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.		CA1002	1	319
				(2)	MANILA - EAST (WIDENING) (S)			

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS FOR STATE HIGHWAY

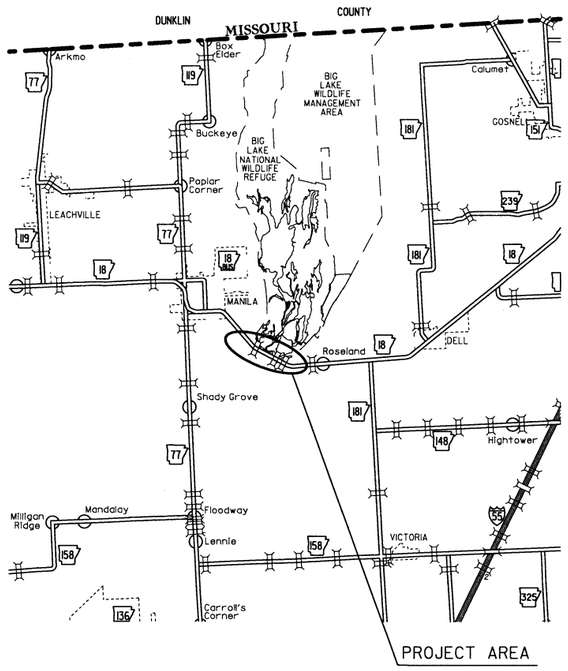
MANILA - EAST (WIDENING) (S)

MISSISSIPPI COUNTY

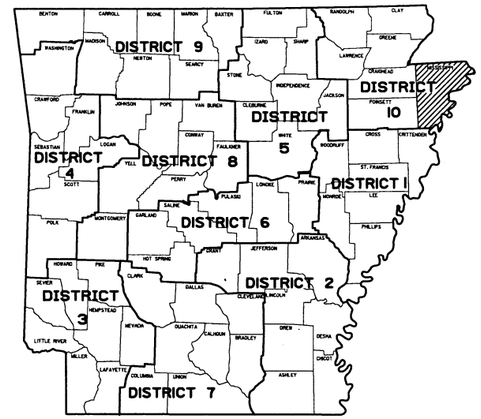
ROUTE 18 SECTION 6

FED. AID PROJ. ACNHPP-0047(51)

JOB CA1002

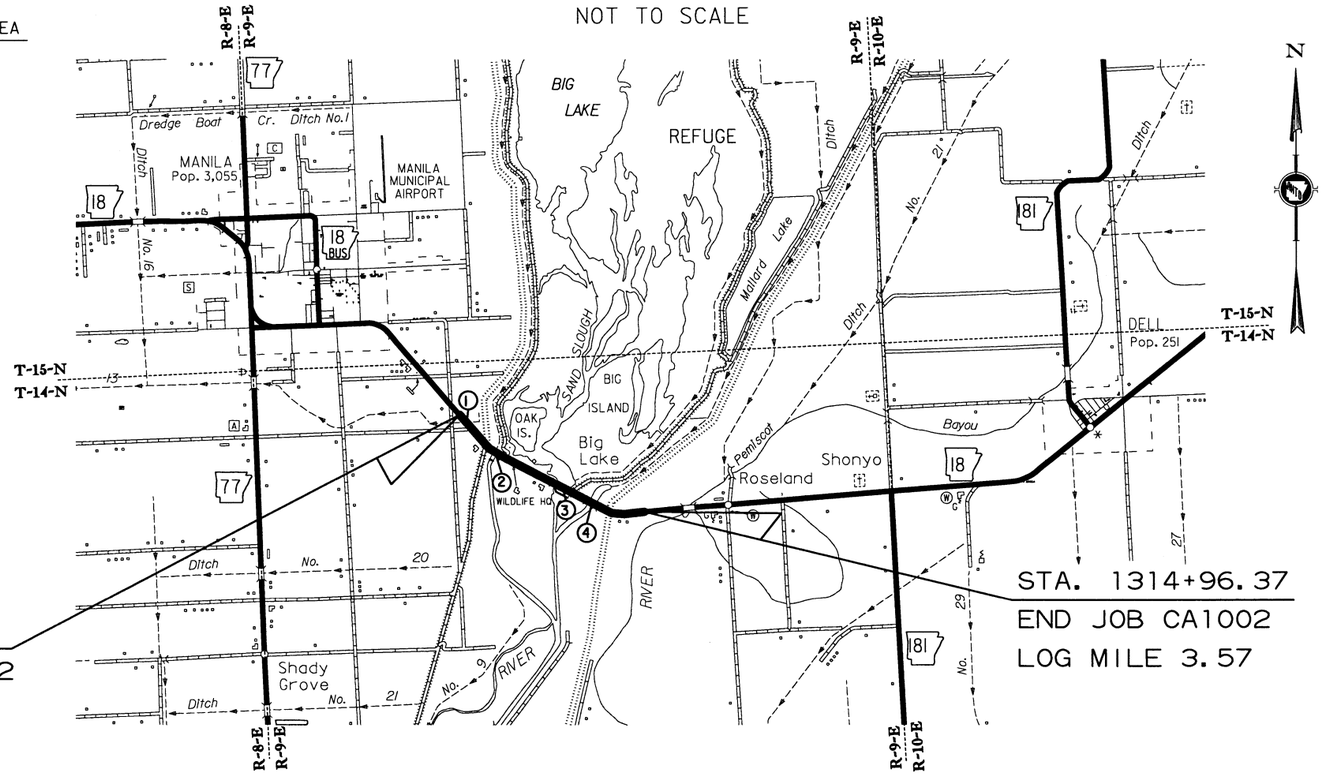


VICINITY MAP



ARK. HWY. DIST. NO. 10

NOT TO SCALE



STRUCTURES OVER 20'-0" SPAN

(1) STA. 1222+59 CONSTRUCT
QUAD. 5' X 5' X 138'
R.C. BOX CULVERT 35° LT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
CHANNEL CHANGE INLET = 59 CU. YDS.
CHANNEL CHANGE OUTLET = 150 CU. YDS.
Q50 = 460 C.F.S., D.A. = 4 SQ. MI.
SPAN = 28.08'

BRIDGE CONSTRUCTION DATA

(2) STA. 1237+75.92 BR. END
296'-0" CONTINUOUS COMPOSITE PLATE
GIRDER UNIT (90', 116', 90')
75'-0" CLEAR ROADWAY
298'-2" BRIDGE LENGTH
BR. NO. 07390 OVER DITCH 81
STA. 1240+74.08 BR. END

(3) STA. 1272+65.92 BR. END
3 - 296'-0" CONTINUOUS COMPOSITE PLATE
GIRDER UNITS (90', 116', 90')
75'-0" CLEAR ROADWAY
890'-2" BRIDGE LENGTH
BR. NO. 07391 OVER BIG LAKE OUTLET
STA. 1281+56.08 BR. END

(4) STA. 1290+35.91 BR. END
434'-0" CONTINUOUS COMPOSITE PLATE
GIRDER UNIT (91', 126', 126', 91')
75'-0" CLEAR ROADWAY
436'-2 1/4" BRIDGE LENGTH
BR. NO. 07392 OVER BIG LAKE FLOODWAY RELIEF
STA. 1294+72.09 BR. END

DESIGN TRAFFIC DATA

DESIGN YEAR	2036
2016 ADT	6300
2036 ADT	7600
2036 DHV	836
DIRECTIONAL DISTRIBUTION	0.60
TRUCKS	10%
DESIGN SPEED	60 MPH

	BEGIN PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	N 35°51'31"	N 35°51'03"	N 35°50'45"
LONGITUDE	W 90°08'34"	W 90°07'50"	W 90°06'58"

LENGTH OF PROJECT CALCULATED ALONG C.L. CONSTRUCTION

GROSS LENGTH OF PROJECT	9496.37	FEET	OR	1.799	MILES
NET	ROADWAY	7843.79			1.486	MILES
NET	BRIDGES	1652.58			0.313	MILES
NET	PROJECT	9496.37			1.799	MILES

P.E. CA1002

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 8940
MARK ASHER
9-12-16

JACOBS

T:\Job\WLXM2660 AHTD CAP CA1002\700 CADD Files\770 Roadway Files\Drawings\1-Title Sheet.dgn ...\Drawings\1-Title Sheet.dgn 9/11/2016 2:08:37 PM

9/14/2016 1:58:09 PM ...\Drawings\2-Index of Sheets.dgn T:\Job\WLXM2660 AHTD CAP CA1002\700 CADD Files\770 Roadway Files\Drawings\2-Index of Sheets.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.		CA1002	2	319

(2) INDEX OF SHEETS

INDEX OF SHEETS

SHEET NO.	TITLE	BRIDGE NO.	DRWG. NO.
1	TITLE SHEET		
2	INDEX OF SHEETS		
3	GOVERNING SPECIFICATIONS AND GENERAL NOTES		
4 - 8	TYPICAL SECTIONS OF IMPROVEMENT		
9 - 24	SPECIAL DETAILS		
25 - 46	TEMPORARY EROSION CONTROL DETAILS		
47 - 64	MAINTENANCE OF TRAFFIC		
65 - 73	PERMANENT PAVEMENT MARKING DETAILS		
74 - 80	QUANTITIES		
81	SCHEDULE OF BRIDGE QUANTITIES	07390, 07391, 07392	58651
82	SUMMARY OF QUANTITIES AND REVISIONS		
83 - 90	SURVEY CONTROL DETAILS		
91 - 98	PLAN AND PROFILE SHEETS		
99	LAYOUT OF BRIDGE OVER DITCH 81 (SHEET 1 OF 3)	07390	58652
100	LAYOUT OF BRIDGE OVER DITCH 81 (SHEET 2 OF 3)	07390	58653
101	LAYOUT OF BRIDGE OVER DITCH 81 (SHEET 3 OF 3)	07390	58654
102	HYDROGRAPH - DITCH 81	07390	58655
103	DETAILS OF SOIL DENSIFICATION (BRIDGE OVER DITCH 81)	07390	58656
104	DETAILS OF STAGE CONSTRUCTION (BRIGE OVER DITCH 81)	07390	58657
105	DETAILS OF END BENTS 1 & 4 (SHEET 1 OF 4)	07390	58658
106	DETAILS OF END BENTS 1 & 4 (SHEET 2 OF 4)	07390	58659
107	DETAILS OF END BENTS 1 & 4 (SHEET 3 OF 4)	07390	58660
108	DETAILS OF END BENTS 1 & 4 (SHEET 4 OF 4)	07390	58661
109	DETAILS OF INTERMEDIATE BENTS 2 & 3 (SHEET 1 OF 4)	07390	58662
110	DETAILS OF INTERMEDIATE BENTS 2 & 3 (SHEET 2 OF 4)	07390	58663
111	DETAILS OF INTERMEDIATE BENTS 2 & 3 (SHEET 3 OF 4)	07390	58664
112	DETAILS OF INTERMEDIATE BENTS 2 & 3 (SHEET 4 OF 4)	07390	58665
113	CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS	07390	58666
114	DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (SHEET 1 OF 13)	07390	58667
115	DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (SHEET 2 OF 13)	07390	58668
116	DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (SHEET 3 OF 13)	07390	58669
117	DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (SHEET 4 OF 13)	07390	58670
118	DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (SHEET 5 OF 13)	07390	58671
119	DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (SHEET 6 OF 13)	07390	58672
120	DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (SHEET 7 OF 13)	07390	58673
121	DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (SHEET 8 OF 13)	07390	58674
122	DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (SHEET 9 OF 13)	07390	58675
123	DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (SHEET 10 OF 13)	07390	58676
124	DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (SHEET 11 OF 13)	07390	58677
125	DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (SHEET 12 OF 13)	07390	58678
126	DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (SHEET 13 OF 13)	07390	58679
127	DETAILS OF ELASTOMERIC EXPANSION BEARINGS	07390	58680
128	DETAILS OF ELASTOMERIC BEARINGS AT INTEGRAL INTERMEDIATE BENTS	07390	58681
129	DETAILS OF TYPE SPECIAL 1 APPROACH SLAB BRIDGE OVER DITCH 81	07390	58682
130	LAYOUT OF BRIDGE OVER BIG LAKE OUTLET (SHEET 1 OF 5)	07391	58683
131	LAYOUT OF BRIDGE OVER BIG LAKE OUTLET (SHEET 2 OF 5)	07391	58684
132	LAYOUT OF BRIDGE OVER BIG LAKE OUTLET (SHEET 3 OF 5)	07391	58685
133	LAYOUT OF BRIDGE OVER BIG LAKE OUTLET (SHEET 4 OF 5)	07391	58686
134	LAYOUT OF BRIDGE OVER BIG LAKE OUTLET (SHEET 5 OF 5)	07391	58687
135	HYDROGRAPH - BIG LAKE OUTLET	07391	58688
136	DETAILS OF SOIL DENSIFICATION (BRIDGE OVER BIG LAKE OUTLET)	07391	58689
137	DETAILS OF STAGE CONSTRUCTION (BRIDGE OVER BIG LAKE OUTLET)	07391	58690
138	DETAILS OF END BENTS 1 & 10 (SHEET 1 OF 4)	07391	58691
139	DETAILS OF END BENTS 1 & 10 (SHEET 2 OF 4)	07391	58692
140	DETAILS OF END BENTS 1 & 10 (SHEET 3 OF 4)	07391	58693
141	DETAILS OF END BENTS 1 & 10 (SHEET 4 OF 4)	07391	58694
142	DETAILS OF INTERMEDIATE BENTS 2, 3, 5, 6, 8 & 9 (SHEET 1 OF 4)	07391	58695
143	DETAILS OF INTERMEDIATE BENTS 2, 3, 5, 6, 8 & 9 (SHEET 2 OF 4)	07391	58696
144	DETAILS OF INTERMEDIATE BENTS 2, 3, 5, 6, 8 & 9 (SHEET 3 OF 4)	07391	58697
145	DETAILS OF INTERMEDIATE BENTS 2, 3, 5, 6, 8 & 9 (SHEET 4 OF 4)	07391	58698
146	DETAILS OF INTERMEDIATE BENTS 4 & 7 (SHEET 1 OF 3)	07391	58699
147	DETAILS OF INTERMEDIATE BENTS 4 & 7 (SHEET 2 OF 3)	07391	58700
148	DETAILS OF INTERMEDIATE BENTS 4 & 7 (SHEET 3 OF 3)	07391	58701
149	CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS	07391	58702
150	DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS (SHEET 1 OF 20)	07391	58703
151	DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS (SHEET 2 OF 20)	07391	58704
152	DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS (SHEET 3 OF 20)	07391	58705
153	DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS (SHEET 4 OF 20)	07391	58706
154	DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS (SHEET 5 OF 20)	07391	58707
155	DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS (SHEET 6 OF 20)	07391	58708
156	DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS (SHEET 7 OF 20)	07391	58709
157	DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS (SHEET 8 OF 20)	07391	58710
158	DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS (SHEET 9 OF 20)	07391	58711
159	DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS (SHEET 10 OF 20)	07391	58712
160	DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS (SHEET 11 OF 20)	07391	58713
161	DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS (SHEET 12 OF 20)	07391	58714
162	DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS (SHEET 13 OF 20)	07391	58715
163	DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS (SHEET 14 OF 20)	07391	58716
164	DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS (SHEET 15 OF 20)	07391	58717
165	DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS (SHEET 16 OF 20)	07391	58718
166	DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS (SHEET 17 OF 20)	07391	58719
167	DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS (SHEET 18 OF 20)	07391	58720
168	DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS (SHEET 19 OF 20)	07391	58721
169	DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS (SHEET 20 OF 20)	07391	58722
170	DETAILS OF ELASTOMERIC EXPANSION BEARINGS	07391	58723
171	DETAILS OF ELASTOMERIC BEARINGS AT INTEGRAL INTERMEDIATE BENTS	07391	58724
172	DETAILS OF TYPE SPECIAL 2 APPROACH SLAB BRIDGES OVER BIG LAKE OUTLET & FLOODWAY RELIEF	07391 & 07392	58725
173	LAYOUT OF BRIDGE OVER BIG LAKE FLOODWAY RELIEF (SHEET 1 OF 3)	07392	58726
174	LAYOUT OF BRIDGE OVER BIG LAKE FLOODWAY RELIEF (SHEET 2 OF 3)	07392	58727
175	LAYOUT OF BRIDGE OVER BIG LAKE FLOODWAY RELIEF (SHEET 3 OF 3)	07392	58728
176	HYDROGRAPH - BIG LAKE FLOODWAY RELIEF	07392	58729
177	DETAILS OF SOIL DENSIFICATION (BRIDGE OVER BIG LAKE FLOODWAY RELIEF)	07392	58730

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESEY
9/14/16

INDEX OF SHEETS - CONTINUED

SHEET NO.	TITLE	BRIDGE NO.	DRWG. NO.	DATE
178	DETAILS OF STAGE CONSTRUCTION (BRIDGE OVER BIG LAKE FLOODWAY RELIEF)	07392	58731	
179	DETAILS OF END BENTS 1 & 5 (SHEET 1 OF 4)	07392	58732	
180	DETAILS OF END BENTS 1 & 5 (SHEET 2 OF 4)	07392	58733	
181	DETAILS OF END BENTS 1 & 5 (SHEET 3 OF 4)	07392	58734	
182	DETAILS OF END BENTS 1 & 5 (SHEET 4 OF 4)	07392	58735	
183	DETAILS OF INTERMEDIATE BENTS 2, 3 & 4 (SHEET 1 OF 4)	07392	58736	
184	DETAILS OF INTERMEDIATE BENTS 2, 3 & 4 (SHEET 2 OF 4)	07392	58737	
185	DETAILS OF INTERMEDIATE BENTS 2, 3 & 4 (SHEET 3 OF 4)	07392	58738	
186	DETAILS OF INTERMEDIATE BENTS 2, 3 & 4 (SHEET 4 OF 4)	07392	58739	
187	CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS	07392	58740	
188	DETAILS OF 434'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (SHEET 1 OF 13)	07392	58741	
189	DETAILS OF 434'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (SHEET 2 OF 13)	07392	58742	
190	DETAILS OF 434'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (SHEET 3 OF 13)	07392	58743	
191	DETAILS OF 434'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (SHEET 4 OF 13)	07392	58744	
192	DETAILS OF 434'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (SHEET 5 OF 13)	07392	58745	
193	DETAILS OF 434'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (SHEET 6 OF 13)	07392	58746	
194	DETAILS OF 434'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (SHEET 7 OF 13)	07392	58747	
195	DETAILS OF 434'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (SHEET 8 OF 13)	07392	58748	
196	DETAILS OF 434'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (SHEET 9 OF 13)	07392	58749	
197	DETAILS OF 434'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (SHEET 10 OF 13)	07392	58750	
198	DETAILS OF 434'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (SHEET 11 OF 13)	07392	58751	
199	DETAILS OF 434'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (SHEET 12 OF 13)	07392	58752	
200	DETAILS OF 434'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT (SHEET 13 OF 13)	07392	58753	
201	DETAILS OF ELASTOMERIC EXPANSION BEARINGS	07392	58754	
202	DETAILS OF ELASTOMERIC BEARINGS AT INTEGRAL INTERMEDIATE BENTS	07392	58755	
203	DETAILS OF REINFORCED CONCRETE RETAINING WALL STA. 1270+25 TO STA. 1272+65 (SHEET 1 OF 6)		58756	
204	DETAILS OF REINFORCED CONCRETE RETAINING WALL STA. 1270+25 TO STA. 1272+65 (SHEET 2 OF 6)		58757	
205	DETAILS OF REINFORCED CONCRETE RETAINING WALL STA. 1270+25 TO STA. 1272+65 (SHEET 3 OF 6)		58758	
206	DETAILS OF REINFORCED CONCRETE RETAINING WALL STA. 1270+25 TO STA. 1272+65 (SHEET 4 OF 6)		58759	
207	DETAILS OF REINFORCED CONCRETE RETAINING WALL STA. 1270+25 TO STA. 1272+65 (SHEET 5 OF 6)		58760	
208	DETAILS OF REINFORCED CONCRETE RETAINING WALL STA. 1270+25 TO STA. 1272+65 (SHEET 6 OF 6)		58761	
209	STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS	55000		2-27-14
210	STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES	55001		2-27-14
211	STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS	55005		3-24-16
212	STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE	55010		1-14-15
213	STANDARD DETAILS FOR TYPE C APPROACH GUTTERS	55030C		2-27-14
214	CONCRETE DITCH PAVING	CDP-1		11-17-10
215	CURBING DETAILS	CG-1		11-29-07
216	DETAILS OF DRIVEWAYS & ISLANDS	DR-1		2-27-14
217	FLARED END SECTION	FES-1		10-18-96
218	FLARED END SECTION	FES-2		10-18-96
219	GUARD RAIL DETAILS	GR-8		7-14-10
220	GUARD RAIL DETAILS	GR-8A		7-14-10
221	GUARD RAIL DETAILS	GR-9		4-17-08
222	GUARD RAIL DETAILS	GR-9A		4-17-08
223	GUARD RAIL DETAILS	GR-10		7-14-10
224	GUARD RAIL DETAILS	GR-10A		7-14-10
225	GUARD RAIL DETAILS	GRT-1		7-14-10
226	MAILBOX DETAILS	MB-1		11-18-04
227	PRECAST CONCRETE BOX CULVERTS	PBC-1		1-28-15
228	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	PCC-1		2-27-14
229	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	PCM-1		2-27-14
230	PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)	PCP-1		2-27-14
231	PLASTIC PIPE CULVERT (PVC F949)	PCP-2		2-27-14
232	PAVEMENT MARKING DETAILS	PM-1		5-12-16
233	REINFORCED CONCRETE BOX CULVERT DETAILS	RCB-1		7-26-12
234	EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS	RCB-2		11-20-03
235	TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC	SE-2		10-18-96
236	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-1		9-02-15
237	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-2		9-02-15
238	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-3		9-02-15
239	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	TC-4		2-27-14
240	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	TC-5		10-15-09
241	TEMPORARY EROSION CONTROL DEVICES	TEC-1		12-15-11
242	TEMPORARY EROSION CONTROL DEVICES	TEC-3		11-03-94
243	TEMPORARY EROSION CONTROL DEVICES	TEC-4		7-26-12
244 - 319	CROSS SECTIONS			

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

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10-17-2016				6	ARK.			
				JOB NO.		CA1002	3	319

(2) GOVERNING SPECIFICATIONS AND GENERAL NOTES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESEY
10/17/16

GOVERNING SPECIFICATIONS

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

NUMBER	TITLE
ERRATA____	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273__	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273__	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273__	SUPPLEMENT - TRAINING PROGRAM - JOB CA1002
FHWA-1273__	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273__	SUPPLEMENT - WAGE RATE DETERMINATION
100-3_____	CONTRACTOR'S LICENSE
102-2_____	ISSUANCE OF PROPOSALS
108-1_____	LIQUIDATED DAMAGES
108-2_____	WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
303-1_____	AGGREGATE BASE COURSE
400-1_____	TACK COATS
410-1_____	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
604-1_____	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
606-1_____	PIPE CULVERTS FOR SIDE DRAINS
620-1_____	MULCH COVER
JOB CA1002_	BIDDING REQUIREMENTS AND CONDITIONS
JOB CA1002_	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB CA1002_	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB CA1002_	CARGO PREFERENCE ACT REQUIREMENTS
JOB CA1002_	COHESIVE SOIL BACKFILL FOR ABUTMENT WALLS
JOB CA1002_	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB CA1002_	CONTRACTOR PROVIDED CULTURAL RESOURCES CLEARANCE FOR OFF-SITE LOCATIONS
JOB CA1002_	COORDINATION OF WORK
JOB CA1002_	DELAY IN RIGHT OF WAY OCCUPANCY
JOB CA1002_	DETAILS FOR BOATER SAFETY
JOB CA1002_	DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
JOB CA1002_	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB CA1002_	EMPLOYMENT REPORTING
JOB CA1002_	GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT CONSTRUCTION
JOB CA1002_	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB CA1002_	HEADED STEEL BARS FOR CONCRETE REINFORCEMENT
JOB CA1002_	HIGH PERFORMANCE PAVEMENT MARKING
JOB CA1002_	INFORMATIONAL KIOSKS
JOB CA1002_	MANDATORY ELECTRONIC CONTRACT
JOB CA1002_	NESTING SITES OF MIGRATORY BIRDS
JOB CA1002_	PARTNERING REQUIREMENTS
JOB CA1002_	PERCENT WITHIN LIMITS/PAVEMENT SMOOTHNESS
JOB CA1002_	PLASTIC PIPE
JOB CA1002_	PROSECUTION AND PROGRESS - CONNECTING ARKANSAS PROGRAM
JOB CA1002_	RESTRAINING CONDITIONS
JOB CA1002_	SELECT GRANULAR BACKFILL
JOB CA1002_	SELF-CONSOLIDATING CONCRETE
JOB CA1002_	SHORING
JOB CA1002_	SHORING FOR CULVERTS
JOB CA1002_	SITE USE (A+C METHOD) - CALENDAR DAY CONTRACT - CONNECTING ARKANSAS PROGRAM
JOB CA1002_	SOIL STABILIZATION
JOB CA1002_	SPECIAL FACILITIES AT SITE
JOB CA1002_	SPECIAL SEEDING REQUIREMENTS
JOB CA1002_	STEEL SHELL PILING (18 INCH DIAMETER)
JOB CA1002_	STEEL SHELL PILING (36 INCH DIAMETER)
JOB CA1002_	STORM WATER POLLUTION PREVENTION PLAN
JOB CA1002_	STREAM GAUGING STATION
JOB CA1002_	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB CA1002_	TIMBER PILING FOR SOIL DENSIFICATION
JOB CA1002_	UTILITY ADJUSTMENTS
JOB CA1002_	VALUE ENGINEERING
JOB CA1002_	WARM MIX ASPHALT
JOB CA1002_	WATER POLLUTION CONTROL

GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U. S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.
5. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
6. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO INSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
7. THIS PROJECT IS COVERED UNDER A SECTION 404 LETTER OF PERMISSION PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2014, FOR PERMIT REQUIREMENTS.
8. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
9. THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAWING ALONG A NEAT LINE. AFTER SAWING, THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOVED IN A MANNER THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT

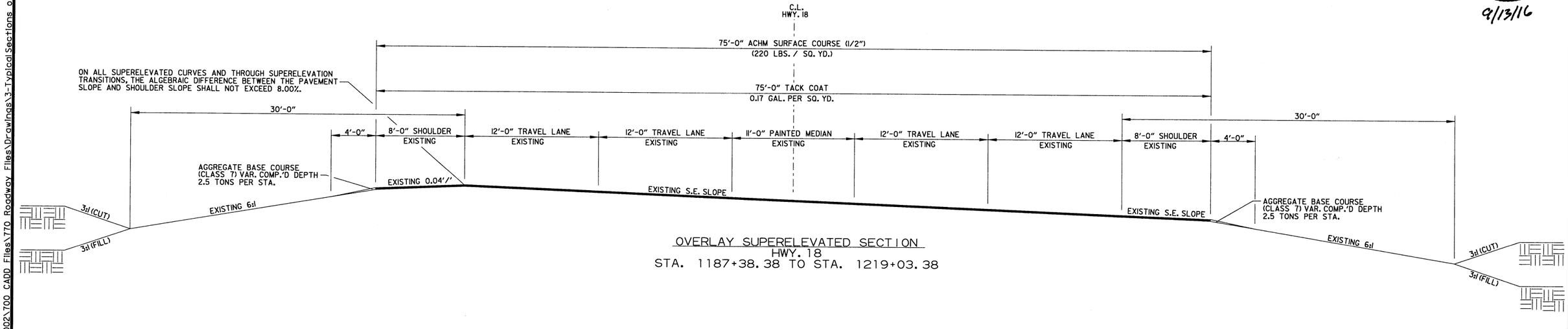
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				JOB NO.		CA1002	4	319

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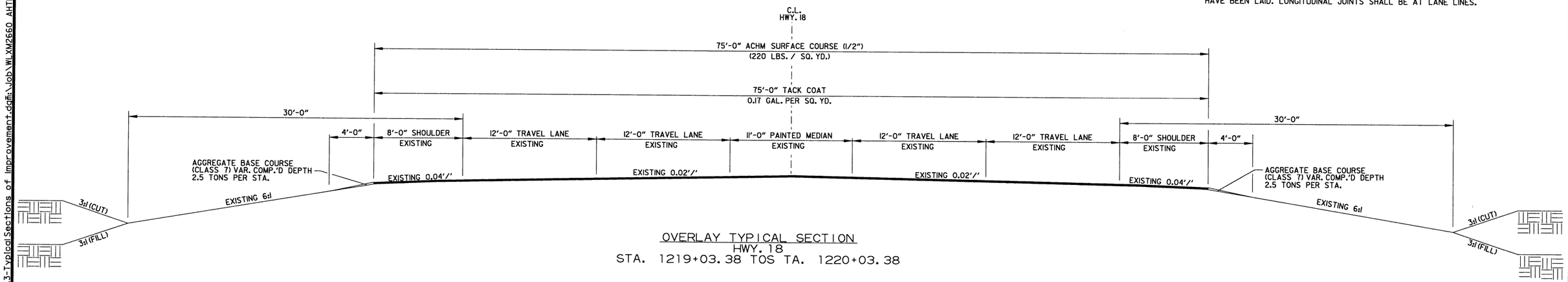
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/13/16



OVERLAY SUPERELEVATED SECTION
HWY. 18
STA. 1187+38.38 TO STA. 1219+03.38

NOTES:

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



OVERLAY TYPICAL SECTION
HWY. 18
STA. 1219+03.38 TOS TA. 1220+03.38

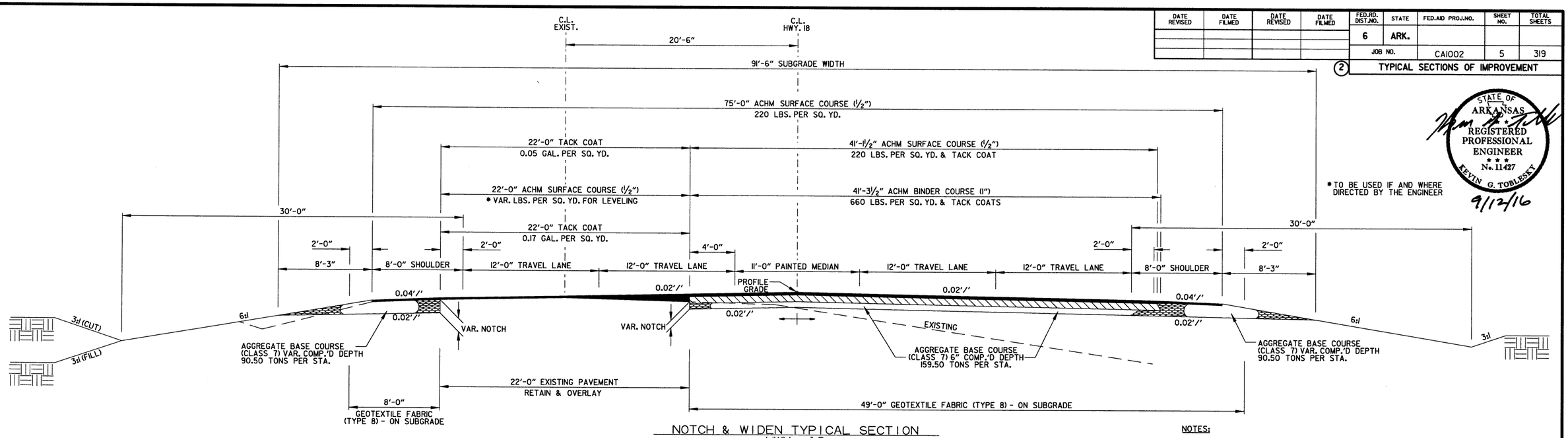
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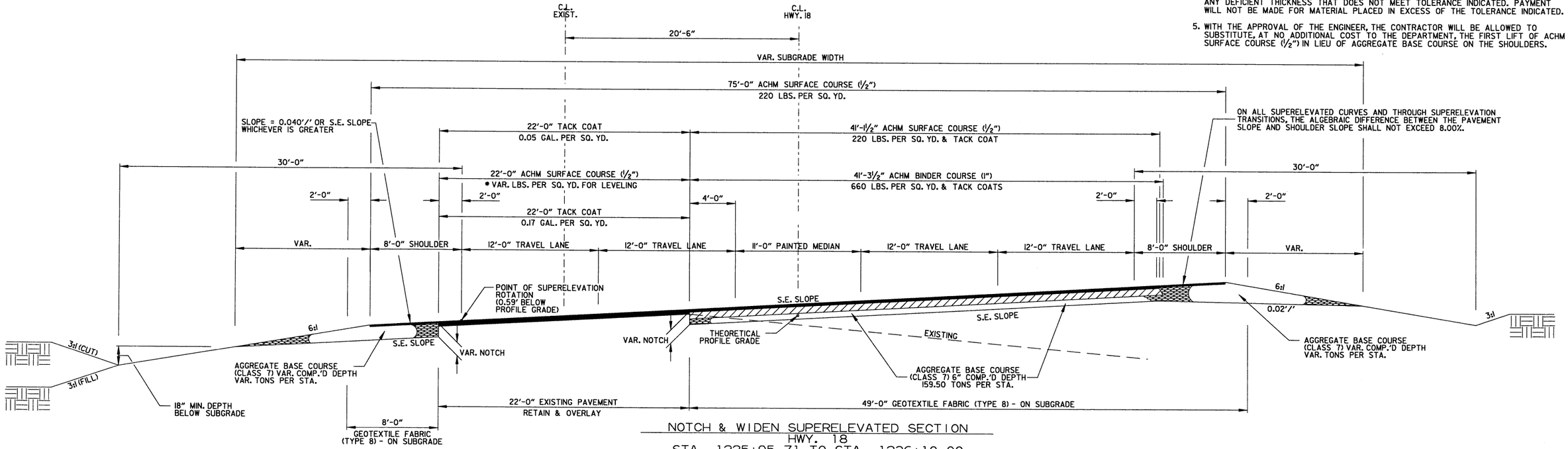
NOTCH & WIDEN TYPICAL SECTION
HWY. 18
STA. 1220+00.00 TO STA. 1225+95.71
STA. 1245+40.72 TO STA. 1255+60.71

* TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16

NOTES:

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2. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.
3. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
4. 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.
5. WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF ACHM SURFACE COURSE (1/2") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.



NOTCH & WIDEN SUPERELEVATED SECTION
HWY. 18
STA. 1225+95.71 TO STA. 1236+10.00
STA. 1242+37.00 TO STA. 1245+40.72

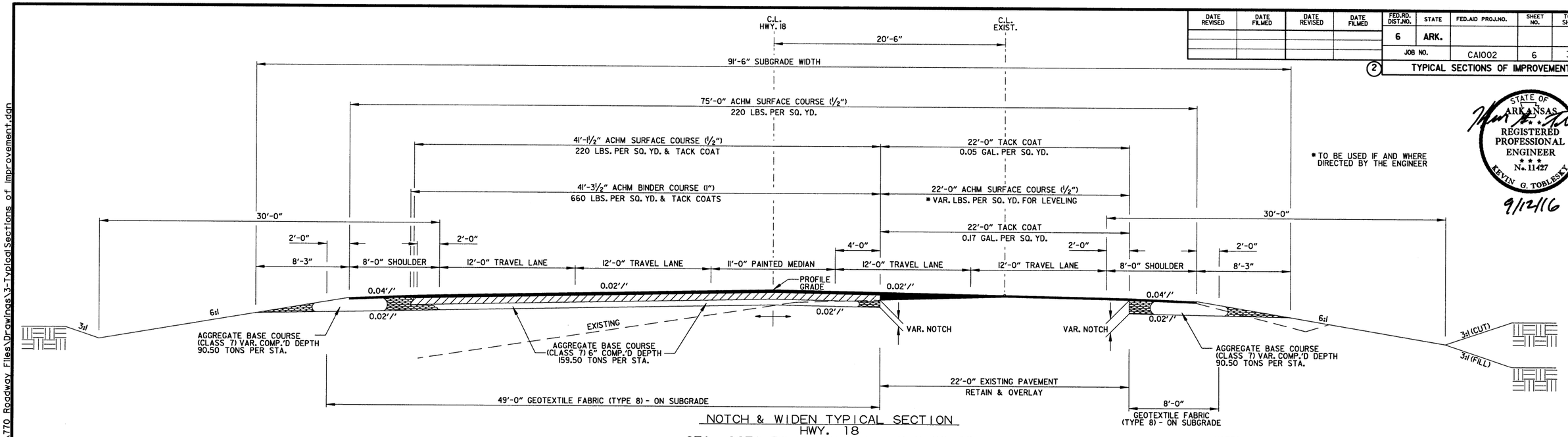
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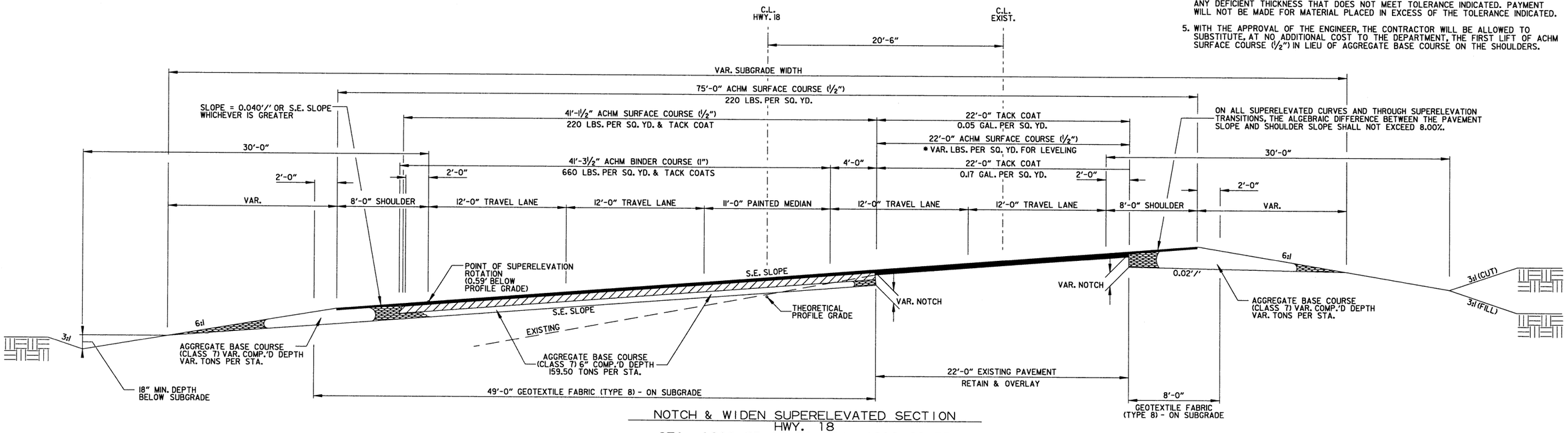
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NOTCH & WIDEN TYPICAL SECTION
HWY. 18
STA. 1270+52.05 TO STA. 1272+29.42
STA. 1313+68.55 TO STA. 1314+96.37

NOTES:

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5. WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF ACHM SURFACE COURSE (½") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.



NOTCH & WIDEN SUPERELEVATED SECTION
HWY. 18
STA. 1309+75.00 TO STA. 1313+68.55

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16

TYPICAL SECTIONS OF IMPROVEMENT

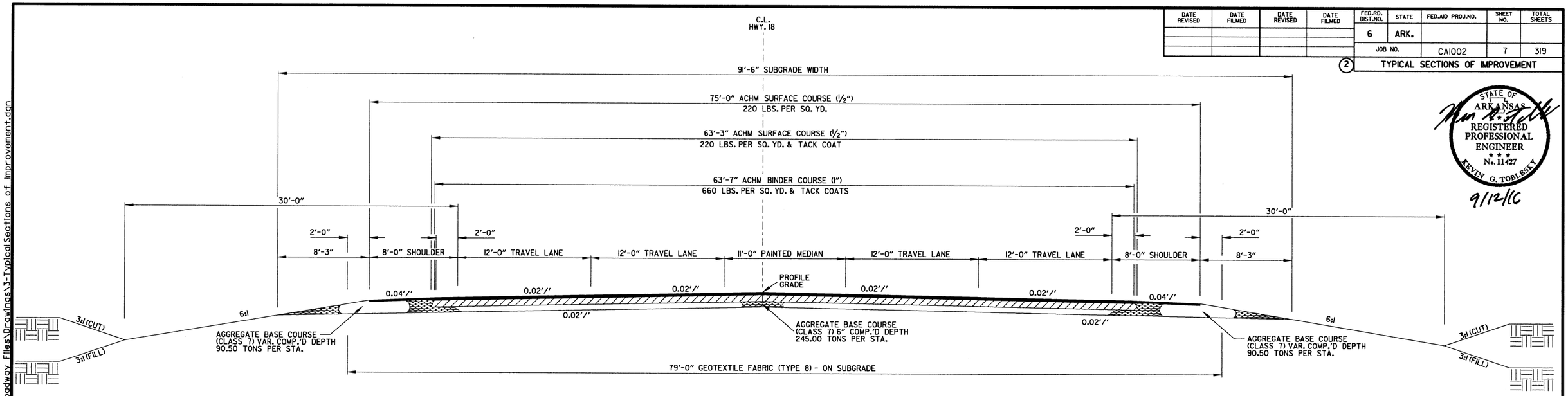
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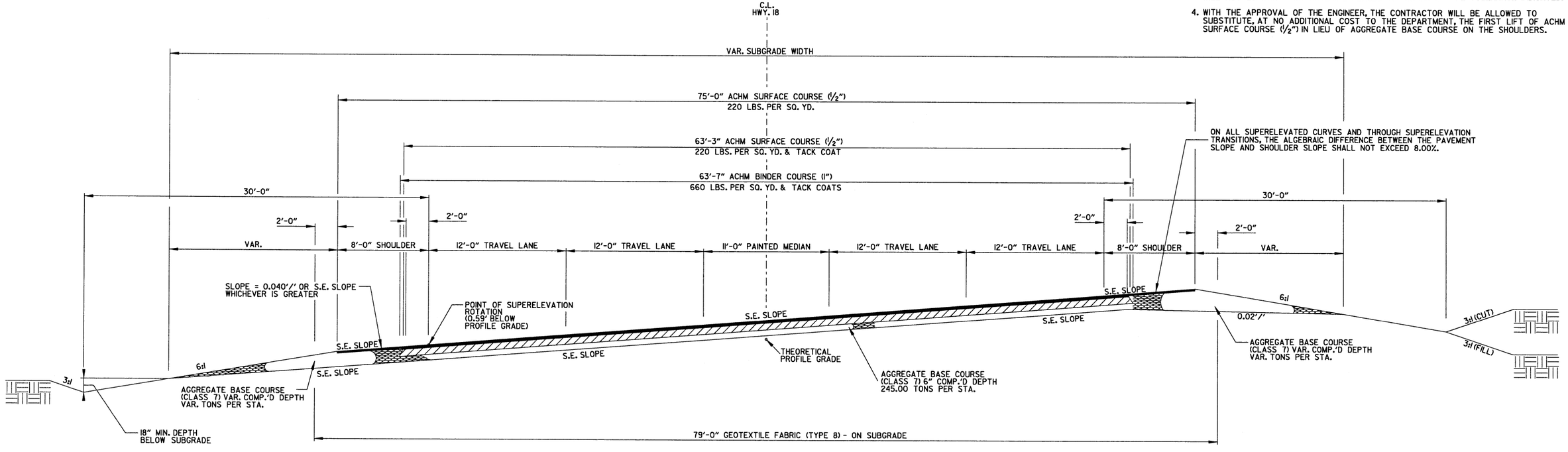
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESEY
9/12/16



FULL DEPTH CONSTRUCTION TYPICAL SECTION
HWY. 18
STA. 1281+92.58 TO STA. 1289+99.41

NOTES:

1. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.
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FULL DEPTH CONSTRUCTION SUPERELEVATED SECTION
HWY. 18
STA. 1236+10.00 TO STA. 1237+39.42
STA. 1241+10.58 TO STA. 1242+37.00
STA. 1295+08.59 TO STA. 1309+75.00

TYPICAL SECTIONS OF IMPROVEMENT

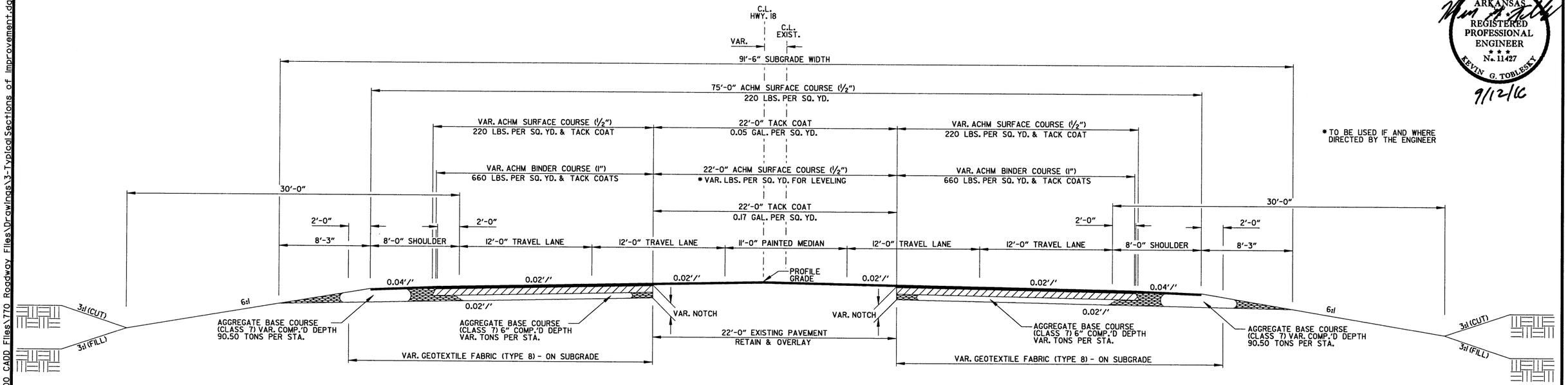
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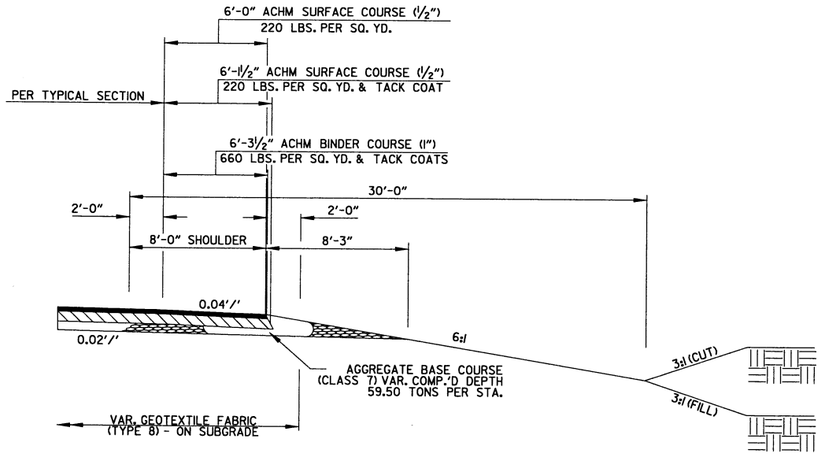
(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
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KEVIN G. TOBLESSY
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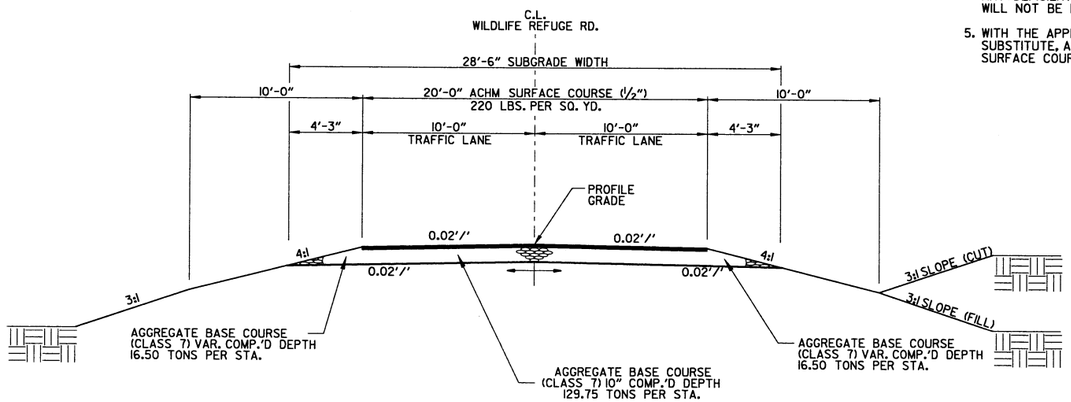


* TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

NOTCH & WIDEN TYPICAL SECTION
HWY. 18
STA. 1255+60.71 TO STA. 1270+52.05



TYPICAL SECTION
FULL DEPTH SECTION FOR MOT
(SHOWN IN DIRECTION OF TRAFFIC)
STA. 1270+01.59 TO STA. 1272+38.41
STA. 1282+01.59 TO STA. 1284+35.32
STA. 1288+06.45 TO STA. 1289+99.41
STA. 1295+08.59 TO STA. 1297+32.36



TYPICAL SECTION
WILDLIFE REFUGE RD.
STA. 11+80.00 TO STA. 17+11.81

NOTES:

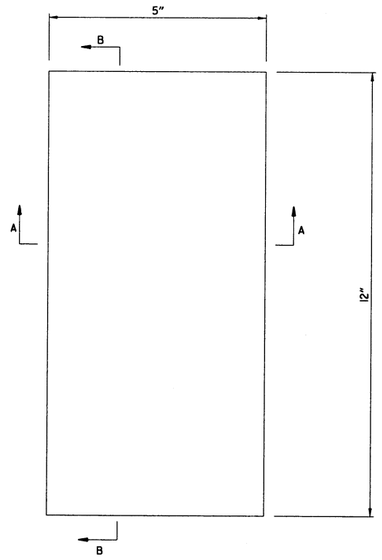
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TYPICAL SECTIONS OF IMPROVEMENT

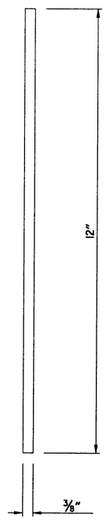
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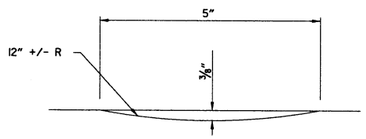
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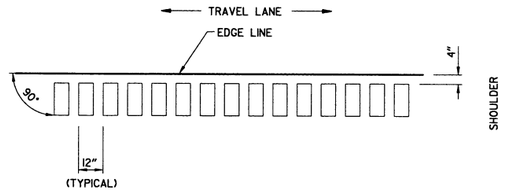
PLAN



SECTION B-B



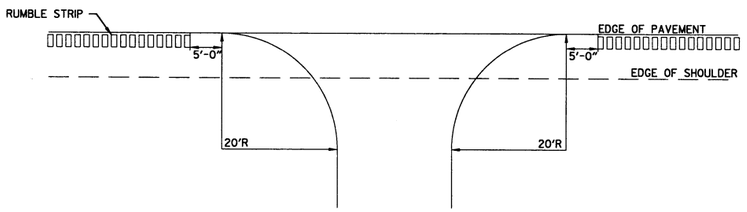
SECTION A-A



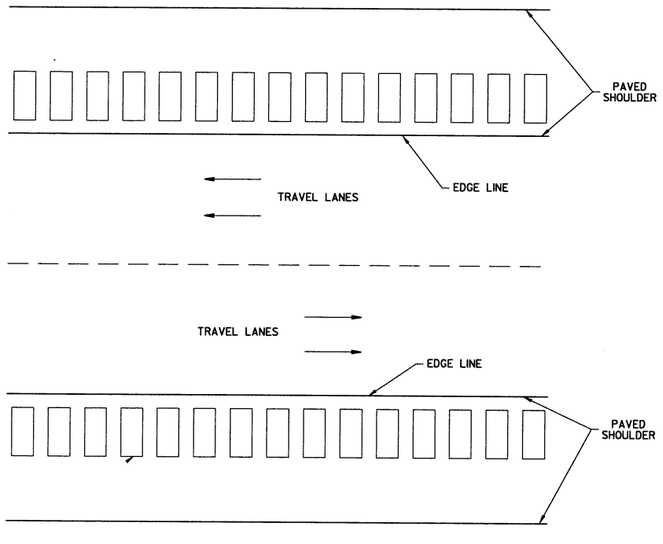
LOCATION PLAN OF RUMBLE STRIPS
LEFT OR RIGHT SHOULDER

NOTES:

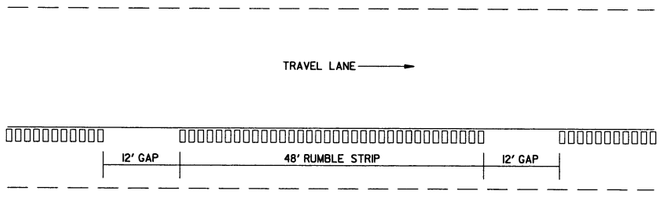
1. ALIGNMENT OF RUMBLE STRIPS SHALL GENERALLY BE STRAIGHT AND OFFSET APPROXIMATELY 4" FROM THE OUTER EDGE OF THE EDGE LINE. THIS OFFSET MAY BE ADJUSTED TO ACCOMMODATE VARIATIONS IN THE EDGE LINE AS WELL AS TO AVOID EXISTING LONGITUDINAL JOINTS.
2. RUMBLE STRIPS SHALL NOT BE INSTALLED ON BRIDGE DECKS, APPROACH GUTTERS, OR ACROSS TRANSVERSE JOINTS OF CONCRETE SHOULDERS.



DETAILS OF RUMBLE STRIP GAP
AT DRIVEWAY TURNOUTS



PLAN VIEW



DETAIL FOR GAP PATTERN RUMBLE STRIP

NOTE: GAP PATTERN SHALL BE ADJUSTED BY THE ENGINEER IN THE FIELD ALLOWING FOR DRIVEWAYS TO SERVE AS THE GAP.

GENERAL NOTES

1. RUMBLE STRIPS SHALL NOT BE INSTALLED ON CURB SECTIONS, BRIDGE DECKS, APPROACH SLABS, INTERSECTING STREETS OR ROADWAYS, RESIDENTIAL OR COMMERCIAL DRIVEWAYS OR ACROSS TRANSVERSE JOINTS OF CONCRETE SHOULDERS.
2. RUMBLE STRIPS SHALL NOT BE INSTALLED ON A PAVED SHOULDER THAT IS USED AS A DECELERATION LANE FOR THE LENGTH DEEMED APPROPRIATE BY THE ENGINEER.
3. THE 4" OFFSET FROM THE EDGE LINE MAY BE INCREASED TO AVOID LONGITUDINAL JOINTS. IN ALL CASES, THE LATERAL DEVIATION FROM THE PLANNED OFFSET SHOULD BE KEPT TO A MINIMUM.
4. RUMBLE STRIPS SHALL BE MEASURED BY THE LINEAR FOOT LONGITUDINALLY ALONG THE SHOULDER. PAYMENT SHALL ONLY INCLUDE THAT PORTION OF THE SHOULDER ON WHICH RUMBLE STRIPS HAVE BEEN CONSTRUCTED. NO MEASUREMENT OR PAYMENT WILL BE MADE FOR GAPS, DRIVEWAYS, TURNOUTS, OR OTHER PUBLIC ROAD INTERSECTIONS WHERE RUMBLE STRIPS HAVE NOT BEEN CONSTRUCTED.
5. THE 3/8" DEPTH SHALL GENERALLY APPLY FOR THE ENTIRE 12" LENGTH. SOME VARIATION TO SUIT SHOULDER SLOPE BREAKS MAY BE NECESSARY.

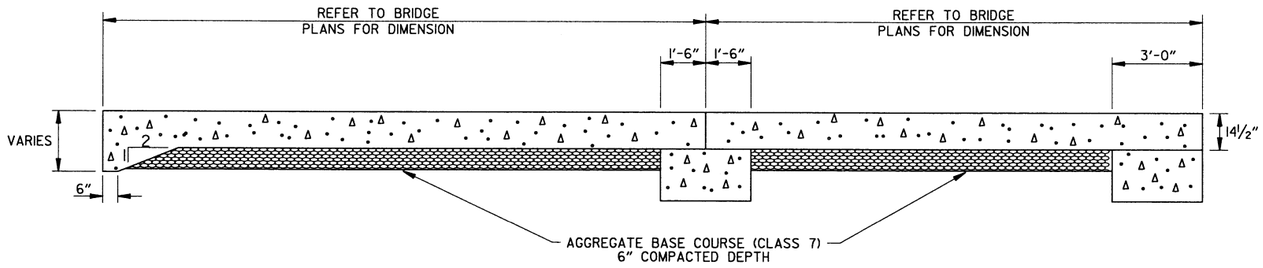
DETAILS OF RUMBLE STRIPS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16

JACOBS

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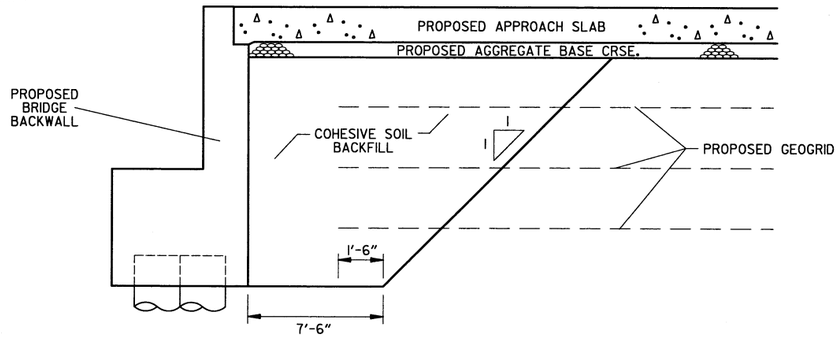
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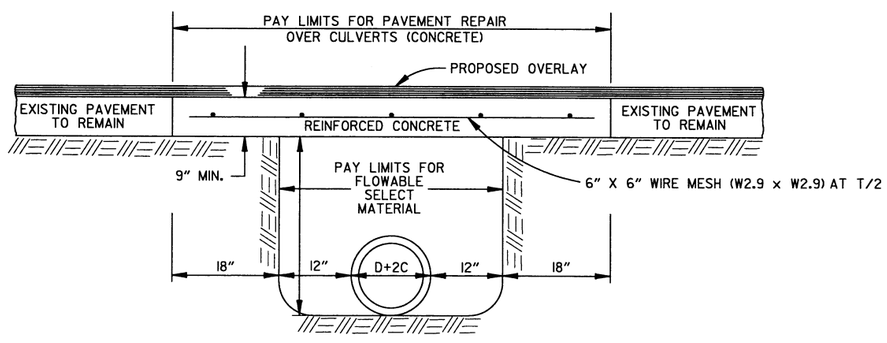
DETAIL FOR APPROACH SLAB

NOTE:
THE DETAIL WILL BE USED AT ALL BRIDGE END LOCATIONS AND WILL RUN FROM WING WALL TO WING WALL.

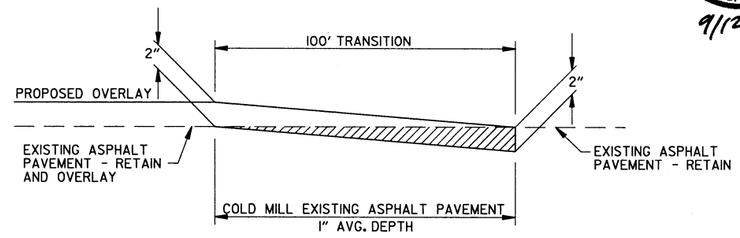
FOR ADDITIONAL INFORMATION, REFER TO SPECIAL PROVISION "COHESIVE SOIL BACKFILL FOR ABUTMENT WALLS".



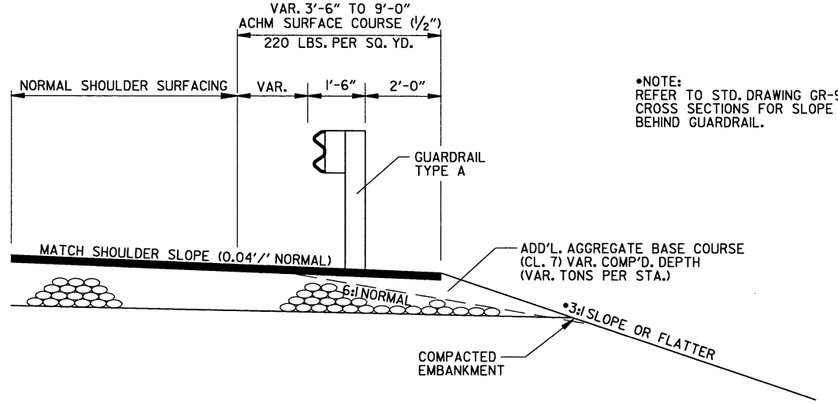
DETAIL FOR COHESIVE SOIL BACKFILL FOR ABUTMENT WALLS



DETAIL FOR PAVEMENT REPAIR OVER CULVERTS (CONCRETE)



DETAIL FOR PAVEMENT TRANSITION



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

DETAIL FOR WIDENING FOR GUARDRAIL

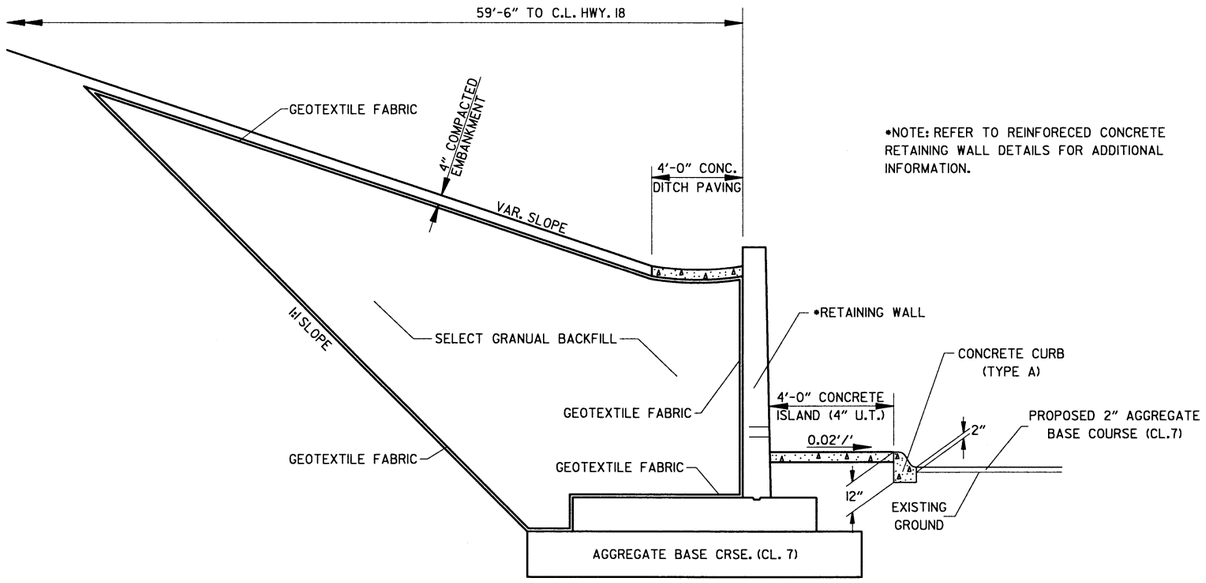
NOTE: REFER TO STANDARD DRAWINGS, GR-8, GR-8A, GR-9, GR-9A, GR-10 & GR-10A FOR ADDITIONAL INFORMATION.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16

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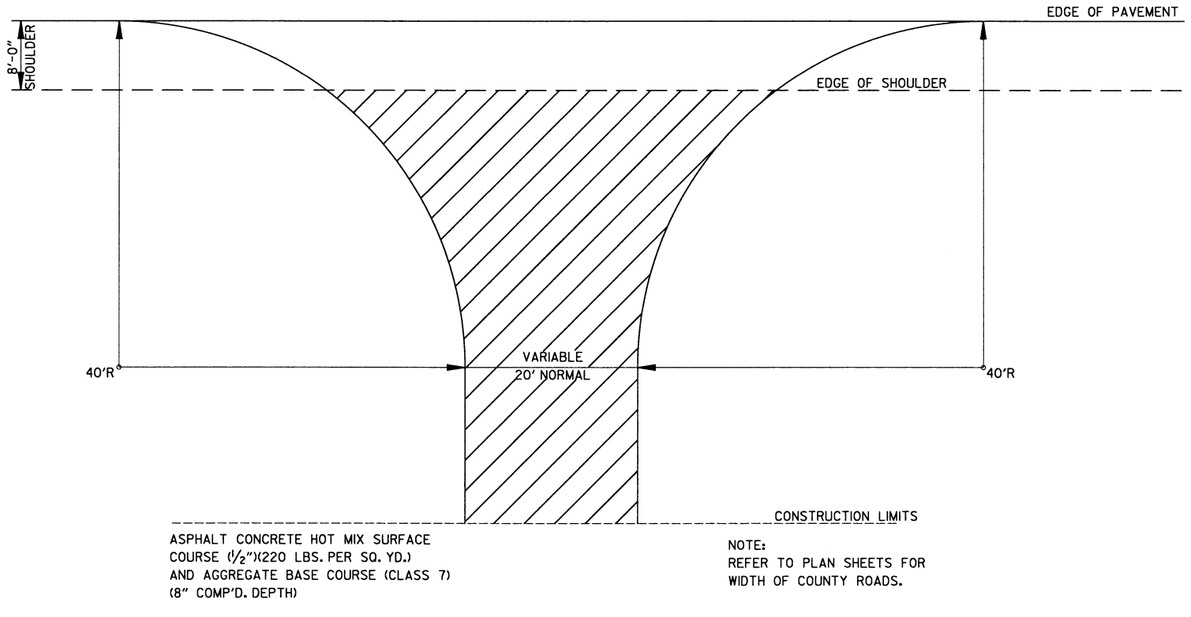
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				6	ARK.			
				JOB NO.		CA1002	11	319
				(2)	SPECIAL DETAILS			

STATE OF ARKANSAS
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No. 11427
KEVIN G. TOBLESKY
9/12/16



•NOTE: REFER TO REINFORECED CONCRETE RETAINING WALL DETAILS FOR ADDITIONAL INFORMATION.

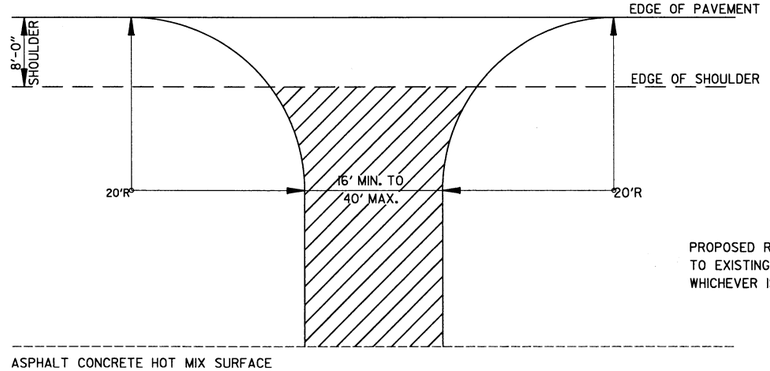
DETAIL OF CURB AND ISLAND
AT RETAINING WALL



ASPHALT CONCRETE HOT MIX SURFACE COURSE (½")(220 LBS. PER SQ. YD.) AND AGGREGATE BASE COURSE (CLASS 7) (8" COMP'D. DEPTH)

NOTE:
REFER TO PLAN SHEETS FOR WIDTH OF COUNTY ROADS.

DETAIL FOR COUNTY ROAD TURNOUTS



ASPHALT CONCRETE HOT MIX SURFACE COURSE (½")(220 LBS. PER SQ. YD.) AND AGGREGATE BASE COURSE (CLASS 7) (7" COMP'D. DEPTH) IF ASPHALT DRIVE EXISTING OR 6" CONCRETE IF CONCRETE DRIVE EXISTING.

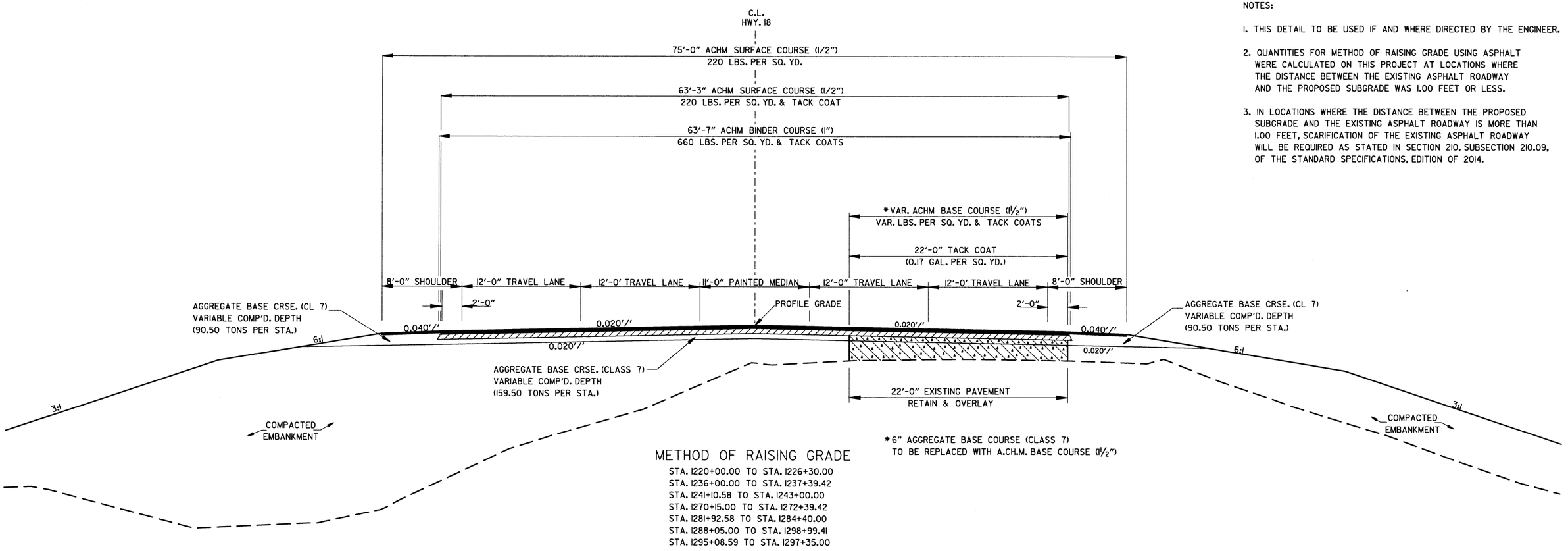
DETAIL FOR DRIVEWAY TURNOUTS

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				6	ARK.			
				JOB NO.		CA1002	12	319
				(2)	SPECIAL DETAILS			

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESEY
9/12/16



NOTES:

1. THIS DETAIL TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.
2. QUANTITIES FOR METHOD OF RAISING GRADE USING ASPHALT WERE CALCULATED ON THIS PROJECT AT LOCATIONS WHERE THE DISTANCE BETWEEN THE EXISTING ASPHALT ROADWAY AND THE PROPOSED SUBGRADE WAS 1.00 FEET OR LESS.
3. IN LOCATIONS WHERE THE DISTANCE BETWEEN THE PROPOSED SUBGRADE AND THE EXISTING ASPHALT ROADWAY IS MORE THAN 1.00 FEET, SCARIFICATION OF THE EXISTING ASPHALT ROADWAY WILL BE REQUIRED AS STATED IN SECTION 210, SUBSECTION 210.09, OF THE STANDARD SPECIFICATIONS, EDITION OF 2014.

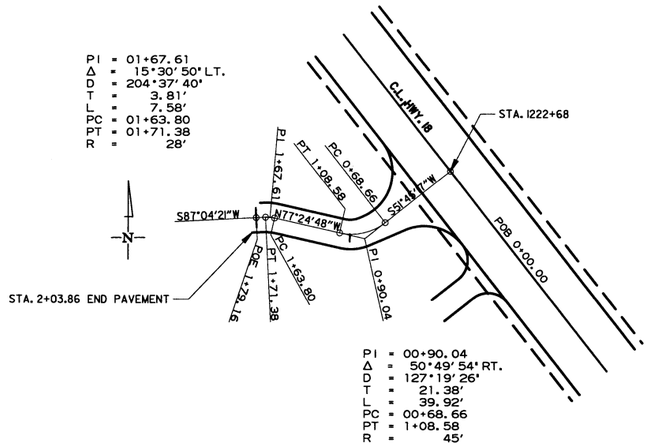
METHOD OF RAISING GRADE

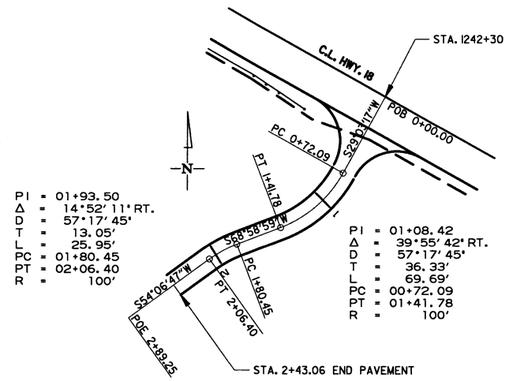
STA. 1220+00.00 TO STA. 1226+30.00
STA. 1236+00.00 TO STA. 1237+39.42
STA. 1241+10.58 TO STA. 1243+00.00
STA. 1270+15.00 TO STA. 1272+39.42
STA. 1281+92.58 TO STA. 1284+40.00
STA. 1288+05.00 TO STA. 1298+99.41
STA. 1295+08.59 TO STA. 1297+35.00

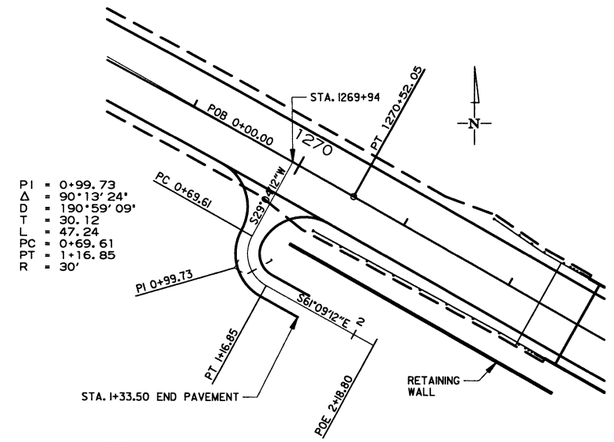
*6" AGGREGATE BASE COURSE (CLASS 7) TO BE REPLACED WITH A.CH.M. BASE COURSE (1½")

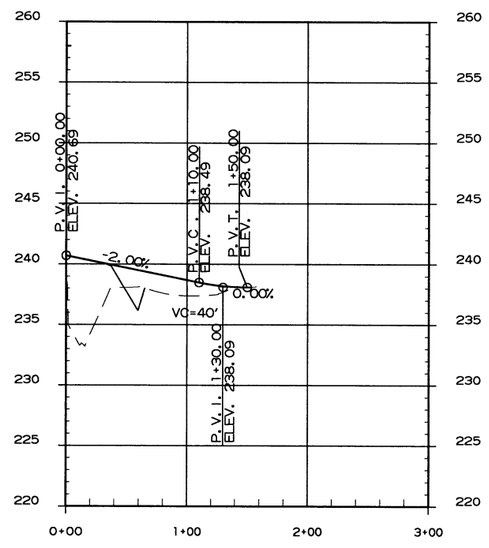
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				6	ARK.			
				JOB NO.		CA1002	13	319
				(2)		SPECIAL DETAILS		



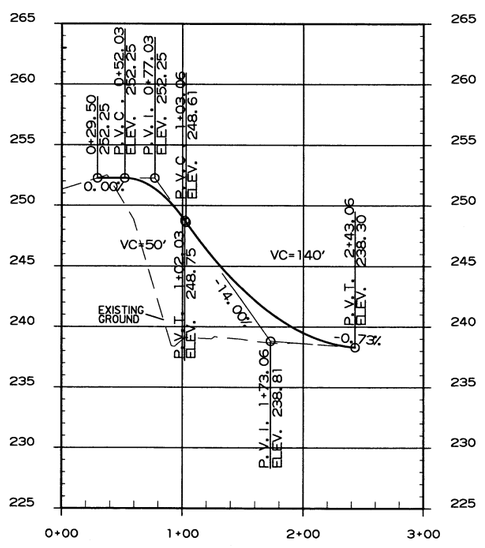






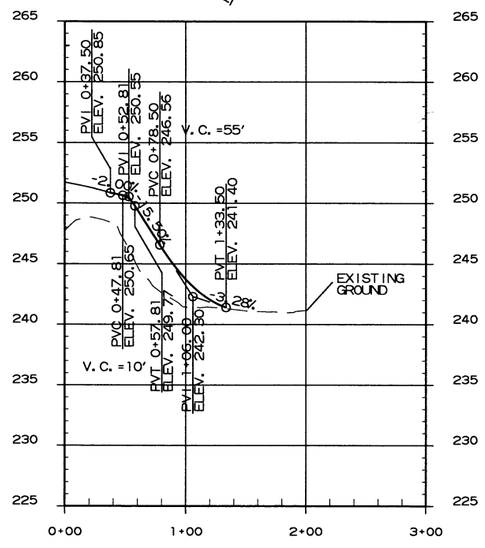
DRIVEWAY AT STA. 1222+68

NOTE: SEE PLAN & PROFILE FOR ADDITIONAL NOTES.



DRIVEWAY AT STA. 1242+30

NOTE: SEE PLAN & PROFILE FOR ADDITIONAL NOTES.



DRIVEWAY AT STA. 1269+94

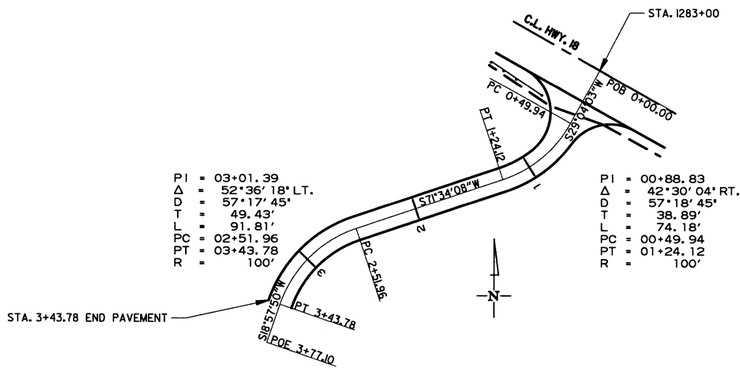
NOTE: SEE PLAN & PROFILE FOR ADDITIONAL NOTES.

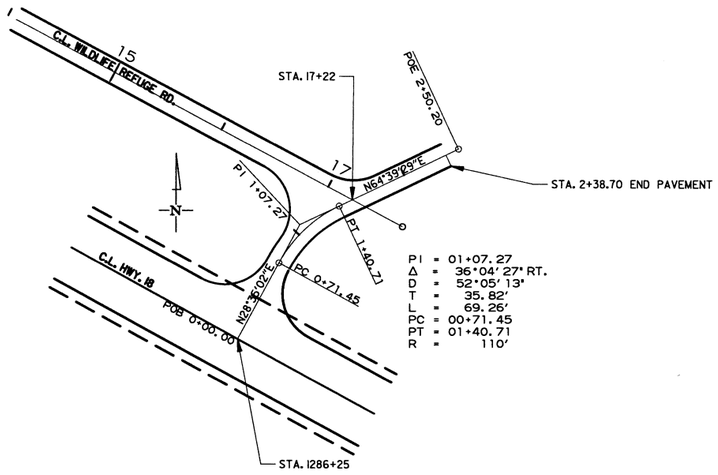
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16

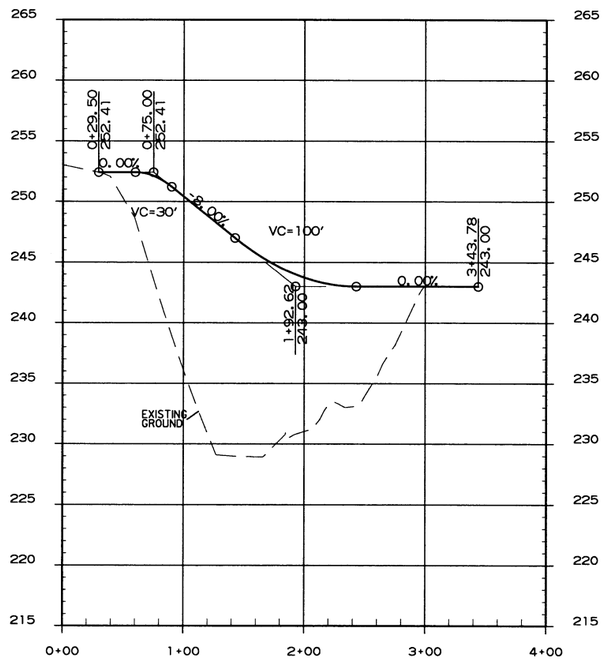
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				6	ARK.			
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				(2)	SPECIAL DETAILS			

STATE OF ARKANSAS
KEVIN G. TOBLESEY
No. 11427
REGISTERED PROFESSIONAL ENGINEER
9/12/16

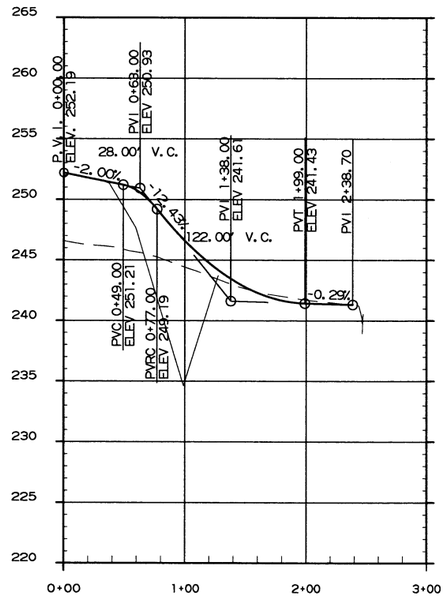






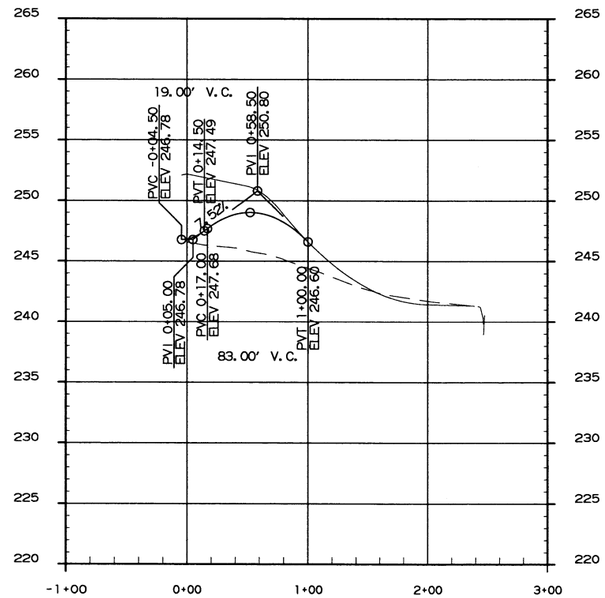
DRIVEWAY AT STA. 1283+00

NOTE: SEE PLAN & PROFILE FOR ADDITIONAL NOTES.



DRIVEWAY AT STA. 1286+25

NOTE: SEE PLAN & PROFILE FOR ADDITIONAL NOTES.



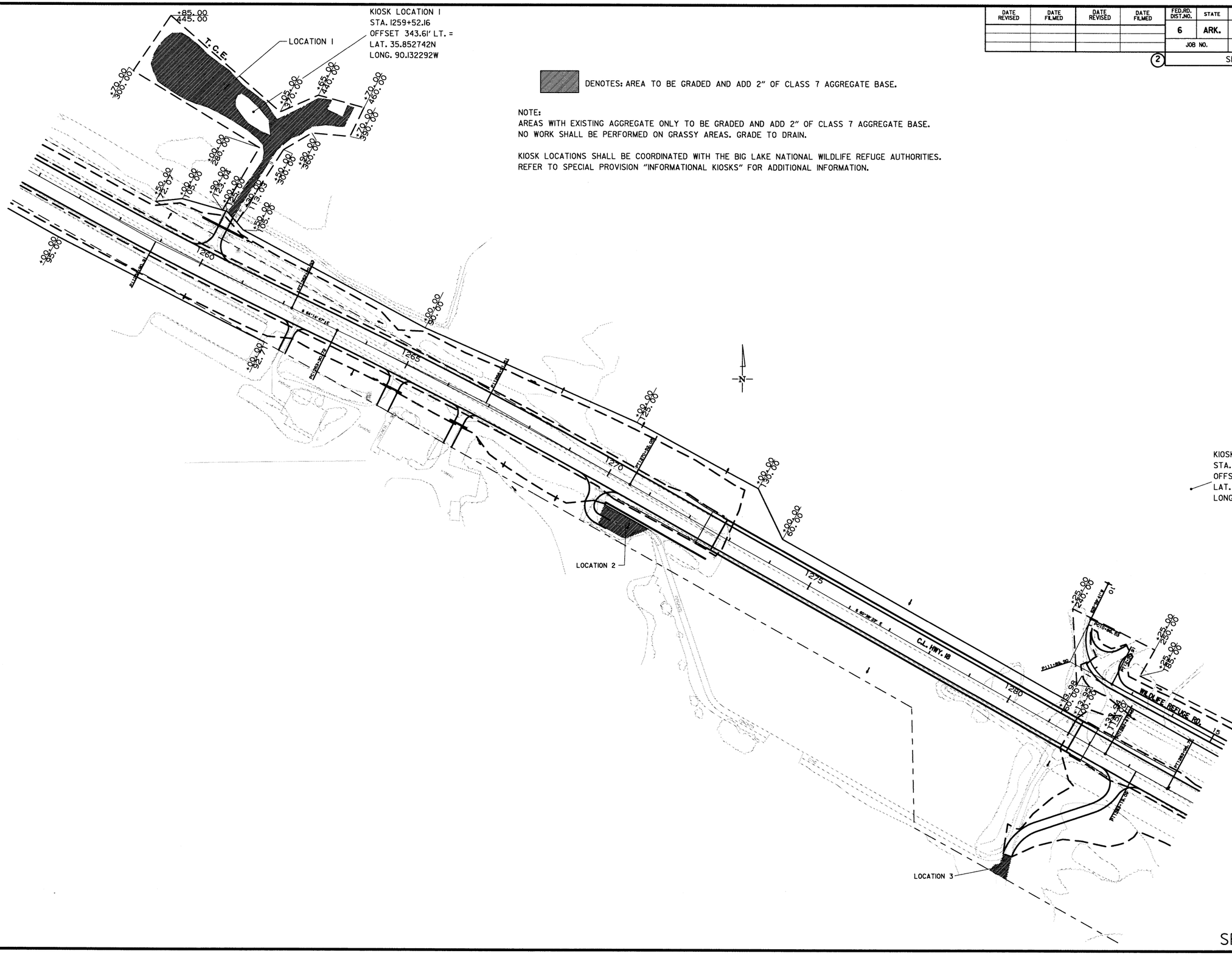
TEMPORARY CONNECTOR TO DRIVE AT STA. 1286+25

NOTE: SEE PLAN & PROFILE FOR ADDITIONAL NOTES.

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				6	ARK.			
				JOB NO.		CA1002	15	319

(2) SPECIAL DETAILS



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/14/16

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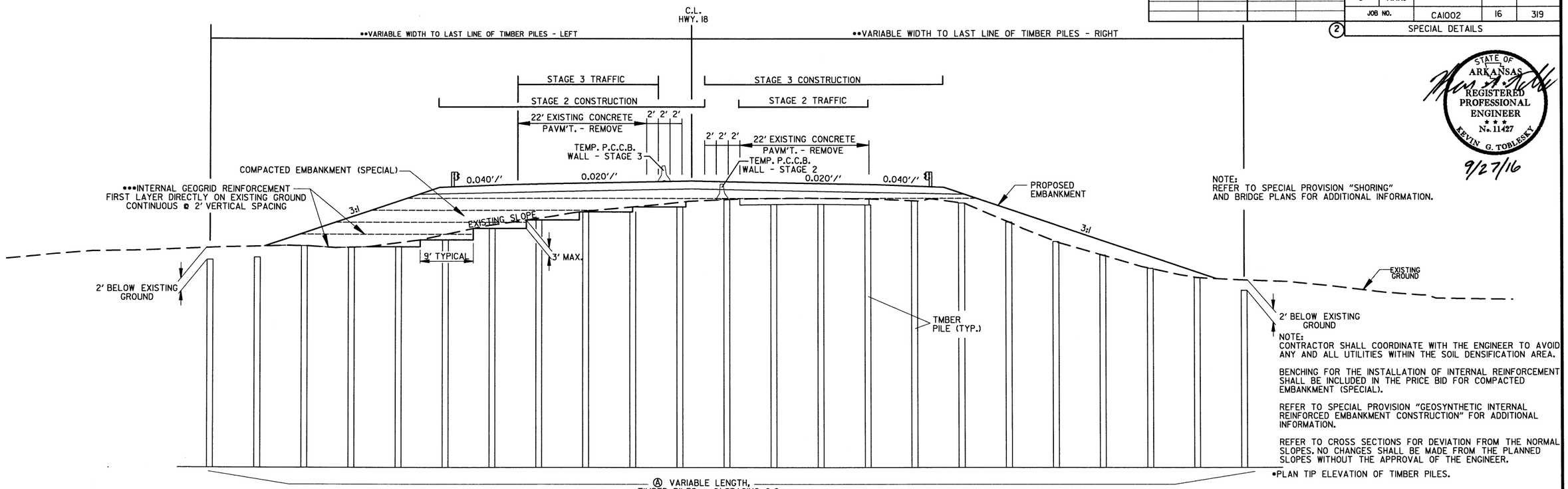
SPECIAL DETAILS

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				6	ARK.			
				JOB NO.		CA1002	16	319

(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/27/16



NOTE:
REFER TO SPECIAL PROVISION "SHORING" AND BRIDGE PLANS FOR ADDITIONAL INFORMATION.

NOTE:
CONTRACTOR SHALL COORDINATE WITH THE ENGINEER TO AVOID ANY AND ALL UTILITIES WITHIN THE SOIL DENSIFICATION AREA.

BENCHING FOR THE INSTALLATION OF INTERNAL REINFORCEMENT SHALL BE INCLUDED IN THE PRICE BID FOR COMPACTED EMBANKMENT (SPECIAL).

REFER TO SPECIAL PROVISION "GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT CONSTRUCTION" FOR ADDITIONAL INFORMATION.

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.

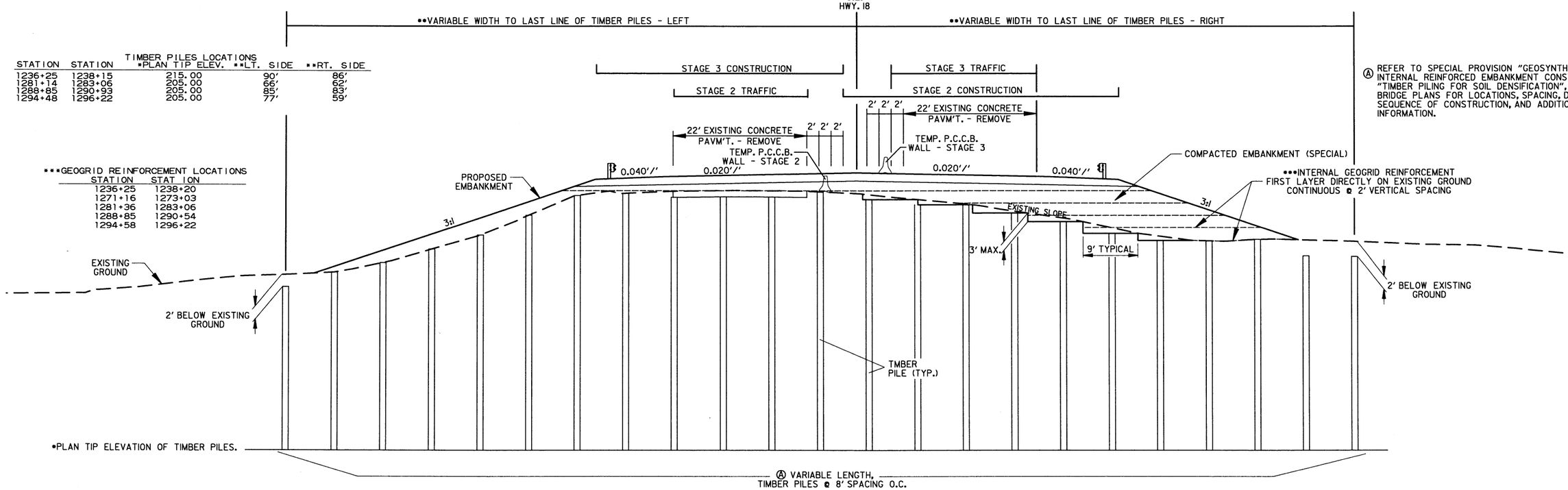
•PLAN TIP ELEVATION OF TIMBER PILES.

TIMBER PILES LOCATIONS

STATION	STATION	•PLAN TIP ELEV.	••LT. SIDE	••RT. SIDE
1236+25	1238+15	215.00	90'	86'
1261+14	1263+06	205.00	66'	62'
1288+85	1290+93	205.00	85'	83'
1294+48	1296+22	205.00	77'	59'

•••GEOGRID REINFORCEMENT LOCATIONS

STATION	STATION
1236+25	1238+20
1271+16	1273+03
1281+36	1283+06
1288+85	1290+54
1294+58	1296+22



Ⓐ REFER TO SPECIAL PROVISION "GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT CONSTRUCTION", "TIMBER PILING FOR SOIL DENSIFICATION", AND BRIDGE PLANS FOR LOCATIONS, SPACING, DEPTH, SEQUENCE OF CONSTRUCTION, AND ADDITIONAL INFORMATION.

GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT CONSTRUCTION WITH TIMBER PILES

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				6	ARK.			
				JOB NO.		CA1002	17	319

(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESEY
9/27/16

NOTE:

CONTRACTOR SHALL COORDINATE WITH THE ENGINEER TO AVOID ANY AND ALL UTILITIES WITHIN THE SOIL DENSIFICATION AREA.

BENCHING FOR THE INSTALLATION OF INTERNAL REINFORCEMENT SHALL BE INCLUDED IN THE PRICE BID FOR COMPACTED EMBANKMENT (SPECIAL).

REFER TO SPECIAL PROVISION "GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT CONSTRUCTION" FOR ADDITIONAL INFORMATION.

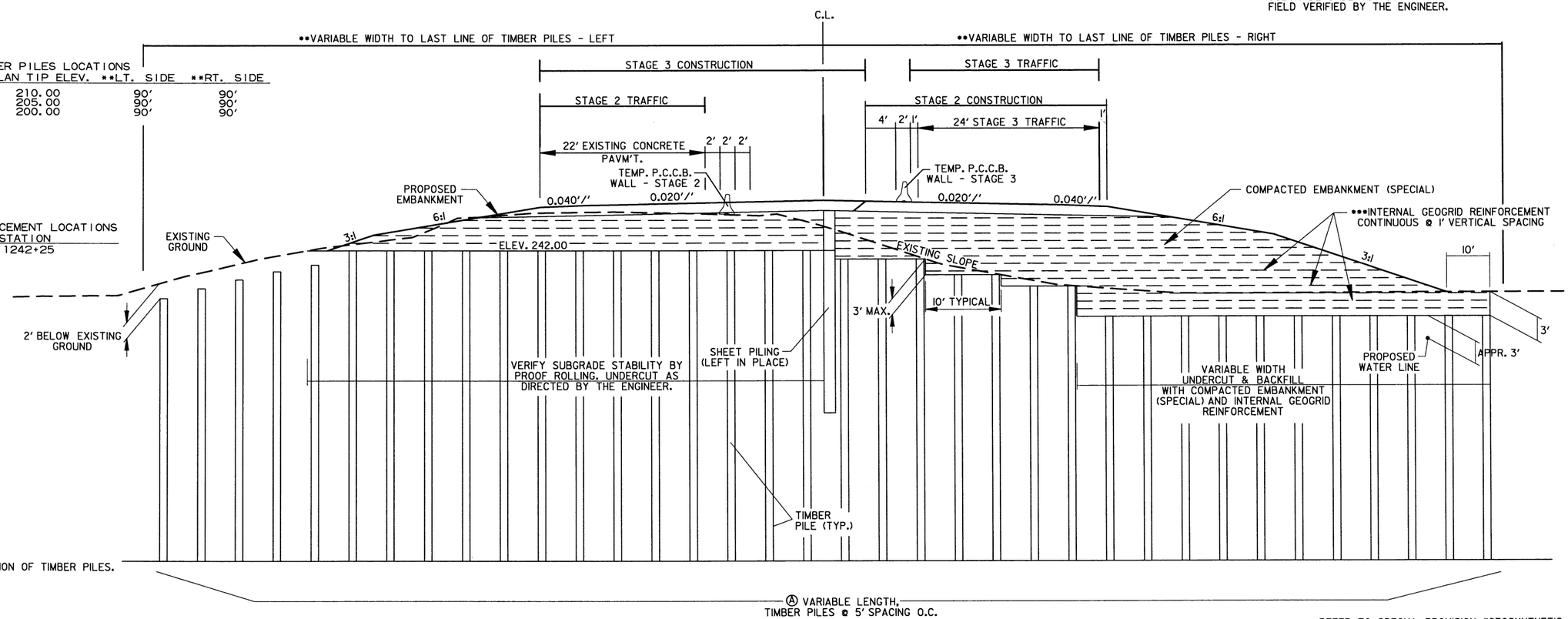
REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

COMPACTION OF EMBANKMENT FILL TO BE VERIFIED ON BOTH SIDES OF SHEET PILES. SPECIFIED COMPACTION MUST BE ACHIEVED UP TO SHEETS.

SUBGRADE UNDERCUT DEPTH AND WIDTH REQUIREMENTS TO BE FIELD VERIFIED BY THE ENGINEER.

TIMBER PILES LOCATIONS				
STATION	STATION	*PLAN TIP ELEV.	**LT. SIDE	**RT. SIDE
1240+35	1241+10	210.00	90'	90'
1241+15	1241+60	205.00	90'	90'
1241+65	1242+25	200.00	90'	90'

***GEOGRID REINFORCEMENT LOCATIONS	
STATION	STATION
1240+50	1242+25



GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT CONSTRUCTION WITH TIMBER PILES

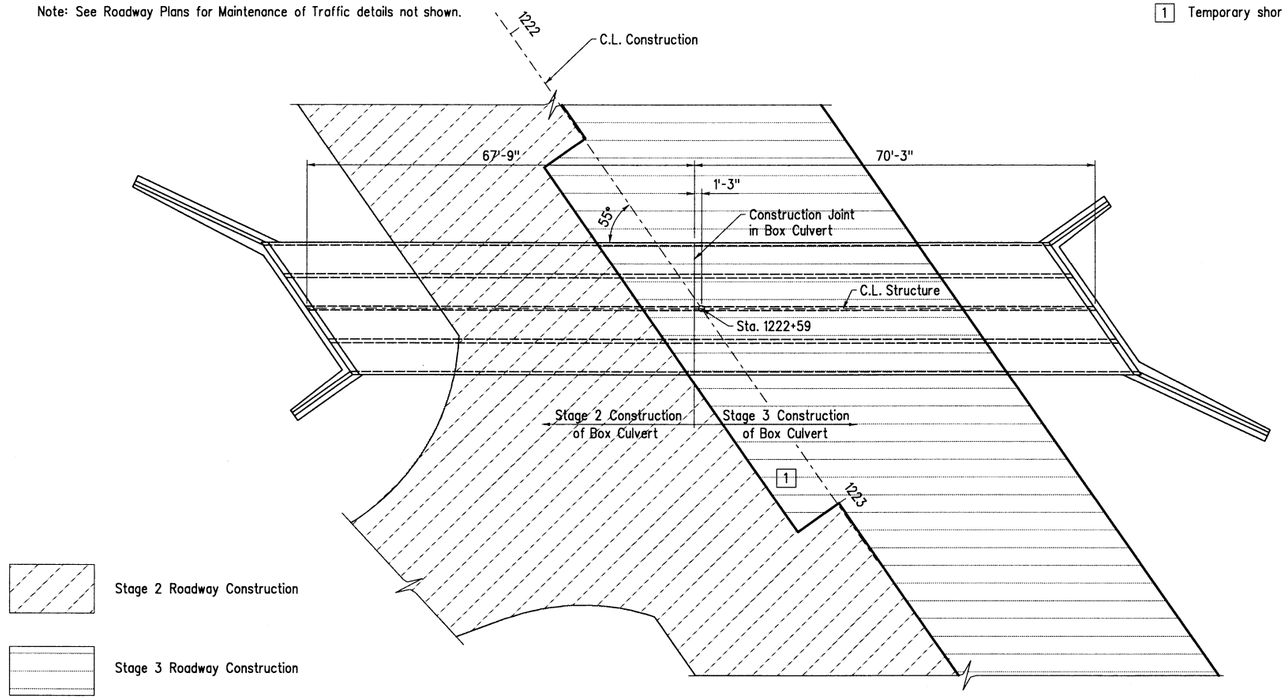
Ⓐ REFER TO SPECIAL PROVISION "GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT CONSTRUCTION", "TIMBER PILING FOR SOIL DENSIFICATION", AND BRIDGE PLANS FOR LOCATIONS, SPACING, DEPTH, SEQUENCE OF CONSTRUCTION, AND ADDITIONAL INFORMATION.

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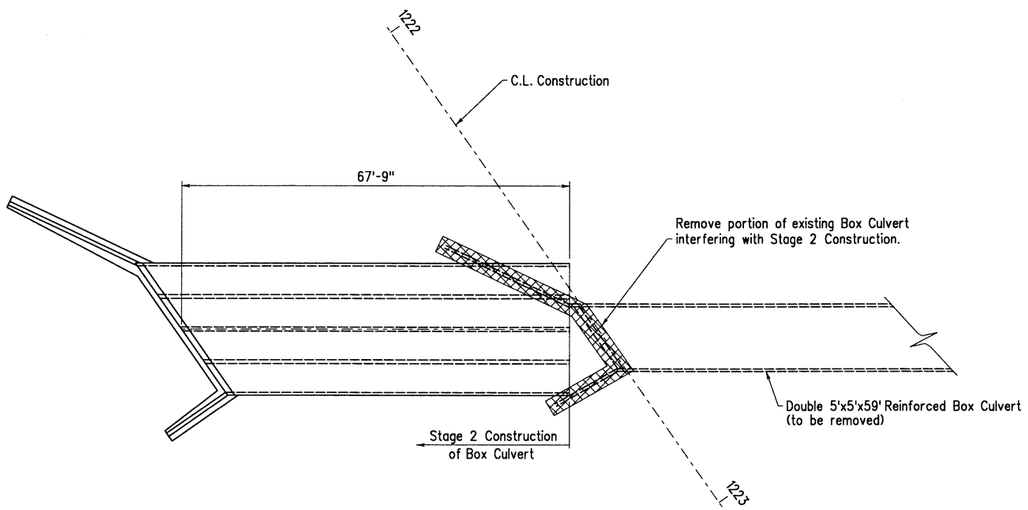
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				6	ARK.			
				JOB NO.		CA1002	18	319
				①		SPECIAL DETAILS		

Note: See Roadway Plans for Maintenance of Traffic details not shown.

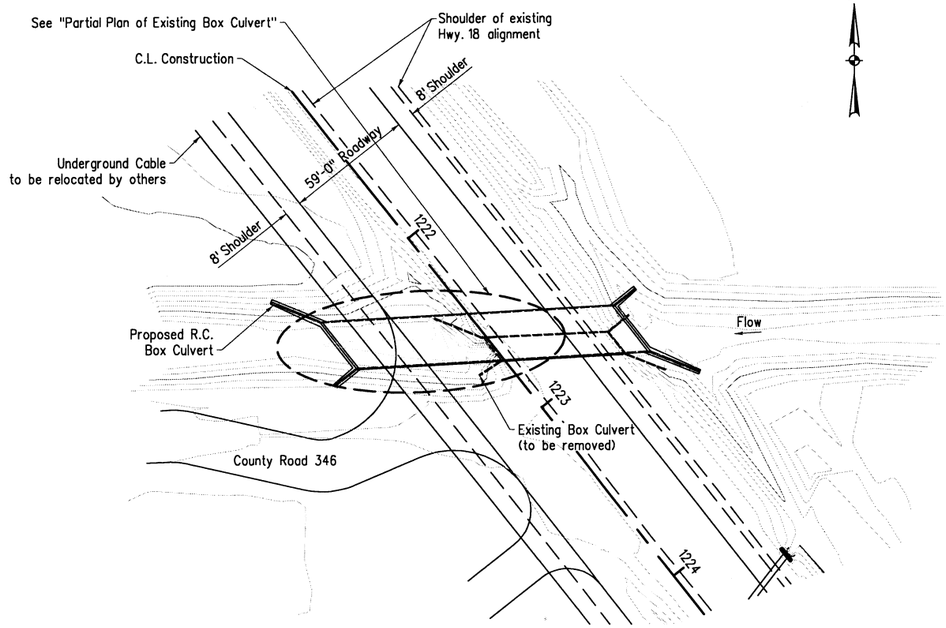
[1] Temporary shoring may be required. See SP Job CA1002 "Shoring for Culverts".



PLAN VIEW OF STAGE CONSTRUCTION



PARTIAL PLAN OF EXISTING BOX CULVERT



LOCATION SKETCH

Notes:
When alternate precast concrete box sections are used, the minimum distance from inside face of headwalls to precast sections measured along the shortest wall shall be 3 feet. Reinforcement and dimensions for headwalls, wingwalls and footings shall be in accordance with the plans.

Precast units shall be placed so that the connection of precast boxes to a cast-in-place portion of the culvert is normal to C.L. Culvert in a non-staggered alignment.

A 1½" minimum space shall be left between the adjacent precast section. Mortar or grout material used between precast barrel sections shall fill the entire space between sections.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15927
CHARLES G. WISE
9/27/16

DETAILS OF STAGE CONSTRUCTION

QUADRUPLE BARREL BOX CULVERT
Sta. 1222+59

SPECIAL DETAILS

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9/27/2016

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.		CA1002	19	319

1 SPECIAL DETAILS

INLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT		WINGWALL ANGLE (DEGREE)		FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL		FOOTING DIMENSION PARALLEL WITH HDWL		LENGTH OF WINGWALLS		LENGTH OF FOOTING HEEL	
								AT HDWL	AT WING END	WING A	WING B		WING A	WING B	WING A	WING B	WING A	WING B	WING A	WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
23'-0"	5'-0"	0'-9"	0'-8"	35	3:1	26'-10 1/4"	1'-0"	5'-10"	1'-8"	0	60	2'-2"	2'-8 1/2"	3'-3 3/8"	1'-0 1/2"	1'-6"	12'-6"	25'-0"	14'-0 1/8"	27'-4 3/4"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
INLET	INLET
CU.YD	LBS.
8.88	798

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY			F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS		F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS		F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY
WING A	4	12	13	L	Min	2'-8"	-	-	-	L	-	-	-	-	L	-	4	18	4	Min
					Max	7'-3"														6'-4"
				X	Min	0'-9"				X	-				X	-				Max
					Max	1'-4"														10'-10"
				Y	Min	2'-0"				Y	-				Y	-				
					Max	6'-0"														
WING B	4	12	25	L	Min	2'-8"	-	-	-	L	-	-	-	-	L	-	4	18	6	Min
					Max	7'-9"														3'-10"
				X	Min	0'-9"				X	-				X	-				Max
					Max	1'-10"														21'-10"
				Y	Min	2'-0"				Y	-				Y	-				
					Max	6'-0"														

WING	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS		F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY		F7 BAR SIZE	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY		F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS		F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS		REINF. STEEL QTY. PER WING (LBS)
WING A	4	18	2	12'-2"		4	18	9	L	Min 3'-3"	4	6	14'-10"	4	18	8	Min		-	-	-	Min		4	2	12'-8"	4	2	13'-4"	6	12	5	L	3'-4"	262
										Max 7'-3"							1'-8"					-											X	1'-8"	
									X	Min 1'-4"							Max					Max												
										Max 1'-4"																								
									Y	Min 2'-0"							2'-2"					-												
										Max 6'-0"																								
WING B	4	18	2	24'-8"		4	18	17	L	Min 3'-3"	4	6	28'-3"	4	18	18	Min		4	18	2	Min		4	2	24'-10"	4	2	28'-10"	6	12	5	L	3'-4"	536
										Max 7'-3"							1'-8"					37'-3"												
									X	Min 1'-4"							Max					Max											X	1'-8"	
										Max 1'-4"																								
									Y	Min 2'-0"							2'-9"					37'-3"												
										Max 6'-0"																								

MID-SECTION BAR LAP TABLE

# of Long. Laps Req'd.	SL = Section Length
0	< 40.0 ft
1	>40.0 ft - 78.0 ft
2	>78.0 ft - 116.0 ft
3	>116.0 ft - 154.0 ft
4	>154.0 ft - 192.0 ft
5	>192.0 ft - 230.0 ft
6	>230.0 ft - 268.0 ft
7	>268.0 ft - 306.0 ft
8	>306.0 ft -344.0 ft

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15927
CHARLES G. WISE
9/27/16

TABULAR DATA BY: CGW DATE: 10/14/2015
CHECKED BY: CGW DATE: 1/7/2016

This drawing to be used in conjunction with
SHEET 1 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'GENERAL NOTES & LONGITUDINAL SECTION LENGTH SCHEDULE',
SHEET 3 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF MULTI-BARREL R.C. BOX CULVERT',
SHEET 4 OF 4, "GENERAL DETAILS OF R.C. BOX CULVERT", 'DETAILS OF WINGWALLS', and
STANDARD DRAWING RCB-2.

For additional information and outlet sections, see Sheet 2 of 2.

INLET SKEWED END SECTION

| SKEW (DEGREE) | SLOPE | DESIGN FILL DEPTH (FT.) | CLEAR SPAN (FT.) | CLEAR HEIGHT (FT.) | SECTION LENGTH | TOP SLAB THK. | HDWL DEPTH | BOTTOM SLAB THK. | SIDE WALL THK. | INTERIOR WALL THK. | OVER ALL WIDTH | OVER ALL HEIGHT | TOP SLAB REINFORCING STEEL "a" SIZE | "a" SPACING | "a" LENGTHS VARY | "a" NO. REQ'D | TOP SLAB REINFORCING STEEL "c" SIZE | "c" SPACING | "c" LENGTHS VARY | "c" NO. REQ'D | BOTTOM SLAB REINFORCING STEEL "d" SIZE | "d" SPACING | "d" LENGTHS VARY | "d" NO. REQ'D | BOTTOM SLAB REINFORCING STEEL "f" SIZE | "f" SPACING | "f" LENGTHS VARY | "f" NO. REQ'D | SIDE WALL REINFORCING STEEL "f0" SIZE | "f0" SPACING | "f0" NO. REQ'D | "f0" LENGTH | INTERIOR WALL REINFORCING STEEL "f1" SIZE | "f1" SPACING | "f1" NO. REQ'D | "f1" LENGTH | TOP SLAB DISTRIBUTION REINFORCING STEEL "g" SIZE | "g" SPACING | "g" NO. REQ'D | "g" LENGTHS VARY | BOTTOM SLAB DISTRIBUTION REINFORCING STEEL "e" SIZE | "e" SPACING | "e" NO. REQ'D | "e" LENGTHS VARY | SIDE WALL DISTRIBUTION REINFORCING STEEL "d1" SIZE | "d1" SPACING | "d1" NO. REQ'D | "d1" LENGTH | INTERIOR WALL DISTRIBUTION REINFORCING STEEL "d2" SIZE | "d2" SPACING | "d2" NO. REQ'D | "d2" LENGTH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---

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.		CA1002	20	319

① SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15927
CHARLES G. WISE
9/21/16

TABULAR DATA BY: CGW DATE: 10/14/2015
CHECKED BY: CGW DATE: 1/7/2016

OUTLET WINGWALL TABLE

OVER ALL WIDTH	CLEAR HEIGHT	FOOTING THK.	WING WALL THK.	BOX SKEW (DEG.)	SLOPE	HDWL LENGTH	HEEL	WALL HEIGHT AT HDWL	WALL HEIGHT AT WING END	WINGWALL ANGLE (DEGREE) WING A	WINGWALL ANGLE (DEGREE) WING B	FOOTING WIDTH AT WALL END	WIDTH OF WING FOOTINGS AT HDWL WING A	WIDTH OF WING FOOTINGS AT HDWL WING B	FOOTING DIMENSION PARALLEL WITH HDWL WING A	FOOTING DIMENSION PARALLEL WITH HDWL WING B	LENGTH OF WINGWALLS WING A	LENGTH OF WINGWALLS WING B	LENGTH OF FOOTING HEEL WING A	LENGTH OF FOOTING HEEL WING B
OW	H	WB	CW	SK	SL	K	HL	WH1	WH2	AF1	AF2	WE	WF1	WF2	G1	G2	W1	W2	W3	W4
23'-0"	5'-0"	0'-9"	0'-8"	35	3:1	26'-10 1/4"	1'-0"	5'-10"	1'-8"	0	60	2'-2"	2'-8 1/2"	3'-3 3/8"	1'-0 1/2"	1'-6"	12'-6"	25'-0"	14'-0 1/8"	27'-4 3/4"

CLASS "S" CONCRETE (Includes apron)	REINFORCING STEEL (Includes apron and laps if required)
OUTLET	OUTLET
CU.YD	LBS.
9.94	798

WING	F1 BAR SIZE	F1 MAX. SPACING	F1 NO. REQ'D	F1 LENGTHS VARY	F1	F2 BAR SIZE	F2 SPACING	F2 NO. REQ'D	F2 LENGTHS	F3 BAR SIZE	F3 SPACING	F3 NO. REQ'D	F3 LENGTHS	F4 BAR SIZE	F4 SPACING	F4 NO. REQ'D	F4 LENGTHS VARY	F5 BAR SIZE	F5 SPACING	F5 NO. REQ'D	F5 LENGTHS	F6 BAR SIZE	F6 SPACING	F6 NO. REQ'D	F6 LENGTHS VARY	F6	F7 NO. REQ'D	F7 LENGTHS	F8 BAR SIZE	F8 SPACING	F8 NO. REQ'D	F8 LENGTHS VARY	F9 BAR SIZE	F9 SPACING	F9 NO. REQ'D	F9 LENGTHS	F10 BAR SIZE	F10 NO. REQ'D	F10 LENGTHS	F11 BAR SIZE	F11 NO. REQ'D	F11 LENGTHS	F12 BAR SIZE	F12 SPACING	F12 NO. REQ'D	F12 LENGTHS	REINF. STEEL QTY. PER WING (LBS)
WING A	4	12	13	L	Min 2'-8"	-	-	-	L -	-	-	-	L -	4	18	4	Min	4	18	2	12'-2"	4	18	9	L Min 3'-3"	4	6	14'-10"	4	18	8	Min	-	-	-	Min	4	2	12'-8"	4	2	13'-4"	6	12	5	L 3'-4"	262
					Max 7'-3"												6'-4"								X Min 1'-4"							1'-8"				-									X 1'-8"	
				X	Min 0'-9"				X -				X -				Max								X Min 1'-4"							Max				Max									
					Max 1'-4"												10'-10"								Max 1'-4"							2'-2"				-									
				Y	Min 2'-0"				Y -				Y -												Y Min 2'-0"																					
					Max 6'-0"																				Max 6'-0"																					
WING B	4	12	25	L	Min 2'-8"	-	-	-	L -	-	-	-	L -	4	18	6	Min	4	18	2	24'-8"	4	18	17	L Min 3'-3"	4	6	28'-3"	4	18	18	Min	4	18	2	Min	4	2	24'-10"	4	2	28'-10"	6	12	5	L 3'-4"	536
					Max 7'-9"												3'-10"								Max 1'-4"							1'-8"				37'-3"									
				X	Min 0'-9"				X -				X -				Max								X Min 1'-4"							Max				Max									X 1'-8"	
					Max 1'-10"												21'-10"								Max 1'-4"							2'-9"				37'-3"									
				Y	Min 2'-0"				Y -				Y -												Y Min 2'-0"																					
					Max 6'-0"																				Max 6'-0"																					

Min. Bar Lap Length	
#4	1'-9"
#5	2'-2"
#6	2'-7"
#7	3'-6"
#8	4'-7"

Bar Pin Dia. Table	
#4	3"
#5	3 3/4"
#6	4 1/2"
#7	5 1/4"
#8	6"

① Any Bar Lap Required for the Skewed End Section shall be considered subsidiary to the item "Reinforcing Steel - Roadway (Gr. 60)."

OUTLET SKEWED END SECTION

SKEW (DEGREE)	SLOPE	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	SECTION LENGTH	TOP SLAB THK.	HDWL DEPTH	BOTTOM SLAB THK.	SIDE WALL THK.	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	TOP SLAB REINF. "a" SIZE	"a" SPACING	"a" LENGTHS VARY	"a" NO. REQ'D	TOP SLAB REINF. "c" SIZE	"c" SPACING	"c" LENGTHS VARY	"c" NO. REQ'D	BOTTOM SLAB REINF. "d" SIZE	"d" SPACING	"d" LENGTHS VARY	"d" NO. REQ'D	BOTTOM SLAB REINF. "f" SIZE	"f" SPACING	"f" LENGTHS VARY	"f" NO. REQ'D	SIDE WALL REINF. "f0" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH	INTERIOR WALL REINF. "f1" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH	TOP SLAB DIST. REINF. "g" SIZE	"g" SPACING	"g" NO. REQ'D	"g" LENGTHS VARY	BOTTOM SLAB DIST. REINF. "e" SIZE	"e" SPACING	"e" NO. REQ'D	"e" LENGTHS VARY	SIDE WALL DIST. REINF. "d1" SIZE	"d1" SPACING	"d1" NO. REQ'D	"d1" LENGTH	INTERIOR WALL DIST. REINF. "d2" SIZE	"d2" SPACING	"d2" NO. REQ'D	"d2" LENGTH
SK	SL	D	S	H	LL	T	HD	B	C	W	OW	OH	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	LENGTHS VARY	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTHS VARY	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH
35	3:1	2	5	5	10'-1"	10	3	10	6	8	23'-0"	6'-8"	5	10	Max 22'-8" Min 2'-7"	17	8	8.5	Max 22'-8" Min 2'-7"	20	4	12	Max 22'-8" Min 2'-7"	15	4	12	Max 22'-8" Min 2'-7"	15	4	7.5	33	6'-4"	4	12	68	6'-4"	4	11	55	Max 17'-11" Min 1'-10"	4	11	55	Max 17'-11" Min 1'-10"	4	12	5	LONG 17'-8" SHORT 2'-1"	4	12	10	LONG 13'-11" MID 9'-11" SHORT 5'-10"
															22'-8"	3			22'-8"	3			22'-8"	2			22'-8"	2																								

CLASS "S" CONCRETE (Includes HDWL)	REINFORCING STEEL (GR 60) (Includes HDWL)
CU. YDS.	LBS.
20.42	3139

"k1" HDWL BARS SIZE	"k1" HDWL BARS LENGTH	"k1" HDWL BARS NO. REQ'D	"k2" HDWL BARS SIZE	"k2" HDWL BARS LENGTH	"k2" HDWL BARS NO. REQ'D	"h" HDWL BARS SIZE	"h" HDWL BARS LENGTH	"h" HDWL BARS Y	"h" HDWL BARS NO. REQ'D
4	27'-9"	6	4	27'-9"	6	4	1'-9"	0'-9"	30

OUTLET SLOPE SECTION(S)

R.C. BOX SECTION	DESIGN FILL DEPTH (FT.)	CLEAR SPAN (FT.)	CLEAR HEIGHT (FT.)	TOP SLAB THK.	BOTTOM SLAB THK	SIDE WALL THK	INTERIOR WALL THK.	OVER ALL WIDTH	OVER ALL HEIGHT	SECTION LENGTH (FT.)	TOP SLAB REINF. LENGTH = OW - 4" + BENDS "a" SIZE	"a" L	Bent "b" SIZE	Bent "b" L	"c" SIZE	"c" L	"c" SPACING	"c" NO. REQ'D	BOTTOM SLAB REINF. LENGTH = OW - 4" + BENDS "d" SIZE	"d" L	Bent "b1" SIZE	Bent "b1" L	"f" SIZE	"f" L	"f" SPACING	"f" NO. REQ'D	SIDE WALL REINF. "f0" LENGTH = OH - 4" SIZE	"f0" SPACING	"f0" NO. REQ'D	"f0" LENGTH	INTERIOR WALL REINF. "f1" LENGTH = OH - 4" SIZE	"f1" SPACING	"f1" NO. REQ'D	"f1" LENGTH	TOP SLAB DISTRIBUTION REINF. STEEL "g" LENGTH = SL SIZE	"g" SPACING	"g" NO. REQ'D	BOTTOM SLAB DISTRIBUTION REINF. STEEL "e" LENGTH = SL SIZE	"e" SPACING	"e" NO. REQ'D	SIDE WALL DISTRIBUTION REINF. STEEL "d1" LENGTH = SL SIZE	"d1" SPACING	"d1" NO. REQ'D	INTERIOR WALL DISTRIBUTION REINF. STEEL "d2" LENGTH = SL SIZE	"d2" SPACING	"d2" NO. REQ'D
	D	S	H	T	B	C	W	OW	OH	SL	SIZE	L	SIZE	L	SIZE	L	SPACING	NO. REQ'D	SIZE	L	SIZE	L	SIZE	L	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	LENGTH	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D	SIZE	SPACING	NO. REQ'D

HDWL DEPTH	ADDITIONAL REINF. FOR HDWL	"h" HDWL BARS SIZE	"h" HDWL BARS Y	"h" HDWL BARS LENGTH	"h" HDWL BARS NO. REQ'D
HD	LBS.				

CLASS "S" CONCRETE	REINFORCING STEEL (GR 60)
CU. YDS.	LBS.
TOTAL	

The required number of bars and lengths shown are for estimating purpose only.
The actual number and length required shall be determined in field.

Unless otherwise noted, all dimensions are in inches.

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

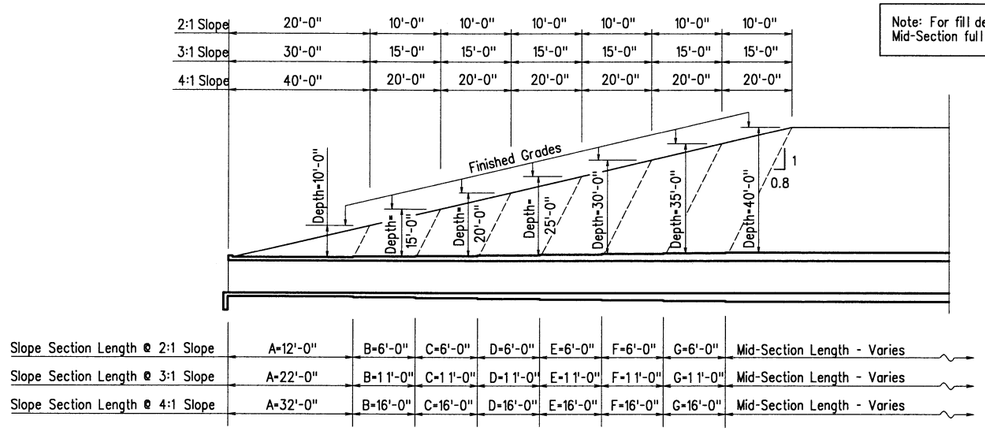
QUADRUPLE BARREL BOX CULVERT
Sta. 1222+59

SPECIAL DETAILS

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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.		CA1002	21	319

1 SPECIAL DETAILS

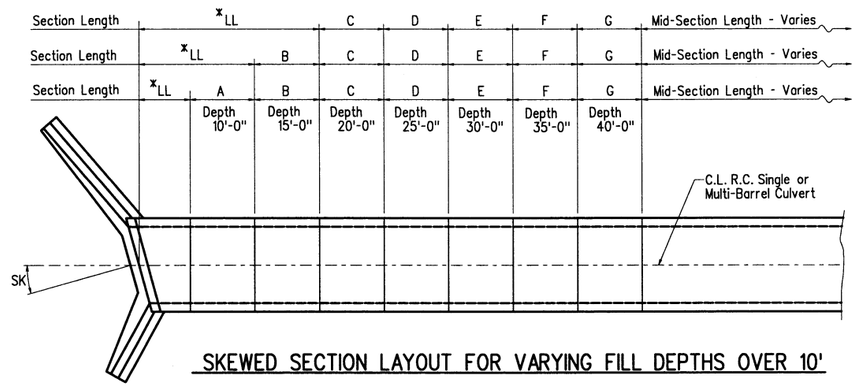


Note: For fill depths 10' and under, use Mid-Section full length of box culvert.

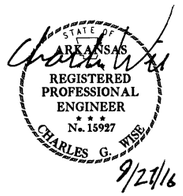
LONGITUDINAL SECTION LENGTH SCHEDULE FOR VARYING FILL DEPTHS OVER 10'

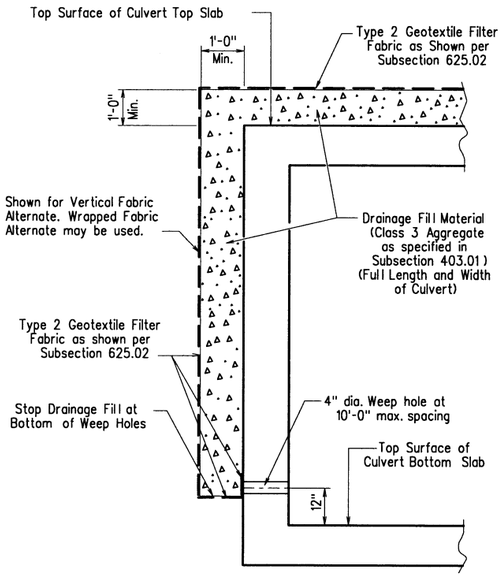
Lengths for Non-Skewed Boxes

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



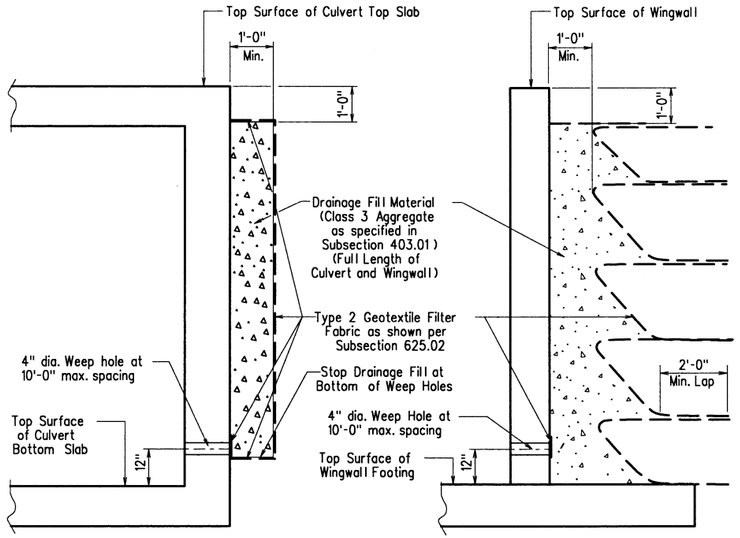
SKEWED SECTION LAYOUT FOR VARYING FILL DEPTHS OVER 10'





CULVERT DRAINAGE DETAIL FOR ROCK FILL

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



VERTICAL FABRIC ALTERNATE
(Shown for Culvert, Similar for Wingwall)

WRAPPED FABRIC ALTERNATE
(Shown for Wingwall, Similar for Culvert)

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

WINGWALL & CULVERT DRAINAGE DETAIL

GENERAL NOTES:

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

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

LIVE LOADING: HL-93

All concrete shall be Class S with a minimum 28-day compressive strength of 3,500 psi and shall be poured in the dry. All exposed corners to have ¾" chamfers.

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

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

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

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

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

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

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

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

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

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

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

SPECIAL DETAILS

LRFD

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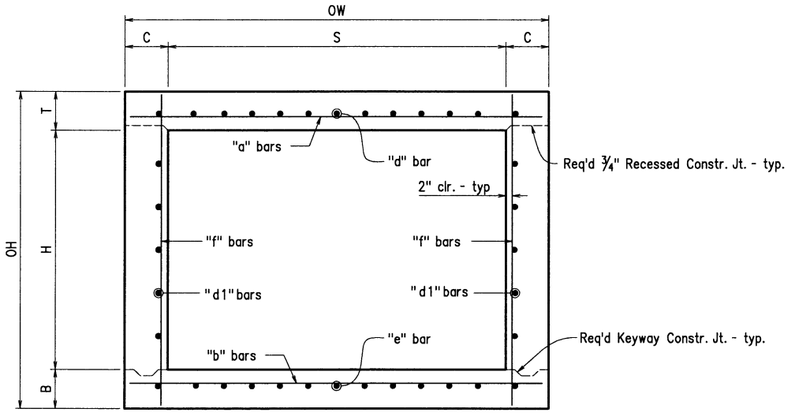
9/27/2016

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.		CA1002	22	319

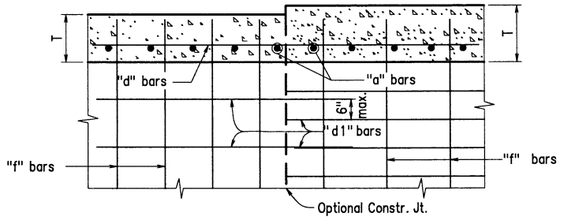
1 SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15927
CHARLES G. WISE
9/27/16

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



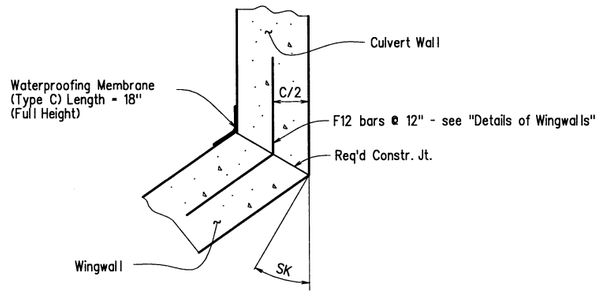
TYPICAL SECTION M-M



Longitudinal Bar Spacing at individual sections shall be maintained, which may result in noncontact bar laps.

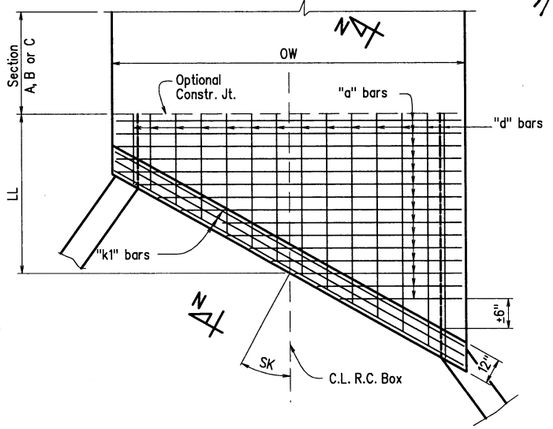
LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

TOP SLAB SHOWN, BOTTOM SLAB SIMILAR

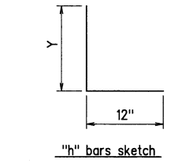


WINGWALL ATTACHMENT

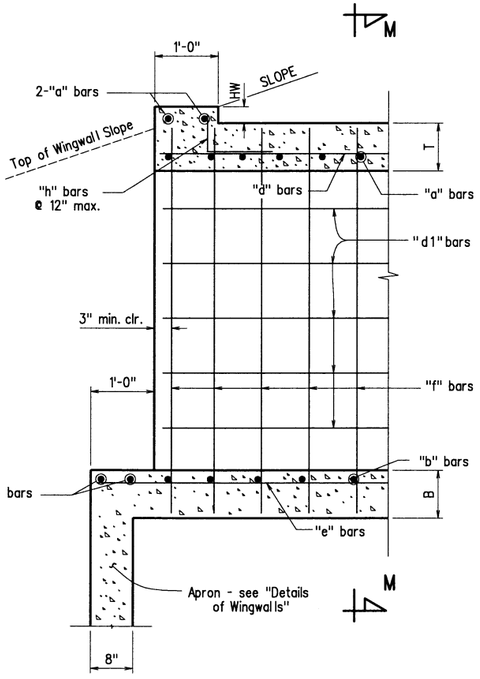
See "Details of Wingwalls" for additional information and wingwall details.



TOP SLAB REINFORCEMENT

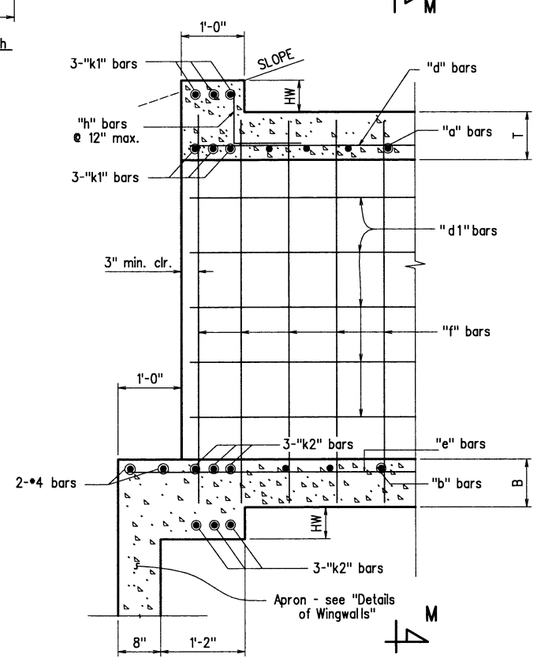


"h" bars sketch



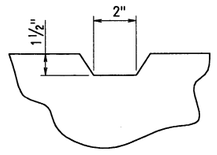
PART LONGITUDINAL SECTION

(Non-Skewed Ends)



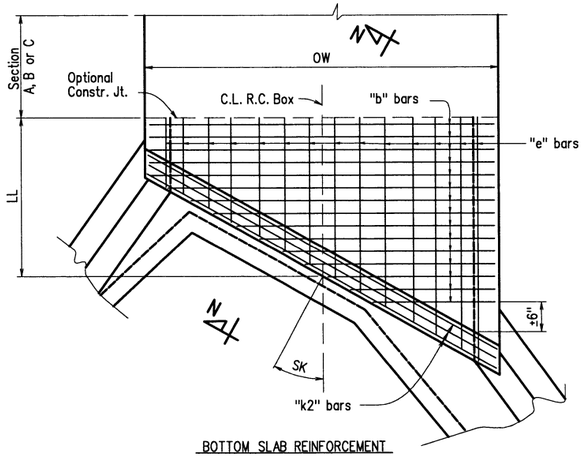
PART LONGITUDINAL SECTION N-N

(Skewed Ends)



TYPICAL KEYWAY DETAIL

(All Construction Joints)



BOTTOM SLAB REINFORCEMENT

SKEWED END SECTION DETAILS

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

DETAILS OF SINGLE BARREL R.C. BOX CULVERT

SPECIAL DETAILS

T:\Job\WLXM2660 AHTD CAP CA1002\700 CADD Files\709 StructuralFiles\Drawings\Box Culvert\Culvert-General02.dgn

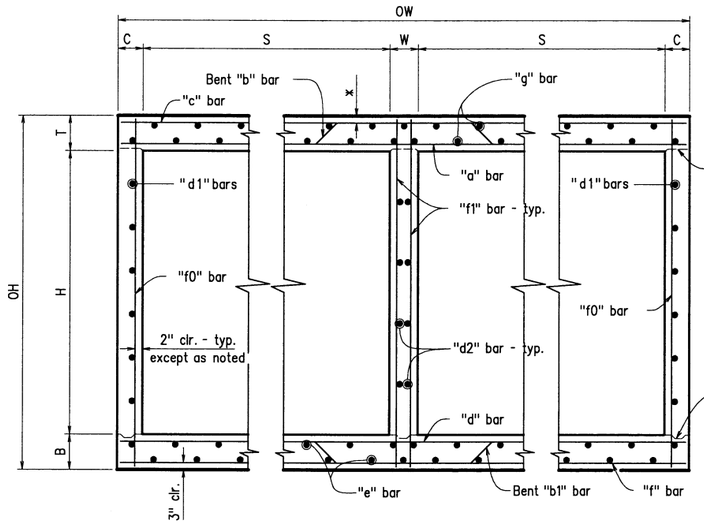
9/27/2016

DATE REVISED	DATE FILMED	REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA1002	23	319

1 SPECIAL DETAILS

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

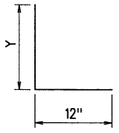
Note: When top slab of culvert serves as finished roadway surface, see General Notes on Sheet 1 of 4.



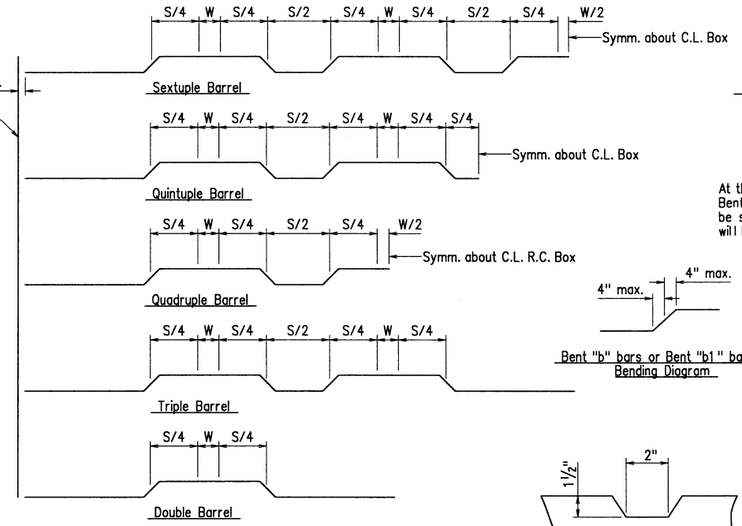
TYPICAL SECTION M-M

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

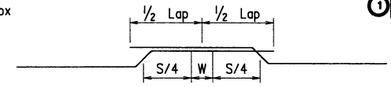
Bottom Slab
Straight "d" bars shall alternate with Bent "b1" bars in top.
Straight "f" bars shall alternate with Bent "b1" bars in bottom.



"h" bars sketch

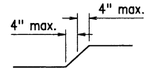


Bent "b" bars or Bent "b1" bars sketch

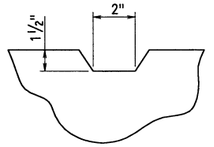


Lap Detail
For Bent "b" bars and Bent "b1" bars

At the Contractor's option in lieu of providing Bent "b" or Bent "b1" bars, one bar top and bottom of equivalent size may be substituted for each bent bar. Payment for the reinforcing will be based on the weight of the "b" or "b1" bar.

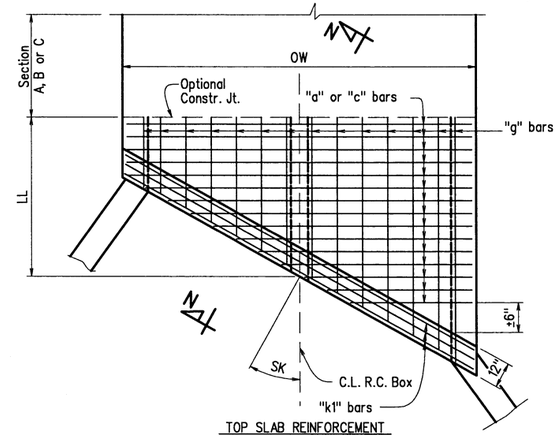


Bent "b" bars or Bent "b1" bars Bending Diagram

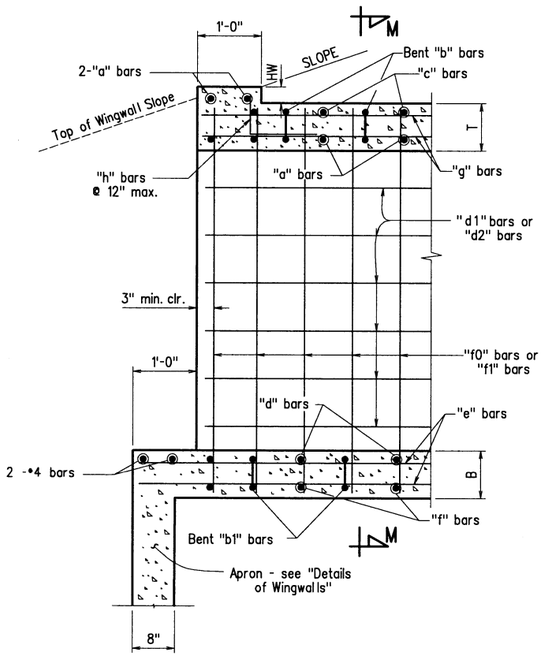


TYPICAL KEYWAY DETAIL

(All Construction Joints)

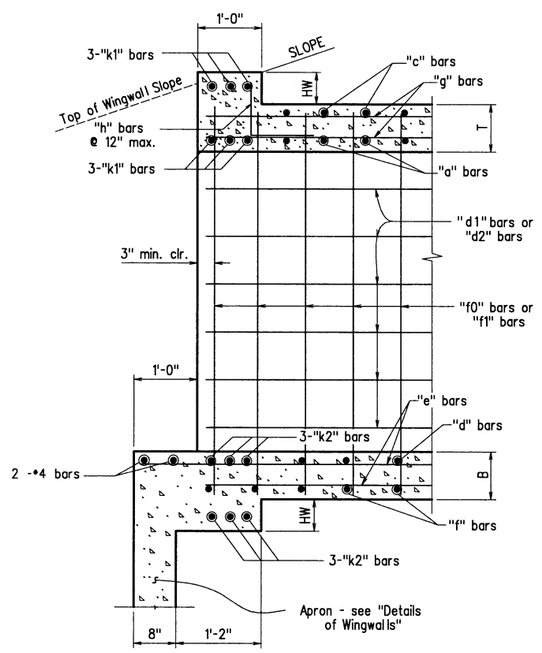


TOP SLAB REINFORCEMENT
Straight "c" bars in top.
Straight "a" bars in bottom.



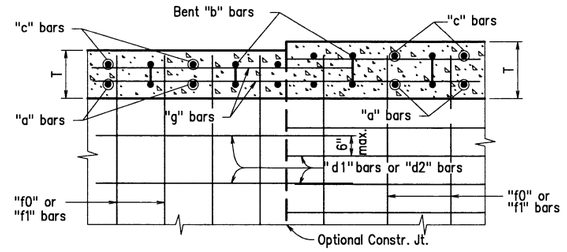
PART LONGITUDINAL SECTION

(Non-Skewed Ends)



PART LONGITUDINAL SECTION N-N

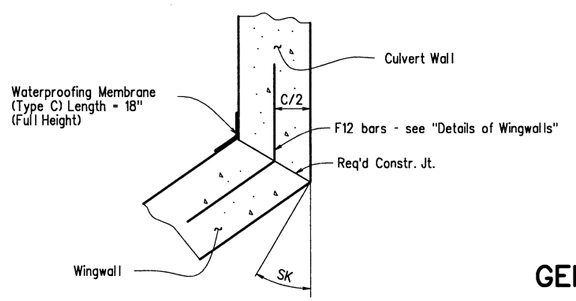
(Skewed Ends)



Longitudinal Bar Spacing at individual sections shall be maintained, which may result in noncontact bar laps.

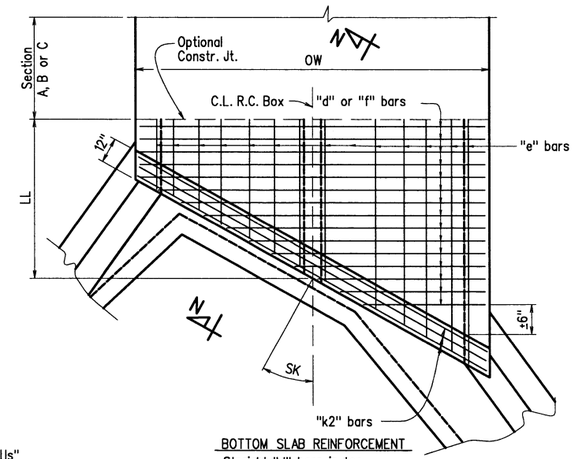
LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

TOP SLAB SHOWN, BOTTOM SLAB SIMILAR



WINGWALL ATTACHMENT

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



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

SKEWED END SECTION DETAILS

SHEET 3 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT

DETAILS OF MULTI-BARREL R.C. BOX CULVERT

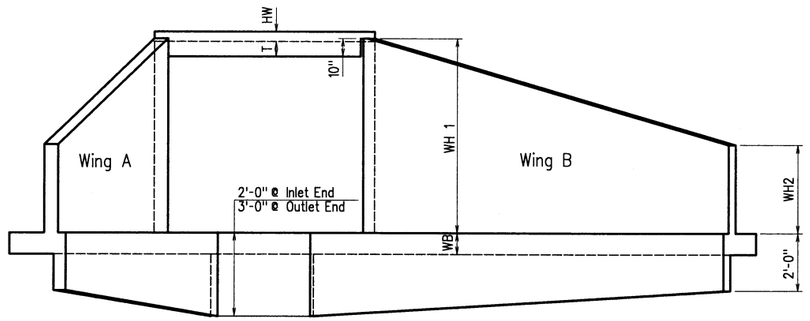
SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15927
CHARLES G. WISE
9/27/16

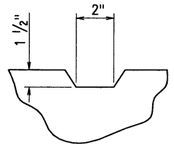
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9/27/2016

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.		CA1002	24	319

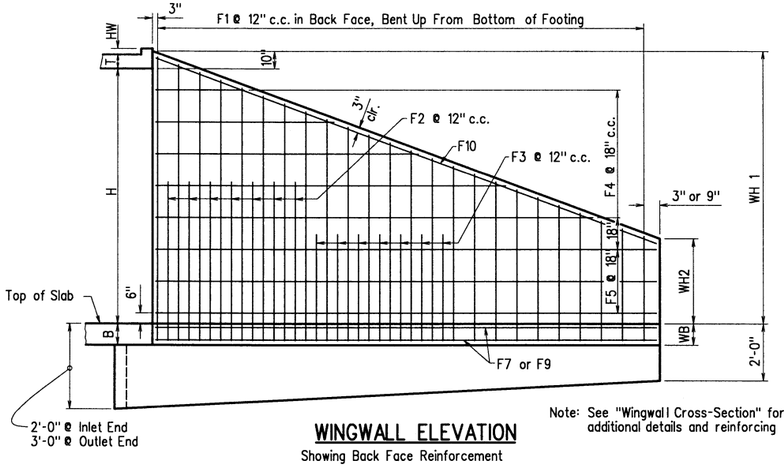
1 SPECIAL DETAILS



END ELEVATION
Flared Wingwalls Shown

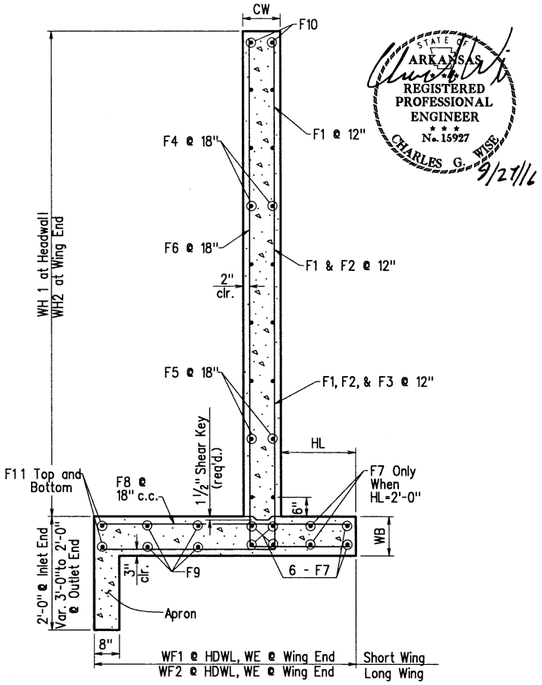


TYPICAL KEYWAY DETAIL
All Construction Joints

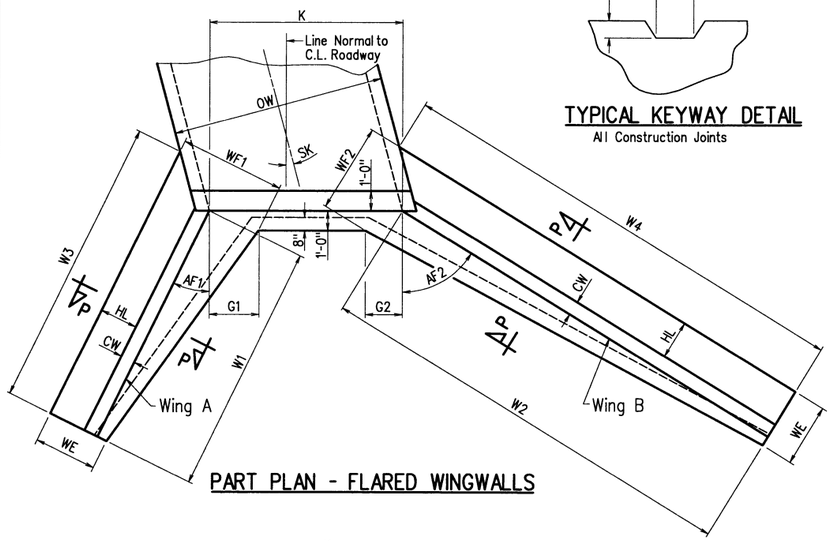


WINGWALL ELEVATION
Showing Back Face Reinforcement

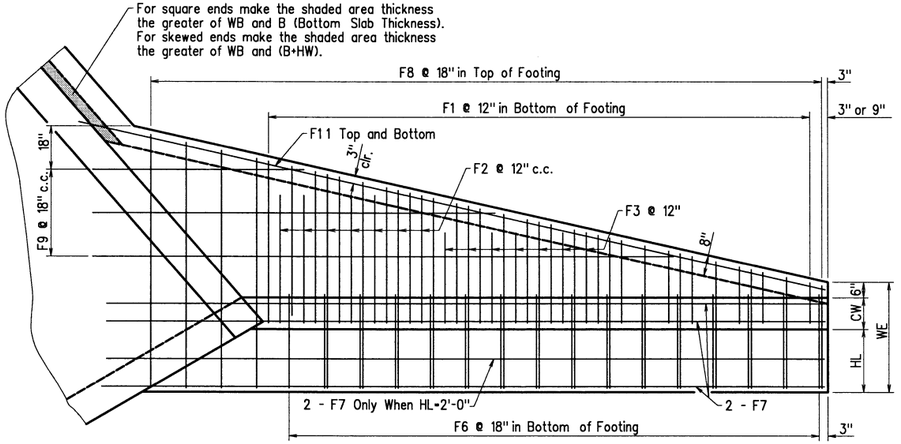
Note: See "Wingwall Cross-Section" for additional details and reinforcing



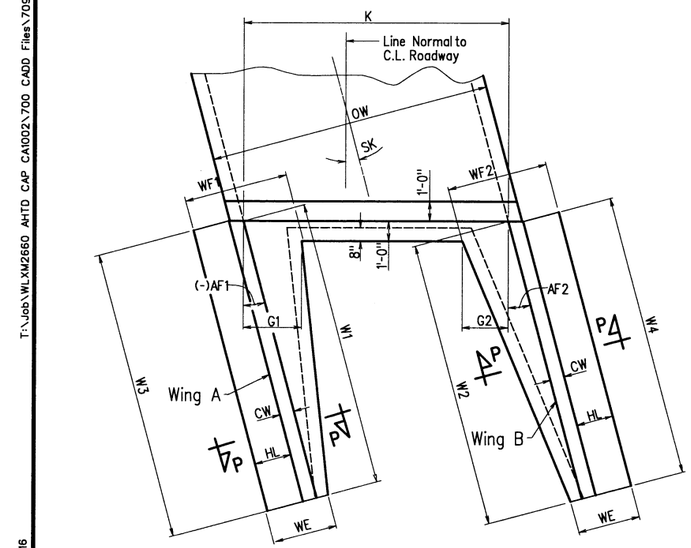
WINGWALL SECTION P-P



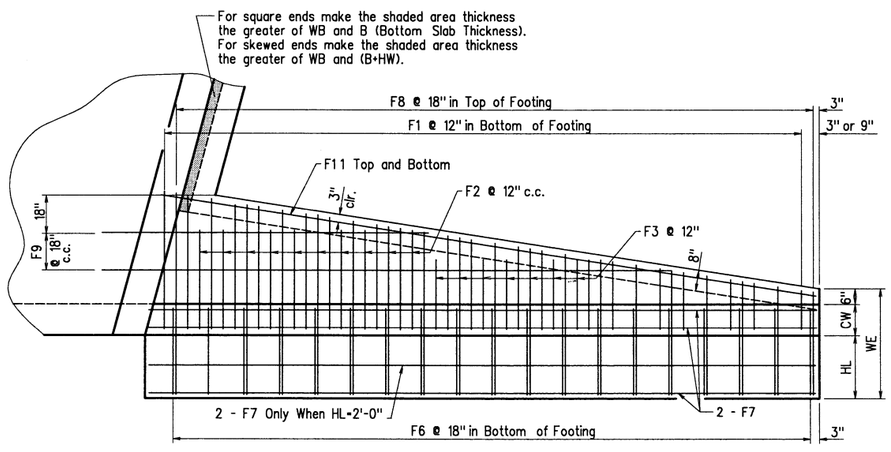
PART PLAN - FLARED WINGWALLS



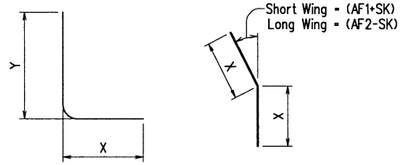
PLAN - FLARED WINGWALLS
Showing Footing Reinforcement



PART PLAN - PARALLEL WINGWALLS



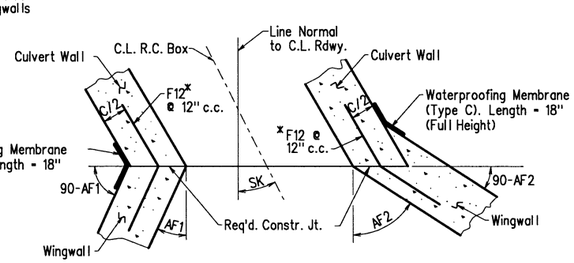
PLAN - PARALLEL WINGWALLS
Showing Footing Reinforcement



F1, F2, F3, & F6 BARS

*F12 BAR

*F12 is a straight bar for parallel wingwalls



CONSTRUCTION JOINTS
Flared Wingwalls Shown

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

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 15927 CHARLES G. WISE 9/27/16

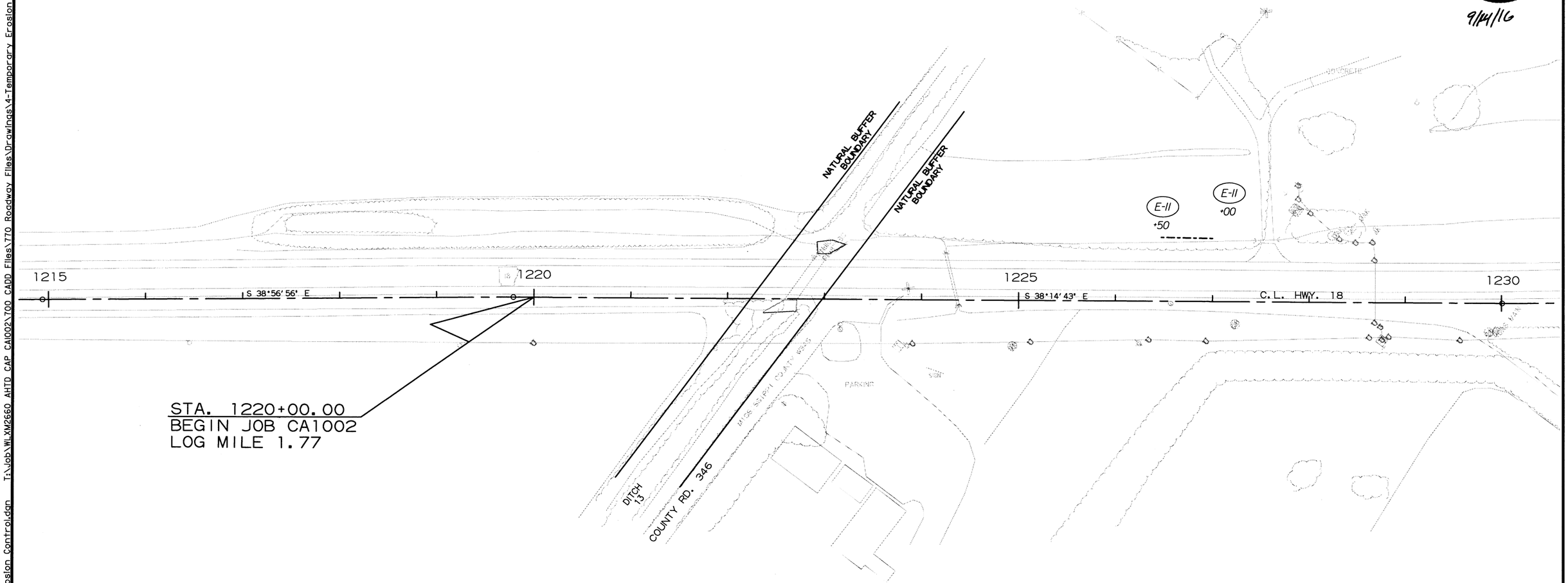
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9/27/2016

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				6	ARK.			
				JOB NO.		CA1002	25	319

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESEY
9/14/16



SILT FENCE	E-11	LIN. FT.
STA. 1226+50	LT. TO RT.	50

NOTE:
STATIONING OF EROSION CONTROL DEVICES TAKEN ALONG HWY. 18 C.L. CONSTRUCTION.

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

REVISIONS

DATE	REVISION

LEGEND

E-11 = SILT FENCE

TEMPORARY EROSION CONTROL DETAILS
PRIOR TO CONSTRUCTION

JACOBS

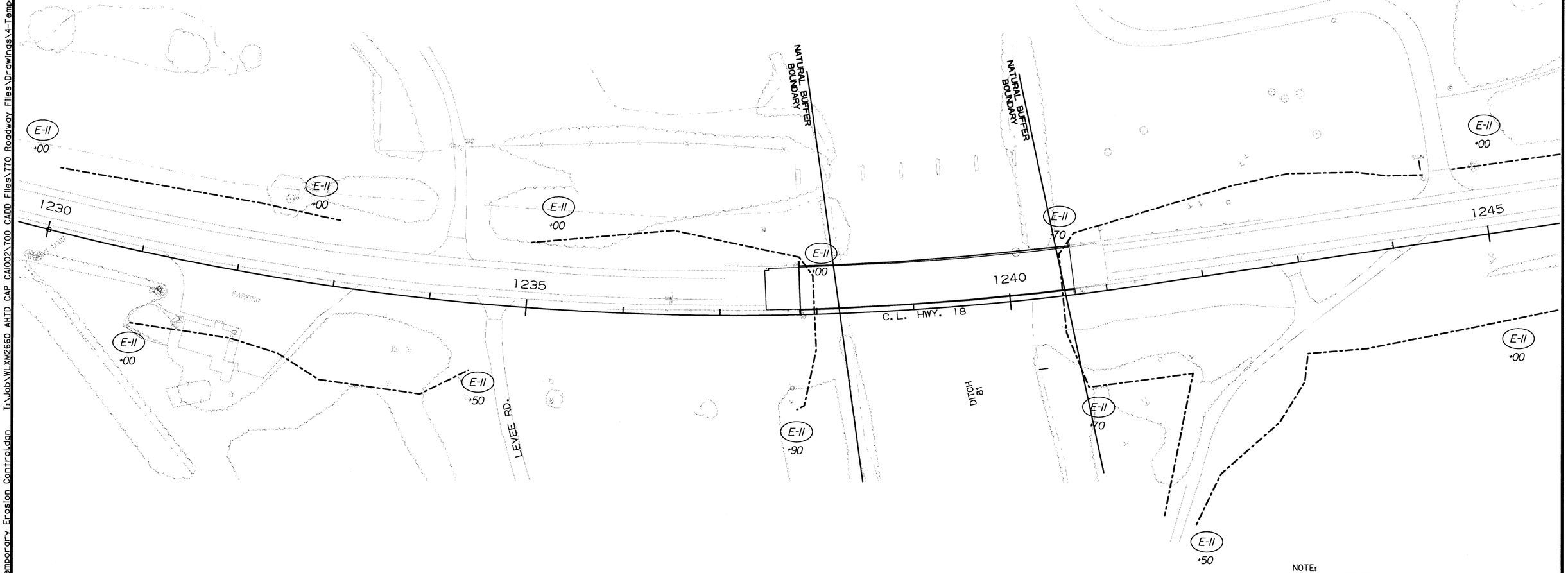
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	26	319

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESEY
9/14/16



NOTE:
STATIONING OF EROSION CONTROL DEVICES TAKEN ALONG HWY. 18 C.L. CONSTRUCTION.

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

SILT FENCE	(E-II)	LIN. FT.
STA. 1230+00	LT. TO RT.	293
STA. 1231+00	LT. TO RT.	367
STA. 1235+00	LT. TO RT.	447
STA. 1240+70	LT. TO RT.	426
STA. 1240+70 TO 1244+50	LT. SIDE	372
STA. 1241+50 TO 1245+00	RT. SIDE	417

REVISIONS

DATE	REVISION

LEGEND

(E-II) = SILT FENCE

TEMPORARY EROSION CONTROL DETAILS PRIOR TO CONSTRUCTION

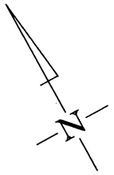
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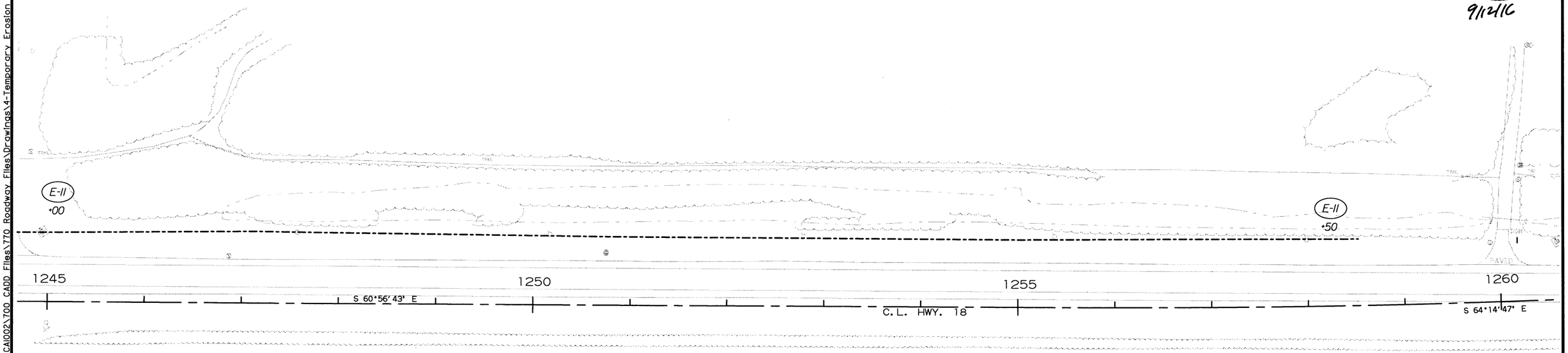
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6	ARK.			
JOB NO.		CA1002	27	319

(2) TEMPORARY EROSION CONTROL DETAILS





9/12/16



SILT FENCE	E-II	LIN. FT.
STA. 1245+00 TO 1258+50	LT. SIDE	1350
STA. 1245+00 TO 1260+00	RT. SIDE	1500

NOTE:
STATIONING OF EROSION CONTROL DEVICES TAKEN ALONG HWY. 18 C.L. CONSTRUCTION.

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

REVISIONS

DATE	REVISION

LEGEND

E-II = SILT FENCE

TEMPORARY EROSION CONTROL DETAILS PRIOR TO CONSTRUCTION

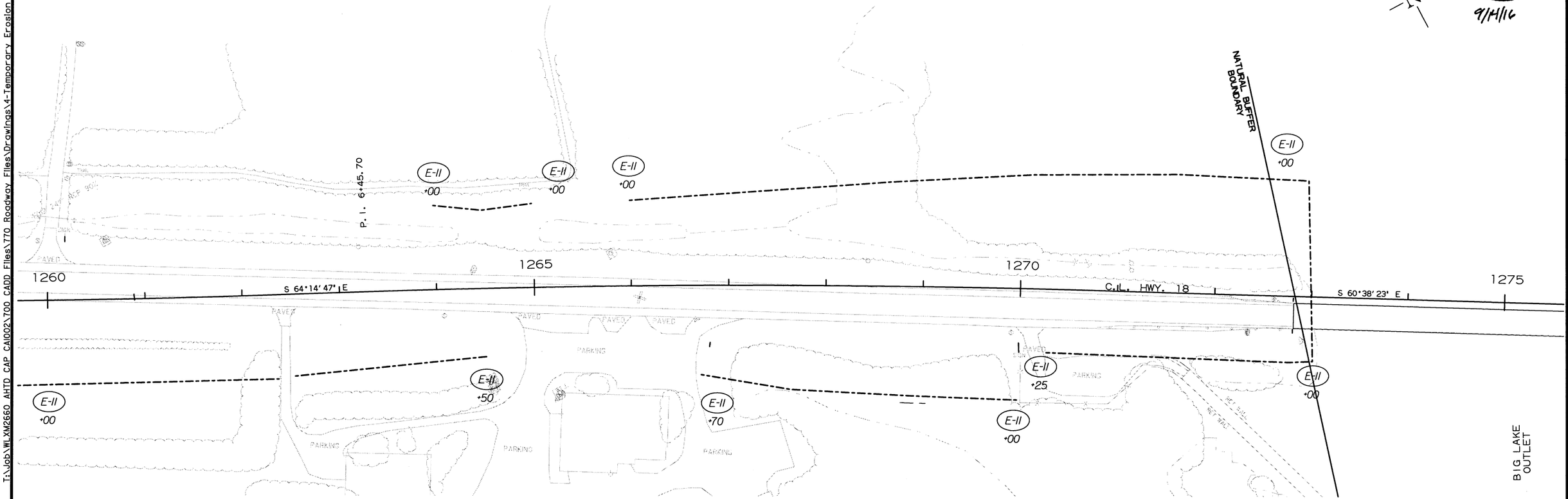
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				JOB NO.		CA1002	28	319

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESEY
9/14/16



NOTE:
STATIONING OF EROSION CONTROL DEVICES TAKEN ALONG HWY. 18 C.L. CONSTRUCTION.

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

SILT FENCE	(E-II)	LIN. FT.
STA. 1260+00 TO 1262+35	LT. SIDE	235
STA. 1262+50 TO 1264+50	LT. SIDE	200
STA. 1264+00 TO 1265+00	RT. SIDE	100
STA. 1266+00 TO 1273+00	RT. SIDE	700
STA. 1266+70 TO 1270+00	LT. SIDE	330
STA. 1270+25 TO 1273+00	LT. SIDE	275
STA. 1273+00	LT. TO RT.	185

REVISIONS

DATE	REVISION

LEGEND

(E-II) = SILT FENCE

TEMPORARY EROSION CONTROL DETAILS PRIOR TO CONSTRUCTION

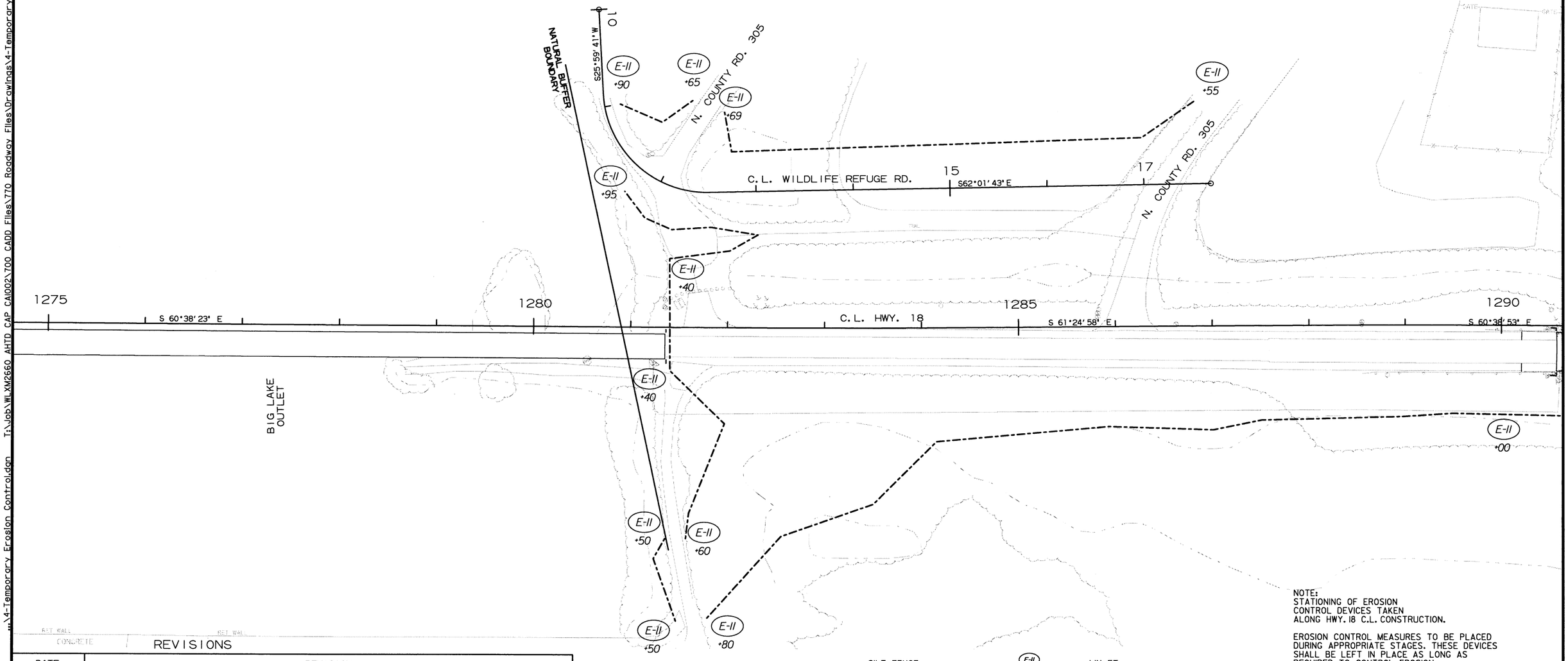
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				6	ARK.			
				JOB NO.		CA1002	29	319

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESEY
9/14/16



NOTE:
STATIONING OF EROSION CONTROL DEVICES TAKEN ALONG HWY. 18 C.L. CONSTRUCTION.

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

SILT FENCE	(E-II)	LIN. FT.
STA. 1280+90	LT. TO RT.	85
STA. 1281+50	LT. TO RT.	100
STA. 1281+60	LT. TO RT.	575
STA. 1281+80 TO 1290+00	RT. SIDE	820
STA. 12+69 TO 17+55	LT. SIDE	486

REVISIONS

DATE	REVISION

LEGEND

(E-II) = SILT FENCE

TEMPORARY EROSION CONTROL DETAILS
PRIOR TO CONSTRUCTION

JACOBS

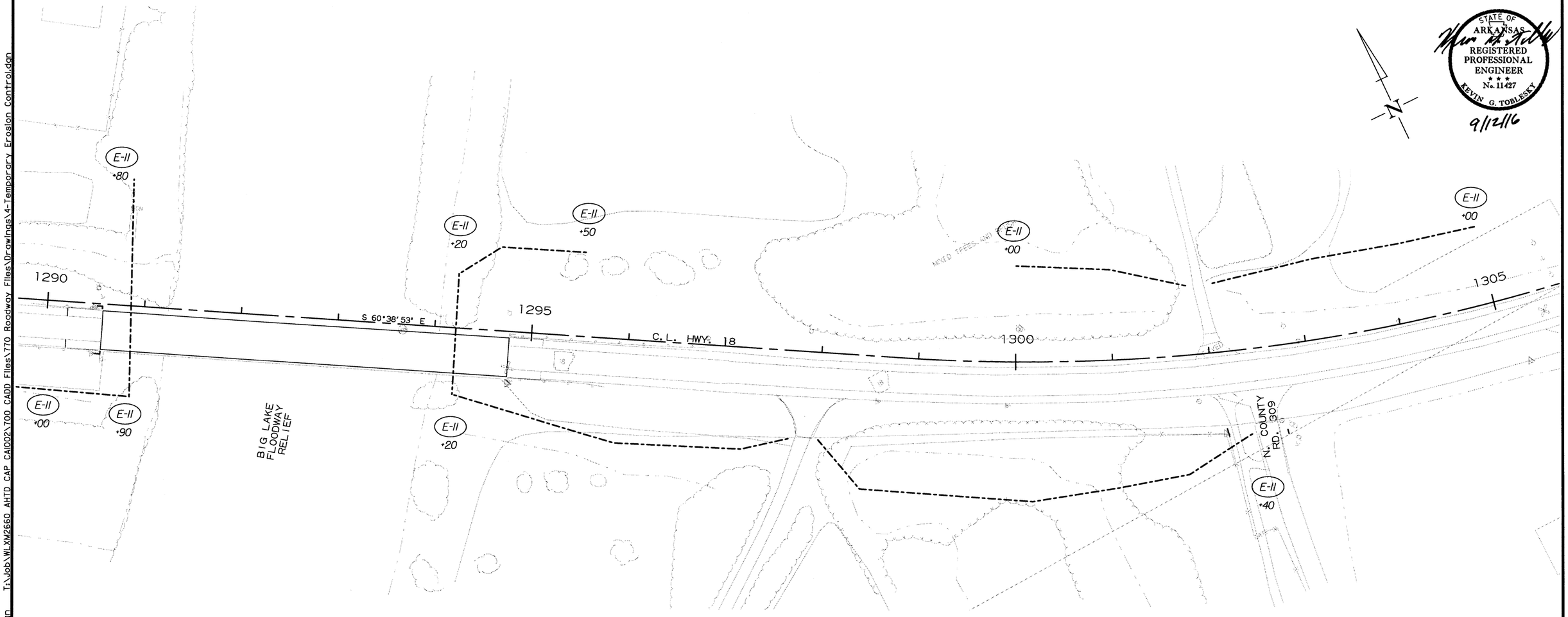
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	30	319

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESEY
9/12/16



SILT FENCE	E-II	LIN. FT.
STA. 1290+00	LT. TO RT.	315
STA. 1294+20	LT. TO RT.	124
STA. 1294+20 TO 1302+40	RT. SIDE	840
STA. 1300+00 TO 1305+00	LT. SIDE	454

NOTE:
STATIONING OF EROSION CONTROL DEVICES TAKEN ALONG HWY. 18 C.L. CONSTRUCTION.

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

REVISIONS

DATE	REVISION

LEGEND

E-II = SILT FENCE

TEMPORARY EROSION CONTROL DETAILS PRIOR TO CONSTRUCTION

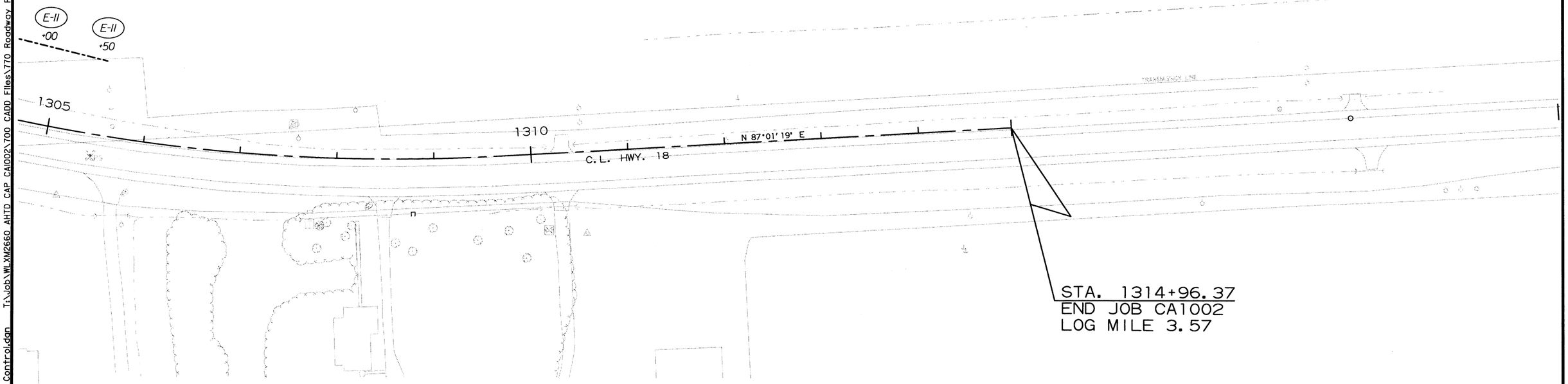
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA1002	31	319

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16



SILT FENCE	(E-II)	LIN. FT.
STA. 1305+00 TO 1305+50	LT. SIDE	50

NOTE:
STATIONING OF EROSION CONTROL DEVICES TAKEN ALONG HWY. 18 C.L. CONSTRUCTION.

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

REVISIONS

DATE	REVISION

LEGEND

(E-II) = SILT FENCE

TEMPORARY EROSION CONTROL DETAILS
PRIOR TO CONSTRUCTION

JACOBS

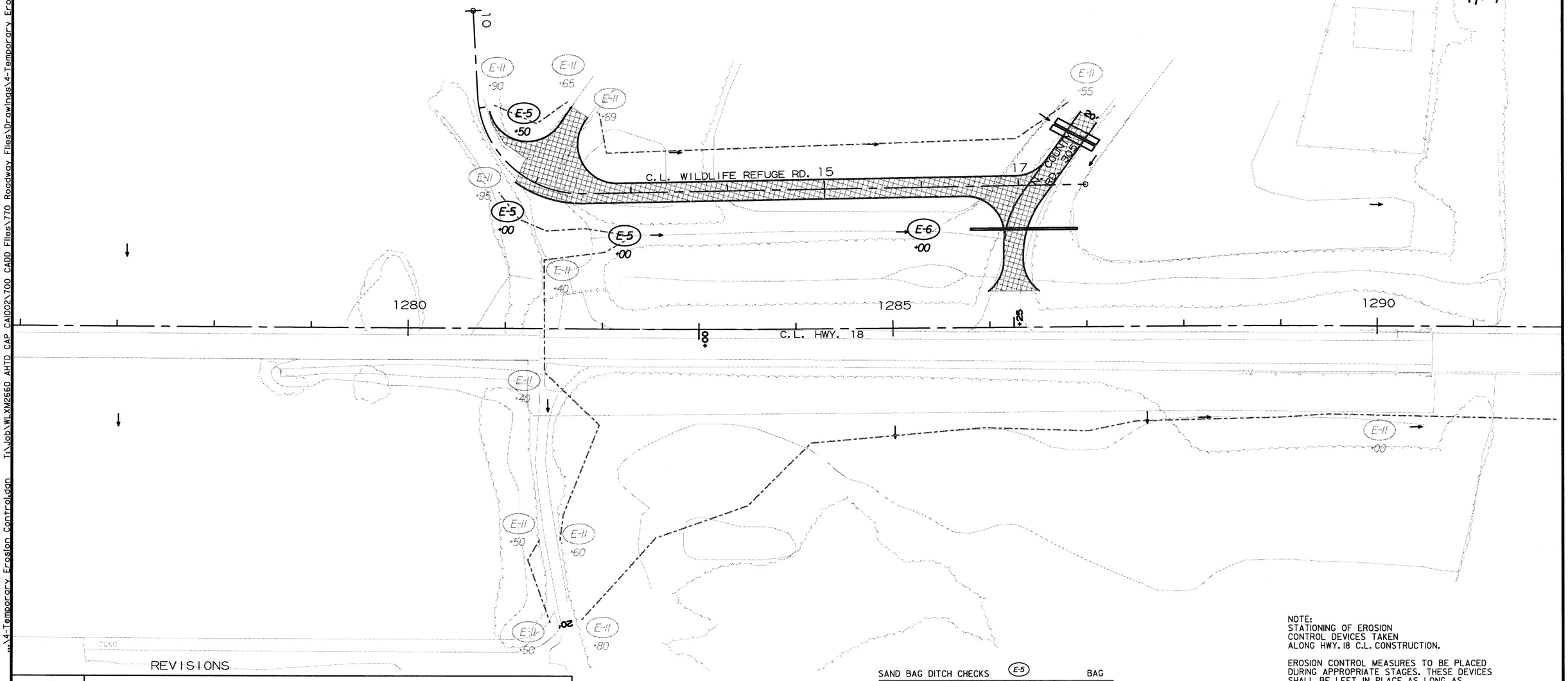
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA1002	32	319

(2) TEMPORARY EROSION CONTROL DETAILS

DENOTES PAVEMENT TO BE CONSTRUCTED

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESEY
9/12/16



NOTE:
STATIONING OF EROSION CONTROL DEVICES TAKEN ALONG HWY. 18 C.L. CONSTRUCTION.

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

REVISIONS

DATE	REVISION

LEGEND

(E-5) = SAND BAG DITCH CHECKS
(E-6) = ROCK DITCH CHECKS
(E-11) = SILT FENCE

SAND BAG DITCH CHECKS (E-5)		BAG
STA. 11+50	LT. SIDE	22
STA. 12+00	RT. SIDE	22
STA. 13+00	RT. SIDE	22

ROCK DITCH CHECKS (E-6)		CU. YD.
STA. 16+00	RT. SIDE	3

TEMPORARY EROSION CONTROL DETAILS STAGE I

JACOBS

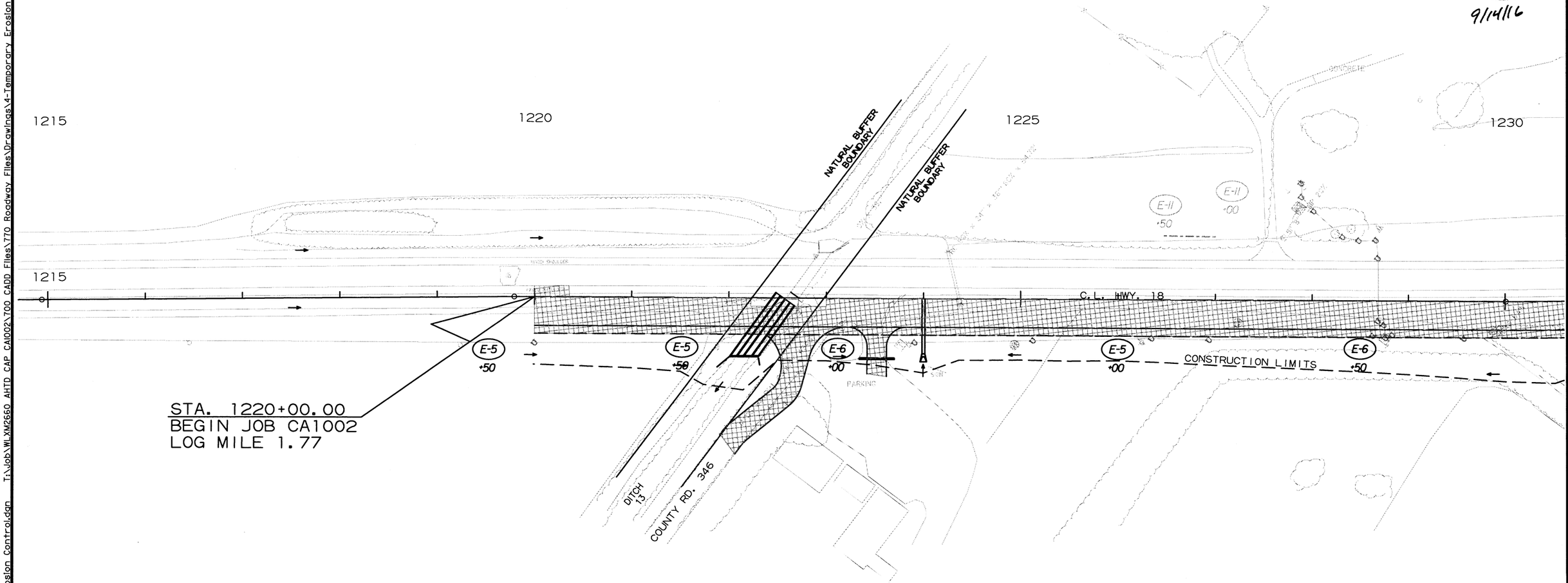
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA1002	33	319

(2) TEMPORARY EROSION CONTROL DETAILS

DENOTES PAVEMENT TO BE CONSTRUCTED

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESEY
9/14/16



REVISIONS

DATE	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE

SAND BAG DITCH CHECKS (E-5)		BAG
STA. 1219+50	RT. SIDE	22
STA. 1221+50	RT. SIDE	22
STA. 1226+00	RT. SIDE	22

ROCK DITCH CHECKS (E-6)		CU. YD.
STA. 1224+00	RT. SIDE	3
STA. 1228+50	RT. SIDE	3

NOTE:
STATIONING OF EROSION CONTROL DEVICES TAKEN ALONG HWY. 18 C.L. CONSTRUCTION.

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

TEMPORARY EROSION CONTROL DETAILS STAGE 2

JACOBS

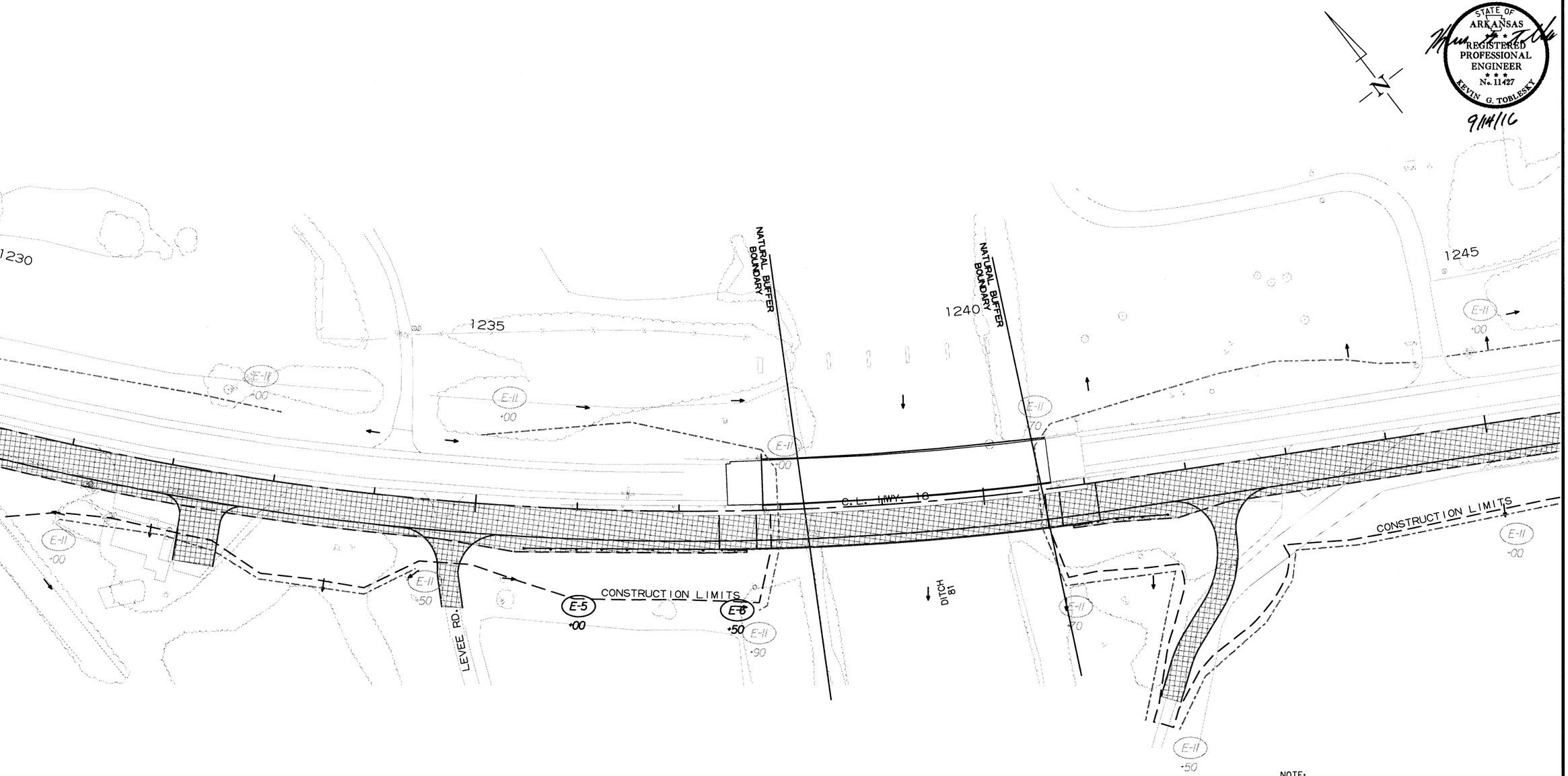
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	34	319

(2) TEMPORARY EROSION CONTROL DETAILS

DENOTES PAVEMENT TO BE CONSTRUCTED



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESEY
9/14/16

NOTE:
STATIONING OF EROSION CONTROL DEVICES TAKEN ALONG HWY. 18 C.L. CONSTRUCTION.

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

REVISIONS

DATE	REVISION

LEGEND

(E-5) = SAND BAG DITCH CHECKS
(E-6) = ROCK DITCH CHECKS
(E-11) = SILT FENCE

SAND BAG DITCH CHECKS	(E-5)	BAG
STA. 1236+00	RT. SIDE	22

ROCK DITCH CHECKS	(E-6)	CU. YD.
STA. 1237+50	RT. SIDE	3

TEMPORARY EROSION CONTROL DETAILS STAGE 2

JACOBS

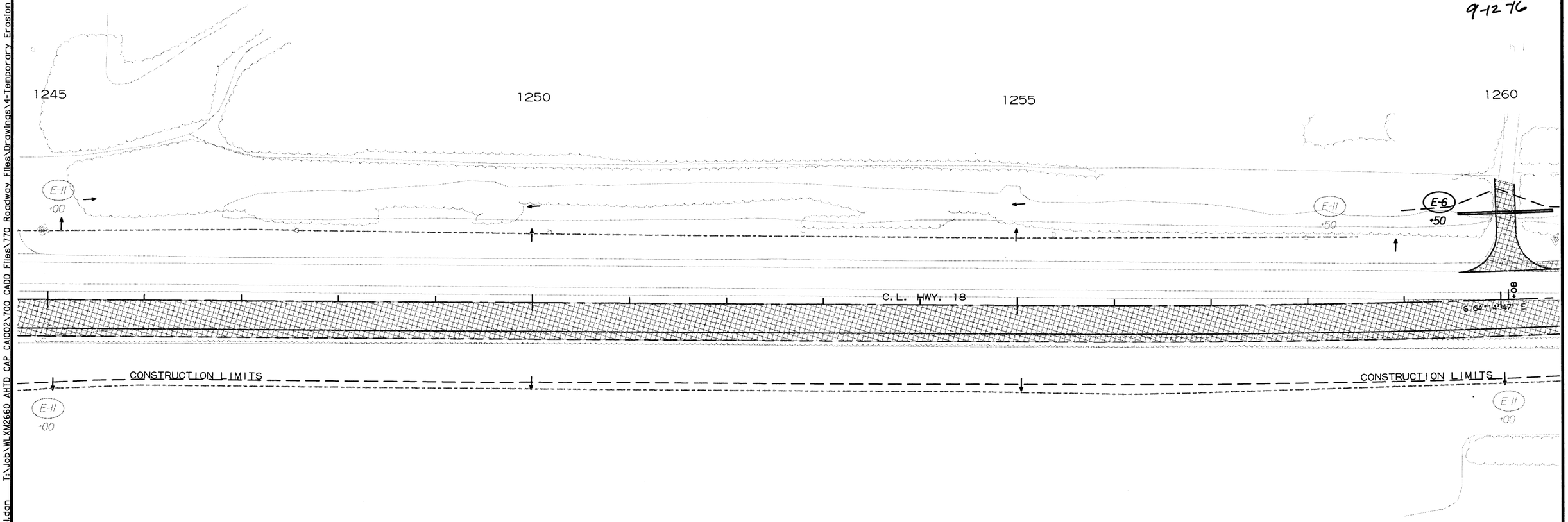
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA1002	35	319

(2) TEMPORARY EROSION CONTROL DETAILS

DENOTES PAVEMENT TO BE CONSTRUCTED

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9-12-16



ROCK DITCH CHECKS	(E-6)	CU. YD.
STA. 1259+50	LT. SIDE	3

NOTE:
STATIONING OF EROSION CONTROL DEVICES TAKEN ALONG HWY. 18 C.L. CONSTRUCTION.

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REVISIONS

DATE	REVISION

LEGEND

(E-5) = SAND BAG DITCH CHECKS
(E-6) = ROCK DITCH CHECKS
(E-11) = SILT FENCE

TEMPORARY EROSION CONTROL DETAILS STAGE 2

JACOBS

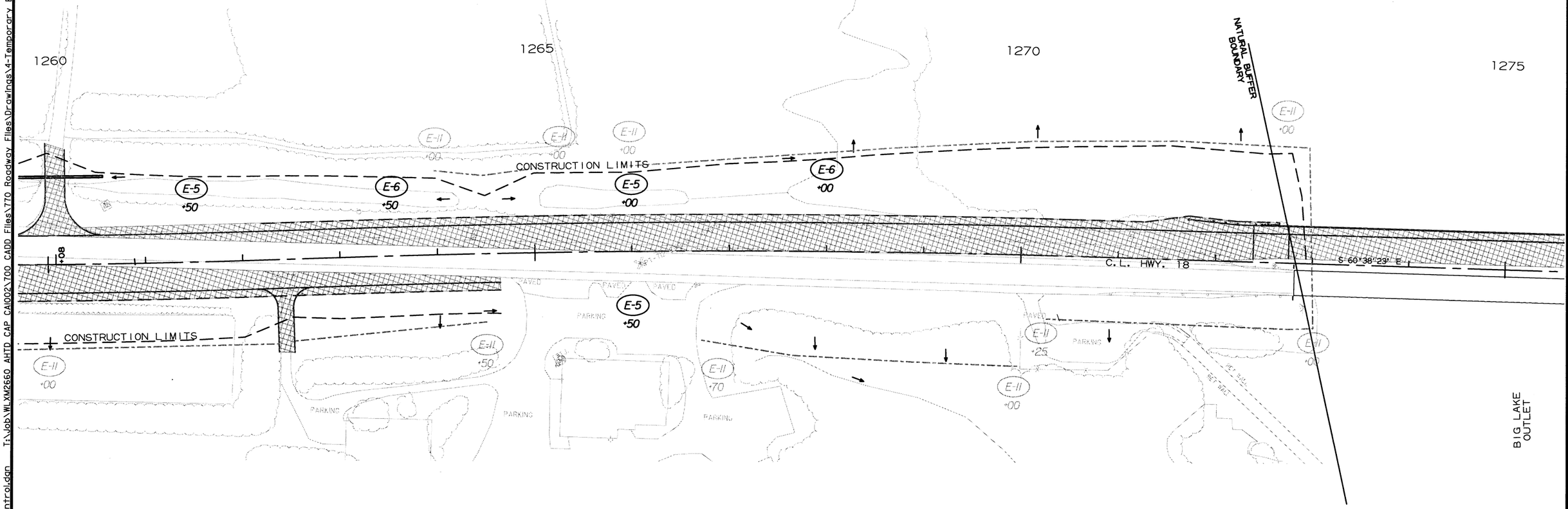
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				6	ARK.			
				JOB NO.		CA1002	36	319

(2) TEMPORARY EROSION CONTROL DETAILS

DENOTES PAVEMENT TO BE CONSTRUCTED

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/14/16



SAND BAG DITCH CHECKS	(E-5)	BAG
STA. 1261+50	LT. SIDE	22
STA. 1266+00	LT. SIDE	22
STA. 1266+00	RT. SIDE	22

ROCK DITCH CHECKS	(E-6)	CU. YD.
STA. 1263+50	LT. SIDE	3
STA. 1268+00	LT. SIDE	3

NOTE:
STATIONING OF EROSION CONTROL DEVICES TAKEN ALONG HWY. 18 C.L. CONSTRUCTION.

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REVISIONS

DATE	REVISION

LEGEND

(E-5) = SAND BAG DITCH CHECKS
(E-6) = ROCK DITCH CHECKS
(E-11) = SILT FENCE

TEMPORARY EROSION CONTROL DETAILS STAGE 2

JACOBS

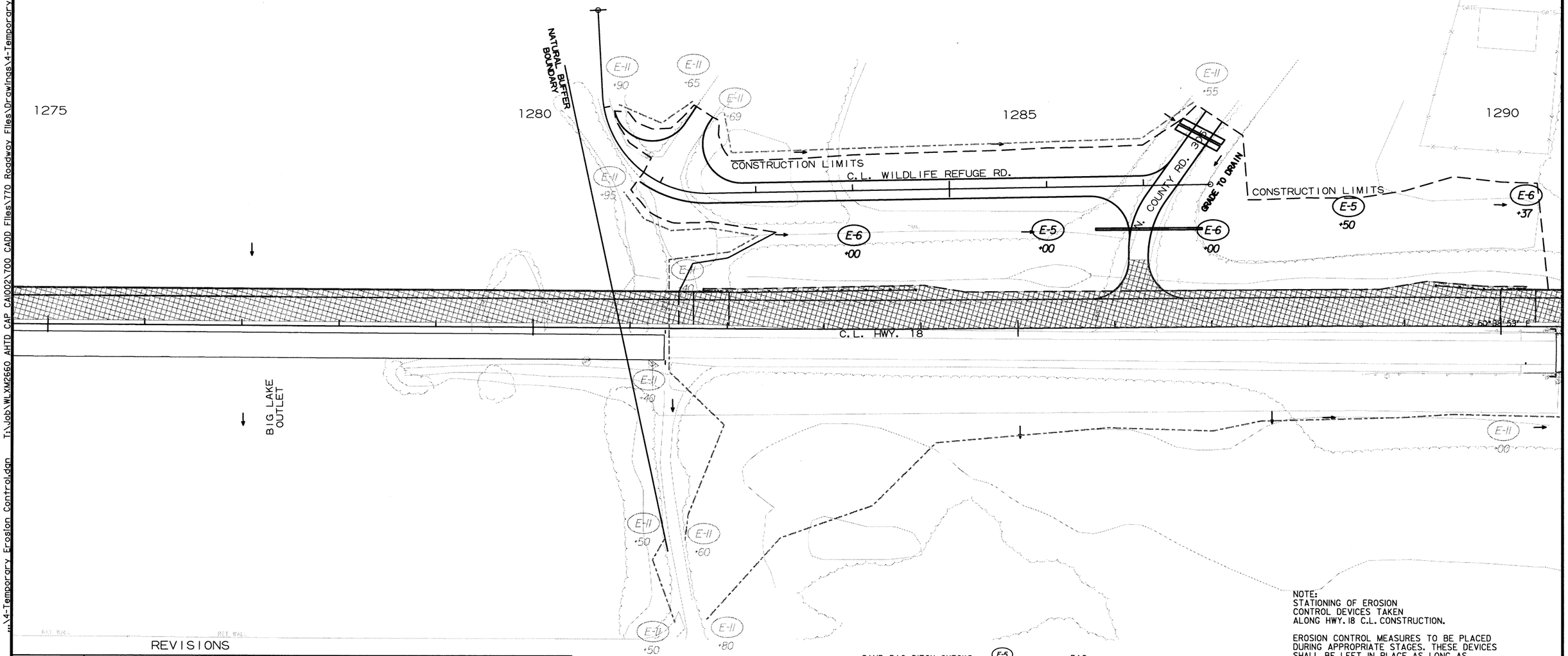
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				6	ARK.			
				JOB NO.		CA1002	37	319

(2) TEMPORARY EROSION CONTROL DETAILS

DENOTES PAVEMENT TO BE CONSTRUCTED

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESEY
9/14/16



NOTE:
STATIONING OF EROSION CONTROL DEVICES TAKEN ALONG HWY. 18 C.L. CONSTRUCTION.

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

REVISIONS

DATE	REVISION

LEGEND

(E-5) = SAND BAG DITCH CHECKS
(E-6) = ROCK DITCH CHECKS
(E-11) = SILT FENCE

SAND BAG DITCH CHECKS	(E-5)	BAG
STA. 1285+00	LT. SIDE	22
STA. 1288+50	LT. SIDE	22

ROCK DITCH CHECKS	(E-6)	CU. YD.
STA. 1283+00	LT. SIDE	3
STA. 1287+00	LT. SIDE	3
STA. 1290+37	LT. SIDE	3

TEMPORARY EROSION CONTROL DETAILS STAGE 2

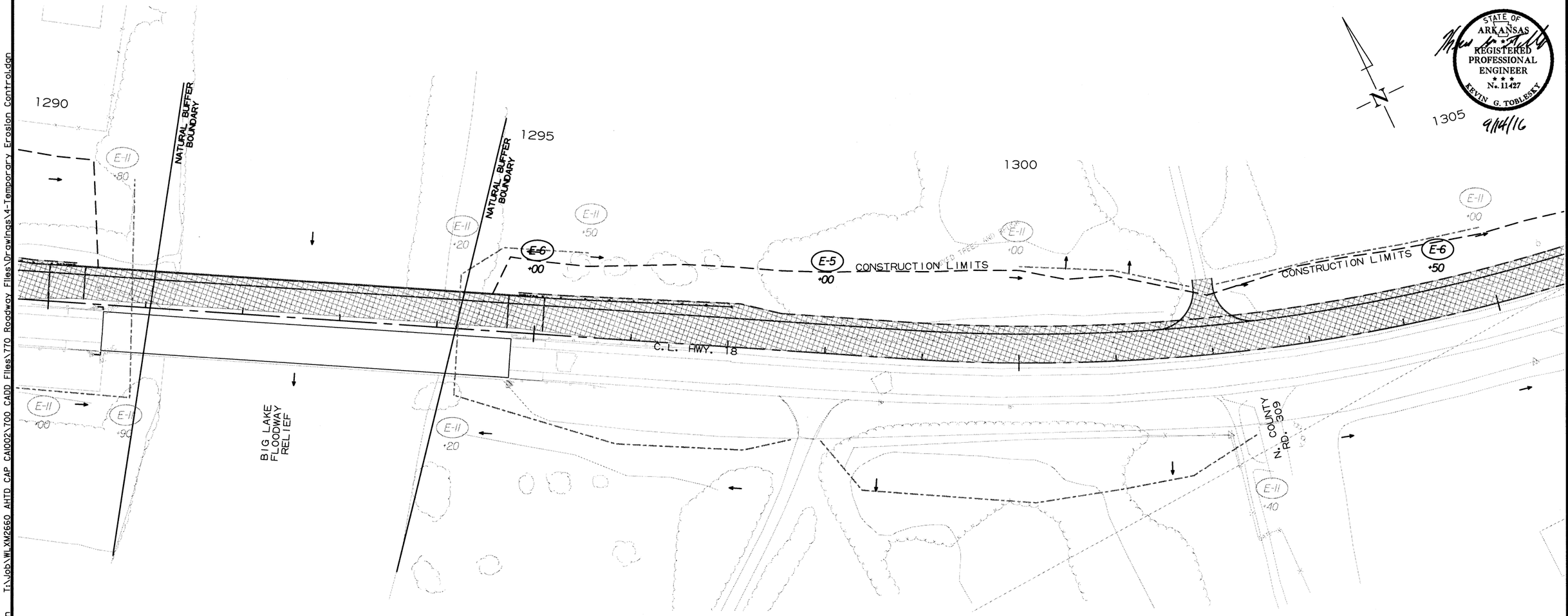
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				6	ARK.			
				JOB NO.		CA1002	38	319

(2) TEMPORARY EROSION CONTROL DETAILS

DENOTES PAVEMENT TO BE CONSTRUCTED



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/14/16

DATE	REVISION

REVISIONS

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE

SAND BAG DITCH CHECKS (E-5)		BAG
STA. 1298+00	LT. SIDE	22

ROCK DITCH CHECKS (E-6)		CU. YD.
STA. 1295+00	LT. SIDE	3
STA. 1304+50	LT. SIDE	3

NOTE:
STATIONING OF EROSION CONTROL DEVICES TAKEN ALONG HWY. 18 C.L. CONSTRUCTION.

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

TEMPORARY EROSION CONTROL DETAILS STAGE 2

JACOBS

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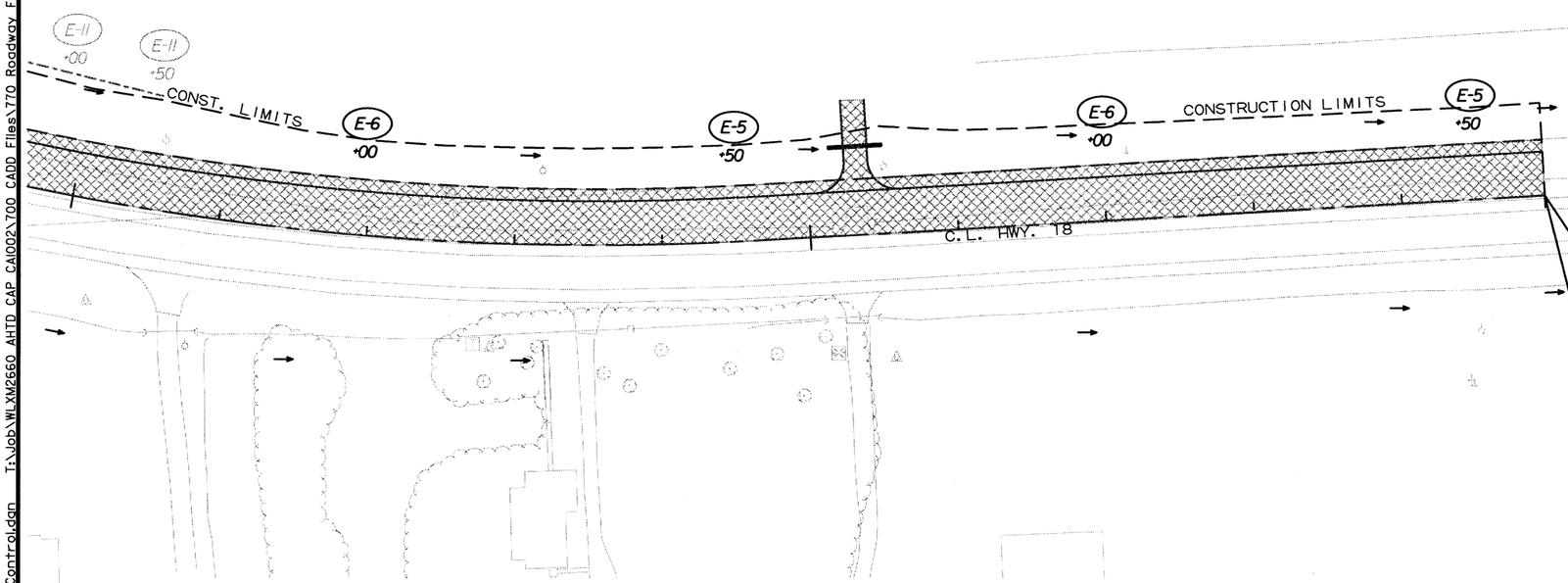
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				6	ARK.			
				JOB NO.		CA1002	39	319
				(2)	TEMPORARY EROSION CONTROL DETAILS			

DENOTES PAVEMENT TO BE CONSTRUCTED

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16

1305

1310



STA. 1314+96.37
END JOB CA1002
LOG MILE 3.57

SAND BAG DITCH CHECKS (E-5)		BAG
STA. 1309+50	LT. SIDE	22
STA. 1314+50	LT. SIDE	22

ROCK DITCH CHECKS (E-6)		CU. YD.
STA. 1307+00	LT. SIDE	3
STA. 1312+00	LT. SIDE	3

NOTE:
STATIONING OF EROSION CONTROL DEVICES TAKEN ALONG HWY. 18 C.L. CONSTRUCTION.

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

REVISIONS

DATE	REVISION

LEGEND

(E-5) = SAND BAG DITCH CHECKS
(E-6) = ROCK DITCH CHECKS
(E-11) = SILT FENCE

TEMPORARY EROSION CONTROL DETAILS
STAGE 2

JACOBS

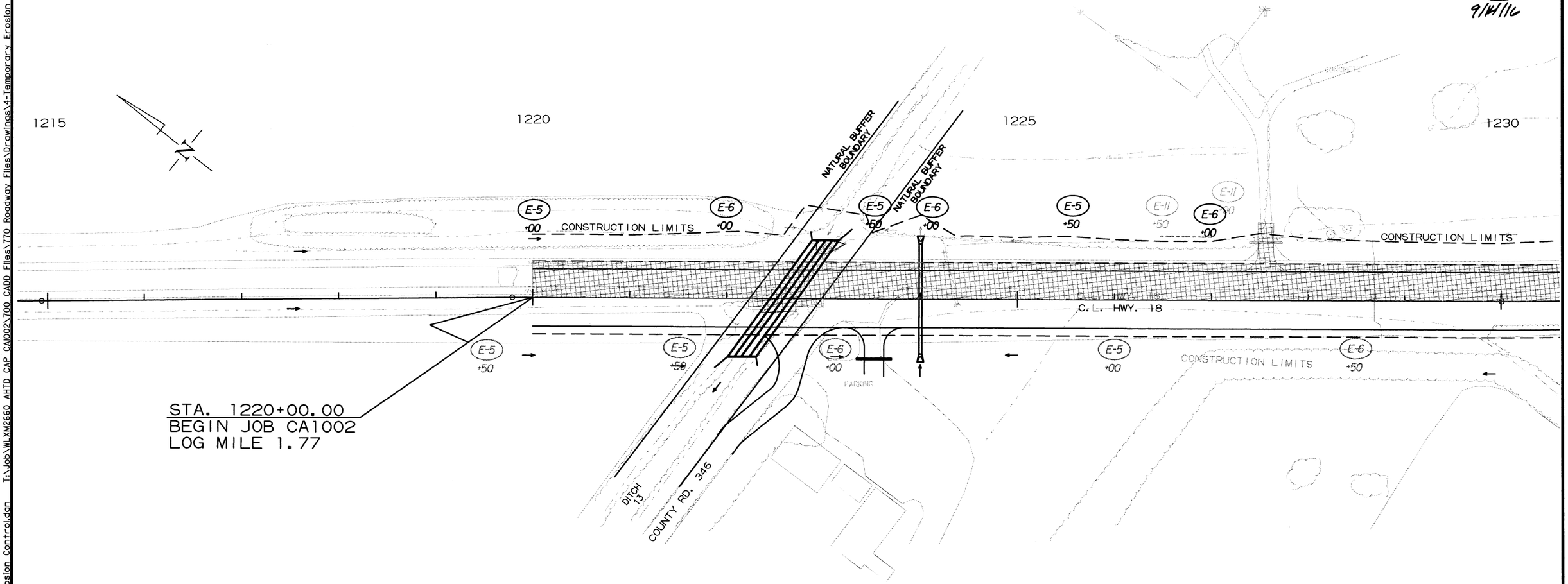
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA1002	40	319

(2) TEMPORARY EROSION CONTROL DETAILS

DENOTES PAVEMENT TO BE CONSTRUCTED

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/14/16



STA. 1220+00.00
BEGIN JOB CA1002
LOG MILE 1.77

SAND BAG DITCH CHECKS (E-5)		BAG
STA. 1220+00	LT. SIDE	22
STA. 1223+50	LT. SIDE	22
STA. 1225+50	LT. SIDE	22

ROCK DITCH CHECKS (E-6)		CU. YD.
STA. 1222+00	LT. SIDE	3
STA. 1224+00	LT. SIDE	3
STA. 1227+00	LT. SIDE	3

NOTE:
STATIONING OF EROSION CONTROL DEVICES TAKEN ALONG HWY. 18 C.L. CONSTRUCTION.

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

REVISIONS

DATE	REVISION

LEGEND

(E-5) = SAND BAG DITCH CHECKS
(E-6) = ROCK DITCH CHECKS
(E-11) = SILT FENCE

TEMPORARY EROSION CONTROL DETAILS STAGE 3

JACOBS

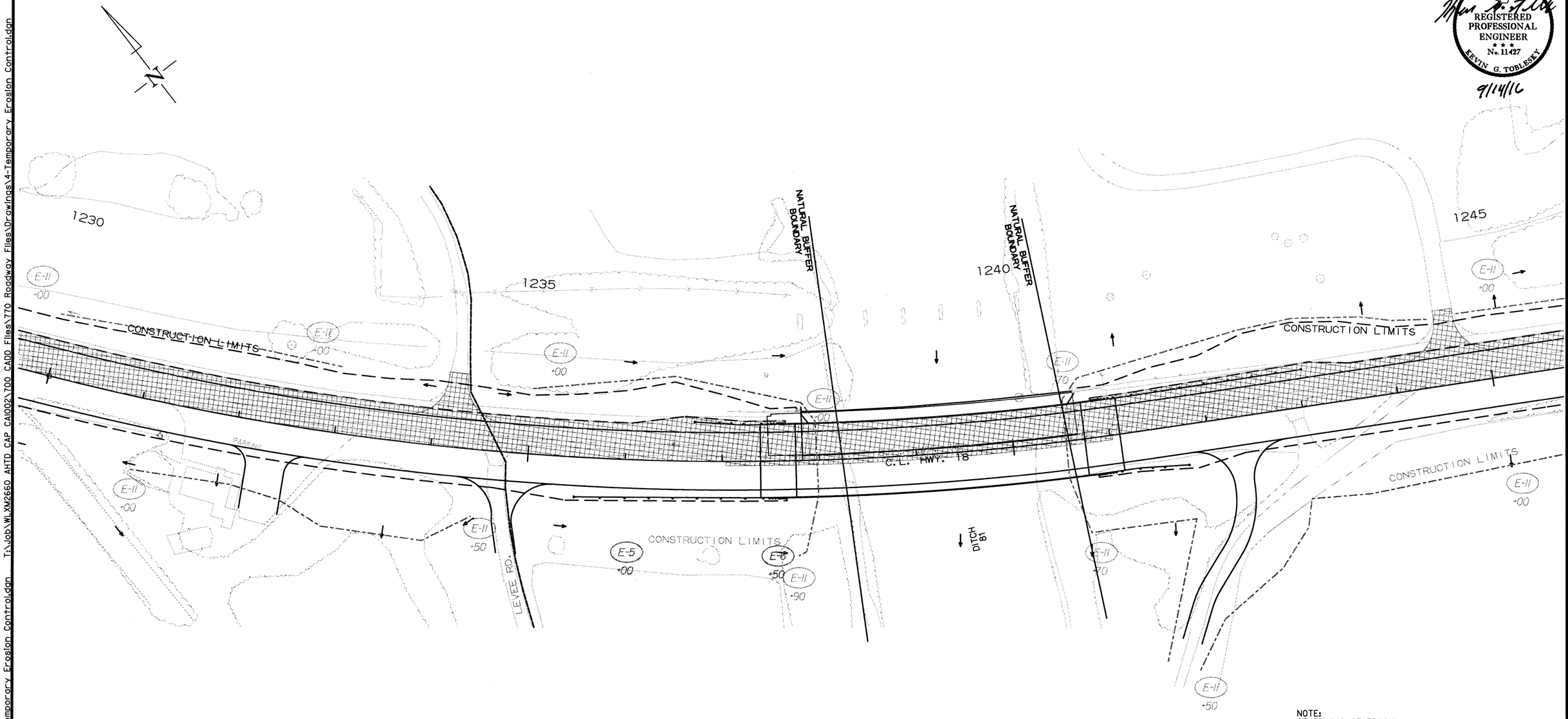
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				6	ARK.			
				JOB NO.		CA1002	41	319

(2) TEMPORARY EROSION CONTROL DETAILS

DENOTES PAVEMENT TO BE CONSTRUCTED

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESEY
9/14/16



NOTE:
STATIONING OF EROSION CONTROL DEVICES TAKEN ALONG HWY. 18 C.L. CONSTRUCTION.

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

REVISIONS

DATE	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE

TEMPORARY EROSION CONTROL DETAILS STAGE 3

JACOBS

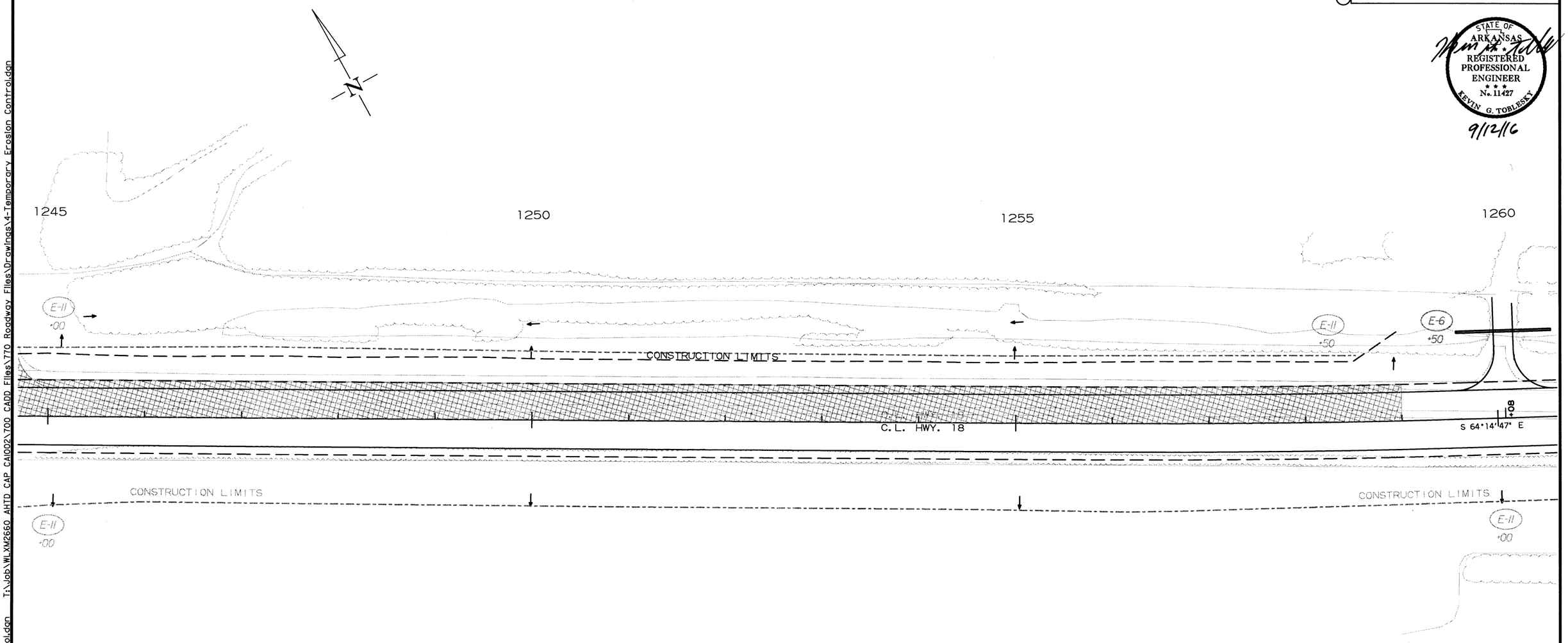
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA1002	42	319

(2) TEMPORARY EROSION CONTROL DETAILS

DENOTES PAVEMENT TO BE CONSTRUCTED

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESEY
9/12/16



NOTE:
STATIONING OF EROSION CONTROL DEVICES TAKEN ALONG HWY. 18 C.L. CONSTRUCTION.

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REVISIONS

DATE	REVISION

LEGEND

(E-5) = SAND BAG DITCH CHECKS
(E-6) = ROCK DITCH CHECKS
(E-11) = SILT FENCE

TEMPORARY EROSION CONTROL DETAILS STAGE 3

JACOBS

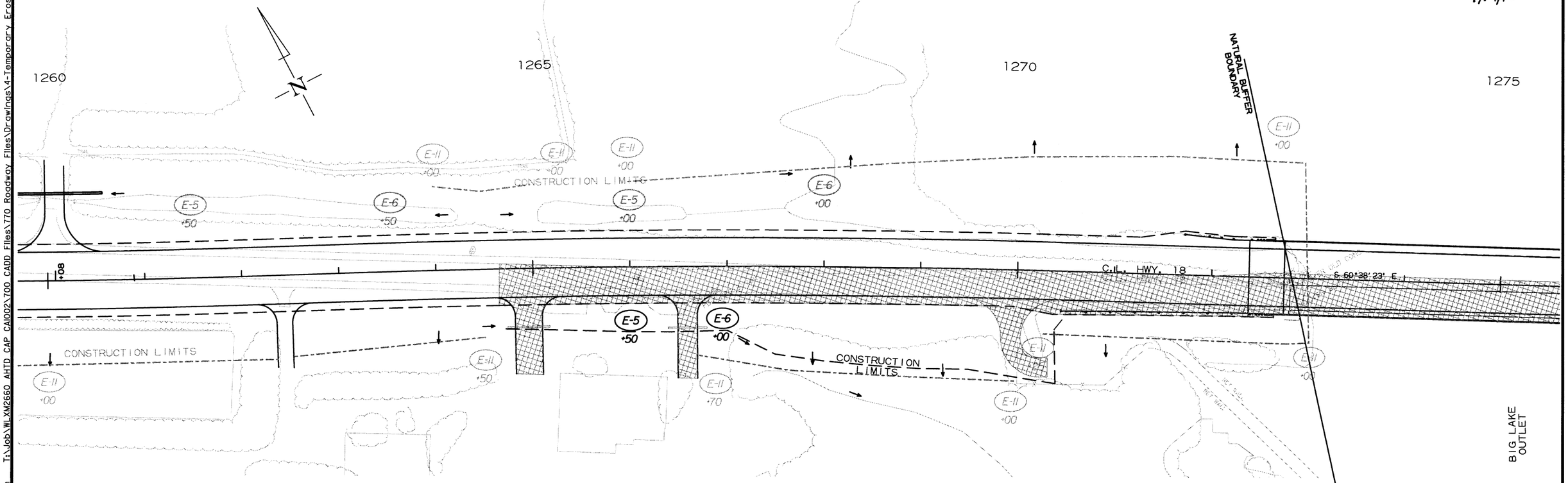
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA1002	43	319

(2) TEMPORARY EROSION CONTROL DETAILS

DENOTES PAVEMENT TO BE CONSTRUCTED

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESBY
9/14/16



ROCK DITCH CHECKS	(E-6)	CU. YD.
STA. 1267+00	RT. SIDE	3

NOTE:
STATIONING OF EROSION CONTROL DEVICES TAKEN ALONG HWY. 18 C.L. CONSTRUCTION.

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

REVISIONS

DATE	REVISION

LEGEND

(E-5) = SAND BAG DITCH CHECKS
(E-6) = ROCK DITCH CHECKS
(E-11) = SILT FENCE

TEMPORARY EROSION CONTROL DETAILS STAGE 3

JACOBS

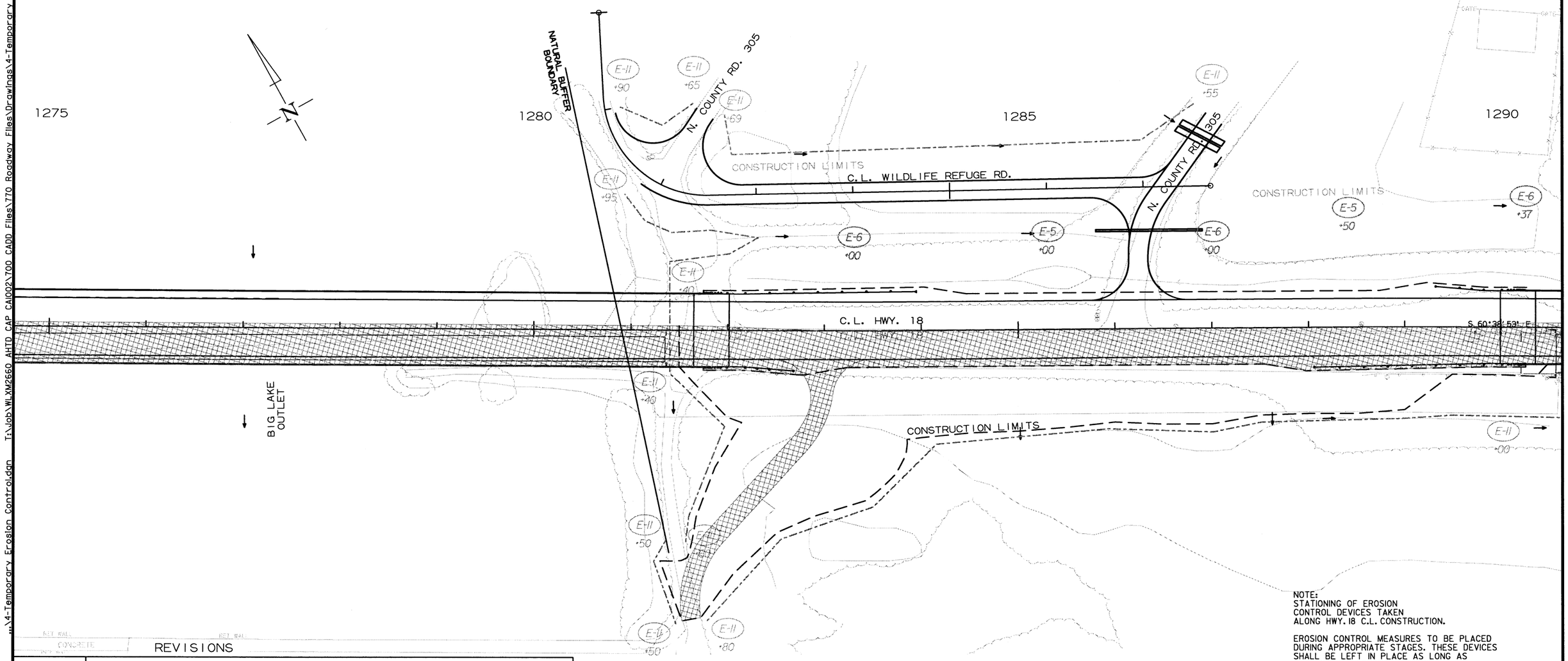
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CAI002	44	319

(2) TEMPORARY EROSION CONTROL DETAILS

DENOTES PAVEMENT TO BE CONSTRUCTED

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESEY
9/14/16



NOTE:
STATIONING OF EROSION CONTROL DEVICES TAKEN ALONG HWY. 18 C.L. CONSTRUCTION.

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

REVISIONS

DATE	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECKS
- (E-6) = ROCK DITCH CHECKS
- (E-11) = SILT FENCE

TEMPORARY EROSION CONTROL DETAILS STAGE 3

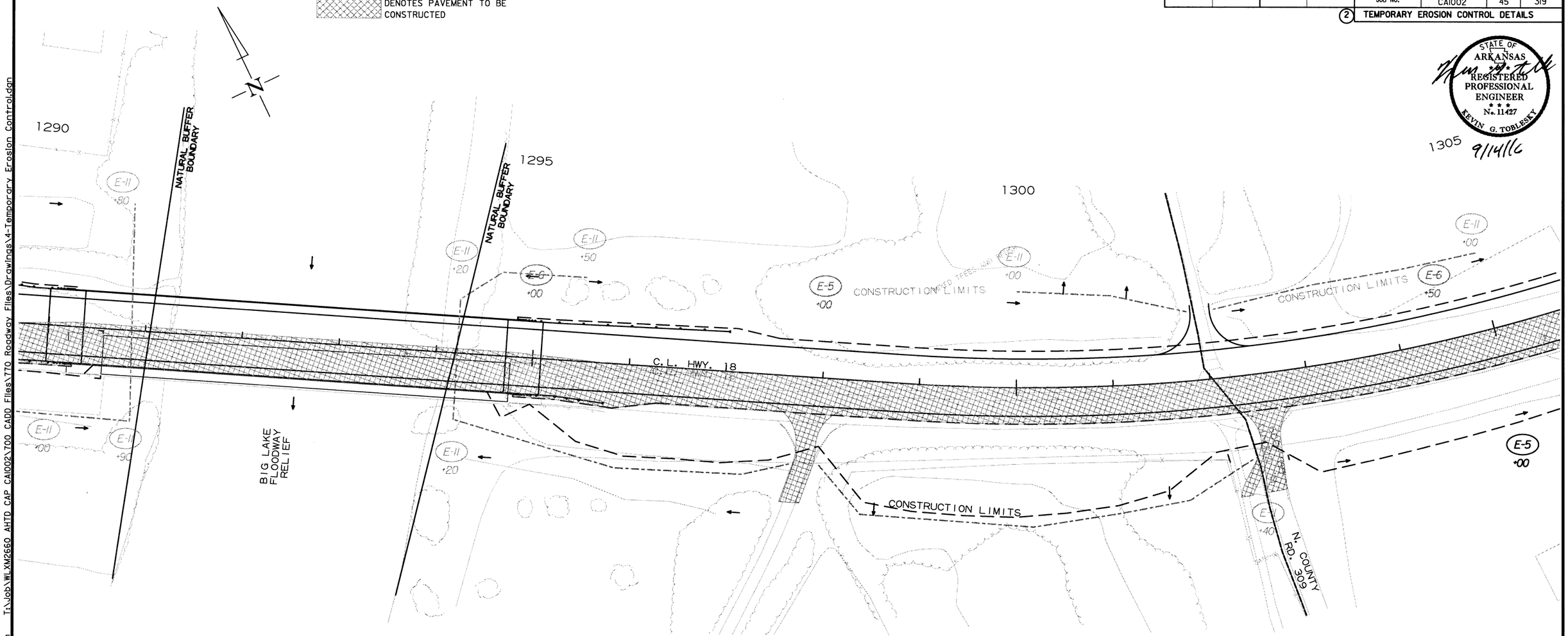
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				6	ARK.			
				JOB NO.		CA1002	45	319

(2) TEMPORARY EROSION CONTROL DETAILS

DENOTES PAVEMENT TO BE CONSTRUCTED



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESEY
9/14/16

SAND BAG DITCH CHECKS (E-5)		BAG
STA. 1305+00	RT. SIDE	22

NOTE:
STATIONING OF EROSION CONTROL DEVICES TAKEN ALONG HWY. 18 C.L. CONSTRUCTION.

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

REVISIONS

DATE	REVISION

LEGEND

(E-5) = SAND BAG DITCH CHECKS
(E-6) = ROCK DITCH CHECKS
(E-11) = SILT FENCE

TEMPORARY EROSION CONTROL DETAILS
STAGE 3

JACOBS

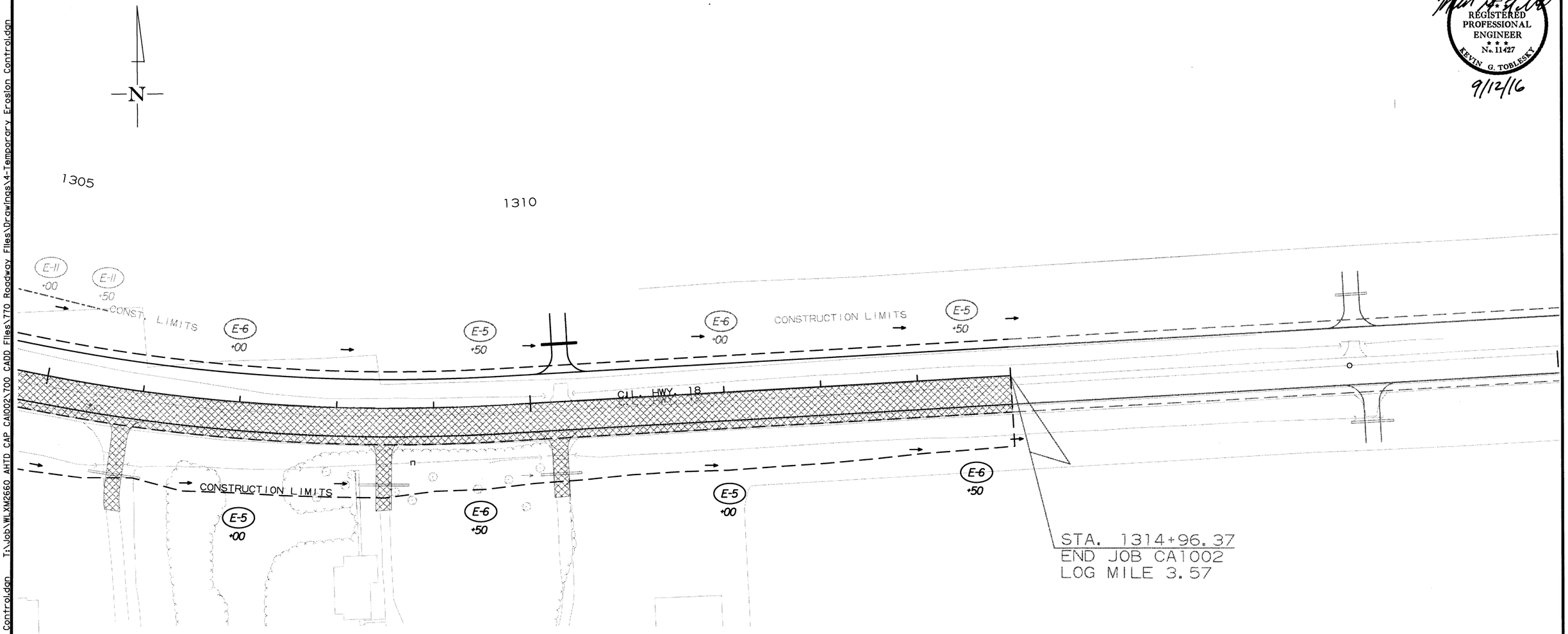
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA1002	46	319

(2) TEMPORARY EROSION CONTROL DETAILS

DENOTES PAVEMENT TO BE CONSTRUCTED

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16



SAND BAG DITCH CHECKS (E-5)		BAG
STA. 1307+00	RT. SIDE	22
STA. 1312+00	RT. SIDE	22

ROCK DITCH CHECKS (E-6)		CU. YD.
STA. 1309+50	RT. SIDE	3
STA. 1314+50	RT. SIDE	3

NOTE:
STATIONING OF EROSION CONTROL DEVICES TAKEN ALONG HWY. 18 C.L. CONSTRUCTION.

EROSION CONTROL MEASURES TO BE PLACED DURING APPROPRIATE STAGES. THESE DEVICES SHALL BE LEFT IN PLACE AS LONG AS REQUIRED TO CONTROL EROSION.

REVISIONS

DATE	REVISION

LEGEND

(E-5) = SAND BAG DITCH CHECKS
(E-6) = ROCK DITCH CHECKS
(E-11) = SILT FENCE

TEMPORARY EROSION CONTROL DETAILS
STAGE 3

JACOBS

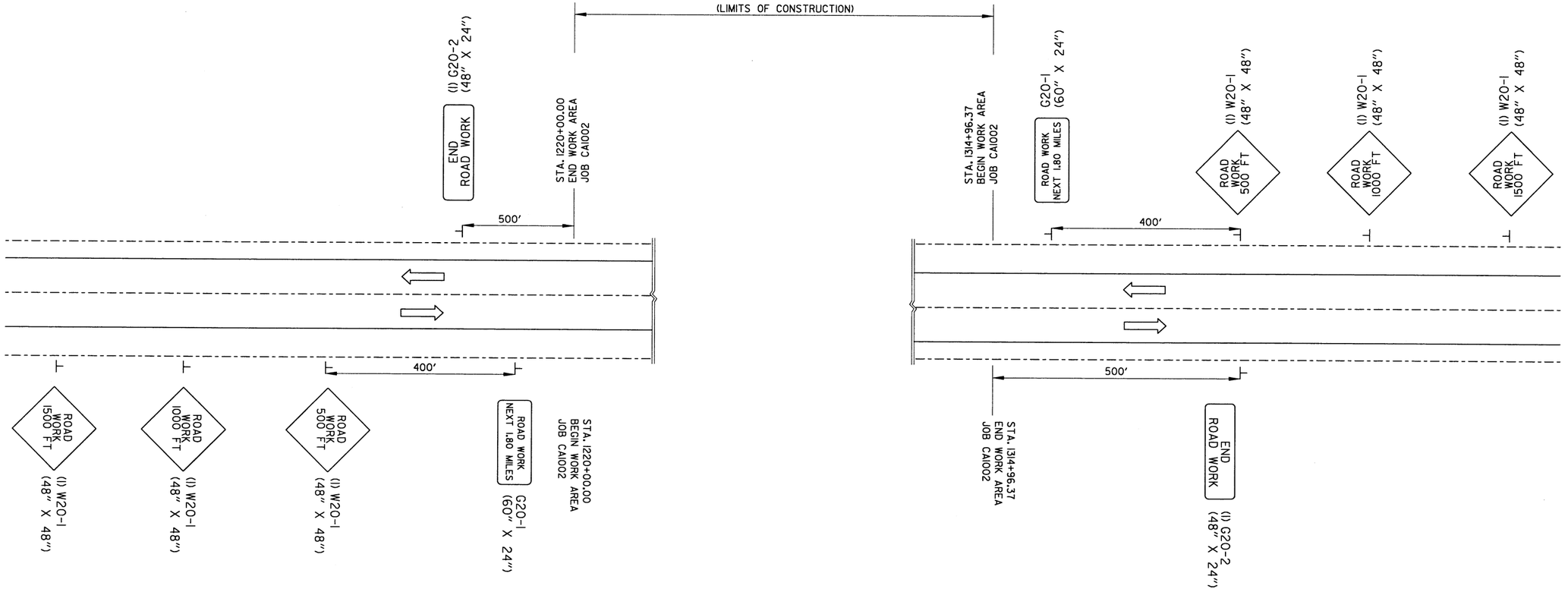
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA1002	47	319
				(2)	M.O.T. ADVANCE WARNING SIGNS			

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16

NOTE: THESE SIGNS
MAY BE TEMPORARILY REPLACED BY
SOME OF THE ADVANCE SIGNS FOR LANE CLOSURES
WHILE WORK IS UNDERWAY IN THESE AREAS.



NOTE: THESE SIGNS
MAY BE TEMPORARILY REPLACED BY
SOME OF THE ADVANCE SIGNS FOR LANE CLOSURES
WHILE WORK IS UNDERWAY IN THESE AREAS.

ADVANCE SIGNS AT BEGINNING AND END OF JOB CA1002
ALL STAGES

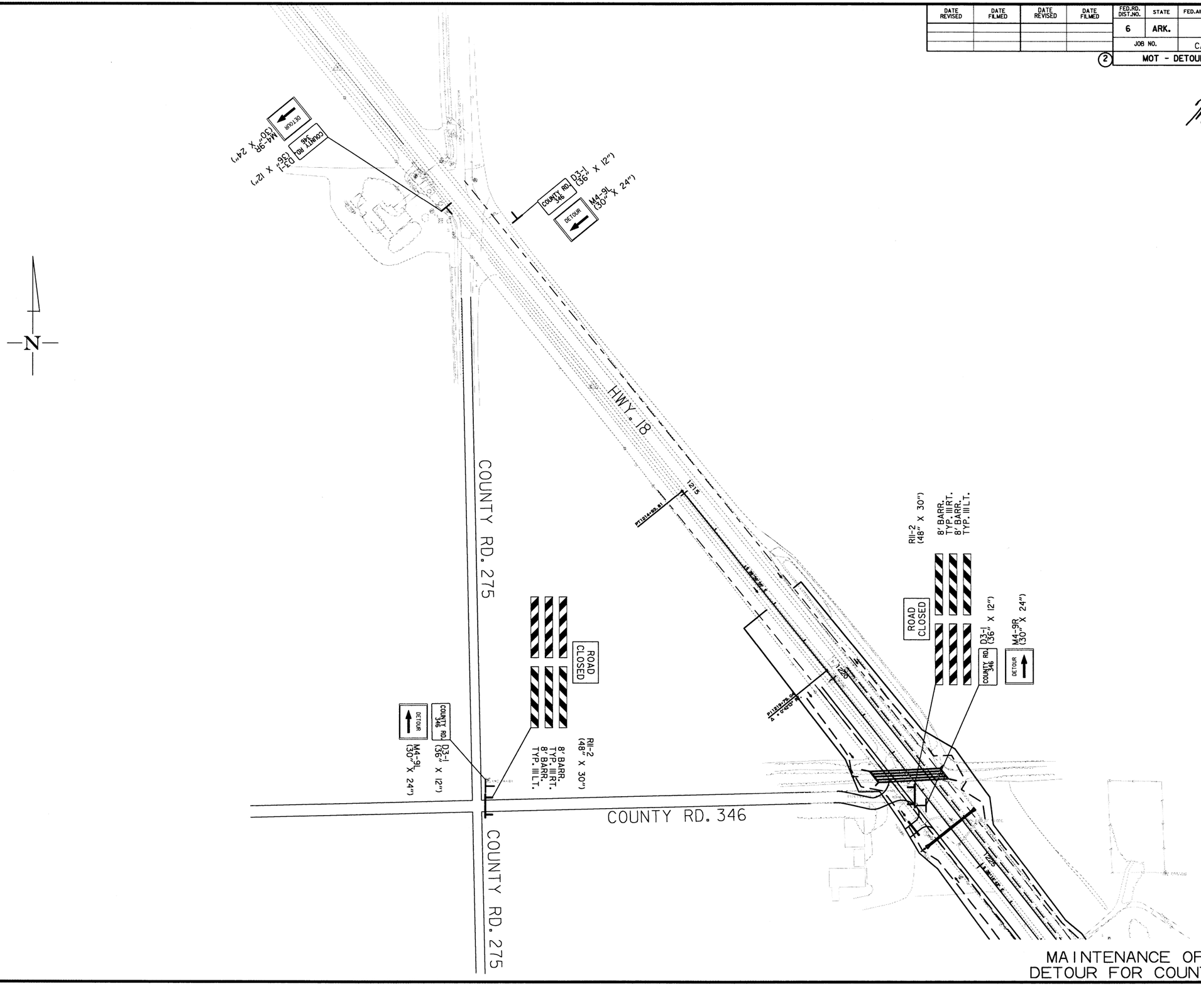
MAINTENANCE OF TRAFFIC
ADVANCE WARNING SIGNS

JACOBS

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				6	ARK.			
				JOB NO.		CA1002	48	319

(2) MOT - DETOUR FOR COUNTY RD. 346

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESEY
9/12/16



MAINTENANCE OF TRAFFIC
DETOUR FOR COUNTY RD. 346

JACOBS

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...\5-Maintenance of Traffic - Advance Warning Signs\700 CADD Files\770 Roadway Files\Drawings\5-Maintenance of Traffic - Advance Warning Signs.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.		CA1002	49	319

(2) MOT STAGE 1A-STA. 11+80 TO STA. 17+11.81

NOTE:
ALL ADVANCE WARNING SIGNS SHALL BE LEFT IN PLACE UNTIL THE PROJECT HAS BEEN COMPLETED.

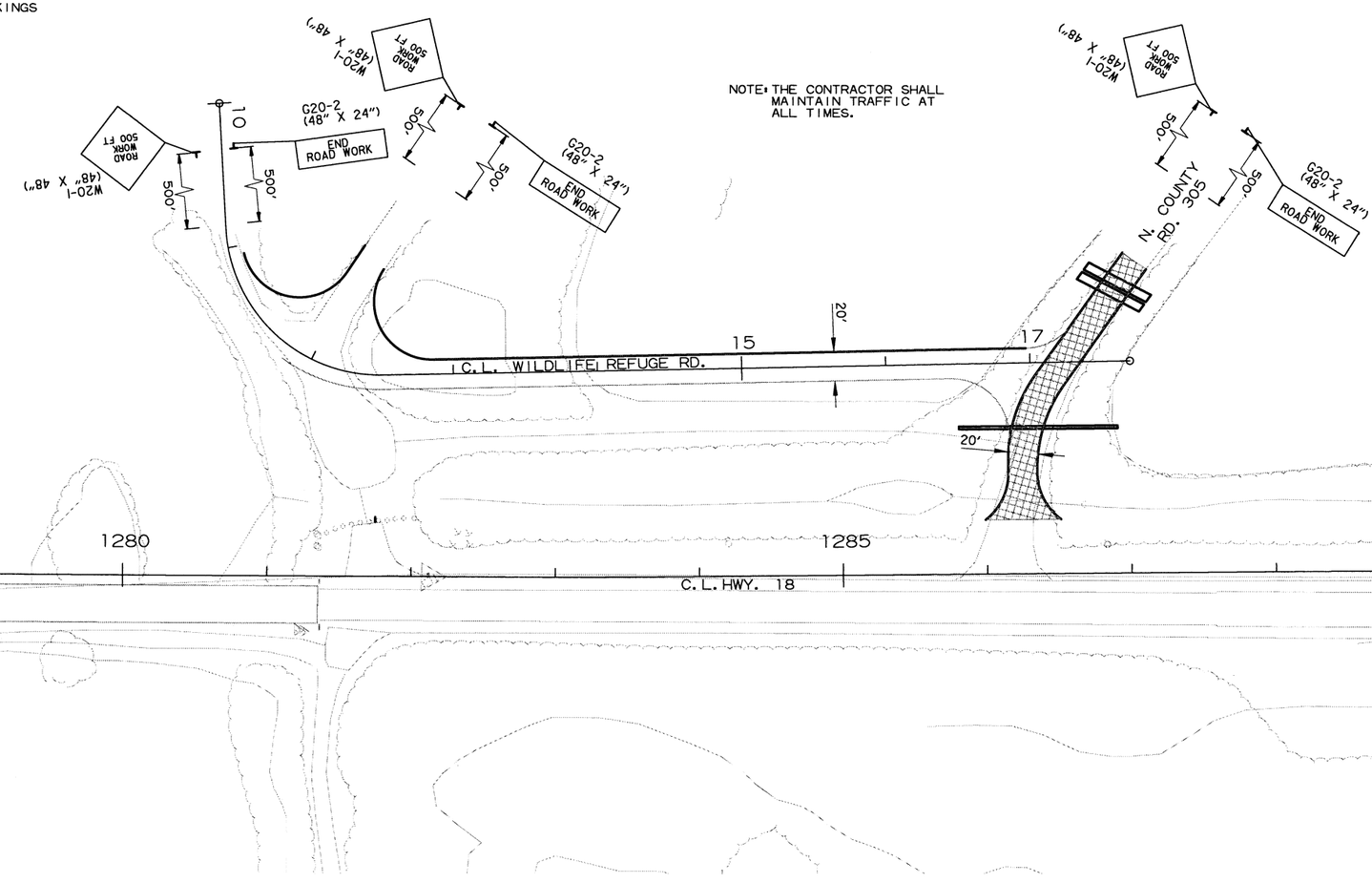
DENOTES PAVEMENT TO BE CONSTRUCTED

SEQUENCE OF CONSTRUCTION FOR HWY. 18 NOTCH AND WIDEN

STAGE 1A
CONSTRUCT N. COUNTY RD. 305
STAGE 1B
CONSTRUCT WILDLIFE REFUGE RD.
STAGE 2
MAINTAIN EB & WB TRAFFIC ON EXISTING HWY. 18
CONSTRUCT PORTIONS OF HWY. 18 ROADWAY AND BRIDGES
STAGE 3
ROUTE EB & WB TRAFFIC TO NEWLY CONSTRUCTED PAVEMENT
CONSTRUCT REMAINING PORTIONS OF HWY. 18 ROADWAY AND BRIDGES
STAGE 4
PLACEMENT OF FINAL LAYER OF SURFACE
PLACEMENT OF PERMANENT PAVEMENT MARKINGS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESEY
9/12/16

NOTE: THE CONTRACTOR SHALL MAINTAIN TRAFFIC AT ALL TIMES.



MAINTENANCE OF TRAFFIC
HWY. 18 STAGE 1A

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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.		CA1002	50	319
				(2)	MOT STAGE IB-STA. 11+80 TO STA. 17+11.81			

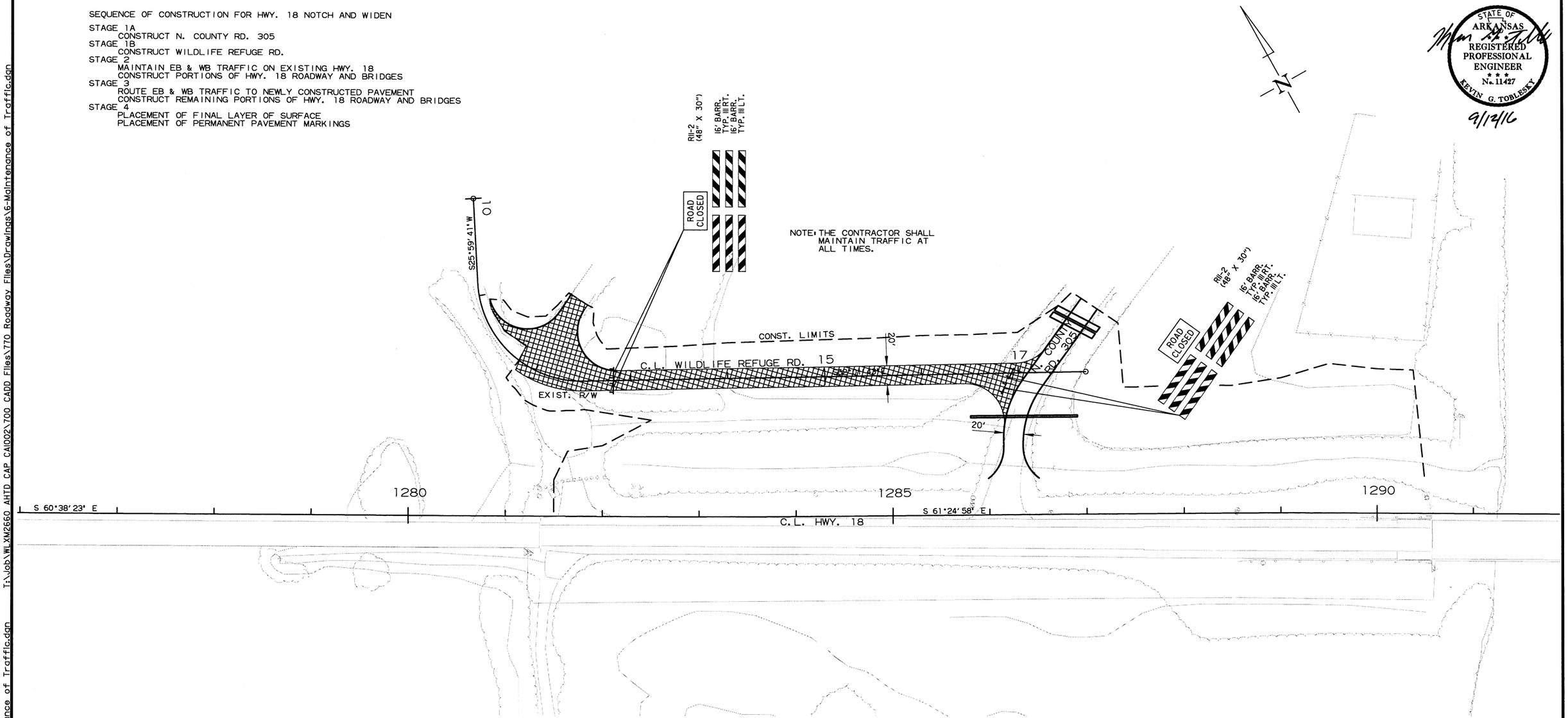
NOTE:
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DENOTES PAVEMENT TO BE CONSTRUCTED

SEQUENCE OF CONSTRUCTION FOR HWY. 18 NOTCH AND WIDEN

STAGE 1A
CONSTRUCT N. COUNTY RD. 305
STAGE 1B
CONSTRUCT WILDLIFE REFUGE RD.
STAGE 2
MAINTAIN EB & WB TRAFFIC ON EXISTING HWY. 18
CONSTRUCT PORTIONS OF HWY. 18 ROADWAY AND BRIDGES
STAGE 3
ROUTE EB & WB TRAFFIC TO NEWLY CONSTRUCTED PAVEMENT
CONSTRUCT REMAINING PORTIONS OF HWY. 18 ROADWAY AND BRIDGES
STAGE 4
PLACEMENT OF FINAL LAYER OF SURFACE
PLACEMENT OF PERMANENT PAVEMENT MARKINGS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16



MAINTENANCE OF TRAFFIC
HWY. 18 STAGE 1B

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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.		CA1002	51	319
				(2)	MOT STAGE 2-STA. 1215+00 TO STA. 1230+00			

DENOTES PAVEMENT TO BE CONSTRUCTED

STAGE 2
STA. 1220+75 TO STA. 1223+15
FURNISHING AND INSTALL PRECAST CONCRETE BARRIER = 240 LIN. FT.
TEMPORARY IMPACT ATTENUATION BARRIER = 2 EACH

NOTE:
ALL ADVANCE WARNING SIGNS SHALL BE LEFT IN PLACE UNTIL THE PROJECT HAS BEEN COMPLETED.

SEQUENCE OF CONSTRUCTION FOR HWY. 18 NOTCH AND WIDEN

STAGE 1A
CONSTRUCT N. COUNTY RD. 305
STAGE 1B
CONSTRUCT WILDLIFE REFUGE RD.
STAGE 2
MAINTAIN EB & WB TRAFFIC ON EXISTING HWY. 18
CONSTRUCT PORTIONS OF HWY. 18 ROADWAY AND BRIDGES
STAGE 3
ROUTE EB & WB TRAFFIC TO NEWLY CONSTRUCTED PAVEMENT
CONSTRUCT REMAINING PORTIONS OF HWY. 18 ROADWAY AND BRIDGES
STAGE 4
PLACEMENT OF FINAL LAYER OF SURFACE
PLACEMENT OF PERMANENT PAVEMENT MARKINGS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESSY
9/12/16

VERTICAL PANELS
STA. 1218+00 TO STA. 1230+00
14 @ 90' O.C.

1215 1220 1225 1230

TEMPORARY IMPACT ATTENUATION BARRIER

STA. 1220+75 TO STA. 1223+15
FURNISH AND INSTALL
P.C.C.B.

TEMPORARY IMPACT ATTENUATION BARRIER

C.L. HWY. 18

REFER TO ADVANCE WARNING SIGN DETAIL

STA. 1220+00.00
BEGIN JOB CA1002
LOG MILE 1.77

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

END ROAD WORK
C20-2 (48" X 24")

COUNTY RD. 346

ROAD WORK 500 FT
W20-1 (48" X 48")

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

CONST. LIMITS

STAGE 2 TRAFFIC
EXIST. 8'-0" SHLDR
11'-0" EXISTING LANE
11'-0" EXISTING LANE
EXIST. 8'-0" SHLDR
VAR. WIDTH
C.L. HWY. 18
STAGE 2 CONSTRUCTION
3:1
6:1
PROPOSED
VERTICAL PANEL
TEMP. 3:1 SLOPE
EXISTING GROUND

SECTION A-A

PRECAST CONCRETE BARRIER WALL
BOX CULV'T.

CONSTRUCTION AT BOX CULVERT

MAINTENANCE OF TRAFFIC HWY. 18 STAGE 2

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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.		CA1002	52	319

(2) MOT-STA. 1230+00 TO STA. 1245+00

DENOTES PAVEMENT TO BE CONSTRUCTED

STAGE 2
STA. 1234+83 TO STA. 1242+80
FURNISHING AND INSTALL PRECAST CONCRETE BARRIER = 493 LIN. FT.
TEMPORARY IMPACT ATTENUATION BARRIER = 1 EACH

SEQUENCE OF CONSTRUCTION FOR HWY. 18 NOTCH AND WIDEN

STAGE 1A
CONSTRUCT N. COUNTY RD. 305
STAGE 1B
CONSTRUCT WILDLIFE REFUGE RD.
STAGE 2
MAINTAIN EB & WB TRAFFIC ON EXISTING HWY. 18
*CONSTRUCT PORTIONS OF HWY. 18 ROADWAY AND BRIDGES
STAGE 3
ROUTE EB & WB TRAFFIC TO NEWLY CONSTRUCTED PAVEMENT
CONSTRUCT REMAINING PORTIONS OF HWY. 18 ROADWAY AND BRIDGES
STAGE 4
PLACEMENT OF FINAL LAYER OF SURFACE
PLACEMENT OF PERMANENT PAVEMENT MARKINGS

*NOTE:
REFER TO SPECIAL DETAILS, BRIDGE DRAWINGS, AND SPECIAL PROVISIONS "GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT CONSTRUCTION" & "TIMBER PILING FOR SOIL DENSIFICATION" FOR LOCATIONS, LIMITS, SPACING, DEPTH, SEQUENCE OF CONSTRUCTION, AND ANY ADDITIONAL INFORMATION FOR THE CONSTRUCTION OF THE BRIDGE APPROACHES.

NOTE:
ALL ADVANCE WARNING SIGNS SHALL BE LEFT IN PLACE UNTIL THE PROJECT HAS BEEN COMPLETED.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16

VERTICAL PANELS
STA. 1230+00 TO STA. 1245+00
13 @ 90' O.C.

1230 1235 1240 1245

G20-2 (48" X 24") END ROAD WORK
W20-1 (48" X 48") ROAD WORK 500 FT
500'

STA. 1235+03 TO STA. 1237+83
FURNISH AND INSTALL
P.C.C.B.

STA. 1240+67 TO STA. 1242+80
FURNISH AND INSTALL
P.C.C.B.

TEMPORARY IMPACT ATTENUATION BARRIER

S.E.U.

C.L. HWY. 18

CONST. LIMITS

TRAFFIC DRUMS
8 @ 20' O.C.

TRAFFIC DRUMS
10 @ 20' O.C.

TRAFFIC DRUMS
11 @ 20' O.C.

LEVEE RD.

43'

BRIDGE CONSTRUCTION
32'-0" OF DECK WITH
P.C.C.B. WALL

STAGE 2 TRAFFIC
EXIST. 7'-6" SHLDR
11'-0" EXISTING LANE
11'-0" EXISTING LANE
EXIST. 6'-0" SHLDR
5'-0"
VAR WIDTH
C.L. HWY. 18
STAGE 2 CONSTRUCTION
6:1
3:1
VERTICAL PANEL
TEMP. 3:1 SLOPE
EXIST. G.R.
PROPOSED
EXISTING GROUND

SECTION A-A

MAINTENANCE OF TRAFFIC
HWY. 18 STAGE 2

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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	53	319

(2) MOT-STA. 1245+00 TO STA. 1260+00

DENOTES PAVEMENT TO BE CONSTRUCTED

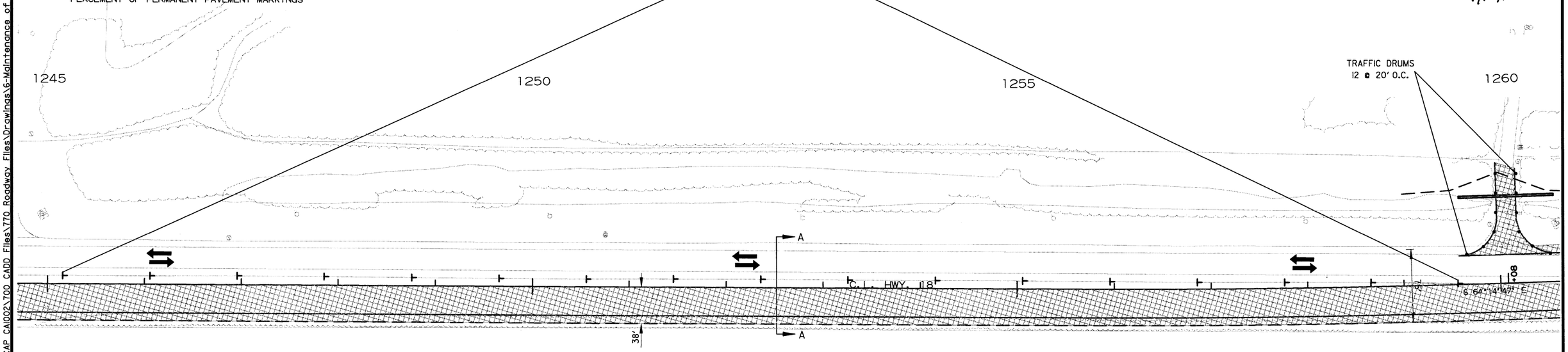
SEQUENCE OF CONSTRUCTION FOR HWY. 18 NOTCH AND WIDEN

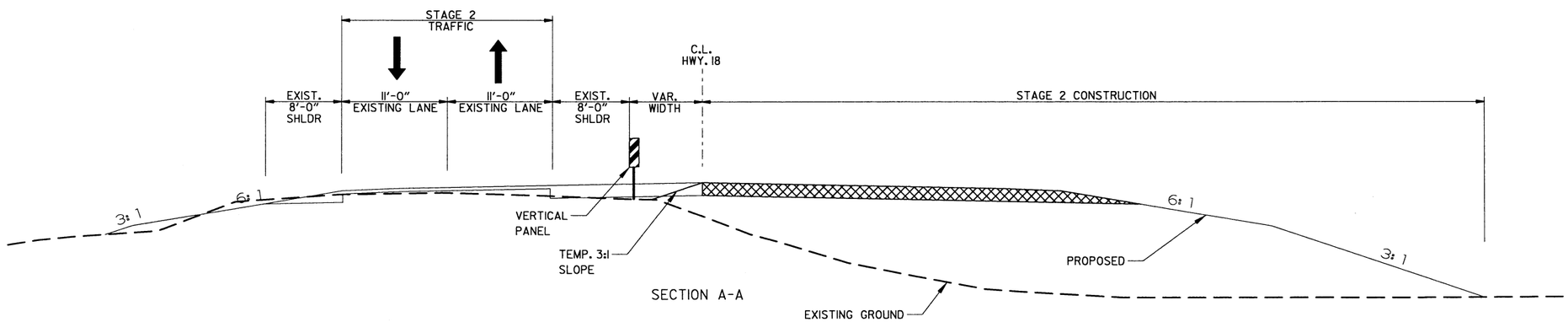
STAGE 1A
CONSTRUCT N. COUNTY RD. 305
STAGE 1B
CONSTRUCT WILDLIFE REFUGE RD.
STAGE 2
MAINTAIN EB & WB TRAFFIC ON EXISTING HWY. 18
CONSTRUCT PORTIONS OF HWY. 18 ROADWAY AND BRIDGES
STAGE 3
ROUTE EB & WB TRAFFIC TO NEWLY CONSTRUCTED PAVEMENT
CONSTRUCT REMAINING PORTIONS OF HWY. 18 ROADWAY AND BRIDGES
STAGE 4
PLACEMENT OF FINAL LAYER OF SURFACE
PLACEMENT OF PERMANENT PAVEMENT MARKINGS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16

VERTICAL PANELS
STA. 1245+00 TO STA. 1260+00
17 @ 90' O.C.

TRAFFIC DRUMS
12 @ 20' O.C.





SECTION A-A

MAINTENANCE OF TRAFFIC
HWY. 18 STAGE 2

JACOBS

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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.		CA1002	54	319

(2) MOT-STA. 1260+00 TO STA. 1275+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESEY
9/12/16

DENOTES PAVEMENT TO BE CONSTRUCTED

SEQUENCE OF CONSTRUCTION FOR HWY. 18 NOTCH AND WIDEN

STAGE 1A
CONSTRUCT N. COUNTY RD. 305
STAGE 1B
CONSTRUCT WILDLIFE REFUGE RD.
STAGE 2
MAINTAIN EB & WB TRAFFIC ON EXISTING HWY. 18
*CONSTRUCT PORTIONS OF HWY. 18 ROADWAY AND BRIDGES
STAGE 3
ROUTE EB & WB TRAFFIC TO NEWLY CONSTRUCTED PAVEMENT
CONSTRUCT REMAINING PORTIONS OF HWY. 18 ROADWAY AND BRIDGES
STAGE 4
PLACEMENT OF FINAL LAYER OF SURFACE
PLACEMENT OF PERMANENT PAVEMENT MARKINGS

VERTICAL PANELS
STA. 1260+50 TO STA. 1272+00
14 @ 90' O.C.

STAGE 2
STA. 1269+68 TO STA. 1271+81
FURNISHING AND INSTALL PRECAST CONCRETE BARRIER = 213 LIN. FT.

*NOTE:
REFER TO SPECIAL DETAILS, BRIDGE DRAWINGS, AND SPECIAL PROVISIONS 'GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT CONSTRUCTION' & 'TIMBER PILING FOR SOIL DENSIFICATION' FOR LOCATIONS, LIMITS, SPACING, DEPTH, SEQUENCE OF CONSTRUCTION, AND ANY ADDITIONAL INFORMATION FOR THE CONSTRUCTION OF THE BRIDGE APPROACHES.

N

1260 1265 1270 1275

ROAD CLOSED
RII-2 (48" X 30")
8' BARR. TYP. IIILT.
8' BARR. TYP. IIILT.

BRIDGE CONSTRUCTION
32'-0" OF DECK WITH
P.C.C.B. WALL

CONST. LIMITS
CONST. LIMITS
37'
+08
C.L. HWY. 18
A
A
S.E.U.
CONST. LIMITS

RII-2 (48" X 30")
8' BARR. TYP. IIIRT.

STA. 1269+68 TO STA. 1271+81
FURNISH AND INSTALL
P.C.C.B.

500'
500'
END ROAD WORK
(48" X 24")
G20-2
W20-1 (48" X 48")
ROAD WORK 500 FT
ROAD CLOSED

VERTICAL PANELS
STA. 1260+50 TO STA. 1264+00
5 @ 90' O.C.

BIG LAKE OUTLET

STAGE 2 CONSTRUCTION
C.L. HWY. 18
STAGE 2 TRAFFIC
VAR. WIDTH
EXIST. 5'-6" SHLDR
11'-0" EXISTING LANE
11'-0" EXISTING LANE
EXIST. 8'-0" SHLDR
6:1
6:1
3:1
3:1
PROPOSED
TEMP. 2:1 SLOPE
VERTICAL PANEL
EXIST. G.R.
EXISTING GROUND

SECTION A-A

MAINTENANCE OF TRAFFIC HWY. 18 STAGE 2

JACOBS

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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.		CA1002	55	319

(2) MOT STAGE 2-STA. 1275+00 TO STA. 1290+00

NOTE:
ALL ADVANCE WARNING SIGNS SHALL BE LEFT IN PLACE UNTIL THE PROJECT HAS BEEN COMPLETED.

STAGE 2
STA. 1281+35 TO STA. 1290+57
FURNISHING AND INSTALL PRECAST CONCRETE BARRIER = 513 LIN. FT.
TEMPORARY IMPACT ATTENUATION BARRIER = 1 EACH

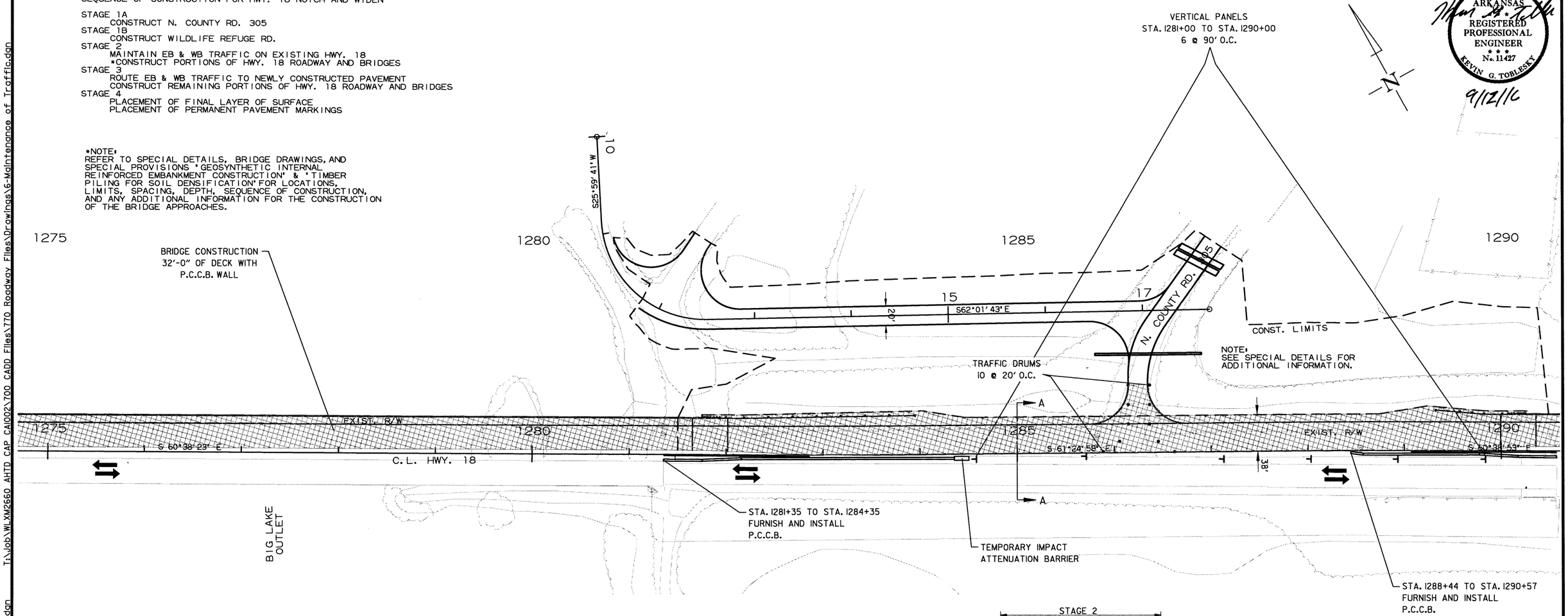
DENOTES PAVEMENT TO BE CONSTRUCTED

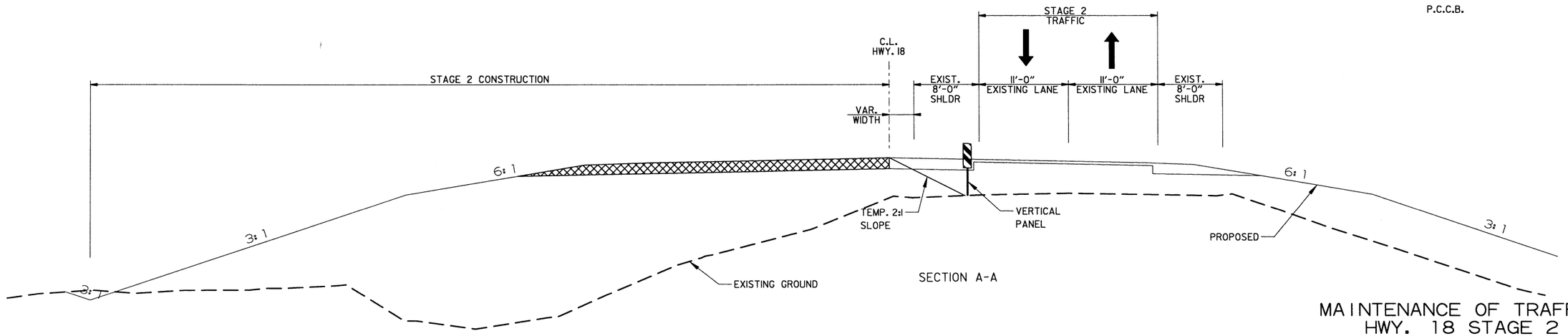
SEQUENCE OF CONSTRUCTION FOR HWY. 18 NOTCH AND WIDEN

STAGE 1A
CONSTRUCT N. COUNTY RD. 305
STAGE 1B
CONSTRUCT WILDLIFE REFUGE RD.
STAGE 2
MAINTAIN EB & WB TRAFFIC ON EXISTING HWY. 18
*CONSTRUCT PORTIONS OF HWY. 18 ROADWAY AND BRIDGES
STAGE 3
ROUTE EB & WB TRAFFIC TO NEWLY CONSTRUCTED PAVEMENT
CONSTRUCT REMAINING PORTIONS OF HWY. 18 ROADWAY AND BRIDGES
STAGE 4
PLACEMENT OF FINAL LAYER OF SURFACE
PLACEMENT OF PERMANENT PAVEMENT MARKINGS

*NOTE:
REFER TO SPECIAL DETAILS, BRIDGE DRAWINGS, AND SPECIAL PROVISIONS 'GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT CONSTRUCTION' & 'TIMBER PILING FOR SOIL DENSIFICATION' FOR LOCATIONS, LIMITS, SPACING, DEPTH, SEQUENCE OF CONSTRUCTION, AND ANY ADDITIONAL INFORMATION FOR THE CONSTRUCTION OF THE BRIDGE APPROACHES.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16





SECTION A-A

MAINTENANCE OF TRAFFIC HWY. 18 STAGE 2

JACOBS

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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.		CA1002	56	319

(2) MOT STAGE 2-STA. 1290+00 TO STA. 1305+00

NOTE:
TO BE PLACED AT
THE STATE LINE OUTLET
DITCH BOAT RAMP.

WARNING!
BRIDGE CONSTRUCTION
AT
HWY. 18
FOLLOW MARKED
NAVIGATION CHANNEL

SPECIAL
(60"x36")

SEQUENCE OF CONSTRUCTION FOR HWY. 18 NOTCH AND WIDEN

STAGE 1A
CONSTRUCT N. COUNTY RD. 305
STAGE 1B
CONSTRUCT WILDLIFE REFUGE RD.
STAGE 2
MAINTAIN EB & WB TRAFFIC ON EXISTING HWY. 18
*CONSTRUCT PORTIONS OF HWY. 18 ROADWAY AND BRIDGES
STAGE 3
ROUTE EB & WB TRAFFIC TO NEWLY CONSTRUCTED PAVEMENT
CONSTRUCT REMAINING PORTIONS OF HWY. 18 ROADWAY AND BRIDGES
STAGE 4
PLACEMENT OF FINAL LAYER OF SURFACE
PLACEMENT OF PERMANENT PAVEMENT MARKINGS

STAGE 2
STA. 1294+77 TO STA. 1297+77
FURNISHING AND INSTALL PRECAST CONCRETE BARRIER = 300 LIN. FT.
TEMPORARY IMPACT ATTENUATION BARRIER = 1 EACH

VERTICAL PANELS
STA. 1297+00 TO STA. 1305+00
10 @ 90' O.C.

*NOTE:
REFER TO SPECIAL DETAILS, BRIDGE DRAWINGS, AND SPECIAL PROVISIONS 'GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT CONSTRUCTION' & 'TIMBER PILING FOR SOIL DENSIFICATION' FOR LOCATIONS, LIMITS, SPACING, DEPTH, SEQUENCE OF CONSTRUCTION, AND ANY ADDITIONAL INFORMATION FOR THE CONSTRUCTION OF THE BRIDGE APPROACHES.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16

1290 1295 1300 1305

CONST. LIMITS

BRIDGE CONSTRUCTION
32'-0" OF DECK WITH
P.C.C.B. WALL

C.L. HWY. 18

EXIST. R/W

CONST. LIMITS

38'

A

A

STA. 1294+77 TO STA. 1297+77
FURNISH AND INSTALL
P.C.C.B.

TEMPORARY IMPACT
ATTENUATION BARRIER

TRAFFIC DRUMS
10 @ 20' O.C.

G20-2 (48" X 24")
END ROAD WORK

W20-1 (48" X 48")
ROAD WORK 500 FT

500'

BIG LAKE FLOODWAY RELIEF

N. COUNTY RD. 309

DENOTES PAVEMENT TO BE CONSTRUCTED

WARNING!
BRIDGE CONSTRUCTION
FOLLOW MARKED
NAVIGATION CHANNEL
SLOW NO WAKE ZONE

SPECIAL
(60"x36")

SPECIAL
(60"x36")
WARNING!
BRIDGE CONSTRUCTION
FOLLOW MARKED
NAVIGATION CHANNEL
SLOW NO WAKE ZONE

STAGE 2 CONSTRUCTION

C.L. HWY. 18

VAR. WIDTH

EXIST. 8'-0" SHLDR

STAGE 2 TRAFFIC

11'-0" EXIST. LANE

11'-0" EXIST. LANE

EXIST. 8'-0" SHLDR

6:1

3:1

PROPOSED

TEMP. 2:1 SLOPE

VERTICAL PANEL

EXISTING GROUND

NOTE:
ALL ADVANCE WARNING SIGNS SHALL BE LEFT IN PLACE UNTIL THE PROJECT HAS BEEN COMPLETED.

MAINTENANCE OF TRAFFIC HWY. 18 STAGE 2

JACOBS

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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.		CA1002	57	319

(2) MOT STAGE 2-STA. 1305+00 TO STA. 1314+96.37

DENOTES PAVEMENT TO BE CONSTRUCTED

SEQUENCE OF CONSTRUCTION FOR HWY. 18 NOTCH AND WIDEN

STAGE 1A
CONSTRUCT N. COUNTY RD. 305
STAGE 1B
CONSTRUCT WILDLIFE REFUGE RD.
STAGE 2
MAINTAIN EB & WB TRAFFIC ON EXISTING HWY. 18
CONSTRUCT PORTIONS OF HWY. 18 ROADWAY AND BRIDGES
STAGE 3
ROUTE EB & WB TRAFFIC TO NEWLY CONSTRUCTED PAVEMENT
CONSTRUCT REMAINING PORTIONS OF HWY. 18 ROADWAY AND BRIDGES
STAGE 4
PLACEMENT OF FINAL LAYER OF SURFACE
PLACEMENT OF PERMANENT PAVEMENT MARKINGS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16

VERTICAL PANELS
STA. 1305+00 TO STA. 1314+96
12 @ 90' O.C.

1305

1310

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

REFER TO ADVANCE WARNING SIGN DETAIL

TRAFFIC DRUMS
12 @ 20' O.C.

CONST. LIMITS

CONST. LIMITS

A

C.L. HWY. 18

38'

A

STA. 1314+96.37
END JOB CA1002
LOG MILE 3.57

STAGE 2 TRAFFIC

C.L. HWY. 18

STAGE 2 CONSTRUCTION

EXIST. 8'-0" SHLDR

11'-0" EXIST. LANE

11'-0" EXIST. LANE

EXIST. 8'-0" SHLDR

VAR. WIDTH

6:1

3:1

6:1

6:1

3:1

9:1

PROPOSED

TEMP. 2:1 SLOPE

VERTICAL PANEL

EXISTING GROUND

MAINTENANCE OF TRAFFIC
HWY. 18 STAGE 2

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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	58	319

(2) MOT STAGE 3-STA. 1215+00 TO STA. 1230+00

DENOTES PAVEMENT TO BE CONSTRUCTED

STAGE 3
CONSTRUCTION PAVEMENT MARKINGS
WHITE 4" CONTINUOUS = 2860 LIN. FT.
YELLOW 4" CONTINUOUS = 2860 LIN. FT.

STAGE 3
STA. 1221+82 TO STA. 1224+22
RELOCATE PRECAST CONCRETE BARRIER = 240 LIN. FT.
RELOCATE TEMPORARY IMPACT ATTENUATION BARRIER = 2 EACH

SEQUENCE OF CONSTRUCTION FOR HWY. 18 NOTCH AND WIDEN

STAGE 1A
CONSTRUCT N. COUNTY RD. 305
STAGE 1B
CONSTRUCT WILDLIFE REFUGE RD.
STAGE 2
MAINTAIN EB & WB TRAFFIC ON EXISTING HWY. 18
CONSTRUCT PORTIONS OF HWY. 18 ROADWAY AND BRIDGES
STAGE 3
ROUTE EB & WB TRAFFIC TO NEWLY CONSTRUCTED PAVEMENT
CONSTRUCT REMAINING PORTIONS OF HWY. 18 ROADWAY AND BRIDGES
STAGE 4
PLACEMENT OF FINAL LAYER OF SURFACE
PLACEMENT OF PERMANENT PAVEMENT MARKINGS

NOTE:
ALL ADVANCE WARNING SIGNS SHALL BE LEFT IN PLACE UNTIL THE PROJECT HAS BEEN COMPLETED.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16

ROAD CLOSED

TRAFFIC DRUMS
12 @ 40' O.C.

TRAFFIC DRUMS
STA. 1221+50 TO STA. 1230+00
10 @ 90' O.C.

TRAFFIC DRUMS
10 @ 20' O.C.

C.L. STAGE 3 TRANSITION
PI = 1220+53.45
Δ = 07°48'41" LT.
D = 3°00'00"
T = 130.39'
L = 260.38'
PRC = 1219+23.06
PT = 1221+83.44

540' TRANSITION

15' BARR. TYP. WIDT. 16' BARR. TYP. WIDT.

RHC 2' (48" X 30")

CONST. LIMITS

1215 1220 1225 1230

PI 1217+76.07
PI 1221+83.44
PI 1224+12.97
PI 1325+73.58
PI 1220+53.45
PI 1224+66.52
PRC 1225+20.03
PT 1226+27.09
PC 1216+28.50
PRC 1219+23.06

38'

C.L. HWY. 18

REFER TO ADVANCE WARNING SIGN DETAIL

C.L. STAGE 3 TRANSITION
PI = 1217+76.07
Δ = 08°50'12" RT.
D = 3°00'00"
T = 147.57'
L = 294.56'
PC = 1216+28.50
PRC = 1219+23.06

WHITE 4" CONT.

YELLOW 4" DBL. CONT.

COUNTY RD. 346

CONCRETE

C.L. STAGE 3 TRANSITION
PI = 1224+66.52
Δ = 03°12'43" LT.
D = 3°00'00"
T = 53.55'
L = 107.06'
PRC = 1224+12.97
PT = 1225+20.03

C.L. STAGE 3 TRANSITION
PI = 1225+73.58
Δ = 03°12'43" RT.
D = 3°00'00"
T = 53.55'
L = 107.06'
PRC = 1225+20.03
PT = 1226+27.09

STA. 1220+00.00
BEGIN JOB CA1002
LOG MILE 1.77

DENOTES STAGE 2 CONSTRUCTED PAVEMENT

TRAFFIC DRUMS
STA. 1216+00 TO STA. 1221+50
15 @ 40' O.C.

STAGE 3 CONSTRUCTION
STAGE 3 TRAFFIC
C.L. HWY. 18
5'-6"
12'-0" TRAFFIC LANE
12'-0" TRAFFIC LANE
8'-0" SHLDR
3:1
6:1
PROPOSED
EXISTING GROUND
TRAFFIC DRUM
WHITE 4" CONT.
YELLOW 4" DOUBLE. CONT.
WHITE 4" CONT.

SECTION A-A

STAGE 3 CONSTRUCTION
STAGE 3 TRAFFIC
VAR. (6" MIN.)
2' 1'
12'-0" TRAFFIC LANE
12'-0" TRAFFIC LANE
2'-0" SHLDR
PRECAST CONCRETE BARRIER WALL
WHITE 4" CONT.
YELLOW 4" DOUBLE. CONT.
WHITE 4" CONT.
6:1
3:1
BOX CULVERT CONSTRUCT IN STAGE 3
BOX CULVERT CONSTRUCTED IN STAGE 2

CONSTRUCTION AT BOX CULVERT

MAINTENANCE OF TRAFFIC HWY. 18 STAGE 3

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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	59	319

(2) MOT-STA. 1230+00 TO STA. 1245+00

DENOTES PAVEMENT TO BE CONSTRUCTED

STAGE 3
CONSTRUCTION PAVEMENT MARKINGS
WHITE 4" CONTINUOUS = 2252 LIN. FT.
YELLOW 4" CONTINUOUS = 2252 LIN. FT.
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS
WHITE 4" CONTINUOUS = 750 LIN. FT.
YELLOW 4" CONTINUOUS = 750 LIN. FT.

STAGE 3
STA. 1234+83 TO STA. 1242+80
RELOCATE PRECAST CONCRETE BARRIER = 493 LIN. FT.
FURNISHING AND INSTALL PRECAST CONCRETE BARRIER = 320 LIN. FT.
TEMPORARY IMPACT ATTENUATION BARRIER = 1 EACH

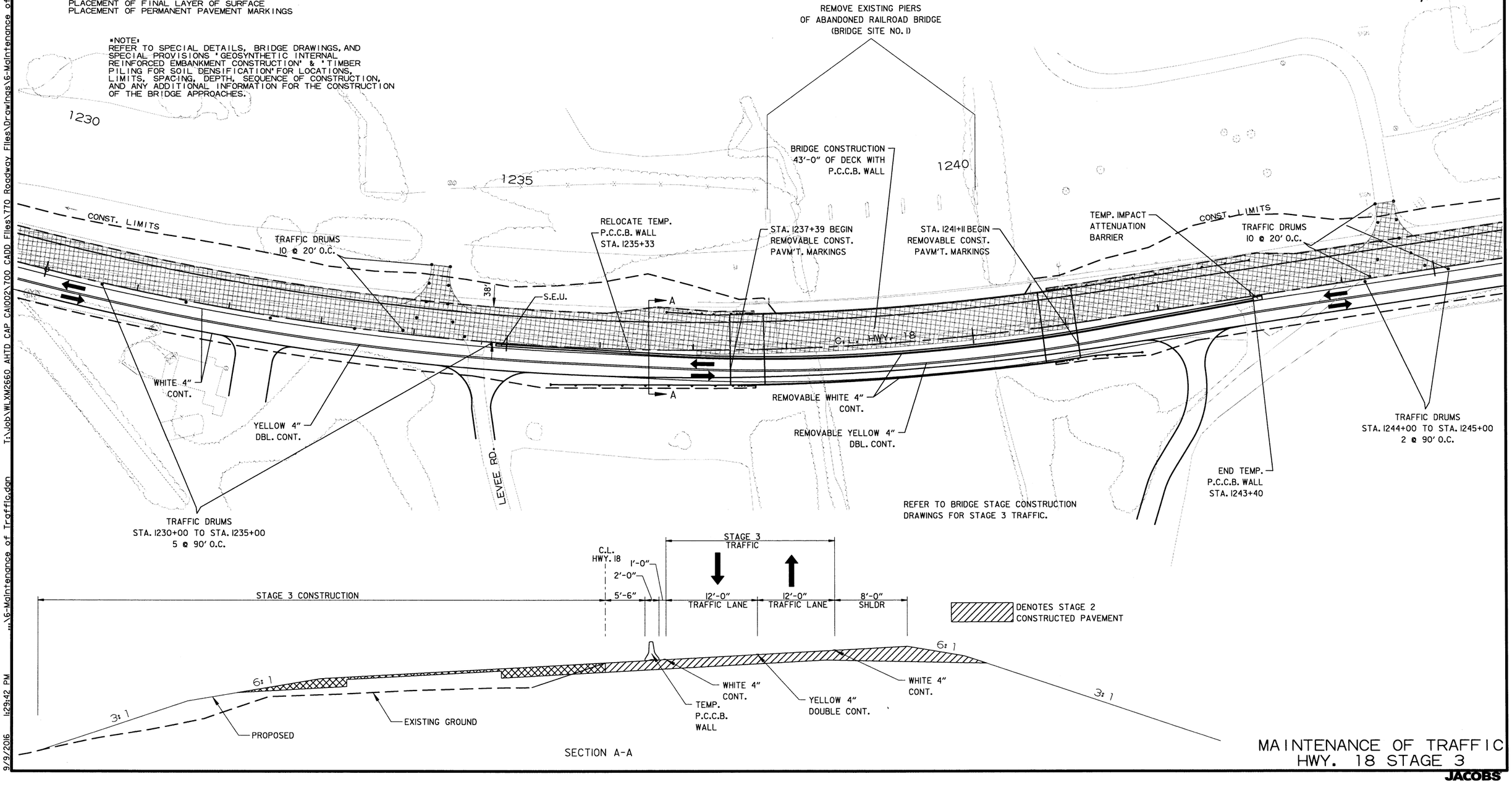
NOTE:
ALL ADVANCE WARNING SIGNS SHALL BE LEFT IN PLACE UNTIL THE PROJECT HAS BEEN COMPLETED.

SEQUENCE OF CONSTRUCTION FOR HWY. 18 NOTCH AND WIDEN

STAGE 1A
CONSTRUCT N. COUNTY RD. 305
STAGE 1B
CONSTRUCT WILDLIFE REFUGE RD.
STAGE 2
MAINTAIN EB & WB TRAFFIC ON EXISTING HWY. 18
CONSTRUCT PORTIONS OF HWY. 18 ROADWAY AND BRIDGES
STAGE 3
ROUTE EB & WB TRAFFIC TO NEWLY CONSTRUCTED PAVEMENT
*CONSTRUCT REMAINING PORTIONS OF HWY. 18 ROADWAY AND BRIDGES
STAGE 4
PLACEMENT OF FINAL LAYER OF SURFACE
PLACEMENT OF PERMANENT PAVEMENT MARKINGS

*NOTE:
REFER TO SPECIAL DETAILS, BRIDGE DRAWINGS, AND SPECIAL PROVISIONS "GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT CONSTRUCTION" & "TIMBER PILING FOR SOIL DENSIFICATION" FOR LOCATIONS, LIMITS, SPACING, DEPTH, SEQUENCE OF CONSTRUCTION, AND ANY ADDITIONAL INFORMATION FOR THE CONSTRUCTION OF THE BRIDGE APPROACHES.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16



SECTION A-A

MAINTENANCE OF TRAFFIC HWY. 18 STAGE 3

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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	60	319

(2) MOT-STA. 1245+00 TO STA. 1260+00

DENOTES PAVEMENT TO BE CONSTRUCTED

STAGE 3
CONSTRUCTION PAVEMENT MARKINGS
WHITE 4" CONTINUOUS = 3060 LIN. FT.
YELLOW 4" CONTINUOUS = 3060 LIN. FT.

SEQUENCE OF CONSTRUCTION FOR HWY. 18 NOTCH AND WIDEN

STAGE 1A
CONSTRUCT N. COUNTY RD. 305
STAGE 1B
CONSTRUCT WILDLIFE REFUGE RD.
STAGE 2
MAINTAIN EB & WB TRAFFIC ON EXISTING HWY. 18
CONSTRUCT PORTIONS OF HWY. 18 ROADWAY AND BRIDGES
STAGE 3
ROUTE EB & WB TRAFFIC TO NEWLY CONSTRUCTED PAVEMENT
CONSTRUCT REMAINING PORTIONS OF HWY. 18 ROADWAY AND BRIDGES
STAGE 4
PLACEMENT OF FINAL LAYER OF SURFACE
PLACEMENT OF PERMANENT PAVEMENT MARKINGS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16

TRAFFIC DRUMS
STA. 1245+00 TO STA. 1260+00
17 @ 90' O.C.

1245 1250 1255 1260

CONST. LIMITS

38'

C.L. HWY. 18

A

TRAFFIC DRUMS
13 @ 20' O.C.

P.C. 1+19.66

P.T. 3+06.61

108'

P.I. 2+13.21

TRAFFIC DRUMS
4 @ 40' O.C.

WHITE 4" CONT.

YELLOW 4" DBL. CONT.

C.L. STAGE 3 TRANSITION
PI = 02+13.21
Δ = 05°36'39" LT.
D = 3°00'05"
T = 93.55'
L = 186.95'
PC = 01+19.66
PT = 03+06.61

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

ROAD CLOSED

STAGE 3 CONSTRUCTION
C.L. HWY. 18
5'-6"
STAGE 3 TRAFFIC
12'-0" TRAFFIC LANE
12'-0" TRAFFIC LANE
8'-0" SHLDR

DENOTES STAGE 2 CONSTRUCTED PAVEMENT

3:1 6:1 6:1 3:1

EXISTING GROUND
PROPOSED
TRAFFIC DRUM
WHITE 4" CONT.
YELLOW 4" DOUBLE CONT.
WHITE 4" CONT.

SECTION A-A

MAINTENANCE OF TRAFFIC HWY. 18 STAGE 3

JACOBS

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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.		CA1002	61	319
				(2)	MOT-STA. 1260+00 TO STA. 1275+00			

DENOTES PAVEMENT TO BE CONSTRUCTED

STAGE 3
CONSTRUCTION PAVEMENT MARKINGS
WHITE 4' CONTINUOUS = 1616 LIN. FT.
YELLOW 4' CONTINUOUS = 1616 LIN. FT.
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS
WHITE 4' CONTINUOUS = 524 LIN. FT.
YELLOW 4' CONTINUOUS = 524 LIN. FT.

STAGE 3
STA. 1270+50 TO STA. 1275+00
RELOCATE PRECAST CONCRETE BARRIER = 213
FURNISHING AND INSTALL PRECAST CONCRETE BARRIER = 237 LIN. FT.
TEMPORARY IMPACT ATTENUATION BARRIER = 1 EACH

SEQUENCE OF CONSTRUCTION FOR HWY. 18 NOTCH AND WIDEN

STAGE 1A
CONSTRUCT N. COUNTY RD. 305
STAGE 1B
CONSTRUCT WILDLIFE REFUGE RD.
STAGE 2
MAINTAIN EB & WB TRAFFIC ON EXISTING HWY. 18
CONSTRUCT PORTIONS OF HWY. 18 ROADWAY AND BRIDGES
STAGE 3
ROUTE EB & WB TRAFFIC TO NEWLY CONSTRUCTED PAVEMENT
*CONSTRUCT REMAINING PORTIONS OF HWY. 18 ROADWAY AND BRIDGES
STAGE 4
PLACEMENT OF FINAL LAYER OF SURFACE
PLACEMENT OF PERMANENT PAVEMENT MARKINGS

*NOTE:
REFER TO SPECIAL DETAILS, BRIDGE DRAWINGS, AND SPECIAL PROVISIONS "GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT CONSTRUCTION" & "TIMBER PILING FOR SOIL DENSIFICATION" FOR LOCATIONS, LIMITS, SPACING, DEPTH, SEQUENCE OF CONSTRUCTION, AND ANY ADDITIONAL INFORMATION FOR THE CONSTRUCTION OF THE BRIDGE APPROACHES.

NOTE:
ALL ADVANCE WARNING SIGNS SHALL BE LEFT IN PLACE UNTIL THE PROJECT HAS BEEN COMPLETED.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16

C.L. STAGE 3 TRANSITION
PI = 06+45.70
Δ = 04°39'35" RT.
D = 3°00'05"
T = 77.67'
L = 155.25'
PC = 05+68.03
PT = 07+23.29

ROAD CLOSED

16' BARR. TYP. MULT. 16' BARR. TYP. MULT.

RII-2 (48" X 30")

1260 1265 1270 1275

TRAFFIC DRUMS
6 @ 90' O.C.

TRAFFIC DRUMS
6 @ 40' O.C.

P.I. 6+45.70
P.T. 3+06.61

WHITE 4" CONT.
YELLOW 4" DBL. CONT.

STA. 1272+38 BEGIN REMOVABLE CONST. PAVM'T. MARKINGS

REMOVABLE WHITE 4" CONT.
REMOVABLE YELLOW 4" DOUBLE CONT.

280' TAPER

A
A

C.L. HWY. 18

38'
43'

P.C. 5+68.03
P.T. 7+23.29

TRAFFIC DRUMS
8 @ 20' O.C.

TRAFFIC DRUMS
8 @ 20' O.C.

TRAFFIC DRUMS
9 @ 20' O.C.

CONST. LIMITS

TRAFFIC DRUMS
10 @ 40' O.C.

TEMP. IMPACT ATTENUATION BARRIER

INSTALL TEMP. P.C.C.B. WALL STA. 1270+50

BRIDGE CONSTRUCTION
43'-0" OF DECK WITH P.C.C.B. WALL

CONCRETE

SET BACK

SUMMERS

BIG LAKE OUTLET

REFER TO BRIDGE STAGE CONSTRUCTION DRAWINGS FOR STAGE 3 TRAFFIC.

DENOTES STAGE 2 CONSTRUCTED PAVEMENT

STAGE 3 TRAFFIC

C.L. HWY. 18

1'-0"
2'-0"
5'-6"

8'-3" SHLDR
12'-0" TRAFFIC LANE
12'-0" TRAFFIC LANE

STAGE 3 CONSTRUCTION

6:1
3:1
6:1
3:1

WHITE 4" CONT.
YELLOW 4" DOUBLE CONT.
WHITE 4" CONT.

EXISTING GROUND
PROPOSED

SECTION A-A

MAINTENANCE OF TRAFFIC HWY. 18 STAGE 3

JACOBS

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				6	ARK.			
				JOB NO.		CAI002	62	319
				(2) MOT STAGE 2-STA. 1275+00 TO STA. 1290+00				

DENOTES PAVEMENT TO BE CONSTRUCTED

STAGE 3
CONSTRUCTION PAVEMENT MARKINGS
WHITE 4" CONTINUOUS = 1596 LIN. FT.
YELLOW 4" CONTINUOUS = 1596 LIN. FT.
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS
WHITE 4" CONTINUOUS = 1404 LIN. FT.
YELLOW 4" CONTINUOUS = 1404 LIN. FT.

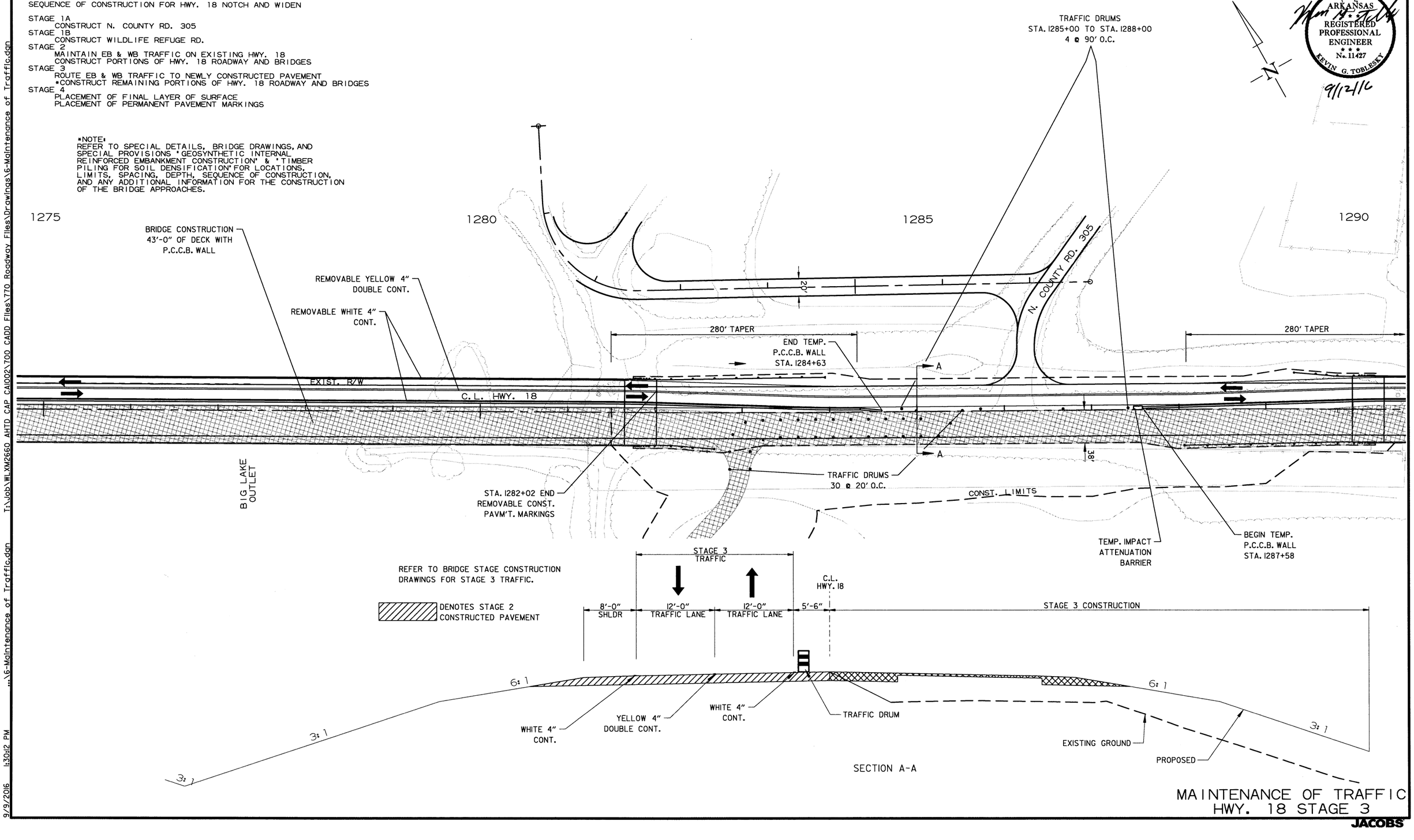
STAGE 3
STA. 1275+00 TO STA. 1284+63
RELOCATE PRECAST CONCRETE BARRIER = 513 LIN. FT.
FURNISHING AND INSTALL PRECAST CONCRETE BARRIER = 450 LIN. FT.
STA. 1287+57 TO STA. 1290+00
FURNISHING AND INSTALL PRECAST CONCRETE BARRIER = 243 LIN. FT.
TEMPORARY IMPACT ATTENUATION BARRIER = 1 EACH

SEQUENCE OF CONSTRUCTION FOR HWY. 18 NOTCH AND WIDEN

STAGE 1A
CONSTRUCT N. COUNTY RD. 305
STAGE 1B
CONSTRUCT WILDLIFE REFUGE RD.
STAGE 2
MAINTAIN EB & WB TRAFFIC ON EXISTING HWY. 18
CONSTRUCT PORTIONS OF HWY. 18 ROADWAY AND BRIDGES
STAGE 3
ROUTE EB & WB TRAFFIC TO NEWLY CONSTRUCTED PAVEMENT
*CONSTRUCT REMAINING PORTIONS OF HWY. 18 ROADWAY AND BRIDGES
STAGE 4
PLACEMENT OF FINAL LAYER OF SURFACE
PLACEMENT OF PERMANENT PAVEMENT MARKINGS

NOTE
REFER TO SPECIAL DETAILS, BRIDGE DRAWINGS, AND SPECIAL PROVISIONS "GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT CONSTRUCTION" & "TIMBER PILING FOR SOIL DENSIFICATION" FOR LOCATIONS, LIMITS, SPACING, DEPTH, SEQUENCE OF CONSTRUCTION, AND ANY ADDITIONAL INFORMATION FOR THE CONSTRUCTION OF THE BRIDGE APPROACHES.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16



MAINTENANCE OF TRAFFIC HWY. 18 STAGE 3

JACOBS

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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.		CA1002	63	319

(2) MOT STAGE 2-STA. 1290+00 TO STA. 1305+00

DENOTES PAVEMENT TO BE CONSTRUCTED

STAGE 3
CONSTRUCTION PAVEMENT MARKINGS
WHITE 4" CONTINUOUS = 1982 LIN. FT.
YELLOW 4" CONTINUOUS = 1982 LIN. FT.
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS
WHITE 4" CONTINUOUS = 1018 LIN. FT.
YELLOW 4" CONTINUOUS = 1018 LIN. FT.

SEQUENCE OF CONSTRUCTION FOR HWY. 18 NOTCH AND WIDEN

STAGE 1A
CONSTRUCT N. COUNTY RD. 305
STAGE 1B
CONSTRUCT WILDLIFE REFUGE RD.
STAGE 2
MAINTAIN EB & WB TRAFFIC ON EXISTING HWY. 18
CONSTRUCT PORTIONS OF HWY. 18 ROADWAY AND BRIDGES
STAGE 3
ROUTE EB & WB TRAFFIC TO NEWLY CONSTRUCTED PAVEMENT
*CONSTRUCT REMAINING PORTIONS OF HWY. 18 ROADWAY AND BRIDGES
STAGE 4
PLACEMENT OF FINAL LAYER OF SURFACE
PLACEMENT OF PERMANENT PAVEMENT MARKINGS

STAGE 3
STA. 1290+00 TO STA. 1297+30
RELOCATE PRECAST CONCRETE BARRIER = 300 LIN. FT.
FURNISHING AND INSTALL PRECAST CONCRETE BARRIER = 430 LIN. FT.

TRAFFIC DRUMS
STA. 1297+00 TO STA. 1305+00
7 @ 90' O.C.

NOTE:
ALL ADVANCE WARNING SIGNS SHALL BE LEFT IN PLACE UNTIL THE PROJECT HAS BEEN COMPLETED.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16

1290 1295 1300 1305

BRIDGE CONSTRUCTION
43'-0" OF DECK WITH
P.C.C.B. WALL

*NOTE:
REFER TO SPECIAL DETAILS, BRIDGE DRAWINGS, AND SPECIAL PROVISIONS 'GEOSYNTHETIC INTERNAL REINFORCED EMBANKMENT CONSTRUCTION' & 'TIMBER PILING FOR SOIL DENSIFICATION' FOR LOCATIONS, LIMITS, SPACING, DEPTH, SEQUENCE OF CONSTRUCTION, AND ANY ADDITIONAL INFORMATION FOR THE CONSTRUCTION OF THE BRIDGE APPROACHES.

S.E.U.

END TEMP. P.C.C.B. WALL STA. 1297+30

280' TAPER

280' TAPER

WHITE 4" CONT.

YELLOW 4" DBL. CONT.

38'

A

A

C.L. HWY. 18

REMOVABLE WHITE 4" CONT.

REMOVABLE YELLOW 4" DBL. CONT.

BIG LAKE FLOODWAY RELIEF

STA. 1290+00 BEGIN REMOVABLE CONST. PAVM'T. MARKINGS

STA. 1295+09 END REMOVABLE CONST. PAVM'T. MARKINGS

TRAFFIC DRUMS
12 @ 20' O.C.

CONST. LIMITS

TRAFFIC DRUMS
16 @ 20' O.C.

EXIST. R/W

N. COUNTY RD. 306

CONST. LIMITS

EXIST. R/W

REFER TO BRIDGE STAGE CONSTRUCTION DRAWINGS FOR STAGE 3 TRAFFIC.

DENOTES STAGE 2 CONSTRUCTED PAVEMENT

STAGE 3 TRAFFIC

C.L. HWY. 18

EXIST. 8'-0" SHLDR | 12'-0" TRAFFIC LANE | 12'-0" TRAFFIC LANE | 5'-6" | STAGE 3 CONSTRUCTION

6:1

6:1

3:1

3:1

3:1

WHITE 4" CONT.

YELLOW 4" DOUBLE CONT.

WHITE 4" CONT.

TRAFFIC DRUM

EXISTING GROUND

PROPOSED

MAINTENANCE OF TRAFFIC HWY. 18 STAGE 3

JACOBS

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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.		CA1002	64	319

(2) MOT STAGE 2-STA. 1305+00 TO STA. 1314+96.37

DENOTES PAVEMENT TO BE CONSTRUCTED

STAGE 3
CONSTRUCTION PAVEMENT MARKINGS
WHITE 4" CONTINUOUS = 1920 LIN. FT.
YELLOW 4" CONTINUOUS = 1920 LIN. FT.
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS
WHITE 4" CONTINUOUS = 1200 LIN. FT.
YELLOW 4" CONTINUOUS = 1200 LIN. FT

SEQUENCE OF CONSTRUCTION FOR HWY. 18 NOTCH AND WIDEN

STAGE 1A
CONSTRUCT N. COUNTY RD. 305
STAGE 1B
CONSTRUCT WILDLIFE REFUGE RD.
STAGE 2
MAINTAIN EB & WB TRAFFIC ON EXISTING HWY. 18
CONSTRUCT PORTIONS OF HWY. 18 ROADWAY AND BRIDGES
STAGE 3
ROUTE EB & WB TRAFFIC TO NEWLY CONSTRUCTED PAVEMENT
CONSTRUCT REMAINING PORTIONS OF HWY. 18 ROADWAY AND BRIDGES
STAGE 4
PLACEMENT OF FINAL LAYER OF SURFACE
PLACEMENT OF PERMANENT PAVEMENT MARKINGS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16

N

TRAFFIC DRUMS
STA. 1305+00 TO STA. 1314+00
8 @ 90' O.C.

1305

1310

C.L. STAGE 3 TRANSITION
PI = 01+15.68
Δ = 04°40'39" RT.
D = 2°58'53"
T = 78.49'
L = 156.89'
PC = 00+37.19
PT = 01+94.09

REFER TO ADVANCE WARNING SIGN DETAIL

700' TRANSITION

WHITE 4" CONT.

YELLOW 4" DBL. CONT.

P.I. 1+15.68

P.C. 4+66.53

P.T. 6+21.47

TRAFFIC DRUMS
15 @ 40' O.C.

0

5

C.L. HWY. 18

38'

CONST. LIMITS

P.T. 1+94.09

P.C. 0+37.19

WHITE 4" CONT.

TRAFFIC DRUMS
15 @ 40' O.C.

P.I. 5+44.04

YELLOW 4" DBL. CONT.

TRAFFIC DRUMS
14 @ 20' O.C.

TRAFFIC DRUMS
14 @ 20' O.C.

TRAFFIC DRUMS
14 @ 20' O.C.

RII-2 (48" X 30")

16' BARR. TYP. IIIRT.
16' BARR. TYP. IIILT.

ROAD CLOSED

STA. 1314+96.37
END JOB CA1002
LOG MILE 3.57

C.L. STAGE 3 TRANSITION
PI = 05+44.04
Δ = 04°40'39" LT.
D = 2°58'53"
T = 77.51'
L = 154.94'
PC = 04+66.53
PT = 06+21.47

STAGE 3 TRAFFIC

C.L. HWY. 18

8'-0" SHLDR | 12'-0" TRAFFIC LANE | 12'-0" TRAFFIC LANE | 5'-6"

STAGE 3 CONSTRUCTION

3:1 6:1 6:1 6:1 3:1 3:1

WHITE 4" CONT.

YELLOW 4" DOUBLE CONT.

WHITE 4" CONT.

TRAFFIC DRUM

EXISTING GROUND

PROPOSED

MAINTENANCE OF TRAFFIC HWY. 18 STAGE 3

JACOBS

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				6	ARK.			
				JOB NO.		CA1002	65	319
				(2)	PERM. PVMT. MARKING DETAILS			

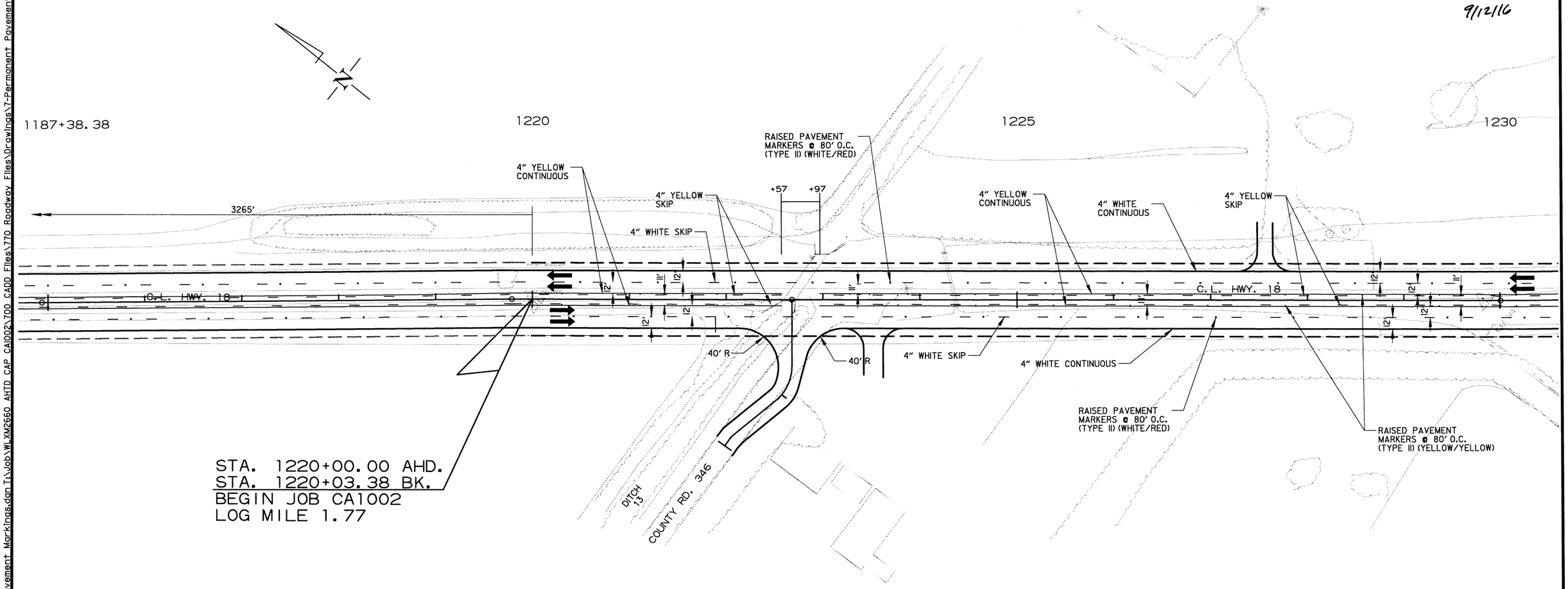
PERMANENT STRIPING QUANTITIES
HWY. 18 (STA. 1187+38.38 TO STA. 1220+03.38)

ITEM	QUANTITY
4" WHITE SKIP	1640 L.F.
4" WHITE CONTINUOUS	6530 L.F.
4" YELLOW CONTINUOUS	6530 L.F.
4" YELLOW SKIP	1640 L.F.
RAISED PAVEMENT MARKER (TYPE II) WHITE/RED	82 EACH
RAISED PAVEMENT MARKER (TYPE II) YELLOW/YELLOW	82 EACH

PERMANENT STRIPING QUANTITIES
HWY. 18 (STA. 1220+00 TO STA. 1230+00)

ITEM	QUANTITY
4" WHITE SKIP	480 L.F.
4" WHITE CONTINUOUS	2337 L.F.
4" YELLOW CONTINUOUS	1910 L.F.
4" YELLOW SKIP	400 L.F.
RAISED PAVEMENT MARKER (TYPE II) WHITE/RED	24 EACH
RAISED PAVEMENT MARKER (TYPE II) YELLOW/YELLOW	20 EACH

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16



STA. 1220+00.00 AHD.
STA. 1220+03.38 BK.
BEGIN JOB CA1002
LOG MILE 1.77

PERMANENT PAVEMENT MARKING DETAILS

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				6	ARK.			
				JOB NO.		CA1002	66	319
				(2)	PERM. PVMT. MARKING DETAILS			

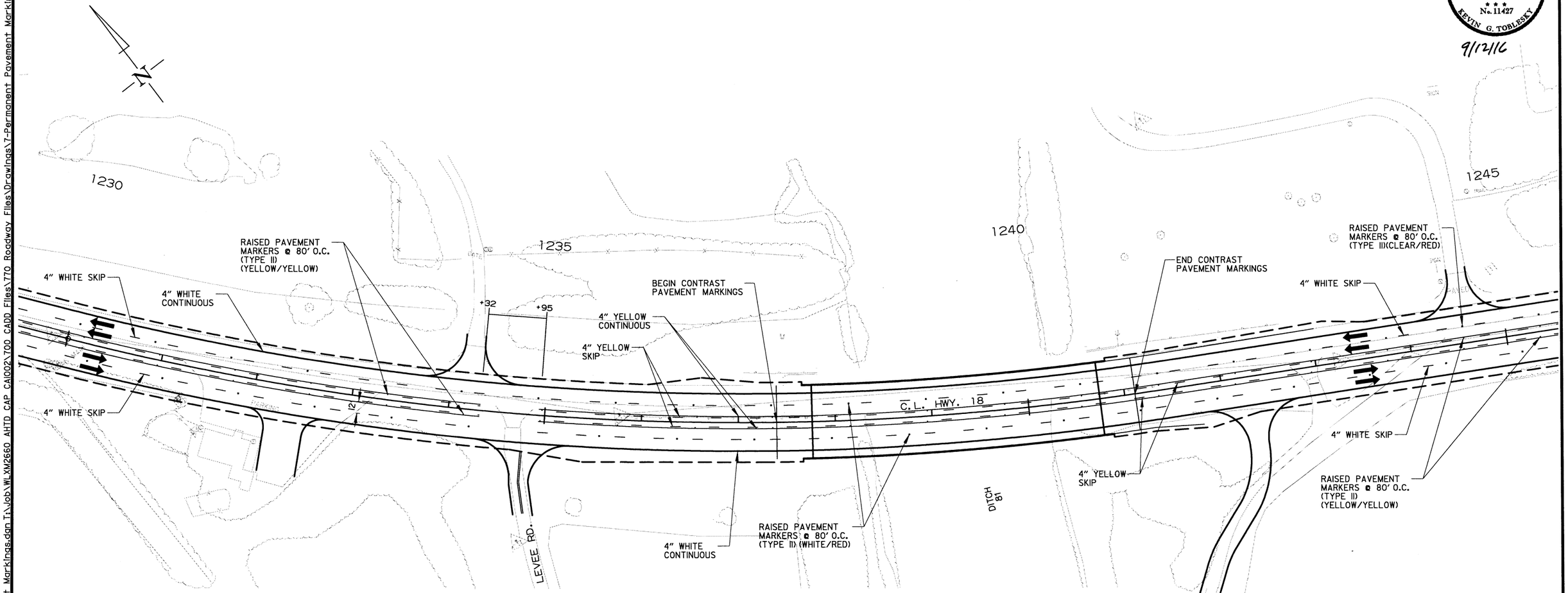
PERMANENT STRIPING QUANTITIES
HWY. 18 (STA. 1230+00 TO STA. 1245+00)

ITEM	QUANTITY
4" WHITE SKIP	550 L.F.
4" WHITE CONTINUOUS	3000 L.F.
4" YELLOW CONTINUOUS	2038 L.F.
4" YELLOW SKIP	440 L.F.
RAISED PAVEMENT MARKER (TYPE II) WHITE/RED	37 EACH
RAISED PAVEMENT MARKER (TYPE II) YELLOW/YELLOW	31 EACH

BRIDGE NO. 07390 STA. 1237+39.42 TO STA. 1241+10.58
HIGH PERFORMANCE CONTRAST PAVEMENT MARKINGS

ITEM	QUANTITY
4" WHITE SKIP	190 L.F.
4" YELLOW CONTINUOUS	742 L.F.
4" YELLOW SKIP	190 L.F.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16



PERMANENT PAVEMENT MARKING DETAILS

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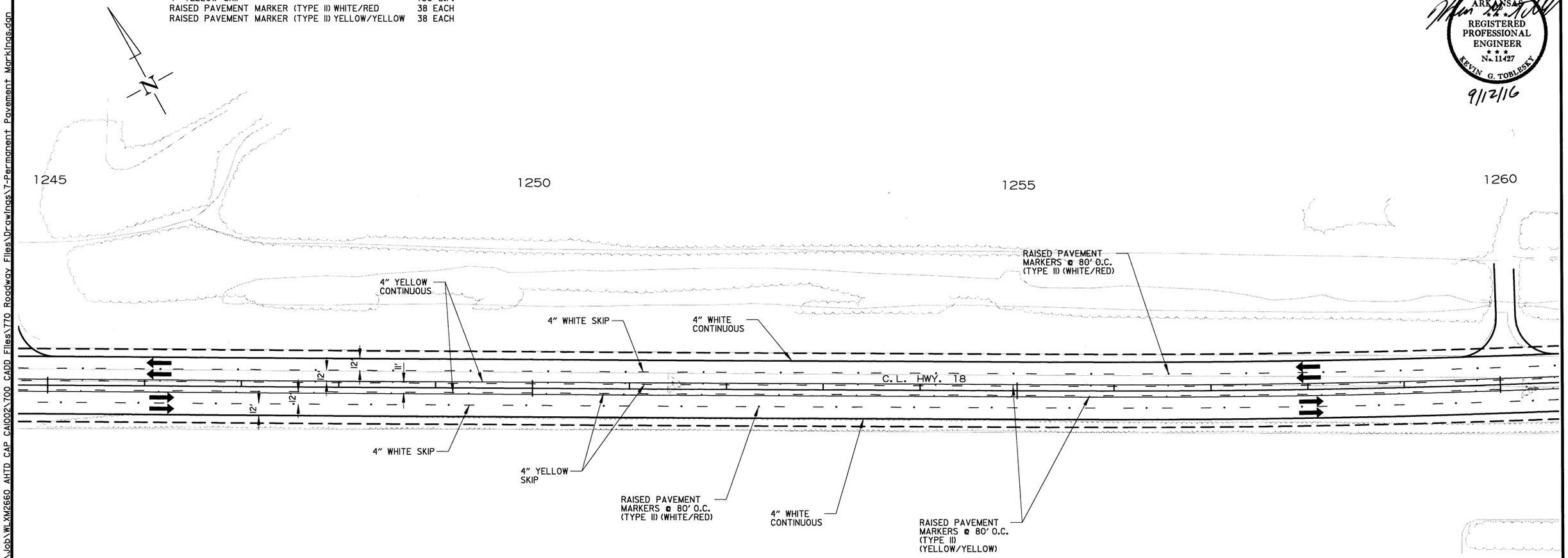
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				6	ARK.			
				JOB NO.		CA1002	67	319
				(2)	PERM. PVMT. MARKING DETAILS			

PERMANENT STRIPING QUANTITIES
HWY. 18 (STA. 1245+00 TO STA. 1260+00)

ITEM	QUANTITY
4" WHITE SKIP	750 L.F.
4" WHITE CONTINUOUS	3000 L.F.
4" YELLOW CONTINUOUS	3000 L.F.
4" YELLOW SKIP	750 L.F.
RAISED PAVEMENT MARKER (TYPE II) WHITE/RED	38 EACH
RAISED PAVEMENT MARKER (TYPE II) YELLOW/YELLOW	38 EACH

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16



PERMANENT PAVEMENT MARKING DETAILS

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				6	ARK.			
				JOB NO.		CA1002	68	319

(2) PERM. PVMT. MARKING DETAILS

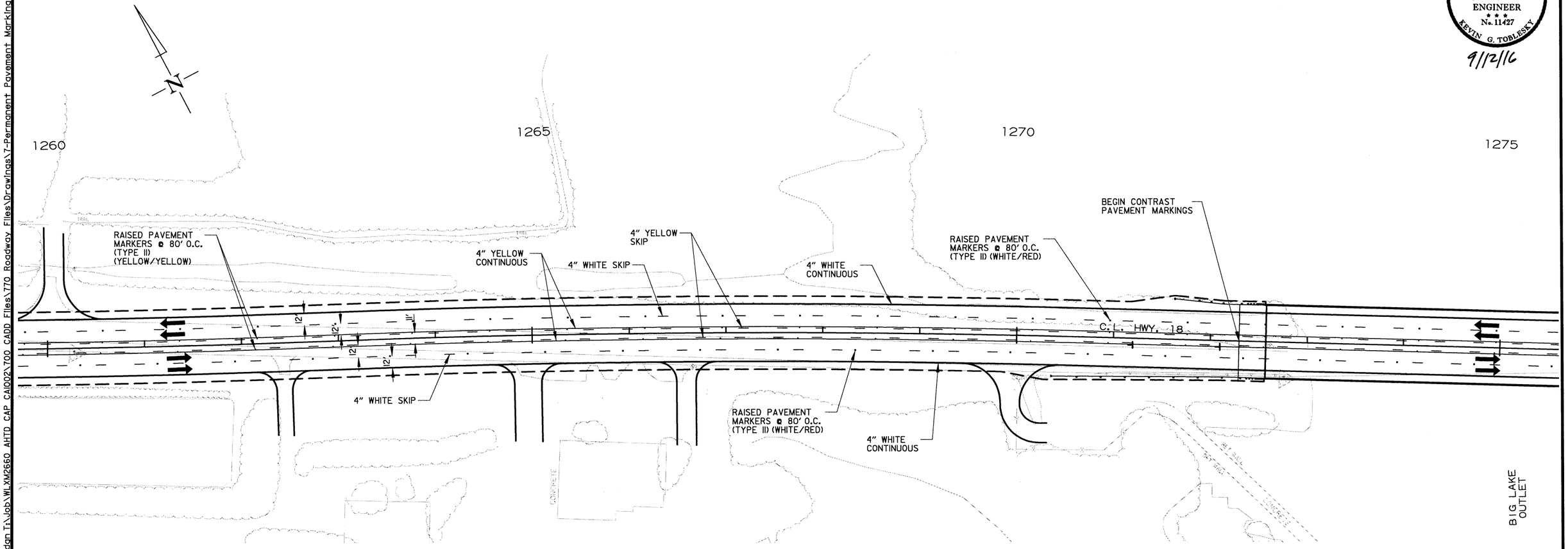
PERMANENT STRIPING QUANTITIES
HWY. 18 (STA. 1260+00 TO STA. 1275+00)

ITEM	QUANTITY
4" WHITE SKIP	610 L.F.
4" WHITE CONTINUOUS	3000 L.F.
4" YELLOW CONTINUOUS	2458 L.F.
4" YELLOW SKIP	610 L.F.
RAISED PAVEMENT MARKER (TYPE II) WHITE/RED	38 EACH
RAISED PAVEMENT MARKER (TYPE II) YELLOW/YELLOW	38 EACH

BRIDGE NO. 07391 STA. 1272+29.42 TO STA. 1275+00.00
HIGH PERFORMANCE CONTRAST PAVEMENT MARKINGS

ITEM	QUANTITY
4" WHITE SKIP	140 L.F.
4" YELLOW CONTINUOUS	542 L.F.
4" YELLOW SKIP	140 L.F.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16



PERMANENT PAVEMENT MARKING DETAILS

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				6	ARK.			
				JOB NO.		CA1002	69	319
				(2)	PERM. PVMT. MARKING DETAILS			

PERMANENT STRIPING QUANTITIES
HWY. 18 (STA. 1275+00 TO STA. 1290+00)

ITEM	QUANTITY
4" WHITE SKIP	380 L.F.
4" WHITE CONTINUOUS	4357 L.F.
4" YELLOW CONTINUOUS	2717 L.F.
4" YELLOW SKIP	270 L.F.
RAISED PAVEMENT MARKER (TYPE II) WHITE/RED	42 EACH
RAISED PAVEMENT MARKER (TYPE II) YELLOW/YELLOW	34 EACH

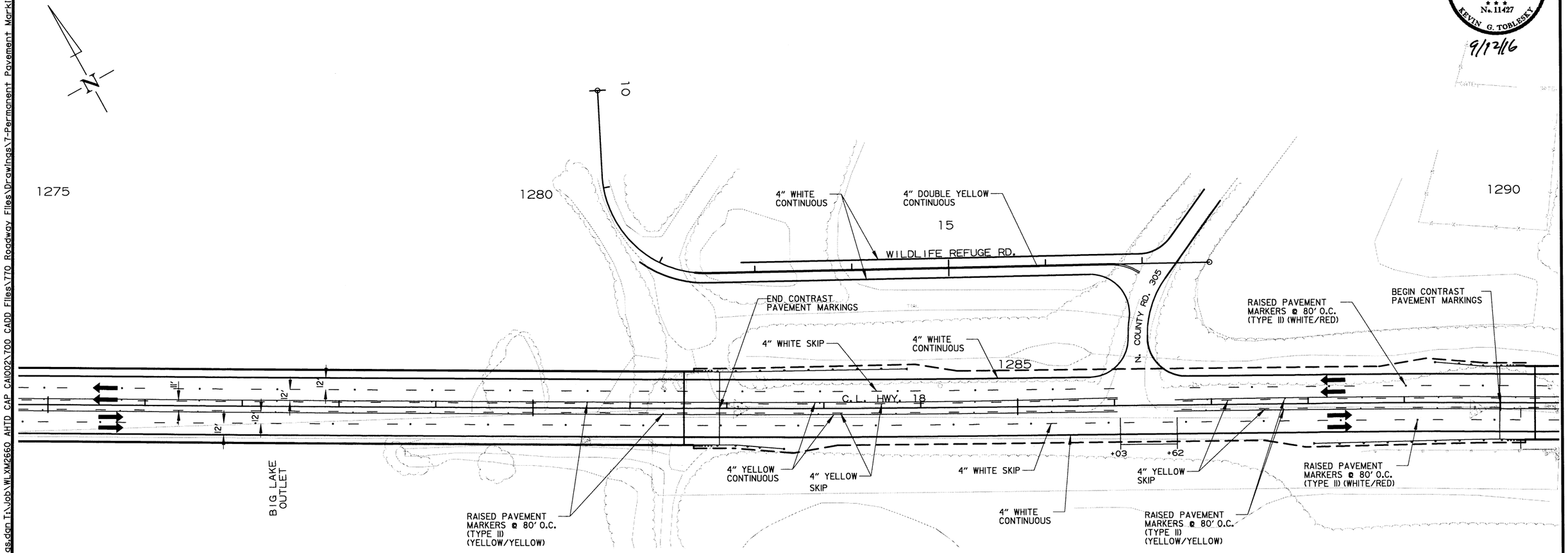
BRIDGE NO. 07391 STA. 1275+00.00 TO STA. 1281+92.58
HIGH PERFORMANCE CONTRAST PAVEMENT MARKINGS

ITEM	QUANTITY
4" WHITE SKIP	350 L.F.
4" YELLOW CONTINUOUS	1386 L.F.
4" YELLOW SKIP	350 L.F.

PERMANENT STRIPING QUANTITIES
WILDLIFE REFUGE RD.

ITEM	QUANTITY
4" WHITE CONTINUOUS	988 L.F.
4" YELLOW CONTINUOUS	922 L.F.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16



PERMANENT PAVEMENT MARKING DETAILS

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				6	ARK.			
				JOB NO.		CA1002	70	319
				(2)	PERM. PVMT. MARKING DETAILS			

PERMANENT STRIPING QUANTITIES
HWY. 18 (STA. 1290+00 TO STA. 1305+00)

ITEM	QUANTITY
4" WHITE SKIP	450 L.F.
4" WHITE CONTINUOUS	3332 L.F.
4" YELLOW CONTINUOUS	1878 L.F.
4" YELLOW SKIP	230 L.F.
RAISED PAVEMENT MARKER (TYPE II) WHITE/RED	45 EACH
RAISED PAVEMENT MARKER (TYPE II) YELLOW/YELLOW	29 EACH

BRIDGE NO. 07392 STA. 1289+99.41 TO STA. 1295+08.59
HIGH PERFORMANCE CONTRAST PAVEMENT MARKINGS

ITEM	QUANTITY
4" WHITE SKIP	260 L.F.
4" YELLOW CONTINUOUS	1018 L.F.
4" YELLOW SKIP	260 L.F.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESSY
9/12/16

1290 1295 1300 1305

BEGIN CONTRAST PAVEMENT MARKINGS

END CONTRAST PAVEMENT MARKINGS

C. L. HWY. 18

4" WHITE SKIP

4" WHITE CONTINUOUS

+68 +16 +36 +92

4" YELLOW SKIP

RAISED PAVEMENT MARKERS @ 80' O.C. (TYPE II) (WHITE/RED)

4" WHITE SKIP

4" WHITE CONTINUOUS

RAISED PAVEMENT MARKERS @ 80' O.C. (TYPE II) (YELLOW/YELLOW)

BIG LAKE FLOODWAY RELIEF

N. COUNTY RD. 309

12 12 12 12

PERMANENT PAVEMENT MARKING DETAILS

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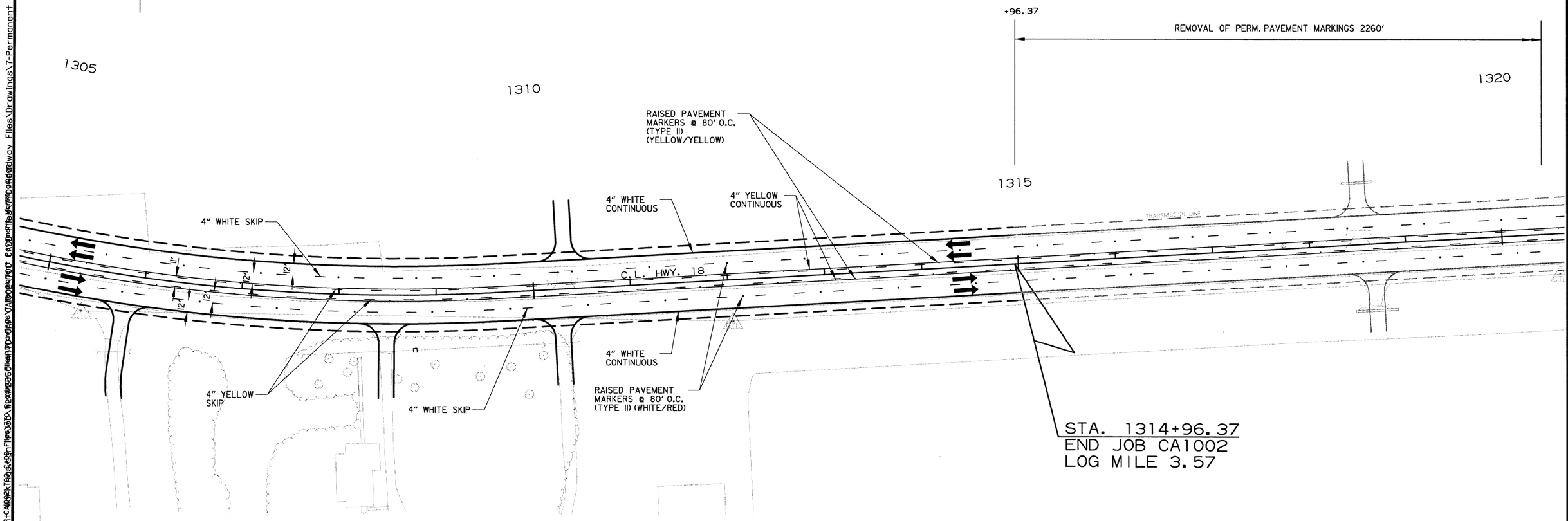
PERMANENT STRIPING QUANTITIES
HWY. 18 (STA. 1305+00 TO STA. 1320+00)

ITEM	QUANTITY
4" WHITE SKIP	750 L.F.
4" WHITE CONTINUOUS	3000 L.F.
4" YELLOW CONTINUOUS	3000 L.F.
4" YELLOW SKIP	750 L.F.
RAISED PAVEMENT MARKER (TYPE II) WHITE/RED	38 EACH
RAISED PAVEMENT MARKER (TYPE II) YELLOW/YELLOW	38 EACH

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.		CA1002	71	319

(2) PERM. PVMT. MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESEY
9/12/16



PERMANENT PAVEMENT MARKING DETAILS

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PERMANENT STRIPING QUANTITIES
HWY. 18 (STA. 1320+00 TO STA. 1335+00)

ITEM	QUANTITY
4" WHITE SKIP	750 L.F.
4" WHITE CONTINUOUS	3000 L.F.
4" YELLOW CONTINUOUS	3000 L.F.
4" YELLOW SKIP	750 L.F.
RAISED PAVEMENT MARKER (TYPE II) WHITE/RED	38 EACH
RAISED PAVEMENT MARKER (TYPE II) YELLOW/YELLOW	38 EACH

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.		CA1002	72	319

(2) PERM. PVMT. MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESEY
9/12/16

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REMOVAL OF PERM. PAVEMENT MARKINGS 2260'

1320 1325 1330 1335

4" WHITE SKIP
4" WHITE CONTINUOUS
4" YELLOW CONTINUOUS
4" WHITE CONTINUOUS
RAISED PAVEMENT MARKERS @ 80' O.C. (TYPE II (WHITE/RED)
4" WHITE SKIP
4" WHITE CONTINUOUS
4" YELLOW SKIP
RAISED PAVEMENT MARKERS @ 80' O.C. (TYPE II) (YELLOW/YELLOW)

PARKING

PERMANENT PAVEMENT MARKING DETAILS

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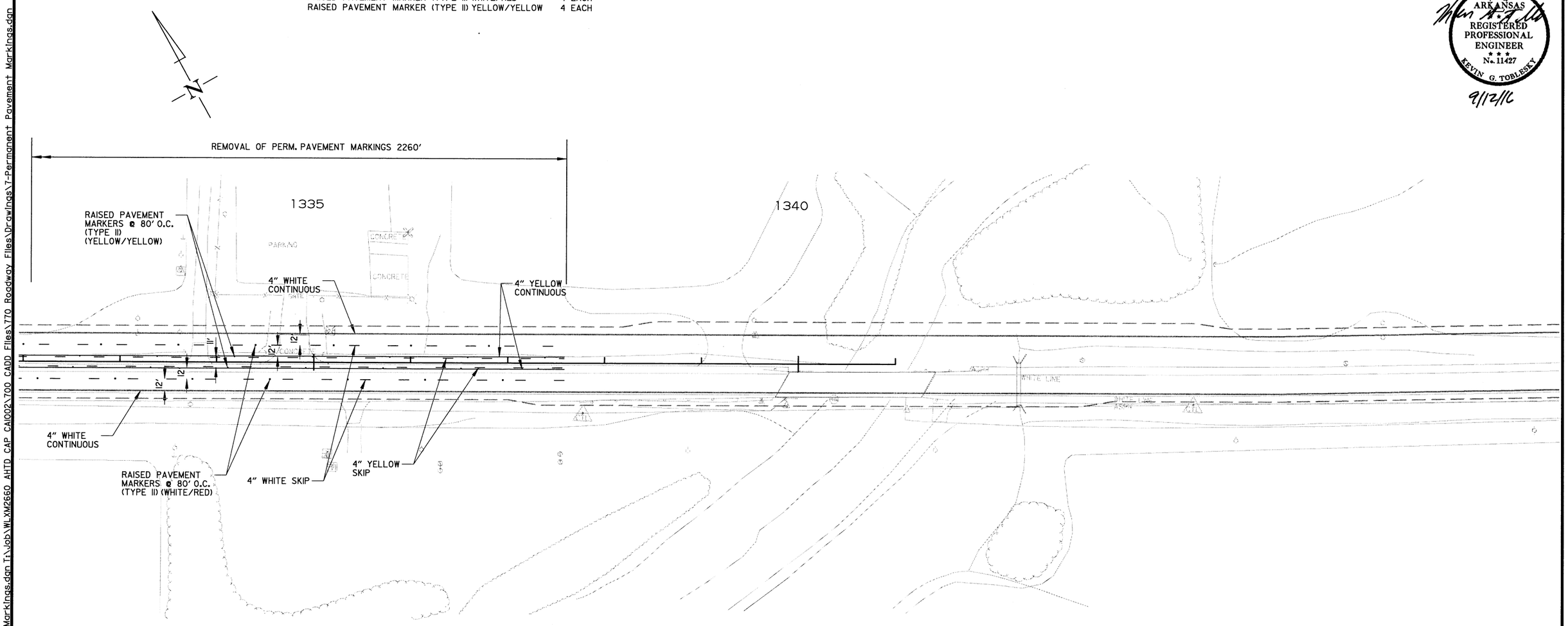
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				6	ARK.			
				JOB NO.		CA1002	73	319

(2) PERM. PVMT. MARKING DETAILS

PERMANENT STRIPING QUANTITIES
HWY. 18 (STA. 1335+00 TO STA. 1337+56.37)

ITEM	QUANTITY
4" WHITE SKIP	130 L.F.
4" WHITE CONTINUOUS	520 L.F.
4" YELLOW CONTINUOUS	520 L.F.
4" YELLOW SKIP	130 L.F.
RAISED PAVEMENT MARKER (TYPE II) WHITE/RED	4 EACH
RAISED PAVEMENT MARKER (TYPE II) YELLOW/YELLOW	4 EACH

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESEY
9/12/16



PERMANENT PAVEMENT MARKING DETAILS

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				6	ARK.			
				JOB NO.		CA1002	74	319

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESEY
9/14/16

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1A	STAGE 1B	STAGE 2	STAGE 3	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)		FURNISHING & INSTALLING PRECAST CONC. BARRIER	RELOCATING PRECAST CONCRETE BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER (RELOCATION)	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)
												RIGHT	LEFT					
			LIN. FT. - EACH					NO.	SQ. FT.	EACH		LIN. FT.		LIN. FT.		EACH		
G20-1	ROAD WORK NEXT xx MILES	60" X 24"	2	2	2	2	2	2	20.0									
G20-2	END ROAD WORK	48" X 24"	14	14	14	14	14	14	112.0									
M4-9L	DETOUR WITH ARROW	30" X 24"			2		2	2	10.0									
M4-9R	DETOUR WITH ARROW	30" X 24"			2		2	2	10.0									
R11-2	ROAD CLOSED	48" X 30"	2	2	6	4	6	6	60.0									
W20-1	ROAD WORK 1500 FT.	48" X 48"	2	2	2	2	2	2	32.0									
W20-1	ROAD WORK 1000 FT.	48" X 48"	2	2	2	2	2	2	32.0									
W20-1	ROAD WORK 500 FT.	48" X 48"	14	14	14	14	14	14	224.0									
D3-1	COUNTY RD. 346	36" X 12"			4		4	4	12.0									
SPECIAL	WARNING! BRIDGE CONSTRUCTION FOLLOW MARKED NAVIGATION CHANNEL SLOW NO WAKE ZONE	60" X 36"	2	2	2	2	2	2	30.0									
SPECIAL	WARNING! BRIDGE CONSTRUCTION AT HWY. 18 FOLLOW MARKED NAVIGATION CHANNEL	60" X 36"	1	1	1	1	1	1	15.0									
	VERTICAL PANELS				91		91			91								
	TRAFFIC DRUMS				81	300	300				300							
	TYPE III BARRICADE-RT. (8')			2	6		6					48						
	TYPE III BARRICADE-LT. (8')			2	4		4						32					
	TYPE III BARRICADE-RT. (16')			2	1	4	4					64						
	TYPE III BARRICADE-LT. (16')			2	1	4	4						64					
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER				1759	1680	3439							3439				
	RELOCATING PRECAST CONCRETE BARRIER					1759	1759								1759			
	TEMPORARY IMPACT ATTENUATION BARRIER				5		5									5		
	TEMPORARY IMPACT ATTENUATION BARRIER (RELOCATION)					5	5										5	
	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)				5	5	10											10
TOTALS:									557.0	91	300	112	96	3439	1759	5	5	10

NOTE: THIS IS A HIGH TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2014 EDITION.

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 3	END OF JOB	REMOVAL OF PERMANENT PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS		THERMOPLASTIC PAVEMENT MARKINGS				REFLECTORIZED PAINT PAVEMENT MARKINGS		HIGH PERFORMANCE CONTRAST PAVEMENT MARKING	
						TYPE II (WHITE / RED)	TYPE II (YELLOW/YELLOW)	4" WHITE	4" YELLOW	WORDS	ARROWS	4" WHITE	4" YELLOW	4" WHITE	4" YELLOW
	LIN. FT. - EACH		LIN. FT.			EACH		LIN. FT.		EACH		LIN. FT.		LIN. FT.	
REMOVAL OF PERMANENT PAVEMENT MARKINGS	1200	2260	3460												
CONSTRUCTION PAVEMENT MARKINGS	30572			30572											
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	9792				9792										
RAISED PAVEMENT MARKERS TYPE II (WHITE / RED)		397				397									
RAISED PAVEMENT MARKERS TYPE II (YELLOW / YELLOW)		363					363								
THERMOPLASTIC PAVEMENT MARKING WHITE (4")		32756						32756							
THERMOPLASTIC PAVEMENT MARKING (SKIP LINE) WHITE (4")		6660						6660							
THERMOPLASTIC PAVEMENT MARKING YELLOW (4")		27731							27731						
THERMOPLASTIC PAVEMENT MARKING (SKIP LINE) YELLOW (4")		6140							6140						
THERMOPLASTIC PAVEMENT MARKING WORDS		5								5					
THERMOPLASTIC PAVEMENT MARKING ARROWS		5									5				
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (4")		988										988			
REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (4")		922											922		
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING (SKIP LINE) WHITE (4")		940												940	
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING YELLOW (4")		3688													3688
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING (SKIP LINE) YELLOW (4")		940													940
TOTALS:			3460	30572	9792	397	363	39416	33871	5	5	988	922	940	4628

NOTE: THIS IS A HIGH TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2014 EDITION.

NOTE: NO PERMANENT PAVEMENT MARKINGS SHALL BE PLACED UNTIL A MINIMUM OF 3 DAYS AFTER ALL MAIN LANE PAVING HAS BEEN COMPLETED.
IN ADDITION, NO PERMANENT PAVEMENT MARKINGS SHALL BE PLACED DURING THE TIME PERIOD FROM DECEMBER 21 TO MARCH 15, INCLUSIVE.

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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.		CA1002	75	319
				(2)		QUANTITIES		

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16

REMOVAL AND DISPOSAL ITEMS

FROM STATION	FROM SIDE	FROM LOCATION	TO STATION	TO SIDE	TO LOCATION	WALKS SQ. YD.	APPROACH SLAB AND GUTTERS EACH	PIPE CULVERTS EACH	BOX CULVERTS EACH	JUNCTION BOXES EACH	IMPACT ATTENUATION BARRIER EACH	SIGN FOUNDATIONS EACH	SIGNS EACH	GUARDRAIL LIN. FT.
1222+59		C.L. HWY. 18							1					
1224+15	LEFT	C.L. HWY. 18										2	1	
1224+36		C.L. HWY. 18							1					
1227+57	LEFT	C.L. HWY. 18						1						
1235+83	LEFT	C.L. HWY. 18	1237+83	LEFT	C.L. HWY. 18									200
1237+05	LEFT	C.L. HWY. 18	1237+80	LEFT	C.L. HWY. 18									75
1240+66	LEFT	C.L. HWY. 18	1241+41	LEFT	C.L. HWY. 18									75
1240+67	LEFT	C.L. HWY. 18	1242+67	LEFT	C.L. HWY. 18									200
1237+64	LEFT	C.L. HWY. 18					1							
1240+84	LEFT	C.L. HWY. 18					1							
1244+39	LEFT	C.L. HWY. 18										2	1	
1260+07	LEFT	C.L. HWY. 18						1						
1260+18	LEFT	C.L. HWY. 18										2	1	
1270+00	RIGHT	C.L. HWY. 18												40
1270+00	RIGHT	C.L. HWY. 18										2	1	
1270+81	RIGHT	C.L. HWY. 18	1273+06	RIGHT	C.L. HWY. 18									225
1272+04	RIGHT	C.L. HWY. 18	1273+04	RIGHT	C.L. HWY. 18									100
1281+42	RIGHT	C.L. HWY. 18									1			
1281+42	LEFT	C.L. HWY. 18									1			
1288+55	RIGHT	C.L. HWY. 18	1290+55	RIGHT	C.L. HWY. 18									200
1289+83	RIGHT	C.L. HWY. 18	1290+58	RIGHT	C.L. HWY. 18									75
1286+20	LEFT	C.L. HWY. 18						1						
1290+38	RIGHT	C.L. HWY. 18					1							
1294+95	RIGHT	C.L. HWY. 18					1							
1294+79	RIGHT	C.L. HWY. 18	1296+79	RIGHT	C.L. HWY. 18									200
1294+79	RIGHT	C.L. HWY. 18	1295+79	RIGHT	C.L. HWY. 18									100
1302+11	RIGHT	C.L. HWY. 18										1	1	
1302+70	RIGHT	C.L. HWY. 18										1	1	
1305+79	RIGHT	C.L. HWY. 18						1						
1308+25	RIGHT	C.L. HWY. 18				15								
1308+49	RIGHT	C.L. HWY. 18						1		1				
1310+33	LEFT	C.L. HWY. 18						1						
1310+28	RIGHT	C.L. HWY. 18						1						
TOTALS:						15	4	7	2	1	2	10	6	1490

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

BENCH MARKS

STATION	LOCATION	EACH
1222+30	SOUTHEAST CORNER OF BOX CULVERT	1
1237+80	NORTHWEST CORNER OF BRIDGE	1
1272+70	NORTHWEST CORNER OF BRIDGE	1
1290+40	NORTHWEST CORNER OF BRIDGE	1
TOTAL:		4

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

FLOWABLE SELECT MATERIAL

	STATION	LOCATION	LENGTH LIN. FT.	WIDTH FEET	DEPTH FEET	CU. YD.
*	1224+00	C.L. HWY. 18	22	5.67	6.50	1.6
**	1224+36	C.L. HWY. 18	55	3.00	2.00	12.2
***	1244+00	RT. OF C.L. HWY. 18	94	2.00		10.9
***	1247+00	RT. OF C.L. HWY. 18	80	2.00		9.3
***	1253+50	RT. OF C.L. HWY. 18	80	2.00		9.3
***	1256+00	RT. OF C.L. HWY. 18	80	2.00		9.3
***	1268+00	LT. OF C.L. HWY. 18	93	2.00		10.8
***	1287+00	LT. OF C.L. HWY. 18	117	2.00		13.6
***	1300+00	LT. OF C.L. HWY. 18	86	2.00		10.0
***	1309+50	LT. OF C.L. HWY. 18	54	2.00		6.3
***	1312+00	LT. OF C.L. HWY. 18	63	2.00		7.3
	TOTAL:					100.6

* NOTE: FOR THE PAVEMENT REPAIR OVER CULVERT.
** NOTE: FOR THE ABANDONMENT OF BOX CULVERT.
*** NOTE: FOR THE ABANDONMENT OF TEMPORARY PIPE CULVERT.

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING STATION	GRUBBING STATION
1223+00	1232+00	C.L. HWY. 18	9	9
1260+00	1269+00	C.L. HWY. 18	9	9
1279+00	1280+00	C.L. HWY. 18	1	1
1282+00	1290+00	C.L. HWY. 18	8	8
1298+00	1302+00	C.L. HWY. 18	4	4
1306+00	1311+00	C.L. HWY. 18	5	5
TOTALS:			36	36

NOTE: CLEARING AND GRUBBING QUANTITIES SHALL BE FROM RIGHT OF WAY TO RIGHT OF WAY UNLESS OTHERWISE NOTED ON THE PLANS.
REFER TO SECTION 201 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL INFORMATION.

REMOVAL OF EXISTING PORTLAND CEMENT CONCRETE PAVEMENT

STATION	STATION	LOCATION	LENGTH LIN. FT.	WIDTH FEET	SQ. YD.
1236+10	1237+44	C.L. HWY. 18	134	22	328
1241+01	1242+37	C.L. HWY. 18	136	22	332
1281+28	1283+08	C.L. HWY. 18	180	22	440
1288+72	1290+21	C.L. HWY. 18	149	22	364
1295+13	1296+30	C.L. HWY. 18	117	22	286
TOTAL:					1750

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	COMPACTED EMBANKMENT (SPECIAL)	COHESIVE SOIL BACKFILL	*SOIL STABILIZATION
			CU. YD.				TON
1220+00	1314+96	HWY. 18	6402	185591	26019	1404	
11+80	17+12	WILDLIFE REFUGE ROAD	308	5018			
ENTIRE PROJECT		DRIVEWAYS		5600			
1222+68		COUNTY RD. 346	220				
1222+59		CHANNEL CHANGE INLET - BOX CULVERT	59				
1222+59		CHANNEL CHANGE OUTLET - BOX CULVERT	150				
ENTIRE PROJECT		TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.					300
TOTALS:			7139	196209	26019	1404	300

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

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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.		CA1002	76	319

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESEY
9/22/16

PERMANENT EROSION CONTROL

STATION	STATION	LOCATION / DESCRIPTION	SEEDING	SPECIAL SEEDING	LIME	MULCH COVER	SPECIAL MULCH COVER	WATER	SECOND SEEDING APPLICATION	SPECIAL SECOND SEEDING APPLICATION
			ACRE		TON	ACRE		M. GAL.	ACRE	
ENTIRE	PROJECT		5.00	11.00	32.00	5.00	11.00	1632.0	5.00	11.00
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			1.25	2.75	8.00	1.25	2.75	408.0	1.25	2.75
TOTALS:			**6.25**	**13.75**	**40.00**	**6.25**	**13.75**	**2040.0**	**6.25**	**13.75**

BASIS OF ESTIMATE:
LIME .....2 TONS / ACRE OF SEEDING & SPECIAL SEEDING
WATER.....102.0 M.G. / ACRE OF SEEDING & SPECIAL SEEDING

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

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

GUARDRAIL

STATION	STATION	SIDE	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)	TERMINAL ANCHOR POSTS (TYPE 1)
				LIN. FT.	EACH		
1235+47.77	1237+66.52	RIGHT	C.L. HWY. 18	150	1	1	
1236+72.77	1237+66.52	LEFT	C.L. HWY. 18	75	1		1
1240+83.48	1241+77.23	RIGHT	C.L. HWY. 18	75	1		1
1240+83.48	1243+02.23	LEFT	C.L. HWY. 18	150	1	1	
1270+37.76	1272+56.51	RIGHT	C.L. HWY. 18	150	1	1	
1271+62.76	1272+56.51	LEFT	C.L. HWY. 18	75	1		1
1281+65.49	1282+59.24	RIGHT	C.L. HWY. 18	75	1		1
1281+65.49	1283+84.24	LEFT	C.L. HWY. 18	150	1	1	
1288+07.76	1290+26.51	RIGHT	C.L. HWY. 18	150	1	1	
1289+32.76	1290+26.51	LEFT	C.L. HWY. 18	75	1		1
1294+81.49	1295+75.24	RIGHT	C.L. HWY. 18	75	1		1
1294+81.49	1297+00.24	LEFT	C.L. HWY. 18	150	1	1	
TOTALS:				**1350**	**12**	**6**	**6**

RUMBLE STRIPS IN ASPHALT SHOULDER

STATION	STATION	SIDE	LOCATION	LIN. FT.
1220+00	1222+09	RIGHT	C.L. HWY. 18	173
1223+87	1232+91	RIGHT	C.L. HWY. 18	712
1232+79	1234+24	RIGHT	C.L. HWY. 18	121
1235+32	1237+39	RIGHT	C.L. HWY. 18	171
1241+11	1241+75	RIGHT	C.L. HWY. 18	52
1242+85	1262+10	RIGHT	C.L. HWY. 18	1505
1262+76	1264+56	RIGHT	C.L. HWY. 18	144
1265+34	1266+24	RIGHT	C.L. HWY. 18	78
1266+94	1269+39	RIGHT	C.L. HWY. 18	197
1270+49	1272+29	RIGHT	C.L. HWY. 18	144
1281+93	1282+41	RIGHT	C.L. HWY. 18	48
1283+53	1289+99	RIGHT	C.L. HWY. 18	514
1295+09	1297+32	RIGHT	C.L. HWY. 18	175
1298+42	1302+02	RIGHT	C.L. HWY. 18	288
1303+08	1305+50	RIGHT	C.L. HWY. 18	194
1303+14	1308+17	RIGHT	C.L. HWY. 18	395
1308+81	1309+95	RIGHT	C.L. HWY. 18	90
1310+61	1314+96	RIGHT	C.L. HWY. 18	339
1220+00	1227+23	LEFT	C.L. HWY. 18	567
1227+89	1233+66	LEFT	C.L. HWY. 18	457
1234+78	1237+39	LEFT	C.L. HWY. 18	213
1241+11	1244+03	LEFT	C.L. HWY. 18	232
1245+13	1259+53	LEFT	C.L. HWY. 18	1128
1260+63	1272+29	LEFT	C.L. HWY. 18	914
1281+92	1285+70	LEFT	C.L. HWY. 18	294
1286+80	1289+99	LEFT	C.L. HWY. 18	259
1295+09	1301+39	LEFT	C.L. HWY. 18	498
1302+53	1310+00	LEFT	C.L. HWY. 18	591
1310+66	1314+96	LEFT	C.L. HWY. 18	346
TOTAL:				**10839**

APPROACH GUTTERS AND SLABS

STATION	STATION	LOCATION	DESCRIPTION	APPROACH GUTTERS (TYPE C)	APPROACH SLABS (TYPE SPECIAL 1)	APPROACH SLABS TYPE SPECIAL 2)	REINFORCING STEEL - RDWY. (GR. 60)	AGGREGATE BASE CRS. (CLASS 7)
				CU. YD.	CU. YD.	CU. YD.	POUND	TON
1237+39.42	1237+75.92	RT. OF C.L. HWY. 18	DITCH 81	14.80			810	
1237+39.42	1237+75.92	C.L. HWY. 18	DITCH 81		120.46		15400	83.7
1237+39.42	1237+75.92	LT. OF C.L. HWY. 18	DITCH 81	14.80			810	
1240+74.08	1241+10.58	RT. OF C.L. HWY. 18	DITCH 81	14.80			810	
1240+74.08	1241+10.58	C.L. HWY. 18	DITCH 81		120.46		15400	83.7
1240+74.08	1241+10.58	LT. OF C.L. HWY. 18	DITCH 81	14.80			810	
1272+29.42	1272+65.92	RT. OF C.L. HWY. 18	BIG LAKE OUTLET	14.80			810	
1272+29.42	1272+65.92	C.L. HWY. 18	BIG LAKE OUTLET			120.46	14347	83.7
1272+29.42	1272+65.92	LT. OF C.L. HWY. 18	BIG LAKE OUTLET	14.80			810	
1281+56.08	1281+92.58	RT. OF C.L. HWY. 18	BIG LAKE OUTLET	14.80			810	
1281+56.08	1281+92.58	C.L. HWY. 18	BIG LAKE OUTLET			120.46	14347	83.7
1281+56.08	1281+92.58	LT. OF C.L. HWY. 18	BIG LAKE OUTLET	14.80			810	
1289+99.41	1290+35.91	RT. OF C.L. HWY. 18	BIG LAKE FLOODWAY RELIEF	14.80			810	
1289+99.41	1290+35.91	C.L. HWY. 18	BIG LAKE FLOODWAY RELIEF			120.46	14347	83.7
1289+99.41	1290+35.91	LT. OF C.L. HWY. 18	BIG LAKE FLOODWAY RELIEF	14.80			810	
1294+72.09	1295+08.59	RT. OF C.L. HWY. 18	BIG LAKE FLOODWAY RELIEF	14.80			810	
1294+72.09	1295+08.59	C.L. HWY. 18	BIG LAKE FLOODWAY RELIEF			120.46	14347	83.7
1294+72.09	1295+08.59	LT. OF C.L. HWY. 18	BIG LAKE FLOODWAY RELIEF	14.80			810	
TOTALS:				**177.60**	**240.92**	**481.84**	**97908.00**	**502.2**

SHOULDER WIDTH = 8'
SLAB WIDTH =59'

TEMPORARY EROSION CONTROL ITEMS AND DEVICES

STATION	STATION	LOCATION	TEMPORARY SEEDING	MULCH COVER	WATER	WATTLE (12") DITCH CHECKS (E-1)	SAND BAG DITCH CHECKS (E-5)	ROCK DITCH CHECKS (E-6)	SILT FENCE (E-11)	SEDIMENT BASIN (E-9)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	ACRE	M. GAL.	LIN. FT.	BAG	CU. YD.	LIN. FT.	CU. YD.	CU. YD.	CU. YD.
ENTIRE	PROJECT	PRIOR TO CONSTRUCTION							11096			411
ENTIRE	PROJECT	STAGE I CONSTRUCTION	1.80	1.80	36.7		66	3				4
ENTIRE	PROJECT	STAGE II CONSTRUCTION	7.72	7.72	157.5		264	39				25
ENTIRE	PROJECT	STAGE III CONSTRUCTION	6.05	6.05	123.4		132	18				22
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			3.89	3.89	79.4	90.0	110	15	2774	100	100	203
TOTALS:			**19.46**	**19.46**	**397.0**	**90.0**	**572**	**75**	**13870**	**100**	**100**	**665**

BASIS OF ESTIMATE:
WATER.....20.4 M.G. / ACRE OF TEMPORARY SEEDING
SAND BAG DITCH CHECKS.....22 BAGS / LOCATION
ROCK DITCH CHECKS.....3 CU. YD./LOCATION
WATTLE DITCH CHECKS.....9 LIN. FT./LOCATION

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

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

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	LENGTH LIN. FT.	AVG. WIDTH FEET	SQ. YD.
1314+96	1315+96	C.L. HWY. 18	100	59	655.56
TOTAL:					**655.56**

NOTE: AVERAGE MILLING DEPTH 1".

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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.		CA1002	77	319
				(2)		QUANTITIES		

SOIL LOG

STATION	LATITUDE			LONGITUDE			LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
	DEG	MIN	SEC	DEG	MIN	SEC		FEET				
1220+00	35	51	31.10	90	8	34.50	5' LT. OF C.L.	0-5	20	4	A-4(0)	BROWN
1220+00	35	51	30.90	90	8	34.60	16' LT. OF C.L.	0-5	19	7	A-4(0)	BROWN
1224+00	35	51	27.90	90	8	31.90	15' RT. OF C.L.	0-5	ND	NP	A-4(0)	BROWN
1228+00	35	51	24.80	90	8	28.90	25' LT. OF C.L.	0-5	25	5	A-4(1)	BROWN
1228+00	35	51	25.10	90	8	28.50	50' LT. OF C.L.	0-5	27	9	A-4(4)	BROWN
1232+00	35	51	21.70	90	8	26.00	C.L.	0-5	30	19	A-6(6)	BROWN/GRAY
1236+00	35	51	19.00	90	8	22.60	5' LT. OF C.L.	0-5	ND	NP	A-2-4(0)	BROWN/GRAY
1236+00	35	51	19.10	90	8	22.50	20' LT. OF C.L.	0-5	25	14	A-6(4)	BROWN/GRAY
1242+00	35	51	15.50	90	8	16.60	C.L.	0-5	39	15	A-6(13)	BROWN
1246+00	35	51	13.80	90	8	12.20	35' LT. OF C.L.	0-5	33	18	A-6(7)	BROWN/GRAY
1246+00	35	51	13.90	90	8	12.00	50' LT. OF C.L.	0-5	36	21	A-6(15)	BROWN
1250+00	35	51	11.50	90	8	8.20	3' LT. OF C.L.	0-5	39	20	A-6(12)	BROWN
1254+00	35	81	9.60	90	8	3.90	10' LT. OF C.L.	0-5	33	21	A-6(9)	BROWN
1254+00	35	51	9.70	90	8	3.90	25' LT. OF C.L.	0-5	26	11	A-6(1)	BROWN/GRAY
1258+00	35	51	7.50	90	7	59.80	2' RT. OF C.L.	0-5	37	15	A-6(7)	BROWN
1262+00	35	51	5.80	90	7	55.50	16' LT. OF C.L.	0-5	34	17	A-6(4)	BROWN/GRAY
1262+00	35	51	6.00	90	7	55.30	30' LT. OF C.L.	0-5	27	9	A-2-4(0)	BROWN
1266+00	35	51	4.00	90	7	51.10	15' LT. OF C.L.	0-5	30	15	A-6(4)	BROWN
1270+00	35	51	1.70	90	7	47.10	16' RT. OF C.L.	0-5	27	16	A-6(2)	BROWN/GRAY
1270+00	35	51	1.60	90	7	47.30	40' RT. OF C.L.	0-5	33	21	A-6(7)	GRAY/BROWN
1282+00	35	50	55.90	90	7	34.20	C.L.	0-5	26	7	A-4(2)	BROWN
1286+00	35	50	53.90	90	7	30.00	2' RT. OF C.L.	0-5	28	13	A-6(5)	GRAY
1289+80	35	50	52.00	90	7	26.10	C.L.	0-5	36	18	A-6(6)	BROWN
1296+00	35	50	48.80	90	7	19.90	31' RT. OF C.L.	0-5	38	25	A-6(9)	BROWN/GRAY
1296+00	35	50	48.70	90	7	2.00	47' RT. OF C.L.	0-5	30	17	A-6(3)	GRAY
1300+00	35	50	47.10	90	7	15.50	C.L.	0-5	42	25	A-7-6(17)	BROWN
1304+00	35	50	45.50	90	7	11.10	20' RT. OF C.L.	0-5	33	15	A-6(6)	BROWN
1304+00	35	50	45.70	90	7	11.10	C.L.	0-5	25	9	A-2-4(0)	BROWN
1308+00	35	50	45.01	90	7	6.30	C.L.	0-5	27	7	A-4(1)	BROWN
1312+00	35	50	44.80	90	7	1.50	25' RT. OF C.L.	0-5	20	5	A-4(0)	BROWN
1312+00	35	50	44.20	90	7	1.50	40' RT. OF C.L.	0-5	19	4	A-2-4(0)	BROWN/GRAY

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

SELECTED PIPE BEDDING

LOCATION	CU.YD.
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.	70
TOTAL:	**70**

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESEY
9/22/16

DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG 64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS		
							18"	24"	72"
			FEET	SQ. YD.	TON	TON	LIN. FT.		
1223+52	RIGHT	C.L. HWY. 18	20	99.0	10.9	40.4	36		
1227+57	LEFT	C.L. HWY. 18	20	96.8	10.6	39.5	34		
1234+22	LEFT	C.L. HWY. 18	20	120.9	13.3	49.4			
1232+35	RIGHT	C.L. HWY. 18	40	252.3	27.8	103.0			
1234+78	LEFT	C.L. HWY. 18	20	178.6	19.6	72.9			
1242+30	RIGHT	C.L. HWY. 18	20	505.3	55.6	206.3			
1244+58	LEFT	C.L. HWY. 18	20	127.5	14.0	52.1			
1260+08	LEFT	C.L. HWY. 18	20	152.3	16.8	62.2		98	
1262+43	RIGHT	C.L. HWY. 18	16	108.3	11.9	44.2			
1264+95	RIGHT	C.L. HWY. 18	28	227.4	25.0	92.9	44		
1266+59	RIGHT	C.L. HWY. 18	20	176.8	19.4	72.2	40		
1269+94	RIGHT	C.L. HWY. 18	20	283.1	31.1	115.6			
1283+00	RIGHT	C.L. HWY. 18	20	716.4	78.8	292.5			
1286+25	LEFT	C.L. HWY. 18	20	483.1	53.1	197.3		110	
1286+85	LEFT	C.L. HWY. 18							96
1297+87	RIGHT	C.L. HWY. 18	20	249.7	27.5	102.0			
1301+96	LEFT	C.L. HWY. 18	20	123.1	13.5	50.3			
1302+55	RIGHT	C.L. HWY. 18	20	223.1	24.5	91.1			
1302+55	RIGHT	C.L. HWY. 18	12	61.3	6.7	25.0			
1305+82	RIGHT	C.L. HWY. 18	16	158.0	17.4	64.5		54	
1308+49	RIGHT	C.L. HWY. 18	16	122.5	13.5	50.0		52	
1310+33	LEFT	C.L. HWY. 18	16	97.6	10.7	39.9	36		
1310+28	RIGHT	C.L. HWY. 18	16	110.0	12.1	44.9		42	
* ENTIRE PROJECT TEMPORARY DRIVES						954.1			
TOTALS:					**513.8**	**2862.3**	**190**	**356**	**96**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.6% MIN. AGGR.....5.4% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

NOTE: FOR R.C. PIPE CULVERT INSTALLATIONS USE TYPE 3 BEDDING UNLESS OTHERWISE SPECIFIED.
NOTE: FOR C.M. PIPE CULVERT INSTALLATIONS USE TYPE 2 BEDDING UNLESS OTHERWISE SPECIFIED.

STRUCTURES

STATION	SIDE	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT (CLASS III)	FLARED END SECTIONS FOR R.C. PIPE CULVERTS	TEMPORARY CULVERT	SPAN	HEIGHT	LENGTH	CLASS S CONCRETE-ROADWAY	REINF. STEEL-ROADWAY (GRADE 60)	UNCL. EXC. FOR STR.-ROADWAY	SOLID SODDING	WATER	STANDARD DRAWING NUMBERS
			36"	36"	24"									
			LIN. FT.	EACH	LIN. FT.		LIN. FT.		CU. YD.	POUND	CU. YD.	SQ. YD.	M. GAL.	
1224+00	C.L.	CONSTRUCT PIPE CULVERT	114	2								34	0.43	FES-1, FES-2, PCC-1
1244+00	RIGHT	INSTALL TEMPORARY PIPE CULVERT			94									PCC-1, PCM-1, PCP-1, PCP-2
1247+00	RIGHT	INSTALL TEMPORARY PIPE CULVERT			80									PCC-1, PCM-1, PCP-1, PCP-2
1253+50	RIGHT	INSTALL TEMPORARY PIPE CULVERT			80									PCC-1, PCM-1, PCP-1, PCP-2
1256+00	RIGHT	INSTALL TEMPORARY PIPE CULVERT			80									PCC-1, PCM-1, PCP-1, PCP-2
1268+00	RIGHT	INSTALL TEMPORARY PIPE CULVERT			93									PCC-1, PCM-1, PCP-1, PCP-2
1287+00	LEFT	INSTALL TEMPORARY PIPE CULVERT			117									PCC-1, PCM-1, PCP-1, PCP-2
1300+00	LEFT	INSTALL TEMPORARY PIPE CULVERT			86									PCC-1, PCM-1, PCP-1, PCP-2
1309+50	LEFT	INSTALL TEMPORARY PIPE CULVERT			54									PCC-1, PCM-1, PCP-1, PCP-2
1312+00	LEFT	INSTALL TEMPORARY PIPE CULVERT			63									PCC-1, PCM-1, PCP-1, PCP-2
STRUCTURES OVER 20' - 0" SPAN														
1222+59	C.L.	CONSTRUCT QUAD. BOX CULVERT				5	5	138	267.32	34581	87	242	3.05	SPECIAL DETAILS, RCB-1, RCB-2
TOTALS:			**114**	**2**	**747**				**267.32**	**34581**	**87**	**276**	**3.48**	

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

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

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

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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.		CA1002	78	319

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	45	90
TOTALS:	**45**	**90**

BASIS OF ESTIMATE: PATCHING 25 TONS PER MILE
TACK 50 GAL. PER MILE
NOTE: QUANTITIES ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

ACHM PATCHING OF EXISTING ROADWAY

LOCATION / DESCRIPTION	TON
ENTIRE PROJECT - TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	50
TOTAL:	**50**

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

INFORMATIONAL KIOSK

STATION	LOCATION	EACH
1259+52.16	343.61' LT. OF C.L. HWY. 18	1
1281+24.72	594.75' LT. OF C.L. HWY. 18	1
TOTAL:		**2**

NOTE: REFER TO SPECIAL PROVISION " INFORMATIONAL KIOSKS" FOR ADDITIONAL INFORMATION.

CONCRETE ISLAND

STATION	STATION	SIDE	LOCATION	SQ.YD.
1270+25	1271+35	RIGHT	C.L. HWY. 18	49
TOTAL:				**49**

MAILBOXES

STATION	SIDE	LOCATION	MAILBOXES	MAILBOX SUPPORTS (SINGLE) EACH
1308+40	RIGHT	C.L. HWY. 18	1	1
TOTALS:			**1**	**1**

PAVEMENT REPAIR OVER CULVERTS (CONCRETE)

STATION	LOCATION	WIDTH FEET	LENGTH FEET	DEPTH INCH	CU. YD.
1224+00	C.L. HWY. 18	8.67	22	9	5.3
TOTAL:					**5.3**

CONCRETE DITCH PAVING

STATION	STATION	SIDE	LOCATION	LENGTH LIN. FT.	"W" FEET	CONC. DITCH PAVING (TYPE B) SQ. YD.	SOLID SODDING SQ. YD.	WATER M. GAL.
1270+25	1272+65	RIGHT	C.L. HWY. 18	240	4	106.67	53.33	0.67
TOTALS:						**106.67**	**53.33**	**0.67**

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

CURBING

FROM STATION	FROM SIDE	FROM LOCATION	TO STATION	TO SIDE	TO LOCATION	CONCRETE CURB (TYPE A) LIN. FT.
1270+25	RIGHT	C.L. HWY. 18	1271+35	RIGHT	C.L. HWY. 18	110
TOTAL:						**110**

RETAINING WALLS

STATION	STATION	SIDE	LOCATION	CLASS S CONCRETE-ROADWAY CU. YD.	REINF. STEEL-ROADWAY (GRADE 60) POUND	UNCLASSIFIED EXCAVATION FOR STRUCTURES-RDWY. CU. YD.	AGGREGATE BASE COURSE (CLASS 7) TON	SELECT GRANULAR BACKFILL CU. YD.
1270+25	1272+65	RIGHT	C.L. HWY. 18	220.14	20187	1955	350	677
TOTALS:				**220.14**	**20187**	**1955**	**350**	**677**

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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.		CAI002	79	319
				(2)		QUANTITIES		

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESEY
9/13/16

BASE AND SURFACING - MAIN LANES

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		GEOTEXTILE FABRIC (TYPE 8)		TACK COAT				ACHM BASE COURSE (1 1/2")				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")			
				TON / STATION	TON	AVG. WIDTH	SQ. YD.	TOTAL WIDTH	SQ. YD.	GALLONS / SQ. YD.	GALLON	AVG. WIDTH	SQ. YD.	POUND / SQ. YD.	PG 64-22	AVG. WIDTH	SQ. YD.	POUND / SQ. YD.	PG 64-22	AVG. WIDTH	SQ. YD.	POUND / SQ. YD.	PG 64-22
			FEET			FEET		FEET				FEET			TON	FEET			TON	FEET			TON
MAIN LANES																							
1220+00.00	1225+95.71	C.L. HWY. 18 - NOTCH AND WIDENING	595.71	159.50	950.16	41.00	2713.79	82.42	5455.38	0.05	272.77					41.29	2732.99	660	901.89	41.13	2722.39	220	299.46
1225+95.71	1236+10.00	C.L. HWY. 18 SUPERELEVATION - NOTCH AND WIDENING	1014.29	159.50	1617.79	41.00	4620.65	82.42	9288.64	0.05	464.43					41.29	4653.34	660	1535.60	41.13	4635.31	220	509.88
1236+10.00	1237+39.42	C.L. HWY. 18 SUPERELEVATION - FULL DEPTH CONSTRUCTION	129.42	245.00	317.08	63.00	905.94	126.84	1823.96	0.05	91.20					63.58	914.28	660	301.71	63.26	909.68	220	100.06
1241+10.58	1242+37.00	C.L. HWY. 18 SUPERELEVATION - FULL DEPTH CONSTRUCTION	126.42	245.00	309.73	63.00	884.94	126.84	1781.68	0.05	89.08					63.58	893.09	660	294.72	63.26	888.59	220	97.74
1242+37.00	1245+40.72	C.L. HWY. 18 SUPERELEVATION - NOTCH AND WIDENING	303.72	159.50	484.43	41.00	1383.61	82.42	2781.40	0.05	139.07					41.29	1393.40	660	459.82	41.13	1388.00	220	152.68
1245+40.71	1255+60.71	C.L. HWY. 18 - NOTCH AND WIDENING	1020.00	159.50	1626.90	41.00	4646.67	82.42	9340.93	0.05	467.05					41.29	4679.53	660	1544.24	41.13	4661.40	220	512.75
1255+60.71	1270+52.05	C.L. HWY. 18 - NOTCH AND WIDENING	1491.34	159.50	2378.69	41.00	6793.88	82.42	13657.36	0.05	682.87					41.29	6841.94	660	2257.84	41.13	6815.42	220	749.70
1270+52.05	1272+29.42	C.L. HWY. 18 - NOTCH AND WIDENING	177.37	159.50	282.91	41.00	808.02	82.42	1624.32	0.05	81.22					41.29	813.73	660	268.53	41.13	810.58	220	89.16
1281+92.58	1289+99.41	C.L. HWY. 18 - FULL DEPTH CONSTRUCTION	806.83	245.00	1976.73	63.00	5647.81	126.84	11370.92	0.05	568.55					63.58	5699.81	660	1880.94	63.26	5671.12	220	623.82
1295+08.59	1309+75.00	C.L. HWY. 18 SUPERELEVATION - FULL DEPTH CONSTRUCTION	1466.41	245.00	3592.70	63.00	10264.87	126.84	20666.60	0.05	1033.33					63.58	10359.37	660	3418.59	63.26	10307.23	220	1133.80
1309+75.00	1313+68.55	C.L. HWY. 18 SUPERELEVATION - NOTCH AND WIDENING	393.55	159.50	627.71	41.00	1792.84	82.42	3604.04	0.05	180.20					41.29	1805.52	660	595.82	41.13	1798.52	220	197.84
1313+68.55	1314+96.37	C.L. HWY. 18 - NOTCH AND WIDENING	127.82	159.50	203.87	41.00	582.29	82.42	1170.55	0.05	58.53					41.29	586.41	660	193.52	41.13	584.14	220	64.26
11+80.00	12+50.91	WILDLIFE REFUGE ROAD - TURNOUT	70.91	VAR.	444.79															VAR.	765.56	220	84.21
12+50.91	17+11.81	WILDLIFE REFUGE ROAD	460.90	129.75	598.02															20.00	1024.22	220	112.66
1260+08.00		BOAT LAUNCH AREA TO NORTH (LOCATION 1)			534.11																		
1269+94.00		PARKING AREA TO SOUTH (LOCATION 2)			49.58																		
1283+00.00		PARKING AREA TO SOUTH (LOCATION 3)			18.51																		
***METHOD OF RAISING GRADE**																							
1233+25.00	1236+10.00	C.L. HWY. 18	285.00					44.00	1393.33	0.17	236.87	22.00	696.67	660	229.90	22.00	696.67	660	229.90	22.00	696.67	220	76.63
1242+37.00	1245+25.00	C.L. HWY. 18	288.00					44.00	1408.00	0.17	239.36	22.00	704.00	660	232.32	22.00	704.00	660	232.32	22.00	704.00	220	77.44
1267+25.00	1272+29.41	C.L. HWY. 18	504.41					44.00	2466.00	0.17	419.22	22.00	1233.00	660	406.89	22.00	1233.00	660	406.89	22.00	1233.00	220	135.63
1309+75.00	1312+75.00	C.L. HWY. 18	300.00					44.00	1466.67	0.17	249.33	22.00	733.33	660	242.00	22.00	733.33	660	242.00	22.00	733.33	220	80.67
***ADDITIONAL FOR LEVELING**																							
1220+00.00	1225+95.71	C.L. HWY. 18	595.71					22.00	1456.18	0.17	247.55									22.00	1456.18	220	160.18
1225+95.71	1236+10.00	C.L. HWY. 18 - SUPERELEVATION	1014.29					22.00	2479.38	0.17	421.49									22.00	2479.38	220	272.73
1242+37.00	1245+40.72	C.L. HWY. 18 - SUPERELEVATION	303.72					22.00	742.43	0.17	126.21									22.00	742.43	220	81.67
1245+40.72	1255+60.71	C.L. HWY. 18	1019.99					22.00	2493.31	0.17	423.86									22.00	2493.31	220	274.26
1255+60.71	1270+52.05	C.L. HWY. 18	1491.34					22.00	3645.50	0.17	619.74									22.00	3645.50	220	401.01
1270+52.05	1272+29.42	C.L. HWY. 18	177.37					22.00	433.57	0.17	73.71									22.00	433.57	220	47.69
1309+75.00	1313+68.55	C.L. HWY. 18 - SUPERELEVATION	393.55					22.00	962.01	0.17	163.54									22.00	962.01	220	105.82
1313+68.55	1314+96.37	C.L. HWY. 18	127.82					22.00	312.45	0.17	53.12									22.00	312.45	220	34.37
MAIN LANES - FINAL LIFT OF SURFACE																							
1187+38.38	1220+03.38	C.L. HWY. 18	3265.00					59.00	21403.89	0.17	3638.66									59.00	21403.89	220	2354.43
1220+00.00	1225+95.71	C.L. HWY. 18	595.71					63.00	4169.97	0.05	208.50									63.00	4169.97	220	458.70
1225+95.71	1236+10.00	C.L. HWY. 18	1014.29					63.00	7100.03	0.05	355.00									63.00	7100.03	220	781.00
1236+10.00	1237+39.42	C.L. HWY. 18	129.42					63.00	905.94	0.05	45.30									63.00	905.94	220	99.65
1241+10.58	1242+37.00	C.L. HWY. 18	126.42					63.00	884.94	0.05	44.25									63.00	884.94	220	97.34
1242+37.00	1245+40.72	C.L. HWY. 18	303.72					63.00	2126.04	0.05	106.30									63.00	2126.04	220	233.86
1245+40.72	1255+60.71	C.L. HWY. 18	1019.99					63.00	7139.93	0.05	357.00									63.00	7139.93	220	785.39
1255+60.71	1270+52.05	C.L. HWY. 18	1491.34					63.00	10439.38	0.05	521.97									63.00	10439.38	220	1148.33
1270+52.05	1272+29.42	C.L. HWY. 18	177.37					63.00	1241.59	0.05	62.08									63.00	1241.59	220	136.57
1281+92.58	1289+99.41	C.L. HWY. 18	806.83					63.00	5647.81	0.05	282.39									63.00	5647.81	220	621.26
1295+08.59	1309+75.00	C.L. HWY. 18	1466.41					63.00	10264.87	0.05	513.24									63.00	10264.87	220	1129.14
1309+75.00	1313+68.55	C.L. HWY. 18	393.55					63.00	2754.85	0.05	137.74									63.00	2754.85	220	303.03
1313+68.55	1314+96.37	C.L. HWY. 18	127.82					63.00	894.74	0.05	44.74									63.00	894.74	220	98.42
TOTALS:					**16013.71**		**41045.31**		**176798.59**		**13719.47**		**3367.00**		**1111.11**		**44740.41**		**14764.33**		**133847.97**		**14723.24**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.6% MIN. AGGR.....5.4% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.8% MIN. AGGR.....4.2% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....96.1% MIN. AGGR.....3.9% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

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

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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.		CA1002	80	319
				(2)		QUANTITIES		

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESEY
9/13/16

BASE AND SURFACING - SHOULDERS

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		GEOTEXTILE FABRIC (TYPE 8)		TACK COAT				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")			
				TON / STATION	TON	AVG. WIDTH	SQ. YD.	TOTAL WIDTH	SQ. YD.	GALLONS / SQ. YD.	GALLON	AVG. WIDTH	SQ. YD.	POUND / SQ. YD.	PG 64-22	AVG. WIDTH	SQ. YD.	POUND / SQ. YD.	PG 64-22
			FEET			FEET		FEET				FEET			TON	FEET			TON
MAIN LANES																			
1187+38.38	1220+03.38	RT. SHOULDER - OVERLAY	3265.00	2.50	81.63			8.00	2902.22	0.17	493.38					8.00	2902.22	220	319.24
1220+00.00	1225+95.71	RT. SHOULDER - FULL DEPTH CONSTRUCTION	595.71	59.50	354.45	8.00	529.52	18.55	1227.82	0.05	61.39	6.29	416.34	660	137.39	6.13	405.74	440	89.26
1225+95.71	1226+30.00	RT. SHOULDER - SUPERELEVATION TRANSITION - FULL DEPTH CONSTRUCTION	34.29	59.50	20.40	8.00	30.48	18.55	70.68	0.05	3.53	6.29	23.96	660	7.91	6.13	23.36	440	5.14
1226+30.00	1231+35.71	RT. SHOULDER - SUPERELEVATION TRANSITION	505.71	120.25	608.12	8.00	449.52									6.00	337.14	220	37.09
1231+35.71	1236+00.00	RT. SHOULDER - FULL SUPERELEVATION	464.29	150.00	696.44	8.00	412.70									6.00	309.53	220	34.05
1236+00.00	1237+39.42	RT. SHOULDER - FULL SUPERELEVATION - FULL DEPTH CONSTRUCTION	139.42	118.75	165.56	8.00	123.93	18.55	287.36	0.05	14.37	6.29	97.44	660	32.16	6.13	94.96	440	20.89
1241+10.58	1243+00.00	RT. SHOULDER - SUPERELEVATION TRANSITION - FULL DEPTH CONSTRUCTION	189.42	104.75	198.42	8.00	168.37	18.55	390.42	0.05	19.52	6.29	132.38	660	43.69	6.13	129.02	440	28.38
1243+00.00	1245+40.72	RT. SHOULDER - SUPERELEVATION TRANSITION	240.72	120.25	289.47	8.00	213.97									6.00	160.48	220	17.65
1245+40.72	1272+39.42	RT. SHOULDER	2698.70	90.50	2442.32	8.00	2398.84									6.00	1799.13	220	197.90
1281+92.58	1289+99.41	RT. SHOULDER	806.83	90.50	730.18	8.00	717.18									6.00	537.89	220	59.17
1295+08.59	1300+20.89	RT. SHOULDER - SUPERELEVATION TRANSITION	512.30	127.63	653.85	8.00	455.38									6.00	341.53	220	37.57
1300+20.89	1308+28.55	RT. SHOULDER - FULL SUPERELEVATION	807.66	164.75	1330.62	8.00	717.92									6.00	538.44	220	59.23
1308+28.55	1313+68.55	RT. SHOULDER - SUPERELEVATION TRANSITION	540.00	127.63	689.20	8.00	480.00									6.00	360.00	220	39.60
1313+68.55	1314+96.37	RT. SHOULDER	127.82	90.50	115.68	8.00	113.62									6.00	85.21	220	9.37
1187+38.38	1220+03.38	LT. SHOULDER - OVERLAY	3265.00	2.50	81.63			8.00	2902.22	0.17	493.38					8.00	2902.22	220	319.24
1220+00.00	1225+95.71	LT. SHOULDER	595.71	90.50	539.12	8.00	529.52									6.00	397.14	220	43.69
1225+95.71	1231+35.71	LT. SHOULDER - SUPERELEVATION TRANSITION	540.00	92.38	498.85	8.00	480.00									6.00	360.00	220	39.60
1231+35.71	1237+39.42	LT. SHOULDER - FULL SUPERELEVATION	603.71	94.25	569.00	8.00	536.63									6.00	402.47	220	44.27
1241+10.58	1245+40.72	LT. SHOULDER - SUPERELEVATION TRANSITION	430.14	92.38	397.36	8.00	382.35									6.00	286.76	220	31.54
1245+40.72	1270+15.00	LT. SHOULDER	2474.28	90.50	2239.22	8.00	2199.36									6.00	1649.52	220	181.45
1270+15.00	1272+39.42	LT. SHOULDER - FULL DEPTH CONSTRUCTION	224.42	59.50	133.53	8.00	199.48	18.55	462.55	0.05	23.13	6.29	156.84	660	51.76	6.13	152.85	440	33.63
1281+92.58	1284+40.00	LT. SHOULDER - FULL DEPTH CONSTRUCTION	247.42	59.50	147.21	8.00	219.93	18.63	512.16	0.05	25.61	6.29	172.92	660	57.06	6.17	169.62	440	37.32
1284+40.00	1288+05.00	LT. SHOULDER	365.00	90.50	330.33	8.00	324.44									6.00	243.33	220	26.77
1288+05.00	1289+99.41	LT. SHOULDER - FULL DEPTH CONSTRUCTION	194.41	59.50	115.67	8.00	172.81	18.55	400.70	0.05	20.04	6.29	135.87	660	44.84	6.13	132.41	440	29.13
1295+08.59	1297+35.00	LT. SHOULDER - SUPERELEVATION TRANSITION - FULL DEPTH CONSTRUCTION	226.41	80.25	181.69	8.00	201.25	18.55	466.66	0.05	23.33	6.29	158.24	660	52.22	6.13	154.21	440	33.93
1297+35.00	1300+20.89	LT. SHOULDER - SUPERELEVATION TRANSITION	285.89	111.38	318.42	8.00	254.12									6.00	190.59	220	20.96
1300+20.89	1308+28.55	LT. SHOULDER - FULL SUPERELEVATION	807.66	132.25	1068.13	8.00	717.92									6.00	538.44	220	59.23
1308+28.55	1313+68.55	LT. SHOULDER - SUPERELEVATION TRANSITION	540.00	111.38	601.45	8.00	480.00									6.00	360.00	220	39.60
1313+68.55	1314+96.37	LT. SHOULDER	127.82	90.50	115.68	8.00	113.62									6.00	85.21	220	9.37
ENTIRE PROJECT		WIDENING FOR GUARDRAIL	VAR.	VAR.	347.08	VAR.	1299.96									VAR.	1181.78	220	130.00
TOTALS:					**16060.71**		**14922.82**		**9622.79**		**1177.68**		**1293.99**		**427.03**		**17231.20**		**2034.27**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.6% MIN. AGGR.....5.4% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.8% MIN. AGGR.....4.2% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

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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.		CA1002	81	319

(1) 07390, 07391 & 07392-QUANTITIES-58651

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. CA1002

BRIDGE NUMBER	BRIDGE NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	SP & 205	801	802	802	803	SP & 804	804	SP & 805	SP CA1002	SP CA1002	SP CA1002	SP CA1002	SP CA1002	SP & 807	808	809	809	812	816	816	SP CA1002	SP CA1002
		ITEM		REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. _)	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] [5] STEEL SHELL PILING (18" DIA.)	[2] [5] STEEL SHELL PILING (36" DIA.)	TEST PILE (36" DIA.)	RAPID PILE LOAD TEST	DYNAMIC PILE LOAD TEST	PILE ENCASEMENT	STRUCTURAL STEEL IN PLATE GIRDER SPANS (M270, GR. 50W)	ELASTOMERIC BEARINGS	ARMORED JOINT WITH NEOPRENE STRIP SEAL	SILICONE JOINT SEALANT	BRIDGE NAME PLATE (TYPE D)	FILTER BLANKET	DUMPED RIPRAP	SHORING (SITE NO. _)	TIMBER COMPACTION PILE
		UNIT		LUMP SUM	CU. YD.	CU. YD.	CU. YD.	GAL.	LB.	LB.	LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH	LIN. FT.	LB.	CU. INCH	LIN. FT.	LIN. FT.	EACH	SQ. YD.	CU. YD.	LUMP SUM	LIN. FT.
07390	DITCH 81	BENT NO. 1			1,030	93.87		0.4	13,506	1,380	637						1,774	3,780.1				699	316		21,315
		BENT NO. 2				61.09			23,954	20,842		588	98		1	152		3,633.9							
		BENT NO. 3				60.92			23,954	20,842		581	99	2	1	168		3,633.9							2,047
		BENT NO. 4			1,030	93.82		0.4	13,506	1,380	572						1,774	3,780.1				685	309		55,456
		296'-0" CONT. COMP. PLATE GIRDER UNIT					801.90	54.0		179,236							617,042			156	1				
		EXIST. BR. NO. 05225 (Site No. 1)		[3] 1																				1	
TOTALS FOR BRIDGE NO. 07390					2,060	309.70	801.90	54.8	74,920	223,680	1,209	1169	197	2	2	320	620,590	14,828.0		156	1	1,384	625		78,818
07391	BIG LAKE OUTLET	BENT NO. 1			960	95.31		0.4	12,860	1,322	598						1,774	3,780.1				1,312	618		
		BENT NO. 2				61.31			24,409	21,483		546	86		1	96		3,633.8							2,520
		BENT NO. 3				61.31			24,409	21,483		624				96		3,633.8							2,970
		BENT NO. 4				82.60			36,352			528				96		7,560.0							2,970
		BENT NO. 5				61.31			24,409	21,483		632				120		3,633.8							2,070
		BENT NO. 6				61.31			24,409	21,483		632				112		3,633.8							1,620
		BENT NO. 7				82.60			36,352			616				64		7,560.0							
		BENT NO. 8				61.31			24,409	21,483		616				48		3,633.8							
		BENT NO. 9				61.31			24,409	21,483		525	92	2	1	64		3,633.8							
		BENT NO. 10			1,840	98.83		0.4	13,512	1,322	598						1,774	3,780.1				530	235		19,665
		296'-0" CONT. COMP. PLATE GIRDER UNIT					796.77	53.9		177,553							621,433			78	1				
		296'-0" CONT. COMP. PLATE GIRDER UNIT					796.16	53.9		177,432							624,886		154						
		296'-0" CONT. COMP. PLATE GIRDER UNIT					796.77	53.9		177,553							621,433			78					
		EXIST. BR. NO. 02477 (Site No. 2)		[4] 1																				1	
TOTALS FOR BRIDGE NO. 07391					2,800	727.20	2,389.70	162.5	245,530	664,080	1,196	4,719	178	2	2	696	1,871,300	44,483.0	154	156	1	1,842	853		31,815
07392	BIG LAKE FLOODWAY RELIEF	BENT NO. 1			1,120	102.48		0.4	14,140	1,369	637						470	5,354.8				569	255		27,450
		BENT NO. 2				61.31			24,408	22,024		539	96		1	96		3,633.8							
		BENT NO. 3				61.31			24,408	22,024		680				184		3,633.8							
		BENT NO. 4				61.31			24,408	22,024		560	96	2	1	128		3,633.8							
		BENT NO. 5			220	105.99		0.4	14,746	1,369	715						470	5,354.8				439	195		17,800
		434'-0" CONT. COMP. PLATE GIRDER UNIT					1,193.60	79.0		258,520							982,390		154		1				
		EXIST. BR. NO. 06060 (Site No. 3)		[4] 1																				1	
TOTALS FOR BRIDGE NO. 07392					1,340	392.40	1,193.60	79.8	102,110	327,330	1,352	1,779	192	2	2	408	983,330	21,611.0	154		1	1,008	450		45,250
TOTALS FOR JOB NO. CA1002					6,200	1,429.30	4,385.20	297.1	422,560	1,215,090	3,757	7,667	567	6	6	1,424	3,475,220	80,922.0	308	312	3	4,234	1,928		155,883

[1] Piles shall conform to Drawing No. 58660, 58666, 58693, 58702, 58734 and 58740.

[2] Piles shall conform to Drawing No. 58664, 58666, 58697, 58700, 58702, 58738 and 58740.

[3] This item includes the removal of remnants of concrete piers left in place from a previous railroad structure as directed by the Engineer.

[4] This item includes the removal of remnants of timber piling left in place from the previous structure(s) as directed by the Engineer.

[5] The Steel Shell Piling shall be filled with a combination of Self-Consolidating Concrete and Class S Concrete per the details on Drawing No. 58660, 58664, 58693, 58697, 58700, 58734 and 58738.

STATE OF ARKANSAS
CHRISTOPHER J. CRISWELL
REGISTERED PROFESSIONAL ENGINEER
No. 11328
9/21/16

BRIDGE ENGINEER
PRINT DATE: 9/21/2016

SCHEDULE OF BRIDGE QUANTITIES
MANILA - EAST (WIDENING) (S)
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 6/3/14 FILENAME: bca1002xx_qx1.dgn
CHECKED BY: CJC DATE: 2/24/15
DESIGNED BY: CJC DATE: 11/16/14 SCALE: No Scale
BRIDGE NO. 07390, 07391, 07392 DRAWING NO. 58651

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SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM		QUANTITY	UNIT
201	CLEARING		36	STATION
201	GRUBBING		36	STATION
202	REMOVAL AND DISPOSAL OF APPROACH SLAB AND GUTTERS		4	EACH
202	REMOVAL AND DISPOSAL OF WALKS		15	SQ. YD.
202	REMOVAL AND DISPOSAL OF SIGN FOUNDATIONS		10	EACH
202	REMOVAL AND DISPOSAL OF JUNCTION BOXES		1	EACH
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS		7	EACH
202	REMOVAL AND DISPOSAL OF BOX CULVERTS		2	EACH
202	REMOVAL AND DISPOSAL OF IMPACT ATTENUATION BARRIER		2	EACH
202	REMOVAL AND DISPOSAL OF GUARDRAIL		1490	LIN. FT.
202	REMOVAL AND DISPOSAL OF SIGNS		6	EACH
202	REMOVAL OF EXISTING PORTLAND CEMENT CONCRETE PAVEMENT		1750	SQ. YD.
206	FLOWABLE SELECT MATERIAL		101	CU. YD.
210	UNCLASSIFIED EXCAVATION		7139	CU. YD.
SP	SELECT GRANULAR BACKFILL		677	CU. YD.
210	COMPACTED EMBANKMENT		196209	CU. YD.
SP & 210	COMPACTED EMBANKMENT (SPECIAL)		26019	CU. YD.
SP & 210	SOIL STABILIZATION		300	TON
SP	COHESIVE SOIL BACKFILL		1404	CU. YD.
SS & 303	AGGREGATE BASE COURSE (CLASS 7)		35789	TON
SS & 401	TACK COAT		14987	GAL.
SP & 405	MINERAL AGGREGATE IN ACHM BASE COURSE (1 1/2")		1068	TON
SP & 405	ASPHALT BINDER (PG 64-22) IN ACHM BASE COURSE (1 1/2")		43	TON
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")		14553	TON
SP, SS, & 406	ASPHALT BINDER (PG 64-22) IN ACHM BINDER COURSE (1")		638	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")		16338	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")		933	TON
412	COLD MILLING ASPHALT PAVEMENT		656	SQ. YD.
SP & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC		45	TON
SP & 415	ACHM PATCHING OF EXISTING ROADWAY		50	TON
504	APPROACH SLABS		722.76	CU. YD.
504	APPROACH GUTTERS		177.60	CU. YD.
601	MOBILIZATION		1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE		1	EACH
603	MAINTENANCE OF TRAFFIC		1.00	LUMP SUM
603	24" TEMPORARY CULVERT		747	LIN. FT.
SP, SS, & 604	SIGNS		557	SQ. FT.
SS & 604	BARRICADES		208	LIN. FT.
SS & 604	TRAFFIC DRUMS		300	EACH
604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		3439	LIN. FT.
604	RELOCATING PRECAST CONCRETE BARRIER		1759	LIN. FT.
604	CONSTRUCTION PAVEMENT MARKINGS		30572	LIN. FT.
604	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS		9792	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS		3460	LIN. FT.
SS & 604	VERTICAL PANELS		91	EACH
605	CONCRETE DITCH PAVING (TYPE B)		107	SQ. YD.
606	36" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		114	LIN. FT.
SP, SS & 606	18" SIDE DRAIN		190	LIN. FT.
SP, SS & 606	24" SIDE DRAIN		356	LIN. FT.
SS & 606	72" SIDE DRAIN		96	LIN. FT.
606	36" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		2	EACH
606	SELECTED PIPE BEDDING		70	CU. YD.
615	PAVEMENT REPAIR OVER CULVERTS (CONCRETE)		5.3	CU. YD.
617	GUARDRAIL (TYPE A)		1350	LIN. FT.
617	TERMINAL ANCHOR POSTS (TYPE 1)		6	EACH
617	GUARDRAIL TERMINAL (TYPE 2)		6	EACH
617	THRIE BEAM GUARDRAIL TERMINAL		12	EACH
620	LIME		40	TON
620	SEEDING		6.25	ACRE
SP & 620	SPECIAL SEEDING		13.75	ACRE
SS & 620	MULCH COVER		25.71	ACRE
SP, SS & 620	SPECIAL MULCH COVER		13.75	ACRE
620	WATER		2441.2	M.GAL.
621	TEMPORARY SEEDING		19.46	ACRE
621	SILT FENCE		13870	LIN. FT.
621	SAND BAG DITCH CHECKS		572	BAG
621	SEDIMENT BASIN		100	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN		100	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL		665	CU. YD.
621	ROCK DITCH CHECKS		75	CU. YD.
621	WATTLE (12")		90	LIN. FT.
623	SECOND SEEDING APPLICATION		6.25	ACRE
SP & 623	SPECIAL SECOND SEEDING APPLICATION		13.75	ACRE
624	SOLID SODDING		329	SQ. YD.
625	GEOTEXTILE FABRIC (TYPE 8)		55968	SQ. YD.
632	CONCRETE ISLAND		49	SQ. YD.
634	CONCRETE CURB (TYPE A)		110	LIN. FT.
635	ROADWAY CONSTRUCTION CONTROL		1.00	LUMP SUM
637	MAILBOXES		1	EACH
637	MAILBOX SUPPORTS (SINGLE)		1	EACH
642	RUMBLE STRIPS IN ASPHALT SHOULDERS		10839	LIN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (4")		988	LIN. FT.
718	REFLECTORIZED PAINT PAVEMENT MARKING YELLOW (4")		922	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING WHITE (4")		39416	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING YELLOW (4")		33871	LIN. FT.
719	THERMOPLASTIC PAVEMENT MARKING (WORDS)		5	EACH
719	THERMOPLASTIC PAVEMENT MARKING (ARROWS)		5	EACH
* SP & 719	INVERTED PROFILE THERMOPLASTIC CONTRAST PAVEMENT MARKING WHITE (4")	(ALTERNATE NO. 1)	940	LIN. FT.
* SP	HIGH PERFORMANCE CONTRAST MARKING TAPE WHITE (4")	(ALTERNATE NO. 2)	940	LIN. FT.
* SP & 719	INVERTED PROFILE THERMOPLASTIC CONTRAST PAVEMENT MARKING YELLOW (4")	(ALTERNATE NO. 1)	4628	LIN. FT.
* SP	HIGH PERFORMANCE CONTRAST MARKING TAPE YELLOW (4")	(ALTERNATE NO. 2)	4628	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)		760	EACH
731	TEMPORARY IMPACT ATTENUATION BARRIER		5	EACH
731	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)		10	EACH
731	TEMPORARY IMPACT ATTENUATION BARRIER (RELOCATION)		5	EACH
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY		1955	CU. YD.
802	CLASS S CONCRETE-ROADWAY		220.14	CU. YD.
804	REINFORCING STEEL-ROADWAY (GRADE 60)		118095	POUND
SP	INFORMATIONAL KIOSK		2	EACH
	STRUCTURES OVER 20' SPAN			
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)		1.00	LUMP SUM
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 2)		1.00	LUMP SUM
SP & 205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 3)		1.00	LUMP SUM
SP & 636	BRIDGE CONSTRUCTION CONTROL		1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE		6200	CU. YD.
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-ROADWAY		87	CU. YD.
802	CLASS S CONCRETE-ROADWAY		267.32	CU. YD.
802	CLASS S CONCRETE-BRIDGE		1429.30	CU. YD.
802	CLASS S(AE) CONCRETE-BRIDGE		4385.20	CU. YD.
803	CLASS 1 PROTECTIVE SURFACE TREATMENT		297.1	GAL.
804	REINFORCING STEEL-ROADWAY (GRADE 60)		34581	POUND
SP & 804	REINFORCING STEEL-BRIDGE (GRADE 60)		422560	POUND
804	EPOXY COATED REINFORCING STEEL (GRADE 60)		1215090	POUND
SP & 805	STEEL SHELL PILING (18" DIAMETER)		3757	LIN. FT.
SP & 807	STRUCTURAL STEEL IN PLATE GIRDER SPANS (M270-GR50W)		3475220	POUND
808	ELASTOMERIC BEARINGS		80922.0	CU. IN.
809	ARMORED JOINT WITH NEOPRENE STRIP SEAL		308	LIN. FT.
809	SILICONE JOINT SEALANT		312	LIN. FT.
812	BRIDGE NAME PLATE (TYPE D)		3	EACH
816	FILTER BLANKET		4234	SQ. YD.
816	DUMPED RIPRAP		1928	CU. YD.
SP	SHORING (SITE NO. 1)		1.00	LUMP SUM
SP	SHORING (SITE NO. 2)		1.00	LUMP SUM
SP	SHORING (SITE NO. 3)		1.00	LUMP SUM
SP	STEEL SHELL PILING (36" DIAMETER)		7667	LIN. FT.
SP	TEST PILE (36" DIAMETER)		567	LIN. FT.
SP	PILE ENCASEMENT		1424	LIN. FT.
SP	TIMBER COMPACTION PILE		155883	LIN. FT.
SP	RAPID PILE LOAD TEST		6	EACH
SP	DYNAMIC PILE LOAD TEST		6	EACH

* DENOTES ALTERNATE BID ITEMS.

REVISIONS

DATE	REVISION	SHEET NUMBER
10/17/2016	REMOVED SP "MANDATORY ELECTRONIC DOCUMENT SUBMITTAL"	3, 82

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
EDWIN G. TOBLESKY
10/17/16

SUMMARY OF QUANTITIES AND REVISIONS

JACOBS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.AID DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
10-17-2016				6	ARK.		82	319

(2) SUMMARY OF QUANTITIES AND REVISIONS — JOB NO. CA1002

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.		CA1002	83	319

(2) SURVEY CONTROL DETAILS

SURVEY CONTROL COORDINATES

Project Name: s100307.alg
Date: 2/1/2012
Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL, PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
21	561027.5801	1862165.7775	238.42	CTL	STANDARD AHTD REBAR AND CAP
22	560408.3455	1862669.8949	238.44	CTL	STANDARD AHTD REBAR AND CAP
23	559640.0199	1863280.5904	243.16	CTL	STANDARD AHTD REBAR AND CAP
24	559215.7535	1863693.2490	247.62	CTL	STANDARD AHTD REBAR AND CAP
25	558805.5729	1864314.8407	246.78	CTL	STANDARD AHTD REBAR AND CAP
26	558409.8573	1865033.7117	246.43	CTL	STANDARD AHTD REBAR AND CAP
27	557980.7265	1865805.2892	246.16	CTL	STANDARD AHTD REBAR AND CAP
28	557375.5659	1866896.6681	249.16	CTL	STANDARD AHTD REBAR AND CAP
29	556949.3126	1867730.4815	248.58	CTL	STANDARD AHTD REBAR AND CAP
30	556577.2431	1868394.7776	248.52	CTL	STANDARD AHTD REBAR AND CAP
31	556210.3287	1868956.6850	248.04	CTL	STANDARD AHTD REBAR AND CAP
32	555873.0413	1869798.6524	243.79	CTL	STANDARD AHTD REBAR AND CAP
33	555861.5756	1870469.6396	237.86	CTL	STANDARD AHTD REBAR AND CAP
34	555906.8120	1871322.5548	238.09	CTL	STANDARD AHTD REBAR AND CAP

*Note - Rebar and Cap - Standard -"- 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 0.9999411667 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 100307GI.CTL
HORIZONTAL DATUM: NAD 83 (1997)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.

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

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 880088-880088A
CONVERGENCE ANGLE: 1° 09' 00.0" RIGHT AT POINT 109
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16

CENTERLINE CONSTRUCTION HWY. 18

TYPE	POINT NUMBER	STATION	NORTHING	EASTING
P.I.	8062	1219+79.04	560426.9823	1862657.6650
P.C.	8063	1230+00.71	559624.5982	1863290.1034
P.I.	8064	1235+75.76	559172.9733	1863646.0737
P.T.	8065	1241+35.72	558893.7052	1864148.7558
P.C.	8066	1255+60.71	558201.6667	1865394.4244
P.I.	8067	1258+90.91	558041.3088	1865683.0683
P.T.	8068	1262+20.93	557897.8379	1865980.4671
P.C.	8069	1263+30.72	557850.1306	1866079.3589
P.I.	8070	1266+91.51	557693.3698	1866404.3058
P.T.	8071	1270+52.05	557516.4784	1866718.7479
P.C.	8072	1282+41.46	556933.3148	1867755.3795
P.I.	8073	1283+19.09	556895.2523	1867823.0394
P.T.	8074	1283+96.72	556858.1100	1867891.2088
P.C.	8075	1288+08.95	556660.8808	1868253.1946
P.I.	8076	1288+85.76	556624.1314	1868320.6428
P.T.	8077	1289+62.56	556586.4812	1868387.5923
P.C.	8078	1298+85.89	556133.8929	1869192.3832
P.I.	8079	1304+39.49	555862.5319	1869674.9162
P.T.	8080	1309+63.56	555891.2936	1870227.7702
P.O.E.	8081	1314+96.37	555918.9752	1870759.8617

CENTERLINE CONSTRUCTION WILDLIFE REFUGE RD.

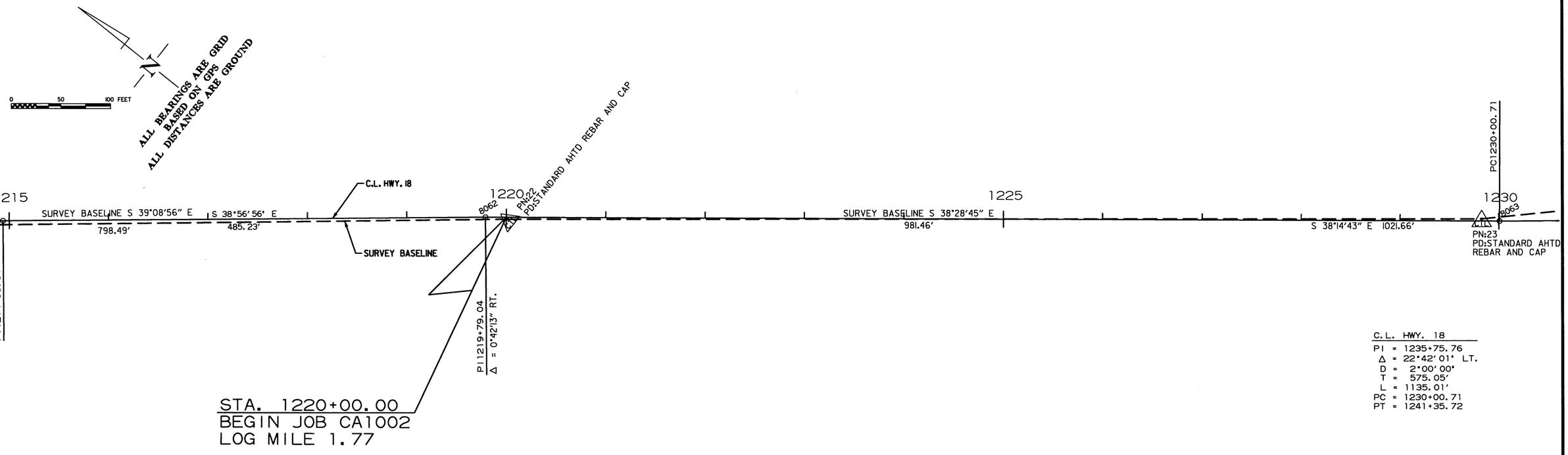
TYPE	POINT NUMBER	STATION	NORTHING	EASTING
P.O.B.	8100	10+00.00	557303.9431	1867761.6472
P.C.	8101	10+86.53	557226.1665	1867723.7219
P.I.	8102	11+89.90	557133.2534	1867678.4159
P.T.	8103	12+50.91	557084.7693	1867769.7108
P.O.E.	8104	17+69.41	556841.5762	1868227.6402

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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.		CA1002	84	319

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16



C.L. HWY. 18
PI = 1235+75.76
Δ = 22°42'01" LT.
D = 2°00'00"
T = 575.05'
L = 1135.01'
PC = 1230+00.71
PT = 1241+35.72

SURVEY CONTROL DETAILS

JACOBS

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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.		CA1002	85	319

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16

ALL BEARINGS ARE GRID
BASED ON GPS
ALL DISTANCES ARE GROUND

0 50 100 FEET

C.L. HWY. 18
PI = 1235+75.76
Δ = 22°42'01" LT.
D = 2°00'00"
T = 575.05'
L = 1135.01'
PC = 1230+00.71
PT = 1241+35.72

PC 1230+00.71
1230
8063
PN:23
PD:STANDARD AHTD REBAR AND CAP
SURVEY BASELINE S 44°12'19" E
591.85'
1235
PN:24
PD:STANDARD AHTD REBAR AND CAP
SURVEY BASELINE
C.L. HWY. 18
SURVEY BASELINE S 56°34'47" E
744.73'
1240
PT 1241+35.72
8065
S 60°56'43" E
1424.99'
PN:25
PD:STANDARD AHTD REBAR AND CAP
1245
8064
PI 1235+75.76

SURVEY CONTROL DETAILS

JACOBS

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				6	ARK.			
				JOB NO.		CA1002	86	319

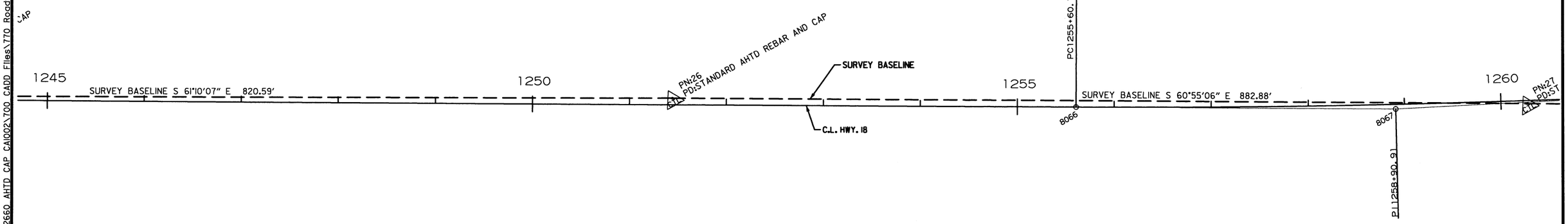
(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16

ALL BEARINGS ARE GRID
BASED ON GPS
ALL DISTANCES ARE GROUND

0 50 100 FEET

C.L. HWY. 18
PI = 1258+90.91
Δ = 3°18'04" LT.
D = 0°30'00"
T = 330.20'
L = 660.21'
PC = 1255+60.71
PT = 1262+20.93



SURVEY CONTROL DETAILS

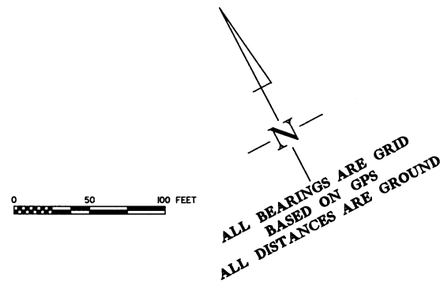
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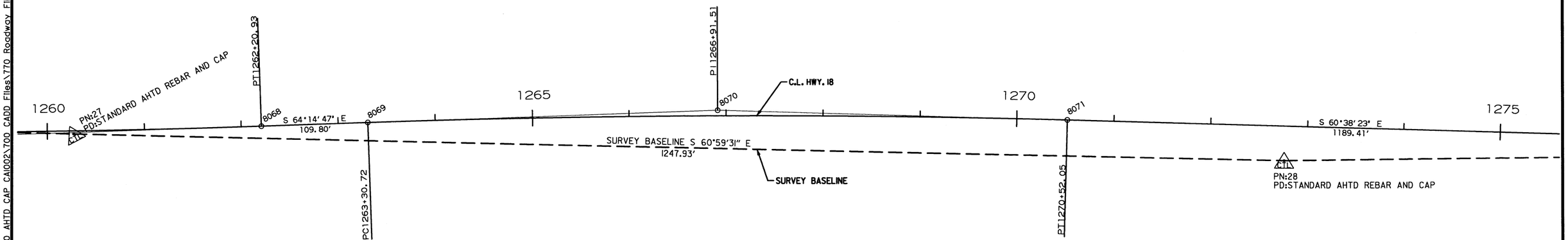
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CAI002	87	319

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16





C.L. HWY. 18
PI = 1266+91.51
Δ = 3°36'24" RT.
D = 0°30'00"
T = 360.78'
L = 721.33'
PC = 1263+30.72
PT = 1270+52.05

SURVEY CONTROL DETAILS

JACOBS

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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.		CA1002	88	319

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16

ALL BEARINGS ARE GRID
BASED ON GPS
ALL DISTANCES ARE GROUND

0 50 100 FEET

C.L. WILDLIFE REFUGE RD.
PI = 11+89.90
Δ = 88°01'23" LT.
D = 53°32'51"
T = 103.37'
L = 164.38'
PC = 10+86.53
PT = 12+50.91

8100 10 S25°59'41"W 86.53' 8101 PC10+86.53 PT12+50.91 8103 C.L. CONSTRUCTION WILDLIFE REFUGE RD. 15 17 S62°01'43"E 518.50' 8104 8102 PI11+89.90

1275 S 60°38'23" E 1189.41' C.L. HWY. 18 1280 SURVEY BASELINE S 62°55'24" E 936.45' SURVEY BASELINE

PC1282+41.46 PT1283+96.72 8072 PN:29 PD:STANDARD AHTD REBAR AND CAP 8073 8074 PI1283+19.09

1285 SURVEY BASELINE S 60°44'49" E 761.40' S 61°24'58" E 412.23' 8075 PC1288+08.95 8076 PI1288+85.76 1290 8077 PN:30 PD:STANDARD AHTD REBAR AND CAP PT1289+62.56

C.L. HWY. 18
PI = 1283+19.09
Δ = 0°46'35" LT.
D = 0°30'00"
T = 77.63'
L = 155.26'
PC = 1282+41.46
PT = 1283+96.72

C.L. HWY. 18
PI = 1288+85.76
Δ = 0°46'05" RT.
D = 0°30'00"
T = 76.81'
L = 153.62'
PC = 1288+08.95
PT = 1289+62.56

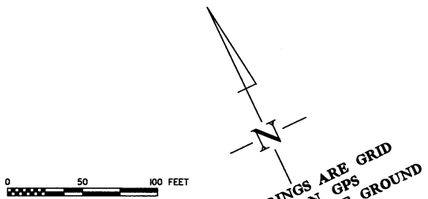
SURVEY CONTROL DETAILS

JACOBS

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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.		CA1002	89	319

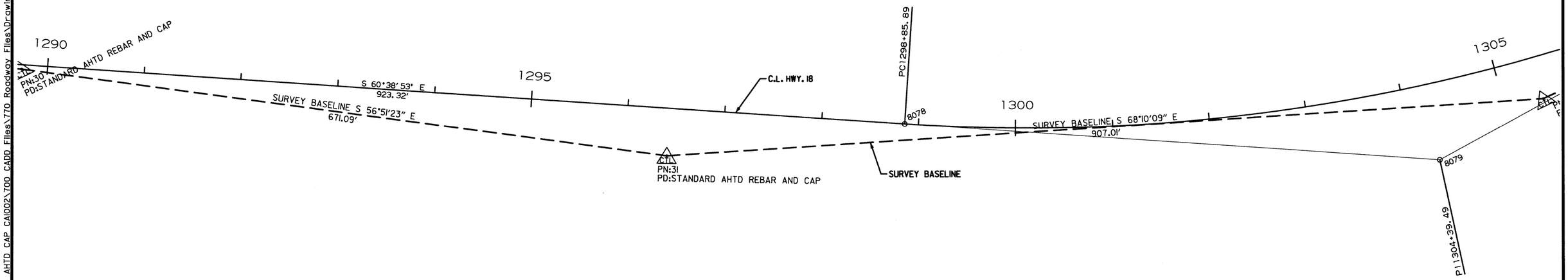
(2) SURVEY CONTROL DETAILS





9/12/16

C.L. HWY. 18
PI = 1304+39.49
Δ = 32°19'48" LT.
D = 3°00'00"
T = 553.60'
L = 1077.67'
PC = 1298+85.89
PT = 1309+63.55



SURVEY CONTROL DETAILS

JACOBS

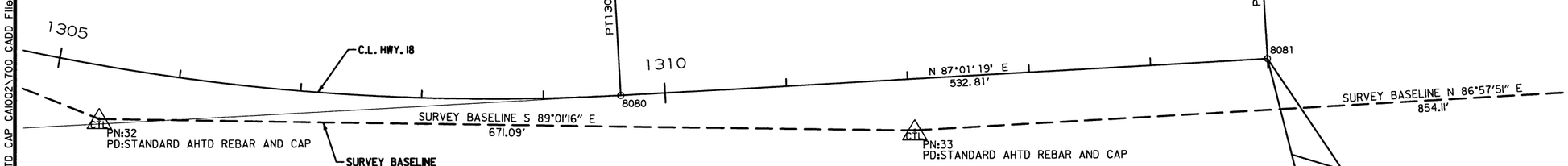
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA1002	90	319
				(2)		SURVEY CONTROL DETAILS		

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16

ALL BEARINGS ARE GRID
BASED ON GPS
ALL DISTANCES ARE GROUND

0 50 100 FEET

C.L. HWY. 18
PI = 1304+39.49
Δ = 32°19'48" LT.
D = 3°00'00"
T = 553.60'
L = 1077.67'
PC = 1298+85.89
PT = 1309+63.56



STA. 1314+96.37
END JOB CA1002
LOG MILE 3.57

SURVEY CONTROL DETAILS

JACOBS

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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.		CA1002	91	319

(2) P & P - STA. 1215+00 TO STA. 1230+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/13/16

STA. 1220+03.78 BK. =
STA. 1220+00.00 AHD.
END OVERLAY

STA. 1187+38.38 TO STA. 1220+03.78
2" OVERLAY (REFER TO TYPICAL SECTIONS FOR ADDITIONAL INFORMATION)

STA. 1222+59 IN PLACE
DBL. 5' X 5' X 59' R.C. BOX CULVERT
ON 35° LT. FWD. SKEW
REMOVE

STA. 1222+59 CONSTRUCT
QUAD. 5' X 5' X 138'
R.C. BOX CULVERT 35° LT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
CHANNEL CHANGE INLET = 59 CU. YDS.
CHANNEL CHANGE OUTLET = 150 CU. YDS.
Q50 = 460 C.F.S., D.A. = 4 SQ. MI.
SPAN = 28.08'

STA. 1224+00 CONSTRUCT
36" X 114' R.C. PIPE CULVERT
(CLASS III)(TYPE 3 BEDDING) WITH
FES LT. & RT.
D.A. = 3.54 AC., Q50 = 5.73 C.P.A.
36" R.C. PIPE = 114 LIN. FT.
36" FES = 2 EACH

STA. 1227+57 IN PLACE
18" X 22' C.L. PIPE CULVERT.
LT. SIDE DRAIN
REMOVE AND INSTALL @ +56
18" X 34' PIPE CULVERT.
LT. SIDE DRAIN
CONST. APPR. ON LT. = 70 CU. YDS.

EXIST. R/W
PROPOSED R/W
CONST. LIMITS
1215
1220
1225
1230
S 38°56'56" E
S 38°14'43" E
C.L. HWY. 18
P I 1219+79.04
Δ = 0°42'13" RT.
45'R
28'R
24'
20'
COUNTY RD. 346
*PROPOSED WATERLINE

STA. 1220+00.00
BEGIN JOB CA1002
LOG MILE 1.77

STA. 1223+52 INSTALL
18" X 36' PIPE CULVERT.
RT. SIDE DRAIN
CONST. APPR. ON RT. = 70 CU. YDS.

STA. 1222+68 C. R. 346
CONST. APPR. ON RT. = 220 CU. YDS.

*THE CONTRACTOR SHALL OBTAIN
THE AS-BUILT CONSTRUCTION
PLANS FROM THE MANILA WATER
DEPARTMENT PRIOR TO CONSTRUCTION.

STA. 1224+36 IN PLACE
3' X 2' X 55' R.C. BOX CULVERT
ON 15° RT. FWD. SKEW
W/3:1 WINGS LT. & RT.
PLUG AND ABANDON

C.L. HWY. 18
PI = 1235+75.76
Δ = 22°42'01" LT.
D = 2°00'00"
T = 575.05'
L = 1135.01'
PC = 1230+00.71
PT = 1241+35.72
Ls = 540'
e = 0.055'/'

HWY. 18

STA. 1225+95.71 BEGIN SUPERELEVATION
STA. 1231+35.71 MAX. SUPERELEVATION (0.055'/')
STA. 1240+00.72 MAX. SUPERELEVATION (0.055'/')
STA. 1245+40.72 END SUPERELEVATION

P.V.I. 1220+00.00
ELEV. 240.61
EXISTING GROUND
PROFILE GRADE
+59
0.03%
+00
P.V.C. 1225+89.01
ELEV. 240.79
K=247
VC=400'
1.65%
P.V.T. 1229+89.01
ELEV. 244.15

1219+00.00 235.82
RT. DITCH GRADE -0.10%
LT. DITCH GRADE -0.40%
1221+75.06 235.55
1222+25.00 234.52
C.L. INLET LT.= 231.78
C.L. OUTLET RT.= 231.78
1223+10.00 236.00
RT. DITCH GRADE -1.48%
1224+00.00 234.67
C.L. INLET RT.= 234.63
C.L. OUTLET LT.= 233.34
1224+25.00 235.05
LT. DITCH GRADE 0.50%
1226+00.00 235.93
1226+00.00 236.25
RT. DITCH GRADE 0.02%
P.V.I. 1227+89.01
ELEV. 240.86
P.C. 241.66

DITCH NO. 13 STA. 1222+59
FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THE STREAM IS CLASSIFIED AS AN INTERMITTENT STREAM. THE STREAM BANK ELEVATIONS ARE 237.0'. SEE SUBSECTION 110.06(C) OF THE STANDARD SPECIFICATIONS REGARDING CONSTRUCTION OF TEMPORARY FILLS WITHIN INTERMITTENT STREAM LIMITS.

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

255 250 245 240 235 230 225 220 215 210

1215+00 1216+00 1217+00 1218+00 1219+00 1220+00 1221+00 1222+00 1223+00 1224+00 1225+00 1226+00 1227+00 1228+00 1229+00 1230+00

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				6	ARK.			
				JOB NO.		CA1002	91A	319

(2) PLAN - STA. 1187+38.38 TO STA. 1215+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/13/16

STA. 1187+38.38 TO STA. 1220+03.78
2" OVERLAY (REFER TO TYPICAL SECTIONS FOR ADDITIONAL INFORMATION)

STA. 1187+38.38
BEGIN OVERLAY

C.L. HWY. 18

EXIST. R/W

CULTIVATED FIELD

STA. 1187+38.38 TO STA. 1220+03.78
2" OVERLAY (REFER TO TYPICAL SECTIONS FOR ADDITIONAL INFORMATION)

C.L. HWY. 18

EXIST. R/W

CULTIVATED FIELD

HWY. 18

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				6	ARK.			
				JOB NO.		CA1002	92	319

(2) P & P - STA. 1230+00 TO STA. 1245+00

STA. 1234+22 LEVEE ROAD
CONST. APPR. ON LT. = 80 CU. YDS.

HWY. 18 EXISTING - BR. 05225
STA. 1237+79.26 TO STA. 1240+65.94 IN PLACE
282'-1" X 43'-0" CLEAR ROADWAY WIDTH
BRIDGE CONSISTING OF 280'-0" W-BEAM
(SPANS: 35', 3 @ 70', 35')
REMOVE EXISTING RAILROAD PIERS LEFT OF HWY. 18
REMOVE AS EXISTING BRIDGE STRUCTURE (SITE NO. 1) = 1.00 LUMP SUM

GUARDRAIL - INSTALLATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)	TERMINAL ANCHOR POST (TYPE 1)
STA. 1235+47.77 TO STA. 1237+66.52 RT OF CL HWY. 18 =	150 LIN. FT.	1 EACH	1 EACH	
STA. 1236+72.77 TO STA. 1237+66.52 LT OF CL HWY. 18 =	75 LIN. FT.	1 EACH		1 EACH
STA. 1240+83.48 TO STA. 1241+77.23 RT OF CL HWY. 18 =	75 LIN. FT.	1 EACH		1 EACH
STA. 1240+83.48 TO STA. 1243+02.23 LT OF CL HWY. 18 =	150 LIN. FT.	1 EACH	1 EACH	

DENOTES LOCATION OF TIMBER PILING. REFER TO SPECIAL DETAILS FOR ADDITIONAL INFORMATION.

C.L. HWY. 18
PI = 1235+75.76
Δ = 22°42'01" LT.
D = 2°00'00"
T = 575.05'
L = 1135.01'
PC = 1230+00.71
PT = 1241+35.72
Ls = 540'
e = 0.055'/'

HWY. 18 PROPOSED - BR. 07390
STA. 1237+75.92 TO STA. 1240+74.08 CONSTRUCT
298'-2" X 75'-0" CLEAR ROADWAY WIDTH
BRIDGE CONSISTING OF 296'-0" CONT. COMPOSITE PLATE GIRDER UNIT (90', 116', 90')

STA. 1244+58 C.R. 172
CONST. APPR. ON LT. = 70 CU. YDS.

REMOVAL AND DISPOSAL OF APPROACH SLAB & GUTTERS STA.	LOCATION	EACH
1237+64	LT OF CL CONSTRUCTION	1
1240+84	LT OF CL CONSTRUCTION	1

REMOVAL AND DISPOSAL OF GUARDRAIL STA.	STA.	LOCATION	LIN. FT.
1235+83	1237+83	LT OF CL CONSTRUCTION	200
1237+05	1237+80	LT OF CL CONSTRUCTION	75
1240+66	1241+41	LT OF CL CONSTRUCTION	75
1240+67	1242+67	LT OF CL CONSTRUCTION	200

STA. 1232+35
CONST. APPR. ON RT. = 125 CU. YDS.

STA. 1234+78 LEVEE ROAD
CONST. APPR. ON RT. = 150 CU. YDS.

STA. 1242+30
CONST. APPR. ON RT. = 200 CU. YDS.

*THE CONTRACTOR SHALL OBTAIN THE AS-BUILT CONSTRUCTION PLANS FROM THE MANILA WATER DEPARTMENT PRIOR TO CONSTRUCTION.

REFER TO SPECIAL DETAILS FOR DRIVEWAY INFORMATION

HWY. 18

STA. 1225+95.71 BEGIN SUPERELEVATION
STA. 1231+35.71 MAX. SUPERELEVATION (0.055'/')
STA. 1240+00.72 MAX. SUPERELEVATION (0.055'/')
STA. 1245+40.72 END SUPERELEVATION

PROFILE GRADE

P.V.C. 1230+59.94 ELEV. 245.32
P.V.I. 1233+59.94 ELEV. 250.27 P.G. 249.03
P.V.T. 1236+59.94 ELEV. 250.27
P.V.C. 1242+84.10 ELEV. 250.27
P.V.I. 1243+74.10 ELEV. 250.27 P.G. 250.05
P.V.T. 1244+64.10 ELEV. 249.37

1.65%
0.00%
-1.00%
K=364 VC=600'
K=180 VC=180'

EXISTING GROUND

RT. DITCH GRADE 0.02%
1230+50.00 236.34

MATCH LINE

H.W. ELEV. Q50 = 242.70

UNCLASSIFIED EXCAVATION REFER TO BRIDGE PLANS

ELEV. 234.00

DITCH NO. 81 STA. 1237+80 TO STA. 1240+70 FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THE STREAM IS CLASSIFIED AS A PERENNIAL STREAM. THE STREAM BANK ELEVATIONS ARE 247.0' msl. SEE SUBSECTION 110.06(C) OF THE STANDARD SPECIFICATIONS REGARDING CONSTRUCTION OF TEMPORARY FILLS WITHIN PERENNIAL STREAM LIMITS.

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

1230+00 1231+00 1232+00 1233+00 1234+00 1235+00 1236+00 1237+00 1238+00 1239+00 1240+00 1241+00 1242+00 1243+00 1244+00 1245+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16

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				6	ARK.			
				JOB NO.		CAI002	93	319

(2) P & P - STA. 1245+00 TO STA. 1260+00

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16

C.L. HWY. 18
PI = 1258+90.91
Δ = 3°18'04" LT.
D = 0°30'00"
T = 330.20'
L = 660.21'
PC = 1255+60.71
PT = 1262+20.92
NO SUPER

LOCATION 1
REFER TO SPECIAL DETAILS FOR WORK TO BE DONE OUTSIDE OF EXISTING RIGHT OF WAY.

T.C.E. 175.00 180.00
T.C.E. 175.00 177.37
EXIST. R/W
CONST. LIMITS
8'
58'
8'
1245
1250
1255
1260
PC 1255+60.71
S 60°56'43" E
C.L. HWY. 18
S 64°14'47" E
+50.00 72.07
PROPOSED R/W
20'
T.C.E. +90.00 123.04
T.C.E. +00.00 125.00
T.C.E. +30.00 113.03
+00.00 105.00
.8'
.8'
.08
EXIST. R/W
CONST. LIMITS
PROPOSED R/W
+00.00 95.00
*PROPOSED WATERLINE
+00.00 94.53
+00.00 95.00
PI 1258+90.91

*THE CONTRACTOR SHALL OBTAIN THE AS-BUILT CONSTRUCTION PLANS FROM THE MANILA WATER DEPARTMENT PRIOR TO CONSTRUCTION.

HWY. 18

STA. 1225+95.71 BEGIN SUPERELEVATION
STA. 1231+35.71 MAX. SUPERELEVATION (0.055'/')
STA. 1240+00.72 MAX. SUPERELEVATION (0.055'/')
STA. 1245+40.72 END SUPERELEVATION

P.V.C. 1245+04.01
ELEV. 248.97
P.V.I. 1245+74.01
ELEV. 248.27
P.G. 248.44
P.V.T. 1246+44.01
ELEV. 248.26
-1.00%
K=141
VC=140'
PROFILE GRADE
-0.01%
EXISTING GROUND
P.V.I. 1257+00.00
ELEV. 248.16
-0.07%
LT. DITCH GRADE 0.30%
1259+00.00
233.08

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

265 260 255 250 245 240 235 230 225 220

1245+00 1246+00 1247+00 1248+00 1249+00 1250+00 1251+00 1252+00 1253+00 1254+00 1255+00 1256+00 1257+00 1258+00 1259+00 1260+00

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				6	ARK.			
				JOB NO.		CA1002	94	319

(2) P & P - STA. 1260+00 TO STA. 1275+00

LOCATION 1
REFER TO SPECIAL DETAILS
FOR PARKING AREA IMPROVEMENTS

C.L. HWY. 18
PI = 1258+90.91
Δ = 3°18'04" LT.
D = 0°30'00"
T = 330.20'
L = 660.21'
PC = 1255+60.71
PT = 1262+20.92
NO SUPER

STA. 1260+07 LAKE ACCESS IN PLACE
24" X 48' R.C. PIPE CULVERT.
LT. SIDE DRAIN
REMOVE AND INSTALL @ +08
24" X 98' PIPE CULVERT.
LT. SIDE DRAIN
CONST. APPR. ON LT. = 915 CU. YDS.

GUARDRAIL - INSTALLATION

	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)	TERMINAL ANCHOR POST (TYPE 1)
STA. 1270+37.76 TO STA. 1272+56.51 RT OF CL HWY. 18 = 150 LIN. FT.		1 EACH	1 EACH	
STA. 1271+62.76 TO STA. 1272+56.51 LT OF CL HWY. 18 = 75 LIN. FT.		1 EACH		

1 EACH HWY. 18 PROPOSED - BR. 07391
STA. 1272+65.92 TO STA. 1281+56.08 CONSTRUCT
890'-2" X 75'-0" CLEAR ROADWAY WIDTH
BRIDGE CONSISTING OF 3-296'-0" CONT.
COMPOSITE PLATE GIRDER UNITS (90', 116', 90')

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESET
9/12/16

REMOVAL AND DISPOSAL OF GUARDRAIL

STA.	STA.	LOCATION	LIN. FT.
1270+81	1273+06	RT OF CL CONSTRUCTION	225
1272+04	1273+04	RT OF CL CONSTRUCTION	100
1270+00		RT OF CL CONSTRUCTION	40

PROPOSED BR. END 1272+65.92
PROPOSED T.C.E.
PROPOSED R/W
EXIST. R/W
CONST. LIMITS
EXISTING BR. END 1272+79.26
C.L. HWY. 18
S 64°14'47" E
S 60°38'23" E
C.D.P.
BEGIN RETAINING WALL STA. 1270+25.00
END RETAINING WALL STA. 1272+65
REFER TO SHEETS 201-206 FOR ADDITIONAL RETAINING WALL DETAILS.
PRESERVE VEGETATION
PROPOSED WATERLINE
PC 1263+30.72
PT 1262+20.93
PI 1266+91.51
PT 1270+52.05
1260
1265
1270
1275

*THE CONTRACTOR SHALL OBTAIN THE AS-BUILT CONSTRUCTION PLANS FROM THE MANILA WATER DEPARTMENT PRIOR TO CONSTRUCTION.

CONCRETE ISLAND

STA.	STA.	LOCATION	WIDTH	SQ. YD.
1270+25	1271+35	RT. OF C.L. HWY. 18	4 FEET	49

CONCRETE CURB (TYPE A)

STA.	STA.	LOCATION	LIN. FT.
1270+25	1271+35	RT. OF C.L. HWY. 18	110

CONCRETE DITCH PAVING

STA.	STA.	LOCATION	WIDTH	SQ. YD.
1270+25	1272+65	RT. OF C.L. HWY. 18	4	106.67

STA. 1262+43
CONST. APPR. ON RT. = 80 CU. YDS.

STA. 1264+95 INSTALL
18" X 44' PIPE CULVERT.
RT. SIDE DRAIN
CONST. APPR. ON RT. = 140 CU. YDS.

C.L. HWY. 18
PI = 1266+91.51
Δ = 3°36'24" RT.
D = 0°30'00"
T = 360.78'
L = 721.33'
PC = 1263+30.72
PT = 1270+52.05
NO SUPER

STA. 1266+59 INSTALL
18" X 40' PIPE CULVERT.
RT. SIDE DRAIN
CONST. APPR. ON RT. = 160 CU. YDS.

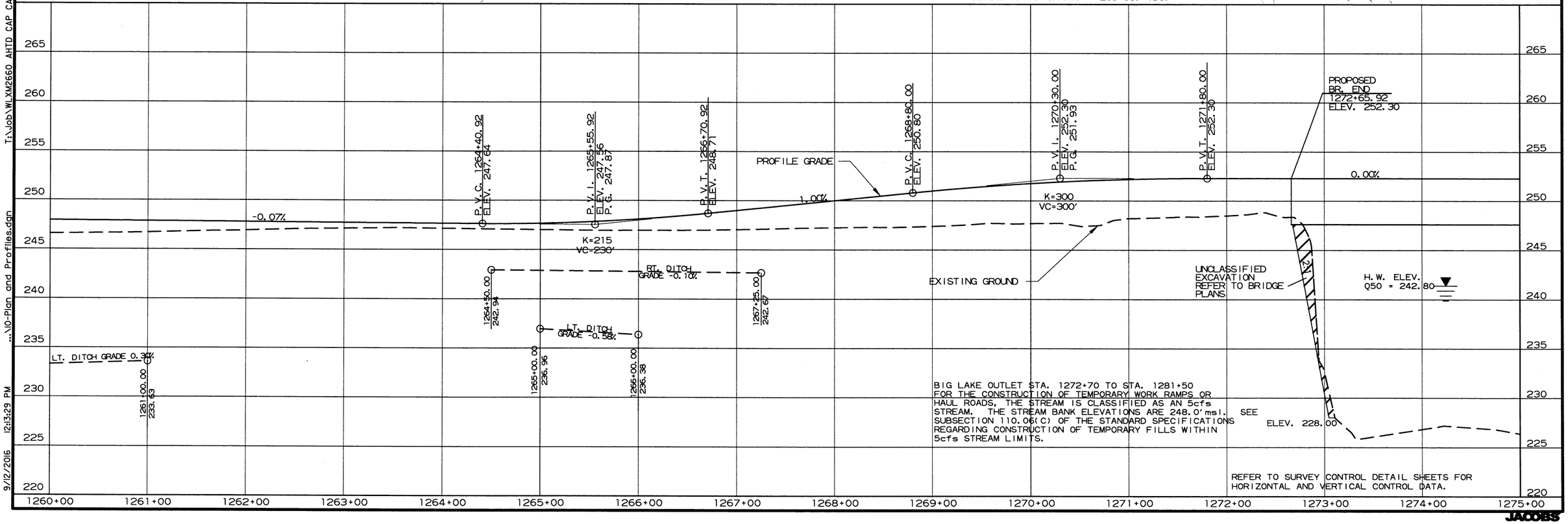
DENOTES LOCATION OF TIMBER PILING. REFER TO SPECIAL DETAILS FOR ADDITIONAL INFORMATION.

LOCATION 2
REFER TO SPECIAL DETAILS
FOR PARKING AREA IMPROVEMENTS

HWY. 18 EXISTING - BR. 02477
STA. 1272+79.26 TO STA. 1281+37.51 IN PLACE
858'-3" X 26'-0" CLEAR ROADWAY WIDTH
BRIDGE CONSISTING OF 855'-0" W-BEAM (SPANS 19 @ 45')
REMOVE AS EXISTING BRIDGE STRUCTURE (SITE NO. 2) = 1.00 LUMP SUM

STA. 1269+94 LAKE ACCESS
CONST. APPR. ON RT. = 265 CU. YDS.

BIG LAKE OUTLET
HWY. 18



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				6	ARK.			
				JOB NO.		CA1002	95	319

(2) P & P - STA. 1275+00 TO STA. 1290+00

REMOVAL AND DISPOSAL OF IMPACT ATTENUATION BARRIER

STA.	LOCATION	EACH
1281+42	RT OF CL CONSTRUCTION	1
1281+42	LT OF CL CONSTRUCTION	1

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESSY
9/12/16

HWY. 18 PROPOSED - BR. 07391
STA. 1272+65.92 TO STA. 1281+56.08 CONSTRUCT
890'-2" X 75'-0" CLEAR ROADWAY WIDTH
BRIDGE CONSISTING OF 3-296'-0" CONT.
COMPOSITE PLATE GIRDER UNITS (90', 116', 90')

HWY. 18 EXISTING - BR. 02477
STA. 1272+79.26 TO STA. 1281+37.51 IN PLACE
858'-3" X 26'-0" CLEAR ROADWAY WIDTH
BRIDGE CONSISTING OF 855'-0" W-BEAM
(SPANS, 19 @ 45')
REMOVE AS EXISTING BRIDGE STRUCTURE (SITE NO. 2) = 1.00 LUMP SUM

C.L. HWY. 18
PI = 1283+19.09
Δ = 0°46'35" LT.
D = 0°30'00"
T = 77.63'
L = 155.26'
PC = 1282+41.46
PT = 1283+96.72
NO SUPER

STA. 1286+20 C.R. 305 IN PLACE
108" X 90' STEEL PIPE CULVERT.
LT. SIDE DRAIN
REMOVE AND INSTALL @ +25
24' X 110' PIPE CULVERT.
LT. SIDE DRAIN
CONST. APPR. ON LT. = 1290 CU. YDS.

STA. 1286+85 ON C.R. 305 INSTALL
DBL. 72" X 48" PIPE CULVERT.
LT. SIDE DRAIN

PROPOSED T.C.E.
PROPOSED R/W
EXIST. R/W
EXISTING BR. END 1281+37.51
PROPOSED BR. END 1281+56.08
S 60°38'23" E
S 61°24'58" E
S 60°38'53" E
S62°01'43"E
C.L. HWY. 18
N. COUNTY RD. 306
110' R
GRADE TO DRAIN
CONST. LIMITS
BIG LAKE OUTLET
DENOTES LOCATION OF TIMBER PILING. REFER TO SPECIAL DETAILS FOR ADDITIONAL INFORMATION.

REMOVAL AND DISPOSAL OF GUARDRAIL

STA.	STA.	LOCATION	LIN. FT.
1288+55	1290+55	RT OF CL CONSTRUCTION	200
1289+83	1290+58	RT OF CL CONSTRUCTION	75

C.L. HWY. 18
PI = 1288+85.75
Δ = 0°46'05" RT.
D = 0°30'00"
T = 76.81'
L = 153.62'
PC = 1288+08.94
PT = 1289+62.56
NO SUPER

HWY. 18

GUARDRAIL - INSTALLATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)	TERMINAL ANCHOR POST (TYPE 1)
STA. 1281+65.49 TO STA. 1282+59.24 RT OF CL HWY. 18 =	75 LIN. FT.	1 EACH		1 EACH
STA. 1281+65.49 TO STA. 1283+84.24 LT OF CL HWY. 18 =	150 LIN. FT.	1 EACH	1 EACH	

STA. 1283+00
CONST. APPR. ON RT. = 100 CU. YDS.

REFER TO SPECIAL DETAILS FOR DRIVEWAY INFORMATION

LOCATION 3
REFER TO SPECIAL DETAILS FOR PARKING AREA IMPROVEMENTS

P.V.I. 1282+14.00
ELEV. 252.30

P.V.I. 1289+87.00
ELEV. 252.10

PROFILE GRADE
PROPOSED BR. END 1281+56.08 ELEV. 252.30
0.00%
-0.026%
0.00%
H.W. ELEV. Q50 = 242.80
EXISTING GROUND
UNCLASSIFIED EXCAVATION REFER TO BRIDGE PLANS
ELEV. 238.00
ELEV. 236.50
LT. DITCH GRADE -0.10%
LT. DITCH GRADE -0.15%
1282+50.00 235.00
1287+00.00 234.55
1287+00.00 229.65

BIG LAKE OUTLET STA. 1272+70 TO STA. 1281+50 FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THE STREAM IS CLASSIFIED AS AN 5cfs STREAM. THE STREAM BANK ELEVATIONS ARE 248.0' msl. SEE SUBSECTION 110.06(C) OF THE STANDARD SPECIFICATIONS REGARDING CONSTRUCTION OF TEMPORARY FILLS WITHIN 5cfs STREAM LIMITS.

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

265 260 255 250 245 240 235 230 225 220

1275+00 1276+00 1277+00 1278+00 1279+00 1280+00 1281+00 1282+00 1283+00 1284+00 1285+00 1286+00 1287+00 1288+00 1289+00 1290+00

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				6	ARK.			
				JOB NO.		CAI002	96	319

(2) P & P - STA. 1290+00 TO STA. 1305+00

HWY. 18 PROPOSED - BR. 07392
STA. 1290+35.91 TO STA. 1294+72.09 - CONSTRUCT 436'-2¼" X 75'-0" CLEAR ROADWAY WIDTH
BRIDGE CONSISTING OF 434'-0" CONT. COMPOSITE PLATE GIRDER UNIT (91', 126', 126', 91')

HWY. 18 EXISTING - BR. 06060
STA. 1290+56.14 TO STA. 1294+78.33 IN PLACE
422'-2" X 40'-0" CLEAR ROADWAY WIDTH
BRIDGE CONSISTING OF 2-210'-0" CONT. COMPOSITE W-BEAM (SPANS: 50', 2 @ 55', 50') REMOVE AS EXISTING BRIDGE STRUCTURE (SITE NO. 3) = 1.00 LUMP SUM

GUARDRAIL - INSTALLATION

	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)	TERMINAL ANCHOR POST (TYPE 1)
STA. 1288+07.76 TO STA. 1290+26.51 RT OF CL HWY. 18 = 150 LIN. FT.		1 EACH	1 EACH	
STA. 1289+32.76 TO STA. 1290+26.51 LT OF CL HWY. 18 = 75 LIN. FT.		1 EACH		1 EACH
STA. 1294+81.49 TO STA. 1295+75.24 RT OF CL HWY. 18 = 75 LIN. FT.		1 EACH		1 EACH
STA. 1294+81.49 TO STA. 1297+00.24 LT OF CL HWY. 18 = 150 LIN. FT.		1 EACH	1 EACH	

REMOVAL AND DISPOSAL OF GUARDRAIL

STA.	STA.	LOCATION	LIN. FT.
1294+79	1296+79	RT OF CL CONSTRUCTION	200
1294+79	1295+79	RT OF CL CONSTRUCTION	100

REMOVAL AND DISPOSAL OF APPROACH SLAB & GUTTERS

STA.	LOCATION	EACH
1290+38	RT OF CL CONSTRUCTION	1
1294+95	RT OF CL CONSTRUCTION	1

C.L. HWY. 18
PI = 1304+39.49
Δ = 32°19'48" LT.
D = 3°00'00"
T = 553.60'
L = 1077.67'
PC = 1298+85.89
PT = 1309+63.55
Ls = 540'
e = 0.077'/'

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16

STA. 1301+96
CONST. APPR. ON LT. = 60 CU. YDS.

STA. 1297+87
CONST. APPR. ON RT. = 340 CU. YDS.

STA. 1302+55
CONST. APPR. ON RT. = 295 CU. YDS.

STA. 1302+55 2ND
CONST. APPR. ON RT. = 50 CU. YDS.

DENOTES LOCATION OF TIMBER PILING. REFER TO SPECIAL DETAILS FOR ADDITIONAL INFORMATION.

STA. 1294+80.89 BEGIN SUPERELEVATION
STA. 1300+20.89 MAX. SUPERELEVATION (0.077'/')
STA. 1308+28.55 MAX. SUPERELEVATION (0.077'/')
STA. 1313+68.55 END SUPERELEVATION

BIG LAKE FLOODWAY RELIEF STA. 1290+50 TO STA. 1295+00 FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THE STREAM IS CLASSIFIED AS AN PERENNIAL STREAM. THE STREAM BANK ELEVATIONS ARE 248.0' msl. SEE SUBSECTION 110.06(C) OF THE STANDARD SPECIFICATIONS REGARDING CONSTRUCTION OF TEMPORARY FILLS WITHIN PERENNIAL STREAM LIMITS.

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

HWY. 18 265

JACOBS

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RO. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA1002	97	319

(2) P & P - STA. 1305+00 TO STA. 1314+96.37

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16

C.L. HWY. 18
PI = 1304+39.49
Δ = 32°19'48" LT.
D = 3°00'00"
T = 553.60'
L = 1077.67'
PC = 1298+85.89
PT = 1309+63.55
Ls = 540'
e = 0.077'/'

STA. 1310+33 IN PLACE
18' X 28' PIPE CULV'T.
LT. SIDE DRAIN
REMOVE AND INSTALL
18' X 36' PIPE CULV'T.
LT. SIDE DRAIN
CONST. APPR. ON LT. = 75 CU. YDS.

N

+50.11 80.26
+17.06 84.42
EXIST. R/W
CONST. LIMITS
8'
1305
58'
+82
8'
EXIST. R/W
CONST. LIMITS
PROPOSED R/W
+25.00 115.00
+60.00 112.03
T.C.E.
16'
+05.00 109.21
30.00
30.00
16'
+00.00 110.00
16'
PT 1309+63.56
1310
+28.33
49'
CL. HWY. 18 N 87°01'19" E
16'
+00.00 96.46
+96.37 79.99
CONST. LIMITS
8'
58'
8'
CONST. LIMITS
PROPOSED R/W
+37.94 89.76
POT 1314+96.37
100' PAVEMENT TRANSITION
+96.37
EXIST. R/W
TRANSMISSION LINE
HIGH VOLTAGE OVHD.
HIGH VOLTAGE CONC.
PAVED
EXIST. R/W
ZONE HIGH VOLTAGE
BAC CHARLIE MONUMENTAL POST
TEXAS GAS TRANSMISSION MARKER POST

STA. 1305+79 IN PLACE
24' X 34' R.C. PIPE CULVERT.
RT. SIDE DRAIN
REMOVE AND INSTALL @ +82
24' X 54' PIPE CULVERT.
RT. SIDE DRAIN
CONST. APPR. ON RT. = 395 CU. YDS.

STA. 1308+49 IN PLACE
24' X 114' R.C. PIPE CULVERT.
JUNCTION BOX
24' X 130' R.C. PIPE CULVERT.
RT. SIDE DRAIN
REMOVE AND INSTALL
24' X 52' PIPE CULVERT.
RT. SIDE DRAIN
CONST. APPR. ON RT. = 235 CU. YDS.

STA. 1310+28 IN PLACE
24' X 30' R.C. PIPE CULVERT.
RT. SIDE DRAIN
REMOVE AND INSTALL
24' X 42' PIPE CULVERT.
RT. SIDE DRAIN
CONST. APPR. ON RT. = 125 CU. YDS.

STA. 1314+96.37
END JOB CA1002
LOG MILE 3.57

HWY. 18

STA. 1294+80.89 BEGIN SUPERELEVATION
STA. 1300+20.89 MAX. SUPERELEVATION (0.077'/')
STA. 1308+28.55 MAX. SUPERELEVATION (0.077'/')
STA. 1313+68.55 END SUPERELEVATION

265 260 255 250 245 240 235 230 225 220

-2.10%
P.V.C. 1306+34.11
ELEV. 242.47
P.V.I. 1307+84.11
ELEV. 239.32
P.G. 240.15
P.V.T. 1309+34.11
ELEV. 239.47
K=136
VC=300'
PROFILE GRADE
0.10%
P.V.I. 1314+96.37
ELEV. 240.03
LT. DITCH GRADE -0.05%
RT. DITCH GRADE -0.10%
LT. DITCH GRADE -0.04%
RT. DITCH GRADE -0.12%
EXISTING GROUND
1305+00.00 236.00
1305+50.00 234.55
1306+00.00 234.08
1307+00.00 235.90
1308+00.00 235.28
1314+96.37 233.00
1314+96.37 235.00

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

1305+00 1306+00 1307+00 1308+00 1309+00 1310+00 1311+00 1312+00 1313+00 1314+00 1315+00 1316+00 1317+00 1318+00 1319+00 1320+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.		CA1002	98	319

(2) P & P - STA. 11+80 TO STA. 17+11.81

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11427
KEVIN G. TOBLESKY
9/12/16

C.L. WILDLIFE REFUGE RD.
PI = 11+89.90
Δ = 88°01'23" LT.
D = 53°32'51"
T = 103.37'
L = 164.38'
PC = 10+86.53
PT = 12+50.91
NO SUPER

T.C.E.
CONST. LIMITS
EXIST. R/W
PROPOSED R/W
C.L. WILDLIFE REFUGE RD.
S62°01'43"E
C.L. HWY. 18
S 60°38'23" E
S 61°24'58" E
110' R
GRADE TO DRAIN
N. COUNTY RD. 302
1280
1285
1290
15
17
10

PROFILE GRADE
0.46%
P.V.I. 11+80.00
ELEV. 240.23
P.V.I. 17+11.81
ELEV. 242.68
EXISTING GROUND

WILDLIFE REFUGE RD.

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

JACOBS

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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.		CA1002	99	319
				(1) 07390	-	LAYOUT	-	58652

HORIZONTAL CURVE DATA
PI = Sta. 1235+75.76
PC = Sta. 1230+00.71
PT = Sta. 1241+35.72
Delta = 22° 42' 01" LT.
D = 2° 00' 00"
T = 575.05'
L = 1135.01'
R = 2864.79'

For R/W Data, See Rdwy. Plans

Place Type C Approach Gutters ("w" = 8'-0") and Type Special 1 Approach Slabs at both ends of bridge. See Std. Dwg. No. 55030C & Dwg. No. 58682.

Remove existing piers of abandoned Railroad Bridge. See Drawing No. 58654. See Rwdy. Plans for location of piers.

Remove Existing Bridge No. 05225 (Bridge Site No. 1) [1]

Transition Superelevation to Sta. 1245+40.72
See "Superelevation Transition Detail"

Sta. 1240+00.72 - Begin Superelevation Transition

Top of Cut
Boring No. 1
Approx. 2.1 mi. to Jct. SH 18B
Underground Gas Marker
Boring No. 2
Boring No. 2A
Boring No. 3
Boring No. 3A
Boring No. 4
Approx. 3.8 mi. to Jct. SH 181
PT Sta. 1241+35.72
Shoring [2]
C.L. Construction, C.L. Bridge & Theoretical Profile Grade Line
C.L. Existing Bridge No. 05225
Longitudinal Construction Joint
Gas Line on Existing Bridge (Removed by Others)
Cross Slope Varies
5.50% Cross Slope
75'-0" Clear Roadway
75'-0" Finished Roadway
Stage 2 Constr.
Stage 3 Constr.
33'-7"
44'-7"
27'-8"
78'-2" out to out
5'-6"
Lanes
Median
Shdr.
Para.
1 V: 2H
1 V: 3H
1 V: 1H
15'-0"
1'-5"
1238+00
1239+00
1240+00
1241+00
1237+00
204
206
240
248

1'-6" Dumped Riprap placed on Filter Blanket. Top of riprap Elev. 243.00. See Std. Dwg. No. 55001. (Typ.)

The Contractor shall excavate the existing embankment as shown to Elev. 234.00 at end of bridge. Approx. 1030 cu. yds. of excavation at Bent 1.

The Contractor shall excavate the existing embankment as shown to Elev. 234.00 at end of bridge. Approx. 1030 cu. yds. of excavation at Bent 4.

DITCH 81

Note: Bents are constructed on radial lines.

Toe of Fill Slope

Longitudinal lines in the curve shall be constructed on curves concentric to C.L. Bridge and C.L. Construction. Total bridge length, span lengths, stations and elevations shown are along C.L. Bridge and C.L. Construction. Elevations are actual elevations.

PLAN

Total Length of Bridge = 298'-2"
296'-0" Continuous Composite Plate Girder Unit (90'-116'-90')
1'-1" | 1'-1"
C.L. 2" Poured Silicone Joint | C.L. 2" Poured Silicone Joint

Level Grade
Theoretical Profile Grade Elev. 250.27
See "Superelevation Transition Detail"

Slope Intercept Sta. 1237+63.92
Guardrail See Rdwy. Plans
Begin Bridge Sta. 1237+75.92 Elev. 251.30
Concrete Parapet Rail
Working Point at C.L. Bridge to Low Side Top of Cap = 7'-1⅜"
C.L. Bent 2 Sta. 1238+67.00 Elev. 251.30
Low Steel to Design H.W. = 1.6'
C.L. Deck at C.L. Bridge to Low Steel = 6'-11¼"
Working Point at C.L. Bridge to Low Side Top of Cap = 7'-1⅜"
C.L. Bent 3 Sta. 1239+83.00 Elev. 251.30
High Side of Deck
End Bridge Sta. 1240+74.08 Elev. 251.08
Slope Intercept Sta. 1240+86.08
Guardrail See Rdwy. Plans
Proposed Grade Line along C.L. Bridge and C.L. Construction

INT.
EXP.
Low Steel
Design High Water (Q50) = Elev. 242.7
Existing riprap. See Drawing No. 58654 & 58656 for additional details.
Existing Ground Line along C.L. Bridge and C.L. Construction
49' Piles
44' Piles
84' Piles
98' Test Pile
83' Piles
99' Test Pile
Pile Encasement Typical for Bents 2 & 3. See Drawing No. 58666. Top of Encasement at Elev. 235.0.

[8] See SP Job CA1002 "Steel Shell Piling (36 Inch Diameter)".

Bent ① Bent ② Bent ③ Bent ④

ELEVATION

For General Notes, Boring Legend and Boring Blow Counts, see Dwg. No. 58653 & 58654.

[1] The new bridge is positioned to avoid interference with existing piling. The Contractor shall verify the location of existing substructure and piles before driving new piles. Any pile removal or other adjustments to fit the new bridge to existing conditions shall be submitted to the Engineer for approval. All piles from the existing bridge shall be removed in accordance with Section 205.

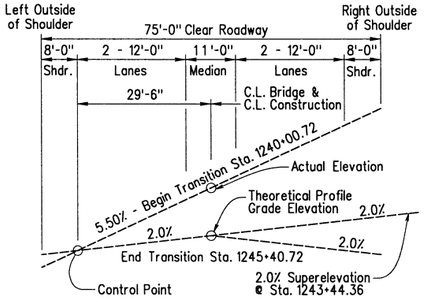
[2] Shoring will be required during Stage 2 Construction. See SP Job CA1002 "Shoring", SP Job CA1002 "Geosynthetic Internal Reinforced Embankment Construction", and Roadway Plans.

[3] See Roadway Plans for Special Details of reinforced embankment construction near bridge ends.

[4] See Drawing No. 58656 for Details of Soil Densification at Bents 1, 3 & 4.

[5] Embankment material placed next to the end bent stub walls shall meet the requirements of SP Job CA1002 "Cohesive Soil Backfill for Abutment Walls". See Roadway Plans for Special Details.

Transition cross-slope varies. See Drawing No. 58654 for correction equations. For additional superelevation transition information, see Std. Dwg. SE-2.



Note: Stationing is along C.L. Bridge and C.L. Construction.

SUPERELEVATION TRANSITION DETAIL (Sta. 1240+00.72 to 1245+40.72)

Looking Ahead
(No Scale)

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	[7] TOTAL DISCHARGE	DISCHARGE THROUGH BRIDGE OPENING	[6] NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	CFS	FEET	FEET
Design	50	51,110	11,360	242.24	242.73
Base	100	59,090	13,230	243.14	243.71
Extreme	500	69,050	15,840	244.23	244.89
Overtopping	>500	-	-	-	-

[6] Unconstricted water surface without existing or proposed structures or roadway approaches.

[7] Includes Ditch 81 Bridge (Br. No. 07390) and structures at Big Lake Outlet and Big Lake Floodway Relief.

Q100 backwater elevation for existing structure = 243.81 ft.
Proposed Low Bridge Chord elevation = 244.34 ft.
Drainage area = 2084 square miles
Historical H.W. Elev. = 244.6 ft. (1937)

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER J. CRISWELL
No. 11328
9/12/16
BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 1 OF 3
LAYOUT OF BRIDGE OVER DITCH 81
MANILA - EAST (WIDENING) (S)
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 1/13/14
CHECKED BY: MAA DATE: 1/23/14
DESIGNED BY: CJC DATE: 1/10/14
FILENAME: bca1002x1_lx1.dgn
SCALE: 1" = 20'
BRIDGE NO. 07390
DRAWING NO. 58652

JACOBS

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				6	ARK.			
				JOB NO.		CA1002	100	319
				1 07390	-	LAYOUT	-	58653

"N" VALUES

Boring No. 1
Sta. 1237+60
20' Left of C.L. Constr.

1.0-2.0, N-16
2.5-3.5, N-17
4.5-5.5, N-19
9.0-10.0, N-17
19.0-20.0, N-17
24.0-25.0, N-18
29.0-30.0, N-24
34.0-35.0, N-39
39.0-40.0, N-47
44.0-45.0, N-32
49.0-50.0, N-40
59.0-60.0, N-50
69.0-70.0, N-50 (8")
78.0-79.0, N-50 (9")
88.0-89.0, N-50 (8")
98.0-99.0, N-50 (9")
108.0-109.0, N-70 (8")
118.0-119.0, N-70 (8")
129.0-130.0, N-70 (6")
139.0-140.0, N-70 (6")
149.5-150.0, N-70 (6")

Boring No. 2
Sta. 1238+70
20' Left of C.L. Constr.

0.5-1.0, N-50 (0")

Boring No. 3
Sta. 1239+90
20' Left of C.L. Constr.

0.5-1.0, N-50 (0")

Boring No. 2A
Sta. 1238+25
40' Right of C.L. Constr.

0.5-1.5, N-12
2.5-3.5, N-14
4.5-5.5, N-21
6.5-7.5, N-15
9.0-10.0, N-20
14.0-15.0, N-20
19.0-20.0, N-42
24.0-25.0, N-50 (9")
28.5-29.5, N-50 (9")
33.5-34.5, N-50 (9")
38.5-39.5, N-50 (10")
43.5-44.5, N-50 (11")
48.5-49.5, N-50 (10")
58.5-59.5, N-50 (9")
68.5-69.5, N-50 (9")
78.5-79.5, N-50 (8")
88.5-89.5, N-50 (9")
98.5-99.0, N-50 (6")
108.5-109.0, N-50 (3")
118.5-119.0, N-50 (3")
128.5-129.0, N-25 (0")
138.5-139.0, N-25 (0")
148.5-149.0, N-25 (0")

Boring No. 3A
Sta. 1240+20
40' Right of C.L. Constr.

4.0-5.0, N-9
6.5-7.5, N-9
9.0-10.0, N-16
14.0-15.0, N-20
19.0-20.0, N-34
24.0-25.0, N-37
29.0-30.0, N-50
34.0-35.0, N-50 (10")
39.0-40.0, N-50 (10")
44.0-45.0, N-50 (9")
49.0-50.0, N-50 (8")
58.5-59.5, N-50 (9")
68.5-69.5, N-50 (10")
78.5-79.5, N-50 (8")
88.5-89.5, N-50 (9")
98.5-99.5, N-50 (8")
108.5-109.0, N-50 (3")
118.5-119.0, N-50 (3")
128.5-129.0, N-25 (0")
138.5-139.0, N-25 (0")

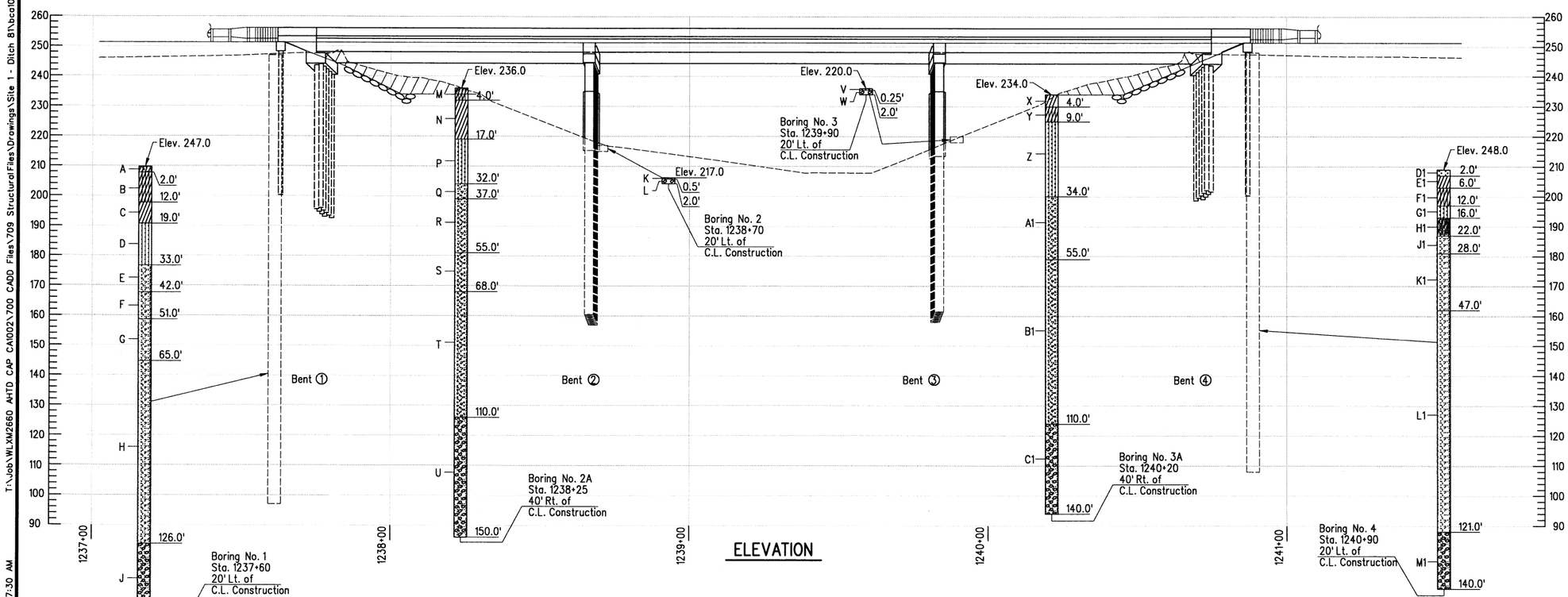
Boring No. 4
Sta. 1240+90
20' Left of C.L. Constr.

0.5-1.5, N-17
2.5-3.5, N-9
4.5-5.5, N-22
6.5-7.5, N-14
19.0-20.0, N-14
24.0-25.0, N-50 (8")
29.0-30.0, N-56
34.0-35.0, N-27
39.0-40.0, N-44
44.0-45.0, N-50 (6")
49.0-50.0, N-58
59.0-60.0, N-50 (10")
69.0-70.0, N-50
79.0-80.0, N-50 (11")
89.0-90.0, N-50 (8")
99.0-100.0, N-50 (8")
109.0-110.0, N-50 (8")
119.0-120.0, N-50 (9")
129.0-130.0, N-50 (8")
139.0-140.0, N-50 (7")

BORING LEGEND

A - 2 inches: Asphalt Concrete. Stiff dark brown fine sandy clay w/trace fine to coarse gravel (fill).
B - Stiff tan and gray clay w/occasional fine to medium sand pockets (fill).
C - Stiff tan and gray clay, water at 15 ft.
D - Medium dense gray and brown fine sandy silt, slightly clayey, brown below 24 ft., with silt seams and layers below 24 ft.
E - Dense tan silty fine sand, with silty clay pockets at 33 - 37 ft.
F - Dense tan fine to medium sand, with organic stains below 48 ft.
G - Dense gray and brown fine to medium sand w/a little fine gravel.
H - Dense to very dense grayish brown fine to coarse sand w/trace fine gravel, with a little fine to coarse gravel and occasional silty clay pockets from 79 - 96 ft., less gravel below 96 ft., with a little fine gravel below 114 ft.
J - Dense to very dense grayish brown sandy fine gravel.
K - Loose dark brown silty fine sand.
L - Riprap.
M - Stiff brown silty clay w/silty fine sand seams and pockets (fill).
N - Stiff gray and tan clay, with silty fine sand seams at 6 - 8 ft., water at 9 ft., sandy below 14 ft.
P - Dense brown silty fine sand, dense to very dense below 22 ft.
Q - Dense to very dense brown fine to medium sand.
R - Dense to very dense brown fine sand.
S - Dense to very dense gray fine to coarse sand w/a little fine gravel.
T - Dense to very dense gray fine to medium sand w/trace fine gravel.
U - Dense to very dense gray and brown sandy fine gravel.
V - Loose dark brown silty fine sand.
W - Riprap.
X - Soft brown clay (fill).
Y - Firm brown and gray silty clay, sandy, water at 4 ft.
Z - Medium dense tan silty fine sand, with silty clay pockets at 13 - 16 ft., dense at 18 - 28 ft., dense to very dense below 28 ft.

A1 - Dense to very dense gray fine sand, coarser with a little medium sand and trace fine gravel below 38 ft.
B1 - Dense to very dense gray fine to medium sand with a little fine gravel to 85 ft.
C1 - Dense to very dense brown and gray sandy fine gravel.
D1 - 1 inch: Asphalt Concrete, 23 inches: Aggregate Base.
E1 - Firm dark gray clay w/a little fine gravel (fill), stiff below 4 ft.
F1 - Stiff gray silty clay w/silt pockets and trace coarse sand (fill).
G1 - Medium dense brownish gray silty fine sand w/trace medium sand, water at 15 ft.
H1 - Stiff gray fine sandy clay, silty.
J1 - Dense brown fine sand, slightly silty w/occasional silty clay pockets.
K1 - Dense brown fine to medium sand, medium dense at 34 to 35 ft, dense with trace fine gravel below 36 ft., with organic stains below 40 ft., dense to very dense below 43 ft.
L1 - Dense grayish brown fine to medium sand, with a little fine to coarse gravel and occasional lignite inclusions below 55 ft., dense to very dense below 75 ft.
M1 - Dense to very dense grayish brown sandy fine gravel.



ELEVATION

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 2 OF 3
LAYOUT OF
BRIDGE OVER DITCH 81
MANILA - EAST (WIDENING) (S)
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 1/13/14 FILENAME: bca1002x1_lx2.dgn
CHECKED BY: MAA DATE: 1/23/14
DESIGNED BY: CJC DATE: 1/10/14 SCALE: 1" = 20'
BRIDGE NO. 07390 DRAWING NO. 58653

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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.		CA1002	101	319
				(1) 07390	-	LAYOUT	-	58654

GENERAL NOTES

BENCH MARK: Chiseled square in bridge corner, 0.28' left of Sta. 1240+66.86, Elev. 248.59

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Sixth Edition (2012) with 2013 interim revisions. AASHTO Guide Specifications for LRFD Seismic Bridge Design, First Edition (2009)

LIVE LOADING: HL-93 SEISMIC DESIGN CATEGORY = D S_{D1} = 1.190 SITE CLASS: D

OPERATIONAL IMPORTANCE: Typical Bridge

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Class S Concrete (substructure, 18" Dia. Piling, 36" Dia. Piling)	f'c = 3,500 psi
Self-Consolidating Concrete (18" Dia. Piling, 36" Dia. Piling)	f'c = 3,500 psi
Reinforcing Steel (AASHTO M31 or M322 Type A, Grade 60)	fy = 60,000 psi
Structural Steel (AASHTO M270, Gr. 36)	Fy = 36,000 psi
Structural Steel (AASHTO M270, Gr. 50)	Fy = 50,000 psi
Structural Steel (AASHTO M270, Gr. 50W)	Fy = 50,000 psi
Steel Shell Pile (ASTM A252, Grade 3)	Fy = 45,000 psi

BORING LOGS: Boring logs may be obtained from the Construction Contract Procurement Section of the Program Management Division.

STEEL SHELL PILING: All piling shall be driven with an approved air, steam, or diesel hammer. Lengths of piling shown are assumed for estimating quantities only. The actual lengths will be determined in the field. Piling for Bents 1 and 4 shall be 18" diameter concrete filled steel shell piles and shall be driven to a minimum ultimate bearing capacity of 202 tons per pile and to a tip elevation of 208 or lower for Bent 1 and 208 or lower for Bent 4. Piling in end bents shall be driven before embankment is in place. See Drawing No. 58656 for additional information pertaining to the pile driving sequence. Piling for Bents 2 & 3 shall be 36" diameter concrete filled steel shell piles and shall be driven open-ended to a minimum ultimate bearing capacity and to a minimum tip elevation shown on Drawing No. 58666. The soil plug within the 36" steel shells shall be removed to the specified depth and driving shall continue to verify the minimum ultimate bearing capacity. Concrete shall not be placed in steel shells until pile driving has progressed beyond a radius of 20 feet from the pile to be concreted. See SP Job CA1002 "Steel Shell Piling (36 Inch Diameter)" and Drawing No. 58666 for additional information.

TEST PILES: See Drawing No. 58652 and 58662 for locations of test piles. Drive a 99' test pile at Bent 3 to be Dynamic Load Tested and Rapid Load Tested. Drive a 98' Dynamic Load Test Pile at Bent 2. See SP Job CA1002 "Steel Shell Piling (36 Inch Diameter)" for additional information.

DRIVING SYSTEM: The driving system approval and ultimate bearing capacity determination for piling at Bents 1 & 4 will be based on the requirements of Subsection 805.09(b) "Method B - Wave Equation Analysis (WEAP)". It is estimated that a minimum rated hammer energy of 48,500 ft-lbs per blow will be required to obtain the ultimate bearing capacity at Bents 1 & 4. The driving system approval and the ultimate bearing capacity determination for piling at Bents 2 & 3 will be based on the results of Dynamic Load Tests and Rapid Load Tests as outlined in SP Job CA1002 "Steel Shell Piling (36 Inch Diameter)". It is estimated that a minimum rated hammer capacity of 83,900 ft-lbs per blow will be required to obtain the ultimate bearing capacity at Bents 2 & 3.

PREBORING: Preboring, water jetting or other methods approved by the Engineer may be needed to achieve the minimum pile penetration at Bents 1 & 4, but will not be allowed at Bents 2 & 3. Water jetting shall stop once the minimum tip elevation is achieved. Any cost associated with achieving the minimum pile penetration shall be considered subsidiary to "Steel Shell Piling".

PILE ENCASEMENT: Pile encasement for Bents 2 & 3 shall extend from Elev. 235.0 to 3' below natural ground. See SP Job CA1002 "Steel Shell Piling (36 Inch Diameter)" and Drawing No. 58666 for additional information and painting requirements for portion of pile not protected by pile encasement.

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.

DETAIL DRAWINGS:	DRAWING NO.
Hydrograph - Ditch 81	58655
Details of Soil Densification	58656
Stage Construction	58657
End Bents	58658 - 58661
Intermediate Bents	58662 - 58665
Concrete Filled Steel Shell Piles and Pile Encasements	58666
296'-0" Continuous Composite Plate Girder Unit	58667 - 58679
Elastomeric Bearings	58680 & 58681
Type Special 1 Approach Slab	58682
Embankment Construction and Backfill at Bridge Ends	55000
Dumped Riprap and Filter Blanket	55001
Permanent Steel Bridge Deck Forms	55005
Type D Bridge Name Plate	55010
Type C Approach Gutters	55030C

GENERAL NOTES (Cont.)

EXISTING BRIDGES: Existing Bridge No. 05225 (Site No. 1) (log mile 1.89) is 46.3' wide and 282' long and consists of two 35' W-beam spans and three 70' W-beam spans supported by concrete trestle pile bents and column bents. The existing bridge occupies the same location as the proposed new bridge.

Any existing riprap within the limits of the soil densification shown on Drawing No. 58656 shall be removed prior to driving steel shell piling and timber piling. Riprap shall be replaced after driving piling as directed by the Engineer. Cost of riprap removal and replacement shall be considered subsidiary to the item "Removal of Existing Bridge Structure (Site No. 1)". Half size sheets of the existing bridge may be obtained from the Construction Contract Procurement Section of the Program Management Division. See Drawing No. 15830 - 15836 and 15836a.

Eight existing concrete piers of an abandoned railroad bridge consisting of concrete caps supported by solid wall piers are located north of the bridge. See Roadway Plans for location.

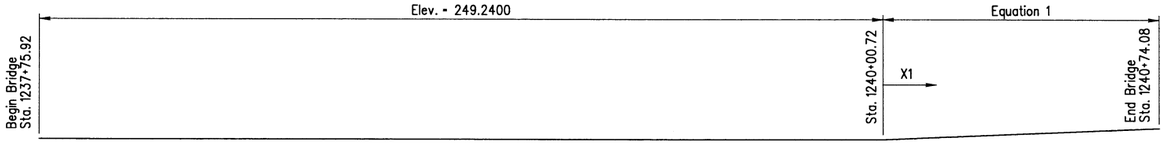
REMOVAL AND SALVAGE: Remove existing piers of abandoned railroad bridge in accordance with Section 205. After Stage 2 Construction of the new bridge is opened to traffic, Existing Bridge No. 05225 shall be removed in accordance with Section 205. All material from the existing bridges shall become the property of the Contractor. Cost of removal of existing piers of abandoned railroad bridge shall be considered subsidiary to the item "Removal of Existing Bridge Structure (Site No. 1)"

MAINTENANCE OF TRAFFIC: See Roadway Plans.

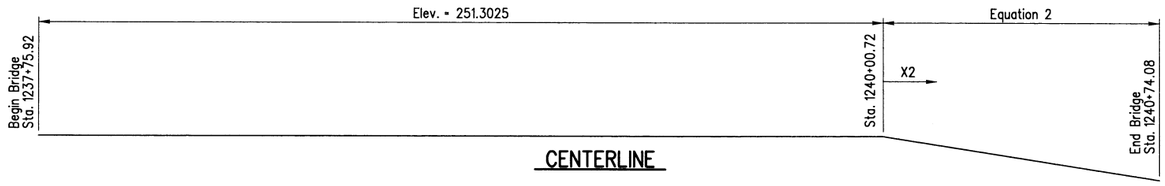
Note:
Use the following equations to calculate centerline and outside of shoulder elevations within the limits of the superelevation transition.

"X" = Distance (in stations) starting from the station shown to any point within the regions shown.

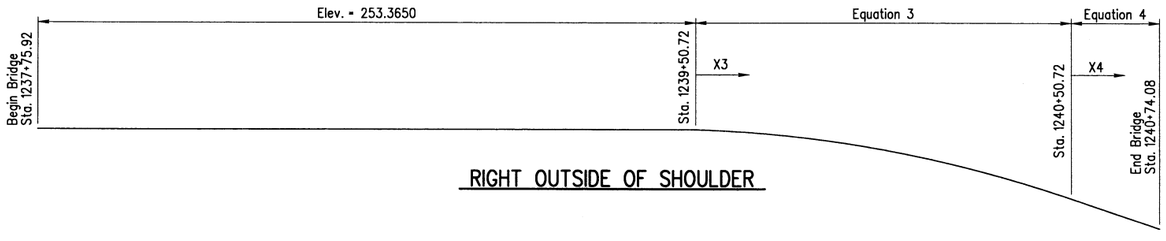
	EQUATION NUMBER	EQUATION
LEFT OUTSIDE OF SHOULDER	1	Elev. = 249.2400 + 0.0815(X1)
CENTERLINE	2	Elev. = 251.3025 - 0.3005(X2)
RIGHT OUTSIDE OF SHOULDER	3	Elev. = 253.3650 - 0.3412$(X3)^2$
	4	Elev. = 253.0238 - 0.6824(X4)



LEFT OUTSIDE OF SHOULDER



CENTERLINE



RIGHT OUTSIDE OF SHOULDER

Note:
The right outside of shoulder line of the bridge has been smoothed with a correction curve. The deck slope at any station is a straight line between the centerline and left outside of shoulder or between the centerline and right outside of shoulder.

METHOD OF SUPERELEVATION TRANSITION

Scale: 1" = 20' Horizontal
1" = 4' Vertical

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 3 OF 3
LAYOUT OF
BRIDGE OVER DITCH 81
MANILA - EAST (WIDENING) (S)
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

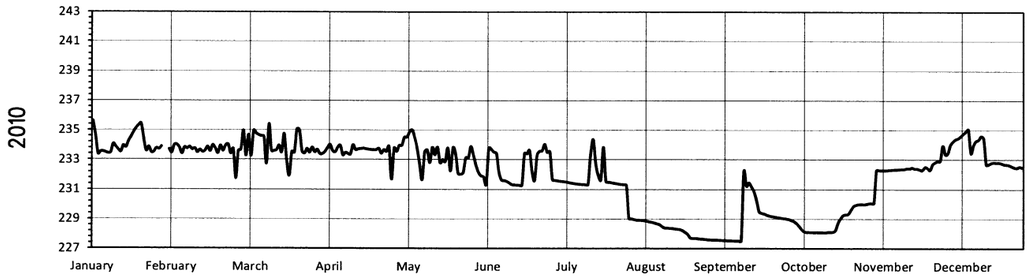
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CHECKED BY: CJC DATE: 3/3/16
DESIGNED BY: CJC DATE: 1/10/14
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FILENAME: bca1002x1_lx3.dgn
SCALE: No Scale
DRAWING NO. 58654

JACOBS

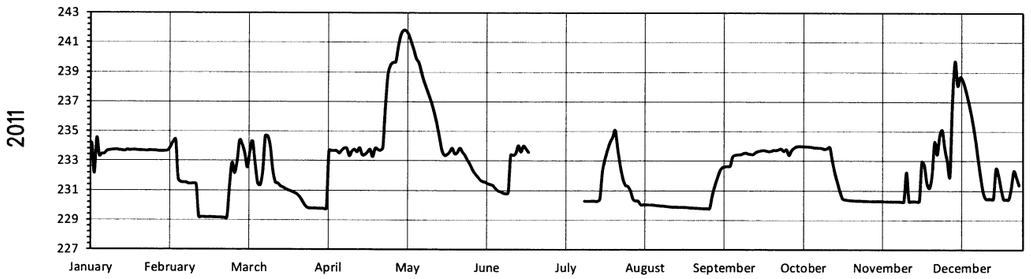
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6	ARK.			
JOB NO.		CA1002	102	319
(1) 07390	-	HYDROGRAPH	-	58655

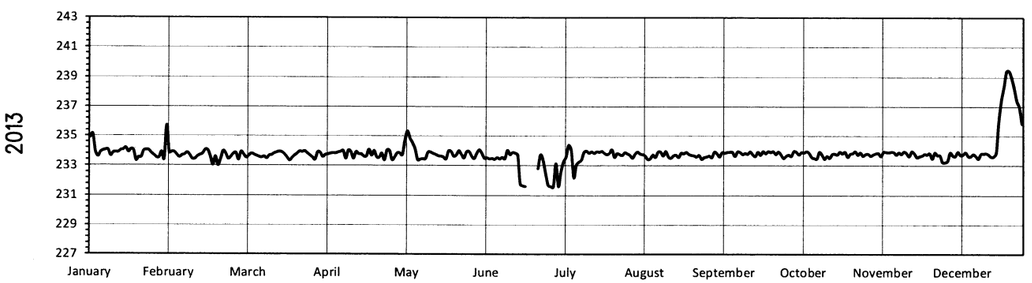


DAILY ELEVATIONS FOR JANUARY THROUGH DECEMBER 2010

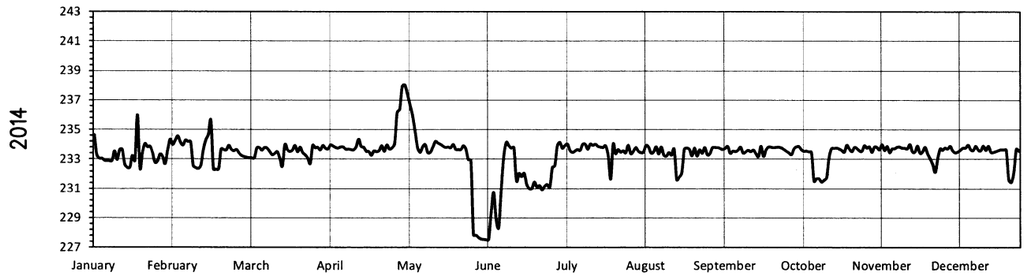


DAILY ELEVATIONS FOR JANUARY THROUGH DECEMBER 2011

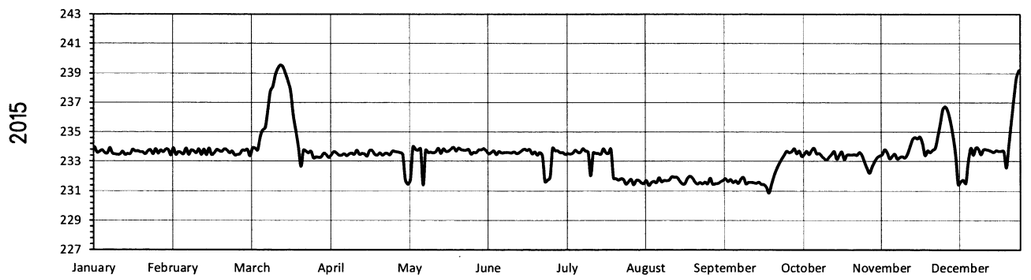
DAILY ELEVATIONS FOR JANUARY THROUGH DECEMBER 2012



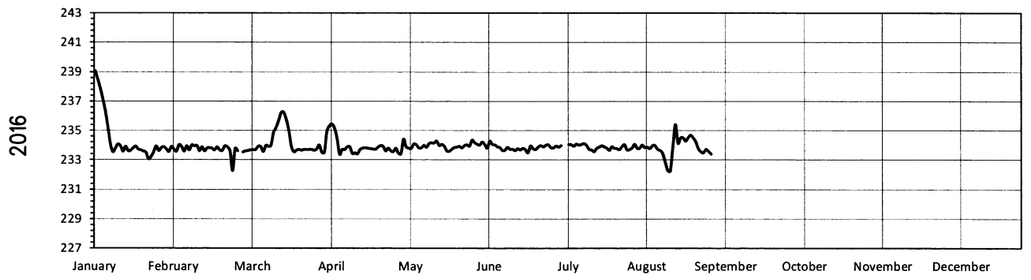
DAILY ELEVATIONS FOR JANUARY THROUGH DECEMBER 2013



DAILY ELEVATIONS FOR JANUARY THROUGH DECEMBER 2014



DAILY ELEVATIONS FOR JANUARY THROUGH DECEMBER 2015



DAILY ELEVATIONS FOR JANUARY THROUGH SEPTEMBER 2016

This Stage Hydrograph was obtained from the United States Army Corps of Engineers and was plotted by Jacobs Engineering. Broken lines in hydrograph signify missing data.

This hydrograph is provided for information only. Additional gage height information can be found at http://rivergages.mvr.usace.army.mil/watercontrol/stationinfo2.cfm?sid=BL115&fid=&dt=s for the Little River basin in the Memphis District.

Gage Name: BL115 Ditch 81 Extended (Upstream) near Manila, AR.
Location: Longitude 90° 8' 21", Latitude 35° 51' 13", at River Mile 0.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

HYDROGRAPH - DITCH 81
MANILA - EAST (WIDENING) (S)
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

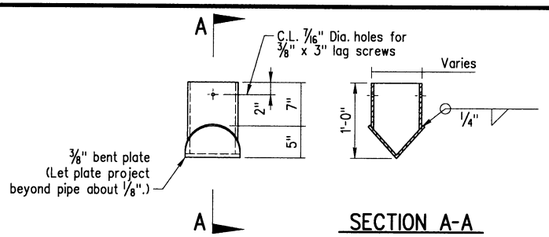
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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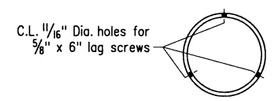
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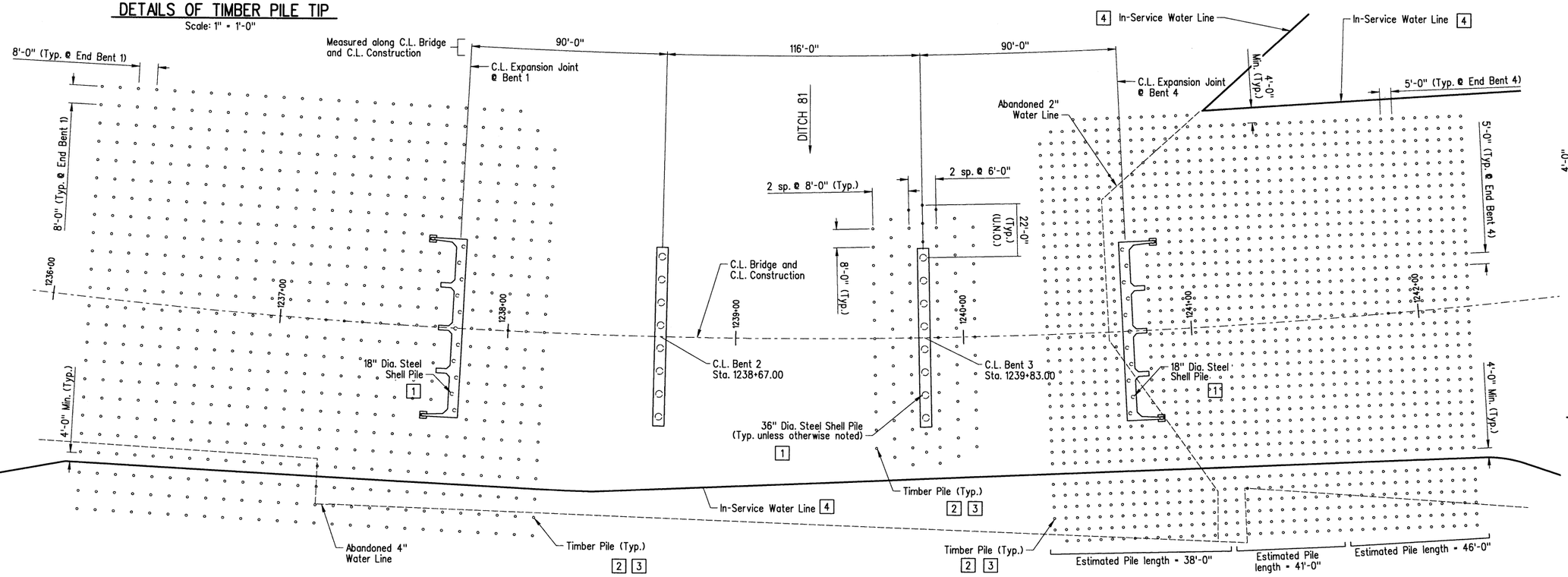
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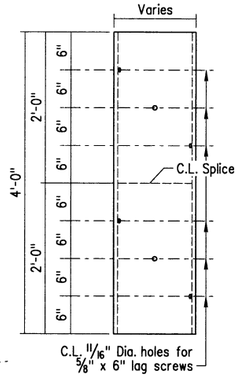


PLAN

DETAILS OF TIMBER PILE TIP

Scale: 1" = 1'-0"





ELEVATION

TYPICAL SPLICE DETAILS

Scale: 1" = 1'-0"

TIMBER PILE DATA

Bent No.	Estimated No. of Piles	Minimum Tip Elev.	Estimated Pile Length, ft.
1	609	215	35
2	-	-	-
3	89	200	23
4	548	210	38
	360	205	41
	432	200	46

Notes:
Diameter(s) of timber piles shall be in accordance with SP Job CA1002 "Timber Piling for Soil Densification".

Drive number and length of timber piles as directed by the Engineer.

Top of pile shall be driven to existing ground line within the limits of the embankments and 2' below existing groundline outside the toes of fill slope.

At Bent 1 the last lines of timber piling shall extend at least 90' left and 86' right of C.L. Construction. Timber piling shall also extend past Sta. 1236+25 and Sta. 1238+15.

At Bent 4 the last lines of timber piling shall extend at least 90' left and 90' right of C.L. Construction unless otherwise noted. Timber piling shall also extend past Sta. 1240+35 and Sta. 1242+25.

1 Steel Shell Piling shall be driven prior to timber piling for each stage of bridge construction.

2 Any existing riprap interfering with the driving of timber pile or steel shell pile shall be removed prior to driving as directed by the Engineer. Riprap shall be replaced after driving as directed by the Engineer. Cost of removing and replacing riprap shall be considered subsidiary to the item "Removal of Existing Bridge Structure (Site No. 1)".

3 Timber piling shall be in accordance with SP Job CA1002 "Timber Piling for Soil Densification" and shall be driven prior to placement of embankment with geosynthetic reinforcement. See Roadway Plans for Special Details for embankment construction.

4 Contractor shall coordinate with the Engineer to avoid any and all in-service utilities within the soil densification areas.

TIMBER PILE LAYOUT FOR SOIL DENSIFICATION

Scale: 1" = 25'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

DETAILS OF SOIL DENSIFICATION
BRIDGE OVER DITCH 81
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

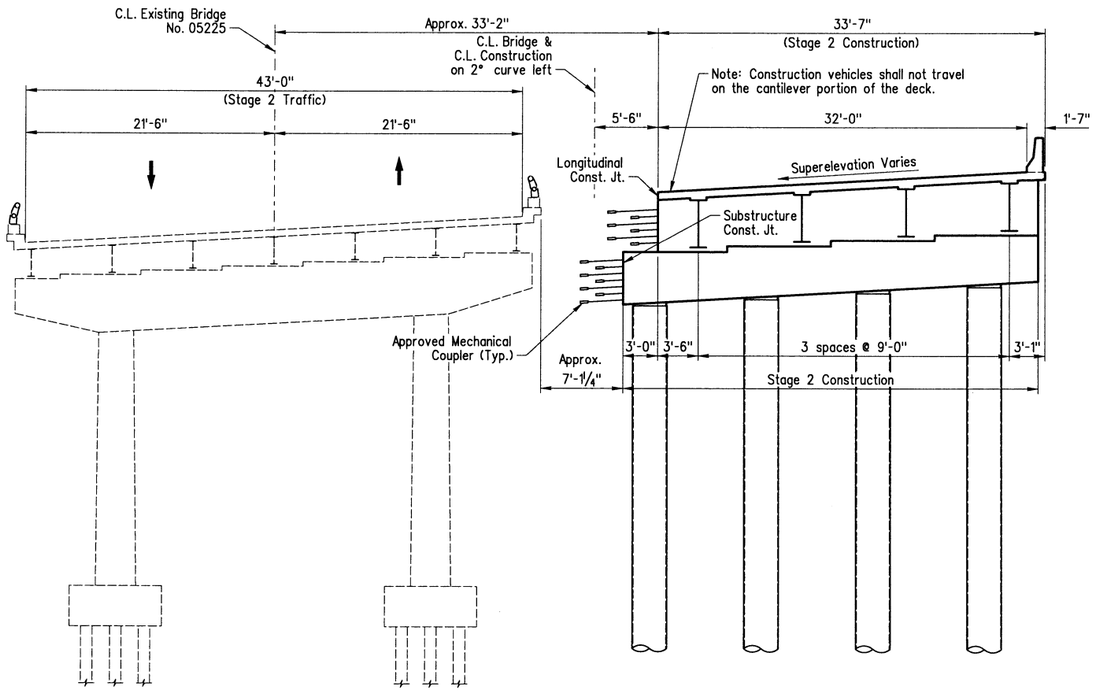
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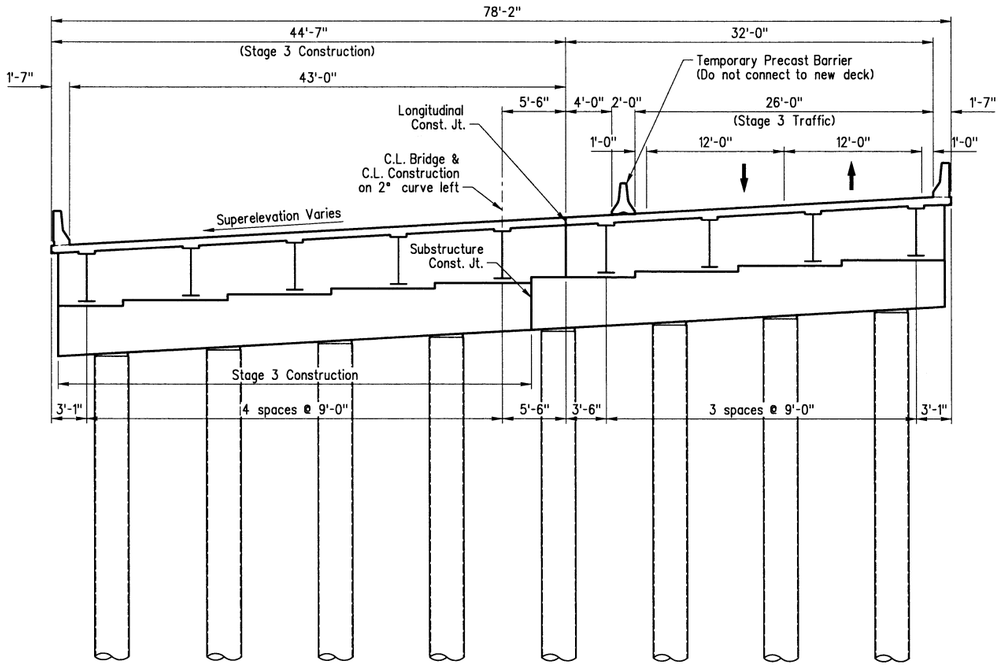
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				6	ARK.			
				JOB NO.		CA1002	104	319

(1) 07390 - STAGE CONSTRUCTION - 58657



Note:
After Stage 2 Construction is complete and opened to traffic, Existing Bridge No. 05225 shall be removed and Stage 3 Construction completed.

STAGE 2 CONSTRUCTION
Looking Ahead



STAGE 3 CONSTRUCTION
Looking Ahead

Note:
Horizontal dimensions shown are along radial lines.

Note: Details which relate to Maintenance of Traffic are shown on the Bridge Plans for information only.

Stages 1A and 1B to construct N. County Rd. 305 and Wildlife Refuge Rd. do not affect bridge construction and are not shown. See Roadway Plans for Maintenance of Traffic.

For Details of Temporary Precast Barrier, see Std. Dwg. TC-4.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISPELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

DETAILS OF STAGE CONSTRUCTION
BRIDGE OVER DITCH 81
MANILA - EAST (WIDENING) (S)
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

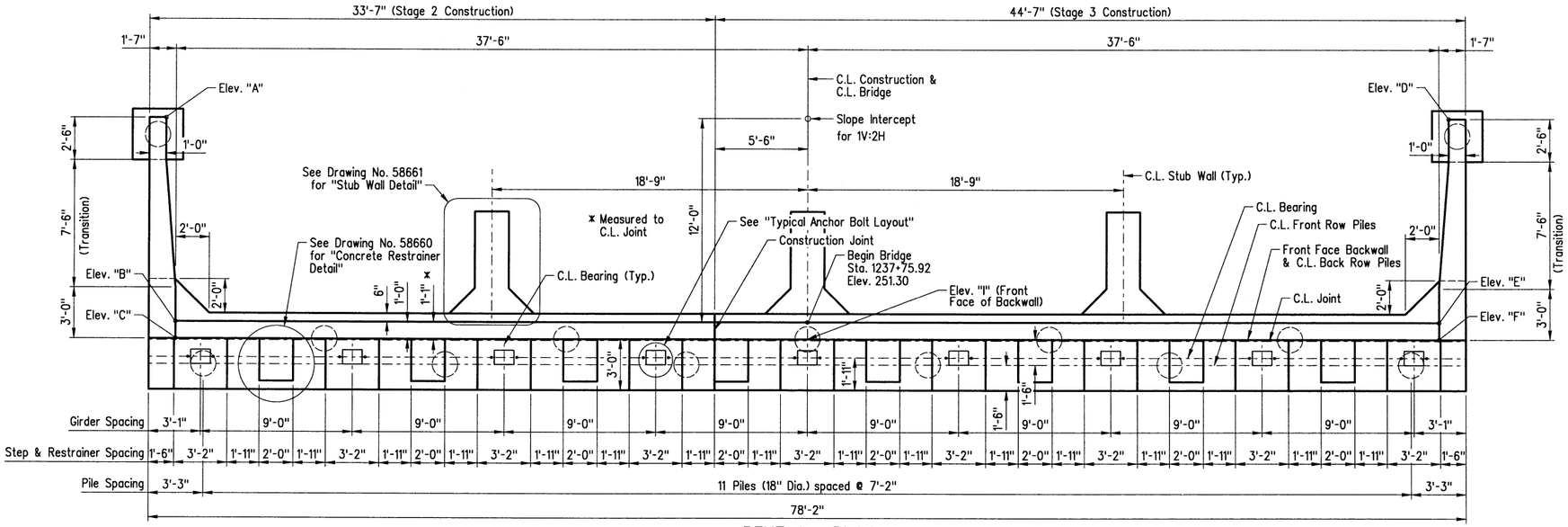
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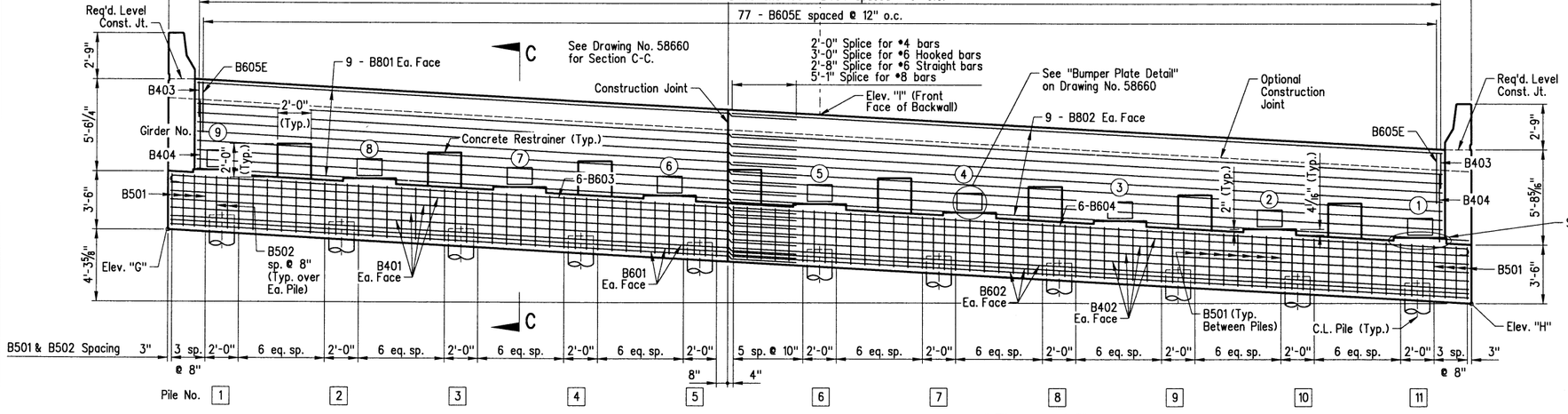
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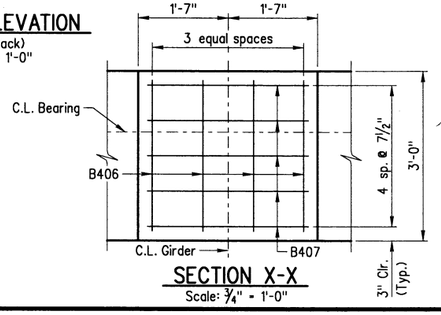
Note:
All longitudinal lines shall be constructed on curves concentric to C.L. bridge and C.L. construction.



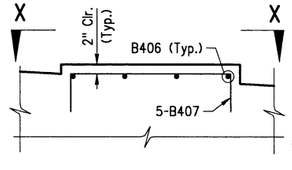
BENT 1 - PLAN
Scale: 1/4" = 1'-0"



BENT 1 - ELEVATION
(Looking Back)
Scale: 1/4" = 1'-0"



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



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

TABLE OF ELEVATIONS

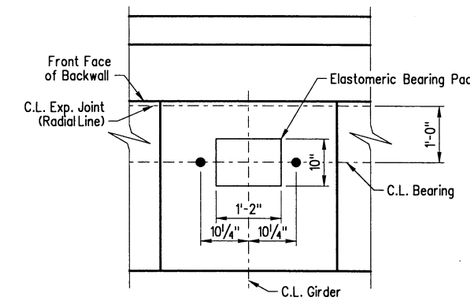
Bent 1	Elev.
Elev. "A"	253.40
Elev. "B"	253.36
Elev. "C"	253.36
Elev. "D"	249.21
Elev. "E"	249.24
Elev. "F"	249.24
Elev. "G"	244.34
Elev. "H"	240.04
Elev. "I"	251.30

TOP OF PILE ELEVATIONS

Pile No.	Elev.
1	245.20
2	244.81
3	244.42
4	244.02
5	243.63
6	243.23
7	242.84
8	242.45
9	242.05
10	241.66
11	241.26

BEAM SEAT ELEVATIONS

Girder No.	Elev.
1	243.97
2	244.47
3	244.96
4	245.46
5	245.95
6	246.45
7	246.94
8	247.44
9	247.93



TYPICAL ANCHOR BOLT LAYOUT
Scale: 3/4" = 1'-0"

GENERAL NOTES

All concrete shall be Class "S" with a minimum 28 day compressive strength of f'c=3,500 psi.

Concrete shall be poured in the dry and exposed corners shall be chamfered 3/4" unless otherwise noted.

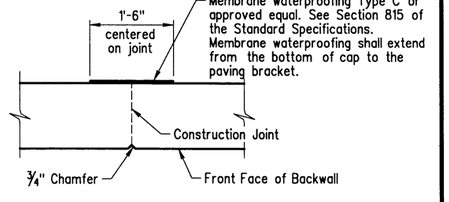
All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

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

Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

Class 1 Protective Surface Treatment shall be applied to the roadway face, top of the wing rails, and to the top of the backwall.

For additional information, see Layout.



Note: Payment for membrane to be considered subsidiary to Class S Concrete-Bridge.

CONSTRUCTION JOINT DETAIL
Scale: 3/4" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15927
CHARLES G. WISE
9/12/16
BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 1 OF 4
DETAILS OF END BENTS 1 & 4
BRIDGE OVER DITCH 81
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

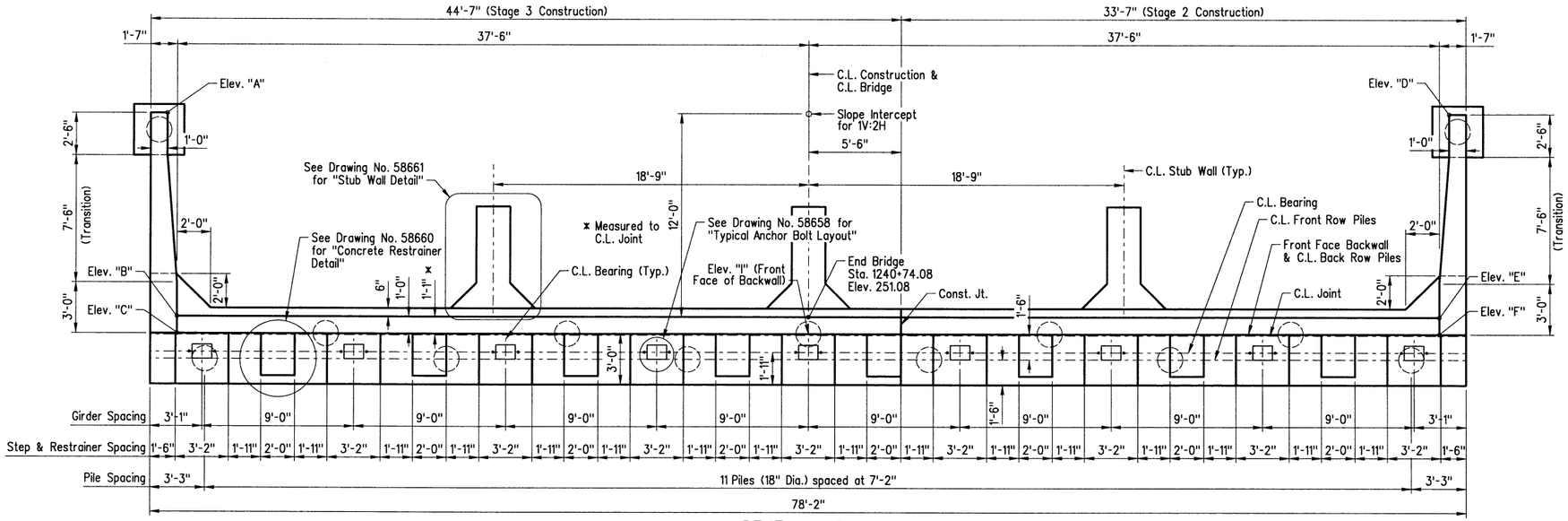
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JACOBS

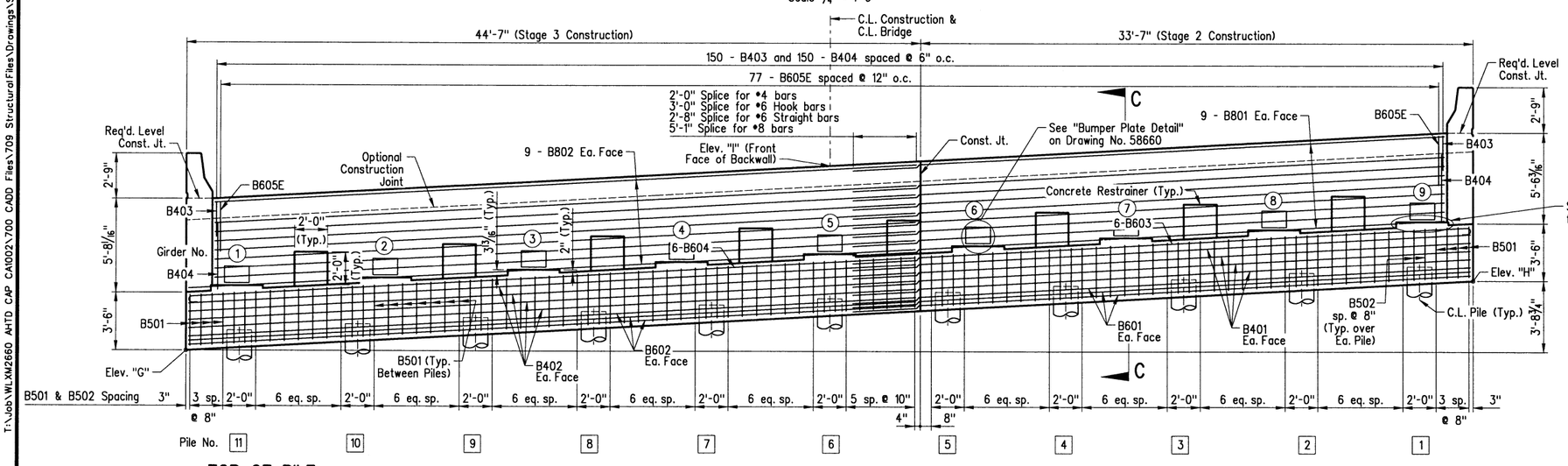
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				6	ARK.			
				JOB NO.		CA1002	106	319
				(1) 07390	-	END BENTS	-	58659

Note:
All longitudinal lines shall be constructed on curves concentric to C.L. bridge and C.L. construction.



BENT 4 - PLAN
Scale: 1/4" = 1'-0"



BENT 4 - ELEVATION
(Looking Ahead)
Scale: 1/4" = 1'-0"

See Drawing No. 58660 for Section C-C.

TABLE OF ELEVATIONS

Bent 4	Elev.
Elev. "A"	249.28
Elev. "B"	249.30
Elev. "C"	249.30
Elev. "D"	252.81
Elev. "E"	252.86
Elev. "F"	252.87
Elev. "G"	240.13
Elev. "H"	243.86
Elev. "I"	251.09

TOP OF PILE ELEVATIONS

Pile No.	Elev.
1	244.74
2	244.40
3	244.05
4	243.71
5	243.37
6	243.03
7	242.69
8	242.34
9	242.00
10	241.66
11	241.13

BEAM SEAT ELEVATIONS

Girder No.	Elev.
1	244.02
2	244.45
3	244.88
4	245.31
5	245.74
6	246.17
7	246.60
8	247.03
9	247.46

GENERAL NOTES

All concrete shall be Class "S" with a minimum 28 day compressive strength of f'c=3,500 psi.

Concrete shall be poured in the dry and exposed corners shall be chamfered 3/4" unless otherwise noted.

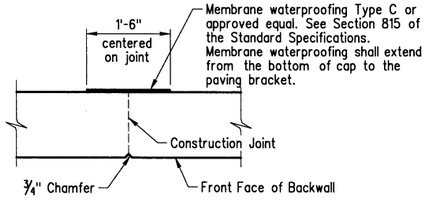
All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

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

Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

Class 1 Protective Surface Treatment shall be applied to the roadway face, top of the wing rails, and to the top of the backwall.

For additional information, see Layout.



Note: Payment for membrane to be considered subsidiary to Class S Concrete-Bridge.

CONSTRUCTION JOINT DETAIL
Scale: 3/4" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15927
CHARLES G. WISE
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

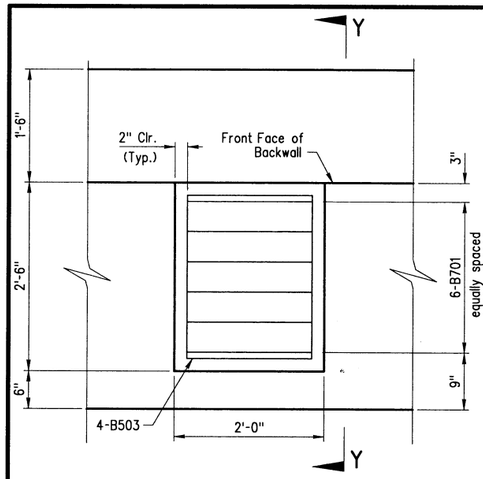
SHEET 2 OF 4
DETAILS OF END BENTS 1 & 4
BRIDGE OVER DITCH 81
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 4/7/15 FILENAME: bca1002x1_ax2.dgn
CHECKED BY: CMC DATE: 1/12/16
DESIGNED BY: CMC DATE: 3/25/15 SCALE: As Noted
BRIDGE NO. 07390 DRAWING NO. 58659

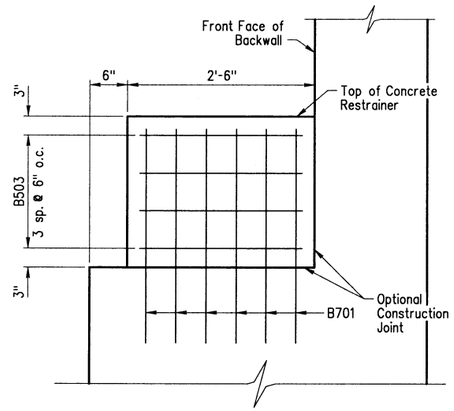
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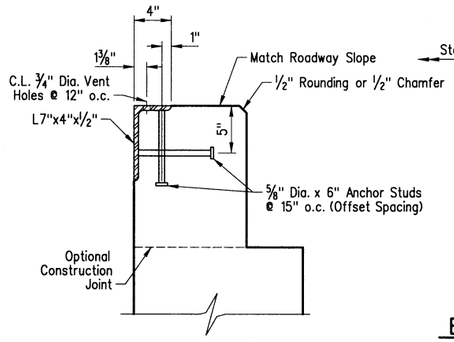
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				6	ARK.			
				JOB NO.		CA1002	107	319
				1 07390	-	END BENTS	-	58660



CONCRETE RESTRAINER DETAIL
Scale: 1" = 1'-0"



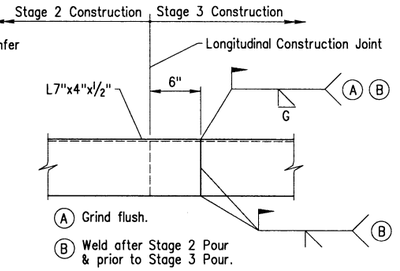
VIEW Y-Y
Scale: 1" = 1'-0"



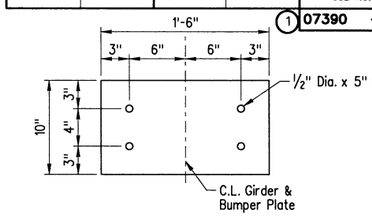
DETAIL Z
Scale: 1½" = 1'-0"

Notes: For additional joint details, see Drawing No. 58678.

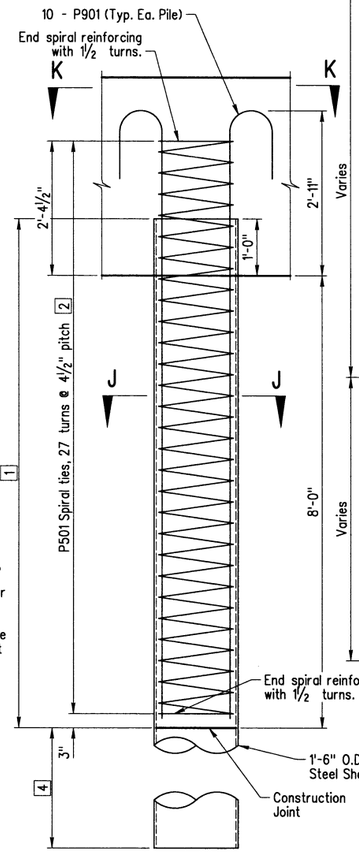
Concrete shall be hand packed under the joint armor in the backwall.



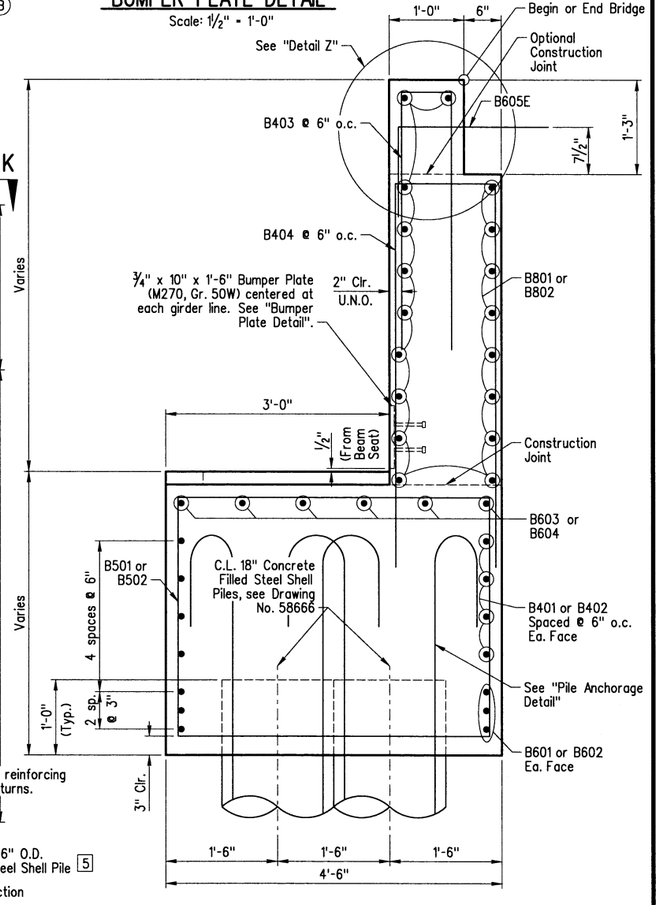
BACKWALL ARMOR JOINT DETAIL
No Scale



BUMPER PLATE DETAIL
Scale: 1½" = 1'-0"

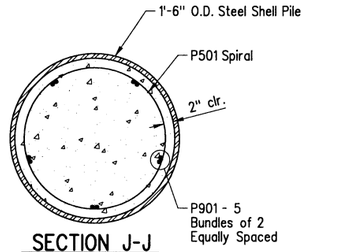


PILE ANCHORAGE DETAIL
Scale: ¾" = 1'-0"



SECTION C-C
Scale: 1" = 1'-0"

Note: The Backwall above the required construction joint shall not be poured until the girders are in place. Backwall may be placed prior to placing the adjacent concrete deck only if the optional backwall construction joint is used. See Drawing No. 58678, "Expansion Device Installation at End Bents" for additional information.

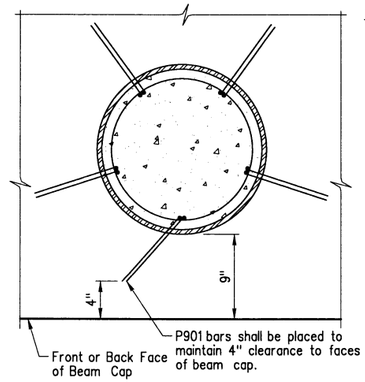


SECTION J-J
Scale: 1½" = 1'-0"

NOTES FOR SPIRAL REINFORCING

Spiral reinforcing shall be plain round or deformed steel bars meeting the requirements of AASHTO M31 or M322, Type A, with mill test report (Grade 60) or shall be cold drawn wire meeting the requirements of AASHTO M32 or M225 (Grade 70) with a minimum diameter of ½".

Spiral reinforcement shall be considered subsidiary to the item "Steel Shell Piling (18" Dia.)". No additional payment shall be made for spacers or bracing needed for assembly, shipping, handling, or erecting.



SECTION K-K
Scale: 1½" = 1'-0"

See Drawing No. 58666 for additional information.

4 Concrete shall be Self-Consolidating Concrete in accordance with Special Provision Job No. CA1002 "Self-Consolidating Concrete". Self-Consolidating Concrete shall have a minimum 28 day compressive strength f'c = 3500 psi.

5 See Special Provision Job No. CA1002 "Steel Shell Piling (18 Inch Diameter)".

1 Vibration of concrete in the top 9 feet of the pile will be needed to ensure the consolidation of the concrete around the reinforcing steel. The Contractor will be responsible for obtaining satisfactory results. Concrete shall be Class S with a minimum 28 day compressive strength, f'c = 3500 psi., unless otherwise approved by the Engineer.

2 No lap splices will be permitted.

3 Non-pay item - Subsidiary to "Steel Shell Piling (18" Dia.)".

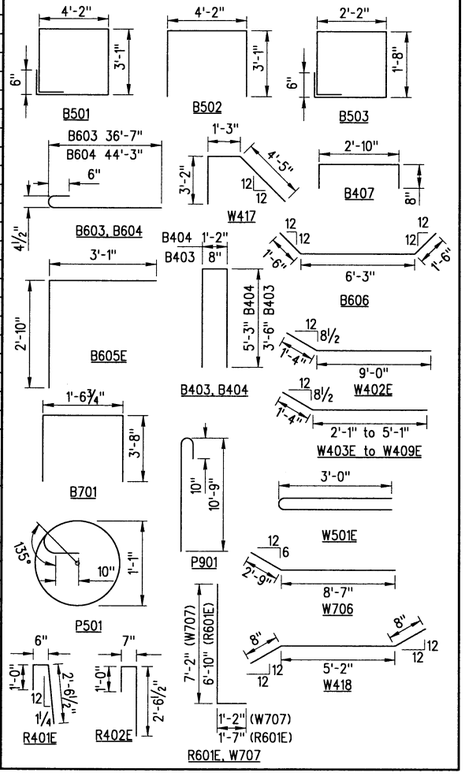
STAGE 2 BAR LIST PER BENT

	MARK	NO. REQ'D Bt. 1	NO. REQ'D Bt. 4	LENGTH	PIN DIA.
	B401	8	8	35'-8"	Str.
	B403	64	64	7'-6"	2"
	B404	64	64	11'-6"	2"
	B405	6	6	7'-5"	Str.
	B406	16	16	2'-8"	Str
	B407	20	20	4'-0"	2"
	B501	33	33	15'-0"	2½"
	B502	10	10	10'-2"	2½"
	B503	12	12	8'-2"	2½"
	B601	6	6	36'-3"	Str.
	B603	6	6	37'-3"	4½"
	B605E	33	33	5'-10"	4½"
	B606	3	3	9'-3"	4½"
	B701	18	18	8'-7"	5¼"
	B801	20	20	37'-2"	Str.
3	P501	6	6	103'-10"	3¾"
3	P901	60	60	12'-0"	9"
	R401E	6	6	3'-11"	2"
	R402E	5	5	4'-0"	2"
	R403E	6	6	12'-8"	Str.
	R601E	8	8	8'-3"	4½"
	W401E	4	4	11'-3"	Str.
	W402E	4	4	10'-4"	3"
	W403E to W409E	1 ea.	1 ea.	3'-5" to 6'-5"	3"
	W410E to W416E	1 ea.	1 ea.	4'-4" to 7'-4"	Str
	W417	7	7	8'-9"	2"
	W418	26	26	6'-3"	3"
	W419	14	14	6'-4"	Str.
	W501E	10	10	6'-4"	3¾"
	W601	6	6	2'-8"	Str.
	W701	6	6	12'-8"	Str.
	W702	2	2	8'-11"	Str.
	W703	2	2	7'-5"	Str.
	W704	2	2	5'-11"	Str.
	W705	2	2	4'-5"	Str.
	W706	2	2	12'-2"	5¼"
	W707	26	26	8'-1"	5¼"

STAGE 3 BAR LIST PER BENT

	MARK	NO. REQ'D Bt. 1	NO. REQ'D Bt. 4	LENGTH	PIN DIA.
	B402	8	8	44'-3"	Str.
	B403	86	86	7'-6"	2"
	B404	86	86	11'-6"	2"
	B405	6	6	7'-5"	Str.
	B406	20	20	2'-8"	Str
	B407	25	25	4'-0"	2"
	B501	45	45	15'-0"	2½"
	B502	12	12	10'-2"	2½"
	B503	20	20	8'-2"	2½"
	B602	6	6	44'-3"	Str.
	B604	6	6	44'-11"	4½"
	B605E	44	44	5'-10"	4½"
	B606	3	3	9'-3"	4½"
	B701	30	30	8'-7"	5¼"
	B802	20	20	42'-8"	Str.
3	P501	7	7	103'-10"	3¾"
3	P901	70	70	12'-0"	9"
	R401E	6	6	3'-11"	2"
	R402E	5	5	4'-0"	2"
	R403E	6	6	12'-8"	Str.
	R601E	8	8	8'-3"	4½"
	W401E	4	4	11'-3"	Str.
	W402E	4	4	10'-4"	3"
	W403E to W409E	1 ea.	1 ea.	3'-5" to 6'-5"	3"
	W410E to W416E	1 ea.	1 ea.	4'-4" to 7'-4"	Str
	W417	7	7	8'-9"	2"
	W418	52	52	6'-3"	3"
	W419	28	28	6'-4"	Str.
	W501E	10	10	6'-4"	3¾"
	W601	6	6	2'-8"	Str.
	W701	6	6	12'-8"	Str.
	W702	2	2	8'-11"	Str.
	W703	2	2	7'-5"	Str.
	W704	2	2	5'-11"	Str.
	W705	2	2	4'-5"	Str.
	W706	2	2	12'-2"	5¼"
	W707	52	52	8'-1"	5¼"

BENDING DIAGRAMS
(Dimensions are out to out of bars.)



Note: Bars designated with an "E" suffix shall be epoxy coated.

STATE OF ARKANSAS — REGISTERED PROFESSIONAL ENGINEER — No. 15927 — CHARLES G. WISE — 9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 3 OF 4
DETAILS OF END BENTS 1 & 4
BRIDGE OVER DITCH 81
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

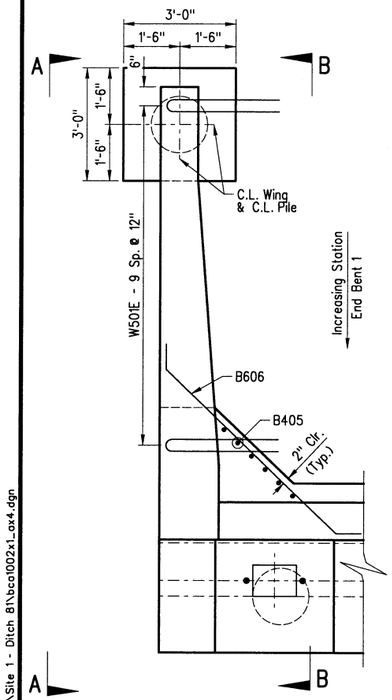
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LITTLE ROCK, ARKANSAS

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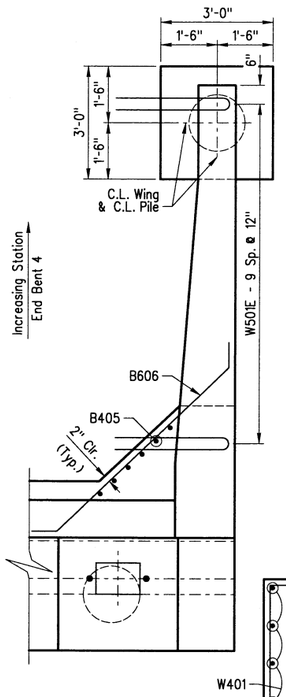
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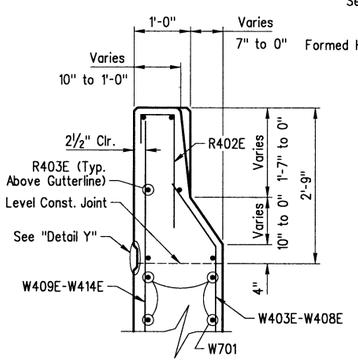
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				(1) 07390	-	END BENTS	-	58661



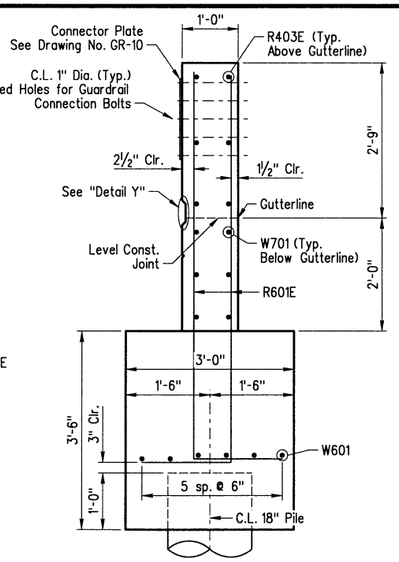
WING A
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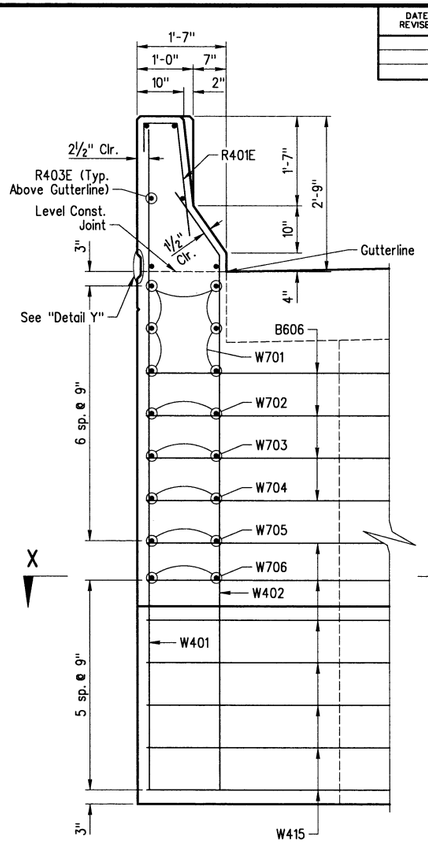
WING B
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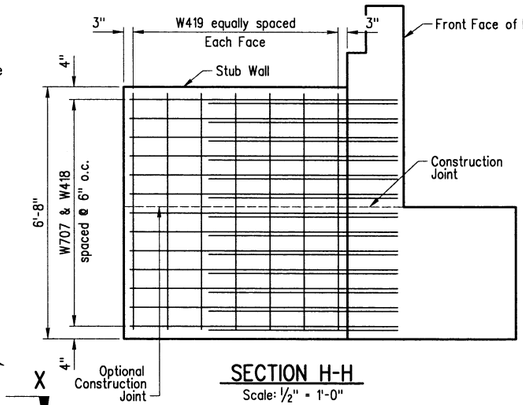
SECTION E-E
Scale: ¾" = 1'-0"



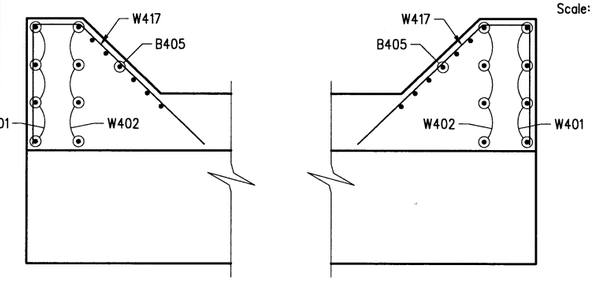
SECTION F-F
Scale: ¾" = 1'-0"



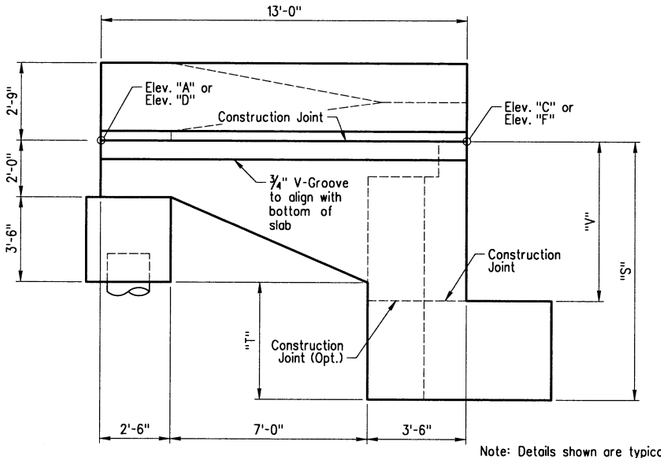
VIEW D-D
Scale: ¾" = 1'-0"



SECTION H-H
Scale: ½" = 1'-0"



SECTION X-X
Scale: ½" = 1'-0"

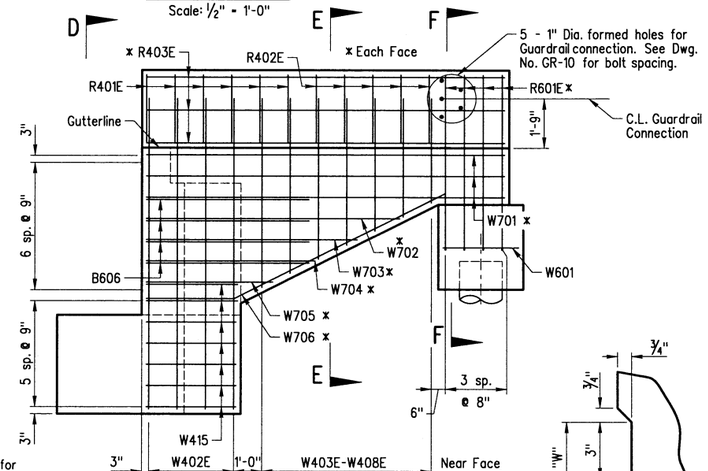


VIEW A-A
No Scale

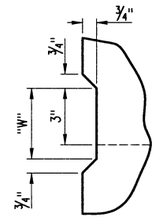
Note: Details shown are typical for all transition rails and wings. Details are opposite hand for rails and wings on opposite side of bridge.

TABLE OF VARIABLES

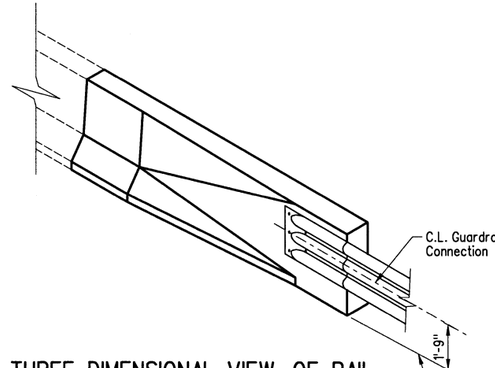
Bent	Wing	"S"	"T"	"V"	"W"
1	A	9'-0¼"	3'-6¼"	5'-6¼"	3"
	B	9'-2⅞16"	3'-8⅝16"	5'-8⅝16"	4"
4	A	9'-2⅛16"	3'-8⅛16"	5'-8⅛16"	3⅞"
	B	9'-0⅜16"	3'-6⅜16"	5'-6⅜16"	3"



SECTION B-B
No Scale



DETAIL Y
Scale: 3" = 1'-0"



THREE DIMENSIONAL VIEW OF RAIL
No Scale

STUB WALL DETAIL
Scale: ½" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15927
CHARLES G. WISE
9/12/16
BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 4 OF 4
DETAILS OF END BENTS 1 & 4
BRIDGE OVER DITCH 81
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

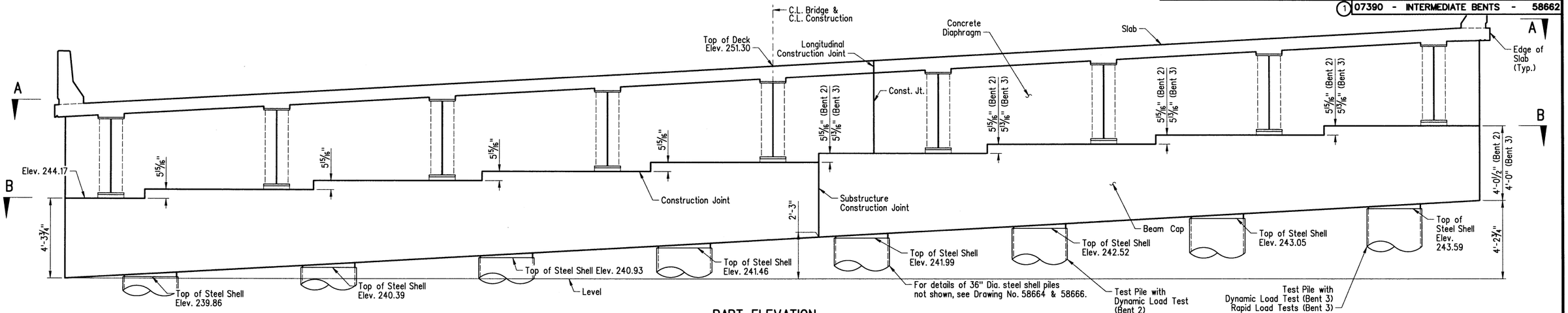
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BRIDGE NO. 07390
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JACOBS

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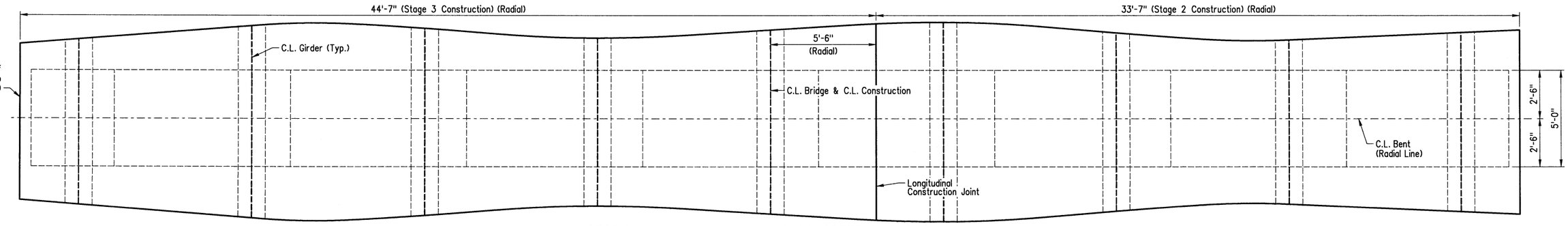
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				6	ARK.			
				JOB NO.		CA1002	109	319

(1) 07390 - INTERMEDIATE BENTS - 58662



PART ELEVATION

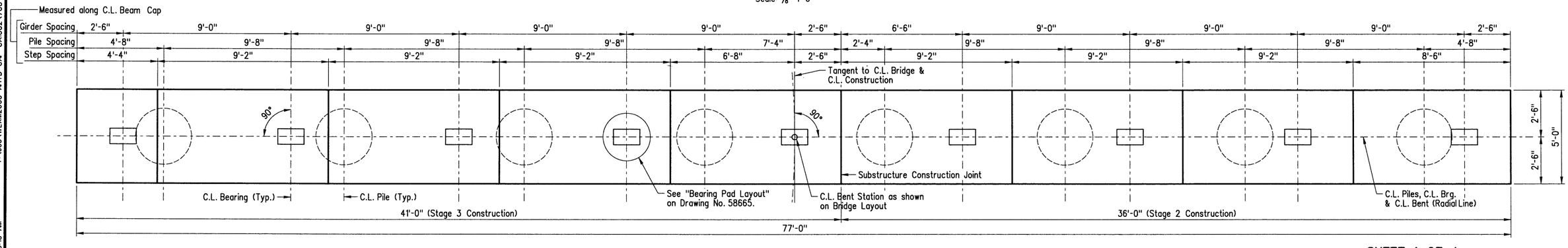
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SECTION A-A - PART PLAN OF CONCRETE DIAPHRAGM

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

Note: Parapet rails not shown for clarity.



SECTION B-B - PLAN OF BEAM CAP

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11528
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 1 OF 4
DETAILS OF INTERMEDIATE BENTS 2 & 3
BRIDGE OVER DITCH 81
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 1/13/14
CHECKED BY: CJC DATE: 2/10/16
DESIGNED BY: HMD DATE: 1/19/16
BRIDGE NO. 07390

FILENAME: bca1002x1_bx1.dgn
SCALE: 3/8" = 1'-0"
DRAWING NO. 58662

JACOBS

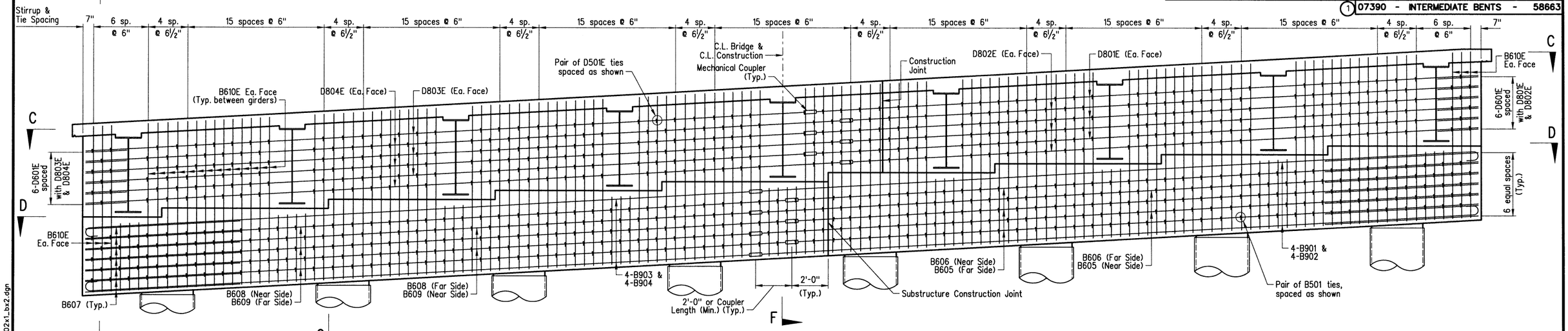
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA1002	110	319

(1) 07390 - INTERMEDIATE BENTS - 58663

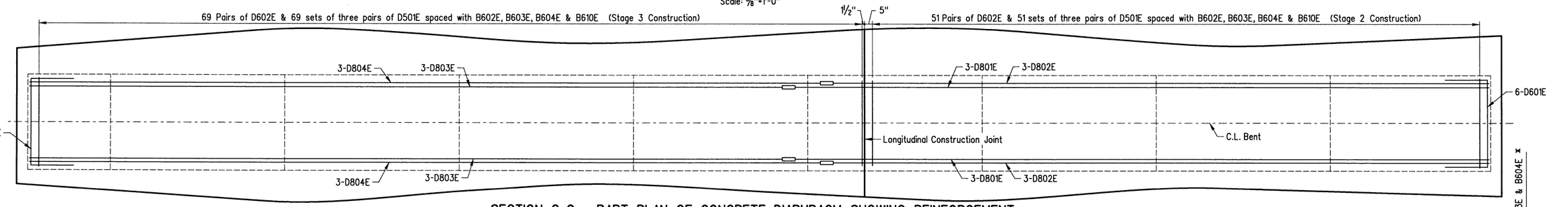
Notes:
See Drawing No. 58664 for Sections E-E, F-F, G-G, and "Pile Detail".

Note:
Parapet rails and slab steel are not shown for clarity.



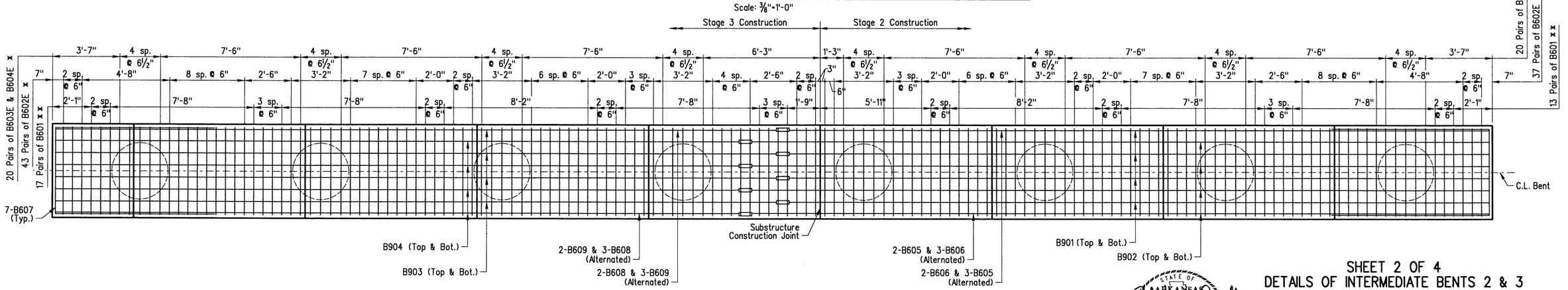
PART ELEVATION VIEW SHOWING REINFORCEMENT

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



SECTION C-C - PART PLAN OF CONCRETE DIAPHRAGM SHOWING REINFORCEMENT

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



SECTION D-D - PLAN OF BEAM CAP SHOWING REINFORCEMENT

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

x Pairs of B501 and pairs of D501E spaced with each pair of B602E, each pair of B603E and each pair of B604E as shown in "Part Elevation View Showing Reinforcement".

x x Pairs of B501 spaced with each pair of B601 as shown in "Part Elevation View Showing Reinforcement".

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 2 OF 4
DETAILS OF INTERMEDIATE BENTS 2 & 3
BRIDGE OVER DITCH 81
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

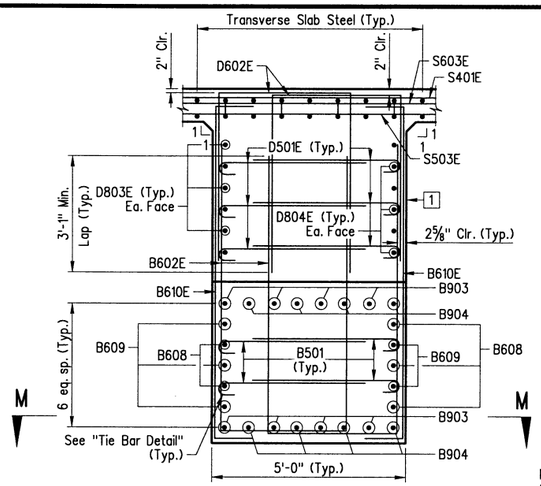
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BRIDGE NO. 07390
FILENAME: bca1002x1_bx2.dgn
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DRAWING NO. 58663

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				6	ARK.			
				JOB NO.		CA1002	111	319

(1) 07390 - INTERMEDIATE BENTS - 58664

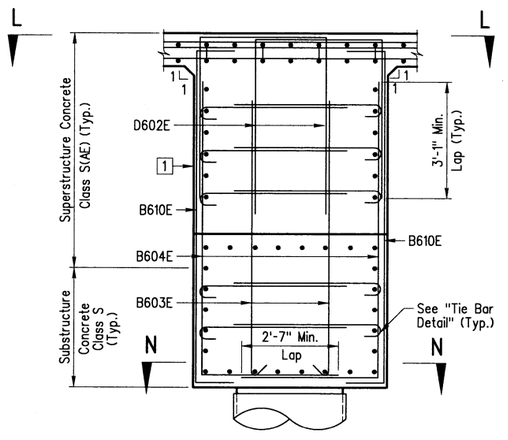


Note:
See Drawing No. 58665 for Sections L-L, M-M, N-N and "Tie Bar Detail".

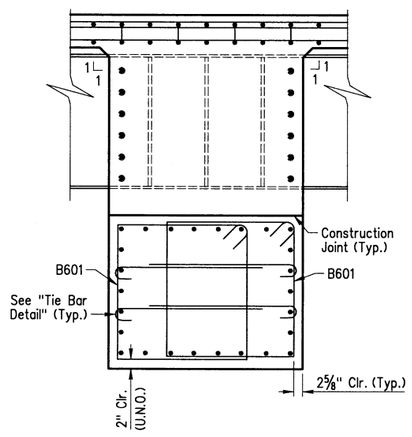
SECTION E-E
No Scale

Notes:
Concrete Diaphragm shall be poured monolithically with deck slab.

C501, C1101 and C1102 are not shown for clarity.

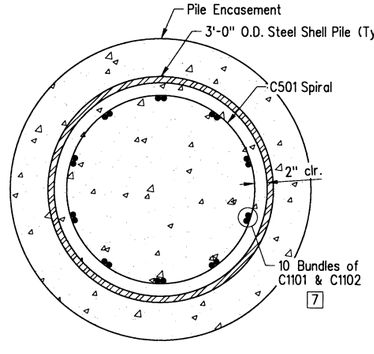


SECTION G-G
No Scale

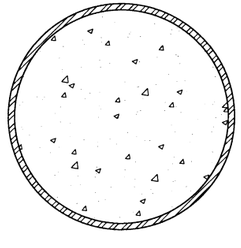


SECTION F-F
No Scale

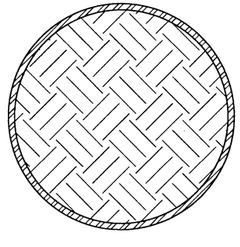
Note:
See Drawing No. 58654 and 58666 for details of 36" Dia. steel shell pile not shown.



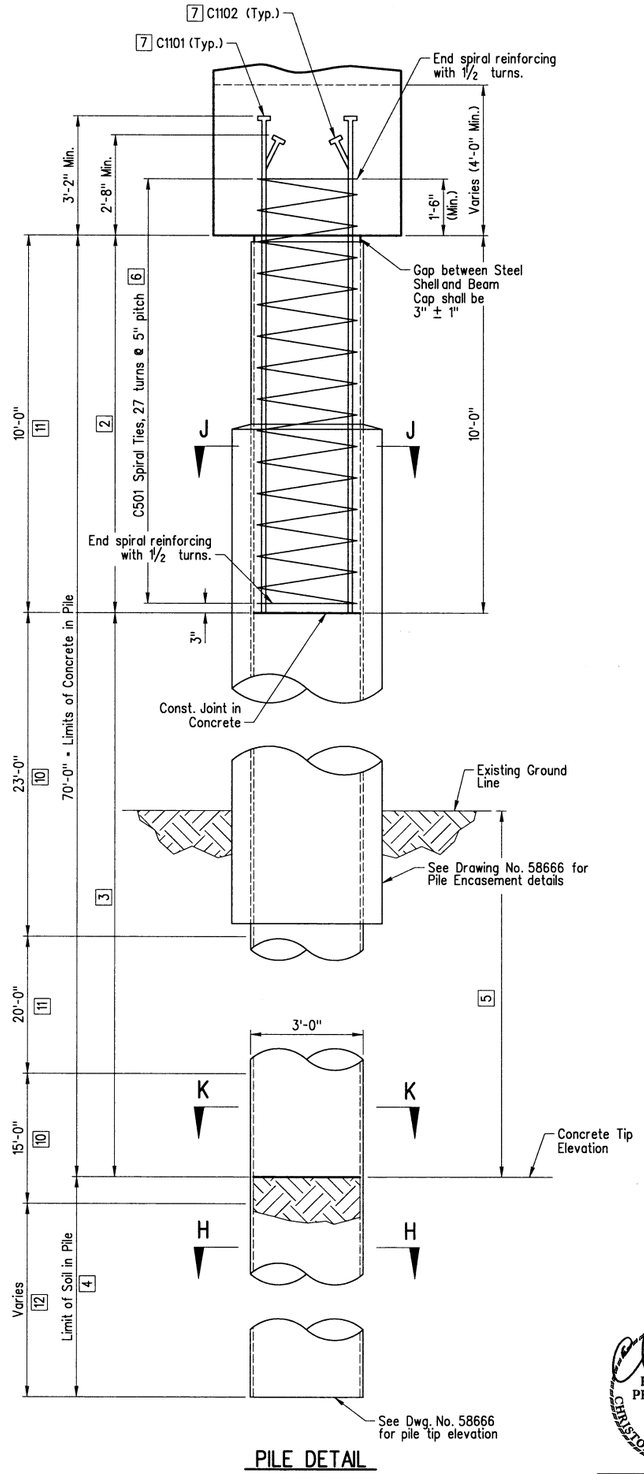
SECTION J-J
Scale: 1" = 1'-0"



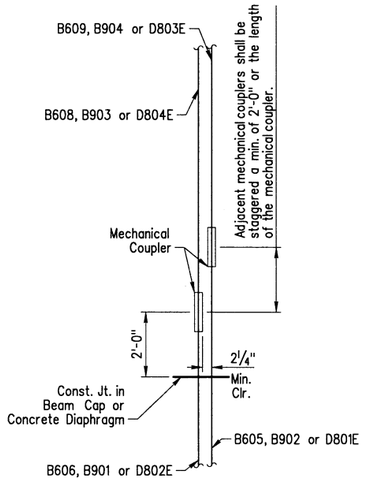
SECTION K-K
Scale: 1" = 1'-0"



SECTION H-H
Scale: 1" = 1'-0"



PILE DETAIL
No Scale



8

BEAM CAP & CONCRETE DIAPHRAGM BAR DETAIL
No Scale

1 Concrete Diaphragm at intermediate bents shall be built vertical.

2 Vibration of concrete in the top 10 feet of the pile will be needed to ensure the consolidation of the concrete around the reinforcing steel. The Contractor will be responsible for obtaining satisfactory results. Concrete shall be Class S with a minimum 28 day compressive strength, f'c = 3500 psi., unless otherwise approved by the Engineer.

3 Concrete shall be Self-Consolidating Concrete in accordance with Special Provision Job No. CA1002 "Self-Consolidating Concrete". Self-Consolidating Concrete shall have a minimum 28 day compressive strength, f'c = 3500 psi.

4 The soil plug shall be removed to the specified depth and driving shall continue to verify the minimum ultimate bearing capacity. At no time shall the pile have a soil plug depth of less than 5'-0".

5 The inside of the pile shall be cleaned with an appropriate tool to remove any and all adhering soil and other materials.

6 No lap splices will be permitted.

7 Reinforcement shall be Headed Steel Bars in accordance with Special Provision Job No. CA1002 "Headed Steel Bars for Concrete Reinforcement".

8 Mechanical couplers in the beam cap shall maintain the clearances shown. Their payment shall be subsidiary to the item "Reinforcing Steel-Bridge (Grade 60)". The QPL approved couplers shall develop at least 125% of the specified yield strength of the bar.

9 See Special Provision Job No. CA1002 "Steel Shell Piling (36 Inch Diameter).

10 Field splices of steel shells will be permitted with 100% ultrasonic and visual inspection.

11 No field splices of steel shells will be permitted.

12 Field splices of steel shells will be permitted with 100% visual inspection.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11528
CHRISTOPHER J. CRISWELL
9/16/16

BRIDGE ENGINEER
PRINT DATE: 9/16/2016

SHEET 3 OF 4
DETAILS OF INTERMEDIATE BENTS 2 & 3
BRIDGE OVER DITCH 81
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ROUTE 18 SEC. 6
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LITTLE ROCK, ARKANSAS

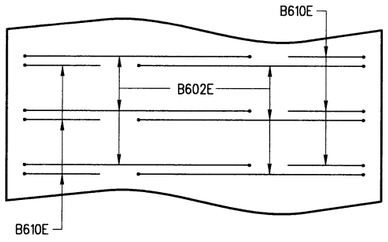
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DESIGNED BY: HMD DATE: 1/19/16 SCALE: As Noted
BRIDGE NO. 07390 DRAWING NO. 58664

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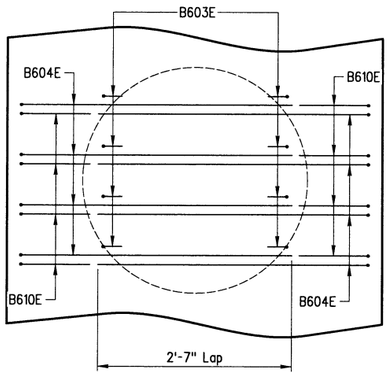
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				6	ARK.			
				JOB NO.		CA1002	112	319

(1) 07390 - INTERMEDIATE BENTS - 58665



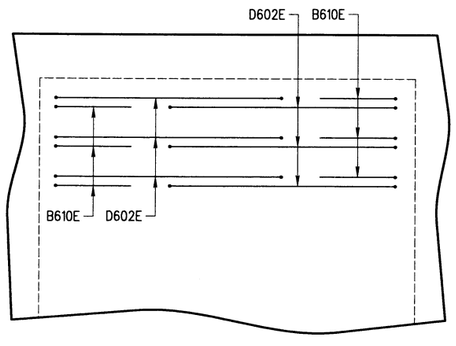
SECTION M-M
No Scale

Note:
B903 and B904 are not shown for clarity.



SECTION N-N
No Scale

Note:
B903 and B904 are not shown for clarity.



Note:
Slab reinforcement is not shown for clarity.

SECTION L-L
Scale: 1" = 1'-0"

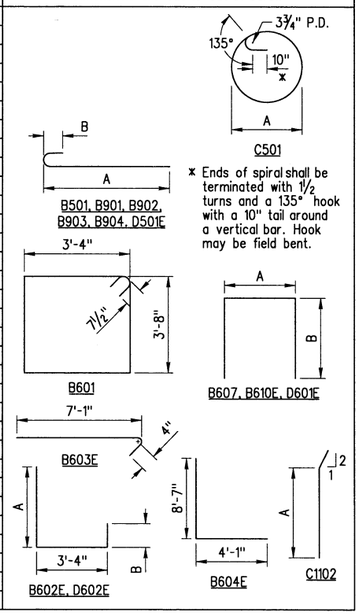
BAR LIST PER BENT ** STAGE 2 CONSTRUCTION

	MARK	NO. REQ'D.	LENGTH	A	B	PIN DIA.
	C501	4	233'-7"	2'-6"	-	Spiral
	C1101	40	13'-2"	-	-	Str.
	C1102	40	12'-9"	11'-10"	-	11¼"
	B501	350	4'-6"	3'-11"	5"	3¾"
	B601	26	14'-10"	-	-	4½"
	B602E	74	18'-10"	8'-7"	7'-3"	4½"
	B603E	40	7'-7"	-	-	4½"
	B604E	40	12'-6"	-	-	4½"
***	B605	5	39'-11"	-	-	Str.
***	B606	5	37'-11"	-	-	Str.
	B607	7	21'-9"	4'-5"	8'-10"	4½"
	B610E	114	10'-5"	8'-9"	1'-0"	4½"
***	B901	8	39'-2"	37'-11"	10"	9"
***	B902	8	41'-2"	39'-11"	10"	9"
	D501E	306	4'-9"	4'-2"	5"	3¾"
	D601E	6	8'-7"	4'-5"	2'-3"	4½"
	D602E	102	11'-0"	4'-8"	3'-4"	4½"
***	D801E	6	36'-11"	-	-	Str.
***	D802E	6	34'-11"	-	-	Str.

BAR LIST PER BENT ** STAGE 3 CONSTRUCTION

	MARK	NO. REQ'D.	LENGTH	A	B	PIN DIA.
	C501	4	233'-7"	2'-6"	-	Spiral
	C1101	40	13'-2"	-	-	Str.
	C1102	40	12'-9"	11'-10"	-	11¼"
	B501	400	4'-6"	3'-11"	5"	3¾"
	B601	34	14'-10"	-	-	4½"
	B602E	86	18'-10"	8'-7"	7'-3"	4½"
	B603E	40	7'-7"	-	-	4½"
	B604E	40	12'-6"	-	-	4½"
	B607	7	21'-9"	4'-5"	8'-10"	4½"
***	B608	5	38'-11"	-	-	Str.
***	B609	5	36'-11"	-	-	Str.
	B610E	126	10'-5"	8'-9"	1'-0"	4½"
***	B903	8	40'-2"	38'-11"	10"	9"
***	B904	8	38'-2"	36'-11"	10"	9"
	D501E	414	4'-9"	4'-2"	5"	3¾"
	D601E	6	8'-7"	4'-5"	2'-3"	4½"
	D602E	138	11'-0"	4'-8"	3'-4"	4½"
***	D803E	6	39'-11"	-	-	Str.
***	D804E	6	41'-11"	-	-	Str.

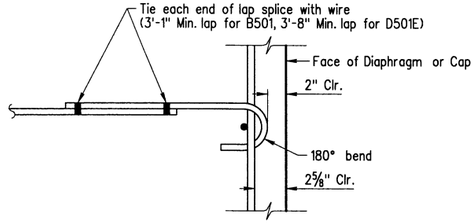
BENDING DIAGRAMS
(Dimensions are out to out of bars.)



Note: Bars designated with an "E" suffix shall be epoxy coated.

** Weights of all bars listed are included in the totals for "Reinforcing Steel - Bridge (Grade 60)" and "Epoxy Coated Reinforcing Steel (Grade 60)" for each intermediate bent.

*** Dimensions shown are to butt splice and may vary based on mechanical coupler used.



TIE BAR DETAIL
No Scale

NOTES FOR SPIRAL REINFORCING

Spiral reinforcing shall be plain round or deformed steel bars meeting the requirements of AASHTO M31 or M322, Type A, with mill test report (Grade 60) or shall be cold drawn wire meeting the requirements of AASHTO M32 or M225 (Grade 70) with a minimum diameter of ⅝".

Spiral reinforcement shall be paid for at the contract unit price bid per pound for "Reinforcing Steel - Bridge (Grade 60)". No additional payment shall be made for spacers or bracing needed for assembly, shipping, handling, or erecting.

INTERMEDIATE BENT NOTES

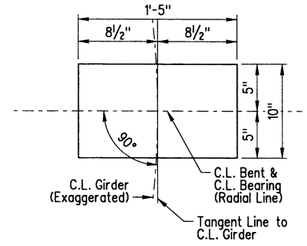
Concrete in the cap shall be Class "S" with a minimum 28 day compressive strength, f'c = 3500 psi. Quantity is included in the total for "Class S Concrete - Bridge".

Concrete in the concrete diaphragm shall be Class "S(AE)" with a minimum 28 day compressive strength, f'c = 4000 psi. Quantity is included in the total for "Class S(AE) Concrete - Bridge".

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 M322, Type A, with mill test report, Grade 60 (yield strength = 60,000 psi).

For additional information, see Layout.



BEARING PAD LAYOUT
Scale: 1½" = 1'-0"

Note:
For details of elastomeric bearing pads, see Drawing No. 58681.

The neoprene pads shall be bonded to the bearing seat with an epoxy adhesive in accordance with the bearing manufacturer's recommendations for bonding neoprene to concrete to prevent sliding.

STATE OF ARKANSAS
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No. 11328
CHRISTOPHER J. CRISPELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 4 OF 4
DETAILS OF INTERMEDIATE BENTS 2 & 3
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ROUTE 18 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 1/13/14 FILENAME: bca1002x1_bx4.dgn
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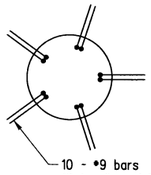
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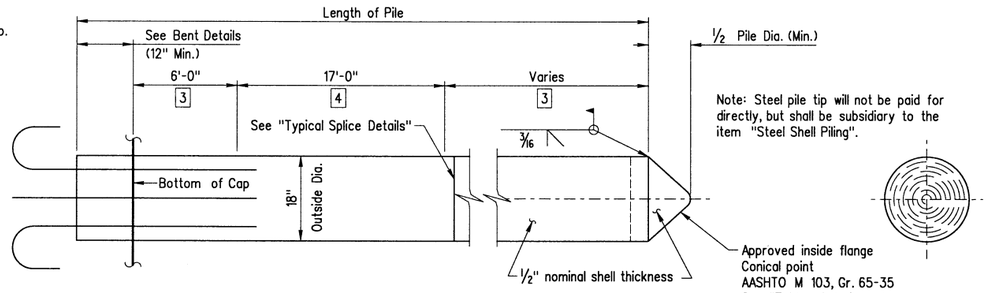
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				6	ARK.			
				JOB NO.		CA1002	113	319

(1) 07390 - STEEL SHELL PILES - 58666

Pile reinforcing shall be placed to minimize interference with anchor bolts and reinforcing in cap.

See Drawing No. 58660 for End Bent details.

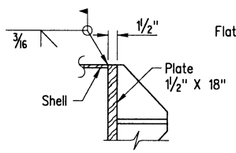




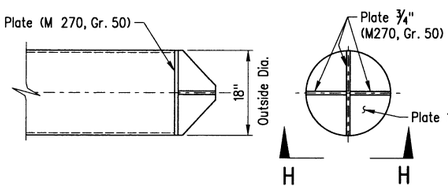
Note: Steel pile tip will not be paid for directly, but shall be subsidiary to the item "Steel Shell Piling".

18" DIAMETER CONCRETE FILLED STEEL SHELL PILE [2]

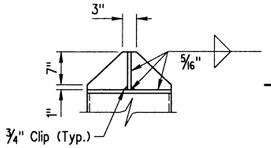
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PART SECTION
Scale: 1" = 1'-0"

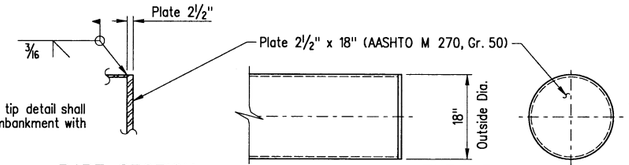


ELEVATION
Scale: 3/4" = 1'-0"



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

ALTERNATE VANED TIP DETAIL FOR 18" PILE



Note:
Steel Shell Piling with alternate flat tip detail shall be driven prior to placement of embankment with geosynthetic reinforcement.

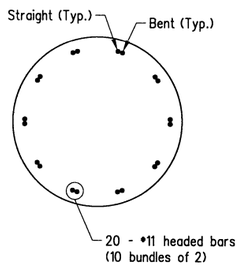
PART SECTION
No Scale

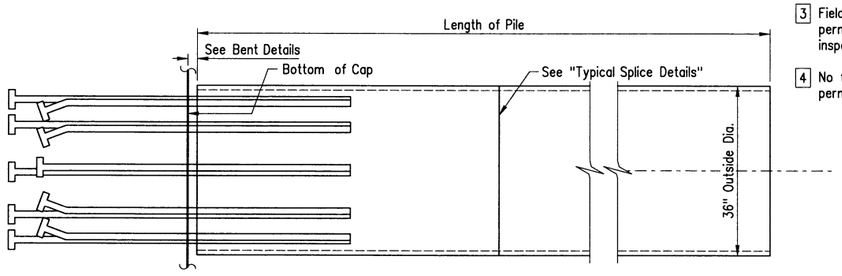
ELEVATION
No Scale

ALTERNATE FLAT TIP DETAIL FOR 18" PILE

Pile reinforcing shall be placed to minimize interference with reinforcing in cap.

See Drawing No. 58664 for Intermediate Bent details.





36" DIAMETER CONCRETE FILLED OPEN ENDED STEEL SHELL PILE [1]

No Scale

GENERAL NOTES FOR 18" & 36" CONCRETE FILLED STEEL SHELL PILES

Steel shells shall conform to ASTM 252, Grade 3 (Fy = 45,000 psi).

For concrete filling of 18" diameter steel shell, see Special Provision Job No. CA1002 "Steel Shell Piling (18 Inch Diameter)" and Drawing No. 58660.

For concrete filling of 36" diameter steel shell, see Special Provision Job No. CA1002 "Steel Shell Piling (36 Inch Diameter)" and Drawing No. 58664.

36" steel shell piling that extends above the ground and is not protected by pile encasement shall be painted in accordance with Special Provision Job No. CA1002 "Steel Shell Piling (36 Inch Diameter)".

See Table of Variables and Bridge Layout for size and estimated length of steel shell piles and for driving information.

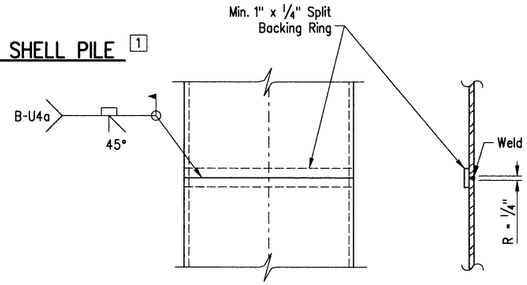
Concrete and structural steel (18" and 36"), soil plug removal (36" only), pile reinforcing (18" only) and painting (36" only) shall not be paid for directly, but shall be considered subsidiary to the item "Steel Shell Piling".

[1] See Special Provision Job No. CA1002 "Steel Shell Piling (36 Inch Diameter)".

[2] See Special Provision Job No. CA1002 "Steel Shell Piling (18 Inch Diameter)".

[3] Field splices of 18" steel shells will be permitted with 100% ultrasonic and visual inspection.

[4] No field splices of 18" steel shells will be permitted.



TYPICAL SPLICE DETAILS

No Scale

TABLE OF VARIABLES

BENT	OUTSIDE DIAMETER "D"	NOMINAL SHELL THICKNESS "T"	ESTIMATED ELEVATION OF TOP OF PILE ENCASEMENT	ESTIMATED ELEVATION OF BOTTOM OF PILE ENCASEMENT	MINIMUM TIP ELEVATION	ESTIMATED PRODUCTION PILE LENGTH	MINIMUM ULTIMATE BEARING CAPACITY (TONS)	ESTIMATED HAMMER ENERGY (FT-KIPS)	MINIMUM CONICAL TIP DESIGN LOAD (KIPS)
1	18"	1/2"	-	-	208	49'	202	48,500	1,114
2	36"	1"	235.0	216.0	165	84'	414	83,900	-
3	36"	1"	235.0	214.0	165	83'	414	83,900	-
4	18"	1/2"	-	-	208	44'	202	48,500	1,114

GENERAL NOTES FOR PILE ENCASEMENTS

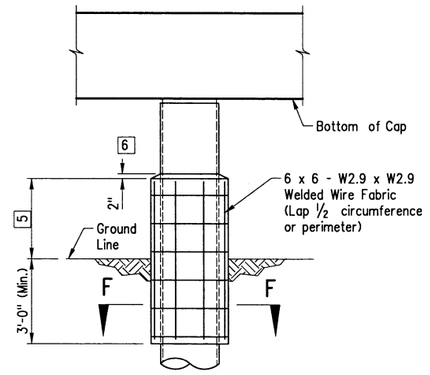
See Bridge Layout for additional notes and required location of pile encasements.

Concrete shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. If concrete cannot be placed in the dry, Seal Concrete may be used from top to bottom of encasement.

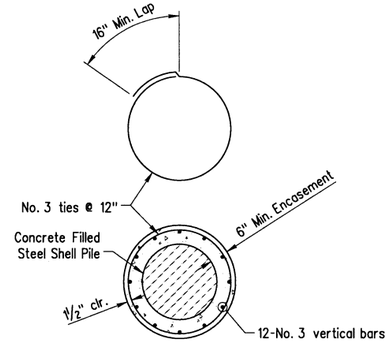
Reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A.

Welded wire fabric shall conform to AASHTO M 55 or M 221.

Concrete, welded wire fabric or reinforcing steel, and galvanized pipe shall not be paid for directly, but shall be considered subsidiary to the item "Pile Encasement".



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

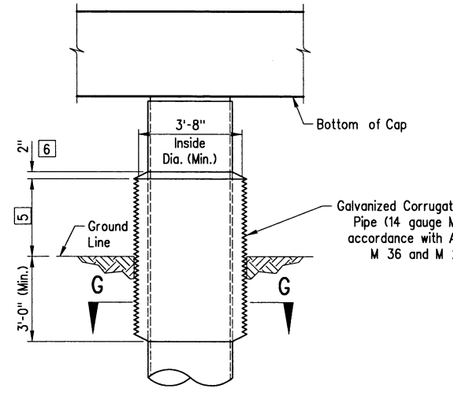


SECTION F-F (REINF. ALTERNATE)
Scale: 1/2" = 1'-0"

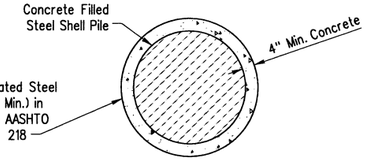
PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES

[5] See Table of Variables and Bridge Layout for height of pile encasement (3'-0" Minimum).

[6] Pile encasement shall have 2" concrete taper for water runoff as shown.



No Scale



SECTION G-G
Scale: 1/2" = 1'-0"

ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES

STATE OF ARKANSAS
CHRISTOPHER J. CRISWELL
REGISTERED PROFESSIONAL ENGINEER
No. 11528
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS BRIDGE OVER DITCH 81 MISSISSIPPI COUNTY

ROUTE 18 SEC. 6

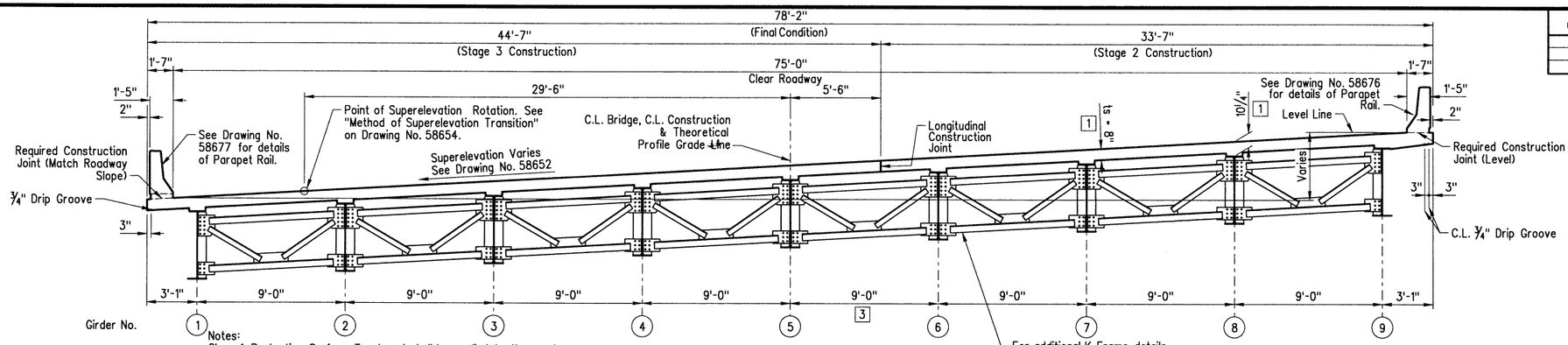
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LITTLE ROCK, ARKANSAS

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BRIDGE NO. 07390				DRAWING NO. 58666	

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				6	ARK.			
				JOB NO.		CA1002	114	319
				(1) 07390	-	296' CONT. UNIT	-	58667



Notes:
Class 1 Protective Surface Treatment shall be applied to the roadway surface and the face and top of each concrete parapet rail.

At Contractors option, in lieu of providing bars S502E or S506E, one #5 bar top and bottom may be substituted for each bar. Payment for reinforcing will be based on the weight of bars S502E and S506E. Bars in top and bottom shall be epoxy coated.

TYPICAL ROADWAY SECTION - FINAL CONDITION

Normal to C.L. Construction
(Looking Ahead)
Scale: ¼" = 1'-0"

1 See "Adjustment for Slab Thickness Tolerance".

2 Tolerance: Minimum - ¼" : Plus equal to the amount of slab thickening used to meet slab thickness tolerance. See "Adjustment for Slab Thickness Tolerance".

3 In this bay, connection plate widths and K-Frame lengths shall be fabricated, as necessary, to facilitate installation of K-Frames between adjacent girders with significant differential deflections. See "Special K-Frame Detail" on Drawing No. 58670.

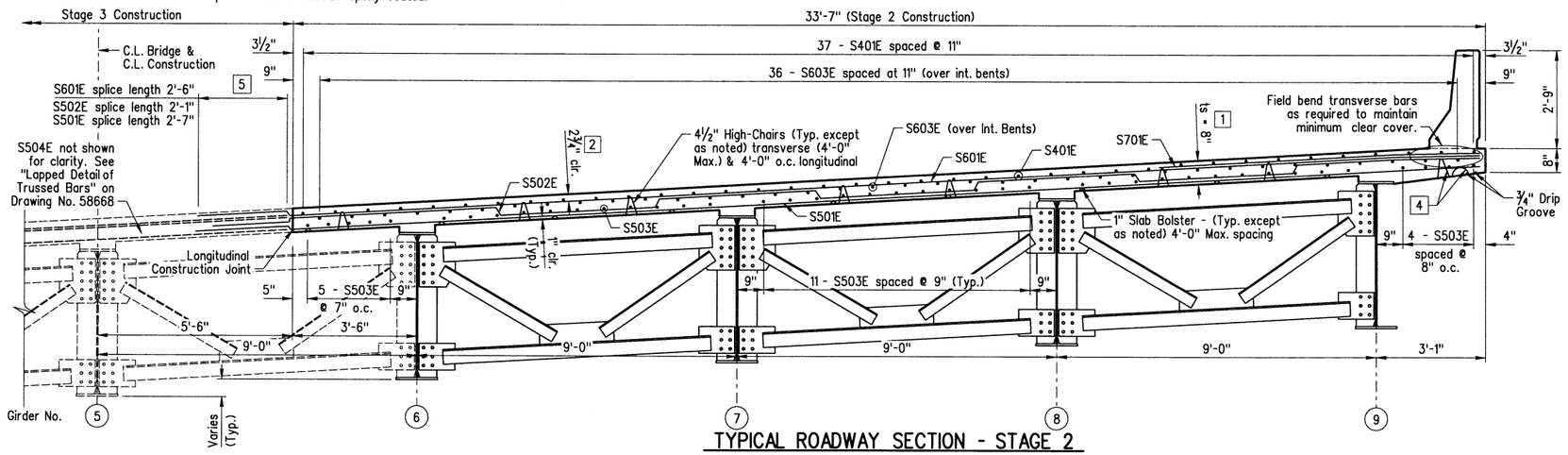
An external means of supporting the Stage 2 overhang shall be provided and shall remain in place until after completion of the Stage 3 deck pour. See "Deck Support at Longitudinal Construction Joint" detail on Drawing No. 58674.

4 Location of 6½" Hi-chairs and 2½" bolsters in overhang shall be set as necessary to maintain clear cover. 4'-0" maximum spacing.

5 Stage 3 transverse reinforcing steel shall not be tied to Stage 2 transverse reinforcing steel.

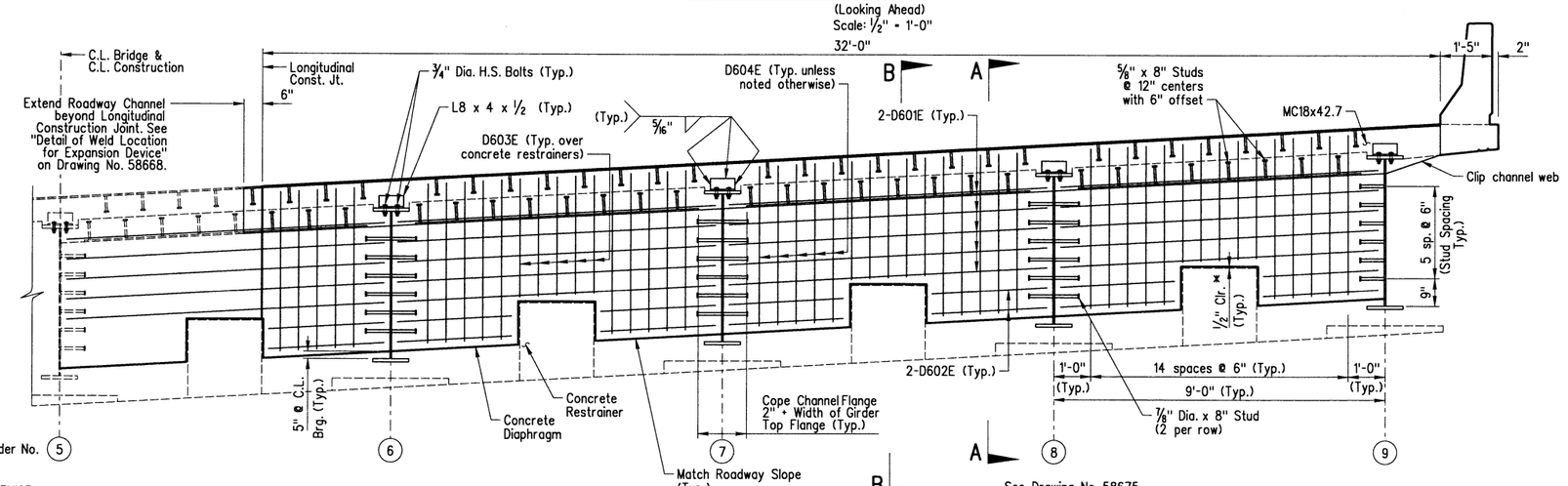
SLAB REINFORCING
Transverse:
S502E & S506E @ 14" o.c. bent up over girders
S601E & S602E @ 14" o.c. in top
S501E & S505E @ 14" o.c. in bottom
S701E @ 14" o.c. at both gutterlines (placed around ends of S502E & S506E. See "Reinforcing Detail" on Drawing No. 58674.
— Alternate

Longitudinal:
S401E as shown
S503E as shown
S603E as shown



TYPICAL ROADWAY SECTION - STAGE 2

(Looking Ahead)
Scale: ½" = 1'-0"



See Drawing No. 58675 for Sections A-A & B-B.

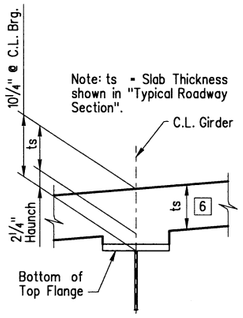
TYPICAL SECTION NEAR POURED SILICONE JOINT - STAGE 2

(Looking Ahead)
Scale: ½" = 1'-0"

EXPANSION DEVICE:
Rdwy. MC18 x 42.7
Conn. Angles L8 x 4 x ½
Detail Device ⅛" High and Provide ¼" Shims using 2 - 1/16" and 1 - ⅛" Plates.

x ½" Polystyrene shall be used as a bond breaker between the concrete restrainer and the concrete diaphragm and may remain in place.

Note: ts = Slab Thickness shown in "Typical Roadway Section".



GIRDERS 1 - 8 GIRDER 9

6 Tolerance when removable deck forming is used is +½", -¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

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 1 ¾". 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. 55005 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

STATE OF ARKANSAS CHRISTOPHER J. CRISWELL REGISTERED PROFESSIONAL ENGINEER No. 11328 9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

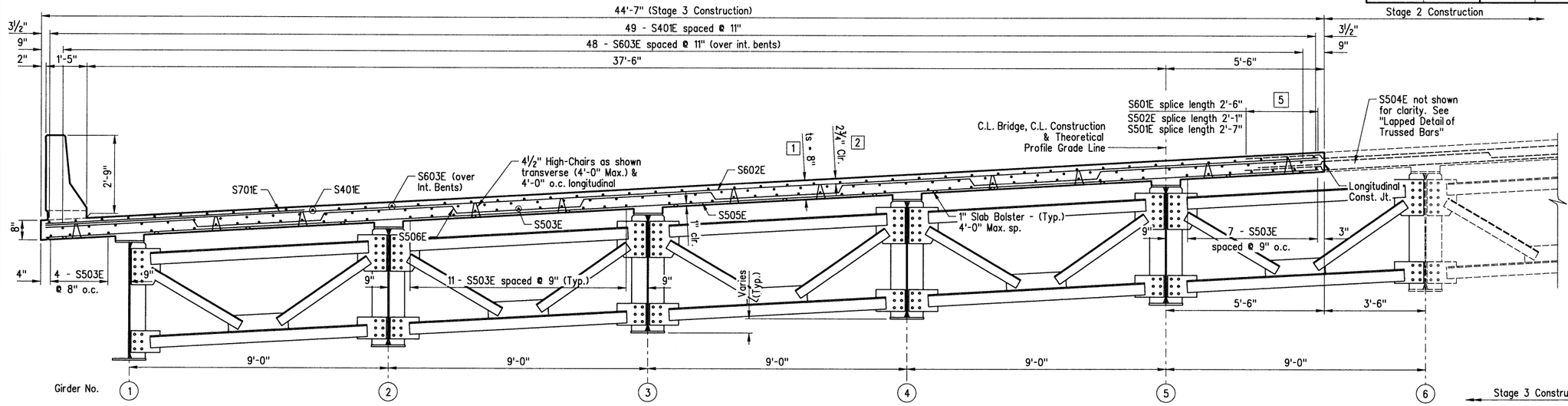
SHEET 1 OF 13
DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT
BRIDGE OVER DITCH 81
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 6/3/14
CHECKED BY: CJC DATE: 11/24/15
DESIGNED BY: CJC DATE: 11/26/14
BRIDGE NO. 07390
FILENAME: bca1002x1_sx1.dgn
SCALE: As Noted
DRAWING NO. 58667

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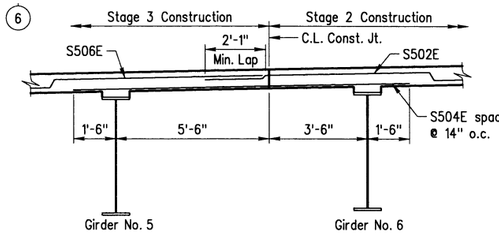
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				6	ARK.			
				JOB NO.		CA1002	115	319
				(1) 07390	-	296' CONT. UNIT	-	58668



TYPICAL ROADWAY SECTION - STAGE 3

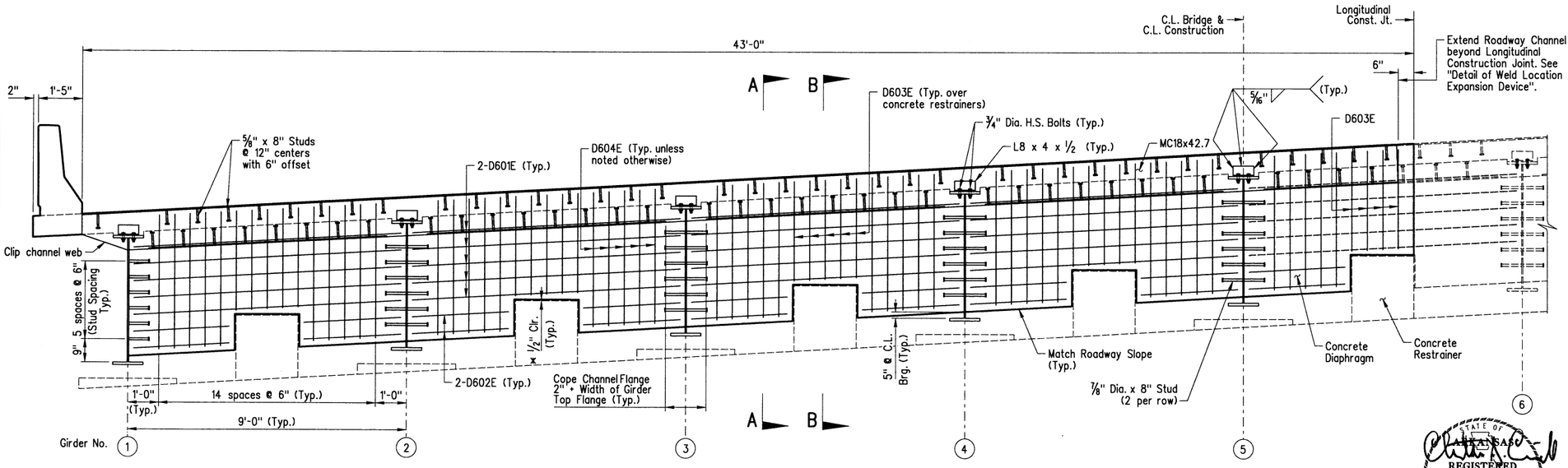
(Looking Ahead)
Scale: ½" = 1'-0"

See Drawing No. 58667 for notes [1], [2], & [5].



LAPPED DETAIL OF TRUSSED BARS

No Scale

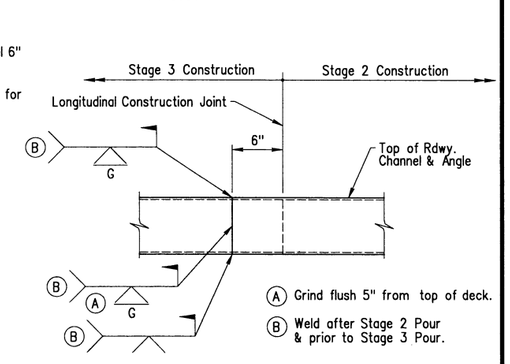


TYPICAL SECTION NEAR POURED SILICONE JOINT - STAGE 3

(Looking Ahead)
Scale: ½" = 1'-0"

* ½" Polystyrene shall be used as a bond breaker between the concrete restrainer and the concrete diaphragm and may remain in place.

See Drawing No. 58675 for Sections A-A & B-B.



DETAIL OF WELD LOCATION FOR EXPANSION DEVICE

No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER J. CRISWELL
No. 11328
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 2 OF 13
DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT
BRIDGE OVER DITCH 81
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

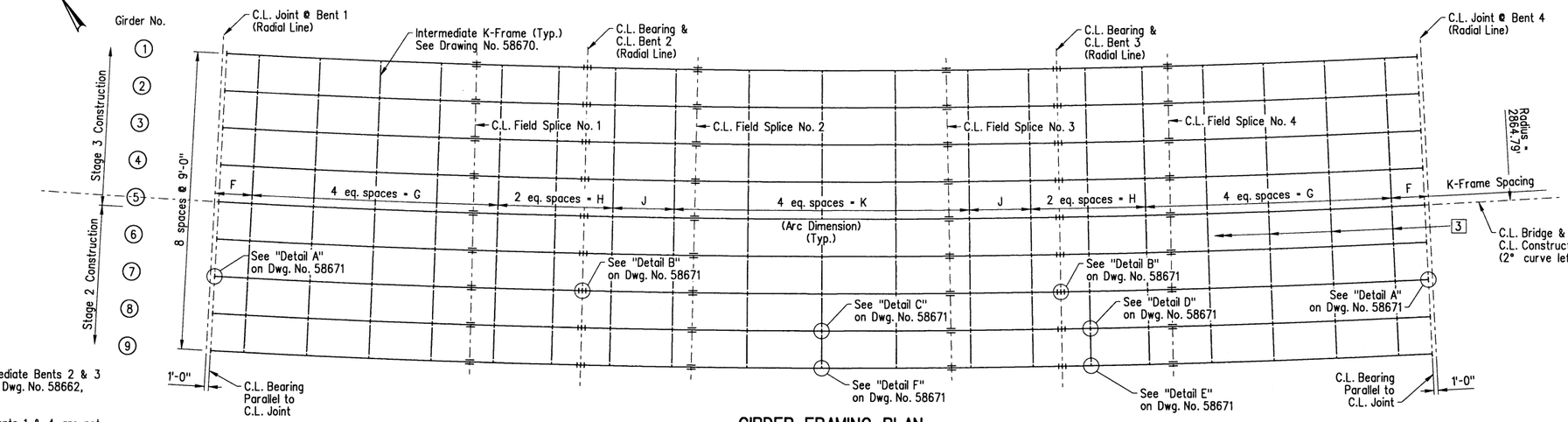
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				6	ARK.			
				JOB NO.		CA1002	116	319
				(1) 07390	-	296' CONT. UNIT	-	58669

[3] In this girder bay connection plates and K-Frames shall be fabricated, as necessary, to facilitate installation of K-Frames between adjacent girders with differential deflections. See "Special K-Frame Detail" on Drawing No. 58670.

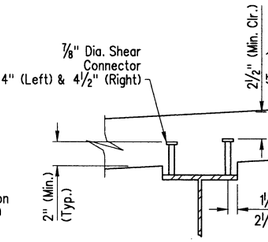


GIRDER FRAMING PLAN

Scale: 1/16" = 1'-0"

Note:
Concrete diaphragms at Intermediate Bents 2 & 3 are not shown for clarity. See Dwg. No. 58662, 58663 & 58664 for details.

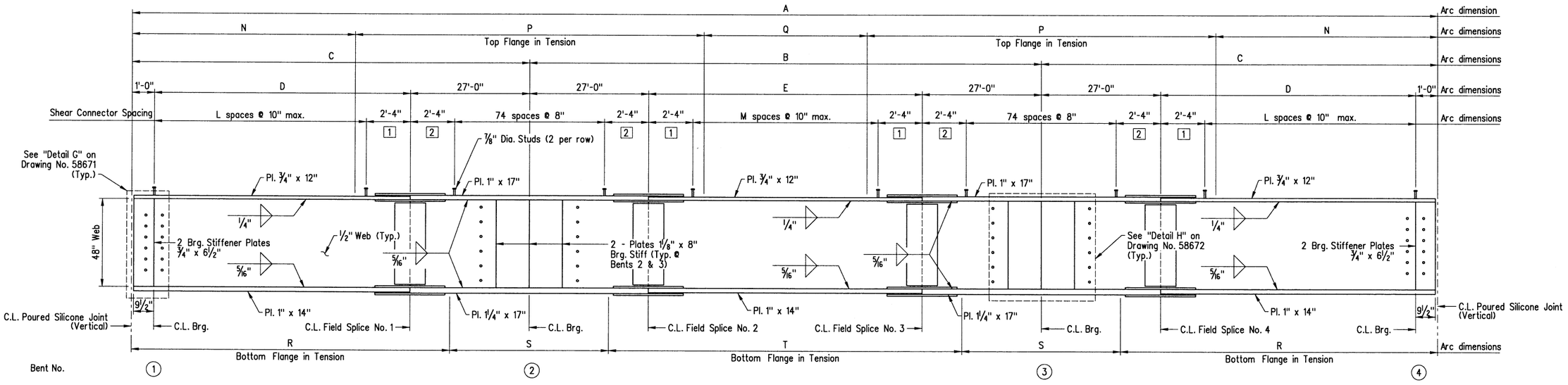
Concrete diaphragms at End Bents 1 & 4 are not shown for clarity. See Dwg. No. 58667, 58668 & 58675 for details.



Stud Shear Connectors shown shall be 7/8" Dia. x 4" or 4 1/2" long, granular flux filled, solid fluxed or equal, and automatically end welded to the girder flange in accordance with the recommendations of the manufacturer. 3/4" Dia. studs may be used in place of the 7/8" Dia. studs shown, at the ratio of 1.361 - 3/4" Dia. studs in place of one 7/8" Dia. stud. 7/8" studs will be used as basis for measurement of structural steel in shear connectors. Maximum stud spacing = 24".

SHEAR CONNECTOR DETAIL

No Scale



TYPICAL PLATE GIRDER ELEVATION

No Scale

TABLE OF VARIABLES

Girder No.	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
1	292'-3 3/8"	114'-6 1/2"	88'-10 7/16"	60'-10 7/16"	60'-6 1/2"	8'-10 5/8"	59'-2 15/16"	27'-7 3/4"	14'-9 3/4"	71'-1 1/8"	71	68	59'-10 7/16"	58'-0"	56'-6 1/2"	76'-10 7/16"	25'-0"	88'-6 1/2"
2	293'-2 1/2"	114'-10 7/8"	89'-1 13/16"	61'-1 13/16"	60'-10 7/8"	8'-11"	59'-5 7/16"	27'-8 3/16"	14'-10 5/16"	71'-3 7/8"	71	68	60'-1 13/16"	58'-0"	56'-10 7/8"	77'-1 13/16"	25'-0"	88'-10 7/8"
3	294'-1 11/16"	115'-3 1/4"	89'-5 7/16"	61'-5 7/16"	61'-3 1/4"	8'-11 5/16"	59'-7 1/2"	27'-9 7/8"	14'-10 7/8"	71'-6 9/16"	71	68	60'-5 7/16"	58'-0"	57'-3 1/4"	77'-5 7/16"	25'-0"	89'-3 1/4"
4	295'-0 13/16"	115'-7 5/8"	89'-8 5/8"	61'-8 5/8"	61'-7 5/8"	8'-11 11/16"	59'-9 3/4"	27'-10 15/16"	14'-11 7/16"	71'-9 5/16"	72	69	60'-8 5/8"	58'-0"	57'-7 5/8"	77'-8 5/8"	25'-0"	89'-7 5/8"
5	296'-0"	116'-0"	90'-0"	62'-0"	62'-0"	9'-0"	60'-0"	28'-0"	15'-0"	72'-0"	72	69	61'-0"	58'-0"	58'-0"	78'-0"	25'-0"	90'-0"
6	296'-11 3/16"	116'-4 3/8"	90'-3 3/8"	62'-3 3/8"	62'-4 3/8"	9'-0 5/16"	60'-2 1/4"	28'-1 1/16"	15'-0 9/16"	72'-2 11/16"	72	70	61'-3 3/8"	58'-0"	58'-4 3/8"	78'-3 3/8"	25'-0"	90'-4 3/8"
7	297'-10 5/16"	116'-8 3/4"	90'-6 13/16"	62'-6 13/16"	62'-8 3/4"	9'-0 11/16"	60'-4 1/2"	28'-2 1/8"	15'-1 1/8"	72'-5 7/16"	73	70	61'-6 13/16"	58'-0"	58'-8 3/4"	78'-6 13/16"	25'-0"	90'-8 3/4"
8	298'-9 1/2"	117'-1 1/8"	90'-10 3/16"	62'-10 3/16"	63'-1 1/8"	9'-1"	60'-6 13/16"	28'-3 3/16"	15'-1 11/16"	72'-8 1/8"	73	71	61'-10 3/16"	58'-0"	59'-1 1/8"	78'-10 3/16"	25'-0"	91'-1 1/8"
9	299'-8 5/8"	117'-5 1/2"	91'-1 9/16"	63'-1 9/16"	63'-5 1/2"	9'-1 3/8"	60'-9 1/16"	28'-4 1/4"	15'-2 1/4"	72'-10 7/8"	73	71	62'-1 9/16"	58'-0"	59'-5 1/2"	79'-1 9/16"	25'-0"	91'-5 1/2"

[1] Two 7/8" Dia. shear connectors will be required at about 10" spacing if the bolted field splice is omitted. Payment will be made on the basis of the plan quantities.

[2] Two 7/8" Dia. shear connectors will be required at about 8" spacing if the bolted field splice is omitted. Payment will be made on the basis of the plan quantities.

Notes:
All structural steel shall be AASHTO M270, Gr. 50W unless otherwise noted.

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.

STATE OF ARKANSAS
CHRISTOPHER J. CRISWELL
REGISTERED PROFESSIONAL ENGINEER
No. 11328
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 3 OF 13
DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT
BRIDGE OVER DITCH 81
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

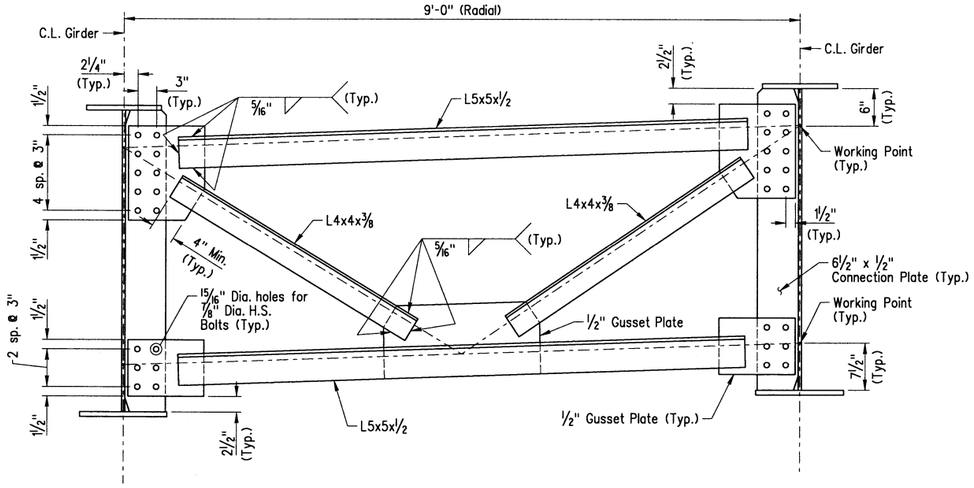
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BRIDGE NO. 07390 DRAWING NO. 58669

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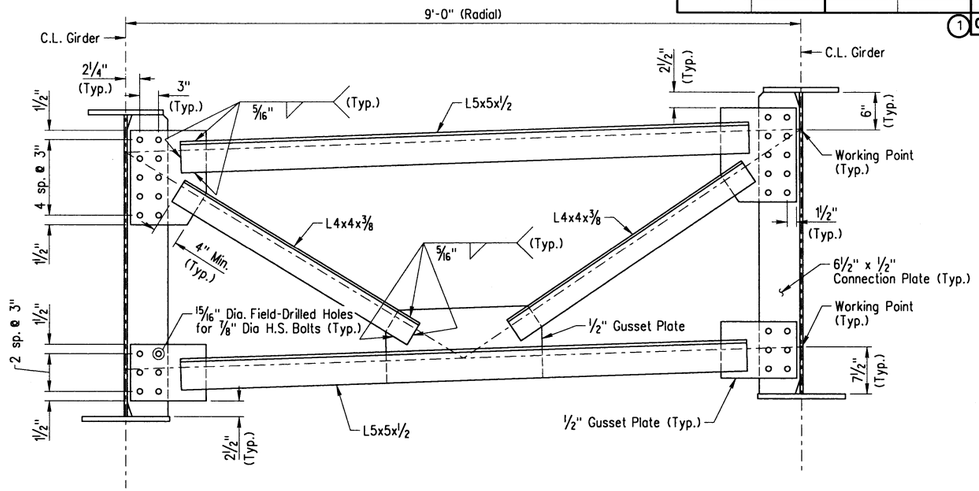
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				6	ARK.			
				JOB NO.		CA1002	117	319
				(1) 07390	-	296' CONT. UNIT	-	58670



INTERMEDIATE K-FRAME DETAIL

Scale: 1" = 1'-0"



Girder 5 (Stage 3)

SPECIAL K-FRAME DETAIL

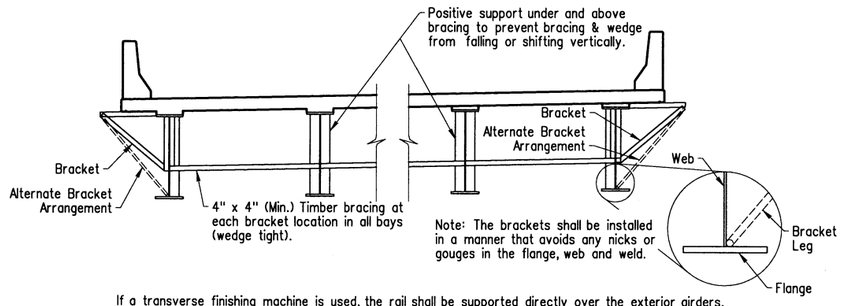
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Girder 6 (Stage 2)

Note:
All structural steel, including girders, K-Frames, bearing stiffener plates, connection plates, and intermediate stiffener plates, shall be AASHTO M270 Gr. 50W.

SPECIAL K-FRAME CONNECTION PROCEDURE:

1. Before Stage 3 deck is poured, connect one end of Special K-Frame to Girder 6 and fully tighten connection bolts. Leave Girder 5 end connection unbolted until after the Stage 3 Deck concrete is in place.
2. After Stage 3 Deck has been poured, field drill holes in Girder 5 connection plates, install connection bolts, and tighten in accordance with Subsection 801.71.
3. The Contractor shall maintain proper girder alignment until all K-Frames are completely installed. This may require temporary bracing.



If a transverse finishing machine is used, the rail shall be supported directly over the exterior girders, or as an alternate, the rail may be supported by the overhang brackets if the above strutting system is used. The strutting system may be omitted if ½" x 6½" web stiffeners are welded to the insides of the exterior girders at the location of each bracket or if the alternate bracket arrangement shown above is used. The alternate bracket arrangement shall extend down to the junction of the web and bottom flange. The stiffener shall conform to the details for K-Frame connection plates shown in Dwg. No. 58671. No direct payment will be made for brackets, timber bracing, supports, or welded stiffeners. Payment shall be subsidiary to "Structural Steel in Plate Girder Spans (M270, Gr. 50W).

SCREED RAIL SUPPORT DETAIL

No Scale

TABLE FOR WELDS

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.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 4 OF 13
DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT BRIDGE OVER DITCH 81

MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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CHECKED BY: CJC DATE: 5/19/15
DESIGNED BY: CJC DATE: 3/6/15 SCALE: As Noted
BRIDGE NO. 07390 DRAWING NO. 58670

JACOBS

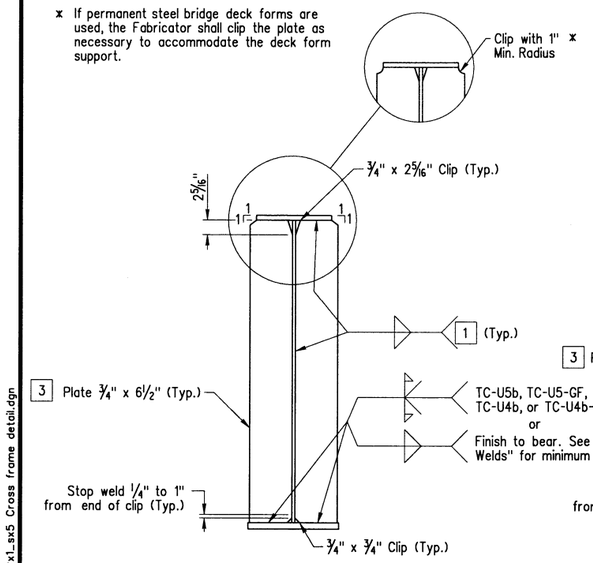
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA1002	118	319
				(1) 07390	-	296' CONT. UNIT	-	58671

x If permanent steel bridge deck forms are used, the Fabricator shall clip the plate as necessary to accommodate the deck form support.

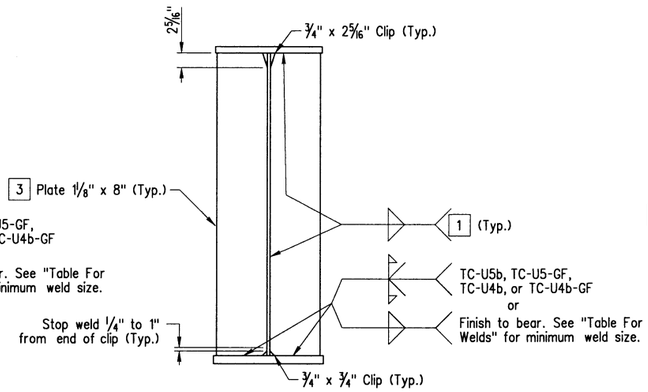
1 See "Table for Welds" for min. weld size.

2 Place connection plates on radial lines.

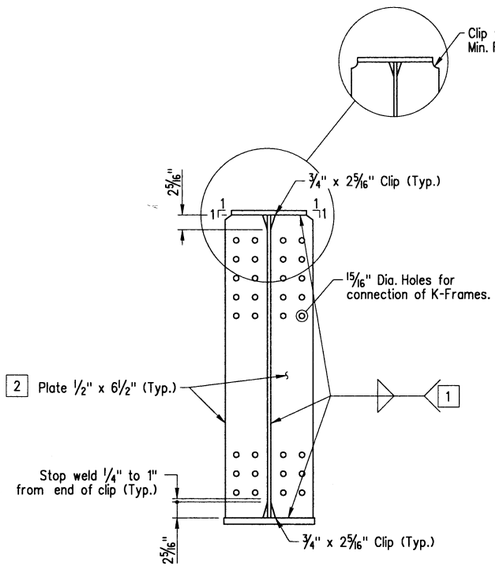
3 Place bearing stiffeners on lines parallel to C.L. Joint.



DETAIL A
BEARING STIFFENER @ END BENTS
Scale: 1" = 1'-0"



DETAIL B
BEARING STIFFENER @ INTERMEDIATE BENTS
Scale: 1" = 1'-0"



DETAIL C
2-SIDED CONN. PLATE WITH 12" TOP FLANGE
Scale: 1" = 1'-0"

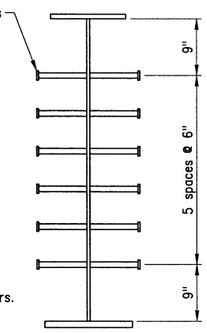
Notes:
Bearing stiffeners shall be fabricated to be plumb in their final positions.

All structural steel, including girders, K-Frames, bearing stiffener plates and connection plates shall be AASHTO M270 Gr. 50W.

TABLE FOR WELDS

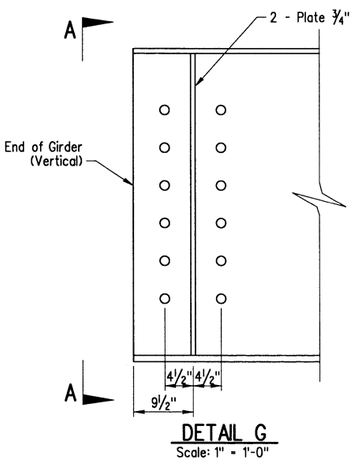
Material Thickness of Thicker Part Joined (inches)	Minimum Size of Fillet Weld (inches)	Single Pass Weld Must Be Used
To 3/4" inclusive	1/4"	
Over 3/4"	5/16"	

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.

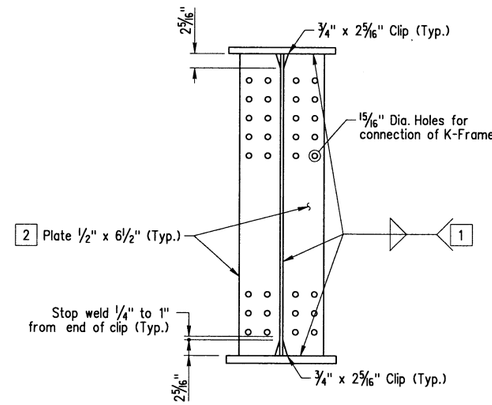


Note:
Omit studs on outside of exterior girders.

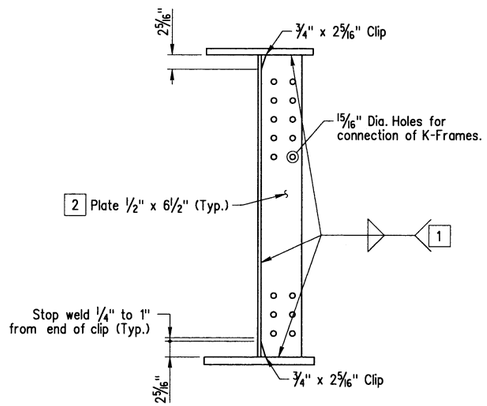
VIEW A-A
Scale: 1" = 1'-0"



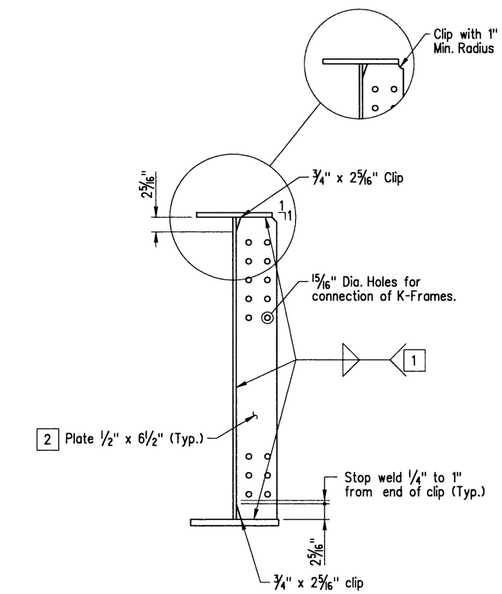
DETAIL G
Scale: 1" = 1'-0"



DETAIL D
2-SIDED CONN. PLATE WITH 17" TOP FLANGE
Scale: 1" = 1'-0"



DETAIL E
1-SIDED CONN. PLATE WITH 17" TOP FLANGE
Scale: 1" = 1'-0"



DETAIL F
1-SIDED CONN. PLATE WITH 12" TOP FLANGE
Scale: 1" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 5 OF 13
DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT
BRIDGE OVER DITCH 81
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

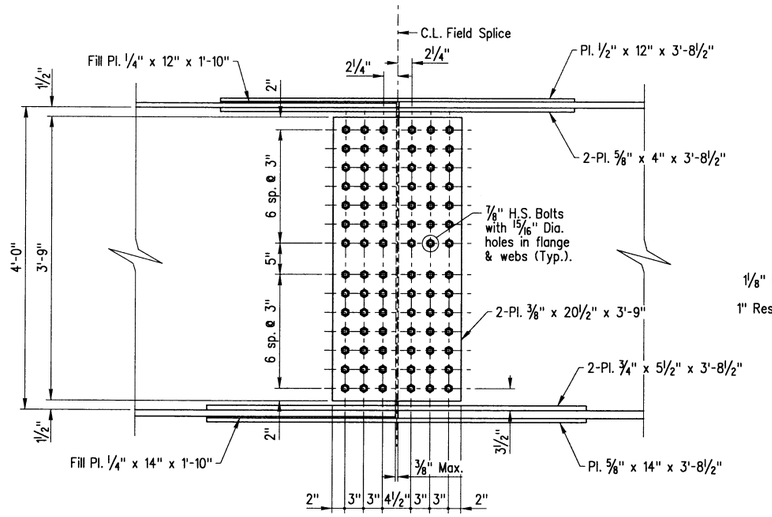
DRAWN BY: LHG DATE: 3/9/15 FILENAME: bca1002x1_sx5.dgn
CHECKED BY: CJC DATE: 5/19/15
DESIGNED BY: CJC DATE: 3/6/15 SCALE: As Noted
BRIDGE NO. 07390 DRAWING NO. 58671

JACOBS

T:\Job\WL.XM2660 AHTD CAP CA1002\700 CADD Files\709 Structural Files\Drawings\Site 1 - Ditch 81\bca1002x1_sx5 Cross frame detail.dgn
9/12/2016 12:30:10 PM

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

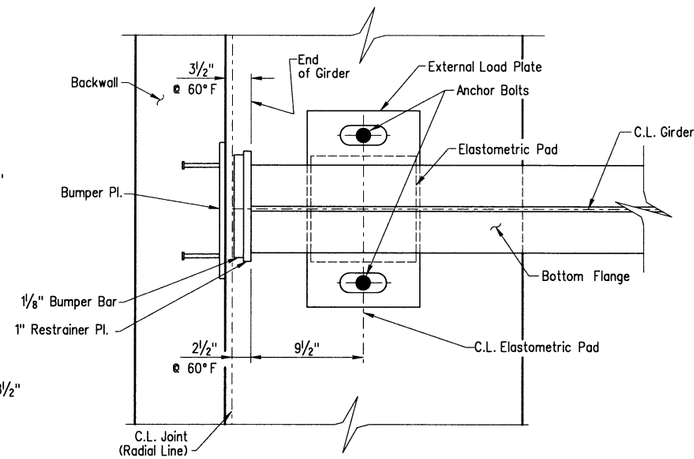
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	119	319
(1) 07390	-	296' CONT. UNIT	-	58672



WEB SPLICE DETAIL

No Scale

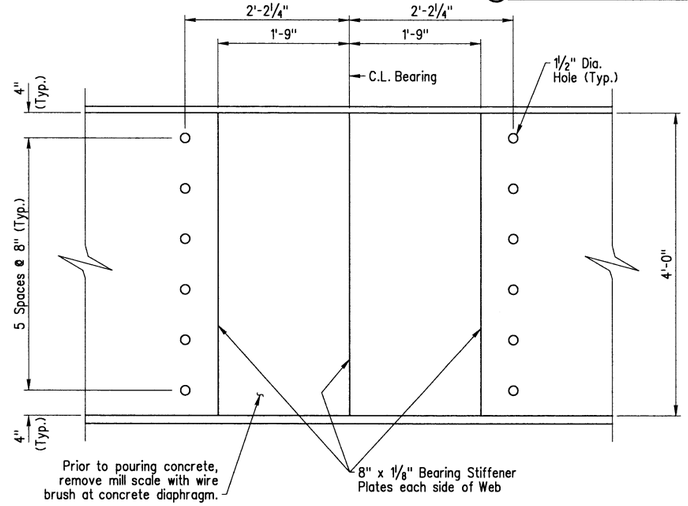
Note:
All splice plates shall be AASHTO M270, Gr. 50W.



PARTIAL PLAN OF BEARING AT END BENT

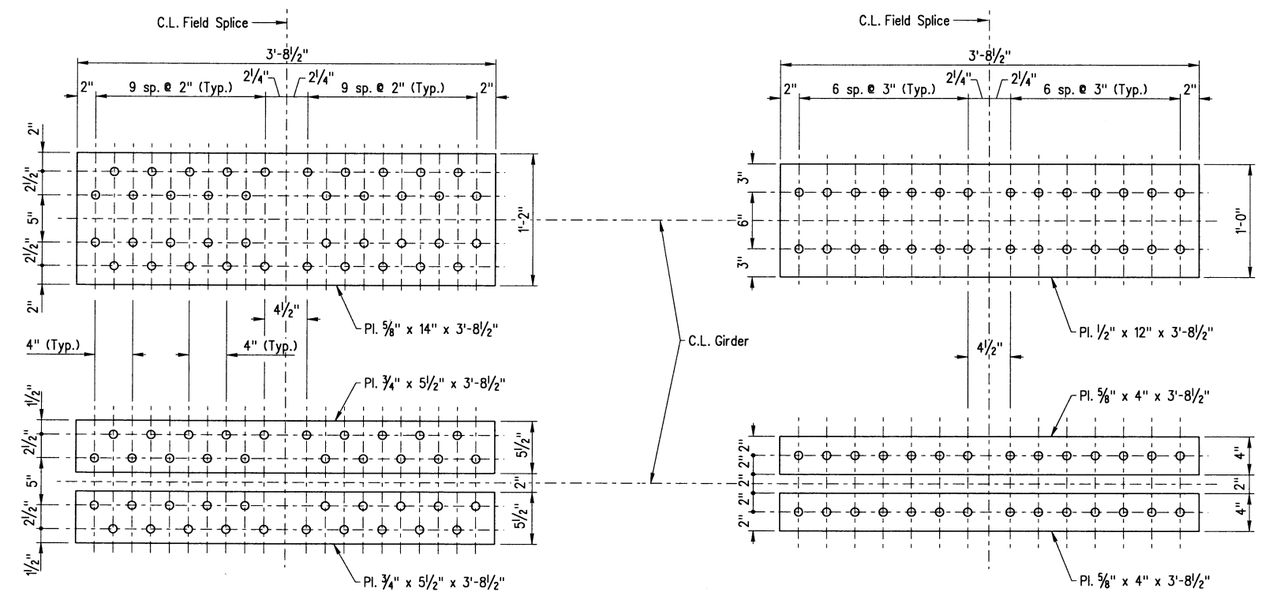
No Scale

Note:
For Bumper Bar and Restrainer Plate details, see Drawing No. 58675. For Bumper Plate Details, see Drawing No. 58660.



DETAIL H

Scale: 1"=1'-0"
(Typ. @ Bents 2 & 3)

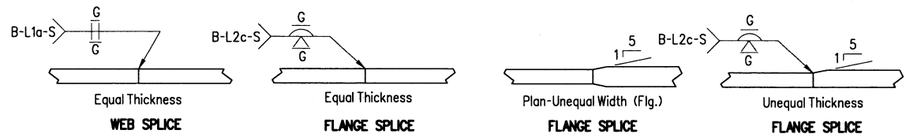


BOTTOM FLANGE SPLICE DETAIL

Scale: 1 1/2" = 1'-0"

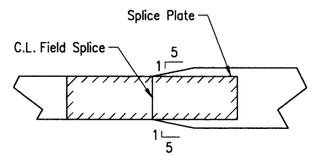
TOP FLANGE SPLICE DETAIL

Scale: 1 1/2" = 1'-0"



DETAILS OF WELDED SPLICES

No Scale



DETAILS OF BOTTOM FLANGE TRANSITION

No Scale

TABLE FOR WELDS

Material Thickness of Thicker Part Joined (inches)	Minimum Size of Fillet Weld (inches)	Single Pass Weld Must Be Used
To 3/4" inclusive	1/4"	
Over 3/4"	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.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 6 OF 13
DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT
BRIDGE OVER DITCH 81
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 12/8/14
CHECKED BY: CJC DATE: 5/19/15
DESIGNED BY: CJC DATE: 12/7/14
FILENAME: bca1002x1_sx6.dgn
SCALE: No Scale
BRIDGE NO. 07390
DRAWING NO. 58672

JACOBS

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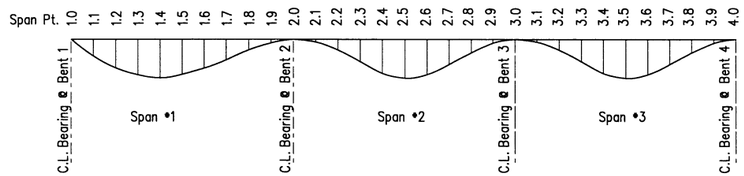
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA1002	120	319
				(1) 07390	-	296' CONT. UNIT	-	58673

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point	Girder 1			Girder 2			Girder 3			Girder 4			Girder 5		
		Structural Steel	Structural Steel & Slab	Structural Steel, Slab & Parapet	Structural Steel	Structural Steel & Slab	Structural Steel, Slab & Parapet	Structural Steel	Structural Steel & Slab	Structural Steel, Slab & Parapet	Structural Steel	Structural Steel & Slab	Structural Steel, Slab & Parapet	Structural Steel	Structural Steel & Slab	Structural Steel, Slab & Parapet
1	1.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1.1	0.07	0.32	0.37	0.07	0.38	0.40	0.07	0.38	0.38	0.07	0.39	0.39	0.07	0.39	0.39
	1.2	0.12	0.59	0.68	0.13	0.69	0.73	0.13	0.70	0.70	0.13	0.70	0.70	0.13	0.71	0.71
	1.3	0.15	0.76	0.87	0.17	0.89	0.94	0.17	0.90	0.90	0.17	0.91	0.91	0.17	0.92	0.92
	1.4	0.17	0.82	0.94	0.18	0.96	1.02	0.18	0.98	0.98	0.19	0.99	0.99	0.19	1.00	1.00
	1.5	0.16	0.76	0.88	0.17	0.90	0.96	0.17	0.91	0.91	0.17	0.92	0.92	0.18	0.93	0.93
	1.6	0.13	0.61	0.71	0.14	0.72	0.77	0.14	0.73	0.73	0.14	0.74	0.74	0.14	0.75	0.75
	1.7	0.08	0.42	0.48	0.09	0.48	0.51	0.09	0.49	0.49	0.09	0.49	0.49	0.10	0.50	0.50
	1.8	0.04	0.20	0.23	0.05	0.24	0.26	0.05	0.25	0.25	0.05	0.25	0.25	0.05	0.25	0.25
	1.9	0.01	0.05	0.06	0.01	0.05	0.05	0.01	0.05	0.05	0.01	0.05	0.05	0.01	0.05	0.05
	2.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	2.1	0.04	0.17	0.21	0.04	0.20	0.22	0.04	0.20	0.20	0.04	0.21	0.21	0.04	0.21	0.21
	2.2	0.11	0.50	0.60	0.12	0.59	0.64	0.12	0.59	0.59	0.12	0.60	0.60	0.12	0.61	0.61
	2.3	0.18	0.85	1.02	0.20	1.00	1.08	0.20	1.01	1.01	0.20	1.03	1.03	0.21	1.04	1.04
	2.4	0.24	1.12	1.33	0.26	1.32	1.42	0.26	1.33	1.33	0.27	1.35	1.35	0.27	1.36	1.36
	2.5	0.26	1.21	1.44	0.28	1.42	1.53	0.29	1.45	1.45	0.29	1.47	1.47	0.29	1.48	1.48
	2.6	0.24	1.12	1.33	0.26	1.32	1.42	0.26	1.33	1.33	0.27	1.35	1.35	0.27	1.36	1.36
	2.7	0.18	0.85	1.02	0.20	1.00	1.08	0.20	1.01	1.01	0.20	1.03	1.03	0.21	1.04	1.04
	2.8	0.11	0.50	0.60	0.12	0.59	0.64	0.12	0.59	0.59	0.12	0.60	0.60	0.12	0.61	0.61
	2.9	0.04	0.17	0.21	0.04	0.20	0.22	0.04	0.20	0.20	0.04	0.21	0.21	0.04	0.21	0.21
	3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	3.1	0.01	0.05	0.06	0.01	0.05	0.05	0.01	0.05	0.05	0.01	0.05	0.05	0.01	0.05	0.05
	3.2	0.04	0.20	0.23	0.05	0.24	0.26	0.05	0.25	0.25	0.05	0.25	0.25	0.05	0.25	0.25
	3.3	0.08	0.42	0.48	0.09	0.48	0.51	0.09	0.49	0.49	0.09	0.49	0.49	0.10	0.50	0.50
	3.4	0.13	0.61	0.71	0.14	0.72	0.77	0.14	0.73	0.73	0.14	0.74	0.74	0.14	0.75	0.75
	3.5	0.16	0.76	0.88	0.17	0.90	0.96	0.17	0.91	0.91	0.17	0.92	0.92	0.18	0.93	0.93
	3.6	0.17	0.82	0.94	0.18	0.96	1.02	0.18	0.98	0.98	0.19	0.99	0.99	0.19	1.00	1.00
	3.7	0.15	0.76	0.87	0.17	0.89	0.94	0.17	0.90	0.90	0.17	0.91	0.91	0.17	0.92	0.92
	3.8	0.12	0.59	0.68	0.13	0.69	0.73	0.13	0.70	0.70	0.13	0.70	0.70	0.13	0.71	0.71
	3.9	0.07	0.32	0.37	0.07	0.38	0.40	0.07	0.38	0.38	0.07	0.39	0.39	0.07	0.39	0.39
	4.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point	Girder 6			Girder 7			Girder 8			Girder 9		
		Structural Steel	Structural Steel & Slab	Structural Steel, Slab & Parapet	Structural Steel	Structural Steel & Slab	Structural Steel, Slab & Parapet	Structural Steel	Structural Steel & Slab	Structural Steel, Slab & Parapet	Structural Steel	Structural Steel & Slab	Structural Steel, Slab & Parapet
1	1.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1.1	0.07	0.40	0.40	0.08	0.40	0.40	0.08	0.41	0.43	0.07	0.35	0.40
	1.2	0.14	0.72	0.72	0.14	0.73	0.73	0.14	0.74	0.78	0.13	0.65	0.75
	1.3	0.18	0.94	0.94	0.18	0.95	0.95	0.18	0.96	1.02	0.17	0.84	0.96
	1.4	0.19	1.01	1.01	0.19	1.02	1.02	0.20	1.04	1.10	0.18	0.90	1.04
	1.5	0.18	0.94	0.94	0.18	0.95	0.95	0.18	0.97	1.03	0.17	0.85	0.98
	1.6	0.14	0.76	0.76	0.15	0.77	0.77	0.15	0.78	0.83	0.14	0.68	0.79
	1.7	0.10	0.51	0.51	0.10	0.51	0.51	0.10	0.52	0.55	0.09	0.46	0.53
	1.8	0.05	0.25	0.25	0.05	0.26	0.26	0.05	0.26	0.28	0.05	0.23	0.26
	1.9	0.01	0.06	0.06	0.01	0.06	0.06	0.01	0.06	0.06	0.01	0.05	0.06
	2.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	2.1	0.04	0.21	0.21	0.04	0.22	0.22	0.04	0.22	0.24	0.04	0.19	0.23
	2.2	0.12	0.61	0.61	0.12	0.62	0.62	0.13	0.63	0.68	0.12	0.56	0.67
	2.3	0.21	1.05	1.05	0.21	1.07	1.07	0.21	1.08	1.17	0.20	0.95	1.13
	2.4	0.27	1.38	1.38	0.28	1.40	1.40	0.28	1.41	1.52	0.26	1.24	1.47
	2.5	0.30	1.50	1.50	0.30	1.53	1.53	0.30	1.54	1.66	0.29	1.35	1.60
	2.6	0.27	1.38	1.38	0.28	1.40	1.40	0.28	1.41	1.52	0.26	1.24	1.47
	2.7	0.21	1.05	1.05	0.21	1.07	1.07	0.21	1.08	1.17	0.20	0.95	1.13
	2.8	0.12	0.61	0.61	0.12	0.62	0.62	0.13	0.63	0.68	0.12	0.56	0.67
	2.9	0.04	0.21	0.21	0.04	0.22	0.22	0.04	0.22	0.24	0.04	0.19	0.23
	3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	3.1	0.01	0.06	0.06	0.01	0.06	0.06	0.01	0.06	0.06	0.01	0.05	0.06
	3.2	0.05	0.25	0.25	0.05	0.26	0.26	0.05	0.26	0.28	0.05	0.23	0.26
	3.3	0.10	0.51	0.51	0.10	0.51	0.51	0.10	0.52	0.55	0.09	0.46	0.53
	3.4	0.14	0.76	0.76	0.15	0.77	0.77	0.15	0.78	0.83	0.14	0.68	0.79
	3.5	0.18	0.94	0.94	0.18	0.95	0.95	0.18	0.97	1.03	0.17	0.85	0.98
	3.6	0.19	1.01	1.01	0.19	1.02	1.02	0.20	1.04	1.10	0.18	0.90	1.04
	3.7	0.18	0.94	0.94	0.18	0.95	0.95	0.18	0.96	1.02	0.17	0.84	0.96
	3.8	0.14	0.72	0.72	0.14	0.73	0.73	0.14	0.74	0.78	0.13	0.65	0.75
	3.9	0.07	0.40	0.40	0.08	0.40	0.40	0.08	0.41	0.43	0.07	0.35	0.40
	4.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00



DEAD LOAD DEFLECTION DIAGRAM

No Scale

Note: Camber girders for dead load deflection plus vertical curve and superelevation transition. Tolerance is ± 1/4". Deflections shown are from a chord extending from C.L. Bearing to C.L. Bearing. Vertical curve corrections and superelevation transition are not included. Negative sign (-) indicates point above chord.

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11528 CHRISTOPHER J. CRISWELL 9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 7 OF 13
DETAILS OF 296'-0" CONTINUOUS
COMPOSITE PLATE GIRDER UNIT
BRIDGE OVER DITCH 81
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 12/16/14 FILENAME: bca1002x1_sx7.dgn
CHECKED BY: CJC DATE: 02/24/15
DESIGNED BY: CJC DATE: 12/03/14 SCALE: No Scale
BRIDGE NO. 07390 DRAWING NO. 58673

JACOBS

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Notes:
All transverse slab reinforcing steel shall be placed on radial lines. Spacing shown is measured along the Longitudinal Construction Joint.

All longitudinal lines and longitudinal slab reinforcing steel shall be placed on curves concentric with C.L. Bridge (2° 00'00" curve left).

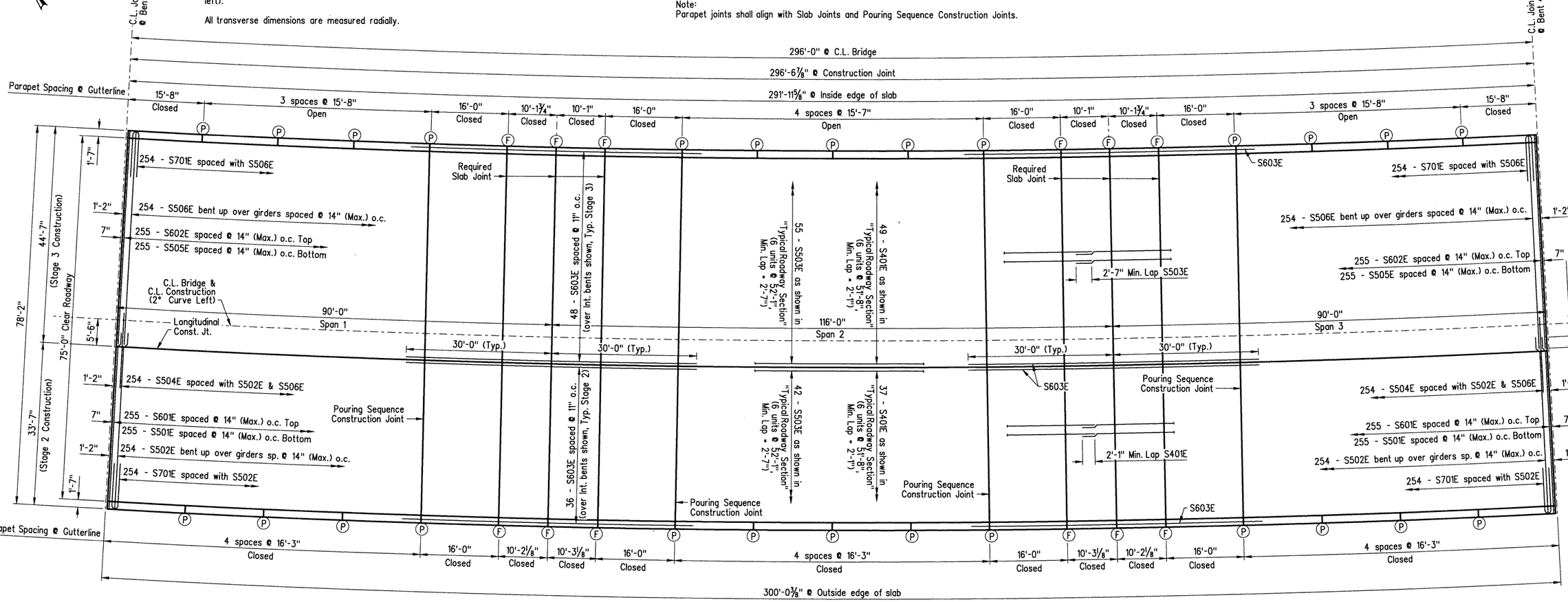
All transverse dimensions are measured radially.

(F) C.L. Full Depth Joint (1/4" to 1" Max.). Stop 4" from top of slab.

(P) C.L. Partial Depth Joint (1/4" to 1" Max.). Stop 1'-2" from top of slab.

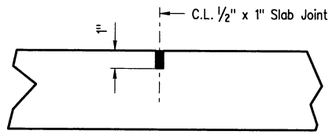
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				6	ARK.			
				JOB NO.		CA1002	121	319
				(1) 07390	-	296' CONT. UNIT	-	58674

Note:
Parapet joints shall align with Slab Joints and Pouring Sequence Construction Joints.

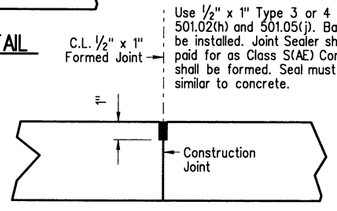


SLAB REINFORCING PLAN
Scale: 3/32" = 1'-0"

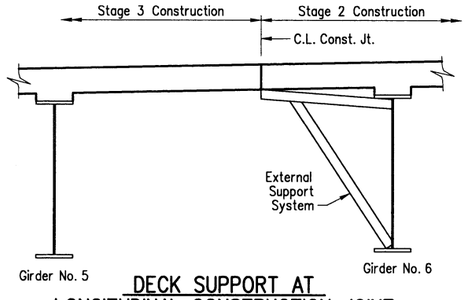
Use Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab joints shall extend to the outside edge of the deck slab and shall align with open joints at the front face of the parapet. 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 JOINT DETAIL
No Scale

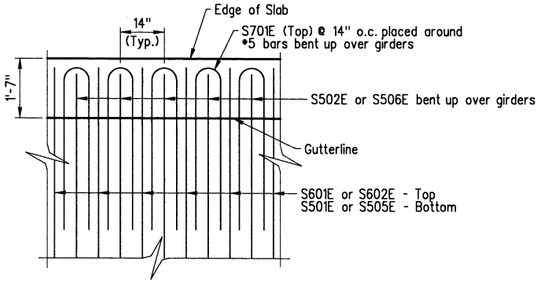


LONGITUDINAL CONSTRUCTION JOINT DETAIL
No Scale



DECK SUPPORT AT LONGITUDINAL CONSTRUCTION JOINT
No Scale

Stage 2 external supports at Girder 6 shall remain in place until after completion of the Stage 3 deck pours. See Subsection 802.15 for additional information regarding their removal.



REINFORCING DETAIL
No Scale

SHEET 8 OF 13
DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT BRIDGE OVER DITCH 81
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16
BRIDGE ENGINEER
PRINT DATE: 9/12/2016

DRAWN BY: LHG DATE: 6/5/14
CHECKED BY: CJC DATE: 11/24/15
DESIGNED BY: CJC DATE: 11/26/14
BRIDGE NO. 07390
FILENAME: bca1002x1_sx8.dgn
SCALE: As Noted
DRAWING NO. 58674

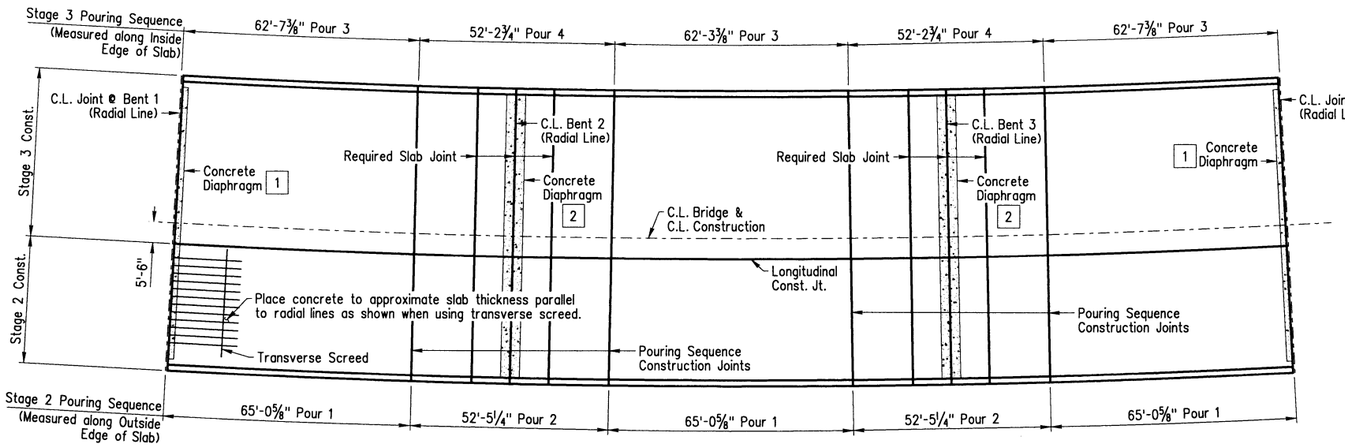
JACOBS

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Note:
A longitudinal screed will not be allowed.

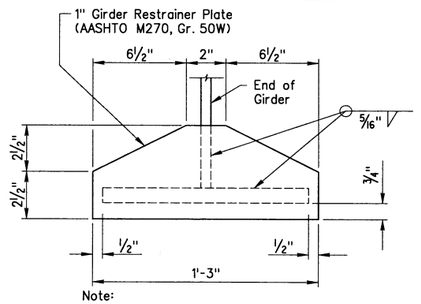
Note:
Parapet joints shall align with Slab Joints and Pouring Sequence Construction Joints.

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.		CA1002	122	319
				(1) 07390	-	296' CONT. UNIT	-	58675



CONCRETE PLACEMENT & DECK POURING SEQUENCE

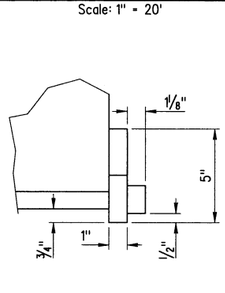
Scale: 1" = 20'



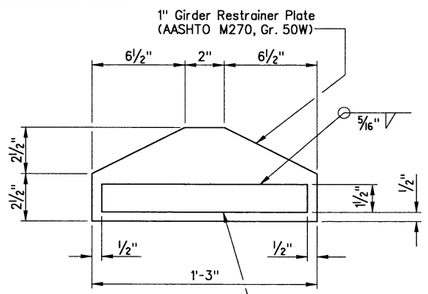
Note:
Girder Restrainer Plate shall be centered on each girder line (flange & web).
Bumper Bar not shown for clarity.

VIEW F-F

No Scale



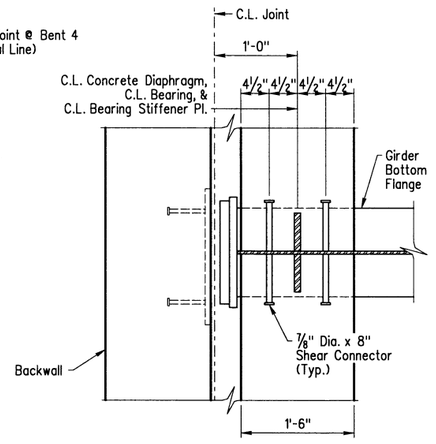
Note: Girder Restrainer Plate and Bumper Bar shall conform to AASHTO M270, Gr. 50W and shall be included in the item "Structural Steel in Plate Girder Spans (M270 - Gr. 50W)".



Note: End of Girder not shown in this view for clarity.

GIRDER RESTRAINER

No Scale



SECTION C-C

Scale: 1"=1'-0"

Notes:
Pours with the same number may be placed simultaneously or separately. For Stage 2, all pours (1) must be placed before pours (2) can be placed. For Stage 3, all pours (3) must be placed before pours (4) can be placed. Forty-eight hours shall elapse between the end of a pour and the start of the next pour. Seventy-two hours shall elapse between the end of a pour and the start of an adjacent pour and between the end of a pour and the pouring of the parapet. Any parapet railing pours made before the entire slab unit has been placed must be approved by the Engineer. Concrete in bridge superstructure shall be placed, consolidated and screeded off for the entire pour before concrete has taken its initial set. This may require the use of a retarding agent. The Contractor must obtain approval from the Engineer for any deviation from the pouring sequence shown.

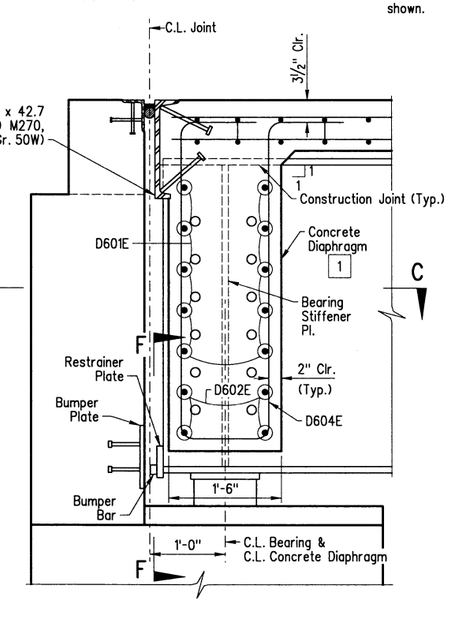
1. Concrete Diaphragms at End Bents shall be poured a minimum of 48 hours before the first deck pour of each stage of construction.
2. Concrete Diaphragms at Intermediate Bents shall be poured monolithically with deck slab.
3. ½" Polystyrene shall be used as a bond breaker between the concrete restrainer and the concrete diaphragm and may remain in place. Polystyrene shall be considered subsidiary to "Class S(AE) Concrete - Bridge".

Notes:
Omit studs on outside of exterior girders.

Prior to placing concrete, remove loose rust with wire brush at concrete diaphragm.

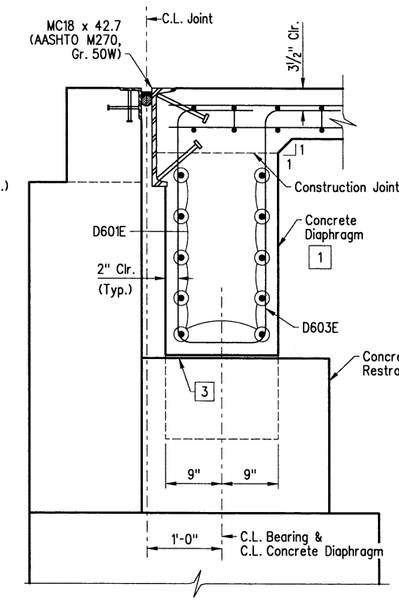
Removable forms for diaphragm shall be used.

See Drawing No. 58678 for details of Poured Silicone Joint not shown.



SECTION A-A

Scale: 1"=1'-0"



SECTION B-B

Scale: 1"=1'-0"

BAR LIST (STAGE 2)

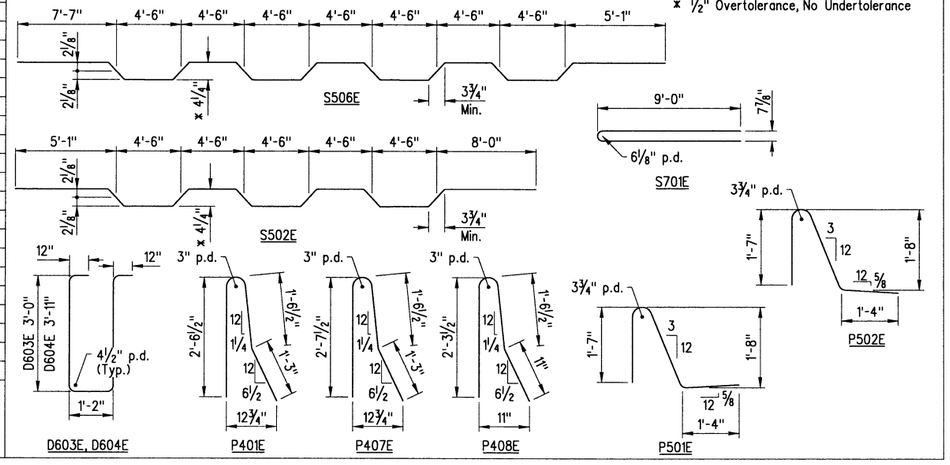
Mark	No. Required	Length	Pin Dia.
P401E	594	5'-5½"	3"
P402E	36	15'-11"	Str.
P403E	12	15'-8"	Str.
P404E	28	9'-11"	Str.
P405E	16	41'-7"	Str.
P406E	8	49'-8"	Str.
P502E	594	4'-9"	3¾"
S401E	222	51'-8"	Str.
S501E	255	36'-2"	Str.
S502E	254	36'-3"	3"
S503E	252	52'-1"	Str.
S504E	254	12'-0"	Str.
S601E	255	36'-1"	Str.
S603E	72	60'-0"	Str.
S701E	254	18'-4"	6⅛"
D601E	80	8'-8"	Str.
D602E	56	3'-1"	Str.
D603E	30	8'-7"	4½"
D604E	70	10'-5"	4½"

BAR LIST (STAGE 3)

Mark	No. Required	Length	Pin Dia.
P403E	12	15'-8"	Str.
P407E	510	5'-6"	3"
P408E	80	4'-10"	3"
P409E	36	15'-3"	Str.
P410E	28	9'-9"	Str.
P411E	16	40'-5"	Str.
P412E	8	48'-4"	Str.
P501E	510	4'-9"	3¾"
S401E	294	51'-8"	Str.
S503E	330	52'-1"	Str.
S505E	255	44'-4"	Str.
S506E	254	45'-0"	3"
S602E	255	44'-4"	Str.
S603E	96	60'-0"	Str.
S701E	254	18'-4"	6⅛"
D601E	80	8'-8"	Str.
D602E	72	3'-1"	Str.
D603E	48	8'-7"	4½"
D604E	90	10'-5"	4½"

BENDING DIAGRAMS

(Dimensions are out to out of bars.)



Note: All bars designated with an "E" suffix are to be epoxy coated.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11528
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 9 OF 13
DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT
BRIDGE OVER DITCH 81
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

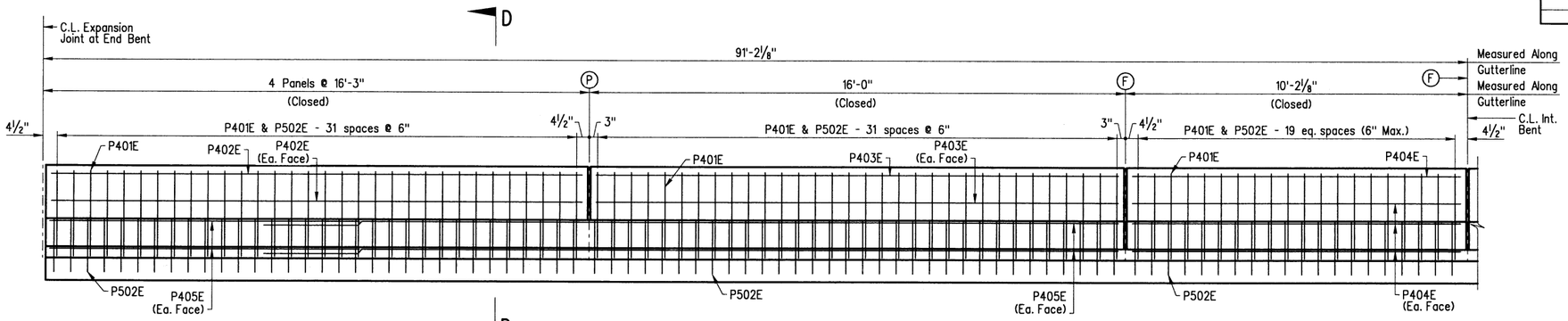
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 6/5/14
CHECKED BY: CJC DATE: 11/30/15
DESIGNED BY: CJC DATE: 11/26/14
BRIDGE NO. 07390
FILENAME: bca1002x1_sx9.dgn
SCALE: As Noted
DRAWING NO. 58675

JACOBS

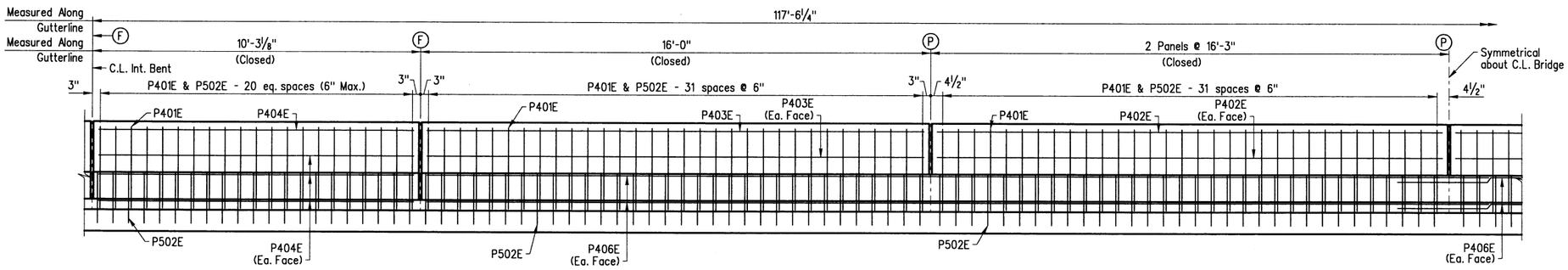
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA1002	123	319
				(1) 07390	-	296' CONT. UNIT	-	58676



PART ELEVATION OF RIGHT PARAPET RAIL (STAGE 2)

Scale: ½" = 1'-0"



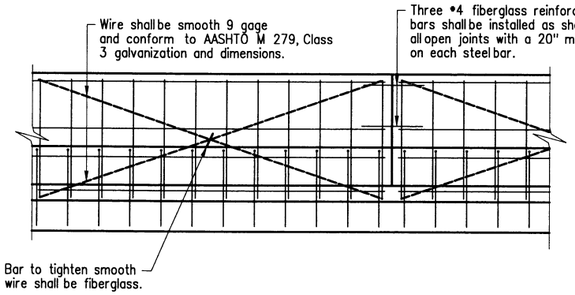
Ⓟ C.L. Partial Depth Parapet Joint (¼" to 1" max.). Stop 1'-2" from top of slab.

Ⓕ C.L. Full Depth Parapet Joint (¼" to 1" max.). Stop 4" from top of slab.

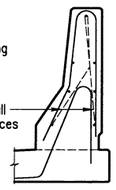
Minimum splice length for P405E & P406E bars = 2'-7".

PART ELEVATION OF RIGHT PARAPET RAIL (STAGE 2)

Scale: ½" = 1'-0"



All panels shall be braced as shown to prevent racking. All open 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.

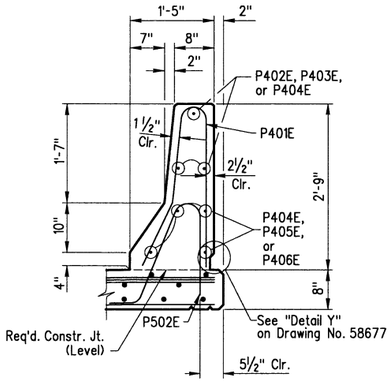


The extruded parapet shall conform to the horizontal and vertical lines shown on the plans or as directed by the Engineer and shall present a smooth, uniform appearance and texture. Exposed surfaces may be given a light brush finish or a Class 3 Textured Coating Finish in place of the Class 2 Rubbed Finish.

DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

(No Scale)

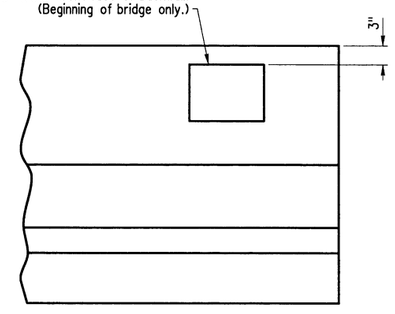
Note:
Right parapet rail is shown, left parapet rail is similar.



CLOSED PARAPET SECTION D-D

(No Scale)

Place Type D Bridge Name Plate on right parapet rail approximately 2'-0" from front face of backwall. (Beginning of bridge only.)



NAME PLATE DETAIL

No Scale

SHEET 10 OF 13
DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT BRIDGE OVER DITCH 81
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

STATE OF ARKANSAS — REGISTERED PROFESSIONAL ENGINEER — No. 11328 — CHRISTOPHER J. CRISWELL — 9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

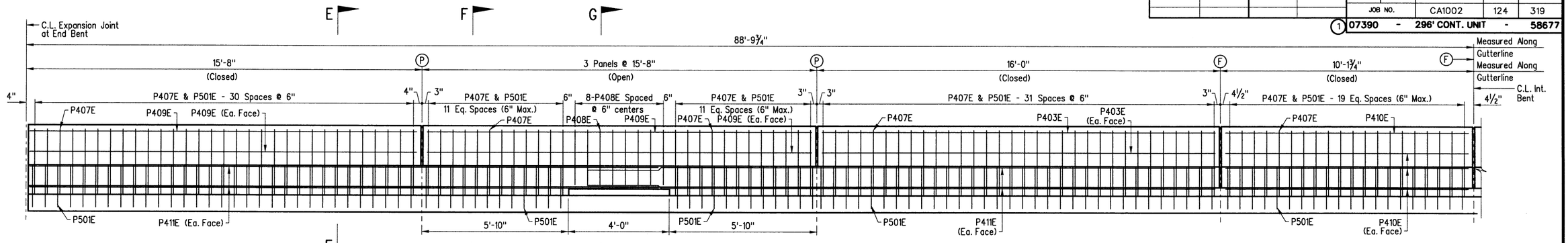
DRAWN BY: LHG DATE: 11/21/14
CHECKED BY: CJC DATE: 5/27/15
DESIGNED BY: CJC DATE: 11/17/14
BRIDGE NO. 07390

FILENAME: bca1002x1_sxa.dgn
SCALE: As Noted
DRAWING NO. 58676

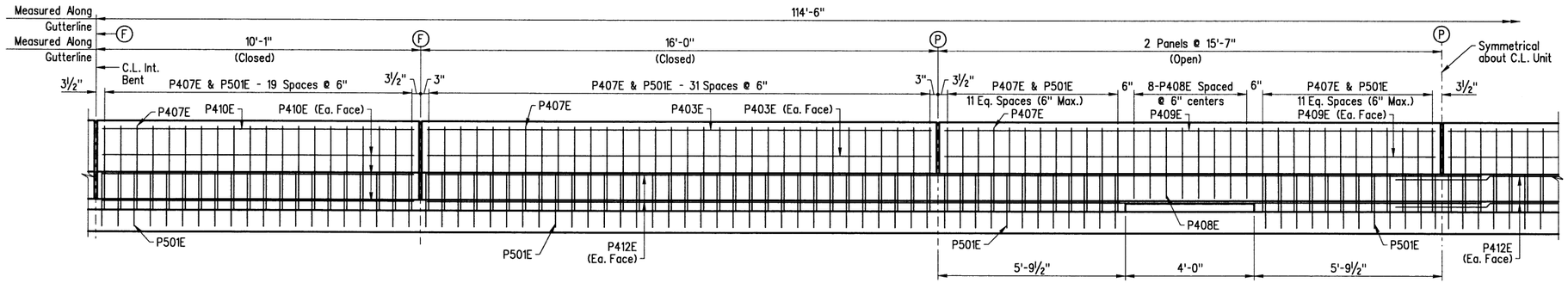
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA1002	124	319
				(1) 07390	-	296' CONT. UNIT	-	58677



PART ELEVATION OF LEFT PARAPET RAIL (STAGE 3)
No Scale

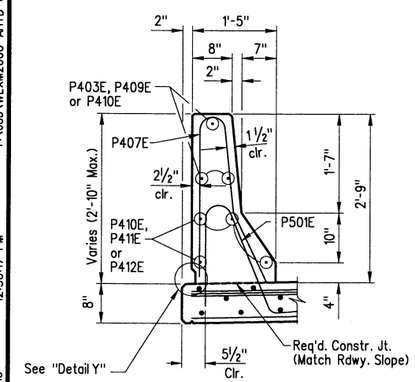


PART ELEVATION OF LEFT PARAPET RAIL (STAGE 3)
No Scale

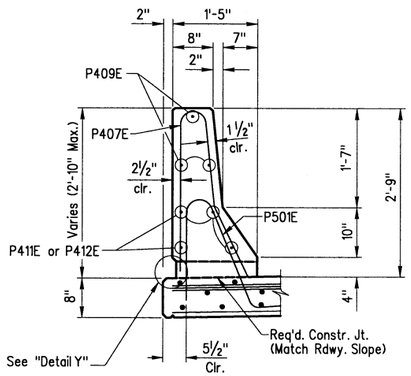
Ⓟ C.L. Partial Depth Parapet Joint (¼" to 1" max.). Stop 1'-2" from top of slab.

Ⓕ C.L. Full Depth Parapet Joint (¼" to 1" max.). Stop 4" from top of slab.

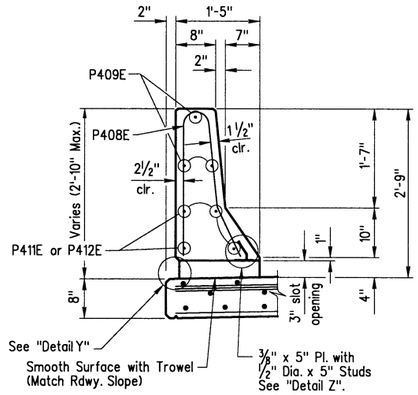
Minimum splice length for P411E & P412E bars - 2'-7".



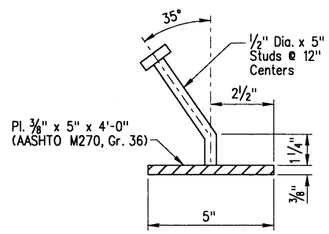
CLOSED PARAPET SECTION E-E
No Scale



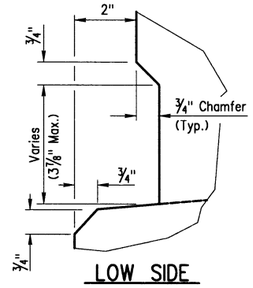
OPEN PARAPET @ END POST SECTION F-F
No Scale



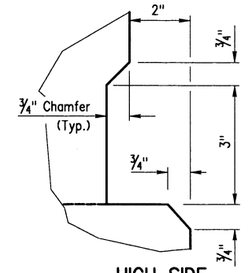
OPEN PARAPET @ DRAIN SECTION G-G
No Scale



DETAIL Z
No Scale



LOW SIDE



HIGH SIDE

DETAIL Y
No Scale

Note:
Parapet studs shall be 5" long, granular flux filled, solid fluxed, or equal, and automatically end welded to the plate. Studs and plates shall meet the requirements of Section 807. Studs and plate shall be measured and paid for as "Structural Steel in Plate Girder Spans (M270, Gr. 50W)".

The surfaces of the ⅜" plates which will not be in contact with concrete shall be painted in accordance with Section 638 or as approved by the Engineer. Only one coat is required and shall be applied in the fabricator's shop. Painting will not be paid for directly, but will be considered subsidiary to "Structural Steel in Plate Girder Spans (M270, Gr. 50W)."

STATE OF ARKANSAS — REGISTERED PROFESSIONAL ENGINEER — CHRISTOPHER J. CRISWELL — No. 11328 — 9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 11 OF 13
DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT
BRIDGE OVER DITCH 81
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHC DATE: 11/20/14
CHECKED BY: CJC DATE: 5/27/15
DESIGNED BY: CJC DATE: 11/17/14
BRIDGE NO. 07390
FILENAME: bca1002x1_sxb.dgn
SCALE: As Noted
DRAWING NO. 58677

JACOBS

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				JOB NO.		CA1002	125	319
				(1) 07390	-	296' CONT. UNIT	-	58678

SILICONE JOINT DATA

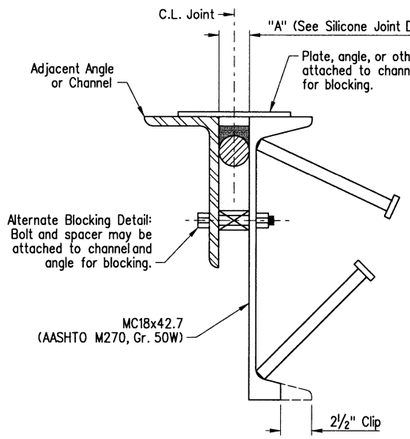
"A" width perpendicular to joint at 24 hour average temperature of:			"B" perpendicular to joint at 60°F	"D"	Bumper Plate Size
40°F	60°F	80°F	2½" ±	5"	1" x 1"
2¼"	2"	1¾"			

Note:
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.

The installation 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.

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. Unless otherwise 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.

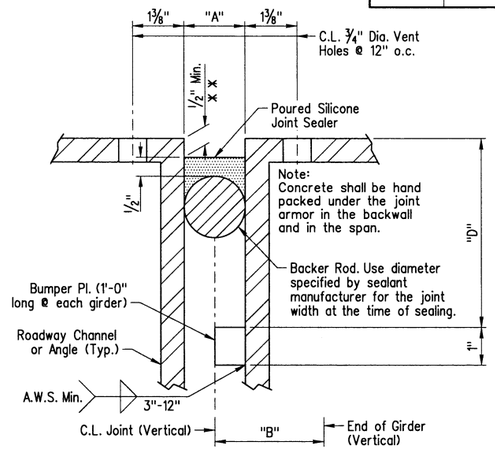
Backer rods shall be extended beyond the length of poured joint in Stage 2 so that the two pieces can be properly spliced together prior to installing sealant for Stage 3. Manufacturer's recommendations shall be followed to prevent sealant from "running out of joint" during stage construction.



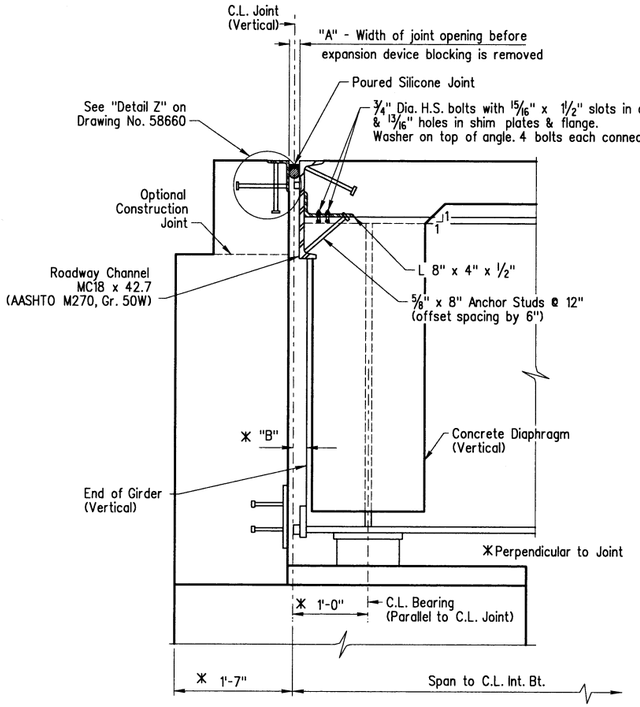
Note:
Each expansion joint device shall be blocked in the Shop by the Fabricator to the dimension "A" shown for 60° F and the blocking details shall be shown on the shop drawings. Blocking shall be placed within 2 feet of each end of the device and with a maximum spacing of 8 feet.

DETAILS FOR BLOCKING EXPANSION JOINT DEVICE
Scale: 3" = 1'-0"

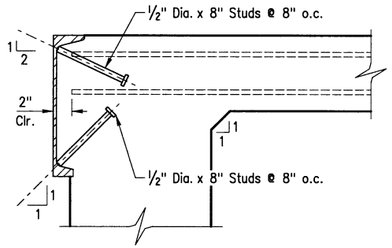
** Recess depth as recommended by the sealant manufacturer.



DETAIL OF POURED SILICONE JOINT
Scale: 6" = 1'-0"

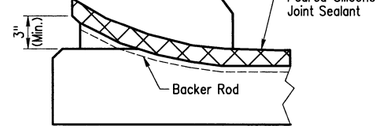


SECTION THROUGH JOINT AT END BENT
No Scale



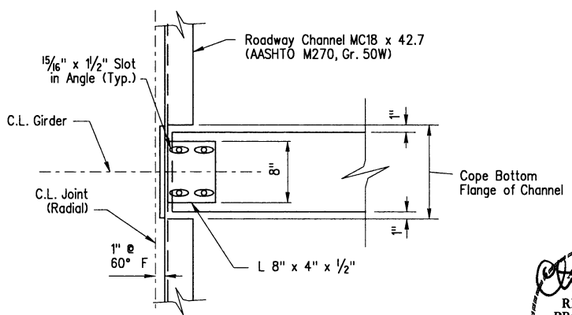
DETAIL OF ALTERNATE ANCHORS
No Scale

Note:
As an alternate to ⅝" Dia. studs, ½" Dia. x 8" studs spaced as shown may be used with 4" offset of rows. Use weight of ⅝" Dia. stud as basis of measurement of structural steel in anchors.



JOINT SEAL PLACEMENT AT PARAPET
(No Scale)

Note: Details of joint turn-up in parapet are general and show basic design controls only. Method of installation and fabrication shall be determined by the manufacturer. See Section 809 of the Standard Specifications.



CHANNEL CONNECTION DETAIL
No Scale

EXPANSION DEVICE INSTALLATION AT END BENTS

The Contractor may elect to install the expansion device 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 girders 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, and the opening adjusted for temperature and grade.

2. The backwall shall be poured to the optional construction joint after girders 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 and grade. Backfill shall not be placed behind the backwall until the deck concrete on the adjacent span has been poured.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISTELLI
9/12/16
BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 12 OF 13
DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT
BRIDGE OVER DITCH 81
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 1/19/15
CHECKED BY: CJC DATE: 5/21/15
DESIGNED BY: CJC DATE: 1/14/15
FILENAME: bca1002x1_sxc.dgn
SCALE: As Noted
BRIDGE NO. 07390
DRAWING NO. 58678

JACOBS

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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.		CA1002	126	319
				(1) 07390	-	296' CONT. UNIT	-	58679

SUPERSTRUCTURE GENERAL NOTES:

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

DESIGN SPECIFICATIONS:
AASHTO LRFD Bridge Design Specifications, Sixth Edition (2012), with 2013 interim revisions.

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Reinforcing Steel (AASHTO M31 or M322 Type A, 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

CONCRETE:
All concrete shall be Class S(AE) with a minimum 28 day compressive strength of f'c = 4,000 psi. Concrete shall be poured in the dry and all exposed corners are to be chamfered $\frac{3}{4}$" unless noted otherwise.

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. 55005 for allowable modifications and for tolerances when Permanent Steel Bridge Deck Forms are used.

Concrete in bridge superstructure shall be placed and consolidated for the entire pour and screeded off before any concrete has taken its initial set. This may require the use of a retarding agent.

The concrete bridge deck shall be given a tine finish in accordance with Subsection 802.19 for a Class 5 Tined Bridge Roadway Surface Finish. Movement of the finishing machine across the 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 girder. Use of a longitudinal screed is prohibited.

For each stage of construction, a minimum of 72 hours shall elapse between completion of slab and pouring of the parapet railing. Any railing pours made before the entire deck has been placed must be approved by the Engineer.

REINFORCING STEEL:
All reinforcing steel shall conform to AASHTO M31 or M322 Type A, Grade 60 with mill test reports. The reinforcing steel shall be accurately located in the forms and firmly held in place by steel wire supports sufficient in size and number 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 of "Epoxy Coated Reinforcing Steel (Grade 60)".

BEARINGS:
Bearings shall be firmly seated in accordance with Subsection 808.08. This work and material is to be considered subsidiary to the item "Elastomeric Bearings" and will not be paid for directly.

Anchor bolts shall be AASHTO designation M314 Gr. 55 including supplemental requirement S1, and shall be galvanized to conform to AASHTO M232, Class C or ASTM B695 Class 50. Anchor bolts will be paid for at the contract unit price bid for "Structural Steel in Plate Girder Spans (M270, Gr. 50W)".

See Drawing No. 58680 for cleaning requirements of external load plates on elastomeric bearings.

STRUCTURAL STEEL:
All structural steel shall be AASHTO M270, Gr. 50W unless otherwise noted and shall be paid for as "Structural Steel in Plate Girder Spans (M270, Gr. 50W)" unless otherwise noted. All surfaces shall be cleaned in accordance with Subsection 807.84(e) unless otherwise noted. Structural steel completely embedded in concrete may be AASHTO M270, 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. Steel of equal or greater strengths will be accepted only when shown on the approved shop drawings. Shapes and materials shown in the plans will be the basis of payment and no additional compensation will be made for any adjustments due to substitutions.

All plate girder webs and flanges, K-Frames and connection plates, 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 Plate Girder Spans (M270, Gr. 50W)".

Steel plates for main load carrying members (flange and web plates) and 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.

Girder webs may be made by shop splicing with a minimum length of 25'-0" for sections. Flange plates longer than 50'-0" may be made by shop splicing with a minimum length of 25'-0" for sections. Material specifications and location of shop-welded splices, if any, shall be shown on the shop drawings. No additional payment will be made for these splices.

Groove welds in main plate girder members shall be Quality Control (Q.C.) tested by nondestructive testing, as required by the Standard Specifications. Fillet welds at flange to web connections shall be Q.C. tested by the magnetic particle method. All Q.C. testing is at the Contractor's expense.

All connection plates shall be fabricated normal to the top flange and on the side of the girder web as indicated on the framing plan. All bearing stiffeners shall be fabricated to be plumb in their final conditions.

All girders shall be blocked in their true position in the shop with the 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 girders in their true position and this information shall become a part of the permanent records of this job. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram. All girder dimensions are based on a temperature of 60° F. A tolerance of +/- $\frac{1}{4}$" is allowed for camber.

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.

SUPERSTRUCTURE GENERAL NOTES (Cont.):

High strength bolts for field splices shall be $\frac{7}{8}$" in diameter unless noted otherwise. Open holes shall be $\frac{15}{16}$" in diameter unless noted otherwise. Bolt spacing shall be 3" for $\frac{7}{8}$" diameter bolts unless noted otherwise. Bolts shall be placed with heads on the outside face of the exterior girder web and on the bottom of the girder flanges. All bolts shall be installed and tightened in accordance with Subsection 807.71 prior to pouring the concrete deck.

All contact surfaces between plates at field splices shall be free of oil, rust or scale before assembly, and shall meet Class B faying surface requirements.

K-Frames shall be installed as girders are erected. High strength bolts for K-Frames shall be $\frac{7}{8}$" in diameter, and holes shall be $\frac{15}{16}$" in diameter unless noted otherwise. Bolt spacing shall be 3" for $\frac{7}{8}$" diameter bolts unless noted otherwise. All bolts shall be installed and tightened in accordance with Subsection 807.71 prior to pouring the deck unless noted otherwise. See Drawing No. 58670 for details of Special K-Frames between girders erected in different stages of construction.

All stud shear connectors shall be granular flux filled, solid fluxed, or equal and shall be automatically end welded in accordance with the recommendations of the manufacturer.

ERECTION OF STRUCTURAL STEEL:
The erection of the structural steel shall be performed according to a plan permitting the steel to be erected plumb with bolts tightened while the steel is as close as possible to the no-load condition, so that the bolt holes can be aligned. This requirement may necessitate the use of large capacity cranes, temporary shoring or jacking frames.

The Contractor shall submit to the Engineer for informational and record purposes details of falsework construction in accordance with Subsection 807.64.

The Contractor shall ensure that girders are stable throughout the erection process. The Contractor will be responsible for providing temporary bracing or stiffening devices to accommodate handling stresses in individual members or segments of the structure during erection.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

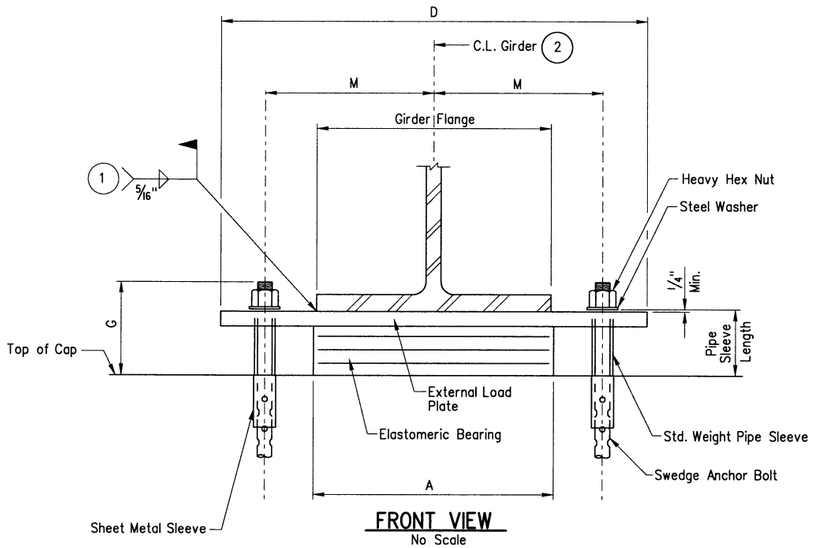
SHEET 13 OF 13
DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT
BRIDGE OVER DITCH 81
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	LHG	DATE:	6/5/14	FILENAME:	bca1002x1_sxd.dgn
CHECKED BY:	CJC	DATE:	9/9/15		
DESIGNED BY:	CJC	DATE:	11/16/14	SCALE:	As Noted
BRIDGE NO. 07390			DRAWING NO. 58679		

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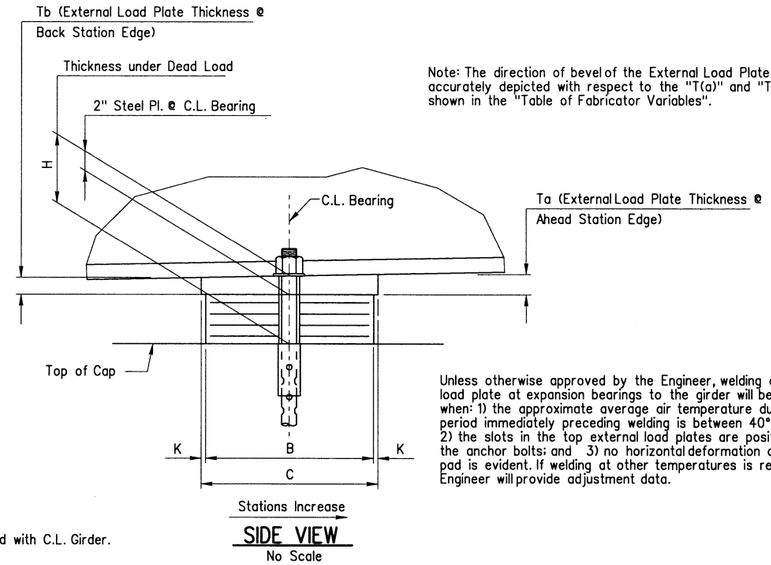
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				6	ARK.			
				JOB NO.		CA1002	127	319
				(1) 07390 - BEARING DETAILS - 58680				



FRONT VIEW
No Scale

(1) Care shall be taken to ensure that the external load plate is in full and complete contact with the girder flange before welding begins.

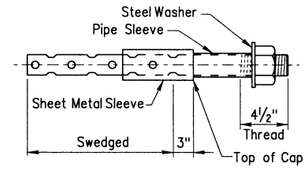
(2) C.L. Elastomeric pad shall be aligned with C.L. Girder.



SIDE VIEW
No Scale

Note: The direction of bevel of the External Load Plate may not be accurately depicted with respect to the "T(a)" and "T(b)" values shown in the "Table of Fabricator Variables".

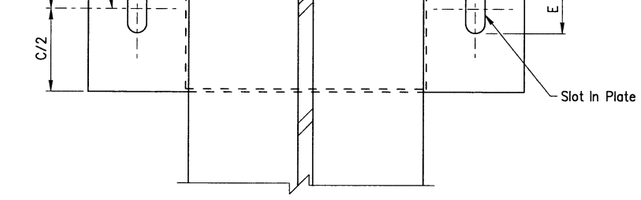
Unless otherwise approved by the Engineer, welding of the top external load plate at expansion bearings to the girder will be allowed only when: 1) the approximate average air temperature during the 24 hour period immediately preceding welding is between 40°F and 80°F; and 2) the slots in the top external load plates 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.



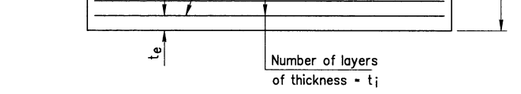
ANCHOR BOLT DETAIL
(No Scale)

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 Plate Girder Spans, (M 270, Gr. 50W).



PLAN VIEW
No Scale



ti = thickness of elastomer between steel laminae
te = thickness of elastomer cover on top and bottom of pad
N = number of elastomer layers of thickness ti

ELASTOMERIC BEARING
No Scale

TABLE OF FABRICATOR VARIABLES

BRIDGE NO.	LOCATION			BEARING TYPE	NO. OF BRGS. EACH BENT	*MAXIMUM DESIGN LOAD (KIPS)	ELASTOMERIC PAD							EXTERNAL LOAD PLATE								ANCHOR BOLT				
	BENT NO(S).	UNIT	GIRDER NO.				G	H	A	B	N	t_i	t_e	NO. & THICKNESS OF STEEL LAMINAE	T	C	D	E	F	K	M	T_a	T_b	ANCHOR BOLT (Dia. x L)	ANCHOR BOLT GRADE	PIPE SLEEVE SIZE (Dia. x L)	SHEET METAL SLEEVE SIZE (Dia. x L)	STEEL WASHER SIZE (O.D.)
07390	1 & 4	296'	All	Exp.	9	133	8 3/4"	4 15/16"	1'-2"	10"	4	1/2"	1/4"	5 @ 12 ga.	3"	11"	2'-3 1/2"	5 3/4"	3 3/4"	1/2"	10 1/4"	2"	2"	2 1/2" x 3'-2"	55	3" x 5 1/4"	4" x 12"	4 1/2"

* Maximum Load = Service I Limit State

GENERAL NOTES

Elastomeric Bearings shall conform to Section 808 of the Standard Specifications and shall be paid for at the unit price bid for "Elastomeric Bearings."

External load plates and shear blocks shall conform to AASHTO M 270, Grade 50W and will not be paid for separately, but will be included in the unit price bid for "Elastomeric Bearings". Pipe sleeves shall be ASTM A500, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or ASTM B695, Class 50.

External load plates shall be completely fabricated (including bevel, bolt holes and all shop welding) and shall be cleaned before vulcanized 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 of the Standard Specifications. 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 Plate Girder Spans (M270, Gr. 50W)".

Bearings shall be seated in accordance with Subsection 808.08. Work and materials shall be considered subsidiary to the item "Elastomeric Bearings" and will not be paid for directly.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

DETAILS OF ELASTOMERIC EXPANSION BEARINGS
BRIDGE OVER DITCH 81
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

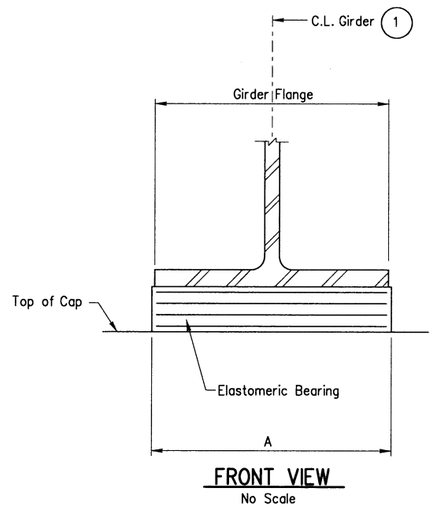
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CHECKED BY: CJC DATE: 5/18/15
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SCALE: As Noted
DRAWING NO. 58680

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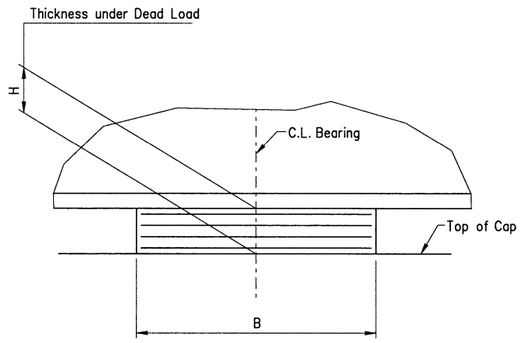
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				6	ARK.			
				JOB NO.		CA1002	128	319

(1) 07390 - BEARING DETAILS - 58681



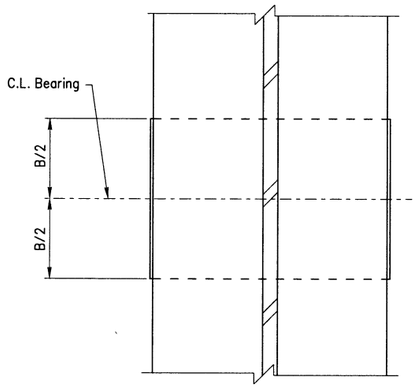
FRONT VIEW
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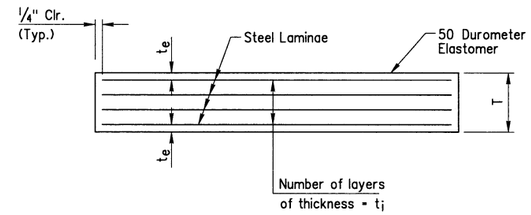
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SIDE VIEW
No Scale

(1) C.L. Elastomeric pad shall be aligned with C.L. Girder.



PLAN VIEW
No Scale



t_i = thickness of elastomer between steel laminae
t_e = thickness of elastomer cover on top and bottom of pad
N = number of elastomer layers of thickness t_i

ELASTOMERIC BEARING
No Scale

TABLE OF FABRICATOR VARIABLES

BRIDGE NO.	LOCATION			NO. OF BRGS. EACH BENT	*MAXIMUM DESIGN LOAD (KIPS)	H	ELASTOMERIC PAD						
	BENT NO(S).	UNIT	GIRDER NO.				A	B	N	t_i	t_e	NO. & THICKNESS OF STEEL LAMINAE	T
07390	2 & 3	296'	All	9	150	2⅜"	1'-5"	10"	3	½"	¼"	4 @ 12 ga.	2⅜"

* Maximum Load = Service I Limit State

GENERAL NOTES

Elastomeric Bearings shall conform to Section 808 of the Standard Specifications and shall be paid for at the unit price bid for "Elastomeric Bearings."

Bearings shall be seated on level, uniform surfaces in accordance with Subsection 808.08. Any misalignment in the support shall be corrected to form a level surface. Work and materials shall be considered subsidiary to the item "Elastomeric Bearings" and will not be paid for directly.

The neoprene pads shall be bonded to the bearing seat with an epoxy adhesive in accordance with the bearing manufacturer's recommendations for bonding neoprene to concrete to prevent sliding.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

DETAILS OF ELASTOMERIC BEARINGS AT INTEGRAL INTERMEDIATE BENTS BRIDGE OVER DITCH 81

MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 6/5/14
CHECKED BY: CJC DATE: 5/18/15
DESIGNED BY: CMF DATE: 2/18/15
BRIDGE NO. 07390

FILENAME: bca1002x1_ex2.dgn
SCALE: As Noted
DRAWING NO. 58681

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				6	ARK.			
				JOB NO.		CA1002	129	319

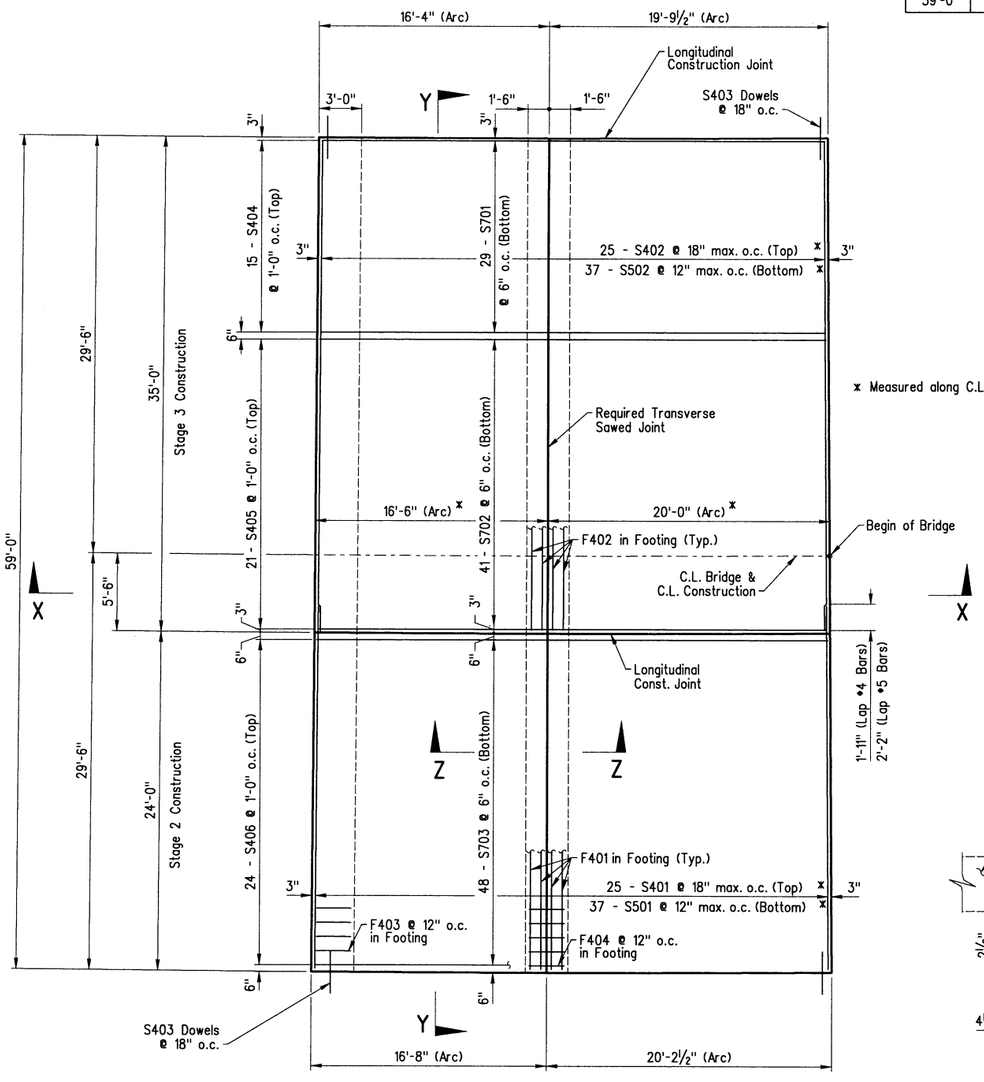
(1) 07390-TYPE SPEC. 1 APPROACH SLAB-58682

QUANTITIES FOR ONE TYPE SPECIAL APPROACH SLAB

Slab Width	Reinforcing Steel (lbs.)	Concrete (cubic yards)
59'-0"	14,629	120.46

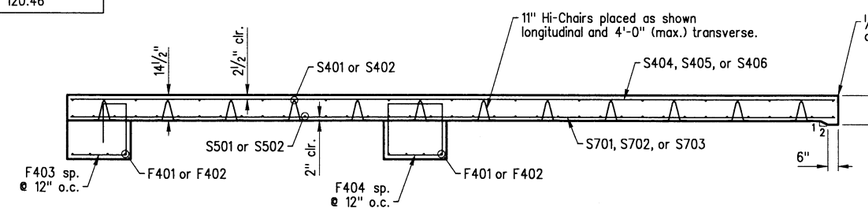
Notes:
Construct Approach Slab, including longitudinal reinforcing, on concentric arcs to C.L. Construction.

All transverse reinforcing steel shall be placed on radial lines. Spacing is measured along C.L. Construction



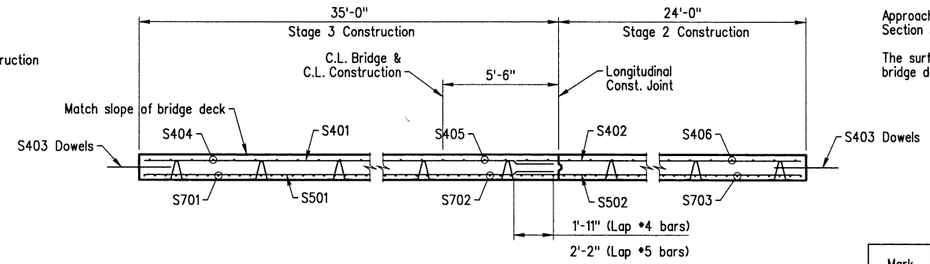
PLAN OF APPROACH SLAB

Scale: 3/16" = 1'-0"
(Begin Bridge shown, End Bridge opposite hand.)



SECTION X-X

No Scale



SECTION Y-Y

No Scale

GENERAL NOTES

All Concrete shall be Class S(AE) with a minimum 28 day compressive strength f'c = 4,000 psi and shall be poured in the dry.

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

Approach Slabs will be measured and paid for in accordance with Section 504 of the Standard Specifications.

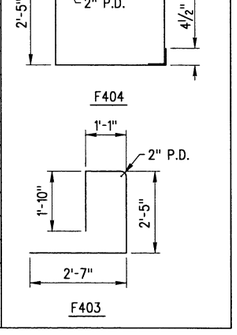
The surface finish for Approach Slabs shall match that used on the bridge deck.

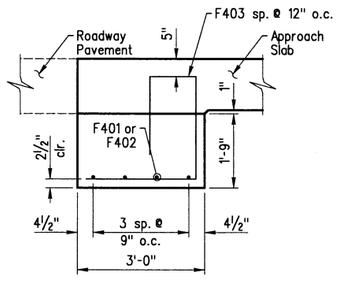
BAR LIST

Mark	No. Req'd.	Length
S401	25	25'-11"
S402	25	34'-8"
S403	50	3'-0"
S404	15	35'-9"
S405	21	36'-0"
S406	24	36'-3"
S501	37	26'-2"
S502	37	34'-8"
S701	29	35'-9"
S702	41	36'-0"
S703	48	36'-3"
F401	8	25'-11"
F402	8	34'-6"
F403	59	7'-8"
F404	59	10'-4"

Bending Diagrams

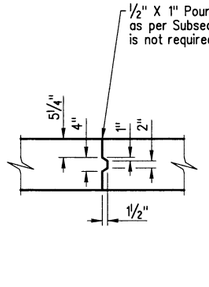
Dimensions are out to out of bars.





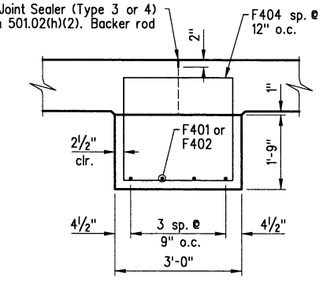
DETAILS OF SUPPORT AT EXPANSION JOINT

No Scale



DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

No Scale



SECTION Z-Z

No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15927
CHARLES G. WISE
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

DETAILS OF TYPE SPECIAL 1 APPROACH SLAB BRIDGE OVER DITCH 81

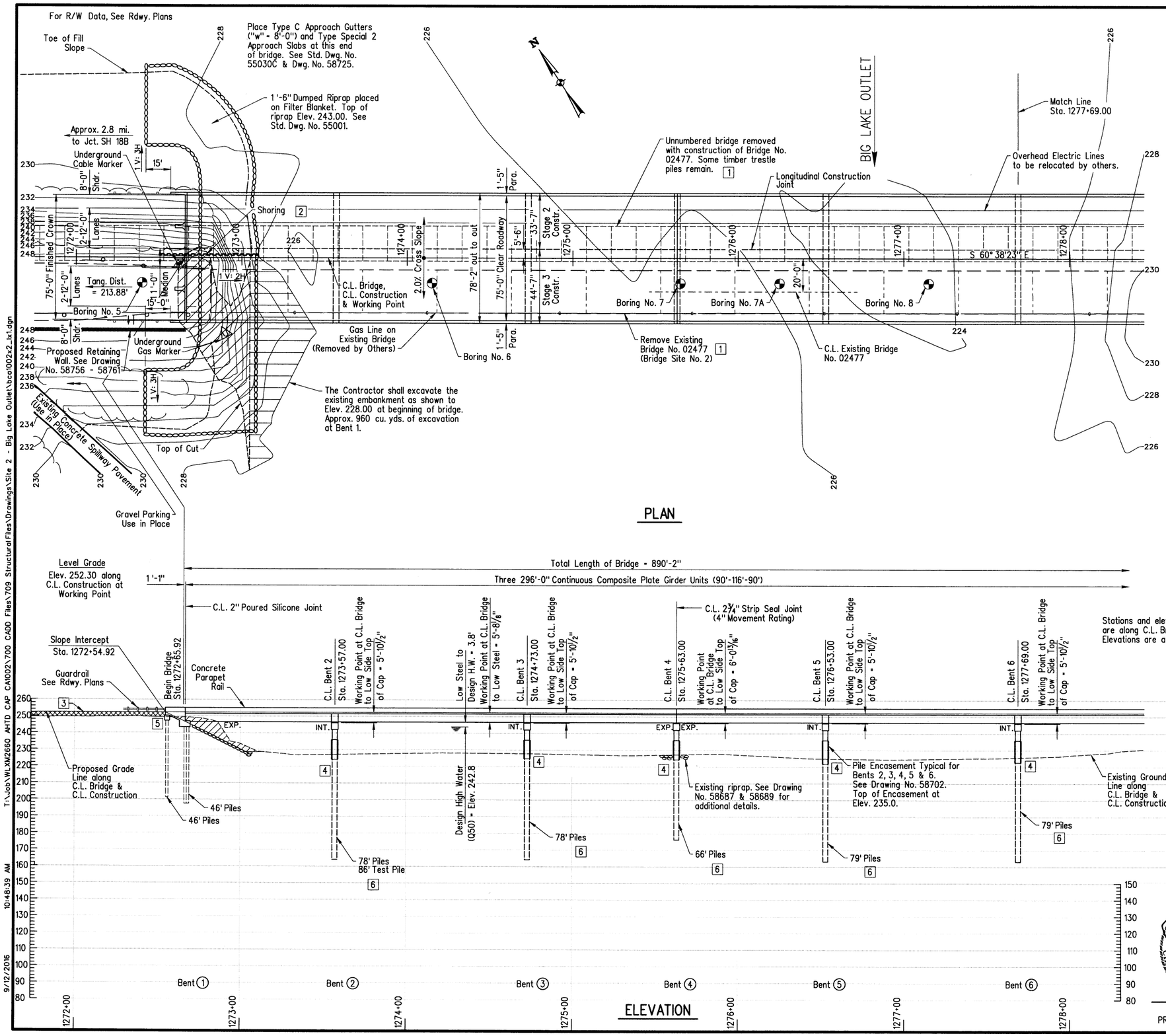
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 7/30/14
CHECKED BY: CGW DATE: 11/10/15
DESIGNED BY: CGW DATE: 12/15/14
BRIDGE NO. 07390
FILENAME: bca1002x1_as1.dgn
SCALE: As Noted
DRAWING NO. 58682

JACOBS

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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.		CA1002	130	319
				(1) 07391	-	LAYOUT	-	58683



For General Notes, Boring Legend and Boring Blow Counts, see Dwg. No. 58685, 58686 & 58687.

1 The new bridge is positioned to avoid interference with piling of the previous and existing bridges. The Contractor shall verify the location of existing substructure and piles before driving new piles. Any pile removal or other adjustments to fit the new bridge to existing conditions shall be submitted to the Engineer for approval. Remnants of existing piles from previous bridges shall be removed in accordance with Section 205.

2 Shoring will be required during Stage 2 Construction. See SP Job CA1002 "Shoring", SP Job CA1002 "Geosynthetic Internal Reinforced Embankment Construction", and Roadway Plans.

3 See Roadway Plans for Special Details of reinforced embankment construction near bridge ends.

4 See Drawing No. 58689 for Details of Soil Densification at Bents 2, 3, 4, 5, 6 & 10.

5 Embankment material placed next to end bent stub walls shall meet the requirements of SP Job CA1002 "Cohesive Soil Backfill for Abutment Walls". See Roadway Plans for Special Details.

6 See SP Job CA1002 "Steel Shell Piling (36 Inch Diameter)".

Stations and elevations shown are along C.L. Bridge and C.L. Construction. Elevations are at Working Point.

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	8 TOTAL DISCHARGE	DISCHARGE THROUGH BRIDGE OPENING	7 NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	CFS	FEET	FEET
Design	50	51,110	23,970	242.24	242.72
Base	100	59,090	27,590	243.14	243.72
Extreme	500	69,050	32,010	244.23	244.89
Overtopping	>500	-	-	-	-

7 Unconstricted water surface without existing or proposed structures or roadway approaches.

8 Includes Big Lake Outlet Bridge (Br. No. 07391) and structures at Ditch 81 and Big Lake Floodway Relief.

Q100 backwater elevation for existing structure = 243.81 ft.
Proposed Low Bridge Chord elevation = 246.60 ft.
Drainage area = 2084 square miles
Historical H.W. Elev. = 244.6 ft. (1937)

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11528 CHRISTOPHER J. CRISWELL 9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 1 OF 5
LAYOUT OF
BRIDGE OVER BIG LAKE OUTLET
MANILA - EAST (WIDENING) (S)
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

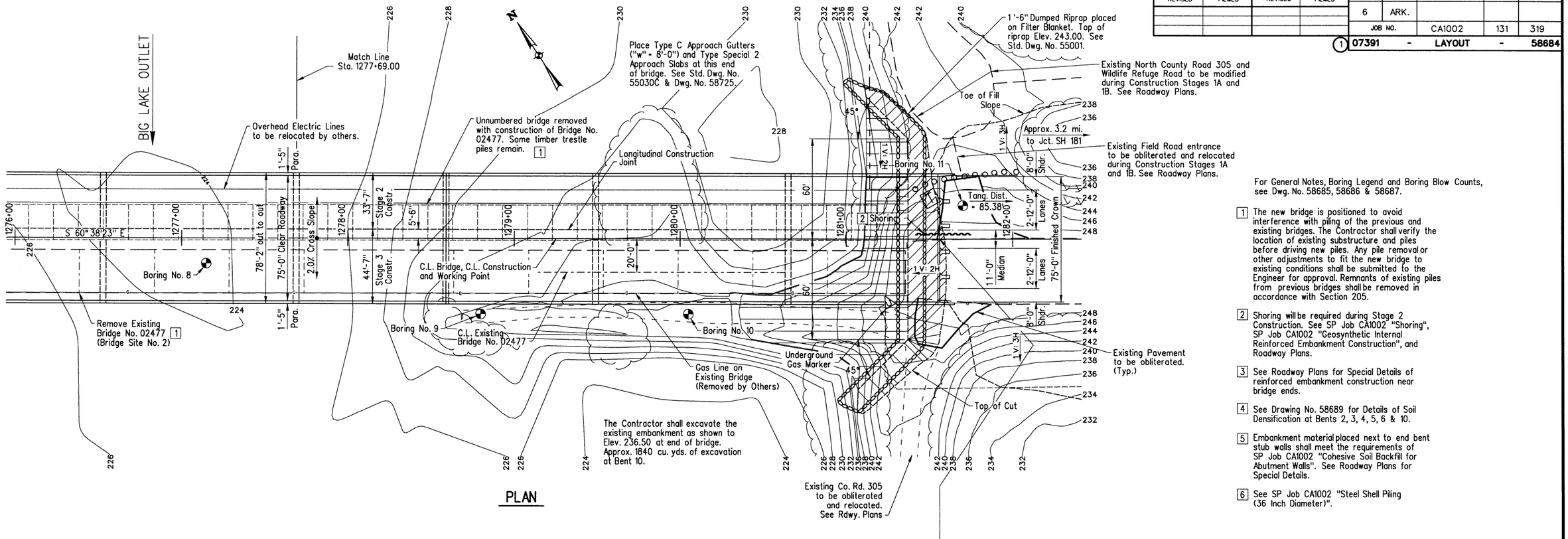
DRAWN BY: LHG DATE: 1/14/14
CHECKED BY: MAA DATE: 1/23/14
DESIGNED BY: CJC DATE: 1/10/14
FILENAME: bca1002x2_lx1.dgn
SCALE: 1" = 30'
BRIDGE NO. 07391
DRAWING NO. 58683

JACOBS

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For R/W Data, See Rdwy. Plans

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.		CA1002	131	319
				(1) 07391	-	LAYOUT	-	58684



PLAN

For General Notes, Boring Legend and Boring Blow Counts, see Dwg. No. 58685, 58686 & 58687.

1 The new bridge is positioned to avoid interference with piling of the previous and existing bridges. The Contractor shall verify the location of existing substructure and piles before driving new piles. Any pile removal or other adjustments to fit the new bridge to existing conditions shall be submitted to the Engineer for approval. Remnants of existing piles from previous bridges shall be removed in accordance with Section 205.

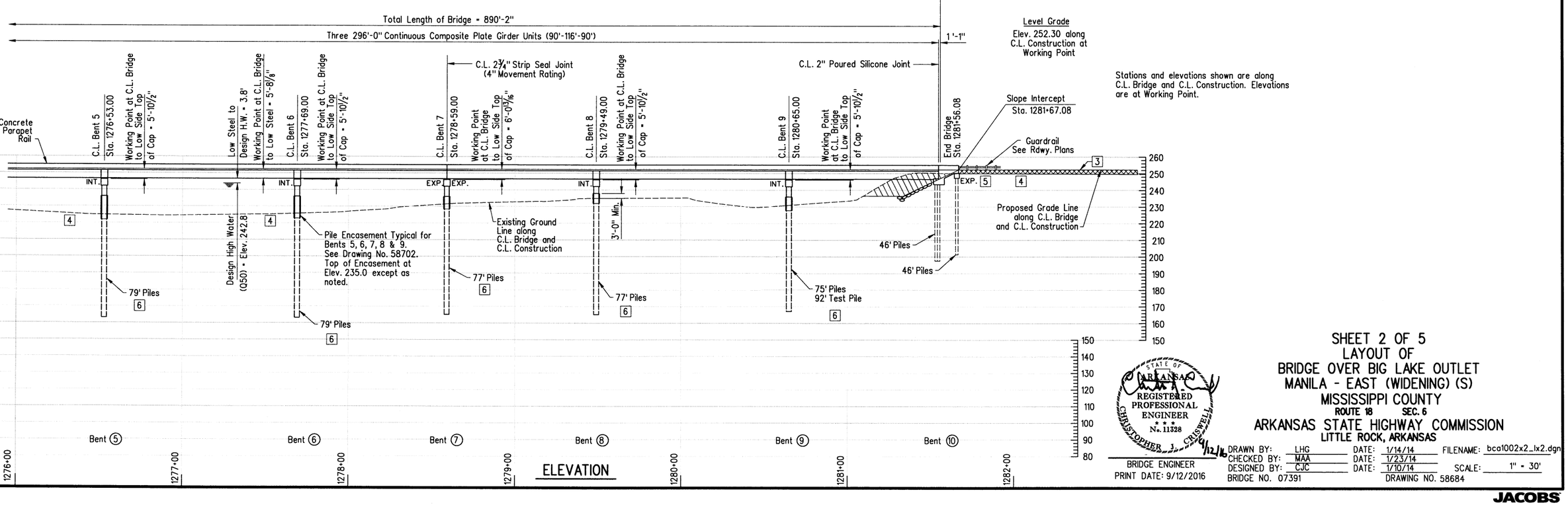
2 Shoring will be required during Stage 2 Construction. See SP Job CA1002 "Shoring", SP Job CA1002 "Geosynthetic Internal Reinforced Embankment Construction", and Roadway Plans.

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6 See SP Job CA1002 "Steel Shell Piling (36 Inch Diameter)".



ELEVATION

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
4/12/16
BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 2 OF 5
LAYOUT OF
BRIDGE OVER BIG LAKE OUTLET
MANILA - EAST (WIDENING) (S)
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 1/14/14
CHECKED BY: MAA DATE: 1/23/14
DESIGNED BY: CJC DATE: 1/10/14
FILENAME: bca1002x2_lx2.dgn
SCALE: 1" = 30'
BRIDGE NO. 07391
DRAWING NO. 58684

JACOBS

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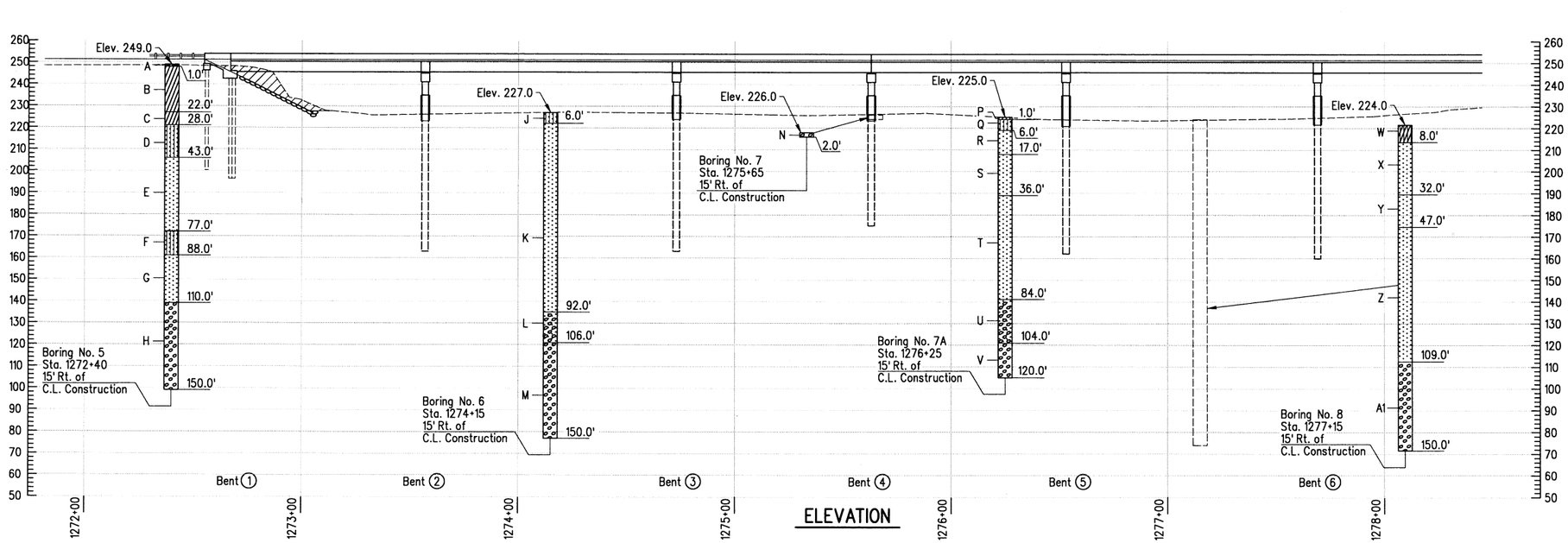
"N" VALUES

Boring No. 5 Sta. 1272+40 15' Right of C.L. Constr.	Boring No. 6 Sta. 1274+15 15' Right of C.L. Constr.	Boring No. 7 Sta. 1275+65 15' Right of C.L. Constr.	Boring No. 7A Sta. 1276+25 15' Right of C.L. Constr.	Boring No. 8 Sta. 1277+15 15' Right of C.L. Constr.
2.5-3.5, N-9	0.5-1.5, N-1	No Blow Count Provided	0.5-1.5, N-4	0.5-1.5, N-6
4.5-5.5, N-15	2.5-3.5, N-10		2.5-3.5, N-13	2.5-3.5, N-7
6.5-7.5, N-16	4.5-5.5, N-12		4.5-5.5, N-13	19.0-20.0, N-45
9.0-10.0, N-15	6.5-7.5, N-19		6.5-7.5, N-21	24.0-25.0, N-50 (11")
14.0-15.0, N-14	9.0-10.0, N-35		9.0-10.0, N-25	29.0-30.0, N-40
19.0-20.0, N-16	14.0-15.0, N-25		14.0-15.0, N-43	34.0-35.0, N-39
24.0-25.0, N-16	19.0-20.0, N-27		19.0-20.0, N-25	39.0-40.0, N-45
29.0-30.0, N-30	24.0-25.0, N-24		24.0-25.0, N-28	44.0-45.0, N-50 (10")
34.0-35.0, N-40	29.0-30.0, N-50 (9")		29.0-30.0, N-57	49.0-50.0, N-50 (9")
39.0-40.0, N-45	34.0-35.0, N-50 (10")		34.0-35.0, N-51	58.5-59.5, N-50 (8")
44.0-45.0, N-50 (9")	39.0-40.0, N-33		39.0-40.0, N-50 (8")	68.5-69.5, N-50 (7")
49.0-50.0, N-50	44.0-45.0, N-38		44.0-45.0, N-50 (10")	78.5-79.5, N-50 (8")
59.0-60.0, N-50 (10")	49.0-50.0, N-50 (10")		49.0-50.0, N-43	88.5-89.5, N-50 (7")
69.0-70.0, N-50	59.0-60.0, N-50 (9")		59.0-60.0, N-50 (10")	98.5-99.0, N-50 (6")
78.5-79.5, N-50 (10")	69.0-70.0, N-50 (9")		69.0-70.0, N-50 (10")	108.5-109.0, N-50 (6")
88.0-89.0, N-50 (10")	79.0-80.0, N-50 (10")		79.0-80.0, N-50 (9")	118.5-119.0, N-50 (4")
98.0-99.0, N-50 (9")	89.0-90.0, N-50 (7")		89.0-90.0, N-50 (5")	128.5-129.0, N-50 (2")
109.0-110.0, N-50 (8")	99.0-100.0, N-50 (4")		99.0-100.0, N-50 (3")	138.5-139.0, N-25 (0")
118.0-119.0, N-50 (11")	107.5-108.0, N-50 (1")		108.5-109.0, N-25 (0")	149.0-150.0, N-25 (0")
128.0-129.0, N-50 (8")	118.5-119.0, N-50 (1")		118.5-119.0, N-25 (0")	
138.0-139.0, N-50 (7")	128.5-129.0, N-25 (0")			
149.5-150.0, N-50 (6")	138.5-139.0, N-25 (0")			
	148.5-149.0, N-25 (0")			

BORING LEGEND

A - 3.75 inches: Asphalt Concrete, 8.25 inches: Portland Cement Concrete.
B - Firm brownish gray clay w/fine sand pockets, calcareous nodules and ferrous nodules and stains, stiff below 4 ft.
C - Stiff gray and tan clay.
D - Dense gray silty fine sand, with clay pockets below 38 ft.
E - Dense to very dense brownish gray fine to medium sand w/occasional organic inclusions and weathered fragments, clay layer at 69 ft.
F - Dense to very dense gray silty fine sand w/trace coarse sand.
G - Dense to very dense gray fine to medium sand, slightly silty w/trace fine gravel, with a little fine gravel below 98 ft.
H - Dense to very dense brown and gray medium to coarse sand w/fine to coarse gravel.
J - Very loose gray silty fine sand w/silty clay seams, loose to medium dense at 2 to 4 ft., medium dense with more silty clay seams below 4 ft.
K - Medium dense gray fine to medium sand w/silty clay seams and decayed organics, with trace fine gravel below 9 ft., dense to very dense at 28 to 38 ft., dense with lignite inclusions at 38 to 47 ft., dense to very dense with a little fine gravel below 48 ft.
L - Dense to very dense gray fine to coarse sand w/fine gravel.
M - Dense to very dense gray sandy fine gravel.
N - Riprap.
P - Very soft to soft gray clay w/decayed organics, wet.
Q - Medium dense gray silty fine sand w/clay pockets and decayed organics.
R - Medium dense gray and brown fine sand w/clayey fine sand seams, with organic seams at 7 to 9 ft., dense below 14 ft.
S - Medium dense gray and brown fine to medium sand, dense below 24 ft.
T - Dense to very dense gray fine to medium sand w/trace coarse sand and fine gravel, dense at 48 to 52 ft.
U - Dense to very dense gray and brown fine to medium sand w/some fine gravel.
V - Dense to very dense gray and brown sandy fine gravel.
W - Soft gray silty clay, wet, firm below 2 ft.
X - Gray fine to medium sand w/a little coarse sand and trace fine gravel, water at 10 ft., dense below 18.5 ft.
Y - Dense gray fine sand, dense to very dense below 42 ft.
Z - Dense to very dense fine to medium sand, with a little fine gravel.
A1 - Dense to very dense brown and gray sandy fine to coarse gravel.

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.		CA1002	132	319
				(1) 07391	-	LAYOUT	-	58685



ELEVATION

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
* * *
No. 11528
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 3 OF 5
LAYOUT OF
BRIDGE OVER BIG LAKE OUTLET
MANILA - EAST (WIDENING) (S)
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 1/14/14
CHECKED BY: MAA DATE: 1/23/14
DESIGNED BY: CJC DATE: 1/10/14
BRIDGE NO. 07391

FILENAME: bca1002x2_lx3.dgn
SCALE: 1" = 30'
DRAWING NO. 58685

JACOBS

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9/12/2016 10:48:42 AM

"N" VALUES

Boring No. 9
Sta. 1278+80
45' Right of C.L. Constr.

4.5-5.5, N=6
6.5-7.5, N=6
9.0-10.0, N=11
14.0-15.0, N=8
19.0-20.0, N=10
24.0-25.0, N=8
29.0-30.0, N=29
34.0-35.0, N=38
39.0-40.0, N=50 (10")
44.0-45.0, N=50 (10")
49.0-50.0, N=50 (10")
58.5-59.5, N=50 (11")
68.5-69.5, N=50 (9")
78.5-79.5, N=50 (9")
88.5-89.5, N=50 (10")
98.5-99.5, N=50 (8")
108.5-109.5, N=50 (8")
118.5-119.5, N=50 (8")
128.5-129.0, N=50 (4")
138.5-139.0, N=25 (0")
148.5-149.0, N=25 (0")

Boring No. 10
Sta. 1280+05
45' Right of C.L. Constr.

9.0-10.0, N=13
29.0-30.0, N=47
34.0-35.0, N=50 (8")
39.0-40.0, N=50 (10")
44.0-45.0, N=50 (9")
49.0-50.0, N=50 (10")
59.0-60.0, N=50 (9")
69.0-70.0, N=50 (8")
79.0-80.0, N=50 (8")
89.0-90.0, N=50 (9")
99.0-100.0, N=50 (10")
109.0-110.0, N=50 (10")
119.0-120.0, N=50 (7")
129.0-130.0, N=70 (6")
139.0-140.0, N=70 (3")
149.0-150.0, N=50 (2")

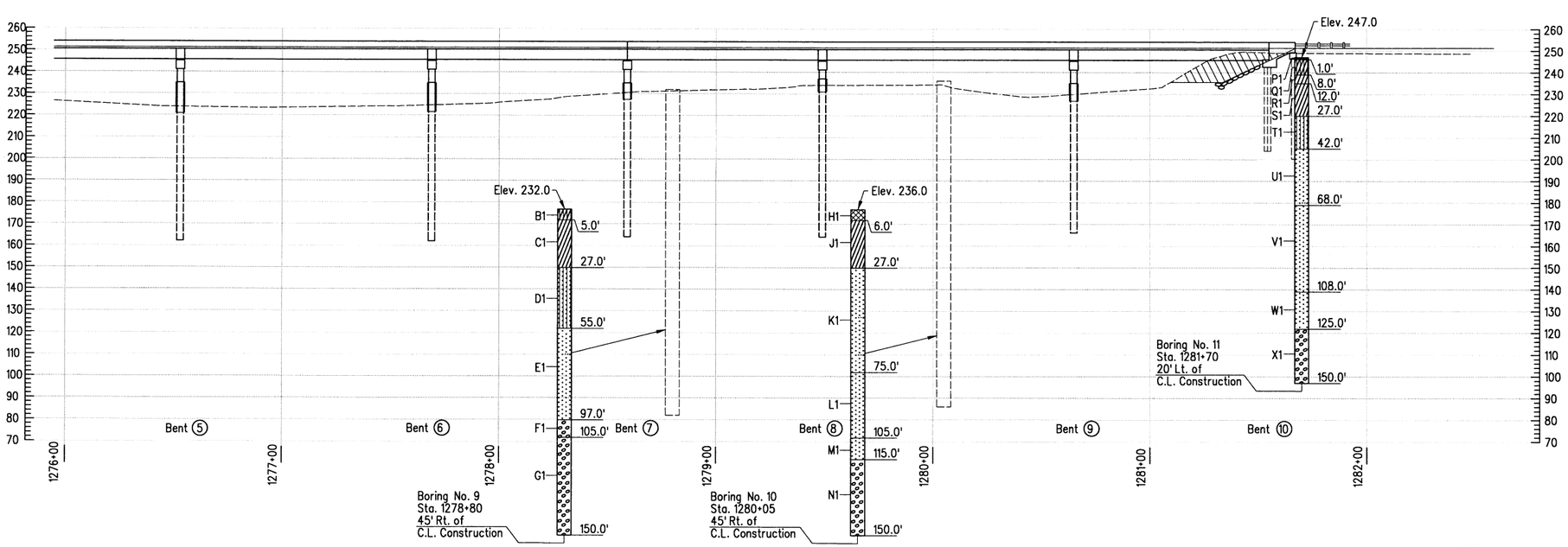
Boring No. 11
Sta. 1281+70
20' Left of C.L. Constr.

1.0-2.0, N=16
2.5-3.5, N=10
4.5-5.5, N=9
6.5-7.5, N=7
9.0-10.0, N=7
29.0-30.0, N=7
34.0-35.0, N=14
39.0-40.0, N=15
44.0-45.0, N=50 (9")
49.0-50.0, N=34
59.0-60.0, N=50 (9")
69.0-70.0, N=50
79.0-80.0, N=50 (10")
89.0-90.0, N=50 (8")
99.0-100.0, N=50 (9")
109.0-109.5, N=50 (5")
118.5-119.5, N=50 (7")
128.5-129.5, N=50 (7")
138.5-139.0, N=50 (6")
149.5-150.0, N=50 (6")

BORING LEGEND

B1 - Soft brown silty clay (fill), water at 4 ft.
C1 - Soft gray and tan clay, with ferrous concretions to 8 ft., firm to stiff below 8 ft.
D1 - Medium dense tan and brown silty fine sand, with silty clay pockets to 32 ft.
E1 - Dense to very dense gray fine to medium sand w/a little fine gravel, with coarse sand at 65 - 75 ft.
F1 - Dense to very dense gray and brown fine to coarse sand w/fine gravel.
G1 - Dense to very dense gray and brown sandy fine gravel.
H1 - Loose gray concrete debris w/silty clay pockets (fill).
J1 - Stiff gray and brown clay w/ferrous stains, water at 6 ft., slightly blocky below 12 ft.
K1 - Dense gray fine sand, slightly silty, dense to very dense below 32 ft.
L1 - Dense to very dense gray fine to coarse sand w/a little fine gravel.
M1 - Dense to very dense brown fine sand, slightly silty.
N1 - Dense to very dense gray fine to coarse sand w/some fine gravel.
P1 - 8 inches: Asphalt Concrete, 4 inches: Crushed Stone Base.
Q1 - Firm to stiff gray and brownish gray silty clay w/fine sand pockets and trace crushed limestone (fill), firm below 4 ft.
R1 - Firm brownish gray clay w/silt pockets and seams and organic stains (fill).
S1 - Stiff gray and tan clay, firm below 18 ft.
T1 - Loose brown silty fine sand, medium dense below 33 ft.
U1 - Dense brownish gray fine to medium sand, slightly silty, clean, with a little fine to coarse gravel below 55 ft.
V1 - Dense brownish gray fine to coarse sand, slightly silty w/a little fine to coarse gravel and occasional clay pockets and seams, clean, dense to very dense below 78 ft.
W1 - Dense to very dense brown fine to medium sand w/trace coarse sand.
X1 - Dense to very dense brown and tan fine to coarse sand w/fine to coarse gravel, clay layer at 139 ft.

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.		CA1002	133	319
				(1) 07391	-	LAYOUT	-	58686



ELEVATION

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 4 OF 5
LAYOUT OF
BRIDGE OVER BIG LAKE OUTLET
MANILA - EAST (WIDENING) (S)
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 1/14/14
CHECKED BY: MAA DATE: 1/23/14
DESIGNED BY: CJC DATE: 1/10/14
BRIDGE NO. 07391
FILENAME: bca1002x2_lx4.dgn
SCALE: 1" = 30'
DRAWING NO. 58686

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				6	ARK.			
				JOB NO.		CA1002	134	319
				(1)	07391	-	LAYOUT	- 58687

GENERAL NOTES

BENCH MARK: NGS PT B 185, 34.08' right of Sta. 1272+80.60, Elev. 250.25.

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Sixth Edition (2012), with 2013 interim revisions.
AASHTO Guide Specifications for LRFD Seismic Bridge Design, First Edition (2009).

LIVE LOADING: HL-93 SEISMIC DESIGN CATEGORY = D S_{D1} = 1.038 SITE CLASS: D

OPERATIONAL IMPORTANCE: Typical Bridge

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Class S Concrete (substructure, 18" Dia. Piling, 36" Dia. Piling)	f'c = 3,500 psi
Self-Consolidating Concrete (18" Dia. Piling, 36" Dia. Piling)	f'c = 3,500 psi
Reinforcing Steel (AASHTO M31 or M322 Type A, Grade 60)	fy = 60,000 psi
Structural Steel (AASHTO M270, Gr. 36)	Fy = 36,000 psi
Structural Steel (AASHTO M270, Gr. 50)	Fy = 50,000 psi
Structural Steel (AASHTO M270, Gr. 50W)	Fy = 50,000 psi
Steel Shell Pile (ASTM A252, Grade 3)	Fy = 45,000 psi

BORING LOGS: Boring logs may be obtained from the Construction Contract Procurement Section of the Program Management Division.

STEEL SHELL PILING: All piling shall be driven with an approved air, steam, or diesel hammer. Length of piling shown are assumed for estimating quantities only. The actual lengths will be determined in the field. Piling for Bents 1 & 10 shall be 18" diameter concrete filled steel shell piles and shall be driven to a minimum ultimate bearing capacity of 208 tons per pile and to a tip elevation of 199 or lower for Bent 1 and 198 or lower for Bent 10. Piling in end bents shall be driven before embankment is in place. See Drawing No. 58689 for additional information pertaining to the pile driving sequence. Piling for Bents 2 through 9 shall be 36" diameter concrete filled steel shell piles and shall be driven open-ended to a minimum ultimate bearing capacity and to a minimum tip elevation shown on Drawing No. 58702. The soil plug within the 36" steel shells shall be removed to the specified depth and driving shall continue to verify the minimum ultimate bearing capacity. Concrete shall not be placed in steel shells until pile driving has progressed beyond a radius of 20 feet from the pile to be concreted. See SP Job CA1002 "Steel Shell Piling (36 Inch Diameter)" and Drawing No. 58702 for additional information.

TEST PILES: See Drawing No. 58683, 58684 and 58695 for locations of test piles. Drive a 92' test pile at Bent 9 to be Dynamic Load Tested and Rapid Load Tested. Drive a 86' Dynamic Load Test Pile at Bent 2. See SP Job CA1002 "Steel Shell Piling (36 Inch Diameter)" for additional information.

DRIVING SYSTEM: The driving system approval and ultimate bearing capacity determination for piling at Bents 1 & 10 shall be based on the requirements of Subsection 805.09(b) "Method B - Wave Equation Analysis (WEAP)". It is estimated that a minimum rated hammer energy of 66,400 ft-lbs per blow will be required to obtain the ultimate bearing capacity at Bents 1 & 10. The driving system approval and the ultimate bearing capacity determination for piling at Bents 2 through 9 will be based on the results of Dynamic Load Tests and Rapid Load Tests as outlined in SP Job CA1002 "Steel Shell Piling (36 Inch Diameter)". It is estimated that a minimum rated hammer energy of 83,900 ft-lbs per blow will be required to obtain the ultimate bearing capacity at Bents 2 through 9.

PREBORING: Preboring, water jetting or other methods approved by the Engineer may be needed to achieve the minimum pile penetration at Bents 1 & 10, but will not be allowed at Bents 2 through 9. Water jetting shall stop once the minimum tip elevation is achieved. Any cost associated with achieving the minimum pile penetration shall be considered subsidiary to "Steel Shell Piling".

PILE ENCASEMENT: Pile encasement for Bents 2 through 9 shall extend from 3' below ground line to Elev. 235.0, but no less than 3' above natural ground as shown on Drawing No. 58683 and 58684. See SP Job CA1002 "Steel Shell Piling (36 Inch Diameter)" and Drawing No. 58702 for additional information and painting requirements for portion of pile not protected by pile encasement.

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.

DETAIL DRAWINGS:	DRAWING NO.
Hydrograph - Big Lake Outlet	58688
Details of Soil Densification	58689
Stage Construction	58690
End Bents	58691 - 58694
Intermediate Bents 2, 3, 5, 6, 8 & 9	58695 - 58698
Intermediate Bents 4 & 7	58699 - 58701
Concrete Filled Steel Shell Piles and Pile Encasements	58702
296'-0" Continuous Composite Plate Girder Units	58703 - 58722
Elastomeric Bearings	58723 & 58724
Type Special 2 Approach Slab	58725
Embankment Construction and Backfill at Bridge Ends	55000
Dumped Riprap and Filter Blanket	55001
Permanent Steel Bridge Deck Forms	55005
Type D Bridge Name Plate	55010
Type C Approach Gutters	55030C

GENERAL NOTES (Cont.)

EXISTING BRIDGE: Existing Bridge No. 02477 (Site No. 2) (log mile 2.77) is 29.5' wide and 858' long and consists of nineteen 45' W-beam spans supported by concrete trestle pile bents. The existing bridge occupies the same location as the proposed new bridge. Half size sheets of the existing bridge may be obtained from the Construction Contract Procurement Section of the Program Management Division. See Drawing No. 07353, 05255, 05256 and 06214.

Any existing riprap within the limits of the soil densification shown on Drawing No. 58689 shall be removed prior to driving steel shell piling and timber piling. Cost of riprap removal shall be considered subsidiary to the item "Removal of Existing Bridge Structure (Site No. 2).

REMOVAL AND SALVAGE: After Stage 2 Construction of the new bridge is opened to traffic, Existing Bridge No. 02477 shall be removed in accordance with Section 205. Remnants of existing piling from previous bridges shall be removed as directed by the Engineer. This work shall be considered subsidiary to the item "Removal of Existing Bridge Structure (Site No. 2)" This material and all material from the existing bridge with the exception of twelve (12) - 45' long wide flange beams shall become property of the Contractor. These existing twelve - 45' long wide flange beams to be selected by the state shall remain the property of the State. The Contractor shall provide temporary storage and on-site loading onto AHTD equipment for removal of these beams. This work shall be considered subsidiary to the item "Removal of Existing Bridge Structure (Site No. 2)".

MAINTENANCE OF TRAFFIC: See Roadway Plans.

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11328 CHRISTOPHER J. CRISWELL 9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

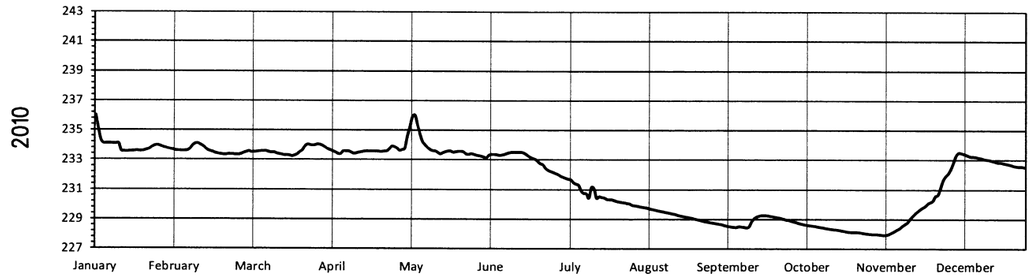
SHEET 5 OF 5
LAYOUT OF
BRIDGE OVER BIG LAKE OUTLET
MANILA - EAST (WIDENING) (S)
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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DESIGNED BY: CGW DATE: 11/16/14 SCALE: No Scale
BRIDGE NO. 07391 DRAWING NO. 58687

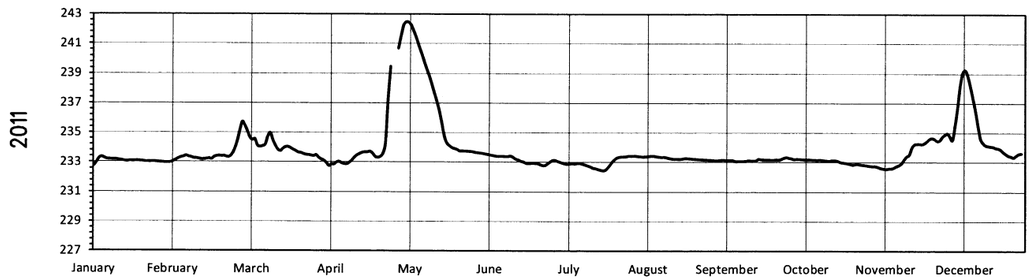
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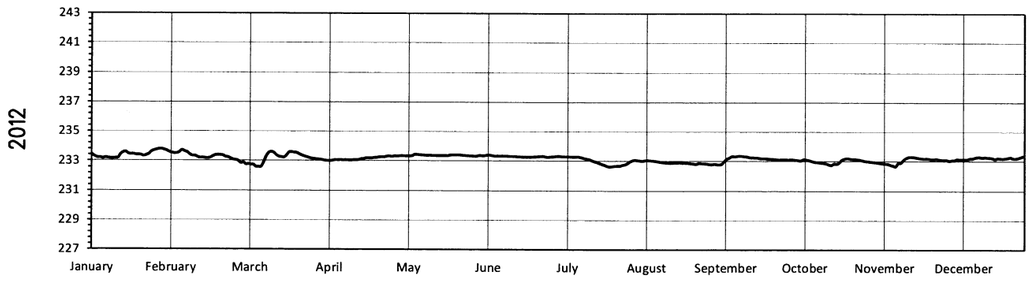
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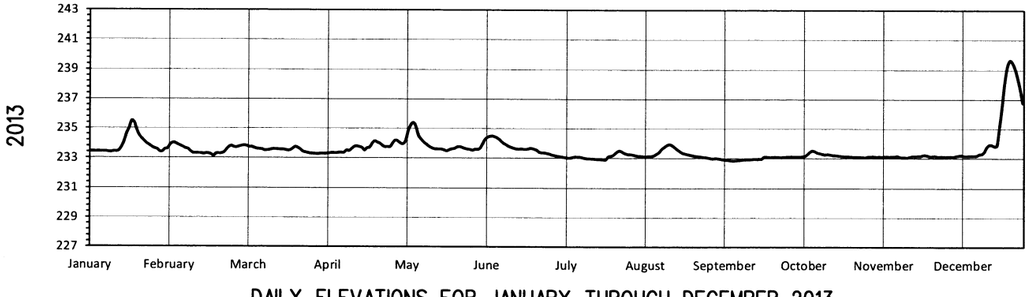
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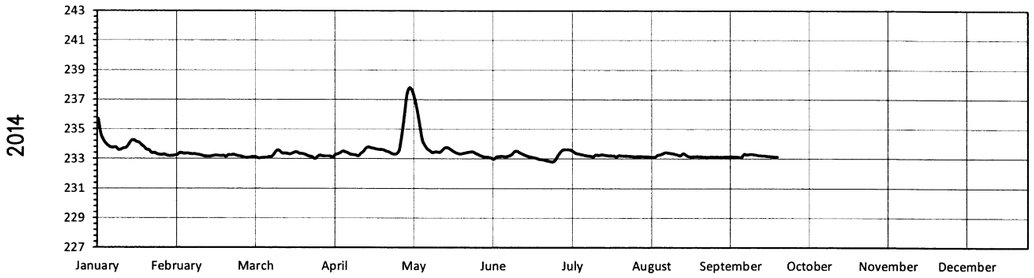
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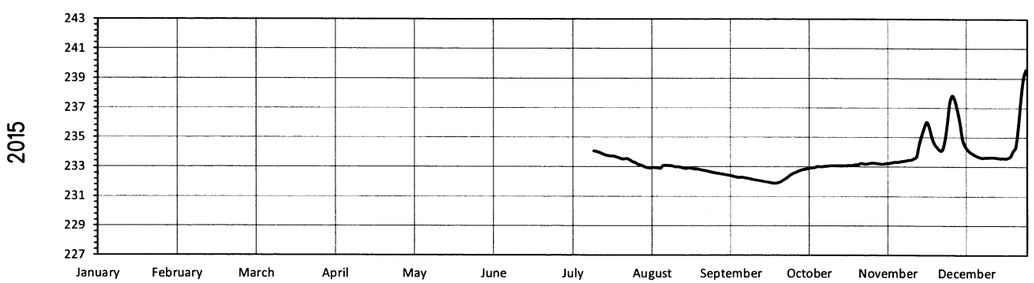
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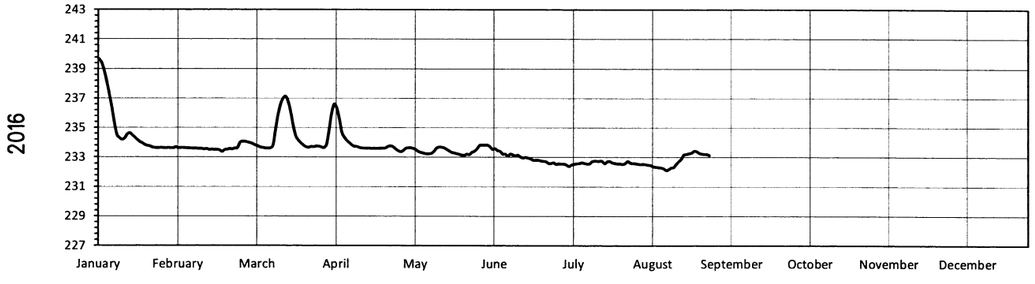
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DAILY ELEVATIONS FOR JANUARY THROUGH DECEMBER 2014



DAILY ELEVATIONS FOR JANUARY THROUGH DECEMBER 2015



DAILY ELEVATIONS FOR JANUARY THROUGH SEPTEMBER 2016

This Stage Hydrograph was obtained from the United States Army Corps of Engineers and was plotted by Jacobs Engineering. Broken lines in hydrograph signify missing data.

This hydrograph is provided for information only. Additional gage height information can be found at http://rivergages.mvr.usace.army.mil/watercontrol/stationinfo2.cfm?sid=LR117&fid=&dt=s for the Little River basin in the Memphis District.

Gage Name: LR117 Right Hand Chute of Little River at Pettyville, AR.
Location: Longitude 90° 7' 39", Latitude 35° 50' 59", at River Mile 23.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

HYDROGRAPH - BIG LAKE OUTLET
MANILA - EAST (WIDENING) (S)
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

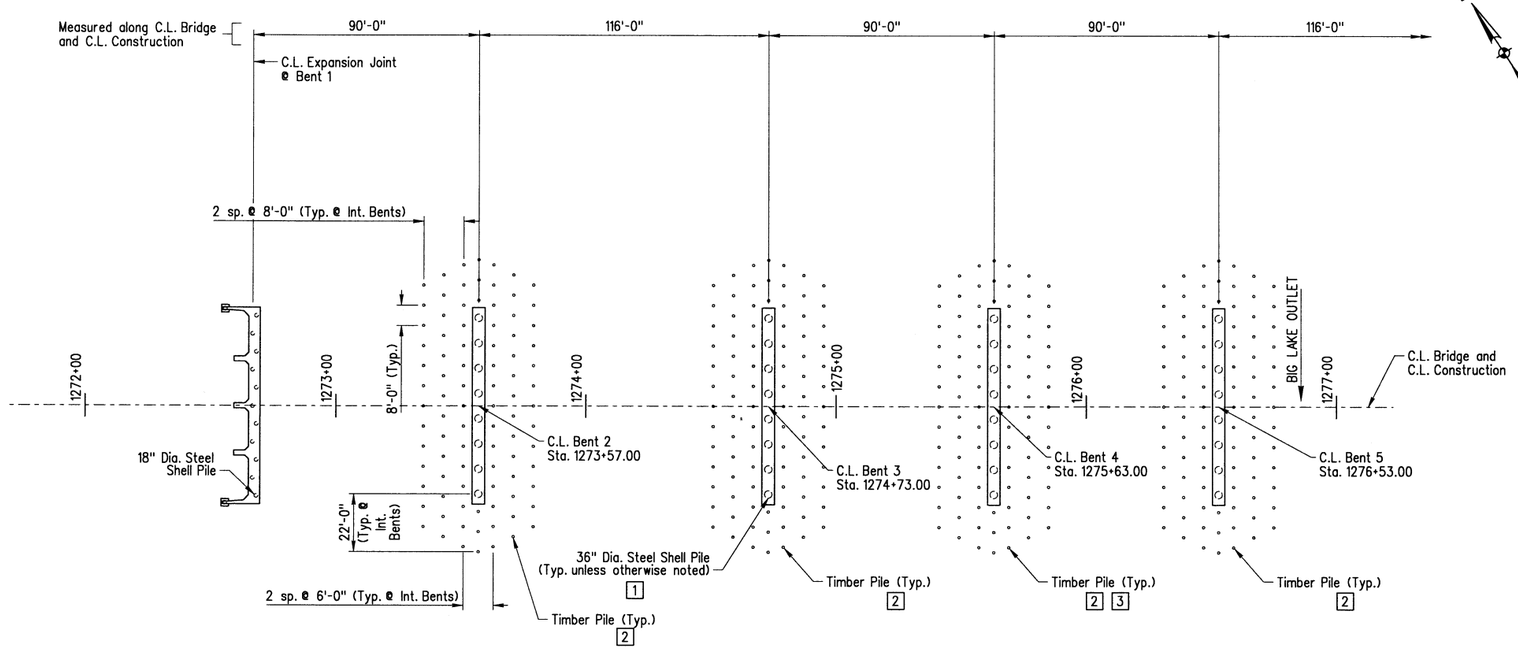
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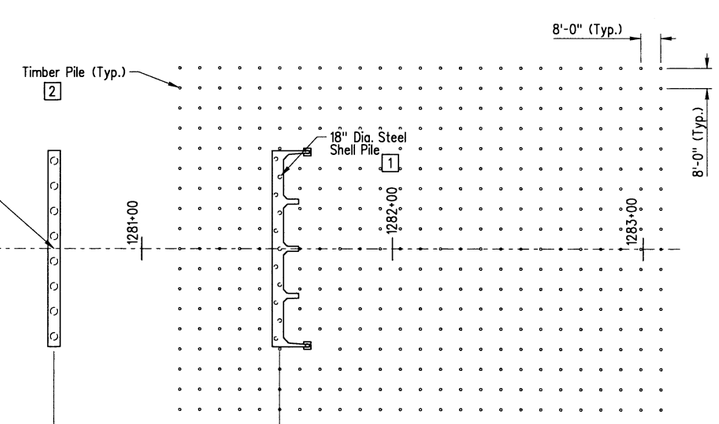
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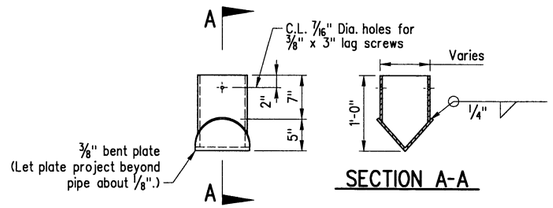
(1) 07391 - SOIL Ddensification - 58689





TIMBER PILE DATA

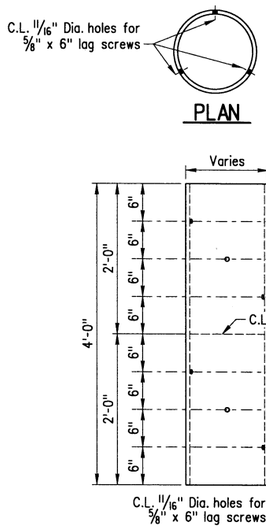
Bent No.	Estimated No. of Piles	Minimum Tip Elev.	Estimated Pile Length, ft.
1	-	-	-
2	90	200.0	28
3	90	195.0	33
4	90	195.0	33
5	90	200.0	23
6	90	205.0	18
7	-	-	-
8	-	-	-
9	-	-	-
10	437	205.0	45



SECTION A-A

DETAILS OF TIMBER PILE TIP

Scale: 1" = 1'-0"



PLAN

ELEVATION

TYPICAL SPLICE DETAILS

Scale: 1" = 1'-0"

Notes:
Diameter(s) of timber piles shall be in accordance with SP Job CA1002 "Timber Piling for Soil Densification".

Drive number and length of timber piles as directed by the Engineer.

Contractor shall coordinate with the Engineer to avoid any and all utilities within the soil densification areas.

Top of pile shall be driven to existing ground line within the limits of the embankment at Bent 10 and 2' below existing groundline outside the toe of fill slope at Bent 10.

At Bent 10 the last lines of timber piling shall extend at least 66' left and 62' right of C.L. Construction. Timber piling shall also extend past Sta. 1281+14 and Sta. 1283+06.

TIMBER PILE LAYOUT FOR SOIL DENSIFICATION

Scale: 1" = 30'-0"

1 Steel shell piling shall be driven prior to timber piling at each bent for each stage of bridge construction.

2 Timber piling shall be in accordance with SP Job CA1002 "Timber Piling for Soil Densification" and shall be driven prior to placement of embankment with geosynthetic reinforcement. See Roadway Plans for Special Details for embankment construction.

3 Any existing riprap interfering with the driving of timber pile or steel shell pile shall be removed prior to driving as directed by the Engineer. Cost of removing riprap shall be considered subsidiary to the item "Removal of Existing Bridge Structure (Site No. 2)".

STATE OF ARKANSAS
CHRISTOPHER J. CRISWELL
REGISTERED PROFESSIONAL ENGINEER
No. 11328
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

DETAILS OF SOIL DENSIFICATION BRIDGE OVER BIG LAKE OUTLET MISSISSIPPI COUNTY

ROUTE 18 SEC. 6

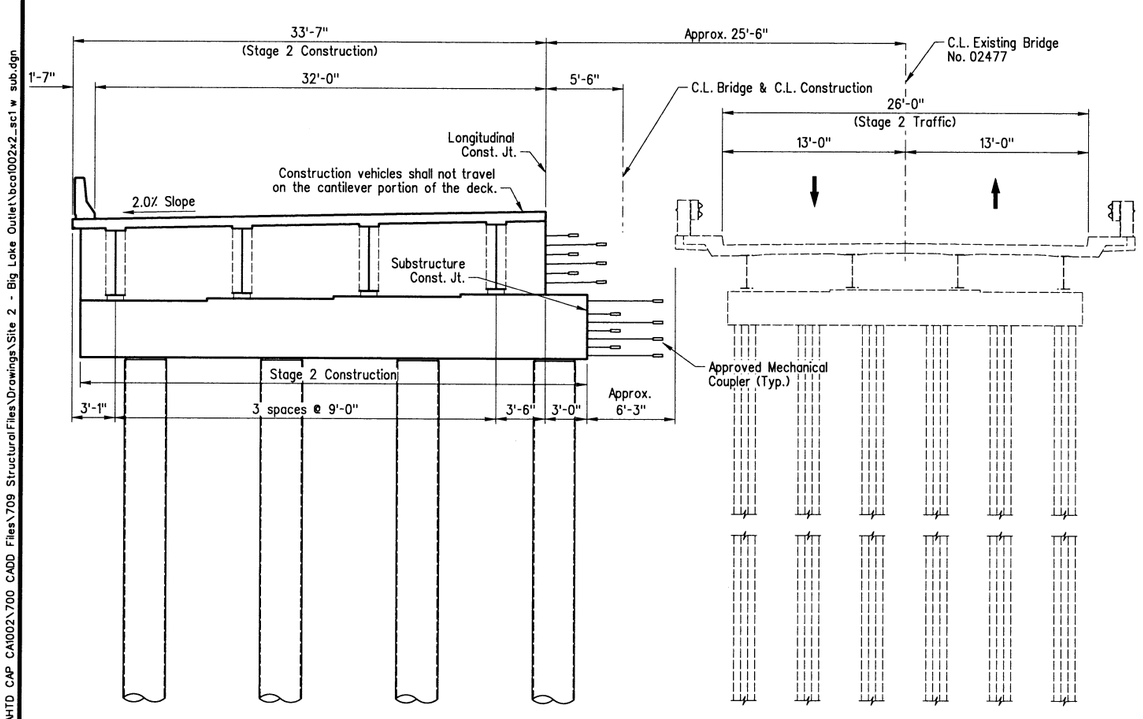
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LITTLE ROCK, ARKANSAS

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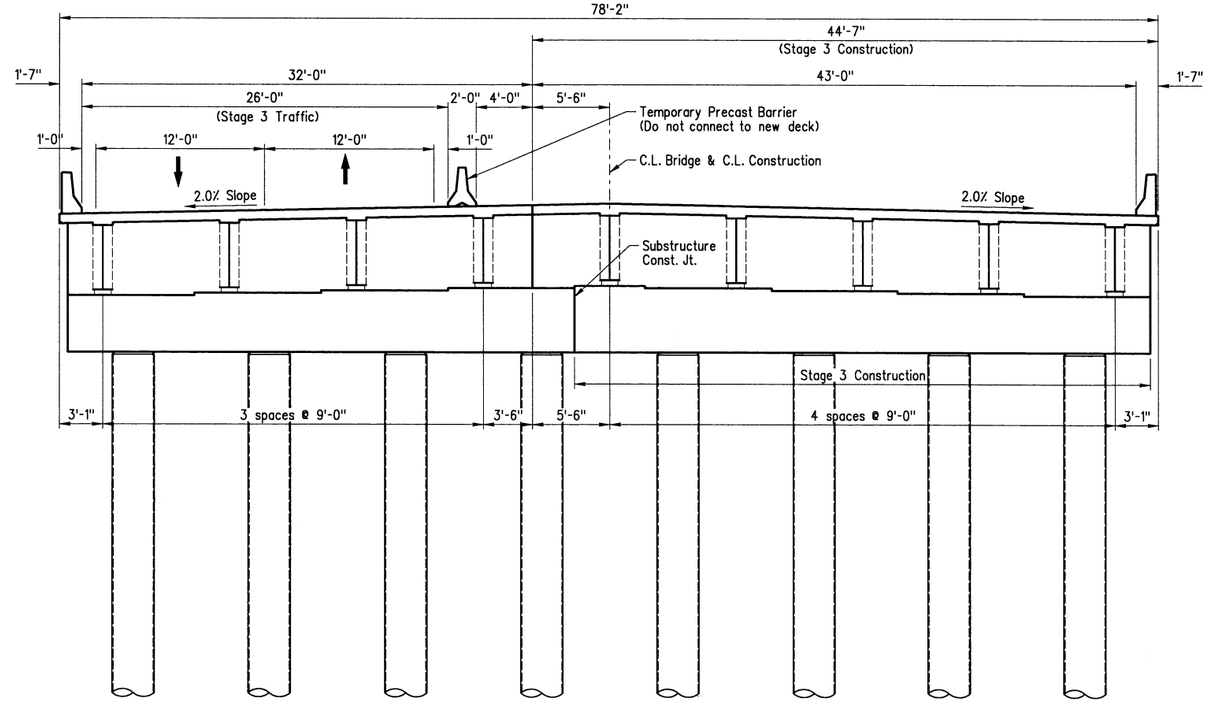
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				6	ARK.			
				JOB NO.		CA1002	137	319
				(1) 07391 - STAGE CONSTRUCTION - 58690				



Note:
After Stage 2 Construction is complete and opened to traffic, Existing Bridge No. 02477 shall be removed and Stage 3 Construction completed.

STAGE 2 CONSTRUCTION
Looking Ahead



STAGE 3 CONSTRUCTION
Looking Ahead

Note: Details which relate to Maintenance of Traffic are shown on the Bridge Plans for information only.

Stages 1A and 1B to construct N. County Rd. 305 and Wildlife Refuge Rd. do not affect bridge construction and are not shown. See Roadway Plans for Maintenance of Traffic.

For Details of Temporary Precast Barrier, see Std. Dwg. TC-4.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

DETAILS OF STAGE CONSTRUCTION
BRIDGE OVER BIG LAKE OUTLET
MANILA - EAST (WIDENING) (S)
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

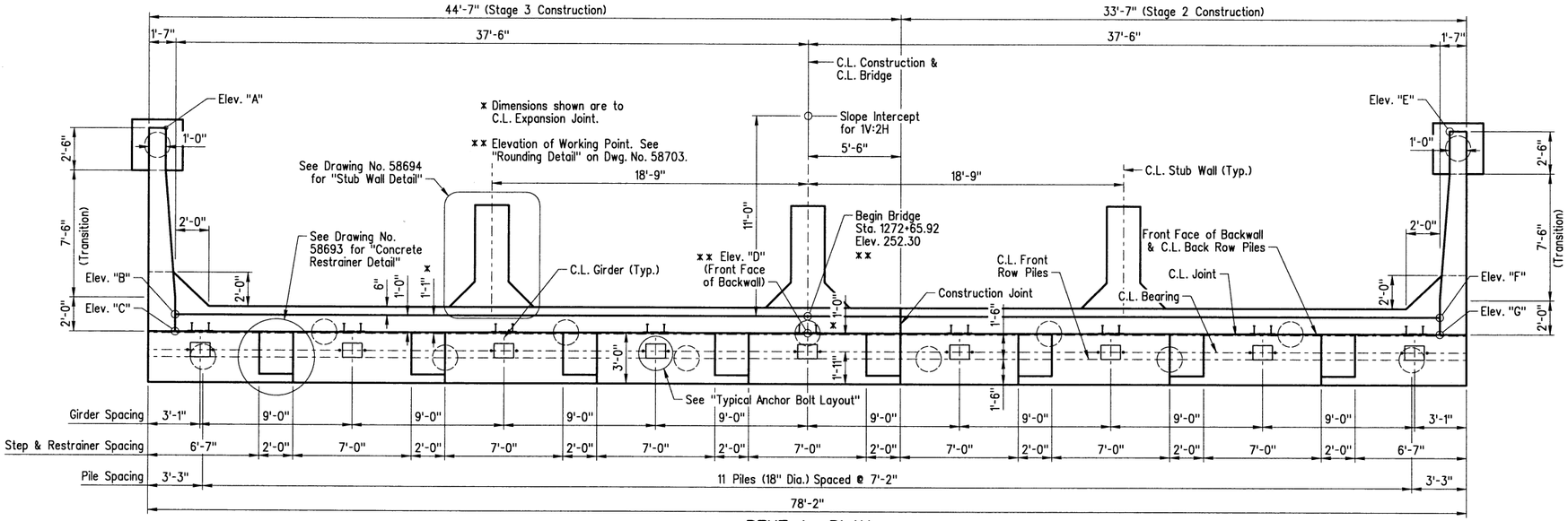
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LITTLE ROCK, ARKANSAS

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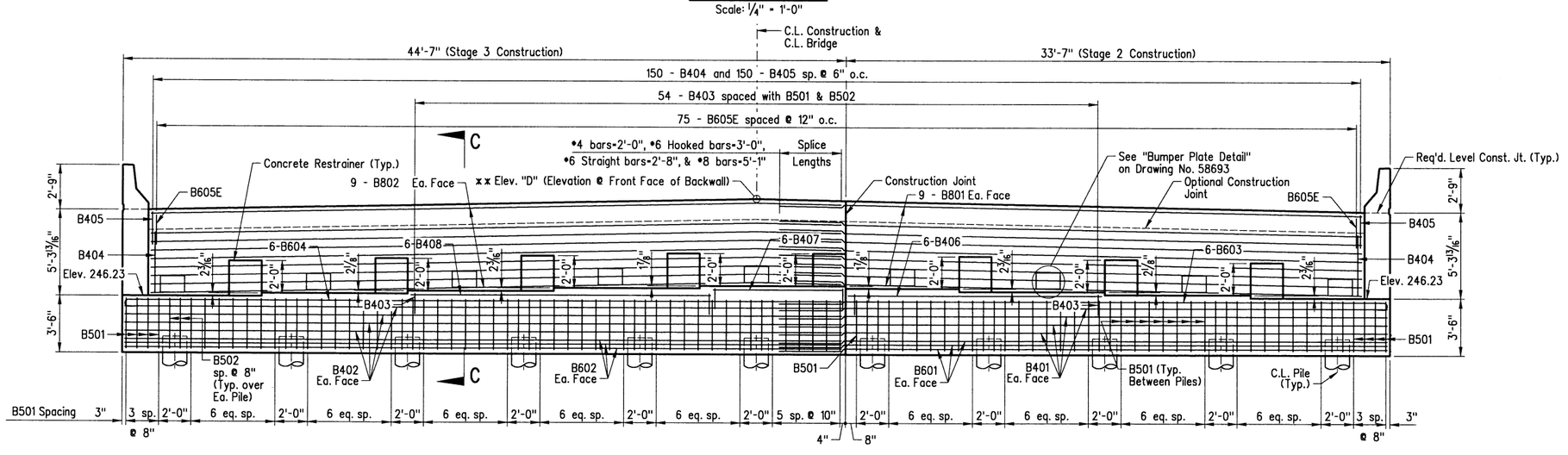
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				6	ARK.			
				JOB NO.		CA1002	138	319
				1	07391	- END BENTS -		58691



BENT 1 - PLAN
Scale: 1/4" = 1'-0"

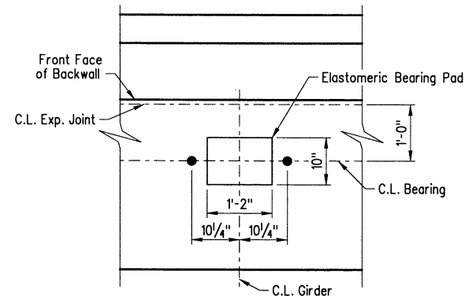


BENT 1 - ELEVATION
(Looking Back)
Scale: 1/4" = 1'-0"

See Drawing No. 58693 for Section C-C.

TABLE OF ELEVATIONS

	Bent 1
Elev. "A"	251.54
Elev. "B"	251.55
Elev. "C"	251.55
Elev. "D"	252.30
Elev. "E"	251.54
Elev. "F"	251.55
Elev. "G"	251.55



TYPICAL ANCHOR BOLT LAYOUT
Scale: 3/4" = 1'-0"

GENERAL NOTES

All concrete shall be Class "S" with a minimum 28 day compressive strength of f'c=3,500 psi.

Concrete shall be poured in the dry and exposed corners shall be chamfered 3/4" unless otherwise noted.

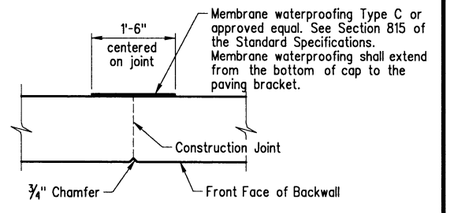
All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

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

Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

Class 1 Protective Surface Treatment shall be applied to the roadway face, top of the wing rails, and to the top of the backwall.

For additional information, see Layout.



Note: Payment for membrane to be considered subsidiary to Class S Concrete-Bridge.

CONSTRUCTION JOINT DETAIL
Scale: 3/4" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15927
CHARLES G. WISE
9/12/16
BRIDGE ENGINEER
PRINT DATE: 9/12/2016

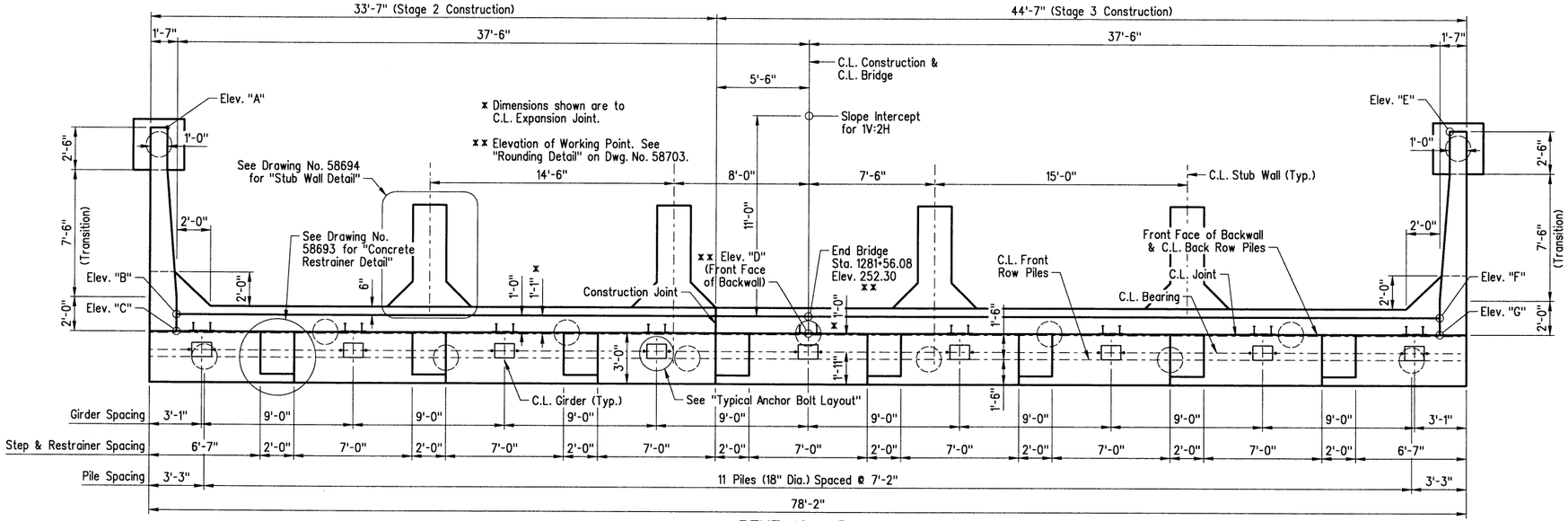
SHEET 1 OF 4
DETAILS OF END BENTS 1 & 10
BRIDGE OVER BIG LAKE OUTLET
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 4/8/15
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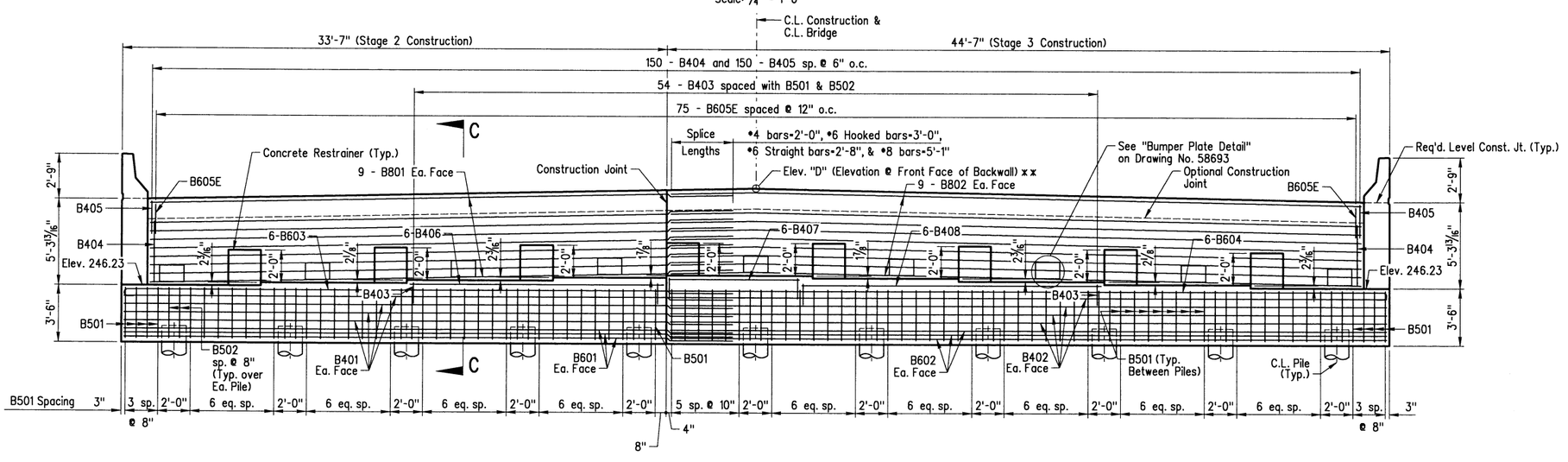
JACOBS

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				(1) 07391	-	END BENTS	-	58692



BENT 10 - PLAN
Scale: 1/4" = 1'-0"

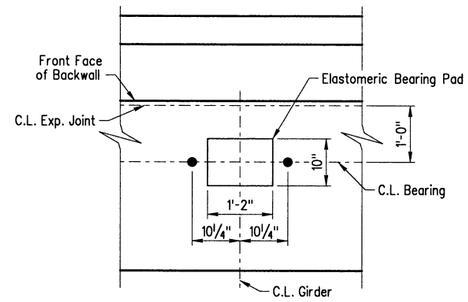


BENT 10 - ELEVATION
(Looking Ahead)
Scale: 1/4" = 1'-0"

TABLE OF ELEVATIONS

	Bent 10
Elev. "A"	251.54
Elev. "B"	251.55
Elev. "C"	251.55
Elev. "D"	252.30
Elev. "E"	251.54
Elev. "F"	251.55
Elev. "G"	251.55

See Drawing No. 58693 for Section C-C.



TYPICAL ANCHOR BOLT LAYOUT
Scale: 3/4" = 1'-0"

GENERAL NOTES

All concrete shall be Class "S" with a minimum 28 day compressive strength of f'c=3,500 psi.

Concrete shall be poured in the dry and exposed corners shall be chamfered 3/4" unless otherwise noted.

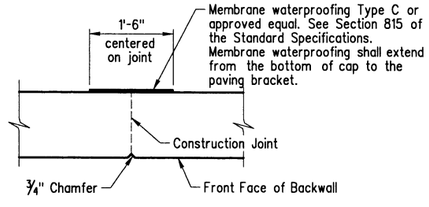
All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

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

Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

Class 1 Protective Surface Treatment shall be applied to the roadway face, top of the wing rails, and to the top of the backwall.

For additional information, see Layout.



Note: Payment for membrane to be considered subsidiary to Class S Concrete-Bridge.

CONSTRUCTION JOINT DETAIL
Scale: 3/4" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15927
CHARLES G. WISE
9/12/16
BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 2 OF 4
DETAILS OF END BENTS 1 & 10
BRIDGE OVER BIG LAKE OUTLET
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

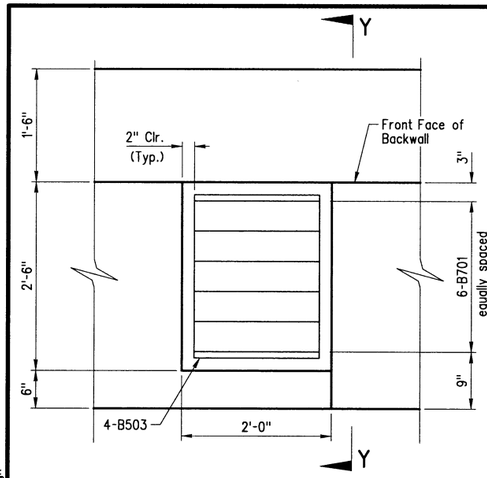
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FILENAME: bca1002x2_ax2.dgn
SCALE: As Noted
DRAWING NO. 58692

JACOBS

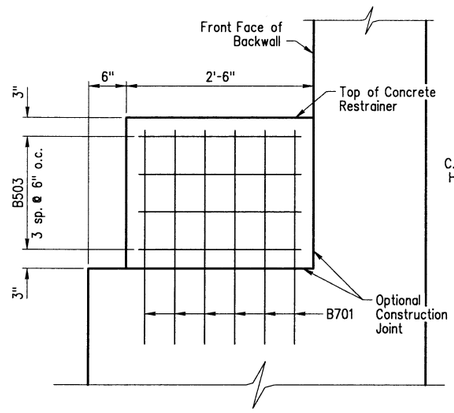
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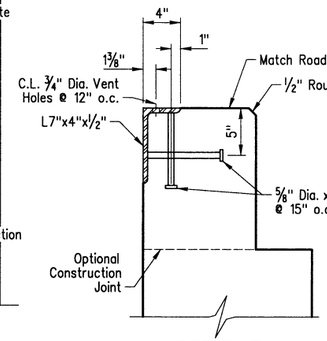
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				6	ARK.			
				JOB NO.		CA1002	140	319
				(1) 07391	-	END BENTS	-	58693



CONCRETE RESTRAINER DETAIL
Scale: 1" = 1'-0"



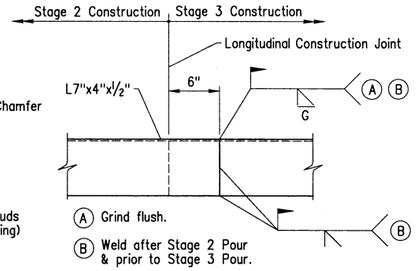
VIEW Y-Y
Scale: 1" = 1'-0"



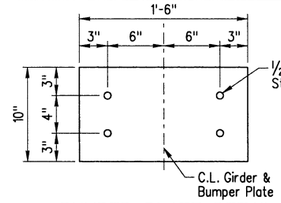
DETAIL Z
Scale: 1½" = 1'-0"

Notes: For additional joint details, see Drawing No. 58720.

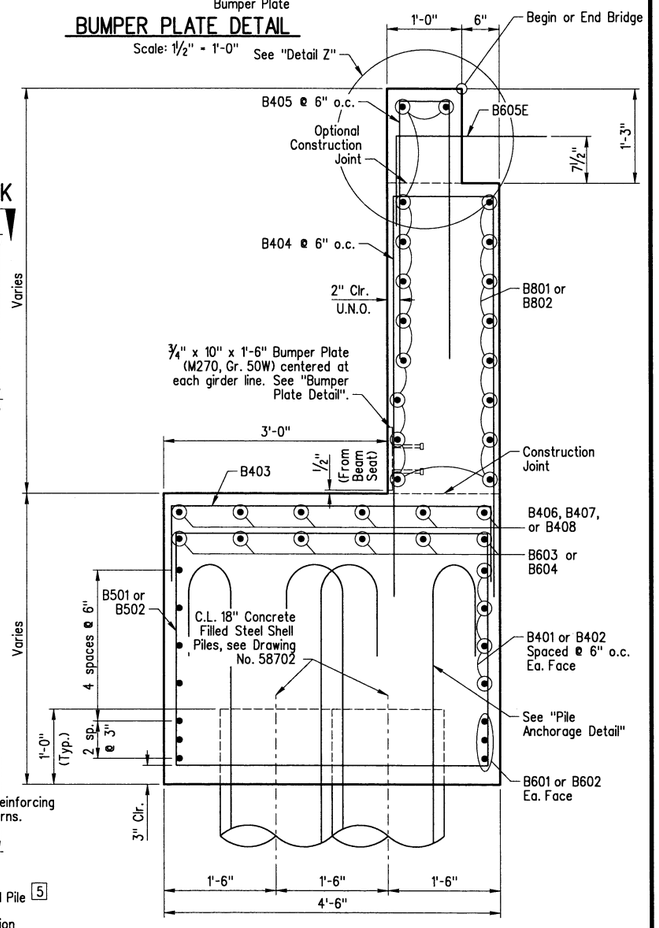
Concrete shall be hand packed under the joint armor in the backwall.



BACKWALL ARMOR JOINT DETAIL
No Scale



BUMPER PLATE DETAIL
Scale: 1½" = 1'-0"



SECTION C-C
Scale: 1" = 1'-0"

Note: The Backwall above the required construction joint shall not be poured until the girders are in place. Backwall may be placed prior to placing the adjacent concrete deck only if the optional backwall construction joint is used. See Drawing No. 58720, "Expansion Device Installation at End Bents" for additional information.

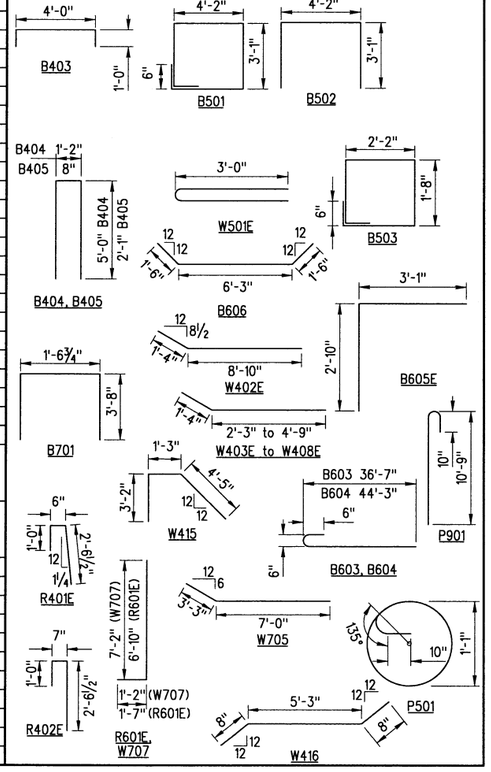
STAGE 2 BAR LIST PER BENT

MARK	NO. REQ'D Bt. 1	NO. REQ'D Bt. 10	LENGTH	PIN DIA.
B401	8	8	35'-7"	Str.
B403	20	20	5'-10"	2"
B404	64	64	11'-0"	2"
B405	64	64	4'-8"	2"
B406	6	6	15'-8"	Str.
B409	6	6	7'-1"	Str.
B501	33	33	15'-0"	2½"
B502	10	10	10'-1"	2½"
B503	12	12	8'-2"	2½"
B601	6	6	36'-3"	Str.
B603	6	6	37'-3"	4½"
B605E	32	32	5'-9"	4½"
B606	3	3	9'-2"	4½"
B701	18	18	8'-7"	5¼"
B801	18	18	37'-1"	Str.
[3] P501	6	6	103'-10"	3¾"
[3] P901	60	60	12'-0"	9"
R401E	6	6	3'-11"	2"
R402E	4	4	4'-0"	2"
R403E	6	6	11'-8"	Str.
R601E	8	8	8'-3"	4½"
W401E	4	4	11'-1"	Str.
W402E	4	4	10'-2"	3"
W403E to W408E	1 ea.	1 ea.	3'-7" to 6'-1"	3"
W409E to W414E	1 ea.	1 ea.	4'-6" to 7'-0"	Str
W415	7	7	8'-9"	2"
W416	26	52	6'-6"	3"
W417	14	28	6'-3"	Str.
W501E	10	10	6'-2"	3¾"
W601	6	6	2'-8"	Str.
W701	6	6	11'-8"	Str.
W702	2	2	7'-11"	Str.
W703	2	2	6'-5"	Str.
W704	2	2	4'-11"	Str.
W705	2	2	10'-3"	5¼"
W706	26	52	8'-2"	5¼"

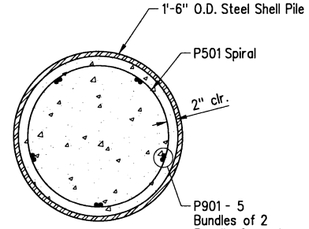
STAGE 3 BAR LIST PER BENT

MARK	NO. REQ'D Bt. 1	NO. REQ'D Bt. 10	LENGTH	PIN DIA.
B402	8	8	44'-3"	Str.
B403	34	34	5'-10"	2"
B404	86	86	11'-0"	2"
B405	86	86	4'-8"	2"
B407	6	6	8'-8"	Str.
B408	6	6	19'-8"	Str.
B409	6	6	7'-1"	Str.
B501	45	45	15'-0"	2½"
B502	12	12	10'-1"	2½"
B503	20	20	8'-2"	2½"
B602	6	6	44'-3"	Str.
B604	6	6	44'-11"	4½"
B605E	43	43	5'-9"	4½"
B606	3	3	9'-2"	4½"
B701	30	30	8'-7"	5¼"
B802	18	18	42'-8"	Str.
[3] P501	7	7	103'-10"	3¾"
[3] P901	70	70	12'-0"	9"
R401E	6	6	3'-11"	2"
R402E	4	4	4'-0"	2"
R403E	6	6	11'-8"	Str.
R601E	8	8	8'-3"	4½"
W401E	4	4	11'-1"	Str.
W402E	4	4	10'-2"	3"
W403E to W408E	1 ea.	1 ea.	3'-7" to 6'-1"	3"
W409E to W414E	1 ea.	1 ea.	4'-6" to 7'-0"	Str
W415	7	7	8'-9"	2"
W416	52	52	6'-6"	3"
W417	28	28	6'-3"	Str.
W501E	10	10	6'-2"	3¾"
W601	6	6	2'-8"	Str.
W701	6	6	11'-8"	Str.
W702	2	2	7'-11"	Str.
W703	2	2	6'-5"	Str.
W704	2	2	4'-11"	Str.
W705	2	2	10'-3"	5¼"
W706	52	52	8'-2"	5¼"

BENDING DIAGRAMS
(Dimensions are out to out of bars.)



Note: Bars designated with an "E" suffix shall be epoxy coated.

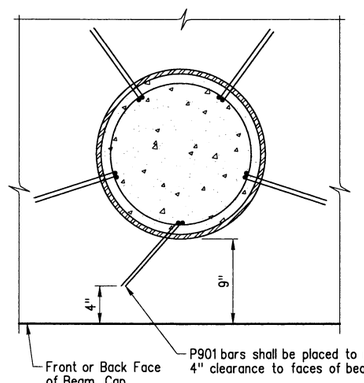


SECTION J-J
Scale: 1½" = 1'-0"

NOTES FOR SPIRAL REINFORCING

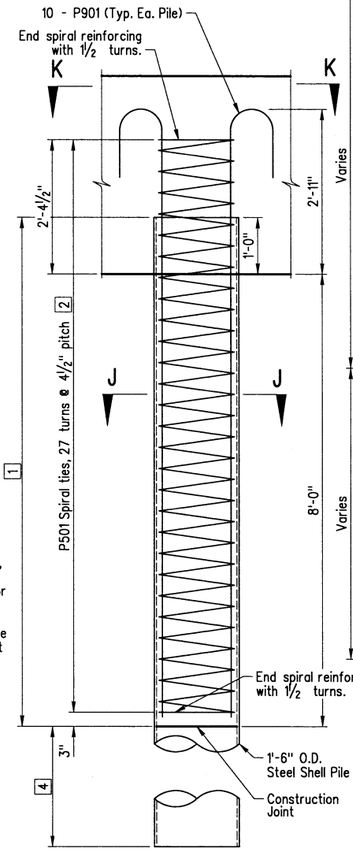
Spiral reinforcing shall be plain round or deformed steel bars meeting the requirements of AASHTO M31 or M322, Type A, with mill test report (Grade 60) or shall be cold drawn wire meeting the requirements of AASHTO M32 or M225 (Grade 70) with a minimum diameter of ½".

Spiral reinforcement shall be considered subsidiary to the item "Steel Shell Piling (18" Dia.)". No additional payment shall be made for spacers or bracing needed for assembly, shipping, handling, or erecting.



SECTION K-K
Scale: 1½" = 1'-0"

See Drawing No. 58702 for additional information.



PILE ANCHORAGE DETAIL
Scale: ¾" = 1'-0"

[1] Vibration of concrete in the top 9 feet of the pile will be needed to ensure the consolidation of the concrete around the reinforcing steel. The Contractor will be responsible for obtaining satisfactory results. Concrete shall be Class S with a minimum 28 day compressive strength, f'c = 3500 psi., unless otherwise approved by the Engineer.

[2] No lap splices will be permitted.

[3] Non-pay item - Subsidiary to "Steel Shell Piling (18" Dia.)".

[4] Concrete shall be Self-Consolidating Concrete in accordance with Special Provision Job No. CA1002 "Self-Consolidating Concrete". Self-Consolidating Concrete shall have a minimum 28 day compressive strength, f'c = 3500 psi.

[5] See Special Provision Job No. CA1002 "Steel Shell Piling (18 Inch Diameter)".

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 15927 CHARLES G. WISE 9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

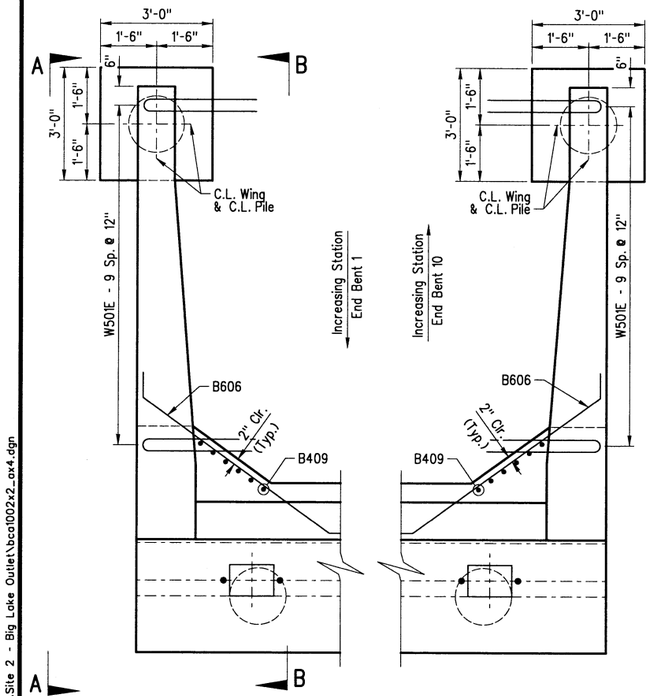
SHEET 3 OF 4
DETAILS OF END BENTS 1 & 10
BRIDGE OVER BIG LAKE OUTLET
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 4/8/15
CHECKED BY: CGW DATE: 1/11/16
DESIGNED BY: CGW DATE: 4/6/15
BRIDGE NO. 07391
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DRAWING NO. 58693

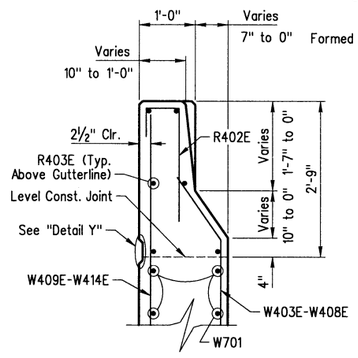
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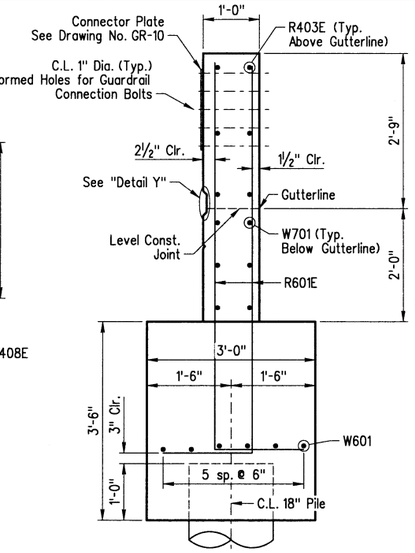


WING A
Scale: 1/2" = 1'-0"

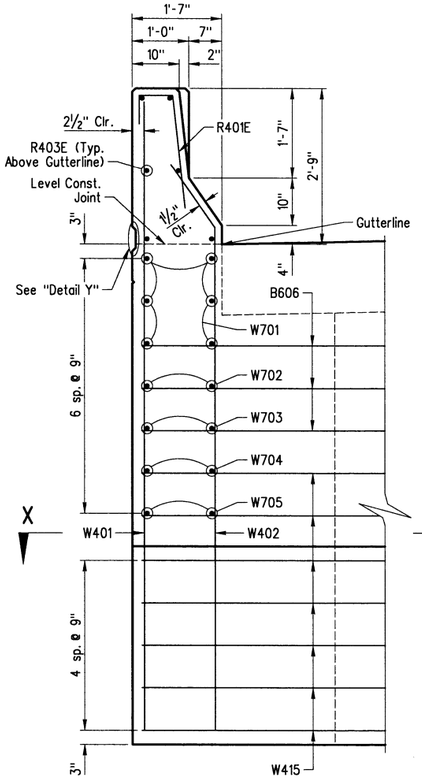
WING B
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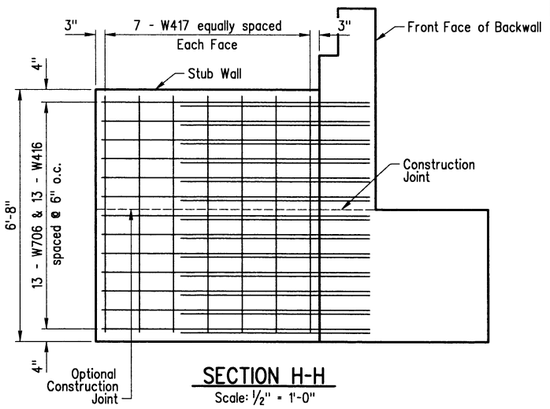
SECTION E-E
Scale: 3/4" = 1'-0"



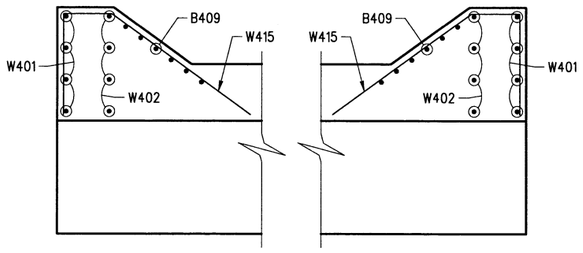
SECTION F-F
Scale: 3/4" = 1'-0"



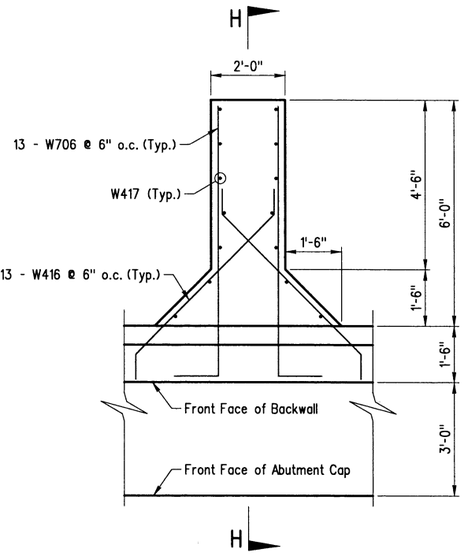
VIEW D-D
Scale: 3/4" = 1'-0"



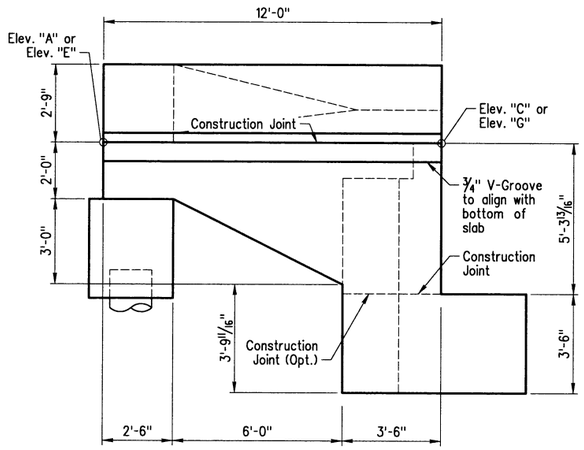
SECTION H-H
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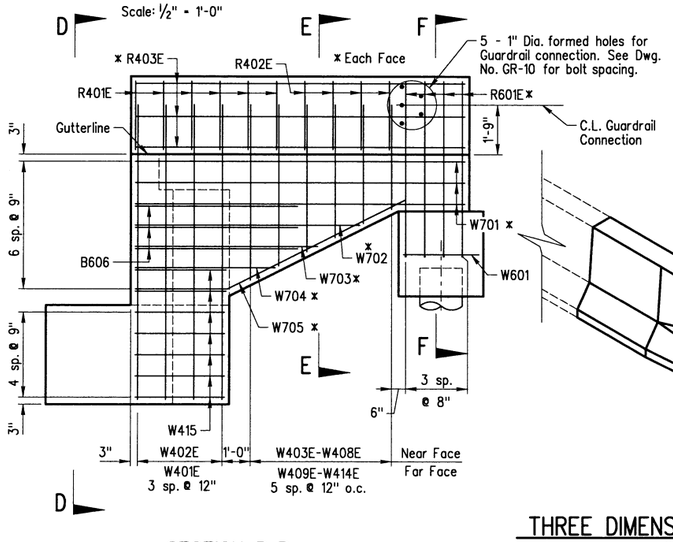
SECTION X-X



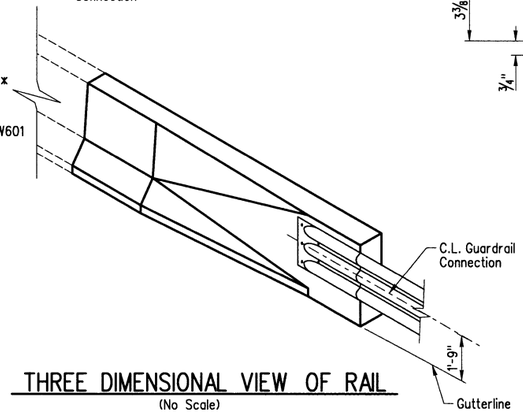
STUB WALL DETAIL
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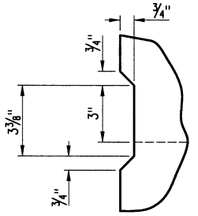
VIEW A-A
No Scale



SECTION B-B
No Scale



THREE DIMENSIONAL VIEW OF RAIL
(No Scale)



DETAIL Y
Scale: 3" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15927
CHARLES G. WISE
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 4 OF 4
DETAILS OF END BENTS 1 & 10
BRIDGE OVER BIG LAKE OUTLET
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

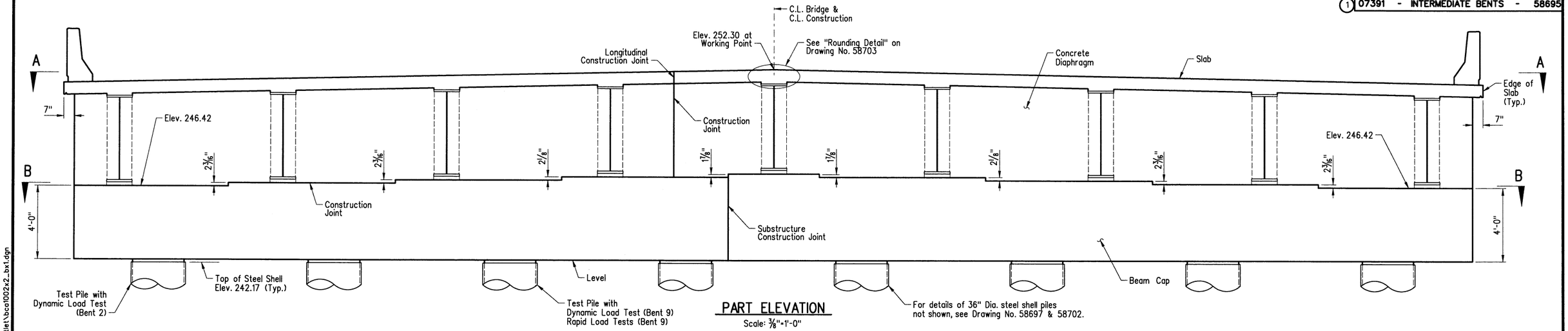
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DESIGNED BY: CGW DATE: 4/6/15
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SCALE: As Noted
DRAWING NO. 58694

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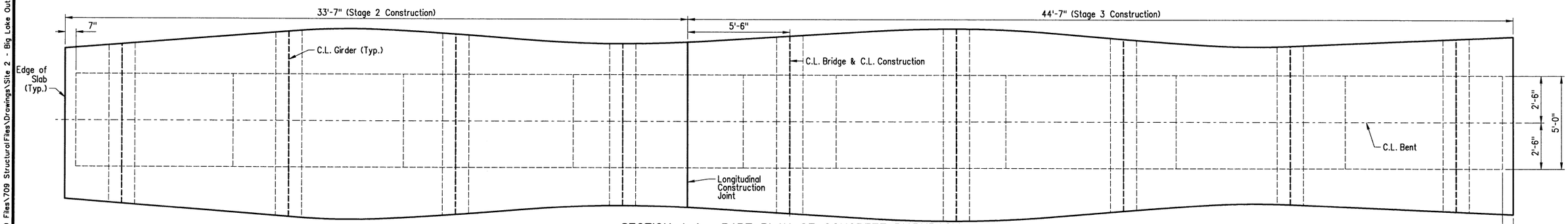
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				6	ARK.			
				JOB NO.		CA1002	142	319

(1) 07391 - INTERMEDIATE BENTS - 58695



PART ELEVATION

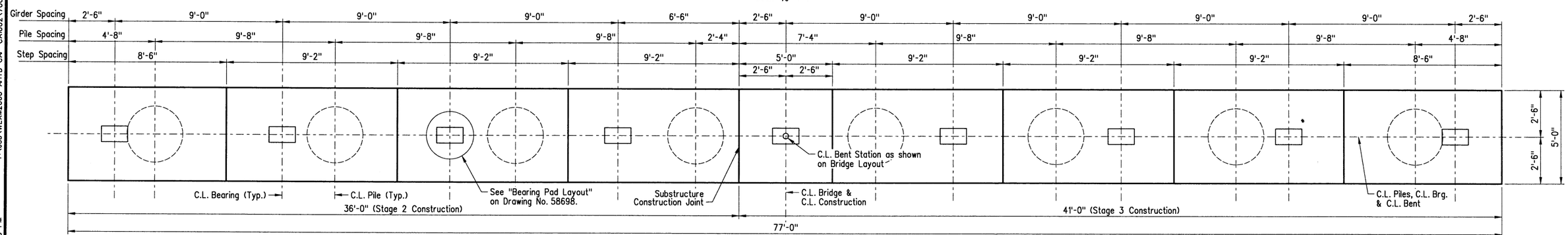
Scale: 3/8"=1'-0"



SECTION A-A - PART PLAN OF CONCRETE DIAPHRAGM

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

Note: Parapet rails not shown for clarity.



SECTION B-B - PLAN OF BEAM CAP

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 1 OF 4
DETAILS OF INTERMEDIATE BENTS 2, 3, 5, 6, 8 & 9
BRIDGE OVER BIG LAKE OUTLET
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 3/12/15
CHECKED BY: CJC DATE: 2/10/16
DESIGNED BY: HMD DATE: 1/19/16
BRIDGE NO. 07391

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DRAWING NO. 58695

JACOBS

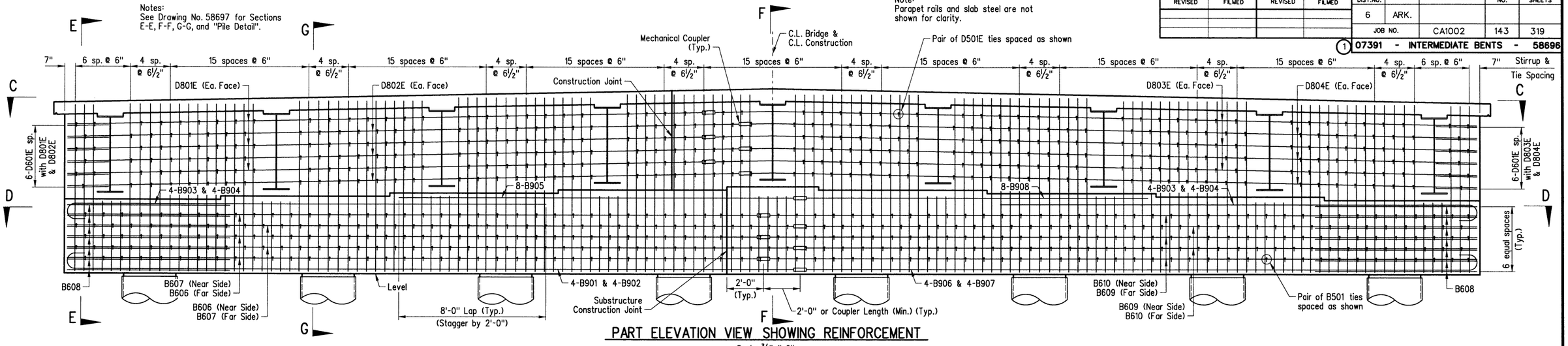
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(1) 07391 - INTERMEDIATE BENTS - 58696

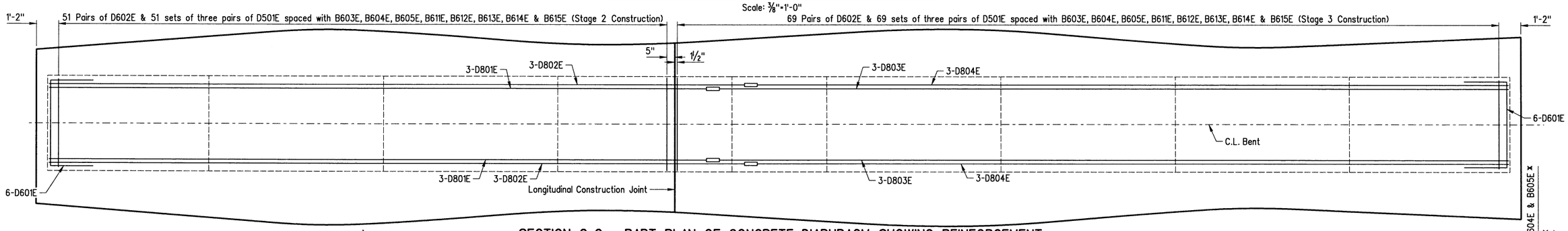
Notes:
See Drawing No. 58697 for Sections E-E, F-F, G-G, and "Pile Detail".

Note:
Parapet rails and slab steel are not shown for clarity.



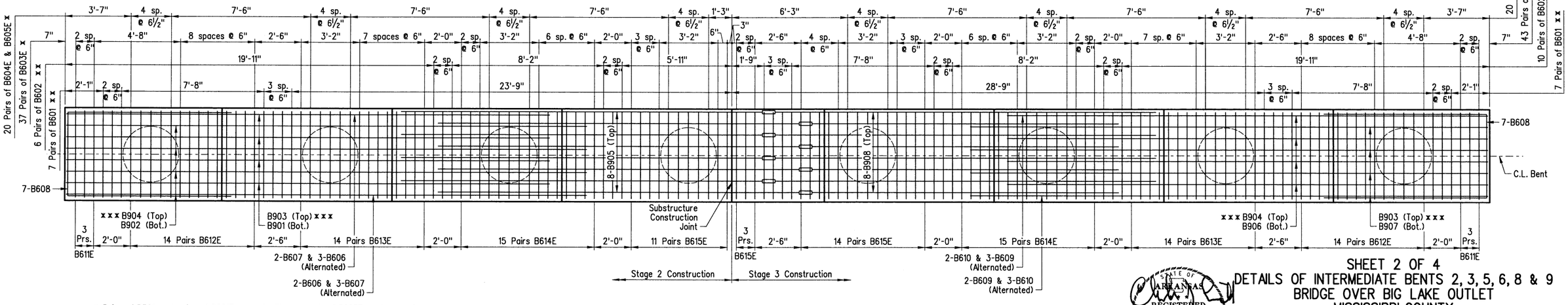
PART ELEVATION VIEW SHOWING REINFORCEMENT

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



SECTION C-C - PART PLAN OF CONCRETE DIAPHRAGM SHOWING REINFORCEMENT

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



x Pairs of B501 and pairs of D501E spaced with each pair of B603E, each pair of B604E, and each pair of B605E as shown in "Part Elevation View Showing Reinforcement".

xx Pairs of B501 spaced with each pair of B601 and each pair of B602 as shown in "Part Elevation View Showing Reinforcement".

xxx See Bar List for specific bar lengths.

SECTION D-D - PLAN OF BEAM CAP SHOWING REINFORCEMENT

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISPELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 2 OF 4
DETAILS OF INTERMEDIATE BENTS 2, 3, 5, 6, 8 & 9
BRIDGE OVER BIG LAKE OUTLET
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

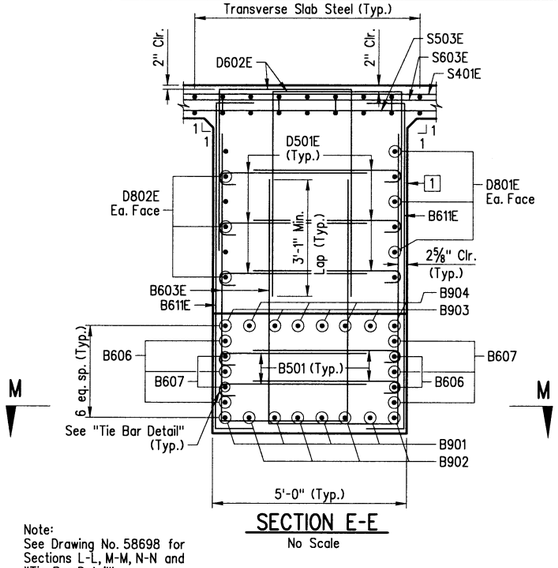
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LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 3/12/15
CHECKED BY: CJC DATE: 2/24/16
DESIGNED BY: HMD DATE: 1/19/16
BRIDGE NO. 07391

FILENAME: bca1002x2_bx2.dgn
SCALE: 3/8" = 1'-0"
DRAWING NO. 58696

JACOBS

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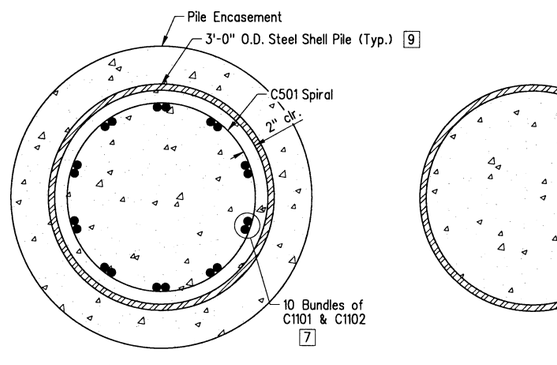


SECTION E-E
No Scale

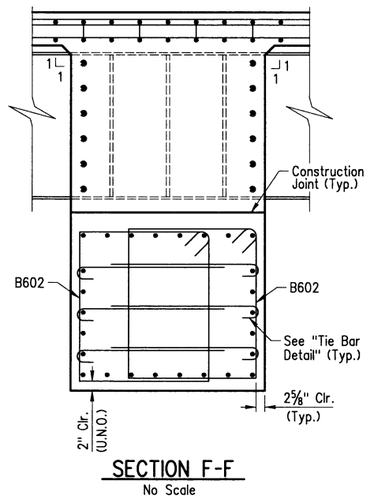
Note:
See Drawing No. 58698 for Sections L-L, M-M, N-N and "Tie Bar Detail".

Notes:
Concrete diaphragm shall be poured monolithically with deck slab.

C501, C1101 and C1102 are not shown for clarity.



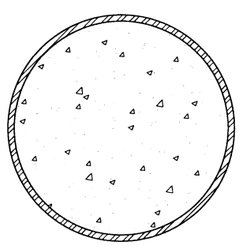
SECTION G-G
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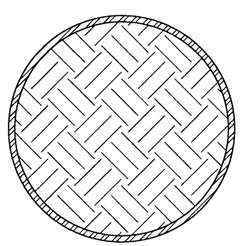
SECTION F-F
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Note:
See Drawing No. 58687 and 58702 for details of 36" Dia. steel shell pile not shown.

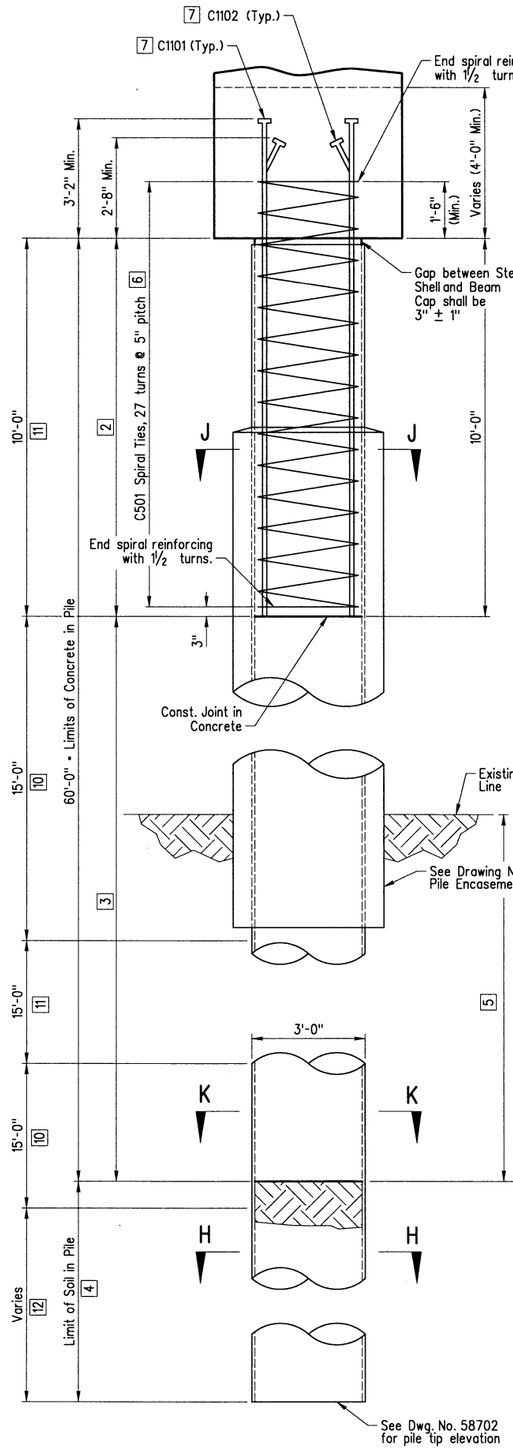
SECTION J-J
Scale: 1" = 1'-0"



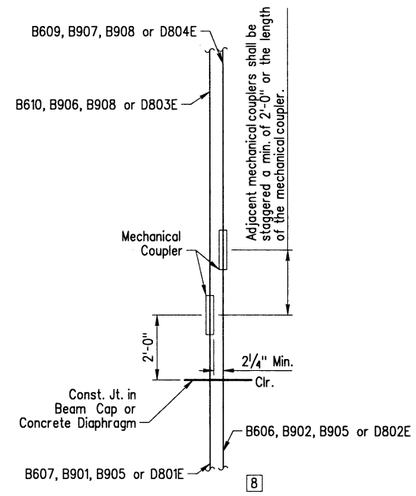
SECTION K-K
Scale: 1" = 1'-0"



SECTION H-H
Scale: 1" = 1'-0"



PILE DETAIL
No Scale



BEAM CAP & CONCRETE DIAPHRAGM BAR DETAIL
No Scale

1 Concrete Diaphragm at intermediate bents shall be built vertical.

2 Vibration of concrete in the top 10 feet of the pile will be needed to ensure the consolidation of the concrete around the reinforcing steel. The Contractor will be responsible for obtaining satisfactory results. Concrete shall be Class S with a minimum 28 day compressive strength, f'c = 3500 psi., unless otherwise approved by the Engineer.

3 Concrete shall be Self-Consolidating Concrete in accordance with Special Provision Job No. CA1002 "Self-Consolidating Concrete". Self-Consolidating Concrete shall have a minimum 28 day compressive strength, f'c = 3500 psi.

4 The soil plug shall be removed to the specified depth and driving shall continue to verify the minimum ultimate bearing capacity. At no time shall the pile have a soil plug depth of less than 5'-0".

5 The inside of the pile shall be cleaned with an appropriate tool to remove any and all adhering soil and other materials.

6 No lap splices will be permitted.

7 Reinforcement shall be Headed Steel Bars in accordance with Special Provision Job No. CA1002 "Headed Steel Bars for Concrete Reinforcement".

8 Mechanical couplers in the beam cap shall maintain the clearances shown. Their payment shall be subsidiary to the item "Reinforcing Steel-Bridge (Grade 60)". The QPL approved couplers shall develop at least 125% of the specified yield strength of the bar.

9 See Special Provision Job No. CA1002 "Steel Shell Piling (36 Inch Diameter)".

10 Field splices of steel shells will be permitted with 100% ultrasonic and visual inspection.

11 No field splices of steel shells will be permitted.

12 Field splices of steel shells will be permitted with 100% visual inspection.

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.		CA1002	144	319

1 07391 - INTERMEDIATE BENTS - 58697

SHEET 3 OF 4
DETAILS OF INTERMEDIATE BENTS 2, 3, 5, 6, 8 & 9
BRIDGE OVER BIG LAKE OUTLET
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11328 CHRISTOPHER J. CRISWELL 9/16/16
BRIDGE ENGINEER
PRINT DATE: 9/16/2016

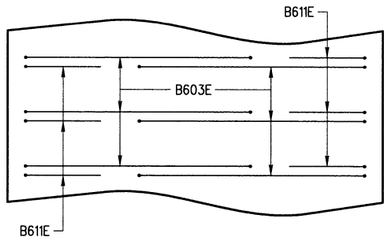
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CHECKED BY: CJC DATE: 2/10/16
DESIGNED BY: HMD DATE: 1/19/16
BRIDGE NO. 07391
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DRAWING NO. 58697

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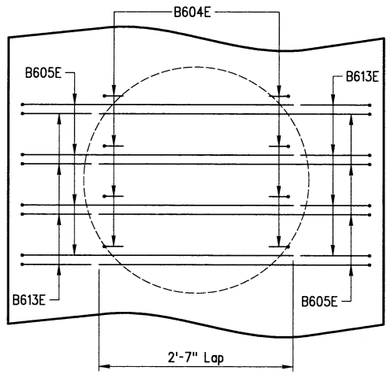
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				6	ARK.			
				JOB NO.		CA1002	145	319

(1) 07391 - INTERMEDIATE BENTS - 58698



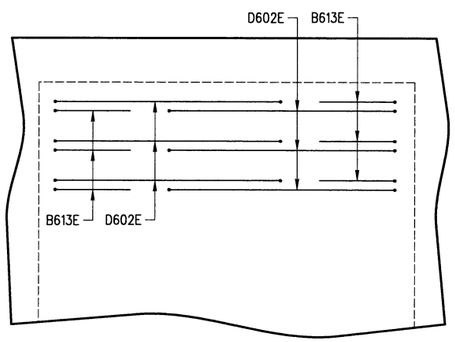
SECTION M-M
No Scale

Note:
B901 and B902 are not shown for clarity.



SECTION N-N
No Scale

Note:
B901 and B902 are not shown for clarity.



Note:
Slab reinforcement is not shown for clarity.

SECTION L-L
Scale: 1" = 1'-0"

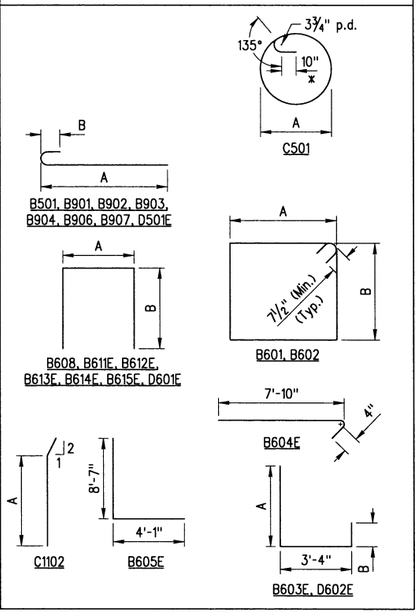
BAR LIST PER BENT ** STAGE 2 CONSTRUCTION

	MARK	NO. REQ'D.	LENGTH	A	B	PIN DIA.
	C501	4	233'-7"	2'-6"	-	Spiral
	C1101	40	13'-2"	-	-	Str.
	C1102	40	12'-9"	11'-10"	-	1¼"
	B501	350	4'-6"	3'-11"	5"	3¾"
	B601	14	14'-10"	3'-4"	3'-8"	4½"
	B602	12	15'-6"	3'-4"	4'-0"	4½"
	B603E	74	19'-5"	8'-7"	7'-10"	4½"
	B604E	40	8'-4"	-	-	4½"
	B605E	40	12'-6"	-	-	4½"
xxx	B606	5	39'-10"	-	-	Str.
xxx	B607	5	37'-10"	-	-	Str.
	B608	7	21'-9"	4'-5"	8'-10"	4½"
	B611E	6	10'-4"	8'-8"	1'-0"	4½"
	B612E	28	10'-5"	8'-9"	1'-0"	4½"
	B613E	28	10'-7"	8'-11"	1'-0"	4½"
	B614E	30	10'-9"	9'-1"	1'-0"	4½"
	B615E	22	10'-11"	9'-3"	1'-0"	4½"
xxx	B901	4	39'-1"	37'-10"	10"	9"
xxx	B902	4	41'-1"	39'-10"	10"	9"
	B903	4	27'-3"	26'-0"	10"	9"
	B904	4	29'-3"	28'-0"	10"	9"
xxx	B905	8	19'-10"	-	-	Str.
	D501E	306	4'-9"	4'-2"	5"	3¾"
	D601E	6	8'-7"	4'-5"	2'-3"	4½"
	D602E	102	11'-11"	4'-10"	4'-1"	4½"
xxx	D801E	6	34'-10"	-	-	Str.
xxx	D802E	6	36'-10"	-	-	Str.

BAR LIST PER BENT ** STAGE 3 CONSTRUCTION

	MARK	NO. REQ'D.	LENGTH	A	B	PIN DIA.
	C501	4	233'-7"	2'-6"	-	Spiral
	C1101	40	13'-2"	-	-	Str.
	C1102	40	12'-9"	11'-10"	-	1¼"
	B501	400	4'-6"	3'-11"	5"	3¾"
	B601	14	14'-10"	3'-4"	3'-8"	4½"
	B602	20	15'-6"	3'-4"	4'-0"	4½"
	B603E	86	19'-5"	8'-7"	7'-10"	4½"
	B604E	40	8'-4"	-	-	4½"
	B605E	40	12'-6"	-	-	4½"
	B608	7	21'-9"	4'-5"	8'-10"	4½"
xxx	B609	5	36'-10"	-	-	Str.
xxx	B610	5	38'-10"	-	-	Str.
	B611E	6	10'-4"	8'-8"	1'-0"	4½"
	B612E	28	10'-5"	8'-9"	1'-0"	4½"
	B613E	28	10'-7"	8'-11"	1'-0"	4½"
	B614E	30	10'-9"	9'-1"	1'-0"	4½"
	B615E	34	10'-11"	9'-3"	1'-0"	4½"
	B903	4	27'-3"	26'-0"	10"	9"
	B904	4	29'-3"	28'-0"	10"	9"
xxx	B906	4	40'-1"	38'-10"	10"	9"
xxx	B907	4	38'-1"	36'-10"	10"	9"
xxx	B908	8	18'-10"	-	-	Str.
	D501E	414	4'-9"	4'-2"	5"	3¾"
	D601E	6	8'-7"	4'-5"	2'-3"	4½"
	D602E	138	11'-11"	4'-10"	4'-1"	4½"
xxx	D803E	6	41'-10"	-	-	Str.
xxx	D804E	6	39'-10"	-	-	Str.

BENDING DIAGRAMS
(Dimensions are out to out of bars.)

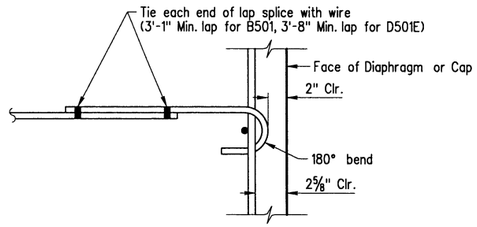


Note: Bars designated with an "E" suffix shall be epoxy coated.

** Weights of all bars listed are included in the totals for "Reinforcing Steel - Bridge (Grade 60)" and "Epoxy Coated Reinforcing Steel (Grade 60)" for each intermediate bent.

xxx Dimensions shown are to butt splice and may vary based on mechanical coupler used.

x Ends of spiral shall be terminated with 1½ turns and a 135° hook with a 10" tail around a vertical bar. Hook may be field bent.



TIE BAR DETAIL
No Scale

NOTES FOR SPIRAL REINFORCING

Spiral reinforcing shall be plain round or deformed steel bars meeting the requirements of AASHTO M31 or M322, Type A, with mill test report (Grade 60) or shall be cold drawn wire meeting the requirements of AASHTO M32 or M225 (Grade 70) with a minimum diameter of 5/16".

Spiral reinforcement shall be paid for at the contract unit price bid per pound for "Reinforcing Steel - Bridge (Grade 60)". No additional payment shall be made for spacers or bracing needed for assembly, shipping, handling, or erecting.

INTERMEDIATE BENT NOTES

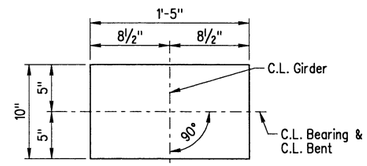
Concrete in the cap shall be Class "S" with a minimum 28 day compressive strength, f'c = 3500 psi. Quantity is included in the total for "Class S Concrete - Bridge".

Concrete in the concrete diaphragm shall be Class "S(AE)" with a minimum 28 day compressive strength, f'c = 4000 psi. Quantity is included in the total for "Class S(AE) Concrete - Bridge".

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 M322, Type A, with mill test report, Grade 60 (yield strength= 60,000 psi).

For additional information, see Layout.



BEARING PAD LAYOUT
Scale: 1½" = 1'-0"

Note:
For details of elastomeric bearing pads, see Drawing No. 58724.

The neoprene pads shall be bonded to the bearing seat with an epoxy adhesive in accordance with the bearing manufacturer's recommendations for bonding neoprene to concrete to prevent sliding.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISPELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 4 OF 4
DETAILS OF INTERMEDIATE BENTS 2, 3, 5, 6, 8 & 9
BRIDGE OVER BIG LAKE OUTLET
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

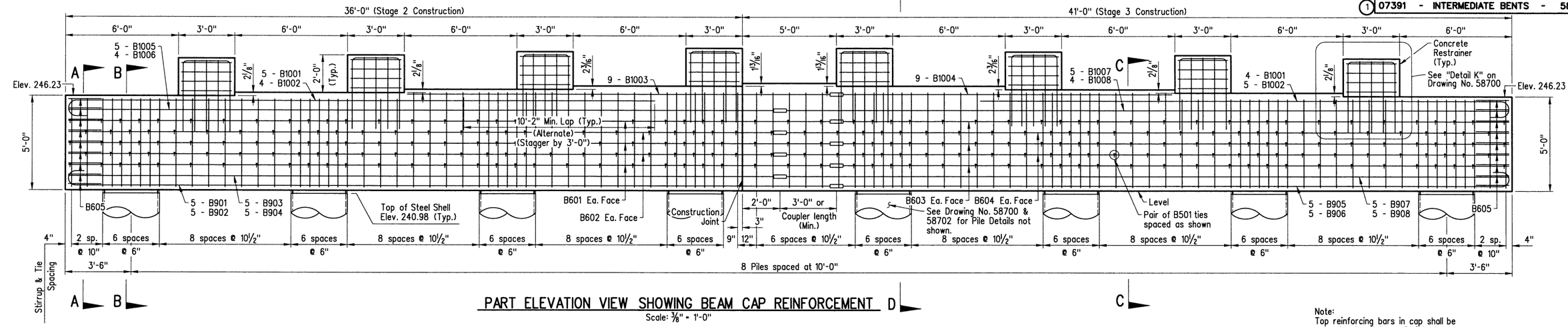
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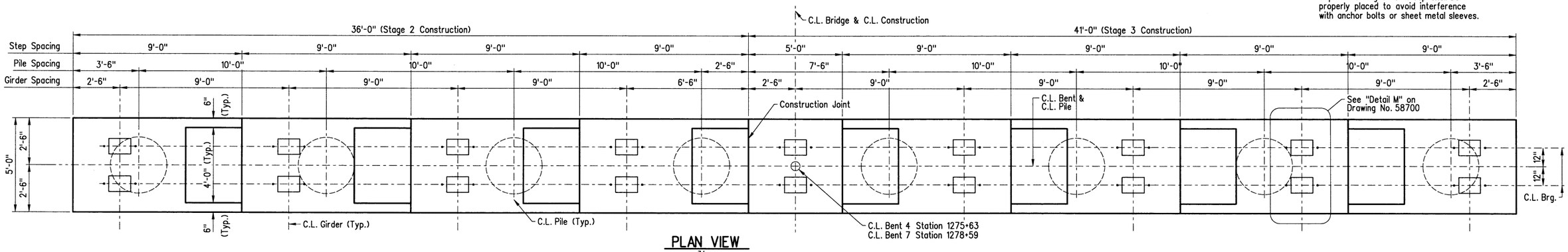
(1) 07391 - INTERMEDIATE BENTS - 58699



PART ELEVATION VIEW SHOWING BEAM CAP REINFORCEMENT

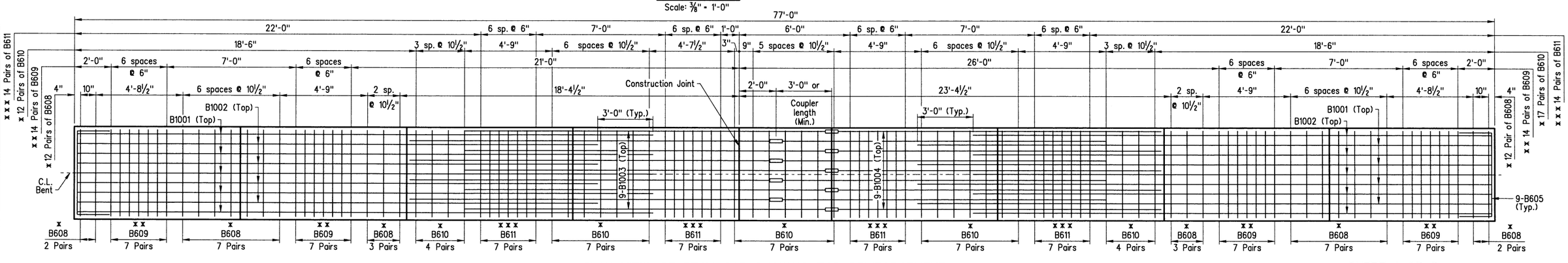
Scale: ⅜" = 1'-0"

Note:
Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.



PLAN VIEW

Scale: ⅜" = 1'-0"



PLAN VIEW OF BEAM CAP SHOWING TOP REINFORCEMENT

Scale: ⅜" = 1'-0"

x Pairs of B501 spaced with each pair of B608 and each pair of B610 as shown in "Part Elevation View Showing Beam Cap Reinforcement".

x x Pairs of B501 spaced with each pair of B609 as shown in "Part Elevation View Showing Beam Cap Reinforcement". Pair of B502 spaced with each pair of B609 as shown in Section B-B.

x x x Pairs of B501 spaced with each pair of B611 as shown in "Part Elevation View Showing Beam Cap Reinforcement". Pair of B503 spaced with each pair of B611 as shown in Section D-D.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 1 OF 3
DETAILS OF INTERMEDIATE BENTS 4 & 7
BRIDGE OVER BIG LAKE OUTLET
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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CHECKED BY: CJC DATE: 2/10/16
DESIGNED BY: HMD DATE: 1/19/16
BRIDGE NO. 07391

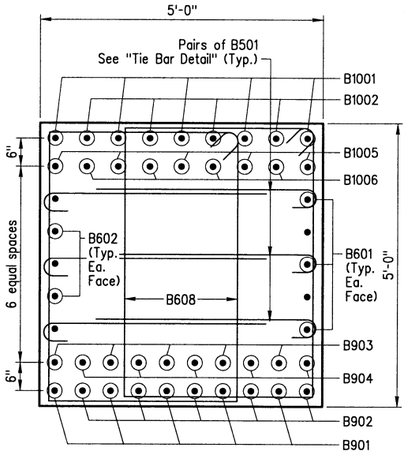
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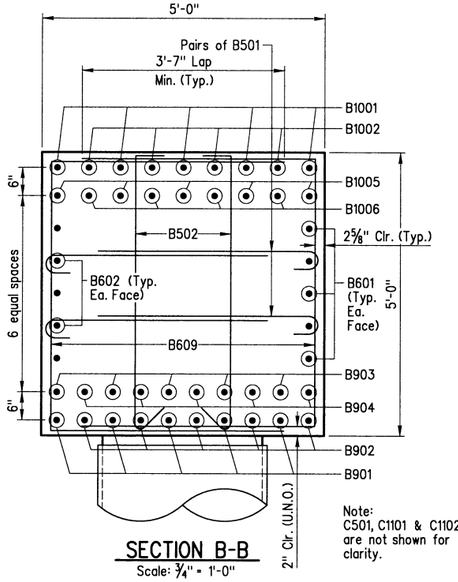
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				JOB NO.		CA1002	147	319

(1) 07391 - INTERMEDIATE BENTS - 58700

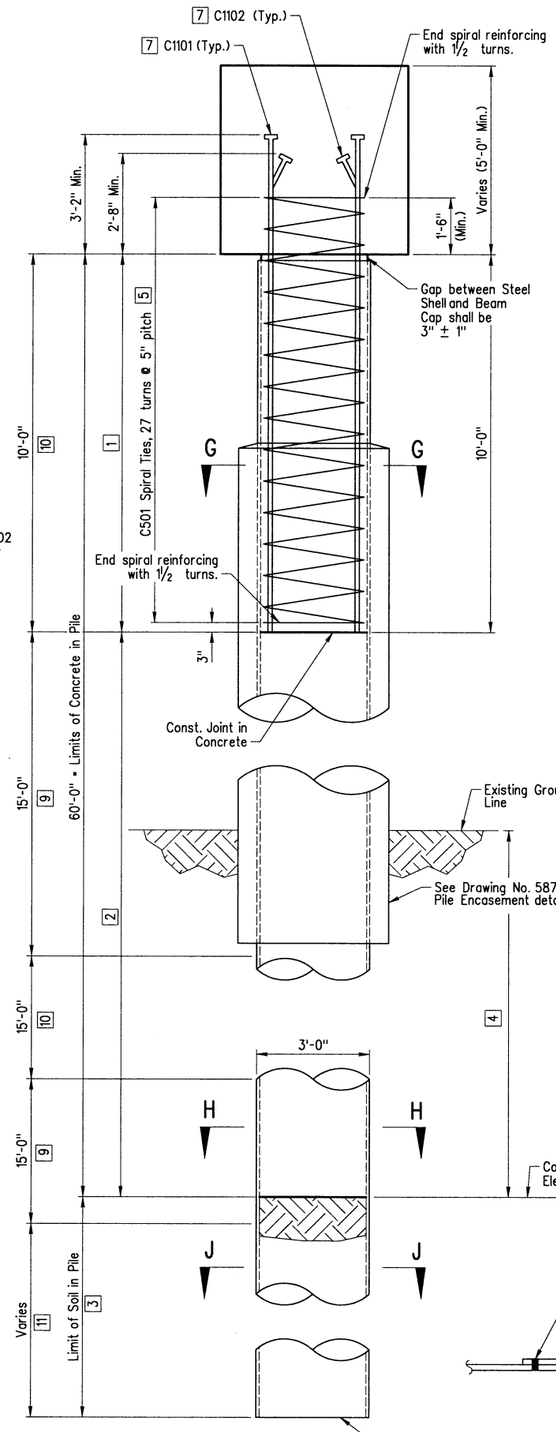


SECTION A-A
Scale: 3/4" = 1'-0"



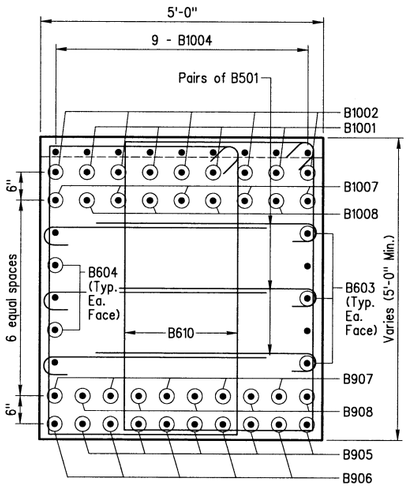
SECTION B-B
Scale: 3/4" = 1'-0"

Note:
C501, C1101 & C1102 are not shown for clarity.

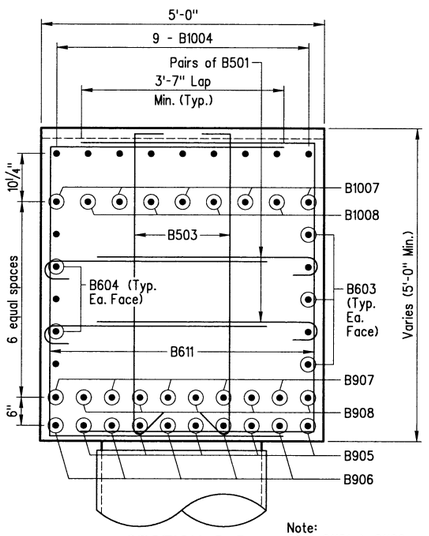


PILE DETAIL
No Scale

Note:
See Drawing No. 58687 and 58702 for details of 36" Dia. Steel Shell Pile not shown.

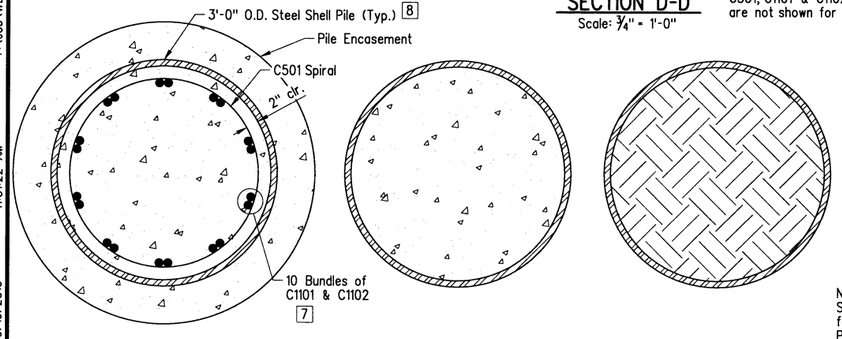


SECTION C-C
Scale: 3/4" = 1'-0"



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

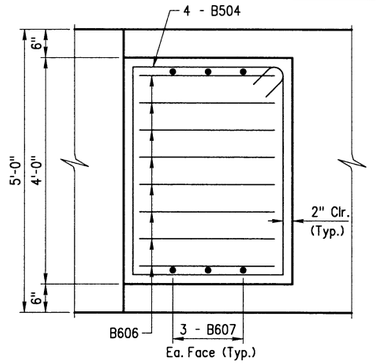
Note:
C501, C1101 & C1102 are not shown for clarity.



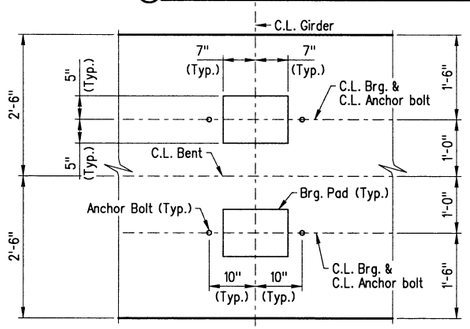
SECTION G-G
Scale: 1" = 1'-0"

SECTION H-H
Scale: 1" = 1'-0"

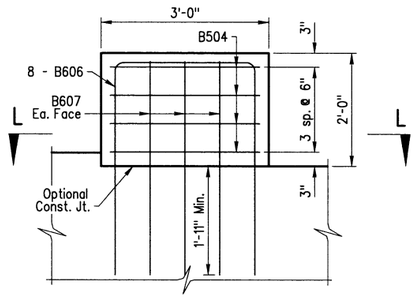
SECTION J-J
Scale: 1" = 1'-0"



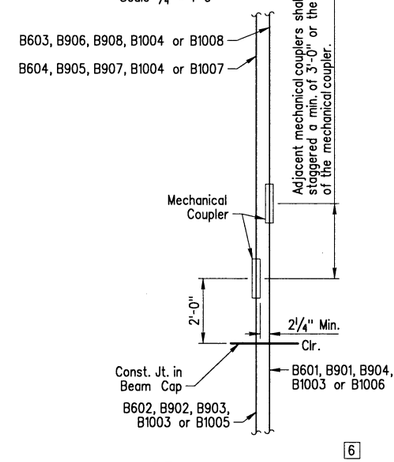
SECTION L-L
Scale: 3/4" = 1'-0"



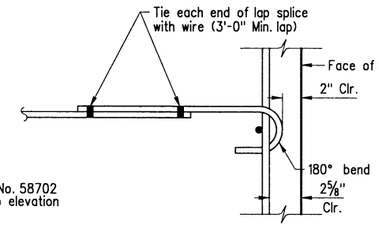
DETAIL M
Scale: 3/4" = 1'-0"



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



6
BEAM CAP BAR DETAIL
No Scale



TIE BAR DETAIL
No Scale

1 Vibration of concrete in the top 10 feet of the pile will be needed to ensure the consolidation of the concrete around the reinforcing steel. The Contractor will be responsible for obtaining satisfactory results. Concrete shall be Class S with a minimum 28 day compressive strength, f'c = 3500 psi., unless otherwise approved by the Engineer.

2 Concrete shall be Self-Consolidating Concrete in accordance with Special Provision Job No. CA1002 "Self-Consolidating Concrete". Self-Consolidating Concrete shall have a minimum 28 day compressive strength, f'c = 3500 psi.

3 The soil plug shall be removed to the specified depth and driving shall continue to verify the minimum ultimate bearing capacity. At no time shall the pile have a soil plug depth of less than 5'-0".

4 The inside of the pile shall be cleaned with an appropriate tool to remove any and all adhering soil and other materials.

5 No lap splices will be permitted.

6 Mechanical couplers in the beam cap shall maintain the clearances shown. Their payment shall be subsidiary to the item "Reinforcing Steel-Bridge (Grade 60)". The QPL approved couplers shall develop at least 125% of the specified yield strength of the bar.

7 Reinforcement shall be Headed Steel Bars in accordance with Special Provision Job No. CA1002 "Headed Steel Bars for Concrete Reinforcement".

8 See Special Provision Job No. CA1002 "Steel Shell Piling (36 Inch Diameter)".

9 Field splices of steel shells will be permitted with 100% ultrasonic and visual inspection.

10 No field splices of steel shells will be permitted.

11 Field splices of steel shells will be permitted with 100% visual inspection.

STATE OF ARKANSAS
CHRISTOPHER J. CRISWELL
REGISTERED PROFESSIONAL ENGINEER
No. 11328
9/16/16

BRIDGE ENGINEER
PRINT DATE: 9/16/2016

SHEET 2 OF 3
DETAILS OF INTERMEDIATE BENTS 4 & 7
BRIDGE OVER BIG LAKE OUTLET
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 3/17/15
CHECKED BY: CJC DATE: 2/10/16
DESIGNED BY: HMD DATE: 1/19/16
BRIDGE NO. 07391
FILENAME: bca1002x2_bx6.dgn
SCALE: As Noted
DRAWING NO. 58700

JACOBS

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9/16/2016 11:01:22 AM

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.		CA1002	148	319

(1) **07391 - INTERMEDIATE BENTS - 58701**

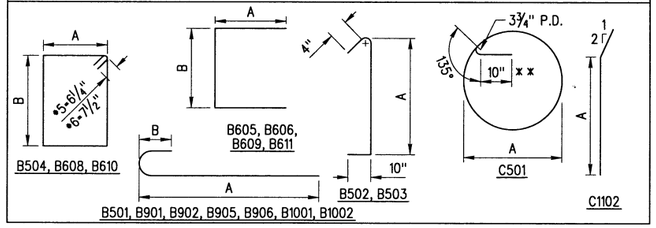
BAR LIST PER BENT
STAGE 2 CONSTRUCTION

	MARK	NO. REQ'D.	LENGTH	A	B	PIN DIA.
	C501	4	233'-7"	2'-6"	-	Spiral
	C1101	40	13'-2"	-	-	Str.
	C1102	40	12'-9"	11'-10"	-	11¼"
	B501	260	4'-5"	3'-10"	5"	3¾"
	B502	28	5'-11"	4'-8"	-	2½"
	B503	28	6'-3"	5'-0¼"	-	2½"
	B504	16	13'-4"	2'-8"	3'-8"	2½"
x	B601	6	40'-10"	-	-	Str.
x	B602	4	37'-10"	-	-	Str.
	B605	9	7'-7"	1'-9"	4'-5"	4½"
	B606	32	9'-8"	3'-9"	2'-6"	4½"
	B607	24	3'-9"	-	-	Str.
	B608	24	16'-6"	3'-2"	4'-8"	4½"
	B609	28	12'-6"	4'-1"	4'-8"	4½"
	B610	24	17'-3"	3'-2"	5'-0¼"	4½"
	B611	28	12'-10"	4'-1"	5'-0¼"	4½"
x	B901	5	42'-1"	40'-10"	10"	9"
x	B902	5	39'-1"	37'-10"	10"	9"
x	B903	5	37'-10"	-	-	Str.
x	B904	5	40'-10"	-	-	Str.
	B1001	5	32'-7"	31'-2"	11½"	10"
	B1002	4	29'-7"	28'-2"	11½"	10"
x	B1003	9	19'-10"	-	-	Str.
x	B1005	5	37'-10"	-	-	Str.
x	B1006	4	40'-10"	-	-	Str.

BAR LIST PER BENT
STAGE 3 CONSTRUCTION

	MARK	NO. REQ'D.	LENGTH	A	B	PIN DIA.
	C501	4	233'-7"	2'-6"	-	Spiral
	C1101	40	13'-2"	-	-	Str.
	C1102	40	12'-9"	11'-10"	-	11¼"
	B501	286	4'-5"	3'-10"	5"	3¾"
	B502	28	5'-11"	4'-8"	-	2½"
	B503	28	6'-3"	5'-0¼"	-	2½"
	B504	16	13'-4"	2'-8"	3'-8"	2½"
x	B603	6	35'-10"	-	-	Str.
x	B604	4	38'-10"	-	-	Str.
	B605	9	7'-7"	1'-9"	4'-5"	4½"
	B606	32	9'-8"	3'-9"	2'-6"	4½"
	B607	24	3'-9"	-	-	Str.
	B608	24	16'-6"	3'-2"	4'-8"	4½"
	B609	28	12'-6"	4'-1"	4'-8"	4½"
	B610	34	17'-3"	3'-2"	5'-0¼"	4½"
	B611	28	12'-10"	4'-1"	5'-0¼"	4½"
x	B905	5	40'-1"	38'-10"	10"	9"
x	B906	5	37'-1"	35'-10"	10"	9"
x	B907	5	38'-10"	-	-	Str.
x	B908	5	35'-10"	-	-	Str.
	B1001	4	32'-7"	31'-2"	11½"	10"
	B1002	5	29'-7"	28'-2"	11½"	10"
x	B1004	9	17'-10"	-	-	Str.
x	B1007	5	38'-10"	-	-	Str.
x	B1008	4	35'-10"	-	-	Str.

BENDING DIAGRAMS
(Dimensions are out to out of bars.)



x Dimensions shown are to butt splice and may vary based on mechanical coupler used.

x x Ends of spiral shall be terminated with 1½ turns and a 135° hook with a 10" tail around a vertical bar. Hook may be field bent.

INTERMEDIATE BENT NOTES

Concrete in the cap shall be Class "S" with a minimum 28 day compressive strength, f'c = 3500 psi. Quantity is included in the total for "Class S Concrete - Bridge".

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 M322, Type A, with mill test report, Grade 60 (yield strength- 60,000 psi).

For additional information, see Layout.

NOTES FOR SPIRAL REINFORCING

Spiral reinforcing shall be plain round or deformed steel bars meeting the requirements of AASHTO M31 or M322, Type A, with mill test report (Grade 60) or shall be cold drawn wire meeting the requirements of AASHTO M32 or M225 (Grade 70) with a minimum diameter of ⅝".

Spiral reinforcement shall be paid for at the contract unit price bid per pound for "Reinforcing Steel - Bridge (Grade 60)". No additional payment shall be made for spacers or bracing needed for assembly, shipping, handling, or erecting.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 3 OF 3
DETAILS OF INTERMEDIATE BENTS 4 & 7
BRIDGE OVER BIG LAKE OUTLET
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 3/17/15
CHECKED BY: CJC DATE: 2/10/16
DESIGNED BY: HMD DATE: 1/19/16
BRIDGE NO. 07391
FILENAME: bca1002x2_bx7.dgn
SCALE: No Scale
DRAWING NO. 58701

JACOBS

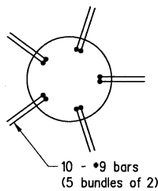
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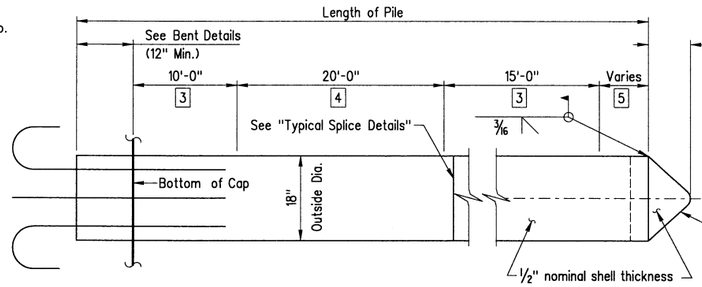
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA1002	149	319

(1) 07391 - STEEL SHELL PILES - 58702

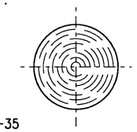
Pile reinforcing shall be placed to minimize interference with anchor bolts and reinforcing in cap.

See Drawing No. 58693 for End Bent details.





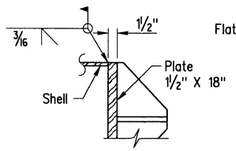
Note: Steel pile tip will not be paid for directly, but shall be subsidiary to the item "Steel Shell Piling".



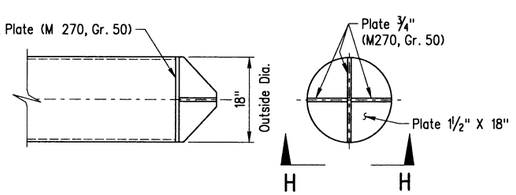
Approved inside flange
Conical point
AASHTO M 103, Gr. 65-35
See "Table of Variables" for minimum design load.

18" DIAMETER CONCRETE FILLED STEEL SHELL PILE [2]

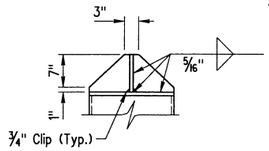
No Scale



PART SECTION
Scale: 1" = 1'-0"



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



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

GENERAL NOTES FOR 18" & 36" CONCRETE FILLED STEEL SHELL PILES

Steel shells shall conform to ASTM 252, Grade 3 (Fy = 45,000 psi).

For concrete filling of 18" diameter steel shell, see Special Provision Job No. CA1002 "Steel Shell Piling (18 Inch Diameter)" and Drawing No. 58693.

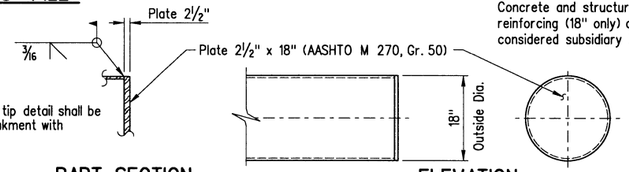
For concrete filling of 36" diameter steel shell, see Special Provision Job No. CA1002 "Steel Shell Piling (36 Inch Diameter)" and Drawing No. 58697 and 58700.

36" steel shell piling that extends above the ground and is not protected by pile encasement shall be painted in accordance with Special Provision Job No. CA1002 "Steel Shell Piling (36 Inch Diameter)".

See Table of Variables and Bridge Layout for size and estimated length of steel shell piles and for driving information.

Concrete and structural steel (18" and 36"), soil plug removal (36" only), pile reinforcing (18" only) and painting (36" only) shall not be paid for directly, but shall be considered subsidiary to the item "Steel Shell Piling".

ALTERNATE VANED TIP DETAIL FOR 18" PILE



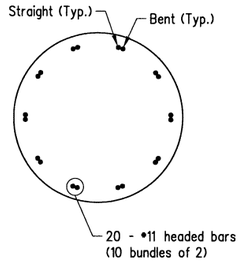
Note:
Steel Shell Piling with alternate flat tip detail shall be driven prior to placement of embankment with geosynthetic reinforcement.

PART SECTION
No Scale

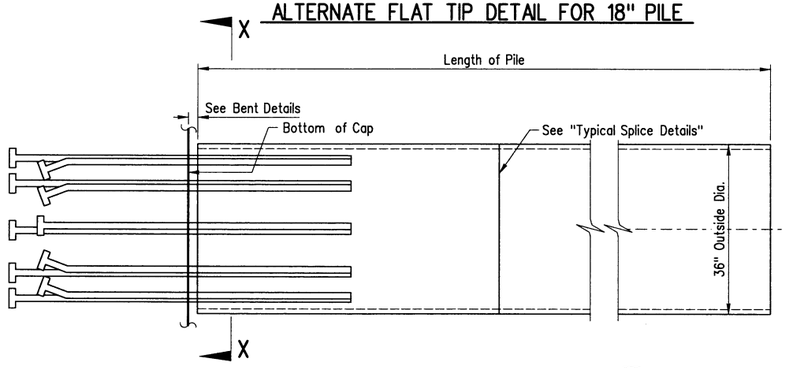
ELEVATION
No Scale

Pile reinforcing shall be placed to minimize interference with anchor bolts and reinforcing in cap.

See Drawing No. 58697 & 58700 for Intermediate Bent details.

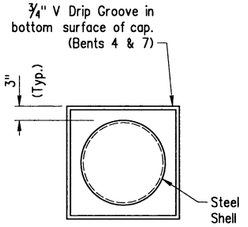


ALTERNATE FLAT TIP DETAIL FOR 18" PILE



36" DIAMETER CONCRETE FILLED OPEN ENDED STEEL SHELL PILE [1]

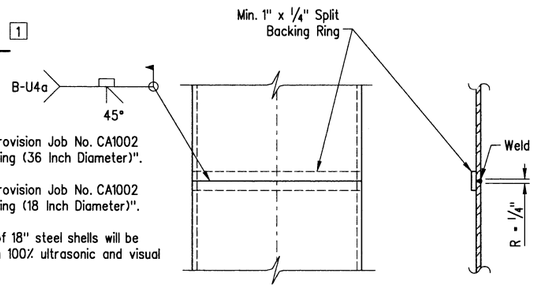
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SECTION X-X
No Scale

TABLE OF VARIABLES

BENT	OUTSIDE DIAMETER "D"	NOMINAL SHELL THICKNESS "T"	ESTIMATED ELEVATION OF TOP OF PILE ENCASEMENT	ESTIMATED ELEVATION OF BOTTOM OF PILE ENCASEMENT	MINIMUM TIP ELEVATION	ESTIMATED PRODUCTION PILE LENGTH	MINIMUM ULTIMATE BEARING CAPACITY (TONS)	ESTIMATED HAMMER ENERGY (FT-KIPS)	MINIMUM CONICAL TIP DESIGN LOAD (KIPS)
1	18"	1/2"	-	-	199	46'	208	66,400	1,114
2	36"	1"	235.0	223.0	176	78'	418	83,900	-
3	36"	1"	235.0	223.0	176	78'	418	83,900	-
4	36"	1"	235.0	223.0	176	66'	254	83,900	-
5	36"	1"	235.0	220.0	175	79'	418	83,900	-
6	36"	1"	235.0	221.0	173	79'	418	83,900	-
7	36"	1"	235.0	227.0	165	77'	254	83,900	-
8	36"	1"	237.0	231.0	165	77'	418	83,900	-
9	36"	1"	235.0	227.0	170	75'	418	83,900	-
10	18"	1/2"	-	-	198	46'	208	66,400	1,114



TYPICAL SPLICE DETAILS
No Scale

[1] See Special Provision Job No. CA1002 "Steel Shell Piling (36 Inch Diameter)".

[2] See Special Provision Job No. CA1002 "Steel Shell Piling (18 Inch Diameter)".

[3] Field splices of 18" steel shells will be permitted with 100% ultrasonic and visual inspection.

[4] No field splices of 18" steel shells will be permitted.

[5] Field splices of 18" steel shells will be permitted with 100% visual inspection.

GENERAL NOTES FOR PILE ENCASEMENTS

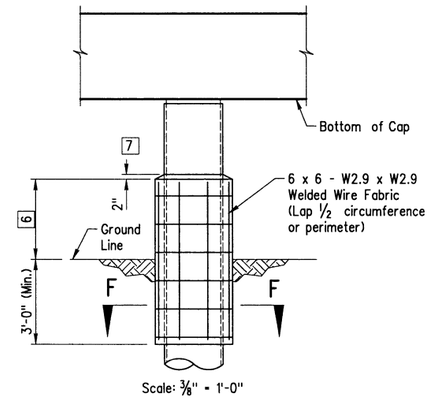
See Bridge Layout for additional notes and required location of pile encasements.

Concrete shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. If concrete cannot be placed in the dry, Seal Concrete may be used from top to bottom of encasement.

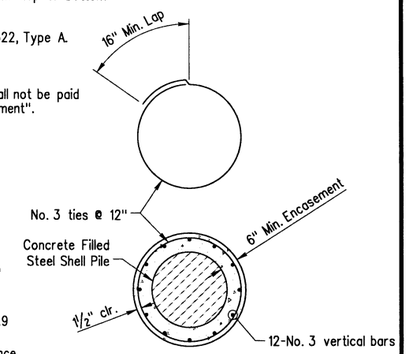
Reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A.

Welded wire fabric shall conform to AASHTO M 55 or M 221.

Concrete, welded wire fabric or reinforcing steel, and galvanized pipe shall not be paid for directly, but shall be considered subsidiary to the item "Pile Encasement".



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

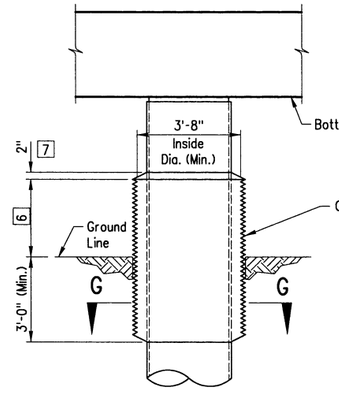


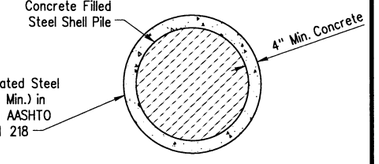
SECTION F-F (REINF. ALTERNATE)
Scale: 1/2" = 1'-0"

PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES

[6] See Table of Variables and Bridge Layout for height of pile encasement (3'-0" Minimum).

[7] Pile encasement shall have 2" concrete taper for water runoff as shown.





SECTION G-G
Scale: 1/2" = 1'-0"

No Scale

ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS BRIDGE OVER BIG LAKE OUTLET MISSISSIPPI COUNTY

ROUTE 18 SEC. 6

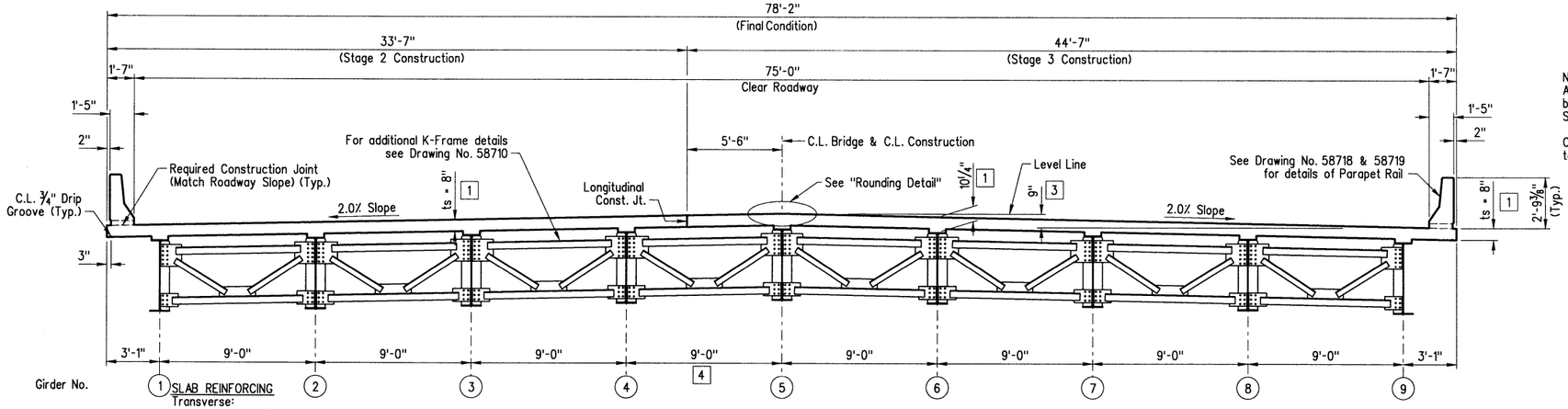
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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CHECKED BY:	CJC	DATE:	4/8/15		
DESIGNED BY:	CJC	DATE:	3/18/15	SCALE:	As Noted
BRIDGE NO. 07391			DRAWING NO. 58702		

JACOBS

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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
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				JOB NO.		CA1002	150	319
				(1) 07391 - 296' CONT. UNITS -				58703

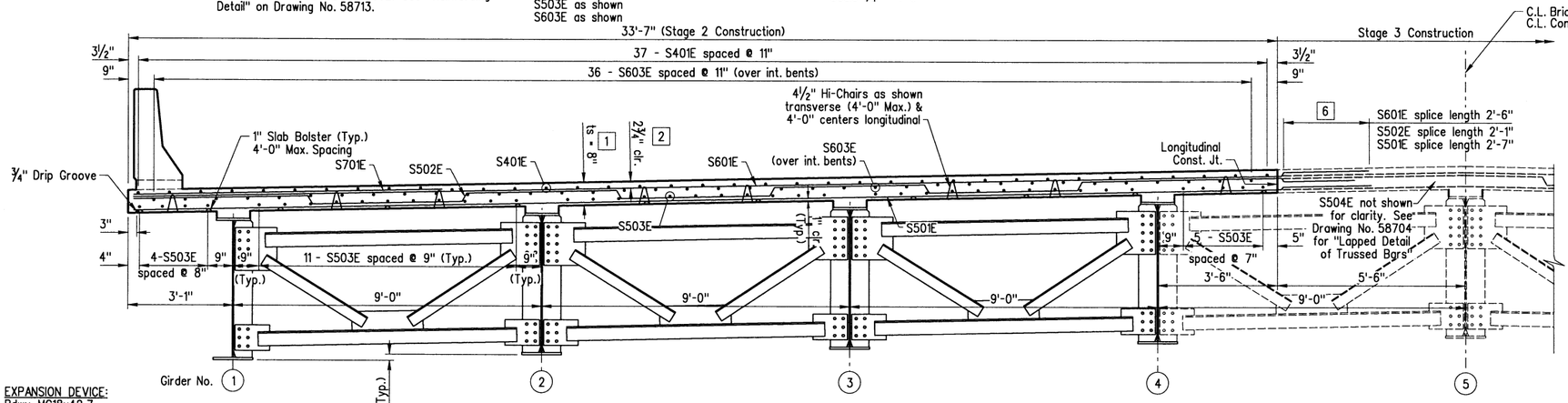


SLAB REINFORCING
Transverse:
S502E & S506E @ 14" on center bent up over girders
S601E & S602E @ 14" on center in top
S501E & S505E @ 14" on center in bottom
S701E @ 14" on center @ both gutterlines (placed around ends of S502E & S506E. See "Reinforcing Detail" on Drawing No. 58713.
— Alternate

Longitudinal:
S401E as shown
S503E as shown
S603E as shown

TYPICAL ROADWAY SECTION - FINAL CONDITION
(Looking Ahead)
Scale: ¼" = 1'-0"

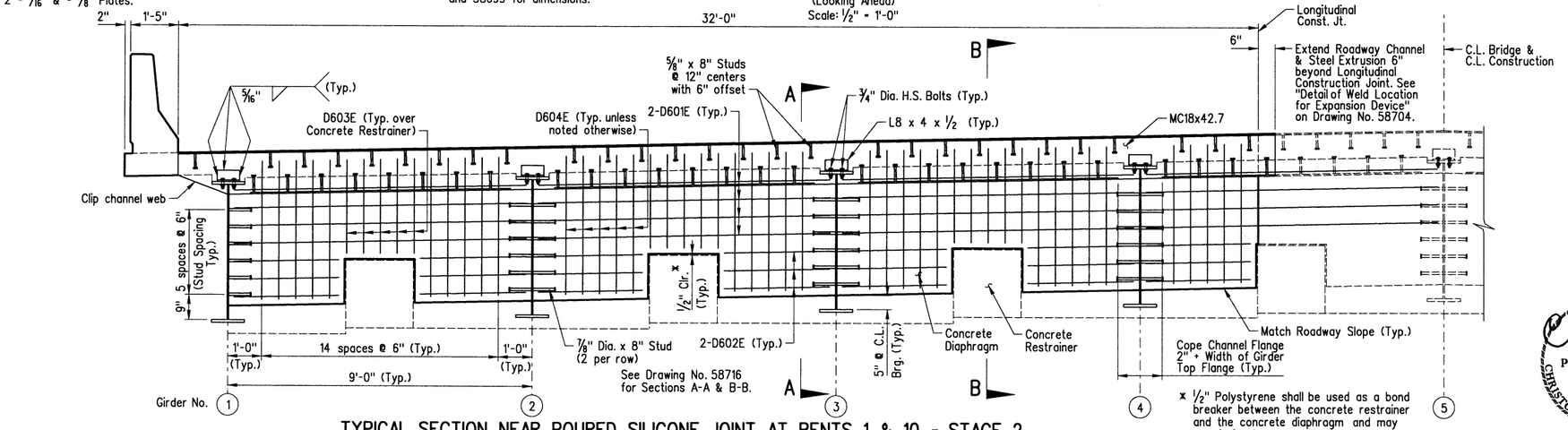
6 Stage 3 transverse reinforcing steel shall not be tied to Stage 2 transverse reinforcing steel.



7 See Drawing No. 58691, 58692, 58695 and 58699 for dimensions.

TYPICAL ROADWAY SECTION - STAGE 2
(Looking Ahead)
Scale: ½" = 1'-0"

EXPANSION DEVICE:
Rdwy. MC18x42.7
Conn. Angles L8 x 4 x ½
Detail Device ⅛" High & provide ¼" Shims using 2 - 1/16" & - ⅛" Plates.

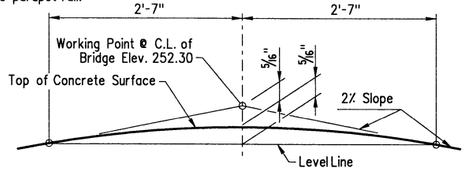


x ½" Polystyrene shall be used as a bond breaker between the concrete restrainer and the concrete diaphragm and may remain in place.

TYPICAL SECTION NEAR POURED SILICONE JOINT AT BENTS 1 & 10 - STAGE 2
(Looking Ahead)
Scale: ½" = 1'-0"

Notes:
At Contractor's option, in lieu of providing bars S502E or S506E, one #5 bar top and bottom may be substituted for each bar. Payment for reinforcing will be based on the weight of bars S502E and S506E. Bars in top and bottom shall be Epoxy Coated.

Class 1 Protective Surface Treatment shall be applied to the roadway surface and the face and top of each concrete parapet rail.



ROUNDING DETAIL
(No Scale)

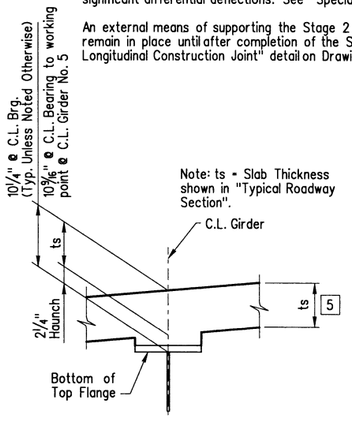
1 See "Adjustment for Slab Thickness Tolerance".

2 Tolerance: Minimum - ¼" : Plus equal to the amount of slab thickening used to meet slab thickness tolerance. See "Adjustment for Slab Thickness Tolerance".

3 Working Point to gutterline. See "Rounding Detail".

4 In this bay, connection plate widths and K-Frame lengths shall be fabricated, as necessary, to facilitate installation of K-Frames between adjacent girders with significant differential deflections. See "Special K-Frame Detail" on Drawing No. 58710.

An external means of supporting the Stage 2 overhang shall be provided and shall remain in place until after completion of the Stage 3 deck pour. See "Deck Support at Longitudinal Construction Joint" detail on Drawing No. 58715.



5 Tolerance when removable deck forming is used is +½", -¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

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 1 ¾". 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. 55005 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

SHEET 1 OF 20
DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS BRIDGE OVER BIG LAKE OUTLET
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11528
CHRISTOPHER J. CRISWELL
9/12/16
BRIDGE ENGINEER
PRINT DATE: 9/12/2016

DRAWN BY: LHG DATE: 6/3/14 FILENAME: bca1002x2_sx1.dgn
CHECKED BY: CJC DATE: 12/3/15
DESIGNED BY: CJC DATE: 11/26/14 SCALE: As Noted
BRIDGE NO. 07391 DRAWING NO. 58703

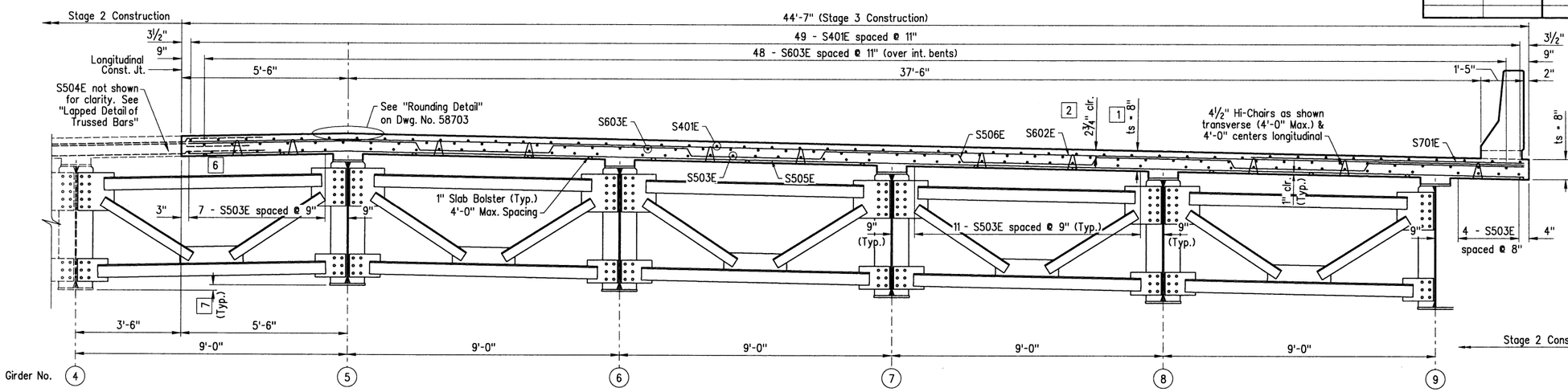
JACOBS

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9/12/2016 10:49:27 AM

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

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6	ARK.			
JOB NO.		CA1002	151	319

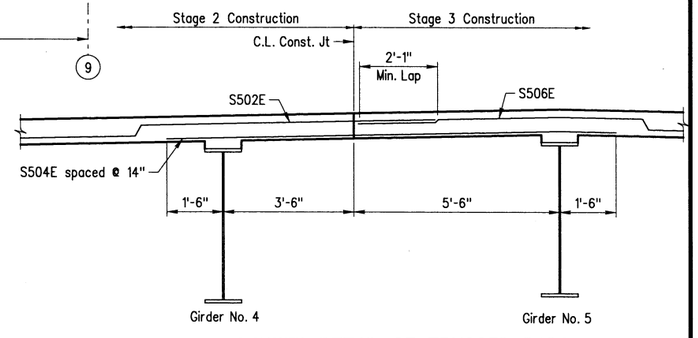
(1) 07391 - 296' CONT. UNITS - 58704



See Drawing No. 58703 for Notes [1], [2], [6] & [7].

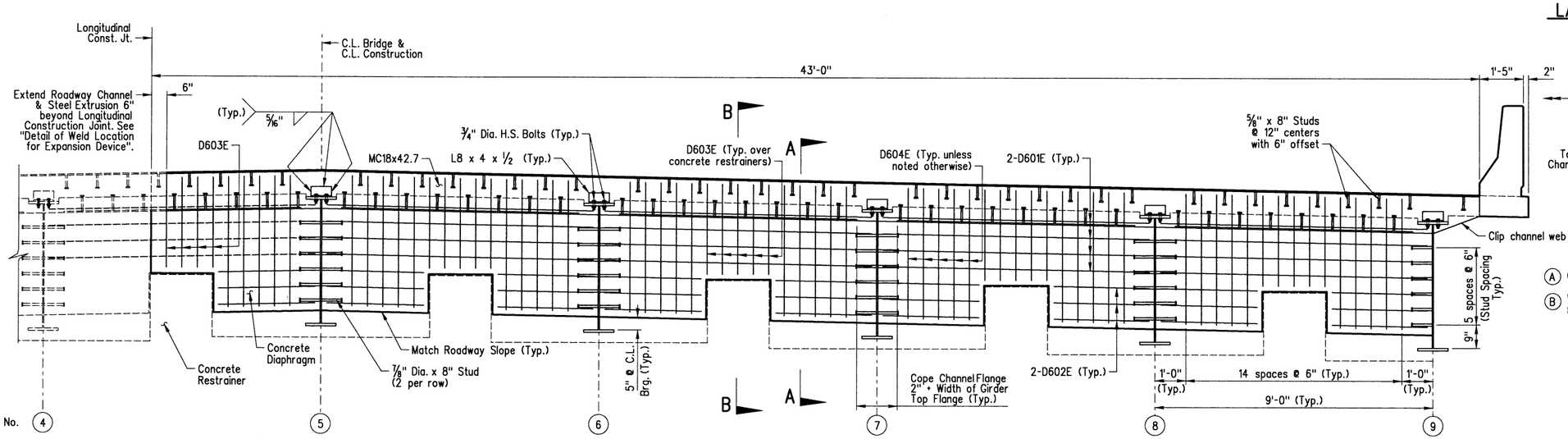
TYPICAL ROADWAY SECTION - STAGE 3

(Looking Ahead)
Scale: ½" = 1'-0"



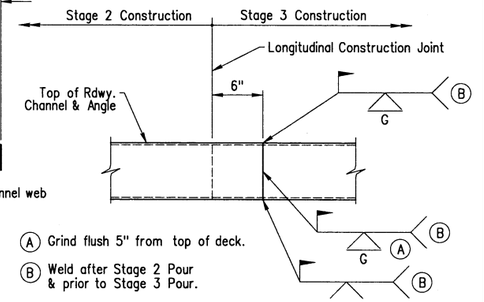
LAPPED DETAIL OF TRUSSED BARS

Scale: ½" = 1'-0"



TYPICAL SECTION NEAR POURED SILICONE JOINT AT BENTS 1 & 10 - STAGE 3

(Looking Ahead)
Scale: ½" = 1'-0"



DETAIL OF WELD LOCATION FOR EXPANSION DEVICE

No Scale

See Drawing No. 58716 for Sections A-A & B-B.

EXPANSION DEVICE:
Rdwy. MC18x42.7
Conn. Angles L8 x 4 x ½
Detail Device ⅛" High & provide ¼" Shims using 2 - 1/16" & - ⅛" Plates.

STATE OF ARKANSAS
CHRISTOPHER J. CRISWELL
REGISTERED PROFESSIONAL ENGINEER
No. 11328
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 2 OF 20
DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS BRIDGE OVER BIG LAKE OUTLET MISSISSIPPI COUNTY

ROUTE 18 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

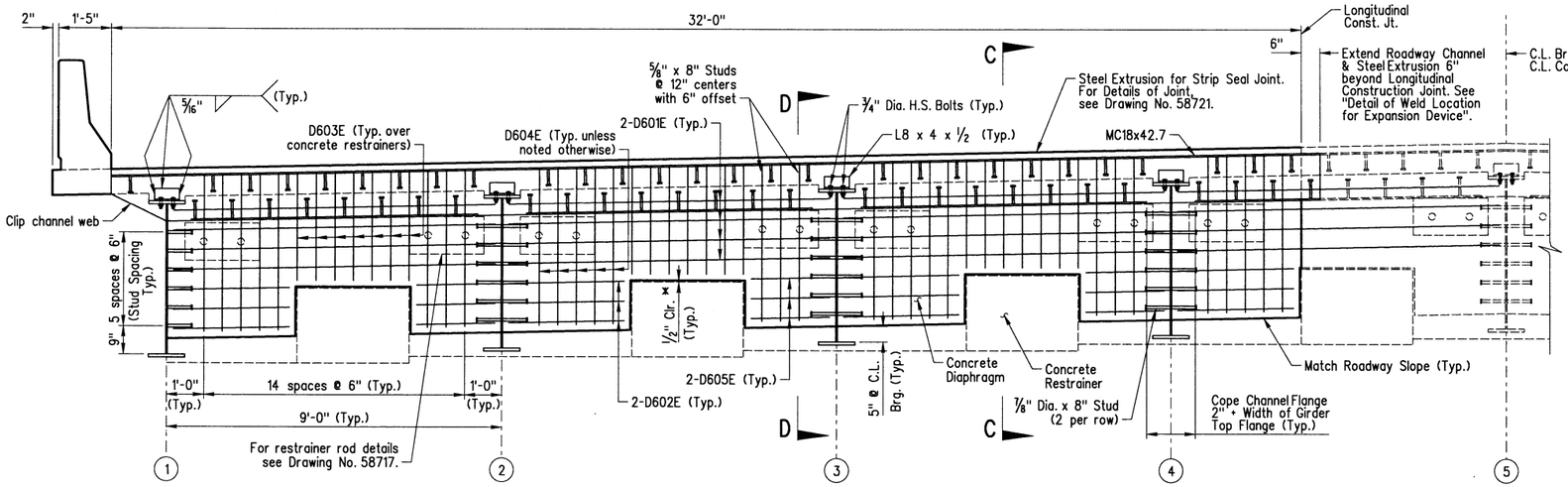
DRAWN BY:	LHG	DATE:	6/4/14
CHECKED BY:	CJC	DATE:	12/7/15
DESIGNED BY:	CJC	DATE:	11/26/14
BRIDGE NO.	07391		

FILENAME: bca1002x2_sx2.dgn
SCALE: As Noted
DRAWING NO. 58704

JACOBS

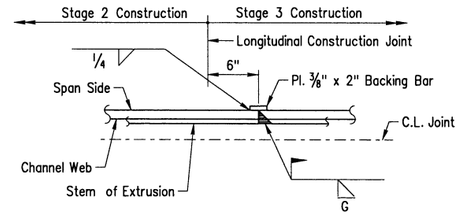
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9/12/2016 10:49:28 AM

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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				JOB NO.		CA1002	152	319
				(1) 07391	-	296' CONT. UNITS	-	58705



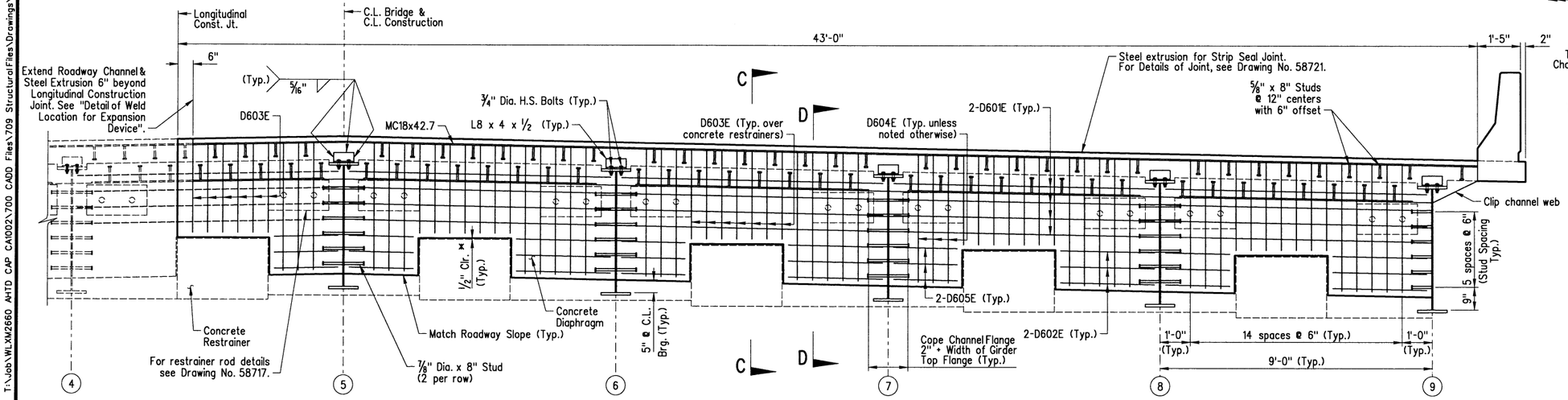
TYPICAL SECTION NEAR STRIP SEAL JOINT AT BENTS 4 & 7 - STAGE 2

(Looking Ahead)
Scale: 1/2" = 1'-0"



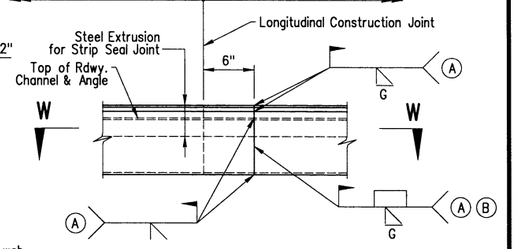
SECTION W-W

No Scale



TYPICAL SECTION NEAR STRIP SEAL JOINT AT BENTS 4 & 7 - STAGE 3

(Looking Ahead)
Scale: 1/2" = 1'-0"



(A) Weld after Stage 2 Pour & prior to Stage 3 Pour.

(B) For channel web and steel extrusion lapping channel web.

DETAIL OF WELD LOCATION FOR EXPANSION DEVICE

No Scale

EXPANSION DEVICE:
Rdwy. MC18x42.7
Conn. Angles L8 x 4 x 1/2
Neoprene Strip Seal with Steel Extrusion
Detail Device 1/8" High and
Provide 1/4" Shims using
2 - 1/16" and 1 - 1/8" Plates.

Note:
See Drawing No. 58716 for Sections C-C and D-D.

* 1/2" Polystyrene shall be used as a bond breaker between the concrete restrainer and the concrete diaphragm and may remain in place.

STATE OF ARKANSAS
CHRISTOPHER J. CRISWELL
REGISTERED PROFESSIONAL ENGINEER
No. 11528
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 3 OF 20
DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS
BRIDGE OVER BIG LAKE OUTLET
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

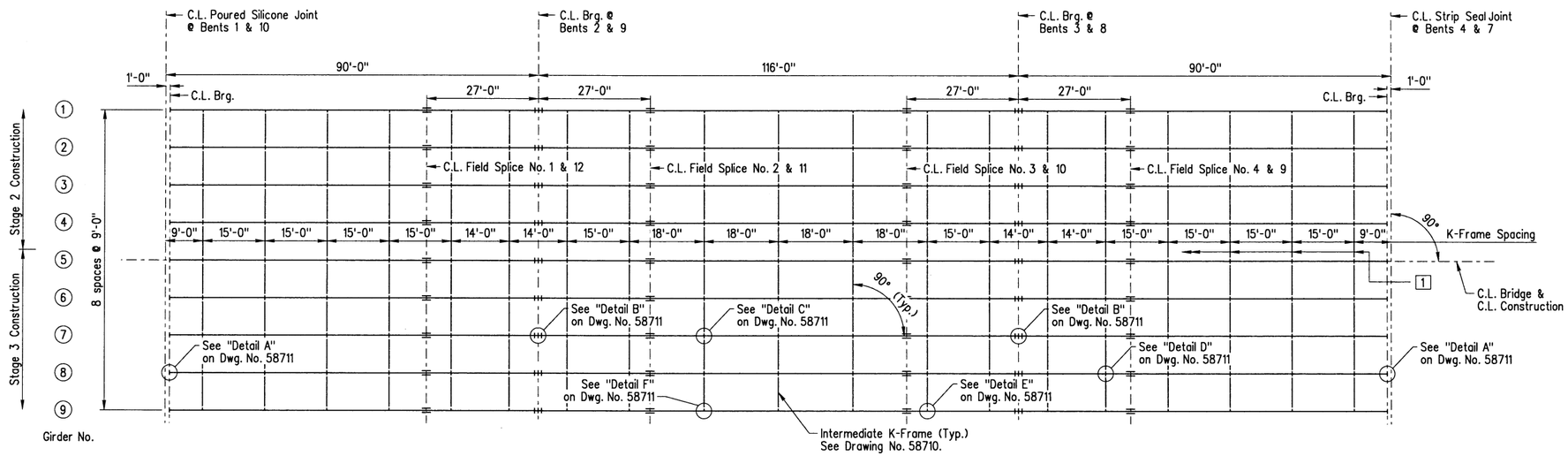
DRAWN BY: LHG DATE: 5/13/15
CHECKED BY: CJC DATE: 12/7/15
DESIGNED BY: CJC DATE: 11/26/14
BRIDGE NO. 07391
FILENAME: bca1002x2_sx3.dgn
SCALE: As Noted
DRAWING NO. 58705

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9/12/2016 10:49:29 AM

[1] In this girder bay connection plates and K-Frames shall be fabricated, as necessary, to facilitate installation of K-Frames between adjacent girders with differential deflections. See "Special K-Frame Detail" on Drawing No. 58710.

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.		CA1002	153	319
				(1) 07391 - 296' CONT. UNITS -				58706



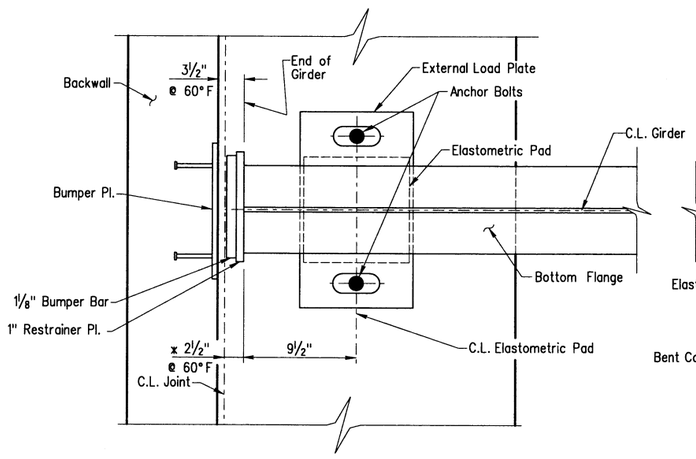
Note:
Concrete diaphragms at Intermediate Bents 2, 3, 8 & 9 are not shown for clarity. See Dwg. No. 58695, 58696 & 58697 for details.

Concrete diaphragms at End Bents 1 & 10 are not shown for clarity. See Dwg. No. 58703, 58704 & 58716 for details.

Concrete diaphragms at Intermediate Bents 4 & 7 are not shown for clarity. See Dwg. No. 58705 & 58716 for details.

PARTIAL GIRDER FRAMING PLAN - UNITS 1 & 3

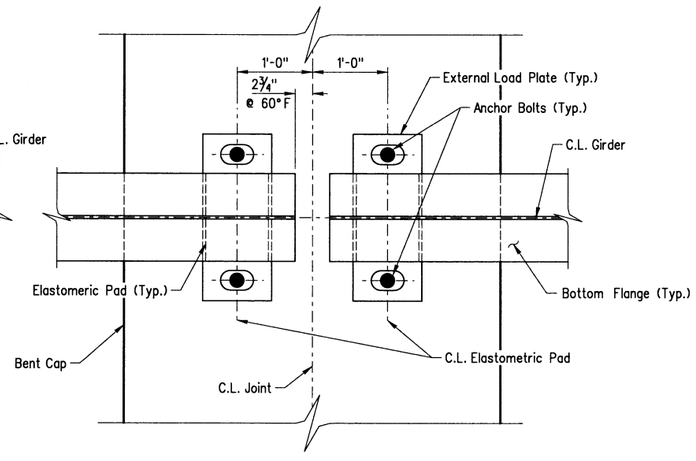
Scale: 1/16" = 1'-0"
(Unit 1 Shown, Unit 3 Opp. Hand)



PARTIAL PLAN OF BEARING AT END BENTS 1 & 10

No Scale

Note:
For Bumper Bar and Restrainer Plate details, see Drawing No. 58716. For Bumper Plate Details, see Drawing No. 58693.



PARTIAL PLAN OF BEARING AT INT. BENTS 4 & 7

No Scale

DETAIL H

No Scale
(Typ. @ Bents 2, 3, 8 & 9)

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
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9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 4 OF 20
DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS
BRIDGE OVER BIG LAKE OUTLET
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

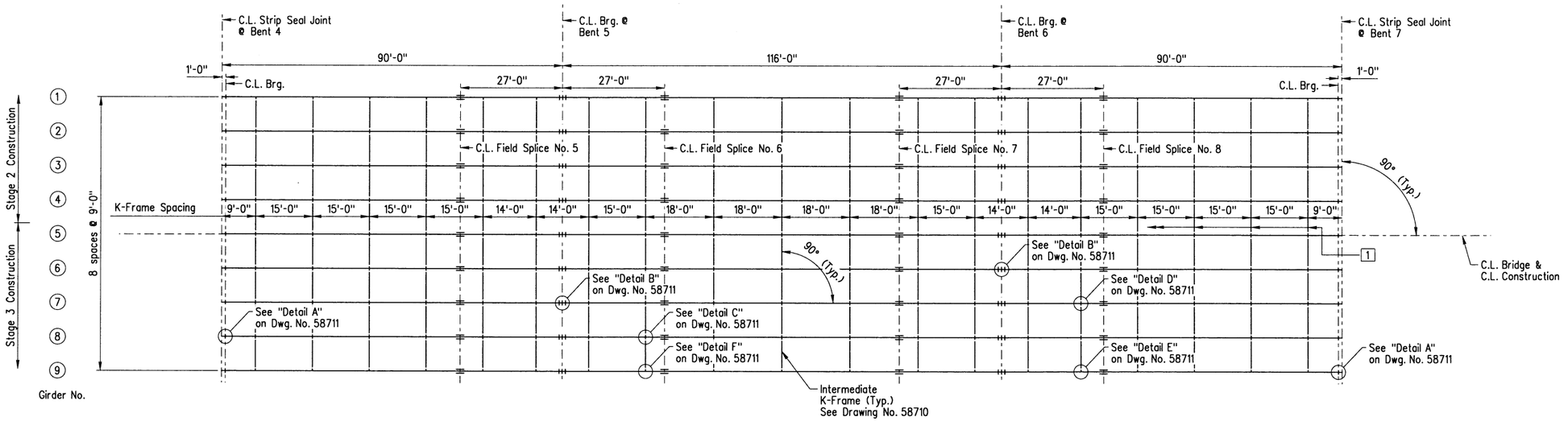
DRAWN BY: LHG DATE: 11/20/14
CHECKED BY: CJC DATE: 5/19/15
DESIGNED BY: CJC DATE: 11/16/14
BRIDGE NO. 07391
FILENAME: bca1002x2_sx4.dgn
SCALE: As Noted
DRAWING NO. 58706

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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.		CA1002	154	319
				(1) 07391	-	296' CONT. UNITS	-	58707

[1] In this girder bay connection plates and K-Frames shall be fabricated, as necessary, to facilitate installation of K-Frames between adjacent girders with differential deflections. See "Special K-Frame Detail" on Drawing No. 58710.

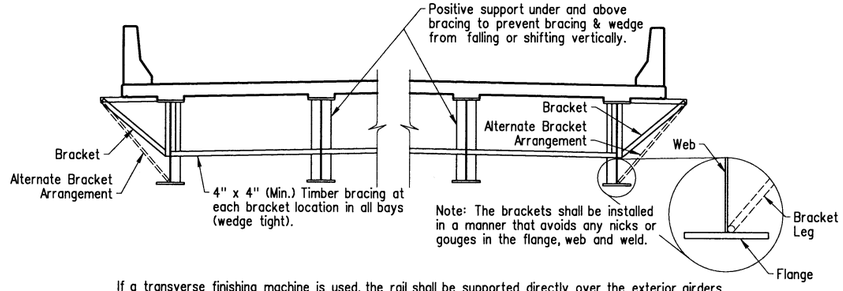


PARTIAL GIRDER FRAMING PLAN - UNIT 2

Scale: 1/16" = 1'-0"

Note:
Concrete diaphragms at Intermediate Bents 5 & 6 are not shown for clarity. See Dwg. No. 58695, 58696 & 58697 for details.

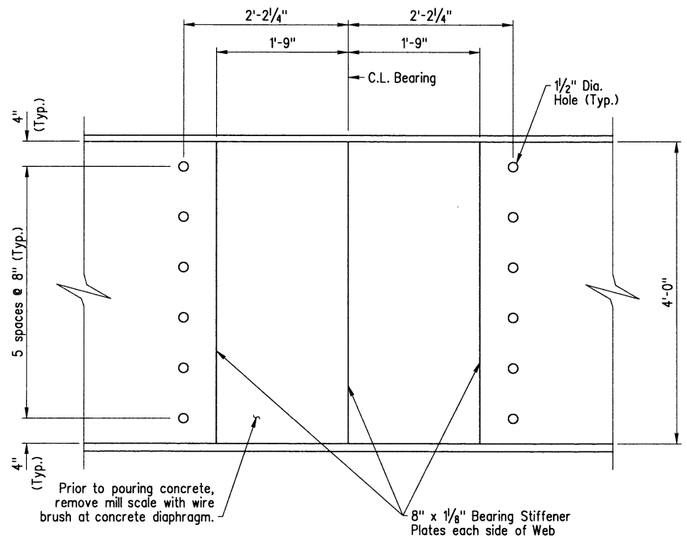
Concrete diaphragms at Intermediate Bents 4 & 7 are not shown for clarity. See Dwg. No. 58705 & 58716 for details.



If a transverse finishing machine is used, the rail shall be supported directly over the exterior girders, or as an alternate, the rail may be supported by the overhang brackets if the above strutting system is used. The strutting system may be omitted if 1/2" x 6 1/2" web stiffeners are welded to the insides of the exterior girders at the location of each bracket or if the alternate bracket arrangement shown above is used. The alternate bracket arrangement shall extend down to the junction of the web and bottom flange. The stiffener shall conform to the details for K-Frame connection plates shown in Dwg. No. 58711. No direct payment will be made for brackets, timber bracing, supports, or welded stiffeners. Payment shall be subsidiary to "Structural Steel in Plate Girder Spans (M270, Gr. 50W).

SCREED RAIL SUPPORT DETAIL

No Scale



DETAIL H

Scale: 1"-1'-0"
(Typ. @ Bents 5 & 6)

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 5 OF 20
DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS BRIDGE OVER BIG LAKE OUTLET MISSISSIPPI COUNTY

ROUTE 18 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 11/20/14
CHECKED BY: CJC DATE: 5/19/15
DESIGNED BY: CJC DATE: 11/16/14
BRIDGE NO. 07391

FILENAME: bca1002x2_sx5.dgn
SCALE: As Noted
DRAWING NO. 58707

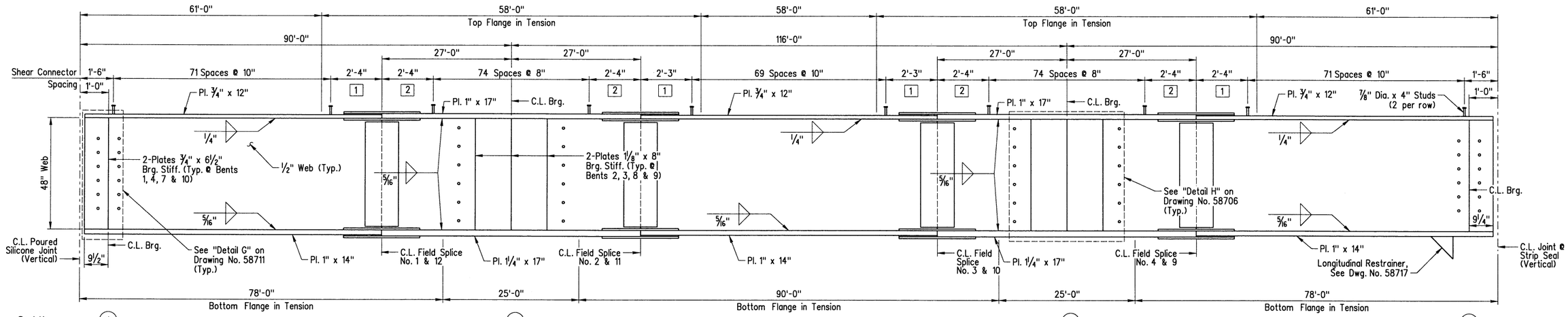
JACOBS

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9/12/2016 10:49:31 AM

[1] Two 7/8" Dia. shear connectors will be required at about 10" spacing if the bolted field splice is omitted. Payment will be made on the basis of the plan quantities.
[2] Two 7/8" Dia. shear connectors will be required at about 8" spacing if the bolted field splice is omitted. Payment will be made on the basis of the plan 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.		CA1002	155	319

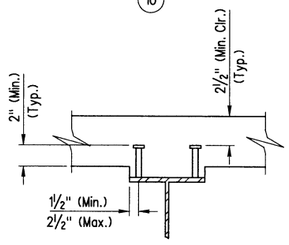
(1) 07391 - 296' CONT. UNITS - 58708



TYPICAL PLATE GIRDER ELEVATION - UNITS 1 & 3

No Scale

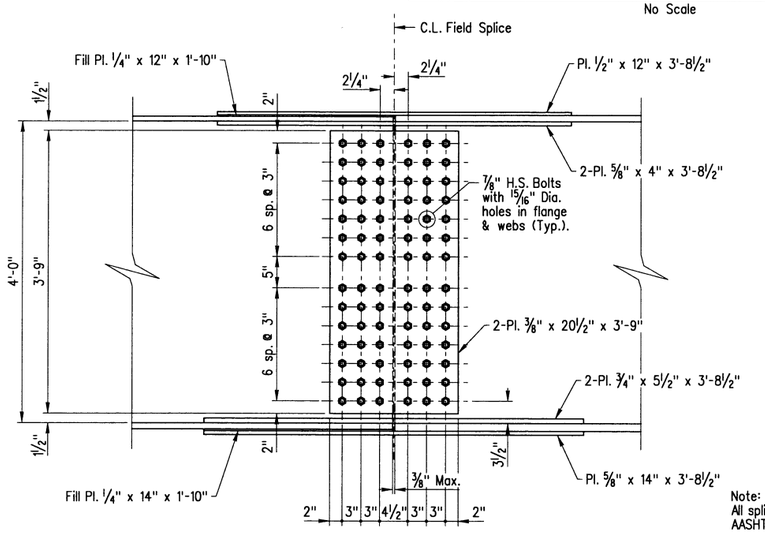
Note:
All structural steel shall be AASHTO M270, Gr. 50W unless otherwise noted. Bolted field splices may be eliminated or shop welded splices may be substituted with the approval of the Engineer. Payment will be made on the basis of plan quantities.



Stud Shear Connectors shown shall be 7/8" Dia. x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the girder flange in accordance with the recommendations of the manufacturer. 3/4" Dia. studs may be used in place of the 7/8" Dia. studs shown, at the ratio of 1.361 - 3/4" Dia. studs in place of one 7/8" Dia. stud. 7/8" studs will be used as basis for measurement of structural steel in shear connectors. Maximum stud spacing = 24".

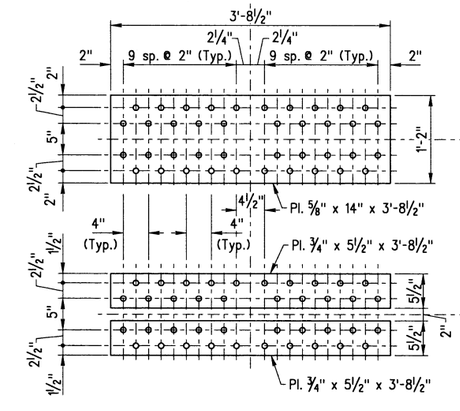
SHEAR CONNECTOR DETAIL

No Scale



WEB SPLICE DETAIL

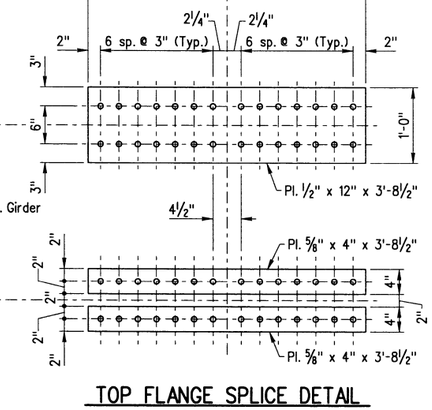
No Scale



Note:
All splice plates shall be AASHTO M270, Gr. 50W.

BOTTOM FLANGE SPLICE DETAIL

Scale: 1" = 1'-0"



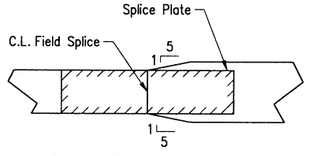
TOP FLANGE SPLICE DETAIL

Scale: 1" = 1'-0"

TABLE FOR WELDS

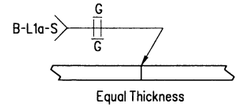
Material Thickness of Thicker Part Joined (inches)	Minimum Size of Fillet Weld (inches)	Single Pass Weld Must Be Used
To 3/4" inclusive	1/4"	
Over 3/4"	5/16"	

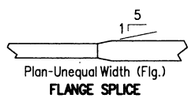
Note: When a fillet weld size, as shown on the plans, is larger than the minimum, the first pass shall be that specified for minimum size of fillet weld.

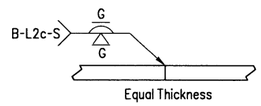


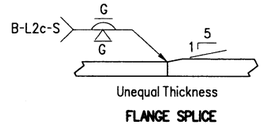
DETAILS OF BOTTOM FLANGE TRANSITION

No Scale









DETAILS OF WELDED SPLICES

No Scale

STATE OF ARKANSAS
CHRISTOPHER J. CRISWELL
REGISTERED PROFESSIONAL ENGINEER
No. 11328
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 6 OF 20
DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS BRIDGE OVER BIG LAKE OUTLET

MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

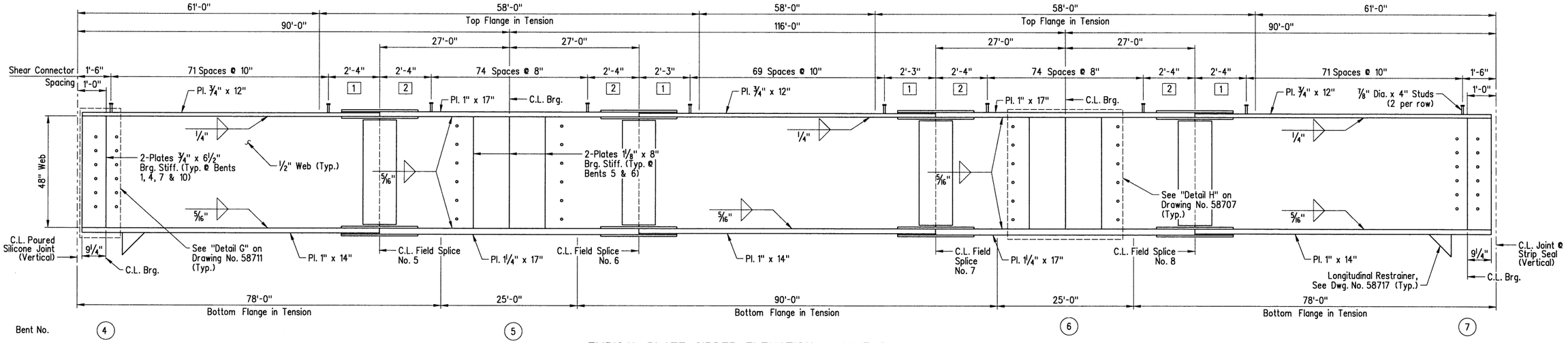
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CHECKED BY: CJC DATE: 5/19/15
DESIGNED BY: CJC DATE: 11/16/14 SCALE: No Scale
BRIDGE NO. 07391 DRAWING NO. 58708

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				6	ARK.			
				JOB NO.		CA1002	156	319
				(1) 07391 - 296' CONT. UNITS - 58709				

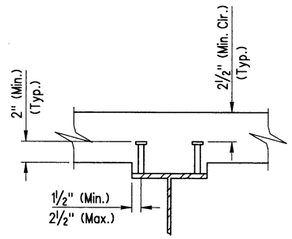
[1] Two 7/8" Dia. shear connectors will be required at about 10" spacing if the bolted field splice is omitted. Payment will be made on the basis of the plan quantities.
[2] Two 7/8" Dia. shear connectors will be required at about 8" spacing if the bolted field splice is omitted. Payment will be made on the basis of the plan quantities.



TYPICAL PLATE GIRDER ELEVATION - UNIT 2

No Scale

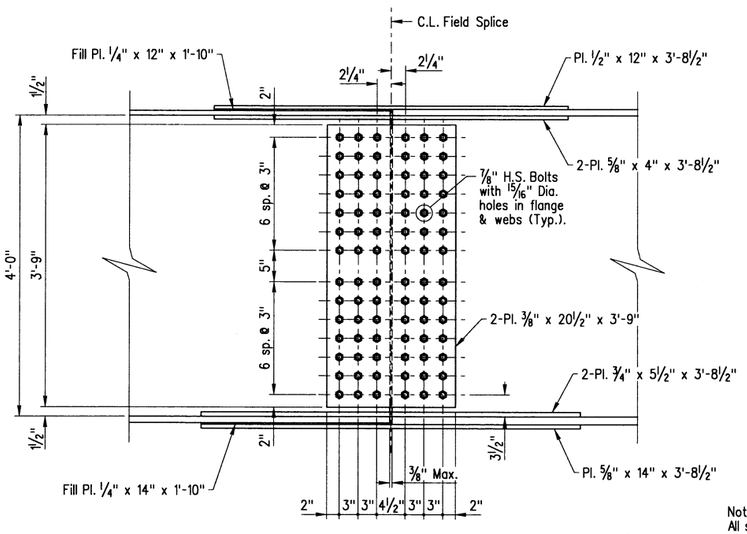
Note:
All structural steel shall be AASHTO M270, Gr. 50W unless otherwise noted. Bolted field splices may be eliminated or shop welded splices may be substituted with the approval of the Engineer. Payment will be made on the basis of plan quantities.



Stud Shear Connectors shown shall be 7/8" Dia. x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the girder flange in accordance with the recommendations of the manufacturer. 3/4" Dia. studs may be used in place of the 7/8" Dia. studs shown, at the ratio of 1.361 - 3/4" Dia. studs in place of one 7/8" Dia. stud. 7/8" studs will be used as basis for measurement of structural steel in shear connectors. Maximum stud spacing = 24".

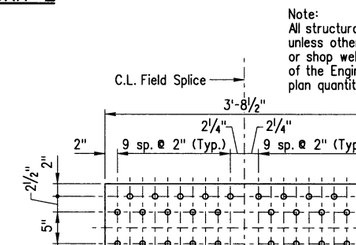
SHEAR CONNECTOR DETAIL

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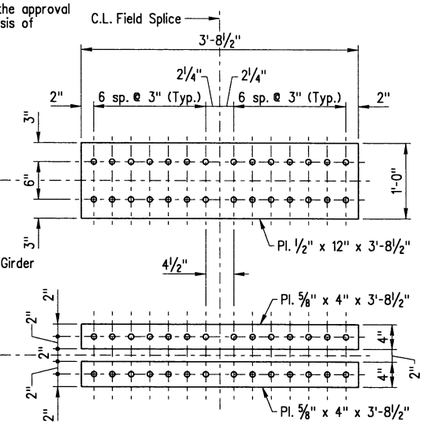
WEB SPLICE DETAIL

No Scale



BOTTOM FLANGE SPLICE DETAIL

Scale: 1" = 1'-0"



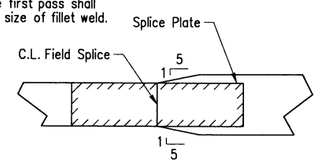
TOP FLANGE SPLICE DETAIL

Scale: 1" = 1'-0"

TABLE FOR WELDS

Material Thickness of Thicker Part Joined (inches)	Minimum Size of Fillet Weld (inches)	Single Pass Weld Must Be Used
To 3/4" inclusive	1/4"	
Over 3/4"	5/16"	

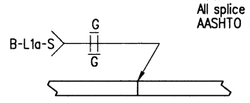
Note: When a fillet weld size, as shown on the plans, is larger than the minimum, the first pass shall be that specified for minimum size of fillet weld.



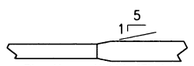
DETAILS OF BOTTOM FLANGE TRANSITION

No Scale

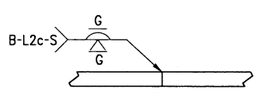
Note:
All splice plates shall be AASHTO M270, Gr. 50W.



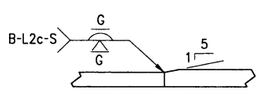
WEB SPLICE



FLANGE SPLICE



FLANGE SPLICE



FLANGE SPLICE

DETAILS OF WELDED SPLICES

No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISPELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

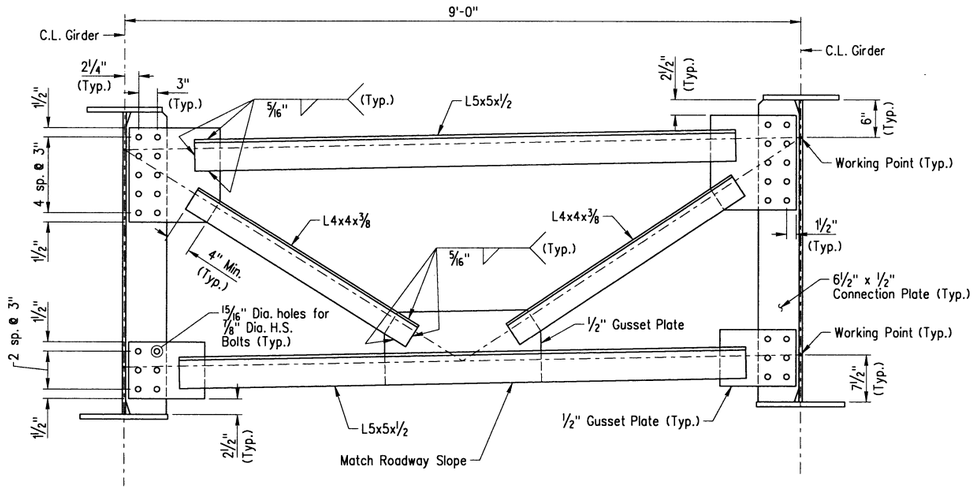
SHEET 7 OF 20
DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS
BRIDGE OVER BIG LAKE OUTLET
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 11/17/14
CHECKED BY: CJC DATE: 5/19/15
DESIGNED BY: CJC DATE: 11/16/14
BRIDGE NO. 07391
FILENAME: bca1002x2_sx7.dgn
SCALE: No Scale
DRAWING NO. 58709

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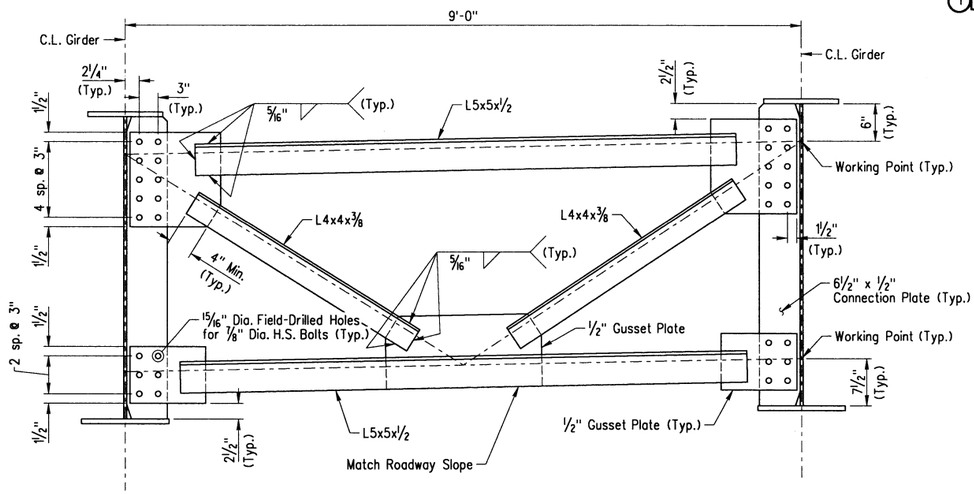
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				6	ARK.			
				JOB NO.		CA1002	157	319
				(1) 07391	-	296' CONT. UNITS	-	58710



INTERMEDIATE K-FRAME DETAIL

Scale: 1"=1'-0"



Girder 4 (Stage 2)

Girder 5 (Stage 3)

SPECIAL K-FRAME DETAIL

Scale: 1"=1'-0"

Notes:
All structural steel, including girders, K-Frames, bearing stiffener plates, connection plates, and intermediate stiffener plates, shall be AASHTO M270 Gr. 50W.

SPECIAL K-FRAME CONNECTION PROCEDURE:

1. Before Stage 3 deck is poured, connect one end of Special K-Frame to Girder 4 and fully tighten connection bolts. Leave Girder 5 end connection unbolted until after the Stage 3 Deck concrete is in place.
2. After Stage 3 Deck has been poured, field drill holes in Girder 5 connection plates, install connection bolts, and tighten in accordance with Subsection 801.71.
3. The Contractor shall maintain proper girder alignment until all K-Frames are completely installed. This may require temporary bracing.

TABLE FOR WELDS

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.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISPELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

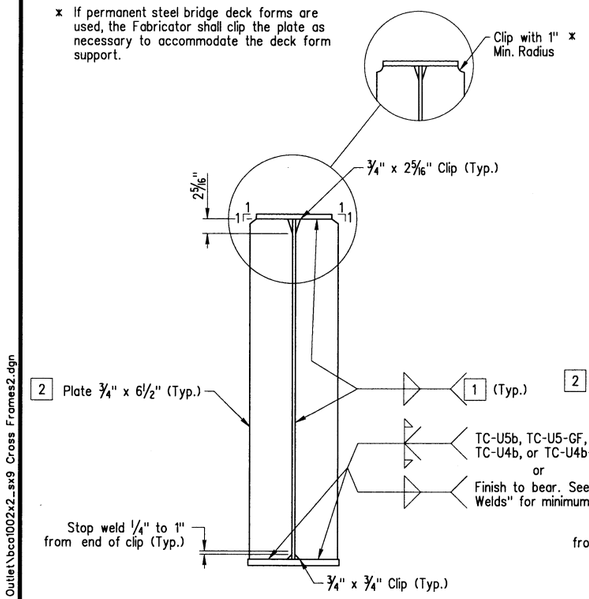
SHEET 8 OF 20
DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS
BRIDGE OVER BIG LAKE OUTLET
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 3/9/15
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DESIGNED BY: CJC DATE: 3/6/15
BRIDGE NO. 07391
FILENAME: bca1002x2_sx8.dgn
SCALE: As Noted
DRAWING NO. 58710

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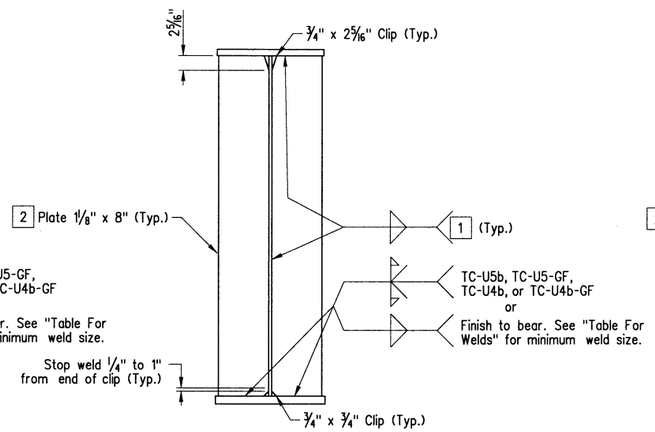
x If permanent steel bridge deck forms are used, the Fabricator shall clip the plate as necessary to accommodate the deck form support.



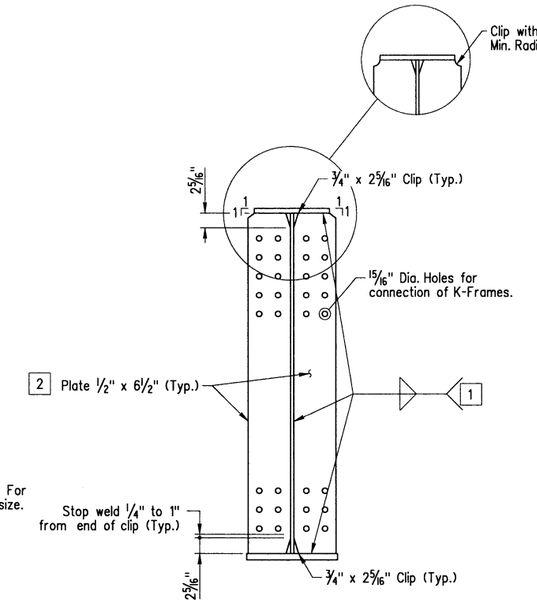
DETAIL A
BEARING STIFFENER @ BENTS 1, 4, 7 & 10
Scale: 1" = 1'-0"

1 See "Table for Welds" for min. weld size.

2 Place connection plates and bearing stiffeners normal to girder.



DETAIL B
BEARING STIFFENER @ BENTS 2, 3, 5, 6, 8 & 9
Scale: 1" = 1'-0"



DETAIL C
2-SIDED CONN. PLATE WITH 12" TOP FLANGE
Scale: 1" = 1'-0"

Notes:
Bearing stiffeners shall be fabricated to be plumb in their final positions.

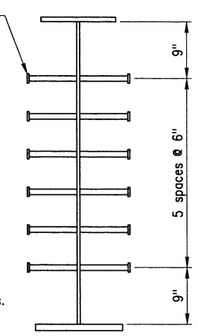
All structural steel, including girders, K-Frames, bearing stiffener plates and connection plates shall be AASHTO M270 Gr. 50W.

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.		CA1002	158	319
				(1) 07391 - 296' CONT. UNITS - 58711				

TABLE FOR WELDS

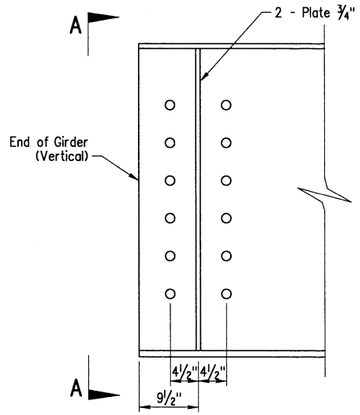
Material Thickness of Thicker Part Joined (inches)	Minimum Size of Fillet Weld (inches)	Single Pass Weld Must Be Used
To 3/4" inclusive	1/4"	
Over 3/4"	5/16"	

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.

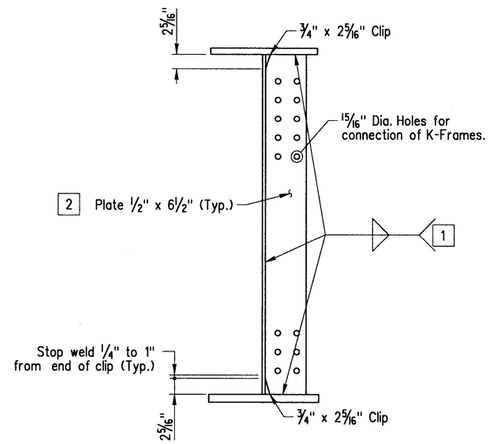


Note:
Omit studs on outside of exterior girders.

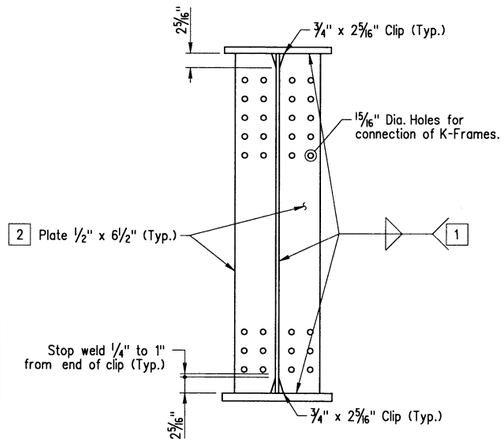
VIEW A-A
Scale: 1" = 1'-0"



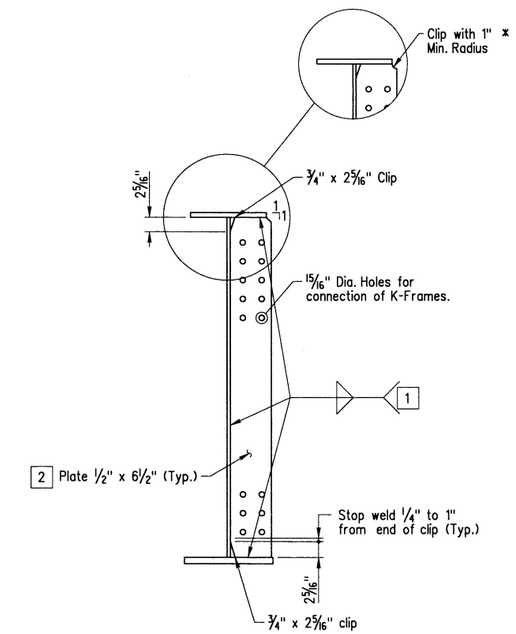
DETAIL G
Scale: 1" = 1'-0"



DETAIL E
1-SIDED CONN. PLATE WITH 17" TOP FLANGE
Scale: 1" = 1'-0"



DETAIL D
2-SIDED CONN. PLATE WITH 17" TOP FLANGE
Scale: 1" = 1'-0"



DETAIL F
1-SIDED CONN. PLATE WITH 12" TOP FLANGE
Scale: 1" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 9 OF 20
DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS
BRIDGE OVER BIG LAKE OUTLET
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 3/9/15
CHECKED BY: CJC DATE: 5/19/15
DESIGNED BY: CJC DATE: 3/6/15
FILENAME: bca1002x2_sx9.dgn
SCALE: As Noted
BRIDGE NO. 07391
DRAWING NO. 58711

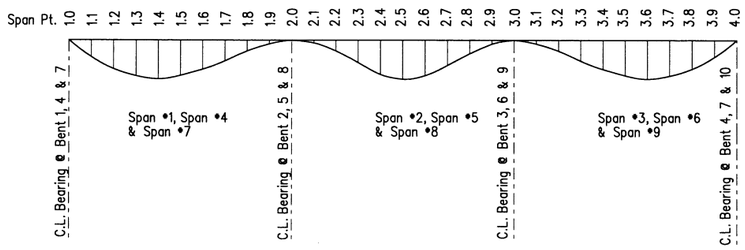
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA1002	159	319
				(1) 07391	-	296' CONT. UNITS	-	58712

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point	Girders 1 & 9			Girders 2 & 8			Girders 3 - 7		
		Structural Steel	Structural Steel & Slab	Structural Steel, Slab & Parapet	Structural Steel	Structural Steel & Slab	Structural Steel, Slab & Parapet	Structural Steel	Structural Steel & Slab	Structural Steel, Slab & Parapet
1, 4 & 7	1.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1.1	0.07	0.34	0.39	0.07	0.39	0.41	0.07	0.39	0.39
	1.2	0.13	0.62	0.71	0.13	0.71	0.75	0.13	0.71	0.71
	1.3	0.16	0.80	0.92	0.17	0.92	0.98	0.17	0.92	0.92
	1.4	0.17	0.86	0.99	0.19	1.00	1.06	0.19	1.00	1.00
	1.5	0.16	0.80	0.92	0.18	0.93	0.99	0.18	0.93	0.93
	1.6	0.13	0.64	0.74	0.14	0.75	0.80	0.14	0.75	0.75
	1.7	0.09	0.44	0.51	0.10	0.50	0.53	0.10	0.50	0.50
	1.8	0.04	0.22	0.25	0.05	0.25	0.27	0.05	0.25	0.25
	1.9	0.01	0.05	0.06	0.01	0.05	0.05	0.01	0.05	0.05
	2.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2, 5 & 8	2.1	0.04	0.18	0.22	0.04	0.21	0.23	0.04	0.21	0.21
	2.2	0.11	0.53	0.64	0.12	0.61	0.66	0.12	0.61	0.61
	2.3	0.19	0.90	1.08	0.21	1.04	1.12	0.21	1.04	1.04
	2.4	0.25	1.18	1.40	0.27	1.37	1.48	0.27	1.37	1.37
	2.5	0.27	1.28	1.52	0.29	1.48	1.60	0.29	1.48	1.48
	2.6	0.25	1.18	1.40	0.27	1.37	1.48	0.27	1.37	1.37
	2.7	0.19	0.90	1.08	0.21	1.04	1.12	0.21	1.04	1.04
	2.8	0.11	0.53	0.64	0.12	0.61	0.66	0.12	0.61	0.61
	2.9	0.04	0.18	0.22	0.04	0.21	0.23	0.04	0.21	0.21
	3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3, 6 & 9	3.1	0.01	0.05	0.06	0.01	0.05	0.05	0.01	0.05	0.05
	3.2	0.04	0.22	0.25	0.05	0.25	0.27	0.05	0.25	0.25
	3.3	0.09	0.44	0.51	0.10	0.50	0.53	0.10	0.50	0.50
	3.4	0.13	0.64	0.74	0.14	0.75	0.80	0.14	0.75	0.75
	3.5	0.16	0.80	0.92	0.18	0.93	0.99	0.18	0.93	0.93
	3.6	0.17	0.86	0.99	0.19	1.00	1.06	0.19	1.00	1.00
	3.7	0.16	0.80	0.92	0.17	0.92	0.98	0.17	0.92	0.92
	3.8	0.13	0.62	0.71	0.13	0.71	0.75	0.13	0.71	0.71
	3.9	0.07	0.34	0.39	0.07	0.39	0.41	0.07	0.39	0.39
	4.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00



DEAD LOAD DEFLECTION DIAGRAM

No Scale

Note: Camber girders for dead load deflection plus vertical curve. Tolerance is ± 1/4". Deflections shown are from a chord extending from C.L. Bearing to C.L. Bearing. Vertical curve corrections are not included. Negative sign (-) indicates point above chord.

STATE OF ARKANSAS
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CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 10 OF 20
DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS
BRIDGE OVER BIG LAKE OUTLET
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 3/11/15
CHECKED BY: CJC DATE: 3/29/15
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BRIDGE NO. 07391
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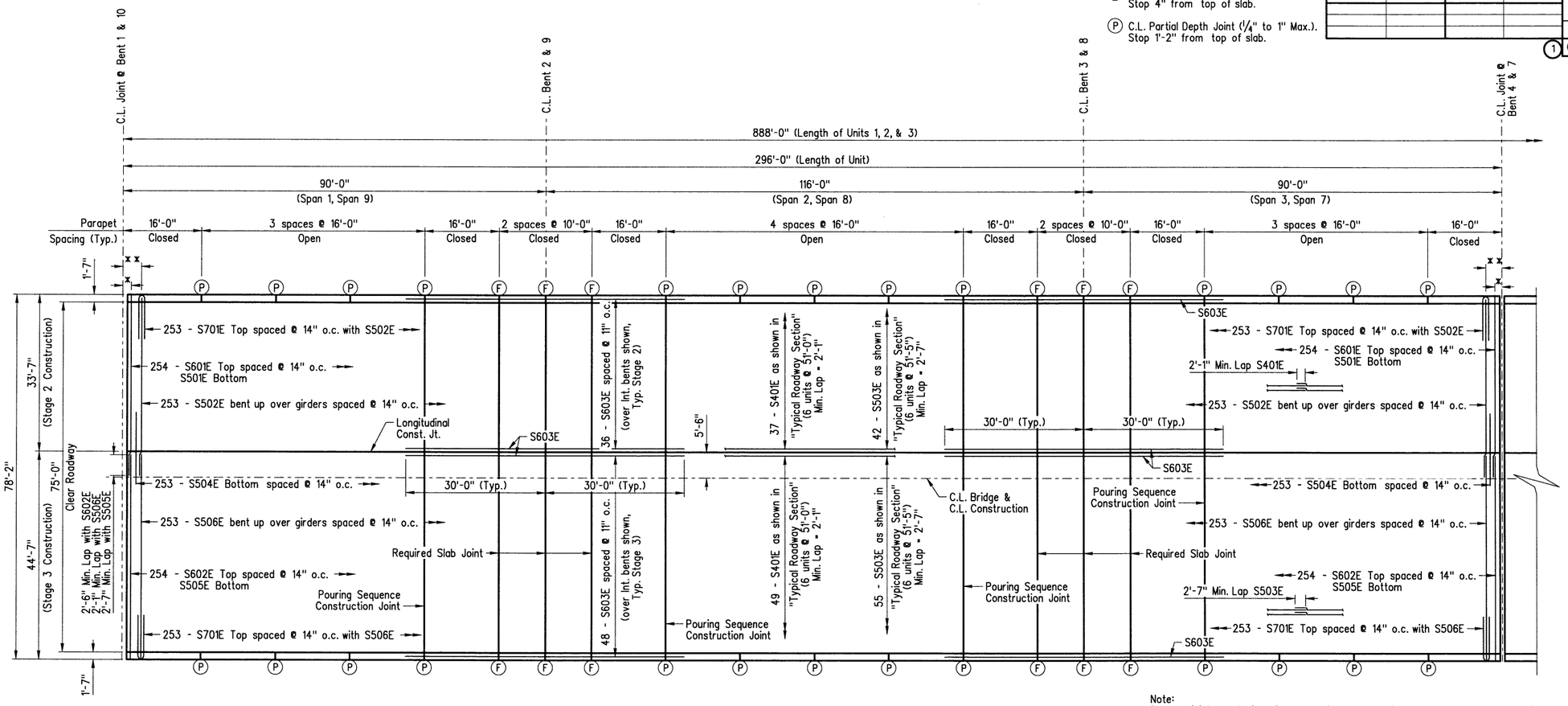
JACOBS

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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.		CA1002	160	319
				(1) 07391	-	296' CONT. UNITS	-	58713

(F) C.L. Full Depth Joint (1/4" to 1" Max.). Stop 4" from top of slab.

(P) C.L. Partial Depth Joint (1/4" to 1" Max.). Stop 1'-2" from top of slab.



Note:
Parapet joints shall align with Slab Joints and Pouring Sequence Construction Joints.

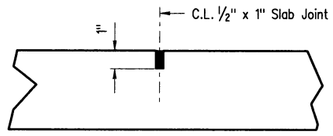
x 5" from C.L. Joint to first & last S501E, S505E, S601E, & S602E

xx 1'-0" from C.L. Joint to first & last S502E, S506E, & S701E

SLAB REINFORCING PLAN - UNITS 1 & 3

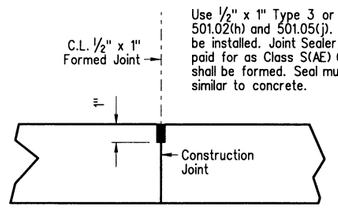
No Scale
(Unit 1 Shown, Unit 3 Opp. Hand)

Use Type 3 or 4 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 S(AE) Concrete-Bridge. Slab joints shall extend to the outside edge of the deck slab and shall align with open joints at the front face of the parapet. 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 JOINT DETAIL

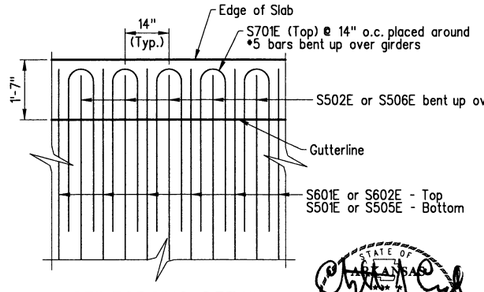
No Scale



Use 1/2" x 1" Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler shall not be installed. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. This joint shall be formed. Seal must be gray or other color similar to concrete.

LONGITUDINAL CONSTRUCTION JOINT DETAIL

No Scale



REINFORCING DETAIL

No Scale

STATE OF ARKANSAS
CHRISTOPHER J. CRISWELL
REGISTERED PROFESSIONAL ENGINEER
No. 11328
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 11 OF 20
DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS BRIDGE OVER BIG LAKE OUTLET
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 6/9/14
CHECKED BY: CJC DATE: 12/3/15
DESIGNED BY: CJC DATE: 11/26/14
BRIDGE NO. 07391
FILENAME: bca1002x2_sxb.dgn
SCALE: As Noted
DRAWING NO. 58713

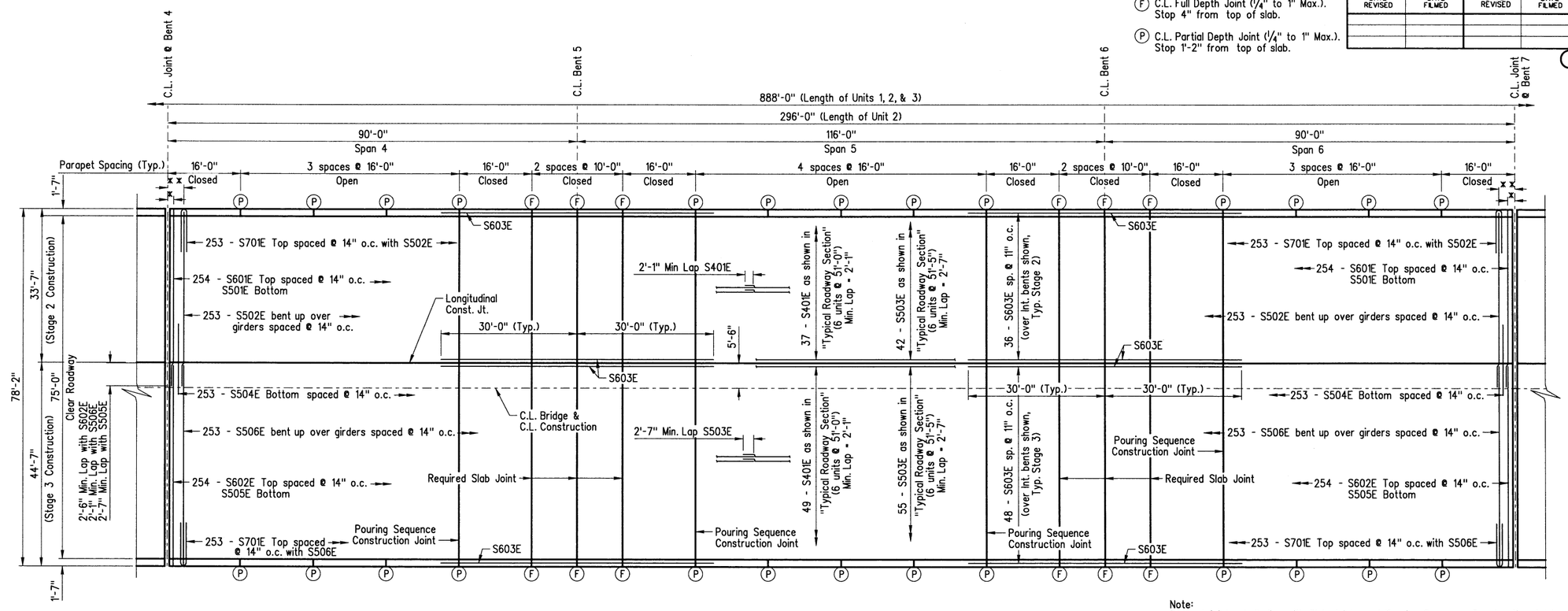
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(F) C.L. Full Depth Joint (1/4" to 1" Max.). Stop 4" from top of slab.

(P) C.L. Partial Depth Joint (1/4" to 1" Max.). Stop 1'-2" from top of slab.



Note:
Parapet joints shall align with Slab Joints and Pouring Sequence Construction Joints.

* 5" from C.L. Joint to first & last S501E, S505E, S601E, & S602E

** 1'-0" from C.L. Joint to first & last S502E, S506E, & S701E

SLAB REINFORCING PLAN - UNIT 2

No Scale

BAR LIST STAGE 2 PER UNIT

Mark	No. Req'd. (Unit 1 or 3)	No. Req'd. (Unit 2)	Length	Pin Dia.
P401E	512	512	5'-6"	3"
P402E	80	80	4'-10"	3"
P403E	48	48	15'-8"	Str.
P404E	28	28	9'-8"	Str.
P405E	16	16	41'-2"	Str.
P406E	8	8	49'-2"	Str.
P501E	512	512	4'-9"	3 3/4"
S401E	222	222	51'-0"	Str.
S501E	254	254	36'-2"	Str.
S502E	253	253	36'-3"	3"
S503E	252	252	51'-5"	Str.
S504E	253	253	12'-0"	Str.
S601E	254	254	36'-1"	Str.
S603E	72	72	60'-0"	Str.
S701E	253	253	18'-4"	6 1/8"
D601E	64	64	8'-8"	Str.
D602E	66	48	3'-1"	Str.
D603E	36	42	8'-5"	4 1/2"
D604E	64	58	10'-5"	4 1/2"
D605E	18	36	2'-1"	Str.

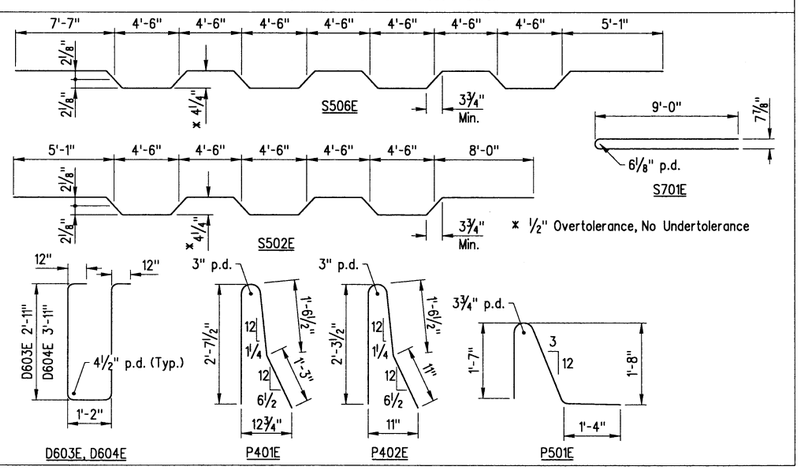
BAR LIST STAGE 3 PER UNIT

Mark	No. Req'd. (Unit 1 or 3)	No. Req'd. (Unit 2)	Length	Pin Dia.
P401E	512	512	5'-6"	3"
P402E	80	80	4'-10"	3"
P403E	48	48	15'-8"	Str.
P404E	28	28	9'-8"	Str.
P405E	16	16	41'-2"	Str.
P406E	8	8	49'-2"	Str.
P501E	512	512	4'-9"	3 3/4"
S401E	294	294	51'-0"	Str.
S503E	330	330	51'-5"	Str.
S505E	254	254	44'-4"	Str.
S506E	253	253	45'-0"	3"
S602E	254	254	44'-4"	Str.
S603E	96	96	60'-0"	Str.
S701E	253	253	18'-4"	6 1/8"
D601E	64	64	8'-8"	Str.
D602E	78	48	3'-1"	Str.
D603E	58	68	8'-5"	4 1/2"
D604E	80	70	10'-5"	4 1/2"
D605E	30	60	2'-1"	Str.

Note: All bars designated with an "E" suffix are to be epoxy coated.

BENDING DIAGRAMS

(Dimensions are out to out of bars.)



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 12 OF 20
DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS
BRIDGE OVER BIG LAKE OUTLET
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

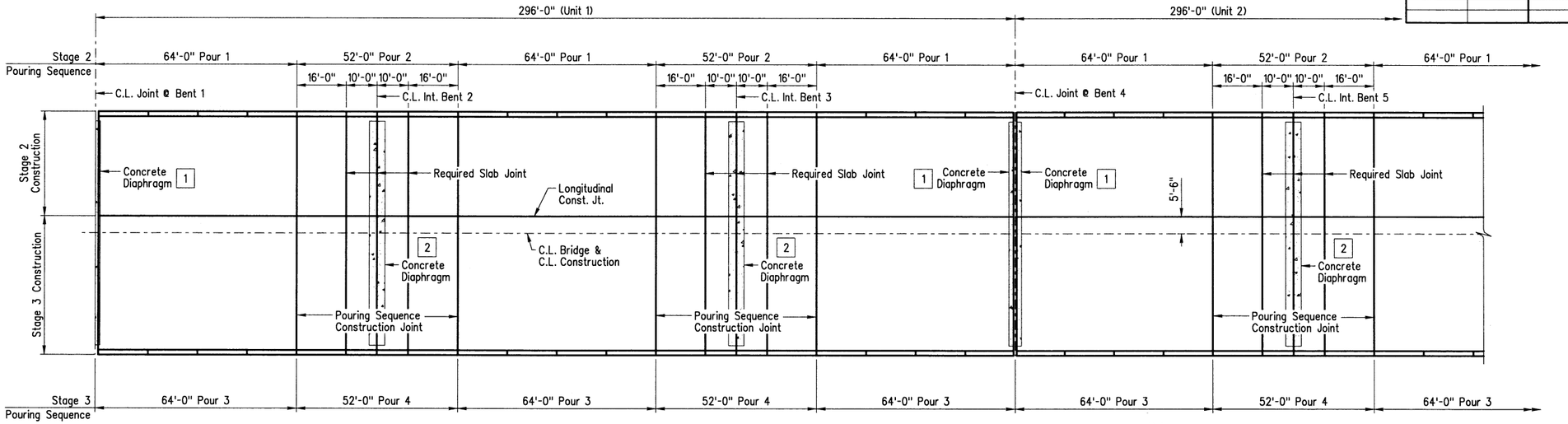
DRAWN BY: LHG DATE: 6/9/14
CHECKED BY: CJC DATE: 12/4/15
DESIGNED BY: CJC DATE: 11/26/14
BRIDGE NO. 07391

FILENAME: bca1002x2_sxc.dgn
SCALE: As Noted
DRAWING NO. 58714

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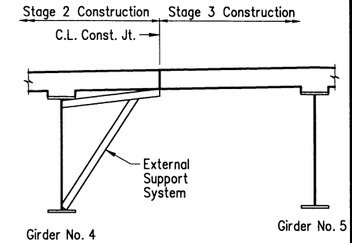
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				6	ARK.			
				JOB NO.		CA1002	162	319
				1	07391 - 296' CONT. UNITS -			58715



Note:
Parapet joints shall align with Slab Joints and Pouring Sequence Construction Joints.

DECK POURING SEQUENCE

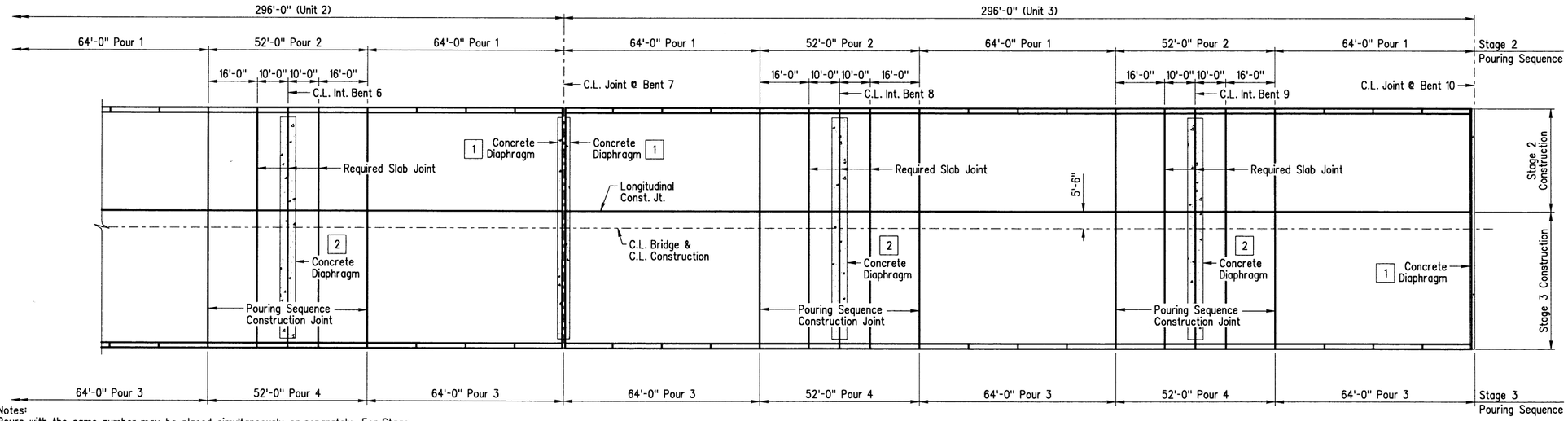
No Scale



DECK SUPPORT AT LONGITUDINAL CONSTRUCTION JOINT

No Scale

Stage 2 external supports at Girder 4 shall remain in place until after completion of the Stage 3 deck pours. See Subsection 802.15 for additional information regarding their removal.



DECK POURING SEQUENCE

No Scale

Notes:
Pours with the same number may be placed simultaneously or separately. For Stage 2, all Pours (1) must be placed before Pours (2) can be placed. For Stage 3, all Pours (3) must be placed before Pours (4) can be placed. Forty-eight hours shall elapse between the end of a pour and the start of the next pour. Seventy-two hours shall elapse between the end of a pour and the start of an adjacent pour and between the end of a pour and the pouring of the parapet. Any parapet railing pours made before the entire slab unit has been placed must be approved by the Engineer. Concrete in bridge superstructure shall be placed, consolidated and screeded off for the entire pour before concrete has taken its initial set. This may require the use of a retarding agent. The Contractor must obtain approval from the Engineer for any deviation from the pouring sequence shown.

1 Concrete Diaphragms at bents with expansion joints shall be poured a minimum of 48 hours before the first deck pour of each stage of construction.

2 Concrete Diaphragms at Intermediate Bents 2, 3, 5, 6, 8 and 9 shall be poured monolithically with deck slab.

STATE OF ARKANSAS
CHRISTOPHER J. CRISWELL
REGISTERED PROFESSIONAL ENGINEER
No. 11328
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 13 OF 20
DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS BRIDGE OVER BIG LAKE OUTLET MISSISSIPPI COUNTY

ROUTE 18 SEC. 6

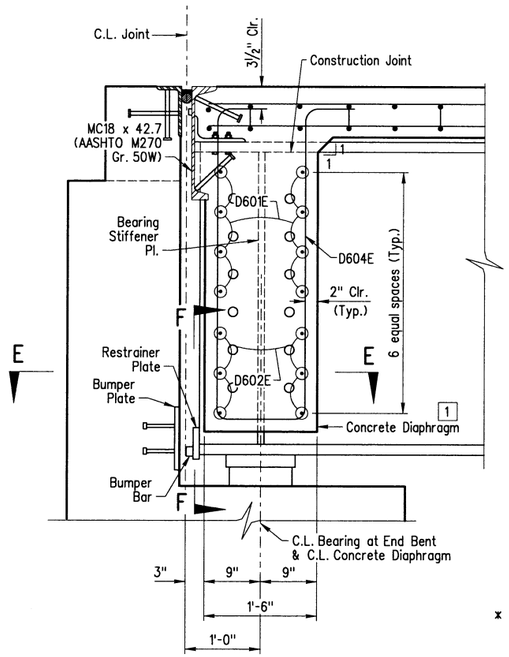
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LITTLE ROCK, ARKANSAS

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SCALE: As Noted
BRIDGE NO. 07391
DRAWING NO. 58715

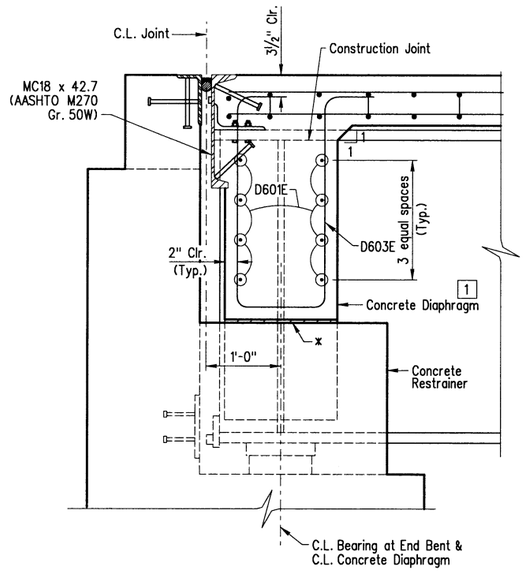
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				(1) 07391	-	296' CONT. UNITS	-	58716



SECTION A-A
No Scale



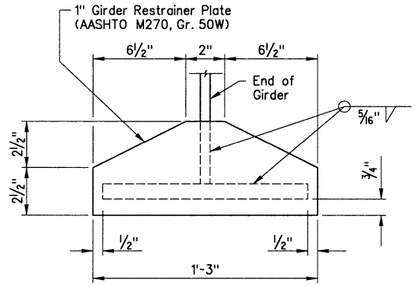
SECTION B-B
No Scale

1 Concrete Diaphragms at bents with expansion joints shall be poured a minimum of 48 hours before the first deck pour of each stage of construction.

x ½" Polystyrene shall be used as a bond breaker between the concrete restrainer and the concrete diaphragm and may remain in place. Polystyrene shall be considered subsidiary to "Class S(AE) Concrete - Bridge".

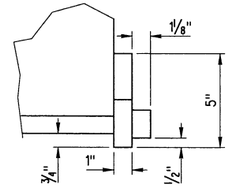
For location of Section A-A & Section B-B, see Drawing No. 58703 & 58704.

For location of Section C-C & Section D-D, see Drawing No. 58705.

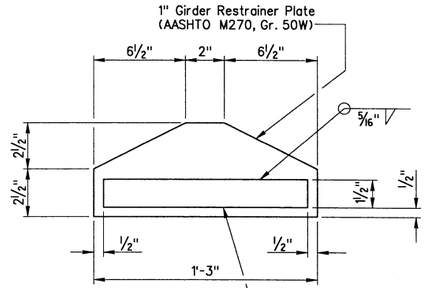


Note:
Girder Restrainer Plate shall be centered on each girder line (flange & web). Bumper Bar not shown for clarity.

VIEW F-F
No Scale

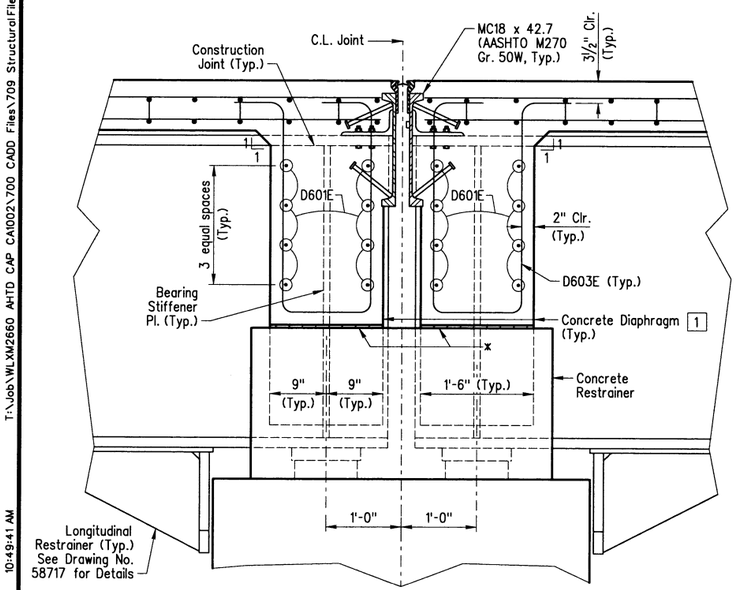


Note: Girder Restrainer Plate and Bumper Bar shall conform to AASHTO M270, Gr. 50W and shall be included in the item "Structural Steel in Plate Girder Spans (M270 - Gr. 50W)".

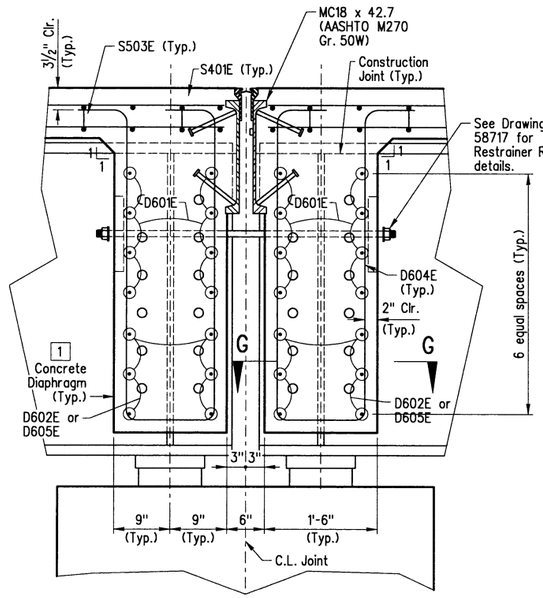


Note: End of Girder not shown in this view for clarity.

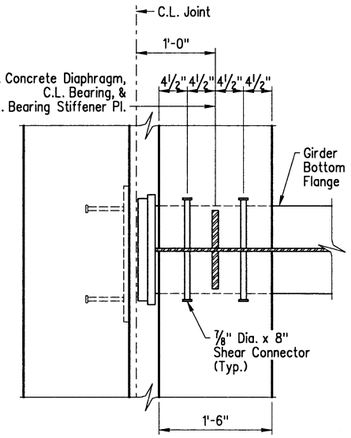
GIRDER RESTRAINER
No Scale



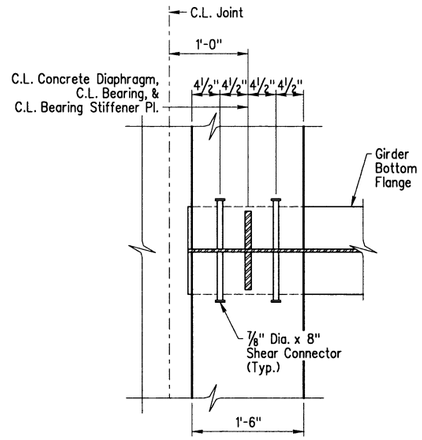
SECTION C-C
No Scale



SECTION D-D
No Scale



SECTION E-E
Scale: 1" = 1'-0"



SECTION G-G
Scale: 1" = 1'-0"

Notes:
Omit studs on outside of exterior girders.

Prior to placing concrete, remove loose rust with wire brush at concrete diaphragm.

Removable forms for diaphragm shall be used.

See Drawing No. 58721 for details of Strip Seal Joint not shown and Drawing No. 58720 for details of Poured Silicone Joint not shown.

STATE OF ARKANSAS
CHRISTOPHER J. CRISTELLI
REGISTERED PROFESSIONAL ENGINEER
No. 11328
9/12/16

BRIDGE ENGINEER
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SHEET 14 OF 20
DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS BRIDGE OVER BIG LAKE OUTLET MISSISSIPPI COUNTY

ROUTE 18 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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CHECKED BY:	CJC	DATE:	12/7/15		
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BRIDGE NO. 07391			DRAWING NO. 58716		

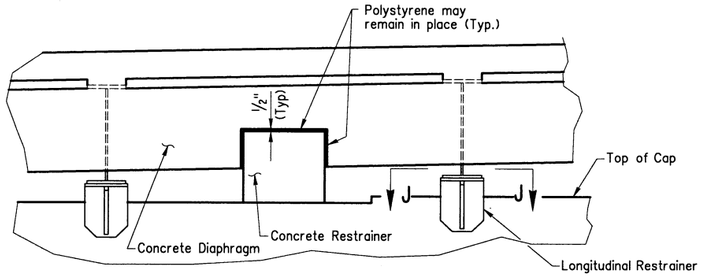
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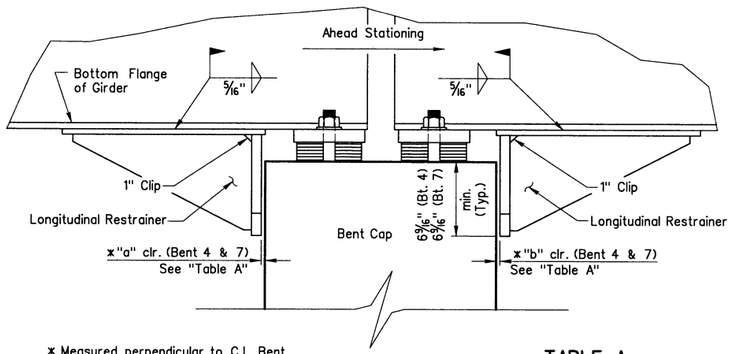
Note:
½" Polystyrene shall be used as a bond breaker between the concrete restrainer and the concrete diaphragm and may remain in place.

Polystyrene shall be considered subsidiary to "Class S(AE) Concrete - Bridge".



PARTIAL VIEW OF LONGITUDINAL RESTRAINER AND CONCRETE RESTRAINER AT INTERMEDIATE BENTS 4 & 7

(No Scale)



x Measured perpendicular to C.L. Bent.

VIEW K-K

(Typ. at each girder)
(No Scale)

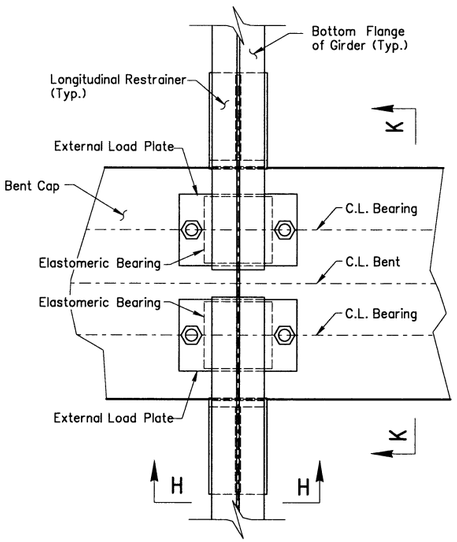
TABLE A

		Temperature				
		20°	40°	60°	80°	100°
Bent 4	"a"	1 13/16"	1 5/8"	1 3/8"	1 1/8"	15/16"
	"b"	1 13/16"	1 5/8"	1 3/8"	1 1/8"	15/16"
Bent 7	"a"	1 13/16"	1 5/8"	1 3/8"	1 1/8"	15/16"
	"b"	1 13/16"	1 5/8"	1 3/8"	1 1/8"	15/16"

Note: Weld longitudinal restrainer to girder after the deck has been poured.

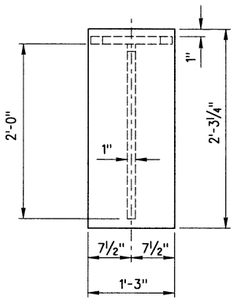
Note: The temperature used to set "a" and "b" shall be the approximate average air temperature during the 24 hour period immediately before the longitudinal restrainers are welded to the girders.

The Engineer shall establish the temperature. Interpolation of the table may be necessary.



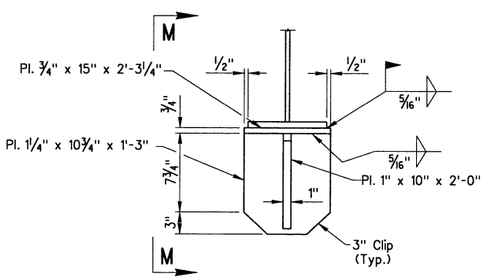
VIEW J-J

No Scale



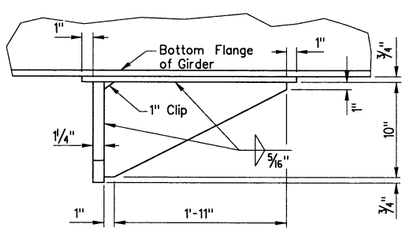
PLAN VIEW OF LONGITUDINAL RESTRAINER

No Scale



VIEW H-H

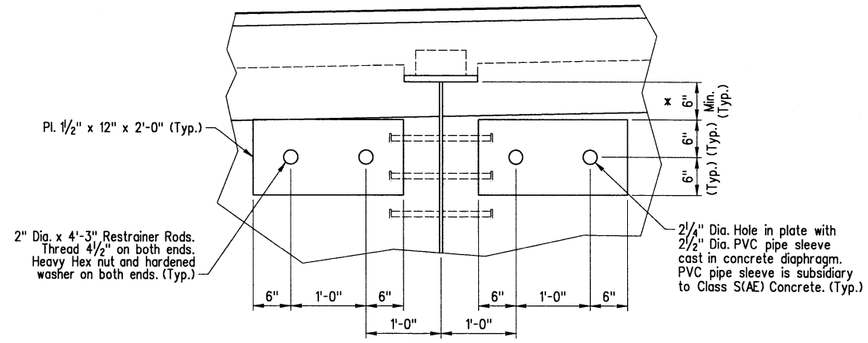
No Scale



VIEW M-M

No Scale

Note: Longitudiual Restrainer shall conform to AASHTO M270, Gr. 50W and shall be inluded in the item "Structural Steel in Plate Girder Spans (M270 - Gr. 50W)".



x Restrainer rods shall be cast in concrete diaphragms so as to be level and slide freely across both units in final condition.

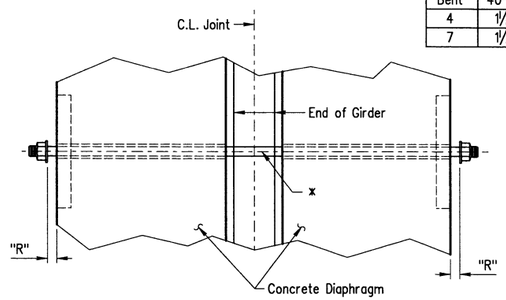
RESTRAINER ROD ASSEMBLY DETAIL

Scale: 1"=1'-0"

Longitudinal restrainer rod shall conform to AASHTO M270, Gr. 50 with threads conforming to American Standard Course, Class 2 Fit, ASA Specifications B1.1. Washers for longitudinal restrainer rod shall conform to AASHTO M293, nuts for longitudinal restrainers shall conform to Subsection 807.06. Rods, nuts and washers for the longitudinal restrainers shall be galvanized in accordance with AASHTO M232 Class C or ASTM B695, Class 50. See "Restrainer Rod Installation Detail". Restrainer rod, nut, washers and plate shall be paid for as "Structural Steel in Plate Girder Spans (M270, Gr. 50W).

TABLE A

	"R" - Gap Width at 24 hour average temperature		
Bent	40° F	60° F	80° F
4	1⅛"	1⅜"	1⅝"
7	1⅛"	1⅜"	1⅝"



After gap width has been set, tack weld heavy hex nut to restrainer rod.

RESTRAINER ROD INSTALLATION DETAIL

Scale: 1½"=1'-0"

SHEET 15 OF 20
DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS
BRIDGE OVER BIG LAKE OUTLET
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

STATE OF ARKANSAS
CHRISTOPHER J. CRISWELL
REGISTERED PROFESSIONAL ENGINEER
No. 11528
9/12/16

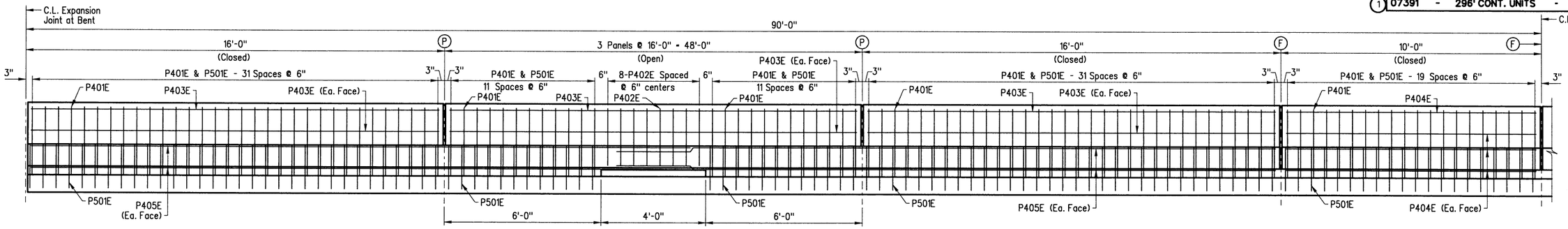
BRIDGE ENGINEER
PRINT DATE: 9/12/2016

DRAWN BY: LHG DATE: 6/5/14
CHECKED BY: CJC DATE: 12/7/15
DESIGNED BY: CGW DATE: 5/29/15
BRIDGE NO. 07391
FILENAME: bca1002x2_sxf.dgn
SCALE: As Noted
DRAWING NO. 58717

JACOBS

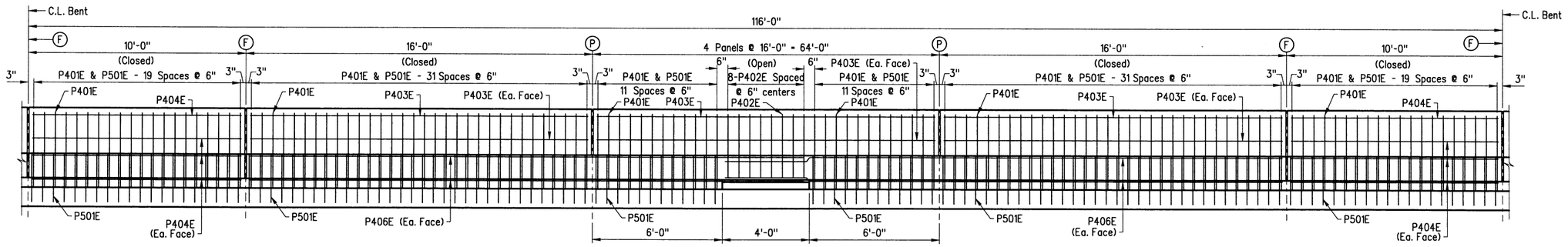
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA1002	165	319
				(1) 07391 - 296' CONT. UNITS - 58718				



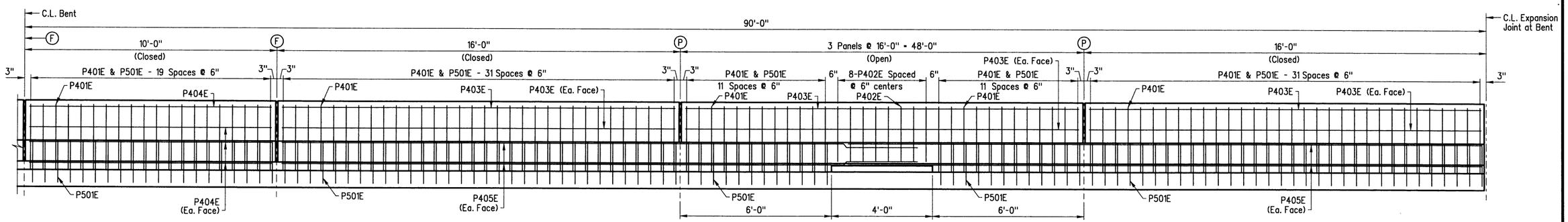
ELEVATION OF LEFT PARAPET RAIL (STAGE 2) [1]

Scale: 1/2" = 1'-0"



ELEVATION OF LEFT PARAPET RAIL (STAGE 2) [1]

No Scale



ELEVATION OF LEFT PARAPET RAIL (STAGE 2) [1]

Scale: 1/2" = 1'-0"

[1] Left parapet rail (Stage 2) shown, right parapet rail (Stage 3) similar by 180° rotation.

(P) C.L. Partial Depth Parapet Joint (1/4" to 1" max.). Stop 1'-2" from top of slab.

(F) C.L. Full Depth Parapet Joint (1/4" to 1" max.). Stop 4" from top of slab.

Minimum splice length for P405E & P406E bars - 2'-7".

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11328 CHRISTOPHER J. CRISWELL 9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 16 OF 20
DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS BRIDGE OVER BIG LAKE OUTLET MISSISSIPPI COUNTY

ROUTE 18 SEC. 6

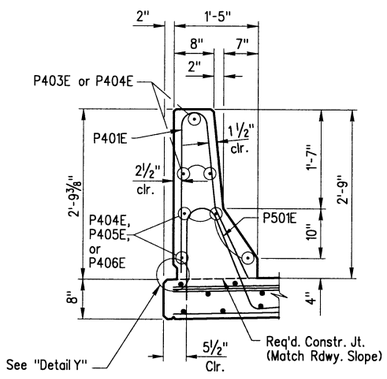
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 1/5/15 FILENAME: bca1002x2_sxg.dgn
CHECKED BY: CJC DATE: 5/27/15
DESIGNED BY: CJC DATE: 12/22/14 SCALE: As Noted
BRIDGE NO. 07391 DRAWING NO. 58718

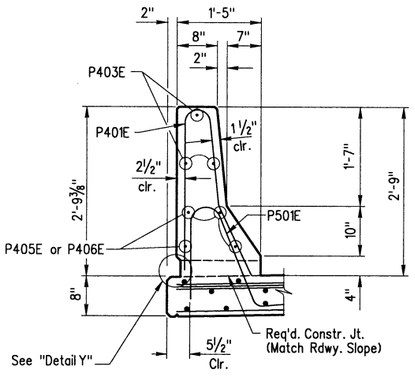
JACOBS

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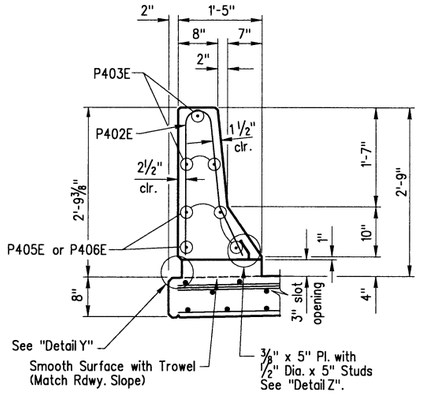
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				JOB NO.		CA1002	166	319
				(1)	07391	- 296' CONT. UNITS	-	58719



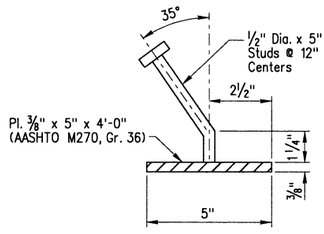
CLOSED PARAPET
SECTION F-F
No Scale



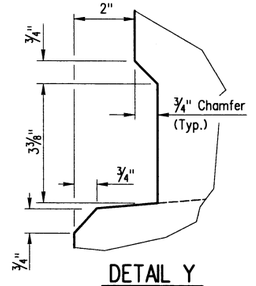
OPEN PARAPET @ END POST
SECTION G-G
No Scale



OPEN PARAPET @ DRAIN
SECTION H-H
No Scale



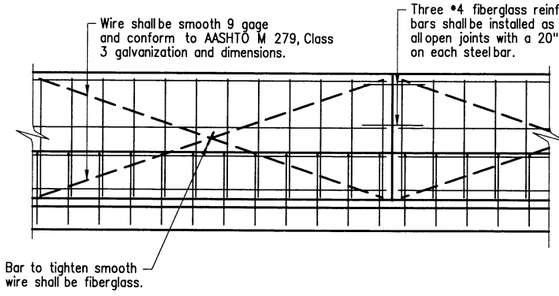
DETAIL Z
No Scale

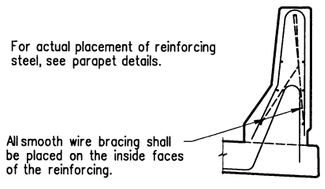


DETAIL Y
No Scale

Note:
Parapet studs shall be 5" long, granular flux filled, solid fluxed, or equal, and automatically end welded to the plate. Studs and plates shall meet the requirements of Section 807. Studs and plate shall be measured and paid for as "Structural Steel in Plate Girder Spans (M270, Gr. 50W)".

The surfaces of the ⅜" plates which will not be in contact with concrete shall be painted in accordance with Section 638 or as approved by the Engineer. Only one coat is required and shall be applied in the fabricator's shop. Painting will not be paid for directly, but will be considered subsidiary to "Structural Steel in Plate Girder Spans (M270, Gr. 50W)."



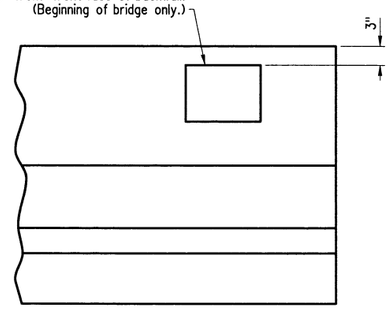


All panels shall be braced as shown to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of ¼". To control cracking before sawing, all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

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 surfaces 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

Place Type D Bridge Name Plate on right parapet rail approximately 2'-0" from front face of backwall. (Beginning of bridge only.)



NAME PLATE DETAIL
No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 17 OF 20
DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS BRIDGE OVER BIG LAKE OUTLET
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 1/5/15
CHECKED BY: CJC DATE: 5/27/15
DESIGNED BY: CJC DATE: 12/22/14
BRIDGE NO. 07391
FILENAME: bca1002x2_sxh.dgn
SCALE: As Noted
DRAWING NO. 58719

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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
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				JOB NO.		CA1002	167	319
				(1) 07391	-	296' CONT. UNITS	-	58720

SILICONE JOINT DATA

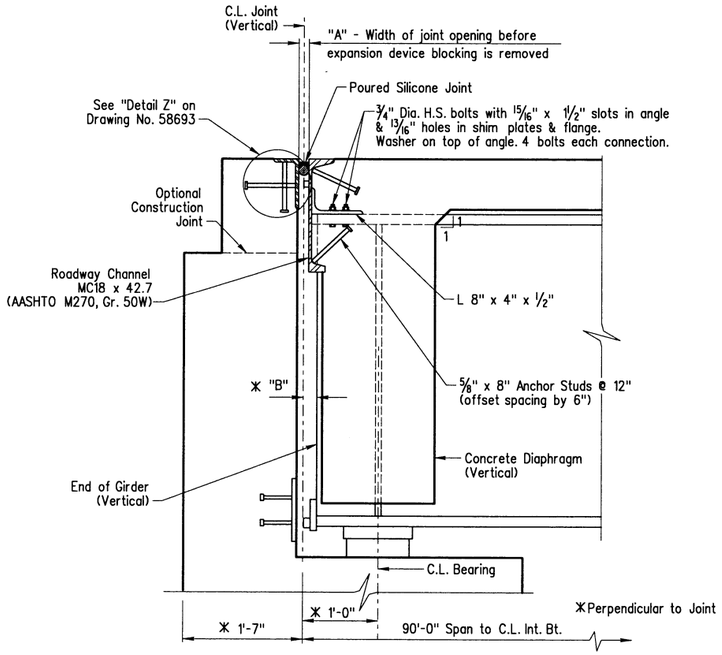
"A" width perpendicular to joint at 24 hour average temperature of:			"B" perpendicular to joint at 60° F	"D"	Bumper Plate Size
40° F	60° F	80° F			
2¼"	2"	1¾"	2½" ±	5"	1" x 1"

Note:
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.

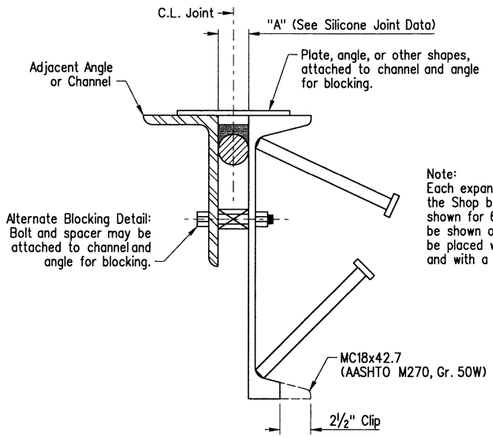
The installation temperature limitations recommended by the Sealant Manufacturer shall be observed. The sealant shall be installed only when the average 24 hour air temperature is between 40° and 80° F.

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. Unless otherwise 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.

Backer rods shall be extended beyond the length of poured joint in Stage 2 so that the two pieces can be properly spliced together prior to installing sealant for Stage 3. Manufacturer's recommendations shall be followed to prevent sealant from "running out of joint" during stage construction.

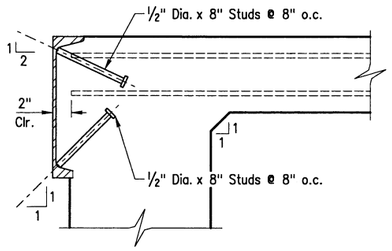


SECTION THROUGH JOINT AT END BENT
No Scale



Note:
Each expansion joint device shall be blocked in the Shop by the Fabricator to the dimension "A" shown for 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.

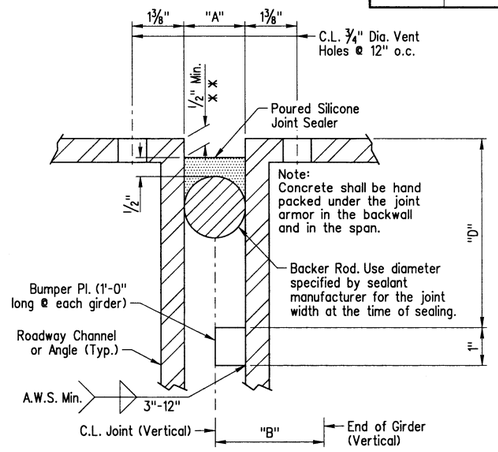
DETAILS FOR BLOCKING EXPANSION JOINT DEVICE
Scale: 3" = 1'-0"



DETAIL OF ALTERNATE ANCHORS
No Scale

Note:
As an alternate to ⅝" Dia. studs, ½" Dia. x 8" studs spaced as shown may be used with 4" offset of rows. Use weight of ⅝" Dia. stud as basis of measurement of structural steel in anchors.

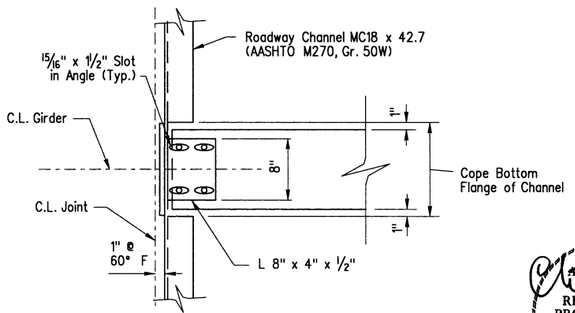
⁂ ⁂ Recess depth as recommended by the sealant manufacturer.



DETAIL OF POURED SILICONE JOINT
Scale: 6" = 1'-0"

JOINT SEAL PLACEMENT AT PARAPET
No Scale

Note: Details of joint turn-up in parapet are general and show basic design controls only. Method of installation and fabrication shall be determined by the manufacturer. See Section 809 of the Standard Specifications.



CHANNEL CONNECTION DETAIL
No Scale

EXPANSION DEVICE INSTALLATION AT END BENTS

The Contractor may elect to install the expansion device 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 girders 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, and the opening adjusted for temperature, and grade.

2. The backwall shall be poured to the optional construction joint after girders 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 and grade. Backfill shall not be placed behind the backwall until the deck concrete on the adjacent span has been poured.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
CHRISTOPHER J. CRISWELL
No. 11328
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

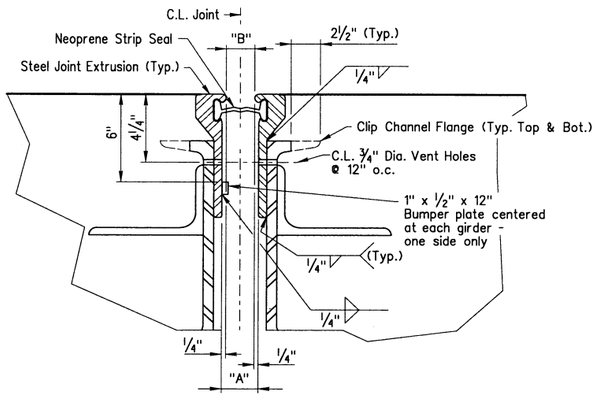
SHEET 18 OF 20
DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS
BRIDGE OVER BIG LAKE OUTLET
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 1/19/15
CHECKED BY: CJC DATE: 5/21/15
DESIGNED BY: CJC DATE: 1/14/15
FILENAME: bca1002x2_sxi.dgn
SCALE: As Noted
BRIDGE NO. 07391
DRAWING NO. 58720

JACOBS

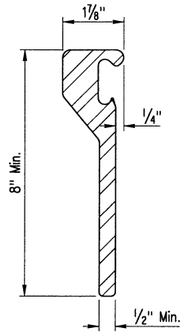
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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				JOB NO.		CA1002	168	319
				(1) 07391 - 296' CONT. UNITS -				58721

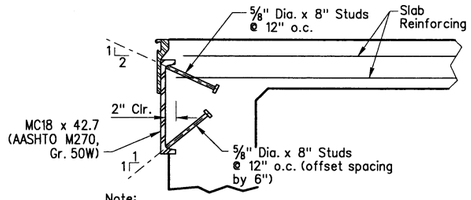


DETAIL A
No Scale

Note: Concrete shall be hand packed under the roadway channels.



STEEL EXTRUSION DETAIL
No Scale

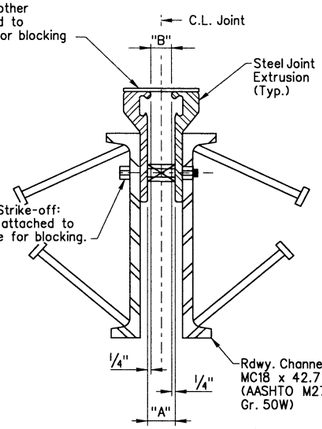


Note:
As an alternate to ⅝" dia. studs shown, ½" dia. x 8" studs spaced at 8" o.c. may be used. Use weight of ⅝" stud as basis of measurement of structural steel in anchors.

DETAILS OF ANCHORS
No Scale

3 For Transverse Strikeoff: Plate, angle, or other shapes, attached to steel extrusion for blocking

3 For Longitudinal Strike-off: Bolt and spacer attached to channel and angle for blocking.



Note:
Each expansion joint device shall be blocked in the shop by the Fabricator to the dimensions at 60° F and the blocking details shall be shown on the shop drawings. Blocking shall be placed within 2'-0" of each end of the device and with a maximum spacing of 8'-0".

3 One of two different blocking systems is required depending on the type of finishing machine that is used.

EXPANSION DEVICE INSTALLATION AT BENTS 4 & 7

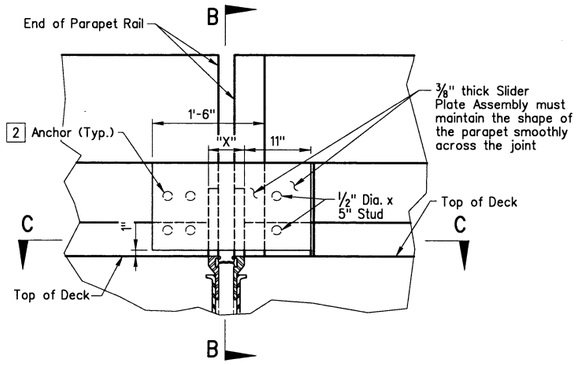
After all girders on each side of the joint are erected the blocked expansion device shall be installed and adjusted for grade. Deck concrete shall be placed for the entire unit or span on one side of the joint before deck concrete on the other side is placed. Connection bolts for the first side to have deck concrete placed shall be completely bolted. Bolts on the other side shall be loosely installed so that thermal and rotational movements will not be restricted during concrete placement on the first side.

Connection bolts on the second side shall remain loose until the concrete pour adjacent to the joint is to be placed. Immediately prior to pouring the span concrete on the second side, the blocking shall be removed, the joint adjusted for temperature and grade, and the connection bolts tightened.

STRIP SEAL JOINT DATA

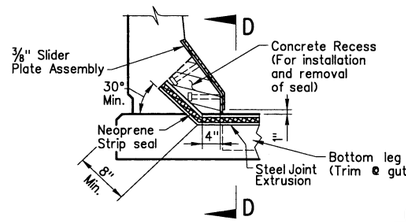
Bent No.	Movement Rating	"A" width perpendicular to joint at 24 hour average temperature of:			"B" width perpendicular to joint at 24 hour average temperature of:			"C" width perpendicular to joint at 24 hour average temperature of
		40° F	60° F	80° F	40° F	60° F	80° F	60° F
4 & 7	4"	3 3/16"	2 3/4"	2 5/16"	2 11/16"	2 1/4"	1 13/16"	2 3/4"

Note: 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. Installation is limited to 40° F min. and 80° F max. The temperature limitations by the lubricant-adhesive manufacturer shall be observed.



DETAILS OF NEOPRENE SEAL AT GUTTERLINE
No Scale

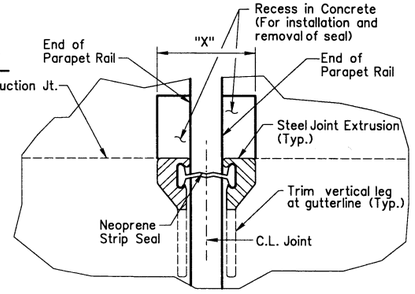
Note: Dimension "X" equals the width of the recess in the parapet at the gutterline to allow for removal or repair of joint.



SECTION B-B
No Scale

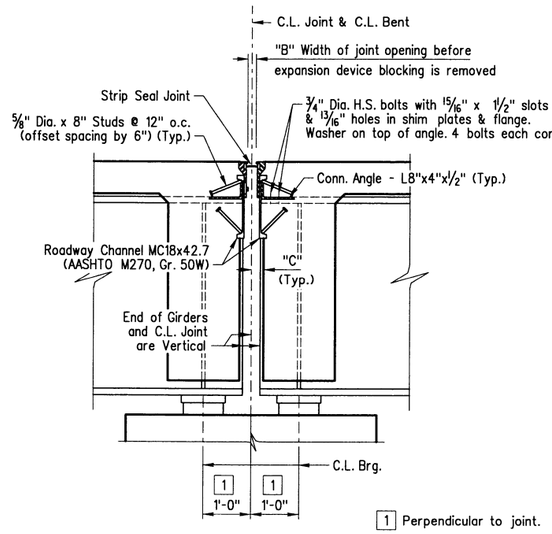
Note: Details of joint turn-up in parapet are general and show basic design controls only. Method of installation and fabrication shall be determined by the manufacturer. See Section 809 of the Standard Specifications.

DETAILS FOR BLOCKING EXPANSION JOINT DEVICE
No Scale



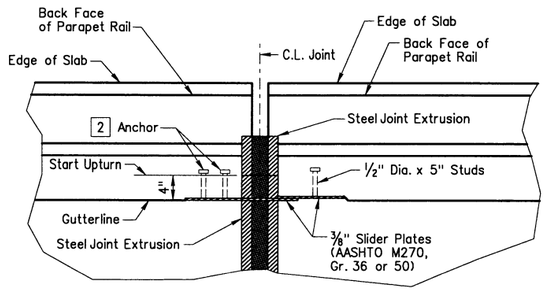
SECTION D-D
No Scale

Note: Dimension "X" equals the width of the recess in the parapet at the gutterline to allow for removal or repair of joint.



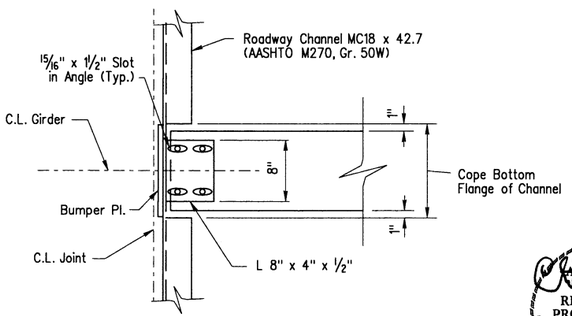
1 Perpendicular to joint.

SECTION THRU JOINT AT BENT 4 & 7
No Scale



SECTION C-C
No Scale

2 The method of attachment of the cover slider plate assembly or similar device must be such that it may be removed in order to provide for future replacement of the neoprene seal.



CHANNEL CONNECTION DETAIL
No Scale

GENERAL NOTES

EXPANSION NEOPRENE STRIP SEAL: The expansion device shall provide a movement of 4" as shown in the "Strip Seal Joint Data" Table. The expansion joint shall be capable of sealing the deck surface and parapet area to prevent moisture and other contaminants from descending through the joint.

All structural steel shall be AASHTO M270, Grade 50W unless noted otherwise.

All structural steel, except for the steel extrusion for the strip seal, shall be paid for as "Structural Steel in Plate Girder Spans (M270, Gr. 50W)". The steel extrusion and neoprene strip seal shall be paid for in accordance with Section 809 of the Standard Specifications.

Details of proposed slider plate assembly shall be submitted to and approved by the Engineer prior to the fabrication of any structural steel at the expansion device.

Slider plates shall be AASHTO M270, Gr. 36 or 50 and shall be paid for as "Structural Steel in Plate Girder Spans (M270, Gr. 50W)". The surfaces of the plates which will not be in contact with the concrete shall be cleaned and painted in accordance with Section 638 or as directed by the Engineer. Only one coat is required and shall be applied in the fabricator's shop. Painting shall not be paid for directly, but will be considered subsidiary to "Structural Steel in Plate Girder Spans (M270, Gr. 50W)".

Method of installation and fabrication shall be determined by the manufacturer.

Anchors will not be paid for directly, but will be considered subsidiary to "Structural Steel in Plate Girder Spans (M270, Gr. 50W)".

STATE OF ARKANSAS
CHRISTOPHER J. CRISWELL
REGISTERED PROFESSIONAL ENGINEER
No. 11528
4/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 19 OF 20
DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS
BRIDGE OVER BIG LAKE OUTLET
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 1/20/15
CHECKED BY: CJC DATE: 5/21/15
DESIGNED BY: CJC DATE: 1/14/15
BRIDGE NO. 07391

FILENAME: bca1002x2_sxj.dgn
SCALE: No Scale
DRAWING NO. 58721

JACOBS

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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.		CA1002	169	319
				(1) 07391	-	296' CONT. UNITS	-	58722

SUPERSTRUCTURE GENERAL NOTES:

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

DESIGN SPECIFICATIONS:
AASHTO LRFD Bridge Design Specifications, Sixth Edition (2012), with 2013 interim revisions.

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Reinforcing Steel (AASHTO M31 or M322 Type A, 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

CONCRETE:
All concrete shall be Class S(AE) with a minimum 28 day compressive strength of f'c = 4,000 psi. Concrete shall be poured in the dry and all exposed corners are to be chamfered $\frac{3}{4}$" unless noted otherwise.

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. 55005 for allowable modifications and for tolerances when Permanent Steel Bridge Deck Forms are used.

Concrete in bridge superstructure shall be placed and consolidated for the entire pour and screeded off before any concrete has taken its initial set. This may require the use of a retarding agent.

The concrete bridge deck shall be given a tine finish in accordance with Subsection 802.19 for a Class 5 Tined Bridge Roadway Surface Finish. Movement of the finishing machine across the 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 girder. 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.

For each stage of construction, a minimum of 72 hours shall elapse between completion of slab and pouring of the parapet railing. Any railing pours made before the entire deck has been placed must be approved by the Engineer.

REINFORCING STEEL:
All reinforcing steel shall conform to AASHTO M31 or M322 Type A, Grade 60 with mill test reports. The reinforcing steel shall be accurately located in the forms and firmly held in place by steel wire supports sufficient in size and number 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 of "Epoxy Coated Reinforcing Steel (Grade 60)".

BEARINGS:
Bearings shall be firmly seated in accordance with Subsection 808.08. This work and material is to be considered subsidiary to the item "Elastomeric Bearings" and will not be paid for directly.

Anchor bolts shall be AASHTO designation M314 Gr. 55 including supplemental requirement S1, and shall be galvanized to conform to AASHTO M232, Class C or ASTM B695 Class 50. Anchor bolts will be paid for at the contract unit price bid for "Structural Steel in Plate Girder Spans (M270, Gr. 50W)".

See Drawing No. 58723 for cleaning requirements of external load plates on elastomeric bearings.

STRUCTURAL STEEL:
All structural steel shall be AASHTO M270, Gr. 50W unless otherwise noted and shall be paid for as "Structural Steel in Plate Girder Spans (M270, Gr. 50W)" unless otherwise noted. All surfaces shall be cleaned in accordance with Subsection 807.84(e) unless otherwise noted. Structural steel completely embedded in concrete may be AASHTO M270, Gr. 36 unless otherwise noted. Galvanized steel shall not be painted. For cleaning and painting of slider plates, see Drawing No. 58721.

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. Steel of equal or greater strengths will be accepted only when shown on the approved shop drawings. Shapes and materials shown in the plans will be the basis of payment and no additional compensation will be made for any adjustments due to substitutions.

All plate girder webs and flanges, 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 Plate Girder Spans (M270, Gr. 50W)".

Steel plates for main load carrying members (flange and web plates) and 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.

Girder webs may be made by shop splicing with a minimum length of 25'-0" for sections. Flange plates longer than 50'-0" may be made by shop splicing with a minimum length of 25'-0" for sections. Material specifications and location of shop-welded splices, if any, shall be shown on the shop drawings. No additional payment will be made for these splices.

Groove welds in main plate girder members shall be Quality Control (Q.C.) tested by nondestructive testing, as required by the Standard Specifications. Fillet welds at flange to web connections shall be Q.C. tested by the magnetic particle method. All Q.C. testing is at the Contractor's expense.

All connection plates shall be fabricated normal to the top flange and on the side of the girder web as indicated on the framing plan. All bearing stiffeners shall be fabricated to be plumb in their final conditions.

All girders shall be blocked in their true position in the shop with the 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 girders in their true position and this information shall become a part of the permanent records of this job. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram. All girder dimensions are based on a temperature of 60° F. A tolerance of +/- $\frac{1}{4}$" is allowed for camber.

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.

SUPERSTRUCTURE GENERAL NOTES (Cont.):

High strength bolts for field splices shall be $\frac{7}{8}$" in diameter unless noted otherwise. Open holes shall be $\frac{15}{16}$" in diameter unless noted otherwise. Bolt spacing shall be 3" for $\frac{7}{8}$" diameter bolts unless noted otherwise. Bolts shall be placed with heads on the outside face of the exterior girder web and on the bottom of the girder flanges. All bolts shall be installed and tightened in accordance with Subsection 807.71 prior to pouring the concrete deck.

All contact surfaces between plates at field splices shall be free of oil, rust or scale before assembly, and shall meet Class B faying surface requirements.

K-Frames shall be installed as girders are erected. High strength bolts for K-Frames shall be $\frac{7}{8}$" in diameter, and holes shall be $\frac{15}{16}$" in diameter unless noted otherwise. Bolt spacing shall be 3" for $\frac{7}{8}$" diameter bolts unless noted otherwise. All bolts shall be installed and tightened in accordance with Subsection 807.71 prior to pouring the deck unless noted otherwise. See Drawing No. 58710 for details of Special K-Frames between girders erected in different stages of construction.

All stud shear connectors shall be granular flux filled, solid fluxed, or equal and shall be automatically end welded in accordance with the recommendations of the manufacturer.

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STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISPELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

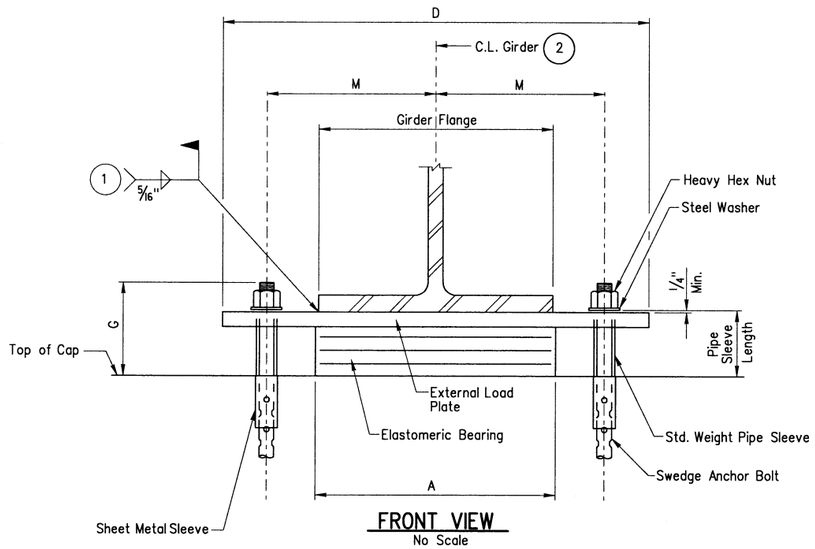
SHEET 20 OF 20
DETAILS OF 296'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNITS
BRIDGE OVER BIG LAKE OUTLET
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 6/5/14 FILENAME: bca1002x2_sxk.dgn
CHECKED BY: CJC DATE: 9/9/15
DESIGNED BY: CJC DATE: 11/16/14 SCALE: As Noted
BRIDGE NO. 07391 DRAWING NO. 58722

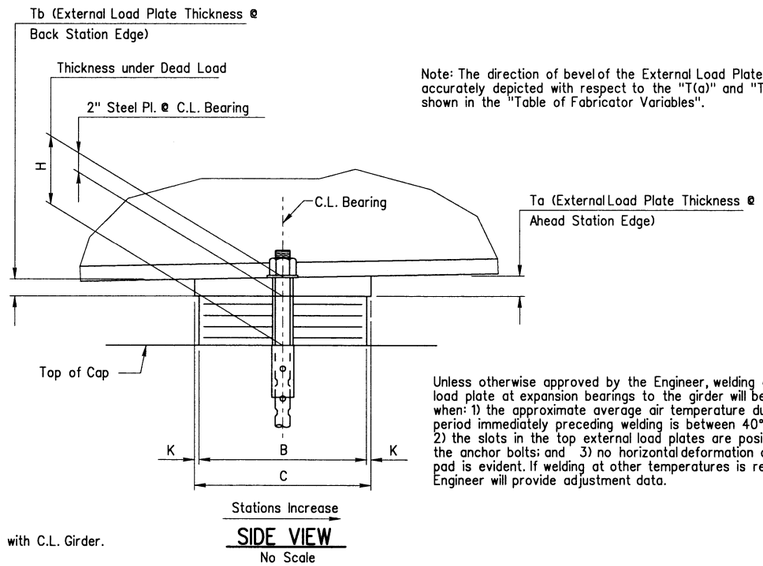
JACOBS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA1002	170	319

(1) 07391 - BEARING DETAILS - 58723



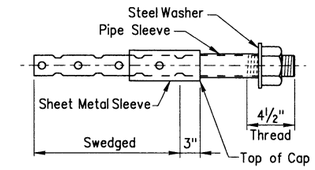
FRONT VIEW
No Scale



SIDE VIEW
No Scale

Note: The direction of bevel of the External Load Plate may not be accurately depicted with respect to the "T(a)" and "T(b)" values shown in the "Table of Fabricator Variables".

Unless otherwise approved by the Engineer, welding of the top external load plate at expansion bearings to the girder 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 top external load plates 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.



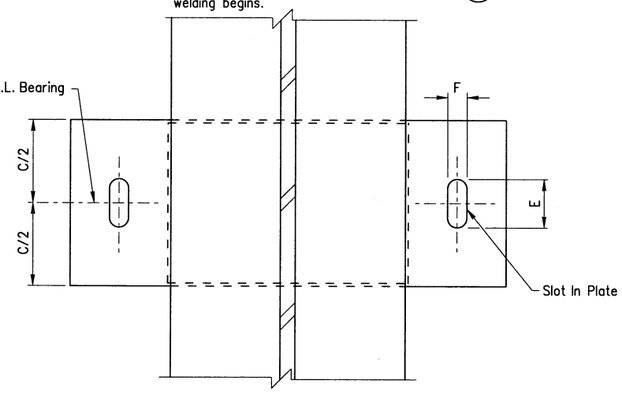
ANCHOR BOLT DETAIL
No Scale

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.

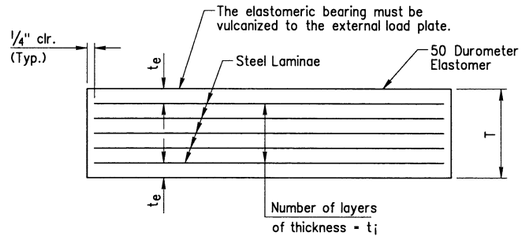
If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the 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 Plate Girder Spans, (M 270, Gr. 50W).

(1) Care shall be taken to ensure that the external load plate is in full and complete contact with the girder flange before welding begins.

(2) C.L. Elastomeric pad shall be aligned with C.L. Girder.



PLAN VIEW
No Scale



t_i = thickness of elastomer between steel laminae
t_e = thickness of elastomer cover on top and bottom of pad
N = number of elastomer layers of thickness t_i

ELASTOMERIC BEARING
No Scale

GENERAL NOTES

Elastomeric Bearings shall conform to Section 808 of the Standard Specifications and shall be paid for at the unit price bid for "Elastomeric Bearings."

External load plates and shear blocks shall conform to AASHTO M 270, Grade 50W and will not be paid for separately, but will be included in the unit price bid for "Elastomeric Bearings". Pipe sleeves shall be ASTM A500, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or ASTM B695, Class 50.

External load plates shall be completely fabricated (including bevel, bolt holes and all shop welding) and shall be cleaned before vulcanized 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 of the Standard Specifications. 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 Plate Girder Spans (M270, Gr. 50W)".

Bearings shall be seated in accordance with Subsection 808.08. Work and materials shall be considered subsidiary to the item "Elastomeric Bearings" and will not be paid for directly.

TABLE OF FABRICATOR VARIABLES

BRIDGE NO.	LOCATION			BEARING TYPE	NO. OF BRGS. EACH BENT	*MAXIMUM DESIGN LOAD (KIPS)	ELASTOMERIC PAD							EXTERNAL LOAD PLATE								ANCHOR BOLT				
	BENT NO(S).	UNIT	GIRDER NO.				G	H	A	B	N	t_i	t_e	NO. & THICKNESS OF STEEL LAMINAE	T	C	D	E	F	K	M	T_a	T_b	ANCHOR BOLT (Dia. x L)	GRADE	PIPE SLEEVE SIZE (Dia. x L)	SHEET METAL SLEEVE SIZE (Dia. x L)	STEEL WASHER SIZE (O.D.)
07391	1 & 10	296'	All	Exp.	9	133	8 3/4"	4 15/16"	1'-2"	10"	4	1/2"	1/4"	5 @ 12 ga.	3"	11"	2'-3 1/2"	5 3/4"	3 3/4"	1/2"	10 1/4"	2"	2"	2 1/2" x 3'-1"	55	3" x 5 1/4"	4" x 12"	4 1/2"
07391	4 (Back)	296'	All	Exp.	9	133	8 1/2"	4 15/16"	1'-2"	10"	4	1/2"	1/4"	5 @ 12 ga.	3"	11"	2'-2 1/2"	5 3/4"	3 3/4"	1/2"	10"	2"	2"	2 1/4" x 2'-11"	55	2 1/2" x 5 1/4"	4" x 12"	4"
07391	4 (Ahead)	296'	All	Exp.	9	133	8 1/2"	4 15/16"	1'-2"	10"	4	1/2"	1/4"	5 @ 12 ga.	3"	11"	2'-2 1/2"	5 3/4"	3 3/4"	1/2"	10"	2"	2"	2 1/4" x 2'-11"	55	2 1/2" x 5 1/4"	4" x 12"	4"
07391	7 (Back)	296'	All	Exp.	9	133	8 1/2"	4 15/16"	1'-2"	10"	4	1/2"	1/4"	5 @ 12 ga.	3"	11"	2'-2 1/2"	5 3/4"	3 3/4"	1/2"	10"	2"	2"	2 1/4" x 2'-11"	55	2 1/2" x 5 1/4"	4" x 12"	4"
07391	7 (Ahead)	296'	All	Exp.	9	133	8 1/2"	4 15/16"	1'-2"	10"	4	1/2"	1/4"	5 @ 12 ga.	3"	11"	2'-2 1/2"	5 3/4"	3 3/4"	1/2"	10"	2"	2"	2 1/4" x 2'-11"	55	2 1/2" x 5 1/4"	4" x 12"	4"

* Maximum Load - Service I Limit State

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

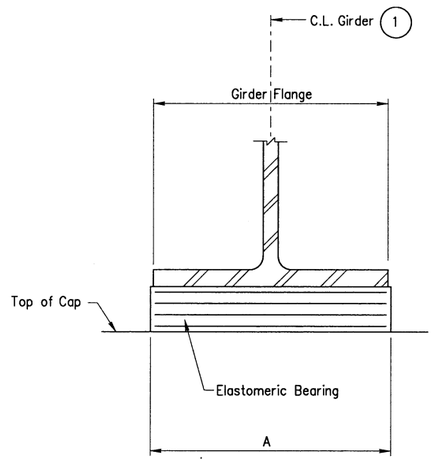
DETAILS OF ELASTOMERIC EXPANSION BEARINGS
BRIDGE OVER BIG LAKE OUTLET
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 6/5/14 FILENAME: bca1002x2_ex1.dgn
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DESIGNED BY: CGW DATE: 3/12/15 SCALE: As Noted
BRIDGE NO. 07391 DRAWING NO. 58723

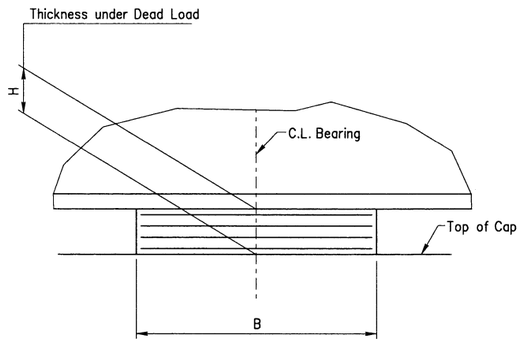
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				JOB NO.		CA1002	171	319
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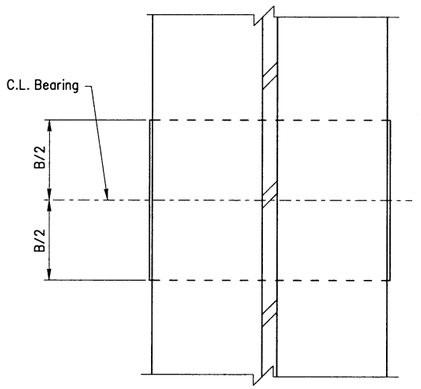
FRONT VIEW
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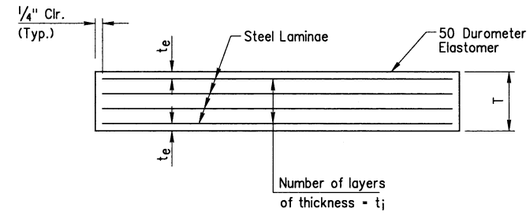
Stations Increase

SIDE VIEW
No Scale

(1) C.L. Elastomeric pad shall be aligned with C.L. Girder.



PLAN VIEW
No Scale



t_i = thickness of elastomer between steel laminae
t_e = thickness of elastomer cover on top and bottom of pad
N = number of elastomer layers of thickness t_i

ELASTOMERIC BEARING
No Scale

TABLE OF FABRICATOR VARIABLES

BRIDGE NO.	LOCATION			NO. OF BRGS. EACH BENT	*MAXIMUM DESIGN LOAD (KIPS)	H	ELASTOMERIC PAD						
	BENT NO(S).	UNIT	GIRDER NO.				A	B	N	t_i	t_e	NO. & THICKNESS OF STEEL LAMINAE	T
07391	2, 3, 5, 6, 8 & 9	296'	All	9	150	2 3/8"	1'-5"	10"	3	1/2"	1/4"	4 @ 12 ga.	2 3/8"

* Maximum Load - Service I Limit State

GENERAL NOTES

Elastomeric Bearings shall conform to Section 808 of the Standard Specifications and shall be paid for at the unit price bid for "Elastomeric Bearings."

Bearings shall be seated on level, uniform surfaces in accordance with Subsection 808.08. Any misalignment in the support shall be corrected to form a level surface. Work and materials shall be considered subsidiary to the item "Elastomeric Bearings" and will not be paid for directly.

The neoprene pads shall be bonded to the bearing seat with an epoxy adhesive in accordance with the bearing manufacturer's recommendations for bonding neoprene to concrete to prevent sliding.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

DETAILS OF ELASTOMERIC BEARINGS AT INTEGRAL INTERMEDIATE BENTS BRIDGE OVER BIG LAKE OUTLET MISSISSIPPI COUNTY

ROUTE 18 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 6/5/14 FILENAME: bca1002x2_ex2.dgn
CHECKED BY: CJC DATE: 5/18/15
DESIGNED BY: CGW DATE: 3/12/15 SCALE: As Noted
BRIDGE NO. 07391 DRAWING NO. 58724

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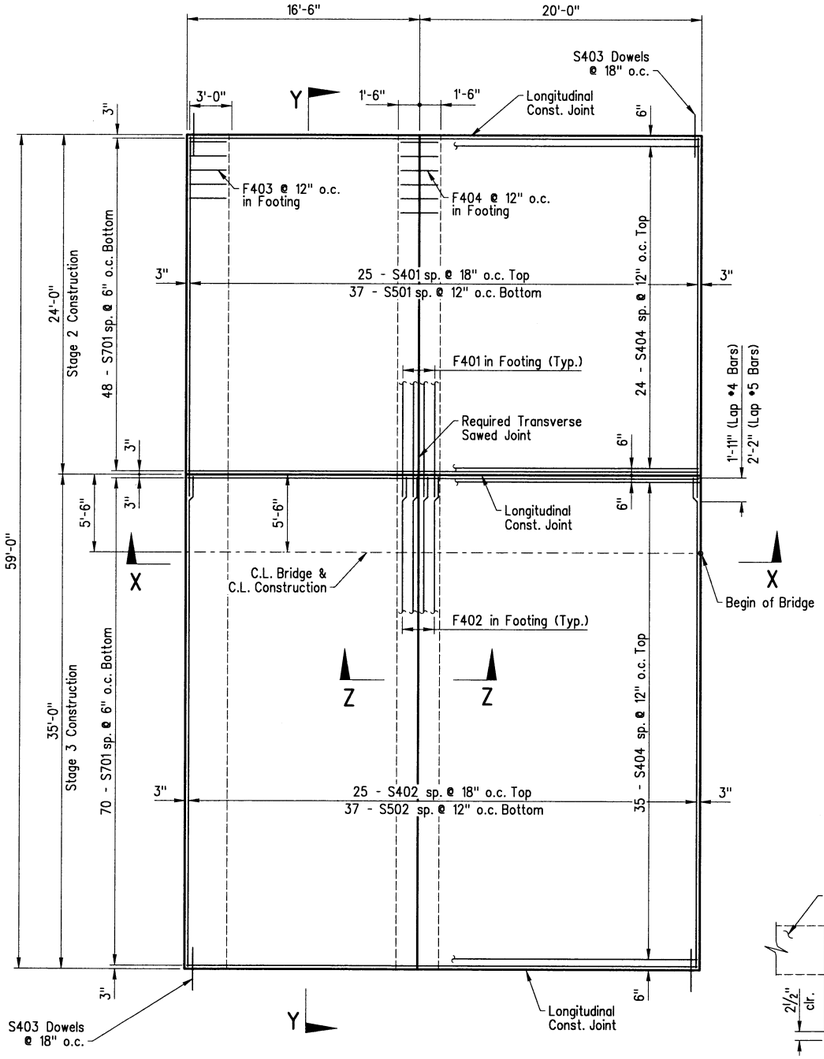
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA1002	172	319

(1) 07391 & 07392-TYPE SPEC. 2 APPR. SLAB-58725

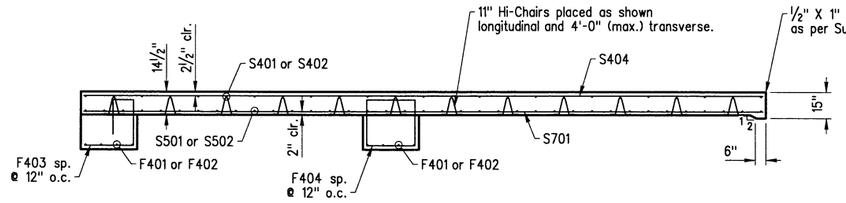
QUANTITIES FOR ONE TYPE SPECIAL APPROACH SLAB

Slab Width	Reinforcing Steel (lbs.)	Concrete (cubic yards)
59'-0"	14,640	120.46



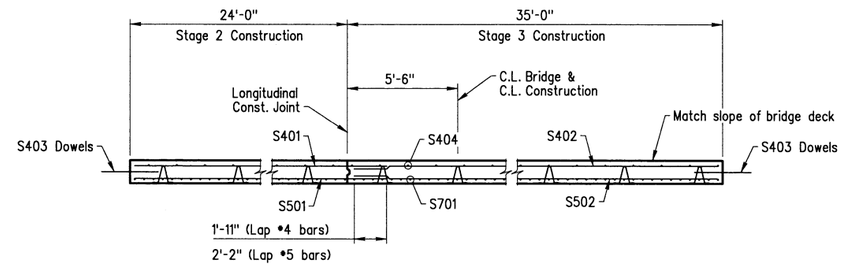
PLAN OF APPROACH SLAB

Scale: 3/16" = 1'-0"
(Begin Bridge shown, End Bridge opposite hand.)



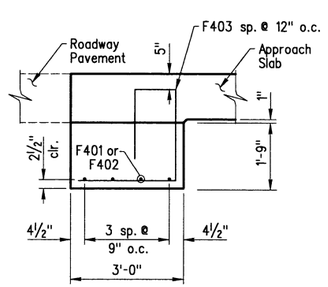
SECTION X-X

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



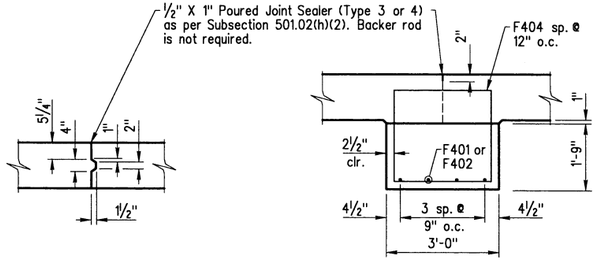
SECTION Y-Y

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



DETAILS OF SUPPORT AT EXPANSION JOINT

Scale: 1/2" = 1'-0"



DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

Scale: 1/2" = 1'-0"

SECTION Z-Z

Scale: 1/2" = 1'-0"

GENERAL NOTES

All Concrete shall be Class S(AE) with a minimum 28 day compressive strength f'c = 4,000 psi and shall be poured in the dry.

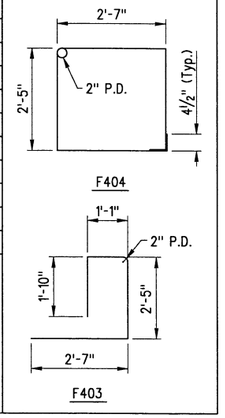
All Reinforcement Steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

Approach Slabs will be measured and paid for in accordance with Section 504 of the Standard Specifications.

The surface finish for Approach Slabs shall match that used on the bridge deck.

BAR LIST

Mark	No. Req'd.	Length	Bending Diagram
S401	25	25'-11"	Dimensions are out to out of bars.
S402	25	34'-8"	
S403	50	3'-0"	
S404	59	36'-2"	
S501	37	26'-2"	
S502	37	34'-8"	
S701	118	36'-2"	
F401	8	25'-11"	
F402	8	34'-6"	
F403	59	7'-8"	
F404	59	10'-4"	



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15927
CHARLES G. WISE
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

DETAILS OF TYPE SPECIAL 2 APPROACH SLAB BRIDGES OVER BIG LAKE OUTLET AND BIG LAKE FLOODWAY RELIEF

MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 11/6/14
CHECKED BY: CGW DATE: 11/10/15
DESIGNED BY: CGW DATE: 10/12/15
BRIDGE NO. 07391 & 07392
FILENAME: bca1002x2_as1.dgn
SCALE: As Noted
DRAWING NO. 58725

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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.		CA1002	173	319
				(1) 07392	-	LAYOUT	-	58726

For R/W Data, See Rdwy. Plans

HORIZONTAL CURVE DATA
PI = Sta. 1288+85.75
PC = Sta. 1288+08.94
PT = Sta. 1289+62.56
Delta = 0° 46' 05" RT
D = 0° 30' 00"
T = 76.81'
L = 153.62'
R = 11,459.16'

Toe of Fill Slope

SIGN

Place Type C Approach Gutters ("w" = 8'-0") and Type Special 2 Approach Slabs on both ends of bridge. See Std. Dwg. No. 550300 & Dwg. No. 58725.

BIG LAKE FLOODWAY RELIEF

1'-6" Dumped Riprap placed on Filter Blanket. Top of riprap Elev. 243.00. See Std. Dwg. No. 55001 (Typ.)

Transition Superelevation to Sta 1300+20.89

See Roadway Plans and Std. Dwg. No. SE-2.

Toe of Fill Slope

Sta. 1294+80.89 - Begin Superelevation Transition

Overhead Electric Lines to be relocated by others.

Longitudinal Construction Joint

75'-0" Finished Crown
8'-0" Shdr.
2-12'-0" Lanes
1'-0" Median
8'-0" Shdr.
1'-5" Para.
78'-2" out to out
75'-0" Clear Roadway
5'-6"
33'-7" Stage 2 Constr.
44'-7" Stage 3 Constr.
2.0% Cross Slope
PT Sta. 1289+62.56

1290+00 1291+00 1292+00 1293+00 1294+00 1295+00

S 60° 38'53" E

Shoring 2

Tang. Dist. = 413.80'

Boring No. 12
Approx. 3.1 mi. to Jct. SH 18B

Boring No. 13

Boring No. 14

Boring No. 15
Approx. 2.8 mi. to Jct. SH 181

1 V: 2H
1 V: 3H
15'
27'-0"
60'-0"
60'
45°

C.L. Bridge, C.L. Construction and Working Point

C.L. Existing Bridge No. 06060

Gas Line on Existing Bridge (Removed by Others)

Remove Existing Bridge No. 06060 (Bridge Site No. 3) 1

Bridge No. 2631-A removed with construction of Bridge No. 06060. Some piles may remain. 1

Top of Cut

Underground Gas Marker

The Contractor shall excavate the existing embankment as shown to Elev. 236.00 at beginning of bridge. Approx. 1120 cu. yds. of excavation at Bent 1.

The Contractor shall excavate the existing embankment as shown to Elev. 236.00 at end of bridge. Approx. 220 cu. yds. of excavation at Bent 5.

PLAN

For General Notes, Boring Legend and Boring Blow Counts, see Dwg. No. 58727 & 58728.

1 The new bridge is positioned to avoid interference with existing piling. The Contractor shall verify the location of existing substructure and piles before driving new piles. Any pile removal or other adjustments to fit the new bridge to existing conditions shall be submitted to the Engineer for approval. Remnants of existing piles from previous bridges shall be removed in accordance with Section 205.

2 Shoring will be required during Stage 2 Construction. See SP Job CA1002 "Shoring", SP Job CA1002 "Geosynthetic Internal Reinforced Embankment Construction", and Roadway Plans.

3 See Roadway Plans for Special Details of reinforced embankment construction near bridge ends.

4 See Drawing No. 58730 for Details of Soil Densification at Bents 1 & 5.

5 Embankment material placed next to end bent stub walls shall meet the requirements of SP Job CA1002 "Cohesive Soil Backfill for Abutment Walls" See Roadway Plans for Special Details.

6 See SP Job CA1002 "Steel Shell Piling (36 Inch Diameter)".

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	8 TOTAL DISCHARGE	DISCHARGE THROUGH BRIDGE OPENING	7 NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEV. WITH BACKWATER
	YEARS	CFS	CFS	FEET	FEET
Design	50	51,110	15,780	242.24	242.73
Base	100	59,090	18,270	243.14	243.71
Extreme	500	69,050	21,200	244.23	244.89
Overtopping	>500	-	-	-	-

7 Unconstricted water surface without existing or proposed structures or roadway approaches.

8 Includes Big Lake Floodway Relief Bridge (Br. No. 07392) and structures at Ditch 81 and Big Lake Outlet.

Q100 backwater elevation for existing structure = 243.81 ft.
Proposed Low Bridge Chord elevation = 245.90 ft.
Drainage area = 2084 square miles
Historical H.W. Elev. = 244.6 ft. (1937)

Level Grade across Bridge
Elev. 252.10 along C.L. Construction at Working Point

Stations and elevations shown are along C.L. Bridge and C.L. Construction. Elevations are at Working Point.

Total Length of Bridge = 436'-2¼"
434'-0" Continuous Composite Plate Girder Unit (91'-126'-126'-91')

1'-1⅛" 1'-1⅛"

C.L. 2¼" Strip Seal Joint (4" Movement Rating)

C.L. 2¼" Strip Seal Joint (4" Movement Rating)

Slope Intercept Sta. 1290+23.91

Guardrail See Rdwy. Plans

Begin Bridge Sta. 1290+35.91

Concrete Parapet Rail

C.L. Bent 2 Sta. 1291+28.00

Working Point at C.L. Bridge to Low Side Top of Cap = 6'-4½"

Low Steel to Design H.W. = 3.2'

Working Point at C.L. Bridge to Low Steel = 6'-2⅜"

C.L. Bent 3 Sta. 1292+54.00

Working Point at C.L. Bridge to Low Side Top of Cap = 6'-4¾"

C.L. Bent 4 Sta. 1293+80.00

Working Point at C.L. Bridge to Low Side Top of Cap = 6'-4½"

End Bridge Sta. 1294+72.09

Slope Intercept Sta. 1294+84.09

Guardrail See Rdwy. Plans

Proposed Grade Line along C.L. Bridge and C.L. Construction

EXP. INT. INT. INT. EXP.

Existing Ground Line along C.L. Bridge and C.L. Construction

Pile Encasement Typical for Bents 2, 3 & 4. See Drawing No. 58740. Top of Encasement at Elev. 235.0.

49' Piles 49' Piles

77' Piles 96' Test Pile 6

Design High Water (Q50) = Elev. 242.7

80' Piles 96' Test Pile 6

85' Piles 6

55' Piles 55' Piles

Bent 1 Bent 2 Bent 3 Bent 4 Bent 5

ELEVATION

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 1 OF 3
LAYOUT OF
BRIDGE OVER BIG LAKE FLOODWAY RELIEF
MANILA - EAST (WIDENING) (S)
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 1/14/14
CHECKED BY: MAA DATE: 1/23/14
DESIGNED BY: CJC DATE: 1/10/14
BRIDGE NO. 07392

FILENAME: bca1002x3_lx1.dgn
SCALE: 1" = 30'
DRAWING NO. 58726

JACOBS

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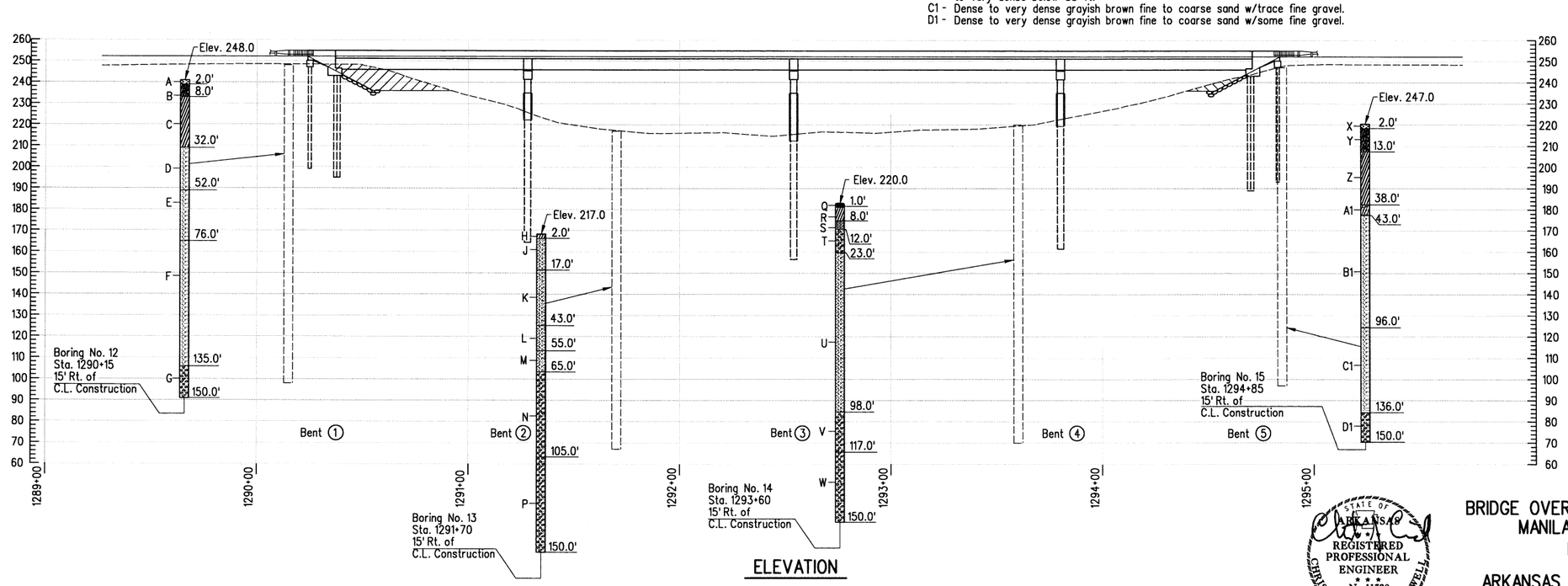
"N" VALUES

Boring No. 12 Sta. 1290+15 15' Right of C.L. Constr.	Boring No. 13 Sta. 1291+70 15' Right of C.L. Constr.	Boring No. 14 Sta. 1293+60 15' Right of C.L. Constr.	Boring No. 15 Sta. 1294+85 15' Right of C.L. Constr.
1.0-2.0, N=24	0.5-1.5, N=10	0.5-1.5, N=9	0.5-1.5, N=24
2.5-3.5, N=14	2.5-3.5, N=58	2.5-3.5, N=10	2.5-3.5, N=24
4.5-5.5, N=18	4.5-5.5, N=21	4.5-5.5, N=12	4.5-5.5, N=18
6.5-7.5, N=13	6.5-7.5, N=32	6.5-7.5, N=15	6.5-7.5, N=8
9.0-10.0, N=34	9.0-10.0, N=41	9.0-10.0, N=28	9.0-10.0, N=11
19.0-20.0, N=6	14.0-15.0, N=64	14.0-15.0, N=31	14.0-15.0, N=18
24.0-25.0, N=12	19.0-20.0, N=100 (10")	19.0-20.0, N=38	19.0-20.0, N=16
29.0-30.0, N=14	24.0-25.0, N=72	24.0-25.0, N=55	24.0-25.0, N=18
34.0-35.0, N=14	29.0-30.0, N=73	29.0-30.0, N=50 (9")	29.0-30.0, N=23
39.0-40.0, N=25	34.0-35.0, N=65	34.0-35.0, N=50 (7")	34.0-35.0, N=18
44.0-44.5, N=50 (6")	39.0-40.0, N=74	39.0-40.0, N=50 (10")	39.0-40.0, N=17
49.0-50.0, N=50 (11")	44.0-45.0, N=80	44.0-45.0, N=50 (10")	44.0-45.0, N=37
58.0-59.0, N=50 (11")	49.0-50.0, N=52	49.0-50.0, N=50 (9")	49.0-50.0, N=44
69.0-70.0, N=50 (9")	59.0-60.0, N=81	59.0-60.0, N=50 (8")	59.0-60.0, N=50
78.0-79.0, N=50 (11")	69.0-70.0, N=74	69.0-70.0, N=50 (7")	69.0-70.0, N=50 (10")
88.0-89.0, N=50 (7")	79.0-80.0, N=87	79.0-80.0, N=50 (8")	79.0-80.0, N=36
98.0-99.0, N=50 (9")	89.0-90.0, N=100 (6")	89.0-90.0, N=50 (8")	89.0-90.0, N=50 (9")
108.0-109.0, N=50 (9")	99.0-100.0, N=100 (7")	99.0-99.5, N=50 (6")	99.0-100.0, N=50 (9")
118.0-119.0, N=50 (8")	108.5-109.0, N=50 (1")	109.0-109.5, N=50 (5")	109.0-110.0, N=50 (8")
128.0-128.5, N=50 (6")	118.5-119.0, N=50 (0")	119.0-119.5, N=50 (2")	118.0-118.75, N=50 (8")
139.0-139.5, N=50 (6")	128.5-129.0, N=30 (0")	129.0-129.5, N=50 (3")	128.0-128.5, N=50 (6")
149.5-150.0, N=50 (6")	138.5-139.0, N=30 (0")	138.5-139.0, N=25 (0")	138.0-138.5, N=50 (6")
	148.5-149.0, N=25 (0")	148.5-149.0, N=25 (0")	149.5-150.0, N=50 (6")

BORING LEGEND

A - 3 inches: Asphalt Concrete, 21 inches: Aggregate Base.
B - Medium dense dark gray clayey fine sand w/trace fine to coarse gravel (fill), with occasional silt pockets below 5 ft.
C - Very stiff tan and gray clay w/occasional silt pockets, firm at 10 to 13 ft., stiff at 13 to 17 ft, with silty fine sand seams and layers below 13 ft., soft at 17 to 22 ft., stiff below 22 ft.
D - Medium dense gray and brown fine sand, slightly silty, with clay pockets to 35 ft., dense to very dense with occasional silty clay pockets below 43 ft.
E - Dense to very dense grayish brown fine to medium sand, slightly silty, w/trace fine to coarse gravel.
F - Dense to very dense grayish brown fine to coarse sand w/a little fine to coarse gravel and occasional clay pockets, with lignite inclusions below 88 ft., less gravel at 107 to 112 ft.
G - Dense to very dense grayish brown sandy fine gravel.
H - Firm to stiff dark gray clay, slightly silty w/some decayed organics.
J - Dense brownish gray fine to medium sand, slightly silty, medium dense with occasional clay pockets at 4 to 6 ft., dense at 4 to 13 ft., with trace fine gravel below 8 ft., dense to very dense with occasional organic inclusions below 13 ft.
K - Dense to very dense brownish gray fine to medium sand w/trace coarse sand and fine gravel, with occasional organic inclusions below 28 ft., with organic seams from 38 to 40 ft.
L - Dense to very dense dark gray fine sand, slightly silty w/organic seams and inclusions, with numerous organic inclusions below 48 ft.
M - Very dense brownish gray fine to medium sand w/trace coarse sand.
N - Very dense brownish gray fine to coarse sand w/some fine gravel, more gravel below 95 ft.
P - Dense to very dense brownish gray sandy fine gravel.
Q - Loose brown silt.
R - Firm brown tan and gray clay, firm to stiff at 2 to 4 ft, stiff below 4 ft.
S - Medium dense brown and gray silty fine sand w/organic inclusions and ferrous stains.
T - Dense brownish gray fine to medium sand, slightly silty w/some coarse sand and fine gravel.
U - Dense to very dense brownish gray fine to medium sand, slightly silty w/organic inclusions, clean, coarser with a little fine gravel at 33 to 43 ft., clean, with trace coarse sand and fine gravel below 55 ft.
V - Dense to very dense grayish brown and tan medium to coarse sand w/some fine gravel.
W - Dense to very dense brownish gray sandy fine gravel.
X - 2 inches: Asphalt Concrete, 22 inches: Aggregate Base.
Y - Stiff dark gray fine sandy clay w/occasional fine to medium sand pockets and trace fine gravel (fill), firm to stiff below 6 ft.
Z - Stiff gray clay w/occasional silt pockets, with organic stains below 26 ft., with silty fine sand seams below 33 ft.
A1 - Medium dense tan and gray clayey fine sand.
B1 - Dense grayish brown fine to medium sand w/trace fine gravel and occasional silty clay pockets, with fine sandy clay seams and layers at 48 to 52 ft., with less gravel below 60 ft., dense to very dense at 65 to 75 ft., dense at 75 to 85 ft., slightly silty, with fine sand seams and layers below 76 ft., dense to very dense below 88 ft.
C1 - Dense to very dense grayish brown fine to coarse sand w/trace fine gravel.
D1 - Dense to very dense grayish brown fine to coarse sand w/some fine gravel.

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.		CA1002	174	319
				(1) 07392	-	LAYOUT	-	58727



ELEVATION

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 2 OF 3
LAYOUT OF
BRIDGE OVER BIG LAKE FLOODWAY RELIEF
MANILA - EAST (WIDENING) (S)
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	LHG	DATE:	1/14/14	FILENAME:	bca1002x3_lx2.dgn
CHECKED BY:	MAA	DATE:	1/23/14		
DESIGNED BY:	CJC	DATE:	1/10/14	SCALE:	1" = 30'
BRIDGE NO. 07392				DRAWING NO. 58727	

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GENERAL NOTES

BENCH MARK: AHTD DISC SE COR MM 18-6 3.13, 50.88' right of Sta. 1294+82.03, Elev. 249.44.

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Sixth Edition (2012), with 2013 interim revisions. AASHTO Guide Specifications for LRFD Seismic Bridge Design, First Edition (2009).

LIVE LOADING: HL-93 SEISMIC DESIGN CATEGORY = D S_{D1} = 1.141 SITE CLASS: D

OPERATIONAL IMPORTANCE: Typical Bridge

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Class S Concrete (substructure, 18" Dia. Piling, 36" Dia. Piling)	f'c = 3,500 psi
Self-Consolidating Concrete (18" Dia. Piling, 36" Dia. Piling)	f'c = 3,500 psi
Reinforcing Steel (AASHTO M31 or M322 Type A, Grade 60)	fy = 60,000 psi
Structural Steel (AASHTO M270, Gr. 36)	Fy = 36,000 psi
Structural Steel (AASHTO M270, Gr. 50)	Fy = 50,000 psi
Structural Steel (AASHTO M270, Gr. 50W)	Fy = 50,000 psi
Steel Shell Pile (ASTM A252, Grade 3)	Fy = 45,000 psi

BORING LOGS: Boring logs may be obtained from the Construction Contract Procurement Section of the Program Management Division.

STEEL SHELL PILING: All piling shall be driven with an approved air, steam, or diesel hammer. Length of piling shown are assumed for estimating quantities only. The actual lengths will be determined in the field. Piling for Bents 1 & 5 shall be 18" diameter concrete filled steel shell piles and shall be driven to a minimum ultimate bearing capacity of 222 tons per pile and to a tip elevation of 195 or lower for Bent 1 and 189 or lower for Bent 5. Piling in end bents shall be driven before embankment is in place. See Drawing No. 58730 for additional information pertaining to the pile driving sequence. Piling for Bents 2 through 4 shall be 36" diameter concrete filled steel shell piles and shall be driven open-ended to a minimum ultimate bearing capacity and to a minimum tip elevation shown on Drawing No. 58740. The soil plug within the 36" steel shells shall be removed to the specified depth and driving shall continue to verify the minimum ultimate bearing capacity. Concrete shall not be placed in steel shells until pile driving has progressed beyond a radius of 20 feet from the pile to be concreted. See SP Job CA1002 "Steel Shell Piling (36 Inch Diameter)" and Drawing No. 58740 for additional information.

TEST PILES: See Drawing No. 58726 and 58736 for locations of test piles. Drive a 96' test pile at Bent 4 to be Dynamic Load Tested and Rapid Load Tested. Drive a 96' Dynamic Load Test Pile at Bent 2. See SP Job CA1002 "Steel Shell Piling (36 Inch Diameter)" for additional information.

DRIVING SYSTEM: The driving system approval and ultimate bearing capacity determination for piling at Bents 1 & 5 shall be based on the requirements of Subsection 805.09(b) "Method B - Wave Equation Analysis (WEAP)". It is estimated that a minimum rated hammer energy of 66,400 ft-lbs per blow will be required to obtain the ultimate bearing capacity at Bents 1 & 5. The driving system approval and the ultimate bearing capacity determination for piling at Bents 2, 3 & 4 will be based on the results of Dynamic Load Tests and Rapid Load Tests as outlined in SP Job CA1002 "Steel Shell Piling (36 Inch Diameter)". It is estimated that a minimum rated hammer energy of 107,100 ft-lbs per blow will be required to obtain the ultimate bearing capacity at Bents 2, 3 & 4.

PREBORING: Preboring, water jetting or other methods approved by the Engineer may be needed to achieve the minimum pile penetration at Bents 1 & 5, but will not be allowed at Bents 2, 3 & 4. Water jetting shall stop once the minimum tip elevation is achieved. Any cost associated with achieving the minimum pile penetration shall be considered subsidiary to "Steel Shell Piling".

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.

PILE ENCASEMENT: Pile encasement for Bents 2, 3 & 4 shall extend from Elev 235.0 to 3' below natural ground. See SP Job CA1002 "Steel Shell Piling (36 Inch Diameter)" and Drawing No. 58740 for additional information and painting requirements for portion of pile not protected by pile encasement.

DETAIL DRAWINGS:	DRAWING NO.
Type Special 2 Approach Slab	58725
Hydrograph - Big Lake Floodway Relief	58729
Details of Soil Densification	58730
Stage Construction	58731
End Bents	58732 - 58735
Intermediate Bents	58736 - 58739
Concrete Filled Steel Shell Piles and Pile Encasements	58740
434'-0" Continuous Composite Plate Girder Unit	58741 - 58753
Elastomeric Bearings	58754 & 58755
Embankment Construction and Backfill at Bridge Ends	55000
Dumped Riprap and Filter Blanket	55001
Permanent Steel Bridge Deck Forms	55005
Type D Bridge Name Plate	55010
Type C Approach Gutters	55030C

GENERAL NOTES (Cont.)

EXISTING BRIDGE: Existing Bridge No. 06060 (Site No. 3) (log mile 3.13) is 42.8' wide and 422' long and consists of two 210' W-beam units supported by concrete trestle pile bents. The existing bridge occupies the same location as the proposed new bridge. Half size sheets (Drawing 26597 through 26605) of the existing bridge may be obtained from the Construction Contract Procurement Section of the Program Management Division.

REMOVAL AND SALVAGE: After Stage 2 Construction of the new bridge is opened to traffic, Existing Bridge No. 06060 shall be removed in accordance with Section 205. Remnants of existing piling from previous bridges shall be removed as directed by the Engineer. This work shall be considered subsidiary to the item "Removal of Existing Bridge Structure (Site No. 3)". This material and all material from the existing bridge shall become the property of the Contractor. For additional information see SP Job CA1002 "Details for Boater Safety".

MAINTENANCE OF TRAFFIC: See Roadway Plans.

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.		CA1002	175	319
				(1) 07392	-	LAYOUT	-	58728

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

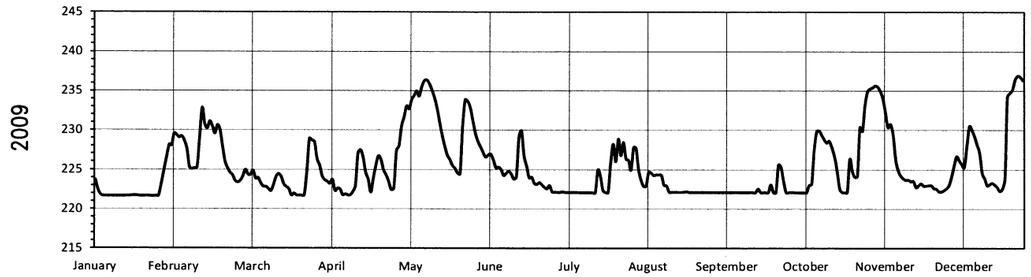
SHEET 3 OF 3
LAYOUT OF
BRIDGE OVER BIG LAKE FLOODWAY RELIEF
MANILA - EAST (WIDENING) (S)
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 1/14/14 FILENAME: bca1002x3_lx3.dgn
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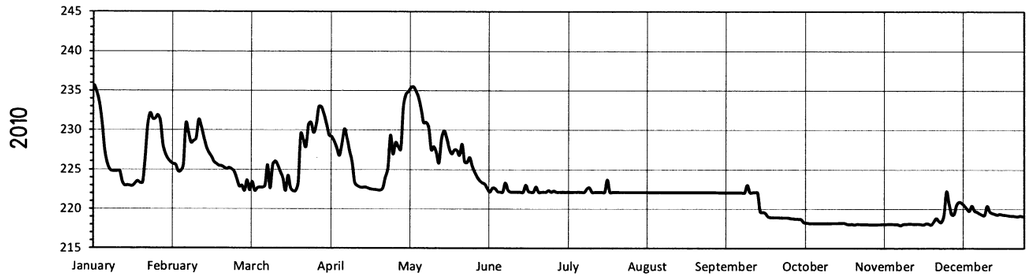
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				6	ARK.			
				JOB NO.		CA1002	176	319
				(1) 07392	-	HYDROGRAPH	-	58729

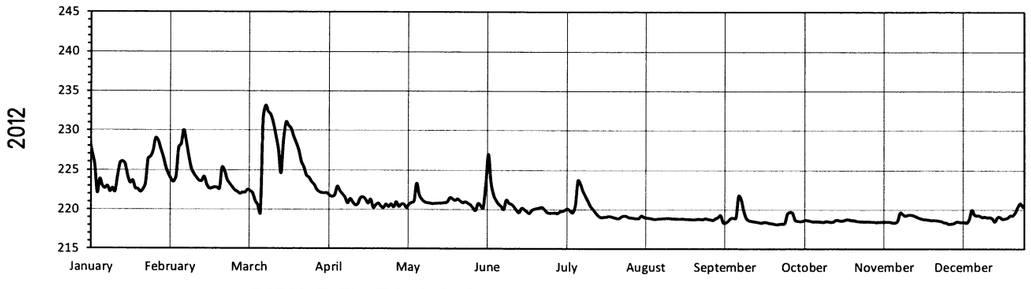


DAILY ELEVATIONS FOR JANUARY THROUGH DECEMBER 2009

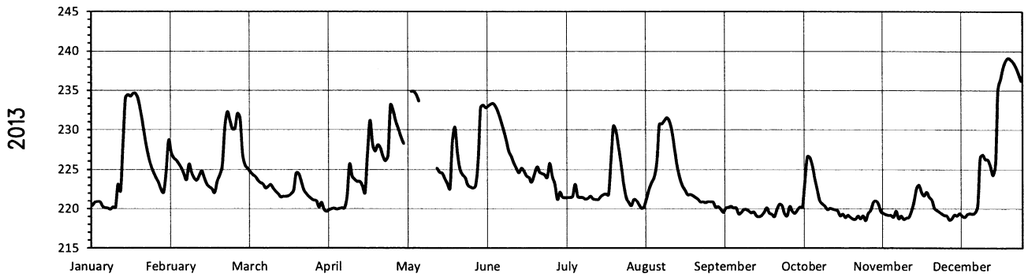


DAILY ELEVATIONS FOR JANUARY THROUGH DECEMBER 2010

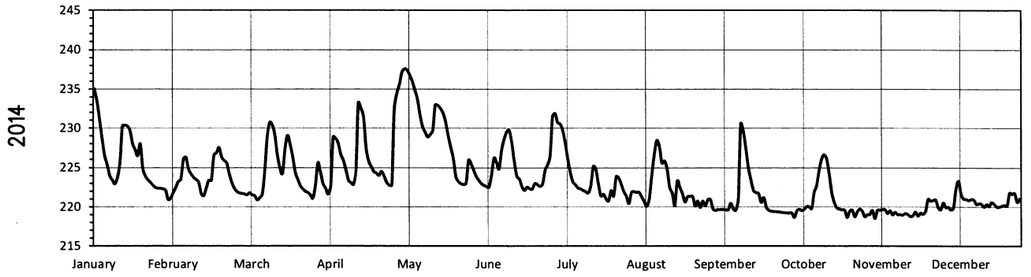
DAILY ELEVATIONS FOR JANUARY THROUGH DECEMBER 2011



DAILY ELEVATIONS FOR JANUARY THROUGH DECEMBER 2012

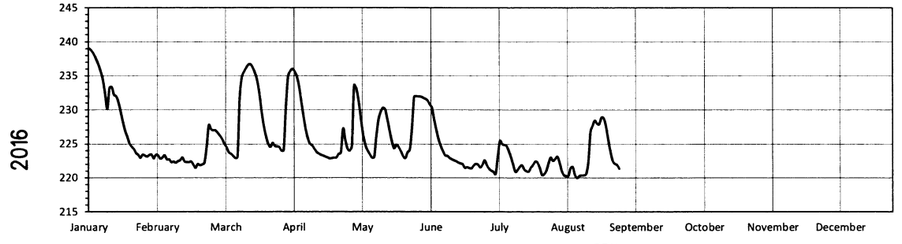


DAILY ELEVATIONS FOR JANUARY THROUGH DECEMBER 2013



DAILY ELEVATIONS FOR JANUARY THROUGH DECEMBER 2014

DAILY ELEVATIONS FOR JANUARY THROUGH DECEMBER 2015



DAILY ELEVATIONS FOR JANUARY THROUGH SEPTEMBER 2016

This Stage Hydrograph was obtained from the United States Army Corps of Engineers and was plotted by Jacobs Engineering. Broken lines in hydrograph signify missing data.

This hydrograph is provided for information only. Additional gage height information can be found at http://rivergages.mvr.usace.army.mil/watercontrol/stationinfo2.cfm?sid=SL115&fid=&dt=s for the Little River basin in the Memphis District.

Gage Name: SL115 State Line Outlet Ditch near Pettyville, AR.
Location: Longitude 90° 7' 24", Latitude 35° 50' 50", at River Mile 0.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

HYDROGRAPH - BIG LAKE FLOODWAY RELIEF
MANILA - EAST (WIDENING) (S)
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	LHG	DATE:	9/16/14	FILENAME:	bca1002x3_hg1.dgn
CHECKED BY:	CGW	DATE:	9/17/14		
DESIGNED BY:	-	DATE:	-	SCALE:	As Noted
BRIDGE NO. 07392			DRAWING NO. 58729		

JACOBS

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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.		CA1002	177	319
				(1) 07392 - SOIL DENSIFICATION -				58730

TIMBER PILE DATA

Bent No.	Estimated No. of Piles	Minimum Tip Elev.	Estimated Pile Length, ft.
1	610	205.0	45
2	0	-	-
3	0	-	-
4	0	-	-
5	445	205.0	40

Notes:
Diameter(s) of timber piles shall be in accordance with SP Job CA1002 "Timber Piling for Soil Densification".

Drive number and length of timber piles as directed by the Engineer.

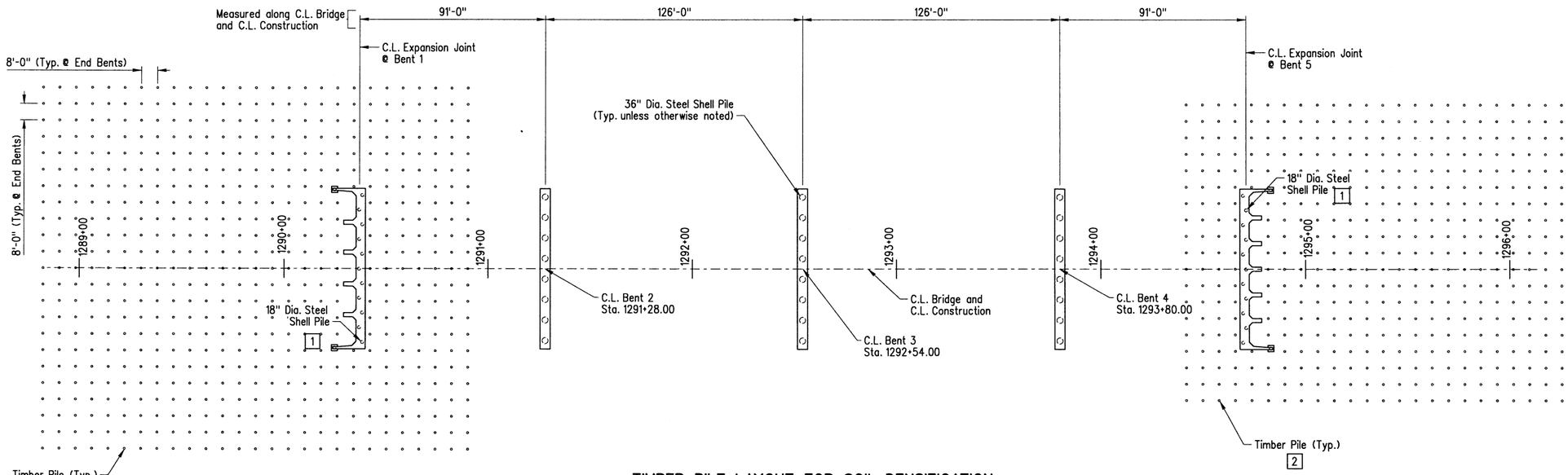
Contractor shall coordinate with the Engineer to avoid any and all utilities within the soil densification areas.

Top of pile shall be driven to existing ground line.

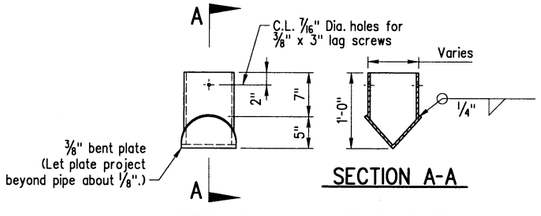
At Bent 1 the last lines of timber piling shall extend at least 85' left and 83' right of C.L. Construction. Timber piling shall also extend past Sta. 1288+85 and Sta. 1290+93.

At Bent 5 the last lines of timber piling shall extend at least 77' left and 59' right of C.L. Construction. Timber piling shall also extend past Sta. 1294+48 and Sta. 1296+22.

BIG LAKE FLOODWAY RELIEF

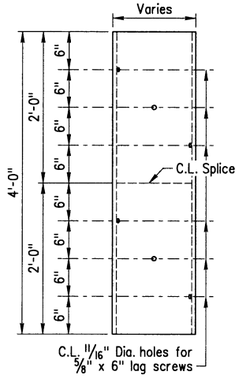


TIMBER PILE LAYOUT FOR SOIL DENSIFICATION
Scale: 1" = 30'-0"

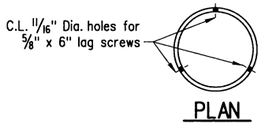


SECTION A-A

DETAILS OF TIMBER PILE TIP
Scale: 1" = 1'-0"



ELEVATION



PLAN

TYPICAL SPLICE DETAILS
Scale: 1" = 1'-0"

[1] Steel Shell Piling shall be driven prior to timber piling for each stage of bridge construction.

[2] Timber piling shall be in accordance with SP Job CA1002 "Timber Piling for Soil Densification" and shall be driven prior to placement of embankment with geosynthetic reinforcement. See Roadway Plans for Special Details for embankment construction.

STATE OF ARKANSAS
CHRISTOPHER J. CRISWELL
REGISTERED PROFESSIONAL ENGINEER
No. 11328
4/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

DETAILS OF SOIL DENSIFICATION
BRIDGE OVER BIG LAKE FLOODWAY RELIEF
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

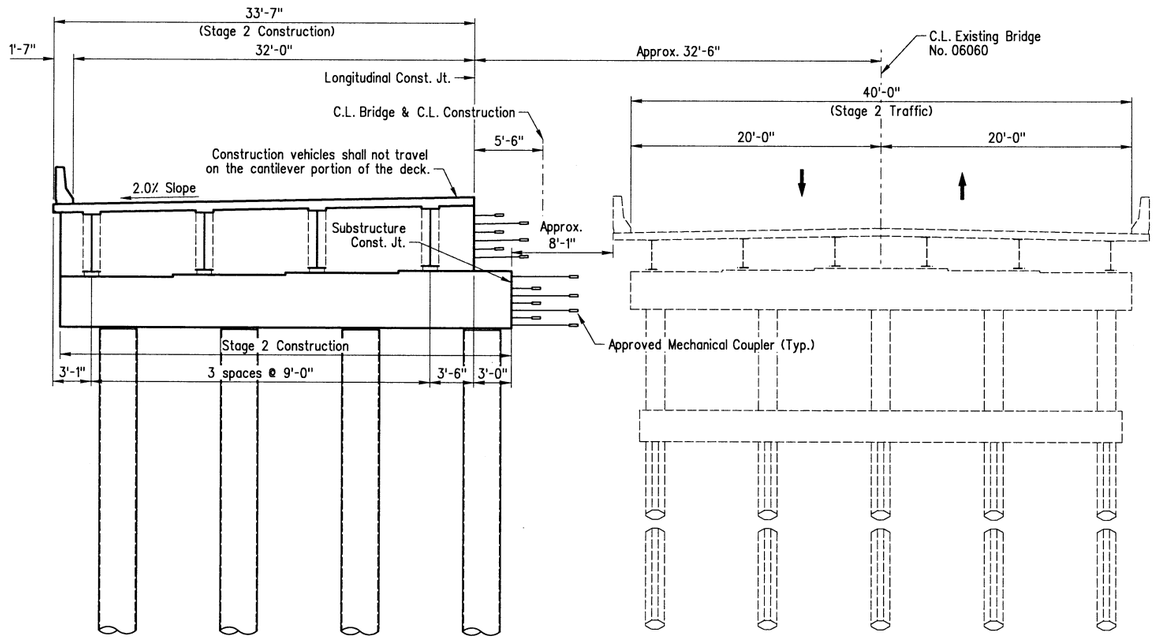
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CHECKED BY: CJC DATE: 1/20/16
DESIGNED BY: GHBW DATE: 1/12/16 SCALE: As Noted
BRIDGE NO. 07392 DRAWING NO. 58730

JACOBS

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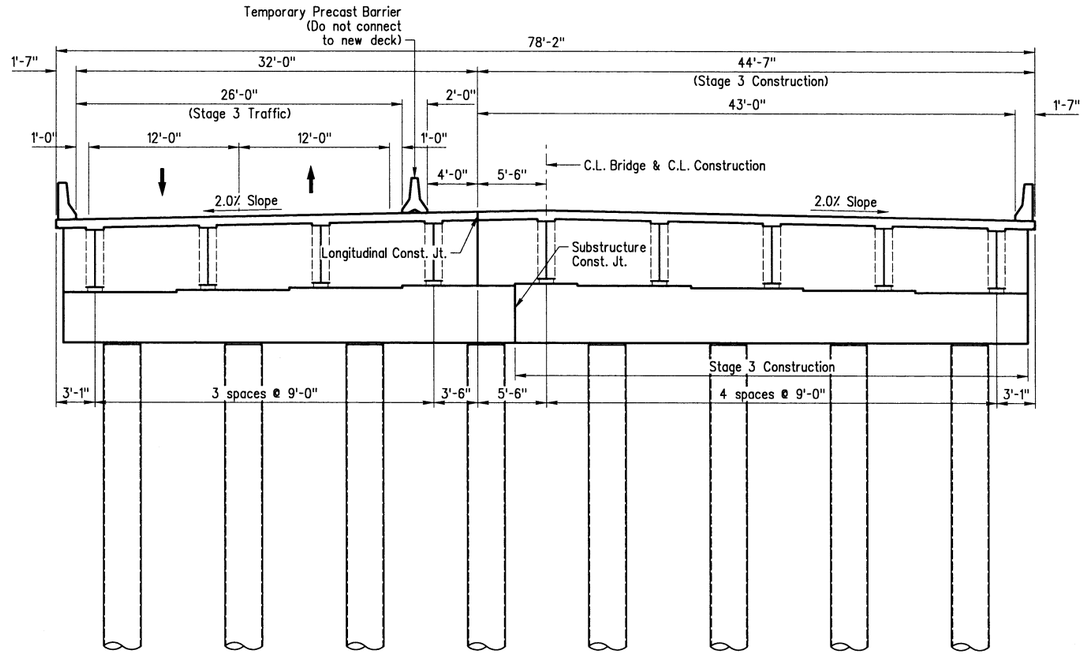
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				6	ARK.			
				JOB NO.		CA1002	178	319

(1) 07392 - STAGE CONSTRUCTION - 58731



Note:
After Stage 2 Construction is complete and opened to traffic, Existing Bridge No. 06060 shall be removed and Stage 3 Construction completed.

STAGE 2 CONSTRUCTION
Looking Ahead



Note: Details which relate to Maintenance of Traffic are shown on the Bridge Plans for information only.

Stages 1A and 1B to construct N. County Rd. 305 and Wildlife Refuge Rd. do not affect bridge construction and are not shown. See Roadway Plans for Maintenance of Traffic.

For Details of Temporary Precast Barrier, see Std. Dwg. TC-4.

STAGE 3 CONSTRUCTION
Looking Ahead

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

DETAILS OF STAGE CONSTRUCTION
BRIDGE OVER BIG LAKE FLOODWAY RELIEF
MANILA - EAST (WIDENING) (S)
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

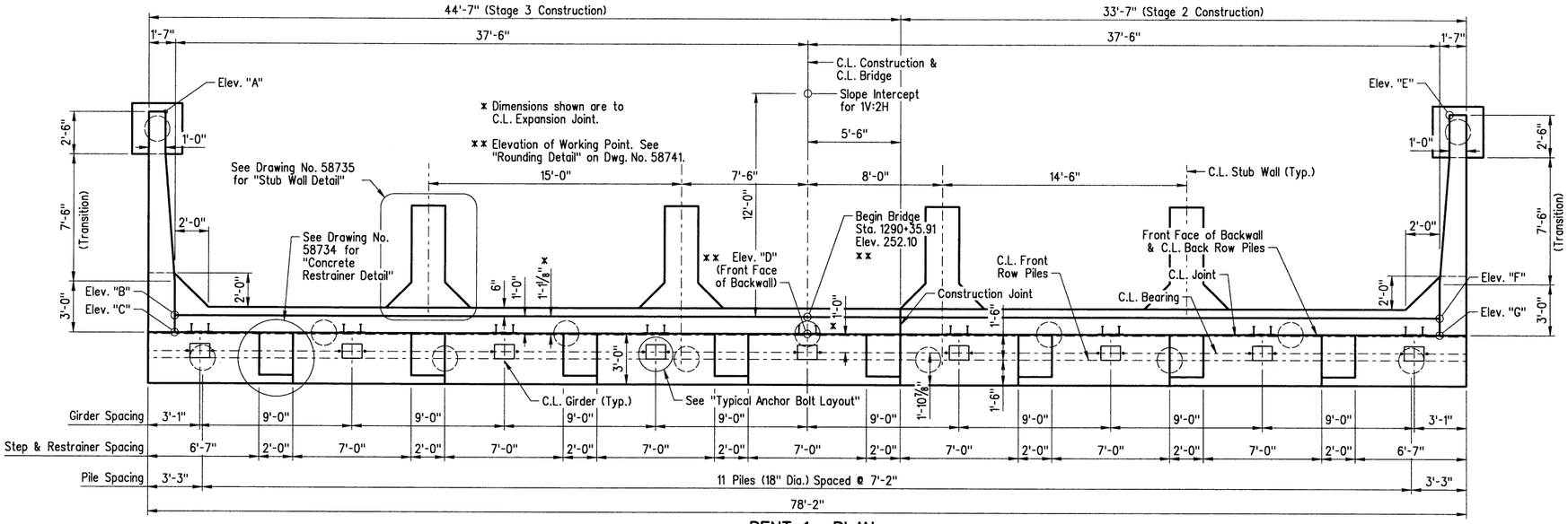
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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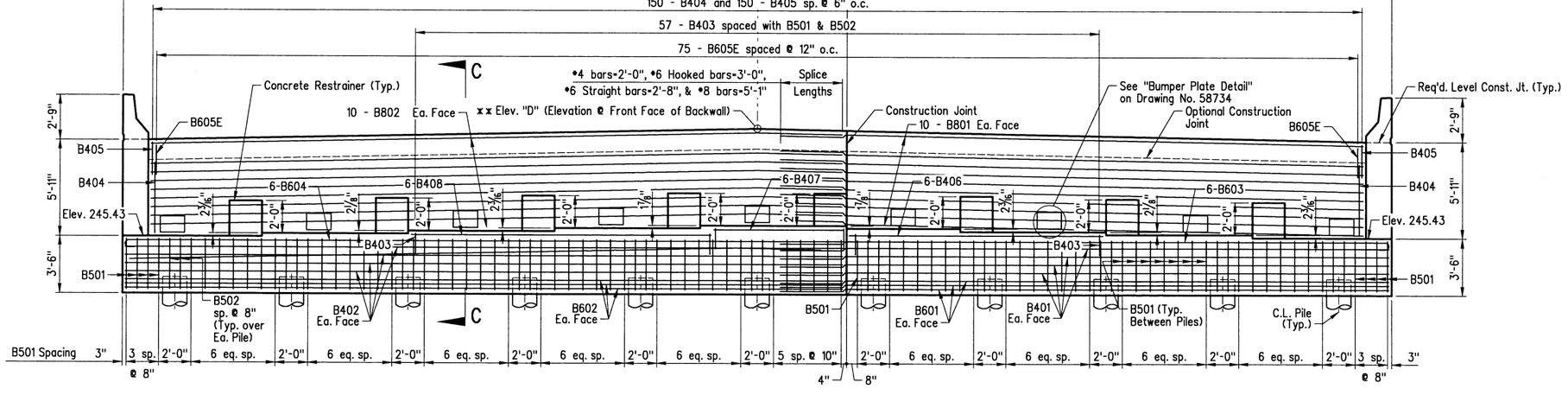
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				6	ARK.			
				JOB NO.		CA1002	179	319
				(1) 07392	-	END BENTS	-	58732



BENT 1 - PLAN
Scale: ¼" = 1'-0"

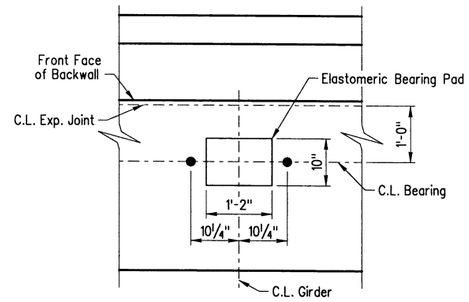


BENT 1 - ELEVATION
(Looking Back)
Scale: ¼" = 1'-0"

TABLE OF ELEVATIONS

	Bent 1
Elev. "A"	251.34
Elev. "B"	251.35
Elev. "C"	251.35
Elev. "D"	252.10
Elev. "E"	251.34
Elev. "F"	251.35
Elev. "G"	251.35

See Drawing No. 58734 for Section C-C.



TYPICAL ANCHOR BOLT LAYOUT
Scale: ¾" = 1'-0"

GENERAL NOTES

All concrete shall be Class "S" with a minimum 28 day compressive strength of f'c=3,500 psi.

Concrete shall be poured in the dry and exposed corners shall be chamfered ¾" unless otherwise noted.

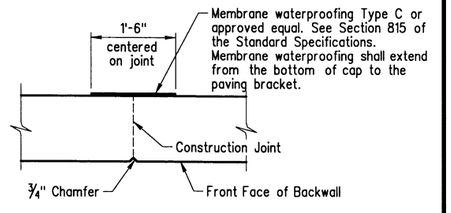
All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

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

Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

Class 1 Protective Surface Treatment shall be applied to the roadway face, top of the wing rails, and to the top of the backwall.

For additional information, see Layout.



Note: Payment for membrane to be considered subsidiary to Class S Concrete-Bridge.

CONSTRUCTION JOINT DETAIL
Scale: ¾" = 1'-0"

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 15927 CHARLES G. WISE 9/12/16
BRIDGE ENGINEER
PRINT DATE: 9/12/2016

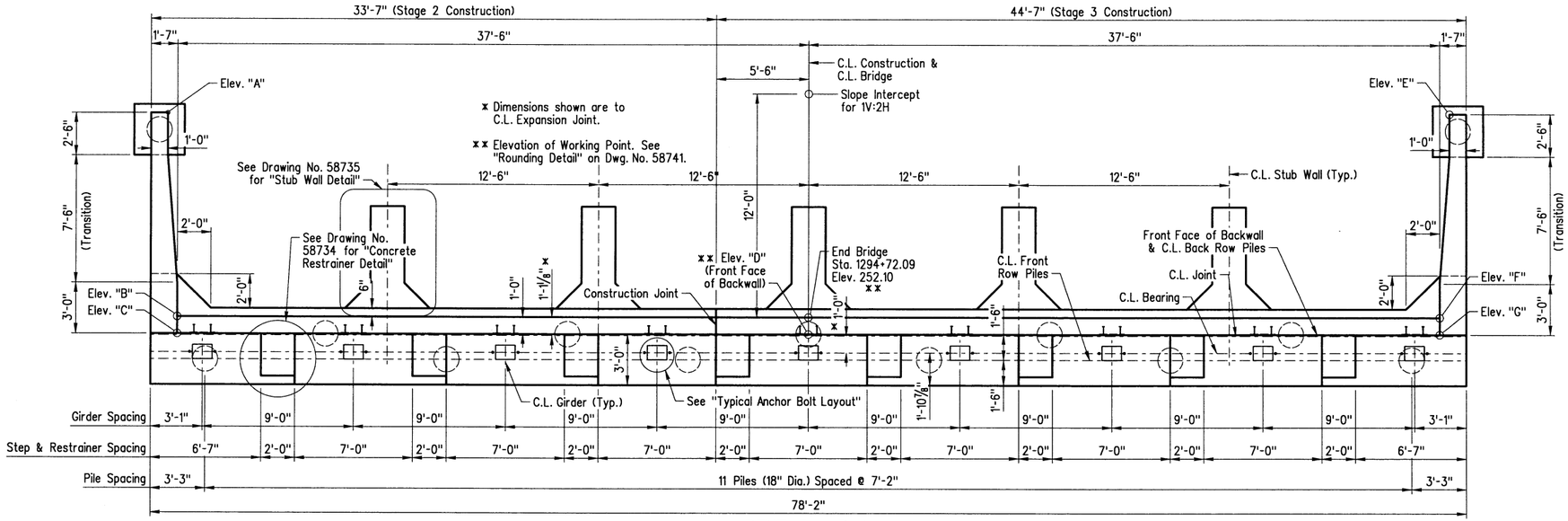
SHEET 1 OF 4
DETAILS OF END BENTS 1 & 5
BRIDGE OVER BIG LAKE FLOODWAY RELIEF
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 1/20/16
CHECKED BY: CGW DATE: 1/21/16
DESIGNED BY: CMC DATE: 1/7/16
BRIDGE NO. 07392
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SCALE: As Noted
DRAWING NO. 58732

JACOBS

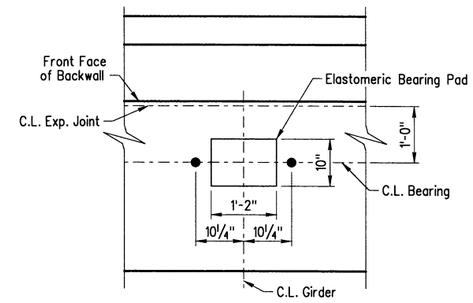
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				JOB NO.		CA1002	180	319
				(1) 07392	-	END BENTS	-	58733



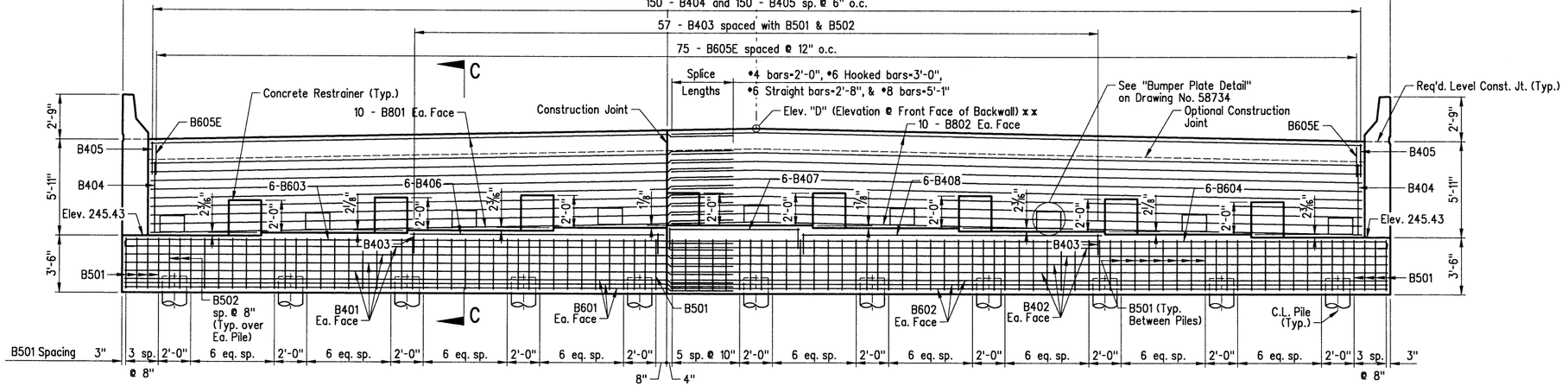
BENT 5 - PLAN

Scale: ¼" = 1'-0"



TYPICAL ANCHOR BOLT LAYOUT

Scale: ¾" = 1'-0"



BENT 5 - ELEVATION

(Looking Ahead)
Scale: ¼" = 1'-0"

TABLE OF ELEVATIONS

	Bent 5
Elev. "A"	251.34
Elev. "B"	251.35
Elev. "C"	251.35
Elev. "D"	251.10
Elev. "E"	251.37
Elev. "F"	251.35
Elev. "G"	251.35

See Drawing No. 58734 for Section C-C.

GENERAL NOTES

All concrete shall be Class "S" with a minimum 28 day compressive strength of f'c=3,500 psi.

Concrete shall be poured in the dry and exposed corners shall be chamfered ¾" unless otherwise noted.

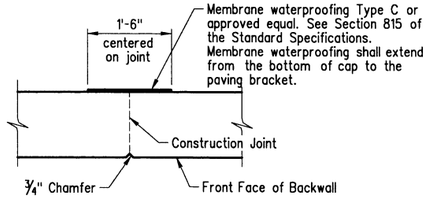
All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M31 or M322, Type A, with mill test reports.

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

Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

Class 1 Protective Surface Treatment shall be applied to the roadway face, top of the wing rails, and to the top of the backwall.

For additional information, see Layout.



Note: Payment for membrane to be considered subsidiary to Class S Concrete-Bridge.

CONSTRUCTION JOINT DETAIL

Scale: ¾" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15927
CHARLES G. WISE
9/13/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

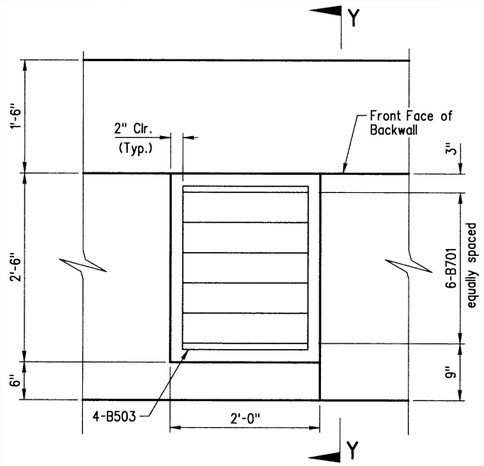
SHEET 2 OF 4
DETAILS OF END BENTS 1 & 5
BRIDGE OVER BIG LAKE FLOODWAY RELIEF
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 1/20/16
CHECKED BY: CGW DATE: 1/21/16
DESIGNED BY: CMC DATE: 1/7/16
BRIDGE NO. 07392
FILENAME: bca1002x3_ax2.dgn
SCALE: As Noted
DRAWING NO. 58733

JACOBS

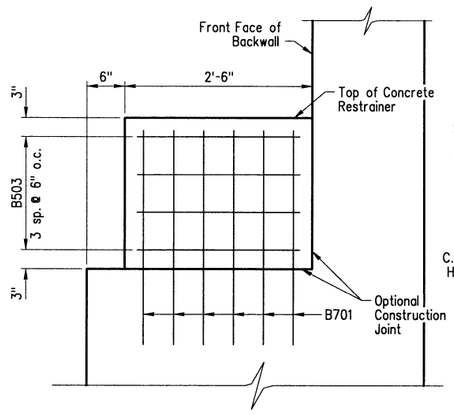
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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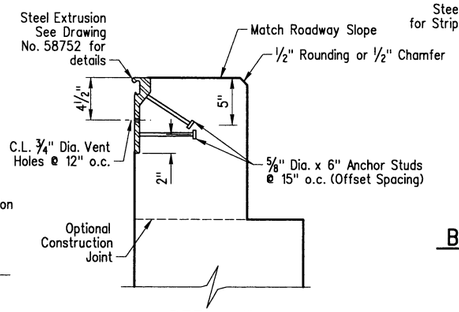
CONCRETE RESTRAINER DETAIL

Scale: 1" = 1'-0"



VIEW Y-Y

Scale: 1" = 1'-0"

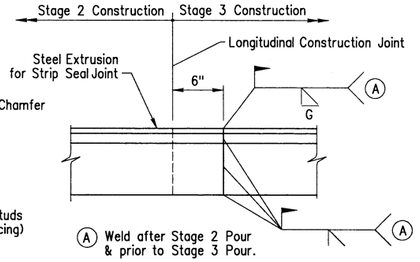


DETAIL Z

Scale: 1½" = 1'-0"

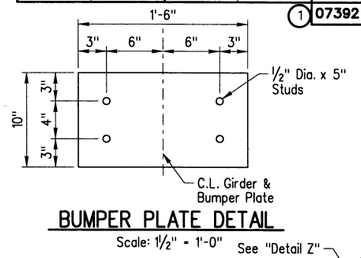
Notes: For additional joint details, see Drawing No. 58752.

Concrete shall be hand packed under the joint armor in the backwall.



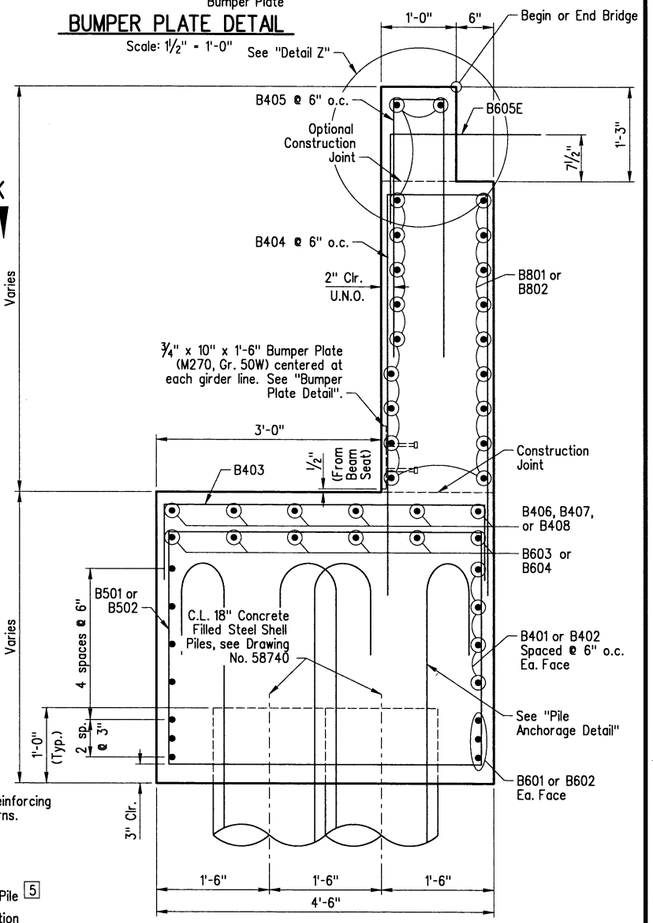
BACKWALL ARMOR JOINT DETAIL

No Scale



BUMPER PLATE DETAIL

Scale: 1½" = 1'-0"



SECTION C-C

Scale: 1" = 1'-0"

Note: The Backwall above the required construction joint shall not be poured until the girders are in place. Backwall may be placed prior to placing the adjacent concrete deck only if the optional backwall construction joint is used. See Drawing No. 58752, "Expansion Device Installation at End Bents" for additional information.

STAGE 2 BAR LIST PER BENT

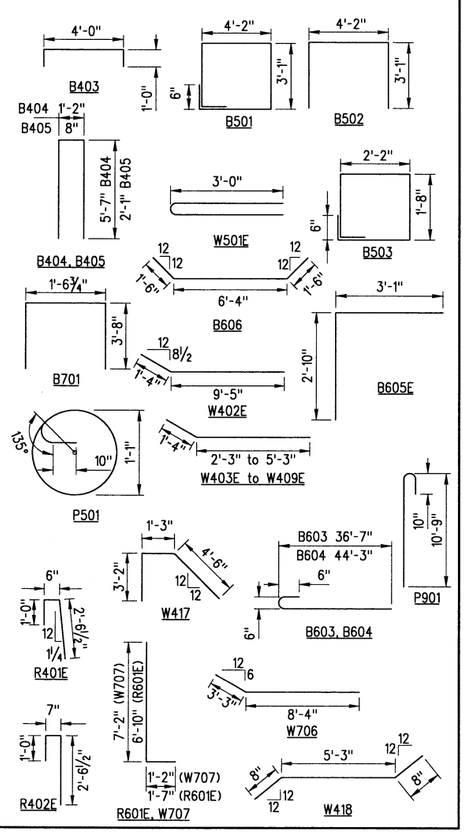
	MARK	NO. REQ'D Bt. 1	NO. REQ'D Bt. 5	LENGTH	PIN DIA.
	B401	8	8	35'-7"	Str.
	B403	20	20	5'-10"	2"
	B404	64	64	12'-2"	2"
	B405	64	64	4'-8"	2"
	B406	6	6	15'-8"	Str.
	B409	6	6	7'-9"	Str.
	B501	33	33	15'-0"	2½"
	B502	10	10	10'-1"	2½"
	B503	12	12	8'-2"	2½"
	B601	6	6	36'-3"	Str.
	B603	6	6	37'-3"	4½"
	B605E	32	32	5'-9"	4½"
	B606	4	4	9'-3"	4½"
	B701	18	18	8'-7"	5¼"
	B801	20	20	37'-1"	Str.
[3]	P501	6	6	103'-10"	3¾"
[3]	P901	60	60	12'-0"	9"
	R401E	6	6	3'-11"	2"
	R402E	5	5	4'-0"	2"
	R403E	6	6	12'-8"	Str.
	R601E	8	8	8'-3"	4½"
	W401E	4	4	11'-8"	Str.
	W402E	4	4	10'-9"	3"
	W403E to W409E	1 ea.	1 ea.	3'-7" to 6'-7"	3"
	W410E to W416E	1 ea.	1 ea.	4'-6" to 7'-6"	Str
	W417	7	7	8'-10"	2"
	W418	52	52	6'-6"	3"
	W419	28	28	6'-3"	Str.
	W501E	11	11	6'-2"	3¾"
	W601	6	6	2'-8"	Str.
	W701	6	6	12'-8"	Str.
	W702	2	2	8'-11"	Str.
	W703	2	2	7'-5"	Str.
	W704	2	2	5'-11"	Str.
	W705	2	2	4'-5"	Str.
	W706	2	2	11'-7"	5¼"
	W707	52	52	8'-2"	5¼"

STAGE 3 BAR LIST PER BENT

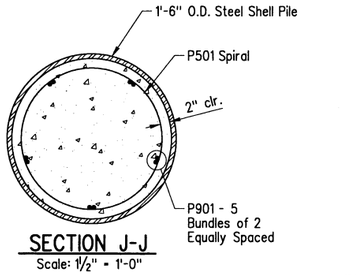
	MARK	NO. REQ'D Bt. 1	NO. REQ'D Bt. 5	LENGTH	PIN DIA.
	B402	8	8	44'-3"	Str.
	B403	34	34	5'-10"	2"
	B404	86	86	12'-2"	2"
	B405	86	86	4'-8"	2"
	B407	6	6	8'-8"	Str.
	B408	6	6	19'-8"	Str.
	B409	6	6	7'-9"	Str.
	B501	45	45	15'-0"	2½"
	B502	12	12	10'-1"	2½"
	B503	20	20	8'-2"	2½"
	B602	6	6	44'-3"	Str.
	B604	6	6	44'-11"	4½"
	B605E	43	43	5'-9"	4½"
	B606	4	4	9'-3"	4½"
	B701	30	30	8'-7"	5¼"
	B802	20	20	42'-8"	Str.
[3]	P501	7	7	103'-10"	3¾"
[3]	P901	70	70	12'-0"	9"
	R401E	6	6	3'-11"	2"
	R402E	5	5	4'-0"	2"
	R403E	6	6	12'-8"	Str.
	R601E	8	8	8'-3"	4½"
	W401E	4	4	11'-8"	Str.
	W402E	4	4	10'-9"	3"
	W403E to W409E	1 ea.	1 ea.	3'-7" to 6'-7"	3"
	W410E to W416E	1 ea.	1 ea.	4'-6" to 7'-6"	Str
	W417	7	7	8'-10"	2"
	W418	52	78	6'-6"	3"
	W419	28	42	6'-3"	Str.
	W501E	11	11	6'-2"	3¾"
	W601	6	6	2'-8"	Str.
	W701	6	6	12'-8"	Str.
	W702	2	2	8'-11"	Str.
	W703	2	2	7'-5"	Str.
	W704	2	2	5'-11"	Str.
	W705	2	2	4'-5"	Str.
	W706	2	2	11'-7"	5¼"
	W707	52	78	8'-2"	5¼"

BENDING DIAGRAMS

(Dimensions are out to out of bars.)



Note: Bars designated with an "E" suffix shall be epoxy coated.



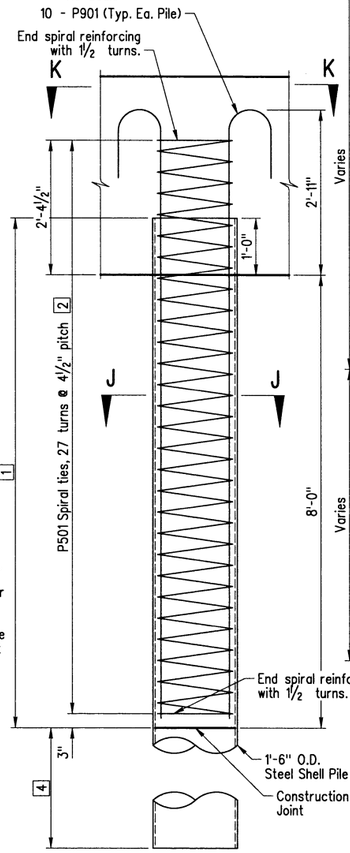
SECTION J-J

Scale: 1½" = 1'-0"

NOTES FOR SPIRAL REINFORCING

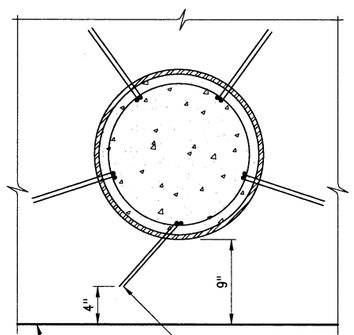
Spiral reinforcing shall be plain round or deformed steel bars meeting the requirements of AASHTO M31 or M322, Type A, with mill test report (Grade 60) or shall be cold drawn wire meeting the requirements of AASHTO M32 or M225 (Grade 70) with a minimum diameter of ½".

Spiral reinforcement shall be considered subsidiary to the item "Steel Shell Piling (18" Dia.)". No additional payment shall be made for spacers or bracing needed for assembly, shipping, handling, or erecting.



PILE ANCHORAGE DETAIL

Scale: ¾" = 1'-0"



SECTION K-K

Scale: 1½" = 1'-0"

See Drawing No. 58740 for additional information.

[4] Concrete shall be Self-Consolidating Concrete in accordance with Special Provision Job No. CA1002 "Self-Consolidating Concrete". Self-Consolidating Concrete shall have a minimum 28 day compressive strength, f'c = 3500 psi.

[5] See Special Provision Job No. CA1002 "Steel Shell Piling (18 Inch Diameter)".

[1] Vibration of concrete in the top 9 feet of the pile will be needed to ensure the consolidation of the concrete around the reinforcing steel. The Contractor will be responsible for obtaining satisfactory results. Concrete shall be Class S with a minimum 28 day compressive strength, f'c = 3500 psi., unless otherwise approved by the Engineer.

[2] No lap splices will be permitted.

[3] Non-pay item - Subsidiary to "Steel Shell Piling (18" Dia.)".

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 15927 CHARLES G. WISE 9/12/16

BRIDGE ENGINEER

PRINT DATE: 9/12/2016

SHEET 3 OF 4
DETAILS OF END BENTS 1 & 5
BRIDGE OVER BIG LAKE FLOODWAY RELIEF
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

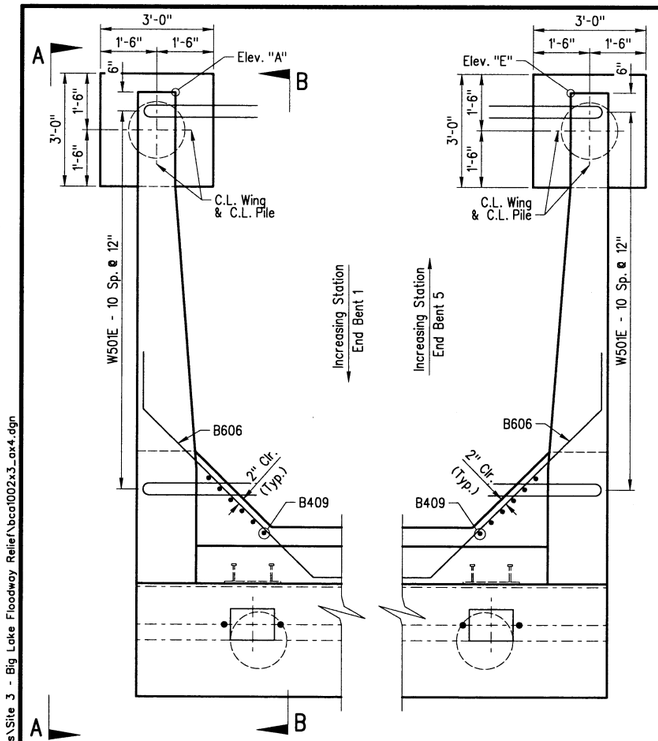
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LITTLE ROCK, ARKANSAS

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BRIDGE NO. 07392			DRAWING NO. 58734

JACOBS

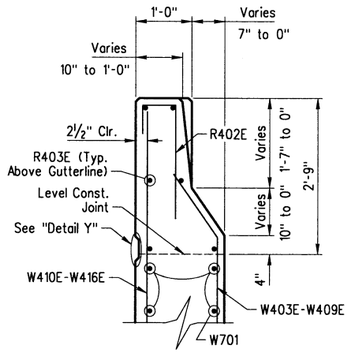
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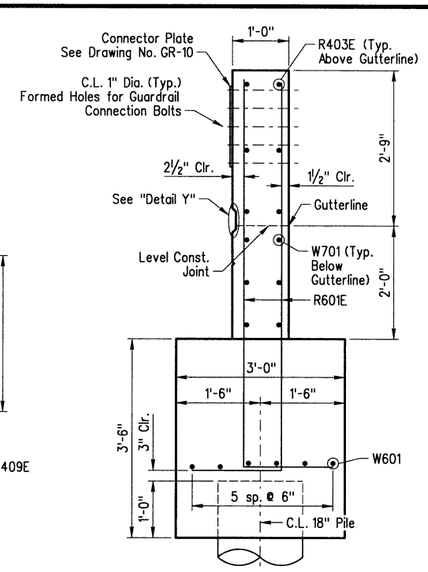


WING A
Scale: ½" = 1'-0"

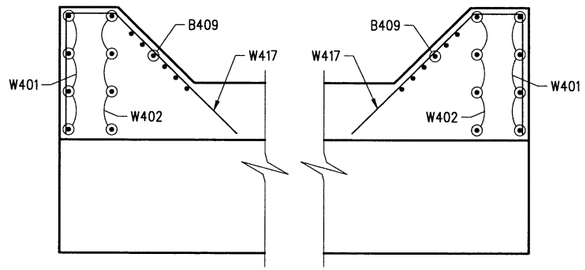
WING B
Scale: ½" = 1'-0"



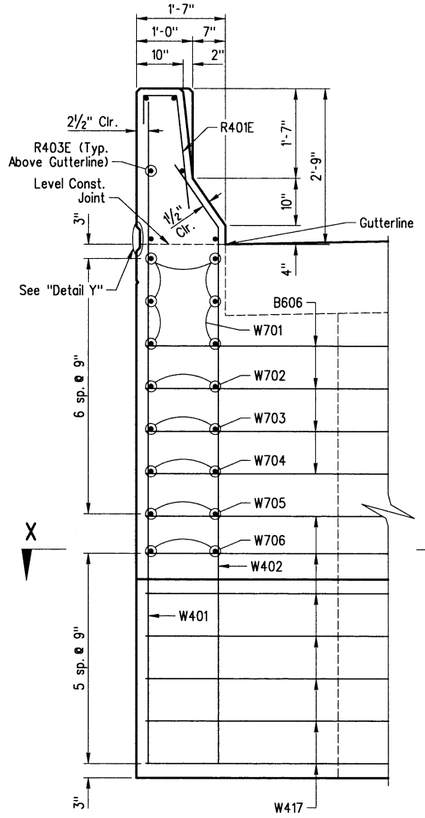
SECTION E-E
Scale: ¾" = 1'-0"



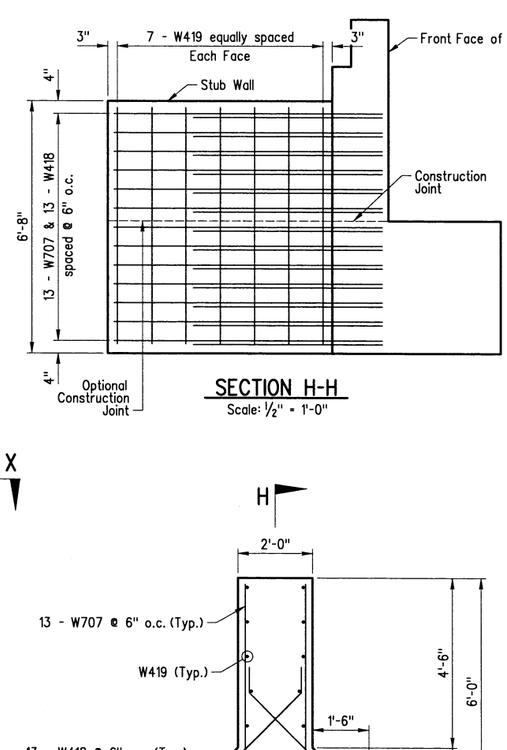
SECTION F-F
Scale: ¾" = 1'-0"



SECTION X-X
Scale: ½" = 1'-0"

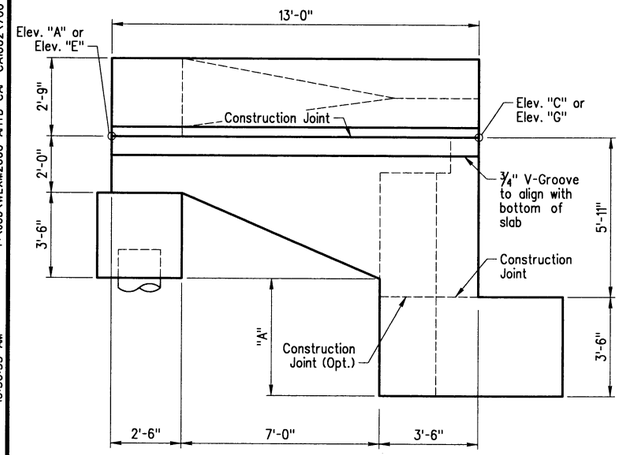


VIEW D-D
Scale: ¾" = 1'-0"



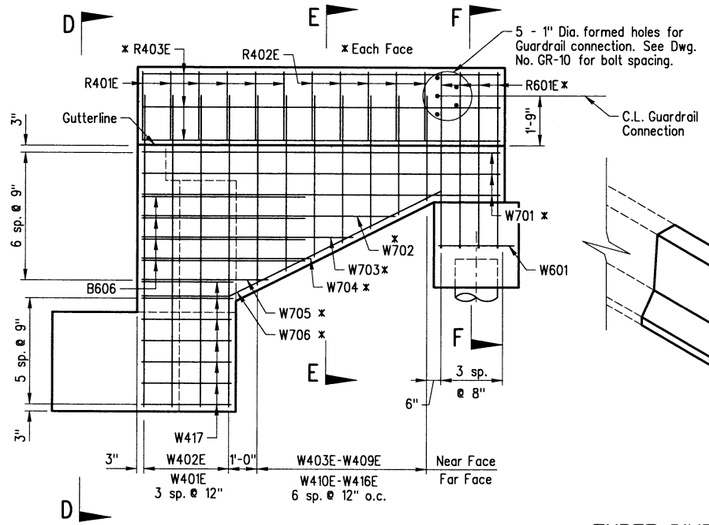
SECTION H-H
Scale: ½" = 1'-0"

STUB WALL DETAIL
Scale: ½" = 1'-0"

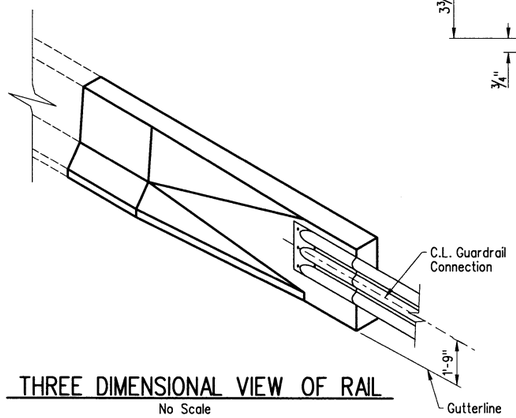


"A"	Bent 1	Bent 5
Wing A	3'-10⅞"	3'-10⅞"
Wing B	3'-10⅞"	3'-11¼"

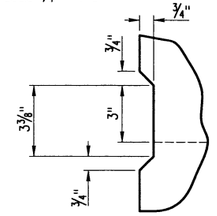
VIEW A-A
No Scale



SECTION B-B
No Scale



THREE DIMENSIONAL VIEW OF RAIL
No Scale



DETAIL Y
Scale: 3" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15927
CHARLES G. WISE
9/12/16
BRIDGE ENGINEER
PRINT DATE: 9/12/2016

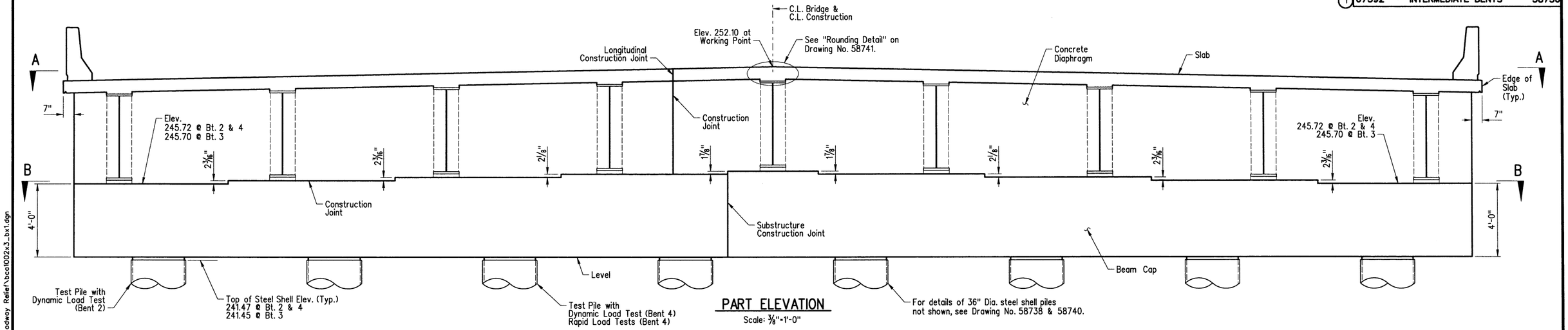
SHEET 4 OF 4
DETAILS OF END BENTS 1 & 5
BRIDGE OVER BIG LAKE FLOODWAY RELIEF
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 1/20/16
CHECKED BY: CGW DATE: 1/21/16
DESIGNED BY: CMC DATE: 1/7/16
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SCALE: As Noted
DRAWING NO. 58735

JACOBS

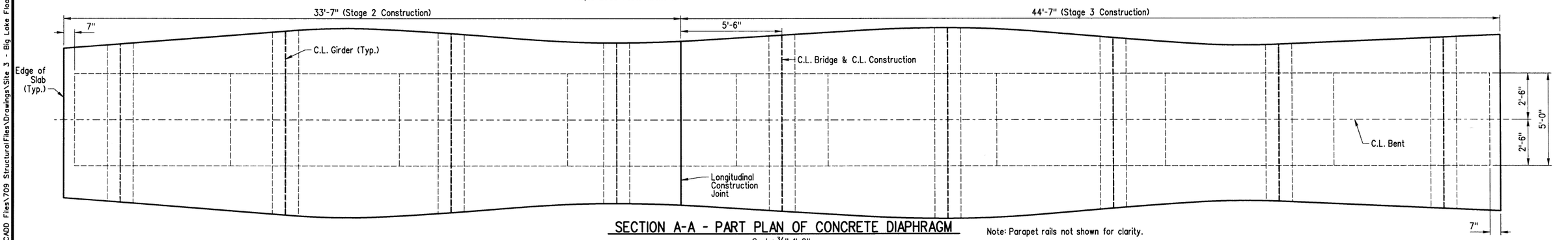
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				JOB NO.		CA1002	183	319
				(1) 07392 - INTERMEDIATE BENTS - 58736				



PART ELEVATION

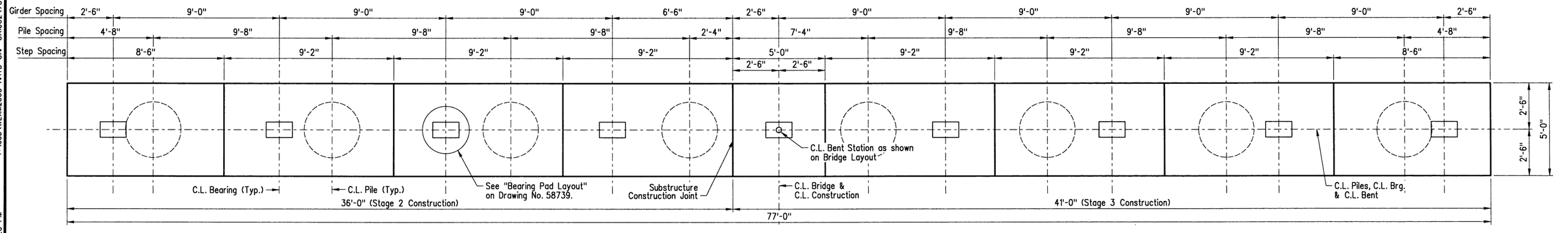
Scale: 3/8"=1'-0"



SECTION A-A - PART PLAN OF CONCRETE DIAPHRAGM

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

Note: Parapet rails not shown for clarity.



SECTION B-B - PLAN OF BEAM CAP

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 1 OF 4
DETAILS OF INTERMEDIATE BENTS 2, 3 & 4
BRIDGE OVER BIG LAKE FLOODWAY RELIEF
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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DESIGNED BY:	HMD	DATE:	1/19/16	SCALE:	3/8" = 1'-0"
BRIDGE NO. 07392				DRAWING NO. 58736	

JACOBS

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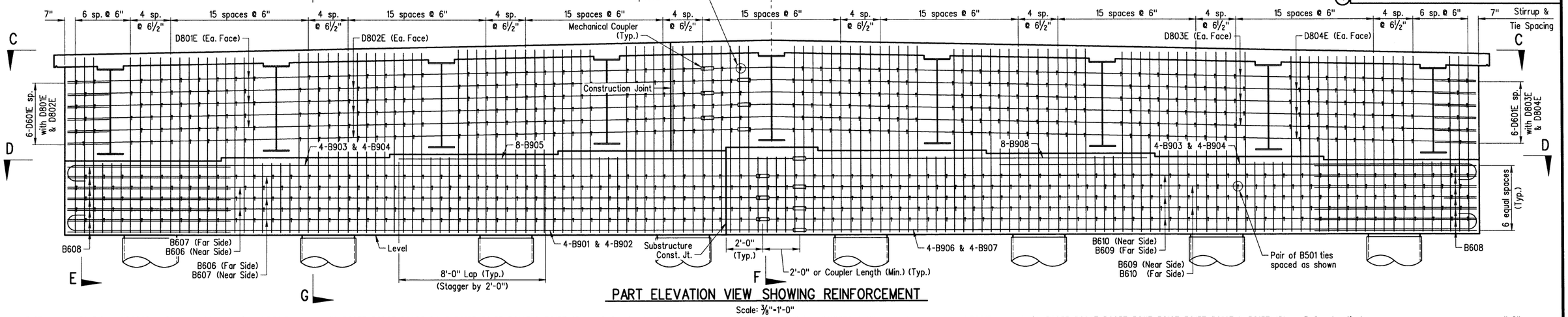
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JOB NO.		CA1002	184	319

(1) 07392 - INTERMEDIATE BENTS - 58737

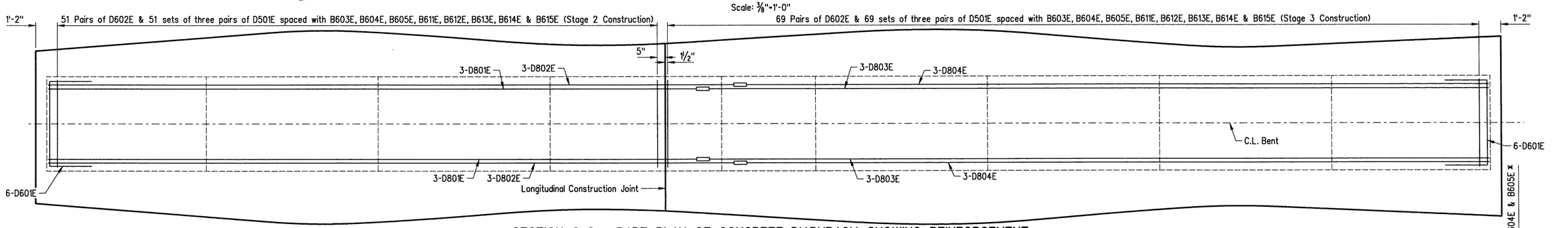
Note:
See Drawing No. 58738 for Sections E-E, F-F, G-G, and "Pile Detail".

Note: Parapet rails and slab steel are not shown for clarity.



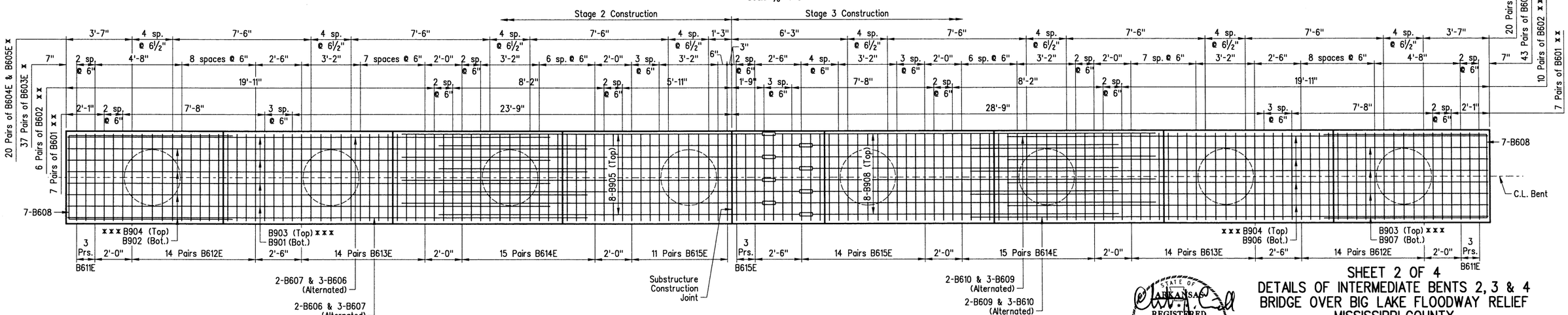
PART ELEVATION VIEW SHOWING REINFORCEMENT

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



SECTION C-C - PART PLAN OF CONCRETE DIAPHRAGM SHOWING REINFORCEMENT

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



x Pairs of B501 and pairs of D501E spaced with each pair of B603E, each pair of B604E, and each pair of B605E as shown in "Part Elevation View Showing Reinforcement".

xx Pairs of B501 spaced with each pair of B601 and each pair of B602 as shown in "Part Elevation View Showing Reinforcement".

xxx See Bar List for specific bar lengths.

SECTION D-D - PLAN OF BEAM CAP SHOWING REINFORCEMENT

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

STATE OF ARKANSAS
CHRISTOPHER J. CRISWELL
REGISTERED PROFESSIONAL ENGINEER
No. 11328
11246

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 2 OF 4
DETAILS OF INTERMEDIATE BENTS 2, 3 & 4
BRIDGE OVER BIG LAKE FLOODWAY RELIEF
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

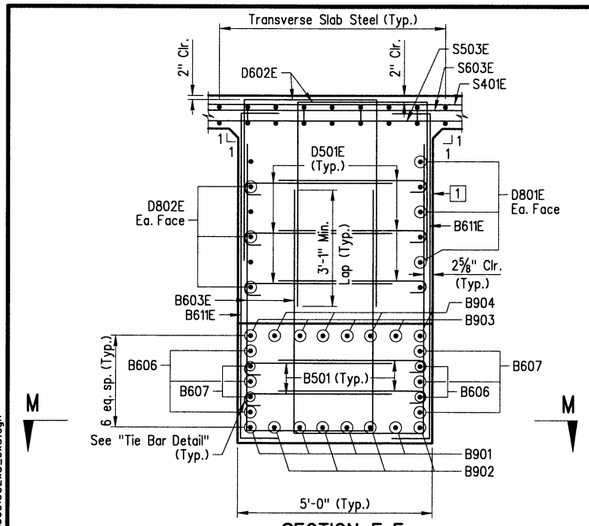
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BRIDGE NO. 07392				DRAWING NO. 58737	

JACOBS

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(1) 07392 - INTERMEDIATE BENTS - 58738

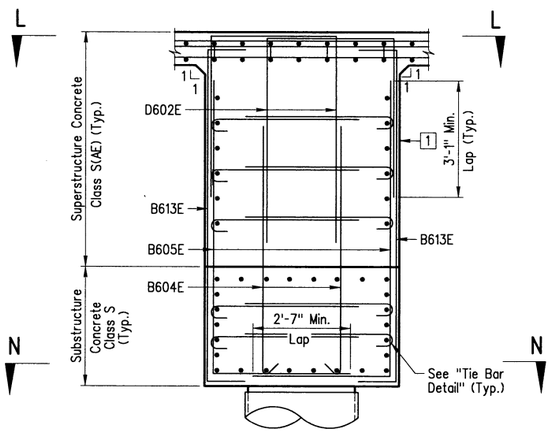


SECTION E-E
No Scale

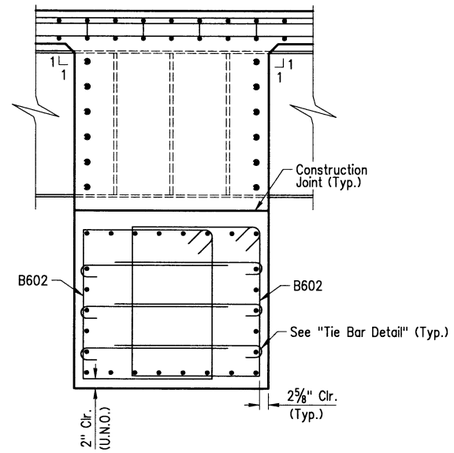
Note:
See Drawing No. 58739 for Sections L-L, M-M, N-N and "Tie Bar Detail".

Notes:
Concrete Diaphragm shall be poured monolithically with deck slab.

C501, C1101 and C1102 are not shown for clarity.

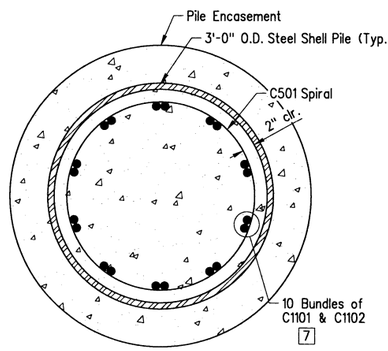


SECTION G-G
No Scale

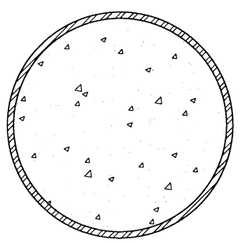


SECTION F-F
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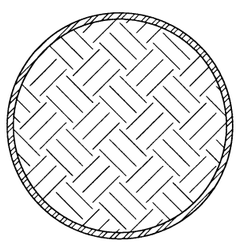
Note:
See Drawing No. 58728 and 58740 for details of 36" Dia. steel shell pile not shown.



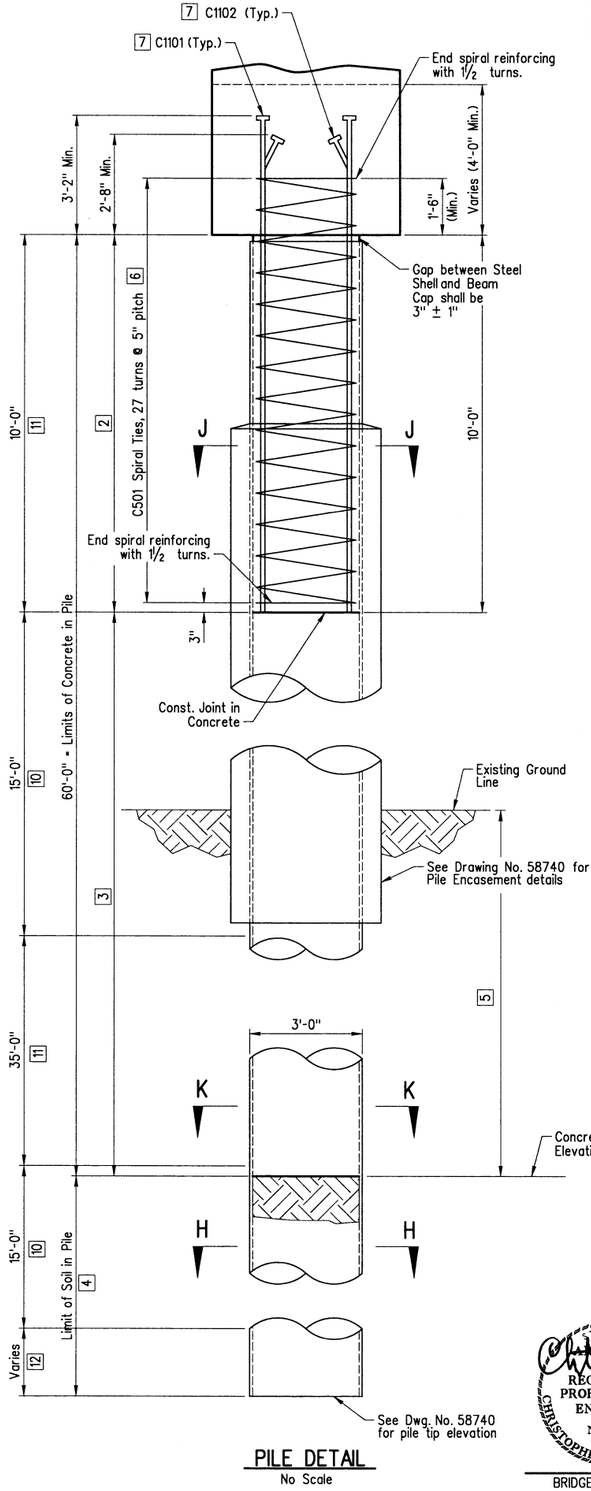
SECTION J-J
Scale: 1" = 1'-0"



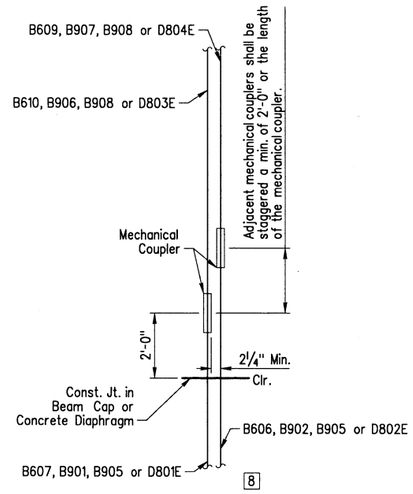
SECTION K-K
Scale: 1" = 1'-0"



SECTION H-H
Scale: 1" = 1'-0"



PILE DETAIL
No Scale



BEAM CAP & CONCRETE DIAPHRAGM BAR DETAIL
No Scale

1 Concrete Diaphragm at intermediate bents shall be built vertical.

2 Vibration of concrete in the top 10 feet of the pile will be needed to ensure the consolidation of the concrete around the reinforcing steel. The Contractor will be responsible for obtaining satisfactory results. Concrete shall be Class S with a minimum 28 day compressive strength, f'c = 3500 psi., unless otherwise approved by the Engineer.

3 Concrete shall be Self-Consolidating Concrete in accordance with Special Provision Job No. CA1002 "Self-Consolidating Concrete". Self-Consolidating Concrete shall have a minimum 28 day compressive strength, f'c = 3500 psi.

4 The soil plug shall be removed to the specified depth and driving shall continue to verify the minimum ultimate bearing capacity. At no time shall the pile have a soil plug depth of less than 5'-0".

5 The inside of the pile shall be cleaned with an appropriate tool to remove any and all adhering soil and other materials.

6 No lap splices will be permitted.

7 Reinforcement shall be Headed Steel Bars in accordance with Special Provision Job No. CA1002 "Headed Steel Bars for Concrete Reinforcement".

8 Mechanical couplers in the beam cap shall maintain the clearances shown. Their payment shall be subsidiary to the item "Reinforcing Steel-Bridge (Grade 60)". The QPL approved couplers shall develop at least 125% of the specified yield strength of the bar.

9 See Special Provision Job No. CA1002 "Steel Shell Piling (36 Inch Diameter)".

10 Field splices of steel shells will be permitted with 100% ultrasonic and visual inspection.

11 No field splices of steel shells will be permitted.

12 Field splices of steel shells will be permitted with 100% visual inspection.

SHEET 3 OF 4
DETAILS OF INTERMEDIATE BENTS 2, 3 & 4
BRIDGE OVER BIG LAKE FLOODWAY RELIEF
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL

BRIDGE ENGINEER
PRINT DATE: 9/16/2016

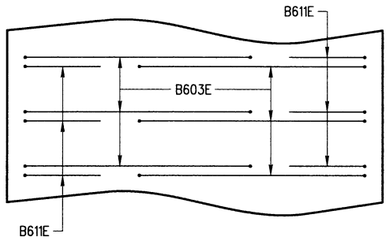
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DRAWING NO. 58738

JACOBS

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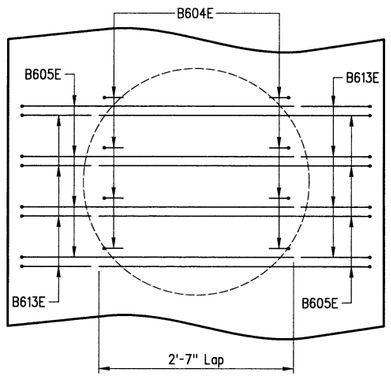
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(1) 07392 - INTERMEDIATE BENTS - 58739



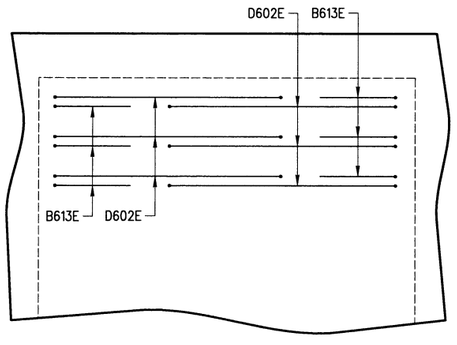
SECTION M-M
No Scale

Note:
B901 and B902 are not shown for clarity.



SECTION N-N
No Scale

Note:
B901 and B902 are not shown for clarity.



SECTION L-L
Scale: 1" = 1'-0"

Note:
Slab reinforcement is not shown for clarity.

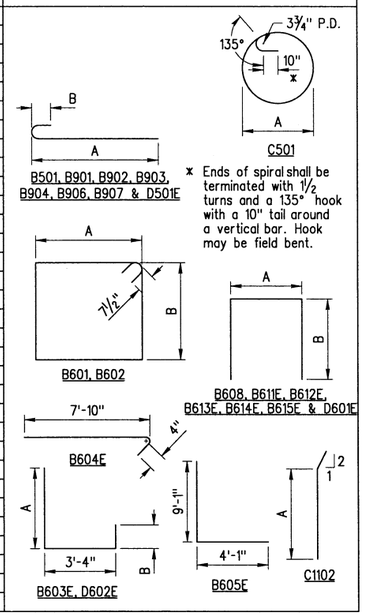
BAR LIST PER BENT ** STAGE 2 CONSTRUCTION

	MARK	NO. REQ'D.	LENGTH	A	B	PIN DIA.
	C501	4	233'-7"	2'-6"	-	Spiral
	C1101	40	13'-2"	-	-	Str.
	C1102	40	12'-9"	11'-10"	-	11¼"
	B501	350	4'-6"	3'-11"	5"	3¾"
	B601	14	14'-10"	3'-4"	3'-8"	4½"
	B602	12	15'-6"	3'-4"	4'-0"	4½"
	B603E	74	19'-11"	9'-1"	7'-10"	4½"
	B604E	40	8'-4"	-	-	4½"
	B605E	40	13'-0"	-	-	4½"
xxx	B606	5	39'-10"	-	-	Str.
xxx	B607	5	37'-10"	-	-	Str.
	B608	7	21'-9"	4'-5"	8'-10"	4½"
	B611E	6	10'-10"	9'-2"	1'-0"	4½"
	B612E	28	10'-11"	9'-3"	1'-0"	4½"
	B613E	28	11'-1"	9'-5"	1'-0"	4½"
	B614E	30	11'-3"	9'-7"	1'-0"	4½"
	B615E	22	11'-5"	9'-9"	1'-0"	4½"
xxx	B901	4	39'-1"	37'-10"	10"	9"
xxx	B902	4	41'-1"	39'-10"	10"	9"
	B903	4	27'-3"	26'-0"	10"	9"
	B904	4	29'-3"	28'-0"	10"	9"
xxx	B905	8	19'-10"	-	-	Str.
	D501E	306	4'-9"	4'-2"	5"	3¾"
	D601E	6	8'-7"	4'-5"	2'-3"	4½"
	D602E	102	12'-5"	5'-4"	4'-1"	4½"
xxx	D801E	6	34'-10"	-	-	Str.
xxx	D802E	6	36'-10"	-	-	Str.

BAR LIST PER BENT ** STAGE 3 CONSTRUCTION

	MARK	NO. REQ'D.	LENGTH	A	B	PIN DIA.
	C501	4	233'-7"	2'-6"	-	Spiral
	C1101	40	13'-2"	-	-	Str.
	C1102	40	12'-9"	11'-10"	-	11¼"
	B501	400	4'-6"	3'-11"	5"	3¾"
	B601	14	14'-10"	3'-4"	3'-8"	4½"
	B602	20	15'-6"	3'-4"	4'-0"	4½"
	B603E	86	19'-11"	9'-1"	7'-10"	4½"
	B604E	40	8'-4"	-	-	4½"
	B605E	40	13'-0"	-	-	4½"
	B608	7	21'-9"	4'-5"	8'-10"	4½"
xxx	B609	5	36'-10"	-	-	Str.
xxx	B610	5	38'-10"	-	-	Str.
	B611E	6	10'-10"	9'-2"	1'-0"	4½"
	B612E	28	10'-11"	9'-3"	1'-0"	4½"
	B613E	28	11'-1"	9'-5"	1'-0"	4½"
	B614E	30	11'-3"	9'-7"	1'-0"	4½"
	B615E	34	11'-5"	9'-9"	1'-0"	4½"
	B903	4	27'-3"	26'-0"	10"	9"
	B904	4	29'-3"	28'-0"	10"	9"
xxx	B906	4	40'-1"	38'-10"	10"	9"
xxx	B907	4	38'-1"	36'-10"	10"	9"
xxx	B908	8	18'-10"	-	-	Str.
	D501E	414	4'-9"	4'-2"	5"	3¾"
	D601E	6	8'-7"	4'-5"	2'-3"	4½"
	D602E	138	12'-5"	5'-4"	4'-1"	4½"
xxx	D803E	6	41'-10"	-	-	Str.
xxx	D804E	6	39'-10"	-	-	Str.

BENDING DIAGRAMS
(Dimensions are out to out of bars.)

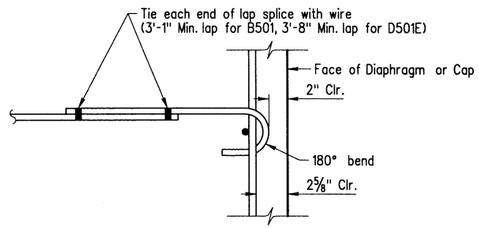


x Ends of spiral shall be terminated with 1½ turns and a 135° hook with a 10" tail around a vertical bar. Hook may be field bent.

Note: Bars designated with an "E" suffix shall be epoxy coated.

** Weights of all bars listed are included in the totals for "Reinforcing Steel - Bridge (Grade 60)" and "Epoxy Coated Reinforcing Steel (Grade 60)" for each intermediate bent.

*** Dimensions shown are to butt splice and may vary based on mechanical coupler used.



TIE BAR DETAIL
No Scale

NOTES FOR SPIRAL REINFORCING

Spiral reinforcing shall be plain round or deformed steel bars meeting the requirements of AASHTO M31 or M322, Type A, with mill test report (Grade 60) or shall be cold drawn wire meeting the requirements of AASHTO M32 or M225 (Grade 70) with a minimum diameter of ⅝".

Spiral reinforcement shall be paid for at the contract unit price bid per pound for "Reinforcing Steel - Bridge (Grade 60)". No additional payment shall be made for spacers or bracing needed for assembly, shipping, handling, or erecting.

INTERMEDIATE BENT NOTES

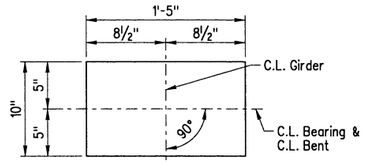
Concrete in the cap shall be Class "S" with a minimum 28 day compressive strength, f'c = 3500 psi. Quantity is included in the total for "Class S Concrete - Bridge".

Concrete in the concrete diaphragm shall be Class "S(AE)" with a minimum 28 day compressive strength, f'c = 4000 psi. Quantity is included in the total for "Class S(AE) Concrete - Bridge".

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 M322, Type A, with mill test report, Grade 60 (yield strength- 60,000 psi).

For additional information, see Layout.



BEARING PAD LAYOUT
Scale: 1½" = 1'-0"

Note:
For details of elastomeric bearing pads, see Drawing No. 58755.

The neoprene pads shall be bonded to the bearing seat with an epoxy adhesive in accordance with the bearing manufacturer's recommendations for bonding neoprene to concrete to prevent sliding.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 4 OF 4
DETAILS OF INTERMEDIATE BENTS 2, 3 & 4
BRIDGE OVER BIG LAKE FLOODWAY RELIEF
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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CHECKED BY:	CJC	DATE:	2/10/16		
DESIGNED BY:	HMD	DATE:	1/19/16	SCALE:	As Noted
BRIDGE NO. 07392				DRAWING NO. 58739	

JACOBS

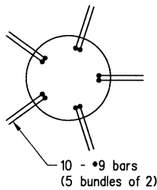
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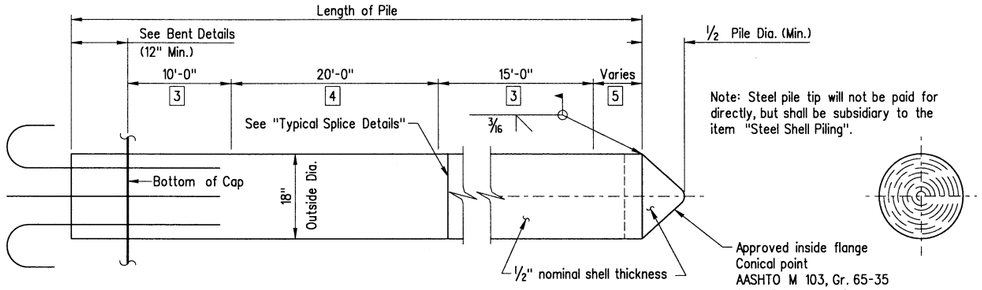
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				6	ARK.			
				JOB NO.		CA1002	187	319

(1) 07392 - STEEL SHELL PILES - 58740

Pile reinforcing shall be placed to minimize interference with anchor bolts and reinforcing in cap.

See Drawing No. 58734 for End Bent details.

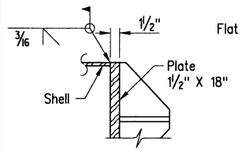




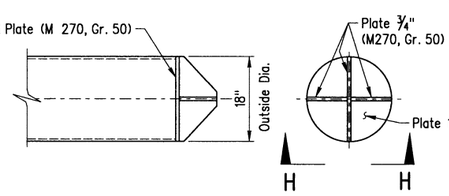
Note: Steel pile tip will not be paid for directly, but shall be subsidiary to the item "Steel Shell Piling".

18" DIAMETER CONCRETE FILLED STEEL SHELL PILE [2]

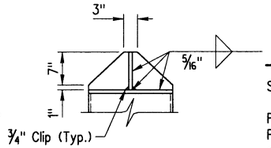
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PART SECTION
Scale: 1" = 1'-0"



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



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

ALTERNATE VANED TIP DETAIL FOR 18" PILE

GENERAL NOTES FOR 18" & 36" CONCRETE FILLED STEEL SHELL PILES

Steel shells shall conform to ASTM 252, Grade 3 (Fy = 45,000 psi).

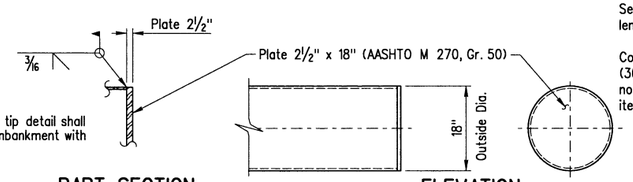
For concrete filling of 18" diameter steel shell, see Special Provision Job No. CA1002 "Steel Shell Piling (18 Inch Diameter)" and Drawing No. 58734.

For concrete filling of 36" diameter steel shell, see Special Provision Job No. CA1002 "Steel Shell Piling (36 Inch Diameter)" and Drawing No. 58738.

36" steel shell piling that extends above the ground and is not protected by pile encasement shall be painted in accordance with Special Provision Job No. CA1002 "Steel Shell Piling (36 Inch Diameter)".

See Table of Variables and Bridge Layout for size and estimated length of steel shell piles and for driving information.

Concrete and structural steel (18" and 36"), soil plug removal (36" only), pile reinforcing (18" only) and painting (36" only) shall not be paid for directly, but shall be considered subsidiary to the item "Steel Shell Piling".



Note:
Steel Shell Piling with alternate flat tip detail shall be driven prior to placement of embankment with geosynthetic reinforcement.

PART SECTION
No Scale

ELEVATION
No Scale

ALTERNATE FLAT TIP DETAIL FOR 18" PILE

[1] See Special Provision Job No. CA1002 "Steel Shell Piling (36 Inch Diameter)".

[2] See Special Provision Job No. CA1002 "Steel Shell Piling (18 Inch Diameter)".

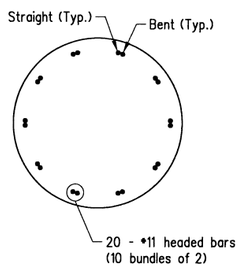
[3] Field splices of 18" steel shells will be permitted with 100% ultrasonic and visual inspection.

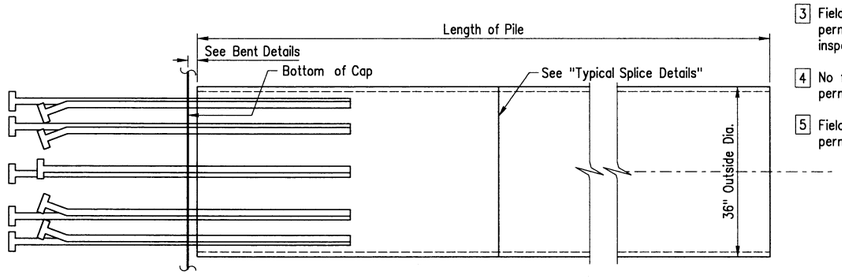
[4] No field splices of 18" steel shells will be permitted.

[5] Field splices of 18" steel shells will be permitted with 100% visual inspection.

Pile reinforcing shall be placed to minimize interference with reinforcing in cap.

See Drawing No. 58738 for Intermediate Bent details.



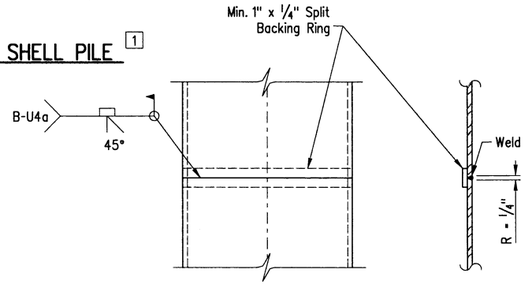


36" DIAMETER CONCRETE FILLED OPEN ENDED STEEL SHELL PILE [1]

No Scale

TABLE OF VARIABLES

BENT	OUTSIDE DIAMETER "D"	NOMINAL SHELL THICKNESS "T"	ESTIMATED ELEVATION OF TOP OF PILE ENCASEMENT	ESTIMATED ELEVATION OF BOTTOM OF PILE ENCASEMENT	MINIMUM TIP ELEVATION	ESTIMATED PRODUCTION PILE LENGTH	MINIMUM ULTIMATE BEARING CAPACITY (TONS)	ESTIMATED HAMMER ENERGY (FT-KIPS)	MINIMUM CONICAL TIP DESIGN LOAD (KIPS)
1	18"	1/2"	-	-	195	49'	222	66,400	1,114
2	36"	1"	235.0	223.0	165.5	77'	425	107,100	-
3	36"	1"	235.0	212.0	165.5	85'	457	107,100	-
4	36"	1"	235.0	219.0	165.5	80'	425	107,100	-
5	18"	1/2"	-	-	189	55'	222	66,400	1,114



TYPICAL SPLICE DETAILS

No Scale

GENERAL NOTES FOR PILE ENCASEMENTS

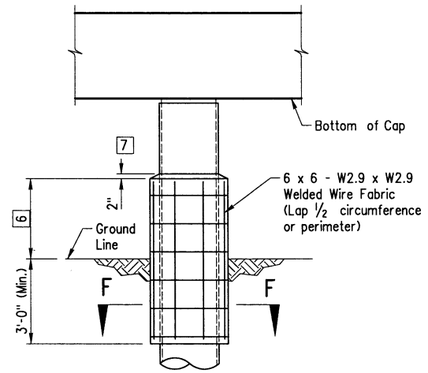
See Bridge Layout for additional notes and required location of pile encasements.

Concrete shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. If concrete cannot be placed in the dry, Seal Concrete may be used from top to bottom of encasement.

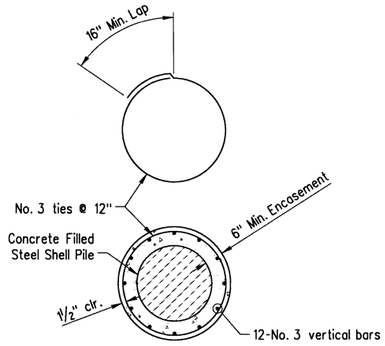
Reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A.

Welded wire fabric shall conform to AASHTO M 55 or M 221.

Concrete, welded wire fabric or reinforcing steel, and galvanized pipe shall not be paid for directly, but shall be considered subsidiary to the item "Pile Encasement".



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

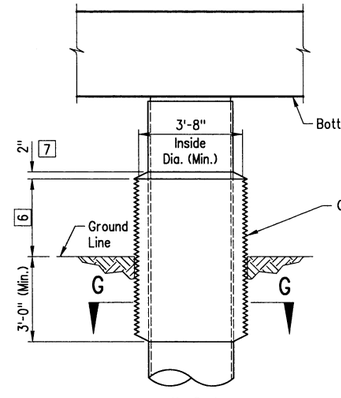


SECTION F-F (REINF. ALTERNATE)
Scale: 1/2" = 1'-0"

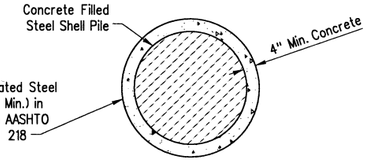
PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES

[6] See Table of Variables and Bridge Layout for height of pile encasement (3'-0" Minimum).

[7] Pile encasement shall have 2" concrete taper for water runoff as shown.



No Scale



SECTION G-G
Scale: 1/2" = 1'-0"

ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL SHELL PILES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11528
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

CONCRETE FILLED STEEL SHELL PILES AND PILE ENCASEMENTS BRIDGE OVER BIG LAKE FLOODWAY RELIEF

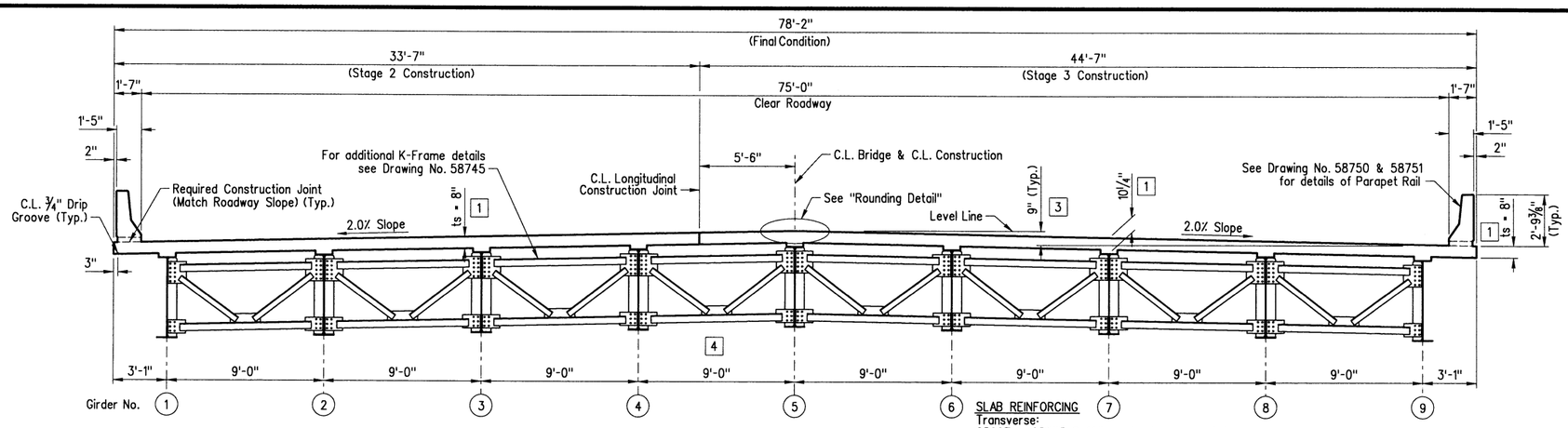
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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CHECKED BY: CJC DATE: 4/8/15
DESIGNED BY: CJC DATE: 3/18/15
BRIDGE NO. 07392
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DRAWING NO. 58740

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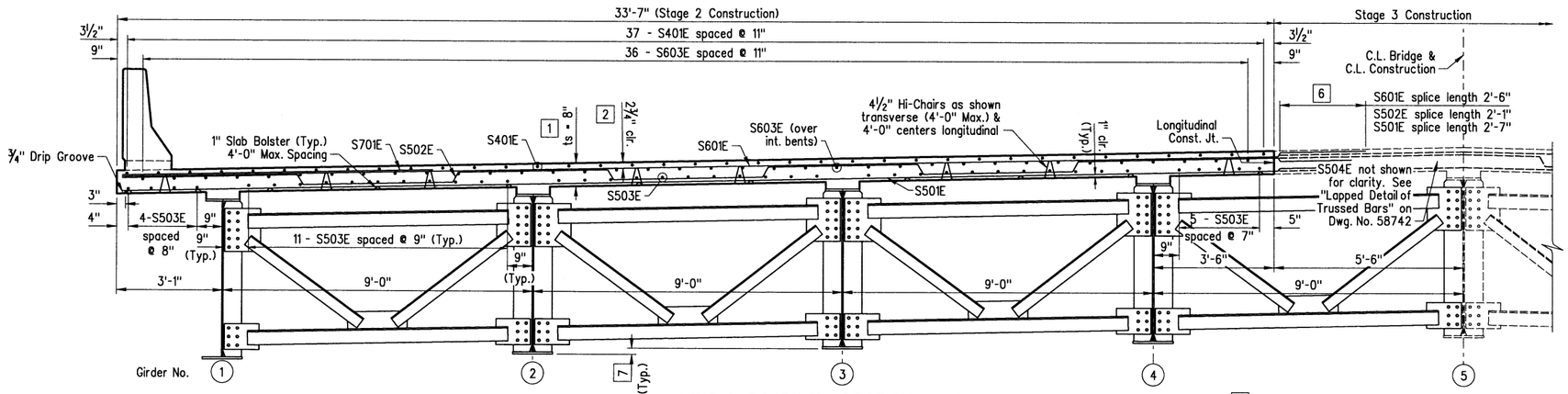


TYPICAL ROADWAY SECTION - FINAL CONDITION

(Looking Ahead)
Scale: ¼" = 1'-0"

SLAB REINFORCING
Transverse:
S502E & S506E @ 14" o.c. bent up over girders
S601E & S602E @ 14" o.c. in top — Alternate
S501E & S505E @ 14" o.c. in bottom
S701E @ 14" o.c. at both gutterlines (placed around ends of S502E & S506E. See "Reinforcing Detail" on Drawing No. 58748.

Longitudinal:
S401E as shown
S503E as shown
S603E as shown

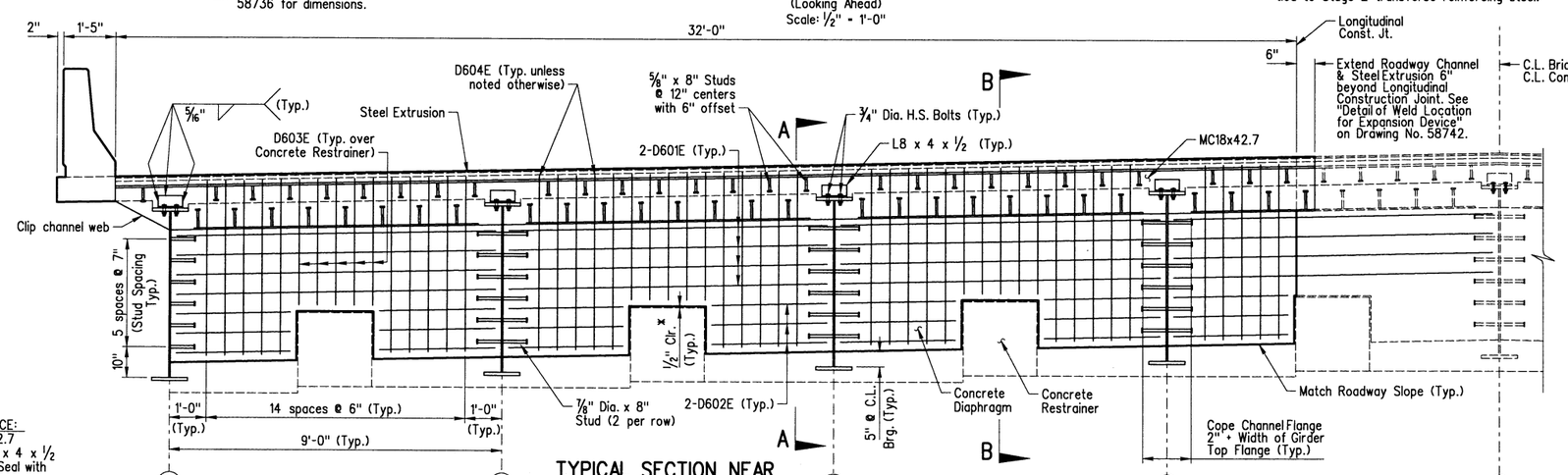


TYPICAL ROADWAY SECTION - STAGE 2

(Looking Ahead)
Scale: ½" = 1'-0"

7 See Drawing No. 58732, 58733 and 58736 for dimensions.

6 Stage 3 transverse reinforcing steel shall not be tied to Stage 2 transverse reinforcing steel.



EXPANSION DEVICE:
Rdwy. MC18 x 42.7
Conn. Angles L8 x 4 x ½
Neoprene Strip Seal with steel extrusion
Detail Device ⅛" High and Provide ¼" Shims using 2 - 1/16" and 1 - ⅛" Plates.

TYPICAL SECTION NEAR STRIP SEAL JOINT - STAGE 2

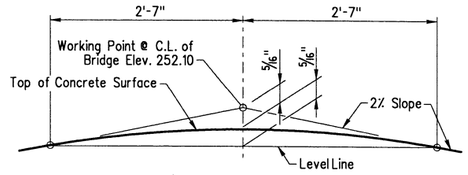
(Looking Ahead)
Scale: ½" = 1'-0"

See Drawing No. 58749 for Sections A-A & B-B.

x ½" Polystyrene shall be used as a bond breaker between the concrete restrainer and the concrete diaphragm and may remain in place.

Notes:
At Contractor's option, in lieu of providing bars S502E or S506E, one #5 bar top and bottom may be substituted for each bar. Payment for reinforcing will be based on the weight of bars S502E and S506E. Bars in top and bottom shall be Epoxy Coated.

Class 1 Protective Surface Treatment shall be applied to the roadway surface and the face and top of each concrete parapet rail.



ROUNDING DETAIL

No Scale

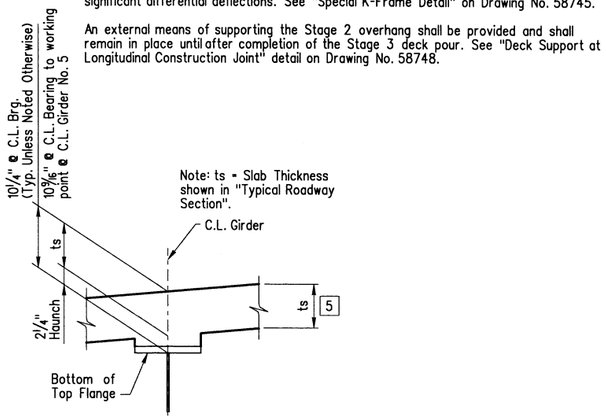
1 See "Adjustment for Slab Thickness Tolerance".

2 Tolerance: Minimum - ¼" : Plus equal to the amount of slab thickening used to meet slab thickness tolerance. See "Adjustment for Slab Thickness Tolerance".

3 Working Point to gutterline. See "Rounding Detail".

4 In this bay, connection plate widths and K-Frame lengths shall be fabricated, as necessary, to facilitate installation of K-Frames between adjacent girders with significant differential deflections. See "Special K-Frame Detail" on Drawing No. 58745.

An external means of supporting the Stage 2 overhang shall be provided and shall remain in place until after completion of the Stage 3 deck pour. See "Deck Support at Longitudinal Construction Joint" detail on Drawing No. 58748.



5 Tolerance when removable deck forming is used is +½", -¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

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 1 ¾". 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. 55005 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

STATE OF ARKANSAS
CHRISTOPHER J. CRISWELL
REGISTERED PROFESSIONAL ENGINEER
No. 11528
12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

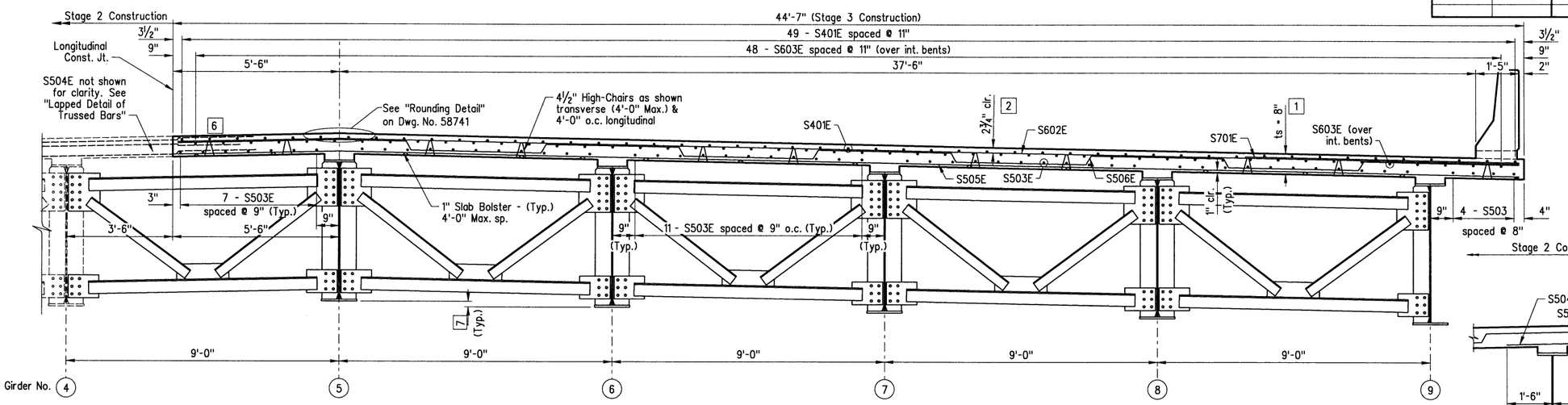
SHEET 1 OF 13
DETAILS OF 434'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT
BRIDGE OVER BIG LAKE FLOODWAY RELIEF
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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CHECKED BY: CJC DATE: 11/17/15
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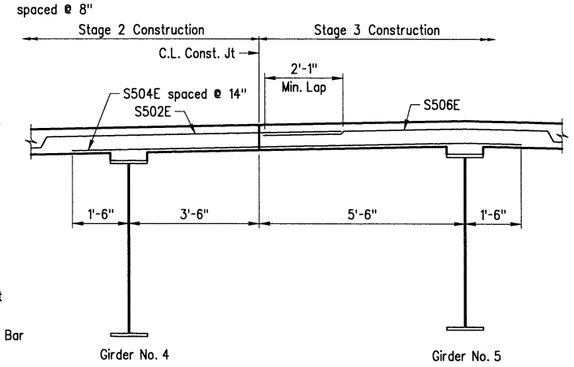
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See Drawing No. 58741 for notes 1, 2, 6 & 7.

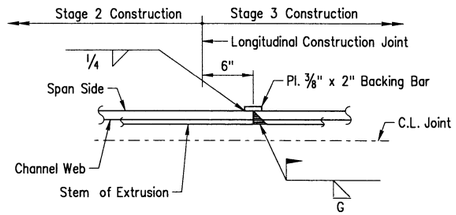
TYPICAL ROADWAY SECTION - STAGE 3

(Looking Ahead)
Scale: ½" = 1'-0"



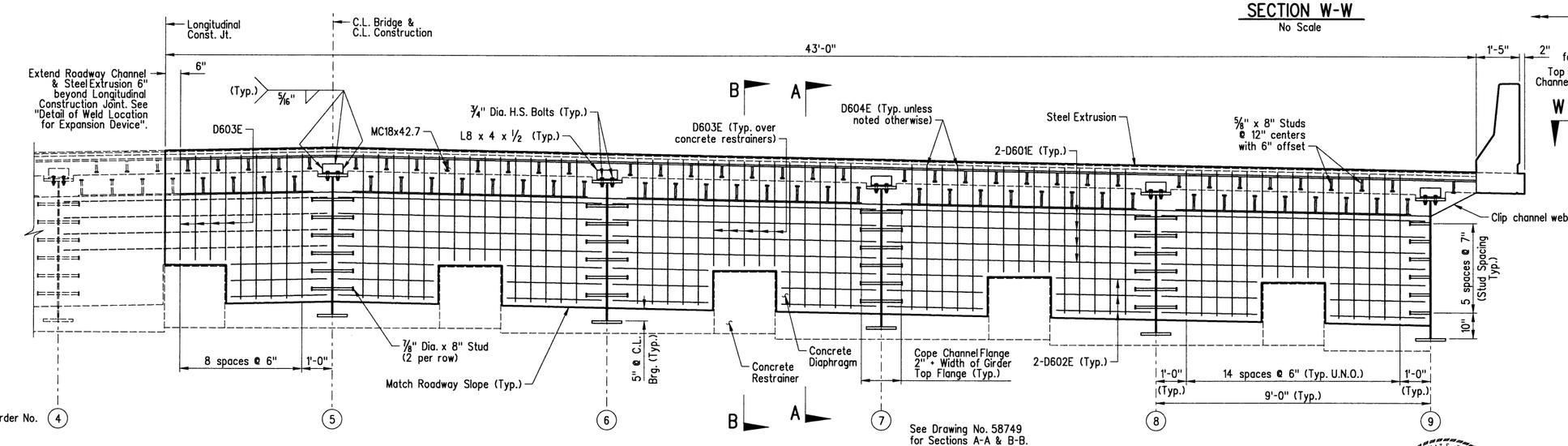
LAPPED DETAIL OF TRUSSED BARS

Scale: ½" = 1'-0"



SECTION W-W

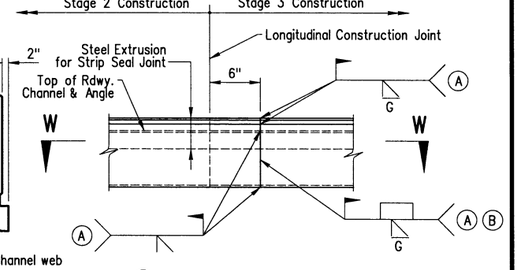
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See Drawing No. 58749 for Sections A-A & B-B.

TYPICAL SECTION NEAR STRIP SEAL JOINT - STAGE 3

(Looking Ahead)
Scale: ½" = 1'-0"



(A) Weld after Stage 2 Pour & prior to Stage 3 Pour.

(B) For channel web and steel extrusion lapping channel web.

DETAIL OF WELD LOCATION FOR EXPANSION DEVICE

No Scale

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

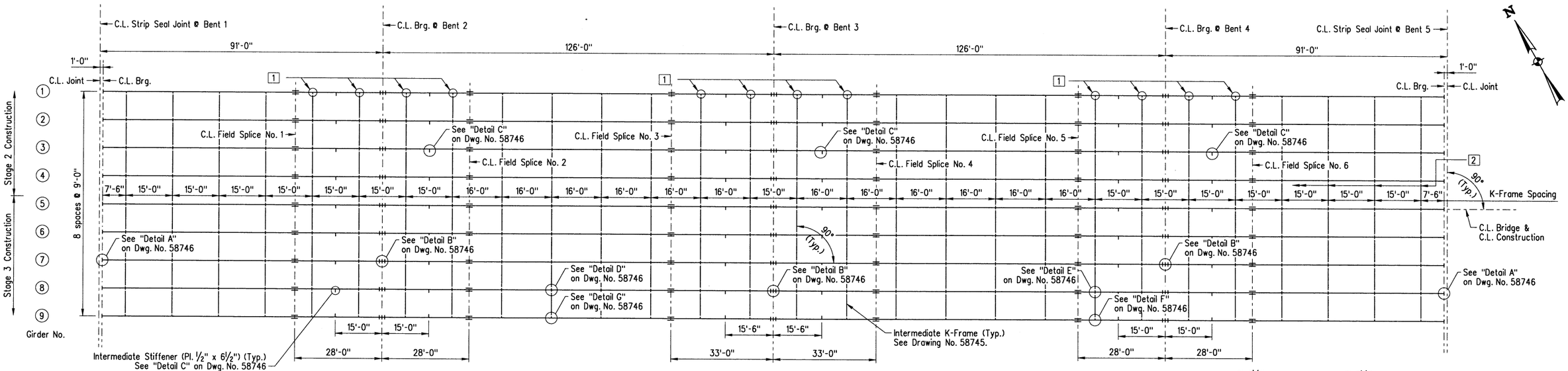
SHEET 2 OF 13
DETAILS OF 434'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT
BRIDGE OVER BIG LAKE FLOODWAY RELIEF
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	LHG	DATE:	6/4/14	FILENAME:	bca1002x3_sx2.dgn
CHECKED BY:	CJC	DATE:	11/17/15		
DESIGNED BY:	CJC	DATE:	1/5/15	SCALE:	As Noted
BRIDGE NO. 07392				DRAWING NO. 58742	

JACOBS

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9/12/2016 10:50:42 AM

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				JOB NO.		CA1002	190	319
				(1) 07392	-	434' CONT. UNIT	-	58743



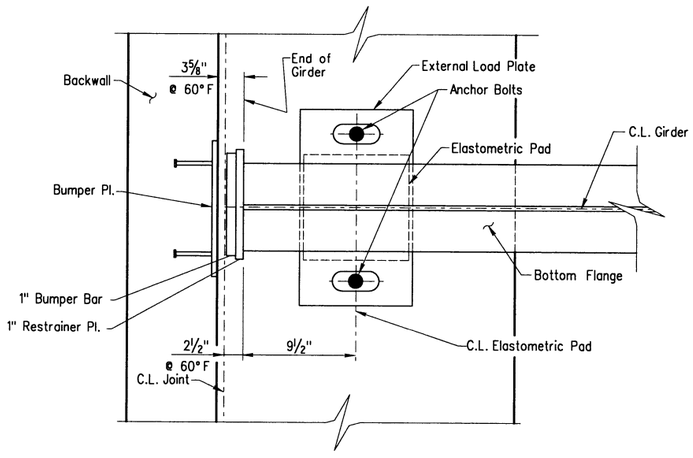
Note:
Concrete diaphragms at Intermediate Bents 2, 3 & 4 are not shown for clarity.
See Dwg. No. 58736, 58737 & 58738 for details.

Concrete diaphragms at End Bents 1 & 5 are not shown for clarity.
See Dwg. No. 58741, 58742 & 58749 for details.

[1] K-Frame Connection Plates are utilized as Intermediate Stiffeners (Typ.).

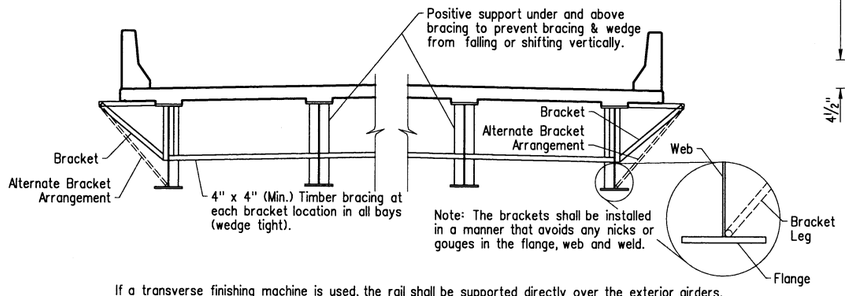
[2] In this girder bay connection plates and K-Frames shall be fabricated, as necessary, to facilitate installation of K-Frames between adjacent girders with differential deflections. See "Special K-Frame Detail" on Drawing No. 58745.

GIRDER FRAMING PLAN
Scale: 1/16" = 1'-0"



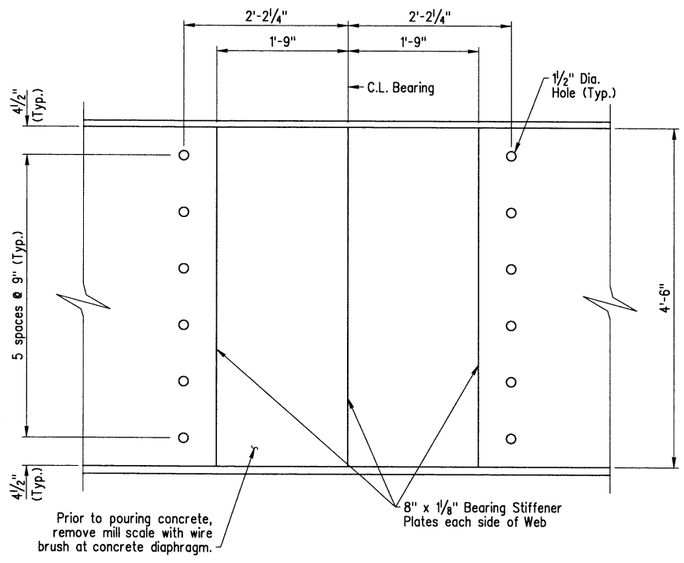
PARTIAL PLAN OF BEARING AT END BENT
No Scale

Note:
For Bumper Bar and Restrainer Plate details, see Drawing No. 58749. For Bumper Plate Details, see Drawing No. 58734.



If a transverse finishing machine is used, the rail shall be supported directly over the exterior girders, or as an alternate, the rail may be supported by the overhang brackets if the above strutting system is used. The strutting system may be omitted if 1/2" x 6 1/2" web stiffeners are welded to the insides of the exterior girders at the location of each bracket or if the alternate bracket arrangement shown above is used. The alternate bracket arrangement shall extend down to the junction of the web and bottom flange. The stiffener shall conform to the details for K-Frame connection plates shown in Dwg. No. 58746. No direct payment will be made for brackets, timber bracing, supports, or welded stiffeners. Payment shall be subsidiary to "Structural Steel in Plate Girder Spans (M270, Gr. 50W).

SCREED RAIL SUPPORT DETAIL
No Scale



DETAIL J
Scale: 1"=1'-0"
(Typ. @ Bents 2, 3 & 4)

SHEET 3 OF 13
DETAILS OF 434'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT BRIDGE OVER BIG LAKE FLOODWAY RELIEF
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11528
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

DRAWN BY: LHG DATE: 11/19/14
CHECKED BY: CJC DATE: 5/19/15
DESIGNED BY: CJC DATE: 11/16/14
BRIDGE NO. 07392
FILENAME: bca1002x3_sx3.dgn
SCALE: As Noted
DRAWING NO. 58743

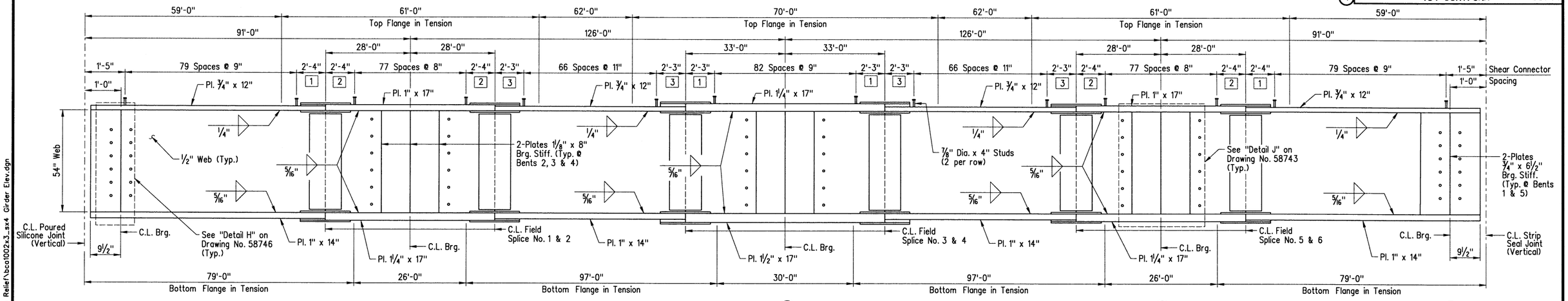
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				JOB NO.		CA1002	191	319

(1) 07392 - 434' CONT. UNIT - 58744

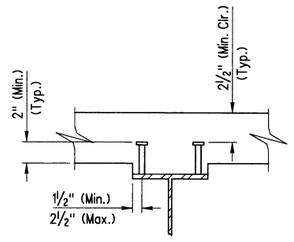
[1] Two 7/8" Dia. shear connectors will be required at about 9" spacing if the bolted field splice is omitted. Payment will be made on the basis of the plan quantities.
[2] Two 7/8" Dia. shear connectors will be required at about 8" spacing if the bolted field splice is omitted. Payment will be made on the basis of the plan quantities.
[3] Two 7/8" Dia. shear connectors will be required at about 11" spacing if the bolted field splice is omitted. Payment will be made on the basis of the plan quantities.



TYPICAL PLATE GIRDER ELEVATION

No Scale

Note:
All structural steel shall be AASHTO M270, Gr. 50W unless otherwise noted. 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.



Stud Shear Connectors shown shall be 7/8" Dia. x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the girder flange in accordance with the recommendations of the manufacturer. 3/4" Dia. studs may be used in place of the 7/8" Dia. studs shown, at the ratio of 1.361 - 3/4" Dia. studs in place of one 7/8" Dia. stud. 7/8" studs will be used as basis for measurement of structural steel in shear connectors. Maximum stud spacing = 24".

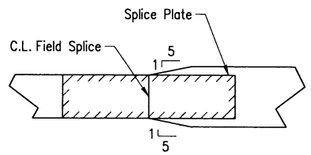
SHEAR CONNECTOR DETAIL

No Scale

TABLE FOR WELDS

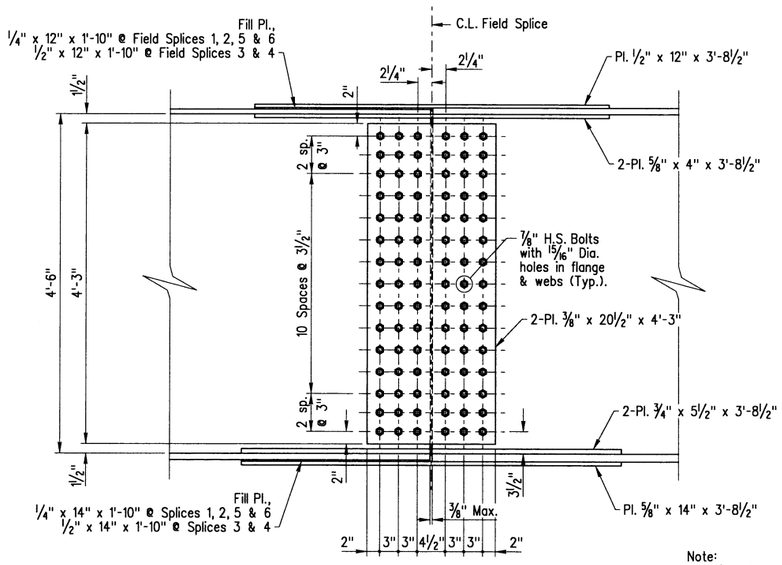
Material Thickness of Thicker Part Joined (inches)	Minimum Size of Fillet Weld (inches)	Single Pass Weld Must Be Used
To 3/4" inclusive	1/4"	
Over 3/4"	5/16"	

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.



DETAILS OF BOTTOM FLANGE TRANSITION

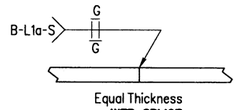
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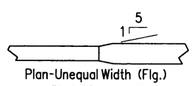


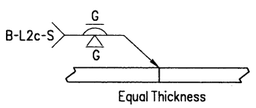
WEB SPLICE DETAIL

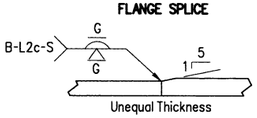
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Note:
All splice plates shall be AASHTO M270, Gr. 50W.



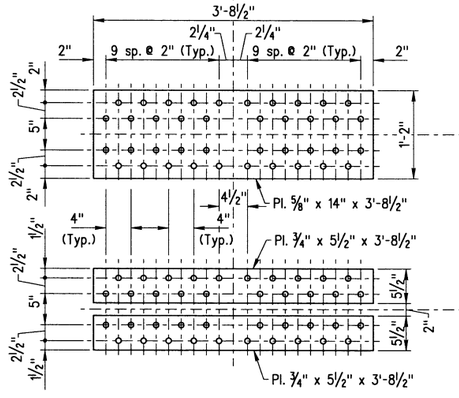






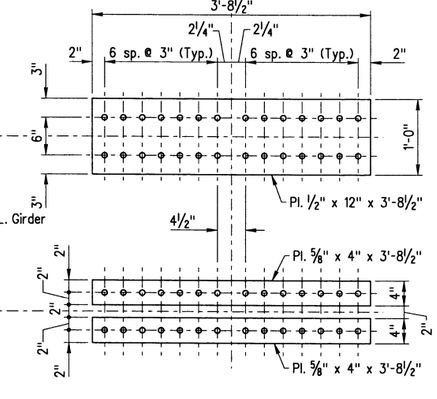
DETAILS OF WELDED SPLICES

No Scale



BOTTOM FLANGE SPLICE DETAIL

Scale: 1" = 1'-0"



TOP FLANGE SPLICE DETAIL

Scale: 1" = 1'-0"

STATE OF ARKANSAS
CHRISTOPHER J. CRISWELL
REGISTERED PROFESSIONAL ENGINEER
No. 11328
BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 4 OF 13
DETAILS OF 434'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT BRIDGE OVER BIG LAKE FLOODWAY RELIEF

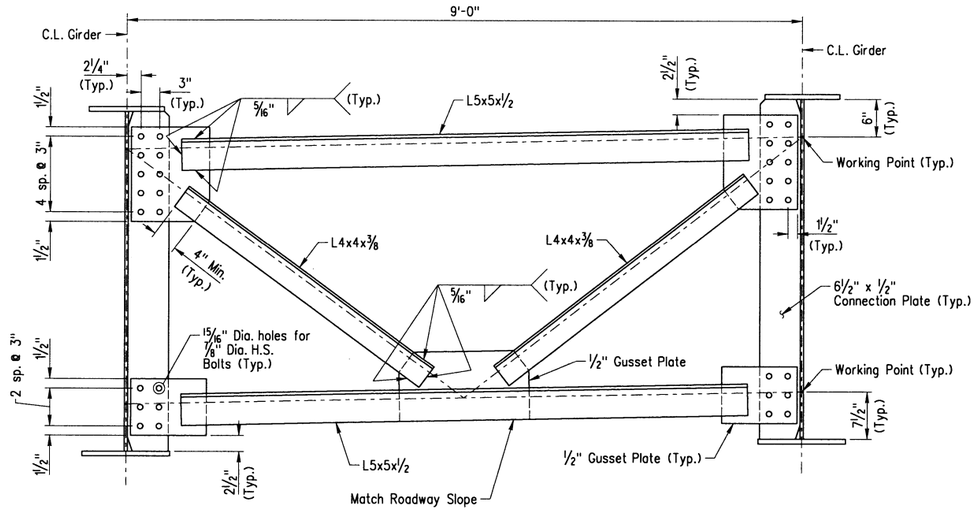
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 11/17/14
CHECKED BY: CJC DATE: 5/19/15
DESIGNED BY: CJC DATE: 11/16/14
BRIDGE NO. 07392
FILENAME: bca1002x3_sx4.dgn
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DRAWING NO. 58744

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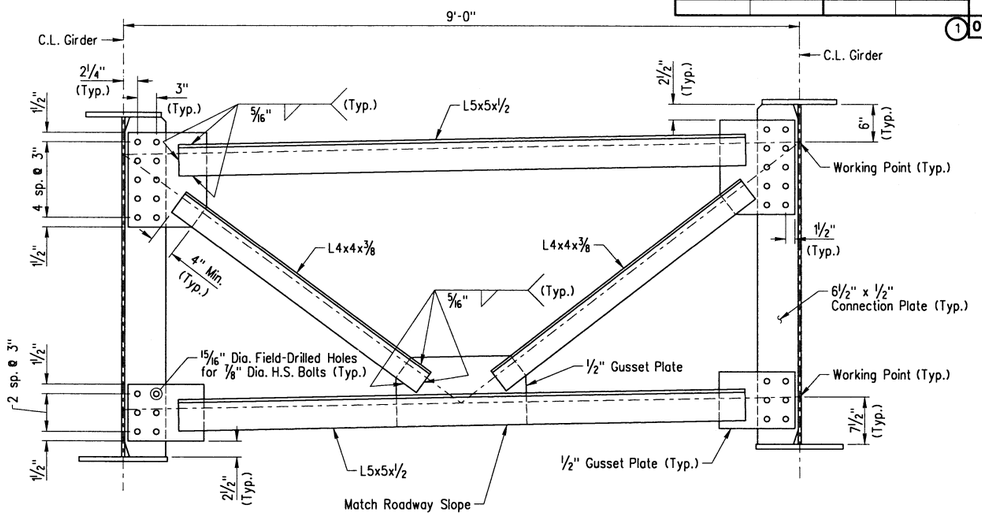
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				6	ARK.			
				JOB NO.		CA1002	192	319
				(1) 07392	-	434' CONT. UNIT	-	58745



INTERMEDIATE K-FRAME DETAIL

Scale: 1" = 1'-0"

Girder 4 (Stage 2)



SPECIAL K-FRAME DETAIL

Scale: 1" = 1'-0"

Girder 5 (Stage 3)

Notes:
All structural steel, including girders, K-Frames, bearing stiffener plates, connection plates, and intermediate stiffener plates, shall be AASHTO M270 Gr. 50W.

SPECIAL K-FRAME CONNECTION PROCEDURE:

1. Before Stage 3 deck is poured, connect one end of Special K-Frame to Girder 4 and fully tighten connection bolts. Leave Girder 5 end connection unbolted until after the Stage 3 Deck concrete is in place.
2. After Stage 3 Deck has been poured, field drill holes in Girder 5 connection plates, install connection bolts, and tighten in accordance with Subsection 801.71.
3. The Contractor shall maintain proper girder alignment until all K-Frames are completely installed. This may require temporary bracing.

TABLE FOR WELDS

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.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11528
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 5 OF 13
DETAILS OF 434'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT
BRIDGE OVER BIG LAKE FLOODWAY RELIEF
MISSISSIPPI COUNTY
ROUTE 18 **SEC. 6**
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 3/9/15 FILENAME: bca1002x3_sx5.dgn
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BRIDGE NO. 07392 DRAWING NO. 58745

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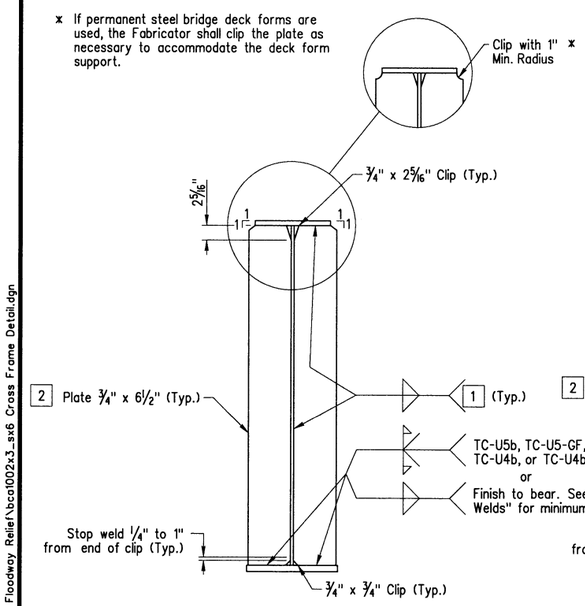
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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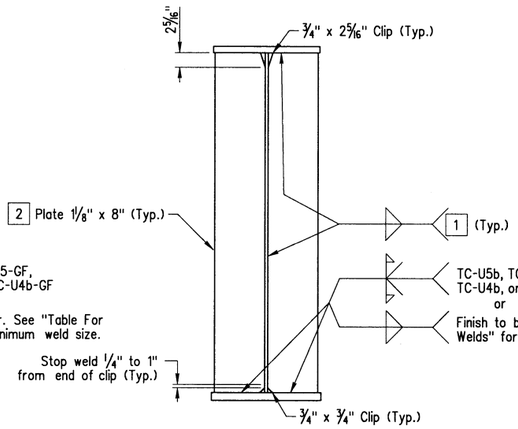
x If permanent steel bridge deck forms are used, the Fabricator shall clip the plate as necessary to accommodate the deck form support.

1 See "Table for Welds" for min. weld size.

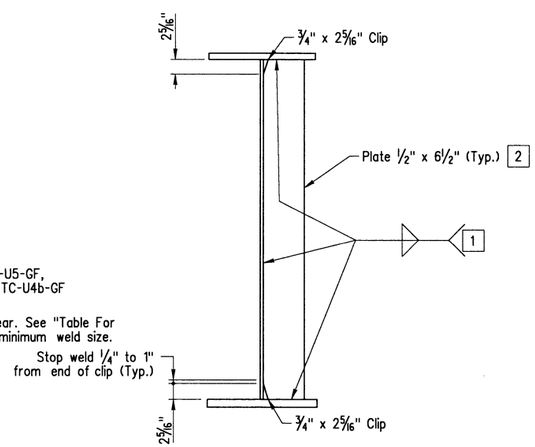
2 Place connection plates and bearing stiffeners normal to girder.



DETAIL A
BEARING STIFFENER @ END BENTS
Scale: 1" = 1'-0"



DETAIL B
BEARING STIFFENER @ INTERMEDIATE BENTS
Scale: 1" = 1'-0"



DETAIL C
INTERMEDIATE STIFFENER
Scale: 1" = 1'-0"

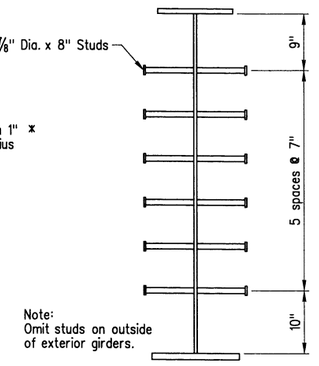
Notes:
Bearing stiffeners shall be fabricated to be plumb in their final positions.

All structural steel, including girders, K-Frames, bearing stiffener plates, connection plates, and intermediate stiffener plates, shall be AASHTO M270 Gr. 50W.

TABLE FOR WELDS

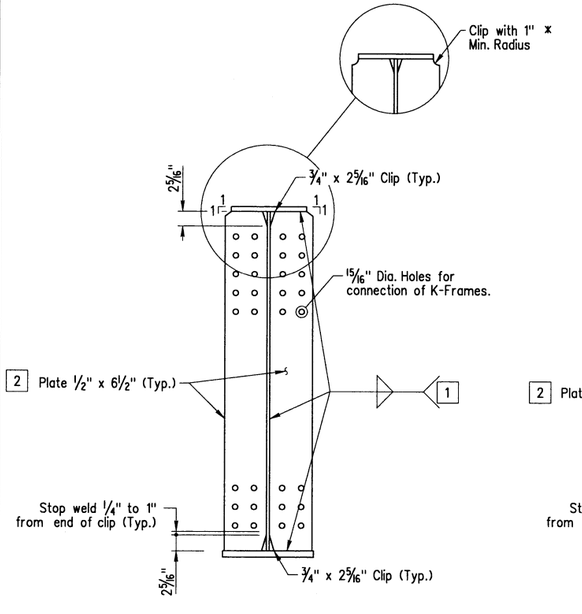
Material Thickness of Thicker Part Joined (inches)	Minimum Size of Fillet Weld (inches)	Single Pass Weld Must Be Used
To 3/4" inclusive	1/4"	
Over 3/4"	5/16"	

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.

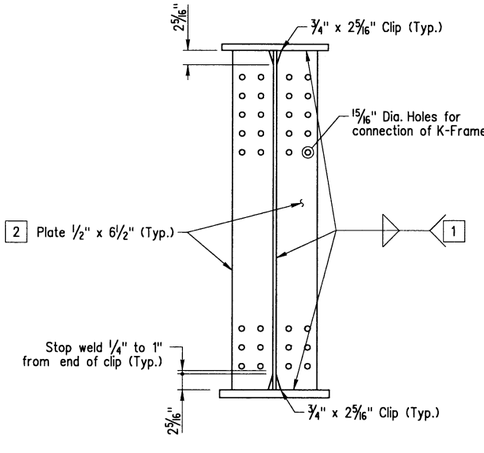


Note:
Omit studs on outside of exterior girders.

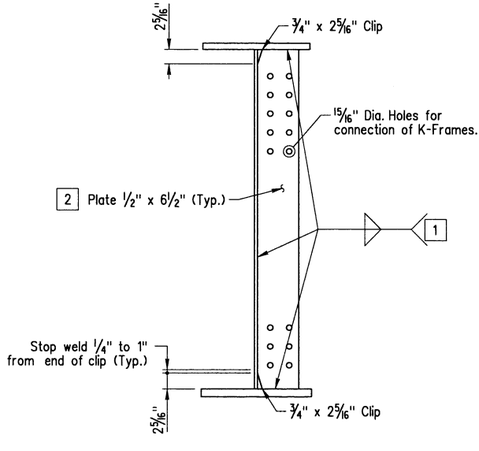
VIEW A-A
Scale: 1" = 1'-0"



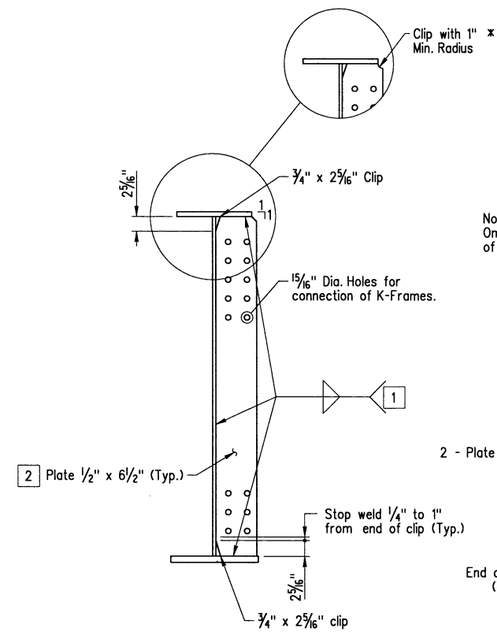
DETAIL D
2-SIDED CONN. PLATE WITH 12" TOP FLANGE
Scale: 1" = 1'-0"



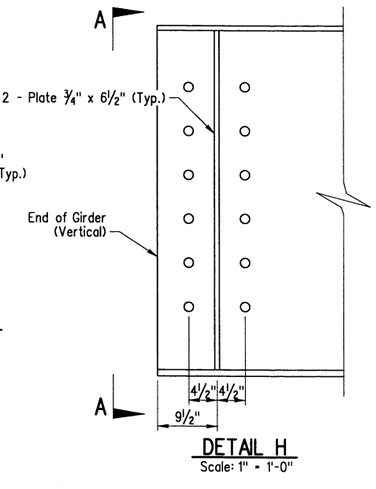
DETAIL E
2-SIDED CONN. PLATE WITH 17" TOP FLANGE
Scale: 1" = 1'-0"



DETAIL F
1-SIDED CONN. PLATE WITH 17" TOP FLANGE
Scale: 1" = 1'-0"



DETAIL G
1-SIDED CONN. PLATE WITH 12" TOP FLANGE
Scale: 1" = 1'-0"



DETAIL H
Scale: 1" = 1'-0"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 6 OF 13
DETAILS OF 434'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT
BRIDGE OVER BIG LAKE FLOODWAY RELIEF
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 3/9/15
CHECKED BY: CJC DATE: 5/19/15
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BRIDGE NO. 07392
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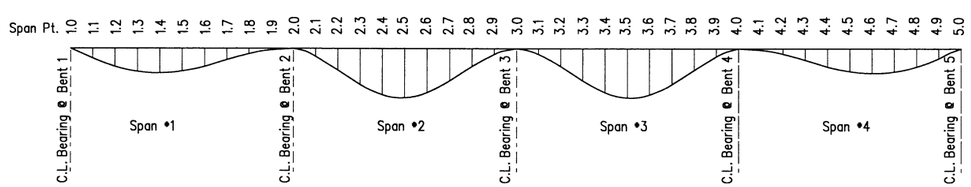
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				6	ARK.			
				JOB NO.		CA1002	194	319
				(1) 07392	-	434' CONT. UNIT	-	58747

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point	Girders 1 & 9			Girders 2 & 8			Girders 3 - 7		
		Structural Steel	Structural Steel & Slab	Structural Steel, Slab & Parapet	Structural Steel	Structural Steel & Slab	Structural Steel, Slab & Parapet	Structural Steel	Structural Steel & Slab	Structural Steel, Slab & Parapet
1	1.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1.1	0.05	0.26	0.30	0.06	0.30	0.32	0.06	0.30	0.30
	1.2	0.10	0.48	0.55	0.11	0.55	0.58	0.11	0.55	0.55
	1.3	0.13	0.61	0.70	0.14	0.71	0.75	0.14	0.71	0.71
	1.4	0.14	0.65	0.75	0.15	0.76	0.81	0.15	0.76	0.76
	1.5	0.13	0.60	0.69	0.14	0.70	0.74	0.14	0.70	0.70
	1.6	0.10	0.48	0.55	0.11	0.55	0.58	0.11	0.55	0.55
	1.7	0.06	0.30	0.35	0.07	0.35	0.37	0.07	0.35	0.35
	1.8	0.03	0.14	0.16	0.03	0.16	0.17	0.03	0.16	0.16
	1.9	0.00	0.01	0.01	0.00	0.02	0.02	0.00	0.02	0.02
	2.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	2.1	0.05	0.21	0.25	0.05	0.24	0.26	0.05	0.24	0.24
	2.2	0.13	0.58	0.70	0.14	0.67	0.73	0.14	0.67	0.67
	2.3	0.22	0.95	1.13	0.24	1.11	1.20	0.24	1.11	1.11
	2.4	0.28	1.22	1.45	0.30	1.42	1.53	0.30	1.42	1.42
	2.5	0.30	1.30	1.54	0.32	1.49	1.61	0.32	1.49	1.49
	2.6	0.26	1.16	1.38	0.28	1.33	1.43	0.28	1.33	1.33
	2.7	0.19	0.85	1.01	0.21	0.98	1.06	0.21	0.98	0.98
	2.8	0.11	0.48	0.57	0.12	0.55	0.59	0.12	0.55	0.55
	2.9	0.03	0.15	0.18	0.04	0.17	0.18	0.04	0.17	0.17
	3.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	3.1	0.03	0.15	0.18	0.04	0.17	0.18	0.04	0.17	0.17
	3.2	0.11	0.48	0.57	0.12	0.55	0.59	0.12	0.55	0.55
	3.3	0.19	0.85	1.01	0.21	0.98	1.06	0.21	0.98	0.98
	3.4	0.26	1.16	1.38	0.28	1.33	1.43	0.28	1.33	1.33
	3.5	0.30	1.30	1.54	0.32	1.49	1.61	0.32	1.49	1.49
	3.6	0.28	1.22	1.45	0.30	1.42	1.53	0.30	1.42	1.42
	3.7	0.22	0.95	1.13	0.24	1.11	1.20	0.24	1.11	1.11
	3.8	0.13	0.58	0.70	0.14	0.67	0.73	0.14	0.67	0.67
	3.9	0.05	0.21	0.25	0.05	0.24	0.26	0.05	0.24	0.24
	4.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	4.1	0.00	0.01	0.01	0.00	0.02	0.02	0.00	0.02	0.02
	4.2	0.03	0.14	0.16	0.03	0.16	0.17	0.03	0.16	0.16
	4.3	0.06	0.30	0.35	0.07	0.35	0.37	0.07	0.35	0.35
	4.4	0.10	0.48	0.55	0.11	0.55	0.58	0.11	0.55	0.55
	4.5	0.13	0.60	0.69	0.14	0.70	0.74	0.14	0.70	0.70
	4.6	0.14	0.65	0.75	0.15	0.76	0.81	0.15	0.76	0.76
	4.7	0.13	0.61	0.70	0.14	0.71	0.75	0.14	0.71	0.71
	4.8	0.10	0.48	0.55	0.11	0.55	0.58	0.11	0.55	0.55
	4.9	0.05	0.26	0.30	0.06	0.30	0.32	0.06	0.30	0.30
	5.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00



DEAD LOAD DEFLECTION DIAGRAM

No Scale

Note: Camber girders for dead load deflection plus vertical curve. Tolerance is ± 1/4". Deflections shown are from a chord extending from C.L. Bearing to C.L. Bearing. Vertical curve corrections are not included. Negative sign (-) indicates point above chord.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

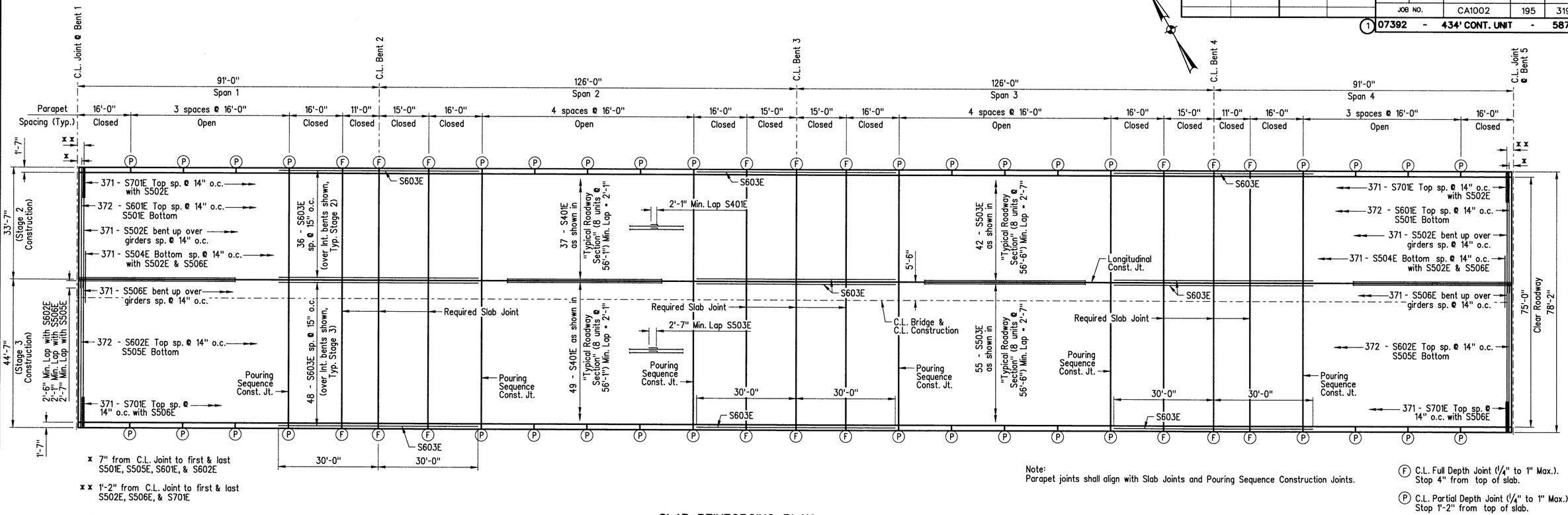
SHEET 7 OF 13
DETAILS OF 434'-0" CONTINUOUS
COMPOSITE PLATE GIRDER UNIT
BRIDGE OVER BIG LAKE FLOODWAY RELIEF
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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BRIDGE NO. 07392 DRAWING NO. 58747

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				6	ARK.			
				JOB NO.		CA1002	195	319
				(1) 07392	-	434' CONT. UNIT	-	58748



* 7" from C.L. Joint to first & last S501E, S505E, S601E, & S602E

** 1'-2" from C.L. Joint to first & last S502E, S506E, & S701E

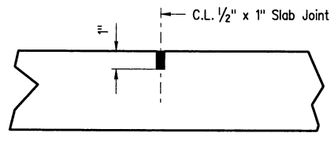
Note:
Parapet joints shall align with Slab Joints and Pouring Sequence Construction Joints.

(F) C.L. Full Depth Joint (¼" to 1" Max.). Stop 4" from top of slab.

(P) C.L. Partial Depth Joint (¼" to 1" Max.). Stop 1'-2" from top of slab.

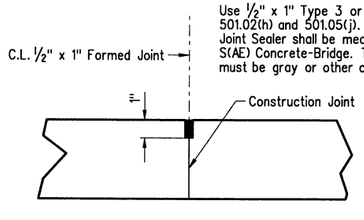
SLAB REINFORCING PLAN
No Scale

Use Type 3 or 4 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 S(AE) Concrete-Bridge. Slab joints shall extend to the outside edge of the deck slab and shall align with open joints at the front face of the parapet. 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).

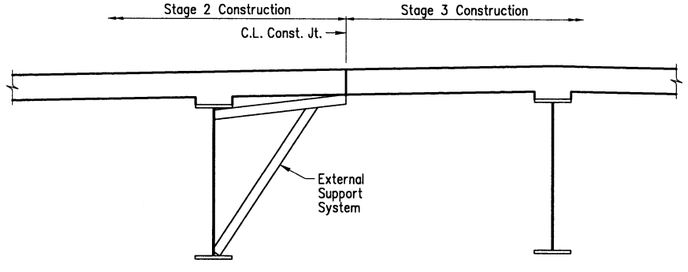


SLAB JOINT DETAIL
No Scale

Use ½" x 1" Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod shall not be installed. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. This joint shall be formed. Seal must be gray or other color similar to concrete.

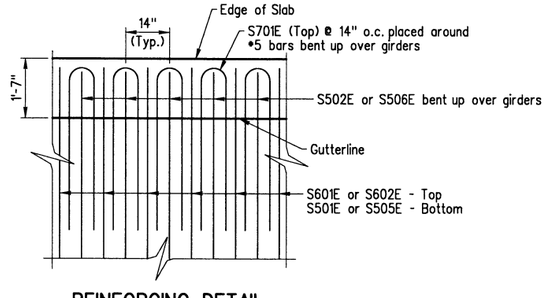


LONGITUDINAL CONSTRUCTION JOINT DETAIL
No Scale



DECK SUPPORT AT LONGITUDINAL CONSTRUCTION JOINT
No Scale

Stage 2 external supports at Girder 4 shall remain in place until after completion of the Stage 3 deck pours. See Subsection 802.15 for additional information regarding their removal.



REINFORCING DETAIL
No Scale

SHEET 8 OF 13
DETAILS OF 434'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT BRIDGE OVER BIG LAKE FLOODWAY RELIEF
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11528 CHRISTOPHER J. CRISWELL 9/12/16

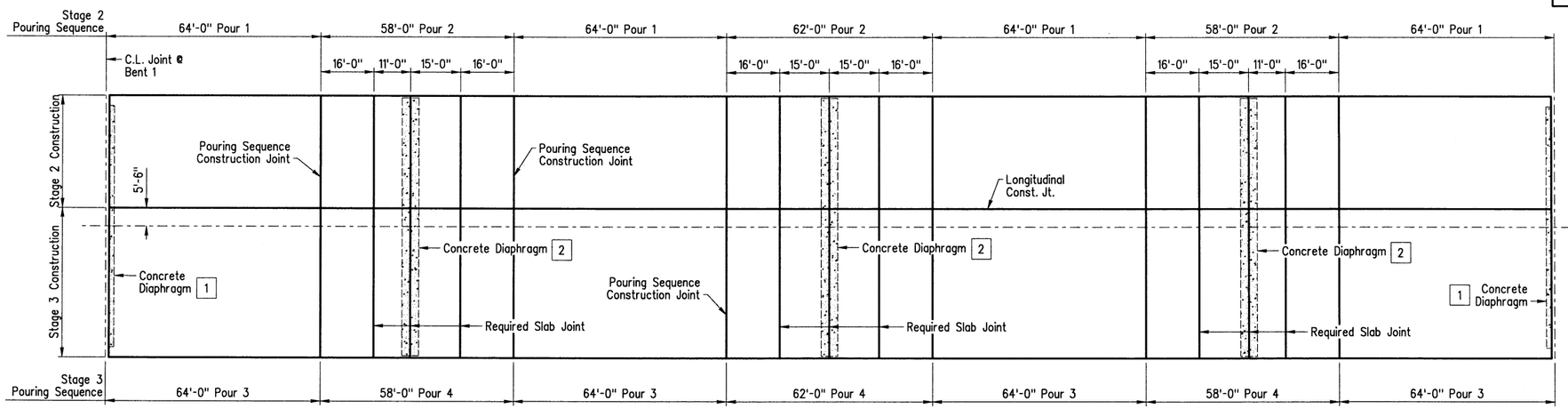
BRIDGE ENGINEER
PRINT DATE: 9/12/2016

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BRIDGE NO. 07392 DRAWING NO. 58748

JACOBS

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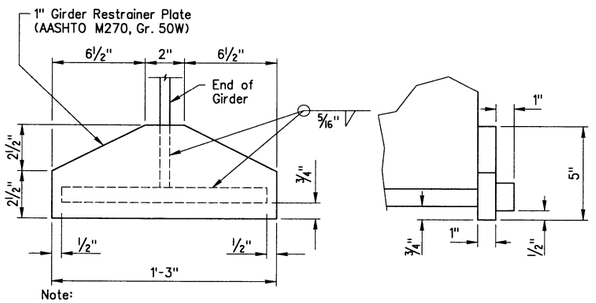
DECK POURING SEQUENCE
No Scale

Notes:
Pours with the same number may be placed simultaneously or separately. For Stage 2, all Pours (1) must be placed before Pours (2) can be placed. For Stage 3, all Pours (3) must be placed before Pours (4) can be placed. Forty-eight hours shall elapse between the end of a pour and the start of the next pour. Seventy-two hours shall elapse between the end of a pour and the start of an adjacent pour and between the end of a pour and the pouring of the parapet. Any parapet railing pours made before the entire slab unit has been placed must be approved by the Engineer. Concrete in bridge superstructure shall be placed, consolidated and screeded off for the entire pour before concrete has taken its initial set. This may require the use of a retarding agent. The Contractor must obtain approval from the Engineer for any deviation from the pouring sequence shown.

1 Concrete Diaphragms at End Bents shall be poured a minimum of 48 hours before the first deck pour of each stage of construction.

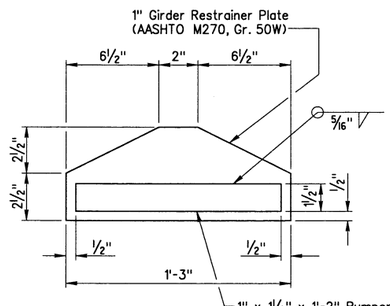
2 Concrete Diaphragms at Intermediate Bents shall be poured monolithically with deck slab.

Parapet joints shall align with Slab Joints and Pouring Sequence Construction Joints.

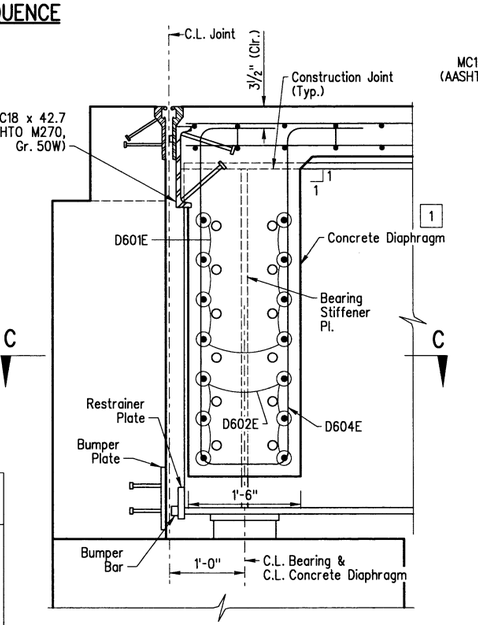


Note:
Girder Restrainer Plate shall be centered on each girder line (flange & web).
Bumper Bar not shown for clarity.

VIEW F-F
No Scale

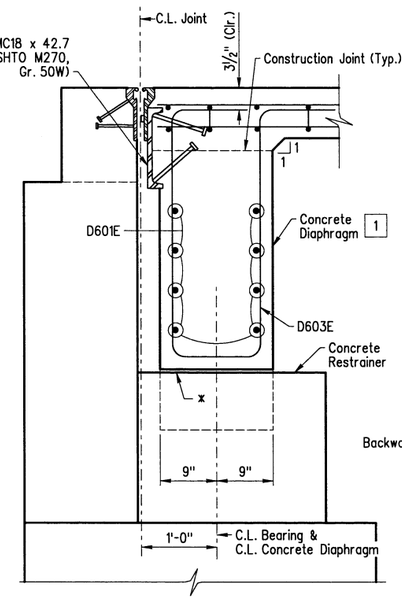


Note: Girder Restrainer Plate and Bumper Bar shall conform to AASHTO M270, Gr. 50W and shall be included in the item "Structural Steel in Plate Girder Spans (M270 - Gr. 50W)".

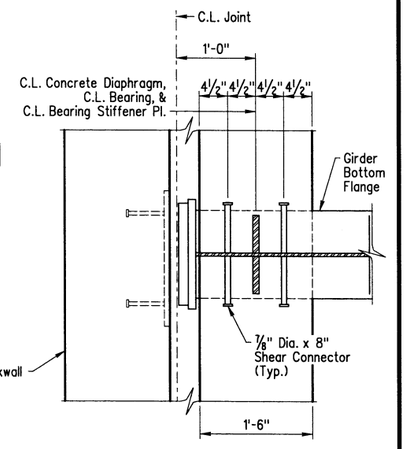


Note: End of Girder not shown in this view for clarity.

SECTION A-A
Scale: 1"=1'-0"



SECTION B-B
Scale: 1"=1'-0"



SECTION C-C
Scale: 1"=1'-0"

GIRDER RESTRAINER
No Scale

BAR LIST STAGE 2

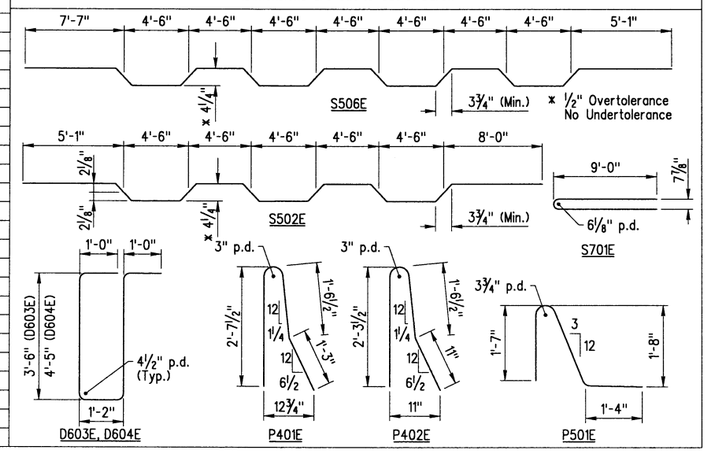
Mark	No. Req'd.	Length	Pin Dia.
P401E	756	5'-6"	3"
P402E	112	4'-10"	3"
P403E	66	15'-8"	Str.
P404E	14	10'-8"	Str.
P405E	28	14'-8"	Str.
P406E	16	41'-2"	Str.
P407E	16	49'-2"	Str.
P501E	756	4'-9"	3¾"
S401E	296	56'-1"	Str.
S501E	372	36'-2"	Str.
S502E	371	36'-3"	3"
S503E	336	56'-6"	Str.
S504E	371	12'-0"	Str.
S601E	372	36'-1"	Str.
S603E	108	60'-0"	Str.
S701E	371	18'-4"	6⅛"
D601E	64	8'-8"	Str.
D602E	84	3'-1"	Str.
D603E	30	9'-7"	4½"
D604E	70	11'-5"	4½"

BAR LIST STAGE 3

Mark	No. Req'd.	Length	Pin Dia.
P401E	756	5'-6"	3"
P402E	112	4'-10"	3"
P403E	66	15'-8"	Str.
P404E	14	10'-8"	Str.
P405E	28	14'-8"	Str.
P406E	16	41'-2"	Str.
P407E	16	49'-2"	Str.
P501E	756	4'-9"	3¾"
S401E	392	56'-1"	Str.
S503E	440	56'-6"	Str.
S505E	372	44'-4"	Str.
S506E	371	45'-0"	3"
S602E	372	44'-4"	Str.
S603E	144	60'-0"	Str.
S701E	371	18'-4"	6⅛"
D601E	64	8'-8"	Str.
D602E	108	3'-1"	Str.
D603E	48	9'-7"	4½"
D604E	90	11'-5"	4½"

Note: All bars designated with an "E" suffix are to be epoxy coated.

BENDING DIAGRAMS
(Dimensions are out to out of bars.)



Notes:
Omit studs on outside of exterior girders.

Prior to placing concrete, remove loose rust with wire brush at concrete diaphragm.

Removable forms for diaphragm shall be used.

See Drawing No. 58752 for details of Strip Seal Joint not shown.

x ½" Polystyrene shall be used as a bond breaker between the concrete restrainer and the concrete diaphragm and may remain in place. Polystyrene shall be considered subsidiary to "Class S(AE) Concrete - Bridge".

STATE OF ARKANSAS
CHRISTOPHER J. CRISWELL
REGISTERED PROFESSIONAL ENGINEER
No. 11328
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

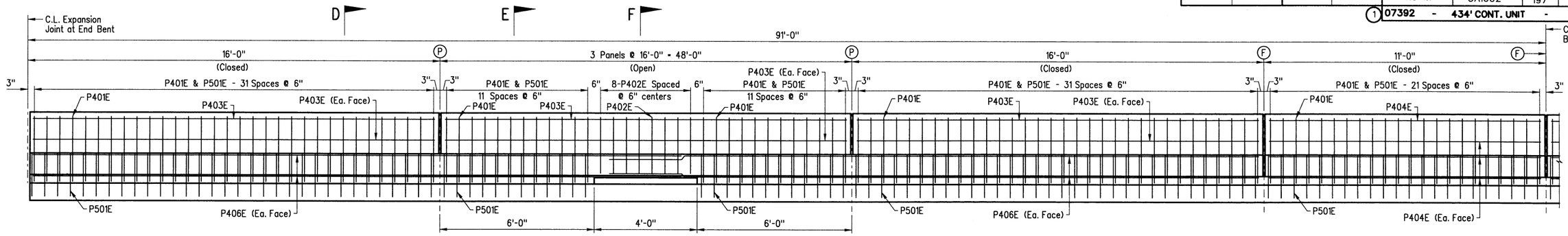
SHEET 9 OF 13
DETAILS OF 434'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT BRIDGE OVER BIG LAKE FLOODWAY RELIEF
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY:	LHG	DATE:	6/5/14	FILENAME:	bca1002x3_sx9.dgn
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DESIGNED BY:	CJC	DATE:	1/5/15	SCALE:	As Noted
BRIDGE NO. 07392			DRAWING NO. 58749		

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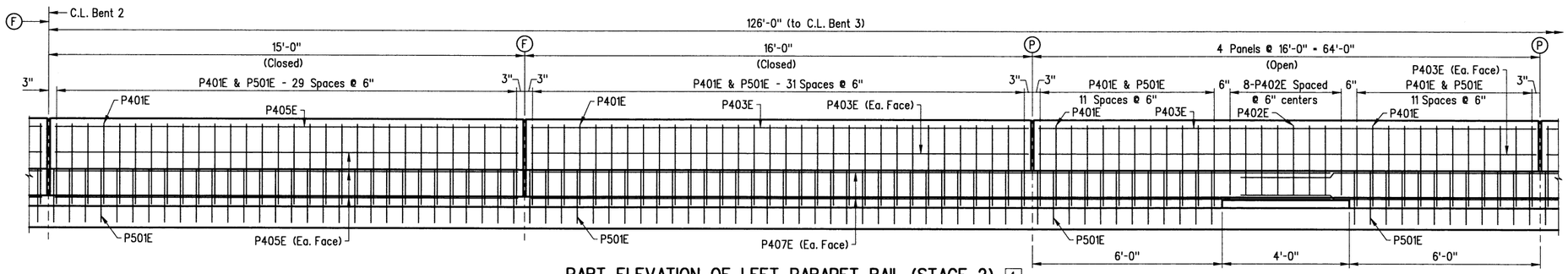
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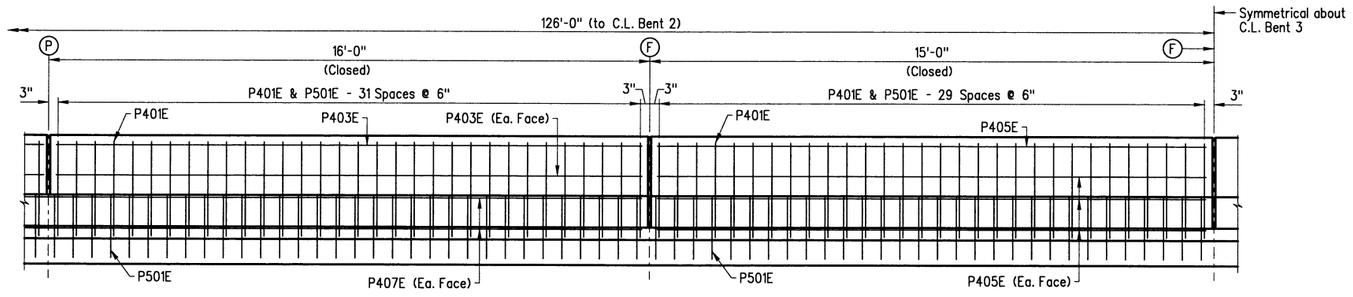
PART ELEVATION OF LEFT PARAPET RAIL (STAGE 2) [1]

Scale: 1/2" = 1'-0"



PART ELEVATION OF LEFT PARAPET RAIL (STAGE 2) [1]

Scale: 1/2" = 1'-0"



PART ELEVATION OF LEFT PARAPET RAIL (STAGE 2) [1]

Scale: 1/2" = 1'-0"

[1] Left parapet rail (Stage 2) shown, right parapet rail (Stage 3) similar by 180° rotation.

(P) C.L. Partial Depth Parapet Joint (1/4" to 1" max.). Stop 1'-2" from top of slab.

(F) C.L. Full Depth Parapet Joint (1/4" to 1" max.). Stop 4" from top of slab.

Minimum splice length for P406E & P407E bars - 2'-7".

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11528
CHRISTOPHER J. CRISWELL
12/22/14

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

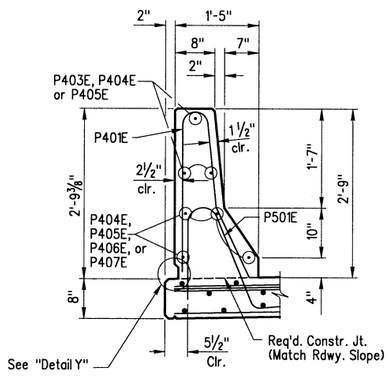
SHEET 10 OF 13
DETAILS OF 434'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT
BRIDGE OVER BIG LAKE FLOODWAY RELIEF
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

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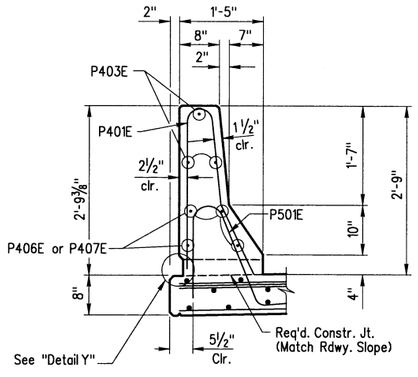
JACOBS

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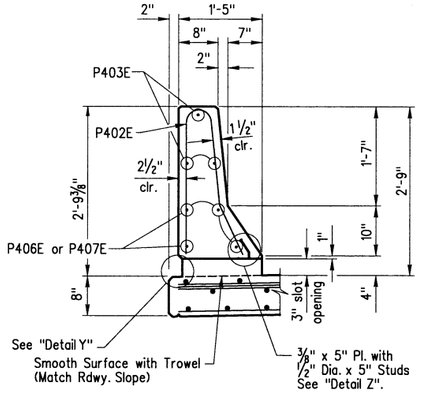
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				(1) 07392	-	434' CONT. UNIT	-	58751



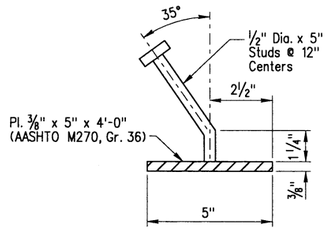
CLOSED PARAPET
SECTION D-D
No Scale



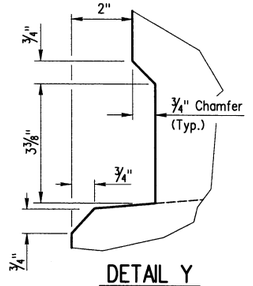
OPEN PARAPET @ END POST
SECTION E-E
No Scale



OPEN PARAPET @ DRAIN
SECTION F-F
No Scale



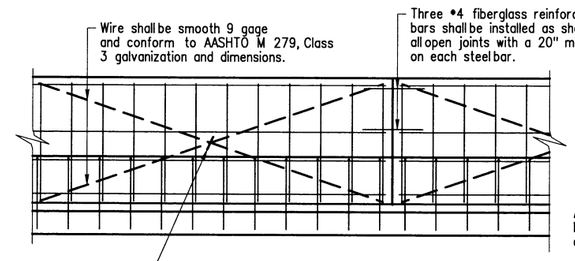
DETAIL Z
No Scale

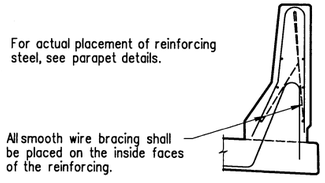


DETAIL Y
No Scale

Note:
Parapet studs shall be 5" long, granular flux filled, solid fluxed, or equal, and automatically end welded to the plate. Studs and plates shall meet the requirements of Section 807. Studs and plate shall be measured and paid for as "Structural Steel in Plate Girder Spans (M270, Gr. 50W)".

The surfaces of the 3/8" plates which will not be in contact with concrete shall be painted in accordance with Section 638 or as approved by the Engineer. Only one coat is required and shall be applied in the fabricator's shop. Painting will not be paid for directly, but will be considered subsidiary to "Structural Steel in Plate Girder Spans (M270, Gr. 50W)."



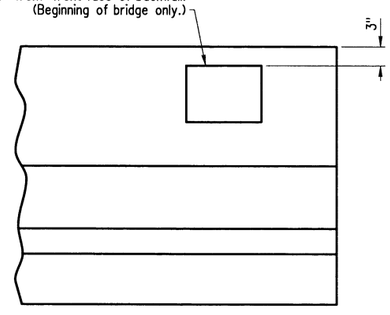


All panels shall be braced as shown to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of 1/4". To control cracking before sawing, all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

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 surfaces 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

Place Type D Bridge Name Plate on right parapet rail approximately 2'-0" from front face of backwall. (Beginning of bridge only.)



NAME PLATE DETAIL
No Scale

STATE OF ARKANSAS
CHRISTOPHER J. CRISWELL
REGISTERED PROFESSIONAL ENGINEER
No. 11328
9/12/16
BRIDGE ENGINEER
PRINT DATE: 9/12/2016

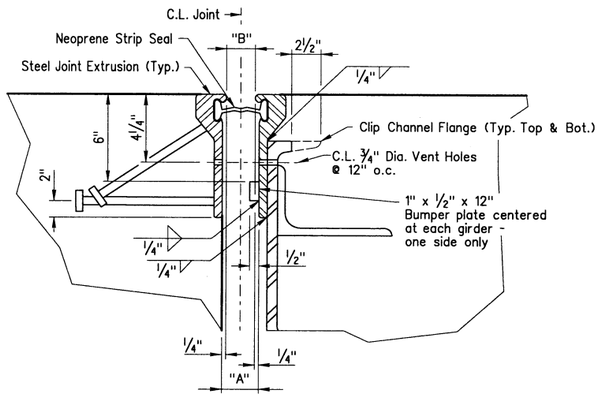
SHEET 11 OF 13
DETAILS OF 434'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT
BRIDGE OVER BIG LAKE FLOODWAY RELIEF
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 1/5/15
CHECKED BY: CJC DATE: 5/27/15
DESIGNED BY: CJC DATE: 12/22/14
BRIDGE NO. 07392
FILENAME: bca1002x3_sxb.dgn
SCALE: As Noted
DRAWING NO. 58751

JACOBS

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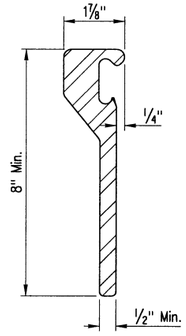
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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				JOB NO.		CA1002	199	319
				(1) 07392	-	434' CONT. UNIT	-	58752



DETAIL A

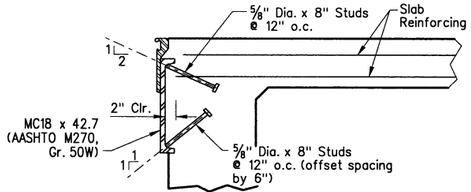
No Scale

Note: Concrete shall be hand packed under the roadway channel and joint armor in the backwall.



STEEL EXTRUSION DETAIL

No Scale



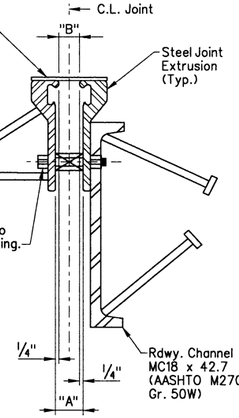
Note:
As an alternate to ⅝" dia. studs shown, ½" dia. x 8" studs spaced at 8" o.c. may be used. Use weight of ⅝" stud as basis of measurement of structural steel in anchors.

DETAILS OF ANCHORS

No Scale

[3] For Transverse Strike-off: Plate, angle, or other shapes, attached to steel extrusion for blocking

[3] For Longitudinal Strike-off: Bolt and spacer attached to channel and angle for blocking.



DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

No Scale

Note:
Each expansion joint device shall be blocked in the shop by the Fabricator to the dimensions at 60° F and the blocking details shall be shown on the shop drawings. Blocking shall be placed within 2'-0" of each end of the device and with a maximum spacing of 8'-0".

[3] One of two different blocking systems is required depending on the type of finishing machine that is used.

EXPANSION DEVICE INSTALLATION AT END BENTS

The Contractor may elect to install the expansion device using one of the following two alternatives.

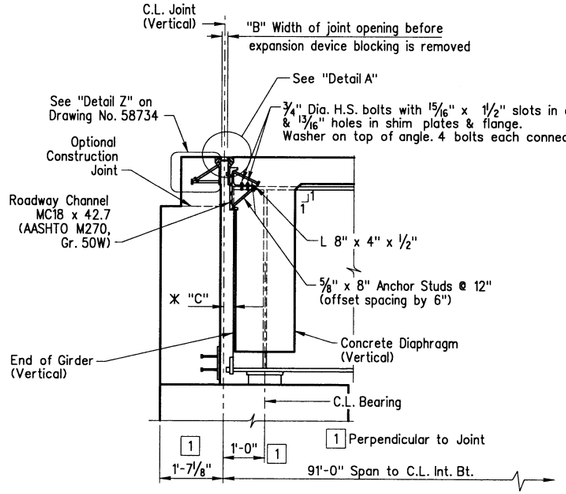
1. The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the girders erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the backwall concrete, the blocking shall be removed, and the opening adjusted for temperature and grade.

2. The backwall shall be poured to the optional construction joint after girders 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 and grade. Backfill shall not be placed behind the backwall until the deck concrete on the adjacent span has been poured.

STRIP SEAL JOINT DATA

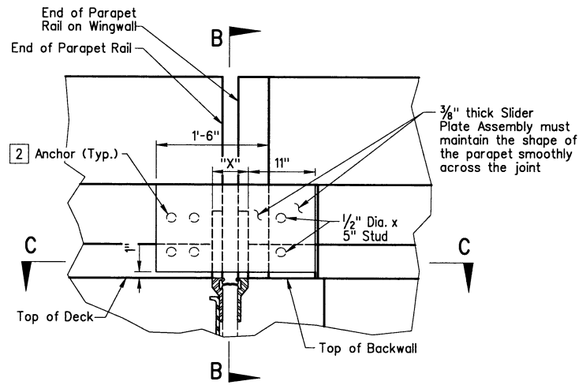
Bent No.	Movement Rating	"A" width perpendicular to joint at 24 hour average temperature of:			"B" width perpendicular to joint at 24 hour average temperature of:			"C" width perpendicular to joint at 24 hour average temperature of
		40° F	60° F	80° F	40° F	60° F	80° F	60° F
1 & 5	4"	2 3/16"	2 1/4"	1 15/16"	2 1/16"	1 3/4"	1 7/16"	2 1/2"

Note: 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. Installation is limited to 40° F min. and 80° F max. The temperature limitations by the lubricant-adhesive manufacturer shall be observed.



SECTION THROUGH JOINT AT END BENT

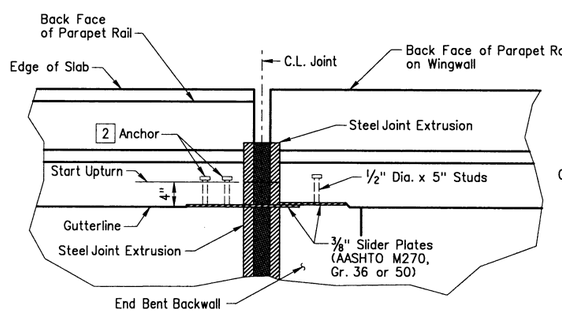
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DETAILS OF NEOPRENE SEAL AT GUTTERLINE

No Scale

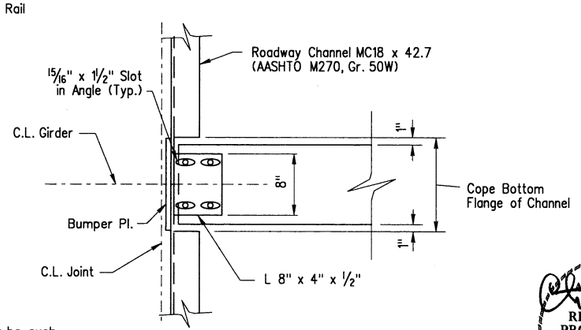
Note: Dimension "X" equals the width of the recess in the parapet at the gutterline to allow for removal or repair of joint.



SECTION C-C

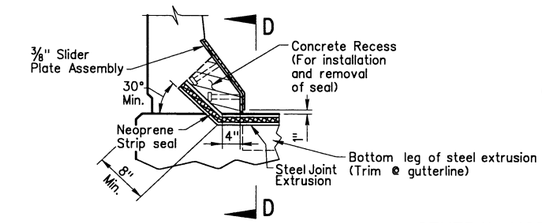
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[2] The method of attachment of the cover slider plate assembly or similar device must be such that it may be removed in order to provide for future replacement of the neoprene seal.



CHANNEL CONNECTION DETAIL

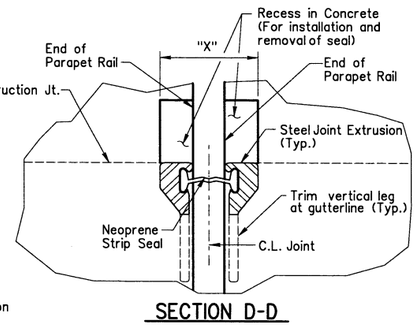
No Scale



SECTION B-B

No Scale

Note: Details of joint turn-up in parapet are general and show basic design controls only. Method of installation and fabrication shall be determined by the manufacturer. See Section 809 of the Standard Specifications.



SECTION D-D

No Scale

Note: Dimension "X" equals the width of the recess in the parapet at the gutterline to allow for removal or repair of joint.

GENERAL NOTES

EXPANSION NEOPRENE STRIP SEAL: The expansion device shall provide a movement of 4" as shown in the "Strip Seal Joint Data" table. The expansion joint shall be capable of sealing the deck surface and parapet area to prevent moisture and other contaminants from descending through the joint.

All structural steel shall be AASHTO M270, Grade 50W unless noted otherwise.

All structural steel, except for the steel extrusion for the strip seal, shall be paid for as "Structural Steel in Plate Girder Spans (M270, Gr. 50W)". The steel extrusion and neoprene strip seal shall be paid for in accordance with Section 809 of the Standard Specifications.

Details of proposed slider plate assembly shall be submitted to and approved by the Engineer prior to the fabrication of any structural steel at the expansion device.

Slider plates shall be AASHTO M270, Gr. 36 or 50 and shall be paid for as "Structural Steel in Plate Girder Spans (M270, Gr. 50W)". The surfaces of the plates which will not be in contact with the concrete shall be cleaned and painted in accordance with Section 638 or as directed by the Engineer. Only one coat is required and shall be applied in the fabricator's shop. Painting shall not be paid for directly, but will be considered subsidiary to "Structural Steel in Plate Girder Spans (M270, Gr. 50W)".

Method of installation and fabrication shall be determined by the manufacturer.

Anchors will not be paid for directly, but will be considered subsidiary to "Structural Steel in Plate Girder Spans (M270, Gr. 50W)".

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 12 OF 13
DETAILS OF 434'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT
BRIDGE OVER BIG LAKE FLOODWAY RELIEF
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 1/20/15 FILENAME: bca1002x3_sxc.dgn
CHECKED BY: CJC DATE: 5/21/15
DESIGNED BY: CJC DATE: 1/14/15 SCALE: No Scale
BRIDGE NO. 07392 DRAWING NO. 58752

JACOBS

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SUPERSTRUCTURE GENERAL NOTES:

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

DESIGN SPECIFICATIONS:
AASHTO LRFD Bridge Design Specifications, Sixth Edition (2012), with 2013 interim revisions.

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (superstructure)	f'c = 4,000 psi
Reinforcing Steel (AASHTO M31 or M322 Type A, 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

CONCRETE:
All concrete shall be Class S(AE) with a minimum 28 day compressive strength of f'c = 4,000 psi. Concrete shall be poured in the dry and all exposed corners are to be chamfered 3/4" unless noted otherwise.

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. 55005 for allowable modifications and for tolerances when Permanent Steel Bridge Deck Forms are used.

Concrete in bridge superstructure shall be placed and consolidated for the entire pour and screeded off before any concrete has taken its initial set. This may require the use of a retarding agent.

The concrete bridge deck shall be given a tine finish in accordance with Subsection 802.19 for a Class 5 Tined Bridge Roadway Surface Finish. Movement of the finishing machine across the 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 girder. 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.

For each stage of construction, a minimum of 72 hours shall elapse between completion of slab and pouring of the parapet railing. Any railing pours made before the entire deck has been placed must be approved by the Engineer.

REINFORCING STEEL:
All reinforcing steel shall conform to AASHTO M31 or M322 Type A, Grade 60 with mill test reports. The reinforcing steel shall be accurately located in the forms and firmly held in place by steel wire supports sufficient in size and number 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 of "Epoxy Coated Reinforcing Steel (Grade 60)".

BEARINGS:
Bearings shall be firmly seated in accordance with Subsection 808.08. This work and material is to be considered subsidiary to the item "Elastomeric Bearings" and will not be paid for directly.

Anchor bolts shall be AASHTO designation M314 Gr. 55 including supplemental requirement S1, and shall be galvanized to conform to AASHTO M232, Class C or ASTM B695 Class 50. Anchor bolts will be paid for at the contract unit price bid for "Structural Steel in Plate Girder Spans (M270, Gr. 50W)".

See Drawing No. 58754 for cleaning requirements of external load plates on elastomeric bearings.

STRUCTURAL STEEL:
All structural steel shall be AASHTO M270, Gr. 50W unless otherwise noted and shall be paid for as "Structural Steel in Plate Girder Spans (M270, Gr. 50W)" unless otherwise noted. All surfaces shall be cleaned in accordance with Subsection 807.84(e) unless otherwise noted. Structural steel completely embedded in concrete may be AASHTO M270, Gr. 36 unless otherwise noted. Galvanized steel shall not be painted. For cleaning and painting of slider plates, see Drawing No. 58752.

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. Steel of equal or greater strengths will be accepted only when shown on the approved shop drawings. Shapes and materials shown in the plans will be the basis of payment and no additional compensation will be made for any adjustments due to substitutions.

All plate girder webs and flanges, 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 Plate Girder Spans (M270, Gr. 50W)".

Steel plates for main load carrying members (flange and web plates) and 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.

Girder webs may be made by shop splicing with a minimum length of 25'-0" for sections. Flange plates longer than 50'-0" may be made by shop splicing with a minimum length of 25'-0" for sections. Material specifications and location of shop-welded splices, if any, shall be shown on the shop drawings. No additional payment will be made for these splices.

Groove welds in main plate girder members shall be Quality Control (Q.C.) tested by nondestructive testing, as required by the Standard Specifications. Fillet welds at flange to web connections shall be Q.C. tested by the magnetic particle method. All Q.C. testing is at the Contractor's expense.

All connection plates and intermediate stiffeners shall be fabricated normal to the top flange and on the side of the girder web as indicated on the framing plan. No intermediate stiffeners are to be placed on the outside of the exterior girders except as noted. All bearing stiffeners shall be fabricated to be plumb in their final conditions.

All girders shall be blocked in their true position in the shop with the 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 girders in their true position and this information shall become a part of the permanent records of this job. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram. All girder dimensions are based on a temperature of 60° F. A tolerance of +/- 1/4" is allowed for camber.

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.

SUPERSTRUCTURE GENERAL NOTES (Cont.):

High strength bolts for field splices shall be 7/8" in diameter unless noted otherwise. Open holes shall be 15/16" in diameter unless noted otherwise. Bolt spacing shall be 3" for 7/8" diameter bolts unless noted otherwise. Bolts shall be placed with heads on the outside face of the exterior girder web and on the bottom of the girder flanges. All bolts shall be installed and tightened in accordance with Subsection 807.71 prior to pouring the concrete deck.

All contact surfaces between plates at field splices shall be free of oil, rust or scale before assembly, and shall meet Class B faying surface requirements.

K-Frames shall be installed as girders are erected. High strength bolts for K-Frames shall be 7/8" in diameter, and holes shall be 15/16" in diameter unless noted otherwise. Bolt spacing shall be 3" for 7/8" diameter bolts unless noted otherwise. All bolts shall be installed and tightened in accordance with Subsection 807.71 prior to pouring the deck unless noted otherwise. See Drawing No. 58745 for details of Special K-Frames between girders erected in different stages of construction.

All stud shear connectors shall be granular flux filled, solid fluxed, or equal and shall be automatically end welded in accordance with the recommendations of the manufacturer.

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				JOB NO.		CA1002	200	319
				(1) 07392	-	434' CONT. UNIT	-	58753

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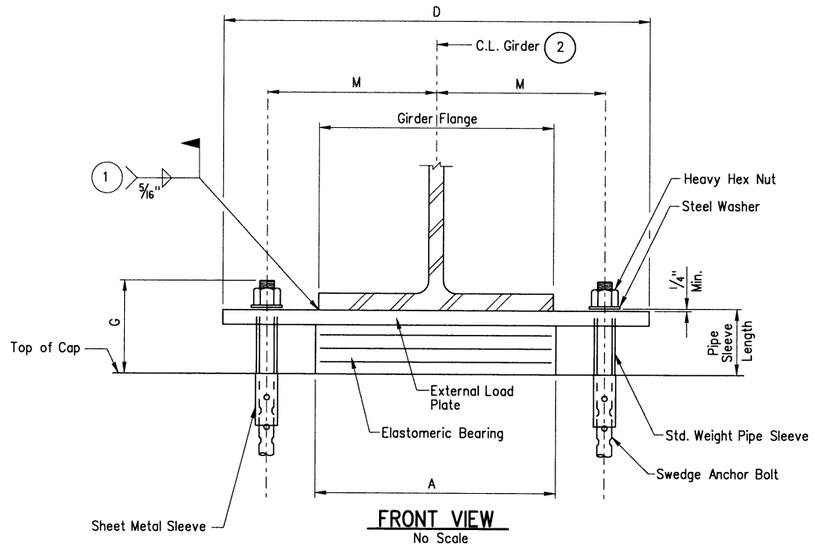
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11528
CHRISTOPHER J. CRISWELL
11-17-16
BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 13 OF 13
DETAILS OF 434'-0" CONTINUOUS COMPOSITE PLATE GIRDER UNIT
BRIDGE OVER BIG LAKE FLOODWAY RELIEF
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

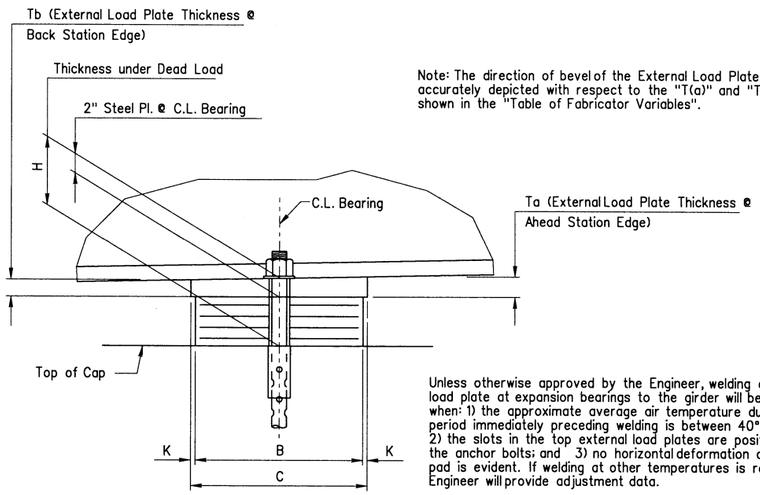
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CHECKED BY: CJC DATE: 9/9/15
DESIGNED BY: CJC DATE: 11/16/14
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DRAWING NO. 58753

JACOBS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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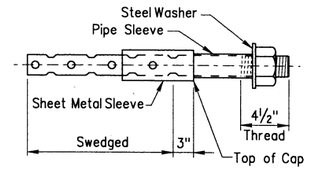
FRONT VIEW
No Scale



SIDE VIEW
No Scale

Note: The direction of bevel of the External Load Plate may not be accurately depicted with respect to the "T(a)" and "T(b)" values shown in the "Table of Fabricator Variables".

Unless otherwise approved by the Engineer, welding of the top external load plate at expansion bearings to the girder 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 top external load plates 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.



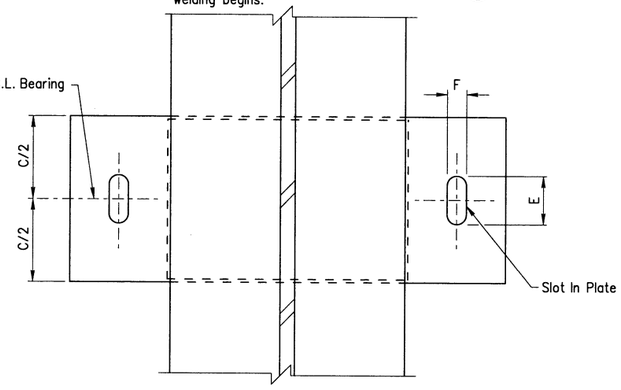
ANCHOR BOLT DETAIL
(No Scale)

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.

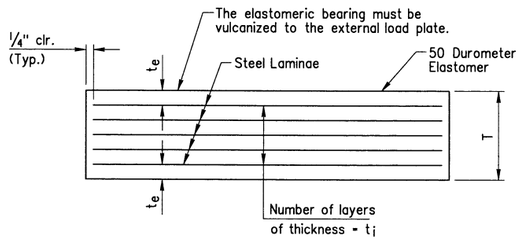
If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the 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 Plate Girder Spans, (M 270, Gr. 50W).

(1) Care shall be taken to ensure that the external load plate is in full and complete contact with the girder flange before welding begins.

(2) C.L. Elastomeric pad shall be aligned with C.L. Girder.



PLAN VIEW
No Scale



t_i = thickness of elastomer between steel laminae
t_e = thickness of elastomer cover on top and bottom of pad
N = number of elastomer layers of thickness t_i

ELASTOMERIC BEARING
No Scale

GENERAL NOTES

Elastomeric Bearings shall conform to Section 808 of the Standard Specifications and shall be paid for at the unit price bid for "Elastomeric Bearings."

External load plates and shear blocks shall conform to AASHTO M 270, Grade 50W and will not be paid for separately, but will be included in the unit price bid for "Elastomeric Bearings". Pipe sleeves shall be ASTM A500, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or ASTM B695, Class 50.

External load plates shall be completely fabricated (including bevel, bolt holes and all shop welding) and shall be cleaned before vulcanized 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 of the Standard Specifications. 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 Plate Girder Spans (M270, Gr. 50W)".

Bearings shall be seated in accordance with Subsection 808.08. Work and materials shall be considered subsidiary to the item "Elastomeric Bearings" and will not be paid for directly.

TABLE OF FABRICATOR VARIABLES

BRIDGE NO.	LOCATION			BEARING TYPE	NO. OF BRGS. EACH BENT	*MAXIMUM DESIGN LOAD (KIPS)	G	H	ELASTOMERIC PAD						EXTERNAL LOAD PLATE								ANCHOR BOLT				
	BENT NO(S).	UNIT	GIRDER NO.						A	B	N	t_i	t_e	NO. & THICKNESS OF STEEL LAMINAE	T	C	D	E	F	K	M	T_a	T_b	ANCHOR BOLT (Dia. x L)	ANCHOR BOLT GRADE	PIPE SLEEVE SIZE (Dia. x L)	SHEET METAL SLEEVE SIZE (Dia. x L)	STEEL WASHER SIZE (O.D.)
07392	1 & 5	434'	All	Exp.	9	131	10"	6 1/8"	1'-2"	10"	6	1/2"	1/4"	7 @ 12 ga.	4 1/4"	11"	2'-3 1/2"	7"	3 3/4"	1/2"	10 1/4"	2"	2"	2 1/2" x 3'-2"	55	3" x 6 1/2"	4" x 12"	4 1/2"

* Maximum Load = Service I Limit State

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11328
CHRISTOPHER J. CRISWELL
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

DETAILS OF ELASTOMERIC EXPANSION BEARINGS BRIDGE OVER BIG LAKE FLOODWAY RELIEF

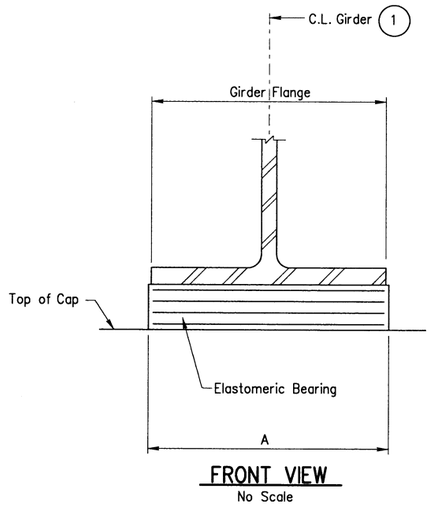
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 6/5/14
CHECKED BY: CJC DATE: 5/18/15
DESIGNED BY: CJC DATE: 1/13/15
BRIDGE NO. 07392
FILENAME: bca1002x3_ex1.dgn
SCALE: As Noted
DRAWING NO. 58754

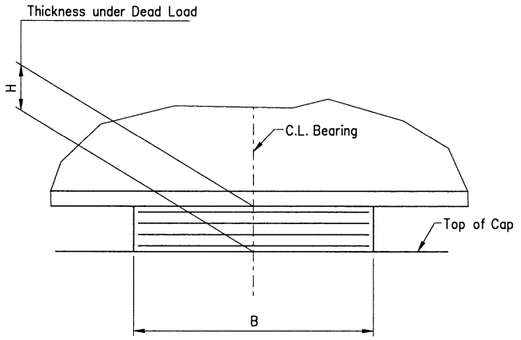
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA1002	202	319
				(1) 07392 - BEARING DETAILS -				58755



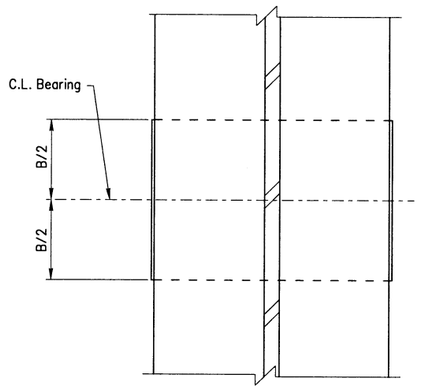
FRONT VIEW
No Scale



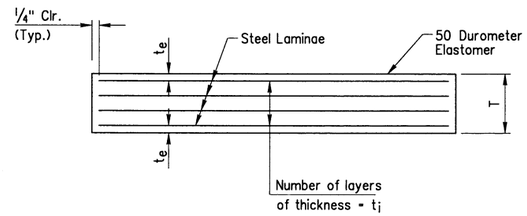
(1) C.L. Elastomeric pad shall be aligned with C.L. Girder.

Stations Increase

SIDE VIEW
No Scale



PLAN VIEW
No Scale



t_i = thickness of elastomer between steel laminae
t_e = thickness of elastomer cover on top and bottom of pad
N = number of elastomer layers of thickness t_i

ELASTOMERIC BEARING
No Scale

TABLE OF FABRICATOR VARIABLES

BRIDGE NO.	LOCATION			NO. OF BRGS. EACH BENT	*MAXIMUM DESIGN LOAD (KIPS)	H	ELASTOMERIC PAD						
	BENT NO(S).	UNIT	GIRDER NO.				A	B	N	t_i	t_e	NO. & THICKNESS OF STEEL LAMINAE	T
07392	2 & 4	434'	All	9	155	2 3/8"	1'-5"	10"	3	1/2"	1/4"	4 @ 12 ga.	2 3/8"
07392	3	434'	All	9	172	2 3/8"	1'-5"	10"	3	1/2"	1/4"	4 @ 12 ga.	2 3/8"

* Maximum Load = Service I Limit State

GENERAL NOTES

Elastomeric Bearings shall conform to Section 808 of the Standard Specifications and shall be paid for at the unit price bid for "Elastomeric Bearings."

Bearings shall be seated on level, uniform surfaces in accordance with Subsection 808.08. Any misalignment in the support shall be corrected to form a level surface. Work and materials shall be considered subsidiary to the item "Elastomeric Bearings" and will not be paid for directly.

The neoprene pads shall be bonded to the bearing seat with an epoxy adhesive in accordance with the bearing manufacturer's recommendations for bonding neoprene to concrete to prevent sliding.

STATE OF ARKANSAS
CHRISTOPHER J. CRISWELL
REGISTERED PROFESSIONAL ENGINEER
No. 11328
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

DETAILS OF ELASTOMERIC BEARINGS AT INTEGRAL INTERMEDIATE BENTS BRIDGE OVER BIG LAKE FLOODWAY RELIEF

MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

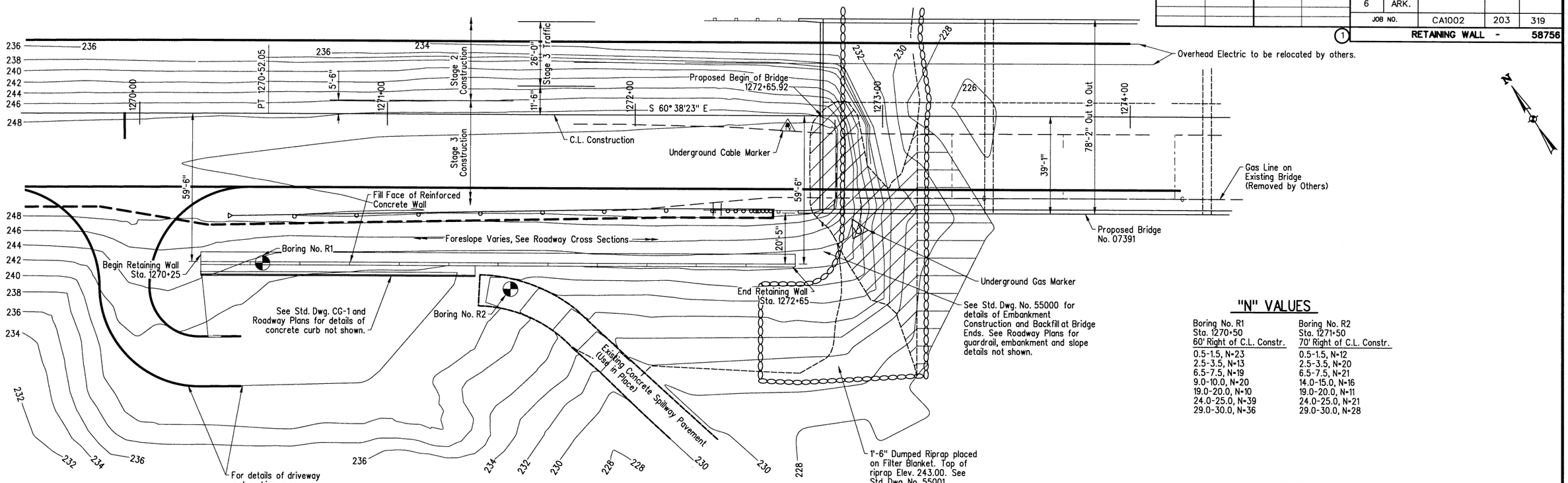
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CHECKED BY: CJC DATE: 5/18/15
DESIGNED BY: CJC DATE: 1/13/15
FILENAME: bca1002x3_ex2.dgn
SCALE: As Noted
BRIDGE NO. 07392
DRAWING NO. 58755

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For R/W Data, see Rdwy. Plans

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.		CA1002	203	319
				(1)		RETAINING WALL -		58756



PLAN

HORIZONTAL CURVE DATA

P.I. = STA. 1266+91.51
R = 11,459.16'
D = 0° 30'0"
Δ = 3° 36'24" Rt.
L = 721.33'
T = 360.79'
P.C. = STA. 1263+30.72
P.T. = STA. 1270+52.05

"N" VALUES

Boring No. R1 Sta. 1270+50 60' Right of C.L. Constr.	Boring No. R2 Sta. 1271+50 70' Right of C.L. Constr.
0.5-1.5, N=23	0.5-1.5, N=12
2.5-3.5, N=13	2.5-3.5, N=20
6.5-7.5, N=19	6.5-7.5, N=21
9.0-10.0, N=20	14.0-15.0, N=16
19.0-20.0, N=10	19.0-20.0, N=11
24.0-25.0, N=39	24.0-25.0, N=21
29.0-30.0, N=36	29.0-30.0, N=28

BORING LEGEND

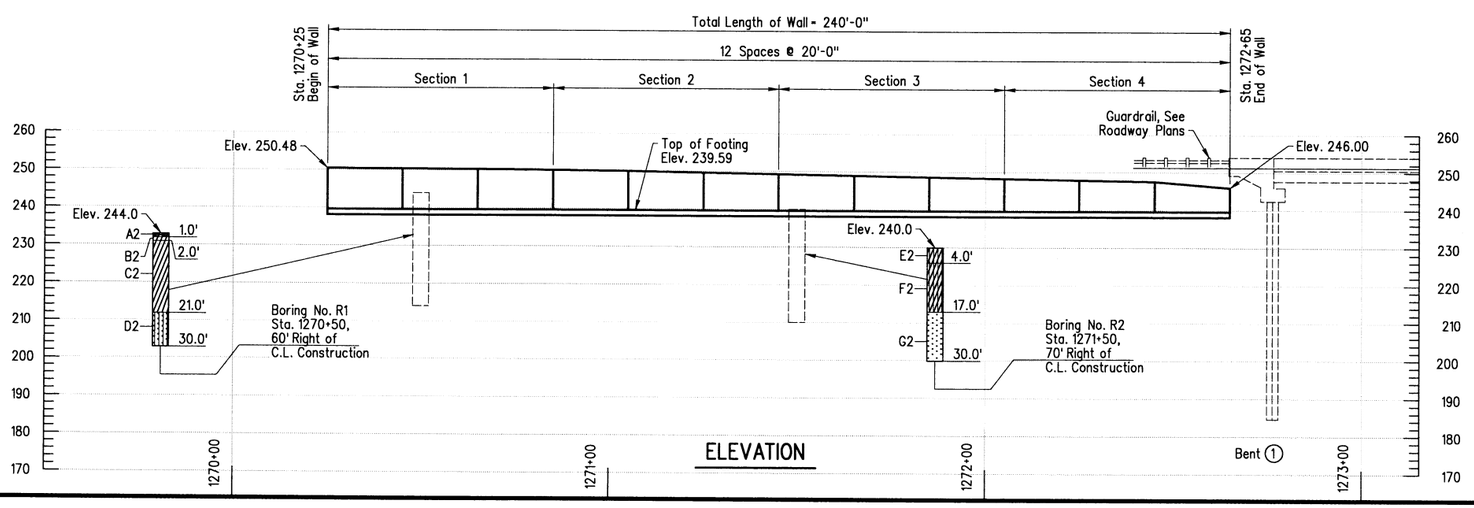
A2 - Medium dense crushed stone, fine sandy clay and silty fine sand (fill).
B2 - Stiff gray and brown clay w/silt pockets (fill).
C2 - Stiff brown and brownish gray clay w/ferrous nodules and stains and organic stains, with fine sand pockets below 6 ft., brownish gray below 8 ft., clayey fine sand layer at 13.5 - 14 ft., firm to stiff below 18 ft.
D2 - Dense brownish gray silty fine sand.
E2 - Stiff grayish brown silty clay w/occasional fine sand pockets and trace fine gravel (fill).
F2 - Stiff gray and brown silty clay w/ferrous stains and nodules, with occasional fine sand pockets below 6 ft., with interbedded fine sand seams and layers below 12 ft.
G2 - Medium dense grayish brown fine sand, slightly silty, with silty clay pockets to 22 ft.

Notes:

Stationing is along C.L. Construction.

Lengths along Retaining Wall are measured along Fill Face of wall.

See Drawing No. 58757, "Elevation" detail for Retaining Wall details not shown.



ELEVATION

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 15927 CHARLES G. WISE 9/12/16

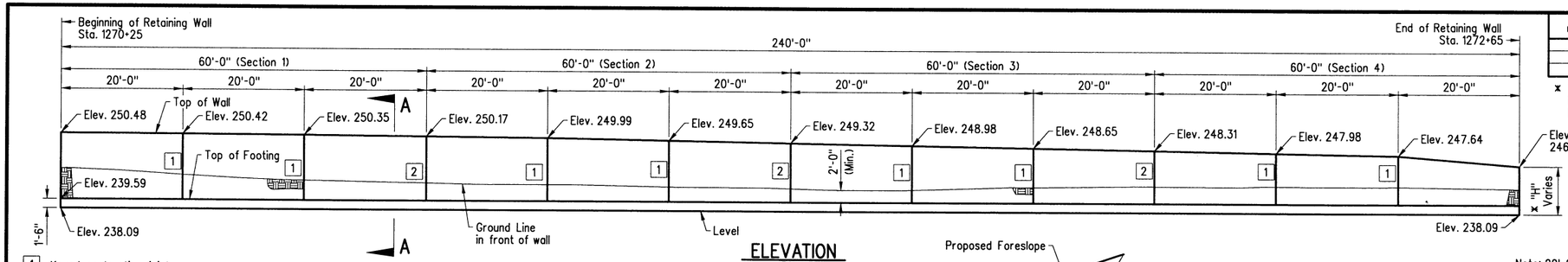
BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 1 OF 6
DETAILS OF REINFORCED CONCRETE RETAINING WALL
STA. 1270+25 TO STA. 1272+65
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 1/14/14
CHECKED BY: CJC DATE: 1/4/16
DESIGNED BY: CMC DATE: 8/10/15
BRIDGE NO.
FILENAME: bca1002x2_rw1.dgn
SCALE: 1" = 20'
DRAWING NO. 58756

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1 Keyed contraction joint

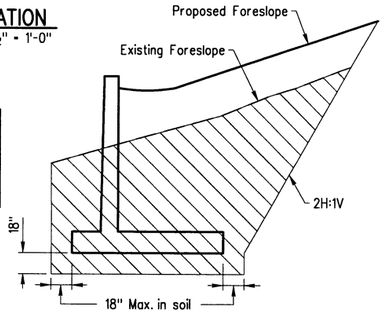
2 Expansion joint

3 With the approval of the Engineer, the Contractor may separate this bar into two bars as shown in "Alternate Shape For Wall Bar".

ELEVATION
Scale: 3/32" = 1'-0"

APPROXIMATE QUANTITIES FOR RETAINING WALL
(For Information Only)

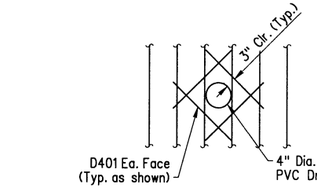
Length of Wall	Reinforcing Steel - Roadway (Gr. 60) (Lbs.)	Class S Concrete - Roadway (Cu. Yds.)	Unclassified Excavation for Structures - Roadway (Cu. Yds.)	Aggregate Base Course (Class 7) (Tons)	Select Granular Backfill (Cu. Yds.)
240'-0"	20,187	220.14	1,955	350	677



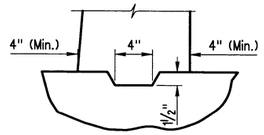
DETAILS OF EXCAVATION
No Scale

Note: Hatched area denotes maximum limits of pay excavation.

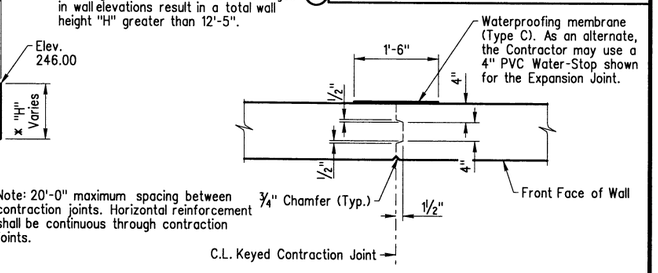
Excavation required for area of Select Granular Backfill will be paid for under the pay item "Unclassified Excavation for Structures - Roadway".



TYPICAL DRAIN PIPE REINFORCING DETAIL
No Scale

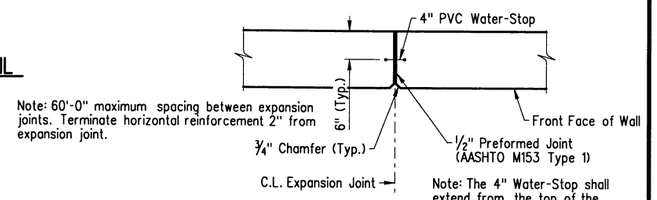


KEYED CONSTRUCTION JOINT DETAIL
No Scale



Note: 20'-0" maximum spacing between contraction joints. Horizontal reinforcement shall be continuous through contraction joints.

TYPICAL KEYED CONTRACTION JOINT DETAIL
Scale: ¾" = 1'-0"



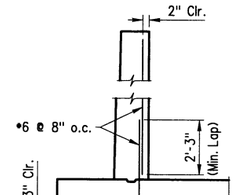
Note: 60'-0" maximum spacing between expansion joints. Terminate horizontal reinforcement 2" from expansion joint.

Note: The 4" Water-Stop shall extend from the top of the wall to the top of the footing.

TYPICAL EXPANSION JOINT DETAIL
Scale: ¾" = 1'-0"

BAR LIST

Mark	No. Req'd.	Length	A	Pin. Dia.	BENDING DIAGRAMS (Dimensions are out to out of bars.)
D401	192	2'-6"		Str.	
W401	40	10'-6"		Str.	
W402	20	10'-4"		Str.	
W403	20	10'-1"		Str.	
W404	7	10'-0"		Str.	
W405	13	9'-10"		Str.	
W406	7	9'-8"		Str.	
W407	13	9'-6"		Str.	
W408	7	9'-4"		Str.	
W409	13	9'-2"		Str.	
W410	7	9'-0"		Str.	
W411	13	8'-10"		Str.	
W412	7	8'-8"		Str.	
W413	13	8'-5"		Str.	
W414	7	8'-4"		Str.	
W415	13	8'-1"		Str.	
W416	7	8'-0"		Str.	
W417	13	7'-9"		Str.	
W418 to W437	1 ea.	7'-8" to 6'-1"		Str.	
W438	84	59'-7"		Str.	
W601	60	12'-9"	11'-10½"	4½"	
W602	30	12'-7"	11'-8½"	4½"	
W603	30	12'-5"	11'-6½"	4½"	
W604	11	12'-3"	11'-4½"	4½"	
W605	19	12'-1"	11'-2½"	4½"	
W606	11	11'-11"	11'-0½"	4½"	
W607	19	11'-9"	10'-10½"	4½"	
W608	11	11'-7"	10'-8½"	4½"	
W609	19	11'-5"	10'-6½"	4½"	
W610	11	11'-3"	10'-4½"	4½"	
W611	19	11'-1"	10'-2½"	4½"	
W612	11	10'-11"	10'-0½"	4½"	
W613	19	10'-8"	9'-9½"	4½"	
W614	11	10'-7"	9'-8½"	4½"	
W615	19	10'-4"	9'-5½"	4½"	
W616	11	10'-3"	9'-4½"	4½"	
W617	19	10'-0"	9'-1½"	4½"	
W618 to W647	1 ea.	10'-0" to 8'-5"	9'-1½" to 7'-6½"	4½"	
F401	360	9'-0"		Str.	
F402	100	49'-6"		Str.	
F501	360	9'-0"		Str.	



ALTERNATE SHAPE FOR WALL BAR
No Scale

GENERAL NOTES:

BENCH MARK: NGS PT B 185, 34.08' right of Sta. 1272+80.60, Elev. 250.25.

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, 2014 Edition, with applicable supplemental specifications and special provisions. Section and Subsection refer to the Standard Construction Specifications unless otherwise noted in the plans.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, Seventh Edition (2014 with interims).

SEISMIC ZONE: 4 PGA = 0.688g SITE CLASS: D

OPERATIONAL IMPORTANCE: Typical Structure

CONCRETE: All concrete shall be Class "S" with a minimum 28 day compressive strength f'c = 3,500 psi. Exposed corners to be chamfered ¾" unless otherwise noted.

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

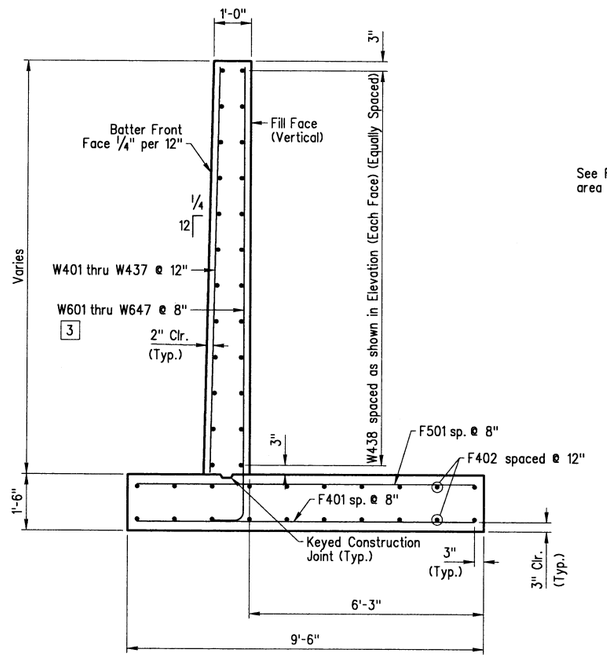
FOOTINGS: Top of footings for retaining walls shall be set 2'-0" below finished ground surface or lower. Footings shall be founded on Class 7 Aggregate Base. Foundations for footings shall be prepared in accordance with Subsection 801.04.

TEXTURED COATING FINISH: All exposed surfaces of the concrete retaining wall shall be given a Class 3 textured coating finish in accordance with Subsection 802.19(3).

BACKFILL: Select Granular Backfill for retaining wall shall be as specified in SP Job CA1002 "Select Granular Backfill".

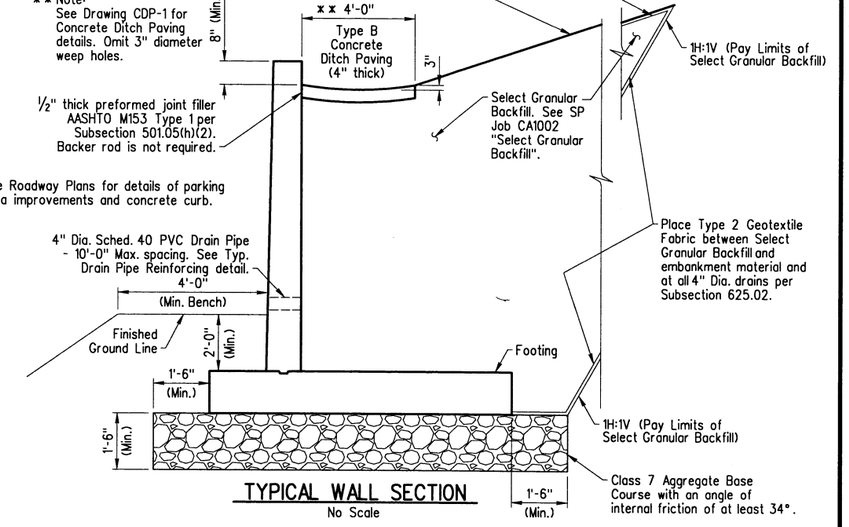
MISC. ITEMS: Geotextile fabric, waterstops, preformed joint filler, water proofing membrane, and drain pipes shall not be paid for directly, but shall be considered subsidiary to other items of the contract. Drainage fill material (Class 3) shall be considered subsidiary to "Select Granular Backfill".

BORING LOGS: Boring logs may be obtained from the Construction Contract Procurement Section of the Program Management Division.



SECTION A-A
Scale: ½" = 1'-0"

x x Note: See Drawing CDP-1 for Concrete Ditch Paving details. Omit 3" diameter weep holes.



TYPICAL WALL SECTION
No Scale

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.		CA1002	204	319
						RETAINING WALL - 58757		

x The Engineer shall be notified if changes in wall elevations result in a total wall height "H" greater than 12'-5".

SHEET 2 OF 6
DETAILS OF REINFORCED CONCRETE RETAINING WALL
STA. 1270+25 TO STA. 1272+65
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 15927 CHARLES G. WISE 9/12/16

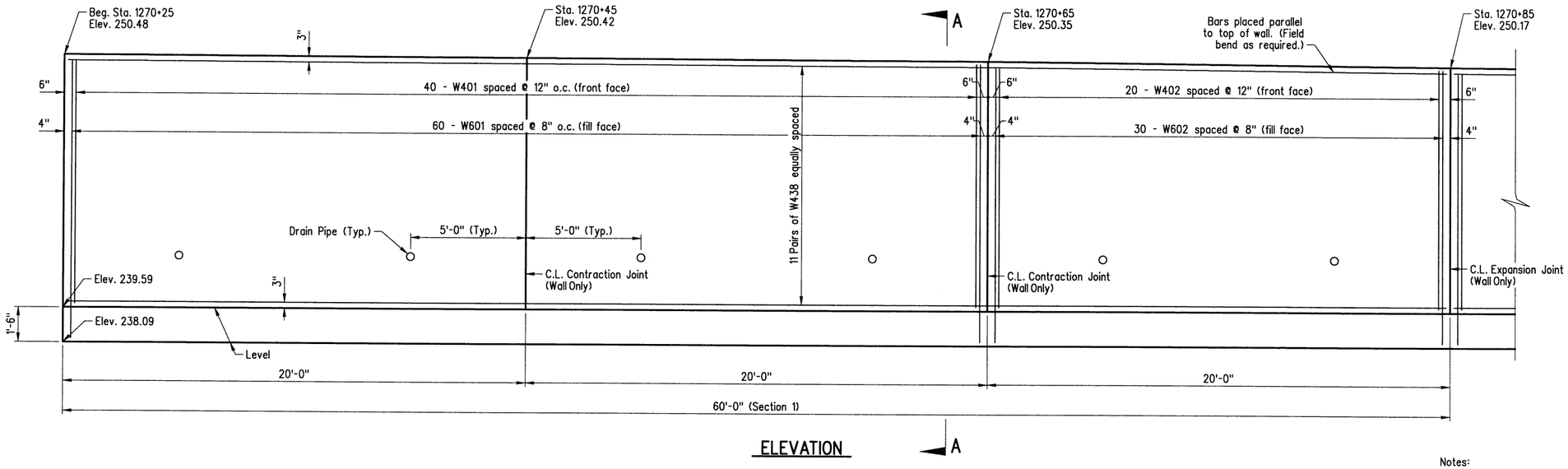
BRIDGE ENGINEER
PRINT DATE: 9/12/2016

DRAWN BY: LHG DATE: 1/14/14
CHECKED BY: CJC DATE: 1/4/16
DESIGNED BY: CMC DATE: 8/10/15
BRIDGE NO.
FILENAME: bca1002x2_rw2.dgn
SCALE: 1" = 20'
DRAWING NO. 58757

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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.		CA1002	205	319
				(1)		RETAINING WALL -		58758



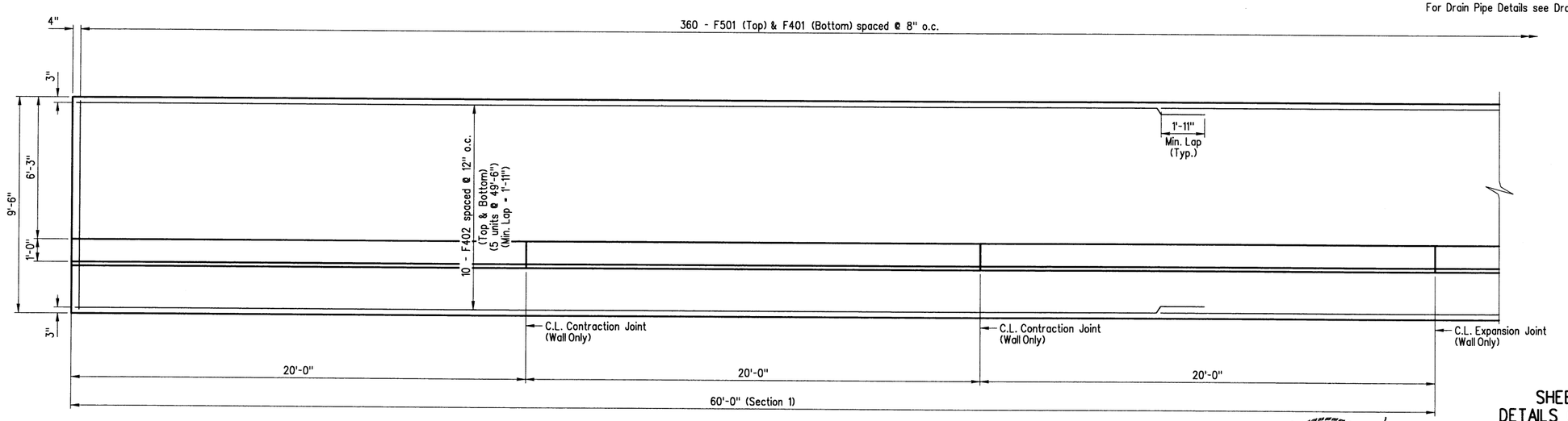
ELEVATION

Notes:
Longitudinal dimensions shown are horizontal along Fill Face of wall.

Contraction Joints and Expansions Joints are to be built vertical.

For Section A-A, see Drawing No. 58757.

For Drain Pipe Details see Drawing No. 58757.



PLAN OF FOOTING SHOWING REINFORCEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15927
CHARLES G. WISE
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 3 OF 6
DETAILS OF REINFORCED CONCRETE RETAINING WALL
STA. 1270+25 TO STA. 1272+65
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

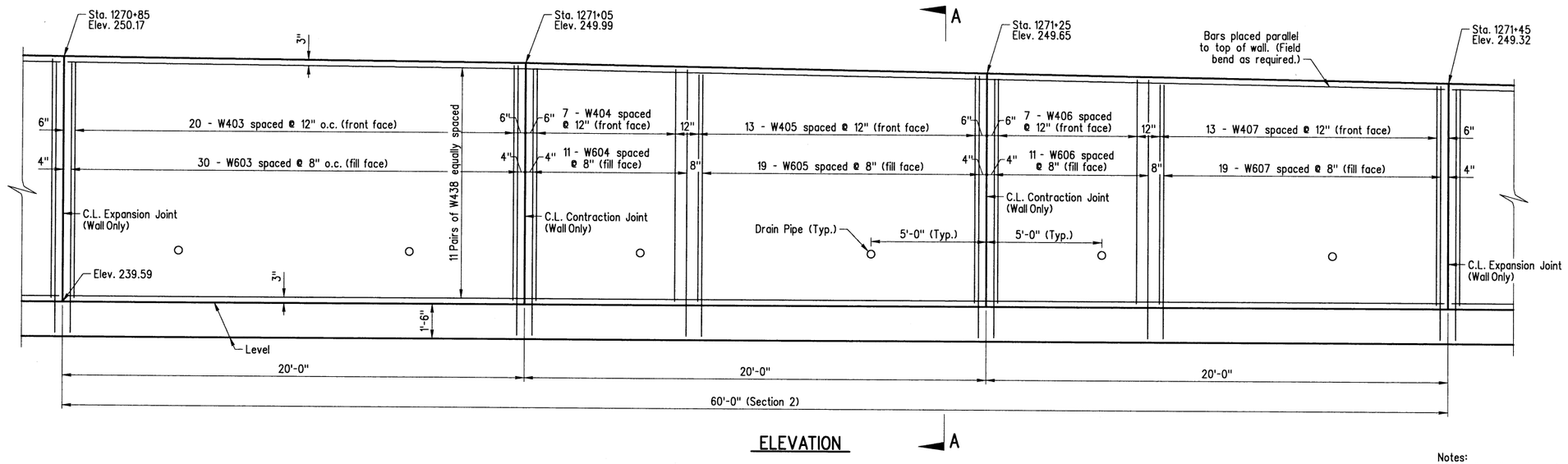
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

DRAWN BY: LHG DATE: 1/4/16
CHECKED BY: CJC DATE: 1/10/16
DESIGNED BY: CMC DATE: 8/10/15
BRIDGE NO.
FILENAME: bca1002x2_rw3.dgn
SCALE: 3/8" = 1'-0"
DRAWING NO. 58758

JACOBS

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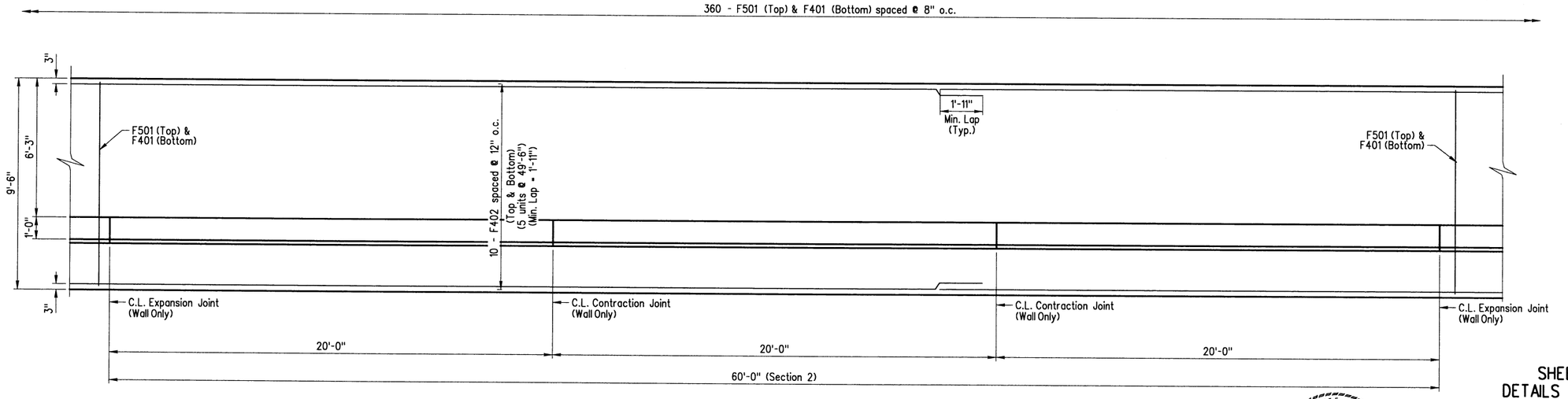
ELEVATION

Notes:
Longitudinal dimensions shown are horizontal along Fill Face of wall.

Contraction Joints and Expansions Joints are to be built vertical.

For Section A-A, see Drawing No. 58757.

For Drain Pipe Details see Drawing No. 58757.



PLAN OF FOOTING SHOWING REINFORCEMENT

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 15927 CHARLES G. WISE 9/14/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 4 OF 6
DETAILS OF REINFORCED CONCRETE RETAINING WALL
STA. 1270+25 TO STA. 1272+65
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

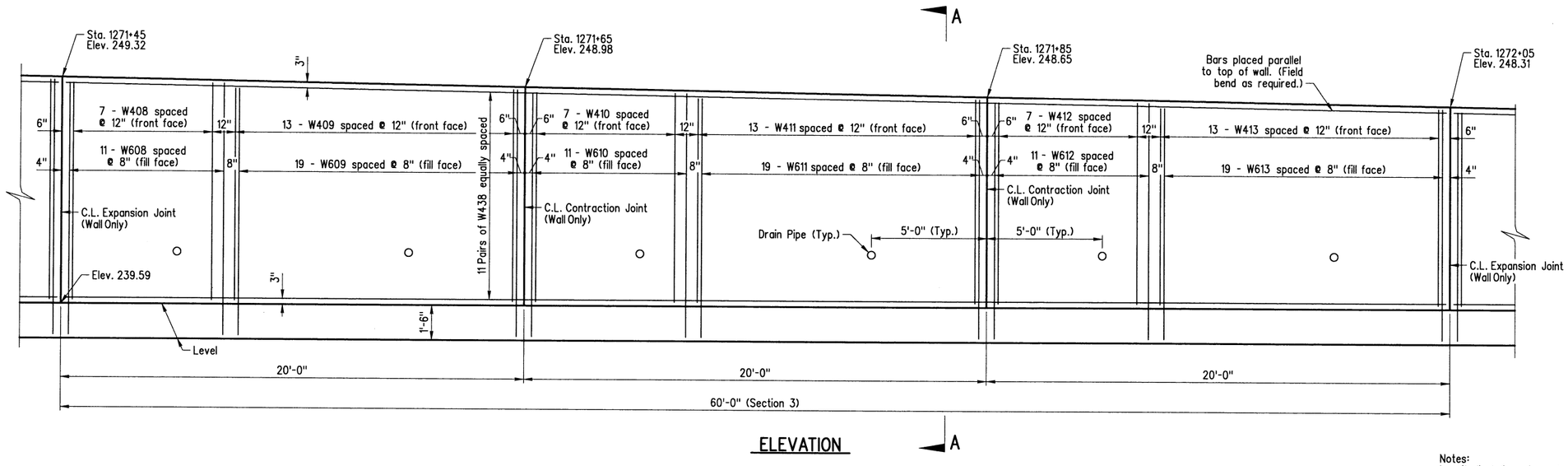
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DESIGNED BY: CMC DATE: 8/10/15
BRIDGE NO.
FILENAME: bca1002x2_rw4.dgn
SCALE: 3/8" - 1'-0"
DRAWING NO. 58759

JACOBS

T:\Jobs\WLXM2660 AHTD CAP CA1002\700 CADD Files\709 Structural Files\Drawings\Site 2 - Big Lake Outlet\bca1002x2_rw4.dgn
9/12/2016 10:51:00 AM

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.		CA1002	207	319
1	RETAINING WALL -			58760



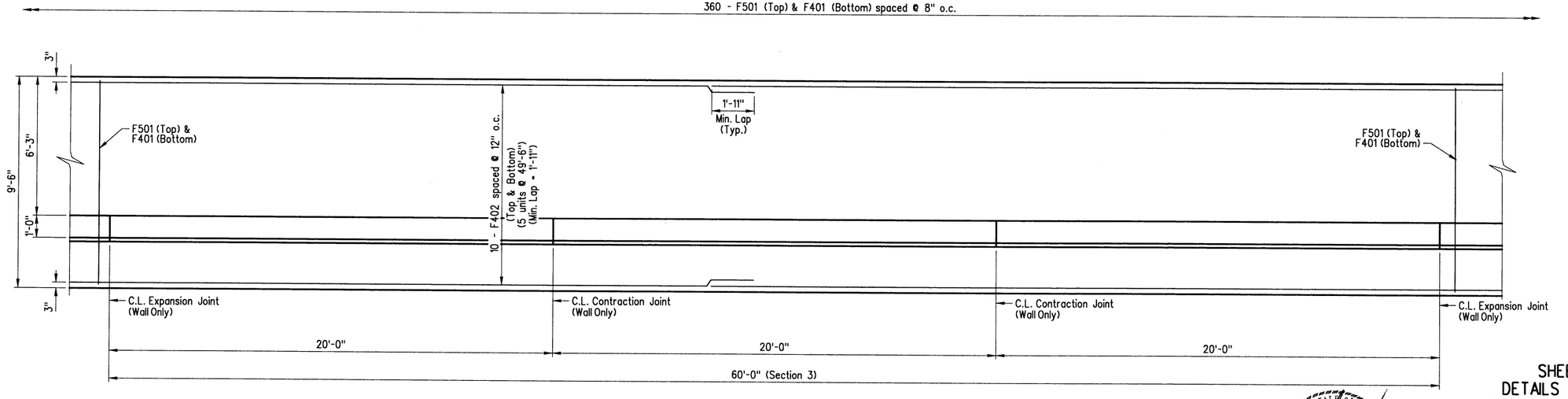
ELEVATION

Notes:
Longitudinal dimensions shown are horizontal along Fill Face of wall.

Contraction Joints and Expansions Joints are to be built vertical.

For Section A-A, see Drawing No. 58757.

For Drain Pipe Details see Drawing No. 58757.



PLAN OF FOOTING SHOWING REINFORCEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15927
CHARLES G. WISE
9/12/16

BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 5 OF 6
DETAILS OF REINFORCED CONCRETE RETAINING WALL
STA. 1270+25 TO STA. 1272+65
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

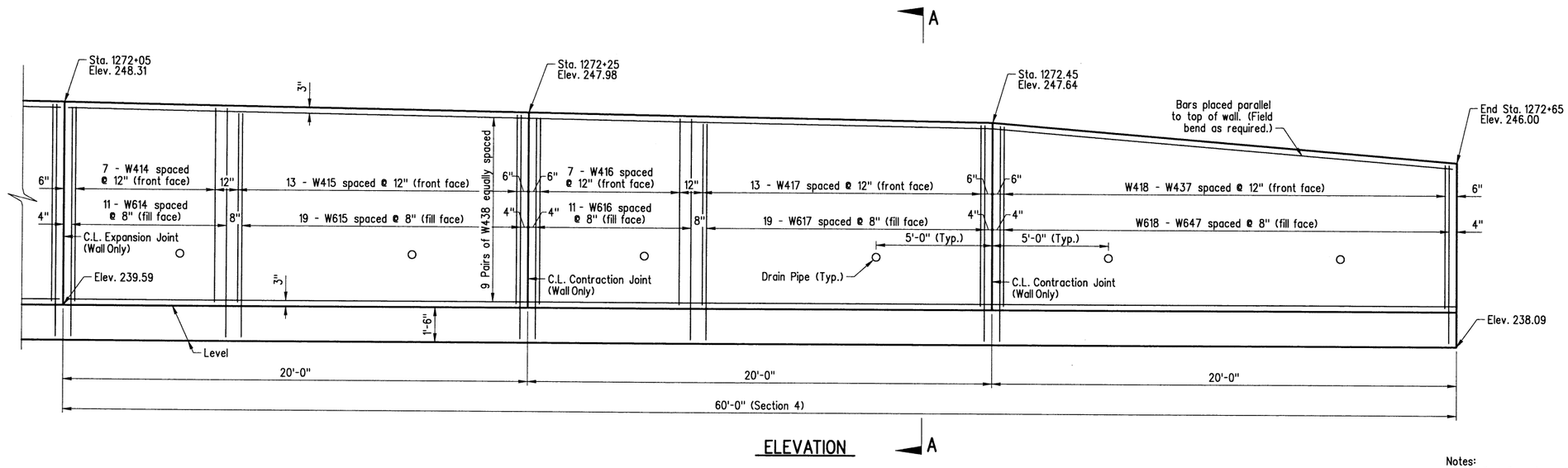
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BRIDGE NO.			

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DRAWING NO. 58760

JACOBS

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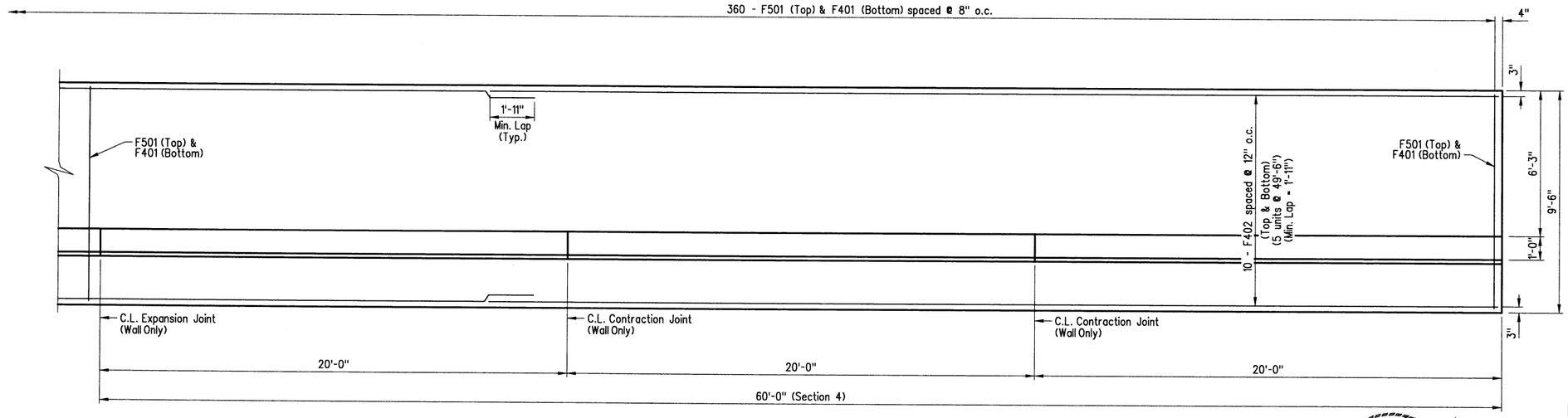
ELEVATION

Notes:
Longitudinal dimensions shown are horizontal along Fill Face of wall.

Contraction Joints and Expansions Joints are to be built vertical.

For Section A-A, see Drawing No. 58757.

For Drain Pipe Details see Drawing No. 58757.



PLAN OF FOOTING SHOWING REINFORCEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15927
CHARLES G. WISE
BRIDGE ENGINEER
PRINT DATE: 9/12/2016

SHEET 6 OF 6
DETAILS OF REINFORCED CONCRETE RETAINING WALL
STA. 1270+25 TO STA. 1272+65
MISSISSIPPI COUNTY
ROUTE 18 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARKANSAS

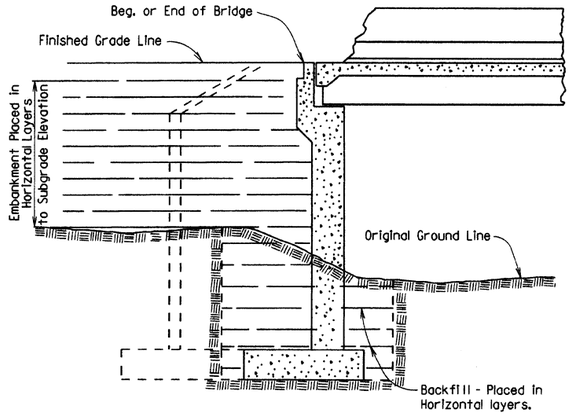
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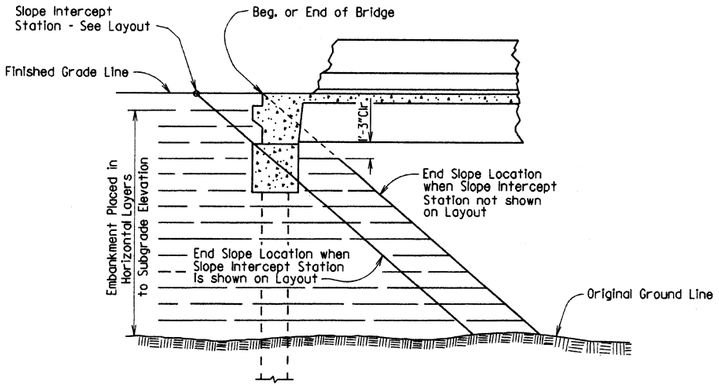
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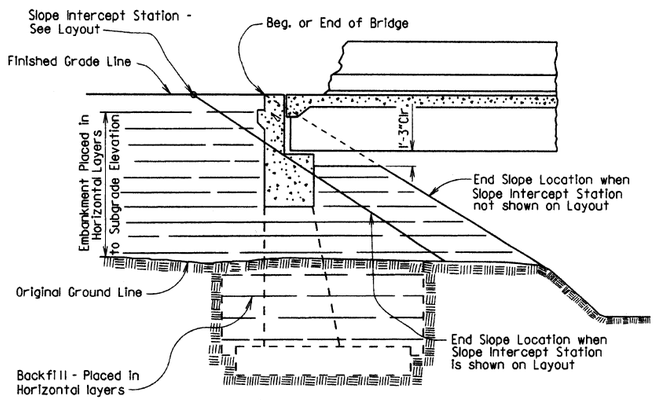
(1) EMBANKMENT & BACKFILL 55000



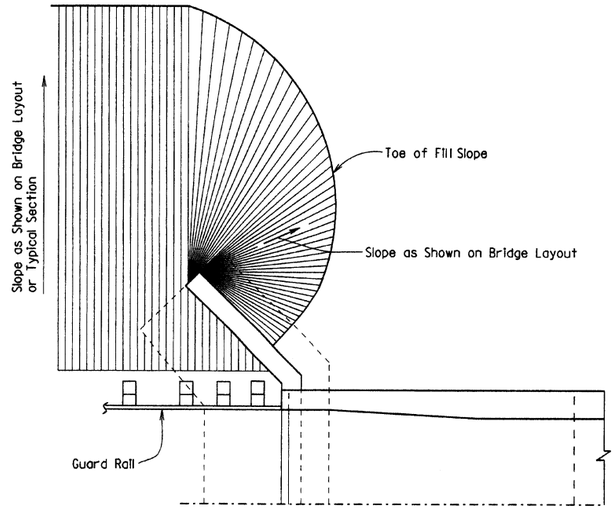
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



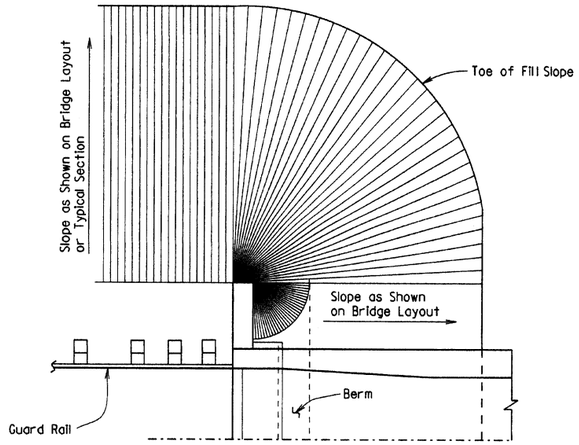
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



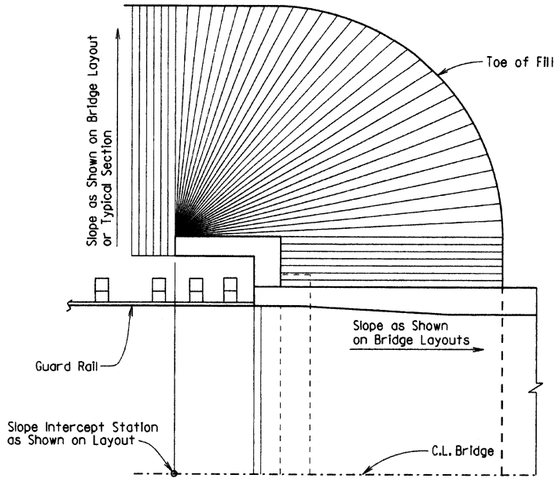
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



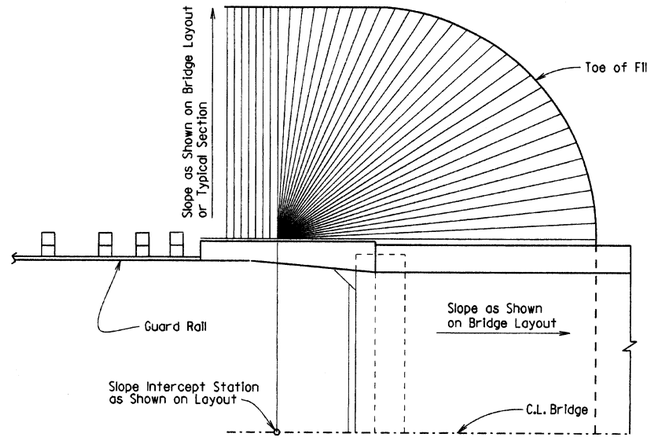
VERTICAL WALL ABUTMENTS



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 6 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 for construction requirements.

STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

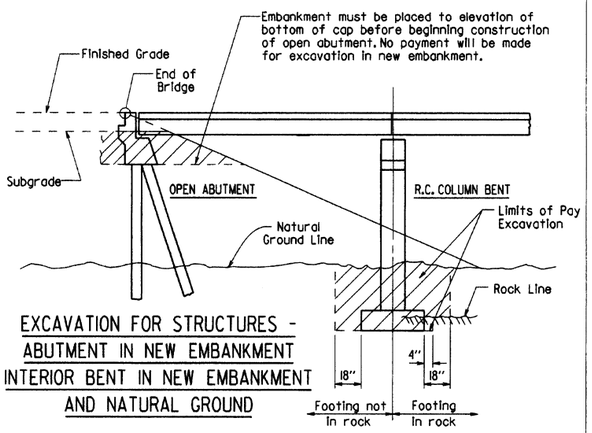
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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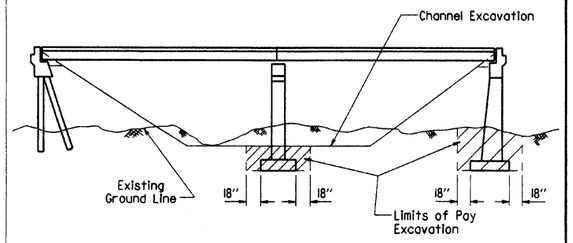
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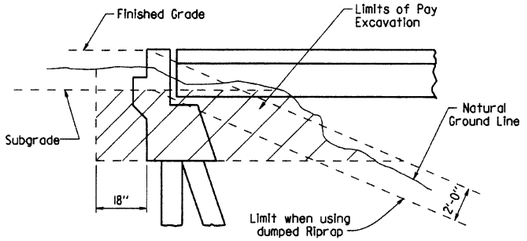
(1) RIPRAP & EXCAV. 55001



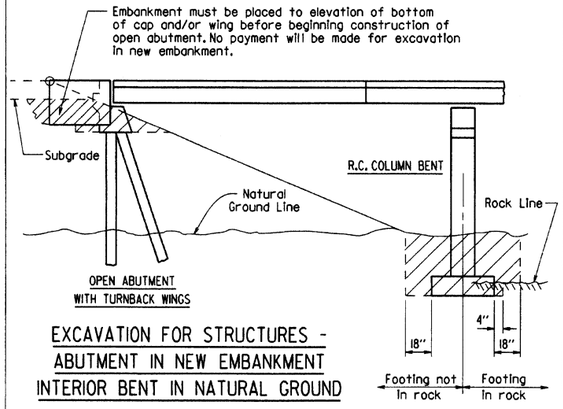
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



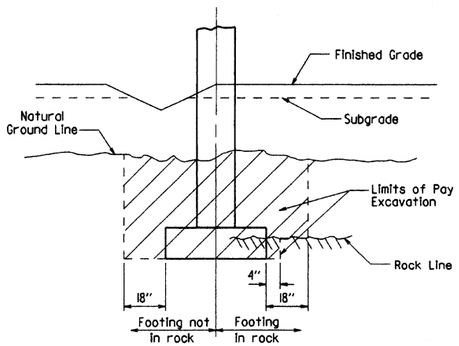
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



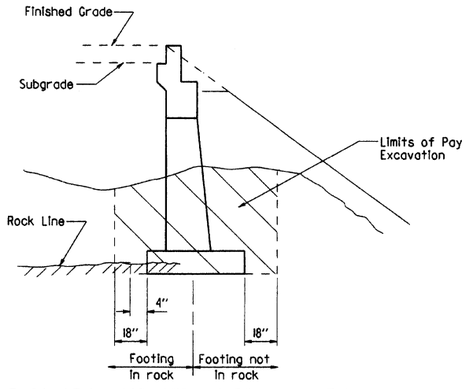
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



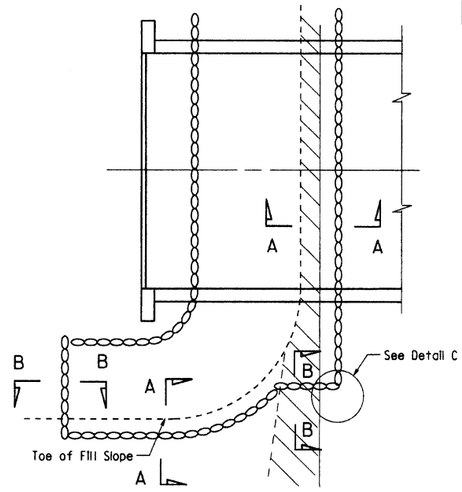
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



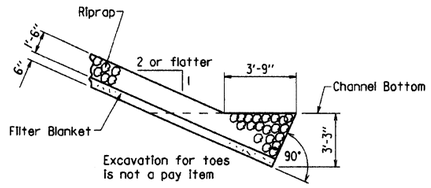
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT

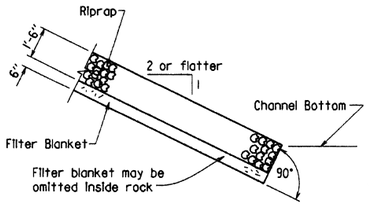


PLAN OF DUMPED RIPRAP



SECTION A-A

(Toe Excavation in Soil)



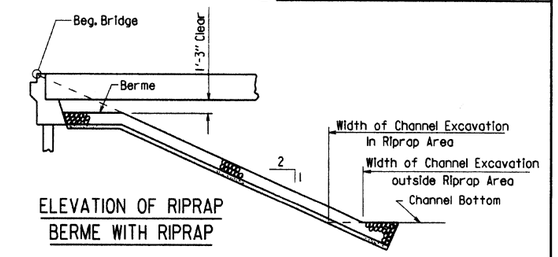
SECTION A-A

(Toe Excavation in Rock)

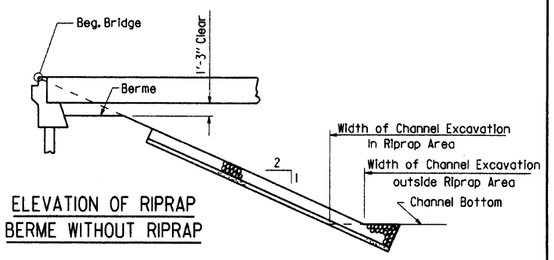
Note : Use this type of toe when rock is encountered which is in a stable condition.

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.

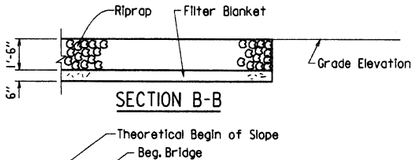
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



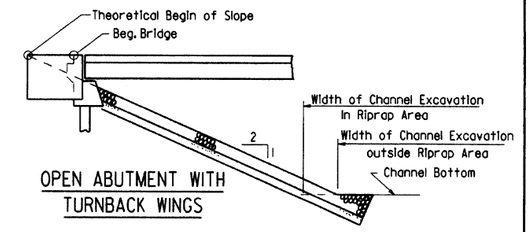
ELEVATION OF RIPRAP BERME WITH RIPRAP



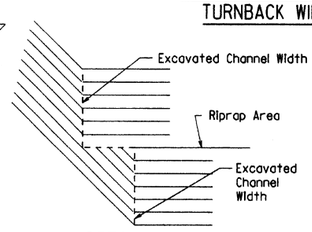
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



SECTION B-B



OPEN ABUTMENT WITH TURNBACK WINGS



DETAIL C

STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

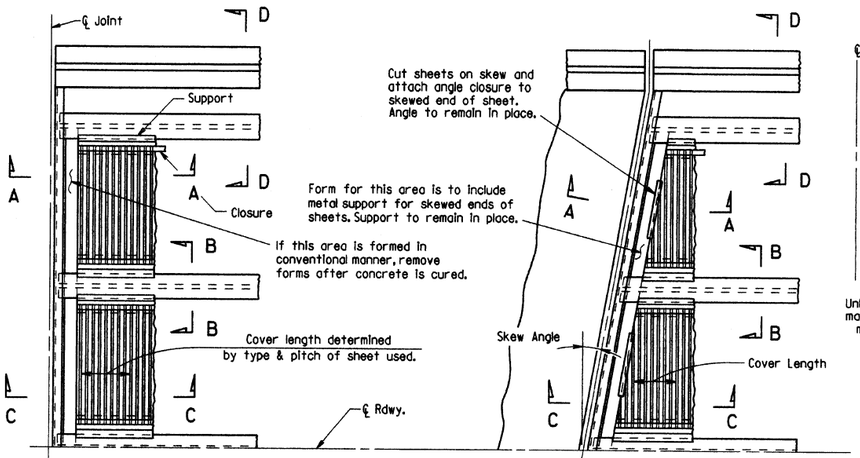
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DESIGNED BY: STD. DATE:

DRAWING NO. 55001

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3/24/16				6	ARK.		211	
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①	BRIDGE DECK FORMS			55005				

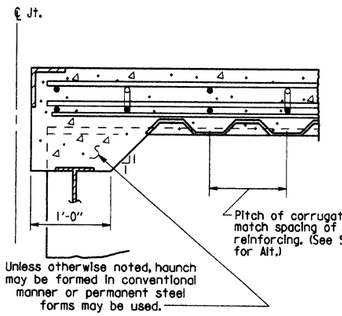


PART PLAN - SQUARE SPAN

⅜" = 1'-0"

PART PLAN - SKEWED SPAN

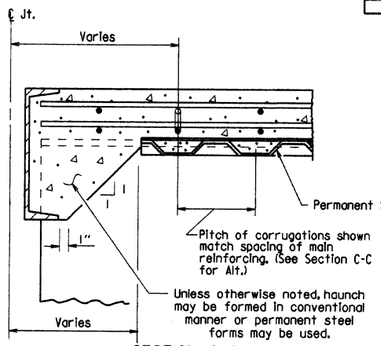
⅜" = 1'-0"



SECTION A-A

N.T.S.

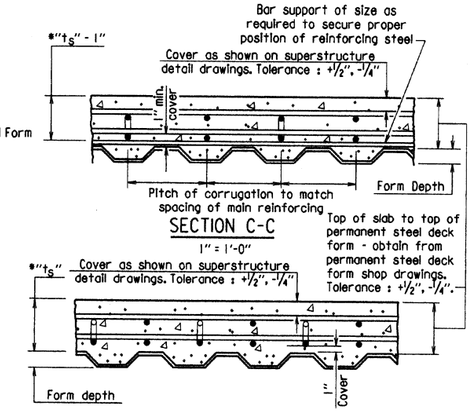
(Angle at end of span)



SECTION A-A

N.T.S.

(Channel at end of span)



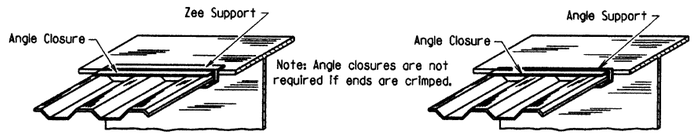
SECTION C-C

1" = 1'-0"

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). Detailed plans, including detailed calculations and manufacturer's technical brochure, shall be submitted to and approved by the 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 Engineer.

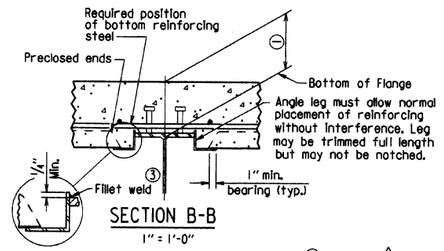
Form sheets shall be fastened to supporting members and to each other with galvanized metal screws sufficient in size and number to provide a secure attachment. Alternate methods of attachment must be approved by the Engineer.

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.

Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition), with applicable Supplemental Specifications and Special Provisions.

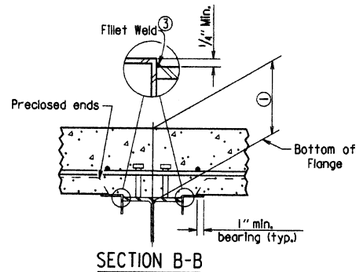


SECTION B-B

1" = 1'-0"

(Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)

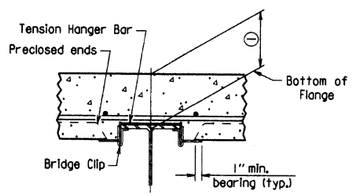
③ Minimum weld: ⅛" x 1" @ 18". More weld may be required; maximum length per weld = 1½" (typ.)



SECTION B-B

1" = 1'-0"

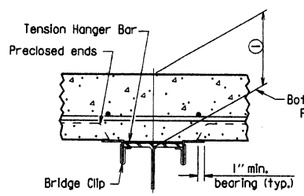
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



SECTION B-B

1" = 1'-0"

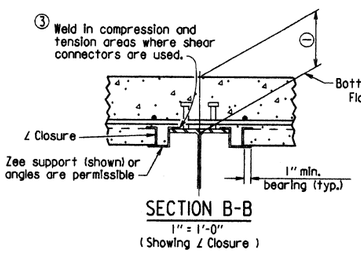
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

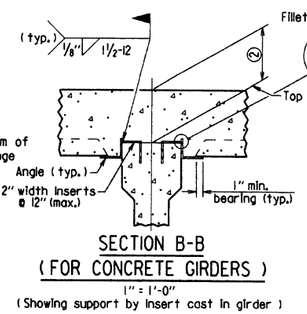
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

(Showing ∠ Closure)

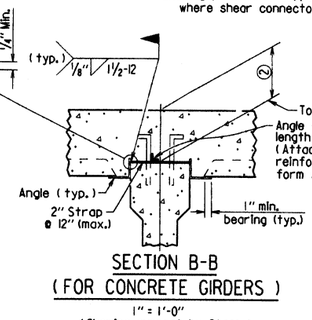


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by insert cast in girder)

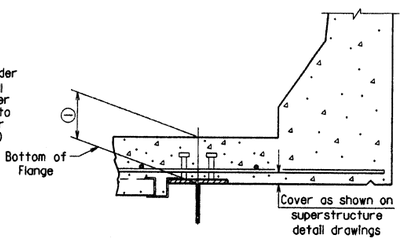


SECTION B-B

(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 + 1¾" + 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.

⚠ Revised weld dimension by KWY. Ck'd. by BEF, 3/24/16.

STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55005.dgn

CHECKED BY: BEF DATE: 2-27-2014 SCALE: NONE

DESIGNED BY: STD. DATE: —

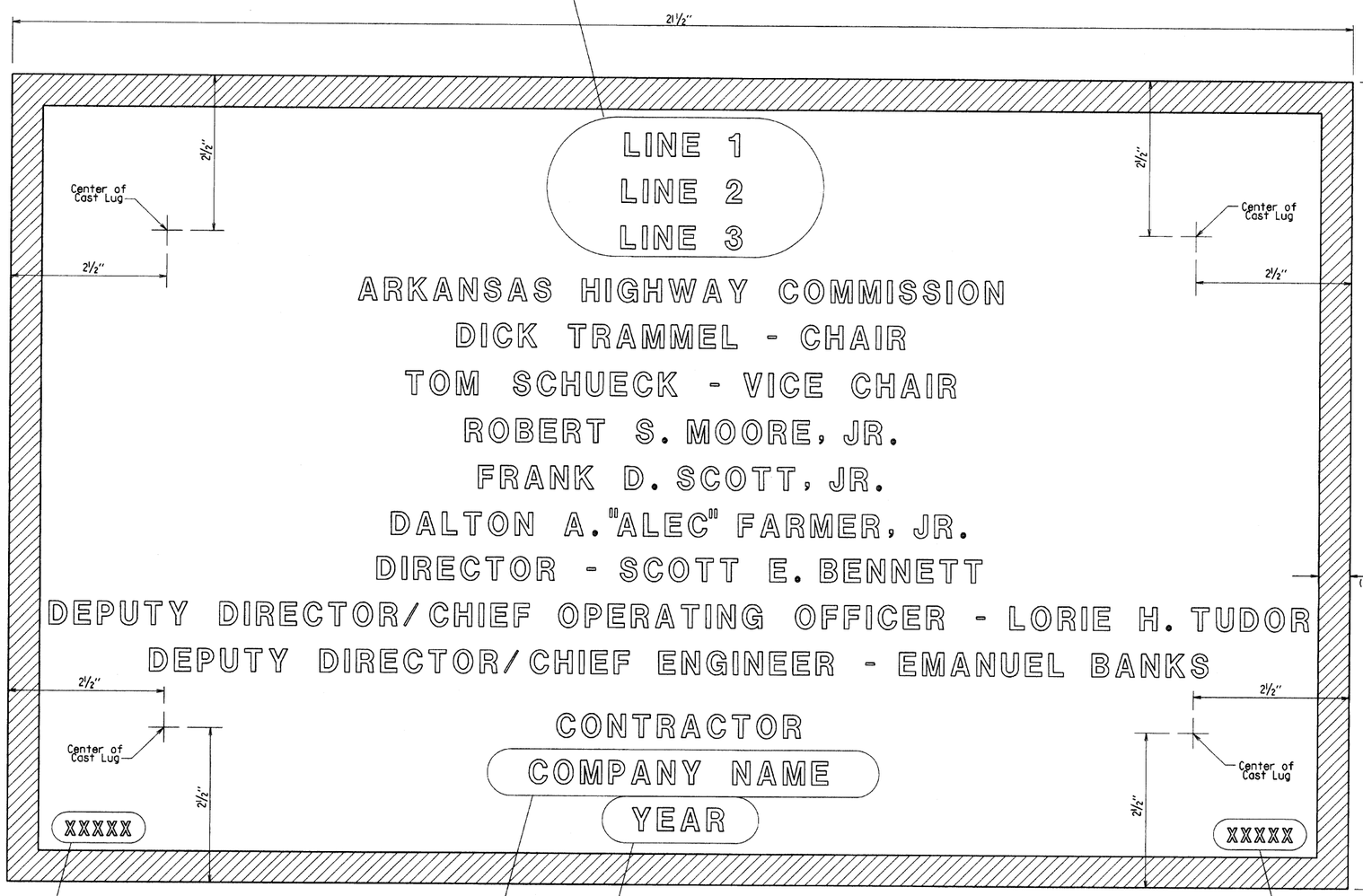
DRAWING NO. 55005

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
12-1-14				6	ARK.		212	
1-14-15				JOB NO.				

(1) TYPE D NAME PLATE 55010

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	



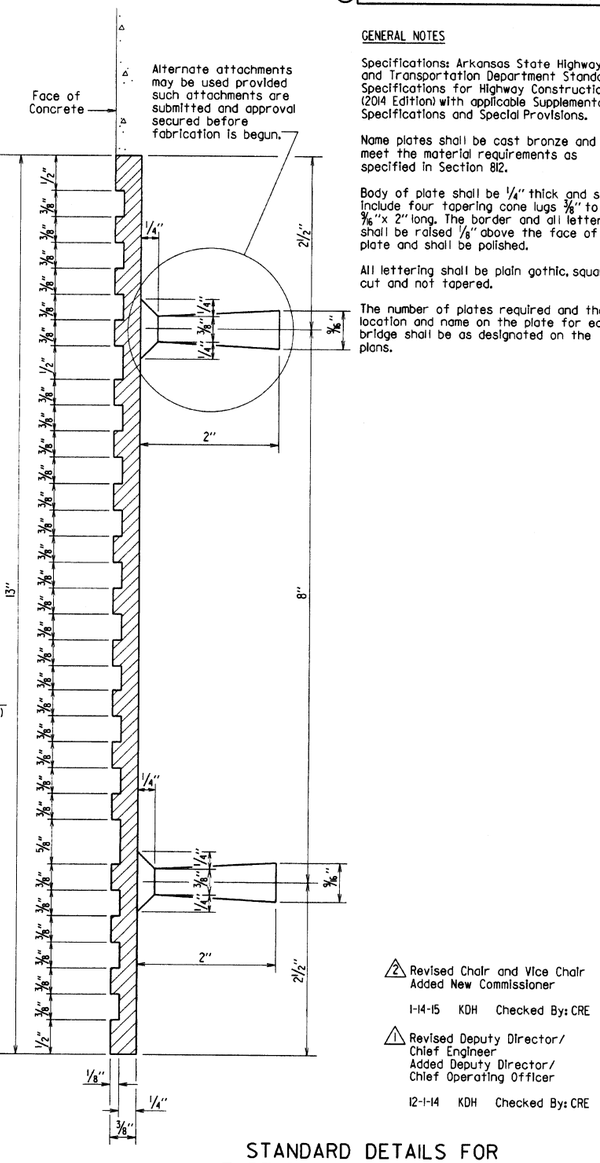
Place the design live loading here using 1/8" raised letters and numerals 1/4" high. Examples : HS 20
HL-93

Place the name of the company awarded the construction contract here using 1/8" raised letters and numerals 3/8" high. Example : ABCD CONSTRUCTION, INC.

Place the Year in which Contract was awarded here using 1/8" raised numerals 3/8" high. Example : 2001

Place the Bridge number here using 1/8" raised letters and numerals 1/4" high. Examples : A1234
05432

TYPICAL BRIDGE NAME PLATE



GENERAL NOTES

Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, (2014 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.

Body of plate shall be 1/4" thick and shall include four tapering cone lugs 3/8" to 3/16" 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.

(2) Revised Chair and Vice Chair Added New Commissioner
1-14-15 KDH Checked By: CRE

(1) Revised Deputy Director/ Chief Engineer Added Deputy Director/ Chief Operating Officer
12-1-14 KDH Checked By: CRE

STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

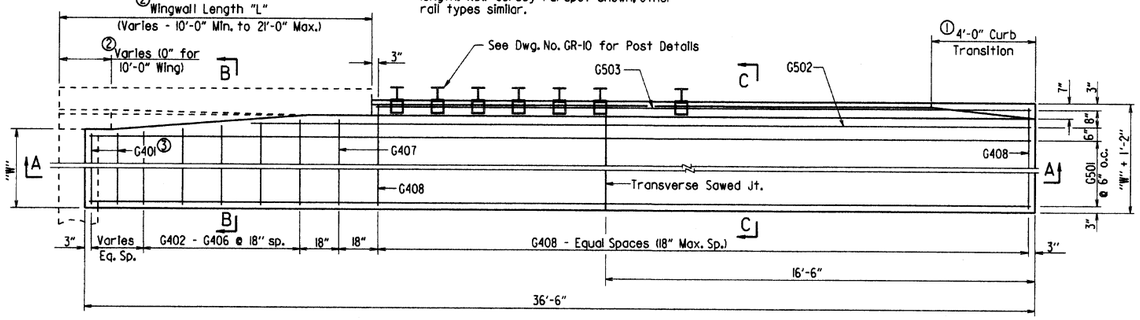
DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55010.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: —

DRAWING NO. 55010

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		213	
				JOB NO.				

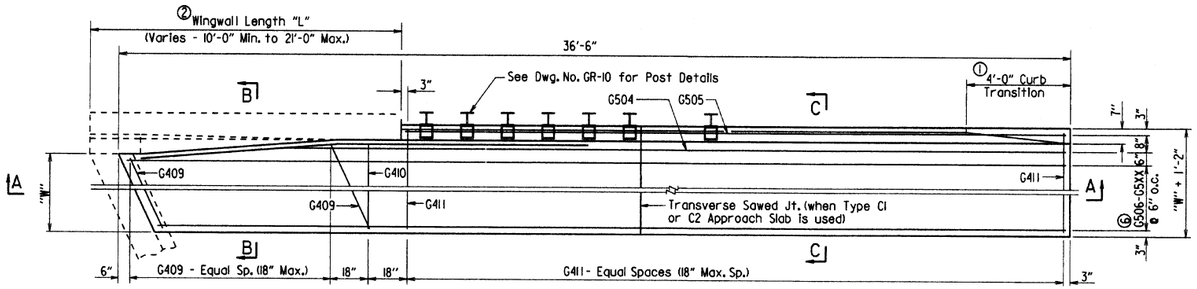
① TYPE C GUTTERS 55030C

② See End Bent Details for actual wingwall length. New Jersey Parapet shown, other rail types similar.

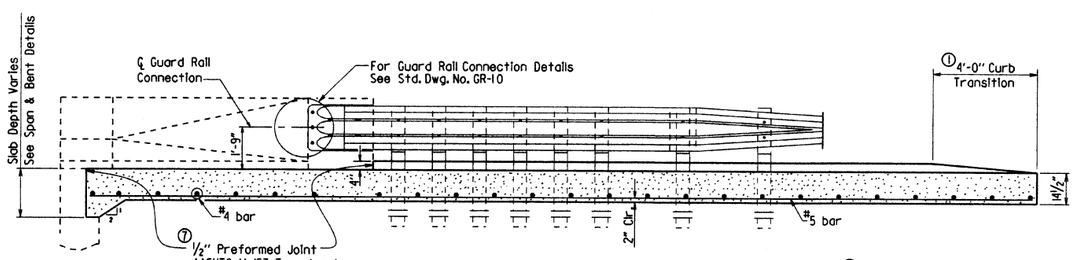


③ Provide G401 bars @ 18" max. spacing. Number of G401 bars vary with wingwall length. No G401 bars required for 10'-0" wingwalls.

HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE



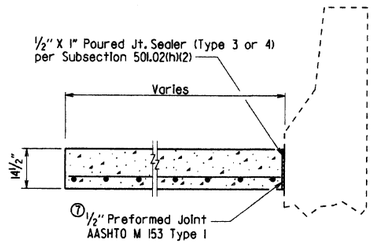
PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE



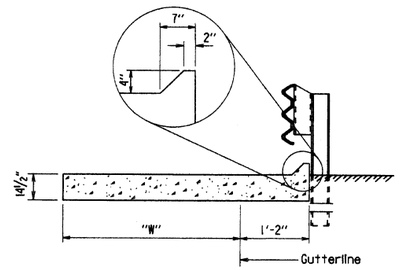
SECTION A-A

① Construct gutter curb with height-transition as shown if drop inlet is not placed at end of gutter.

Construct gutter curb full height (no height-transition) if drop inlet is placed at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.



SECTION B-B
N.T.S.



SECTION C-C
N.T.S.

Note:
All longitudinal lines within the limits of horizontal curves shall be on curves concentric to C.L. Bridge. Adjustment to longitudinal bar lengths may be required. Transverse reinforcing shall be placed on radial lines to C.L. Bridge.

⑦ Eliminate Type I Preformed Joint at end bent backwall and at face of wingwalls when gutters used with Type C2 Approach Slabs. Poured joint sealer is required, however backer rod shall be eliminated.

BAR LIST FOR ONE TYPE C GUTTER

	Mark	No. Req'd. for Width "W" 4'-0"	6'-0"	8'-0"	10'-0"	Length
Square Bridge	G401	④	④	④	④	"W" - 4"
	G402-G406	1 each	1 each	1 each	1 each	"W"-3" to "W"+2"
	G407	1	1	1	1	"W"+3"
	G408	④	④	④	④	"W"+ 10"
	G501	8	12	16	20	36'-2"
	G502	1	1	1	1	(41'-1") - "L"
	G503	1	1	1	1	(37'-2") - "L"
Skewed Bridge	G409	④	④	④	④	⑤
	G410	1	1	1	1	"W"+3"
	G411	④	④	④	④	"W"+ 10"
	G504	1	1	1	1	⑤
	G505	1	1	1	1	⑤
	G506 - G5XX ⑥	1 each	1 each	1 each	1 each	⑤

④ No. Req'd. varies with Skew and Wingwall Length.

⑤ Bar Lengths vary with Skew and Wingwall Length.

⑥ G513 for "W" = 4'
G517 for "W" = 6'
G521 for "W" = 8'
G525 for "W" = 10'

QUANTITIES FOR ONE SQUARE APPROACH GUTTER

(FOR INFORMATION ONLY)

"W" Width (ft.)	Reinforcing Steel (Lbs.)	Concrete (Cu. Yds.)
4	445	8.30
6	630	11.55
8	810	14.80
10	995	18.10

Quantities are based on "L" = 10'-0".

GENERAL NOTES

All concrete shall be Class S or Class S(AE) or mixture used for Portland Cement Concrete Pavement and shall be poured in the dry.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

Approach Gutters will be measured and paid for in accordance with Section 504.

STANDARD DETAILS FOR TYPE C APPROACH GUTTERS

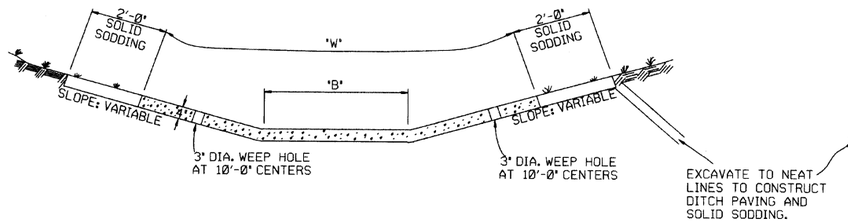
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55030c.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: 3/8" = 1'-0" or As Shown
DESIGNED BY: STD. DATE:

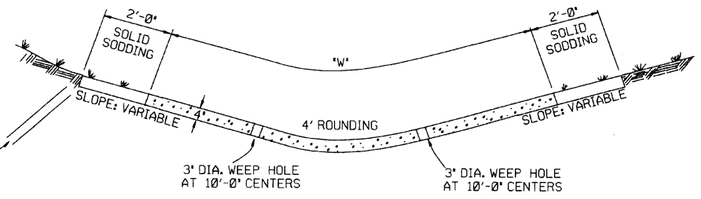
DRAWING NO. 55030C

REFER TO TABULATION OF QUANTITIES FOR 'W' & 'B' DIMENSIONS



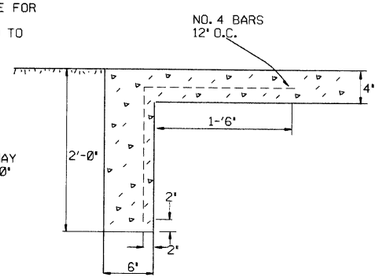
TYPE A

REFER TO TABULATION OF QUANTITIES FOR 'W' DIMENSIONS



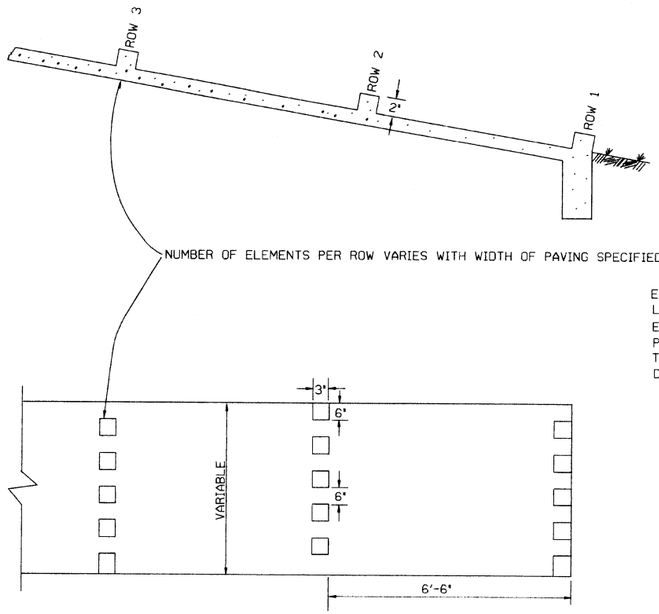
TYPE B

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.

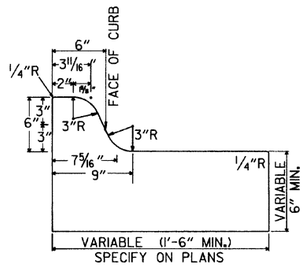
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

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

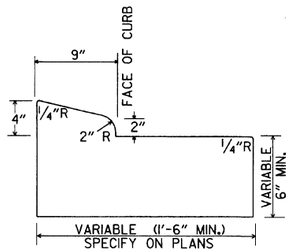
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

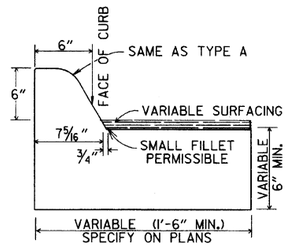
STANDARD DRAWING CDP-1



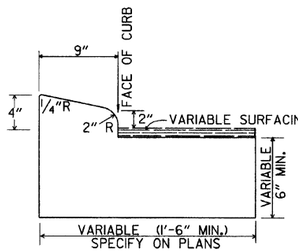
TYPE A



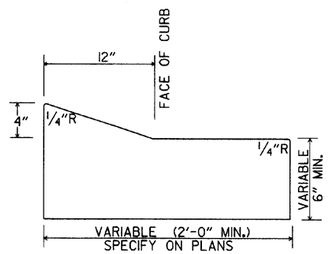
TYPE B-1



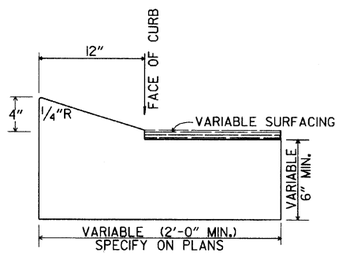
TYPE C



TYPE B-2

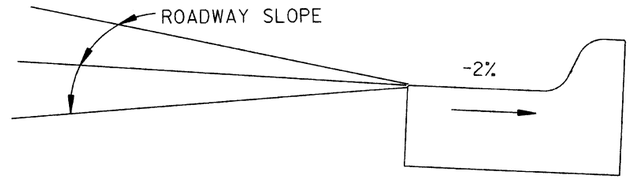


TYPE E-1



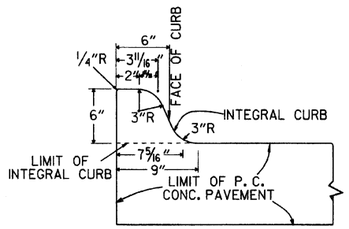
TYPE E-2

CONCRETE COMBINATION CURB AND GUTTER

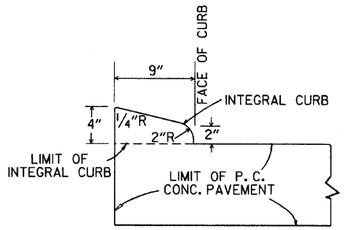


DETAIL OF GUTTER SLOPE

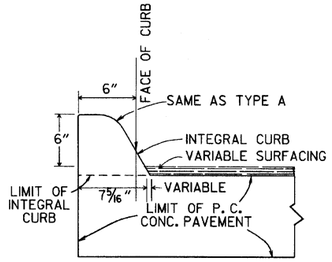
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



TYPE A

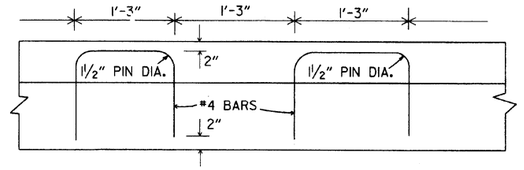


TYPE B

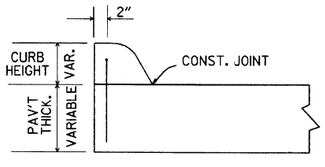


TYPE C

INTEGRAL CURB

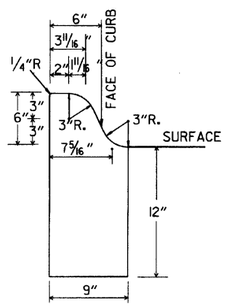


LONGITUDINAL SECTION

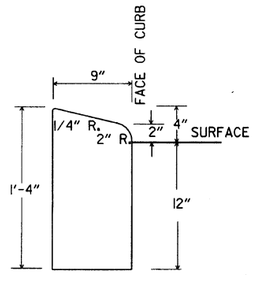


ELEVATION

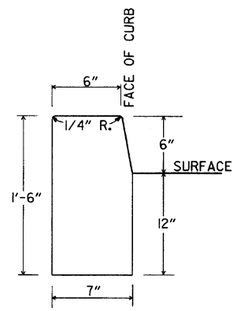
ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



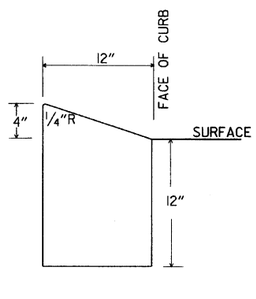
TYPE A



TYPE B

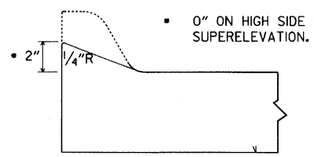


TYPE D



TYPE E

CONCRETE CURB



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

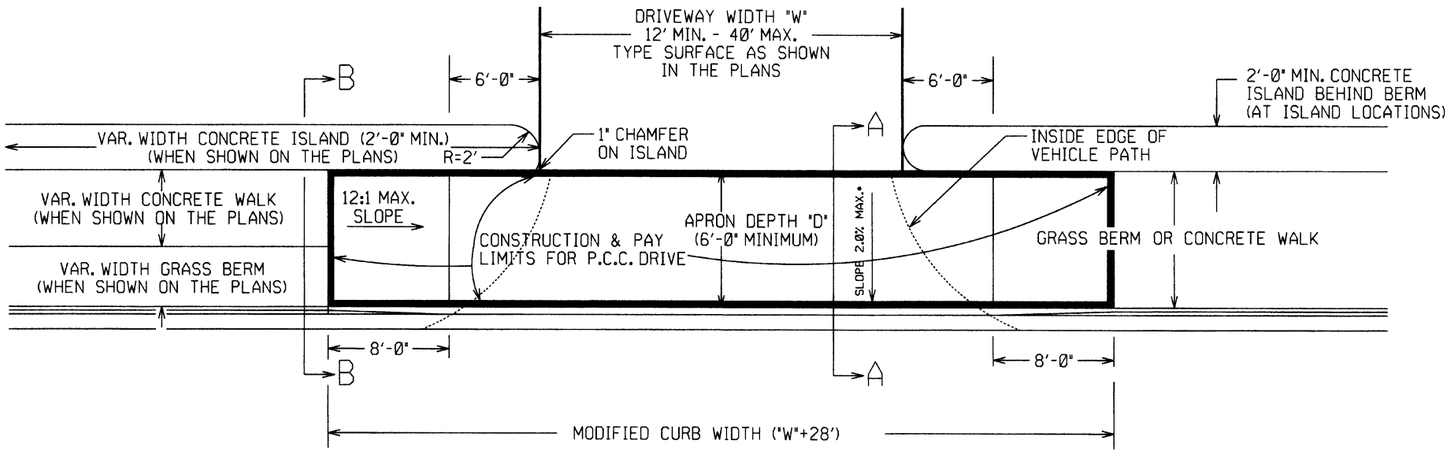
DETAILS OF MODIFIED CURB

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

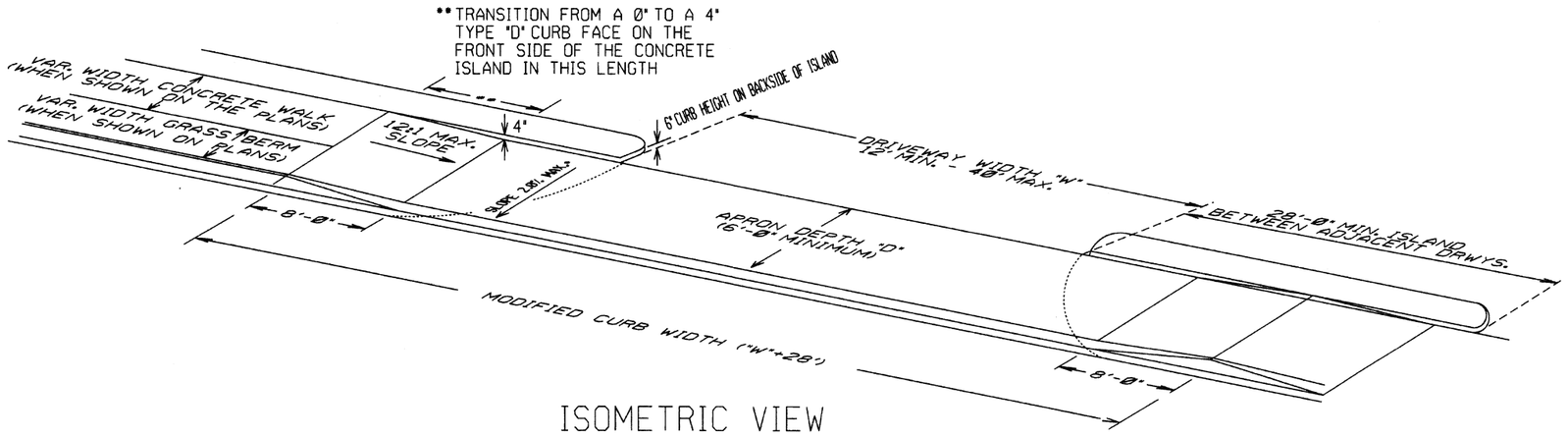
ARKANSAS STATE HIGHWAY COMMISSION

CURBING DETAILS

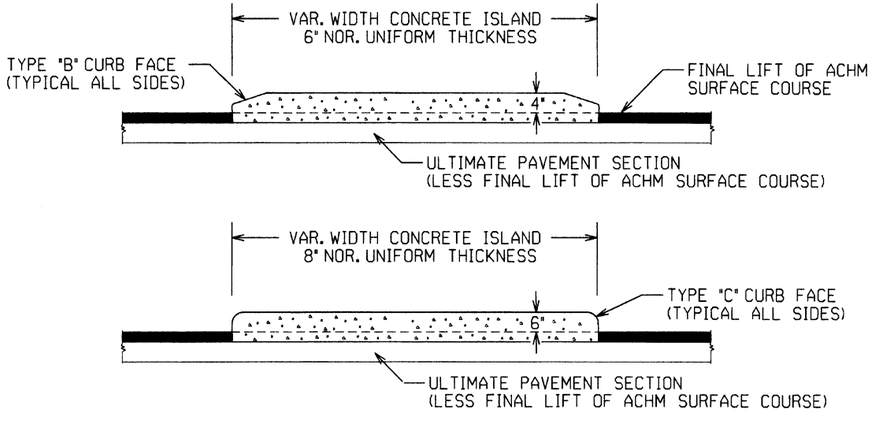
STANDARD DRAWING CG-1



PLAN VIEW

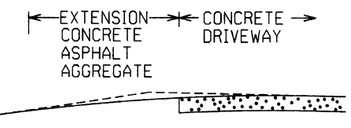


ISOMETRIC VIEW



CURBED ISLANDS FOR CHANNELIZATION

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



EXTENSION TYPICAL SECTIONS

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

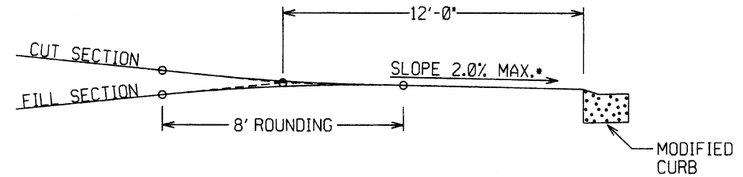
2: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
4" ACHM BINDER COURSE.(1") OR
4" ACHM BASE COURSE (1-1/2")

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

4: AGGREGATE - 6" AGGREGATE BASE COURSE

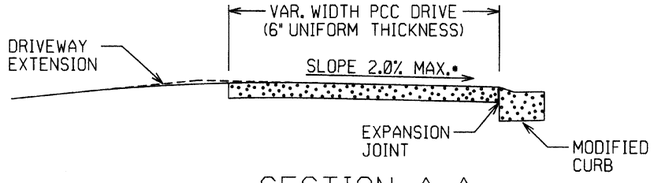
THE TYPE OF EXTENSION SHALL BE AS SHOWN IN THE PLANS. THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER, SUBSTITUTE A LOWER NUMBERED TYPE OF EXTENSION IN LIEU OF THE TYPE SPECIFIED IN THE PLANS, BUT AT NO ADDITIONAL COST TO THE DEPARTMENT.

DRIVEWAY EXTENSION DETAILS

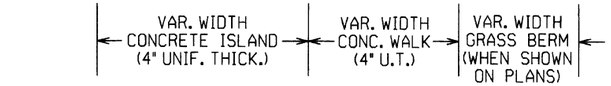


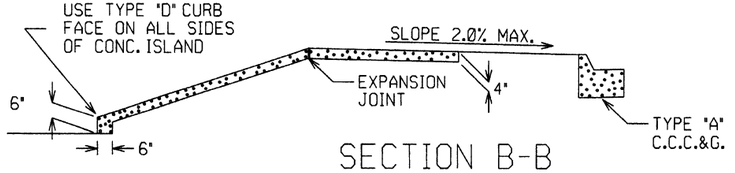
DRIVEWAY VERTICAL ALIGNMENT DETAILS

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



SECTION A-A

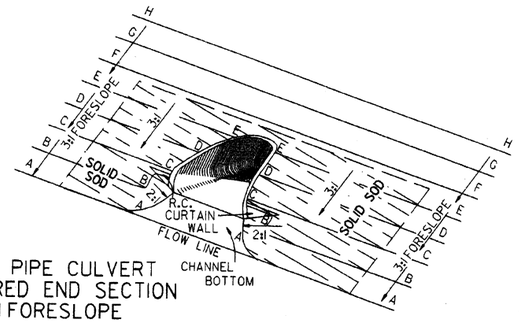




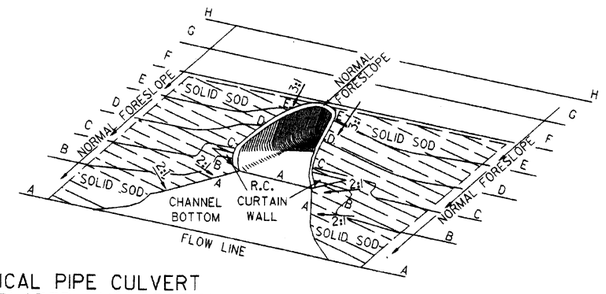
SECTION B-B
CURBED ISLAND BEHIND WALK

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

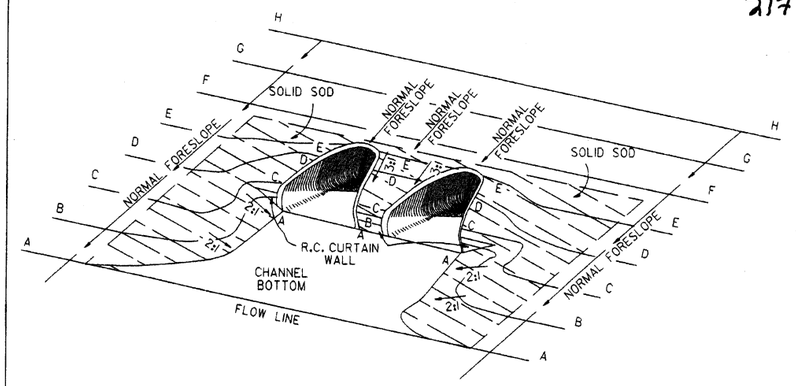
ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF DRIVEWAYS & ISLANDS
STANDARD DRAWING DR-1



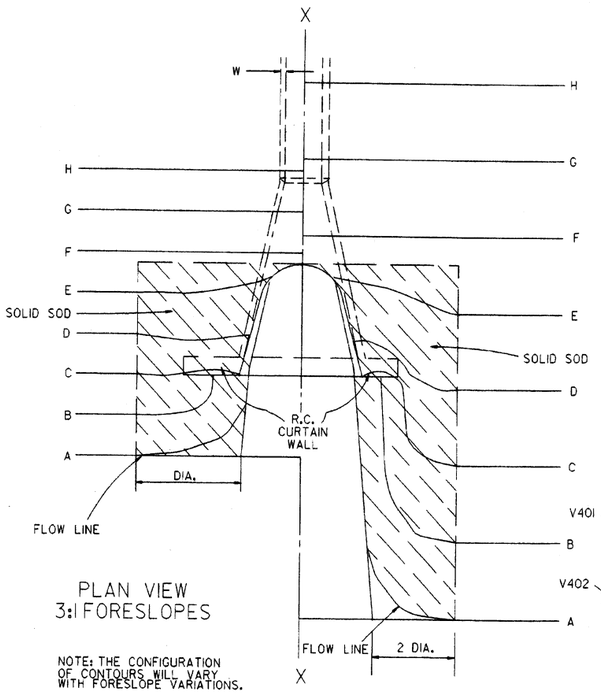
TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



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



PLAN VIEW
3:1 FORESLOPES

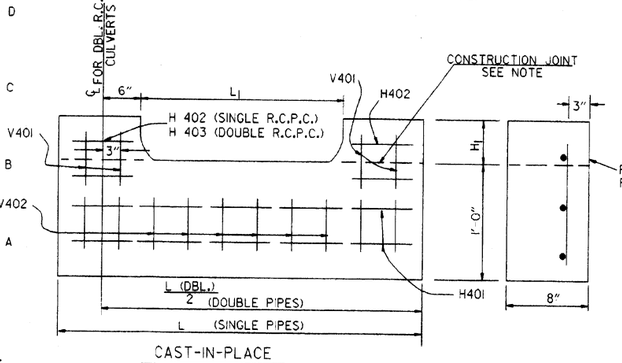
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES

R.C. CURTAIN WALL DIMENSIONS & QUANTITIES

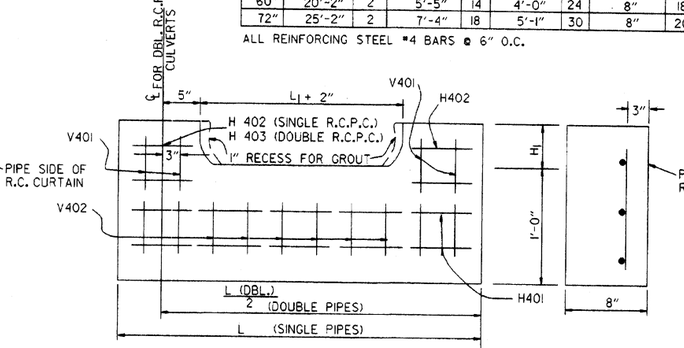
PIPE DIA.	H_1	L_1	L	L (DBL.)/2	SINGLE R.C.P.C. CONC. CU. YDS.	SINGLE R.C.P.C. REINF. STEEL LBS.	DOUBLE R.C.P.C. CONC. CU. YDS.	DOUBLE R.C.P.C. REINF. STEEL LBS.
18"	11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67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

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



CAST-IN-PLACE

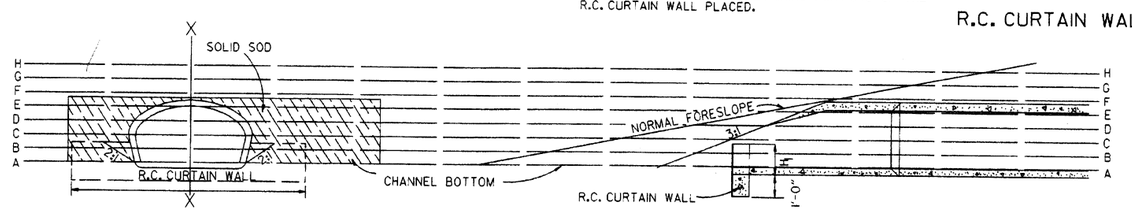
NOTE: THE PORTION OF THE R.C. CURTAIN WALL BENEATH THE FLARED END SECTION (LOWER 1'-0") SHALL BE PLACED MONOLITHICALLY. THE FLARED END SECTION SHALL THEN BE SET IN PLACE & THE REMAINING PORTIONS OF THE R.C. CURTAIN WALL PLACED.



PRECAST

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

R.C. CURTAIN WALL DETAILS



END VIEW

SECTIONAL VIEW "X-X"

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'-3½"	8	2'-9½"	16	8"	15	23'-8"	2	3'-9½"	8	8"	4	2'-9½"	18	8"	30
48"	16'-8"	2	4'-3"	10	3'-1"	18	8"	16	25'-8"	2	4'-3"	10	8"	5	3'-1"	20	8"	32
54"	18'-2"	2	4'-8½"	12	3'-5½"	20	8"	17	27'-8"	2	4'-9"	12	8"	6	3'-5½"	22	8"	34
60"	20'-2"	2	5'-5"	14	4'-0"	24	8"	18	30'-8"	2	5'-5"	14	8"	7	4'-0"	26	8"	36
72"	25'-2"	2	7'-4"	18	5'-1"	30	8"	20	36'-8"	2	7'-4"	18	8"	9	5'-1"	33	8"	40

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

SOLID SODDING

PIPE DIA.	SINGLE R.C.P.C. 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"	35	57	85	37	59	87
60"	45	62	104	48	65	107
72"	64	92	156	67	95	159

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

GENERAL NOTES

1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE; FOR FORMS, MIXING AND PLACING; FOR EXCAVATION AND BACKFILL, AND FOR ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
2. ALL EXPOSED EDGES SHALL BE CHAMFERED ¾".
3. CONCRETE FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR CLASS A OR S CONCRETE AS PROVIDED IN SECTION 802 OF THE STANDARD SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
4. WELDED WIRE MESH 3 × 3 W/10 × W10 MAY BE USED IN LIEU OF REINFORCING BARS.

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	
8-15-91	REV. CURTAIN WALL QUANT. STEEL SCH. & SOLID SOD QUANT.	
3-2-81	ALLOW PRECAST IN 2 OR MORE PIECES CHAMFER EDGES	
5-15-80	ADDED PRECAST WALL & GENERAL NOTES	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

STANDARD DRAWING FES-1

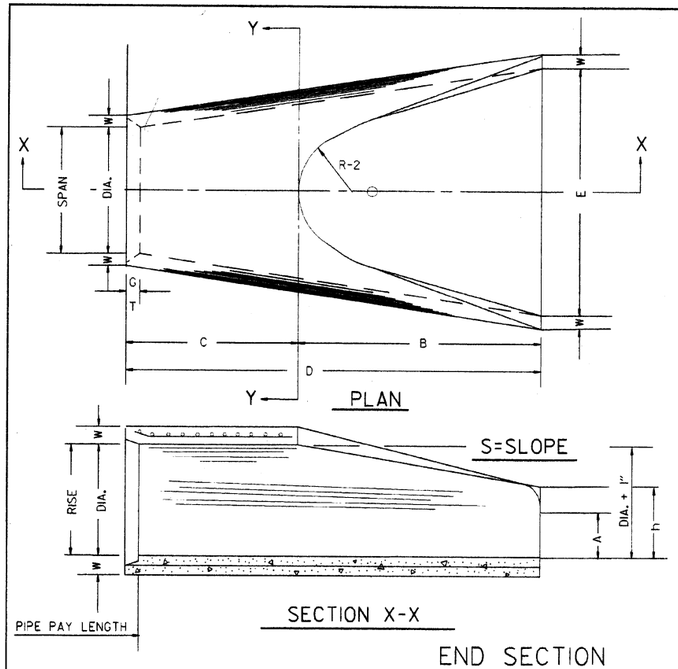
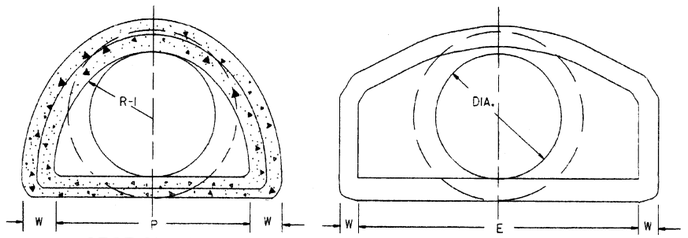


TABLE OF DIMENSIONS

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"	33⅜"	16⅛"	14"	2½"	1600	1'-1½"
30"	3½"	1'-0"	4'-6"	1'-7¾"	6'-1¾"	5'-0"	3:1	31"	37"	18½"	15"	3¼"	1940	1'-4⅝"
36"	4"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	6'-0"	3:1	37"	47⅛"	24⅝"	20"	3½"	4100	1'-8"
42"	4½"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	53⅛"	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"	36⅛"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77⅛"	38⅝"	24"	5"	13250	4'-6"

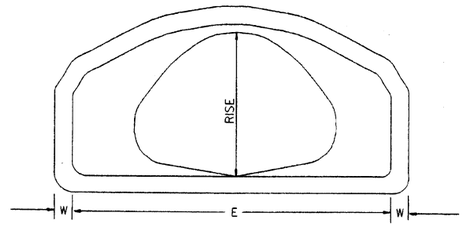


NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

ARCH PIPE

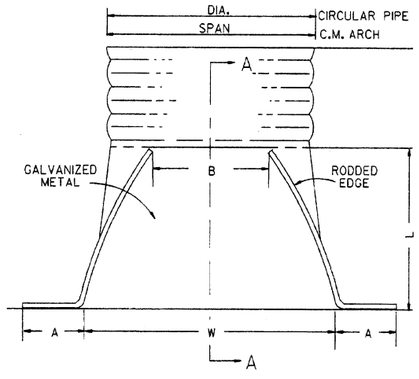
EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½:1
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅜"	13"	2½"	2½:1
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅜"	14"	2½"	2½:1
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36⅜"	15"	2½"	2½:1
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47⅛"	20"	3"	2½:1
36	43¾	44	26⅝	27	4"	10½"	4'-0"	2'-11½"	6'-1½"	6'-6"	54⅞"	22"	3½"	2½:1
42	51⅛	51	31⅝	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"	70⅝"	24"	4¼"	2½:1
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72⅛"	24"	4¾"	2½:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77⅛"	24"	5"	2¼:1

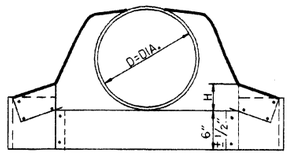
• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.

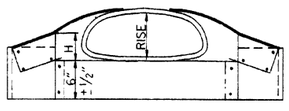


END VIEW
CONCRETE ARCH PIPE

END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS







CIRCULAR PIPE

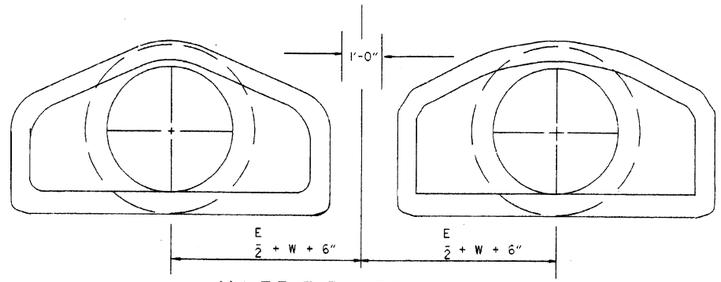
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½:1
15	16	7	8	6	26	30	2½:1
18	16	8	10	6	31	36	2½:1
21	16	9	12	6	36	42	2½:1
24	16	10	13	6	41	48	2½:1
30	14	12	16	8	51	60	2½:1
36	14	14	19	9	60	72	2½:1
42	12	16	22	11	69	84	2½:1
48	12	18	27	12	78	90	2½:1
54	12	18	30	12	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

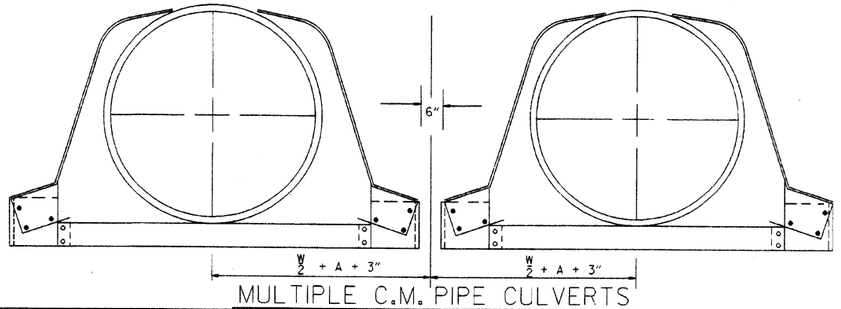
EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½:1	16
18"	21	15	7	10	6	23	36	2½:1	16
21"	24	18	8	12	6	28	42	2½:1	16
24"	28	20	9	14	6	32	48	2½:1	16
30"	35	24	10	16	6	39	60	2½:1	14
36"	42	29	12	18	8	46	75	2½:1	14
42"	49	33	13	21	9	53	85	2½:1	12
48"	57	38	18	26	12	63	90	2½:1	12
54"	64	43	18	30	12	70	102	2¼:1	12
60"	71	47	18	33	12	77	114	2¼:1	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

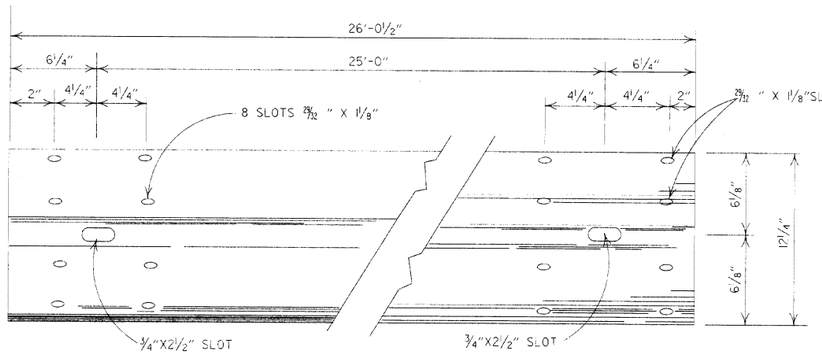
DATE	REVISION	FILMED
10-18-96	REVISED ASTM REF. TO AASHTO	10-18-96
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74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

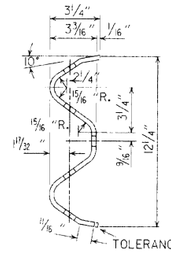
ARKANSAS STATE HIGHWAY COMMISION

FLARED END SECTION

STANDARD DRAWING FES-2

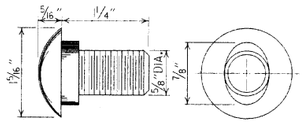
stdfes2.dgn



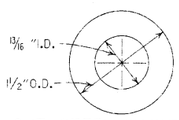


DETAILS OF
W-BEAM GUARD RAIL

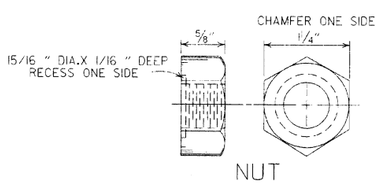
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



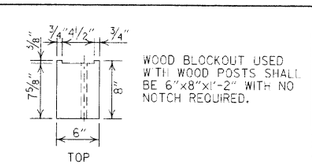
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



CUT STEEL WASHER

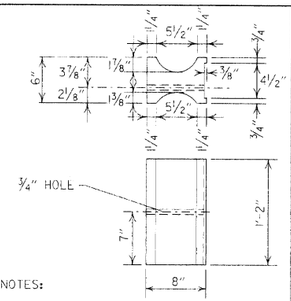


NUT



WOOD BLOCKOUT USED WITH WOOD POSTS SHALL BE 6"x8"x1'-2" WITH NO NOTCH REQUIRED.

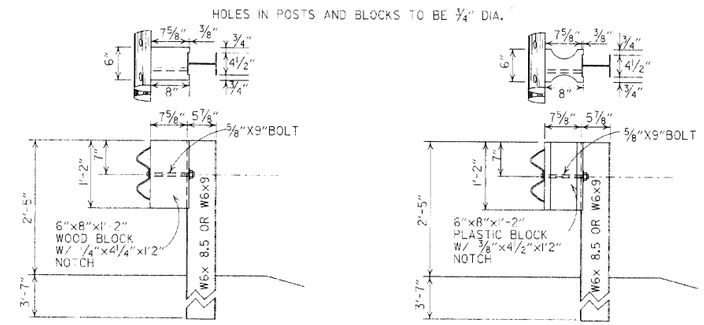
WOOD BLOCKOUT
(W-BEAM)



NOTES:
1. SIMILAR SHAPED PLASTIC BLOCKOUTS MAY BE USED AS LONG AS THEY MEET NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
2. DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCES.

PLASTIC BLOCKOUT
(W-BEAM)

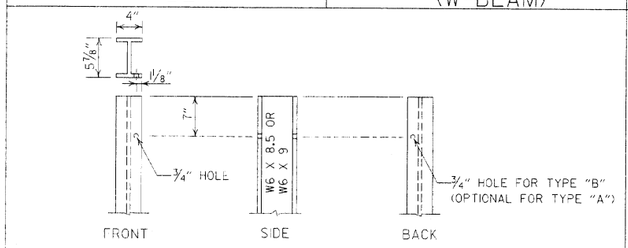
HOLES IN POSTS AND BLOCKS TO BE ¾" DIA.



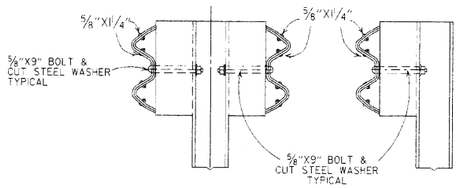
WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF STEEL LINE POST CONNECTIONS
(W-BEAM)



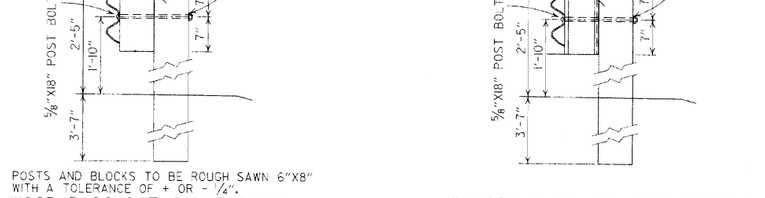
STEEL POST



TYPE "B" TYPE "A"

DETAILS OF STEEL LINE POST CONNECTIONS
(W-BEAM)

HOLES IN POSTS AND BLOCKS TO BE ¾" DIA.



POSTS AND BLOCKS TO BE ROUGH SAWN 6"X8" WITH A TOLERANCE OF + OR - ¼".

WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF WOOD LINE POST CONNECTIONS
(W-BEAM)

-GENERAL NOTES-

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN ¾" BEYOND IT.

WHERE W-BEAM GUARD RAIL CONTINUES, THE INTERMEDIATE SECTIONS SHALL HAVE A POST SPACING OF 6'-3" UNLESS OTHERWISE NOTED.

W BEAM GUARD RAIL REPRESENTING INTERMEDIATE SECTIONS WILL BE MEASURED ALONG THE ROADWAY FACE FROM CENTERLINE OF POST TO CENTERLINE OF POST.

USE W-BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB. FOR EXTENSIONS OR MODIFICATION OF EXISTING GUARD RAIL, W-BEAM GUARD RAIL COMPONENTS OF THE SAME TYPE AS THOSE EXISTING SHALL BE USED.

ANY BACKFILLING UNDER OR AROUND POST SHALL BE DAMP SAND THOROUGHLY TAMPED IN PLACE.

WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO.1 STRUCTURAL OR BETTER 9.7# (1400 f) OR NO.1 1350 f SOUTHERN PINE.

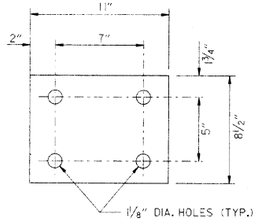
CONTRACTOR SHALL HAVE THE OPTION OF USING WOOD BLOCKOUTS FOR W-BEAM GUARD RAIL OR PLASTIC BLOCKOUTS, AS LONG AS BLOCKOUT USED MEETS NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) FOR W-BEAM GUARD RAIL.

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
10-15-09	ADDED REFERENCE TO MASH	
4-10-03	REVISED GENERAL NOTES	
8-22-02	REVISED DIMENSION ON WOOD & PLASTIC BLOCKOUT CONNECTIONS & ON STEEL POST	
11-16-01	REVISED WOOD BLOCKOUT & DETAILS OF WOOD LINE POST CONNECTIONS	
3-30-00	REMOVED GUARD RAIL AT BRIDGE ENDS	
1-12-00	ADDED PLASTIC BLOCKOUT	
8-12-98	REV. BLOCKOUTS TO WOOD, DELETED CONC. POST & REV. GENERAL NOTE, DELETED DET. OF GUARD RAIL REPLACE. BEHIND CURB & DET. OF POST PLACE. IN SOLID ROCK, & ADDED DETAILS OF STEEL LINE POST CONN. REMOVED BACK-UP PLATE, REVISED HOLES IN STEEL POLES	
4-3-97	REMOVED "LAP IN DIRECTION OF TRAFFIC" NOTE & PLACED ARROWS ON WASHERS	
10-18-96	REVISED WOOD POST NOTE	
6-2-94	ADDED ALT. STEEL POST SIZE	
8-5-93	REVISED STEEL POST SIZE	8-5-93
10-1-92	REDRAWN & REVISED	10-1-92
8-15-91	REVISED WASHER NOTE	8-15-91
8-2-90	REV. GEN. NOTE & DEPHT OF ANC. POST IN ROCK	8-2-90
7-15-88	REVISED SECTION 3 & GENERAL NOTES	
3-4-88	REV. ANCHOR POST, ELEV. NOTES&POST IN ROCK	780-3-4-88
10-30-87	REVISED WOOD LINE POST DETAIL	546-10-30-87
10-9-87	REDRAWN & REVISED	802-10-9-87

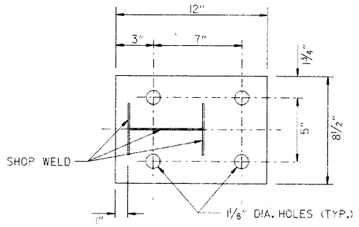
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-8

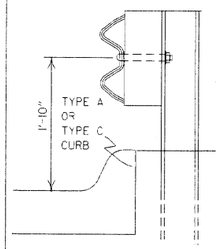


WASHER PLATE



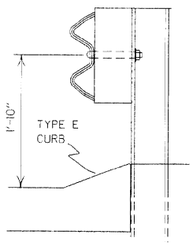
BASE PLATE

Note: Bolts, nuts, washers and plates shall be galvanized in accordance with Section 807 of the Standard Specifications.



FOR DESIGN SPEEDS OF 50 MPH OR LESS

ALIGN FACE OF GUARD RAIL WITH FACE OF CURB.

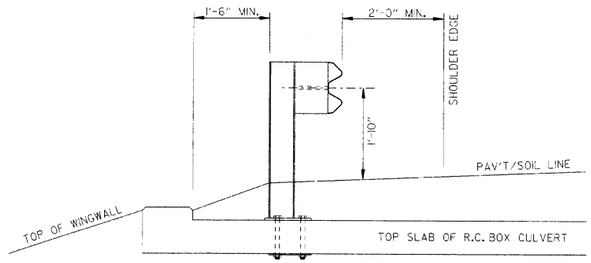


FOR DESIGN SPEEDS OF 55 MPH OR MORE

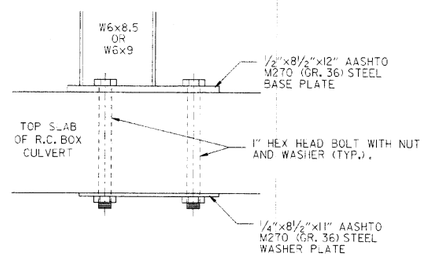
PLACE GUARD RAIL POSTS AGAINST BACK OF CURB.

DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB (W-BEAM)

FOR DESIGN SPEEDS OF 50 MPH OR LESS ALL CURB FACES, AS SHOWN ON STD. DRWG. CG-1, MAY BE USED. FOR DESIGN SPEEDS OF 55 MPH OR MORE TYPE "E" CURB FACE SHALL BE USED.

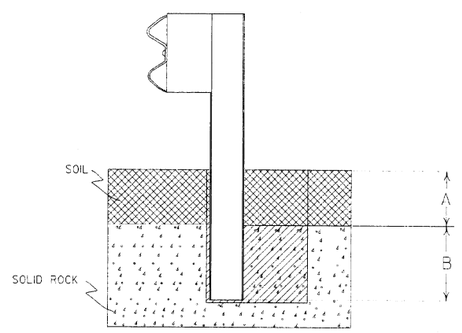


SECTION A-A

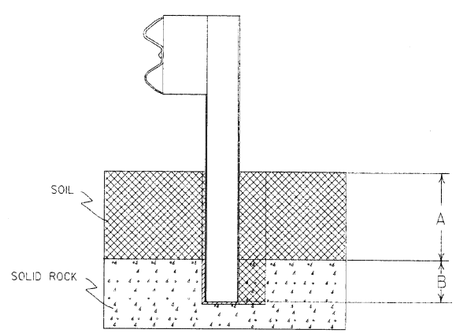


DETAIL OF CONNECTION

Case 1

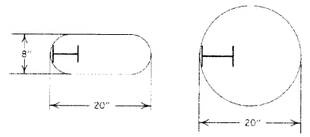


Case 2



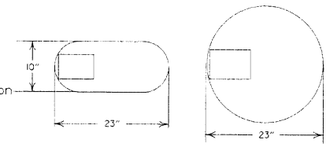
Plan View Steel Posts

Either hole configuration acceptable



Plan View Wood Posts

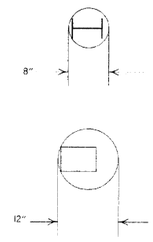
Either hole configuration acceptable



Notes: For overlying soil depths (A) ranging from 0 to 18", the depth of required drilling (B) is equal to 24".

Zone A:
Backfill according to Section 617.03(a).

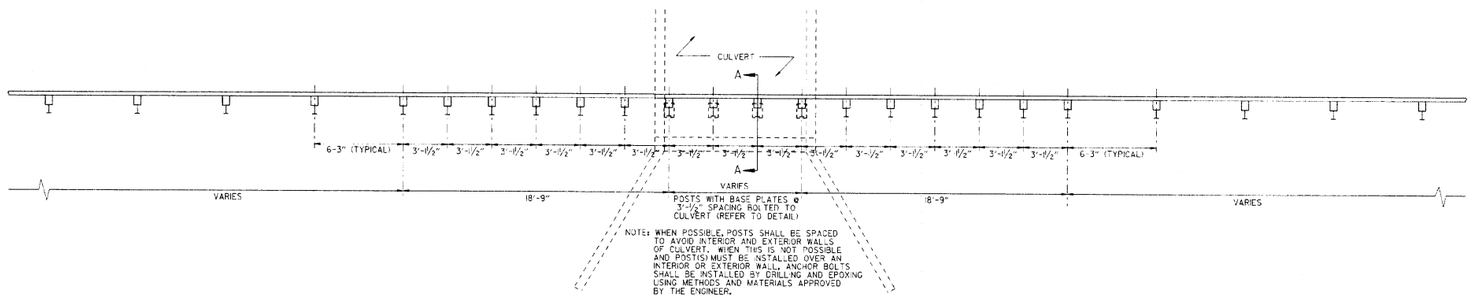
Zone B:
Backfill hole in 6" lifts with material meeting the requirements of Section 802.02(c) - Alternate gradation. Compact to 95% maximum dry density per ASTM D-698.



Notes: For overlying soil depths (A) ranging from 18" to 44", the depth of required drilling (B) is equal to either 12" or 44" minus the depth of soil whichever is less.

Zone A & B:
Backfill according to Section 617.03(a).

DETAIL OF POST PLACEMENT IN SOLID ROCK (W-BEAM)



PLAN LAYOUT OF TYPE A GUARD RAIL AT LOW-FILL CULVERTS

NOTE: THIS DETAIL IS TO BE USED ONLY WHEN THE COVER OVER THE CULVERT DOES NOT PERMIT FULL EMBEDMENT OF GUARD RAIL POSTS AS SHOWN ON STD. DWG. GR-8.

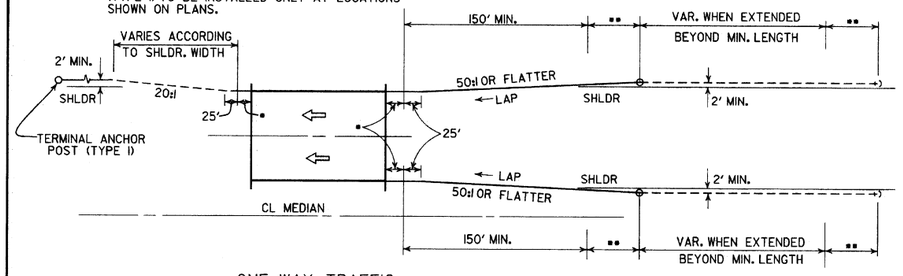
DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
4-12-07	REVISED DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB	
11-10-05	ADDED GUARD RAIL PLACEMENT BEHIND CURBS; REVISED DETAIL OF CONNECTION	
11-18-04	REVISED POST PLACEMENT IN ROCK & CULVERT CONNECTION DETAILS, ADDED DETAIL FOR GUARD RAIL PLACEMENT AT LOW-FILL CULVERTS	
3-30-00	REMOVED CONCRETE INSERT ANCHOR	
8-12-98	CHANGED STEEL SPACER BLOCK TO WOOD BLOCKOUT, ADD. DET. OF GUARD RAIL CONNECTION TO R.C. BOX CULVT. DELETED DET. OF STEEL LINE POST CONN.& ADDED DET. OF GUARD RAIL PLACE. BEHIND CURB & DET. OF POST PLACE. IN SOLID ROCK	
4-3-96	PLACED ARROWS AT CUT STEEL WASHERS	4-3-96
10-18-96	REV. ASTM REF. TO AASHTO	
11-22-95	ADDED OPTIONAL HOLES	
6-2-94	REVISED ALTERNATE POST SIZE	
8-5-93	REVISED STEEL POST SIZE	
10-1-92	REDRAWN & REVISED	10-1-92
8-2-90	DEL. WASHER ON ANCHOR ASSEMBLY	8-2-90
7-15-88	CONFORMED TO 1988 SPECS	
3-4-88	REVISED ANCHOR NOTE	
10-30-87	REVISED ANCHOR ASSEMBLY	712-10-30-87
10-30-87	REVISED PLACEMENT BEHIND CURB	547-10-30-87
10-9-87	REDRAWN & REVISED	803-10-9-87

ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

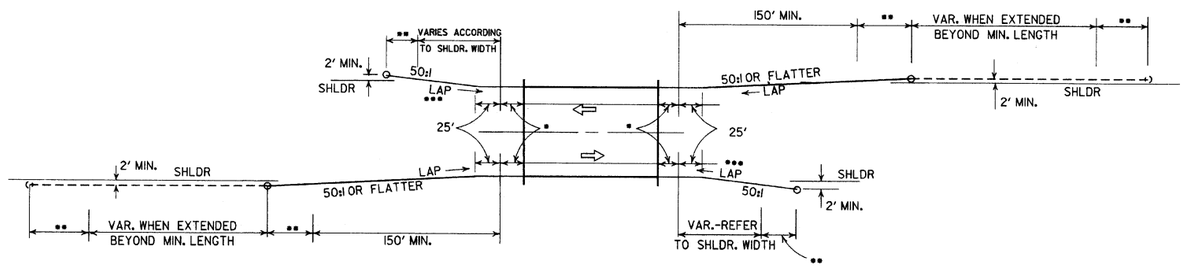
STANDARD DRAWING GR-8A

NOTE: GUARD RAIL WITH GUARD RAIL TERMINAL (TYPE I) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

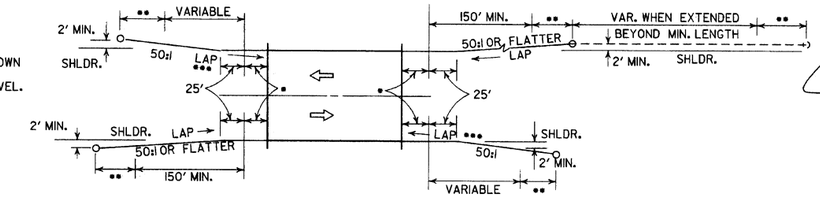
••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

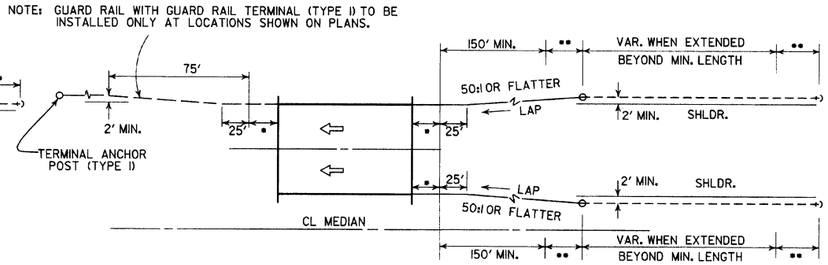
METHODS OF INSTALLATION OF GUARD RAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

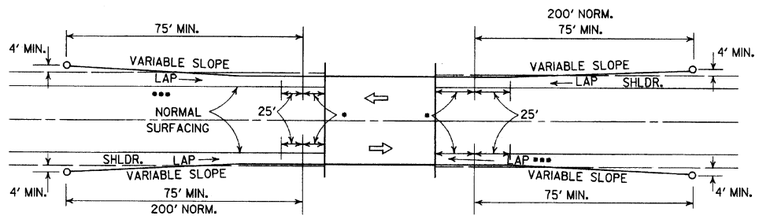
NOTE: GUARD RAIL WITH GUARD RAIL TERMINAL (TYPE I) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

METHOD OF INSTALLATION OF GUARD RAIL AT FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



LEGEND

- • THRIE BEAM GUARD RAIL TERMINAL
- •• GUARD RAIL TERMINAL (TYPE 2)

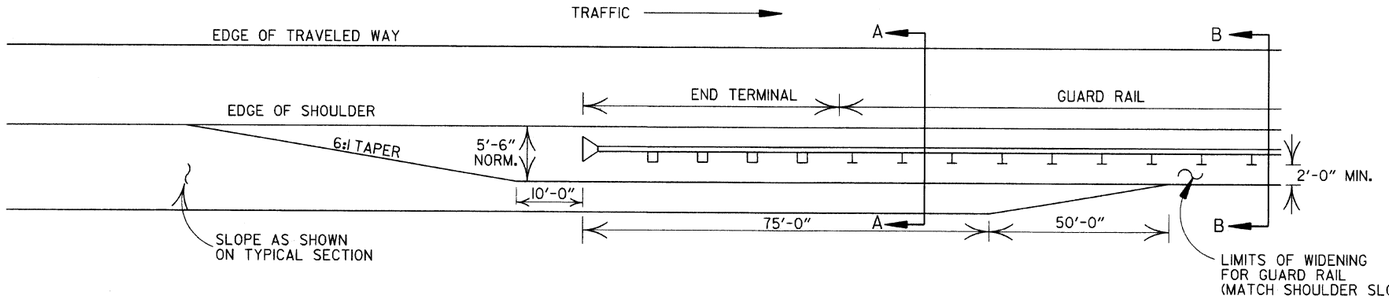
METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERMINAL (TYPE I) (FULL SHOULDER WIDTH OR LESS BRIDGES)

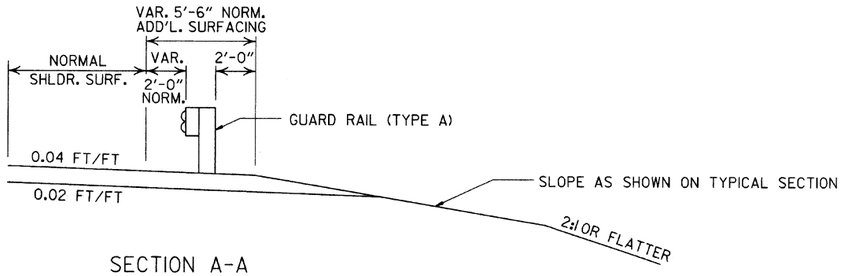
DATE	REVISION	DATE FILM
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARD RAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERM. (TY. I)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED	10-1-92
	ADDED NOTE	
10-9-87	REDRAWN & REVISED	

ARKANSAS STATE HIGHWAY COMMISSION

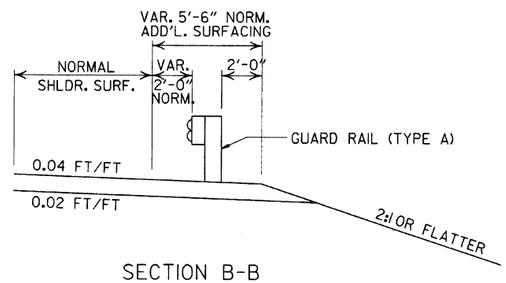
GUARD RAIL DETAILS

STANDARD DRAWING GR-9





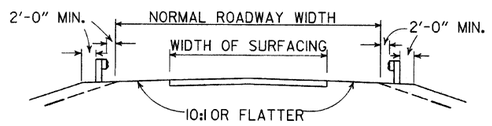
SECTION A-A



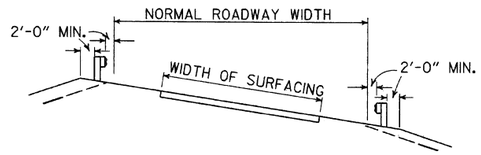
SECTION B-B

DETAILS OF WIDENING FOR GUARD RAIL

NOTE: NORMAL SECTION TO BE WIDENED APPROX. 5'-6" EACH SIDE TO SUPPORT GUARD RAIL.

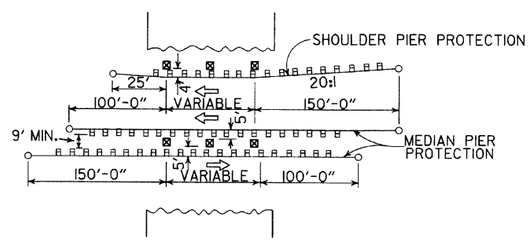


SECTION ON TANGENT



SECTION ON CURVE

DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY



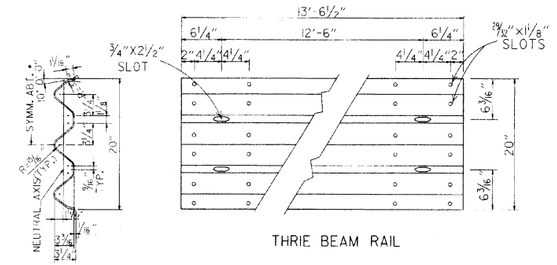
METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

DATE	REVISION	DATE FILM
4-17-08	MINOR REVISION	
11-10-05	DRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

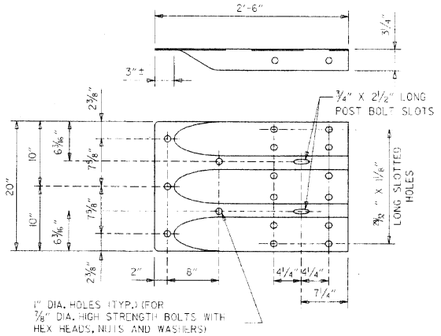
GUARD RAIL DETAILS

STANDARD DRAWING GR-9A

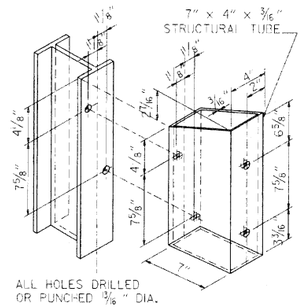


SECTION THRU THRIE BEAM RAIL

THRIE BEAM RAIL

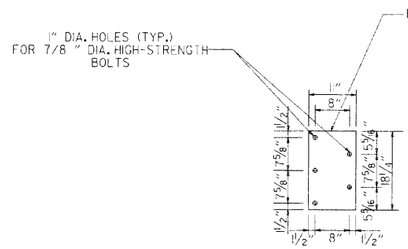


SPECIAL END SHOE



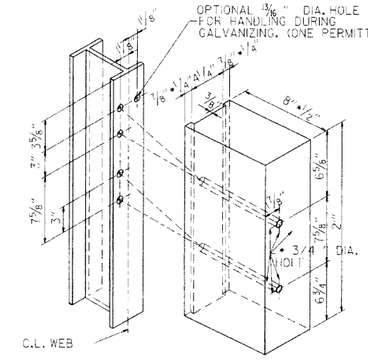
ATTACH BLOCKOUT TO POST USING ⅝" DIA. HEX HEAD BOLTS WITH 1½" O.D. CUT STEEL WASHERS AND NUT.

STRUCTURAL STEEL TUBING BLOCKOUT DETAIL



CONNECTOR PLATE

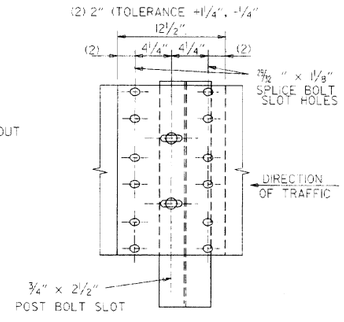
CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.09 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING ⅞" DIA. HIGH STRENGTH BOLTS, WITH THE HEADS PLACED ON THE TRAFFIC FACE. WASHERS SHALL BE USED UNDER THE HEAD AND NUT. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AND SHALL CONFORM TO SUBSECTION 807.06.



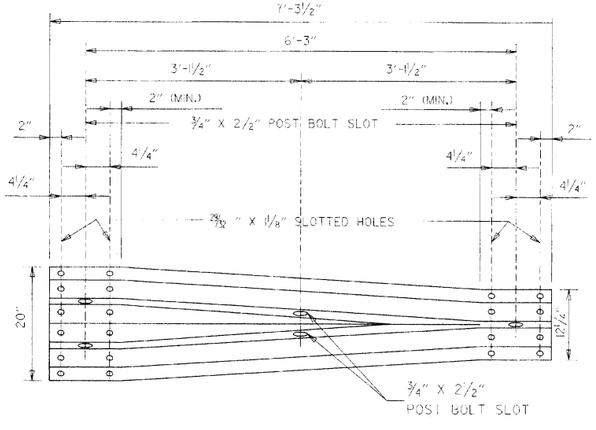
ALL HOLES ⅜" DIAMETER EXCEPT AS NOTED

HOLE PUNCHING DETAIL
FOR STEEL POST & WOOD
OR PLASTIC BLOCKOUTS

NOTE: BLOCKS SHALL BE THE SAME TYPE THROUGHOUT THE PROJECT LIMITS.

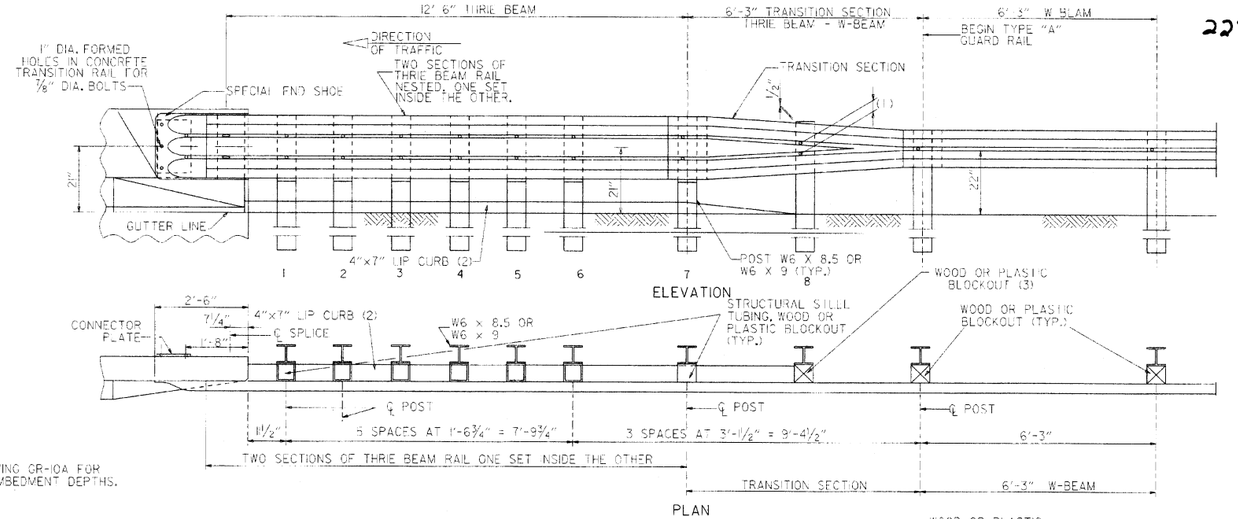


THRIE BEAM RAIL SPLICE AT POST



TRANSITION SECTION

NOTE:
SEE STANDARD DRAWING GR-10A FOR GUARD RAIL POST EMBEDMENT DEPTHS.



(1) VERIFY BOLT SPACING FROM RAIL TRANSITION PRODUCER.
(2) REFER TO APPROACH GUTTER DETAILS.
(3) LENGTH OF BLOCKOUT ON POST 8 TO BE MODIFIED TO FIT RAIL WIDTH.

THRIE BEAM GUARD RAIL CONNECTION AT BRIDGE ENDS

GENERAL NOTES:

THE THRIE BEAM RAIL, SPECIAL END SHOE, AND THE TRANSITION SECTION SHALL BE MADE OF STEEL AND SHALL BE 12 GAGE. ZINC COATING SHALL BE TYPE II.

RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN ¾" BEYOND IT.

ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-9 & GR-11.

WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7# (400 #) OR NO. 1 1350 # SOUTHERN PINE.

REFER TO STD. DRWG. GR-10A FOR POST DETAILS.

USE THRIE BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.

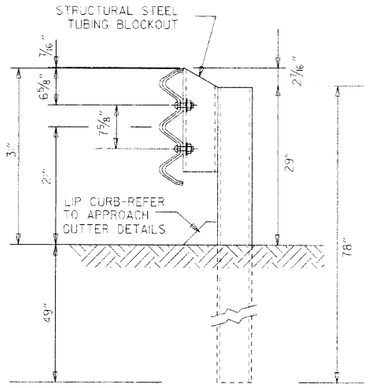
THRIE BEAM POSTS SHALL BE SAME MATERIAL AS W-BEAM POSTS FOR ENTIRE JOB.

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF W-BEAM 1"	
11-29-07	ADDED PLASTIC BLOCKOUTS	
11-10-05	ADDED NOTE FOR ATTACHING STEEL BLOCKOUT	
11-18-04	REVISED GENERAL NOTES	
10-9-03	REVISED GENERAL NOTES	
4-10-03	REVISED GENERAL NOTES	
8-22-02	REVISED NOTE (2)	
6-29-00	MOVED DIMENSION LINES	
5-8-00	ADDED NOTE	
3-30-00	DRAWN & ISSUED	

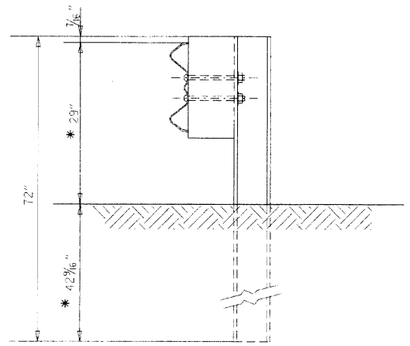
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10

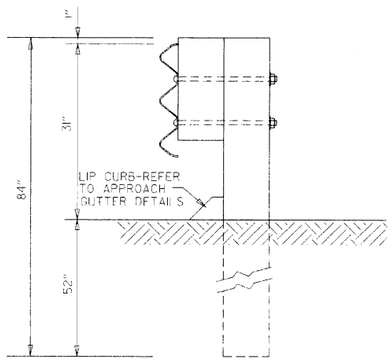


THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7

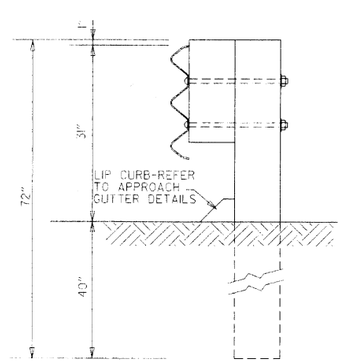


W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8

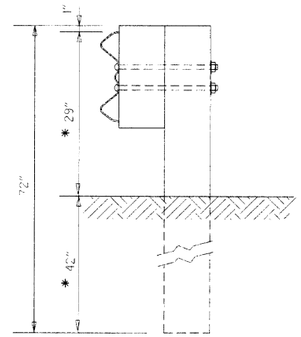
* NOTE:
THESE DIMENSIONS WILL NEED TO BE ADJUSTED IN THE FIELD TO MAKE THE TRANSITION FROM 21" MID POINT OF THRIE BEAM TO 22" MID POINT OF W-BEAM.



THRIE BEAM RAIL
WITH WOOD OR PLASTIC
BLOCKOUTS & WOOD POSTS
POSTS 1-6



THRIE BEAM RAIL
WITH WOOD OR PLASTIC
BLOCKOUT & WOOD POST
POST 7



W-BEAM TO THRIE BEAM
TRANSITION RAIL WITH WOOD OR
PLASTIC BLOCKOUT & WOOD POST
POST 8

GENERAL NOTES:

RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.

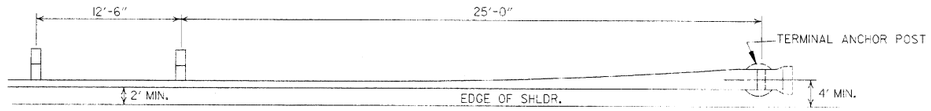
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7 f (1400 f) OR NO. 1 (1350 f SOUTHERN PINE.

DATE	REVISION	DATE FILM
7-14-10	REVISED POST 8 DIMENSIONS	
11-29-07	ADDED PLASTIC BLOCKOUTS	
8-22-02	REVISED LIP CURB NOTE	
3-30-00	DRAWN & ISSUED	

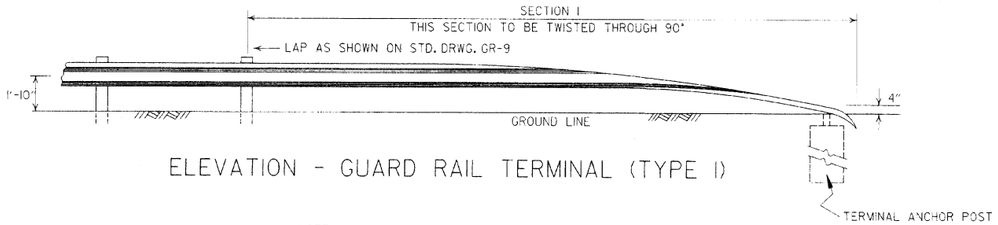
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10A

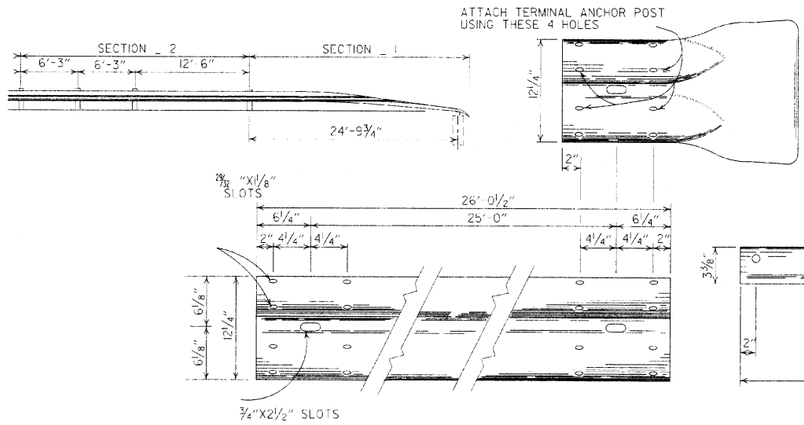


PLAN - GUARD RAIL TERMINAL (TYPE I)



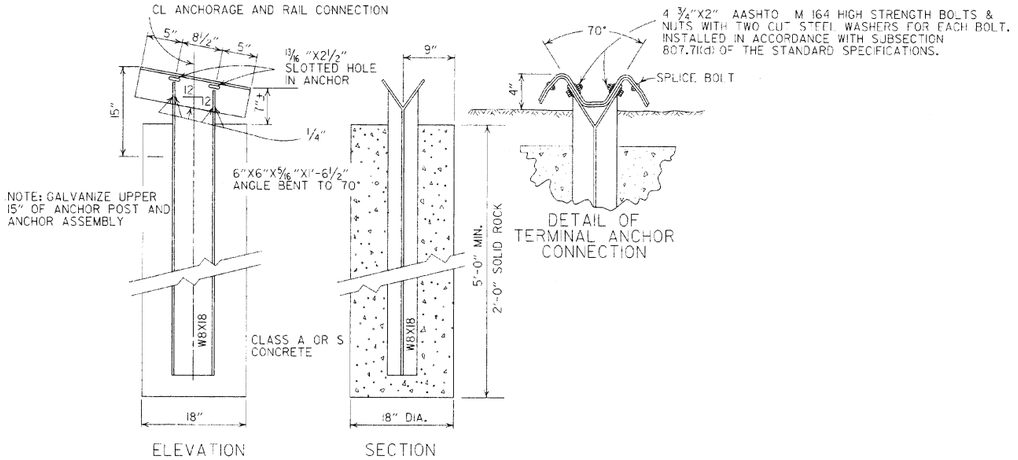
ELEVATION - GUARD RAIL TERMINAL (TYPE I)

NOTE:
SECTIONS 1 AND 2 OF GUARD RAIL TERMINAL SHALL BE PAID FOR AT THE PRICE BID PER LINEAR FOOT OF THE TYPE OF GUARD RAIL SPECIFIED.



SECTION 1

TERMINAL SECTION



NOTE: RAIL MEMBERS MAY BE BOLTED TO ANGLE AT TERMINAL ANCHOR AND THE TWO ASSEMBLIES POSITIONED TO PROPER ALIGNMENT PRIOR TO PLACING CONCRETE AROUND 8 WF 17 POST IF CONTRACTOR SO DESIRES.

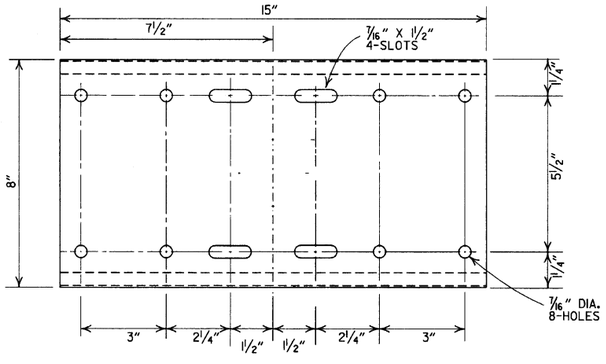
DETAIL OF TERMINAL ANCHOR POST (TYPE I)

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL "	
6-26-97	REVISED LAP NOTE	
10 8 96	REVISED ASTM REF. TO AASHTO	
11-3-94	DIMENSION TERMINAL DETAIL	
11-11-92	ADDED NOTE FOR PAYMENT	11-11-92
10-1-92	DRAWN & ISSUED	10-1-92

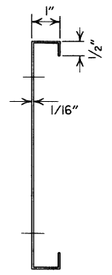
ARKANSAS STATE HIGHWAY COMMISSION

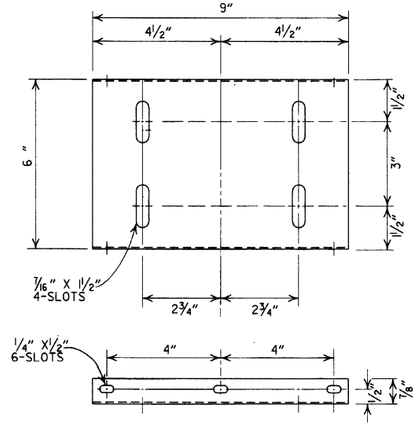
GUARD RAIL DETAILS

STANDARD DRAWING GRT-1

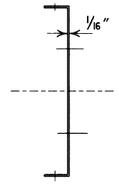


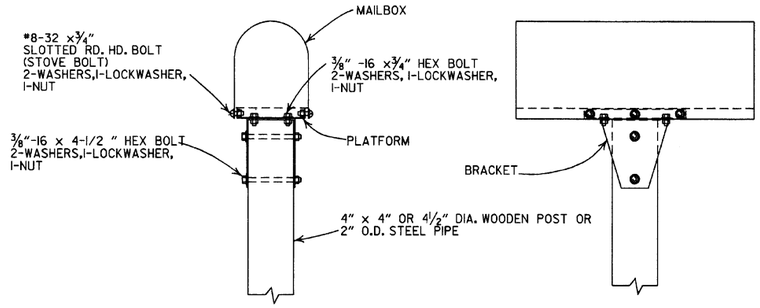
SHELF



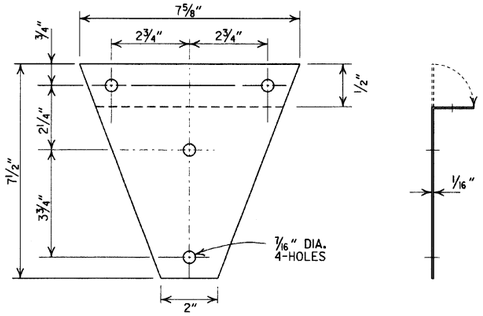


PLATFORM





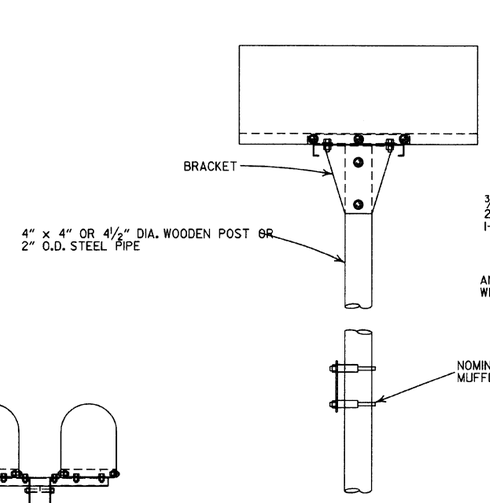
SINGLE INSTALLATION



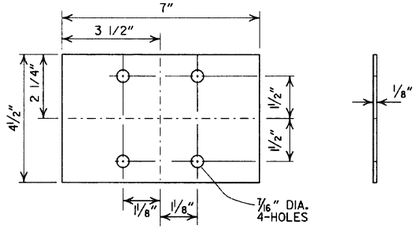
BRACKET

GENERAL NOTES

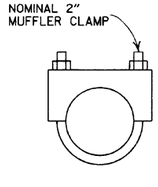
1. MAILBOX POSTS MAY BE WOOD OR METAL. WOOD POSTS SHALL BE PRESSURE TREATED FOR GROUND CONTACT IN ACCORDANCE WITH SECTION 637.02 OF THE STANDARD SPECIFICATIONS.
2. ANTI-TWIST PLATES SHALL BE USED ONLY ON METAL POSTS.
3. MAILBOX SHELF, BRACKET & PLATFORM SHALL BE GALVANIZED OR PAINTED STEEL, HOWEVER TREATED WOOD MAY BE USED WITH WOODEN POSTS. THE WOODEN SHELF, BRACKET & PLATFORM SHALL BE A MINIMUM OF ¾" THICK AND SHALL BE ASSEMBLED WITH BOLTS OF THE APPROPRIATE LENGTH WITH SIX 8 X¾" FLATHEAD WOOD SCREWS USED TO ATTACH THE MAILBOX TO THE PLATFORM.
4. THE MAILBOX SHELF AND PLATFORM THAT IS SHOWN IS FOR STANDARD SIZE MAILBOXES. THE SHELF AND PLATFORM SIZE SHALL BE MODIFIED TO FIT MAILBOXES OF A DIFFERENT SIZE.
5. METAL PIPE FOR MAILBOX SUPPORT SHALL BE 2" OUTSIDE DIAMETER STEEL WITH A WALL THICKNESS OF 0.145" AND A WEIGHT OF 2.72 LBS PER FT. OUTSIDE DIAMETER AND WEIGHT SHALL HAVE A TOLERANCE OF +/- 5% ACCORDING TO AASHTO M 181.
6. MAILBOX SUPPORT SYSTEM DIFFERING FROM THOSE SHOWN MAY BE USED, PROVIDED THEY ARE ON THE AHTD QUALIFIED PRODUCTS LIST FOR MAILBOX SUPPORTS.



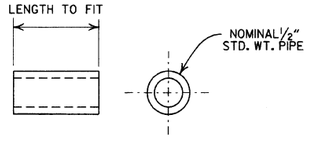
DOUBLE INSTALLATION



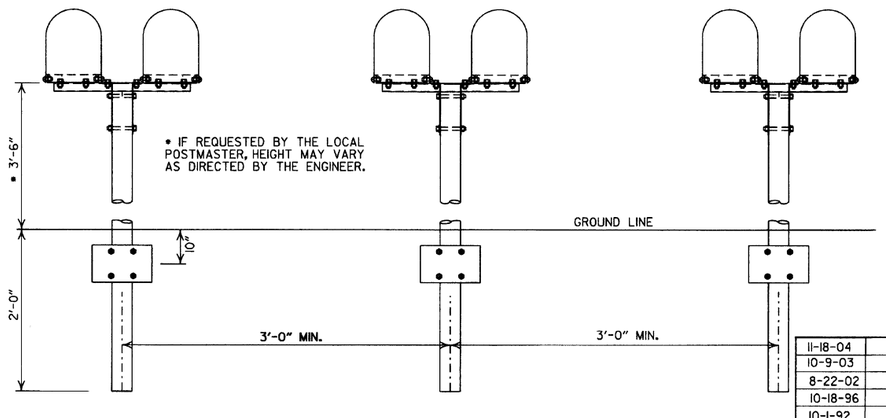
ANTI-TWIST PLATE



CLAMP



SPACER



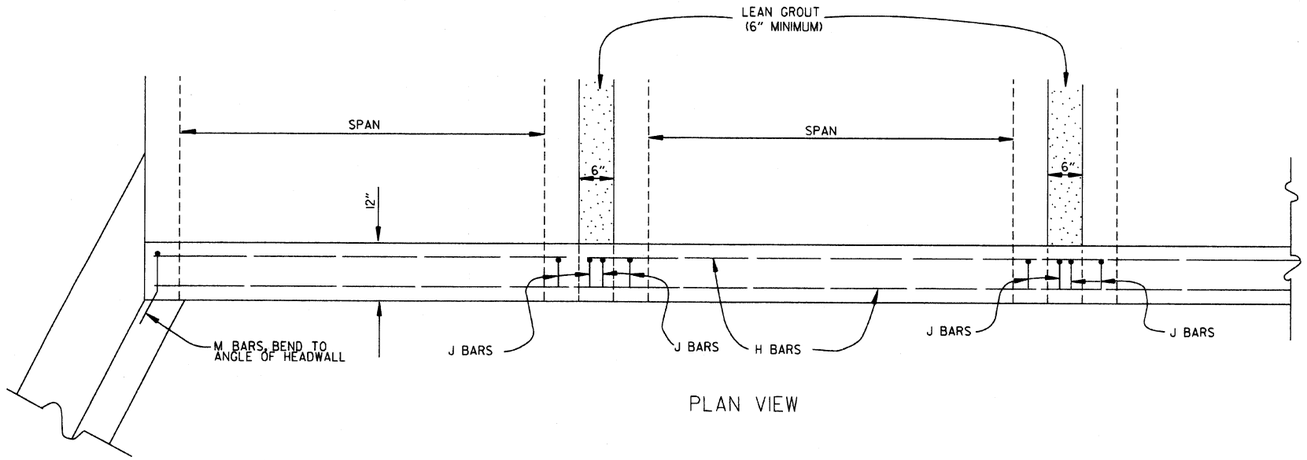
SPACING FOR MULTIPLE POST INSTALLATION

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

ARKANSAS STATE HIGHWAY COMMISSION

MAILBOX DETAILS

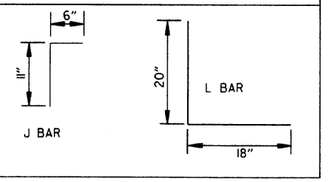
STANDARD DRAWING MB-1



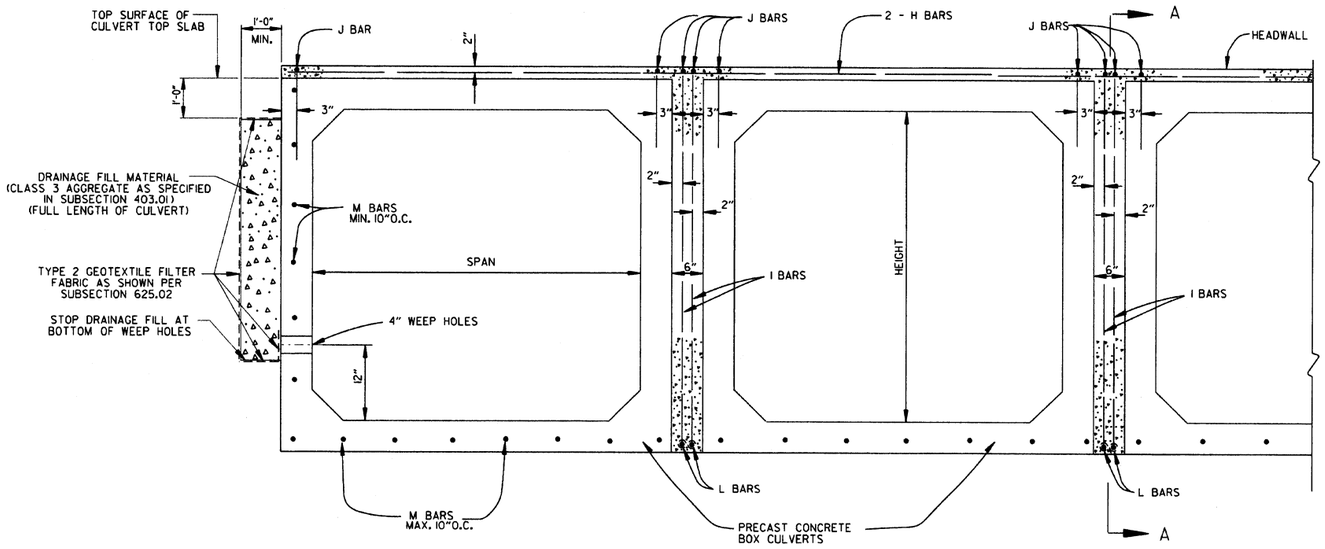
PLAN VIEW

BAR LIST

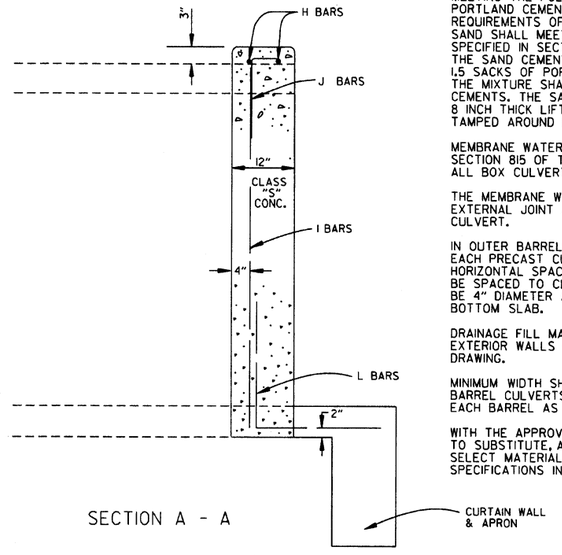
BAR	NO.	SIZE	LENGTH	BAR BENDING DIAGRAM
H	2	#4	•	
I	•	#4	•	
J	•	#4	1'-5"	
L	•	#4	3'-2"	
M	•	#4	1'-8"	



• 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 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, MEMBRANE WATERPROOFING, DRAINAGE FILL MATERIAL, GEOTEXTILE FILTER FABRIC, 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.

IN OUTER BARRELS, ONE WEEP HOLE IS REQUIRED IN EXTERIOR WALLS OF EACH PRECAST CULVERT SECTION. WEEP HOLES SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" IN THE ASSEMBLED CULVERT AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB.

DRAINAGE FILL MATERIAL WITH GEOTEXTILE FABRIC IS REQUIRED AT THE EXTERIOR WALLS OF THE ASSEMBLED CULVERT, SEE DETAILS ON THIS DRAWING.

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
1-28-15	REVISED GEOTEXTILE FABRIC PLACEMENT	
12-15-11	ADDED NOTE & DTLS FOR WEEP HOLE AND DRAINAGE FILL	
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	

ARKANSAS STATE HIGHWAY COMMISSION

PRECAST CONCRETE BOX CULVERTS

STANDARD DRAWING PBC-1

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	AHTD NOMINAL	AASHTO M 206	AHTD NOMINAL
INCHES	INCHES			
15	18	18	11	11
18	22	22	13½	14
21	26	26	15½	16
24	28½	29	18	18
30	36¼	36	22½	23
36	43⅜	44	26⅝	27
42	51⅛	51	31 5/16	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	77½	77
108	138	138	87⅛	87
120	154	154	96⅞	97
132	168¾	169	106½	107

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

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

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

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

CONSTRUCTION SEQUENCE

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

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

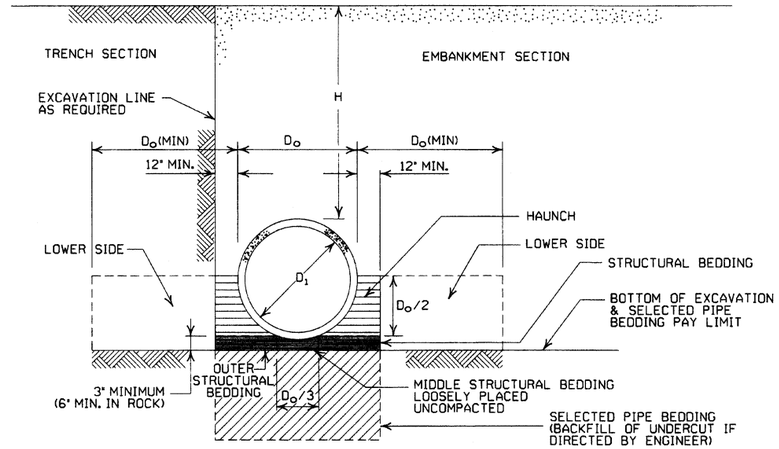
- LEGEND -

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

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

* SM-3 WILL NOT BE ALLOWED.

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

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

CORRUGATED ALUMINUM PIPE (ROUND)

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

CORRUGATED METAL PIPE ARCHES

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

CONSTRUCTION SEQUENCE

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

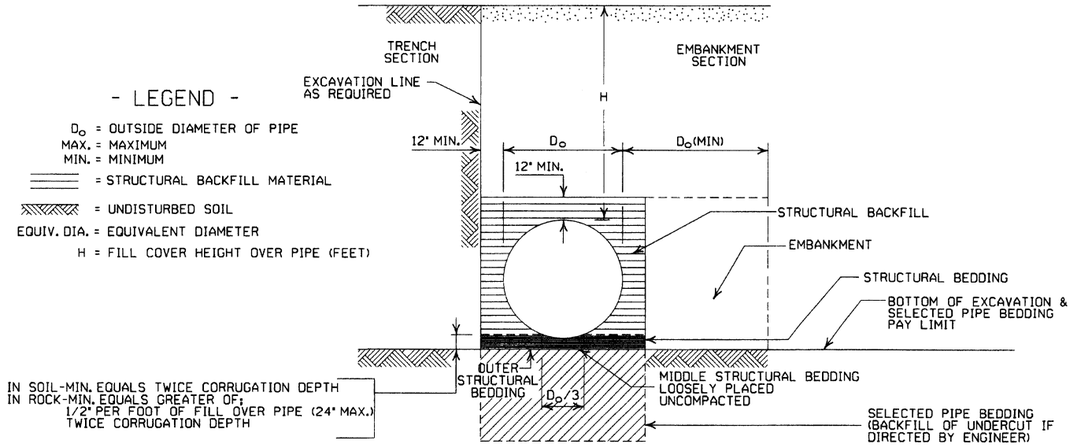
NOTE: STRUCTURAL BACKFILL AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF METAL PIPE.

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

③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

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

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

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

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

ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1

INSTALLATION TYPE	•• MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 2	•SELECTED MATERIALS (CLASS SM-1, SM-2 OR SM-4)

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.

SM3 WILL NOT BE ALLOWED.

•• STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

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 HDPE PIPE.

MULTIPLE INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPES

PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"
42"	3'-6"
48"	4'-0"

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET) "H" < 10'-0"	TRENCH WIDTH (FEET) "H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"
42"	7'-0"	10'-6"
48"	8'-0"	12'-0"

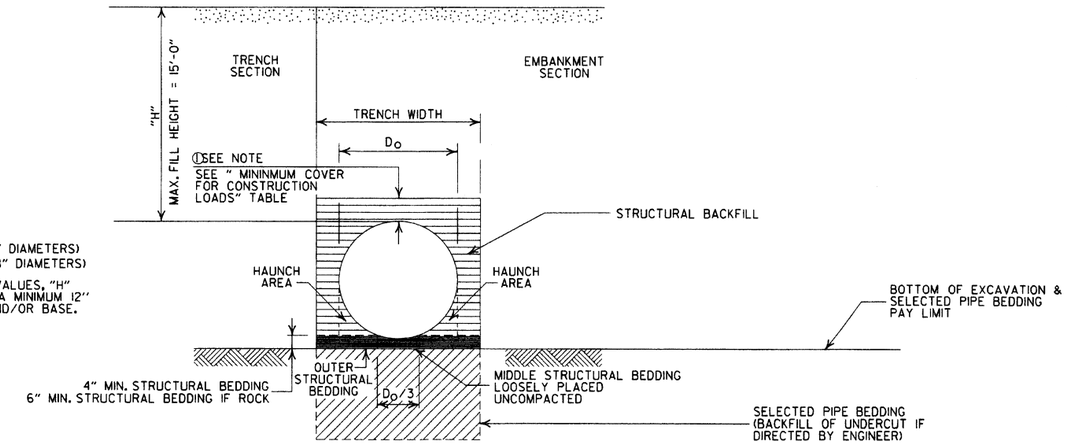
①NOTE:
18" MIN. (18" - 30" DIAMETERS)
24" MIN. (36" - 48" DIAMETERS)

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

MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS 18.0-50.0 (KIPS)	50.0-75.0 (KIPS)	75.0-110.0 (KIPS)	110.0-175.0 (KIPS)
36" OR LESS	2'-0"	2'-6"	3'-0"	3'-0"
42" OR GREATER	3'-0"	3'-0"	3'-6"	4'-0"

②MINIMUM COVER SHALL BE MEASURED FROM TOP OF PIPE TO TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE. THE SURFACE SHALL BE MAINTAINED.



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. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

GENERAL NOTES

1. PIPE SHALL CONFORM TO AASHTO M294, TYPE S. INSTALLATION SHALL CONFROM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICIATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. 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.
5. 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."
6. 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."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. HIGH DENSITY POLYETHYLENE PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR HDPE PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

H = FILL HEIGHT (FT.)
Ø = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED GENERAL NOTES & MINIMUM COVER NOTE	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

PLASTIC PIPE CULVERT (HIGH DENSITY POLYETHYLENE)

STANDARD DRAWING PCP-1

INSTALLATION TYPE	•• MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 2	•SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4)

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL.

SM3 WILL NOT BE ALLOWED.

•• STRUCTURAL BEDDING MATERIAL SHALL HAVE A MAXIMUM PARTICLE SIZE OF 1 INCH. STRUCTURAL BACKFILL MATERIAL SHALL BE FREE OF ORGANIC MATERIAL, STONES LARGER THAN 1.50 INCH IN GREATEST DIMENSION, OR FROZEN LUMPS.

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 PVC PIPE.

MINIMUM TRENCH WIDTH BASED ON FILL HEIGHT "H"

PIPE DIAMETER	TRENCH WIDTH (FEET)	
	"H" < 10'-0"	"H" >OR= 10'-0"
18"	4'-6"	4'-6"
24"	5'-0"	6'-0"
30"	5'-6"	7'-6"
36"	6'-0"	9'-0"

MULTIPLE INSTALLATION OF PVC PIPES

PIPE DIAMETER	CLEAR DISTANCE BETWEEN PIPES
18"	1'-6"
24"	2'-0"
30"	2'-6"
36"	3'-0"

MAXIMUM FILL HEIGHT BASED ON STRUCTURAL BACKFILL

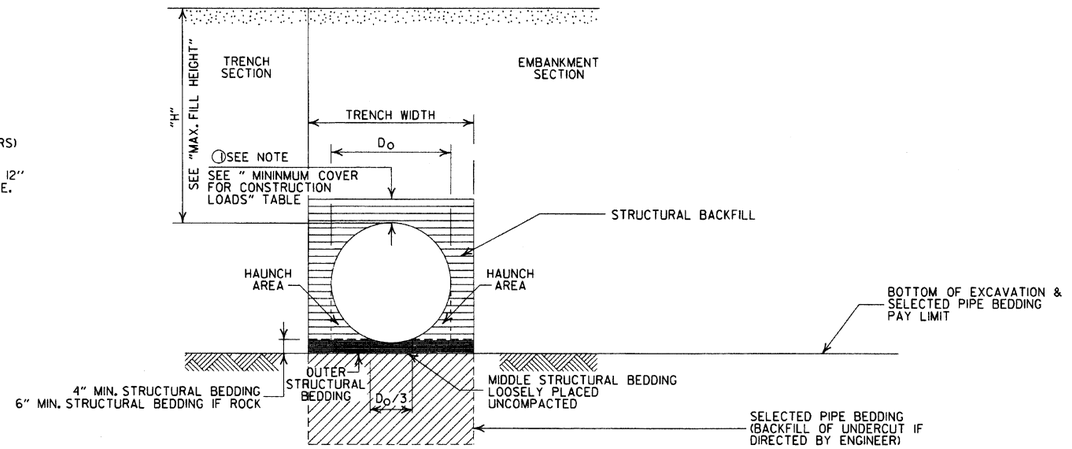
PIPE DIAMETER	"H"
18"	45'-0"
24"	45'-0"
30"	40'-0"
36"	40'-0"

① NOTE:
12" MIN. (18" - 36" DIAMETERS)
MINIMUM COVER VALUE, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

MINIMUM COVER FOR CONSTRUCTION LOADS

PIPE DIAMETER	② MIN. COVER (FEET) FOR INDICATED CONSTRUCTION LOADS			
	18.0-50.0 (KIPS)	50.0-75.0 (KIPS)	75.0-110.0 (KIPS)	110.0-175.0 (KIPS)
18" THRU 36"	2'-0"	2'-6"	3'-0"	3'-0"

②MINIMUM COVER SHALL BE MEASURED FROM TOP OF PIPE TO TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE. THE SURFACE SHALL BE MAINTAINED.



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. THE STRUCTURAL BACKFILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE LAYERS SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY TO THE ELEVATION OF THE MINIMUM COVER.
5. PIPE INSTALLATION MAY REQUIRE THE USE OF RESTRAINTS, WEIGHTING OR OTHER APPROVED METHODS IN ORDER TO HELP MAINTAIN GRADE AND ALIGNMENT.

GENERAL NOTES

1. PIPE SHALL CONFORM TO ASTM F949, CELL CLASS 12454. INSTALLATION SHALL CONFROM TO JOB SPECIAL PROVISION "PLASTIC PIPE" AND SECTION 606 OF THE STANDARD SPECIFICIATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION).
2. PLASTIC PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PLUS A SUFFICIENT WIDTH TO ENSURE WORKING ROOM TO PROPERLY AND SAFELY PLACE AND COMPACT HAUNCHING AND OTHER BACKFILL MATERIAL.
4. 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.
5. 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."
6. 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."
7. FOR PIPE TYPES THAT ARE NOT SMOOTH ON THE OUTSIDE (CORRUGATED OR PROFILE WALLS), BACKFILL GRADATIONS SHOULD BE SELECTED THAT WILL PERMIT THE FILLING OF THE CORRUGATION OR PROFILE VALLEY.
8. PVC PIPES OF DIAMETERS OTHER THAN SHOWN WILL NOT BE ALLOWED.
9. JOINTS FOR PVC PIPE SHALL MEET THE REQUIREMENTS FOR SOIL TIGHTNESS AS SPECIFIED IN AASHTO SECTION 26.4.2.4 AND 30.4.2 "AASHTO LRFD BRIDGE CONSTRUCTION SPECIFICATIONS." JOINTS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

- LEGEND -

H = FILL HEIGHT (FT.)
D_O = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM

= STRUCTURAL BACKFILL MATERIAL

= UNDISTURBED SOIL

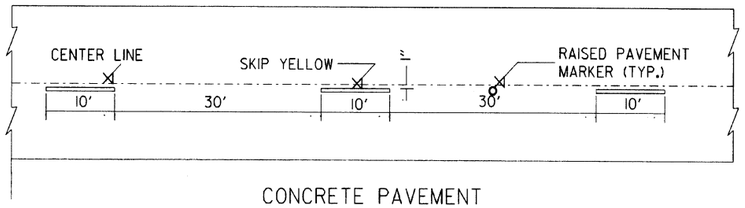
DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REV GENERAL NOTES & MINIMUM COVER NOTE; DELETED SM3 MATERIAL	
11-17-10	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

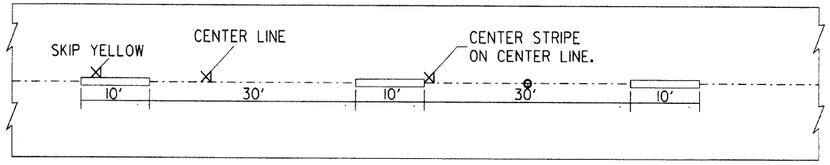
PLASTIC PIPE CULVERT (PVC F949)

STANDARD DRAWING PCP-2

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

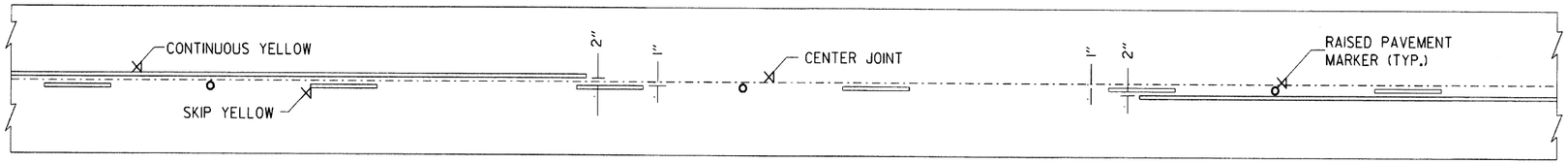


CONCRETE PAVEMENT

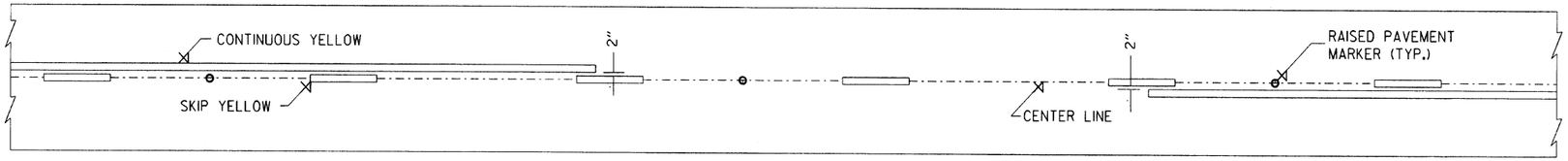


ASPHALT PAVEMENT

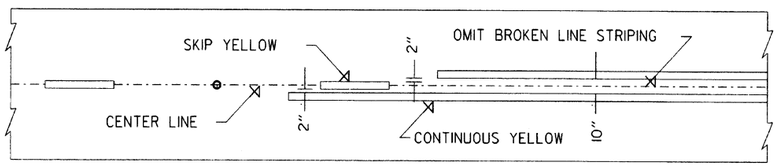
BROKEN LINE STRIPING



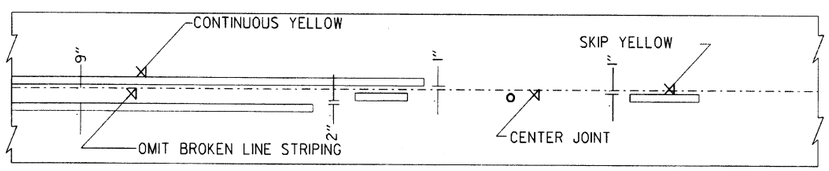
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

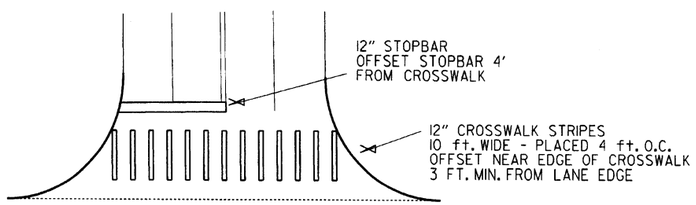


ASPHALT PAVEMENT



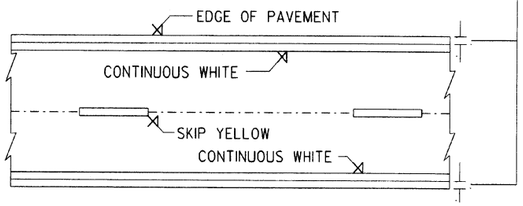
CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

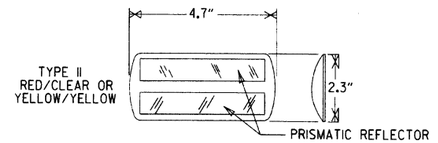


CROSSWALK AND STOPBAR DETAILS

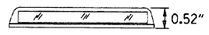
2" FOR ASPHALT OR CONCRETE PAVEMENT
6" FOR BITUMINOUS SURFACE TREATMENT



PAVEMENT EDGE LINE MARKING



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



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

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
5-12-16	REVISED LINE WIDTHS, SPACING, & NOTES	
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAV'T. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80	DRAWN	1-9-30-80

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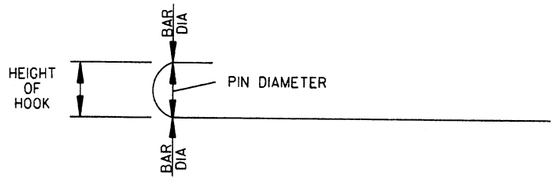
PAVEMENT MARKING DETAILS

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

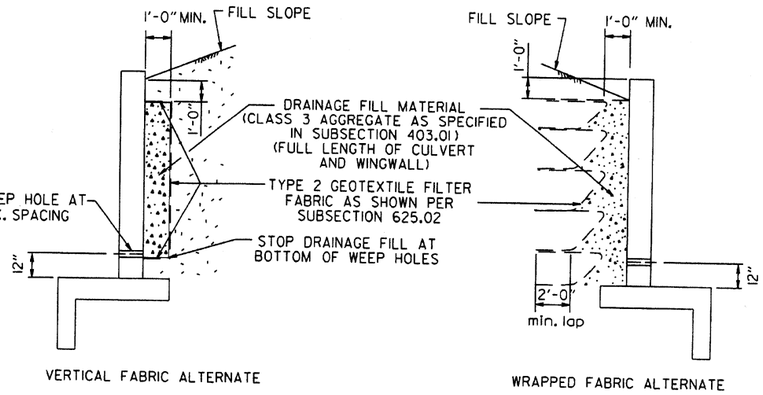
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

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 & CULVERT 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 & CULVERT 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.

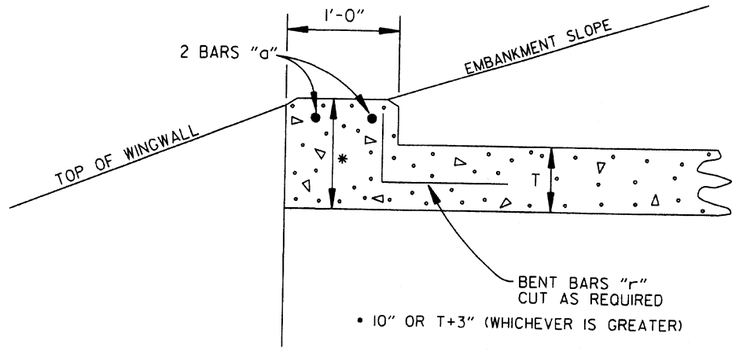
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

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 BOX CULVERT WALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB.

WEEP HOLES IN WINGWALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THERE SHALL BE A MINIMUM OF TWO (2) WEEP HOLES IN EACH WINGWALL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE WINGWALL FOOTING.

THE 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.

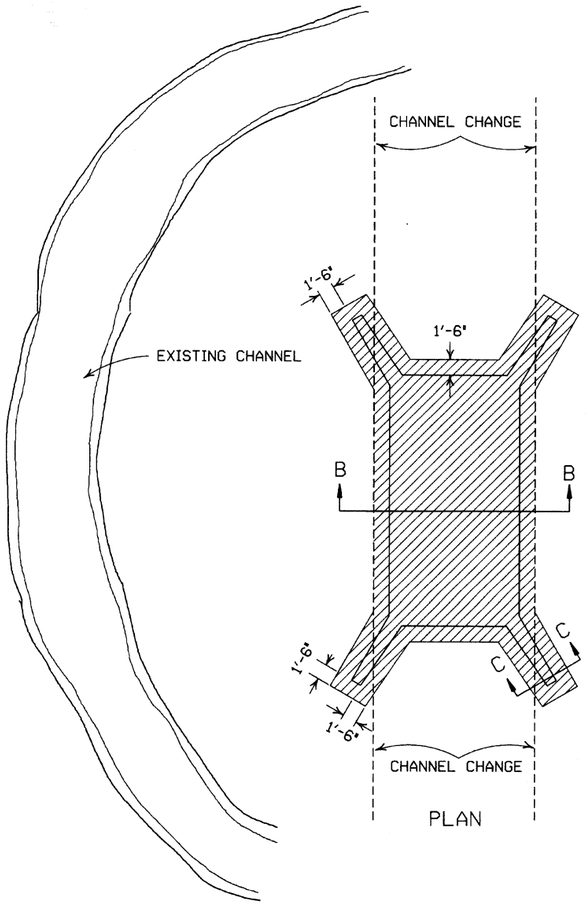
R.C. BOX CULVERT HEADWALL MODIFICATIONS

DATE	REVISION	DATE FILMED
7/26/12	REV. DRAINAGE FILL MATERIAL & DETAIL	
12/15/11	REQUIRE WEEP HOLES IN BOX CULVERT WALLS	
5-25-06	REV. GEN. NOTES AND DETAILS FOR WEEP HOLES; BAR DIAGRAM	
11-16-01	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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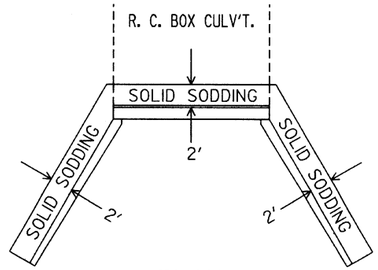
REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1



PLAN

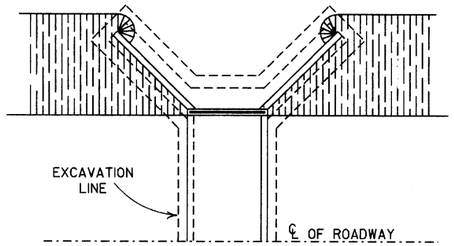
SOLID SODDING



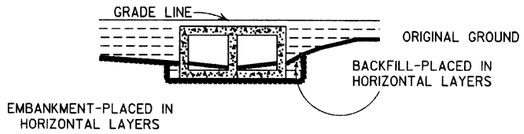
PLAN

PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

NOTE: LENGTH MEASURED ALONG THE CENTER OF 2' STRIP OF SOLID SODDING.

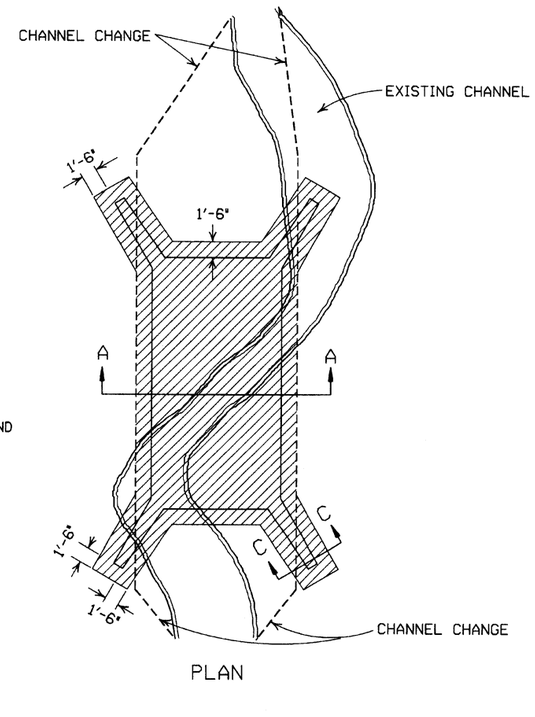


PLAN

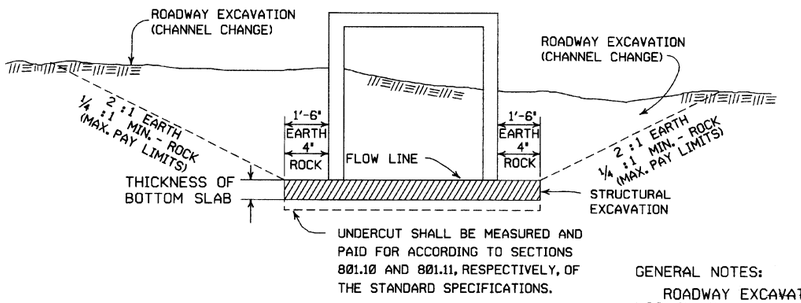


LONGITUDINAL SECTION

BACKFILL DETAILS FOR BOX CULVERT

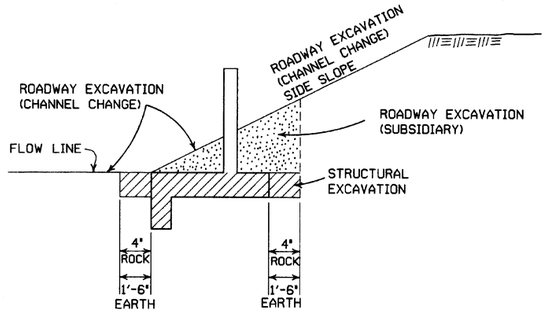


PLAN

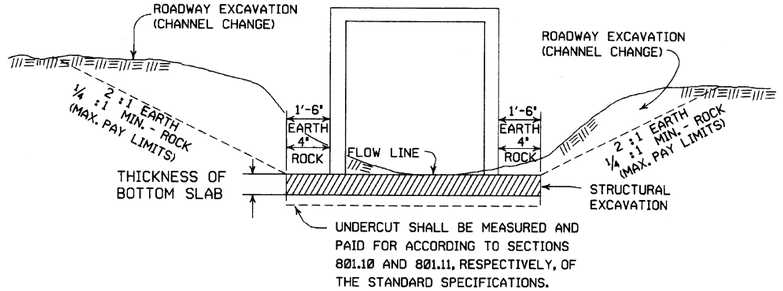


SECTION B-B

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	674-1-4-83
	AND ADDED MAXIMUM PAY	
	LIMIT NOTES.	
2-2-76	EXCAV. PAY LIMITS	917-2-2-76
10-2-72	REVISED AND REDRAWN	564-10-16-72

ARKANSAS STATE HIGHWAY COMMISSION

EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS

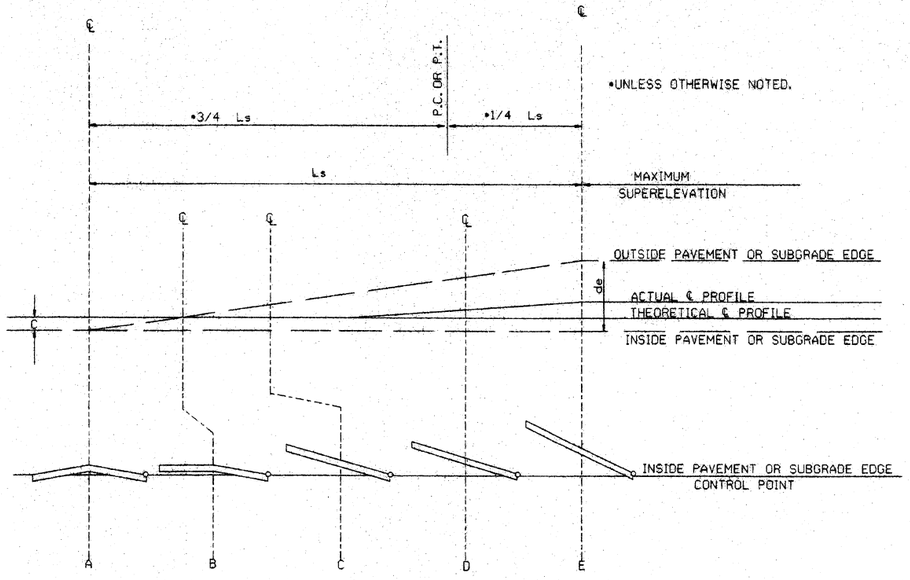
STANDARD DRAWING RCB-2

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	275	300
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		
1° 45'	N.C.			0.025	175		0.036			0.043		300	0.049		300	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	
2° 30'	0.021			0.034			0.049			0.058			0.067			0.085	315	350
2° 45'	0.023			0.037		200	0.053			0.063			0.072	260		0.091	333	
3° 00'	0.025			0.040			0.057			0.067	230		0.077	275		0.096	350	
3° 15'	0.027	150		0.043			0.061			0.072	245		0.082	285		0.098	360	400
3° 30'	0.029			0.046			0.065	205		0.076	255		0.086	285		0.100	380	
3° 45'	0.031		200	0.049			0.069	215		0.080	265		0.090	295	350			
4° 00'	0.033			0.051			0.072	225		0.083	270		0.093	305				
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	350	0.098	320				
5° 30'	0.043			0.066	185		0.088	260		0.094	300							
6° 00'	0.046			0.070	190		0.092	270		0.098	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	250	0.100	290										
8° 30'	0.061			0.087	225													
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.)



•UNLESS OTHERWISE NOTED.

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

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

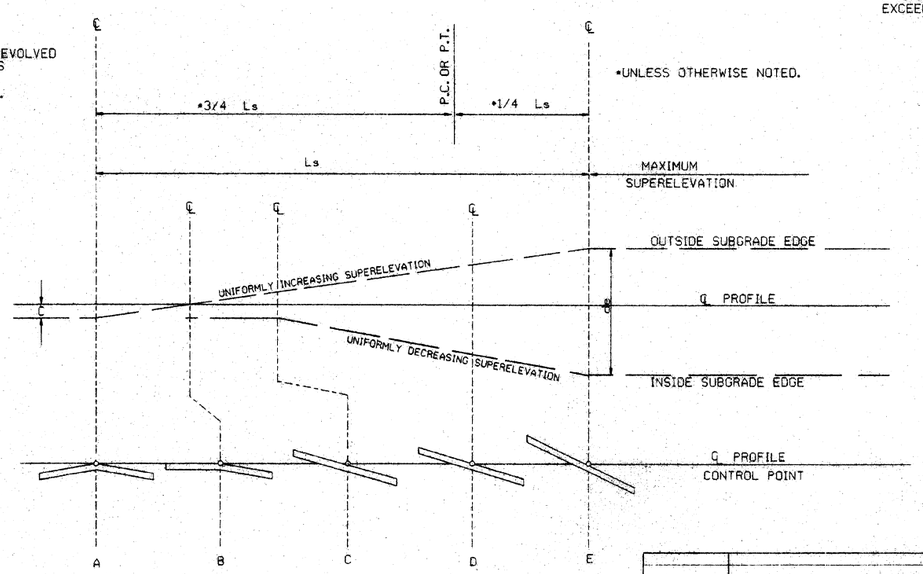
GENERAL NOTES

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.



•UNLESS OTHERWISE NOTED.

STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

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

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

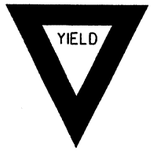
FILE STDSE2.DGN

R1-1



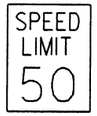
STANDARD 30"X30"
EXPRESSWAY 36"X36"
SPECIAL 48"X48"

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"

W3-5



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

W3-5a



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

R4-1



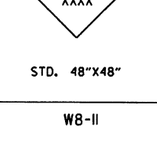
STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R4-2



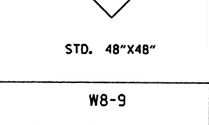
STD. 24"X30"
EXPWY. 36"X48"
FWY. 48"X60"

R5-1



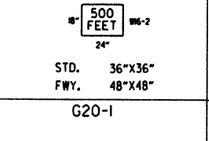
STD. 30"X30"
EXPWY. 36"X36"
SPECIAL 48"X48"

R11-2



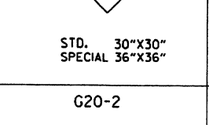
48"X30"

R11-3A



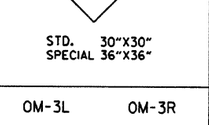
60"X30"

R11-4



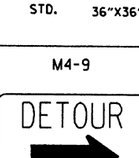
60"X30"

RSP-1



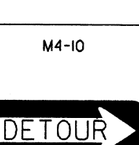
48"X30"

W1-1



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

W1-2



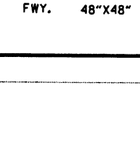
STD. 36"X36"
FWY. 48"X48"

W1-3



STD. 48"X48"

W1-4



STD. 48"X48"

W1-6



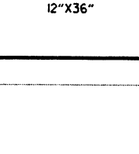
STD. 48"X24"
SPECIAL 60"X30"

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



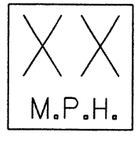
EXPWY. 36"X36"
FWY. 48"X48"

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



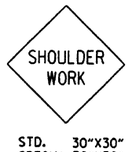
STD. 36"X36"
FWY. 48"X48"

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



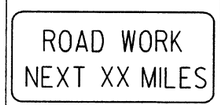
STD. 36"X36"
FWY. 48"X48"

W8-9



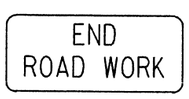
STD. 36"X36"
FWY. 48"X48"

G20-1



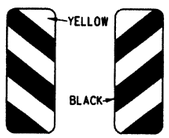
60"X24"

G20-2



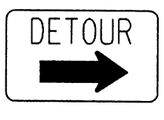
48"X24"

OM-3L OM-3R



12"X36"

M4-9



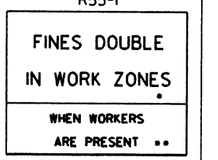
STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

M4-10



48"X18"

R55-1



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.

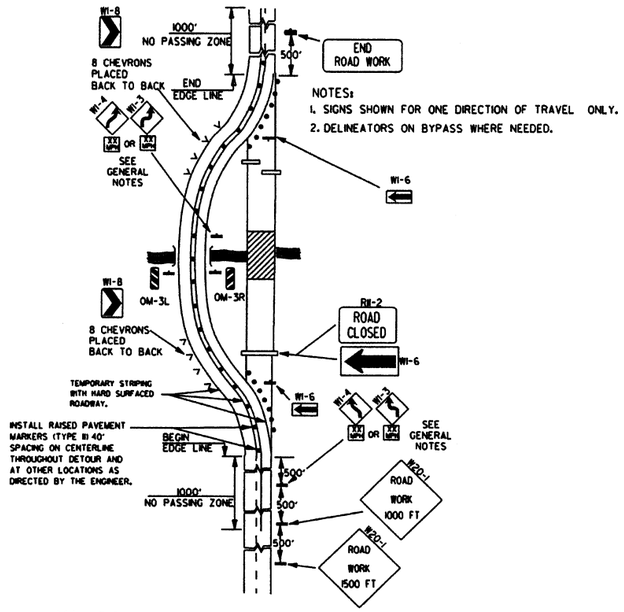
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY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

DATE	REVISION	FILMED
9-2-15	REVISED REDUCED SPEED LIMIT AHEAD SIGNS REVISED ROAD WORK NEXT XX MILES	
12-15-11	REVISED W24-1	
8-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
8-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
8-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
8-18-98	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

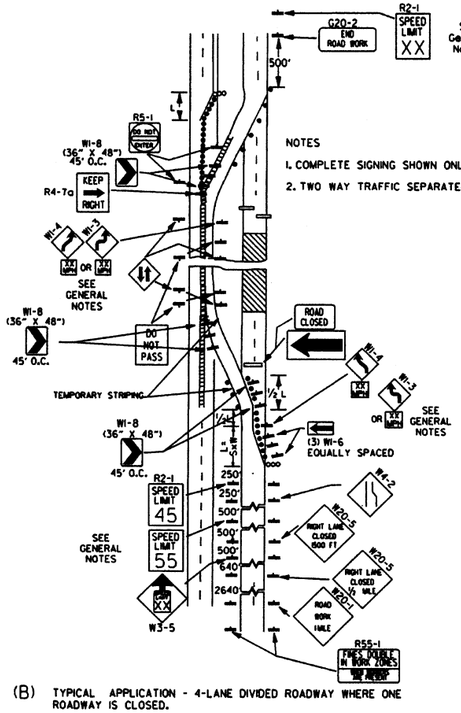
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



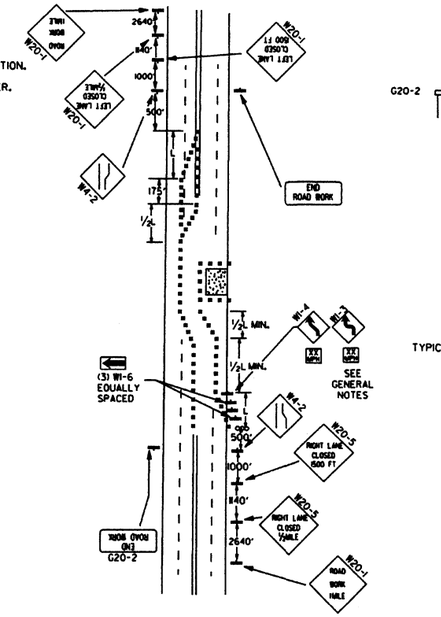
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.

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

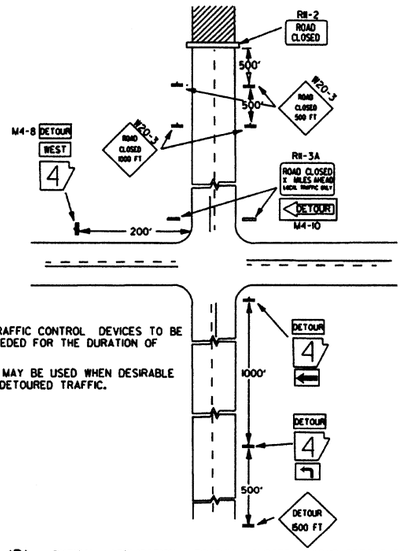


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

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

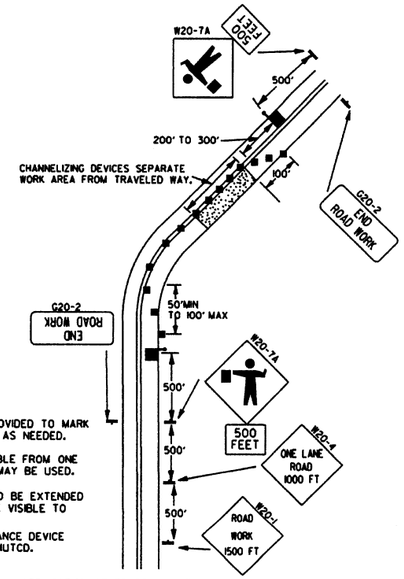


(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



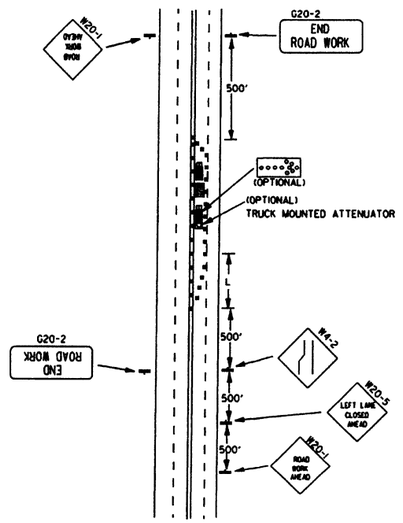
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

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

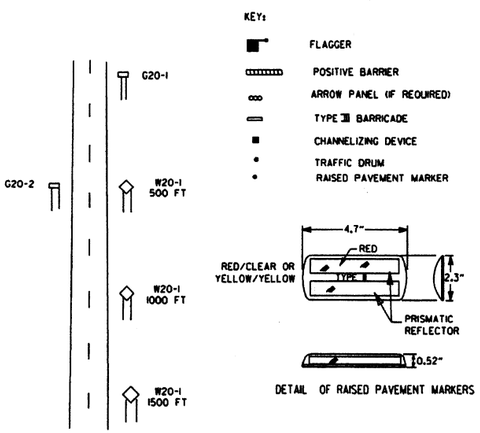


NOTES:
1. FLOOD LIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.
2. IF ENTIRE WORK AREA IS VISIBLE FROM ONE STATION, A SINGLE FLAGGER MAY BE USED.
3. CHANNELIZING DEVICES ARE TO BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
4. AUTOMATED FLAGGER ASSISTANCE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

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



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



TYPICAL ADVANCE WARNING SIGN PLACEMENT

KEY:
- FLAGGER
- POSITIVE BARRIER
- ARROW PANEL (IF REQUIRED)
- TYPE III BARRICADE
- CHANNELIZING DEVICE
- TRAFFIC DRUM
- RAISED PAVEMENT MARKER

DETAIL OF RAISED PAVEMENT MARKERS

TAPER FORMULAE:

L=SXW FOR SPEEDS OF 45MPH OR MORE.

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

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

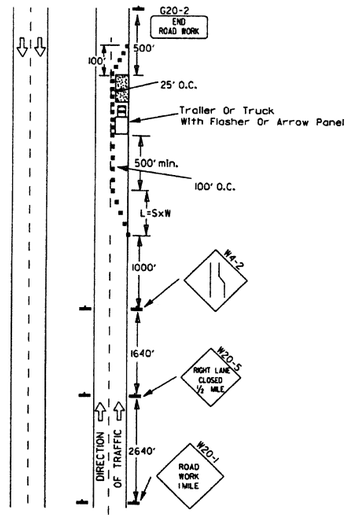
GENERAL NOTES:
1. ADVISORY SPEED POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-K55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-145MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-KXX) 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-K45) SHALL BE OMITTED. ADDITIONAL R2-155MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-KXX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
7. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE.
8. DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE AHTD QUALIFIED PRODUCTS LIST.

DATE	REVISION	FILMED
9-2-15	REVISED NOTE 2, ADDED NOTE 8, REVISED DRAWING (A) & REPLACED R2-5A WITH W3-5	
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-8-10	ADDED (AFAD)	
8-20-08	REVISED SIGN DESIGNATIONS	
8-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

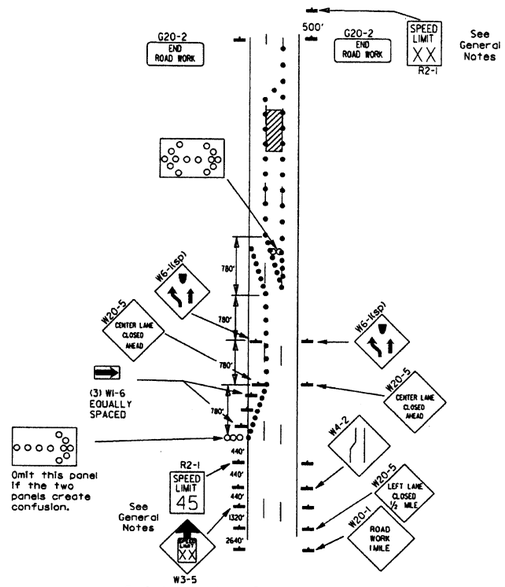
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

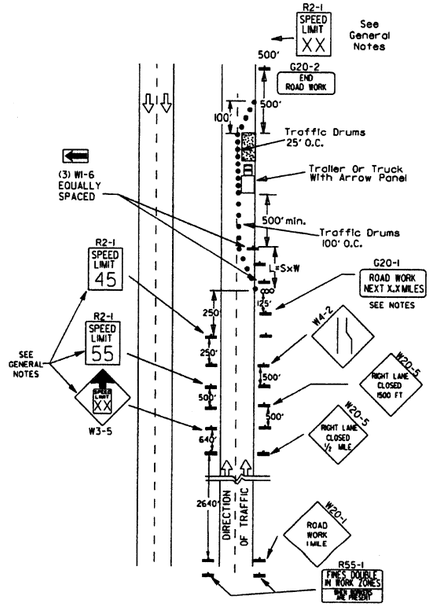
STANDARD DRAWING TC-2



(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 operatipns 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)

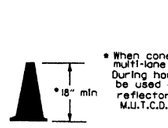
■ Channelizing Device

● Traffic drum

GENERAL NOTES:

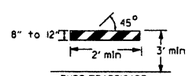
1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the W3-5 shall be installed at that location. Additional 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



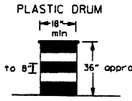
* When cones are used on freeways and multi-lane highways, they shall be 28" min. During hours of darkness, 28" cones shall be used on all roadways, and shall be reflectorized in accordance with the M.U.T.C.D.

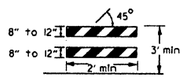
CONES



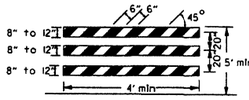
TYPE I BARRICADE

PLASTIC DRUM



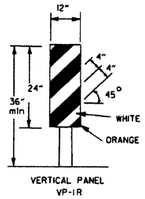


TYPE II BARRICADE



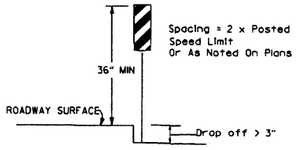
TYPE III BARRICADE

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



VERTICAL PANEL
VP-1R

VERTICAL PANEL PLACEMENT



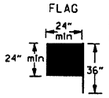
TRAFFIC CONTROL DEVICES
FOR
VERTICAL PAVEMENT DIFFERENTIALS

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.

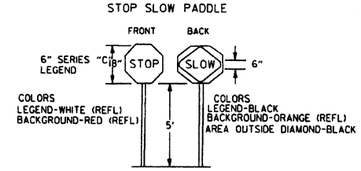
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.

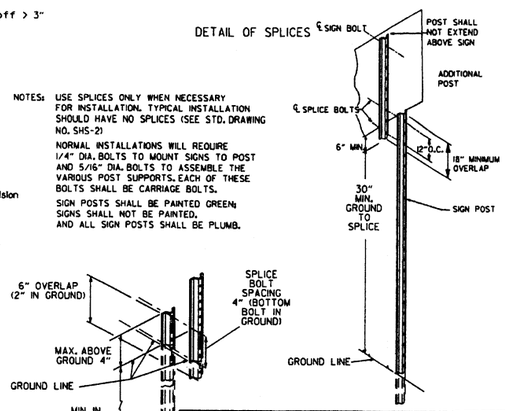
FLAG

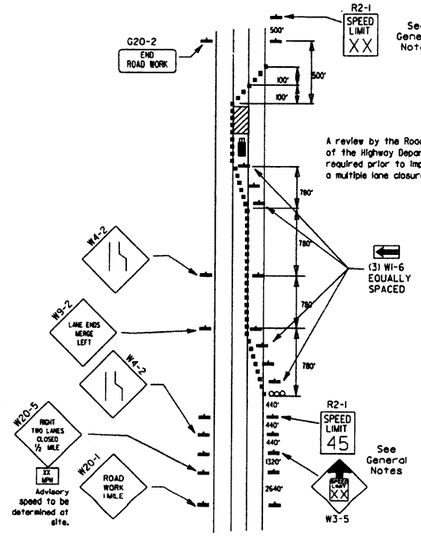


Flag shall be of good grade red material

STOP SLOW PADDLE







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

DATE	REVISION	FILMED
9-2-15	REVISED NOTE 2 & REPLACED R2-5A WITH W3-5	
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1& REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

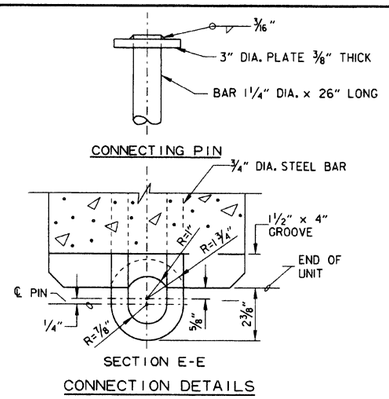
ARKANSAS STATE HIGHWAY COMMISSION

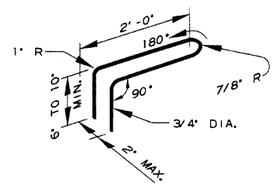
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

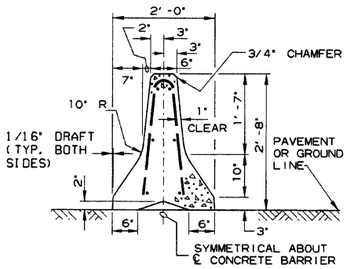
STANDARD DRAWING TC-3

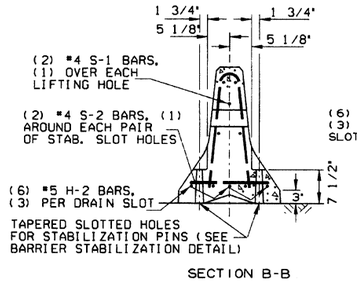
REINFORCING BAR TABLE PER BARRIER UNIT

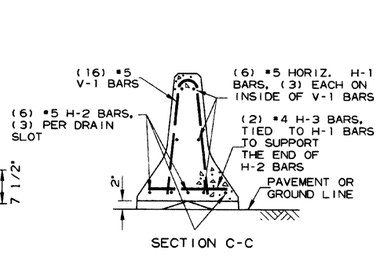
MARK	LOCATION	BAR SIZE	(NO. BARS)	SKETCH
H-1	HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS	#5	(6)	19'-3"
H-2	CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY	#5	(6)	6'-6"
H-3	TIED ABOVE H-1 BARS TO SUPPORT H-2, TIED TO V-1	#4	(2)	1'-6"
S-1	OVER LIFT HOLES	#4	(2)	2'-5", LIFTING HOLE, 90°, 3 3/8" R
S-2	HORIZ. AROUND SLOTS BETWEEN V-1'S @ DRAIN SLOTS	#4	(2)	1 1/2" R, SLOTS, 7", 1" MIN. CLEAR TO BAR, 5'-1" BAR W/(4) 1 1/2" R BENDS & MIN. 1'-0" OVERLAP, 1'-6"
V-1	VERTICAL IN BARRIER(3) EACH END & (2) AT EACH DRAIN SLOTS	#5	(16)	TOTAL LENGTH 4'-9", 2 3/16" R, 12", 1 1/2", 9", 2'-1 3/8", 4 3/8"

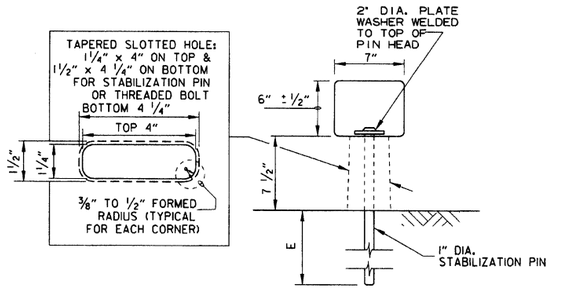


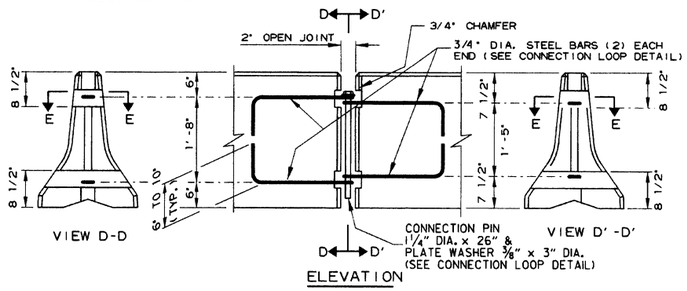


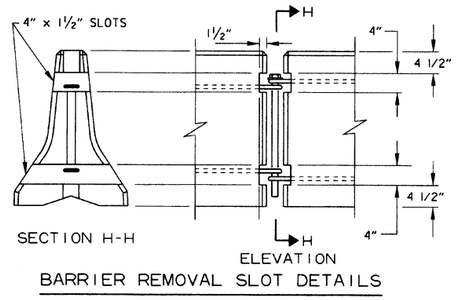


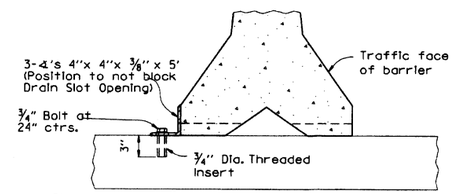






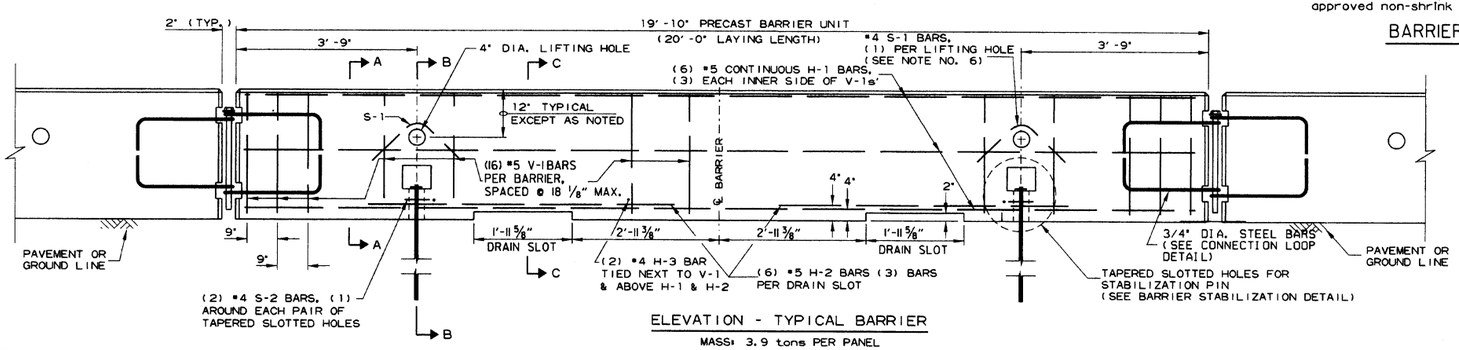






NOTE: 3/4" Threaded Inserts shall be cast in place for all new bridge decks and drilled and grouted for existing bridge decks. Inserts shall have a minimum ultimate load capacity of 8000 lbs. in tension. After removal of barrier, bolts, and angles, the inserts shall be filled with approved non-shrink epoxy.

BARRIER STABILIZATION DETAIL
BRIDGE DECKS



General Notes

1. The contractor shall furnish the Precast Concrete Barrier Units and shall be responsible for the manufacture, shipment, storage, placement and removal. At the completion of the project, the precast units will remain the property of the contractor.

2. Materials shall meet the following minimum requirements:
   Concrete: 2500 psi compressive strength at 28 days.
   Reinforcing Steel: AASHTO M 31 or M 53, Grade 60
   Structural Steel: AASHTO-M270 Grade 36 shall be used for the Connection Pin, Connection Loops, and Stabilization Pins. A⁵ One Piece Pin with a 3" rounded top may be used in place of the detailed Connection Pin.
   Delineators: Delineators shall be mounted at 10' spacing on top of precast barrier.

   In applications where barrier wall is within 6 feet of a traffic lane, additional delineators shall be placed on the barrier at 10' spacing approximately one (1) foot from the top of the barrier. Delineators shall be on the AHTD Qualified Products List for Construction Concrete Barrier Markers.
   Delineator color shall be in accordance with the Manual on Uniform Traffic Control Devices.
   Payment for delineators shall be considered included in the price bid per Lin. Ft. for "Furnishing and Installing Precast Concrete Barrier". The contractor shall certify to the Engineer that the material and the design used in the precast barrier units meets the requirements as shown on this standard drawing.

3. Other Precast Concrete Barriers that have been crash tested and approved by the Federal Highway Administration to meet the requirements of NCHRP-350 test level 3 or Manual For Assessing Safety Hardware (MASH) will be accepted in lieu of the barrier shown. Drain slots shall be provided as needed or as directed by the Engineer. The Contractor shall furnish a certification of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) compliance for any other types of precast barrier to be used. The certification shall state that the precast concrete barrier meets the requirements of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) and include a copy of the Federal Highway Administration's (FHWA) approval letter with all attachments. Precast concrete barrier units shall be fabricated and installed in accordance with crash testing and documentation provided in the FHWA approval letter. Mixing of shapes will not be allowed in a continuous line of units.

4. Dowel holes in pavement or bridge slabs that are to remain in place shall be filled. Holes in concrete pavement and bridge slabs shall be filled with an approved non-shrink epoxy grout. Holes in asphalt pavement shall be filled with an approved asphalt joint filler. Payment for drilling and filling holes to be included in the price for various barrier items.

5. Attach Units To Roadway Surface with Stabilization Pins and to Deck Slabs using bolts when required.

6. A 4" White PVC Sleeve may be used to form the Lifting Hole and if used the Sleeve is to be left in place.

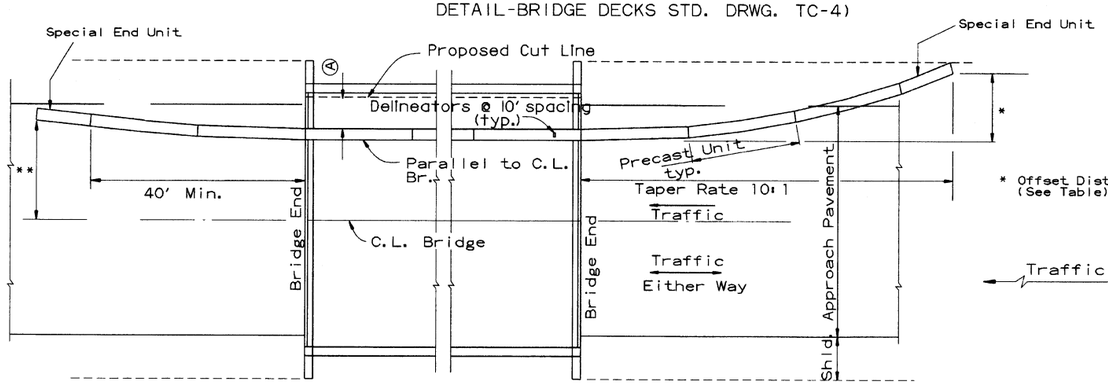
DATE	REVISION	FILMED
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-15-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED GENERAL NOTE 2	
8-22-02	ISSUED NEW DRAWING	

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

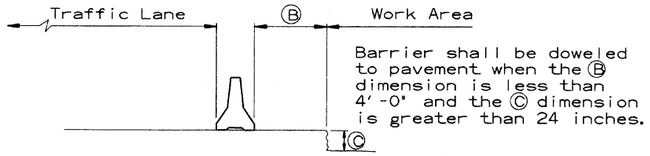
STANDARD DRAWING TC-4

Ⓐ 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)



BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

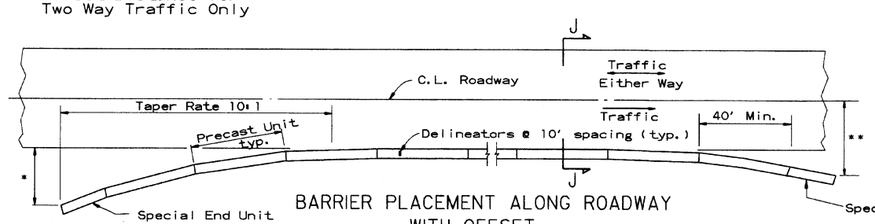


Barrier shall be doweled to pavement when the Ⓑ dimension is less than 4'-0" and the Ⓒ dimension is greater than 24 inches.

SECTION J-J

No Scale

** Offset Distance for Two Way Traffic Only



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

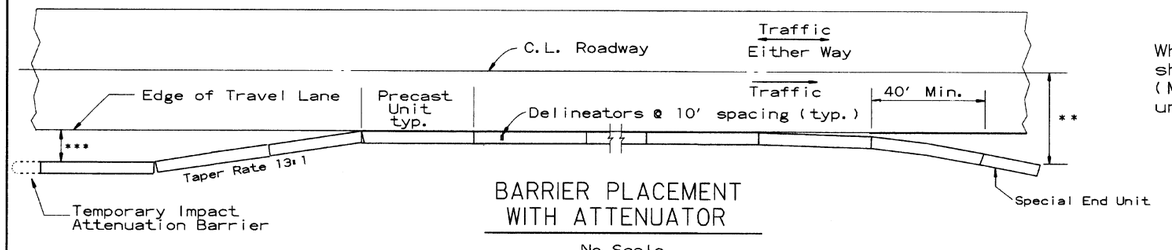
** Offset Distance For Two Way Traffic Only

* Offset Distance (See Table)

Offset Distance Table

Speed (MPH)	Offset Distance (FT.)
≤ 45	12
> 45	18

If offset distance is not attainable, then see 'Barrier Placement With Attenuator' Detail shown below.

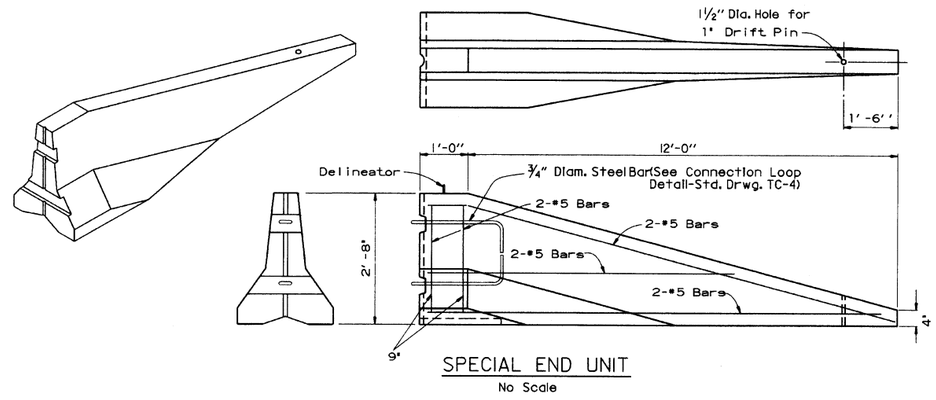


BARRIER PLACEMENT WITH ATTENUATOR

No Scale

*** Min. 3'-0" From Edge of Travel Lane to Nearest Edge of Attenuator

** Offset Distance For Two Way Traffic Only



SPECIAL END UNIT

No Scale

General Notes

When shown on the Plans, the ends of the Temporary Precast Concrete Barrier shall be protected with an NCHRP-350 or Manual For Assessing Safety Hardware (MASH) approved Crash Cushion. Payment for Crash Cushions shall be made under the item of "Temporary Impact Attenuation Barrier."

DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
5-25-06	REVISED BARRIER PLACEMENT	
8-22-02	ISSUED NEW DRAWING	

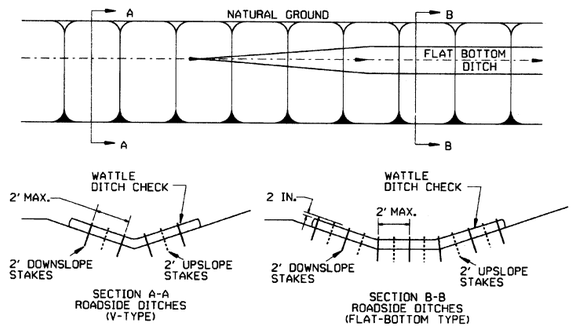
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

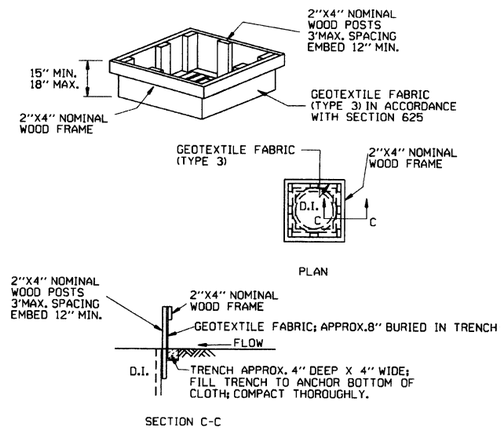
STANDARD DRAWING TC-5

GENERAL NOTES

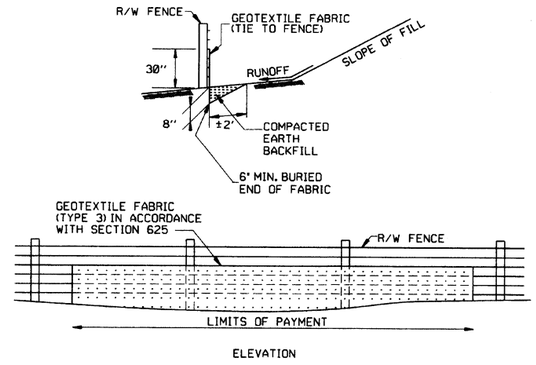
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



DROP INLET SILT FENCE (E-7)



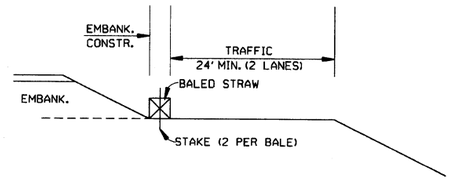
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

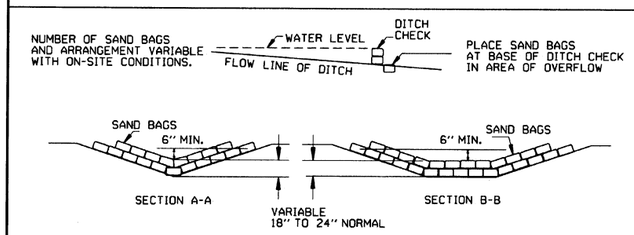
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

GENERAL NOTES

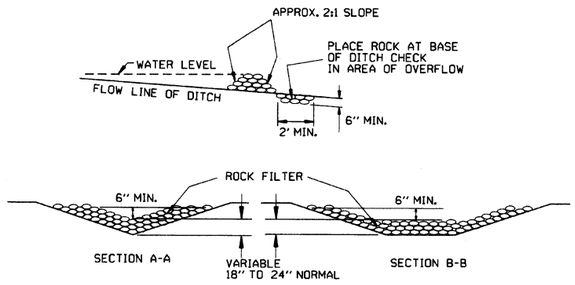
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.
2. NO GAPS SHALL BE LEFT BETWEEN BALES.
3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED 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.



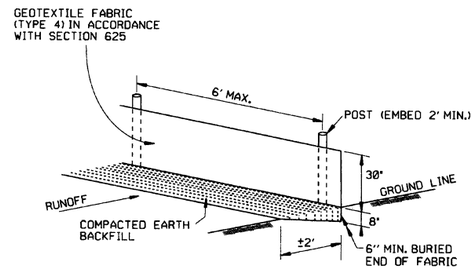
BALED STRAW FILTER BARRIER (E-2)



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
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK	
11-18-98	ADDED NOTES	
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

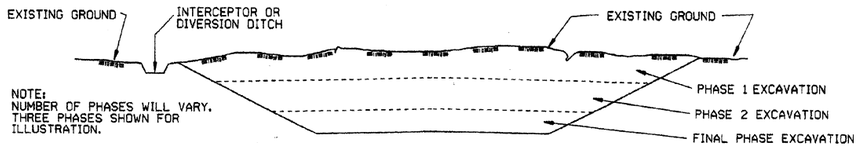
STANDARD DRAWING TEC-1

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



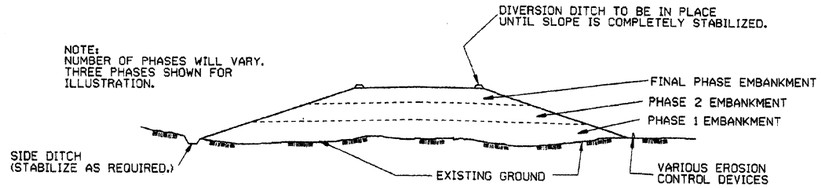
GENERAL NOTE

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.

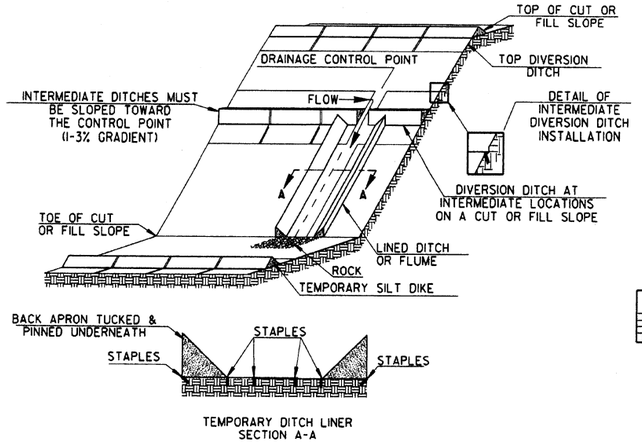
DATE	REVISION	FILMED
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

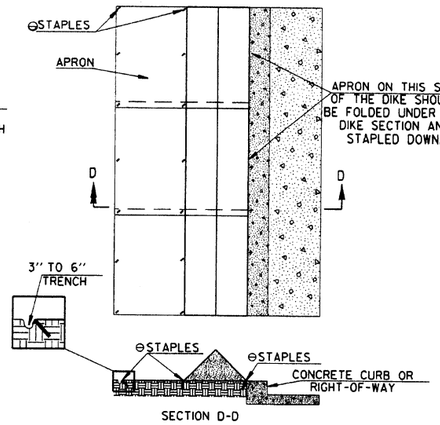
STANDARD DRAWING TEC-3

stdtec3.dgn



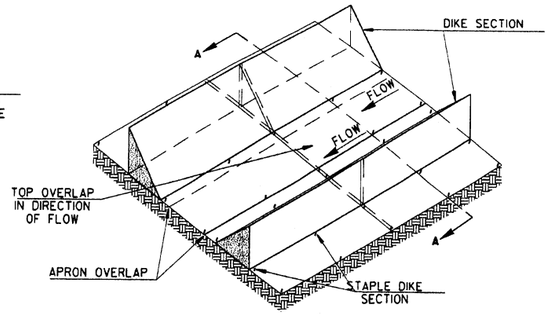
TEMPORARY DITCH LINER
SECTION A-A

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

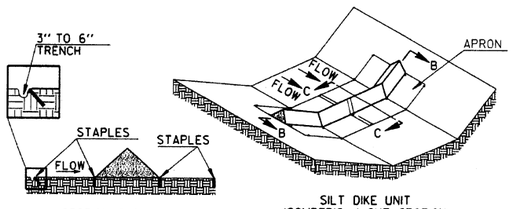


SECTION D-D

TRIANGULAR SILT DIKE INSTALLATION
FOR
CONTINUOUS BARRIER

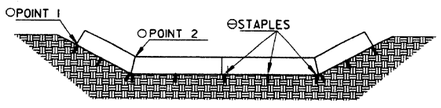


TRIANGULAR SILT DIKE INSTALLATION
FOR
TEMPORARY DITCH LINER



SECTION C-C

SILT DIKE UNIT
ISOMETRIC / CUT SECTION

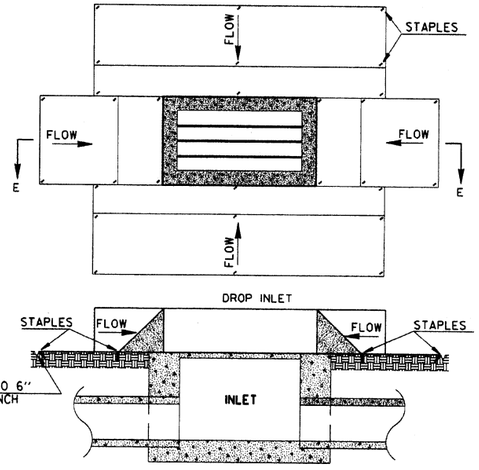


DIKE SECTION
SECTION B-B

TRIANGULAR SILT DIKE INSTALLATION
FOR
ROADWAY DITCH OR DRAINAGE DITCH

○ POINT "1" MUST BE HIGHER THAN POINT "2" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.

⊖ STAPLES SHALL BE PLACED WHERE THE UNITS OVERLAP AND IN THE CENTER OF THE UNIT AS SHOWN ON THE DIAGRAM.



SECTION E-E

TRIANGULAR SILT DIKE INSTALLATION
FOR
DROP INLETS

SYMBOLOGY
SYMBOL TO BE USED TO DENOTE DEVICE ON PLANS

NOTE: SILT DIKE SHOULD ONLY BE USED FOR DROP INLETS IN SUMP LOCATIONS.

GENERAL NOTES

1. THIS WORK SHALL CONSIST OF FURNISHING, INSTALLING, AND MAINTAINING THE TRIANGULAR 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. TRIANGULAR 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. 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 TRIANGULAR SILT DIKE, MEASURED AS PROVIDED ABOVE, WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID FOR TRIANGULAR SILT DIKE. PRICE BID WILL INCLUDE THE COST OF FURNISHING THE DIKES, INSTALLING, MAINTAINING AND REMOVAL WHEN DIRECTED BY THE ENGINEER.

DATE	REVISION	FILMED
7-26-12	REVISED GENERAL NOTE 2.	
12-15-11	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

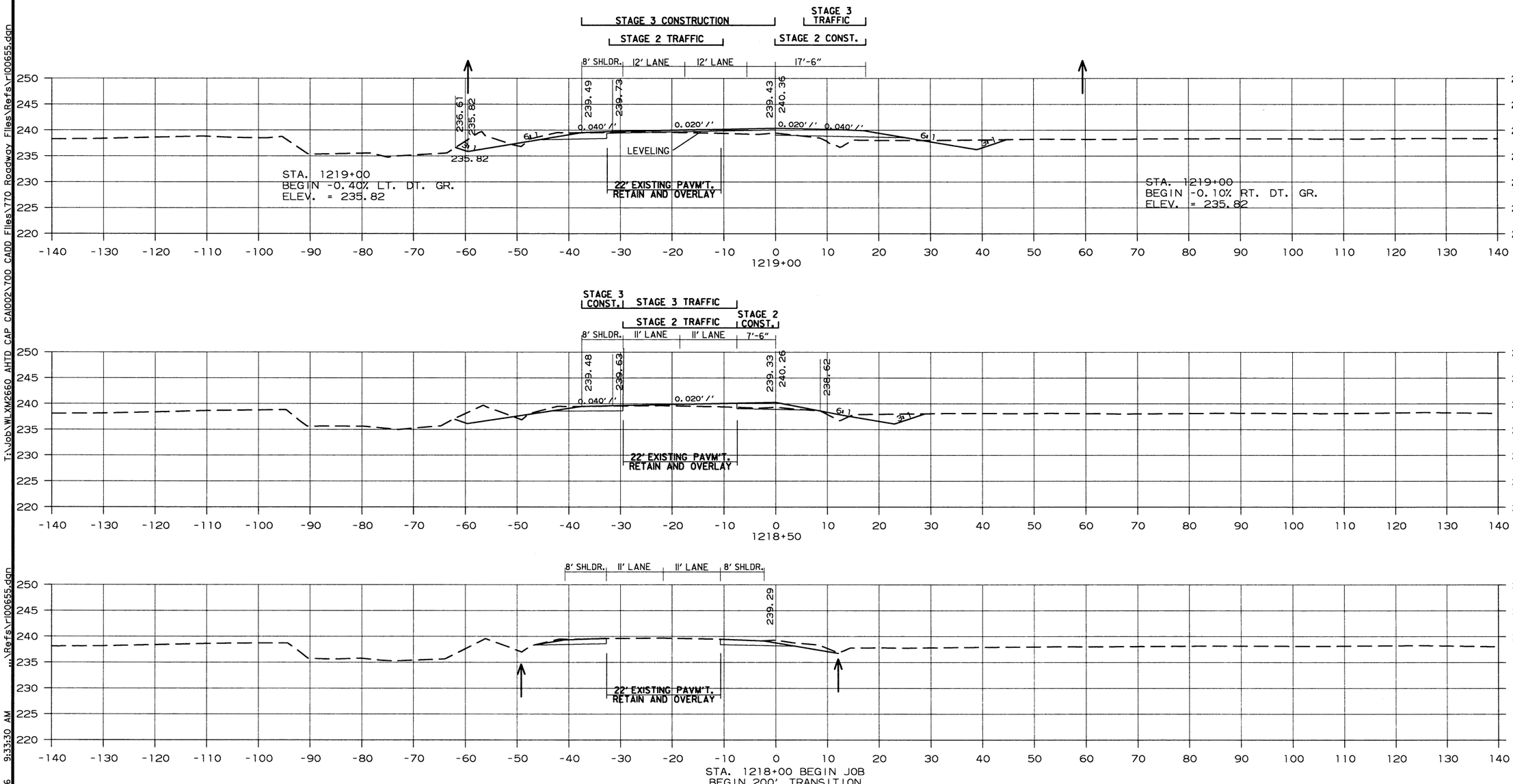
TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-4

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.		CA1002	244	319

(2) CROSS SECTIONS



END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
			STAGE 2: 33 / STAGE 3: 68
STAGE 2: 16 / STAGE 3: 36	STAGE 2: 16 / STAGE 3: 1		
			STAGE 2: 31 / STAGE 3: 64
			STAGE 2: 2 / STAGE 3: 2
STAGE 2: 18 / STAGE 3: 33	STAGE 2: 3 / STAGE 3: 1		
			STAGE 2: 34 / STAGE 3: 42
			STAGE 2: 3 / STAGE 3: 1
STAGE 2: 19 / STAGE 3: 12	STAGE 2: 0 / STAGE 3: 0		

CROSS SECTION STA. 1218+00 TO STA. 1219+00

T:\Job\WI-XM2660 AHTD CAP CA1002\700 CADD Files\770 Roadway Files\Refs\r100655.dgn
...\Refs\r100655.dgn
8/16/2016 9:33:30 AM

JACOBS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	245	319

(2) CROSS SECTIONS

CROSS SECTION STA. 1219+50 TO STA. 1220+50

	END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
STAGE 2	34	34	74	57
STAGE 3	37	2	66	4
STAGE 2	26	33	56	62
STAGE 3	34	2	66	4
STAGE 2	20	33	43	61
STAGE 3	37	1	66	3

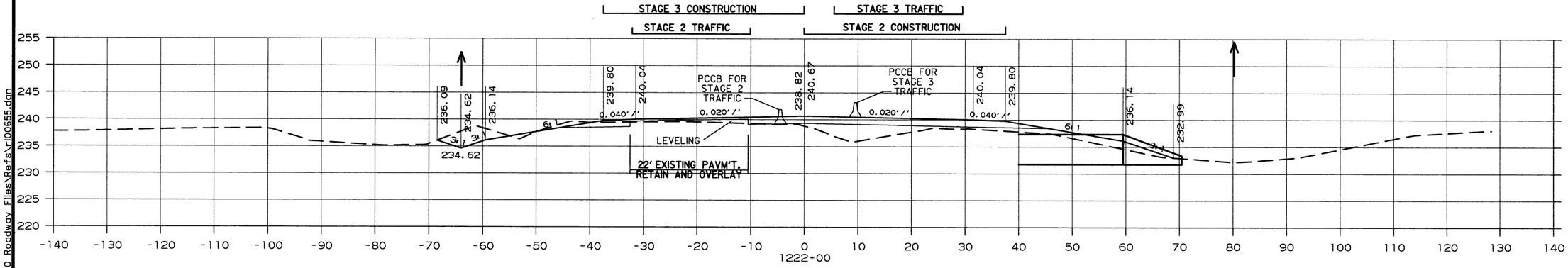
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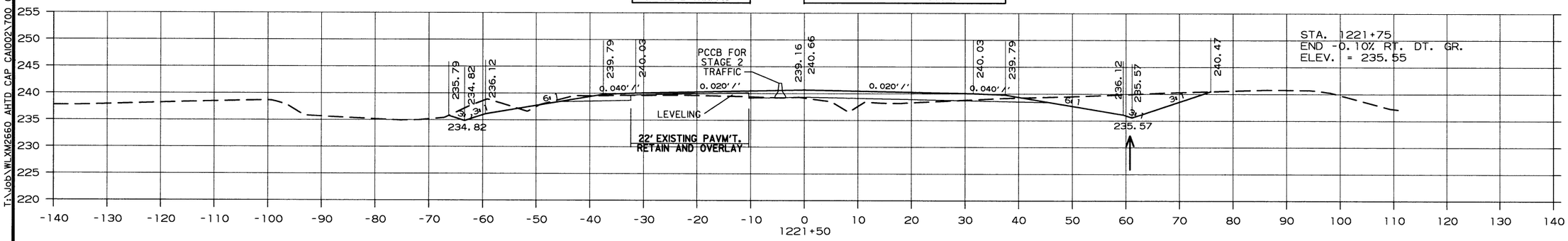
JACOBS

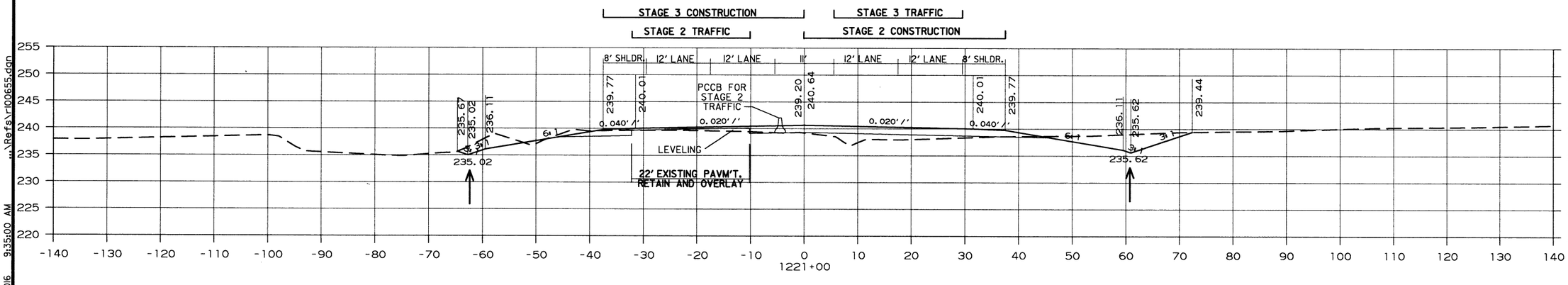
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	246	319

(2) CROSS SECTIONS







	END AREA (S.F.)		VOLUME (C.Y.)	
	CUT	FILL	CUT	FILL
			STAGE 2 8	103
			STAGE 3 20	2
	STAGE 2 0	84		
	STAGE 3 39	2		
			STAGE 2 75	98
			STAGE 3 69	4
	STAGE 2 81	22		
	STAGE 3 36	2		
			STAGE 2 118	46
			STAGE 3 65	4
	STAGE 2 46	28		
	STAGE 3 34	2		

CROSS SECTION STA. 1221+00 TO STA. 1222+00

JACOBS

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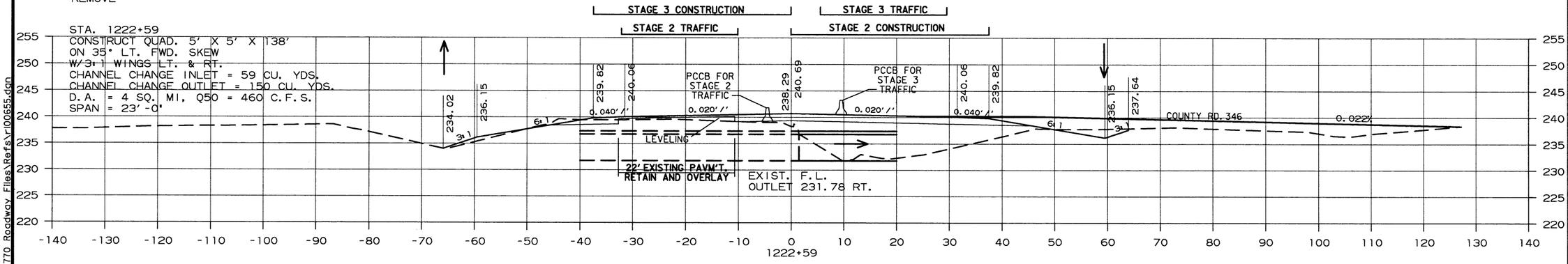
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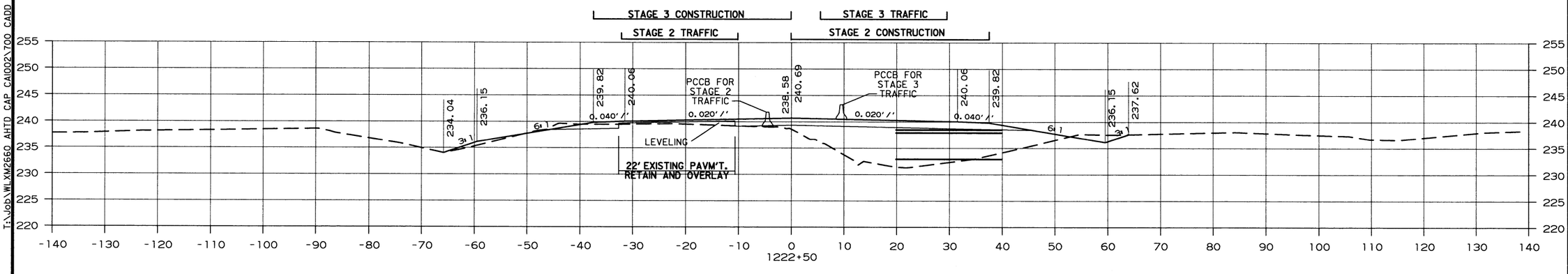
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6	ARK.			
JOB NO.		CA1002	247	319

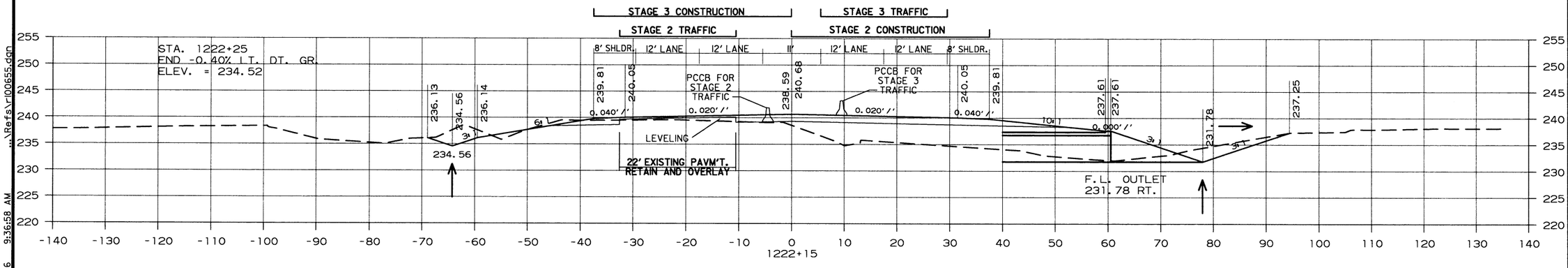
(2) CROSS SECTIONS

STA. 1222+59 IN PLACE
DBL. 5' X 5' X 59' R.C. BOX CULVERT
ON 35° LT. FWD. SKEW
REMOVE

STA. 1222+59
CONSTRUCT QUAD. 5' X 5' X 138'
ON 35° LT. FWD. SKEW
W/3:1 WINGS LT. & RT.
CHANNEL CHANGE INLET = 59 CU. YDS.
CHANNEL CHANGE OUTLET = 150 CU. YDS.
D.A. = 4 SQ. MI, Q50 = 460 C.F.S.
SPAN = 23'-0"







CROSS SECTION STA. 1222+15 TO STA. 1222+59

	END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
			STAGE 2 9	168
			STAGE 3 40	108
		STAGE 2 12	214	
		STAGE 3 12	10	
			STAGE 2 4	78
			STAGE 3 4	3
		STAGE 2 9	256	
		STAGE 3 12	8	
			STAGE 2 24	353
			STAGE 3 30	8
		STAGE 2 28	288	
		STAGE 3 34	5	

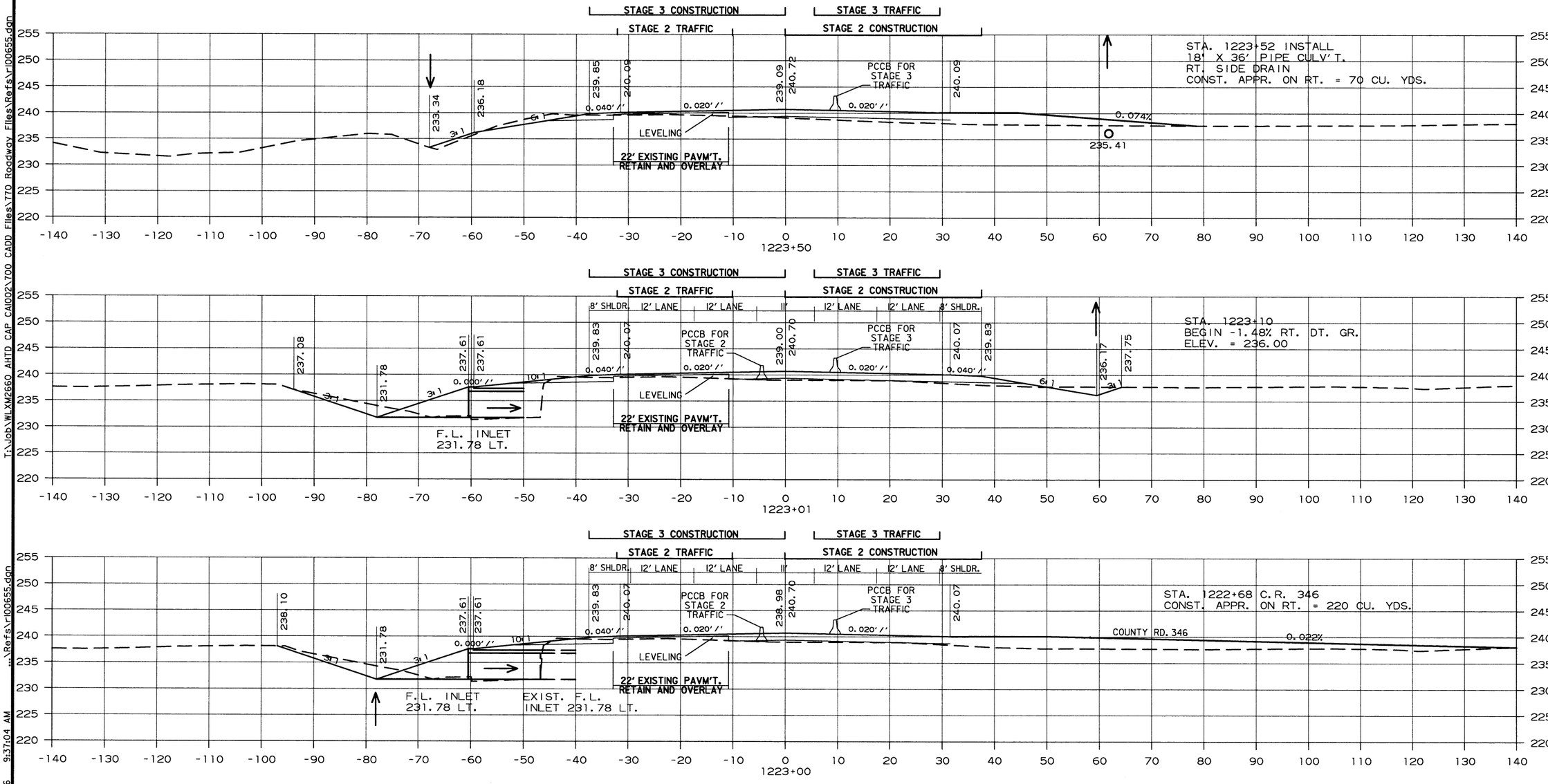
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	248	319

(2) CROSS SECTIONS



	END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
			STAGE 2: 38	STAGE 2: 94
			STAGE 3: 95	STAGE 3: 7
			STAGE 2: 18	STAGE 2: 31
			STAGE 3: 22	STAGE 3: 6
			STAGE 2: 7	STAGE 2: 35
			STAGE 3: 58	STAGE 3: 128
			STAGE 2: 0	STAGE 2: 7
			STAGE 3: 41	STAGE 3: 132

CROSS SECTION STA. 1223+00 TO STA. 1223+50

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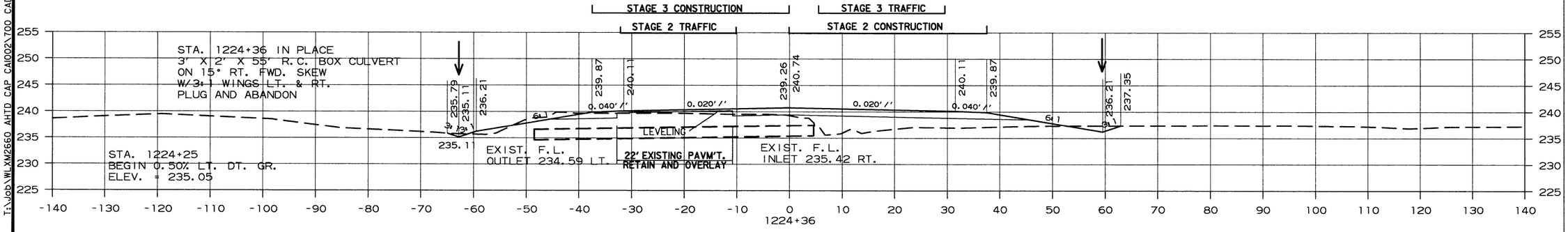
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6	ARK.			
JOB NO.		CA1002	249	319

(2) CROSS SECTIONS

END AREA (S.F.)		VOLUME (C.Y.)	
CUT	FILL	CUT	FILL



STAGE 2	
3	47
STAGE 3	
II	3
STAGE 2	
6	96
STAGE 3	
20	5
STAGE 2	
19	III
STAGE 3	
67	5
STAGE 2	
23	70
STAGE 3	
81	2

CROSS SECTION STA. 1224+00 TO STA. 1224+36

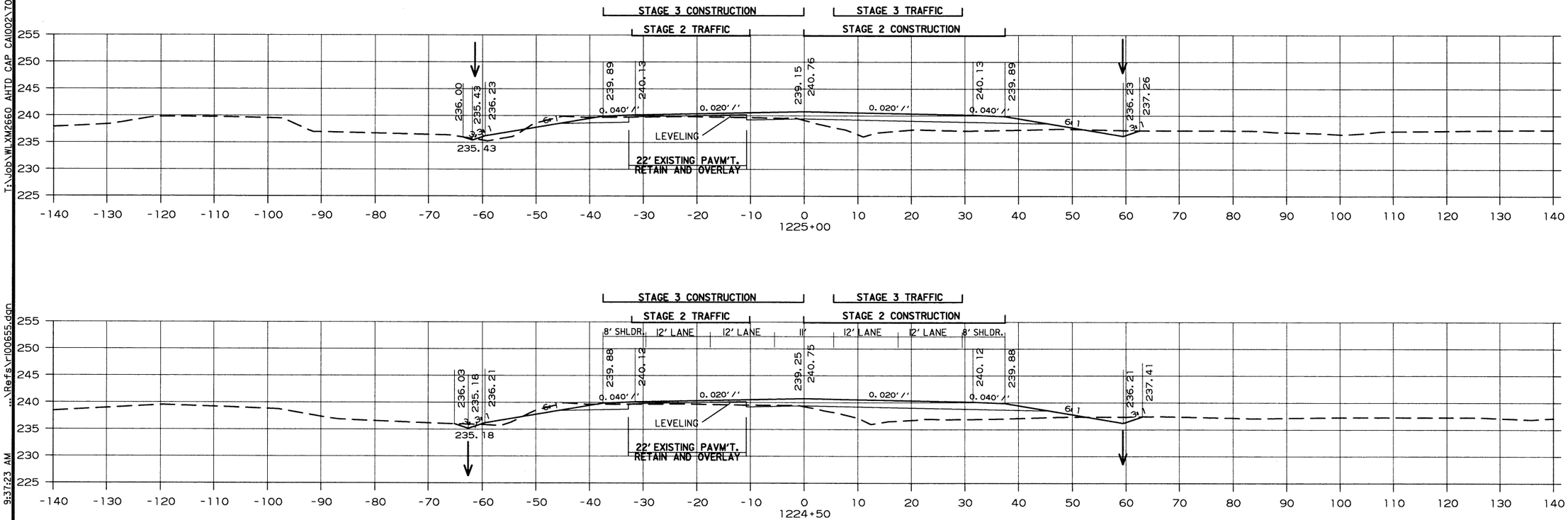
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6	ARK.			
JOB NO.		CA1002	250	319

(2) CROSS SECTIONS



END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
		STAGE 2: 12	STAGE 2: 155
		STAGE 3: 43	STAGE 3: 9
		STAGE 2: 6	STAGE 2: 78
		STAGE 3: 22	STAGE 3: 7
		STAGE 2: 11	STAGE 2: 153
		STAGE 3: 42	STAGE 3: 11
		STAGE 2: 6	STAGE 2: 87
		STAGE 3: 23	STAGE 3: 5

CROSS SECTION STA. 1224+50 TO STA. 1225+00

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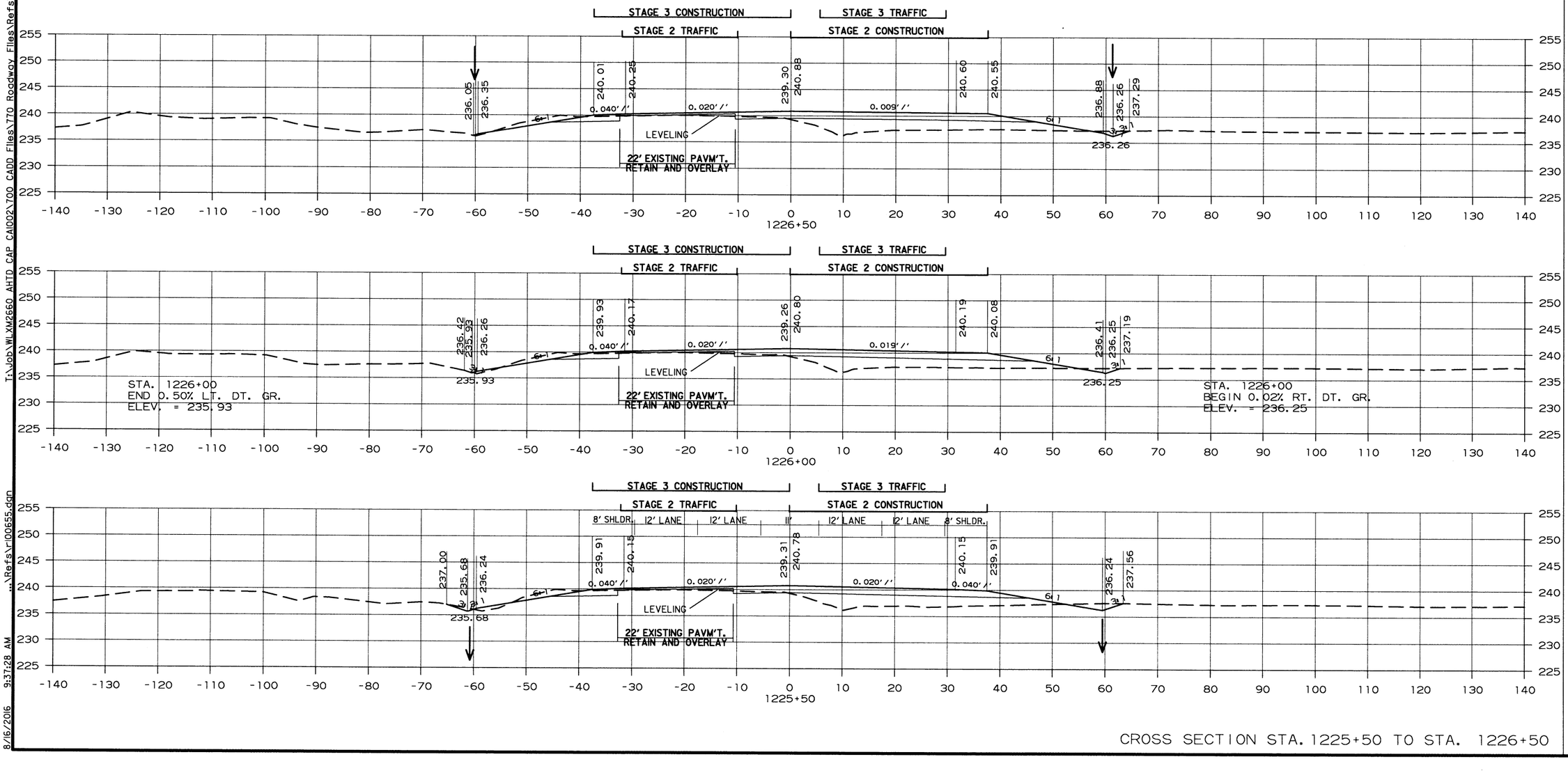
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6	ARK.			
JOB NO.		CA1002	251	319

(2) CROSS SECTIONS

STA. 1225+95.71 BEGIN SUPERELEVATION
STA. 1231+35.71 MAX. SUPERELEVATION (0.055'/')
STA. 1240+00.72 MAX. SUPERELEVATION (0.055'/')
STA. 1245+40.72 END SUPERELEVATION



	END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
			STAGE 2: 7	STAGE 2: 195
			STAGE 3: 44	STAGE 3: 1
			STAGE 2: 3	STAGE 2: 97
			STAGE 3: 24	STAGE 3: 1
			STAGE 2: 6	STAGE 2: 168
			STAGE 3: 43	STAGE 3: 2
			STAGE 2: 4	STAGE 2: 84
			STAGE 3: 22	STAGE 3: 1
			STAGE 2: 10	STAGE 2: 160
			STAGE 3: 43	STAGE 3: 4
			STAGE 2: 7	STAGE 2: 89
			STAGE 3: 24	STAGE 3: 3

CROSS SECTION STA. 1225+50 TO STA. 1226+50

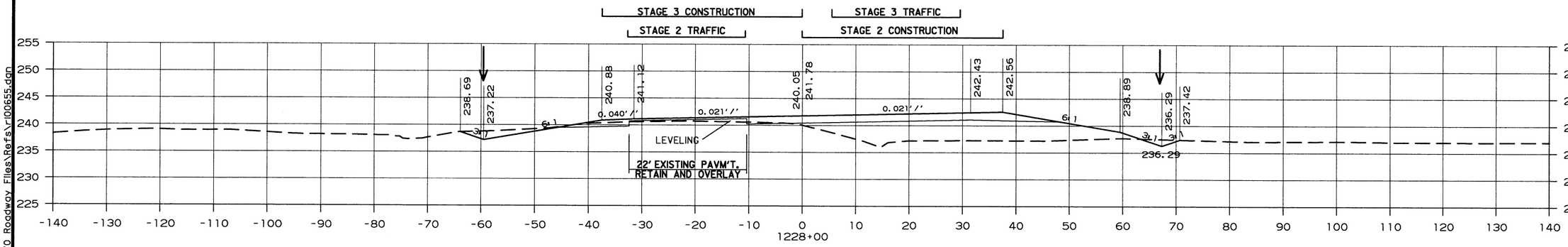
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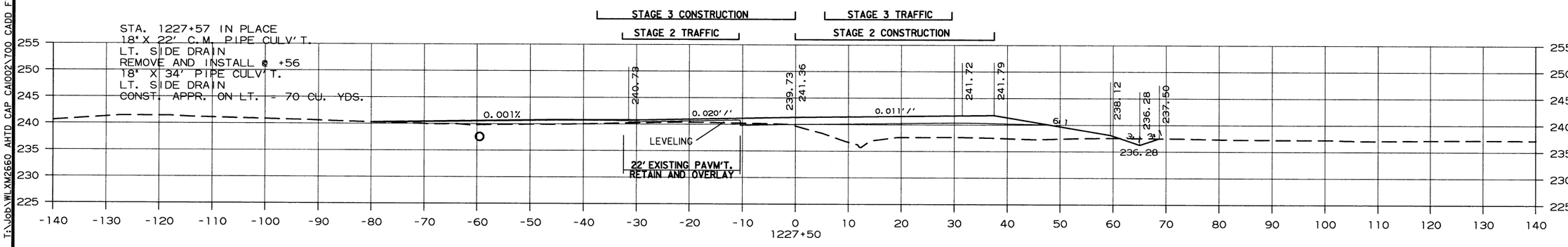
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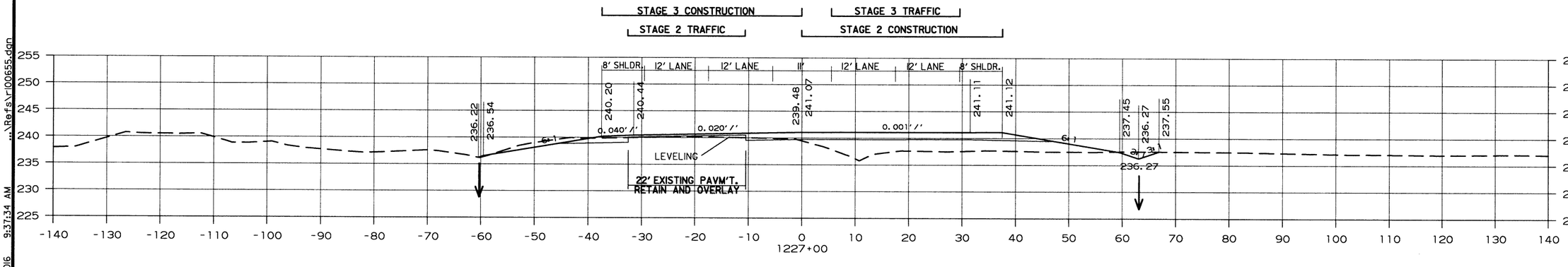
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				6	ARK.			
				JOB NO.		CA1002	252	319

(2) CROSS SECTIONS

STA. 1225+95.71 BEGIN SUPERELEVATION
STA. 1231+35.71 MAX. SUPERELEVATION (0.055'/')
STA. 1240+00.72 MAX. SUPERELEVATION (0.055'/')
STA. 1245+40.72 END SUPERELEVATION







CROSS SECTION STA. 1227+00 TO STA. 1228+00

END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
		STAGE 2	
		7	412
		STAGE 3	
		33	2
STAGE 2			
5	191		
STAGE 3			
24	0		
		STAGE 2	
		9	312
		STAGE 3	
		71	0
STAGE 2			
5	146		
STAGE 3			
53	0		
		STAGE 2	
		9	241
		STAGE 3	
		71	0
STAGE 2			
5	114		
STAGE 3			
24	0		

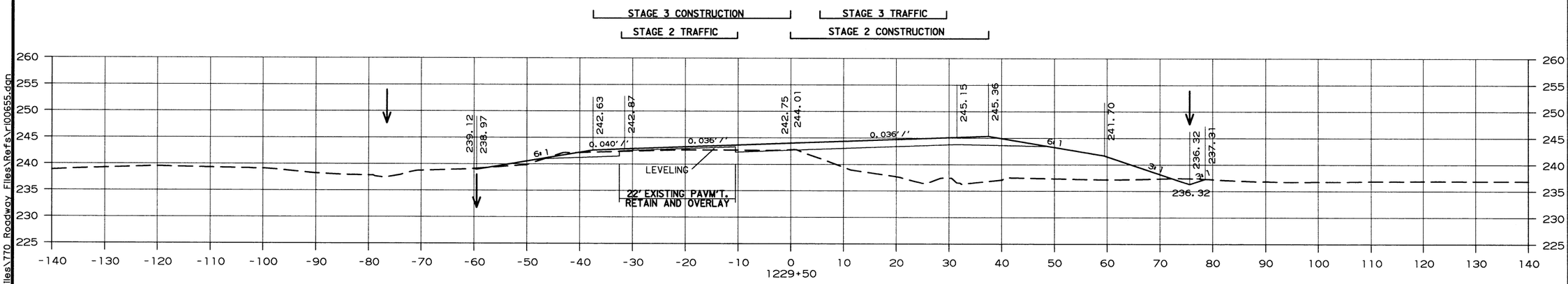
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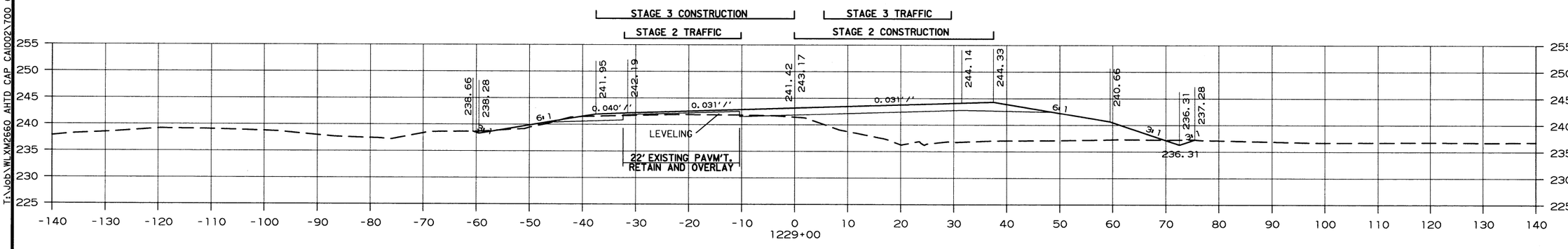
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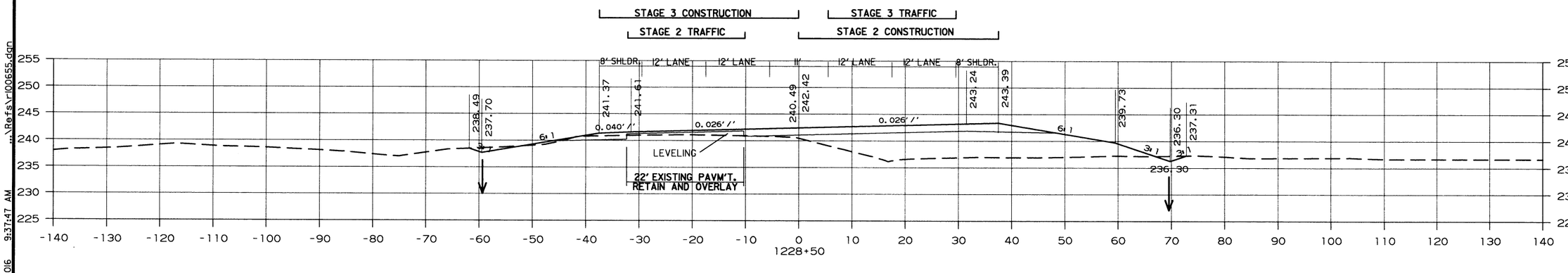
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				6	ARK.			
				JOB NO.		CA1002	253	319

(2) CROSS SECTIONS

STA. 1225+95.71 BEGIN SUPERELEVATION
STA. 1231+35.71 MAX. SUPERELEVATION (0.055'/')
STA. 1240+00.72 MAX. SUPERELEVATION (0.055'/')
STA. 1245+40.72 END SUPERELEVATION







CROSS SECTION STA. 1228+50 TO STA. 1229+50

END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
		STAGE 2: 6	694
		STAGE 3: 26	11
STAGE 2: 4	338		
STAGE 3: 14	4		
		STAGE 2: 6	587
		STAGE 3: 24	6
STAGE 2: 3	296		
STAGE 3: 12	3		
		STAGE 2: 6	509
		STAGE 3: 22	5
STAGE 2: 3	254		
STAGE 3: 12	2		

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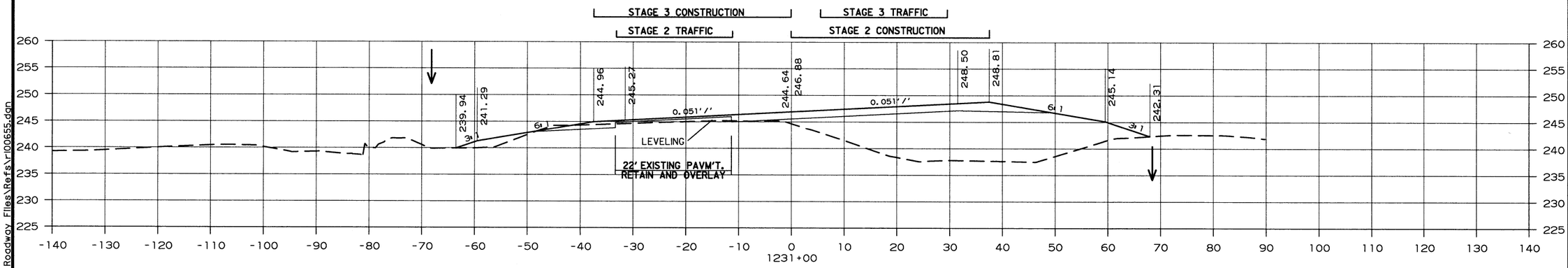
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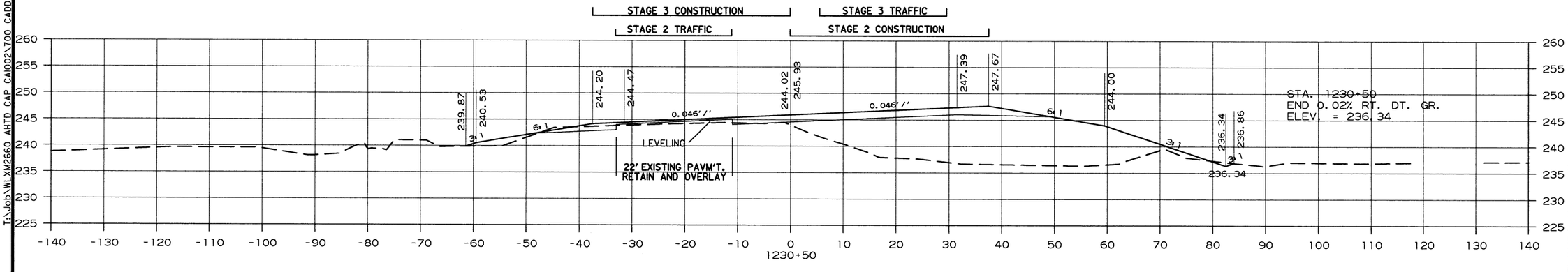
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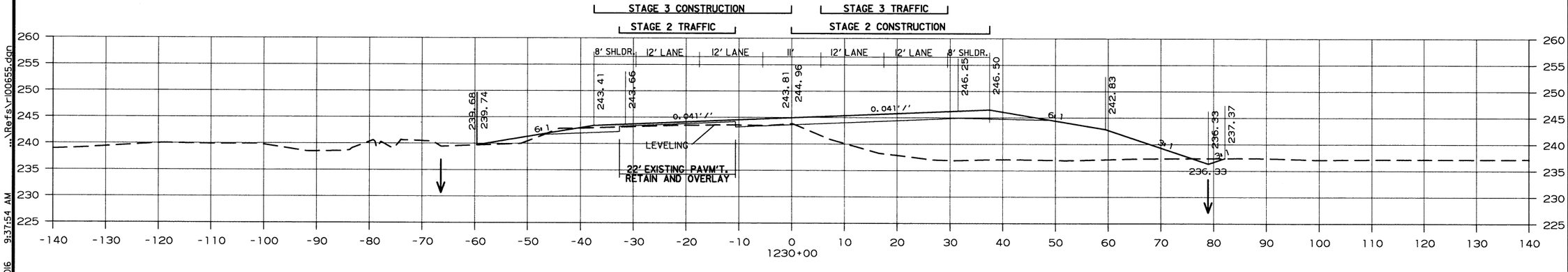
(2) CROSS SECTIONS

STA. 1225+95.71 BEGIN SUPERELEVATION
STA. 1231+35.71 MAX. SUPERELEVATION (0.055'/')
STA. 1240+00.72 MAX. SUPERELEVATION (0.055'/')
STA. 1245+40.72 END SUPERELEVATION

BEGIN MAX. SUPER ELEVATION (0.055%) STA. 1231+35.71







CROSS SECTION STA. 1230+00 TO STA. 1231+00

	END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
			STAGE 2 0	506
			STAGE 3 19	36
	STAGE 2 0	439		
	STAGE 3 12	17		
			STAGE 2 2	865
			STAGE 3 23	26
	STAGE 2 2	495		
	STAGE 3 13	11		
			STAGE 2 5	839
			STAGE 3 25	18
	STAGE 2 3	411		
	STAGE 3 14	8		

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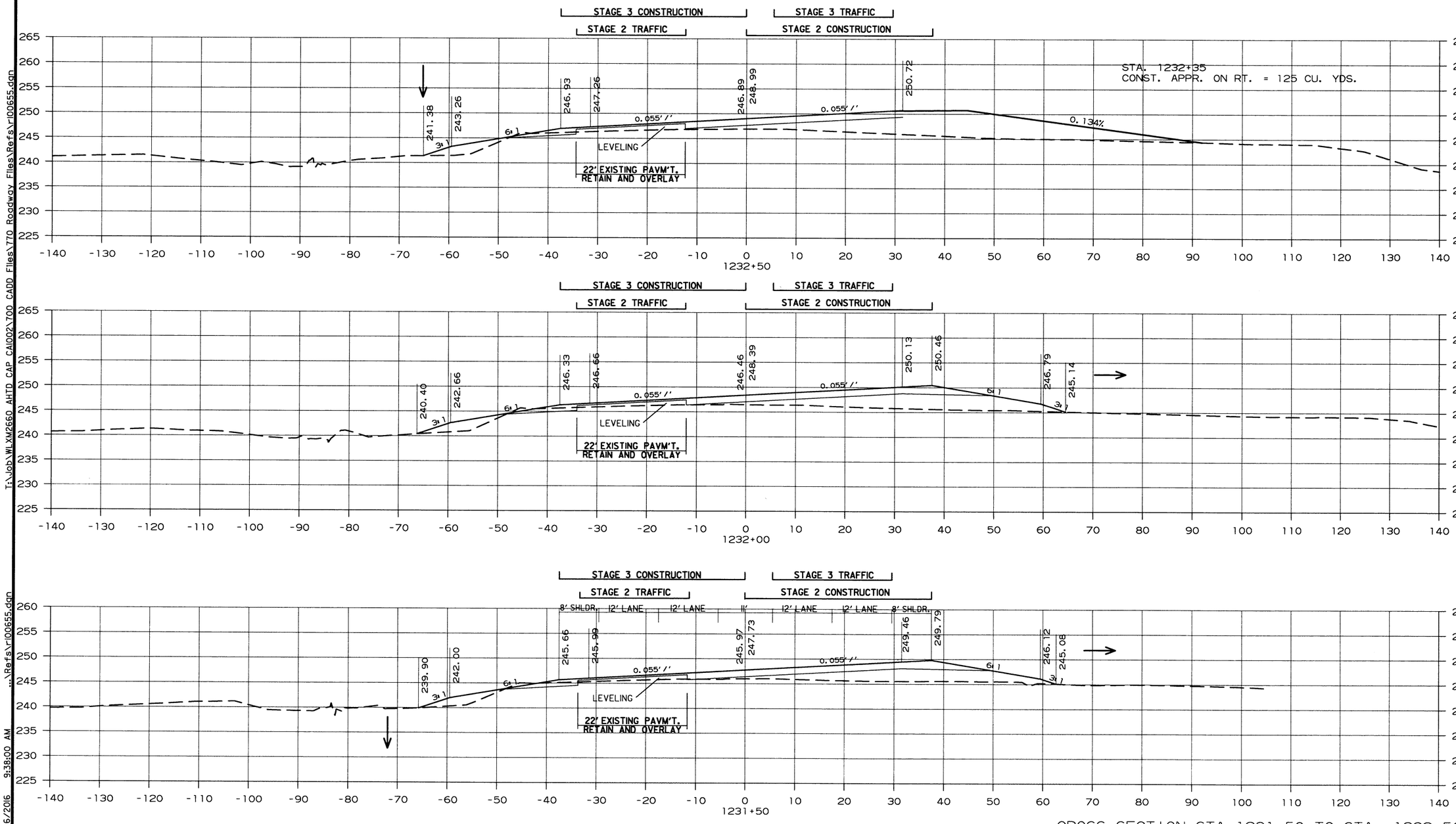
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	255	319

(2) CROSS SECTIONS

STA. 1225+95.71 BEGIN SUPERELEVATION
STA. 1231+35.71 MAX. SUPERELEVATION (0.055'/')
STA. 1240+00.72 MAX. SUPERELEVATION (0.055'/')
STA. 1245+40.72 END SUPERELEVATION



CROSS SECTION STA. 1231+50 TO STA. 1232+50

END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
		STAGE 2 0	568
		STAGE 3 13	42
STAGE 2 0	170		
STAGE 3 8	27		
		STAGE 2 0	283
		STAGE 3 17	49
STAGE 2 0	136		
STAGE 3 10	26		
		STAGE 2 0	226
		STAGE 3 18	44
STAGE 2 0	108		
STAGE 3 9	22		

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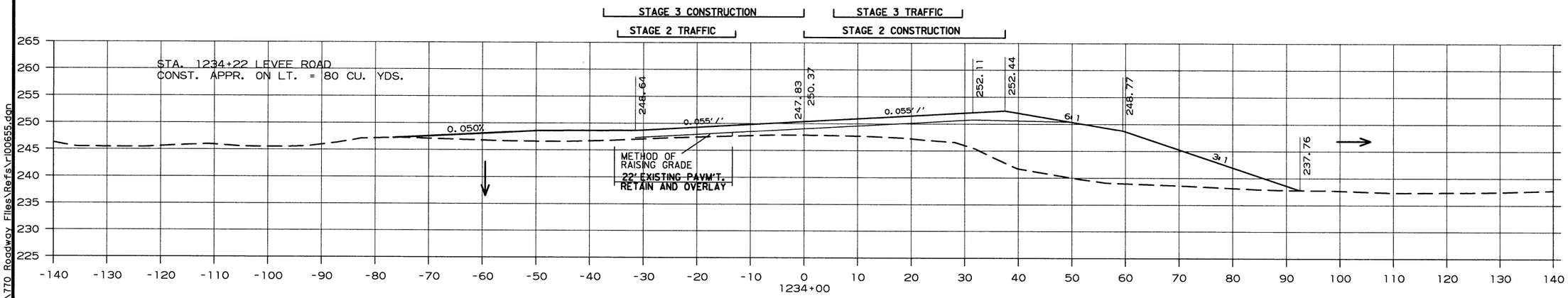
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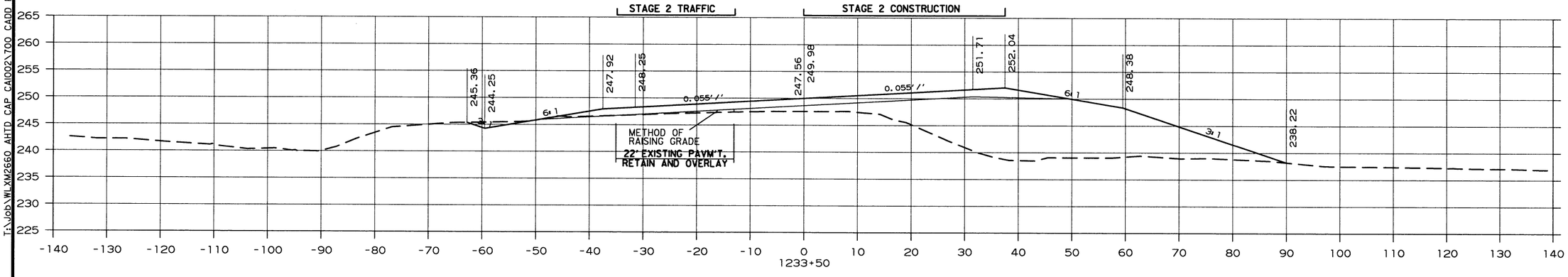
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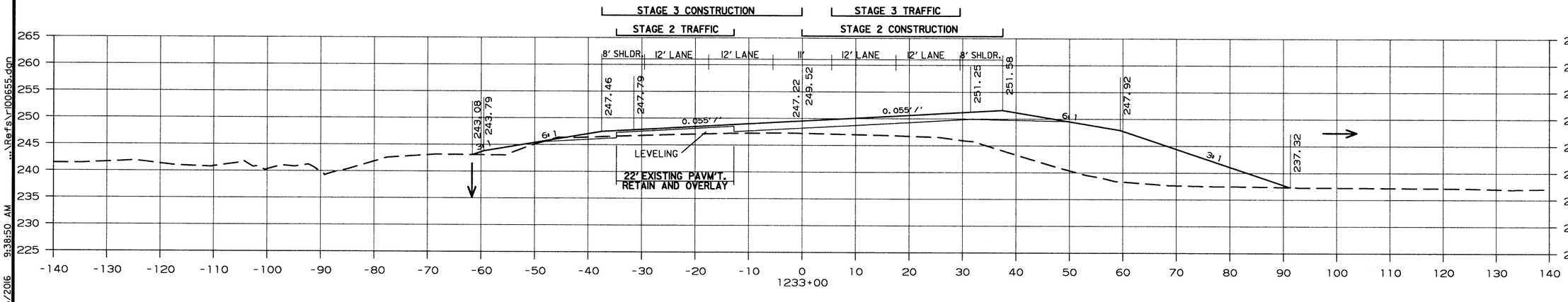
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6	ARK.			
JOB NO.		CA1002	256	319

(2) CROSS SECTIONS

STA. 1225+95.71 BEGIN SUPERELEVATION
STA. 1231+35.71 MAX. SUPERELEVATION (0.055'/')
STA. 1240+00.72 MAX. SUPERELEVATION (0.055'/')
STA. 1245+40.72 END SUPERELEVATION







	END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
			STAGE 2	
			1	574
			STAGE 3	
			29	34
			STAGE 2	
			0	502
			STAGE 3	
			19	16
			STAGE 2	
			0	988
			STAGE 3	
			26	24
			STAGE 2	
			0	565
			STAGE 3	
			9	10
			STAGE 2	
			0	933
			STAGE 3	
			14	26
			STAGE 2	
			0	443
			STAGE 3	
			6	18

CROSS SECTION STA. 1233+00 TO STA. 1234+00

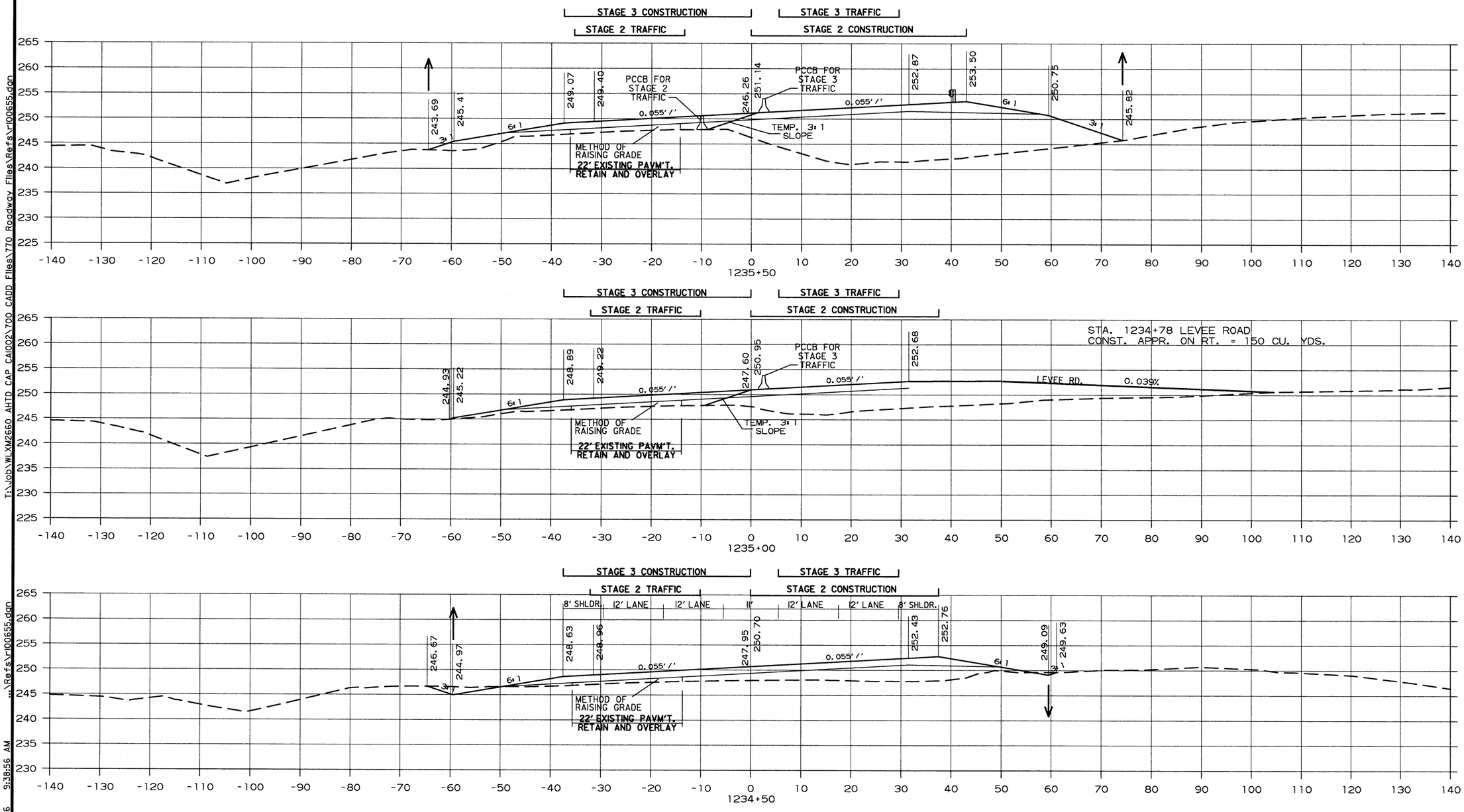
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STA. 1225+95.71 BEGIN SUPERELEVATION
STA. 1231+35.71 MAX. SUPERELEVATION (0.055'/')
STA. 1240+00.72 MAX. SUPERELEVATION (0.055'/')
STA. 1245+40.72 END SUPERELEVATION

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				6	ARK.			
				JOB NO.		CA1002	257	319

(2) CROSS SECTIONS



CROSS SECTION STA. 1234+50 TO STA. 1235+50

END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
			STAGE 2: 0
			1250
			STAGE 3: 0
			111
	STAGE 2: 0		
	555		
	STAGE 3: 0		
	54		
			STAGE 2: 0
			707
			STAGE 3: 0
			89
	STAGE 2: 0		
	209		
	STAGE 3: 0		
	42		
			STAGE 2: 1
			303
			STAGE 3: II
			58
	STAGE 2: 1		
	118		
	STAGE 3: 12		
	21		

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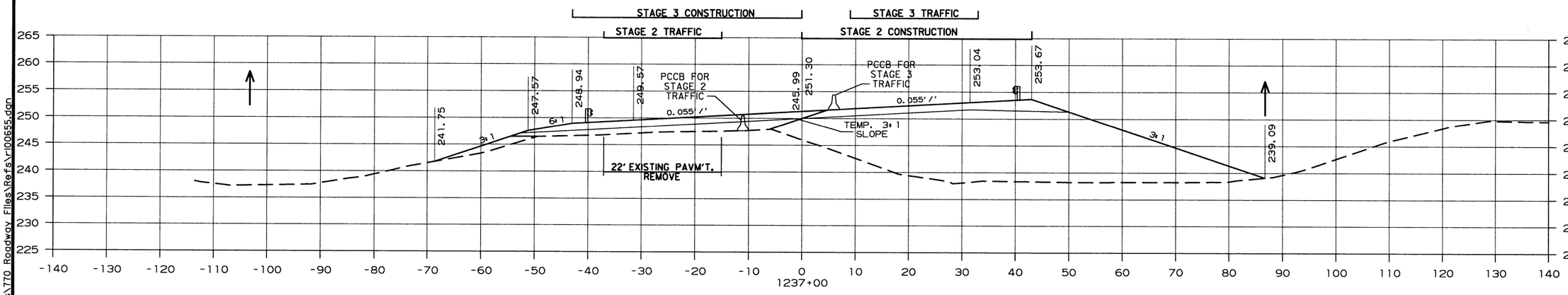
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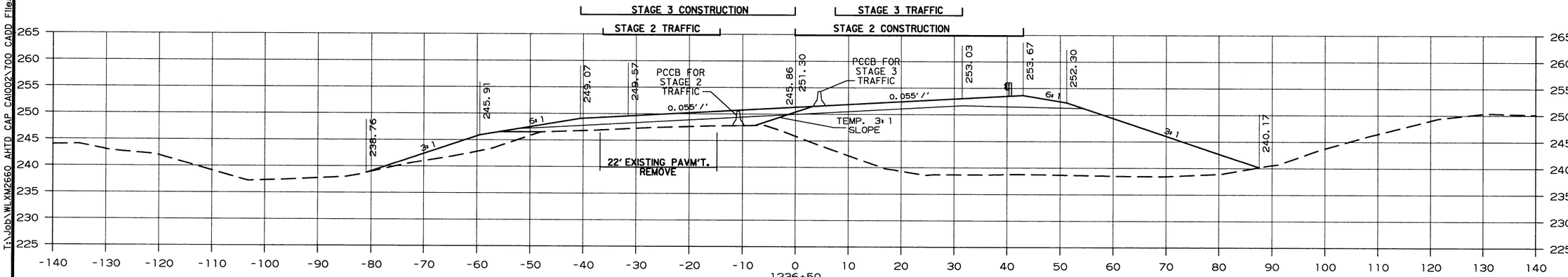
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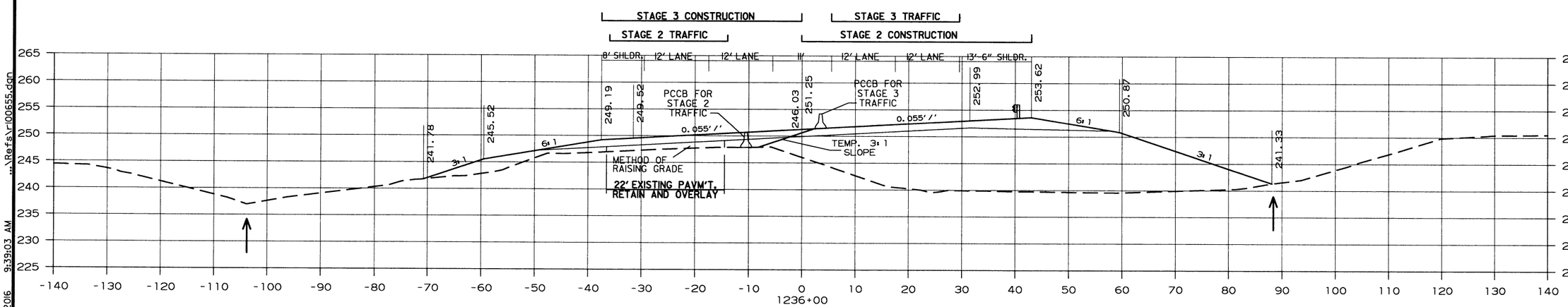
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6	ARK.			
JOB NO.		CA1002	258	319

(2) CROSS SECTIONS

STA. 1225+95.71 BEGIN SUPERELEVATION
STA. 1231+35.71 MAX. SUPERELEVATION (0.055'/')
STA. 1240+00.72 MAX. SUPERELEVATION (0.055'/')
STA. 1245+40.72 END SUPERELEVATION







	END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
STAGE 2(SM)	0	815		1487
STAGE 3(SM)	0	62		128
STAGE 2	0	0		0
STAGE 3	0	18		17
STAGE 2(SM)	0	844		1536
STAGE 3(SM)	0	59		176
STAGE 2	0	0		0
STAGE 3	0	51		64
STAGE 2(SM)	0	781		1536
STAGE 3(SM)	0	163		176
STAGE 2	0	736		0
STAGE 3	0	108		64
STAGE 2	0	795		
STAGE 3	0	66		

CROSS SECTION STA. 1236+00 TO STA. 1237+00

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JACOBS

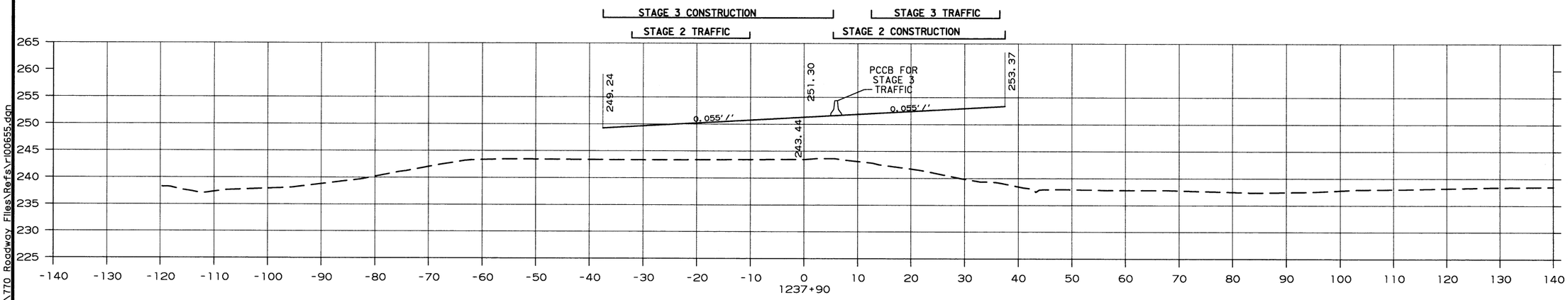
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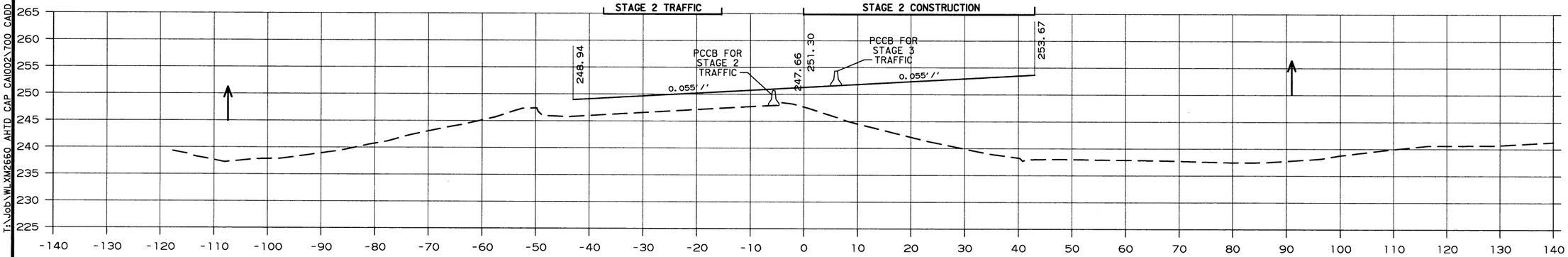
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6	ARK.			
JOB NO.		CA1002	259	319

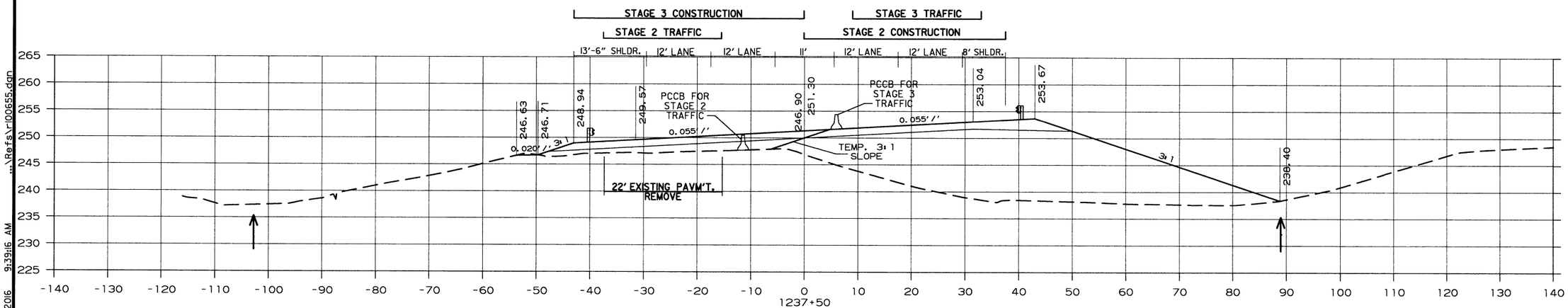
(2) CROSS SECTIONS

STA. 1225+95.71 BEGIN SUPERELEVATION
STA. 1231+35.71 MAX. SUPERELEVATION (0.055'/')
STA. 1240+00.72 MAX. SUPERELEVATION (0.055'/')
STA. 1245+40.72 END SUPERELEVATION

END MAX. SUPER ELEVATION (0.055%) STA. 1240+00.72







CROSS SECTION STA. 1237+50 TO STA. 1237+90

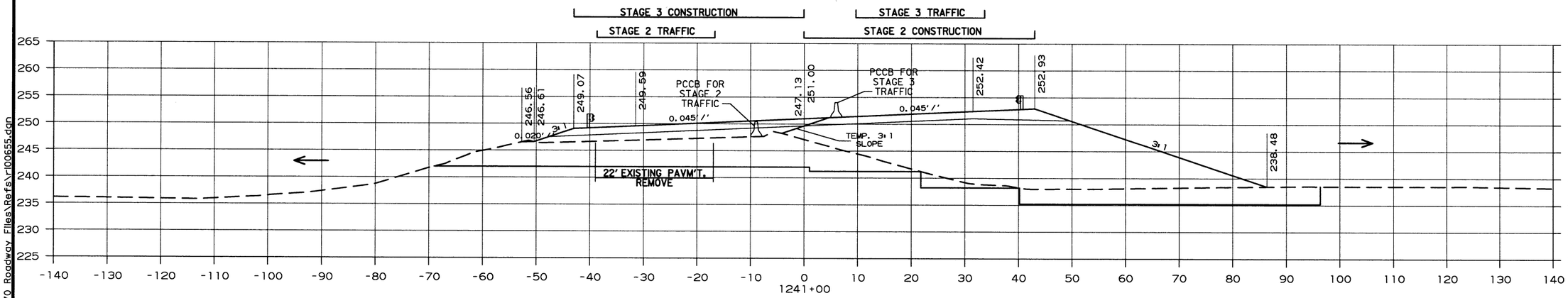
END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL

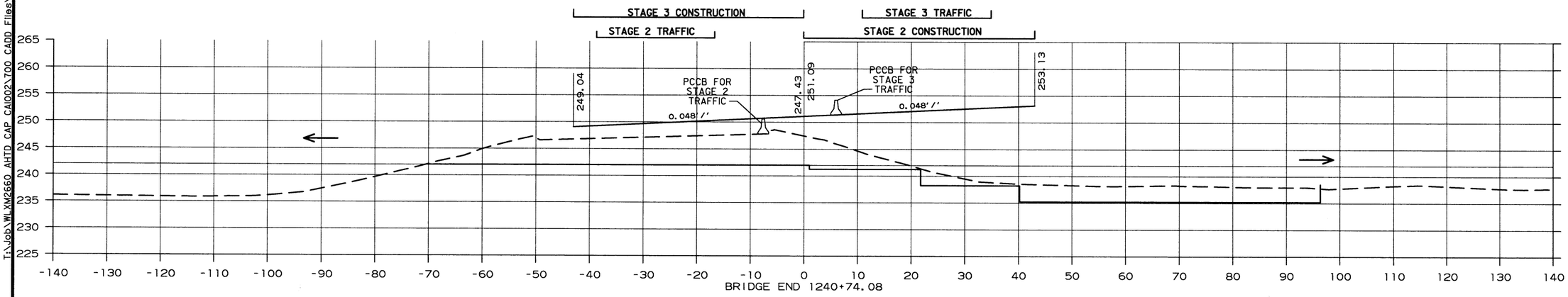
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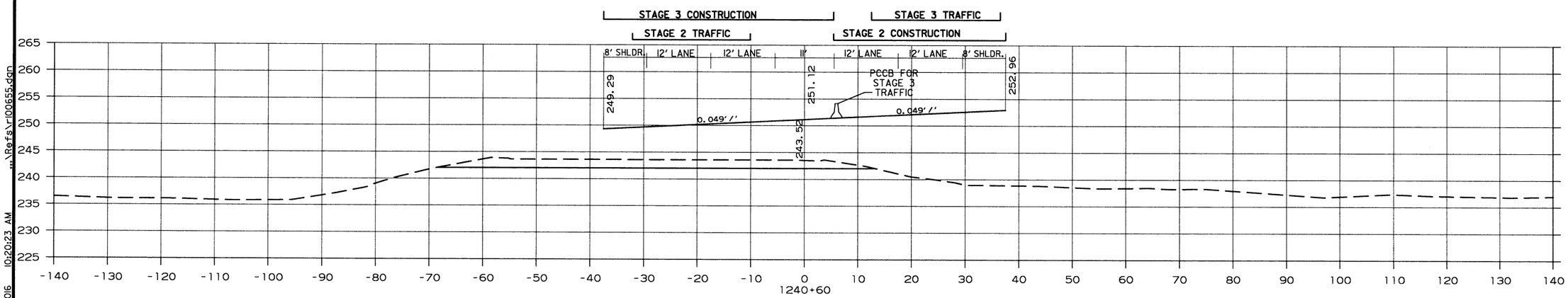
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	260	319

(2) CROSS SECTIONS

STA. 1225+95.71 BEGIN SUPERELEVATION
STA. 1231+35.71 MAX. SUPERELEVATION (0.055'/')
STA. 1240+00.72 MAX. SUPERELEVATION (0.055'/')
STA. 1245+40.72 END SUPERELEVATION







	END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
			STAGE 2(SM) 0	1835
			STAGE 3(SM) 0	623
	STAGE 2(SM) 0	979		
	STAGE 3(SM) 0	351		
			STAGE 2(SM) 0	940
			STAGE 3(SM) 0	337
	STAGE 2(SM) 0	979		
	STAGE 3(SM) 0	351		
			STAGE 2(SM) 0	255
			STAGE 3(SM) 0	122
	STAGE 2(SM) 0	0		
	STAGE 3(SM) 0	117		

CROSS SECTION STA. 1240+60 TO STA. 1241+00

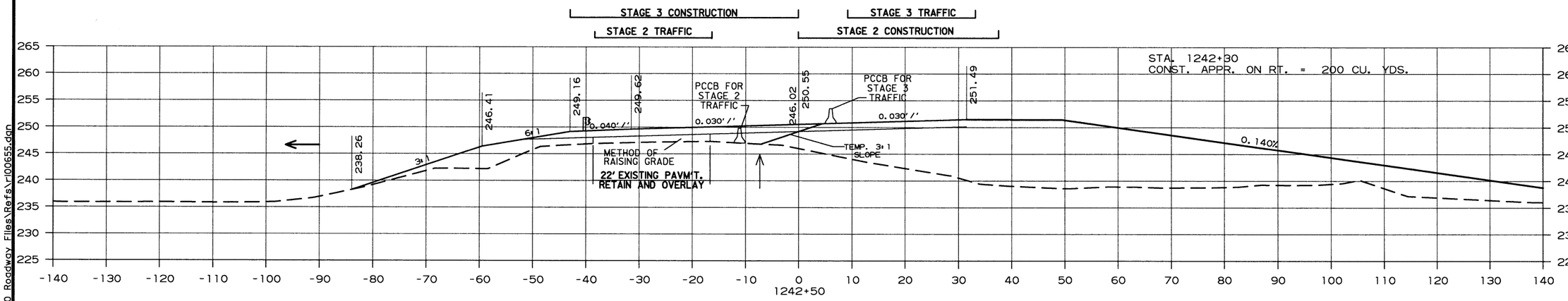
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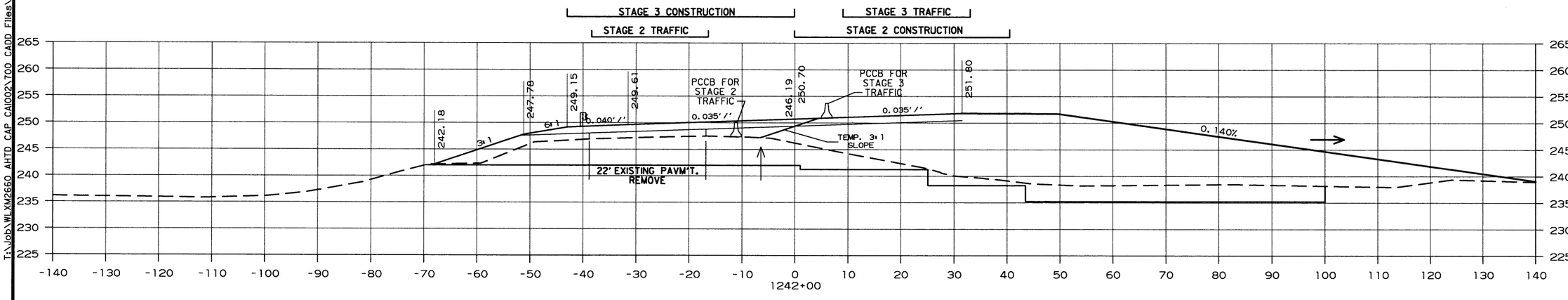
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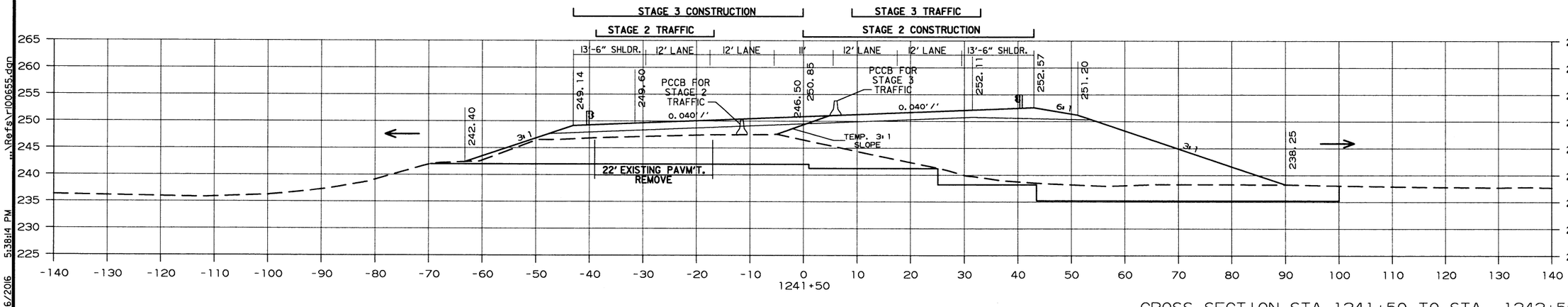
STA. 1225+95.71 BEGIN SUPERELEVATION
STA. 1231+35.71 MAX. SUPERELEVATION (0.055'/')
STA. 1240+00.72 MAX. SUPERELEVATION (0.055'/')
STA. 1245+40.72 END SUPERELEVATION

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.		CA1002	261	319

(2) CROSS SECTIONS







CROSS SECTION STA. 1241+50 TO STA. 1242+50

END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
		STAGE 2: 0	1086
		STAGE 3: 0	259
		STAGE 2: 0	641
		STAGE 3: 0	134
		STAGE 2(SM): 0	907
		STAGE 3(SM): 0	316
		STAGE 2: 0	594
		STAGE 3: 0	124
		STAGE 2(SM): 0	980
		STAGE 3(SM): 0	341
		STAGE 2: 0	0
		STAGE 3: 0	0
		STAGE 2(SM): 0	1836
		STAGE 3(SM): 0	614
		STAGE 2(SM): 0	1003
		STAGE 3(SM): 0	322

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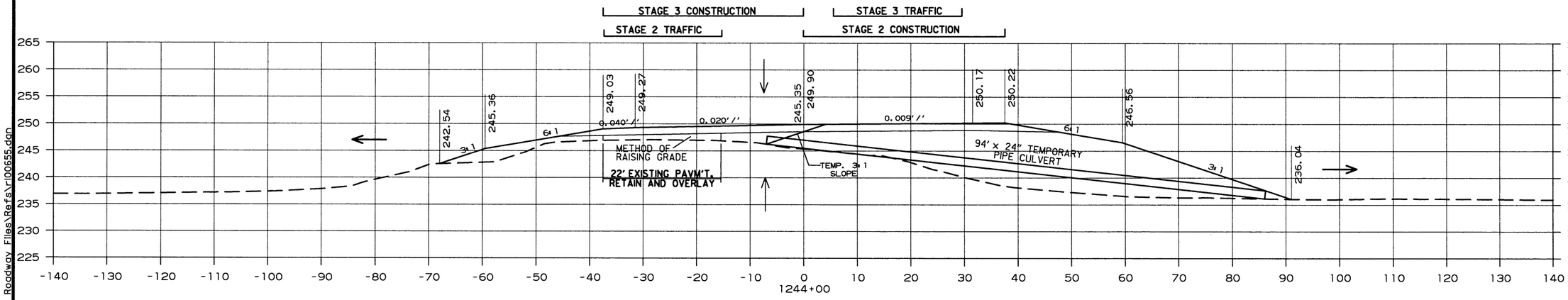
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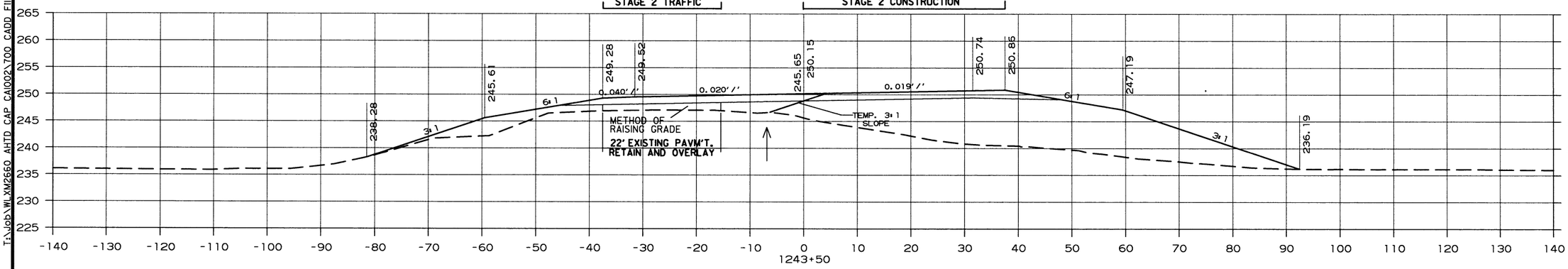
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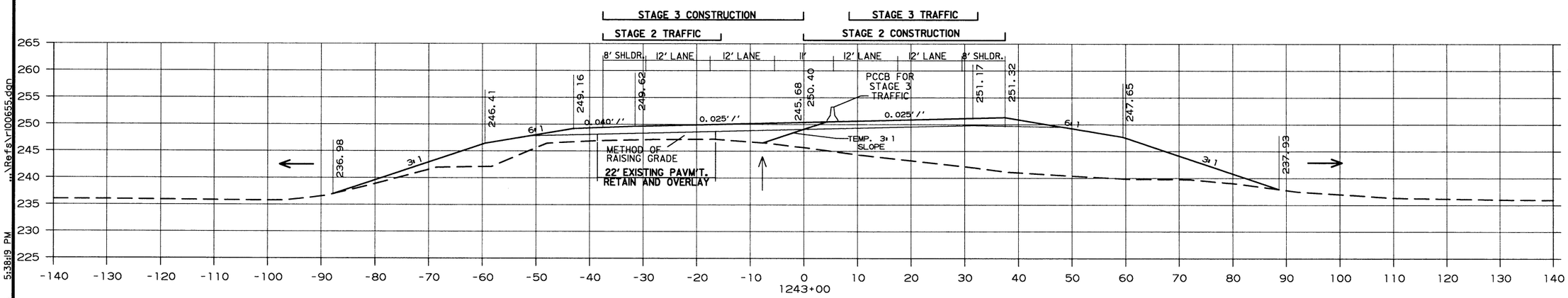
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	262	319

(2) CROSS SECTIONS

STA. 1225+95.71 BEGIN SUPERELEVATION
STA. 1231+35.71 MAX. SUPERELEVATION (0.055'/')
STA. 1240+00.72 MAX. SUPERELEVATION (0.055'/')
STA. 1245+40.72 END SUPERELEVATION







	END AREA (S.F.)		VOLUME (C.Y.)	
	CUT	FILL	CUT	FILL
STAGE 2			0	1123
STAGE 3			0	121
STAGE 2	0	635		
STAGE 3	0	89		
STAGE 2			0	1146
STAGE 3			0	188
STAGE 2	0	603		
STAGE 3	0	114		
STAGE 2			0	1051
STAGE 3			0	241
STAGE 2	0	532		
STAGE 3	0	146		

CROSS SECTION STA. 1243+00 TO STA. 1244+00

JACOBS

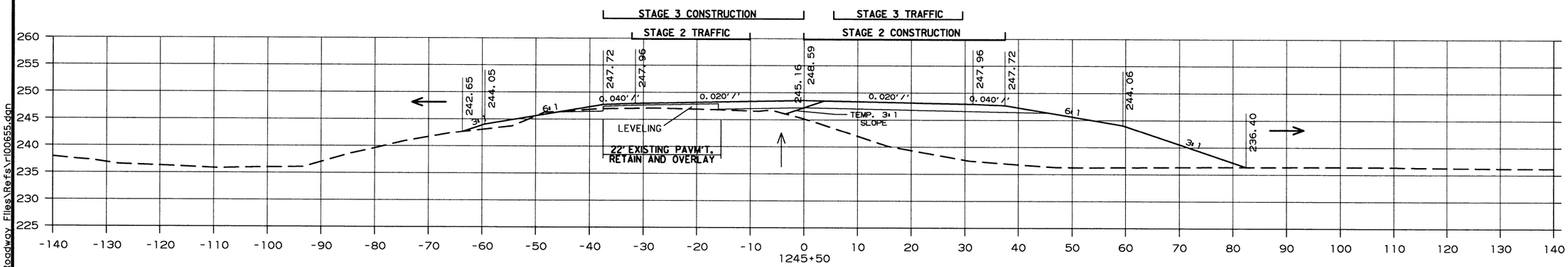
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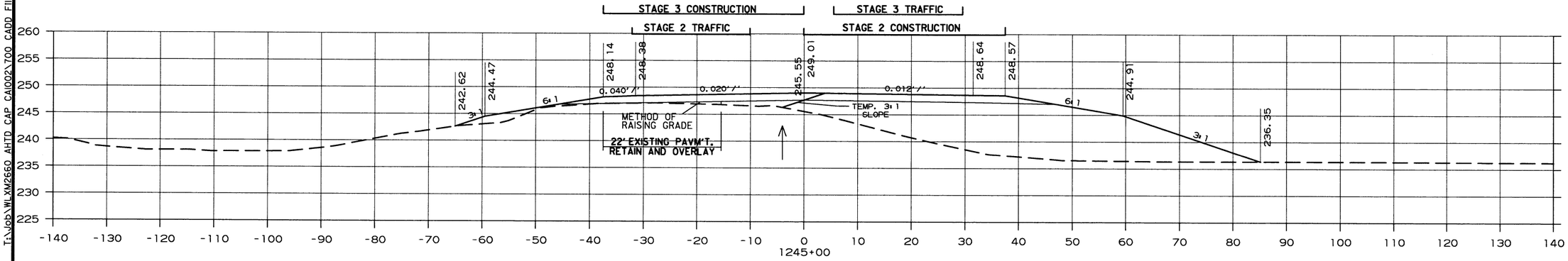
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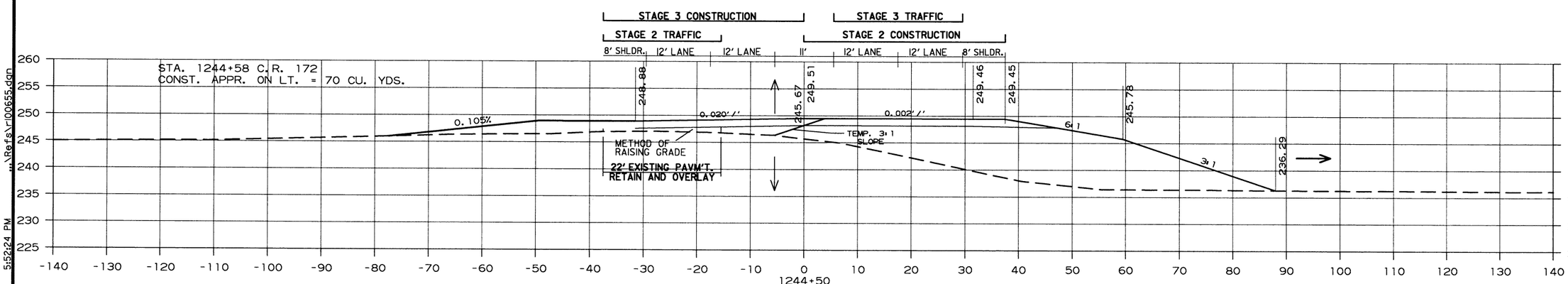
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	263	319

(2) CROSS SECTIONS

STA. 1225+95.71 BEGIN SUPERELEVATION
STA. 1231+35.71 MAX. SUPERELEVATION (0.055'/')
STA. 1240+00.72 MAX. SUPERELEVATION (0.055'/')
STA. 1245+40.72 END SUPERELEVATION







	END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
STAGE 2	0		1008	
STAGE 3	8		27	
STAGE 2	0		549	
STAGE 3	3		17	
STAGE 2	0		1030	
STAGE 3	3		44	
STAGE 2	0		563	
STAGE 3	0		31	
STAGE 2	0		1056	
STAGE 3	0		68	
STAGE 2	0		578	
STAGE 3	0		42	

CROSS SECTION STA. 1244+50 TO STA. 1245+50

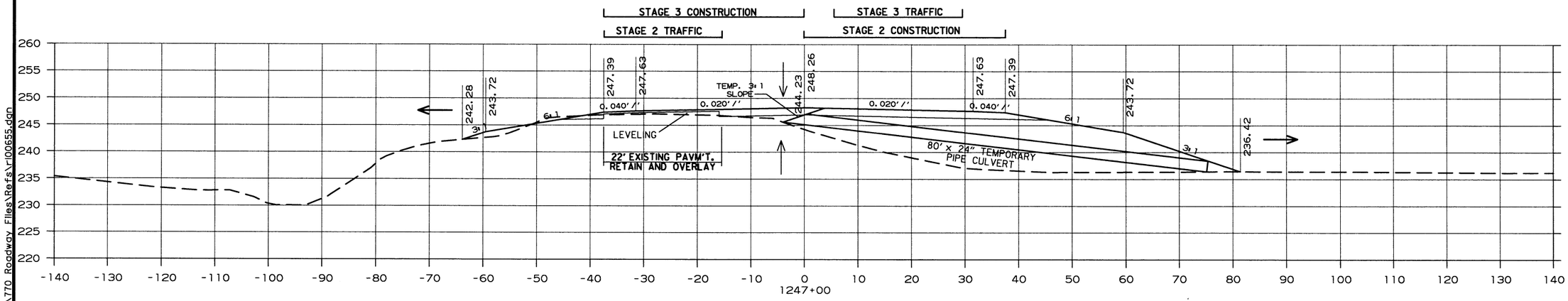
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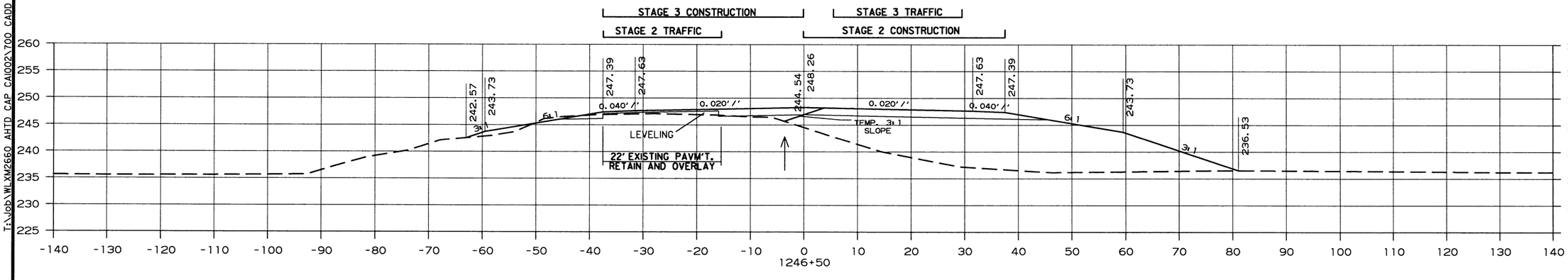
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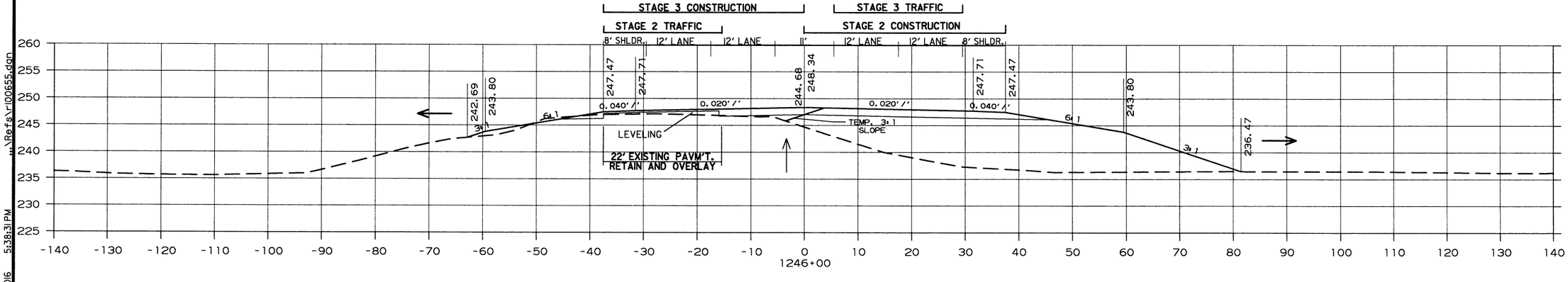
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	264	319

(2) CROSS SECTIONS







	END AREA (S.F.)		VOLUME (C.Y.)	
	CUT	FILL	CUT	FILL
			STAGE 2	
			0	1008
			STAGE 3	
			16	26
	STAGE 2			
	0	546		
	STAGE 3			
	8	15		
			STAGE 2	
			0	1007
			STAGE 3	
			14	26
	STAGE 2			
	0	542		
	STAGE 3			
	7	13		
			STAGE 2	
			0	1002
			STAGE 3	
			12	23
	STAGE 2			
	0	540		
	STAGE 3			
	6	12		

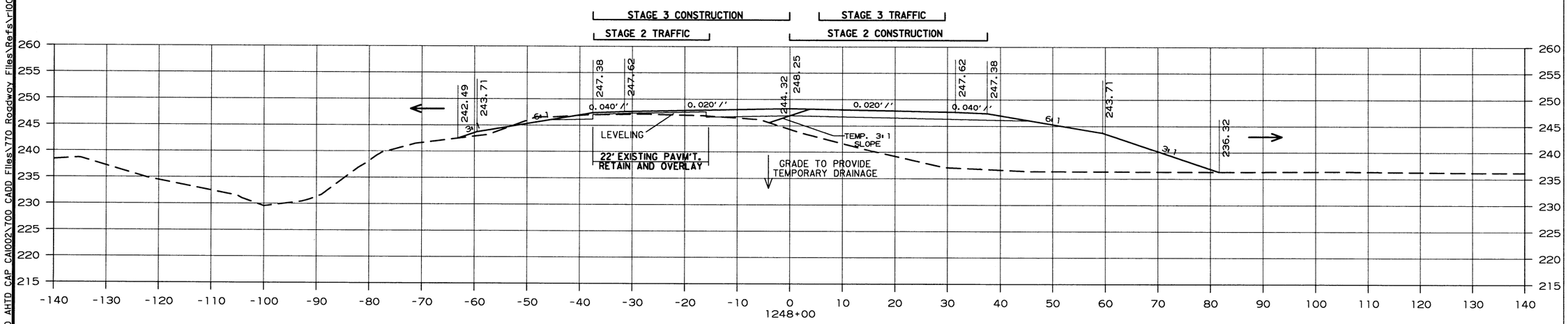
CROSS SECTION STA. 1246+00 TO STA. 1247+00

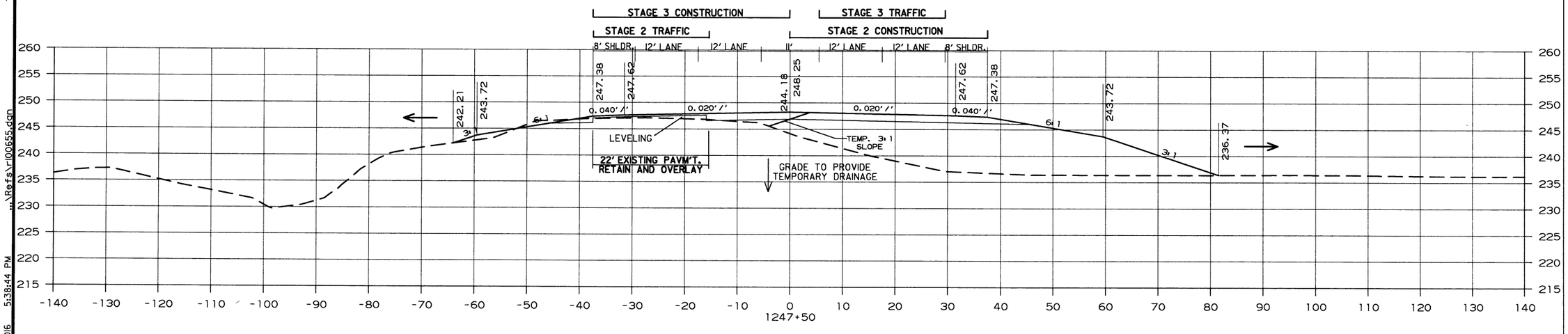
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				6	ARK.			
				JOB NO.		CA1002	265	319

(2) CROSS SECTIONS





END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
		STAGE 2: 0	STAGE 2: 999
		STAGE 3: 18	STAGE 3: 21
		STAGE 2: 0	STAGE 2: 536
		STAGE 3: 10	STAGE 3: 11
		STAGE 2: 0	STAGE 2: 999
		STAGE 3: 18	STAGE 3: 22
		STAGE 2: 0	STAGE 2: 543
		STAGE 3: 9	STAGE 3: 13

CROSS SECTION STA. 1247+50 TO STA. 1248+00

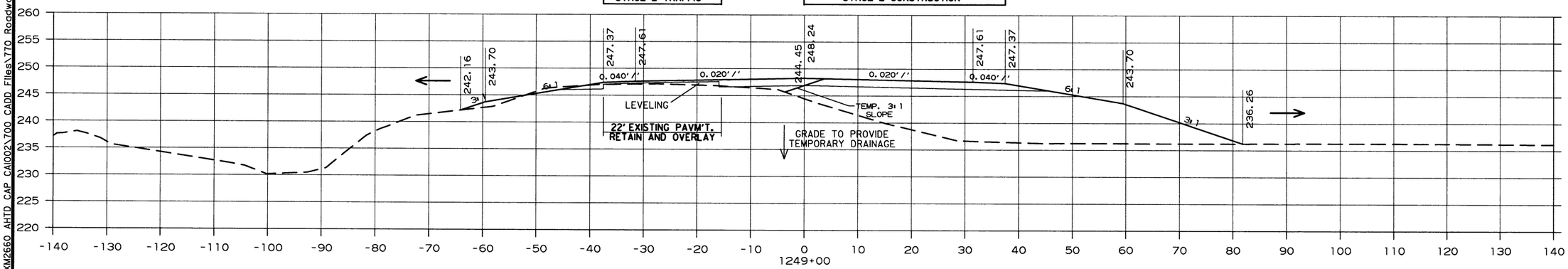
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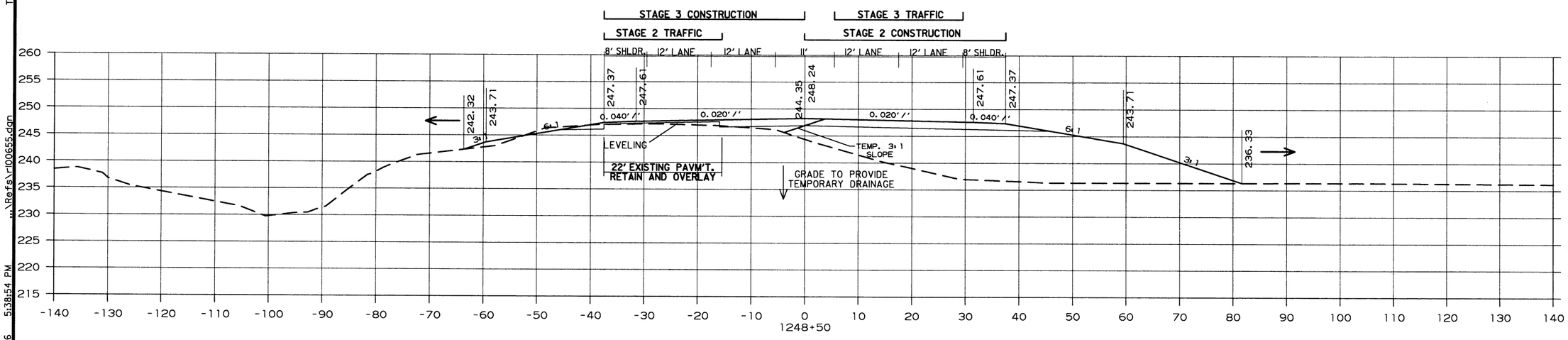
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	266	319

(2) CROSS SECTIONS





END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
		STAGE 2 0	1023
		STAGE 3 17	23
		STAGE 2 0	1014
		STAGE 3 17	23
		STAGE 2 0	552
		STAGE 3 9	13
		STAGE 2 0	543
		STAGE 3 9	12

CROSS SECTION STA. 1248+50 TO STA. 1249+00

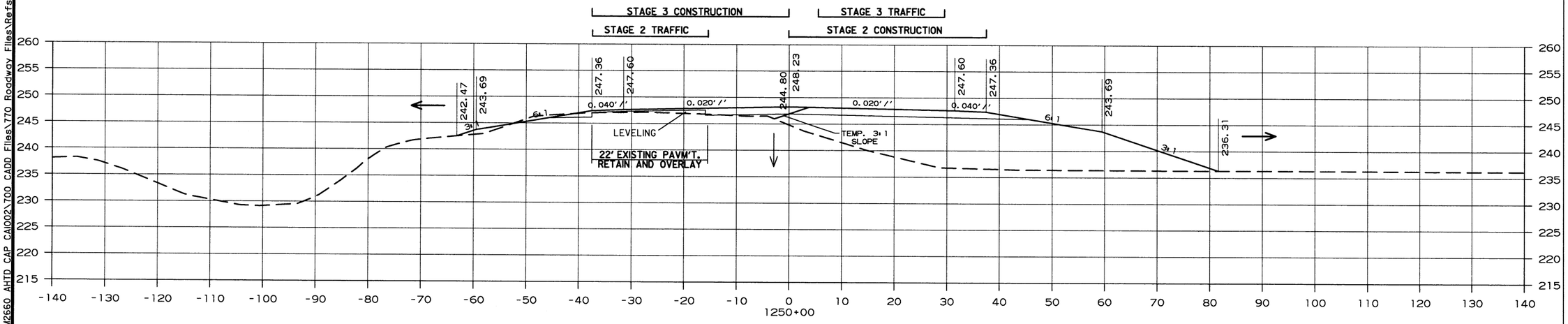
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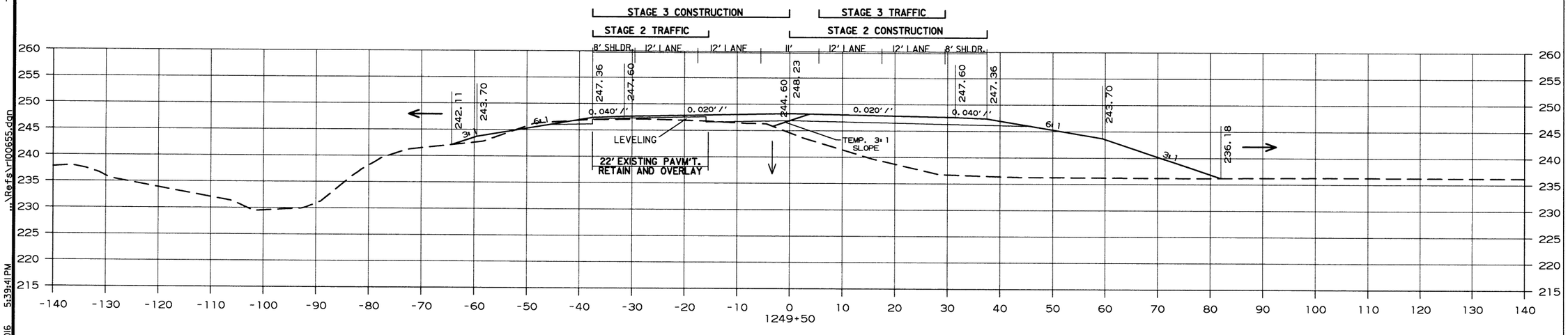
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	267	319

(2) CROSS SECTIONS





END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
		STAGE 2 0	1000
		STAGE 3 17	18
		STAGE 2 0	1014
		STAGE 3 17	20
		STAGE 2 0	542
		STAGE 3 9	10
		STAGE 2 0	553
		STAGE 3 9	12

CROSS SECTION STA. 1249+50 TO STA. 1250+00

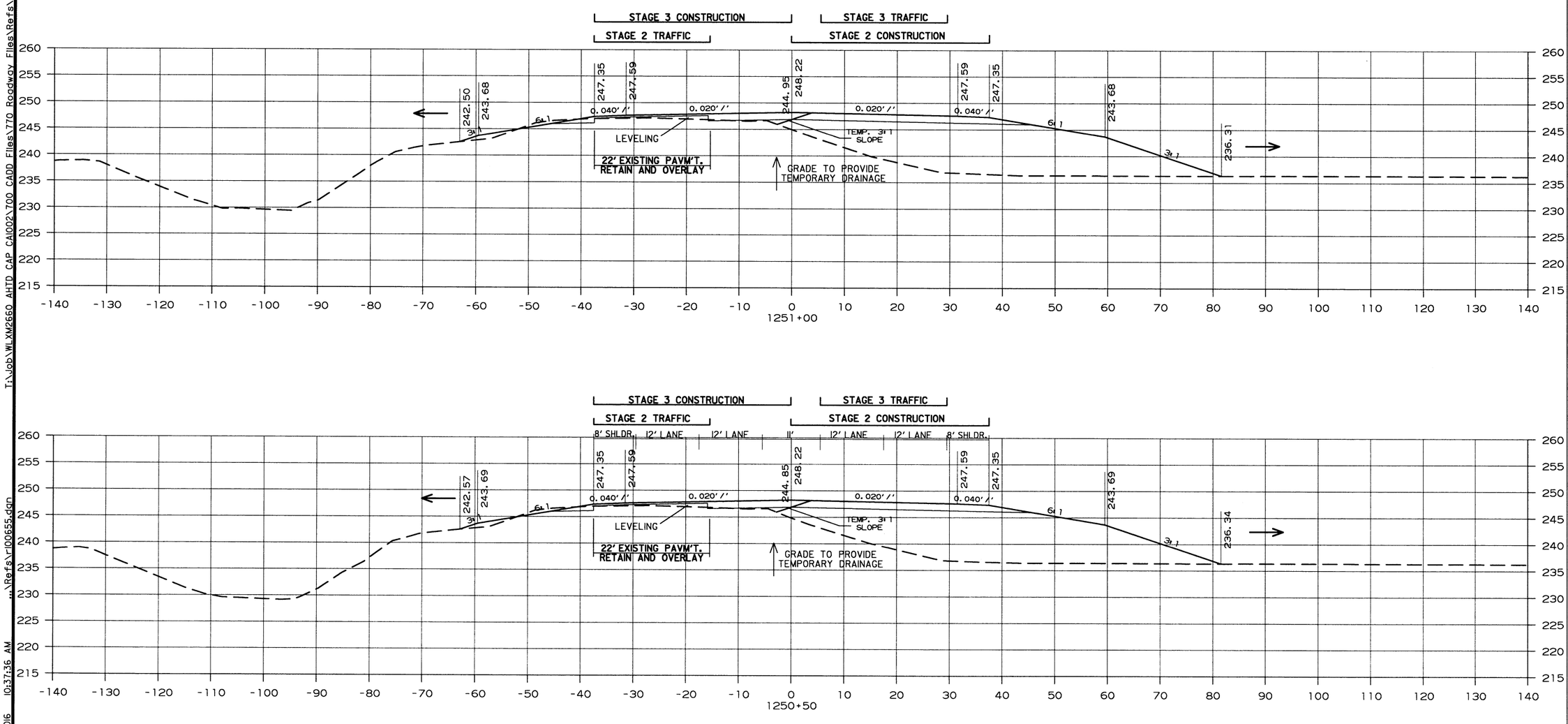
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	268	319

(2) CROSS SECTIONS



END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
		STAGE 2: 0	STAGE 2: 1010
		STAGE 3: 18	STAGE 3: 17
STAGE 2: 0	STAGE 2: 541		
STAGE 3: 10	STAGE 3: 9		

END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
		STAGE 2: 0	STAGE 2: 999
		STAGE 3: 18	STAGE 3: 17
STAGE 2: 0	STAGE 2: 538		
STAGE 3: 9	STAGE 3: 9		

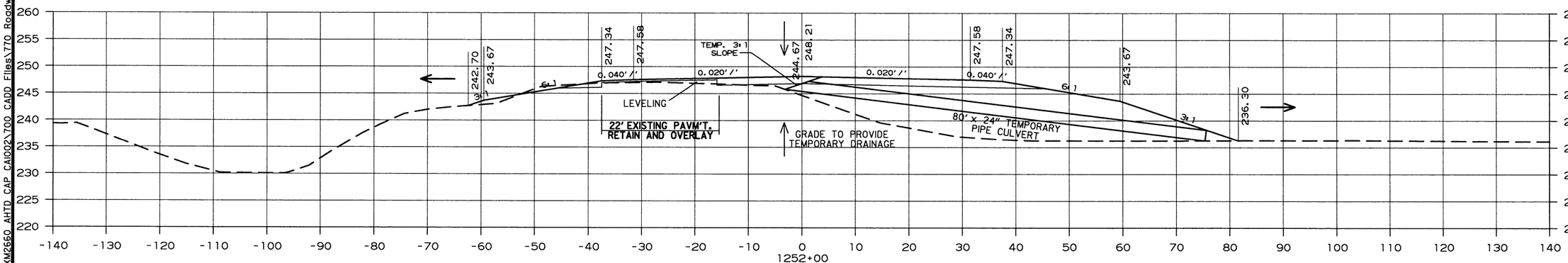
CROSS SECTION STA. 1250+50 TO STA. 1251+00

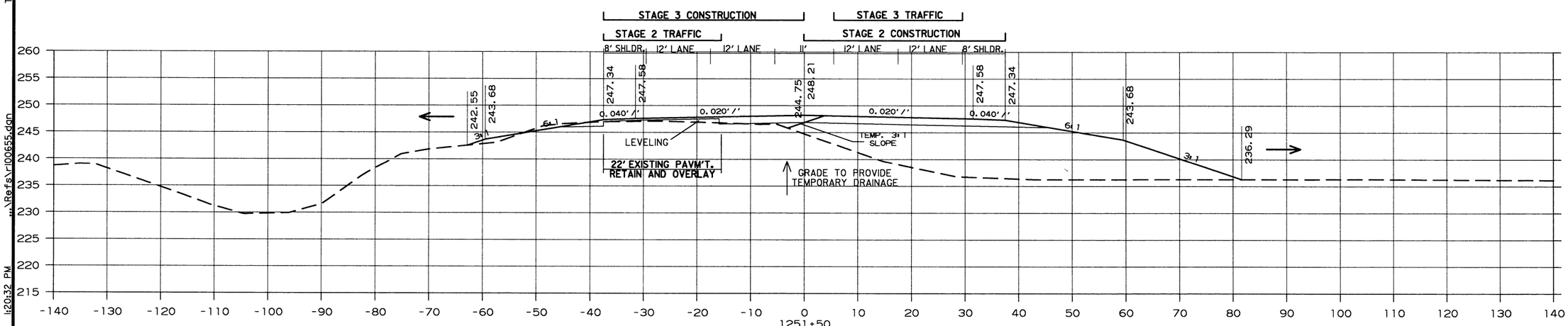
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				6	ARK.			
				JOB NO.		CA1002	269	319

(2) CROSS SECTIONS





	END AREA (S.F.)		VOLUME (C.Y.)	
	CUT	FILL	CUT	FILL
			STAGE 2	
			0	1010
			STAGE 3	
			18	18
			STAGE 2	
			0	549
			STAGE 3	
			10	9
			STAGE 2	
			0	1018
			STAGE 3	
			18	17
			STAGE 2	
			0	550
			STAGE 3	
			9	9

CROSS SECTION STA. 1251+50 TO STA. 1252+00

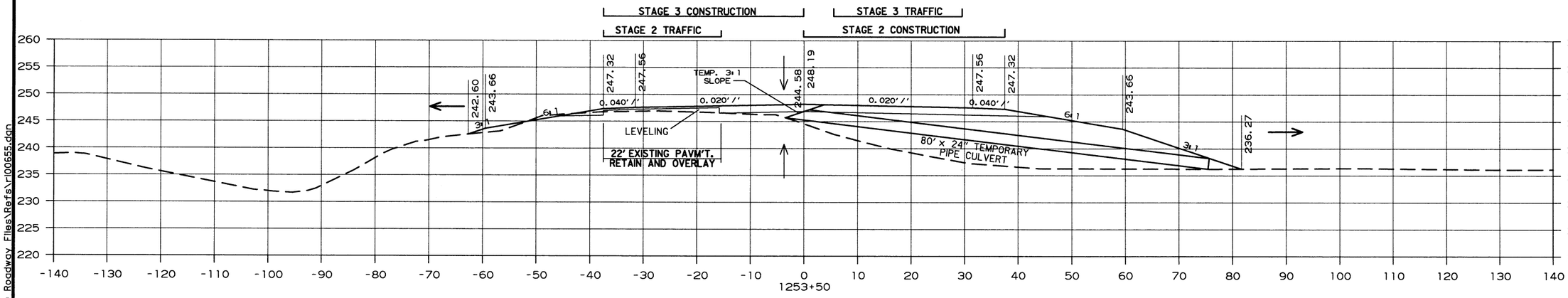
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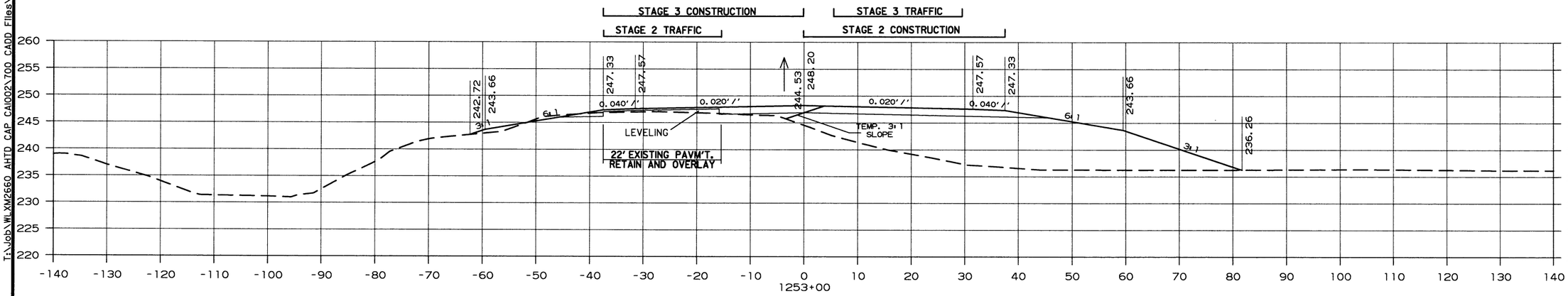
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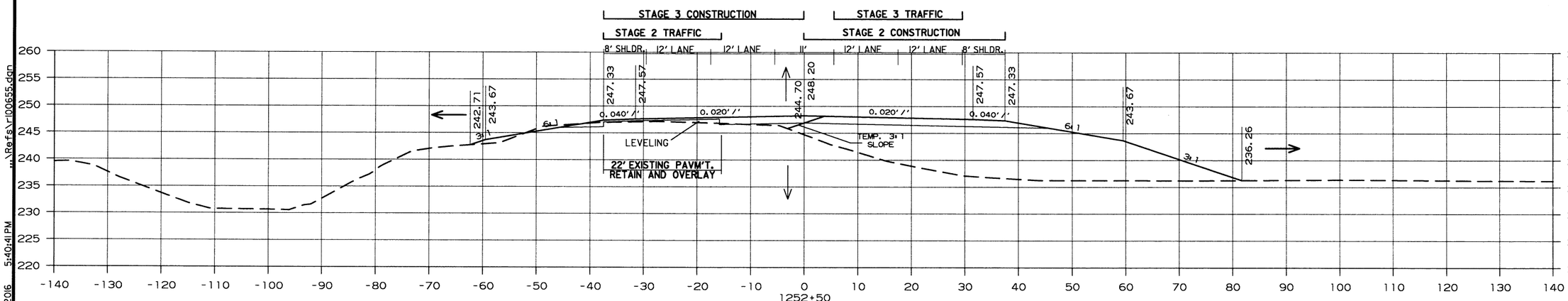
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	270	319

(2) CROSS SECTIONS







	END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
			STAGE 2 0	STAGE 2 978
			STAGE 3 12	STAGE 3 21
	STAGE 2 0	STAGE 2 532		
	STAGE 3 6	STAGE 3 12		
			STAGE 2 0	STAGE 2 990
			STAGE 3 12	STAGE 3 21
	STAGE 2 0	STAGE 2 537		
	STAGE 3 7	STAGE 3 11		
			STAGE 2 0	STAGE 2 999
			STAGE 3 15	STAGE 3 19
	STAGE 2 0	STAGE 2 542		
	STAGE 3 9	STAGE 3 10		

CROSS SECTION STA. 1252+50 TO STA. 1253+50

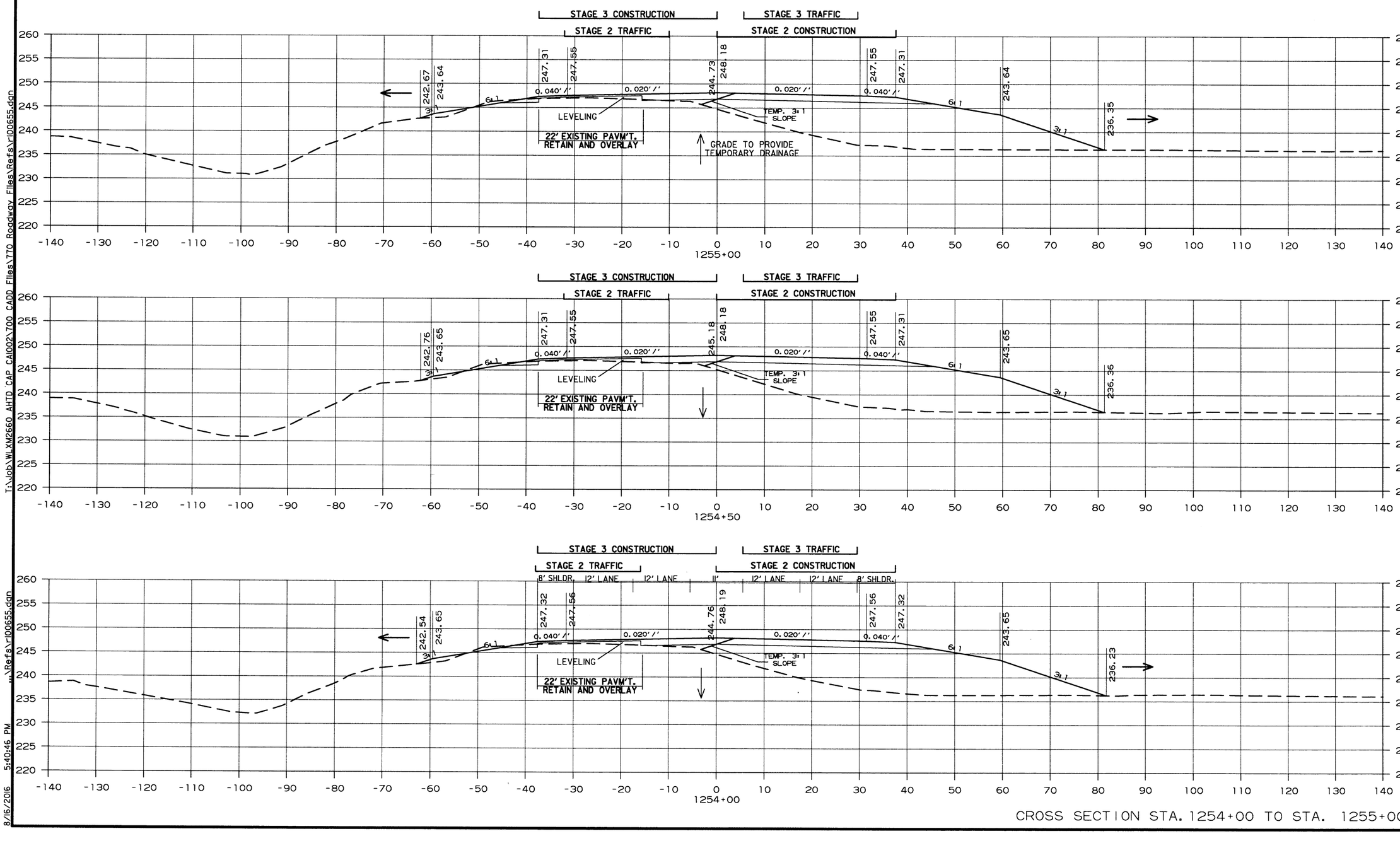
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	271	319

(2) CROSS SECTIONS



END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
		STAGE 2 0	968
		STAGE 3 14	22
STAGE 2 0	520		
STAGE 3 8	12		
		STAGE 2 0	951
		STAGE 3 16	18
STAGE 2 0	507		
STAGE 3 9	7		
		STAGE 2 0	955
		STAGE 3 15	17
STAGE 2 0	524		
STAGE 3 7	11		

CROSS SECTION STA. 1254+00 TO STA. 1255+00

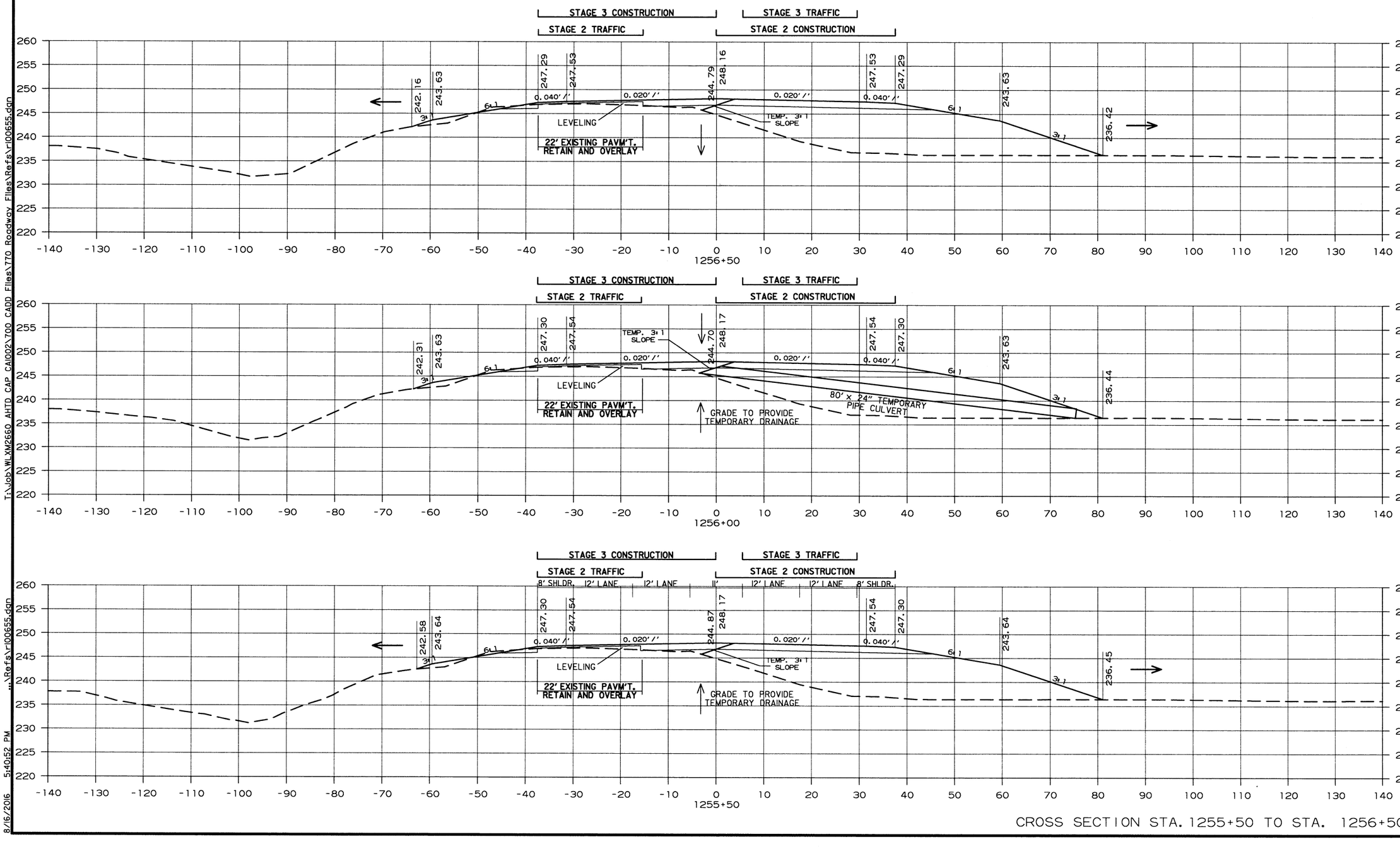
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6	ARK.			
JOB NO.		CA1002	272	319

(2) CROSS SECTIONS



CROSS SECTION STA. 1255+50 TO STA. 1256+50

END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
		STAGE 2	
		0	981
		STAGE 3	
		13	28
		STAGE 2	
		0	531
		STAGE 3	
		7	14
		STAGE 2	
		0	982
		STAGE 3	
		13	26
		STAGE 2	
		0	530
		STAGE 3	
		7	14
		STAGE 2	
		0	977
		STAGE 3	
		13	24
		STAGE 2	
		0	525
		STAGE 3	
		7	12

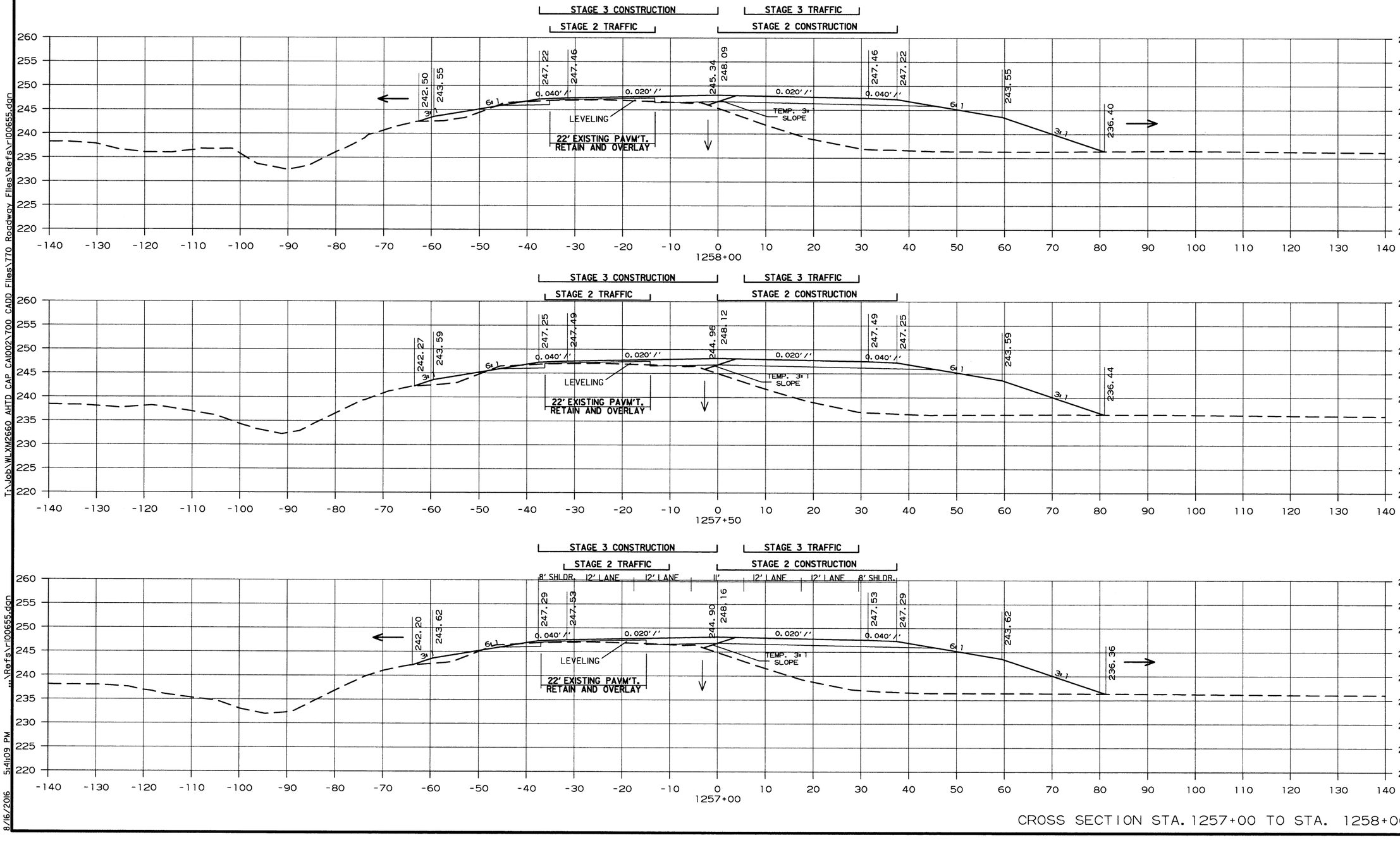
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	273	319

(2) CROSS SECTIONS



END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
		STAGE 2 0	949
		STAGE 3 16	28
STAGE 2 0	518		
STAGE 3 8	16		
		STAGE 2 0	963
		STAGE 3 15	30
STAGE 2 0	522		
STAGE 3 8	16		
		STAGE 2 0	973
		STAGE 3 14	30
STAGE 2 0	529		
STAGE 3 7	16		

CROSS SECTION STA. 1257+00 TO STA. 1258+00

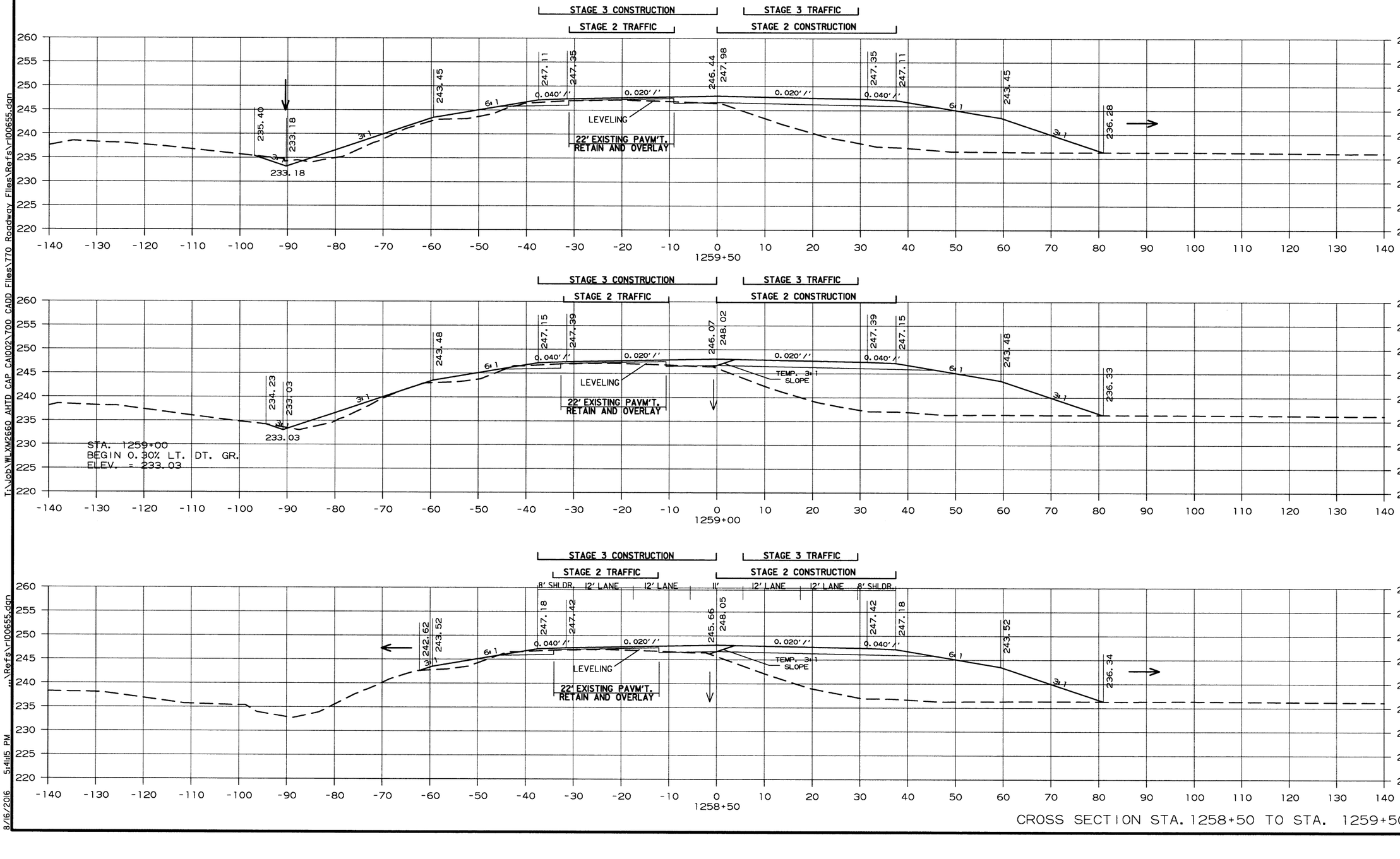
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6	ARK.			
JOB NO.		CA1002	274	319

(2) CROSS SECTIONS



CROSS SECTION STA. 1258+50 TO STA. 1259+50

END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
		STAGE 2: 0	STAGE 2: 825
		STAGE 3: 36	STAGE 3: 43
STAGE 2: 0	STAGE 2: 459		
STAGE 3: 16	STAGE 3: 46		
		STAGE 2: 0	STAGE 2: 880
		STAGE 3: 24	STAGE 3: 80
STAGE 2: 0	STAGE 2: 491		
STAGE 3: 10	STAGE 3: 40		
		STAGE 2: 0	STAGE 2: 924
		STAGE 3: 18	STAGE 3: 50
STAGE 2: 0	STAGE 2: 507		
STAGE 3: 9	STAGE 3: 14		

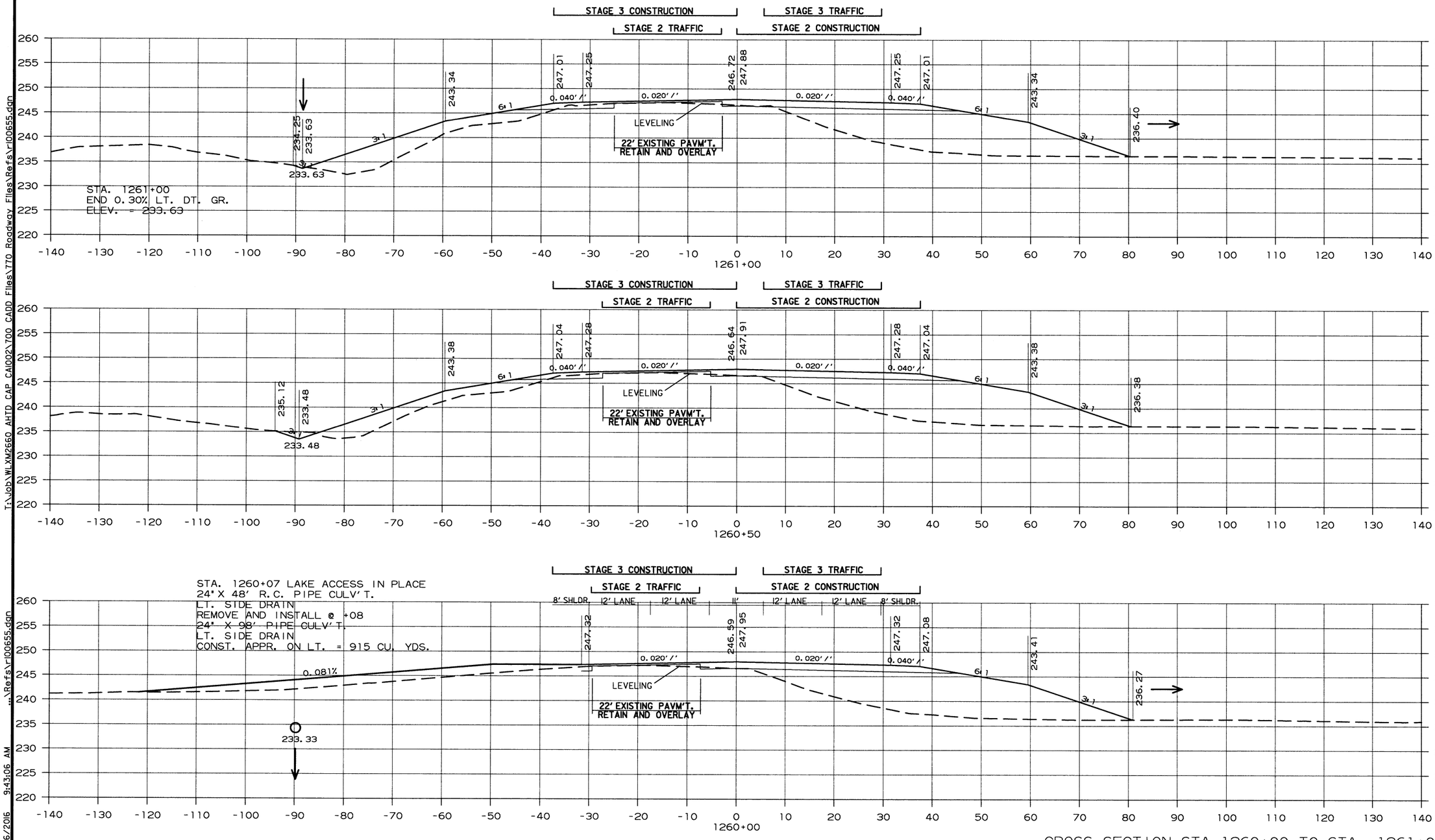
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	275	319

(2) CROSS SECTIONS



CROSS SECTION STA. 1260+00 TO STA. 1261+00

	END AREA (S.F.)		VOLUME (C.Y.)	
	CUT	FILL	CUT	FILL
STAGE 2			4	699
STAGE 3			16	281
STAGE 2	2	393		
STAGE 3	8	139		
STAGE 2			2	741
STAGE 3			21	219
STAGE 2	0	407		
STAGE 3	15	98		
STAGE 2			0	777
STAGE 3			35	91
STAGE 2	0	432		
STAGE 3	23	0		

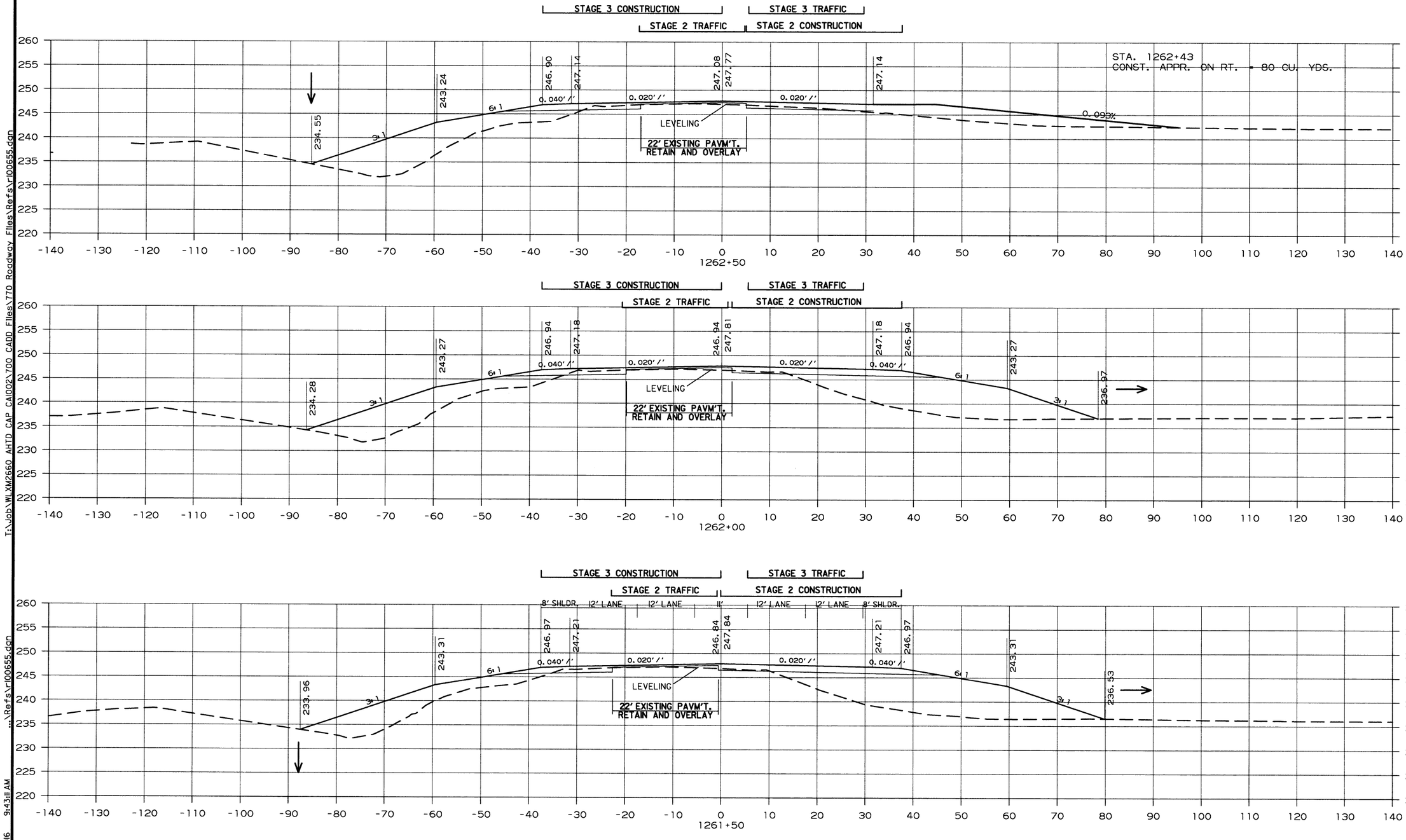
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	276	319

(2) CROSS SECTIONS



CROSS SECTION STA. 1261+50 TO STA. 1262+50

	END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
			STAGE 2 15	STAGE 2 104
			STAGE 3 15	STAGE 3 458
	STAGE 2 8	STAGE 2 21		
	STAGE 3 8	STAGE 3 235		
			STAGE 2 11	STAGE 2 307
			STAGE 3 17	STAGE 3 403
	STAGE 2 4	STAGE 2 311		
	STAGE 3 10	STAGE 3 200		
			STAGE 2 6	STAGE 2 623
			STAGE 3 18	STAGE 3 338
	STAGE 2 2	STAGE 2 362		
	STAGE 3 9	STAGE 3 165		

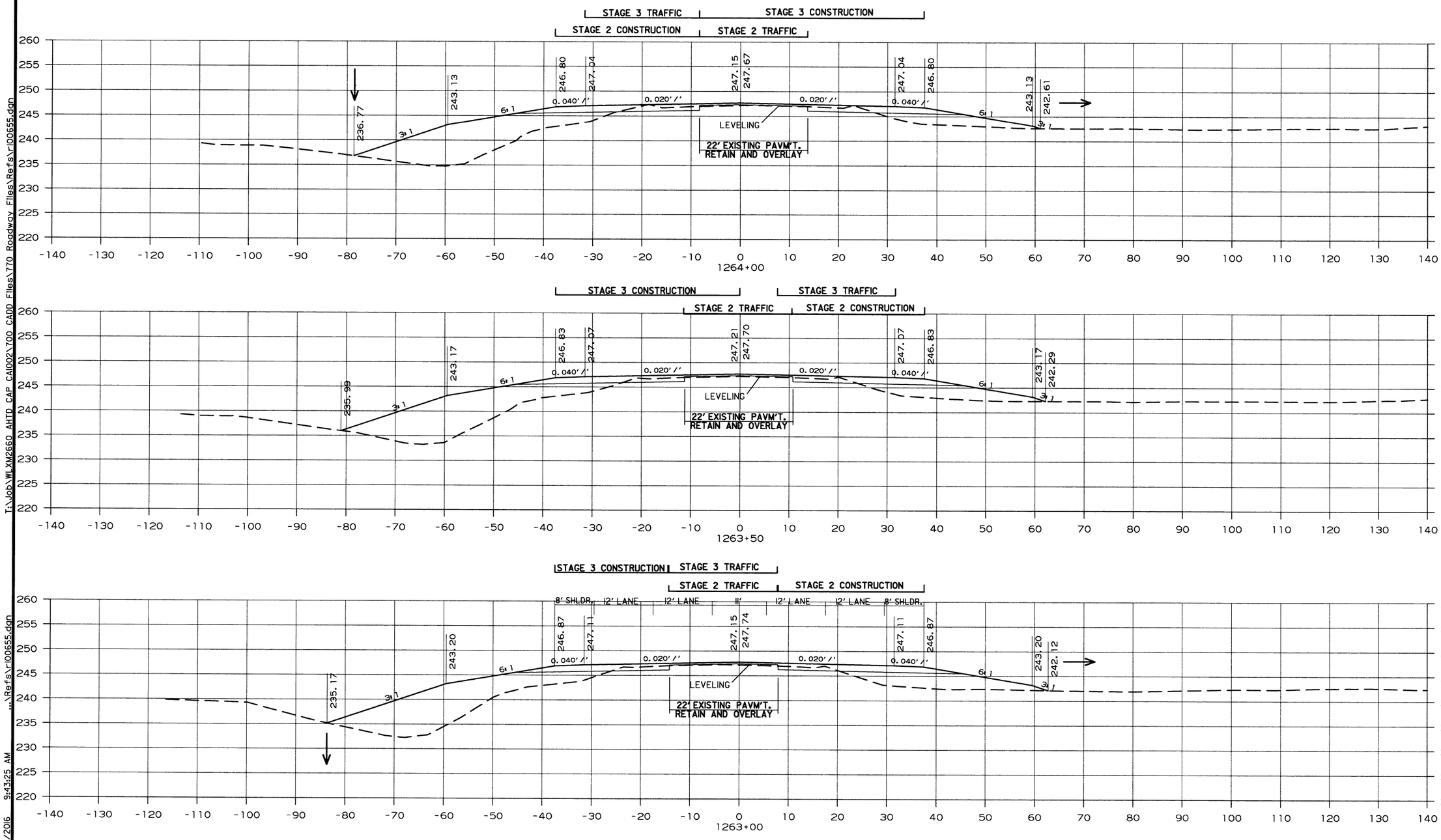
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	277	319

(2) CROSS SECTIONS



END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
		STAGE 2 24	244
		STAGE 3 21	77
STAGE 2 13	236		
STAGE 3 11	51		
		STAGE 2 21	286
		STAGE 3 19	285
STAGE 2 10	73		
STAGE 3 9	257		
		STAGE 2 17	152
		STAGE 3 16	479
STAGE 2 8	91		
STAGE 3 8	260		

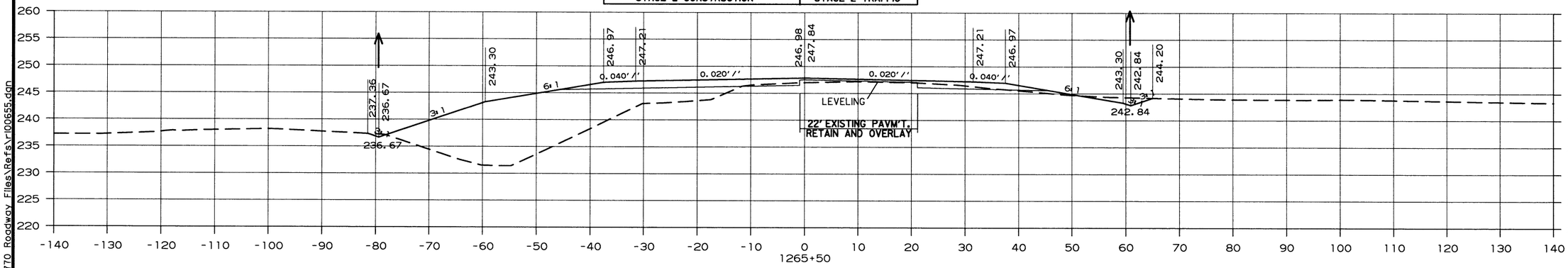
CROSS SECTION STA. 1263+00 TO STA. 1264+00

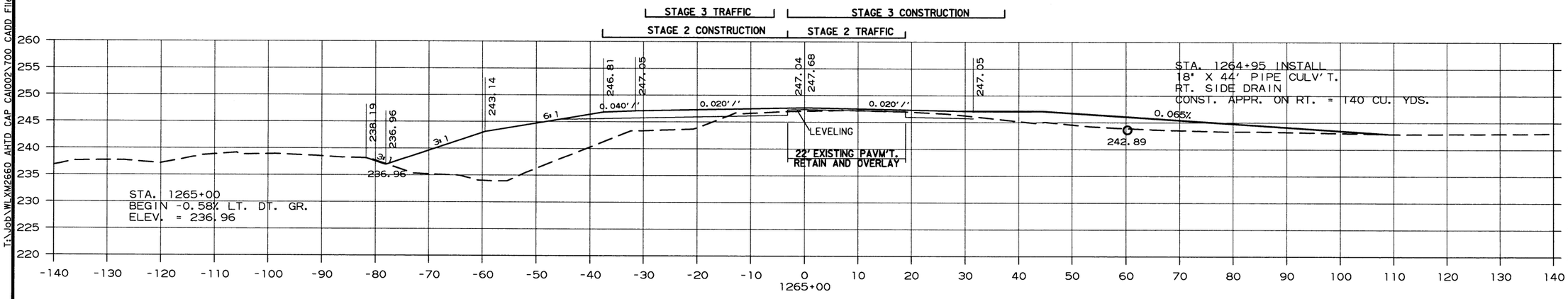
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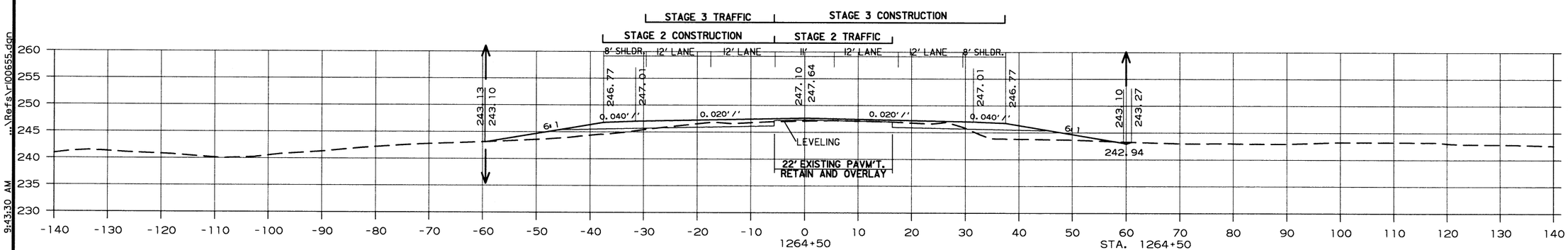
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				6	ARK.			
				JOB NO.		CA1002	278	319

(2) CROSS SECTIONS







STA. 1264+50
BEGIN -0.10% RT. DT. GR.
ELEV. = 242.94

CROSS SECTION STA. 1264+50 TO STA. 1265+50

	END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
			STAGE 2: 4	STAGE 2: 818
			STAGE 3: 31	STAGE 3: 7
	STAGE 2: 3	STAGE 2: 414		
	STAGE 3: 17	STAGE 3: 4		
			STAGE 2: 8	STAGE 2: 671
			STAGE 3: 31	STAGE 3: 8
	STAGE 2: 6	STAGE 2: 311		
	STAGE 3: 16	STAGE 3: 5		
			STAGE 2: 18	STAGE 2: 313
			STAGE 3: 26	STAGE 3: 34
	STAGE 2: 13	STAGE 2: 27		
	STAGE 3: 12	STAGE 3: 32		

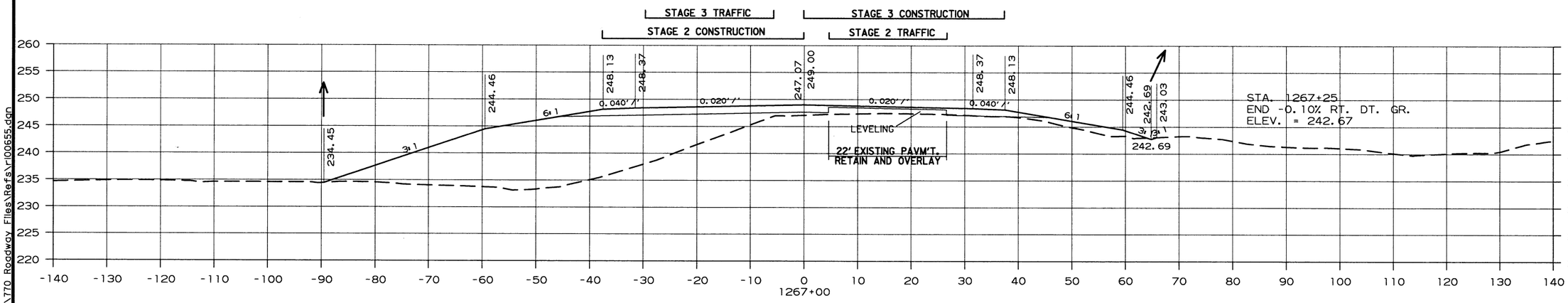
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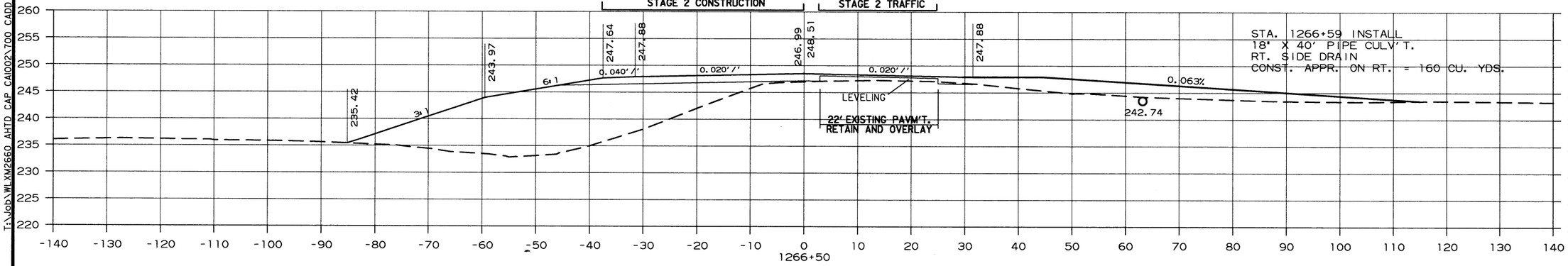
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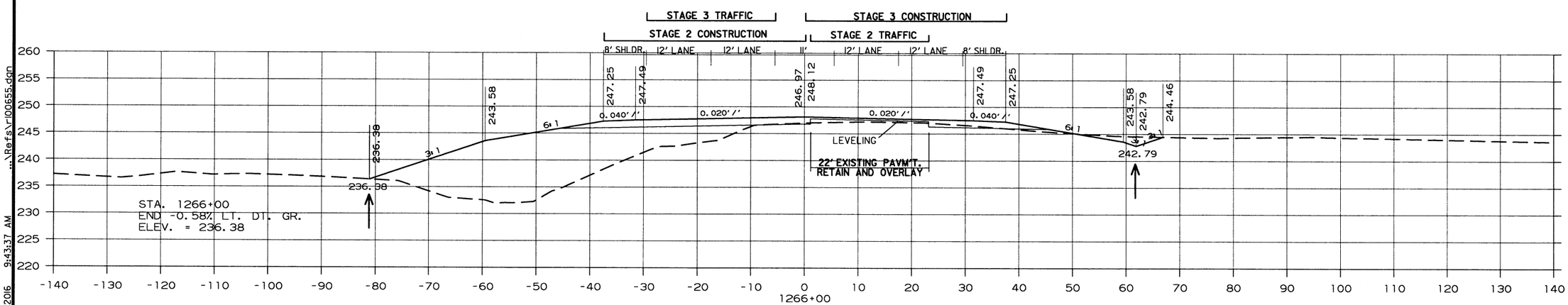
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	279	319

(2) CROSS SECTIONS







	END AREA (S.F.)		VOLUME (C.Y.)	
	CUT	FILL	CUT	FILL
			STAGE 2 0 1228	
			STAGE 3 0 170	
		STAGE 2 0 624		
		STAGE 3 0 26		
			STAGE 2 0 1101	
			STAGE 3 3 35	
		STAGE 2 0 565		
		STAGE 3 3 12		
			STAGE 2 1 957	
			STAGE 3 19 15	
		STAGE 2 1 469		
		STAGE 3 17 4		

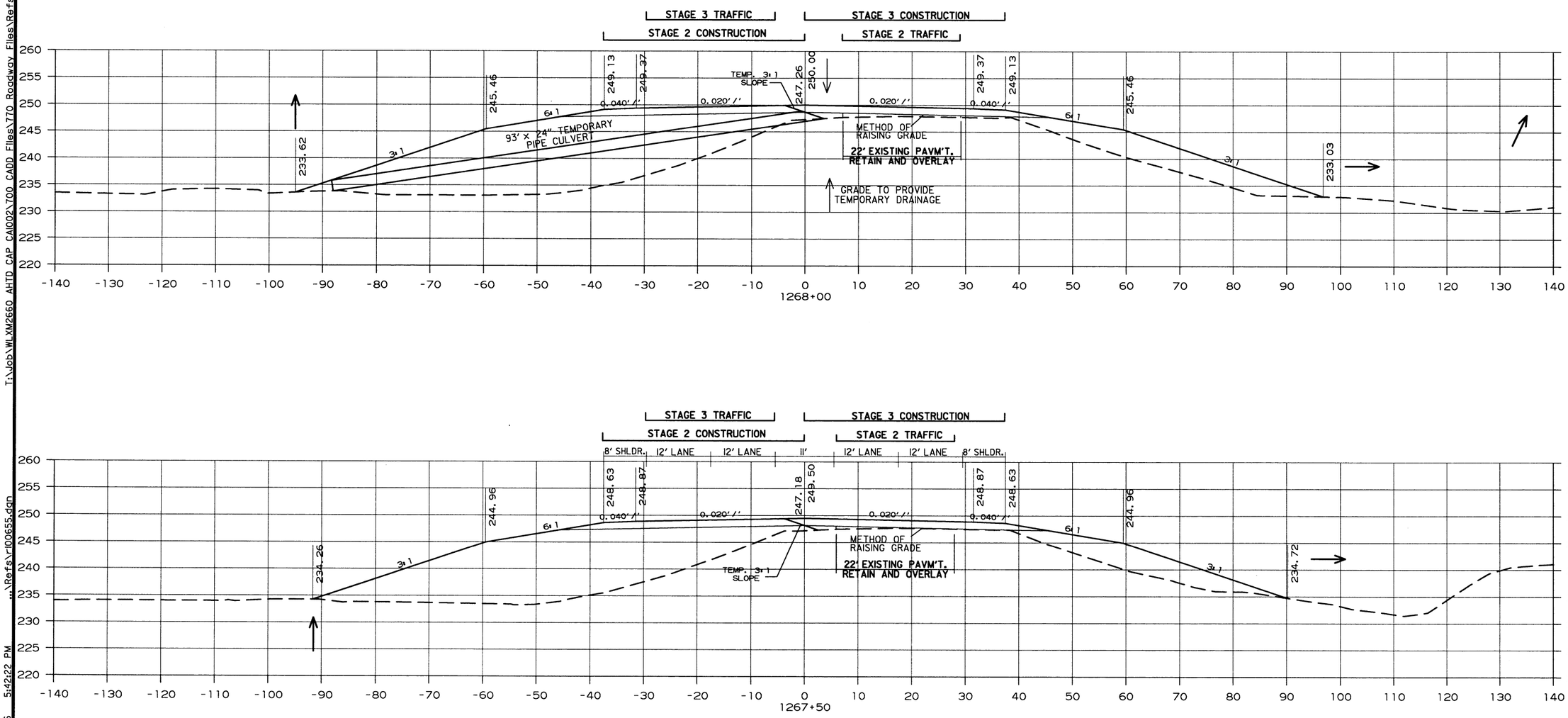
CROSS SECTION STA. 1266+00 TO STA. 1267+00

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				6	ARK.			
				JOB NO.		CA1002	280	319

(2) CROSS SECTIONS



	END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
			STAGE 2	
			0	1565
			STAGE 3	
			0	399
			STAGE 2	
			0	796
			STAGE 3	
			0	206
			STAGE 2	
			0	1387
			STAGE 3	
			0	337
			STAGE 2	
			0	702
			STAGE 3	
			0	158

CROSS SECTION STA. 1267+50 TO STA. 1268+00

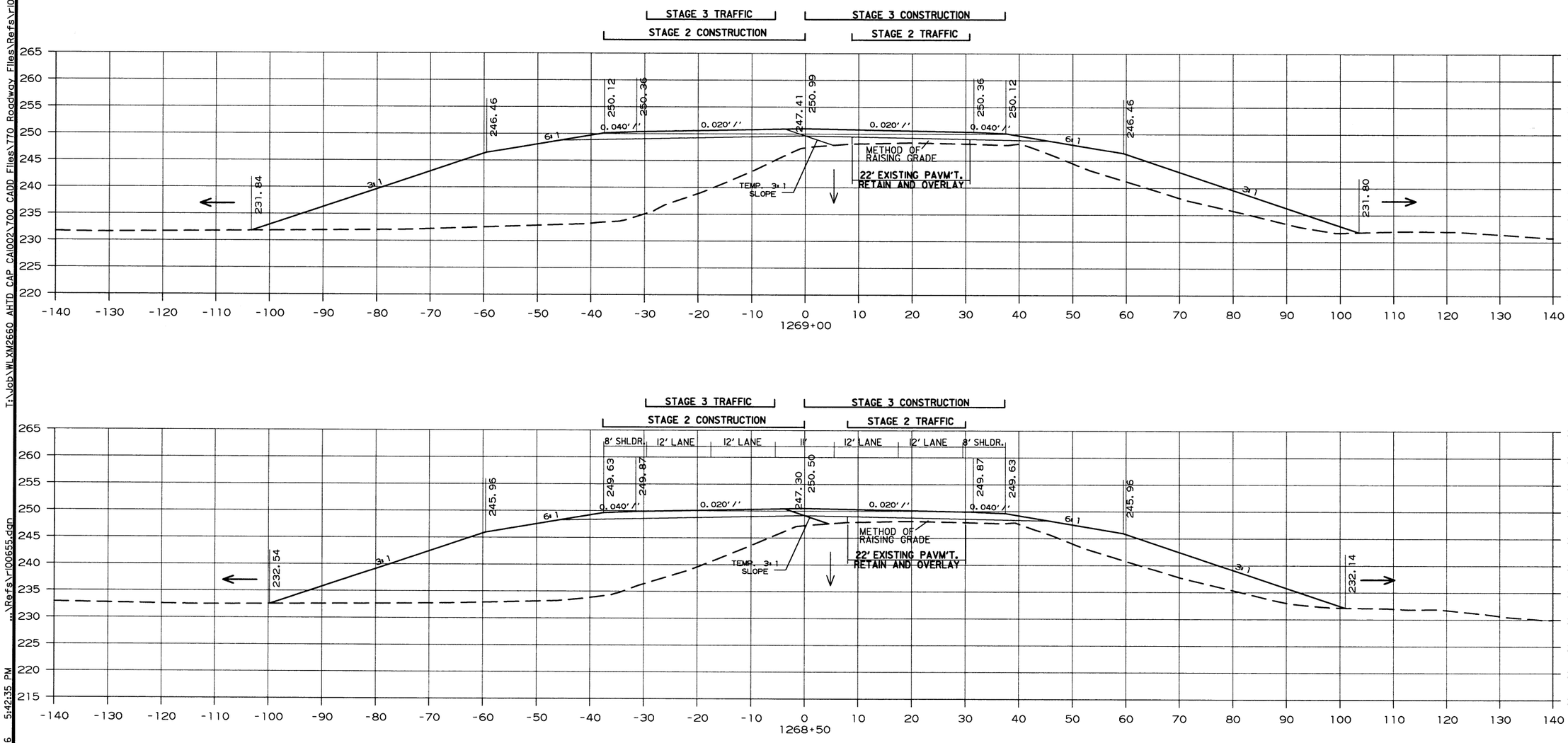
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	281	319

(2) CROSS SECTIONS



END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
			STAGE 2 0 / 1946
			STAGE 3 0 / 455
	STAGE 2 0 / 1002		
	STAGE 3 0 / 240		
			STAGE 2 0 / 1756
			STAGE 3 0 / 431
	STAGE 2 0 / 894		
	STAGE 3 0 / 225		

CROSS SECTION STA. 1268+50 TO STA. 1269+00

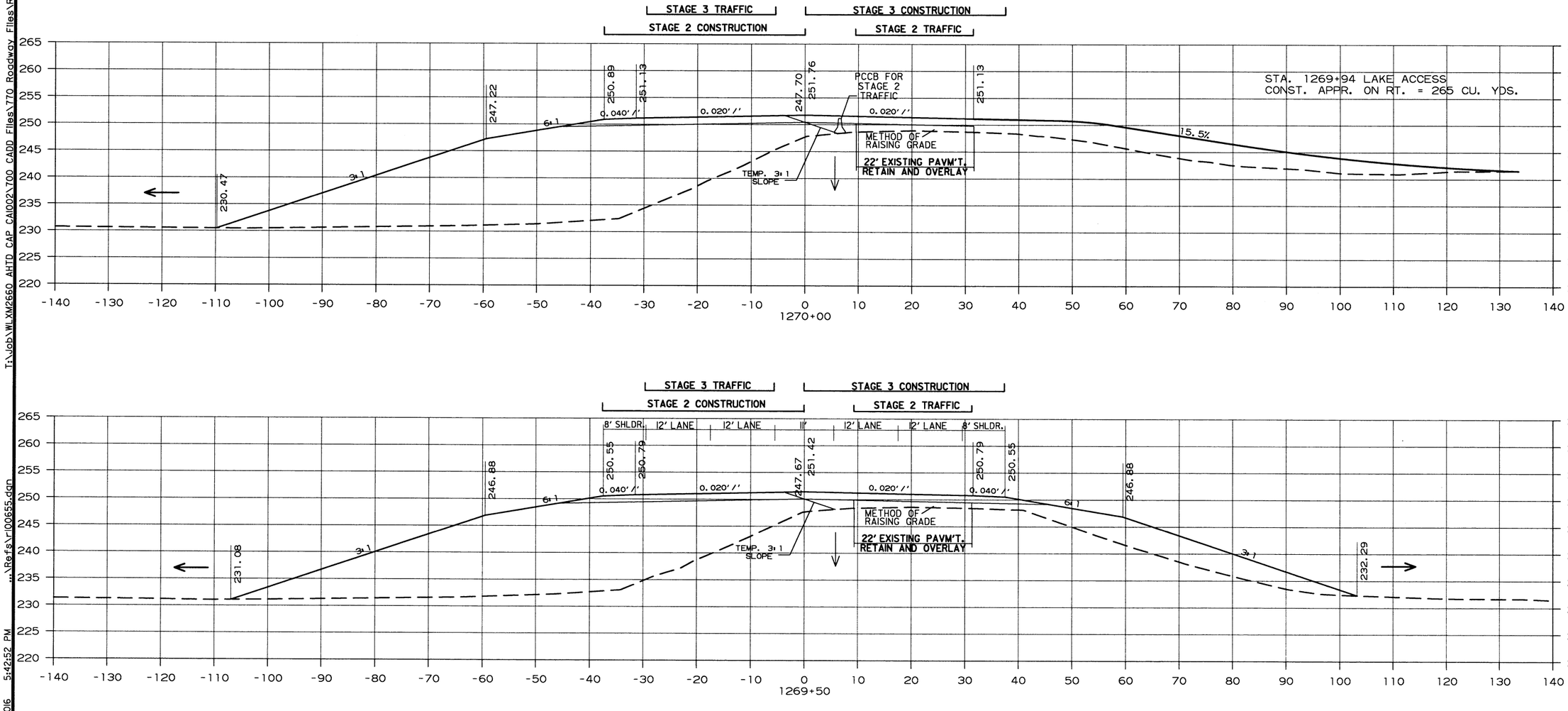
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	282	319

(2) CROSS SECTIONS



CROSS SECTION STA. 1269+50 TO STA. 1270+00

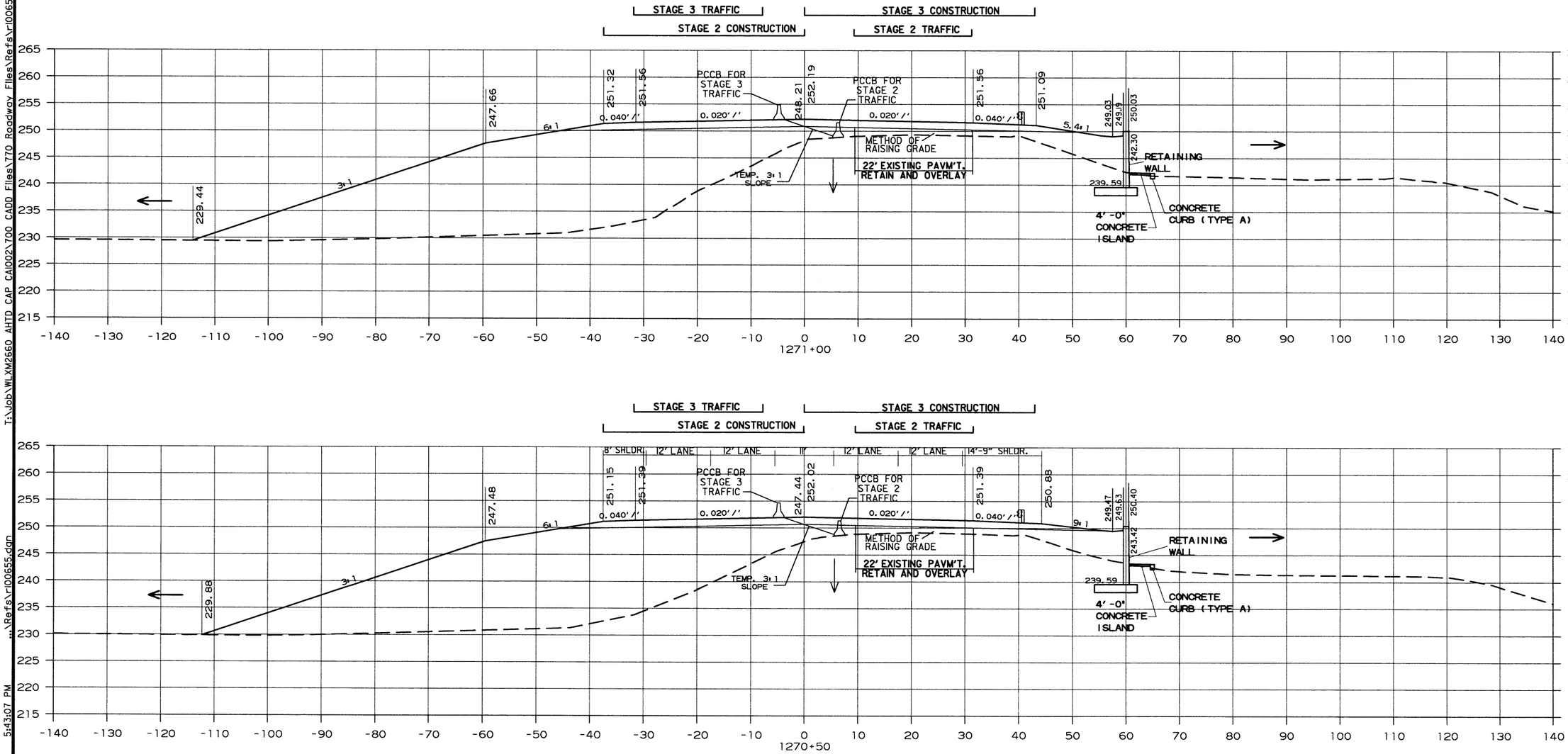
END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
			STAGE 2: 0
			STAGE 3: 0
		STAGE 2: 0	2255
		STAGE 3: 0	156
		STAGE 2: 0	1189
		STAGE 3: 0	67
		STAGE 2: 0	2119
		STAGE 3: 0	294
		STAGE 2: 0	1100
		STAGE 3: 0	251

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				6	ARK.			
				JOB NO.		CA1002	283	319

(2) CROSS SECTIONS



CROSS SECTION STA. 1270+50 TO STA. 1271+00

	END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
STAGE 2(SM)			0	1721
STAGE 3(SM)			0	73
STAGE 2			0	1208
STAGE 3			0	156
STAGE 2			0	1305
STAGE 3			0	103
STAGE 2			0	2362
STAGE 3			0	189
STAGE 2			0	1246
STAGE 3			0	101

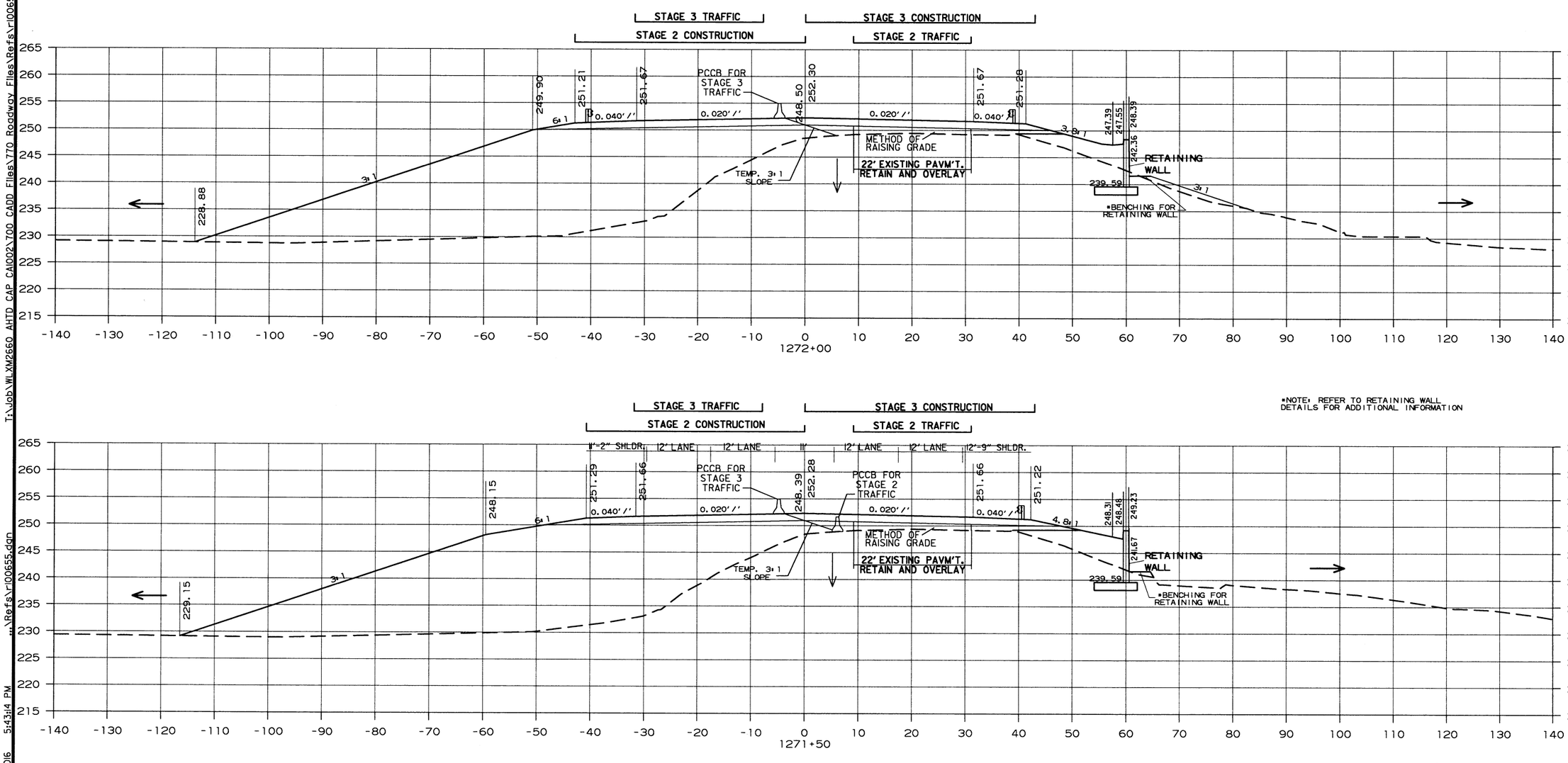
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	284	319

(2) CROSS SECTIONS



*NOTE: REFER TO RETAINING WALL DETAILS FOR ADDITIONAL INFORMATION

	END AREA (S.F.)		VOLUME (C.Y.)	
	CUT	FILL	CUT	FILL
STAGE 2(SM)				
	0	1318	0	2431
STAGE 3(SM)				
	0	52	0	57
STAGE 2				
	0	0	0	0
STAGE 3				
	0	64	0	104
STAGE 2(SM)				
	0	1367	0	2486
STAGE 3(SM)				
	0	58	0	102
STAGE 2				
	0	0	0	0
STAGE 3				
	0	65	0	119

CROSS SECTION STA. 1271+50 TO STA. 1272+00

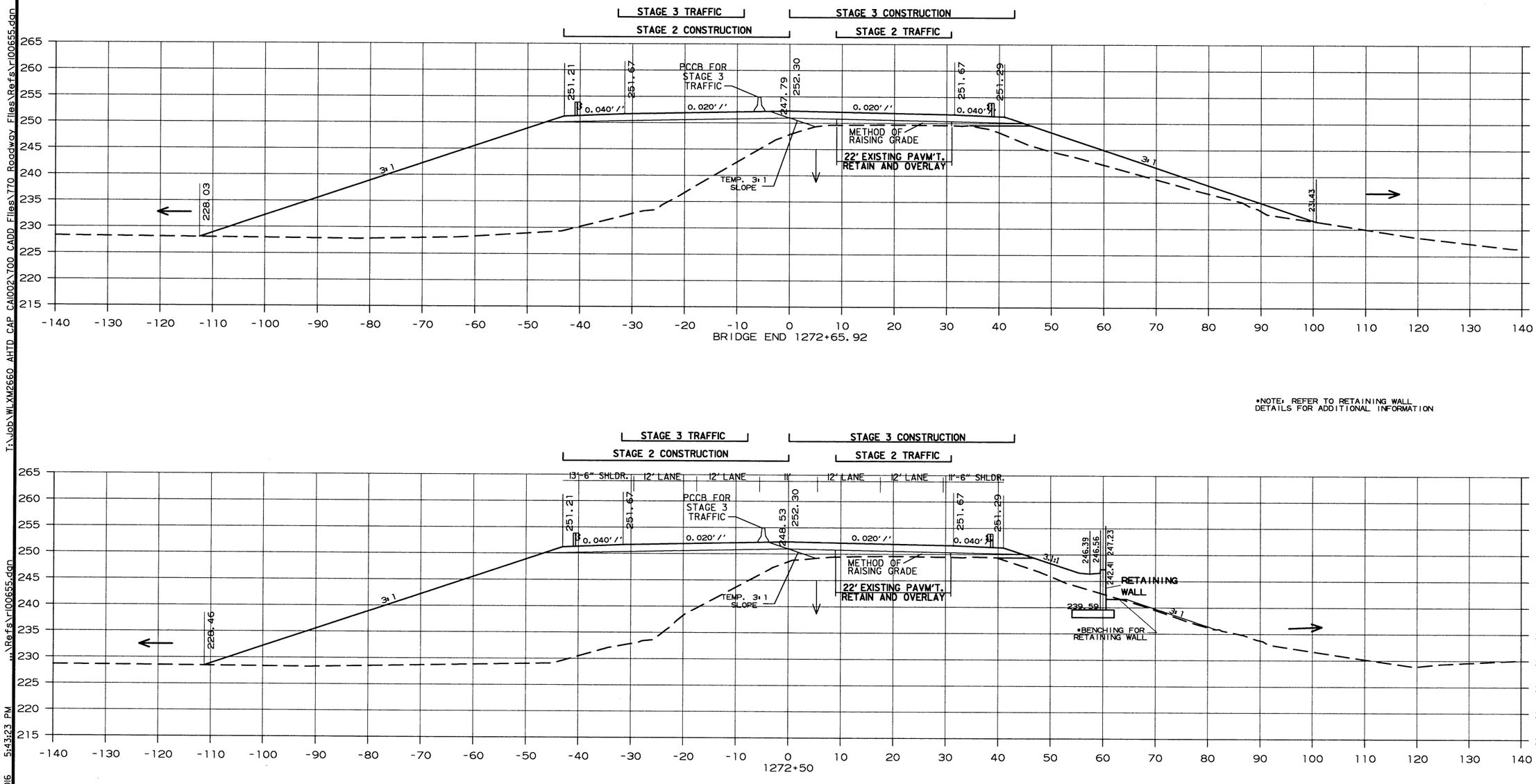
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	285	319

(2) CROSS SECTIONS



NOTE REFER TO RETAINING WALL DETAILS FOR ADDITIONAL INFORMATION

CROSS SECTION STA. 1272+50 TO STA. 1272+65.92

	END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
			STAGE 2(SM) 0	713
			STAGE 3(SM) 0	5
			STAGE 2 0	0
			STAGE 3 0	69
		STAGE 2(SM) 0		1372
		STAGE 3(SM) 0		9
		STAGE 2 0		0
		STAGE 3 0		133
			STAGE 2(SM) 0	790
			STAGE 3(SM) 0	6
			STAGE 2 0	0
			STAGE 3 0	53
	STAGE 2(SM) 0	1308		
	STAGE 3(SM) 0	10		
	STAGE 2 0	0		
	STAGE 3 0	48		

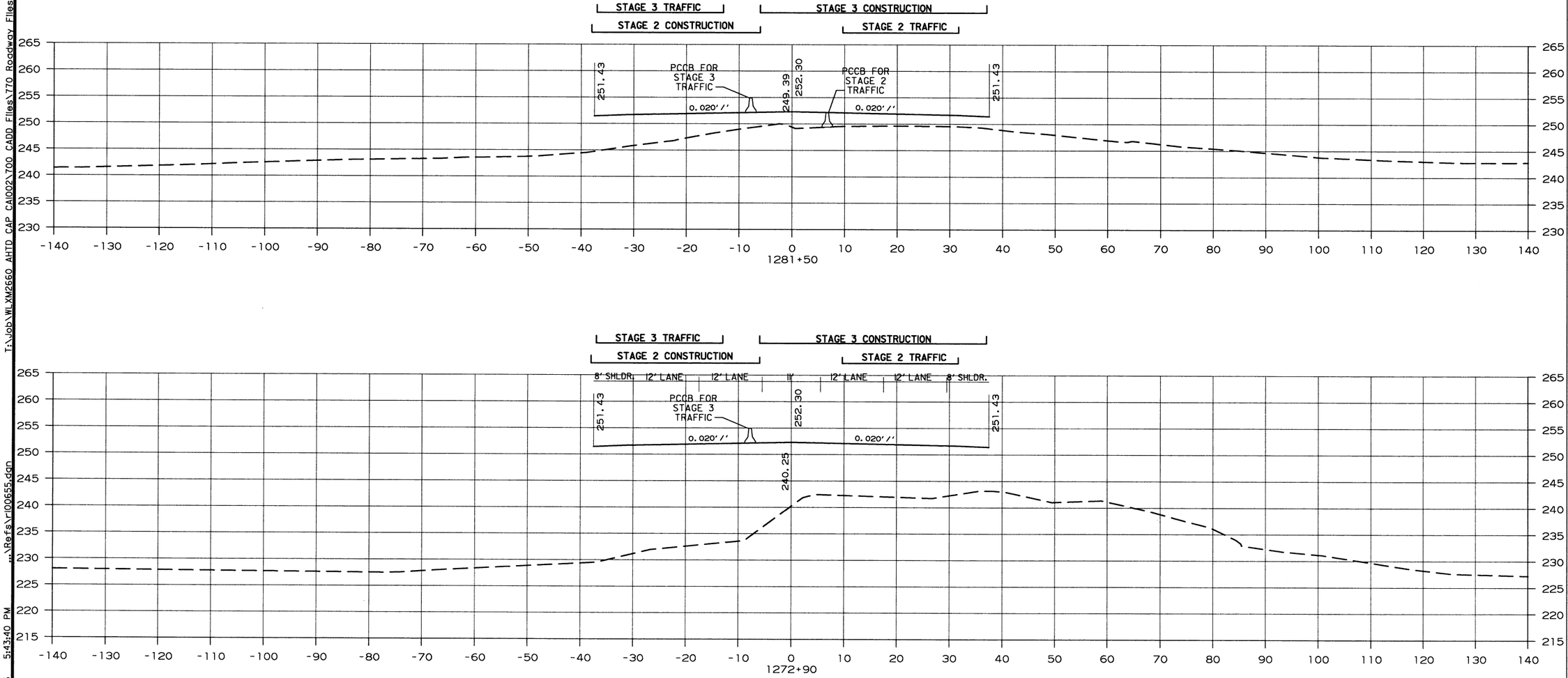
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	286	319

(2) CROSS SECTIONS



END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
		STAGE 2(SM) 0	87
		STAGE 3(SM) 0	18
		STAGE 2 0	0
		STAGE 3 0	4
STAGE 2 0	0		
STAGE 3 0	0		
STAGE 2 0	0		
STAGE 3 0	0		

CROSS SECTION STA. 1272+90 TO STA. 1281+50

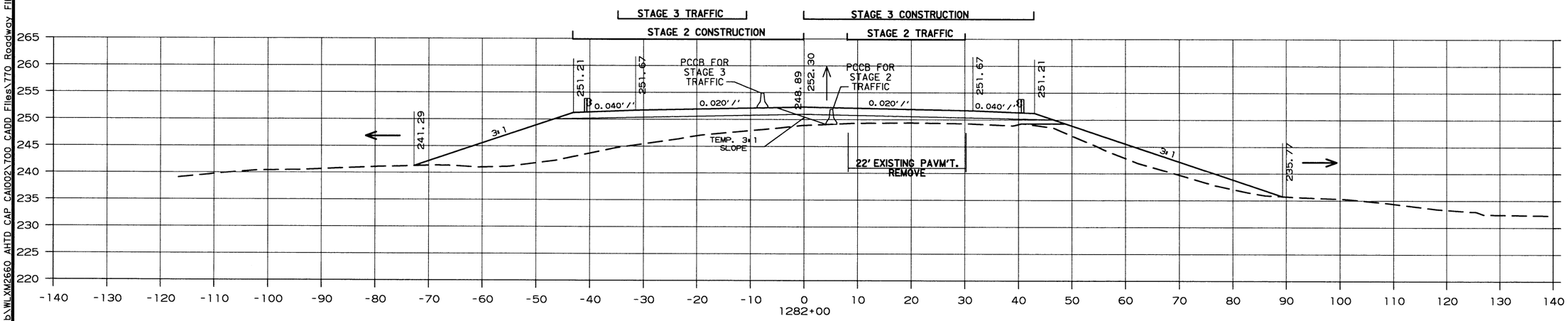
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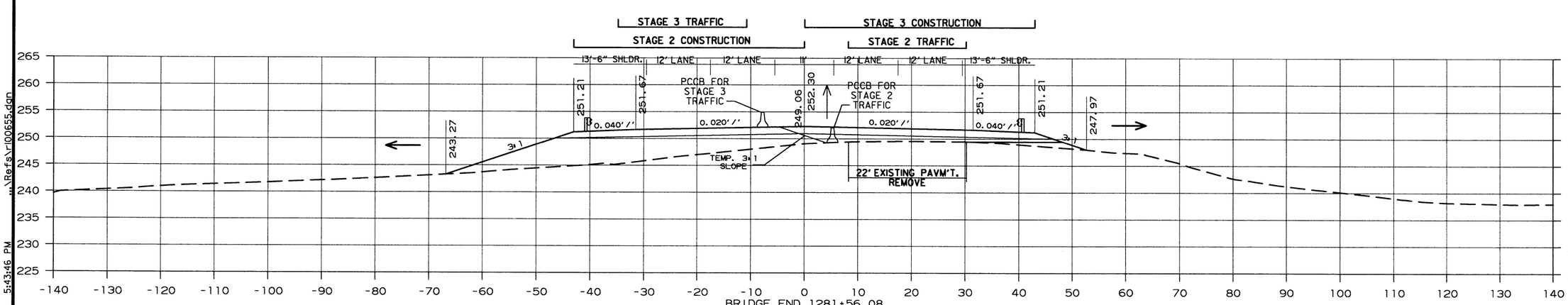
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	287	319

(2) CROSS SECTIONS





	END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
			STAGE 2(SM)	
			0	968
			STAGE 3(SM)	
			0	119
			STAGE 2	
			20	0
			STAGE 3	
			0	309
			STAGE 2(SM)	
			0	314
			STAGE 3(SM)	
			0	59
			STAGE 2	
			0	0
			STAGE 3	
			0	89
			STAGE 2(SM)	
			0	445
			STAGE 3(SM)	
			0	88
			STAGE 2	
			0	0
			STAGE 3	
			0	82
			STAGE 2(SM)	
			0	233
			STAGE 3(SM)	
			0	49
			STAGE 2	
			0	0
			STAGE 3	
			0	12

CROSS SECTION STA. 1281+56.08 TO STA. 1282+00

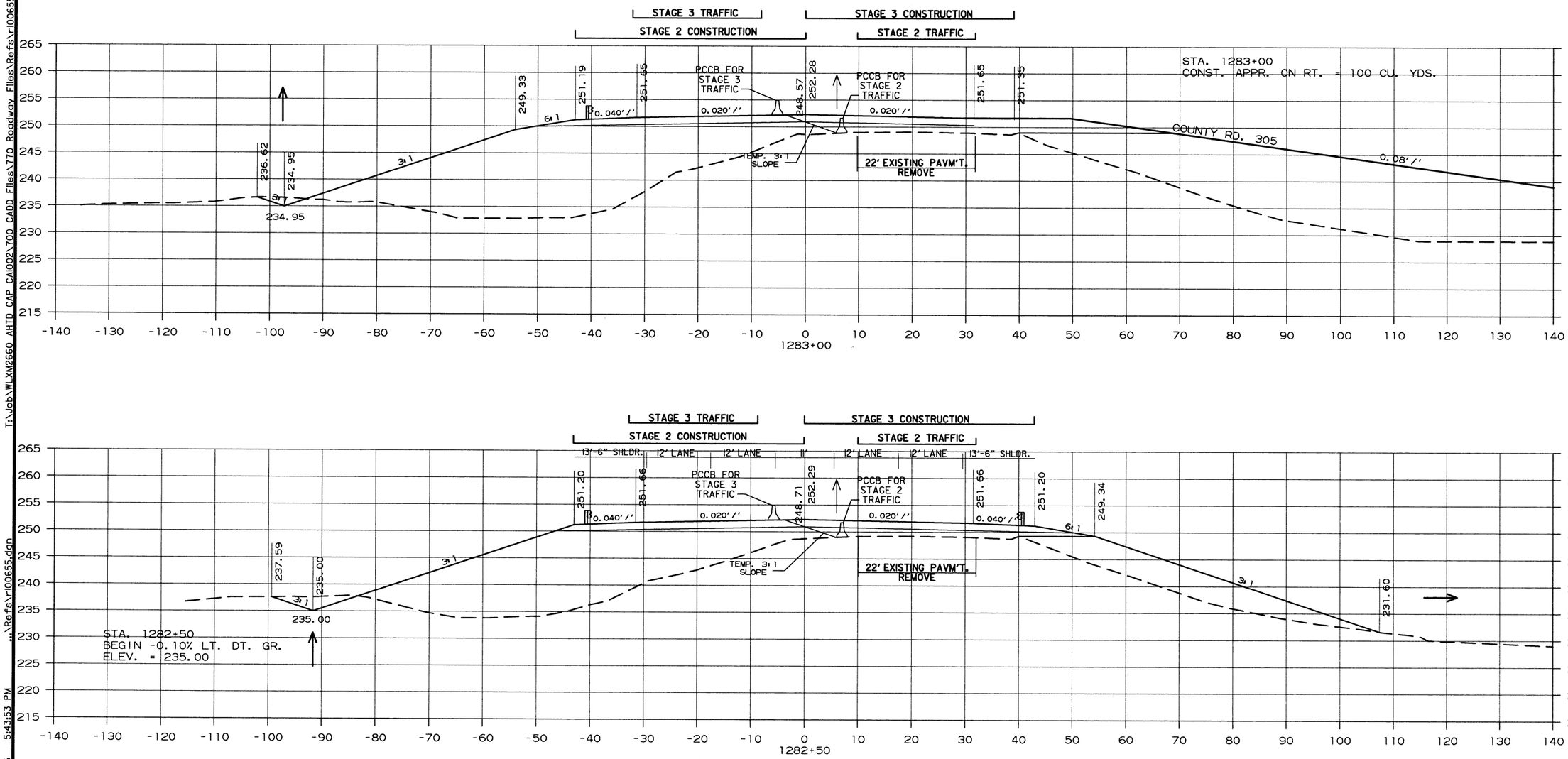
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	288	319

(2) CROSS SECTIONS



CROSS SECTION STA. 1282+50 TO STA. 1283+00

	END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
				STAGE 2(SM) 0 / 374
				STAGE 3(SM) 0 / 35
				STAGE 2 12 / 902
				STAGE 3 0 / 622
	STAGE 2(SM) 0	STAGE 2(SM) 918		
	STAGE 3(SM) 0	STAGE 3(SM) 85		
	STAGE 2 8	STAGE 2 0		
	STAGE 3 0	STAGE 3 285		
				STAGE 2(SM) 0 / 1527
				STAGE 3(SM) 0 / 143
				STAGE 2 28 / 0
				STAGE 3 0 / 491
	STAGE 2(SM) 0	STAGE 2(SM) 731		
	STAGE 3(SM) 0	STAGE 3(SM) 69		
	STAGE 2 22	STAGE 2 0		
	STAGE 3 0	STAGE 3 245		

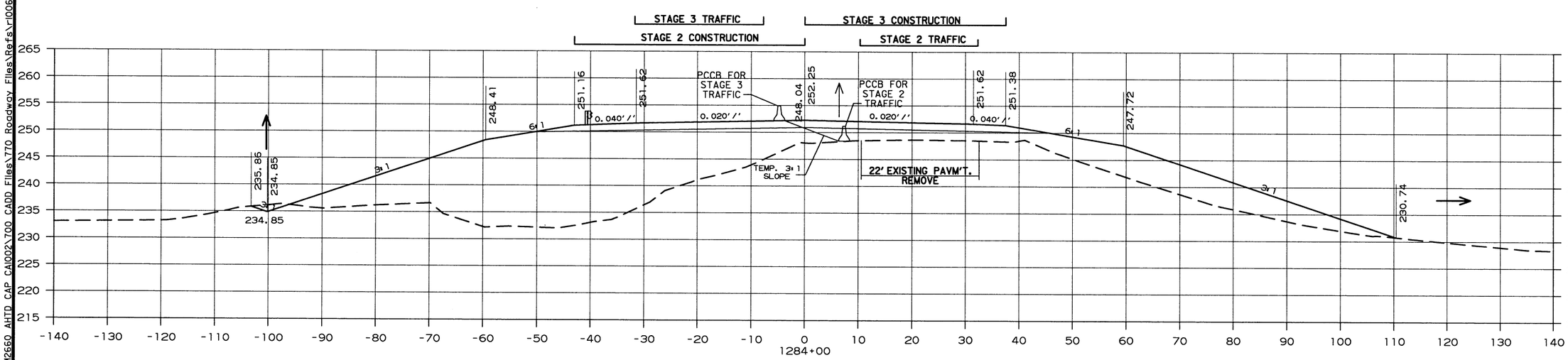
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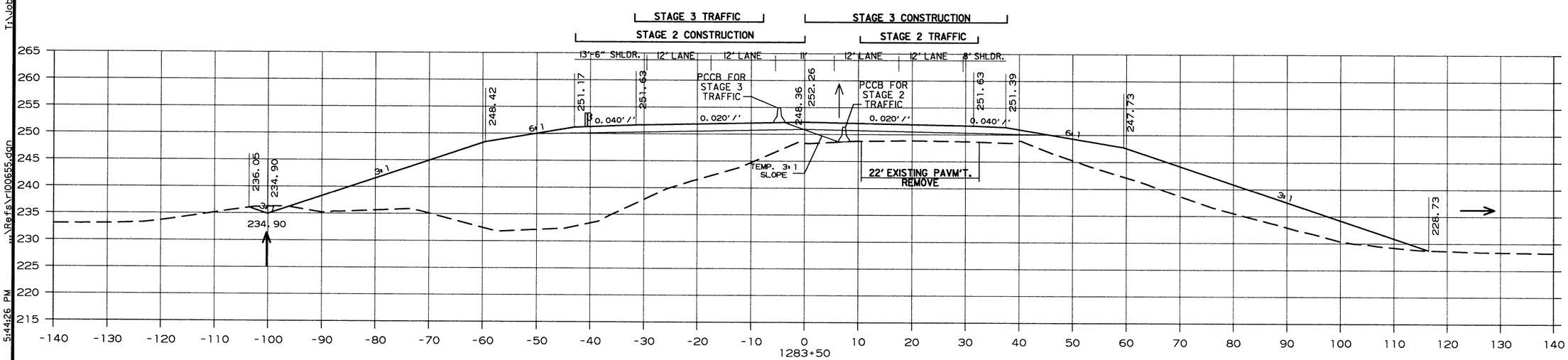
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	289	319

(2) CROSS SECTIONS



END AREA (S.F.)		VOLUME (C.Y.)	
CUT	FILL	CUT	FILL
		STAGE 2	
		13	1775
		STAGE 3	
		0	675
STAGE 2			
5	988		
STAGE 3			
0	360		



END AREA (S.F.)		VOLUME (C.Y.)	
CUT	FILL	CUT	FILL
		STAGE 2	
		9	1817
		STAGE 3	
		0	692
STAGE 2			
5	974		
STAGE 3			
0	387		

CROSS SECTION STA. 1283+50 TO STA. 1284+00

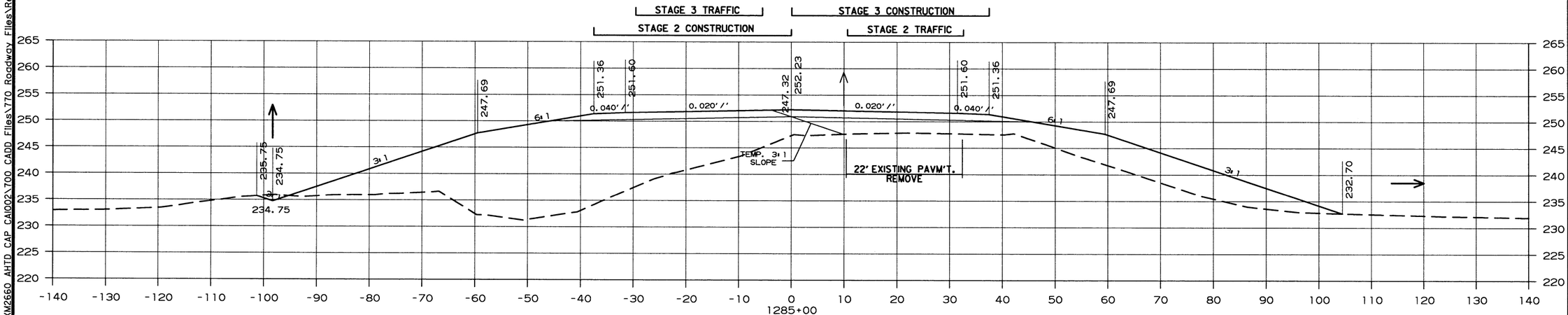
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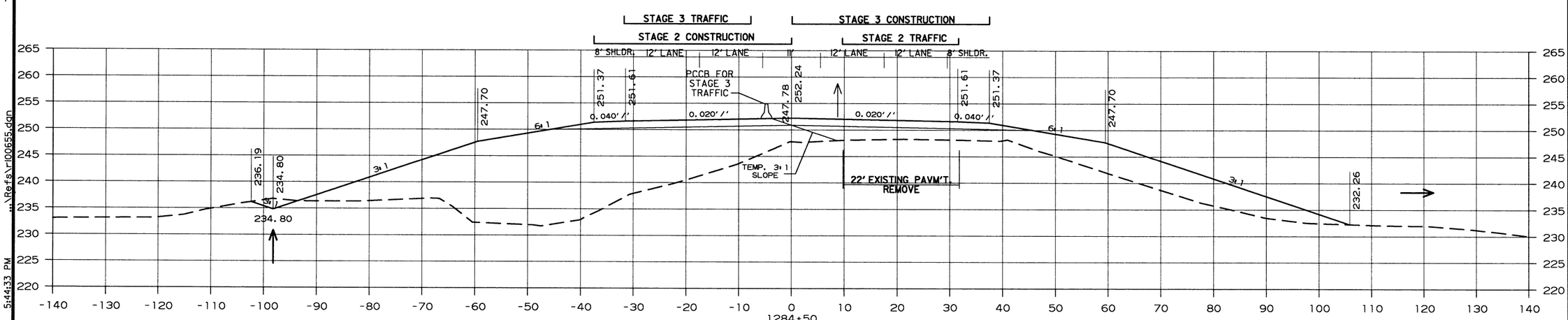
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	290	319

(2) CROSS SECTIONS





	END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
			STAGE 2: 8	STAGE 2: 1849
			STAGE 3: 0	STAGE 3: 713
	STAGE 2: 4	STAGE 2: 950		
	STAGE 3: 0	STAGE 3: 388		
	STAGE 2: 12	STAGE 2: 1740		
	STAGE 3: 0	STAGE 3: 701		
	STAGE 2: 9	STAGE 2: 929		
	STAGE 3: 0	STAGE 3: 369		

CROSS SECTION STA. 1284+50 TO STA. 1285+00

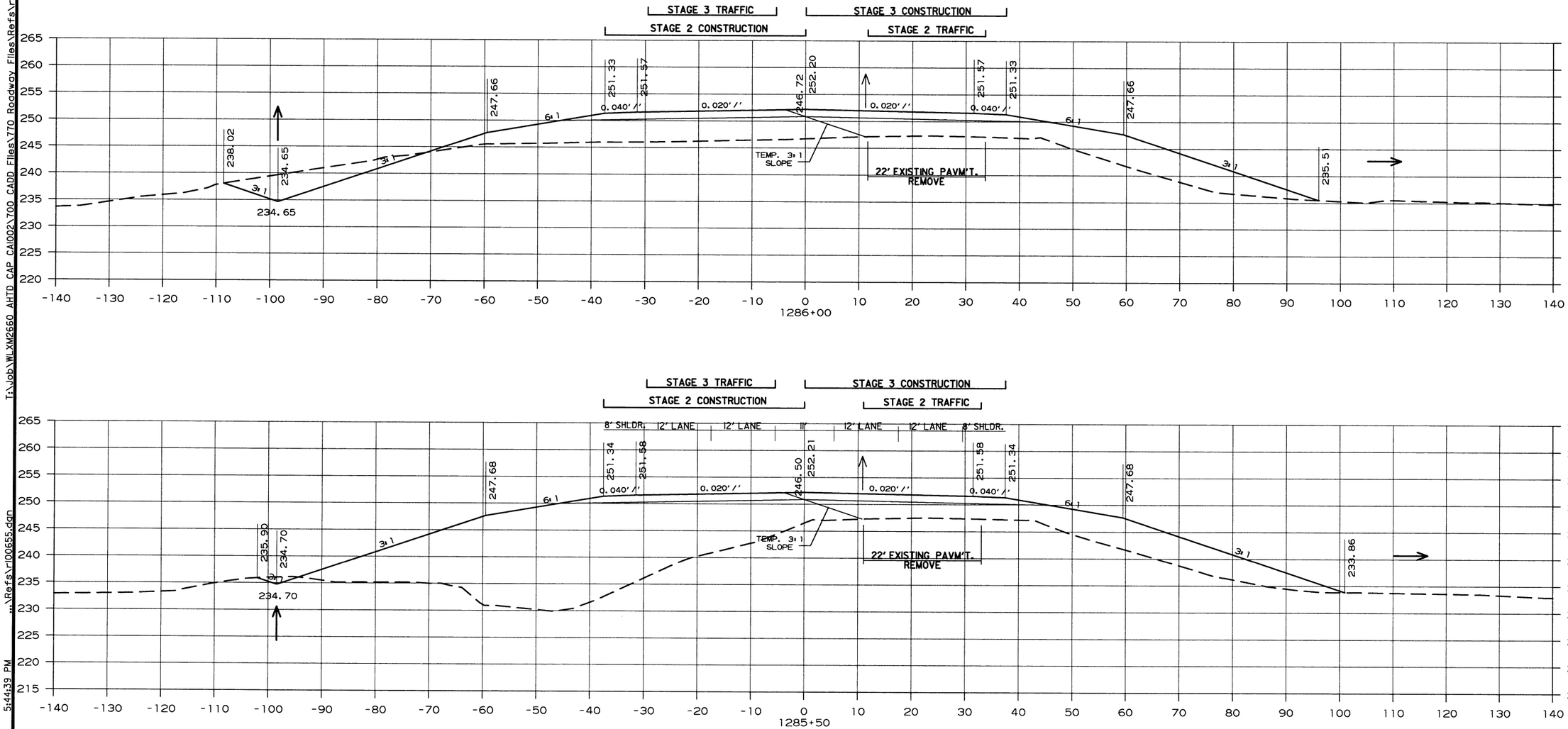
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	291	319

(2) CROSS SECTIONS



	END AREA (S.F.)		VOLUME (C.Y.)	
	CUT	FILL	CUT	FILL
			STAGE 2	
			89	703
			STAGE 3	
			0	672
			STAGE 2	
			96	248
			STAGE 3	
			0	359
			STAGE 2	
			94	1199
			STAGE 3	
			0	686
			STAGE 2	
			5	1047
			STAGE 3	
			0	382

CROSS SECTION STA. 1285+50 TO STA. 1286+00

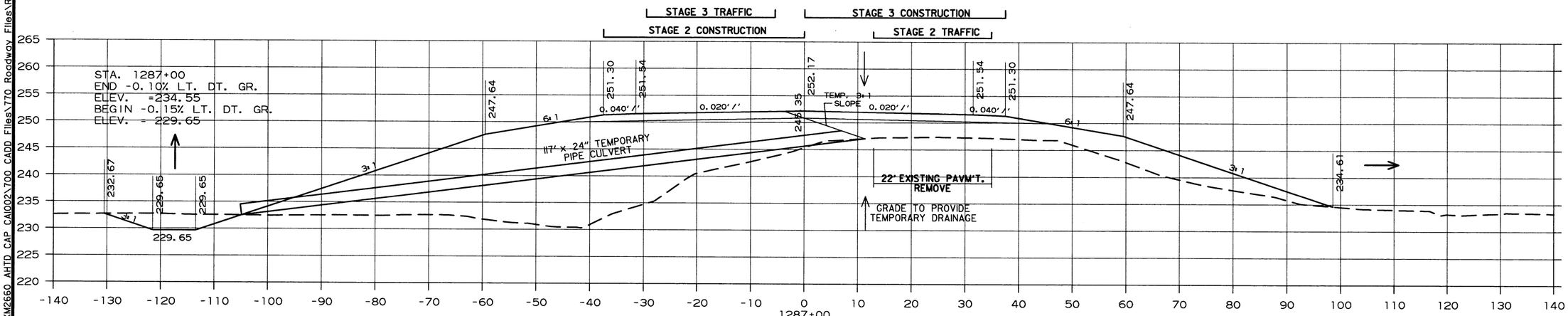
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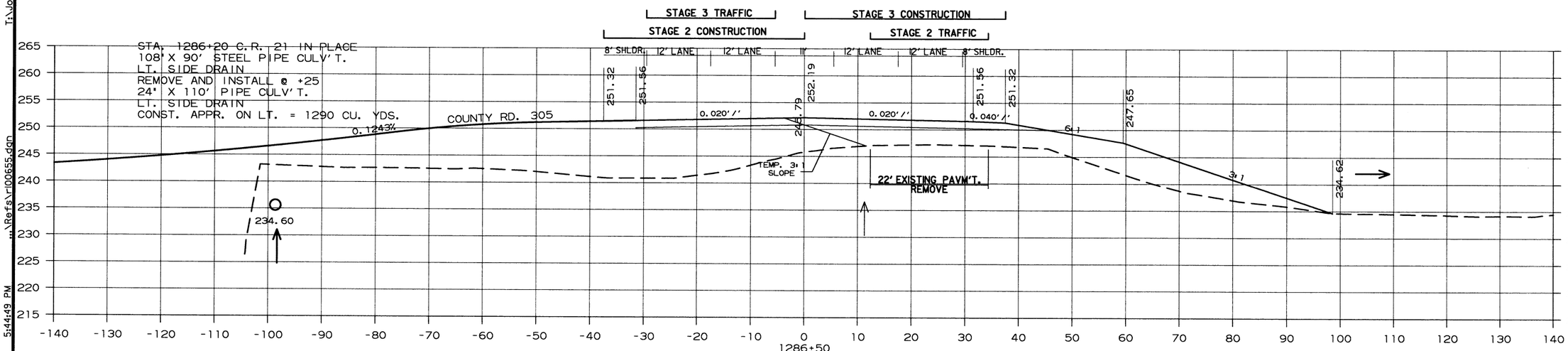
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	292	319

(2) CROSS SECTIONS





	END AREA (S.F.)		VOLUME (C.Y.)	
	CUT	FILL	CUT	FILL
STAGE 2			88	2209
STAGE 3			0	540
STAGE 2	50	1156		
STAGE 3	0	327		
STAGE 2	46	1544		
STAGE 3	0	643		
STAGE 2	0	511		
STAGE 3	0	367		

CROSS SECTION STA. 1286+50 TO STA. 1287+00

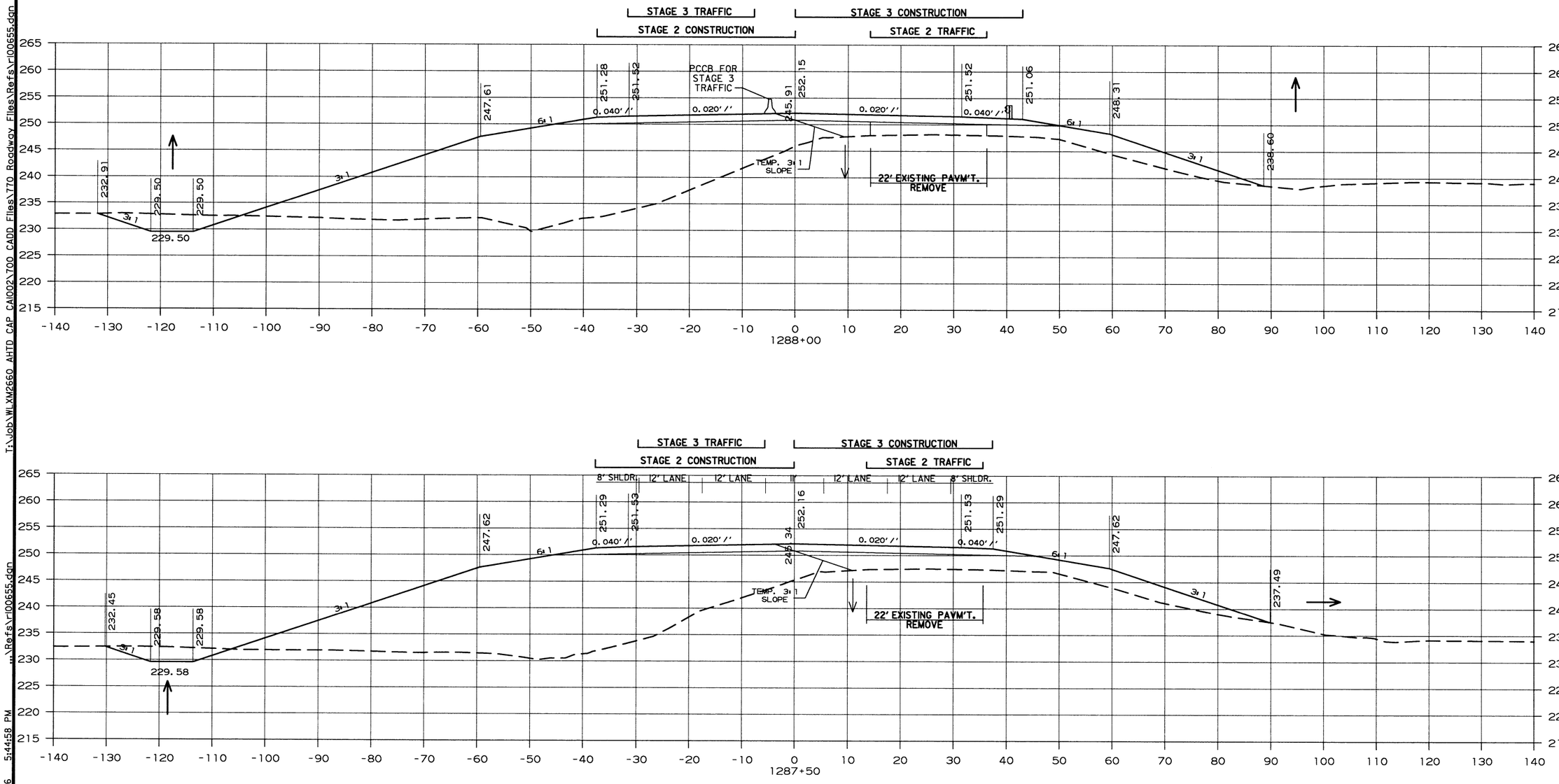
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	293	319

(2) CROSS SECTIONS



CROSS SECTION STA. 1287+50 TO STA. 1288+00

	END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
			STAGE 2: 99	STAGE 2: 2201
			STAGE 3: 0	STAGE 3: 383
			STAGE 2: 57	STAGE 2: 1207
			STAGE 3: 0	STAGE 3: 228
			STAGE 2: 94	STAGE 2: 2256
			STAGE 3: 0	STAGE 3: 448
			STAGE 2: 45	STAGE 2: 1230
			STAGE 3: 0	STAGE 3: 256

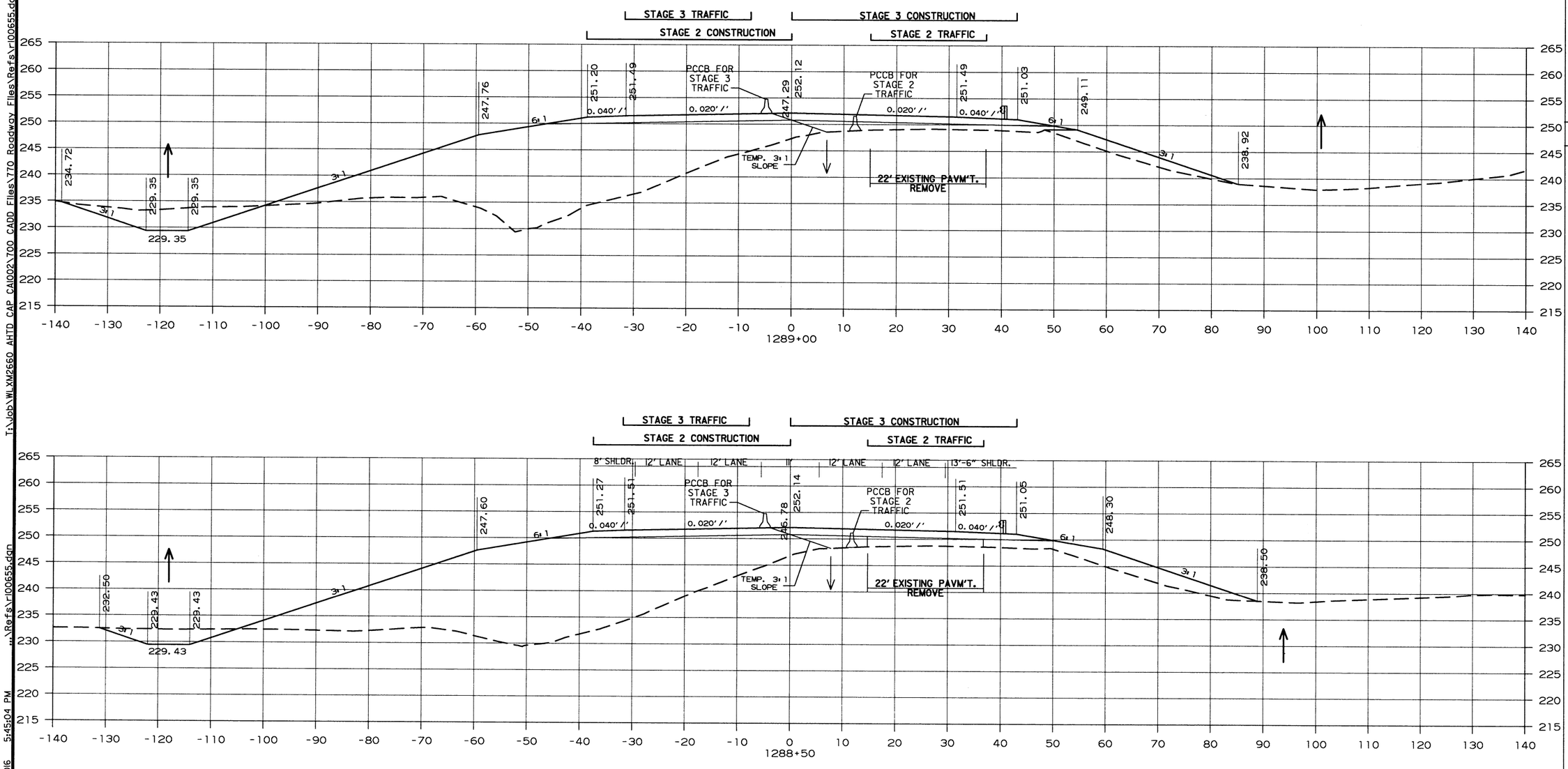
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	294	319

(2) CROSS SECTIONS



CROSS SECTION STA. 1288+50 TO STA. 1289+00

END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
		STAGE 2(SM)	
		0	1748
		STAGE 3(SM)	
		0	170
		STAGE 2	
		244	0
		STAGE 3	
		0	50
STAGE 2(SM)			
0	973		
STAGE 3(SM)			
0	75		
STAGE 2			
93	0		
STAGE 3			
0	54		
		STAGE 2(SM)	
		0	1984
		STAGE 3(SM)	
		0	292
		STAGE 2	
		132	1083
		STAGE 3	
		0	222
STAGE 2			
50	1170		
STAGE 3			
0	186		

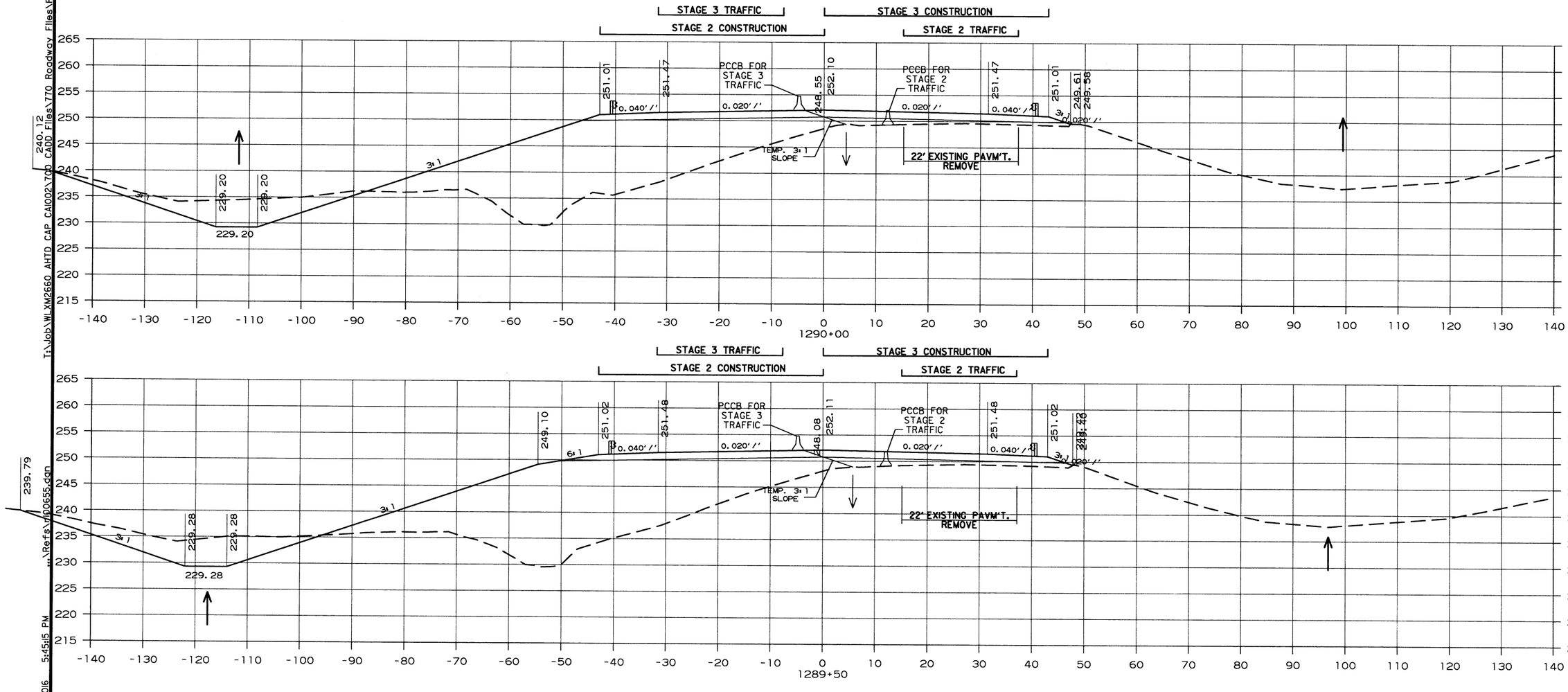
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	295	319

(2) CROSS SECTIONS

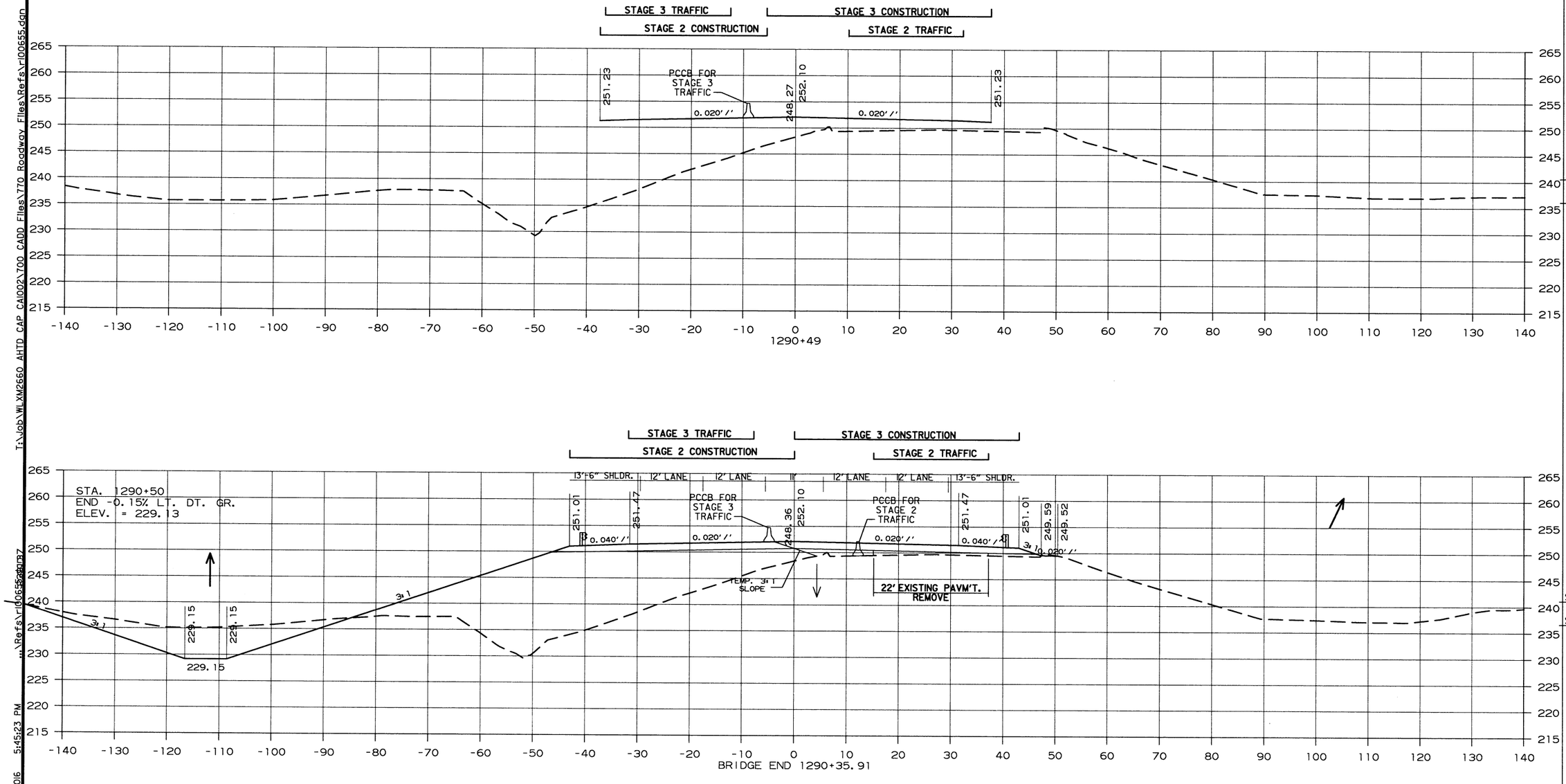


END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL

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.		CA1002	296	319

(2) CROSS SECTIONS



	END AREA (S.F.)		VOLUME (C.Y.)	
	CUT	FILL	CUT	FILL
STAGE 2(SM)	0	0		
STAGE 3(SM)	0	0		
STAGE 2(SM)	59	225		
STAGE 3(SM)	0	12		
STAGE 2(SM)	197	778		
STAGE 3(SM)	0	43		

CROSS SECTION STA. 1290+35.91 TO STA. 1290+49

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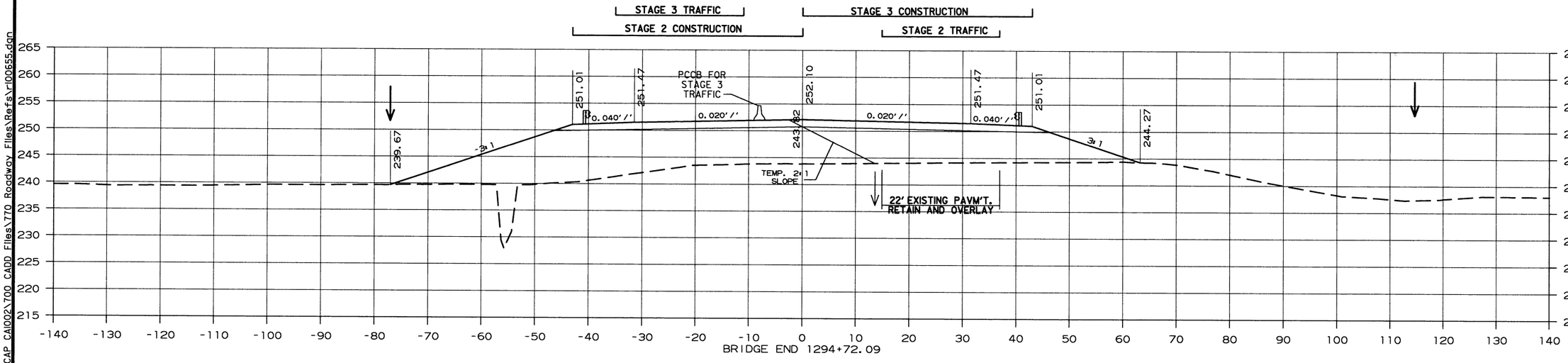
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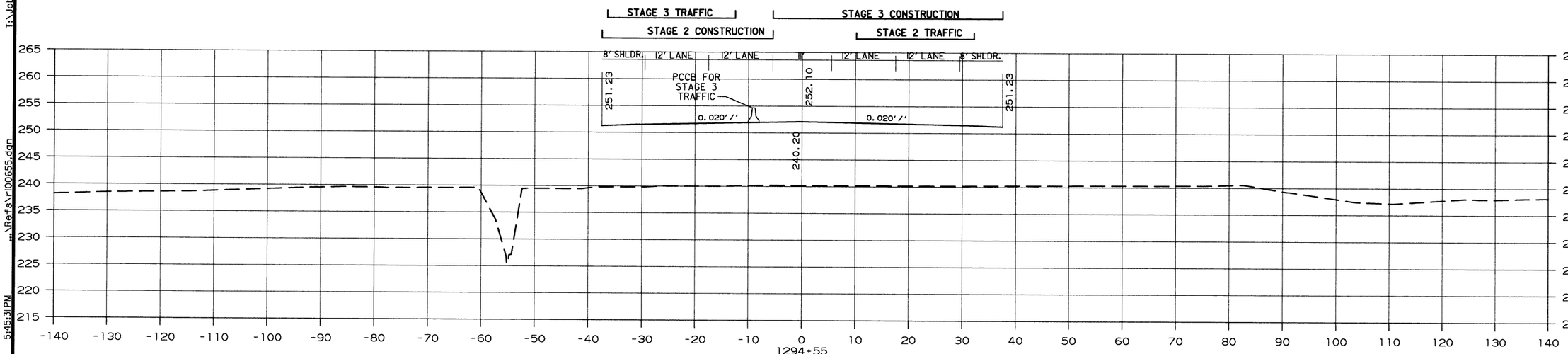
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	297	319

(2) CROSS SECTIONS

STA. 1294+80.89 BEGIN SUPERELEVATION
STA. 1300+20.89 MAX. SUPERELEVATION (0.077'/')
STA. 1308+28.55 MAX. SUPERELEVATION (0.077'/')
STA. 1313+68.55 END SUPERELEVATION





CROSS SECTION STA. 1294+55 TO STA. 1294+72.09

	END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
			STAGE 2(SM)	0
			STAGE 3(SM)	0
			STAGE 2	0
			STAGE 3	0
STAGE 2(SM)	0	447		
STAGE 3(SM)	0	45		
STAGE 2	0	0		
STAGE 3	0	0		
			STAGE 2(SM)	0
			STAGE 3(SM)	0
			STAGE 2	0
			STAGE 3	0
STAGE 2(SM)	0	447		
STAGE 3(SM)	0	45		
STAGE 2	0	0		
STAGE 3	0	0		

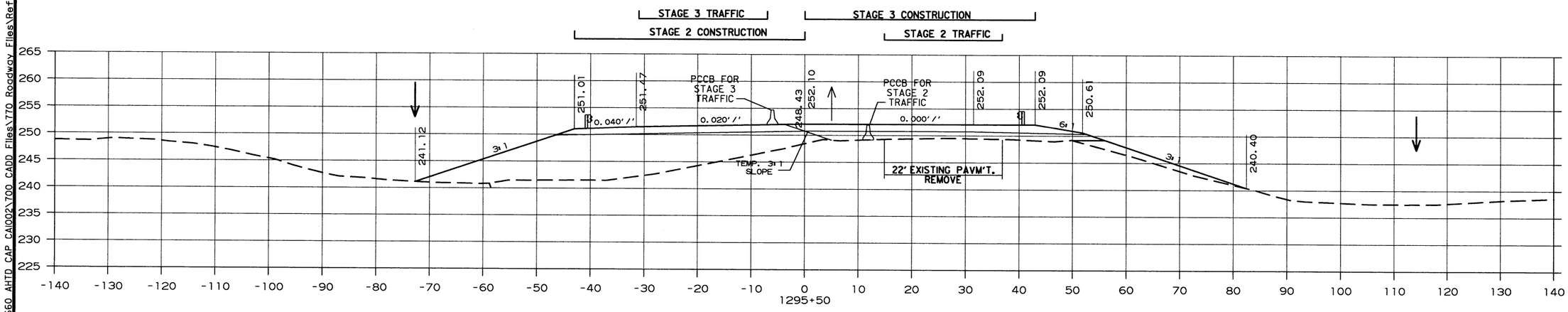
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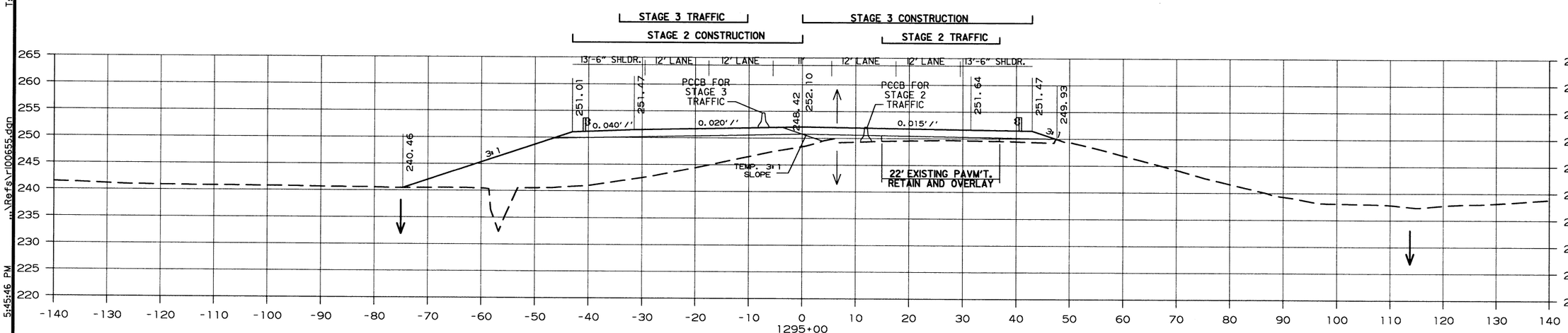
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				6	ARK.			
				JOB NO.		CA1002	298	319

(2) CROSS SECTIONS

STA. 1294+80.89 BEGIN SUPERELEVATION
STA. 1300+20.89 MAX. SUPERELEVATION (0.077'/')
STA. 1308+28.55 MAX. SUPERELEVATION (0.077'/')
STA. 1313+68.55 END SUPERELEVATION





	END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
			STAGE 2(SM) 0	791
			STAGE 3(SM) 0	178
			STAGE 2 0	0
			STAGE 3 0	122
		STAGE 2(SM) 0		407
		STAGE 3(SM) 0		77
		STAGE 2 0		0
		STAGE 3 0		31
			STAGE 2(SM) 0	791
			STAGE 3(SM) 0	113
			STAGE 2 0	0
			STAGE 3 0	29
	STAGE 2(SM) 0	447		
	STAGE 3(SM) 0	45		
	STAGE 2 0	0		
	STAGE 3 0	0		

STA. 1294+80.89 BEGIN SUPERELEVATION

CROSS SECTION STA. 1295+00 TO STA. 1295+50

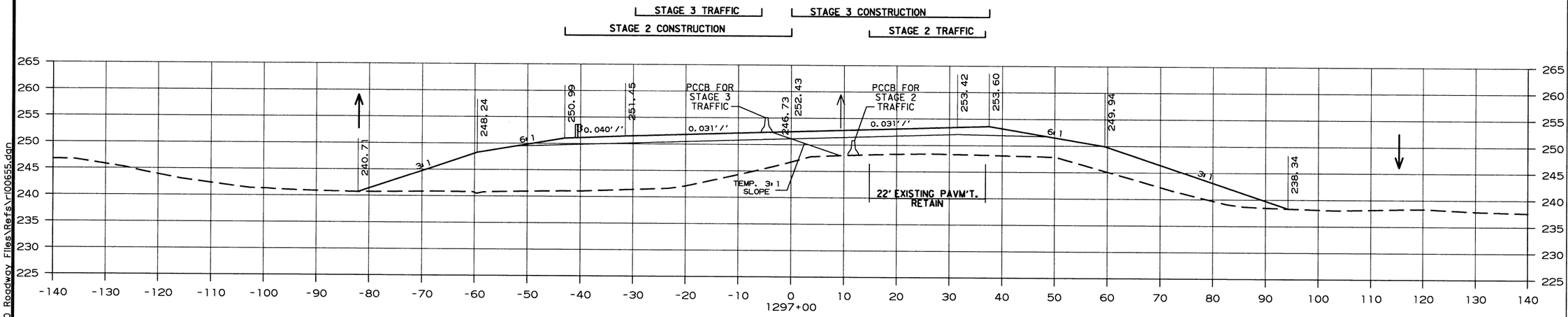
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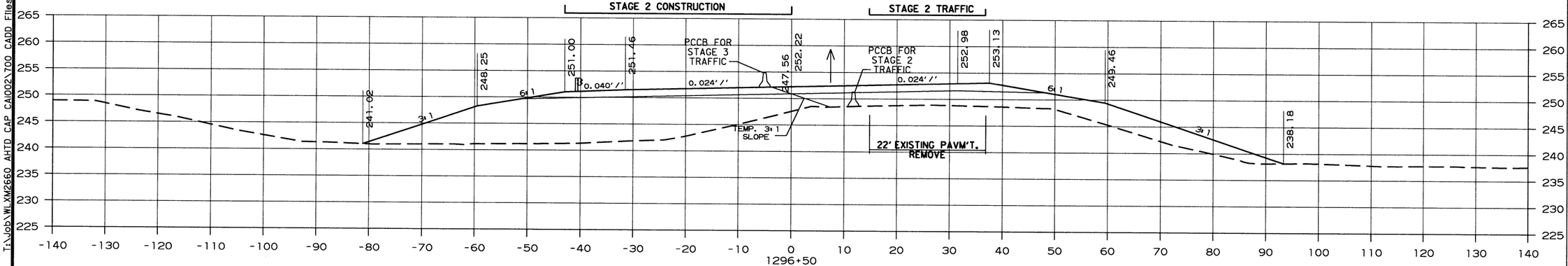
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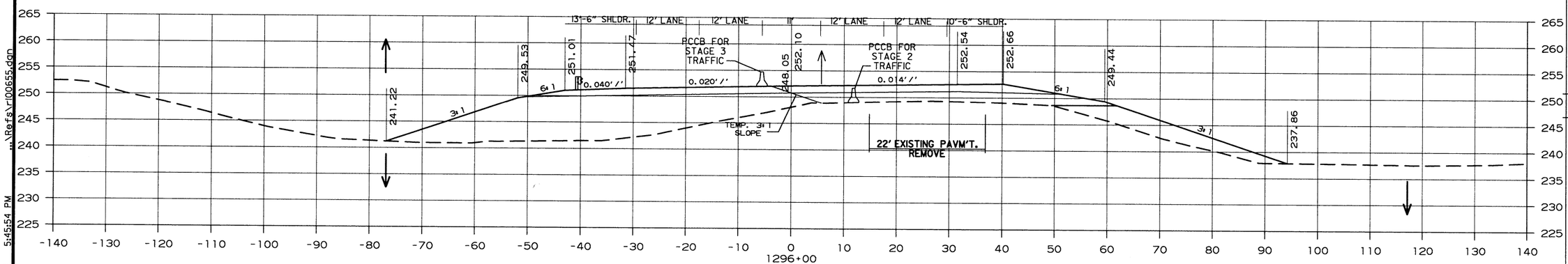
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				6	ARK.			
				JOB NO.		CA1002	299	319

(2) CROSS SECTIONS

STA. 1294+80.89 BEGIN SUPERELEVATION
STA. 1300+20.89 MAX. SUPERELEVATION (0.077'/')
STA. 1308+28.55 MAX. SUPERELEVATION (0.077'/')
STA. 1313+68.55 END SUPERELEVATION







	END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
STAGE 2			0	1066
STAGE 3			0	629
STAGE 2	0	552		
STAGE 3	0	333		
STAGE 2			0	989
STAGE 3			0	556
STAGE 2	0	516		
STAGE 3	0	267		
STAGE 2(SM)			0	899
STAGE 3(SM)			0	94
STAGE 2			0	478
STAGE 3			0	341
STAGE 2(SM)	0	455		
STAGE 3(SM)	0	115		
STAGE 2	0	0		
STAGE 3	0	101		

CROSS SECTION STA. 1296+00 TO STA. 1297+00

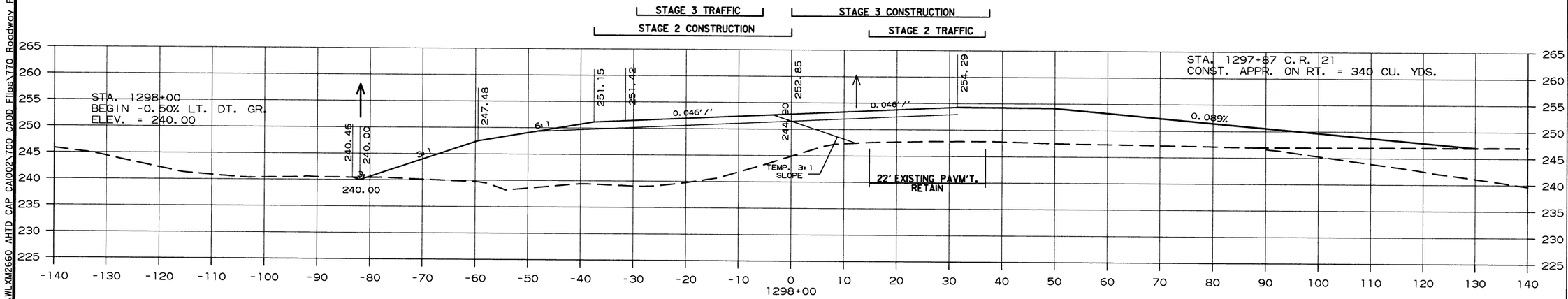
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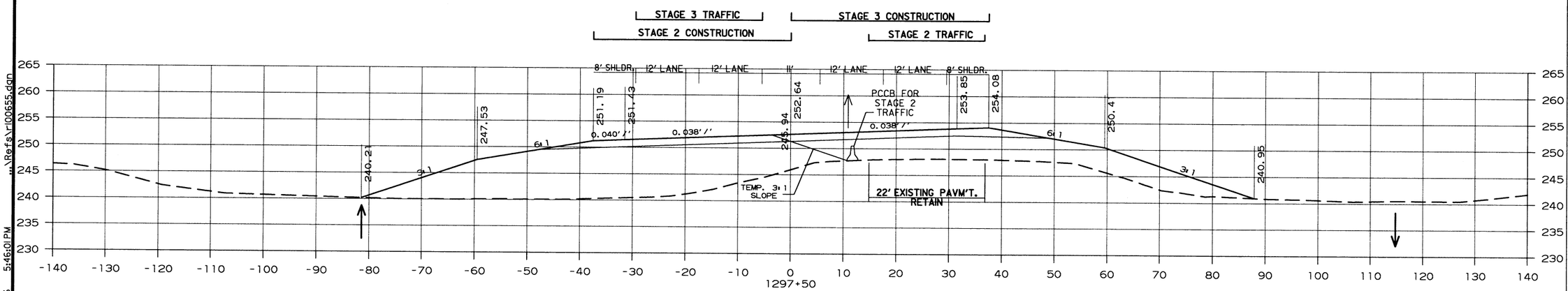
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				6	ARK.			
				JOB NO.		CA1002	300	319

(2) CROSS SECTIONS

STA. 1294+80.89 BEGIN SUPERELEVATION
STA. 1300+20.89 MAX. SUPERELEVATION (0.077'/')
STA. 1308+28.55 MAX. SUPERELEVATION (0.077'/')
STA. 1313+68.55 END SUPERELEVATION





CROSS SECTION STA. 1297+50 TO STA. 1298+00

END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
			STAGE 2: 8 / 1352
			STAGE 3: 0 / 1017
		STAGE 2: 0 / 675	
		STAGE 3: 0 / 311	
			STAGE 2: 0 / 1180
			STAGE 3: 0 / 608
		STAGE 2: 0 / 599	
		STAGE 3: 0 / 346	

JACOBS

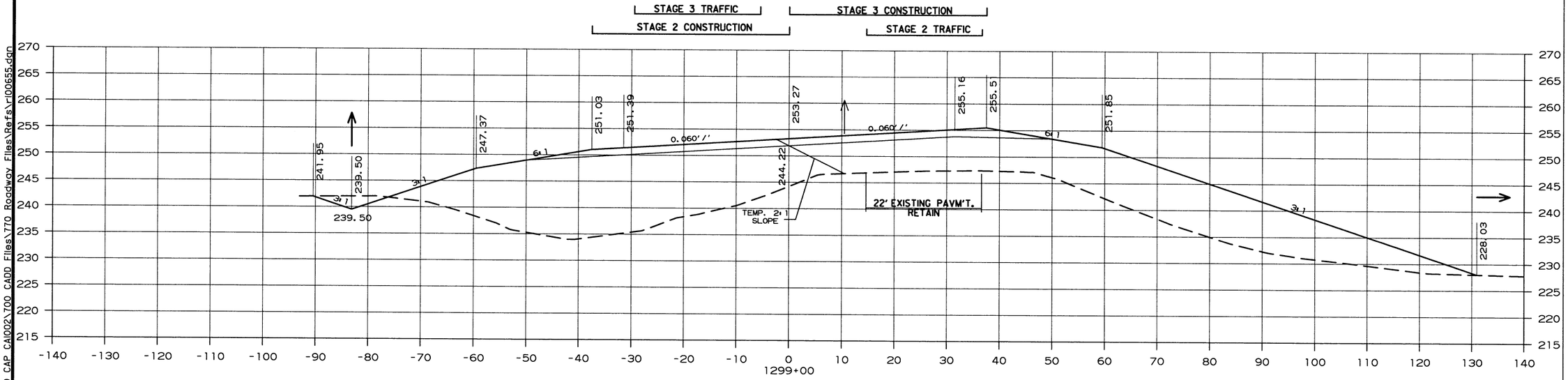
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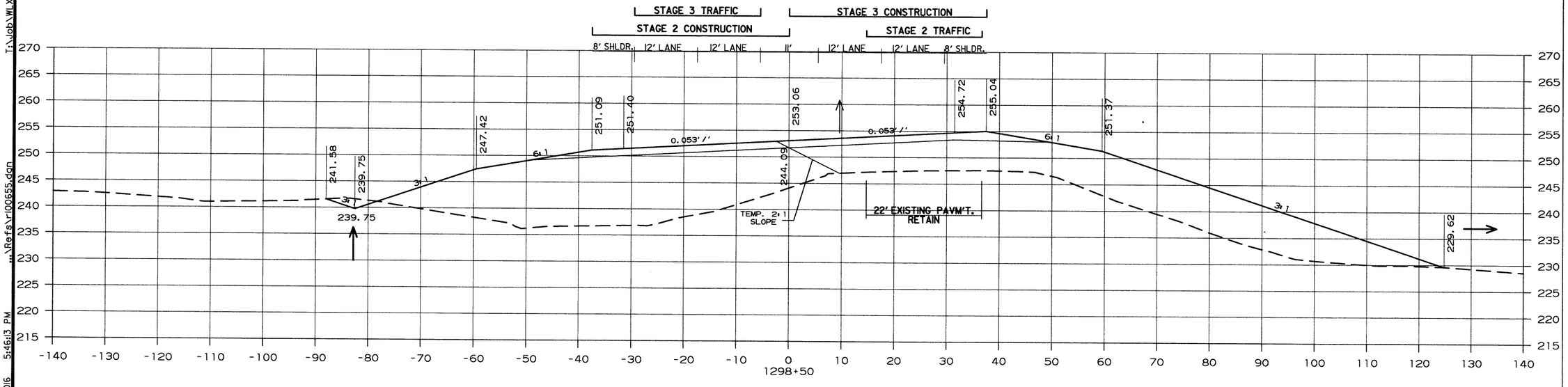
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	301	319

(2) CROSS SECTIONS

STA. 1294+80.89 BEGIN SUPERELEVATION
STA. 1300+20.89 MAX. SUPERELEVATION (0.077'/')
STA. 1308+28.55 MAX. SUPERELEVATION (0.077'/')
STA. 1313+68.55 END SUPERELEVATION





CROSS SECTION STA. 1298+50 TO STA. 1299+00

	END AREA (S.F.)		VOLUME (C.Y.)	
	CUT	FILL	CUT	FILL
				STAGE 2 48 1470
				STAGE 3 0 1745
			STAGE 2 18 824	
			STAGE 3 0 908	
				STAGE 2 25 1490
				STAGE 3 0 1569
			STAGE 2 9 785	
			STAGE 3 0 787	

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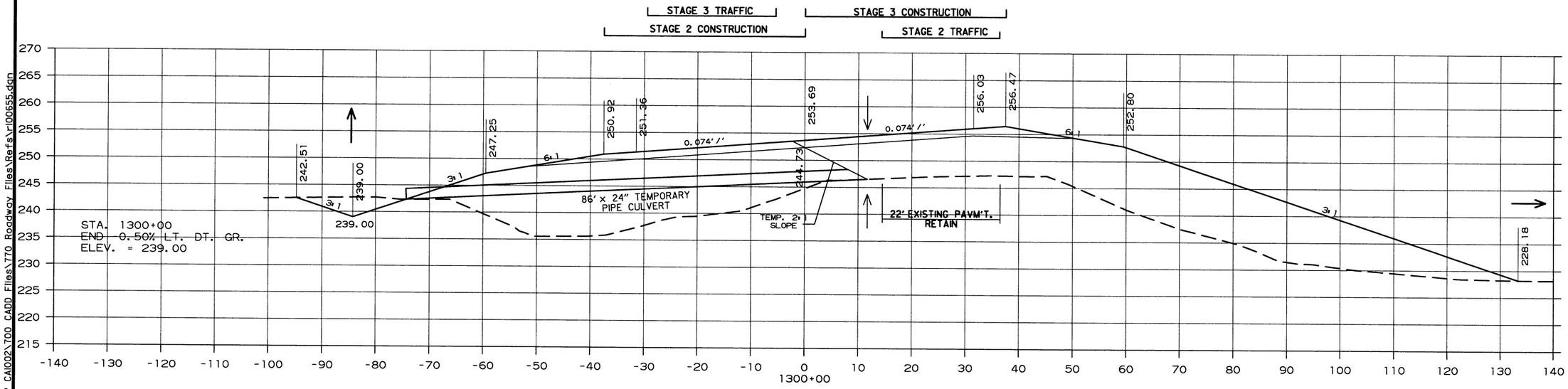
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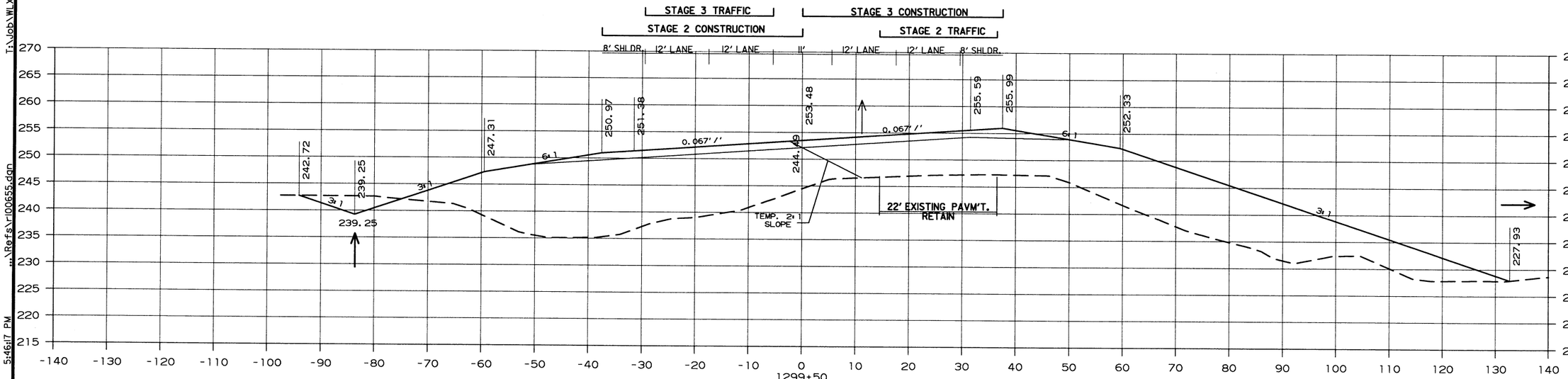
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				6	ARK.			
				JOB NO.		CA1002	302	319

(2) CROSS SECTIONS

STA. 1294+80.89 BEGIN SUPERELEVATION
STA. 1300+20.89 MAX. SUPERELEVATION (0.077'/')
STA. 1308+28.55 MAX. SUPERELEVATION (0.077'/')
STA. 1313+68.55 END SUPERELEVATION

STA. 1300+20.89 BEGIN FULL SUPERELEVATION (0.077'/')





	END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
			STAGE 2: 35	1422
			STAGE 3: 0	1897
	STAGE 2: 38	733		
	STAGE 3: 0	1062		
	STAGE 2: 67	1386		
	STAGE 3: 0	1888		
	STAGE 2: 34	764		
	STAGE 3: 0	977		

CROSS SECTION STA. 1299+50 TO STA. 1300+00

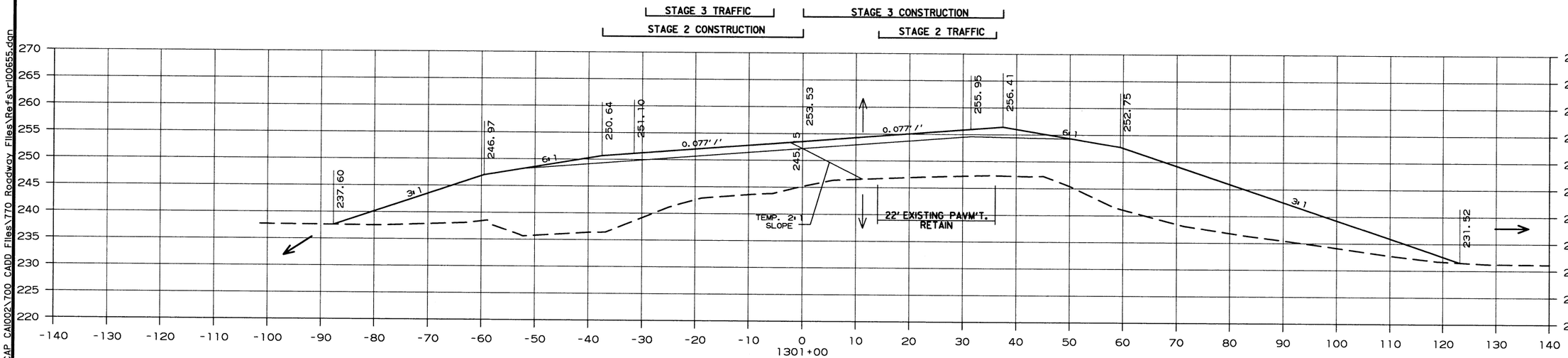
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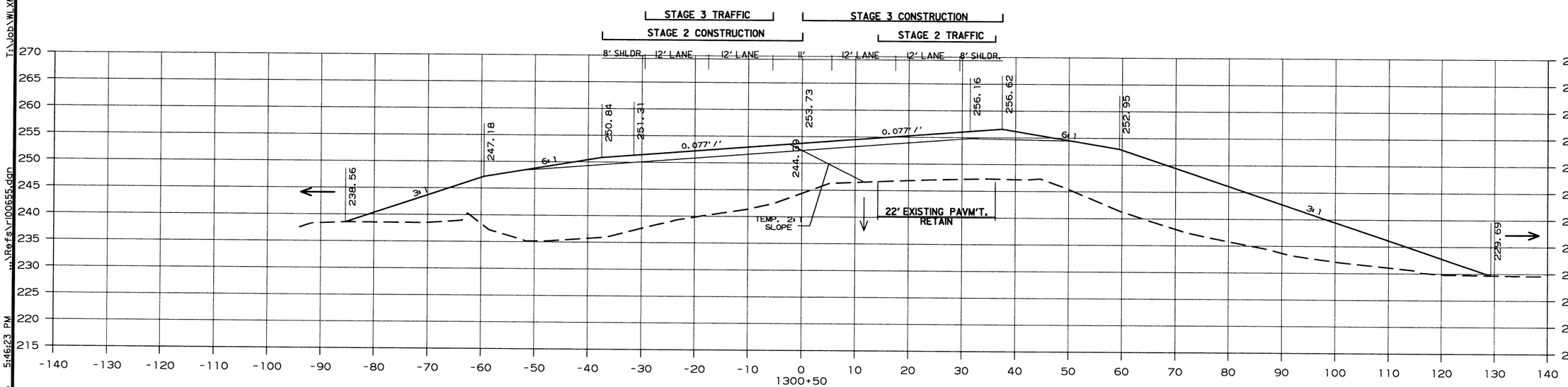
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA1002	303	319

(2) CROSS SECTIONS

STA. 1294+80.89 BEGIN SUPERELEVATION
STA. 1300+20.89 MAX. SUPERELEVATION (0.077'/')
STA. 1308+28.55 MAX. SUPERELEVATION (0.077'/')
STA. 1313+68.55 END SUPERELEVATION





	END AREA (S.F.)		VOLUME (C.Y.)	
	CUT	FILL	CUT	FILL
			STAGE 2	
			0	1134
			STAGE 3	
			0	1527
		STAGE 2		
		0		729
		STAGE 3		
		0		872
			STAGE 2	
			0	1419
			STAGE 3	
			0	1721
		STAGE 2		
		0		803
		STAGE 3		
		0		987

CROSS SECTION STA. 1300+50 TO STA. 1301+00

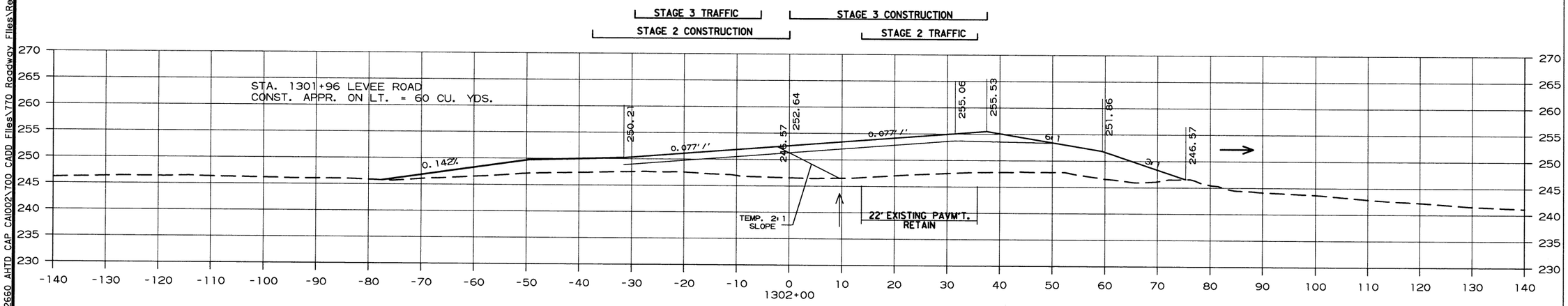
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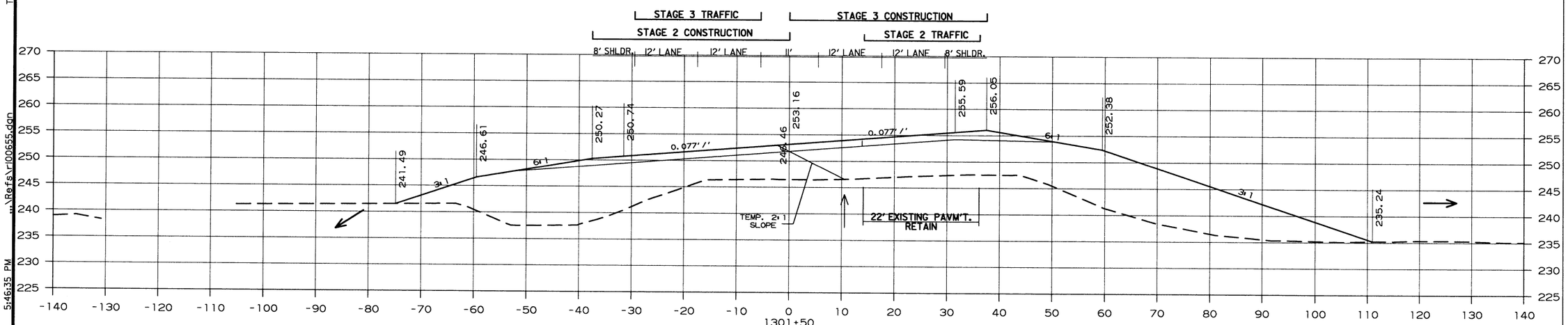
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				6	ARK.			
				JOB NO.		CA1002	304	319

(2) CROSS SECTIONS

STA. 1294+80.89 BEGIN SUPERELEVATION
STA. 1300+20.89 MAX. SUPERELEVATION (0.077'/')
STA. 1308+28.55 MAX. SUPERELEVATION (0.077'/')
STA. 1313+68.55 END SUPERELEVATION





CROSS SECTION STA. 1301+50 TO STA. 1302+00

END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
			STAGE 2 0 482
			STAGE 3 0 655
	STAGE 2 0 107		
	STAGE 3 0 381		
			STAGE 2 0 558
			STAGE 3 0 1072
	STAGE 2 0 496		
	STAGE 3 0 777		

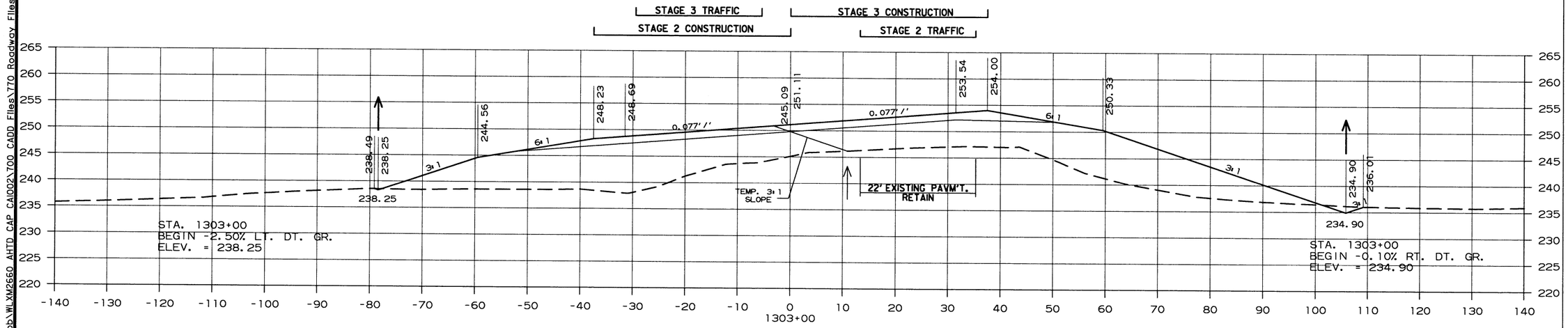
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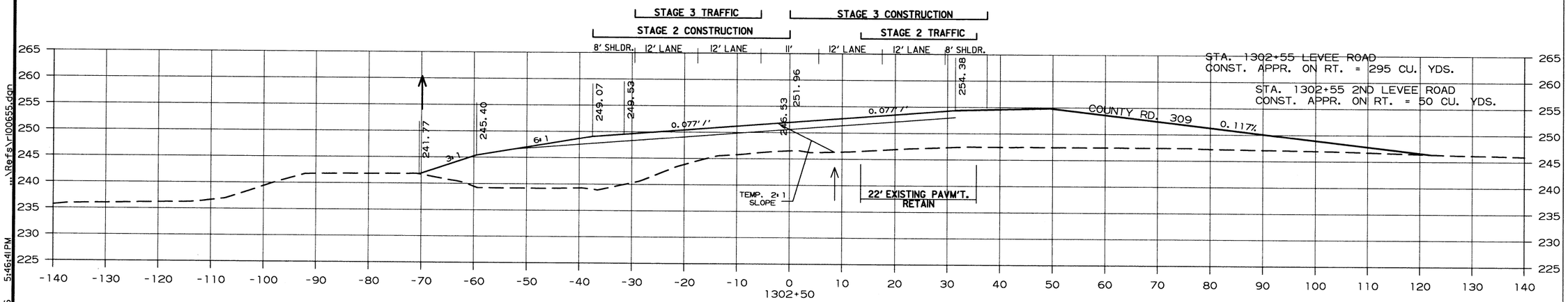
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		CA1002	305	319

(2) CROSS SECTIONS

STA. 1294+80.89 BEGIN SUPERELEVATION
STA. 1300+20.89 MAX. SUPERELEVATION (0.077'/')
STA. 1308+28.55 MAX. SUPERELEVATION (0.077'/')
STA. 1313+68.55 END SUPERELEVATION





CROSS SECTION STA. 1302+50 TO STA. 1303+00

END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
		STAGE 2 0	893
		STAGE 3 7	989
	STAGE 2 0		482
	STAGE 3 5		547
		STAGE 2 0	830
		STAGE 3 5	808
	STAGE 2 0		414
	STAGE 3 0		326

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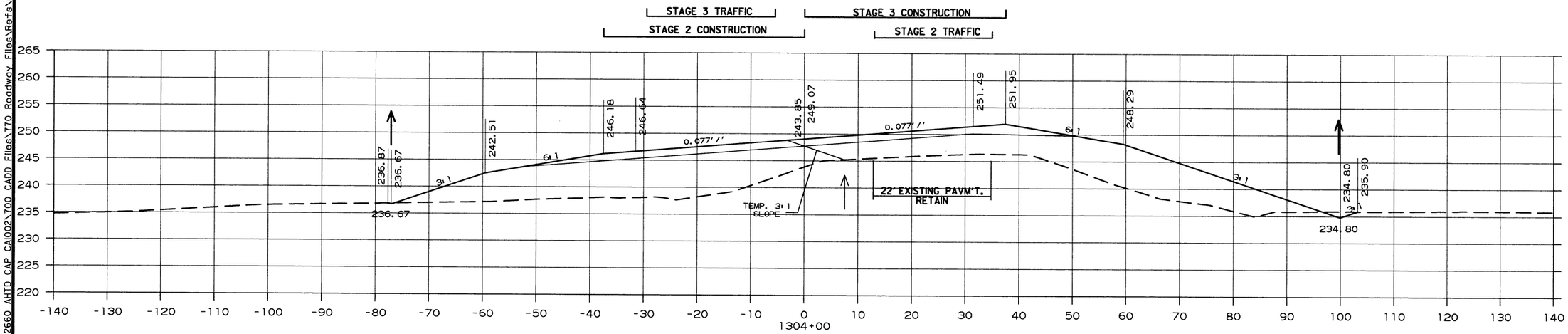
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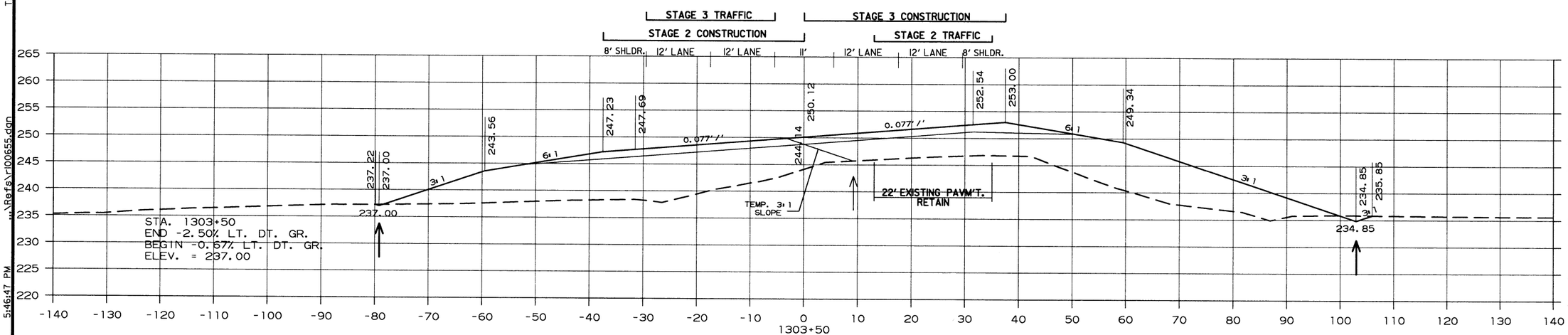
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	306	319

(2) CROSS SECTIONS

STA. 1294+80.89 BEGIN SUPERELEVATION
STA. 1300+20.89 MAX. SUPERELEVATION (0.077'/')
STA. 1308+28.55 MAX. SUPERELEVATION (0.077'/')
STA. 1313+68.55 END SUPERELEVATION





CROSS SECTION STA. 1303+50 TO STA. 1304+00

END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
		STAGE 2 0	768
		STAGE 3 10	752
STAGE 2 0	441		
STAGE 3 4	446		
		STAGE 2 0	855
		STAGE 3 6	895
STAGE 2 0	482		
STAGE 3 3	521		

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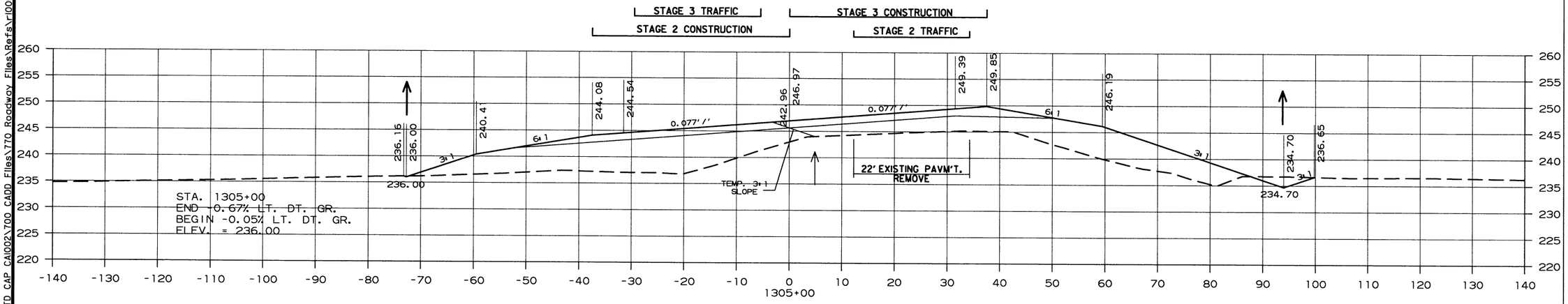
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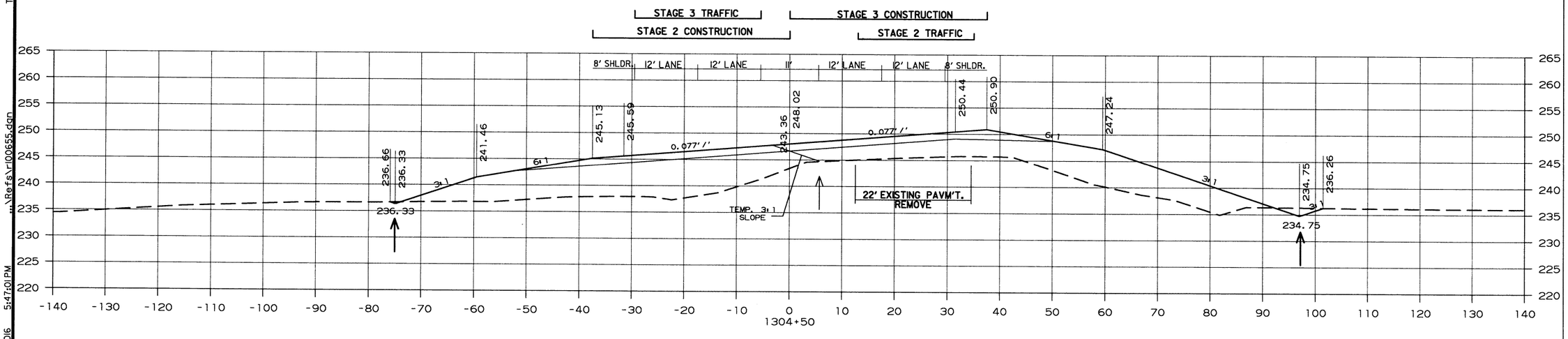
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	307	319

(2) CROSS SECTIONS

STA. 1294+80.89 BEGIN SUPERELEVATION
STA. 1300+20.89 MAX. SUPERELEVATION (0.077'/')
STA. 1308+28.55 MAX. SUPERELEVATION (0.077'/')
STA. 1313+68.55 END SUPERELEVATION





CROSS SECTION STA. 1304+50 TO STA. 1305+00

END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
		STAGE 2: 6	STAGE 2: 535
		STAGE 3: 20	STAGE 3: 516
STAGE 2: 0	STAGE 2: 341		
STAGE 3: 13	STAGE 3: 310		
STAGE 2: 0	STAGE 2: 675		
STAGE 3: 19	STAGE 3: 626		
STAGE 2: 0	STAGE 2: 388		
STAGE 3: 7	STAGE 3: 366		

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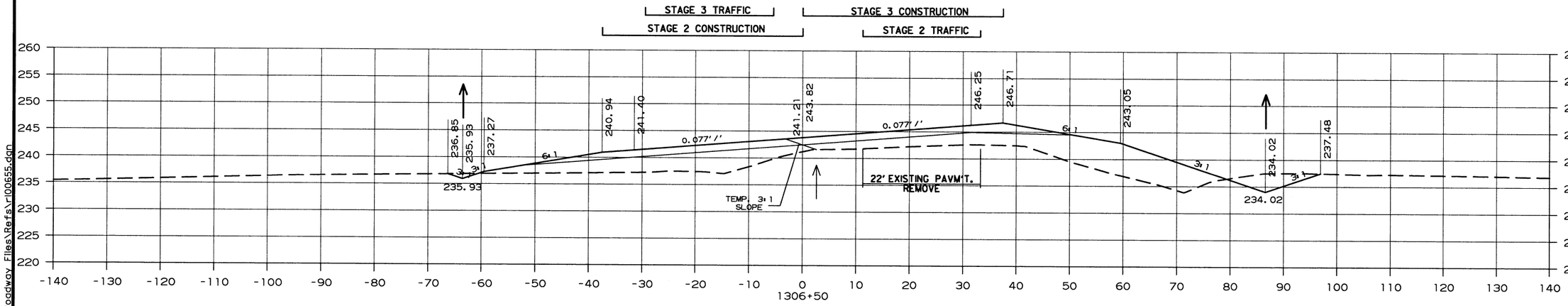
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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

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6	ARK.			
JOB NO.		CA1002	308	319

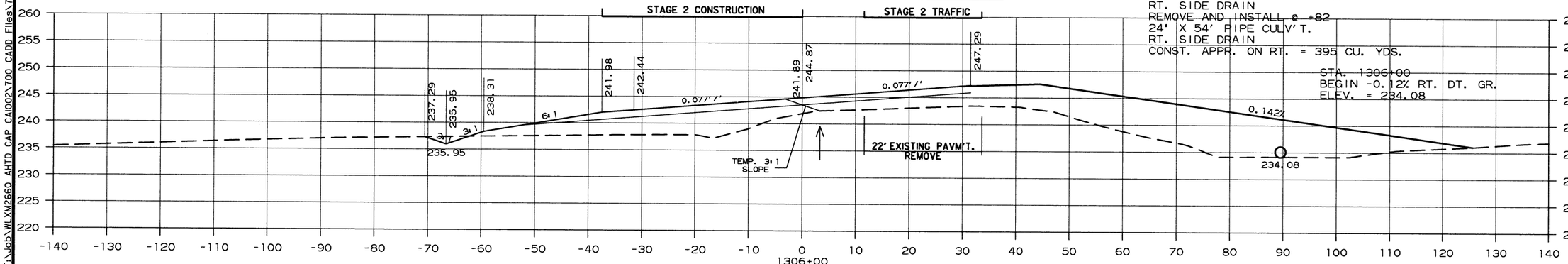
(2) CROSS SECTIONS

STA. 1294+80.89 BEGIN SUPERELEVATION
STA. 1300+20.89 MAX. SUPERELEVATION (0.077'/')
STA. 1308+28.55 MAX. SUPERELEVATION (0.077'/')
STA. 1313+68.55 END SUPERELEVATION

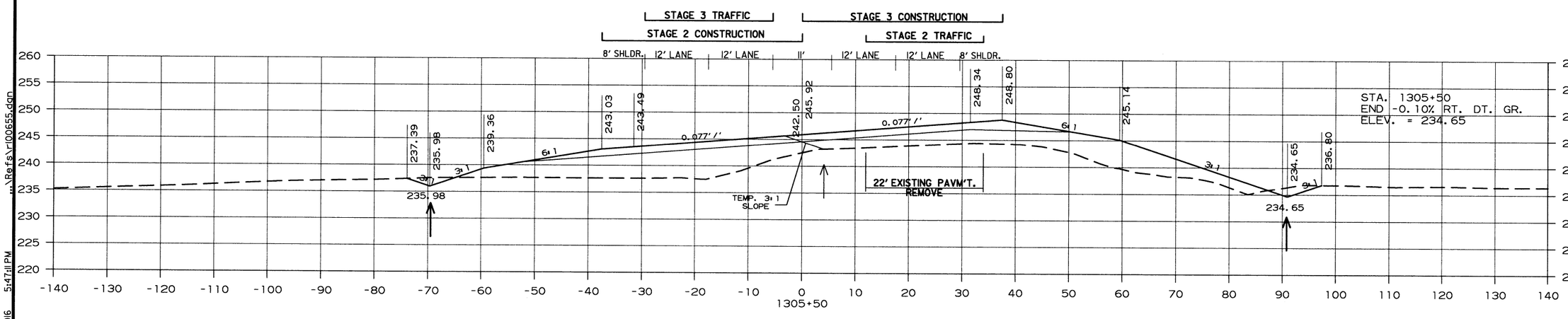


STA. 1305+79 IN PLACE
24' X 34' R.C. PIPE CULV'T.
RT. SIDE DRAIN
REMOVE AND INSTALL @ +82
24' X 54' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. ON RT. = 395 CU. YDS.

STA. 1306+00
BEGIN -0.12% RT. DT. GR.
ELEV. = 234.08



STA. 1305+50
END -0.10% RT. DT. GR.
ELEV. = 234.65



	END AREA (S.F.)		VOLUME (C.Y.)	
	CUT	FILL	CUT	FILL
STAGE 2			6	221
STAGE 3			55	437
STAGE 2	3	148		
STAGE 3	31	244		
STAGE 2			8	302
STAGE 3			29	463
STAGE 2	6	178		
STAGE 3	0	256		
STAGE 2			12	384
STAGE 3			8	466
STAGE 2	7	237		
STAGE 3	9	247		

CROSS SECTION STA. 1305+50 TO STA. 1306+50

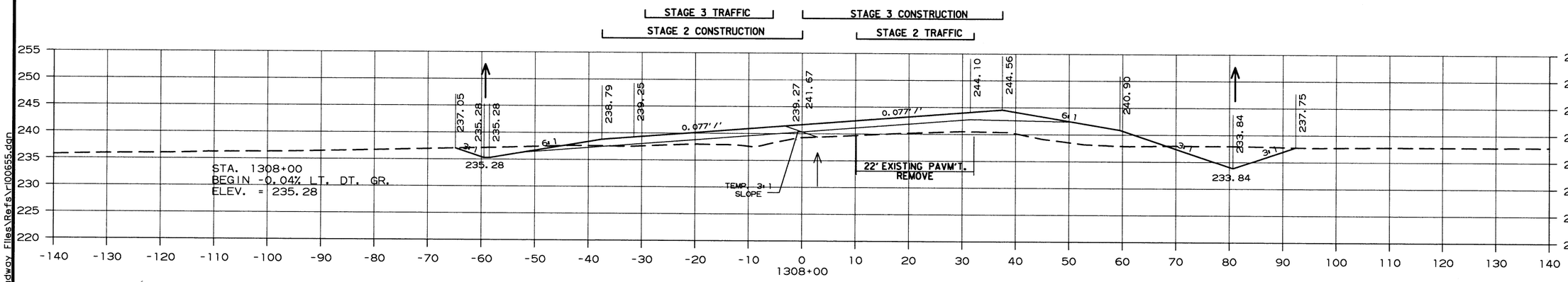
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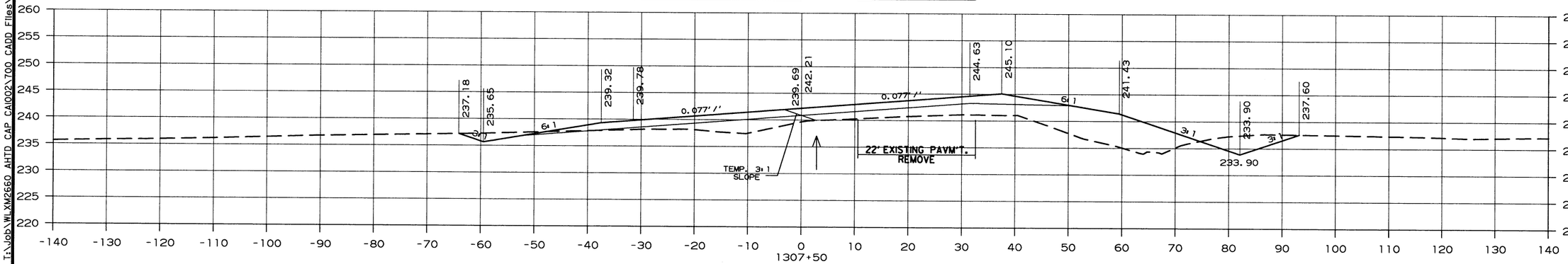
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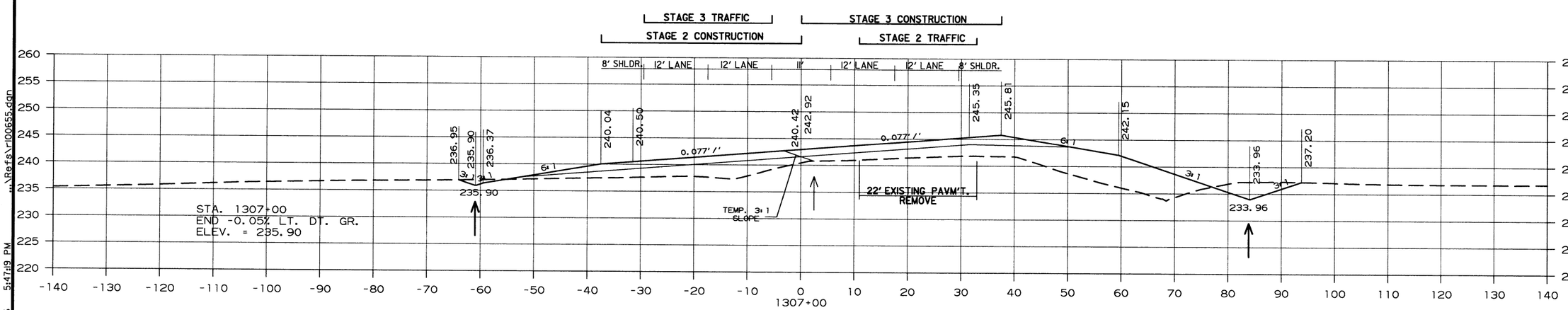
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				6	ARK.			
				JOB NO.		CA1002	309	319

(2) CROSS SECTIONS

STA. 1294+80.89 BEGIN SUPERELEVATION
STA. 1300+20.89 MAX. SUPERELEVATION (0.077'/')
STA. 1308+28.55 MAX. SUPERELEVATION (0.077'/')
STA. 1313+68.55 END SUPERELEVATION







	END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
			STAGE 2	
			52	64
			STAGE 3	
			101	250
	STAGE 2			
	26	37		
	STAGE 3			
	50	149		
			STAGE 2	
			39	80
			STAGE 3	
			78	341
	STAGE 2			
	16	49		
	STAGE 3			
	34	219		
			STAGE 2	
			19	130
			STAGE 3	
			57	414
	STAGE 2			
	4	91		
	STAGE 3			
	28	228		

CROSS SECTION STA. 1307+00 TO STA. 1308+00

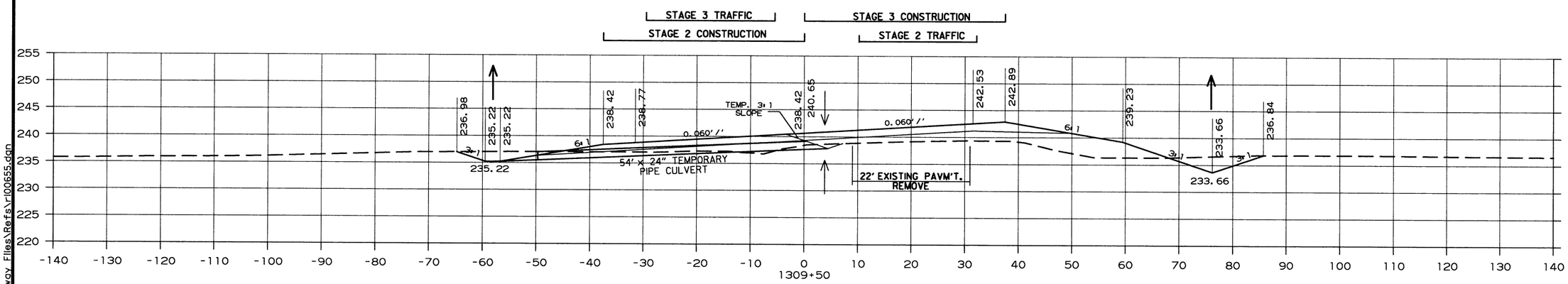
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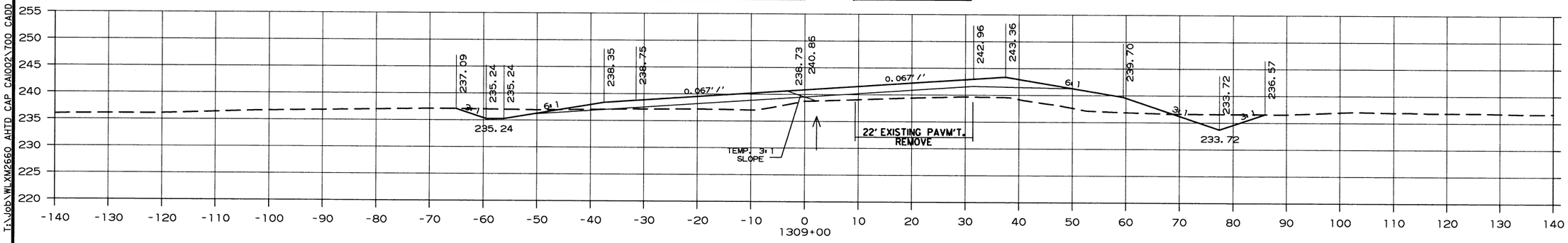
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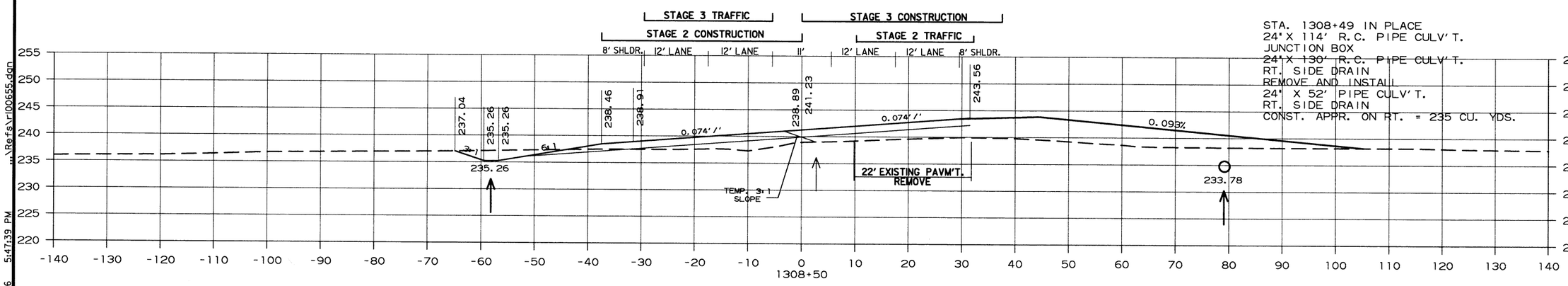
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				6	ARK.			
				JOB NO.		CA1002	310	319

(2) CROSS SECTIONS

STA. 1294+80.89 BEGIN SUPERELEVATION
STA. 1300+20.89 MAX. SUPERELEVATION (0.077'/')
STA. 1308+28.55 MAX. SUPERELEVATION (0.077'/')
STA. 1313+68.55 END SUPERELEVATION







STA. 1308+49 IN PLACE
24" X 114' R.C. PIPE CULV'T.
JUNCTION BOX
24" X 130' R.C. PIPE CULV'T.
RT. SIDE DRAIN
REMOVE AND INSTALL
24" X 52' PIPE CULV'T.
RT. SIDE DRAIN
CONST. APPR. ON RT. = 235 CU. YDS.

STA. 1308+28.55 END FULL SUPERELEVATION (0.077'/')

CROSS SECTION STA. 1308+50 TO STA. 1309+50

END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
		STAGE 2 50	STAGE 3 60
		STAGE 3 41	STAGE 2 207
STAGE 2 23	STAGE 3 37		
STAGE 3 26	STAGE 2 129		
		STAGE 2 43	STAGE 3 68
		STAGE 3 47	STAGE 2 244
STAGE 2 23	STAGE 3 36		
STAGE 3 25	STAGE 2 134		
		STAGE 2 49	STAGE 3 63
		STAGE 3 78	STAGE 2 236
STAGE 2 30	STAGE 3 32		
STAGE 3 59	STAGE 2 121		

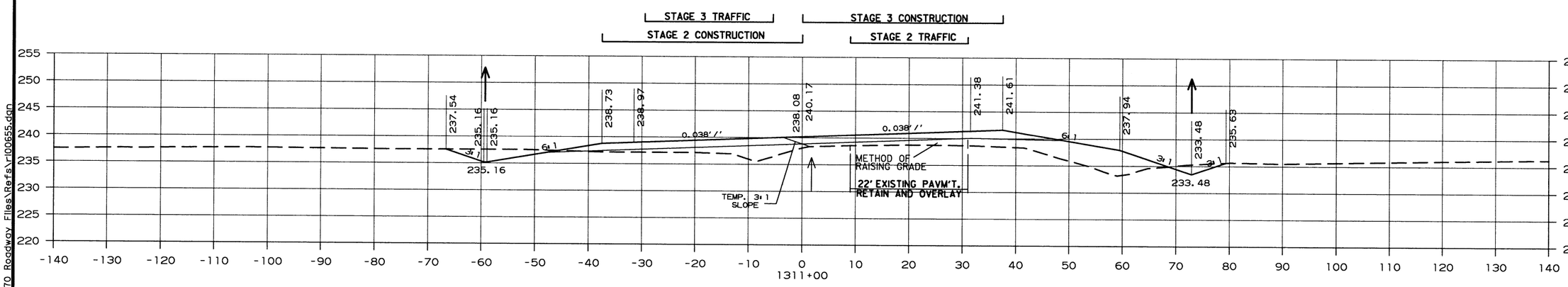
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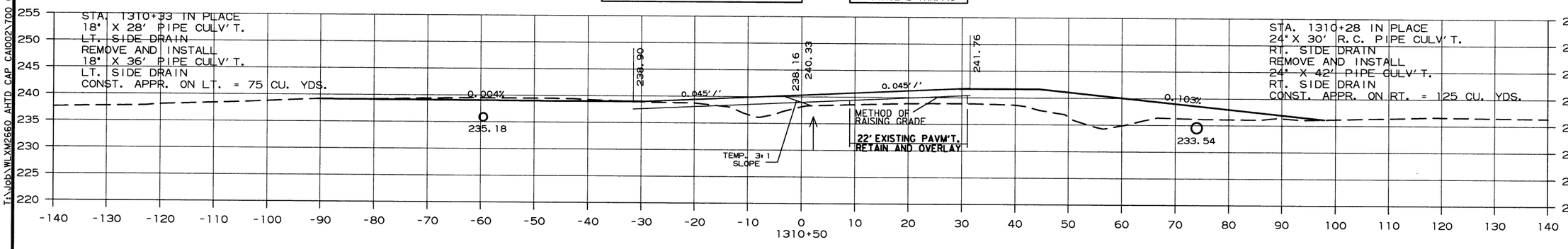
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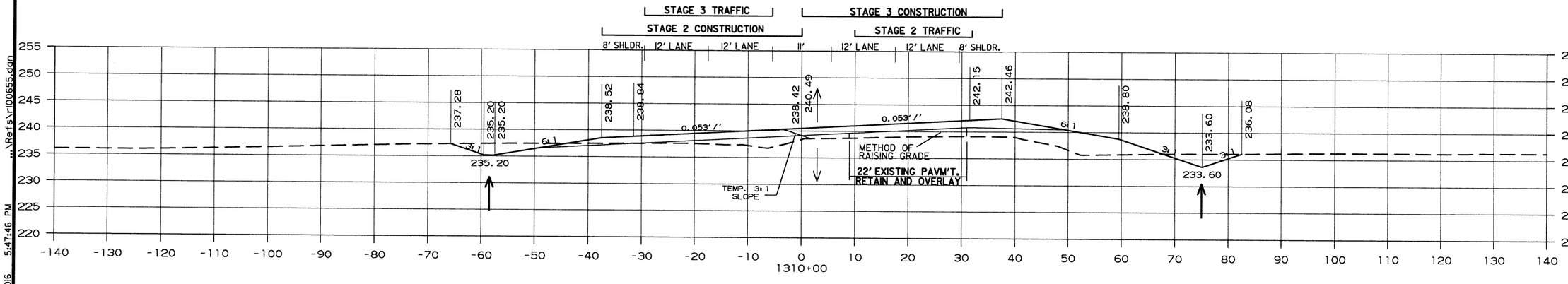
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				6	ARK.			
				JOB NO.		CA1002	311	319

(2) CROSS SECTIONS

STA. 1294+80.89 BEGIN SUPERELEVATION
STA. 1300+20.89 MAX. SUPERELEVATION (0.077'/')
STA. 1308+28.55 MAX. SUPERELEVATION (0.077'/')
STA. 1313+68.55 END SUPERELEVATION







	END AREA (S.F.)		VOLUME (C.Y.)	
	CUT	FILL	CUT	FILL
STAGE 2			40	115
STAGE 3			21	171
STAGE 2	27	46		
STAGE 3	10	103		
STAGE 2			133	63
STAGE 3			25	184
STAGE 2	117	22		
STAGE 3	17	96		
STAGE 2			137	46
STAGE 3			32	177
STAGE 2	31	28		
STAGE 3	18	95		

CROSS SECTION STA. 1310+00 TO STA. 1311+00

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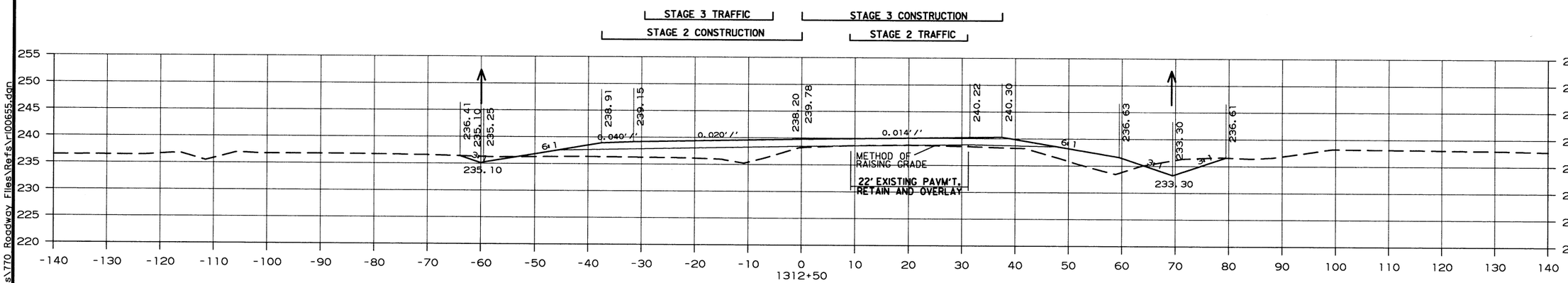
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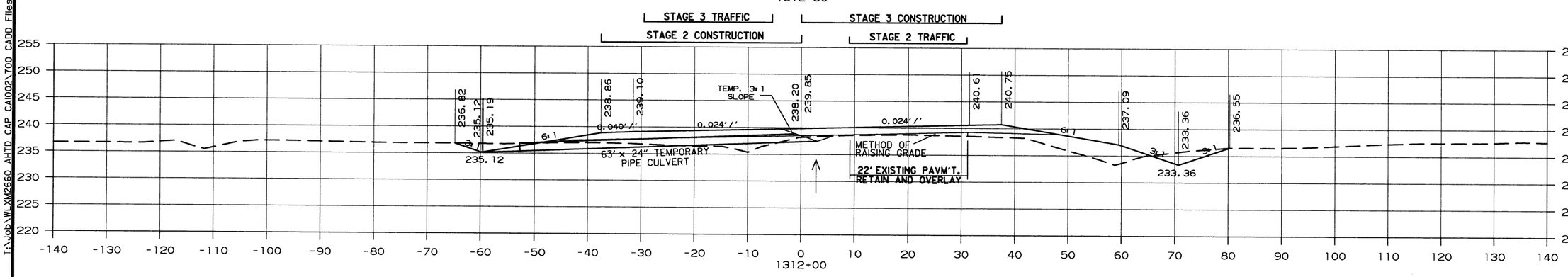
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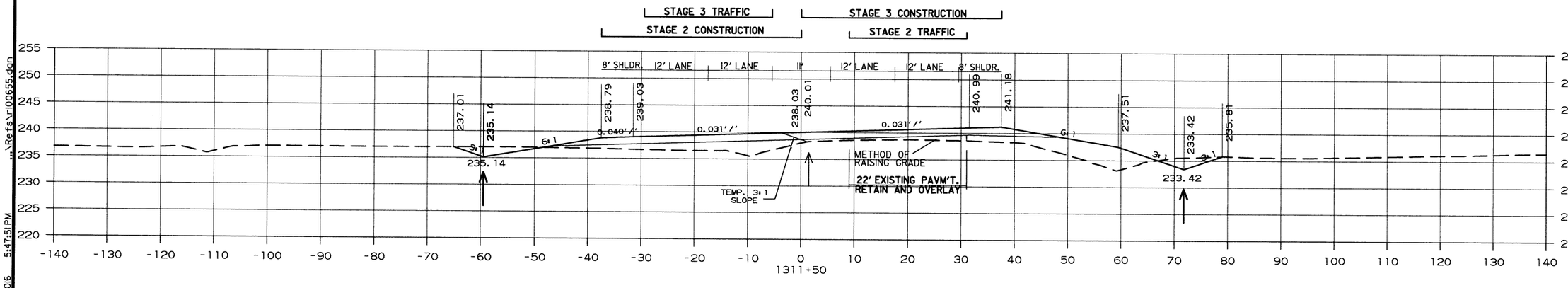
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6	ARK.			
JOB NO.		CA1002	312	319

(2) CROSS SECTIONS

STA. 1294+80.89 BEGIN SUPERELEVATION
STA. 1300+20.89 MAX. SUPERELEVATION (0.077'/')
STA. 1308+28.55 MAX. SUPERELEVATION (0.077'/')
STA. 1313+68.55 END SUPERELEVATION







CROSS SECTION STA. 1311+50 TO STA. 1312+50

	END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
STAGE 2	6	83	10	165
STAGE 3	22	51	41	82
STAGE 2	12	58	17	131
STAGE 3	18	67	37	109
STAGE 2	16	78	26	126
STAGE 3	13	82	29	138

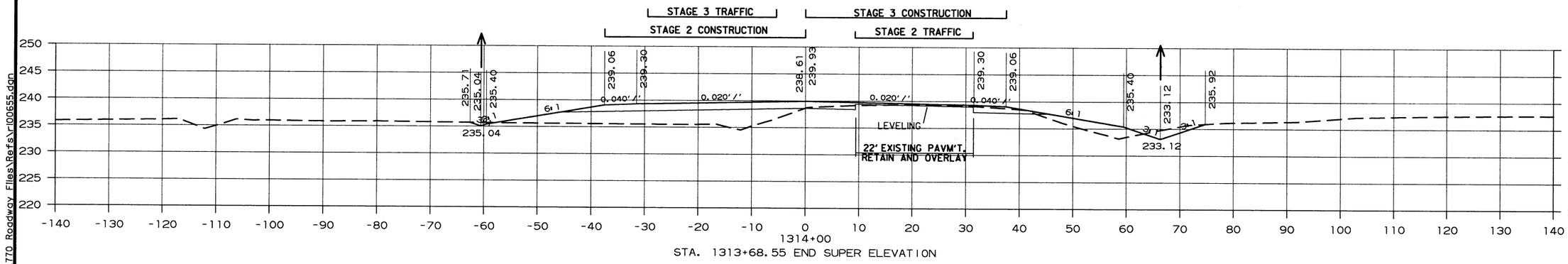
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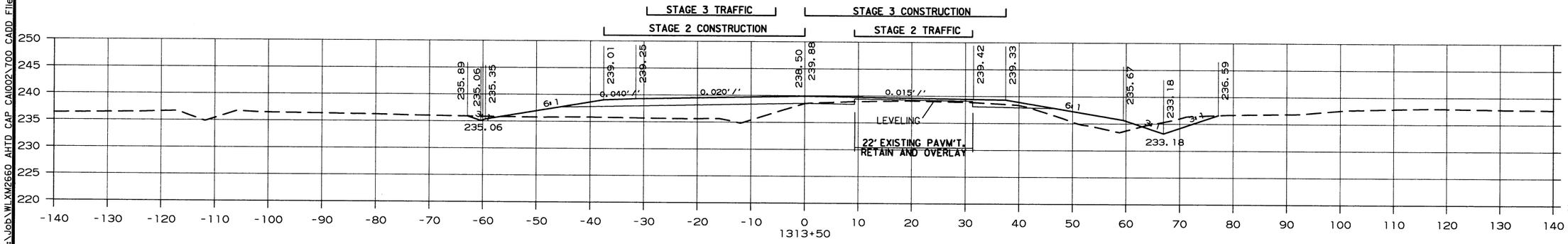
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				6	ARK.			
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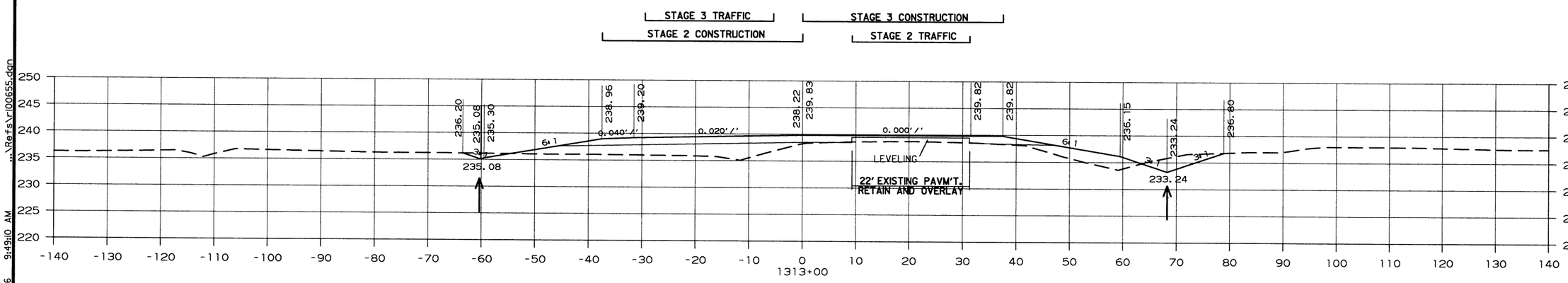
(2) CROSS SECTIONS

STA. 1294+80.89 BEGIN SUPERELEVATION
STA. 1300+20.89 MAX. SUPERELEVATION (0.077'/')
STA. 1308+28.55 MAX. SUPERELEVATION (0.077'/')
STA. 1313+68.55 END SUPERELEVATION



STA. 1313+68.55 END SUPER ELEVATION





CROSS SECTION STA. 1313+00 TO STA. 1314+00

	END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
STAGE 2	1	121		
STAGE 3	24	29		
STAGE 2	2	110		
STAGE 3	26	34		
STAGE 2	3	214		
STAGE 3	46	58		
STAGE 2	5	95		
STAGE 3	22	38		
STAGE 2	6	190		
STAGE 3	44	67		
STAGE 2	2	240		
STAGE 3	42	53		

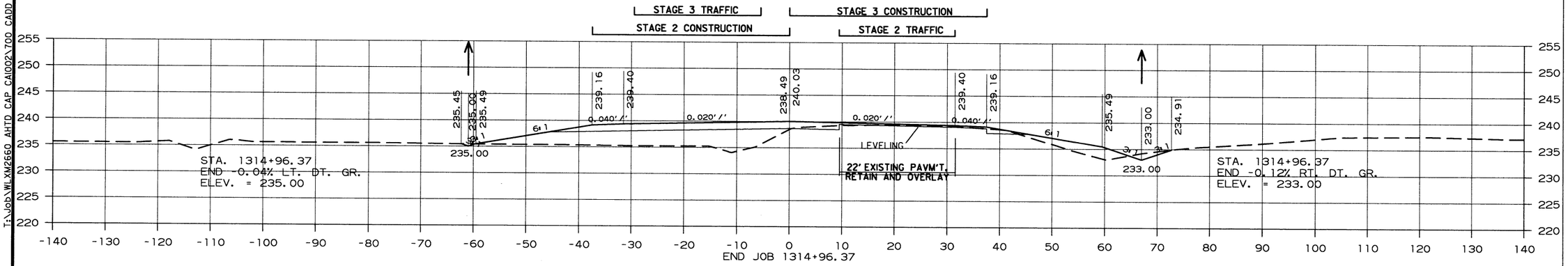
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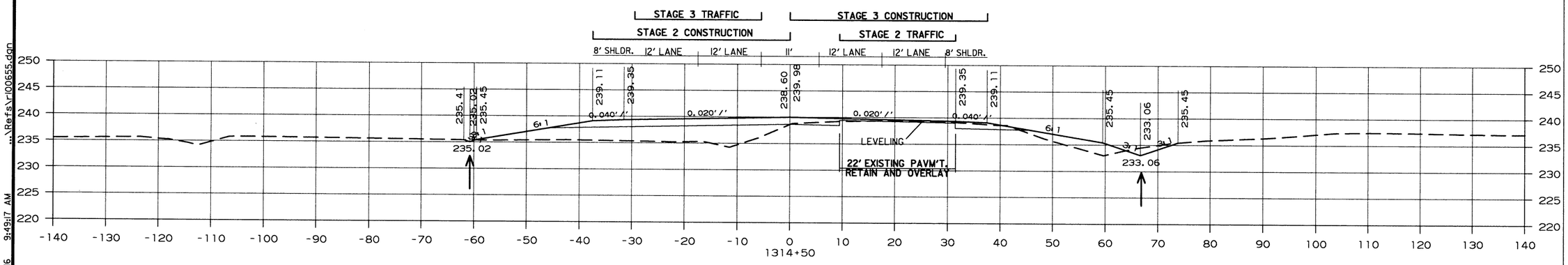
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				6	ARK.			
				JOB NO.		CA1002	314	319

(2) CROSS SECTIONS

END AREA (S.F.)		VOLUME (C.Y.)	
CUT	FILL	CUT	FILL





CROSS SECTION STA. 1314+50 TO STA. 1314+96.37

STAGE 2	
1	148
STAGE 3	
13	29
STAGE 2	
2	246
STAGE 3	
29	49
STAGE 2	
1	138
STAGE 3	
21	28

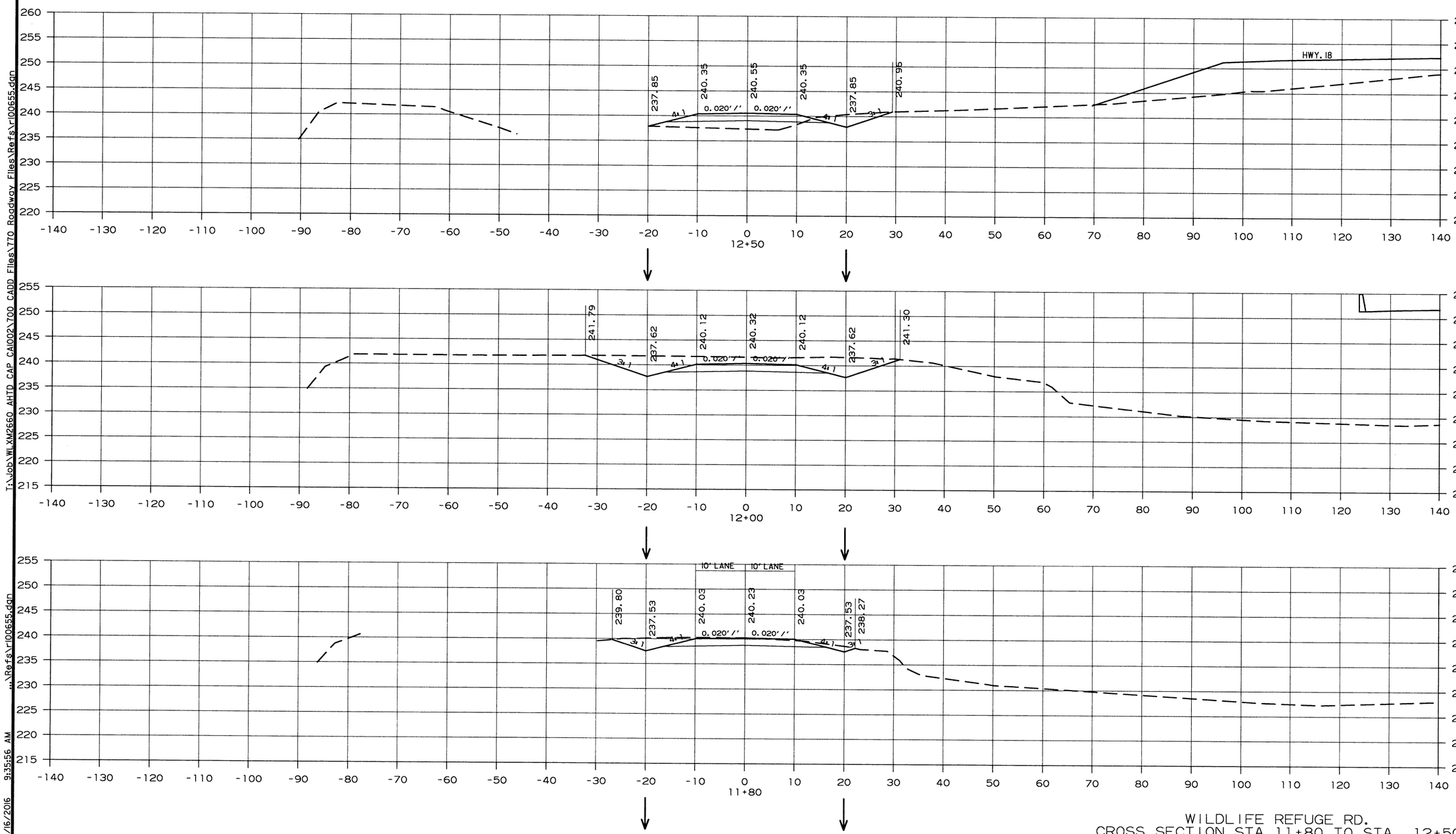
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6	ARK.			
JOB NO.		CA1002	315	319

(2) CROSS SECTIONS



WILDLIFE REFUGE RD.
CROSS SECTION STA. 11+80 TO STA. 12+50

END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
		21	70
23	39		
		180	36
171	0		
		89	0
69	0		

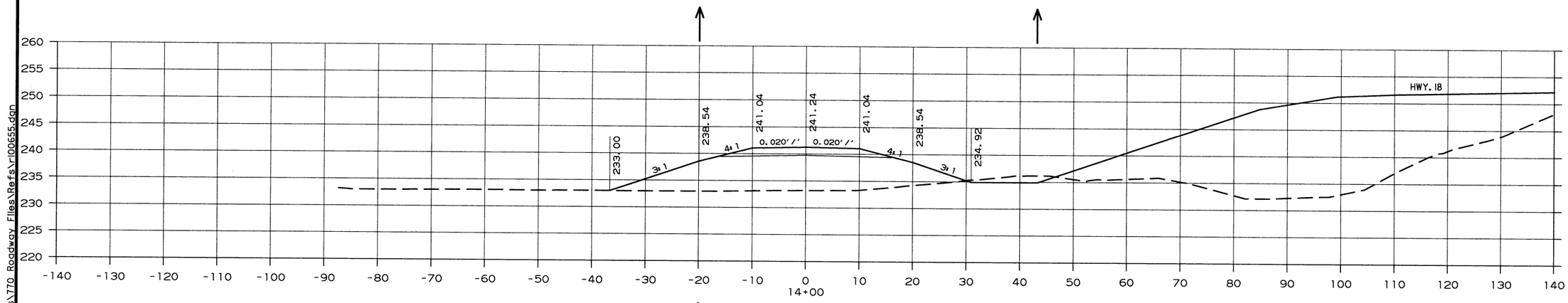
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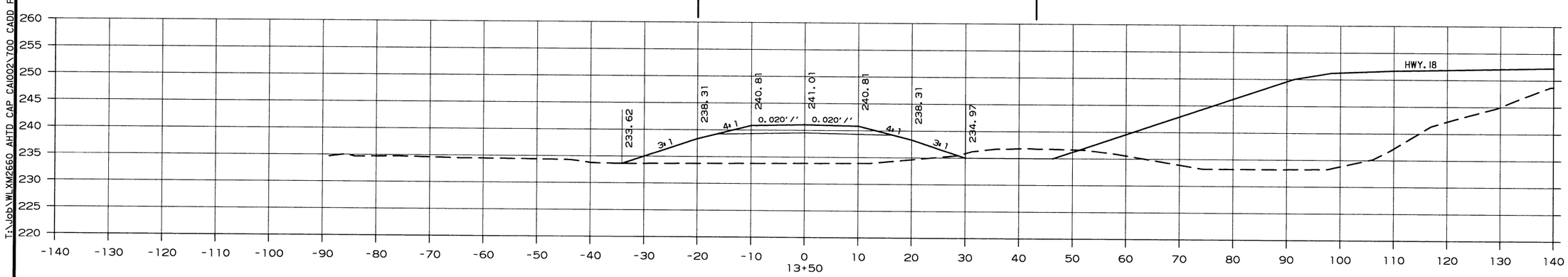
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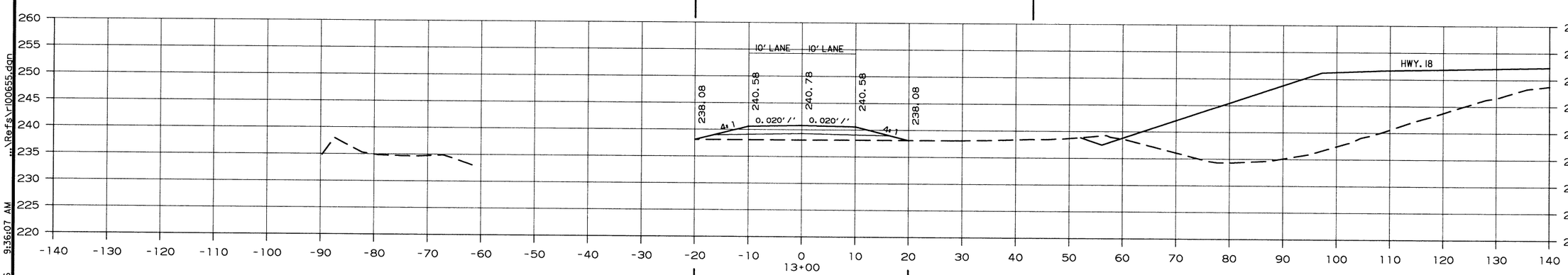
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	316	319

(2) CROSS SECTIONS







	END AREA (S.F.)		VOLUME (C.Y.)	
	CUT	FILL	CUT	FILL
			0	623
	0	315		
			0	537
	0	265		
			0	280
	0	37		

WILDLIFE REFUGE RD.
CROSS SECTION STA. 13+00 TO STA. 14+00

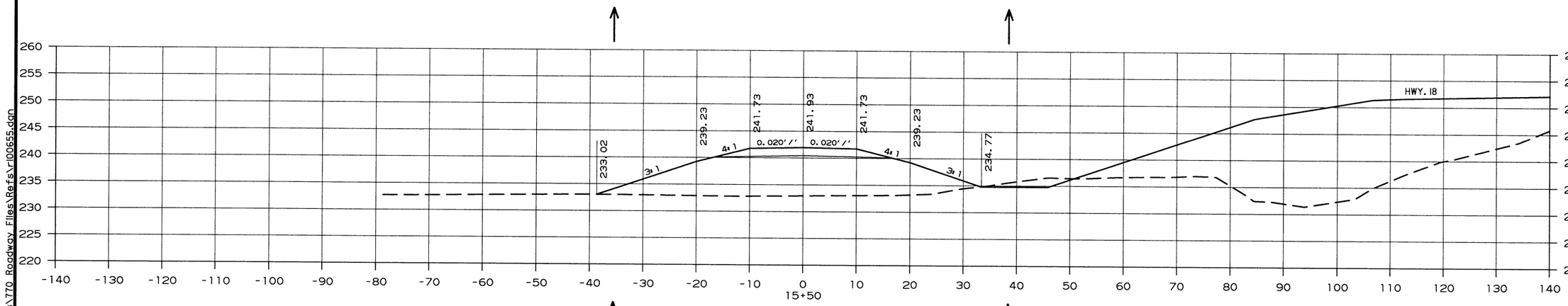
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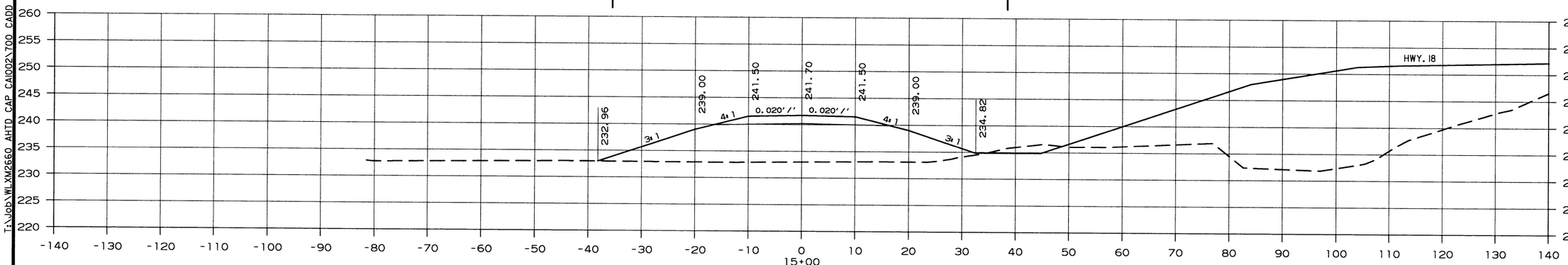
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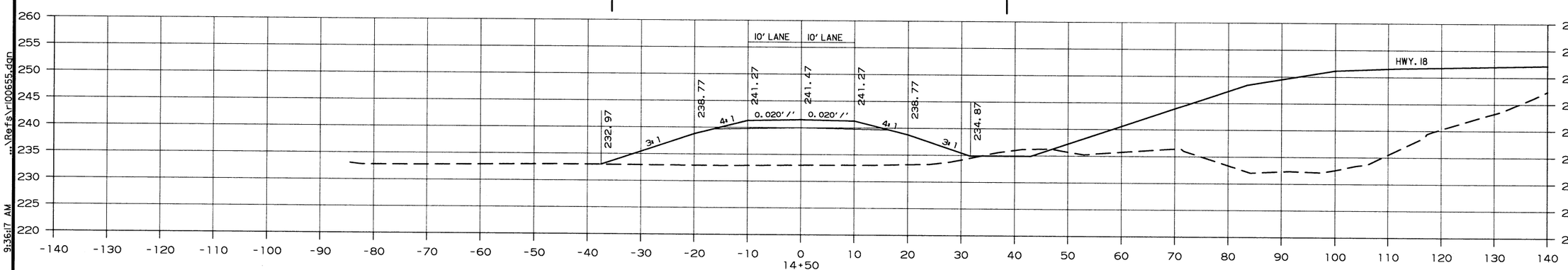
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6	ARK.			
JOB NO.		CA1002	317	319

(2) CROSS SECTIONS







	END AREA (S.F.)		VOLUME (C.Y.)	
	CUT	FILL	CUT	FILL
	0	389	0	749
			0	708
	0	376		
			0	680
	0	358		

WILDLIFE REFUGE RD.
CROSS SECTION STA. 14+50 TO STA. 15+50

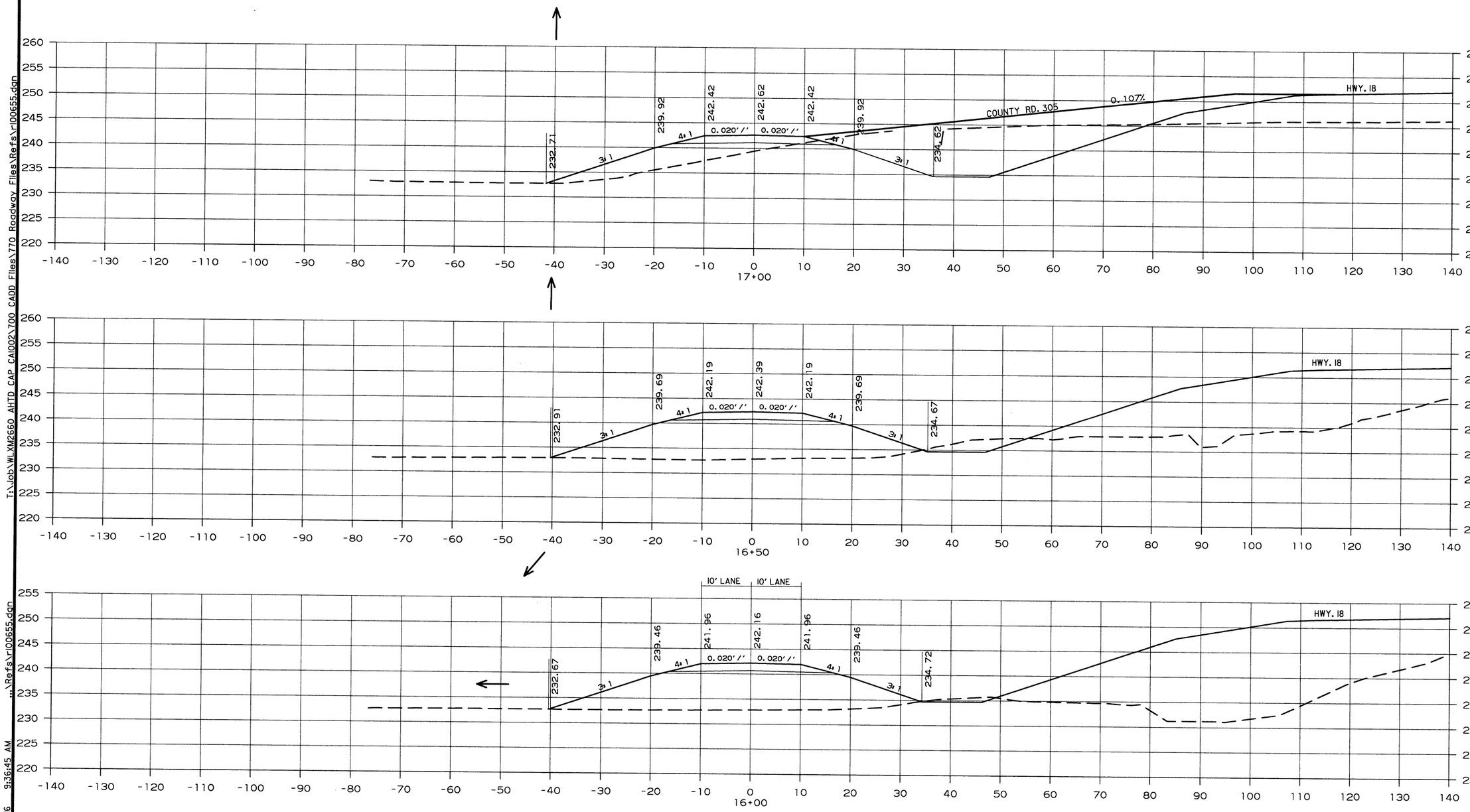
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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		CA1002	318	319

(2) CROSS SECTIONS



WILDLIFE REFUGE RD.
CROSS SECTION STA. 16+00 TO STA. 17+00

END AREA (S.F.) CUT	END AREA (S.F.) FILL	VOLUME (C.Y.) CUT	VOLUME (C.Y.) FILL
		7	33
12	132		
		11	518
0	427		
		0	784
0	420		

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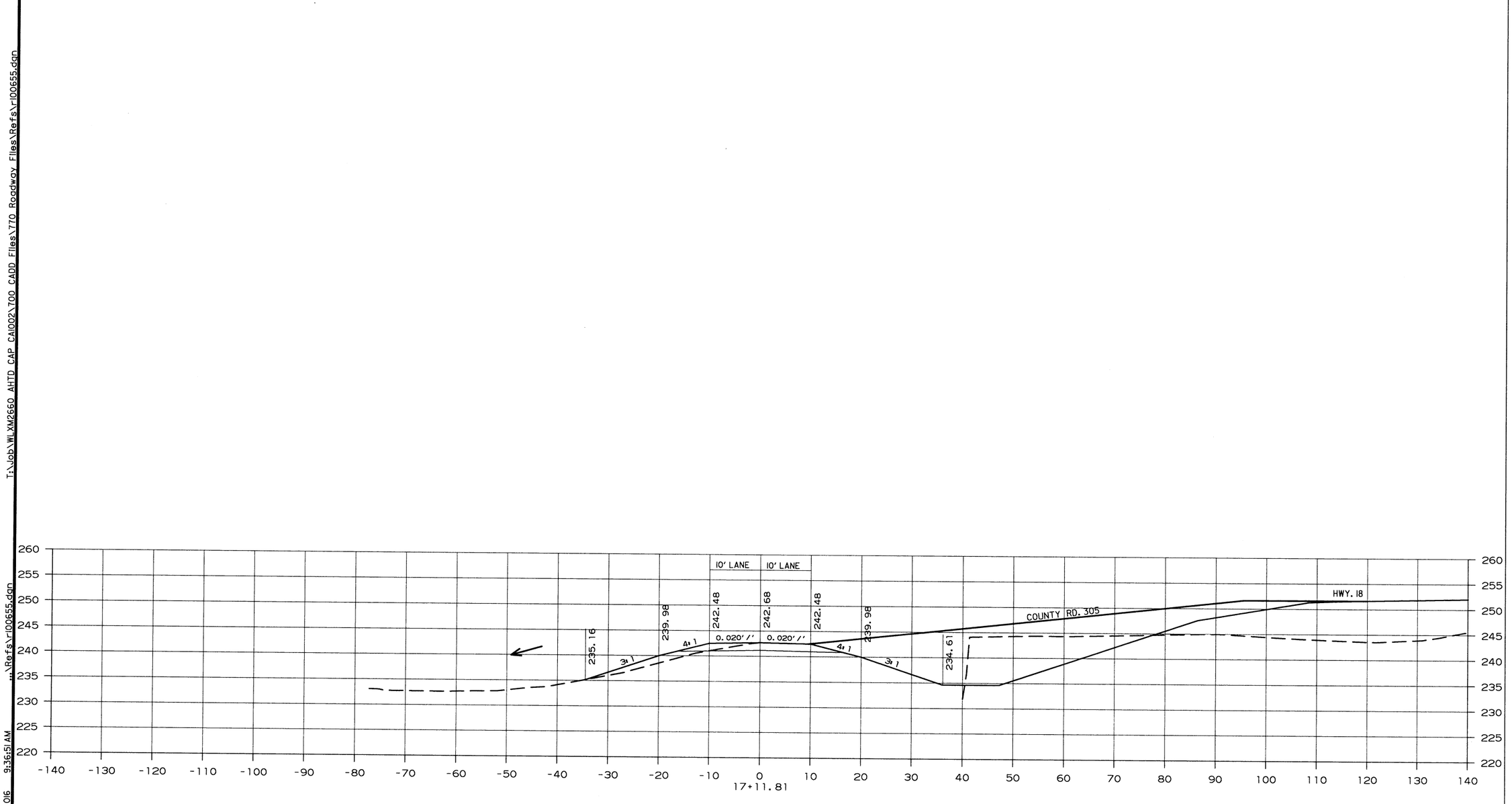
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6	ARK.			
JOB NO.		CA1002	319	319

(2) CROSS SECTIONS

END AREA (S.F.)		VOLUME (C.Y.)	
CUT	FILL	CUT	FILL
21	21		



WILDLIFE REFUGE RD.
CROSS SECTION STA. 17+12

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