & 3	6-2-94
4-1-93	REDRAWN	
10-1-92	REDRAWN	
8-2-76	ISSUED R.D.M.	298-7-28-76

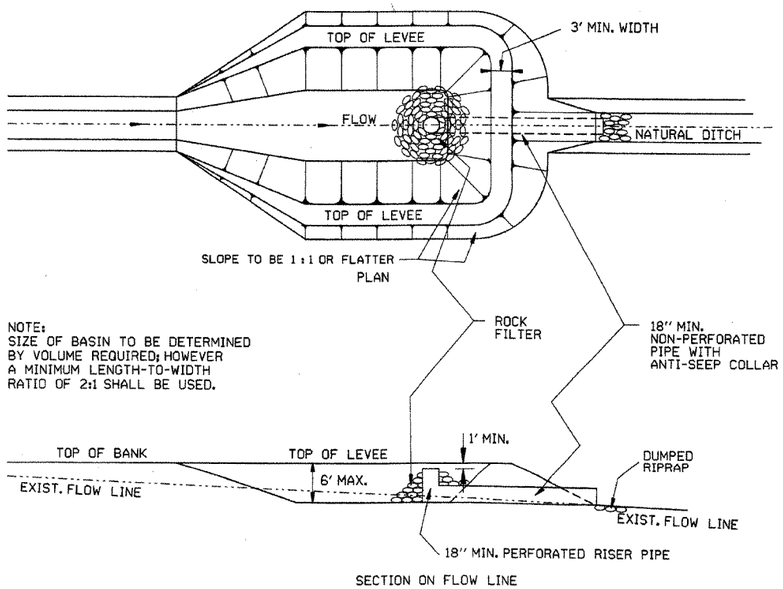
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

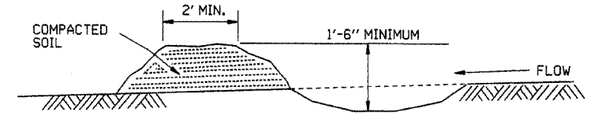
STANDARD DRAWING TEC-1



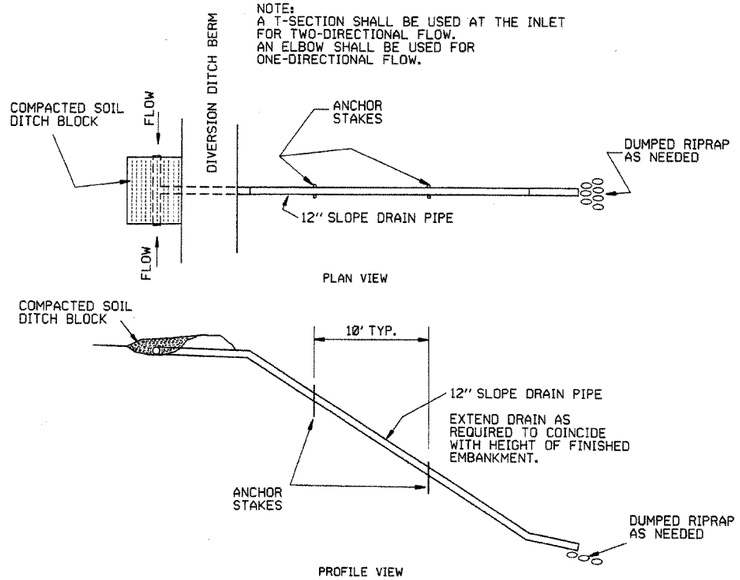
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



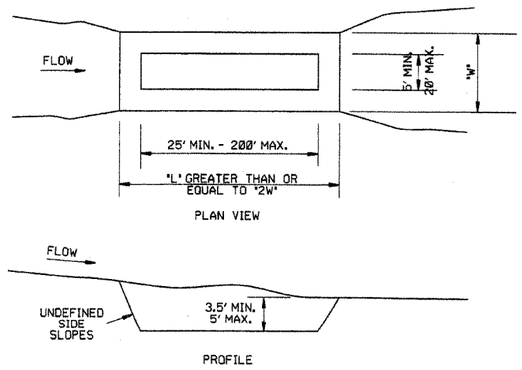
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



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

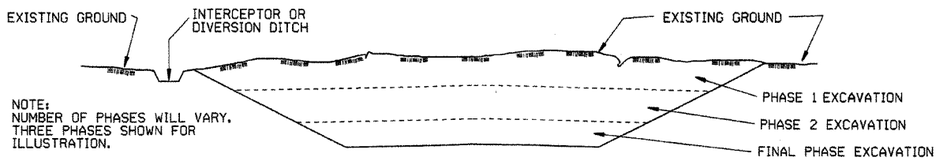
STANDARD DRAWING TEC-2

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



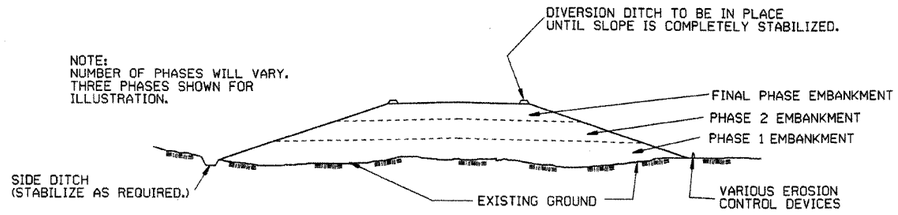
GENERAL NOTE

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

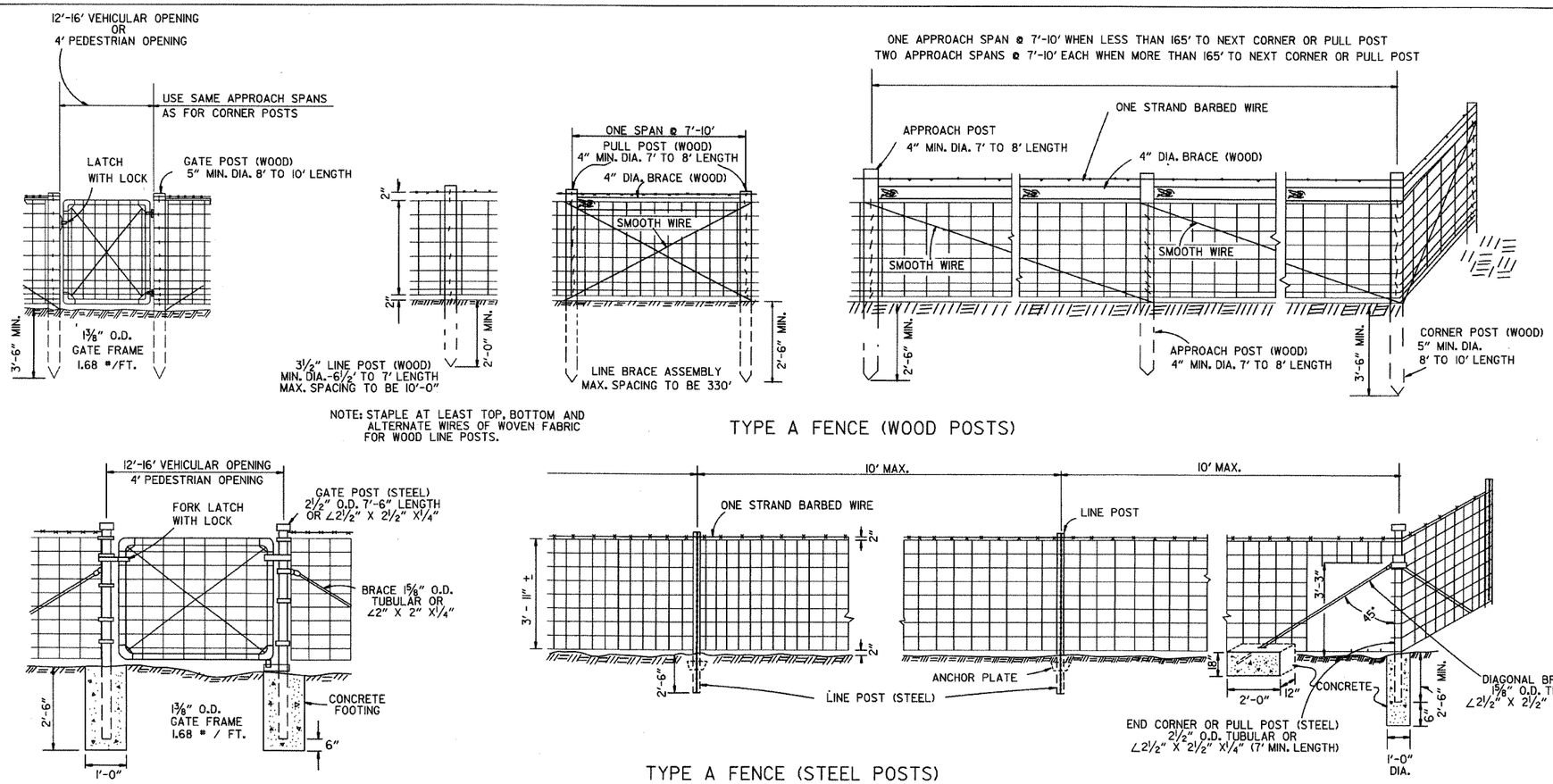
1. CONSTRUCT DIVERSION DITCHES, DITCH CHECKS, SEDIMENT BASINS, SILT FENCES, OR OTHER EROSION CONTROL DEVICES AS SPECIFIED.
2. PLACE PHASE 1 EMBANKMENT WITH PERMANENT OR TEMPORARY SEEDING. PROVIDE DIVERSION DITCHES AND SLOPE DRAINS IF EMBANKMENT CONSTRUCTION IS TO BE TEMPORARILY ABANDONED FOR A PERIOD 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

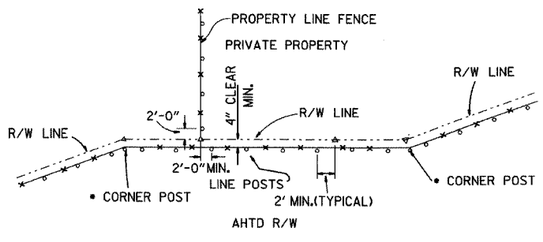
STANDARD DRAWING TEC-3



NOTE: STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.

TYPE A FENCE (WOOD POSTS)

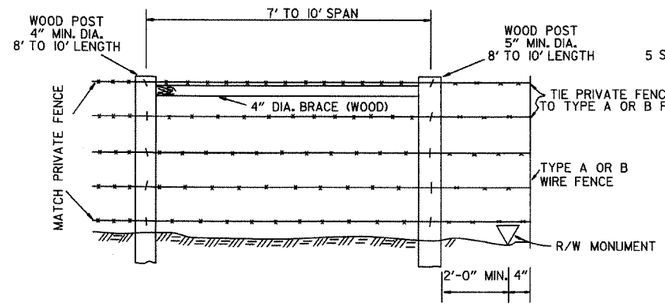
TYPE A FENCE (STEEL POSTS)



•NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

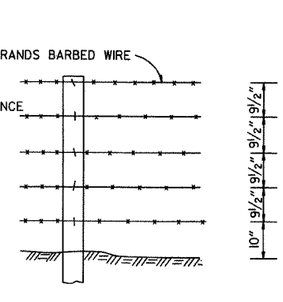
△ - R/W MONUMENTS
○ - FENCE POSTS

RIGHT-OF-WAY FENCE LOCATION



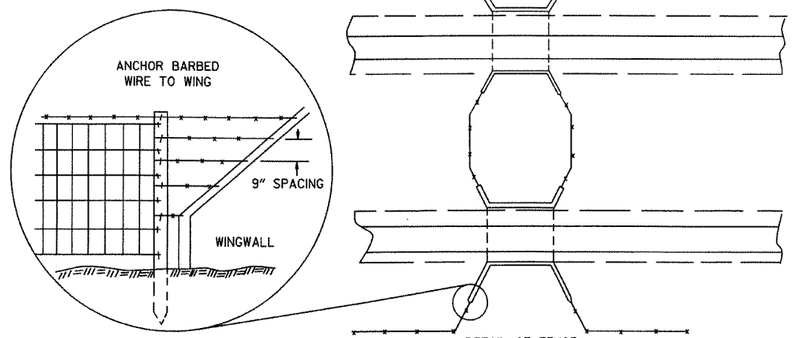
WHERE EXISTING PRIVATE FENCE CONSISTS OF STEEL POSTS, USE END POST ASSEMBLY AS SHOWN WITH TYPE A FENCE OR OTHER END POST ASSEMBLY AS APPROVED BY THE ENGINEER.

PRIVATE FENCE TERMINAL INSTALLATION



SPACING AND SIZE OF POSTS FOR TYPE B FENCE SHALL BE THE SAME AS TYPE A FENCE.

TYPE B FENCE



DETAIL OF FENCE CONSTRUCTION AT LARGE CULVERTS (5' IN HEIGHT AND OVER)

GENERAL NOTES:

STEEL LINE POSTS SHALL BE GALVANIZED, 7 FT. IN LENGTH.

TUBULAR END, CORNER, PULL, OR DIAGONAL BRACES MUST CONFORM TO THE DIMENSIONS AND WEIGHTS SPECIFIED ON STANDARD DRAWING WF-3 (CHAIN LINK).

THE CONTRACTOR SHALL FURNISH AT LEAST 25% OF WOOD LINE POSTS OF 7' LENGTHS IN ORDER TO PROVIDE SUFFICIENT SET IN SOFT GROUND OR SMALL DEPRESSIONS.

GATE HINGES AND LATCHES WITH LOCKS TO BE OF A TYPE APPROVED BY THE ENGINEER. DRIVEWAY GATES, EITHER SINGLE 12' OR 16' OR DOUBLE 6' TO 8' OPENINGS OF THE SAME TYPE AS THE PEDESTRIAN GATE, SHALL BE INSTALLED ON THE RIGHT SIDE OF EACH THROUGH LANE ROAD AT LARGE CULVERTS OR BRIDGE CROSS FENCE FOR USE BY MAINTENANCE EQUIPMENT. LOCATION OF GATES TO BE SHOWN ON THE PLANS OR AS DESIGNATED BY THE ENGINEER.

AT STREAM CROSSINGS THE FENCE SHALL NOT BE CONSTRUCTED ACROSS LARGE STREAMS. WHERE CLEARANCE IS SUFFICIENT FROM THE TOP OF BANK TO THE BRIDGE STRUCTURE, A CROSS CONNECTION SHALL BE CONSTRUCTED BETWEEN THE FENCE ON EACH SIDE OF THE ROAD. WHERE THE CLEARANCE IS NOT SUFFIEICNT, THE FENCE SHALL BE TERMINATED WITH CROSS CONNECTIONS AND END POSTS ADJACENT TO THE BRIDGE ABUTMENTS OR CULVERT WINGWALLS.

SPLICE FOR WOVEN WIRE BETWEEN PULL POST SHALL BE BY THE "WESTERN UNION METHOD" AS DESCRIBED AS FOLLOWS: THE VERTICAL WIRES FOR EACH END OF THE FENCE FABRIC SHALL BE PLACED SIDE BY SIDE AND THE PROJECTING HORIZONTAL WIRES SHALL BE WRAPPED A MINIMUM OF 4 TIMES AROUND THE HORIZONTAL WIRES OF THE FIRST WEB.

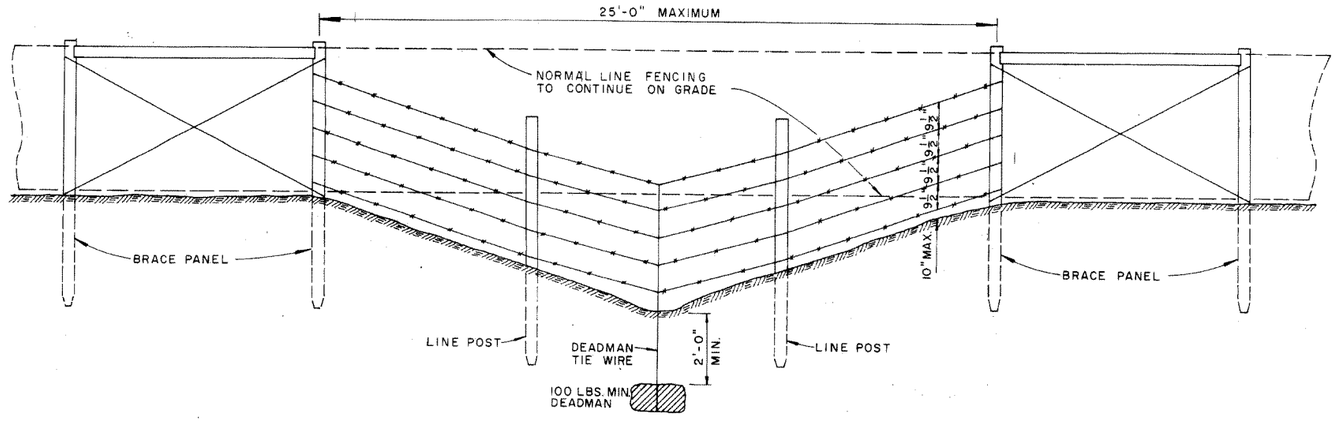
SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE "EYE METHOD": AS DESCRIBED AS FOLLOWS: THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP. THE LOOPS SHALL BE CONNECTED. AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRE A MINIMUM OF 4 TIMES FOR EACH WIRE LOOP.

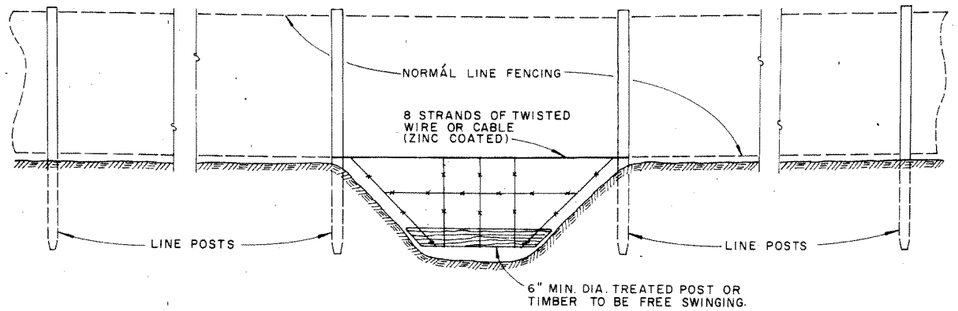
DATE	REVISION	DATE FILMED
8-22-02	REVISED GENERAL NOTES	
10-18-96	REVISED ASTM REF. TO AASHTO	
11-22-95	REVISED R-O-W LOCATION DETAIL	
6-2-94	ADDED CORNER POST NOTE	6-2-94
8-5-93	REVISED R-O-W LOCATION DETAIL	8-5-93
10-1-92	ADDED STAPLE NOTE	
8-2-90	REV'D PULL POST LENGTH	
11-30-89	DELETED CLASS CONC.	
7-15-88	ADDED SPLICE NOTES	
7-15-88	ADDED HEIGHT DIMENSION	
4-3-87	REVISED VARIOUS NOTES AND GENERAL NOTES	
11-1-84	MAX. POST SPACING	
1-4-83	MIN. DIA. LINE POST	
10-2-72	REVISED & REDRAWN	

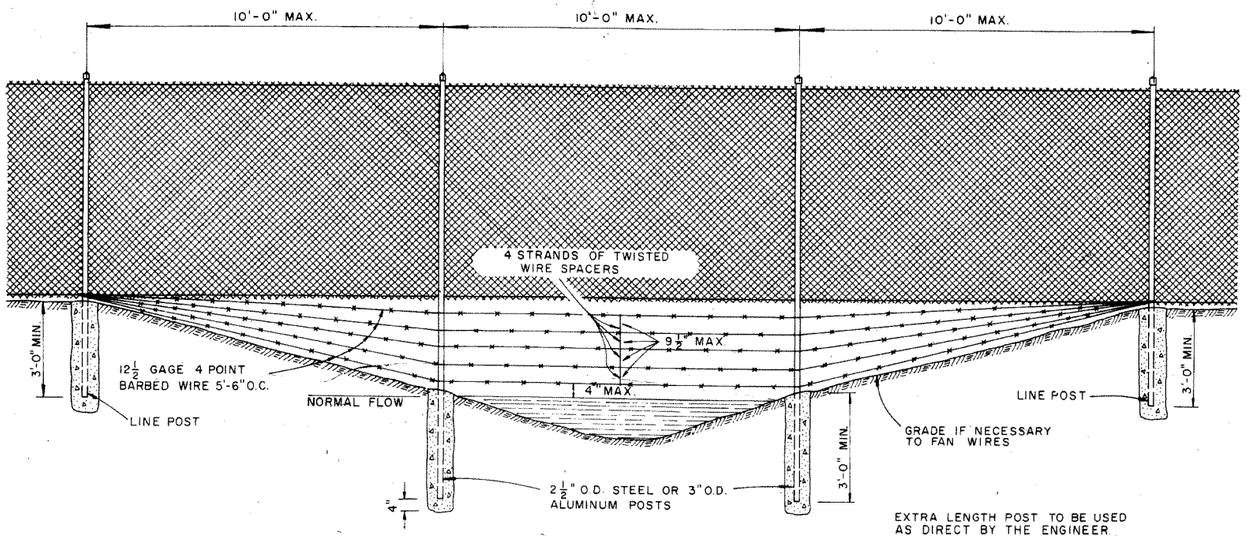
ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE
TYPE A AND B

STANDARD DRAWING WF-1







GENERAL NOTES:

THESE INSTALLATIONS TO BE USED WHERE NORMAL FENCING INSTALLATION WOULD CAUSE THE COLLECTING OF DRIFT IN THE CHANNEL OR THE DEPRESSION WILL NOT PERMIT NORMAL INSTALLATION. INSTALLATIONS WILL BE MADE ONLY WHERE DIRECTED BY THE ENGINEER.

WHEN A FENCE LINE APPROACHES A DITCH, GULLY OR DEPRESSION, THE LAST POST ON LEVEL GROUND SHALL BE PLACED CLOSE ENOUGH TO THE EDGE OF THE DROP OFF THAT THE FENCE MAY BE STRUNG TO THE POST IN THE DEPRESSION WITHOUT TOUCHING THE GROUND.

IN TERRAIN OF SUCH EXTREME IRREGULARITY THAT MINOR GRADING WILL NOT BE FEASIBLE, THE NORMAL FENCE SHALL CONTINUE ON GRADE AND THE GULLIES OR DEPRESSIONS TREATED BY AUXILIARY FENCES AS SHOWN.

PAYMENT FOR THE TYPE INSTALLATION USED WILL NOT BE MADE DIRECTLY BUT WILL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR WIRE FENCE OR CHAIN LINK FENCE.

DATE	REVISION	DATE FILM'D.
4-20-79	REVISED TOP RAIL & TENSION WIRE	676 4-20-79
10-2-72	REVISED & REDRAWN	529 10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

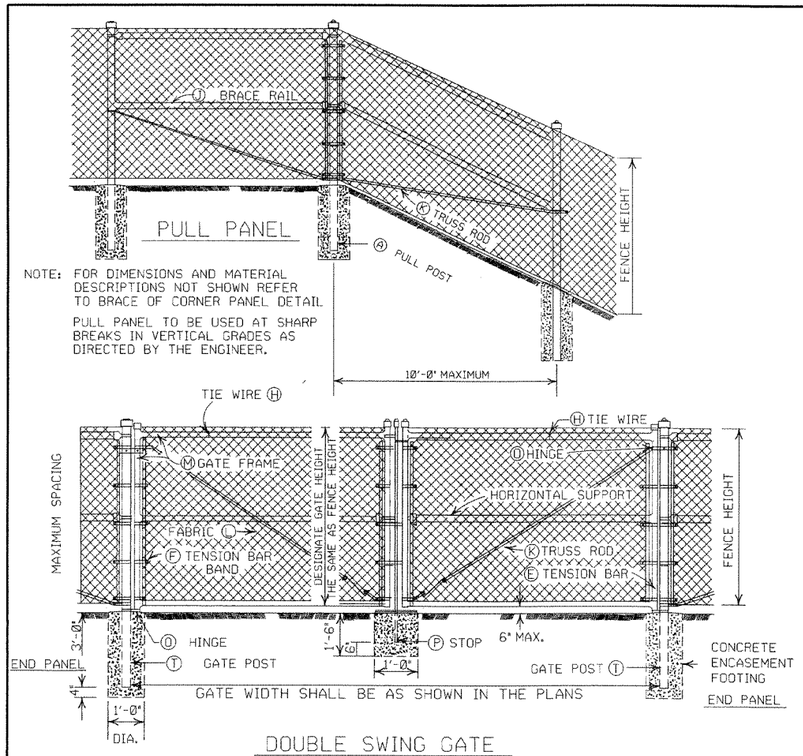
WIRE FENCE WATER GAPS

STANDARD DRAWING

WF-2

73

LM—11-71—67001—PPASCo

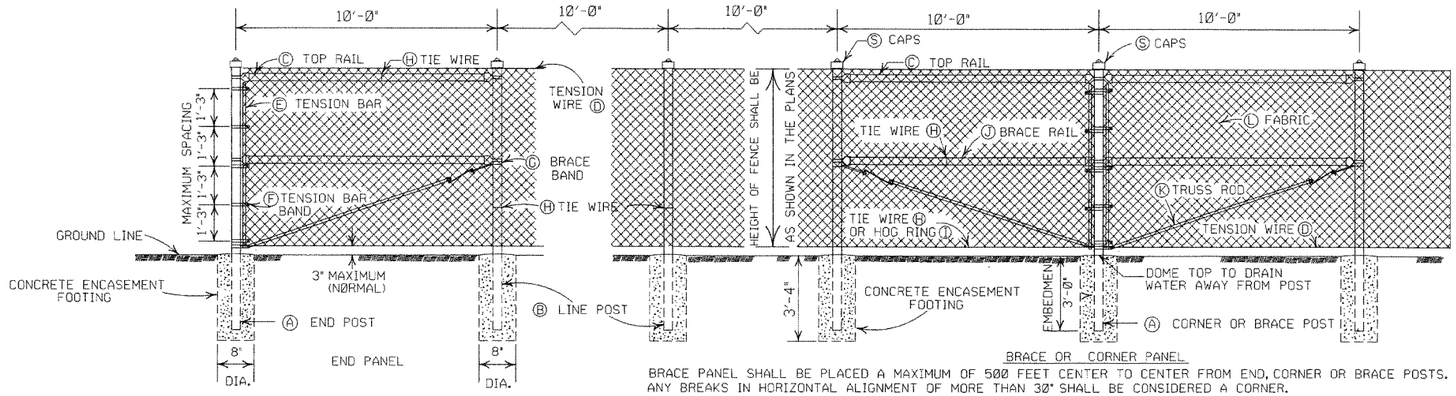


DOUBLE SWING GATE

NOTE: FOR DIMENSIONS AND MATERIAL DESCRIPTIONS NOT SHOWN REFER TO BRACE OF CORNER PANEL DETAIL

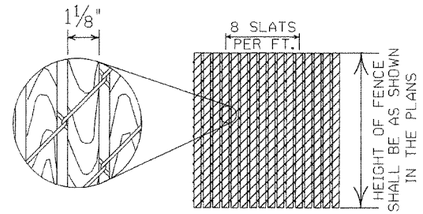
PULL PANEL TO BE USED AT SHARP BREAKS IN VERTICAL GRADES AS DIRECTED BY THE ENGINEER.

POST SPACING DETAIL



BRACE OR CORNER PANEL

BRACE PANEL SHALL BE PLACED A MAXIMUM OF 500 FEET CENTER TO CENTER FROM END, CORNER OR BRACE POSTS. ANY BREAKS IN HORIZONTAL ALIGNMENT OF MORE THAN 30° SHALL BE CONSIDERED A CORNER.



1⅛" X ¼" REDWOOD SLATS(LENGTH TO MATCH HEIGHT OF FENCE)

DETAIL OF REDWOOD SLAT INSTALLATION

(WHERE APPLICABLE)

GENERAL NOTES:

(C) CHAIN LINK FENCE BEING PLACED ON PRIVATE PROPERTY SHALL INCLUDE A TOP RAIL. ALL LABOR, MATERIALS, EQUIPMENT, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER LIN. FT. OF CHAIN LINK FENCE.

(D) TENSION WIRE: SHALL BE SECURED TO ALL TERMINAL, PULL, BRACE OR CORNER POSTS WITH TENSION BAR BANDS.

(J) BRACE RAIL: BRACE RAILS SHALL BE PROVIDED AT ALL TERMINAL, PULL, BRACE OR CORNER POSTS HALFWAY BETWEEN THE TOP RAIL AND GROUND LEVEL WHEN TOPRAIL IS SPECIFIED AND TWELVE INCHES (12") DOWN FROM TOP OF FABRIC WHEN TOP TENSION WIRE IS SPECIFIED. BRACE RAIL SHALL EXTEND FROM SUCH POST TO THE FIRST ADJACENT LINE POST.

(L) FABRIC: SHALL CONFORM TO THE SPECIFICATIONS.

(M) GATE FRAMES: SHALL BE CONSTRUCTED OF TUBULAR MEMBERS ASSEMBLED BY USE OF HEAVY PRESSED STEEL, MALLEABLE FITTINGS OR BY WELDING. ALL GATES SHALL HAVE ONE HORIZONTAL SUPPORT EXTENDING THE WIDTH OF THE GATE AT THE MIDPOINTS OF VERTICAL FRAME MEMBERS. THE COMPLETE FRAME SHALL BE RIGID AND HAVE AMPLE STRENGTH TO BE FREE FROM SAG AND TWIST.

(O) HINGES: SHALL BE OF HEAVY PATTERN, OF ADEQUATE STRENGTH FOR GATE, AND WITH LARGE BEARING SURFACES FOR CLAMPING IN POSITION. THE HINGE SHALL BE OF THE PROPER TYPE TO ALLOW FOR THE DESIGNATED DEGREE OF SWING. THE HINGE SHALL NOT TWIST OR TURN UNDER THE ACTION OF THE GATE. THE GATES SHALL BE CAPABLE OF BEING OPENED AND CLOSED EASILY BY ONE PERSON.

(P) LATCHES AND STOPS: SHALL BE PROVIDED FOR ALL GATES. GATES SHALL HAVE A DROP BAR LATCH. LATCHES SHALL BE ARRANGED FOR LOCKING. THE STOP FOR DROP BAR LATCHES SHALL BE SET IN CONCRETE AND ENGAGE THE PLUNGER OF THE BAR LATCH.

(S) CAPS: ALL POSTS, EXCEPT ROLL FORMED POSTS AND "T" POSTS SHALL BE CAPPED OVER THE EXTERIOR OF THE POST, AND SHALL CONFORM TO ASTM F626.

CONCRETE REQUIRED FOR THE EMBEDMENT OF ALL POSTS SHALL NOT BE PAID FOR DIRECTLY BUT SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR CHAIN LINK FENCE.

POSTS SHALL BE SPACED EQUIDISTANT ON A MAXIMUM OF 10' CENTERS.

EXCAVATION FOR POSTS: IN OTHER THAN ROCK SHALL BE OF THE DIMENSIONS INDICATED. IF ROCK IS ENCOUNTERED BEFORE REACHING THE REQUIRED DEPTH, THE EXCAVATION SHALL BE CONTINUED TO THE DEPTH INDICATED OR 1'-6" INTO THE ROCK, WHICHEVER IS LESS, AND SHALL BE A MINIMUM OF 8 INCHES IN DIAMETER.

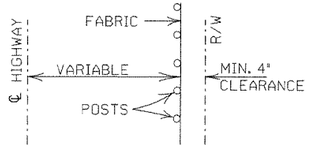
HEIGHT OF FENCE FABRIC	(A) END, PULL CORNER OR BRACE POST	(B) LINE POSTS SIZE	(B) LINE POSTS TIE SPACING	(C) TOP RAIL SIZE	(C) TOP RAIL TIE SPACING	(C) TOP RAIL MIN. LENGTH	(D) TENSION WIRE SIZE	(D) TENSION WIRE TIE SPACING	(E) TENSION BAR SIZE	(E) TENSION BAR LENGTH	(F) TENSION BAR BAND SIZE	(F) TENSION BAR BAND BOLT SIZE	(F) TENSION BAR BAND SPACING	(G) BRACE BAND SIZE	(G) BRACE BAND BOLT SIZE
6' AND LESS	2½" O.D.	2" O.D.	1 TIE EVERY 1'-2" OF FABRIC HEIGHT	1⅝" O.D.	1 TIE EVERY 2'-0"	10'-0"	7 GAUGE COIL SPRING WIRE	1 TIE EVERY 1'-0"	MIN. OF 3/16" X ¾"	MIN. OF 2" LESS THAN FABRIC HEIGHT	MIN. OF ¾" X 0.074	⅝" X 1¼"	1 BAND AT TOP AND BOTTOM 15" MAX. INTERVAL BETWEEN BANDS	MIN. OF ¾" X 0.105	⅝" X 1¼"
OVER 6' TO 12' INCL.	3" O.D.	2½" O.D.													

HEIGHT OF FENCE FABRIC	(H) TIE WIRE	(I) HOG RING	(J) BRACE RAIL SIZE	(J) BRACE RAIL TIE SPACING	(K) TRUSS ROD	(L) FABRIC SIZE	(L) FABRIC MESH	(L) FABRIC SELVAGE	(M) GATE FRAME SIZE	(M) GATE FRAME TIE SPACING	(N) HORIZONTAL SUPPORT SIZE	(N) HORIZONTAL SUPPORT TIE SPACING	(O) HINGE TYPE 180° SWING	(T) GATE POST GATE WIDTH 12' AND LESS	(T) GATE POST GATE WIDTH OVER 12' TO 24' INCL.
6' AND LESS	MIN. OF 12 GA. STEEL OR 9 GA. ALUM.	SAME GAUGE AS FABRIC	1⅝" O.D.	1 TIE EVERY 2'-0"	MIN. OF ⅜" ROUND WITH TIGHTNERS AND FITTINGS	9 GA.	2"	KNUCK-ING AND/OR TWIST-ING	2" O.D.	1 TIE EVERY 1'-0"	2" O.D.	1 TIE EVERY 1'-0"	OFFSET	3" O.D.	4" O.D.
OVER 6' TO 12' INCL.														4" O.D.	

NOTE: POST SIZES SHOWN ARE FOR STEEL. WHERE ALUMINUM IS PROVIDED, LINE POSTS SHALL HAVE AN OUT SIDE DIAMETER OF 2½" FOR FENCE HEIGHT OF 6' AND LESS, AN OUTSIDE DIAMETER OF 3" FOR FENCE HEIGHT OF 6' TO 12'. END, PULL, CORNER OR BRACE POSTS SHALL HAVE AN OUTSIDE DIAMETER OF 3" FOR FENCE HEIGHT OF 6' AND LESS; AN OUTSIDE DIAMETER OF 3½" FOR FENCE HEIGHTS OF 6' TO 12'. GATE POSTS WHERE GATE WIDTH IS 12' AND LESS SHALL HAVE AN OUTSIDE DIAMETER OF 3½" FOR FENCE HEIGHT OF 6' AND LESS. ALUMINUM TENSION WIRE SHALL BE 0.192" IN DIAMETER. MINIMUM THICKNESS OF MATERIAL FROM WHICH EXPANSION SLEEVES SHALL BE MADE WILL BE 0.078". POSTS AND RAILS MAY HAVE ANY CROSS-SECTIONAL SHAPE THAT WILL MEET THE SPECIFICATIONS.

OTHER DETAILS APPLY TO BOTH STEEL AND ALUMINUM FENCE.

ALL MISCELLANEOUS FITTINGS AND HARDWARE SHALL MEET THE REQUIREMENTS AND PRODUCTION TOLERANCES AS SET FORTH IN THE SPECIFICATIONS. 9 GAUGE ALUMINUM WIRE SHALL BE ACCEPTABLE FOR TIEING FABRIC TO TUBULAR AND ROLL FORMED MEMBERS OF STEEL FENCE.



INSTALLATION MAY BE MODIFIED AS SHOWN IN THE PLANS

TYPICAL INSTALLATION DIAGRAM

POSTS AND RAILS

SIZE O.D.	GRADE 1 AND ALUMINUM ALLOY O.D. INCHES	WALL THICKNESS	LBS. PER LINEAR FT. STEEL	LBS. PER LINEAR FT. ALUMINUM	GRADE 2 O.D. INCHES	WALL THICKNESS	LBS. PER LINEAR FT.
1⅝	1.660	0.140	2.27	0.786	1.660	0.111	1.84
2	1.900	0.145	2.72	0.940	1.900	0.120	2.28
2½	2.375	0.154	3.65	1.264	2.375	0.130	3.11
3	2.875	0.203	5.79	2.004	2.875	0.160	4.64
3½	3.500	0.216	7.58	2.621	3.500	0.160	5.71
4	4.000	0.226	9.11	3.151	4.000	0.160	6.56

TOLERANCES ON DIMENSIONS AND WEIGHTS ACCORDING TO AASHTO M 181

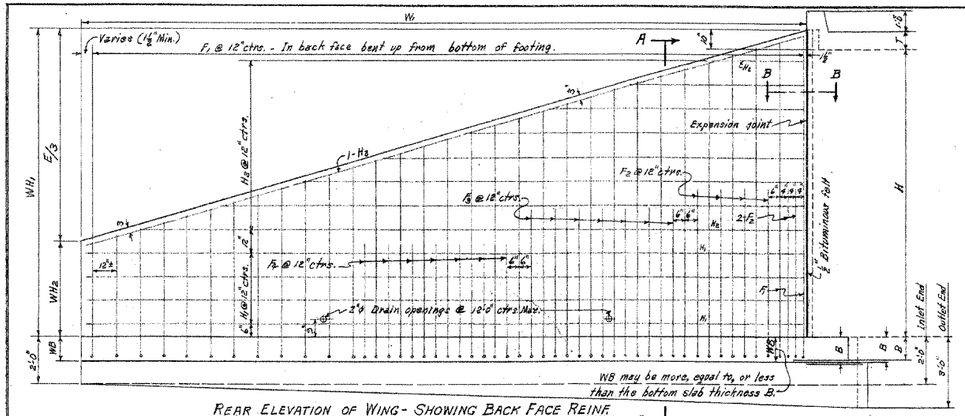
DATE	REVISION	FILMED
11-17-10	REVISED TRUSS ROD	
12-10-09	REVISED POSTS & RAILS TABLE	
5-21-09	ADDED TABLE & GEN. NOTE (C)	
8-22-02	REVISED NOTES, REMOVED TABLE, & REMOVED FENCE ALTERNATE	
4-3-97	REVISED BRACE RAIL NOTE	
10-18-96	REVISED AASHTO & ASTM REF.	
11-3-94	REVISED NOTE (L)	
10-1-92	DELETED ALTERNATE POST	10-1-92
8-15-91	DELETED ROLL FORMED POST DETAIL & ADDED NOTE	8-15-91 8-15-91
11-30-89	DELETED CLASS CONCRETE	11-30-89
11-17-88	REVISED O.D. SIZES	668-11-17-88
10-30-87	GENERAL REVISIONS	548-10-30-87
4-20-79	REVISED TOP RAIL & TENSION WIRE	695-4-20-79
10-2-72	REVISED AND REDRAWN	530-10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

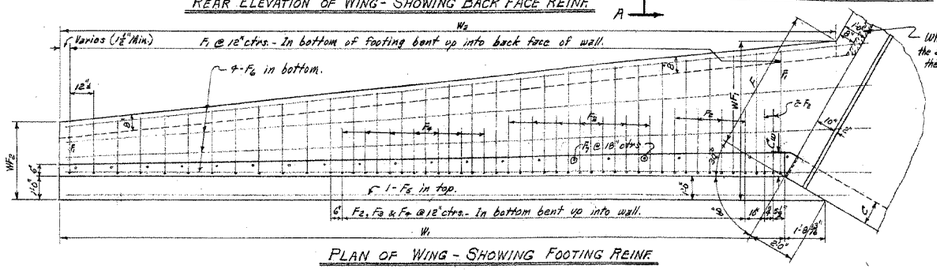
CHAIN LINK FENCE

STANDARD DRAWING WF-3

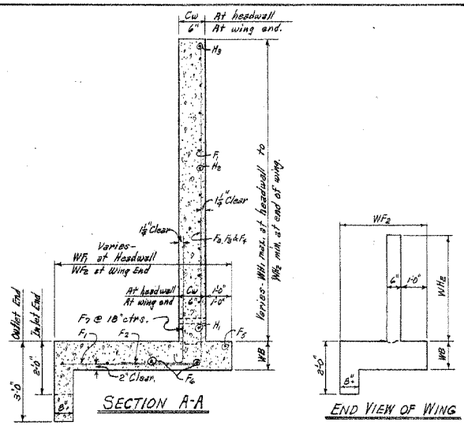
FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			178	
JOB No.					



REAR ELEVATION OF WING - SHOWING BACK FACE REINF.



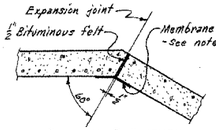
PLAN OF WING - SHOWING FOOTING REINF.



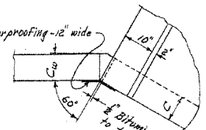
SECTION A-A

END VIEW OF WING

When B is more than WB, the shaded portion of the apron should be made the same thickness as the barrel base B.



SECTION B-B THRU EXPANSION JOINT



DETAIL AT TOP OF WING

WING DIMENSIONS

CLEAR HEIGHT OF BOX	THICKNESS OF WING FOOTING	THICKNESS OF WING AT HEADWALL = C	WINGWALL HEIGHTS		WIDTHS OF WING FOOTINGS		PERPENDICULAR FOOTING DIMENSION	PERPENDICULAR DIST. FROM HDWL TO END OF WING	LENGTH OF WINGWALLS	INSIDE FOOTING DIMENSION	* QUANTITY PER WING, CLASS S CONCRETE	
			AT HEADWALL	AT END OF WING	AT HEADWALL	AT END OF WING					INLET END	OUTLET END
H	WB	C_W	WH_1	WH_2	WF_1	WF_2	F	E	W_1	W_2	Cu.Yd.	Cu.Yd.
9'	10"	9"	9'-10"	3'-0"	5'-2"	2'-0½"	4'-3"	20'-6"	23'-8"	24'-11"	7.492	7.810
10'	11"	10"	10'-10"	3'-4"	5'-8"	3'-0"	4'-10"	22'-6"	25'-11½"	27'-6½"	9.564	9.965
11'	12"	11"	11'-10"	3'-8"	6'-2"	3'-1½"	5'-5"	24'-6"	28'-3½"	30'-1½"	11.977	12.361
12'	13"	12"	12'-10"	4'-0"	6'-8"	3'-3"	6'-0"	26'-6"	30'-7½"	32'-8½"	14.791	15.206

* Quantity per wing does not include headwall or that portion of apron or toewall for the length W_3.

CLEAR SPAN	CLEAR HEIGHT	2 F. FOOTING DIMENSION	W_3 = (OW - 2F) SINGLE BARREL CULVERT		DOUBLE BARREL CULVERT		TRIPLE BARREL CULVERT		QUADRUPLE BARREL CULVERT		QUINTUPLE BARREL CULVERT	
S	H	2F	OW	W_3	OW	W_3	OW	W_3	OW	W_3	OW	W_3
7'			8'-0"	0'-0"	16'-5"	7'-11"	24'-6"	15'-10"	32'-3"	23'-9"	40'-0"	31'-8"
	9'	6'-6"	9'-4"	1'-0"	18'-5"	9'-11"	27'-6"	18'-10"	36'-3"	27'-9"	45'-0"	36'-8"
8'	10'	9'-6"	9'-6"	0'-0"	18'-6"	9'-0"	27'-8"	18'-0"	36'-8"	27'-0"	45'-6"	36'-0"
	9'	6'-6"	10'-4"	2'-0"	20'-5"	11'-11"	30'-6"	21'-10"	40'-8"	31'-8"	50'-8"	41'-8"
9'	10'	9'-8"	10'-8"	1'-0"	20'-8"	11'-0"	30'-8"	21'-0"	40'-8"	31'-0"	50'-8"	41'-0"
	11'	10'-10"	10'-10"	0'-0"	20'-10"	10'-0"	30'-10"	20'-0"	40'-10"	30'-0"	50'-10"	40'-0"
	9'	6'-6"	11'-6"	3'-0"	22'-5"	13'-11"	33'-4"	24'-10"	44'-3"	35'-9"	55'-2"	46'-8"
10'	10'	9'-8"	11'-8"	2'-0"	22'-8"	13'-0"	33'-8"	24'-0"	44'-8"	35'-0"	55'-8"	46'-0"
	11'	10'-10"	11'-10"	1'-0"	22'-10"	12'-0"	33'-10"	23'-0"	44'-10"	34'-0"	55'-10"	45'-0"
	12'	12'-0"	12'-0"	0'-0"	23'-0"	11'-0"	34'-0"	22'-0"	45'-0"	33'-0"	56'-0"	44'-0"
	9'	6'-6"	12'-6"	4'-0"	24'-5"	15'-11"	36'-4"	27'-10"	48'-3"	39'-9"		
11'	10'	9'-8"	12'-8"	3'-0"	24'-8"	15'-0"	36'-8"	27'-0"	48'-8"	39'-0"		
	11'	10'-10"	12'-10"	2'-0"	24'-10"	14'-0"	36'-10"	26'-0"	48'-10"	38'-0"		
	12'	12'-0"	13'-0"	1'-0"	25'-0"	13'-0"	37'-0"	25'-0"	49'-0"	37'-0"		
	9'	6'-6"	13'-6"	5'-0"	26'-5"	17'-11"	39'-4"	30'-10"	52'-3"	43'-9"		
12'	10'	9'-8"	13'-8"	4'-0"	26'-8"	17'-0"	39'-8"	30'-0"	52'-8"	43'-0"		
	11'	10'-10"	13'-10"	3'-0"	26'-10"	16'-0"	39'-10"	29'-0"	52'-10"	42'-0"		
	12'	12'-0"	14'-0"	2'-0"	27'-0"	15'-0"	40'-0"	28'-0"	53'-0"	41'-0"		

QUANTITIES

CLEAR SPAN	CLEAR HEIGHT	THICKNESS OF WING AT HEADWALL	THICKNESS OF WING FOOTING	REINFORCING STEEL - FOR 4 WINGS ©	CLASS S CONCRETE - 4 WINGS, HEADWALLS, WINGWALLS, FOOTINGS, TOEWALLS AND APRONS				
					SINGLE BARREL CULVERT	DOUBLE BARREL CULVERT	TRIPLE BARREL CULVERT	QUADRUPLE BARREL CULVERT	QUINTUPLE BARREL CULVERT
S	H	C_W	WB	LB.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.
7'	9'	9"	10"	2133.2	31.16	32.84	34.51	36.19	37.87
8'	9'	9"	10"	2133.2	31.39	33.28	35.16	37.05	38.94
	10'	10"	11"	2651.5	39.56	41.98	43.90	45.83	47.25
9'	9'	9"	10"	2133.2	31.61	33.73	35.81	37.91	40.01
	10'	10"	11"	2651.6	39.78	41.93	44.05	46.20	48.33
	11'	11"	12"	3293.1	49.39	51.55	53.70	55.87	58.02
10'	9'	9"	10"	2133.2	31.83	34.17	36.47	38.73	41.12
	10'	10"	11"	2651.5	40.01	42.37	44.70	47.05	49.41
	11'	11"	12"	3293.1	49.62	52.00	54.36	56.73	59.11
	12'	12"	13"	4099.2	60.79	63.19	65.57	67.97	70.37
11'	9'	9"	10"	2133.2	32.06	34.64	37.15	39.68	
	10'	10"	11"	2651.5	40.22	42.83	45.37	47.99	
	11'	11"	12"	3293.1	49.84	52.45	55.02	57.61	
	12'	12"	13"	4099.2	61.01	63.64	66.24	68.85	
12'	9'	9"	10"	2133.2	32.27	35.11	37.84	40.69	
	10'	10"	11"	2651.5	40.44	43.30	46.06	48.82	
	11'	11"	12"	3293.1	50.06	52.92	55.68	58.48	
	12'	12"	13"	4099.2	61.23	64.10	66.90	69.73	

© For reinforcing steel in Headwalls and Aprons, see Details of Standard Barrel Sections for R.C. Box Culverts for the desired Span and Height.

GENERAL NOTES:-

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾ chamfers.

REINFORCING STEEL:- Reinforcing steel to be deformed bars of intermediate or hard grade.

CONSTRUCTION JOINTS:- Construction joints between wingwalls, footings and sidewalls shall be only where shown on plans.

MEMBRANE:- A membrane waterproofing 12" wide, consisting of three moppings of waterproofing asphalt and two alternate layers of treated cotton fabric shall be applied to the back face of wing to cover the expansion joints.

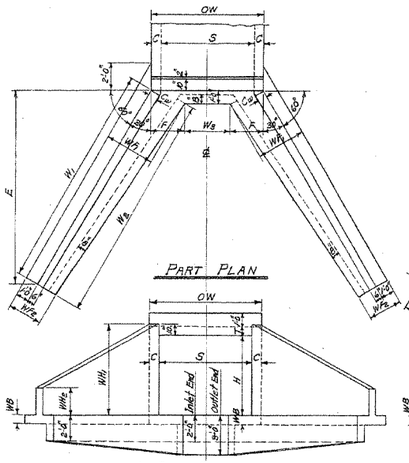
Payment for the membrane waterproofing and bituminous felt shall be included in unit price bid for Class S Concrete.

SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

UNIT STRESSES:-

Class S Concrete (n=10) 1200 #/□"

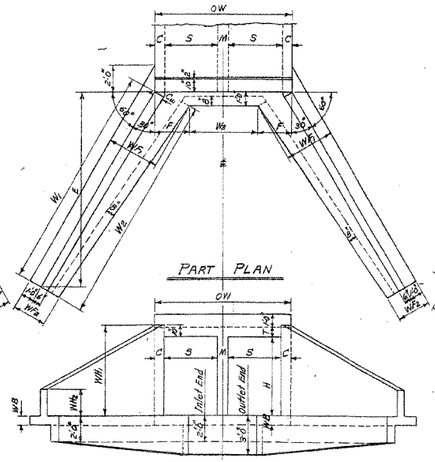
Reinforcing Steel 20,000 #/□"



PART PLAN

END ELEVATION

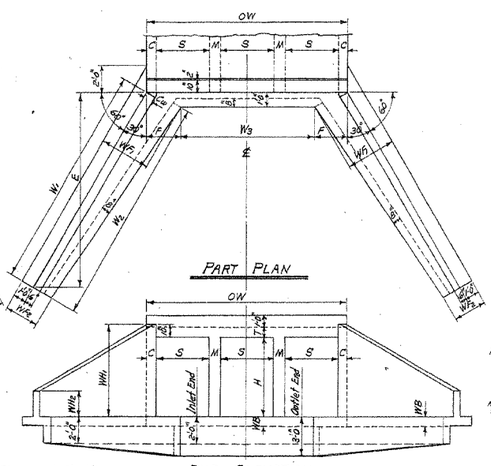
SINGLE BARREL CULVERT



PART PLAN

END ELEVATION

DOUBLE BARREL CULVERT

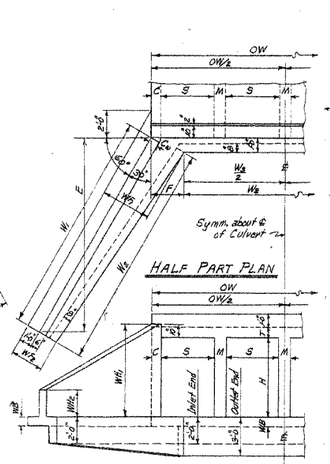


PART PLAN

END ELEVATION

TRIPLE BARREL CULVERT

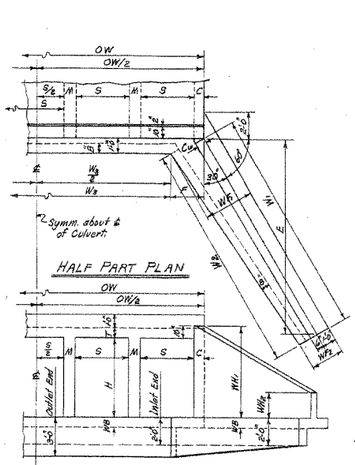
NOTE:- Plans and Elevations are not to scale.



HALF PART PLAN

HALF END ELEVATION

QUADRUPLE BARREL CULVERT



HALF PART PLAN

HALF END ELEVATION

QUINTUPLE BARREL CULVERT

NOTE:- This drawing to be used in conjunction with Standard Barrel Sections, Drawing Nos. as listed below.

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-100X-0	R-200X-0	R-300X-0	R-400X-0	R-500X-0
R-100X-X2	R-200X-X2	R-300X-X2	R-400X-X2	
	R-200X-X3	R-300X-X3		

BAR LIST FOR ONE WING - 4 REQUIRED

| CLEAR HEIGHT | F_1 BENT: In bottom of footing, bent up into back face of wing. One bar of each length. SIZE | SPACING | NO. REQ'D | LENGTHS VARY MIN. | MAX. | X MIN. | X MAX. | Y MIN. | Y MAX. | F_2 BENT: In bottom of footing, bent up into back face of wing. Alt. with F_1 bars. SIZE | SPACING © | NO. REQ'D | LENGTH | X | Y | F_3 BENT: In bottom of footing, bent up into back face of wing. Alt. with F_1 bars. SIZE | SPACING | NO. REQ'D | LENGTH | X | Y | F_4 BENT: In bottom of footing, bent up into back face of wing. Alt. with F_1 bars. SIZE | SPACING | NO. REQ'D | LENGTH | X | Y | F_5 STRAIGHT: Longitudinal in top of wing footing heel. SIZE | NO. REQ'D | LENGTH | F_6 STRAIGHT: Longitudinal in bottom of wing footing toe. SIZE | NO. REQ'D | LENGTH | H_1 STRAIGHT: Horizontal in back face of wing. SIZE | SPACING | NO. REQ'D | LENGTH | H_2 STRAIGHT: Horizontal in back face of wing. One bar of each length SIZE | SPACING | NO. REQ'D | LENGTHS VARY MAX. | MIN. | H_3 STRAIGHT: In back face of wing at top-on slope SIZE | NO. REQ'D | LENGTH | F_7 BENT: Footing dowels extending up into front face of wing. SIZE | SPACING | NO. REQ'D | LENGTH | X | QUANTITY REINFORCING STEEL PER WING LB. |
|---|---|---|---|---|---|---|---|---|---|---|---|---

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			179	
JOB No.					

BAR LIST FOR VARIOUS SECTIONS OF BARREL

SECTION & BAR GROUP	LENGTH OF SECTION	DEPTH OF COVER	CLEAR SPAN	CLEAR HEIGHT	"a" bars STRAIGHT — In Top and Bottom Slabs of Barrel. 2 Add'l in Apron and Headwall - Each.					"b" bars BENT - See Diagram at Right — In top and Bottom Slabs of Barrel - Hooked. Alternate with "a" bars.							"j" bars Longitudinal in Top Slab of Barrel			"d" bars STRAIGHT — Longitudinal in Sidewalls.			"e" bars Longitudinal in Bottom Slab of Barrel.			"f" bars STRAIGHT — Verticals in Sidewalls				
							Number Req'd					Number Req'd															Number Req'd			
						Spacing	2:1	3:1	4:1	Length		Spacing	2:1	3:1	4:1	Length	X										2:1	3:1	4:1	Length
	D	S	H																											
"A"	2'1"x1'6", 3'1"x2'6", 4'1"x3'6"	0' TO 10'-0"	1@ 4'	2'	#4	12"	28	48	68	4'-9"	#4	12"	24	44	64	5'-7"	8'-2½"	#4	12"	5	#4	12"	4	#4	12"	5	#4	12"	24	44	64	2'-10"
			6'	3"	#5	18"	28	48	68	6'-9"	#4	12"	24	44	64	7'-10"	6'-5"	#4	12"	6	#4	12"	6	#4	12"	7	#4	12"	24	44	64	4'-0"
			7'	4"	#5	18"	28	48	68	7'-9"	#4	12"	24	44	64	8'-10"	7'-8"	#4	12"	8	#4	12"	8	#4	12"	8	#4	12"	24	44	64	5'-1"
		8'	4'	#6	18"	28	48	68	8'-9"	#4	12"	24	44	64	9'-10"	8'-8"	#4	12"	9	#4	12"	9	#4	12"	9	#4	12"	24	44	64	5'-9"	
		9'	5'			28	48	68	8'-11"			24	44	64	10'-0"	9'-10"			10			10			10			24	44	64	6'-5"	
			6'	#6	11"	30	52	74	9'-11"	#5	12"	26	48	70	11'-2"	9'-10"	#4	12"	10	#4	12"	10	#4	12"	10	#4	12"	24	44	64	6'-5"
			7'			30	52	74	10'-11"			26	48	70	11'-2"	11'-1"			11			11			11			24	44	64	7'-1"
		10'	5'			28	48	68	10'-11"			24	44	64	12'-2"	10'-10"			11			11			11			24	44	64	6'-7"
			6'	#7	12"	28	48	68	11'-10"	#5	12"	24	44	64	12'-2"	11'-10"	#4	12"	11	#4	12"	11	#4	12"	11	#4	12"	24	44	64	7'-7"
			7'			28	48	68	11'-10"			24	44	64	12'-2"	11'-11"			14			14			14			24	44	64	8'-2"
"B"	2'1"x1'6", 3'1"x1'6", 4'1"x1'6"	10'-0" TO 15'0"	1@ 4'	2'	#4	12"	12	22	32	4'-9"	#4	12"	12	22	32	5'-8"	9'-4½"	#4	12"	5	#4	12"	4	#4	12"	5	#4	12"	12	22	32	2'-10"
			6'	3"	#6	18"	12	22	32	6'-9"	#5	12"	12	22	32	7'-10"	6'-8"	#4	12"	7	#4	12"	7	#4	12"	7	#4	12"	12	22	32	4'-1"
			7'	4"	#4	11"	14	24	34	7'-9"	#5	11"	12	24	34	8'-10"	7'-8"	#4	12"	8	#4	12"	8	#4	12"	8	#4	12"	12	22	32	5'-3"
		8'	4'	#7	12"	12	22	32	8'-9"	#6	12"	12	22	32	9'-10"	8'-8"	#4	12"	9	#4	12"	9	#4	12"	9	#4	12"	12	22	32	5'-5"	
			5'			12	22	32	8'-11"			12	22	32	10'-0"	8'-10"			10			10			10			12	22	32	6'-5"	
		9'	5'	#7	12"	12	22	32	9'-11"	#7	12"	12	22	32	11'-2"	9'-10"	#4	12"	10	#4	12"	10	#4	12"	10	#4	12"	12	22	32	6'-7"	
			6'			12	22	32	10'-0"			12	22	32	11'-3"	9'-11"			11			11			11			12	22	32	7'-1"	
		10'	5'			12	22	32	10'-11"			12	22	32	11'-3"	10'-10"			12			12			12			12	22	32	6'-9"	
			6'	#8	12"	12	22	32	11'-0"	#7	12"	12	22	32	12'-3"	10'-11"	#4	11"	12	#4	12"	12	#4	11"	12	#4	12"	12	22	32	7'-9"	
			7'			12	22	32	11'-0"			12	22	32	12'-3"	10'-11"			14			14			14			12	22	32	8'-2"	
"C"	2'1"x6'0", 3'1"x1'6", 4'1"x1'6"	15'0" TO 20'0"	1@ 4'	2'	#5	12"	12	22	32	4'-9"	#5	12"	12	22	32	5'-8"	9'-4½"	#4	12"	5	#4	12"	4	#4	12"	5	#4	12"	12	22	32	2'-10"
			6'	3"	#6	11"	14	24	34	6'-9"	#6	11"	12	24	34	7'-10"	6'-8"	#4	12"	7	#4	12"	6	#4	12"	7	#4	12"	12	22	32	4'-1"
			7'	4"	#7	13"	12	20	30	7'-9"	#7	13"	10	20	30	9'-0"	7'-8"	#4	12"	8	#4	12"	8	#4	12"	8	#4	12"	12	22	32	5'-3"
		8'	4'	#7	12"	12	22	32	8'-9"	#7	12"	12	22	32	10'-0"	8'-8"	#4	12"	9	#4	12"	9	#4	12"	9	#4	12"	12	22	32	5'-5"	
			5'			12	22	32	8'-11"			12	22	32	10'-2"	8'-10"			10			10			10			12	22	32	6'-7"	
		9'	5'	#8	12"	12	22	32	9'-11"	#7	12"	12	22	32	11'-2"	9'-10"	#4	12"	10	#4	12"	10	#4	12"	10	#4	12"	12	22	32	6'-10"	
			6'			12	22	32	10'-0"			12	22	32	11'-3"	10'-0"			11			11			11			12	22	32	7'-2"	
		10'	5'			12	22	32	10'-11"			12	22	32	12'-3"	10'-11"			12			12			12			12	22	32	7'-6"	
			6'	#8	12"	12	22	32	11'-0"	#8	12"	12	22	32	12'-3"	10'-11"	#4	11"	12	#4	12"	12	#4	11"	12	#4	12"	12	22	32	7'-10"	
			7'			12	22	32	11'-0"			12	22	32	12'-3"	11'-0"			14			14			14			12	22	32	8'-3"	
"D"	2'1"x6'0", 3'1"x1'6", 4'1"x1'6"	20'-0" TO 25'0"	1@ 4'	2'	#5	11"	14	24	34	4'-9"	#5	11"	12	24	34	5'-8"	9'-4½"	#4	12"	5	#4	12"	4	#4	12"	5	#4	12"	12	22	32	2'-11"
			6'	3"	#7	12"	12	22	32	6'-9"	#6	12"	12	22	32	7'-10"	6'-8"	#4	12"	6	#4	12"	6	#4	12"	7	#4	12"	12	22	32	4'-2"
			7'	4"	#7	12"	12	22	32	7'-9"	#7	12"	12	22	32	9'-0"	7'-8"	#4	12"	8	#4	12"	8	#4	12"	8	#4	12"	12	22	32	5'-3"
		8'	4'	#8	12"	12	22	32	8'-9"	#7	12"	12	22	32	10'-0"	8'-8"	#4	12"	9	#4	12"	9	#4	12"	9	#4	12"	12	22	32	5'-6"	
			5'			12	22	32	8'-11"			12	22	32	10'-2"	8'-10"			10			10			10			12	22	32	6'-7"	
		9'	5'	#8	12"	12	22	32	9'-11"	#8	12"	12	22	32	11'-2"	9'-10"	#4	12"	10	#4	12"	10	#4	12"	10	#4	12"	12	22	32	6'-10"	
			6'			12	22	32	10'-0"			12	22	32	11'-3"	10'-0"			11			11			11			12	22	32	7'-2"	
		10'	5'			12	22	32	10'-11"			12	22	32	12'-3"	10'-11"			12			12			12			12	22	32	7'-6"	
			6'	#8	12"	12	22	32	11'-0"	#8	12"	12	22	32	12'-3"	10'-11"	#4	11"	12	#4	12"	12	#4	11"	12	#4	12"	12	22	32	7'-10"	
			7'			12	22	32	11'-0"			12	22	32	12'-3"	11'-0"			14			14			14			12	22	32	8'-3"	
"E"	2'1"x6'0", 3'1"x1'6", 4'1"x1'6"	25'0" TO 30'0"	1@ 4'	2'	#6	12"	12	22	32	4'-9"	#5	12"	12	22	32	5'-8"	9'-4½"	#4	12"	5	#4	12"	4	#4	12"	5	#4	12"	12	22	32	3'-0"
			6'	3"	#7	11"	14	24	34	6'-9"	#6	11"	12	24	34	7'-10"	6'-8"	#4	11"	6	#4	12"	6	#4	12"	7	#4	12"	12	22	32	4'-5"
			7'	4"	#7	11"	14	24	34	7'-9"	#7	11"	12	24	34	9'-0"	7'-8"	#4	11"	8	#4	12"	8	#4	12"	8	#4	12"	12	22	32	5'-8"
		8'	4'	#8	11"	14	24	36	8'-10"	#7	11"	12	24	34	10'-1"	8'-9"	#4	11"	9	#4	12"	9	#4	12"	9	#4	12"	12	22	32	6'-0"	
			5'			14	24	36	8'-11"			12	24	34	10'-2"	8'-10"			10			10			10			12	22	32	6'-11"	
		9'	5'	#8	11"	14	24	36	10'-0"	#8	11"	12	24	34	11'-5"	9'-11"	#4	9"	13	#4	12"	10	#4	12"	10	#4	12"	12	22	32	7'-2"	
			6'			14	24	36	10'-1"			12	24	34	11'-6"	10'-0"			11			11			11			12	22	32	7'-5"	
		10'	5'			14	24	36	10'-11"			12	24	34	12'-5"	10'-11"			12			12			12			12	22	32	7'-9"	
			6'	#8	11"	14	24	36	11'-1"	#8	11"	12	24	34	12'-7"	11'-1"	#4	9"	13	#4	12"	12	#4	12"	12	#4	12"	12	22	32	8'-1"	
			7'			14	24	36	11'-2"			12	24	34	12'-9"	11'-2"			13			13			13			12	22	32	8'-4"	
			8'			14	24	36	11'-3"			12	24	34	12'-10"	11'-3"			13			13			13			12	22	32	8'-6"	
			9'			14	24	36	11'-4"			12	24	34	12'-11"	11'-4"			13			13			13			12	22	32	8'-8"	
			10'			14	24	36	11'-5"			12	24	34	13'-0"	11'-5"			13			13			13			12	22	32	8'-10"	
"F"	2'1"x6'0", 3'1"x1'6", 4'1"x1'6"	30'0" TO 35'0"	1@ 4'	2'	#6	13"	12	20	30	4'-9"	#6	13"	12	20	30	5'-10"	9'-4½"	#4	12"	5	#4	12"	4	#4	12"	5	#4	12"	12	22	32	3'-1"
			6'	3"	#7	12"	12	22	32	6'-9"	#7	12"	12	22	32	8'-0"	6'-8"	#4	9½"	9	#4	12"	6	#4	9½"	9	#4	12"	12	22	32	4'-7"
			7'	4"			14	28	38	7'-11"			16	26	40	9'-2"	7'-10"			8			10			10			12	22	32	5'-10"
			5'				12	28	38	8'-10"			16	26	40	9'-3"	7'-11"			10			10			10			12	22	32	6'-10"
		7'	6'	#7	10"		14	28	38	8'-2"	#7	10"	16	26	40	9'-10"	8'-3"	#4	9½"	10	#4	12"	10	#4	9½"	10	#4	12"	12	22	32	7'-10"
			7'				14	28	38	8'-11"			16	26	40	10'-1"	8'-4"			12			12			12			12	22	32	8'-3"
			8'				14	28	38	8'-11"			16	26	40	10'-1"	8'-5"			12			12			12			12	22	32	8'-5"
			9'				14	28	38	8'-11"			16	26	40	9'-11"	8'-7"			12			12			12			12	22	32	8'-7"
			10'				14	28	38	8'-11"			16	26	40	10'-0"	8'-8"			12			12			12			12	22	32	8'-9"
			4'	2'			14	28	38	9'-0"			16	26	40	9'-2"	7'-10"			8			10			10			12	22	32	5'-10"
			5'				14	28	38	9'-0"			16	26	40	9'-3"	7'-11"			10			10			10			12	22	32	6'-10"
		7'	6'	#8	10"		14	28	38	9'-1"	#8	10"	16	26	40	9'-10"	8'-3"	#4	9½"	10	#4	12"	10	#4	9½"	10	#4	12"	12	22	32	7'-10"
			7'				14	28	38	9'-2"			16	26	40	10'-1"	8'-4"			12			12			12			12	22	32	8'-3"
			8'				14	28	38	9'-2"			16	26	40	10'-1"	8'-5"			12			12			12			12	22	32	8'-5"
			9'				14	28	38	9'-3"			16	26	40	10'-1"	8'-7"			12			12			12			12	22	32	8'-7"
			10'				14	28	38	9'-3"			16	26	40	10'-2"	8'-8"			12			12			12			12	22	32	8'-9"
			4'	2'			14	24	36	9'-0"			16	24	34	10'-1"	8'-9"			12			12			12			12	22	32	6'-7"
			5'				14	24	36	9'-0"			16	24	34	10'-2"	8'-11"			12			12			12			12	22	32	7'-5"
		7'	6'	#8	10"		14	24	36	9'-1"	#8	10"	16	24	34	10'-3"	9'-1"	#4	9½"	12	#4	12"	12	#4	9½"	12	#4	12"	12	22	32	8'-3"
			7'				14	24	36	9'-2"			16	24	34	10'-3"	9'-2"			14			14			14			12	22	32	9'-0"
			8'				14	24	36	9'-2"			16	24	34	10'-4"	9'-3"			14			14			14			12	22	32	9'-2"
			9'				14	24	36	9'-3"			16	24	34	10'-4"	9'-4"			14			14			14			12	22	32	9'-4"
			10'				14	24	36	9'-3"			16	24	34	10'-5"	9'-5"			14			14			14			12	22	32	9'-6"
"G"	Varies with Length of Barrel/ 5'-0" TO 40'-0"	Varies	1@ 4'	2'	#6	12"	Varies with Length of Barrel.			4'-9"	#5	12"	Varies with Length of Barrel.			5'-10"	9'-4½"	#4	12"	5	#4	12"	4	#4	12"	5	#4	12"	Varies with Length of Barrel.			3'-2"
				3'						4'-9"						6'-0"	4'-8"			6			9			9						4'-8"
				4'						4'-11"						6'-2"	6'-10"			8			9			9						5'-8"
		6'	5'	#7	11"					7'-1"	#7	11"				8'-2"	7'-0"	#4	9½"	9	#4	12"	9	#4	9½"	9	#4	12"				6'-8"
			6'							7'-3"						8'-4"	7'-2"			9			9			9						7'-5"
			7'							7'-5"						8'-6"	7'-4"			9			9			9						8'-1"
			8'							7'-7"						8'-8"	7'-6"			9			9			9						8'-3"
			5'							8'-0"						9'-3"	7'-11"			11			11			11						5'-11"
			6'							8'-1"						9'-3"	8'-0"			11			11			11						6'-4"
		7'	7'	#8	11"					8'-3"	#8	11"				9'-4"	8'-2"	#4	8½"	11	#4	12"	11	#4	8½"	11	#4	12"				6'-11"
			8'							8'-5"						9'-5"	8'-4"			11			11			11						7'-3"
			9'							8'-7"						9'-6"	8'-5"			11			11			11						7'-8"
			10'							8'-9"						9'-7"	8'-7"			11			11			11						8'-0"
			5'							9'-0"						10'-5"	8'-11"			13			13			13						6'-9"
			6'							9'-2"						10'-7"	9'-1"			13			13			13						7'-3"
		8'	7'	#8	11"					9'-3"	#8	11"				10'-8"	9'-3"	#4	8½"	13	#4	12"	13	#4	8½"	13	#4	12"				7'-10"
			8'							9'-4"						10'-10"	9'-5"			13			13			13						8'-4"
			9'							9'-5"						11'-0"	9'-7"			13			13			13						8'-9"
			10'							9'-6"						11'-1"	9'-9"			13			13			13						9'-1"

NOTE:- Bars for each Section to be marked with the Section Letter; thus for Section B, the bars should be marked Ba, Bb, Bd, Be, and Bf.

Designed By:- W.C.H. 12-9-64 Checked By:-
Drawn By:- W.C.H. 12-11-64 Checked By:-
Quantities By:- W.C.H. 12-17-64 Checked By:-

DIMENSIONS AND QUANTITIES

MAX. DESIGN DEPTH OF COVER	BARREL DIMENSIONS: CLEAR HEIGHT	CLEAR SPAN	SQ. FT. OPENING	OVERALL WIDTH	THICKNESS OF TOP SLAB	THICKNESS OF SIDEWALLS	THICKNESS OF BOTTOM SLAB	OVERALL HEIGHT	UNIT QUANTITIES: CLASS 'S' CONC. PER LIN. FT OF BARREL	REINFORCING STEEL PER LIN. FT. OF BARREL	REINFORCING STEEL ADDITIONAL PER LAP	REINFORCING STEEL ADDITIONAL TWO HEADWALLS & APRONS
D	S	H	A	OW	T	C	B	OH	CU.YD.	LB.	LB.	LB.
SECTION "A" - 10'-0"	1@ 4'	2'	8	5'-0"	6½"	6"	6½"	3'-1"	0.275	24.94	11.69	51.93
	6'	3'	18	7'-0"	7½"	6"	7½"	4'-3"	0.435	54.38	16.70	93.29
	7'	4'	28	8'-0"	8"	6"	8½"	5'-0½"	0.556	66.53	20.04	107.98
	8'	4'	32	9'-0"	8½"	6"	9½"	5'-6"	0.698	80.21	21.71	156.94
		5'	40	9'-2"		7"		6'-6"	0.725	83.88	23.38	156.95
	9'	5'	45	10'-2"	9½"	7"	10½"	6'-8"	0.844	110.31	25.05	176.61
		6'	54	10'-3"		7½"		7'-8"	0.911	119.23	26.72	177.61
	10'	5'	50	11'-2"	10½"	7"	11½"	6'-10"	0.974	126.94	28.39	243.97
		6'	60	11'-3"		7½"		7'-10"	1.092	128.22	28.39	245.94
		7'	70	11'-3"		8"		8'-10"	1.088	130.56	30.06	245.84
SECTION "B" - 15'-0"	1@ 4'	2'	8	5'-0"	6½"	6"	6½"	3'-1"	0.275	31.30	11.69	51.93
	6'	3'	18	7'-0"	8"	6"	8½"	4'-6½"	0.462	62.62	16.70	118.07
	7'	4'	28	8'-0"	8½"	6"	9½"	5'-6"	0.593	77.39	20.04	126.88
	8'	4'	32	9'-0"	9½"	6"	10½"	5'-8½"	0.718	89.91	21.71	192.88
		5'	40	9'-2"		7"		6'-8½"	0.796	93.77	23.38	195.61
	9'	5'	45	10'-2"	10½"	7"	11½"	6'-10½"	0.922	115.08	25.05	218.61
		6'	54	10'-3"		7½"		7'-10½"	0.990	118.36	26.72	230.97
	10'	5'	50	11'-2"	11½"	7"	12½"	7'-0½"	1.060	139.74	28.39	298.66
		6'	60	11'-3"		7½"		8'-0½"	1.188	193.32	30.06	300.92
		7'	70	11'-3"		8"		9'-0½"	1.175	152.65	31.73	300.92
SECTION "C" - 20'-0"	1@ 4'	2'	8	5'-0"	6½"	6"	6½"	3'-1"	0.279	34.87	11.69		
	6'	3'	18	7'-0"	9"	6"	9½"	4'-5½"	0.483	66.72	16.70		
	7'	4'	28	8'-0"	9½"	6"	10½"	5'-8"	0.642	86.98	20.04		
	8'	4'	32	9'-0"	10"	6"	11½"	5'-10½"	0.773	102.81	23.38		
		5'	40	9'-2"		7"		6'-10½"	0.853	106.85	25.05		
	9'	5'	45	10'-2"	12"	7"	13"	7'-1"	1.001	129.11	26.72		
		6'	54	10'-3"		7½"		8'-1"	1.069	134.64	28.39		
	10'	5'	50	11'-2"	13½"	7"	14½"	7'-3½"	1.164	157.56	30.06		
		6'	60	11'-3"		7½"		8'-3½"	1.283	163.24	31.73		
		7'	70	11'-3½"		7¾"		9'-3½"	1.298	170.54	38.90		
SECTION "D" - 25'-0"	1@ 4'	2'	8	5'-0"	6¾"	6"	7½"	3'-2"	0.290	36.35	11.69		
	6'	3'	18	7'-0"	9½"	6"	9¾"	4'-7"	0.522	70.27	16.70		
	7'	4'	28	8'-0"	10¼"	6"	11½"	5'-10"	0.691	93.30	21.71		
	8'	4'	32	9'-0"	12"	6"	12½"	6'-0½"	0.889	115.93	25.05		
		5'	40	9'-2"		7"		7'-0½"	0.909	119.57	26.72		
	9'	5'	45	10'-2"	13½"	7"	14½"	7'-3½"	1.079	145.58	28.39		
		6'	54	10'-3"		7½"		8'-3½"	1.149	155.10	30.06		
	10'	5'	50	11'-2"	14½"	7"	15½"	7'-6"	1.250	175.16	31.73		
		6'	60	11'-3"		7½"		8'-6"	1.383	181.05	33.40		
		7'	70	11'-3"		8"		9'-6"	1.483	190.98	35.07		
SECTION "E" - 30'-0"	1@ 4'	2'	8	5'-0"	7¼"	6"	7½"	3'-3"	0.306	39.95	11.69		
	6'	3'	18	7'-0"	10"	6"	10½"	4'-8½"	0.556	76.37	18.37		
	7'	4'	28	8'-0"	11¼"	6"	12"	5'-11½"	0.788	99.69	21.71		
	8'	4'	32	9'-0"	12"	6"	13"	6'-1½"	0.903	124.37	25.05		
		5'	40	9'-2"		7½"		7'-1½"	0.977	128.79	26.72		
	9'	5'	45	10'-2"	14¼"	7½"	15½"	7'-3½"	1.165	160.30	30.06		
		6'	54	10'-3"		8"		8'-3½"	1.250	169.15	31.73		
	10'	5'	50	11'-2"	15¼"	7½"	16½"	7'-6"	1.340	195.95	55.63		
		6'	60	11'-3"		8"		8'-6"	1.460	202.10	59.10		
		7'	70	11'-3"		8½"		9'-6"	1.572	210.23	62.58		
		8'	80	11'-3"		9"		10'-6"	1.697	218.26	66.06		
		9'	90	11'-3"		9½"		11'-6"	1.834	232.03	69.58		
		10'	100	12'-0"		10"		12'-6"	1.969	250.99	73.01		
SECTION "F" - 35'-0"	1@ 4'	2'	8	5'-0"	7¾"	6"	8½"	3'-4"	0.321	42.82	11.69		
	6'	3'	18	7'-0"	10½"	6"	11½"	4'-10"	0.586	82.45	20.04		
		4'	28	8'-2"		7"		6'-1"	0.803	116.80	23.38		
	7'	5'	35	8'-3"	12½"	7"	12½"	7'-1"	0.868	113.79	25.05		
		6'	42	8'-5"		8"		8'-1"	0.969	123.96	26.72		
		7'	49	8'-7"		8½"		9'-1"	1.073	134.46	28.39		
	8'	5'	56	8'-8"	13"	7"	13½"	7'-3"	1.194	145.80	30.06		
		6'	64	8'-11"		7½"		8'-3"	1.327	160.83	31.73		
		4'	32	9'-1½"		6¾"		6'-4"	0.962	138.57	26.72		
		5'	40	9'-3½"		7¼"		7'-4"	1.093	142.02	28.39		
	8½'	6'	48	9'-5½"	13¾"	7½"	14¼"	8'-4"	1.189	150.76	30.06		
		7'	56	9'-7½"		7¾"		9'-4"	1.261	157.78	31.73		
		8'	64	9'-9½"		8"		10'-4"	1.385	170.62	33.40		
		9'	72	9'-11½"		8¼"		11'-4"

RESHOT 3-5-93

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FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			190	
JOB No.					

BAR LIST FOR VARIOUS SECTIONS OF BARREL

Note:- Bars for each Section to be marked with the Section letter, thus For Section B, the bars should be marked B_a, B_b, B_{bc}, B_c, B_d, B_e, B_f and B_g.

Designed by:- W.C.H. 1-29-63. Checked by:- [illegible] 5-28-63
Drawn by:- W.C.H. 3-25-63. Checked by:- [illegible] 6-17-63
Quantities by:- W.C.H. 5-2-63. Checked by:- [illegible] 6-17-63

SECTION & BAR GROUP	LENGTHS OF SECTION	DEPTH OF COVER	CLEAR SPANS	CLEAR HEIGHT	'a' bars STRAIGHT In Top and Bottom Slab of Barrel. 2 Add'l in Apron and Headwall - Each. SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH
SECTION "A" & BAR GROUP "A"	3:1 = 32'-0" 4:1 = 32'-0"	0' TO 10'-0"	7' @ ℄ 9' @ ℄ 11' @ ℄	D	S	H			
					7' @ ℄	5'	#6	12"	48 68 15'-5"
						6'			48 68 15'-8"
						7'			48 68 15'-11"
						8'			48 68 15'-11"
						9'			48 68 16'-2"
					9' @ ℄	7'	#8	11"	52 74 19'-10"
						8'			52 74 19'-10"
						9'			52 74 19'-11"
					11' @ ℄	9'	#8	11"	52 74 20'-2"
						10'			52 74 20'-5"
						11'			52 74 20'-7"
SECTION "B" & BAR GROUP "B"	3:1 = 16'-0" 4:1 = 16'-0"	10'-0" TO 15'-0"	7' @ ℄ 9' @ ℄ 11' @ ℄	D	S	H			
					7' @ ℄	6'	#8	13"	48 68 23'-11"
						7'			48 68 23'-11"
						8'			48 68 23'-11"
						9'			48 68 24'-5"
						10'			48 68 24'-5"
						11'			48 68 24'-5"
						12'			48 68 24'-5"
					9' @ ℄	6'	#8	13"	20 30 15'-5"
						7'			20 30 15'-8"
						8'			20 30 15'-11"
						9'			20 30 16'-2"
					11' @ ℄	6'	#8	13"	20 30 19'-8"
						7'			20 30 19'-11"
						8'			20 30 20'-2"
						9'			20 30 20'-5"
						10'			20 30 20'-7"
						11'			20 30 20'-7"
SECTION "C" & BAR GROUP "C"	3:1 = 11'-0" 4:1 = 14'-0"	15'-0" TO 20'-0"	7' @ ℄ 9' @ ℄ 11' @ ℄	D	S	H			
					7' @ ℄	6'	#8	11"	28 36 23'-11"
						7'			28 36 23'-11"
						8'			28 36 24'-0"
						9'			28 36 24'-0"
						10'			28 36 24'-5"
						11'			28 36 24'-5"
						12'			28 36 24'-5"
					9' @ ℄	6'	#8	11"	26 36 15'-5"
						7'			26 36 15'-11"
						8'			26 36 16'-5"
						9'			26 36 16'-5"
					11' @ ℄	6'	#8	11"	22 32 23'-11"
						7'			22 32 23'-11"
						8'			22 32 24'-0"
						9'			22 32 24'-5"
						10'			22 32 24'-5"
						11'			22 32 24'-5"
						12'			22 32 24'-5"
SECTION "D" & BAR GROUP "D"	3:1 = 17'0" 4:1 = 14'-0"	20'-0" TO 25'-0"	7' @ ℄ 9' @ ℄ 11' @ ℄	D	S	H			
					7' @ ℄	6'	#8	11"	26 36 15'-5"
						7'			26 36 15'-5"
						8'			26 36 15'-11"
						9'			26 36 16'-5"
					9' @ ℄	6'	#8	11"	19-11"
						7'			20'-0"
						8'			20'-0"
						9'			20'-7"
						10'			20'-7"
						11'			20'-11"
					11' @ ℄	6'	#8	11"	23-11"
						7'			24'-0"
						8'			24'-0"
						9'			24'-5"
						10'			24'-5"
						11'			24'-11"
						12'			24'-11"
SECTION "E" Bar Group "E"	Varies with Length of Barrel.	25'0 to 30'0	7' @ ℄ 9' @ ℄ 11' @ ℄	D	S	H			
					7' @ ℄	5'	#8	10"	15-11"
						6'			15'-10"
						7'			16'-1"
						8'			16'-4"
						9'			16'-5"

SECTION & BAR GROUP	'b' bars BENT - See Diagram below. In Bottom of Top Slab bent up over Division Wall - hooked. Alternate with 'a' and 'c' bars. SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	X	Y	Z
SECTION "A" & BAR GROUP "A"								
	#6	12"	22	32	16'-10"	0'-4½"	3'-4½"	5'-7"
			22	32	17'-1"	0'-4½"	3'-4½"	5'-8"
			22	32	17'-3"	0'-4½"	3'-4½"	5'-8½"
			22	32	17'-6"	0'-4½"	3'-4½"	5'-9"
			22	32	17'-7"	0'-4½"	3'-4½"	5'-10"
	#6	12"	24	35	21'-6"	0'-4½"	4'-1½"	7'-2½"
			24	35	21'-6"	0'-4½"	4'-1½"	7'-2½"
			24	35	21'-7"	0'-4½"	4'-1½"	7'-3"
			24	35	21'-8"	0'-4½"	4'-1½"	7'-3"
			24	35	21'-8"	0'-4½"	4'-1½"	7'-3"
	#7	12"	29	35	22'-1"	0'-5½"	4'-5"	7'-4½"
			29	35	21'-11"	0'-5½"	4'-4½"	7'-4"
			29	35	21'-11"	0'-5½"	4'-4½"	7'-4"
			29	35	22'-0"	0'-5½"	4'-5"	7'-5"
			29	35	22'-0"	0'-5½"	4'-5"	7'-5"
	#7	12"	29	32	25'-5"	0'-5½"	5'-0"	8'-3"
			29	32	25'-5"	0'-5½"	5'-0"	8'-3"
			29	32	25'-6"	0'-5½"	5'-0"	8'-3"
			29	32	25'-6"	0'-5½"	5'-0"	8'-3"
			29	32	25'-7"	0'-5½"	5'-0"	8'-3"
SECTION "B" & BAR GROUP "B"								
	#7	13"	10	15	16'-10"	0'-5½"	3'-1½"	5'-7"
			10	15	17'-1"	0'-5½"	3'-2½"	5'-8"
			10	15	17'-2"	0'-5½"	3'-2½"	5'-8"
			10	15	17'-4"	0'-5½"	3'-2½"	5'-9"
			10	15	17'-5"	0'-5½"	3'-2½"	5'-9"
	#7	13"	10	14	21'-2"	0'-7½"	4'-1"	7'-2½"
			10	14	21'-2"	0'-7½"	4'-1"	7'-2½"
			10	14	21'-3"	0'-7½"	4'-1"	7'-3"
			10	14	21'-4"	0'-7½"	4'-1½"	7'-3½"
			10	14	21'-4"	0'-7½"	4'-1½"	7'-3½"
	#7	13"	10	14	22'-1"	0'-7½"	4'-3½"	7'-4½"
			10	14	22'-1"	0'-7½"	4'-3½"	7'-4½"
			10	14	22'-2"	0'-7½"	4'-3½"	7'-5"
			10	14	22'-3"	0'-7½"	4'-3½"	7'-5"
			10	14	22'-4"	0'-7½"	4'-3½"	7'-5½"
SECTION "C" & BAR GROUP "C"								
	#7	11"	12	17	25'-9"	0'-9½"	4'-9"	8'-3"
			12	17	25'-9"	0'-9½"	4'-9"	8'-3"
			12	17	25'-9"	0'-9½"	4'-9"	8'-3"
			12	17	26'-0"	0'-9½"	4'-10"	8'-4"
			12	17	26'-0"	0'-9½"	4'-10"	8'-4"
	#7	11"	12	17	26'-5"	0'-9½"	4'-11"	8'-4"
			12	17	26'-5"	0'-9½"	4'-11"	8'-4"
			12	17	26'-6"	0'-9½"	4'-11"	8'-4½"
			12	17	26'-6"	0'-9½"	4'-11"	8'-4½"
			12	17	26'-7"	0'-9½"	4'-11"	8'-4½"
SECTION "D" & BAR GROUP "D"								
	#8	12"	11	17	22'-5"	0'-8½"	4'-10½"	7'-6"
			11	17	22'-5"	0'-8½"	4'-10½"	7'-6"
			11	17	22'-5"	0'-8½"	4'-10½"	7'-6"
			11	17	22'-5"	0'-8½"	4'-10½"	7'-6"
			11	17	22'-5"	0'-8½"	4'-10½"	7'-6"
	#8	12"	11	17	22'-5"	0'-8½"	4'-10½"	7'-6"
			11	17	22'-5"	0'-8½"	4'-10½"	7'-6"
			11	17	22'-5"	0'-8½"	4'-10½"	7'-6"
			11	17	22'-5"	0'-8½"	4'-10½"	7'-6"
			11	17	22'-5"	0'-8½"	4'-10½"	7'-6"
SECTION "E" Bar Group "E"	#8	10"	11	16	24'-0"	0'-11"	5'-2"	8'-3"
			11	16	24'-0"	0'-11"	5'-2"	8'-3"
			11	16	24'-0"	0'-11"	5'-2"	8'-3"
			11	16	24'-1"	0'-11"	5'-2"	8'-3"
			11	16	24'-1"	0'-11"	5'-2"	8'-3"
	#8	10"	11	16	24'-2"	0'-11"	5'-2"	8'-3"
			11	16	24'-2"	0'-11"	5'-2"	8'-3"
			11	16	24'-2"	0'-11"	5'-2"	8'-3"
			11	16	24'-3"	0'-11"	5'-2"	8'-3"
			11	16	24'-3"	0'-11"	5'-2"	8'-3"

SECTION & BAR GROUP	'b2' bars BENT - See Diagram below. In Top of Bottom Slab bent down under Division Wall - hooked. Alternate with 'a' and 'c' bars. SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	X	Y	Z
SECTION "A" & BAR GROUP "A"								
	#6	12"	22	32	16'-10"	0'-5½"	3'-3½"	5'-7"
			22	32	17'-1"	0'-5½"	3'-3½"	5'-8"
			22	32	17'-3"	0'-5½"	3'-3½"	5'-8½"
			22	32	17'-6"	0'-5½"	3'-3½"	5'-9"
			22	32	17'-7"	0'-5½"	3'-4½"	5'-10"
	#6	12"	24	35	21'-5"	0'-7½"	4'-1½"	7'-2½"
			24	35	21'-5"	0'-7½"	4'-1½"	7'-2½"
			24	35	21'-6"	0'-7½"	4'-1½"	7'-3"
			24	35	21'-9"	0'-7½"	4'-2½"	7'-4"
			24	35	22'-0"	0'-7½"	4'-3½"	7'-5"
	#7	11"	29	35	22'-5"	0'-7½"	4'-3½"	7'-5"
			29	35	22'-5"	0'-7½"	4'-3½"	7'-5"
			29	35	22'-6"	0'-7½"	4'-3½"	7'-6"
			29	35	22'-6"	0'-7½"	4'-3½"	7'-6"
			29	35	22'-7"	0'-7½"	4'-3½"	7'-6"
	#7	11"	29	32	25'-9"	0'-8½"	4'-10½"	8'-3"
			29	32	25'-9"	0'-8½"	4'-10½"	8'-3"
			29	32	25'-10"	0'-8½"	4'-10½"	8'-3"
			29	32	25'-10"	0'-8½"	4'-10½"	8'-3"
			29	32	25'-11"	0'-8½"	4'-10½"	8'-3"
SECTION "B" & BAR GROUP "B"								
	#7	11"	12	17	25'-10"	0'-10½"	4'-7½"	8'-3"
			12	17	25'-10"	0'-10½"	4'-7½"	8'-3"
			12	17	25'-10"	0'-10½"	4'-7½"	8'-3"
			12	17	26'-1"	0'-10½"	4'-8½"	8'-4"
			12	17	26'-1"	0'-10½"	4'-8½"	8'-4"
	#7	11"	12	17	26'-6"	0'-10½"	4'-9½"	8'-4"
			12	17	26'-6"	0'-10½"	4'-9½"	8'-4"
			12	17	26'-7"	0'-10½"	4'-9½"	8'-4½"
			12	17	26'-7"	0'-10½"	4'-9½"	8'-4½"
			12	17	26'-8"	0'-10½"	4'-9½"	8'-4½"
SECTION "C" & BAR GROUP "C"								
	#8	12"	11	17	22'-5"	0'-9½"	4'-10½"	7'-6"
			11	17	22'-5"	0'-9½"	4'-10½"	7'-6"
			11	17	22'-5"	0'-9½"	4'-10½"	7'-6"
			11	17	22'-5"	0'-9½"	4'-10½"	7'-6"
			11	17	22'-5"	0'-9½"	4'-10½"	7'-6"
	#8	12"	11	17	22'-5"	0'-9½"	4'-10½"	7'-6"
			11	17	22'-5"	0'-9½"	4'-10½"	7'-6"
			11	17	22'-5"	0'-9½"	4'-10½"	7'-6"
			11	17	22'-5"	0'-9½"	4'-10½"	7'-6"
			11	17	22'-5"	0'-9½"	4'-10½"	7'-6"
SECTION "D" & BAR GROUP "D"								
	#8	11"	11	16	24'-0"	0'-11"	5'-2"	8'-3"
			11	16	24'-0"	0'-11"	5'-2"	8'-3"
			11	16	24'-0"	0'-11"	5'-2"	8'-3"
			11	16	24'-1"	0'-11"	5'-2"	8'-3"
			11	16	24'-1"	0'-11"	5'-2"	8'-3"
	#8	11"	11	16	24'-2"	0'-11"	5'-2"	8'-3"
			11	16	24'-2"	0'-11"	5'-2"	8'-3"
			11	16	24'-2"	0'-11"	5'-2"	8'-3"
			11	16	24'-3"	0'-11"	5'-2"	8'-3"
			11	16	24'-3"	0'-11"	5'-2"	8'-3"
SECTION "E" Bar Group "E"	#8	10"	11	16	24'-0"	0'-11"	5'-2"	8'-3"
			11	16	24'-0"	0'-11"	5'-2"	8'-3"
			11	16	24'-0"	0'-11"	5'-2"	8'-3"
			11	16	24'-1"	0'-11"	5'-2"	8'-3"
			11	16	24'-1"	0'-11"	5'-2"	8'-3"
	#8	10"	11	16	24'-2"	0'-11"	5'-2"	8'-3"
			11	16	24'-2"	0'-11"	5'-2"	8'-3"
			11	16	24'-2"	0'-11"	5'-2"	8'-3"
			11	16	24'-3"	0'-11"	5'-2"	8'-3"
			11	16	24'-3"	0'-11"	5'-2"	8'-3"

SECTION & BAR GROUP	'c' bars STRAIGHT In Top and Bottom Slab of Barrel. Alternate with 'a' and 'b2' bars. SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH
SECTION "A" & BAR GROUP "A"					
	#6	12"	44	64	7'-8"
			44	64	7'-9"
			44	64	7'-10"
			44	64	7'-11"
			44	64	7'-11"
	#7	11"	98	70	9'-10"
			98	70	9'-10"
			98	70	9'-11"
			98	70	10'-0"
			98	70	10'-0"
	#8	12"	99	64	11'-10"
			99	64	11'-10"
			99	64	11'-11"
			99	64	12'-0"
			99	64	12'-0"
SECTION "B" & BAR GROUP "B"					
	#7	13"	20	30	7'-8"
			20	30	7'-8"
			20	30	7'-10"
			20	30	7'-10"
			20	30	7'-10"
	#8	13"	20	30	9'-10"
			20	30	9'-10"
			20	30	9'-11"
			20	30	10'-0"
			20	30	10'-0"
	#8	11"	24	36	11'-10"
			24	36	11'-10"
			24	36	11'-11"
			24	36	12'-0"
			24	36	12'-0"
SECTION "C" & BAR GROUP "C"					
	#7	11"	22	32	7'-8"
			22	32	7'-9"
			22	32	7'-10"
			22	32	7'-11"
			22	32	7'-11"
	#8	12"	22	32	9'-10"
			22	32	9'-10"
			22	32	9'-11"
			22	32	10'-0"
			22	32	10'-0"
	#9	11"	26	36	11'-10"
			26	36	11'-10"
			26	36	11'-11"
			26	36	12'-0"
			26	36	12'-0"
SECTION "D" & BAR GROUP "D"					
	#9	10"	21-10"	0'-10½"	3'-7½"
			21-11"	0'-10½"	3'-7½"
			22'-0"	0'-10½"	3'-7½"
			22'-3"	0'-10½"	3'-8"
			22'-4"	0'-10½"	3'-8½"
	#10	10"	22'-8"	0'-10½"	3'-9½"
			22'-8"	0'-10½"	3'-9½"
			22'-9"	0'-10½"	3'-9½"
			22'-10"	0'-10½"	3'-10"
			22'-10"	0'-10½"	3'-10"
SECTION "E" Bar Group "E"	#10	10"	26'-2"	1'-0"	4'-3½"
			26'-3"	1'-0"	4'-3½"
			26'-4"	1'-0"	4'-3½"
			26'-5"	1'-0"	4'-3½"
			26'-6"	1'-0"	4'-3½"
	#11	10"	26'-7"	1'-0"	4'-3½"
			26'-8"	1'-0"	4'-4"
			26'-9"	1'-0"	4'-4"
			27'-0"	1'-0"	4'-4½"
			27'-1"	1'-0"	4'-4½"

SECTION & BAR GROUP	'd' bars STRAIGHT Longitudinal in Top Slab of Barrel. SIZE	SPACING	No. REQ'D	LENGTH
SECTION "A" & BAR GROUP "A"				
	#4	12"	21	7'-8"
			21	7'-9"
			21	7'-10"
			21	7'-11"
			21	7'-11"
	#4	12"	25	9'-10"
			25	9'-10"
			25	9'-11"
			25	10'-0"
			25	10'-0"
	#4	12"	29	11'-10"
			29	11'-10"
			29	11'-11"
			29	12'-0"
			29	12'-0"
SECTION "B" & BAR GROUP "B"				
	#4	12"	21	7'-8"
			21	7'-9"
			21	7'-10"
			21	7'-10"
			21	7'-10"
	#4	12"	25	9'-10"
			25	9'-10"
			25	9'-11"
			25	10'-0"
			25	10'-0"
	#4	12"	29	11'-10"
			29	11'-10"
			29	11'-11"
			29	12'-0"
			29	12'-0"
SECTION "C" & BAR GROUP "C"				
	#4	12"	20	7'-8"
			21	7'-9"
			21	7'-10"
			21	7'-10"
			21	7'-10"
	#4	12"	25	9'-10"
			25	9'-10"
			25	9'-11"
			25	10'-0"
			25	10'-0"
	#4	12"	29	11'-10"
			29	11'-10"
			29	11'-11"
			29	12'-0"
			29	12'-0"
SECTION "D" & BAR GROUP "D"				
	#4	12"	21	7'-8"
			21	7'-9"
			21	7'-10"
			21	7'-10"
			21	7'-10"
	#4	12"	25	9'-10"
			25	9'-10"
			25	9'-11"
			25	10'-0"
			25	10'-0"
	#4	12"	29	11'-10"
			29	11'-10"
			29	11'-11"
			29	12'-0"
			29	12'-0"
SECTION "E" Bar Group "E"	#4	12"	21	7'-8"
			21	7'-9"
			21	7'-10"
			21	7'-10"
			21	7'-10"
	#4	12"	25	9'-10"
			25	9'-10"
			25	9'-11"
			25	10'-0"
			25	10'-0"
	#4	12"	29	11'-10"
			29	11'-10"
			29	11'-11"
			29	12'-0"
			29	12'-0"

SECTION & BAR GROUP	'd' bars STRAIGHT Longitudinal in Sidewalls and Division Wall. SIZE	SPACING	No. REQ'D	LENGTH
SECTION "A" & BAR GROUP "A"				
	#4	12"	20	7'-8"
			24	9'-10"
			28	11'-10"
			32	11'-11"
			36	12'-0"
	#4	12"	20	7'-8"
			24	9'-10"
			28	11'-10"
			32	11'-11"
			36	12'-0"
SECTION "B" & BAR GROUP "B"				
	#4	12"	20	7'-8"
			24	9'-10"
			28	11'-10"
			32	11'-11"
			36	12'-0"
	#4	12"	20	7'-8"
			24	9'-10"
			28	11'-10"
			32	11'-11"
			36	12'-0"
SECTION "C" & BAR GROUP "C"				
	#4	12"	20	7'-8"
			24	9'-10"
			28	11'-10"
			32	11'-11"
			36	12'-0"
	#4	12"	20	7'-8"
			24	9'-10"
			28	11'-10"
			32	11'-11"
			36	12'-0"
SECTION "D" & BAR GROUP "D"				
	#4	12"	20	7'-8"
			24	9'-10"
			28	11'-10"
			32	11'-11"
			36	12'-0"
	#4	12"	20	7'-8"
			24	9'-10"
			28	11'-10"
			32	11'-11"
			36	12'-0"
SECTION "E" Bar Group "E"	#4	12"	20	7'-8"
			24	9'-10"
			28	11'-10"
			32	11'-11"
			36	12'-0"
	#4	12"	20	7'-8"
			24	9'-10"
			28	11'-10"
			32	11'-11"
			36	12'-0"

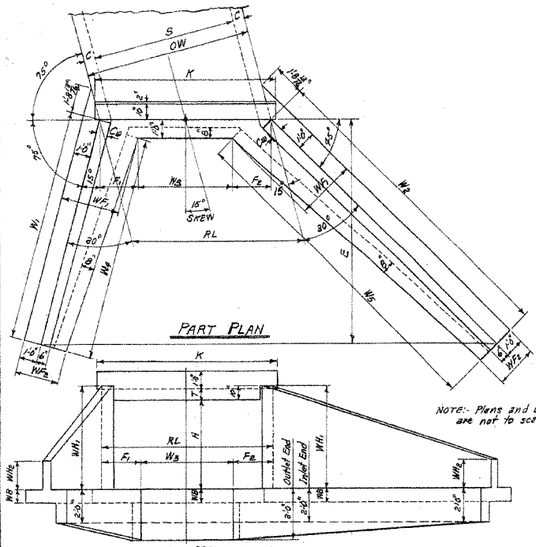
SECTION & BAR GROUP	'e' bars STRAIGHT Longitudinal in Bottom Slab of Barrel. SIZE	SPACING	No. REQ'D	LENGTH
SECTION "A" & BAR GROUP "A"				
	#4	12"	21	7'-8"
			21	7'-9"
			21	7'-10"
			21	7'-11"
			21	7'-11"
	#4	12"	25	9'-10"
			25	9'-10"
			25	9'-11"
			25	10'-0"
			25	10'-0"
	#4	12"	29	11'-10"
			29	11'-10"
			29	11'-11"
			29	12'-0"
			29	12'-0"
SECTION "B" & BAR GROUP "B"				
	#4	12"	21	7'-8"
			21	7'-9"
			21	7'-10"
			21	7'-10"
			21	7'-10"
	#4	12"	25	9'-10"
			25	9'-10"
			25	9'-11"
			25	10'-0"
			25	10'-0"
	#4	12"	29	11'-10"
			29	11'-10"
			29	11'-11"
			29	12'-0"
			29	12'-0"
SECTION "C" & BAR GROUP "C"				
	#4	12"	21	7'-8"
			21	7'-9"
			21	7'-10"
			21	7'-10"
			21	7'-10"
	#4	12"	25	9'-10"
			25	9'-10"
			25	9'-11"
			25	10'-0"
			25	10'-0"
	#4	12"	29	11'-10"
			29	11'-10"
			29	11'-11"
			29	12'-0"
			29	12'-0"
SECTION "D" & BAR GROUP "D"				
	#4	12"	21	7'-8"
			21	7'-9"
			21	7'-10"
			21	7'-10"
			21	7'-10"
	#4	12"	25	9'-10"
			25	9'-10"
			25	9'-11"
			25	10'-0"
			25	10'-0"
	#4	12"	29	11'-10"
			29	11'-10"
			29	11'-11"
			29	12'-0"
			29	12'-0"
SECTION "E" Bar Group "E"	#4	12"	21	7'-8"
			21	7'-9"
			21	7'-10"
			21	7'-10"
			21	7'-10"
	#4	12"	25	9'-10"
			25	9'-10"
			25	9'-11"
			25	10'-0"
			25	10'-0"
	#4	12"	29	11'-10"
			29	11'-10"
			29	11'-11"
			29	12'-0"
			29	12'-0"

SECTION & BAR GROUP	'f' bars STRAIGHT Vertical in Sidewalls and Division Wall. SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH
SECTION "A" & BAR GROUP "A"					
	#5	12"	88	128	6'-2"
			88	128	7'-2"
	#5	12"	88	128	8'-2"
			96	140	9'-2"
			108	156	10'-2"
	#6	12"	88	128	7'-5"
			98	70	9'-10"
	#6	12"	98	70	9'-11"
			98	70	10'-0"
			98	70	10'-0"
	#6	12"	88	128	7'-9"
			99	64	11'-10"
	#6	12"	99	64	11'-10"
			99	64	12'-0"
			99	64	12'-0"
SECTION "B" & BAR GROUP "B"					
	#6	12"	20	30	7'-8"
			20	30	7'-8"
	#6	12"	20	30	7'-10"
			20	30	7'-10"
			20	30	7'-10"
	#6	12"	20	30	9'-10"
			20	30	9'-10"
	#6	12"	20	30	9'-11"
			20	30	10'-0"
			20	30	10'-0"
	#6	12"	24	36	11'-10"
			24	36	11'-10"
	#6	12"	24	36	11'-11"
			24	36	12'-0"
			24	36	12'-0"
SECTION "C" & BAR GROUP "C"					
	#6	12"	22	32	7'-8"
			22	32	7'-9"
	#6	12"	22	32	7'-10"
			22	32	7'-11"
			22	32	7'-11"
	#7	12"	22	32	9'-10"
			22	32	9'-10"
	#7	12"	22	32	9'-11"
			22	32	10'-0"
			22	32	10'-0"
	#7	11"	26	36	11'-10"
			26	36	11'-10"
	#7	11"	26	36	11'-11"
			26	36	12'-0"
			26	36	12'-0"
SECTION "D" & BAR GROUP "D"					
	#7	10"	21-10"	0'-10½"	3'-7½"
			21-11"	0'-10½"	3'-7½"
			22'-0"

Reshot 3-5-93

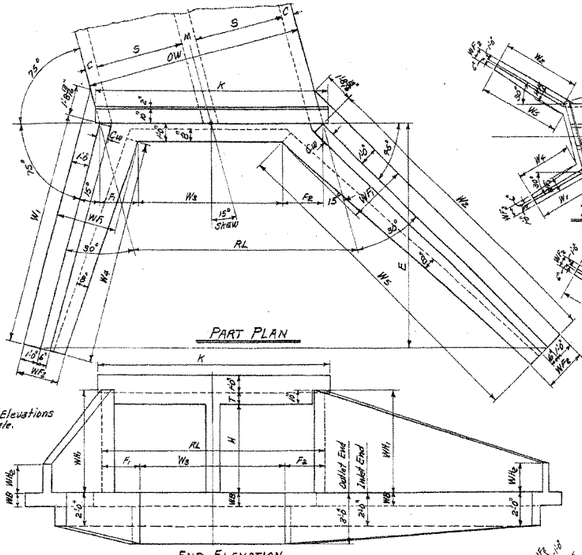
172

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			181	
JOB No.					



SINGLE BARREL CULVERT - 15° SKEW RIGHT FORWARD

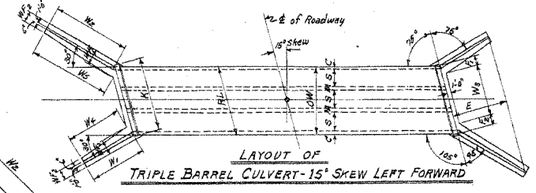
Details of Culvert with 15° Skew Left Forward is reversed, see Layout below.

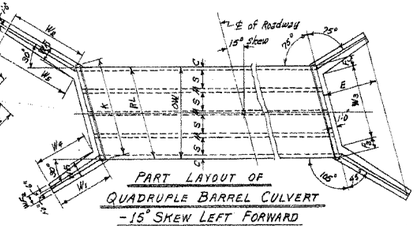


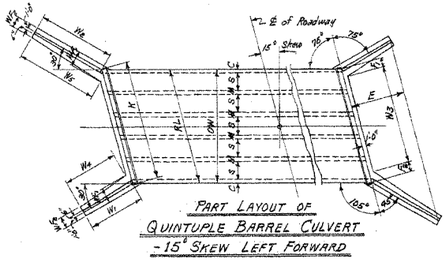
DOUBLE BARREL CULVERT - 15° SKEW RIGHT FORWARD

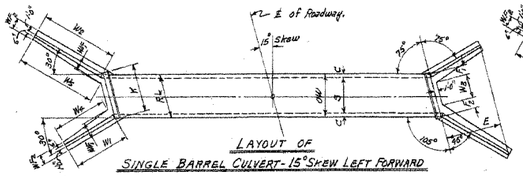
Details of Culvert with 15° Skew Left Forward is reversed, see Layout below.

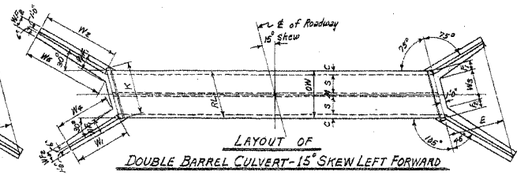
NOTE:- Plans and Elevations are not to scale.



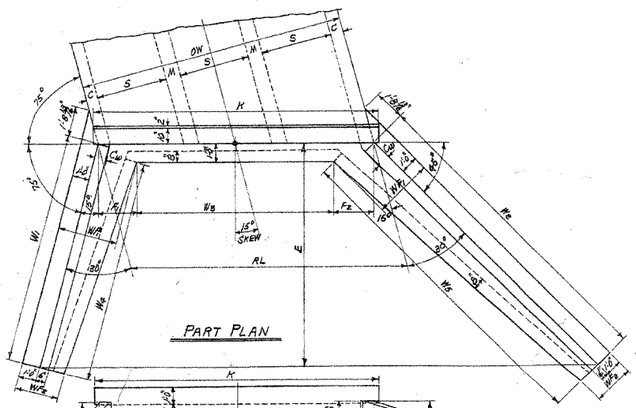








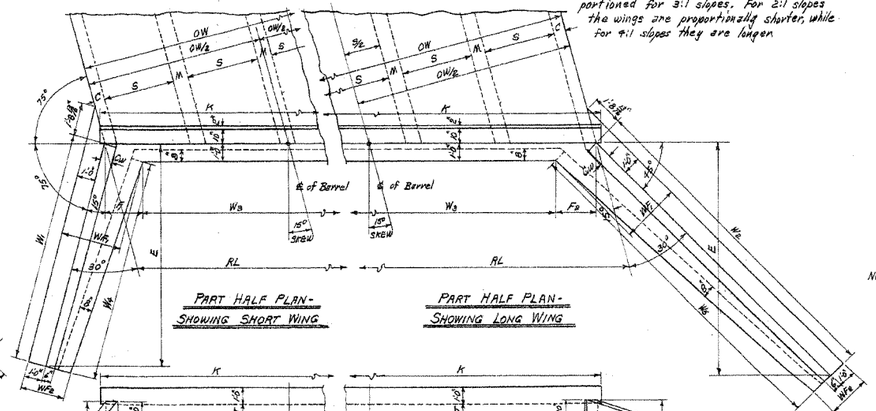
NOTE:- The length of the wings for the Plans, Elevations, and Layouts, as drawn, are proportioned for 3:1 slopes. For 2:1 slopes the wings are proportionally shorter, while for 4:1 slopes they are longer.



TRIPLE BARREL CULVERT - 15° SKEW RIGHT FORWARD

Details of Culvert with 15° Skew Left Forward is reversed, see Layout at top center of sheet.

NOTE:- Plans and Elevations are not to scale.



QUADRUPLE BARREL CULVERT - 15° SKEW RT. FWD.

Details of Culvert with 15° Skew Left Forward is reversed, see Layout at above center.

QUINTUPLE BARREL CULVERT - 15° SKEW RT. FWD.

Details of Culvert with 15° Skew Left Forward is reversed, see Layout above.

ROADWAY LENGTH RL — HEADWALL LENGTH K — APRON DIMENSION W_3

$RL = OW \times 1.035276$ — $K = RL + (6\frac{1}{2}^{"})$ — $W_3 = RL - (F_1 + F_2)$

USE WITH DRAWING No.	CLEAR COVER OVER TOP	CLEAR HEIGHT INSIDE	SUM OF POSITIVE DIMENSIONS	SINGLE BARREL CULVERT				DOUBLE BARREL CULVERT				TRIPLE BARREL CULVERT				QUADRUPLE BARREL CULVERT				QUINTUPLE BARREL CULVERT			
	S	H	F_1+F_2	OW	RL	K	W_3	OW	RL	K	W_3	OW	RL	K	W_3	OW	RL	K	W_3	OW	RL	K	W_3
W-X152-1, W-X153-1 OR W-X154-1. (FOR H=8'0" OR LESS)	4'	2'-0"	2'-0"	5'-0"	5'-2⅜"	5'-8½"	3'-2⅜"	9'-8"	10'-0"	10'-6½"	8'-0"	14'-4"	14'-10"	15'-4½"	12'-10"	19'-0"	19'-8"	20'-2½"	17'-8"	23'-8"	24'-6"	25'-0½"	22'-6"
		3'	2'-6⅜"	5'-0"	"	"	2'-6⅜"	9'-8"	"	"	7'-2⅜"	14'-6"	"	"	12'-0⅜"	19'-0"	"	"	16'-10⅜"	23'-8"	"	"	21'-8⅜"
		4'	3'-7⅜"	5'-0"	"	"	1'-4⅜"	9'-8"	"	"	6'-4⅜"	14'-4"	"	"	11'-2⅜"	19'-0"	"	"	16'-0⅜"	23'-8"	"	"	20'-10⅜"
		5'	4'-8⅜"	5'-0"	"	"	0'-8⅜"	9'-8"	"	"	5'-4⅜"	14'-4"	"	"	10'-2⅜"	19'-0"	"	"	15'-2⅜"	23'-8"	"	"	20'-0⅜"
		6'	5'-9⅜"	5'-2"	5'-4½"	5'-10½"	0'-1"	9'-11"	10'-3½"	10'-8½"	5'-1"	14'-8"	15'-2½"	15'-8½"	9'-11"	19'-5"	20'-1⅛"	20'-7½"	14'-10"	24'-2"	25'-0⅛"	25'-6½"	19'-9"
	5'	3'	2'-9⅜"	6'-0"	6'-2⅝"	6'-9"	3'-6⅜"	11'-8"	12'-1"	12'-10½"	9'-3⅜"	17'-4"	17'-10⅜"	18'-5½"	15'-1½"	23'-0"	23'-9⅜"	24'-9½"	21'-0"	28'-8"	29'-8"	30'-5½"	26'-10⅜"
		4'	3'-7⅜"	6'-0"	"	"	2'-7"	11'-8"	"	"	8'-5⅜"	17'-4"	"	"	14'-3⅜"	23'-0"	"	"	20'-2⅜"	28'-8"	"	"	26'-0⅜"
		5'	4'-8⅜"	6'-0"	"	"	1'-9⅜"	11'-8"	"	"	7'-7⅜"	17'-4"	"	"	13'-4"	23'-0"	"	"	19'-4⅜"	28'-8"	"	"	25'-2⅜"
		6'	5'-3⅜"	6'-2"	6'-4½"	6'-11⅜"	1'-1⅜"	11'-11"	12'-5"	12'-10½"	7'-10⅜"	17'-8"	18'-3½"	18'-10"	14'-10"	23'-5"	24'-2⅜"	24'-9¾"	18'-11½"	28'-2"	29'-2"	30'-0⅜"	26'-1½"
		7'	6'-3⅜"	6'-8"	6'-5⅝"	7'-0⅛"	⑧ 0"	12'-1"	12'-6⅝"	13'-0⅛"	6'-0⅜"	17'-11"	18'-6⅝"	19'-1"	12'-10⅜"	23'-9"	24'-7"	25'-1½"	18'-1½"	28'-7"	29'-7½"	31'-2"	24'-1⅜"
	6'	3'	2'-9⅜"	7'-0"	7'-1⅝"	7'-9½"	4'-1⅜"	13'-8"	14'-1½"	14'-8½"	11'-4"	20'-4"	21'-0⅜"	21'-7"	18'-2⅜"	27'-0"	27'-11⅜"	28'-5½"	25'-1½"	33'-8"	34'-10½"	35'-4⅜"	32'-0⅜"
		4'	3'-7⅜"	7'-0"	"	"	3'-7⅜"	13'-8"	"	"	10'-6⅜"	20'-4"	"	"	17'-5"	27'-0"	"	"	23'-6⅜"	33'-8"	"	"	31'-2⅜"
		5'	4'-8⅜"	7'-0"	"	"	2'-9⅜"	13'-8"	"	"	9'-8⅜"	20'-4"	"	"	16'-7⅛"	27'-0"	"	"	22'-6"	33'-8"	"	"	30'-2⅜"
		6'	5'-3⅜"	7'-8"	7'-11½"	8'-6½"	2'-1⅜"	13'-11"	14'-5"	14'-11½"	9'-11⅜"	20'-8"	21'-4⅜"	21'-11½"	16'-11⅜"	27'-5"	28'-3⅛"	28'-11"	23'-1½"	34'-2"	35'-2½"	35'-11"	30'-1⅜"
		7'	6'-3⅜"	7'-8"	7'-6"	8'-2⅝"	1'-0⅜"	14'-1"	14'-7"	15'-1½"	8'-1⅜"	20'-11"	21'-7⅛"	22'-2⅜"	15'-8"	27'-9"	28'-8⅜"	29'-3⅜"	22'-3"	34'-7"	35'-9⅜"	36'-6"	29'-3⅜"
		8'	7'-3⅜"	7'-8"	7'-7⅝"	8'-2⅝"	⑧ 0"	14'-2"	14'-8"	15'-2⅝"	6'-11⅜"	21'-0"	21'-8⅜"	22'-3⅝"	14'-10⅜"	27'-10"	28'-9⅜"	29'-4⅜"	21'-11"	35'-0"	36'-0⅜"	36'-5"	28'-2"
	7'	4'	3'-7⅜"	8'-0"	8'-3⅜"	8'-9½"	4'-7⅜"	15'-8"	16'-2⅝"	16'-9"	12'-7"	23'-4"	24'-1⅜"	24'-8½"	20'-6½"	31'-0"	32'-1⅛"	32'-7½"	28'-5½"	38'-8"	40'-0⅜"	40'-6½"	36'-4⅜"
		5'	4'-8⅜"	8'-0"	"	"	3'-10"	15'-8"	"	"	11'-3⅜"	23'-4"	"	"	19'-0⅛"	31'-0"	"	"	27'-1⅜"	38'-8"	"	"	35'-7"
		6'	5'-9⅜"	8'-2"	8'-5⅝"	9'-0"	3'-2⅜"	15'-11"	16'-5⅝"	17'-0⅛"	11'-2⅜"	23'-8"	24'-5"	25'-0⅛"	19'-2⅜"	31'-5"	32'-4⅛"	33'-0⅜"	27'-3"	39'-2"	40'-6⅜"	41'-1"	35'-3⅜"
		7'	6'-3⅜"	8'-3"	8'-8½"	9'-5"	2'-6⅜"	16'-1"	16'-7⅜"	17'-2⅝"	10'-2"	23'-11"	24'-9⅜"	25'-3½"	18'-3⅜"	31'-9"	32'-10⅝"	33'-5½"	26'-4½"	39'-7"	40'-11⅜"	41'-6½"	33'-6"
		8'	7'-3⅜"	8'-4"	8'-11½"	9'-10"	2'-1⅜"	16'-4"	16'-10⅜"	17'-3⅝"	9'-10⅜"	24'-1"	24'-10⅜"	25'-5½"	17'-1⅜"	31'-10"	32'-11⅝"	33'-6"	25'-5"	39'-10"	41'-0⅜"	41'-7½"	33'-4⅜"
	8'	3'	2'-9⅜"	9'-0"	9'-2⅝"	9'-10½"	5'-6⅜"	17'-8"	18'-2⅝"	18'-10"	15'-8"	26'-4"	27'-1⅜"	27'-8½"	23'-7½"	35'-6"	36'-5⅜"	36'-9⅜"	32'-7½"	44'-8"	45'-8½"	45'-9"	41'-7"
		4'	3'-7⅜"	9'-0"	9'-3⅝"	9'-10½"	4'-7⅜"	17'-11"	18'-5⅝"	18'-10"	14'-7"	26'-8"	27'-3⅞"	27'-8½"	23'-6"	35'-11"	36'-8⅜"	37'-2⅝"	32'-7½"	44'-8"	45'-8½"	45'-9"	41'-7"
		5'	4'-8⅜"	9'-2"	9'-5⅝"	10'-0⅝"	3'-10⅜"	17'-11"	18'-5⅝"	19'-1"	14'-1⅛"	26'-8"	27'-3⅞"	28'-1⅜"	23'-2"	35'-11"	36'-8⅜"	37'-2⅝"	32'-2⅝"	44'-8"	45'-8½"	46'-3⅜"	41'-3⅜"
		6'	5'-3⅜"	9'-8"	"	"	4'-2⅜"	17'-11"	"	"	13'-3⅜"	26'-8"	"	"	22'-8"	36'-5"	"	"	31'-7⅜"	44'-8"	"	"	40'-5⅜"
		7'	6'-3⅜"	9'-8"	10'-0⅜"	10'-11⅜"	3'-1"	18'-1"	18'-8⅝"	19'-2"	12'-5⅜"	26'-11"	27'-10⅝"	28'-4½"	21'-10⅝"	36'-10"	37'-9⅛"	38'-3½"	30'-6⅝"	44'-7"	45'-7½"	46'-2⅝"	39'-10"
		8'	7'-3⅜"	9'-8"	10'-3⅜"	11'-1⅜"	2'-1⅜"	18'-2"	18'-9⅝"	19'-4½"	11'-1⅜"	27'-0"	27'-11⅜"	28'-5½"	20'-10⅜"	36'-10"	37'-9⅛"	38'-3½"	29'-5½"	44'-8"	45'-8½"	46'-3½"	38'-6⅜"
	9'	5'	4'-8⅜"	10'-2"	10'-6⅝"	11'-0⅝"	6'-1"	19'-11"	20'-7⅛"	21'-2"	16'-2"	29'-8"	30'-6⅜"	31'-2"	26'-3⅜"	39'-5"	40'-3⅜"	41'-0⅜"	36'-1½"	49'-2"	50'-10⅜"	51'-5½"	46'-5⅜"
		6'	5'-3⅜"	10'-3"	10'-7⅝"	11'-1⅝"	5'-10⅜"	20'-1"	20'-7⅝"	21'-2"	15'-10⅜"	29'-11"	30'-9⅝"	31'-6"	25'-10⅜"	39'-9"	40'-7⅞"	41'-4⅜"	35'-10⅜"	49'-7"	51'-4"	51'-10⅝"	46'-0⅜"
		7'	6'-3⅜"	10'-3"	"	"	5'-1⅜"	20'-1"	"	"	15'-4⅜"	29'-11"	"	"	24'-5⅜"	39'-9"	"	"	34'-8"	49'-7"	"	"	44'-1⅜"
		8'	7'-3⅜"	10'-4"	10'-8⅝"	11'-2⅝"	2'-1⅜"	20'-2"	20'-10⅝"	21'-5"	18'-2"	30'-0"	31'-0⅝"	31'-7½"	28'-6⅜"	40'-0"	41'-0⅛"	41'-9⅝"	33'-6⅜"	49'-8"	51'-5"	52'-1⅛"	43'-3⅜"
	10'	5'	4'-8⅜"	11'-2"	11'-6⅝"	12'-1⅝"	7'-1⅜"	21'-11"	22'-8⅛"	23'-3⅝"	18'-5"	32'-8"	33'-8½"	34'-4⅝"	29'-4⅝"	43'-5"	44'-4½"	45'-1"	40'-1"	54'-2"	56'-1"	56'-7½"	51'-7½"
		6'	5'-3⅜"	11'-3"	11'-7⅝"	12'-2⅝"	6'-10⅜"	22'-1"	22'-10⅜"	23'-5⅝"	17'-7⅜"	32'-11"	34'-1"	34'-7½"	28'-3⅜"	43'-8"	44'-7⅜"	45'-3½"	39'-4"	54'-7"	56'-6"	57'-0⅜"	51'-7"
		7'	6'-3⅜"	11'-3"	"	"	5'-1⅜"	22'-1"	"	"	16'-4⅜"	32'-11"	"	"	27'-1"	43'-8"	"	"	38'-3½"	54'-7"	"	"	50'-0⅜"
		8'	7'-3⅜"	11'-4"	11'-8⅝"	12'-3⅝"	4'-0⅜"	22'-2"	22'-11⅛"	23'-5⅝"	15'-8⅜"	33'-0"	34'-2"	34'-8½"	26'-5⅜"	43'-10"	44'-9⅛"	45'-5½"	37'-8"	54'-9"	56'-7½"	57'-1⅛"	48'-10⅜"
	11'	6'	5'-3⅜"	12'-4"	12'-8⅝"	13'-2⅝"	7'-6"	24'-2"	25'-0⅛"	25'-6⅝"	19'-9"	36'-0"	37'-2⅜"	37'-9½"	32'-1"	47'-10"	49'-0⅛"	49'-7½"	44'-3"	—	—	—	—
		7'	6'-3⅜"	12'-5"	"	"	6'-5⅜"	24'-2"	"	"	18'-6⅜"	36'-0"	"	"	30'-9⅜"	47'-10"	"	"	43'-0⅜"	—	—	—	—
		8'	7'-3⅜"	12'-6"	"	"	5'-4⅜"	24'-2"	"	"	17'-3⅜"	36'-0"	"	"	29'-6⅜"	47'-10"	"	"	41'-3⅜"	—	—	—	—
	12'	6'	5'-3⅜"	13'-4"	13'-8⅝"	14'-2⅝"	8'-6⅜"	26'-8"	27'-1"	27'-7⅝"	21'-10"	39'-4"	40'-4⅜"	40'-11"	36'-1⅜"	51'-10"	53'-0"	53'-7½"	48'-5⅜"	—	—	—	—
		7'	6'-3⅜"	13'-5"	"	"	7'-3⅜"	26'-8"	"	"	20'-7⅜"	39'-0"	"	"	33'-10⅜"	51'-10"	"	"	47'-5"	—	—	—	—
		8'	7'-3⅜"	13'-6"	"	"	6'-1"	26'-8"	"	"	19'-4⅜"	39'-0"	"	"	32'-8"	51'-10"	"	"	45'-11⅜"	—	—	—	—
W-X152-2, W-X153-2 OR W-X154-2. (FOR H=9'0" & OVER)	7'	8'	8'-11⅝"	8'-6"	8'-9⅜"	9'-4"	⑧ 0"	16'-5"	17'-0"	17'-6½"	8'-0⅜"	24'-4"	25'-2⅛"	25'-8½"	16'-3"	32'-2"	33'-4⅛"	33'-11"	29'-5⅜"	40'-0"	41'-7"	42'-1½"	32'-7⅜"
	8'	9'	8'-11⅝"	9'-6"	9'-10"	10'-4⅝"	0'-10⅜"	16'-5"	17'-0"	17'-6½"	10'-1⅝"	27'-4"	28'-3⅜"	28'-10"	19'-9⅜"	36'-3"	37'-6⅜"	38'-0⅝"	28'-7"	45'-2"	46'-9⅜"	47'-5½"	37'-9⅝"
		10'	10'-2"	9'-8"	10'-0⅜"	10'-6⅝"	⑧ 0"	16'-8"	17'-3⅜"	17'-10⅛"	9'-2"	27'-8"	28'-7⅜"	29'-2⅜"	18'-5⅜"	36'-8"	37'-11⅝"	38'-6"	27'-9⅜"	45'-8"	47'-3⅜"	47'-9⅜"	37'-1⅛"
	9'	9'	8'-11⅝"	10'-6"	10'-10⅜"	11'-3"	1'-11⅜"	20'-5"	21'-1⅜"	21'-8⅛"	12'-2⅛"	30'-9"	31'-8⅜"	32'-3⅝"	22'-5⅛"	40'-3"	41'-8"	42'-2½"	32'-8⅛"	50'-2"	51'-11⅛"	52'-5⅝"	42'-0"
		10'	10'-2"	10'-8"	11'-0⅜"	11'-5"	0'-10⅜"	20'-8"	21'-4⅜"	21'-11⅛"	11'-2⅜"	30'-8"	31'-8⅜"	32'-3⅝"	21'-7"	40'-2"	41'-8⅛"	42'-2½"	31'-11⅛"	50'-1"	52'-0⅝"	53'-0"	42'-3½"
		11'	11'-0⅝"	10'-10"	11'-2⅝"	11'-8"	⑧ 0"	20'-10"	21'-6⅝"	22'-1⅛"	10'-2⅜"	30'-10"	31'-11"	32'-5½"	20'-10⅜"	40'-1"	42'-3⅛"	42'-9⅜"	30'-10⅜"	50'-0"	52'-2"	53'-2"	41'-2⅜"
	10'	9'	8'-11⅝"	11'-6"	11'-10⅜"	12'-5⅛"	2'-11⅜"	22'-5"	23'-1⅜"	23'-9"	14'-3⅜"	33'-4"	34'-4⅜"	35'-0⅝"	25'-0⅜"	44'-3"	45'-9⅜"	46'-4½"	36'-1⅛"	55'-2"	57'-1⅜"	57'-10⅝"	48'-2"
		10'	10'-2"	11'-8"	12'-1"	12'-7⅝"	1'-11"	22'-8"	23'-4⅜"	24'-0"	13'-8⅜"	33'-8"	34'-8⅜"	35'-4⅝"	24'-10⅜"	44'-8"	46'-2⅜"	46'-9½"	36'-1"	55'-8"	57'-7⅝"	58'-4"	47'-6⅜"
		11'	11'-4⅝"	11'-10"	12'-3"	12'-9⅝"	0'-10⅜"	22'-10"	23'-5⅞"	24'-2"	12'-8"	33'-10"	35'-0⅜"	35'-6⅝"	23'-7⅜"	44'-10"	46'-5"	46'-11⅝"	35'-10⅜"	55'-10"	57'-10⅝"	58'-7⅛"	46'-5"
		12'	11'-7⅜"	12'-0"	12'-5⅜"	12'-11⅝"	⑧ 0"	23'-0"	23'-7⅜"	24'-4⅛"	11'-3⅛"	34'-0"	35'-2⅜"	35'-8⅝"	22'-7"	45'-0"	46'-7"	47'-1⅛"	33'-11⅜"	56'-0"	57'-11⅝"	58'-8"	45'-4⅛"
	12'	9'	8'-11⅝"	12'-6"	12'-10⅜"	13'-5⅛"	5'-0⅜"	24'-5"	25'-1⅜"	25'-8"	16'-3"	35'-4"	36'-4⅜"	37'-0⅝"	28'-1"	46'-9"	48'-3⅛"	48'-10⅝"	39'-5⅜"	57'-3"	59'-2⅜"	59'-11⅛"	50'-5⅜"
		10'	10'-2"	12'-8"	13'-1"	13'-7⅝"	3'-11⅜"	24'-8"	25'-4⅞"	26'-1⅛"	14'-9⅜"	35'-8"	36'-8⅜"	37'-4⅝"	25'-5⅜"	46'-10"	48'-4⅜"	48'-11⅝"	36'-5⅜"	57'-4"	59'-3⅜"	60'-0⅛"	47'-5⅜"
		11'	11'-4⅝"	12'-10"	13'-3⅜"	13'-10"	1'-10⅜"	24'-10"	25'-6⅝"	26'-3"	13'-5⅜"	36'-0"	37'-0⅜"	37'-8½"	26'-8"	46'-10"	48'-5"	49'-0"	33'-9"	57'-4"	59'-4"	60'-1"	44'-5⅜"
		12'	11'-7⅜"	13'-0"	13'-5⅜"	14'-0"	0'-10⅜"	25'-0"	25'-8⅜"	26'-5"	12'-3⅜"	36'-2"	37'-2⅜"	37'-10"	27'-0"	46'-10"	48'-5"	49'-0"	31'-6"	57'-4"	59'-4"	60'-1"	43'-2⅜"

⑧ Special case for these boxes. See Detail 'A' and Table 'A' for revised values of F_1, F_2, W_8 and W_5, when apron width is more than 1'-0" and $W_3 = 0$. For Detail 'A' and Table 'A' for each slope, see Drawing Nos. W-X152-1, W-X152-2, or W-X153-1, W-X153-2, or W-X154-1, W-X154-2.

NOTE:- This drawing to be used in conjunction with Standard Wing Drawings for 15° Skews for each slope as listed below.

2:1 Slopes	3:1 Slopes	4:1 Slopes
W-X152-1 or W-X152-2	W-X153-1 or W-X153-2	W-X154-1 or W-X154-2.

This drawing to be used in conjunction with Std. Barrel Sections, Drawing Nos.

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-115X-0	R-215X-0	R-315X-0	R-415X-0	R-515X-0
R-115X-1	R-215X-1	R-315X-1	R-415X-1	R-515X-1
	R-215X-2	R-315X-2		

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS 15° SKEW

4, 5, 6, 7, 8, 9, 10, 11 & 12 SPANS — 2:1, 3:1 & 4:1 SLOPES

SINGLES, DOUBLES, TRIPLES, QUADRUPLES & QUINTUPLES. — ALL DEPTHS OF COVER H=2, 3, 4, 5, 6, 7, 8, 9, 10, 11 & 12.

STANDARD DRAWING NO. W-X15

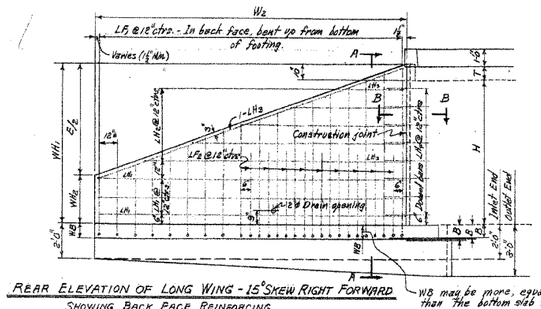
Designed by:- W.C.H. 5-22-63.
Traced by:- W.C.H. 6-13-63
Quantities by:-

Checked by:-
Checked by:- J.E.M. 6-20-63
Checked by:-

RESHOT 3-5-93

173

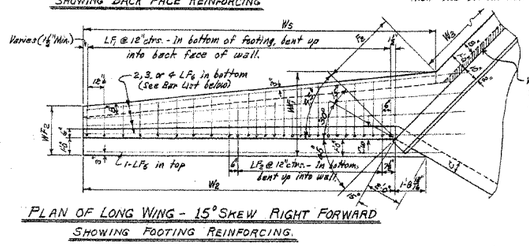
FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			182	
JOB No.					



REAR ELEVATION OF LONG WING - 15° SKEW RIGHT FORWARD

SHOWING BACK FACE REINFORCING

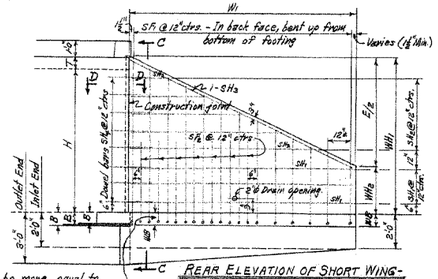
WB may be more, equal to, or less than the bottom slab thickness B.



PLAN OF LONG WING - 15° SKEW RIGHT FORWARD

SHOWING FOOTING REINFORCING.

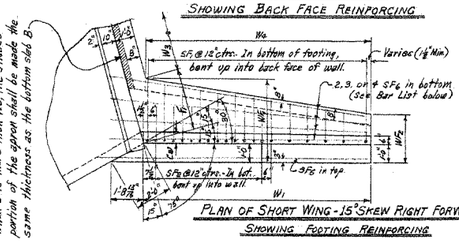
When B is more than WB, the shaded portion of the apron shall be made the same thickness as the bottom slab B.



REAR ELEVATION OF SHORT WING - 15° SKEW RIGHT FORWARD

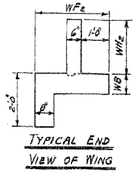
SHOWING BACK FACE REINFORCING

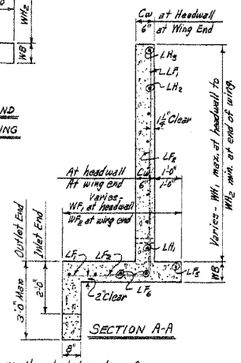
WB may be more, equal to, or less than the bottom slab B.

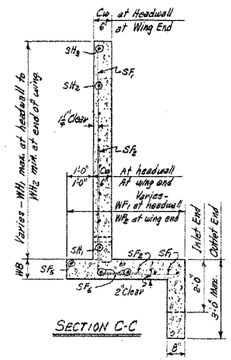


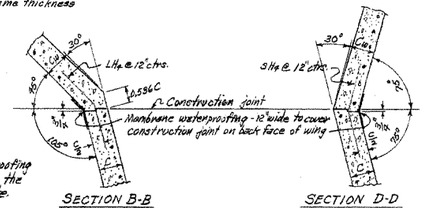
PLAN OF SHORT WING - 15° SKEW RIGHT FORWARD

SHOWING FOOTING REINFORCING



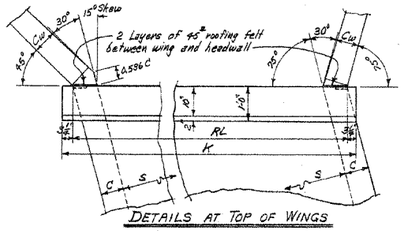






NOTE:- Payment for membrane waterproofing and roofing felt to be included in the price bid for Class S Concrete.

SECTIONS THRU CONSTRUCTION JOINTS



DETAILS AT TOP OF WINGS

15° SKEW RIGHT FORWARD

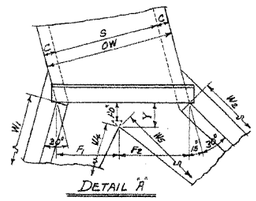


TABLE "A" - DIMENSIONS FOR "DETAIL "A"

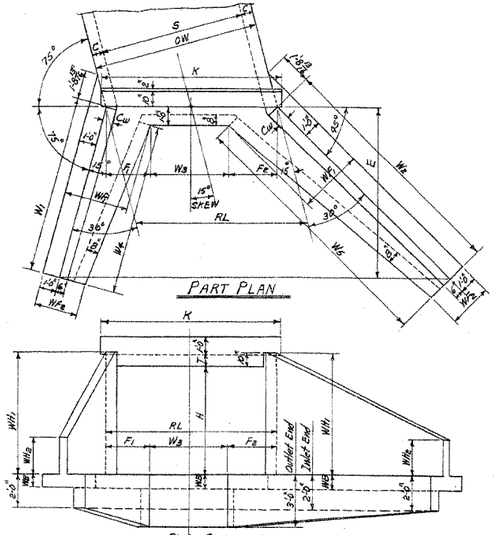
S	H	F_1	F_2	W_4	W_5	W_3	Y
5'	7'	3'-0"	3'-5⅝"	11'-2⅛"	17'-3½"	0"	1'-0⅝"
6'	8'	3'-6"	4'-1⅝"	12'-7⅛"	19'-7"	0"	1'-1"

REGULAR WING DIMENSIONS - 2:1 SLOPES

CLEAR HEIGHT OF BOX	THICKNESS OF WING FOOTING	THICKNESS OF WING AT HEADWALL = C	WINGWALL HEIGHTS AT HEADWALL	WINGWALL HEIGHTS AT END OF WING	WIDTHS OF WING FOOTINGS AT HEADWALL	WIDTHS OF WING FOOTINGS AT END OF WING	FOOTING DIMENSION PARALLEL WITH HEADWALL SHORT WING	FOOTING DIMENSION PARALLEL WITH HEADWALL LONG WING	TAPER FACILITATING FORM TO END OF WING	LENGTHS OF WINGWALLS SHORT WING	LENGTHS OF WINGWALLS LONG WING	INSIDE FOOTING DIMENSIONS SHORT WING	INSIDE FOOTING DIMENSIONS LONG WING	QUANTITY PER WING CLASS S CONCRETE INLET END SHORT WING	QUANTITY PER WING CLASS S CONCRETE INLET END LONG WING	QUANTITY PER WING CLASS S CONCRETE OUTLET END SHORT WING	QUANTITY PER WING CLASS S CONCRETE OUTLET END LONG WING
H	WB	Cw	WH_1	WH_2	WF_1	WF_2	F_1	F_2	E	W_1	W_2	W_4	W_5	CU.YD.	CU.YD.	CU.YD.	CU.YD.
2'	7"	6"	2'-10"	0'-8"	2'-8"	2'-0"	1'-1⅜"	0'-10⅝"	9'-4"	4'-5⅜"	6'-1⅝"	3'-9⅛"	6'-0⅛"	0.588	0.744	0.593	0.825
3'	7"	6"	3'-10"	1'-0"	2'-8"	2'-1½"	1'-5⅝"	1'-1⅝"	6'-8"	5'-10⅛"	8'-0⅛"	5'-3⅝"	8'-3⅛"	0.802	1.124	0.879	1.233
4'	7"	6"	4'-10"	1'-4"	3'-0"	2'-3"	1'-9⅜"	1'-10"	7'-0"	7'-3"	9'-10⅞"	6'-9"	10'-5⅛"	1.118	1.567	1.216	1.703
5'	7"	6"	5'-10"	1'-8"	3'-6"	2'-4½"	2'-1⅝"	2'-3⅝"	8'-4"	8'-7⅛"	11'-9½"	8'-2⅛"	12'-8⅛"	1.490	2.080	1.595	2.244
		7"	5'-10"	1'-8"	3'-6"	2'-4½"	2'-1⅝"	2'-3⅝"	8'-4"	8'-7⅛"	11'-9½"	8'-2⅛"	12'-8⅛"	1.592	2.169	1.656	2.332
6'	8"	7"	6'-10"	2'-0"	3'-8"	2'-6"	2'-5⅝"	2'-8⅝"	9'-8"	10'-0"	13'-8"	9'-8⅛"	14'-11"	2.055	2.883	2.188	3.074
		7⅝"	6'-10"	2'-0"	3'-8"	2'-6"	2'-5⅝"	2'-8⅝"	9'-8"	10'-0"	13'-8"	9'-8⅛"	14'-11"	2.097	2.943	2.230	3.134
		8"	6'-10"	2'-0"	3'-8"	2'-6"	2'-5⅝"	2'-8⅝"	9'-8"	10'-0"	13'-8"	9'-8⅛"	14'-11"	2.140	3.004	2.272	3.195
7'	8½"	7⅝"	7'-10"	2'-4"	4'-2"	2'-7½"	3'-0½"	3'-3⅝"	11'-0"	11'-4⅝"	15'-6⅝"	11'-2½"	17'-3¾"	2.496	3.781	2.898	4.002
		8"	7'-10"	2'-4"	4'-2"	2'-7½"	3'-0½"	3'-3⅝"	11'-0"	11'-4⅝"	15'-6⅝"	11'-2½"	17'-3¾"	2.751	3.860	2.903	4.081
8'	9"	8"	8'-10"	2'-8"	4'-8"	2'-9"	3'-4⅝"	4'-2⅝"	12'-4"	12'-3½"	17'-5⅛"	12'-8⅝"	19'-8⅛"	3.447	4.832	3.618	5.082

* Quantity per wing does not include headwall or that portion of apron or toewall for the length Ws.

⊛ See Table A for special values of F_1 & F_2 and W_4 & W_5 for Single 5'x7' and 6'x8' Box Culverts.



PART PLAN

END ELEVATION

SINGLE BARREL CULVERT - 15° SKEW RIGHT FORWARD

Details of Culvert with 15° Skew Left Forward is reversed, see Drwg. No. W-X.15.

TYPICAL WING DETAILS

NOTE:- For remainder of General Plans and Elevations of Single, Double, Triple, Quadruple and Quintuple Span Culverts, see Std. Drawing No. W-X.15. For values of RL, K, and W_3 for each box, see the above Std. also.

MEMBRANE:- A membrane waterproofing 12" wide, consisting of three moppings of waterproofing asphalt and two intermediate layers of treated cotton fabric shall be applied to the back face of wing to cover the construction joints in wings.

QUANTITIES

CLEAR SPAN	CLEAR HEIGHT	THICKNESS OF WING AT HEADWALL	THICKNESS OF WING FOOTING	REINFORCING ⊛ STEEL - FOR 4 WINGS	CLASS S CONCRETE - 4 WINGS HEADWALLS, WINGWALLS, FOOTINGS, TOEWALLS AND APRONS SINGLE BARREL CULVERT	DOUBLE BARREL CULVERT	TRIPLE BARREL CULVERT	QUADRUPLE BARREL CULVERT	QUINTUPLE BARREL CULVERT
S	H	Cw	WB	LB.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.
4'	2'	6"	7"	83	3.51	4.50	5.50	6.99	7.98
	3'	6"	7"	126	4.75	5.73	6.73	7.72	8.71
	4'	6"	7"	190	6.20	7.18	8.18	9.17	10.17
	5'	6"	7"	264	7.88	8.87	9.86	10.86	11.85
	6'	7"	8"	434	10.59	11.61	12.63	13.65	14.67
5'	3'	6"	7"	126	4.96	6.16	7.37	8.58	9.79
	4'	6"	7"	190	6.92	7.62	8.82	10.03	11.24
	5'	6"	7"	264	8.10	9.30	10.51	11.71	12.92
	6'	7"	8"	434	10.81	12.04	13.28	14.52	15.76
	7'	7⅞"	8½"	841	13.78	15.04	16.30	17.56	18.82
6'	3'	6"	7"	126	5.18	6.62	8.02	9.45	10.88
	4'	6"	7"	190	6.63	8.07	9.47	10.90	12.33
	5'	6"	7"	264	8.32	9.75	11.15	12.59	14.01
	6'	7"	8"	434	11.04	12.49	13.93	15.39	16.84
	7'	7⅞"	8½"	841	14.01	15.49	16.95	18.43	19.91
	8'	8"	9"	1062	17.49	18.98	20.45	21.94	23.43
7'	4'	6"	7"	190	6.86	8.52	10.15	11.82	13.49
	5'	6"	7"	264	8.54	10.20	11.88	13.50	15.12
	6'	7"	8"	434	11.26	12.94	14.59	16.27	17.92
	7'	7⅞"	8½"	841	14.24	15.93	17.62	19.31	21.00
	8'	8"	9"	1062	17.72	19.43	21.12	22.83	24.52
8'	5'	6"	7"	190	7.09	8.89	10.85	12.75	14.57
	5'	7"	7"	264	9.10	11.02	12.90	14.82	16.66
	6'	7"	8"	434	11.49	13.41	15.29	17.20	19.05
	7'	7⅞"	8½"	841	14.46	16.39	18.29	20.23	22.09
	8'	8"	9"	1062	17.95	19.89	21.79	23.73	25.62
9'	5'	7"	7"	264	9.84	11.99	13.59	15.75	17.79
	6'	7⅞"	8"	434	11.94	14.12	16.24	18.41	20.47
	7'	7⅞"	8½"	841	14.69	16.86	18.98	21.15	23.22
	8'	8"	9"	1062	18.18	20.35	22.48	24.66	26.71
10'	5'	7"	7"	264	9.57	11.97	14.30	16.58	18.93
	6'	7⅞"	8"	434	12.18	14.59	16.94	19.24	21.61
	7'	7⅞"	8½"	841	14.92	17.33	19.68	21.99	24.36
	8'	8"	9"	1062	18.41	20.82	23.17	25.49	27.85
11'	6'	8"	8"	434	12.62	15.30	17.87	20.43	——
	7'	8"	8½"	841	15.43	18.10	20.68	23.24	——
	8'	8"	9"	1062	18.63	21.30	23.88	26.44	——
12'	6'	8"	8"	434	12.86	15.79	18.59	21.41	——
	7'	8"	8½"	841	15.66	18.59	21.40	24.22	——
	8'	8"	9"	1062	18.86	21.79	24.60	27.42	——

⊛ For reinforcing steel in Headwalls and Aprons, see Drawings listed below.

GENERAL NOTES:-

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.

REINFORCING STEEL:- Reinforcing steel to be deformed bars of intermediate or hard grade.

CONSTRUCTION JOINTS:- Construction joints between wingwall, footings and sidewalls shall be only where shown on plans.

SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

UNIT STRESSES:-

Class S Concrete (n=10) 1200 #/□"

Reinforcing Steel 20,000 #/□"

NOTE:-

This drawing to be used in conjunction with Std. Barrel Sections Drawing Nos.

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-115X-0	R-215X-0	R-315X-0	R-415X-0	R-515X-0
R-115X-1	R-215X-1	R-315X-1	R-415X-1	R-515X-1
	R-215X-2	R-315X-2		

BAR LIST FOR ONE SHORT AND ONE LONG WING - 2 EACH REQUIRED.

CLEAR HEIGHT	WING SHORT or LONG	SF1 & LF1 BENT In bottom of footing, bent up into back face of wing. One bar of each length. SIZE	SPACING	NO. REQD	LENGTHS VARY MIN.	LENGTHS VARY MAX.	X MIN.	X MAX.	Y MIN.	Y MAX.	SF2 & LF2 BENT In bottom of footing, bent up into back face of wing. Alt. with F1 bars. SIZE	SPACING	NO. REQD	LENGTH	X	Y
H																
2'	Short	#3	12"	5	1'-7"	3'-10"	0'-8"	1'-0"	1'-0"	2'-1"	—	—	—	—	—	—
	Long	#3	12"	7	1'-7"	3'-11"	0'-8"	1'-0"	0'-10"	3'-0"	—	—	—	—	—	—
3'	Short	#3	12"	7	1'-10"	5'-2"	0'-10"	1'-9"	1'-1"	3'-11"	—	—	—	—	—	—
	Long	#3	12"	9	1'-11"	5'-2"	0'-10"	1'-3"	1'-8"	4'-0"	—	—	—	—	—	—
4'	Short	#3	12"	8	2'-5"	6'-6"	0'-11"	1'-8"	1'-7"	4'-11"	—	—	—	—	—	—
	Long	#3	12"	11	2'-3"	6'-4"	0'-11"	1'-5"	1'-5"	5'-0"	—	—	—	—	—	—
5'	Short	#3	12"	9	3'-2"	7'-10"	1'-1"	2'-0"	2'-2"	6'-11"	#3	18"	3	3'-6"	1'-1"	2'-6"
	Long	#3	12"	12	3'-1"	7'-10"	1'-1"	1'-10"	2'-1"	6'-10"	#3	12"	3	3'-6"	1'-1"	2'-6"
6'	Short	#3	12"	11	3'-9"	9'-3"	1'-2"	2'-3"	2'-8"	7'-10"	#3	18"	3	4'-0"	1'-4"	3'-1"
	Long	#3	12"	14	3'-9"	9'-3"	1'-2"	2'-3"	2'-6"	7'-11"	#3	12"	3	4'-0"	1'-4"	3'-1"
7'	Short	#4	12"	12	3'-11"	10'-3"	1'-3"	2'-10"	2'-9"	8'-8"	#4	18"	5	5'-6"	1'-7"	4'-0"
	Long	#4	12"	16	3'-11"	10'-8"	1'-3"	2'-8"	2'-9"	8'-11"	#4	12"	6	5'-6"	1'-7"	4'-0"
8'	Short	#4	12"	13	4'-8"	12'-4"	1'-5"	3'-4"	3'-0"	9'-7"	#4	18"	7	6'-6"	1'-10"	4'-9"
	Long	#4	12"	18	4'-6"	12'-2"	1'-5"	3'-2"	3'-2"	9'-2"	#4	12"	9	6'-6"	1'-10"	4'-9"

SF2 & LF2 BENT In bottom of footing, bent up into back face of wing. Alt. with F1 bars. LENGTH	X	Y	SF3 & LF3 STRAIGHT Longitudinal in top of wing footing rod. SIZE	NO. REQD	LENGTH	SF4 & LF4 STRAIGHT Longitudinal in bottom of wing footing rod. SIZE	NO. REQD	LENGTH	SH1 & LH1 STRAIGHT Horizontal in bottom of wing. SIZE	SPACING	NO. REQD	LENGTH	SH2 & LH2 STRAIGHT Horizontal in back face of wing. One bar of each length SIZE	SPACING	NO. REQD	LENGTHS VARY MAX.	LENGTHS VARY MIN.	SH3 & LH3 STRAIGHT In back face of wing at top - on slope. SIZE	NO. REQD	LENGTH	SH4 & LH4 BENT Dowels thru construction joint at headwall. SIZE	SPACING	NO. REQD	LENGTH	X
—	—	—	#3	1	7'-0"	#3	2	5'-6"	#3	18"	1	4'-3"	#3	18"	1	—	2'-1"	#3	1	4'-8"	#3	18"	2	2'-8"	1'-4"
—	—	—	#3	1	8'-8"	#3	2	7'-3"	#3	18"	1	5'-10"	#3	12"	1	—	3'-0"	#3	1	6'-2"	#3	12"	2	"	"
—	—	—	#3	1	8'-9"	#3	2	7'-0"	#3	18"	1	5'-7"	#3	12"	2	4'-3"	2'-8"	#3	1	6'-2"	#3	18"	3	"	"
—	—	—	#3	1	10'-6"	#3	2	9'-6"	#3	18"	1	7'-9"	#3	12"	2	5'-10"	3'-0"	#3	1	8'-8"	#3	12"	3	"	"
—	—	—	#3	1	9'-9"	#3	3	8'-6"	#3	18"	1	7'-0"	#3	12"	3	6'-4"	2'-8"	#3	1	7'-9"	#3	18"	4	"	"
—	—	—	#3	1	10'-5"	#3	3	11'-9"	#3	18"	1	9'-3"	#3	12"	3	8'-8"	3'-0"	#3	1	10'-5"	#3	12"	4	"	"
#3	18"	3	1	11'-1"	#3	3	10'-0"	#3	18"	2	8'-6"	#3	12"	3	6'-9"	2'-8"	#3	1	9'-3"	#3	18"	5	"	"
#3	12"	3	1	11'-1"	#3	3	10'-0"	#3	18"	2	11'-4"	#3	12"	3	8'-8"	3'-0"	#3	1	10'-11"	#3	18"	5	"	"
#3	18"	3	1	12'-6"	#3	3	11'-6"	#3	18"	2	9'-9"	#3	12"	4	8'-5"	2'-8"	#3	1	10'-10"	#3	18"	6	"	"
#3	12"	3	1	12'-6"	#3	3	11'-6"	#3	18"	2	11'-0"	#3	12"	4	8'-5"	2'-8"	#3	1	10'-10"	#3	18"	6	2'-8"	1'-4"
#4	18"	5	1	13'-10"	#4	4	13'-1"	#4	18"	2	11'-1"	#4	12"	5	10'-6"	2'-8"	#4	1	12'-6"	#4	18"	7	3'-6"	1'-9"
#4	12"	5	1	13'-10"	#4	4	13'-1"	#4	18"	2	15'-3"	#4	12"	5	14'-9"	3'-0"	#4	1	16'-9"	#4	18"	7	"	"
#4	18"	6	1	15'-3"	#4	4	14'-5"	#4	18"	3	12'-7"	#4	12"	5	10'-10"	2'-8"	#4	1	13'-10"	#4	18"	8	"	"
#4	12"	6	1	15'-3"	#4	4	14'-5"	#4	18"	3	17'-2"	#4	12"	5	14'-9"	3'-0"	#4	1	18'-2"	#4	18"	8	3'-6"	1'-9"

BAR BENDING DIAGRAM	QUANTITY REINFORCING STEEL PER WING - LBS. SHORT WING	LONG WING
SF1 & SF2 LF1 & LF2 ex. 3" Pin	18.0	23.6
SH4 & LH4	27.9	35.4
NOTE:- Dimensions are to bar centers.	41.0	54.0
	57.6	74.5
	95.1	121.8
	181.9	238.4
	227.7	303.1

NOTE:- Bars for short wing shall be marked with prefix letter 'S', while those for long wing shall be marked with letter 'L'.

Designed By - W.C.H. 5-13-63 Checked By - RJS - 8-7-63

Drawn By - W.C.H. 6-25-63 Checked By -

Quantities By - W.C.H. 9-13-63 Checked By -

REVISIONS:- Membrane Added. 5-10-66 W.C.H.

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD WINGS

FOR

REINFORCED CONCRETE BOX CULVERTS

15° SKEW

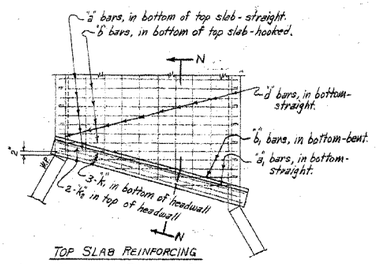
4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS 2:1 SLOPES

SINGLES, DOUBLES, TRIPLES, ALL DEPTHS OF COVER

QUADRUPLES & QUINTUPLES. FOR H = 8'-0" OR LESS

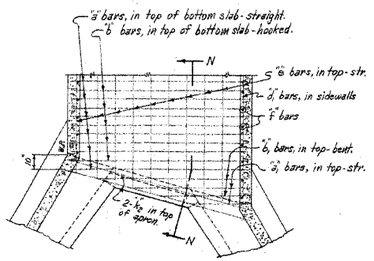
STANDARD DRAWING NO. W-X152-1

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			193	
JOB No.					



TOP SLAB REINFORCING

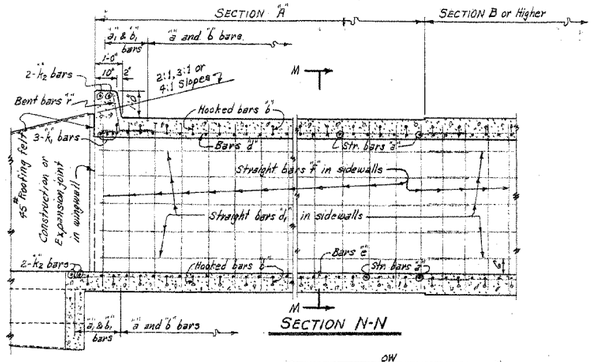
PART PLAN AT END OF CULVERT



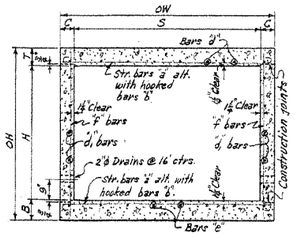
BOTTOM SLAB REINFORCING

PART PLAN AT END OF CULVERT

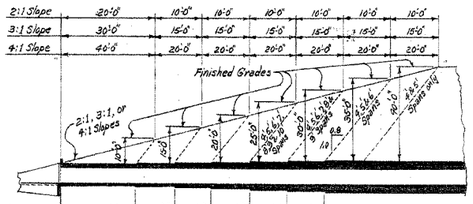
NOTE:- The "d", "d" and "e" bars vary in length. They should extend 1'-9" into SECTION B.



SECTION N-N



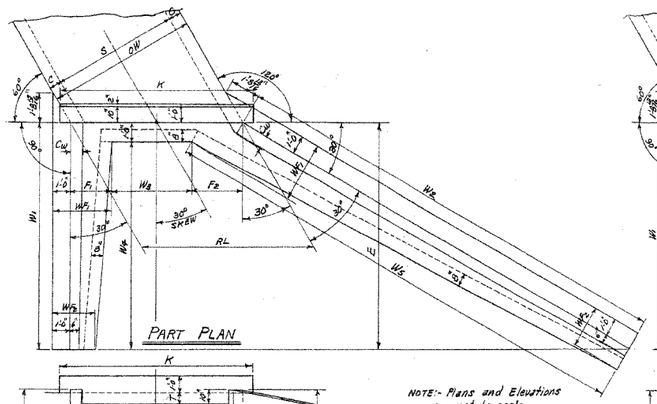
TYPICAL SECTION M-M


2:1 Slope 20'-0" 10'-0" 10'-0" 10'-0" 10'-0" 10'-0" 10'-0"
3:1 Slope 30'-0" 15'-0" 15'-0" 15'-0" 15'-0" 15'-0" 15'-0"
4:1 Slope 40'-0" 20'-0" 20'-0" 20'-0" 20'-0" 20'-0" 20'-0"
Finished Grades
2:1, 3:1, or 4:1 Slopes
2'-0"
2'-0"
2'-0"

Reshot 3-8-93

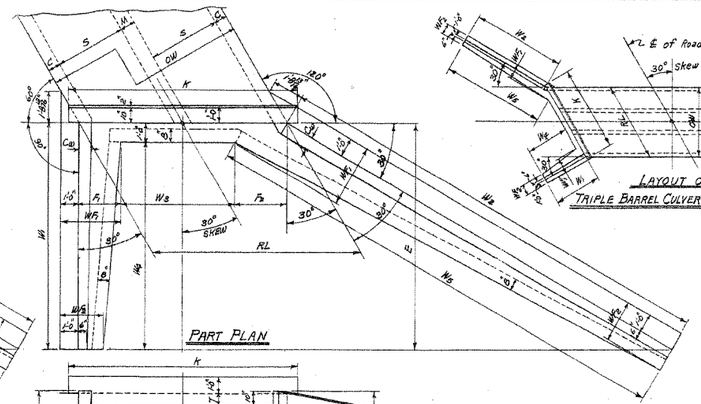
191

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			184	
JOB No.					



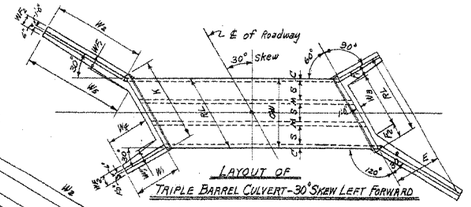
SINGLE BARREL CULVERT-30°SKEW RIGHT FORWARD

Details of Culvert with 30°Skew Left Forward is reversed, see Layout below.

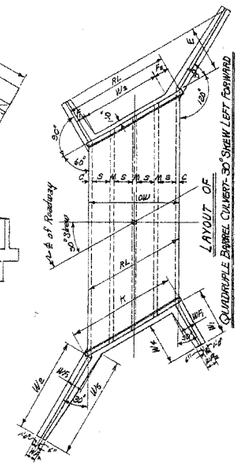


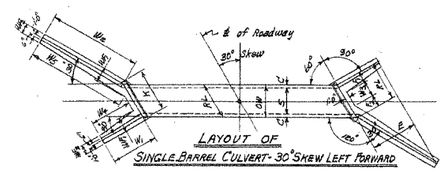
DOUBLE BARREL CULVERT-30°SKEW RIGHT FORWARD

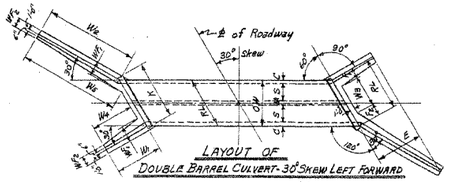
Details of Culvert with 30°Skew Left Forward is reversed, see Layout below.

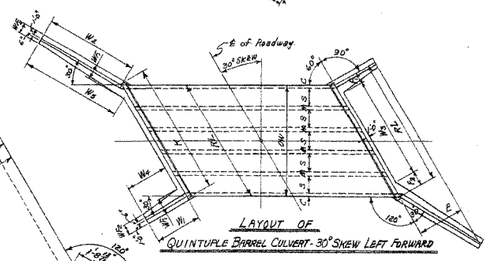


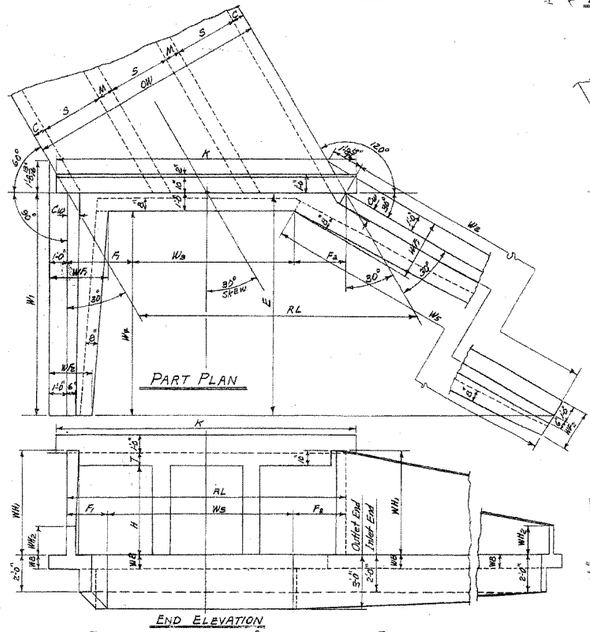
NOTE:- The length of the wings for the Plans, Elevations, and Layouts, as drawn, are proportioned for 3:1 slopes. For 2:1 slopes the wings are proportionally shorter, while for 4:1 slopes they are longer.





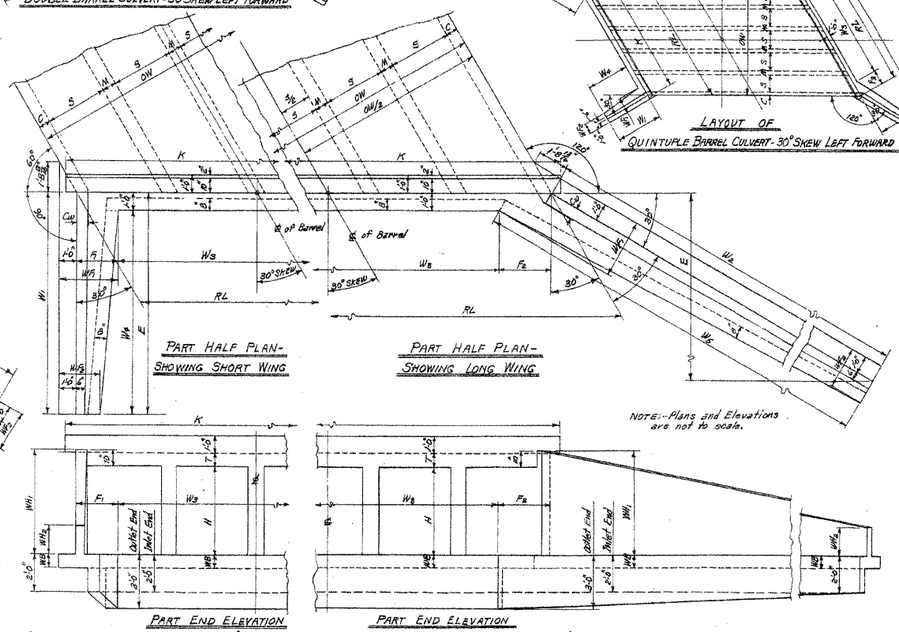






TRIPLE BARREL CULVERT-30°SKEW RIGHT FORWARD

Details of Culvert with 30°Skew Left Forward is reversed, see Layout at top center of sheet.



QUADRUPLE BARREL CULVERT-30°SKEW RT. FWD.

Details of Culvert with 30°Skew Left Forward is reversed, see Layout at above center.

QUINTUPLE BARREL CULVERT-30°SKEW RT. FWD.

Details of Culvant with 30°Skew Left Forward is reversed, see Layout above.

ROADWAY LENGTH RL — HEADWALL LENGTH K — APRON DIMENSION W_3

$RL = OW \times 1.1547$ — $K = RL + (F_1 + F_2)$ — $W_3 = RL - (F_1 + F_2)$

USE WITH DRAWING No.	CLEAR SPAN S	CLEAR HEIGHT H	SUM OF FOOTING DIMENSIONS F_1&F_2	SINGLE BARREL CULVERT OW	SINGLE BARREL CULVERT RL	SINGLE BARREL CULVERT K	SINGLE BARREL CULVERT W_3	DOUBLE BARREL CULVERT OW	DOUBLE BARREL CULVERT RL	DOUBLE BARREL CULVERT K	DOUBLE BARREL CULVERT W_3	TRIPLE BARREL CULVERT OW	TRIPLE BARREL CULVERT RL	TRIPLE BARREL CULVERT K	TRIPLE BARREL CULVERT W_3	QUADRUPLE BARREL CULVERT OW	QUADRUPLE BARREL CULVERT RL	QUADRUPLE BARREL CULVERT K	QUADRUPLE BARREL CULVERT W_3	QUINTUPLE BARREL CULVERT OW	QUINTUPLE BARREL CULVERT RL	QUINTUPLE BARREL CULVERT K	QUINTUPLE BARREL CULVERT W_3
W-X302-1, W-X303-1 or W-X304-1. (FOR H=8'0" OR LESS)	4'	2'	2'-3⅜	5'-0"	5'-0⅛	6'-1⅜	3'-1"	9'-1"	11'-2"	12'-3⅜	5'-10⅜	14'-1"	16'-6⅝	17'-9⅜	10'-3⅜	19'-0"	21'-11⅛	23'-1"	15'-8⅜	23'-8"	27'-0"	28'-5⅜	20'-10⅜
		3'	3'-3⅜	5'-0"	"	"	2'-1"	9'-1"	"	"	7'-10⅜	14'-1"	"	"	13'-3⅜	19'-0"	"	"	18'-1"	23'-8"	"	"	24'-1"
		4'	4'-3⅜	5'-0"	"	"	1'-1"	9'-1"	"	"	6'-10⅜	14'-1"	"	"	12'-3⅜	19'-0"	"	"	17'-1"	23'-8"	"	"	23'-1"
		5'	5'-3⅜	5'-0"	5'-0⅛	6'-1⅜	0'-1"	9'-1"	11'-2"	12'-3⅜	5'-10⅜	14'-1"	16'-6⅝	17'-9⅜	11'-3⅜	19'-0"	21'-11⅛	23'-1"	16'-8"	23'-8"	27'-0"	28'-5⅜	22'-0⅜
		6'	6'-3⅜	5'-2"	5'-11⅜	7'-1⅜	Ⓐ 0"	9'-11"	11'-5⅛	12'-7⅜	5'-2⅜	14'-8"	16'-11⅝	18'-1"	10'-8"	19'-5"	22'-5"	23'-7"	16'-1⅜	24'-2"	27'-10⅜	29'-0⅜	21'-7⅜
	5'	3'	3'-3⅜	6'-0"	6'-11⅜	8'-1"	3'-7⅜	11'-8"	13'-5⅜	14'-7⅜	10'-2⅜	17'-4"	20'-0⅛	21'-2"	16'-9"	22'-0"	25'-4⅜	26'-6⅜	22'-3⅜	28'-8"	33'-1⅛	34'-3"	29'-10"
		4'	4'-3⅜	6'-0"	"	"	2'-7⅛	11'-8"	"	"	9'-2⅜	17'-4"	"	"	15'-9"	22'-0"	"	"	20'-3⅜	28'-8"	"	"	28'-10"
		5'	5'-3⅜	6'-0"	6'-11⅜	8'-1"	1'-7⅜	11'-8"	13'-5⅜	14'-7⅜	8'-2⅜	17'-4"	20'-0⅛	21'-2"	14'-9"	23'-0"	26'-6⅜	27'-8⅜	21'-3⅜	29'-8"	33'-11⅛	34'-3"	27'-10"
		6'	6'-3⅜	6'-2"	7'-1⅜	8'-3⅜	0'-10⅛"	11'-11"	13'-9⅛	14'-11"	7'-5⅜	17'-8"	20'-4⅜	21'-6⅜	14'-1⅜	23'-5"	27'-0⅛	28'-2⅜	20'-9⅛	29'-2"	33'-6⅛	34'-10"	27'-5"
		7'	7'-3⅜	6'-3"	7'-2⅛	8'-4⅛	Ⓐ 0"	12'-1"	13'-11⅜	15'-1⅛	6'-2⅜	17'-11"	20'-8⅛	21'-10"	12'-11"	23'-9"	27'-5⅛	28'-7"	19'-8"	29'-7"	34'-2"	35'-5⅜	26'-0⅜
	6'	3'	3'-3⅜	7'-0"	8'-1"	9'-2⅜	4'-3⅜	13'-8"	15'-9⅜	16'-11⅛	12'-6⅜	20'-1"	23'-5⅛	24'-7⅛	20'-2⅜	27'-0"	31'-2⅜	32'-4"	27'-1"	33'-8"	38'-1⅛	40'-0⅛	33'-10⅜
		4'	4'-3⅜	7'-0"	"	"	3'-3⅜	13'-8"	"	"	11'-6⅜	20'-1"	"	"	19'-2⅜	27'-0"	"	"	26'-1"	33'-8"	"	"	34'-11"
		5'	5'-3⅜	7'-0"	8'-1"	9'-2⅜	2'-3⅜	13'-8"	15'-9⅜	16'-11⅛	10'-6⅜	20'-1"	23'-5⅛	24'-7⅛	18'-2⅜	27'-0"	31'-2⅜	32'-4"	25'-11"	33'-8"	38'-1⅛	40'-0⅛	33'-7⅛
		6'	6'-3⅜	7'-2"	8'-3⅜	9'-5⅛	2'-1"	13'-11"	16'-1⅜	17'-2⅜	9'-9⅜	20'-8"	23'-10⅝	25'-0⅛	17'-2⅜	27'-5"	31'-7⅛	32'-9⅜	25'-0⅜	34'-2"	39'-1⅝	40'-2⅜	33'-1⅝
		7'	7'-3⅜	7'-3"	8'-4⅛	9'-6⅝	0'-7⅛"	14'-1"	16'-3⅜	17'-5"	8'-1"	20'-11"	24'-1⅛	25'-3⅜	16'-4⅛	27'-9"	32'-0⅛	33'-2⅜	24'-3⅜	34'-7"	39'-1⅛	41'-1"	32'-12"
		8'	8'-3⅜	7'-4"	8'-5⅜	9'-7½	Ⓐ 0"	14'-4"	16'-6⅝	17'-8⅛	7'-1"	21'-2"	24'-5"	25'-6⅜	14'-11⅜	28'-1"	32'-5"	33'-7⅜	22'-10⅜	34'-11"	40'-0⅜	41'-2⅝	30'-10⅜
	7'	4'	4'-3⅜	8'-0"	9'-2⅜	10'-4⅜	4'-11⅜	15'-8"	18'-1⅜	19'-3"	15'-0⅜	22'-4"	26'-0⅜	27'-2⅜	22'-8"	30'-0"	35'-0½	36'-4⅛	31'-4⅜	38'-6"	44'-0⅜	45'-0⅜	40'-6½
		5'	5'-3⅜	8'-0"	9'-2⅜	10'-4⅜	3'-11⅜	15'-8"	18'-1⅜	19'-3"	12'-9⅜	23'-4"	26'-7⅜	28'-1⅛	21'-8"	31'-0"	35'-9½	36'-11⅛	30'-6⅜	38'-6"	44'-7⅜	45'-10⅜	39'-11⅜
		6'	6'-3⅜	8'-2"	9'-5⅜	10'-7"	3'-2"	15'-11"	18'-4⅝	19'-6⅝	13'-4⅜	23'-8"	27'-0"	28'-5⅜	21'-0⅜	31'-5"	36'-3⅜	37'-5⅝	30'-0"	39'-2"	45'-0⅜	46'-4⅛	39'-0⅛
		7'	7'-3⅜	8'-3"	9'-6⅛	10'-8½	2'-3"	16'-1"	18'-6⅛	19'-8⅝	12'-10⅜	23'-11"	27'-3⅛	28'-7⅝	19'-10⅜	31'-9"	36'-8"	37'-10⅜	28'-10⅜	39'-7"	45'-5⅜	46'-10⅛	37'-11⅜
		8'	8'-3⅜	8'-4"	9'-7½	10'-10⅜	1'-3"	16'-4"	18'-8"	19'-10⅝	12'-3⅜	24'-2"	27'-5⅜	28'-10⅛	18'-5⅜	32'-1"	37'-0⅜	38'-3"	27'-4⅜	39'-11"	45'-10⅜	47'-3⅛	36'-4⅝
	8'	4'	4'-3⅜	9'-1"	10'-4⅝	11'-6⅝	6'-1⅛	17'-5"	20'-0⅝	21'-2⅝	16'-10⅜	24'-9"	28'-5⅛	29'-7⅛	24'-3"	33'-4"	38'-3⅛	39'-5⅝	33'-1⅛	42'-6"	48'-5⅛	49'-8⅝	42'-3⅛
		5'	5'-3⅜	9'-2"	10'-7"	11'-8⅝	5'-3⅜	17'-11"	20'-8⅜	21'-10"	15'-5"	24'-8"	28'-4⅜	29'-6⅜	23'-6⅝	33'-7"	38'-6⅜	39'-10⅝	32'-7⅝	42'-9"	48'-8⅜	50'-1⅞	42'-1⅝
		6'	6'-3⅜	9'-2"	10'-7"	11'-8⅝	4'-3⅜	17'-11"	20'-8⅜	21'-10"	14'-5"	24'-8"	28'-4⅜	29'-6⅜	22'-6⅝	33'-7"	38'-6⅜	39'-10⅝	31'-7⅝	42'-9"	48'-8⅜	50'-1⅞	41'-11⅝
		7'	7'-3⅜	9'-3"	10'-8⅝	11'-10"	2'-11"	18'-1"	20'-10⅝	22'-0⅛	13'-6⅜	24'-11"	28'-7⅝	29'-10⅛	21'-6⅜	33'-10"	38'-9⅝	40'-0⅛	30'-8⅜	43'-0"	48'-11⅝	50'-3⅛	41'-9⅝
		8'	8'-3⅜	9'-4"	10'-9⅝	11'-11⅝	1'-8⅜	18'-2"	20'-11⅜	22'-1⅛	11'-8⅜	25'-0"	28'-8⅝	29'-11⅛	20'-6⅜	34'-0"	38'-11⅝	40'-1⅛	29'-8⅜	43'-1"	49'-0⅝	50'-4⅛	41'-7⅝
	9'	5'	5'-3⅜	10'-2"	11'-8⅝	12'-10⅝	6'-5⅜	19'-11"	23'-0"	24'-1⅛	17'-0⅜	27'-5"	31'-8⅝	32'-11⅛	25'-5"	37'-4"	42'-3⅝	43'-6⅛	36'-1⅝	47'-3"	53'-2⅝	54'-6"	45'-4⅝
		6'	6'-3⅜	10'-3"	11'-10"	13'-0"	5'-6⅜	20'-1"	23'-2⅛	24'-3⅝	16'-1"	27'-11"	32'-2⅛	33'-5⅝	26'-3⅜	37'-10"	42'-10⅛	44'-1⅝	36'-8⅜	47'-11"	53'-11⅛	55'-3⅝	45'-11⅛
		7'	7'-3⅜	10'-3"	11'-10"	13'-0"	4'-0⅜	20'-1"	23'-2⅛	24'-3⅝	15'-5"	27'-11"	32'-2⅛	33'-5⅝	25'-8⅜	37'-10"	42'-10⅛	44'-1⅝	35'-10⅜	47'-11"	53'-11⅛	55'-3⅝	44'-11⅛
		8'	8'-3⅜	10'-4"	11'-11"	13'-1"	2'-8"	20'-2"	23'-3⅝	24'-5"	14'-10⅜	28'-0"	32'-3⅝	33'-7"	25'-0⅜	38'-0"	43'-0"	44'-3⅝	35'-0⅜	48'-0"	54'-0"	55'-4⅝	45'-0⅜
	10'	5'	5'-3⅜	11'-5"	13'-0⅝	14'-3⅛	7'-7⅜	21'-11"	25'-3⅛	26'-5⅜	18'-2⅜	30'-2"	34'-8⅜	36'-0⅛	27'-9⅜	40'-3"	45'-5⅜	46'-8⅛	38'-3⅜	50'-8"	56'-8⅜	58'-1⅛	48'-8⅜
		6'	6'-3⅜	11'-3"	12'-11⅜	14'-1⅝	6'-10⅜	22'-1"	25'-4"	26'-7⅜	19'-2⅜	32'-11"	38'-0⅝	39'-3"	31'-0"	43'-9"	50'-4⅝	51'-8"	44'-1⅜	54'-7"	63'-0⅜	64'-3⅝	54'-7"
		7'	7'-3⅜	11'-3"	12'-11⅜	14'-1⅝	5'-12⅜	22'-1"	25'-4"	26'-7⅜	17'-11⅜	32'-11"	38'-0⅝	39'-3"	30'-3"	43'-9"	50'-4⅝	51'-8"	42'-10"	54'-7"	63'-0⅜	64'-3⅝	53'-3"
		8'	8'-3⅜	11'-4"	12'-1"	13'-3"	3'-9⅛"	22'-2"	25'-5⅛	26'-8"	16'-4"	33'-0"	38'-1⅛	39'-3"	28'-10"	43'-10"	50'-5⅜	51'-9⅛	41'-5⅛"	54'-8"	63'-1⅝	64'-3⅝	53'-10⅛"
	11'	6'	6'-3⅜	12'-1"	14'-2⅛	15'-4⅝	7'-11⅜	24'-2"	27'-10⅝	29'-0⅝	21'-7⅜	36'-0"	41'-6⅜	42'-8⅜	35'-3⅜	47'-10"	55'-2⅜	56'-6⅛	48'-1⅜	——	——	——	——
		7'	7'-3⅜	12'-1"	"	"	6'-5⅜	24'-2"	"	"	20'-1⅜	36'-0"	"	"	33'-9⅜	47'-10"	"	"	46'-5⅜	——	——	——	——
		8'	8'-3⅜	12'-1"	"	"	4'-11⅜	24'-2"	"	"	18'-7⅜	36'-0"	"	"	32'-3⅜	47'-10"	"	"	45'-0⅜	——	——	——	——
	12'	6'	6'-3⅜	13'-0"	14'-10⅝	16'-1⅛	9'-1⅜	26'-2"	30'-0⅝	31'-4⅛	23'-11⅜	39'-0"	44'-9⅛	46'-1⅝	38'-9⅜	51'-10"	59'-4⅛	60'-10⅝	53'-1⅜	——	——	——	——
		7'	7'-3⅜	13'-0"	"	"	7'-7⅜	26'-2"	"	"	22'-5⅜	39'-0"	"	"	37'-3⅜	51'-10"	"	"	52'-1⅜	——	——	——	——
		8'	8'-3⅜	13'-0"	"	"	6'-1⅜	26'-2"	"	"	20'-11⅜	39'-0"	"	"	35'-9⅜	51'-10"	"	"	50'-7"	——	——	——	——
W-X302-2, W-X303-2 or W-X304-2. (FOR H=9'0" & OVER)	7'	9'	10'-3⅝	8'-6"	9'-10⅜	10'-11⅝	Ⓐ 0"	16'-5"	19'-11⅛	20'-11⅝	8'-2⅜	24'-9"	28'-1⅛	29'-3"	17'-9"	32'-3"	37'-2⅜	38'-3⅝	26'-5⅜	40'-2"	46'-0⅜	47'-1⅝	35'-1⅜
	8'	9'	10'-3⅝	9'-6"	10'-11⅜	12'-1⅛	0'-2⅜	18'-5"	21'-3⅜	22'-5"	10'-6"	27'-9"	31'-11⅜	33'-1⅛	20'-3½	36'-3"	41'-10⅜	43'-0⅛	31'-1"	45'-2"	52'-1⅜	53'-3⅝	41'-0⅜
		10'	12'-3⅜	9'-8"	11'-2"	12'-3⅜	Ⓐ 0"	18'-8"	21'-6⅜	22'-8⅜	9'-3⅜	27'-5"	31'-11⅜	33'-1⅛	19'-8⅜	36'-8"	42'-2⅜	43'-4"	30'-10⅜	45'-8"	52'-8⅜	53'-10⅝	40'-5⅝
	9'	9'	10'-3⅝	10'-6"	12'-1⅝	13'-3⅜	1'-9⅛	20'-5"	23'-6⅜	24'-8⅜	12'-3⅜	30'-9"	35'-0⅛	36'-2⅜	24'-3"	40'-3"	46'-5⅜	47'-7⅝	35'-9⅛	50'-2"	57'-1⅜	58'-1"	47'-2"
		10'	12'-3⅜	10'-8"	12'-3⅜	13'-5⅝	0'-0⅝	20'-8"	23'-10⅝	25'-0⅛	11'-7⅜	30'-11"	35'-2⅜	36'-4⅝	23'-1⅜	40'-8"	46'-11⅜	48'-1⅛	34'-8⅜	50'-8"	57'-6"	58'-7"	46'-6⅜
		11'	13'-3⅜	10'-10"	12'-6⅜	13'-8"	Ⓐ 0"	20'-10"	24'-0⅜	25'-2⅝	10'-8⅜	30'-10"	35'-7⅜	36'-9"	21'-10"	40'-10"	47'-1⅜	48'-3⅛	33'-4⅜	50'-10"	58'-3⅜	59'-4⅝	44'-11⅜
	10'	9'	10'-3⅝	11'-6"	13'-3⅜	14'-5⅜	2'-6⅛	22'-5"	25'-10⅜	27'-0⅛	15'-2⅜	33'-6"	38'-5⅜	39'-7⅝	27'-3⅜	44'-3"	51'-1⅜	52'-3"	40'-0"	55'-2"	63'-3⅜	64'-5⅛	52'-11⅜
		10'	12'-3⅜	11'-8"	13'-5⅜	14'-7⅝	1'-2⅜	22'-8"	26'-2⅜	27'-4"	13'-10⅜	33'-10"	39'-0⅛	40'-2⅜	25'-3⅜	44'-10"	51'-9⅜	52'-11"	38'-0"	55'-10"	64'-3⅜	65'-5⅛	50'-6⅜
		11'	13'-3⅜	11'-10"	13'-8"	14'-9⅜	Ⓐ 0"	22'-10"	26'-4⅜	27'-6⅛	12'-1⅜	33'-10"	39'-0⅛	40'-2⅜	25'-3⅜	44'-10"	51'-9⅜	52'-11"	38'-0"	55'-10"	64'-3⅜	65'-5⅛	50'-6⅜
		12'	15'-3⅜	12'-0"	13'-10⅜	15'-0⅝	Ⓐ 0"	23'-0"	26'-6⅜	27'-8⅛	11'-3⅜	34'-10"	39'-11⅜	41'-0"	26'-1⅜	45'-9"	52'-8⅜	53'-10"	39'-0⅜	56'-10"	64'-5⅜	65'-9⅛	51'-8⅜
	11'	9'	10'-3⅝	12'-6"	14'-5⅜	15'-7"	3'-8"	24'-5"	28'-2⅜	29'-4⅝	17'-5"	36'-4"	41'-1⅜	42'-3⅝	31'-2⅜	48'-8"	55'-6⅜	56'-10⅛	44'-1⅜	——	——	——	——
		10'	12'-3⅜	12'-8"	14'-7⅜	15'-9⅝	2'-10⅛	24'-8"	28'-5⅛	29'-7⅝	16'-2⅜	36'-8"	42'-1⅝	43'-3⅝	30'-1⅜	48'-8"	55'-6⅜	56'-10⅛	43'-1⅜	——	——	——	——
		11'	13'-3⅜	13'-0"	14'-9⅜	15'-11⅝	1'-0⅝	24'-10"	28'-8⅜	29'-10⅝	14'-11⅜	36'-10"	42'-3⅝	43'-5⅞	28'-10⅜	48'-10"	55'-8⅜	57'-0⅛	42'-1⅜	——	——	——	——
		12'	15'-3⅜	13'-0"	15'-0⅜	16'-2"	Ⓐ 0"	25'-0"	28'-10⅜	30'-0⅝	13'-7⅜	37'-0"	42'-5⅜	43'-7⅝	27'-5⅜	49'-0"	56'-1⅜	57'-3⅝	41'-3⅜	——	——	——	——
	12'	9'	10'-3⅝	13'-6"	15'-2⅜	16'-3⅝	4'-3⅜	26'-5"	30'-6"	31'-8"	19'-8⅜	39'-4"	45'-5"	46'-7"	34'-7⅜	52'-3"	60'-0"	61'-3⅜	47'-3⅜	——	——	——	——
		10'	12'-3⅜	13'-8"	15'-3⅜	16'-5⅛	3'-1⅜	26'-8"	30'-9⅜	31'-10⅝	18'-6⅜	39'-8"	45'-9⅜	46'-10⅝	33'-6⅜	52'-8"	60'-3⅜	61'-6⅛	46'-6⅜	——	——	——	——
		11'	13'-3⅜	13'-10"	15'-11⅜	17'-1⅛	2'-2⅜	26'-10"	30'-11⅜	32'-1⅛	17'-2⅜	39'-10"	46'-0"	47'-1⅛	32'-2⅜	52'-10"	61'-0⅜	62'-2"	45'-2⅜	——	——	——	——
		12'	15'-3⅜	14'-0"	16'-2"	17'-3⅜	0'-10⅜	27'-0"	31'-2⅜	32'-4"	15'-11"	40'-0"	46'-2⅜	47'-3⅝	30'-11"	53'-0"	61'-3⅜	62'-5⅝	44'-0"	——	——	——	——

Ⓐ Special case for these boxes, See Detail 'A' and Table 'A' for revised values of F_1, F_2, W_4 and W_5, when apron width is more than 1'0 and W_5=0. For Details 'A' and Tables 'A' for each slope, see Drawing Nos. W-X302-1, W-X302-2, or W-X303-1, W-X303-2, or W-X304-1, W-X304-2.

NOTE:- This drawing to be used in conjunction with Standard Wing Drawings for 30°Skews for each slope as listed below.

2:1 Slopes	3:1 Slopes	4:1 Slopes
W-X302-1 or W-X302-2	W-X303-1 or W-X303-2	W-X304-1 or W-X304-2.

NOTE:- This drawing to be used in conjunction with Standard Barrel Sections, Drawing Nos.--

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-130X-0	R-230X-01	R-330X-01	R-430X-01	R-530X-01
	R-230X-02	R-330X-02	R-430X-02	R-530X-02
R-130X-1	R-230X-1	R-330X-1	R-430X-1	R-530X-1
	R-230X-2	R-330X-2		

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS 30° SKEW

4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS — 2:1, 3:1 & 4:1 SLOPES

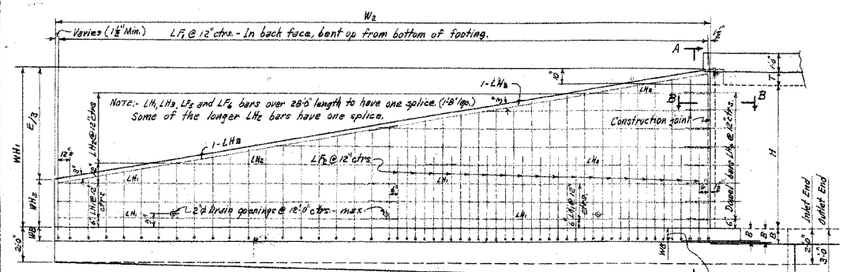
SINGLES, DOUBLES, TRIPLES, QUADRUPLES & QUINTUPLES. — ALL DEPTHS OF COVER H=2', 3', 4', 5', 6', 7', 8', 9', 10', 11' & 12'.

STANDARD DRAWING NO. W-X30

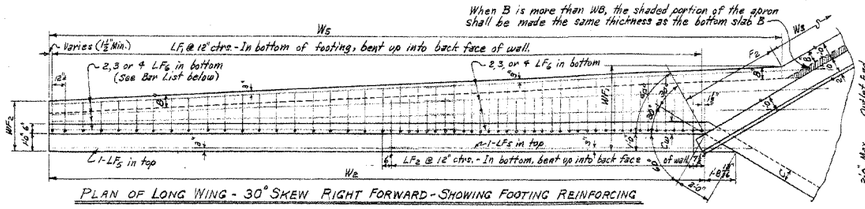
Designed by:- W.C.H. 5-16-63 Checked by:- RHS - 8-21-63
Drawn by:- W.C.H. 7-15-63 Checked by:-
Quantities by:- Checked by:-

Reshot 3-8-93

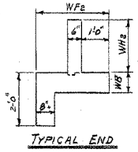
FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			185	
JOB No.					



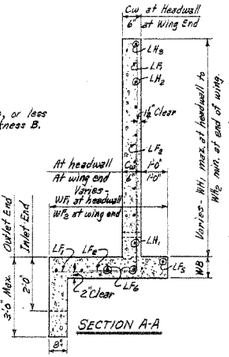
REAR ELEVATION OF LONG WING - 30° SKEW RIGHT FORWARD - SHOWING BACK FACE REINFORCING



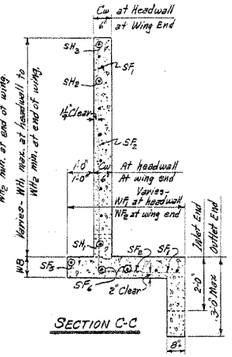
PLAN OF LONG WING - 30° SKEW RIGHT FORWARD - SHOWING FOOTING REINFORCING



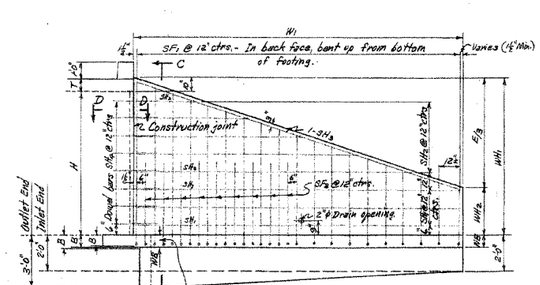
TYPICAL END VIEW OF WING



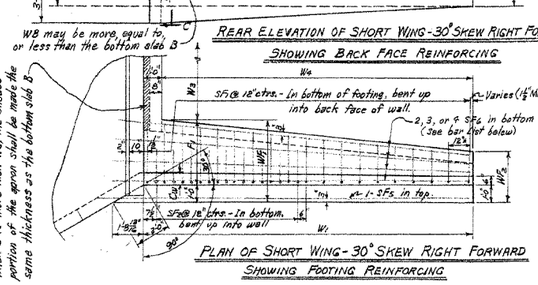
SECTION A-A



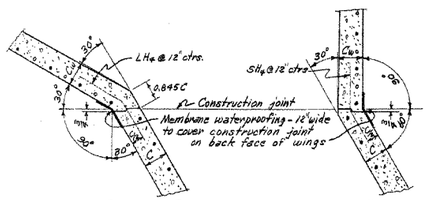
SECTION C-C



REAR ELEVATION OF SHORT WING - 30° SKEW RIGHT FORWARD SHOWING BACK FACE REINFORCING



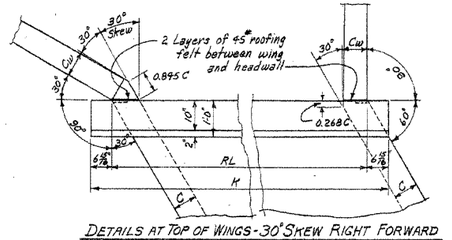
PLAN OF SHORT WING - 30° SKEW RIGHT FORWARD SHOWING FOOTING REINFORCING



SECTION B-B SECTION D-D

SECTIONS THRU CONSTRUCTION JOINTS

NOTE:- Payment for membrane waterproofing and roofing felt to be included in the price bid for Class S Concrete.



DETAILS AT TOP OF WINGS - 30° SKEW RIGHT FORWARD

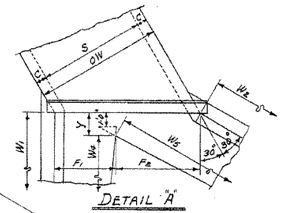
REGULAR WING DIMENSIONS - 3:1 SLOPES

CLEAR HEIGHT OF BOX	THICKNESS OF WING FOOTING	THICKNESS OF WING AT HDWL. = C	WINGWALL HEIGHTS		WIDTHS OF WING FOOTINGS		FOOTING DIMENSION PARALLEL WITH HEADWALL		PERPENDICULAR DIST. FROM HDWL. TO END OF WING	LENGTHS OF WINGWALLS		INSIDE FOOTING DIMENSION		* QUANTITY PER WING CLASS S CONCRETE			
			AT HEADWALL	AT END OF WING	AT HEADWALL	AT END OF WING	SHORT WING	LONG WING		SHORT WING	LONG WING	SHORT WING	LONG WING	INLET END		OUTLET END	
H	WB	Cw	WH1	WH2	WF1	WF2	F1	F2	E	W1	W2	W3	W4	SHORT WING	LONG WING	SHORT WING	LONG WING
														Cu.Yd.	Cu.Yd.	Cu.Yd.	Cu.Yd.
2'	7"	6"	2'-10	0'-8	2'-4	2'-0	1'-6	0'-11½	6'-6"	6'-6"	13'-0"	5'-6"	13'-3⅜"	0.752	1.598	0.836	1.717
3'	7"	6"	3'-10"	1'-0"	2'-9"	2'-1⅝"	1'-8"	1'-1⅝"	8'-6"	8'-6"	17'-0"	7'-6"	17'-10⅜"	1.130	2.340	1.259	2.545
4'	7"	6"	4'-10"	1'-8"	3'-0"	2'-3"	2'-0"	2'-3⅛	10'-6"	10'-6"	21'-0"	9'-6"	22'-5⅛"	1.577	3.270	1.711	3.552
5'	7"	6"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-4"	2'-11⅛"	12'-6"	12'-6"	25'-0"	11'-6"	27'-0½"	2.093	4.341	2.252	4.630
		7"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-4"	2'-11⅛"	12'-6"	12'-6"	25'-0"	11'-6"	27'-0½"	2.179	4.529	2.337	4.862
° 6'	8"	7"	6'-10"	2'-0"	3'-8"	2'-6"	2'-8"	3'-7⅛"	14'-6"	14'-6"	29'-0"	13'-6"	31'-7⅛"	2.908	6.026	3.092	6.419
		8"	6'-10"	2'-0"	3'-8"	2'-6"	2'-8"	3'-7⅛"	14'-6"	14'-6"	29'-0"	13'-6"	31'-7⅛"	3.025	6.272	3.208	6.647
° 7'	8½"	7½"	7'-10"	2'-6"	4'-2"	2'-7⅛"	3'-2"	4'-1⅞"	16'-6"	16'-6"	33'-0"	15'-6"	36'-5⅜"	3.811	7.895	4.019	8.350
		8"	7'-10"	2'-6"	4'-2"	2'-7⅛"	3'-2"	4'-1⅞"	16'-6"	16'-6"	33'-0"	15'-6"	36'-5⅜"	3.887	8.057	4.095	8.512
° 8'	9"	8"	8'-10"	2'-8"	4'-8"	2'-9"	3'-8"	5'-2⅛"	18'-6"	18'-6"	37'-0"	17'-6"	41'-4⅛"	4.874	10.097	5.107	10.642

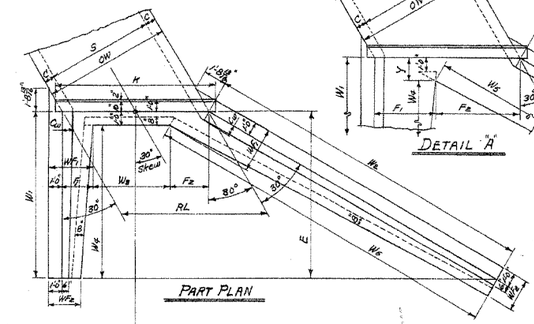
* Quantity per wing does not include headwall or that portion of apron or toewall for the length W_3.
° See Table 'A' for special values of F_1 & F_2 and W_4 & W_2 for Single 9'x6', 5'x7' and 6'x8' Box Culverts.

TABLE 'A' - DIMENSIONS FOR DETAIL 'A'

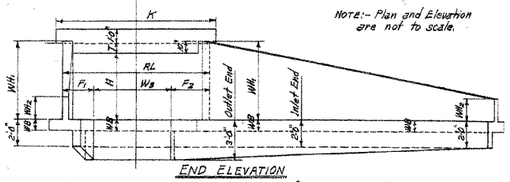
S	H	F_1	F_2	W_3	Y	W_4	W_2
4'	6'	2'-7⅛	3'-3⅜	0"	1'-1⅜	13'-6⅛	31'-3⅜
5'	7'	3'-1⅝	4'-1"	0"	1'-3⅜	15'-2⅜	35'-10⅜
6'	8'	3'-7⅛	4'-10⅜	0"	1'-6⅜	17'-1⅛	40'-6"



DETAIL 'A'



PART PLAN



END ELEVATION

Note:- Plan and Elevation are not to scale.

SINGLE BARREL CULVERT - 30° SKEW RIGHT FORWARD

Details of Culvert with 30° Skew Left Forward is reversed, see Drawing No. W-X-30.

TYPICAL WING DETAILS

NOTE:- For remainder of General Plans and Elevations of Single, Double, Triple, Quadruple and Quintuple Span Culverts, see Std. Drawing No. W-X-30. For values of RL, K and W_3 for each box, see above Std. also.

MEMBRANE:- A membrane waterproofing 12" wide, consisting of three moppings of waterproofing asphalt and two alternate layers of treated cotton fabric shall be applied to the back face of wing to cover the construction joints of wings.

QUANTITIES

CLEAR SPAN	CLEAR HEIGHT	THICKNESS OF WING AT HEADWALL	THICKNESS OF WING FOOTING	® STEEL - FOR 4 WINGS	CLASS S CONCRETE - 4 WINGS				
					HEADWALLS, WINGWALLS, FOOTINGS, TOEWALLS AND APRONS				
					SINGLE BARREL CULVERT	DOUBLE BARREL CULVERT	TRIPLE BARREL CULVERT	QUADRUPLE BARREL CULVERT	QUINTUPLE BARREL CULVERT
S	H	Cw	WB	LB.	Cu.Yd.	Cu.Yd.	Cu.Yd.	Cu.Yd.	Cu.Yd.
4'	2'	6"	7"	144	5.80	6.90	8.01	9.12	10.23
	3'	6"	7"	213	8.08	9.18	10.29	11.40	12.51
	4'	6"	7"	327	10.78	11.88	12.99	14.10	15.21
	5'	6"	7"	460	13.90	15.00	16.11	17.22	18.32
	6'	7"	8"	762	18.05	19.99	21.13	22.27	23.41
5'	3'	6"	7"	213	8.35	9.67	11.01	12.36	13.70
	4'	6"	7"	327	11.03	12.36	13.71	15.06	16.40
	5'	6"	7"	460	14.14	15.48	16.83	18.17	19.52
	6'	7"	8"	762	18.11	20.48	21.86	23.24	24.62
	7'	7½"	8½"	1474	24.51	26.94	27.35	28.75	30.16
6'	3'	6"	7"	213	8.57	10.17	11.78	13.38	14.92
	4'	6"	7"	327	11.27	12.86	14.43	16.09	17.62
	5'	6"	7"	460	14.38	15.98	17.55	19.15	20.73
	6'	7"	8"	762	19.35	20.93	22.59	24.21	25.83
	7'	7½"	8½"	1474	24.73	26.94	28.08	29.73	31.38
	8'	8"	9"	1870	31.15	32.87	34.51	36.17	37.83
7'	4'	6"	7"	327	11.52	13.37	15.19	17.05	18.85
	5'	6"	7"	460	14.63	16.49	18.31	20.16	21.97
	6'	7"	8"	762	19.61	21.98	23.32	25.20	27.04
	7'	7½"	8½"	1474	25.05	26.94	28.82	30.71	32.59
	8'	8"	9"	1870	31.47	33.37	35.25	37.16	39.05
8'	4'	6"	7"	327	11.77	13.89	15.97	18.09	20.12
	5'	7"	7"	460	15.96	17.60	19.70	21.83	23.89
	6'	7"	8"	762	19.86	21.98	24.05	26.17	28.22
	7'	7½"	8½"	1474	25.30	27.96	29.58	31.73	33.81
	8'	8"	9"	1870	31.72	33.88	36.00	38.16	40.27
9'	5'	7"	7"	460	15.72	18.13	20.47	22.87	25.15
	6'	7½"	8"	762	20.50	22.93	25.29	27.71	30.01
	7'	7½"	8½"	1474	25.55	27.98	30.39	32.76	35.07
	8'	8"	9"	1870	31.97	34.39	36.76	39.18	41.49
10'	5'	7"	7"	460	15.98	18.65	21.25	23.80	26.92
	6'	7½"	8"	762	20.76	23.95	26.07	28.69	31.28
	7'	7½"	8½"	1474	25.81	28.50	31.12	33.70	36.34
	8'	8"	9"	1870	32.22	34.91	37.56	40.12	42.74
11'	6'	8"	8"	762	21.39	24.38	27.25	30.11	——
	7'	8"	8½"	1474	26.65	29.53	32.41	35.27	——
	8'	8"	9"	1870	32.89	35.95	38.83	41.19	——
12'	6'	8"	8"	762	21.66	24.93	28.05	31.20	——
	7'	8"	8½"	1474	26.81	30.08	33.21	36.36	——
	8'	8"	9"	1870	32.73	35.99	39.13	42.28	——

® For reinforcing steel in Headwalls and Aprons, see Drawing Nos. of Barrel Sections listed below.

GENERAL NOTES:-

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.

REINFORCING STEEL:- Reinforcing steel to be deformed bars of intermediate or hard grade.

CONSTRUCTION JOINTS:- Construction joints between wingwall, footings and sidewalls shall be only where shown on plans.

SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

UNIT STRESSES:-

Class S Concrete (n=10) 1200 #/□"
Reinforcing Steel 20,000 #/□"

NOTE:- This drawing to be used in conjunction with Standard Barrel Sections, Drawing Nos...

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-130X-0	R-230X-01	R-330X-01	R-430X-01	R-530X-01
	R-230X-02	R-330X-02	R-430X-02	R-530X-02
R-130X-1	R-230X-1	R-330X-1	R-430X-1	R-530X-1
	R-230X-2	R-330X-2		

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS 30° SKEW

4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS — 3:1 SLOPES

SINGLES, DOUBLES, TRIPLES, — ALL DEPTHS OF COVER

QUADRUPLES & QUINTUPLES. — FOR H = 8'-0" OR LESS

STANDARD DRAWING NO. W-X303-1

BAR LIST FOR ONE SHORT AND ONE LONG WING - 2 EACH REQUIRED

CLEAR HEIGHT	WING LOCATION	SF1 & LF1 BENT — In bottom of footing, bent up into back face of wing. One bar (or two bars) of each length							SF2 & LF2 BENT — In bottom of footing, bent up into back face of wing. Alt. with F1 bars.						SF3 & LF3 STRAIGHT — Longitudinal in top of wing footing heel.			SF4 & LF4 STRAIGHT — Longitudinal in bottom of wing footing toe.			SH1 & LH1 STRAIGHT — Horizontal in back face of wing.			SH2 & LH2 STRAIGHT — Horizontal in back face of wing. One bar of each length.					SH3 & LH3 STRAIGHT — In back face of wing at top - on slope.			SH4 & LH4 BENT — Dowels thru construction joint at headwall.				BAR BENDING DIAGRAM	QUANTITY — REINFORCING STEEL PER WING - LBS.	
H	SHORT OR LONG	SIZE	SPACING	NO. REQD	LENGTHS VARY MIN.	LENGTHS VARY MAX.	X MIN.	X MAX.	Y MIN.	Y MAX.	SIZE	SPACING	NO. REQD	LENGTH	X	Y	SIZE	NO. REQD	LENGTH	SIZE	NO. REQD	LENGTH	SIZE	SPACING	NO. REQD	LENGTH	SIZE	SPACING	NO. REQD	LENGTHS VARY MAX.	LENGTHS VARY MIN.	SIZE	NO. REQD	LENGTH	SIZE	SPACING	NO. REQD	LENGTH	X		SHORT WING	LONG WING
2'	Short	#3	12"	7	1'-7"	3'-11"	0'-8"	1'-0"	1'-0"	3'-0"	—	—	—	—	—	—	#3	1	9'-0"	#3	2	8'-0"	#3	12"	1	6'-3"	#3	12"	1	—	3'-3"	#3	1	6'-7"	#3	12"	2	2'-8"	1'-9"			
	Long	#3	12"	14	1'-5"	3'-11"	0'-8"	1'-0"	0'-10"	3'-0"	—	—	—	—	—	—	#3	1	15'-6"	#3	2	15'-6"	#3	12"	1	12'-8"	#3	12"	1	—	6'-6"	#3	1	12'-11"	#3	12"	2	"	"			
3'	Short	#3	12"	9	2'-1"	5'-3"	0'-10"	1'-4"	1'-0"	4'-0"	—	—	—	—	—	—	#3	1	11'-0"	#3	2	10'-6"	#3	12"	1	8'-5"	#3	12"	2	6'-3"	5'-3"	#3	1	8'-8"	#3	12"	3	"	"			
	Long	#3	12"	18	1'-11"	5'-3"	0'-10"	1'-4"	1'-0"	4'-0"	—	—	—	—	—	—	#3	1	19'-6"	#3	2	20'-0"	#3	12"	1	16'-8"	#3	12"	2	12'-6"	6'-6"	#3	1	16'-11"	#3	12"	3	"	"			
4'	Short	#3	12"	11	2'-6"	6'-7"	0'-11"	1'-8"	1'-0"	5'-0"	—	—	—	—	—	—	#3	1	13'-0"	#3	3	12'-0"	#3	12"	1	10'-3"	#3	12"	3	9'-9"	8'-3"	#3	1	10'-9"	#3	12"	4	"	"			
	Long	#3	12"	22	2'-5"	6'-6"	0'-10"	1'-7"	1'-6"	5'-0"	—	—	—	—	—	—	#3	1	23'-6"	#3	3	24'-0"	#3	12"	1	20'-8"	#3	12"	3	18'-6"	6'-6"	#3	1	21'-0"	#3	12"	4	"	"			
5'	Short	#3	12"	13	2'-11"	7'-11"	1'-0"	2'-0"	2'-0"	6'-0"	#3	12"	3	3'-6"	1'-1"	2'-4"	#3	1	15'-0"	#3	3	14'-0"	#3	12"	2	12'-5"	#3	12"	4	10'-3"	9'-9"	#3	1	12'-11"	#3	12"	5	"	"			
	Long	#3	12"	26	2'-9"	7'-10"	1'-0"	1'-11"	1'-10"	6'-0"	#3	12"	6	3'-6"	1'-11"	2'-4"	#3	1	27'-6"	#3	6	15'-7"	#3	12"	2	24'-8"	#3	12"	5	21'-6"	9'-9"	#3	1	25'-1"	#3	12"	6	"	"			
6'	Short	#4	18"	15	3'-6"	9'-4"	1'-8"	2'-8"	2'-5"	7'-1"	#3	12"	3	4'-6"	1'-6"	3'-0"	#3	1	17'-0"	#3	3	16'-0"	#3	12"	2	14'-3"	#3	12"	4	12'-3"	9'-8"	#3	1	15'-0"	#3	12"	6	"	"			
	Long	#4	18"	30	3'-6"	9'-3"	1'-8"	2'-8"	2'-3"	7'-1"	#3	12"	6	4'-6"	1'-6"	3'-0"	#3	2	16'-8"	#3	6	18'-0"	#3	12"	4	15'-2"	#3	12"	5	26'-6"	6'-6"	#3	2	15'-5"	#3	12"	6	2'-8"	1'-9"			
7'	Short	#4	18"	17	3'-11"	10'-10"	1'-8"	2'-10"	2'-9"	8'-1"	#4	12"	6	5'-6"	1'-7"	4'-0"	#4	1	19'-0"	#4	4	18'-0"	#4	12"	2	16'-3"	#4	12"	5	15'-8"	9'-8"	#4	1	17'-1"	#4	12"	7	3'-6"	1'-9"			
	Long	#4	18"	34	3'-9"	10'-9"	1'-8"	2'-8"	2'-7"	8'-1"	#4	12"	12	5'-6"	1'-7"	4'-0"	#4	2	18'-8"	#4	8	20'-9"	#4	12"	5	30'-6"	6'-6"	#4	2	17'-5"	#4	12"	7	"	"							
8'	Short	#4	18"	19	4'-6"	12'-5"	1'-8"	3'-8"	3'-2"	9'-2"	#4	12"	9	6'-6"	1'-10"	4'-9"	#4	1	21'-0"	#4	4	20'-0"	#4	12"	3	18'-3"	#4	12"	5	15'-3"	9'-3"	#4	1	19'-3"	#4	12"	8	"	"			
	Long	#4	12"	38	4'-6"	12'-3"	1'-8"	3'-8"	3'-0"	9'-2"	#4	12"	18	6'-6"	1'-10"	4'-9"	#4	2	20'-8"	#4	8	22'-9"	#4	12"	6	19'-2"	#4	12"	5	30'-6"	6'-6"	#4	2	19'-6"	#4	12"	8	3'-6"	1'-9"			
																																							312.9	622.3

NOTE:- Bars for short wing shall be marked with prefix letter 'S', while those for long wing shall be marked with letter 'L'.

* Length without splice. Bars over 28'-0 length may be spliced (1'-8" lap).

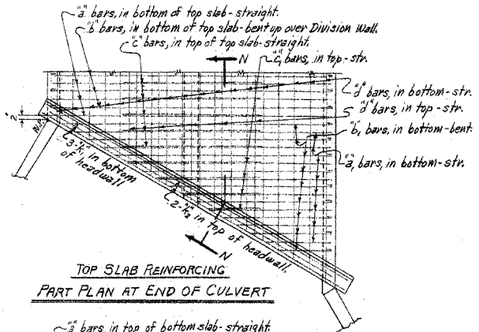
REVISIONS:- Membrane Added. 5-10-66 W.C.H.

Designed By:- W.C.H. 5-13-63 Checked By:- RWS 8-19-63
Drawn By:- W.C.H. 7-26-63 Checked By:- DMT 7-15-64
Quantities By:- W.C.H. 1-1-64

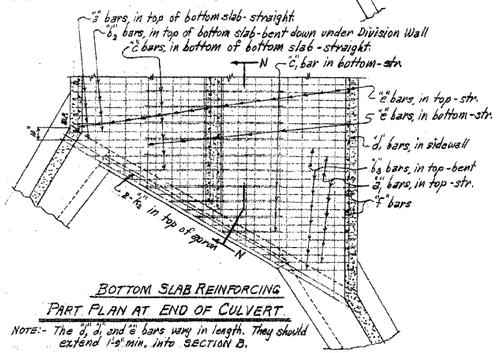
(53)

Reshot 3-8-93

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			186	
JOB No.					



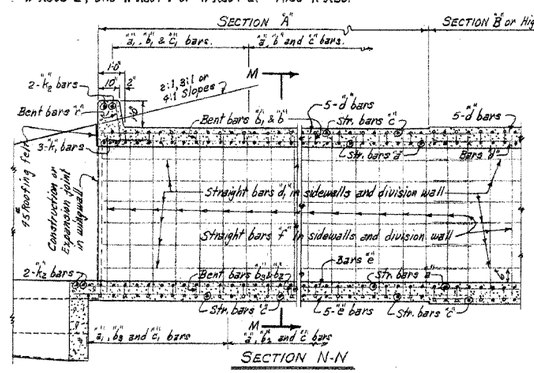
TOP SLAB REINFORCING
PART PLAN AT END OF CULVERT



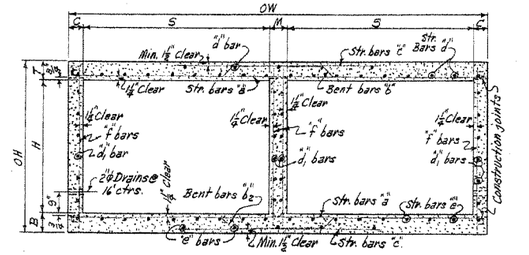
BOTTOM SLAB REINFORCING
PART PLAN AT END OF CULVERT

NOTE:- The "d", "d1" and "a" bars vary in length. They should extend 1'-9" min. into SECTION B.

NOTE:- For Details of Standard Wings and bar lists, see Drawing No. W-X.302-1 or W-X.302-2; W-X.303-1 or W-X.303-2, and W-X.304-1 or W-X.304-2. Also W-X.30.

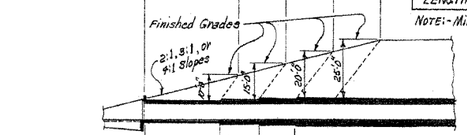


SECTION N-N



TYPICAL SECTION M-M

Slope					
2:1 Slope	20'-0"	10'-0"	10'-0"	10'-0"	
3:1 Slope	30'-0"	15'-0"	15'-0"	15'-0"	
4:1 Slope	40'-0"	20'-0"	20'-0"	20'-0"	

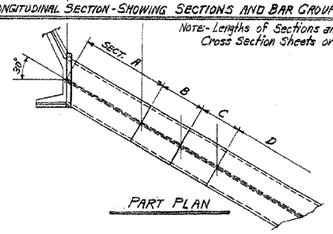


2:1 Slope =	SECTIONS	A=12'-0"	B=6'-0"	C=6'-0"	MID-SECTION D-Varies
	Bar Group	A	B	C	D
3:1 Slope =	SECTIONS	A=22'-0"	B=11'-0"	C=11'-0"	MID-SECTION D-Varies
	Bar Group	A	B	C	D
4:1 Slope =	SECTIONS	A=32'-0"	B=16'-0"	C=16'-0"	MID-SECTION D-Varies
	Bar Group	A	B	C	D

These lengths are perpendicular to ℄ of roadway. See Table of Skew Lengths above.

TYPICAL LONGITUDINAL SECTION - SHOWING SECTIONS AND BAR GROUPS FOR VARIOUS DEPTHS OF COVER

NOTE:- Lengths of Sections and Bar Groups are to be shown on Cross Section Sheets or on Special Culvert Layout Sheet.



PART PLAN

NOTE:- For Details and Bar Lists for SECTIONS B, C & D, see Barrel Drawing Nos. R-200X-X.2 and R-200X-X.3.

LENGTH OF SECTIONS ON 30° SKEW

SLOPE	2:1		3:1		4:1	
SECTIONS	A	B & C	A	B & C	A	B & C
LENGTHS	18'-10⅝"	6'-11½"	25'-4⅜"	12'-8⅞"	36'-11¾"	18'-5⅞"

NOTE:- Minimum ℄ Length of SECTION "A" on 30° Skew = (0.288675 OW + 2').

SECTIONS AND BAR GROUPS TO BE USED FOR VARIOUS DEPTHS OF COVER

DEPTHS OF COVER	SECTIONS & BAR GROUPS FOR END SECTIONS A	B	C	MID-SECTION AND BAR GROUP
5.0' to 9.5'	A			A
10.0' to 14.5'	A			B
15.0' to 19.5'	A	B		C
20.0' to 25.0'	A	B	C	D

OR ALT.

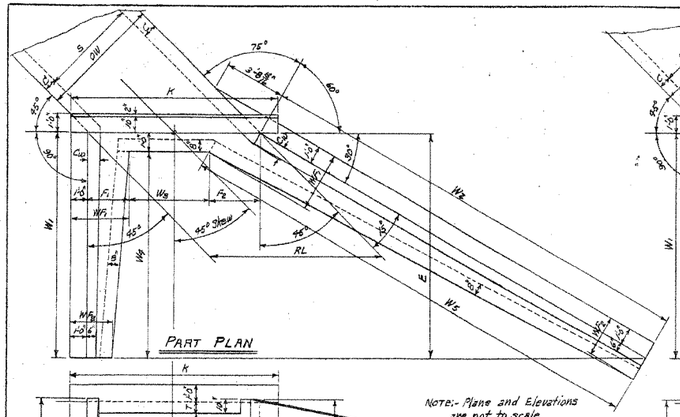
DEPTHS OF COVER	SECTIONS & BAR GROUPS FOR END SECTIONS A	B	C	MID-SECTION AND BAR GROUP
5.0' to 9.5'	A			A
10.0' to 14.5'	A			B
15.0' to 19.5'	A	B		C
20.0' to 25.0'	A	2@ C		D

BAR LIST FOR SECTION "A" ON 30° SKEW - ONE END ONLY.

| SECTION & BAR GROUP | LENGTH OF SECTION | DEPTH OF COVER | CLEAR SPAN | CLEAR HEIGHT | "a" bars STRAIGHT In Top and Bottom Slab of Barrel. SIZE | SPACING | NUMBER REQ'D 2:1 | 3:1 | 4:1 | LENGTH | "a1" bars STRAIGHT In Top and Bottom Slab of Barrel (Two of each Length) SIZE | SPACING | NO. REQ'D | LENGTH MAX. | MIN. | "b" bars BENT - See Diagrams below. In Bottom of Top Slab bent up over Division Wall - hooked. Alternate with "a" and "c" bars. SIZE | SPACING | NUMBER REQ'D 2:1 | 3:1 | 4:1 | LENGTH | X | Y | Z | "b1" bars BENT - See Diagrams below. In Bottom of Top Slab - some bent up over Division Wall - one end hooked. Alt. with "a" and "c" or "c1" bars. SIZE | SPACING | NO. REQ'D | LENGTH MAX. | MIN. | L MAX. | MIN. | "b2" bars BENT - See Diagrams below. In Top of Bottom Slab bent down under Division Wall - hooked. Alternate with "a" and "c" bars. SIZE | SPACING | NUMBER REQ'D 2:1 | 3:1 | 4:1 | LENGTH | X | Y | Z | "b3" bars BENT - See Diagrams below. In Top of Bottom Slab - some bent down under Division Wall - one end hooked. Alt. with "a" and "c" or "c1" bars. SIZE | SPACING | NO. REQ'D | LENGTH MAX. | MIN. | L MAX. | MIN. | "c" bars STRAIGHT In Top and Bottom Slab of Barrel. Alternate with "b" and "b2" bars. SIZE | SPACING | NUMBER REQ'D 2:1 | 3:1 | 4:1 | LENGTH | "c1" bars STRAIGHT In Top and Bottom Slab of Barrel. Alt. with ½"ø x 3'-3" bars. (Two of each Length) SIZE | SPACING | NO. REQ'D | LENGTH MAX. | MIN. | "d" bars STRAIGHT Longitudinal in Top Slab of Barrel. SIZE | SPACING | NO. REQ'D | LENGTH | "d1" bars STRAIGHT Longitudinal in Sidewalls and Division Wall. SIZE | SPACING | NO. REQ'D | LENGTH | "e" bars STRAIGHT Longitudinal in Bottom Slab of Barrel. SIZE | SPACING | NO. REQ'D | LENGTH | "f" bars STRAIGHT Verticals in Sidewalls and Division Wall. SIZE | SPACING | NUMBER REQ'D 2:1 | 3:1 | 4:1 | LENGTH | "h" bars STRAIGHT In Bottom of Headwall. SIZE | NO. REQ'D | LENGTH | "h2" bars STRAIGHT In Top of Headwall and Apron. (2 Each) SIZE | NO. REQ'D | LENGTH |
|---|---|---|---|---|---|---

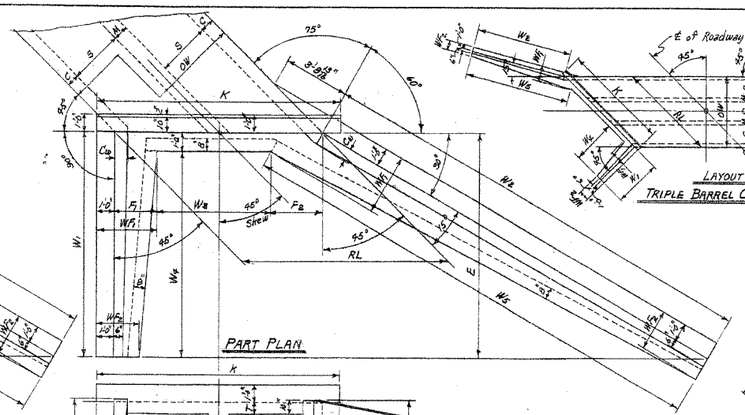
Reshot 3-8-93

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			197	
JOB No.					



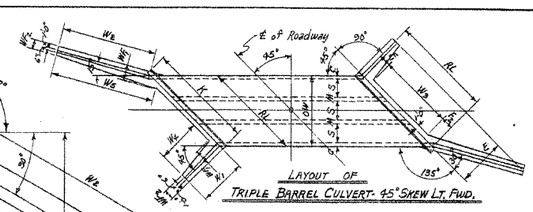
SINGLE BARREL CULVERT- 45° SKEW RIGHT FORWARD

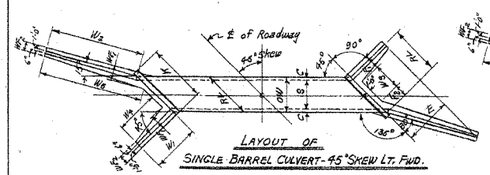
Details of Culvert with 45° Skew Left Forward is reversed, see Layout below.

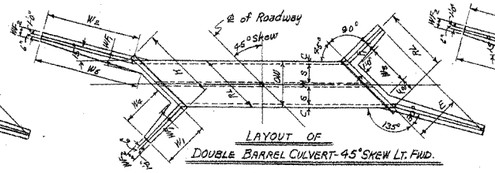


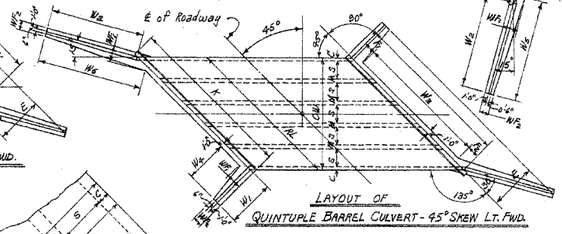
DOUBLE BARREL CULVERT- 45° SKEW RIGHT FORWARD

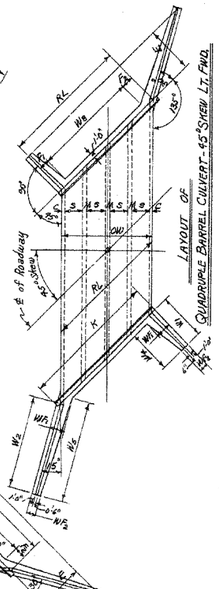
Details of Culvert with 45° Skew Left Forward is reversed, see Layout below.

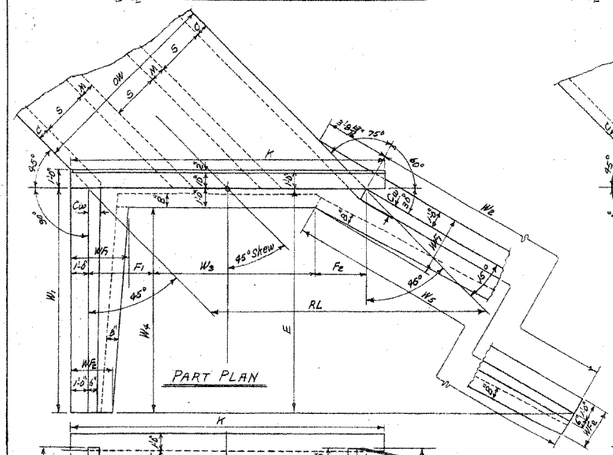






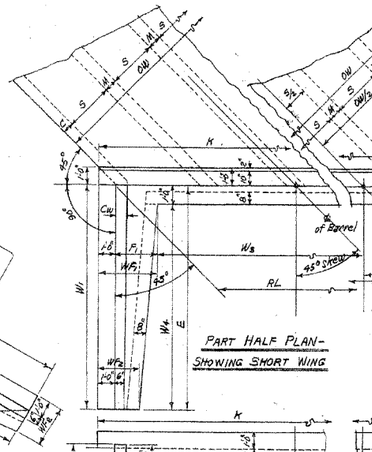






TRIPLE BARREL CULVERT- 45° SKEW RIGHT FORWARD

Details of Culvert with 45° Skew Left Forward is reversed, see Layout at top center of sheet.

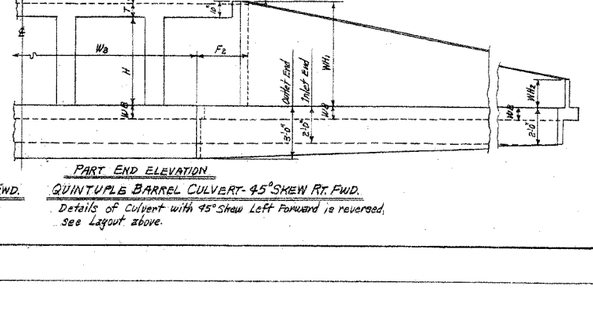


QUADRUPLE BARREL CULVERT- 45° SKEW RT. FWD.

Details of Culvert with 45° Skew Left Forward is reversed, see Layout at above center.

Note:- The length of the wings for the Plans, Elevations, and Layouts, as drawn, are proportioned for 3:1 slopes. For 2:1 slopes the wings are proportionally shorter, while for 4:1 slopes they are longer.

Note:- Plans and Elevations are not to scale.



QUINTUPLE BARREL CULVERT- 45° SKEW RT. FWD.

Details of Culvert with 45° Skew Left Forward is reversed, see Layout above.

Designed by:- W.C.H. 5-16-63 Checked by:-
Drawn by:- W.C.H. 6-15-64 Checked by:- JEM. 6-25-64
Quantities by:- Checked by:-

ROADWAY LENGTH RL = OW × 1.41421 — HEADWALL LENGTH K = RL + (2·0) — APRON DIMENSION $W_3 = RL - (F_1 + F_2)$

USE WITH DRAWING NO.	CLEAR SPAN S	CLEAR HEIGHT H	SLANT WING DIMENSIONS F_1 & F_2	SINGLE BARREL CULVERT OW	SINGLE BARREL CULVERT RL	SINGLE BARREL CULVERT K	SINGLE BARREL CULVERT W_3	DOUBLE BARREL CULVERT OW	DOUBLE BARREL CULVERT RL	DOUBLE BARREL CULVERT K	DOUBLE BARREL CULVERT W_3	TRIPLE BARREL CULVERT OW	TRIPLE BARREL CULVERT RL	TRIPLE BARREL CULVERT K	TRIPLE BARREL CULVERT W_3	QUADRUPLE BARREL CULVERT OW	QUADRUPLE BARREL CULVERT RL	QUADRUPLE BARREL CULVERT K	QUADRUPLE BARREL CULVERT W_3	QUINTUPLE BARREL CULVERT OW	QUINTUPLE BARREL CULVERT RL	QUINTUPLE BARREL CULVERT K	QUINTUPLE BARREL CULVERT W_3
W-X452-1, W-X453-1 OR W-X454-1. (FOR H=8'0" OR LESS)	4'	2	2'-3¼"	5'-0"	7'-0⅜"	9'-2⅜"	4'-9⅜"	9'-8"	13'-8"	15'-8"	11'-4⅜"	14'-4"	20'-3⅜"	22'-3⅜"	18'-5⅜"	19'-0"	26'-10⅝"	28'-10⅝"	24'-7⅝"	23'-8"	33'-5⅝"	35'-5⅝"	31'-2⅝"
		3	3'-3¼"	5'-0"	"	"	3'-9⅜"	9'-8"	"	"	10'-4⅜"	14'-4"	"	"	17'-0"	19'-0"	"	"	23'-7⅛"	23'-8"	"	"	30'-2½"
		4	4'-3⅜"	5'-0"	"	"	2'-9⅜"	9'-8"	"	"	9'-4⅜"	14'-4"	"	"	16'-0"	19'-0"	"	"	22'-7½"	23'-8"	"	"	29'-2½"
		5	5'-3⅜"	5'-0"	7'-0⅜"	9'-2⅜"	1'-9⅜"	9'-8"	13'-8"	15'-8"	8'-4⅜"	14'-4"	20'-3⅜"	22'-3⅜"	15'-0"	19'-0"	26'-10⅝"	28'-10⅝"	21'-7⅝"	23'-8"	33'-5⅝"	35'-5⅝"	28'-2⅝"
		6	6'-3⅜"	5'-2"	7'-3⅝"	9'-5⅝"	1'-0⅜"	9'-11"	14'-0⅛"	16'-0⅛"	7'-10⅜"	14'-8"	20'-8⅜"	22'-9"	16'-5⅜"	19'-5"	27'-5½"	29'-5½"	22'-2⅜"	24'-2"	34'-2½"	36'-2½"	27'-10⅜"
	5'	3	3'-3¼"	6'-0"	8'-5⅜"	10'-5⅜"	5'-2⅝"	11'-8"	16'-6"	18'-6"	13'-2⅝"	17'-4"	24'-4⅛"	26'-4⅛"	19'-3"	23'-0"	32'-6⅜"	34'-6⅜"	28'-3"	28'-8"	40'-6⅝"	42'-6⅝"	34'-3⅜"
		4	4'-3⅜"	6'-0"	"	"	4'-2⅝"	11'-8"	"	"	12'-2⅝"	17'-4"	"	"	20'-3"	23'-0"	"	"	28'-3"	28'-8"	"	"	36'-3⅜"
		5	5'-3⅜"	6'-0"	8'-5⅜"	10'-5⅜"	3'-2⅝"	11'-8"	16'-6"	18'-6"	11'-2⅝"	17'-4"	24'-4⅛"	26'-4⅛"	19'-3"	23'-0"	32'-6⅜"	34'-6⅜"	27'-8"	28'-8"	40'-6⅝"	42'-6⅝"	33'-3⅜"
		6	6'-3⅜"	6'-2"	8'-5⅝"	10'-8⅝"	2'-5⅜"	11'-11"	16'-10⅛"	18'-10⅛"	10'-7"	17'-8"	24'-9⅜"	27'-0"	19'-8"	23'-5"	33'-1⅝"	35'-1⅝"	27'-10⅝"	29'-2"	41'-3"	43'-3"	34'-1⅜"
		7	7'-3⅜"	6'-3"	8'-10⅝"	11'-0⅝"	1'-0⅜"	12'-1"	17'-1"	19'-1"	9'-9⅜"	17'-11"	25'-1⅜"	27'-2⅜"	17'-4⅜"	23'-9"	33'-7"	35'-7"	24'-9⅜"	29'-7"	41'-10"	43'-10"	30'-10⅜"
	6'	3	3'-3¼"	7'-0"	9'-10⅜"	11'-10⅜"	6'-7⅝"	13'-8"	19'-3⅞"	21'-4"	16'-0⅜"	20'-4"	28'-5⅜"	30'-5"	25'-5⅜"	27'-0"	38'-0⅝"	40'-0⅝"	34'-1"	33'-8"	47'-7⅜"	49'-7⅜"	41'-4"
		4	4'-3¼"	7'-0"	"	"	5'-7⅝"	13'-8"	"	"	15'-0⅜"	20'-4"	"	"	24'-5⅜"	27'-0"	"	"	33'-1"	33'-8"	"	"	43'-4"
		5	5'-3¼"	7'-0"	9'-10⅜"	11'-10⅜"	4'-7⅝"	13'-8"	19'-3⅞"	21'-4"	14'-0⅜"	20'-4"	28'-5⅜"	30'-5"	23'-5⅜"	27'-0"	38'-0⅝"	40'-0⅝"	32'-1"	33'-8"	47'-7⅜"	49'-7⅜"	42'-4"
		6	6'-3¼"	7'-2"	10'-1⅝"	12'-1⅝"	3'-10⅜"	13'-11"	19'-10½"	21'-9⅛"	13'-5"	20'-8"	29'-0⅜"	31'-0⅜"	22'-11⅛"	27'-5"	38'-10⅜"	40'-9⅜"	32'-6"	34'-2"	48'-3⅝"	50'-3⅝"	42'-0⅜"
		7	7'-3¼"	7'-3"	10'-3"	12'-3"	2'-5⅜"	14'-1"	19'-11"	21'-11"	12'-1⅝"	20'-11"	29'-1⅞"	31'-1⅞"	21'-5⅜"	27'-9"	39'-3"	41'-3"	31'-5⅜"	34'-6"	48'-10⅝"	50'-10⅝"	41'-7⅜"
		8	8'-3¼"	7'-4"	10'-4½"	12'-4½"	1'-1⅜"	14'-2"	20'-0⅛"	22'-0⅛"	10'-9⅜"	21'-0"	29'-3⅜"	31'-3⅜"	20'-5⅝"	27'-10"	39'-5⅝"	41'-5⅝"	30'-1"	34'-8"	49'-0⅝"	51'-0⅝"	39'-9"
	7'	4	4'-3¼"	8'-0"	11'-3⅜"	13'-3⅜"	7'-0⅜"	15'-5"	22'-1⅜"	24'-1⅜"	17'-10⅜"	22'-8"	33'-0"	35'-0"	28'-0⅜"	31'-0"	43'-10⅝"	45'-10⅝"	38'-8"	38'-8"	54'-6⅛"	56'-6⅛"	50'-5"
		5	5'-3¼"	8'-0"	11'-3⅜"	13'-3⅜"	6'-0⅜"	15'-5"	22'-1⅜"	24'-1⅜"	16'-10⅜"	22'-8"	33'-0"	35'-0"	27'-0⅜"	31'-0"	43'-10⅝"	45'-10⅝"	38'-8"	38'-8"	54'-6⅛"	56'-6⅛"	49'-5"
		6	6'-3¼"	8'-2"	11'-6⅝"	13'-6⅝"	5'-3⅜"	15'-11"	22'-6⅝"	24'-6"	16'-2⅝"	23'-1"	33'-5⅝"	35'-5⅝"	27'-2⅜"	31'-5"	44'-5½"	46'-5½"	38'-2"	39'-2"	55'-3⅞"	57'-3⅞"	49'-2"
		7	7'-3¼"	8'-3"	11'-8"	13'-8"	4'-10⅜"	16'-1"	22'-9"	24'-9"	16'-4⅜"	23'-4"	33'-10⅛"	35'-10⅛"	26'-10⅜"	31'-9"	44'-10⅝"	46'-10⅝"	37'-11⅝"	39'-7"	56'-1⅝"	58'-1⅝"	49'-0⅜"
		8	8'-3¼"	8'-4"	11'-9⅜"	13'-9⅜"	2'-6⅝"	16'-2"	22'-10⅝"	24'-10⅝"	13'-7"	23'-6"	34'-0⅞"	36'-0⅞"	24'-8"	31'-10"	45'-0⅛"	47'-0⅛"	35'-9"	39'-8"	56'-7⅛"	58'-7⅛"	46'-10"
	8'	5	5'-3¼"	9'-0"	12'-9⅜"	14'-9⅜"	8'-5⅜"	17'-8"	25'-0⅛"	27'-0⅛"	20'-0⅜"	26'-9"	37'-10⅝"	39'-9"	32'-1⅝"	35'-5"	50'-1⅞"	52'-1⅞"	44'-3⅜"	44'-12"	63'-6⅝"	65'-6⅝"	57'-2⅝"
		6	6'-3¼"	9'-2"	12'-11⅝"	14'-11⅝"	7'-8⅜"	17'-11"	25'-4⅜"	27'-4⅜"	19'-2⅝"	26'-11"	38'-0⅝"	39'-11⅝"	31'-5⅜"	35'-5"	50'-1⅞"	52'-1⅞"	44'-3⅜"	44'-12"	63'-6⅝"	65'-6⅝"	57'-2⅝"
		7	7'-3¼"	9'-3"	13'-1"	15'-1"	6'-3⅜"	18'-1"	25'-6⅝"	27'-7"	17'-7⅝"	27'-1"	38'-3⅛"	40'-3⅛"	30'-3⅜"	35'-5"	50'-1⅞"	52'-1⅞"	44'-3⅜"	44'-12"	63'-6⅝"	65'-6⅝"	56'-3⅝"
		8	8'-3¼"	9'-4"	13'-2⅝"	15'-2⅝"	5'-1⅜"	18'-2"	25'-8⅛"	27'-8⅛"	16'-5"	27'-3"	38'-5⅝"	40'-5⅝"	29'-1"	35'-5"	50'-1⅞"	52'-1⅞"	41'-5"	44'-12"	63'-6⅝"	65'-6⅝"	53'-10⅜"
	9'	5	5'-3¼"	10'-2"	14'-4⅜"	16'-4⅜"	9'-1⅝"	19'-4"	28'-2"	30'-2"	22'-10⅜"	28'-6"	40'-1⅛"	42'-1⅛"	36'-0⅝"	39'-5"	55'-10⅛"	57'-10"	50'-5⅞"	49'-2"	69'-6⅞"	71'-6⅞"	64'-3⅜"
		6	6'-3¼"	10'-3"	14'-6"	16'-6"	8'-0⅜"	20'-1"	28'-4⅜"	30'-4⅜"	22'-1⅛"	28'-11"	40'-3⅝"	42'-3⅝"	34'-3⅜"	39'-5"	55'-10⅛"	57'-10"	49'-11⅛"	49'-2"	69'-6⅞"	71'-6⅞"	63'-10⅝"
		7	7'-3¼"	10'-3"	14'-6"	16'-6"	6'-10⅜"	20'-1"	28'-4⅜"	30'-4⅜"	20'-9⅛"	28'-11"	40'-3⅝"	42'-3⅝"	32'-4⅜"	39'-5"	55'-10⅛"	57'-10"	48'-5⅛"	49'-2"	69'-6⅞"	71'-6⅞"	62'-9⅜"
		8	8'-3¼"	10'-4"	14'-7⅝"	16'-7⅝"	5'-9⅜"	20'-2"	28'-6⅛"	30'-6⅛"	19'-8"	29'-0"	40'-5⅛"	42'-5⅛"	31'-5"	39'-10"	56'-4⅛"	58'-4⅛"	47'-0⅛"	49'-8"	70'-2⅛"	72'-2⅛"	61'-8⅜"
	10'	5	5'-3¼"	11'-2"	15'-9⅜"	17'-9⅜"	10'-6⅝"	21'-11"	31'-0"	33'-0"	25'-10⅜"	32'-5"	45'-7⅛"	47'-7⅛"	40'-1⅜"	43'-5"	61'-6⅛"	63'-6⅛"	56'-1⅜"	56'-2"	76'-7⅛"	78'-7⅛"	71'-4"
		6	6'-3¼"	11'-3"	15'-11"	17'-11"	9'-7⅜"	22'-1"	31'-2⅝"	33'-2⅝"	24'-5⅛"	32'-11"	46'-3⅝"	48'-3⅝"	38'-3⅜"	43'-5"	61'-6⅛"	63'-6⅛"	54'-6⅛"	56'-2"	76'-7⅛"	78'-7⅛"	69'-5"
		7	7'-3¼"	11'-3"	15'-11"	17'-11"	8'-4⅜"	22'-1"	31'-2⅝"	33'-2⅝"	23'-1⅛"	32'-11"	46'-3⅝"	48'-3⅝"	36'-2⅜"	43'-5"	61'-6⅛"	63'-6⅛"	53'-0⅛"	56'-2"	76'-7⅛"	78'-7⅛"	67'-10⅜"
		8	8'-3¼"	11'-4"	16'-0⅛"	18'-0⅛"	6'-10⅜"	22'-2"	31'-4⅛"	33'-4⅛"	21'-10⅜"	33'-0"	46'-5⅛"	48'-5⅛"	34'-1"	43'-5"	61'-6⅛"	63'-6⅛"	51'-10"	56'-2"	76'-7⅛"	78'-7⅛"	66'-4⅜"
	12'	6	6'-3¼"	12'-3"	17'-5⅜"	19'-5⅜"	11'-2⅝"	24'-2"	34'-2⅝"	36'-2"	27'-4⅜"	36'-0"	50'-11"	52'-11"	44'-3⅜"	47'-10"	67'-10⅝"	69'-10⅝"	62'-3⅜"	—	—	—	—
		7	7'-3¼"	12'-4"	"	"	10'-7⅜"	24'-2"	"	"	26'-5⅝"	36'-0"	"	"	43'-4⅜"	47'-10"	"	"	58'-4⅝"	—	—	—	—
		8	8'-3¼"	12'-5"	"	"	9'-7⅜"	24'-2"	"	"	25'-6⅝"	36'-0"	"	"	41'-7⅜"	47'-10"	"	"	56'-4⅝"	—	—	—	—
	7'	9	10'-3⅝"	9'-6"	13'-5⅝"	15'-5⅝"	1'-3"	19'-5"	27'-5⅝"	29'-5⅝"	12'-5⅜"	26'-9"	37'-10⅝"	39'-9"	25'-1⅝"	35'-5"	50'-1⅞"	52'-1⅞"	37'-10⅜"	39'-10"	56'-3⅝"	58'-3⅝"	41'-10⅝"
(FOR H=9'0 & OVER) W-X452-2, W-X453-2 OR W-X454-2.	8'	9	10'-3⅝"	9'-6"	13'-5⅝"	15'-5⅝"	2'-8"	19'-5"	27'-5⅝"	29'-5⅝"	15'-6⅜"	27'-4"	38'-7⅞"	40'-7⅞"	28'-10⅜"	36'-3"	51'-10⅝"	53'-10⅝"	40'-6"	40'-6"	57'-3⅞"	59'-3⅞"	43'-5⅛"
		10	12'-3⅝"	9'-8"	13'-8"	15'-8"	1'-9⅜"	19'-8"	27'-8⅝"	29'-8⅝"	14'-1⅝"	27'-6"	39'-1⅜"	41'-1⅜"	26'-10⅜"	36'-8"	51'-10⅝"	53'-10⅝"	39'-7"	40'-9"	58'-2⅞"	60'-2⅞"	44'-3⅜"
	9'	9	10'-3⅝"	10'-6"	14'-10⅝"	16'-10⅝"	4'-1"	20'-5"	28'-10⅝"	30'-10⅝"	13'-1⅜"	28'-4"	40'-0⅝"	42'-0⅝"	27'-8⅜"	37'-1"	53'-6⅛"	55'-6⅛"	40'-10⅜"	41'-6"	59'-1⅝"	61'-1⅝"	45'-0⅜"
		10	12'-3⅝"	10'-8"	15'-1"	17'-1"	2'-3⅜"	20'-8"	29'-2⅝"	31'-2⅝"	14'-4⅝"	28'-8"	40'-5⅝"	42'-5⅝"	28'-1⅛"	37'-5"	53'-10⅝"	55'-10⅝"	41'-3"	41'-9"	59'-5⅛"	61'-5⅛"	45'-3⅜"
		11	13'-3⅝"	10'-10"	15'-3⅜"	17'-3⅜"	1'-4⅝"	20'-10"	29'-5⅛"	31'-5⅛"	15'-0⅝"	28'-10"	40'-7⅜"	42'-7⅜"	28'-3⅝"	37'-5"	53'-10⅝"	55'-10⅝"	41'-3"	41'-9"	59'-5⅛"	61'-5⅛"	45'-3⅜"
	10'	9	10'-3⅝"	11'-6"	16'-3⅝"	18'-3⅝"	5'-4"	22'-5"	31'-8⅜"	33'-8⅜"	20'-11⅛"	28'-8"	40'-5⅛"	42'-7"	33'-0⅜"	44'-3"	62'-7"	64'-7"	51'-10⅜"	55'-2"	78'-0⅝"	80'-0⅝"	67'-3"
		10	12'-3⅝"	11'-9"	16'-6"	18'-6"	4'-2⅝"	22'-8"	32'-0⅝"	34'-0⅝"	19'-9⅜"	33'-8"	47'-6⅝"	49'-6⅝"	35'-5⅝"	44'-3"	63'-2"	65'-2"	50'-10⅜"	55'-8"	78'-11⅝"	80'-11⅝"	66'-5⅝"
		11	13'-3⅝"	11'-10"	16'-8⅜"	18'-8⅜"	3'-11⅝"	22'-10"	32'-3⅜"	34'-3⅜"	18'-6⅜"	33'-10"	47'-10⅛"	49'-10⅛"	34'-8⅛"	44'-3"	63'-2"	65'-2"	49'-9⅜"	55'-10"	79'-1⅛"	81'-1⅛"	66'-2⅝"
		12	15'-3⅝"	12'-0"	16'-11⅝"	18'-11⅝"	3'-7⅜"	23'-1"	32'-6⅜"	34'-6⅜"	17'-3"	34'-0"	48'-1⅝"	50'-1⅝"	33'-8⅜"	44'-3"	63'-2"	65'-2"	48'-8⅜"	55'-10"	79'-2⅝"	81'-2⅝"	63'-11⅝"
	12'	9	10'-3⅝"	12'-6"	17'-7⅝"	19'-7⅝"	6'-10⅜"	23'-5"	33'-1⅛"	35'-1⅛"	22'-4⅜"	34'-5"	48'-8⅝"	50'-8⅝"	39'-0⅜"	49'-10"	70'-5⅛"	72'-5⅛"	59'-3⅜"	—	—	—	—
		10	12'-3⅝"	12'-7"	17'-9"	19'-9"	6'-5⅜"	23'-6"	33'-2⅝"	35'-2⅝"	21'-9⅛"	34'-5"	48'-8⅝"	50'-8⅝"	38'-5⅜"	49'-10"	70'-5⅛"	72'-5⅛"	58'-8⅜"	—	—	—	—
		11	13'-3⅝"	12'-8"	17'-10⅜"	19'-10⅜"	5'-11⅜"	23'-7"	33'-3⅝"	35'-3⅝"	21'-2⅝"	34'-5"	48'-8⅝"	50'-8⅝"	37'-11⅜"	49'-10"	70'-5⅛"	72'-5⅛"	58'-2⅜"	—	—	—	—
		12	15'-3⅝"	12'-9"	17'-11⅝"	19'-11⅝"	5'-5⅜"	23'-8"	33'-4⅝"	35'-4⅝"	20'-6⅛"	34'-5"	48'-8⅝"	50'-8⅝"	37'-5⅜"	49'-10"	70'-5⅛"	72'-5⅛"	57'-8⅜"	—	—	—	—

Note:- This drawing to be used in conjunction with Standard Wing Drawings for 45° Skews for each slope as listed below.

2:1 Slopes	3:1 Slopes	4:1 Slopes
W-X452-1 or W-X452-2	W-X453-1 or W-X453-2	W-X454-1 or W-X454-2.

Note:-
This drawing to be used in conjunction with Standard Barrel Sections, Drawing Nos.-

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-145X-0	R-245X-01	R-345X-01	R-445X-01	R-545X-01
	R-245X-02	R-345X-02	R-445X-02	R-545X-02
R-145X-1	R-245X-1	R-345X-1	R-445X-1	
	R-245X-2	R-345X-2		

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS 45° SKEW

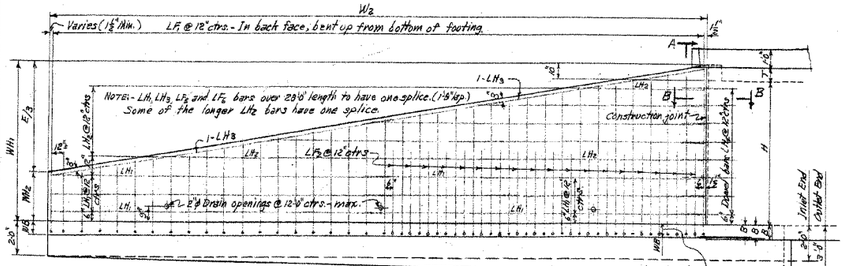
4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS — 2:1, 3:1 & 4:1 SLOPES

SINGLES, DOUBLES, TRIPLES, QUADRUPLES & QUINTUPLES — ALL DEPTHS OF COVER H = 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 & 12

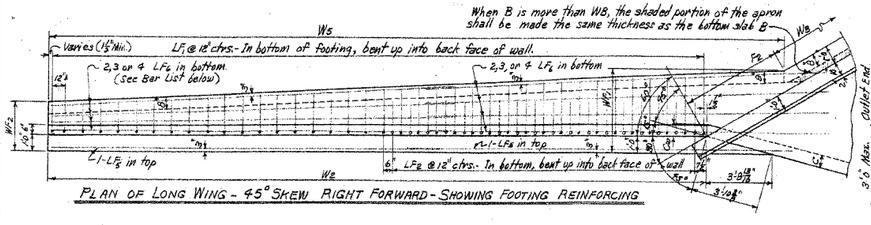
STANDARD DRAWING No. W-X45

Reshot 3-8-93 352

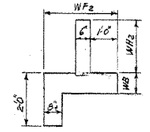
FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			188	
JOB No.					



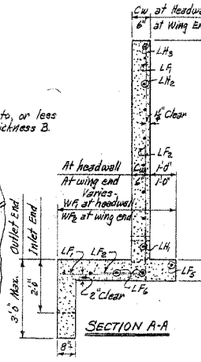
REAR ELEVATION OF LONG WING - 45° SKEW RIGHT FORWARD - SHOWING BACK FACE REINFORCING



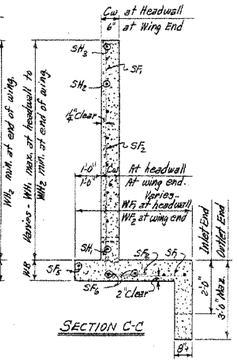
PLAN OF LONG WING - 45° SKEW RIGHT FORWARD - SHOWING FOOTING REINFORCING



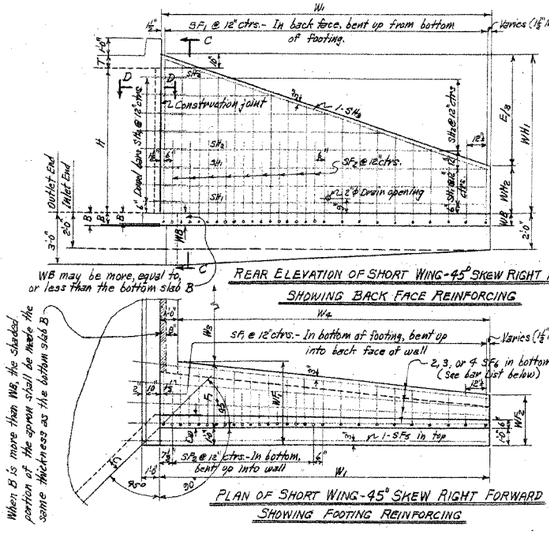
TYPICAL END VIEW OF WING



SECTION A-A

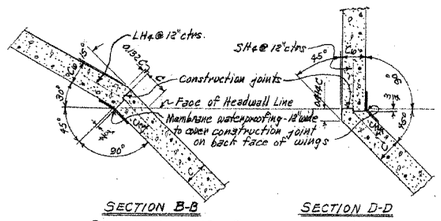


SECTION C-C



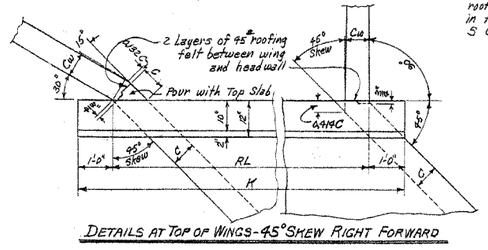
REAR ELEVATION OF SHORT WING - 45° SKEW RIGHT FORWARD - SHOWING BACK FACE REINFORCING

PLAN OF SHORT WING - 45° SKEW RIGHT FORWARD SHOWING FOOTING REINFORCING



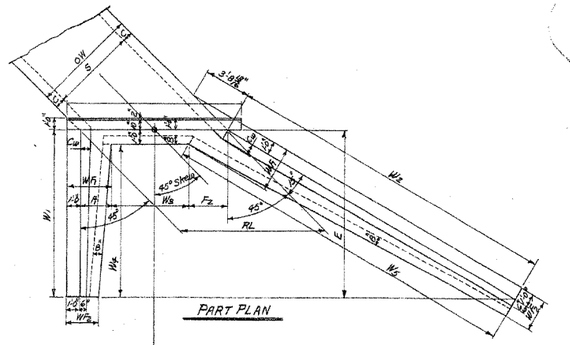
SECTION B-B SECTION D-D

SECTIONS THRU CONSTRUCTION JOINTS



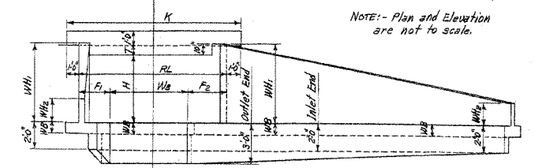
DETAILS AT TOP OF WINGS - 45° SKEW RIGHT FORWARD

NOTE:- Payment for the membrane waterproofing and roofing felt to be included in the price bid for Class S Concrete.



PART PLAN

NOTE:- Plan and Elevation are not to scale.



END ELEVATION

SINGLE BARREL CULVERT - 45° SKEW RIGHT FORWARD

Details of Culvert with 45° Skew Left Forward is reversed, see Drawing No. W-X45.

TYPICAL WING DETAILS

NOTE:-
For remainder of General Plans and Elevations of Single, Double, Triple, Quadruple and Quintuple Span Culverts, see Std. Drawing No. W-X45.
For values of RL, K and W_3 for each box, see above Std. also.

MEMBRANE:- A membrane waterproofing 18" wide, consisting of three moppings of waterproofing asphalt and two alternate layers of treated cotton fabric shall be applied to the back face of wing to cover the construction joints in wings.

REVISIONS:- Membrane Added. 5-10-66 W.C.H.

REGULAR WING DIMENSIONS - 3:1 SLOPES

CLEAR HEIGHT OF BOX	THICKNESS OF WING FOOTING	THICKNESS OF WING AT HEADWALL	WINGWALL HEIGHTS AT HEADWALL	WINGWALL HEIGHTS AT END OF WING	WIDTHS OF WING FOOTINGS AT HEADWALL	WIDTHS OF WING FOOTINGS AT END OF WING	FOOTING DIMENSION-PARABOLA WITH HEADWALL SHORT WING	FOOTING DIMENSION-PARABOLA WITH HEADWALL LONG WING	PERPENDICULAR DIST. FROM ABVE TO END OF WING	LENGTHS OF WINGWALLS SHORT WING	LENGTHS OF WINGWALLS LONG WING	INSIDE FOOTING DIMENSION SHORT WING	INSIDE FOOTING DIMENSION LONG WING	* QUANTITY PER WING CLASS S CONCRETE INLET END SHORT WING	INLET END LONG WING	OUTLET END SHORT WING	OUTLET END LONG WING
H	WB	Cw	WH1	WH2	WF1	WF2	F1	F2	E	W1	W2	W4	W5	CU.YD.	CU.YD.	CU.YD.	CU.YD.
2'	7"	6"	2'-10	0'-8"	2'-4"	2'-0"	1'-4"	0'-11½"	6'-6"	6'-6"	13'-0"	5'-6"	13'-3⅝"	0.793	1.578	0.827	1.741
3'	7"	6"	3'-10"	1'-0"	2'-8"	2'-1½"	1'-9"	1'-7½"	8'-6"	8'-6"	17'-0"	7'-6"	17'-10⅝"	1.120	2.369	1.229	2.590
4'	7"	6"	4'-10"	1'-4"	3'-0"	2'-3"	2'-0"	2'-3⅛"	10'-6"	10'-6"	21'-0"	9'-6"	22'-5½"	1.567	3.295	1.700	3.577
5'	7"	6"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-4"	2'-4½"	12'-6"	12'-6"	25'-0"	11'-6"	27'-0⅝"	2.082	4.367	2.241	4.705
		7"	5'-10"	1'-9"	3'-4"	2'-4½"	2'-4"	2'-4⅝"	12'-6"	12'-6"	25'-0"	11'-6"	27'-0⅝"	2.166	4.551	2.325	4.889
6'	8"	7"	6'-10"	2'-0"	3'-8"	2'-6"	2'-8"	3'-1⅝"	14'-6"	14'-6"	29'-0"	13'-6"	31'-7½"	2.894	6.055	3.078	6.460
		7½"	6'-10"	2'-0"	3'-8"	2'-6"	2'-8"	3'-1⅝"	14'-6"	14'-6"	29'-0"	13'-6"	31'-7½"	2.952	6.180	3.135	6.575
		8"	6'-10"	2'-0"	3'-8"	2'-6"	2'-8"	3'-1⅝"	14'-6"	14'-6"	29'-0"	13'-6"	31'-7½"	3.009	6.306	3.192	6.700
7'	8½"	7½"	7'-10"	2'-4"	4'-2"	2'-9½"	3'-2"	3'-7½"	16'-6"	16'-6"	33'-0"	15'-6"	36'-3⅝"	3.794	7.930	4.008	8.385
		8"	7'-10"	2'-4"	4'-2"	2'-9½"	3'-2"	3'-7½"	16'-6"	16'-6"	33'-0"	15'-6"	36'-3⅝"	3.890	8.093	4.078	8.598
8'	9"	8"	8'-10"	2'-8"	4'-8"	2'-9"	3'-6"	5'-0½"	18'-6"	18'-6"	37'-0"	17'-6"	41'-0½"	4.855	10.184	5.088	10.651

* Quantity per wing does not include headwall or that portion of apron or toewall for the length W_4.

QUANTITIES

CLEAR SPAN	CLEAR HEIGHT	THICKNESS OF WING AT HEADWALL	THICKNESS OF WING FOOTING	REINFORCING STEEL - FOR 4 WINGS	CLASS S CONCRETE - 4 WINGS HEADWALLS, WINGWALLS, FOOTINGS, TOEWALLS AND APRONS					
					SINGLE BARREL CULVERT	DOUBLE BARREL CULVERT	TRIPLE BARREL CULVERT	QUADRUPLE BARREL CULVERT	QUINTUPLE BARREL CULVERT
S	H	Cw	WB	LB.	CU.YD.	CU.YD.	CU.YD.	CU.YD.	CU.YD.
4'	2'	6"	7"	192	6.15	7.50	8.84	10.22	11.58
	3'	6"	7"	214	8.44	9.79	11.14	12.50	13.86
	4'	6"	7"	328	11.13	12.98	14.84	16.70	18.56
	5'	6"	7"	468	14.25	15.60	16.96	18.32	19.68
	6'	7"	8"	763	19.23	20.62	22.02	23.41	24.81
5'	3'	6"	7"	214	8.74	10.38	12.03	13.67	15.32
	4'	6"	7"	328	11.43	13.07	14.72	16.37	18.02
	5'	6"	7"	463	14.55	16.19	17.84	19.49	21.14
	6'	7"	8"	763	19.53	21.21	22.90	24.59	26.28
	7'	7½"	8½"	1475	24.96	26.69	28.41	30.14	31.86
6'	3'	6"	7"	214	9.03	10.99	12.91	14.86	16.79
	4'	6"	7"	328	11.73	13.69	15.60	17.56	19.48
	5'	6"	7"	463	14.85	16.80	18.72	20.68	22.60
	6'	7"	8"	763	19.93	21.82	23.79	25.78	27.76
	7'	7½"	8½"	1475	25.28	27.30	29.31	31.33	33.35
	8'	8"	9"	1872	31.70	33.79	35.75	37.79	39.81
7'	4'	6"	7"	328	12.04	14.21	16.04	18.21	20.02
	5'	6"	7"	463	15.15	17.95	19.65	21.93	24.13
	6'	7"	8"	763	20.14	22.94	24.49	26.99	29.29
	7'	7½"	8½"	1475	25.59	27.91	30.21	32.58	34.83
	8'	8"	9"	1872	32.02	34.36	36.66	38.99	41.31
8'	4'	6"	7"	328	12.35	14.95	17.49	20.08	22.57
	5'	7"	7"	463	16.05	18.67	21.24	23.86	26.37
	6'	7"	8"	763	20.95	23.07	25.66	28.26	30.77
	7'	7½"	8½"	1475	25.90	28.34	31.18	33.78	36.32
	8'	8"	9"	1872	32.33	34.97	37.56	40.21	42.80
9'	5'	7"	7"	463	16.37	19.32	22.18	25.02	27.91
	6'	7½"	8"	763	21.16	24.13	27.02	29.99	32.81
	7'	7½"	8½"	1475	26.21	29.18	32.06	34.96	37.86
	8'	8"	9"	1872	32.63	35.61	38.61	41.37	44.29
10'	5'	7"	7"	463	16.69	19.96	23.15	26.27	29.47
	6'	7½"	8"	763	21.98	24.77	27.99	31.13	34.34
	7'	7½"	8½"	1475	26.53	29.62	33.05	36.19	39.92
	8'	8"	9"	1872	32.95	36.25	39.96	42.62	45.85
11'	6'	8"	8"	763	22.18	25.88	29.35	32.86	———
	7'	8"	8½"	1475	27.89	30.99	34.51	38.01	———
	8'	8"	9"	1872	33.86	36.91	40.98	43.93	———
12'	6'	8"	8"	763	22.60	26.51	30.35	34.19	———
	7'	8"	8½"	1475	27.66	31.66	35.49	39.35	———
	8'	8"	9"	1872	33.58	37.58	41.91	45.27	———

* For reinforcing steel in Headwalls and Aprons, see Drawing Nos. of Barrel Sections listed below.

GENERAL NOTES:-
CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.
REINFORCING STEEL:- Reinforcing steel to be deformed bars of intermediate or hard grade.
CONSTRUCTION JOINTS:- Construction joints between wingwall, footings and sidewalls shall be only where shown on plans.
SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.
UNIT STRESSES:-
Class S Concrete (n=10) 1200 #/□"
Reinforcing Steel 20,000 #/□"

NOTE:-
This drawing to be used in conjunction with Standard Barrel Sections, Drawing Nos.-

SINGLES	DOUBLES	TRIPLES	QUADRUPLES	QUINTUPLES
R-145X-0	R-245X-01	R-345X-01	R-445X-01	R-545X-01
	R-245X-02	R-345X-02	R-445X-02	R-545X-02
R-145X-1	R-245X-1	R-345X-1	R-445X-1	
	R-245X-2	R-345X-2		

BAR LIST FOR ONE SHORT AND ONE LONG WING - 2 EACH REQUIRED

CLEAR HEIGHT	WING LOCATION	SF1 & LF1 BENT: In bottom of footing, bent up into back face of wing. One bar (or two bars) of each length.						SF2 & LF2 BENT: In bottom of footing, bent up into back face of wing. Alt. with F1 bars						SF3 & LF3 STRAIGHT: Longitudinal in top of wing footing heel.			SF5 & LF5 STRAIGHT: Longitudinal in bottom of wing footing toe.			SH1 & LH1 STRAIGHT: Horizontal in back face of wing.				SH2 & LH2 STRAIGHT: Horizontal in back face of wing One bar of each length.					SH3 & LH3 STRAIGHT: In back face of wing at top-on slope			SH4 & LH4 BENT: Dowels thru construction joint at headwall.				BAR BENDING DIAGRAM	QUANTITY: REINFORCING STEEL PER WING - LBS.	
H	SHORT LONG	SIZE	SPACING	No. PERIO	LENGTHS VARY MIN.	LENGTHS VARY MAX.	X MIN.	X MAX.	Y MIN.	Y MAX.	SIZE	SPACING	No. PERIO	LENGTH	X	Y	SIZE	No. PERIO	LENGTH	SIZE	No. PERIO	LENGTH	SIZE	SPACING	No. PERIO	LENGTH	SIZE	No. PERIO	LENGTHS VARY MAX.	LENGTHS VARY MIN.	SIZE	No. PERIO	LENGTH	SIZE	No. PERIO	LENGTH	X		SHORT WING	LONG WING
2'	Short	#3	12"	7	1'-7"	3'-11"	0'-8"	1'-0"	1'-0"	3'-10"	#3	—	—	—	—	—	#3	1	8'-6"	#3	2	6'-0"	#3	12"	1	6'-3"	#3	1	—	3'-8"	#3	1	6'-7"	#3	12"	2	2'-8"	1'-9"			
	Long	#3	12"	14	1'-5"	3'-11"	0'-8"	1'-0"	0'-10"	3'-10"	#3	—	—	—	—	—	#3	1	17'-6"	#3	2	15'-6"	#3	12"	1	12'-6"	#3	1	—	6'-6"	#3	1	12'-11"	#3	12"	2	"	"			
3'	Short	#3	12"	9	2'-1"	5'-3"	0'-10"	1'-4"	1'-3"	5'-2"	#3	—	—	—	—	—	#3	1	10'-6"	#3	2	8'-9"	#3	12"	1	8'-9"	#3	2	6'-9"	3'-8"	#3	1	8'-10"	#3	12"	3	"	"			
	Long	#3	12"	18	1'-11"	5'-3"	0'-10"	1'-4"	1'-2"	4'-10"	#3	—	—	—	—	—	#3	1	21'-6"	#3	2	20'-6"	#3	12"	1	16'-8"	#3	2	12'-6"	6'-6"	#3	1	14'-10"	#3	12"	3	"	"			
4'	Short	#3	12"	11	2'-6"	6'-7"	0'-11"	1'-8"	1'-8"	6'-6"	#3	—	—	—	—	—	#3	1	12'-6"	#3	3	10'-3"	#3	12"	1	10'-3"	#3	2	9'-5"	3'-8"	#3	1	10'-9"	#3	12"	4	"	"			
	Long	#3	12"	22	2'-4"	6'-6"	0'-11"	1'-7"	1'-5"	5'-0"	#3	—	—	—	—	—	#3	1	25'-6"	#3	3	24'-6"	#3	12"	1	20'-8"	#3	3	18'-6"	6'-6"	#3	1	21'-0"	#3	12"	4	"	"			
5'	Short	#3	12"	13	2'-11"	7'-11"	1'-0"	2'-0"	2'-0"	6'-10"	#3	12"	3	3'-6"	1'-1"	2'-6"	#3	1	14'-6"	#3	3	9'-0"	#3	12"	2	12'-8"	#3	3	9'-9"	3'-8"	#3	1	12'-11"	#3	12"	5	"	"			
	Long	#3	12"	26	2'-9"	7'-10"	1'-0"	1'-11"	1'-10"	6'-10"	#3	12"	6	3'-6"	1'-1"	2'-6"	#3	2	15'-8"	#3	6	15'-7"	#3	12"	2	24'-9"	#3	12"	3	18'-6"	6'-6"	#3	1	25'-1"	#3	12"	5	"	"			
6'	Short	#3	12"	15	3'-6"	9'-4"	1'-2"	2'-4"	2'-5"	7'-11"	#3	12"	8	4'-6"	1'-6"	3'-3"	#3	1	16'-6"	#3	3	10'-1"	#3	12"	2	14'-9"	#3	12"	4	12'-3"	3'-8"	#3	1	15'-0"	#3	12"	6	"	"			
	Long	#4	12"	30	3'-3"	9'-3"	1'-2"	2'-3"	2'-3"	7'-11"	#3	12"	6	4'-6"	1'-6"	3'-3"	#3	2	17'-8"	#3	6	18'-0"	#3	12"	4	28'-6"	6'-6"	#3	2	15'-5"	#3	12"	6	2'-8"	1'-9"					
7'	Short	#4	12"	17	3'-11"	10'-10"	1'-3"	2'-10"	2'-9"	9'-1"	#4	12"	6	5'-6"	1'-7"	4'-0"	#4	1	18'-6"	#4	4	16'-0"	#4	12"	2	16'-8"	#4	12"	5	15'-3"	3'-8"	#4	1	17'-1"	#4	12"	7	3'-6"	1'-9"			
	Long	#4	12"	34	3'-9"	10'-8"	1'-3"	2'-8"	2'-7"	8'-11"	#4	12"	12	5'-6"	1'-7"	4'-0"	#4	2	19'-8"	#4	8	20'-9"	#4	12"	4	17'-3"	#4	12"	5	#30'-6"	6'-6"	#4	2	19'-5"	#4	12"	7	"	"			
8'	Short	#4	12"	19	4'-6"	12'-5"	1'-5"	3'-6"	3'-5"	10'-3"	#4	12"	9	6'-6"	1'-10"	4'-9"	#4	1	20'-6"	#4	4	20'-0"	#4	12"	3	18'-3"	#4	12"	5	15'-8"	3'-9"	#4	1	19'-5"	#4	12"	8	"	"			
	Long	#4	12"	38	4'-4"	12'-3"	1'-5"	3'-5"	3'-4"	9'-2"	#4	12"	18	6'-6"	1'-10"	4'-9"	#4	2	21'-8"	#4	8	22'-8"	#4	12"	6	19'-2"	#4	12"	5	#30'-6"	6'-6"	#4	2	19'-6"	#4	12"	8	3'-6"	1'-9"			

NOTE:- Bars for short wing shall be marked with prefix letter "S", while those for long wing shall be marked with letter "L".

* Length without splice. Bars over 28'0" length may be spliced. (1'6" lap)

BAR BENDING DIAGRAM: SF1 & SF3, LF1 & LF3; 3" Pin; SH4; LH4; Note:- Dimensions are to bar centers.

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF STANDARD WINGS
FOR
REINFORCED CONCRETE BOX CULVERTS
45° SKEW

4, 5, 6, 7, 8, 9, 10, 11 & 12' SPANS — 3:1 SLOPES
SINGLES, DOUBLES, TRIPLES, — ALL DEPTHS OF COVER
QUADRUPLES & QUINTUPLES — FOR H = 8'-0" OR LESS

STANDARD DRAWING No. W-X453-1

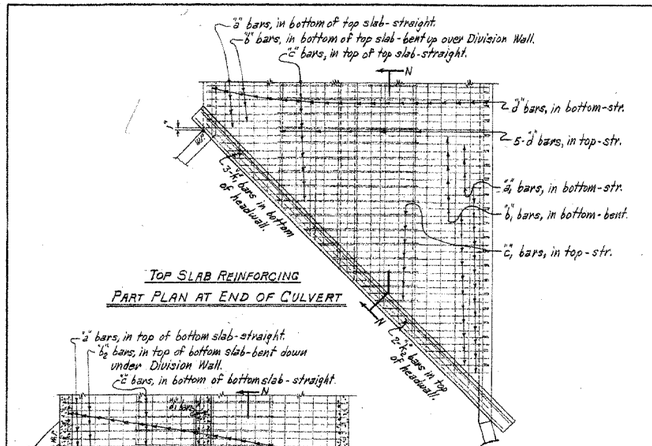
Designed By:- W.C.H. 5-13-63 Checked By:- J.S.M. 7-21-64
Drawn By:- W.C.H. 6-5-64 Checked By:- J.S.M. 7-21-64
Quantities By:- W.C.H. 7-2-64 Checked By:- J.S.M.

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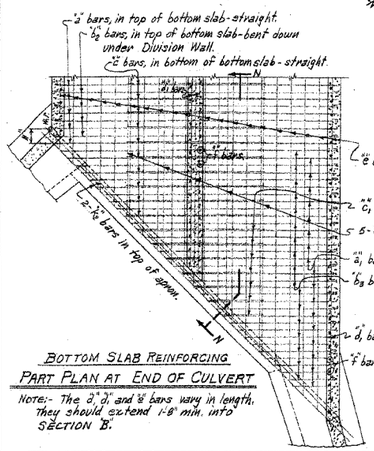
Reshot 3-9-93

432

FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.			189	
JOB No.					



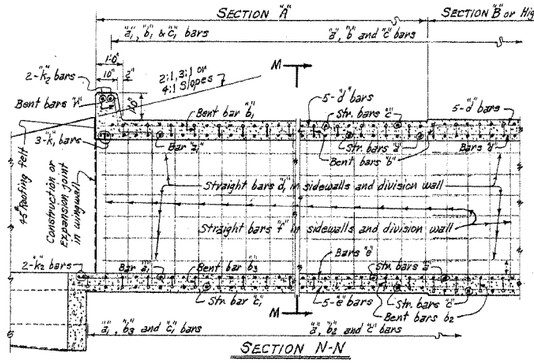
TOP SLAB REINFORCING
PART PLAN AT END OF CULVERT

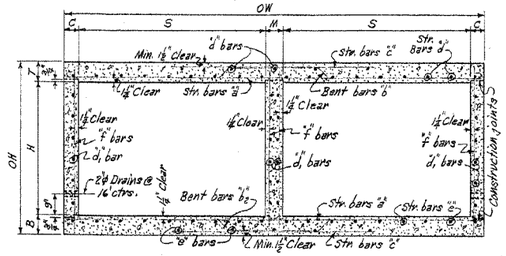


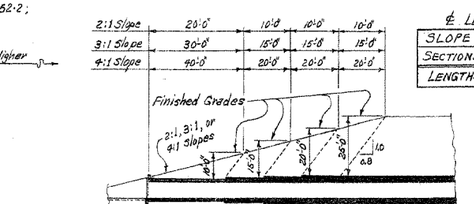
BOTTOM SLAB REINFORCING
PART PLAN AT END OF CULVERT

Note:- The "d", "f", and "g" bars vary in length. They should extend 1'-8" min. into SECTION "B".

Note:- For Details of Standard Wings and bar lists, see Drawing Nos. W-X452-1 or W-X952-2; W-453-1 or W-X453-2, and W-X454-1 or W-X454-2. Also W-X45.







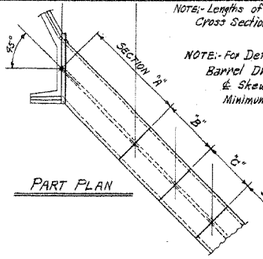
℄ LENGTH OF SECTIONS ON 45° SKEW

SLOPE	2:1		3:1		4:1	
SECTIONS	A	B & C	A	B & C	A	B & C
LENGTHS	17'-0"	8'-6"	31'-1½"	15'-6⅝"	45'-3"	22'-7½"

2:1 Slope =	SECTIONS	A = 12'-0"	B = 6'-0"	C = 6'-0"	MID-SECTION D - Varies
	Bar Group	A	B	C	D
3:1 Slope =	SECTIONS	A = 22'-0"	B = 11'-0"	C = 11'-0"	MID-SECTION D - Varies
	Bar Group	A	B	C	D
4:1 Slope =	SECTIONS	A = 32'-0"	B = 16'-0"	C = 16'-0"	MID-SECTION D - Varies
	Bar Group	A	B	C	D

These lengths are perpendicular to ℄ of roadway. See Table of Skew Lengths above.

TYPICAL LONGITUDINAL SECTION - SHOWING SECTIONS AND BAR GROUPS FOR VARIOUS DEPTHS OF COVER



Note:- Lengths of Sections and Bar Groups are to be shown on Cross Section Sheets or on Special Culvert Layout Sheet.

Note:- For Details and Bar Lists for SECTIONS B, C & D, see Barrel Drawing Nos. R-200X-X2 and R-200X-X3.
℄ Skewed Length of A = 1.41421 x A.
Minimum ℄ Length on Skew = (.05 OW + 1').

SECTIONS AND BAR GROUPS TO BE USED FOR VARIOUS DEPTHS OF COVER

DEPTHS OF COVER	SECTIONS & BAR GROUPS FOR END SECTIONS A	B	C	MID-SECTION AND BAR GROUP
5.0' to 9.5'	A			A
10.0' to 14.5'	A			B
15.0' to 19.5'	A	B		C
20.0' to 25.0	A	B	C	D

OR ALT

DEPTHS OF COVER	SECTIONS & BAR GROUPS FOR END SECTIONS A	B	C	MID-SECTION AND BAR GROUP
5.0' to 9.5'	A			A
10.0' to 14.5'	A			B
15.0' to 19.5'	A	B		C
20.0' to 25.0	A	2@ C		D

BARREL DIMENSIONS

MAX. DESIGN DEPTH OF COVER	CLEAR SPANS	CLEAR HEIGHT	SQ. FT. OPENING	OVERALL WIDTH	THICKNESS OF TOP SLAB	THICKNESS OF SIDEWALLS	THICKNESS OF DIVISION WALL	THICKNESS OF BOTTOM SLAB	OVERALL HEIGHT	ROADWAY LENGTH	LENGTH OF HEADWALL
D	S	H	A	OW	T	C	M	B	OH	RL	K
SECTION "A" = 10'-0"	2 @ 9'	5'	90	19'-11"	10"	7"	9"	10"	6'-0⅝"	28'-2"	30'-2"
		6'	108	20'-1"		7½"	10"		7'-0⅝"	28'-2⅝"	30'-3⅝"
		7'	126	20'-1"		7½"	10"		8'-0⅝"	"	"
		8'	144	20'-2"		8"	10"	10¾"	9'-0⅝"	28'-6⅝"	30'-6⅝"
		9'	162	20'-5"		9"	11"		10'-0⅝"	28'-10⅝"	30'-10⅝"
		10'	180	20'-8"		10"	12"		11'-0⅝"	29'-2⅝"	31'-2⅝"
		11'	198	20'-10"		11"	12"		12'-0⅝"	29'-6⅝"	31'-6⅝"
	2 @ 10'	5'	100	21'-11"		7"	9"	11½"	6'-0⅝"	31'-0"	33'-0"
		6'	120	22'-1"		7½"	10"		7'-0⅝"	31'-2⅝"	33'-2⅝"
		7'	140	22'-1"		7½"	10"		8'-0⅝"	"	"
		8'	160	22'-2"	10¾"	8"	10"		9'-0⅝"	31'-6⅝"	33'-6⅝"
		9'	180	22'-5"		9"	11"		10'-0⅝"	31'-10⅝"	33'-10⅝"
		10'	200	22'-8"		10"	12"		11'-0⅝"	32'-2⅝"	34'-2⅝"
		11'	220	22'-10"		11"	12"		12'-0⅝"	32'-6⅝"	34'-6⅝"
		12'	240	23'-0"		12"	12"		13'-0⅝"	32'-10⅝"	34'-10⅝"
	2 @ 11'	6'	132	24'-2"	11¾"	8"	10"	12½"	8'-0⅝"	34'-2⅝"	36'-2⅝"
		7'	154	24'-2"		8"	10"		9'-0⅝"	"	"
		8'	176	24'-2"		8"	10"		10'-0⅝"	"	"
		9'	198	24'-5"		9"	11"		11'-0⅝"	34'-6⅝"	36'-6⅝"
		10'	220	24'-8"		10"	12"		12'-0⅝"	34'-10⅝"	36'-10⅝"
		11'	242	24'-10"		11"	12"		13'-0⅝"	35'-3⅝"	37'-1⅝"
		12'	264	25'-0"		12"	12"		14'-0⅝"	35'-7⅝"	37'-5⅝"
	2 @ 12'	6'	144	26'-5"	12¾"	8"	10"	13½"	8'-2"	37'-0⅝"	39'-0"
		7'	168	26'-5"		8"	10"		9'-2"	"	"
		8'	192	26'-5"		8"	10"		10'-2"	"	"
		9'	216	26'-5"	12¾"	9"	11"	13½"	11'-2"	37'-4½"	39'-4½"
		10'	240	26'-8"		10"	12"		12'-2"	37'-8½"	39'-8½"
		11'	264	26'-10"		11"	12"		13'-2"	37'-11½"	39'-11½"
		12'	288	27'-0"		12"	12"		14'-2"	38'-3½"	40'-3½"

* QUANTITIES - ONE SECTION "A"

CLASS S CONCRETE BARREL ONLY			REINFORCING STEEL BARREL, APRON AND HEADWALL		
2:1	3:1	4:1	2:1	3:1	4:1
CU.YD.	CU.YD.	CU.YD.	LB.	LB.	LB.
27.91	50.73	73.76	4470	7570	10752
29.73	53.94	78.19	4644	7860	11,138
31.04	56.83	82.68	4833	8173	11,590
32.88	60.20	87.51	4992	8409	12,249
35.92	65.77	95.61	5306	9177	13,061
39.29	71.93	104.57	5708	9865	14,051
42.51	77.47	112.63	6015	10,921	15820
31.62	57.89	84.17	4903	8295	11,656
33.64	61.40	89.35	4994	8522	12,008
34.97	64.02	93.08	5104	8839	12,466
36.79	67.35	97.92	5204	9050	13,005
39.87	72.99	106.11	5731	9831	14035
43.25	79.18	115.12	6133	10,521	14,981
46.87	85.72	124.17	6491	11,048	15,680
49.52	90.67	131.81	6693	11,552	16,392
38.93	71.28	103.62	6015	10,168	14,486
40.89	73.77	107.26	6194	10,408	14,780
41.67	76.29	110.91	6457	10,853	15,366
44.76	81.95	119.14	6801	11,579	16,456
48.18	88.81	129.24	7219	12,285	17,366
51.22	93.78	136.34	7524	12,825	18,139
54.47	99.72	144.99	7958	13,602	19,322
55.88	80.83	116.79	6870	11,647	16,474
58.25	82.86	120.46	6966	11,840	16,764
56.61	85.84	126.08	7318	12,477	17,651
59.78	91.04	132.36	7638	13,083	18,388
53.18	97.36	141.54	7962	13,695	19,430
56.24	102.06	149.69	8317	14286	20,289
59.50	108.94	158.38	8846	15,238	21,647

* For remainder of quantities see Std. Wing and Barrel Drawings listed below. Total steel quantities listed above include one lap of longitudinal bars, plus an add'l lap for 4:1 slopes and one add'l lap for half of bars for all slopes

DESIGN LIVE LOAD

H20-S16 LOADING A.A.S.H.O. 1961
AND
SPECIAL MILITARY LOADING
Two 24,000 Lb. Axles @ 4'-0" ctrs.

UNIT STRESSES:-
Class S Concrete (n=10) 1200#/□"
Reinforcing Steel 20,000#/□"

GENERAL NOTES

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.
REINFORCING STEEL:- Reinforcing to be deformed bars of intermediate or hard grade.
CONSTRUCTION JOINTS:- Construction joints between wingwalls, sidewalls, division wall and slabs shall be only where shown on plans.
SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

BAR LIST FOR SECTION "A" ON 45° SKEW - ONE END ONLY.

SECTION & BAR GROUP	LENGTH OF SECTION	DEPTH OF COVER	CLEAR SPAN	CLEAR HEIGHT	"a" bars STRAIGHT In Top and Bottom Slab of Barrel. SIZE	"a" bars SPACING	"a" bars NUMBER REQ'D 2:1	"a" bars NUMBER REQ'D 3:1	"a" bars NUMBER REQ'D 4:1	"a" bars LENGTH	"a1" bars STRAIGHT In Top and Bottom Slab of Barrel - (Two of each Length) SIZE	"a1" bars SPACING	"a1" bars NUMBER REQ'D	"a1" bars LENGTH MAX.	"a1" bars LENGTH MIN.
		D	S	H											
SECTION "A" & BAR GROUP "A"	4:1 = 45'-3"	0'-0" TO 10'-0" MAXIMUM.	2 @ 9'	5'	#5	12"	17	97	79	19'-8"	#5	11"	36	18'-9"	3'-2"
	3:1 = 31'-1½"			6'			17	97	79	19'-10"			36	18'-11"	3'-4"
	2:1 = 17'-0"			7'			17	97	79	19'-10"			36	18'-11"	"
				8'	#5	11"	17	97	79	19'-11"	#5	11"	38	19'-0"	2'-6"
				9'			17	97	79	20'-2"			38	19'-3"	2'-9"
				10'			17	97	79	20'-5"			38	19'-6"	3'-0"
				11'			17	97	79	20'-7"			38	19'-9"	3'-3"
			2 @ 10'	5'	#5	12"	13	73	71	21'-8"	#5	12"	38	20'-8"	2'-8"
				6'			13	73	71	21'-10"			38	20'-10"	2'-10"
				7'			13	73	71	21'-10"			38	20'-10"	"
				8'	#5	12"	13	91	71	21'-11"	#5	12"	38	20'-11"	2'-11"
				9'			13	91	71	22'-2"			38	21'-2"	3'-2"
				10'			13	91	71	22'-5"			38	21'-5"	3'-5"
				11'			13	91	71	22'-7"			38	21'-7"	3'-7"
				12'			13	91	69	22'-9"			38	21'-9"	3'-9"
			2 @ 11'	6'	#5	12"	11	39	69	23'-1"	#5	12"	42	22'-1"	2'-11"
				7'			11	39	69	23'-11"			42	22'-11"	"
				8'			11	39	69	23'-11"			42	22'-11"	"
				9'	#5	12"	11	39	69	24'-2"	#5	12"	42	23'-2"	3'-2"
				10'			11	39	67	24'-5"			42	23'-5"	3'-5"
				11'			11	39	67	24'-7"			42	23'-7"	3'-7"
				12'			11	39	67	24'-9"			42	23'-9"	3'-9"
			2 @ 12'	6'	#5	11"	11	91	73	25'-4"	#5	11"	50	25'-0"	3'-0"
				7'			11	91	73	25'-4"			50	25'-0"	"
				8'			11	91	73	25'-4"			50	25'-0"	"
				9'	#5	11"	11	91	71	26'-2"	#5	11"	50	25'-8"	3'-3"
				10'			9	91	71	26'-5"			52	25'-11"	3'-6"
				11'			9	91	71	26'-5"			52	25'-11"	3'-9"
				12'			9	91	71	26'-9"			52	25'-10"	3'-11"

SECTION & BAR GROUP	"b" bars BENT - See Diagrams below. In Bottom of Top Slab bent up over Division Wall - hooked. Alternate with "a" and "c" bars. SIZE	SPACING	NUMBER REQ'D 2:1	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	X	Y	Z
SECTION "A" & BAR GROUP "A"	#6	11"	8	23	38	21'-8"	0'-6⅝"	4'-0"	7'-2"
			8	23	38	21'-9"	"	4'-1"	7'-2⅝"
			8	23	38	21'-9"	"	"	7'-3"
	#6	11"	7	23	38	21'-10"	"	4'-2⅝"	7'-4"
			7	23	38	21'-11"	"	4'-3"	7'-5"
			7	23	38	22'-1"	"	4'-3⅝"	7'-6"
	#6	12"	6	20	34	23'-3"	0'-7⅛"	4'-6⅝"	7'-11"
			6	20	34	23'-4"	"	4'-7⅜"	7'-11⅝"
			6	20	34	23'-5"	"	"	8'-0"
	#6	12"	6	20	34	23'-6"	"	4'-8⅛"	8'-0"
			6	20	34	23'-8"	"	4'-8⅝"	8'-1"
			6	20	34	23'-9"	"	4'-9⅜"	8'-2"
			6	20	34	24'-1"	"	4'-9⅞"	8'-3"
			5	20	34	24'-3"	0'-7⅞"	4'-10⅜"	8'-6"
	#7	12"	5	19	33	25'-8"	0'-8"	5'-0"	8'-9"
			5	19	33	25'-8"	"	"	"
			5	19	33	25'-9"	"	"	"
	#7	12"	5	19	33	25'-11"	"	5'-1"	8'-10"
			5	19	33	26'-2"	"	5'-2"	8'-11"
			5	19	33	26'-4"	"	5'-2"	9'-0"
	#7	12"	4	19	33	26'-6"	0'-8⅛"	5'-2⅝"	9'-1"
			4	19	33	26'-8"	"	5'-3⅛"	9'-2"
			4	19	33	26'-9"	"	"	"
	#7	11"	4	20	35	27'-8"	0'-8⅝"	5'-4⅝"	9'-6"
			4	20	35	27'-8"	"	"	"
			4	20	35	27'-8"	"	"	"
	#7	11"	4	20	35	27'-11"	"	5'-5⅜"	9'-7"
			4	19	35	28'-1"	"	5'-6⅛"	9'-8"
			4	19	35	28'-4"	"	5'-6⅝"	9'-9"
			4	19	35	28'-6"	0'-8⅞"	5'-7⅜"	9'-10"

SECTION & BAR GROUP	"b1" bars BENT - See Diagrams below. In Bottom of Top Slab-some bent up over Division Wall - one end hooked. Alt. with "a" and "c" or "e" bars. SIZE	SPACING	NUMBER REQ'D	LENGTH MAX.	LENGTH MIN.	L MAX.	L MIN.
SECTION "A" & BAR GROUP "A"	#6	11"	19	20'-2"	3'-3"	19'-2"	2'-8"
			19	20'-4"	3'-5"	19'-4"	2'-10"
			19	20'-6"	"	"	"
	#6	11"	19	20'-5"	3'-6"	19'-5"	2'-11"
			19	20'-8"	3'-9"	19'-8"	3'-2"
			20	20'-11"	4'-1"	19'-11"	3'-5"
			20	21'-0"	3'-1"	19'-11"	2'-6"
	#6	12"	19	21'-2"	3'-8"	20'-1"	2'-8"
			19	21'-3"	3'-10"	20'-2"	2'-8"
			19	22'-2"	3'-8"	21'-1"	3'-1"
			19	22'-4"	3'-10"	21'-3"	3'-3"
			19	"	"	"	"
	#6	12"	19	22'-5"	3'-11"	21'-4"	3'-4"
			20	22'-8"	3'-2"	21'-7"	2'-7"
			20	22'-11"	3'-5"	21'-10"	2'-10"
			20	23'-1"	3'-7"	22'-0"	3'-0"
			20	23'-3"	3'-9"	22'-2"	3'-2"
	#7	12"	21	24'-6"	4'-0"	23'-4"	3'-4"
			21	"	"	"	"
			21	"	"	"	"
	#7	12"	22	24'-10"	3'-3"	23'-7"	2'-7"
			22	25'-1"	3'-6"	23'-10"	2'-10"
			22	25'-3"	3'-8"	24'-0"	3'-0"
			22	25'-5"	3'-8"	24'-2"	3'-2"
	#7	12"	22	25'-8"	4'-0"	24'-5"	3'-4"
			22	25'-10"	3'-10"	24'-7"	2'-7"
			22	26'-0"	"	"	"
	#7	11"	26	26'-6"	3'-2"	25'-5"	2'-6"
			26	"	"	"	"
			26	26'-11"	3'-5"	25'-8"	2'-9"
			26	27'-2"	3'-8"	25'-11"	3'-0"
			26	27'-4"	3'-10"	26'-1"	3'-2"
			26	27'-6"	4'-0"	26'-3"	3'-4"

SECTION & BAR GROUP	"b2" bars BENT - See Diagrams below. In Top of Bottom Slab bent down under Division Wall - hooked. Alternate with "a" and "c" bars. SIZE	SPACING	NUMBER REQ'D 2:1	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	X	Y	Z
SECTION "A" & BAR GROUP "A"	#6	11"	9	24	39	21'-3"	0'-7⅛"	4'-0⅝"	7'-2"
			9	24	39	21'-5"	"	4'-1⅛"	7'-2⅝"
			9	24	39	21'-5"	"	"	7'-3"
	#6	11"	8	24	39	21'-6"	"	4'-2⅛"	7'-4"
			8	24	39	21'-8"	"	4'-2⅝"	7'-5"
			8	24	39	22'-0"	"	4'-3⅜"	7'-6"
	#6	12"	8	24	39	22'-2"	0'-7⅜"	4'-6⅛"	7'-11"
			7	21	35	23'-4"	0'-8"	4'-6⅝"	7'-11⅝"
			7	21	35	23'-5"	"	4'-7"	"
			7	21	35	23'-6"	"	"	8'-0"
	#6	12"	7	21	35	23'-9"	"	4'-7⅞"	8'-1"
			7	21	35	24'-0"	"	4'-8⅜"	8'-2"
			7	21	35	24'-2"	"	4'-8⅞"	8'-3"
			6	21	35	24'-4"	0'-8"	4'-9⅜"	8'-6"
	#7	12"	6	20	34	25'-9"	"	5'-0"	8'-9"
			6	20	34	"	"	"	"
			6	20	34	26'-0"	"	4'-11⅝"	8'-10"
	#7	12"	6	20	34	26'-3"	"	5'-0⅛"	8'-11"
			6	20	34	26'-5"	"	5'-0⅝"	9'-0"
			6	20	34	26'-7"	"	5'-1⅛"	9'-1"
	#7	12"	5	20	34	26'-9"	0'-8⅛"	5'-1⅝"	9'-2"
			5	20	34	27'-0"	"	5'-2⅛"	9'-3"
			5	20	34	27'-2"	"	"	"
	#7	11"	5	21	36	27'-10"	0'-8⅝"	5'-3⅝"	9'-6"
			5	21	36	"	"	"	"
			5	21	36	28'-0"	"	5'-4⅜"	9'-7"
			5	20	36	28'-3"	"	5'-4⅞"	9'-8"
			5	20	36	28'-5"	"	5'-5⅜"	9'-9"
			5	20	36	28'-7"	0'-8⅞"	5'-5⅞"	9'-10"

SECTION & BAR GROUP	"b3" bars BENT - See Diagrams below. In Top of Bottom Slab-some bent down under Division Wall - one end hooked. Alt. with "a" and "c" or "e" bars. SIZE	SPACING	NUMBER REQ'D	LENGTH MAX.	LENGTH MIN.	L MAX.	L MIN.
SECTION "A" & BAR GROUP "A"	#6	11"	19	20'-8"	3'-8"	19'-7"	2'-8"
			19	20'-9"	3'-9"	19'-8"	2'-10"
			19	"	"	"	"
	#6	11"	19	20'-8"	3'-8"	19'-7"	2'-11"
			19	20'-9"	3'-9"	19'-8"	3'-2"
			20	21'-0"	4'-0"	19'-11"	3'-5"
			20	21'-2"	3'-2"	20'-1"	2'-6"
	#6	12"	19	22'-2"	3'-8"	21'-1"	2'-8"
			19	22'-4"	3'-10"	21'-3"	2'-8"
			19	"	"	"	"
	#6	12"	19	22'-5"	3'-11"	21'-4"	3'-1"
			20	22'-8"	3'-2"	21'-7"	2'-7"
			20	22'-11"	3'-5"	21'-10"	2'-10"
			20	23'-1"	3'-7"	22'-0"	3'-0"
			20	23'-3"	3'-9"	22'-2"	3'-2"
	#7	12"	21	24'-6"	4'-0"	23'-4"	3'-4"
			21	"	"	"	"
			21	"	"	"	"
	#7	12"	22	24'-10"	3'-3"	23'-7"	2'-7"
			22	25'-1"	3'-6"	23'-10"	2'-10"
			22	25'-3"	3'-8"	24'-0"	3'-0"
			22	25'-5"	3'-8"	24'-2"	3'-2"
	#7	12"	22	25'-8"	4'-0"	24'-5"	3'-4"
			22	25'-10"	3'-10"	24'-7"	2'-7"
			22	26'-0"	"	"	"
	#7	11"	26	26'-6"	3'-2"	25'-5"	2'-6"
			26	"	"	"	"
			26	26'-11"	3'-5"	25'-8"	2'-9"
			26	27'-2"	3'-8"	25'-11"	3'-0"
			26	27'-4"	3'-10"	26'-1"	3'-2"
			26	27'-6"	4'-0"	26'-3"	3'-4"

SECTION & BAR GROUP	"c" bars STRAIGHT In Top and Bottom Slab of Barrel. Alternate with "b" and "b2" bars. SIZE	SPACING	NUMBER REQ'D	LENGTH	"c1" bars STRAIGHT In Top and Bottom Slab of Barrel. Alt. with "b" & "b3" bars. (Two of each Length.) SIZE	SPACING	NUMBER REQ'D	LENGTH
SECTION "A" & BAR GROUP "A"	#7	11"	27	27'-6"	#7	11"	14	9'-3"
			27	"			14	9'-6"
			27	"			14	9'-9"
			27	"			14	9'-10"
			27	"			14	9'-9"
			27	"			14	9'-10"
			27	"			14	9'-9"
			27	"			14	9'-10"
			27	"			16	9'-10"
	#7	12"	23	27'-6"	#7	12"	16	10'-3"
			23	27'-7"			16	10'-6"
			23	27'-8"			16	"
	#7	12"	23	27'-9"	#7	12"	16	10'-9"
			23	27'-10"			18	10'-7"
			23	27'-11"			18	10'-9"
			23	28'-0"			18	10'-11"
	#7	12"	23	28'-1"	#7	12"	18	11'-0"
			23	28'-2"			18	"
			23	28'-3"			18	"
	#7	12"	23	28'-4"	#7	12"	18	11'-3"
			23	28'-5"			18	11'-5"
			23	28'-6"			18	11'-6"
	#7	11"	23	28'-8"	#7	11"	18	11'-8"
			23	"			18	"
			23	28'-9"			18	11'-9"
			23	28'-10"			18	11'-11"
			23	28'-11"			18	12'-0"
			23	29'-0"			18	12'-1"
			23	29'-1"			18	12'-2"

SECTION & BAR GROUP	"d" bars STRAIGHT Longitudinal In Top Slab of Barrel. SIZE	SPACING	NUMBER REQ'D	LENGTH	"d1" bars STRAIGHT Longitudinal in Sidewalls and Division Wall. SIZE	SPACING	NUMBER REQ'D	LENGTH	"e" bars STRAIGHT Longitudinal in Bottom Slab of Barrel. SIZE	SPACING	NUMBER REQ'D	LENGTH
SECTION "A" & BAR GROUP "A"	#4	12"	25	Lengths Vary - Ave. Lengths: @ 2:1 = 46'-0", @ 3:1 = 46'-0", @ 4:1 = 46'-0"	#4	12"	20	Lengths Vary - Ave. Lengths: @ 2:1 = 32'-9", @ 3:1 = 32'-9", @ 4:1 = 32'-9"	#4	12"	25	Lengths Vary - Ave. Lengths: @ 2:1 = 48'-2", @ 3:1 = 48'-2", @ 4:1 = 48'-2"
			25				24				25	
			25				28				25	
			25				32				25	
			25				34				25	
			25				36				25	
			25				40				25	
			25				44				25	
			25				48				25	
	#4	12"	27		#4	12"	20		#4	12"	27	
			27				24				27	
			27				28				27	
			27				32				27	
			27				36				27	
			27				40				27	
			27				44				27	
			27				48				27	
	#4	12"	29		#4	12"	24		#4	12"	29	
			29				28				29	
			29				32				29	
			29				36				29	
			29				40				29	
			29				44				29	
			29				48				29	
	#4	12"	31		#4	12"	24		#4	12"	31	
			31				28				31	
			31				32				31	
			31				36				31	
			31				40				31	
			31				44	