

"A FULLY CONTROLLED ACCESS FACILITY"
 ARKANSAS DEPARTMENT OF TRANSPORTATION
 CONSTRUCTION PLANS FOR STATE HIGHWAY

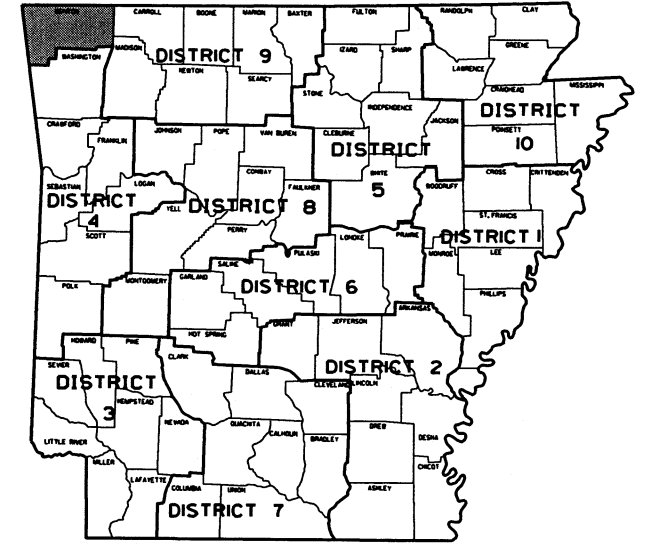
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. CA0905							1	160

2 CO. RD. - MISSOURI STATE LINE (B.V. BYPASS) (F)

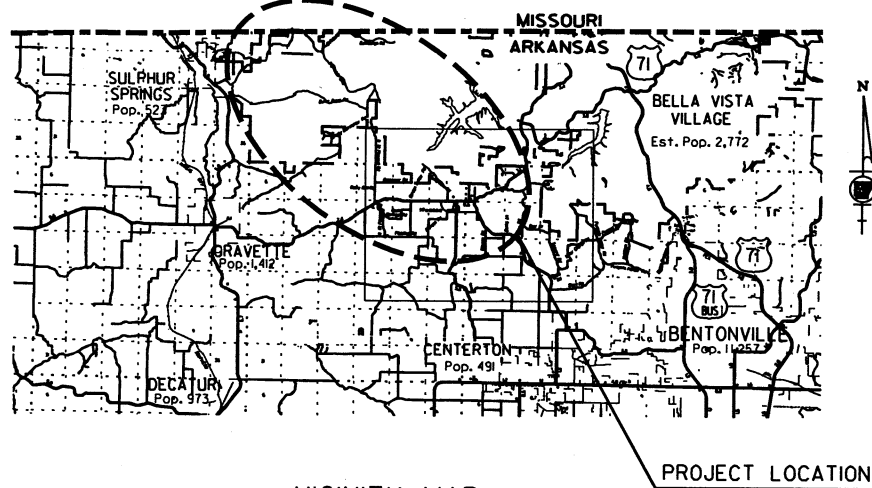
CO. RD. 34 - MISSOURI STATE LINE (B.V. BYPASS) (F)

BENTON COUNTY
 ROUTE 549 SECTION 9
JOB CA0905
 FEDERAL AID PROJ. 9991

NOT TO SCALE



ARK. HWY. DIST. NO. 9



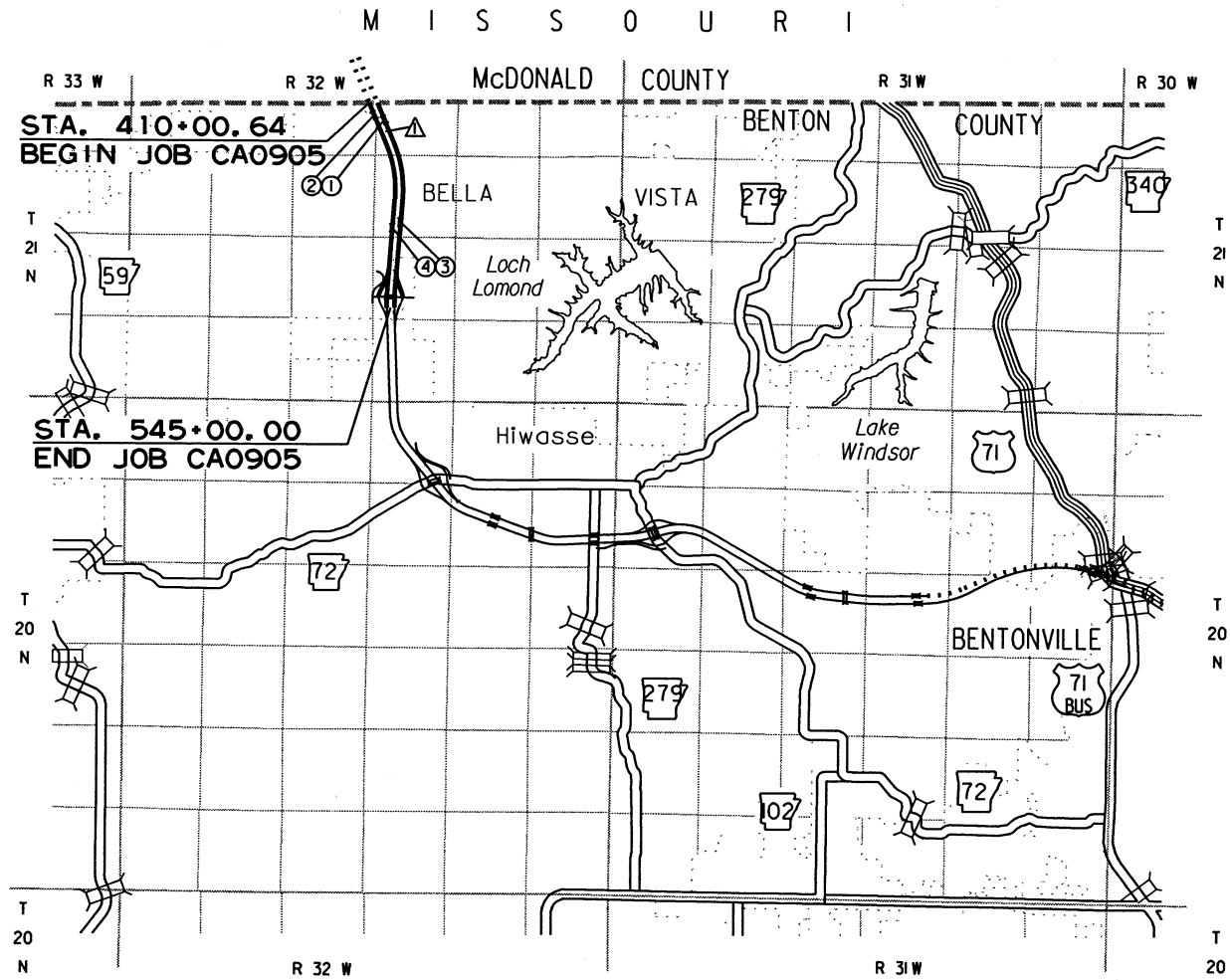
VICINITY MAP

PROJECT LOCATION

- BRIDGE DATA**
- ① HWY. 549
 STA. 417+38.58 BRIDGE END
 BR. NO. A7218
 227'-0" CONTINUOUS COMP. W-BEAM (70'-87'-70')
 40'-0" CLEAR ROADWAY
 229'-4" BRIDGE LENGTH
 STA. 419+67.89 BRIDGE END
 - ② HWY. 549
 STA. 417+03.83 BRIDGE END
 BR. NO. B7218
 227'-0" CONTINUOUS COMP. W-BEAM (70'-87'-70')
 40'-0" CLEAR ROADWAY
 229'-4" BRIDGE LENGTH
 STA. 419+33.17 BRIDGE END
 - ③ HWY. 549
 STA. 490+44.61 BRIDGE END
 BR. NO. A7219
 326'-0" CONTINUOUS COMP. PLATE GIRDER (101'-124'-101')
 40'-0" CLEAR ROADWAY
 328'-9 3/8" BRIDGE LENGTH
 STA. 493+73.39 BRIDGE END
 - ④ HWY. 549
 STA. 491+12.11 BRIDGE END
 BR. NO. B7219
 326'-0" CONTINUOUS COMP. PLATE GIRDER (101'-124'-101')
 40'-0" CLEAR ROADWAY
 328'-9 3/8" BRIDGE LENGTH
 STA. 494+40.89 BRIDGE END

STRUCTURES OVER 20' -0" SPAN

- ▲ HWY. 549
 STA. 423+87 CONSTRUCT
 SEXTUPLE 8' X 6' X 694' R.C. BOX CULVERT
 (50° LT. FWD. SKEW)
 Q50=1883 CFS D. A. =1399 ACRES
 SPAN = 83.62'



DESIGN TRAFFIC DATA

DESIGN YEAR	2039
2019 ADT	8200
2039 ADT	15000
2039 DHV	1650
DIRECTIONAL DISTRIBUTION	0.60
TRUCKS	20%
DESIGN SPEED	70 MPH

APPROVED



5-15-19
 DEPUTY DIRECTOR
 AND CHIEF ENGINEER

	BEGINNING OF PROJECT	MID POINT OF PROJECT	END OF PROJECT
LATITUDE	N 36°29'59"	N 36°28'58"	N 36°27'48"
LONGITUDE	W 94°22'58"	W 94°22'37"	W 94°22'44"

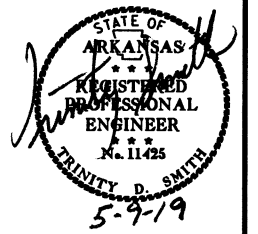
	GROSS LENGTH OF PROJECT	13499.36	FEET	OR	2.557	MILES
NET	" " ROADWAY	12857.63	" "	" "	2.435	"
NET	" " BRIDGES	641.73	" "	" "	0.122	"
NET	" " PROJECT	13499.36	" "	" "	2.557	"

3/18/2019

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2 INDEX OF SHEETS AND STANDARD DRAWINGS



INDEX OF SHEETS

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97	DETAILS OF BENT 2B COUNTY ROAD 21	B7219	52058A
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105	DETAILS OF 326' CONTINUOUS COMPOSITE PLATE GIRDER UNIT COUNTY ROAD 21 (SHEET 6 OF 6)	A&B7219	52065
106	DETAILS OF ELASTOMERIC BEARINGS COUNTY ROAD 21	A&B7219	52066
107	DETAILS OF TYPE SPECIAL APPROACH SLAB COUNTY ROAD 21	A&B7219	52066A
108 - 160	CROSS SECTIONS		

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

BRIDGE STANDARD DRAWINGS

DRWG. NO.	TITLE	DATE
55000	STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS	02-27-14
55001	STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES	02-27-14
55002	STANDARD DETAILS FOR CONCRETE RIPRAP	02-27-14
55005	STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS	03-24-16
55010	STANDARD DETAILS FOR TYPE D BRIDGE NAME PLATE	01-15-19
55020	STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS	03-24-16
55030C	STANDARD DETAILS FOR TYPE C APPROACH GUTTERS	02-27-14

ROADWAY STANDARD DRAWINGS

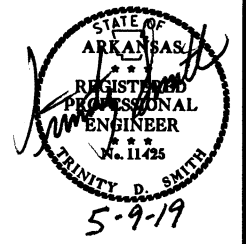
DRWG. NO.	TITLE	DATE
CDP-1	CONCRETE DITCH PAVING	12-08-16
CG-1	CURBING DETAILS	11-29-07
CPTJ-6A	TRANSVERSE & LONGITUDINAL JOINTS FOR CONCRETE PAVEMENT (NON-REINFORCED)	05-25-06
DR-1	DETAILS OF DRIVEWAYS & ISLANDS	02-27-14
FES-1	FLARED END SECTION	10-18-96
FES-2	FLARED END SECTION	10-18-96
FPC-9D	DETAILS OF DROP INLETS	08-22-02
FPC-9N	DETAILS OF DROP INLETS AND SPILLWAY OUTLET	07-02-98
GR-7	GUARD RAIL DETAILS (TYPE C) STREET/ROAD BARRICADE OR TEMPORARY INSTALLATION	11-16-17
GR-8	GUARD RAIL DETAILS	11-16-17
GR-8A	GUARD RAIL DETAILS	11-16-17
GR-9	GUARD RAIL DETAILS	04-17-08
GR-9A	GUARD RAIL DETAILS	04-17-08
GR-10	GUARD RAIL DETAILS	11-16-17
GR-11	GUARD RAIL DETAILS	11-16-17
GR-12	GUARD RAIL DETAILS	11-16-17
IB-1	IMPACT ATTENUATION BARRIER	10-15-09
PBC-1	PRECAST CONCRETE BOX CULVERTS	01-28-15
PCC-1	CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PCM-1	METAL PIPE CULVERT FILL HEIGHTS & BEDDING	02-27-14
PM-1	PAVEMENT MARKING DETAILS	06-01-17
PM-2	PERMANENT PAVEMENT MARKING ON ACCESS CONTROLLED ROADWAYS	12-08-16
PU-1	DETAILS OF PIPE UNDERDRAIN	12-08-16
RCB-1	REINFORCED CONCRETE BOX CULVERT DETAILS	07-26-12
RCB-2	EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS	11-20-03
SE-1	TABLES AND METHOD OF SUPERELEVATION FOR ONE-WAY TRAFFIC	01-09-87
SHS-1	STANDARD HIGHWAY SIGNS AND SUPPORTS ASSEMBLIES	09-12-13
SHS-2	U-CHANNEL POST ASSEMBLIES	02-27-14
TC-1	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	04-13-17
TC-2	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	09-02-15
TC-3	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	09-02-15
TC-4	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	02-27-14
TC-5	STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER	10-15-09
TEC-1	TEMPORARY EROSION CONTROL DEVICES	11-16-17
TEC-2	TEMPORARY EROSION CONTROL DEVICES	06-02-94
TEC-3	TEMPORARY EROSION CONTROL DEVICES	11-03-94
TEC-4	TEMPORARY EROSION CONTROL DEVICES	07-26-12
TR-1A	DETAILS OF STANDARD TURNOUT FOR ENTRANCE & EXIT RAMP (NON-REINFORCED)	08-22-02
WF-1	WIRE FENCE TYPE A AND B	08-22-02
WF-2	WIRE FENCE WATER GAPS	04-20-79
WF-4	WIRE FENCE TYPE C AND D	08-22-02

GOVERNING SPECIFICATIONS

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

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						JOB NO. CA0905	3	160

2 GOVERNING SPECIFICATIONS & GENERAL NOTES



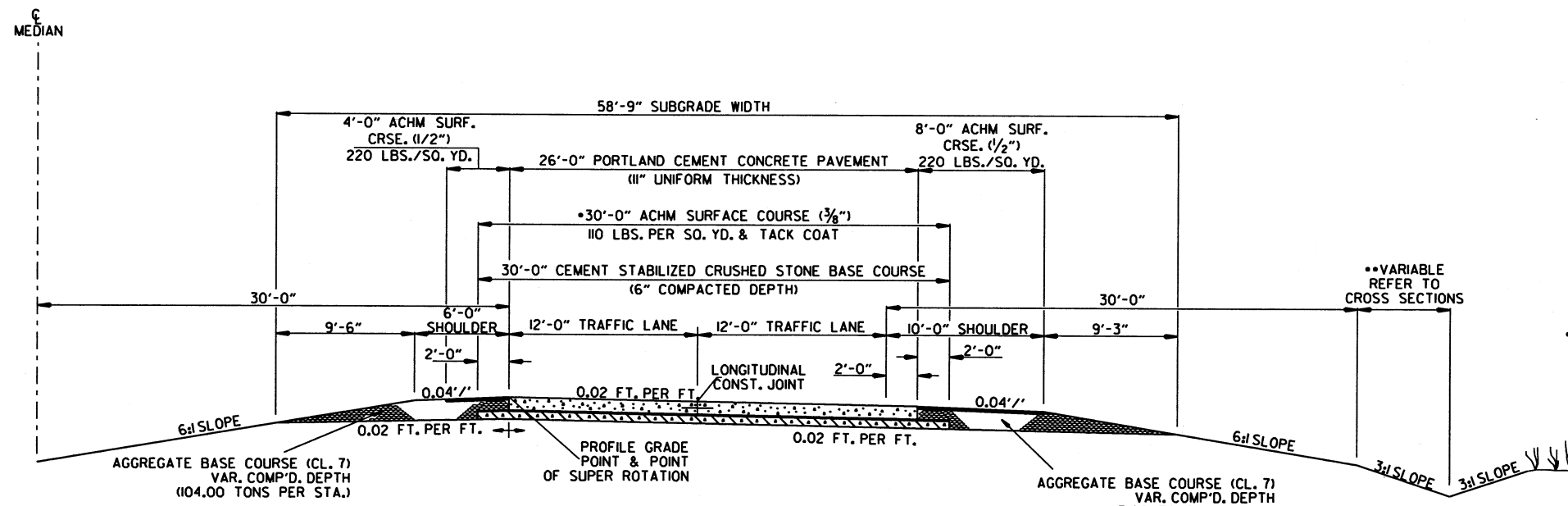
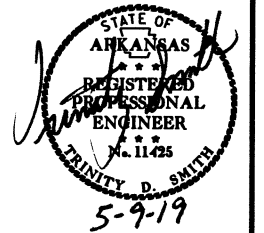
NUMBER	TITLE
ERRATA	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273	SUPPLEMENT - TRAINING PROGRAM - JOB CA0905
FHWA-1273	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273	SUPPLEMENT - WAGE RATE DETERMINATION
100-3	CONTRACTOR'S LICENSE
100-4	DEPARTMENT NAME CHANGE
102-2	ISSUANCE OF PROPOSALS
108-1	LIQUIDATED DAMAGES
108-2	WORK ALLOWED PRIOR TO ISSUANCE OF WORK ORDER
110-1	PROTECTION OF WATER QUALITY AND WETLANDS
303-1	AGGREGATE BASE COURSE
306-1	QUALITY CONTROL AND ACCEPTANCE
400-1	TACK COATS
400-4	DESIGN AND QUALITY CONTROL OF ASPHALT MIXTURES
400-5	PERCENT AIR VOIDS FOR ACHM MIX DESIGNS
400-6	LIQUID ANTI-STRIP ADDITIVE
410-1	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
410-2	DEVICES FOR MEASURING DENSITY FOR ROLLING PATTERNS
600-2	INCIDENTAL CONSTRUCTION
604-1	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
605-1	CONCRETE DITCH PAVING
617-1	GUARDRAIL TERMINAL (TYPE 2)
620-1	MULCH COVER
621-1	FILTER SOCKS
632-1	CONCRETE ISLAND
723-1	GENERAL REQUIREMENTS FOR SIGNS
800-1	STRUCTURES
802-3	CONCRETE FOR STRUCTURES
804-2	REINFORCING STEEL FOR STRUCTURES
808-1	INSTALLATION OF ELASTOMERIC BEARINGS
808-2	ELASTOMERIC BEARINGS
JOB CA0905	BIDDING REQUIREMENTS AND CONDITIONS
JOB CA0905	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB CA0905	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB CA0905	CARGO PREFERENCE ACT REQUIREMENTS
JOB CA0905	CAVE DISCOVERY
JOB CA0905	CLASS C FLY ASH IN PORTLAND CEMENT CONCRETE PAVEMENT AND CLASS S(AE) CONCRETE
JOB CA0905	CLEARING AND GRUBBING
JOB CA0905	COMPACTED EMBANKMENT
JOB CA0905	CONCRETE DITCH PAVING
JOB CA0905	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB CA0905	CONSTRUCTION PROJECT INFORMATION SIGN
JOB CA0905	COORDINATION OF WORK
JOB CA0905	DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
JOB CA0905	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB CA0905	ELECTRONIC DOCUMENT MANAGEMENT - CONNECTING ARKANSAS PROGRAM
JOB CA0905	EMPLOYMENT REPORTING
JOB CA0905	ENHANCED THERMOPLASTIC PAVEMENT MARKING
JOB CA0905	EXPLORATORY HOLES
JOB CA0905	FLEXIBLE BEGINNING OF WORK - CALENDAR DAY CONTRACT
JOB CA0905	GENERAL REQUIREMENTS FOR SIGNS
JOB CA0905	GOALS FOR ARKANSAS OWNED MINORITY BUSINESS ENTERPRISE
JOB CA0905	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB CA0905	MANDATORY ELECTRONIC CONTRACT
JOB CA0905	NESTING SITES OF MIGRATORY BIRDS
JOB CA0905	OFF-SITE RESTRAINING CONDITIONS FOR INDIANA AND NORTHERN LONG-EARED BATS
JOB CA0905	OMNI-DIRECTIONAL BREAKAWAY SIGN SUPPORT
JOB CA0905	PARTNERING REQUIREMENTS
JOB CA0905	PERCENT WITHIN LIMITS/PAVEMENT SMOOTHNESS (IRI)
JOB CA0905	PRICE ADJUSTMENT FOR ASPHALT BINDER
JOB CA0905	PROSECUTION AND PROGRESS WITH BID SCHEDULE
JOB CA0905	REINFORCED CONCRETE PIPE CULVERTS (CLASS SPECIAL)
JOB CA0905	RESTRICTIONS ON THE USE OF RECYCLED ASPHALT PAVEMENT MATERIAL
JOB CA0905	ROCK DITCH LINER
JOB CA0905	ROCK FILL
JOB CA0905	SHORING FOR CULVERTS
JOB CA0905	SITE USE (A+C METHOD) - CALENDAR DAY CONTRACT
JOB CA0905	SIX-BARREL REINFORCED CONCRETE BOX CULVERT
JOB CA0905	SOIL STABILIZATION
JOB CA0905	SPECIAL SAFETY REQUIREMENTS FOR BRIDGES
JOB CA0905	STORM WATER POLLUTION PREVENTION PLAN
JOB CA0905	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB CA0905	TEXTURED COATING FINISH
JOB CA0905	UTILITY ADJUSTMENTS
JOB CA0905	VALUE ENGINEERING
JOB CA0905	WARM MIX ASPHALT
JOB CA0905	WIRE ROPE SAFETY FENCE (POST REPAIR)
JOB CA0905	WIRE ROPE SAFETY FENCE (WRSF) SPECIFICATIONS
JOB CA0905	WIRE ROPE SAFETY FENCE MAINTENANCE MATERIALS
JOB CA0905	WRSF TRAINING WORKSHOP

GENERAL NOTES

- GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
- ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
- ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
- ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
- ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO ENSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE CONSTRUCTED INITIALLY, OR IN LIEU THEREOF, THE CONTRACTOR AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.
- THE SEQUENCE AS SHOWN ON THE MAINTENANCE OF TRAFFIC PLANS IS A GENERAL OUTLINE FOR THE CONSTRUCTION OF THIS PROJECT, AND IN NO WAY IS IT INTENDED TO COVER EVERY ITEM IN THE PROJECT. ITEMS NOT CRITICAL TO THE CONSTRUCTION SEQUENCE MAY BE CONSTRUCTED IN ANY STAGE AS APPROVED BY THE RESIDENT ENGINEER.
- ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
- THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAWING ALONG A NEAT LINE. AFTER SAWING, THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOVED IN A MANNER THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
- THIS PROJECT IS COVERED UNDER A SECTION 404 INDIVIDUAL PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2014, FOR PERMIT REQUIREMENTS.

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2 TYPICAL SECTIONS OF IMPROVEMENT



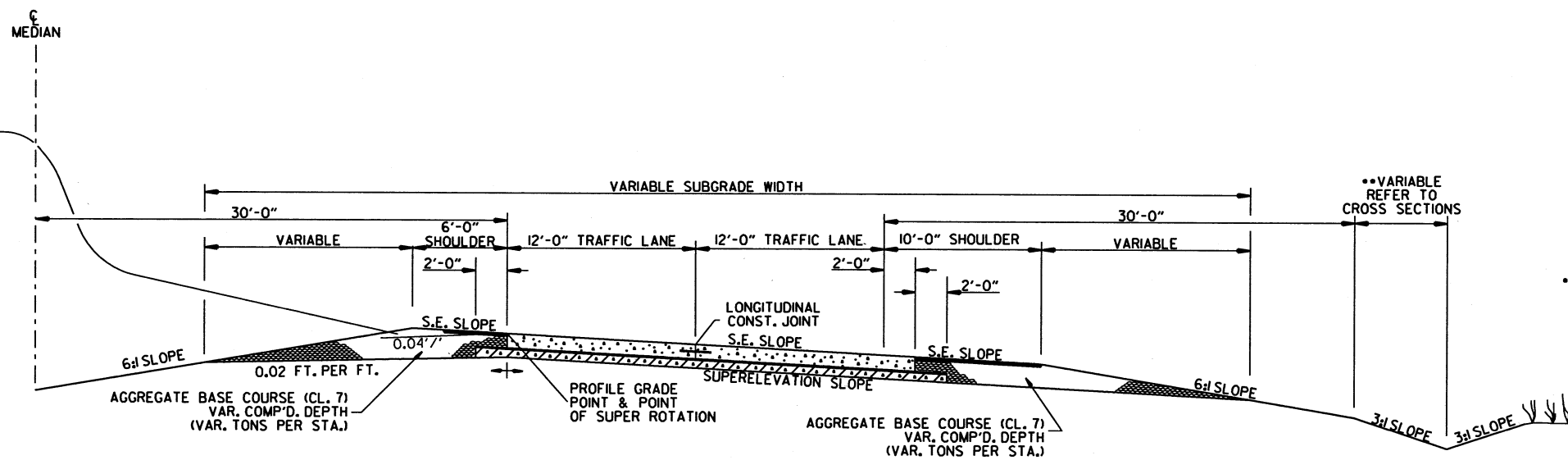
HWY. 549 - MAIN LANES - ALTERNATE I
 (SHOWN IN DIRECTION OF TRAFFIC)
 STA. 410+00.64 TO STA. 436+84.41
 STA. 478+74.33 TO STA. 545+00.00

• DENSITY REQUIREMENTS WAIVED.
 •• REFER TO DITCH GRADES.

NOTES:

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

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



HWY. 549 - MAIN LANES - SUPERELEVATION SECTION - ALTERNATE I
 (SHOWN IN DIRECTION OF TRAFFIC)
 (PAVEMENT SECTION IS SAME AS SHOWN ABOVE)
 STA. 436+84.41 TO STA. 478+74.33

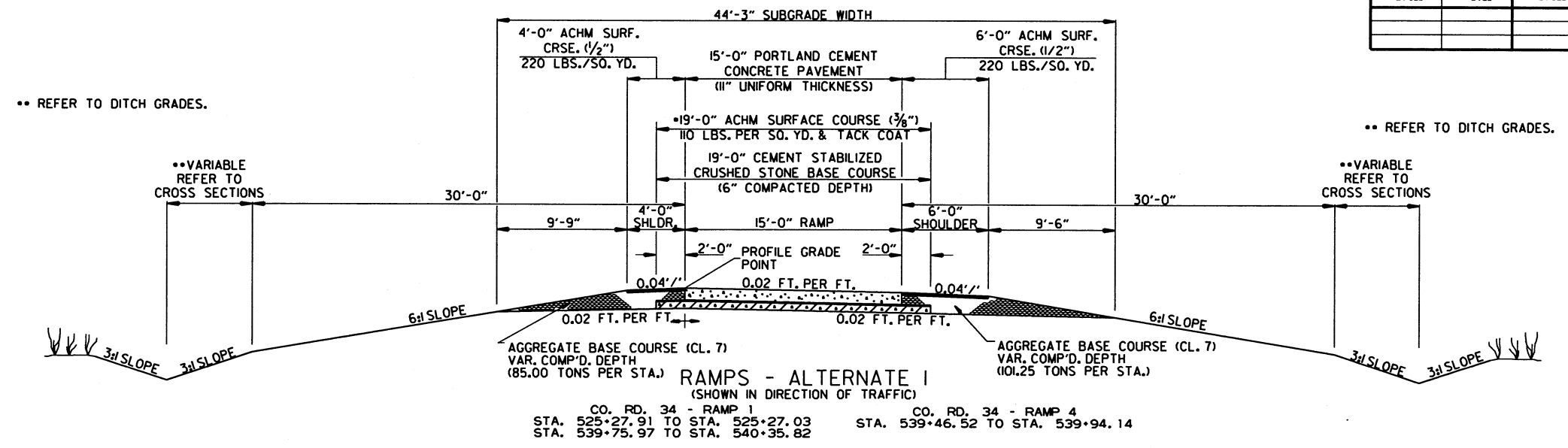
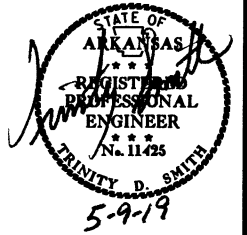
• DENSITY REQUIREMENTS WAIVED.
 •• REFER TO DITCH GRADES.

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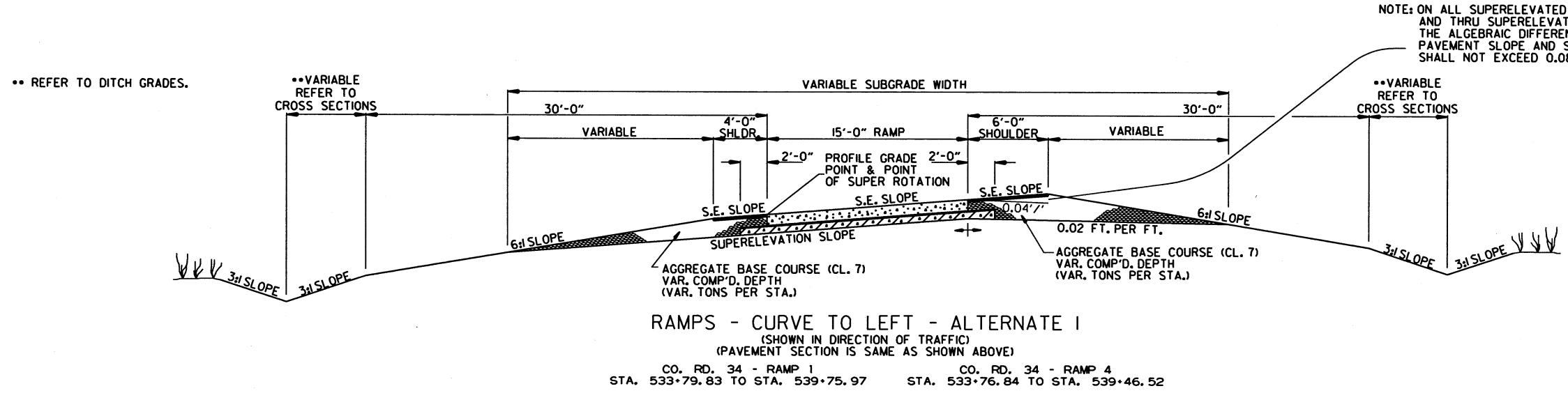
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				6	ARK.		5	160
JOB NO. CA0905								

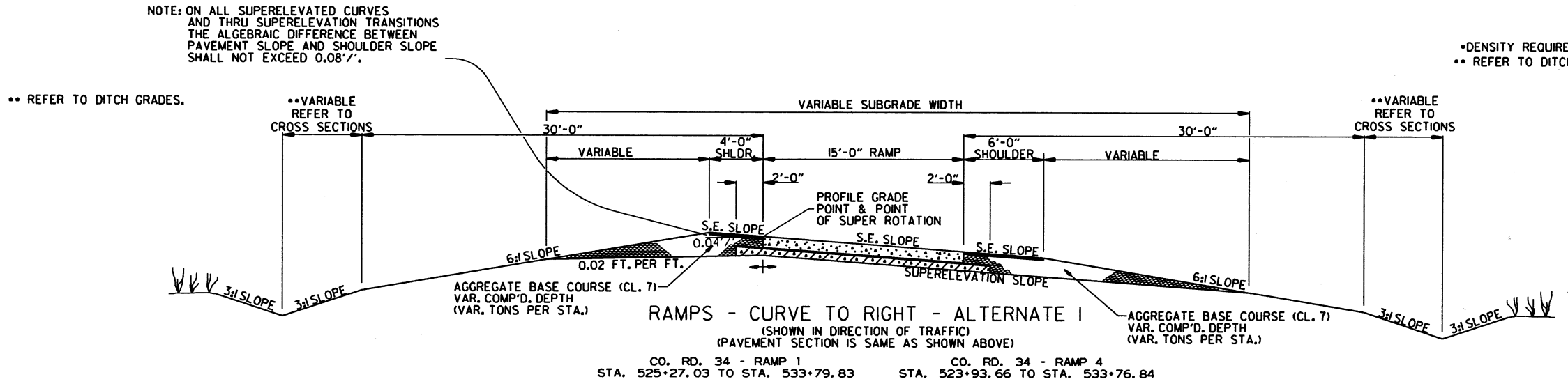
2 TYPICAL SECTIONS OF IMPROVEMENT



• DENSITY REQUIREMENTS WAIVED.
• REFER TO DITCH GRADES.



• DENSITY REQUIREMENTS WAIVED.
• REFER TO DITCH GRADES.

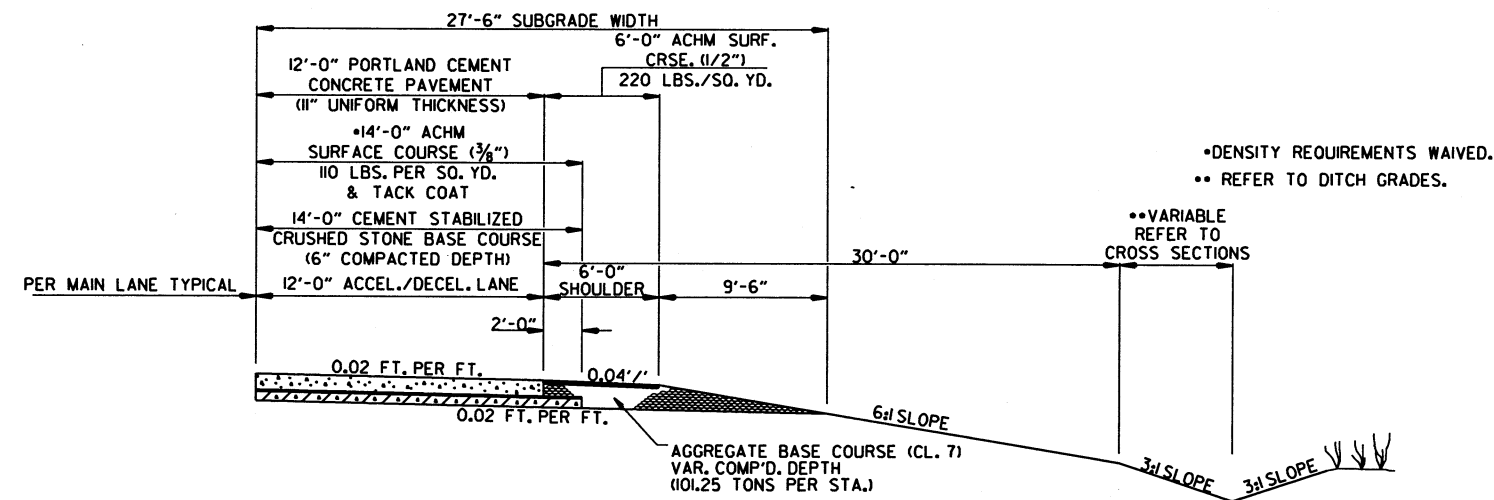


TYPICAL SECTIONS OF IMPROVEMENT

3/18/2019
RC\0905.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.	CA0905		6	160

② TYPICAL SECTIONS OF IMPROVEMENT

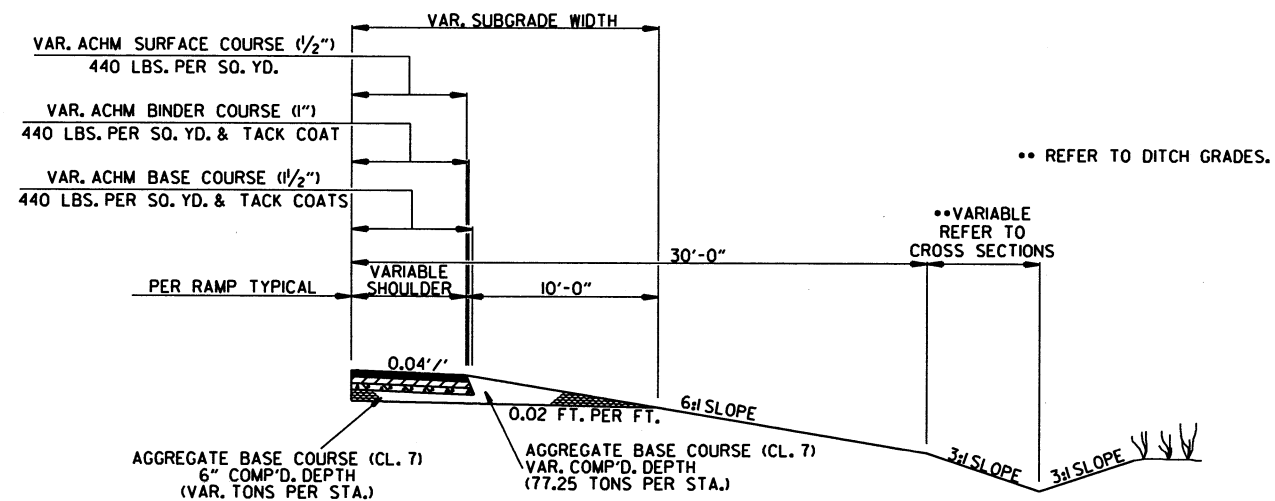


ACCELERATION & DECELERATION LANE - ALTERNATE 1
(SHOWN IN DIRECTION OF TRAFFIC)

NOTES:

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

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



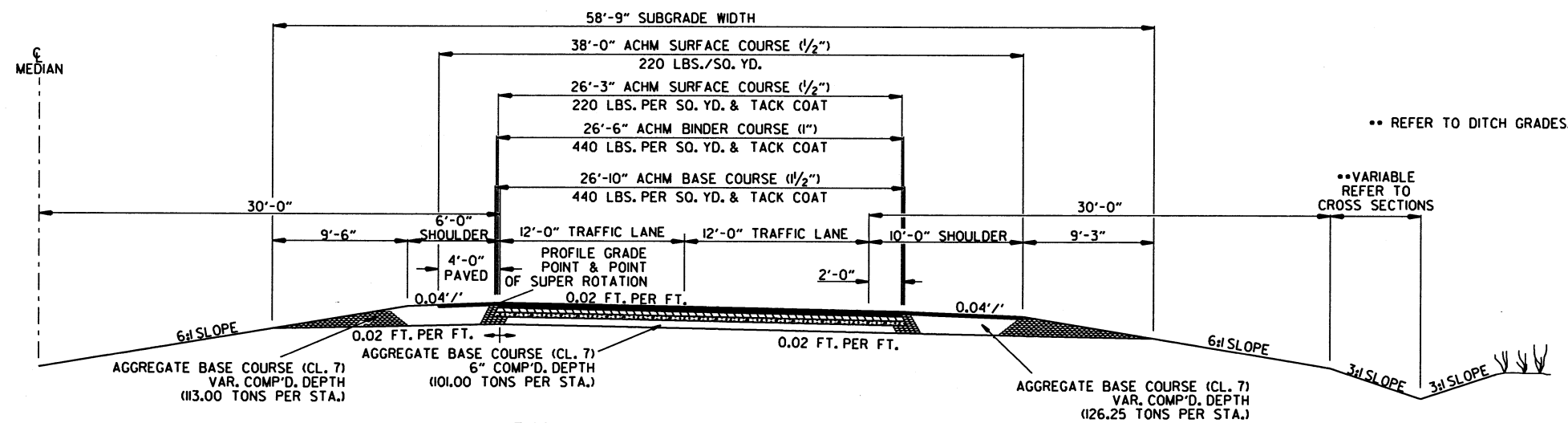
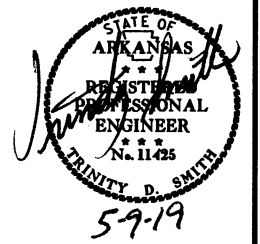
RAMP SHOULDER IMPROVEMENTS

3/18/2019

RC40905.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.	CA0905		7	160

2 TYPICAL SECTIONS OF IMPROVEMENT



HWY. 549 - MAIN LANES - ALTERNATE 2
 (SHOWN IN DIRECTION OF TRAFFIC)
 STA. 410+00.64 TO STA. 436+84.41
 STA. 478+74.33 TO STA. 545+00.00

•• REFER TO DITCH GRADES.

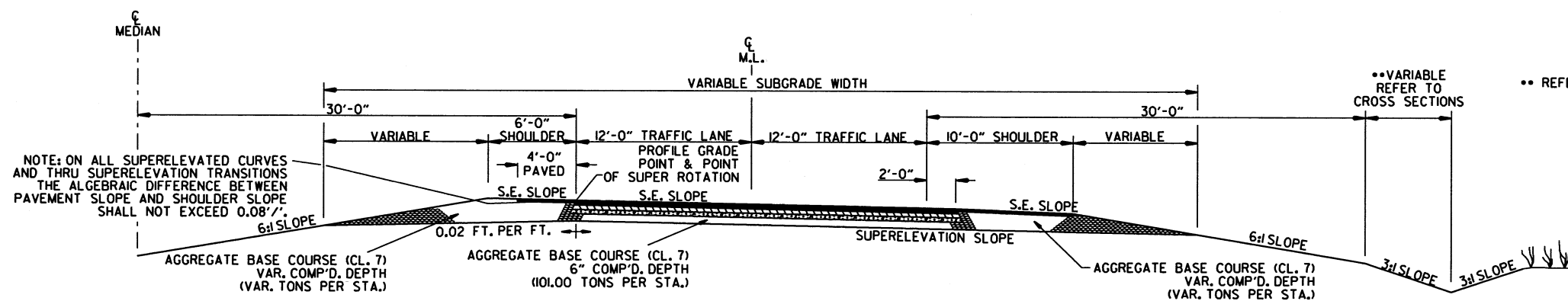
•• VARIABLE REFER TO CROSS SECTIONS

NOTES:

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

THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH (25mm) OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.

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



HWY. 549 - MAIN LANES - SUPERELEVATION SECTION - ALTERNATE 2
 (SHOWN IN DIRECTION OF TRAFFIC)
 (PAVEMENT SECTION IS SAME AS SHOWN ABOVE)
 STA. 436+84.41 TO STA. 478+74.33

•• REFER TO DITCH GRADES.

•• VARIABLE REFER TO CROSS SECTIONS

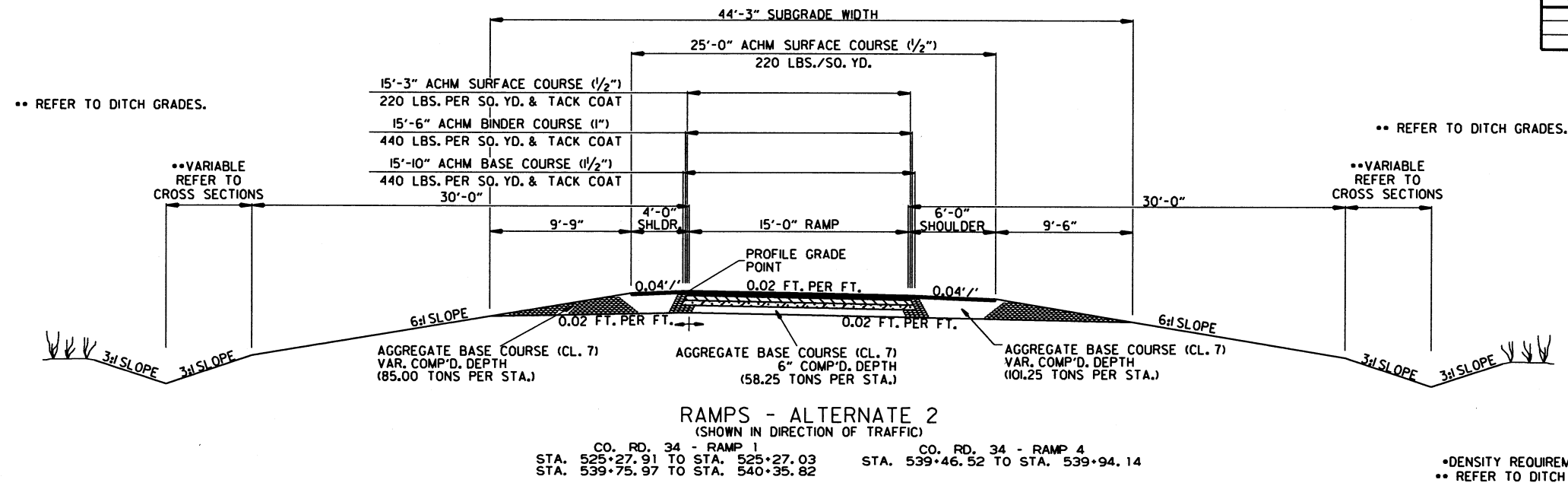
NOTE: ON ALL SUPERELEVATED CURVES AND THRU SUPERELEVATION TRANSITIONS THE ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08'/'.

3/18/2019

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. CA0905							8	160

2 TYPICAL SECTIONS OF IMPROVEMENT

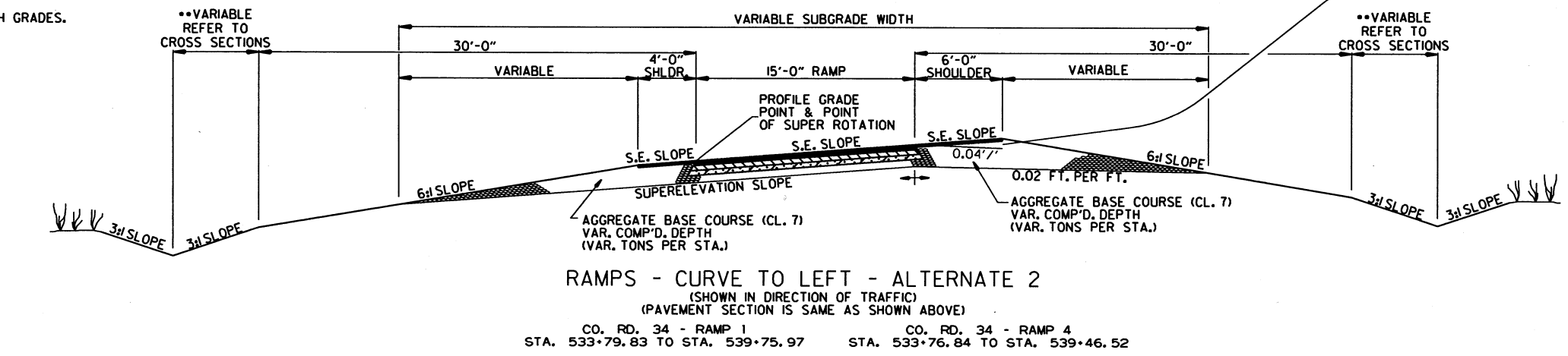


RAMP - ALTERNATE 2
(SHOWN IN DIRECTION OF TRAFFIC)

CO. RD. 34 - RAMP 1
STA. 525+27.91 TO STA. 525+27.03
STA. 539+75.97 TO STA. 540+35.82

CO. RD. 34 - RAMP 4
STA. 539+46.52 TO STA. 539+94.14

• DENSITY REQUIREMENTS WAIVED.
• REFER TO DITCH GRADES.



RAMP - CURVE TO LEFT - ALTERNATE 2
(SHOWN IN DIRECTION OF TRAFFIC)

(PAVEMENT SECTION IS SAME AS SHOWN ABOVE)

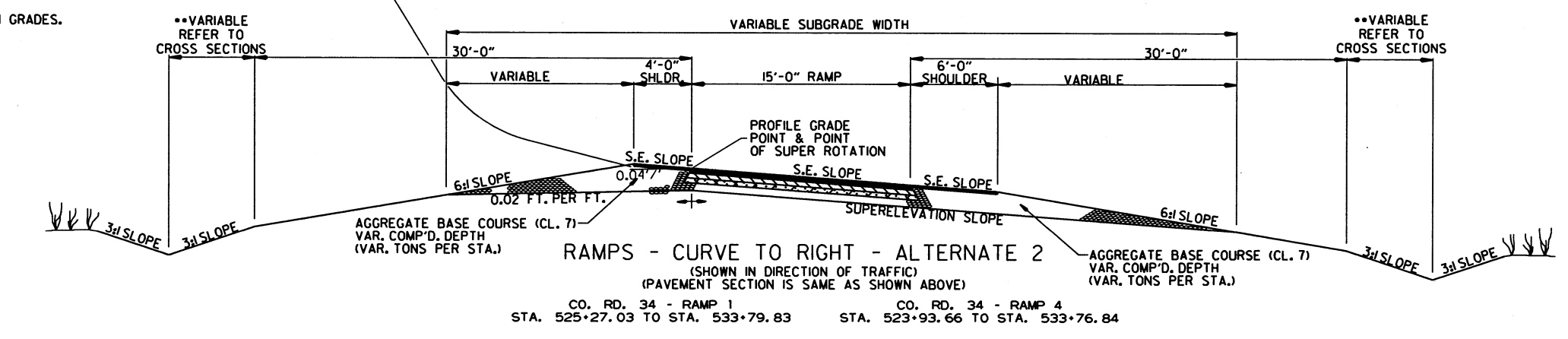
CO. RD. 34 - RAMP 1
STA. 533+79.83 TO STA. 539+75.97

CO. RD. 34 - RAMP 4
STA. 533+76.84 TO STA. 539+46.52

• DENSITY REQUIREMENTS WAIVED.
• REFER TO DITCH GRADES.

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

NOTES:
REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH (25mm) OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.
THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.



RAMP - CURVE TO RIGHT - ALTERNATE 2
(SHOWN IN DIRECTION OF TRAFFIC)

(PAVEMENT SECTION IS SAME AS SHOWN ABOVE)

CO. RD. 34 - RAMP 1
STA. 525+27.03 TO STA. 533+79.83

CO. RD. 34 - RAMP 4
STA. 523+93.66 TO STA. 533+76.84

• DENSITY REQUIREMENTS WAIVED.
• REFER TO DITCH GRADES.

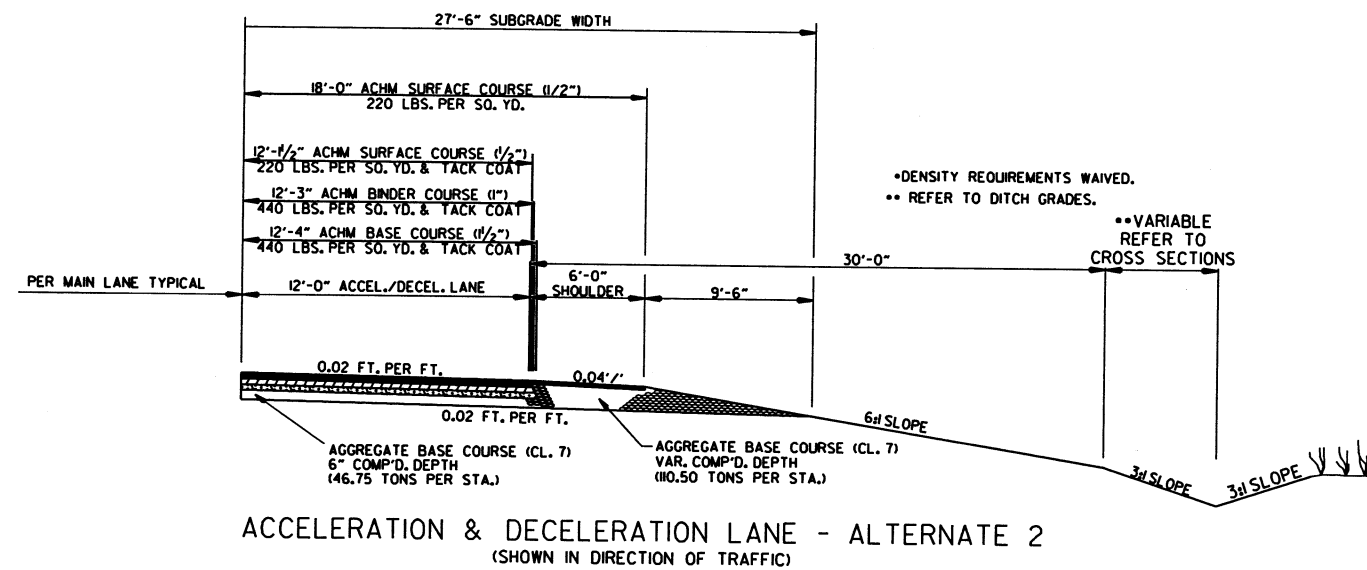
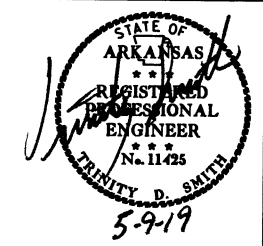
NOTE: ON ALL SUPERELEVATED CURVES AND THRU SUPERELEVATION TRANSITIONS THE ALGEBRAIC DIFFERENCE BETWEEN PAVEMENT SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 0.08'/'.

TYPICAL SECTIONS OF IMPROVEMENT

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. PROJ. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		9	160
JOB NO. CA0905								

② TYPICAL SECTIONS OF IMPROVEMENT



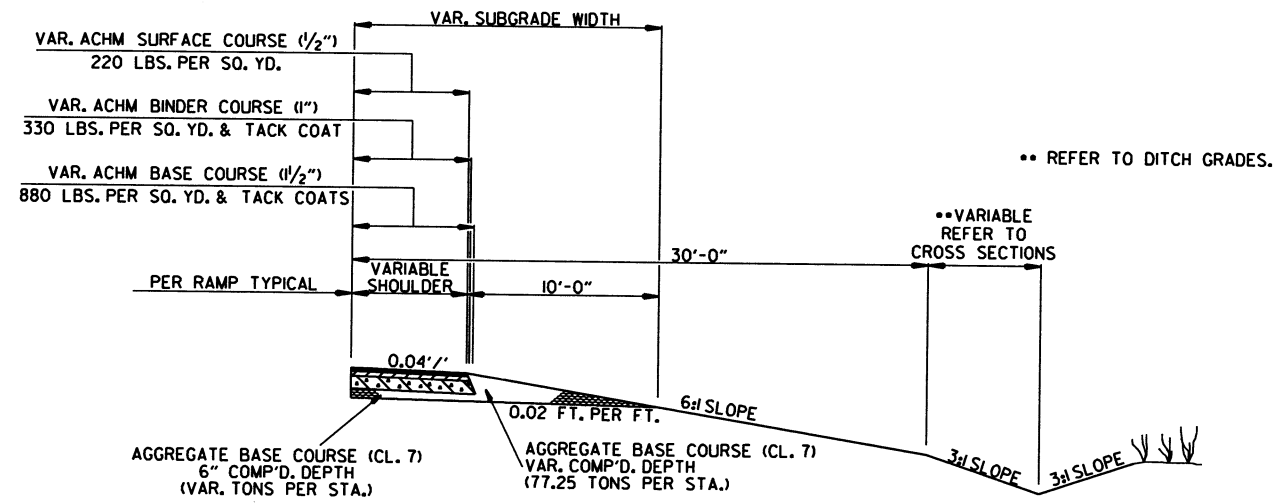
ACCELERATION & DECELERATION LANE - ALTERNATE 2
(SHOWN IN DIRECTION OF TRAFFIC)

NOTES:

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

THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH (25mm) 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.

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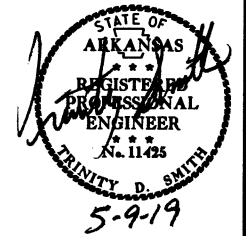
RAMP SHOULDER IMPROVEMENTS

3/18/2019

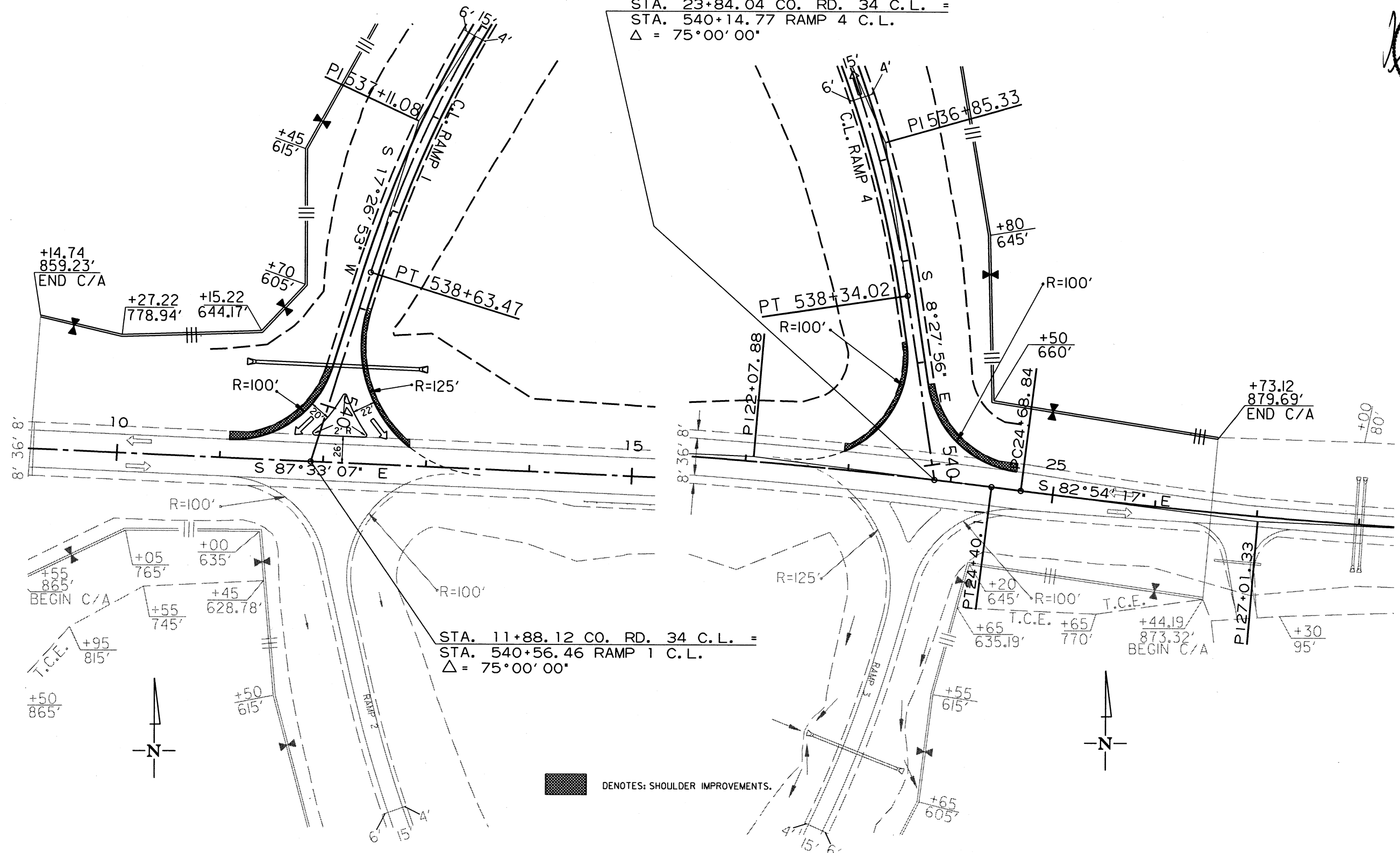
RC-A0905.DGN

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. CA0905							10	160

② SPECIAL DETAILS



STA. 23+84.04 CO. RD. 34 C.L. =
 STA. 540+14.77 RAMP 4 C.L.
 $\Delta = 75^\circ 00' 00''$



STA. 11+88.12 CO. RD. 34 C.L. =
 STA. 540+56.46 RAMP 1 C.L.
 $\Delta = 75^\circ 00' 00''$

■ DENOTES: SHOULDER IMPROVEMENTS.

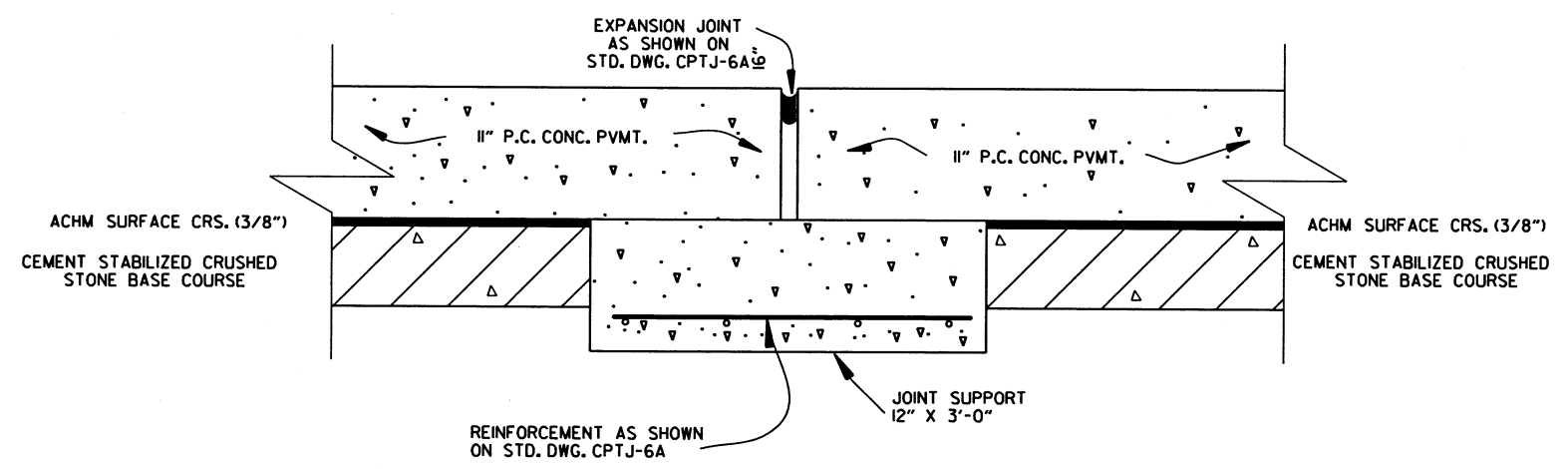
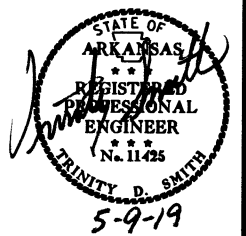
3/28/2019

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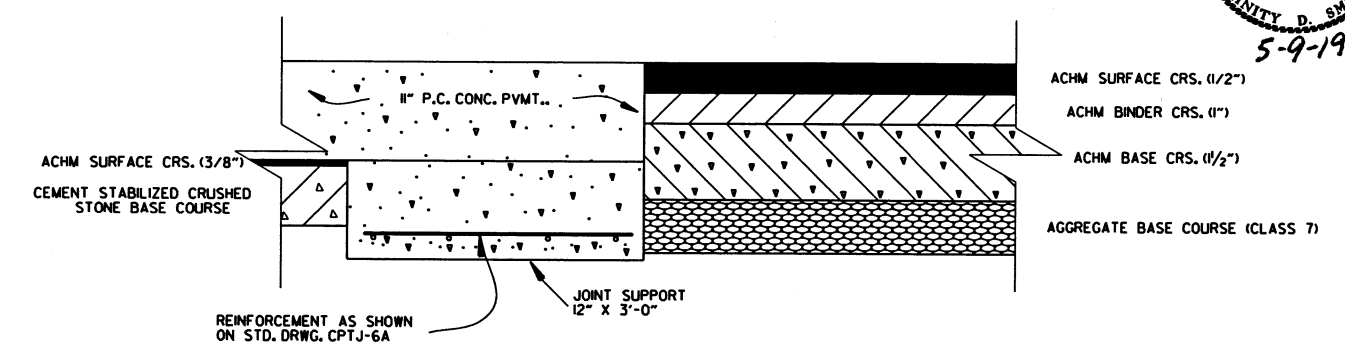
CO. RD. 34
 SPECIAL DETAILS

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. CA0905							11	160

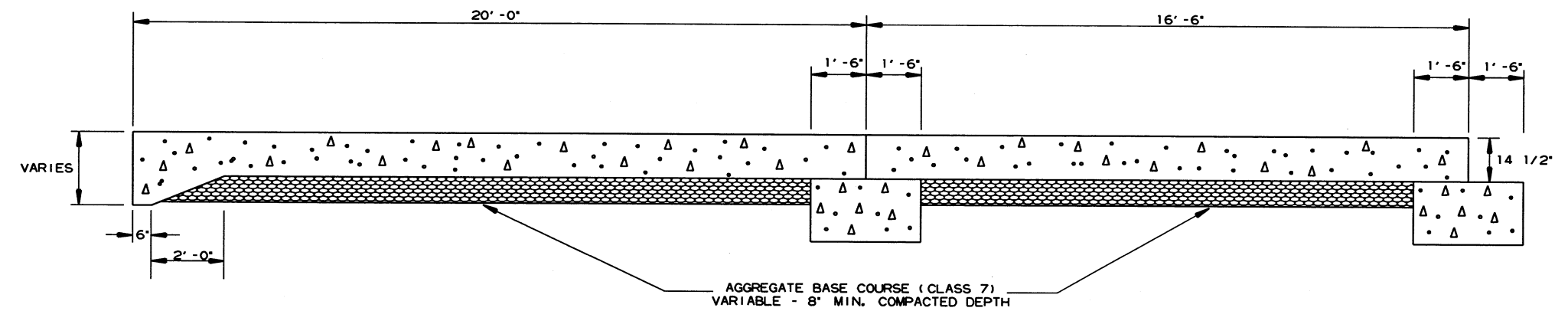
2 SPECIAL DETAILS



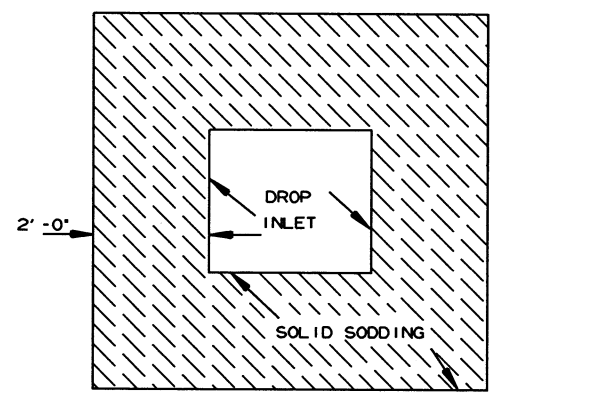
DETAILS OF JOINT SUPPORT - ALTERNATE 1



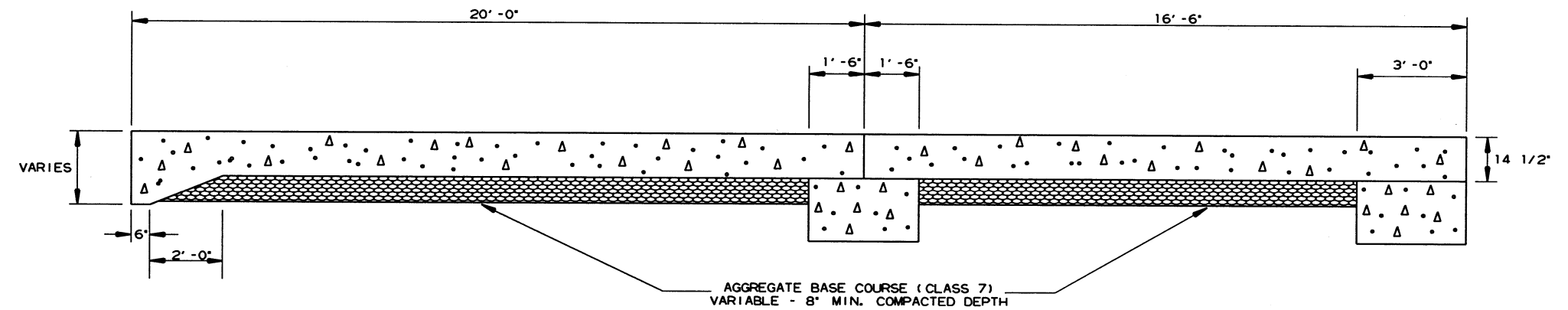
DETAILS OF JOINT SUPPORT AT BEGIN AND END OF EXISTING CONCRETE PAVEMENT ALTERNATE 2



SECTION OF APPROACH SLAB - ALTERNATE 1



DETAIL FOR SOLID SODDING AROUND DROP INLETS

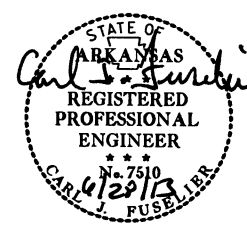


SECTION OF APPROACH SLAB - ALTERNATE 2

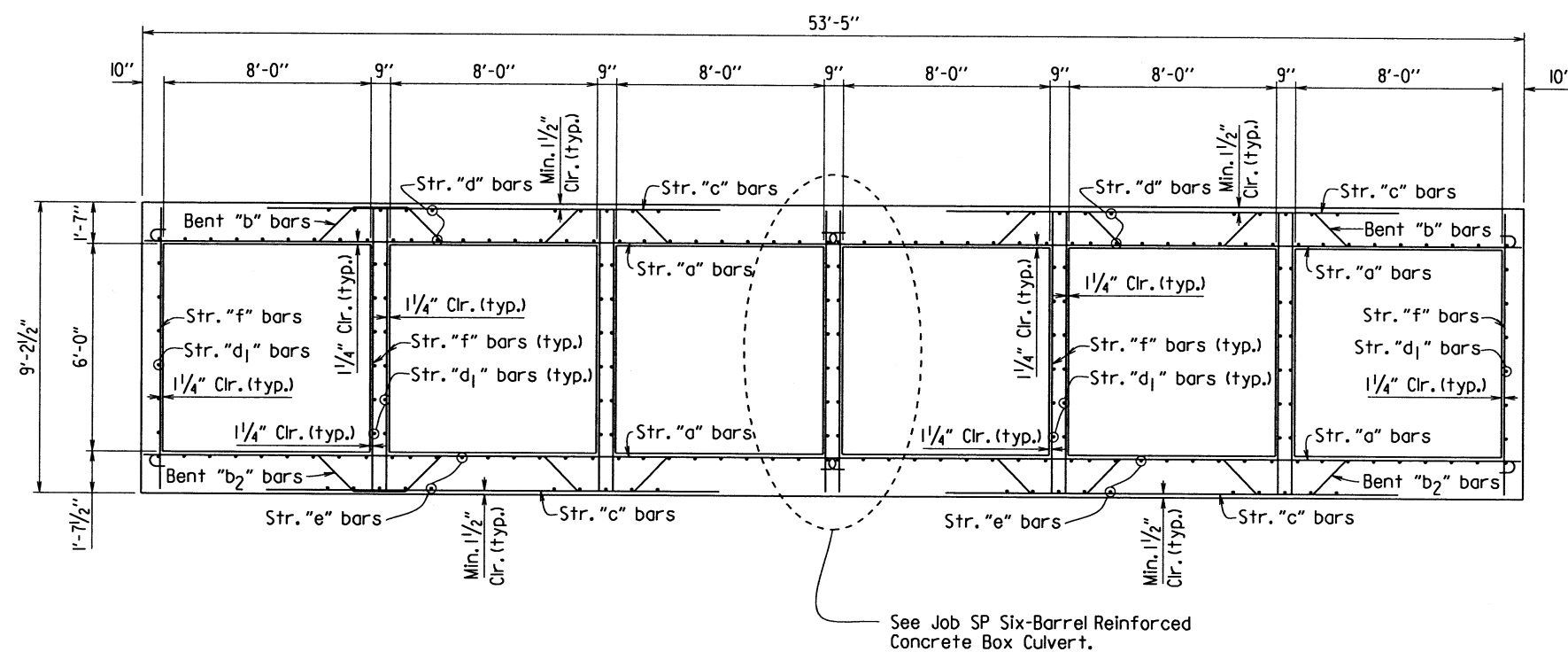
SPECIAL DETAILS

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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.		12	160
							JOB NO. CA0905	
SPECIAL DETAILS								



SECTION G
40' Maximum Fill Height



Str. "a" bars - #6 @ 14"
Bent "b" bars - #7 @ 14"
Bent "b ₂ " bars - #7 @ 14"
Str. "c" bars - #7 @ 14"
Str. "d" bars - #4 @ 12"
Str. "d ₁ " bars - #4 @ 12"
Str. "e" bars - #4 @ 12"
Str. "f" bars - #4 @ 8"

TOTAL QUANTITIES

DESCRIPTION	CLASS "S" CONCRETE (cu. yd.)	REINFORCING STEEL (lbs.)
SECTION "A"	274.18	***45804
4 Wings	**34.70	763

** Includes: Headwalls, Wingwalls, Footings, Toe Walls, and Aprons.
*** Includes: Barrel, Headwalls, and Aprons.

ADDITIONAL QUANTITIES

Reinforcing Steel = 192.1 lbs./ lap

* QUANTITIES

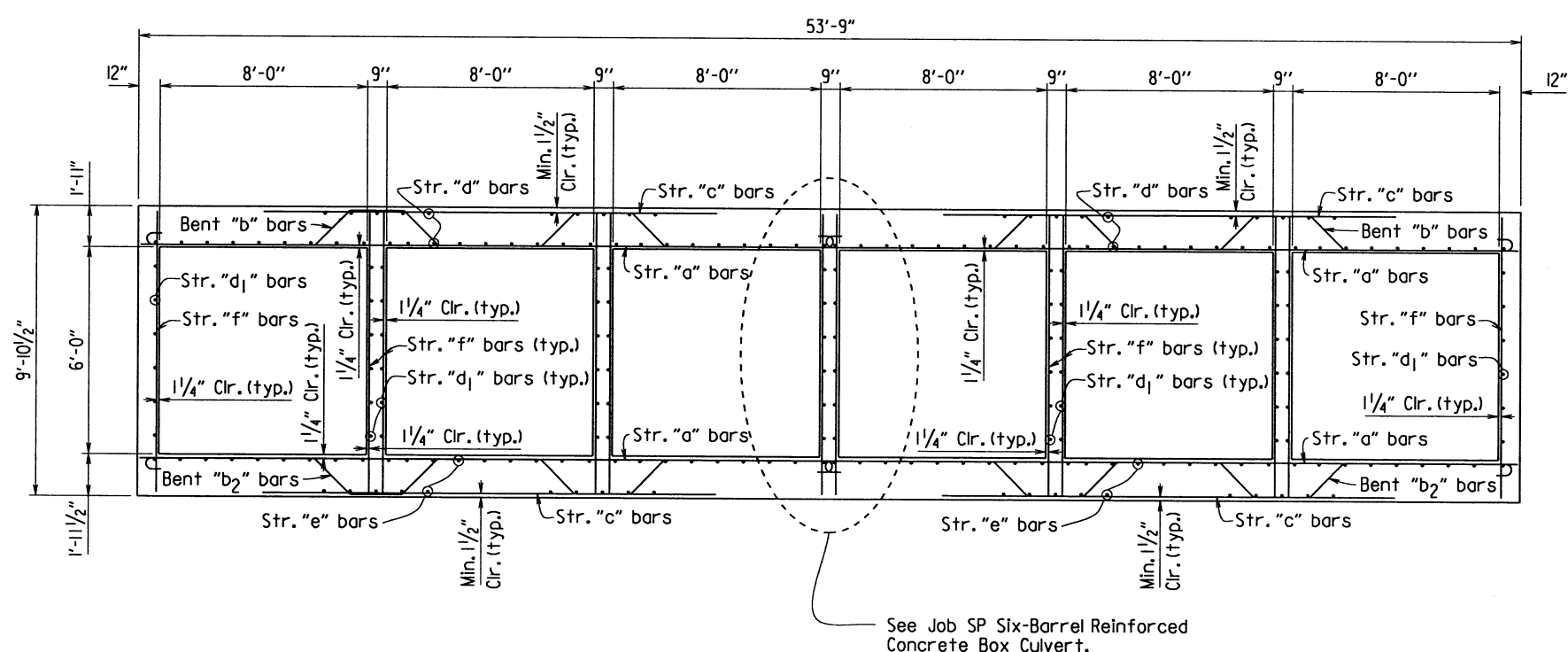
DESCRIPTION	CLASS "S" CONCRETE (cu. yd. / L.F.)	REINFORCING STEEL (lbs. / L.F.)
SECTION "A"	See "TOTAL QUANTITIES"	
SECTION "B"	4.277	761.43
SECTION "C"	4.616	857.61
SECTION "D"	4.968	883.01
SECTION "G"	7.551	824.09
SECTION "J"	8.992	876.72

* Per Linear Foot of Barrel Length.

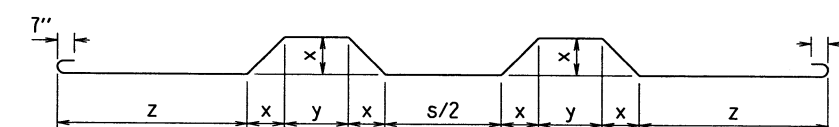
Bent "b" & Bent "b₂" bars

		x	y	z
SECTION "G"	b Bar	15 1/4"	2'-2 1/2"	6'-8"
	b ₂ Bar	15 3/4"	2'-1 1/2"	6'-8"
SECTION "J"	b Bar	19 1/4"	1'-6 1/2"	6'-10"
	b ₂ Bar	19 3/4"	1'-5 1/2"	6'-10"

SECTION J
55' Maximum Fill Height



Str. "a" bars - #6 @ 14"
Bent "b" bars - #7 @ 14"
Bent "b ₂ " bars - #7 @ 14"
Str. "c" bars - #7 @ 14"
Str. "d" bars - #4 @ 12"
Str. "d ₁ " bars - #4 @ 12"
Str. "e" bars - #4 @ 12"
Str. "f" bars - #4 @ 6"



Bent "b" & Bent "b₂" bars
Dimensions are to center of bars.
Pin Dia. = 5/4"

Note: Top Slab

Str. "c" bars shall alternate with Bent "b" bars.
Str. "a" bars shall alternate with Bent "b" bars.

Bottom Slab

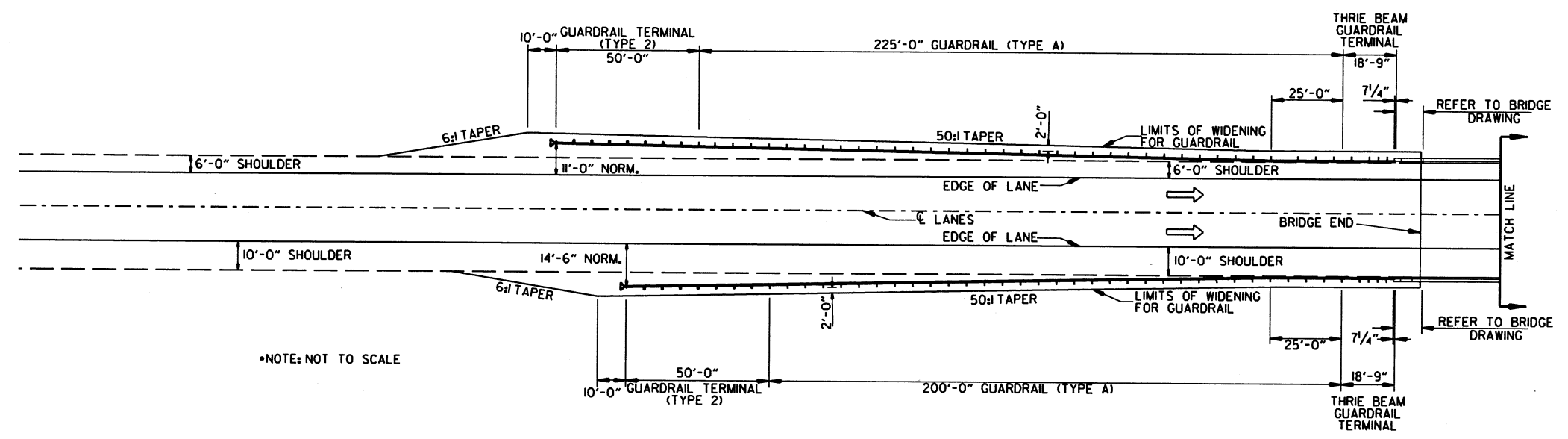
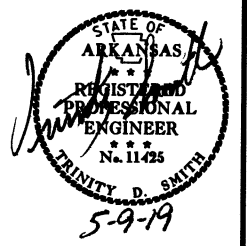
Str. "c" bars shall alternate with Bent "b₂" bars.
Str. "a" bars shall alternate with Bent "b₂" bars.

Sextuple Box Culvert 8' x 6' x 694'
Sta. 423+87

SPECIAL DETAILS

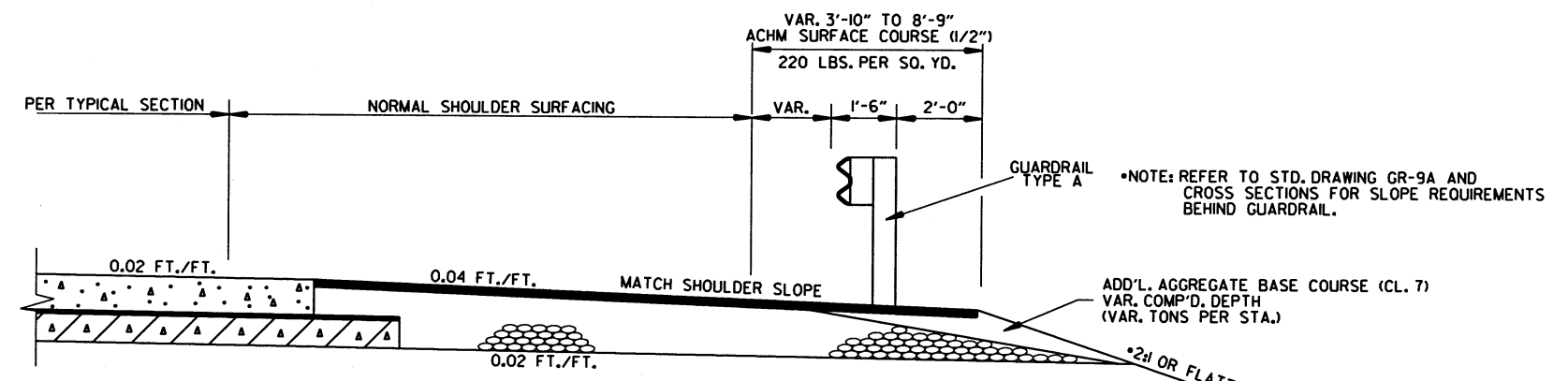
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		13	160
						JOB NO. CA0905		

2 SPECIAL DETAILS

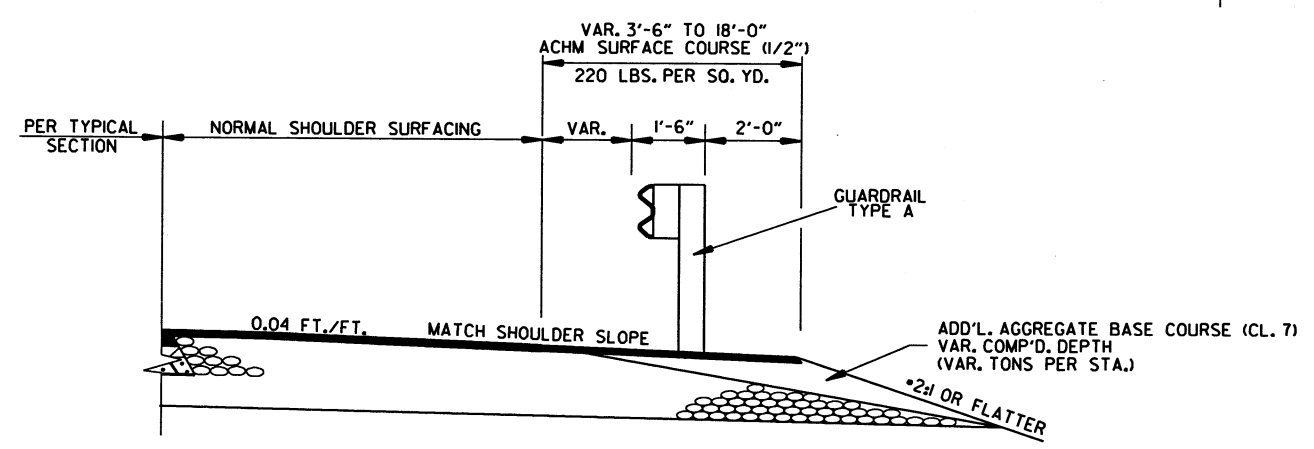


NOTE: NOT TO SCALE

TYPICAL LAYOUT OF GUARDRAIL AT BRIDGE ENDS



SECTION DETAIL OF WIDENING FOR GUARDRAIL
HWY. 549 - ALTERNATE 1
NOTE: REFER TO STANDARD DRAWINGS, GR-8, GR-8A, GR-9, GR-9A, GR-10, GR-11, & GR-12 FOR ADDITIONAL INFORMATION.



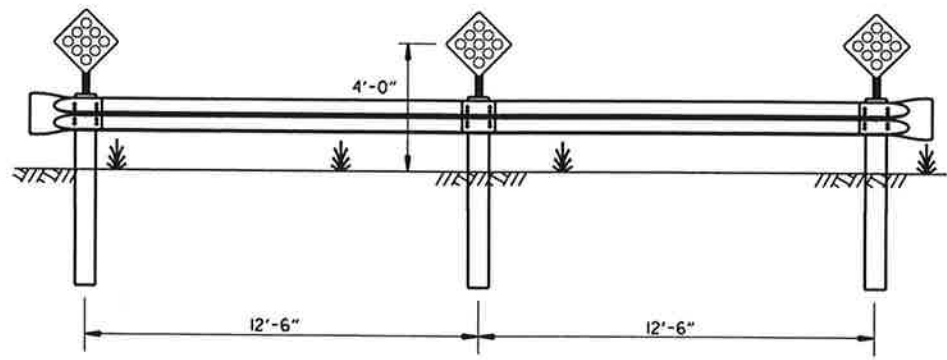
SECTION DETAIL OF WIDENING FOR GUARDRAIL
HWY. 549 - ALTERNATE 2
NOTE: REFER TO STANDARD DRAWINGS, GR-8, GR-8A, GR-9, GR-9A, GR-10, GR-11, & GR-12 FOR ADDITIONAL INFORMATION.

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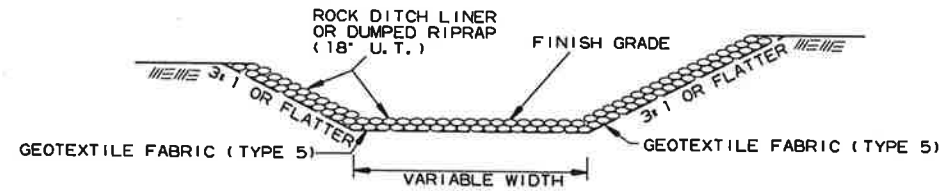
DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6-26-19				6	ARK.			
						JOB NO. CA0905	14	160

2 SPECIAL DETAILS

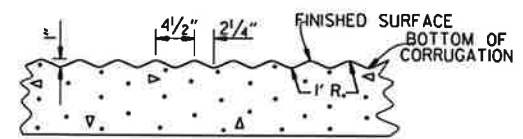


CONSTRUCT
25 LIN. FT. TYPE "C" GUARDRAIL
WITH 3 RED DIAMOND REFLECTORS
MOUNTED ON U-CHANNEL POSTS
DIRECTLY BEHIND THE GUARDRAIL
AT A HEIGHT OF 4'-0".

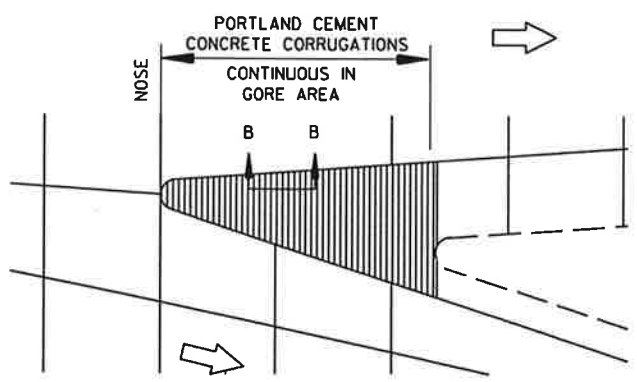
ROAD CLOSED DETAIL
TO BE USED WHERE EXISTING
ROADS WILL BE PERMANENTLY CLOSED.
SEE PLAN SHEETS FOR LOCATIONS
SEE STD. DWG. GR-7 FOR
MORE DETAILS.



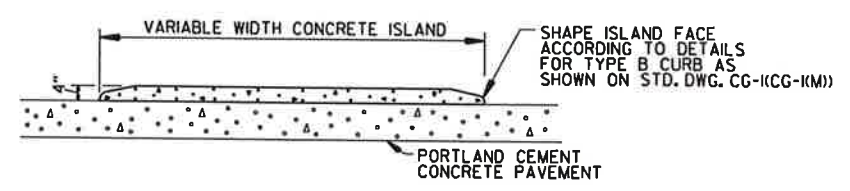
DETAILS OF ROCK DITCH LINER OR DUMPED RIPRAP



SECTION B-B



LAYOUT OF SHOULDER CORRUGATIONS
IN EXIT GORE AREAS
ALTERNATE 1



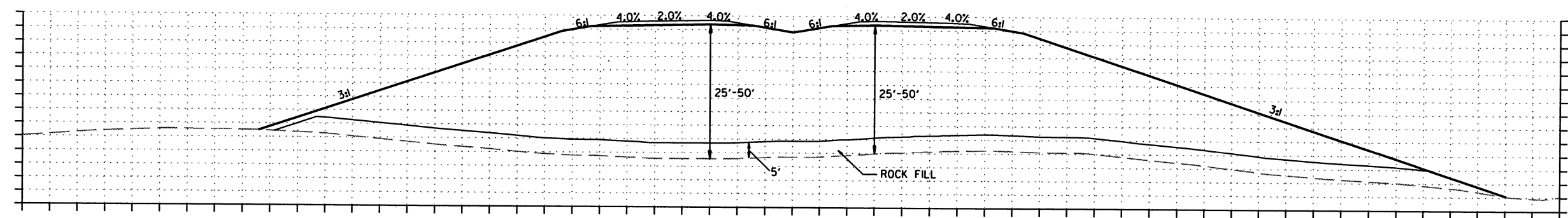
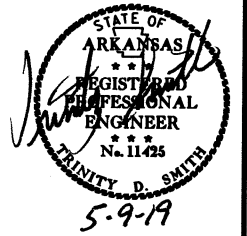
DETAILS OF ISLAND ON P.C. CONCRETE PAVEMENT

3/28/2019

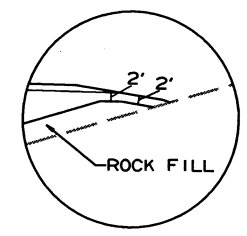
RC40905.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	CA0905		15	160

② SPECIAL DETAILS

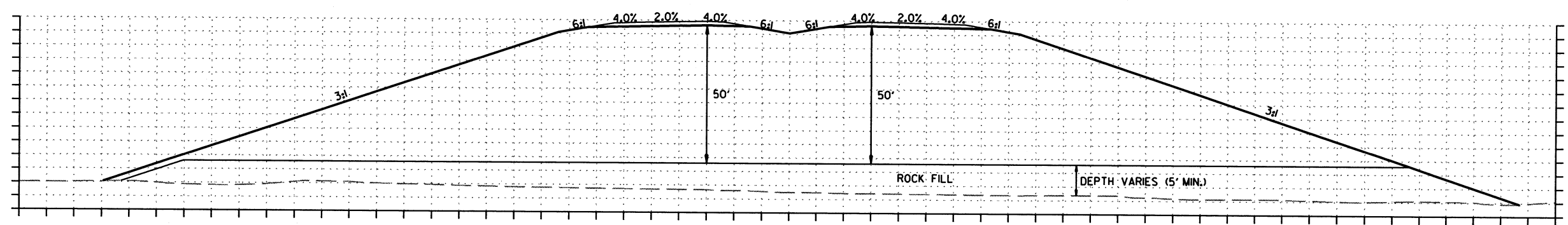


TYPICAL PLACEMENT OF ROCK FILL FOR COMPACTED EMBANKMENT DEPTHS OF 25'-50'



DETAIL FOR PLACEMENT OF ROCK FILL

NOTES:
 FOR ALL COMPACTED EMBANKMENT DEPTHS GREATER THAN 25' BUT LESS THAN 50' THERE SHALL BE A 5' LAYER OF ROCK FILL ALONG THE EXISTING SURFACE.
 FOR ALL COMPACTED EMBANKMENT DEPTHS GREATER THAN 50' THERE SHALL BE A ROCK FILL LAYER FROM 50' TO THE EXISTING SURFACE.
 AT THE UPHILL INTERFACE BETWEEN THE ROCK FILL LAYER AND THE PROPOSED FORESLOPE, THERE SHALL BE A 2' BUFFER OF UNSPECIFIED MATERIAL BETWEEN THE ROCK FILL AND BOTH THE FORESLOPE AND/OR SUBGRADE. AT THE DOWNHILL INTERFACE, THE ROCK FILL SHALL BE CONTINUOUS OUT TO THE FORESLOPE. (SEE DETAIL FOR PLACEMENT OF ROCK FILL.)
 THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE TO ALL ROCK FILL.
 REFER TO "ROCK FILL" SPECIAL PROVISION FOR ADDITIONAL INFORMATION.



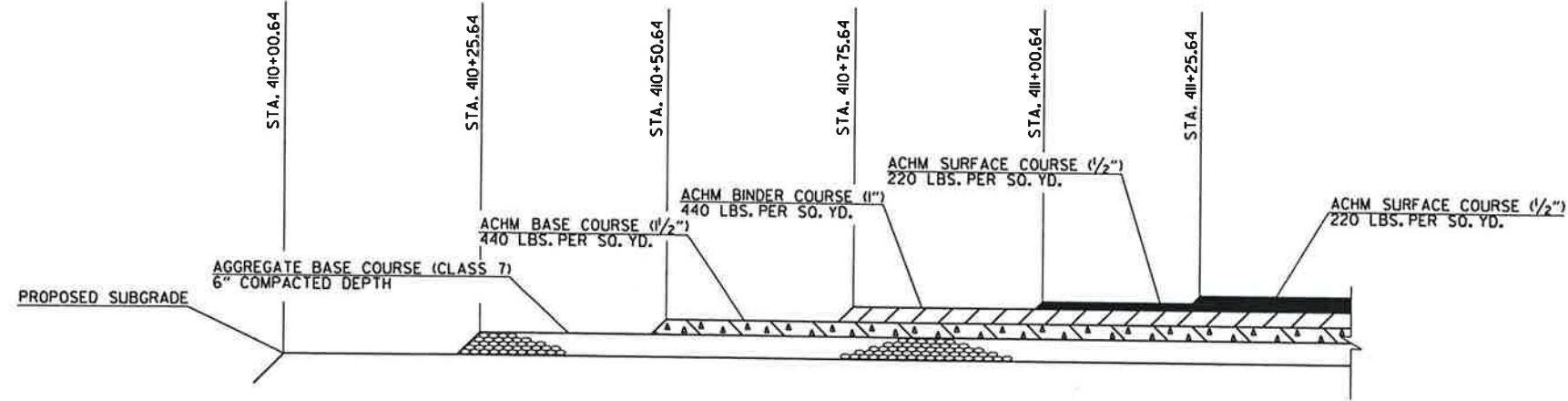
TYPICAL PLACEMENT OF ROCK FILL FOR COMPACTED EMBANKMENT DEPTHS OF GREATER THAN 50'

3/28/2019

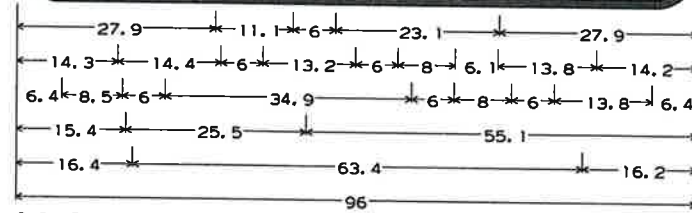
CA0905.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6-26-19				6	ARK.			
							JOB NO. CA0905	16 160

2 SPECIAL DETAILS



DETAIL OF PAVEMENT TRANSITION - ALTERNATE 2
AT END OF JOB



6.0' Radius, 1.3' Border, Black on Orange;
 * Job 090298* C 2K; *Start Date Mo Year* C 2K;
 Est Completion Mo Year C 2K; *IDRIVE
 * ARKANSAS.COM * Arial;

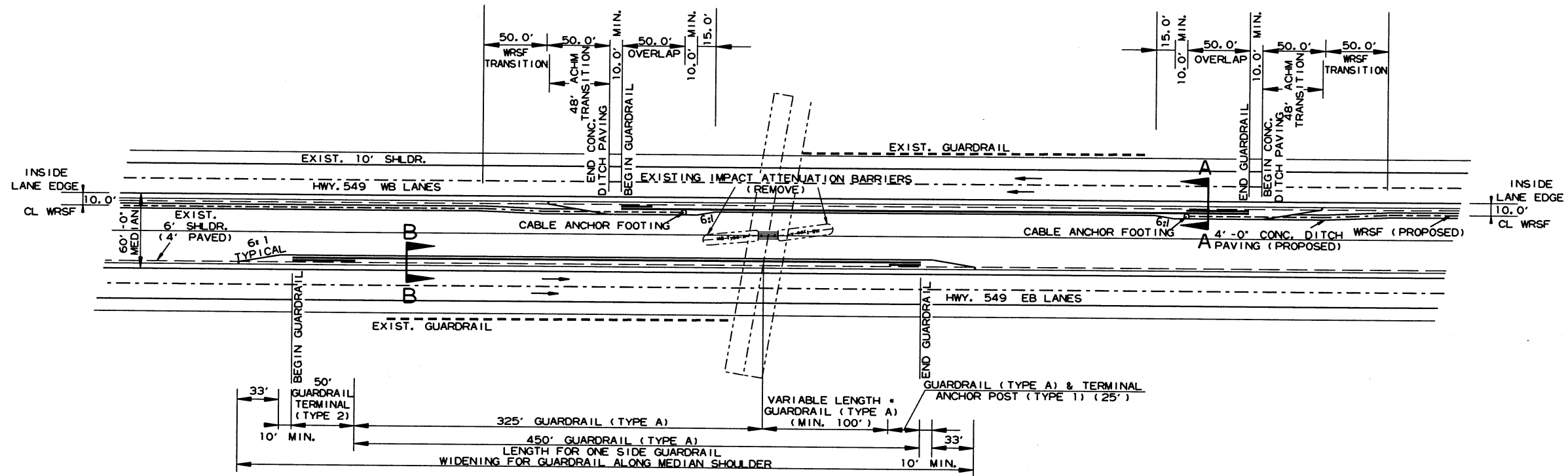
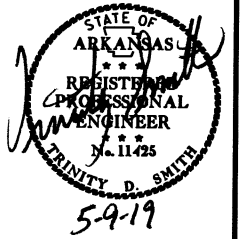
CONSTRUCTION PROJECT INFORMATION SIGN

3/28/2019

RC40905.DGN

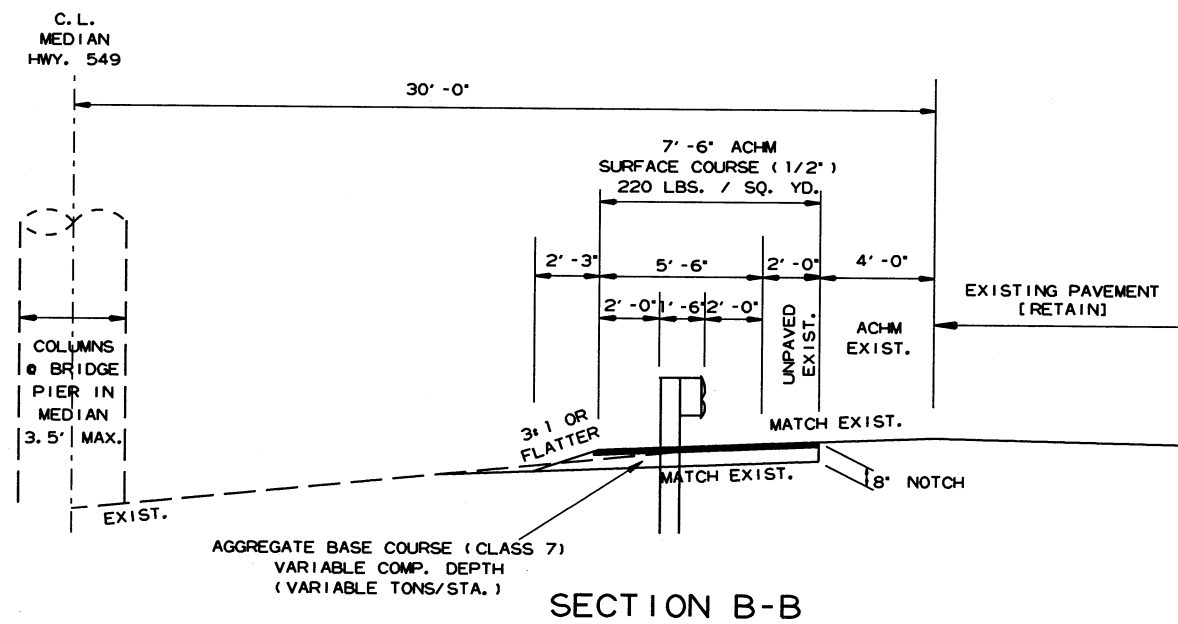
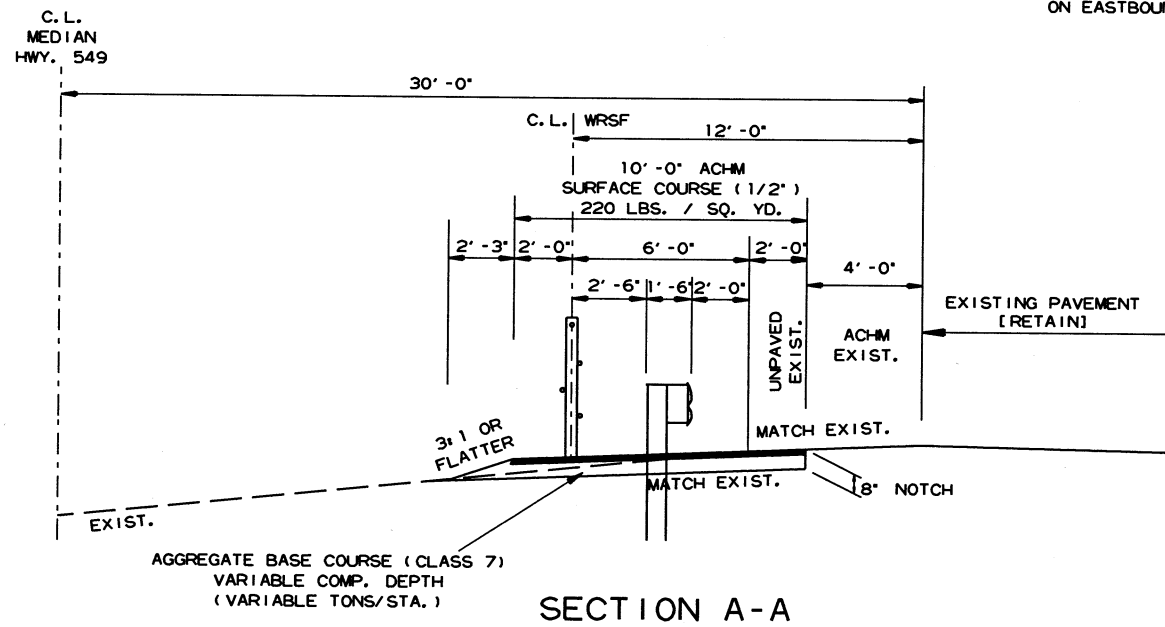
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. CA0905							17	160

2 SPECIAL DETAILS



DETAIL AT OVERPASSES

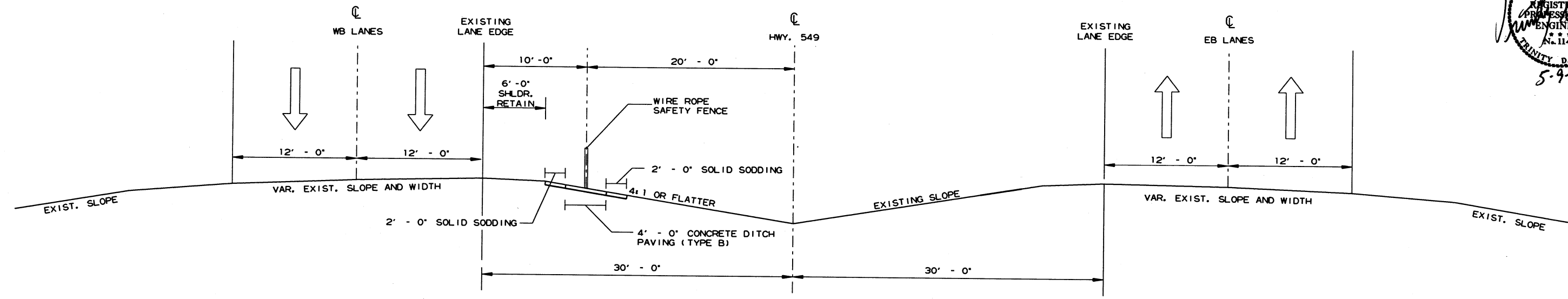
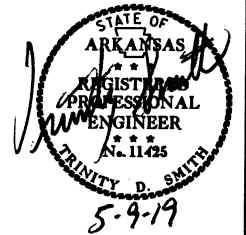
NOTE: REFER TO PLAN SHEETS FOR PLACEMENT OF WIRE ROPE SAFETY FENCE ON EASTBOUND OR WESTBOUND FORESLOPES.



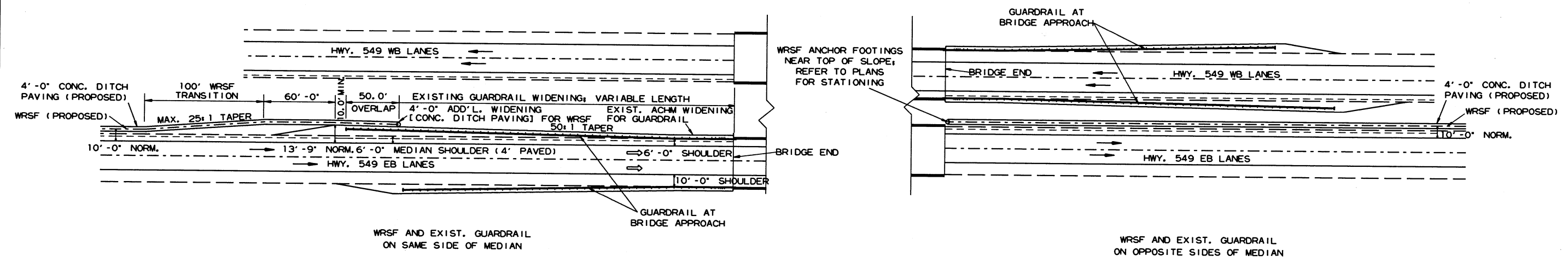
DETAILS OF SHOULDER WIDENING FOR GUARDRAIL AND OVERLAPS WITH ENDS OF WIRE ROPE SAFETY FENCE

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. CA0905							18	160

2 SPECIAL DETAILS



TYPICAL SECTION OF IMPROVEMENT FOR WIRE ROPE SAFETY FENCE LEFT OF CENTERLINE



DETAIL OF WIRE ROPE SAFETY FENCE AT EXISTING BRIDGE ENDS

REFER TO PLANS FOR RELATIVE PLACEMENT OF GUARDRAIL AND WIRE ROPE SAFETY FENCE AT EACH BRIDGE END

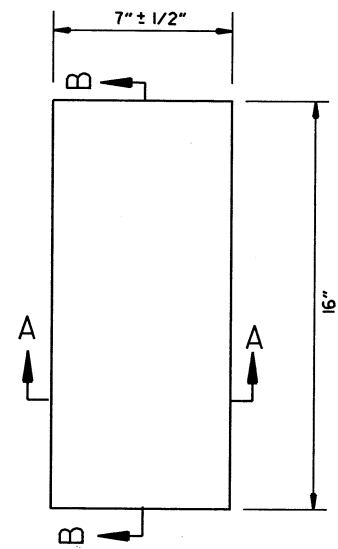
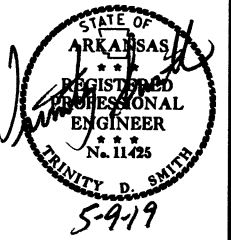
SPECIAL DETAILS

3/28/2019

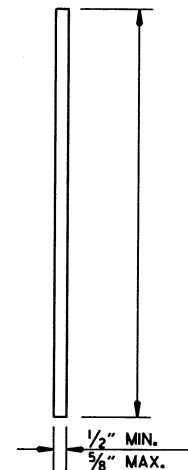
RC A0905.DGN

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. CA0905	19	160

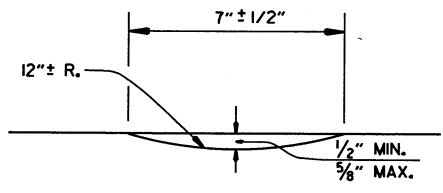
2 SPECIAL DETAILS



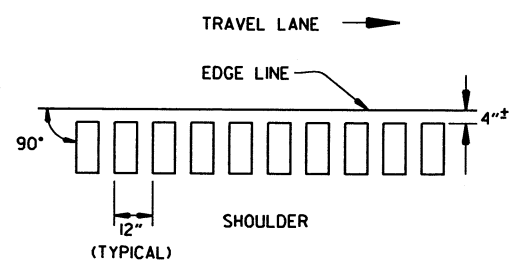
PLAN



SECTION B-B

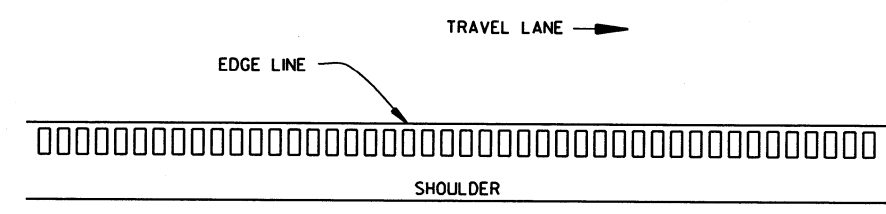
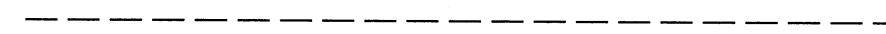
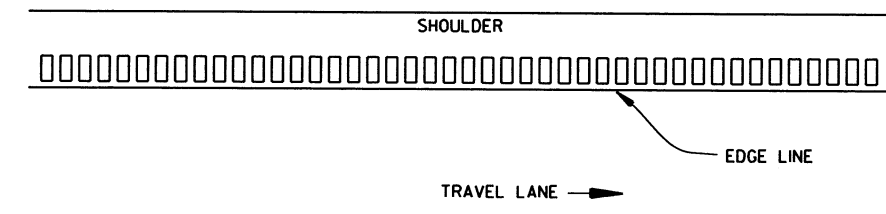


SECTION A-A



LOCATION PLAN OF RUMBLE STRIPS
LEFT OR RIGHT SHOULDER

DETAILS OF RUMBLE STRIPS



PLAN VIEW

NOTES:

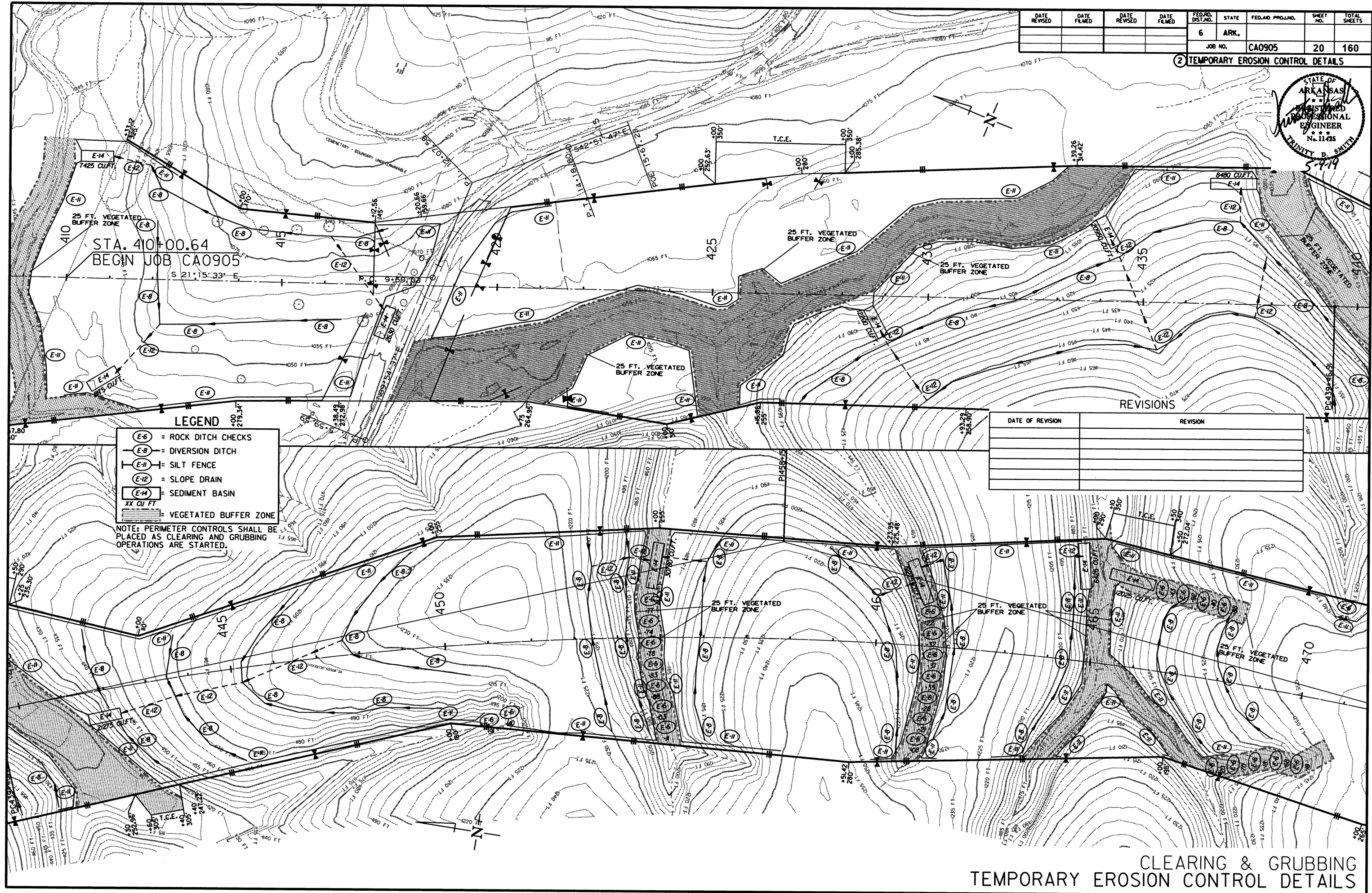
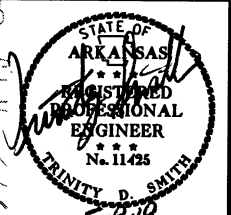
1. ALIGNMENT OF RUMBLE STRIPS SHALL GENERALLY BE STRAIGHT AND OFFSET APPROXIMATELY 4" FROM THE OUTER EDGE OF THE EDGE LINE. THIS OFFSET MAY BE ADJUSTED TO ACCOMMODATE VARIATIONS IN THE EDGE LINE.
2. THE 1/2" DEPTH SHALL GENERALLY APPLY FOR THE ENTIRE 16" LENGTH. SOME VARIATION TO SUIT SHOULDER SLOPE BREAKS MAY BE NECESSARY.
3. RUMBLE STRIPS SHALL NOT BE INSTALLED ON BRIDGE DECKS, APPROACH SLABS, OR ACROSS TRANSVERSE JOINTS OF CONCRETE SHOULDERS.

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				6	ARK.		20	160
						JOB NO. CA0905		

2 TEMPORARY EROSION CONTROL DETAILS



STA. 410+00.64
BEGIN JOB CA0905
S 21°15'33" E

- LEGEND**
- E-6 = ROCK DITCH CHECKS
 - E-8 = DIVERSION DITCH
 - E-11 = SILT FENCE
 - E-12 = SLOPE DRAIN
 - E-14 = SEDIMENT BASIN
 - XX CU FT = VEGETATED BUFFER ZONE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

REVISIONS

DATE OF REVISION	REVISION

CLEARING & GRUBBING
TEMPORARY EROSION CONTROL DETAILS

RC-A0905.DGN 3/19/2019

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. CA0905	21	160

2 TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
 REGISTERED PROFESSIONAL ENGINEER
 No. 11425
 TRINITY D. SMITH
 5-9-19



LEGEND

- (E-6) = ROCK DITCH CHECKS
- (E-8) = DIVERSION DITCH
- (E-11) = SILT FENCE
- (E-12) = SLOPE DRAIN
- (E-14) = SEDIMENT BASIN
- XX CU FT = VEGETATED BUFFER ZONE

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

REVISIONS







DATE OF REVISION	REVISION

3/19/2019

RC40905.DGN

CLEARING & GRUBBING
 TEMPORARY EROSION CONTROL DETAILS

LEGEND

-  = ROCK DITCH CHECKS
-  = DIVERSION DITCH
-  = SILT FENCE
-  = SLOPE DRAIN
-  = SEDIMENT BASIN
-  = VEGETATED BUFFER ZONE

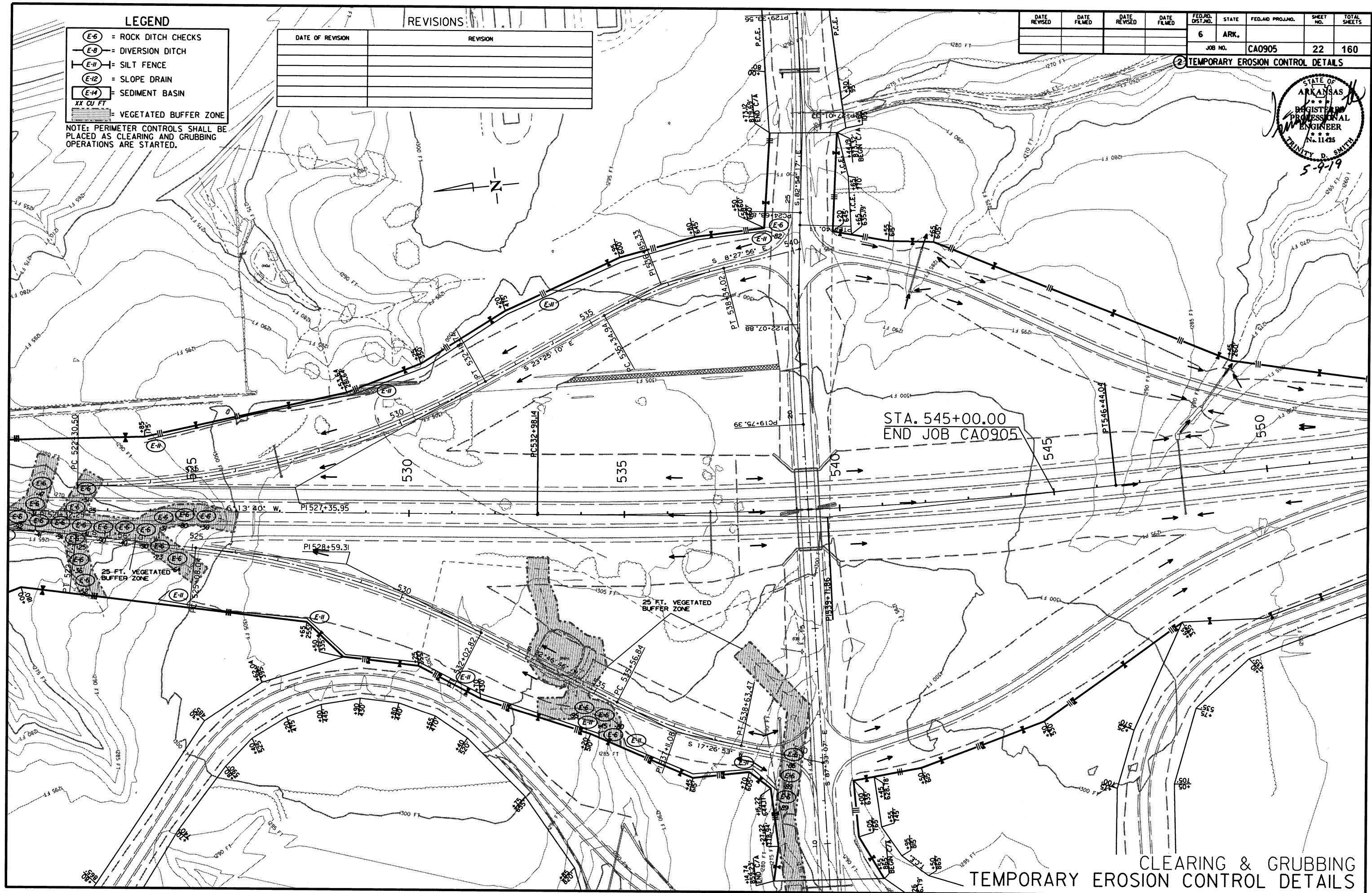
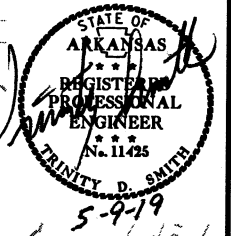
NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

REVISIONS

DATE OF REVISION	REVISION

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		22	160
				JOB NO. CA0905				

2) TEMPORARY EROSION CONTROL DETAILS



STA. 545+00.00
END JOB CA0905

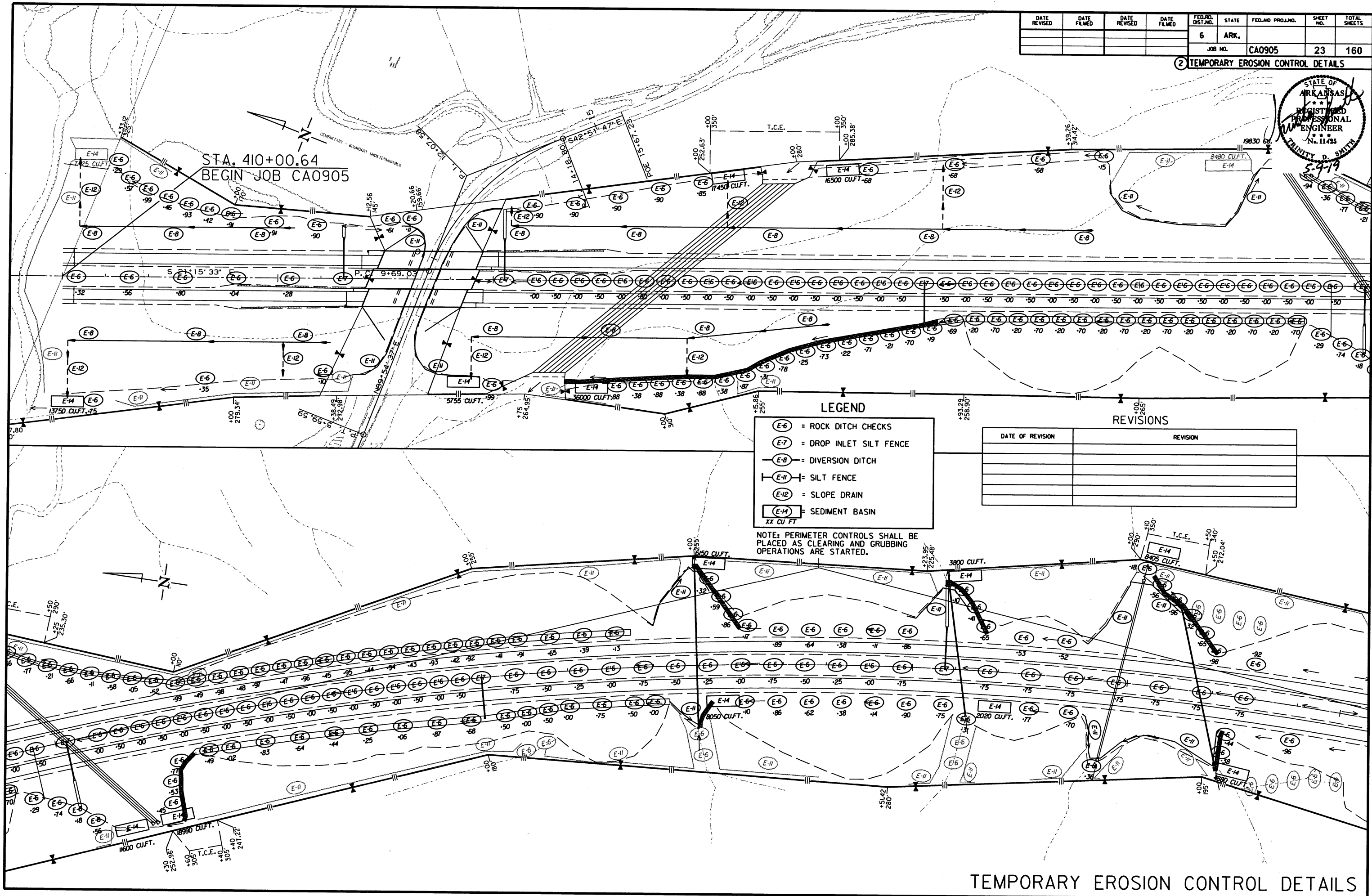
CLEARING & GRUBBING
TEMPORARY EROSION CONTROL DETAILS

3/19/2019

RC-A0905.DGN

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		23	160

2 TEMPORARY EROSION CONTROL DETAILS



- LEGEND**
- (E-6) = ROCK DITCH CHECKS
 - (E-7) = DROP INLET SILT FENCE
 - (E-8) = DIVERSION DITCH
 - (E-11) = SILT FENCE
 - (E-12) = SLOPE DRAIN
 - (E-14) = SEDIMENT BASIN
XX CU FT

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

REVISIONS

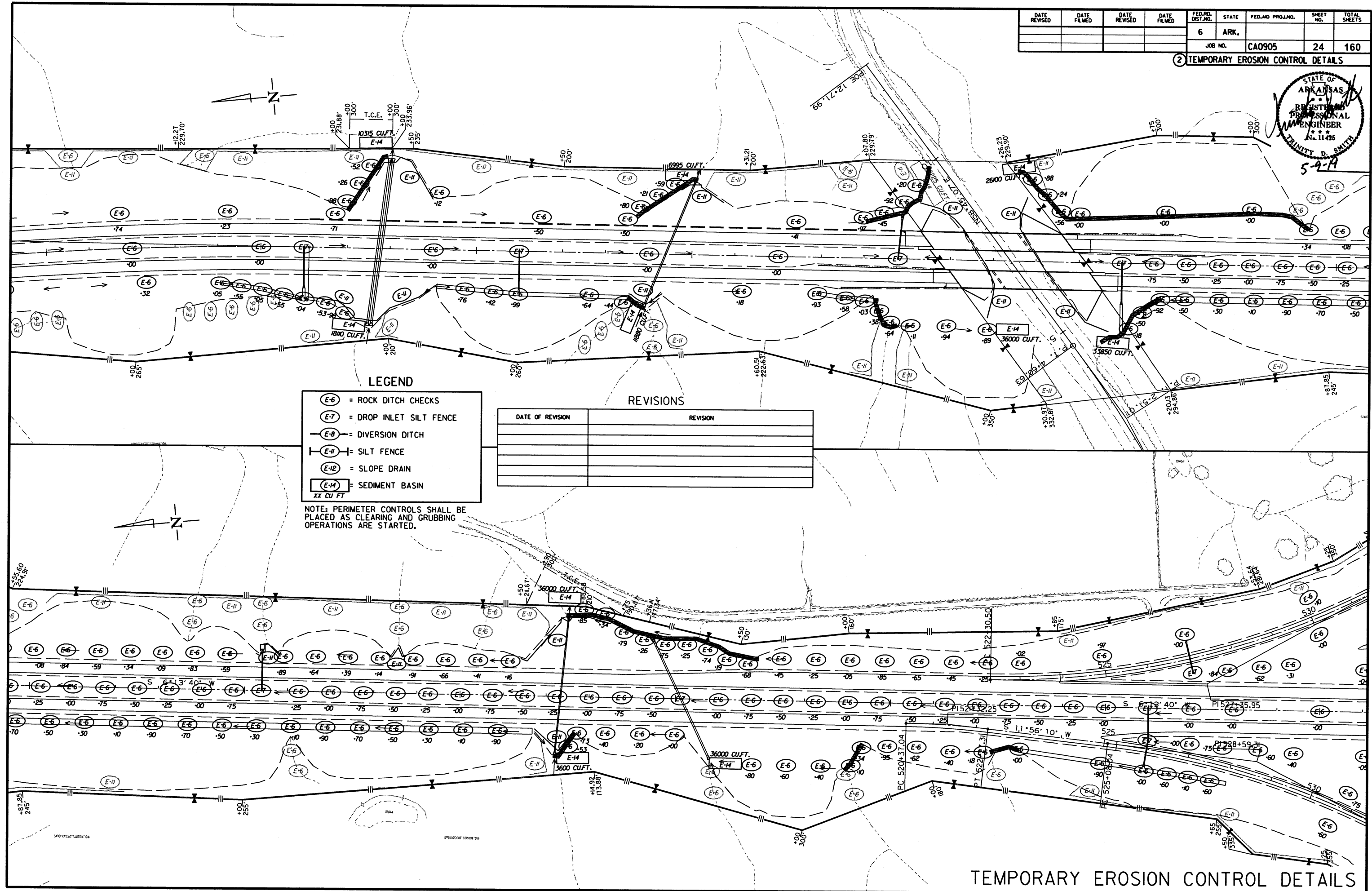
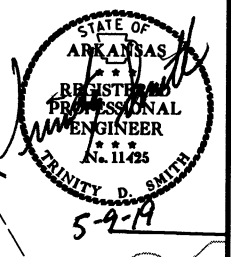
DATE OF REVISION	REVISION

RCA0905.DGN 3/19/2019

TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		24	160
				JOB NO.		CA0905		

2 TEMPORARY EROSION CONTROL DETAILS



TEMPORARY EROSION CONTROL DETAILS

3/19/2019

RC40905.DGN

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. CA0905							25	160

LEGEND

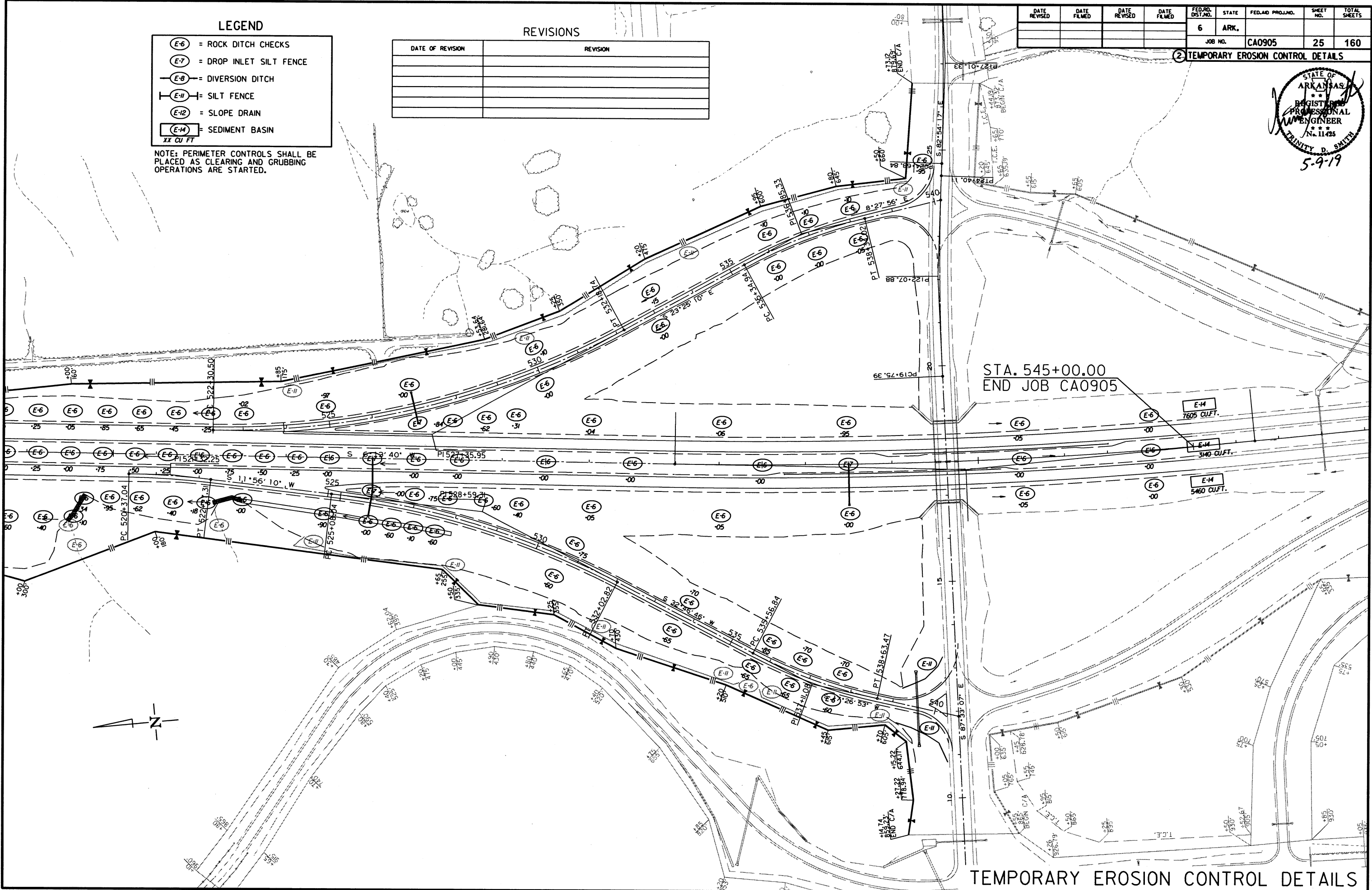
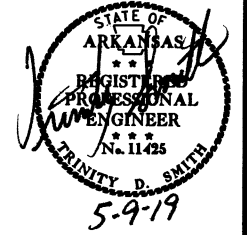
- = ROCK DITCH CHECKS
- = DROP INLET SILT FENCE
- = DIVERSION DITCH
- = SILT FENCE
- = SLOPE DRAIN
- = SEDIMENT BASIN

NOTE: PERIMETER CONTROLS SHALL BE PLACED AS CLEARING AND GRUBBING OPERATIONS ARE STARTED.

REVISIONS

DATE OF REVISION	REVISION

TEMPORARY EROSION CONTROL DETAILS

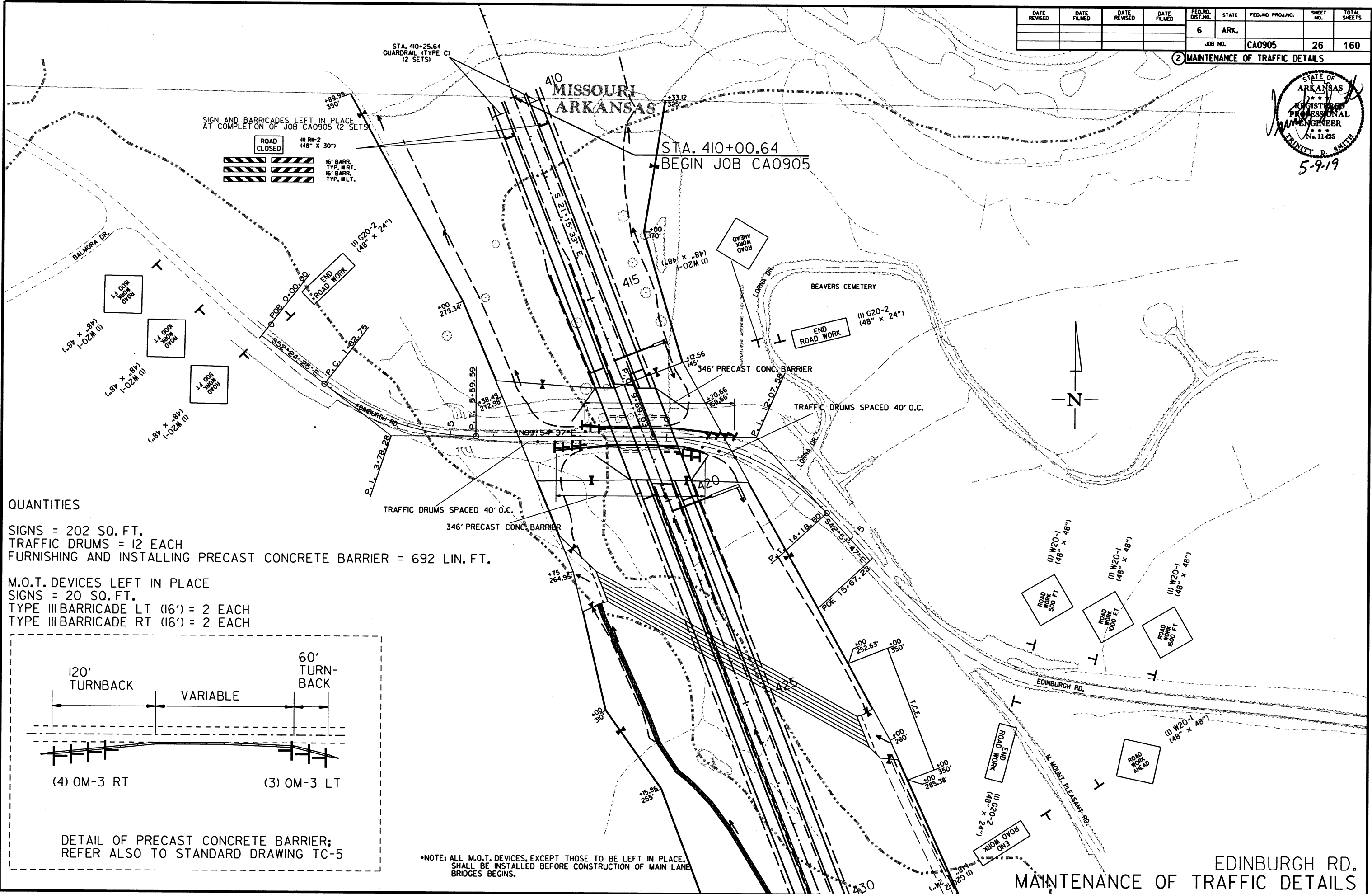
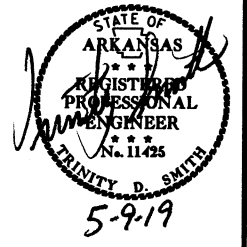


STA. 545+00.00
END JOB CA0905

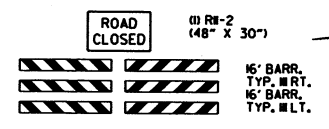
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	CA0905		26	160

2 MAINTENANCE OF TRAFFIC DETAILS



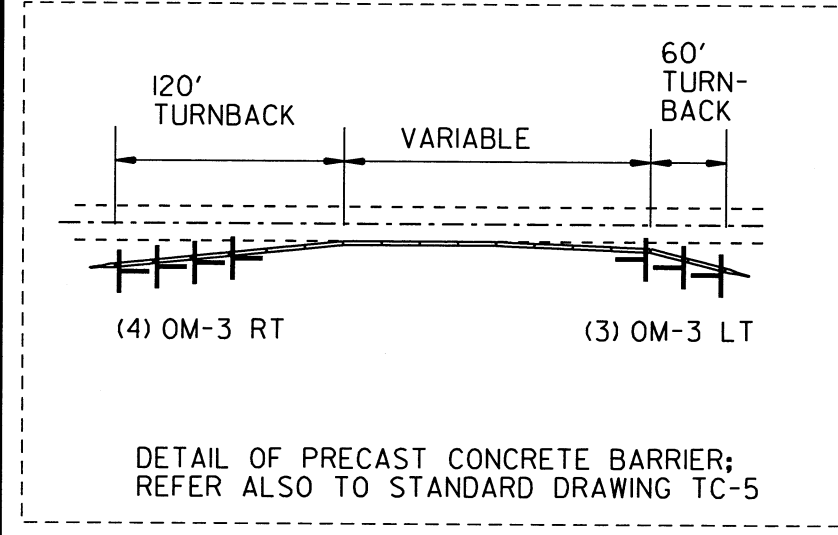
SIGN AND BARRICADES LEFT IN PLACE AT COMPLETION OF JOB CA0905 (2 SETS)



QUANTITIES

SIGNS = 202 SQ. FT.
 TRAFFIC DRUMS = 12 EACH
 FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER = 692 LIN. FT.

M.O.T. DEVICES LEFT IN PLACE
 SIGNS = 20 SQ. FT.
 TYPE III BARRICADE LT (16') = 2 EACH
 TYPE III BARRICADE RT (16') = 2 EACH



*NOTE: ALL M.O.T. DEVICES, EXCEPT THOSE TO BE LEFT IN PLACE, SHALL BE INSTALLED BEFORE CONSTRUCTION OF MAIN LANE BRIDGES BEGINS.

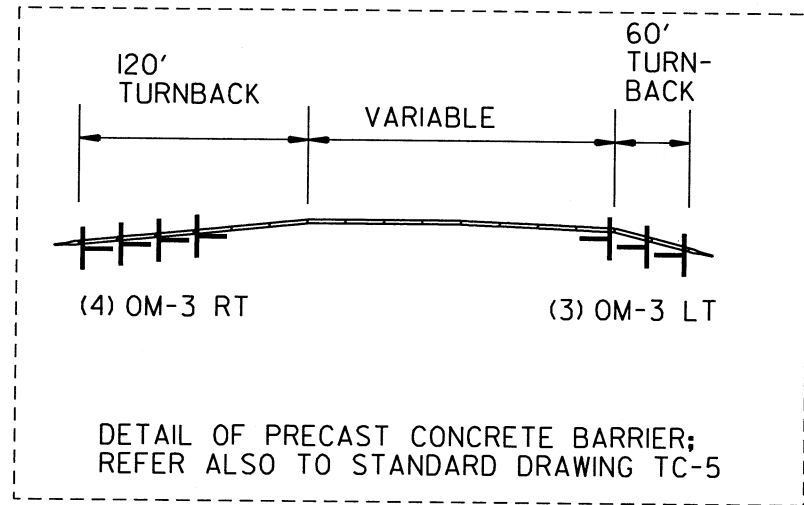
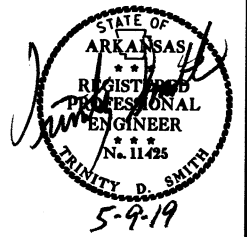
EDINBURGH RD.
 MAINTENANCE OF TRAFFIC DETAILS

4/25/2019

RC-A0905.DGN

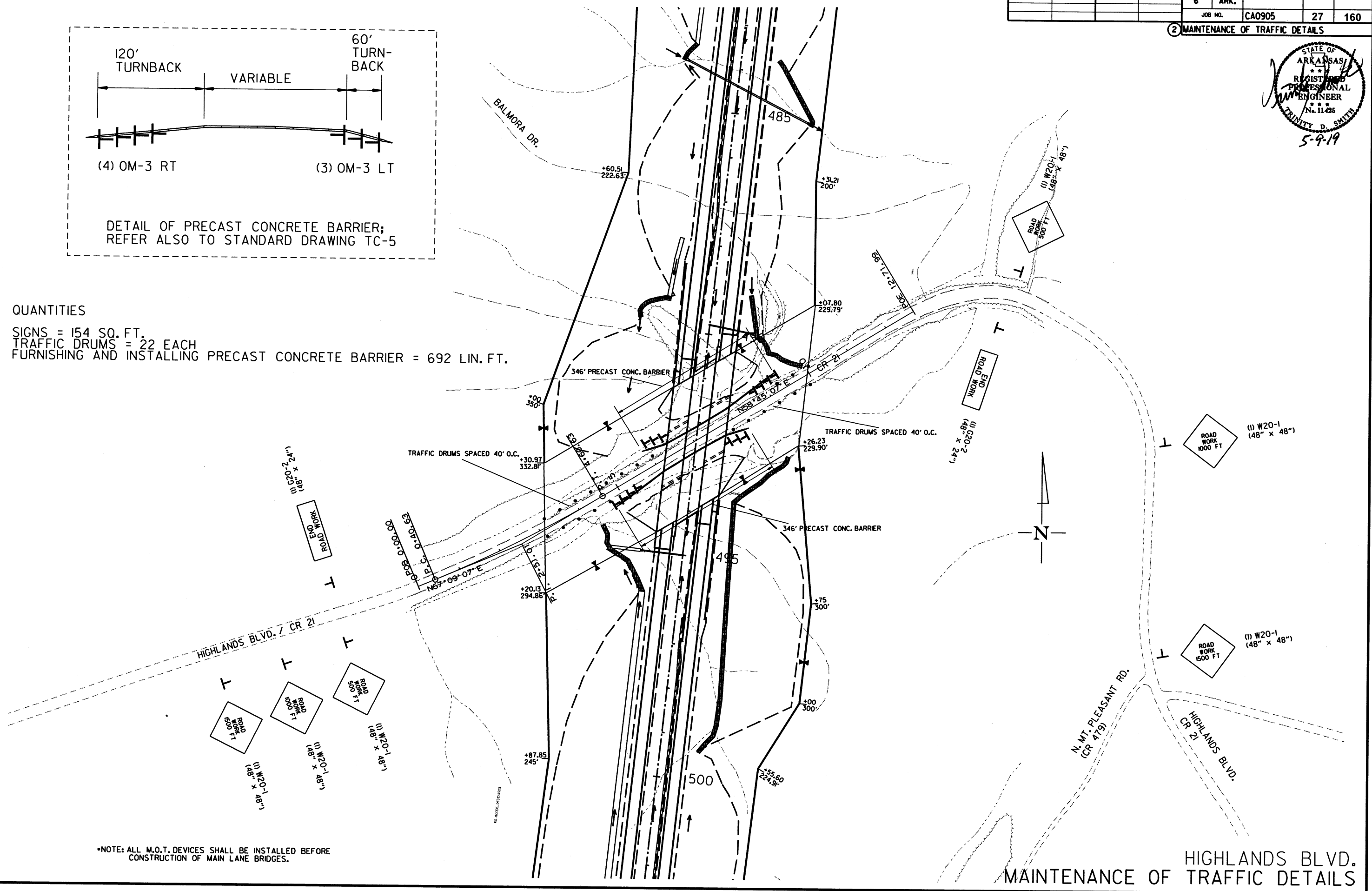
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. CA0905							27	160

2 MAINTENANCE OF TRAFFIC DETAILS



QUANTITIES

SIGNS = 154 SQ. FT.
 TRAFFIC DRUMS = 22 EACH
 FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER = 692 LIN. FT.



*NOTE: ALL M.O.T. DEVICES SHALL BE INSTALLED BEFORE CONSTRUCTION OF MAIN LANE BRIDGES.

HIGHLANDS BLVD.
 MAINTENANCE OF TRAFFIC DETAILS

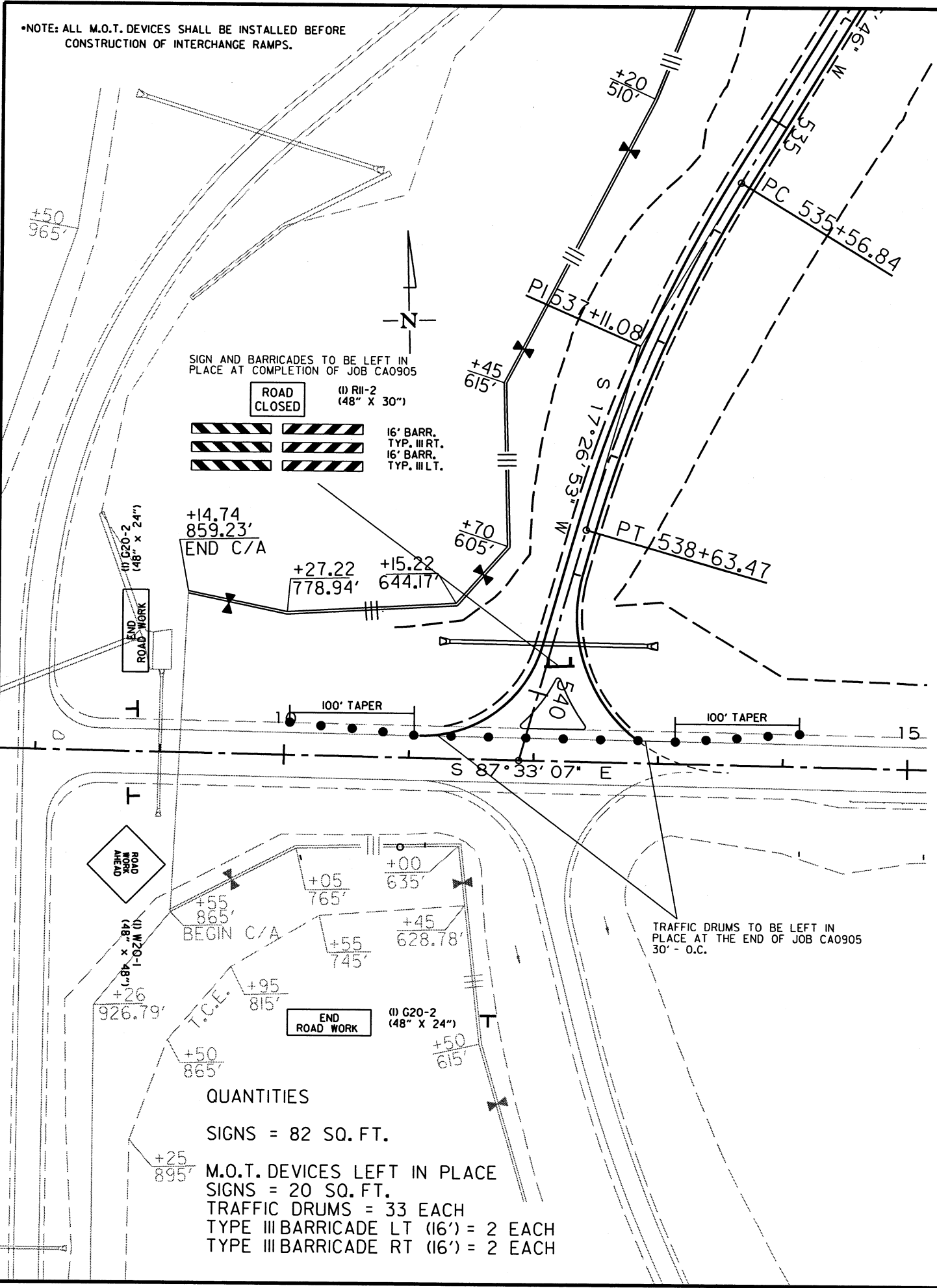
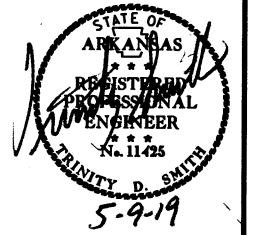
4/25/2019

RCA0905.DGN

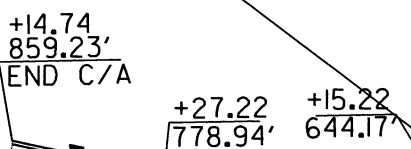
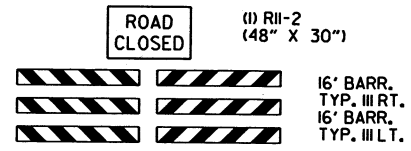
*NOTE: ALL M.O.T. DEVICES SHALL BE INSTALLED BEFORE CONSTRUCTION OF INTERCHANGE RAMPS.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		28	160
JOB NO. CA0905								

② MAINTENANCE OF TRAFFIC DETAILS

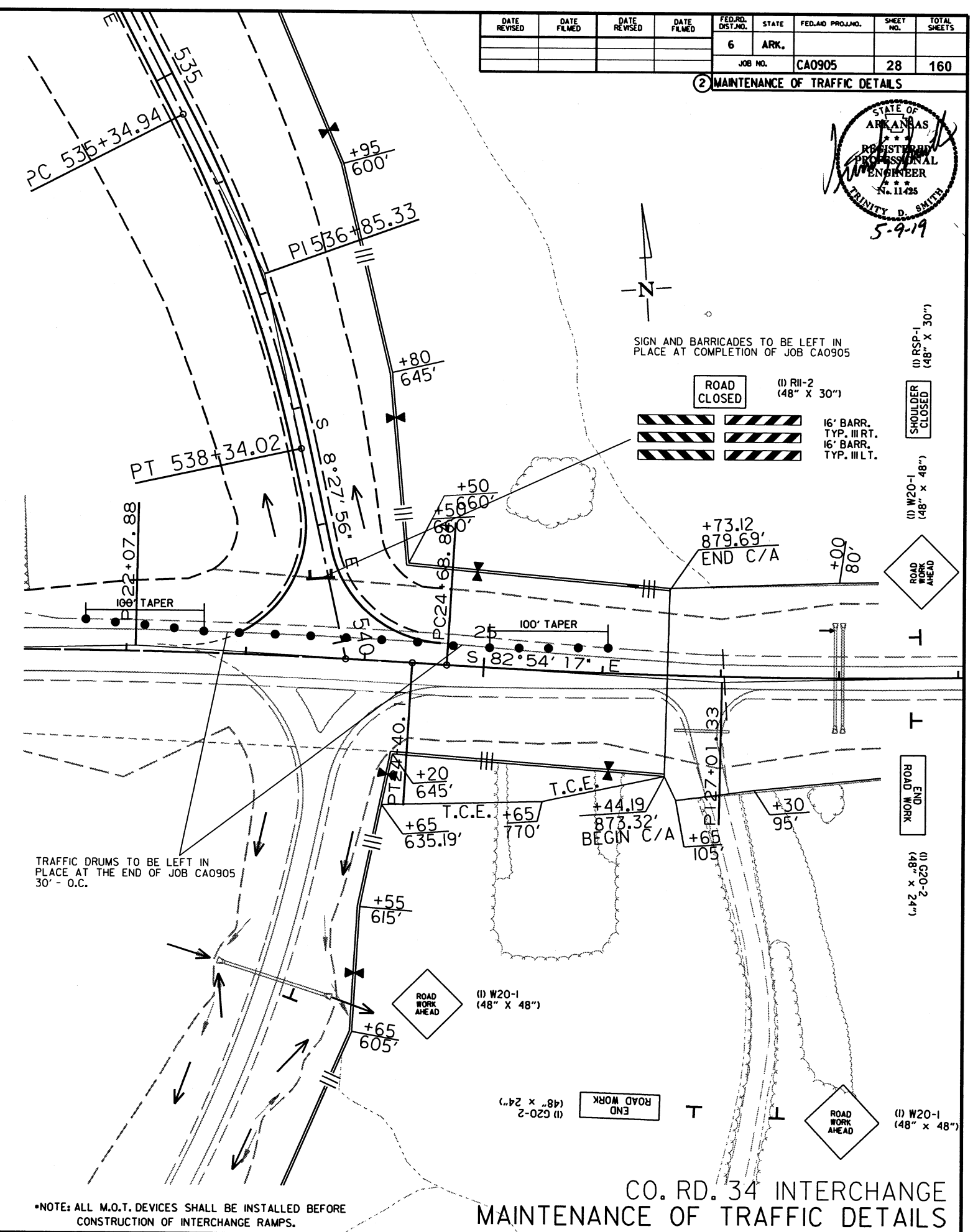


SIGN AND BARRICADES TO BE LEFT IN PLACE AT COMPLETION OF JOB CA0905

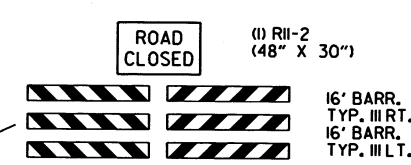


TRAFFIC DRUMS TO BE LEFT IN PLACE AT THE END OF JOB CA0905 30' - O.C.

- QUANTITIES
- SIGNS = 82 SQ. FT.
 - M.O.T. DEVICES LEFT IN PLACE SIGNS = 20 SQ. FT.
 - TRAFFIC DRUMS = 33 EACH
 - TYPE III BARRICADE LT (16') = 2 EACH
 - TYPE III BARRICADE RT (16') = 2 EACH



SIGN AND BARRICADES TO BE LEFT IN PLACE AT COMPLETION OF JOB CA0905



TRAFFIC DRUMS TO BE LEFT IN PLACE AT THE END OF JOB CA0905 30' - O.C.

CO. RD. 34 INTERCHANGE MAINTENANCE OF TRAFFIC DETAILS

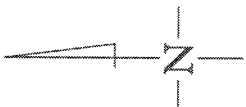
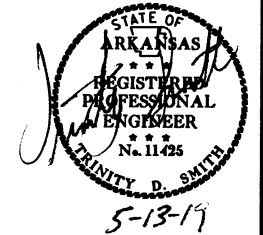
*NOTE: ALL M.O.T. DEVICES SHALL BE INSTALLED BEFORE CONSTRUCTION OF INTERCHANGE RAMPS.

4/25/2019

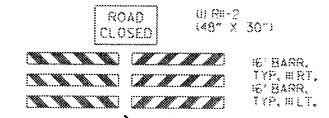
CA0905.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		29	160
				JOB NO.		CA0905		

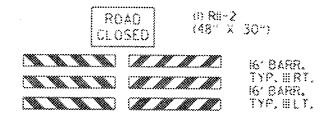
② MAINTENANCE OF TRAFFIC DETAILS



SIGN AND BARRICADES LEFT IN PLACE AT COMPLETION OF JOB 090293
RETAIN



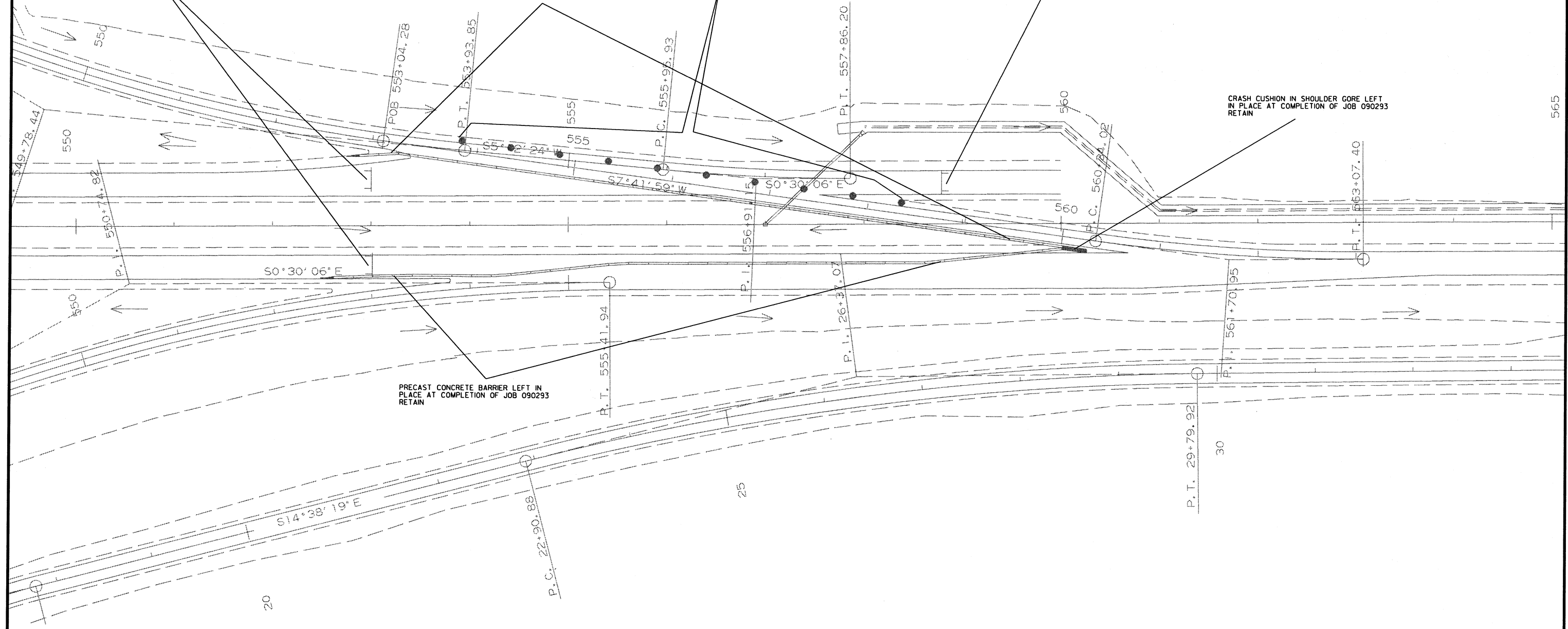
SIGN AND BARRICADES LEFT IN PLACE AT COMPLETION OF JOB 090293
RETAIN



10 TRAFFIC DRUMS LEFT IN PLACE AT COMPLETION OF JOB 090293
50' O.C. - RETAIN

PRECAST CONCRETE BARRIER LEFT IN PLACE AT COMPLETION OF JOB 090293
RETAIN

CRASH CUSHION IN SHOULDER GORE LEFT IN PLACE AT COMPLETION OF JOB 090293
RETAIN



PRECAST CONCRETE BARRIER LEFT IN PLACE AT COMPLETION OF JOB 090293
RETAIN

HWY. 549 (LEFT IN PLACE FROM JOB 090508)
MAINTENANCE OF TRAFFIC DETAILS

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PERMANENT PAVEMENT MARKINGS
 APPLY PERMANENT PAVEMENT MARKINGS ACCORDING TO STD. DWGS. PM-1 & PM-2.
 CONSULT CURRENT VERSION OF MUTCD FOR ADDITIONAL DETAILS.

ENHANCED THERMOPLASTIC PAVEMENT MARKING

- 6" WHITE = 34225 LIN. FT.
- 6" YELLOW = 27500 LIN. FT.
- 8" WHITE = 110 LIN. FT.

REFLECTORIZED PAVEMENT MARKING

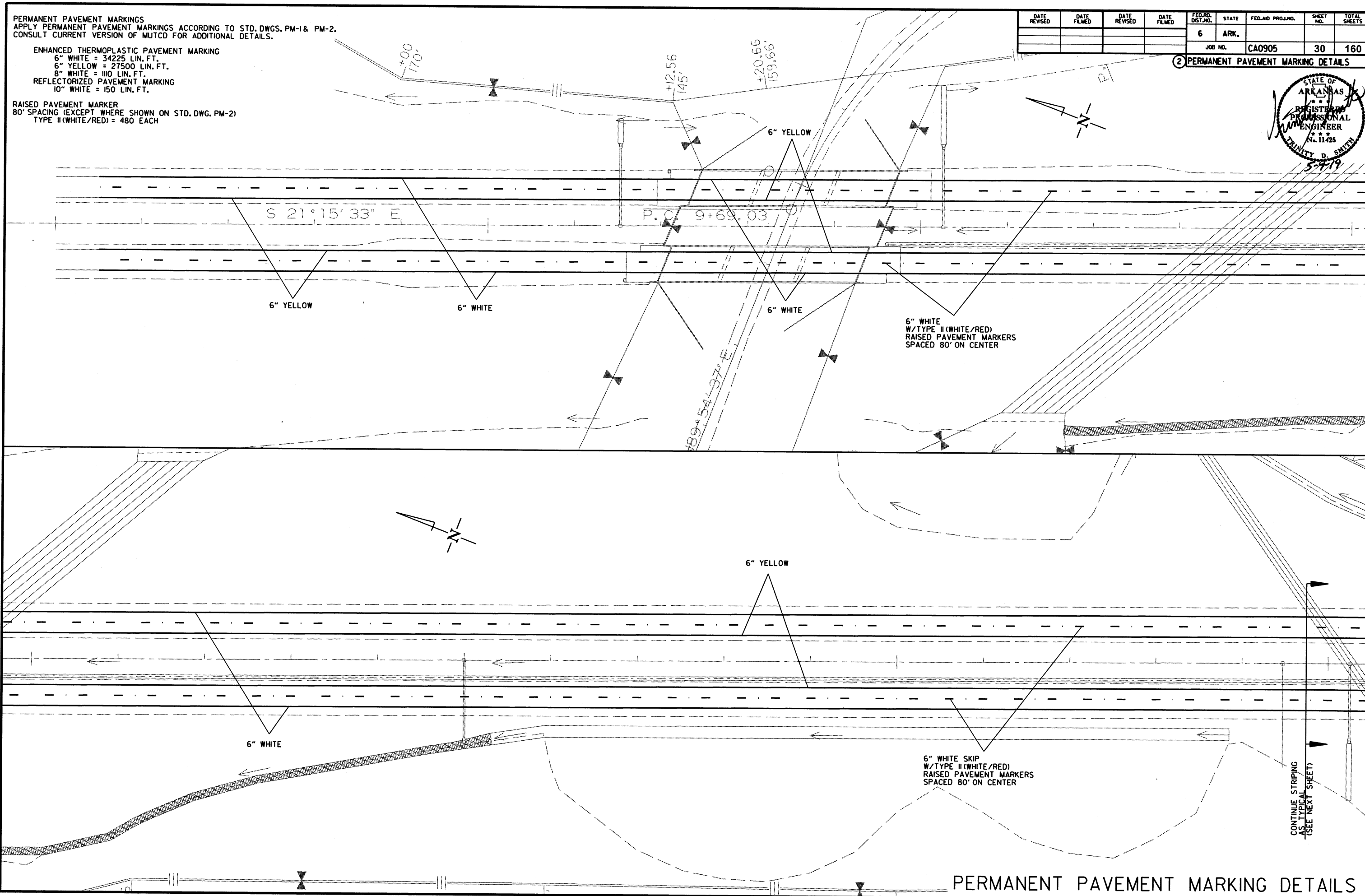
- 10" WHITE = 150 LIN. FT.

RAISED PAVEMENT MARKER

- 80' SPACING (EXCEPT WHERE SHOWN ON STD. DWG. PM-2)
- TYPE II (WHITE/RED) = 480 EACH

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				6	ARK.		30	160

2 PERMANENT PAVEMENT MARKING DETAILS



6" WHITE

6" YELLOW

6" WHITE SKIP
 W/TYPE II (WHITE/RED)
 RAISED PAVEMENT MARKERS
 SPACED 80' ON CENTER

CONTINUE STRIPING
 AS TYPICAL
 (SEE NEXT SHEET)

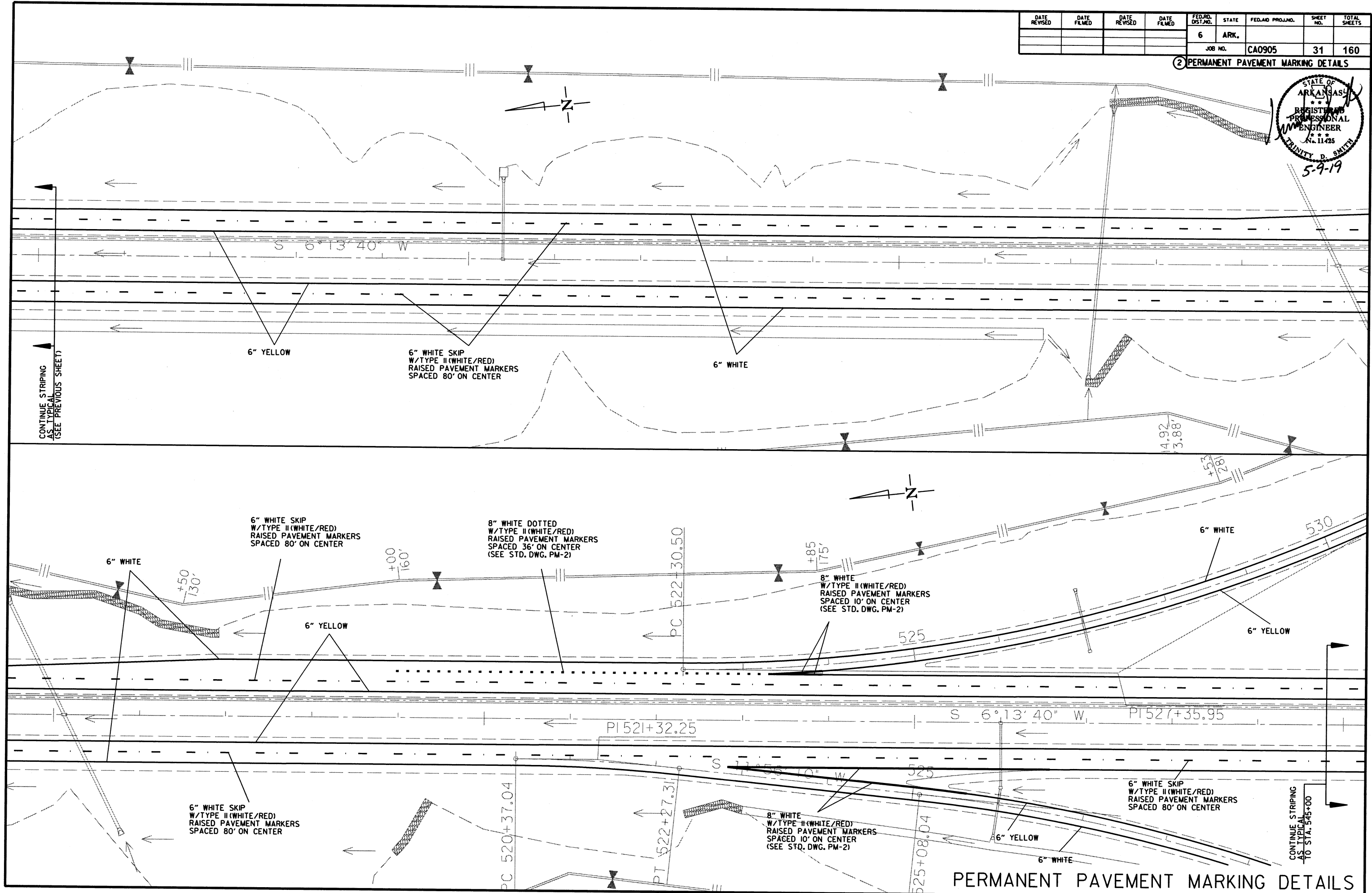
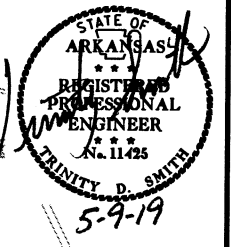
PERMANENT PAVEMENT MARKING DETAILS

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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.		31	160
				JOB NO. CA0905				

② PERMANENT PAVEMENT MARKING DETAILS



PERMANENT PAVEMENT MARKING DETAILS

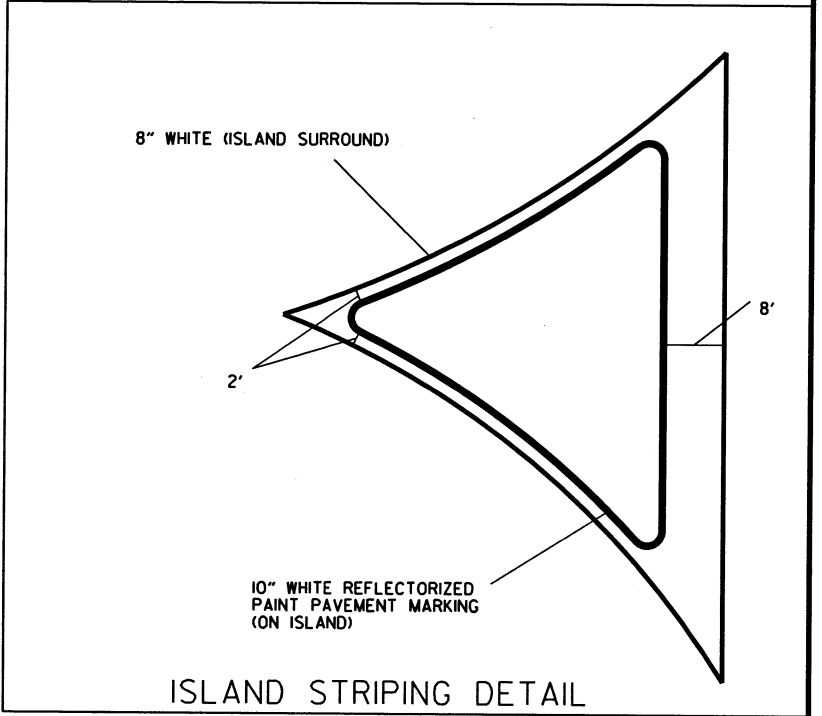
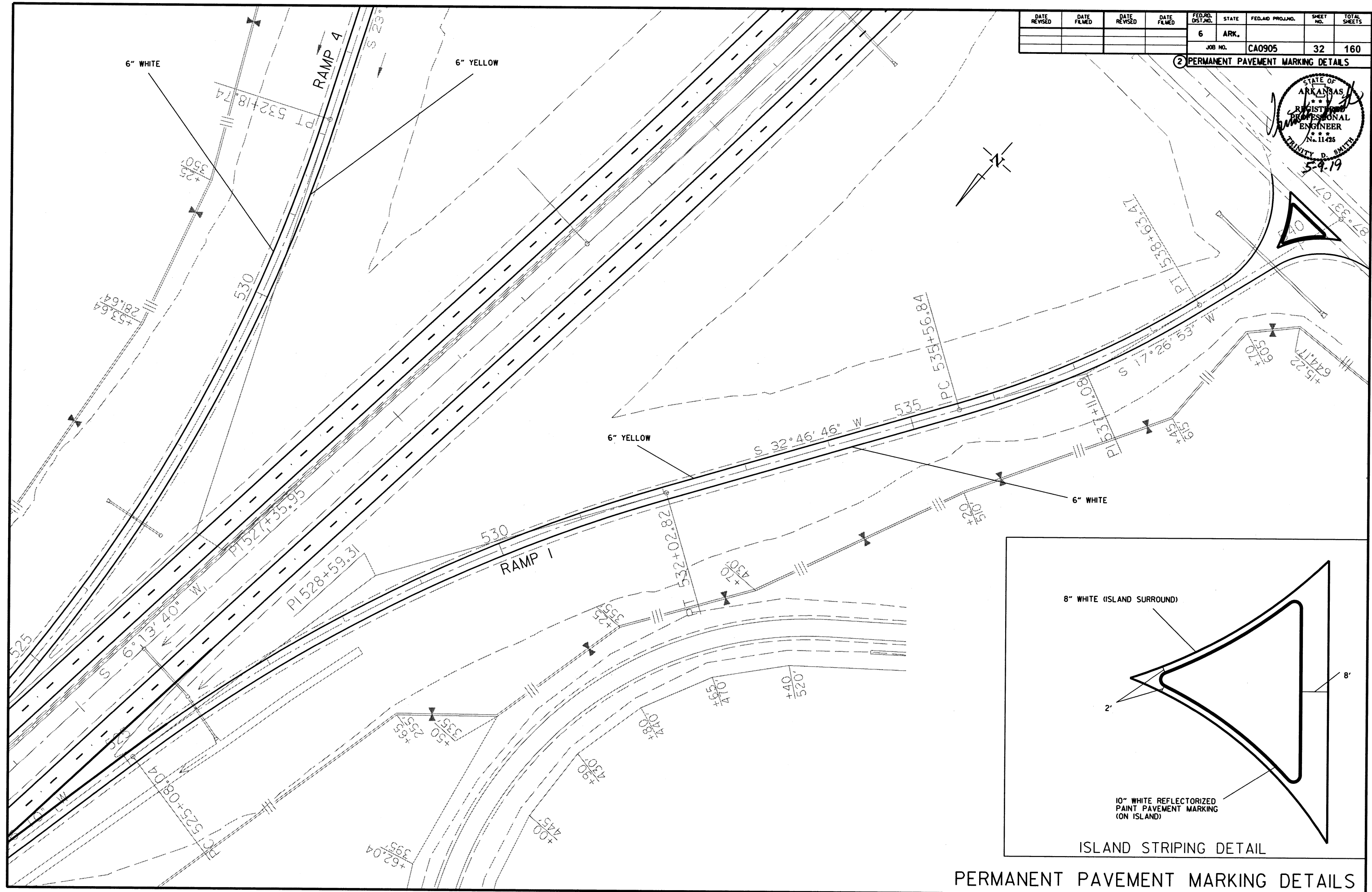
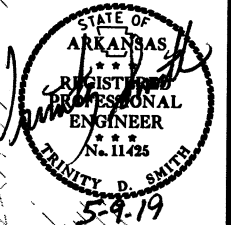
3/19/2019
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CONTINUE STRIPING AS TYPICAL (SEE PREVIOUS SHEET)

CONTINUE STRIPING AS TYPICAL TO STA. 545+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		32	160
				JOB NO.		CA0905		

PERMANENT PAVEMENT MARKING DETAILS



ISLAND STRIPING DETAIL

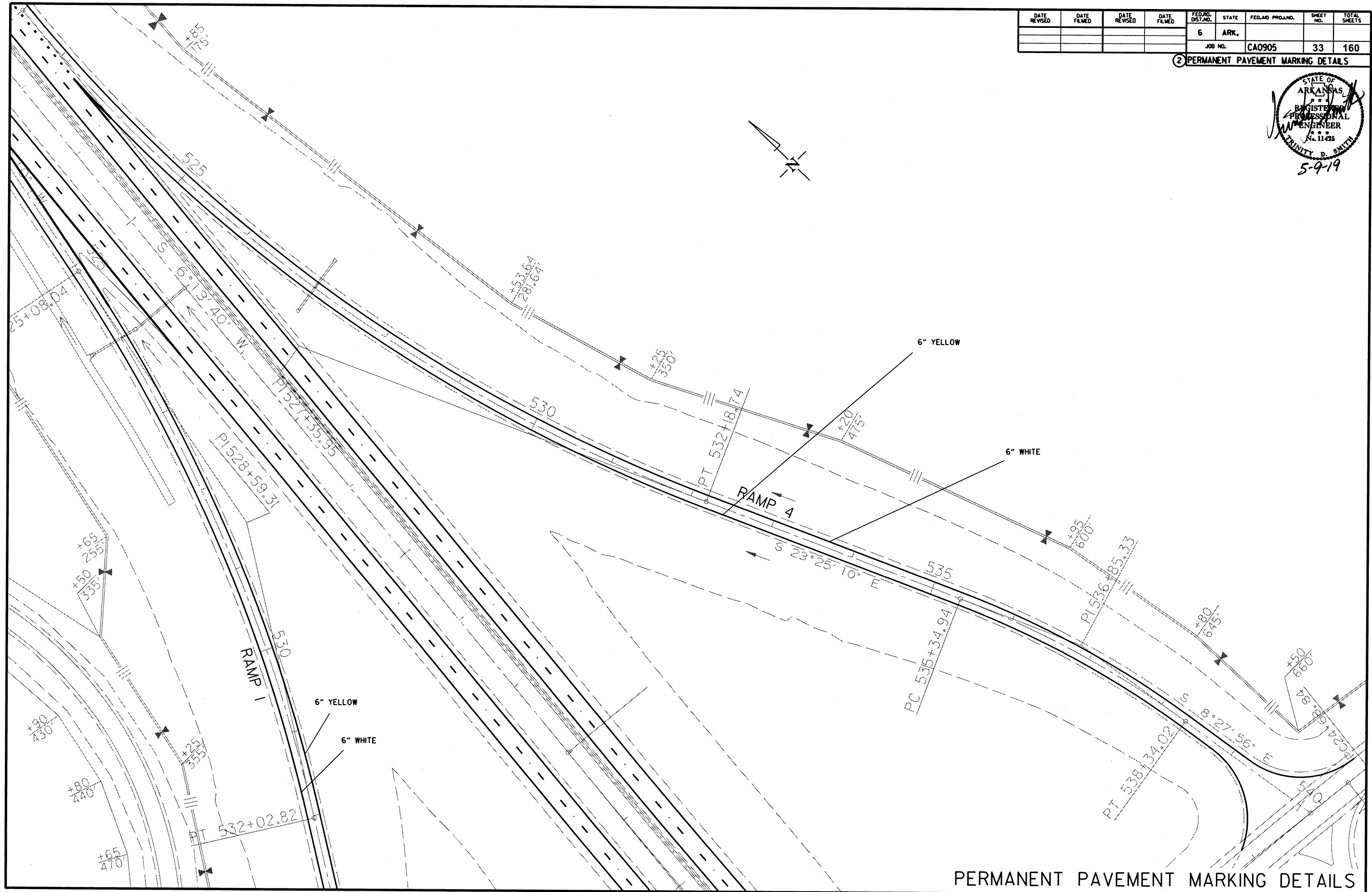
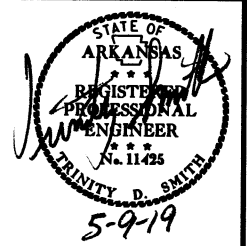
PERMANENT PAVEMENT MARKING DETAILS

3/19/2019

PC40905.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. CA0905							33	160

PERMANENT PAVEMENT MARKING DETAILS



PERMANENT PAVEMENT MARKING DETAILS

3/19/2019
RC40905.DGN

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. PROJ. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
7-15-19				6	ARK.			
				JOB NO.	CA0905	34	160	

2 QUANTITIES



ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	ENTIRE JOB LIN. FT. - EACH	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		CONSTRUCTION PROJECT INFORMATION SIGN UPDATE EACH	TRAFFIC DRUMS	FURNISHING & INSTALLING PRECAST CONC. BARRIER LIN. FT.
					NO.	SQ. FT.			
W20-1	ROAD WORK 1500 FT.	48"x48"	4	4	4	64.0			
W20-1	ROAD WORK 1000 FT.	48"x48"	4	4	4	64.0			
W20-1	ROAD WORK 500 FT.	48"x48"	4	4	4	64.0			
W20-1	ROAD WORK AHEAD	48"x48"	5	5	5	80.0			
G20-2	END ROAD WORK	48"x24"	9	9	9	72.0			
OM-3L	OBJECT MARKER	12"x36"	12	12	12	36.0			
OM-3R	OBJECT MARKER	12"x36"	16	16	16	48.0			
W21-5a	RIGHT SHOULDER CLOSED	48"x30"	1	1	1	10.0			
SPECIAL	CONSTRUCTION PROJECT INFORMATION SIGN	96"x48"		1	1	32.0			
	CONSTRUCTION PROJECT INFORMATION SIGN UPDATE			5			5		
	TRAFFIC DRUMS		34					34	
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		1384	1384					1384
TOTALS:						470.0	5	34	1384

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

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
408+00	538+00	MAIN LANES	130	130
TOTALS:			130	130

BENCH MARKS

STATION	LOCATION	EACH
417+03.83	BR. NO. B7218	1
419+67.89	BR. NO. A7218	1
423+87.00	HEADWALL ON LT.	1
491+12.11	BR. NO. B7219	1
493+73.39	BR. NO. A7219	1
TOTAL:		5

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

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	ENTIRE JOB LIN. FT. - EACH	RAISED PAVEMENT MARKERS	REFLECTORIZED PAINT PAVEMENT MARKING		ENHANCED THERMOPLASTIC PAVEMENT MARKING		
		TYPE II (WHITE/RED) EACH	10"	6"		8"	
			WHITE	WHITE	YELLOW		WHITE
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED)	480	480					
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (10")	150		150				
ENHANCED THERMOPLASTIC PAVEMENT MARKING WHITE (6")	34225			34225			
ENHANCED THERMOPLASTIC PAVEMENT MARKING YELLOW (6")	27500				27500		
ENHANCED THERMOPLASTIC PAVEMENT MARKING WHITE (8")	1110					1110	
TOTALS:	480	480	150	34225	27500	1110	

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

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

SUBGRADE PREPARATION

STATION	STATION	LOCATION / DESCRIPTION	STATION
538+00	545+00	HWY. 549	7.00
TOTAL:			7.00

NOTES:

1. THE QUANTITIES SHOWN ABOVE INCLUDE BOTH SETS OF LANES FOR A DIVIDED ROADWAY AND INCLUDE ADDITIONAL WIDTH WHERE ROADWAYS ARE WIDENED.
2. THE REMOVAL AND DISPOSAL OF EXISTING GRASS AND/OR OTHER ORGANIC MATERIALS FROM THE SUBGRADE AND SUBSEQUENT REPLACEMENT OF SUBGRADE MATERIAL WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR "SUBGRADE PREPARATION".
3. PAYMENT FOR TRANSITIONS IN SUBGRADE ON MAIN LANES TO BE INCLUDED IN PAYMENT MADE FOR "SUBGRADE PREPARATION".

FENCING

STATION	STATION	LOCATION	WIRE FENCE		* 16'-0" GATES EACH
			(TYPE A)	(TYPE D)	
			LIN. FT.		
411+33	417+48	LT. OF LT. MAIN LANE	710		1
419+74	426+23	LT. OF LT. MAIN LANE	752		1
427+30	490+32	LT. OF LT. MAIN LANE	6586	141	1
492+26	523+85	LT. OF LT. MAIN LANE	3405	147	
417+13	417+32	IN MEDIAN	50		
419+40	419+59	IN MEDIAN	50		
490+62	490+98	IN MEDIAN	60		
493+88	494+24	IN MEDIAN	60		
408+58	416+97	RT. OF RT. MAIN LANE	975		
418+50	420+62	RT. OF RT. MAIN LANE	435		1
421+67	493+31	RT. OF RT. MAIN LANE	7485		1
494+54	521+00	RT. OF RT. MAIN LANE	2810		1
TOTALS:			23378	288	6

* DENOTES ALTERNATE BID ITEM.

4/1/2019

RCA0905.DGN

EARTHWORK

Table with columns: STATION, STATION, LOCATION / DESCRIPTION, UNCLASSIFIED EXCAVATION, COMPACTED EMBANKMENT, ROCK FILL, * SOIL STABILIZATION. Includes totals row.

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

Table with columns: DATE REVISED, DATE FILMED, DATE REVISED, DATE FILMED, FED. PROJ. NO., STATE, FED. PROJ. NO., SHEET NO., TOTAL SHEETS. Includes job no. CA0905.

QUANTITIES



CONCRETE DITCH PAVING

Table with columns: STATION, STATION, LOCATION, LENGTH, "W", CONC. DITCH PAVING, SOLID SODDING, WATER. Includes totals row.

BASIS OF ESTIMATE: WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING. *QUANTITIES ESTIMATED. SEE SECTION 104.03 OF THE STD. SPECS.

ROCK DITCH LINER, DUMPED RIPRAP, AND FILTER BLANKET

Table with columns: STATION, STATION, LOCATION, LENGTH, WIDTH, ROCK DITCH LINER, DUMPED RIPRAP, FILTER BLANKET. Includes totals row.

* QUANTITIES ESTIMATED. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS. NOTE: FILTER BLANKET SHALL BE GEOTEXTILE FABRIC (TYPE 5).

EROSION CONTROL

Table with columns: STATION, STATION, LOCATION, PERMANENT EROSION CONTROL, TEMPORARY EROSION CONTROL, SEDIMENT BASIN, OBLITERATION OF SEDIMENT BASIN, *SEDIMENT REMOVAL & DISPOSAL. Includes totals row.

BASIS OF ESTIMATE: LIME.....2 TONS / ACRE OF SEEDING WATER.....102.0 M.G. / ACRE OF SEEDING WATER.....20.4 M.G. / ACRE OF TEMPORARY SEEDING. DROP INLET SILT FENCE.....25 FEET / LOCATION SAND BAG DITCH CHECKS.....22 BAGS / LOCATION ROCK DITCH CHECKS.....3 CU.YD./LOCATION DUMPED RIPRAP.....2 CU. YD./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.

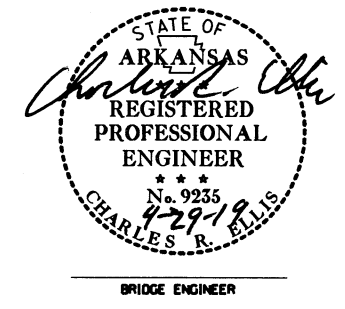
*QUANTITIES ESTIMATED. SEE SECTION 104.03 OF THE STD. SPECS.

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. CA0905

BRIDGE NO.	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	801	SS & 802	SP, SS, & 802	803	SS & 804	SS & 804	SS & 805	SS & 805	SP, SS, & 807	SP, SS, & 807	SS & 808	SS & 809	812	816	SP JOB CA0905	SP JOB CA0905
			ITEM	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	CLASS S CONCRETE-BRIDGE	CLASS S(AE) CONCRETE-BRIDGE	CLASS 2 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL-BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	STEEL PILING (HP12X53) ②	PREBORING ③	STRUCTURAL STEEL IN BEAM SPANS (M 270, GRADE 50W)	STRUCTURAL STEEL IN PLATE GIRDER SPANS (M270, GRADE 50W)	ELASTOMERIC BEARINGS	SILICONE JOINT SEALANT	BRIDGE NAME PLATE (TYPE D)	CONCRETE RIPRAP	EXPLORATORY HOLES ③	TEXTURED COATING FINISH
		UNIT	CU. YD.	CU. YD.	CU. YD.	SQ. YD.	LB.	LB.	LIN. FT.	LIN. FT.	LB.	LB.	CU. IN.	LIN. FT.	EACH	CU. YD.	LIN. FT.	SQ. YD.	
A7218	EDINBURGH ROAD	BENT NO. 1		29.11		4.8	3662		225	40	885					164	40	39.2	
		BENT NO. 2	226	102.04			16803												148.3
		BENT NO. 3	207	103.86			17203												147.9
		BENT NO. 4		29.49		4.8	3662		200		885						144		39.2
		227' - 0" CONTINUOUS COMPOSITE W-BEAM UNIT				287.30	1008.1		73540			239010		14334.0	93	1			499.6
TOTALS FOR BRIDGE NO. A7218			433	264.50	287.30	1017.7	41330	73540	425	40	240780	-	14334.0	93	1	308	40	874.2	
B7218	EDINBURGH ROAD	BENT NO. 1		29.57		4.8	3662		225	20	885					190	20	39.2	
		BENT NO. 2	198	105.86			17603												148.0
		BENT NO. 3	179	106.85			17803												146.8
		BENT NO. 4		29.22		4.8	3662		225	20	885						145	20	39.2
		227' - 0" CONTINUOUS COMPOSITE W-BEAM UNIT				287.30	1008.1		73540			239010		14334.0	93	1			499.6
TOTALS FOR BRIDGE NO. B7218			377	271.50	287.30	1017.7	42730	73540	450	40	240780	-	14334.0	93	1	335	40	872.8	
A7219	COUNTY ROAD 21	BENT NO. 1		38.77		5.6	4764		270	24		1038				170	24	48.4	
		BENT NO. 2	293	149.22			19054												184.0
		BENT NO. 3	314	149.26			19068												184.0
		BENT NO. 4		39.25		5.6	4764		270	48			1038			153	48	48.4	
		326' - 0" CONT. COMPOSITE PLATE GIRDER UNIT				388.00	1447.7		106500				380794	19463.0	107	1			714.3
TOTALS FOR BRIDGE NO. A7219			607	376.50	388.00	1458.9	47650	106500	540	72	-	382870	19463.0	107	1	323	72	1179.1	
B7219	COUNTY ROAD 21	BENT NO. 1		38.51		5.6	4764		240	20		1038				124	20	48.4	
		BENT NO. 2	304	148.20			19045												184.1
		BENT NO. 3	280	146.80			18857												186.1
		BENT NO. 4		38.59		5.6	4764		240	20			1038			178	20	48.4	
		326' - 0" CONT. COMPOSITE PLATE GIRDER UNIT				388.00	1447.7		106500				380794	19463.0	107	1			714.3
TOTALS FOR BRIDGE NO. B7219			584	372.10	388.00	1458.9	47430	106500	480	40	-	382870	19463.0	107	1	302	40	1181.3	
TOTALS FOR JOB NO. CA0905			① 2001	1284.60	1350.60	4953.2	179140	360080	1895	192	481560	765740	67594.0	400	4	1268	192	4107.4	

- ① Approximately 183 cu. yds. of rock excavation.
- ② These steel piling are required to be Grade 50 and shall have approved steel H-Pile points which will not be paid for directly, but will be considered subsidiary to the item "Steel Piling (HP12x53)".
- ③ The quantities shown for Preboring and Exploratory Holes are for estimating and bidding purposes only. Actual quantities will be determined in the field.

STEVEN PEYTON
DESIGN SECTION SUPERVISOR



SCHEDULE OF BRIDGE QUANTITIES
CO. RD. 34-MISSOURI STATE LINE
(B.V. BYPASS) (F)
BENTON COUNTY

ROUTE 549 SEC. 9
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 1-4-16 FILENAME: dco0905_qt.dgn
 CHECKED BY: SWP DATE: 4-29-19 SCALE: NO SCALE
 DESIGNED BY: - DATE: -

BRIDGE NO. A&B7218, A&B7219 DRAWING NO. 52039

SUMMARY OF QUANTITIES (BOX 1 OF 2)

Table with 5 columns: ITEM NUMBER, ITEM, CONCRETE QUANTITIES ALTERNATE 1, ASPHALT QUANTITIES ALTERNATE 2, UNIT. Lists items like CLEARING, GRUBBING, EXCAVATION, EMBANKMENT, etc.

* DENOTES ALTERNATE BID ITEMS.

Table with columns: DATE REVISED, DATE FILMED, FED. PROJ. NO., STATE, SHEET NO., TOTAL SHEETS.

2) SUMMARY OF QUANTITIES AND REVISIONS



SUMMARY OF QUANTITIES (BOX 2 OF 2)

Table with 5 columns: ITEM NUMBER, ITEM, CONCRETE QUANTITIES ALTERNATE 1, ASPHALT QUANTITIES ALTERNATE 2, UNIT. Lists items like SEDIMENT BASIN, ROADWAY CONSTRUCTION CONTROL, STRUCTURES OVER 20' SPAN, etc.

REVISIONS

Table with 3 columns: DATE, REVISION, SHEET NUMBER. Lists changes made on 6/26/2019, 7/15/2019, and 7/22/2019.

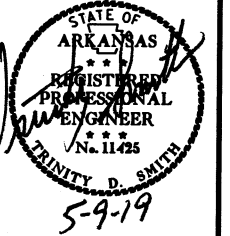
SUMMARY OF QUANTITIES AND REVISIONS

3/27/2019

RC-A0905.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. CA0905						44	160	

2 SURVEY CONTROL DETAILS



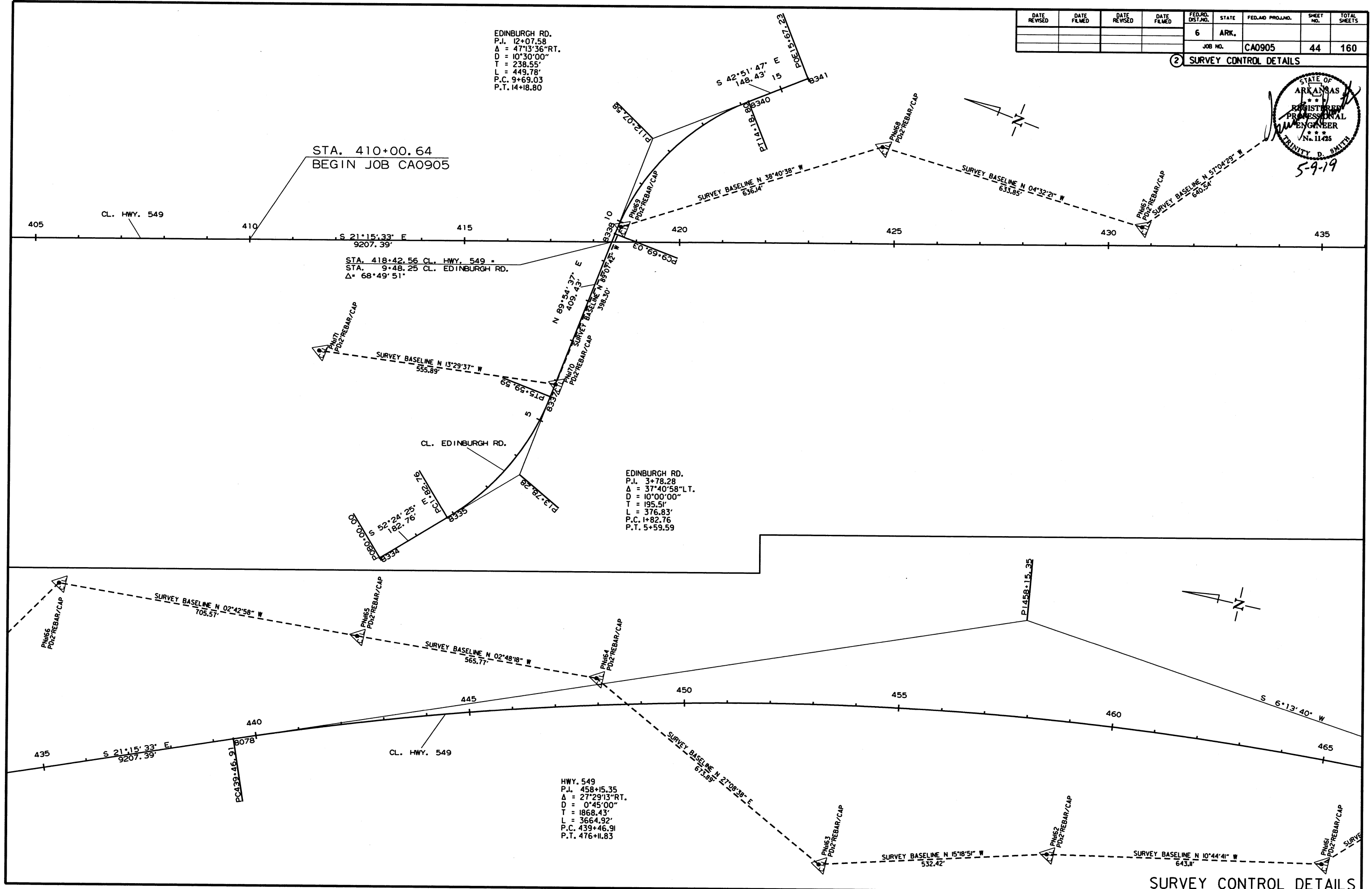
EDINBURGH RD.
P.I. 12+07.58
 $\Delta = 47^{\circ}13'36''$ RT.
 $D = 10^{\circ}30'00''$
 $T = 238.55'$
 $L = 449.78'$
P.C. 9+69.03
P.T. 14+18.80

STA. 410+00.64
BEGIN JOB CA0905

STA. 418+42.56 CL. HWY. 549 =
STA. 9+48.25 CL. EDINBURGH RD.
 $\Delta = 68^{\circ}49'51''$

EDINBURGH RD.
P.I. 3+78.28
 $\Delta = 37^{\circ}40'58''$ LT.
 $D = 10^{\circ}00'00''$
 $T = 195.51'$
 $L = 376.83'$
P.C. 1+82.76
P.T. 5+59.59

HWY. 549
P.I. 458+15.35
 $\Delta = 27^{\circ}29'13''$ RT.
 $D = 0^{\circ}45'00''$
 $T = 1868.43'$
 $L = 3664.92'$
P.C. 439+46.91
P.T. 476+11.83



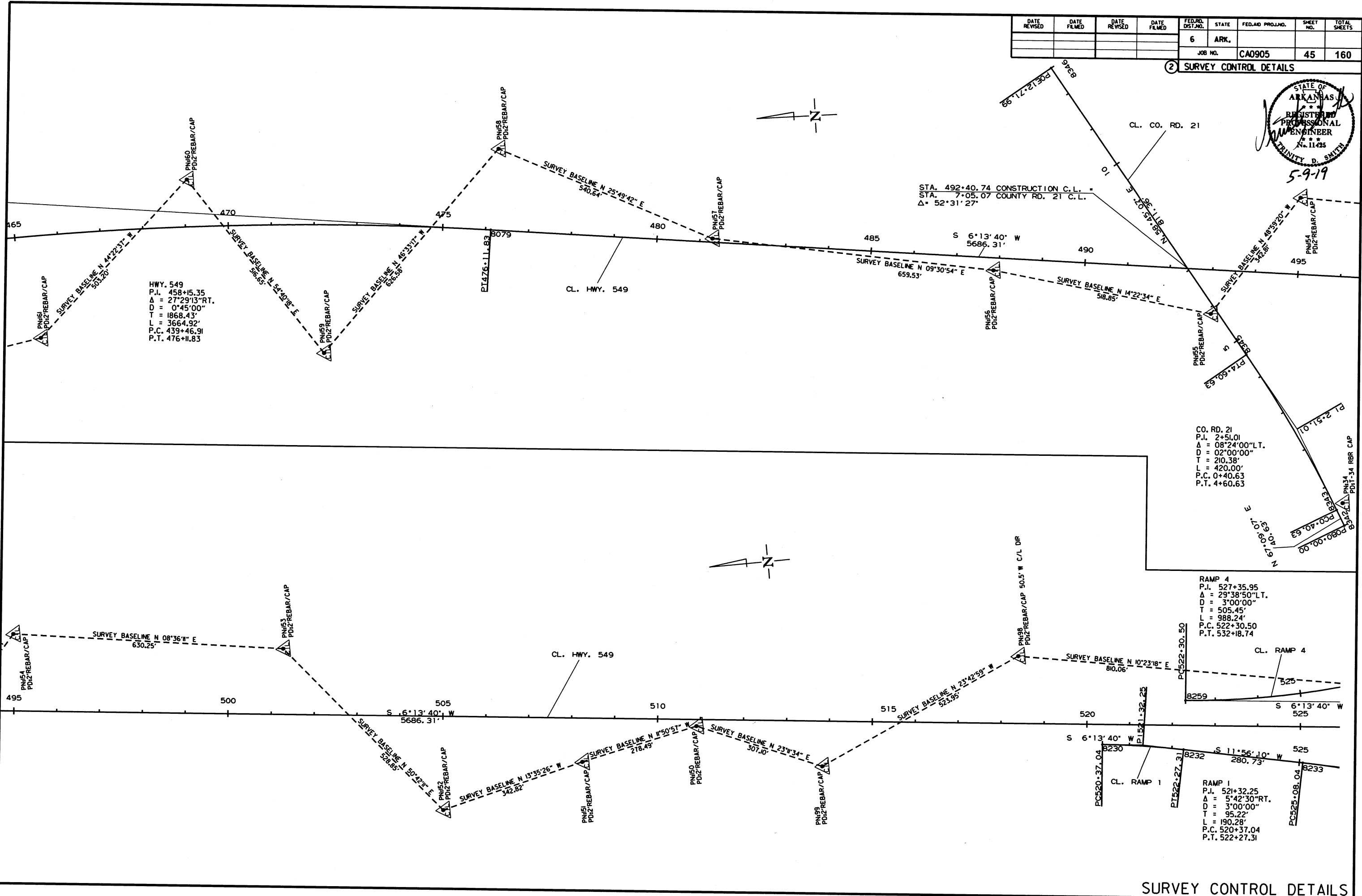
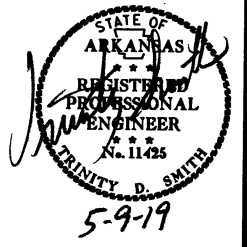
SURVEY CONTROL DETAILS

9/26/2016

RC40905.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. CA0905							45	160

2 SURVEY CONTROL DETAILS

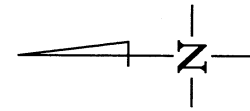
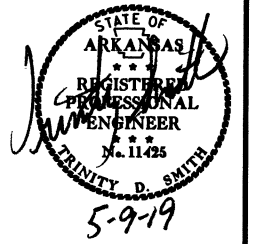


SURVEY CONTROL DETAILS

9/26/2016
RC40905.DGN

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. CA0905							46	160

2 SURVEY CONTROL DETAILS



RAMP 4
P.I. 527+35.95
 $\Delta = 29^{\circ}38'50''$ RT.
D = 3'00'00"
T = 505.45'
L = 988.24'
P.C. 522+30.50
P.T. 532+18.74

RAMP 4
P.I. 536+85.33
 $\Delta = 14^{\circ}57'14''$ RT.
D = 5'00'00"
T = 150.39'
L = 299.08'
P.C. 535+34.94
P.T. 538+34.02

RAMP 3
P.I. 541+64.20
 $\Delta = 14^{\circ}32'43''$ RT.
D = 5'00'00"
T = 146.24'
L = 290.91'
P.C. 540+17.96
P.T. 543+08.87

RAMP 3
P.I. 549+78.44
 $\Delta = 25^{\circ}20'45''$ LT.
D = 3'00'00"
T = 429.46'
L = 844.86'
P.C. 545+48.98
P.T. 553+93.85

RAMP 3
P.I. 556+91.5
 $\Delta = 5^{\circ}42'30''$ LT.
D = 3'00'00"
T = 95.22'
L = 190.27'
P.C. 555+95.93
P.T. 557+86.21

STA. 539+26.81 CONSTRUCTION C.L.
STA. 17+77.25 COUNTY RD. 34 C.L.
 $\Delta = 90^{\circ}38'11''$

STA. 545+00.00
END JOB CA0905

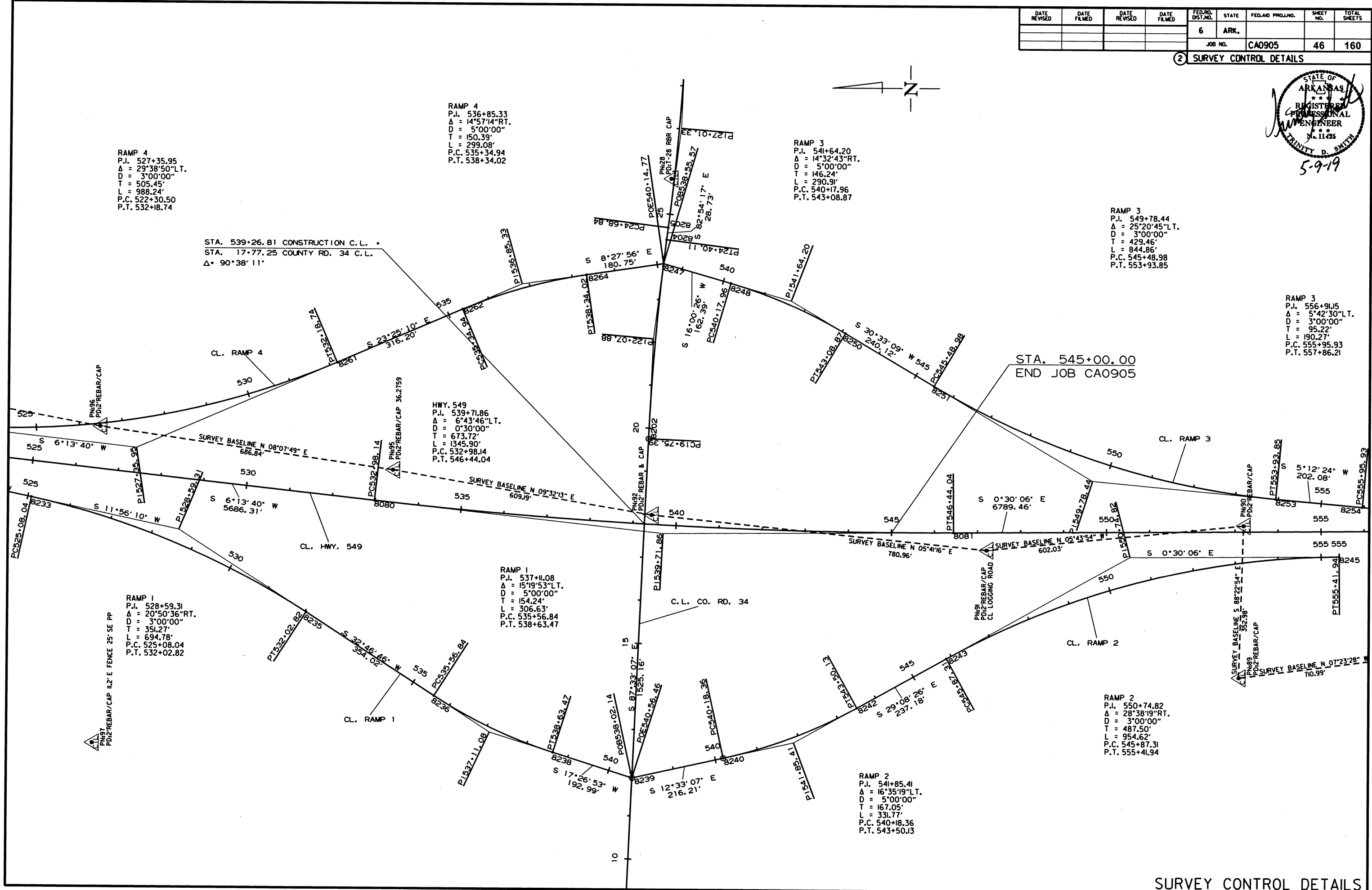
HWY. 549
P.I. 539+71.86
 $\Delta = 6^{\circ}43'46''$ LT.
D = 0'30'00"
T = 673.72'
L = 1345.90'
P.C. 532+98.14
P.T. 546+44.04

RAMP 1
P.I. 537+11.08
 $\Delta = 15^{\circ}19'53''$ LT.
D = 5'00'00"
T = 154.24'
L = 306.63'
P.C. 535+56.84
P.T. 538+63.47

RAMP 1
P.I. 528+59.31
 $\Delta = 20^{\circ}50'36''$ RT.
D = 3'00'00"
T = 351.27'
L = 694.78'
P.C. 525+08.04
P.T. 532+02.82

RAMP 2
P.I. 550+74.82
 $\Delta = 28^{\circ}38'19''$ RT.
D = 3'00'00"
T = 487.50'
L = 954.62'
P.C. 545+87.31
P.T. 555+41.94

RAMP 2
P.I. 541+85.41
 $\Delta = 16^{\circ}35'19''$ LT.
D = 5'00'00"
T = 167.05'
L = 331.77'
P.C. 540+18.36
P.T. 543+50.13



9/26/2016

CA0905.DGN

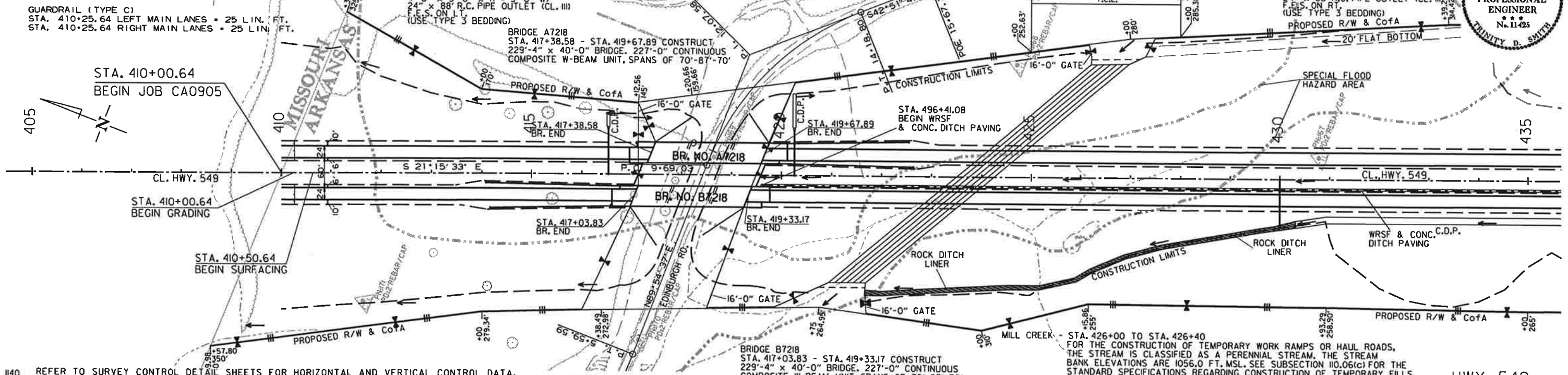
SURVEY CONTROL DETAILS

STA.	STA.	SIDE	TYPE	LIN. FT.	16' GATE EA.
408+58	416+97	RT.	A	975	
411+33	417+48	LT.	A	710	
417+13	417+32	MEDIAN	A	50	
418+50	420+62	RT.	A	435	
419+40	419+59	MEDIAN	A	50	
419+74	426+23	LT.	A	752	
421+67	493+31	RT.	A	7485	
427+30	490+32	LT.	A	6586	
427+30	490+32	LT.	D	141	

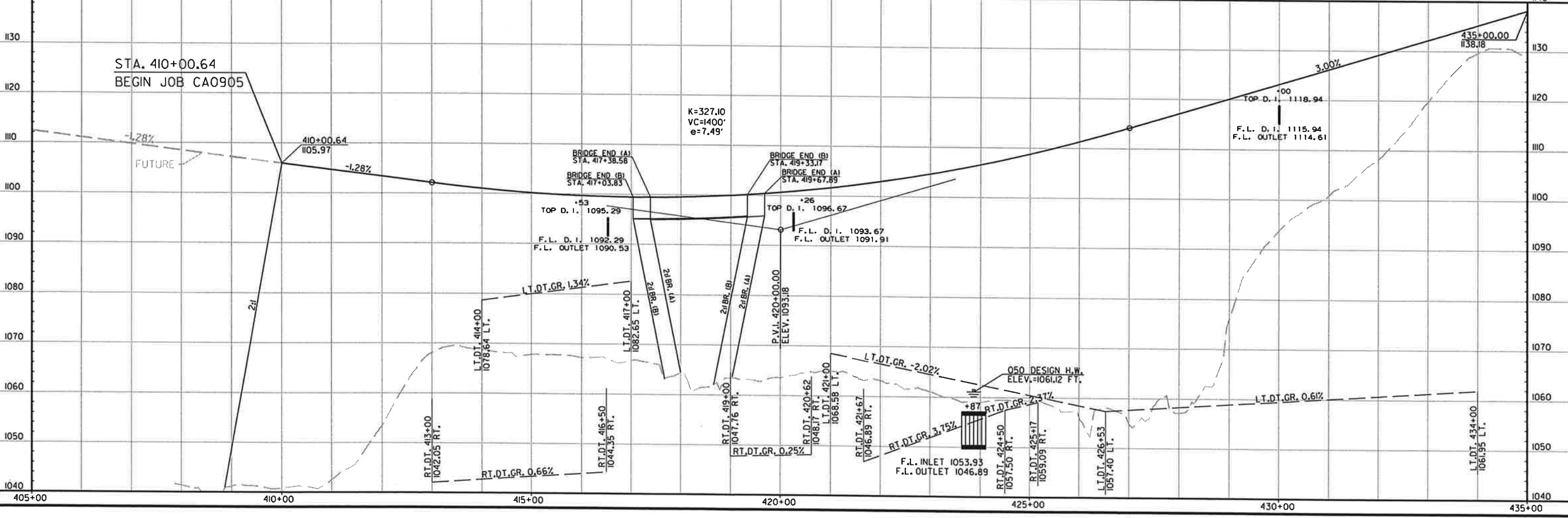
STA.	STA.	SIDE	GUARDRAIL (TYPE A)	THREE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
414+09.76	417+03.51	R.M.L. - LT.	225 LIN. FT.	EA.	EA.
414+18.98	416+87.73	R.M.L. - RT.	200 LIN. FT.	EA.	EA.
419+68.30	422+62.05	L.M.L. - RT.	225 LIN. FT.	EA.	EA.
419+84.08	422+52.83	L.M.L. - LT.	200 LIN. FT.	EA.	EA.

DATE REVISED	DATE FLEW	DATE REVISED	DATE FLEW	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
7/22/19				6	ARK.		47	160

2 PLAN AND PROFILE - HWY. 549 (MAIN LANES)



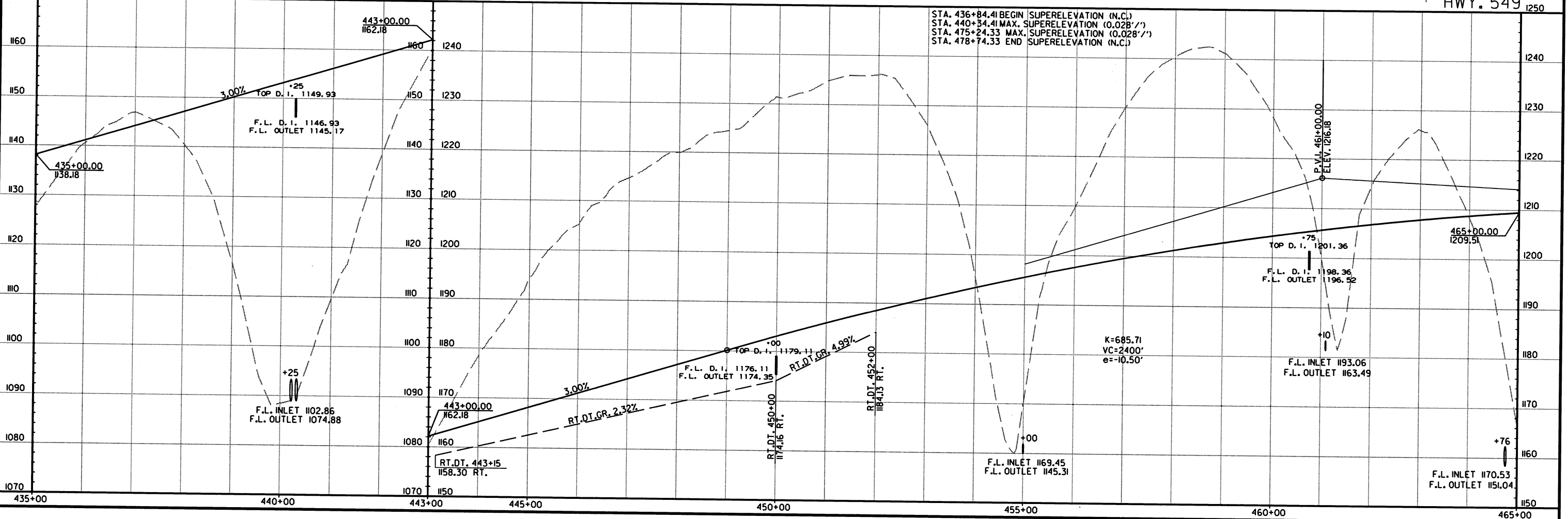
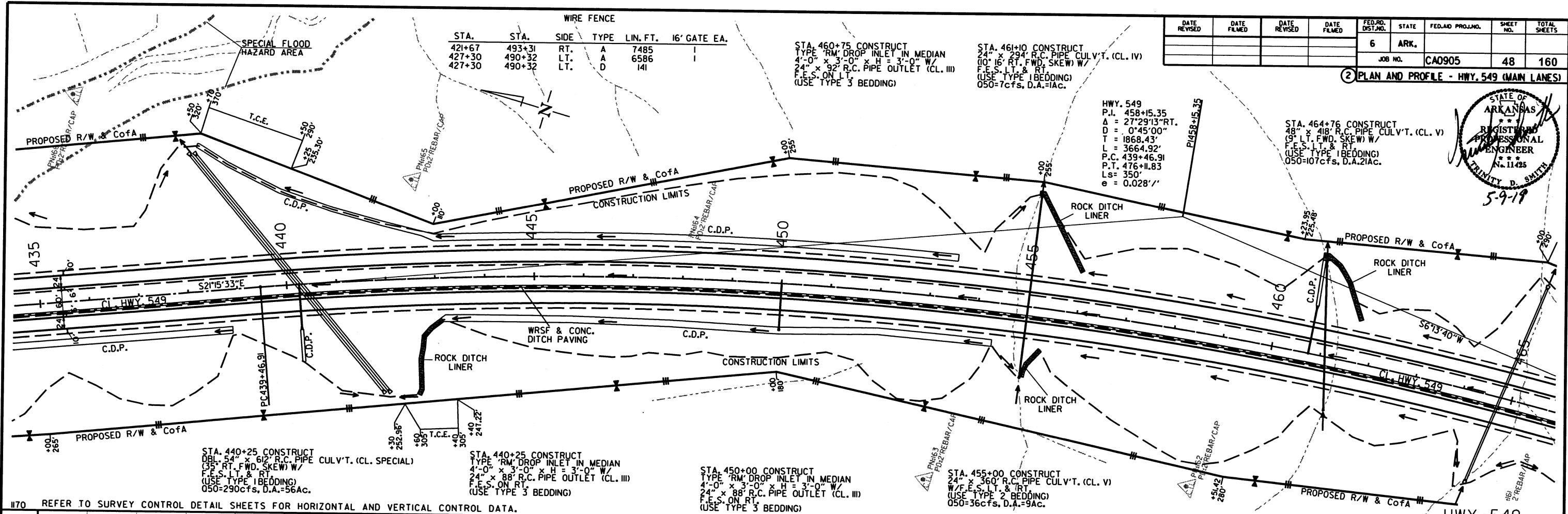
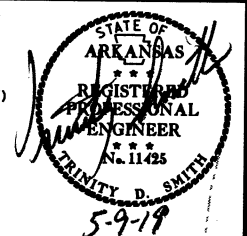
1140 REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.



9/26/2016
RCA0905.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		48	160
JOB NO. CA0905								

2 PLAN AND PROFILE - HWY. 549 (MAIN LANES)



9/26/2016

RC0905.DGN

HWY. 549
 P.L. 458+15.35
 Δ = 27°29'13" RT.
 D = 0'45"00"
 T = 1868.43'
 L = 3664.92'
 P.C. 439+46.91
 P.T. 476+11.83
 Ls = 350'
 e = 0.028'/'

STA.	STA.	SIDE	TYPE	LIN. FT.	16' GATE EA.
421+67	493+31	RT.	A	7485	
427+30	490+32	LT.	A	6586	
427+30	490+32	LT.	D	141	
490+32	490+32	LT.	A	60	
492+26	523+85	LT.	A	3405	
492+26	523+85	LT.	D	147	
493+88	494+24	MEDIAN	A	60	
494+54	521+00	RT.	A	2810	

STA.	STA.	SIDE	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
487+94.90	490+88.65	R.M.L. - LT.	225 LIN. FT.	IEA.	IEA.
488+49.99	491+18.74	R.M.L. - RT.	200 LIN. FT.	IEA.	IEA.
493+67.26	496+36.01	L.M.L. - LT.	200 LIN. FT.	IEA.	IEA.
493+97.35	496+91.10	L.M.L. - RT.	225 LIN. FT.	IEA.	IEA.

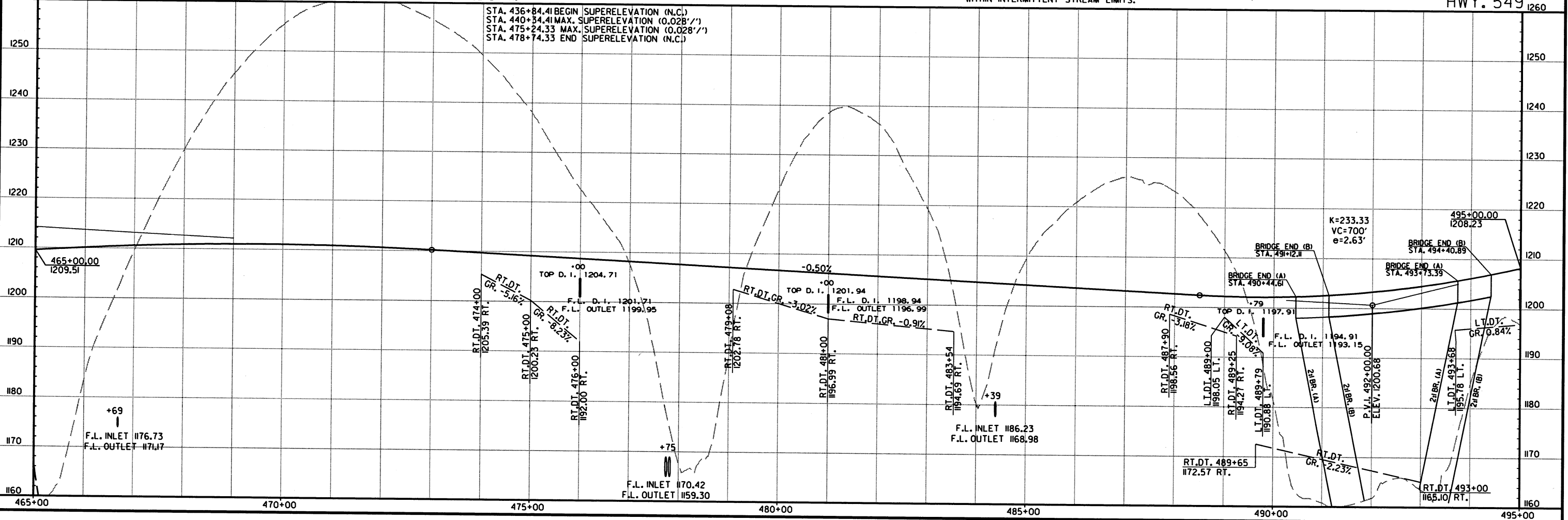
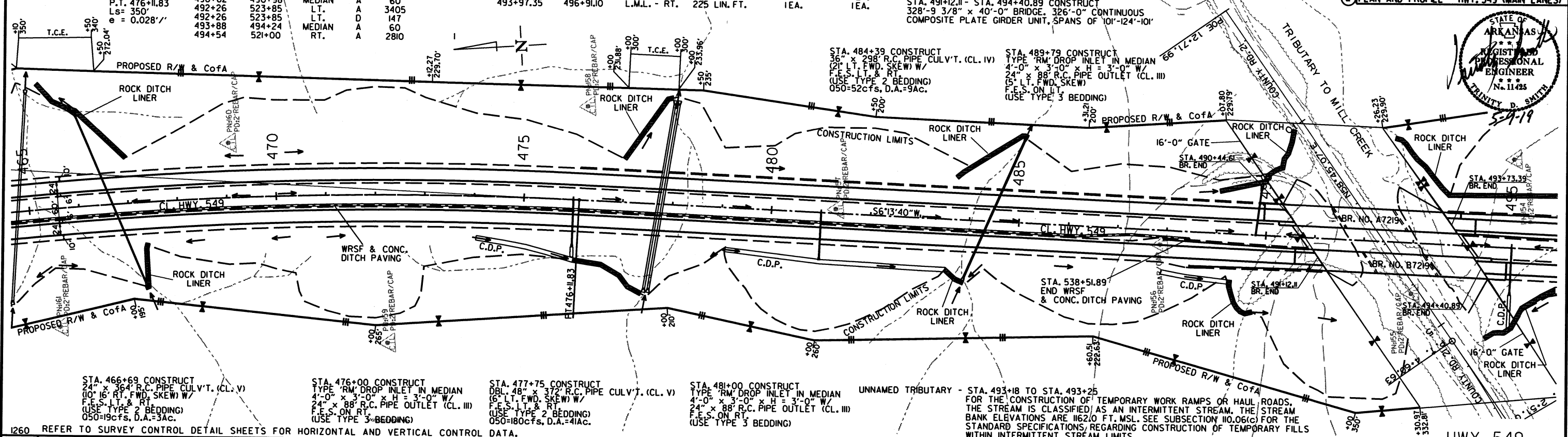
BRIDGE A7219
 STA. 490+44.61 - STA. 493+73.39 CONSTRUCT
 328'-9 3/8" x 40'-0" BRIDGE, 326'-0" CONTINUOUS
 COMPOSITE PLATE GIRDER UNIT, SPANS OF 101'-124'-101'

BRIDGE B7219
 STA. 491+12.11 - STA. 494+40.89 CONSTRUCT
 328'-9 3/8" x 40'-0" BRIDGE, 326'-0" CONTINUOUS
 COMPOSITE PLATE GIRDER UNIT, SPANS OF 101'-124'-101'

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		49	160

JOB NO. CA0905

2 PLAN AND PROFILE - HWY. 549 (MAIN LANES)



RCA0905.DGN 9/26/2016

STA. 495+00 CONSTRUCT
TYPE 'RM' DROP INLET IN MEDIAN
4'-0" x 3'-0" x H = 3'-0" W/
24" x 88" R.C. PIPE OUTLET (CL. III)
F.E.S. ON RT.
(USE TYPE 3 BEDDING)

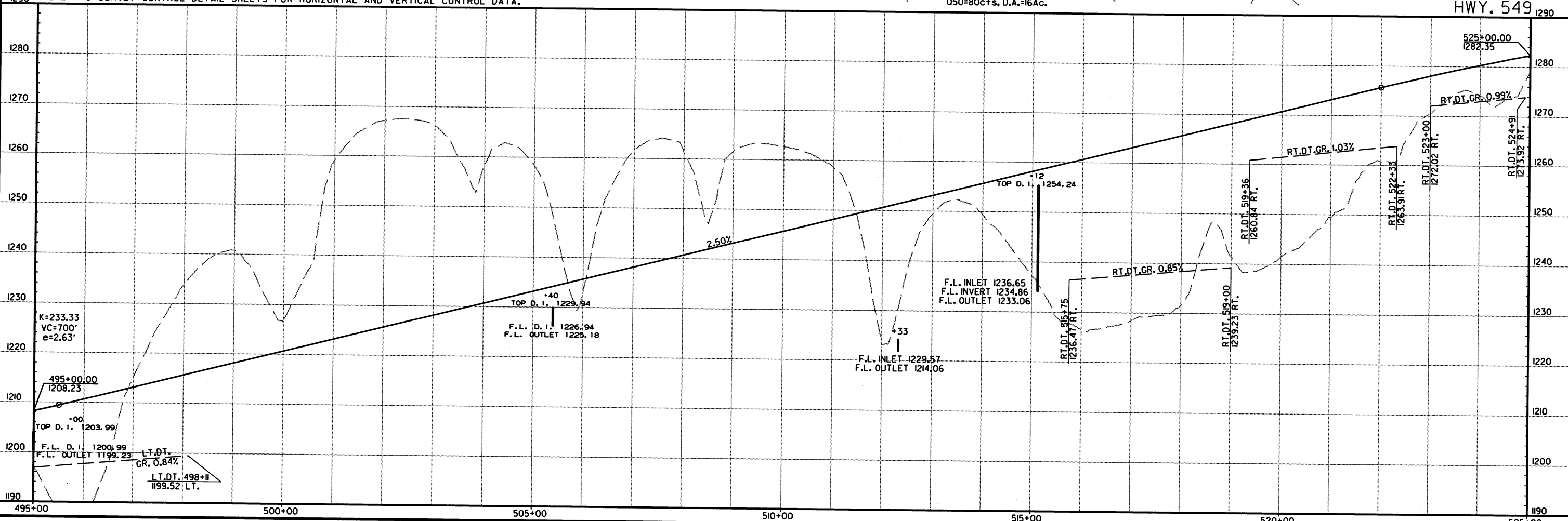
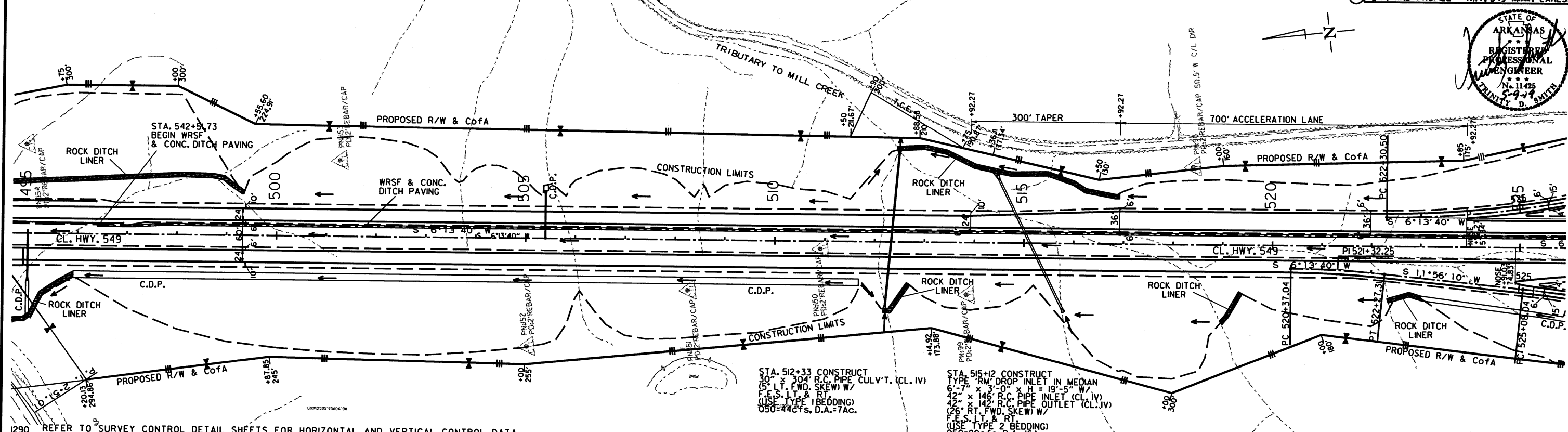
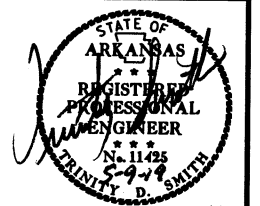
STA.	STA.	SIDE	TYPE	LIN. FT.	16' GATE EA.
492+26	523+85	LT.	A	3405	
492+26	523+85	LT.	D	147	
494+54	521+00	RT.	A	2810	

STA. 505+40 CONSTRUCT
TYPE 'RM' DROP INLET IN MEDIAN
4'-0" x 3'-0" x H = 3'-0" W/
24" x 88" R.C. PIPE OUTLET (CL. III)
F.E.S. ON LT.
(USE TYPE 3 BEDDING)

UNNAMED TRIBUTARY - STA. 515+60 TO STA. 515+70
FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS,
THE STREAM IS CLASSIFIED AS AN INTERMITTENT STREAM. THE STREAM
BANK ELEVATIONS ARE 1228.0 FT. MSL. SEE SUBSECTION 10.06(c) FOR THE
STANDARD SPECIFICATIONS REGARDING CONSTRUCTION OF TEMPORARY FILLS
WITHIN INTERMITTENT STREAM LIMITS.

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. CA0905	50	160

2 PLAN AND PROFILE - HWY. 549 (MAIN LANES)

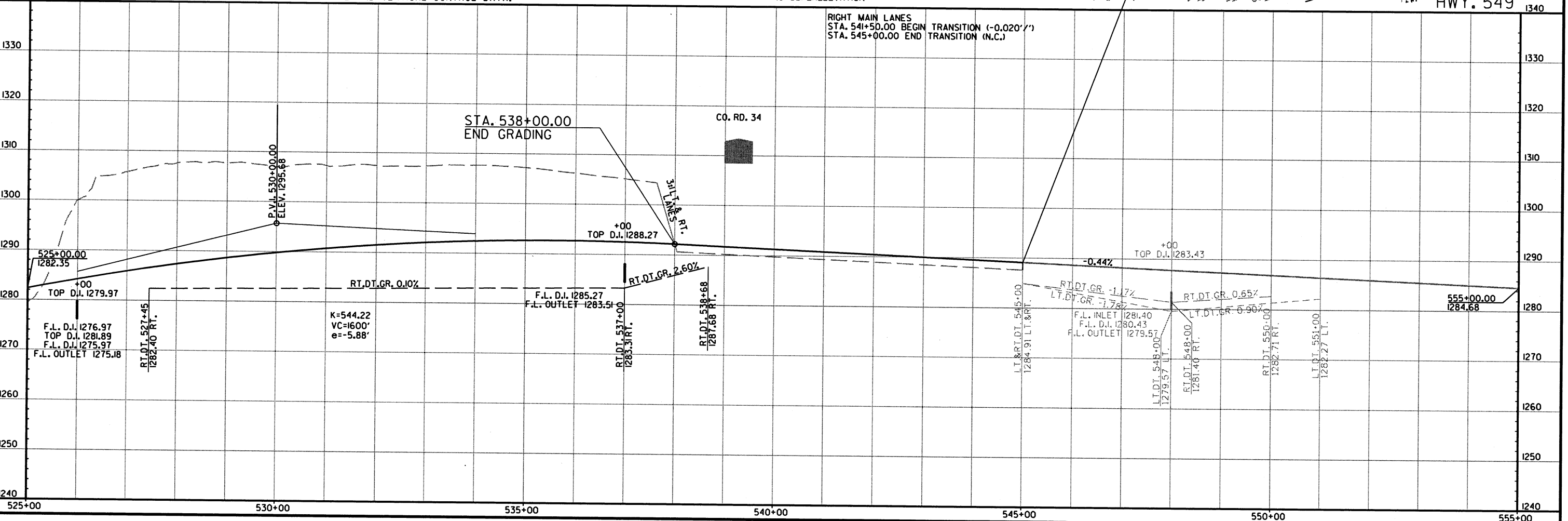
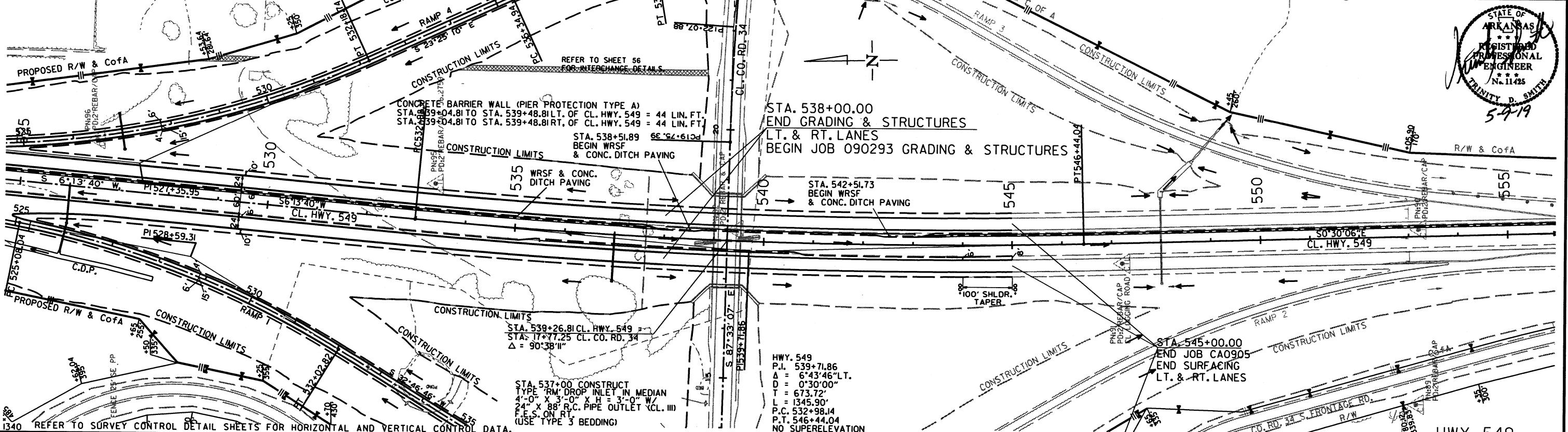
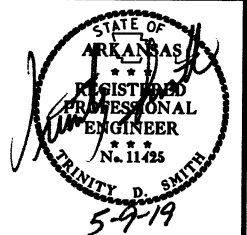


9/26/2016
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STA. 526+00 CONSTRUCT
 TYPE 'RM' DROP INLET IN MEDIAN
 4'-0" X 3'-0" X H= 3'-0"
 TYPE 'RM' DROP INLET
 4'-0" X 3'-0" X H= 5'-11" W/
 24" X 74" R.C. PIPE INLET (CL. III)
 24" X 60" R.C. PIPE OUTLET (CL. III)
 F.E.S. ON RT.
 (USE TYPE 3 BEDDING)

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		51	160
JOB NO. CA0905							51	160

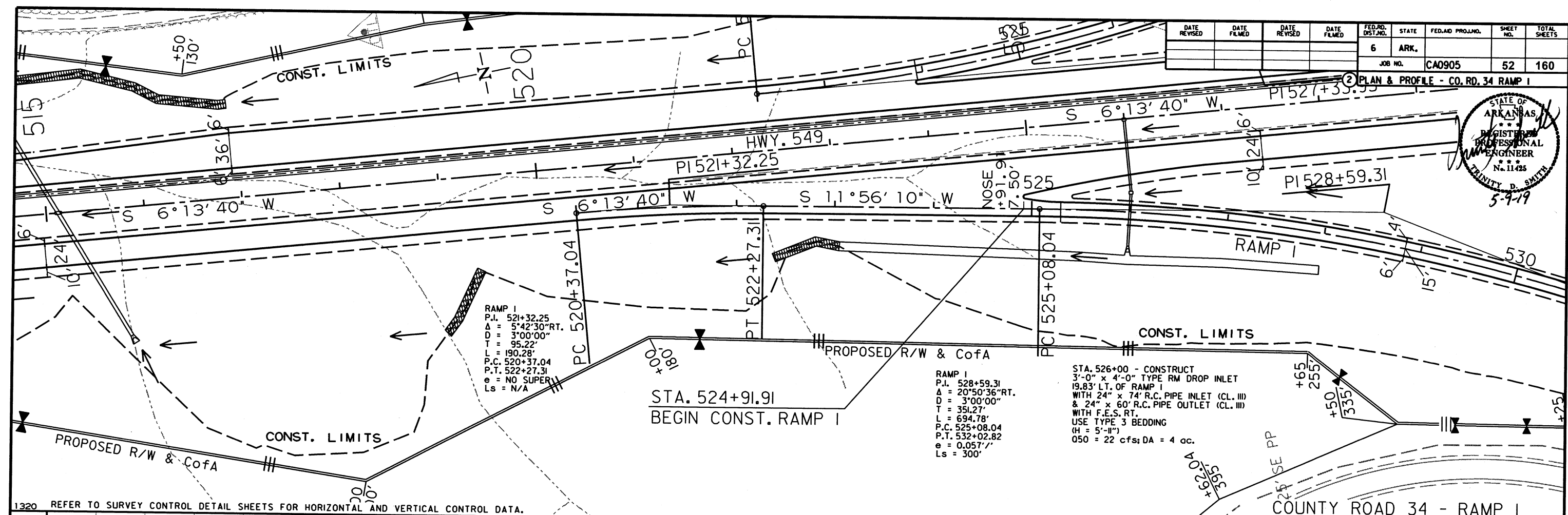
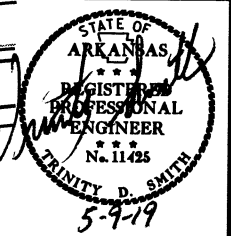
2 PLAN AND PROFILE - HWY. 549 (MAIN LANES)



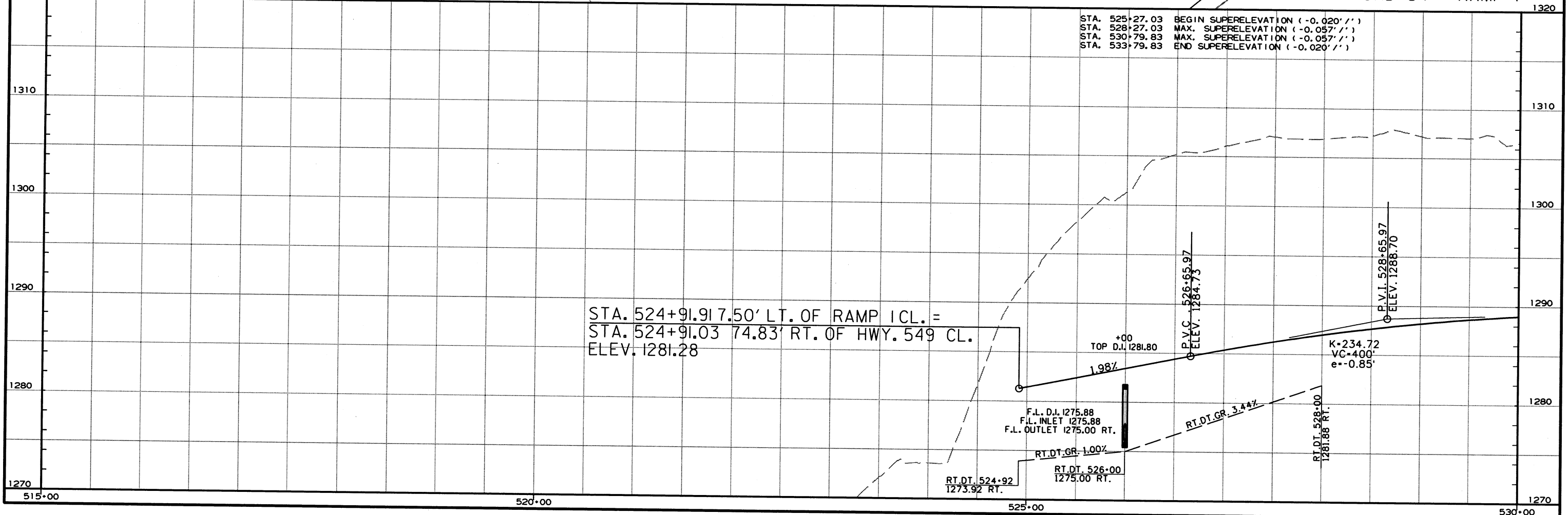
RCA0905.DGN 9/26/2016

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		52	160

JOB NO. CA0905



1320 REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

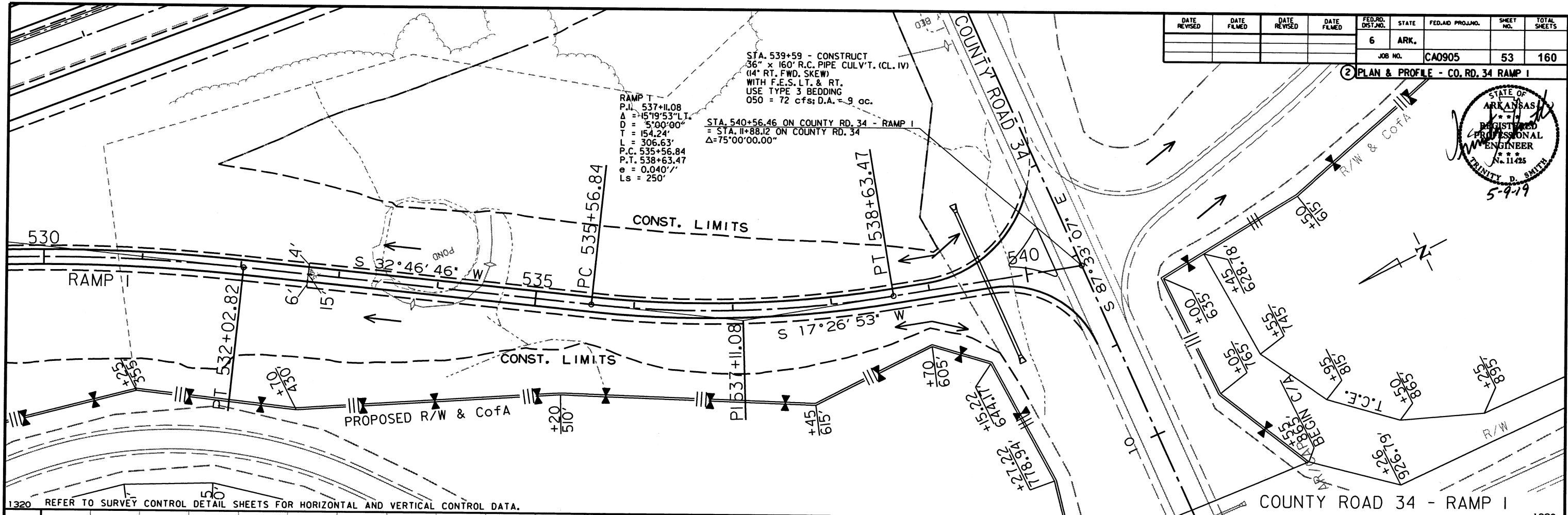


9/26/2016

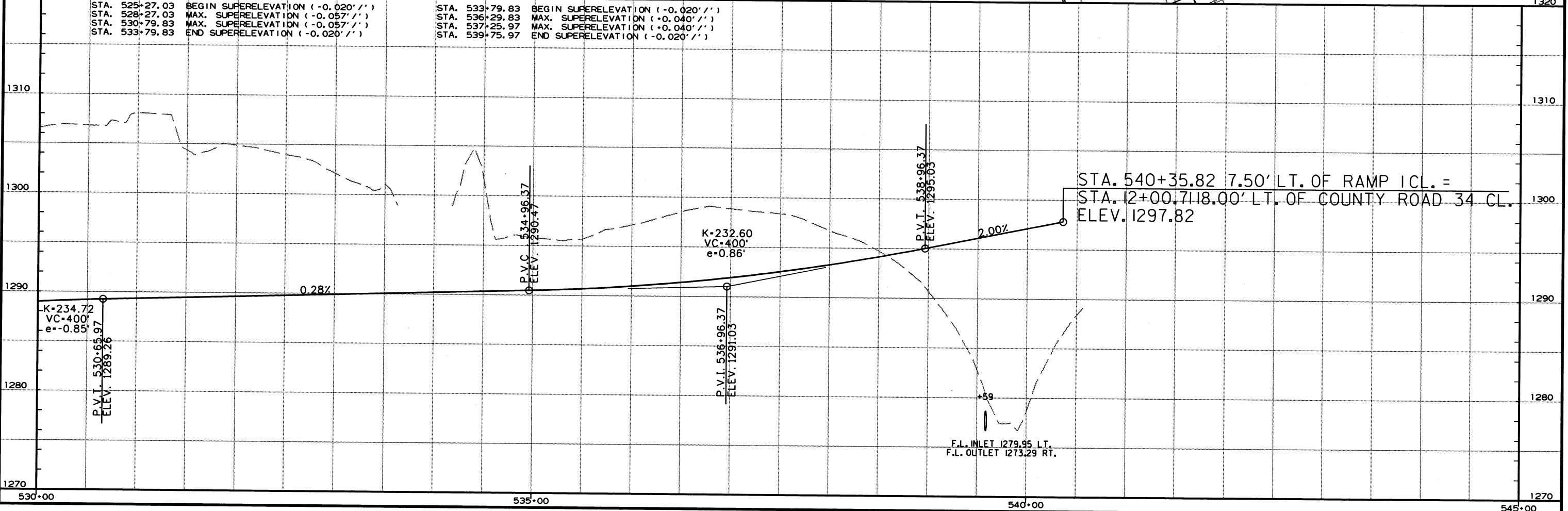
RCA0905.DGN

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. CA0905						53		160

2 PLAN & PROFILE - CO. RD. 34 RAMP I



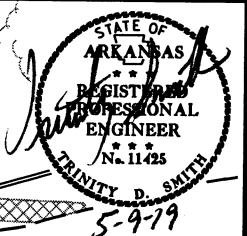
1320 REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.



RCA0905.DGN 9/26/2016

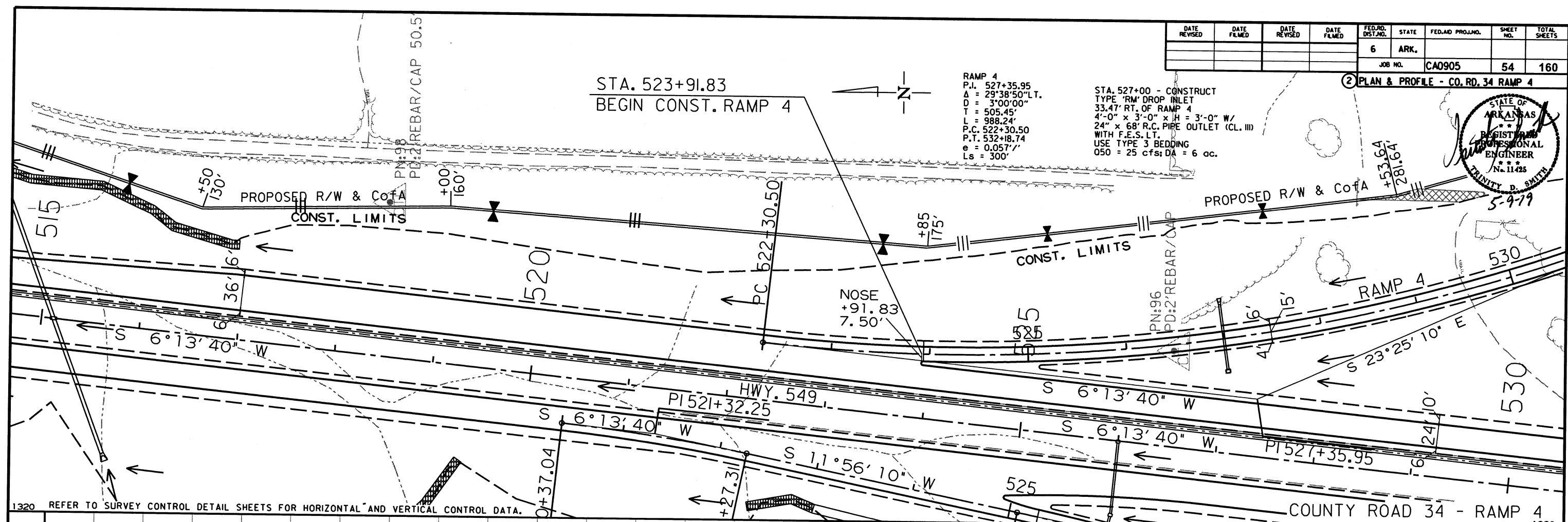
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. CA0905	54	160

2 PLAN & PROFILE - CO. RD. 34 RAMP 4



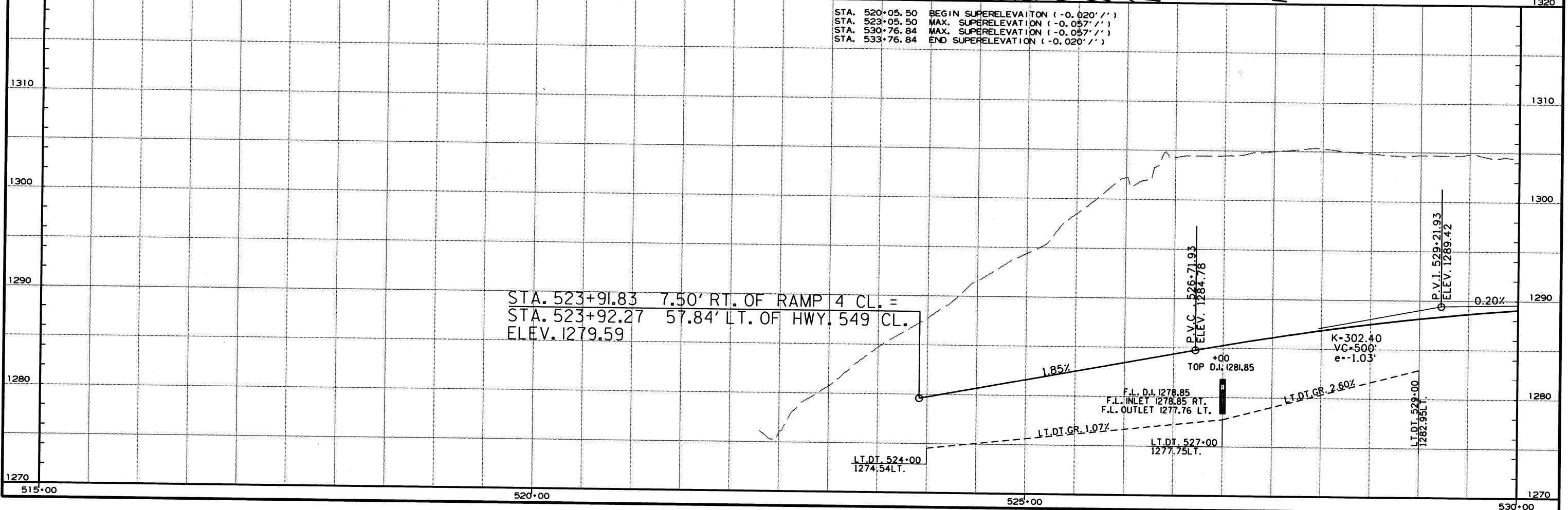
RAMP 4
 P.I. 527+35.95
 $\Delta = 29^{\circ}38'50''$ LT.
 $D = 3^{\circ}00'00''$
 $T = 505.45'$
 $L = 988.24'$
 P.C. 522+30.50
 P.T. 532+18.74
 $e = 0.057\%$
 $L_s = 300'$

STA. 527+00 - CONSTRUCT
 TYPE 'RM' DROP INLET
 33.47' RT. OF RAMP 4
 4'-0" x 3'-0" x H = 3'-0" W/
 24" x 68" R.C. PIPE OUTLET (CL. III)
 WITH F.E.S. LT.
 USE TYPE 3 BEDDING
 050 = 25 cfs; DA = 6 ac.



1320 REFER TO SURVEY CONTROL DETAIL SHEETS FOR HORIZONTAL AND VERTICAL CONTROL DATA.

STA. 520+05.50 BEGIN SUPERELEVATION (-0.020'/'')
 STA. 523+05.50 MAX. SUPERELEVATION (-0.057'/'')
 STA. 530+76.84 MAX. SUPERELEVATION (-0.057'/'')
 STA. 533+76.84 END SUPERELEVATION (-0.020'/'')



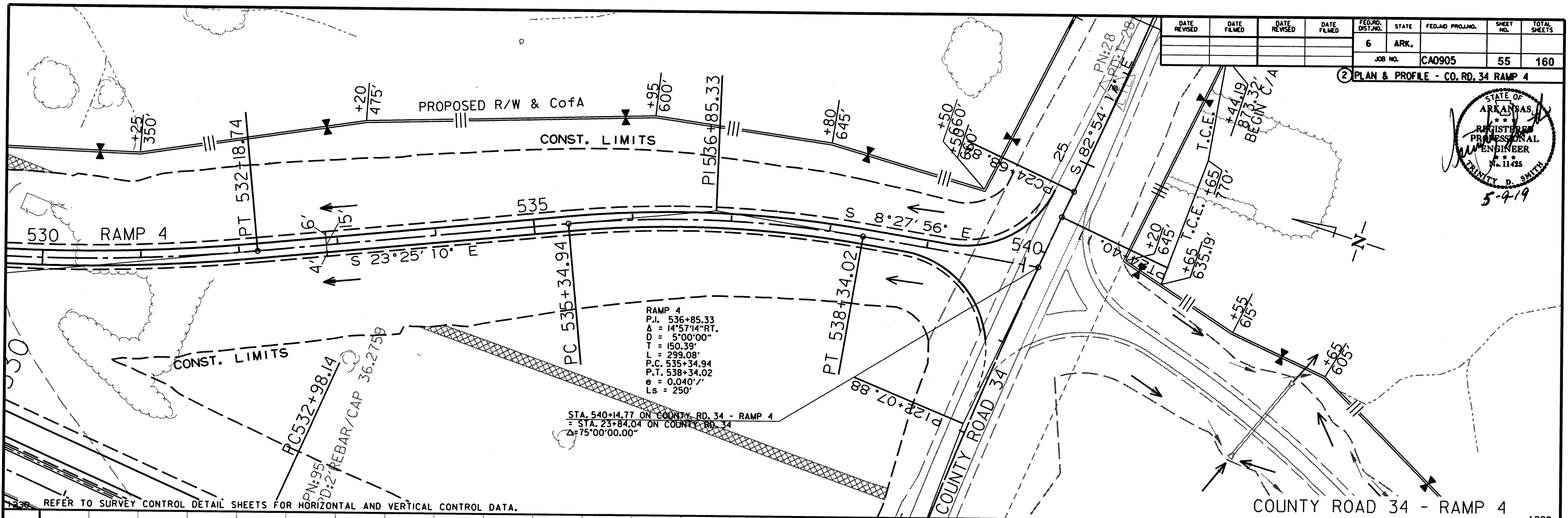
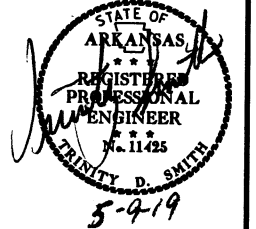
STA. 523+91.83 7.50' RT. OF RAMP 4 CL. =
 STA. 523+92.27 57.84' LT. OF HWY. 549 CL.
 ELEV. 1279.59

9/26/2016

RC40905.DGN

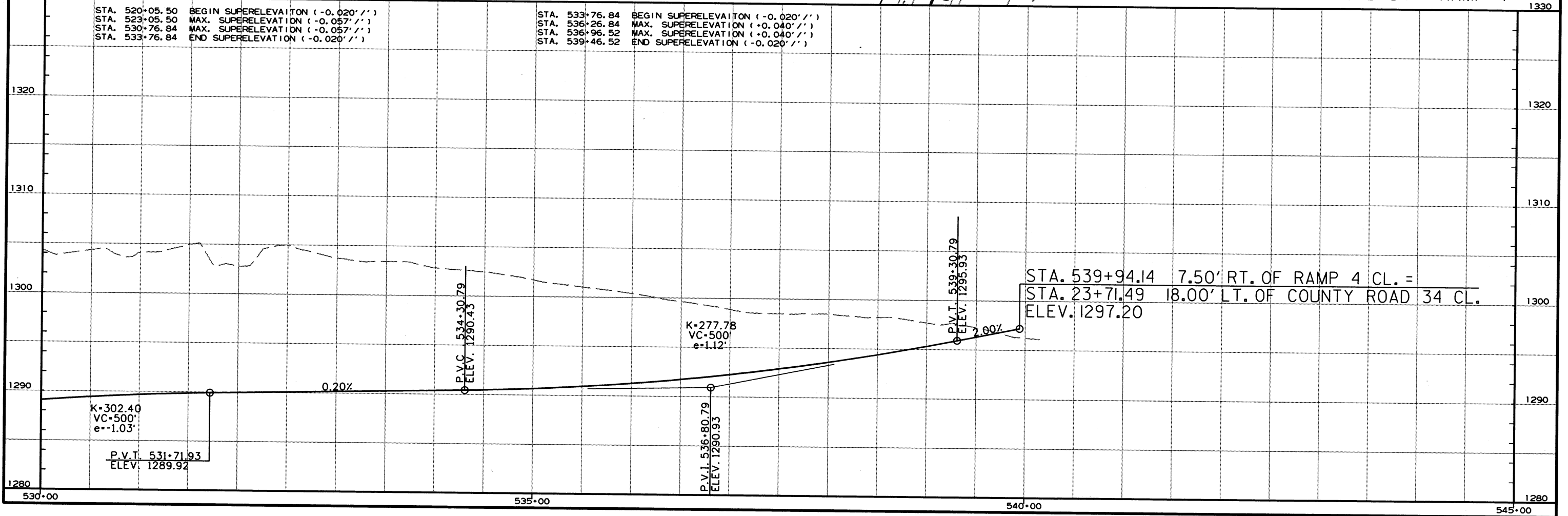
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		55	160
				JOB NO.	CA0905			

2 PLAN & PROFILE - CO. RD. 34 RAMP 4



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

STA. 520+05.50	BEGIN SUPERELEVATION (-0.020'/'')	STA. 533+76.84	BEGIN SUPERELEVATION (-0.020'/'')
STA. 523+05.50	MAX. SUPERELEVATION (-0.057'/'')	STA. 536+26.84	MAX. SUPERELEVATION (+0.040'/'')
STA. 530+76.84	MAX. SUPERELEVATION (-0.057'/'')	STA. 536+96.52	MAX. SUPERELEVATION (+0.040'/'')
STA. 533+76.84	END SUPERELEVATION (-0.020'/'')	STA. 539+46.52	END SUPERELEVATION (-0.020'/'')

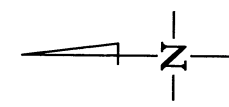
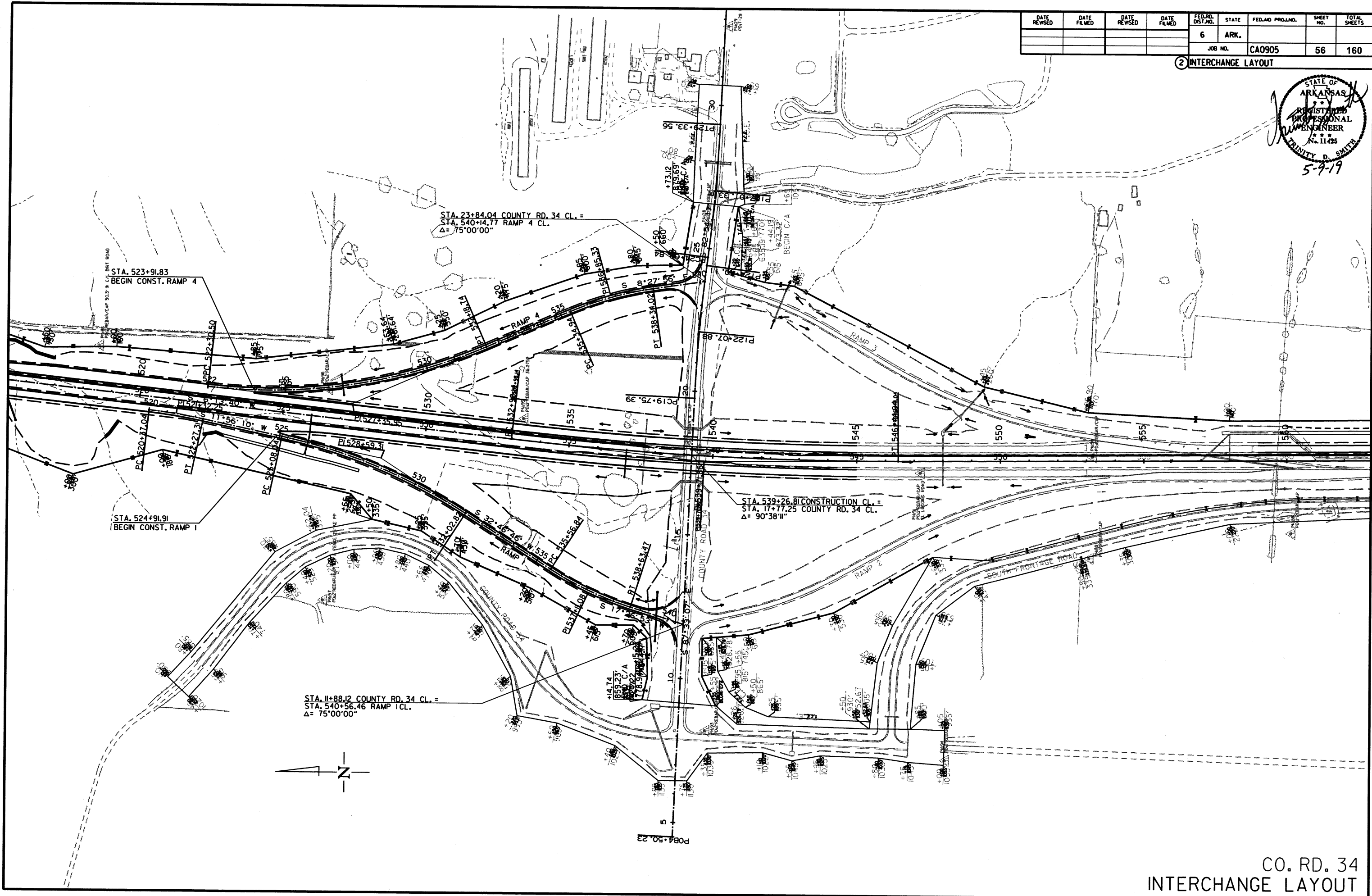
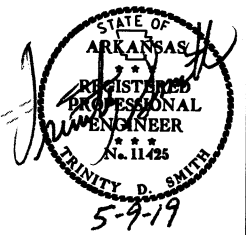


9/26/2016

RC0905.DGN

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		56	160
				JOB NO. CA0905		56		160

2 INTERCHANGE LAYOUT



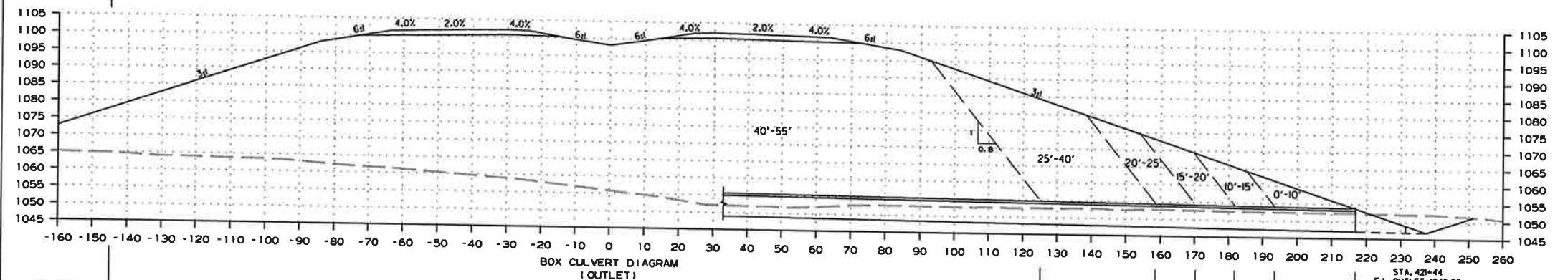
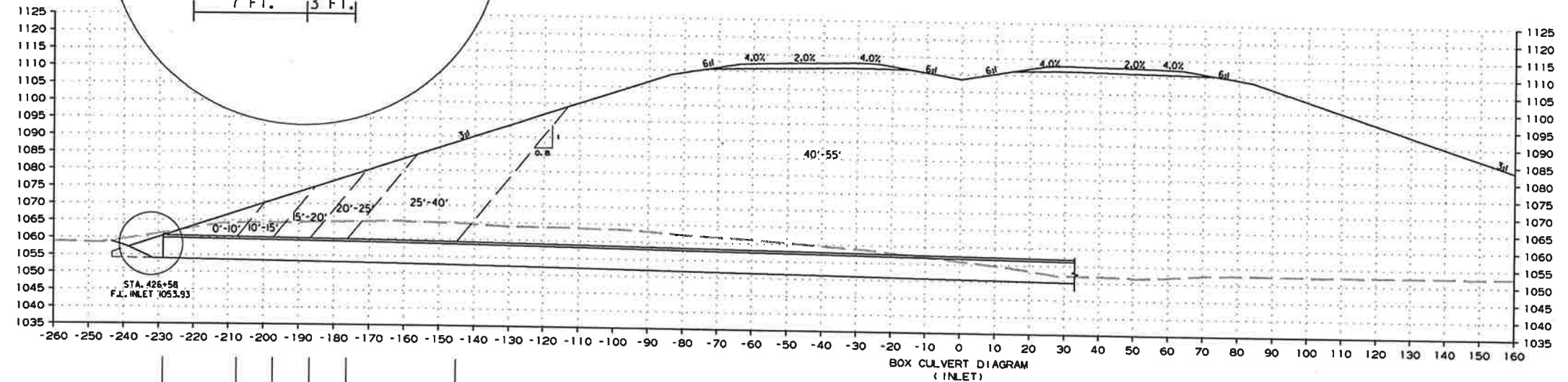
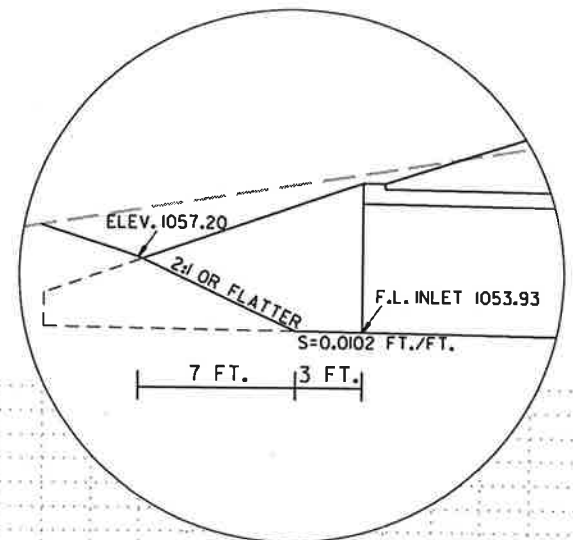
3/19/2019

RCA0905.DGN

CO. RD. 34
INTERCHANGE LAYOUT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6-26-19				6	ARK.			
				JOB NO. CA0905		57		160

2 CULVERT DIAGRAM



32.87' SECT. "A" | 16.23' "B" | 16.23' "C" | 16.23' "D" | 48.66' "G" | 420.34' SECTION "J" | 52.07' "G" | 18.09' "D" | 18.09' "C" | 18.09' "B" | 36.53' SECT. "A" | STA. 421+44 F.L. OUTLET 1046.89

STA. 423+87 CONSTRUCT
SEXTUPLE 8'x6'x694" R.C. BOX CULV'T.
(50' LT. FWD. SKEW)
Q50=1883cfs, D.A.=1399Ac.

DESCRIPTION	LENGTH LIN. FT.	CLASS "S" CONCRETE ROADWAY		REINFORCING STEEL - ROADWAY (GR. 60)		UNCLASSIFIED EXCAVATION FOR STRUCTURES - ROADWAY CU. YD.	SOLID SODDING SQ. YD.	WATER M.GAL.
		CU. YD.	L.F.	LBS.	L.F.			
SECTION "A"								
SECTION "B"	34.32	4.2777	274.18	761.43	26132.28	48.43		
SECTION "C"	34.32	4.616	148.81	857.61	29433.18	53.40		
SECTION "D"	34.32	4.968	170.50	883.01	30304.90	53.40		
SECTION "G"	100.73	7.551	760.81	824.09	83010.59	156.74		
SECTION "J"	420.34	8.992	3779.70	876.72	368520.48	654.05		
HEADWALLS & APRONS								
WINGS			**34.70		763.00		34	0.43
LAPS (20 LAPS @ 192.10 LBS. EACH)					3842.00		20	0.25
V.I.						19.35		
V.O.						21.26		
TOTALS:			5324.92		587810.43	1060.05	54	0.68

** INCLUDES: HEADWALLS, WINGWALLS, FOOTINGS, TOE WALLS AND APRONS.
*** INCLUDES: BARREL, HEADWALLS, AND APRONS.
BASIS OF ESTIMATE:
WATER.....12.6 GAL./SQ.YD.OF SOLID SODDING.

STANDARD DRAWINGS: SPECIAL DETAIL, RCB-1, RCB-2

STA. 423+87 - HWY. 549
R.C. BOX CULVERT DIAGRAM

HWY. 549 - STA. 423+87
CULVERT DIAGRAM

3/19/2019

RC-A0905.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. CA0905	58	160

② SIGNING SUMMARY OF QUANTITIES

SIGNING SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	TOTAL	UNIT
SS & 725	GUIDE SIGN - ROADSIDE MOUNTED (DEMOUNTABLE LEGEND)	1265	SQ. FT.
SP, SS, & 726	STANDARD SIGN	479	SQ. FT.
SS & 727	EXIT NUMBER PANEL (TYPE A)	95	SQ. FT.
730	BREAKAWAY SIGN SUPPORT (TYPE G-2)	8203	POUND
SP	OMNI-DIRECTIONAL BREAKAWAY SIGN SUPPORT (TYPE G-1)	10	EACH
SP	OMNI-DIRECTIONAL BREAKAWAY SIGN SUPPORT (TYPE G-2)	14	EACH
SP	OMNI-DIRECTIONAL BREAKAWAY SIGN SUPPORT (TYPE G2-2)	2	EACH
SP	OMNI-DIRECTIONAL BREAKAWAY SIGN SUPPORT (TYPE G2-4)	3	EACH

NOTES:

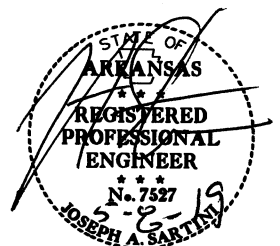
ALL EXISTING GUIDE SIGNS SHALL BE MAINTAINED IN SUCH A MANNER THAT THE SIGNS ARE FULLY VISIBLE, INTACT, AND ERECT FOR THE DURATION OF THE PROJECT, AND SHALL BE REMOVED WHEN THEIR USE IS NO LONGER REQUIRED. REMOVAL AND DISPOSAL OF SIGNS, SUPPORTS, AND FOUNDATIONS SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE CONSIDERED SUBSIDIARY TO OTHER ITEMS IN THE CONTRACT.

THE EXISTING SIGNS AND SUPPORTS SHALL BECOME THE PROPERTY OF THE CONTRACTOR. THE EXISTING FOOTINGS SHALL BE REMOVED AND THE HOLES FILLED WITH A SUITABLE MATERIAL AND COMPACTED.

EXISTING LOGOS WILL BE RELOCATED TO THE NEW LOGO SIGN BY THE CONTRACTOR. THE LOGO INSTALLATION SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE CONSIDERED SUBSIDIARY TO OTHER ITEMS IN THE CONTRACT.

THE CONTRACTOR SHOULD MAKE EVERY EFFORT TO LOCATE BURIED UTILITIES PRIOR TO EXCAVATION INCLUDING, BUT NOT LIMITED TO, CALLING ARKANSAS ONE CALL CENTER (800) 482-8998 FOR LOCATES. SHOULD IT BE DETERMINED A POSSIBILITY OF A UTILITY CONFLICT, CONTRACTOR SHALL CONSULT WITH THE RESIDENT ENGINEER FOR FURTHER GUIDANCE.

BREAKAWAY SIGN SUPPORT TOTAL IS CALCULATED BY TAKING THE LENGTH OF H1, H2, H3, AND THE STUB POST AND MULTIPLYING BY THE BEAM WEIGHT (LBS).



DATE REVISED	DATE FILED	DATE RE-USED	DATE FILED	FED. ROAD NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
							JOB NO.	CA0905
								59 160

② SIGN QUANTITY SHEET

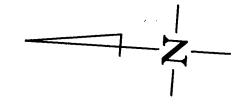
STANDARD SIGNS FLAT SHEET														
SIGN NO./ LOCATION	OMNI-DIRECTIONAL BREAKAWAY SIGN SUPPORTS												STANDARD SIGN SQ. FT.	
	TYPE													
	G1	G2	G2-1	G2-2	G2-3	G2-4	G2-5	G2-6	G2-7	G2-8	G2-9	G2-10		
	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.		
SS-49-551+00NBR	1													20.00
SS-49-525+25SBR	1													20.00
SS-49-425+00SB	1													20.00
SS-49-514+00NB	1													20.00
SS-49-547+50SB	1													16.00
SS-49-530+00NB	1													16.00
SS-49-412+50SB	1													16.00
SS-49-425+50NB	1													16.00
SS-49-485+50SB	1													16.00
SS-49-500+00NB	1													16.00
SS-49-530+00SBR(A)	1													16.00
SS-49-530+00SBR(B)	1													16.00
SS-49-536+00SBR(A)	1													9.00
SS-49-536+00SBR(B)	1													9.00
SS-34-13+25EB	1													9.00
SS-34-22+00WB	1													9.00
SS-49-415+00SB	1													13.00
SS-49-517+50NB	1													13.00
SS-49-541+50SBR	1													16.00
SS-49-539+75NBR	1													16.00
SS-34-22+00EB	1													9.00
SS-34-13+75WB	1													9.00
SS-34-25+00WB	1													9.00
SS-34-10+00EB	1													9.00
SS-49-427+50SB				1										24.00
SS-49-511+50NB				1										24.00
SS-49-540+25SBR							1							31.00
SS-49-540+00SBR(A)							1							31.00
SS-49-540+00SBR(B)							1							31.00
TOTALS:	10	14		2		3								479.00

MAIN LANES ROADSIDE MOUNTED SIGNING QUANTITIES

SIGN NO./ LOCATION	OMNI-DIRECTIONAL SIGN SUPPORT			I-BEAM STRUCTURE TYPE			GUIDE SIGN DEMOUNTABLE LEGEND			I-BEAM BREAKAWAY SIGN SUPPORT									EXIT NUMBER PANEL							
	G1	G2	G3	G1	G2	G3	LENGTH	HEIGHT	SQ. FT.	STEEL			SIGN			STUB POST			FOOTINGS			SIGN POST	LEGEND	TYPE		
										A-572			H - 1	H - 2	H - 3	H - 1	H - 2	H - 3	DIA.	DEPTH	EMBED.			AND STUB	A	B
							BEAM	LBS	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	LIN FT	POUND											
ML-49-289-1SB					1		17.00	12.00	204.00	W10	26.00	19.00	19.00	5.66	5.66	3.00	8.00	5.33	1282.32							
ML-49-289-2SB					1		14.50	7.50	108.75	W8	18.00	14.50	15.50	4.66	4.66	2.50	6.50	4.33	707.76							
ML-49-289-3SB					1		18.00	6.00	108.00	W8	18.00	13.00	14.00	4.66	4.66	2.50	6.50	4.33	653.76							
ML-49-289-4SB					1		9.00	4.00	36.00	W6	9.00	11.00	12.00	3.33	3.33	1.50	4.50	3.00	266.94							
ML-49-289-5SB					1		11.00	5.00	55.00	W8	18.00	12.00	13.00	4.33	4.33	2.00	6.00	4.00	605.88							
ML-49-289-6SB					1		12.00	11.00	132.00	W10	22.00	18.00	19.00	5.33	5.33	3.00	7.50	5.00	1048.52	289	23.75					
ML-49-289-7SB					1		15.50	9.50	147.25	W10	22.00	16.50	17.50	5.33	5.33	3.00	7.50	5.00	982.52	289	23.75					
ML-49-289-1NB					1		12.00	11.00	132.00	W10	22.00	18.00	19.00	5.33	5.33	3.00	7.50	5.00	1048.52	289	23.75					
ML-49-289-2NB					1		15.50	9.50	147.25	W10	22.00	16.50	17.50	5.33	5.33	3.00	7.50	5.00	982.52	289	23.75					
ML-49-289-4NB					1		14.00	5.50	77.00	W8	18.00	12.50	13.50	4.33	4.33	2.00	6.00	4.00	623.88							
EXIT 289-SB		1					8.00	5.00	40.00																	
EXIT 289-NB		1					8.00	5.00	40.00																	
SS-49-537+00SBR		1					7.50	2.50	18.75																	
SS-49-543+50NBR		1					7.50	2.50	18.75																	
TOTALS :		4			10				1264.75											8202.62				95.00		



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
							CA0905	60 160
② SIGN PLACEMENT SHEET								



**MISSOURI
ARKANSAS**



INSTALL
ML 49-289-1SB
STA 410+50 SB

INSTALL
SS 49-412+50SB

INSTALL
SS 49-415+00SB

72
4
Bentonville 15
Fort Smith 95

INSTALL
ML 49-289-2SB
STA 422+00 SB

INSTALL
SS 49-425+50NB

SPEED
LIMIT
70

INSTALL
SS 49-425+00SB

STATE LAW
SLOWER
TRAFFIC
KEEP
RIGHT

INSTALL
SS 49-427+50SB
(CENTER MEDIAN)

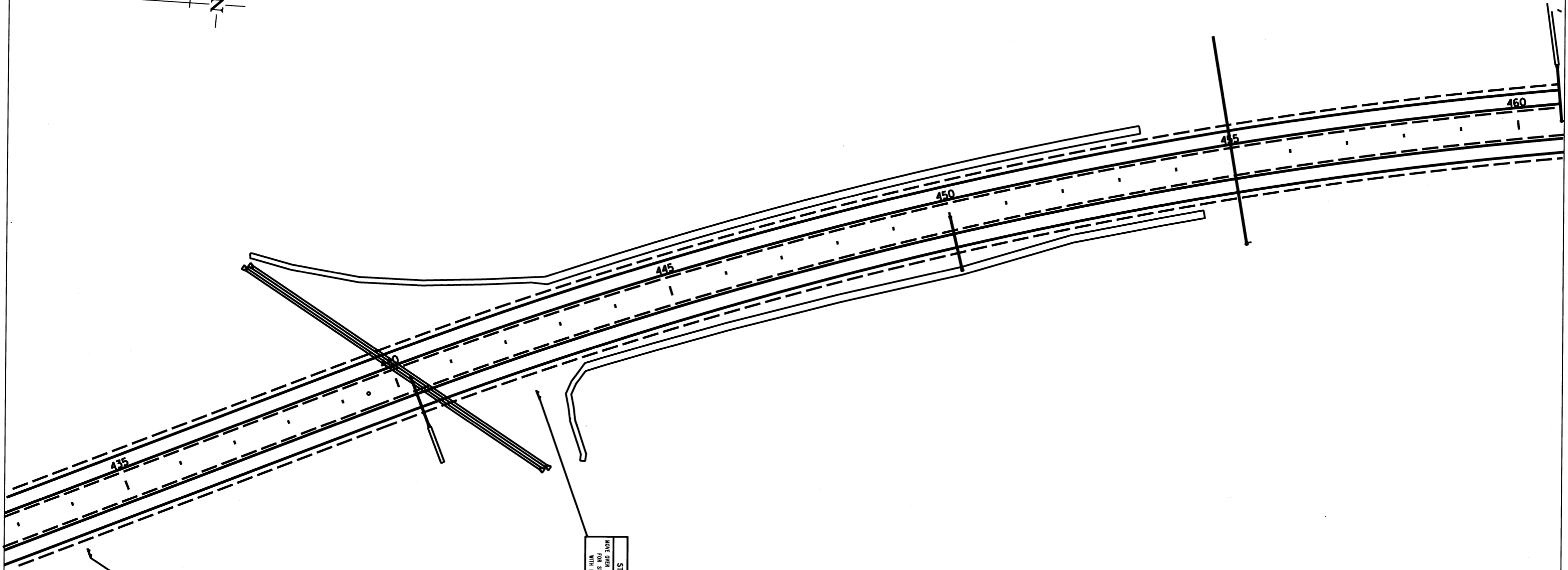
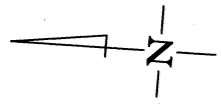
SPEED LAWS
STRICTLY ENFORCED
NO TOLERANCE

INSTALL
ML 49-289-3SB
STA 429+00 SB



STA 410 TO STA 433

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
							JOB NO. CA0905	61 160
② SIGN PLACEMENT SHEET								



STATE LAW
SEAT BELT
USE REQUIRED

INSTALL
ML 49-289-4SB
STA 434+00 SB

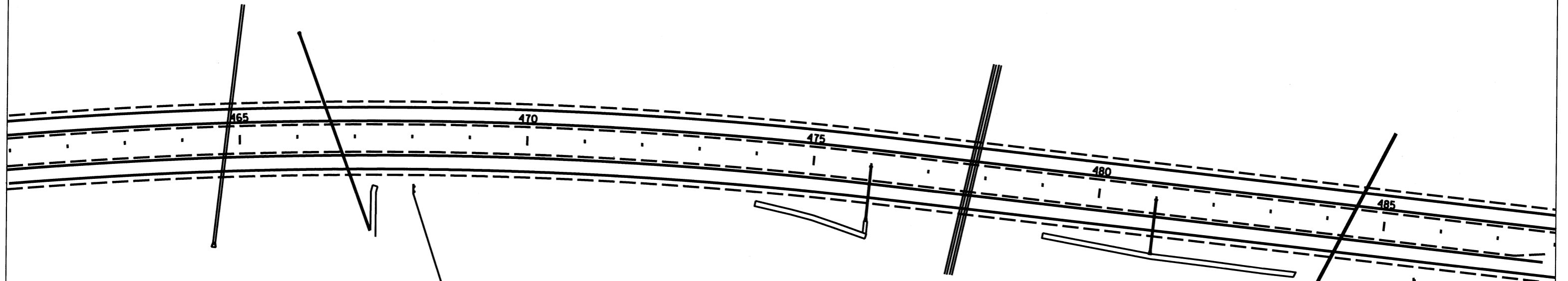
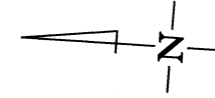
STATE LAW
MOVE OVER SAFELY OR SLOW DOWN
FOR STOPPED VEHICLES
WITH FLASHING LIGHTS

INSTALL
ML 49-289-5SB
STA 442+00 SB

STA 433 TO STA 461



DATE REVISED	DATE PLANNED	DATE REVISED	DATE PLANNED	FED. ROAD NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	CA0905	62	160	
② SIGN PLACEMENT SHEET								



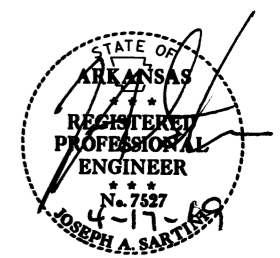
EXIT 289
 Highlands Blvd
 1 MILE

INSTALL
 ML 49-289-6SB
 STA 468+00 SB

BRIDGE
 (SEE BEFORE
 ROAD)

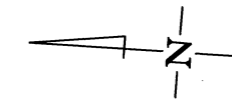
INSTALL
 SS 49-485+50SB

STA 461 TO STA 488

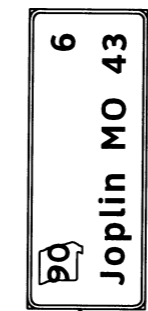


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. CA0905							63	160
② SIGN PLACEMENT SHEET								

HIGHLANDS BLVD. / CR. 21N.



INSTALL
SS 49-500+00NB



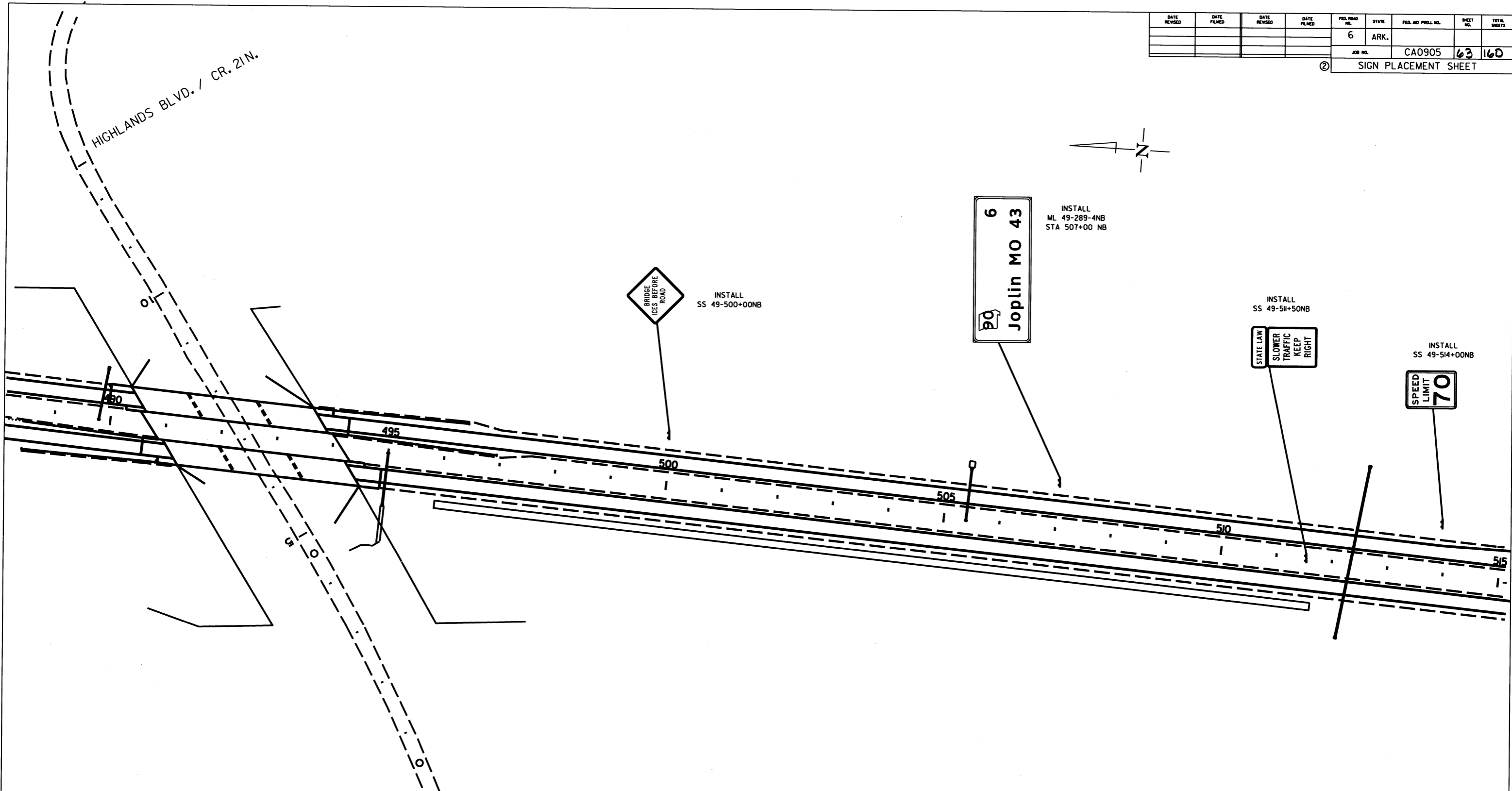
INSTALL
ML 49-289-4NB
STA 507+00 NB



INSTALL
SS 49-511+50NB



INSTALL
SS 49-514+00NB

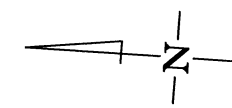


STA 488 TO STA 515



DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS	
				6	ARK.				
							JOB NO. CA0905	64	160

② SIGN PLACEMENT SHEET



INSTALL
SS 34-25-00WB
67
NORTH

INSTALL
SS 49-539-75NBR

INSTALL
SS 34-22-00WB

INSTALL
SS 49-530-00NB

INSTALL
SS 49-517-50NB

515

520

525

530

535

525

530

535

540

Highlands Blvd
EXIT 289

INSTALL
ML 49-289-7SB
STA 519-00 SB

EXIT 289

INSTALL
EXIT 289-SB
STA 525-75 SB

EXIT 40 MPH

INSTALL
SS 49-525-25SBR

INSTALL
SS 49-530-00SBR(A)
SS 49-530-00SBR(B)

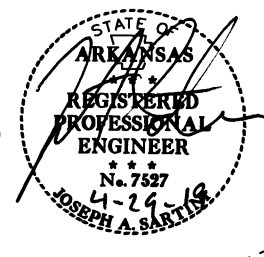
INSTALL
SS 49-536-00SBR(A)
SS 49-536-00SBR(B)

INSTALL
SS 34-13-75WB
67
SOUTH

INSTALL
SS 49-540-00SBR(A)
SS 49-540-00SBR(B)

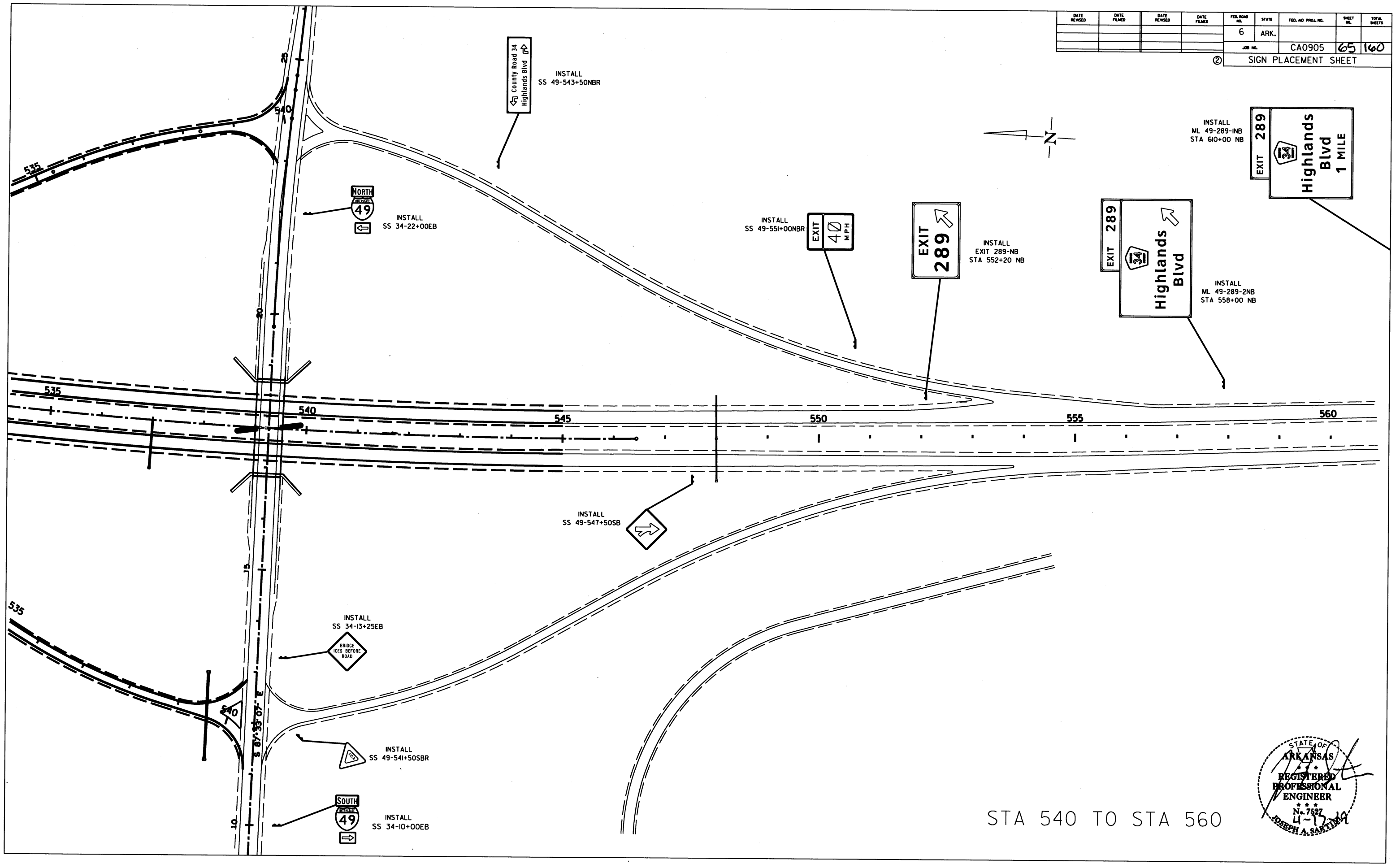
INSTALL
SS 49-537-00SBR

INSTALL
SS 49-540-25SBR



STA 515 TO STA 540

DATE REVISED	DATE PLANNED	DATE REVISED	DATE PLANNED	FED. ROAD NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
							JOB NO. CA0905	65 160
SIGN PLACEMENT SHEET								



INSTALL
SS 49-543+50NBR

INSTALL
SS 34-22+00EB

INSTALL
SS 49-551+00NBR

INSTALL
EXIT 289-NB
STA 552+20 NB

INSTALL
ML 49-289-2NB
STA 558+00 NB

INSTALL
ML 49-289-1NB
STA 610+00 NB

INSTALL
SS 49-547+50SB

INSTALL
SS 34-13+25EB

INSTALL
SS 49-541+50SBR

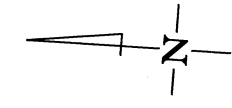
INSTALL
SS 34-10+00EB

EXIT 289
Highlands Blvd
1 MILE

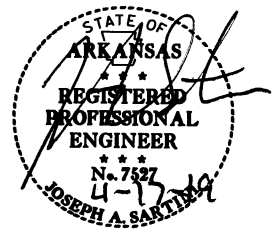
EXIT 289
Highlands Blvd

EXIT 289

EXIT 40
MPH

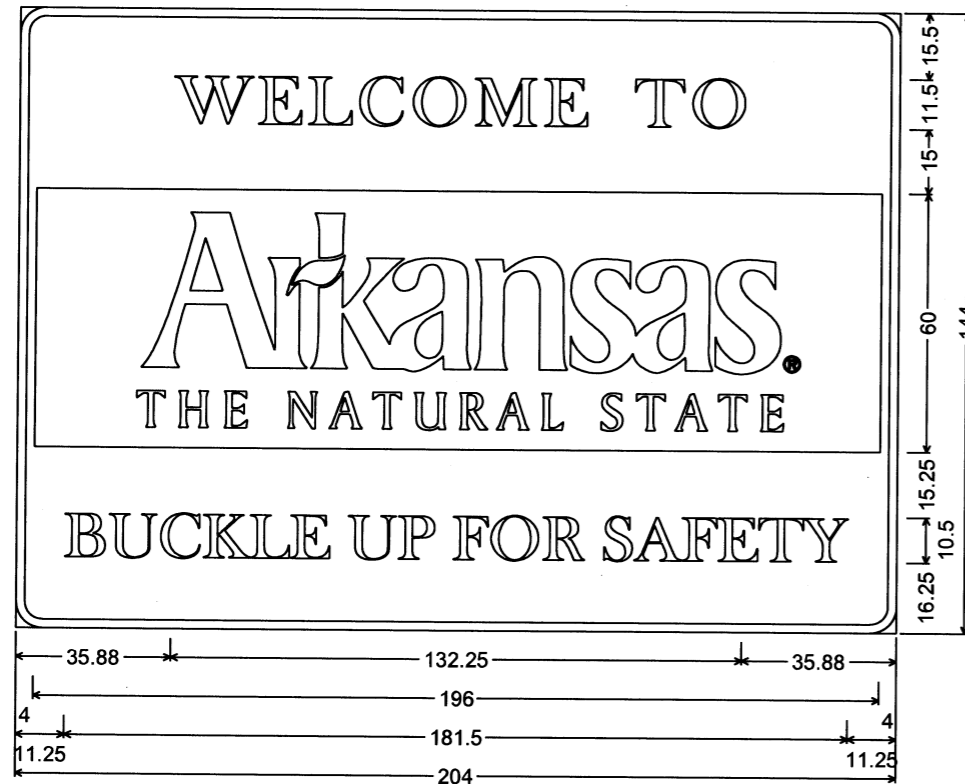


STA 540 TO STA 560



DATE REVISION	DATE FILMED	DATE REVISION	DATE FILMED	FED. ROAD NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
							JOB NO. CA0905	66 160
SIGN LAYOUT SHEET								

ML 49-289-1SB



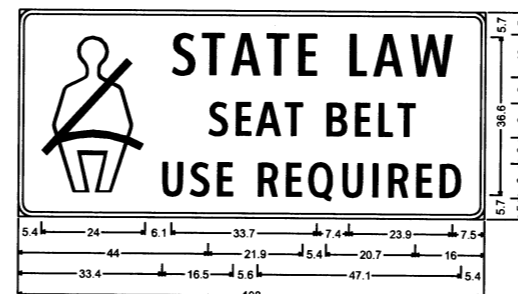
6.00" Radius, 2.00" Border, White on, Blue;
Welcome; Arkansas; Buckle;

ML 49-289-4NB



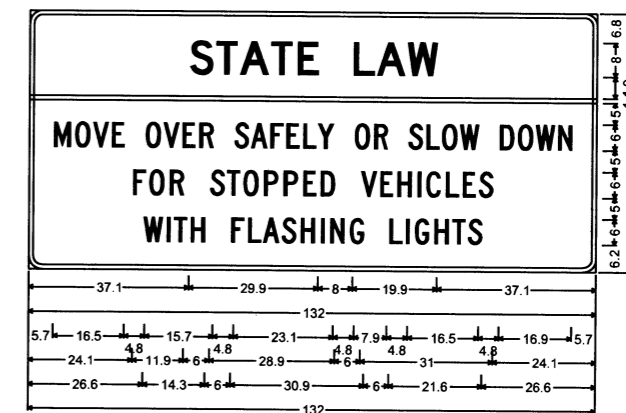
ML 49-289-4NB;
6.0" Radius, 2.0" Border, White on, Green;
State Highway 90 M1-5a, "9", ClearviewHwy-S-W-R; "Joplin MO", ClearviewHwy-S-W-R; "43", ClearviewHwy-S-W-R;

ML 49-289-4SB



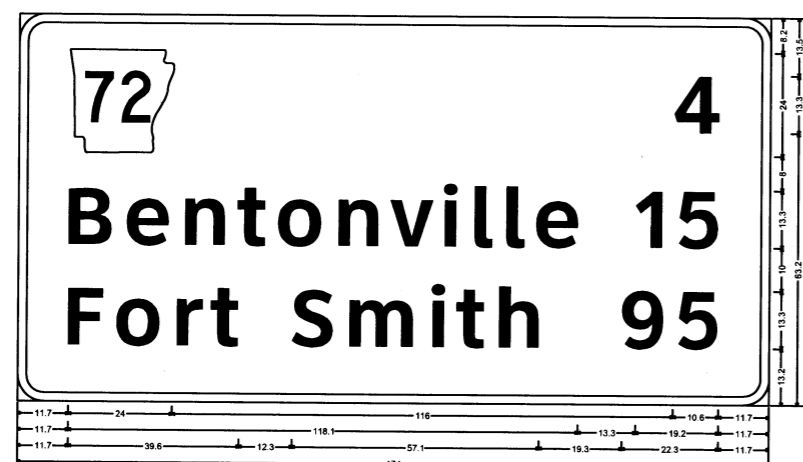
3.0" Radius, 1.0" Border, Black on, White;
Symbol RG015; "STATE LAW", ClearviewHwy-2-W;
"SEAT BELT", ClearviewHwy-2-B; "USE REQUIRED", ClearviewHwy-2-B;

ML 49-289-5SB



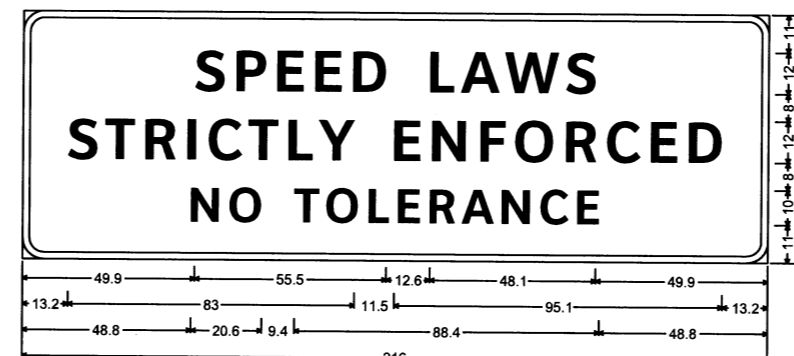
3.0" Radius, 1.0" Border, Black on, White;
"STATE LAW", D 2K;
"MOVE OVER SAFELY OR SLOW DOWN", C 2K 80% spacing;
"FOR STOPPED VEHICLES", C 2K; "WITH FLASHING LIGHTS", C 2K;

ML 49-289-2SB



ML 49-289-2SB;
6.0" Radius, 2.0" Border, White on, Green;
"72", ClearviewHwy-S-W-R; "Bentonville", ClearviewHwy-S-W-R; "15", ClearviewHwy-S-W-R; "Fort Smith", ClearviewHwy-S-W-R; "95", ClearviewHwy-S-W-R;

ML 49-289-3SB



6.0" Radius, 2.0" Border, Black on, White;
"SPEED LAWS", ClearviewHwy-5-W-R; "STRICTLY ENFORCED", ClearviewHwy-5-W-R;
"NO TOLERANCE", ClearviewHwy-5-W-R;



DATE REVISION	DATE FILED	DATE REVISION	DATE FILED	FED. ROAD NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. CA0905							67	160

Ⓢ SIGN LAYOUT SHEET

ML 49-289-6SB



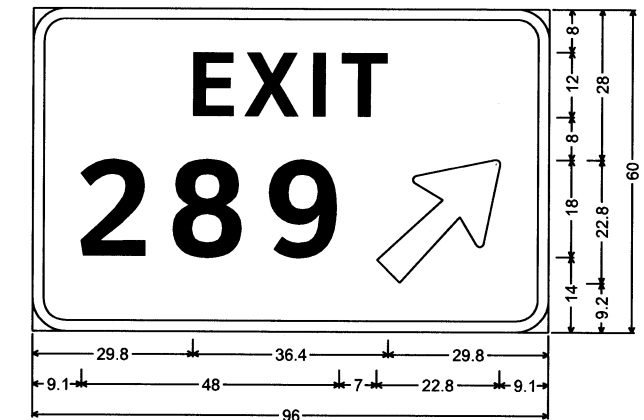
6.0" Radius, 2.0" Border, White on, Green;
 "EXIT", ClearviewHwy-5-W-R; "289", ClearviewHwy-5-W-R;
 ML49-289-6SB;
 6.0" Radius, 2.0" Border, White on, Green;
 "Highlands", ClearviewHwy-5-W-R; "Blvd", ClearviewHwy-5-W-R;
 "1", ClearviewHwy-5-W-R; "MILE", ClearviewHwy-5-W-R;

ML 49-289-7SB



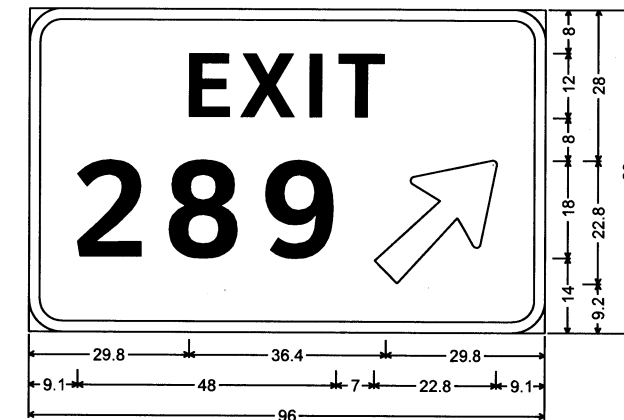
6.0" Radius, 2.0" Border, White on, Green;
 "EXIT", ClearviewHwy-5-W-R; "289", ClearviewHwy-5-W-R;
 ML49-289-7SB;
 6.0" Radius, 2.0" Border, White on, Green;
 "Highlands", ClearviewHwy-5-W-R; "Blvd", ClearviewHwy-5-W-R; Arrow Custom - 35.8" 45';

EXIT 289-NB



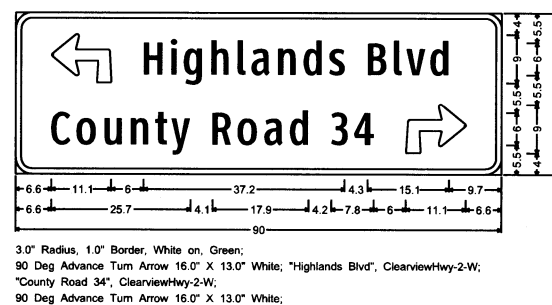
EXIT289-NB ;
 6.0" Radius, 2.0" Border, White on, Green;
 "EXIT", ClearviewHwy-5-W-R; "289", ClearviewHwy-5-W-R;
 Arrow Custom - 29.0" 45';

EXIT 289-SB



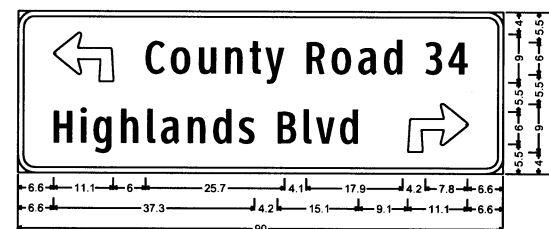
EXIT289-SB ;
 6.0" Radius, 2.0" Border, White on, Green;
 "EXIT", ClearviewHwy-5-W-R; "289", ClearviewHwy-5-W-R;
 Arrow Custom - 29.0" 45';

SS 49-537+00SBR



3.0" Radius, 1.0" Border, White on, Green;
 90 Deg Advance Turn Arrow 16.0" X 13.0" White; "Highlands Blvd", ClearviewHwy-2-W;
 "County Road 34", ClearviewHwy-2-W;
 90 Deg Advance Turn Arrow 16.0" X 13.0" White;

SS 49-543+50NBR



3.0" Radius, 1.0" Border, White on, Green;
 90 Deg Advance Turn Arrow 16.0" X 13.0" White;
 "County Road 34", ClearviewHwy-2-W; "Highlands Blvd", ClearviewHwy-2-W;
 90 Deg Advance Turn Arrow 16.0" X 13.0" White;



ML 49-289-INB



6.0" Radius, 2.0" Border, White on, Green;
 "EXIT", ClearviewHwy-5-W-R; "289", ClearviewHwy-5-W-R;

ML49-289-1NB;
 6.0" Radius, 2.0" Border, White on, Green;
 "Highlands", ClearviewHwy-5-W-R; "Blvd", ClearviewHwy-5-W-R;
 "1", ClearviewHwy-5-W-R; "MILE", ClearviewHwy-5-W-R;



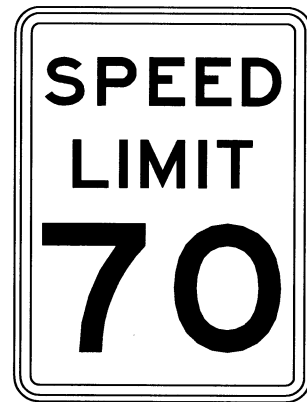
W8-13
 36X36

SS 34-13+25EB
 SS 34-22+00WB

ML 49-289-2NB

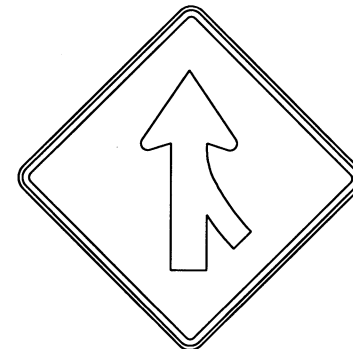


6.0" Radius, 2.0" Border, White on, Green;
 "EXIT", ClearviewHwy-5-W-R; "289", ClearviewHwy-5-W-R;
 ML49-289-2NB;
 6.0" Radius, 2.0" Border, White on, Green;
 "Highlands", ClearviewHwy-5-W-R; "Blvd", ClearviewHwy-5-W-R; Arrow Custom - 35.8" 45';



R2-1
 48X60

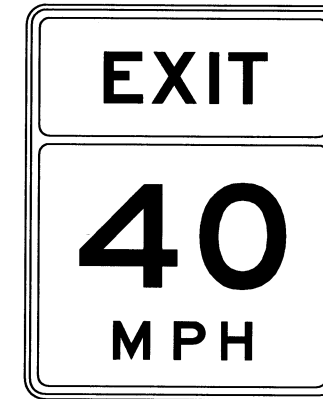
SS 49-425+00SB
 SS 49-514+00NB



W4-1R
 48X48

SS 49-547+50SB
 SS 49-530+00NB

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. ROAD NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
							JOB NO. CA0905	68 160
SIGN LAYOUT SHEET								



WI3-2
 48X60

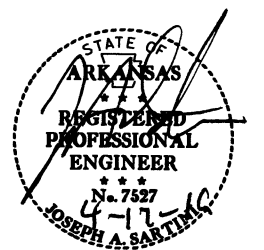
SS 49-551+00NBR
 SS 49-525+25SBR



SPEC
 48X12

R4-3
 48X60

SS 49-427+50SB
 SS 49-511+50NB

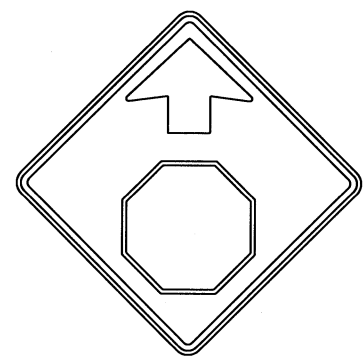


DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
							JOB NO. CA0905	69 160
② SIGN LAYOUT SHEET								



W8-13
48X48

SS 49-412+50SB
SS 49-425+50NB
SS 49-485+50SB
SS 49-500+00NB



W3-1
48X48

SS 49-530+00SBR(A)
SS 49-530+00SBR(B)



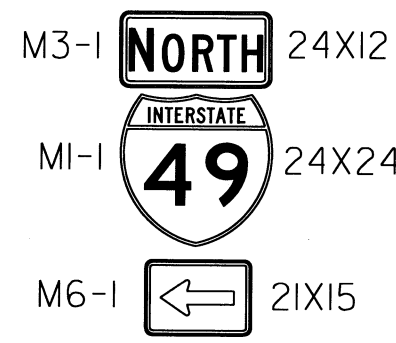
M3-3
30X15
MI-1
36X36

SS 49-415+00SB

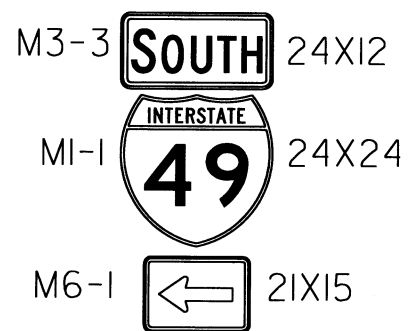


M3-1
30X15
MI-1
36X36

SS 49-517+50NB



M3-1 24X12
MI-1 24X24
M6-1 21X15
SS 34-22+00EB

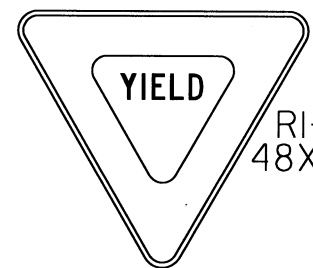


M3-3 24X12
MI-1 24X24
M6-1 21X15
SS 34-13+75WB



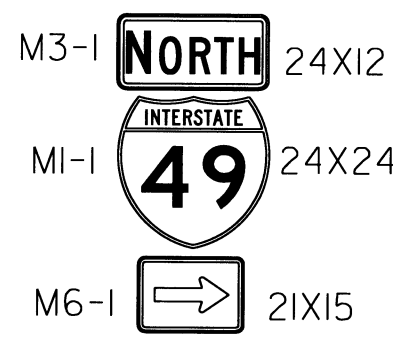
R5-1A
42X30

SS 49-536+00SBR(A)
SS 49-536+00SBR(B)

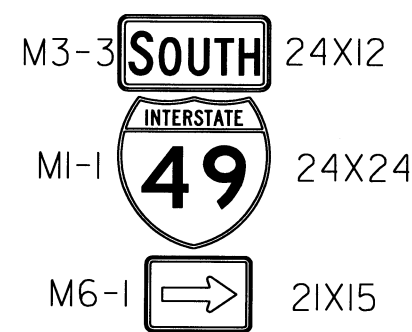


RI-2
48X48

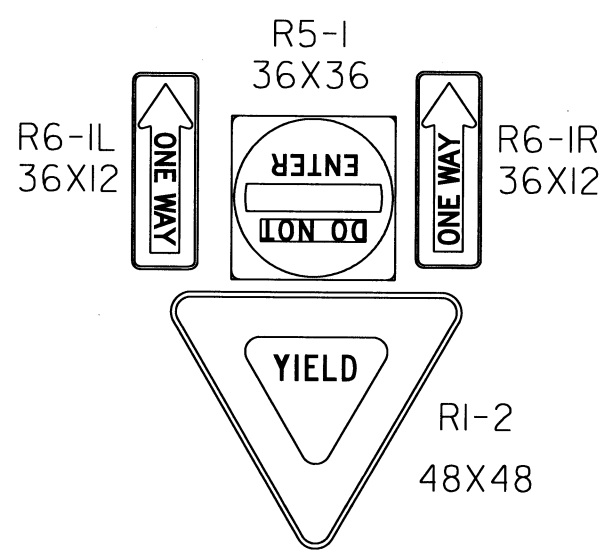
SS 49-541+50SBR
SS 49-539+75NBR



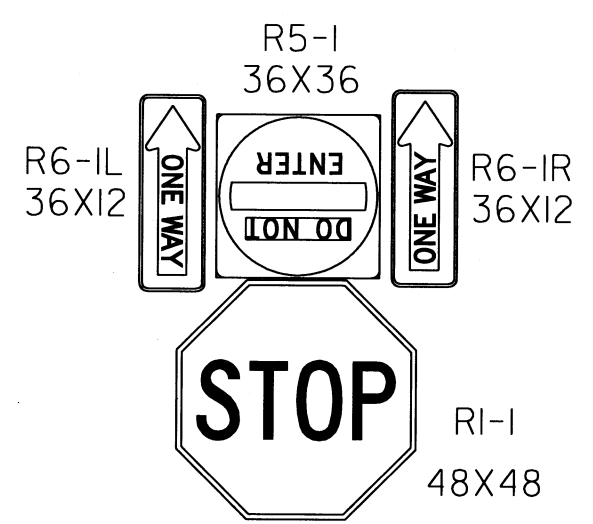
M3-1 24X12
MI-1 24X24
M6-1 21X15
SS 34-25+00WB



M3-3 24X12
MI-1 24X24
M6-1 21X15
SS 34-10+00EB



R5-1 36X36
R6-IL 36X12
R6-IR 36X12
RI-2 48X48
SS 49-540+25SBR

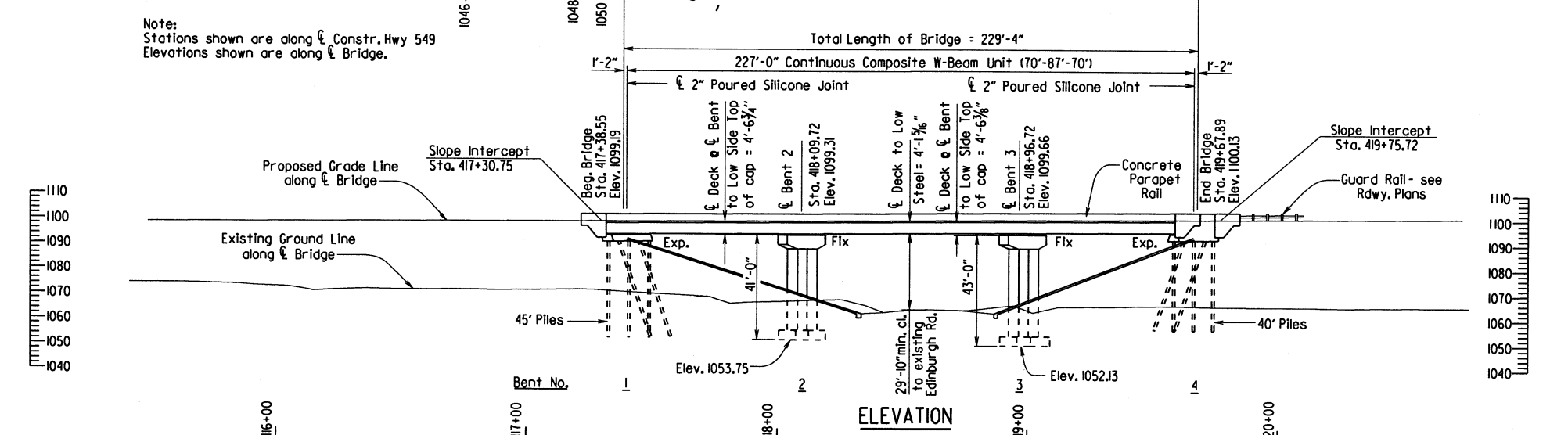
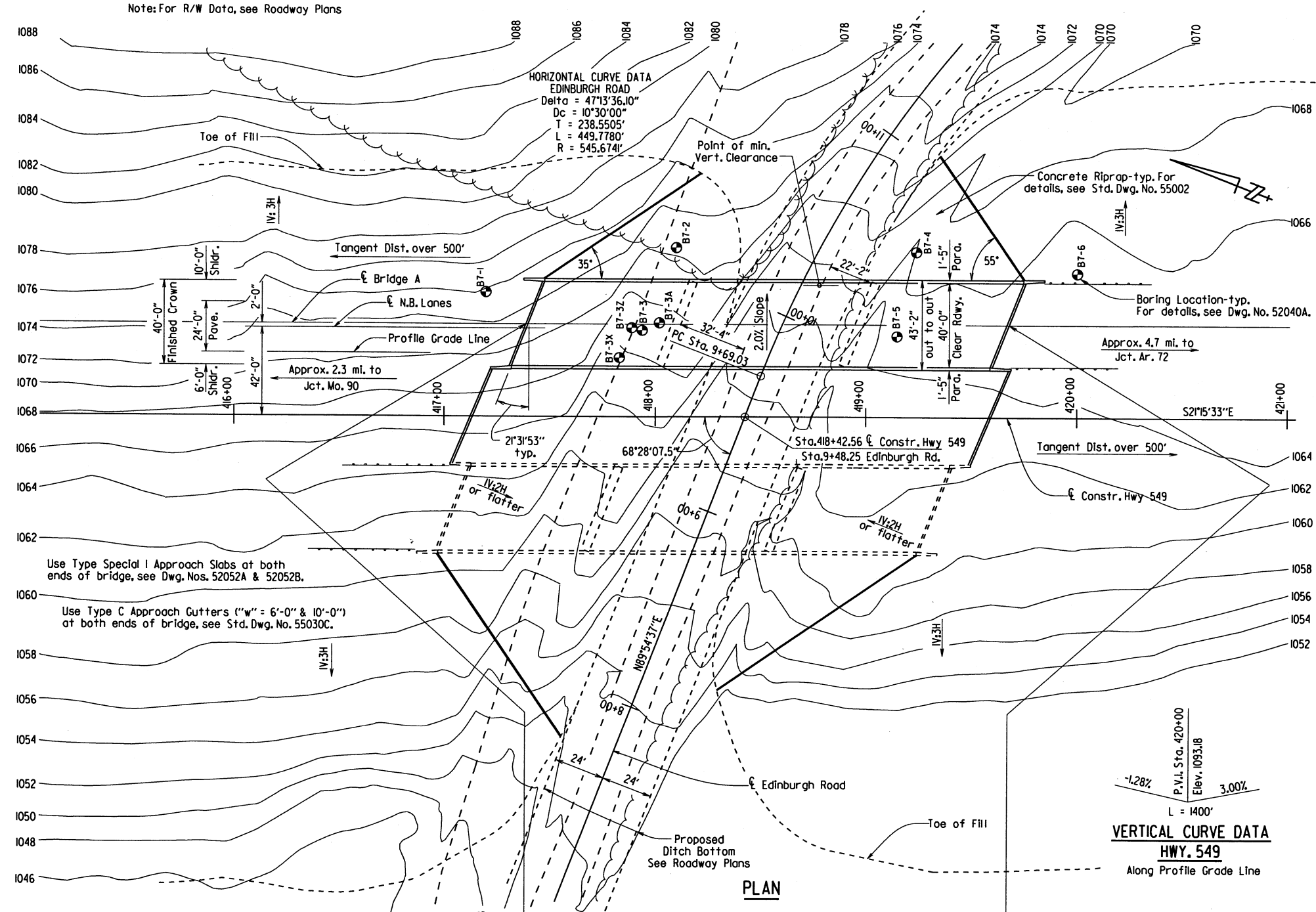


R5-1 36X36
R6-IL 36X12
R6-IR 36X12
RI-1 48X48
SS 49-540+00SBR(A)
SS 49-540+00SBR(B)



Note: For R/W Data, see Roadway Plans

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.	CA0905		70	160
				1	A7218 - LAYOUT			52040



GENERAL NOTES

BENCH MARK: 942: Railroad spike driven into North face of 20" walnut tree, 65' left of centerline median, Sta. 419+20, Elevation 1067.89.

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, (4th Edition, 2007 with 2009 Interims).

LIVE LOADING: HL93 SEISMIC ZONE: I

MATERIALS AND STRENGTHS:
 Class (S/AE) Concrete (superstructure) f'c = 4,000 psi
 Class S Concrete (substructure) f'c = 3,500 psi
 Structural Steel (AASHTO M 270, Grade 36) Fy = 36,000 psi
 Structural Steel (AASHTO M 270, Grade 50W) Fy = 50,000 psi
 Reinforcing Steel (Grade 60, AASHTO M 31 or M 322, Type A) fy = 60,000 psi

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

EXPLORATORY HOLES: The Contractor shall drill exploratory holes at Bent 1 in accordance with SP Job No. CA0905 "Exploratory Holes". The quantities of exploratory holes shown are for bidding purposes only. The actual locations, number, and depths of exploratory holes are to be determined in the field by the Engineer.

PREBORING: Preboring is required for all piling in Bent 1 if exploratory holes indicate that the depth to rock is less than 8' below natural ground. Preboring shall be to a 3' depth into material designated as limestone or chert on the boring legend. The actual size and depths of preboring are to be determined in the field by the Engineer. The Contractor shall be responsible for keeping prebored holes free from debris prior to backfilling which may require casings or other methods. After driving is completed, the prebored hole shall be backfilled with Class S Concrete to the top of rock and the remaining length of prebored hole shall be backfilled in accordance with Subsection 805.08(a) to completely fill voids. The backfill and any required casings will not be paid for directly but shall be considered subsidiary to the item "Preboring".

STEEL PILING: Piling shall be HP 12 x 53 and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 70 tons per pile and into the material designated as limestone or chert on the boring legend. Lengths of piling shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Subsection 805.14. Actual lengths to be determined in the field. Piles in end bents shall be driven after embankment to bottom of cap is in place. The Contractor shall use approved steel H-pile driving points on all piles.

FOOTINGS: Footings shall be set a minimum of 1'-6" into material designated as limestone or chert on the boring legend and shall have a minimum cover of 2.0' above top of footings. Foundations for footings shall be prepared in accordance with Subsection 801.04. Rock excavations shall be made to neat lines of the concrete footings. Care shall be exercised to avoid shattering of rock faces by excessive blasting. Concrete in footings shall be poured directly against excavated surfaces of rock.

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

CLASS 2 PROTECTIVE SURFACE TREATMENT: Class 2 Protective Surface Treatment shall be applied to the roadway surface.

TEXTURED COATING FINISH: Class 3 Textured Coating Finish shall be applied to the bridge surface as specified in SP Job No. CA0905 "Textured Coating Finish" and in accordance with Subsection 802.19. Textured Coating Finish shall not be applied on surfaces where Class 2 Protective Surface Treatment is applied.

DETAIL DRAWINGS:
 End Bents 52042 - 52044
 Intermediate Bents 52045 & 52046
 227' Continuous Composite W-Beam Unit 52047 - 52051
 Elastomeric Bearings 52052
 Type Special I Approach Slab 52052A & 52052B
 Steel Piling 55020
 Type C Approach Gutters 55030C

DRAWING NOS.
 52042 - 52044
 52045 & 52046
 52047 - 52051
 52052
 52052A & 52052B
 55020
 55030C

DRAWING NOS.
 52042 - 52044
 52045 & 52046
 52047 - 52051
 52052
 52052A & 52052B
 55020
 55030C

SHEET 1 OF 2
 LAYOUT OF BRIDGE A
 OVER EDINBURGH ROAD
 CO. RD. 34-MISSOURI STATE LINE
 (B.V. BYPASS) (F)
 BENTON COUNTY

ROUTE 549 SEC. 9
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

STATE OF
 ARKANSAS
Charles R. Ellis
 REGISTERED
 PROFESSIONAL
 ENGINEER
 No. 9235
 4-29-19
 CHARLES R. ELLIS

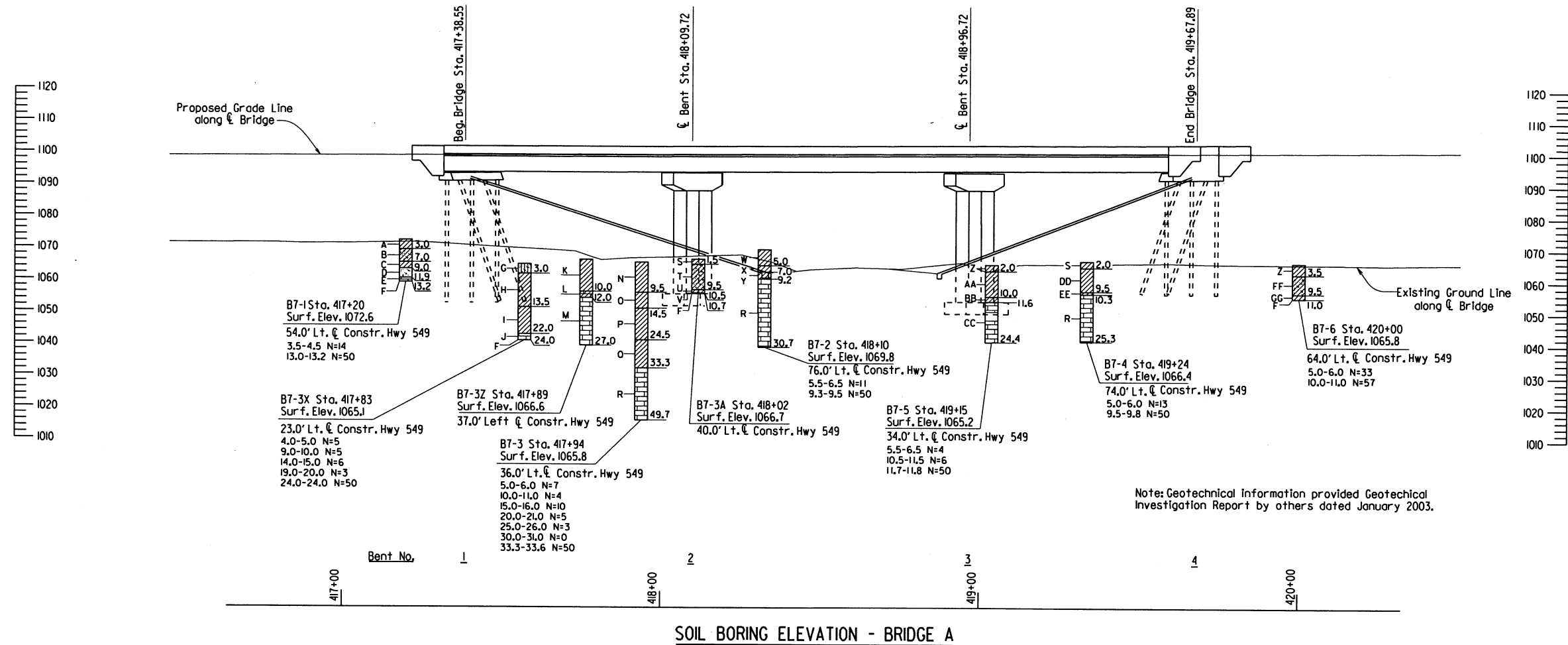
BRIDGE ENGINEER

BRIDGE NO. A7218 DRAWING NO. 52040

DRAWN BY: KDH DATE: 10-16-09 FILENAME: dca0905al.dgn
 CHECKED BY: SWP DATE: 3-7-18 SCALE: 1" = 30'
 DESIGNED BY: CAB DATE: 12-06

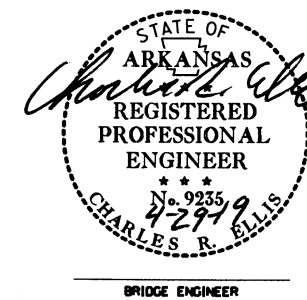
PRINT DATE: 4/29/2019

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.	CA0905		71	160
				① A7218 - LAYOUT				52040A



BORING LEGEND

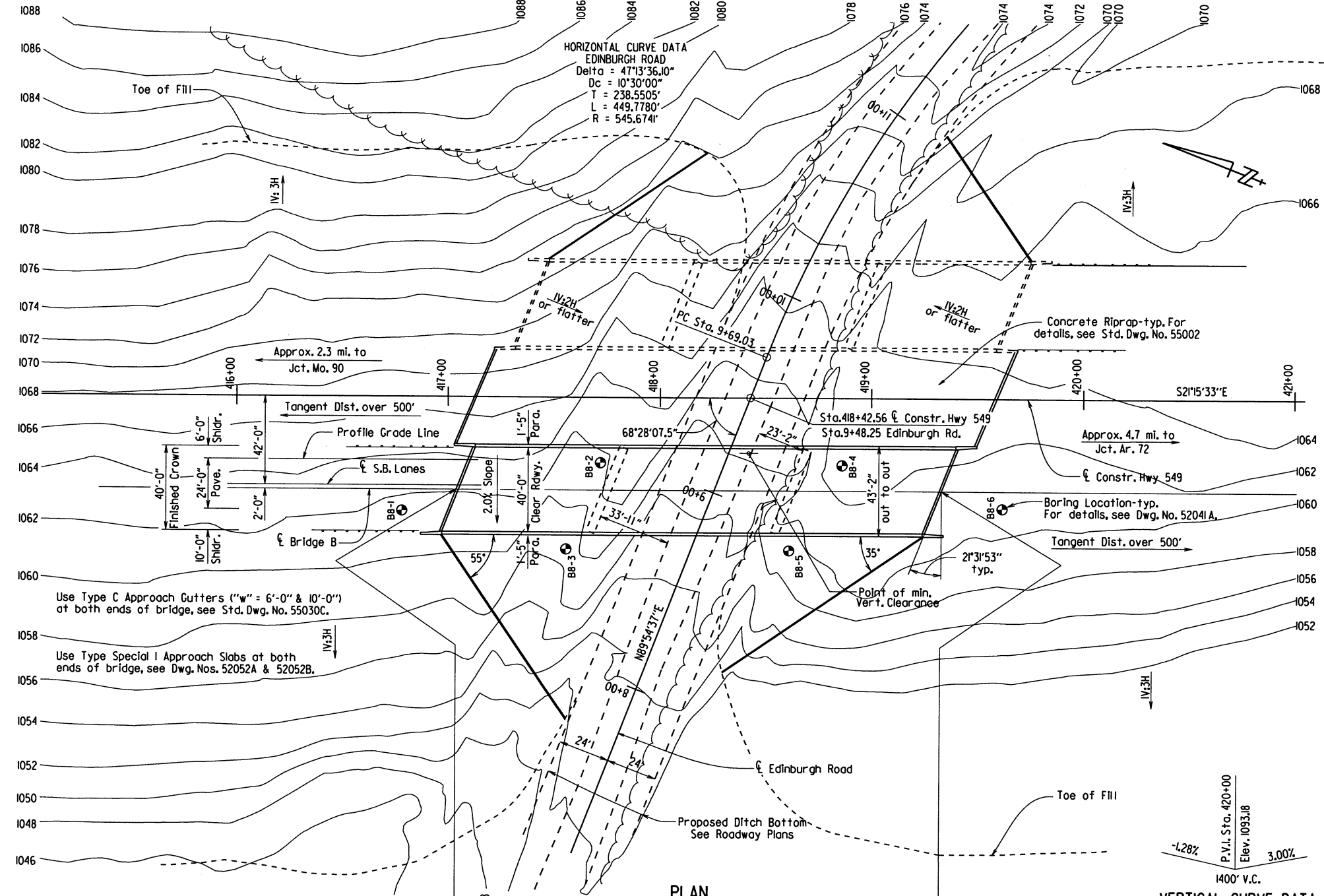
- A LEAN CLAY, some chert gravel reddish brown, moist (CL)
- B LEAN CLAYEY GRAVEL reddish brown clay fraction, medium dense, moist (GC)
- C FAT CLAY, trace chert gravel dark brown, wet (CH)
- D CHERT GRAVEL, trace clay dark brown (GP)
- E LIMESTONE, trace shale seams light brown
- F Auger refusal on apparent limestone
- G SILTY GRAVEL reddish brown, dry (GM)
- H LEAN CLAY, trace chert gravel, some sand reddish brown, medium stiff, dry to moist (CL)
- I FAT CLAY, trace to some chert, trace sand reddish brown, soft (CH)
- J CHERT AND LIMESTONE brown and white, dense, highly weathered
- K LEAN CLAY, few to some chert gravel reddish brown (CL)
- L LIMESTONE gray, highly weathered
- M LIMESTONE, stratified light gray, very fine grained, thin bedded, slightly weathered to fresh, hard to very hard, water loss at 25.5'
- N LEAN CLAY, trace sand, little chert gravel reddish brown, stiff to medium stiff, moist (CL)
- O LEAN CLAY, some chert gravel reddish brown, stiff, moist (CL)
- P FAT CLAY, few chert gravel reddish brown, medium stiff, moist (CH)
- Q FAT CLAY, few chert gravel, reddish brown, soft, moist to wet (CH)
- R LIMESTONE, stratified, shale laminations and chert seams light gray, fine grained to very fine grained, thin bedded, slightly weathered to fresh, hard
- S SILTY LEAN CLAY brown (CL)
- T LEAN CLAYEY GRAVEL reddish brown clay fraction, moist (GC)
- U FAT CLAY, trace chert gravel dark brown (CH)
- V LIMESTONE light gray, hard
- W LEAN CLAY, some chert gravel brown, moist (CL)
- X FAT CLAY, trace chert gravel reddish brown, stiff, moist (CH)
- Y FAT CLAY, few chert gravel dark brown clay fraction, moist (CH)
- Z SILTY LEAN CLAY brown, moist (CL)
- AA LEAN CLAY, little sand, some chert gravel reddish brown, medium stiff, moist (CL)
- BB FAT CLAY, trace chert gravel reddish brown, medium stiff, moist (CH)
- CC LIMESTONE, stratified, chert seams light gray, fine grained to very fine grained, thin bedded, slightly weathered to fresh, hard, void from 14.8'-17.5'
- DD LEAN CLAY, little chert gravel reddish brown, stiff, moist (CL)
- EE FAT CLAY, some chert gravel reddish brown, stiff, moist (CH)
- FF LEAN CLAYEY GRAVEL reddish brown clay fraction, dense, moist (GC)
- GG FAT CLAY, some chert gravel dark brown, moist (CH)



SHEET 2 OF 2
LAYOUT OF BRIDGE A
OVER EDINBURGH ROAD
CO. RD. 34-MISSOURI STATE LINE
(B.V. BYPASS) (F)
BENTON COUNTY
 ROUTE 549 SEC. 9
ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: KDH DATE: 10-19-09 FILENAME: bca0905a1.lldgn
 CHECKED BY: SWP DATE: 3-7-18 SCALE: 1" = 20'
 DESIGNED BY: CAB DATE: 12-06
 BRIDGE NO. A7218 DRAWING NO. 52040A

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.	CA0905	72	160	
				1	B7218 - LAYOUT			52041

Note: For R/W Data, see Roadway Plans



GENERAL NOTES

BENCH MARK: 942: Railroad spike driven into North face of 20\" walnut tree, 65' left of centerline median, Sta. 419+20, Elevation 1067.89.

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, (4th Edition, 2007 with 2009 Interims).

LIVE LOADING: HL93 SEISMIC ZONE: 1

MATERIALS AND STRENGTHS:
 Class S(AE) Concrete (superstructure) f'c = 4,000 psi
 Class S Concrete (substructure) f'c = 3,500 psi
 Structural Steel (AASHTO M 270, Grade 36) Fy = 36,000 psi
 Structural Steel (AASHTO M 270, Grade 50W) Fy = 50,000 psi
 Reinforcing Steel (Grade 60, AASHTO M 31 or M 322, Type A) fy = 60,000 psi

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

EXPLORATORY HOLES: The Contractor shall drill exploratory holes at Bents 1 & 4 in accordance with SP Job No. CA0905 \"Exploratory Holes\". The quantities of exploratory holes shown are for bidding purposes only. The actual locations, number, and depths of exploratory holes are to be determined in the field by the Engineer.

PREBORING: Preboring is required for all piling in Bents 1 & 4 if exploratory holes indicate that the depth to rock is less than 8' below natural ground. Preboring shall be to a 3' depth into material designated as limestone or chert on the boring legend. The actual size and depths of preboring are to be determined in the field by the Engineer. The Contractor shall be responsible for keeping prebored holes free from debris prior to backfilling which may require casings or other methods. After drilling is completed, the prebored hole shall be backfilled with Class S Concrete to the top of rock and the remaining length of prebored hole shall be backfilled in accordance with Subsection 805.08(a) to completely fill voids. The backfill and any required casings will not be paid for directly but shall be considered subsidiary to the item \"Preboring\".

FOOTINGS: Footings shall be set a minimum of 1'-6\" into material designated as limestone or chert on the boring legend and shall have a minimum cover of 2.0' above top of footings. Foundations for footings shall be prepared in accordance with Subsection 801.04. Rock excavations shall be made to neat lines of the concrete footings. Care shall be exercised to avoid shattering of rock faces by excessive blasting. Concrete in footings shall be poured directly against excavated surfaces of rock.

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

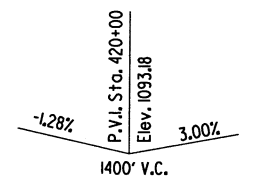
CLASS 2 PROTECTIVE SURFACE TREATMENT: Class 2 Protective Surface Treatment shall be applied to the roadway surface.

TEXTURED COATING FINISH: Class 3 Textured Coating Finish shall be applied to the bridge surface as specified in SP Job No. CA0905 \"Textured Coating Finish\" and in accordance with Subsection 802.19. Textured Coating Finish shall not be applied on surfaces where Class 2 Protective Surface Treatment is applied.

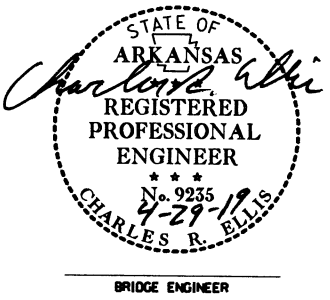
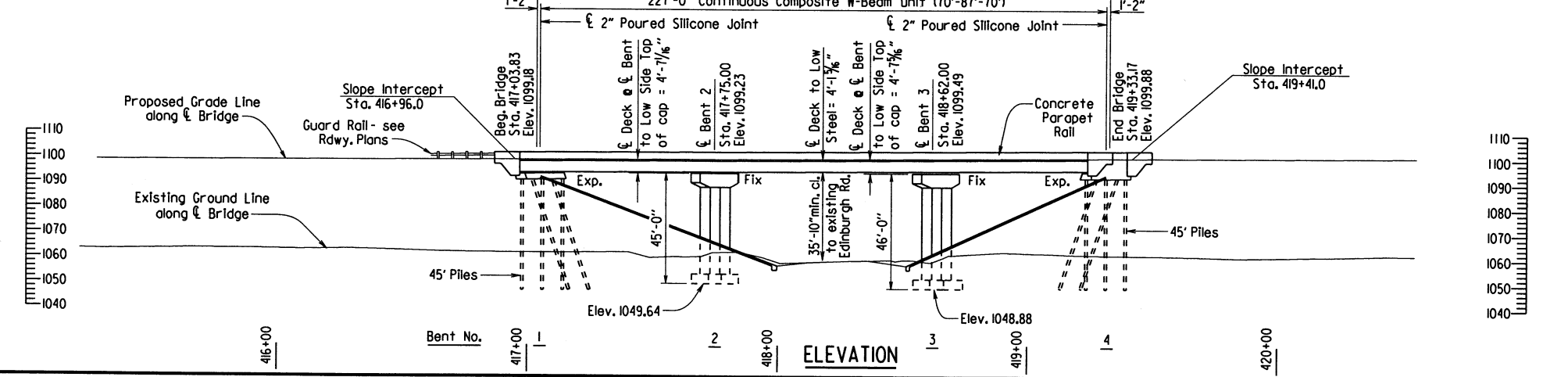
DETAIL DRAWINGS:
 End Bents 52042 - 52044
 Intermediate Bents 52045A & 52046A
 22' Continuous Composite W-Beam Unit 52047 - 52051
 Elastomeric Bearings 52052
 Type Special I Approach Slab 52052A & 52052B
 Steel Piling 55020
 Type C Approach Gutters 55030C

DRAWING NOS.
 52042 - 52044
 52045A & 52046A
 52047 - 52051
 52052
 52052A & 52052B
 55020
 55030C

VERTICAL CURVE DATA
 HWY. 549
 Along Profile Grade Line



Note:
 Stations shown are along Constr. Hwy 549
 Elevations shown are along Bridge



SHEET 1 OF 2
 LAYOUT OF BRIDGE B
 OVER EDINBURGH ROAD
 CO. RD. 34-MISSOURI STATE LINE
 (B.V. BYPASS) (F)
 BENTON COUNTY

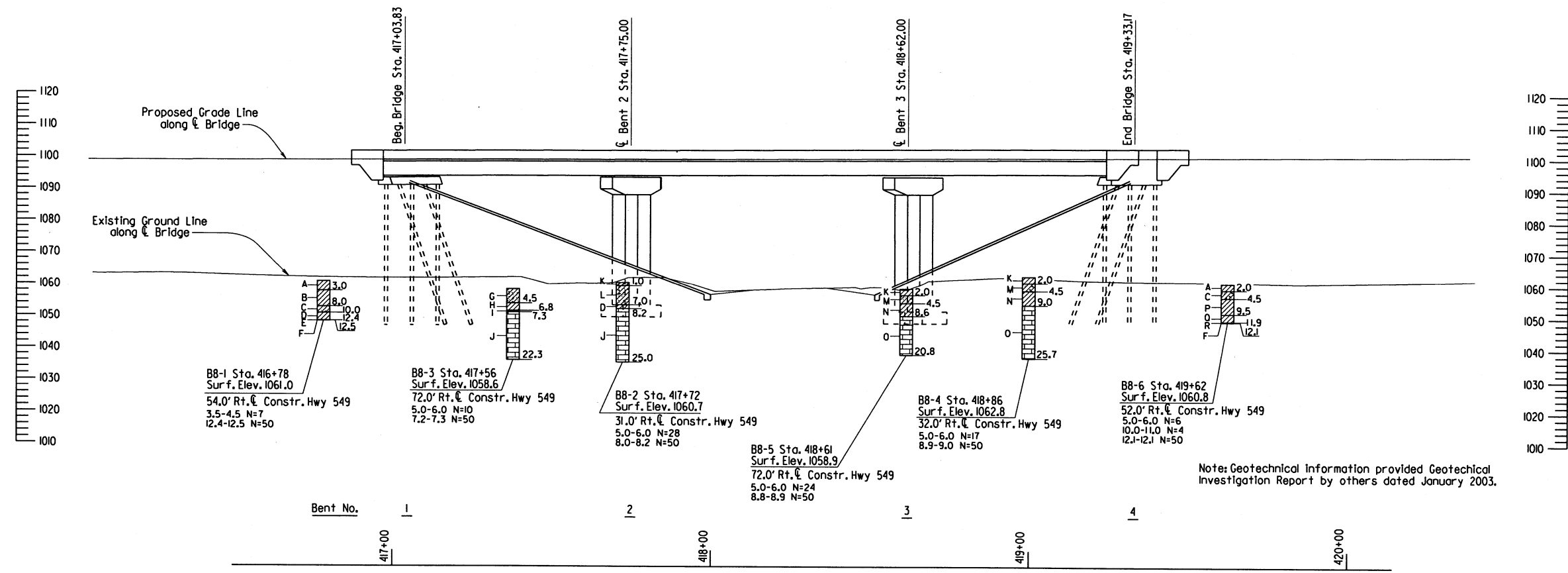
ROUTE 549 SEC. 9
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 10-21-09 FILENAME: bca0905bl.dgn
 CHECKED BY: SWP DATE: 3-7-18 SCALE: 1\" = 30'
 DESIGNED BY: CAB DATE: 12-06

BRIDGE NO. B7218 DRAWING NO. 52041

PRINT DATE: 4/29/2019

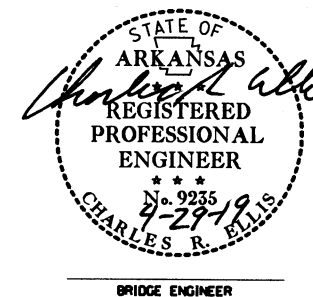
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				6	ARK.			
				JOB NO.	CA0905		73	160
				B7218 - LAYOUT		- 52041 A		



SOIL BORING ELEVATION - BRIDGE B

BORING LEGEND

- A SILTY LEAN CLAY brown, medium stiff (CL)
- B LEAN CLAY, little to some chert gravel reddish brown, stiff, moist (CL)
- C LEAN CLAYEY GRAVEL reddish brown clay fraction, moist (GC)
- D FAT CLAY, trace chert gravel dark brown, moist (CH)
- E LIMESTONE light brown, highly weathered
- F Auger refusal on apparent limestone
- G FAT CLAYEY GRAVEL reddish brown, medium dense, moist (GC)
- H FAT CLAY dark brown (CH)
- I LIMESTONE, clay seams gray and brown
- J LIMESTONE, stratified, chert seams light gray, fine grained to very fine grained, thin bedded, slightly weathered to fresh, hard
- K SILTY LEAN CLAY brown (CL)
- L LEAN CLAYEY GRAVEL reddish brown, medium dense, dry (GC)
- M LEAN CLAYEY GRAVEL reddish brown, medium dense, moist (GC)
- N LEAN CLAY, some sand and chert gravel brown, moist (CL)
- O LIMESTONE, stratified, chert seams light gray, medium grained to very fine grained, medium to thin bedded, slightly weathered to fresh, hard
- P LEAN CLAY, little sand and chert gravel reddish brown, medium stiff, moist (CL)
- Q FAT CLAY, little chert gravel dark brown, medium stiff, moist (CH)
- R WEATHERED LIMESTONE



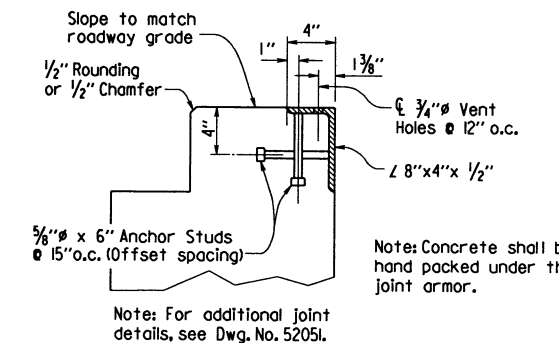
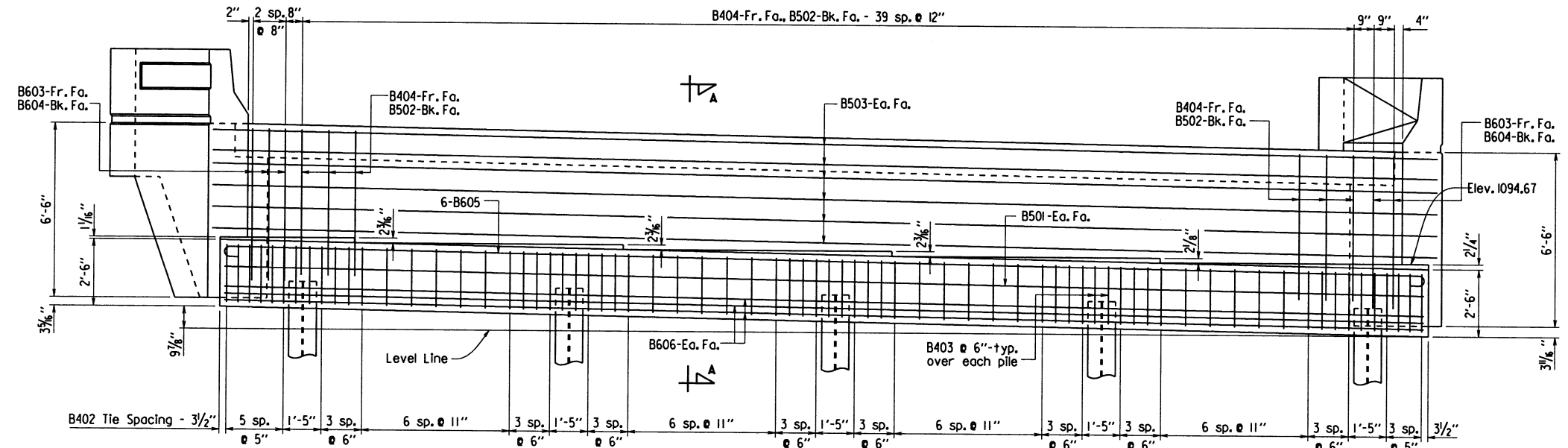
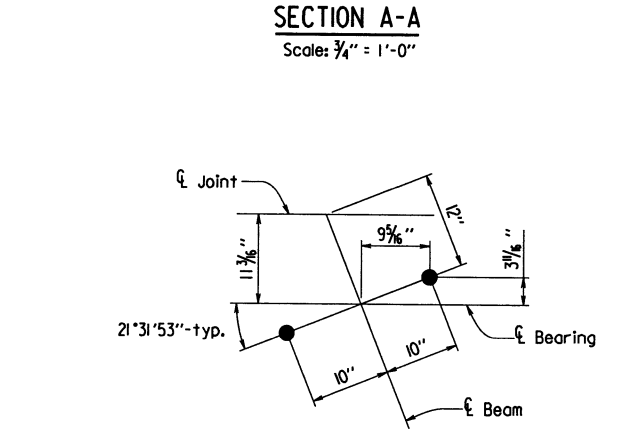
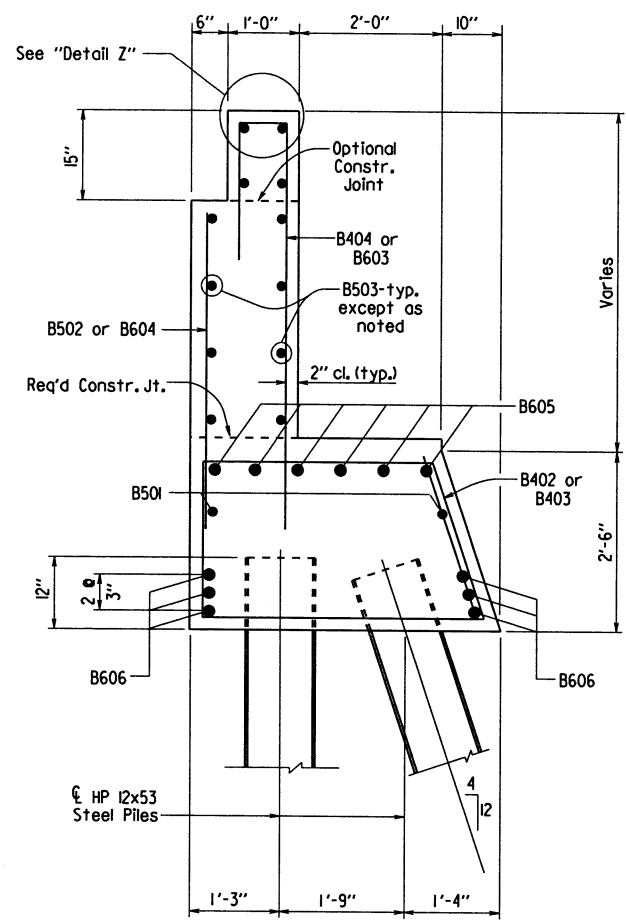
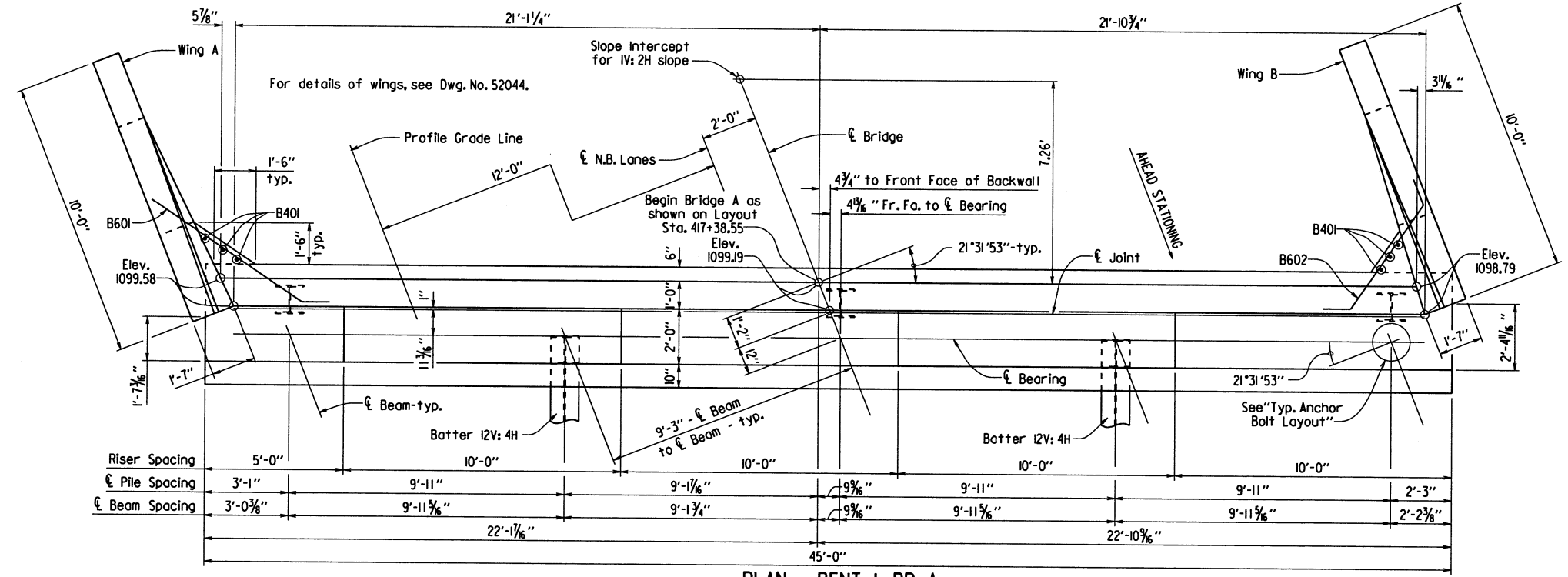
SHEET 2 OF 2
LAYOUT OF BRIDGE B
OVER EDINBURGH ROAD
CO. RD. 34-MISSOURI STATE LINE
(B.V. BYPASS) (F)
BENTON COUNTY

ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

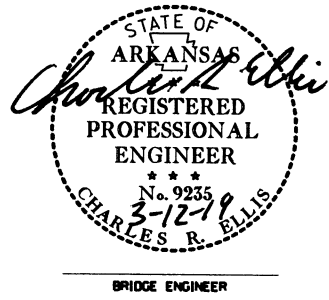
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CHECKED BY: SWP DATE: 3-7-18 SCALE: 1" = 20'
DESIGNED BY: CAB DATE: 12-06
BRIDGE NO. B7218 DRAWING NO. 52041 A

NOTE: Class 2 Protective Surface Treatment shall be applied to the top of the backwall, Class 3 Textured Coating Finish shall be applied to bridge surfaces as specified in Special Provision Job No. CA0905 "Textured Coating Finish" and in accordance with Subsection 802.19. Textured Coating Finish shall not be applied on surfaces where Class 2 Protective Surface Treatment is applied.

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.	CA0905	74	160	
				A&B7218 - END BENTS		- 52042		



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



SHEET 1 OF 3
DETAILS OF END BENTS
EDINBURGH ROAD

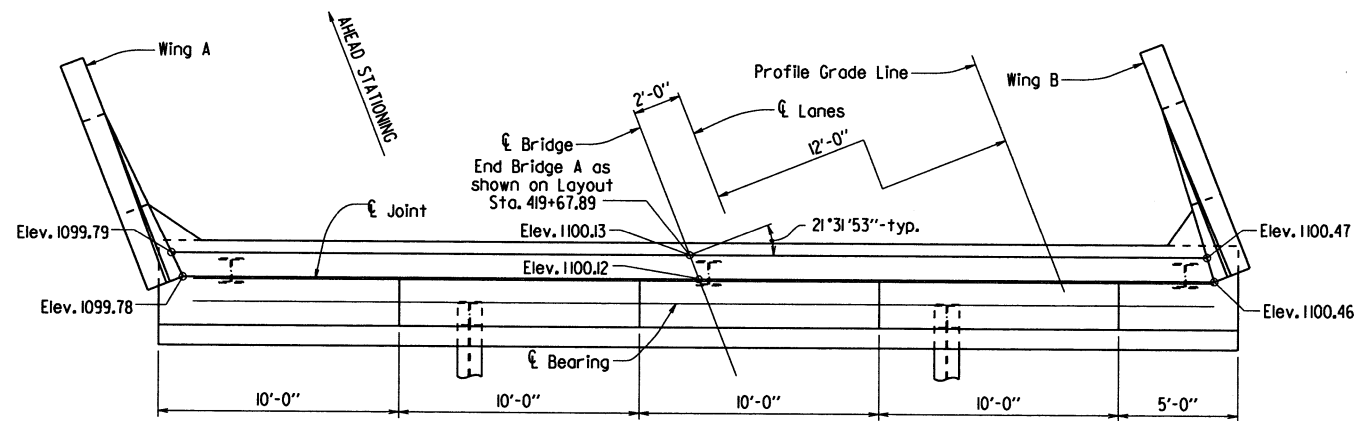
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 12-12-06 FILENAME: bca0905ml_bil.dgn
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DESIGNED BY: CAB DATE: 12-06
BRIDGE NO. A&B7218 DRAWING NO. 52042

PRINT DATE: 9/21/2017

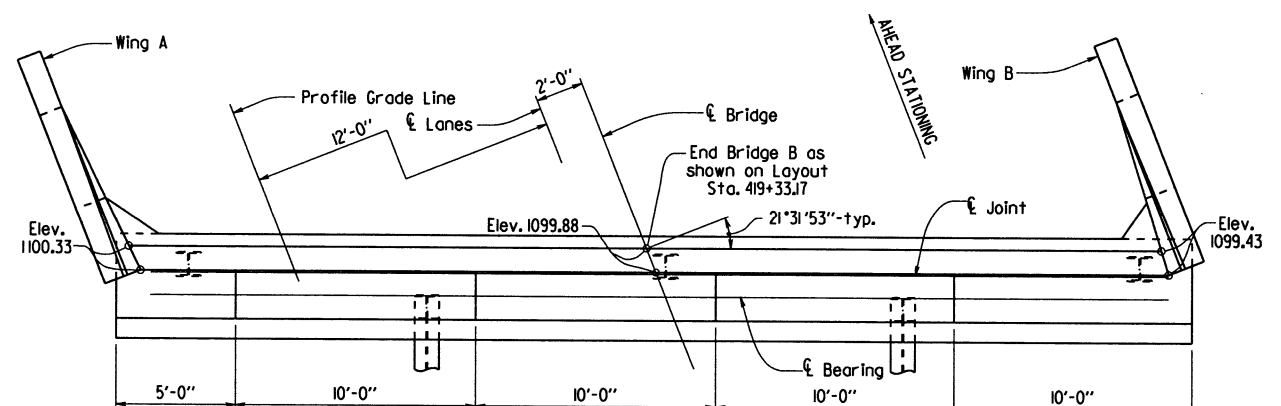
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	CA0905	75	160	

① A&B7218 - END BENTS - 52043



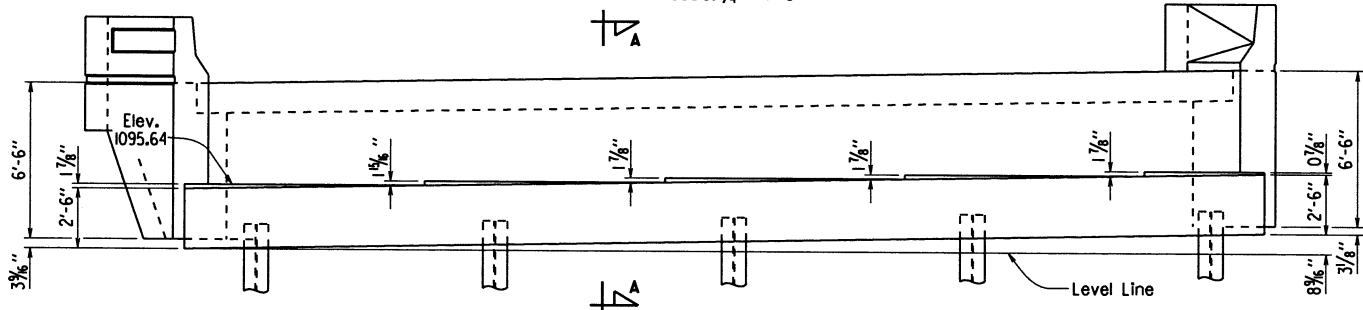
PLAN - BENT 4, BR. A

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



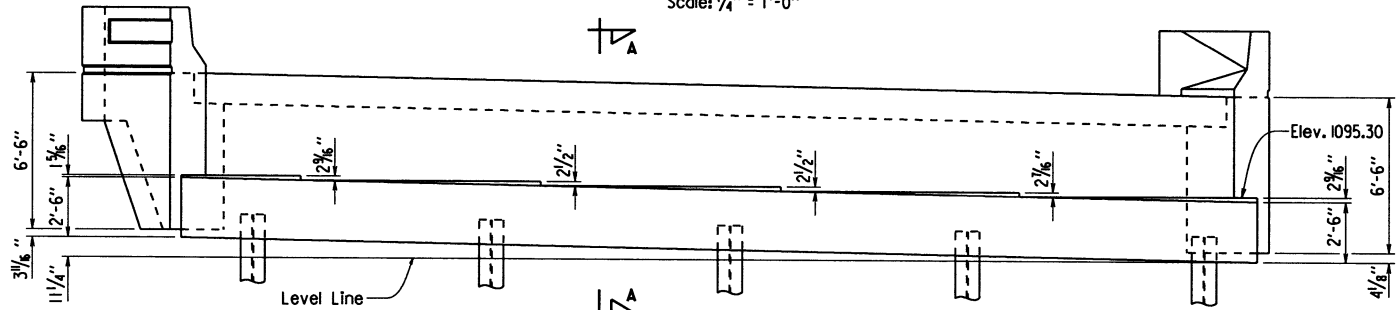
PLAN - BENT 4, BR. B

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



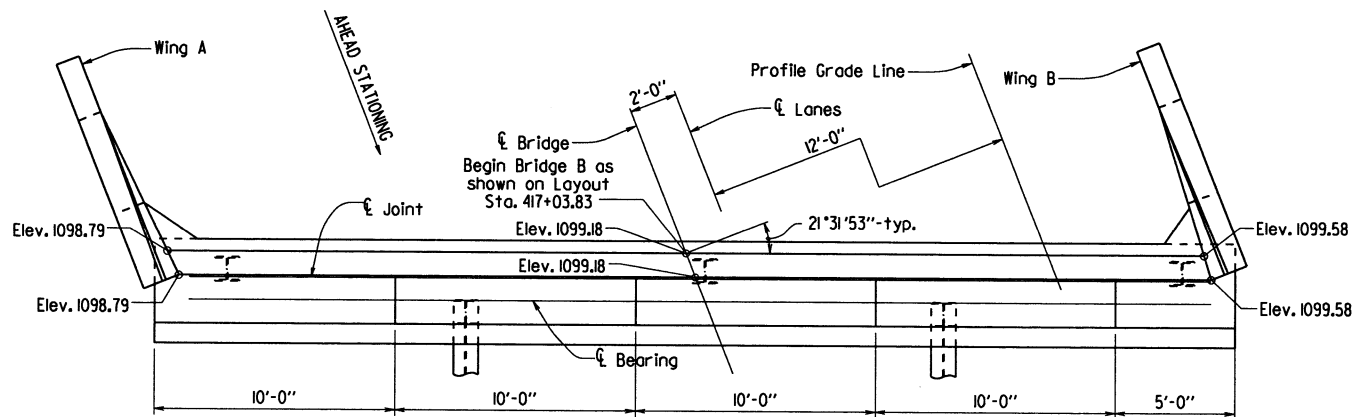
ELEVATION - BENT 4, BR. A

Looking Ahead
Scale: 1/4" = 1'-0"



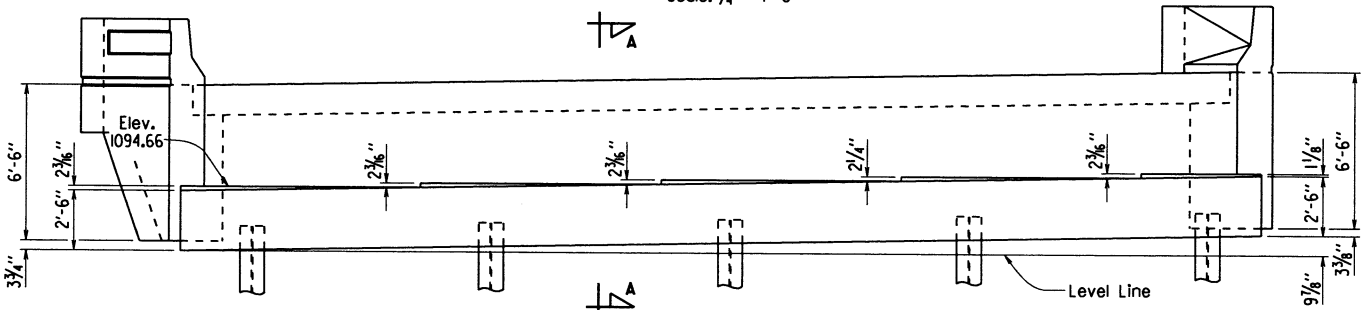
ELEVATION - BENT 4, BR. B

Looking Ahead
Scale: 1/4" = 1'-0"



PLAN - BENT 1, BR. B

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



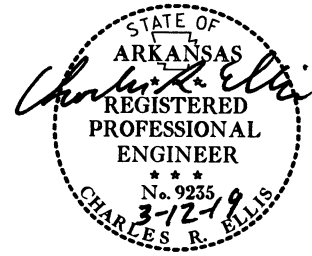
ELEVATION - BENT 1, BR. B

Looking Back
Scale: 1/4" = 1'-0"

GENERAL NOTES

- All concrete shall be Class S and shall be poured in the dry. All exposed corners to be chamfered 3/4" unless otherwise noted.
- 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.
- All piles shall be HPI2x53 (AASHTO M 270, Gr. 50).
- No portion of the backwall shall be poured until the beams are in place. Refer to "Expansion Device Installation" notes, Dwg. No. 52051.
- Structural steel in end bents shall be AASHTO M 270, Gr. 50W and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)".
- Top reinforcing bars shall be placed to avoid interference with anchor bolts or sheet metal sleeves.
- For additional information, see layout.

Note: Reinforcing steel details and dimensions shown for Bent 1, Br. A, Dwg. No. 52042 are similar for bents shown on this sheet except as noted.



SHEET 2 OF 3
DETAILS OF END BENTS
EDINBURGH ROAD
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 12-12-06 FILENAME: bca0905ml_b12.dgn
CHECKED BY: CRE DATE: 10-3-07 SCALE: AS NOTED
DESIGNED BY: CAB DATE: 12-06
BRIDGE NO. A&B7218 DRAWING NO. 52043

PRINT DATE: 9/21/2017

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.	CA0905	76	160	
				A&B7218 - END BENTS		- 52044		

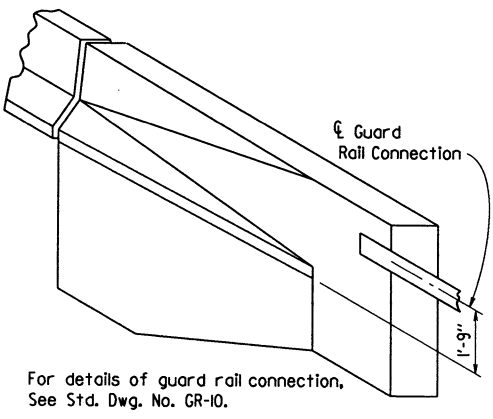
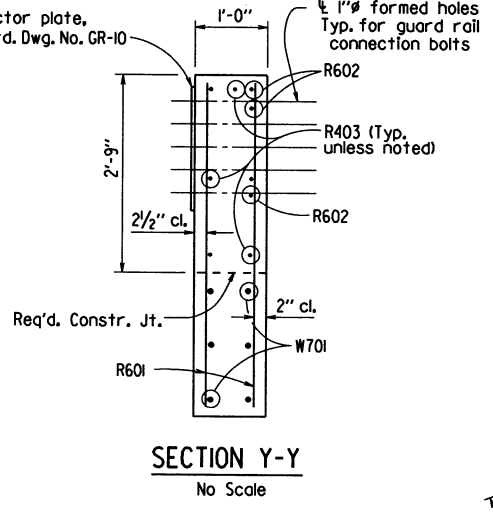
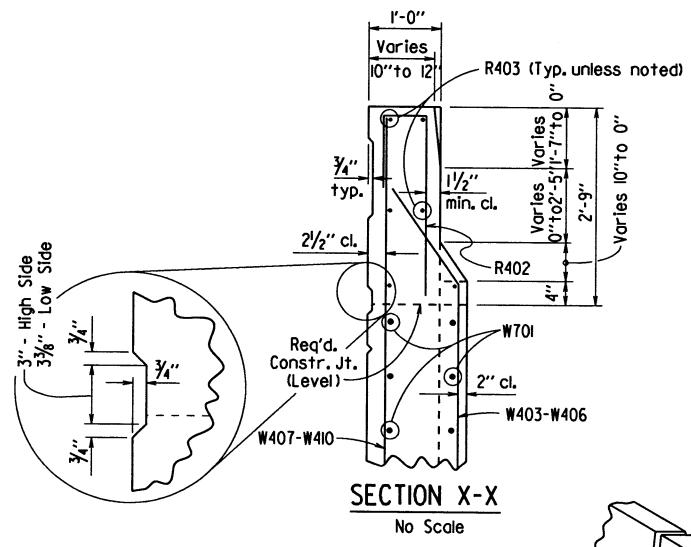
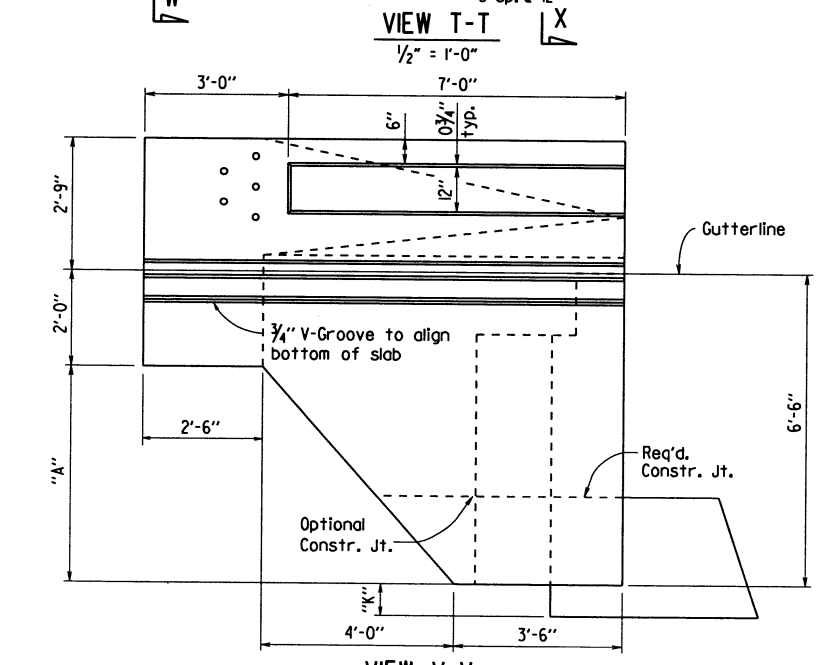
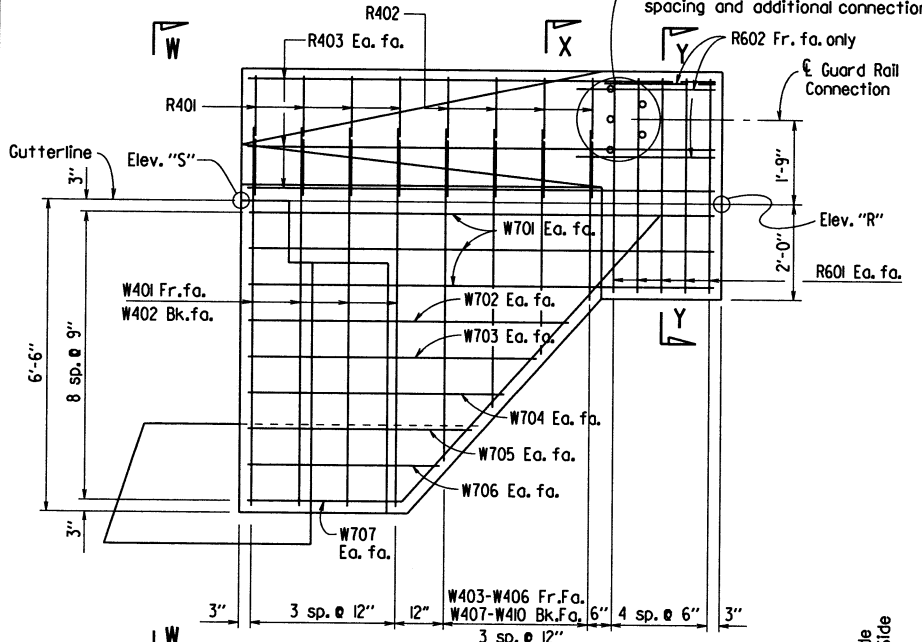
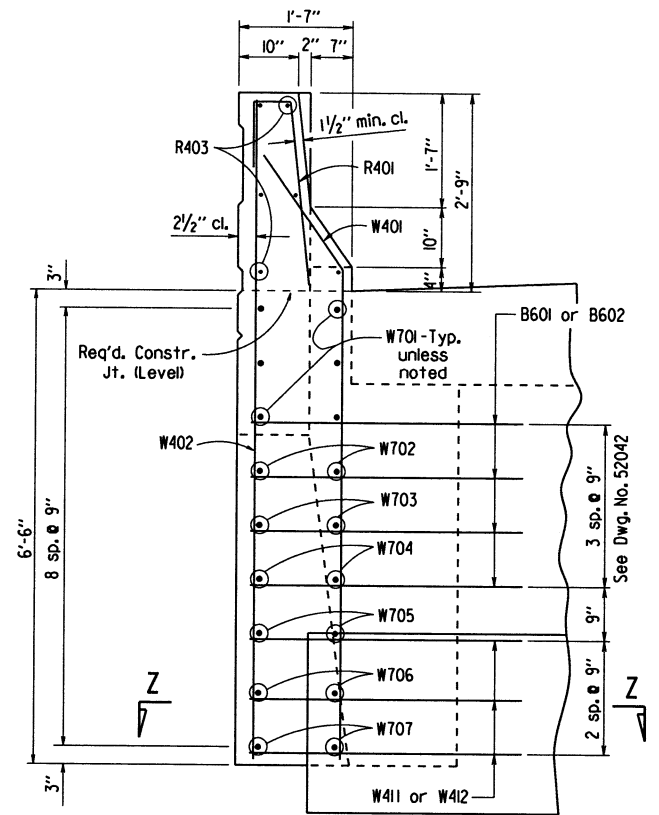
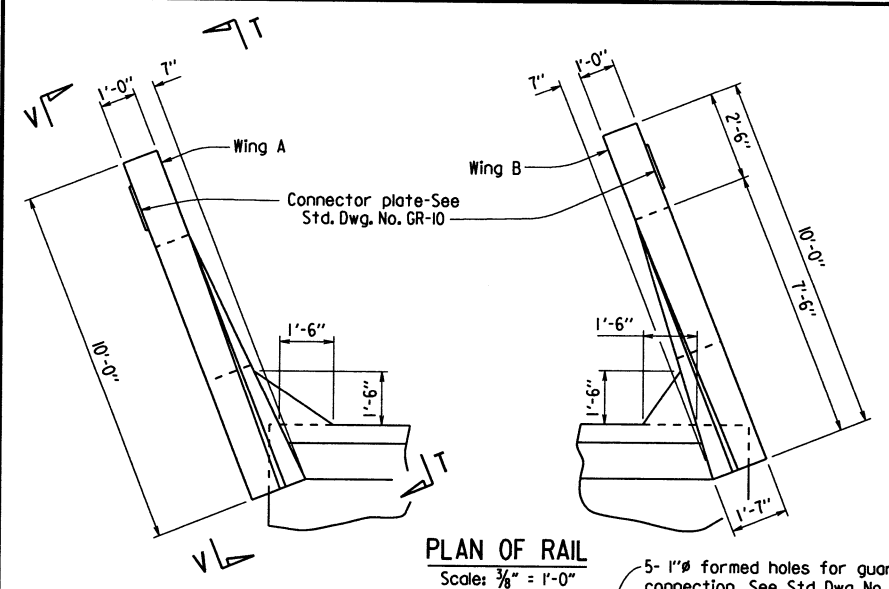
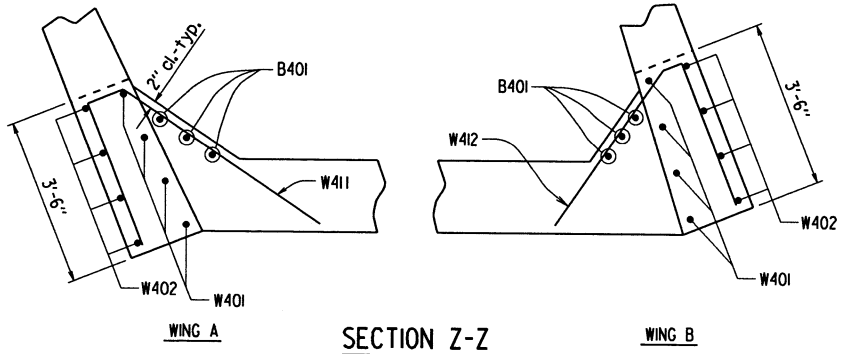


TABLE OF VARIABLES

BRIDGE	BENT	WING	Elev. 'S'	Elev. 'R'	"A"	"K"
A	1	A	1099.58	1099.58	4'-6"	3 3/8"
		B	1098.79	1098.79	4'-6"	3 3/8"
	4	A	1099.78	1099.86	4'-6 3/8"	3 3/8"
		B	1100.46	1100.54	4'-6 3/8"	3 3/8"
B	1	A	1098.79	1098.80	4'-6 1/8"	3 3/4"
		B	1099.58	1099.58	4'-6"	3 3/8"
	4	A	1100.33	1100.40	4'-6 3/8"	3 3/8"
		B	1099.43	1099.49	4'-6 3/4"	4 1/8"

BAR LIST-PER BENT

MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
B401	6	4'-11"	Str.	
B402	62	11'-11"	2"	
B403	10	7'-6"	2"	
B404	40	8'-0"	2"	
R401	8	3'-11"	2"	
R402	8	4'-0"	2"	
R403	12	9'-8"	Str.	
W401	8	8'-7"	2"	
W402	8	8'-11"	Str.	
W403-W406	2 each	Var. 3'-5" to 6'-10"	2"	
W407-W410	2 each	Var. 4'-7" to 8'-0"	Str.	
W411	3	8'-10"	2"	
W412	3	7'-5"	2"	
B501	2	44'-8"	Str.	
B502	40	4'-5"	Str.	
B503	12	45'-10"	3 3/4"	
B601	4	7'-6"	4 1/2"	
B602	4	6'-5"	4 1/2"	
B603	5	9'-2"	4 1/2"	
B604	5	4'-8"	Str.	
B605	6	46'-0"	4 1/2"	
B606	6	44'-8"	Str.	
R601	20	4'-5"	Str.	
R602	6	5'-0"	Str.	
W701	12	9'-8"	Str.	
W702	4	6'-8"	Str.	
W703	4	6'-0"	Str.	
W704	4	5'-4"	Str.	
W705	4	4'-8"	Str.	
W706	4	4'-0"	Str.	
W707	4	11'-0"	5 1/4"	

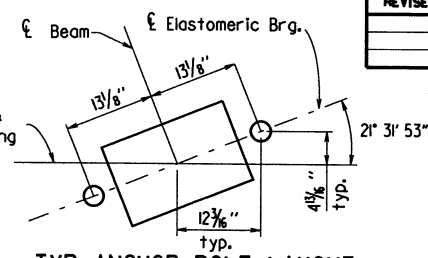
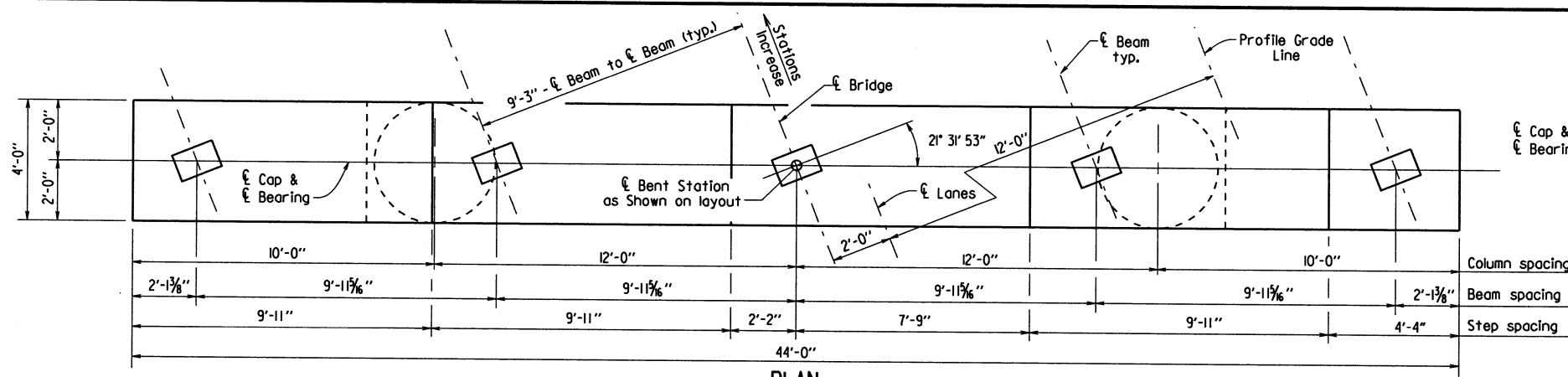


STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
3-12-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 3 OF 3
DETAILS OF END BENTS
EDINBURGH ROAD
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: KDH DATE: 12-12-06 FILENAME: bco0905ml.bl3.dgn
CHECKED BY: CAB DATE: 10-3-07 SCALE: AS NOTED
DESIGNED BY: CAB DATE: 12-06
BRIDGE NO. A&B7218 DRAWING NO. 52044

PRINT DATE: 9/21/2017

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.	CA0905	77	160
				JOB NO. CA0905				
				A7218 - INT. BENT - 52045				



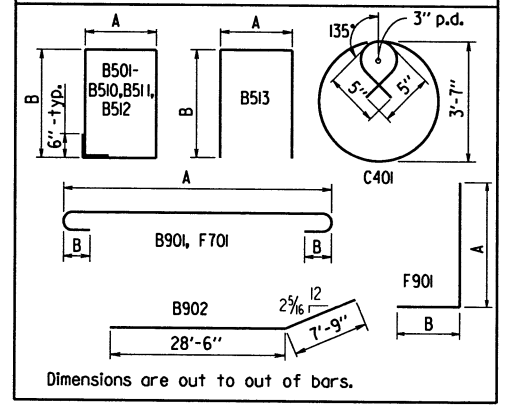
TYP. ANCHOR BOLT LAYOUT
1" = 1'-0"

NOTE: A Class 3 Textured Coating Finish shall be applied to bridge surfaces as specified in Special Provision Job No. CA0905 "Textured Coating Finish" and in accordance with Subsection 802.19.

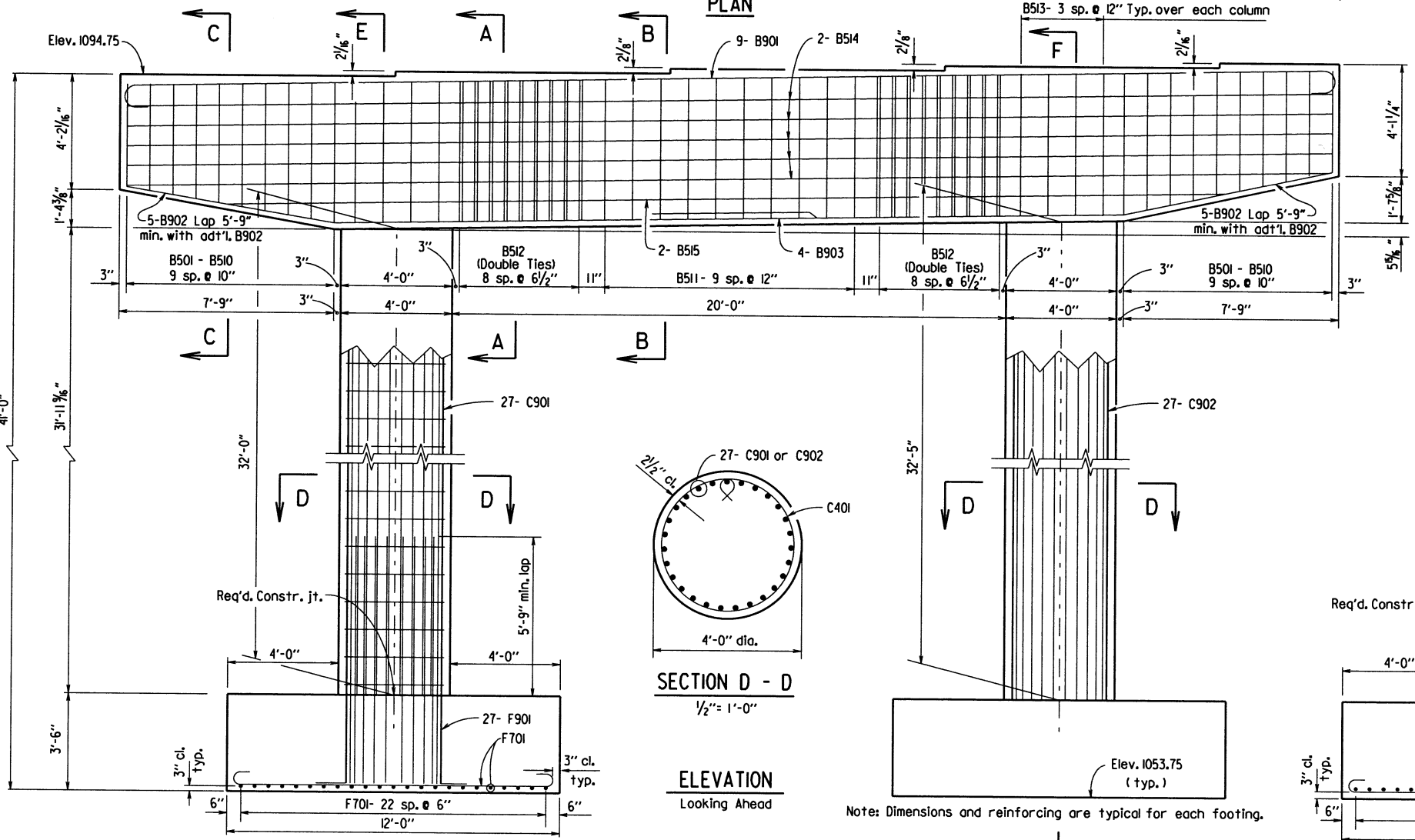
BAR LIST

Mark	No. Req'd.	Length	A	B	Pin Dia.
B901	9	46'-2"	43'-8"	10"	9"
B902	10	36'-3"			9"
B903	4	28'-6"			Str.
B501-B510	2 ea.	15'-3" to 18'-2"	3'-8"	3'-8 1/2" to 5'-2"	2 1/2"
B511	10	18'-2"	3'-8"	5'-2"	2 1/2"
B512	36	15'-10"	2'-6"	5'-2"	2 1/2"
B513	8	13'-10"	3'-8"	5'-2"	2 1/2"
B514	10	43'-8"			Str.
B515	2	36'-7"			Str.
C901	27	36'-0"			Str.
C902	27	36'-9"			Str.
C401	73	12'-4"			3"
F701	92	13'-2"	11'-6"	7"	5 1/4"
F901	54	12'-2"	10'-10"	1'-7 1/2"	9"

Bending Diagrams



Dimensions are out to out of bars.



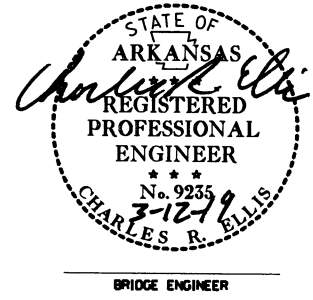
GENERAL NOTES

All concrete shall be Class S with a minimum 28 day compressive strength $f'_c = 3,500$ psi. Concrete shall be poured in the dry and all exposed corners shall be chamfered $3/4$ " unless otherwise noted.

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.

Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

For additional information, see layout.

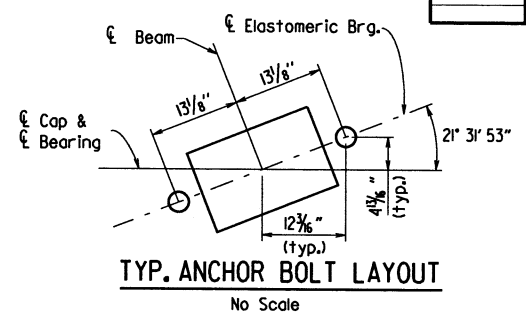
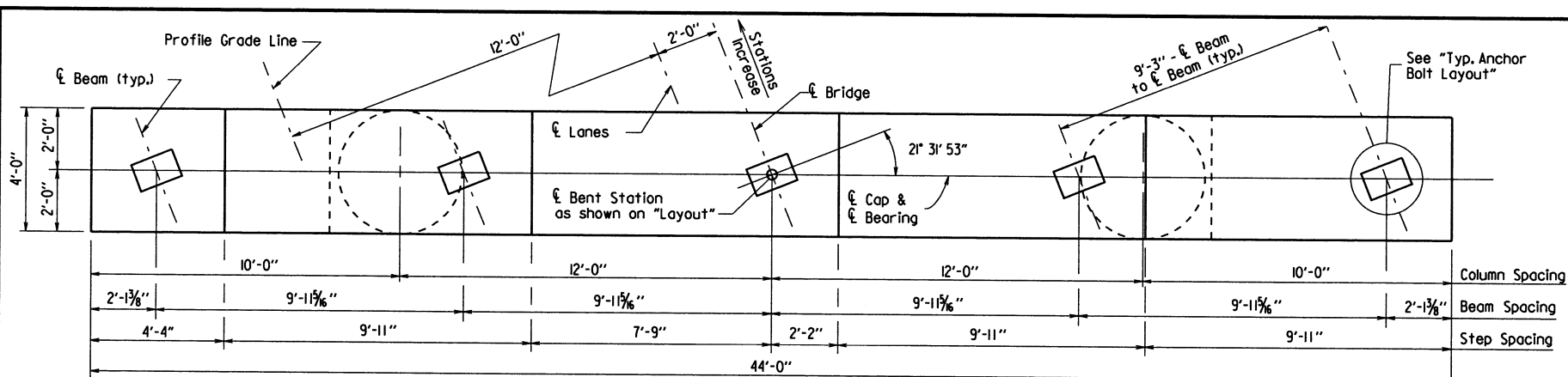


DETAILS OF BENT 2A
EDINBURGH ROAD
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DMH DATE: 8-22-07 FILENAME: bca0905al.b2.dgn
CHECKED BY: PEF DATE: 6/13 SCALE: 3/8" = 1'-0" or as shown
DESIGNED BY: PJT DATE: 5-07
BRIDGE NO. A7218 DRAWING NO. 52045

PRINT DATE: 9/21/2017

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. PROJ. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	CA0905	78	160	
				B7218 - INT. BENT - 52045A				

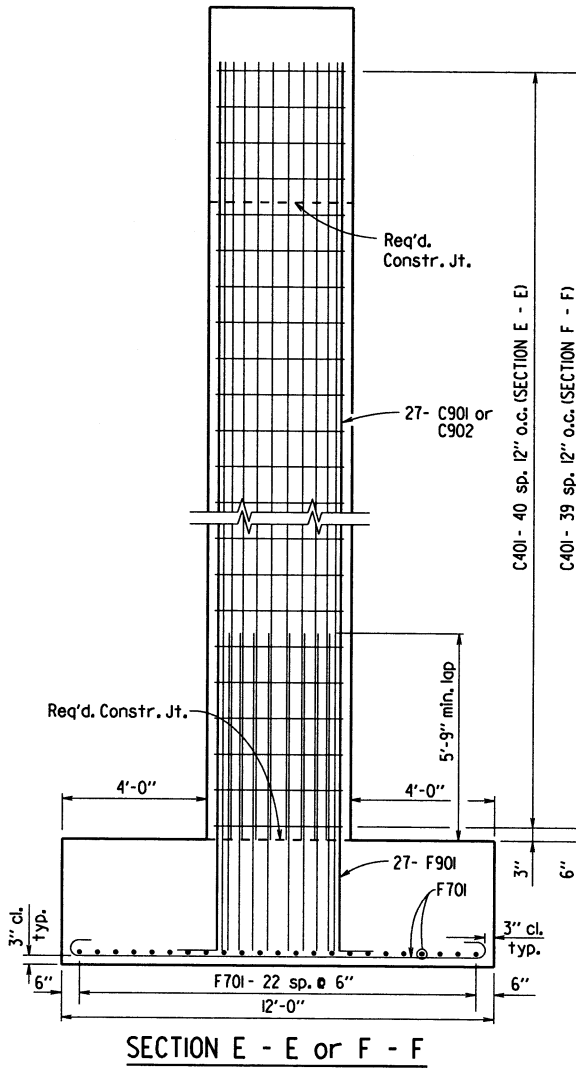
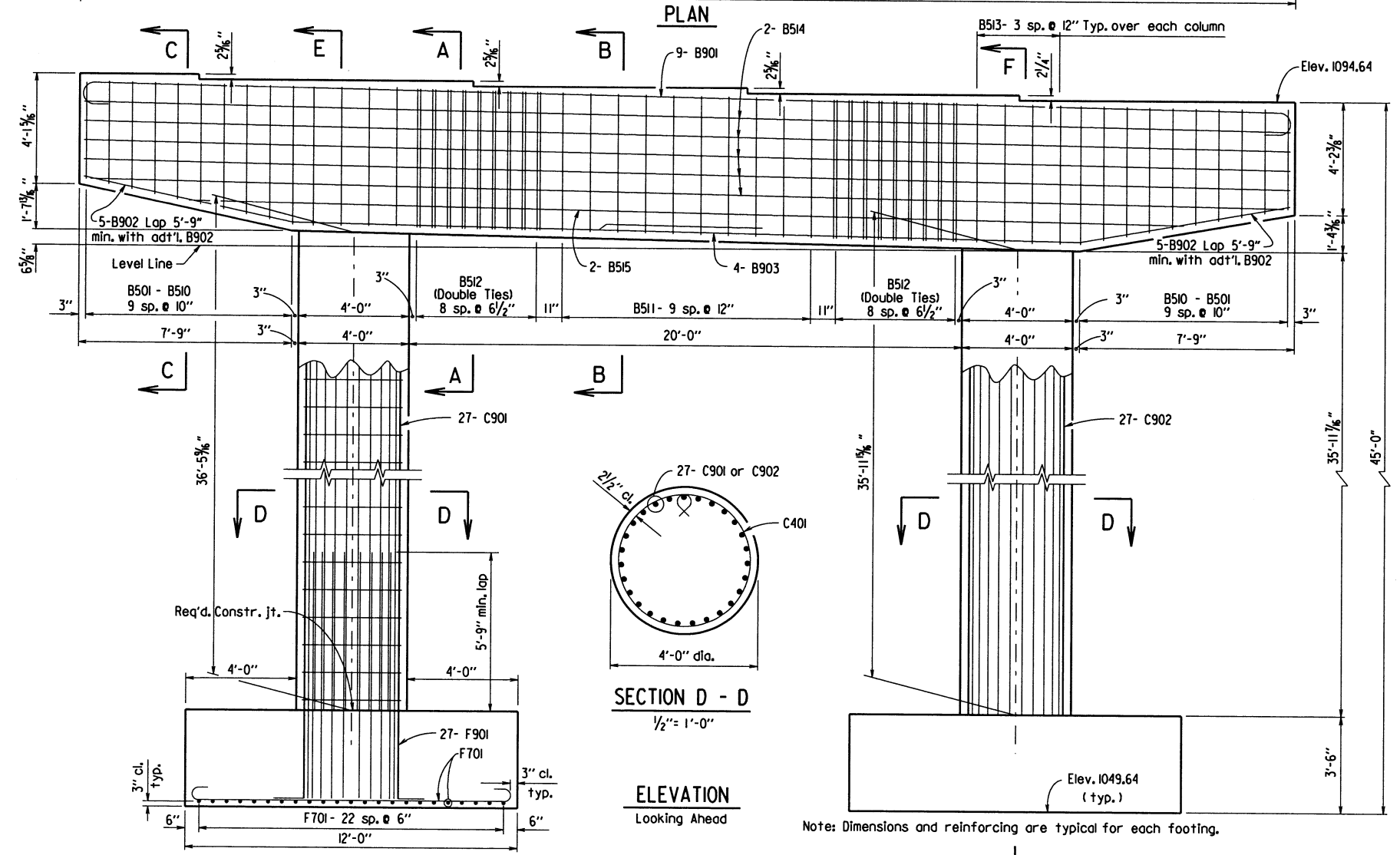
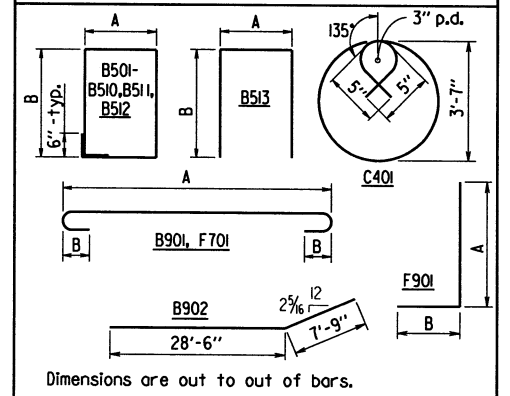


NOTE: A Class 3 Textured Coating Finish shall be applied to bridge surfaces as specified in Special Provision Job No. CA0905 "Textured Coating Finish" and in accordance with Subsection 802.19.

BAR LIST

Mark	No. Req'd.	Length	A	B	Pin Dia.
B901	9	46'-2"	43'-8"	10"	9"
B902	10	36'-3"			9"
B903	4	28'-6"			Str.
B501-B510	2 ea.	15'-3" to 18'-2"	3'-8"	3'-8 1/2" to 5'-2"	2 1/2"
B511	10	18'-2"	3'-8"	5'-2"	2 1/2"
B512	36	15'-10"	2'-6"	5'-2"	2 1/2"
B513	8	13'-10"	3'-8"	5'-2"	2 1/2"
B514	10	43'-8"			Str.
B515	2	36'-7"			Str.
C901	27	40'-9"			Str.
C902	27	40'-0"			Str.
C401	81	12'-4"			3"
F701	92	13'-2"	11'-6"	7"	5 1/4"
F901	54	12'-2"	10'-10"	1'-7 1/2"	9"

Bending Diagrams



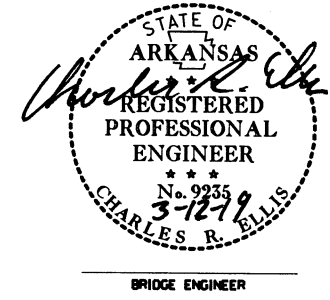
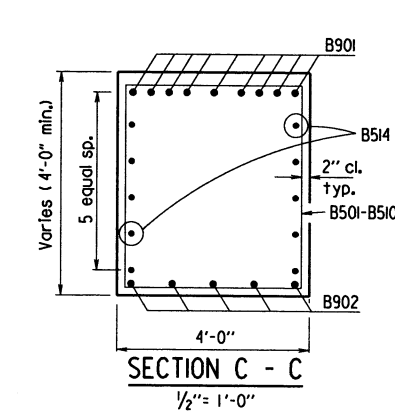
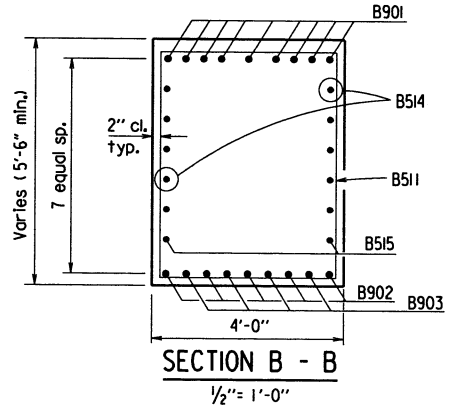
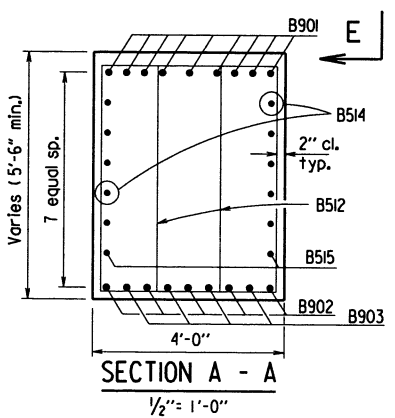
GENERAL NOTES

All concrete shall be Class S with a minimum 28 day compressive strength $f'_c = 3,500$ psi. Concrete shall be poured in the dry and all exposed corners shall be chamfered $3/4"$ unless otherwise noted.

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.

Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

For additional information, see layout.

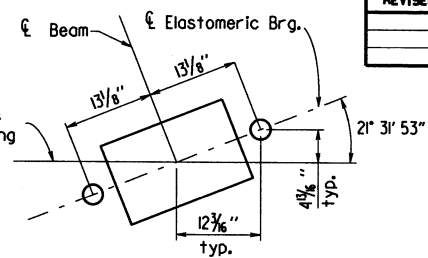
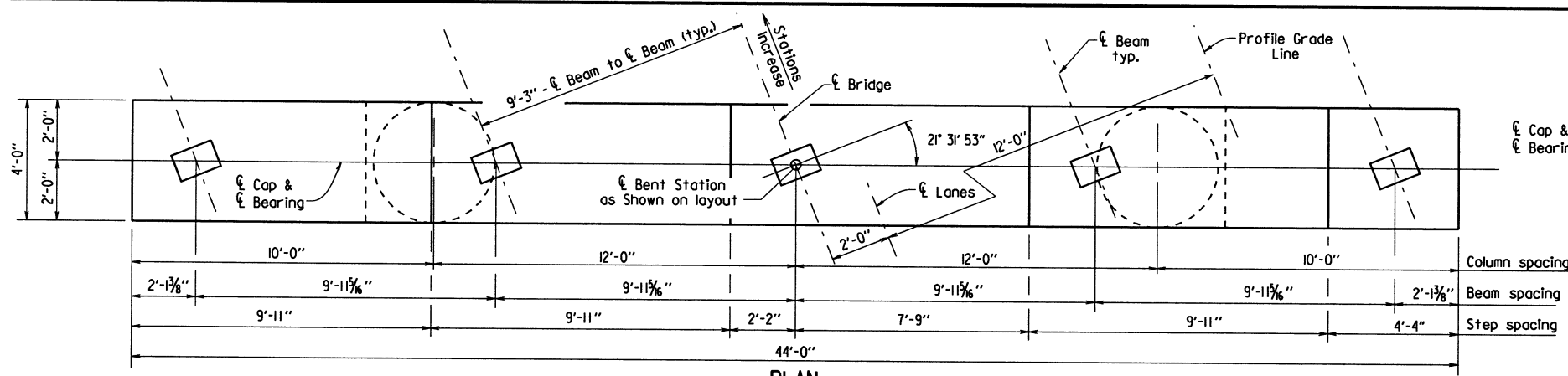


DETAILS OF BENT 2B
EDINBURGH ROAD
 ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

DRAWN BY: DMH DATE: 9-18-07 FILENAME: bca0905bl.b2.dgn
 CHECKED BY: PJT DATE: 1/13 SCALE: 3/8" = 1'-0"
 DESIGNED BY: PJT DATE: 5-07 or as noted
 BRIDGE NO. B7218 DRAWING NO. 52045A

PRINT DATE: 9/22/2017

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. CA0905		79		160
A7218 - INT. BENT - 52046								



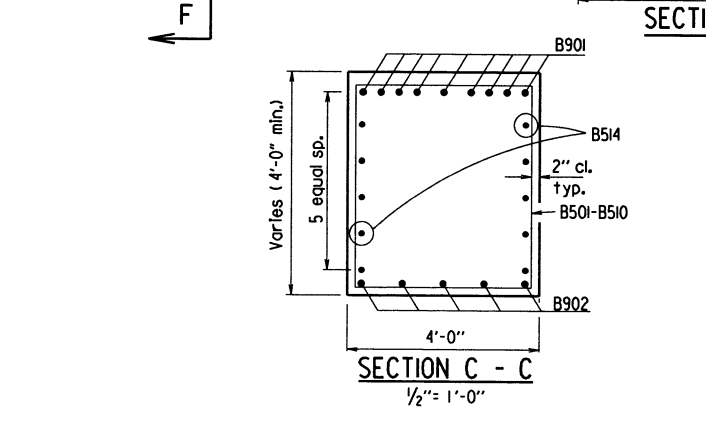
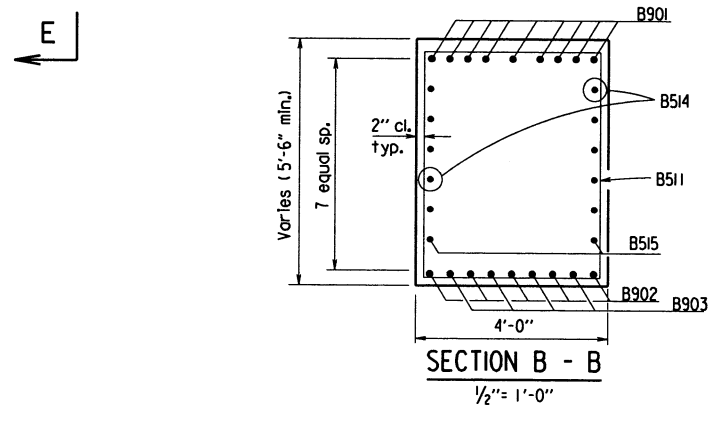
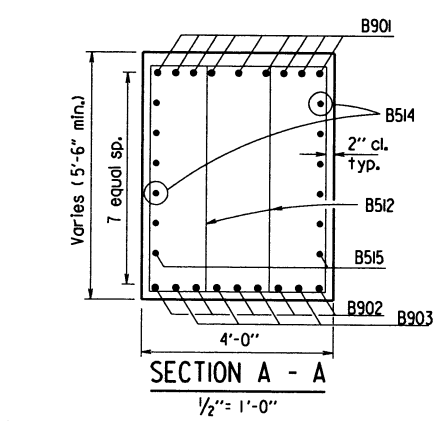
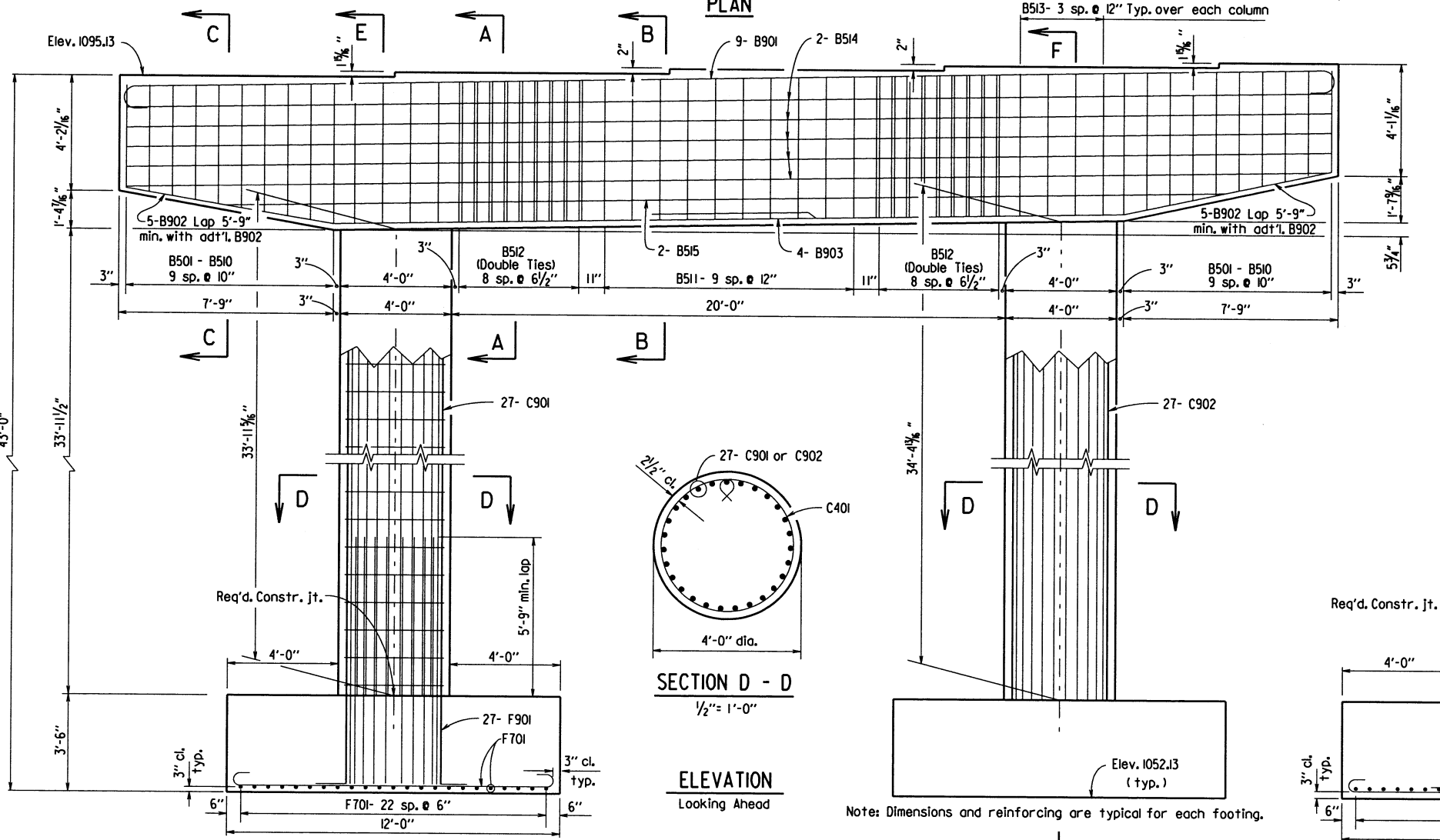
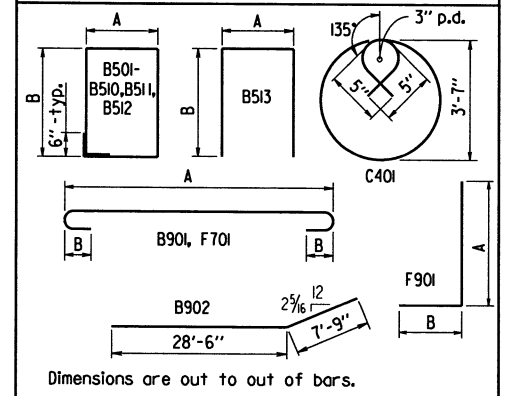
TYP. ANCHOR BOLT LAYOUT
1" = 1'-0"

NOTE: A Class 3 Textured Coating Finish shall be applied to bridge surfaces as specified in Special Provision Job No. CA0905 "Textured Coating Finish" and in accordance with Subsection 802.19.

BAR LIST

Mark	No. Req'd.	Length	A	B	Pin Dia.
B901	9	46'-2"	43'-8"	10"	9"
B902	10	36'-3"			9"
B903	4	28'-6"			Str.
B501-B510	2 ea.	15'-3" to 18'-2"	3'-8"	3'-8 1/2" to 5'-2"	2 1/2"
B511	10	18'-2"	3'-8"	5'-2"	2 1/2"
B512	36	15'-10"	2'-6"	5'-2"	2 1/2"
B513	8	13'-10"	3'-8"	5'-2"	2 1/2"
B514	10	43'-8"			Str.
B515	2	36'-7"			Str.
C901	27	38'-0"			Str.
C902	27	38'-9"			Str.
C401	77	12'-4"			3"
F701	92	13'-2"	11'-6"	7"	5 1/4"
F901	54	12'-2"	10'-10"	1'-7 1/2"	9"

Bending Diagrams



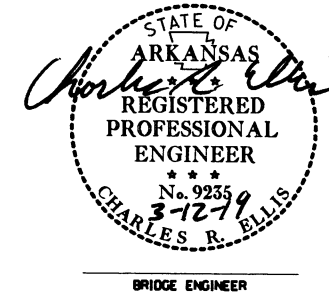
GENERAL NOTES

All concrete shall be Class S with a minimum 28 day compressive strength $f'_c = 3,500$ psi. Concrete shall be poured in the dry and all exposed corners shall be chamfered 3/4" unless otherwise noted.

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.

Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

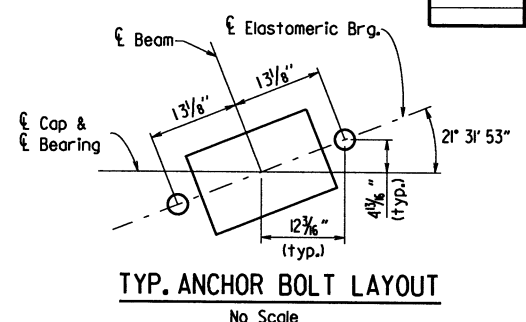
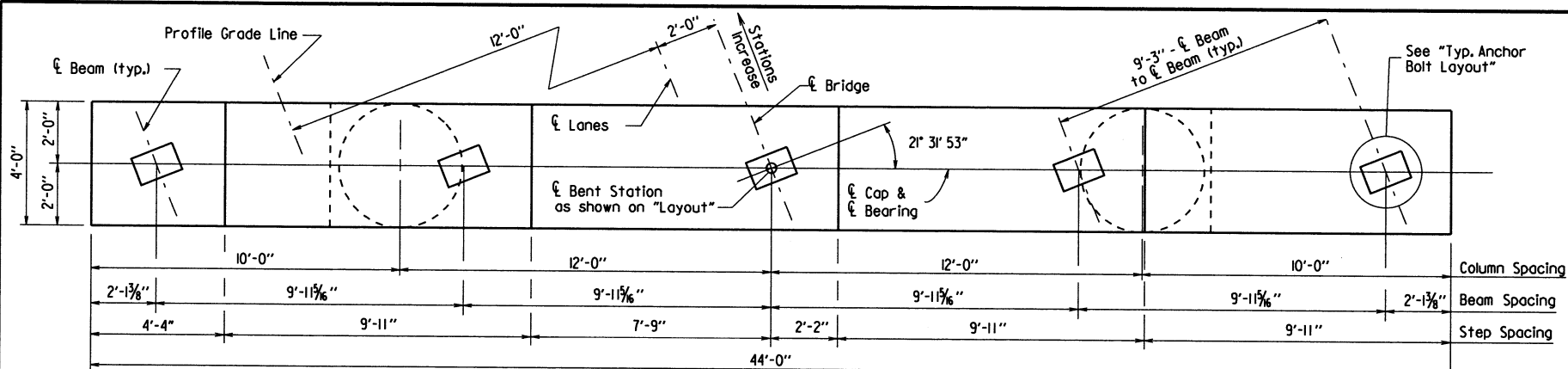
For additional information, see layout.



DETAILS OF BENT 3A
EDINBURGH ROAD
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: DMH DATE: 9-22-07 FILENAME: bca0905al.b3.dgn
CHECKED BY: *BET* DATE: 6/13 SCALE: 3/8" = 1'-0" or as shown
DESIGNED BY: PJT DATE: 5/07
BRIDGE NO. A7218 DRAWING NO. 52046

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.	CA0905	80	160	
				B728 - INT. BENT - 52046A				

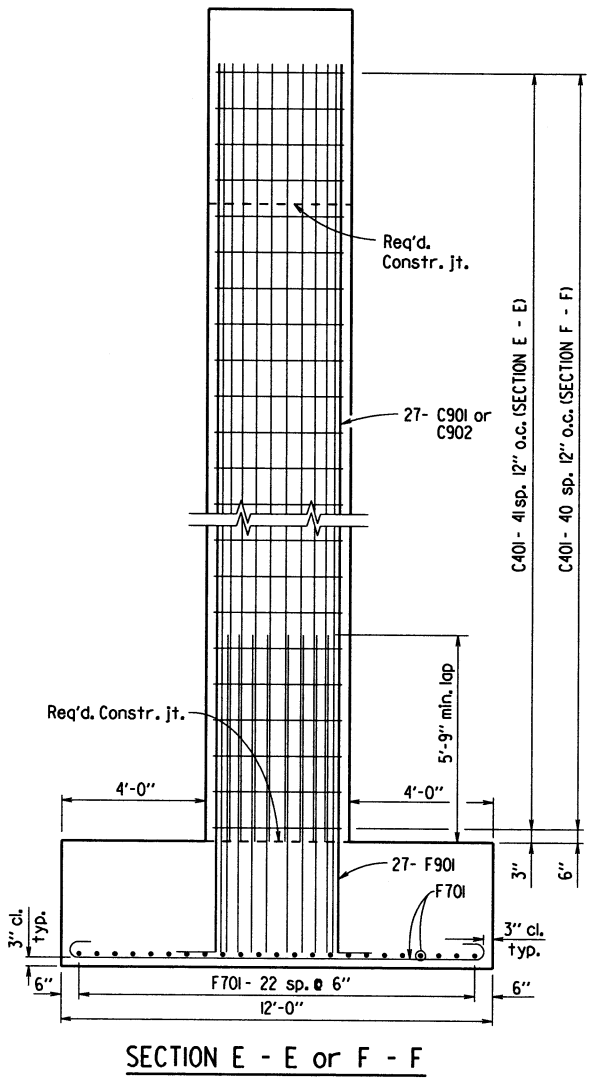
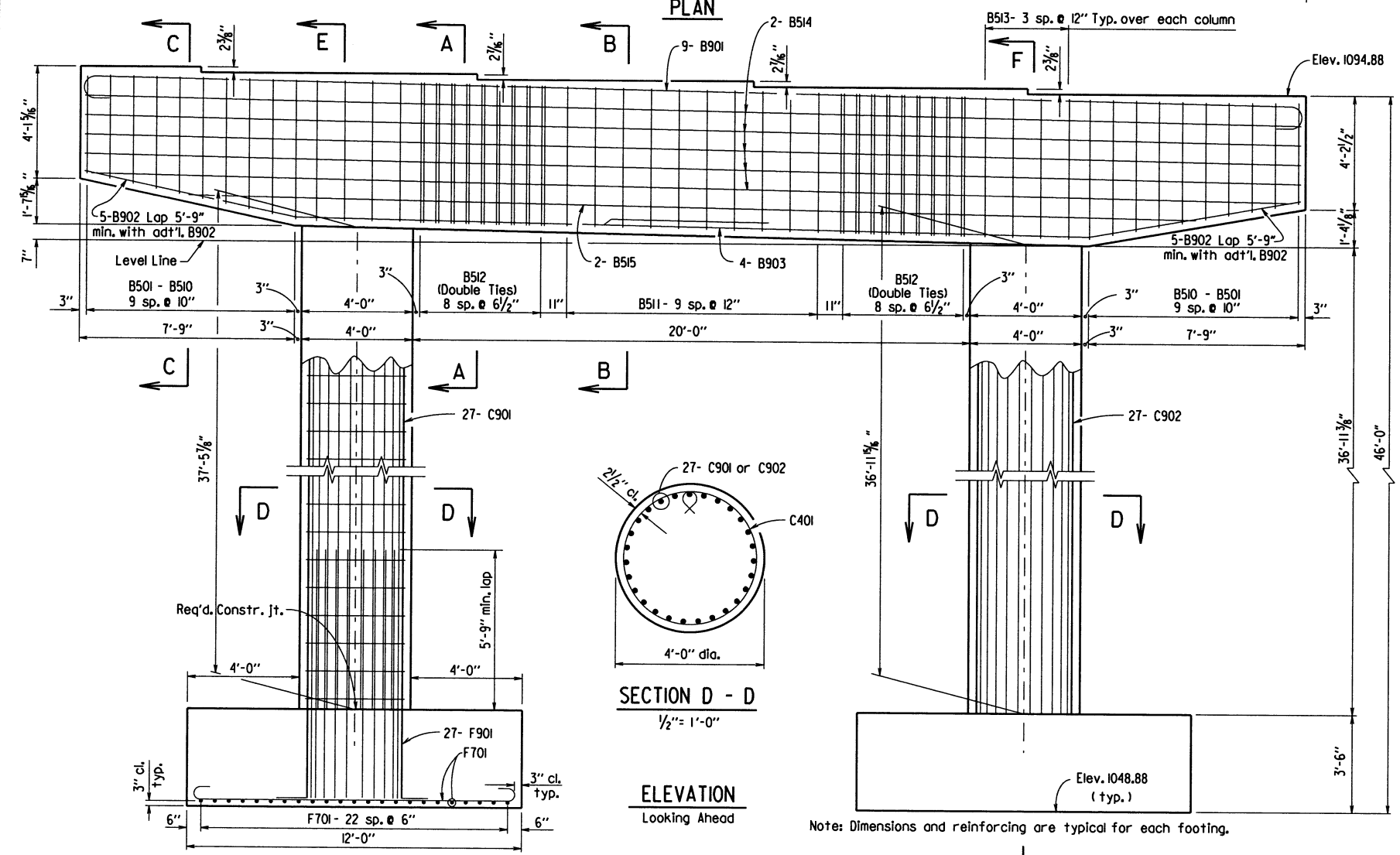
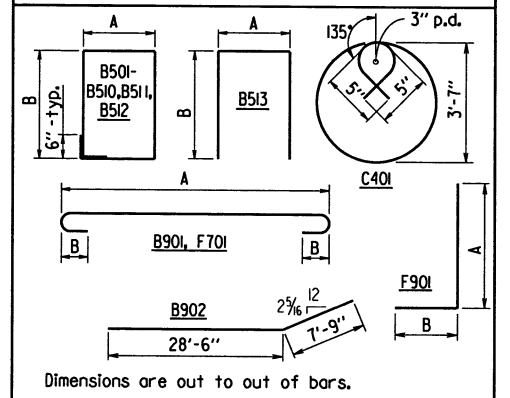


NOTE: A Class 3 Textured Coating Finish shall be applied to bridge surfaces as specified in Special Provision Job No. CA0905 "Textured Coating Finish" and in accordance with Subsection 802.19.

BAR LIST

Mark	No. Req'd.	Length	A	B	Pin Dia.
B901	9	46'-2"	43'-6"	10"	9"
B902	10	36'-3"			9"
B903	4	28'-6"			Str.
B501-B510	2 ea.	15'-3" to 18'-2"	3'-8"	3'-8 1/2" to 5'-2"	2 1/2"
B511	10	18'-2"	3'-8"	5'-2"	2 1/2"
B512	36	15'-10"	2'-6"	5'-2"	2 1/2"
B513	8	13'-10"	3'-8"	5'-2"	2 1/2"
B514	10	43'-8"			Str.
B515	2	36'-7"			Str.
C901	27	41'-9"			Str.
C902	27	41'-0"			Str.
C401	83	12'-4"			3"
F701	92	13'-2"	11'-6"	7"	5 1/4"
F901	54	12'-2"	10'-10"	1'-7 1/2"	9"

Bending Diagrams



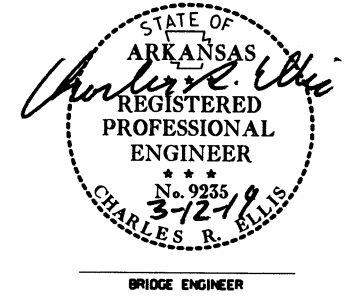
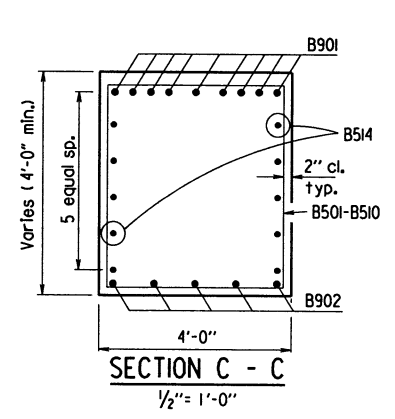
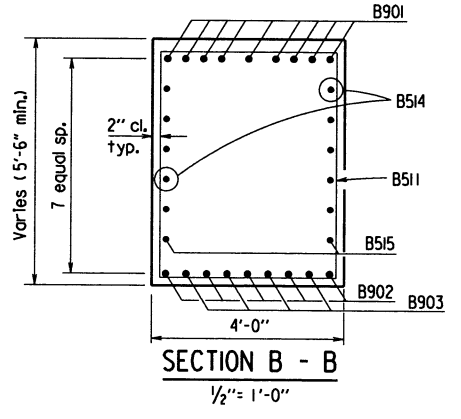
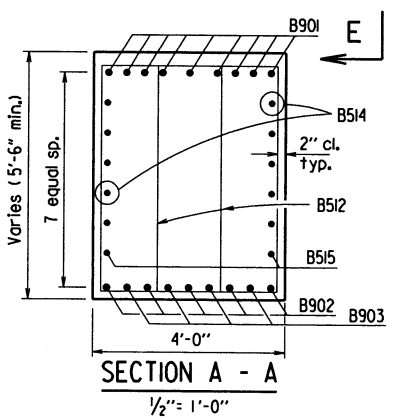
GENERAL NOTES

All concrete shall be Class S with a minimum 28 day compressive strength $f'_c = 3,500$ psi. Concrete shall be poured in the dry and all exposed corners shall be chamfered 1/4" unless otherwise noted.

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.

Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.

For additional information, see layout.



DETAILS OF BENT 3B
 EDINBURGH ROAD
 ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

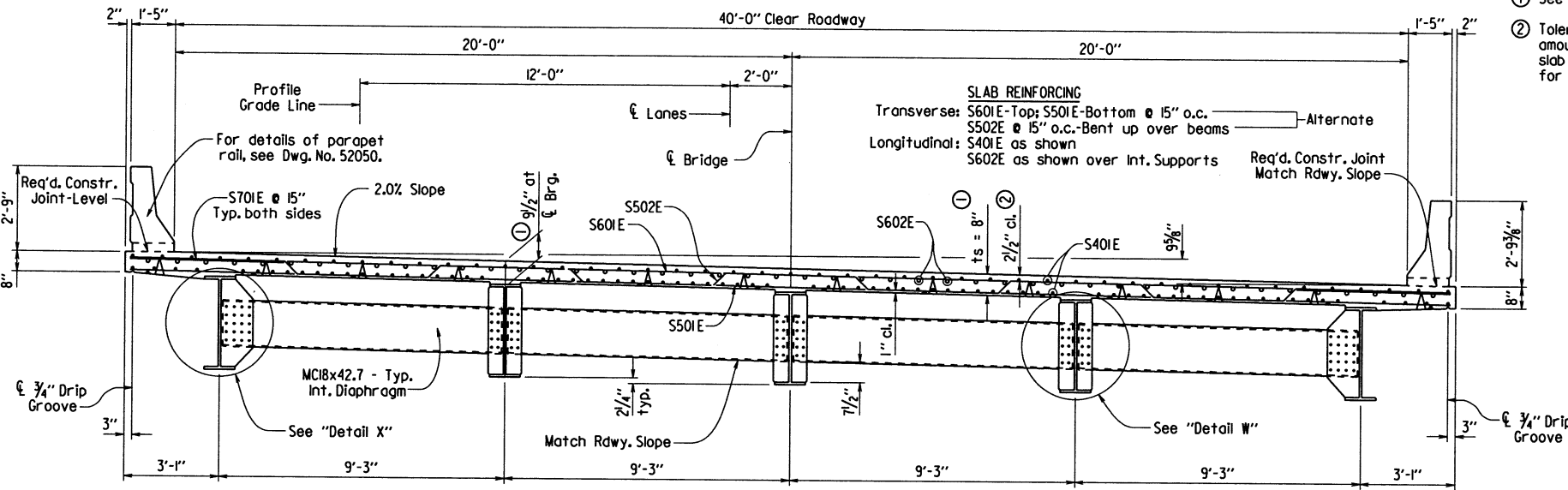
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 CHECKED BY: PJT DATE: 6/13 SCALE: 3/8" = 1'-0"
 DESIGNED BY: PJT DATE: 6-07 or as noted
 BRIDGE NO. B728 DRAWING NO. 52046A

PRINT DATE: 9/22/2017

NOTE: Class 2 Protective Surface Treatment shall be applied to the roadway surface. Class 3 Textured Coating Finish shall be applied to bridge surfaces as specified in Special Provision Job No. CA0905 "Textured Coating Finish" and in accordance with Subsection 802.19. Textured Coating Finish shall not be applied on surfaces where Class 2 Protective Surface Treatment is applied.

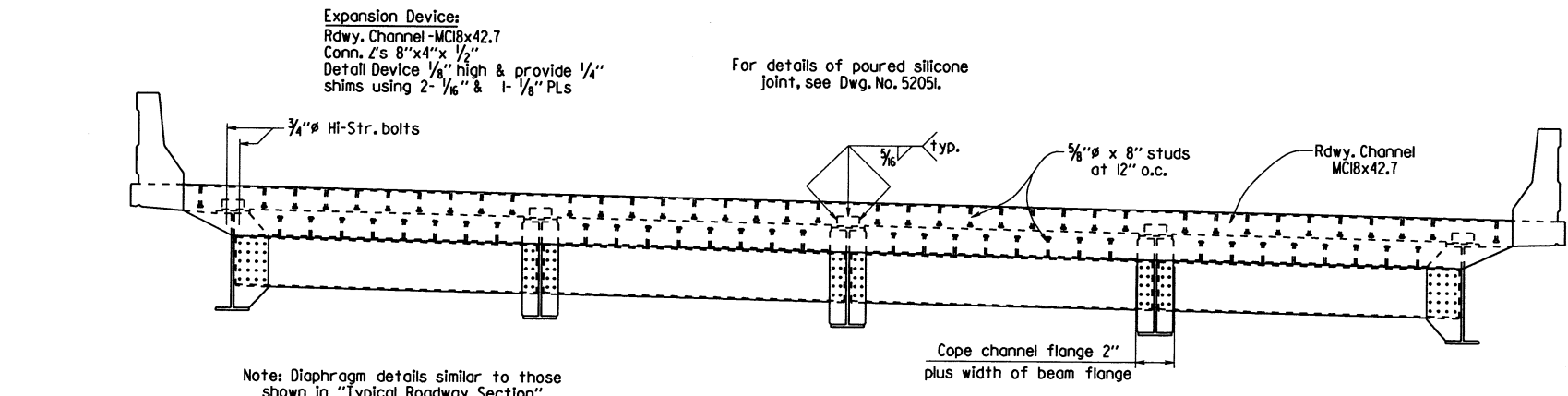
NOTE: At the Contractor's option, two straight, epoxy-coated #5 bars may be substituted for bar S502E. Payment for reinforcing will be based on the weight of bar S502E.

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.	CA0905		81	160
				A&B7218 - 227 FT. UNIT - 52047				



TYPICAL ROADWAY SECTION

Looking Back - Br. A
Looking Ahead - Br. B
Scale: 3/8" = 1'-0"



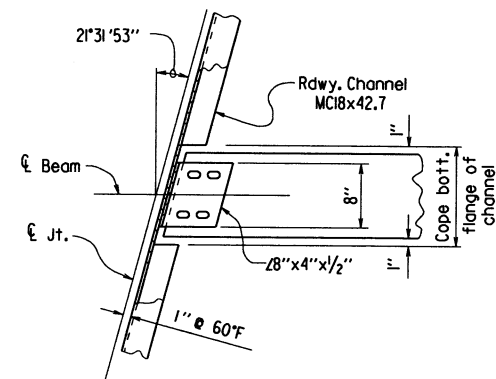
SECTION THRU JOINT

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

Note: Diaphragm details similar to those shown in "Typical Roadway Section"

Expansion Device:
Rdwy. Channel - MC18x42.7
Conn. L's 8"x4"x 1/2"
Detail Device 1/8" high & provide 1/4" shims using 2- 1/8" & 1- 1/8" PLS

For details of poured silicone joint, see Dwg. No. 52051.

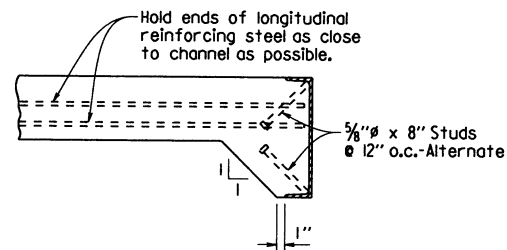


CHANNEL CONNECTION DETAIL

No Scale

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"	3/8"	

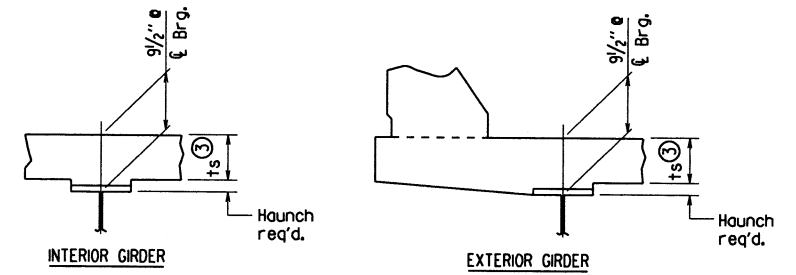
Note: When a fillet weld size, as shown on the plans, is larger than the minimum, the first pass shall be that specified for minimum size of fillet weld.



ALTERNATE ANCHOR DETAILS

No Scale

- See "Adjustment for Slab Thickness Tolerance".
- Tolerance: Minus = 1/4"; Plus equal to the amount of slab thickening used to meet slab thickness tolerance. See "Adjustment for Slab Thickness Tolerance".



- Tolerance when removable deck forming is used is +1/2", -1/4". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

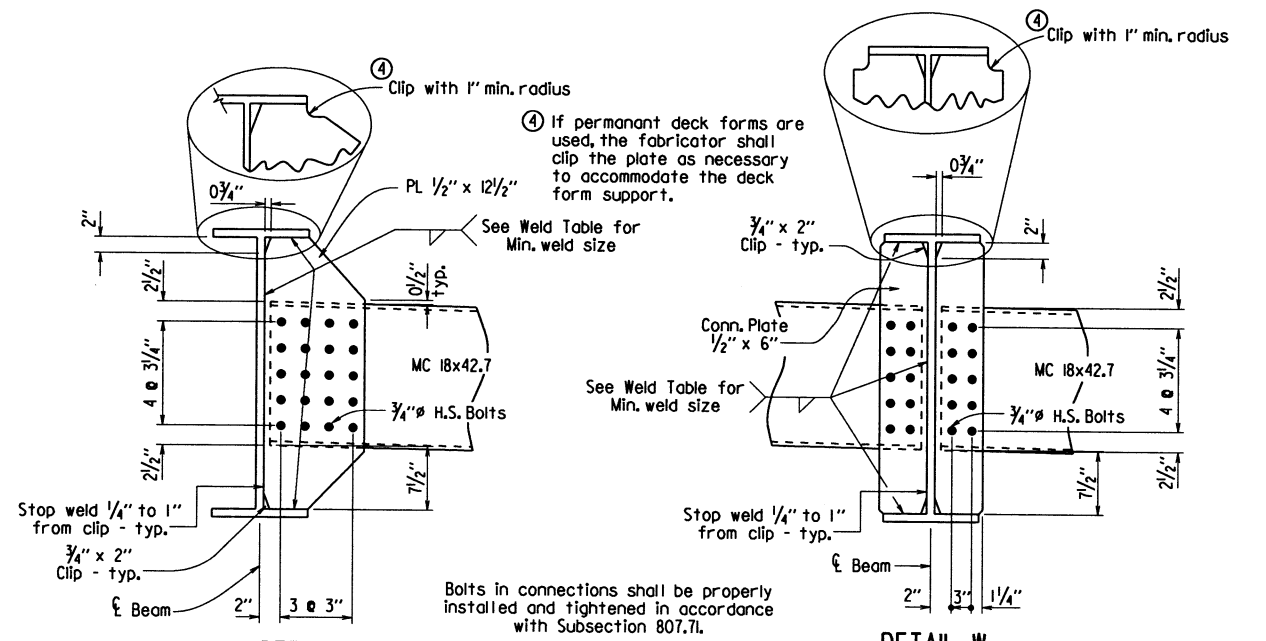
Note: ts = slab thickness as shown in "Typical Roadway Section".

Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance: Minimum - occurs when top flange contacts bottom reinforcing steel; Maximum - top flange thickness plus 1 3/4". 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



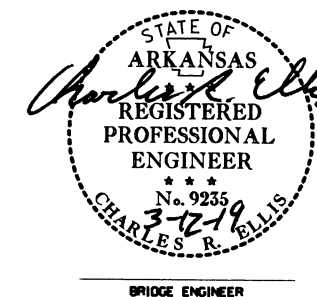
DETAIL X

No Scale

DETAIL W

No Scale

Boils in connections shall be properly installed and tightened in accordance with Subsection 807.71.



SHEET 1 OF 5
DETAILS OF 227' CONTINUOUS
COMPOSITE W-BEAM UNIT
EDINBURGH ROAD

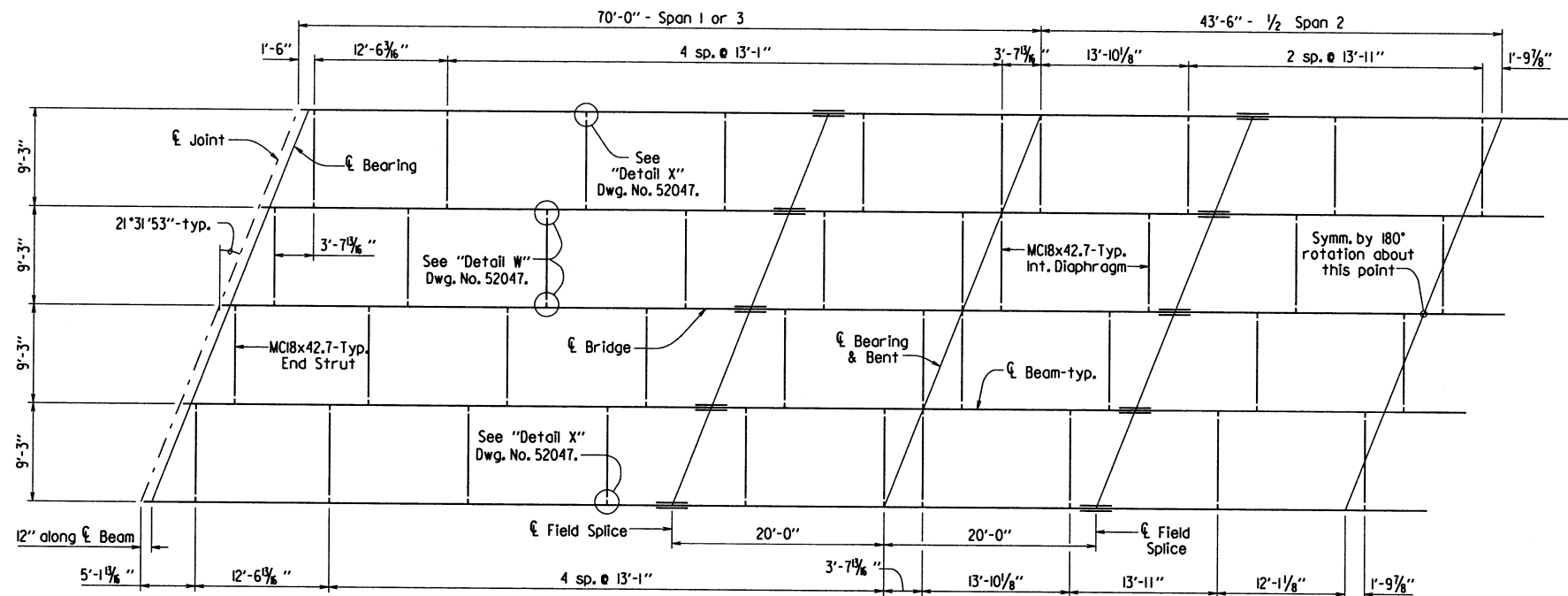
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 11-14-06 FILENAME: bco0905ml_sl.dgn
CHECKED BY: CRE DATE: 8-07 SCALE: AS NOTED
DESIGNED BY: CAB DATE: 10-06

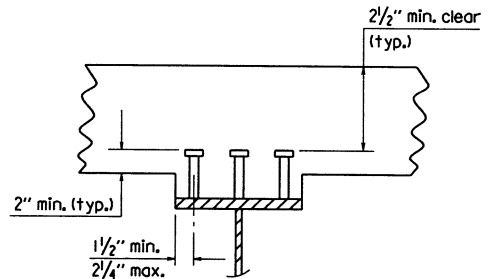
BRIDGE NO. A&B7218

DRAWING NO. 52047

PRINT DATE: 9/21/2017

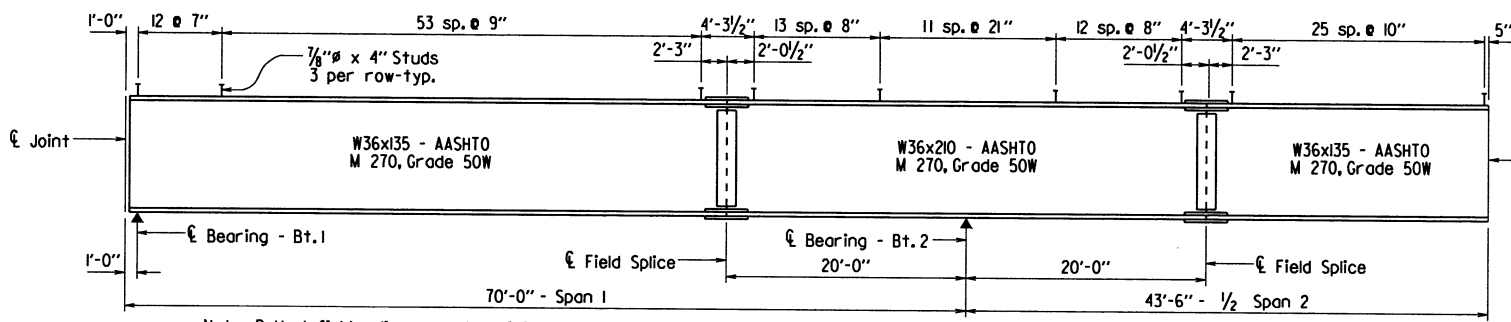


HALF FRAMING PLAN
Scale: 1/8" = 1'-0"

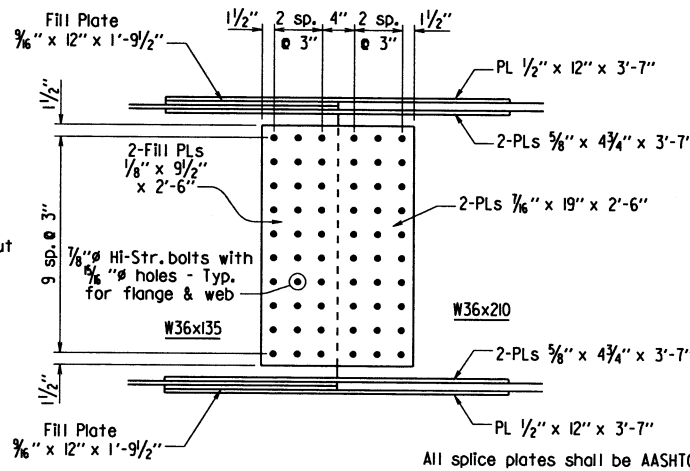


Stud Shear Connectors shown shall be 1/2" x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer. 3/4" studs may be used in place of the 1/2" studs shown, at the ratio of 1.361 - 3/4" studs in place of one 1/2" stud. 1/8" studs will be used as basis for measurement of structural steel in shear connectors. Maximum stud spacing = 24".

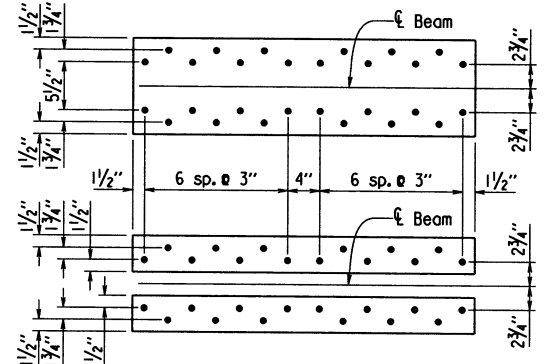
SHEAR CONNECTOR DETAIL
No Scale



HALF BEAM ELEVATION
No Scale



WEB SPLICE



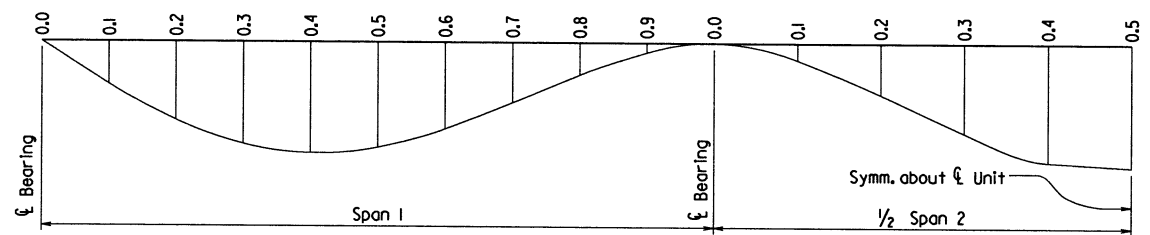
FLANGE SPLICE

FIELD SPLICE DETAIL
Scale: 1" = 1'-0"

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Interior	Exterior	Interior	Exterior	Interior	Exterior
Span 1	0	0	0	0	0	0	0
	0.1	0.051	0.046	0.336	0.284	0.358	0.308
	0.2	0.094	0.084	0.615	0.519	0.656	0.562
	0.3	0.121	0.109	0.797	0.673	0.850	0.729
	0.4	0.131	0.118	0.864	0.730	0.922	0.791
	0.5	0.123	0.110	0.814	0.688	0.869	0.746
	0.6	0.100	0.089	0.666	0.562	0.711	0.610
	0.7	0.067	0.060	0.457	0.386	0.488	0.419
	0.8	0.034	0.030	0.243	0.205	0.260	0.222
	0.9	0.009	0.008	0.072	0.060	0.077	0.065
1/2 Span 2	0	0	0	0	0	0	0
	0.1	0.023	0.021	0.110	0.094	0.118	0.103
	0.2	0.068	0.063	0.357	0.304	0.383	0.332
	0.3	0.117	0.108	0.637	0.541	0.683	0.590
	0.4	0.154	0.141	0.853	0.724	0.914	0.789
0.5	0.168	0.154	0.933	0.792	1.000	0.863	

Table is symmetrical about $\bar{\ell}$ Unit



Note: Camber for Dead Load Deflection plus Vertical curve $\pm 1/4$ " tolerance. Deflections shown are from a chord from $\bar{\ell}$ Bearing to $\bar{\ell}$ Bearing. Vertical curve corrections not included.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9255
3-12-19
CHARLES R. ELLIS
BRIDGE ENGINEER

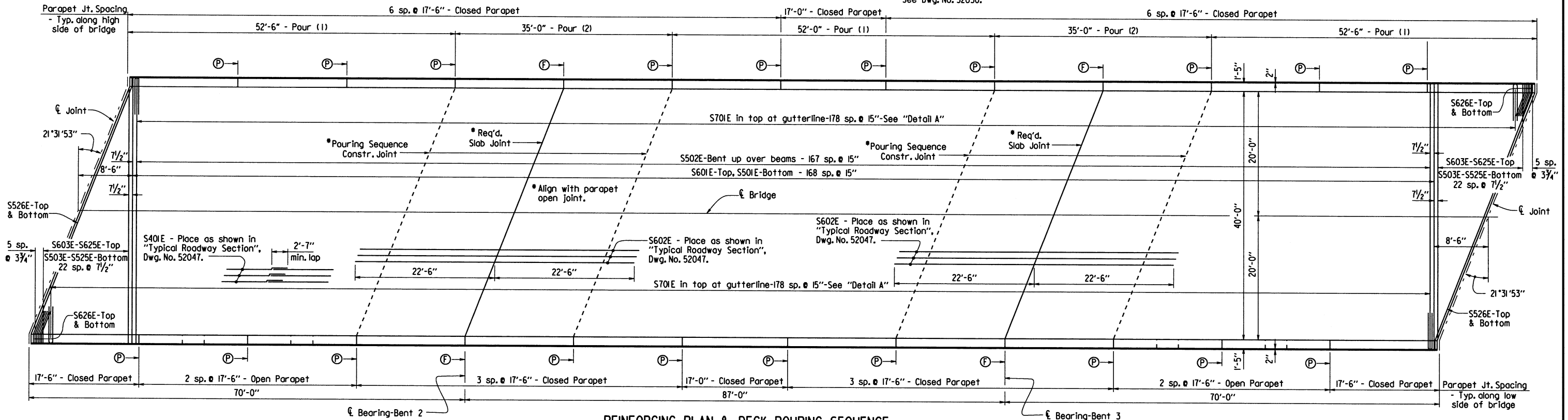
SHEET 2 OF 5
DETAILS OF 227' CONTINUOUS COMPOSITE W-BEAM UNIT
EDINBURGH ROAD
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: KDH DATE: 11-17-06 FILENAME: bca0905ml.sl2.dgn
CHECKED BY: CRE DATE: 8-07 SCALE: AS NOTED
DESIGNED BY: CAB DATE: 10-06
BRIDGE NO. A&B7218 DRAWING NO. 52048

PRINT DATE: 9/21/2017

Note: Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between the end of a pour and the start of an adjacent pour. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		83	160
				JOB NO.	CA0905			
				A&B7218 - 227 FT. UNIT		52049		

- (F) Full-Depth Parapet Joint (1/4" to 1" max.) Stop 4" from top of slab. See Dwg. No. 52050.
- (P) Partial-Depth Parapet Joint (1/4" to 1" max.) Stop 1'-2" from top of slab. See Dwg. No. 52050.



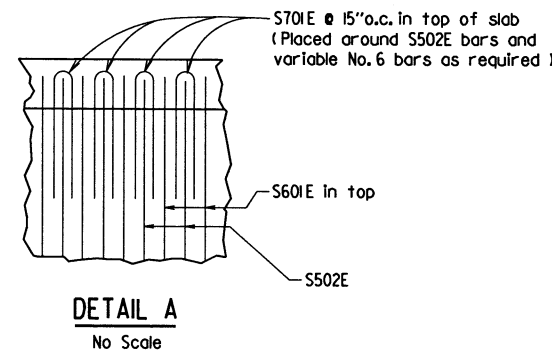
REINFORCING PLAN & DECK POURING SEQUENCE

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

BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
S401E	738	40'-0"	Str.	Dimensions are out to out of bars.
P401E	880	5'-6"	2"	
P402E	28	4'-10"	2"	
P403E	6	16'-6"	Str.	
P404E	72	17'-0"	Str.	
P405E	32	36'-6"	Str.	
P406E	24	30'-9"	Str.	
S501E	169	42'-10"	Str.	
S502E	168	43'-6"	3"	
S503E-S525E	2 each	Var. 6'-1" to 40'-11"	Str.	
S526E	4	45'-10"	3 3/4"	
P501E	880	4'-6"	3 3/4"	
S601E	169	42'-10"	Str.	
S602E	92	45'-0"	Str.	
S603E-S625E	2 each	Var. 6'-1" to 40'-11"	Str.	
S626E	20	5'-5"	4 1/2"	
S701E	358	12'-1"	6 1/2"	

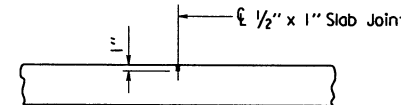
Note: Bars marked with an "E" suffix shall be epoxy coated.



DETAIL A

No Scale

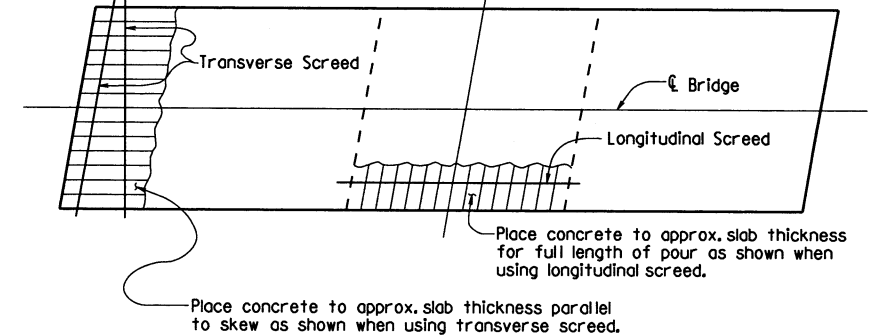
Use Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod filler will not be required. Joint Sealer shall be measured and paid for as Class (SAE) Concrete-Bridge. Slab joints shall extend to the outside edge of the deck slab. Slab joints shall be installed before the parapet railing is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations. The joint sealer shall extend across the deck slab (gutterline to gutterline). Slab joints shall align with parapet open joints.



SLAB JOINT DETAIL

No Scale

Note: At the Contractor's option, the Transverse Screenshot may be placed parallel to the skew or perpendicular to the Bridge.



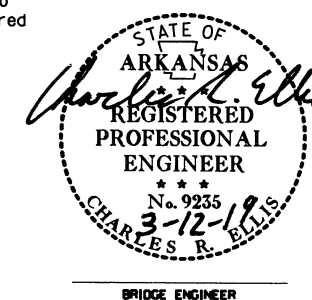
CONCRETE PLACEMENT PROCEDURE

No Scale

SHEET 3 OF 5
 DETAILS OF 227' CONTINUOUS
 COMPOSITE W-BEAM UNIT
 EDINBURGH ROAD

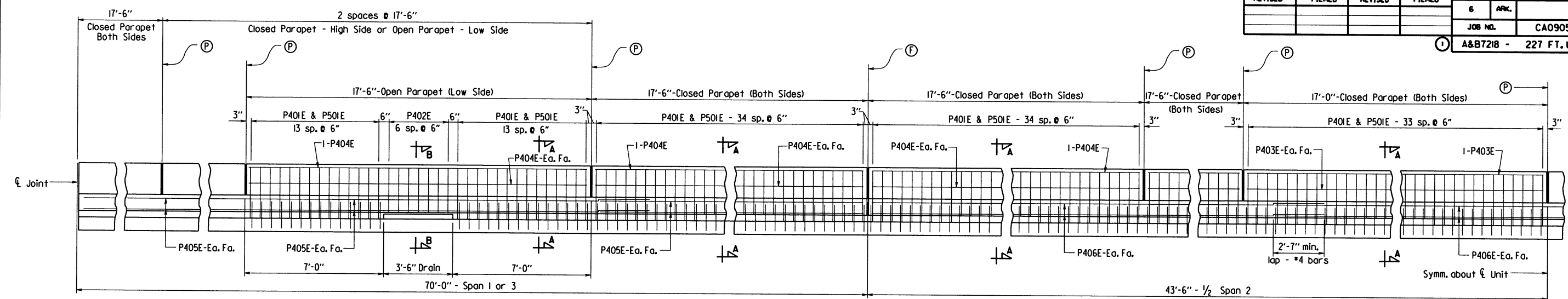
ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 11-17-06 FILENAME: bca0905ml.sl3.dgn
 CHECKED BY: CRE DATE: 8-07 SCALE: AS NOTED
 DESIGNED BY: CAB DATE: 10-06
 BRIDGE NO. A&B7218 DRAWING NO. 52049



PRINT DATE: 9/22/2017

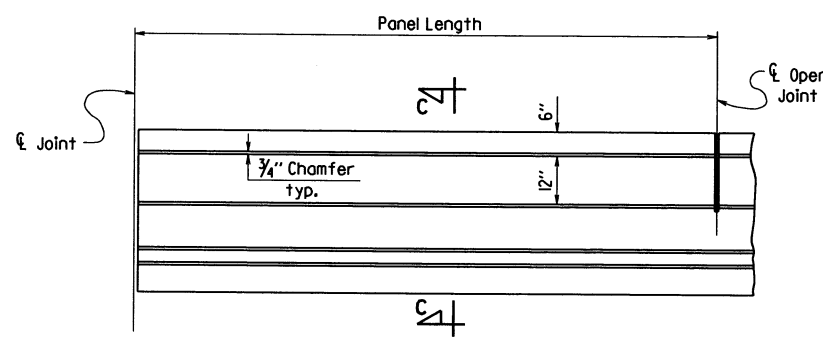
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	CA0905		34	160
				A&B7218 - 227 FT. UNIT				52050



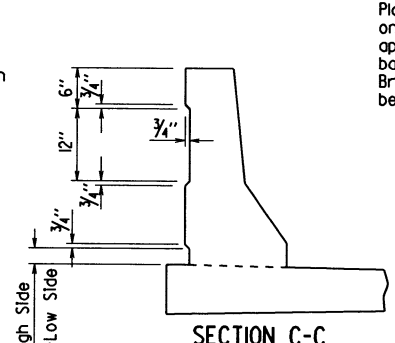
ⓕ Full-Depth Parapet Joint (1/4" to 1" max.) as shown in "Reinforcing Plan & Deck Pouring Sequence" Dwg. No. 52049. Stop 4" from top of slab.

ⓐ Partial-Depth Parapet Joint (1/4" to 1" max.) as shown in "Reinforcing Plan & Deck Pouring Sequence" Dwg. No. 52049. Stop 1'-2" from top of slab.

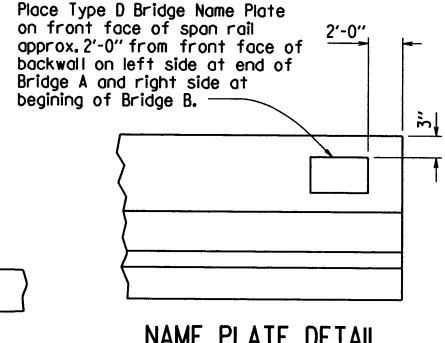
DETAILS OF PARAPET RAIL
Scale: 3/8" = 1'-0"



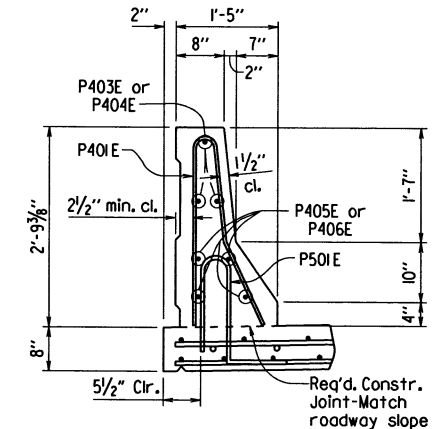
DETAILS OF PARAPET ENHANCEMENT
No Scale



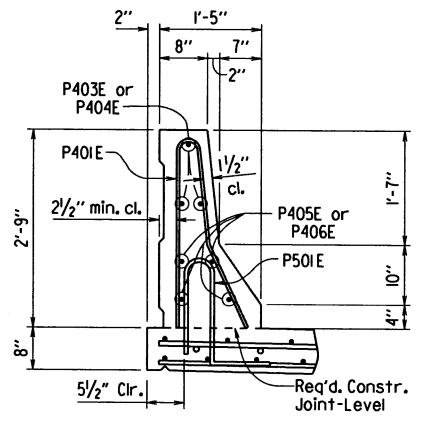
SECTION C-C
No Scale



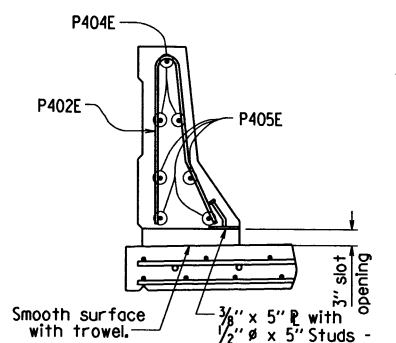
NAME PLATE DETAIL
No Scale



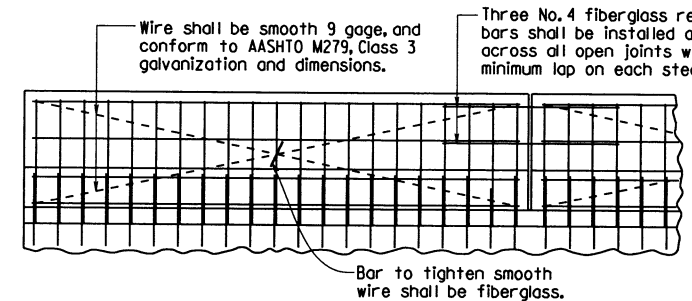
SECTION A-A
Low Side
Scale: 3/4" = 1'-0"



SECTION A-A
High Side
Scale: 3/4" = 1'-0"



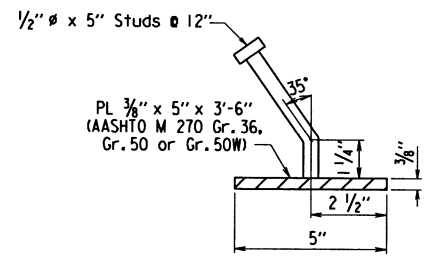
SECTION B-B
Scale: 3/4" = 1'-0"



DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL
No Scale

All smooth wire bracing shall be placed on the inside faces of the reinforcing.

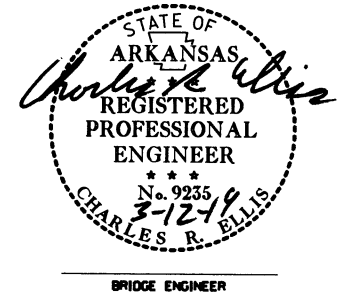
For actual placement of reinforcing steel, see "Details of Parapet Rail".



DETAIL Z
No Scale

NOTE: The surfaces of the 3/8" plates which will not be in contact with concrete shall be painted with aluminum epoxy paint 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 Beam Spans (M 270 Gr. 50W)."

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 and shall be measured and paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)."



SHEET 4 OF 5
DETAILS OF 227' CONTINUOUS COMPOSITE W-BEAM UNIT
EDINBURGH ROAD
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 11-18-06 FILENAME: bco0905ml_s14.dgn
CHECKED BY: CBE DATE: 8-07 SCALE: AS NOTED
DESIGNED BY: CAB DATE: 10-06
BRIDGE NO. A&B7218 DRAWING NO. 52050

PRINT DATE: 3/7/2018

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.	CA0905		35	160
				A&B7218 - 227 FT. UNIT - 52051				

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 edition) with applicable Supplemental Specifications and Special Provisions.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications (4th Edition, 2007 with 2009 Interims).

MATERIALS AND STRENGTHS:
 Class S(AE) Concrete $f'c = 4,000$ psi
 Reinforcing Steel (Gr. 60, AASHTO M 31 or M 322, Type A) $f_y = 60,000$ psi
 Structural Steel (AASHTO M 270, Gr. 50W) $F_y = 50,000$ psi
 Structural Steel (AASHTO M 270, Gr. 36) $F_y = 36,000$ psi

CONCRETE:
 Concrete shall be poured in the dry and all exposed corners to be chamfered $\frac{3}{4}$ " unless otherwise noted. All concrete shall be Class S(AE) with a minimum 28 day compressive strength $f'c = 4,000$ psi.

The superstructure details shown are for use when removable deck forming is used and are the basis for measurement of Class S(AE) Concrete. See Std. Dwg. No. 55005 for allowable modifications and for tolerances when Permanent Steel Bridge Deck Forms are used.

Concrete in bridge superstructure shall be placed, consolidated and screeded off for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent.

The concrete deck shall be given a fine finish in accordance with Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Movement of the finishing machine across new concrete shall be on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour. Sufficient concrete must be placed ahead of the strike-off to fully load the beam. If a longitudinal strike-off is used, a vertical camber adjustment must be made in the strike-off to account for the future dead load deflection due to the rolling. A minimum of 72 hours shall elapse between completion of the slab and the pouring of the parapet railing. Any railing pours made before the entire slab has been placed and cured must be approved by the Engineer.

REINFORCING STEEL:
 All reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A, with mill test reports and shall be epoxy coated. The reinforcing steel is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size to prevent displacement during the course of construction. The wire supports will not be paid for directly, but will be considered subsidiary to the item "Epoxy Coated Reinforcing Steel (Grade 60)".

STRUCTURAL STEEL:
 Structural steel shall be AASHTO M 270, Grade 50W unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)". Grade 50W steel shall not be painted. All exposed surfaces shall be cleaned in accordance with Subsection 807.84(e). Structural steel completely embedded in concrete may be AASHTO M 270, Gr. 36, Gr. 50 or Gr. 50W unless otherwise noted.

Drawings show general features of design only. Shop drawings shall be made in accordance with Subsection 807.04, submitted and approval secured before fabrication is begun.

Requests for substitution of structural steel shapes shown with shapes of greater size must be submitted by the Contractor to the Engineer for approval. Steels of equal or greater strengths will be accepted only when shown on the approved shop drawings. Payment will be based on the basis of shapes and materials shown in the plans, and no additional compensation will be made for any adjustments due to substitutions.

Beams and field splice plates are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in Subsection 807.05. This work and material will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Beam Spans (M 270, Gr. 50W)".

All beams shall be blocked in their true position in the shop with the webs horizontal. The camber, length of sections, distance between bearings and openings of joints shall be measured with the beams in their true position and this information shall become part of the permanent records for this job. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram. All beam dimensions are based on a temperature of 60 degrees F. A tolerance of $\frac{1}{4}$ " +/- is allowed for camber.

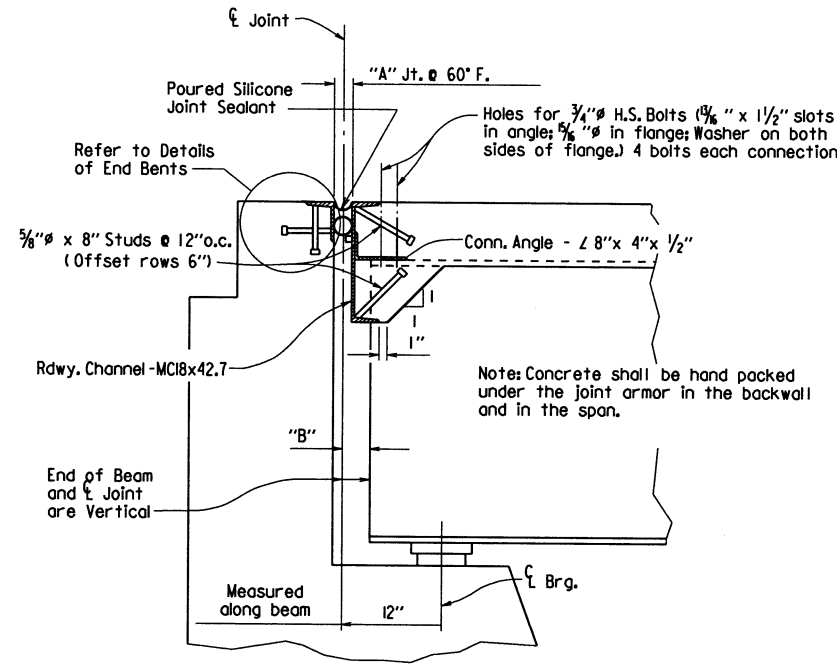
Flange field splice plates shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses.

All welding that is to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval. If additional welds are required, whether permanent or temporary, a formal request with detailed drawings shall be submitted to the Engineer for approval; however, additional welds used for attaching falsework support devices or screed rail supports to the structural steel that do not exceed the limitations of Subsection 802.13 will not require approval prior to construction. All welding shall conform to Subsection 807.26.

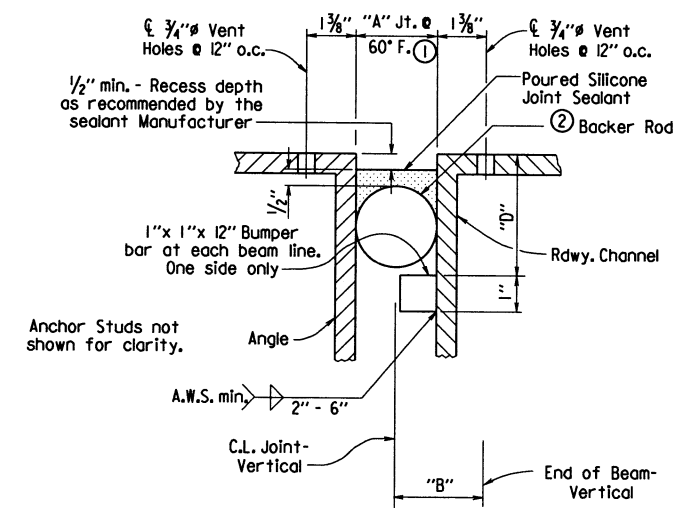
Field connections shall be bolted with high-strength bolts and shall be $\frac{3}{4}$ " bolts unless otherwise noted. Open Holes shall be $\frac{1}{8}$ " unless otherwise noted. Holes for $\frac{3}{4}$ " high-strength bolts may be $\frac{5}{8}$ " if a washer is supplied for use under both the nut and head of the bolt. The use of oversized holes will not be allowed on main members. Bolts shall be placed with heads on the outside face of the exterior beam webs and on the bottom of the beam flanges.

Diaphragms shall be installed as beams are erected. All bolts in diaphragms and field splices shall be installed and tightened in accordance with Subsection 807.71 prior to pouring the concrete deck.

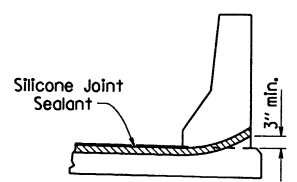
All stud shear connectors shall be granular flux filled, solid fluxed, or equal and shall be automatically end welded in accordance with recommendations of the manufacturer.



SECTION THRU JOINT AT BENTS 1 & 4
 Scale: 1" = 1'-0"



DETAIL OF POURED SILICONE JOINT SEAL
 No Scale



JOINT SEAL PLACEMENT AT CURB
 No Scale

SILICONE JOINT DATA

Bent Number	"A" Width Perpendicular to Joint at 24 Hour Average Temperature (1) Of:			"B" Perpendicular to Joint at 60°F	"D"
	40°F	60°F	80°F		
1 & 4	2 3/8"	2"	1 3/4"	2 1/4"	5"

(1) The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature. Interpolation of the table may be necessary.

The temperature limitations recommended by the sealant manufacturer shall be observed.

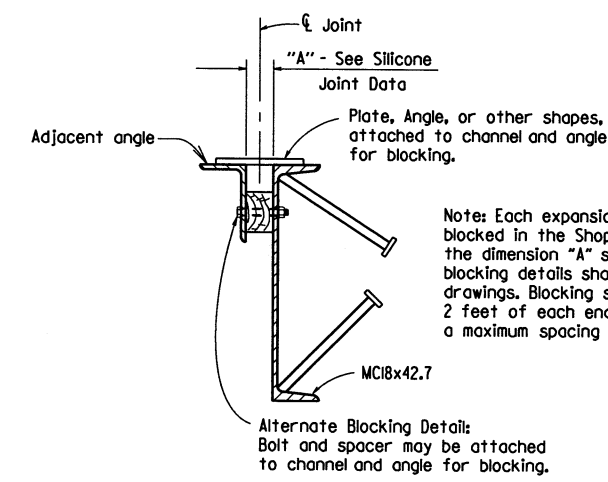
The sealant shall be installed only when the average 24 hour air temperature is between 40° and 80°F.

(2) BACKER ROD NOTE:

Use an appropriately sized backer rod at the depth shown in the manufacturer's literature based on the joint width at the time of sealing.

Except as noted, do not install more backer rod that 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.

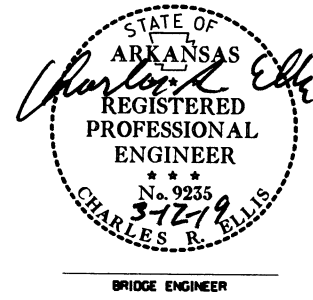


DETAILS FOR BLOCKING EXPANSION JOINT DEVICE

EXPANSION DEVICE INSTALLATION

The Contractor may elect to install the expansion device for the end bents using one of the following two alternatives:

- 1) The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the beams erected, the blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the backwall concrete, the blocking shall be removed, the opening adjusted for temperature, and the backwall constructed.
- 2) The backwall shall be poured to the optional construction joint after beams are erected. The blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the remainder of the backwall concrete, the blocking shall be removed and the opening adjusted for temperature. Backfill shall not be placed behind the backwall until the deck concrete on the adjacent span has been placed.



SHEET 5 OF 5
 DETAILS OF 227' CONTINUOUS
 COMPOSITE W-BEAM UNIT
 EDINBURGH ROAD
 ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 12-4-06 FILENAME: bca0905ml_s15.dgn
 CHECKED BY: CRE DATE: 8-07 SCALE: AS NOTED
 DESIGNED BY: CAB DATE: 10-06
 BRIDGE NO. A&B7218 DRAWING NO. 52051

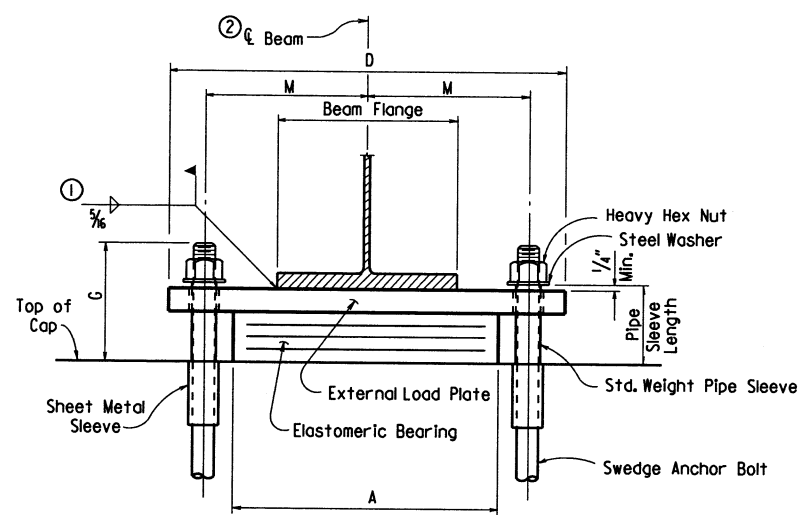
PRINT DATE: 9/21/2017

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.	CA0905
							JOB NO.	26160
							A&B7218 - ELASTO. BRGS. - 52052	

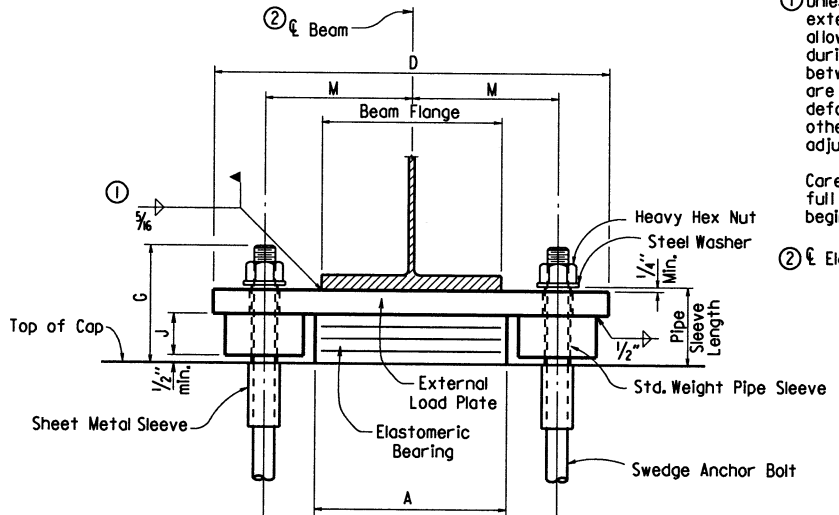
① Unless otherwise approved by the Engineer, welding of the external load plate at expansion bearings to the beam will be allowed only when: 1) the approximate average air temperature during the 24 hour period immediately preceding welding is between 40° F and 80° F; and 2) the slots in the external load plate are positioned to center on the anchor bolts; and 3) no horizontal deformation of the elastomeric pad is evident. If welding at other temperatures is required, the Engineer will provide adjustment data.

Care shall be taken to ensure that the external load plate is in full and complete contact with the beam flange before welding begins.

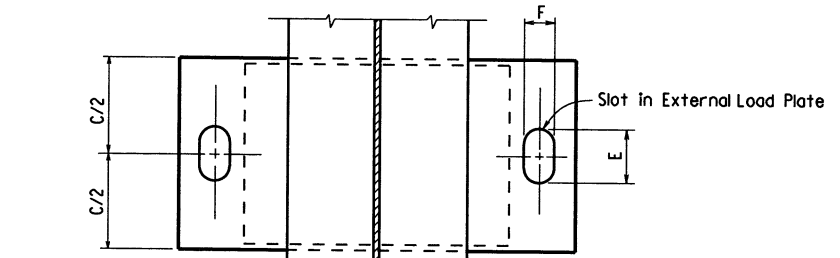
② \bar{E} Elastomeric pad shall be aligned with \bar{E} Beam.



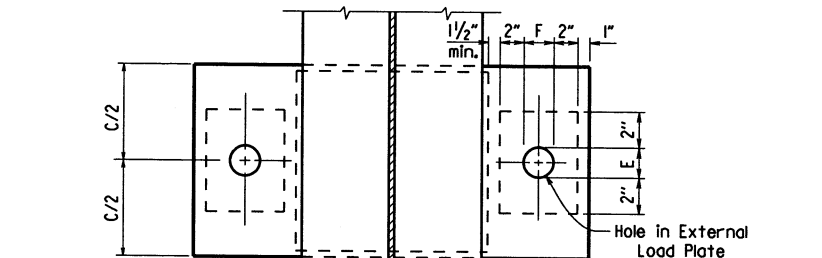
FRONT VIEW - BENTS 1 & 4



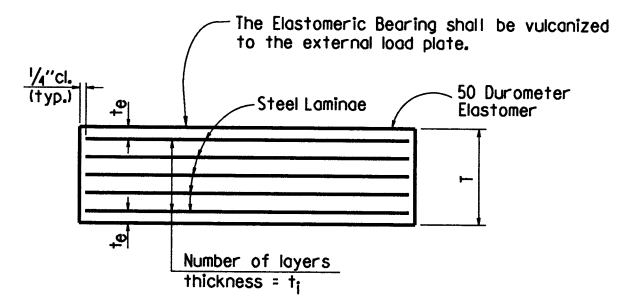
FRONT VIEW - BENTS 2 & 3



PLAN VIEW - BENTS 1 & 4

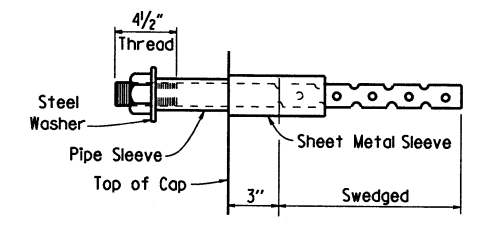


PLAN VIEW - BENTS 2 & 3



t_e = thickness of elastomer cover on top and bottom of pad
 t_i = thickness of elastomer between steel laminae
 N = number of elastomer layers of thickness t_i

ELASTOMERIC BEARING



ANCHOR BOLT DETAIL

NOTE: Anchor Bolts may be cast in place or drilled and grouted into place. If Anchor Bolts are to be cast in place, the Galvanized Sheet Metal Sleeves will not be required.

If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the concrete. Bolts placed in drilled holes shall be accurately set and fixed using a OPL approved epoxy or non-shrink grout that completely fills the holes. Galvanized Sheet Metal Sleeves will not be paid for directly, but will be considered subsidiary to the item "Structural Steel in Beam Spans (M 270, Gr. 50W)".

GENERAL NOTES

Elastomeric Bearings shall conform to Section 808 and shall be paid for at the unit price bid for "Elastomeric Bearings".

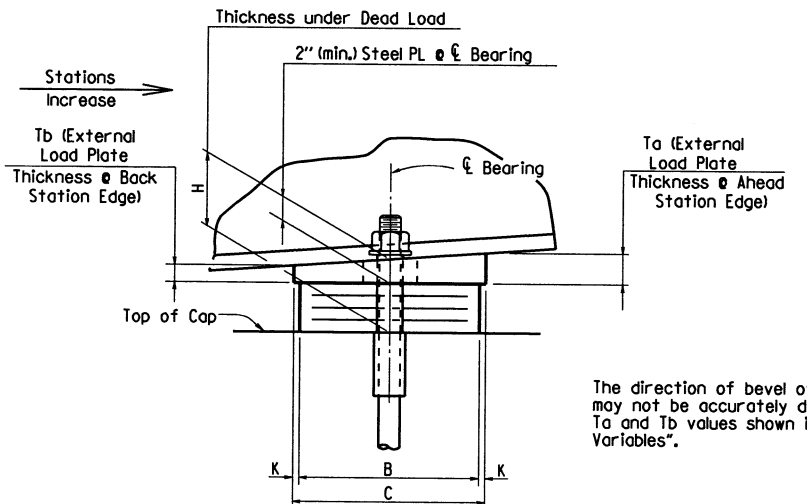
External load plates and shear blocks shall conform to AASHTO M 270, Grade 50W. Pipe sleeves shall be ASTM A500, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or ASTM B695, Class 50.

External load plates and shear blocks shall be completely fabricated (including bevel, bolt holes and all shop welding) and shall be cleaned before vulcanizing to the elastomeric bearing. The surface in contact with the elastomeric bearing shall be cleaned in accordance with Subsection 808.03. Other surfaces shall be blast cleaned in accordance with Subsection 807.84(b) for painted steel and 807.84(e) for unpainted Grade 50W steel.

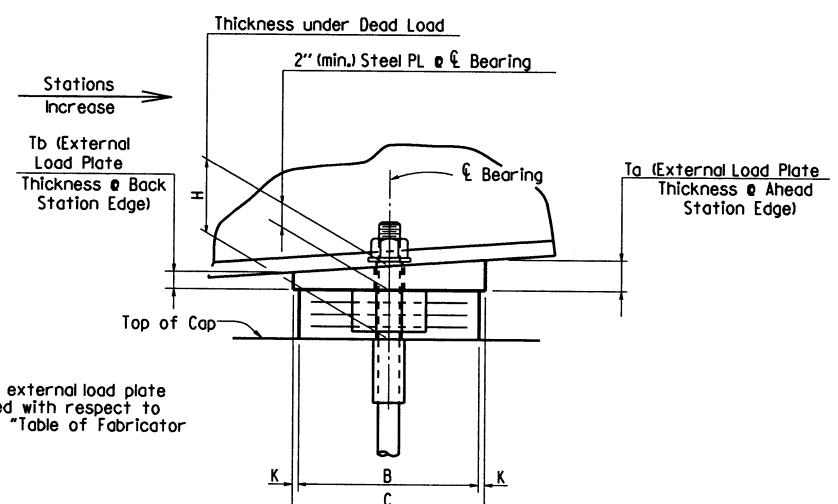
Anchor Bolts, Washers and Nuts shall conform to Subsection 807.07. The anchor bolt grade of steel shall be as specified in the "Table of Fabricator Variables". Indentations shall be circular with rounded bottoms and staggered as shown in the details.

Pipe Sleeves, Anchor Bolts, Washers and Nuts shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M 270, Gr. 50W)". External load plates and shear blocks will not be measured or paid for separately, but will be considered incidental to the unit price bid for "Elastomeric Bearings".

Bearings shall be seated in accordance with Subsection 808.08. This work and materials are considered subsidiary to the item "Elastomeric Bearings" and will not be paid for directly.



SIDE VIEW - BENTS 1 & 4



SIDE VIEW - BENTS 2 & 3

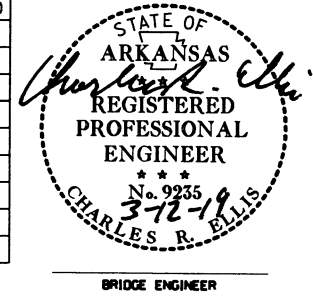
The direction of bevel of the external load plate may not be accurately depicted with respect to T_a and T_b values shown in the "Table of Fabricator Variables".

TABLE OF FABRICATOR VARIABLES

BRIDGE NO.	LOCATION		BEARING TYPE	NO. OF BEARINGS EACH BENT	* MAXIMUM DESIGN LOAD (KIPS)	G	H	ELASTOMERIC PAD					EXTERNAL LOAD PLATE										ANCHOR BOLT						
	BENT NO(S).	UNIT						BEAM NO.	A	B	N	t_i	t_e	NO. & THICKNESS OF STEEL LAMINAE	T	C	D	E	F	J	K	M	T_a	T_b	ANCHOR BOLT (# x L)	PIPE SLEEVE SIZE (# x L)	SHEET METAL SLEEVE SIZE (# x L)	STEEL WASHER SIZE (O.D.)	
A7218	1	227'	All	Exp.	5	111	8 1/2"	5 5/8"	15 1/2"	11 1/2"	5	1/2"	5/8"	6 @ 12 Gauge	3 3/4"	12 1/2"	25 1/2"	4 1/8"	2 1/4"	—	1/2"	10"	2.00"	2.00"	1 1/2" # x 27"	55	1 1/2" # x 6"	3" # x 12"	3"
	2	227'	All	Fix	5	267	8 3/8"	5 5/8"	17"	12"	5	1/2"	5/8"	6 @ 12 Gauge	3 3/4"	13"	34 1/2"	2 1/4"	2 1/4"	3"	1/2"	13 3/8"	2.02"	1.98"	1 1/2" # x 27"	55	1 1/2" # x 5 7/8"	3" # x 12"	3"
	3	227'	All	Fix	5	267	8 3/8"	5 5/8"	17"	12"	5	1/2"	5/8"	6 @ 12 Gauge	3 3/4"	13"	34 1/2"	2 1/4"	2 1/4"	3"	1/2"	13 3/8"	2.04"	1.96"	1 1/2" # x 27"	55	1 1/2" # x 5 7/8"	3" # x 12"	3"
	4	227'	All	Exp.	5	111	8 1/2"	5 5/8"	15 1/2"	11 1/2"	5	1/2"	5/8"	6 @ 12 Gauge	3 3/4"	12 1/2"	25 1/2"	4 1/8"	2 1/4"	—	1/2"	10"	2.05"	1.95"	1 1/2" # x 27"	55	1 1/2" # x 6"	3" # x 12"	3"
B7218	1	227'	All	Exp.	5	111	8 1/2"	5 5/8"	15 1/2"	11 1/2"	5	1/2"	5/8"	6 @ 12 Gauge	3 3/4"	12 1/2"	25 1/2"	4 1/8"	2 1/4"	—	1/2"	10"	2.00"	2.00"	1 1/2" # x 27"	55	1 1/2" # x 6"	3" # x 12"	3"
	2	227'	All	Fix	5	267	8 3/8"	5 5/8"	17"	12"	5	1/2"	5/8"	6 @ 12 Gauge	3 3/4"	13"	34 1/2"	2 1/4"	2 1/4"	3"	1/2"	13 3/8"	2.01"	1.99"	1 1/2" # x 27"	55	1 1/2" # x 5 7/8"	3" # x 12"	3"
	3	227'	All	Fix	5	267	8 3/8"	5 5/8"	17"	12"	5	1/2"	5/8"	6 @ 12 Gauge	3 3/4"	13"	34 1/2"	2 1/4"	2 1/4"	3"	1/2"	13 3/8"	2.03"	1.97"	1 1/2" # x 27"	55	1 1/2" # x 5 7/8"	3" # x 12"	3"
	4	227'	All	Exp.	5	111	8 1/2"	5 5/8"	15 1/2"	11 1/2"	5	1/2"	5/8"	6 @ 12 Gauge	3 3/4"	12 1/2"	25 1/2"	4 1/8"	2 1/4"	—	1/2"	10"	2.04"	1.96"	1 1/2" # x 27"	55	1 1/2" # x 6"	3" # x 12"	3"

* Maximum Design Load = Service I Limit State

Tabular Data by : KDH Date: 9-13-07
Checked by : CAE Date: 8-07
Designed by : DGM Date: 9-07



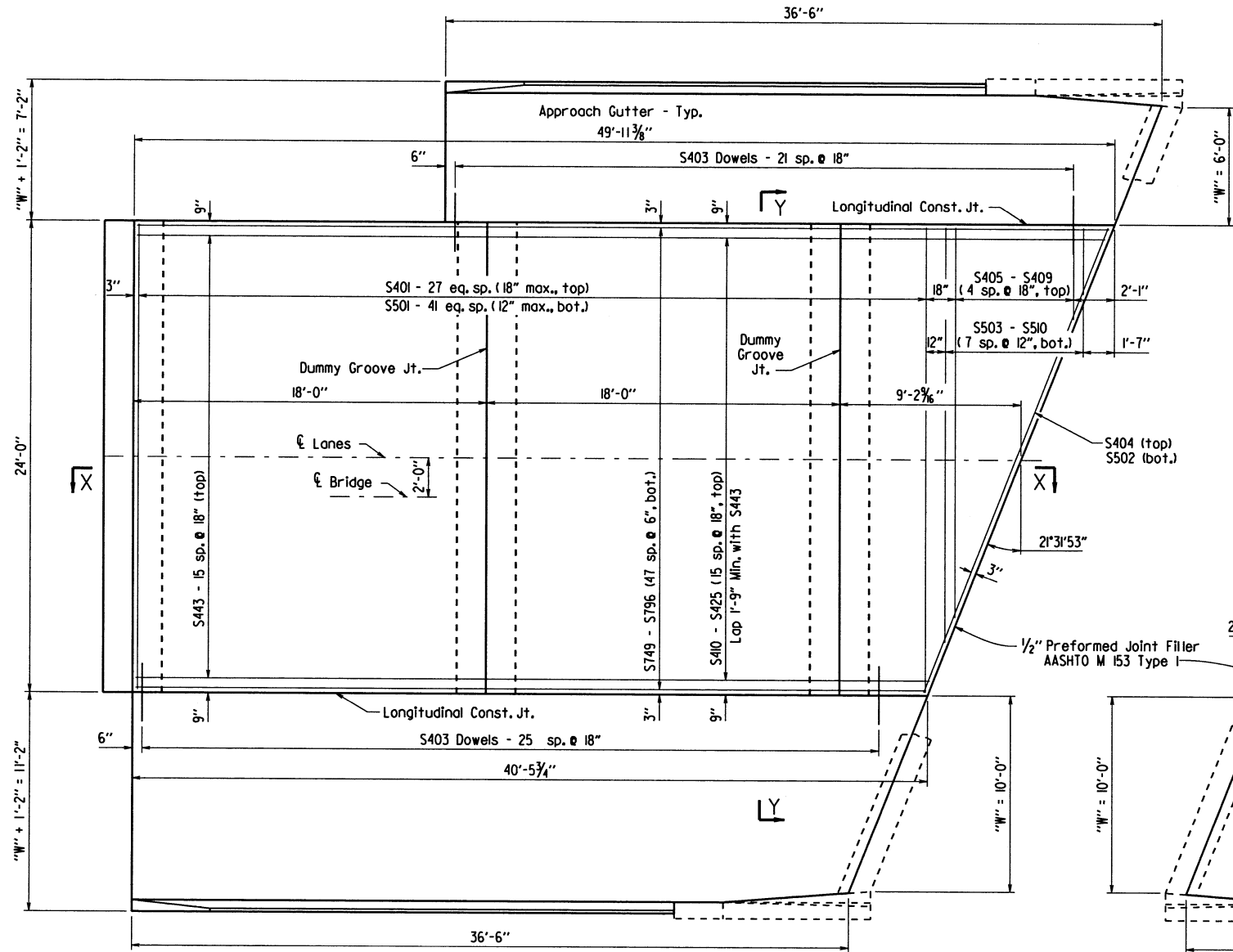
DETAILS OF ELASTOMERIC BEARINGS
EDINBURGH ROAD
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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PRINT DATE: 9/21/2017

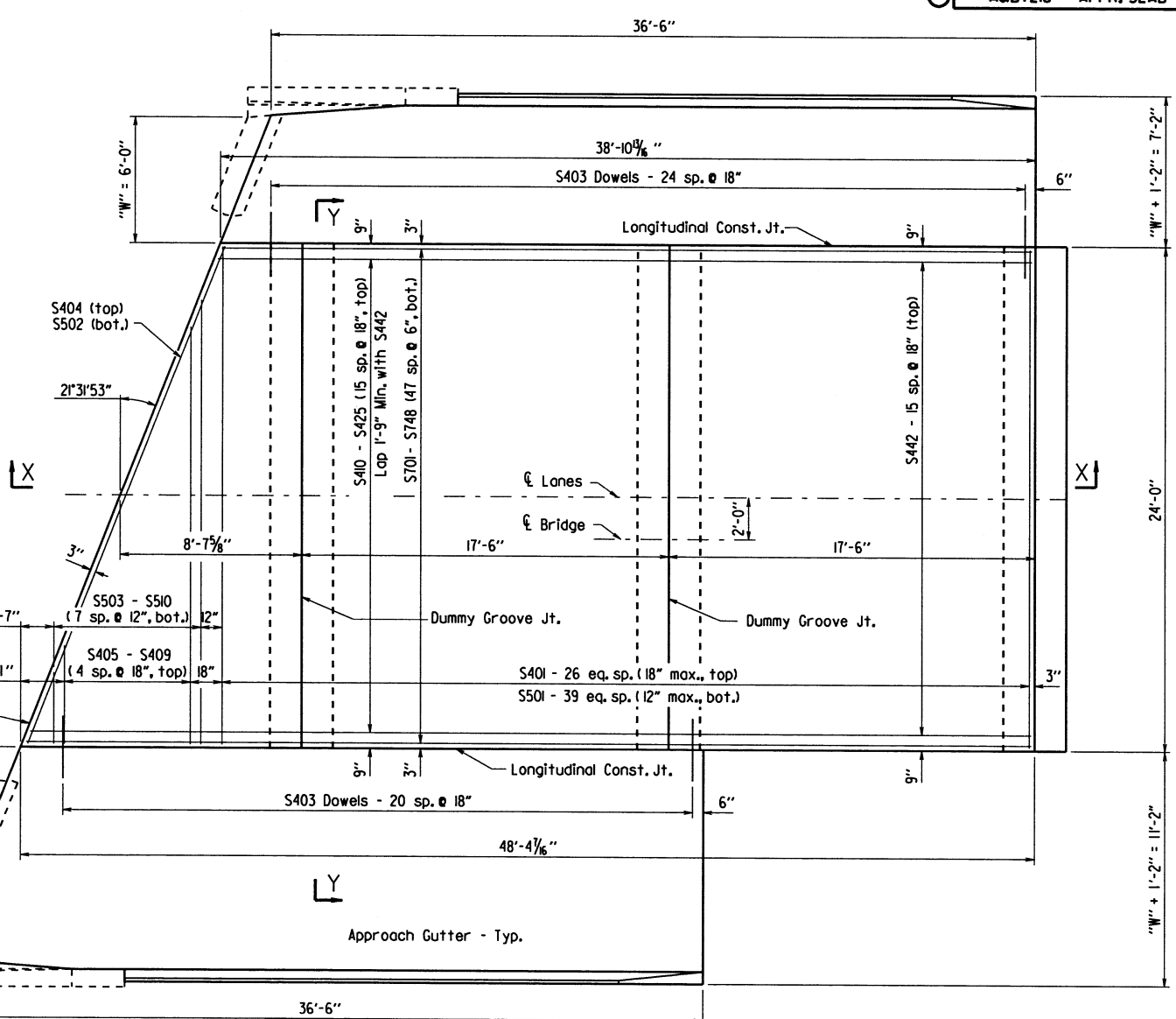
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				6	ARK.			
				JOB NO.	CA0905	87	160	

A&B7218 - APPR. SLAB - 52052A



PLAN - APPROACH SLAB

Beginning of Bridge B Shown
End of Bridge A Similar
Scale: 1/4" = 1'-0"



PLAN - APPROACH SLAB

End of Bridge B Shown
Beginning of Bridge A Similar
Scale: 1/4" = 1'-0"

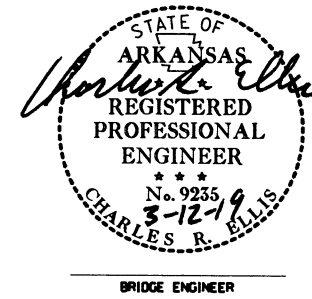
Note: Surface finish for Approach Slabs shall match that used on the bridge deck.

TABLE OF QUANTITIES FOR ONE APPROACH SLAB

	Slab Width	Reinforcing Steel (lbs.)	Concrete (Cu. Yds.)
BEGINNING OF BRIDGE	24'-0"	6973	63.10
END OF BRIDGE	24'-0"	6820	61.40

Note: For General Notes, cross-sections, and additional details, see Dwg. No. 52052B.

For details of Approach Gutters, See Std. Dwg. No. 55030C.



DETAILS OF TYPE SPECIAL I
APPROACH SLAB
EDINBURGH ROAD
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 12-12-12 FILENAME: bca0905ml.asl.dgn
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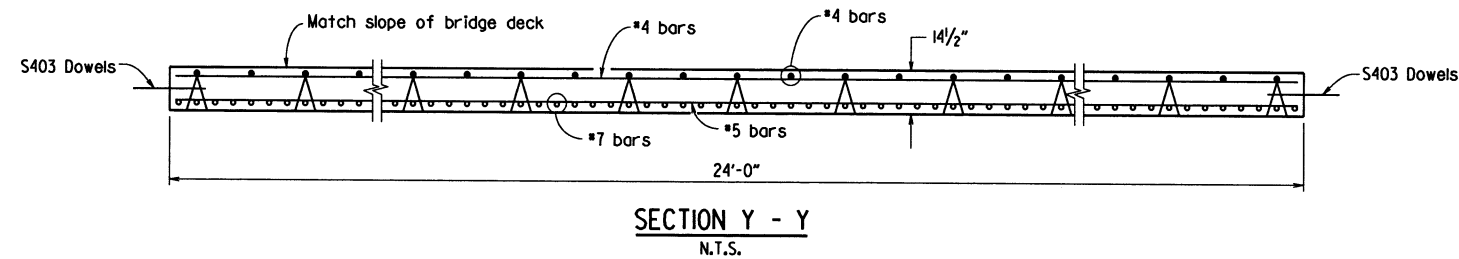
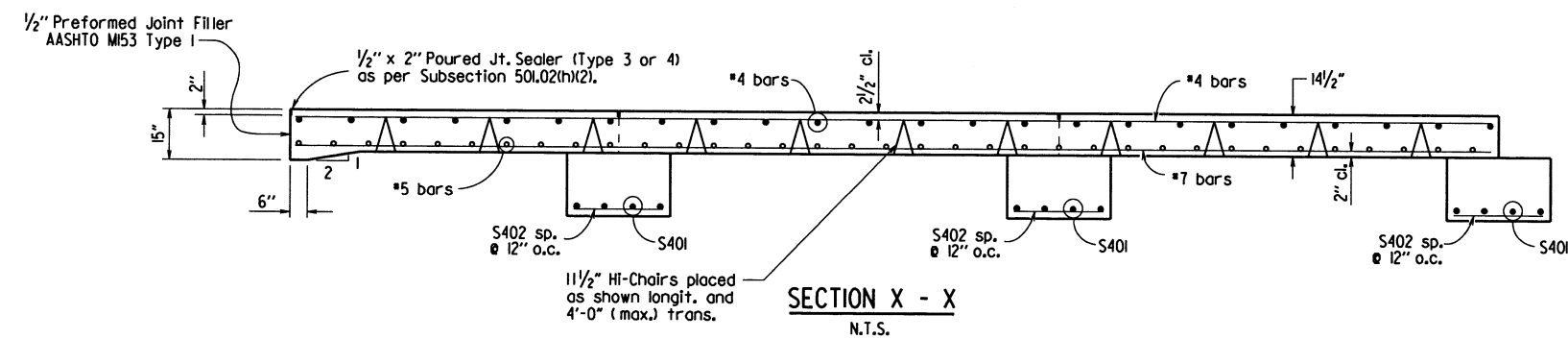
BAR LIST

Mark	No. Req'd.		Length
	BEG. OF BRIDGE	END OF BRIDGE	
S401	40	39	23'-8"
S402	72	72	2'-7"
S403	48	46	3'-0"
S404	1	1	25'-5"
S405-S409	1 Each	1 Each	19'-10" to 4'-7"
S410-S425	1 Each	1 Each	14'-6" to 5'-8"
S442	--	16	35'-0"
S443	16	--	36'-7"
S501	42	40	23'-8"
S502	1	1	25'-5"
S503-S510	1 Each	1 Each	21'-1" to 3'-4"
S701-S748	--	1 Each	47'-11" to 38'-7"
S749-S796	1 Each	--	49'-6" to 40'-2"

PRINT DATE: 9/22/2017

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.	CA0905	88	160	

① A&B7218, A&B7219-APPR. SLAB-52052B



GENERAL NOTES

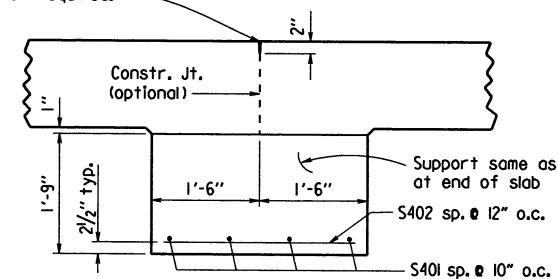
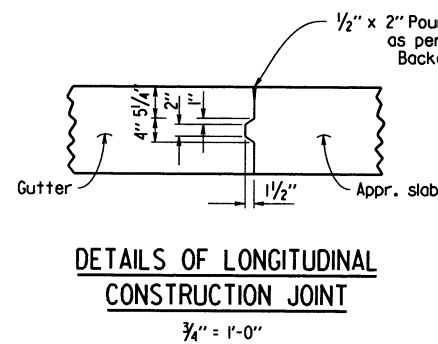
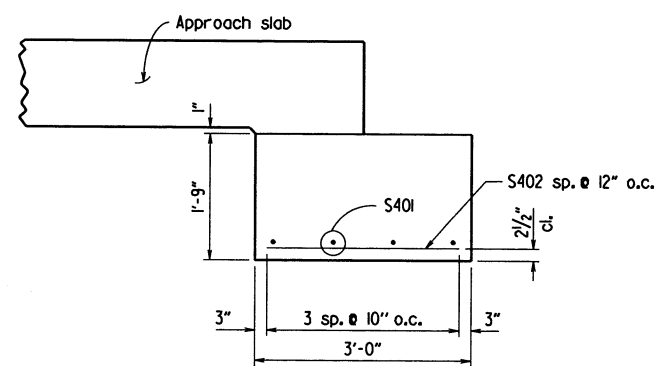
All concrete shall be Class (S/AE) with a minimum 28 day compressive strength $f'_c = 4,000$ psi, and shall be poured in the dry.

All 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 Slabs will be measured and paid for in accordance with Section 504.

Joint sealer and preformed joint included in the pay item "Approach Slab".

Note: For Bar List, Table of Quantities, and additional details, see Dwg. Nos. 52052A and 52066A.



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
3-12-19
CHARLES R. ELLIS
BRIDGE ENGINEER

COMMON DETAILS OF
TYPE SPECIAL
APPROACH SLABS
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

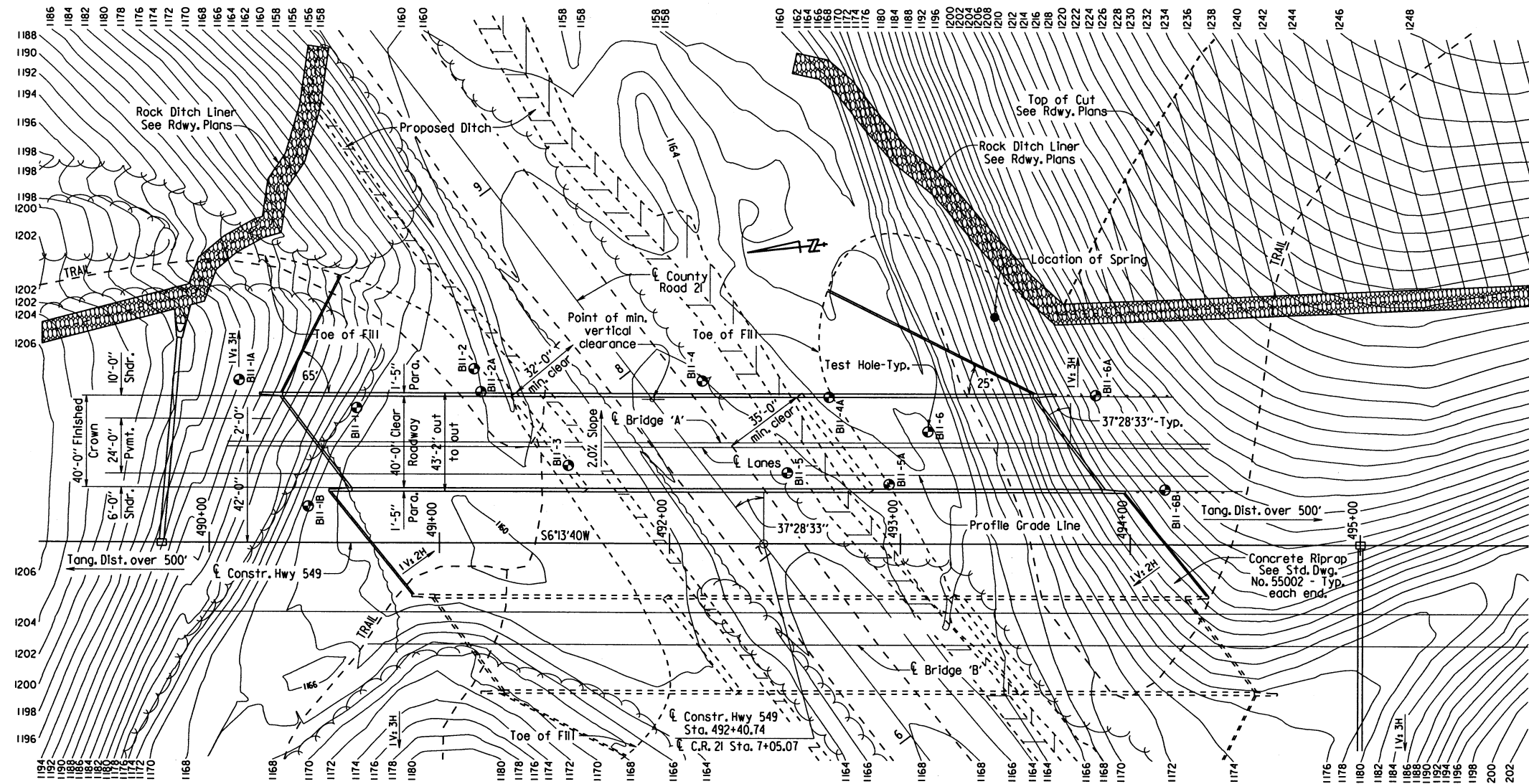
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DESIGNED BY: STD DATE: _____
BRIDGE NO. A&B7218, A&B7219 DRAWING NO. 52052B

For R/W Data, see Rdwy. Plans

Use Type C Approach Gutters ("w" = 6'-0" & 10'-0") at both ends of bridge. See Std. Dwg. 55030C.

Use Type Special 2 Approach Slabs at both ends of bridge. See Dwg. Nos. 52066A & 52052B.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.	CA0905	89	160
				JOB NO.		CA0905	89	160
				A7219 - LAYOUT		- 52053		



PLAN

Notes:
Stations shown are along C. Constr. Hwy. 549.
Elevations shown are along C. Bridge.

1248 GENERAL NOTES

1246 BENCH MARK 929: CPS in walnut, 760.35' Lt. construction centerline Sta. 487+27.05, Elev. 1149.66.

1244 CONSTRUCTION SPECIFICATION: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition) with applicable Supplemental Specifications and Special Provisions. Unless otherwise noted, Section and Subsection refer to the Standard Construction Specifications.

1242

1240

1238 DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications, (4th Edition, 2007 with 2009 interims).

1236

1234 LIVE LOADING: HL93

1232 SEISMIC ZONE: I

1230

1228 MATERIALS AND STRENGTHS:

1226 Class S Concrete (superstructure) f'c = 4,000 psi

1224 Class S Concrete (substructure) f'c = 3,500 psi

1222 Structural Steel (AASHTO M 270, Grade 36) Fy = 36,000 psi

1220 Structural Steel (AASHTO M 270, Grade 50W) Fy = 50,000 psi

1218 Reinforcing Steel (Grade 60, AASHTO M 31 or M 322, Type A) fy = 60,000 psi

1216 BORING LOGS: Boring logs may be obtained from the Construction Contract Procurement Section of the Program Management Division.

1214

1212 STEEL PILING: Piling in Bents 1 & 4 shall be HP 12x53 (Gr. 50) and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 70 tons per pile and into the material designated as limestone or chert on the boring legend. Lengths of piling shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with Subsection 805.14. Actual lengths to be determined in the field. Piles in end bents shall be driven after embankment to bottom of cap is in place. On all piles the Contractor shall use approved steel H-pile driving points.

1210

1208 EXPLORATORY HOLES: The Contractor shall drill exploratory holes at Bents 1 & 4 in accordance with SP Job No. CA0905 "Exploratory Holes". The quantities of exploratory holes shown are for bidding purposes only. The actual locations, number, and depths of exploratory holes are to be determined in the field by the Engineer.

1206

1204 PREBORING: Preboring is required for all piling in Bents 1 & 4 if exploratory holes indicate that the depth to rock is less than 8' below natural ground. Preboring shall be to a 3' depth into material designated as limestone or chert on the boring legend. The actual size and depths of preboring are to be determined in the field by the Engineer. The Contractor shall be responsible for keeping prebored holes free from debris prior to backfilling which may require casings or other methods. After driving is completed, the prebored hole shall be backfilled with Class S Concrete to the top of rock and the remaining length of prebored hole shall be backfilled in accordance with Subsection 805.08(a) to completely fill voids. The backfill and any required casings will not be paid for directly but shall be considered subsidiary to the item "Preboring".

1202

1198 FOOTINGS: Footings shall be set a minimum of 1'-6" into material designated as limestone or chert on the boring legend and shall have a minimum cover above top of footings of 2.0'. Foundations for footings shall be prepared in accordance with Subsection 801.04. Rock excavations shall be made to neat lines of the concrete footings. Care shall be exercised to avoid shattering of rock faces by excessive blasting. Concrete in footings shall be poured directly against excavated surfaces of rock.

1196

1194 BRIDGE DECK: The concrete bridge deck shall be given a fine finish as specified for final finishing in Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish.

1192

1190 CLASS 2 PROTECTIVE SURFACE TREATMENT: Class 2 Protective Surface Treatment shall be applied to the roadway surface.

1188

1186 TEXTURED COATING FINISH: Class 3 Textured Coating Finish shall be applied to the bridge surface as specified in SP Job No. CA0905 "Textured Coating Finish" and in accordance with Subsection 802.19. Textured Coating Finish shall not be applied on surfaces where Class 2 Protective Surface Treatment is applied.

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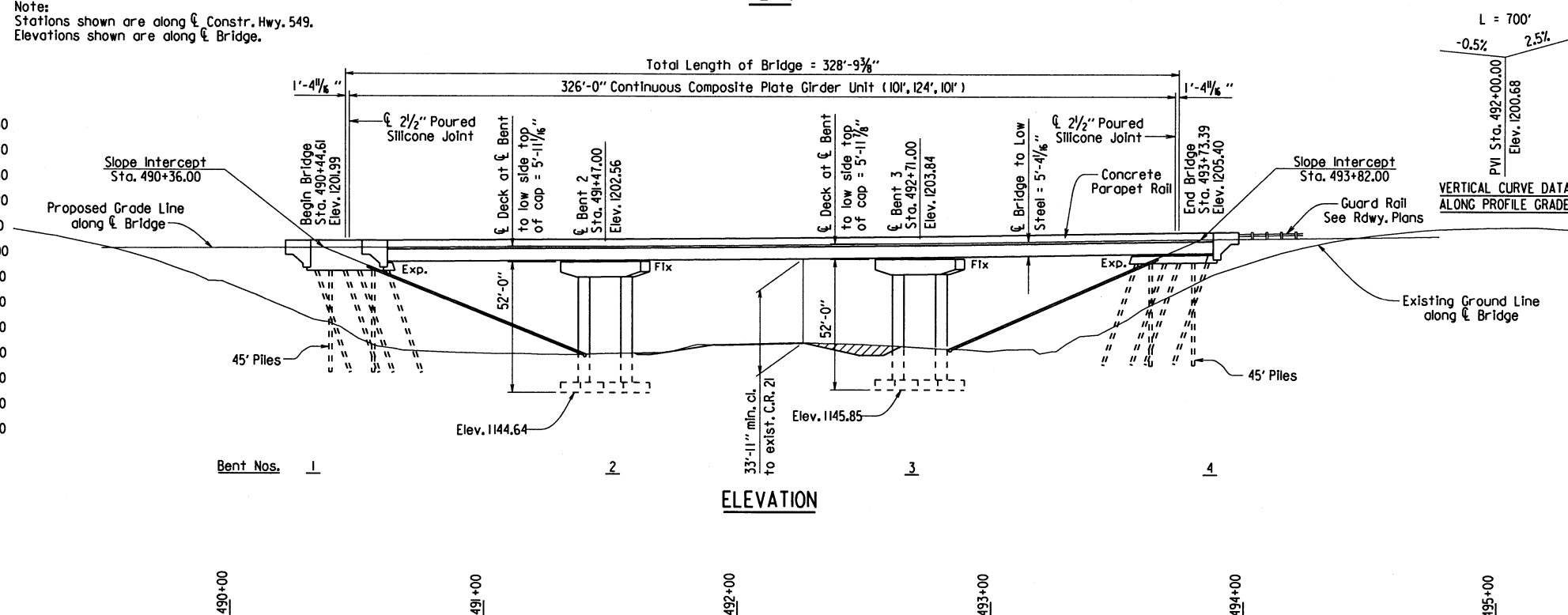
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ELEVATION

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1210

1200

1190

1180

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1160

1150

1140

1130

VERTICAL CURVE DATA ALONG PROFILE GRADE

L = 700'

-0.5%

2.5%

PVI Sta. 492+00.00
Elev. 1200.68

DETAIL DRAWINGS:
End Bents 52055-52057
Intermediate Bents 52058 & 52059
326' Continuous Composite Plate Girder Unit 52060-52065
Elastomeric Bearings 52066
Type Special 2 Approach Slab 52066A & 52052B
Concrete Riprap 55002
Steel Piling 55020
Type C Approach Gutter 55030C

DRAWING NOS. 52055-52057
52058 & 52059
52060-52065
52066
52066A & 52052B
55002
55020
55030C

SHEET 1 OF 2
LAYOUT OF BRIDGE A OVER
COUNTY ROAD 21
CO. RD. 34-MISSOURI STATE LINE
(B.V. BYPASS) (F)
BENTON COUNTY

ROUTE 549 SEC. 9
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

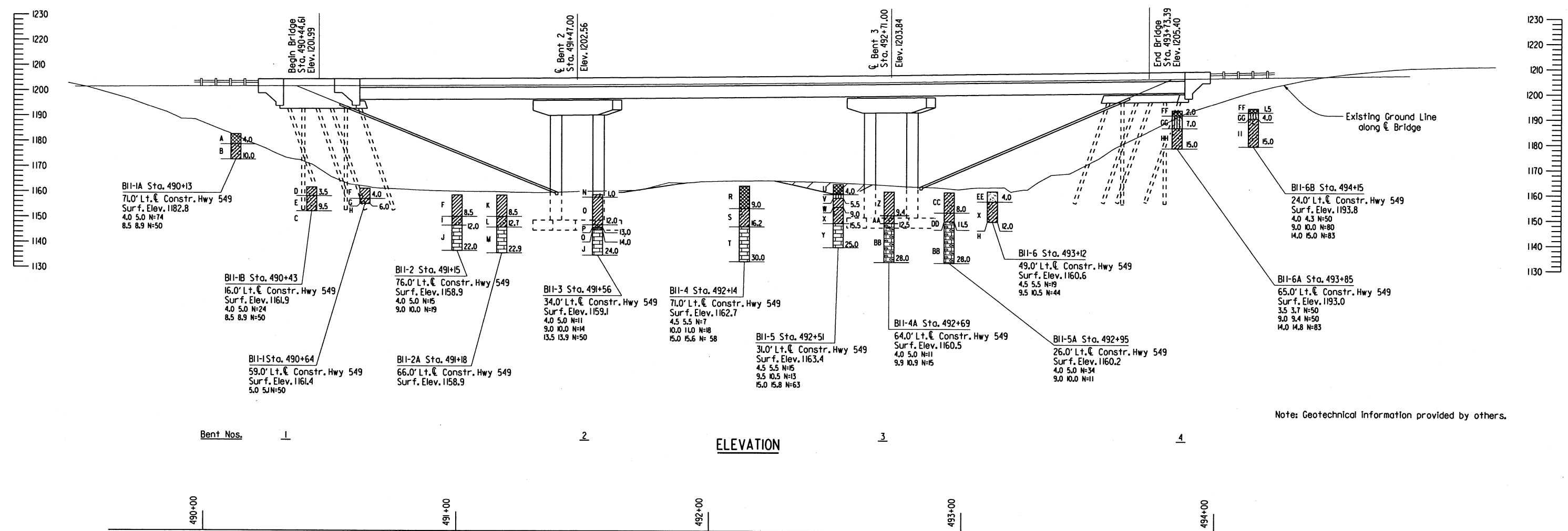
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DESIGNED BY: ARW DATE: 9-06

BRIDGE NO. A7219 DRAWING NO. 52053

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9235
4-29-19
CHARLES R. ELLIS
BRIDGE ENGINEER

PRINT DATE: 4/29/2019

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.	CA0905	90	160	
				A7219 - LAYOUT		- 52053A		

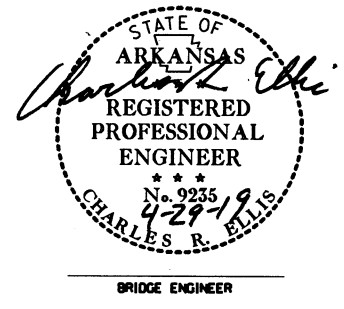


Bent Nos. 1 2 3 4

ELEVATION

Note: Geotechnical information provided by others.

- BORING LEGEND**
- A FILL-silty chert gravel light brown
 - B LEAN CLAYEY GRAVEL reddish brown, dry to moist (GC)
 - C Auger refusal on apparent Limestone
 - D SANDY LEAN CLAY, some chert gravel reddish brown, dry to moist (CL)
 - E LEAN CLAYEY GRAVEL reddish brown, medium dense to dense, dry to moist (GC)
 - F LEAN CLAY, trace to some chert gravel reddish brown, stiff, moist (CL)
 - G LEAN CLAYEY GRAVEL reddish brown and white, dense, moist (GC)
 - H Auger refusal on apparent chert or limestone
 - I LEAN CLAYEY GRAVEL reddish brown and gray, medium dense, moist (GC)
 - J LIMESTONE, shale laminations and chert seams light gray, fine grained to very fine grained, thin bedded, slightly weathered to fresh, hard
 - K LEAN CLAY, trace to some chert gravel reddish brown, moist (CL)
 - L LEAN CLAYEY GRAVEL light gray and reddish brown, moderately dense (GC)
 - M LIMESTONE, chert seams light gray, fine grained to very fine grained, thin bedded, slightly weathered to fresh, hard
 - N SILTY LEAN CLAY, trace chert gravel brown, moist (CL)
 - O LEAN CLAY, trace to some gravel reddish brown and gray clay fraction, medium stiff, moist (CL)
 - P FAT CLAYEY GRAVEL reddish brown and gray clay fraction, dense, moist (GC)
 - Q CHERT, weathered and broken light gray
 - R FILL-lean clayey gravel to lean clay with gravel dark brown to reddish brown and gray, moist
 - S FAT CLAYEY GRAVEL reddish brown and gray clay fraction, medium dense, wet (GC)
 - T LIMESTONE, interbedded chert laminations light gray, fine grained to very fine grained, thin bedded, slightly weathered to fresh, hard
 - U FILL-lean clay with gravel dark brown to reddish brown and gray, stiff, moist
 - V SILT, trace to some chert gravel dark brown, medium dense, moist (ML)
 - W LEAN CLAY, trace to some chert gravel reddish brown clay fraction, stiff, moist (CL)
 - X FAT CLAYEY GRAVEL reddish brown clay fraction, medium dense, wet (GC)
 - Y LIMESTONE, stratified, chert 1 to 6 inches light gray, fine grained to very fine grained, thin bedded, slightly weathered to fresh, hard
 - Z LEAN CLAY, few to some chert gravel reddish brown, stiff, dry (CL)
 - AA LEAN CLAYEY GRAVEL reddish brown, medium dense, moist to wet (GC)
 - BB CHERT, stratified limestone seams light gray and gray, very fine grained, thin bedded, slightly weathered to fresh, hard to very hard
 - CC LEAN CLAYEY GRAVEL reddish brown, dense, dry (GC)
 - DD LEAN CLAY, some chert gravel reddish brown, moist (CL)
 - EE CHERT COBBLES clay seams, wet (GP)
 - FF FILL-silty gravel light brown
 - GG SILTY GRAVEL light brown, dense, dry (GM)
 - HH LEAN CLAYEY GRAVEL, hard chert seams reddish brown, dense, moist to wet (GC)
 - II LEAN CLAYEY GRAVEL, hard chert seams reddish brown, dense, moist (GC)



SHEET 2 OF 2
 LAYOUT OF BRIDGE A OVER
 COUNTY ROAD 21
 CO. RD. 34-MISSOURI STATE LINE
 (B.V. BYPASS) (F)
 BENTON COUNTY

ROUTE 549 SEC. 9
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

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PRINT DATE: 4/29/2019

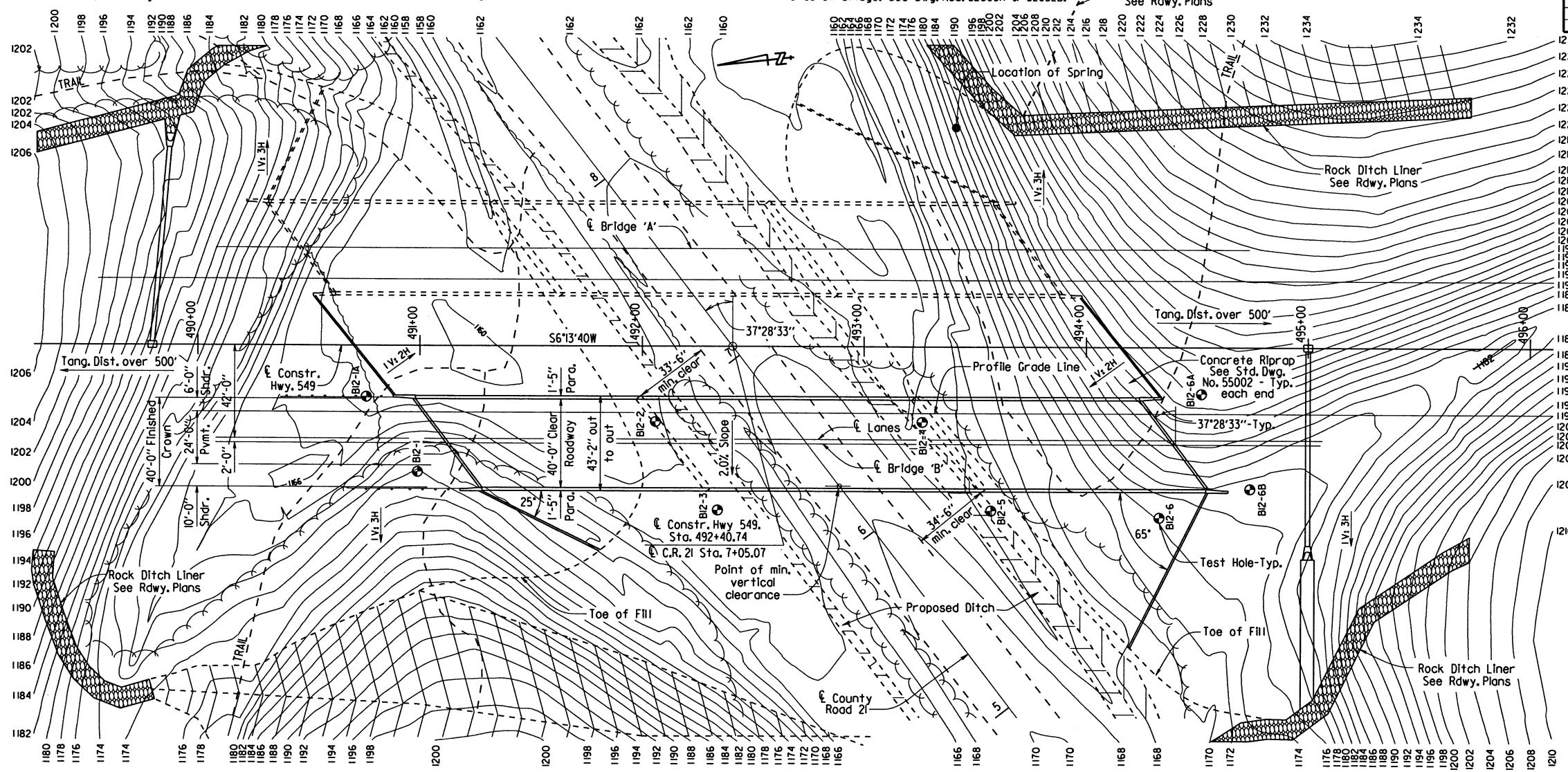
For R/W Data, see Rdwy. Plans

Use Type C Approach Gutters ("w" = 6'-0" & 10'-0") at both ends of bridge. See Std. Dwg. 55030C.

Use Type Special 2 Approach Slabs at both ends of bridge. See Dwg. Nos. 52066A & 52052B.

Top of Cut See Rdwy. Plans

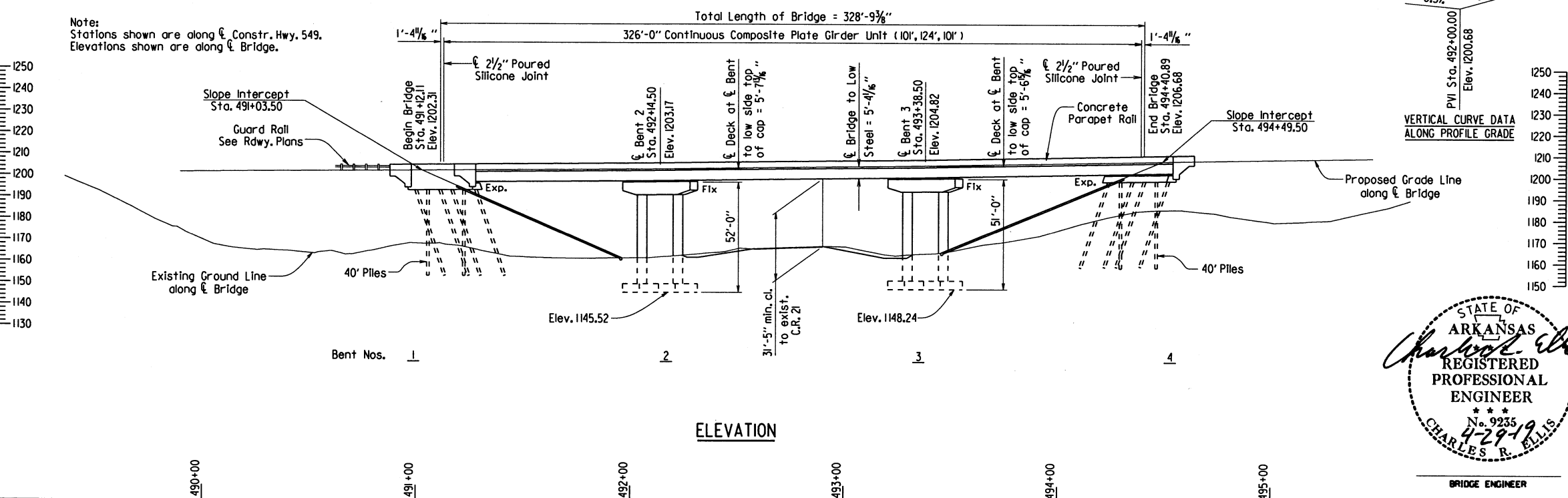
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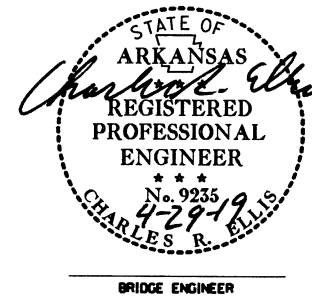
PLAN

L = 700'
-0.5% 2.5%

Note:
Stations shown are along \bar{c} Constr. Hwy. 549.
Elevations shown are along \bar{c} Bridge.



ELEVATION



DETAIL DRAWINGS:
End Bents
Intermediate Bents
326' Continuous Composite Plate Girder Unit
Elastomeric Bearings
Type Special 2 Approach Slab
Concrete Riprap
Steel Piling
Type C Approach Gutter

DRAWING NOS.
52055-52057
52058A & 52059A
52060-52065
52066
52066A & 52052B
55002
55020
55030C

For General Notes, see Dwg. No. 52053.

SHEET 1 OF 2
LAYOUT OF BRIDGE B OVER
COUNTY ROAD 21
CO. RD. 34-MISSOURI STATE LINE
(B.V. BYPASS) (F)
BENTON COUNTY

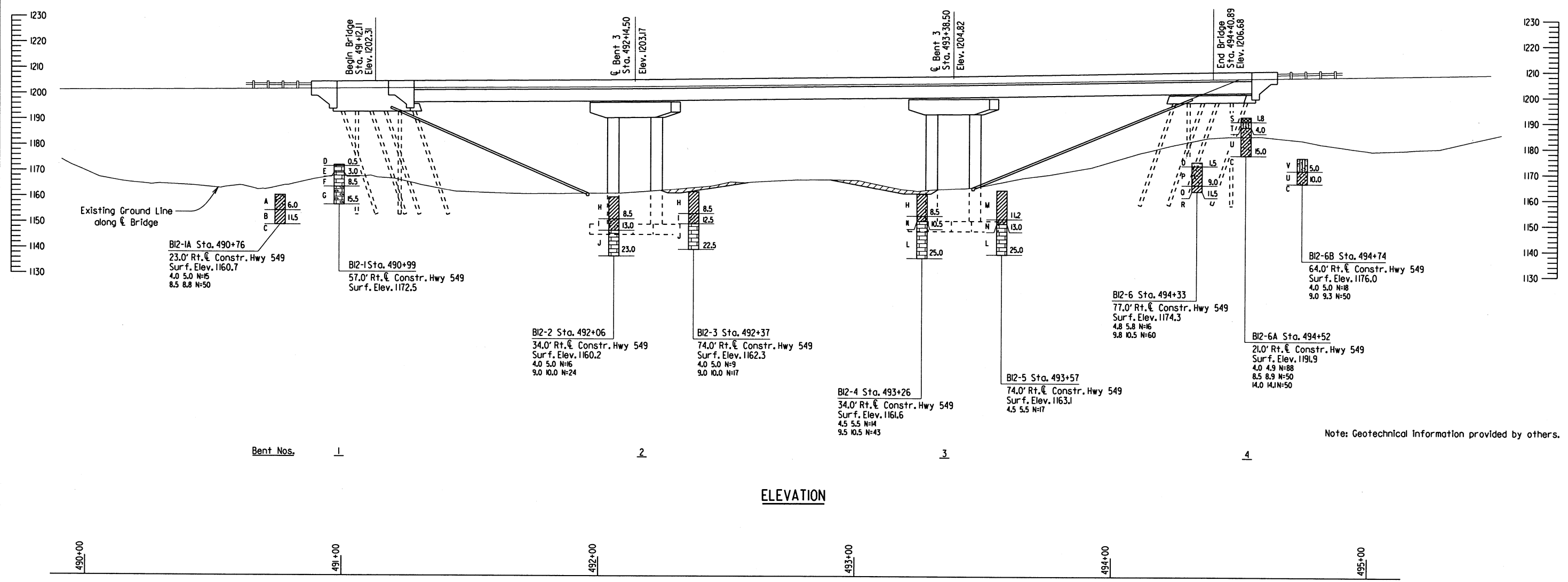
ROUTE 549 SEC. 9
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

BRIDGE NO. B7219 DRAWING NO. 52054

DESIGNED BY: ARW
CHECKED BY: SJP
DRAWN BY: KDH
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DATE: 9-19-06
DATE: 9-19-06
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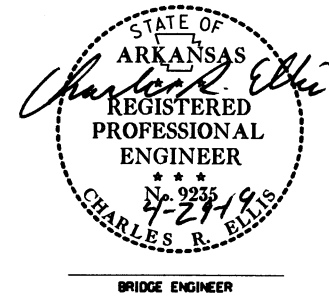
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				6	ARK.			
							JOB NO. CA0905	92 160
							B7219 - LAYOUT	- 52054A



Note: Geotechnical Information provided by others.

- BORING LEGEND**
- A SANDY LEAN CLAY, some chert gravel dark reddish brown, moist (CL)
 - B LEAN CLAY, trace to some chert gravel, some sand dark reddish brown, moist to wet (CL)
 - C Auger refusal on apparent limestone
 - D LEAN CLAY, trace gravel reddish brown, moist (CL)
 - E LIMESTONE light gray, hard
 - F LIMESTONE, stratified, chert seams light gray, fine grained to very fine grained, thin bedded, slightly weathered to fresh, hard
 - G CHERT, stratified, limestone seams white, fine grained to very fine grained, thin bedded, slightly weathered, hard
 - H LEAN CLAY, trace to some chert gravel reddish brown, stiff, moist (CL)
 - I FAT CLAYEY GRAVEL reddish brown, medium dense, moist (GC)
 - J LIMESTONE, stratified, shale laminations and chert seams light gray, fine grained to very fine grained, thin bedded, slightly weathered to fresh, hard
 - K FAT CLAYEY GRAVEL reddish brown, dense, moist (CL)
 - L LIMESTONE, stratified, chert seams 1 to 6 inches light gray, fine grained to very fine grained, thin bedded, slightly weathered to fresh, hard
 - M LEAN CLAY, trace to some gravel reddish brown, medium dense, moist (CL)
 - N LIMESTONE, filled fractures light gray, fine grained to very fine grained, thin bedded, weathered, hard
 - O CHERT COBBLES, trace clay and trace organics dark brown (GP)
 - P LEAN CLAYEY GRAVEL reddish brown, medium dense, moist (GC)
 - Q FAT CLAY, trace to some gravel reddish brown, dense, moist (CH)
 - R Auger refusal on apparent chert or limestone
 - S FILL-silty gravel light brown
 - T SILTY GRAVEL light brown, dense, dry (GM)
 - U LEAN CLAYEY GRAVEL, hard chert seams reddish brown and gray, dense, moist (GC)
 - V SILTY GRAVEL light brown, medium dense, dry (GM)



SHEET 2 OF 2
 LAYOUT OF BRIDGE B OVER
 COUNTY ROAD 21
 CO. RD. 34-MISSOURI STATE LINE
 (B.V. BYPASS) (F)
 BENTON COUNTY

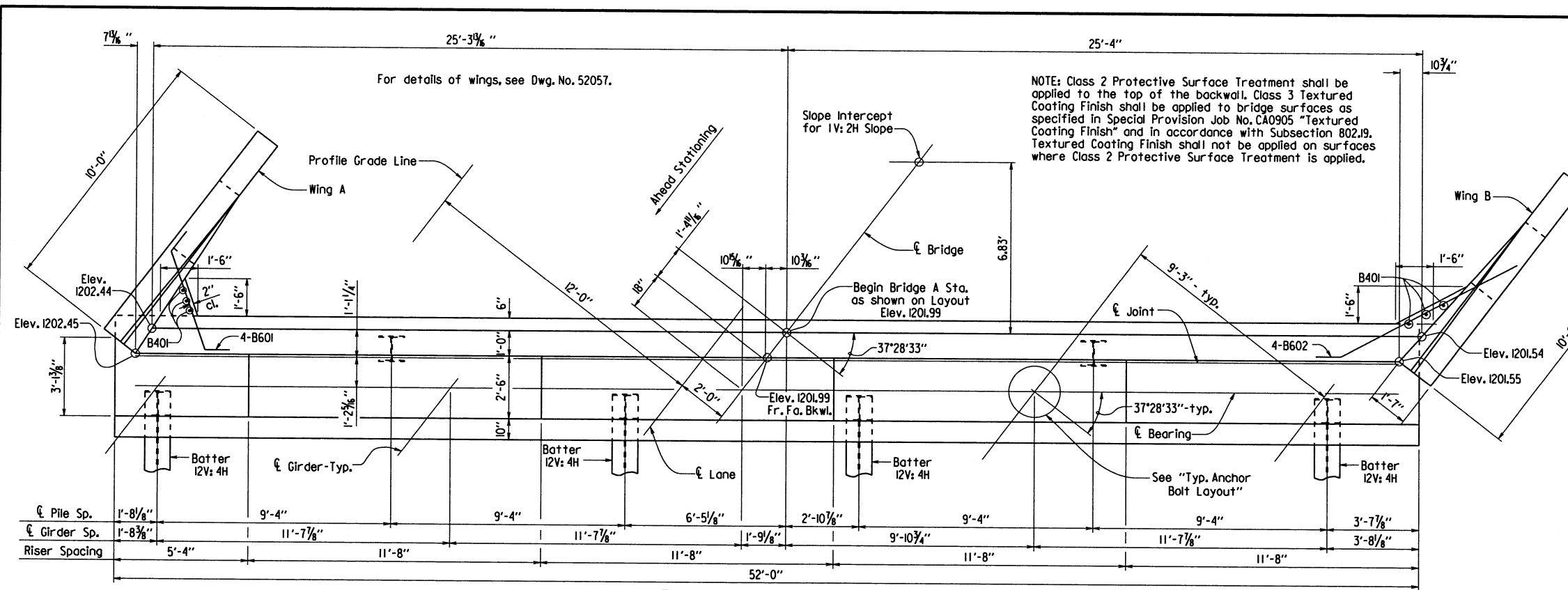
ROUTE 549 SEC. 9
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 9-21-06 FILENAME: bca0905b2-12.dgn
 CHECKED BY: SWP DATE: 3-7-18 SCALE: 1" = 30'
 DESIGNED BY: ARW DATE: 9-06
 BRIDGE NO. B7219 DRAWING NO. 52054A

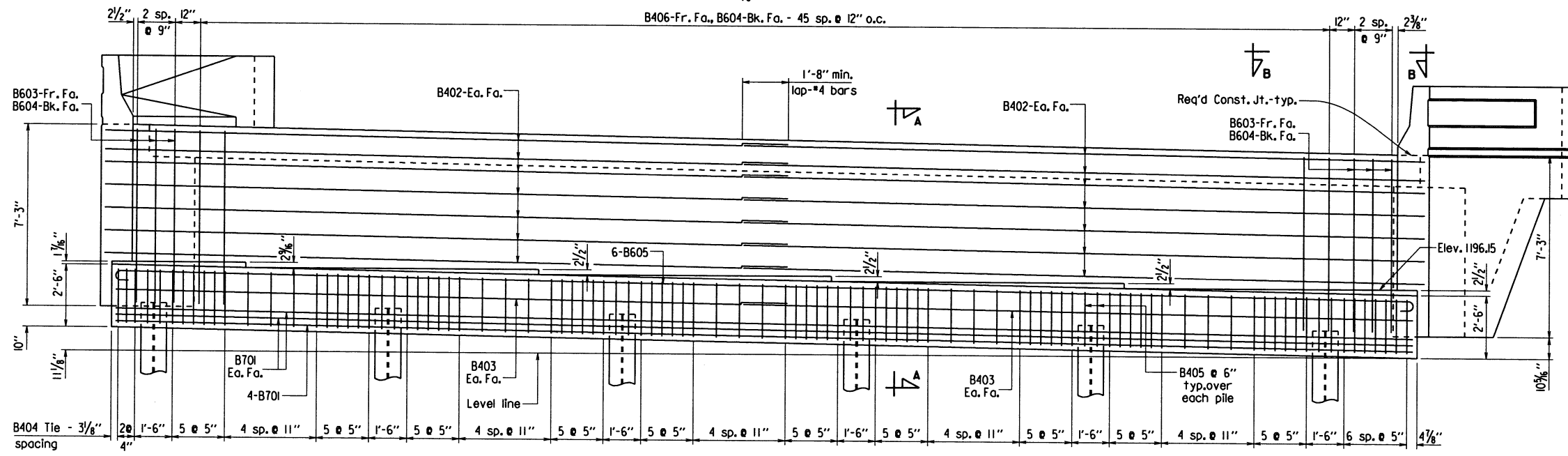
PRINT DATE: 4/29/2019

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. CA0905						93		160
A&B7219 - END BENTS						- 52055		

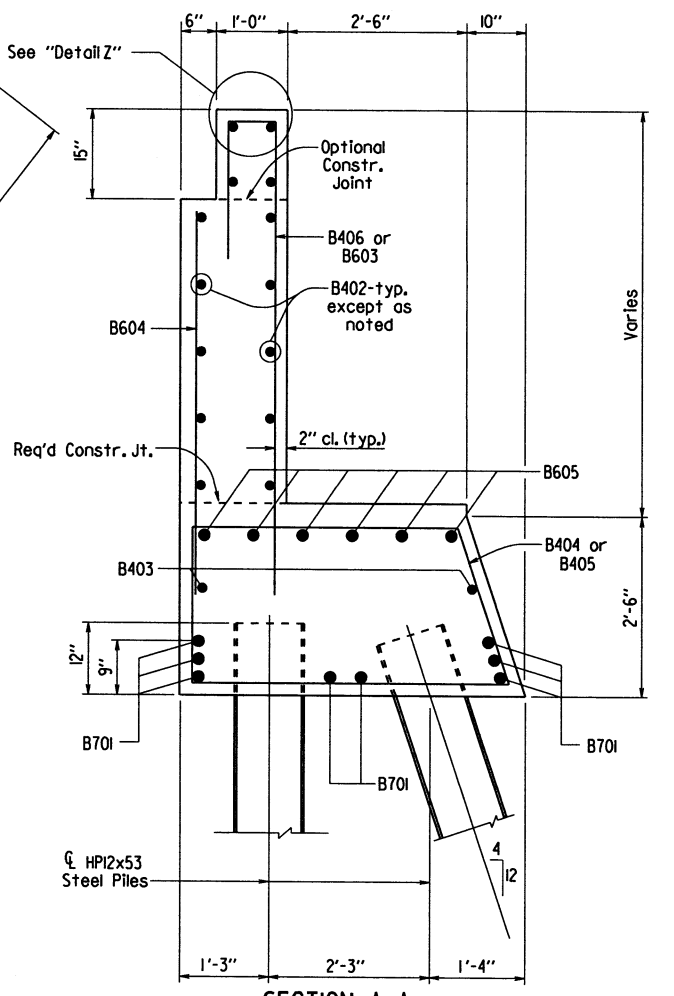
NOTE: Class 2 Protective Surface Treatment shall be applied to the top of the backwall. Class 3 Textured Coating Finish shall be applied to bridge surfaces as specified in Special Provision Job No. CA0905 "Textured Coating Finish" and in accordance with Subsection 802.19. Textured Coating Finish shall not be applied on surfaces where Class 2 Protective Surface Treatment is applied.



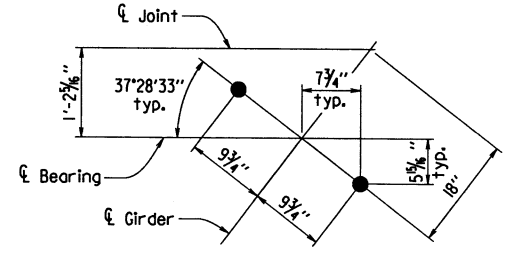
PLAN - BENT I, BR. A
Scale: 3/8" = 1'-0"



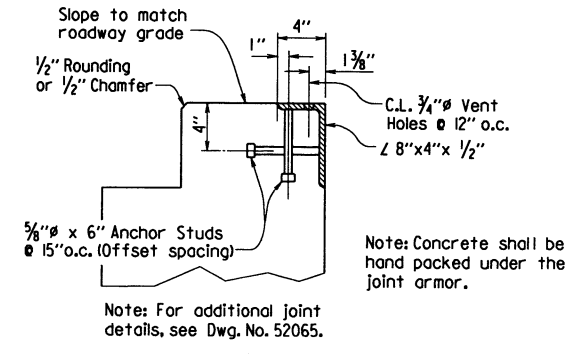
ELEVATION - BENT I, BR. A
Looking Back
Scale: 3/8" = 1'-0"



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

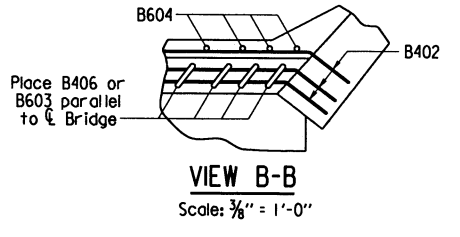


TYP. ANCHOR BOLT LAYOUT
No Scale

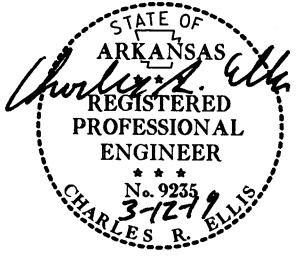


DETAIL Z
No Scale

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



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

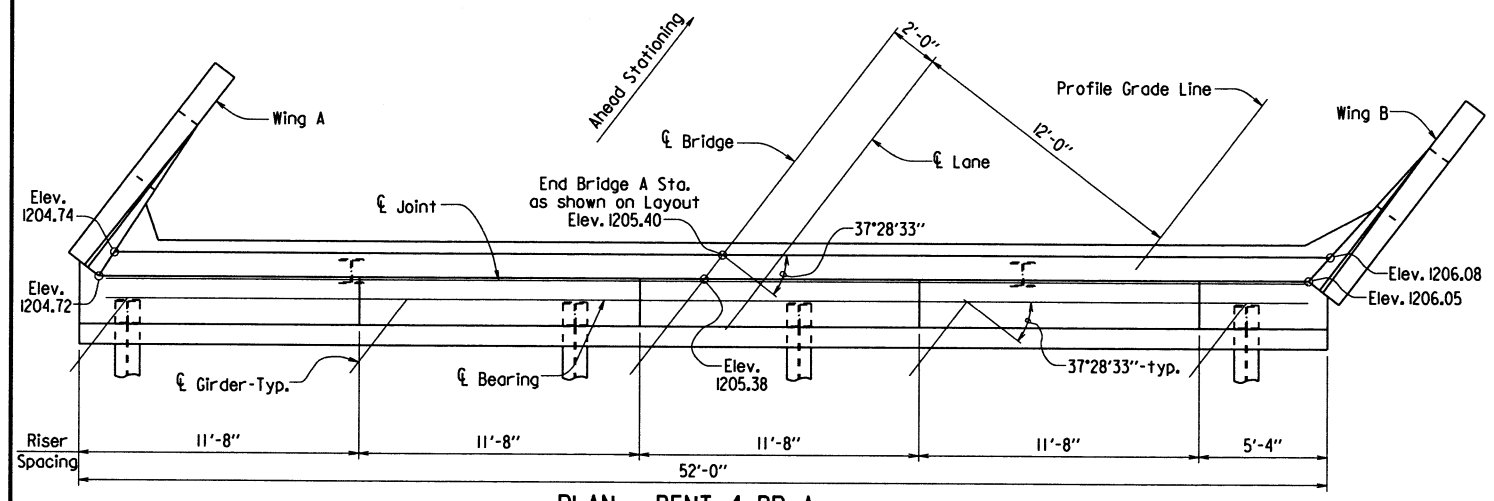


SHEET 1 OF 3
DETAILS OF END BENTS
COUNTY ROAD 21
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: KDH
CHECKED BY: CRE
DESIGNED BY: PJT
DATE: 4-30-07
FILENAME: bca0905m2_bil.dgn
SCALE: AS NOTED
BRIDGE NO. A&B7219
DRAWING NO. 52055

PRINT DATE: 9/22/2017

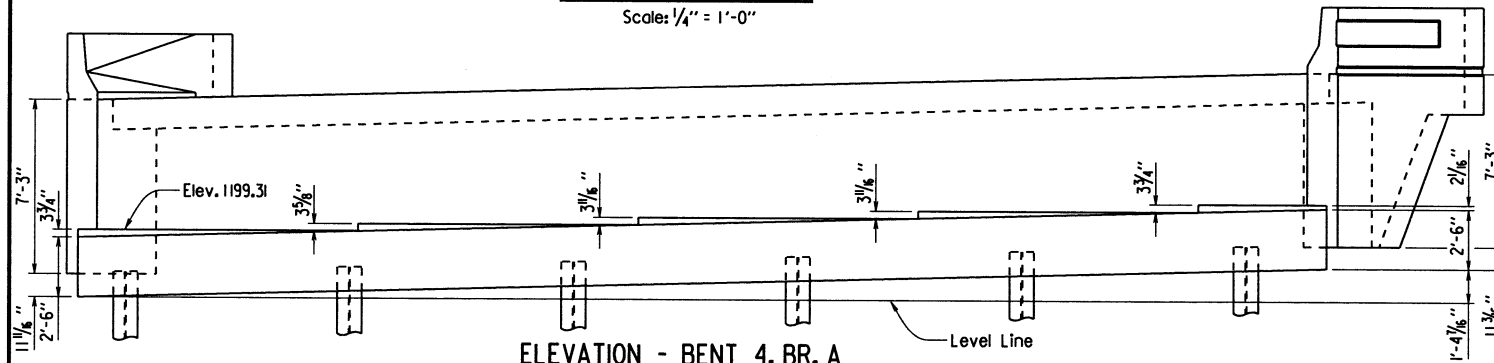
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		94	160

1 A&B7219 - END BENTS - 52056



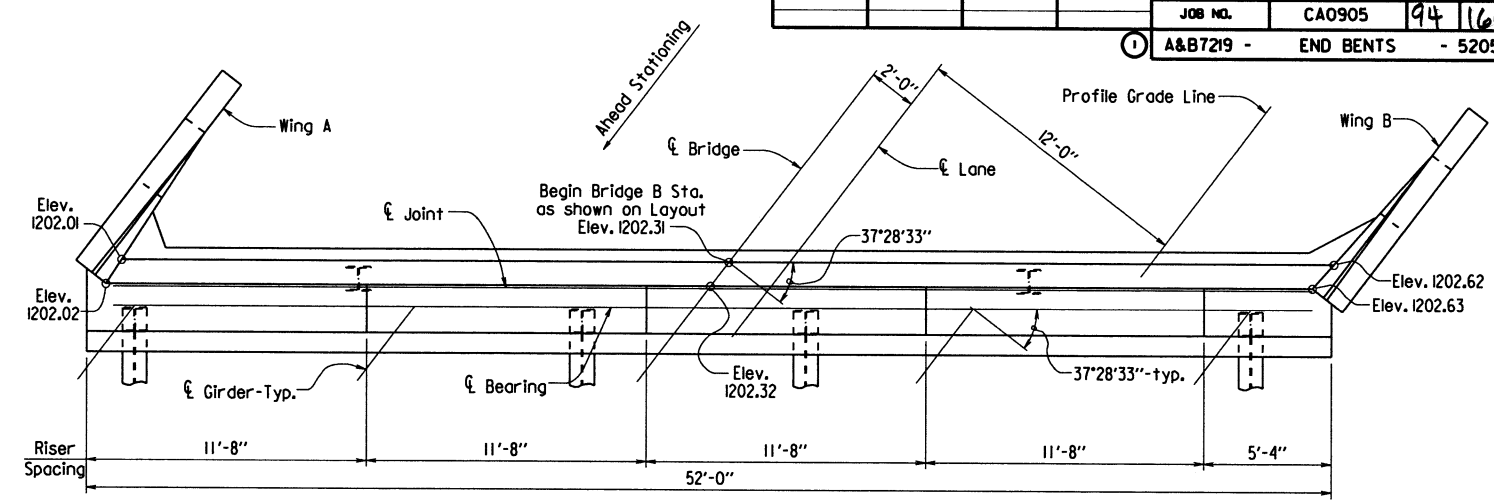
PLAN - BENT 4, BR. A

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



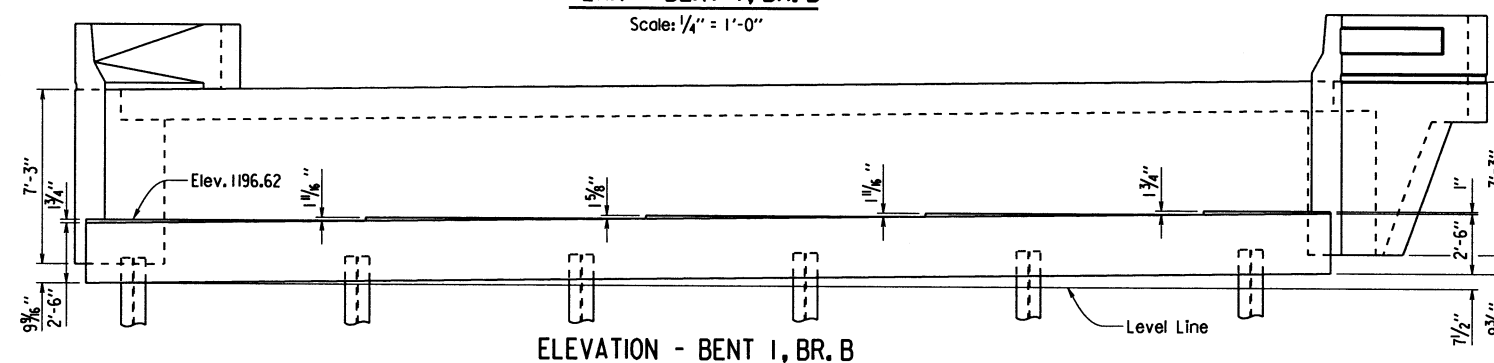
ELEVATION - BENT 4, BR. A

Looking Ahead
Scale: 1/4" = 1'-0"



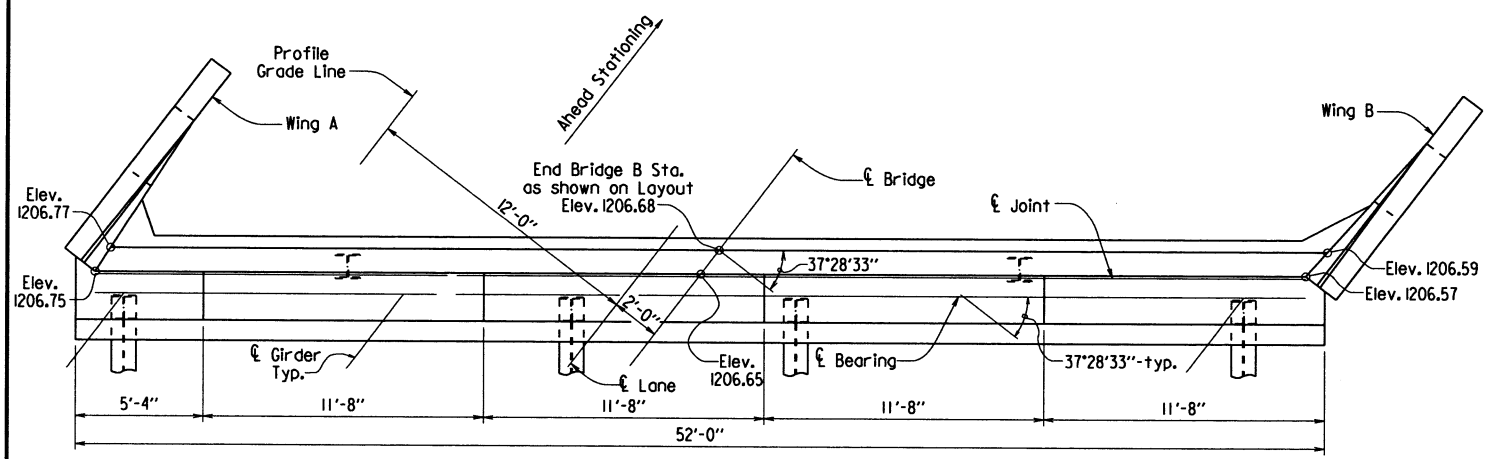
PLAN - BENT 1, BR. B

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



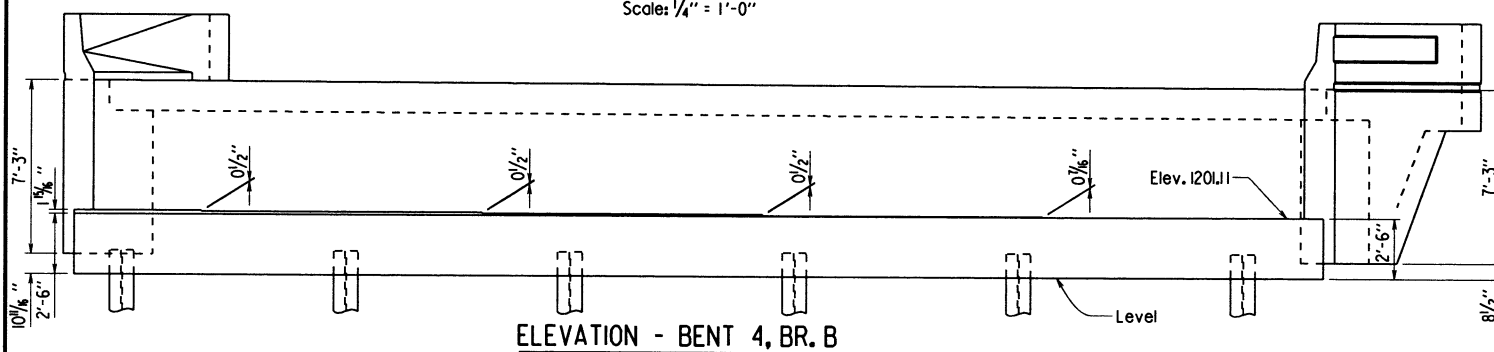
ELEVATION - BENT 1, BR. B

Looking Back
Scale: 1/4" = 1'-0"



PLAN - BENT 4, BR. B

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

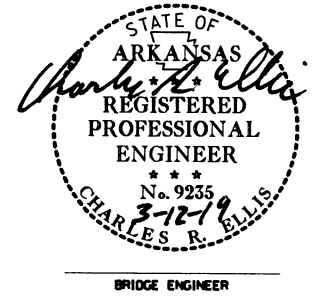


ELEVATION - BENT 4, BR. B

Looking Ahead
Scale: 1/4" = 1'-0"

Note: Reinforcing steel, details and dimensions shown for Bent 1, Br. A, Dwg. No. 52055, are similar for bents shown on this sheet except as noted.

- GENERAL NOTES**
- All concrete shall be Class S with a minimum 28 day compressive strength $f'_c = 3,500$ psi. Concrete shall be poured in the dry and all exposed corners shall be chamfered 3/4" unless otherwise noted.
 - 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.
 - All piles shall be HP12x53 (AASHTO M 270, Gr. 50).
 - No portion of the backwall shall be poured until the girders are in place. Refer to "Expansion Device Installation" notes, Dwg. No. 52065.
 - Structural steel in end bents shall be AASHTO M 270, Gr. 50W and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50W)".
 - Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.
 - For additional information, see layout.



SHEET 2 OF 3
DETAILS OF END BENTS
COUNTY ROAD 21

ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 5-2-07 FILENAME: bca0905m2.bl2.dgn
CHECKED BY: CRE DATE: 10-07 SCALE: AS NOTED
DESIGNED BY: PJT DATE: 4-07

BRIDGE NO. A&B7219 DRAWING NO. 52056

PRINT DATE: 9/22/2017

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
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JOB NO. A&B7219 - END BENTS							95	160
A&B7219 - END BENTS							95	160

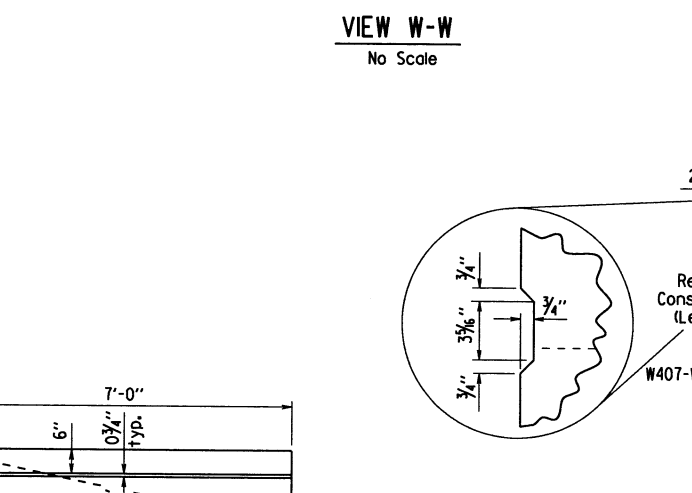
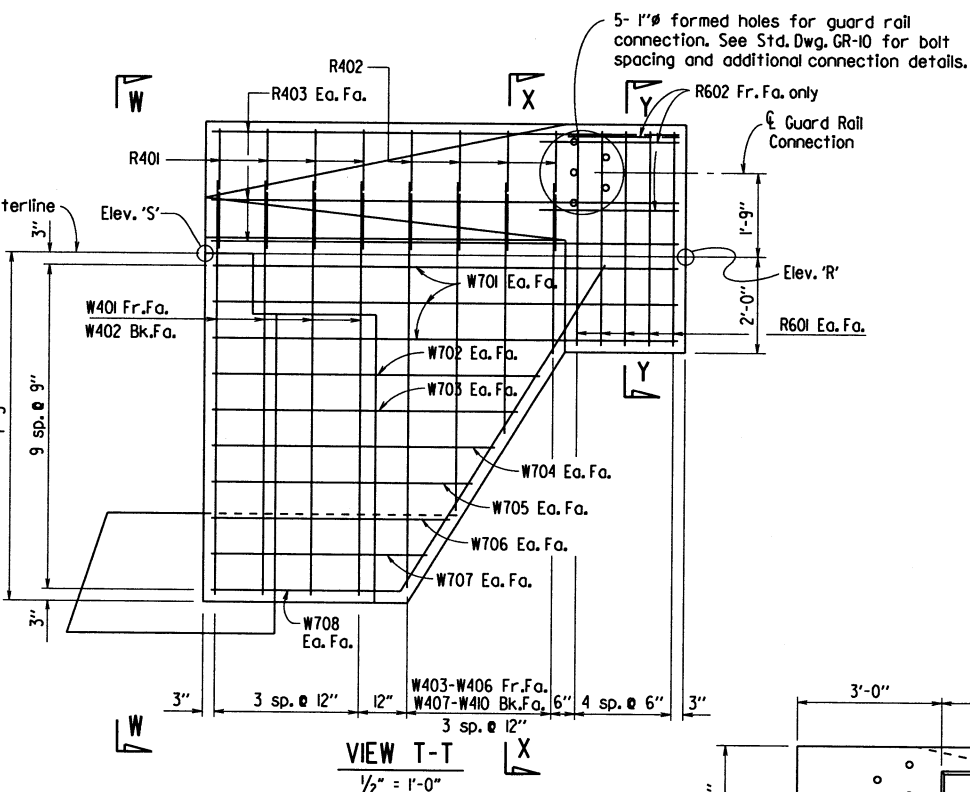
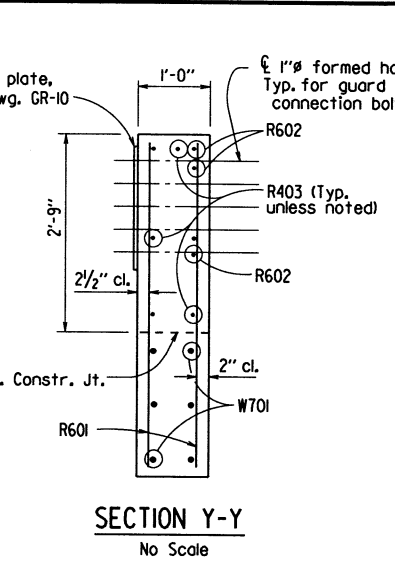
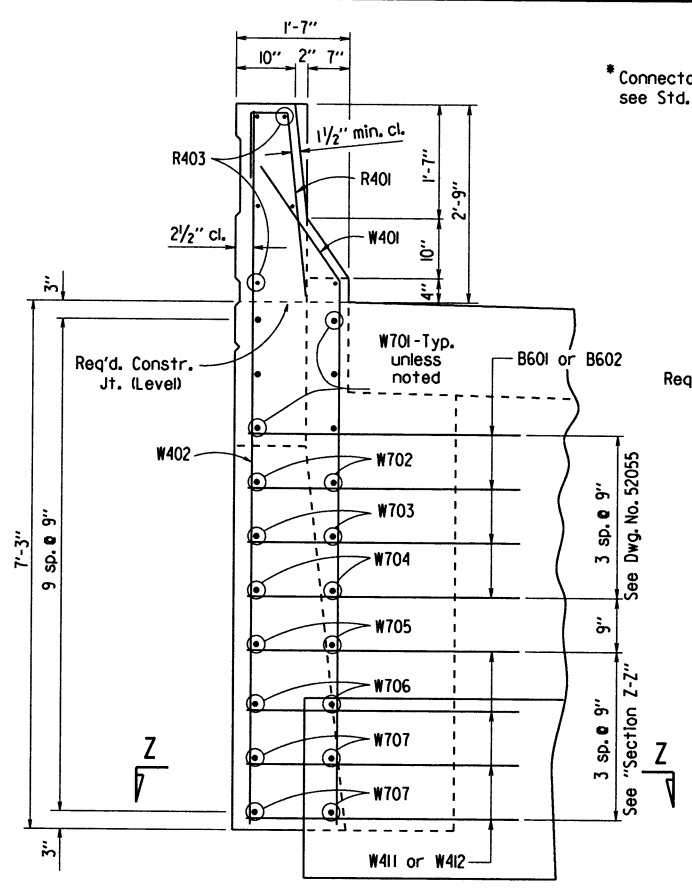
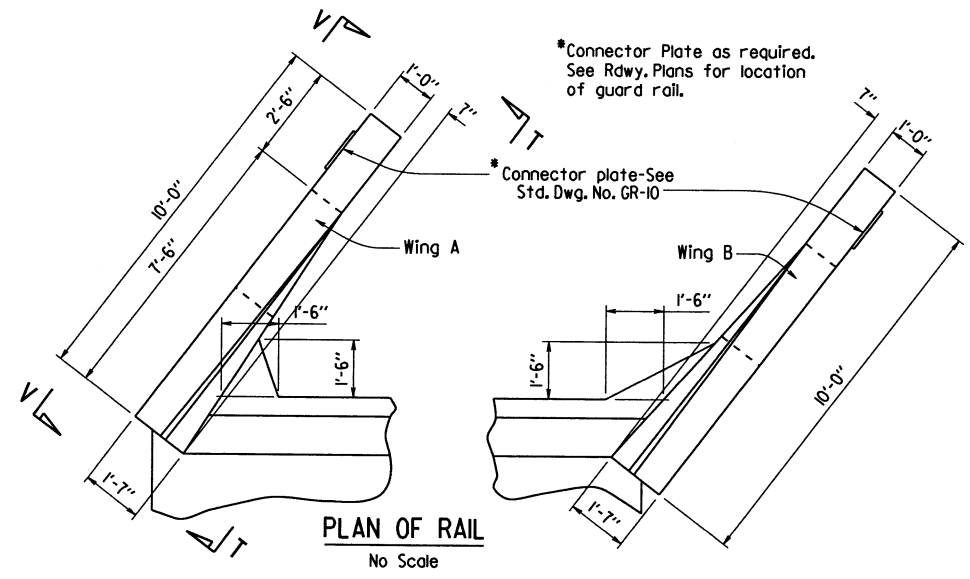
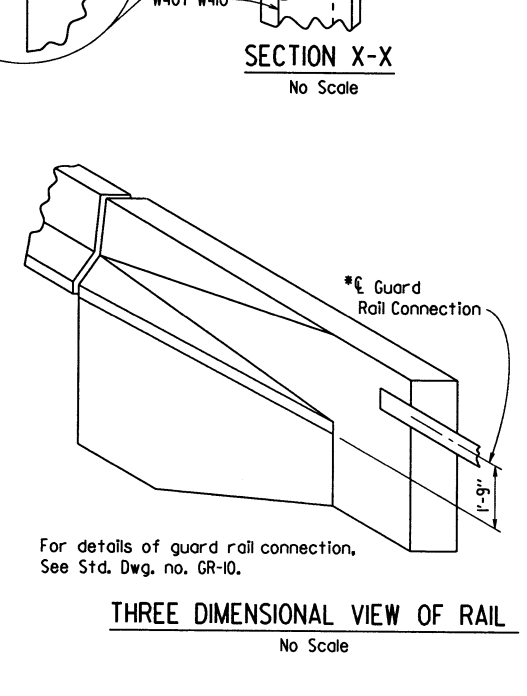
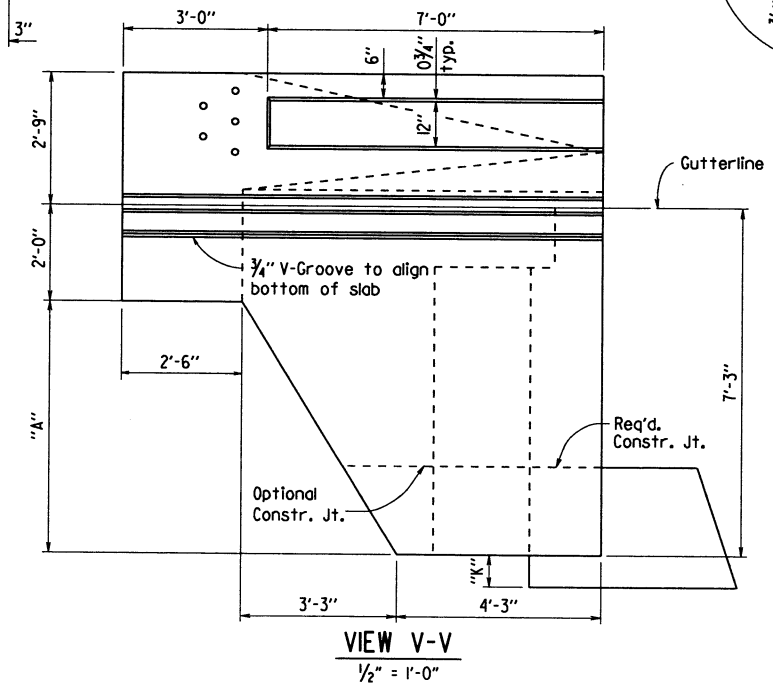


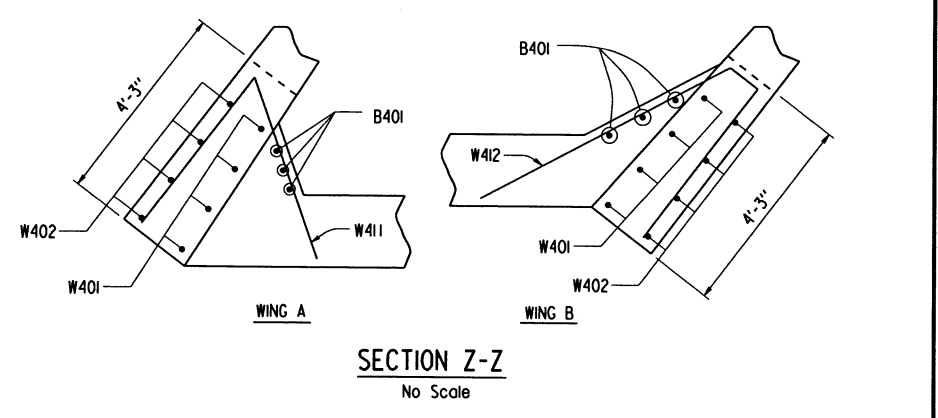
TABLE OF VARIABLES

BRIDGE	BENT	WING	Elev. 'S'	Elev. 'R'	"A"	"K"
A	1	A	1202.45	1202.41	5'-2 1/2"	10"
		B	1201.55	1201.52	5'-2 3/4"	10 3/8"
	4	A	1204.72	1204.89	5'-5 1/8"	11 1/8"
		B	1206.05	1206.24	5'-5 1/4"	11 3/8"
B	1	A	1202.02	1201.95	5'-2 3/8"	9 3/8"
		B	1202.63	1202.57	5'-2 1/4"	9 3/8"
	4	A	1206.75	1206.94	5'-5 1/4"	10 3/8"
		B	1206.57	1206.78	5'-5 1/2"	8 1/2"



BAR LIST-PER BENT

MARK	NO.	REQ'D.	LENGTH	P.D.	BENDING DIAGRAMS
B401	6	5'-8"	Str.		<p>Dimensions are out to out of bars.</p>
B402	28	27'-5"	3"		
B403	4	26'-9"	Str.		
B404	85	12'-11"	2"		
B405	12	8'-1"	2"		
B406	46	9'-3"	2"		
R401	8	3'-11"	2"		
R402	8	4'-0"	2"		
R403	12	9'-8"	Str.		
W401	8	9'-5"	2"		
W402	8	9'-8"	Str.		
W403-W406	2 each	Var. 3'-6" to 8'-4"	2"		
W407-W410	2 each	Var. 4'-8" to 9'-6"	Str.		
W411	4	7'-11"	2"		
W412	4	10'-5"	2"		
B601	4	6'-1"	4 1/2"		
B602	4	8'-11"	4 1/2"		
B603	6	10'-0"	4 1/2"		
B604	52	5'-8"	Str.		
B605	6	53'-0"	4 1/2"		
R601	20	4'-5"	Str.		
R602	6	5'-0"	Str.		
B701	8	51'-8"	Str.		
W701	12	9'-8"	Str.		
W702	4	6'-10"	Str.		
W703	4	6'-4"	Str.		
W704	4	5'-10"	Str.		
W705	4	5'-5"	Str.		
W706	4	4'-11"	Str.		
W707	4	4'-6"	Str.		
W708	4	11'-11"	5 1/4"		



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
Charles R. Ellis
No. 9935
3-7-19
CHARLES R. ELLIS
BRIDGE ENGINEER

SHEET 3 OF 3
DETAILS OF END BENTS
COUNTY ROAD 21

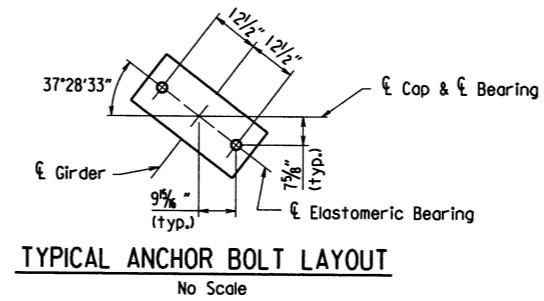
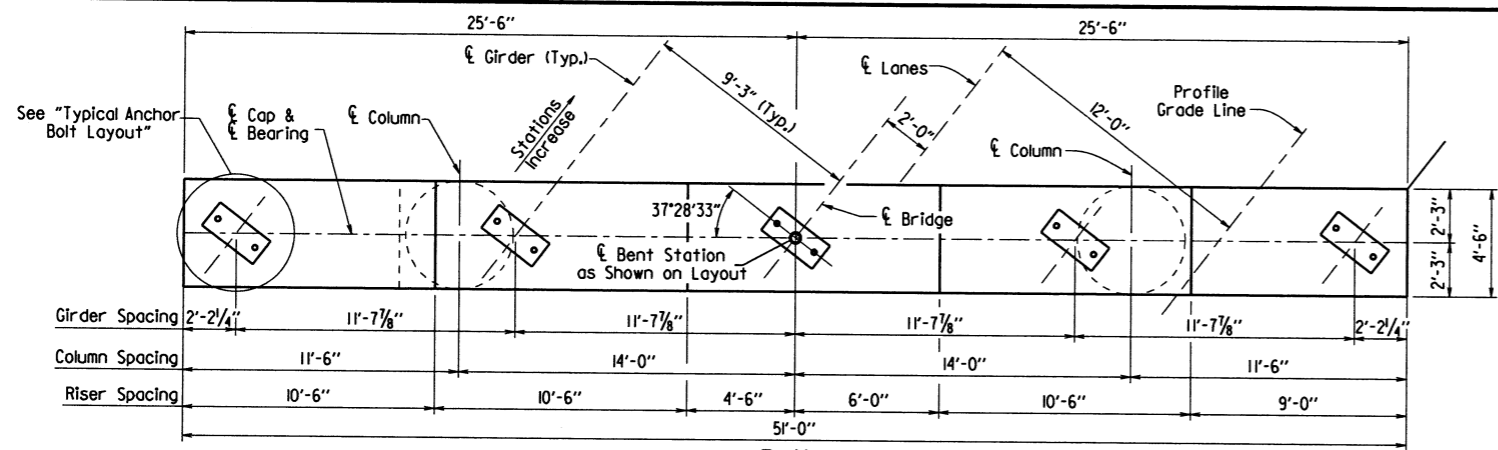
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 5-4-07 FILENAME: bca0905m2_b13.dgn
CHECKED BY: CRE DATE: 10-07
DESIGNED BY: PJT DATE: 4-07 SCALE: AS NOTED

BRIDGE NO. A&B7219 DRAWING NO. 52057

PRINT DATE: 9/22/2017

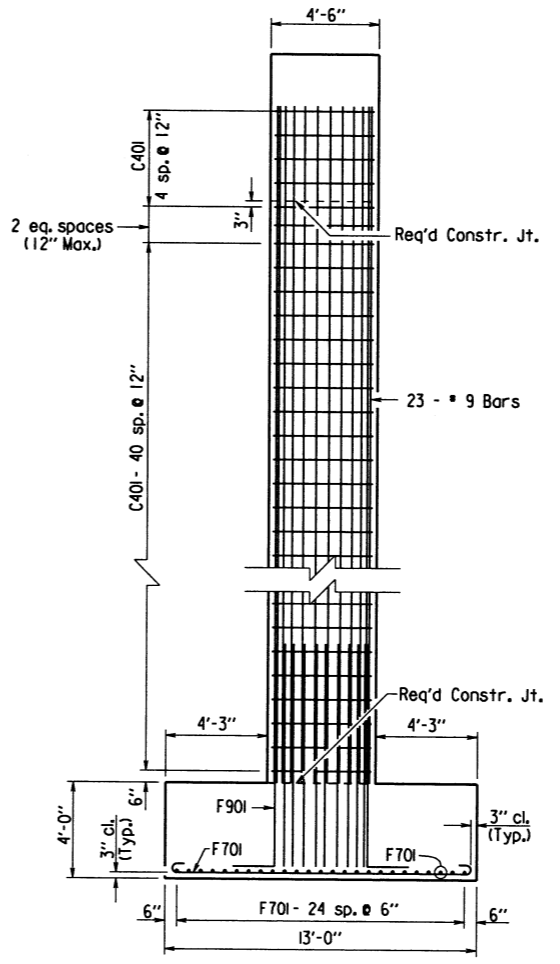
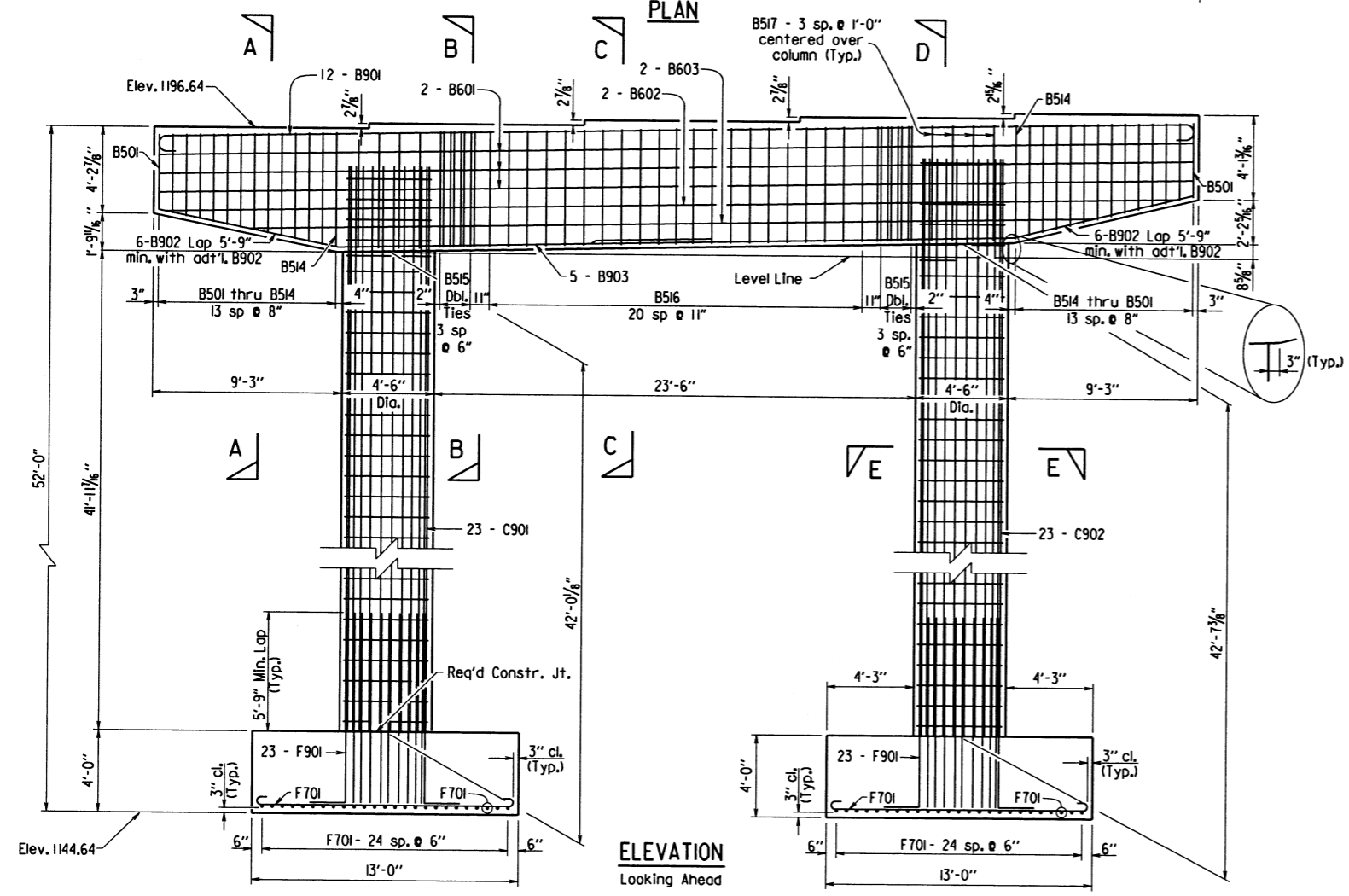
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	CA0905	96	160	
				A7219 - INT. BENT - 52058				



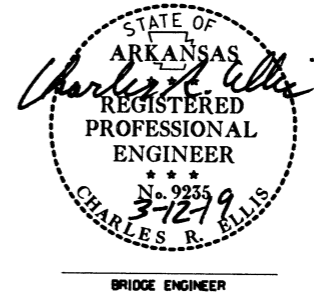
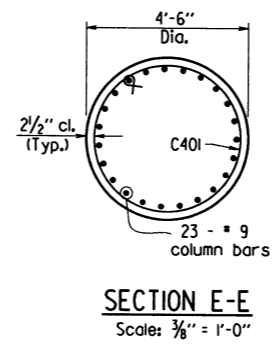
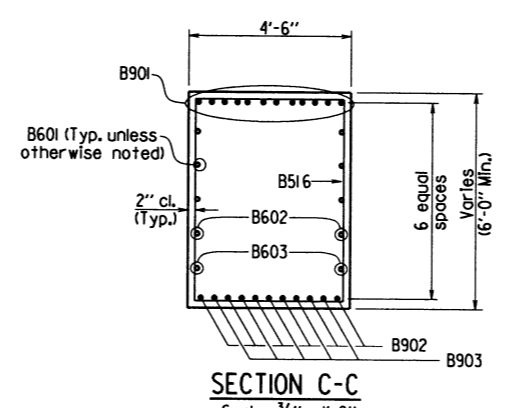
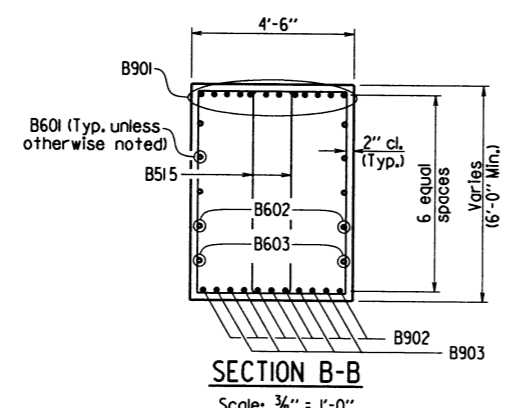
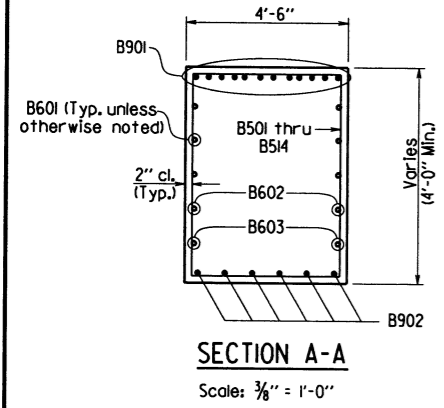
NOTE: A Class 3 Textured Coating Finish shall be applied to bridge surfaces as specified in Special Provision Job No. CA0905 "Textured Coating Finish" and in accordance with Subsection 802.19.

BAR LIST

MARK	NO. REQ'D.	LENGTH	'A'	'B'	P.D.	BENDING DIAGRAMS
Dimensions are out to out of bars.						
B501 to B514	2 each	16'-3" to 20'-2"	4'-2"	3'-8 1/2" to 5'-7 3/4"	2 1/2"	
B515	16	18'-0"	3'-1"	5'-8"	2 1/2"	
B516	21	20'-2"	4'-2"	5'-8"	2 1/2"	
B517	8	15'-4"	4'-2"	5'-8"	2 1/2"	
B601	6	50'-8"	-	-	str.	
B602	2	49'-10"	-	-	str.	
B603	2	41'-7"	-	-	str.	
B901	12	53'-2"	50'-8"	10"	9"	
B902	12	28'-6"	19'-5"	-	9"	
B903	5	33'-0"	-	-	str.	
C401	94	13'-11"	-	-	3"	
C901	23	46'-3"	-	-	str.	
C902	23	46'-10"	-	-	str.	
F701	100	14'-2"	12'-6"	7"	5 1/4"	
F901	46	12'-8"	11'-4"	1'-7 1/2"	9"	



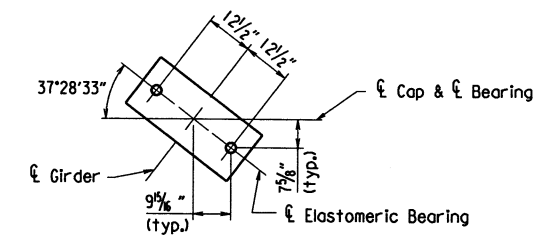
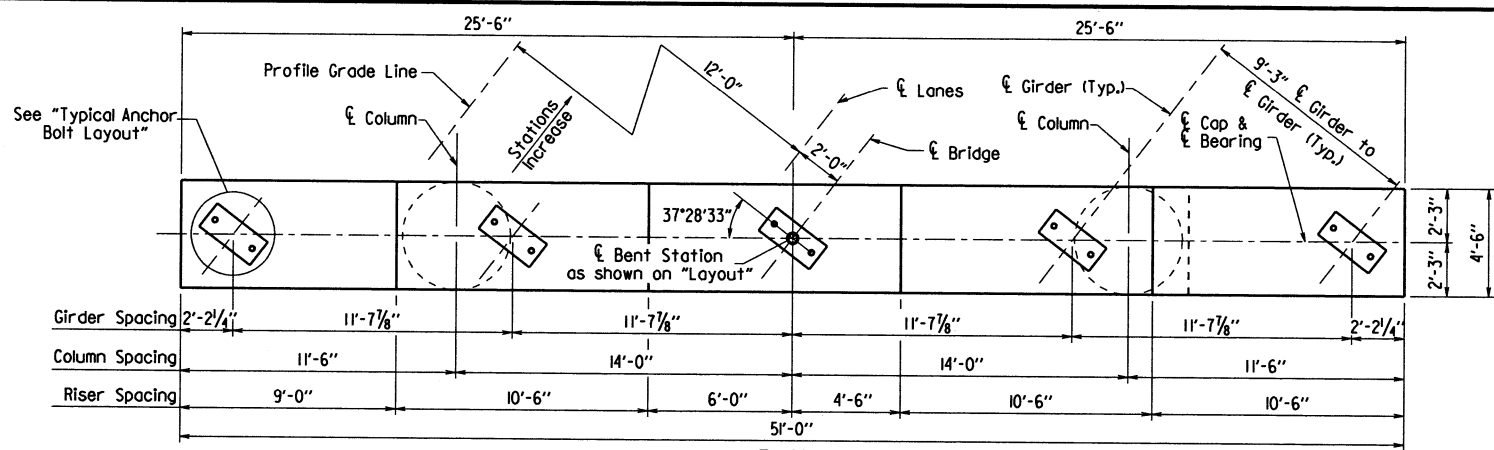
GENERAL NOTES
 All concrete shall be Class 5 with a minimum 28 day compressive strength $f'_c = 3,500$ psi. Concrete shall be poured in the dry and all exposed corners shall be chamfered 3/4" unless otherwise noted.
 All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi.) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.
 Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.
 For additional information, see layout.



DETAILS OF BENT 2A
 COUNTY ROAD 21
 ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: DMH DATE: 6/10/07 FILENAME: bca0905a2_b2.dgn
 CHECKED BY: BTF DATE: 9/13 SCALE: 1/4" = 1'-0" or as noted
 DESIGNED BY: DMH DATE: 4-07
 BRIDGE NO. A7219 DRAWING NO. 52058

PRINT DATE: 9/22/2017

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.	CA0905	97	160	
				B7219 - INT. BENT - 52058A				

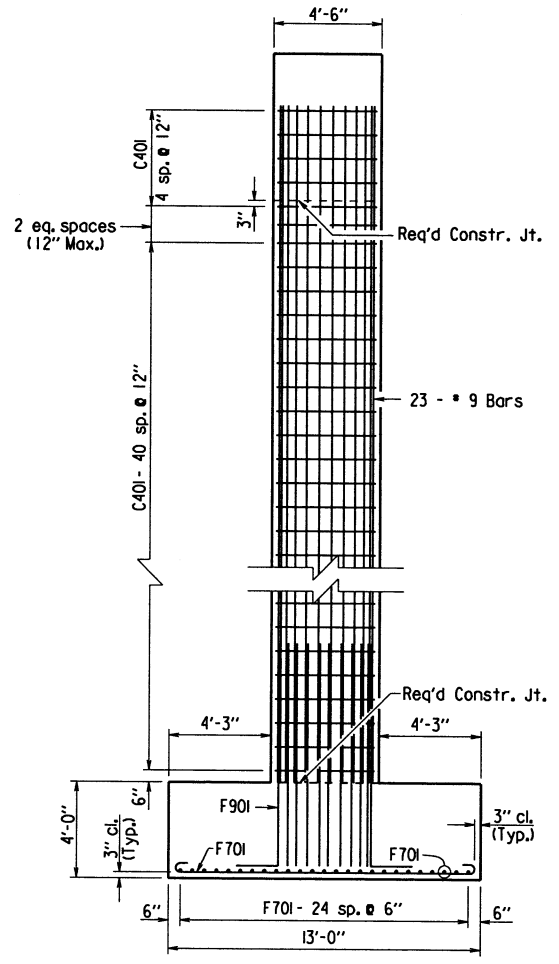
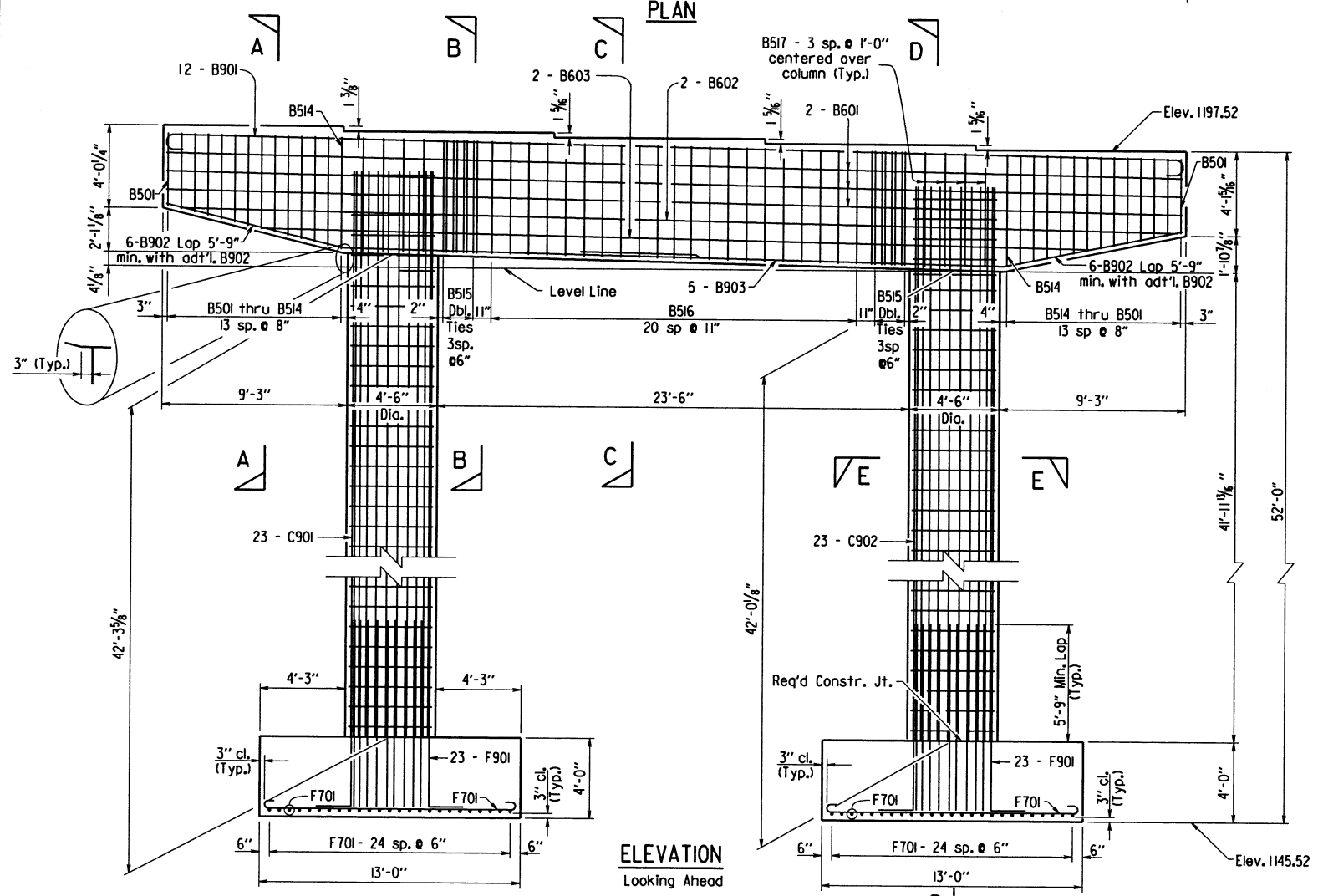


NOTE: A Class 3 Textured Coating Finish shall be applied to bridge surfaces as specified in Special Provision Job No. CA0905 "Textured Coating Finish" and in accordance with Subsection 802.19.

TYPICAL ANCHOR BOLT LAYOUT
No Scale

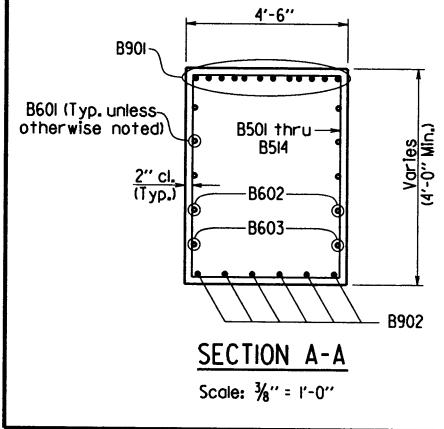
BAR LIST

MARK	NO. REQ'D.	LENGTH	A	B	P.D.	BENDING DIAGRAMS
Dimensions are out to out of bars.						
B501 to B514	2 each	16'-3" to 20'-2"	4'-2"	3'-8 1/2" to 5'-7 3/4"	2 1/2"	
B515	16	18'-0"	3'-1"	5'-8"	2 1/2"	
B516	21	20'-2"	4'-2"	5'-8"	2 1/2"	
B517	8	15'-4"	4'-2"	5'-8"	2 1/2"	
B601	6	50'-8"	-	-	str.	
B602	2	50'-0"	-	-	str.	
B603	2	4'-9"	-	-	str.	
B901	12	53'-2"	50'-8"	10"	9"	
B902	12	28'-6"	19'-5"	-	9"	
B903	5	33'-0"	-	-	str.	
C401	94	13'-11"	-	-	3"	
C901	23	46'-7"	-	-	str.	
C902	23	46'-4"	-	-	str.	
F701	100	14'-2"	12'-6"	7"	5 1/4"	
F901	46	12'-8"	11'-4"	1'-7 1/2"	9"	

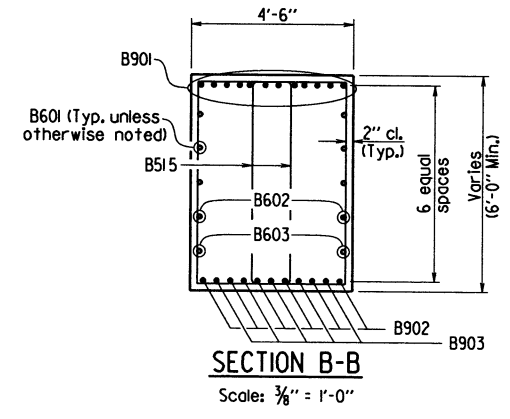


SECTION D-D

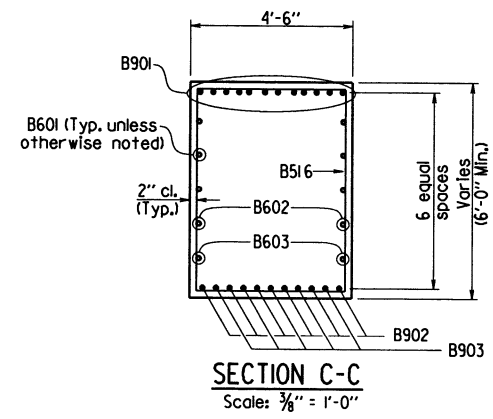
GENERAL NOTES
 All concrete shall be Class S with a minimum 28 day compressive strength $f'_c = 3,500$ psi. Concrete shall be poured in the dry and all exposed corners shall be chamfered 3/4" unless otherwise noted.
 All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi.) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.
 Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.
 For additional information, see layout.



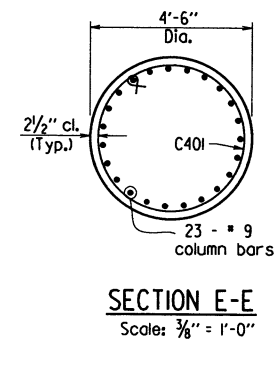
SECTION A-A
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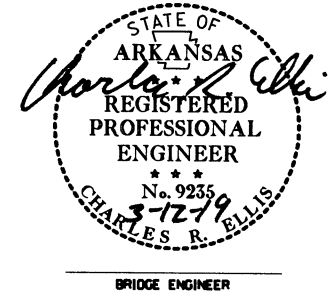
SECTION B-B
Scale: 3/8" = 1'-0"



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



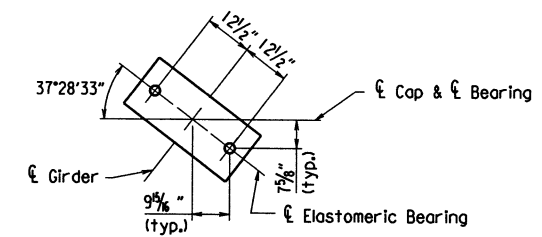
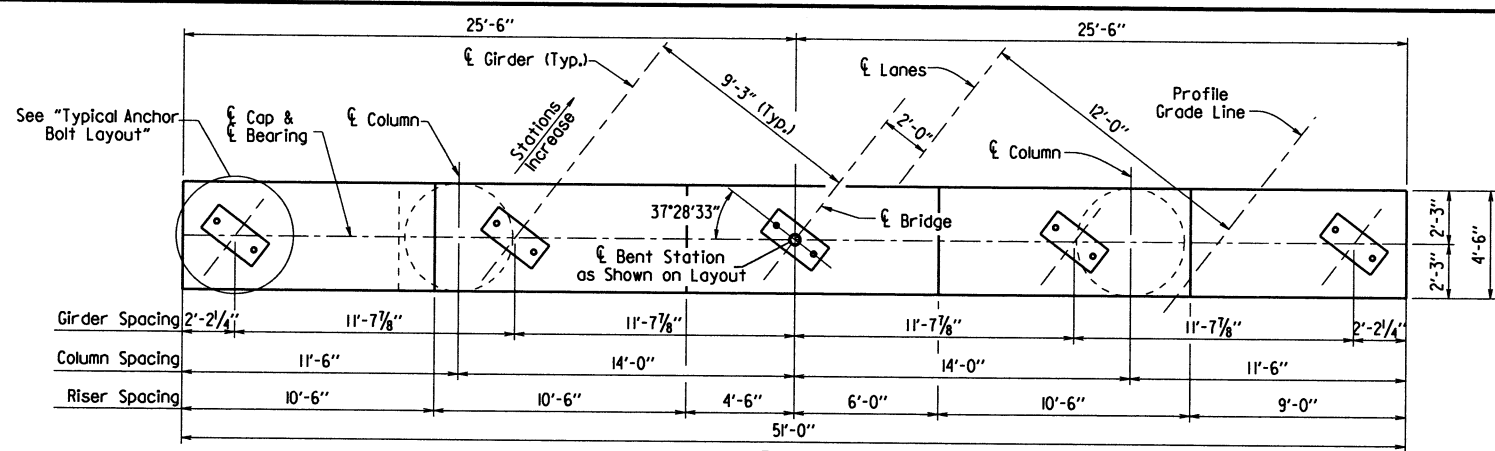
SECTION E-E
Scale: 3/8" = 1'-0"



DETAILS OF BENT 2B
 COUNTY ROAD 21
 ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: DMH DATE: 6/10/07 FILENAME: bca0905b2.b2.dgn
 CHECKED BY: [Signature] DATE: 6/13/07 SCALE: 1/4" = 1'-0"
 DESIGNED BY: DMH DATE: 4-07 or as noted
 BRIDGE NO. B7219 DRAWING NO. 52058A

PRINT DATE: 9/22/2017

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.	CA0905	98	160	
				A7219 - INT. BENT - 52059				

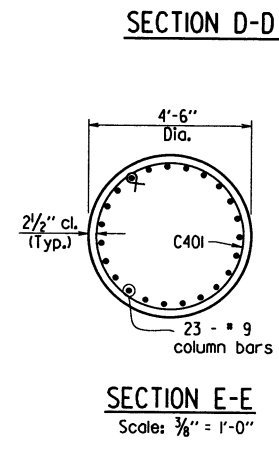
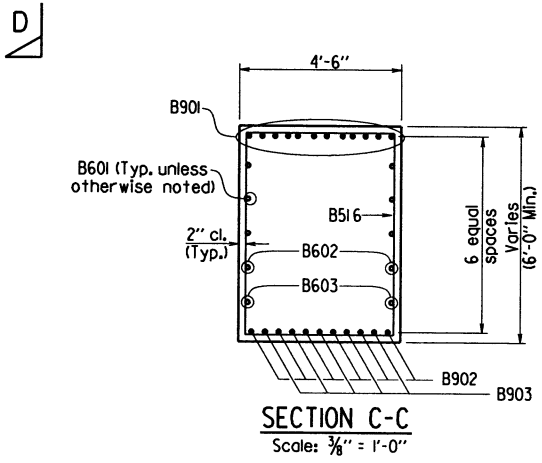
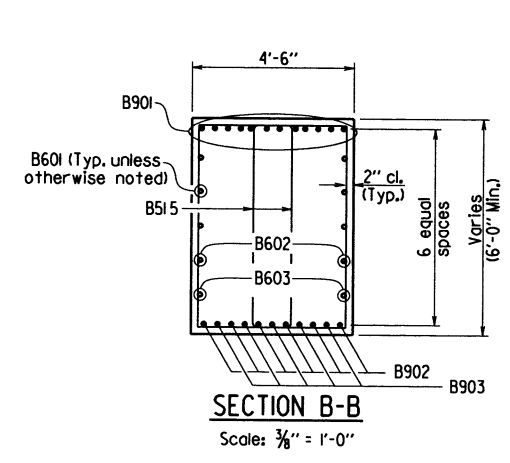
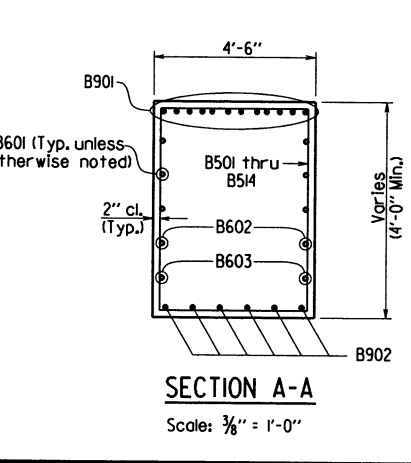
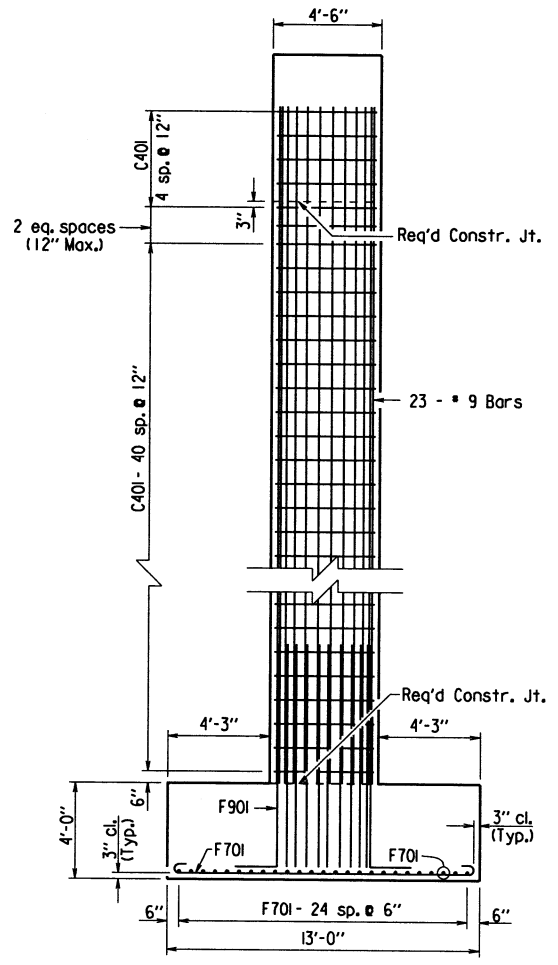
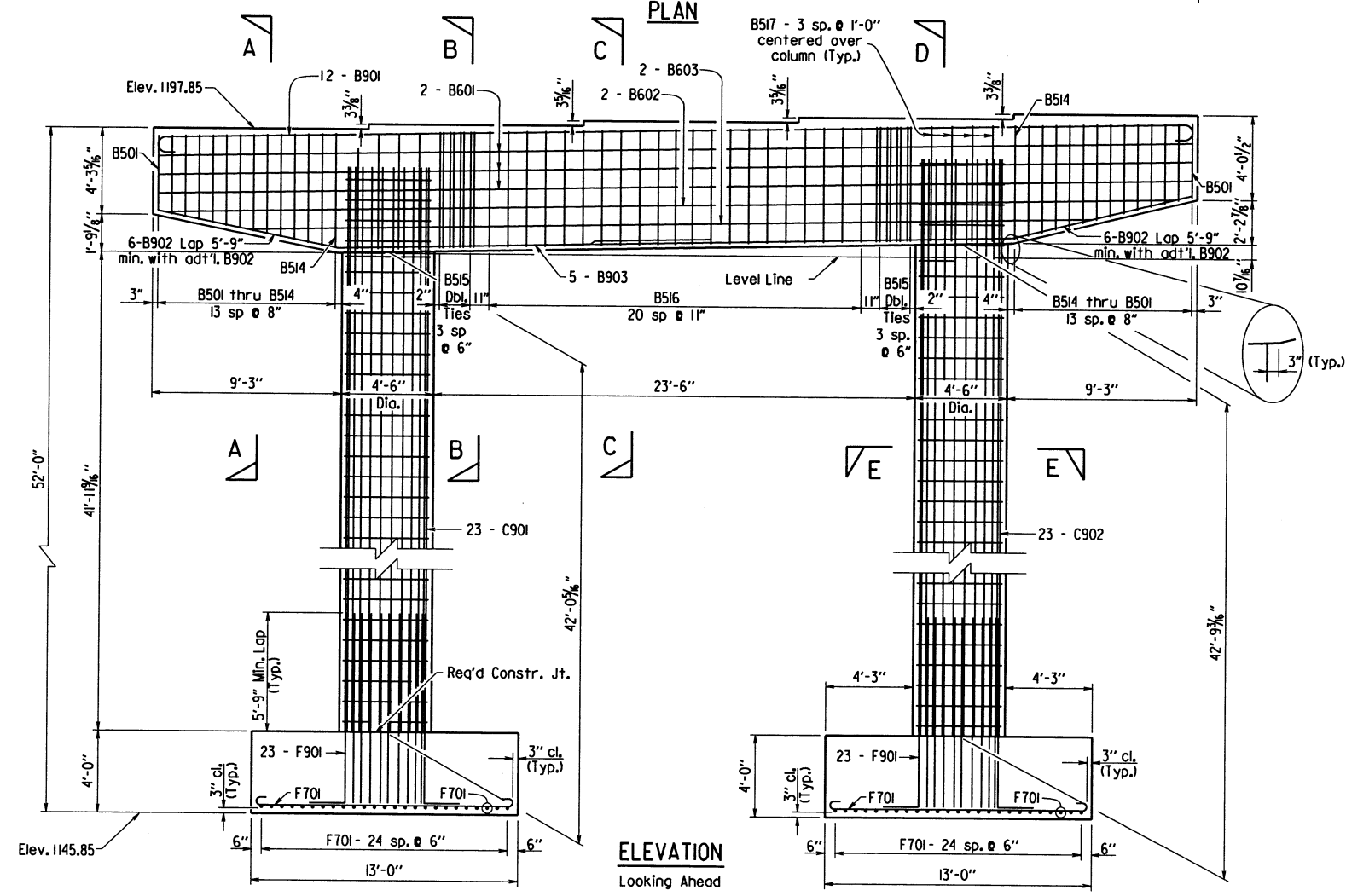


NOTE: A Class 3 Textured Coating Finish shall be applied to bridge surfaces as specified in Special Provision Job No. CA0905 "Textured Coating Finish" and in accordance with Subsection 802.19.

TYPICAL ANCHOR BOLT LAYOUT
No Scale

BAR LIST

MARK	NO. REQ'D.	LENGTH	'A'	'B'	P.D.	BENDING DIAGRAMS
Dimensions are out to out of bars.						
B501 to B514	2 each	16'-3" to 20'-2"	4'-2"	3'-8 1/2" to 5'-7 3/4"	2 1/2"	
B515	16	18'-0"	3'-1"	5'-8"	2 1/2"	
B516	21	20'-2"	4'-2"	5'-8"	2 1/2"	
B517	8	15'-4"	4'-2"	5'-8"	2 1/2"	
B601	6	50'-8"	-	-	str.	
B602	2	50'-1"	-	-	str.	
B603	2	41'-10"	-	-	str.	
B901	12	53'-2"	50'-8"	10"	9"	
B902	12	28'-6"	19'-5"	-	9"	
B903	5	33'-0"	-	-	str.	
C401	94	13'-11"	-	-	3"	
C901	23	46'-3"	-	-	str.	
C902	23	47'-0"	-	-	str.	
F701	100	14'-2"	12'-6"	7"	5 1/4"	
F901	46	12'-8"	11'-4"	1'-7 1/2"	9"	



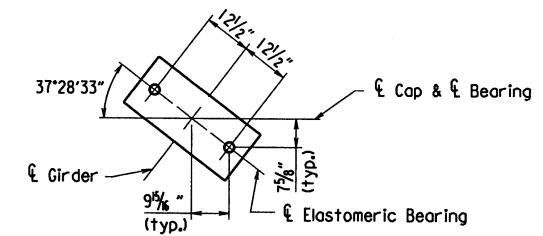
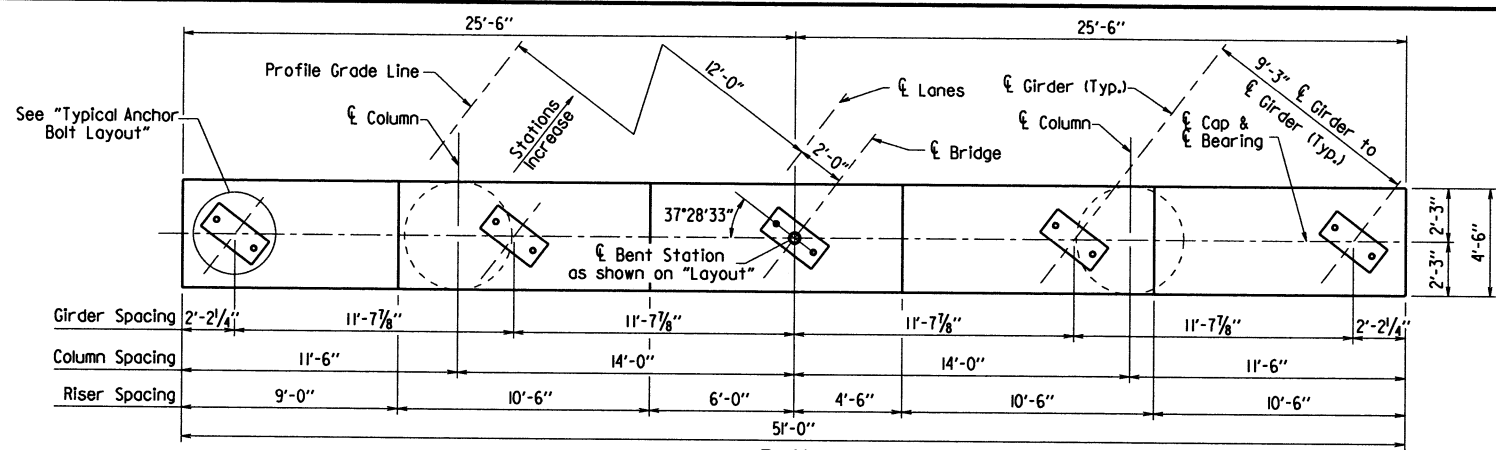
GENERAL NOTES
 All concrete shall be Class S with a minimum 28 day compressive strength $f'_c = 3,500$ psi. Concrete shall be poured in the dry and all exposed corners shall be chamfered 3/4" unless otherwise noted.
 All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi.) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.
 Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.
 For additional information, see layout.

STATE OF ARKANSAS
 REGISTERED PROFESSIONAL ENGINEER
 No. 9235
 CHARLES R. ELLIS
 BRIDGE ENGINEER

DETAILS OF BENT 3A
 COUNTY ROAD 21
 ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: DMH DATE: 6/10/07 FILENAME: bca0905a2.b3.dgn
 CHECKED BY: BCF DATE: 9/13 SCALE: 1/4" = 1'-0" or as noted
 DESIGNED BY: DMH DATE: A-07
 BRIDGE NO. A7219 DRAWING NO. 52059

PRINT DATE: 9/22/2017

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. PROJ. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.	CA0905	99	160
				JOB NO. CA0905				
				B7219 - INT. BENT - 52059A				

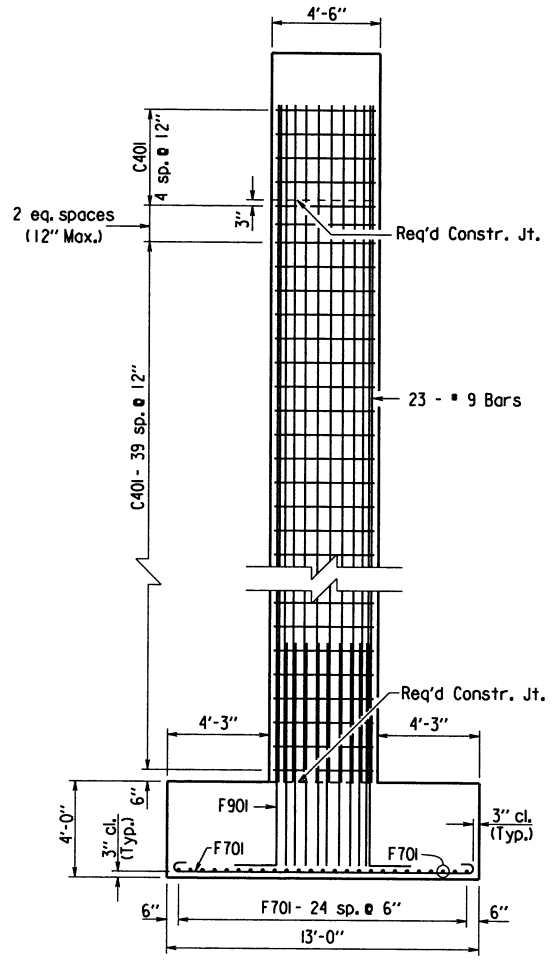
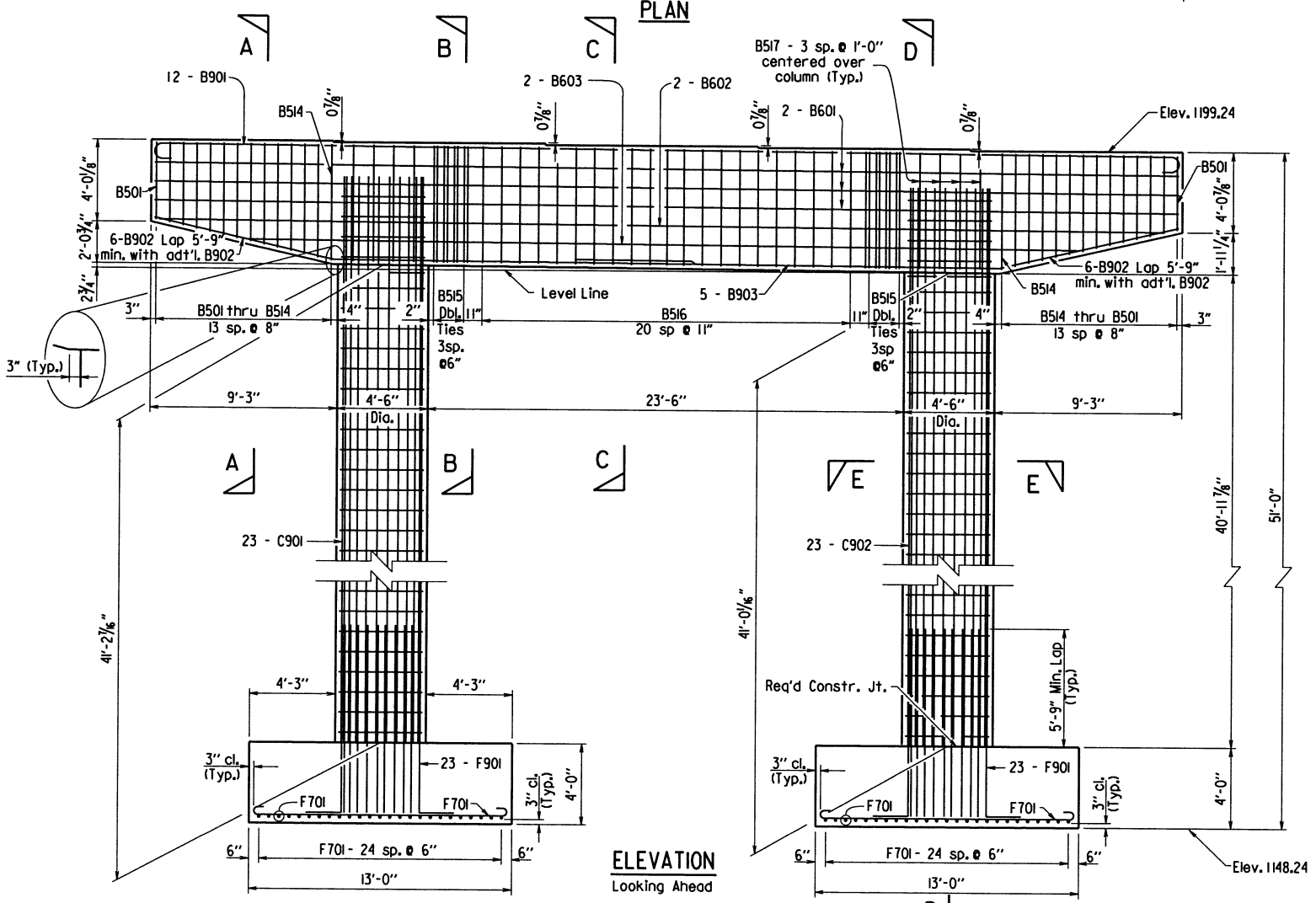


NOTE: A Class 3 Textured Coating Finish shall be applied to bridge surfaces as specified in Special Provision Job No. CA0905 "Textured Coating Finish" and in accordance with Subsection 802.19.

TYPICAL ANCHOR BOLT LAYOUT
 No Scale

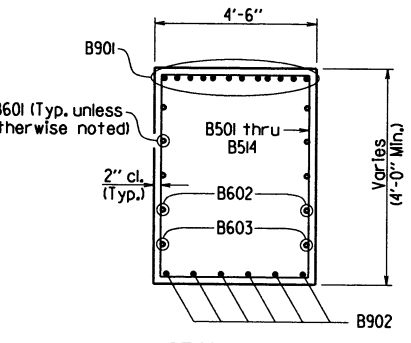
BAR LIST

MARK	NO. REQ'D.	LENGTH	A	B	P.D.	BENDING DIAGRAMS
Dimensions are out to out of bars.						
B501 to B514	2 each	16'-3" to 20'-2"	4'-2"	3'-8 1/2" to 5'-7 3/4"	2 1/2"	
B515	16	18'-0"	3'-1"	5'-8"	2 1/2"	
B516	21	20'-2"	4'-2"	5'-8"	2 1/2"	
B517	8	15'-4"	4'-2"	5'-8"	2 1/2"	
B601	6	50'-8"	-	-	str.	
B602	2	50'-1"	-	-	str.	
B603	2	41'-11"	-	-	str.	
B901	12	53'-2"	50'-8"	10"	9"	
B902	12	28'-6"	19'-5"	-	9"	
B903	5	33'-0"	-	-	str.	
C401	92	13'-11"	-	-	3"	
C901	23	45'-6"	-	-	str.	
C902	23	45'-3"	-	-	str.	
F701	100	14'-2"	12'-6"	7"	5 1/4"	
F901	46	12'-8"	11'-4"	1'-7 1/2"	9"	

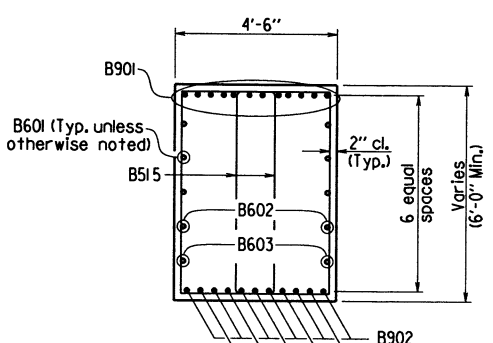


SECTION D-D

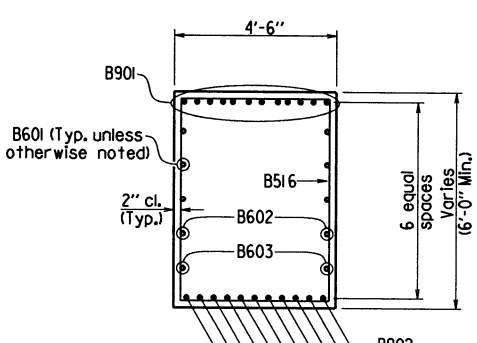
GENERAL NOTES
 All concrete shall be Class S with a minimum 28 day compressive strength $f'_c = 3,500$ psi. Concrete shall be poured in the dry and all exposed corners shall be chamfered 3/4" unless otherwise noted.
 All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.
 Top reinforcing bars in cap shall be properly placed to avoid interference with anchor bolts or sheet metal sleeves.
 For additional information, see layout.



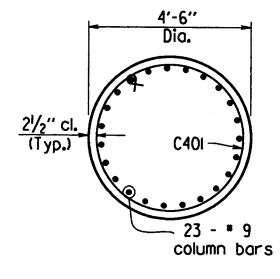
SECTION A-A
 Scale: 3/8" = 1'-0"



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



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



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

STATE OF ARKANSAS
 REGISTERED PROFESSIONAL ENGINEER
 No. 9235
 CHARLES R. ELLIS
 3-7-29
 BRIDGE ENGINEER

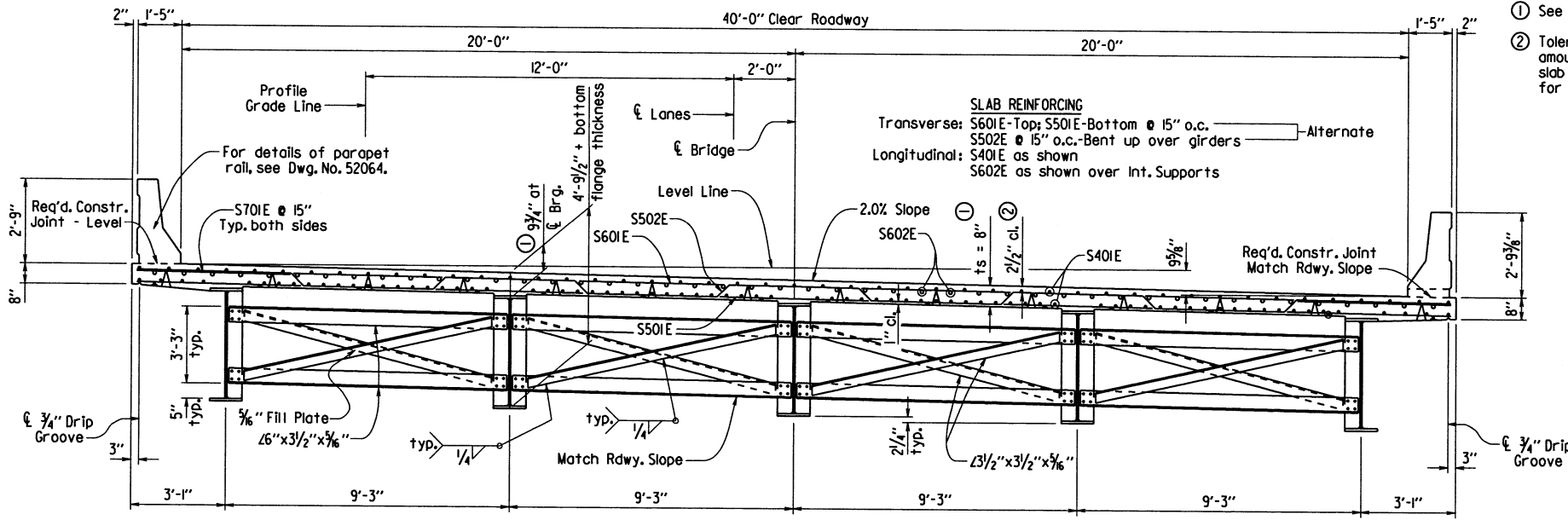
DETAILS OF BENT 3B
 COUNTY ROAD 21
 ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: DMH DATE: 8/15/07 FILENAME: bca0905b2.b3.dgn
 CHECKED BY: BBT DATE: 9/13 SCALE: 1/4" = 1'-0" or as noted
 DESIGNED BY: DMH DATE: 4-07
 BRIDGE NO. B7219 DRAWING NO. 52059A

PRINT DATE: 9/22/2017

NOTE: Class 2 Protective Surface Treatment shall be applied to the roadway surface. Class 3 Textured Coating Finish shall be applied to bridge surfaces as specified in Special Provision Job No. CA0905 "Textured Coating Finish" and in accordance with Subsection 802J9. Textured Coating Finish shall not be applied on surfaces where Class 2 Protective Surface Treatment is applied.

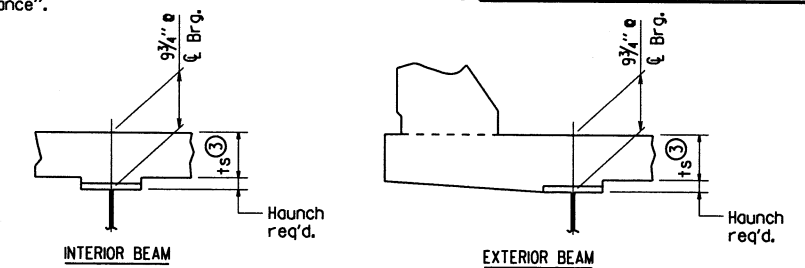
NOTE: At the Contractor's option, two straight epoxy coated #5 bars may be substituted for bar S502E. Payment for reinforcing will be based on the weight of bar S502E.

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.	CA0905		100	160
				A&B7219 - 326 FT. UNIT - 52060				



TYPICAL ROADWAY SECTION
 Looking Back - Br. A
 Looking Ahead - Br. B
 Scale: 3/8" = 1'-0"

- ① See "Adjustment for Slab Thickness Tolerance".
- ② Tolerance: Minus = 1/4"; Plus equal to the amount of slab thickening used to meet slab thickness tolerance. See "Adjustment for Slab Thickness Tolerance".



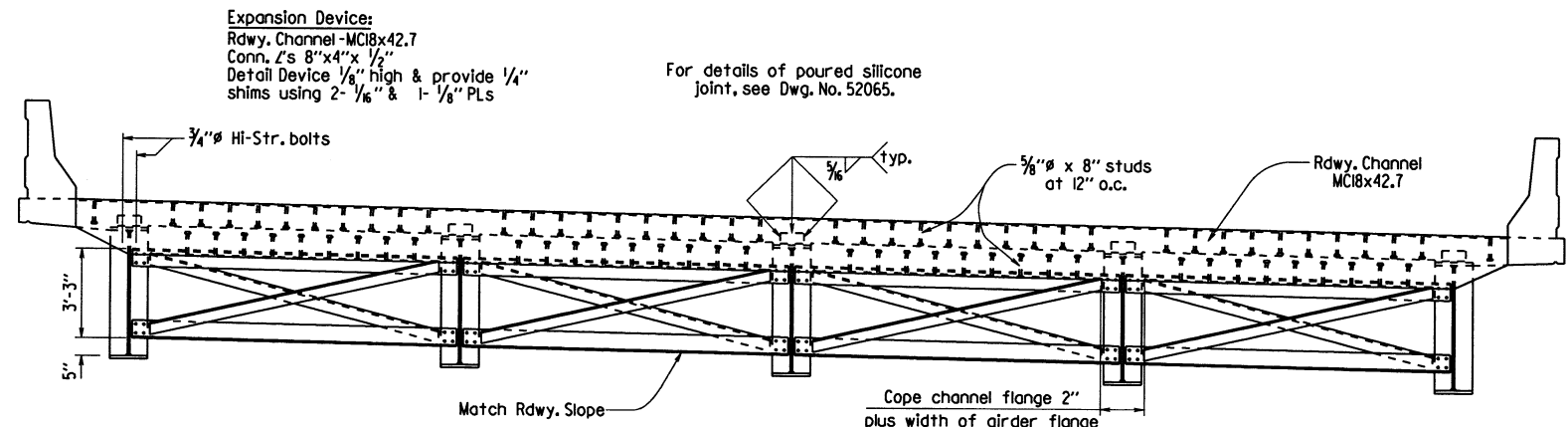
③ Tolerance when removable deck forming is used is +1/2", -1/4". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

Note: ts = slab thickness as shown "Typical Roadway Section"

Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance: Minimum - occurs when top flange contacts bottom reinforcing steel; Maximum - top flange thickness plus 1 3/4". No increase in concrete and structural steel quantities will be made to maintain tolerances.

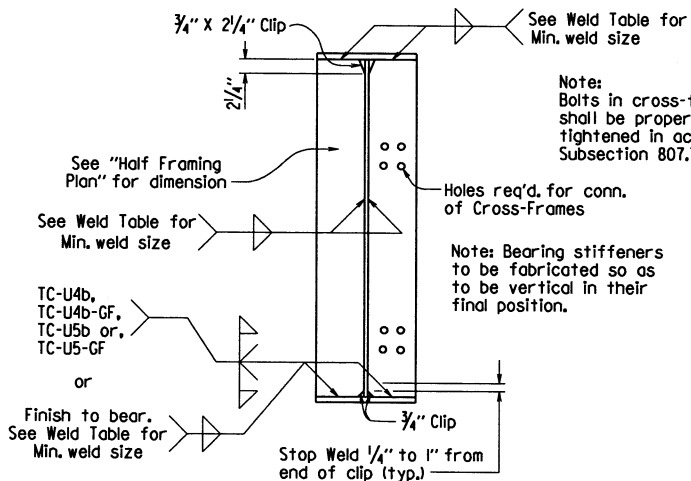
Tolerances shown are applicable only when removable deck forming is used. See Std. Dwg. No. 55005 for tolerances when permanent steel deck forms are used. Payment for concrete shall be based on removable deck forming.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE
 No Scale

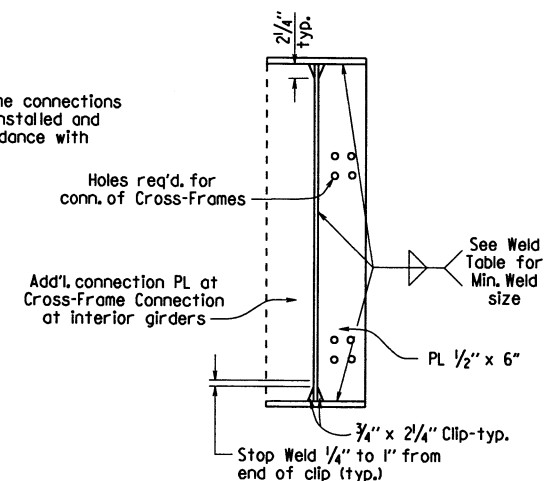


Note: Cross frame sizes and dimensions are similar to those shown in "Typical Roadway Section".

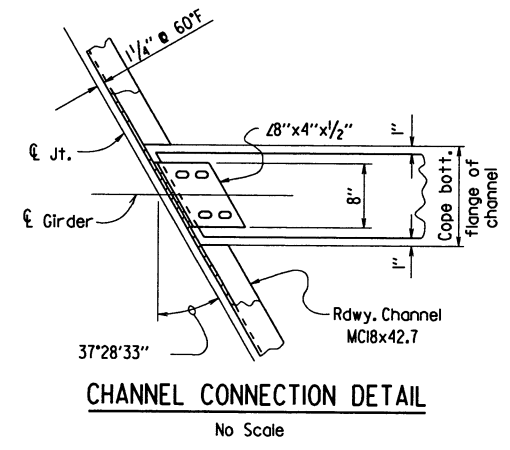
SECTION THRU JOINT
 Scale: 3/8" = 1'-0"



BEARING STIFFENER DETAILS
 No Scale



CONNECTION PLATE DETAILS
 No Scale

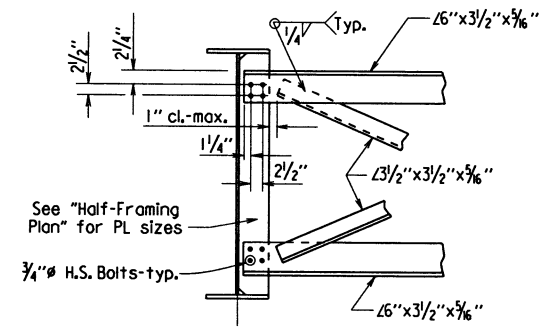


CHANNEL CONNECTION DETAIL
 No Scale

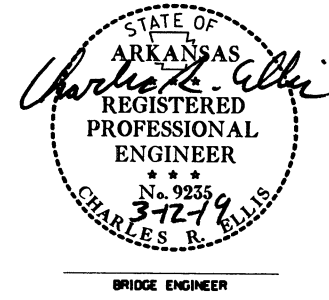
TABLE FOR WELD

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"	Must Be Used
Over 3/4"	5/16"	Must Be Used

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.



TYPICAL CROSS-FRAME CONNECTION
 No Scale



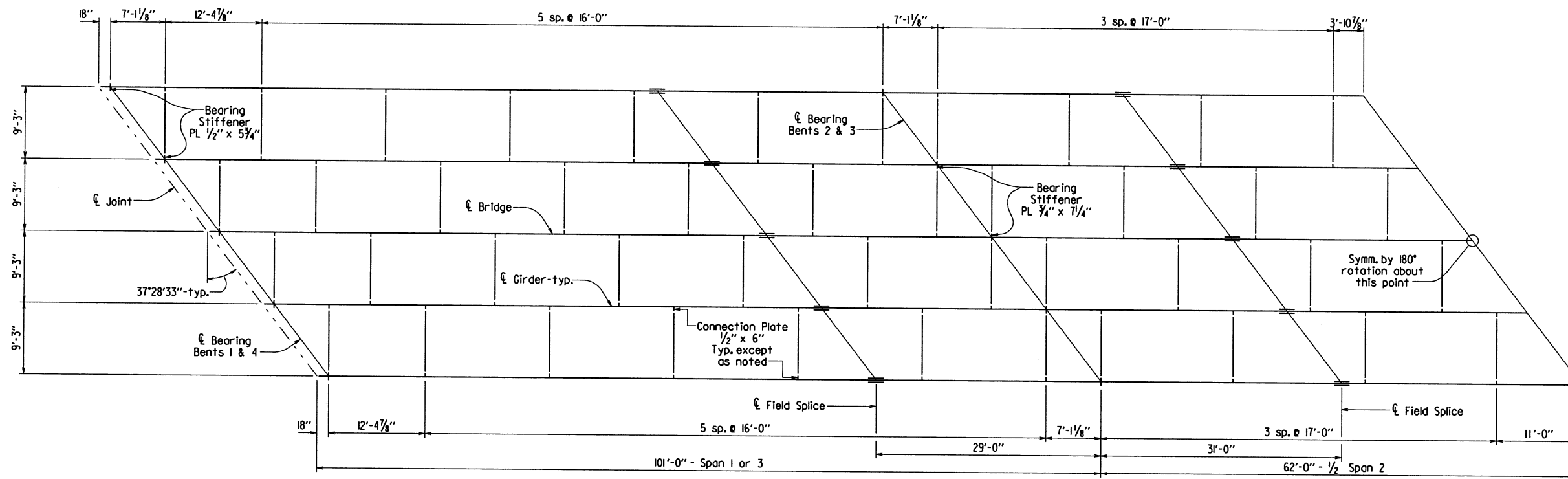
SHEET 1 OF 6
 DETAILS OF 326' CONTINUOUS COMPOSITE PLATE GIRDER UNIT
 COUNTY ROAD 21

ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-12-07 FILENAME: bca0905x2.sil.dgn
 CHECKED BY: CRE DATE: 10-5-07 SCALE: AS NOTED
 DESIGNED BY: DMH DATE: 12-06
 BRIDGE NO. A&B7219 DRAWING NO. 52060

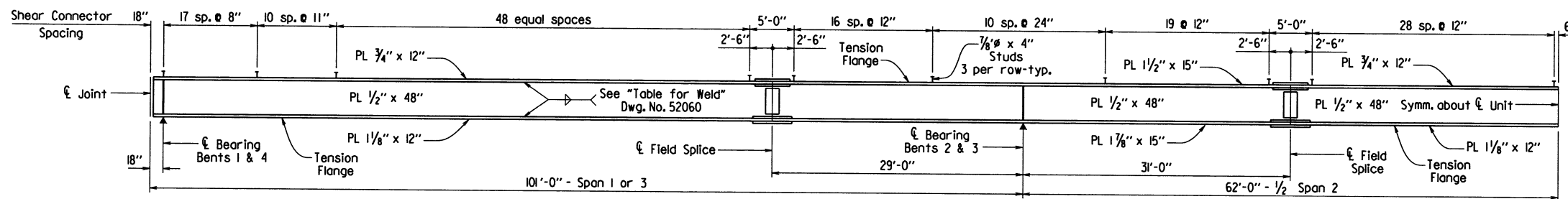
PRINT DATE: 9/22/2017

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.	CA0905	101	160	
				A&B7219 - 326 FT. UNIT - 52061				



HALF FRAMING PLAN

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

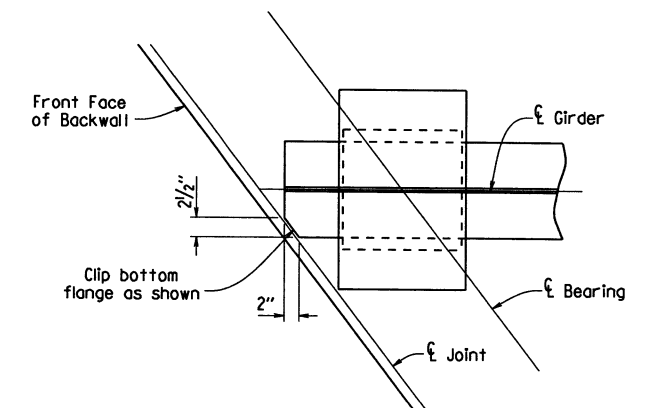


HALF GIRDER ELEVATION

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

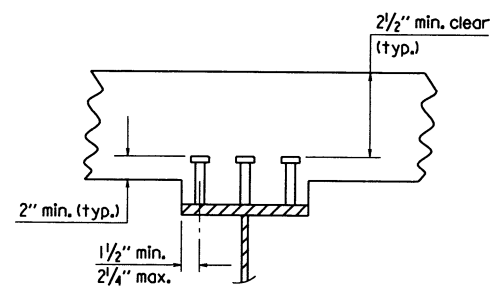
Note: Bolted field splices may be eliminated or shop welded splices may be substituted with the approval of the Engineer. Payment will be made on the basis of plan quantities.

Note: All structural steel shall be AASHTO M 270, Gr. 50W except as noted.



PLAN OF BEARING AT END BENT

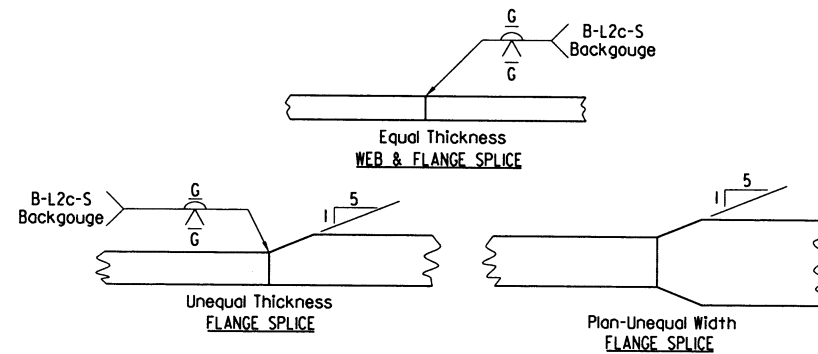
No Scale



Stud Shear Connectors shown shall be 7/8" 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" studs may be used in place of the 7/8" studs shown, at the ratio of 1.361-3/4" studs in place of one 7/8" 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



DETAILS OF WELDED SPLICES

No Scale



BRIDGE ENGINEER

SHEET 2 OF 6
 DETAILS OF 326' CONTINUOUS
 COMPOSITE PLATE GIRDER UNIT
 COUNTY ROAD 21

ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-14-07 FILENAME: bca0905x2.s12.dgn
 CHECKED BY: DMH DATE: 10-5-07 SCALE: AS NOTED
 DESIGNED BY: DMH DATE: 12-06

BRIDGE NO. A&B7219

DRAWING NO. 52061

PRINT DATE: 9/22/2017

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2014 Edition) with applicable Supplemental Specifications and Special Provisions.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications (4th Edition, 2007 with 2009 Interims).

MATERIAL AND STRENGTHS:

Class (S(AE)) Concrete $f'_c = 4,000$ psi
 Reinforcing Steel (Gr. 60, AASHTO M31 or M322, Type A) $f_y = 60,000$ psi
 Structural Steel (M 270, Gr. 50W) $F_y = 50,000$ psi
 Structural Steel (M 270, Gr. 36) $F_y = 36,000$ psi

CONCRETE:

Concrete shall be poured in the dry and all exposed corners to be chamfered $\frac{3}{4}$ " unless otherwise noted. All concrete shall be Class (S(AE)) with a minimum 28 day compressive strength $f'_c = 4,000$ psi.

The superstructure details shown are for use when removable deck forming is used and are the basis for measurement of Class (S(AE)) Concrete. See Std. Dwg. No. 55005 for allowable modifications and for tolerances when Permanent Steel Bridge Deck Forms are used.

Concrete in bridge superstructure shall be placed, consolidated and screeded off for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent.

The concrete deck shall be given a fine finish in accordance with Subsection 802.19 for Class 5 Tined Bridge Roadway Surface Finish. Movement of the finishing machine across new concrete shall be on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour. Sufficient concrete must be placed ahead of the strike-off to fully load the 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 rolling. A minimum of 72 hours shall elapse between completion of the slab and the pouring of the parapet rolling. Any rolling pours made before the entire slab has been placed and cured must be approved by the Engineer.

REINFORCING STEEL:

All reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A, with mill test reports and shall be epoxy coated. The reinforcing steel is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size to prevent displacement during the course of construction. The wire supports will not be paid for directly, but will be considered subsidiary to the item "Epoxy Coated Reinforcing Steel (Grade 60)".

STRUCTURAL STEEL:

All structural steel shall be AASHTO M 270, Grade 50W unless otherwise noted and shall be paid for as "Structural Steel in Plate Girder Spans (M 270, Gr. 50W)". Grade 50W steel shall not be painted. All exposed surfaces shall be cleaned in accordance with Subsection 807.84(e). Structural steel completely embedded in concrete may be AASHTO M 270, Gr. 36, Gr. 50, or Gr. 50W unless otherwise noted.

Drawings show general features of design only. Shop drawings shall be made in accordance with subsection 807.04, submitted and approval secured before fabrication is begun.

Requests for substitution of structural steel shapes shown with shapes of greater size must be submitted by the Contractor to the Engineer for approval. Steels of equal or greater strengths will be accepted only when shown on the approved shop drawings. Payment will be based on the basis of shapes shown in the plans, and no additional compensation will be made for any adjustments due to substitutions.

Girder web and flange 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 (M 270, Gr. 50W)".

All girders shall be blocked in their true position in the shop, in groups of a minimum of three (3) sections as specified in subsection 807.54(b)(2). Girders shall be blocked with webs horizontal. 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 part of the permanent records for this job. The component parts shall be match marked in this assembly and these marks shall be shown on the erection diagram. All girder dimensions are based on a temperature of 60 degrees F. A tolerance of $\frac{1}{4}$ " +/- is allowed for camber.

Web and flange plates for main members and flange field splice plates for main members shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses.

All welding that is to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval. If additional welds are required, whether permanent or temporary, a formal request with detailed drawings shall be submitted to the Engineer for approval; however, additional welds used for attaching false work 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.

Girder webs may be made by shop splicing with minimum lengths of 25 feet for sections. Flange plates longer than 50 feet may be made by shop splicing with minimum lengths of 25 feet for sections. No additional payment for welds for these splices will be made.

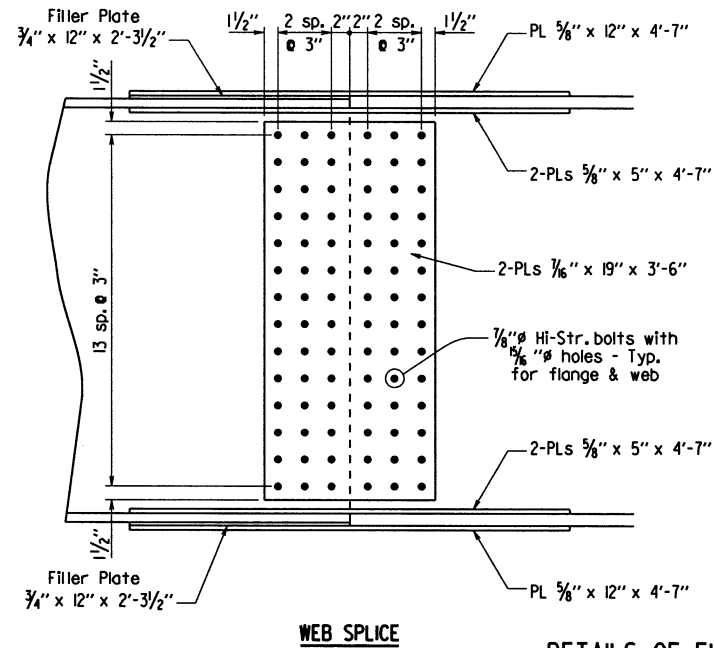
Groove welds in web and flange plates shall be Quality Control (Q.C.) tested by nondestructive testing, as required by the governing specifications in Subsection 807.23(b). Fillet welds at flange to web plate connections shall be Q.C. tested by the magnetic particle method. All Q.C. testing shall be considered subsidiary to the item "Structural Steel in Plate Girder Spans (M 270, Gr. 50W)".

Field connections shall be bolted with high-strength bolts and shall be $\frac{3}{4}$ " bolts unless otherwise noted. Open Holes shall be $\frac{5}{8}$ " unless otherwise noted. Holes for $\frac{3}{4}$ " high-strength bolts may be $\frac{5}{8}$ " if a washer is supplied for use under both the nut and head of the bolt. Bolts shall be placed with heads on the outside face of the exterior girder webs and on the bottom of the girder flanges.

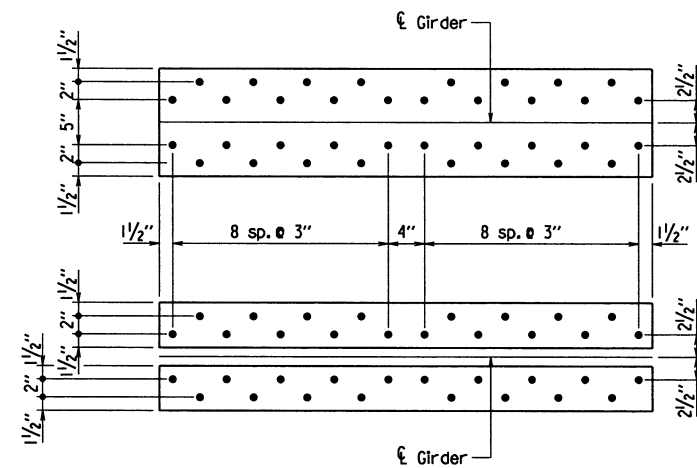
Cross-Frames shall be installed as girders are erected. All bolts in cross-frames and field splices shall be installed and tightened in accordance with Subsection 807.71 prior to pouring the concrete deck.

All stud shear connectors shall be granular flux filled, solid fluxed, or equal and shall be automatically end welded in accordance with recommendations of the manufacturer.

DATE REVISION	DATE FILMED	DATE REVISION	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	CA0905	102	60	
				A&B7219 - 326 FT. UNIT - 52062				



WEB SPICE



FLANGE SPICE

All splice plates shall be AASHTO M 270, Gr. 50W

DETAILS OF FIELD SPICE

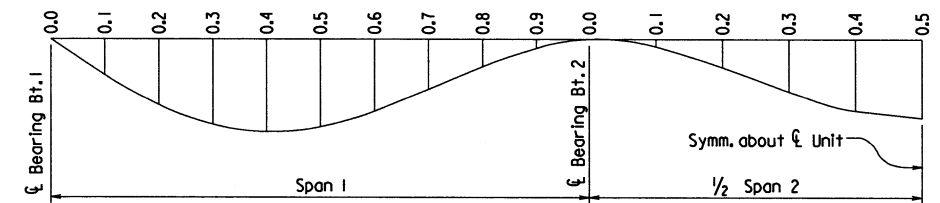
No Scale

TABLE OF DEAD LOAD DEFLECTIONS (INCHES)

Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet	
		Interior	Exterior	Interior	Exterior	Interior	Exterior
Span 1	0	0	0	0	0	0	0
	0.1	0.103	0.097	0.652	0.555	0.690	0.615
	0.2	0.188	0.177	1.193	1.016	1.262	1.125
	0.3	0.243	0.229	1.548	1.319	1.638	1.462
	0.4	0.263	0.247	1.680	1.430	1.778	1.586
	0.5	0.247	0.232	1.586	1.351	1.679	1.499
	0.6	0.201	0.189	1.304	1.110	1.382	1.233
	0.7	0.137	0.129	0.906	0.771	0.960	0.857
	0.8	0.073	0.068	0.499	0.424	0.529	0.471
	0.9	0.022	0.020	0.167	0.141	0.177	0.156
Span 2	0	0	0	0	0	0	0
	0.1	0.031	0.030	0.120	0.104	0.130	0.119
	0.2	0.099	0.095	0.467	0.402	0.501	0.455
	0.3	0.178	0.170	0.886	0.760	0.947	0.857
	0.4	0.241	0.230	1.229	1.054	1.312	1.185
	0.5	0.264	0.252	1.358	1.165	1.449	1.309

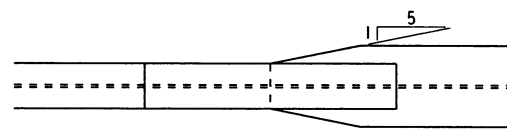
Table is symmetrical about \bar{c} Unit

Note:
 Camber for Dead Load Deflection plus Vertical curve $\pm \frac{1}{4}$ " tolerance.
 Deflections shown are from a chord from \bar{c} Bearing to \bar{c} Bearing.
 Vertical curve corrections not included.



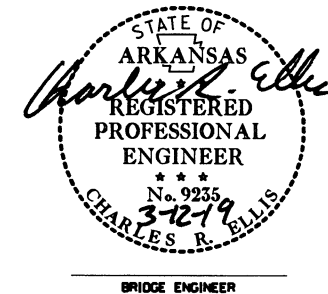
DEAD LOAD DEFLECTION DIAGRAM

No Scale



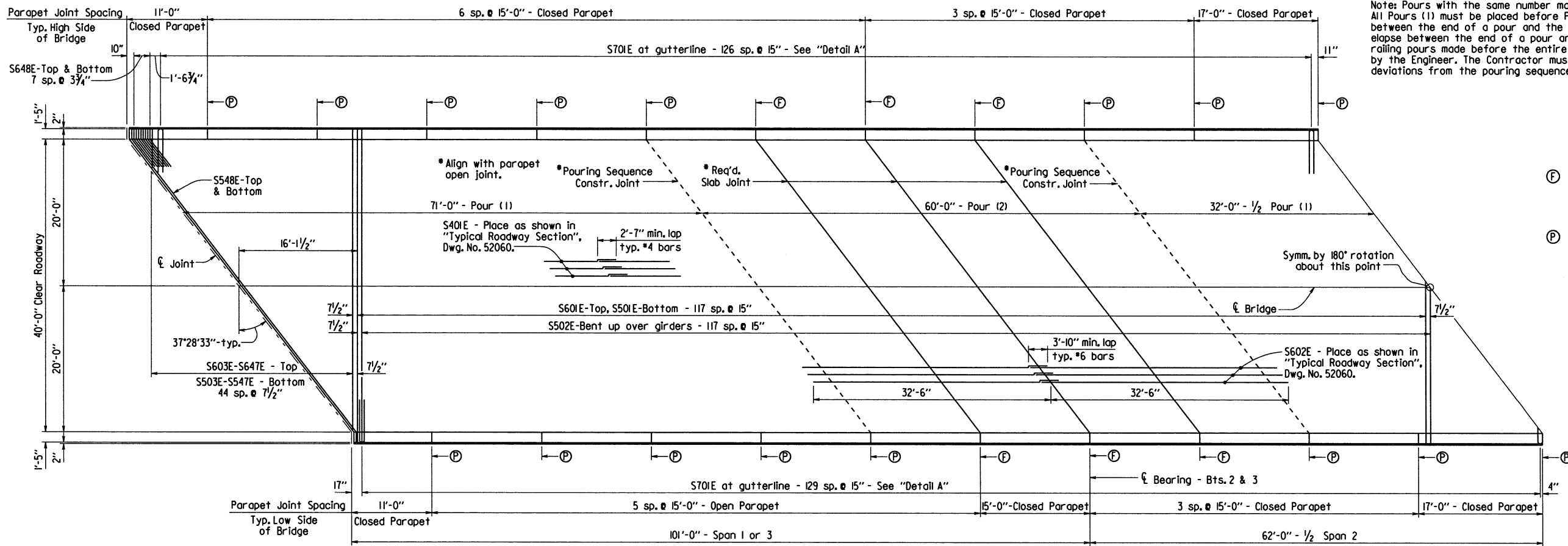
FIELD SPICE AT UNEQUAL BOTTOM FLANGE WIDTHS

No Scale



SHEET 3 OF 6
 DETAILS OF 326' CONTINUOUS
 COMPOSITE PLATE GIRDER UNIT
 COUNTY ROAD 21
 ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: KDH DATE: 2-19-07 FILENAME: bca0905x2.s13.dgn
 CHECKED BY: WRE DATE: 10-3-07 SCALE: AS NOTED
 DESIGNED BY: DMH DATE: 12-06
 BRIDGE NO. A&B7219 DRAWING NO. 52062

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.	CA0905	103	160	
				A&B7219 - 326 FT. UNIT - 52063				



Note: Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between the end of a pour and the start of an adjacent pour. Any railing pours made before the entire slab unit has been placed must be approved by the Engineer. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

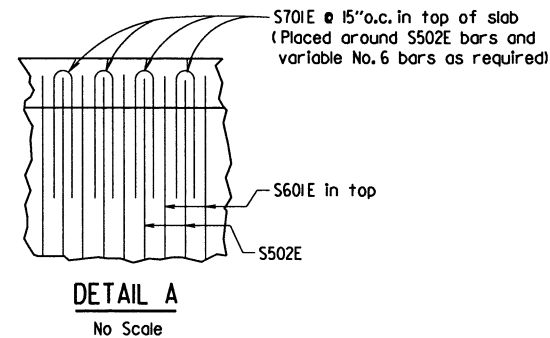
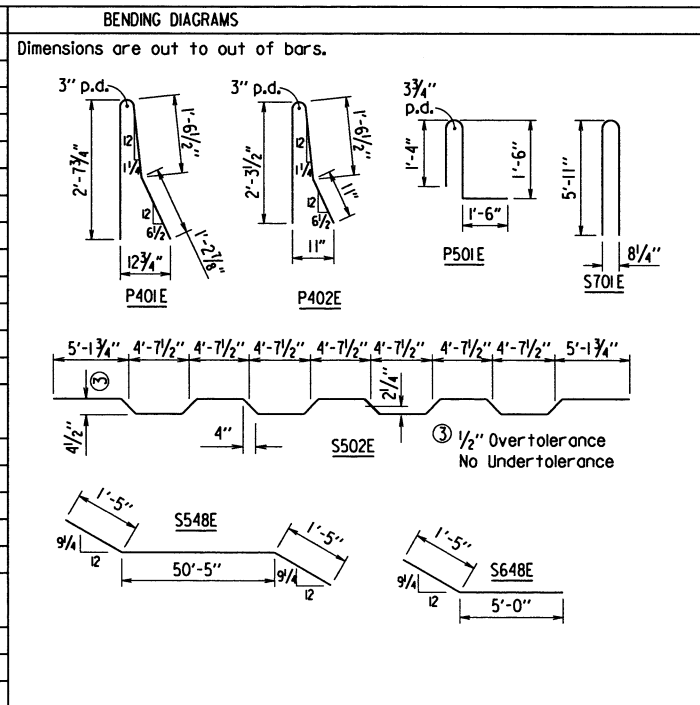
- ⓕ Full-Depth Parapet Joint (1/4" to 1" max.) Stop 4" from top of slab. See Dwg. No. 52064.
- ⓐ Partial-Depth Parapet Joint (1/4" to 1" max.) Stop 1'-2" from top of slab. See Dwg. No. 52064.

REINFORCING PLAN & DECK POURING SEQUENCE

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

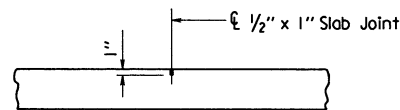
BAR LIST

MARK	NO. REQ'D.	LENGTH	P.D.
S401E	1107	38'-6"	Str.
P401E	1224	5'-6"	2"
P402E	80	4'-10"	2"
P403E	48	30'-4"	Str.
P404E	140	14'-8"	Str.
P405E	12	16'-8"	Str.
P406E	12	10'-8"	Str.
P407E	24	33'-0"	Str.
S501E	236	42'-10"	Str.
S502E	235	43'-6"	3"
S503E-S547E	2 each	Var. 5'-3" to 4'-2"	Str.
S548E	4	53'-2"	3 3/4"
P501E	1224	4'-6"	3 3/4"
S601E	236	42'-10"	Str.
S602E	184	34'-5"	Str.
S603E-S647E	2 each	Var. 5'-3" to 4'-2"	Str.
S648E	32	6'-5"	4 1/2"
S701E	514	12'-1"	6 1/2"

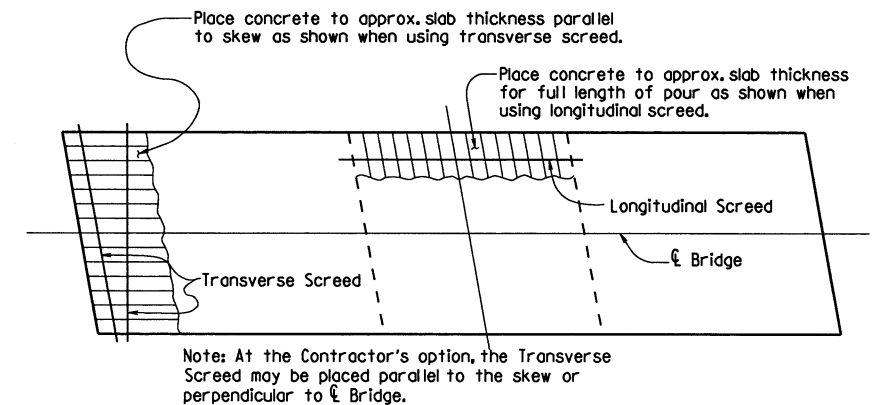


DETAIL A
No Scale

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 (S1AE) Concrete-Bridge. Slab joints shall extend to the outside edge of the deck slab. Slab joints shall be installed before the parapet railing is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joint without damage to the slab. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations. The joint sealer shall extend across the deck slab (gutterline to gutterline). Slab joints shall align with parapet open joints.



SLAB JOINT DETAIL
No Scale



CONCRETE PLACEMENT PROCEDURE

No Scale



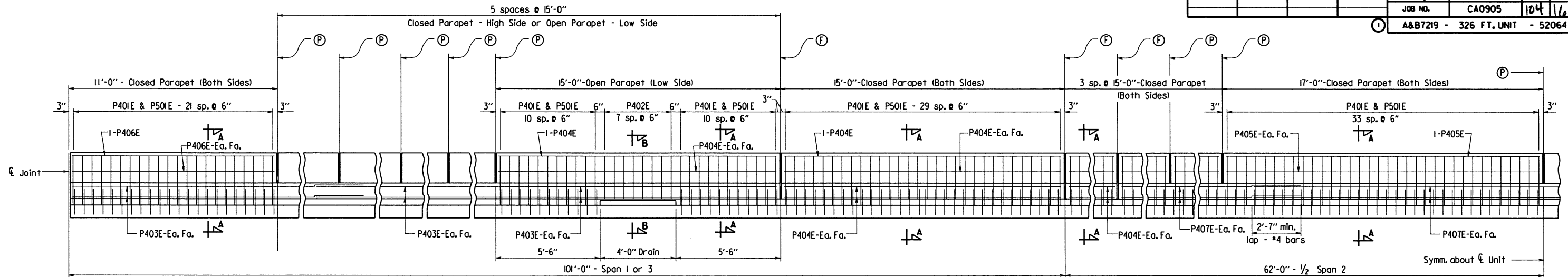
SHEET 4 OF 6
DETAILS OF 326' CONTINUOUS
COMPOSITE PLATE GIRDER UNIT
COUNTY ROAD 21

ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.
DRAWN BY: KDH DATE: 2-26-07 FILENAME: bcc0905x2.s14.dgn
CHECKED BY: CRE DATE: 10-30-07 SCALE: AS NOTED
DESIGNED BY: DMH DATE: 12-06
BRIDGE NO. A&B7219 DRAWING NO. 52063

PRINT DATE: 9/22/2017

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.	CA0905	104	160	
				A&B729 - 326 FT. UNIT - 52064				

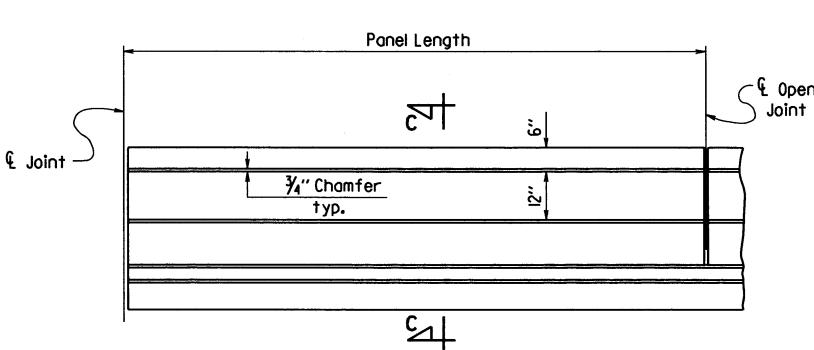


Ⓡ Full-Depth Parapet Joint (1/4" to 1" max.) as shown in "Reinforcing Plan & Deck Pouring Sequence" Dwg. No. 52063. Stop 4" from top of slab.

Ⓢ Partial-Depth Parapet Joint (1/4" to 1" max.) as shown in "Reinforcing Plan & Deck Pouring Sequence" Dwg. No. 52063. Stop 1'-2" from top of slab.

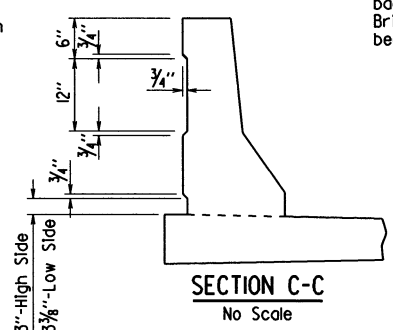
DETAILS OF PARAPET RAIL

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



DETAILS OF PARAPET ENHANCEMENT

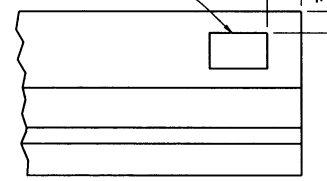
No Scale



SECTION C-C

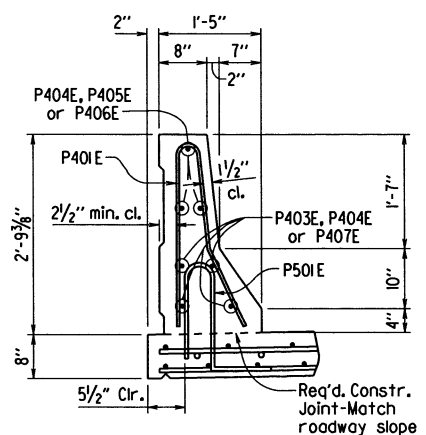
No Scale

Place Type D Bridge Name Plate on front face of span rail approx. 2'-0" from front face of backwall on left side at end of Bridge A and right side at beginning of Bridge B.



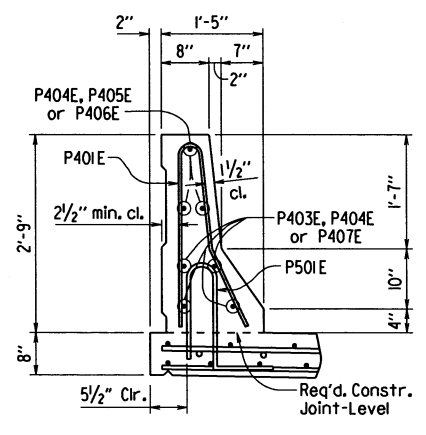
NAME PLATE DETAIL

No Scale



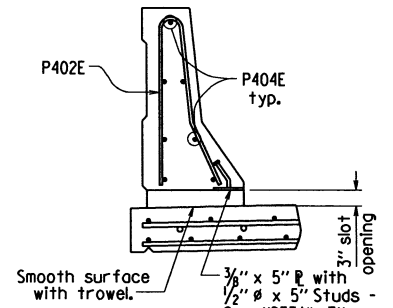
SECTION A-A

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



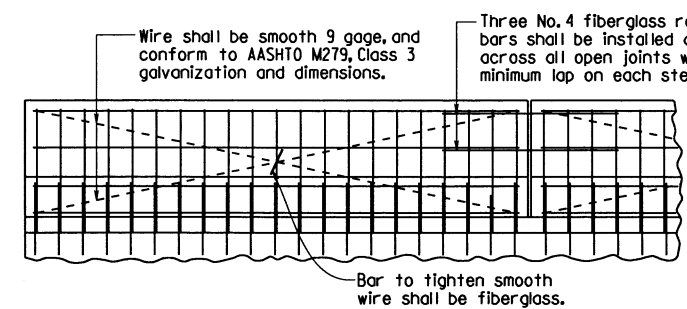
SECTION A-A

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



SECTION B-B

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

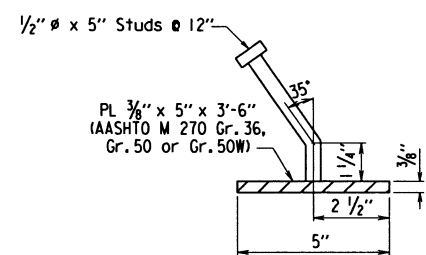


DETAILS OF OPTIONAL SLIPFORMING OF CONCRETE PARAPET RAIL

No Scale

All panels shall be braced as required 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. Unless otherwise noted, exposed surfaces may be given a light brush finish or a Class 3, Textured Coating Finish, in place of the Class 2, Rubbed Finish. See the Job SP "Textured Coating Finish".

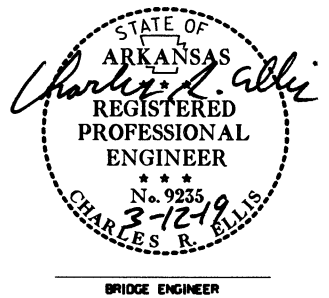


DETAIL Z

No Scale

NOTE: The surfaces of the 3/8" plates which will not be in contact with concrete shall be painted with aluminum epoxy paint 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)".

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 and shall be measured and paid for as "Structural Steel in Plate Girder Spans (M270, Gr. 50W)".



SHEET 5 OF 6
 DETAILS OF 326' CONTINUOUS
 COMPOSITE PLATE GIRDER UNIT
 COUNTY ROAD 21
 ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.
 DRAWN BY: KDH DATE: 2-28-07 FILENAME: bca0905x2.sj5.dgn
 CHECKED BY: CRE DATE: 10-5-07 SCALE: AS NOTED
 DESIGNED BY: DMH DATE: 12-06
 BRIDGE NO. A&B729 DRAWING NO. 52064

PRINT DATE: 3/7/2018

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.	CA0905	105160		
				A&B7219 - 326 FT. UNIT		- 52065		

SILICONE JOINT DATA

Bent Number	"A" Width Perpendicular to Joint at 24 Hour Average Temperature (1) Of:			"B" Perpendicular to Joint at 60°F	"D"
	40°F	60°F	80°F		
1 & 4	2 1/8"	2 1/2"	2 3/8"	2 1/2"	5"

① The temperature used to set the joint opening shall be the approximate average air temperature during the 24 hour period immediately before the bolts are tightened. The Engineer shall establish the temperature. Interpolation of the table may be necessary.

Notes: The temperature limitations recommended by the sealant manufacturer shall be observed.

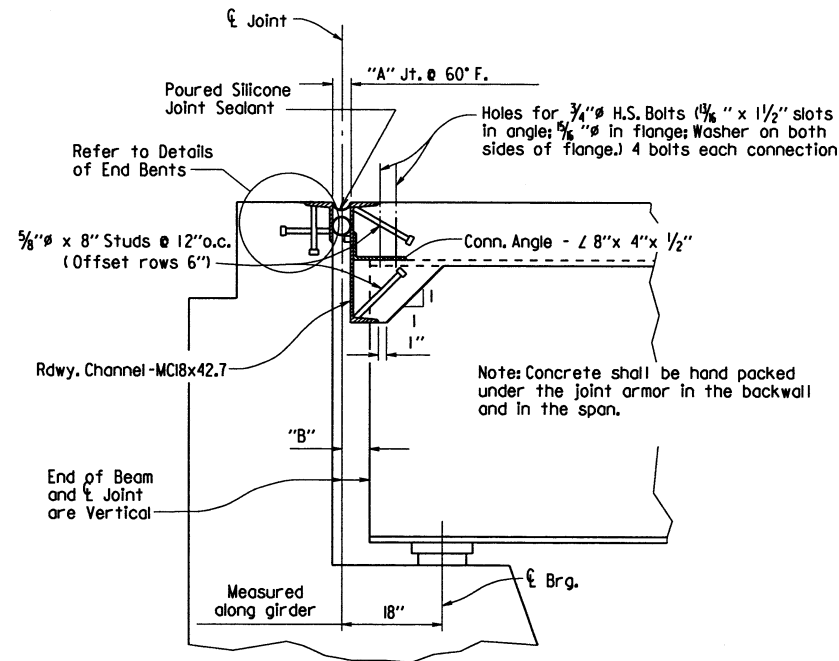
The sealant shall be installed only when the average 24 hour air temperature is between 40°F and 80°F.

② BACKER ROD NOTE:

Use an appropriately sized backer rod at the depth shown in the manufacturer's literature based on the joint width at the time of sealing.

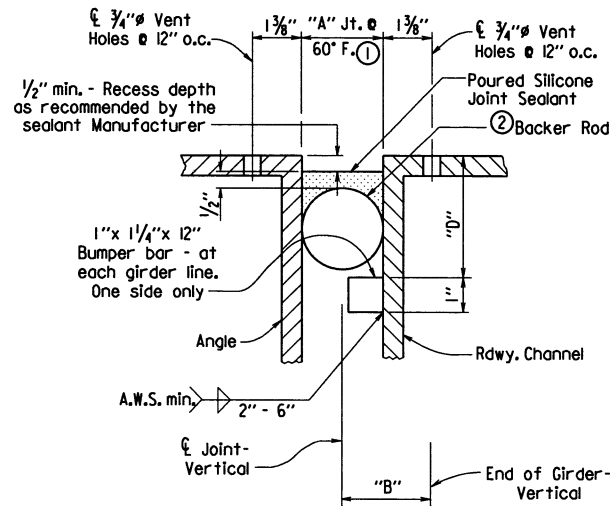
Except as noted, do not install more backer rod that can be sealed in the same day.

The Contractor shall verify separation of the backer rod from the joint material after the joint material has set.



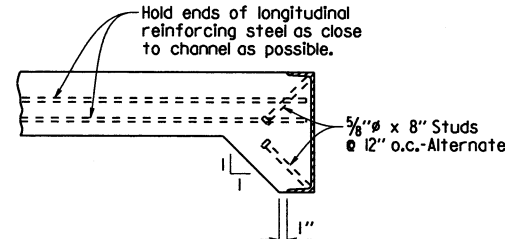
SECTION THRU JOINT AT BENTS 1 & 4

Scale: 1" = 1'-0"



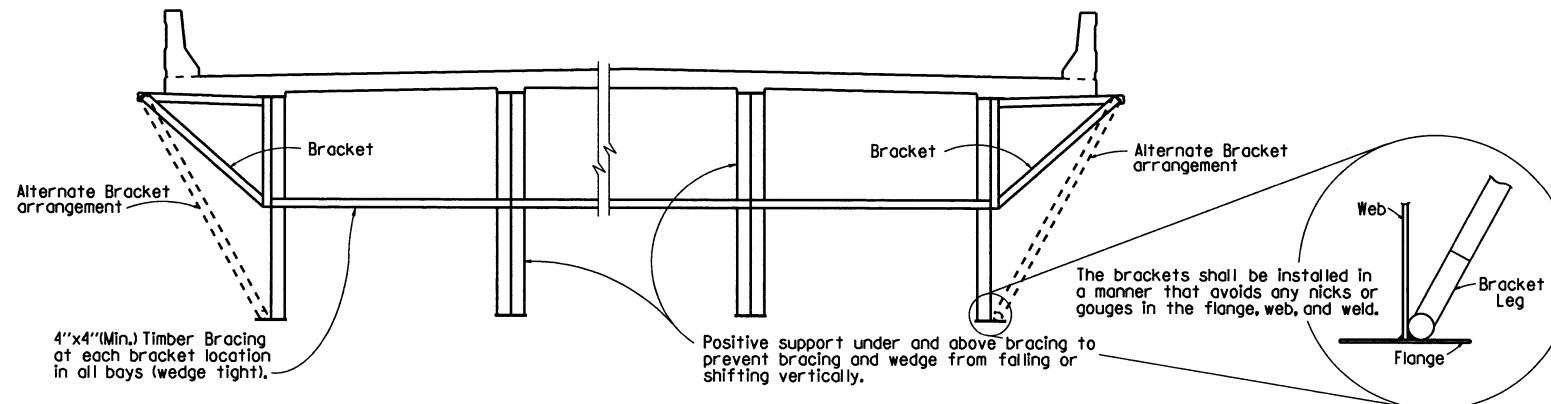
DETAIL OF POURED SILICONE JOINT SEAL

No Scale



ALTERNATE ANCHOR DETAILS

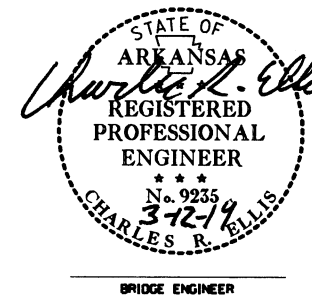
No Scale



Note: 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 inch x 6 inch 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 intermediate connection plates shown on Drawing No. 52060. 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 (M 270, Gr. 50W)."

SCREED RAIL SUPPORT

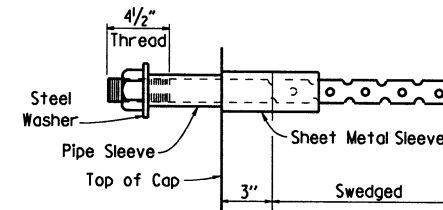
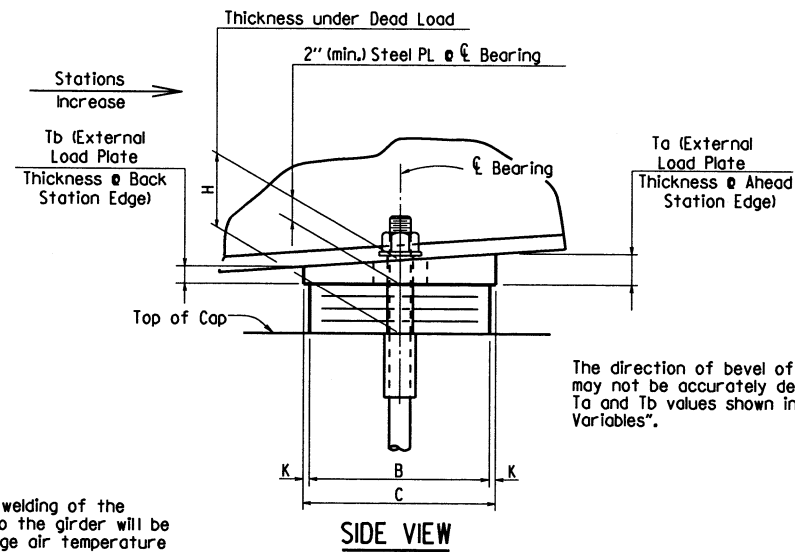
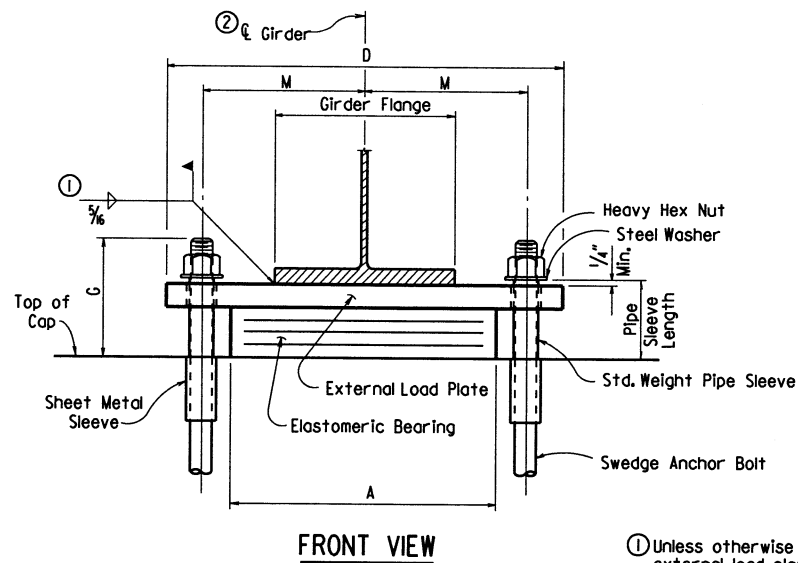
N.T.S.



SHEET 6 OF 6
 DETAILS OF 326' CONTINUOUS
 COMPOSITE PLATE GIRDER UNIT
 COUNTY ROAD 21
 ROUTE SEC.
 ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 8-27-07 FILENAME: dca0905x2.s16.dgn
 CHECKED BY: MRE DATE: 10-3-07 SCALE: NONE
 DESIGNED BY: DMH DATE: 12-07
 BRIDGE NO. A&B7219 DRAWING NO. 52065

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.	CA0905	106	160	
				A&B7219 - ELASTO. BRGS. - 52066				



ANCHOR BOLT DETAIL

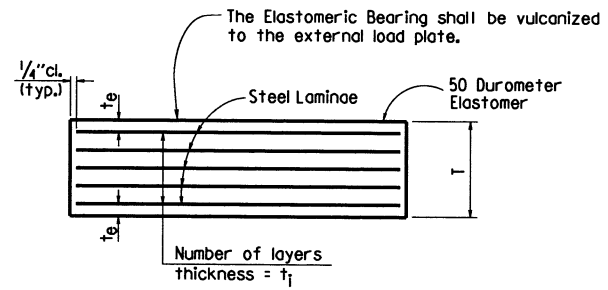
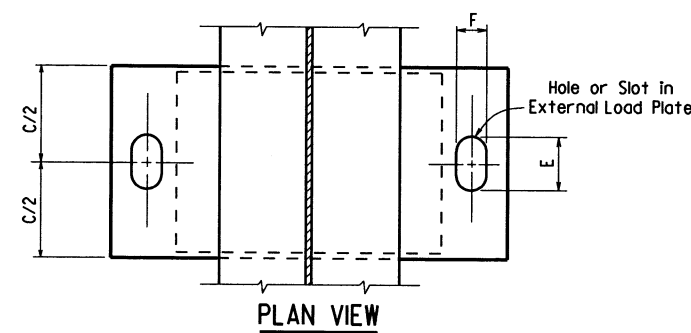
NOTE: Anchor Bolts may be cast in place or drilled and grouted into place. If Anchor Bolts are to be cast in place, the Galvanized Sheet Metal Sleeves will not be required.

If Anchor Bolts are to be drilled and grouted in place, the Galvanized Sheet Metal Sleeves shall be cast in place as shown. Sleeves shall be dry packed with styrofoam, urethane foam or approved equal prior to pouring of concrete. After pouring of the cap and prior to erection of Structural Steel, the dry pack shall be removed and holes for the anchor bolts shall be accurately drilled into the masonry. Bolts placed in drilled holes shall be accurately set and fixed using a OPL 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 Unless otherwise approved by the Engineer, welding of the 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 external load plate are positioned to center on the anchor bolts; and 3) no horizontal deformation of the elastomeric pad is evident. If welding at other temperatures is required, the Engineer will provide adjustment data.

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 ϵ Elastomeric pad shall be aligned with ϵ Girder.



t_e = thickness of elastomer cover on top and bottom of pad
 t_1 = thickness of elastomer between steel laminae
 N = number of elastomer layers of thickness t_1

ELASTOMERIC BEARING

GENERAL NOTES

Elastomeric Bearings shall conform to Section 808 and shall be paid for at the unit price bid for "Elastomeric Bearings".

External load plates and shear blocks shall conform to AASHTO M 270, Grade 50W. 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 shall be cleaned before vulcanizing to the elastomeric bearing. The surface in contact with the elastomeric bearing shall be cleaned in accordance with Subsection 808.03. Other surfaces shall be blast cleaned in accordance with Subsection 807.84(e) for unpainted Grade 50W steel.

Anchor Bolts, washers and nuts shall conform to Subsection 807.07. The anchor bolt grade of steel shall be as specified in the "Table of Fabricator Variables". Indentations shall be circular with rounded bottoms and staggered as shown in the details.

Pipe sleeves, anchor Bolts, washers and nuts shall be paid for at the unit price bid for "Structural Steel in Plate Girder Spans (M 270, Gr. 50W)". External load plates will not be measured or paid for separately, but will be considered incidental to the unit price bid for "Elastomeric Bearings".

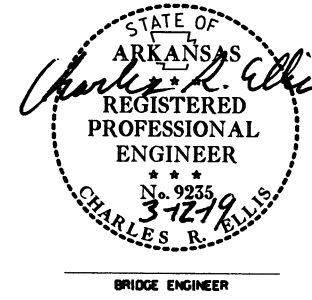
Bearings shall be seated in accordance with Subsection 808.08. This work and materials are considered subsidiary to the item "Elastomeric Bearings" and will not be paid for directly.

TABLE OF FABRICATOR VARIABLES

BRIDGE NO.	LOCATION		BEARING TYPE	NO. of BEARINGS 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_1	t_e	NO. & THICKNESS OF STEEL LAMINAE	T	C	D	E	F	K	M	T_0	T_b	ANCHOR BOLT		PIPE SLEEVE SIZE (# x L)	SHEET METAL SLEEVE SIZE (# x L)	STEEL WASHER SIZE (O.D.)	
																								(# x L)	GRADE				
A7219	1	326'	All	Exp.	5	152	9 1/4"	6 5/8"	15"	15"	6	1/2"	5/8"	7 @ 12 Gauge	4 3/8"	16"	25"	4 7/8"	2 1/4"	1/2"	9 3/4"	2.03"	1.97"	1 1/2" # x 26"	55	1 1/2" # x 6 3/4"	3" # x 6"	3" #	
	2	326'	All	Fix	5	370	9 1/2"	5 5/8"	19"	13 1/2"	5	1/2"	5/8"	6 @ 12 Gauge	3 3/4"	14 1/2"	32"	3 3/4"	3 3/4"	1/2"	12 1/2"	2.06"	1.94"	2 1/2" # x 36"	55	3" # x 6"	4" # x 6"	4 1/2" #	
	3	326'	All	Fix	5	370	9 1/2"	5 5/8"	19"	13 1/2"	5	1/2"	5/8"	6 @ 12 Gauge	3 3/4"	14 1/2"	32"	3 3/4"	3 3/4"	1/2"	12 1/2"	2.10"	1.90"	2 1/2" # x 36"	55	3" # x 6"	4" # x 6"	4 1/2" #	
	4	326'	All	Exp.	5	152	9 1/4"	6 5/8"	15"	15"	6	1/2"	5/8"	7 @ 12 Gauge	4 3/8"	16"	25"	4 7/8"	2 1/4"	1/2"	9 3/4"	2.14"	1.86"	1 1/2" # x 26"	55	1 1/2" # x 6 3/4"	3" # x 6"	3" #	
B7219	1	326'	All	Exp.	5	152	9 1/4"	6 5/8"	15"	15"	6	1/2"	5/8"	7 @ 12 Gauge	4 3/8"	16"	25"	4 7/8"	2 1/4"	1/2"	9 3/4"	2.05"	1.95"	1 1/2" # x 26"	55	1 1/2" # x 6 3/4"	3" # x 6"	3" #	
	2	326'	All	Fix	5	370	9 1/2"	5 5/8"	19"	13 1/2"	5	1/2"	5/8"	6 @ 12 Gauge	3 3/4"	14 1/2"	32"	3 3/4"	3 3/4"	1/2"	12 1/2"	2.08"	1.92"	2 1/2" # x 36"	55	3" # x 6"	4" # x 6"	4 1/2" #	
	3	326'	All	Fix	5	370	9 1/2"	5 5/8"	19"	13 1/2"	5	1/2"	5/8"	6 @ 12 Gauge	3 3/4"	14 1/2"	32"	3 3/4"	3 3/4"	1/2"	12 1/2"	2.12"	1.88"	2 1/2" # x 36"	55	3" # x 6"	4" # x 6"	4 1/2" #	
	4	326'	All	Exp.	5	152	9 1/4"	6 5/8"	15"	15"	6	1/2"	5/8"	7 @ 12 Gauge	4 3/8"	16"	25"	4 7/8"	2 1/4"	1/2"	9 3/4"	2.16"	1.84"	1 1/2" # x 26"	55	1 1/2" # x 6 3/4"	3" # x 6"	3" #	

③ Maximum Design Load = Service I Limit State

Tabular Data by : KDH Date: 8-28-07
Checked by : CRE Date: 10-5-07
Designed by : DMH Date: 12-06



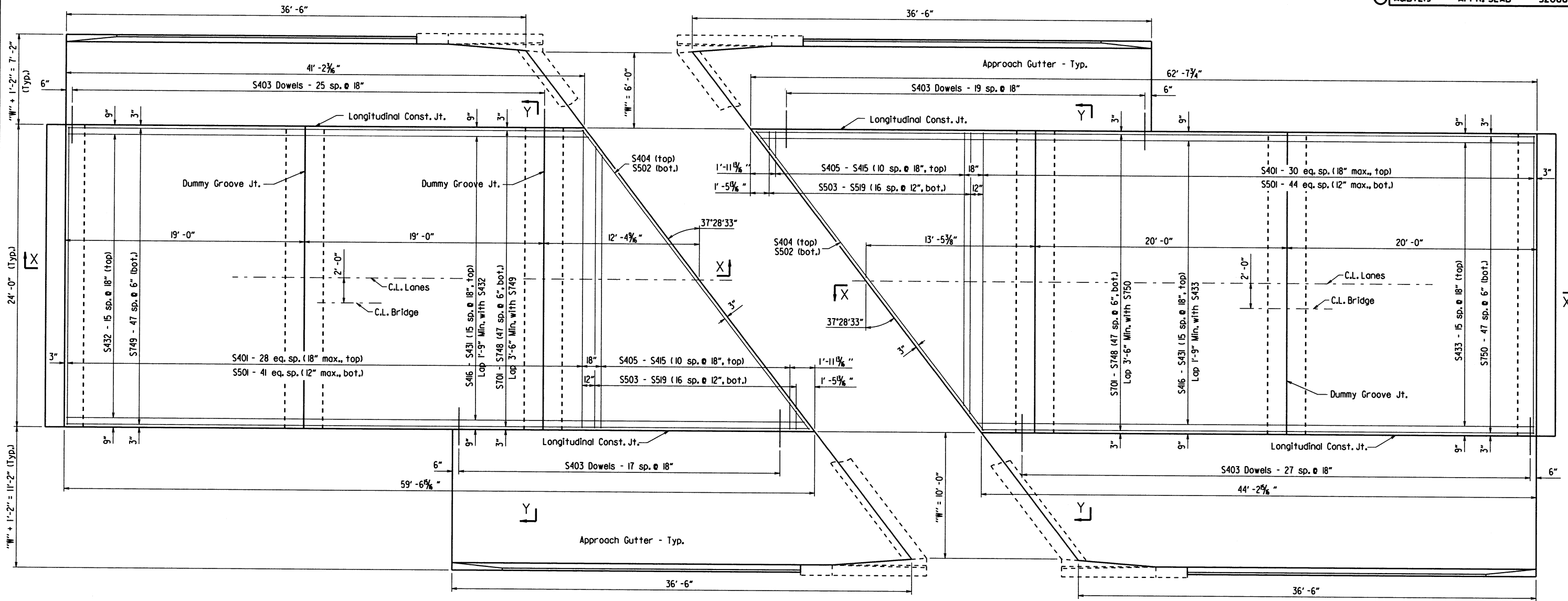
DETAILS OF ELASTOMERIC BEARINGS
COUNTY ROAD 21
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MJT DATE: Nov. 12, 96 FILENAME: bca0905m2_el.dgn
CHECKED BY: AMS DATE: Nov. 15, 96 SCALE: NONE
DESIGNED BY: Sid DATE: _____
BRIDGE NO. A&B7219 DRAWING NO. 52066

PRINT DATE: 9/22/2017

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.		CA0905	107	160

① A&B7219 - APPR. SLAB - 52066A



PLAN - APPROACH SLAB

Beginning of Bridge B Shown
End of Bridge A Similar
Scale: 1/4" = 1'-0"

PLAN - APPROACH SLAB

End of Bridge B Shown
Beginning of Bridge A Similar
Scale: 1/4" = 1'-0"

Note: Surface finish for Approach Slabs shall match that used on the bridge deck.

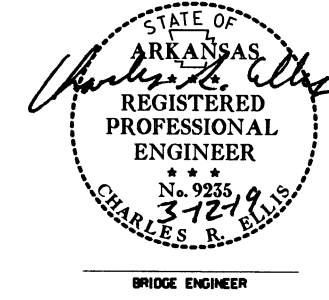
BAR LIST

Mark	No. Req'd.		Length
	END BR. A BEG. BR. B	BEG. BR. A END BR. B	
S401	41	43	23'-8"
S402	72	72	2'-7"
S403	44	48	3'-0"
S404	1	1	29'-9"
S405-S415	1 Each	1 Each	21'-8" to 2'-1"
S416-S431	1 Each	1 Each	25'-5" to 8'-2"
S432	16	--	35'-0"
S433	--	16	38'-1"
S501	42	45	23'-8"
S502	1	1	29'-9"
S503-S519	1 Each	1 Each	22'-4" to 1'-5"
S701-S748	1 Each	1 Each	27'-7" to 9'-6"
S749	48	--	35'-0"
S750	--	48	38'-1"

TABLE OF QUANTITIES FOR ONE APPROACH SLAB

	Slab Width	Reinforcing Steel (lbs.)	Concrete (Cu. Yds.)
END BR. A, BEG. BR. B	24'-0"	6278	52.43
BEG. BR. A, END BR. B	24'-0"	6374	53.20

Note: For General Notes, cross-sections, and additional details, see Dwg. No. 52052B.
For details of Approach Gutters, See Std. Dwg. No. 55030C.

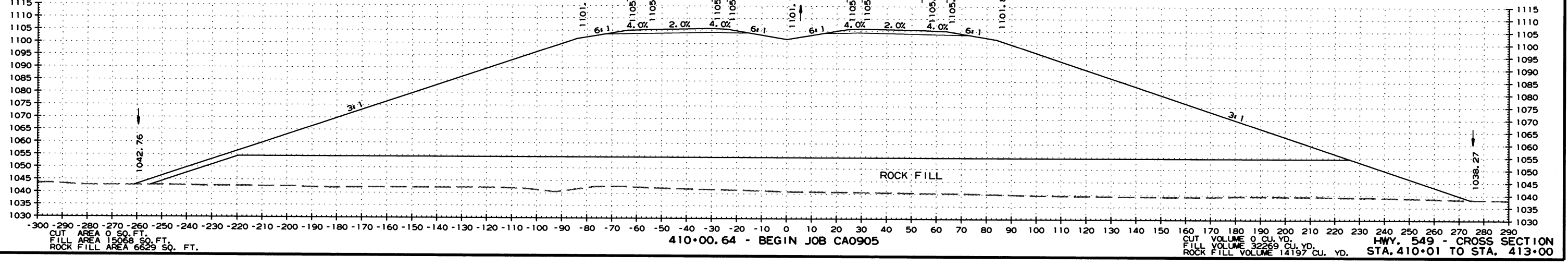
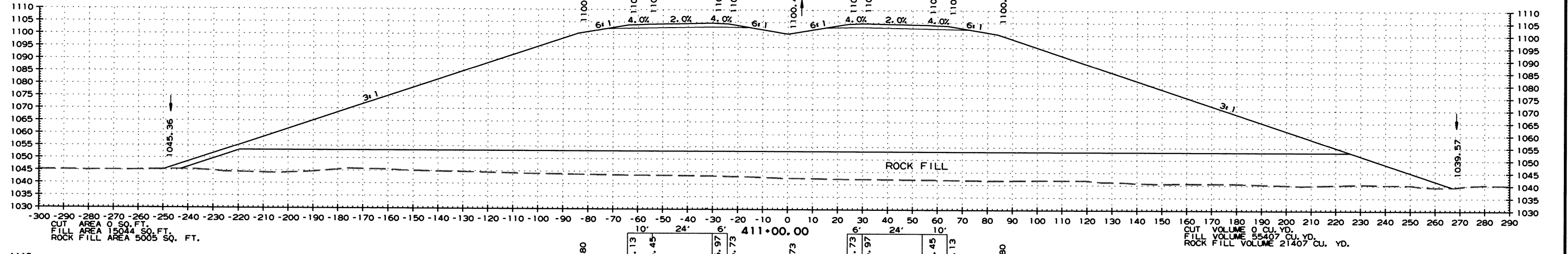
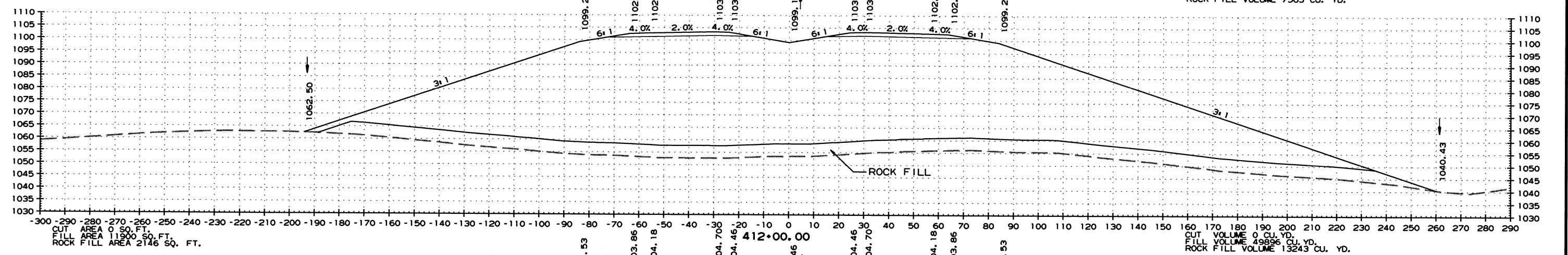
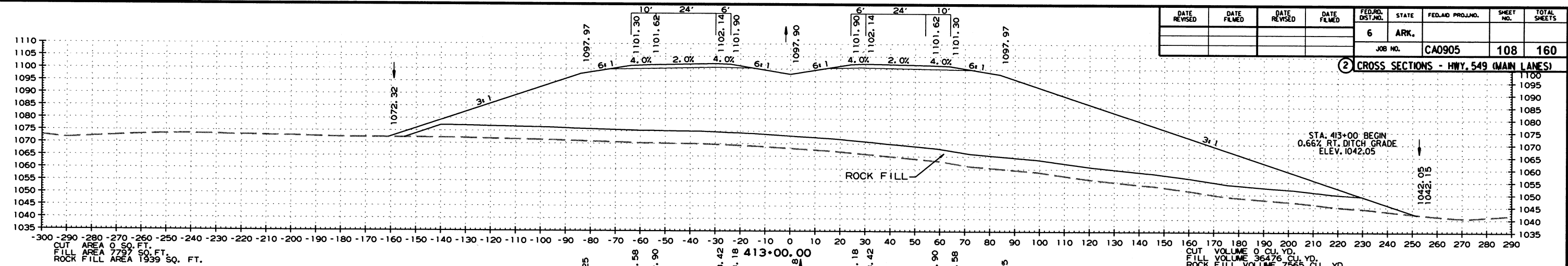


DETAILS OF TYPE SPECIAL
APPROACH SLAB
COUNTY ROAD 21
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.
DRAWN BY: CRE DATE: 8/10/09 FILENAME: bca0905m2.asl.dgn
CHECKED BY: SWP DATE: 10-2-17 SCALE: As Shown
DESIGNED BY: STD DATE: SCALE: As Shown
BRIDGE NO. A&B7219 DRAWING NO. 52066A

PRINT DATE: 9/22/2017

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.	CA0905		108	160

② CROSS SECTIONS - HWY. 549 (MAIN LANES)

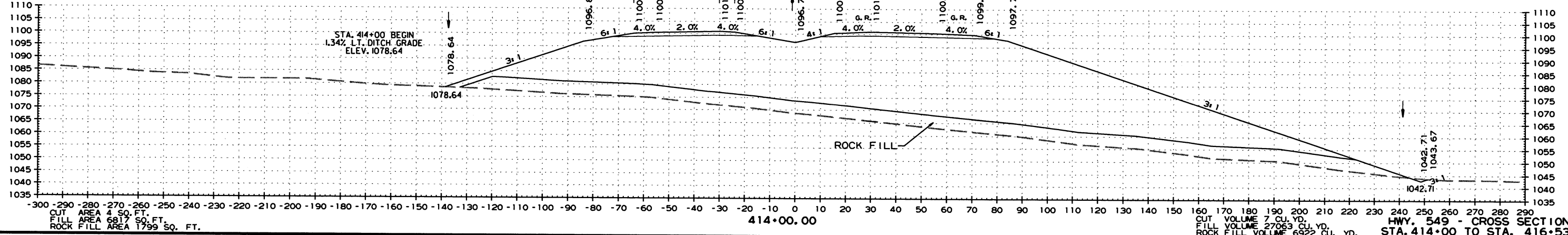
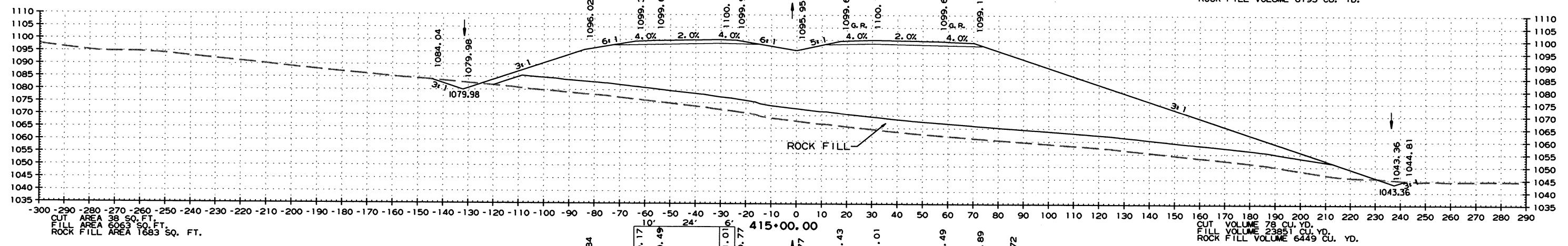
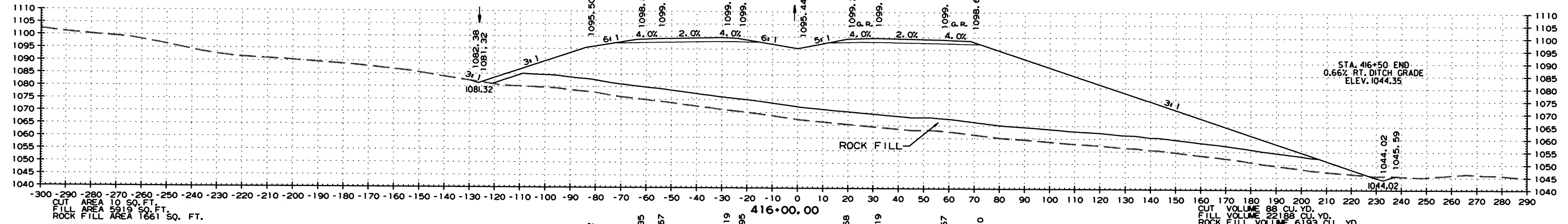
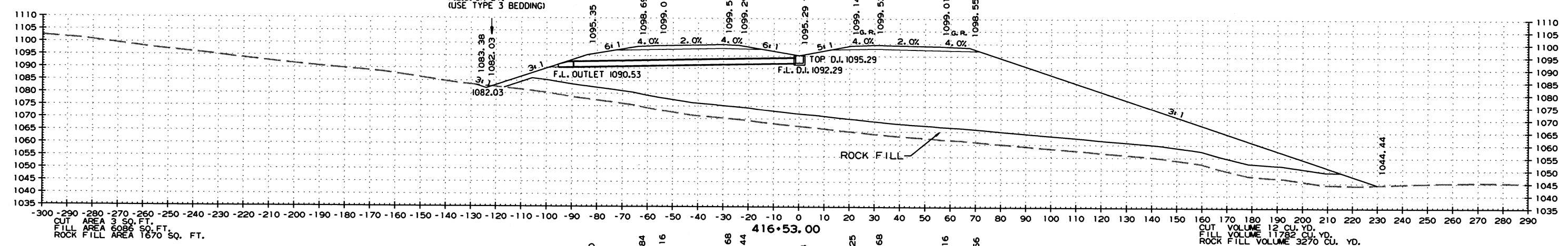


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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. CA0905							109	160

2 CROSS SECTIONS - HWY. 549 (MAIN LANES)

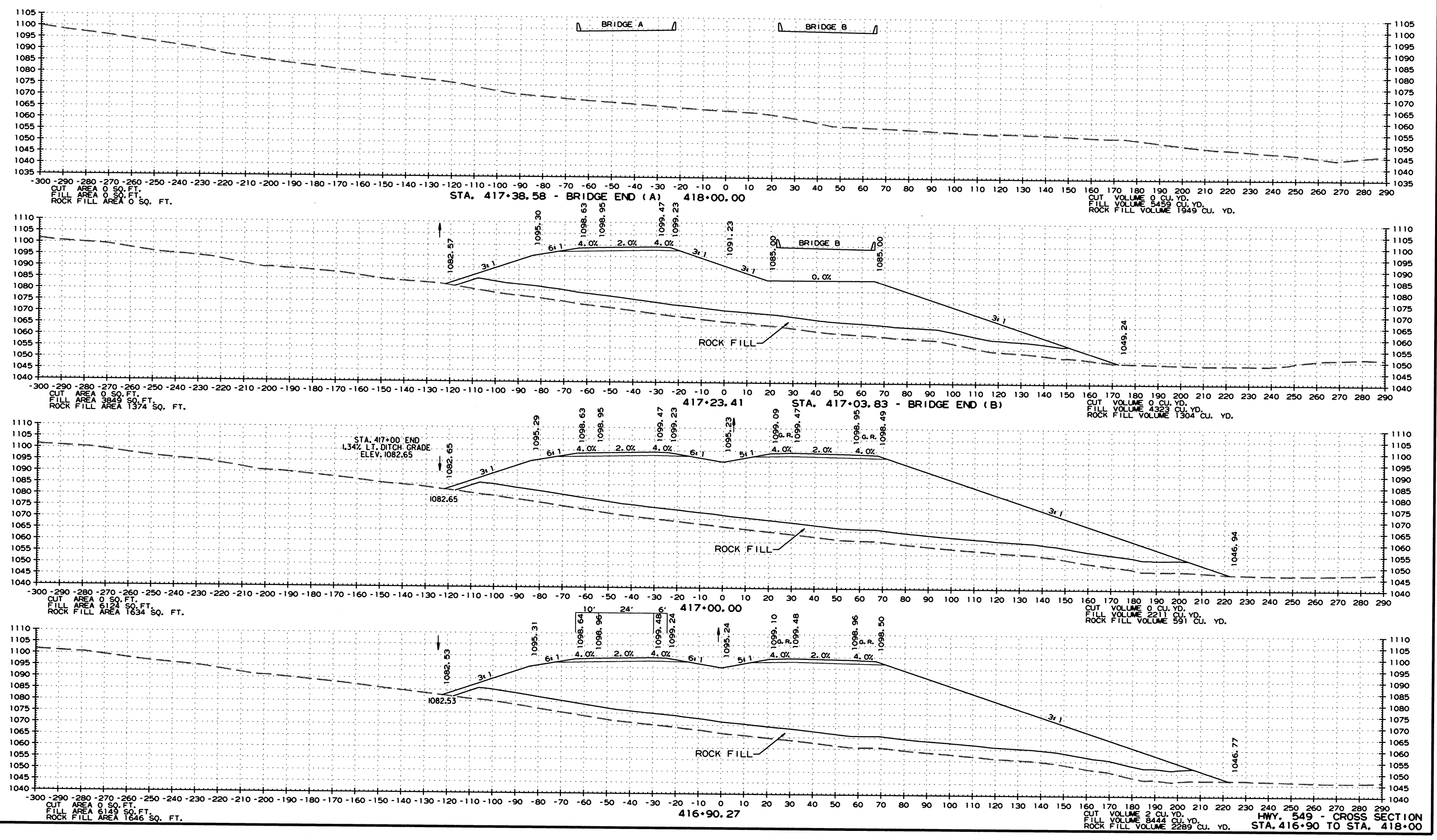
STA. 416+53 CONSTRUCT
TYPE "RM" DROP INLET IN MEDIAN
4'-0" x 3'-0" x H = 3'-0" W/
24" x 88" R.C. PIPE OUTLET (CL. III)
F.E.S. ON LT.
(USE TYPE 3 BEDDING)



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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	CA0905		110	160

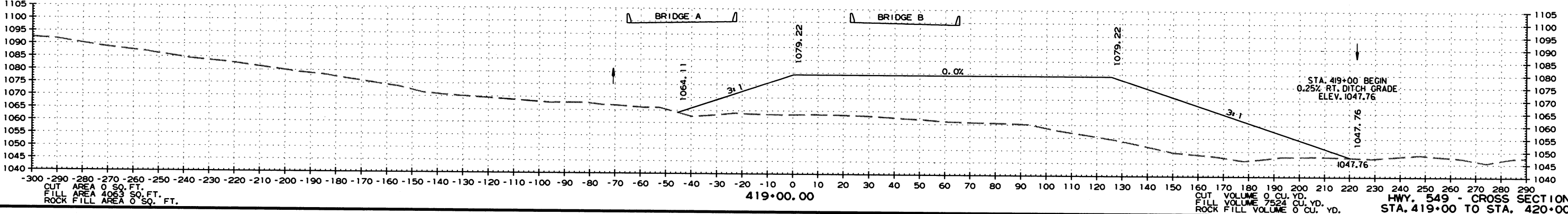
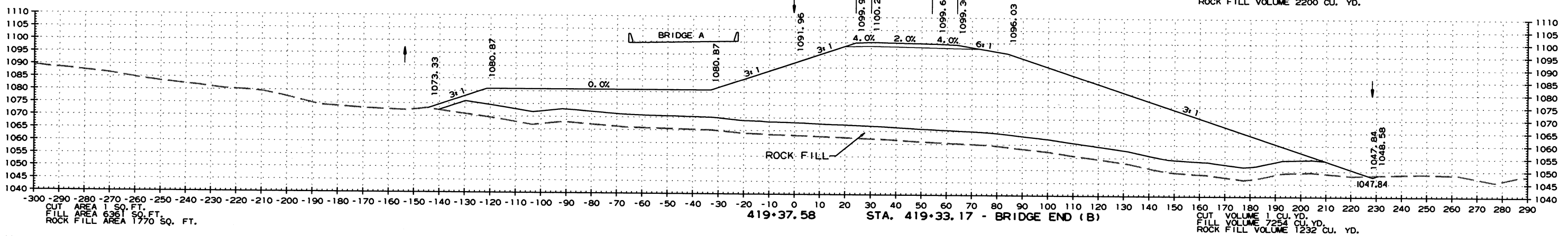
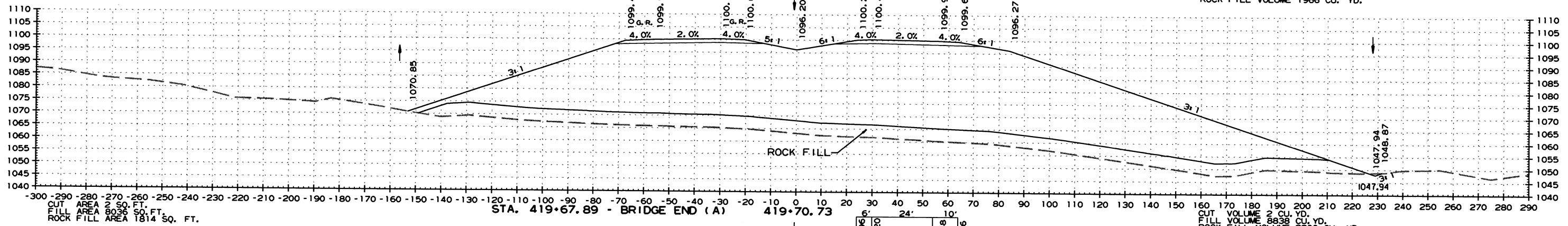
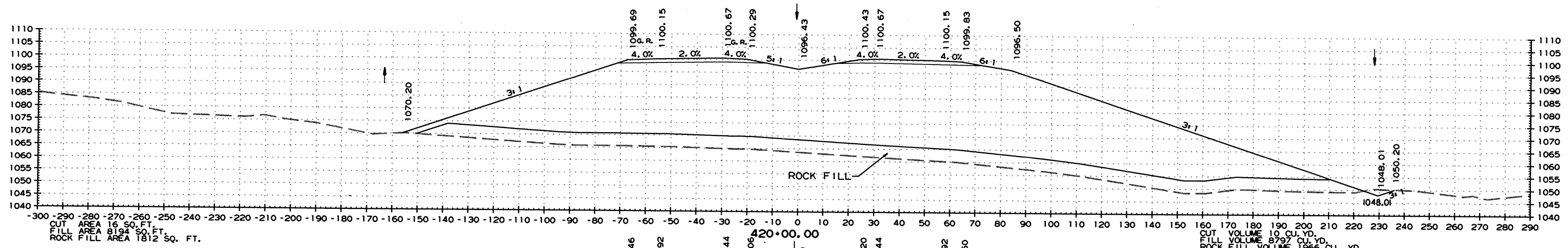
2 CROSS SECTIONS - HWY. 549 (MAIN LANES)



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RCA0905.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. CA0905							111	160

2 CROSS SECTIONS - HWY. 549 (MAIN LANES)

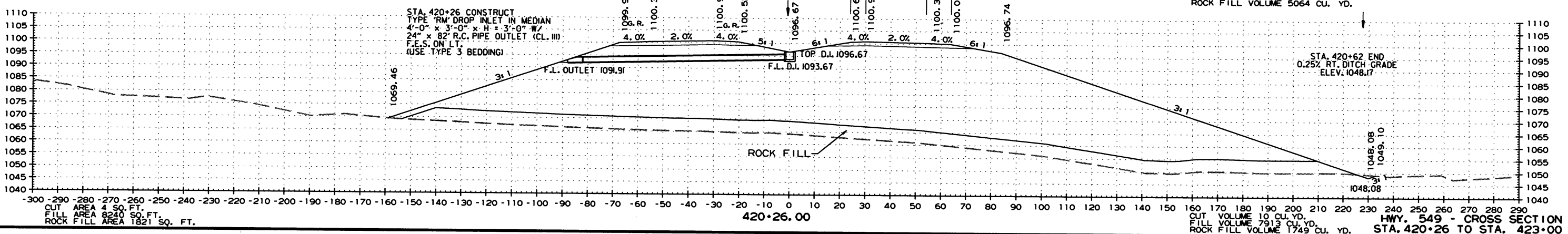
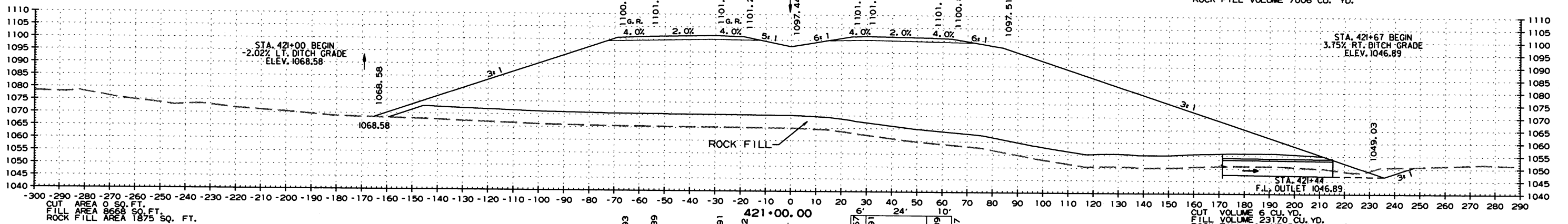
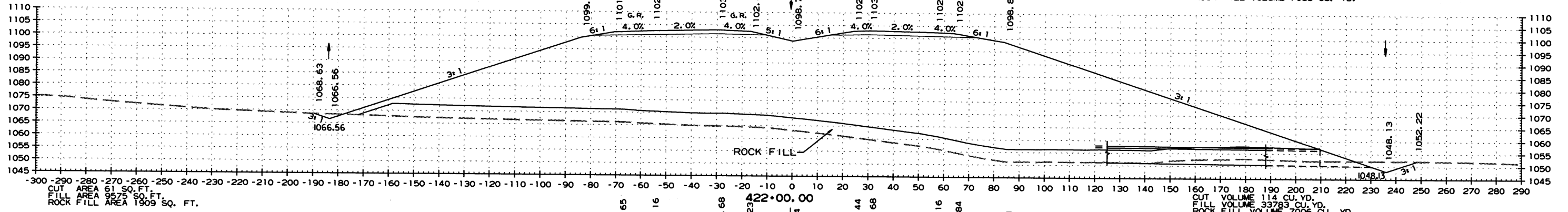
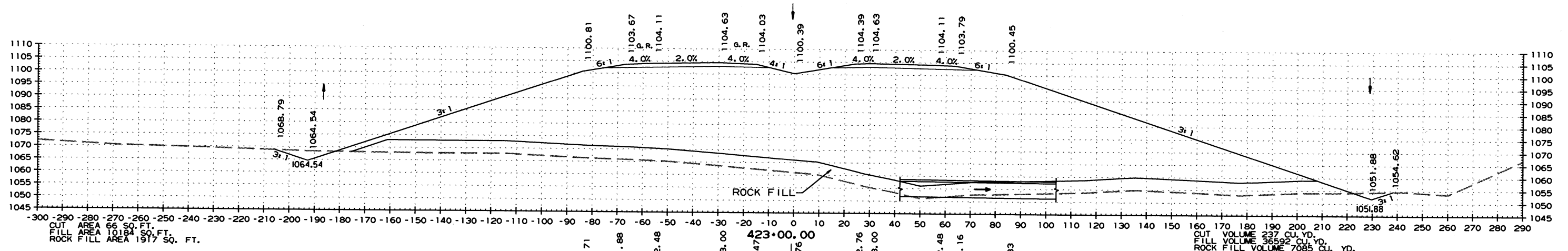


HWY. 549 - CROSS SECTION STA. 419+00 TO STA. 420+00

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		112	160
				JOB NO.	CA0905			

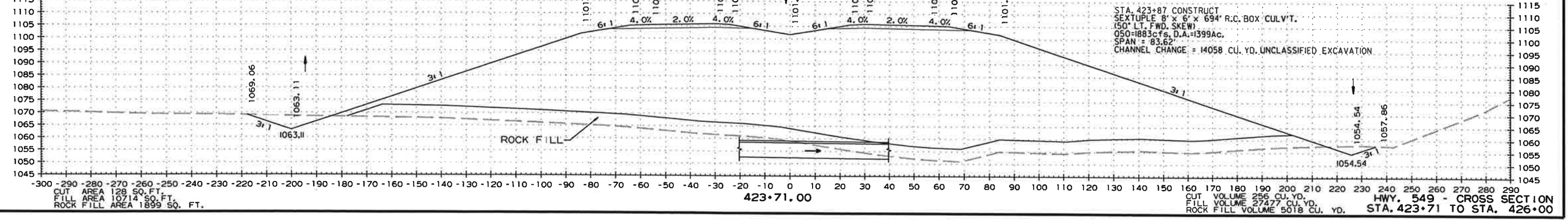
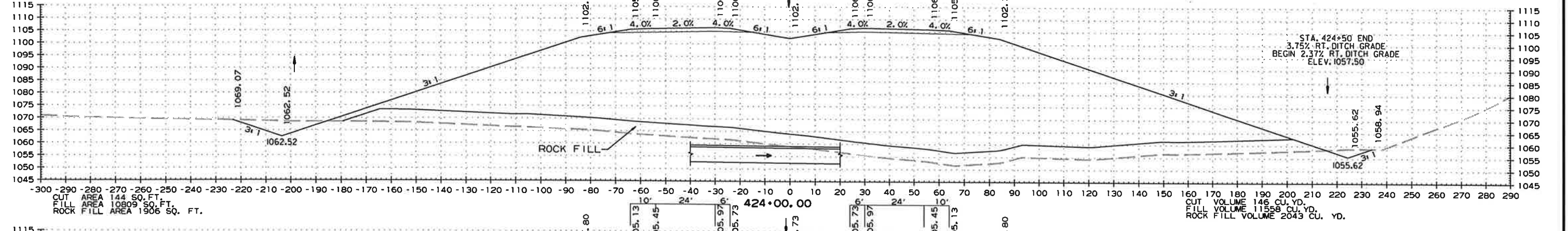
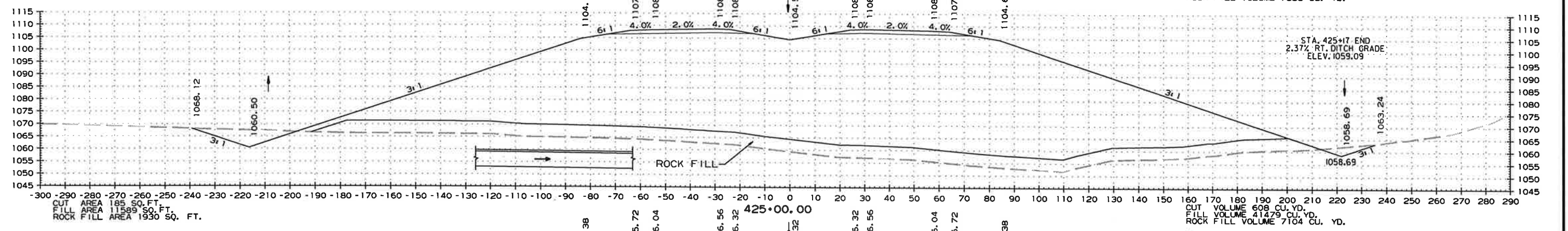
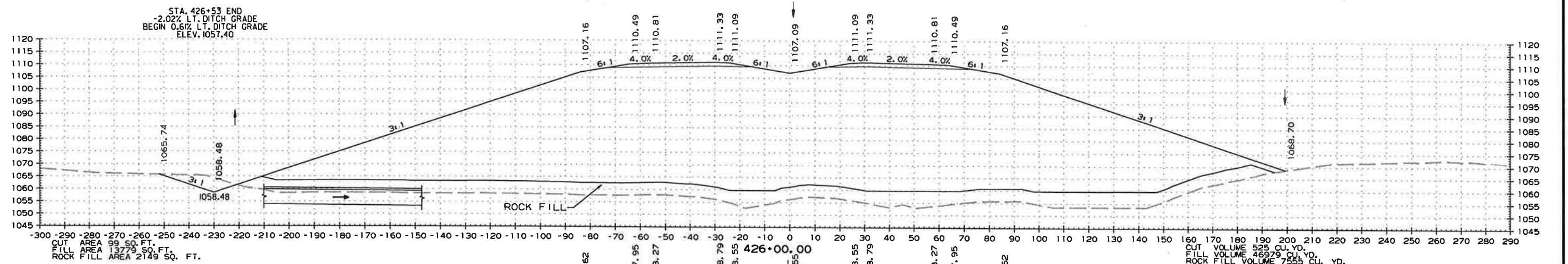
2 CROSS SECTIONS - HWY. 549 (MAIN LANES)



9/26/2016
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DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
1/22/19				6	ARK.			
				JOB NO.	CA0905		113	160

2 CROSS SECTIONS - HWY. 549 (MAIN LANES)



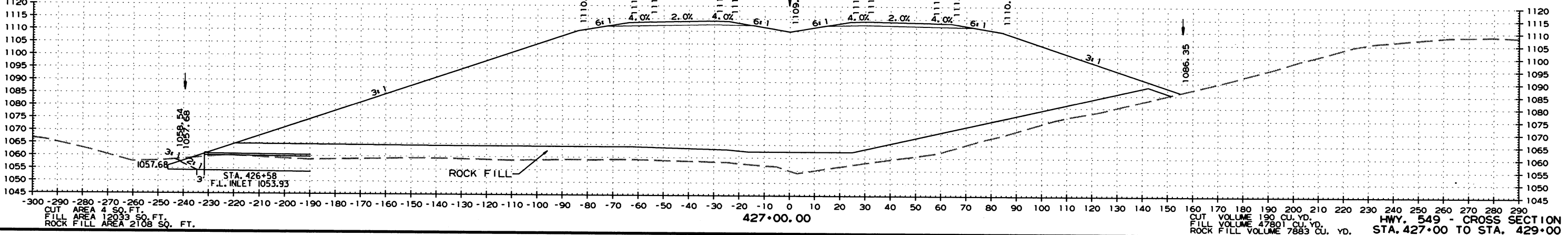
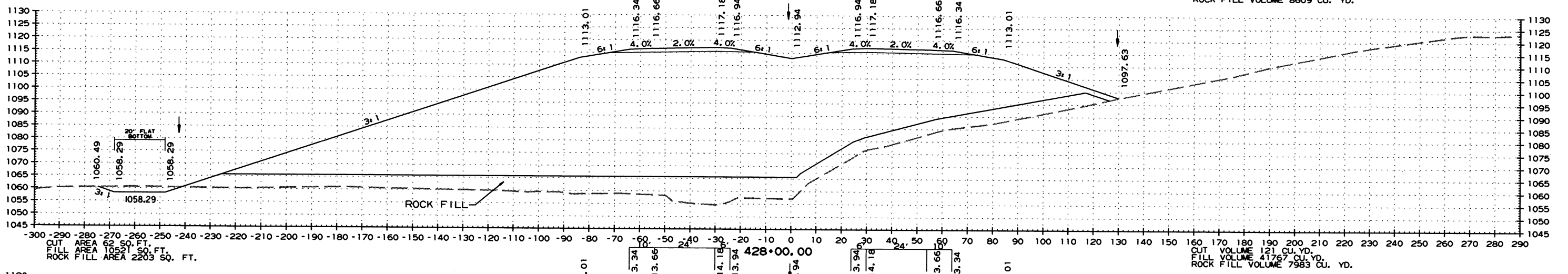
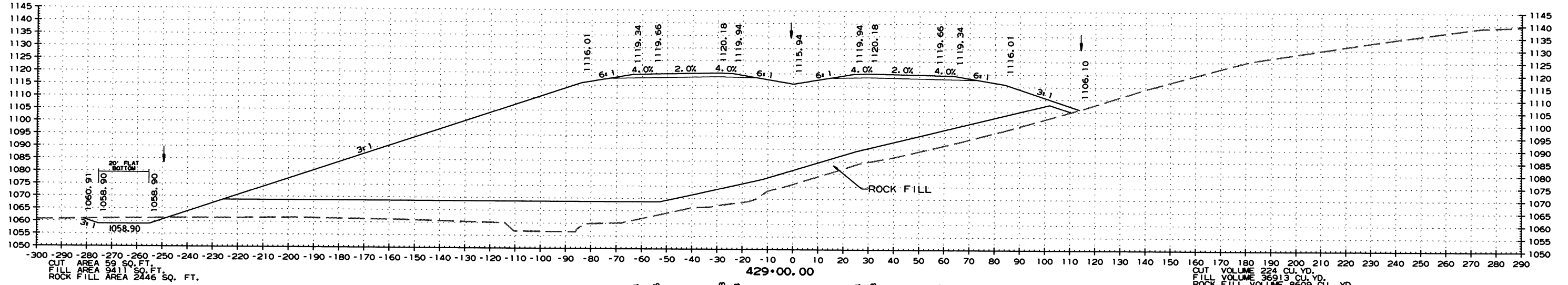
STA. 423+87 CONSTRUCT
SEXTUPLE 8' x 6' x 694' R.C. BOX CULV'T.
(50' LT. FWD. SKEW)
050=1883cfs, D.A.=1399Ac.
SPAN = 83.62'
CHANNEL CHANGE = 14058 CU. YD. UNCLASSIFIED EXCAVATION

HWY. 549 - CROSS SECTION
STA. 423+71 TO STA. 426+00

9/26/2016
RCA0905.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. CA0905							114	160

② CROSS SECTIONS - HWY. 549 (MAIN LANES)

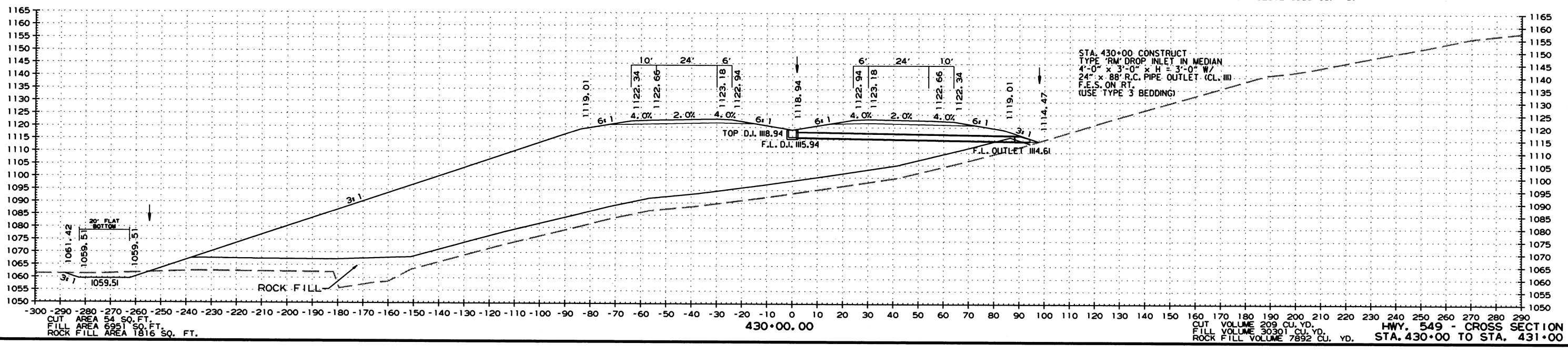
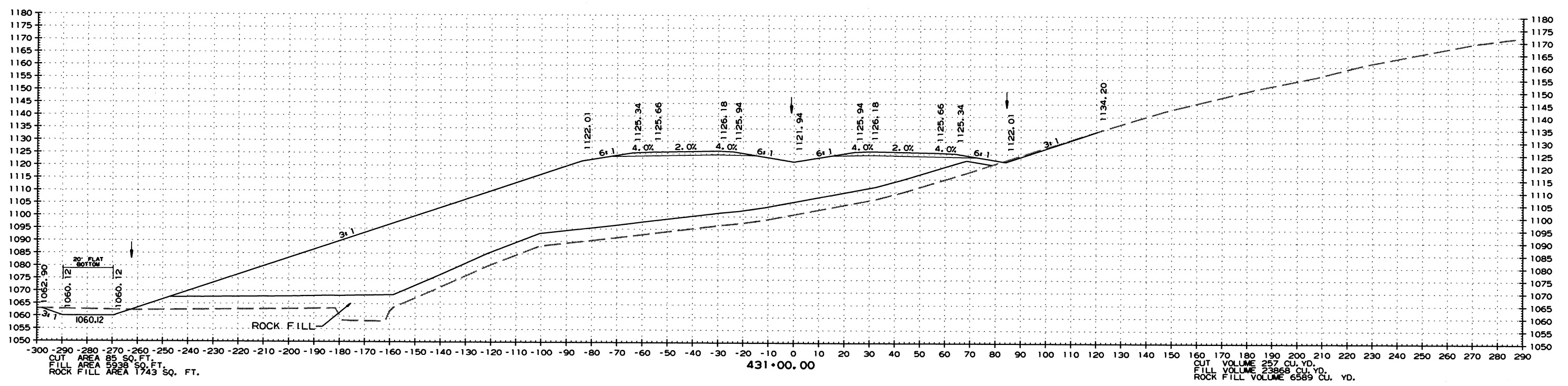


HWY. 549 - CROSS SECTION
 STA. 427+00 TO STA. 429+00

9/26/2016
 RCA0905.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.	CA0905		115	160

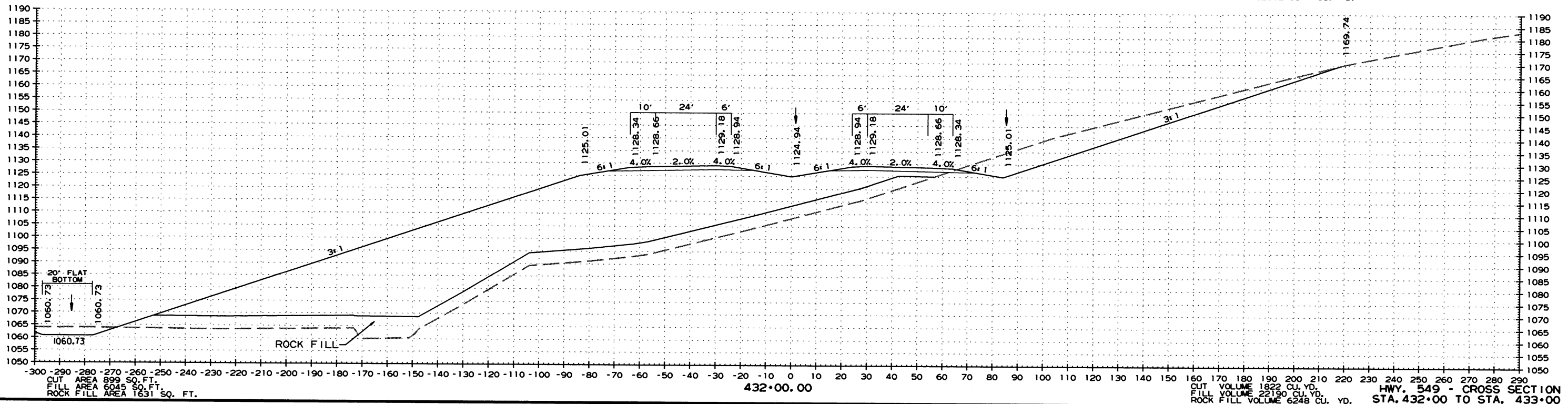
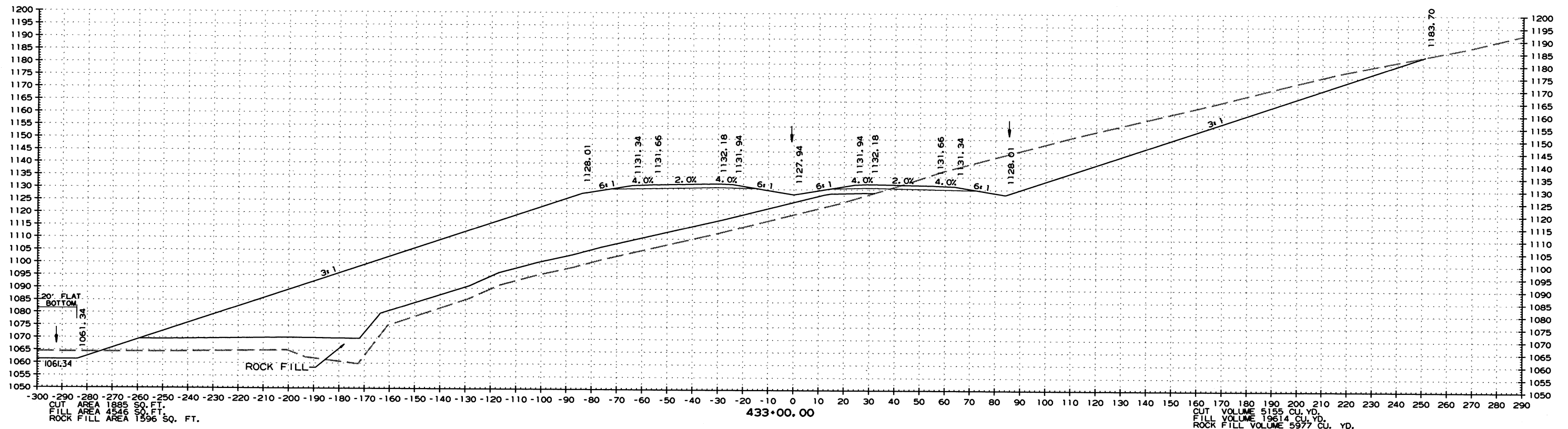
② CROSS SECTIONS - HWY. 549 (MAIN LANES)



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DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. CA0905							116	160

2 CROSS SECTIONS - HWY. 549 (MAIN LANES)



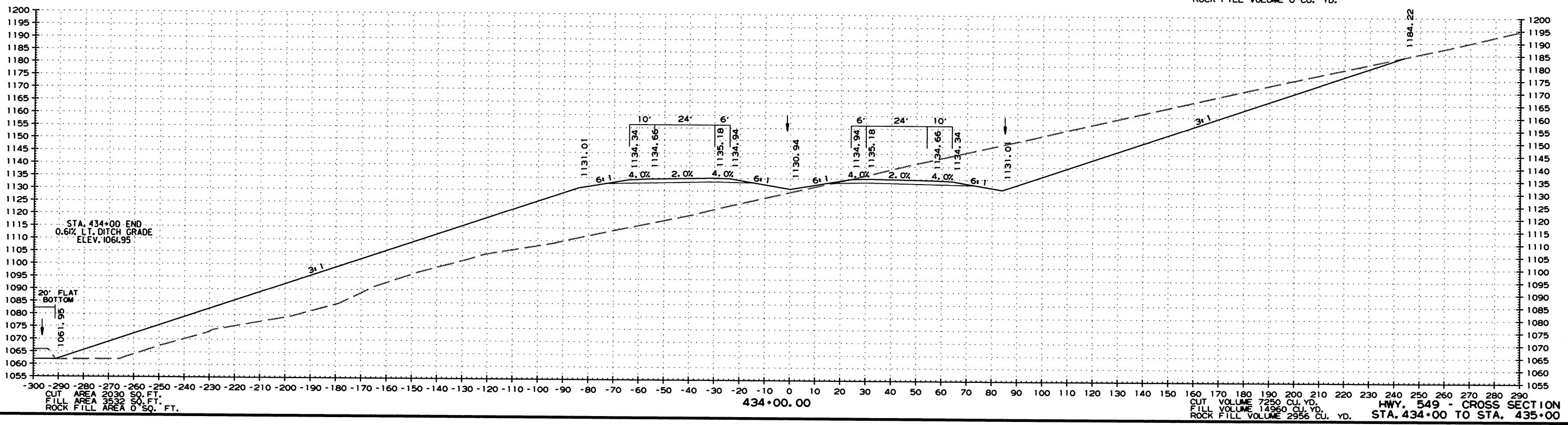
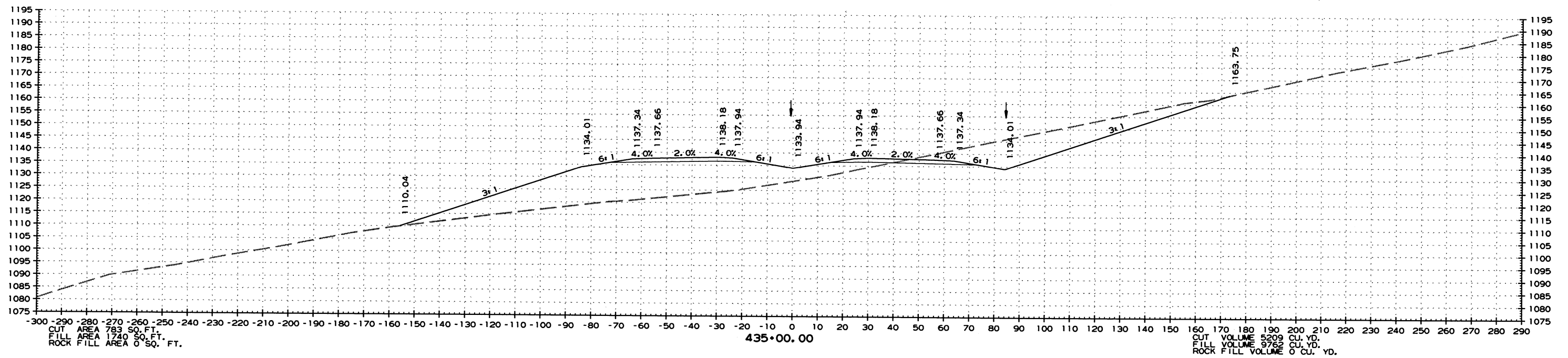
9/26/2016

RCA0905.DGN

HWY. 549 - CROSS SECTION
 STA. 432+00 TO STA. 433+00

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.						CA0905	117	160

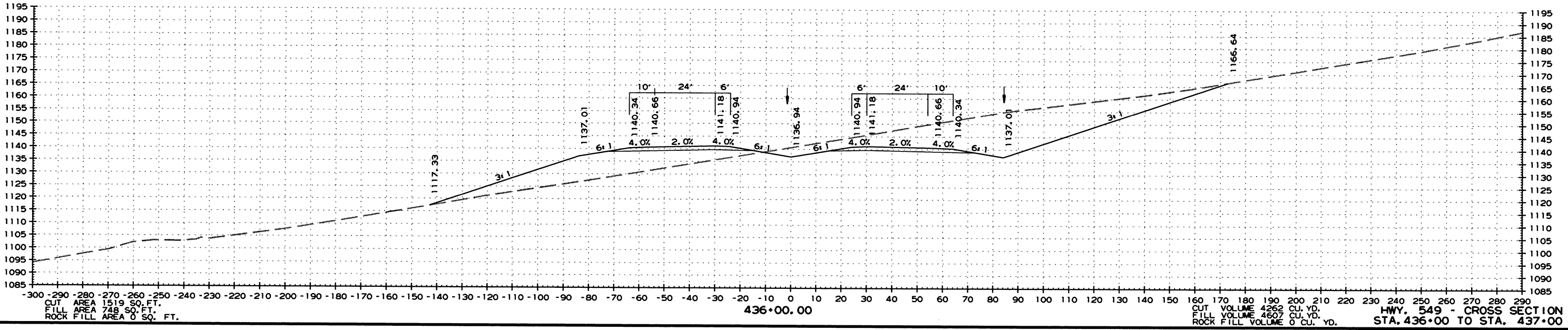
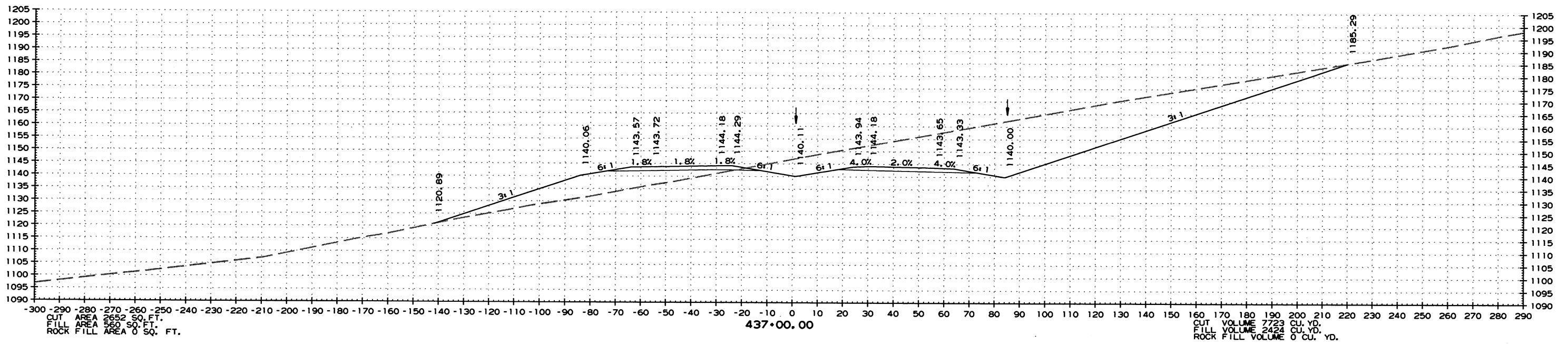
② CROSS SECTIONS - HWY. 549 (MAIN LANES)



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RCAD0905.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. CA0905	118	160

② CROSS SECTIONS - HWY. 549 (MAIN LANES)

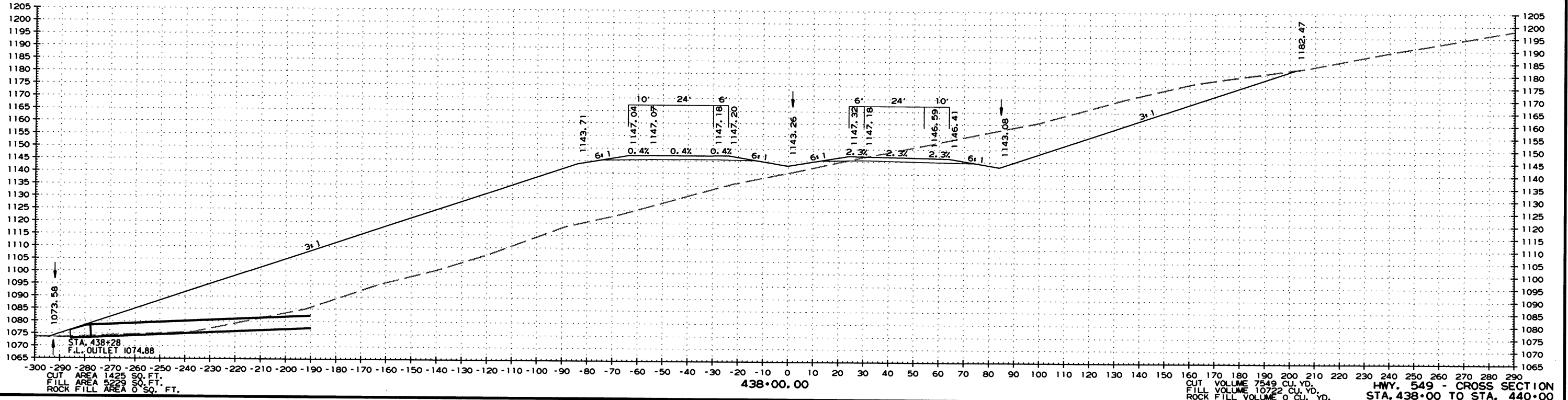
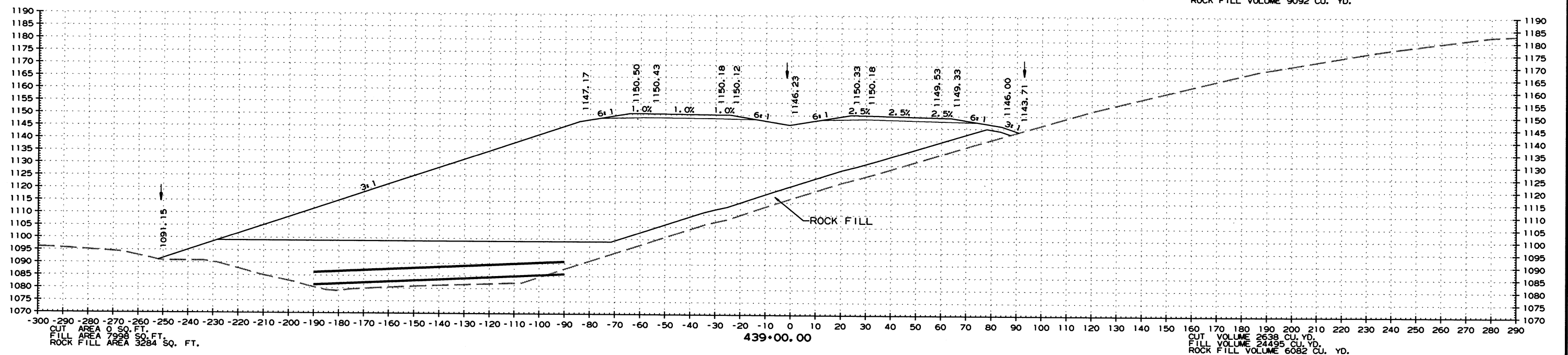
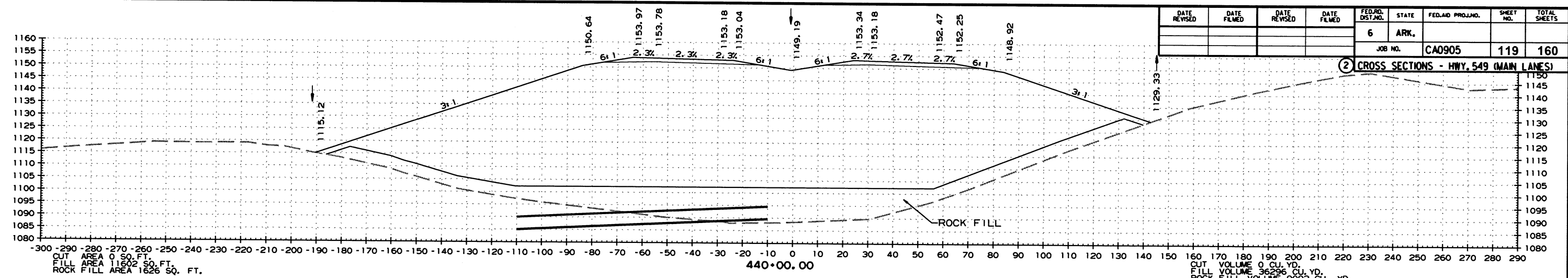


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HWY. 549 - CROSS SECTION
 STA. 436+00 TO STA. 437+00

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		119	160
				JOB NO.	CA0905			

② CROSS SECTIONS - HWY. 549 (MAIN LANES)

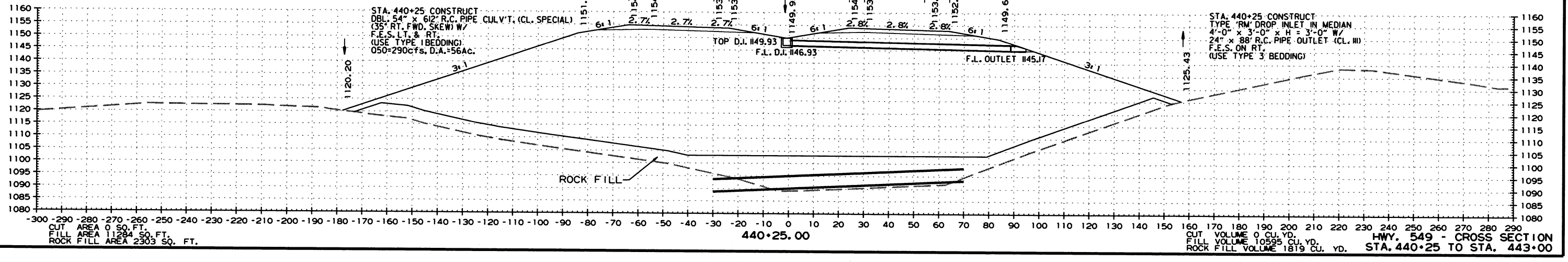
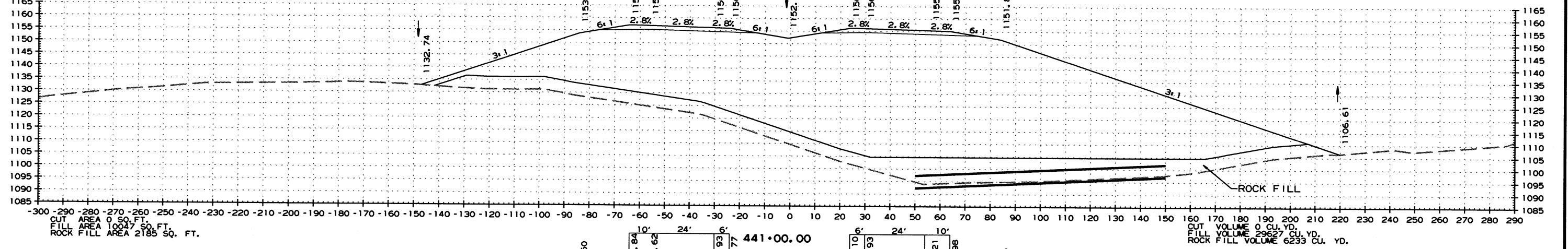
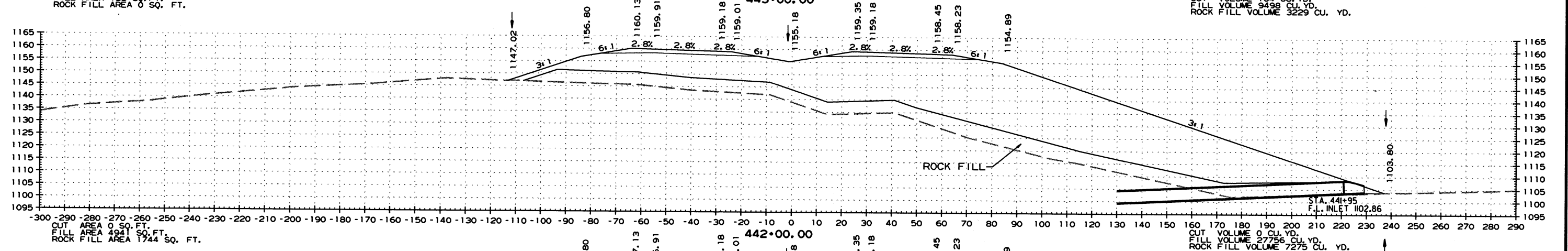
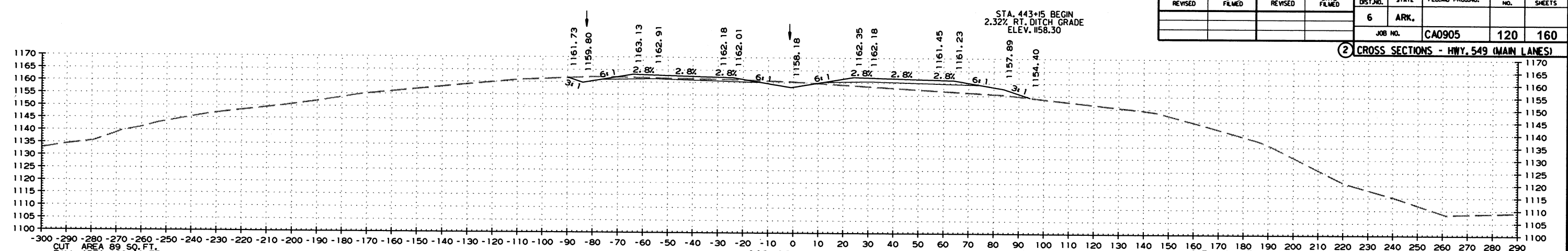


HWY. 549 - CROSS SECTION
STA. 438+00 TO STA. 440+00

RCA0905.DGN 9/26/2016

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.	CA0905	120	160

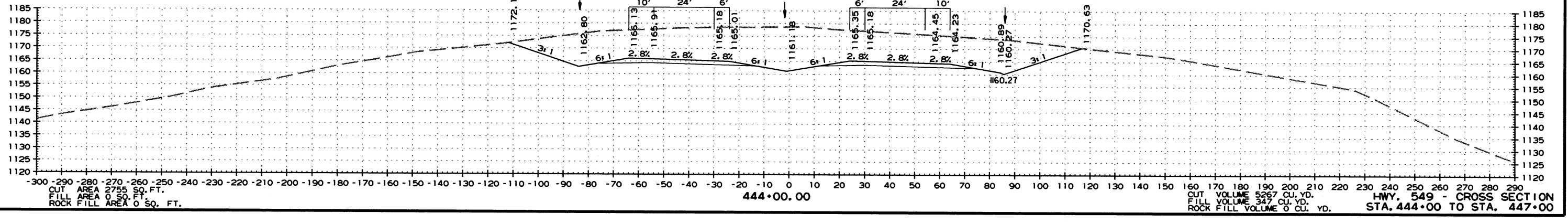
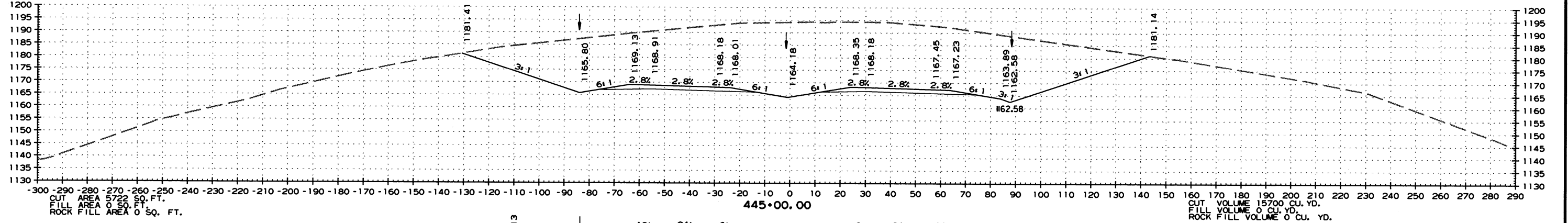
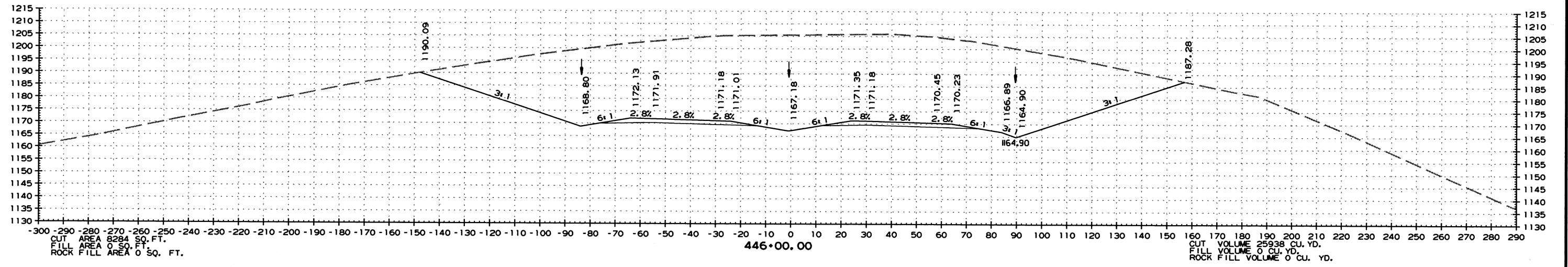
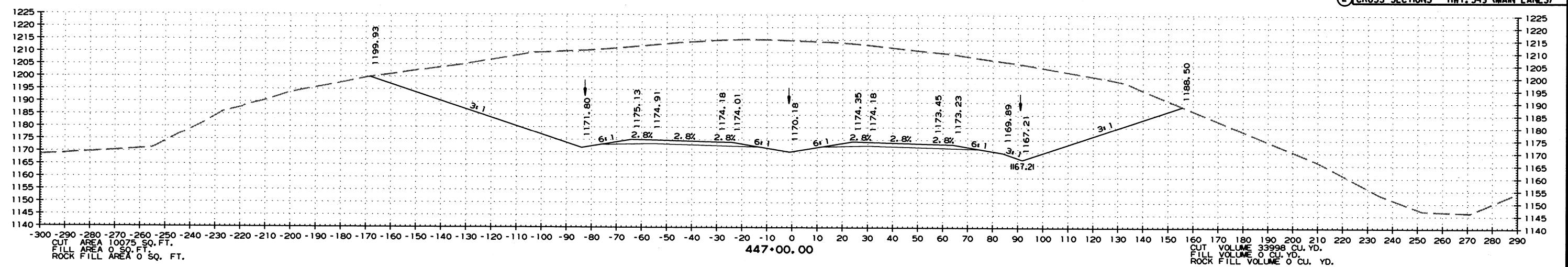
② CROSS SECTIONS - HWY. 549 (MAIN LANES)



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RCA0905.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.						CA0905	121	160

② CROSS SECTIONS - HWY. 549 (MAIN LANES)

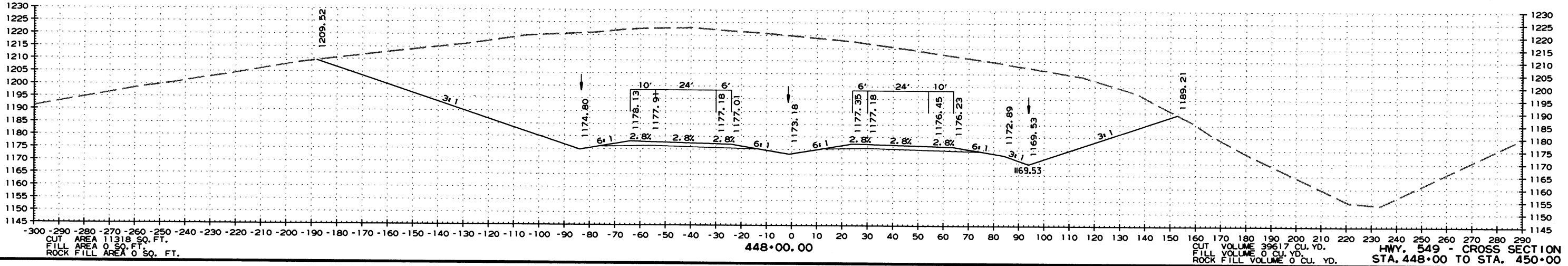
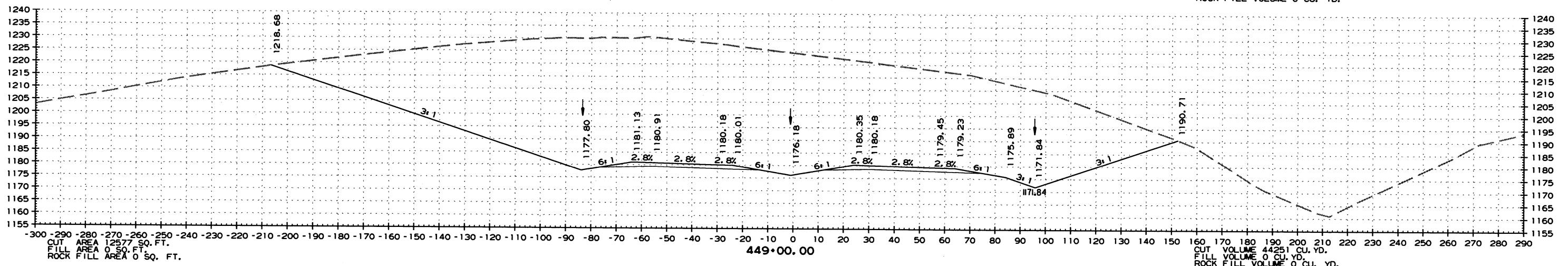
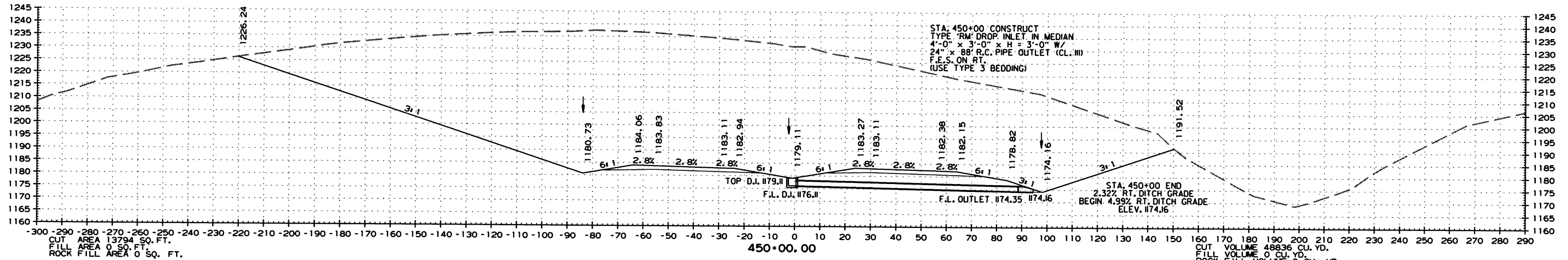


HWY. 549 - CROSS SECTION
 STA. 444+00 TO STA. 447+00

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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. CA0905	122	160

② CROSS SECTIONS - HWY. 549 (MAIN LANES)

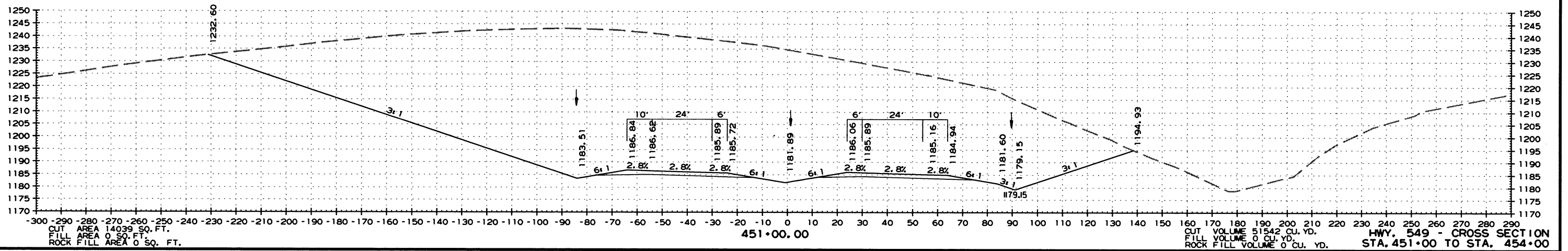
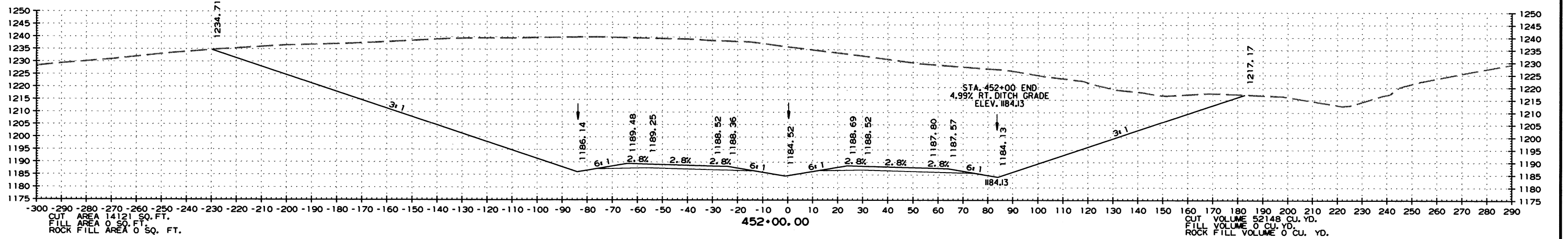
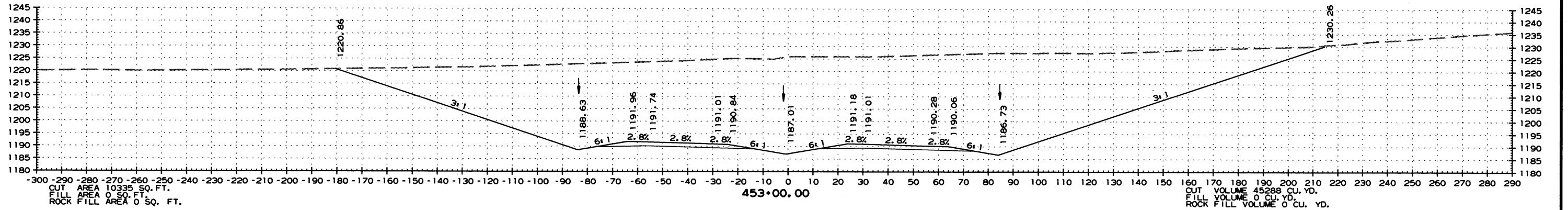
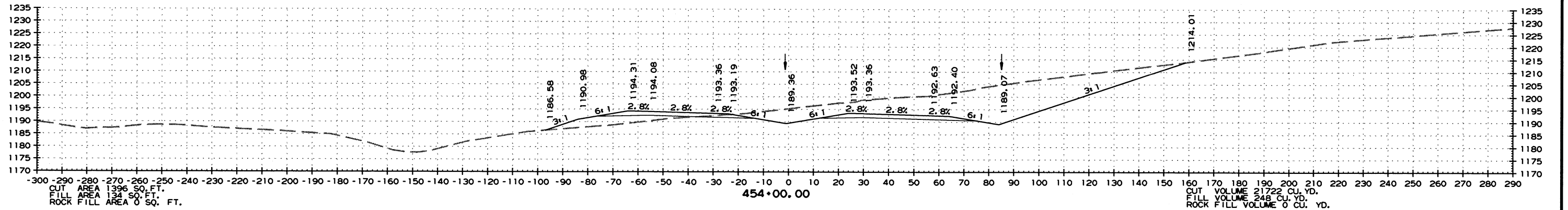


9/26/2016

RCA0905.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. CA0905							123	160

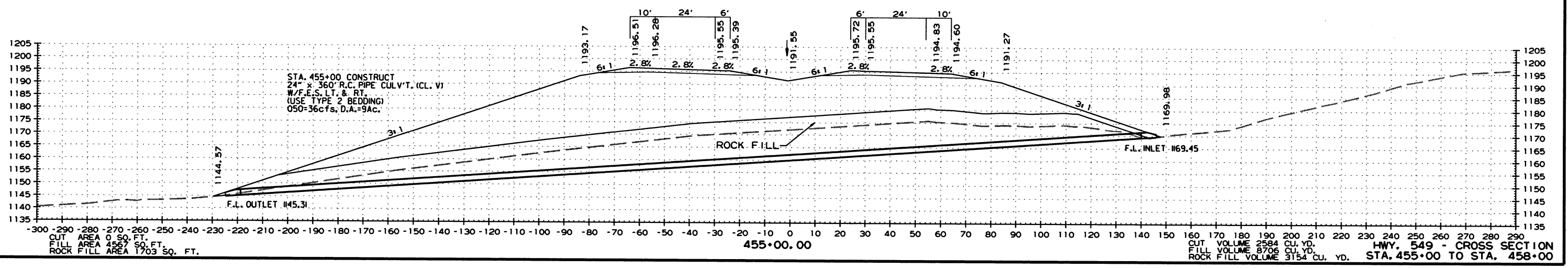
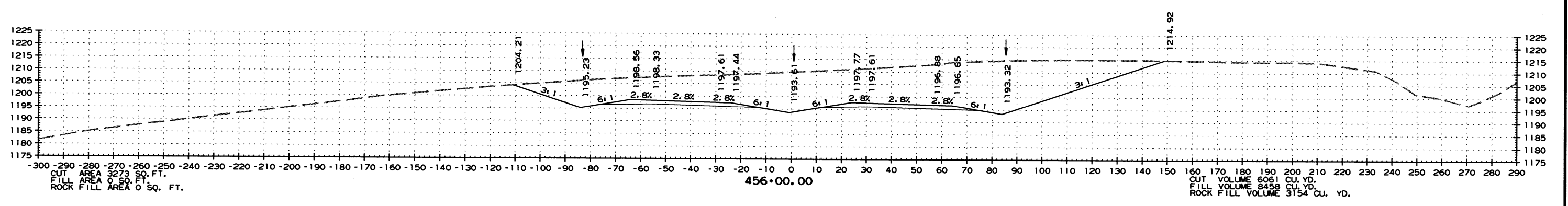
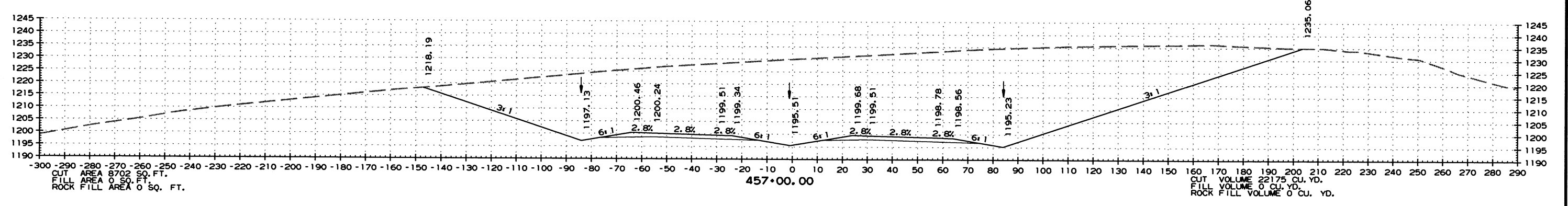
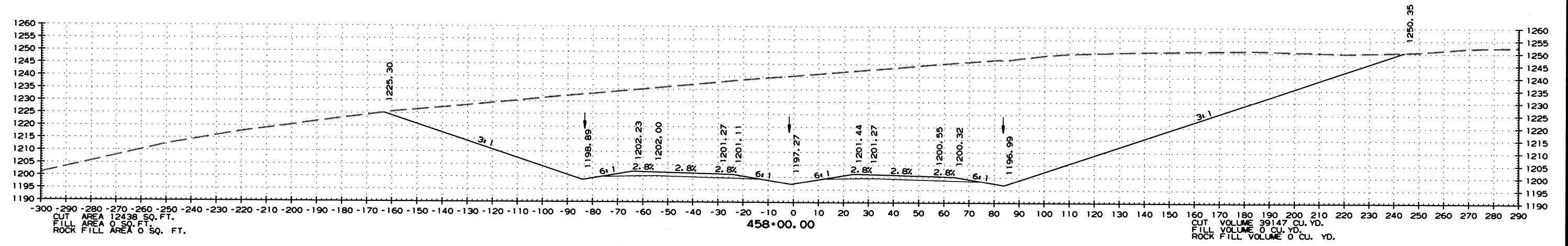
② CROSS SECTIONS - HWY. 549 (MAIN LANES)



HWY. 549 - CROSS SECTION
STA. 451+00 TO STA. 454+00

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.	CA0905		124	160

② CROSS SECTIONS - HWY. 549 (MAIN LANES)

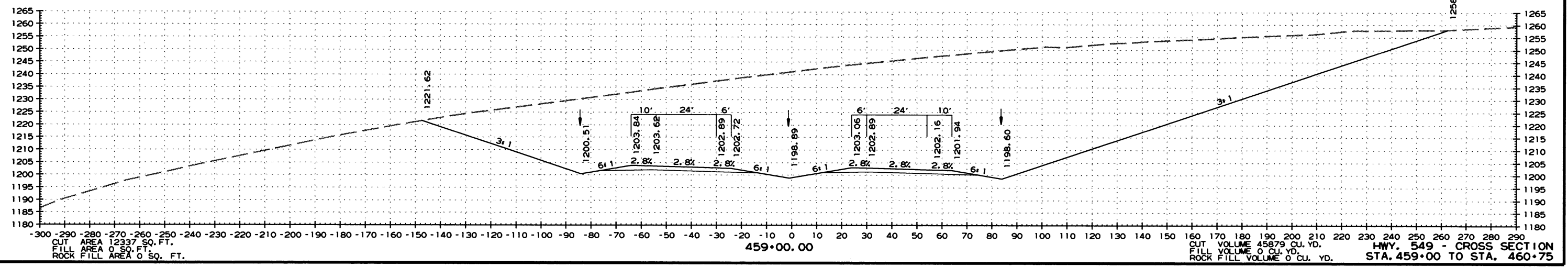
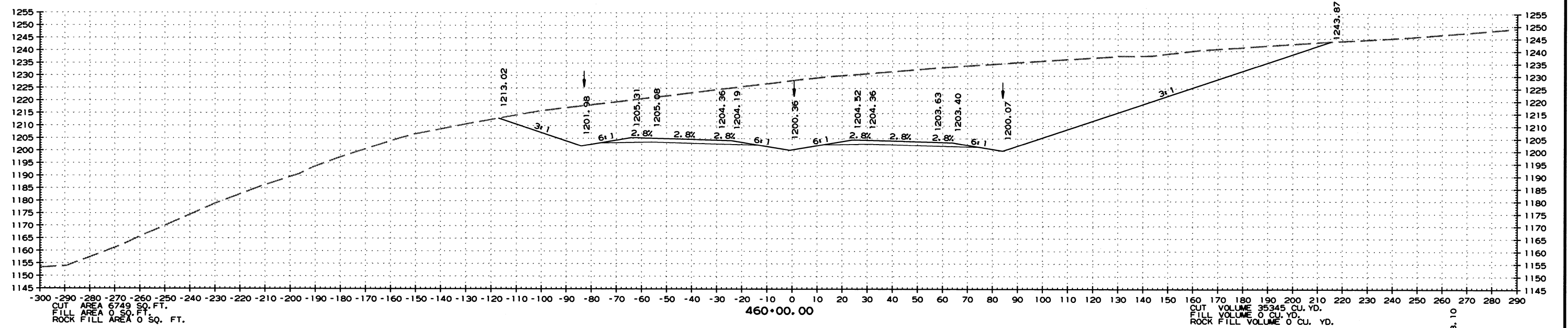
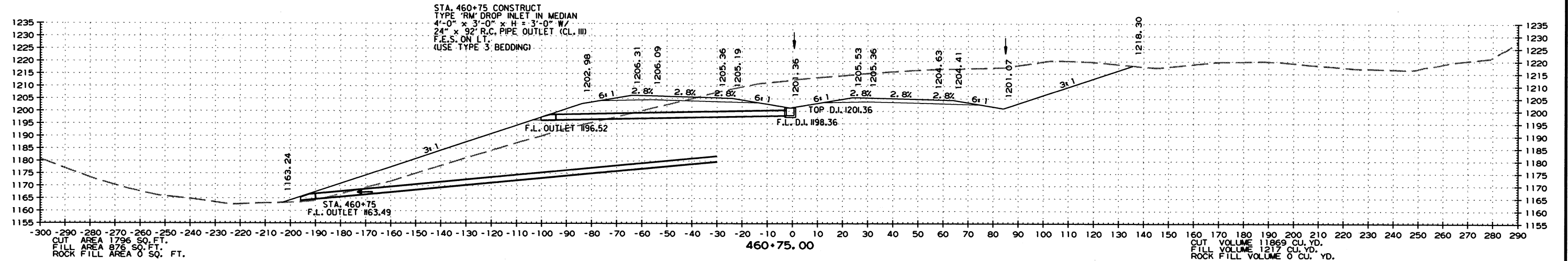


9/26/2016

RC40905.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO. CA0905							125	160

② CROSS SECTIONS - HWY. 549 (MAIN LANES)

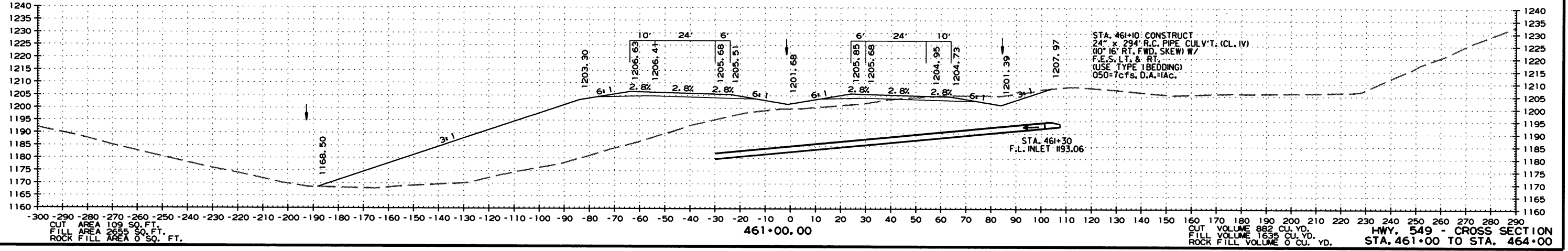
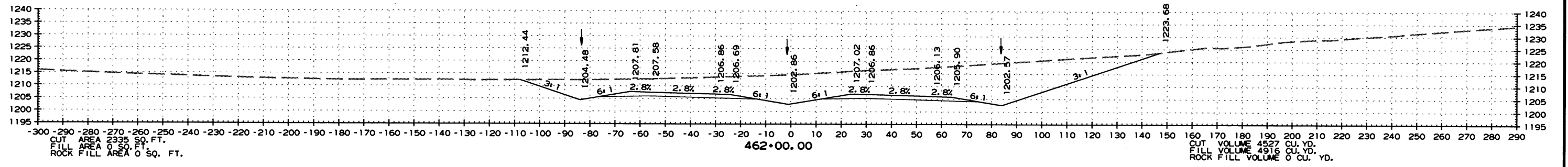
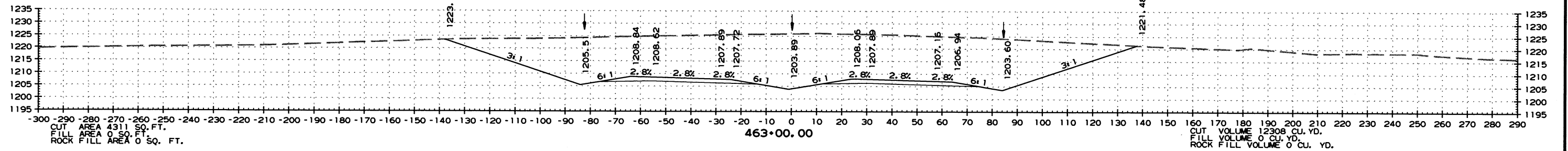
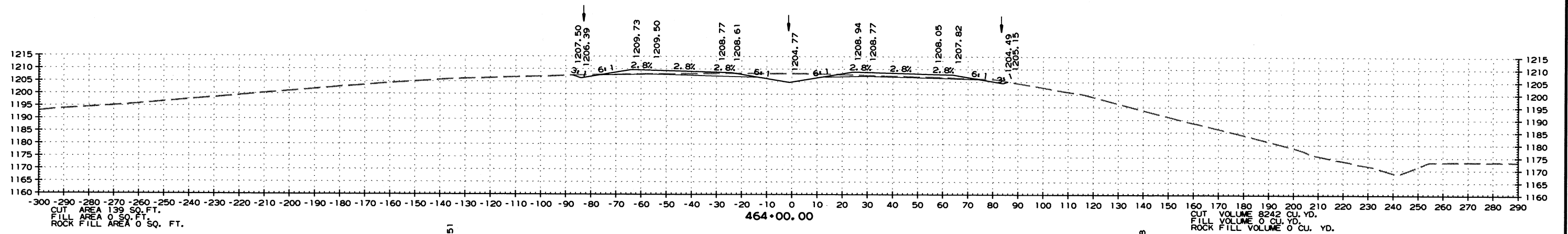


HWY. 549 - CROSS SECTION
STA. 459+00 TO STA. 460+75

9/26/2016
RC40905.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. CA0905	126	160

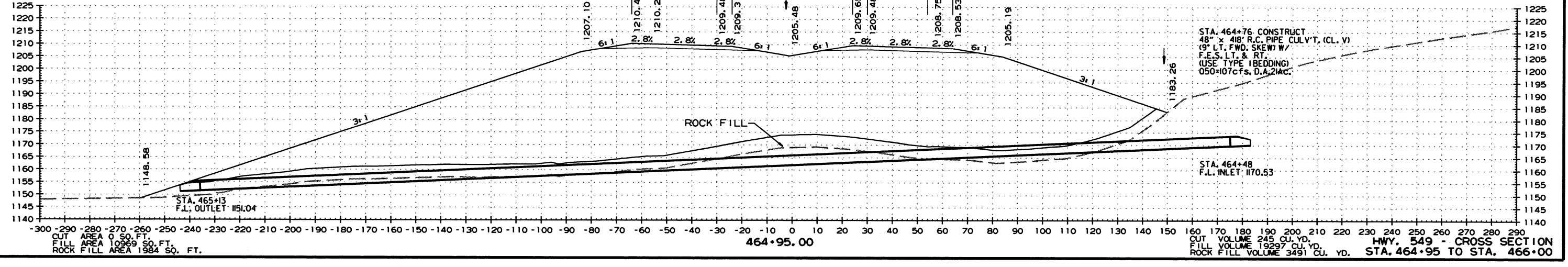
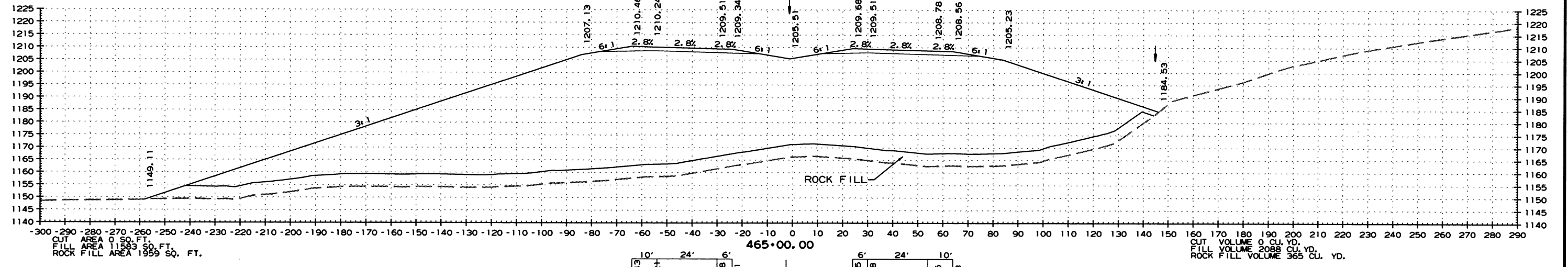
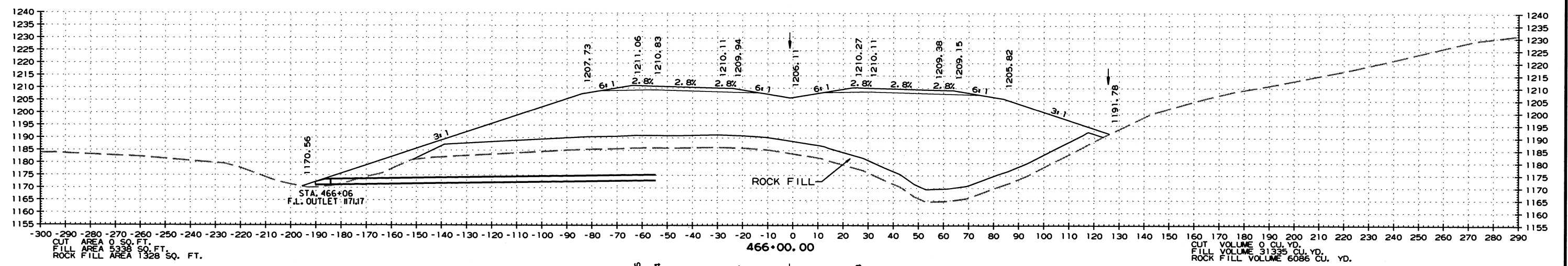
2 CROSS SECTIONS - HWY. 549 (MAIN LANES)



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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. CA0905							127	160

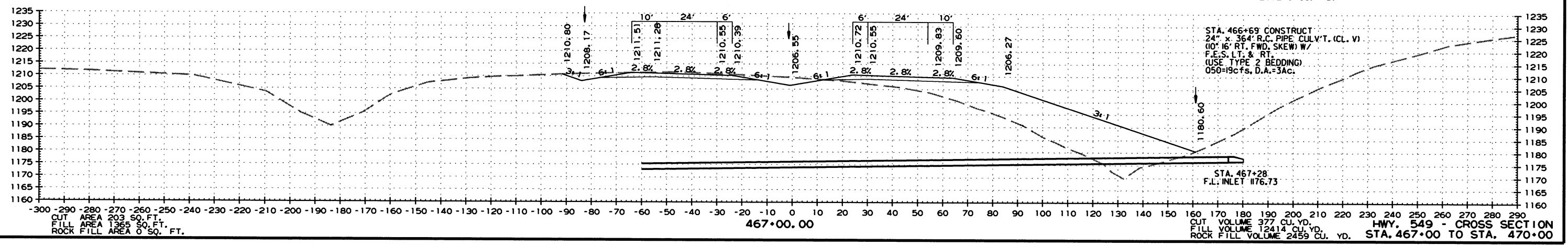
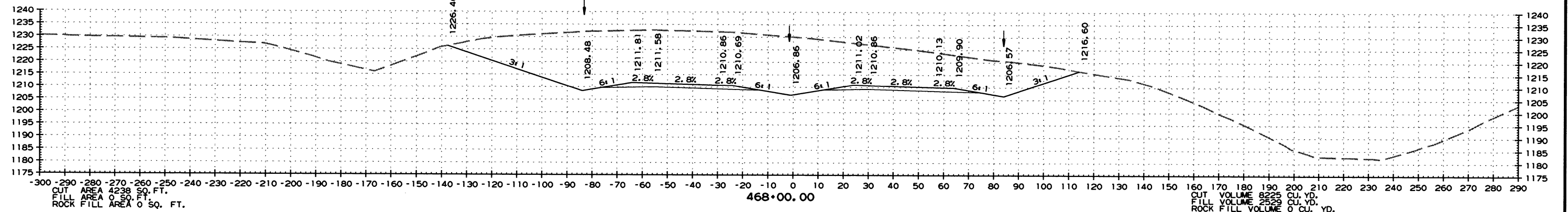
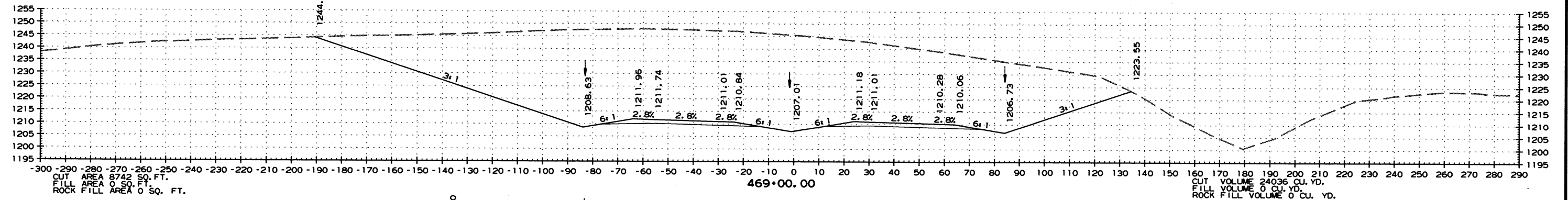
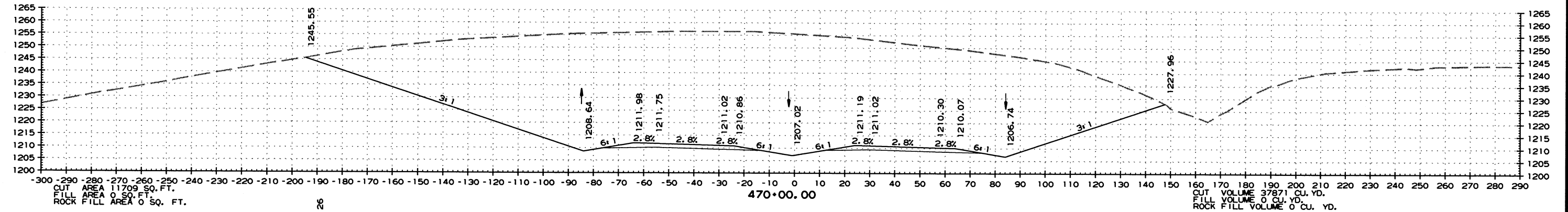
② CROSS SECTIONS - HWY. 549 (MAIN LANES)



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 RCA0905.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. CA0905	128	160

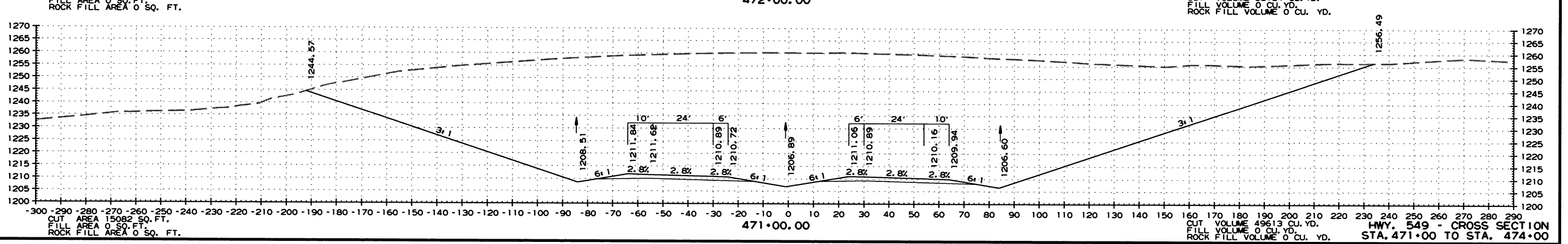
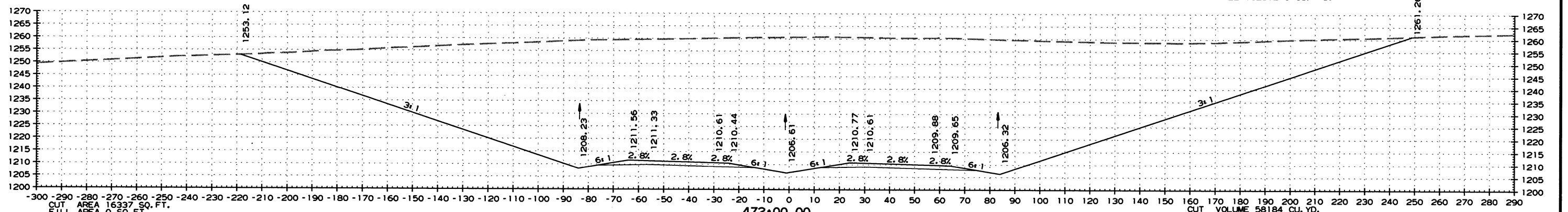
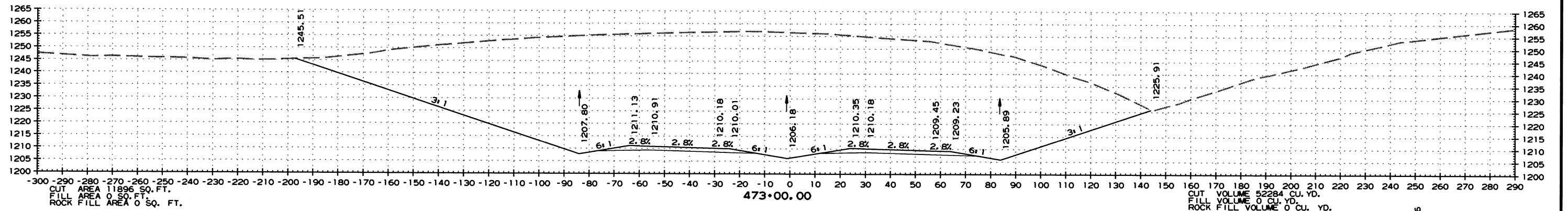
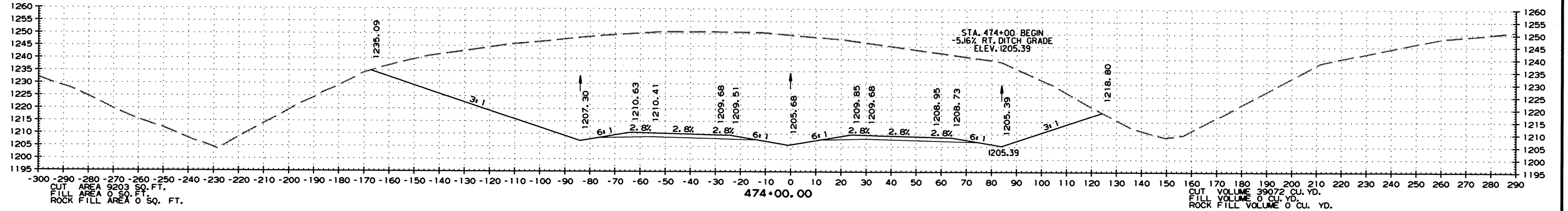
② CROSS SECTIONS - HWY. 549 (MAIN LANES)



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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.						CA0905	129	160

2 CROSS SECTIONS - HWY. 549 (MAIN LANES)

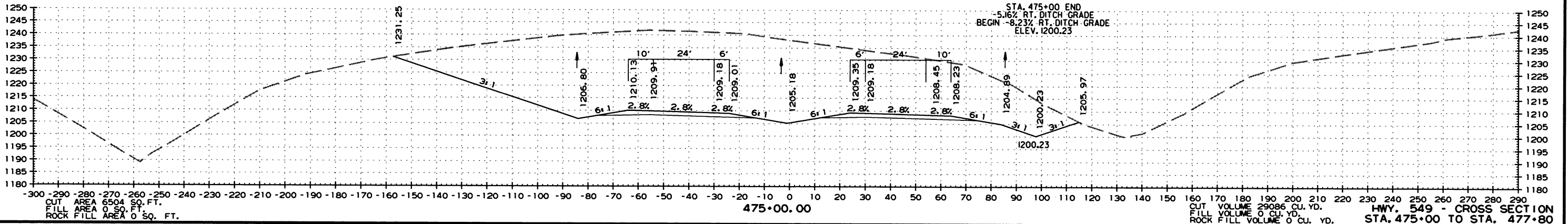
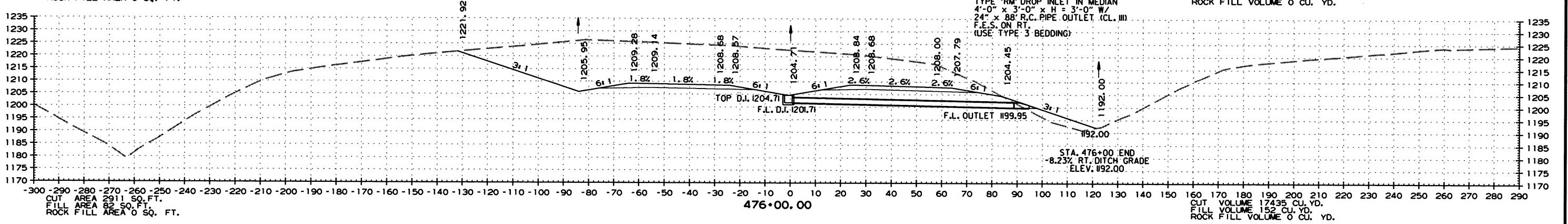
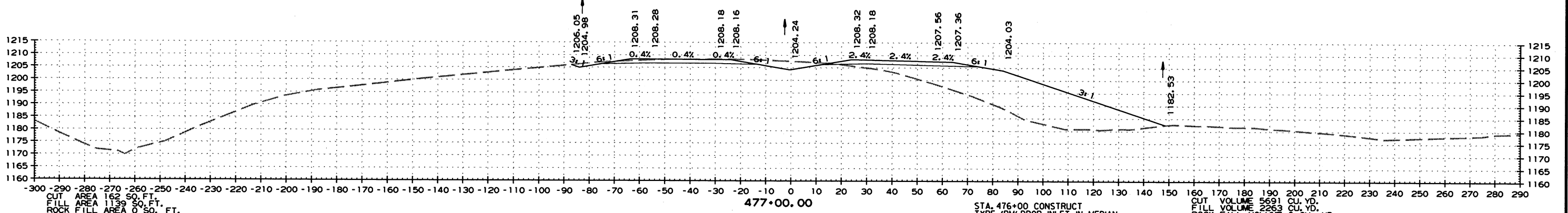
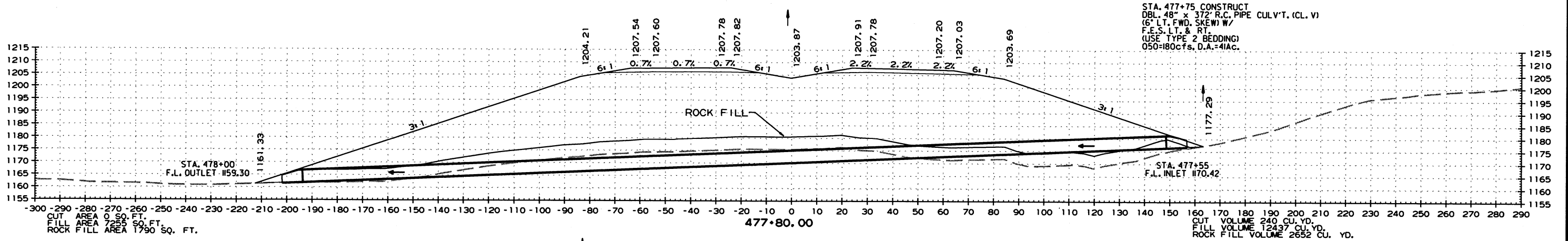


HWY. 549 - CROSS SECTION
STA. 471+00 TO STA. 474+00

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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.						CA0905	130	160

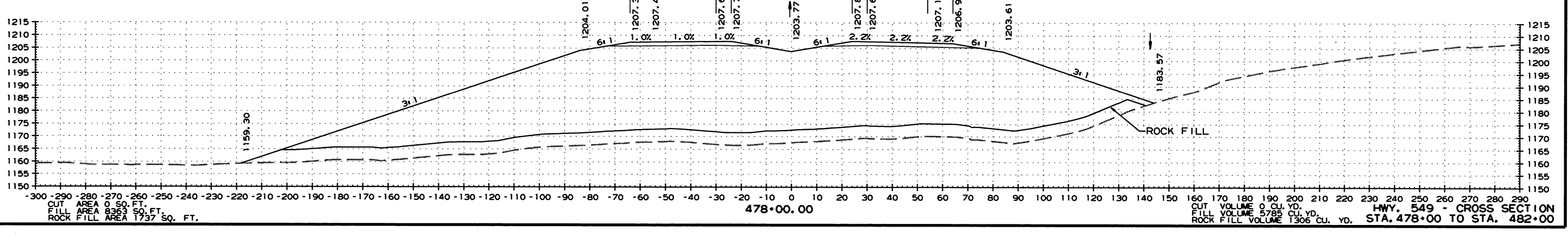
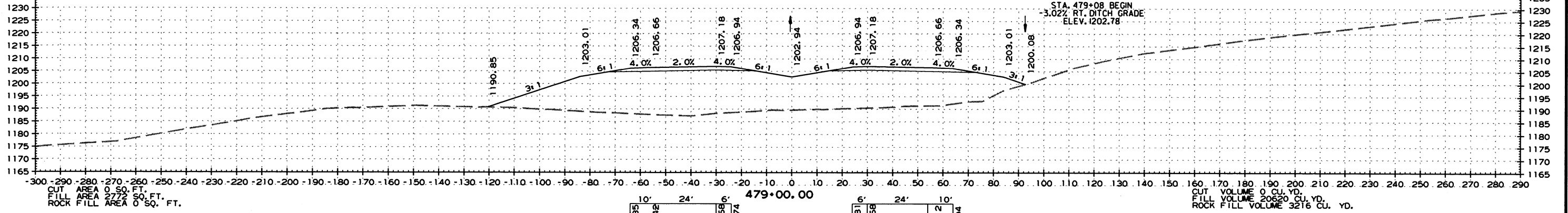
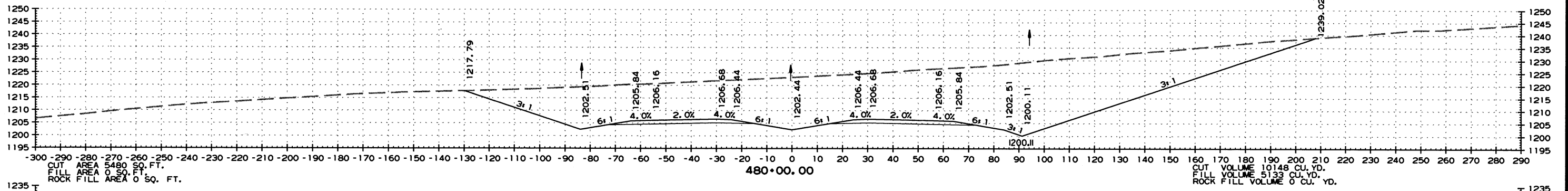
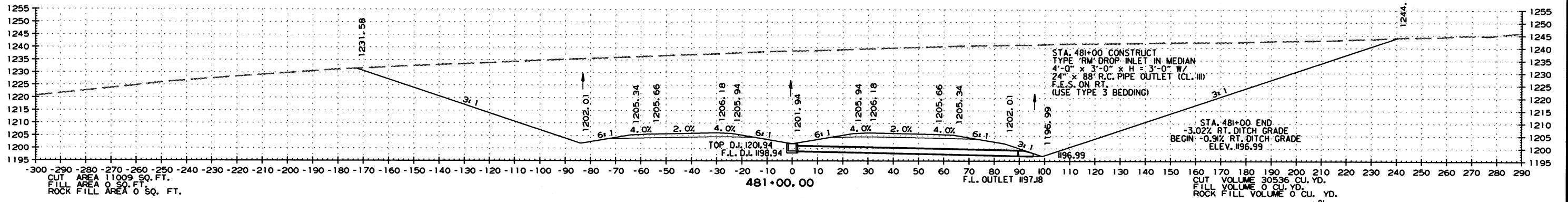
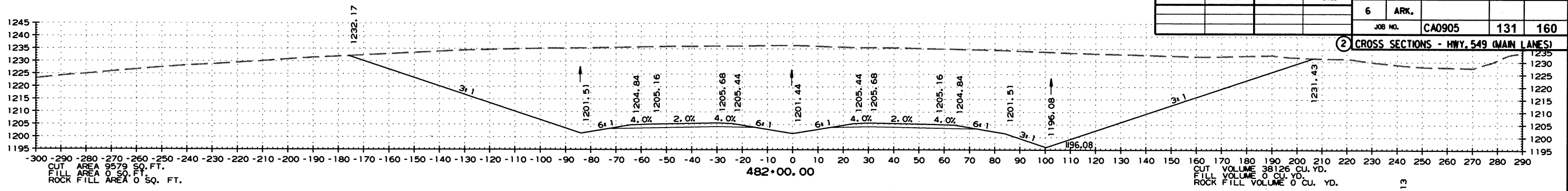
2 CROSS SECTIONS - HWY. 549 (MAIN LANES)



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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.	CA0905		131	160

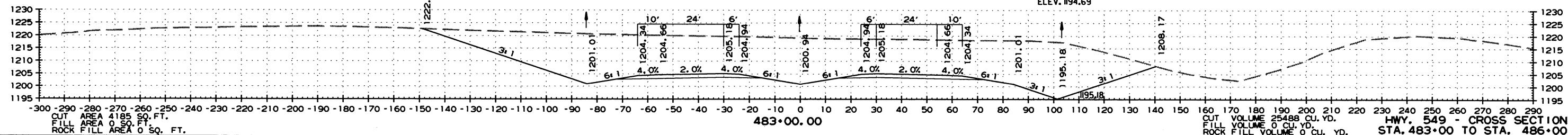
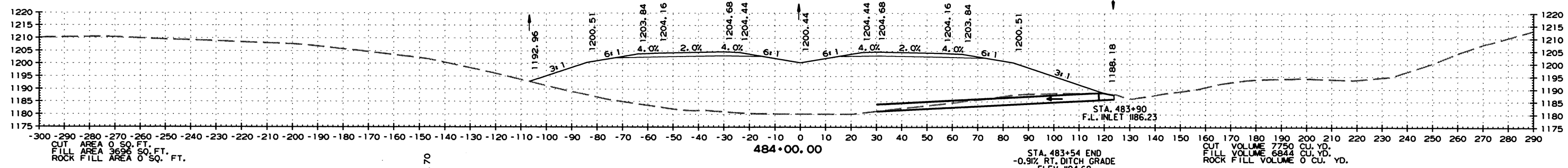
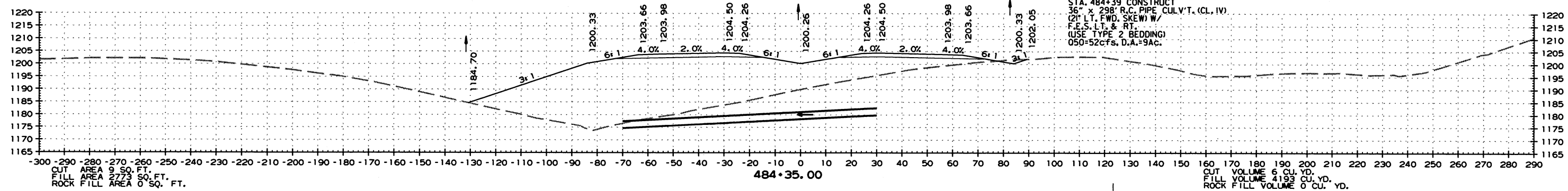
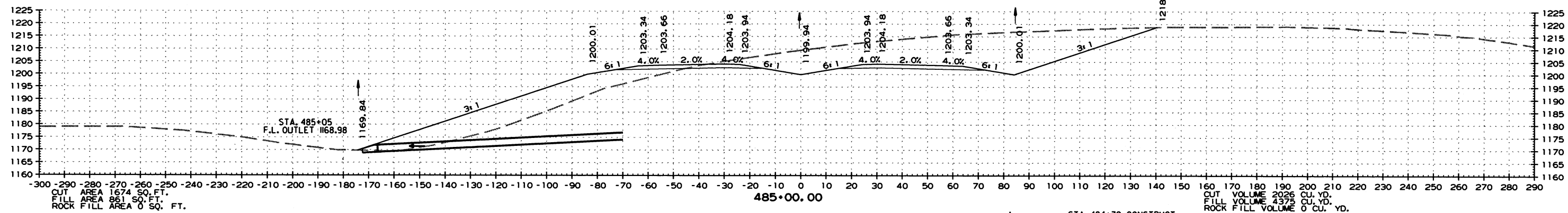
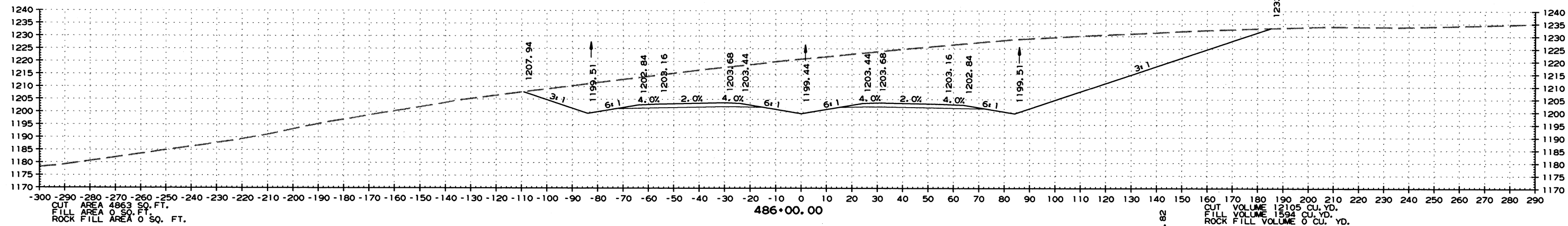
2 CROSS SECTIONS - HWY. 549 (MAIN LANES)



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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.		132	160
				JOB NO.		CA0905		

2 CROSS SECTIONS - HWY. 549 (MAIN LANES)

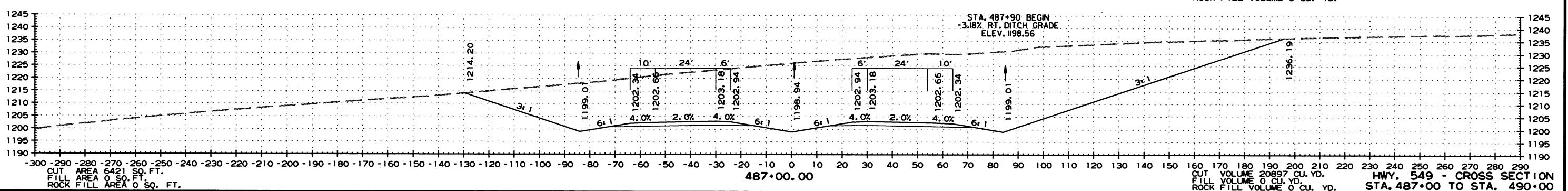
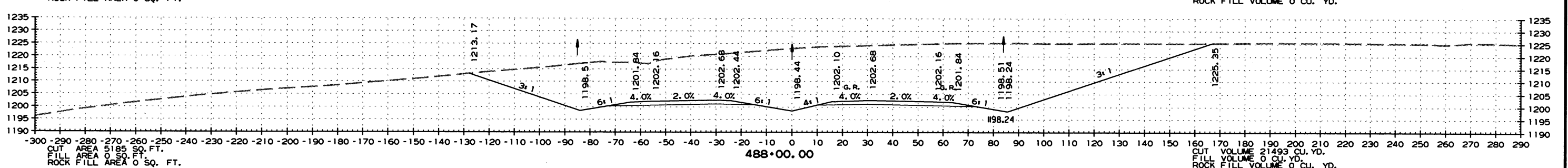
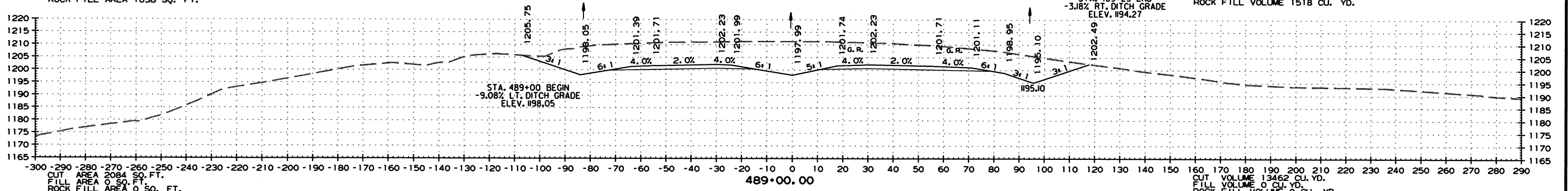
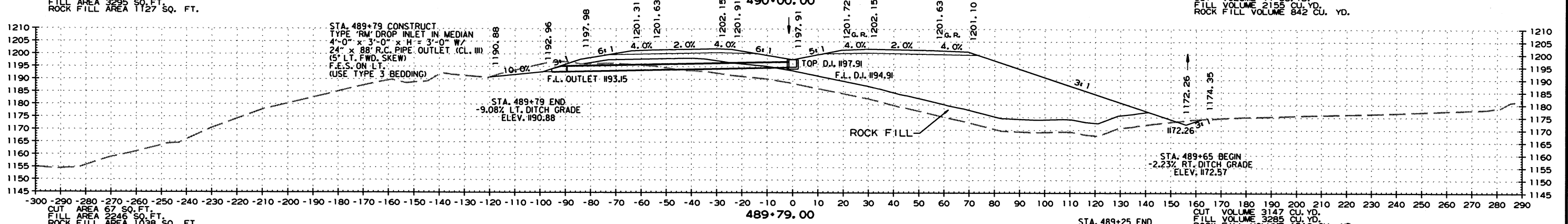
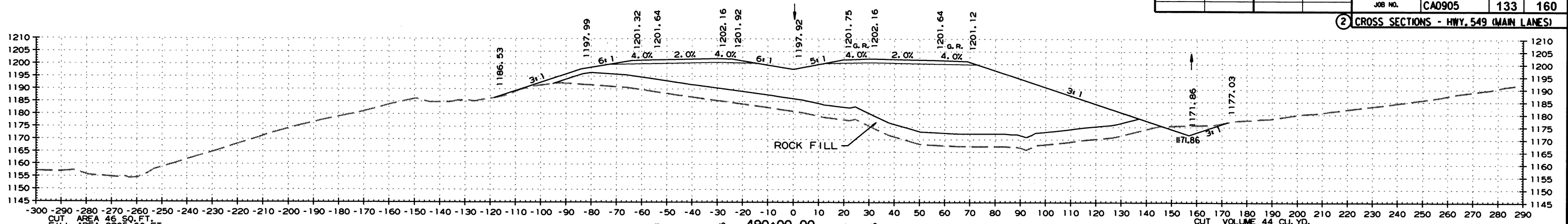


HWY. 549 - CROSS SECTION STA. 483+00 TO STA. 486+00

9/26/2016
RCA0905.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.	CA0905		133	160

② CROSS SECTIONS - HWY. 549 (MAIN LANES)

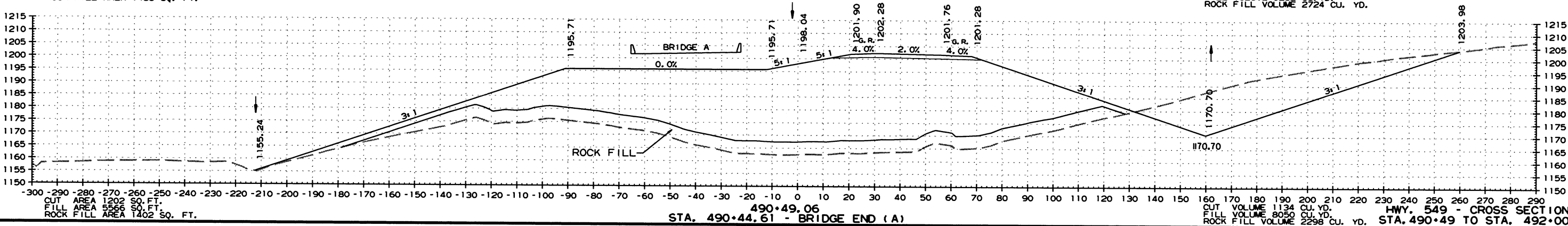
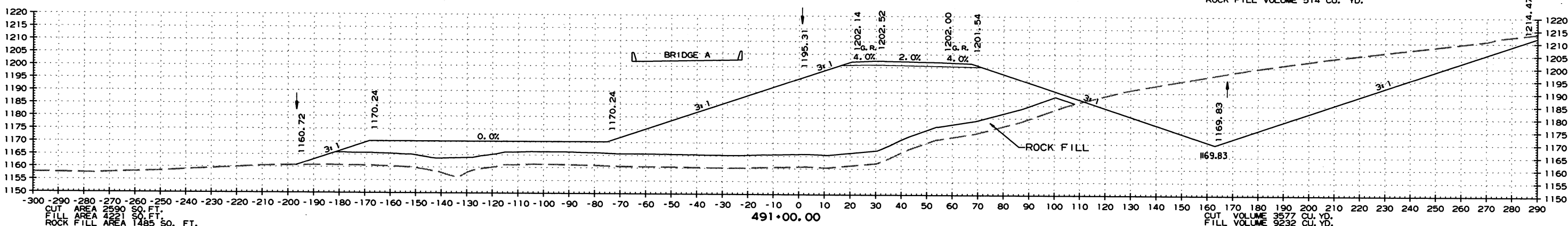
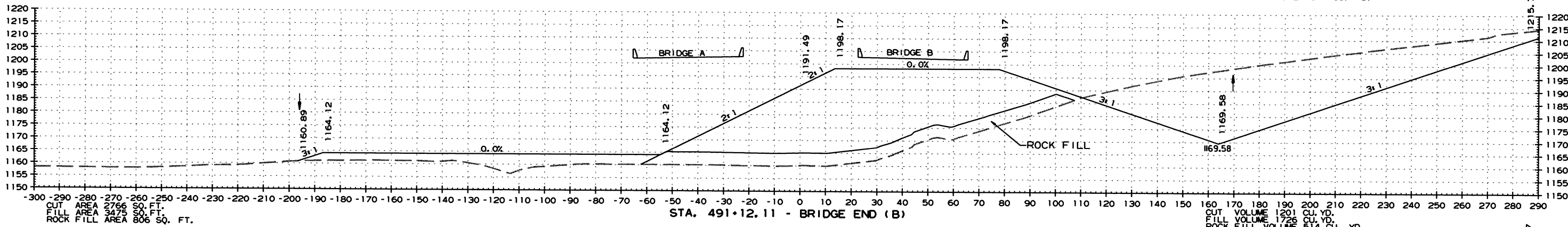
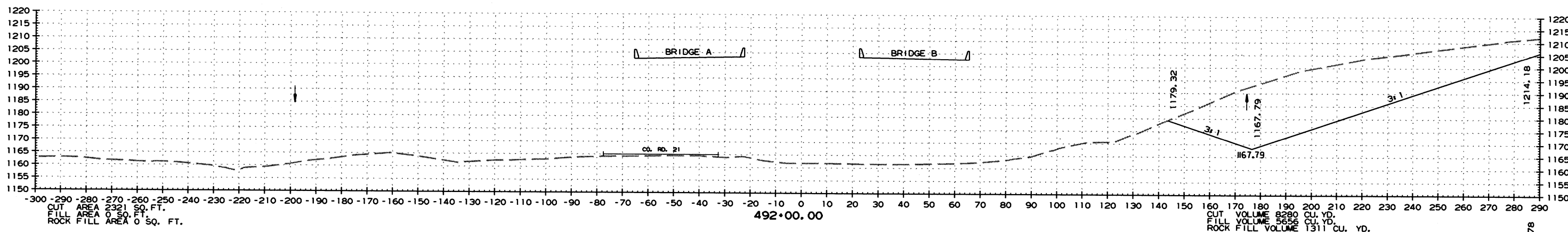


HWY. 549 - CROSS SECTION
STA. 487+00 TO STA. 490+00

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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. CA0905						134	160	

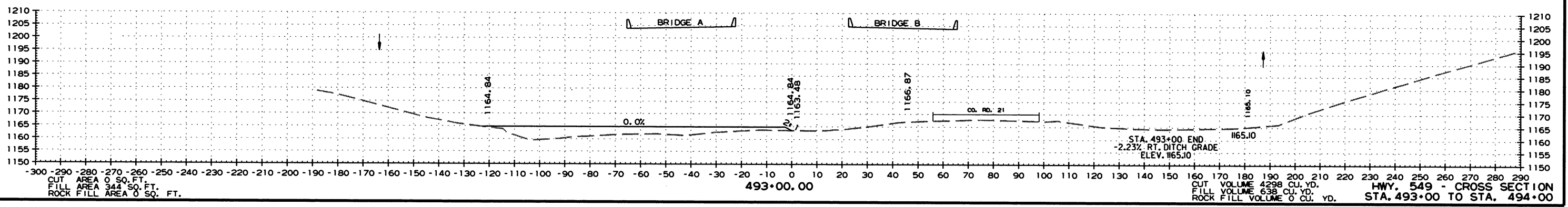
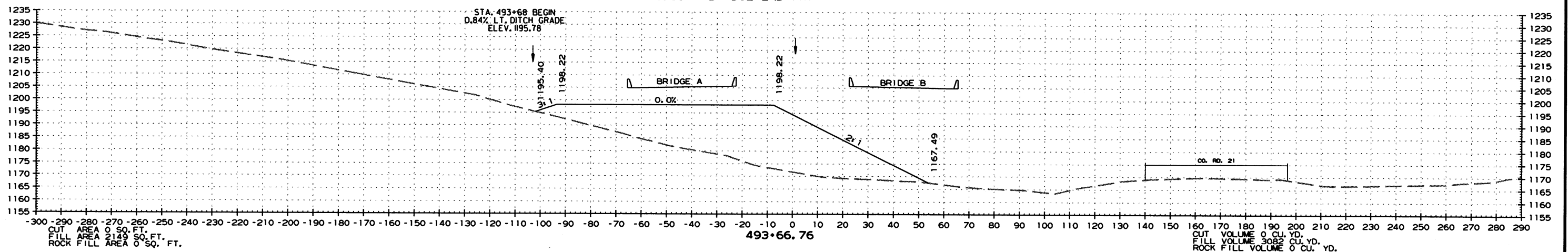
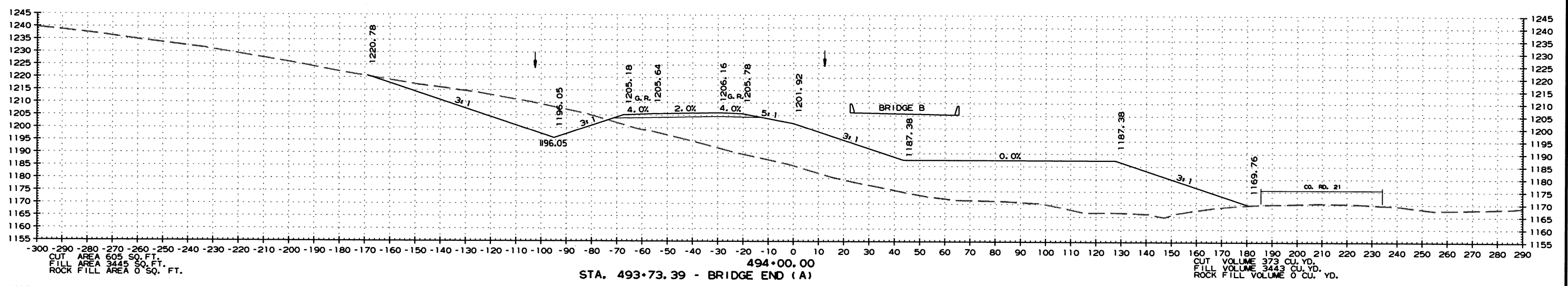
2 CROSS SECTIONS - HWY. 549 (MAIN LANES)



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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. CA0905	135	160

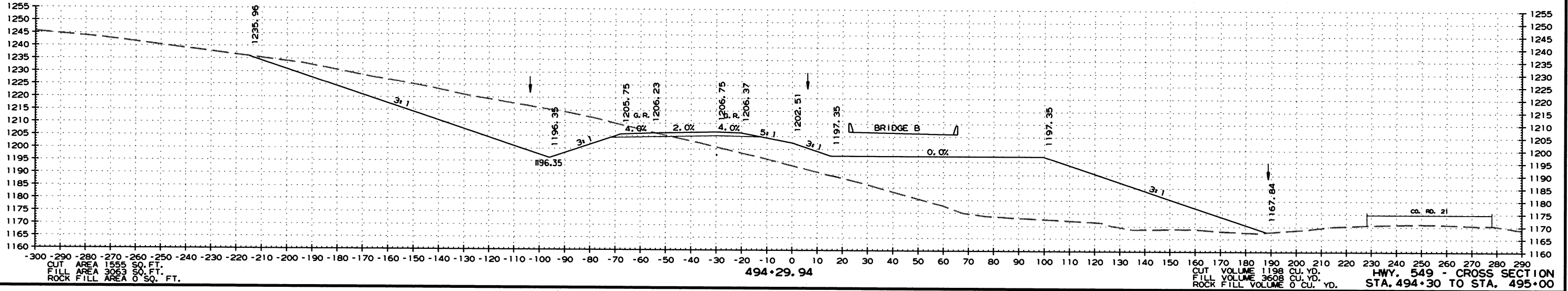
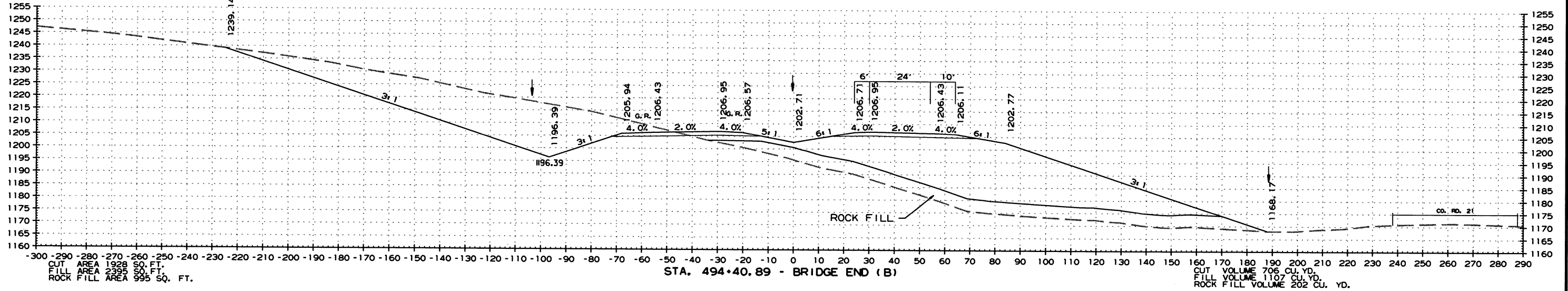
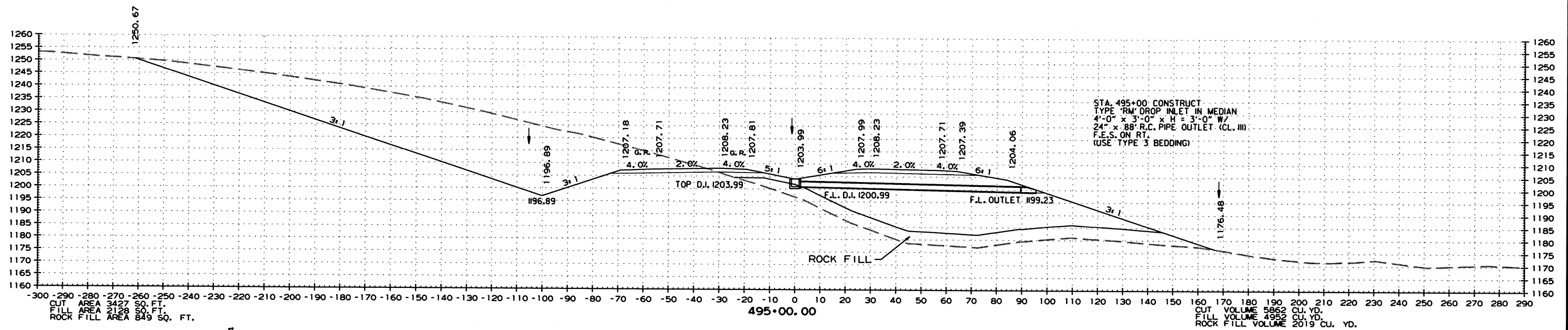
② CROSS SECTIONS - HWY. 549 (MAIN LANES)



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 RCA0905.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		136	160
				JOB NO. CA0905				

2 CROSS SECTIONS - HWY. 549 (MAIN LANES)

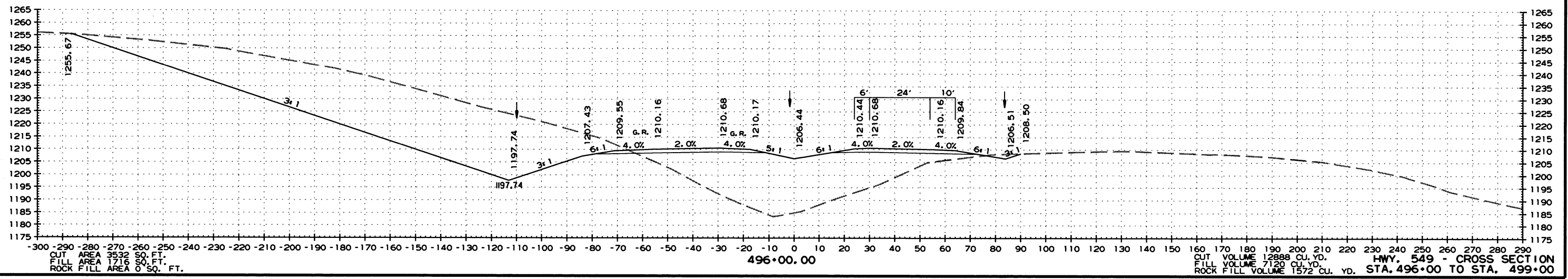
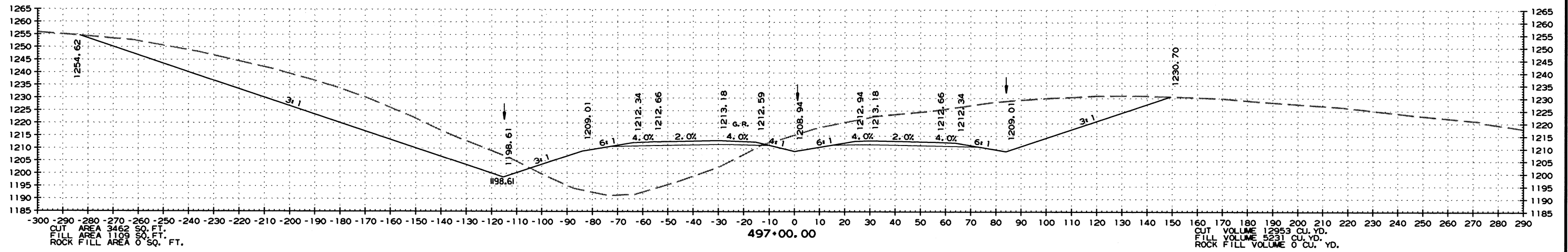
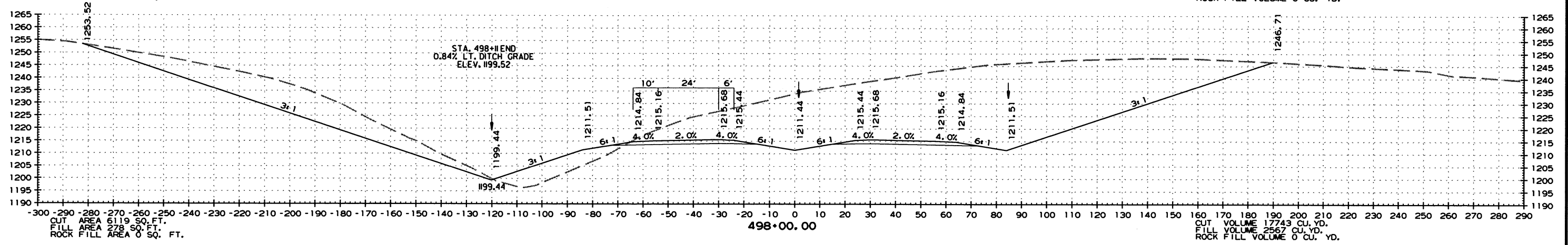
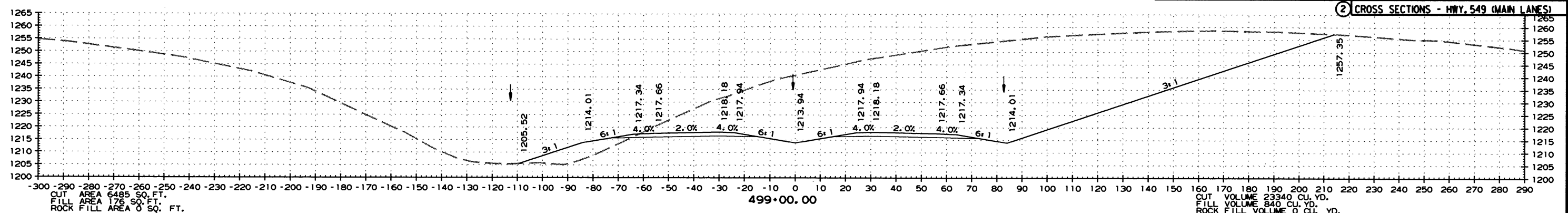


HWY. 549 - CROSS SECTION STA. 494+30 TO STA. 495+00

9/26/2016
RC-A0905.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. CA0905							137	160

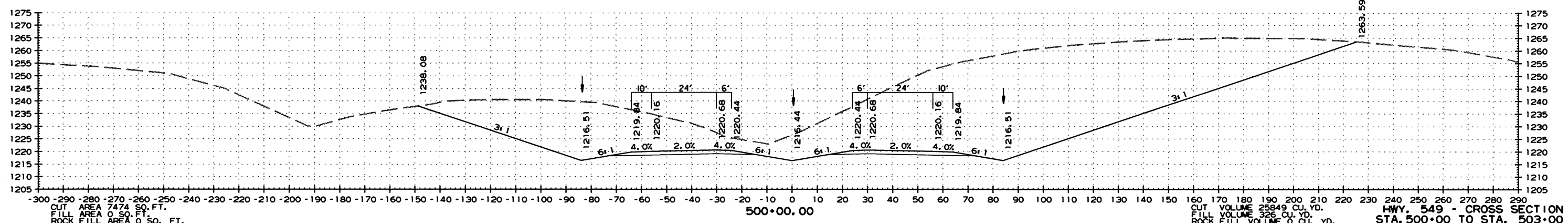
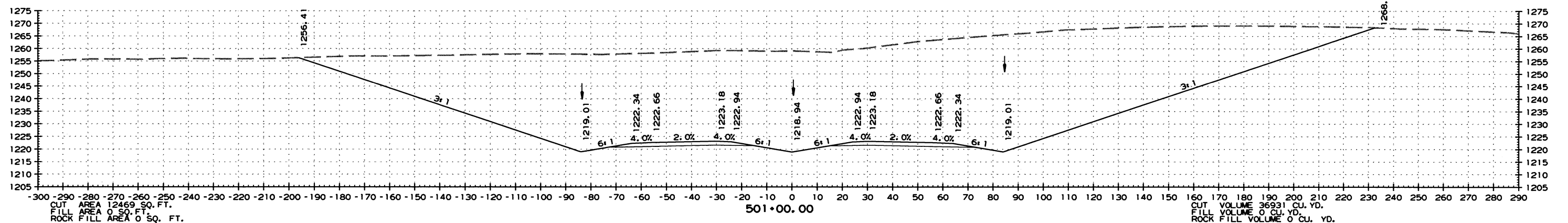
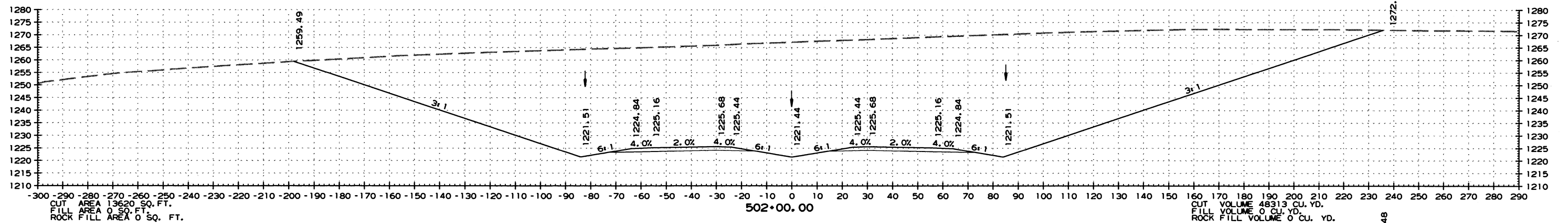
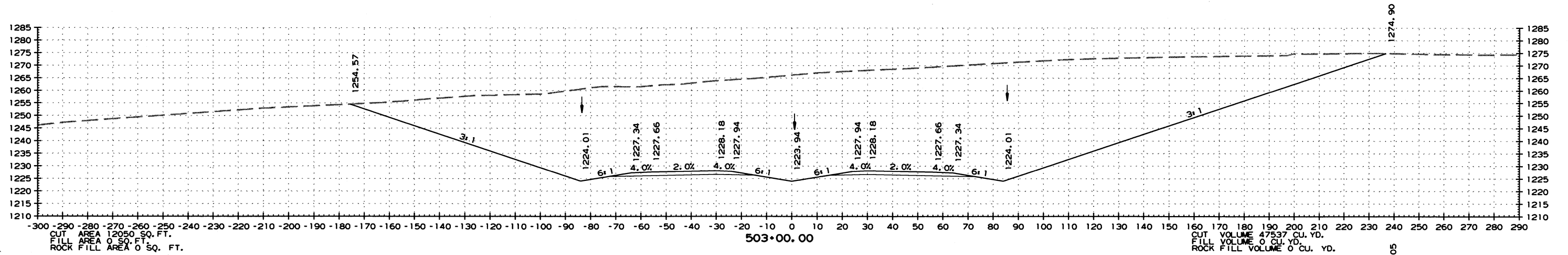
② CROSS SECTIONS - HWY. 549 (MAIN LANES)



9/26/2016
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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. CA0905							138	160

2 CROSS SECTIONS - HWY. 549 (MAIN LANES)

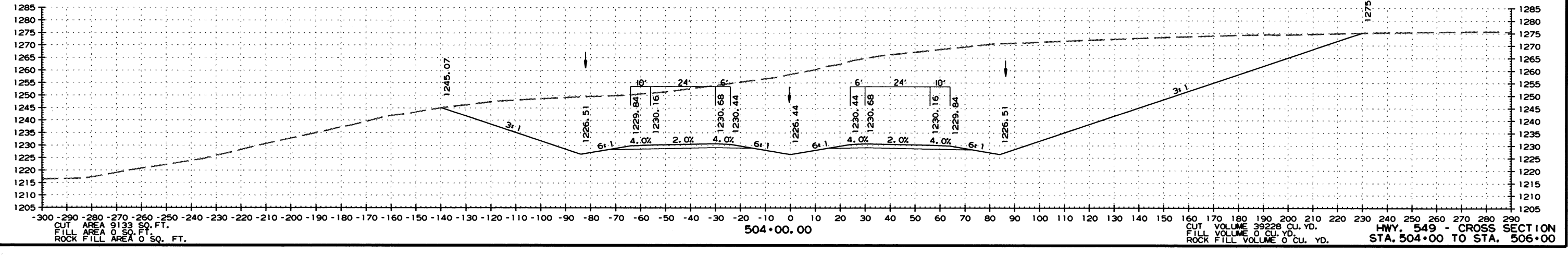
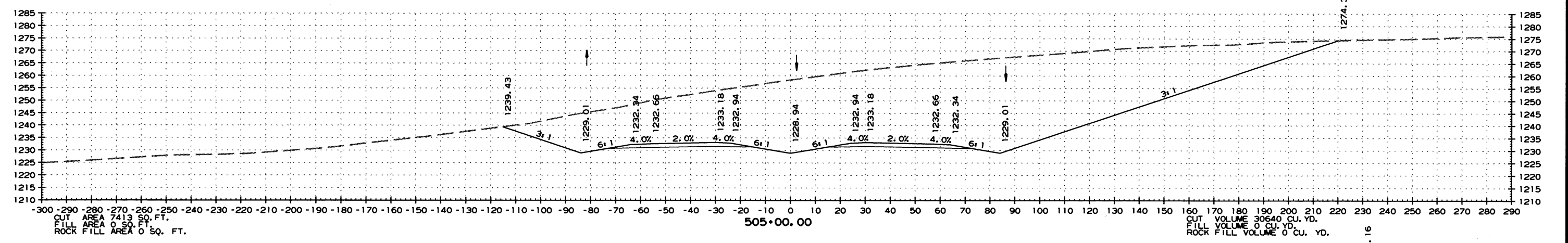
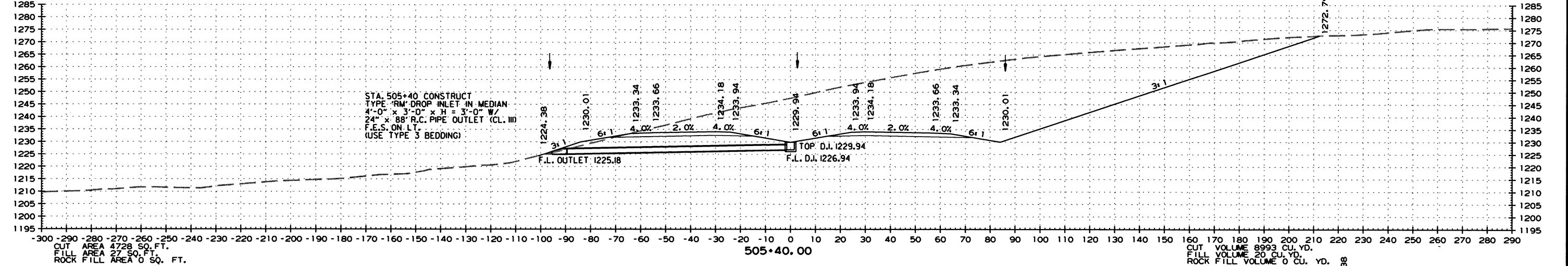
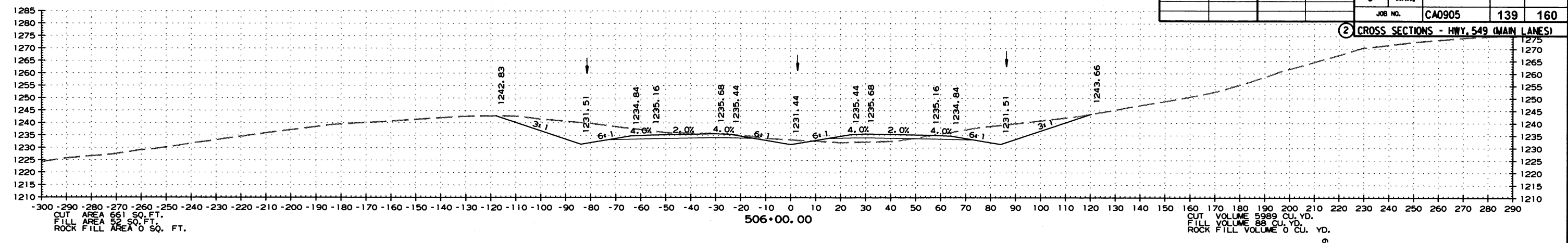


HWY. 549 - CROSS SECTION
STA. 500+00 TO STA. 503+00

9/26/2016
RCA0905.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. CA0905							139	160

② CROSS SECTIONS - HWY. 549 (MAIN LANES)

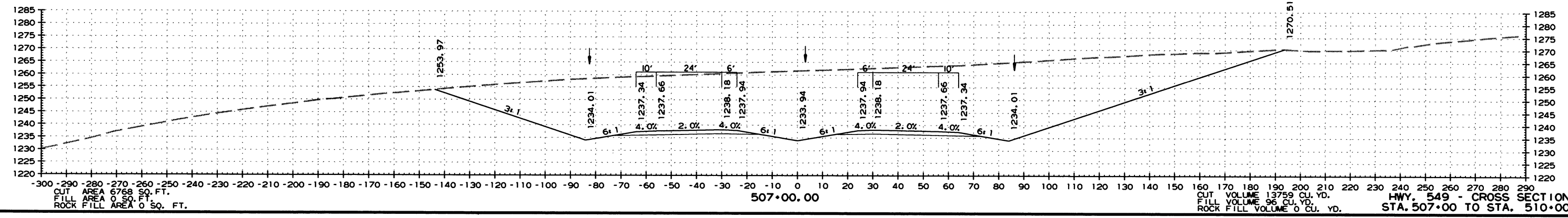
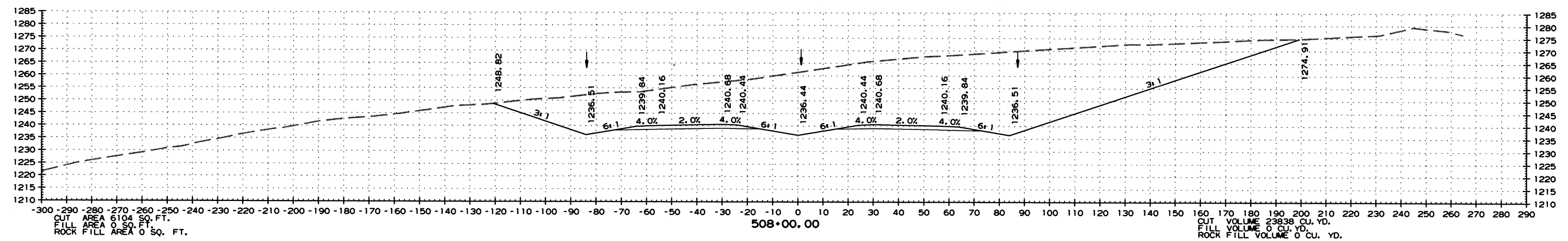
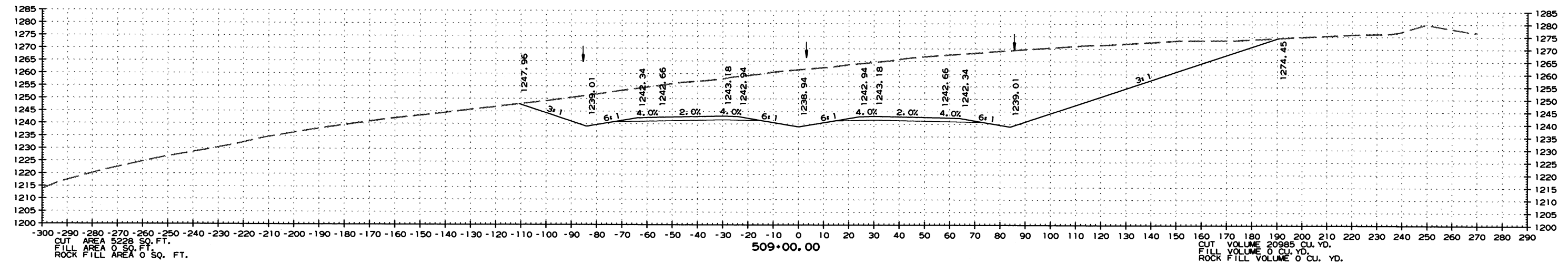
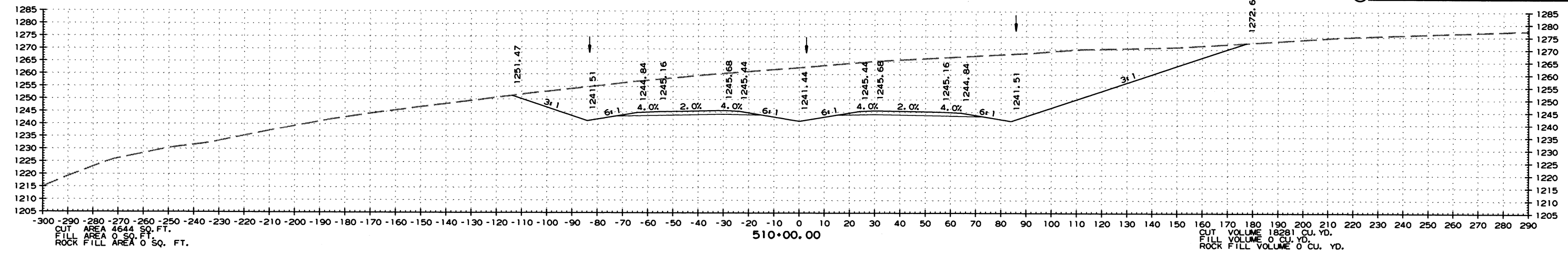


HWY. 549 - CROSS SECTION
STA. 504+00 TO STA. 506+00

9/26/2016
RCA0905.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. CA0905							140	160

② CROSS SECTIONS - HWY. 549 (MAIN LANES)

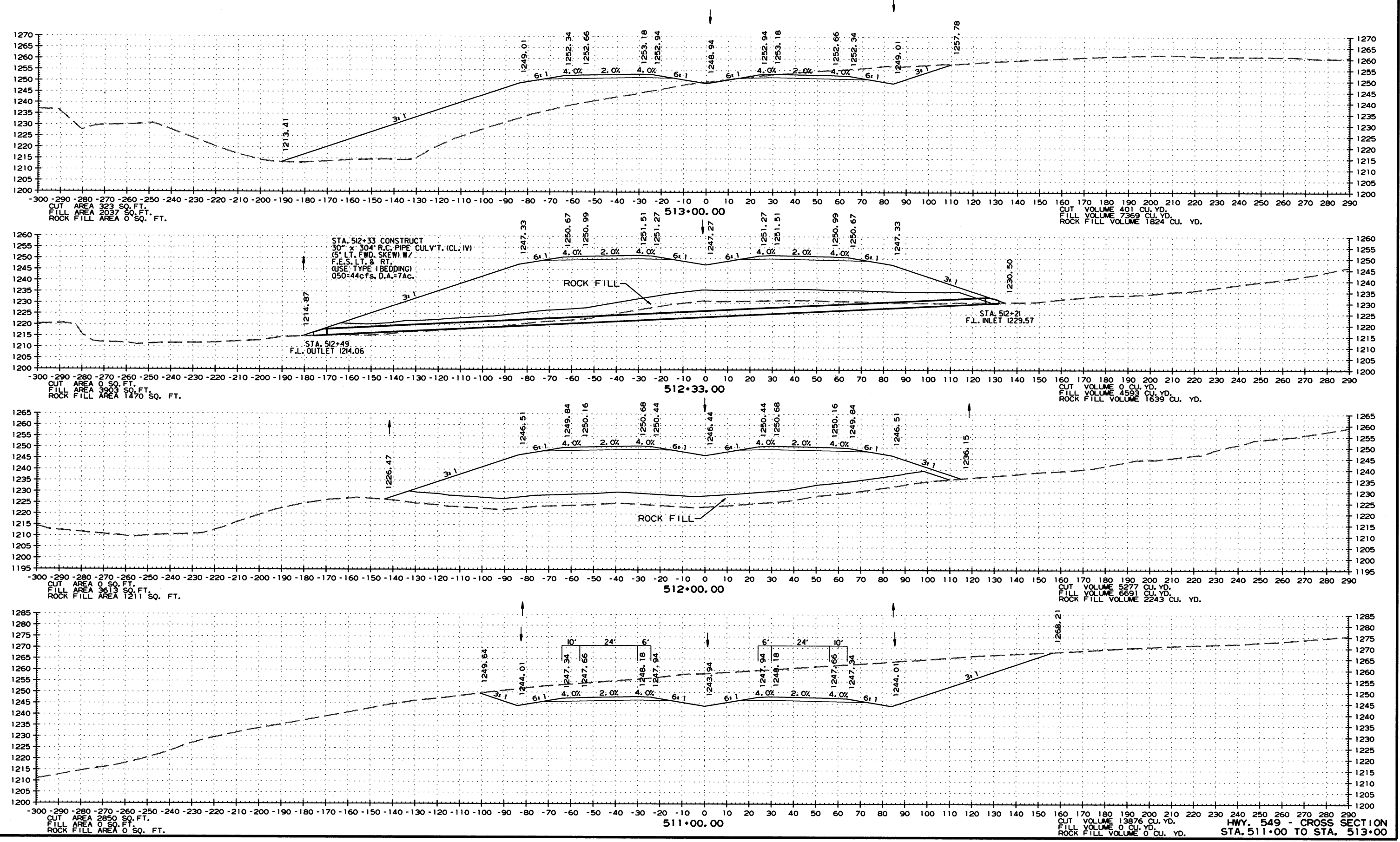


HWY. 549 - CROSS SECTION
 STA. 507+00 TO STA. 510+00

9/26/2016
 RC A0905.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		141	160
				JOB NO. CA0905				

2 CROSS SECTIONS - HWY. 549 (MAIN LANES)

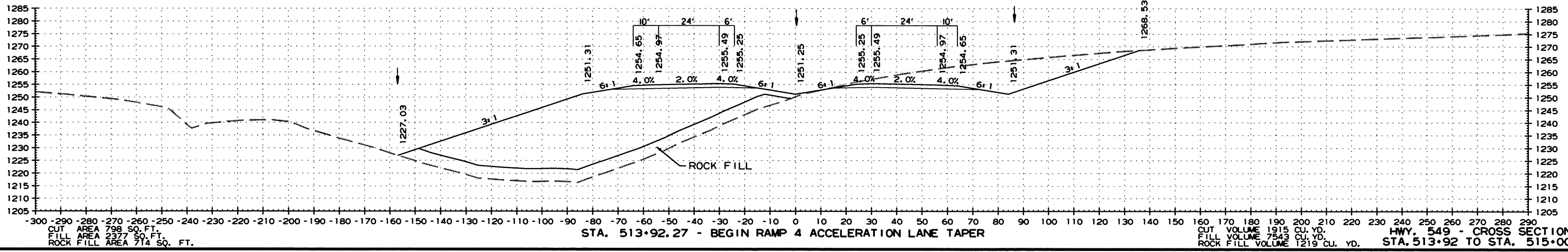
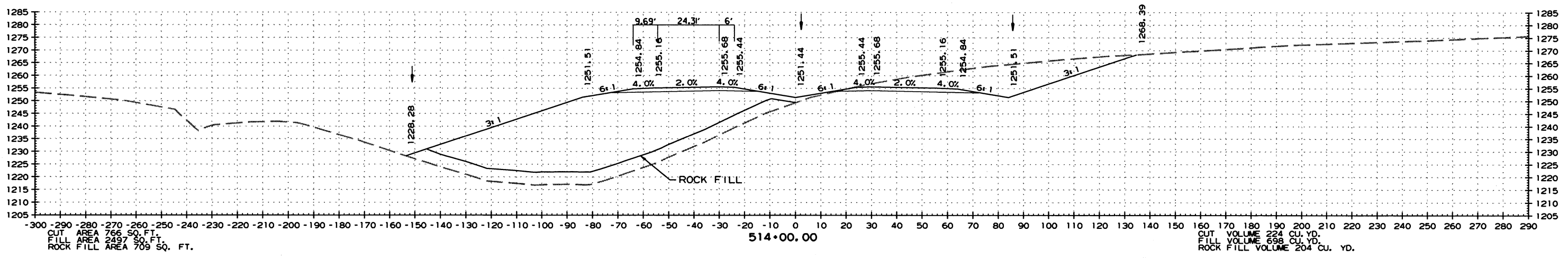
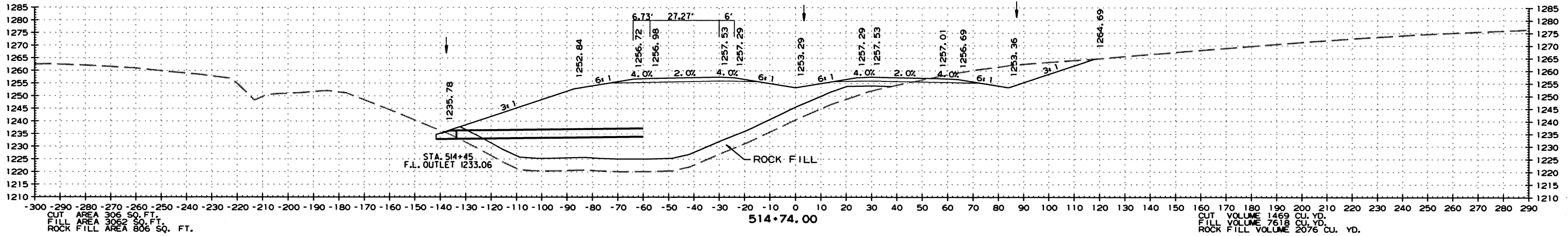
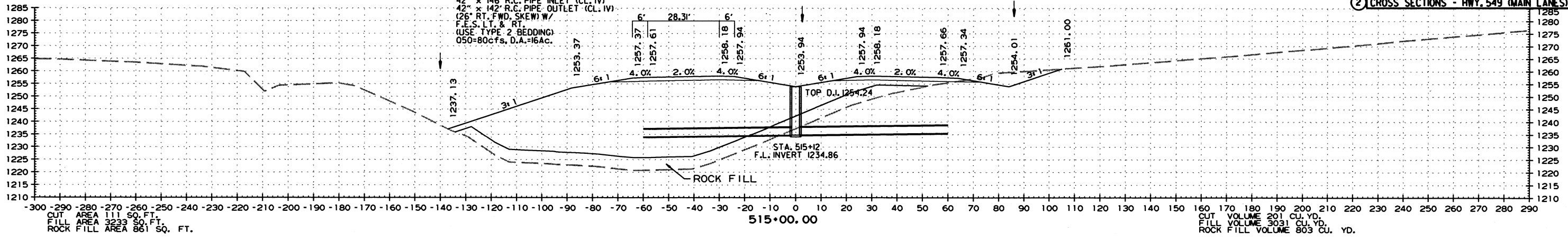


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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. PROJ. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		142	160
				JOB NO.		CA0905		

2 CROSS SECTIONS - HWY. 549 (MAIN LANES)

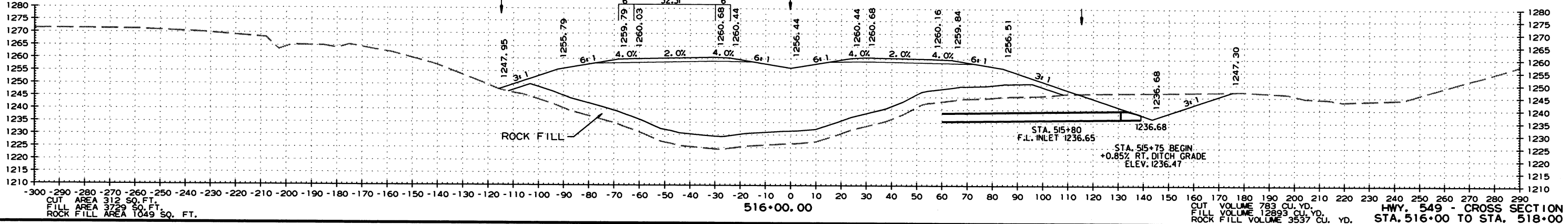
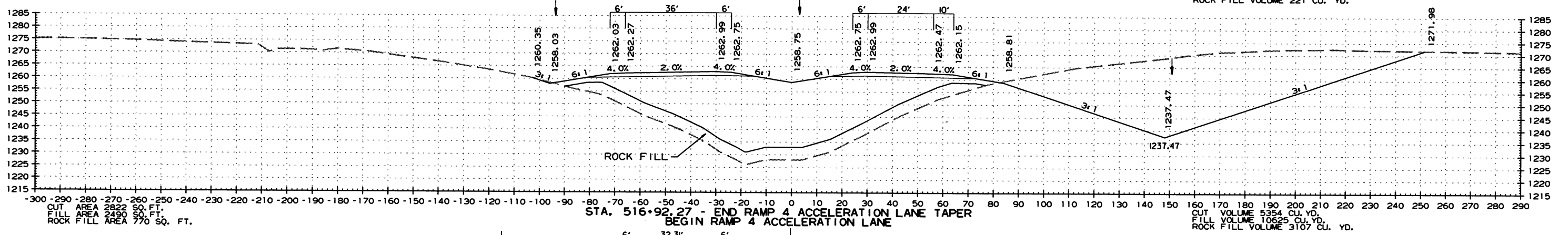
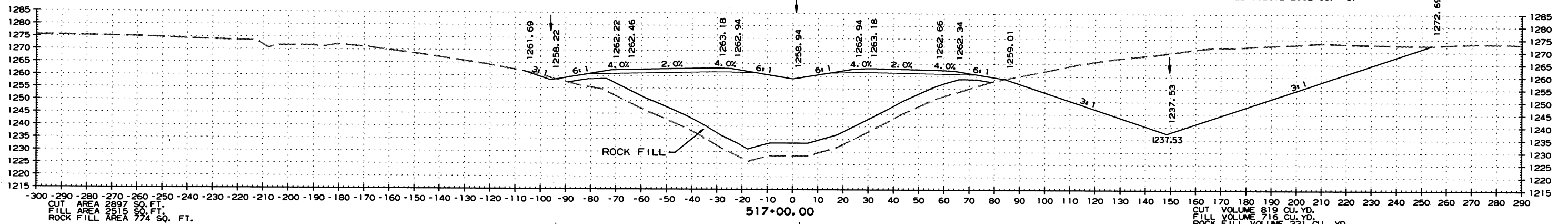
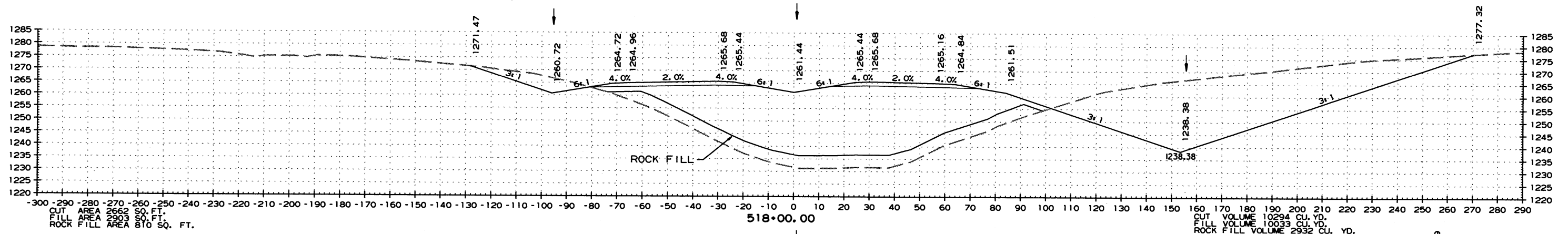
STA. 515+12 CONSTRUCT
 TYPE "RM" DROP INLET IN MEDIAN
 6'-7" x 3'-0" x H = 19'-5" W/
 42" x 146' R.C. PIPE INLET (CL. IV)
 42" x 142' R.C. PIPE OUTLET (CL. IV)
 126' RT. FWD. SKEW W/
 F.S. LT. & RT.
 (USE TYPE 2 BEDDING)
 050=80cfs, D.A.=16Ac.



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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.	CA0905		143	160

2 CROSS SECTIONS - HWY. 549 (MAIN LANES)

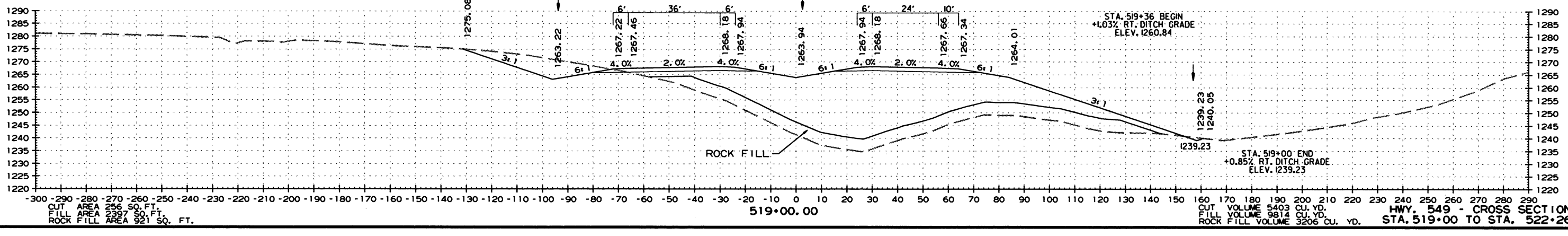
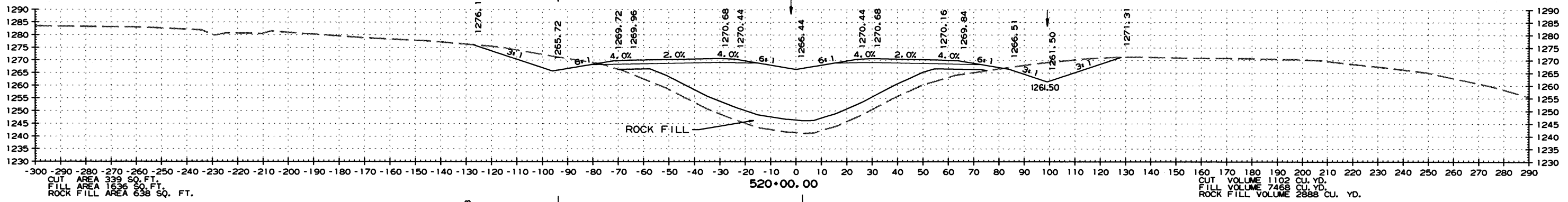
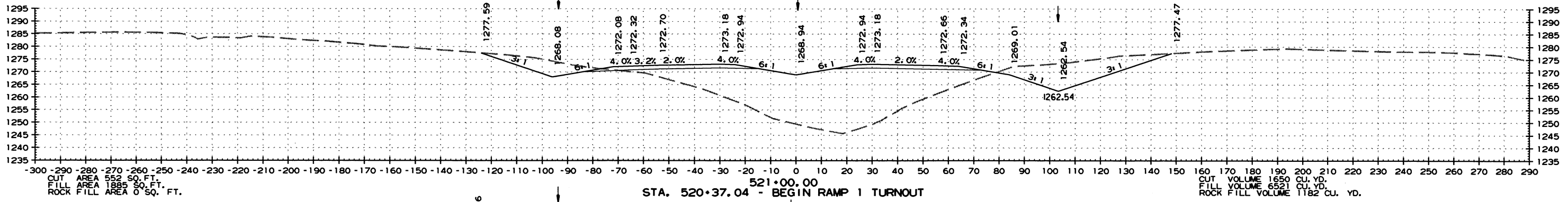
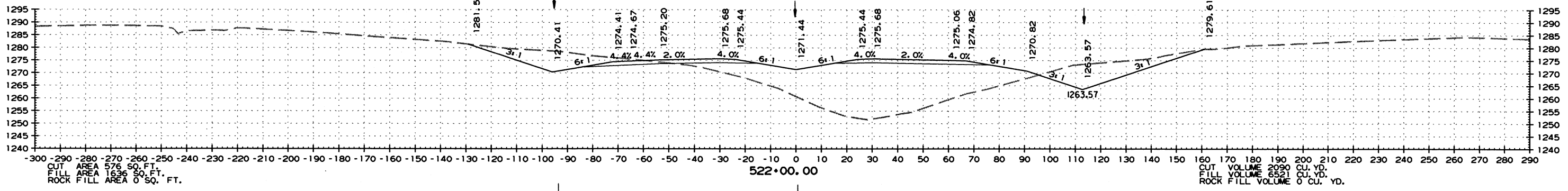
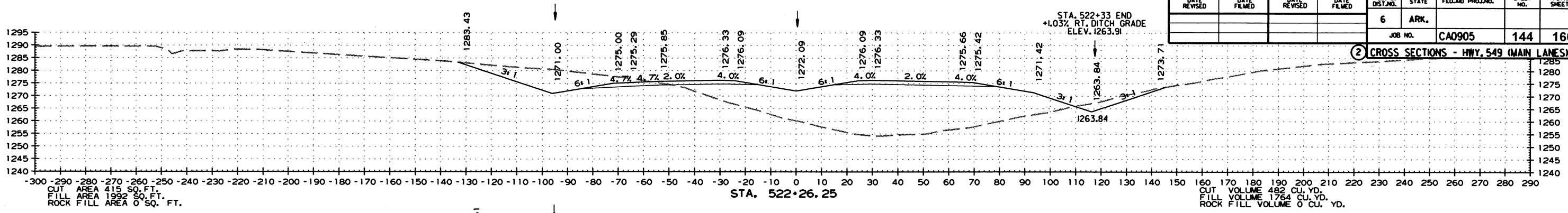


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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		144	160
				JOB NO.		CA0905		

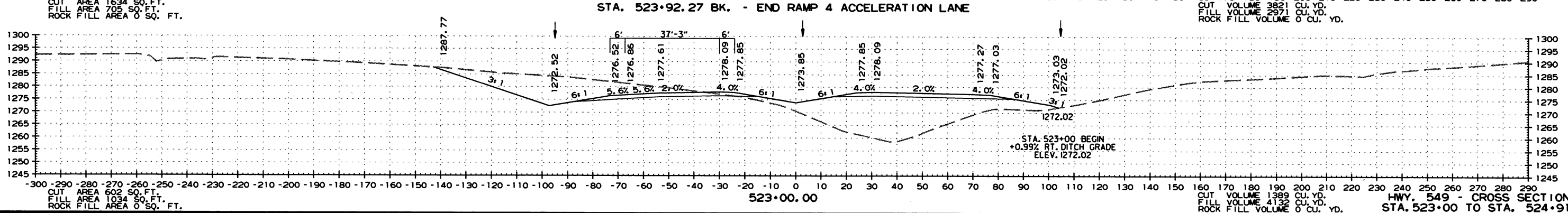
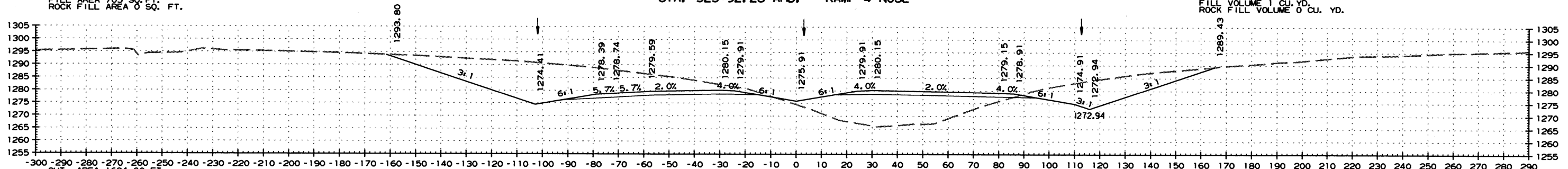
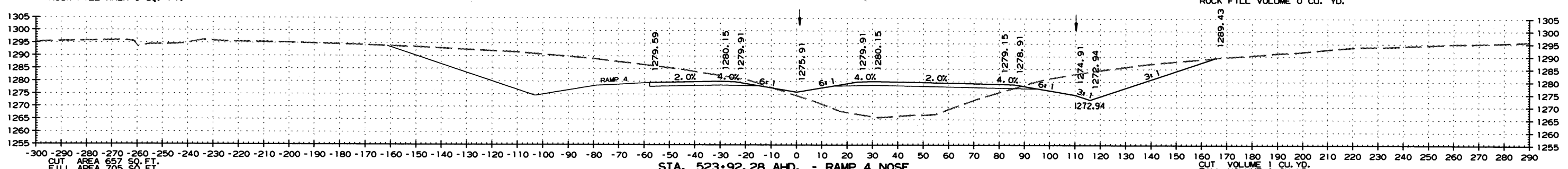
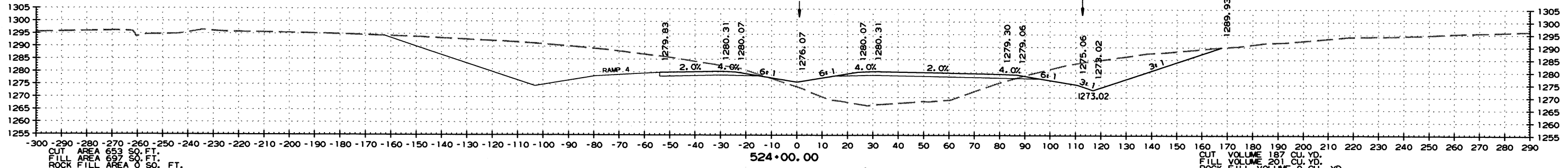
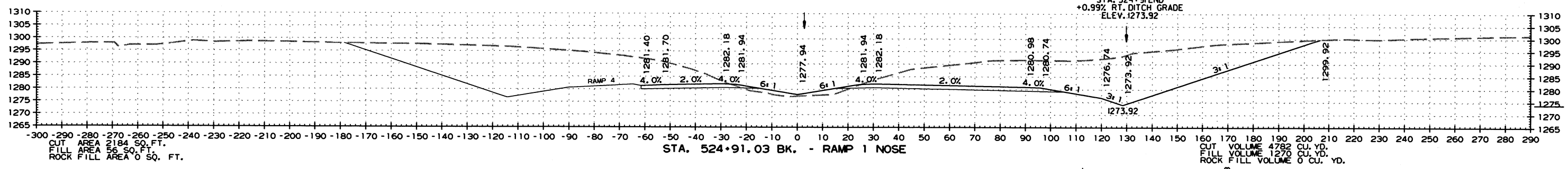
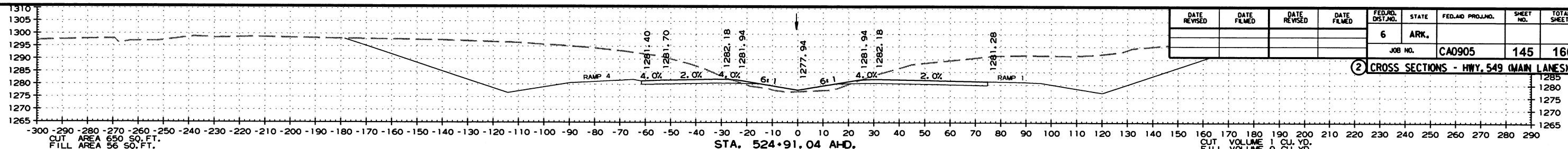
② CROSS SECTIONS - HWY. 549 (MAIN LANES)



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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		145	160
				JOB NO.		CA0905		

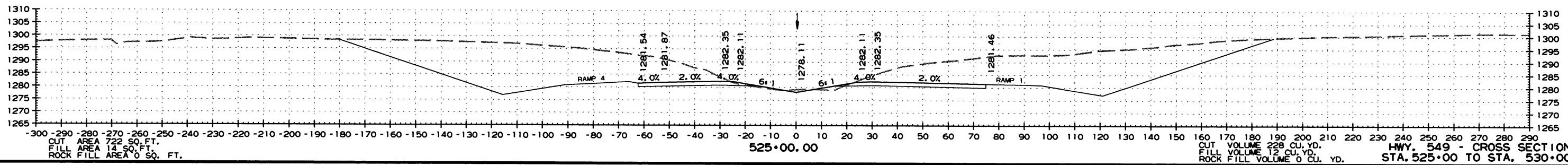
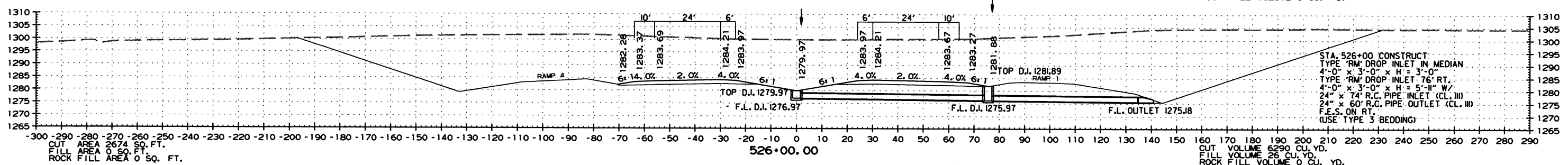
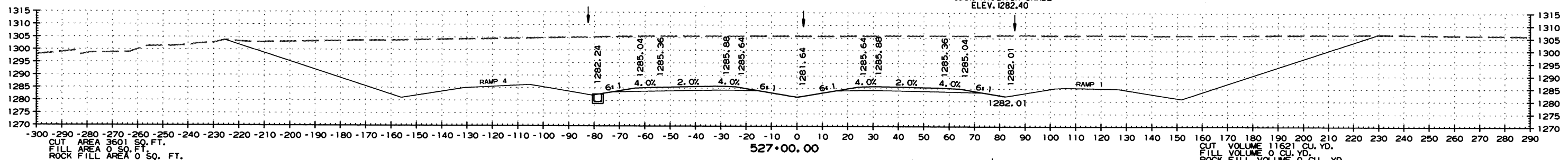
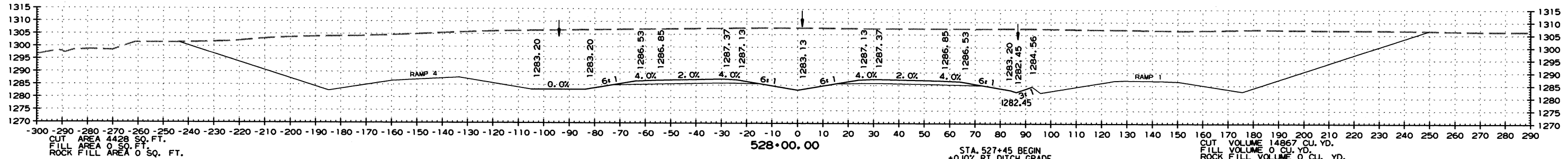
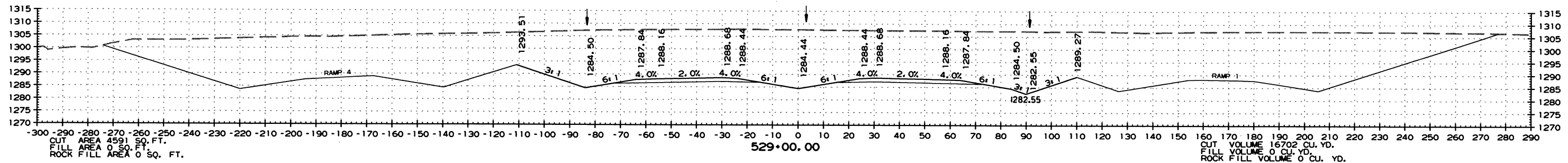
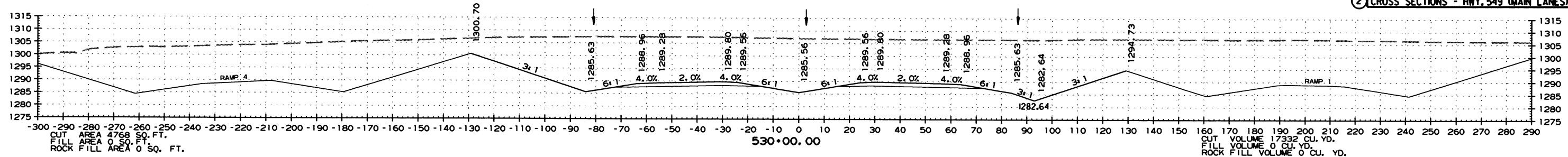
2 CROSS SECTIONS - HWY. 549 (MAIN LANES)



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RC A0905.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. RD. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		146	160
				JOB NO. CA0905				

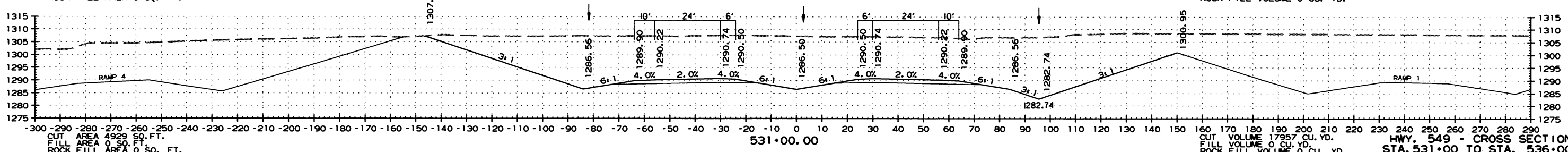
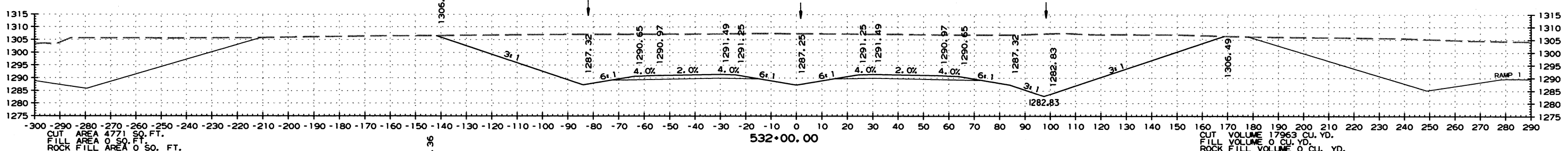
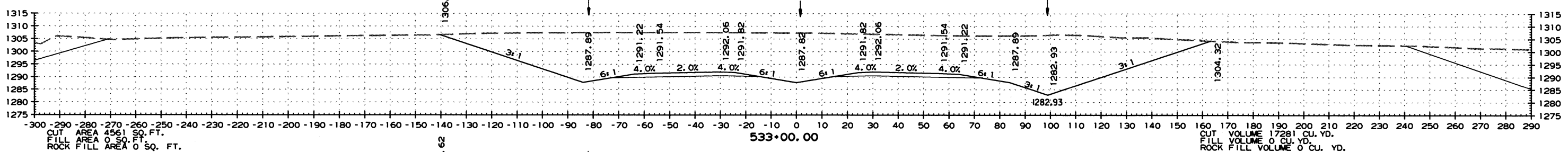
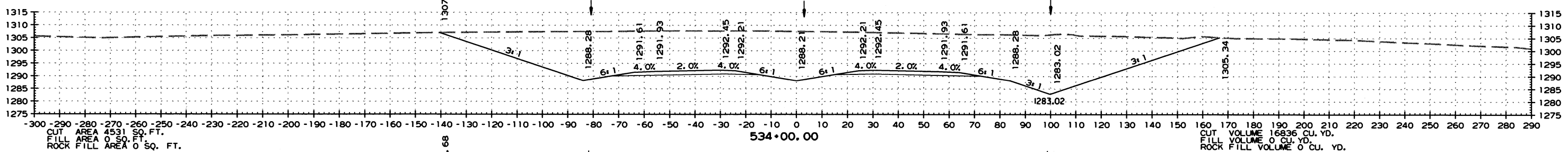
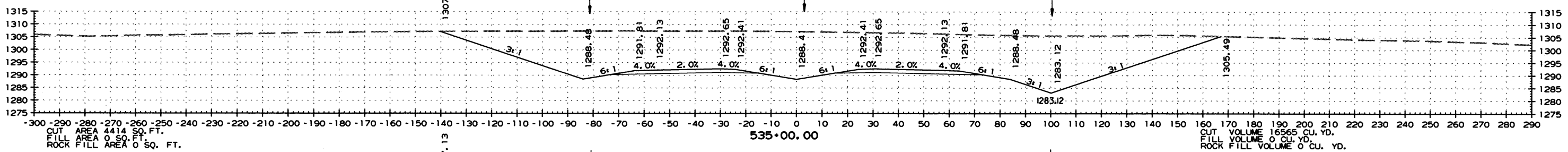
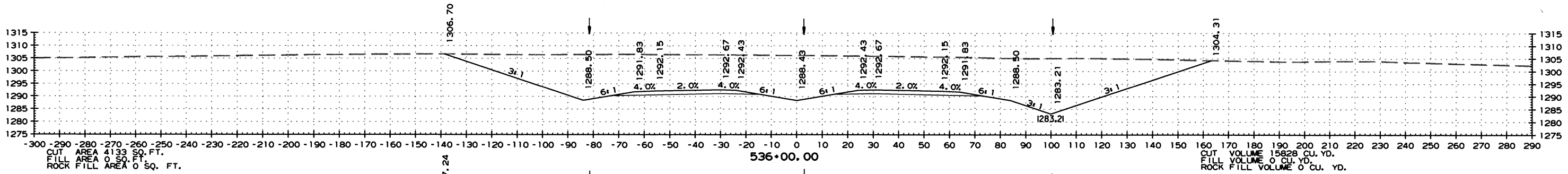
2 CROSS SECTIONS - HWY. 549 (MAIN LANES)



CA0905.DGN 9/26/2016

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.	CA0905		147	160

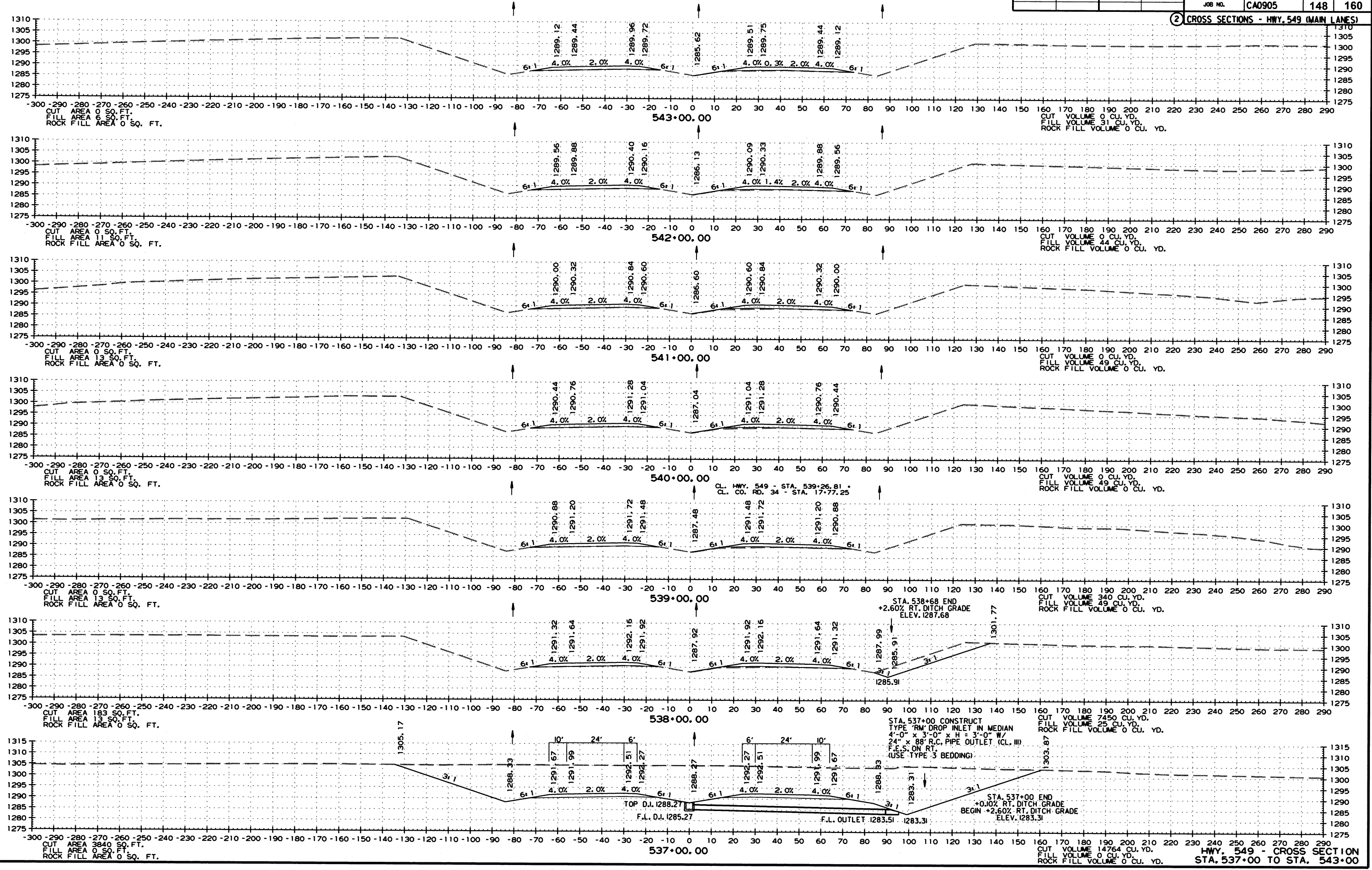
2 CROSS SECTIONS - HWY. 549 (MAIN LANES)



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RCAD0905.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.	CA0905		148	160

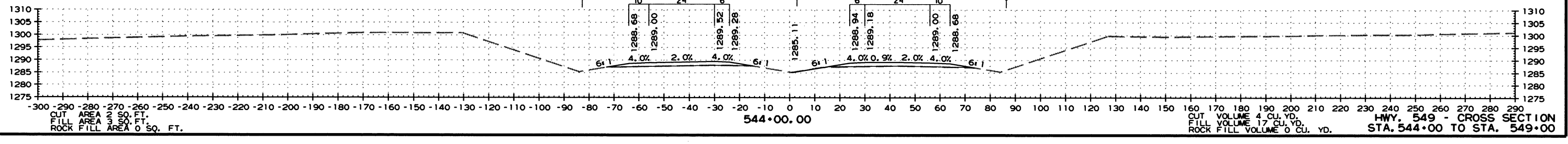
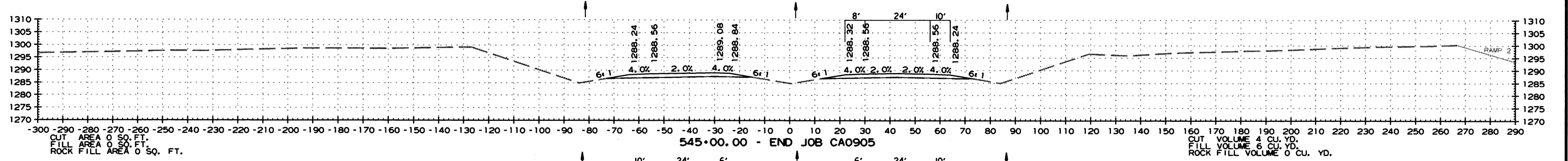
② CROSS SECTIONS - HWY. 549 (MAIN LANES)



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RCA0905.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
						JOB NO. CA0905	149	160

② CROSS SECTIONS - HWY. 549 (MAIN LANES)



HWY. 549 - CROSS SECTION
STA. 544+00 TO STA. 549+00

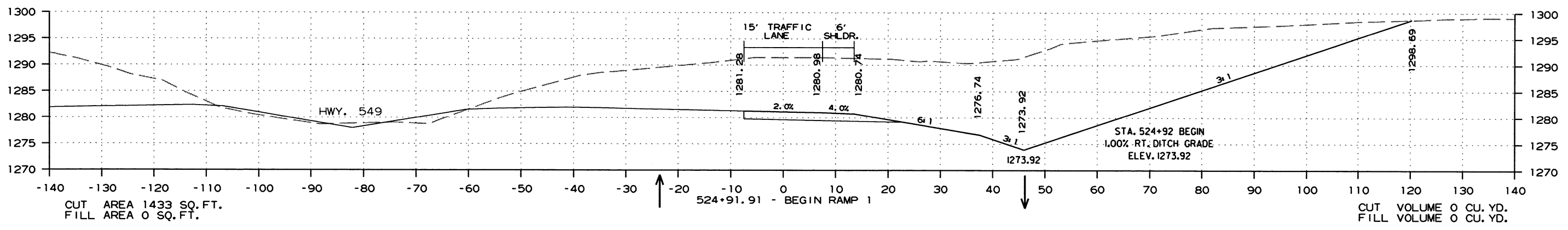
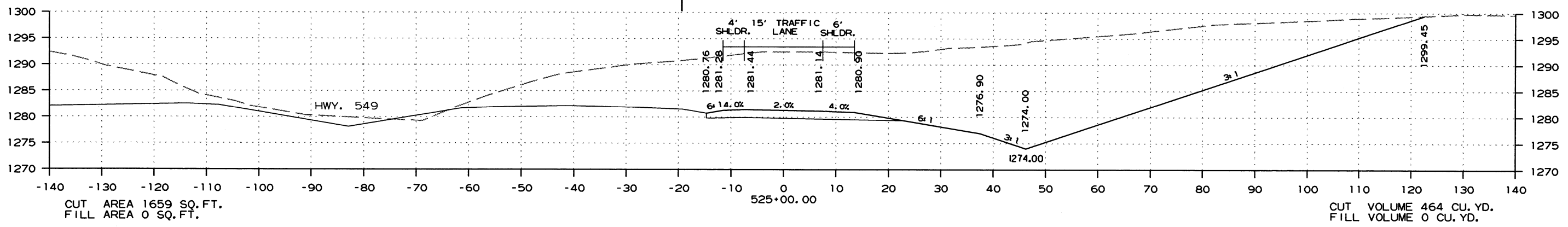
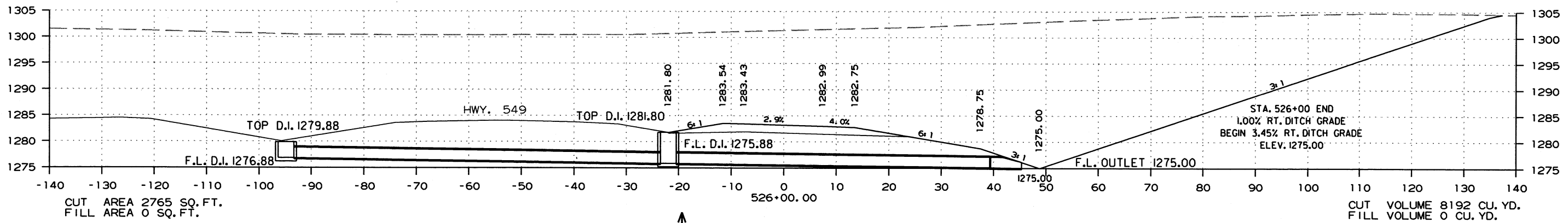
9/26/2016

RCA0905.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. CA0905							150	160

2 CROSS SECTIONS - CO. RD. 34 INTERCHANGE RAMP 1

STA. 526+00 CONSTRUCT
 3'-0" x 4'-0" TYPE RM DROP INLET
 19.83' LT. OF RAMP 1
 WITH 24" x 74" R.C. PIPE INLET (CL. 111)
 & 24" x 60" R.C. PIPE OUTLET (CL. 111)
 WITH F.E.S. RT.
 USE TYPE 3 BEDDING
 (H = 5'-11")
 Q50 = 22 cfs; DA = 4 ac.



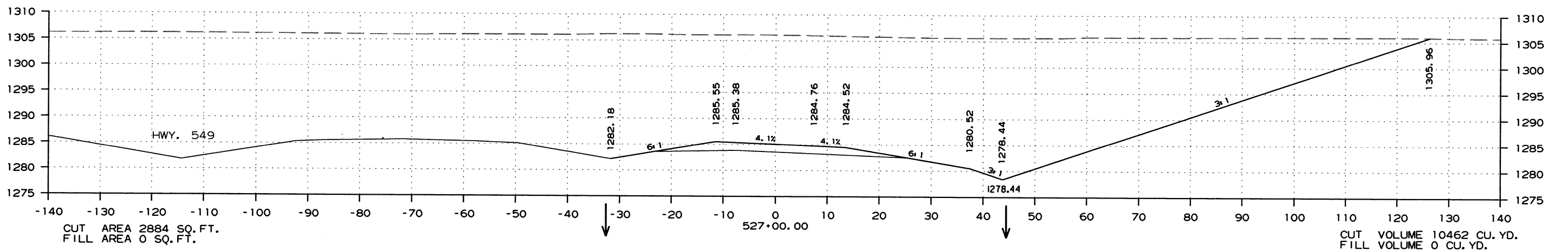
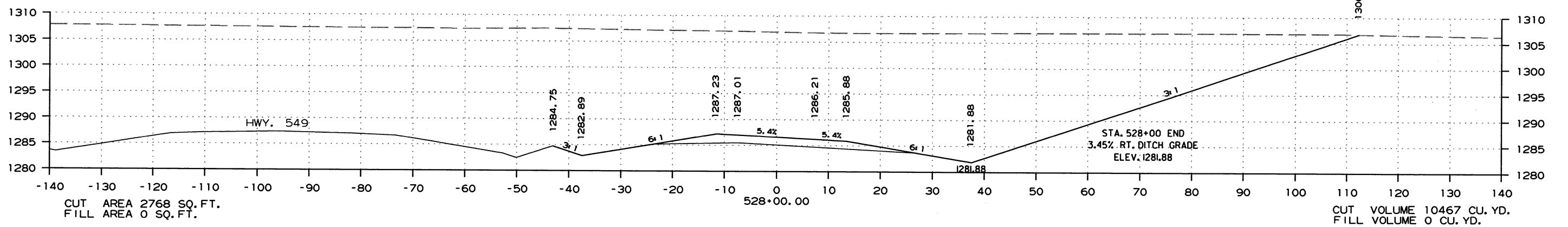
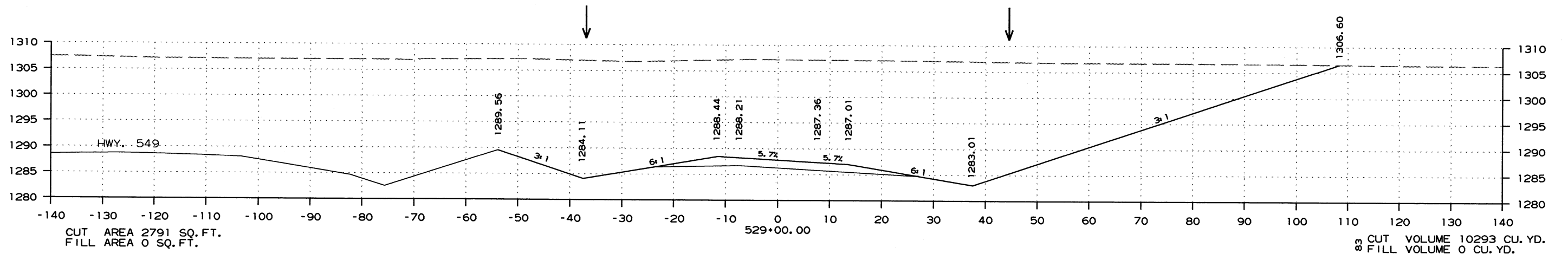
CO. RD. 34 RAMP 1 - CROSS SECTION STA. 524+92 TO STA. 526+00

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RC40905.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.	CA0905		151	160

2 CROSS SECTIONS - CO. RD. 34 INTERCHANGE RAMP 1



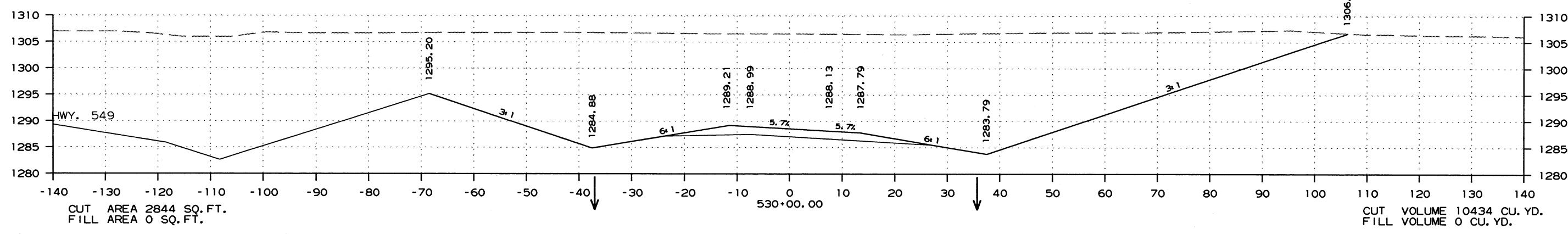
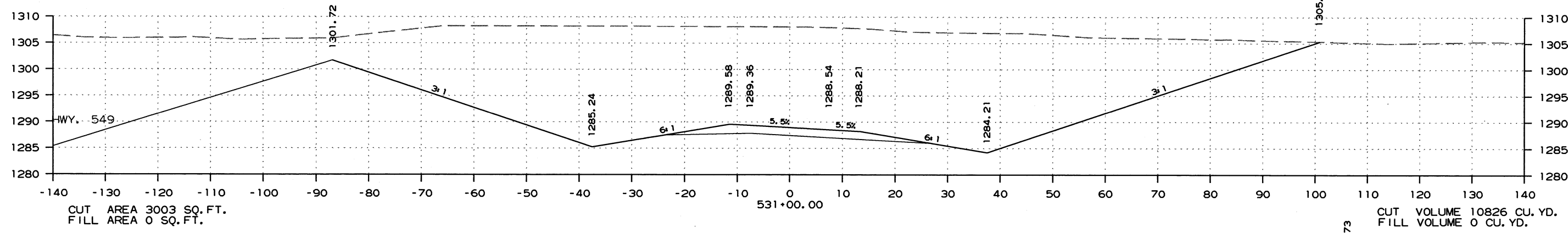
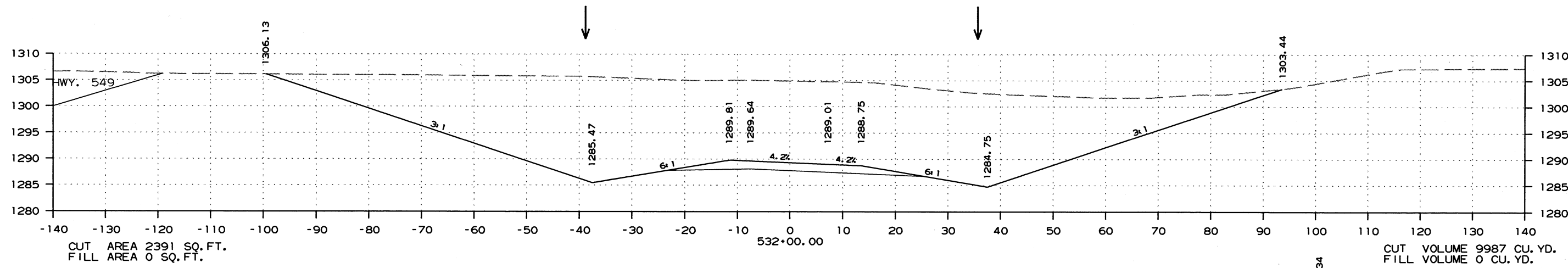
CO. RD. 34 RAMP 1 - CROSS SECTION STA. 527+00 TO STA. 529+00

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RCAD0905.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. CA0905	152	160

2 CROSS SECTIONS-CD. RD. 34 INTERCHANGE RAMP 1

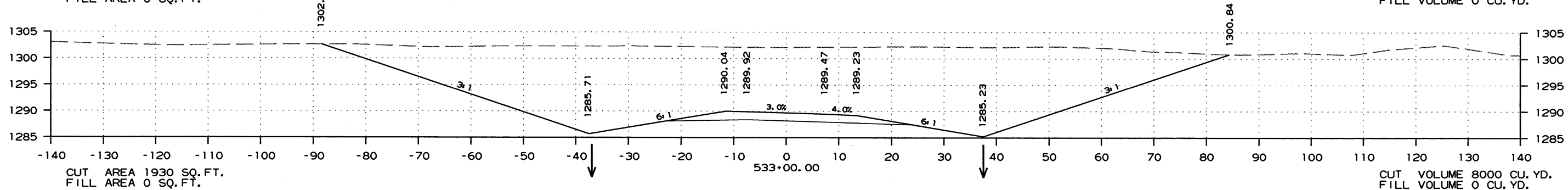
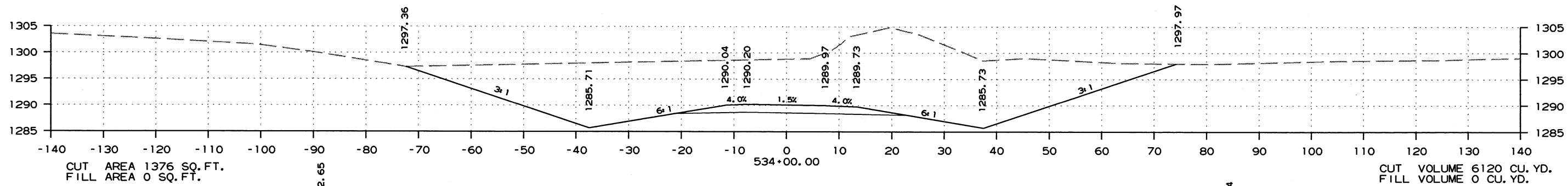
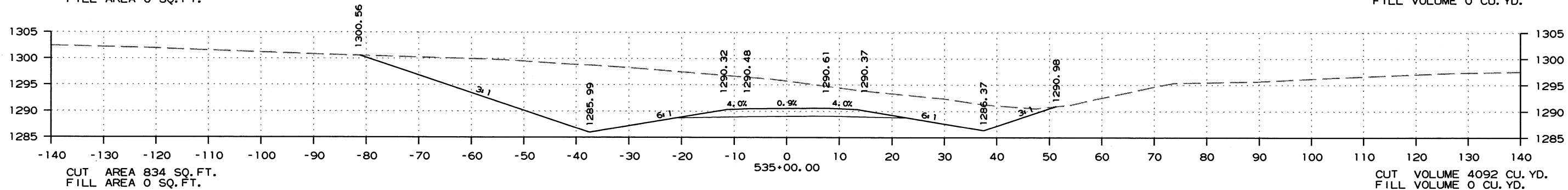
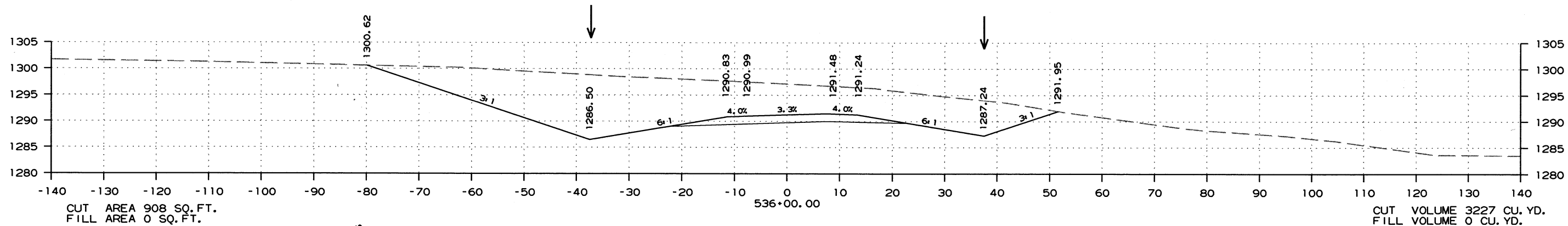


CO. RD. 34 RAMP 1 - CROSS SECTION STA. 530+00 TO STA. 532+00

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RC40905.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. CA0905	153	160

2 CROSS SECTIONS-CO. RD. 34 INTERCHANGE RAMP 1



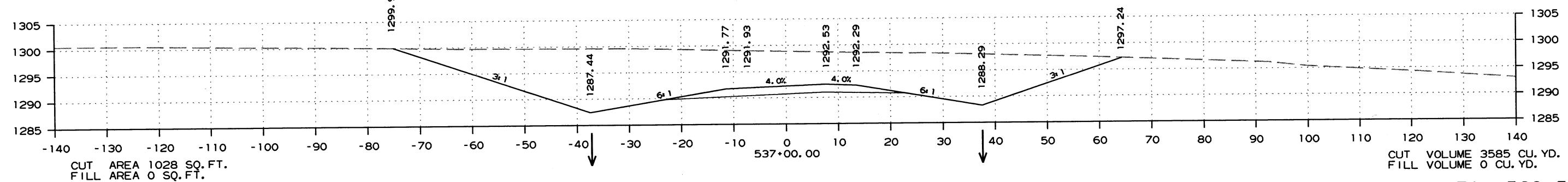
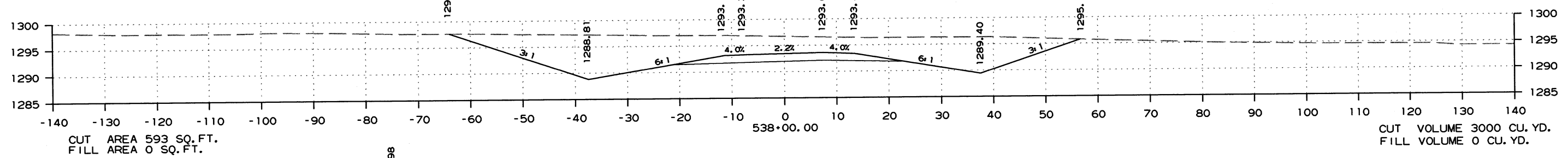
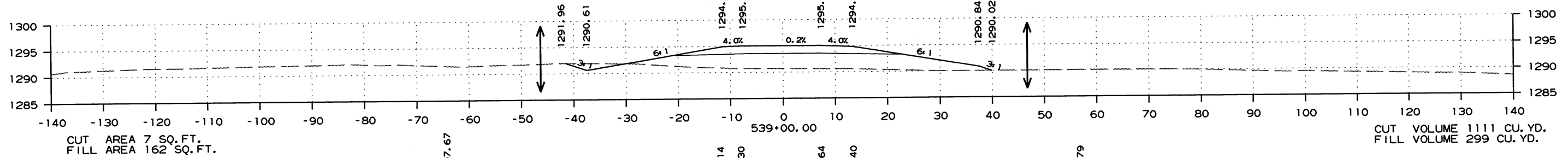
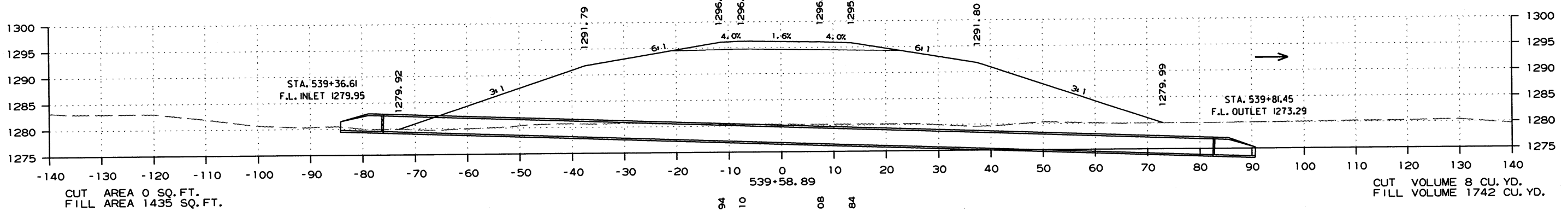
CO. RD. 34 RAMP 1 - CROSS SECTION STA. 533+00 TO STA. 536+00

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RC40905.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. CA0905	154	160

2 CROSS SECTIONS-CD. RD. 34 INTERCHANGE RAMP 1

STA. 539+59 CONSTRUCT
 36" x 160' R.C. PIPE CULV'T. (CL. IV)
 (14' RT. FWD. SKEW)
 WITH F.E.S. LT. & RT.
 USE TYPE 3 BEDDING
 050 = 72 cfs; D.A. = 9 ac.

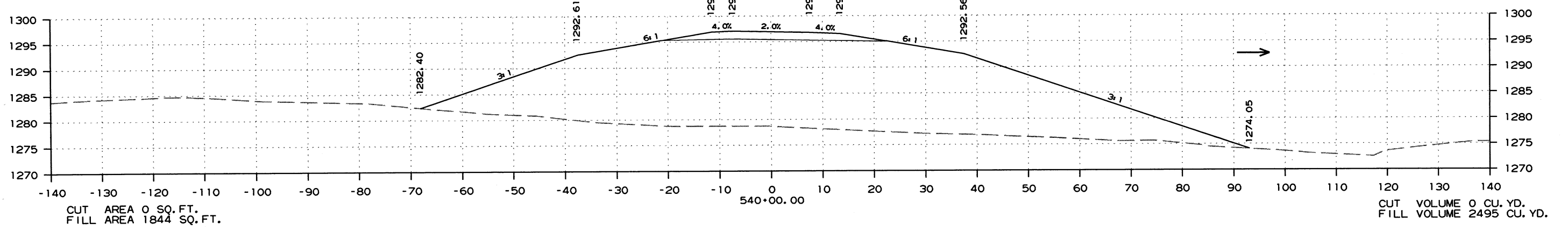
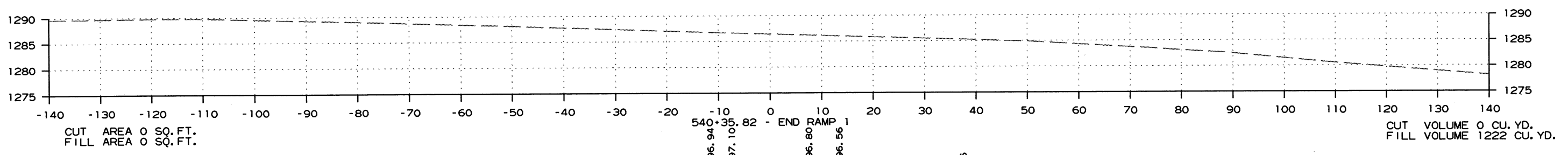


CO. RD. 34 RAMP 1 - CROSS SECTION STA. 537+00 TO STA. 539+59

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 R0A0905.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. CA0905			155	160

② CROSS SECTIONS-CO. RD. 34 INTERCHANGE RAMP 1

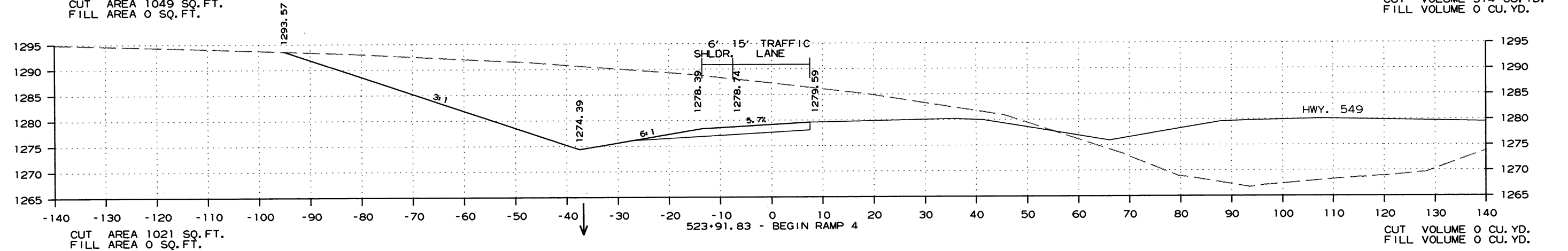
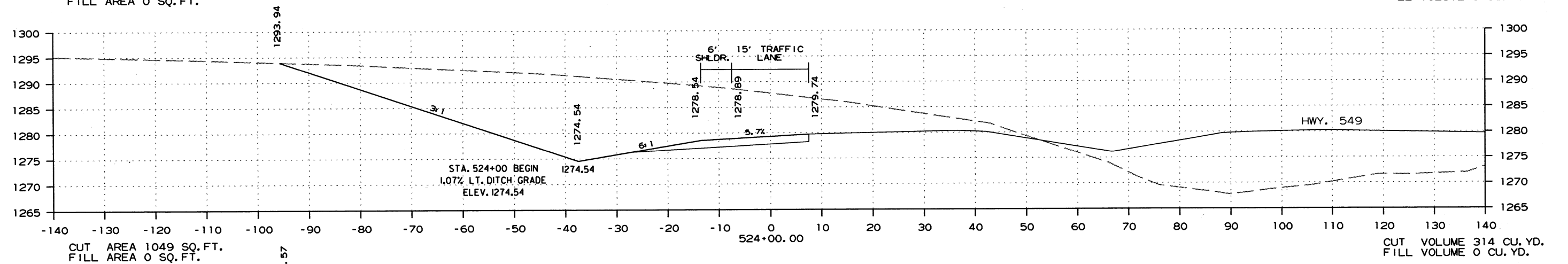
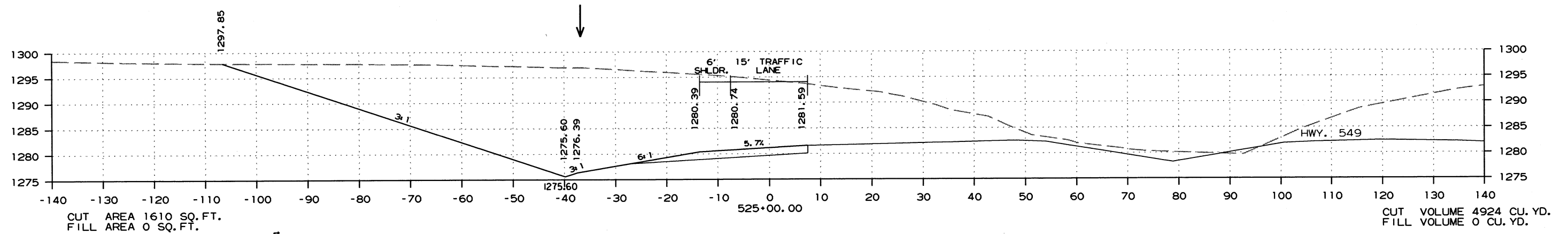


CO. RD. 34 RAMP 1 - CROSS SECTION STA. 540+00 TO STA. 540+36

9/26/2016
RCA0905.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. CA0905	156	160

2 CROSS SECTIONS-CO. RD. 34 INTERCHANGE RAMP 4



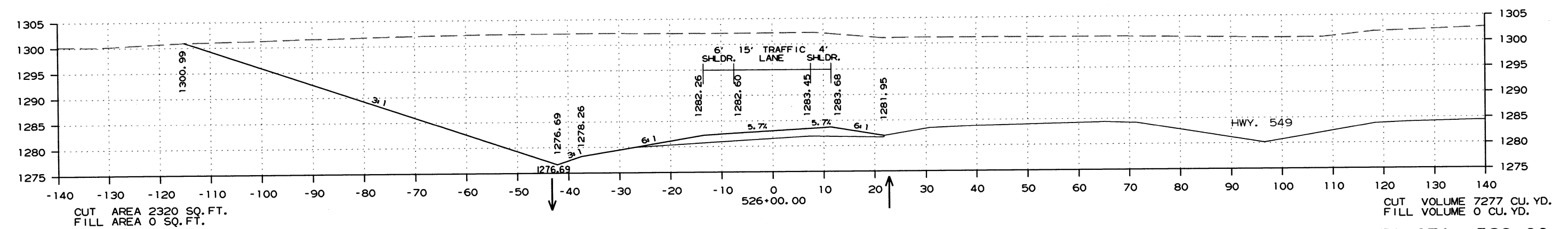
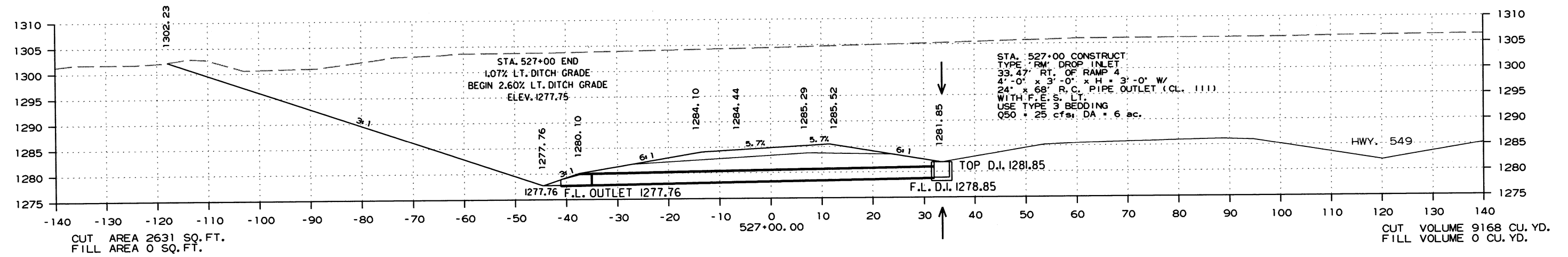
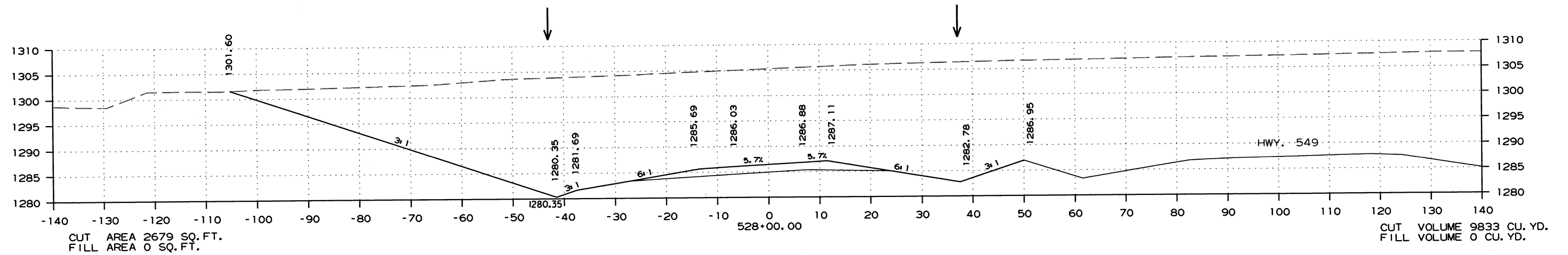
CO. RD. 34 RAMP 4 - CROSS SECTION STA. 523+92 TO STA. 525+00

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RCA0905.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.	CA0905		157	160

2 CROSS SECTIONS-CO. RD. 34 INTERCHANGE RAMP 4



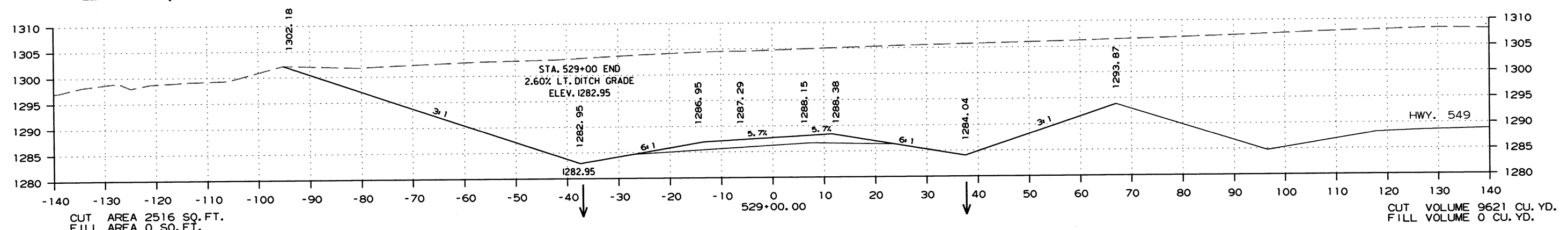
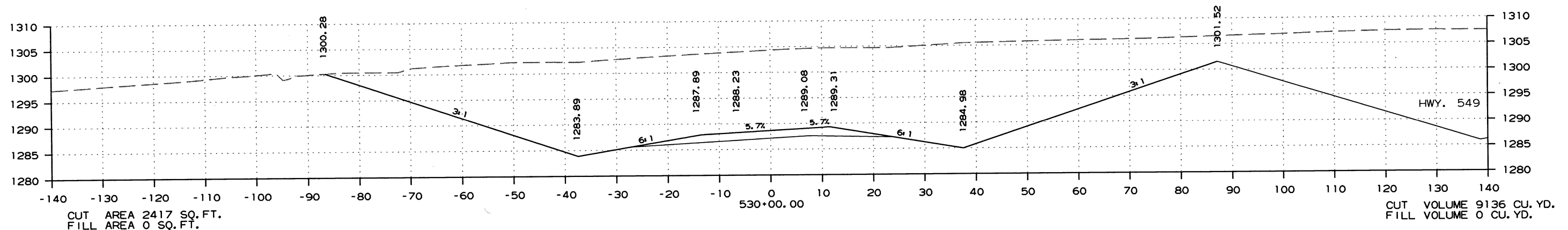
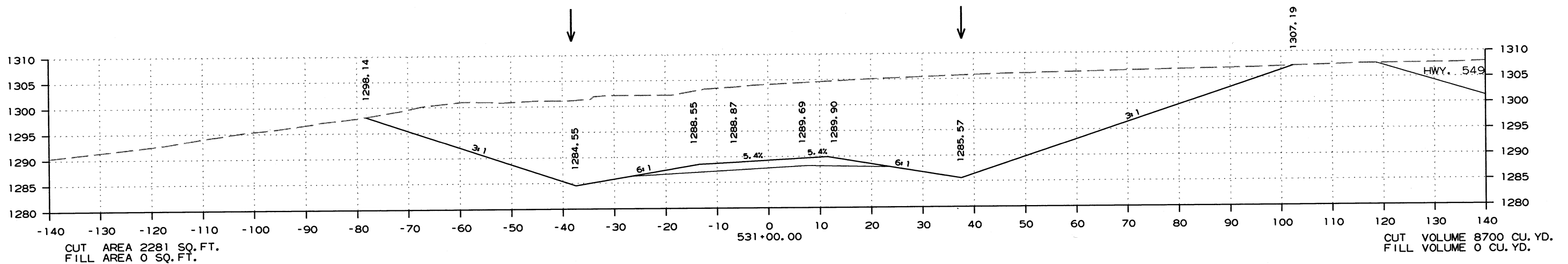
CO. RD. 34 RAMP 4 - CROSS SECTION STA. 526+00 TO STA. 528+00

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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. CA0905	158	160

2 CROSS SECTIONS-CO. RD. 34 INTERCHANGE RAMP 4

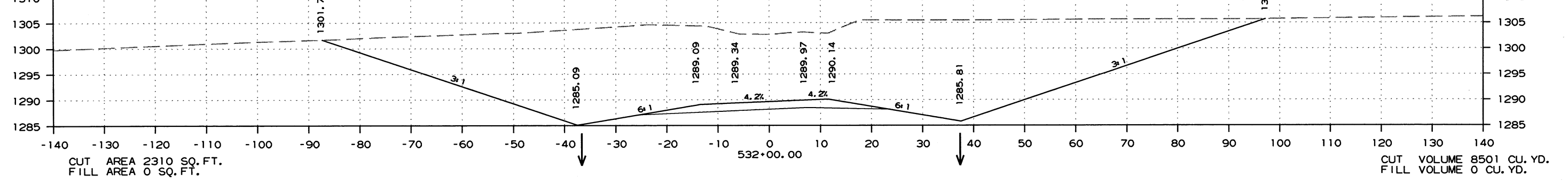
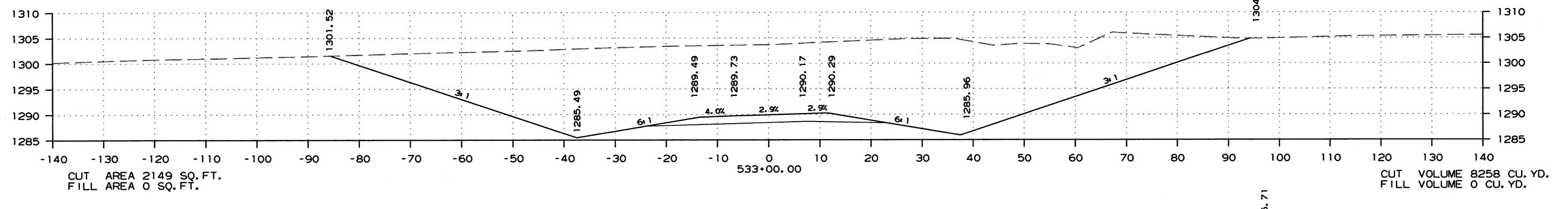
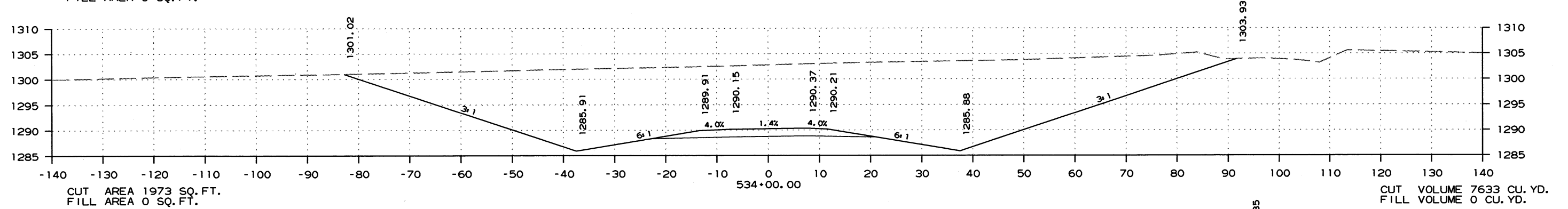
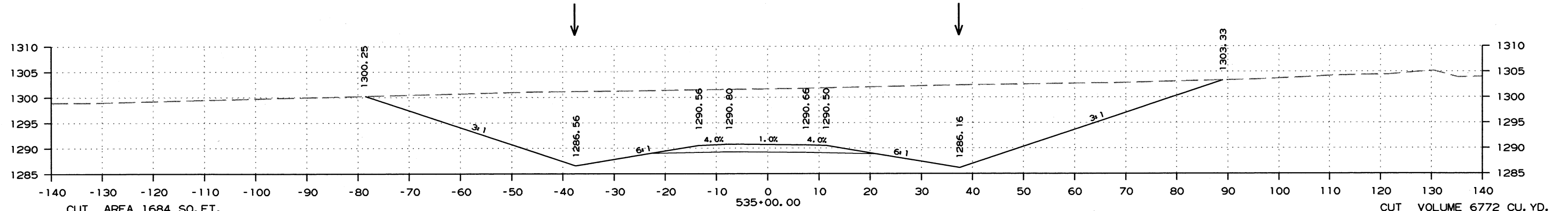


CO. RD. 34 RAMP 4 - CROSS SECTION STA. 529+00 TO STA. 531+00

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RCA0905.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.	CA0905		159	160

2 CROSS SECTIONS - CO. RD. 34 INTERCHANGE RAMP 4



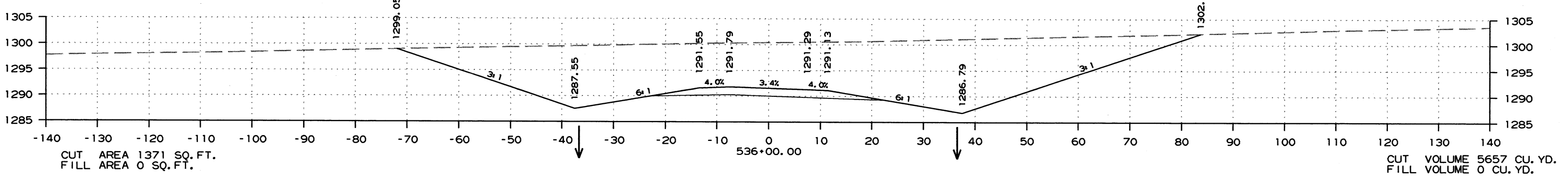
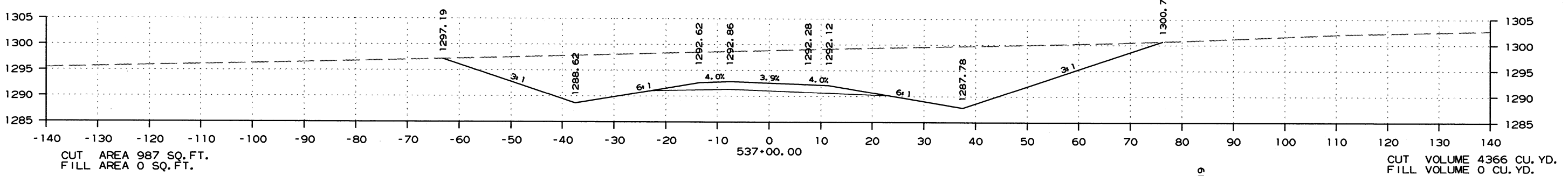
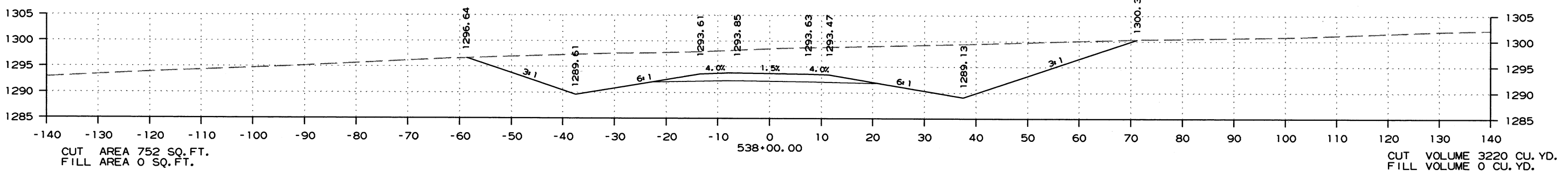
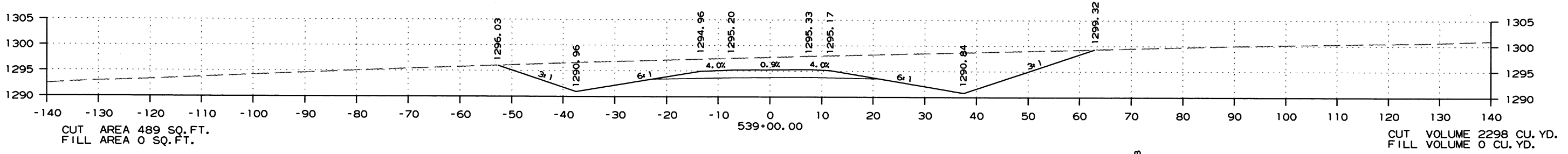
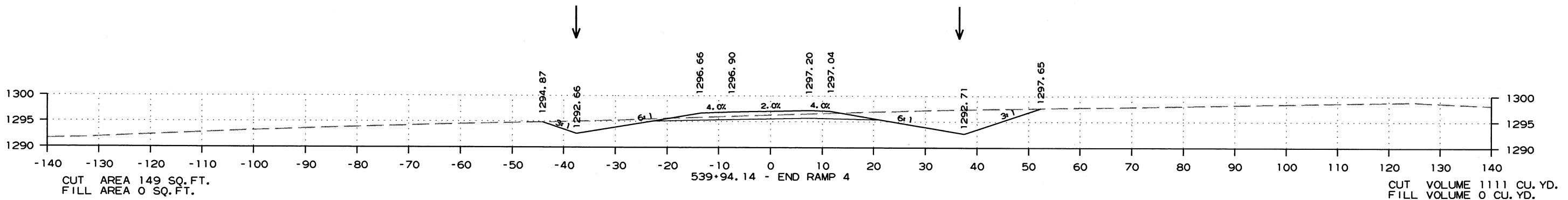
CO. RD. 34 RAMP 4 - CROSS SECTION STA. 532+00 TO STA. 535+00

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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. CA0905	160	160

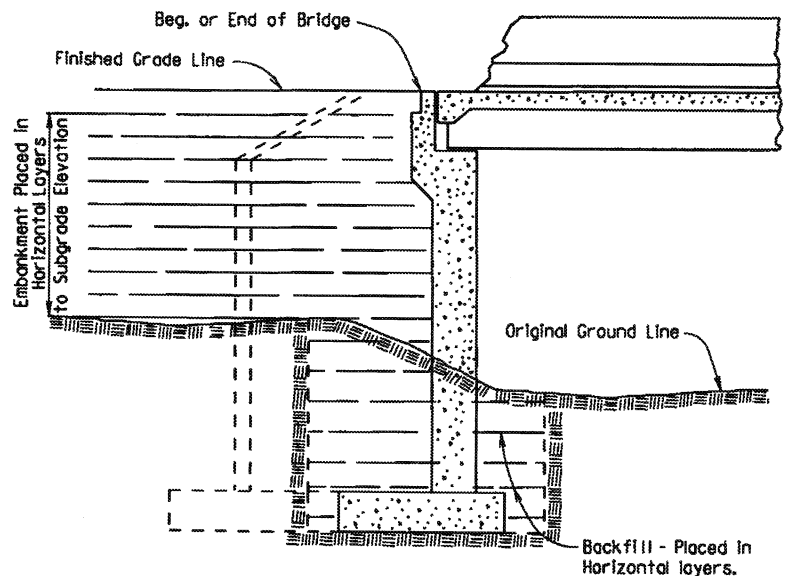
2 CROSS SECTIONS-CO. RD. 34 INTERCHANGE RAMP 4



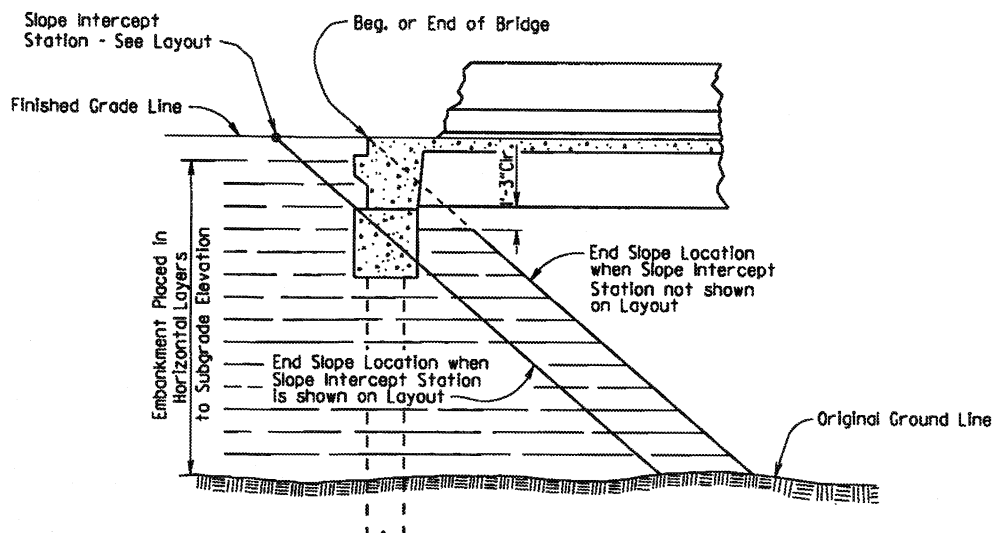
CO. RD. 34 RAMP 4 - CROSS SECTION STA. 536+00 TO STA. 539+94

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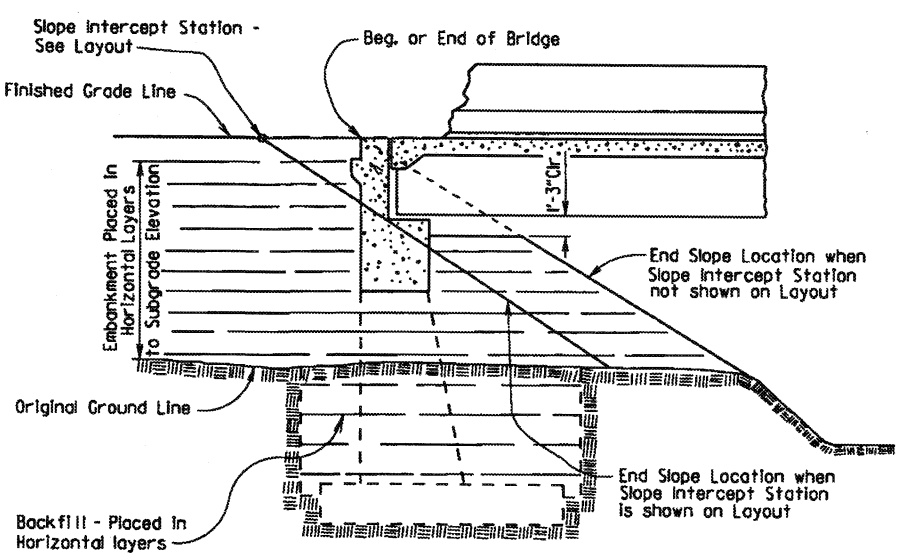
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO.								
① EMBANKMENT & BACKFILL								55000



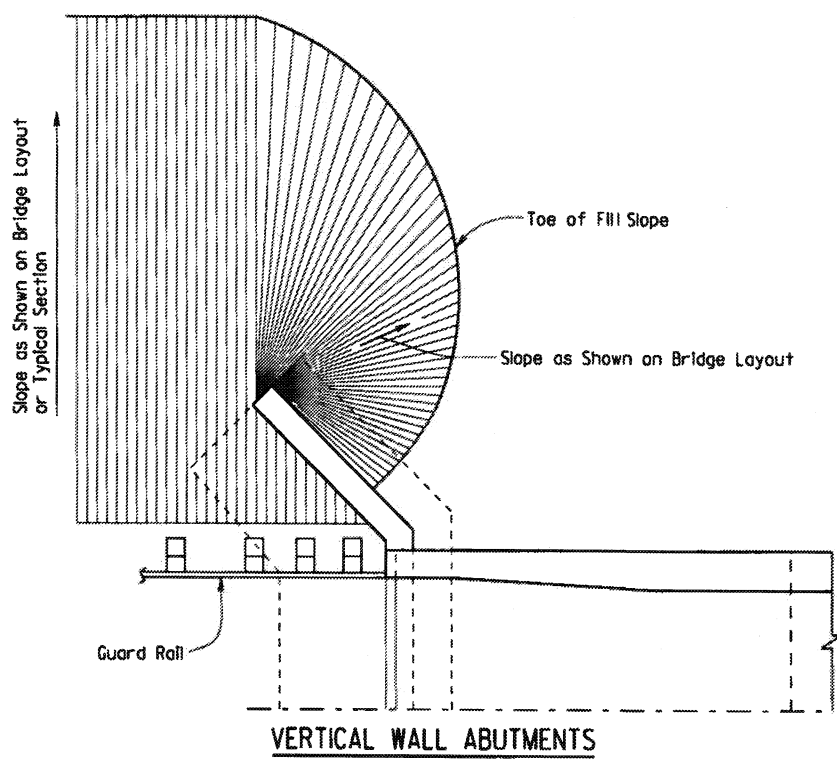
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



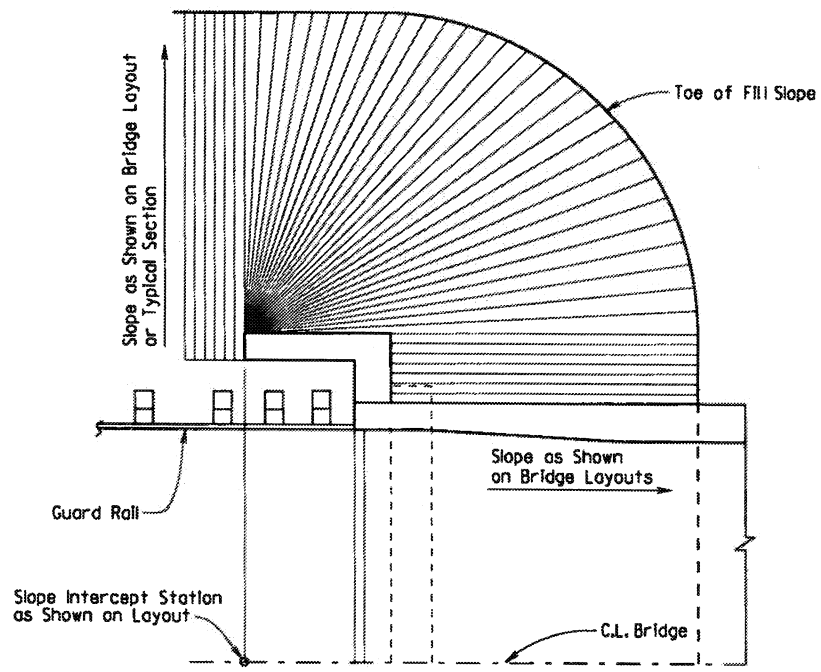
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



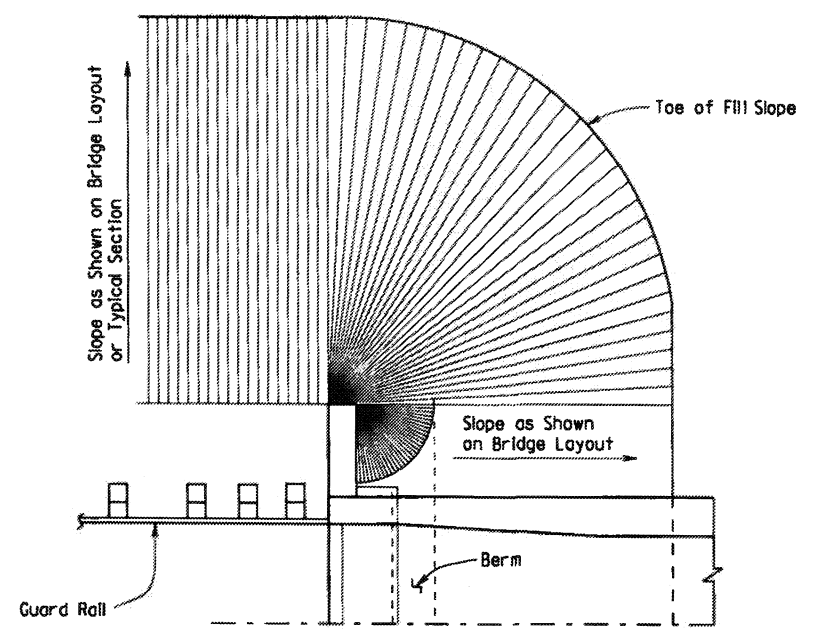
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



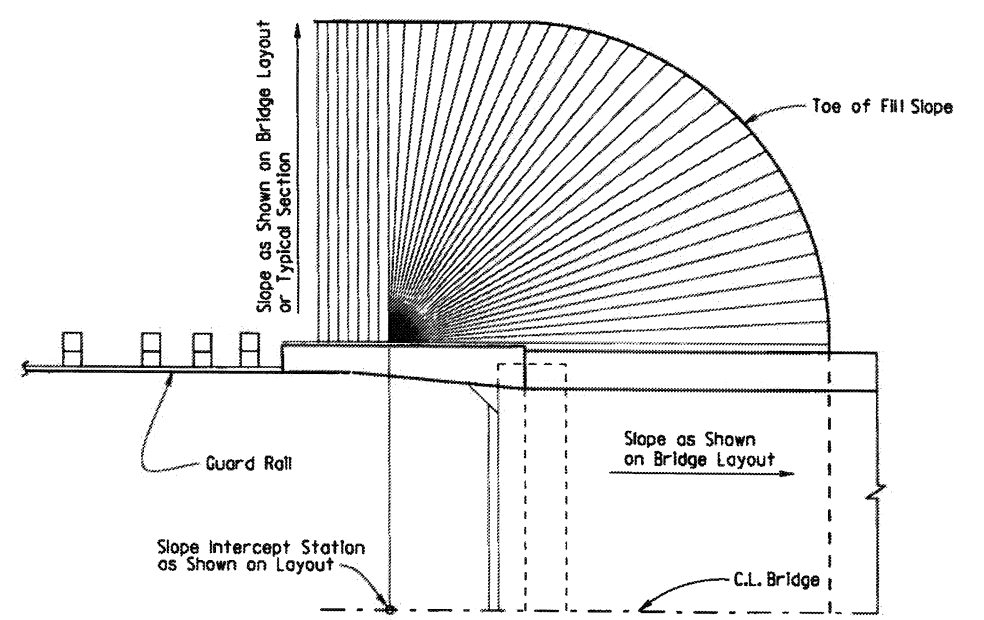
VERTICAL WALL ABUTMENTS



SPILL-THROUGH END BENTS WITH TURNBACK WING



SPILL-THROUGH END BENTS WITH STUB 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

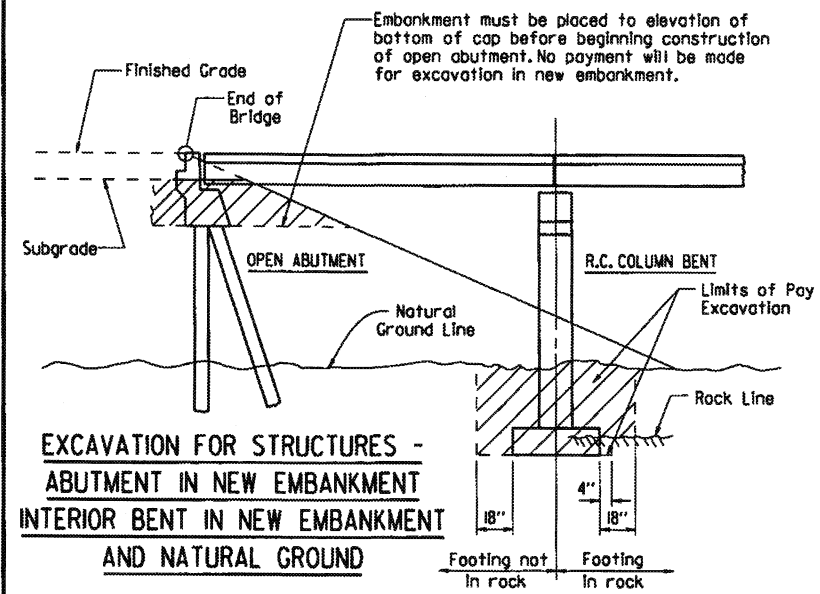
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

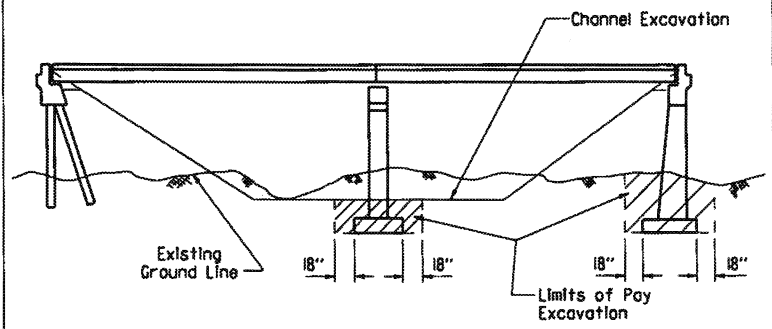
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 CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
 DESIGNED BY: STD. DATE: -

DRAWING NO. 55000

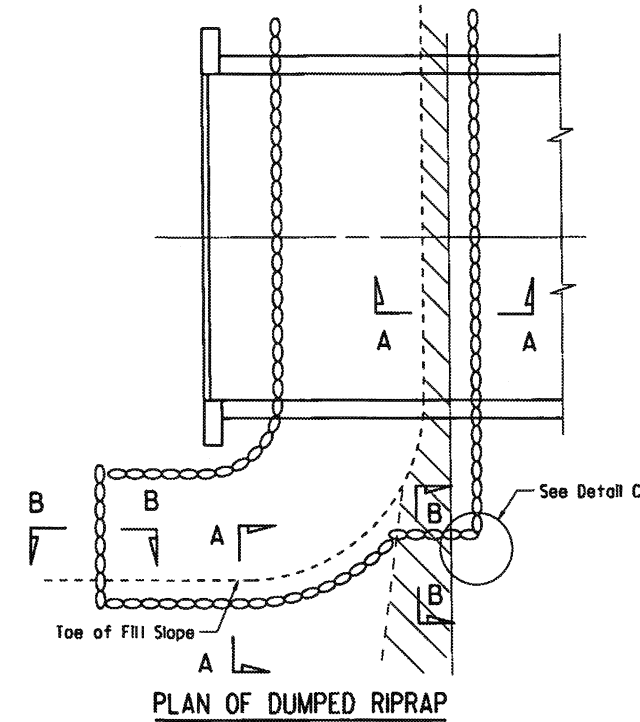
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				6	ARK.			
				JOB NO.				
				①		RIPRAP & EXCAV. 55001		



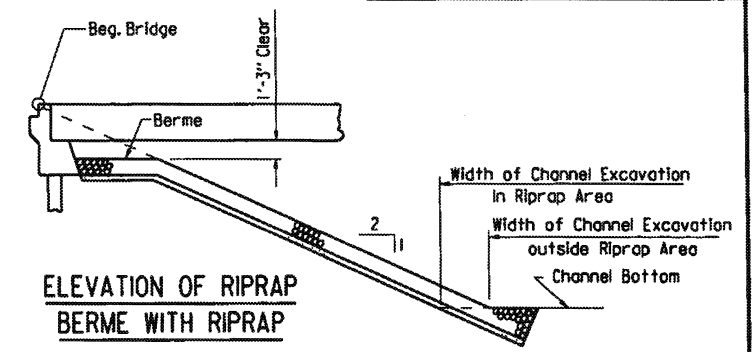
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



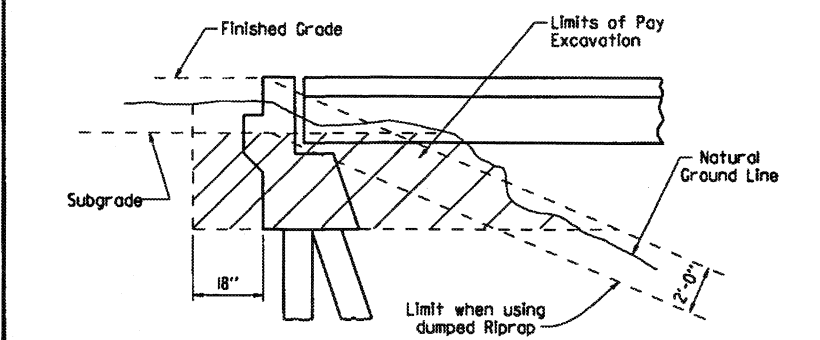
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



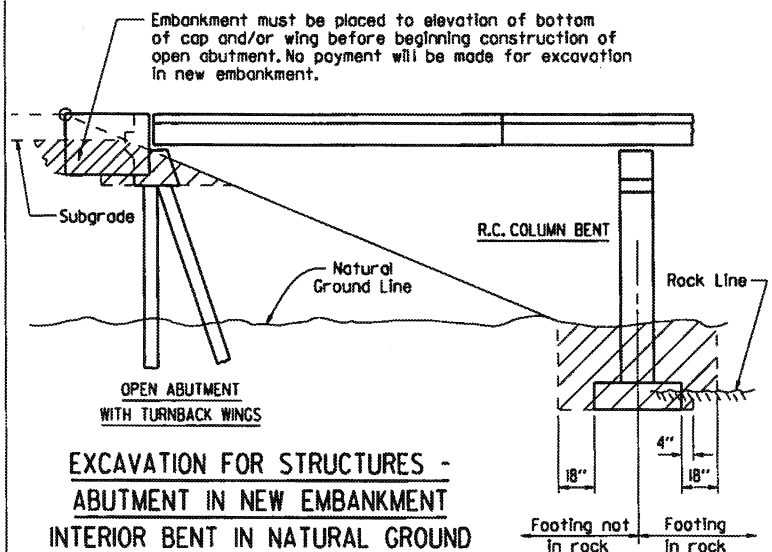
PLAN OF DUMPED RIPRAP



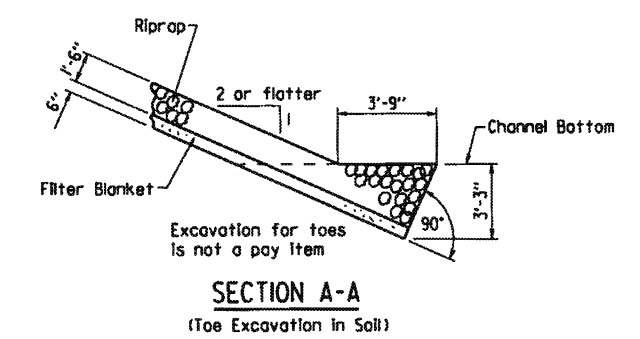
ELEVATION OF RIPRAP BERME WITH RIPRAP



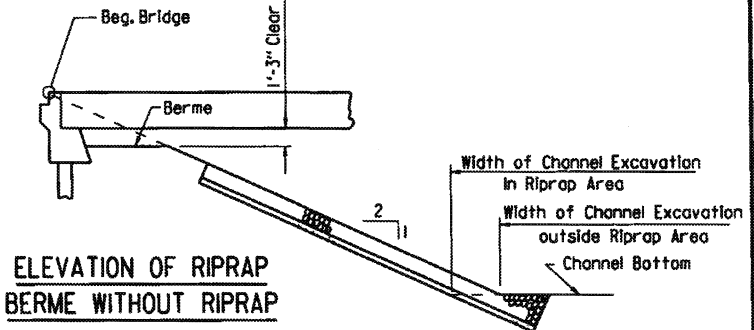
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



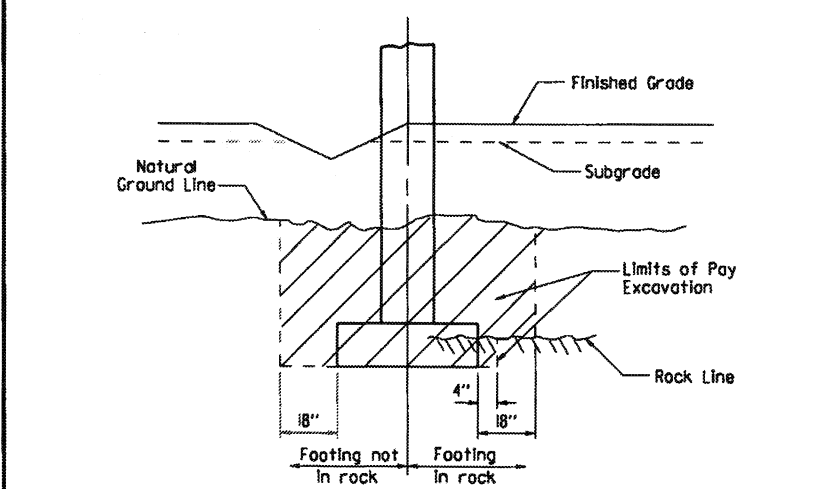
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



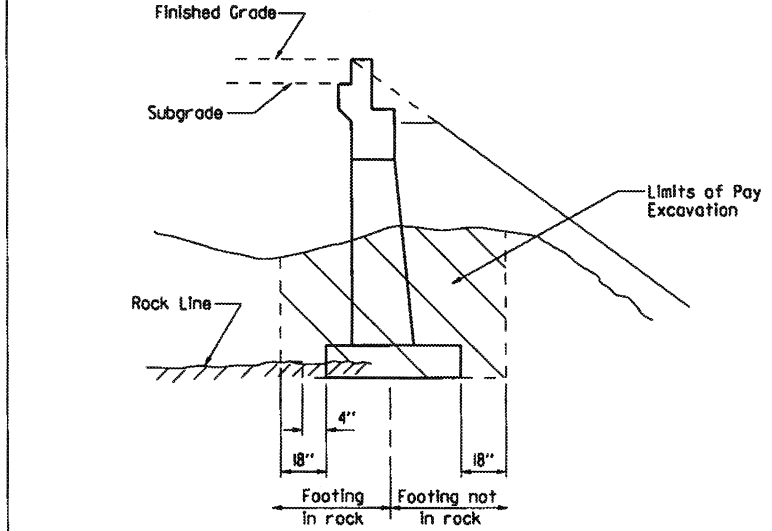
SECTION A-A (Toe Excavation in Soil)



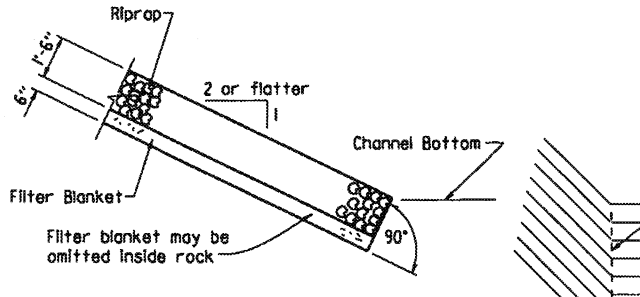
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT

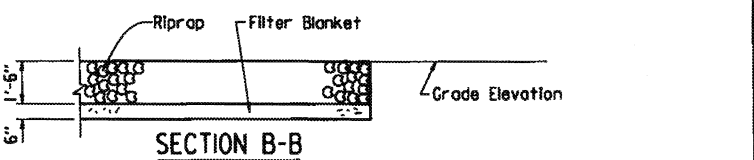


SECTION A-A (Toe Excavation in Rock)

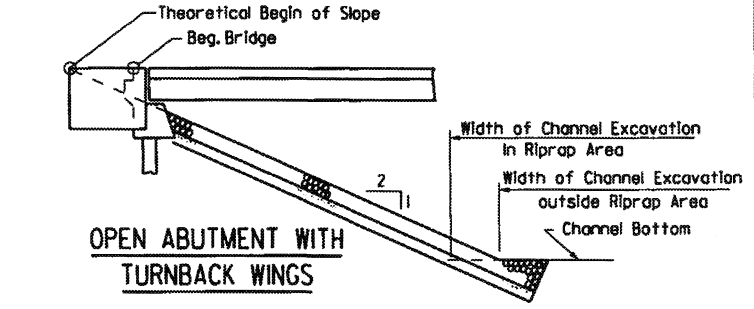
Note: Use this type of toe when rock is encountered which is in a stable condition.

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.

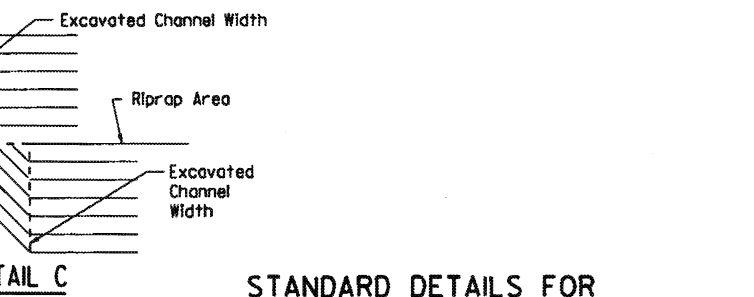
Note: Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



SECTION B-B



OPEN ABUTMENT WITH TURNBACK WINGS



DETAIL C

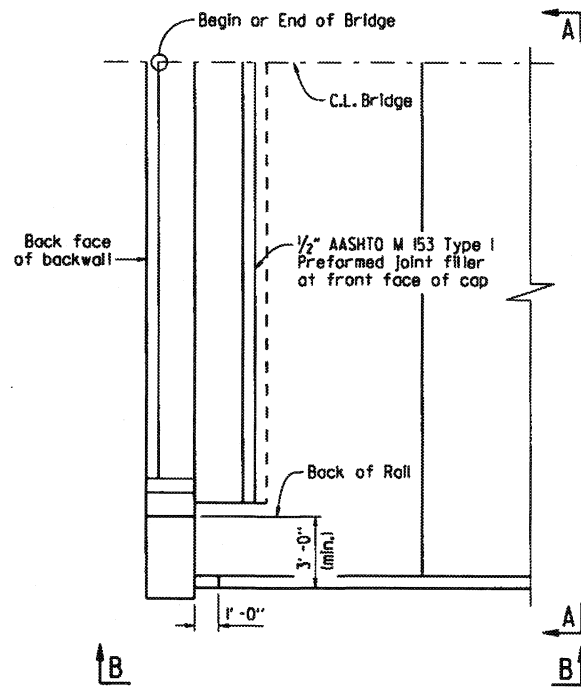
STANDARD DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND COMPUTING EXCAVATION FOR STRUCTURES
ARKANSAS STATE HIGHWAY COMMISSION
 LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55001.dgn
 CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
 DESIGNED BY: STD. DATE:

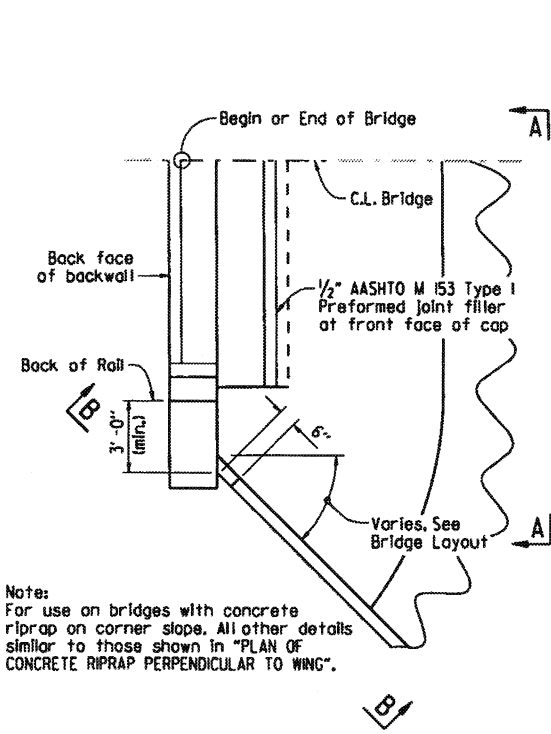
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
JOB NO.								

CONCRETE RIPRAP 55002

Note:
Sloped surfaces of concrete riprap to be marked off into blocks (construction joints optional) with an approved grooving tool, spacing the grooved lines about 5' apart.

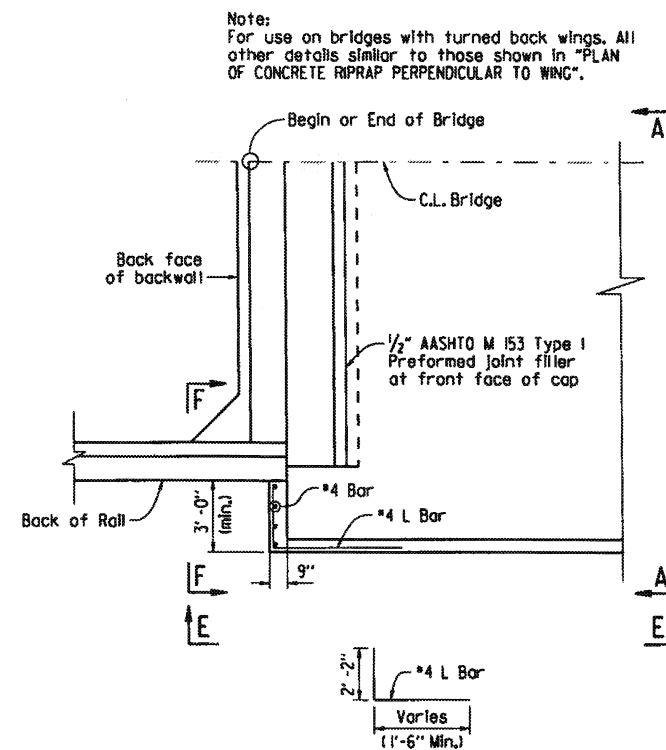


PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING
1/4" = 1'-0"

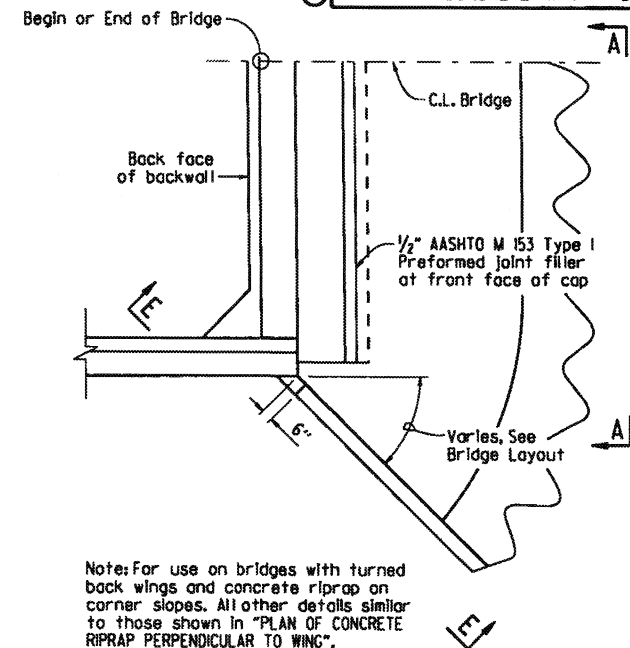


Note:
For use on bridges with concrete riprap on corner slope. All other details similar to those shown in "PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING".

PLAN OF CONCRETE RIPRAP AT ANGLE TO WING
1/4" = 1'-0"

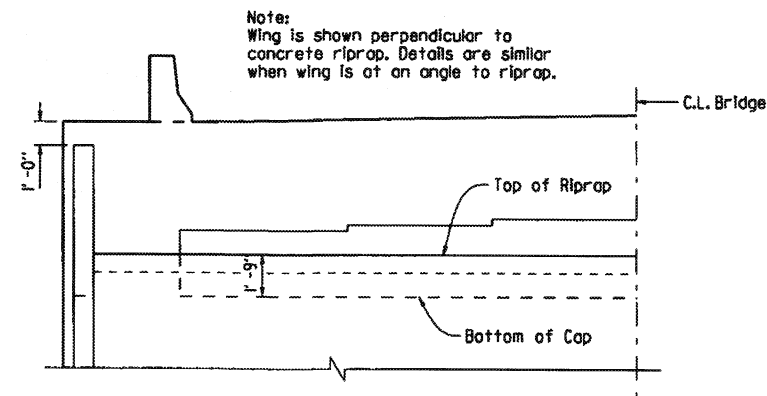


PLAN OF CONCRETE RIPRAP PERPENDICULAR TO TURNED BACK WING
1/4" = 1'-0"

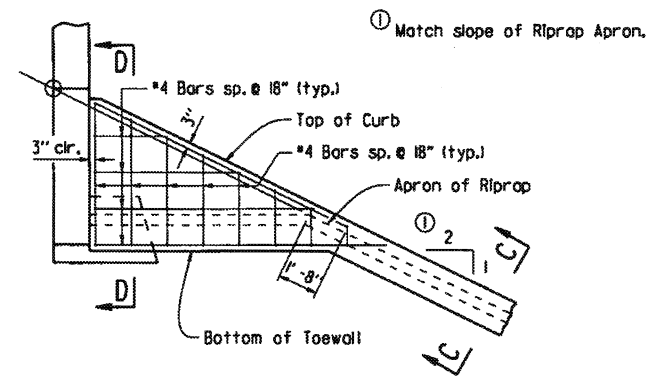


Note: For use on bridges with turned back wings and concrete riprap on corner slopes. All other details similar to those shown in "PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING".

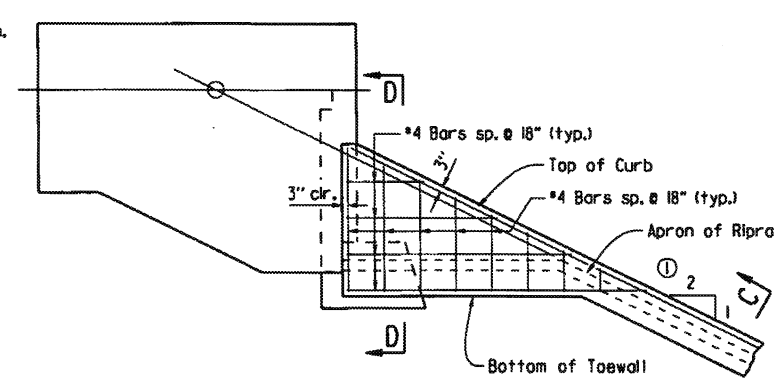
PLAN OF CONCRETE RIPRAP AT ANGLE FROM TURNED BACK WING
1/4" = 1'-0"



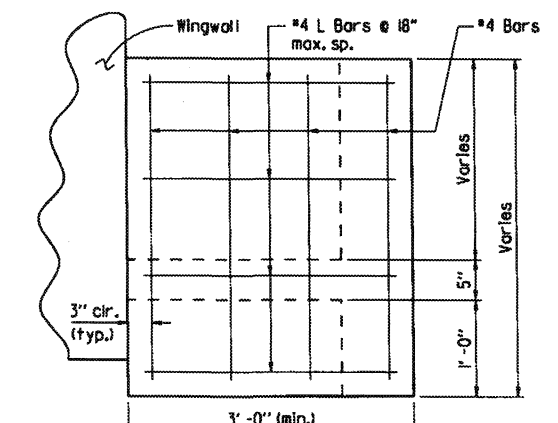
VIEW A-A
1/4" = 1'-0"



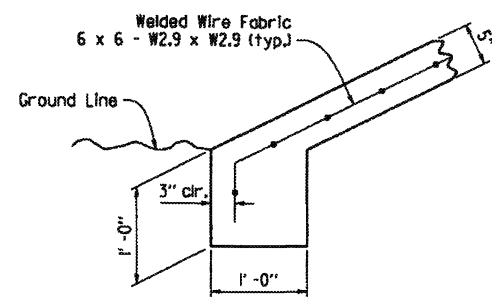
VIEW B-B
1/4" = 1'-0"



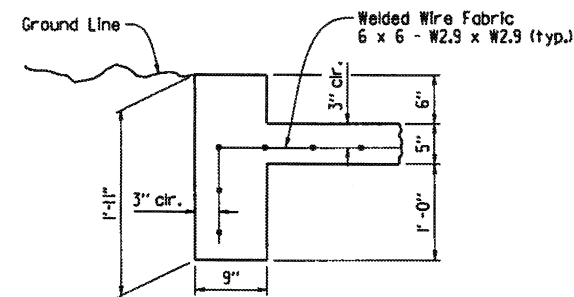
VIEW E-E
1/4" = 1'-0"



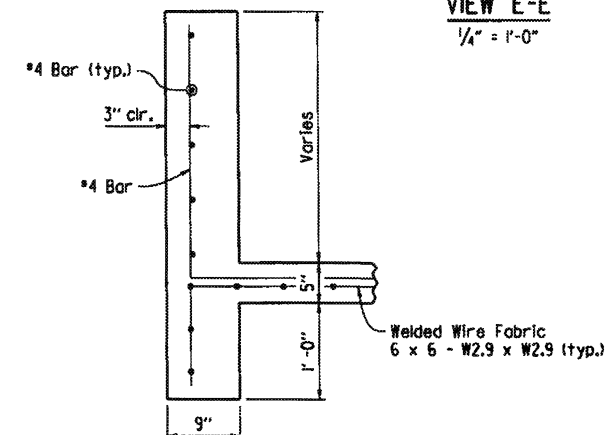
VIEW F-F
1" = 1'-0"



TOE OF CONCRETE RIPRAP
1" = 1'-0"



SECTION C-C
1" = 1'-0"



SECTION D-D
1" = 1'-0"

GENERAL NOTES

All concrete shall be Class A with a minimum compressive strength, f'c = 2,000 psi.

Welded wire fabric shall conform to AASHTO M55 or M221.

STANDARD DETAILS FOR CONCRETE RIPRAP

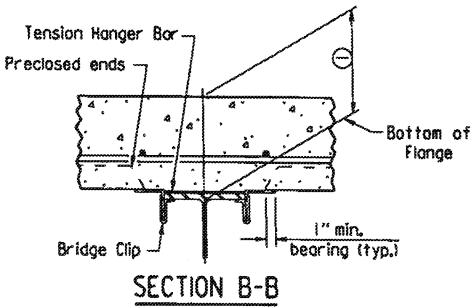
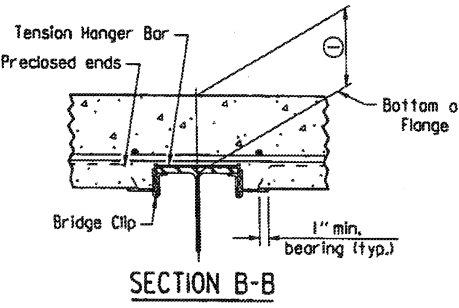
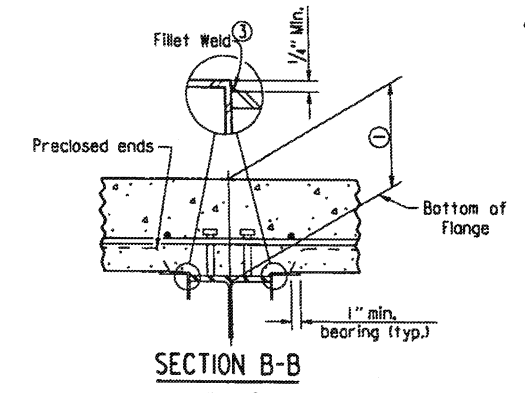
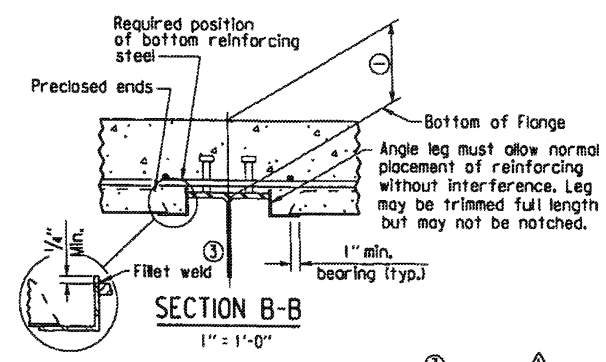
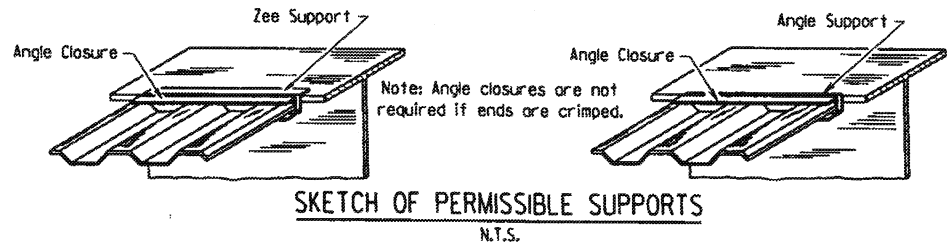
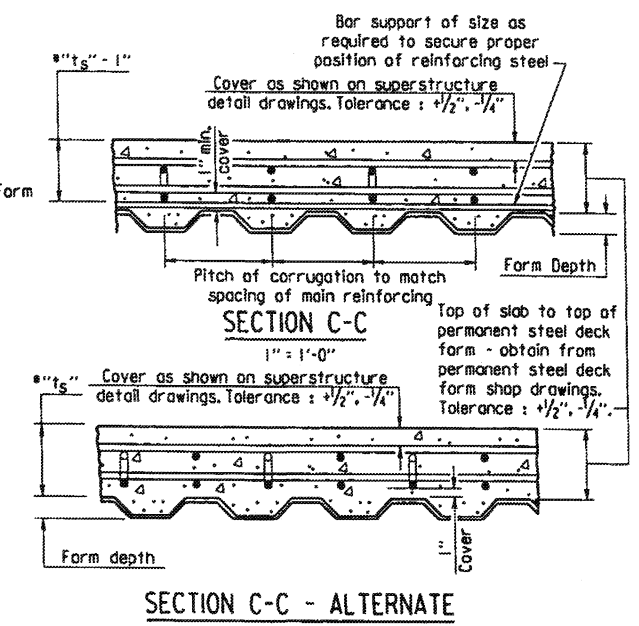
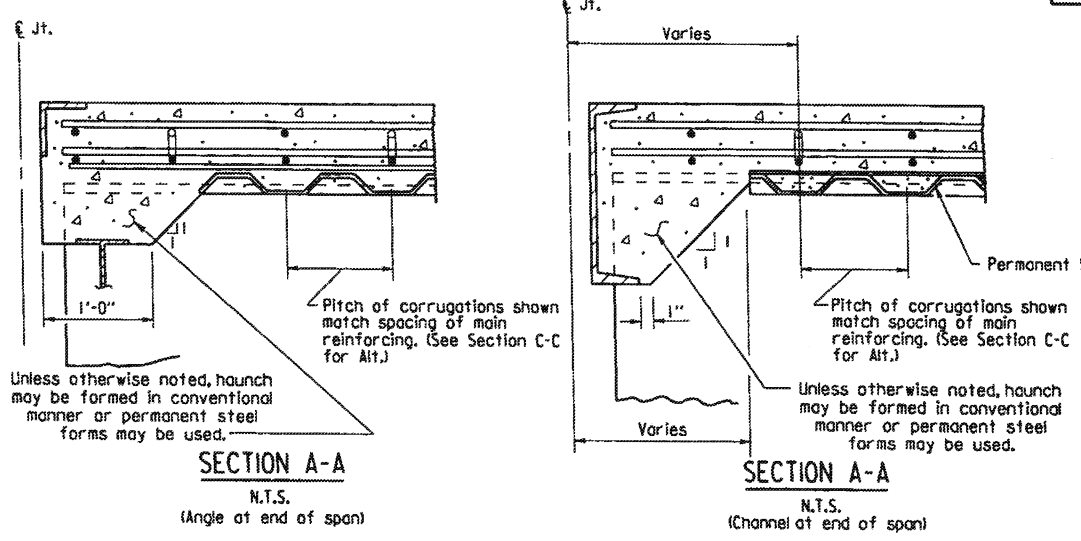
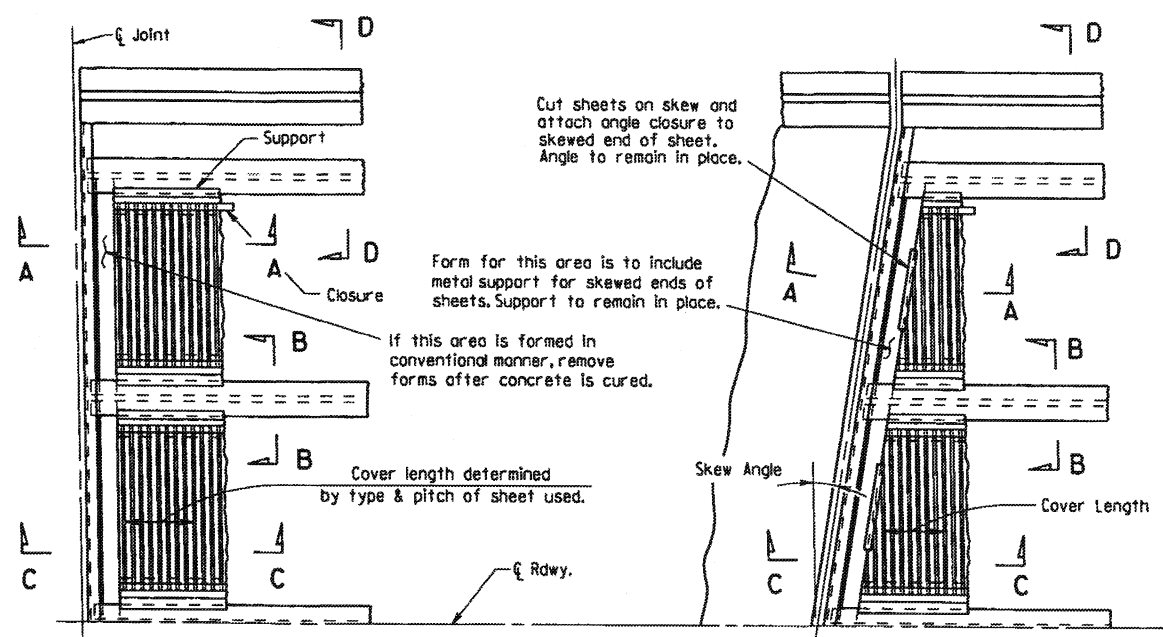
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: ACP DATE: 2/27/2014 FILENAME: b55002.dgn
 CHECKED BY: BEF DATE: 2/27/2014 SCALE: AS SHOWN
 DESIGNED BY: Std. DATE: ---

DRAWING NO. 55002

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3/24/16				6	ARK.			
JOB NO.							BRIDGE DECK FORMS	55005



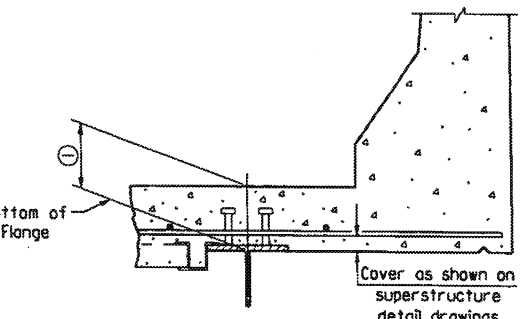
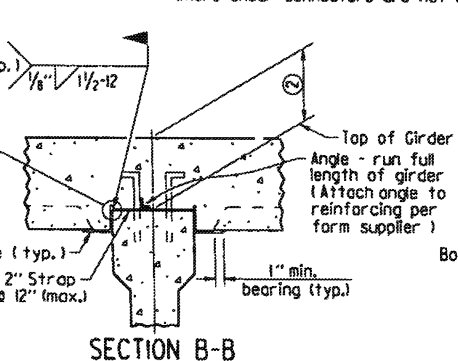
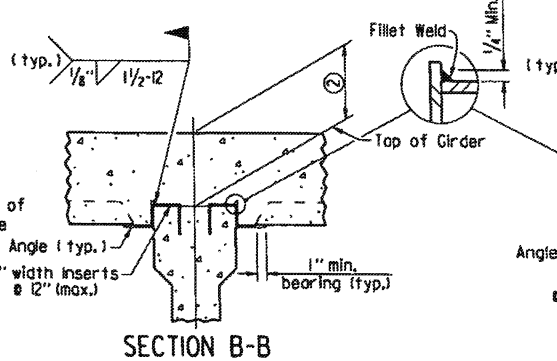
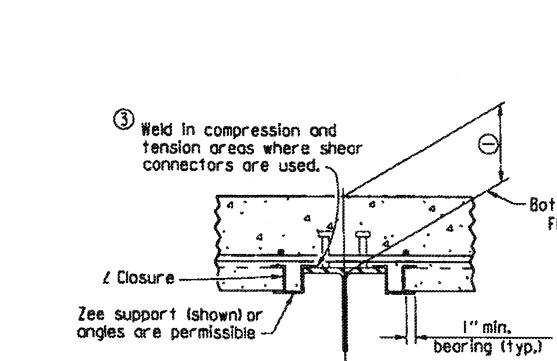
① (Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)

② Minimum weld: $\frac{1}{8}'' \times 1'' \text{ @ } 18''$. More weld may be required; maximum length per weld = $1\frac{1}{2}''$ (typ.)

(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)

(Showing permissible support for tension flange where shear connectors are not used)

(Showing permissible support for tension flange where shear connectors are not used)



(Showing Z Closure)

(Showing support by insert cast in girder)

(Showing support by Strap)

Note: Only Bottom Reinforcing is shown.

① Distance from top of slab to bottom of top flange as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances: Minimum - occurs when either the top flange or the support angle leg contacts the bottom reinforcing steel; Maximum = $t_s + 1\frac{1}{4}'' + \text{flange thickness}$. 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.

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 L 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.

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

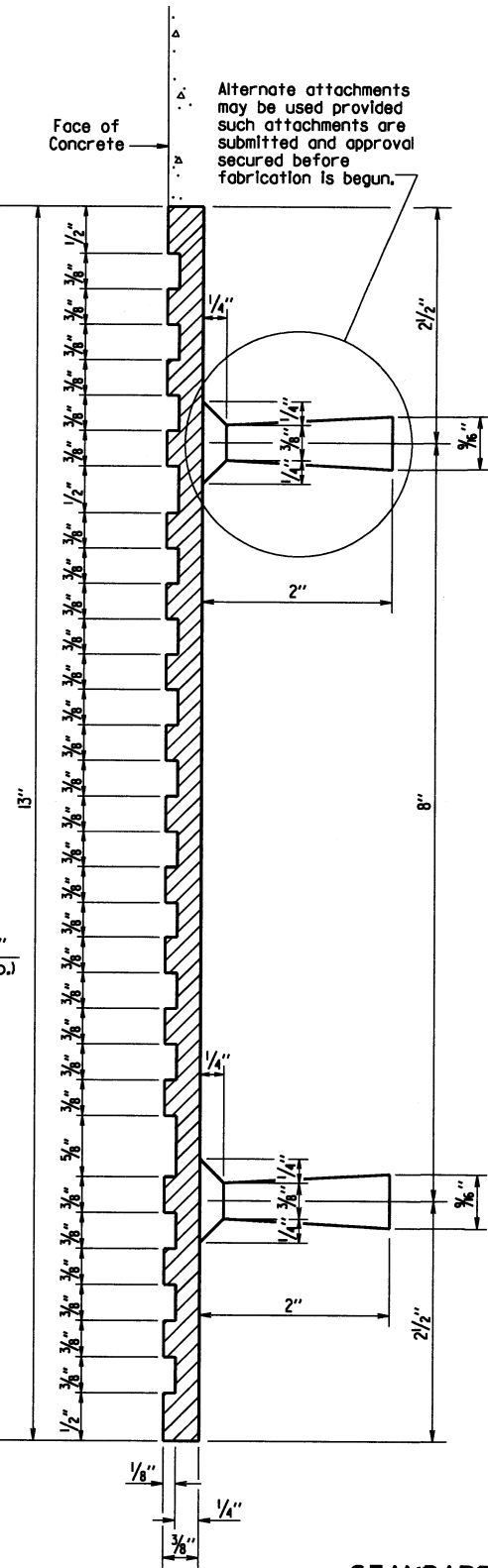
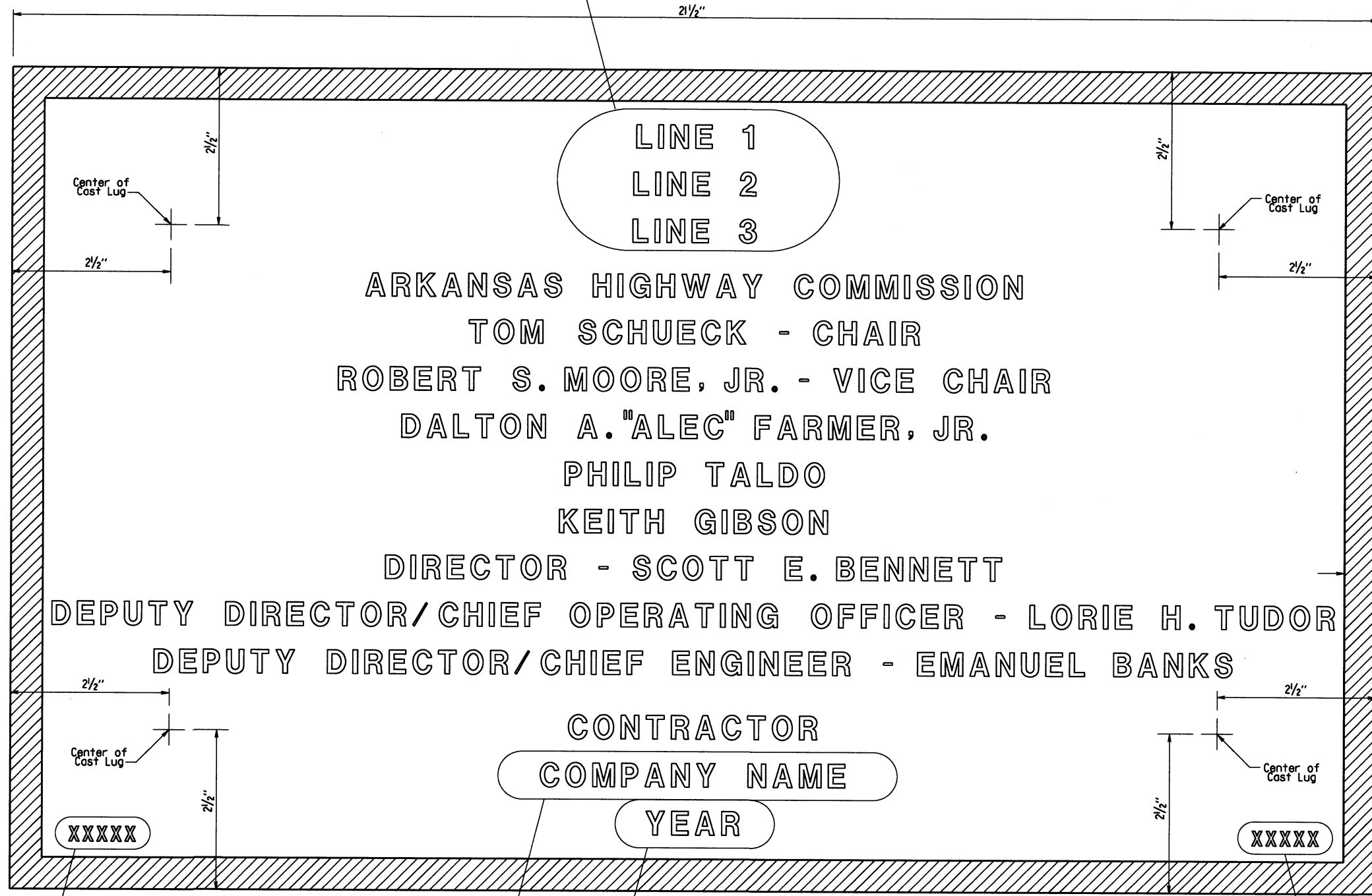
Revised weld dimension by KNY, Ck'd by BEF, 3/24/16.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
12-1-14		1-15-19		6	ARK.			
1-14-15								
1-17-17								

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.

Line	Example 1	Example 2	Example 3	Example 4
Line 1	Red River	Southern	Saline	Highway 5
Line 2	Relief	Railroad	River	
Line 3		Overpass	Relief	



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 1/4" 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.

- ④ Revised Chair and Vice Chair Added New Commissioner
1-15-19 CGP Checked By: CRE
- ③ Added New Commissioner
1-17-17 KDH Checked By: CRE
- 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

Place the design live loading here using 1/8" raised letters and numerals 1/4" high. Examples: HS 20 HL-93

Place the Year in which Contract was awarded here using 1/8" raised numerals 3/8" high. Example: 2001

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 Bridge number here using 1/8" raised letters and numerals 1/4" high. Examples: A1234 05432

TYPICAL BRIDGE NAME PLATE

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: _____

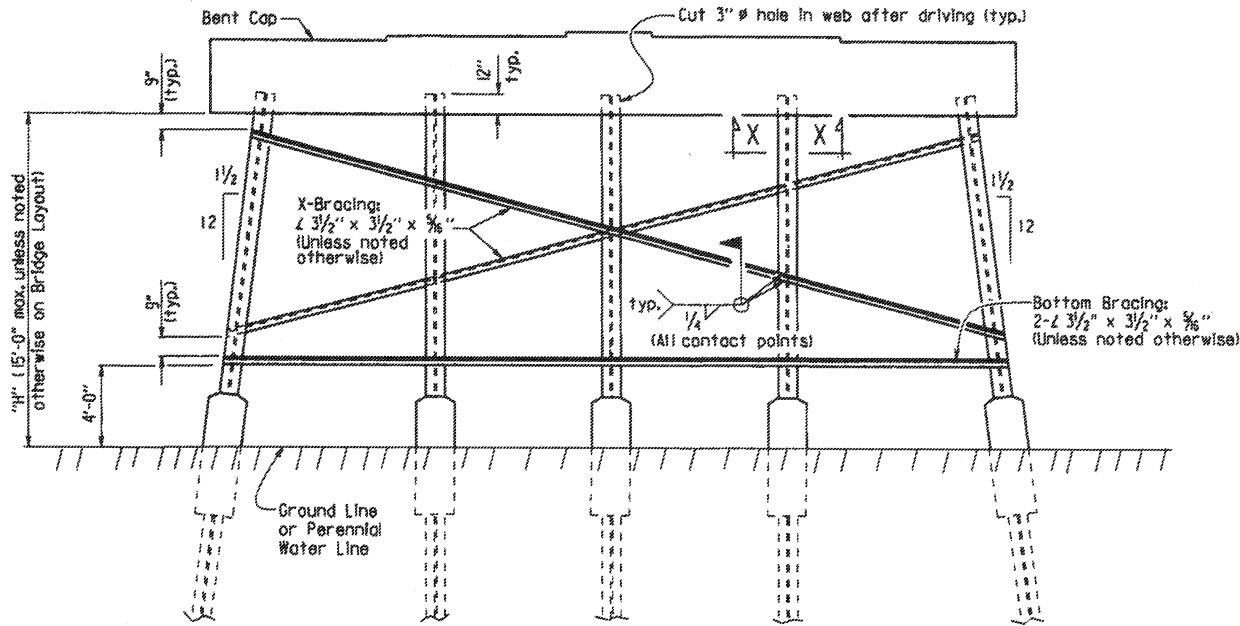
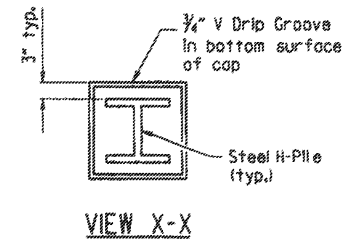
GENERAL NOTES FOR STEEL H-PILES:

Steel H-Piles shall conform to AASHTO M 270, Grade 36 or greater.

See Bridge Layout and Bent Details for pile size, estimated length, spacing, pile anchorage (if required) and for driving information.

Steel H-Piles that extend above the ground and are not protected by pile encasement shall be painted in accordance with Subsection 805.02.

Brackets, lugs, cap plates, pile tips, driving points, pile painting, splicing and welding shall not be paid for directly, but shall be considered subsidiary to the item "Steel Piling".



Notes:

All bracing shall be cut and welded in the field. Each brace shall be furnished in one piece. Payment shall be made under item 807.

Unless noted otherwise, omit X-Bracing when "H" is less than 8 feet.

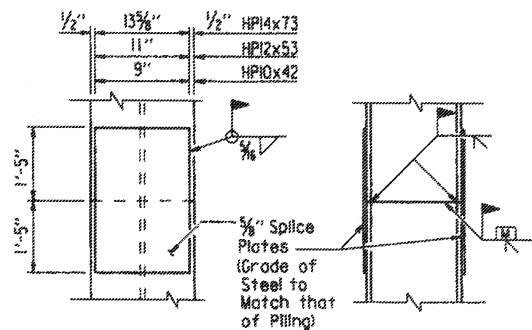
Omit X-Bracing and Bottom Bracing when "H" is 5 feet or less.

When required on the Bridge Layout sheet, pile encasements shall be constructed. See Notes and Details for H-Pile Encasements.

Omit all bracing (and V-groove in cap) when pile encasement is extended to bottom of bent cap.

TYPICAL DETAILS OF H-PILE TRESTLE INTERMEDIATE BENT

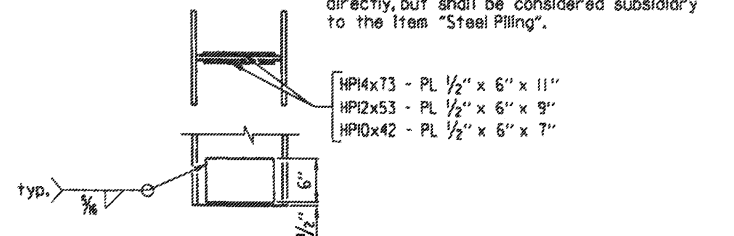
(Shown with Partial Height Encasement)



The Contractor may for his own convenience and at his own expense provide as many as three splices per pile. Minimum spacing between splices shall be 5 feet.

TYPICAL SPLICE DETAILS

H-pile splicers manufactured by Associated Pile and Fitting Corporation, LB Foster Piling, Skyline Steel or equivalent may be used in lieu of the "Typical Splice Details" shown. H-pile splicers shall match the same grade of steel specified for the piling and shall be welded to the pile with a 5/8 inch fillet weld around the entire perimeter of the splice. Flanges shall be welded with a complete penetration groove weld complying with AASHTO/AWS Joint Designation B-U4a or B-U4b. All welding shall conform to Subsection 807.26 of the AHTD Standard Specifications for Highway Construction (2014 Edition).



REINFORCING DETAIL FOR STEEL H-PILE TIP

GENERAL NOTES FOR H-PILE ENCASEMENTS:

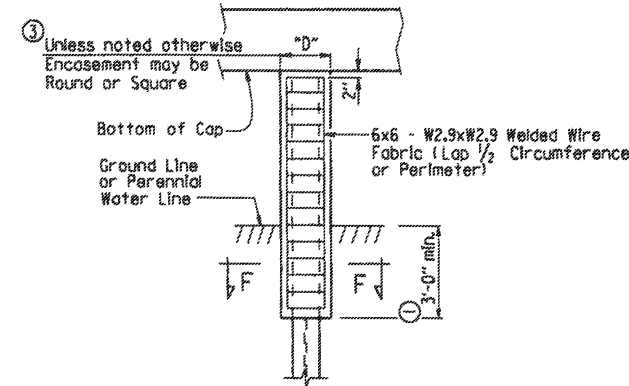
See Bridge Layout for additional notes, any pile encasement restrictions and required location of pile encasements.

All 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.

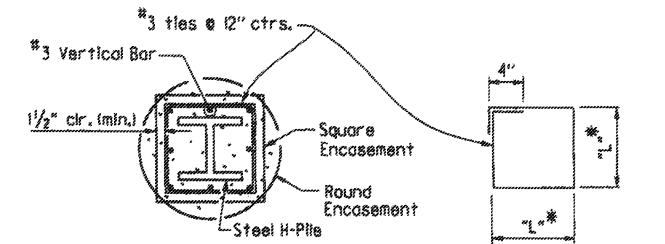
Welded Wire Fabric shall conform to AASHTO M 55 or M 221. Galvanized Corrugated Steel Pipe shall conform to AASHTO M 36 and M 218.

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".



PILE ENCASEMENT DETAIL FOR STEEL H-PILES

(Shown with Encasement to Bottom of Cap)

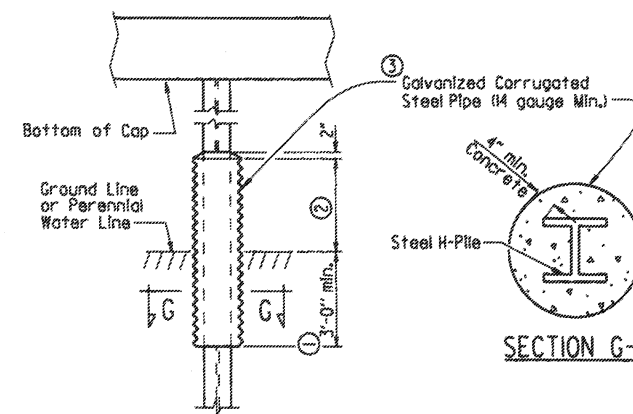


SECTION F-F

* Measured out-to-out of bar.

TABLE OF VARIABLES FOR PILE ENCASEMENT

Pile Size	"D"		"L"*
	Square Encsmt.	Round Encsmt.	
HP10x42	1'-7"	2'-0"	1'-4"
HP12x53	1'-8"	2'-2"	1'-5"
HP14x73	1'-11"	2'-6"	1'-8"

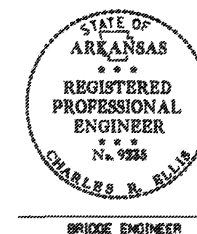


ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL H-PILES

(Shown with Partial Height Encasement)

- Unless otherwise noted on Bridge Layout.
- 3'-0" minimum or as shown on Bridge Layout.
- Encasement dimensions shall be sized to maintain a minimum concrete cover of 4" from the H-Pile. Reinforcement shall be sized to provide a minimum concrete cover of 1 1/2" and a minimum clearance of 1 1/4" from the pile.
- Alternate pile encasement, when not extended to bottom of cap, shall have 2" concrete taper for water runoff as shown in the Partial Height Encasement detail.

Added alternate method of splicing H-piles and revised pile encasement note. 3/24/2016 AMS



This document was originally issued and sealed by Charles R. Ellis, PE No. 9235, on March 24, 2016. This copy is not a signed and sealed document.

STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

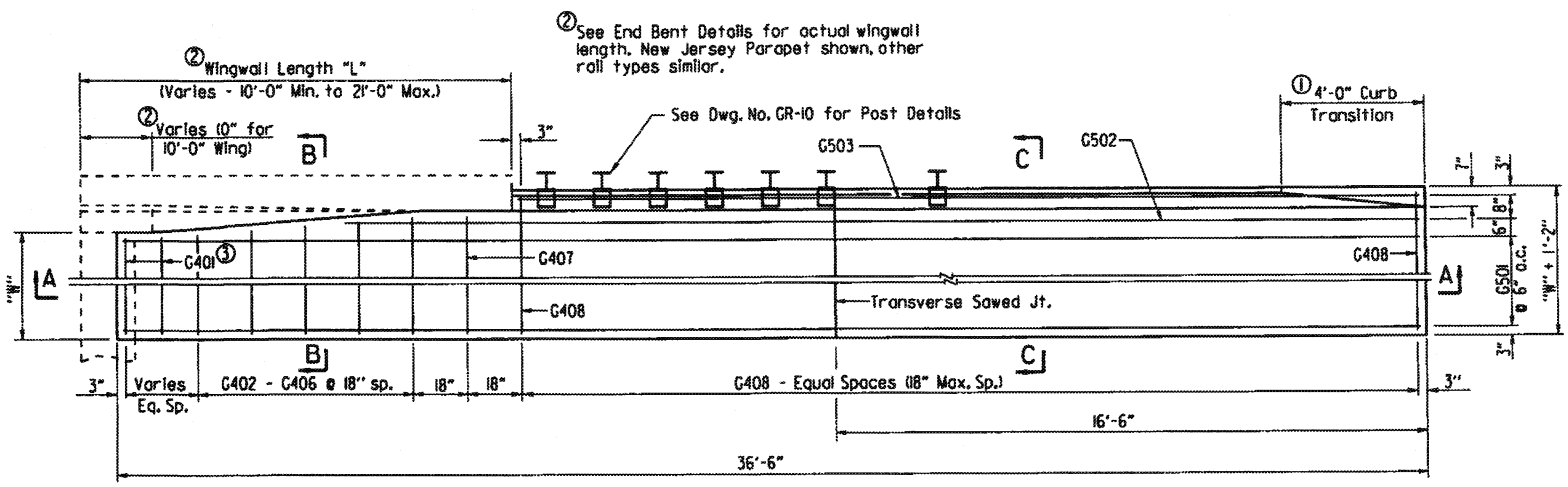
DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55020.dgn
 CHECKED BY: B.E.F. DATE: 2/27/2014 SCALE: NO SCALE
 DESIGNED BY: STB. DATE: —

BRIDGE ENGINEER

DRAWING NO. 55020

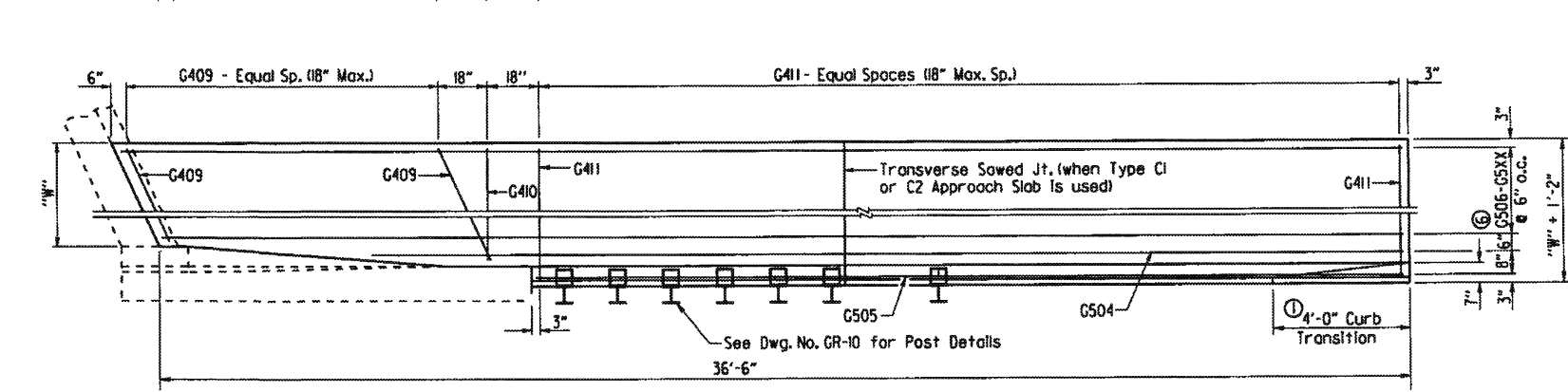
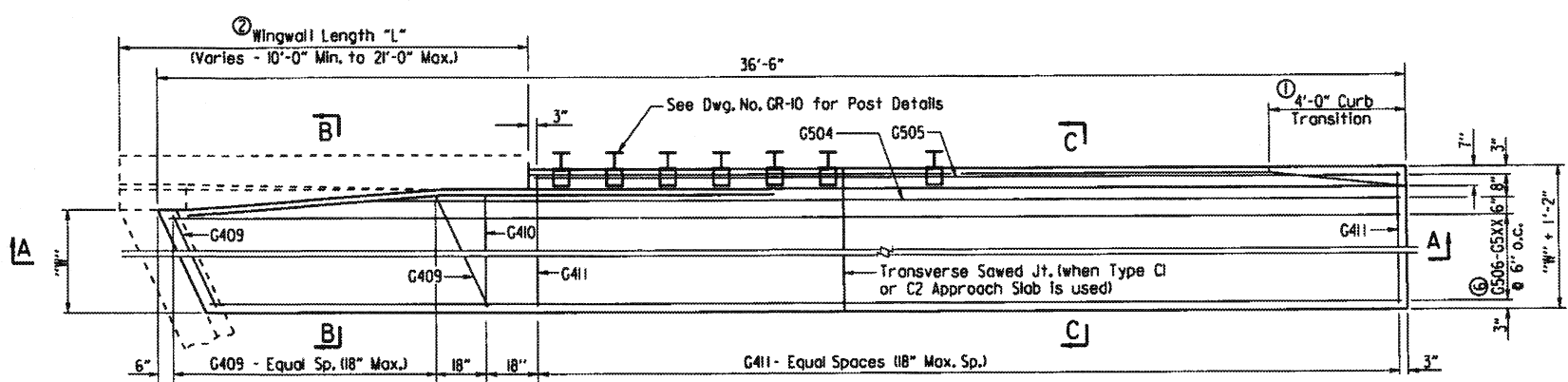
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3/24/16				6	ARK.			
JOB NO.							1	STEEL H-PILES
								55020

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.							TYPE C GUTTERS	55030C

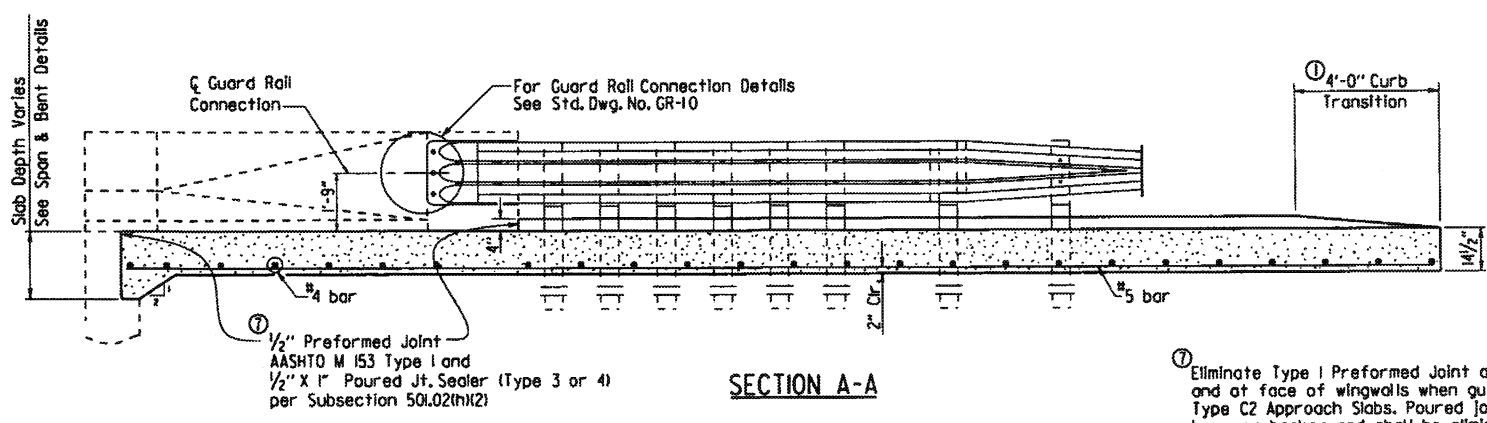


③ Provide G401 bars @ 18" max. spacing. Number of G401 bars vary with wingwall length. No G401 bars required for 10'-0" wingwalls.

HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE

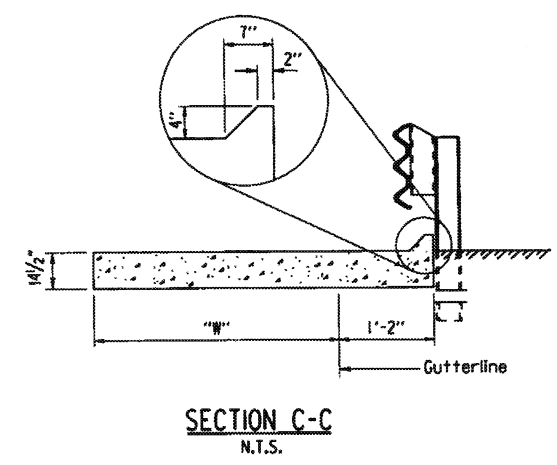
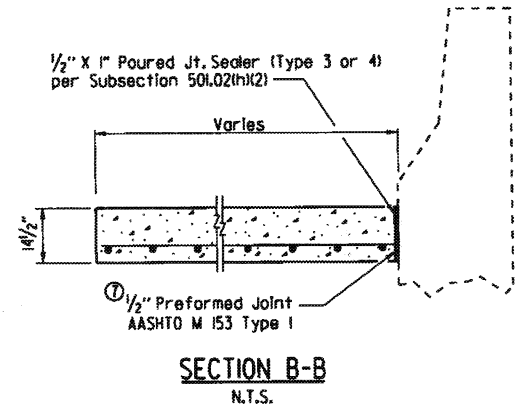


PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE



① Eliminate Type I Preformed Joint at end bent backwall and at face of wingwalls when gutters used with Type C2 Approach Slabs. Paired joint sealer is required, however backer rod shall be eliminated.

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.



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.

BAR LIST FOR ONE TYPE C GUTTER

Mark	No. Req'd. for Width "W"				Length
	4'-0"	6'-0"	8'-0"	10'-0"	
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	(4' - 11") - "L"
G503	1	1	1	1	(37'-2") - "L"
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	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

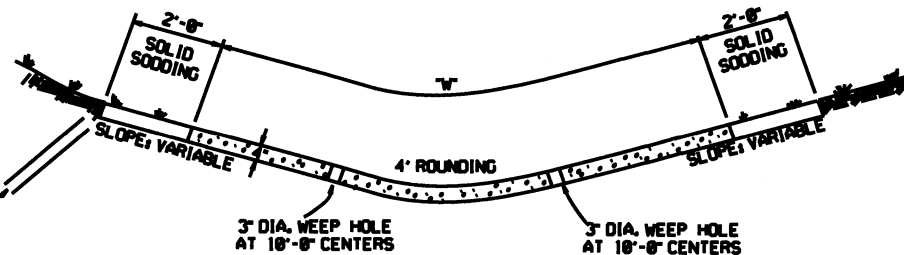
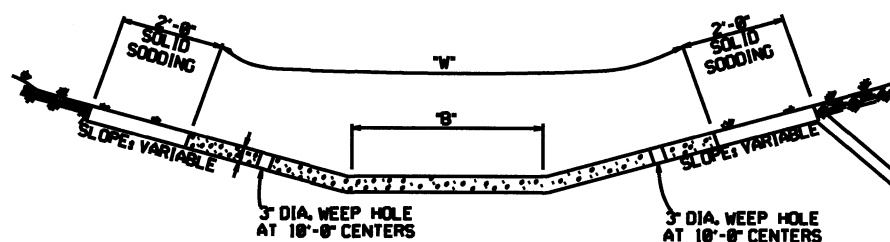
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55030c.dgn
CHECKED BY: K.W.Y. DATE: 2/27/2014 SCALE: 3/4" = 1'-0"
DESIGNED BY: STD. DATE: SCALE: or As Shown

DRAWING NO. 55030C

REFER TO TABULATION OF QUANTITIES FOR 'W' & 'B' DIMENSIONS

REFER TO TABULATION OF QUANTITIES FOR 'W' DIMENSIONS

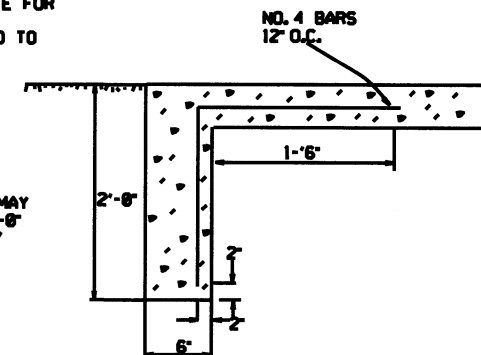


TYPE A

TYPE B

EXCAVATE TO NEAT LINES TO CONSTRUCT DITCH PAVING AND SOLID SODDING.

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

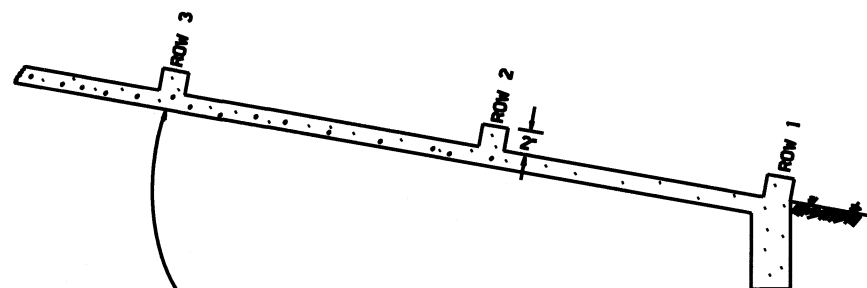
GENERAL NOTES:

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.

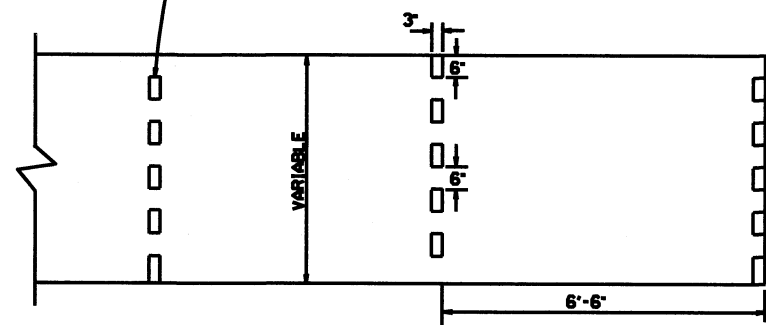
SOLID SOD ALONG DITCH PAVING TO BE PLACED WITHIN 14 DAYS OF DITCH PAVING CONSTRUCTION.

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.



NUMBER OF ELEMENTS PER ROW VARIES WITH WIDTH OF PAVING SPECIFIED

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



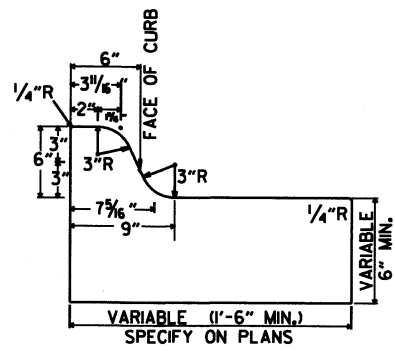
ENERGY DISSIPATORS
(NO SCALE)

DATE	REVISION	DATE FILLED
12-8-16	CORRECTED ENERGY DISSIPATOR DRAWING AND NOTE	
11-17-10	ADDED GENERAL NOTE	
10-2-34	ADDED GENERAL NOTE ABOUT SOLID SODDING	
11-2-53	ELIMINATED MIN. ROWS OF ELEMENTS	111-30-89
7-15-88	REVISED DISSIPATOR NOTE	853-2-15-88
4-2-87	REVISED ENERGY DISSIPATOR	871-2-4-87
1-9-87	ADDED NOTE ON ENERGY DISSIP.	852-1-9-87
11-2-86	ADDED NOTE TO ENERGY DISSIP.	853-12-1-86
11-1-84	ENERGY DISSIPATOR DETAILS ADDED	808-11-1-84
11-1-84	EXCAVATION DETAILS ADDED	
	TYPED A & B	
10-2-72	REVISED AND REDRAWN	808-10-2-72
	DATE	REVISION
		DATE FILLED

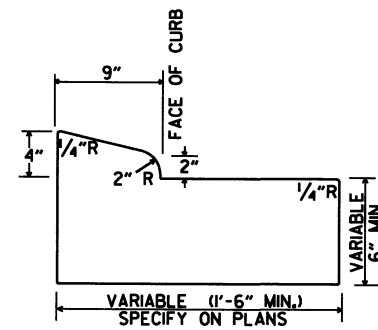
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

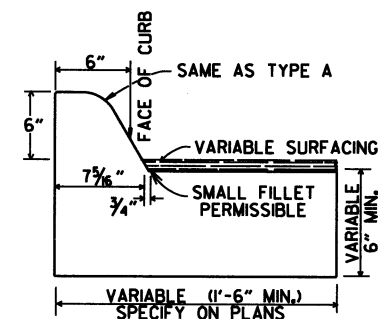
STANDARD DRAWING CDP-1



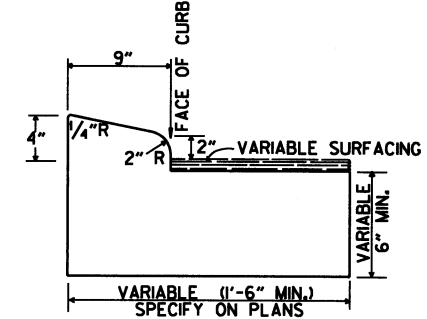
TYPE A



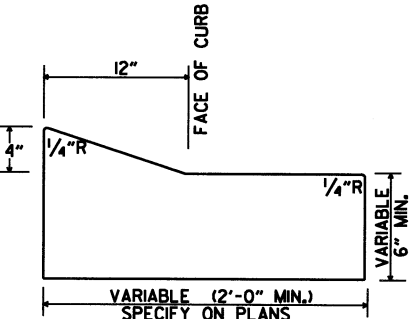
TYPE B-1



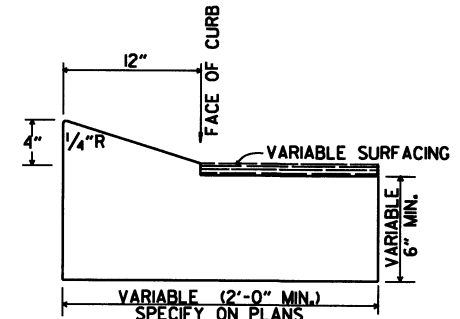
TYPE C



TYPE B-2

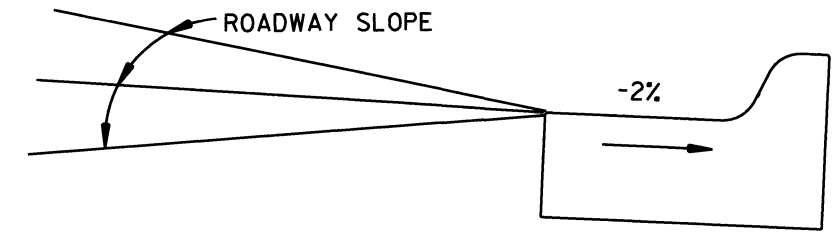


TYPE E-1

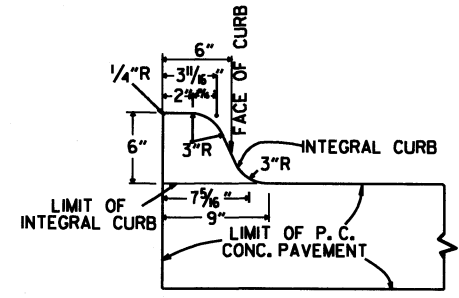


TYPE E-2

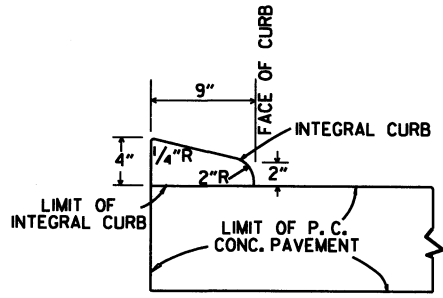
CONCRETE COMBINATION CURB AND GUTTER



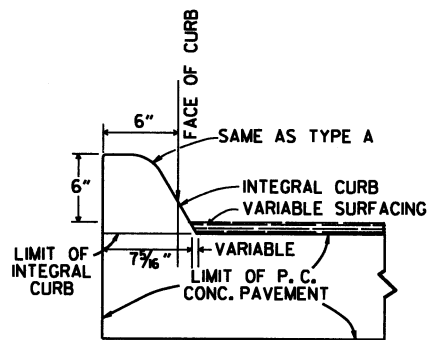
DETAIL OF GUTTER SLOPE
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



TYPE A

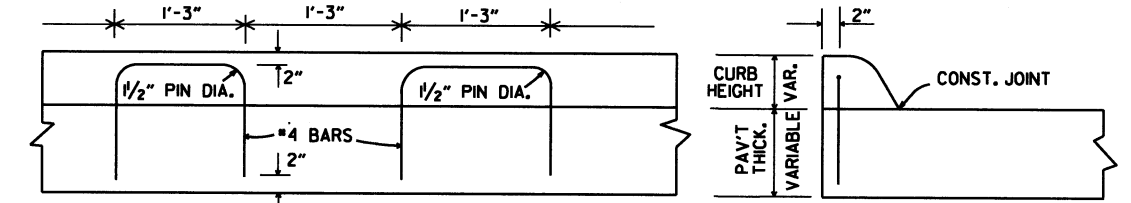


TYPE B



TYPE C

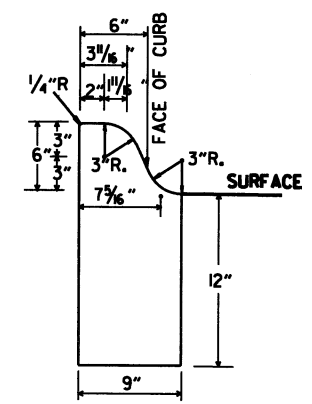
INTEGRAL CURB



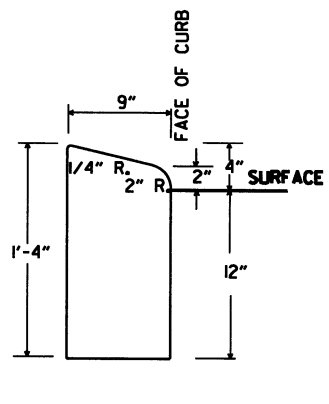
LONGITUDINAL SECTION

ELEVATION

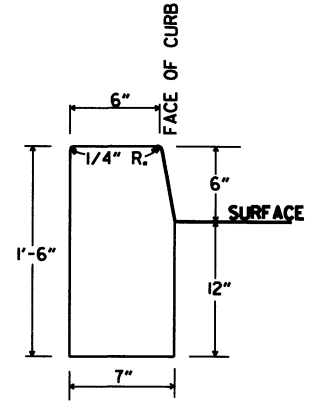
ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



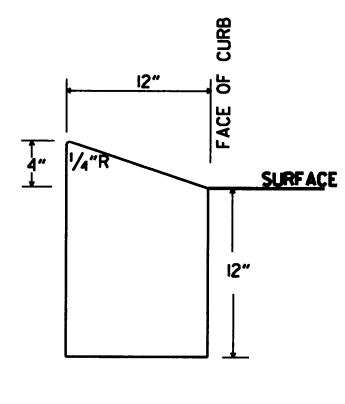
TYPE A



TYPE B

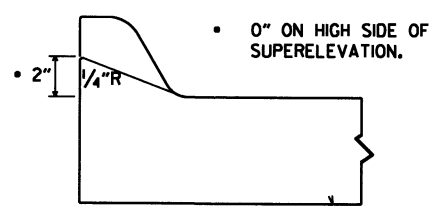


TYPE D



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.

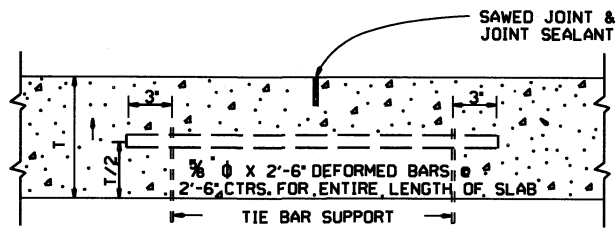
DETAILS OF MODIFIED CURB

DATE	REVISION	DATE FILMED
8-29-07	REVISED GUTTER SLOPE & MODIFIED CURB DETAILS	
8-10-05	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	VARIABLE DEPTH TYPE A & B 1	1-30-89
7-8-88	REVISED MODIFIED CURB	6-30-7-8-88
1-1-73	REVISED MODIFIED CURB	500-1-1-73
10-2-72	REVISED AND REDRAWN	502-10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

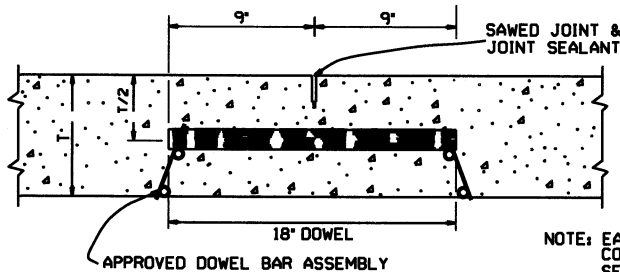
CURBING DETAILS

STANDARD DRAWING CG-1

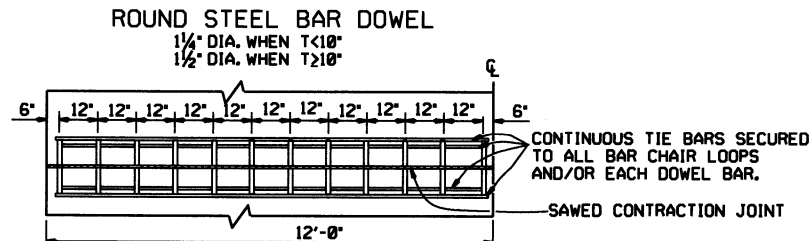


LONGITUDINAL JOINT

NOTE: THE TIE BAR SUPPORT SHOWN ABOVE MAY BE ELIMINATED IF OTHER APPROVED METHODS FOR PLACING AND SUPPORTING THE TIE BARS ARE PROVIDED. TIE BARS SHALL BE 15' FROM TRANSVERSE JOINTS.



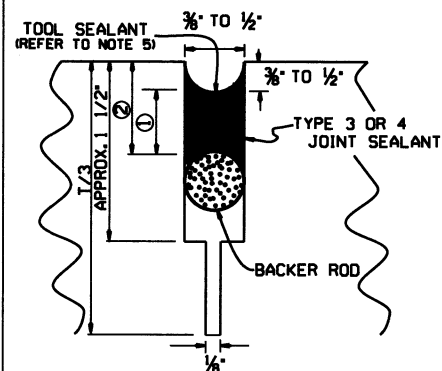
NOTE: EACH DOWEL TO BE COATED ACCORDING TO SECTION 502 OF THE STANDARD SPECIFICATIONS.



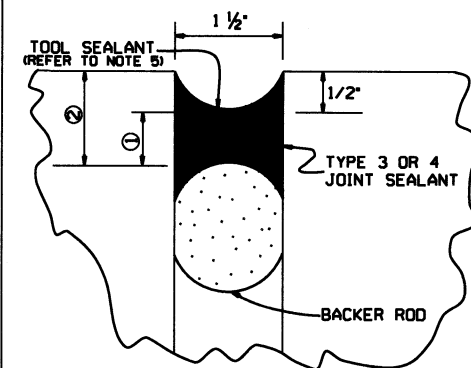
ONE-HALF 24' PAVEMENT
12 DOWELS
PLAN

NOTE: FOR 20' PAVEMENT USE 20 DOWELS @ 12' CTRS. WITH 6" SPACING FROM C.L. AND EDGE OF SLAB TO FIRST BAR. FOR 15' PAVEMENT USE 15 DOWELS @ 12' CTRS. WITH 6" SPACING FROM C.L. AND EDGE OF SLAB TO FIRST BAR. FOR 25' PAVEMENT USE 25 DOWELS @ 12' CTRS. WITH 6" SPACING FROM C.L. AND EDGE OF SLAB TO FIRST BAR. FOR PAVEMENT WIDTHS OTHER THAN THOSE SHOWN ABOVE, USE DOWELS AT 12' CTRS. WITH 6" MAX. SPACING FROM C.L. TO FIRST BAR. DISTANCE FROM EDGE OF SLAB TO FIRST BAR SHALL BE ADJUSTED TO MAINTAIN 12" DOWEL BAR SPACING

CONTRACTION JOINT DETAILS



DETAIL OF SAWS CONTRACTION JOINT



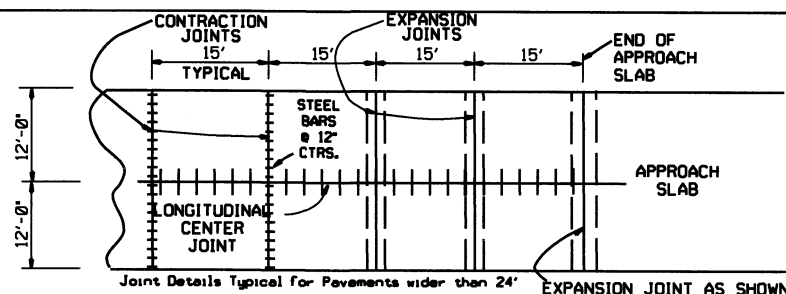
DETAIL OF EXPANSION JOINT

JOINT CONFIGURATION FOR TYPE 3 OR 4 JOINT SEALANT

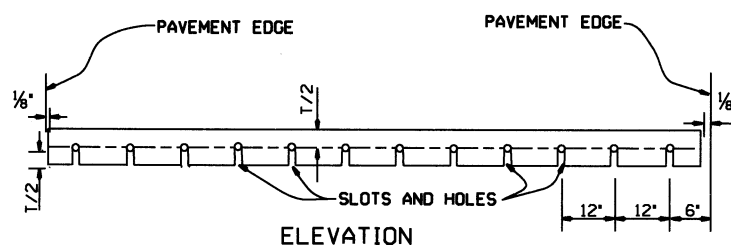
JOINT WIDTH	SEALANT THICKNESS ①	BACKER ROD DIAMETER	BACKER ROD PLACEMENT DEPTH ②
INCHES			
1 1/2	3/4	2	1 1/4

JOINT CONFIGURATION FOR TYPE 5 JOINT SEALANT

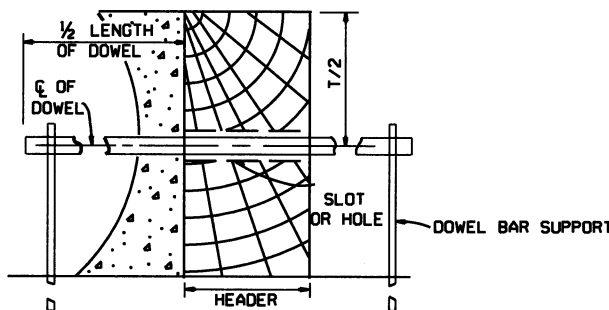
JOINT WIDTH	SEALANT THICKNESS ①	BACKER ROD DIAMETER	BACKER ROD PLACEMENT DEPTH ②
INCHES			
1 1/2	3/4	2	1 1/4



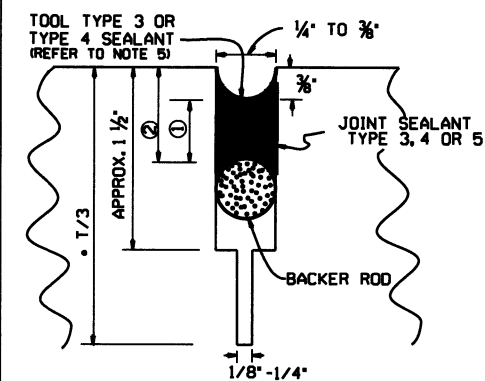
PLAN SHOWING EXPANSION JOINTS AT BRIDGE APPROACH SLABS



NOTE: ALL DOWEL BARS SHALL CONFORM TO THE DETAILS FOR CONTRACTION JOINTS.



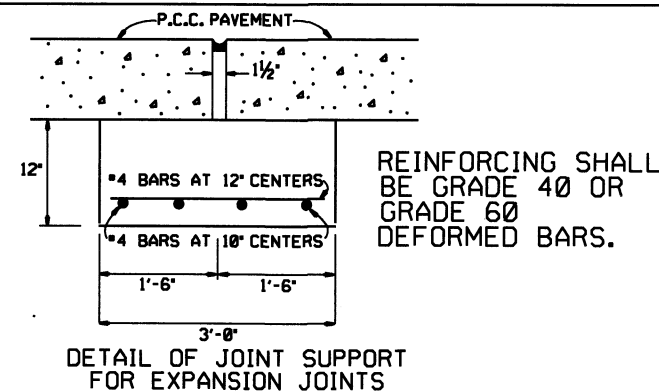
SECTION
TRANSVERSE CONSTRUCTION JOINT



*NOTE: T/3 SAW CUT NOT REQUIRED FOR LONGITUDINAL CONSTRUCTION JOINT.

DETAIL OF SAWS LONGITUDINAL JOINT AND LONGITUDINAL CONSTRUCTION JOINT

DATE	REVISION	DATE FILMED
5-25-06	ADDED GENERAL NOTE 7	
10-9-03	REMOVED TIE BAR COATING & REVISED GENERAL NOTES	
11-16-01	ADDED TOOL SEALANT AND NOTE 5; REVISED NOTE 3	
4-26-96	REVISED CONTRACTION JOINT NOTE	
11-3-94	ADDED NOTE RE: REINF. BARS	
4-1-93	REVISED DOWEL BARS & GEN. NOTES	4-1-93
10-1-92	REVISED DOWEL SPACING	10-1-92
8-15-91	ADDED SPAC FOR CONTR JTS & DEL KEYWAY	
05-24-90	REVISED TIE BAR, DOWEL & JOINT SIZE	
01-25-90	ADDED EXPANSION JOINT	01-25-90
11-30-89	CHANGED T/4+1 TO T/3+1	11-30-89
03-23-89	ALTERED SAWS JOINT & ADDED NOTES	02-03-23-89
07-15-88	REVISED AND REDRAWN	03-07-15-88

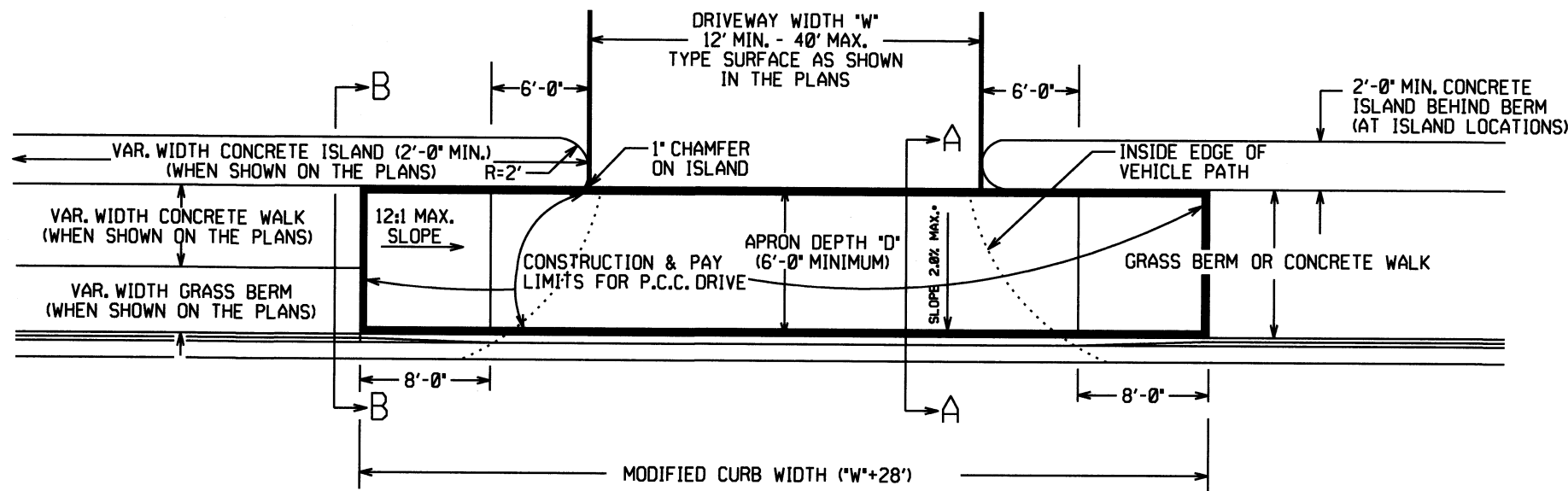


DETAIL OF JOINT SUPPORT FOR EXPANSION JOINTS

GENERAL NOTES

- *T* DENOTES THICKNESS OF SLAB.
- DOWEL BARS SHALL BE PLACED IN ACCORDANCE WITH THE DIMENSIONS SHOWN. A TOLERANCE OF PLUS OR MINUS ONE INCH WILL BE ALLOWED FOR THE VERTICAL AND LATERAL PLACEMENT AND A TOLERANCE OF PLUS OR MINUS 1/4" WILL BE ALLOWED FOR THE TILT AND SKEW. DOWEL BARS SHALL BE FIELD COATED FOR A MINIMUM DISTANCE OF 2' GREATER THAN HALF THE LENGTH OF THE BAR WITH AN APPROVED GREASE AS A BOND BREAKER JUST PRIOR TO PLACEMENT OF CONCRETE.
- THE EXPANSION JOINT SUPPORT MAY BE CONSTRUCTED WITH CLASS "A", "S" OR PAVING CONCRETE. PAYMENT FOR THE JOINT SUPPORT SHALL BE FOR THE CONTRACT UNIT PRICE BID FOR THE CLASS OF CONCRETE SPECIFIED IN THE PLANS. PAYMENT FOR ALL OTHER WORK AND MATERIALS REQUIRED FOR THE CONSTRUCTION OF THE JOINT SUPPORT SHALL BE INCLUDED IN THE PRICE BID FOR THE ABOVE ITEMS.
- CONTRACTION JOINTS SHALL BE CONSTRUCTED ON 15' CENTERS.
- TOOLING NOT REQUIRED FOR SELF-LEVELING SILICONE.
- UNLESS OTHERWISE SPECIFIED IN THE PLANS, CONCRETE SHOULDERS SHALL BE CONSTRUCTED ACCORDING TO THE DETAILS SHOWN HEREON. CONTRACTION JOINTS SHALL MATCH CONTRACTION JOINTS IN THE LANES.
- TIE WIRES IN DOWEL BAR ASSEMBLIES SHALL NOT BE CUT PRIOR TO PLACEMENT OF PAVING CONCRETE.

ARKANSAS STATE HIGHWAY COMMISSION
TRANSVERSE & LONGITUDINAL JOINTS FOR CONCRETE PAVEMENT (NON-REINFORCED)
STANDARD DRAWING CPTJ - 6A



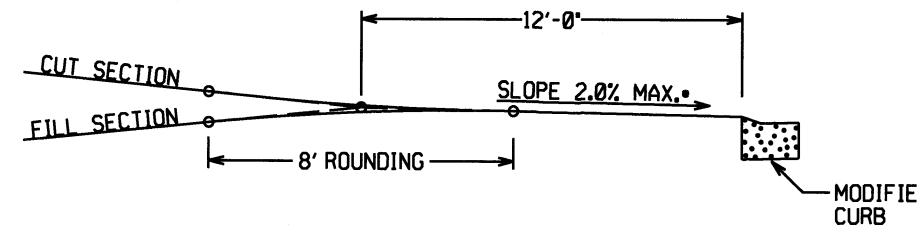
PLAN VIEW

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

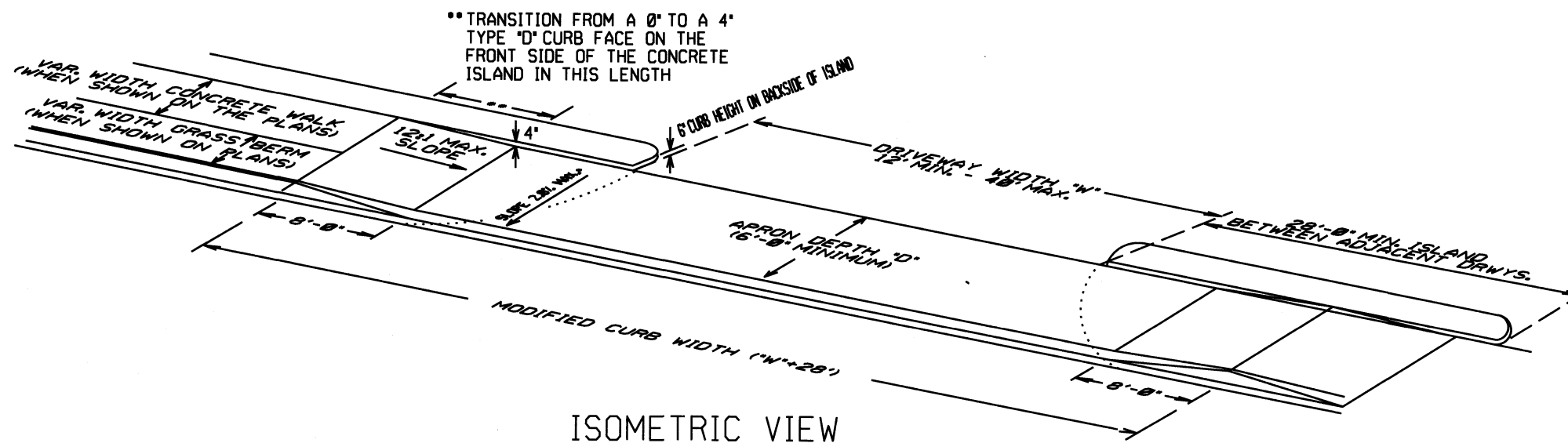
THE TYPE OF EXTENSION SHALL BE AS SHOWN IN THE PLANS. THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER, SUBSTITUTE A LOWER NUMBERED TYPE OF EXTENSION IN LIEU OF THE TYPE SPECIFIED IN THE PLANS, BUT AT NO ADDITIONAL COST TO THE DEPARTMENT.

DRIVEWAY EXTENSION DETAILS

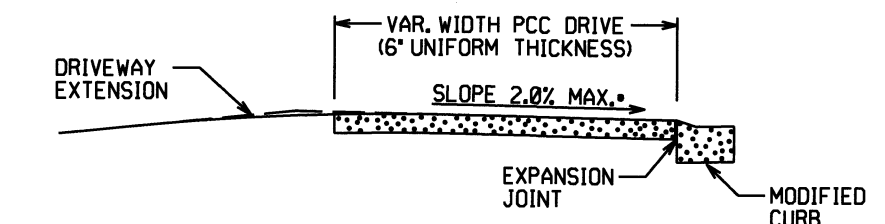


DRIVEWAY VERTICAL ALIGNMENT DETAILS

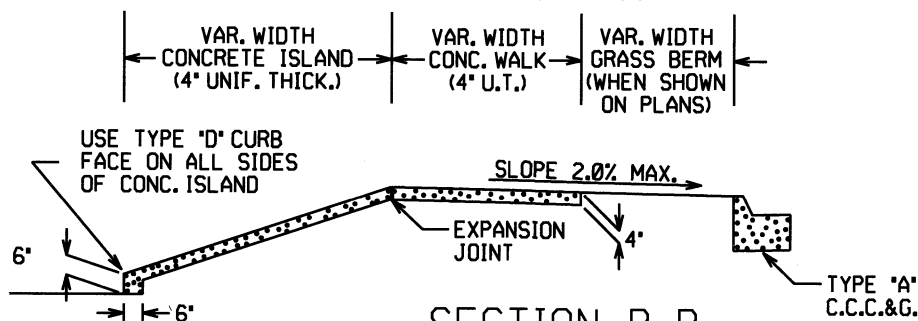
NOTE: DRIVEWAYS MAY NOT BE SLOPED AWAY FROM THE ROADWAY UNLESS APPROVED BY THE ENGINEER.



ISOMETRIC VIEW

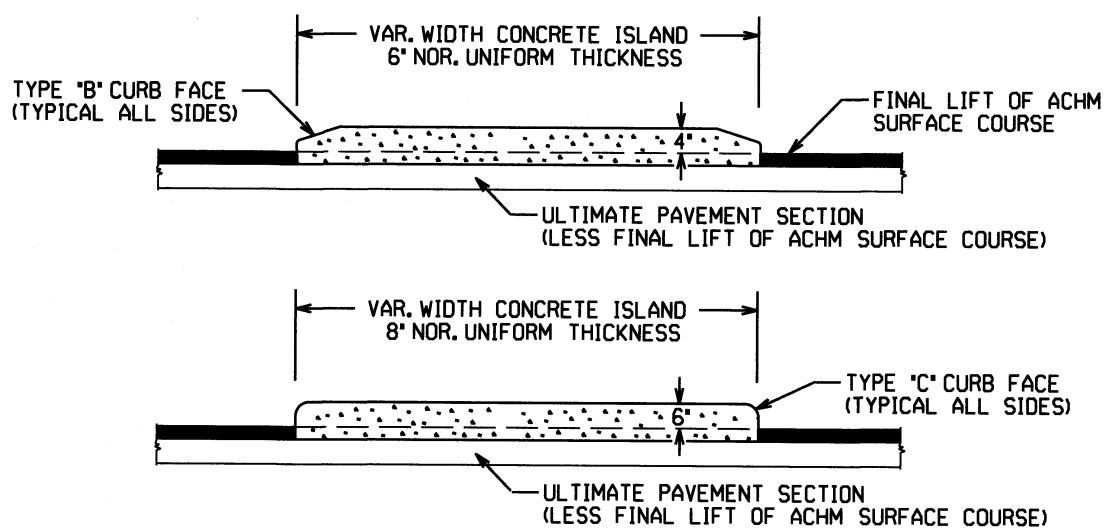


SECTION A-A



SECTION B-B
CURBED ISLAND BEHIND WALK

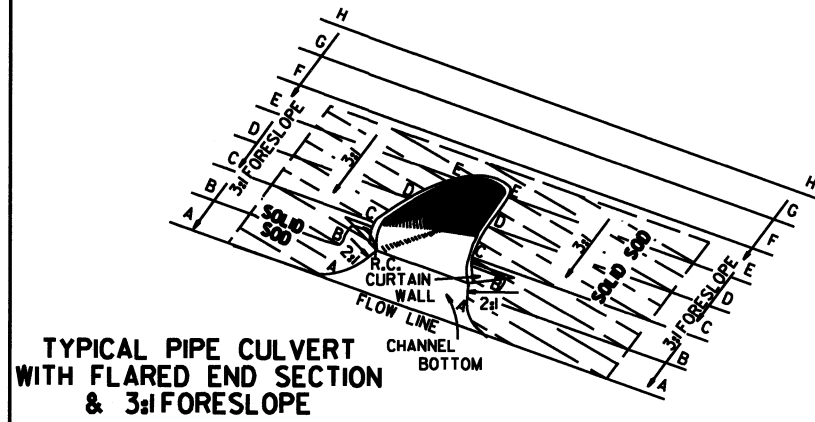
REFER TO PLANS FOR TYPE OF CURB FACE TO BE USED. NO DIRECT PAYMENT WILL BE MADE FOR THE CURB FACES SHOWN ON THE ISLAND DETAILS. PAYMENT FOR THE CURB FACE WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE ITEM "CONCRETE ISLAND".



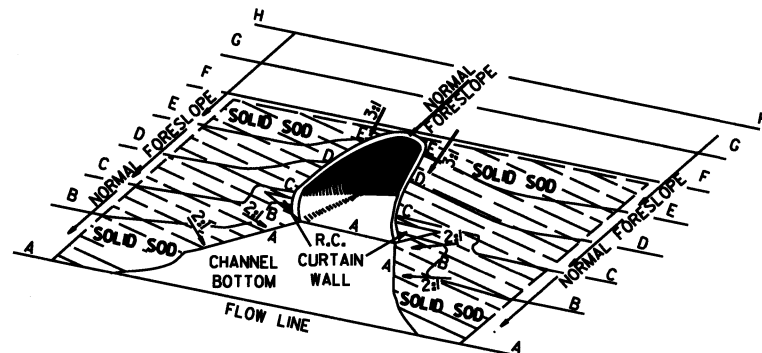
CURBED ISLANDS FOR CHANNELIZATION

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

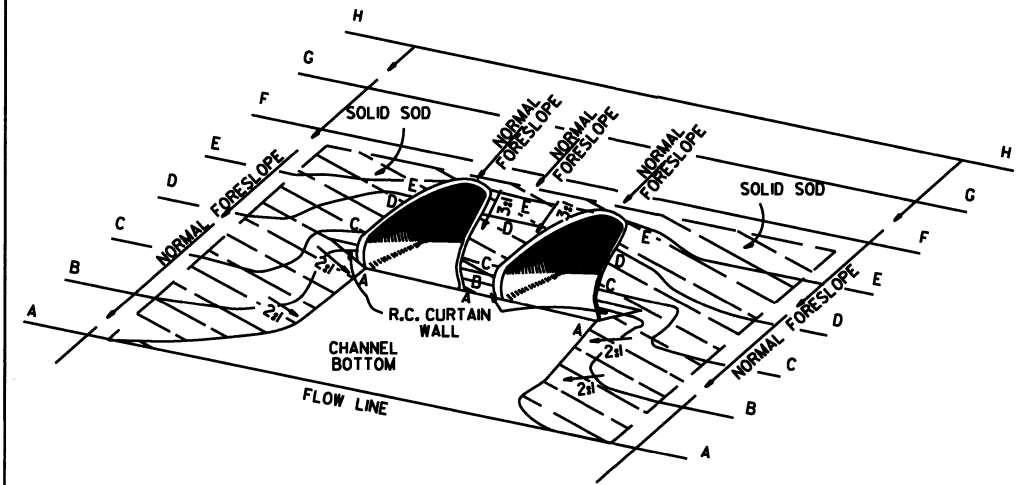
ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF DRIVEWAYS & ISLANDS
STANDARD DRAWING DR-1



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

R.C. CURTAIN WALL DIMENSIONS & QUANTITIES

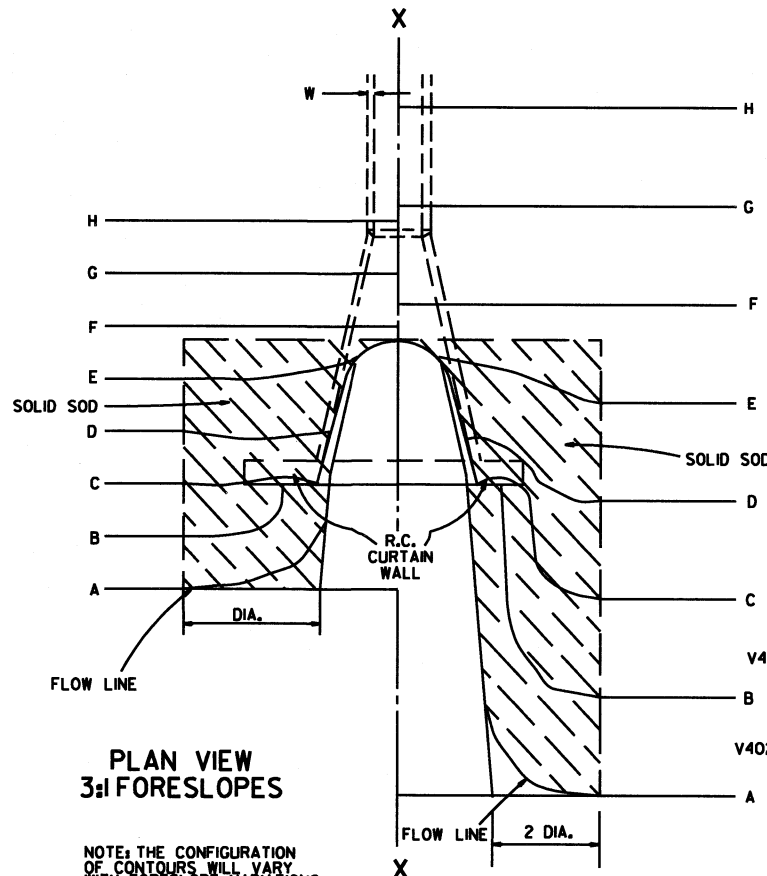
PIPE DIA.	H ₁	L ₁	L	L (DBL.) 2	SINGLE R.C.P.C.		DOUBLE R.C.P.C.	
					CONC.	REINF. STEEL	CONC.	REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	11/2"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0 1/2"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3 1/2"	5'-7"	11'-0"	9'-0"	0.45	39.0	0.67	59.0
36"	1'-7"	6'-8"	13'-0"	10'-6"	0.58	52.6	0.83	73.9
42"	2'-1 1/2"	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'-9 1/2"	8'-5"	18'-6"	14'-0"	1.16	115.8	1.47	143.7
60"	3'-4"	9'-0"	20'-6"	15'-6"	1.47	149.7	1.84	180.3
72"	4'-5"	10'-2"	25'-6"	18'-6"	2.31	232.6	2.73	271.0

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

REINFORCING STEEL SCHEDULE

PIPE DIA.	SINGLE R.C. PIPE CULVERT								DOUBLE R.C. PIPE CULVERT									
	H401		H402		V401		V402		H401		H403		V401		V402			
	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.	L	NO.		
18"	7'-8"	2	1'-11/2"	4	1'-7 1/2"	8	8"	8	12'-2"	2	1'-11/2"	4	8"	2	1'-7 1/2"	10	8"	14
24"	9'-2"	2	2'-2"	4	1'-8 1/2"	10	8"	9	14'-8"	2	2'-2"	4	8"	2	1'-8 1/2"	12	8"	18
30"	10'-8"	2	2'-4 1/2"	4	1'-11/2"	10	8"	12	17'-8"	2	2'-4 1/2"	4	8"	2	1'-11/2"	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'-9 1/2"	8	2'-9 1/2"	16	8"	15	23'-8"	2	3'-9 1/2"	8	8"	4	2'-9 1/2"	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'-8 1/2"	12	3'-5 1/2"	20	8"	17	27'-8"	2	4'-9"	12	8"	6	3'-5 1/2"	22	8"	34
60"	20'-2"	2	5'-5"	14	4'-0"	24	8"	18	30'-8"	2	5'-5"	14	8"	7	4'-0"	26	8"	36
72"	25'-2"	2	7'-4"	18	5'-1"	30	8"	20	36'-8"	2	7'-4"	18	8"	9	5'-1"	33	8"	40

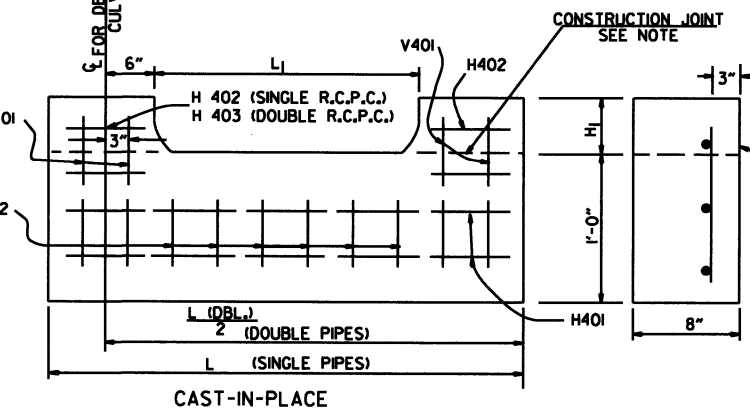
ALL REINFORCING STEEL #4 BARS @ 6" O.C.



PLAN VIEW 3:1 FORESLOPES

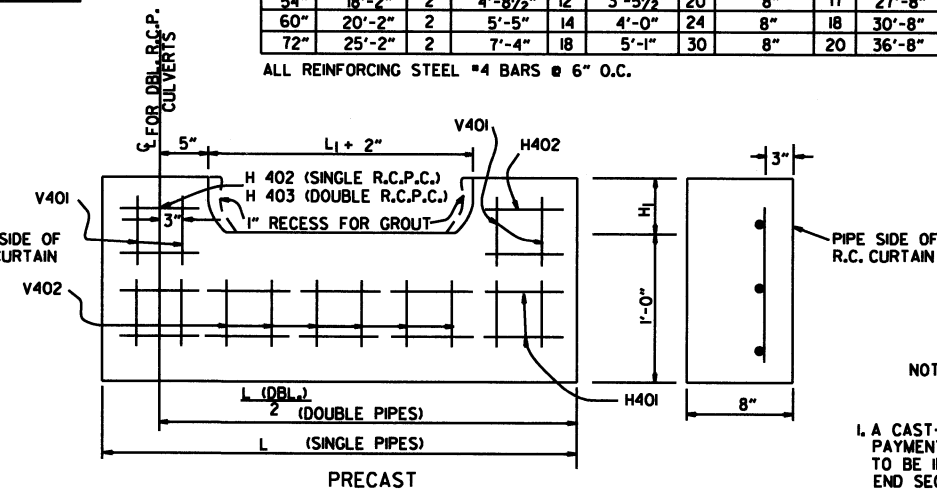
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW FLATTENED FORESLOPES



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.

R.C. CURTAIN WALL DETAILS



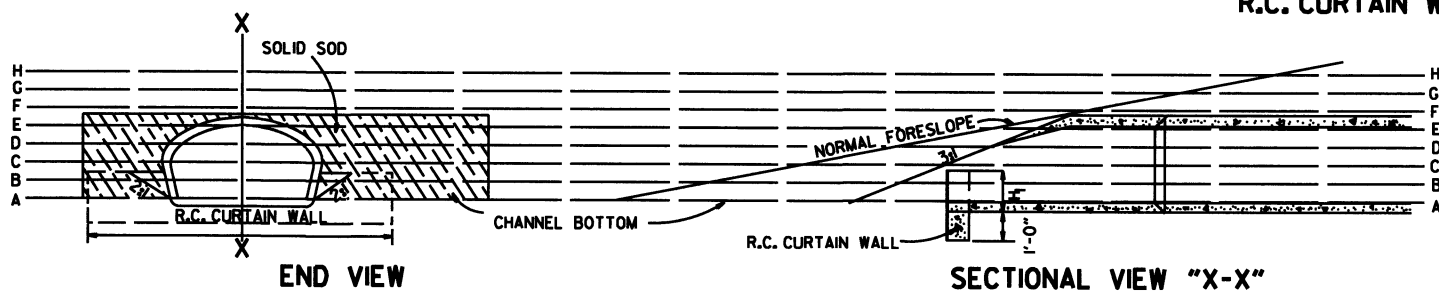
NOTE: THE PRECAST CURTAIN WALL WILL BE SET AND BACKFILLED WITH COMPACTED MATERIAL. THE FLARED END SECTION SHALL THEN BE SET IN PLACE AND THE 1" RECESS FILLED WITH GROUT. WHERE "L" EXCEEDS 11' THE CURTAIN WALL MAY BE CAST IN TWO (2) OR MORE SECTIONS. THE METHOD OF JOINING THE SECTIONS FOR INSTALLATION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

SOLID SODDING

PIPE DIA.	SINGLE R.C.P.C.			DOUBLE R.C.P.C.		
	3sl	4sl	6sl	3sl	4sl	6sl
	SO. 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 3/4".
 3. CONCRETE FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR CLASS A OR S CONCRETE AS PROVIDED IN SECTION 802 OF THE STANDARD SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN SECTION 501 OF THE STANDARD SPECIFICATIONS.
 4. WELDED WIRE MESH 3 x 3 W/10 x W/10 MAY BE USED IN LIEU OF REINFORCING BARS.



END VIEW

SECTIONAL VIEW "X-X"

10-18-96 ADDED NOTE TO SOLID SODDING			ARKANSAS STATE HIGHWAY COMMISSION
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			
DATE	REVISION	FILMED	STANDARD DRAWING FES-1

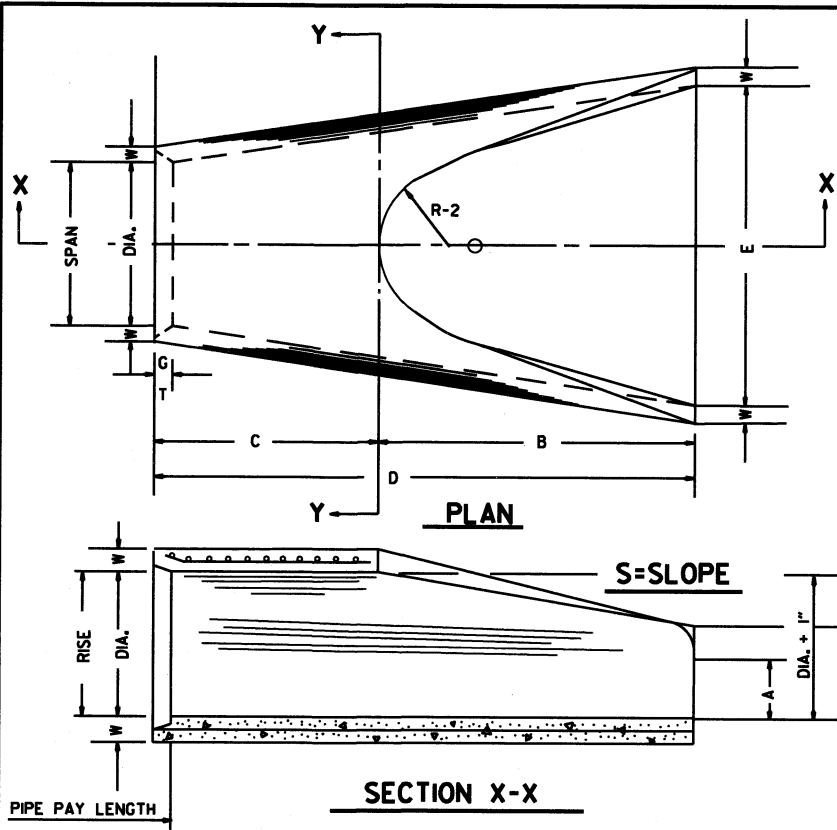
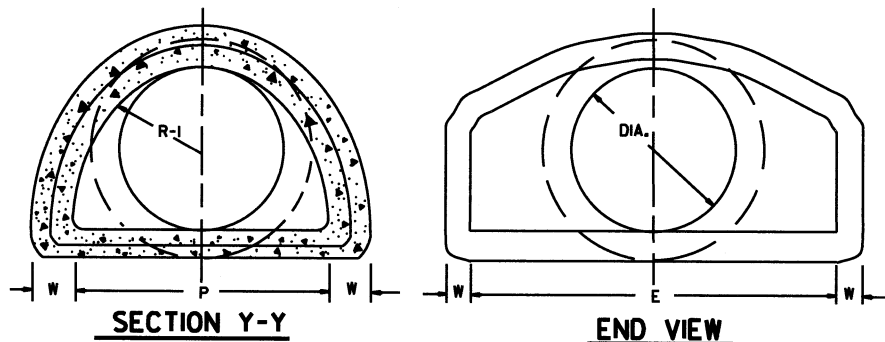


TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. + 1"	P	R-1	R-2	G-T	WT.	h
18"	2 1/2"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15 1/2"	12"	2"	1000	1'-0 1/2"
24"	3"	9 1/2"	3'-7 1/2"	2'-6"	6'-1 1/2"	4'-0"	3:1	25"	33 3/4"	16 3/4"	14"	2 1/2"	1600	1'-1 1/2"
30"	3 1/2"	1'-0"	4'-6"	1'-7 3/4"	6'-1 3/4"	5'-0"	3:1	31"	37"	18 1/2"	15"	3 1/4"	1940	1'-4 3/4"
36"	4"	1'-3"	5'-3"	2'-10 1/4"	8'-1 1/4"	6'-0"	3:1	37"	47 3/4"	24 3/4"	20"	3 1/2"	4100	1'-8"
42"	4 1/2"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	53 3/4"	27 1/2"	22"	3 3/4"	5380	2'-2 1/2"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3:1	49"	58 1/2"	28 1/2"	22"	3 1/2"	6550	2'-6"
54"	5 1/2"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3:1	55"	65 1/2"	33 1/4"	24"	4"	8750	2'-10 1/2"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72 1/2"	36 1/4"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77 3/4"	38 3/4"	24"	5"	13250	4'-6"

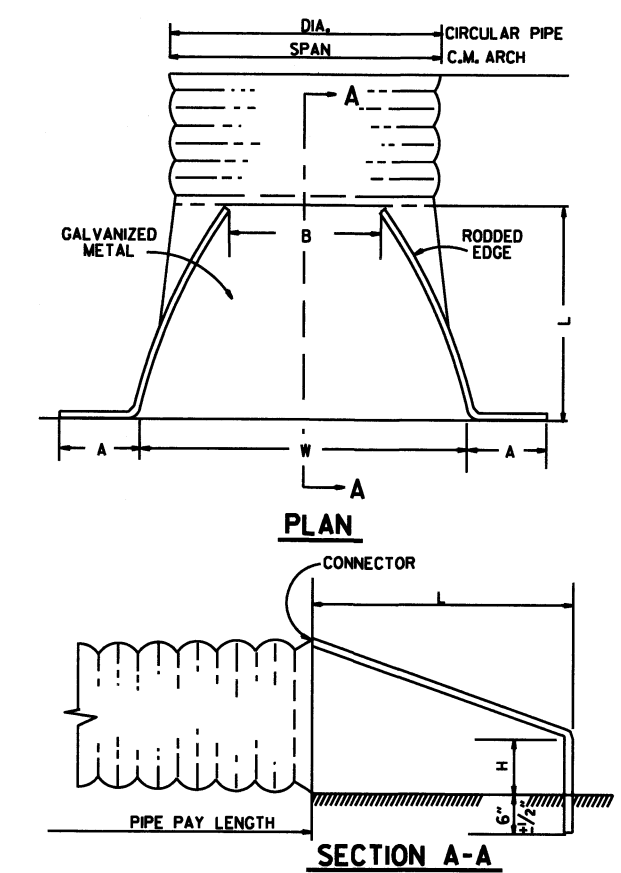
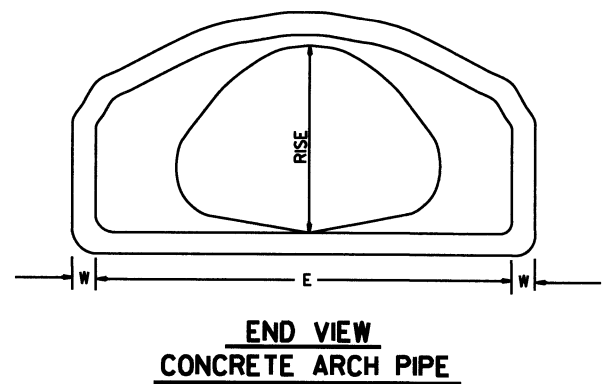


NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

ARCH PIPE

EQUIV. DIA.	SPAN		RISE		W	A	B	C	D	E	P	R2	G-T	S
	AASHTO M 206	AHD NOMINAL	AASHTO M 206	AHD NOMINAL										
INCHES														
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1 1/2"	2 1/2:1
18	22	22	13 1/2	14	2 1/2	5"	2'-0"	4'-1"	6'-1"	3'-6"	32 3/4"	13"	2 1/2"	2 1/2:1
21	26	26	15 1/2	16	2 3/4	7"	2'-3"	3'-10"	6'-1"	4'-0"	34 1/4"	14"	2 1/2"	2 1/2:1
24	28 1/2	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36 3/4"	15"	2 1/2"	2 1/2:1
30	36 1/4	36	22 1/2	23	3 1/2	10"	3'-1"	3'-0 1/2	6'-1 1/2	6'-0"	47 1/4"	20"	3"	2 1/2:1
36	43 3/4	44	26 3/4	27	4"	10 1/2	4'-0"	2'-1 1/2	6'-1 1/2	6'-6"	54 3/4"	22"	3 1/2"	2 1/2:1
42	51 1/4	51	31 3/4	31	4 1/2	11 1/2	4'-7"	1'-10 1/4	6'-5 1/4	7'-2"	59 1/2"	23"	3 3/4"	2 1/2:1
48	58 1/2	59	36	36	5"	1'-3"	5'-3"	2'-10 1/4	8'-1 1/4	7'-10"	70 3/4"	24"	4 1/4"	2 1/2:1
54	65	65	40	40	5 1/2	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72 3/4"	24"	4 3/4"	2 1/2:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 3/4"	24"	5"	2 1/2:1

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

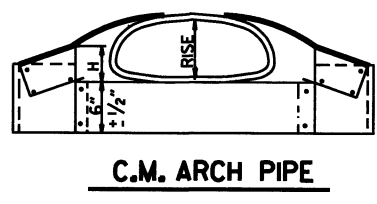
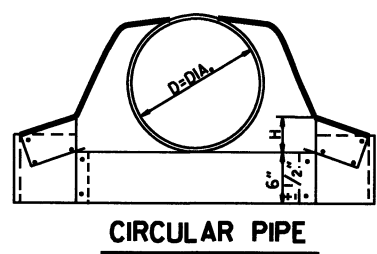


NOTE: ALTERNATE CONNECTIONS TO THE PIPE CULVERTS, IN ACCORDANCE WITH MANUFACTURER'S STANDARD PRACTICES, MAY BE MADE SUBJECT TO THE APPROVAL OF THE ENGINEER.

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS

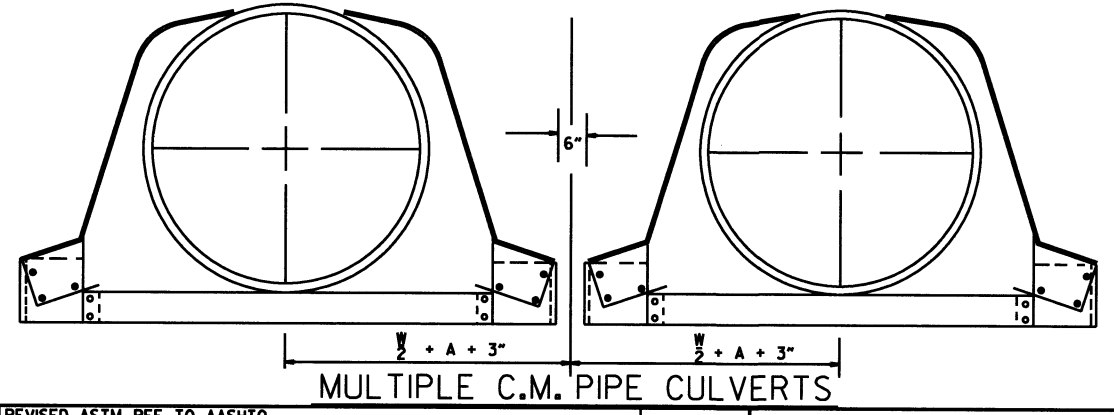
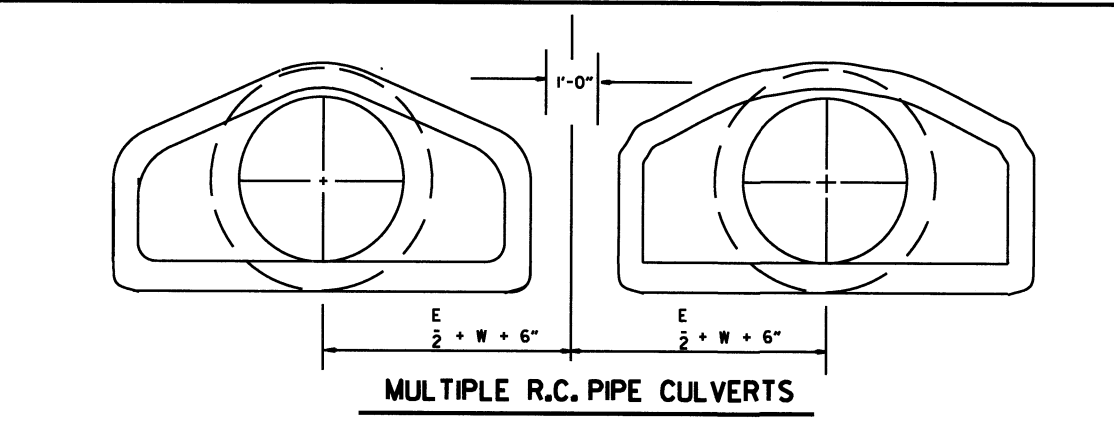
CIRCULAR PIPE

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

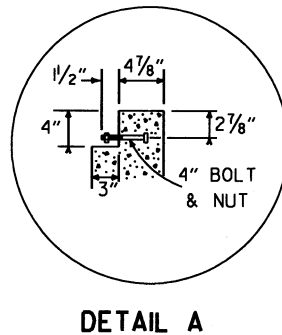
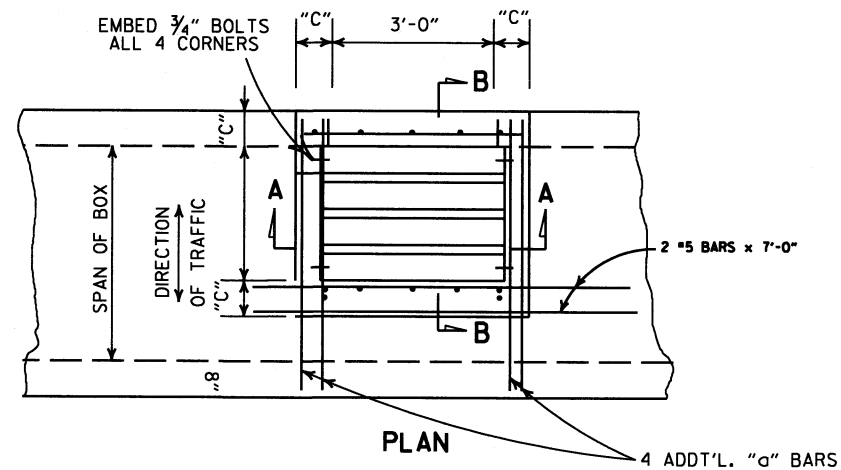


C.M. ARCH PIPE

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



10-18-96	REVISED ASTM REF. TO AASHTO		
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P., F.E.S.	664-5-15-80	ARKANSAS STATE HIGHWAY COMMISSION
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 BEING FOR R.C., F.E.S.	500-12-5-74	FLARED END SECTION
5-24-73	CMP END SECTION, SHOW PIPE PAY LENGTH	627-5-24-73	
10-2-72	REVISED AND REDRAWN	760-10-2-72	STANDARD DRAWING FES-2
DATE	REVISION	BY	CHK

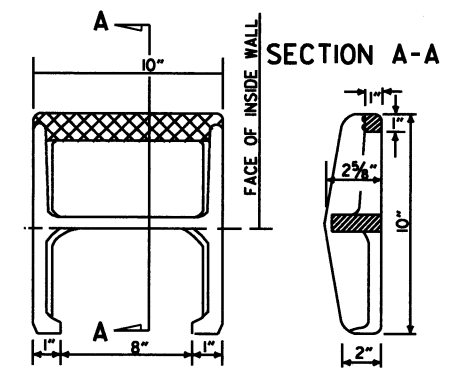
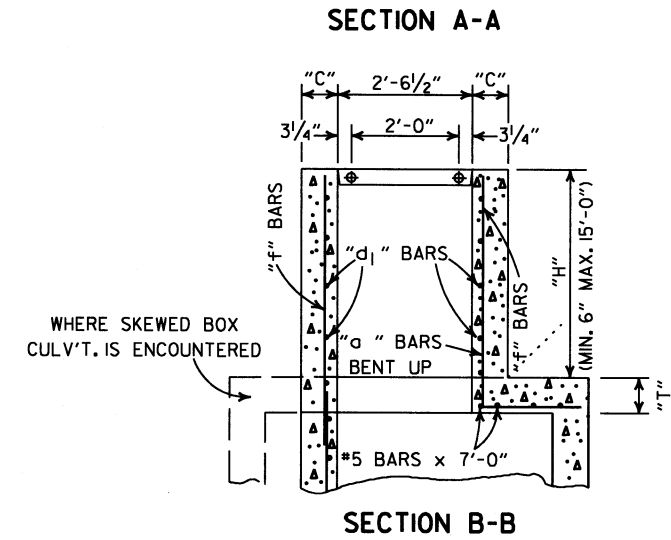
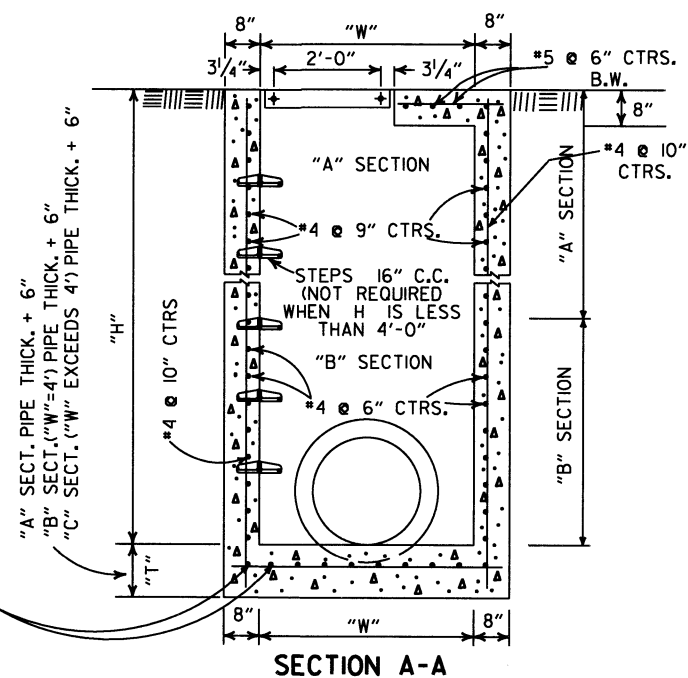
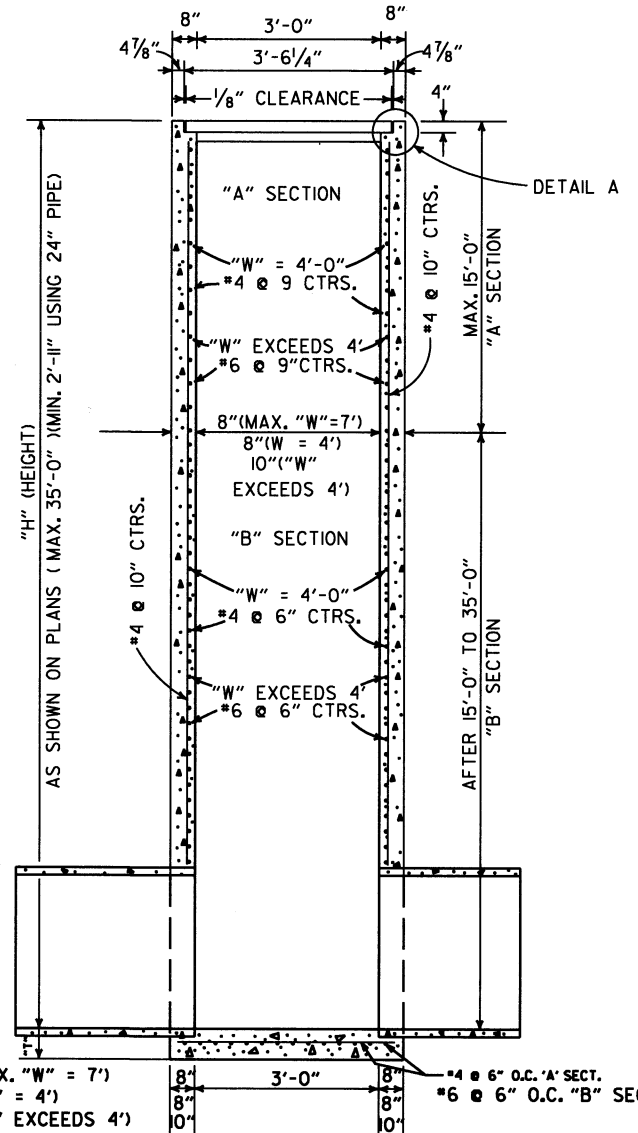
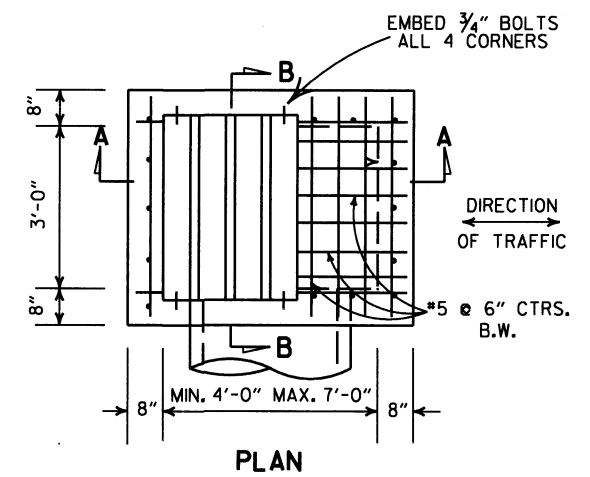
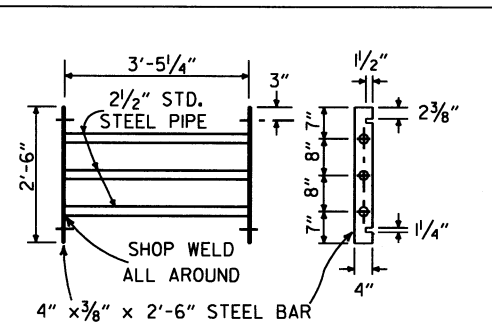
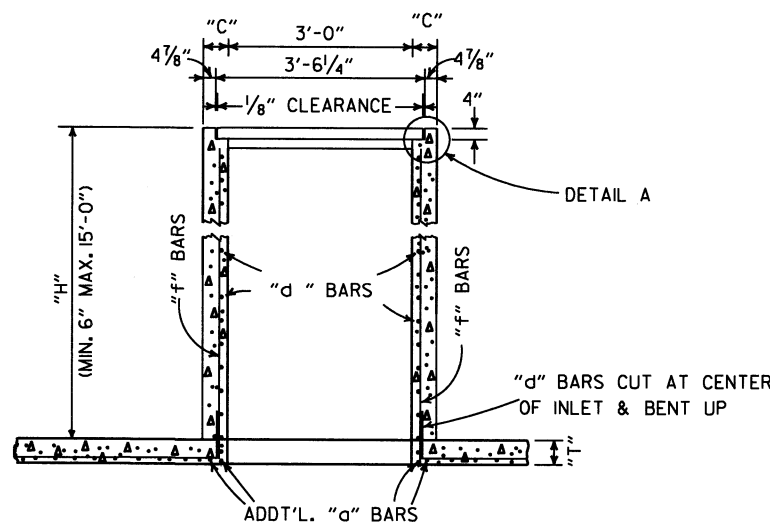


- GENERAL NOTES:**
- STEEL PIPE FOR GRATES AND BOLTS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 807. BOLTS SHALL CONFORM TO ONE OF THE FOLLOWING: ASTM A193, GRADE B8 CLASS 10R 2, ASTM A307 OR AASHTO M 164.
 - STEEL PIPE FOR GRATES SHALL BE "STANDARD WEIGHT" PIPE CONFORMING TO ASTM A53 NATIONAL STANDARD PIPE.
 - BOLTS, NUTS, WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M 232 OR AASHTO M 298, CLASS 40 OR 50.
 - ALL EXPOSED CORNERS TO HAVE 3/4" CHAMFER.
 - ALL #4 AND #5 REINFORCING BARS TO HAVE 1/2" COVER. LARGER SIZES TO HAVE 2" COVER.
 - THE COMPLETE PIPE GRATE SHALL BE PAINTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

TABLE OF "W" DIMENSIONS

I.D. PIPE	SKEW OF CROSS DRAIN		
	STRAIGHT	30°	45°
24"	4'-0"	4'-0"	4'-0"
30"	4'-0"	4'-0"	4'-5"
36"	4'-0"	4'-3"	5'-3"
42"	4'-3"	4'-11"	6'-1"
48"	4'-10"	5'-7"	6'-11"

NOTE: DIMENSIONS SHOWN ABOVE ARE FOR PIPES INTERSECTING DROP INLET ON ONE SIDE ONLY. FOR SKEWED PIPES INTERSECTING BOTH SIDES OF DROP INLET, "W" WILL NEED TO BE INCREASED OR AXIS OF INTERSECTING PIPES WILL NEED TO BE SHIFTED.



APPROX. WEIGHT = 11 LBS. (CAST IRON)
PLAN
 NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.
DETAIL OF STEP FOR DROP INLET

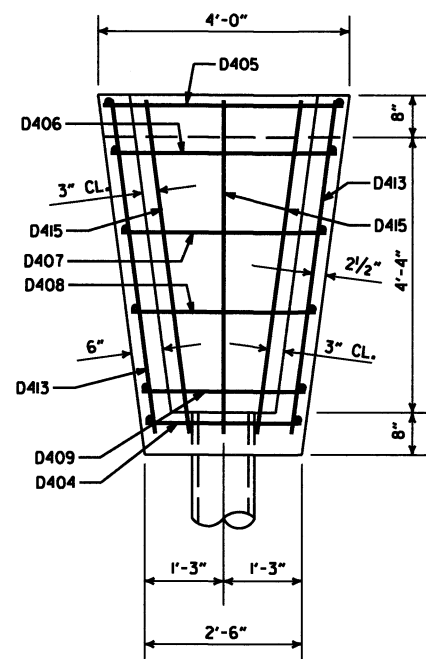
NOTE: ADDT'L. REINF. STEEL TO BE INCLUDED IN UNIT PRICE BID PER TYPE "TM" D.I.
 DIMENSIONS & REINF. BARS FOR D.I. TO BE THE SAME AS THOSE SHOWN ON APPLICABLE STD. BARREL DRAWING FOR R.C. BOX CULVERTS.

DROP INLET TYPE "TM" FOR REINFORCED CONC. BOX CULVERTS

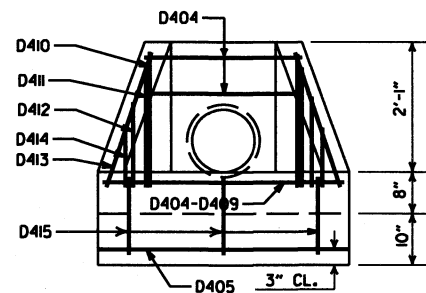
DROP INLET (TYPE RM)

8-22-02	ADDED & REVISED DIMENSION TO SECTION A-A	
1-12-00	CORRECTED DIMENSION ON SECTION B-B	
11-06-97	ADDED DIMENSION TO SECTION A-A	
10-18-96	REVISED ASTM REF. TO AASHTO AND ADDED NOTE TO TABLE OF "W" DIMENSIONS	
10-1-92	ADDED DIRECTION OF TRAFFIC	10-1-92
8-15-91	ADDED NOTE ABOUT PAINTING OF GRATE	8-15-91
11-30-89	ALTERED DETAIL A	11-30-89
7-15-88	REVISED STEP DETAIL, TM & RM D.I. & GRATE DETAIL	7-15-88
10-2-72	REVISED AND REDRAWN	542-10-2-72
REVISED		DATE FILMED

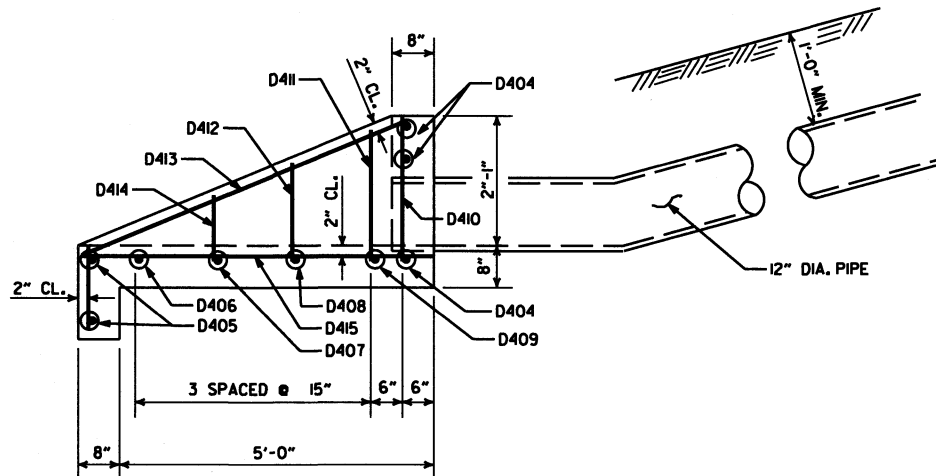
ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF DROP INLETS
STANDARD DRAWING FPC-9D



PLAN



FRONT ELEVATION



SIDE ELEVATION
CONCRETE SPILLWAY

DETAILS OF CONCRETE SPILLWAY (TYPE A)

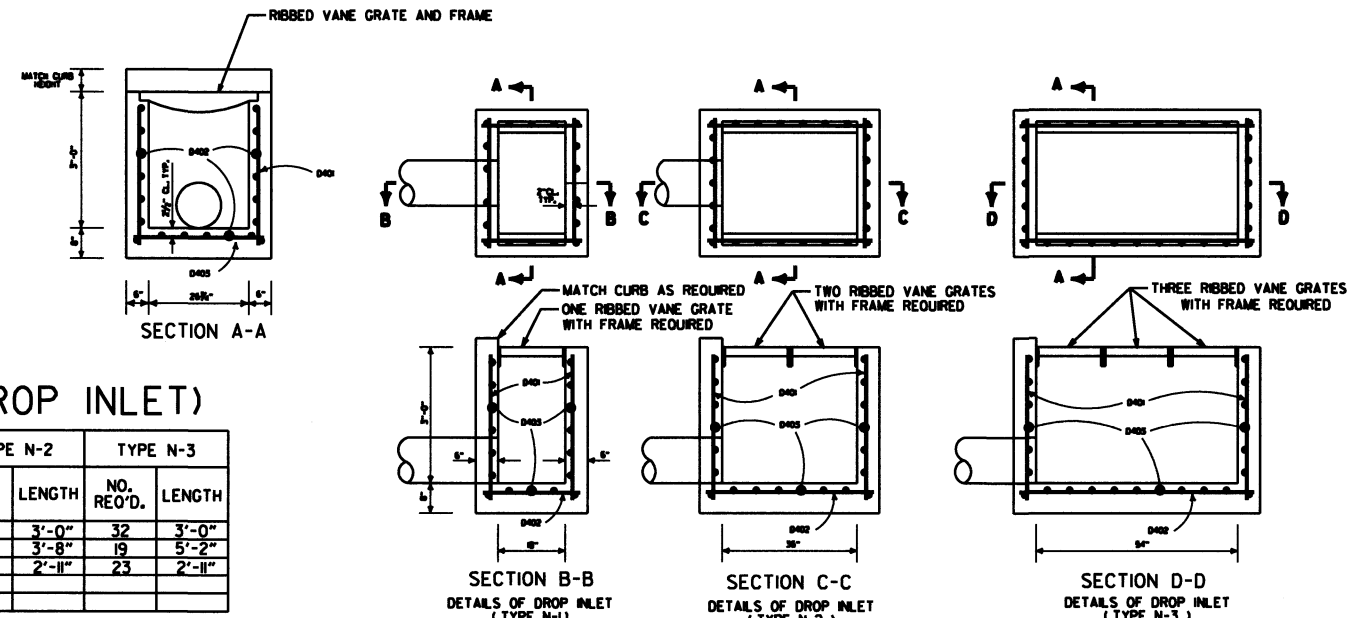
BAR LIST
(CONCRETE SPILLWAY)

MARK	NO. REQ'D.	LENGTH	BENDING DIAGRAM
D404	3	2'-2"	
D405	2	3'-8"	
D406	1	3'-5"	
D407	1	3'-1"	
D408	1	2'-9"	
D409	1	2'-5"	
D410	2	2'-5"	
D411	2	2'-2"	
D412	2	1'-9"	
D413	2	5'-6"	
D414	2	1'-2"	
D415	3	6'-5"	

BAR LIST (DROP INLET)

MARK	TYPE N-1		TYPE N-2		TYPE N-3	
	NO. REQ'D.	LENGTH	NO. REQ'D.	LENGTH	NO. REQ'D.	LENGTH
D401	20	3'-0"	26	3'-0"	32	3'-0"
D402	19	2'-2"	19	3'-8"	19	5'-2"
D403	17	2'-11"	20	2'-11"	23	2'-11"

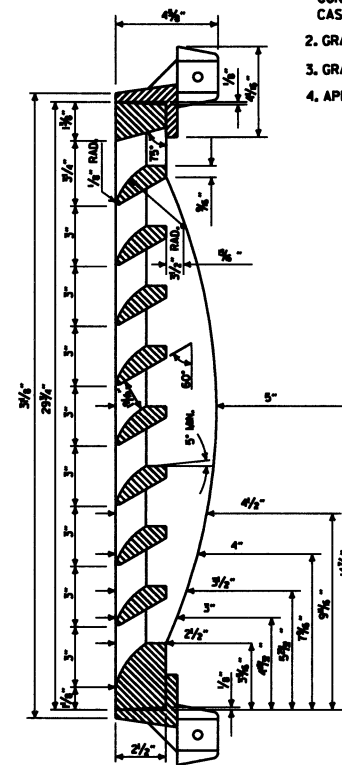
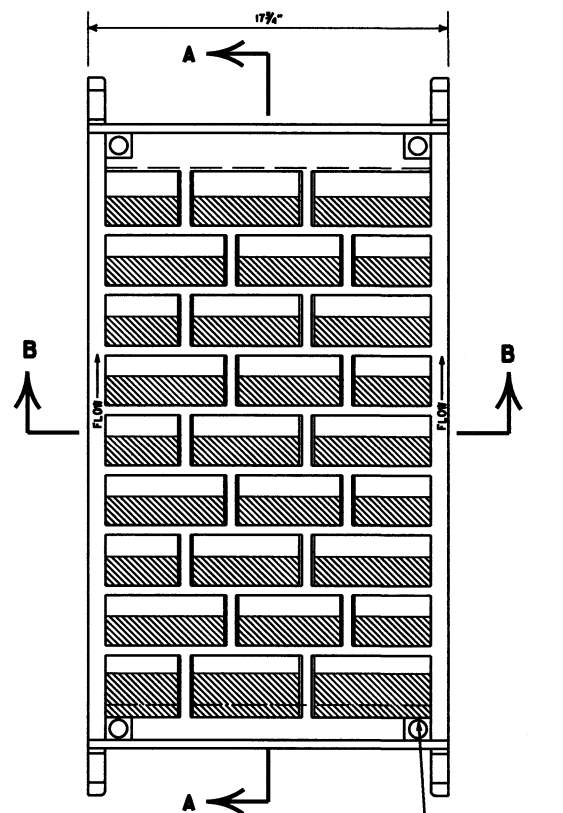
ALL BARS #4 @ 6" SPACING



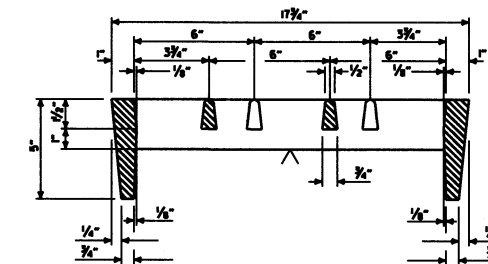
DETAILS OF DROP INLET

GENERAL NOTES (GRATE & FRAME)

- RIBBED VANE GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105 CLASS 35B & AASHTO M 306.
- GRATE AND FRAME SHALL NOT BE PAINTED.
- GRATE AND FRAME SHALL BE INSTALLED IN DROP INLET IN ASSEMBLED POSITION.
- APPROXIMATE WEIGHT OF GRATE SHALL BE 170 LBS.



SECTION A-A



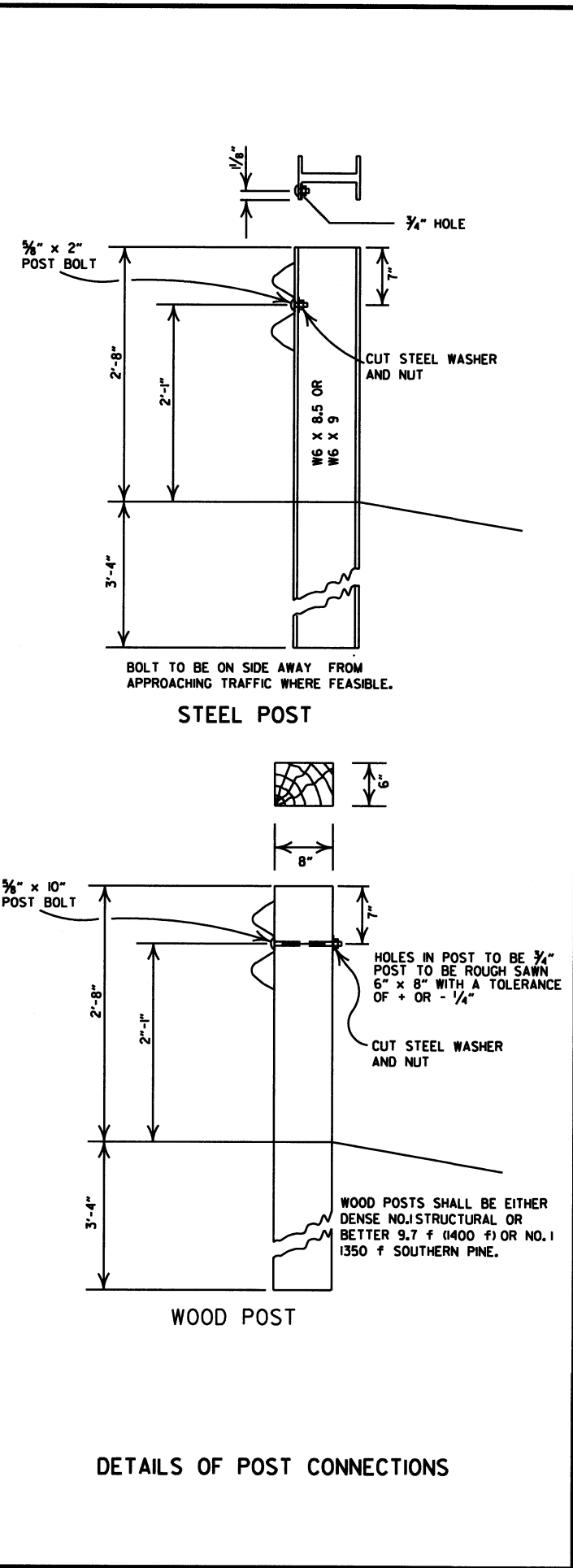
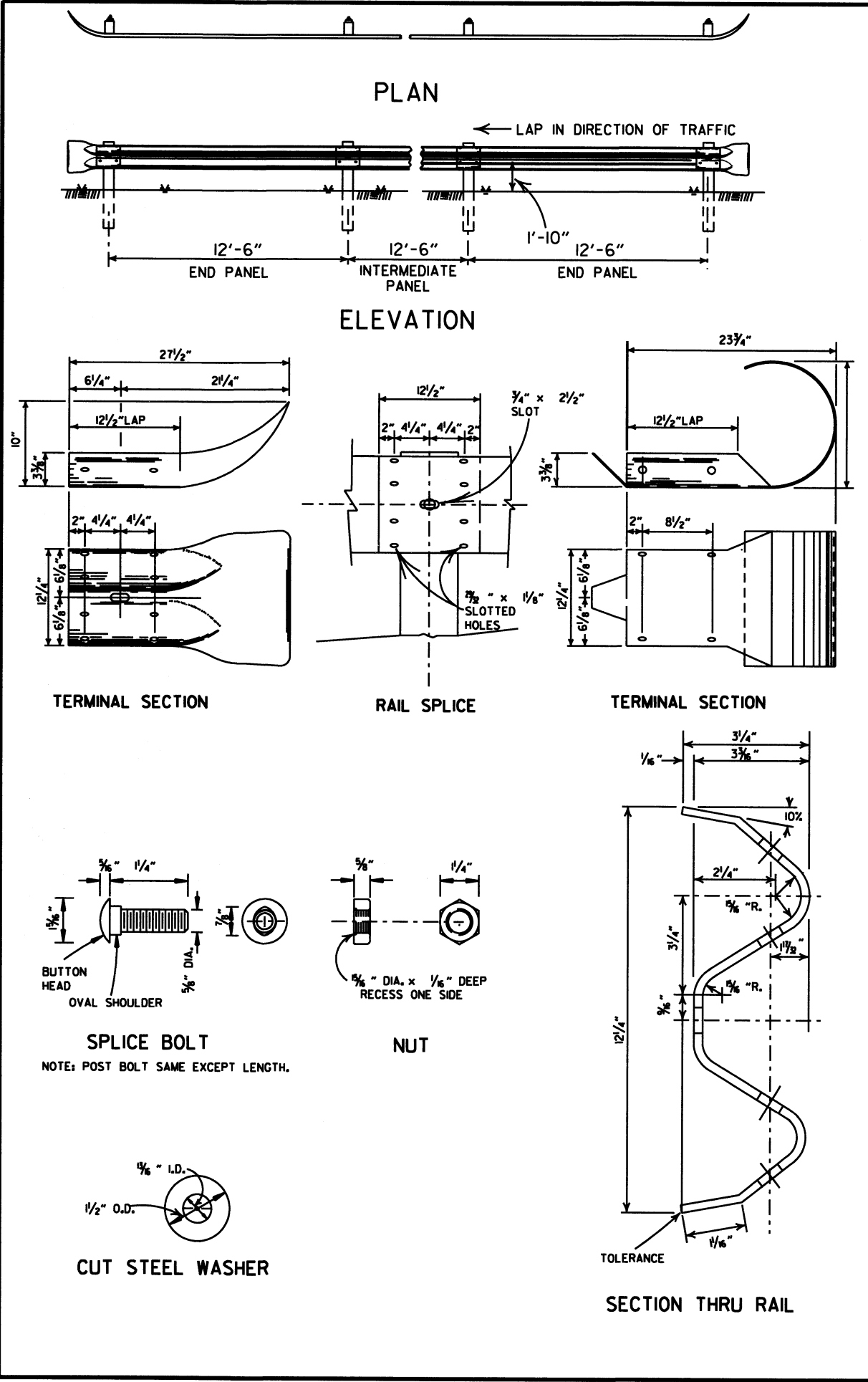
SECTION B-B

SECTION THRU FRAME

DETAILS OF RIBBED VANE GRATE AND FRAME

DATE REVISED	DATE FILED	DESCRIPTION
7-02-98		REVISED SECT. A-A DETAIL OF DROP INLET & ADDED AASHTO REF. TO NOTE 1, REVISED GRATE
10-18-96		REVISED ASTM REF. TO AASHTO
8-15-91		ISSUED

ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF DROP INLETS AND
SPILLWAY OUTLET
STANDARD DRAWING FPC-9N

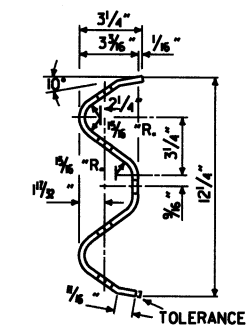
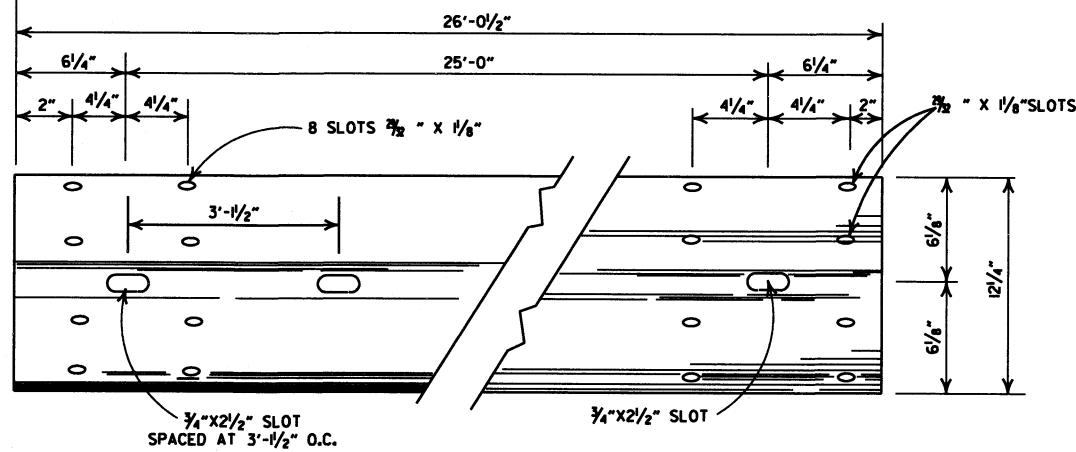


DATE	REVISION	FILMED
11-16-17	REVISED GUARD RAIL HEIGHT	
07-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
08-22-02	REVISED DIMENSION ON STEEL POST	
8-16-01	REVISED STEEL AND WOOD POST	
08-12-98	REMOVED CONCRETE POST	
10-18-96	CHANGED WOOD POST NOTE	10-18-96
06-02-94	ADDED ALTERNATE STEEL POST SIZE	
08-05-93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

ARKANSAS STATE HIGHWAY COMMISSION

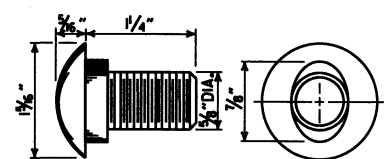
GUARD RAIL DETAILS (TYPE C)
STREET / ROAD BARRICADE OR
TEMPORARY INSTALLATION

STANDARD DRAWING GR-7

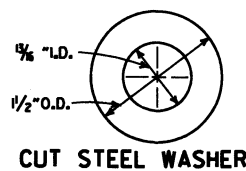


DETAILS OF W-BEAM GUARD RAIL

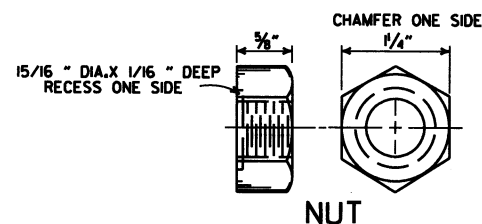
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



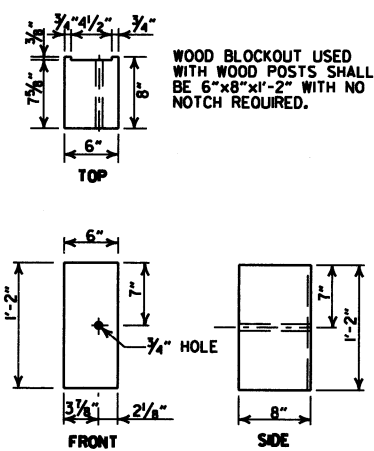
**SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH**



CUT STEEL WASHER

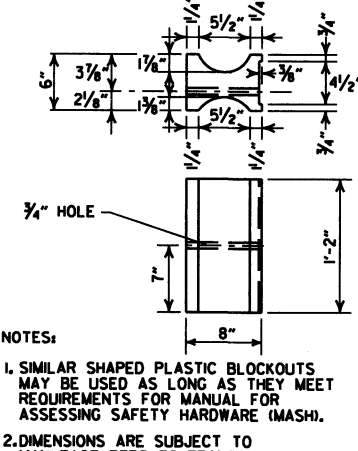


NUT



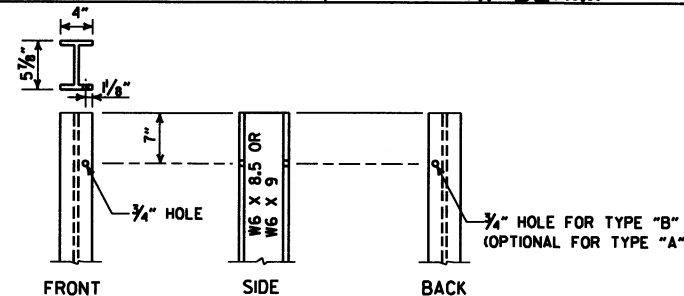
WOOD BLOCKOUT (W-BEAM)

WOOD BLOCKOUT USED WITH WOOD POSTS SHALL BE 6"X8"X1'-2" WITH NO NOTCH REQUIRED.

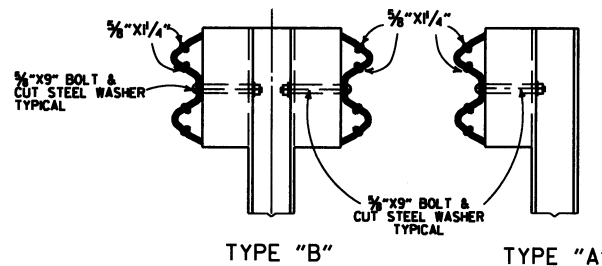


PLASTIC BLOCKOUT (W-BEAM)

NOTES:
1. SIMILAR SHAPED PLASTIC BLOCKOUTS MAY BE USED AS LONG AS THEY MEET REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
2. DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCES.



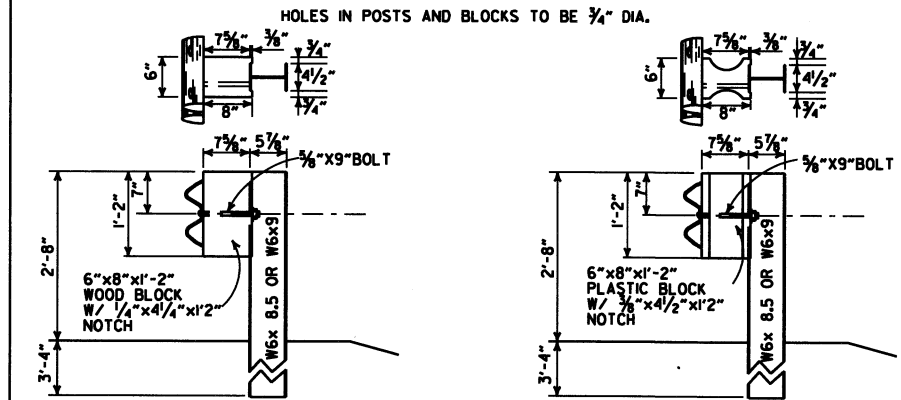
STEEL POST



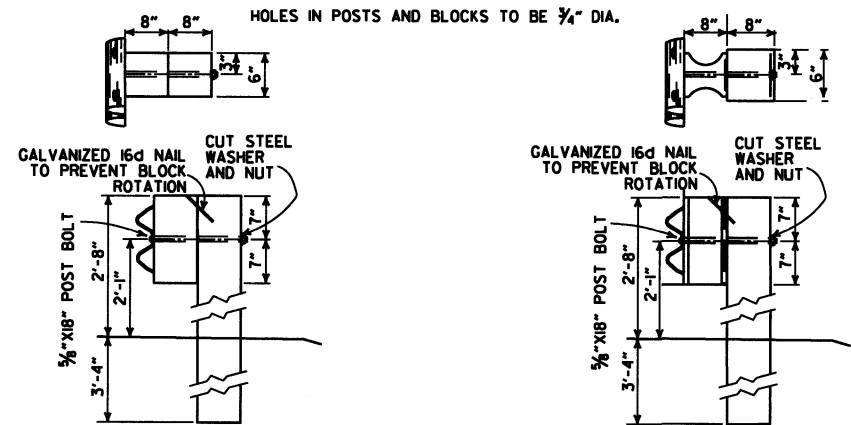
DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

-GENERAL NOTES-

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 3/4" 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 9.7f (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 REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) FOR W-BEAM GUARD RAIL.



**WOOD BLOCKOUT CONNECTIONS
PLASTIC BLOCKOUT CONNECTIONS
DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)**



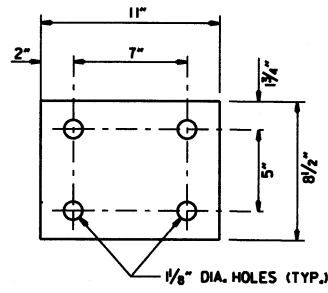
**WOOD BLOCKOUT CONNECTIONS
PLASTIC BLOCKOUT CONNECTIONS
DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)**

11-16-17	REVISED GENERAL NOTES AND RAISED GUARD RAIL HEIGHT 3"	
07-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
10-15-09	ADDED REFERENCE TO MASH	
04-10-03	REVISED GENERAL NOTES	
08-22-02	REVISED DIMENSION ON WOOD & PLASTIC BLOCKOUT CONNECTIONS & STEEL POST	
11-16-01	REVISED WOOD BLOCKOUT & DETAILS OF WOOD LINE POST CONNECTIONS	
03-30-00	REMOVED GUARD RAIL AT BRIDGE ENDS	
01-12-00	ADDED PLASTIC BLOCKOUT 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	
08-12-98		
04-03-97	REMOVED "LAP IN DIRECTION OF TRAFFIC" NOTE & PLACED ARROWS ON WASHERS	
10-18-96	REVISED WOOD POST NOTE	
06-02-94	ADDED ALT. STEEL POST SIZE	
08-05-93	REVISED STEEL POST SIZE	8-5-93
10-01-92	REDRAWN & REVISED	10-1-92
08-15-91	REVISED WASHER NOTE	8-15-91
08-02-90	REV. GEN. NOTE & DEPTH OF ANC. POST IN ROCK	8-2-90
07-15-88	REVISED SECTION 3 & GENERAL NOTES	
03-04-88	REV. ANCHOR POST ELEV. NOTES & POST IN ROCK	780-3-4-88
10-30-87	REVISED WOOD LINE POST DETAIL	546-10-30-87
10-09-87	REDRAWN & REVISED	802-10-9-87
DATE	REVISION	FILMED

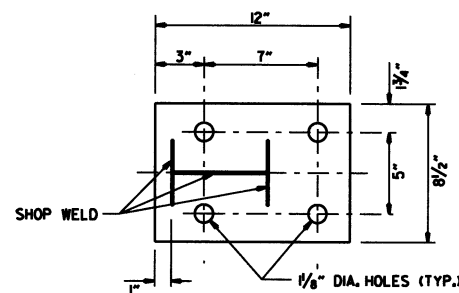
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-8

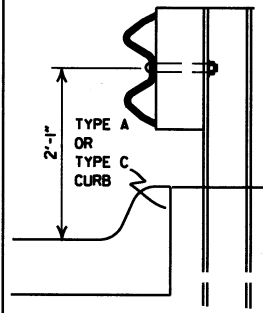


WASHER PLATE

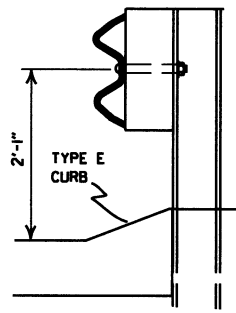


BASE PLATE

Note: Bolts, nuts, washers and plates shall be galvanized in accordance with Section 807 of the Standard Specifications.



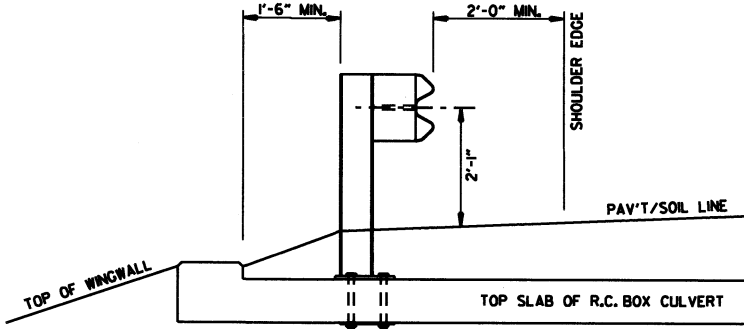
FOR DESIGN SPEEDS OF 50 MPH OR LESS
ALIGN FACE OF GUARD RAIL WITH FACE OF CURB.



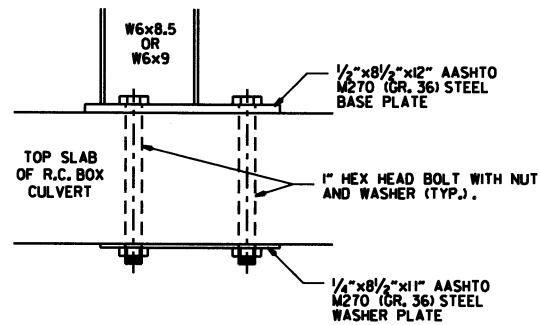
FOR DESIGN SPEEDS OF 55 MPH OR MORE
PLACE GUARD RAIL POSTS AGAINST BACK OF CURB.

DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB (W-BEAM)

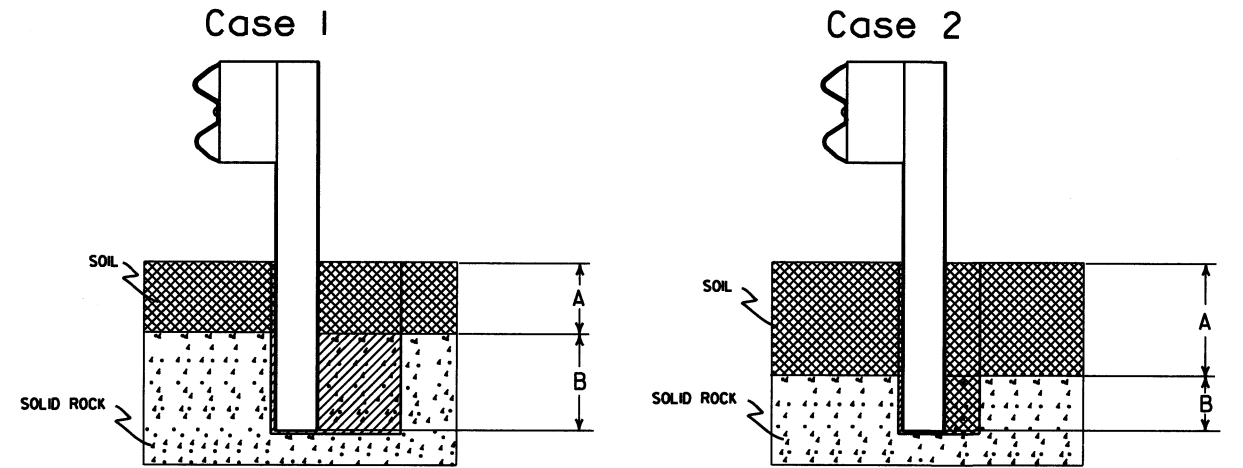
FOR DESIGN SPEEDS OF 50 MPH OR LESS ALL CURB FACES, AS SHOWN ON STD. DRWG. CG-1, MAY BE USED. FOR DESIGN SPEEDS OF 55 MPH OR MORE TYPE "E" CURB FACE SHALL BE USED.



SECTION A-A

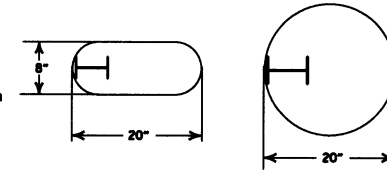


DETAIL OF CONNECTION



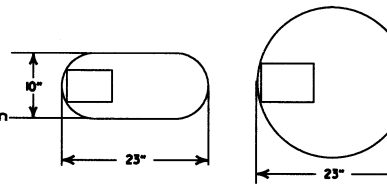
Plan View Steel Posts

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".

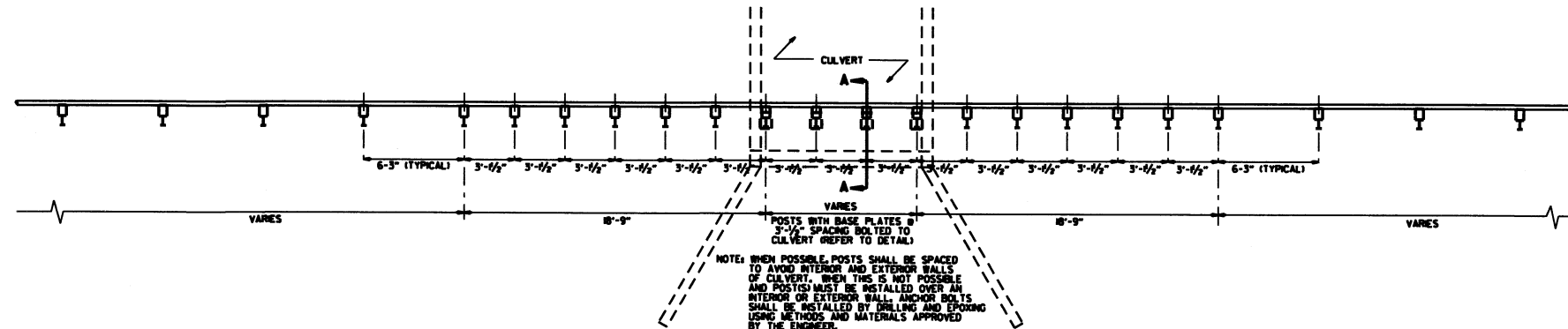
Zone A: Backfill according to Section 617.03(a).

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

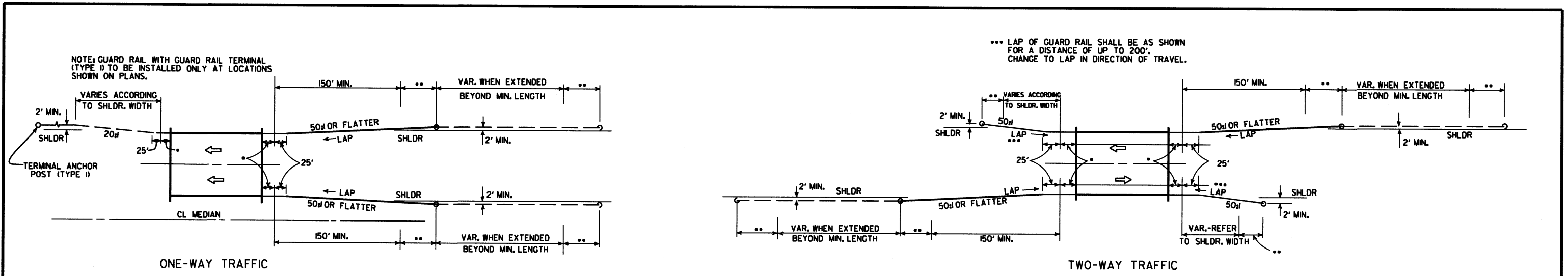
NOTE: THIS DETAIL IS TO BE USED ONLY WHEN THE COVER OVER THE CULVERT DOES NOT PERMIT FULL EMBEDMENT OF GUARD RAIL POSTS AS SHOWN ON STD. DRWG. GR-8.

1-16-17	REVISED GUARD RAIL HEIGHT	
07-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
04-12-07	REVISED DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB	
11-10-05	ADDED GUARD RAIL PLACEMENT BEHIND CURB; 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	
03-30-00	REMOVED CONCRETE INSERT ANCHOR	
08-12-98	CHANGED STEEL SPACER BLOCK TO WOOD BLOCKOUT, ADDED DET. OF GUARD RAIL CONNECTION TO R.C. BOX CULV'T., DELETED DET. OF STEEL LINE POST CONN. & ADDED DET. OF GUARD RAIL PLACE. BEHIND CURB & DET. OF POSTPLACE IN SOLID ROCK	
04-03-96	PLACED ARROWS AT CUT STEEL WASHERS	4-3-96
10-18-95	REV. ASTM REF. TO AASHTO	
8-22-95	ADDED OPTIONAL HOLES	
06-02-94	REVISED ALTERNATE POST SIZE	
08-05-93	REVISED STEEL POST SIZE	
10-01-92	REDRAWN & REVISED	10-1-92
08-02-90	DEL. WASHER ON ANCHOR ASSEMBLY	8-2-90
07-15-88	CONFORMED TO 1988 SPECS	
03-04-88	REVISED ANCHOR NOTE	
10-30-87	REVISED ANCHOR ASSEMBLY	712-10-30-87
10-30-87	REVISED PLACEMENT BEHIND CURB	547-10-30-87
10-09-87	REDRAWN & REVISED	803-10-9-87
DATE	REVISION	FILED

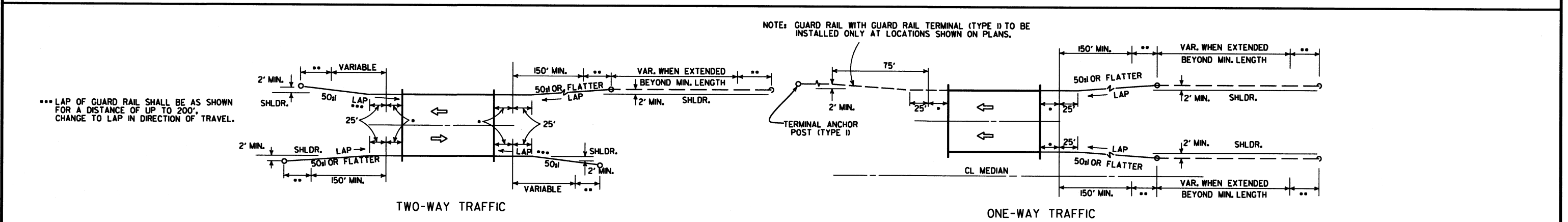
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

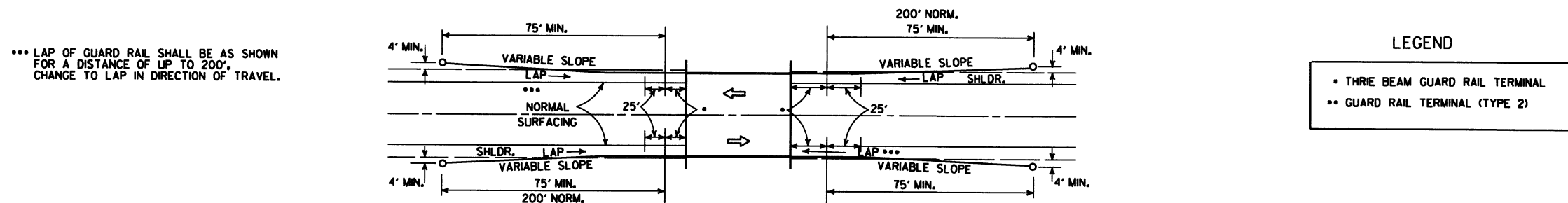
STANDARD DRAWING GR-8A



METHODS OF INSTALLATION OF GUARD RAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)



METHOD OF INSTALLATION OF GUARD RAIL AT FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

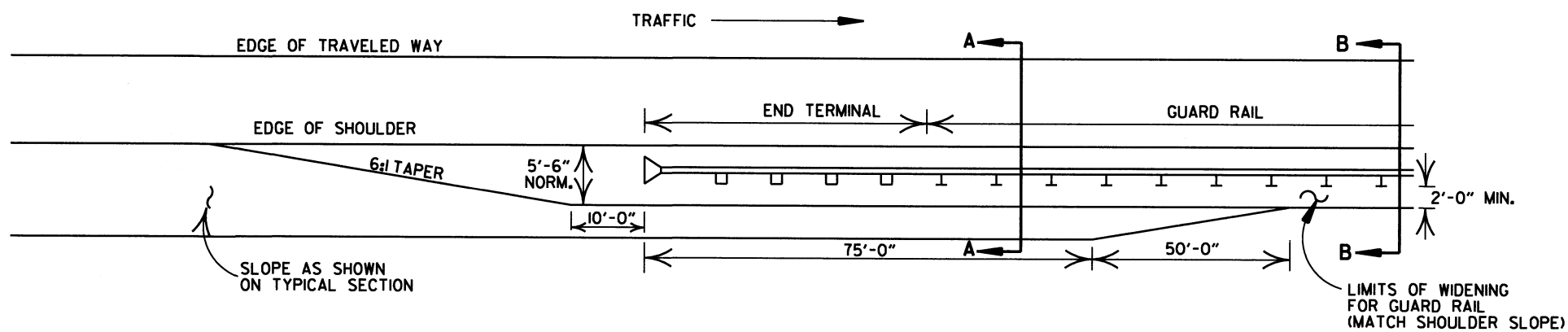


METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERMINAL (TYPE 1) (FULL SHOULDER WIDTH OR LESS BRIDGES)

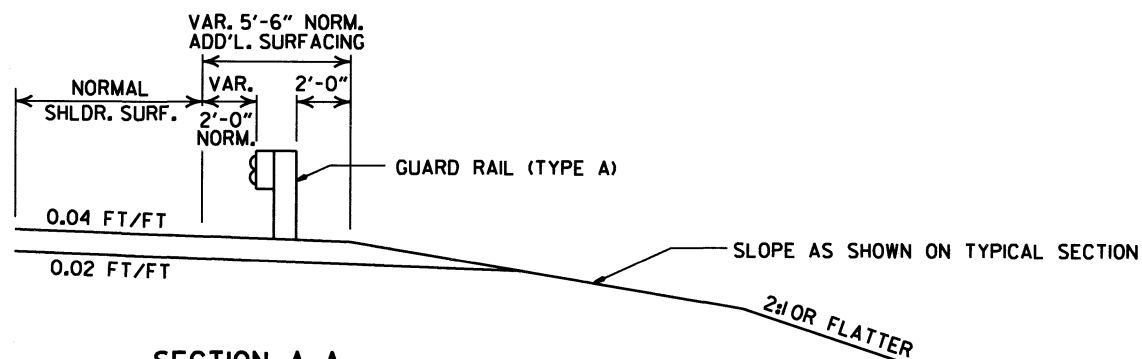
LEGEND

- THREE BEAM GUARD RAIL TERMINAL
- GUARD RAIL TERMINAL (TYPE 2)

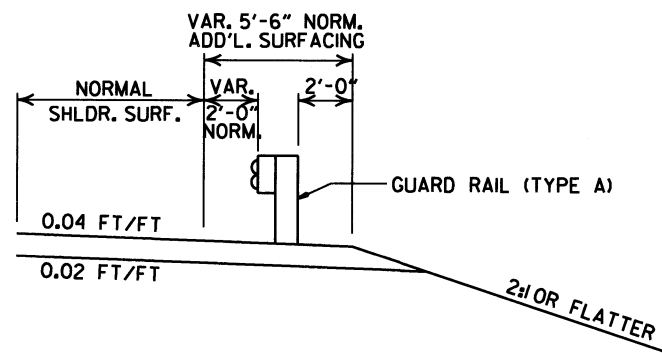
			ARKANSAS STATE HIGHWAY COMMISSION	
			GUARD RAIL DETAILS	
			STANDARD DRAWING GR-9	
4-17-08	REVISED LAYOUTS			
8-10-05	REMOVED GUARD RAIL NOTES AND DETAILS			
1-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERM. (TY. 1)			
1-12-00	ADDED CONSTRUCTION NOTE		1-12-00	
6-26-97	REVISED LAYOUT			
10-1-92	REDRAWN & REVISED		10-1-92	
	ADDED NOTE			
10-9-87	REDRAWN & REVISED			
DATE	REVISION		DATE	FILE



NOTE: NORMAL SECTION TO BE WIDENED APPROX. 5'-6" EACH SIDE TO SUPPORT GUARD RAIL.

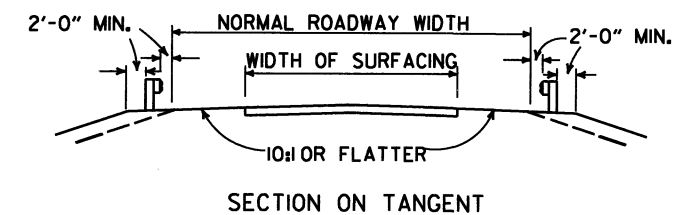


SECTION A-A

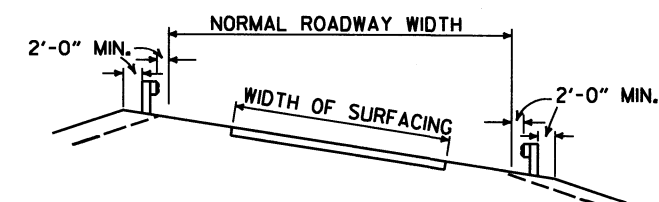


SECTION B-B

DETAILS OF WIDENING FOR GUARD RAIL

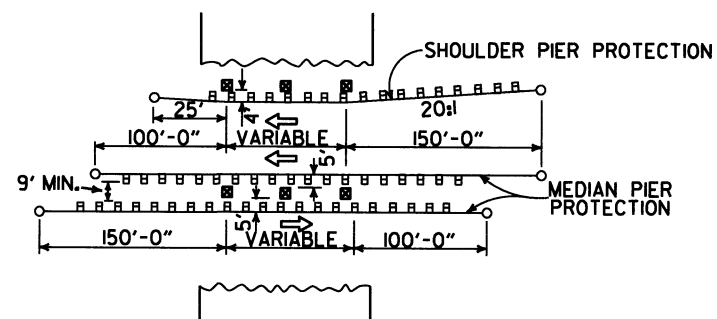


SECTION ON TANGENT



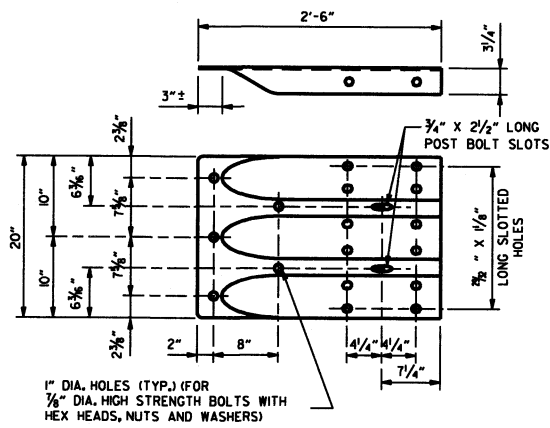
SECTION ON CURVE

DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY

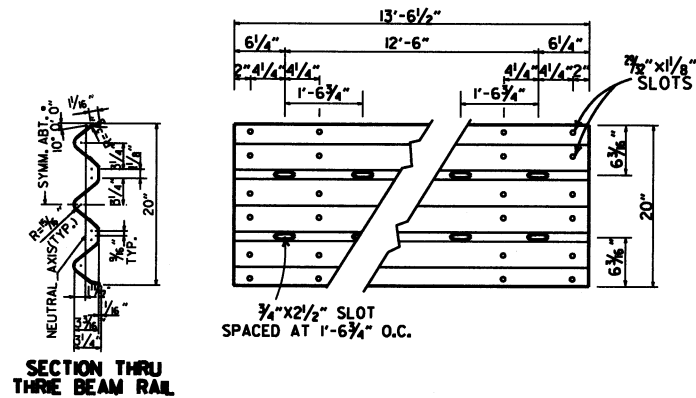


METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

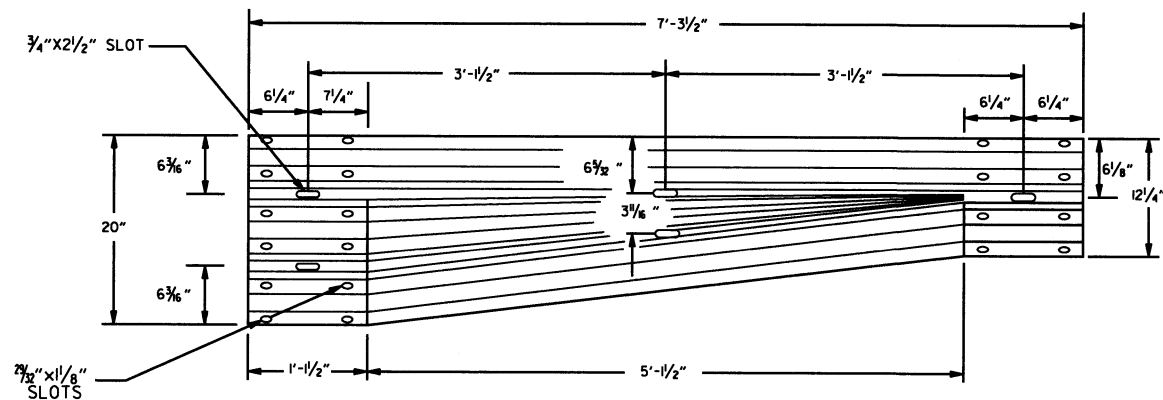
ARKANSAS STATE HIGHWAY COMMISSION			
GUARD RAIL DETAILS			
STANDARD DRAWING GR-9A			
4-17-08	MINOR REVISION		
8-10-05	DRAWN		
DATE	REVISION	DATE	FILM



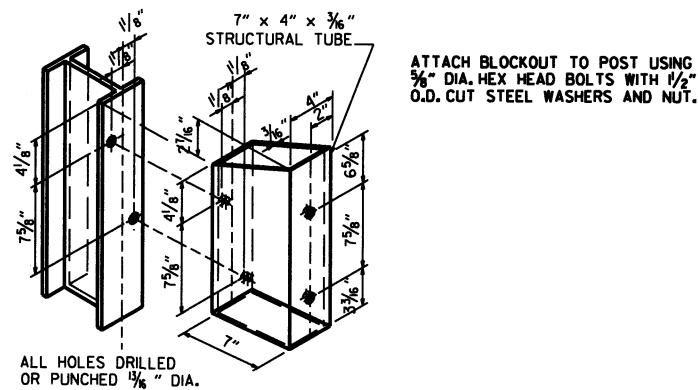
SPECIAL END SHOE



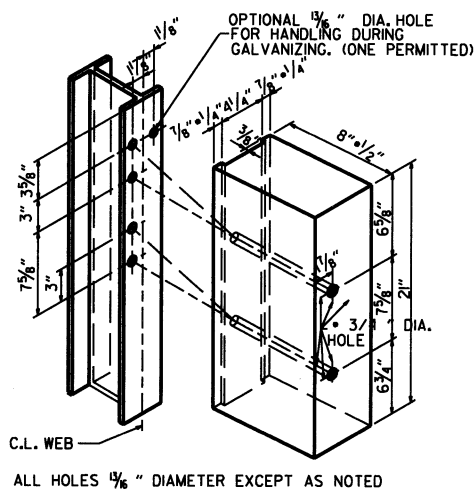
THRIE BEAM RAIL



TRANSITION SECTION

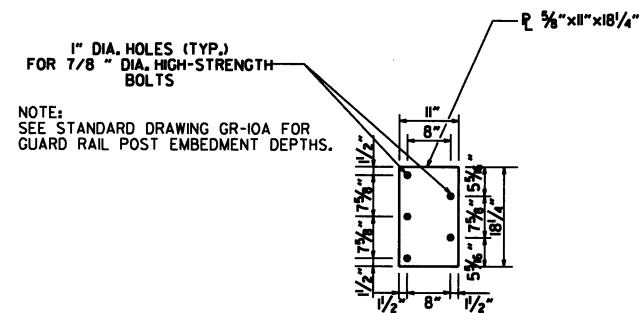


STRUCTURAL STEEL TUBING BLOCKOUT DETAIL



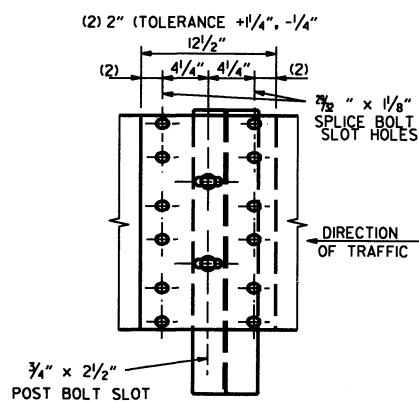
HOLE PUNCHING DETAIL FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

NOTE: BLOCKS SHALL BE THE SAME TYPE THROUGHOUT THE PROJECT LIMITS.



CONNECTOR PLATE

CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.19 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING 7/8" 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.



THRIE BEAM RAIL SPLICE AT POST

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 1.

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 3"4" BEYOND IT.

ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-9 & GR-13.

REFER TO STD. DRWG. GR-II 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.

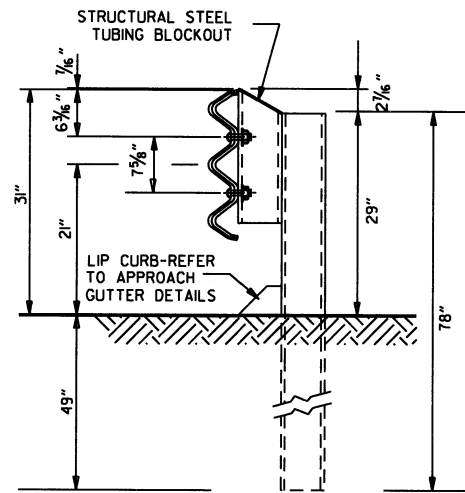
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

DATE	REVISION	FILMED
11-16-17	REVISED TRANSITION SECTION, GUARD RAIL HEIGHT, AND GENERAL NOTES MOVED TO THRIE BEAM GUARD RAIL CONNECTIONS AT BRIDGE ENDS TO STD. DRWG. GR-12	
07-14-10	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	
04-10-03	REVISED GENERAL NOTES	
08-22-02	REVISED NOTE (2)	
06-23-00	MOVED DIMENSION LINES	
05-18-00	ADDED NOTE	
03-30-00	DRAWN & ISSUED	

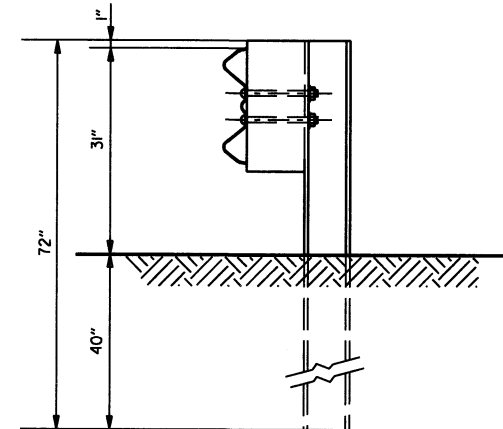
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

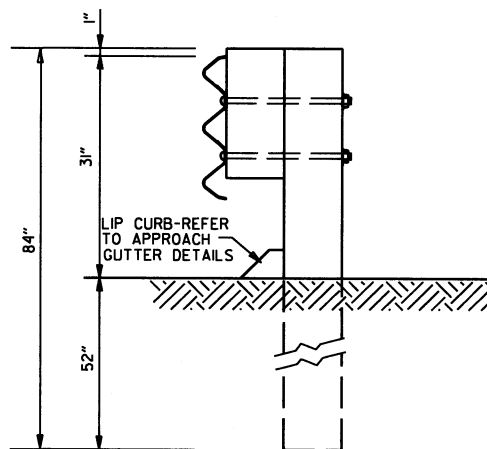
STANDARD DRAWING GR-10



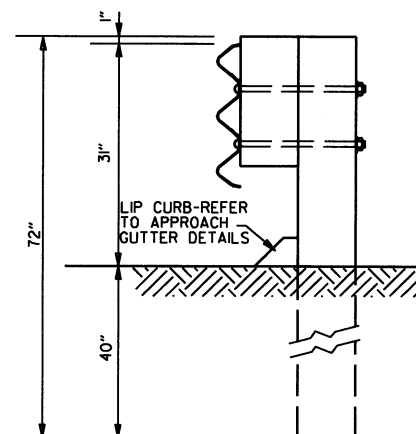
**THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT AND STEEL POST
POSTS 1-7**



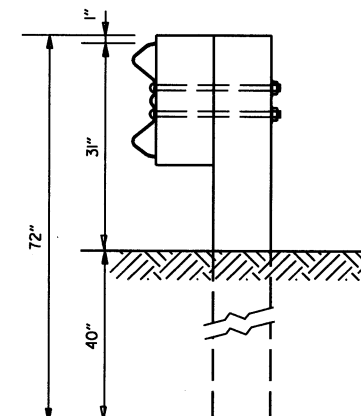
**W-BEAM TO THRIE BEAM TRANSITION RAIL WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8**



**THRIE BEAM RAIL WITH WOOD OR PLASTIC BLOCKOUTS & WOOD POSTS
POSTS 1-6**



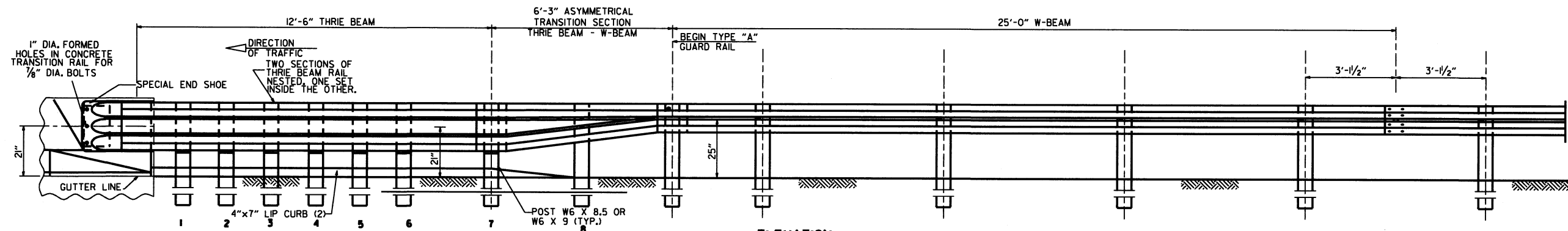
**THRIE BEAM RAIL WITH WOOD OR PLASTIC BLOCKOUT & WOOD POST
POST 7**



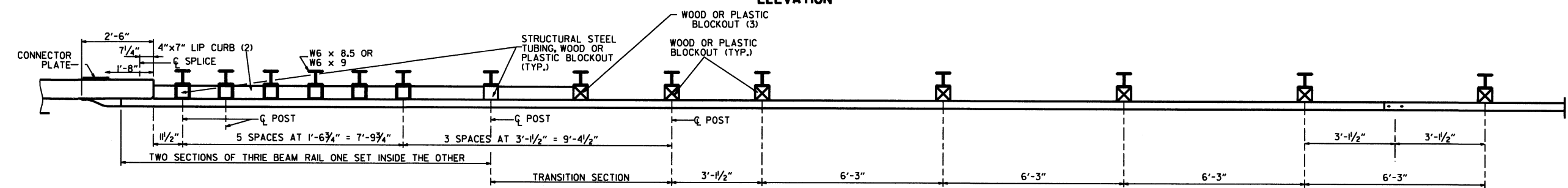
**W-BEAM TO THRIE BEAM TRANSITION RAIL WITH WOOD OR PLASTIC BLOCKOUT & WOOD POST
POST 8**

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 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

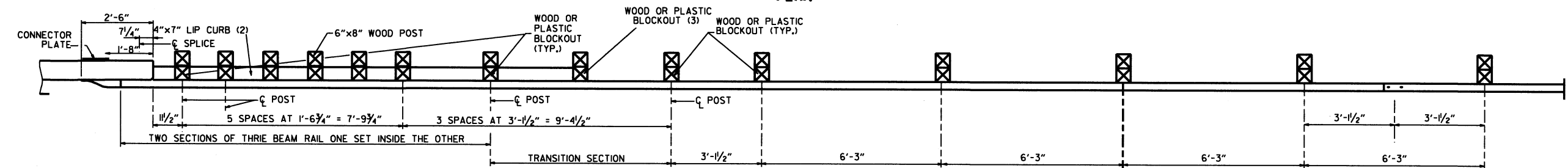
			ARKANSAS STATE HIGHWAY COMMISSION
			GUARD RAIL DETAILS
			STANDARD DRAWING GR-II
11-16-17	REVISED GUARD RAIL HEIGHT, CHANGED STD. DWG. NUMBER FROM GR-10A TO GR-II		
07-14-10	REVISED POST 8 DIMENSIONS		
8-29-07	ADDED PLASTIC BLOCKOUTS		
08-22-02	REVISED LIP CURB NOTE		
03-30-00	DRAWN & ISSUED		
DATE	REVISION	FILED	



ELEVATION



PLAN



PLAN

- (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 1.

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 3/4" BEYOND IT.

ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-9 & GR-13.

REFER TO STD. DRWG. GR-11 FOR POST DETAILS.

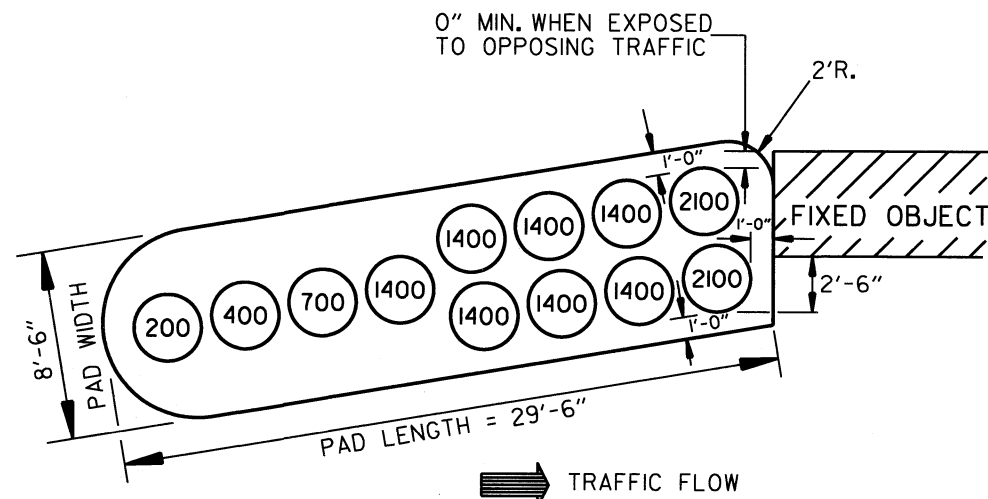
USE THRIE BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.

THRIE BEAM POSTS SHALL BE SAME MATERIAL AS W-BEAM POSTS FOR ENTIRE JOB.

POSTS SHALL BE PLACED AT THE MID-SPAN OF THE W-BEAM.

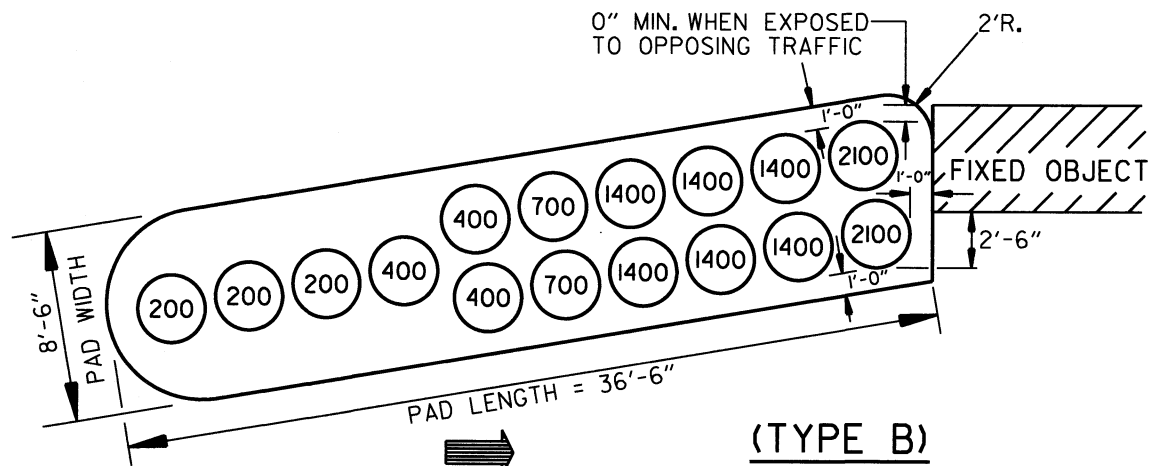
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 F) OR NO. 1 350 F SOUTHERN PINE.

			ARKANSAS STATE HIGHWAY COMMISSION
			GUARD RAIL DETAILS
			STANDARD DRAWING GR-12
1-16-17	RE-DRAWN FROM STD. DWG. GR-10 & ISSUED		
DATE	REVISION	FILMED	



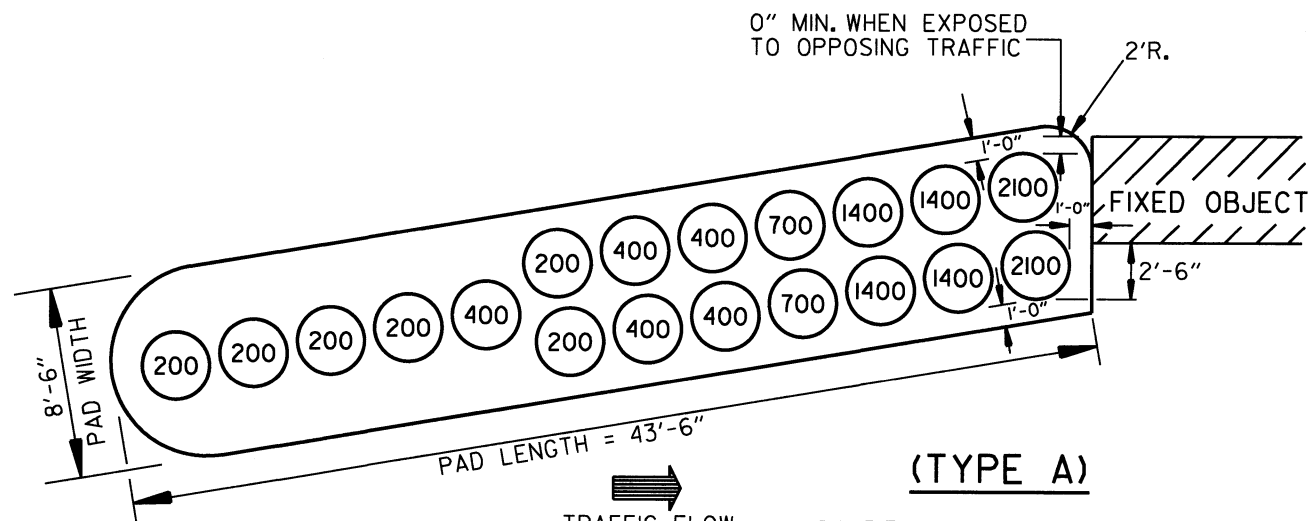
(TYPE C)

BARRIER LENGTH = 27'-6"
 DESIGN IMPACT SPEED = 50 M.P.H. = 73.3 fps



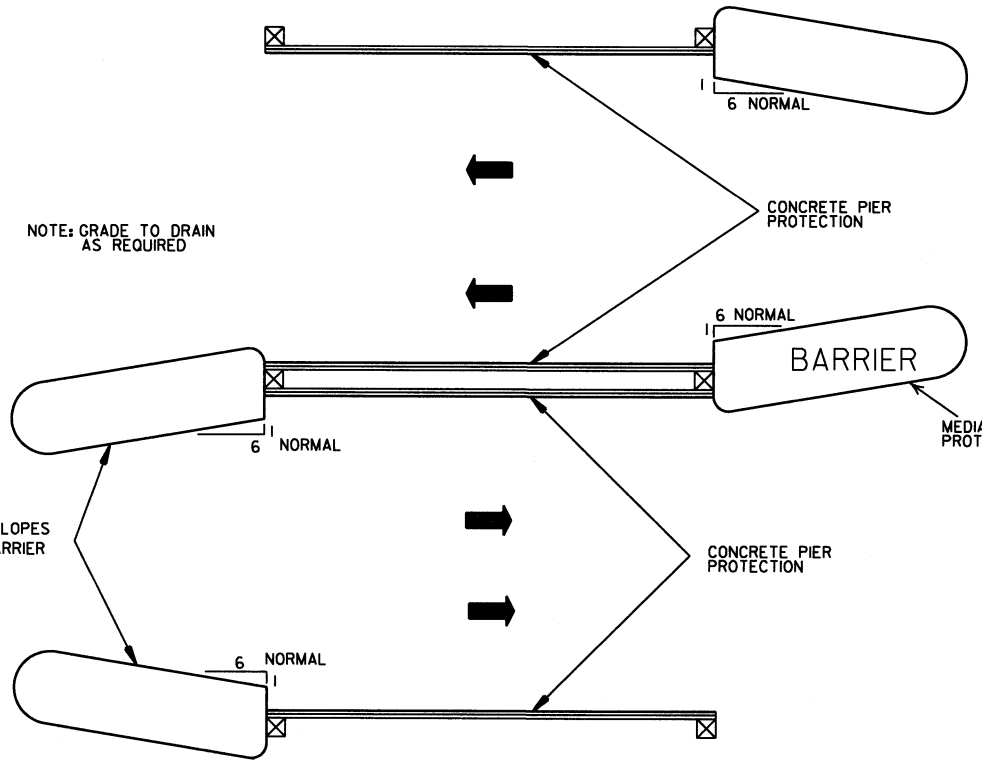
(TYPE B)

BARRIER LENGTH = 34'-6"
 DESIGN IMPACT SPEED = 60 M.P.H. = 88 fps



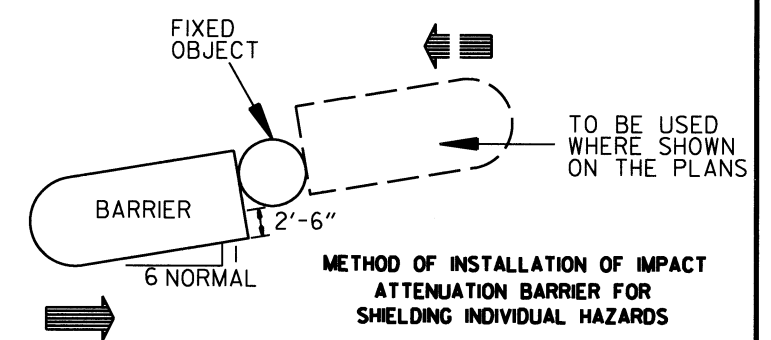
(TYPE A)

BARRIER LENGTH = 41'-6"
 DESIGN IMPACT SPEED = 70 M.P.H. = 103 fps



METHOD OF INSTALLATION OF IMPACT ATTENUATION BARRIER FOR PIER PROTECTION

FLATTEN SLOPES AROUND BARRIER



METHOD OF INSTALLATION OF IMPACT ATTENUATION BARRIER FOR SHIELDING INDIVIDUAL HAZARDS

- GENERAL NOTES
1. DIMENSIONS SHOWN ARE TO TOP OF PLASTIC MODULES.
 2. SPACING BETWEEN PLASTIC MODULES SHALL NOT EXCEED 6" AT THE TOP.
 3. PLASTIC MODULES SHALL MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).

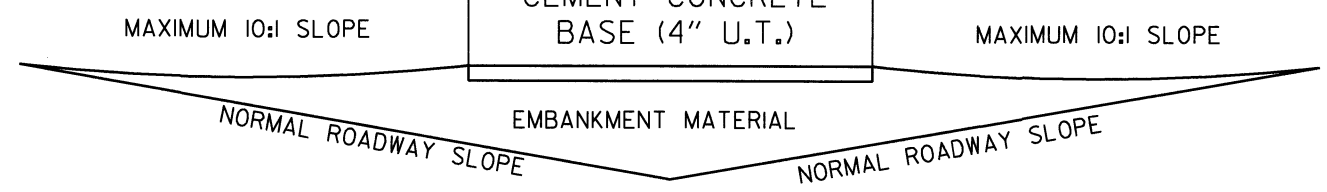
APPROXIMATE QUANTITIES PER PAD

TYPE	ALTERNATE #1		ALTERNATE #2
	AGGR. BASE COURSE TONS	A.C.H.M. SURF. COURSE TONS	P.C. CONC. BASE (4" U.T.) SQ. YDS.
A	9.7	4.6	41.6
B	8.1	3.8	34.9
C	6.6	3.1	28.3

NOTE: APPROXIMATE QUANTITIES SHOWN ARE FOR INFORMATIONAL PURPOSES ONLY. PAYMENT TO BE INCLUDED IN UNIT PRICE BID FOR IMPACT ATTENUATION BARRIER.

ALTERNATE #1
 AVG. 8'-6" A.C.H.M. SURF. COURSE (1/2")
 220 LBS. PER SQ. YD. &
 AGGREGATE BASE COURSE
 (4" COMPACTED DEPTH)

OR ALTERNATE #2
 AVG. 8'-6" PORTLAND
 CEMENT CONCRETE
 BASE (4" U.T.)



DETAIL OF BARRIER PAD

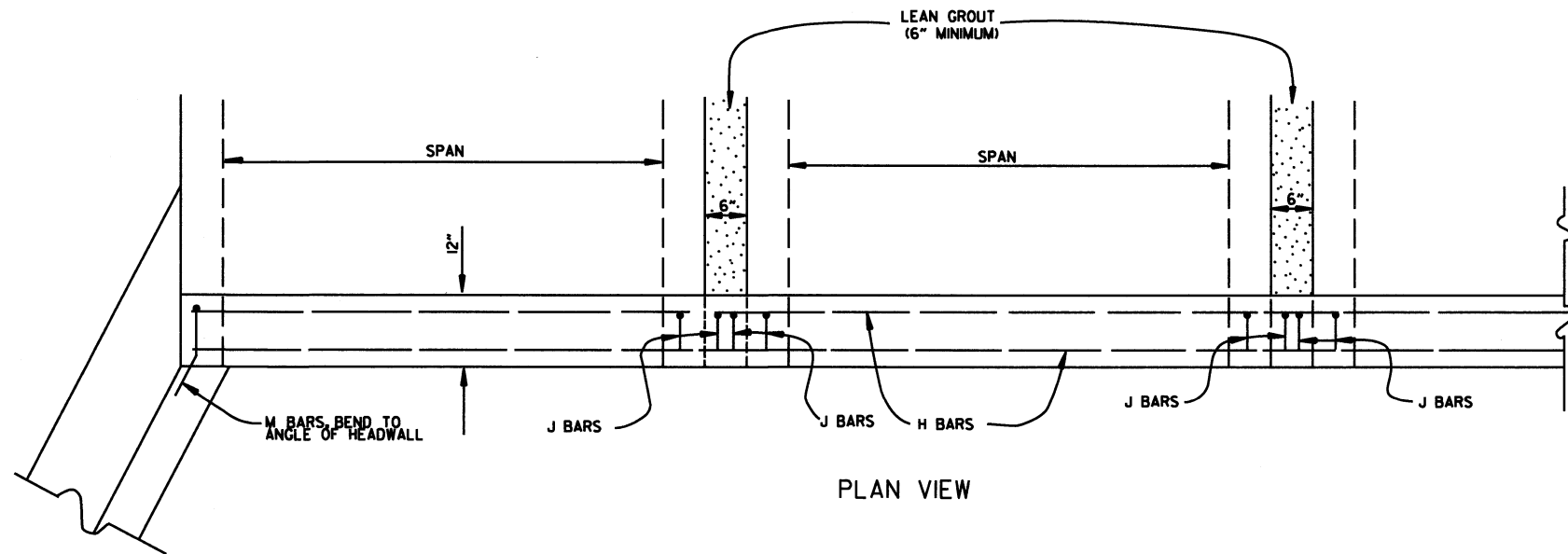
NOTE: BARRIER PAD TO BE SKEWED TOWARD ONCOMING TRAFFIC
 A MAXIMUM OF 6:1 WITH 6:1 BEING NORMAL

DATE	REVISION	DATE FILMED
10-15-09	ADDED REFERENCE TO MASH	
11-29-07	REVISED TY. A & TY. C ARRAYS	
11-19-98	REVISED FIXED OBJECT	
11-18-98	REV. NOTES & TYPE A MOD. WTS.	
10-18-96	REDRAWN	
7-15-88	CONFORMED TO 1988 SPECS	
7-29-87	REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

IMPACT ATTENUATION BARRIER

STANDARD DRAWING IB-1



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

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.

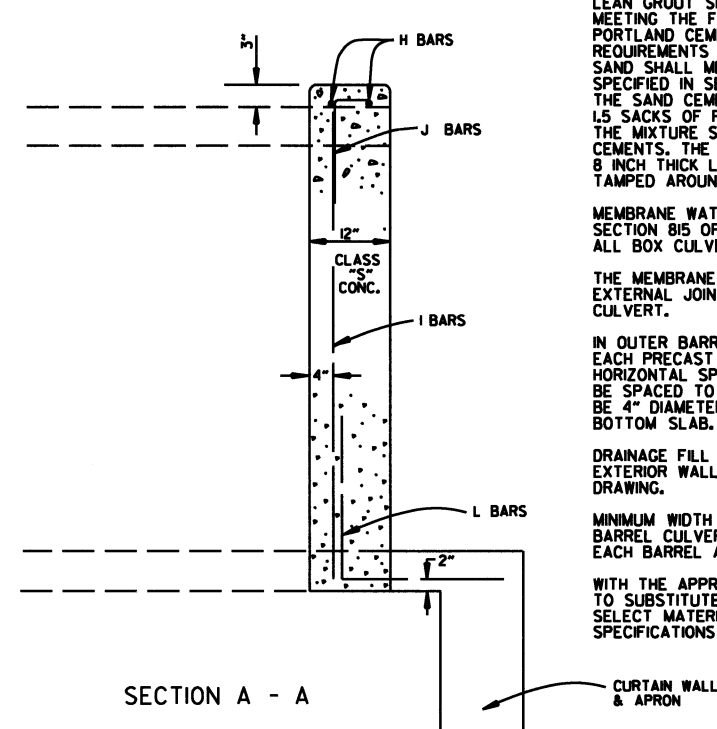
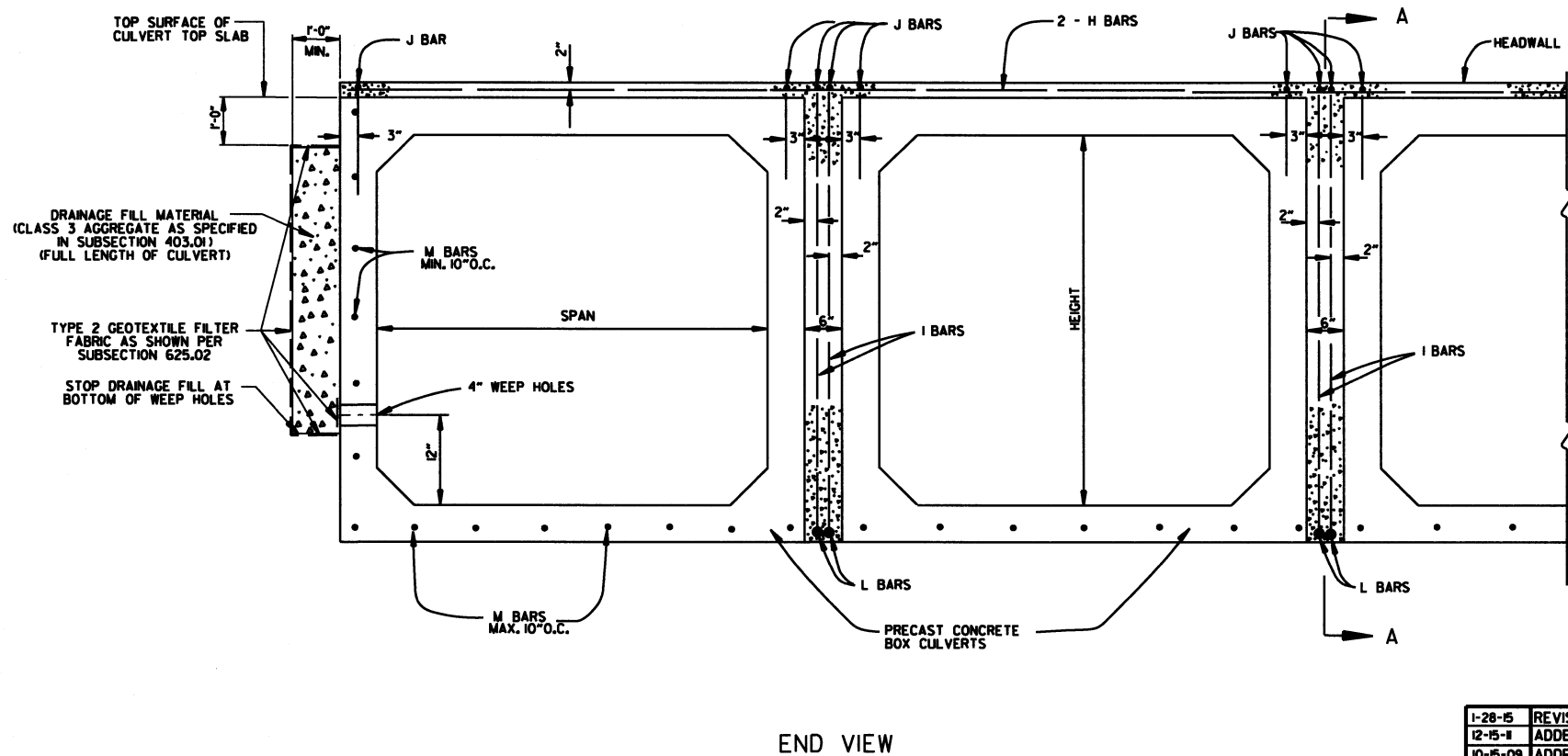
THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EXTERNAL JOINT AND SHALL EXTEND 1 FOOT DOWN THE SIDES OF THE CULVERT.

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. INCHES	SPAN		RISE	
	AASHTO M 206	AHTD NOMINAL	AASHTO M 206	AHTD NOMINAL
15	18	18	11	11
18	22	22	13½	14
21	26	26	15½	16
24	28½	29	18	18
30	36¼	36	22½	23
36	43¾	44	26¾	27
42	51½	51	31½	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	87½	87
120	154	154	96¾	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. INCHES	AASHTO M 207	
	SPAN INCHES	RISE 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)(i).

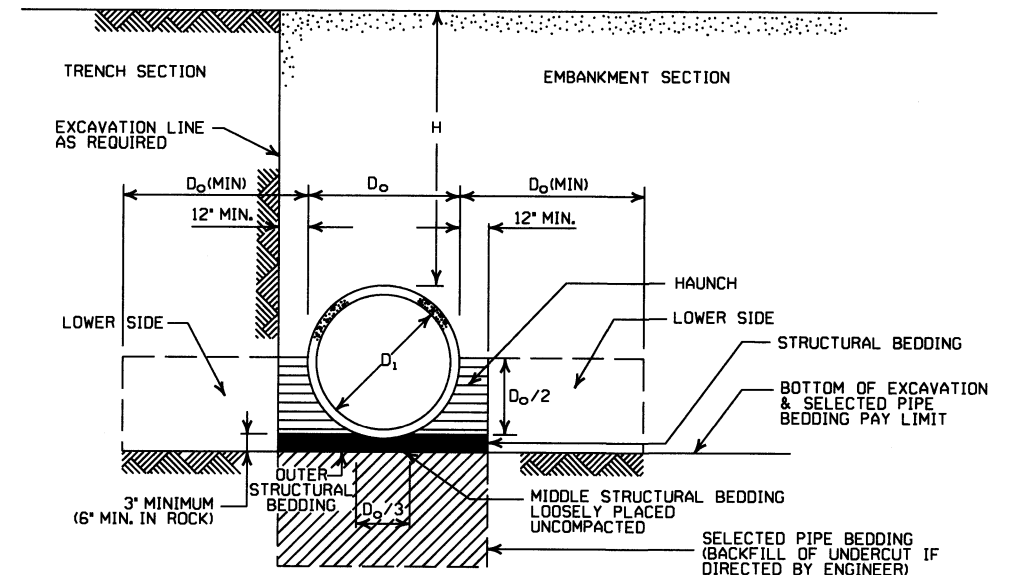
NOTE: HAUNCH AND STRUCTURAL BEDDING MATERIAL WILL NOT BE PAID FOR SEPARATELY, BUT COMPENSATION WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID PER LINEAR FOOT OF CONCRETE PIPE.

- LEGEND -

- D₁ = NORMAL INSIDE DIAMETER OF PIPE
- D_o = OUTSIDE DIAMETER OF PIPE
- H = FILL COVER HEIGHT OVER PIPE (FEET)
- MIN. = MINIMUM
- [Symbol] = 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 M10. 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

INSTALLATION TYPE	CLASS OF PIPE			
	CLASS III		CLASS IV	CLASS V
PIPE ID (IN.)	TYPE 1 OR 2	TYPE 3	ALL	ALL
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 MINIMUM 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
2 3/8 INCH BY 1/2 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

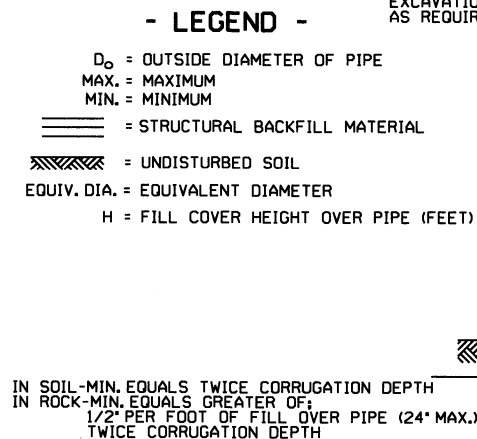
CONSTRUCTION SEQUENCE

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.



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. INSTALLATION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2 3/8" x 1/2" 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."

CORRUGATED ALUMINUM PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINIMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS IN INCHES				
		0.060	0.075	0.105	0.135	0.164
2 3/8 INCH BY 1/2 INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM						
12	1	45	45			
18	2	30	30	52	41	
24	2	22	22	39		
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

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

CORRUGATED METAL PIPE ARCHES

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINIMUM 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
2 3/8 INCH BY 1/2 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM								
				TYPE 1	TYPE 1		TYPE 1	TYPE 1
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	3/2	0.079	3	12	0.105	3	12
42	49x33	4	0.079	3	12	0.105	3	12
48	57x38	5	0.109	3	13	0.135	3	13
54	64x43	6	0.109	3	14	0.135	3	14
60	71x47	7	0.138	3	15	0.164	3	15
66	77x52	8	0.168	3	15			
72	83x57	9	0.168	3	15			
② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM								
			INSTALLATION		INSTALLATION			
			TYPE 2	TYPE 1	TYPE 2	TYPE 1		
36	40x31	5	0.079	3	2	12	15	
42	46x36	6	0.079	3	2	13	15	
48	53x41	7	0.079	3	2	13	15	
54	60x46	8	0.079	3	2	13	15	
60	66x51	9	0.079	3	2	13	15	
66	73x55	12	0.079	3	2	15	15	
72	81x59	14	0.079	3	2	15	15	
78	87x63	14	0.079	3	2	15	15	
84	95x67	16	0.109	3	2	15	15	
90	103x71	16	0.109	3	2	15	15	
96	112x75	18	0.109	3	2	15	15	
102	117x79	18	0.109	3	2	15	15	
108	128x83	18	0.138	3	2	15	15	

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

② WHERE THE STANDARD 2 2/3" x 1/2" 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.

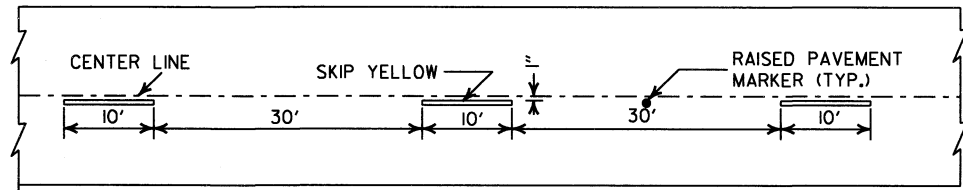
DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1	
12-15-11	REVISED FOR LRFD DESIGN SPECS	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

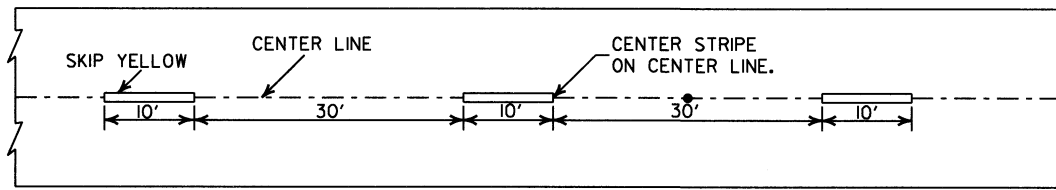
METAL PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCM-1



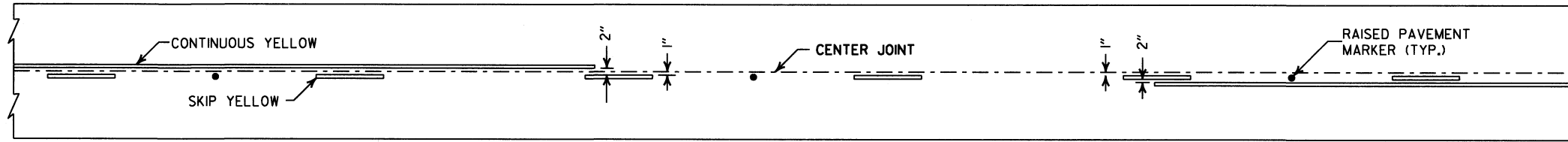


CONCRETE PAVEMENT

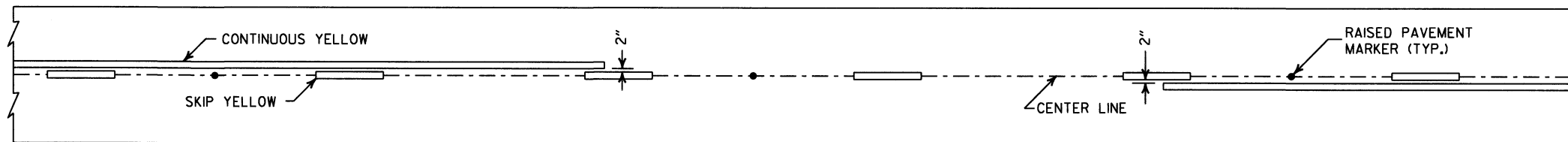


ASPHALT PAVEMENT

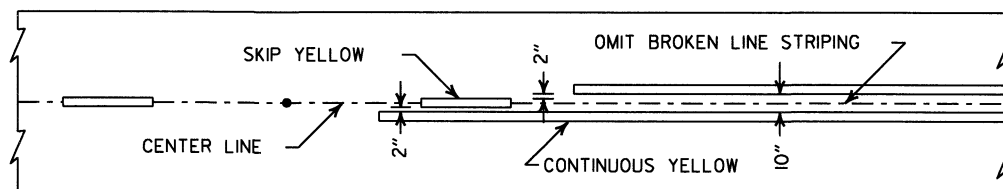
BROKEN LINE STRIPING



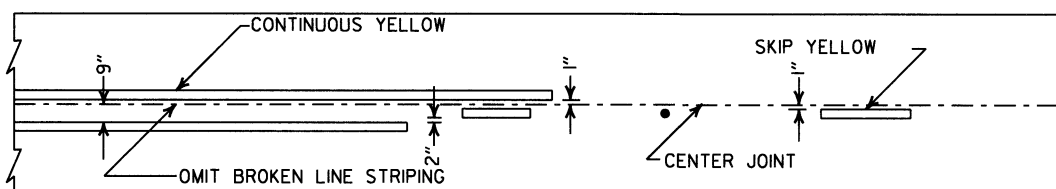
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

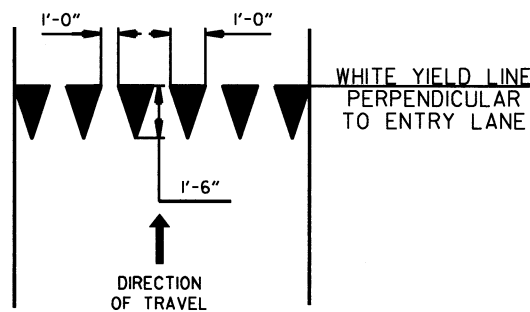


ASPHALT PAVEMENT

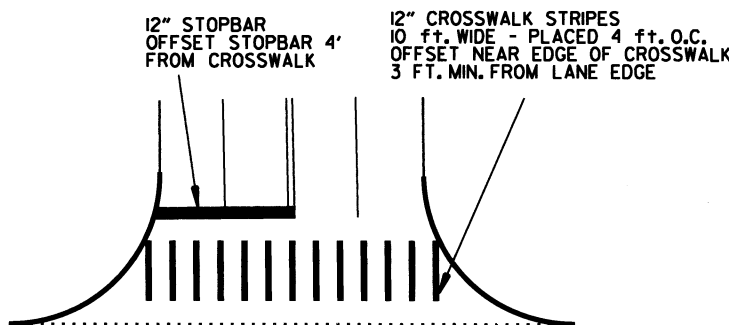


CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES



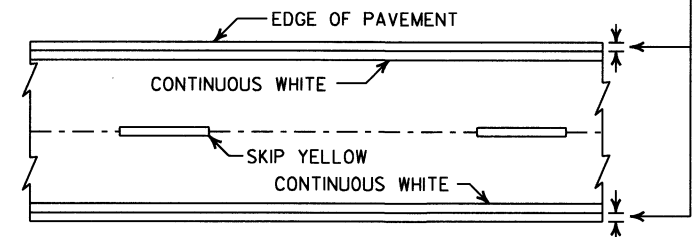
YIELD LINE DETAIL



CROSSWALK AND STOPBAR DETAILS

- 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.

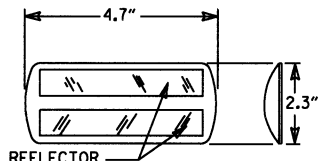
2" FOR ASPHALT OR CONCRETE PAVEMENT
6" FOR BITUMINOUS SURFACE TREATMENT



PAVEMENT EDGE LINE MARKING

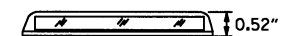
NOTE:
THE RED LENS OF THE TYPE II R.P.M. SHALL FACE THE INCORRECT TRAFFIC MOVEMENT.

TYPE II
RED/CLEAR OR
YELLOW/YELLOW



PRISMATIC REFLECTOR

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.



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

DATE	REVISION	FILMED
6-1-17	ADDED YIELD LINE DETAIL	
5-12-16	REVISED LINE WIDTHS, SPACING, & NOTES	
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED FLOWABLE PAV'T. MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAV'T. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80	DRAWN	1-9-30-80

ARKANSAS STATE HIGHWAY COMMISSION

PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

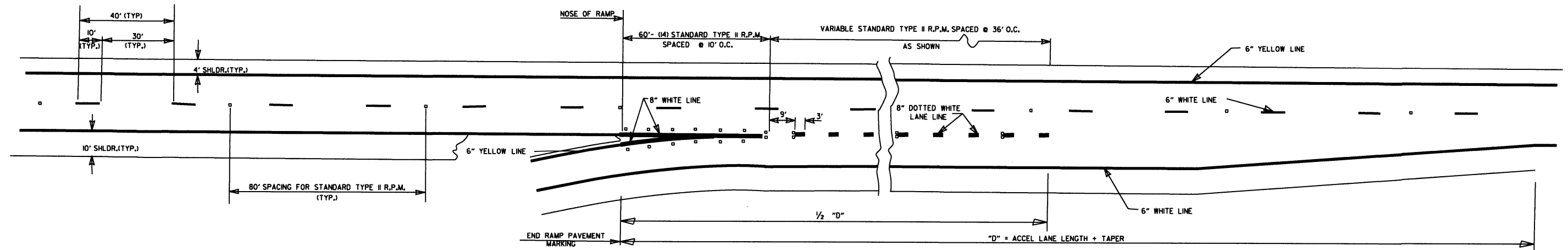
PAVEMENT MARKING QUANTITIES
(BASED ON 700' ACCEL. LANE + 300' TAPER)

ENTRANCE RAMP

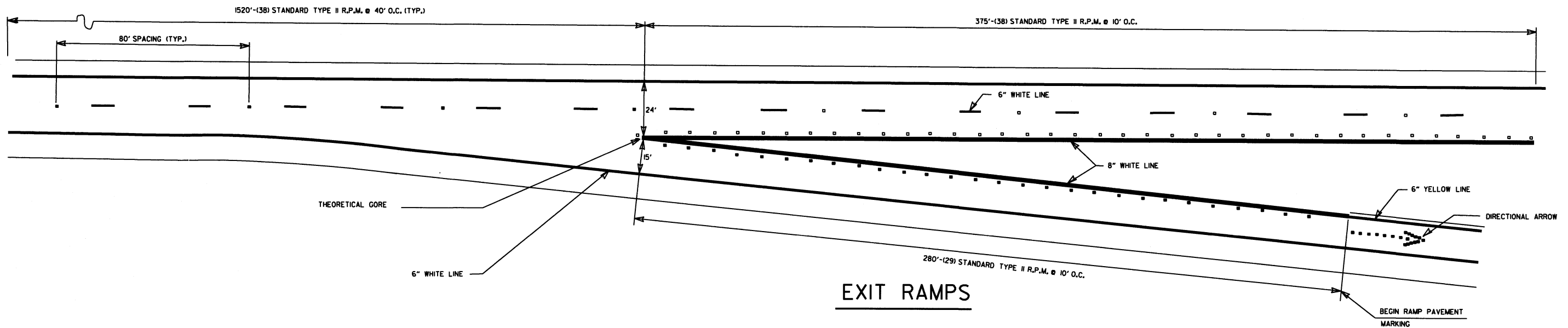
8" WHITE = 228 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) = 38 EACH

EXIT RAMP

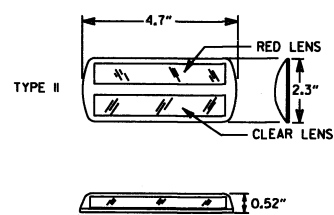
6" WHITE = 280 LIN. FT.
8" WHITE = 655 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) = 38 EACH
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) = 48 EACH
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) = 38 EACH



ENTRANCE RAMP

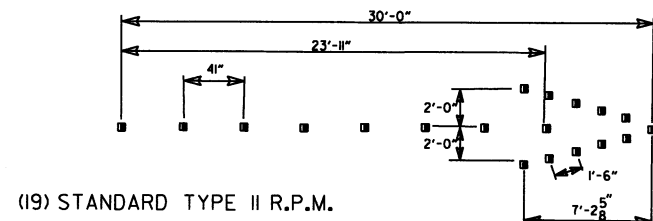


EXIT RAMP



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

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



(19) STANDARD TYPE II R.P.M.

DIRECTIONAL ARROWS

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

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

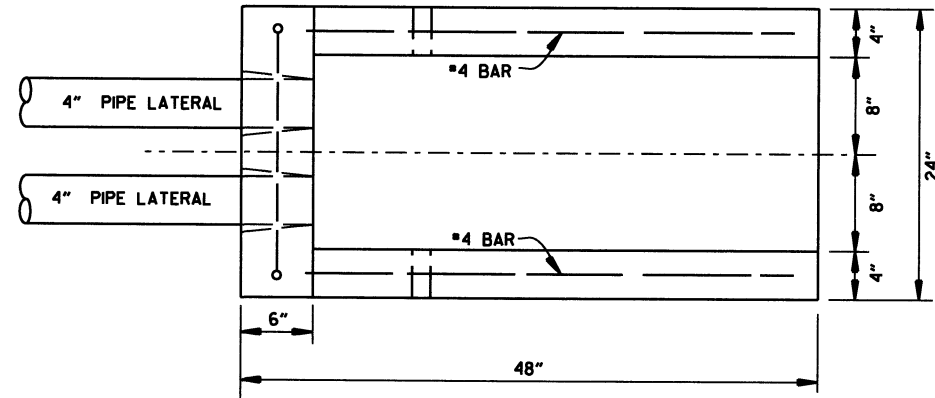
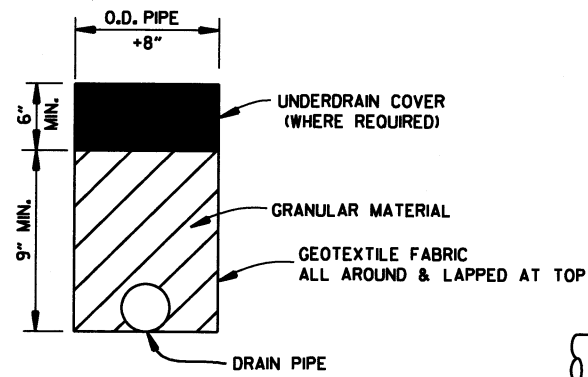
NOTE:
DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER, REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE AHTD QUALIFIED PRODUCTS LIST.

12-8-16	REVISED RAISED PAV'T MARKERS FOR 80' SPACING; REVISED WIDTH OF STRIPING	
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
7-26-12	REVISED RPM NOTATION	
12-15-11	REVISED RPMs ACCORDING TO LATEST POLICY	
11-17-10	REMOVED PLOWABLE PAVEMENT MARKERS	
6-3-10	REVISED PER 2009 MUTCD	
11-18-04	REVISED NOTES	
8-22-02	ADDED & REVISED NOTES; REV. ENTRANCE & EXIT RAMP	
5-18-00	REMOVED HASHMARKS	
7-02-98	CHANGED TYPES TO ROMAN NUMERALS	
4-26-96	ADDED DIMENSIONS & QUANTITIES; REVISED LANE WIDTH ON EXIT RAMP	
2-2-95	PLACED IN USE	2-2-95
DATE	REVISION	FILMED

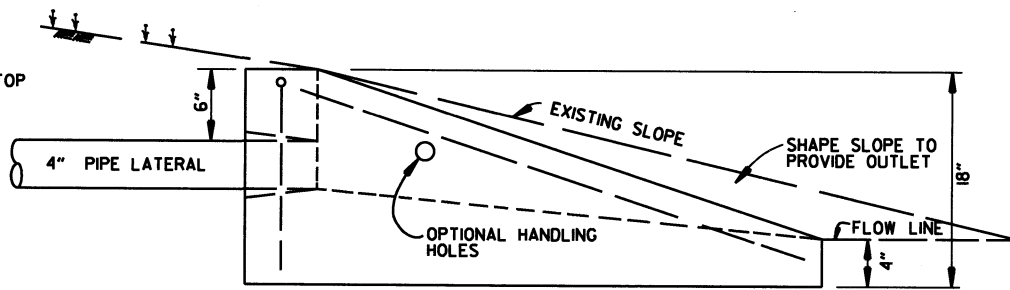
ARKANSAS STATE HIGHWAY COMMISSION
PERMANENT PAVEMENT MARKING
ON ACCESS CONTROLLED ROADWAYS

STANDARD DRAWING PW-2

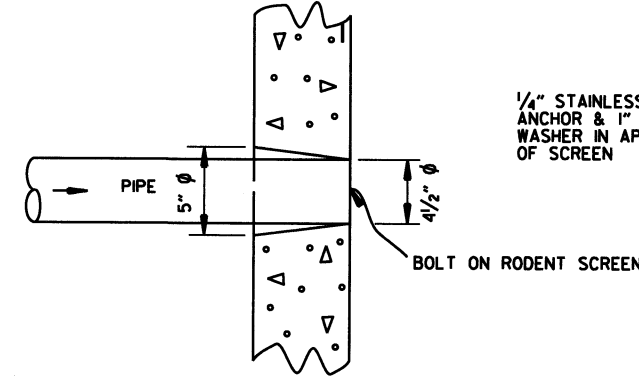
NOTE:
 1. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.
 2. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC, LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



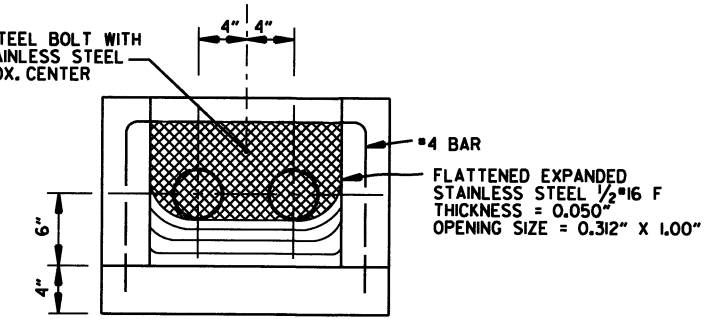
PLAN VIEW



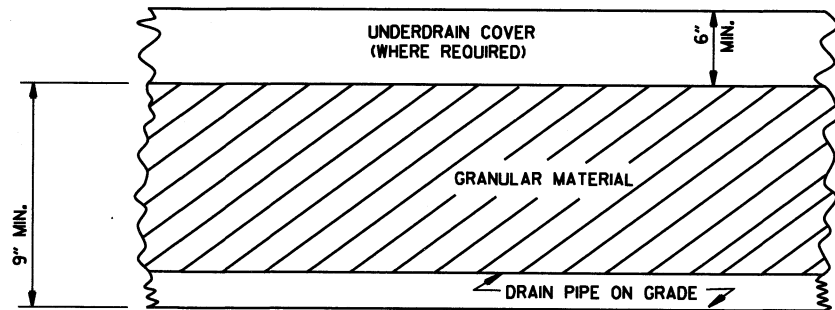
SIDE VIEW



DETAIL OF HOLE FOR 4" PIPE



FRONT VIEW (DETAIL OF RODENT SCREEN)

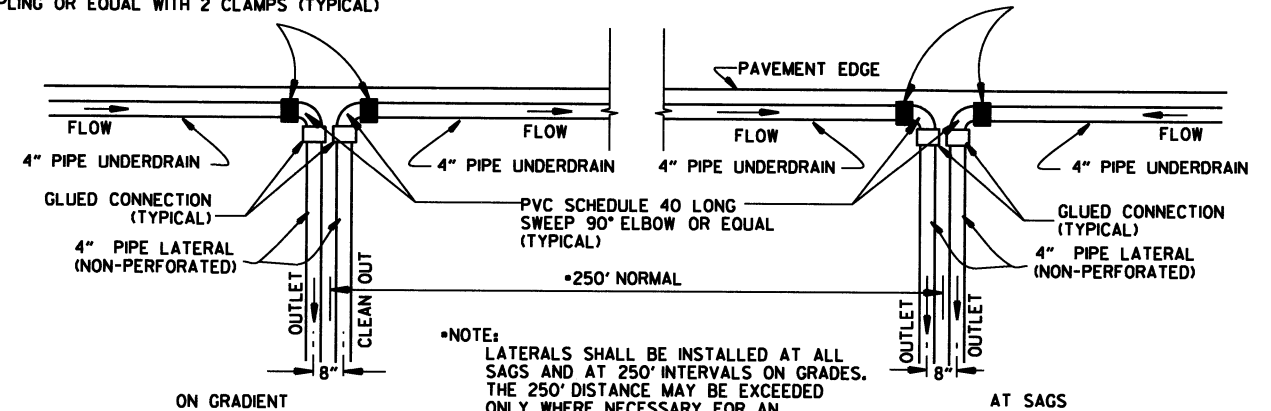


DETAILS OF PIPE UNDERDRAIN

FERNCO 1056-44 (4" CI/PLASTIC) OR FERNCO 1051-44 (4" AC/DIOR 4" CI/PLASTIC) COUPLING OR EQUAL WITH 2 CLAMPS (TYPICAL)

UNDERDRAIN OUTLET PROTECTORS

FERNCO 1056-44 (4" CI/PLASTIC) OR FERNCO 1051-44 (4" AC/DIOR 4" CI/PLASTIC) COUPLING OR EQUAL WITH 2 CLAMPS (TYPICAL)



NOTE:
 LATERALS SHALL BE INSTALLED AT ALL SAGS AND AT 250' INTERVALS ON GRADES. THE 250' DISTANCE MAY BE EXCEEDED ONLY WHERE NECESSARY FOR AN ACCEPTABLE OUTLET.

DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE

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

NOTES FOR PIPE UNDERDRAINS

1. GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF SECTION 625 FOR TYPE I. PAYMENT FOR GEOTEXTILE FABRIC AND GRANULAR FILTER MATERIAL SHALL BE INCLUDED IN THE PRICE BID PER LIN. FT. FOR "4" PIPE UNDERDRAINS" IN ACCORDANCE WITH SECTION 610 OF THE STANDARD SPECIFICATIONS.
2. 4" NON-PERFORATED SCHEDULE 40 PVC PIPE LATERALS WITH OUTLET PROTECTORS SHALL BE INSTALLED AS SHOWN HEREON. LATERALS WILL BE MEASURED AND PAID FOR AS "4" PIPE UNDERDRAINS." UNDERDRAIN OUTLET PROTECTORS WILL BE MEASURED AND PAID FOR BY THE UNIT IN ACCORDANCE WITH SECTION 610 OF THE STANDARD SPECIFICATIONS.
3. EXISTING 4" PIPE UNDERDRAINS MAY BE CONNECTED TO PROPOSED DROP INLETS OR EXTENDED WHERE DIRECTED BY THE ENGINEER. PAYMENT FOR CONNECTING TO DROP INLETS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR "4" PIPE UNDERDRAINS."
4. THE LOCATION OF ALL LATERALS SHALL BE MARKED WITH 4" X 12" PERMANENT PAVEMENT MARKING TAPE (TYPE III WHITE) AT THE OUTSIDE EDGE OF THE SHOULDER, PLACED TRANSVERSE TO TRAFFIC. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.
5. PAYMENT FOR THE RODENT SCREEN SHALL BE INCLUDED IN THE PRICE BID PER EACH FOR "UNDERDRAIN OUTLET PROTECTORS."
6. ANY EXISTING UNDERDRAINS THAT INTERFERE WITH INSTALLATION OF THE NEW UNDERDRAIN SYSTEM SHALL BE REMOVED AND DISPOSED OF AS DIRECTED BY THE ENGINEER. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS. EXISTING UNDERDRAIN OUTLET PROTECTORS SHALL BE REMOVED UNDER THE ITEM "REMOVAL AND DISPOSAL OF UNDERDRAIN OUTLET PROTECTORS."
7. AT LOCATIONS WHERE A SINGLE LATERAL IS USED THE CONTRACTOR SHALL HAVE THE FOLLOWING OPTIONS: 1. INSTALL OUTLET PROTECTOR AS SHOWN ON STANDARD DRAWING PU-1 AND GROUT THE UNUSED HOLE OR 2. INSTALL AN OUTLET PROTECTOR WITH A SINGLE HOLE.

12-8-16	ADDED NOTES FOR PIPE UNDERDRAINS, REVISED RODENT SCREEN DETAIL AND NOTES, REMOVED NOTE 1 FOR GRANULAR MATERIAL, ADDED NOTE FOR GEOTEXTILE FABRIC	
4-10-03	REVISED NOTE 3	
1-12-00	REVISED DETAIL OF UNDERDRAIN LATERALS	
11-18-98	REVISED NOTE	
10-18-96	REVISED MIN. DEPTH & GEOTEXTILE FABRIC	
4-26-96	ADDED LATERAL NOTE: 5 1/2" TO 5"	
11-22-95	REVISED LATERALS	
7-20-95	REVISED LATERALS & ADDED NOTE	
11-3-94	REVISED FOR DUAL LATERALS	11-3-94
10-1-92	SUBSTITUTED GEOTEXTILE	10-1-92
8-15-91	DELETED POLYETHYLENE PIPE	8-15-91
11-8-90	ADDED ALTERNATE NOTE	11-8-90
1-25-90	ADDED 4" SNAP ADAPTER	1-25-90
11-30-89	DEL. (SUBGRADE); ADDED (WHERE REQUIRED)	11-30-89
7-15-88	ISSUED P.L.M.	647-7-15-88
DATE	REVISION	DATE FILMED

ARKANSAS STATE HIGHWAY COMMISSION

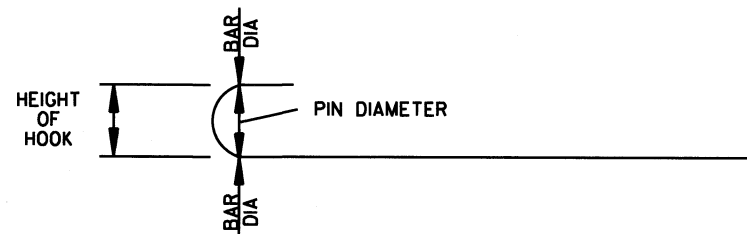
DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

STEEL FABRICATION: REINFORCING STEEL FABRICATION SHALL CONFORM TO THE DIMENSIONS LISTED IN THE TABLE BELOW:

BAR SIZE	PIN DIAMETER	HOOK EXTENSION "K"
3	2 1/4"	4"
4	3"	4 1/2"
5	3 3/4"	5"
6	4 1/2"	6"
7	5 1/4"	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 2 3/4 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

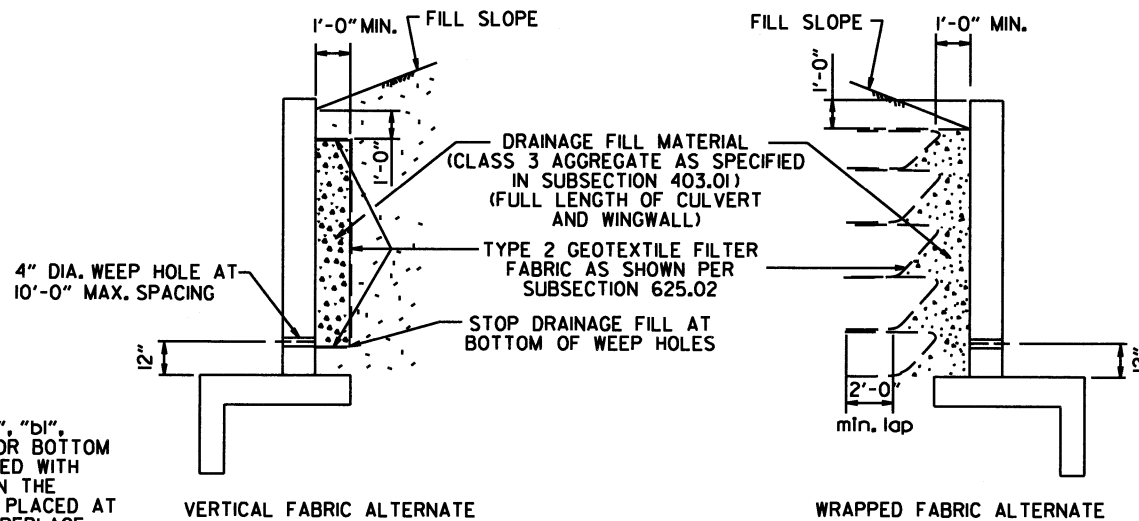
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

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.

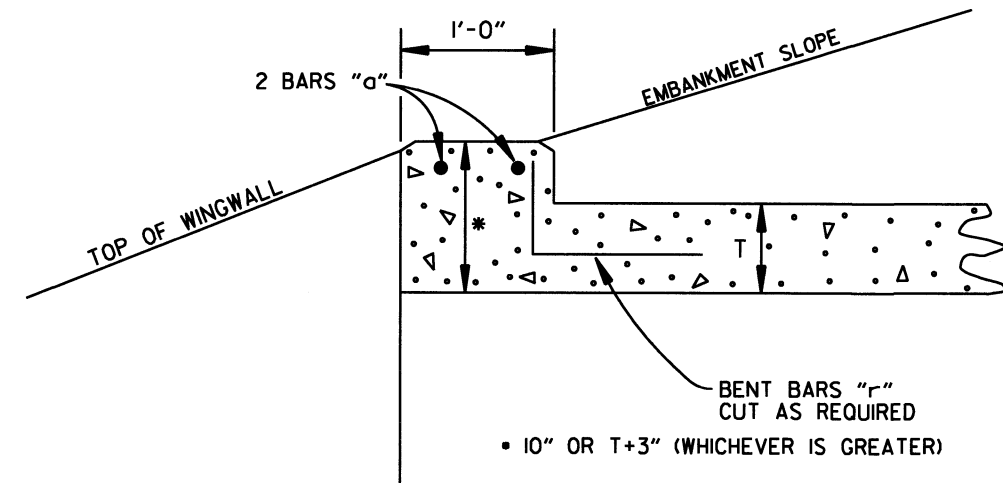
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

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 1/2 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.

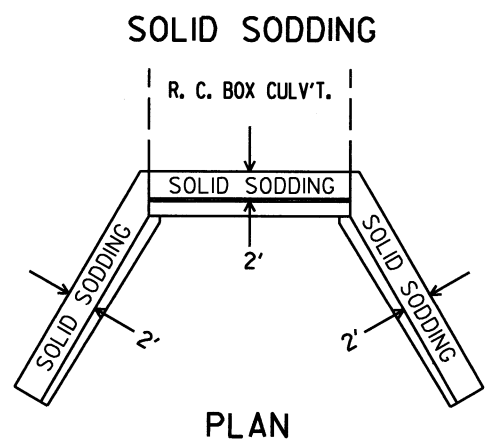
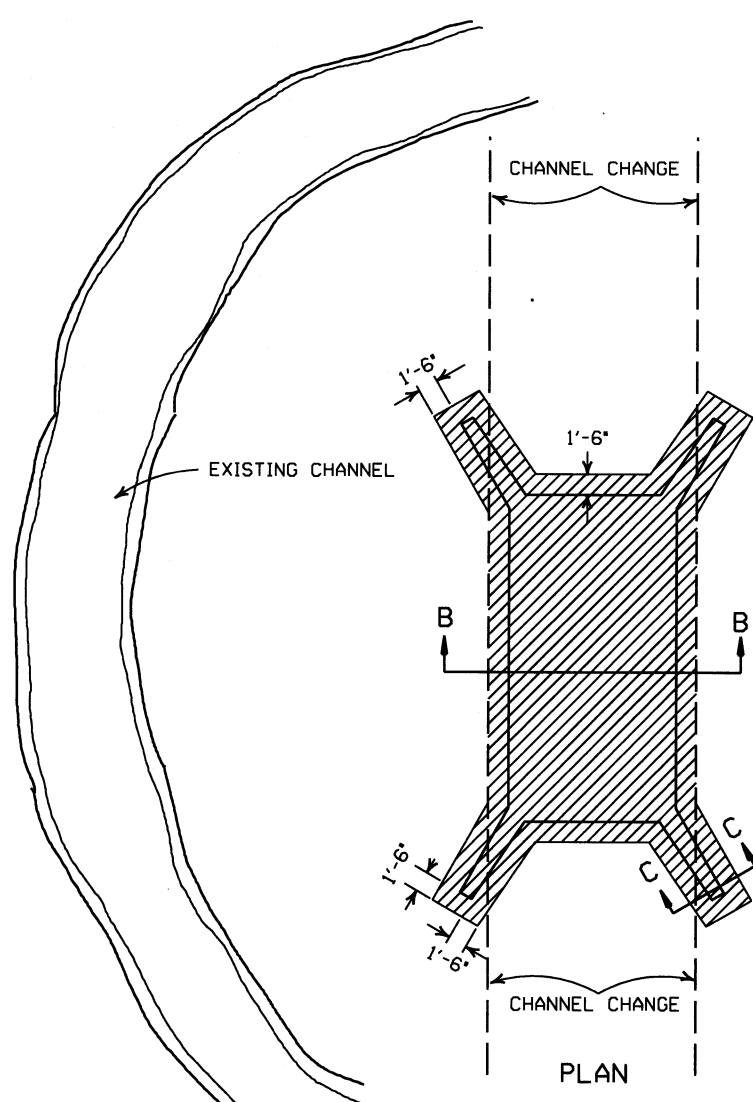
R.C. BOX CULVERT HEADWALL MODIFICATIONS

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	

ARKANSAS STATE HIGHWAY COMMISSION

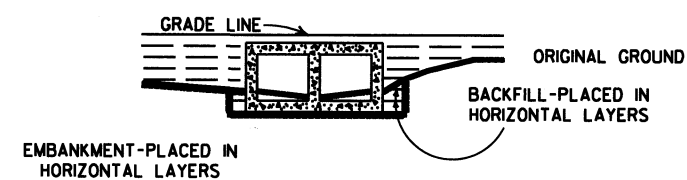
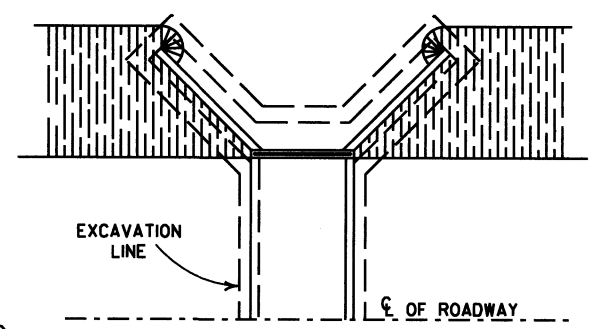
REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1

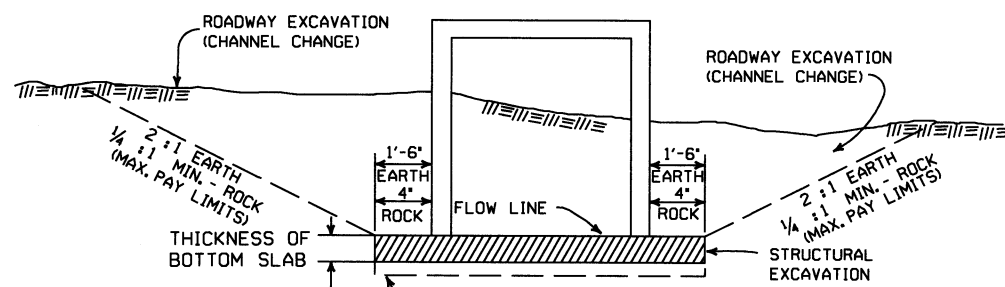
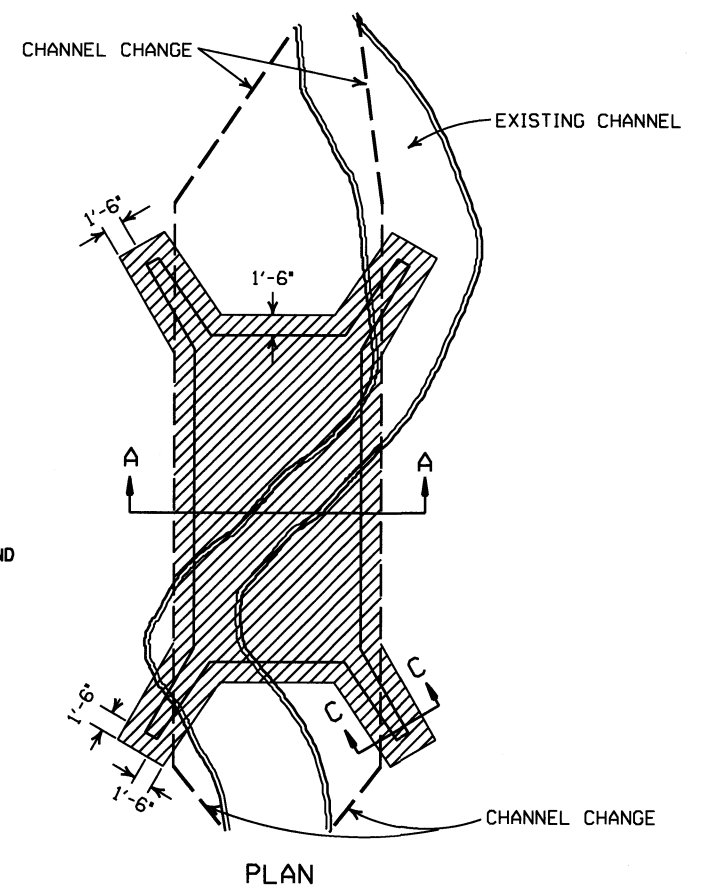


SOLID SODDING
PLAN
 PARTIAL SECTION SHOWING SOLID SODDING AT HEADWALLS AND WING WALLS

NOTE: LENGTH MEASURED ALONG THE CENTER OF 2' STRIP OF SOLID SODDING.

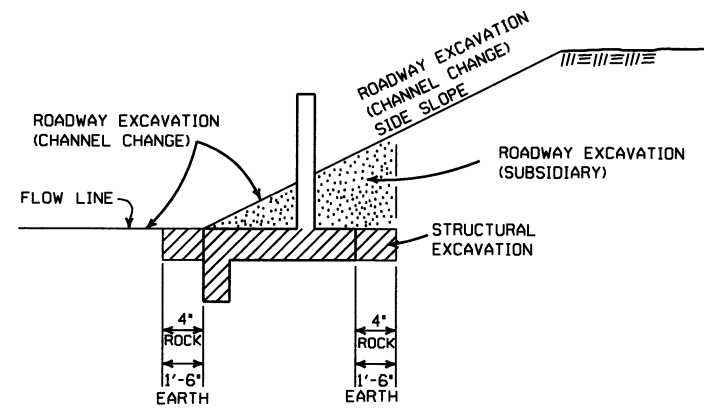


LONGITUDINAL SECTION
BACKFILL DETAILS FOR BOX CULVERT

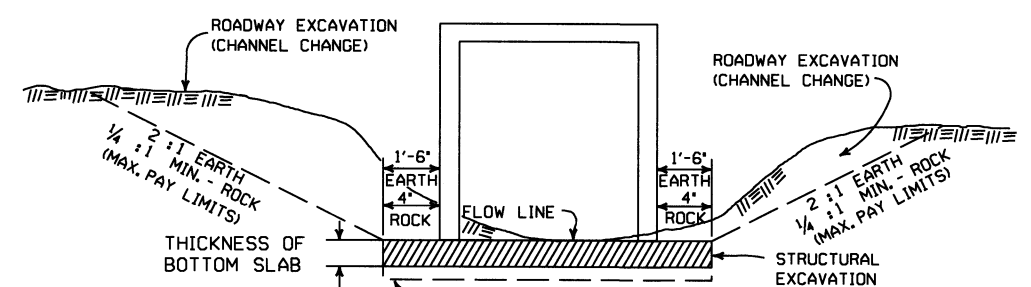


SECTION B-B
DETAILS FOR NEW CHANNELS

UNDERCUT SHALL BE MEASURED AND PAID FOR ACCORDING TO SECTIONS 801.10 AND 801.11, RESPECTIVELY, OF THE STANDARD SPECIFICATIONS.



SECTION C-C



SECTION A-A
DETAILS THROUGH EXISTING CHANNELS

UNDERCUT SHALL BE MEASURED AND PAID FOR ACCORDING TO SECTIONS 801.10 AND 801.11, RESPECTIVELY, OF THE STANDARD SPECIFICATIONS.

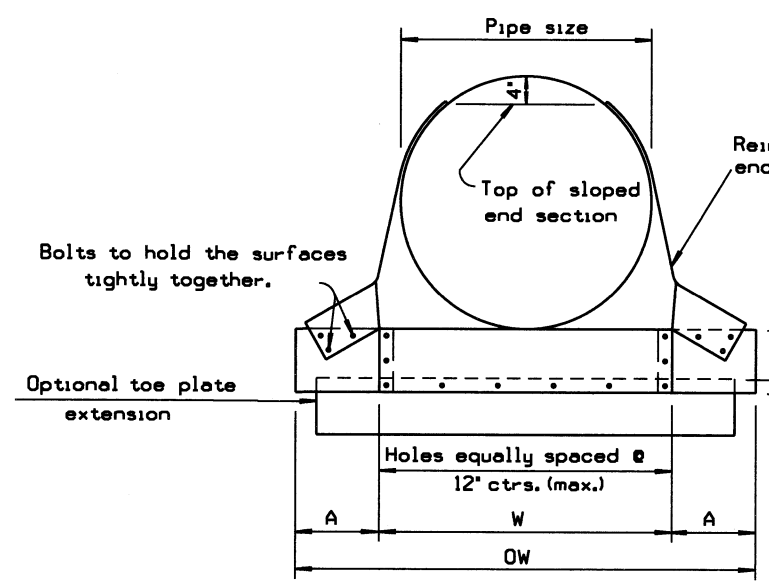
GENERAL NOTES:
 ROADWAY EXCAVATION (CHANNEL CHANGE) WILL BE PAID FOR AT R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS ACTUALLY CUT AND WILL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS ABOVE THE FLOW LINE. ROADWAY EXCAVATION (CHANNEL CHANGE) SHALL BE MEASURED BY CROSS SECTIONS AND VOLUMES COMPUTED BY AVERAGE END AREA METHOD. ALL CHANNEL CHANGES SHALL BE BROUGHT TO GRADE PRIOR TO MAKING ANY EXCAVATION FOR STRUCTURES.
 EXCAVATION FOR STRUCTURES WILL BE PAID FOR AT ALL R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS SHOWN AND SHALL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS BELOW THE CHANNEL FLOW LINE.
 ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.

DATE	REVISION	FILMED
11-20-03	REVISED SECTION A-A NOTE	
8-22-02	REVISED SECTION B-B NOTE	
10-12-95	COMBINED 1891B AND 1888A	
1-4-83	REVISED GENERAL NOTES AND ADDED MAXIMUM PAY LIMIT NOTES.	674-1-4-83
2-2-76	EXCAV. PAY LIMITS	917-2-2-76
10-2-72	REVISED AND REDRAWN	564-10-16-72

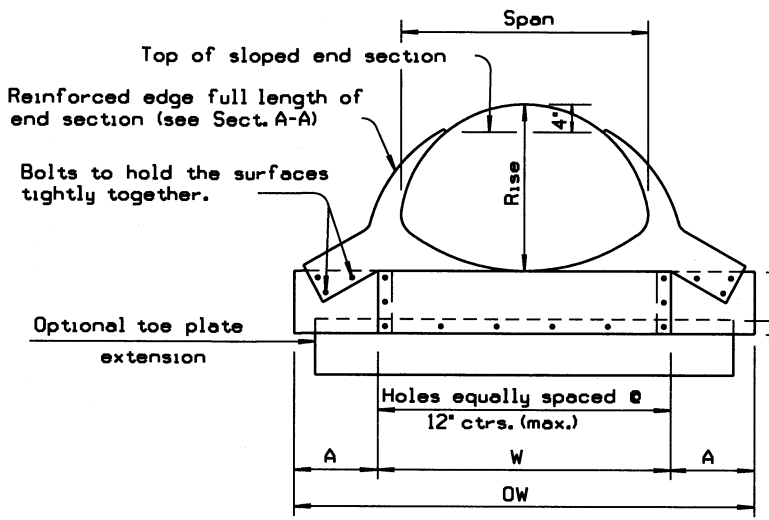
ARKANSAS STATE HIGHWAY COMMISSION

EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS

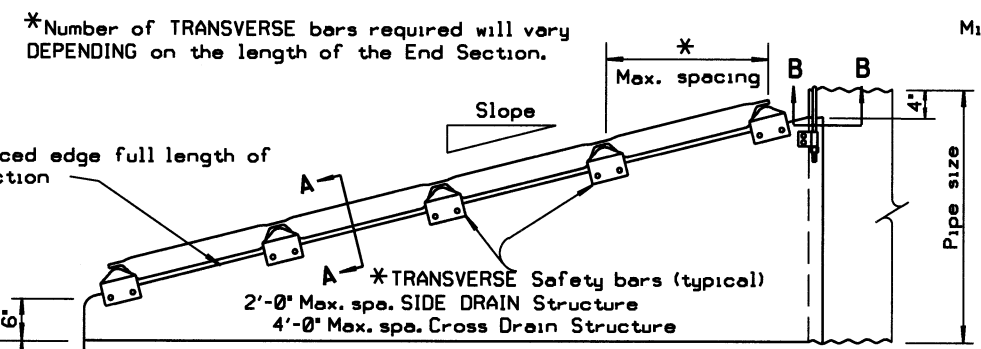
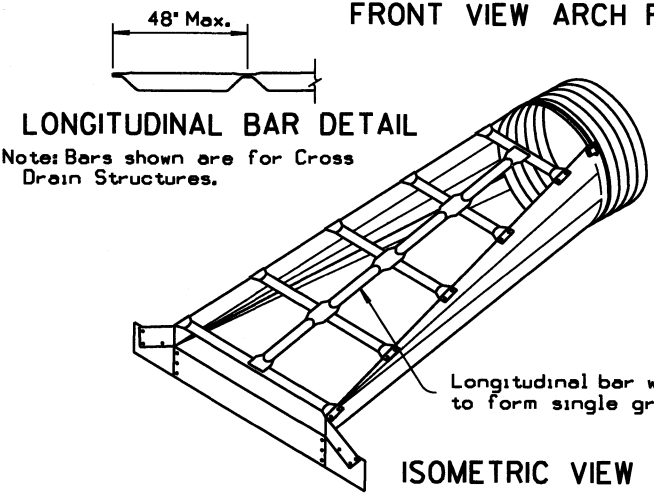
STANDARD DRAWING RCB-2



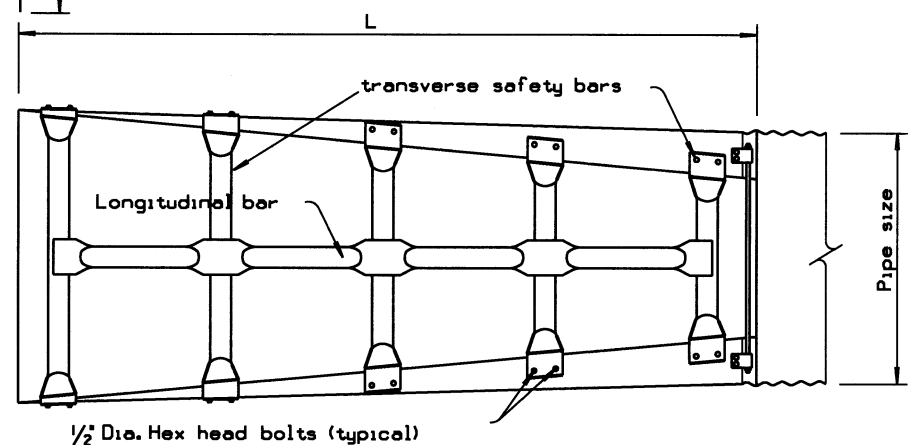
FRONT VIEW CIRCULAR PIPE



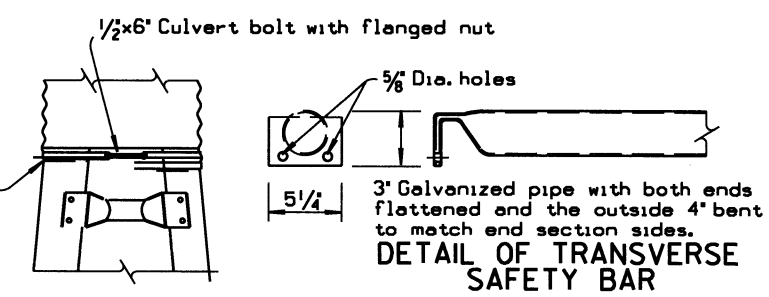
FRONT VIEW ARCH PIPE



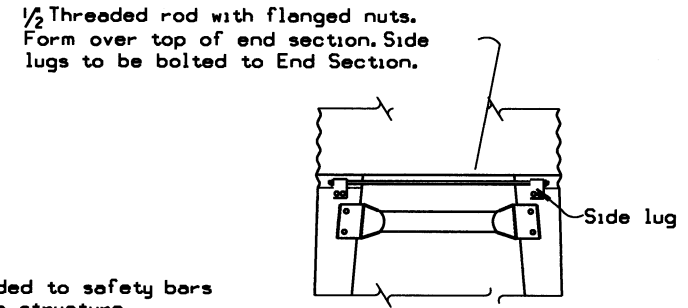
SIDE ELEVATION CIRCULAR OR ARCH SECTION



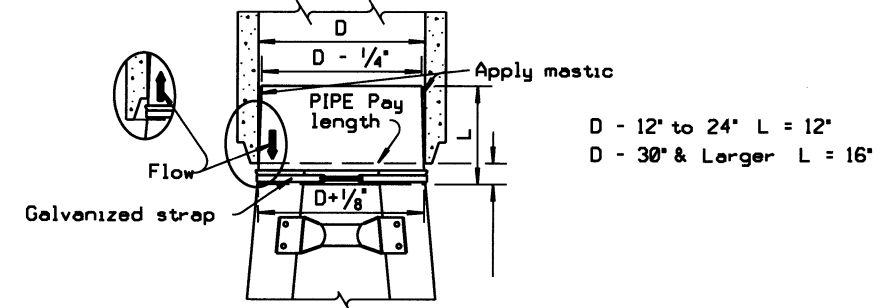
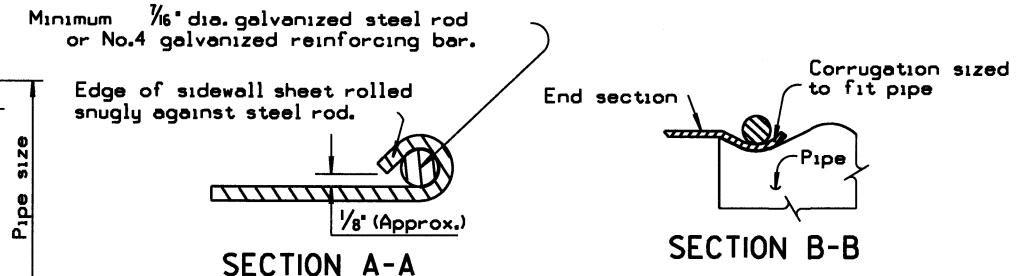
TOP VIEW CIRCULAR OR ARCH SECTION



TYPE #1 CONNECTOR DETAIL
For 15' thru 24' pipe



TYPE #2 CONNECTOR DETAIL
For 30" and larger round pipes & 21'x15" thru 64'x43" arch pipes



STEEL END SECTION FOR CONCRETE PIPE
(Alternate for Concrete End Section)

GENERAL NOTES

End sections shall be fabricated from galvanized steel meeting the requirements of SUBSECTION 606.02(c)(1) OF THE STANDARD SPECIFICATIONS. When specified optional toe plate extension shall be punched and bolted to end section apron lip with 3/8" diameter galvanized bolts. Steel for toe plate extension shall be same gauge as end section. Dimensions shall be overall width less 6" by 8" high. Attachment to circular pipes 15" through 24" diameter shall be made with Type #1 straps. All other sizes shall be attached with Type #2 rods and lugs. Safety bars shall be fabricated from steel pipe meeting the requirements of ASTM A-53 Schedule 40 Specifications. Safety bars shall be hot dipped galvanized after fabrication.


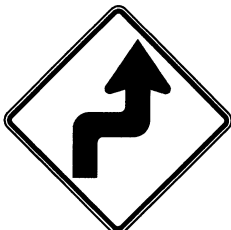
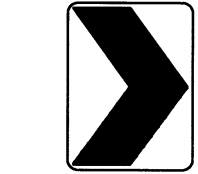



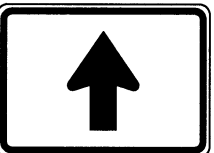


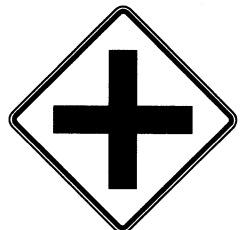



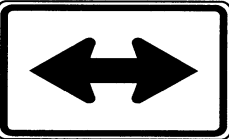
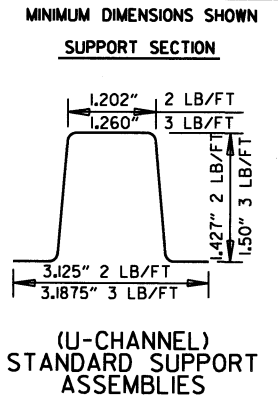
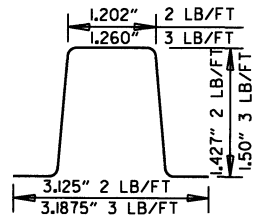
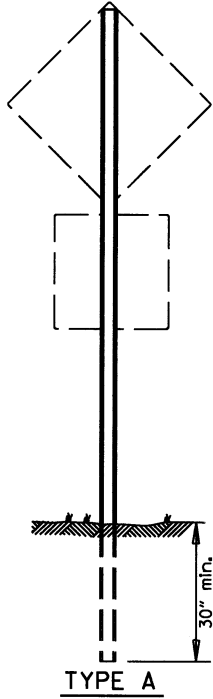
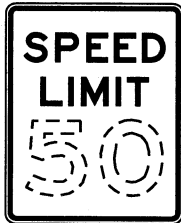

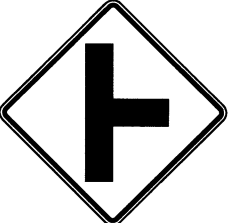




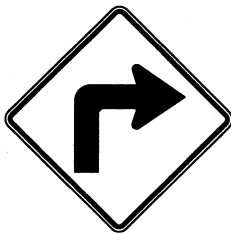
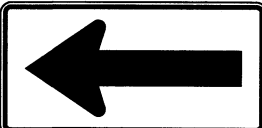
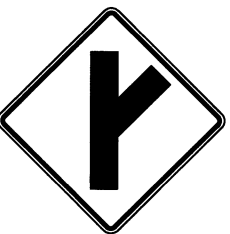

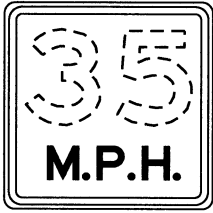
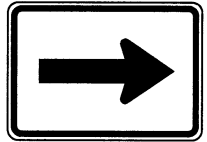
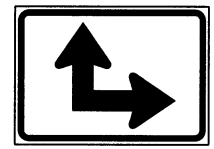
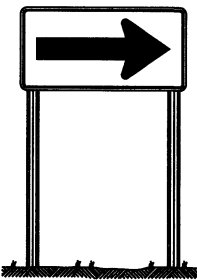
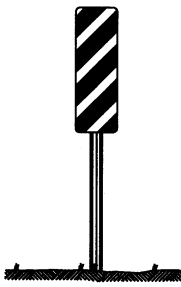

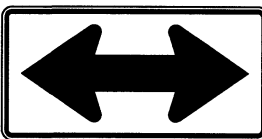
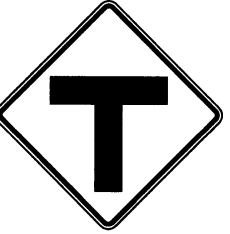

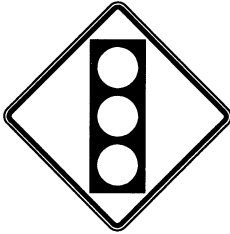
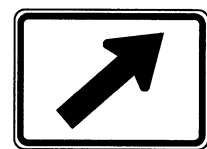


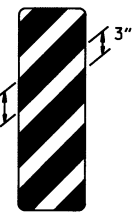
All work and materials required for construction and installation of safety end section shall be included in the PRICE BID EACH FOR SAFETY END SECTIONS FOR PIPE CULVERTS. Longitudinal and transverse bars will be required for cross drain structures when span is greater than 30'. no safety bars will be REQUIRED FOR 30" SPAN OR LESS WHEN USED ON CROSS DRAIN STRUCTURES. Transverse bars will be required for all sizes of side drain structures.

Class 1 safety end sections shall be end sections with a 4:1 slope. Class 2 safety end sections shall be end sections with a 6:1 slope.

SAFETY END SECTIONS FOR ARCH PIPES											SAFETY END SECTIONS FOR CIRCULAR PIPES											
Equiv. Dia.	Nom. W.W. Area Sq Ft	Pipe Arch		Min. Gauge End Sect.	Dimensions in Inches				Slope	L (In)	Slope	L (In)	Pipe Dia.	Min. Gauge Ends	Dimensions in Inches				L Dimensions in Inches			
		Span	Rise		A	H	W	OW							A 1" Tol	H 1" Tol	W 2" Tol	OW	Slope	L	Slope	L
18"	1.6	21	15	16	8	6	27	43	4:1	20	6:1	30	15"	16	8	6	21	37	4:1	20	6:1	30
21"	2.2	24	18	16	8	6	30	46	4:1	32	6:1	48	18"	16	8	6	24	40	4:1	32	6:1	48
24"	2.9	28	20	16	8	6	34	50	4:1	40	6:1	60	21"	16	8	6	27	43	4:1	44	6:1	66
30"	4.5	35	24	14	12	9	41	65	4:1	56	6:1	84	24"	16	8	6	30	46	4:1	56	6:1	84
36"	6.5	42	29	12	12	9	48	72	4:1	76	6:1	114	30"	12	12	9	36	60	4:1	80	6:1	120
42"	8.9	49	33	12	16	12	55	87	4:1	92	6:1	138	36"	12	12	9	42	66	4:1	104	6:1	156
48"	11.6	57	38	12	16	12	63	95	4:1	112	6:1	168	42"	12	16	12	48	80	4:1	128	6:1	192
54"	14.7	64	43	12	16	12	70	102	4:1	132	6:1	198	48"	12	16	12	54	86	4:1	152	6:1	228
60"	18.1	71	47	12	16	12	77	109	4:1	148	6:1	222	54"	12	16	12	60	92	4:1	176	6:1	264
72"	26.0	83	57	12	16	12	89	121	4:1	188	6:1	282	60"	12	16	12	66	98	4:1	200	6:1	300

ARKANSAS STATE HIGHWAY COMMISSION
SAFETY END SECTION
FOR CIRCULAR AND ARCH PIPES
STANDARD DRAWING SES-1

10-18-96	REVISED ASTM REF. TO AASHTO	
8-15-91	DRAWN & ISSUED	
DATE	REVISION	DATE FILMED

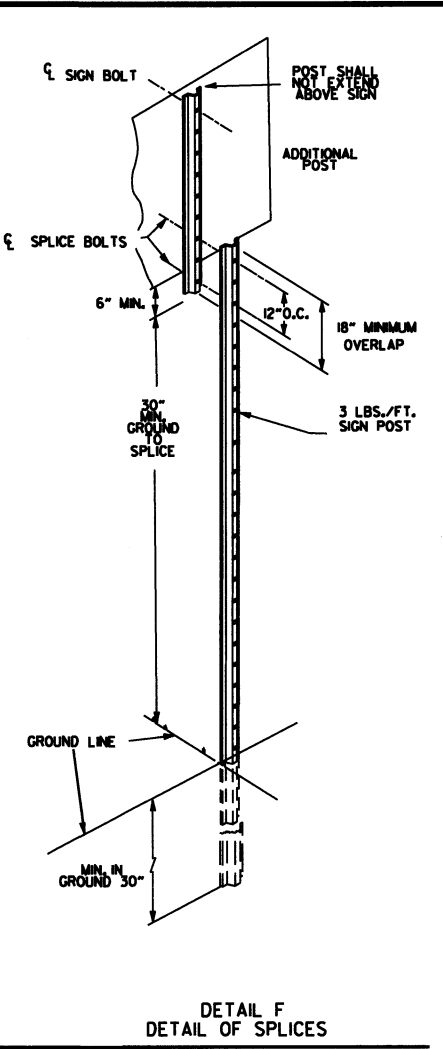
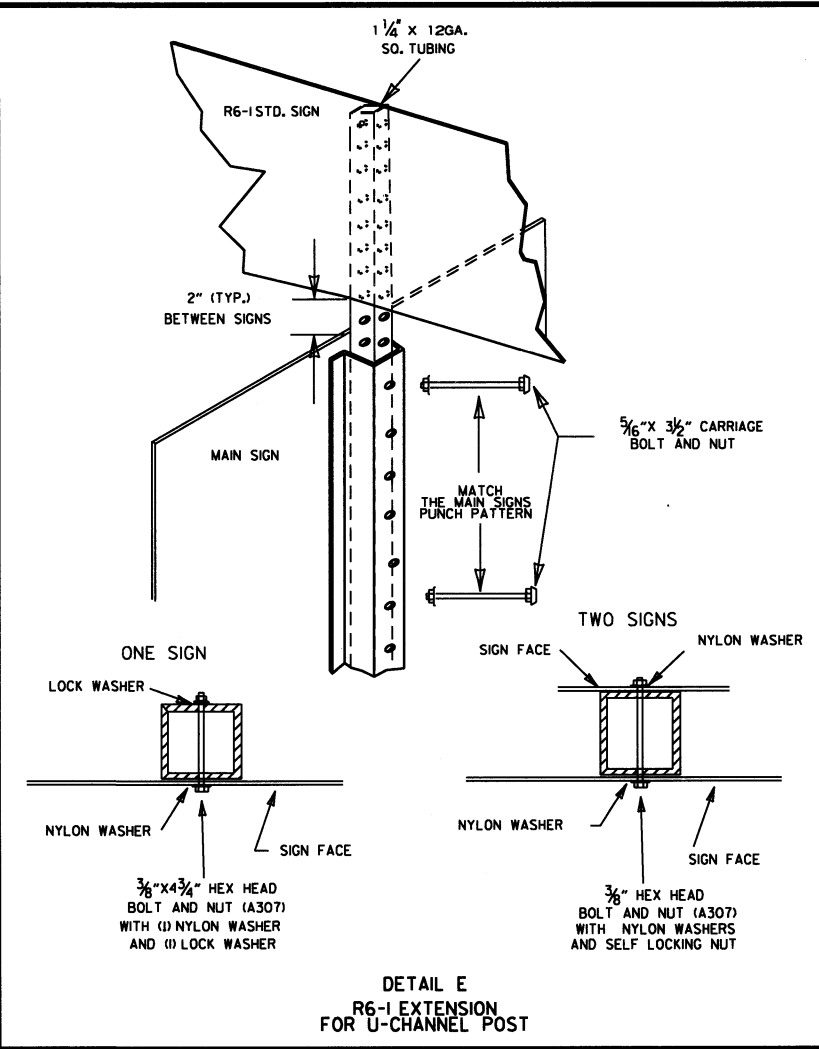
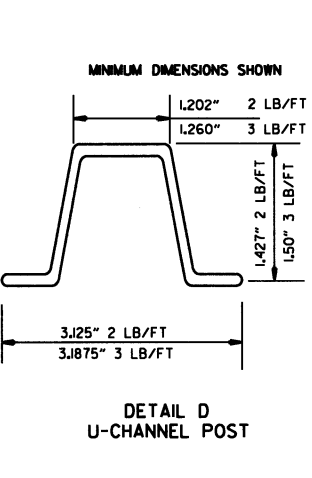
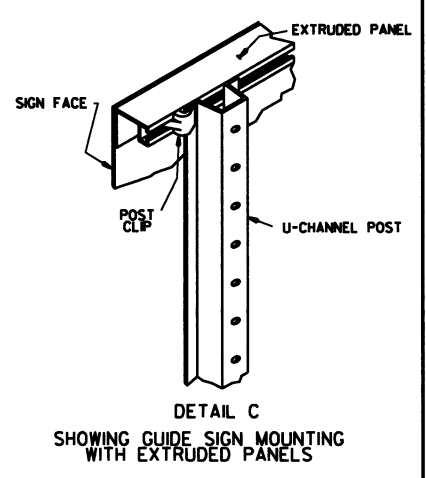
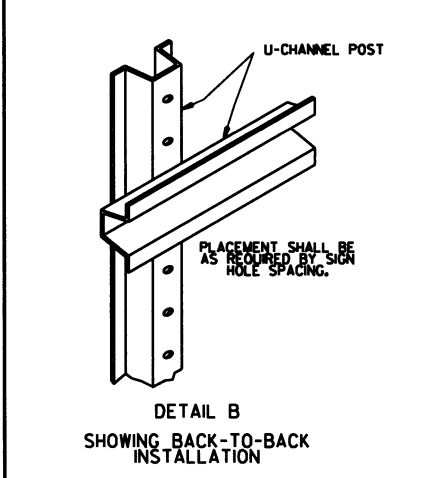
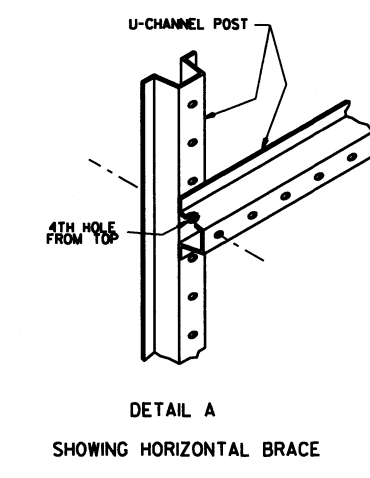
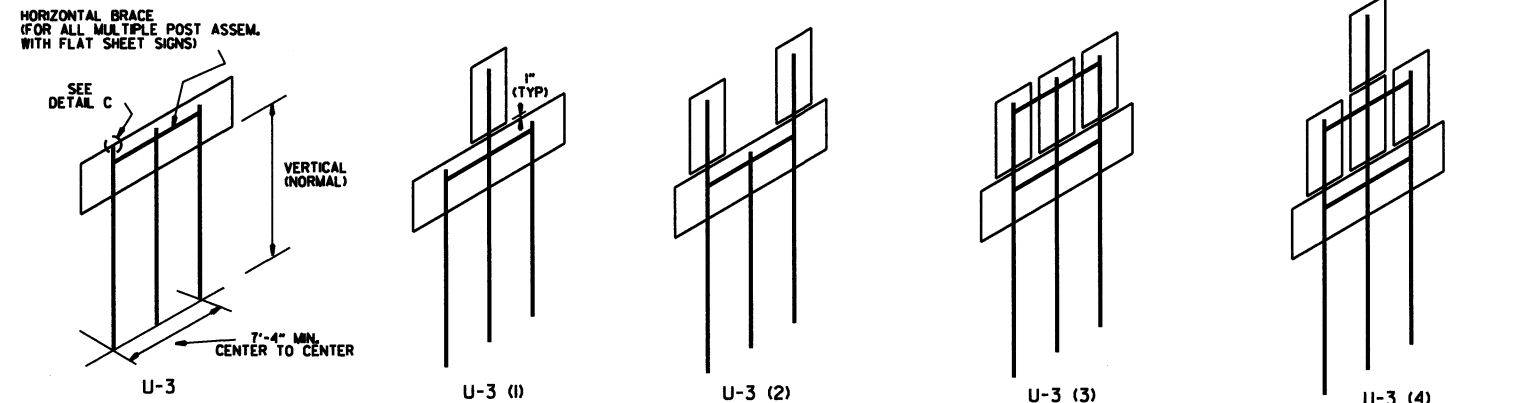
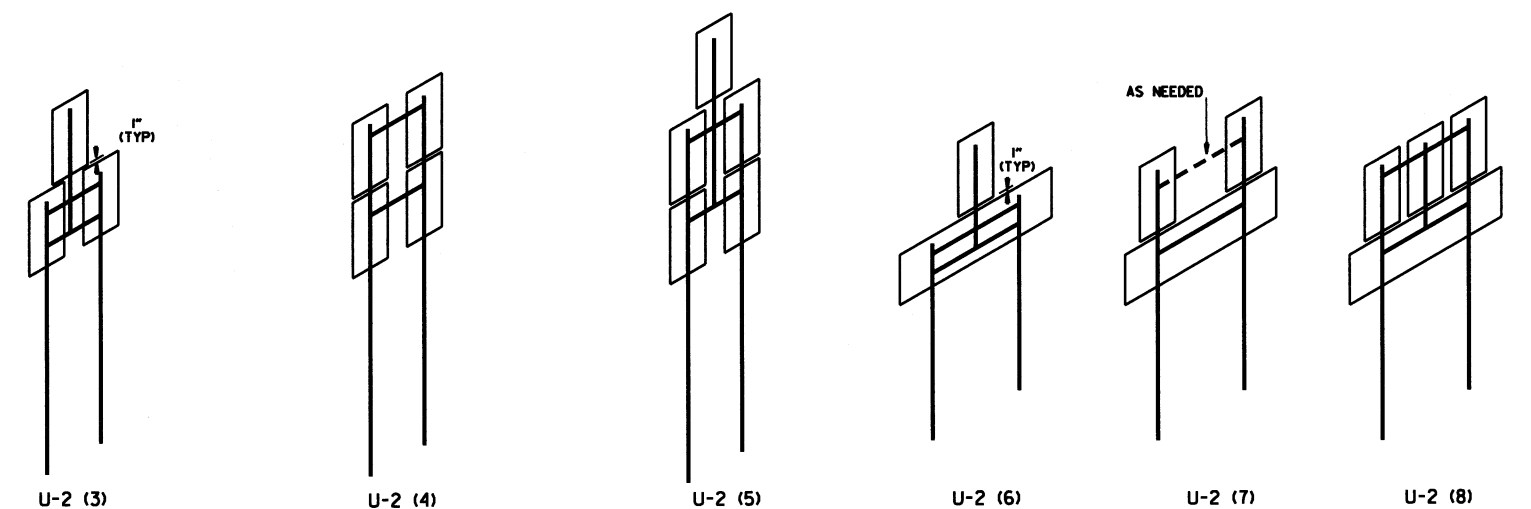
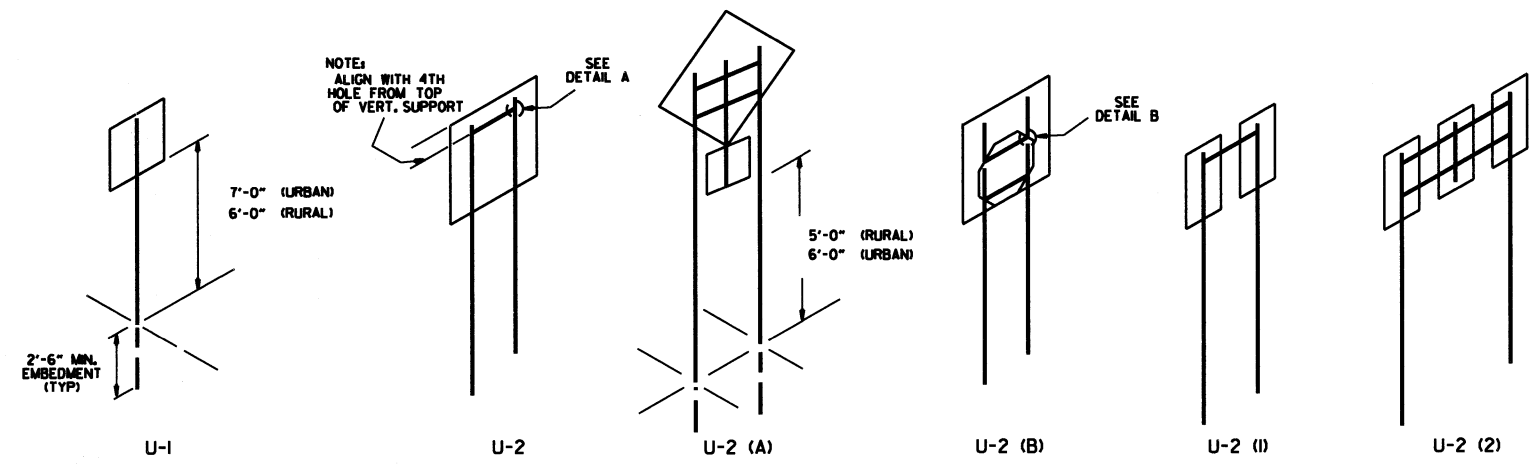
 RI-1 30"x30"	 WI-3 30"x30" (LT. OR RT.)	 WI-8 18"x24"	 W2-5 30"x30"	 W3-1 36"x36"	 W5-1 36"x36"	 M6-3 21"x15"	
 RI-2 36"x36"x36"	 WI-4 30"x30" (LT. OR RT.)	 W2-1 30"x30"	 SI-1 36"x36"	 W3-2 36"x36"	 County Route Marker MI-6 24"x24" <small>NOTE: REFLECTORIZED YELLOW LEGEND (COUNTY NAME, ROUTE LETTER & NUMBER) & BORDER ON A BLUE BACKGROUND.</small>	 M6-4 21"x15"	 MINIMUM DIMENSIONS SHOWN SUPPORT SECTION  (U-CHANNEL) STANDARD SUPPORT ASSEMBLIES  TYPE A <small>NOTE: LENGTH OF SIGN POSTS SHALL BE DETERMINED SO AS TO PROVIDE FOR MINIMUM VERTICAL CLEARANCES AS CALLED FOR IN THE SPECIFICATIONS PLUS A MINIMUM VERTICAL PENETRATION OF 30" IN THE SOIL.</small>
 R2-1 24"x30"	 WI-5 30"x30" (LT. OR RT.)	 W2-2 30"x30"	 W5-2 36"x36"	 W8-3 36"x36"	 RI-3P 18"x6"	 M6-5 21"x15"	
 WI-1 30"x30" (LT. OR RT.)	 WI-6 48"x24"	 W2-3 30"x30" (LT. OR RT.)	 W5-3 36"x36"	 W13-1P 18"x18"	 M6-1 21"x15" <small>NOTE: ALL M6 SIGNS TO BE MADE WITH REFLECTORIZED YELLOW ARROW & BORDER WITH BLUE BACKGROUND.</small>	 M6-6 21"x15"	 TYPE B  TYPE C MINIMUM WEIGHT TYPE A & B = 3 LBS./FT. TYPE C = 2 LBS./FT.
 WI-2 30"x30" (LT. OR RT.)	 WI-7 48"x24"	 W2-4 30"x30"	 W10-1 36" DIAMETER	 W3-3 36"x36"	 M6-2 21"x15"	 S4-3P 24"x8"  S4-2P 24"x10"  OM-3 12"x36" (LT. OR RT.)	

STANDARD HIGHWAY SIGNS

SUPPORT ASSEMBLIES

ARKANSAS STATE HIGHWAY COMMISSION
 STANDARD HIGHWAY SIGNS
 AND SUPPORT ASSEMBLIES
 STANDARD DRAWING SHS-1

9-12-13	DELETED JOB NO. BLOCK; REVISED RI-3 TO RI-3P	
4-17-08	REVISED SIGN DESIGNATION - W3-1 & W3-2	
4-10-03	REVISED W5-2, W8-3, OM-3; ADDED WI-8	
1-5-81	REDRAWN	960-1-15-81
9-15-78	ADDED W14-3	877-9-15-78
9-2-76	POST WT.	623-9-3-76
5-3-76	STEEL POST WT. FROM 2" x 3" ADDED S4-2 & S4-3	504-5-3-76
8-12-74	REV. HT. TYPE "C" ASSEMBLY	500-8-21-74
12-21-72	ADDED M6-2, 3, 4, 5, 6	500-12-21-72
12-1-72	ISSUED	562-12-1-72
DATE	REVISION	DATE FILMED



NOTES:

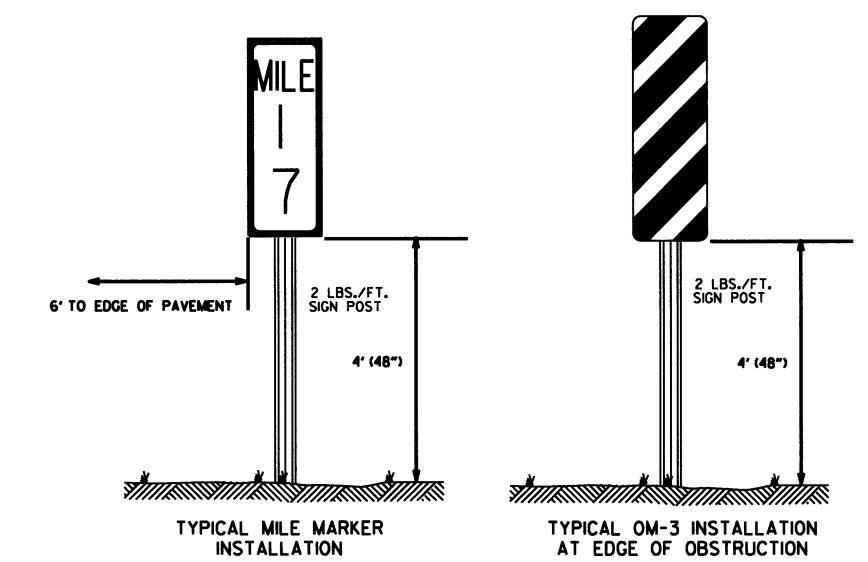
SIGNS AT LEAST 8' IN LENGTH MAY BE INSTALLED ON THREE 3 LB. POST. IN NO CASE SHALL THERE BE MORE THAN TWO 3 LB. POSTS WITHIN A 7' PATH.

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


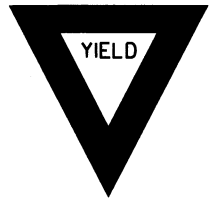
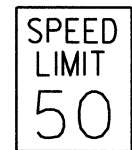






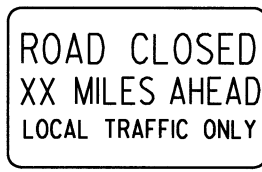
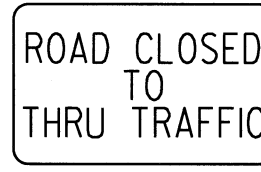

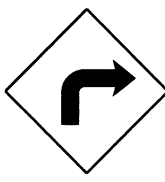


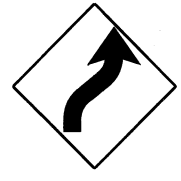


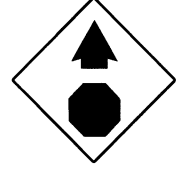
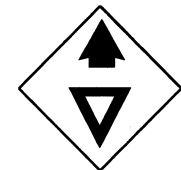
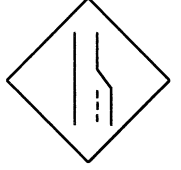













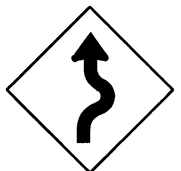



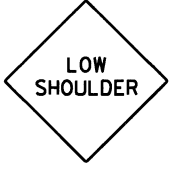
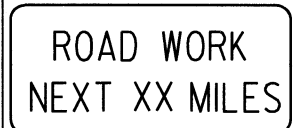
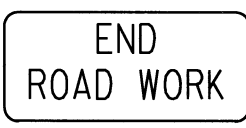
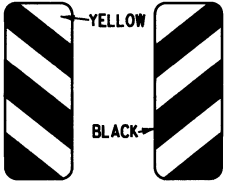


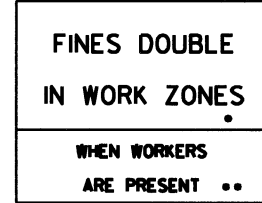
NORMAL INSTALLATIONS WILL REQUIRE 3/8" DIA. CARRIAGE BOLTS TO MOUNT SIGNS TO POST AND TO ASSEMBLE THE VARIOUS POST SUPPORTS.

ALL SIGN POSTS SHALL BE PLUMB.

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

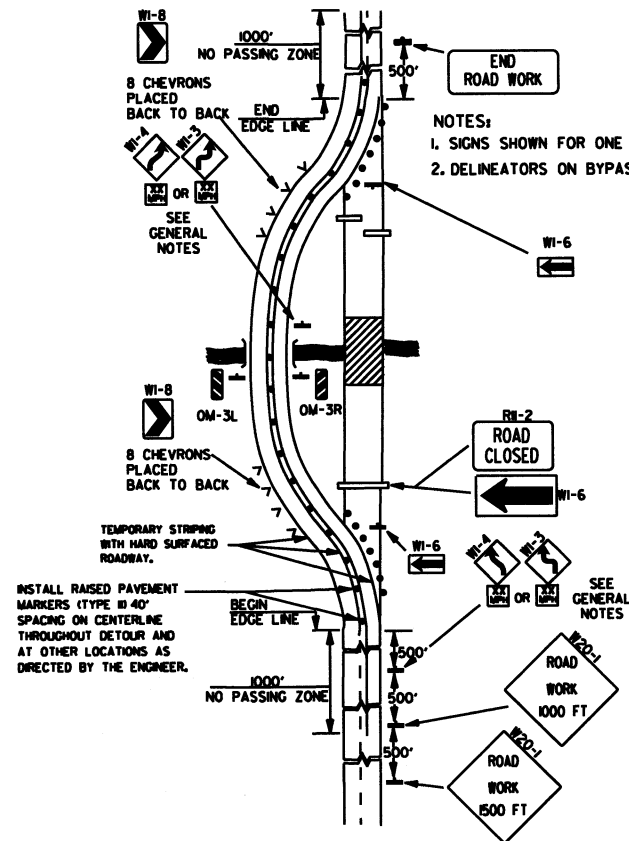


ARKANSAS STATE HIGHWAY COMMISSION		
U-CHANNEL POST ASSEMBLIES		
STANDARD DRAWING SHS-2		
2-27-14	REVISED NOTES.	
9-12-13	REVISED U-2(3), U-2(6), U-3(1), DETAIL D; ADDED DETAILS E & F; ADDED TYPICAL MARKERS	
10-9-03	REMOVED ROUND POST & REVISED SPACING	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL	6-8-95
2-2-95	REDRAWN	2-2-95
DATE	REVISION	FILMED

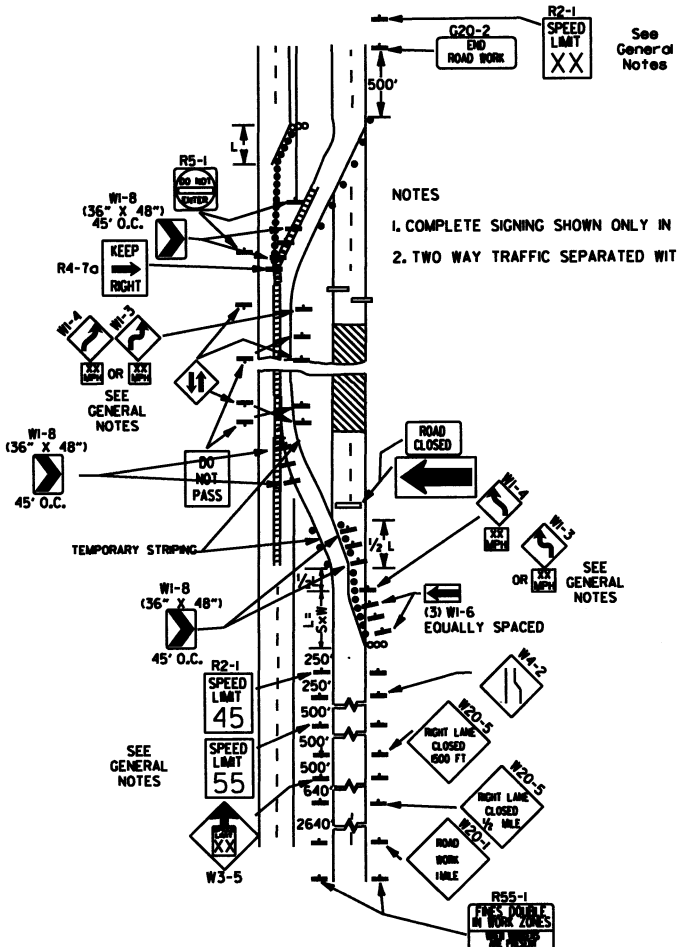
							ADVANCE DISTANCES (XXXX)	
<p>RI-1</p>  <p>STANDARD 30"x30" EXPRESSWAY 36"x36" SPECIAL 48"x48"</p>	<p>RI-2</p>  <p>STD. 36"x36"x36" EXPWY. 48"x48"x48" FWY. 60"x60"x60"</p>	<p>R2-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>W3-5</p>  <p>STD. 36"x36" EXPWY. 48"x48" FWY. 48"x48"</p>	<p>W3-5a</p>  <p>STD. 36"x36" EXPWY. 48"x48" FWY. 48"x48"</p>	<p>R4-1</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>R4-2</p>  <p>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</p>	<p>500 FT 1/2 MILE 1000 FT 3/4 MILE 1500 FT 1 MILE AHEAD</p>	
<p>R5-1</p>  <p>STD. 30"x30" EXPWY. 36"x36" SPECIAL 48"x48"</p>	<p>R11-2</p>  <p>48"x30"</p>	<p>R11-3A</p>  <p>60"x30"</p>	<p>R11-4</p>  <p>60"x30"</p>	<p>W21-5a</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W1-1</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W1-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>GENERAL NOTES:</p> <ol style="list-style-type: none"> 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. 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. 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. 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. 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. 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. 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. FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS. 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. 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. <p>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.</p>	
<p>W1-3</p>  <p>STD. 48"x48"</p>	<p>W1-4</p>  <p>STD. 48"x48"</p>	<p>W1-6</p>  <p>STD. 48"x24" SPECIAL 60"x30"</p>	<p>W1-8</p>  <p>STD. 18"x24" SPECIAL 24"x30" EXPWY. 30"x36" FWY. 36"x48"</p>	<p>W3-1</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W3-2</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W4-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>		
<p>W5-1</p>  <p>STD. 36"x36" SPECIAL 48"x48"</p>	<p>W6-3</p>  <p>EXPWY. 36"x36" SPECIAL 48"x48"</p>	<p>W8-7</p>  <p>EXPWY. 36"x36" FWY. 48"x48"</p>	<p>W9-2</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W13-1</p>  <p>STD. 24"x24"</p>	<p>W20-1</p>  <p>STD. 48"x48"</p>	<p>W20-2</p>  <p>STD. 48"x48"</p>		<p>W20-3</p>  <p>STD. 48"x48"</p>
<p>W20-4</p>  <p>STD. 48"x48"</p>	<p>W20-5</p>  <p>STD. 48"x48"</p>	<p>W20-7a</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W21-2</p>  <p>STD. 30"x30" SPECIAL 36"x36"</p>	<p>W21-5</p>  <p>STD. 30"x30" SPECIAL 36"x36"</p>	<p>W24-1</p>  <p>STD. 36"x36"</p>	<p>W1-4b</p>  <p>STD. 48"x48"</p>		<p>R56-1</p>  <p>STD. 18"x18"</p>
<p>W8-11</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>W8-9</p>  <p>STD. 36"x36" FWY. 48"x48"</p>	<p>G20-1</p>  <p>60"x24"</p>	<p>G20-2</p>  <p>48"x24"</p>	<p>OM-3L OM-3R</p>  <p>12"x36"</p>	<p>M4-9</p>  <p>STD. 30"x24" SPECIAL 48"x36" SPECIAL 60"x48"</p>	<p>M4-10</p>  <p>48"x18"</p>		<p>R55-1</p>  <p>36"x60"</p> <p>• USE 6" C LETTERS •• USE 4" D LETTERS</p>

4-13-17	DELETED RSP-1 & ADDED W21-5a	
9-2-15	REVISED REDUCED SPEED LIMIT AHEAD SIGNS REVISED ROAD WORK NEXT XX MILES	
12-15-11	REVISED W24-1	
1-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
1-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
1-18-98	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	
DATE	REVISION	FILMED

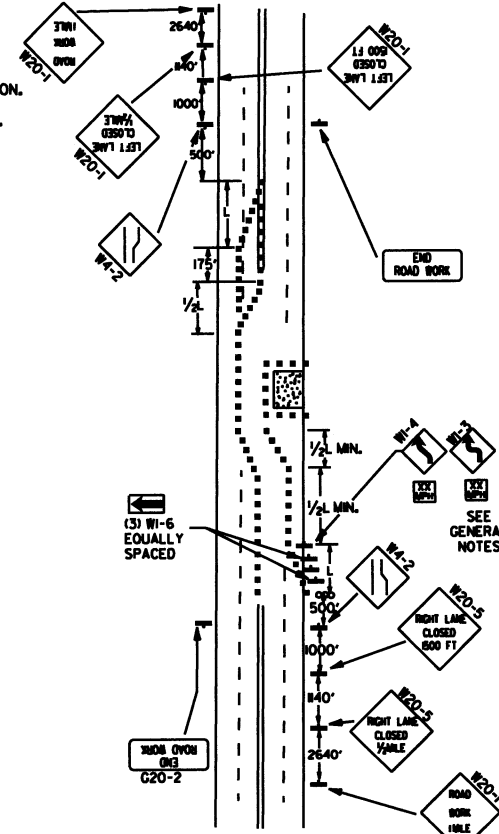
ARKANSAS STATE HIGHWAY COMMISSION
STANDARD TRAFFIC CONTROLS
FOR HIGHWAY CONSTRUCTION
STANDARD DRAWING TC-1



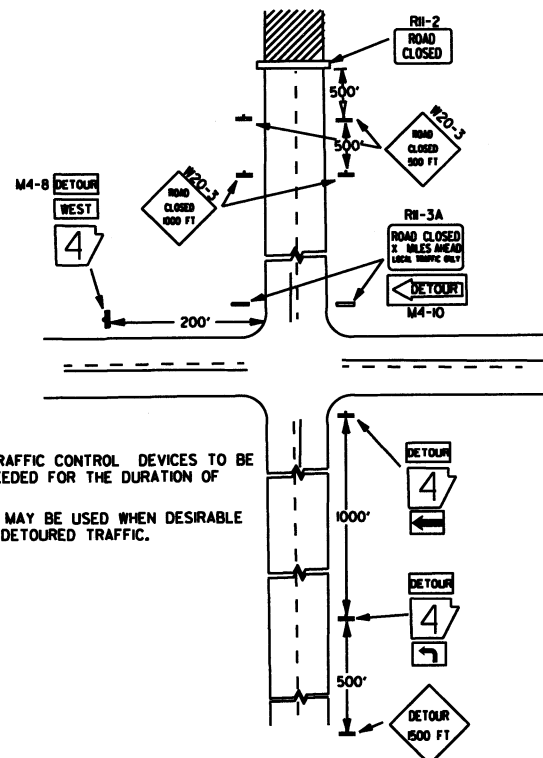
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.



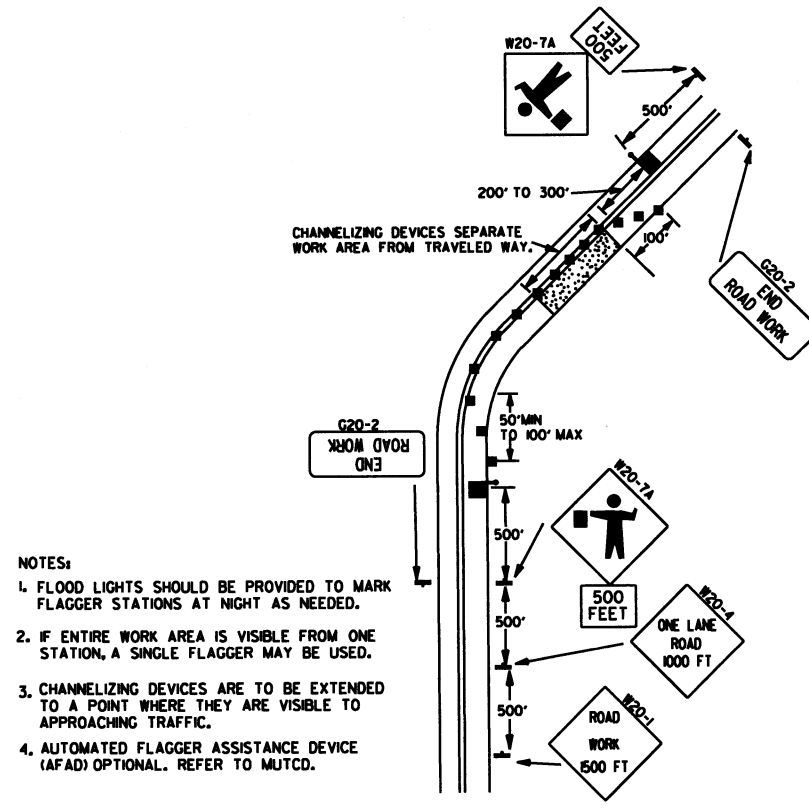
(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.



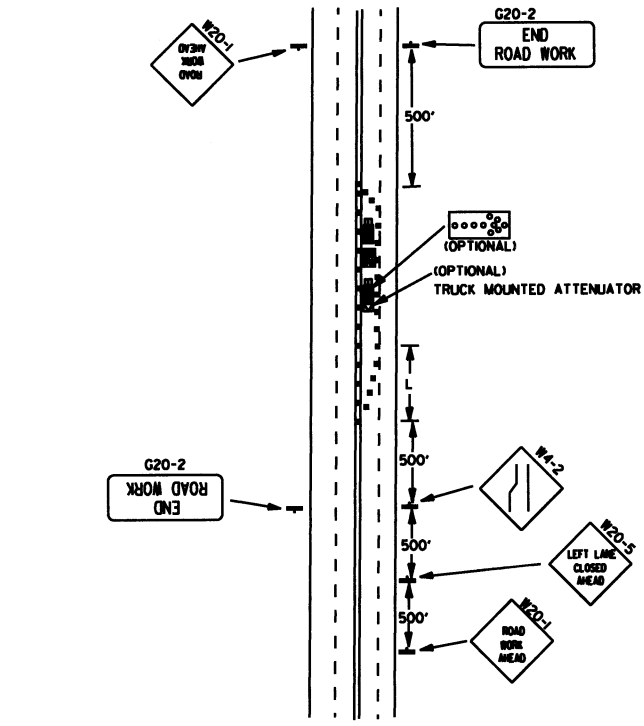
(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



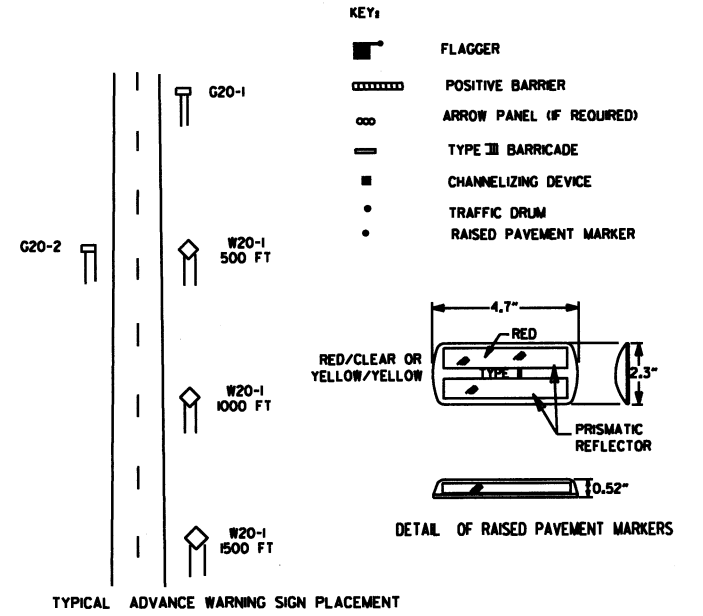
(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.



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



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

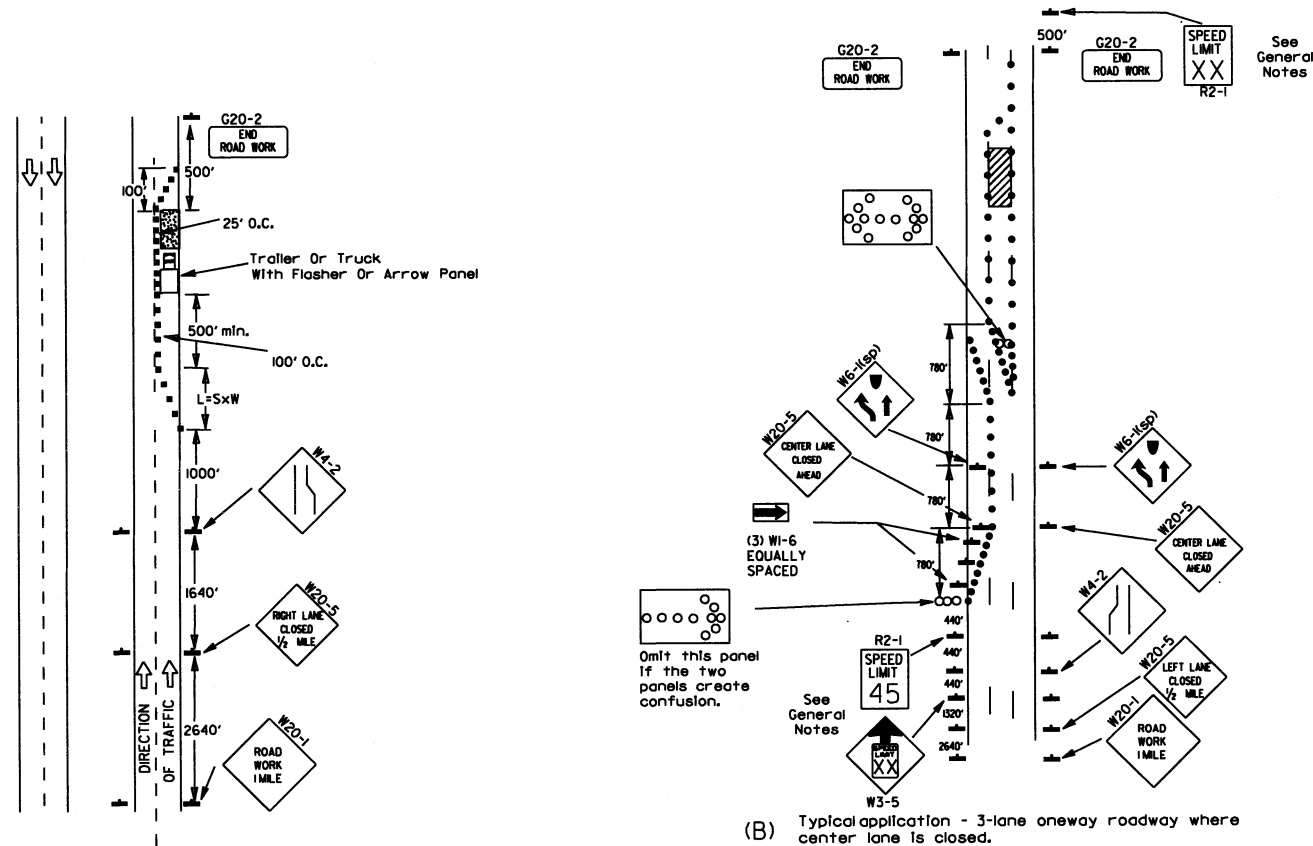


TAPER FORMULAE:
 $L = S \cdot W$ FOR SPEEDS OF 45MPH OR MORE.
 $L = \frac{W \cdot S^2}{60}$ FOR SPEEDS OF 40MPH OR LESS.
 WHERE:
 L = MINIMUM LENGTH OF TAPER.
 S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.
 W = WIDTH OF OFFSET.

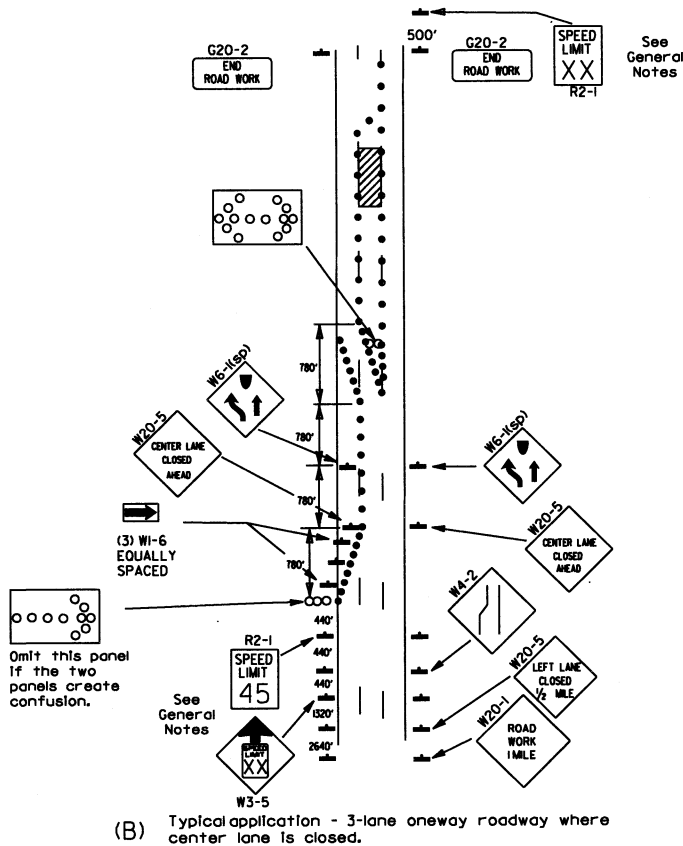
- GENERAL NOTES:
- ADVISORY SPEED POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.
 - WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-R55 SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-145MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1/2 MILE INTERVALS. AT THE END OF THE WORK AREA A R2-RXX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
 - WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-R65) SHALL BE OMITTED. ADDITIONAL R2-155MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1/2 MILE INTERVALS. AT THE END OF THE WORK AREA A R2-RXX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
 - 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.
 - WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
 - PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
 - 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.
 - 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	FILED
9-2-85	REVISED NOTE 2, ADDED NOTE 6, 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 V, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

Channelizing devices



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

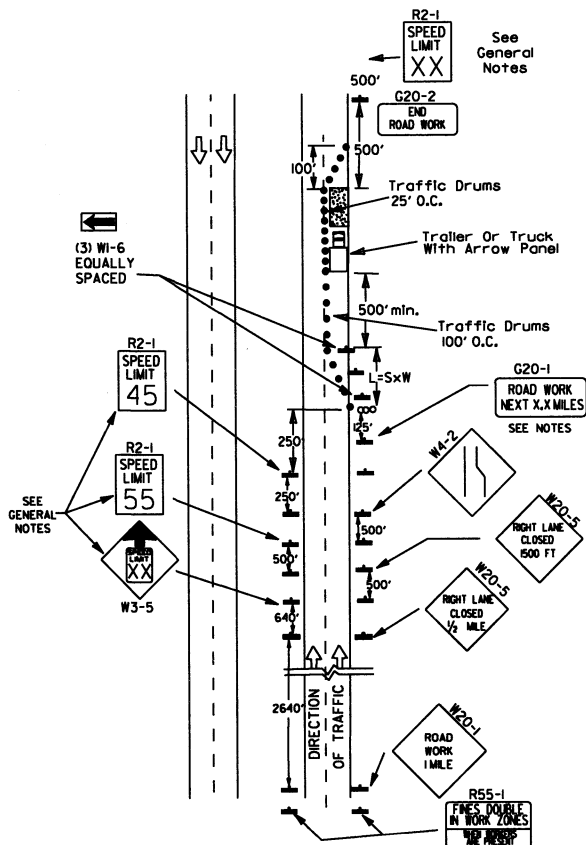


(B) Typical application - 3-lane oneway roadway where center lane is closed.

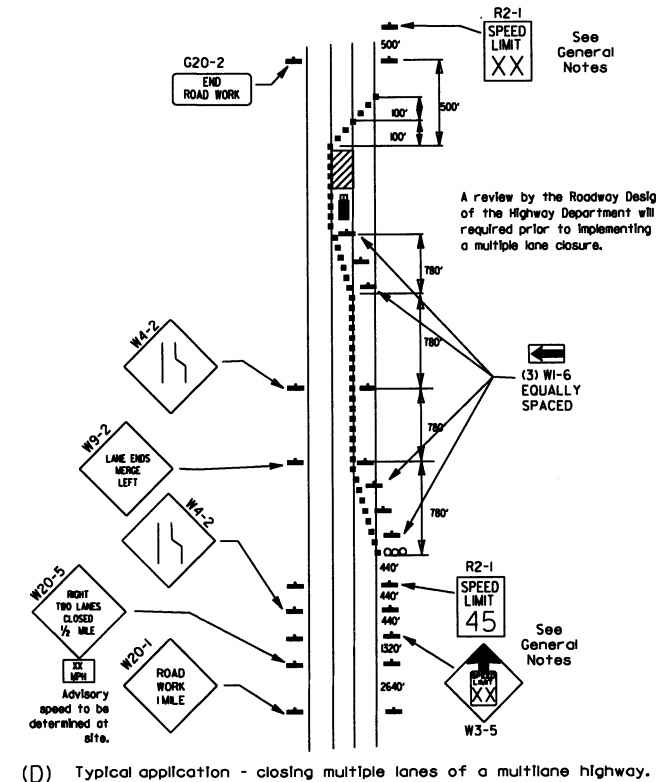
- KEY:
- Arrow Panel (if Required)
 - Channelizing Device
 - Traffic drum

GENERAL NOTES:

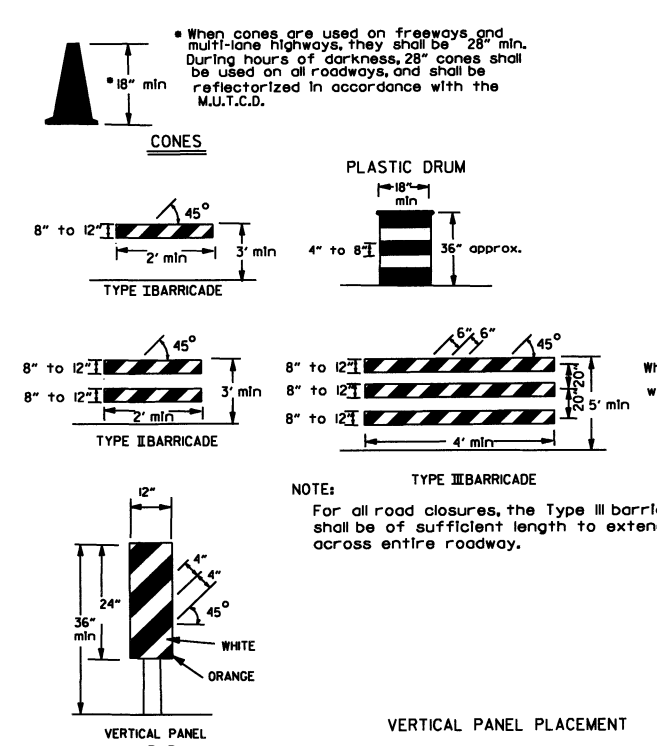
1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the W3-5 shall be installed at that location. Additional R2-145mph speed limit signs shall be installed at a maximum of 1/2 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(65) shall be omitted. Additional R2-155mph speed limit signs shall be installed at a maximum of 1/2 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(1/2 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.



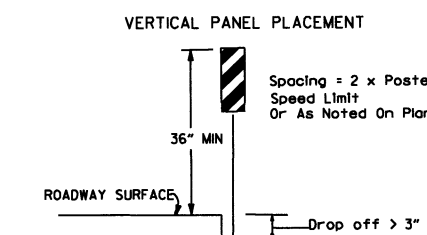
(C) Typical application - construction operations of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.



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



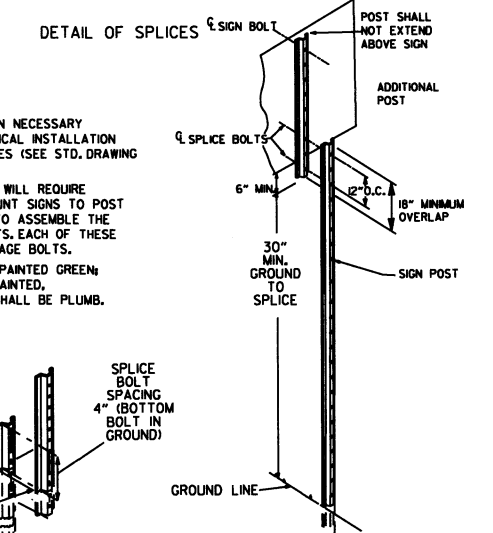
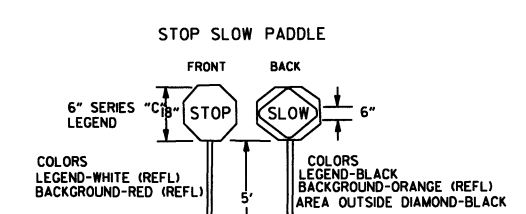
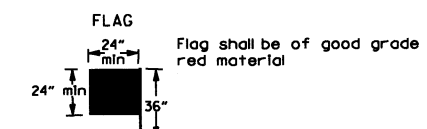
NOTE:
For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.



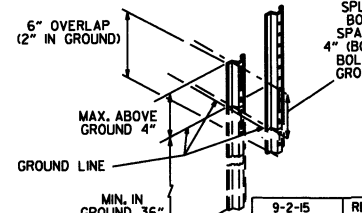
TRAFFIC CONTROL DEVICES FOR VERTICAL PAVEMENT DIFFERENTIALS

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

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

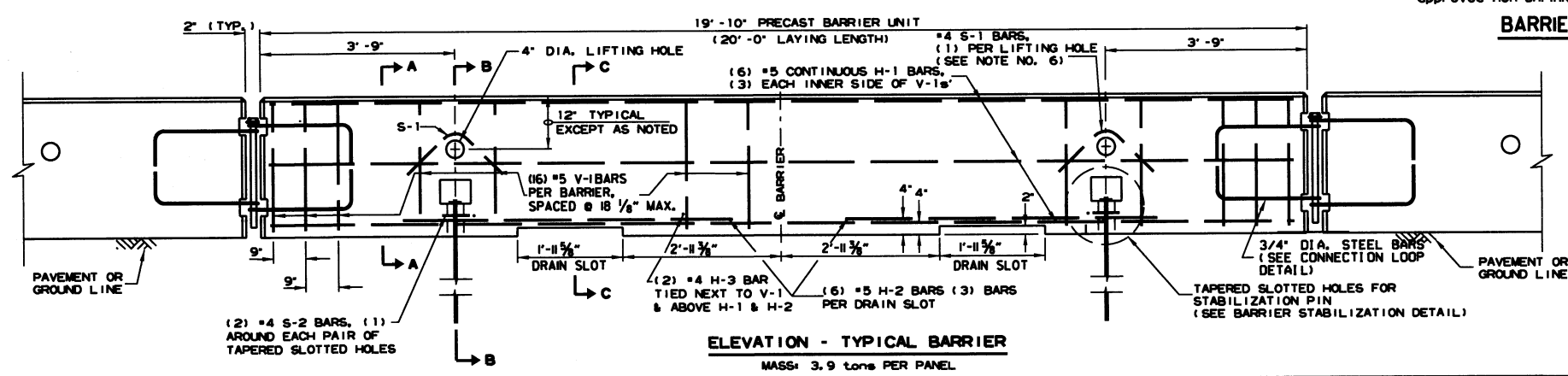
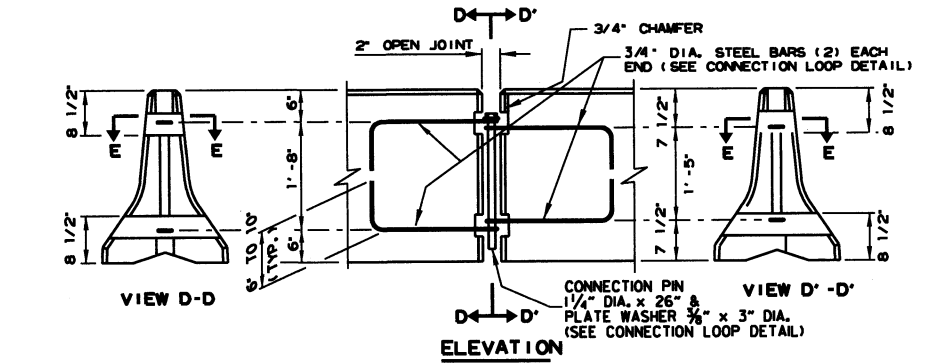
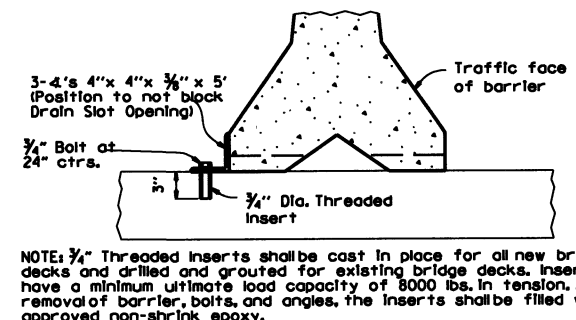
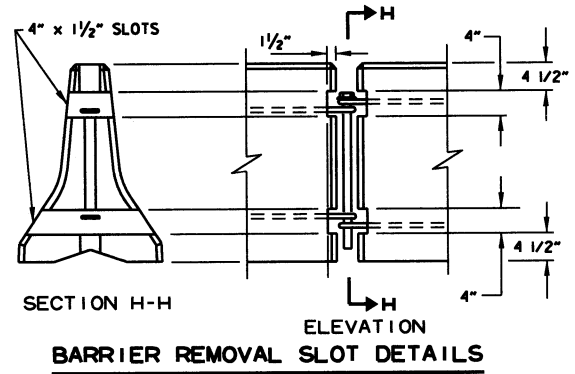
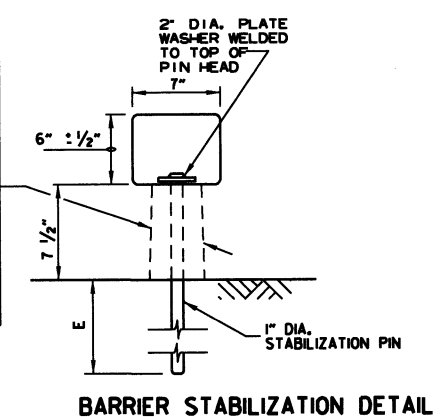
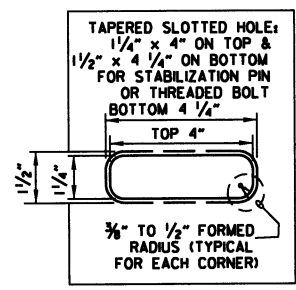
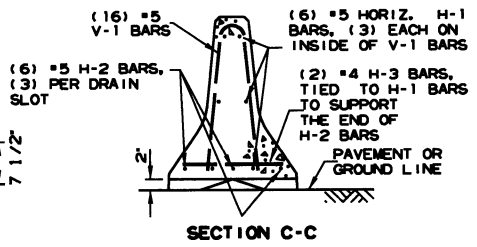
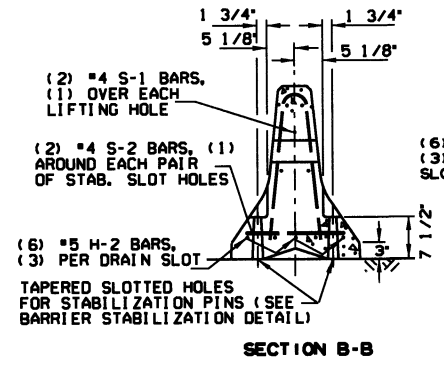
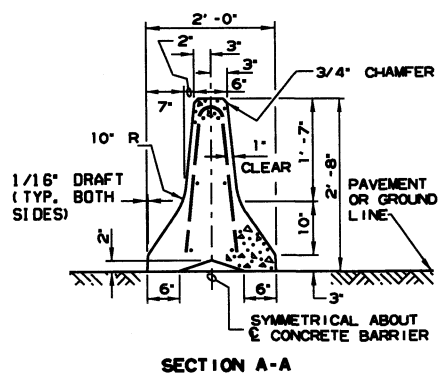
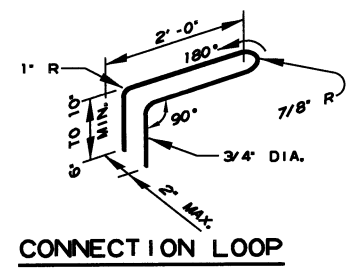
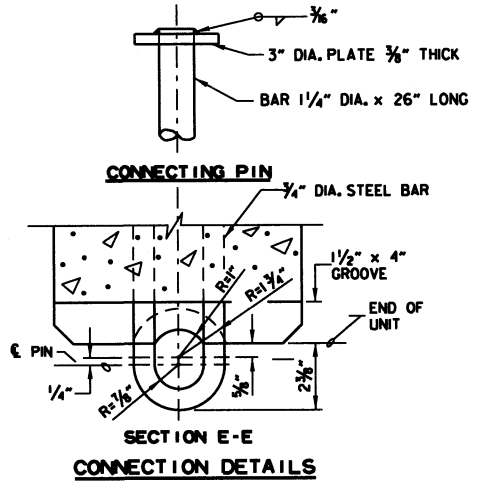


NOTES:
USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2)
NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS.
SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.



DATE	REVISION	FILMED
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	

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)	
S-2	HORIZ. AROUND SLOTS BETWEEN V-1'S & DRAIN SLOTS	#4 (2)	
V-1	VERTICAL IN BARRIER (3) EACH END & (2) AT EACH DRAIN SLOTS	#5 (16)	



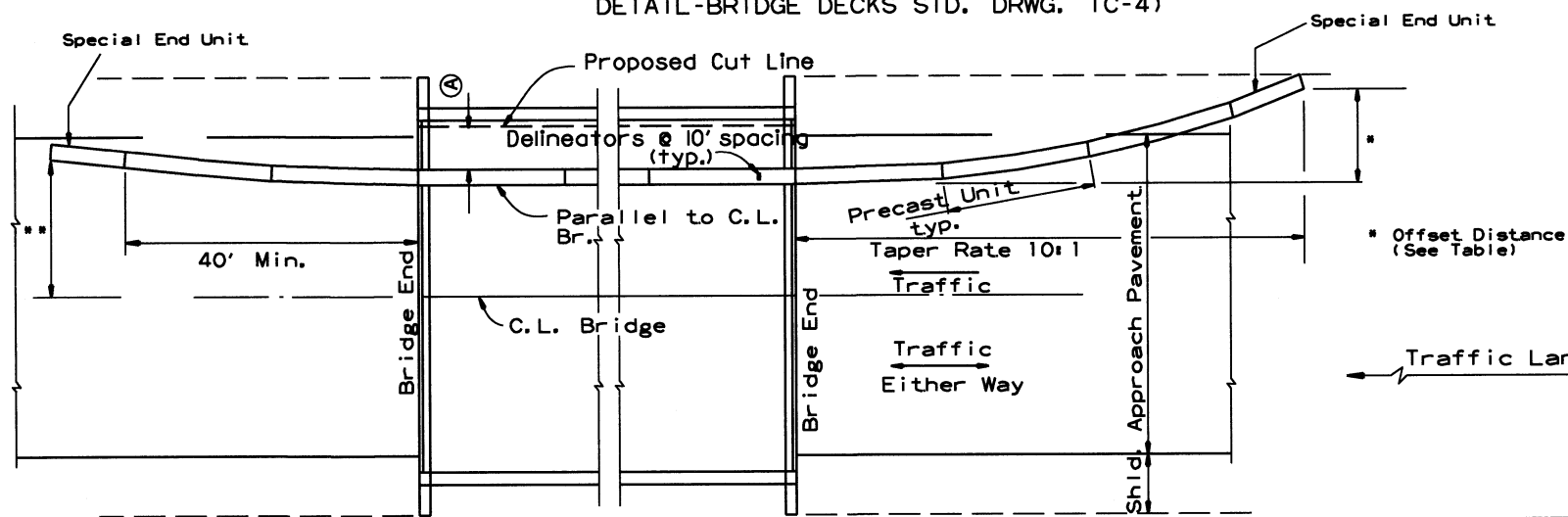
- General Notes**
- The contractor shall furnish the Precast Concrete Barrier Units and shall be responsible for the manufacture, shipment, storage, placement and removal. At the completion of the project, the precast units will remain the property of the contractor.
 - Materials shall meet the following minimum requirements:
Concrete: 2500 psi compressive strength at 28 days.
Reinforcing Steels: AASHTO M 31 or M 53, Grade 60
Structural Steels: AASHTO-M270 Grade 36 shall be used for the Connection Pin, Connection Loops, and Stabilization Pins. A One Piece Pin with a 3" rounded top may be used in place of the detailed Connection Pin. Delimiters: Delimiters shall be mounted at 10' spacing on top of precast barrier.

In applications where barrier walls within 6 feet of a traffic lane, additional delimiters shall be placed on the barrier at 10' spacing approximately one (1) foot from the top of the barrier. Delimiters shall be on the AHTD Qualified Products List for Construction Concrete Barrier Markers. Delimiter color shall be in accordance with the Manual on Uniform Traffic Control Devices. Payment for delimiters 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.
 - 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.
 - 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 filler. Payment for drilling and filling holes to be included in the price for various barrier items.
 - Attach Units To Roadway Surface with Stabilization Pins and to Deck Slabs using bolts when required.
 - 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	FILED
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-6-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
1-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
1-18-04	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

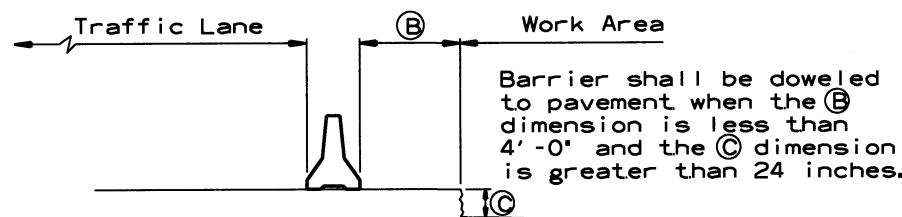
(A) 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)



BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

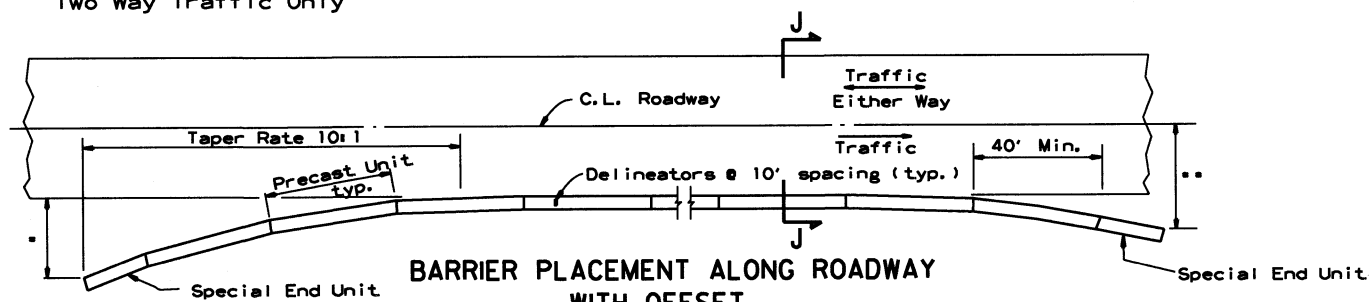
No Scale

** Offset Distance for Two Way Traffic Only



SECTION J-J

No Scale



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

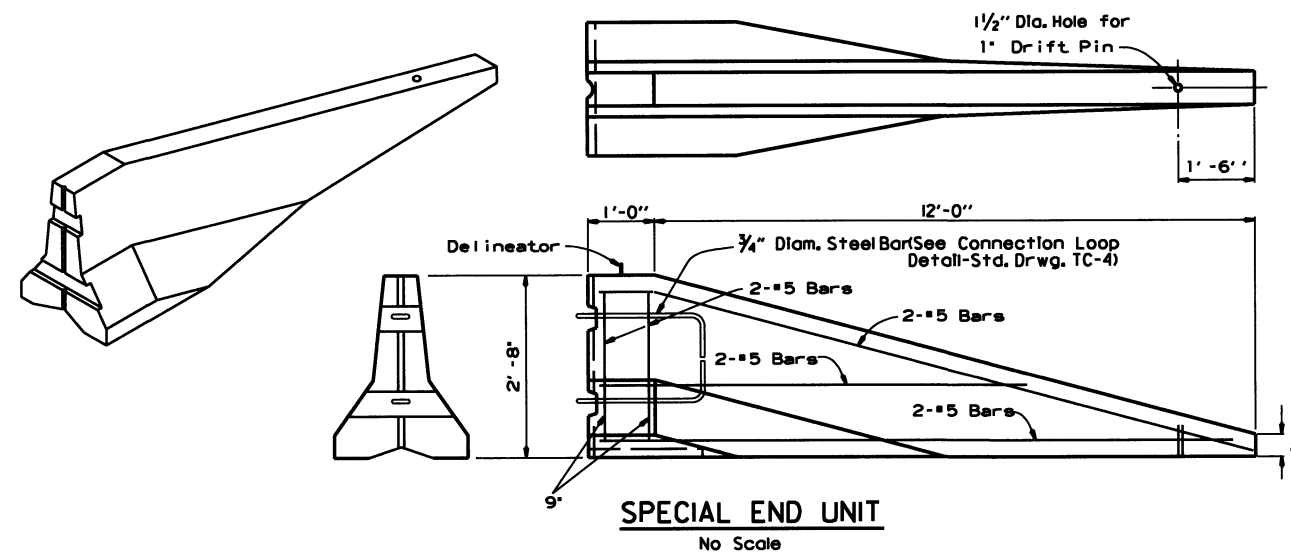
* Offset Distance (See Table)

** Offset Distance For Two Way Traffic Only

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.

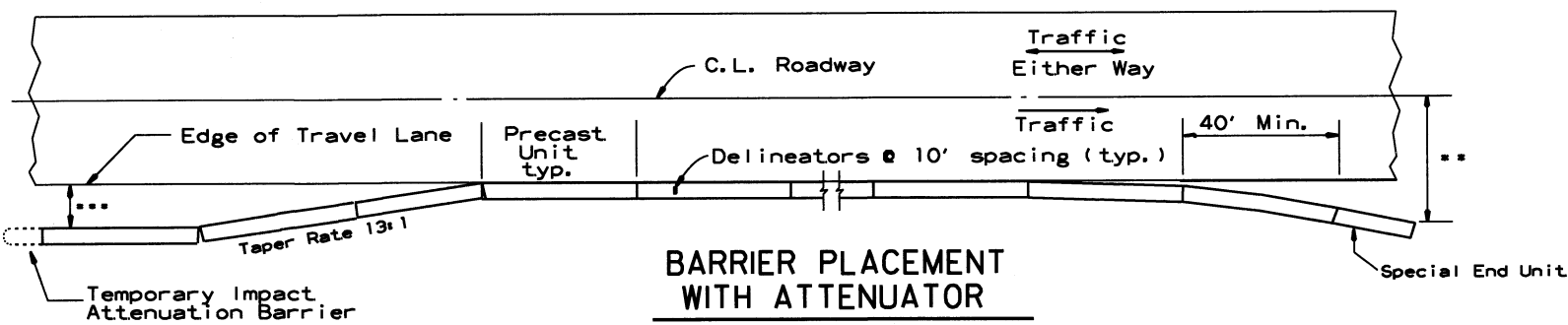


SPECIAL END UNIT

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."



BARRIER PLACEMENT WITH ATTENUATOR

No Scale

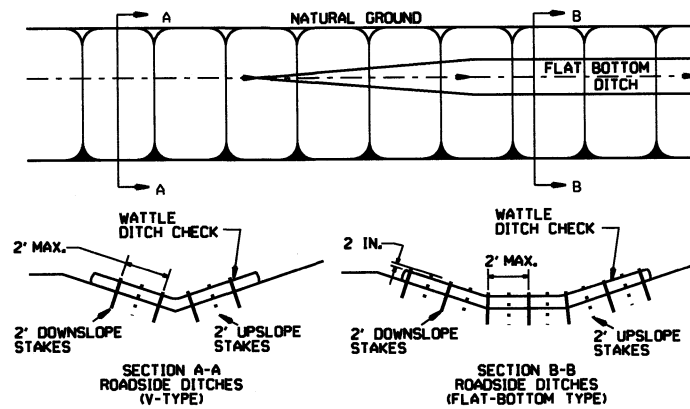
** Offset Distance For Two Way Traffic Only

*** Min. 3'-0" From Edge of Travel Lane to Nearest Edge of Attenuator

ARKANSAS STATE HIGHWAY COMMISSION		
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER		
STANDARD DRAWING TC-5		
10-15-09	ADDED REFERENCE TO MASH	
5-25-06	REVISED BARRIER PLACEMENT	
8-22-02	ISSUED NEW DRAWING	
DATE	REVISION	FILED

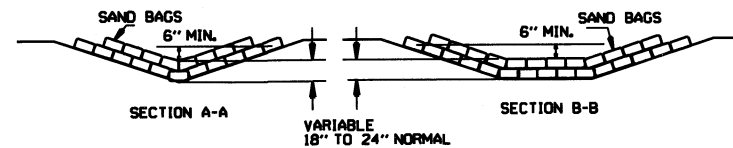
GENERAL NOTES

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

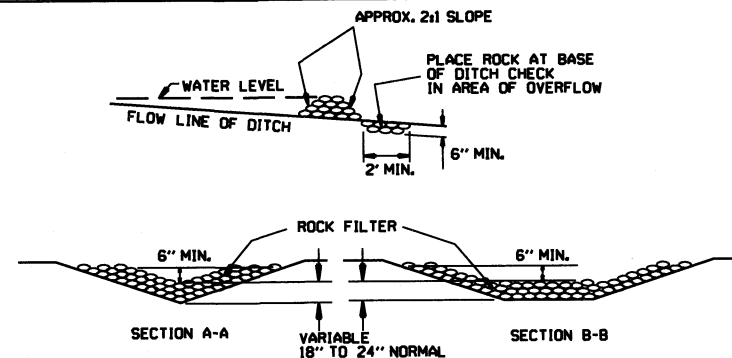


WATTLE DITCH CHECK (E-1)

NUMBER OF SAND BAGS AND ARRANGEMENT VARIABLE WITH ON-SITE CONDITIONS. PLACE SAND BAGS AT BASE OF DITCH CHECK IN AREA OF OVERFLOW.

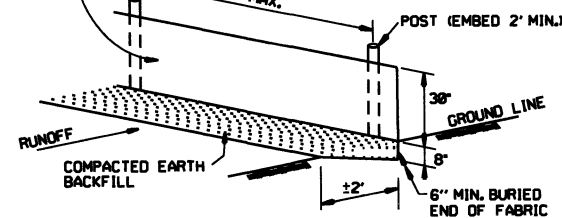


SAND BAG DITCH CHECK (E-5)

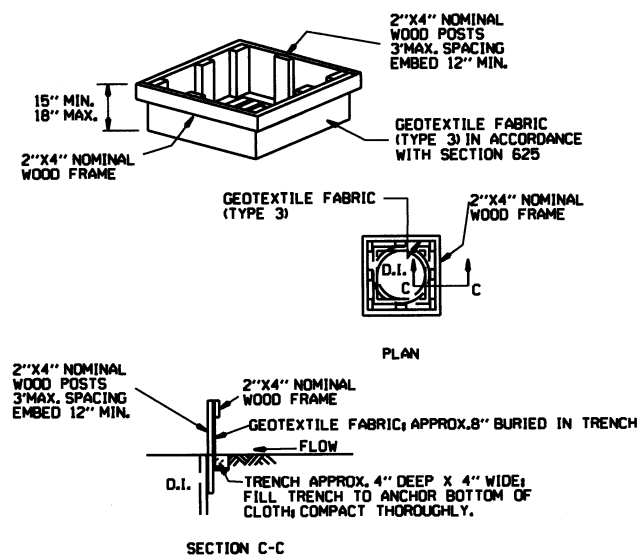


ROCK DITCH CHECK (E-6)

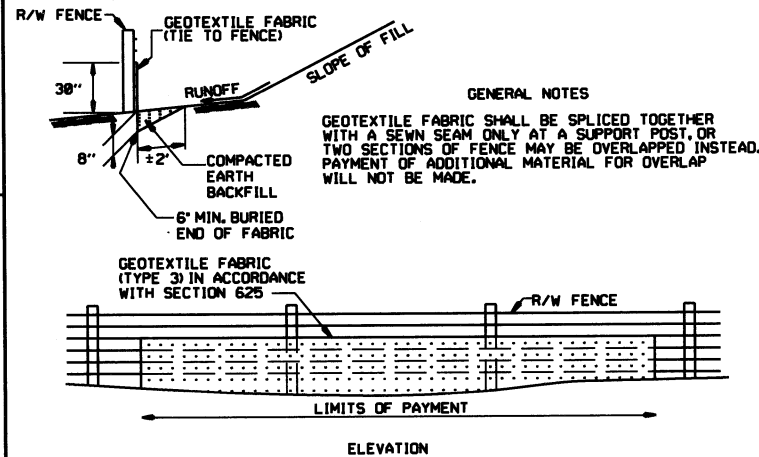
GENERAL NOTES
 GEOTEXTILE FABRIC (TYPE 4) IN ACCORDANCE WITH SECTION 625
 GEOTEXTILE FABRIC SHALL BE SPICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.



SILTS FENCE (E-11)

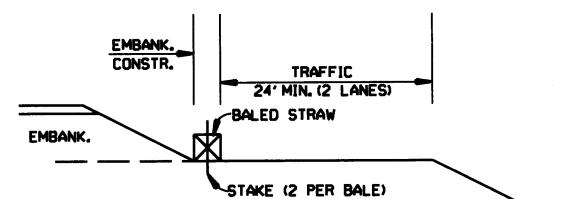


DROP INLET SILTS FENCE (E-7)

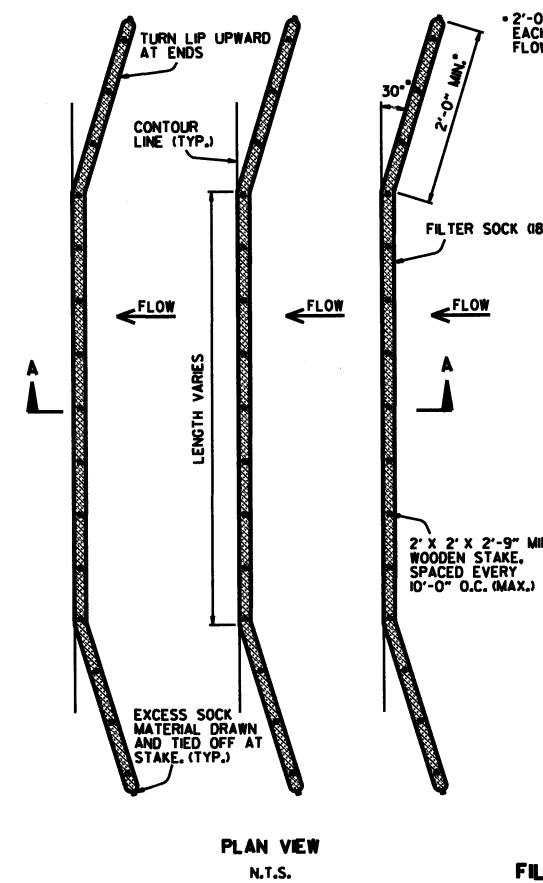


SILTS FENCE ON R/W FENCE (E-4)

GENERAL NOTES
 1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.
 2. NO GAPS SHALL BE LEFT BETWEEN BALES.
 3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



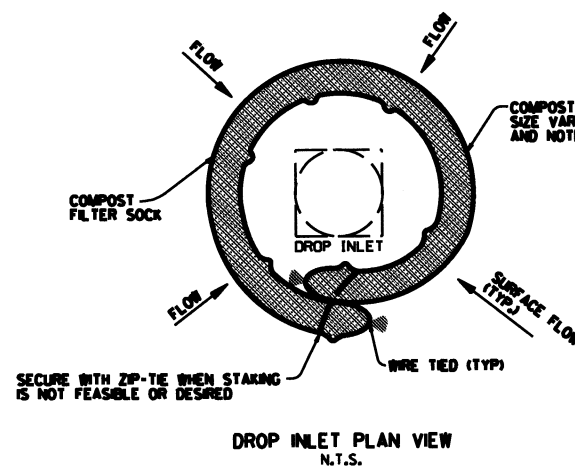
BALED STRAW FILTER BARRIER (E-2)



FILTER SOCK ALONG SLOPE (E-3)

NOTES:

1. FILTER SOCKS CAN BE PLACED AT THE TOP, ON THE FACE, AND AT THE TOE OF SLOPES AS SEDIMENT-TRAPPING DEVICES FOR SHEET FLOW RUNOFF.
2. FILTER SOCKS ARE TYPICALLY SUPPLIED AND INSTALLED WITH 18 INCH DIAMETERS. DIAMETER TOLERANCE IS 2 INCHES, AS FILTER SOCKS TEND TO FLATTEN OUT WHEN PLACED.
3. STEEL POSTS MAY BE USED AND SHALL BE ROLLED FROM HIGH CARBON STEEL AND HAVE A MINIMUM OF 1.25 LB./FT. POSTS SHALL BE HOT-DIPPED GALVANIZED OR PAINTED WITH HIGH-GRADE WEATHER RESISTANT BROWN OR BLACK STEEL PAINT. STEEL POSTS SHALL BE EQUIPPED WITH ANCHOR PLATE HAVING A MINIMUM AREA OF 14 SQUARE INCHES. POSTS SHALL BE STUDDED, EMBOSSED, OR PUNCHED. POSTS AND ANCHOR PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A702. NO ADDITIONAL PAYMENT WILL BE PROVIDED FOR STEEL POSTS, BUT PRICE WILL BE CONSIDERED SUBSIDIARY TO "FILTER SOCK (18\"/>
- 4. FILTER SOCKS MAY BE UP TO 250 FEET LONG. WHEN USED ON LONG SLOPES, FILTER SOCKS MAY BE JOINTED OR STAGGERED AS SHOWN IN DETAILS.
- 5. INSPECT FILTER SOCKS AFTER EACH RUNOFF EVENT. REMOVE AND REPLACE IF SIGNS OF UNDERCUTTING OR DOWNSTREAM RILLS ARE OBSERVED.



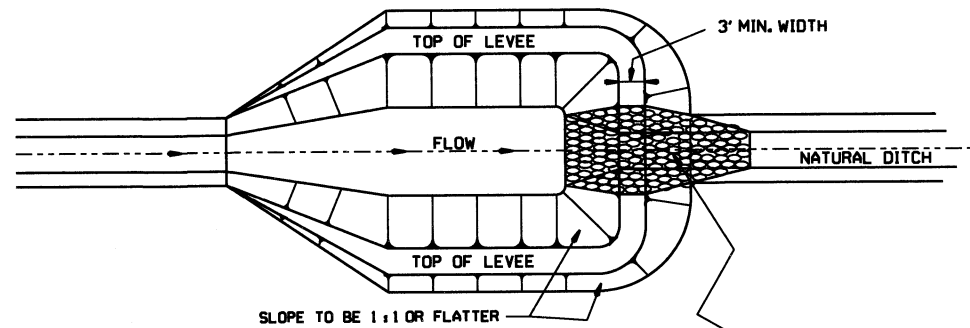
COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)

NOTES:

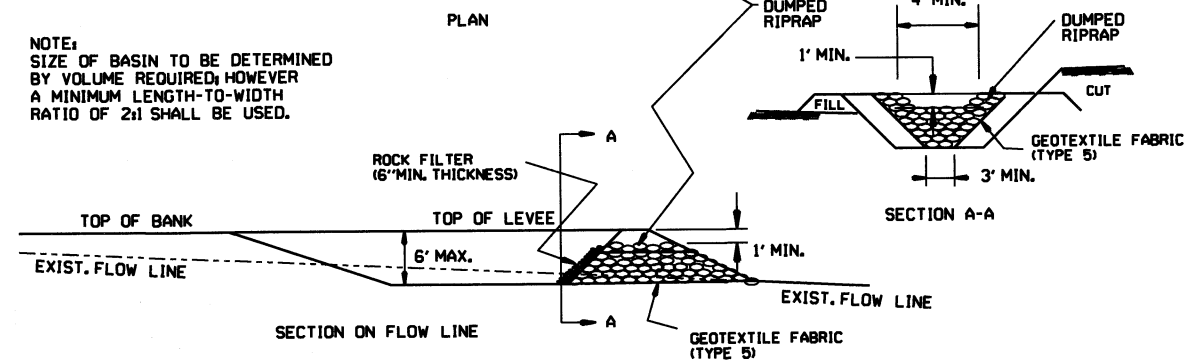
1. OVERLAP ENDS OF SOCK 0\"/>
- 2. USE 18\"/>

DATE	ISSUED R.D.M.	REVISION	FILED
11-16-17		ADDED FILTER SOCK E-3 AND E-13	
12-15-11		DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK	
11-18-98		ADDED NOTES	
07-03-98		ADDED BALED STRAW FILTER BARRIER (E-2)	7-20-95
07-20-95		REVISED SILTS FENCE E-4 AND E-11	
07-15-94		REV. E-4 & E-11 MIN. 15\"/>	
06-02-94		REVISED E-1, 4, 7 & 11 DELETED E-2 & 3	6-2-94
04-01-93		REDRAWN	
10-01-92		REDRAWN	
08-02-76		ISSUED R.D.M.	298-7-28-76

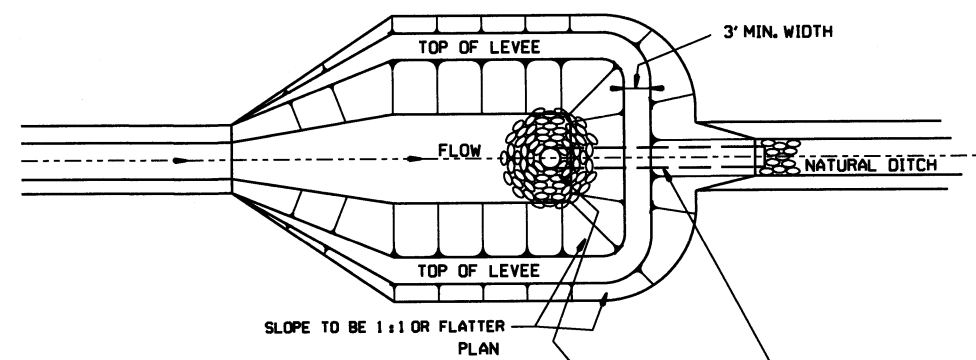
ARKANSAS STATE HIGHWAY COMMISSION
 TEMPORARY EROSION CONTROL DEVICES
 STANDARD DRAWING TEC-1



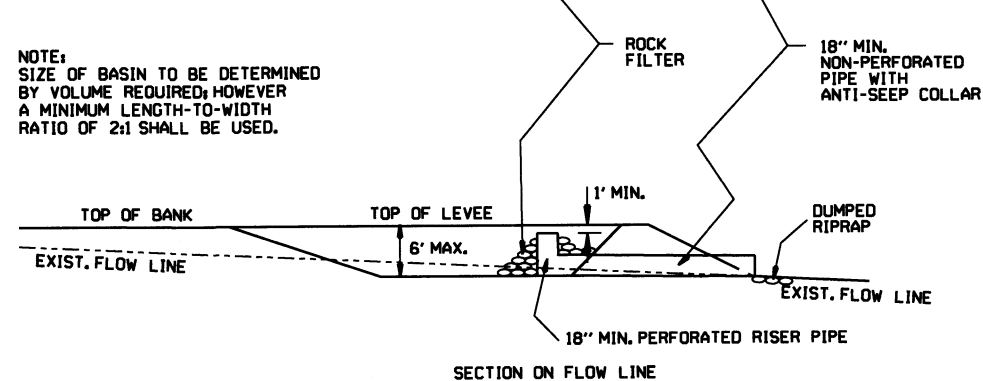
NOTE:
SIZE OF BASIN TO BE DETERMINED
BY VOLUME REQUIRED; HOWEVER
A MINIMUM LENGTH-TO-WIDTH
RATIO OF 2:1 SHALL BE USED.



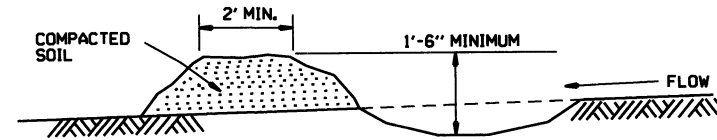
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



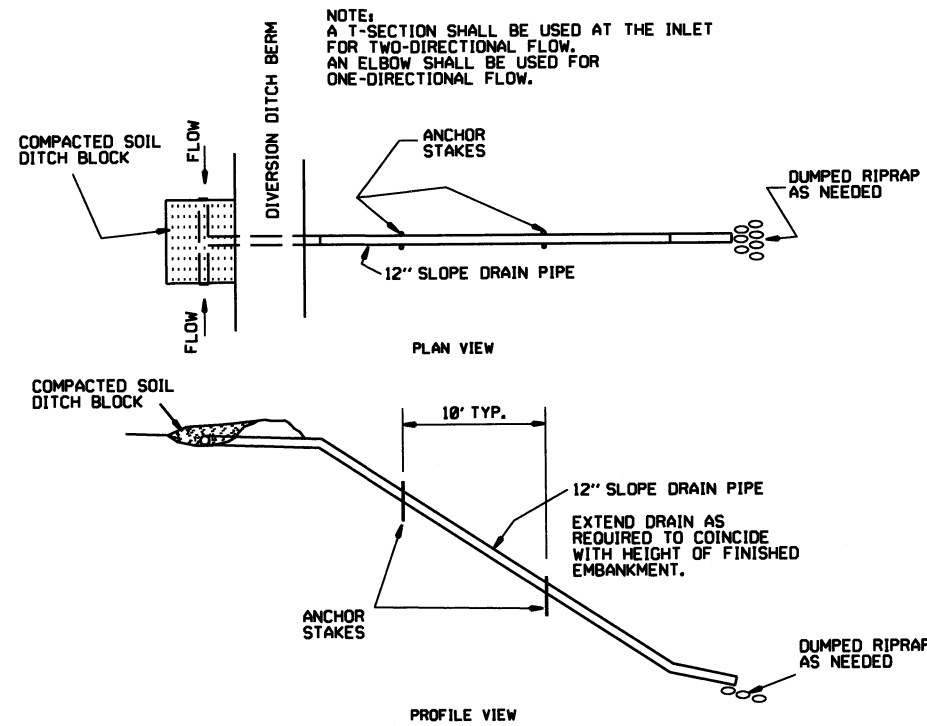
NOTE:
SIZE OF BASIN TO BE DETERMINED
BY VOLUME REQUIRED; HOWEVER
A MINIMUM LENGTH-TO-WIDTH
RATIO OF 2:1 SHALL BE USED.



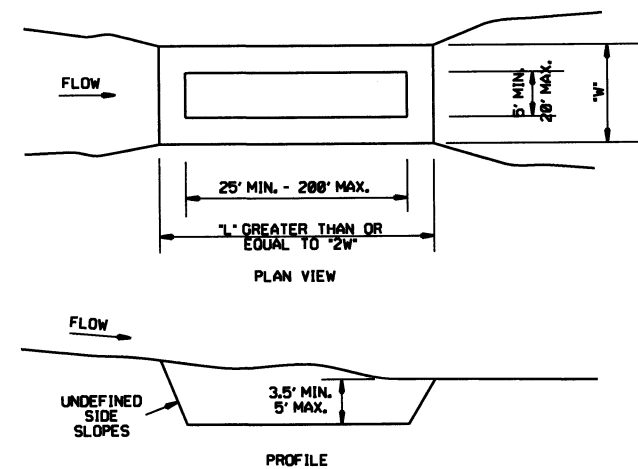
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

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

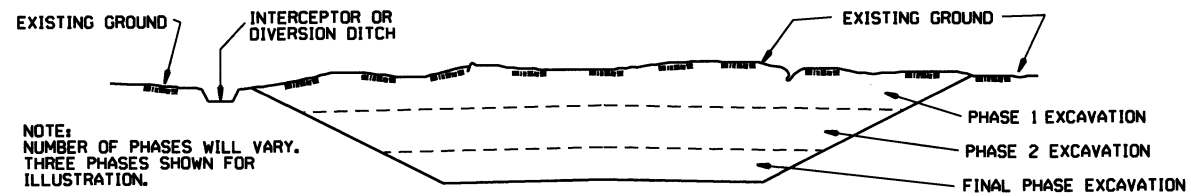
ARKANSAS STATE HIGHWAY COMMISSION
 TEMPORARY EROSION
 CONTROL DEVICES
 STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

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

EXCAVATION



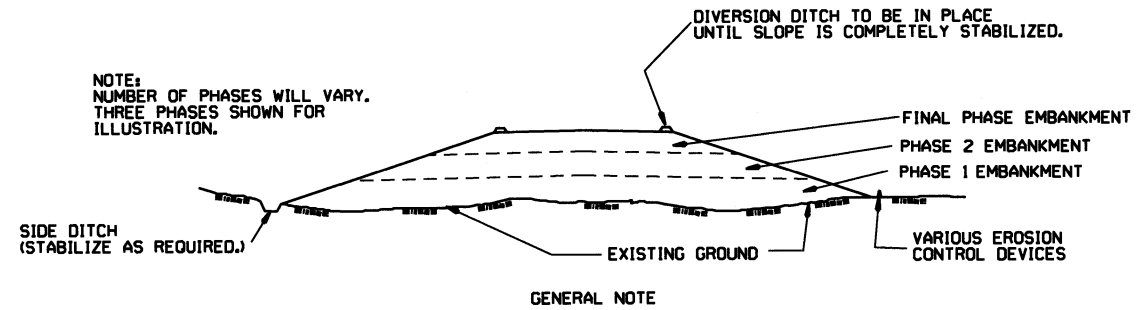
GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

EMBANKMENT



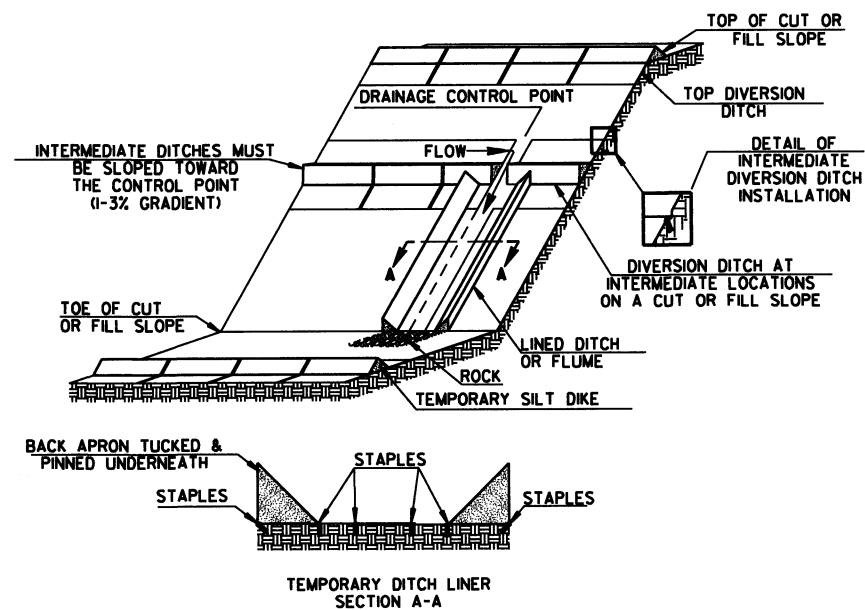
GENERAL NOTE

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

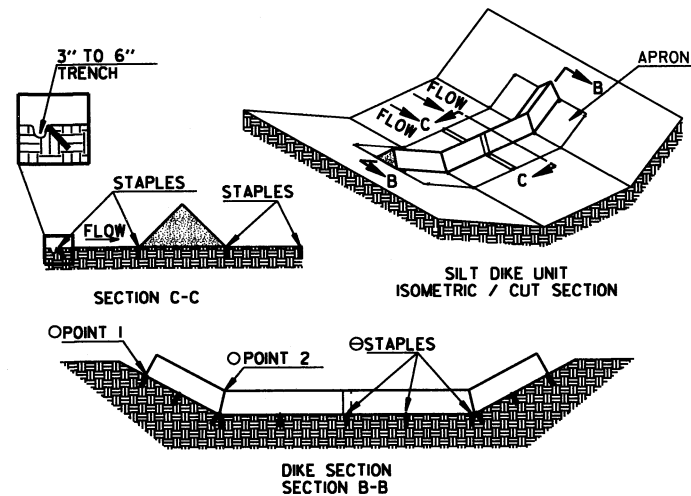
CONSTRUCTION SEQUENCE

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

ARKANSAS STATE HIGHWAY COMMISSION		
TEMPORARY EROSION CONTROL DEVICES		
STANDARD DRAWING TEC-3		
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94
DATE	REVISION	FILMED

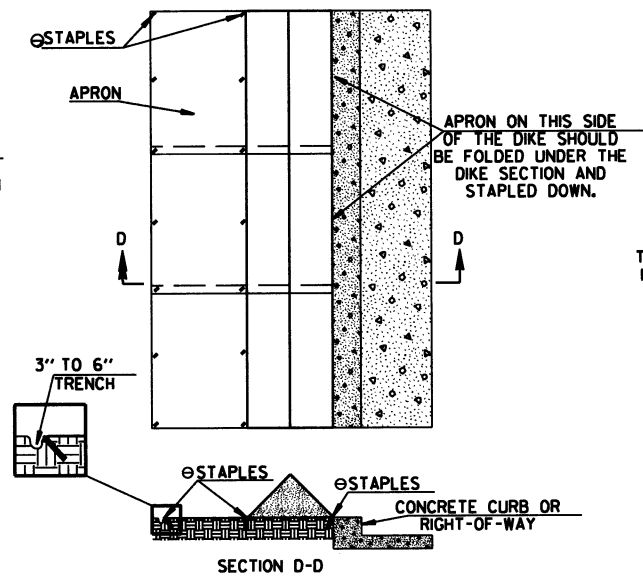


TRIANGULAR SILT DIKE INSTALLATION FOR DIVERSION DITCH AND/OR DITCH LINER

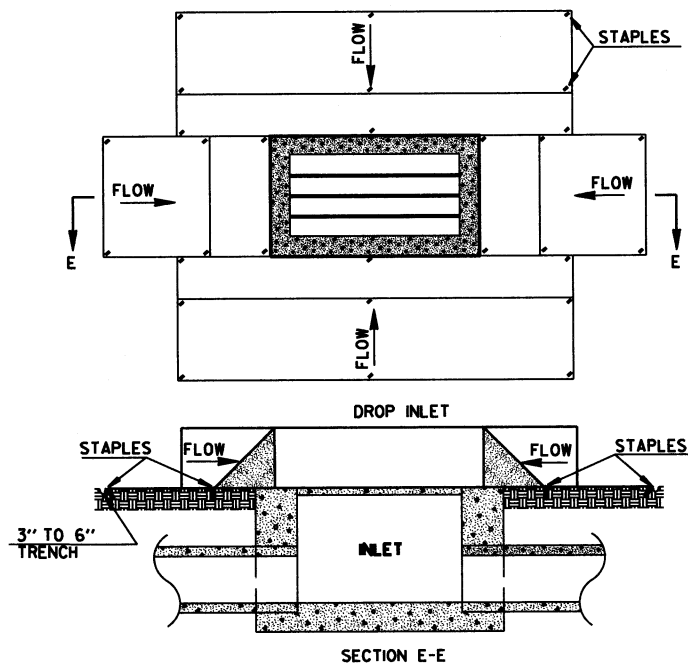


TRIANGULAR SILT DIKE INSTALLATION FOR ROADWAY DITCH OR DRAINAGE DITCH

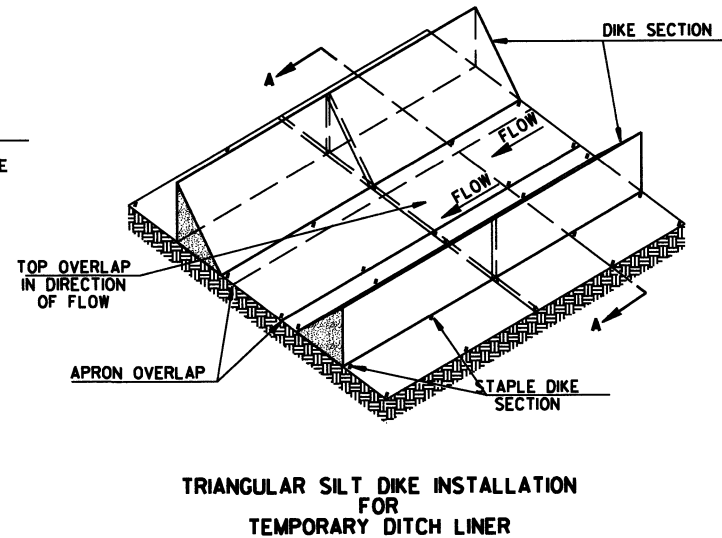
- POINT "1" MUST BE HIGHER THAN POINT "2" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.
- ⊙ STAPLES SHALL BE PLACED WHERE THE UNITS OVERLAP AND IN THE CENTER OF THE UNIT AS SHOWN ON THE DIAGRAM.



TRIANGULAR SILT DIKE INSTALLATION FOR CONTINUOUS BARRIER



TRIANGULAR SILT DIKE INSTALLATION FOR DROP INLETS

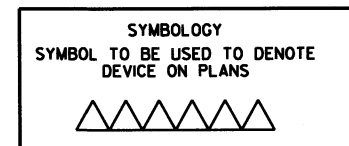


TRIANGULAR SILT DIKE INSTALLATION FOR TEMPORARY DITCH LINER

GENERAL NOTES

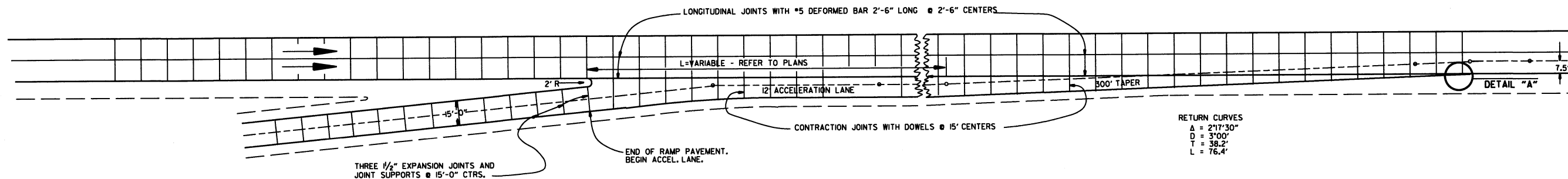
1. THIS WORK SHALL CONSIST OF FURNISHING, INSTALLING, AND MAINTAINING THE TRIANGULAR SILT DIKE. THE DIKES SHALL BE USED AS A CONTINUOUS LINE BARRIER AT THE TOE OF SLOPE OR ACROSS THE ROADWAY DITCH TO CONTAIN SEDIMENT AND MINIMIZE EROSION, OR AS DIRECTED BY THE ENGINEER. THESE DIKES SHALL BE INSTALLED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



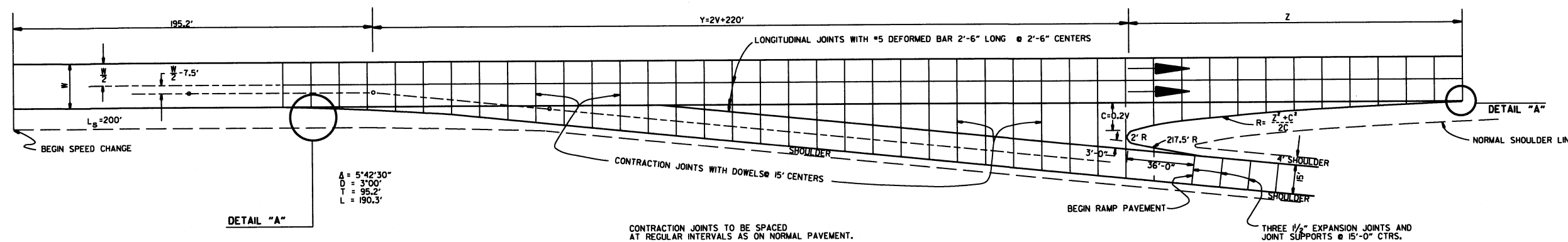
NOTE: SILT DIKE SHOULD ONLY BE USED FOR DROP INLETS IN SUMP LOCATIONS.

			ARKANSAS STATE HIGHWAY COMMISSION
			TEMPORARY EROSION CONTROL DEVICES
7-26-12	REVISED GENERAL NOTE 2.		STANDARD DRAWING TEC-4
12-15-11	ISSUED		
DATE	ISSUED	REVISION	



ENTRANCE RAMP

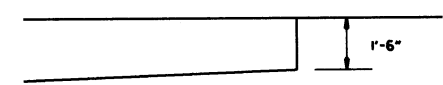
NOTE: JOINT SPACING ON THE MAIN LANES SHALL BE ADJUSTED AS NECESSARY TO CONFORM TO THESE JOINT LAYOUTS. THE MAIN LANE JOINT SPACING MAY BE REDUCED TO A 12' MINIMUM.



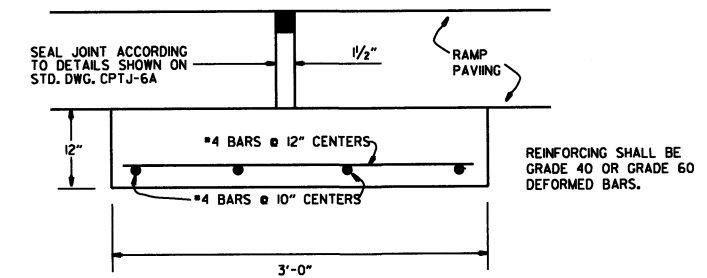
EXIT RAMP

EXIT RAMP

DESIGN SPEED V	X Y	NOSE OFFSET C	LENGTH NOSE TAPER Z	RETURN RADIUS R	ADDITIONAL SURFACING SQ. YDS.
40	300.0	8.0	96.0	580.0	602.43
50	320.0	10.0	120.0	725.0	687.29
60	340.0	12.0	168.0	1182.0	740.95
70	360.0	14.0	210.0	1582.0	902.27



DETAIL 'A'

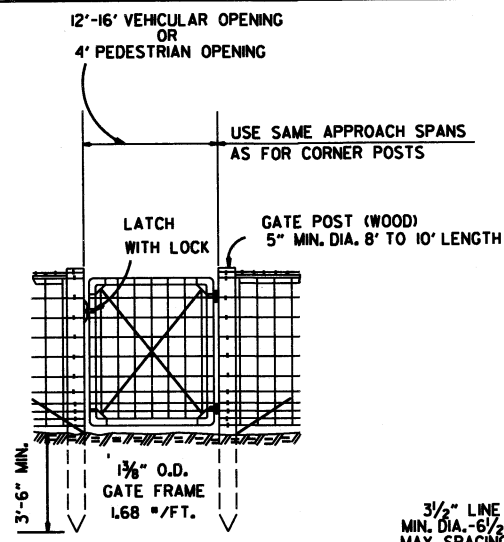


DETAIL OF EXPANSION JOINT & JOINT SUPPORT

NOTE: THE EXPANSION JOINTS SHALL BE MEASURED AND PAID FOR AS P.C.C. PAVEMENT (RAMP THICKNESS). WHEN RAMP PAVING IS ASPHALT, EXPANSION JOINT IS NOT REQUIRED. THE JOINT SUPPORT MAY BE CONSTRUCTED WITH CLASS "A", "S", OR PAVING CONCRETE. PAYMENT FOR THE JOINT SUPPORT SHALL BE FOR THE CONTRACT UNIT PRICE BID FOR THE CLASS OF CONCRETE USED. ALL OTHER WORK AND MATERIALS REQUIRED FOR THE CONSTRUCTION OF THE JOINT SUPPORT SHALL BE INCLUDED IN THE PRICE BID FOR THE ABOVE ITEMS.

DATE	REVISION	DATE FILED
8-22-02	DELETED NOTE	
11-16-01	CORRECTED SPELLING ON ENTRANCE RAMP NOTE	
5-13-99	ADDED, EDITED AND DELETED NOTES	
11-03-94	ADDED NOTE RE: REINF. BARS	
10-1-92	ADDED DETAIL 'A' & OTHER MINOR CHANGES	10-1-92
1-25-90	REVISED EXPANSION JOINT	1-25-90
7-15-88	CONFORM D TO 1988 SPECIFICATIONS	7-15-88
3-2-81	ISSUED	11-18-72

ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF STANDARD TURNOUT
FOR
ENTRANCE & EXIT RAMP (NON-REINFORCED)
STANDARD DRAWING TR-1A



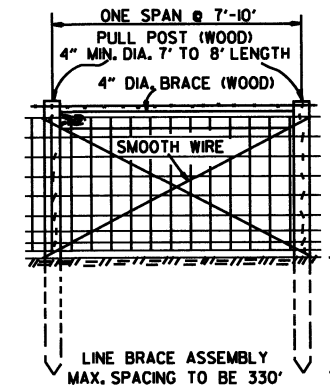
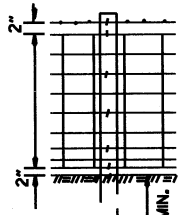
USE SAME APPROACH SPANS AS FOR CORNER POSTS

GATE POST (WOOD) 5" MIN. DIA. 8' TO 10' LENGTH

1 3/8" O.D. GATE FRAME 1.68 #/FT.

3 1/2" LINE POST (WOOD) MIN. DIA. 6 1/2" TO 7" LENGTH MAX. SPACING TO BE 330"

NOTE: STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.



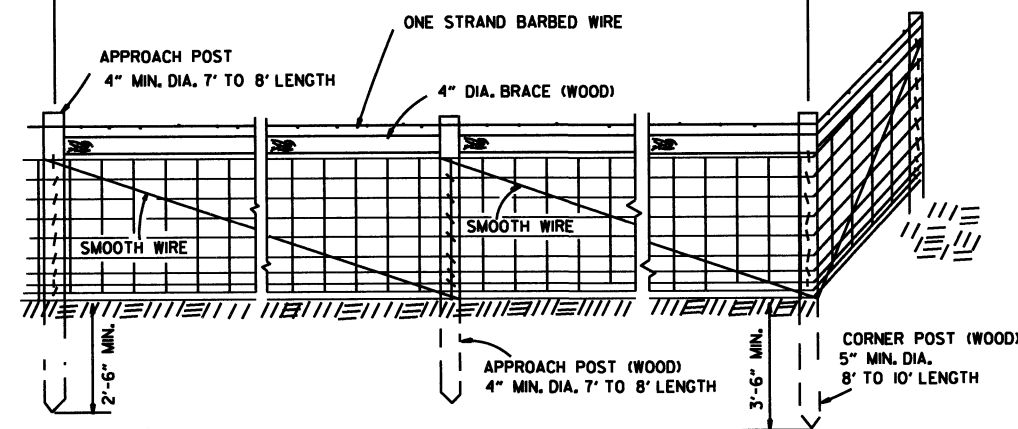
ONE SPAN @ 7'-10' PULL POST (WOOD) 4" MIN. DIA. 7' TO 8' LENGTH 4" DIA. BRACE (WOOD)

SMOOTH WIRE

LINE BRACE ASSEMBLY MAX. SPACING TO BE 330"

TYPE A FENCE (WOOD POSTS)

ONE APPROACH SPAN @ 7'-10' WHEN LESS THAN 165' TO NEXT CORNER OR PULL POST
TWO APPROACH SPANS @ 7'-10' EACH WHEN MORE THAN 165' TO NEXT CORNER OR PULL POST



APPROACH POST 4" MIN. DIA. 7' TO 8' LENGTH

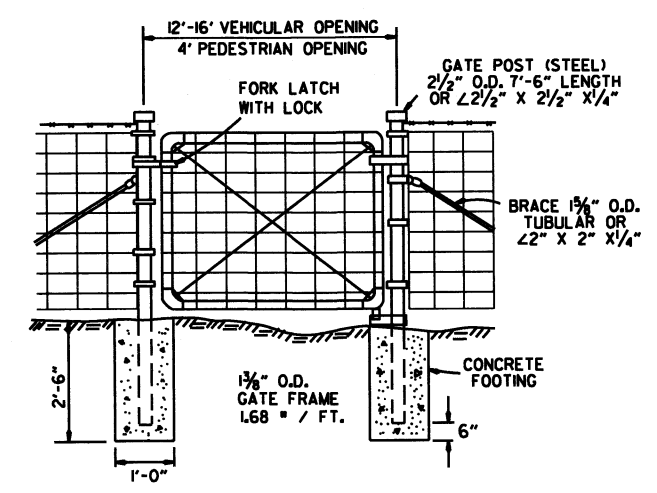
ONE STRAND BARBED WIRE

4" DIA. BRACE (WOOD)

SMOOTH WIRE

APPROACH POST (WOOD) 4" MIN. DIA. 7' TO 8' LENGTH

CORNER POST (WOOD) 5" MIN. DIA. 8' TO 10' LENGTH

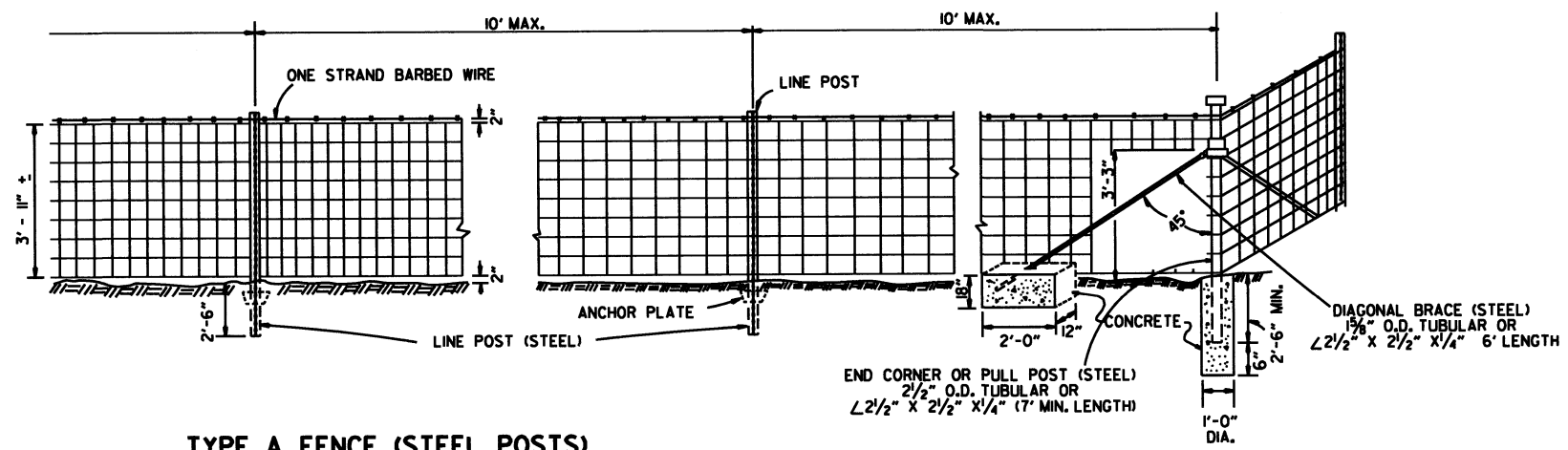


GATE POST (STEEL) 2 1/2" O.D. 7'-6" LENGTH OR 2 1/2" X 2 1/2" X 1/4"

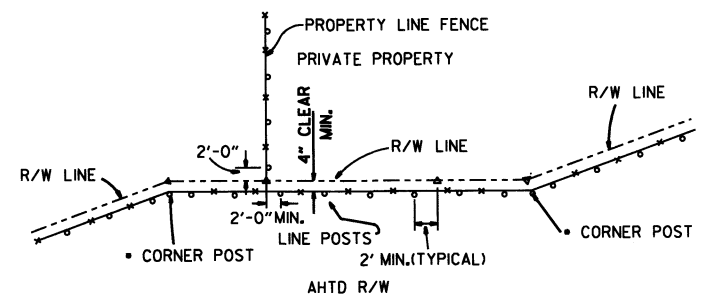
BRACE 1 3/8" O.D. TUBULAR OR 2" X 2" X 1/4"

1 3/8" O.D. GATE FRAME 1.68 #/FT.

CONCRETE FOOTING



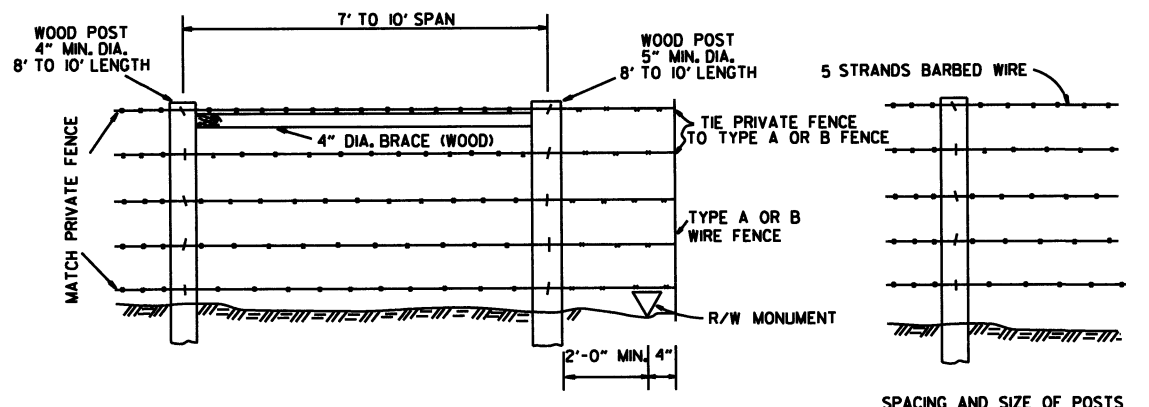
TYPE A FENCE (STEEL POSTS)



NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

▲ - R/W MONUMENTS
● - FENCE POSTS

RIGHT-OF-WAY FENCE LOCATION



WOOD POST 4" MIN. DIA. 8' TO 10' LENGTH

WOOD POST 5" MIN. DIA. 8' TO 10' LENGTH

5 STRANDS BARBED WIRE

4" DIA. BRACE (WOOD)

TIE PRIVATE FENCE TO TYPE A OR B FENCE

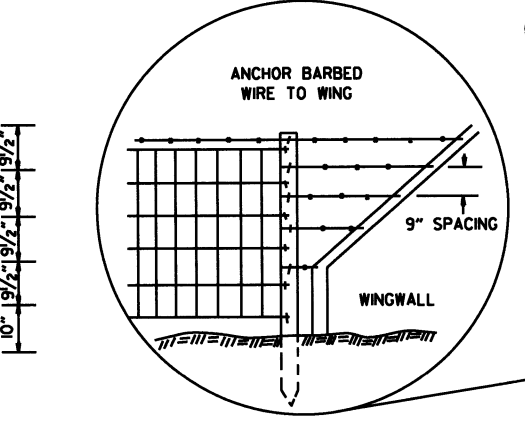
TYPE A OR B WIRE FENCE

R/W MONUMENT

2'-0" MIN. 4"

SPACING AND SIZE OF POSTS FOR TYPE B FENCE SHALL BE THE SAME AS TYPE A FENCE.

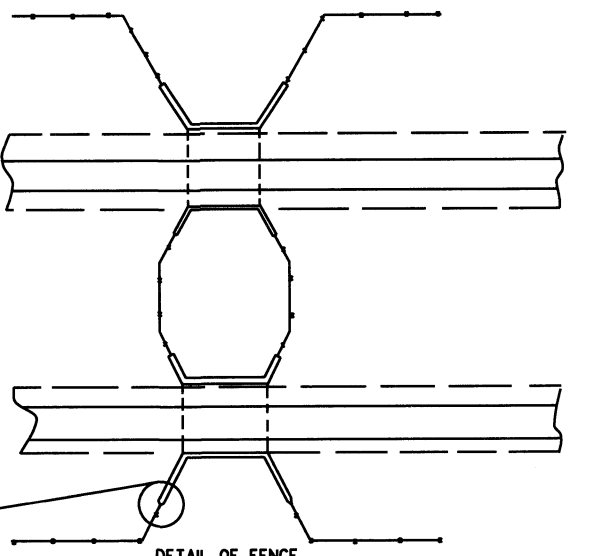
PRIVATE FENCE TERMINAL INSTALLATION



ANCHOR BARBED WIRE TO WING

9" SPACING

WINGWALL



DETAIL OF FENCE CONSTRUCTION AT LARGE CULVERTS (5' IN HEIGHT AND OVER)

8-22-02	REVISED GENERAL NOTES	
10-18-96	REVISED ASTM REF. TO AASHTO	
11-22-95	REVISED R-O-W LOCATION DETAIL	
6-2-94	ADDED CORNER POST NOTE	6-2-94
8-5-93	REVISED R-O-W LOCATION DETAIL	8-5-93
10-1-92	ADDED STAPLE NOTE	
8-2-90	REV'D PULL POST LENGTH	
11-30-89	DELETED CLASS CONC.	
7-15-88	ADDED SPLICE NOTES	
7-15-88	ADDED HEIGHT DIMENSION	
4-3-87	REVISED VARIOUS NOTES	
	AND GENERAL NOTES	
11-1-84	MAX. POST SPACING	
1-4-83	MIN. DIA. LINE POST	
10-2-72	REVISED & REDRAWN	
DATE	REVISION	DATE FILMED

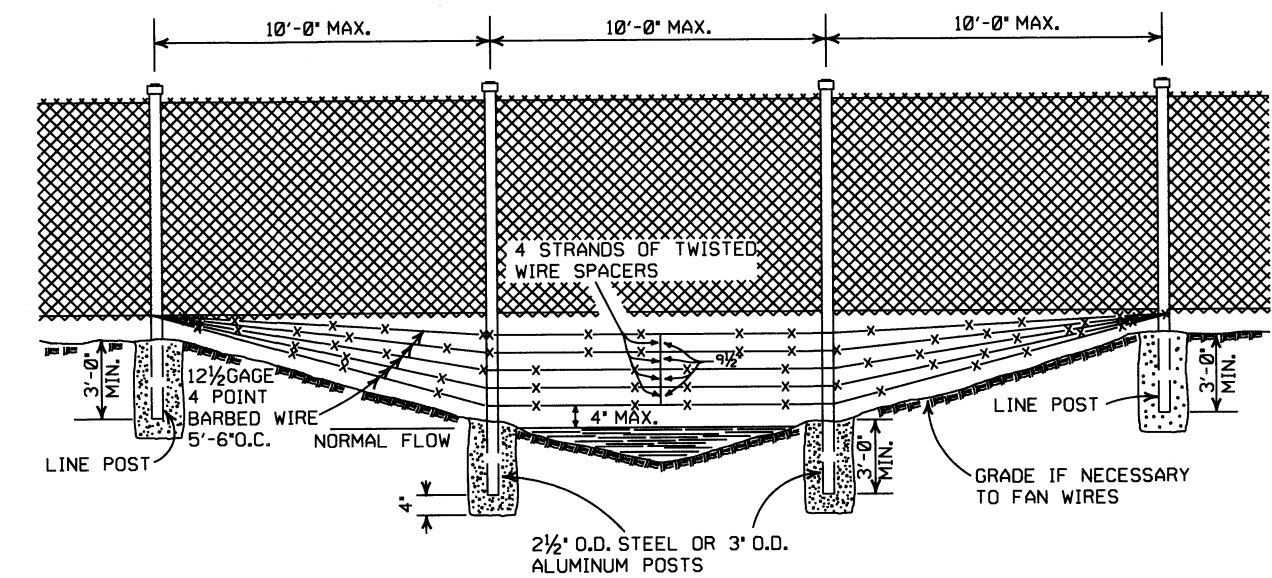
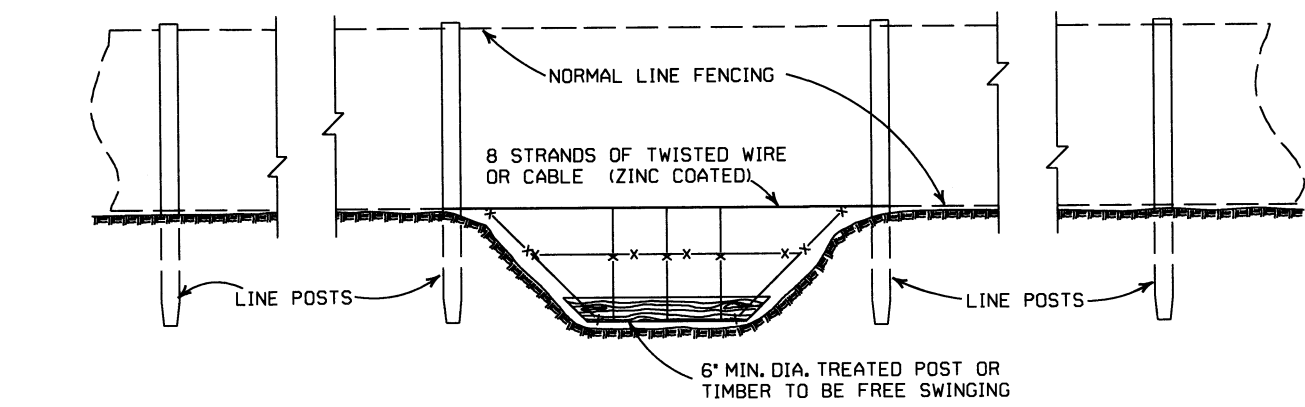
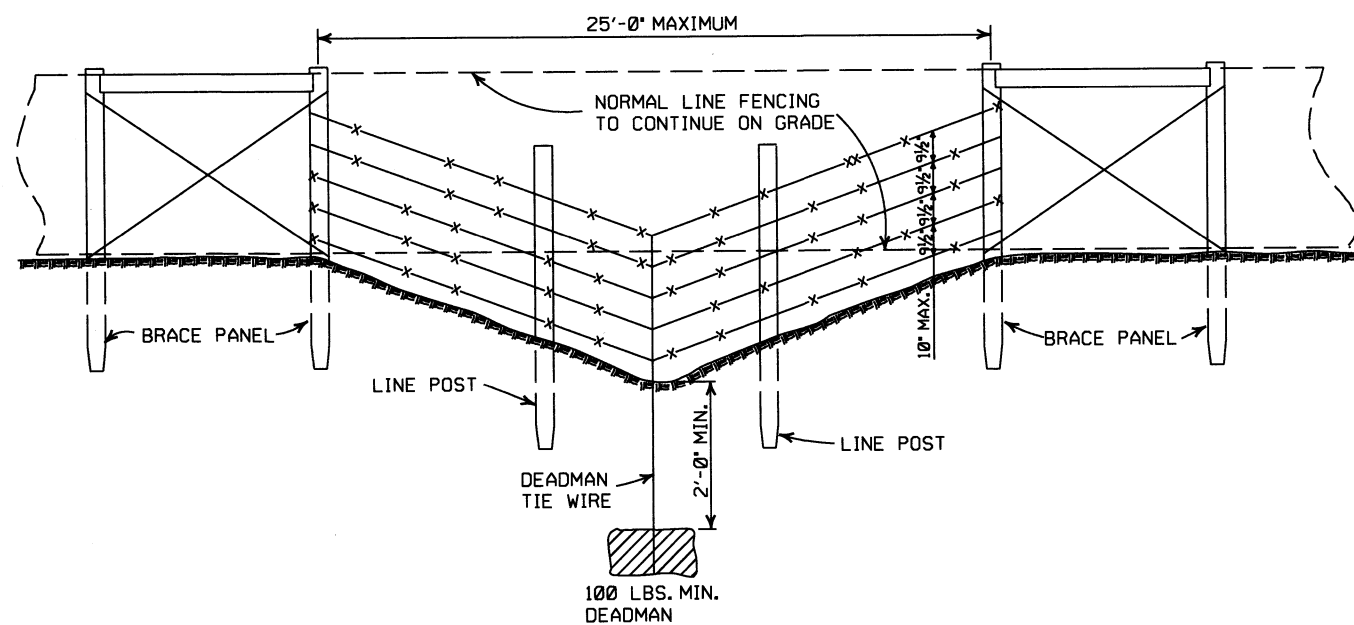
GENERAL NOTES:

STEEL LINE POSTS SHALL BE GALVANIZED, 7 FT. IN LENGTH.
TUBULAR END, CORNER, PULL, OR DIAGONAL BRACES MUST CONFORM TO THE DIMENSIONS AND WEIGHTS SPECIFIED ON STANDARD DRAWING WF-3 (CHAIN LINK).
THE CONTRACTOR SHALL FURNISH AT LEAST 25% OF WOOD LINE POSTS OF 7' LENGTHS IN ORDER TO PROVIDE SUFFICIENT SET IN SOFT GROUND OR SMALL DEPRESSIONS.
GATE HINGES AND LATCHES WITH LOCKS TO BE OF A TYPE APPROVED BY THE ENGINEER. DRIVEWAY GATES, EITHER SINGLE 12' OR 16' OR DOUBLE 6' TO 8' OPENINGS OF THE SAME TYPE AS THE PEDESTRIAN GATE, SHALL BE INSTALLED ON THE RIGHT SIDE OF EACH THROUGH LANE ROAD AT LARGE CULVERTS OR BRIDGE CROSS FENCE FOR USE BY MAINTENANCE EQUIPMENT. LOCATION OF GATES TO BE SHOWN ON THE PLANS OR AS DESIGNATED BY THE ENGINEER.
AT STREAM CROSSINGS THE FENCE SHALL NOT BE CONSTRUCTED ACROSS LARGE STREAMS. WHERE CLEARANCE IS SUFFICIENT FROM THE TOP OF BANK TO THE BRIDGE STRUCTURE, A CROSS CONNECTION SHALL BE CONSTRUCTED BETWEEN THE FENCE ON EACH SIDE OF THE ROAD. WHERE THE CLEARANCE IS NOT SUFFICIENT, THE FENCE SHALL BE TERMINATED WITH CROSS CONNECTIONS AND END POSTS ADJACENT TO THE BRIDGE ABUTMENTS OR CULVERT WINGWALLS.
SPLICE FOR WOVEN WIRE BETWEEN PULL POST SHALL BE BY THE "WESTERN UNION METHOD" AS DESCRIBED AS FOLLOWS: THE VERTICAL WIRES FOR EACH END OF THE FENCE FABRIC SHALL BE PLACED SIDE BY SIDE AND THE PROJECTING HORIZONTAL WIRES SHALL BE WRAPPED A MINIMUM OF 4 TIMES AROUND THE HORIZONTAL WIRES OF THE FIRST WEB.
SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE "EYE METHOD" AS DESCRIBED AS FOLLOWS: THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP. THE LOOPS SHALL BE CONNECTED. AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRE A MINIMUM OF 4 TIMES FOR EACH WIRE LOOP.

ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE TYPE A AND B

STANDARD DRAWING WF-1



GENERAL NOTES:

THESE INSTALLATIONS TO BE USED WHERE NORMAL FENCING INSTALLATION WOULD CAUSE THE COLLECTING OF DRIFT IN THE CHANNEL OR THE DEPRESSION WILL NOT PERMIT NORMAL INSTALLATION. INSTALLATIONS WILL BE MADE ONLY WHERE DIRECTED BY THE ENGINEER.

WHEN A FENCE LINE APPROACHES A DITCH, GULLY OR DEPRESSION, THE LAST POST ON LEVEL GROUND SHALL BE PLACED CLOSE ENOUGH TO THE EDGE OF THE DROP OFF THAT THE FENCE MAY BE STRUNG TO THE POST IN THE DEPRESSION WITHOUT TOUCHING THE GROUND.

IN TERRAIN OF SUCH EXTREME IRREGULARITY THAT MINOR GRADING WILL NOT BE FEASIBLE, THE NORMAL FENCE SHALL CONTINUE ON GRADE AND THE GULLIES OR DEPRESSIONS TREATED BY AUXILIARY FENCES AS SHOWN.

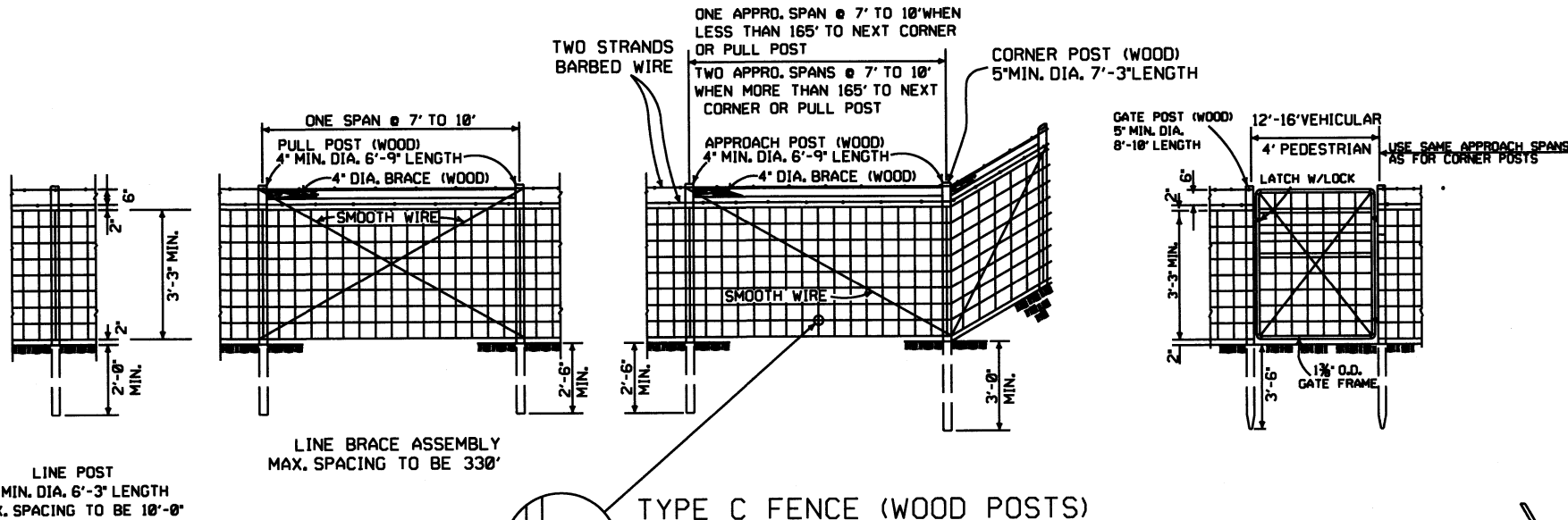
PAYMENT FOR THE TYPE INSTALLATION USED WILL NOT BE MADE DIRECTLY BUT WILL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR WIRE FENCE OR CHAIN LINK FENCE.

4-20-79	REVISED TOP RAIL & TENSION WIRE	696-4-20-79
10-2-72	REVISED AND REDRAWN	529-10-2-72
DATE	REVISION	FILMED

ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE WATER GAPS

STANDARD DRAWING WF-2

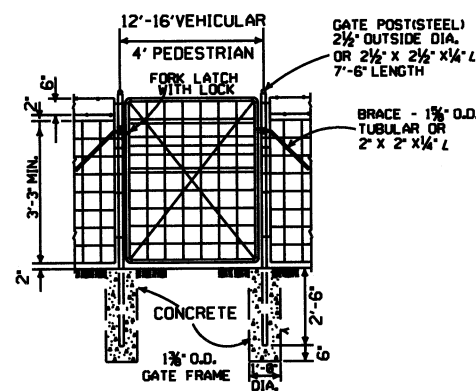
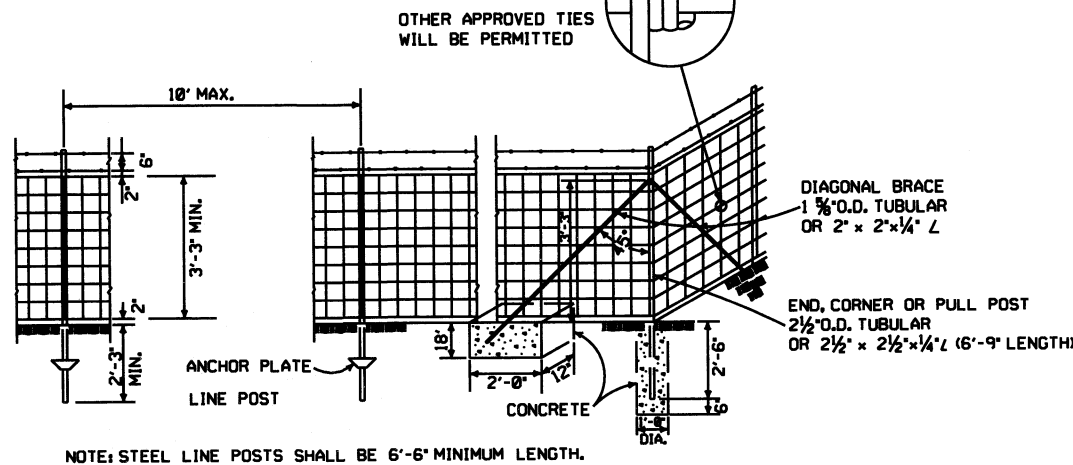


GENERAL NOTES:
 STEEL LINE POSTS SHALL BE PAINTED OR GALVANIZED. TUBULAR END, CORNER, PULL, OR DIAGONAL BRACES MUST CONFORM TO THE DIMENSIONS AND WEIGHTS SPECIFIED ON STANDARD DRAWING WF-3 (CHAIN LINK). APPROVED ALTERNATES ARE ACCEPTABLE.
 AN ACCEPTABLE TOLERANCE IN LENGTH OF TUBULAR OR WOODEN POSTS SHALL BE -1" TO +2".
 TUBULAR POSTS MUST BE PAINTED OR GALVANIZED.

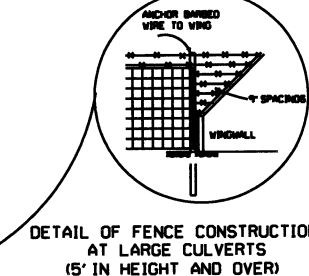
THE CONTRACTOR SHALL FURNISH AT LEAST 25% OF TIMBER LINE POSTS OF 7 FOOT LENGTHS IN ORDER TO PROVIDE SUFFICIENT SET IN SOFT GROUND OR SMALL DEPRESSIONS.

DRIVEWAY GATES, EITHER SINGLE 12' TO 16' OR DOUBLE 6' TO 8' OPENING OF THE SAME TYPE AS THE PEDESTRIAN GATE, SHALL BE INSTALLED ON THE RIGHT SIDE OF EACH THROUGH LANE ROAD AT LARGE CULVERTS OR BRIDGE CROSS FENCE. FOR USE OF MAINTENANCE EQUIPMENT. LOCATION OF GATES TO BE SHOWN ON PLANS OR AS DESIGNATED BY THE ENGINEER.

AT STREAM CROSSINGS, THE FENCE SHALL NOT BE CONSTRUCTED ACROSS LARGE STREAMS. WHERE CLEARANCE IS SUFFICIENT FROM THE TOP OF THE BANK TO THE BRIDGE STRUCTURE A CROSS CONNECTION SHALL BE CONSTRUCTED BETWEEN THE FENCE ON EACH SIDE OF THE ROAD. WHERE THE CLEARANCE IS NOT SUFFICIENT, THE FENCE SHALL BE TERMINATED WITH CROSS CONNECTIONS AND END POSTS ADJACENT TO BRIDGE ABUTMENTS OR CULVERT WINGWALLS.



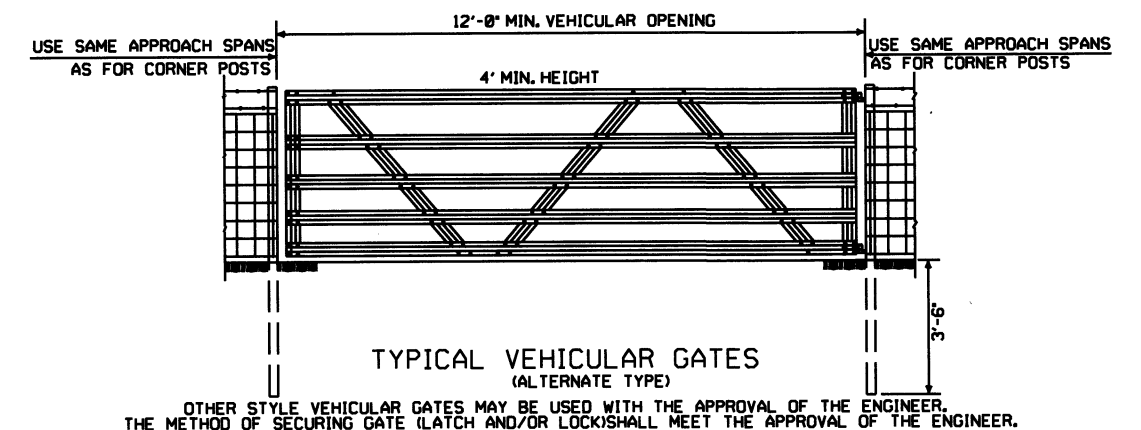
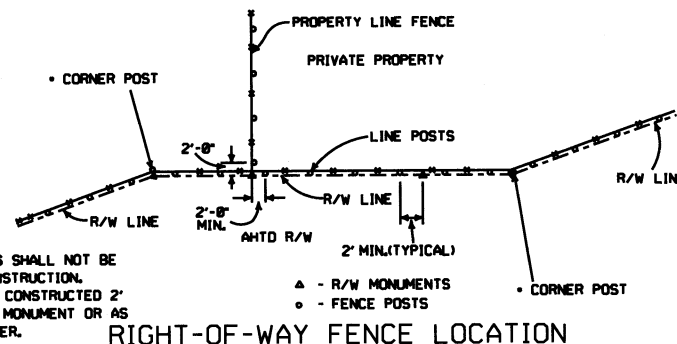
NOTE: USE 3/4" x 1 1/2" LAG BOLT & SHIELD OR AS APPROVED BY THE ENGINEER.



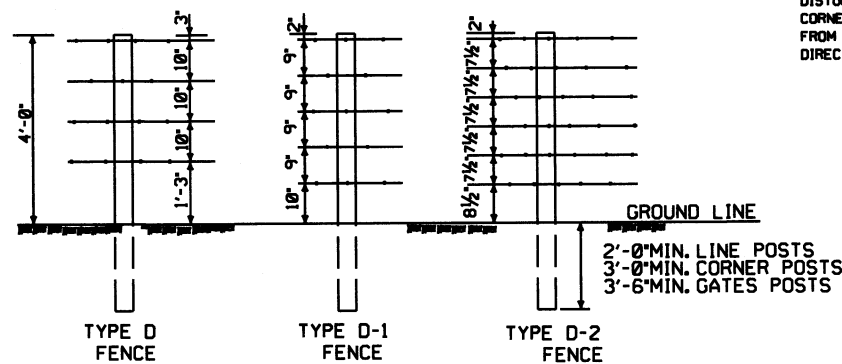
SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE 'EYE METHOD' AS DESCRIBED AS FOLLOWS: THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP. THE LOOPS SHALL BE CONNECTED. AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRES A MINIMUM OF 4 TIMES FOR EACH WIRE LOOP.

SPLICE FOR WOVEN WIRE BETWEEN PULL POST SHALL BE BY THE 'WESTERN UNION METHOD' AS DESCRIBED AS FOLLOWS: THE VERTICAL WIRES FOR EACH END OF THE FENCE FABRIC SHALL BE PLACED SIDE BY SIDE AND THE PROJECTING HORIZONTAL WIRES SHALL BE WRAPPED A MINIMUM OF 4 TIMES AROUND THE HORIZONTAL WIRES OF THE FIRST WEB.

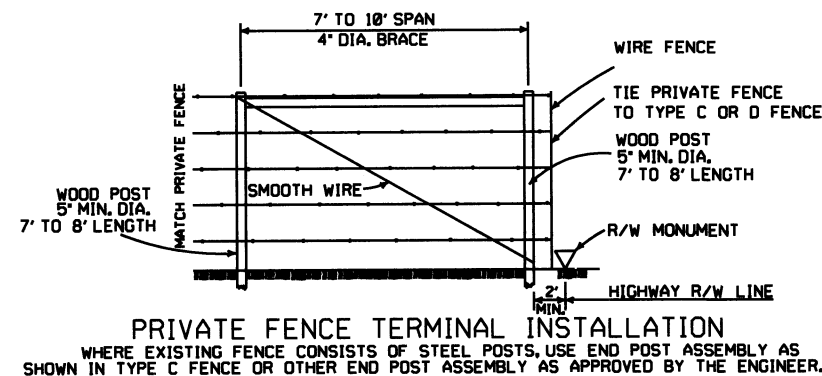
STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.



4 STRANDS BARBED WIRE (D)
 5 STRANDS BARBED WIRE (D-1)
 6 STRANDS BARBED WIRE (D-2)



NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.



DATE	REVISION	FILMED
8-22-82	REVISED GENERAL NOTES	
10-18-96	REVISED AASHTO	
11-22-95	REVISED R-O-W LOCATION DETAIL	
6-2-94	REVISED BARB WIRE AND ADDED CORNER POST NOTES	6-2-94
8-5-93	REVISED R/W INSTALLATION FENCE	8-5-93
10-1-92	ADDED STAPLE NOTE	10-1-92
8-15-91	ADDED TYPE 'D-2' FENCE	8-15-91
11-30-89	DELETED CLASS CONCRETE	11-30-89
7-15-88	ADDED SPLICE NOTE	700-7-15-88
10-30-87	GENERAL REVISIONS	549-10-30-87
11-1-84	MAX. POST SPACING MIN. WIRE GAUGE	507-11-1-84
1-4-83	MIN. DIA. LINE POST	648-1-4-83
3-2-81	TOLERANCE FOR POST LENGTH	722-3-2-81
12-1-72	ADDED D-1 & FENCE INSTALLATION	564-12-1-72
10-2-72	REVISED AND REDRAWN	540-10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE
 TYPE C AND D

STANDARD DRAWING WF-4