DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	1	88
				(2)	COVE CREEK STR. & APPRS. (S)			

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
CONSTRUCTION PLANS FOR STATE HIGHWAY

COVE CREEK STR. & APPRS. (S)

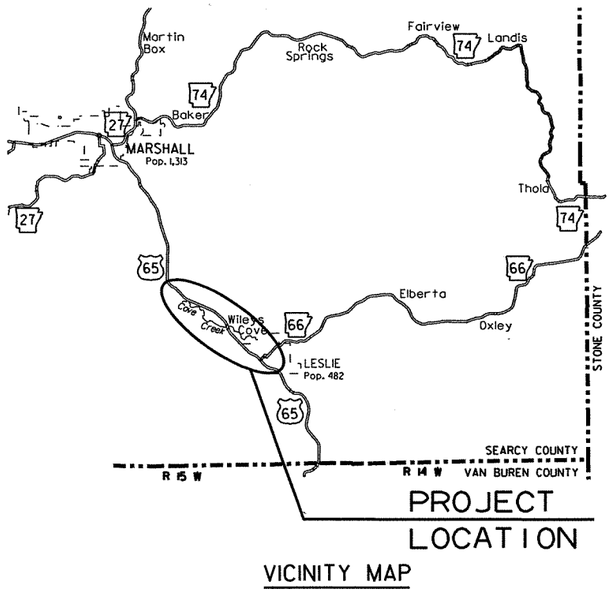
SEARCY COUNTY

ROUTE 65 SECTION 6

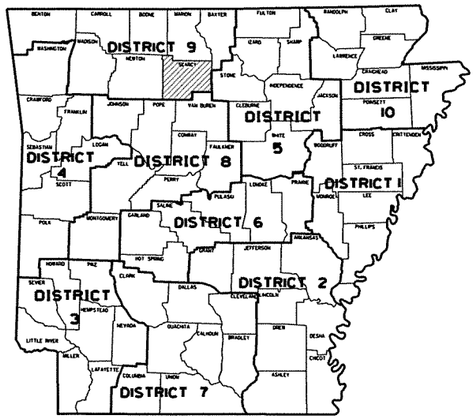
JOB 090280

FED. AID PROJ. BRN-0064(10)

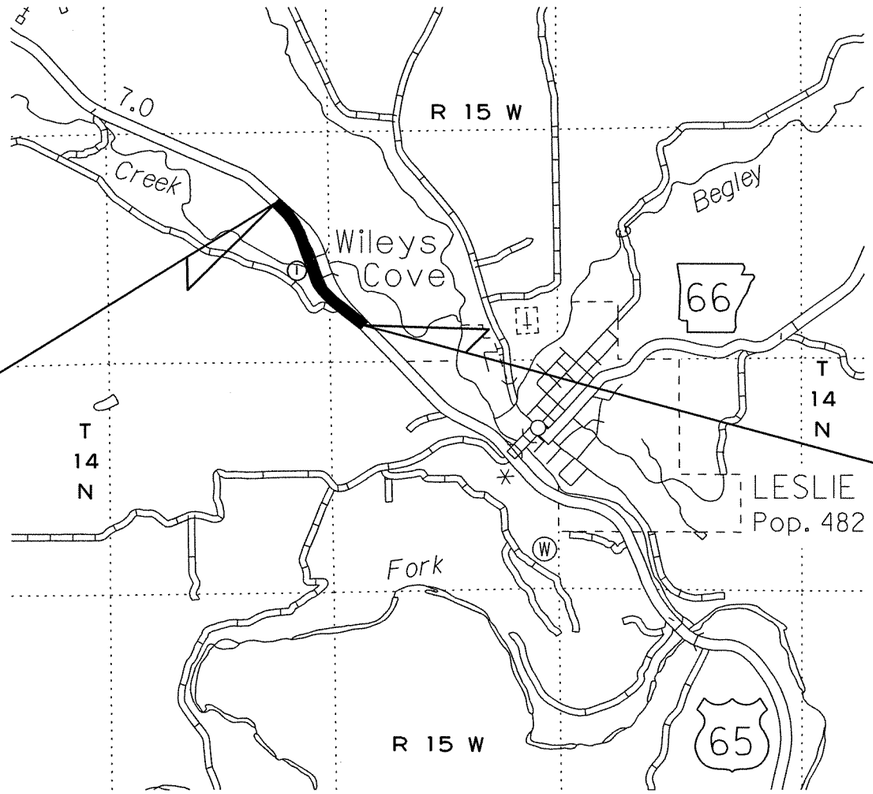
SCALE: NOT TO SCALE



VICINITY MAP



ARK. HWY. DIST. NO. 9



BRIDGE CONSTRUCTION DATA

STA. 113+60.00 BRIDGE END
BRIDGE NO. 07202
(1) 180'-0" CONT. COMP. INTEGRAL W-BEAM UNIT (55'-70'-55')
40' CLEAR ROADWAY
181'-0" BRIDGE LENGTH
STA. 115+41.00 BRIDGE END

STA. 127+53.20 END
JOB 090280

STA. 101+61.95 - BEGIN
JOB 090280
LOG MILE 6.47

• DESIGN TRAFFIC DATA •

DESIGN YEAR	2031
2011 ADT	6500
2031 ADT	8000
2031 DHV	880
DIRECTIONAL DISTRIBUTION	60%
TRUCKS	14%
DESIGN SPEED	60 MPH

	BEGIN PROJECT	MID-POINT OF PROJECT	END PROJECT
LATITUDE	N 35°50'14"	N 35°50'25"	N 35°50'36"
LONGITUDE	W 92°34'29"	W 92°34'37"	W 92°34'45"

GROSS LENGTH OF PROJECT	2591.25	FEET	OR	0.491	MILES	
NET " " ROADWAY	2410.25	"	"	0.457	"	
NET " " BRIDGES	181.00	"	"	0.034	"	
NET " " PROJECT	2591.25	"	"	0.491	"	

P.E. 090280
NON-PART.

N

APPROVED

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 3917
FRANK VOZEL

7/20/11

DEPUTY DIRECTOR
AND CHIEF ENGINEER

07/15/11 r090280.dgn/title sheet

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	2	88

(2) INDEX OF SHEETS, GOVERNING SPECIFICATIONS, AND GENERAL NOTES

INDEX OF SHEETS

SHEET NO.		TITLE	BRIDGE NO.	DRWG.NO.	DATE
1		TITLE SHEET			
2		INDEX OF SHEETS, GOVERNING SPECIFICATIONS, AND GENERAL NOTES			
3	4	TYPICAL SECTIONS OF IMPROVEMENT			
5	6	SPECIAL DETAILS			
7	10	TEMPORARY EROSION CONTROL DETAILS			
11	14	MAINTENANCE OF TRAFFIC DETAILS			
15	16	PERMANENT PAVEMENT MARKING DETAILS			
17	20	QUANTITY SHEETS			
21		SCHEDULE OF BRIDGE QUANTITIES	07202	51755	
22		SUMMARY OF QUANTITIES AND REVISIONS			
23	25	SURVEY CONTROL DETAILS			
26	28	PLAN AND PROFILE SHEETS			
29		LAYOUT OF BRIDGE OVER COVE CREEK (SHEET 1 OF 2)	07202	51756	
30		LAYOUT OF BRIDGE OVER COVE CREEK (SHEET 2 OF 2)	07202	51757	
31		DETAILS OF END BENTS	07202	51758	
32		DETAILS OF INTERMEDIATE BENTS	07202	51759	
33		DETAILS OF 180'-0" INTEGRAL W-BEAM UNIT (SHEET 1 OF 5)	07202	51760	
34		DETAILS OF 180'-0" INTEGRAL W-BEAM UNIT (SHEET 2 OF 5)	07202	51761	
35		DETAILS OF 180'-0" INTEGRAL W-BEAM UNIT (SHEET 3 OF 5)	07202	51762	
36		DETAILS OF 180'-0" INTEGRAL W-BEAM UNIT (SHEET 4 OF 5)	07202	51763	
37		DETAILS OF 180'-0" INTEGRAL W-BEAM UNIT (SHEET 5 OF 5)	07202	51764	
38		DETAILS OF ELASTOMERIC BEARINGS	07202	51765	
39		DETAILS OF APPROACH SLAB (TYPE SPECIAL 1)	07202	51766	
40		EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS		1888A	4-10-03
41		DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND DETAILS FOR COMPUTING EXCAVATION FOR STRUCTURES		1891F	4-10-03
42		DETAILS OF STANDARD TYPE B APPROACH GUTTERS		2016B	7-14-10
43		DETAILS OF STANDARD TYPE D BRIDGE NAME PLATES		2387	1-25-11
44		DETAILS OF PERMISSIBLE TYPE PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS		14991	4-10-03
45		DETAILS OF CONCRETE RIPRAP AND MISCELLANEOUS DETAILS OF STEEL PILINGS		14995A	4-10-03
45A		CONCRETE DITCH PAVING		CDP-1	11-17-10
46		FLARED END SECTION		FES-1	10-18-96
47		FLARED END SECTION		FES-2	10-18-96
48		GUARD RAIL DETAILS		GR-8	7-14-10
49		GUARD RAIL DETAILS		GR-9	4-17-08
50		GUARD RAIL DETAILS		GR-9A	4-17-08
51		GUARD RAIL DETAILS		GR-10	7-14-10
52		GUARD RAIL DETAILS		GR-10A	7-14-10
53		CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING		PCC-1	5-18-00
54		METAL PIPE CULVERT FILL HEIGHTS & BEDDING		PCM-1	3-30-00
55		PAVEMENT MARKING DETAILS		PM-1	11-17-10
56		TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC		SE-2	10-18-96
57		STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION		TC-1	11-17-10
58		STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION		TC-2	3-11-10
59		STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION		TC-3	10-15-09
60		STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER		TC-4	10-15-09
61		STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION-TEMPORARY PRECAST BARRIER		TC-5	10-15-09
62		TEMPORARY EROSION CONTROL DEVICES		TEC-1	11-18-98
63		TEMPORARY EROSION CONTROL DEVICES		TEC-2	6-02-94
64		TEMPORARY EROSION CONTROL DEVICES		TEC-3	11-03-94
65		WIRE FENCE TYPE C AND D		WF-4	8-22-02
66	88	CROSS SECTIONS			

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

GOVERNING SPECIFICATIONS

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

NUMBER	TITLE
ERRATA	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273	FHWA-1273 REVISIONS
FHWA-1273	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273	SUPPLEMENT - WAGE RATE DETERMINATION
100-2	MANUAL FOR ASSESSING SAFETY HARDWARE (MASH)
103-1	DETERMINATION OF DBE PARTICIPATION
105-1	CONSTRUCTION CONTROL MARKINGS
105-2	EQUIPMENT AND MATERIAL STORAGE ON BRIDGE STRUCTURES
107-1	WORKER VISIBILITY
108-1	LIQUIDATED DAMAGES
110-1	PROTECTION OF WATER QUALITY AND WETLANDS
303-1	AGGREGATE BASE COURSE
404-1	PRODUCTION VERIFICATION OF ASPHALT CONCRETE HOT MIX
409-1	MINERAL AGGREGATES
410-3	DENSITY TESTING FOR ACHM LEVELING COURSES AND BOND BREAKERS
411-1	ASPHALT CONCRETE COLD PLANT MIX
600-1	WATER FOR VEGETATION
603-1	MAINTENANCE OF TRAFFIC
604-1	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
606-1	PIPE CULVERTS FOR SIDE DRAINS
606-2	PIPE CULVERTS
718-2	REFLECTORIZED PAINT PAVEMENT MARKINGS
719-2	THERMOPLASTIC PAVEMENT MARKING MATERIAL
JOB 090280	APPROACH SLABS AND GUTTERS
JOB 090280	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB 090280	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB 090280	COMPACTED EMBANKMENT
JOB 090280	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB 090280	HIGH PERFORMANCE PAVEMENT MARKING
JOB 090280	INTERNET BIDDING
JOB 090280	NESTING SITES OF MIGRATORY BIRDS
JOB 090280	RESTRAINING CONDITIONS
JOB 090280	SITE USE (A + C METHOD)
JOB 090280	SOIL STABILIZATION
JOB 090280	STORM WATER POLLUTION PREVENTION PLAN
JOB 090280	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB 090280	TEMPORARY IMPACT ATTENUATION BARRIER
JOB 090280	UTILITY ADJUSTMENTS
JOB 090280	WARM MIX ASPHALT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 7605
MICHAEL D. FUGETT
7-19-11

GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
4. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
5. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO INSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FENCE TO CONTROL LIVESTOCK IN AREAS WHERE PASTURES ARE SEVERED. WIRE FENCE MAY BE CONSTRUCTED INITIALLY, OR IN LIEU THEREOF, THE CONTRACTOR AT HIS OWN EXPENSE, MAY ELECT TO PROVIDE TEMPORARY FENCING SUITABLE TO CONTAIN LIVESTOCK.
7. THIS PROJECT IS COVERED UNDER A NATIONWIDE 14 SECTION 404 PERMIT. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION OF 2003, FOR PERMIT REQUIREMENTS.
8. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
9. THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAWING ALONG A NEAT LINE. AFTER SAWING, THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOVED IN A MANNER THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

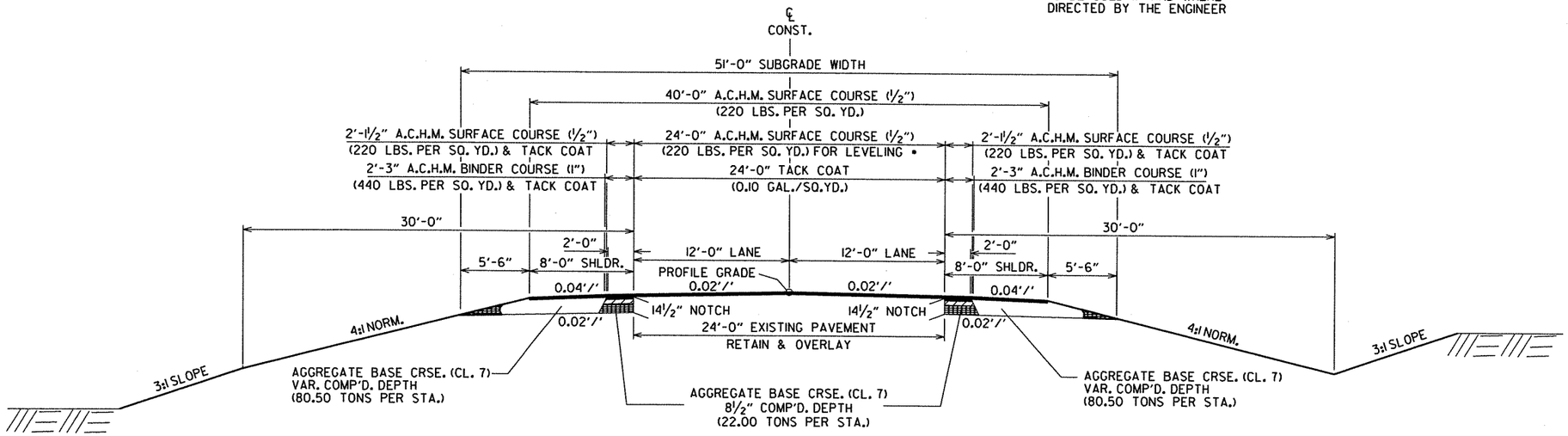
R090280.DGN 7/15/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	3	88

(2) TYPICAL SECTIONS OF IMPROVEMENT

• TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MITCHAEL D. PUGSLEY
7-19-11



HWY. 65
TYPICAL SECTION OF IMPROVEMENT
NOTCH AND WIDEN
STA. 101+61.95 TO STA. 105+52.65
STA. 124+16.61 TO STA. 127+53.20

NOTES:

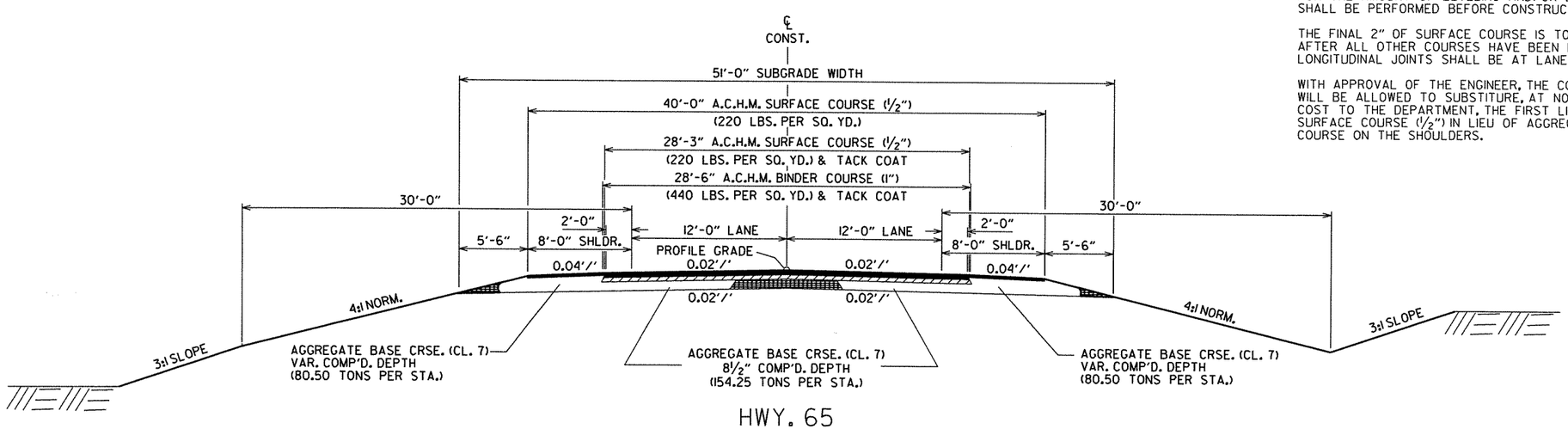
REFER TO CROSS SECTIONS FOR DEVIATION FROM THE NOTMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.

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

ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING.

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

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



HWY. 65
TYPICAL SECTION OF IMPROVEMENT
FULL DEPTH
STA. 109+80.00 TO STA. 113+60
STA. 115+41 TO STA. 118+71.00

R090280.DGN 7/15/2011

TYPICAL SECTIONS OF IMPROVEMENT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	4	88

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-19-11

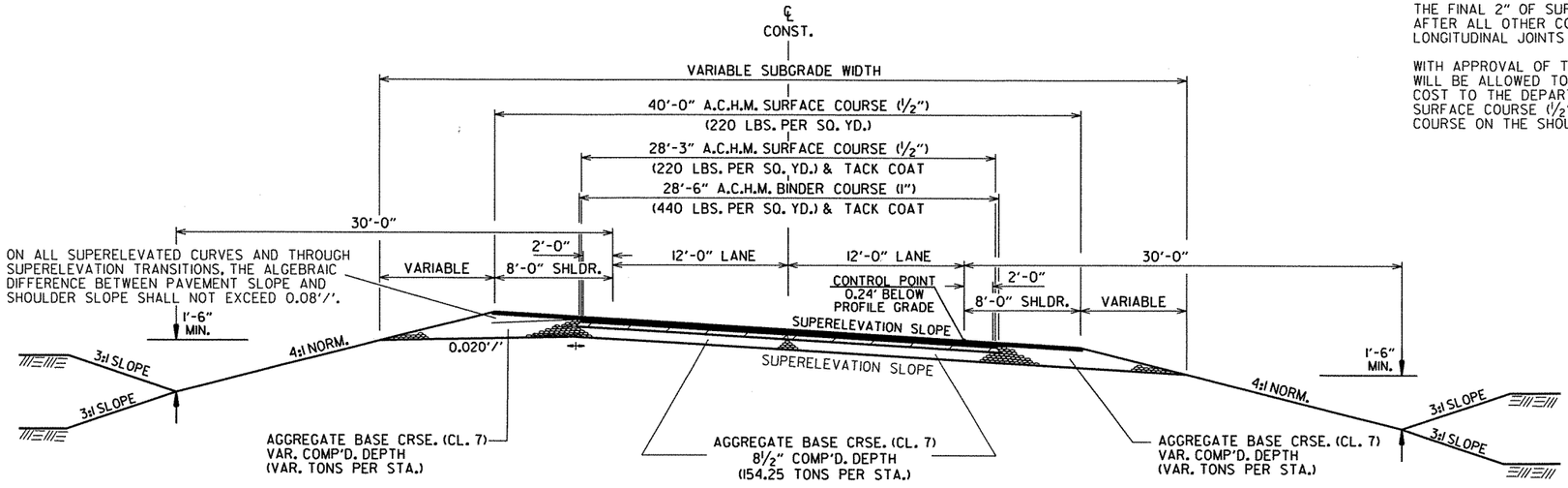
NOTES:

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

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

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

WITH APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITURE, AT NO ADDITIONAL COST TO THE DEPARTMENT, THE FIRST LIFT OF ACHM SURFACE COURSE (1/2") IN LIEU OF AGGREGATE BASE COURSE ON THE SHOULDERS.



HWY. 65
TYPICAL SECTION OF IMPROVEMENT
SUPERELEVATION
STA. 105+52.65 TO STA. 109+80.00
STA. 118+71.00 TO STA. 124+16.61

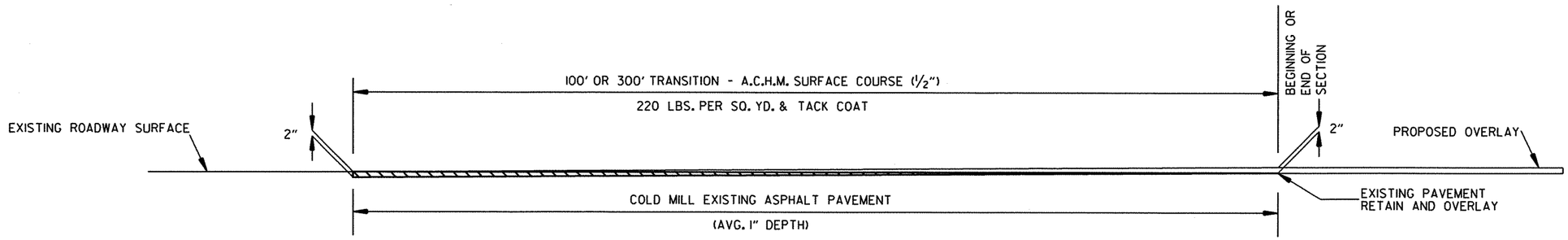
R090280.DGN 7/15/2011

TYPICAL SECTIONS OF IMPROVEMENT

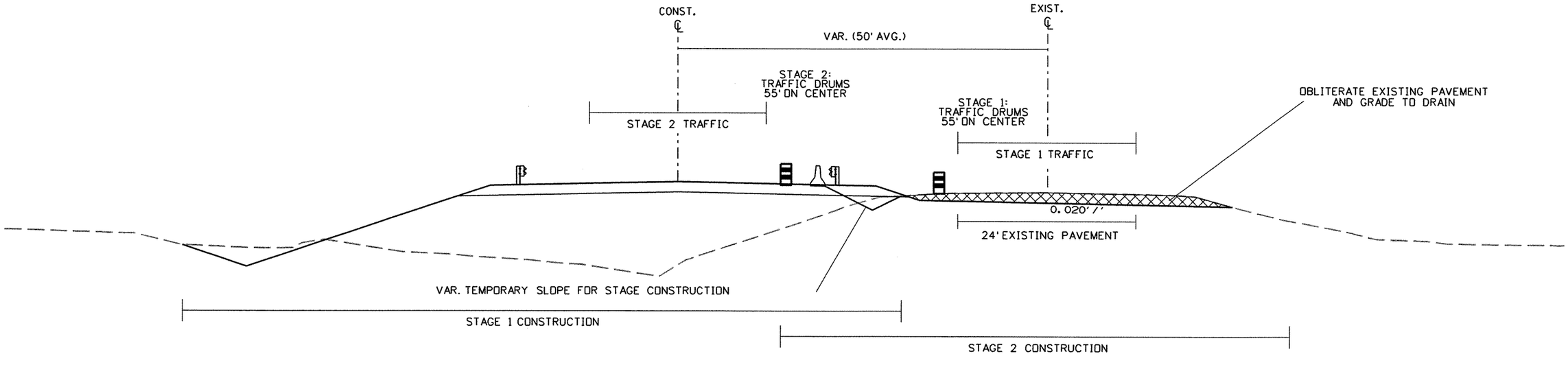
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	5	88

(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-19-11



DETAIL FOR PAVEMENT TRANSITION



DETAIL FOR STAGE CONSTRUCTION

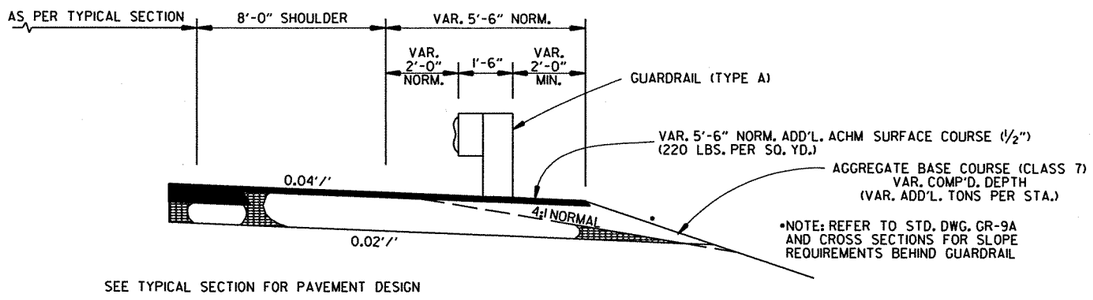
SPECIAL DETAILS

R090280.DGN 7/15/2011

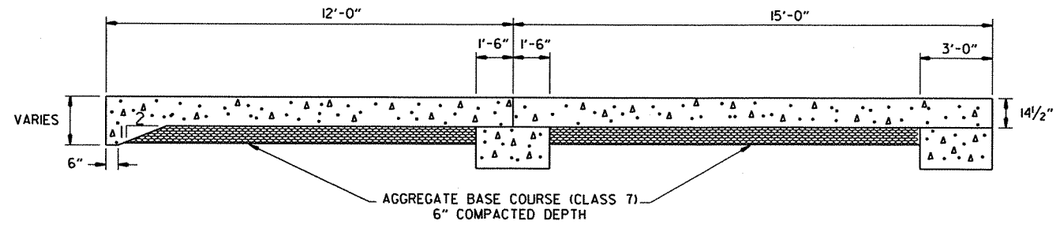
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	6	88

(2) SPECIAL DETAILS

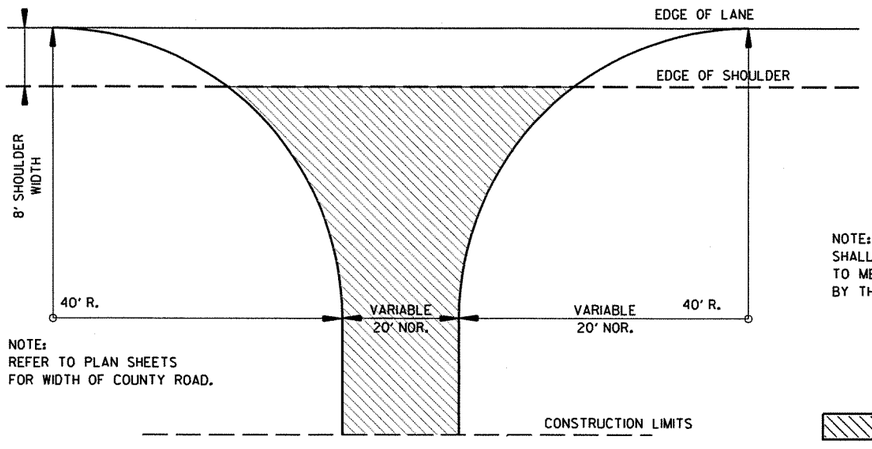
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 16605
MICHAEL D. FUGETT
7-19-11



WIDENING FOR GUARDRAIL



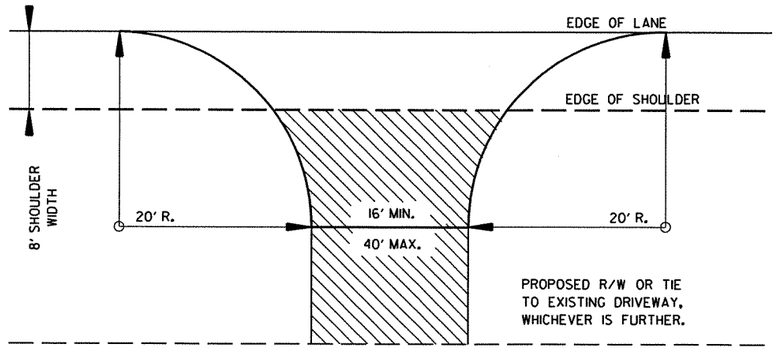
SPECIAL DETAIL OF APPROACH SLAB



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

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

DETAIL FOR COUNTY ROAD TURNOUTS



DETAIL FOR DRIVEWAY TURNOUTS

R090280.DGN 7/15/2011

SPECIAL 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.		090280	7	88

(2) TEMPORARY EROSION CONTROL DETAILS

LEGEND

- (E-5) = SAND BAG DITCH CHECK
- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-19-11

STA. 101+61.95
BEG. CONST. HWY. 65

POB 97+00.00

N 41°28' 23" W
100

L=20'

102-99.81
55.95

103-17.56
95.00

103+40.00
63.44-85

WILEYS COVE RD.

P.I. 107+89.41

P.C. 104+65.15

EXISTING R.O.W.

CL HWY. 65

REVISION BOX

DATE OF REVISION	REVISION

N 19°03' 53" W
115

P.T. 111+05.38

P.C. 117+83.54

P.I. 122+21.25

PAVED

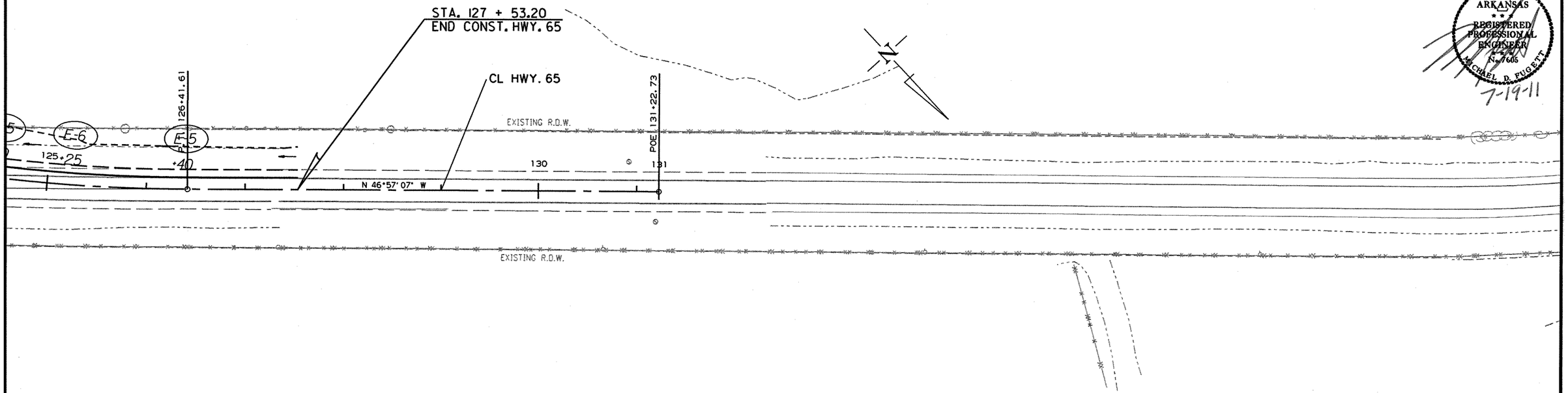
TEMPORARY EROSION CONTROL DETAILS
STAGE 1

R090280.DGN 7/15/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	8	88

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-19-11



LEGEND

- E-5 = SAND BAG DITCH CHECK
- E-6 = ROCK DITCH CHECK
- E-11 = SILT FENCE
- E-14 = SEDIMENT BASIN

REVISION BOX

DATE OF REVISION	REVISION

R090280.DGN 7/15/2011

TEMPORARY EROSION CONTROL DETAILS
STAGE 1

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	9	88

(2) TEMPORARY EROSION CONTROL DETAILS

LEGEND

- (E-5) = SAND BAG DITCH CHECK
- (E-6) = ROCK DITCH CHECK
- (E-11) = SILT FENCE
- (E-14) = SEDIMENT BASIN

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. RUGETT
7-19-11

STA. 101+61.95
BEG. CONST. HWY. 65

POB 97+00.00

CL HWY. 65

EXISTING R.O.W.

N 41°28'23" W

WILEY'S COVE RD.

P.I. 107+89.41

P.C. 105+65.16

P.T. 111+05.39

P.C. 117+83.54

P.I. 122+21.25

L=684'

L=68'

REVISION BOX

DATE OF REVISION	REVISION

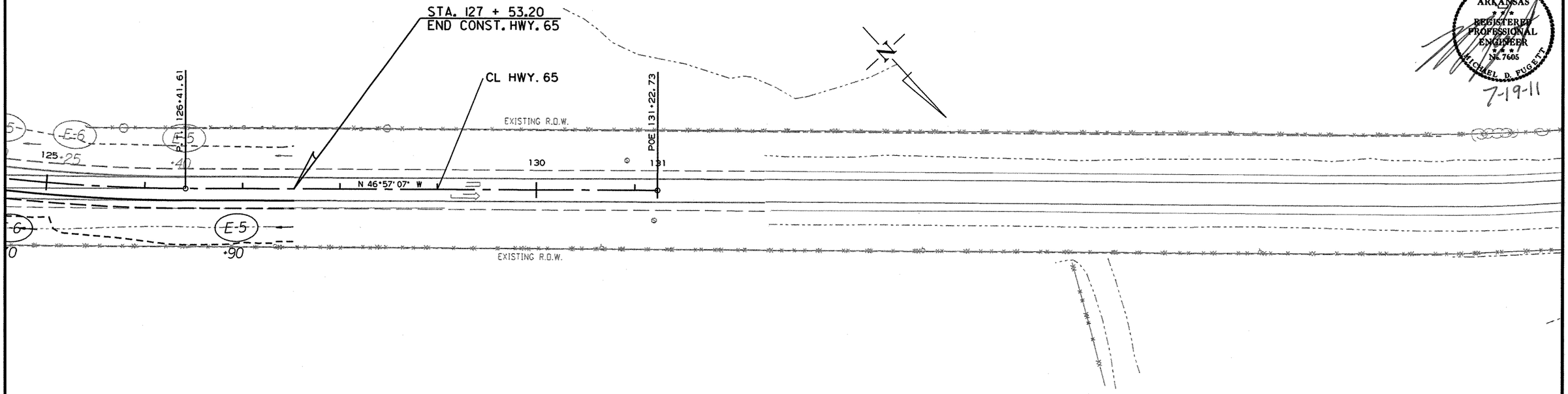
TEMPORARY EROSION CONTROL DETAILS
STAGE 2

R090280.DGN 7/15/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	10	88

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 7605
MICHAEL D. FUGETT
7-19-11



LEGEND

(E-5)	SAND BAG DITCH CHECK
(E-6)	ROCK DITCH CHECK
(E-11)	SILT FENCE
(E-14)	SEDIMENT BASIN

REVISION BOX

DATE OF REVISION	REVISION

R090280.DGN 7/15/2011

TEMPORARY EROSION CONTROL DETAILS
STAGE 2

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	11	88

(2) MAINTENANCE OF TRAFFIC DETAILS

STAGE 1 QUANTITIES

SIGNS = 206 SQ. FT.
TRAFFIC DRUMS = 42 EACH
VERTICAL PANELS = 20 EACH
TYPE III BARRICADES = 96 LIN. FT.
FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER = 40 LIN. FT.
TEMPORARY IMPACT ATTENUATION BARRIER = 2 EACH
TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR) = 2 EACH
CONSTRUCTION PAVEMENT MARKINGS = 12174 LIN. FT.

NOTES:

THE CONSTRUCTION PAVEMENT MARKING QUANTITY FOR STAGE 1 IS BASED ON A SINGLE APPLICATION OF THE EXISTING ROADWAY STRIPING SHOWN ON THE MAINTENANCE OF TRAFFIC DETAIL SHEETS FOR STAGE 1.

STAGE 1 CONSTRUCTION SEQUENCE

INSTALL ADVANCE WARNING SIGNS AND END ROAD WORK SIGNS AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC PLANS.
INSTALL ROAD WORK AHEAD (W20-1) SIGN ON WILEYS COVE RD. AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC PLANS.

APPLY LEVELING COURSE TO EXISTING LANES IF AND WHERE DIRECTED BY THE ENGINEER.

APPLY CONSTRUCTION PAVEMENT MARKINGS AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC PLANS.

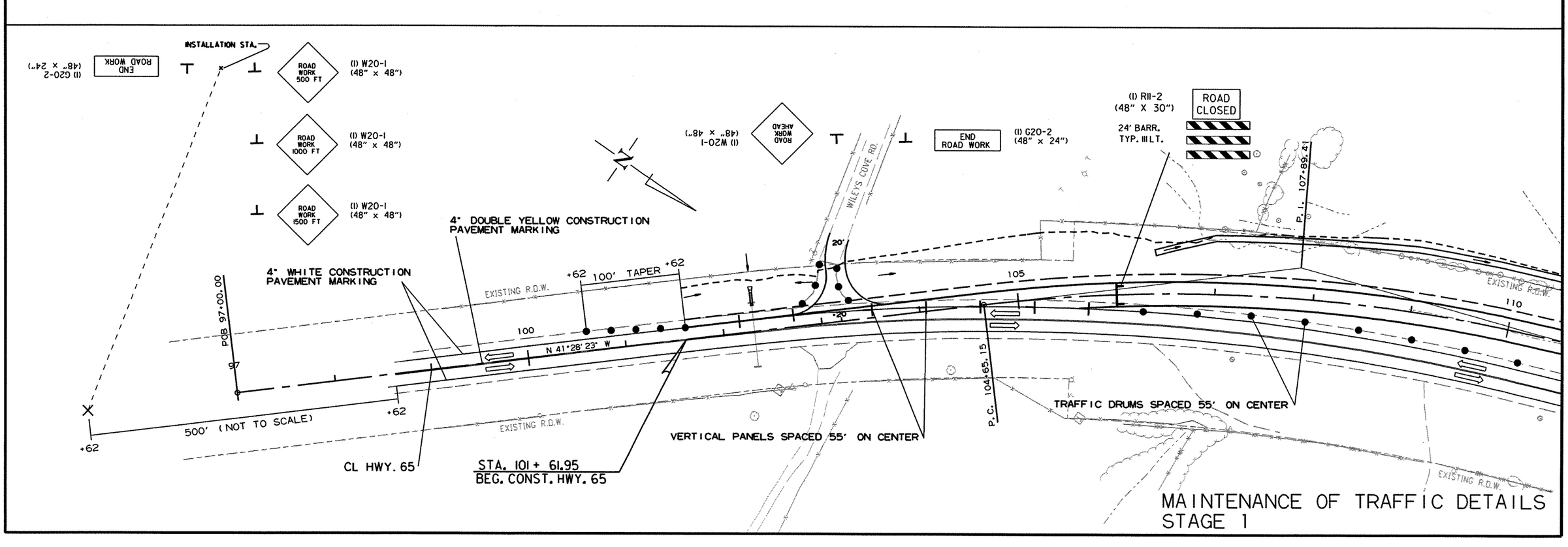
USE VERTICAL PANELS AND TRAFFIC DRUMS SPACED 55' ON CENTER TO DELINEATE THE WORK ZONE. USE TRAFFIC DRUMS TO DELINEATE DRIVEWAYS.

NOTCH AND WIDEN HWY. 65 ON THE LEFT FROM STATION 101+61.95 TO STATION 105+61.36 AND FROM STATION 122+89.03 TO STATION 127+53.20. CONSTRUCT FULL DEPTH SECTION OF HWY. 65 OUT TO 2 FT. INTO RIGHT SHOULDER FROM STATION 105+61.36 TO STATION 113+60 AND FROM STATION 115+41 TO STATION 122+89.03.

INSTALL TYPE III BARRICADES WITH ROAD CLOSED (R11-2) SIGNS AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC PLANS AS PROPOSED ROADWAY EMBANKMENT IS CONSTRUCTED.

CONSTRUCT PROPOSED BRIDGE OVER COVE CREEK AND INSTALL TEMPORARY PRECAST CONCRETE BARRIERS WITH TEMPORARY IMPACT ATTENUATION BARRIERS AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC PLANS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-19-11



MAINTENANCE OF TRAFFIC DETAILS
STAGE 1

R090280.DGN 7/15/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	12	88

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-19-11

STA. 113+45 INSTALL 12" X 60' TEMP. PIPE CULVERT
STA. 115+58 INSTALL 12" X 55' TEMP. PIPE CULVERT
ROAD CLOSED
(1) RII-2 (48" X 30")
24' BARR. TYP. III RT.
P.T. 111+05.39
CL HWY. 65
N 19°03'53" W
P.C. 117+83.54
EXISTING R.O.W.
110
115
120
125
(1) RII-2 (48" X 30")
ROAD CLOSED
24' BARR. TYP. III LT.
20' PRECAST CONCRETE BARRIER WITH DRAIN SLOTS
TEMPORARY IMPACT ATTENUATION BARRIER
PAVED
TRAFFIC DRUMS SPACED 55' ON CENTER
4" WHITE CONSTRUCTION PAVEMENT MARKING
VERTICAL PANELS SPACED 55' ON CENTER
P.I. 122+21.25
4" DOUBLE YELLOW CONSTRUCTION PAVEMENT MARKING
(1) RII-2 (48" X 30")
ROAD CLOSED
24' BARR. TYP. III RT.

VERTICAL PANELS SPACED 55' ON CENTER
P.T. 126+41.61
CL HWY. 65
+53 150' SHOULDER TAPER +03
EXISTING R.O.W.
POE 131+22.73
125
130
131
N 46°57'07" W
4" WHITE CONSTRUCTION PAVEMENT MARKING
4" DOUBLE YELLOW CONSTRUCTION PAVEMENT MARKING
STA. 127 + 53.20
END CONST. HWY. 65
(1) RSP-I (48" X 30")
SHOULDER CLOSED
(1) W20-I (48" X 48")
ROAD WORK 500 FT
(1) W20-I (48" X 48")
ROAD WORK 1000 FT
(1) W20-I (48" X 48")
ROAD WORK 1500 FT
ROAD WORK END
(1) G20-2 (48" X 24")

MAINTENANCE OF TRAFFIC DETAILS STAGE 1

R090280.DGN 7/15/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	13	88

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. PUGETT
7-19-11

STAGE 2 QUANTITIES

SIGNS = 206 SQ. FT.
TRAFFIC DRUMS = 83 EACH
TYPE III BARRICADES = 96 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS = 11025 LIN. FT.
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS = 940 LIN. FT.

NOTES:

THE CONSTRUCTION PAVEMENT MARKING QUANTITY FOR STAGE 2 IS BASED ON A SINGLE APPLICATION OF THE ROADWAY STRIPING SHOWN ON THE MAINTENANCE OF TRAFFIC DETAIL SHEETS FOR STAGE 2.

STAGE 2 CONSTRUCTION SEQUENCE

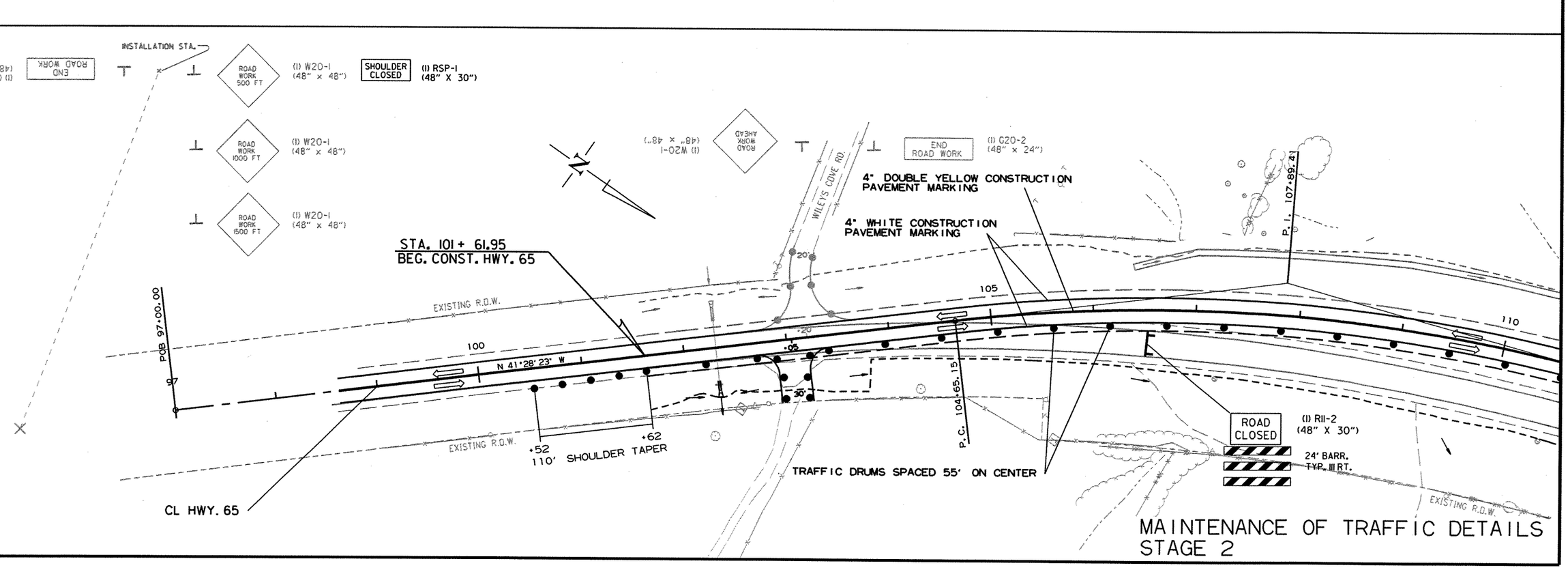
APPLY CONSTRUCTION PAVEMENT MARKINGS AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC PLANS AND SHIFT TRAFFIC ONTO THE PROPOSED ROADWAY CONSTRUCTED IN STAGE 1.

USE TRAFFIC DRUMS SPACED 55' ON CENTER TO DELINEATE THE WORK ZONE. USE TRAFFIC DRUMS TO DELINEATE DRIVEWAYS.

OBLITERATE THE PORTIONS OF EXISTING PAVEMENT ON HWY. 65 THAT ARE NOT NEEDED AND GRADE EMBANKMENT TO DRAIN AS SHOWN ON THE CROSS SECTIONS.

NOTCH AND WIDEN HWY. 65 ON THE RIGHT FROM STATION 101+61.95 TO STATION 105+61.36 AND FROM STATION 122+89.03 TO STATION 127+53.20. CONSTRUCT REMAINDER OF FULL DEPTH SECTION OF HWY. 65 FROM STATION 105+61.36 TO STATION 113+60 AND FROM STATION 115+41 TO STATION 122+89.03.

APPLY FINAL 2" LIFT OF A.C.H.M. SURFACE COURSE TO HWY. 65 AND INSTALL PERMANENT PAVEMENT MARKINGS AS SHOWN IN THE PERMANENT PAVEMENT MARKINGS PLANS.



MAINTENANCE OF TRAFFIC DETAILS
STAGE 2

R090280.DGN 7/15/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	14	88

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-19-11

4" DOUBLE YELLOW REMOVABLE CONSTRUCTION PAVEMENT MARKING (ON BRIDGE DECK AND APPROACH SLABS)

4" WHITE REMOVABLE CONSTRUCTION PAVEMENT MARKING (ON BRIDGE DECK AND APPROACH SLABS)

4" DOUBLE YELLOW CONSTRUCTION PAVEMENT MARKING

4" WHITE CONSTRUCTION PAVEMENT MARKING

110 115 120 125

P.T. 111+05.39

N 19° 03' 53" W

P.C. 117+83.54

CL HWY. 65

EXISTING R.D.W.

+78

16'

+55

P.I. 122+21.25

ROAD CLOSED

(I) RII-2 (48" X 30")

24' BARR. TYP. III RT.

(I) RII-2 (48" X 30")

24' BARR. TYP. III LT.

ROAD CLOSED

TRAFFIC DRUMS SPACED 55' ON CENTER

(I) RII-2 (48" X 30")

24' BARR. TYP. III LT.

ROAD CLOSED

4" DOUBLE YELLOW CONSTRUCTION PAVEMENT MARKING

4" WHITE CONSTRUCTION PAVEMENT MARKING

STA. 127 + 53.20
END CONST. HWY. 65

CL HWY. 65

P.T. 126+41.61

POE 131+22.73

125 130 131

N 46°57' 07" W

EXISTING R.D.W.

+62 100' TAPER +62

TRAFFIC DRUMS SPACED 55' ON CENTER

(I) W20-I (48" × 48") — ROAD WORK 500 FT

(I) W20-I (48" × 48") — ROAD WORK 1000 FT

(I) W20-I (48" × 48") — ROAD WORK 1500 FT

END ROAD WORK

(I) G20-2 (48" × 24")

MAINTENANCE OF TRAFFIC DETAILS STAGE 2

R090280.DGN 7/15/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	15	88

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-19-11

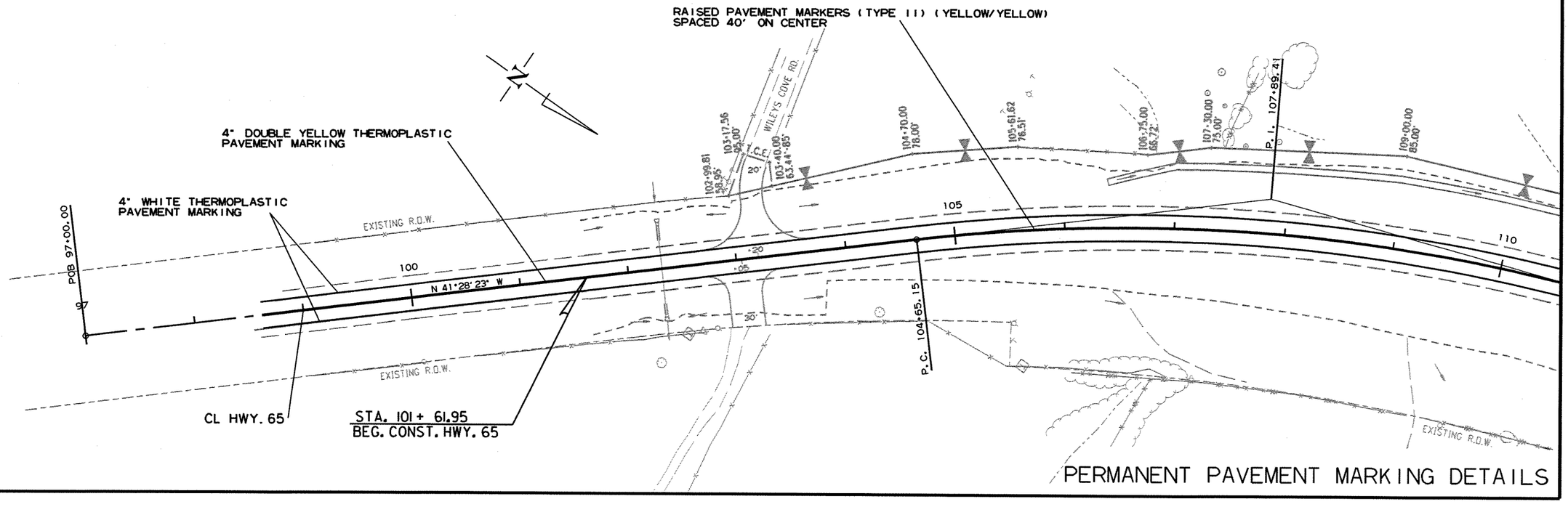
PERMANENT PAVEMENT MARKING QUANTITIES

THERMOPLASTIC PAVEMENT MARKING WHITE (4") = 5983 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING YELLOW (4") = 5513 LIN. FT.
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING YELLOW (4") = 470 LIN. FT.
RAISED PAVEMENT MARKER (TYPE II) (YELLOW/YELLOW) = 75 EACH

NOTES:

RAISED PAVEMENT MARKERS (TYPE II) (YELLOW/YELLOW) ARE TO BE PLACED ON THE CENTERLINE AT 40' INTERVALS.

REFER TO THE PERMANENT PAVEMENT MARKING DETAILS, STD. DRWG. PM-1, AND THE LATEST EDITION OF THE MUTCD FOR ADDITIONAL PAVEMENT MARKING DETAILS.



PERMANENT PAVEMENT MARKING DETAILS

R090280.DGN 7/15/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	16	88

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-19-11

4" DOUBLE YELLOW HIGH PERFORMANCE CONTRAST PAVEMENT MARKING (ON BRIDGE AND APPROACH SLABS)

4" DOUBLE YELLOW THERMOPLASTIC PAVEMENT MARKING

4" WHITE THERMOPLASTIC PAVEMENT MARKING

RAISED PAVEMENT MARKERS (TYPE II) (YELLOW/YELLOW) SPACED 40' ON CENTER

4" WHITE THERMOPLASTIC PAVEMENT MARKING

4" DOUBLE YELLOW THERMOPLASTIC PAVEMENT MARKING

RAISED PAVEMENT MARKERS (TYPE II) (YELLOW/YELLOW) SPACED 40' ON CENTER

STA. 127 + 53.20
END CONST. HWY. 65

R090280.DGN 7/15/2011

PERMANENT PAVEMENT MARKING 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.		090280	17	88

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-19-11

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		VERTICAL PANELS	TRAFFIC DRUMS	BARRICADES (TYPE III)		FURNISHING & INSTALLING PRECAST CONC. BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER	TEMP. IMPACT ATTEN.BARR. (REPAIR)
										RIGHT	LEFT			
			LIN.FT. - EACH			NO.	SQ. FT.	EACH		LIN.FT.			EACH	
W20-1	ROAD WORK 1500 FT.	48"x48"	2	2	2	2	32.0							
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2	2	2	32.0							
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2	2	32.0							
W20-1	ROAD WORK AHEAD	48"x48"	1	1	1	1	16.0							
G20-2	END ROAD WORK	48"x24"	3	3	3	3	24.0							
R11-2	ROAD CLOSED	48"x30"	4	4	4	4	40.0							
R4-1	DO NOT PASS	24"x30"	2	2	2	2	10.0							
R4-2	PASS WITH CARE	24"x30"	2	2	2	2	10.0							
RSP-1	SHOULDER CLOSED	48"x30"	1	1	1	1	10.0							
	VERTICAL PANELS		20		20			20						
	TRAFFIC DRUMS		42	83	83				83					
	TYPE III BARRICADE-RT. (24')		2	2	2					48				
	TYPE III BARRICADE-LT. (24')		2	2	2						48			
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		40		40							40		
	TEMPORARY IMPACT ATTENUATION BARRIER		2		2								2	
	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)		2		2									2
TOTALS:							206.0	20	83	48	48	40	2	2

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	END OF JOB	CONSTRUCTION PAVEMENT MARKINGS	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS	THERMOPLASTIC PAVEMENT MARKINGS		HIGH PERFORMANCE CONTRAST PAVEMENT MARKING
						TYPE II (YEL/YEL)	4"		
							WHITE	YELLOW	4" YELLOW
	LIN.FT. - EACH			LIN.FT.	LIN.FT.	EACH	LIN.FT.		LIN.FT.
CONSTRUCTION PAVEMENT MARKINGS	12174	11025		23199					
REMOVABLE CONSTRUCTION PAV'T MARKINGS		940			940				
RAISED PAVEMENT MARKERS TYPE II (YEL/YEL)			75			75			
THERMOPLASTIC PAVEMENT MARKINGS WHITE (4")			5983				5983		
THERMOPLASTIC PAVEMENT MARKINGS YELLOW (4")			5513					5513	
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING YELLOW (4")			470						470
TOTALS:				23199	940	75	5983	5513	470

NOTE: THIS IS A HIGH TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2003 EDITION.

R090280.DGN 7/15/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	18	88

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. PUGETT
7-19-11

CLEARING AND GRUBBING

STATION	STATION	LOCATION	CLEARING	GRUBBING
			STATION	
104+00	106+00	LT. OF C.L.	2	2
113+00	116+00	LT. OF C.L.	3	3
TOTALS:			5	5

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	GUARDRAIL	TERMINAL ANCHOR POSTS
			LIN.FT.	EACH
111+73	113+80	RT. OF EXISTING ROADWAY	200	1
112+98	113+80	LT. OF EXISTING ROADWAY	75	1
115+26	116+07	RT. OF EXISTING ROADWAY	75	1
115+26	117+31	LT. OF EXISTING ROADWAY	200	1
TOTALS:			550	4

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE	GATES
			LIN. FT.	EACH
103+30	103+41	LT. OF C.L.		1
103+41	113+80	LT. OF C.L.	1163	
113+49	113+80	RT. OF C.L.	87	
115+28	115+52	LT. OF C.L.	115	
115+28	115+52	RT. OF C.L.	63	
115+41	120+47	LT. OF C.L.	503	
120+47	120+63	LT. OF C.L.		2
120+63	125+40	LT. OF C.L.	465	
TOTALS:			2396	3

REMOVAL AND DISPOSAL OF PIPE CULVERTS

STATION	DESCRIPTION	EACH
116+78	RT. OF C.L., 24" X 24' C. M. PIPE CULVERT	1
120+55	LT. OF C.L., 18" X 23' C. M. PIPE CULVERT	1
TOTAL:		2

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

SOIL LOG

STATION	LATITUDE			LONGITUDE			LOCATION	DEPTH	LIQUID LIMIT	PLASTICITY INDEX	AASHTO CLASSIFICATION	COLOR
	DEG	MIN	SEC	DEG	MIN	SEC		FEET				
103+00	35	50	15.40	92	34	30.30	6'RT	0-3.1Z	ND	NP	A-2-4(0)	BROWN
103+00	35	50	15.40	92	34	30.00	16'RT	0-2.6Z	ND	NP	A-2-4(0)	BROWN
103+00	35	50	15.40	92	34	29.80	27'RT	0-2.3Z	20	6	A-4(0)	BROWN
103+45	35	50	15.70	92	34	30.20	50'RT	0-3Z	23	6	A-4(0)	BROWN
111+02	35	50	23.10	92	34	22.20	28'RT	0-3.0Z	34	17	A-6(6)	BROWN
117+47	35	50	27.90	92	34	37.40	28'RT	0-5	27	10	A-4(3)	BROWN
126+00	35	50	34.90	92	34	43.30	5.68'LT	0-5	19	4	A-4(0)	BROWN
125+99	35	50	34.70	92	34	43.60	16.67'LT	0-5	ND	NP	A-4(0)	BROWN

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

FENCING

STATION	STATION	LOCATION	WIRE FENCE			* 16'-0" GATES
			(TYPE C)	(TYPE D-1)	(TYPE D-2)	
			LIN.FT.			EACH
103+30	103+46	LT. OF C.L.				1
103+46	113+60	LT. OF C.L.	1107			
113+48	113+60	RT. OF C.L.		112		1
115+41	115+53	RT. OF C.L.		105		
115+41	115+52	LT. OF C.L.			62	1
115+52	120+47	LT. OF C.L.			486	
120+47	120+63	LT. OF C.L.				1
120+63	125+40	LT. OF C.L.			457	
TOTALS:			1107	217	1005	4

* DENOTES ALTERNATE BID ITEM.

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
98+62	101+62	MAIN LANES	40	1333.33
127+53	128+53	MAIN LANES	40	444.44
TOTAL:				1777.77

NOTE: AVERAGE MILLING DEPTH 1".

SELECTED PIPE BEDDING & BACKFILL

LOCATION	SELECTED PIPE BEDDING	SELECTED PIPE BACKFILL
	CU.YD.	
ENTIRE PROJECT TO BE USED IF		
AND WHERE DIRECTED BY THE	10	20
ENGINEER		
TOTALS:	10	20

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

BENCH MARKS

STATION	LOCATION	EACH
113+60	BRIDGE END	1
TOTAL:		1

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

R090280.DGN 7/15/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	19	88

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
NO. 7605
MICHAEL D. FUGETT
7-19-11

CONCRETE DITCH PAVING

STATION	STATION	LOCATION	LENGTH	"W"	CONC. DITCH PAVING (TYPE B)	SOLID SODDING	WATER
			LIN. FT.	FEET	SQ. YD.	SQ. YD.	M. GAL.
106+40	113+60	LT. OF C.L.	720.00	6	520.00	320.00	4.03
TOTALS:					520.00	320.00	4.03

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

APPROACH GUTTERS AND SLABS

STATION	STATION	LOCATION	APPROACH GUTTER (TYPE B)	APPROACH SLABS	REINFORCING STEEL RDWY. (GR 60)	AGGREGATE BASE CRS. (CLASS 7)
			CU.YD.	CU.YD.	POUND	TON
113+33.00	113+60.00	C.L.		38.80	4260	19.0
113+33.00	113+60.00	LT. OF C.L.	6.75		590	
113+33.00	113+60.00	RT. OF C.L.	6.75		590	
115+41.00	115+68.00	C.L.		38.80	4260	19.0
115+41.00	115+68.00	LT. OF C.L.	6.75		590	
115+41.00	115+68.00	RT. OF C.L.	6.75		590	
TOTALS:			27.00	77.60	10880	38.0

EARTHWORK

	STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	* SOIL STABILIZATION
				CU. YD.		TON
	ENTIRE	PROJECT	STAGE 1-MAIN LANES	4205	18821	
	ENTIRE	PROJECT	STAGE 2-MAIN LANES	4918	713	
	ENTIRE	PROJECT	APPROACHES		225	
	ENTIRE	PROJECT	EXIST. APPROACH EMBANK.	430		
*	ENTIRE	PROJECT	TO BE USED IF AND WHERE			50
			DIRECTED BY THE ENGINEER			
	TOTALS:			9553	19759	50

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

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

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)
			LIN.FT.	EACH	
111+32.35	113+51.10	RT. OF C.L.	150	1	1
112+57.35	113+51.10	LT. OF C.L.	25	1	1
115+49.90	116+43.65	RT. OF C.L.	25	1	1
115+49.90	117+68.65	LT. OF C.L.	150	1	1
TOTALS:			350	4	4

STRUCTURES

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT (CLASS III)	FLARED END SECTIONS FOR R.C. PIPE CULVERTS	TEMPORARY PIPE CULVERTS	SOLID SODDING	WATER	STD. DWG. NOS.
		24"	24"	12"			
		LIN. FT.	EACH	LIN. FT.	SQ.YD.	M.GAL	
102+31	24" R.C.P. CROSS DRAIN EXTENSION	24	2		16	0.20	FES-1, FES-2, PCC-1
113+45	12" TEMP. PIPE CULVERT RT. OF C.L.			60			
115+58	12" TEMP. PIPE CULVERT RT. OF C.L.			55			
TOTALS:		24	2	115	16	0.20	

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

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

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL								
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS (E-5)	ROCK DITCH CHECKS (E-6)	SILT FENCE (E-11)	SEDIMENT BASIN (E-14)	OBLITERATION OF SEDIMENT BASIN	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	ACRE	ACRE	M.GAL.	BAG	CU.YD.	LIN.FT.	CU.YD.	CU.YD.	CU. YD.
ENTIRE	PROJECT	STAGE 1	2.05	4.10	2.05	209.1	2.05	2.05	2.05	41.8	462	60	20	267	267	309
ENTIRE	PROJECT	STAGE 2	2.41	4.82	2.41	245.8	2.41	2.41	2.41	49.2	242	27	752	133	133	181
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			1.11	2.22	1.11	113.2	1.11	1.11	1.11	22.6	110	15	250	133	133	142
TOTALS:			5.57	11.14	5.57	568.1	5.57	5.57	5.57	113.6	814	102	1022	533	533	632

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.
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING.
SAND BAG DITCH CHECKS.....22 BAGS / LOCATION
ROCK DITCH CHECKS.....3 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 ARE ESTIMATED.
SEE SECTION 104.03 OF THE STD. SPECS.

R090280.DGN 7/15/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	20	88

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. PUGETT
7-19-11

DRIVEWAYS & TURNOUTS

STATION	SIDE	LOCATION	WIDTH	ACHM SURFACE COURSE (1/2") 220 LBS. PER SQ. YD. (PG64-22)		AGGREGATE BASE COURSE (CLASS 7)	SIDE DRAINS	
							18"	24"
			FEET	SQ. YD.	TON	TON	LIN. FT.	
103+05	RT.	DRIVE ON HWY. 65	30	141.5	15.6	57.8		
103+20	LT.	WILEYS COVE RD.	20	183.2	20.2	74.8		
116+78	RT.	DRIVE ON HWY. 65	16	190.8	21.0	77.9		42
120+55	LT.	DRIVE ON HWY. 65	16	83.9	9.2	34.3	36	
* ENTIRE PROJECT TEMPORARY DRIVES						50.0		
TOTALS:					**66.0**	**294.8**	**36**	**42**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.3% MIN. AGGR.....5.7% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

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

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

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

ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC

LOCATION	TON	TACK COAT
		GALLON
ENTIRE PROJECT - TO BE USED IF AND WHERE	13	26
DIRECTED BY THE ENGINEER		
TOTALS:	**13**	**26**

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

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")								
				TON / STATION	TON	TOTAL WID.	SQ.YD.	GALLONS / SQ.YD.	GALLON	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	TOTAL
			FEET			FEET				FEET			TON	FEET			TON	FEET			TON	
MAIN LANES - HWY. 65																						
98+61.95	101+61.95	TRANSITION	300.0															40.0	1333.3	220.0	146.7	146.7
101+61.95	105+61.36	NOTCH ON LT.	399.4	VAR.	218.6	VAR.	426.6	0.03	12.8	VAR.	429.3	440.0	94.4	VAR.	423.8	220.0	46.6	20.0	887.6	220.0	97.6	144.2
101+61.95	102+80.56	NOTCH ON RT.	118.6	VAR.	9.4	VAR.	14.7	0.03	0.4	VAR.	15.5	440.0	3.4	VAR.	13.9	220.0	1.5	20.0	263.6	220.0	29.0	30.5
102+80.56	105+61.36	NOTCH ON RT.	280.8	80.50	226.0													20.0	624.0	220.0	68.6	68.6
105+61.36	113+60	FULL DEPTH	798.6	315.25	2517.6	56.5	5013.4	0.03	150.4	28.5	2528.9	440.0	556.4	28.3	2511.2	220.0	276.2	40.0	3549.3	220.0	390.4	666.6
115+41	122+89.03	FULL DEPTH	748.0	315.25	2358.1	56.5	4695.8	0.03	140.9	28.5	2368.7	440.0	521.1	28.3	2352.0	220.0	258.7	40.0	3324.4	220.0	365.7	624.4
122+89.03	127+53.20	NOTCH ON LT.	464.2	VAR.	248.9	VAR.	485.5	0.03	14.6	VAR.	488.7	440.0	107.5	VAR.	482.3	220.0	53.1	20.0	1031.6	220.0	113.5	166.6
122+89.03	125+55.12	NOTCH ON RT.	266.1	80.50	214.2													20.0	591.3	220.0	65.0	65.0
125+55.12	127+53.20	NOTCH ON RT.	198.1	VAR.	23.1	VAR.	39.6	0.03	1.2	VAR.	40.9	440.0	9.0	VAR.	38.2	220.0	4.2	20.0	440.2	220.0	48.4	52.6
127+53.20	128+53.20	TRANSITION	100.0															40.0	444.4	220.0	48.9	48.9
ADDITIONAL FOR LEVELING																						
98+61.95	105+61.36	LEVELING	699.4			24.0	1865.1	0.10	186.5					24.0	1865.1	VAR.	382.9					382.9
122+89.03	127+53.20	LEVELING	464.2			24.0	1237.9	0.10	123.8					24.0	1237.9	VAR.	213.9					213.9
ADDITIONAL FOR SUPERELEVATION																						
102+02.65	105+52.65	SUPERELEVATION TRANSITION	350.0	32.60	114.1																	
105+52.65	109+80	MAXIMUM SUPERELEVATION	427.4	65.19	278.6																	
109+80	113+30	SUPERELEVATION TRANSITION	350.0	32.60	114.1																	
115+71	118+71	SUPERELEVATION TRANSITION	300.0	30.97	92.9																	
118+71	124+16.61	MAXIMUM SUPERELEVATION	545.6	61.94	337.9																	
124+16.61	127+16.61	SUPERELEVATION TRANSITION	300.0	30.97	92.9																	
ADDITIONAL FOR GUARDRAIL WIDENING																						
110+80.35	113+60	GUARDRAIL WIDENING ON RT.	279.7	49.25	127.4									7.0	201.2	220.0	22.1					22.1
112+14.35	113+60	GUARDRAIL WIDENING ON LT.	145.7	39.50	51.0									5.5	78.9	220.0	8.7					8.7
115+41	116+86.65	GUARDRAIL WIDENING ON RT.	145.7	39.50	51.0									5.5	78.9	220.0	8.7					8.7
115+41	118+20.65	GUARDRAIL WIDENING ON LT.	279.7	49.25	127.4									7.0	201.2	220.0	22.1					22.1
TOTALS:					**7203.2**				**630.6**				**1291.8**				**1298.7**				**1373.8**	**2672.5**

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.3% MIN. AGGR.....5.7% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.3% MIN. AGGR.....4.7% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22

R090280.DGN 7/15/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	21	88
				①	07202	QUANTITIES		51755

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. 090280

BRIDGE NO. / CODE NO. / NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	205	801	802	802	803	804	804	805	805	807	808	812	816	816
		ITEM	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO.)	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 (HP 12X53)	PREBORING	STRUCTURAL STEEL IN BEAM SPANS (M 270, GRADE 50W)	ELASTOMERIC BEARINGS	BRIDGE NAME PLATE (TYPE D)	DUMPED RIPRAP	FILTER BLANKET
		UNIT	LUMP SUM	CU. YD.	CU. YD.	CU. YD.	SQ. YD.	LB.	LB.	LIN. FT.	LIN. FT.	LB.	CU. IN.	EACH	CU. YD.	SQ. YD.
07202 X071 COVE CREEK	BENT NO. 1				11.70		8.4	1,229	524	90	80				127	227
	BENT NO. 2			35	37.57			5,710					1,642.5			
	BENT NO. 3			81	37.93			5,770					1,642.5			
	BENT NO. 4				11.70		8.4	1,229	524	85	75				130	236
	180'-0" CONT. INTEGRAL W-BEAM UNIT					266.00	948.8	2,252	58,672			139,810		1		
SITE NO. 1 (BR. NO. A0679)			1													
TOTALS FOR JOB NO. 090280				② 116	98.90	266.00	965.6	16,190	53,720	① 175	155	139,810	3,285.0	1	257	463

① All steel piling are required to have approved driving points which will not be paid for directly, but shall be considered subsidiary to the item "Steel Piling (HP12x53)".

②Includes 29 cu. yd. of rock excavation.

STEWART LINZ
DESIGN SECTION SUPERVISOR

STATE OF ARKANSAS
CHARLES P. BRAND
REGISTERED PROFESSIONAL ENGINEER
No. 13537
BRIDGE ENGINEER

SCHEDULE OF BRIDGE QUANTITIES
BRIDGE OVER COVE CREEK
COVE CREEK STR. & APPRS. (S)
SEARCY COUNTY
ROUTE 65 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: CMW DATE: 11/30/10 FILENAME: b090280_ql.dgn
CHECKED BY: RBR DATE: 12/10 SCALE: NO SCALE
DESIGNED BY: — DATE: —

BRIDGE NO. 07202 DRAWING NO. 51755

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM		QUANTITY	UNIT
201	CLEARING		5	STATION
201	GRUBBING		5	STATION
202	REMOVAL AND DISPOSAL OF FENCE		2396	LIN. FT.
202	REMOVAL AND DISPOSAL OF GATES		3	EACH
202	REMOVAL AND DISPOSAL OF PIPE CULVERTS		2	EACH
202	REMOVAL AND DISPOSAL OF GUARDRAIL		550	LIN. FT.
202	REMOVAL AND DISPOSAL OF TERMINAL ANCHOR POSTS		4	EACH
210	UNCLASSIFIED EXCAVATION		9553	CU. YD.
SP & 210	COMPACTED EMBANKMENT		19759	CU. YD.
SP & 210	SOIL STABILIZATION		50	TON
SS & 303	AGGREGATE BASE COURSE (CLASS 7)		7536	TON
401	TACK COAT		657	GAL.
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")		1231	TON
SP, SS, & 406	ASPHALT BINDER (PG 70-22) IN ACHM BINDER COURSE (1")		61	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")		2583	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")		4	TON
SP, SS, & 407	ASPHALT BINDER (PG 70-22) IN ACHM SURFACE COURSE (1/2")		152	TON
412	COLD MILLING ASPHALT PAVEMENT		1778	SQ. YD.
SP, SS, & 414	ASPHALT CONCRETE PATCHING FOR MAINTENANCE OF TRAFFIC		13	TON
SP & 504	APPROACH SLABS		77.60	CU. YD.
SP & 504	APPROACH GUTTERS		27.00	CU. YD.
601	MOBILIZATION		1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE		1	EACH
SS & 603	MAINTENANCE OF TRAFFIC		1.00	LUMP SUM
603	12" TEMPORARY CULVERT		115	LIN. FT.
SS & 604	SIGNS		206	SQ. FT.
SS & 604	BARRICADES		96	LIN. FT.
SS & 604	TRAFFIC DRUMS		83	EACH
SS & 604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		40	LIN. FT.
SS & 604	CONSTRUCTION PAVEMENT MARKINGS		23199	LIN. FT.
604	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS		940	LIN. FT.
SS & 604	VERTICAL PANELS		20	EACH
605	CONCRETE DITCH PAVING (TYPE B)		520	SQ. YD.
SS & 606	24" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		24	LIN. FT.
SS & 606	18" SIDE DRAIN		36	LIN. FT.
SS & 606	24" SIDE DRAIN		42	LIN. FT.
606	24" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		2	EACH
606	SELECTED PIPE BEDDING		10	CU. YD.
606	SELECTED PIPE BACKFILL		20	CU. YD.
SS & 617	GUARDRAIL (TYPE A)		350	LIN. FT.
SS & 617	GUARDRAIL TERMINAL (TYPE 2)		4	EACH
SS & 617	THRIE BEAM GUARDRAIL TERMINAL		4	EACH
619	WIRE FENCE (TYPE C)		1107	LIN. FT.
619	WIRE FENCE (TYPE D-1)		217	LIN. FT.
619	WIRE FENCE (TYPE D-2)		1005	LIN. FT.
* 619	16' STEEL GATES	(ALTERNATE NO. 1)	4	EACH
* 619	16' ALUMINUM GATES	(ALTERNATE NO. 2)	4	EACH
620	LIME		11	TON
620	SEEDING		5.57	ACRE
620	MULCH COVER		11.14	ACRE
SS & 620	WATER		685.9	M.GAL.
621	TEMPORARY SEEDING		5.57	ACRE
621	SILT FENCE		1022	LIN. FT.
621	SAND BAG DITCH CHECKS		814	BAG
621	SEDIMENT BASIN		533	CU. YD.
621	OBLITERATION OF SEDIMENT BASIN		533	CU. YD.
621	SEDIMENT REMOVAL AND DISPOSAL		632	CU. YD.
621	ROCK DITCH CHECKS		102	CU. YD.
623	SECOND SEEDING APPLICATION		5.57	ACRE
624	SOLID SODDING		336	SQ. YD.
635	ROADWAY CONSTRUCTION CONTROL		1.00	LUMP SUM
SS & 719	THERMOPLASTIC PAVEMENT MARKING WHITE (4")		5983	LIN. FT.
SS & 719	THERMOPLASTIC PAVEMENT MARKING YELLOW (4")		5513	LIN. FT.
* SP & 719	INVERTED PROFILE THERMOPLASTIC CONTRAST PAVEMENT MARKING YELLOW (4")	(ALTERNATE NO. 1)	470	LIN. FT.
* SP	HIGH PERFORMANCE CONTRAST MARKING TAPE YELLOW (4")	(ALTERNATE NO. 2)	470	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)		75	EACH
804	REINFORCING STEEL-ROADWAY (GRADE 60)		10880	POUND
SP	TEMPORARY IMPACT ATTENUATION BARRIER		2	EACH
SP	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)		2	EACH
	STRUCTURES OVER 20' SPAN			
205	REMOVAL OF EXISTING BRIDGE STRUCTURE (SITE NO. 1)		1.00	LUMP SUM
636	BRIDGE CONSTRUCTION CONTROL		1.00	LUMP SUM
801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE		116	CU. YD.
802	CLASS S CONCRETE - BRIDGE		98.90	CU. YD.
802	CLASS S(AE) CONCRETE - BRIDGE		266.00	CU. YD.
803	CLASS 2 PROTECTIVE SURFACE TREATMENT		965.6	SQ. YD.
804	REINFORCING STEEL-BRIDGE (GRADE 60)		16190	POUND
804	EPOXY COATED REINFORCING STEEL (GRADE 60)		59720	POUND
805	STEEL PILING (HP 12X53)		175	LIN. FT.
805	PREBORING		155	LIN. FT.
807	STRUCTURAL STEEL IN BEAM SPANS (M270-GR50W)		139810	POUND
808	ELASTOMERIC BEARINGS		3285.0	CU. IN.
812	BRIDGE NAME PLATE (TYPE D)		1	EACH
816	FILTER BLANKET		463	SQ. YD.
816	DUMPED RIPRAP		257	CU. YD.

*ALTERNATE BID ITEMS

REVISION BOX

DATE	REVISION	SHEET NUMBER

SUMMARY OF QUANTITIES AND REVISIONS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER 14405 ROBERT D. FUGETT

7-19-11

DATE REVISED	DATE FILED	DATE REVISED	DATE FILED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		22	88
				JOB NO.		090280		

(2) SUMMARY OF QUANTITIES AND REVISIONS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	23	88

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. PUGETT
7-19-11

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

Point Name	Northing	Easting	Elev	Feature	Description
29	548512.7993	1141706.2890	1004.394	CTL	HPT-29
30	549903.4113	1141119.3182	1003.364	CTL	T-30
31	550736.2199	1140234.9416	1015.146	CTL	HPT-31
32	551352.8997	1139359.3885	1039.512	CTL	T-32
33	551686.3999	1138647.1903	1049.913	CTL	T-33
34	551998.5608	1137978.0205	1043.325	CTL	HPT 34
35	552415.1378	1137090.6000	1037.583	CTL	T-35
36	552747.6247	1136320.7805	1050.989	CTL	HPT 36
106	547966.0164	1142023.6237	1019.132	CTL	GPS 640007
107	549693.9400	1141171.2065	996.419	CTL	GPS 640007A
923	-99999.0000	-99999.0000	1001.143	TBM	TBM 923
924	-99999.0000	-99999.0000	1007.219	TBM	TBM 924
925	-99999.0000	-99999.0000	1017.167	TBM	TBM 925
926	-99999.0000	-99999.0000	1045.720	TBM	TBM 926
927	-99999.0000	-99999.0000	1053.525	TBM	TBM 927
928	-99999.0000	-99999.0000	1036.894	TBM	TBM 928
929	-99999.0000	-99999.0000	1047.895	TBM	TBM 929
990	-99999.0000	-99999.0000	979.998	TBM	NGS BM B7

*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
ALL DISTANCES ARE GROUND.
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT.
A PROJECT CAF OF 0.9998953011 HAS BEEN USED TO COMPUTE THE ABOVE GROUND COORDINATES.
THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.
GRID DISTANCE = GROUND DISTANCE X CAF.
GRID COORDINATES ARE STORED UNDER FILE NAME. S020280G1.CTL
HORIZONTAL DATUM: NAD 83 (1997)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.

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

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 640007-640007A
CONVERGENCE ANGLE: 0-20-23.5 RIGHT
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

HWY. 65 - CONST

POINT NO.	TYPE	STATION	NORTHING	EASTING
8000	POB	97+00.00	547629.9157	1142396.6463
8001	P.C. STA.	104+65.15	548203.2193	1141889.9101
	P.I. STA.	107+89.41	548446.1780	1141675.1619
8003	P.T. STA.	111+05.39	548752.6539	1141569.2458
8004	P.C. STA.	117+83.54	549393.6064	1141347.7367
	P.I. STA.	122+21.25	549807.3075	1141204.7643
8006	P.T. STA.	126+41.61	550106.0926	1140884.8937
8007	POE	131+22.73	550434.5140	1140533.2954

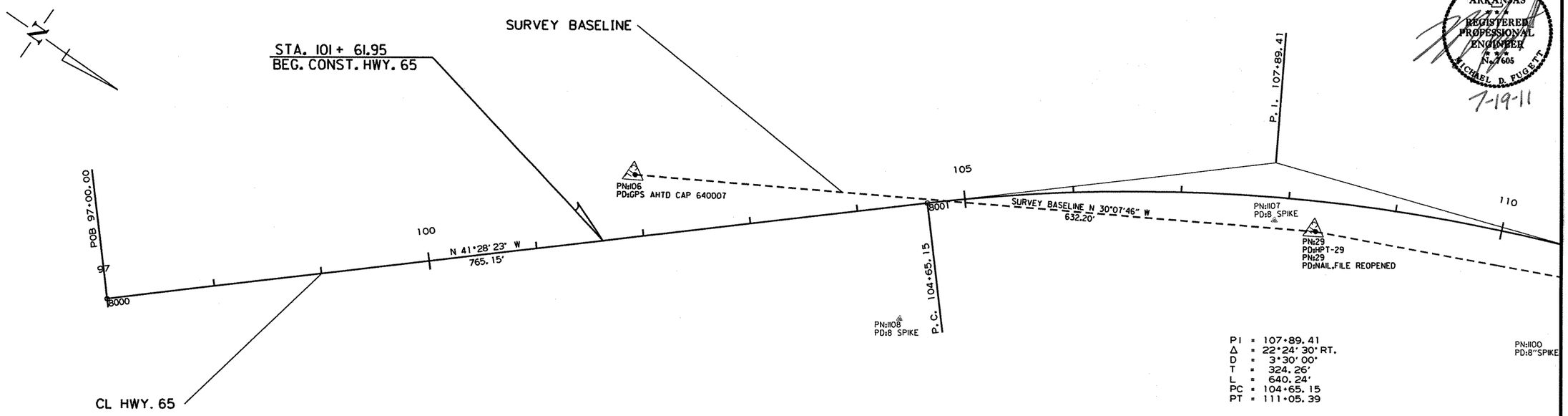
R090280.DGN 7/15/2011

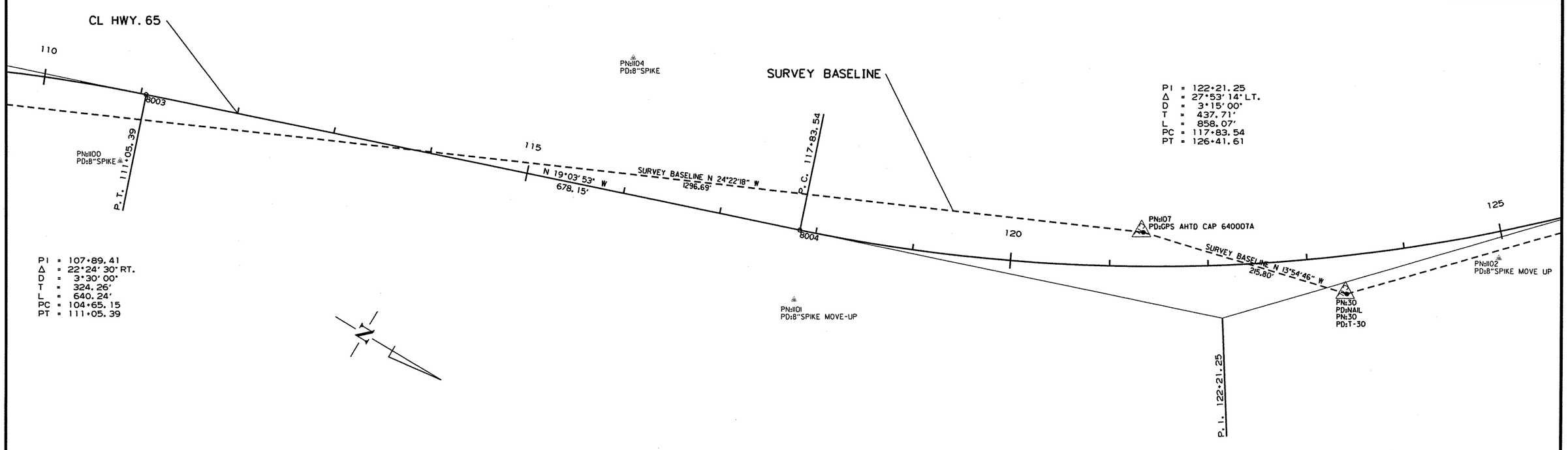
SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	24	88

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-19-11





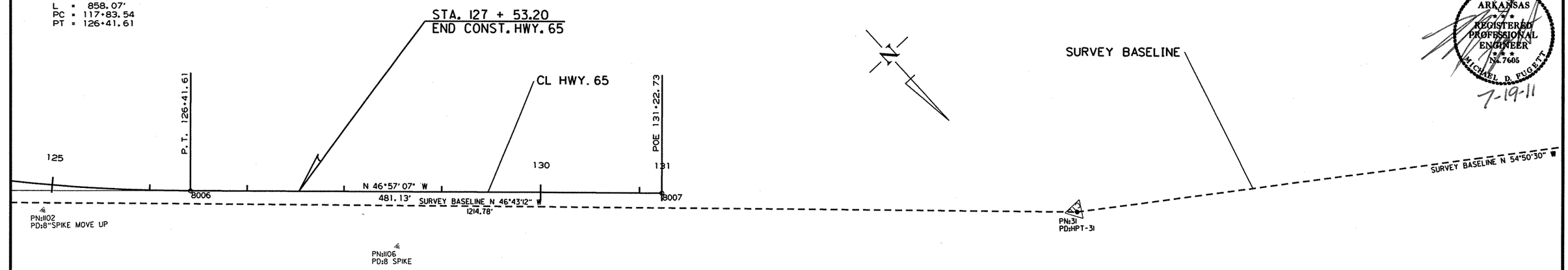
R090280.DGN 7/15/2011

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	25	88

(2) SURVEY CONTROL DETAILS

PI = 122+21.25
Δ = 27°53' 14" LT.
D = 3°15' 00"
T = 437.71'
L = 858.07'
PC = 117+83.54
PT = 126+41.61



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-19-11

R090280.DGN 7/15/2011

SURVEY CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	26	88

(2) PLAN & PROFILE SHEETS

STA. 103+20 LT.
CONSTRUCT APPROACH = 30 CU. YDS.

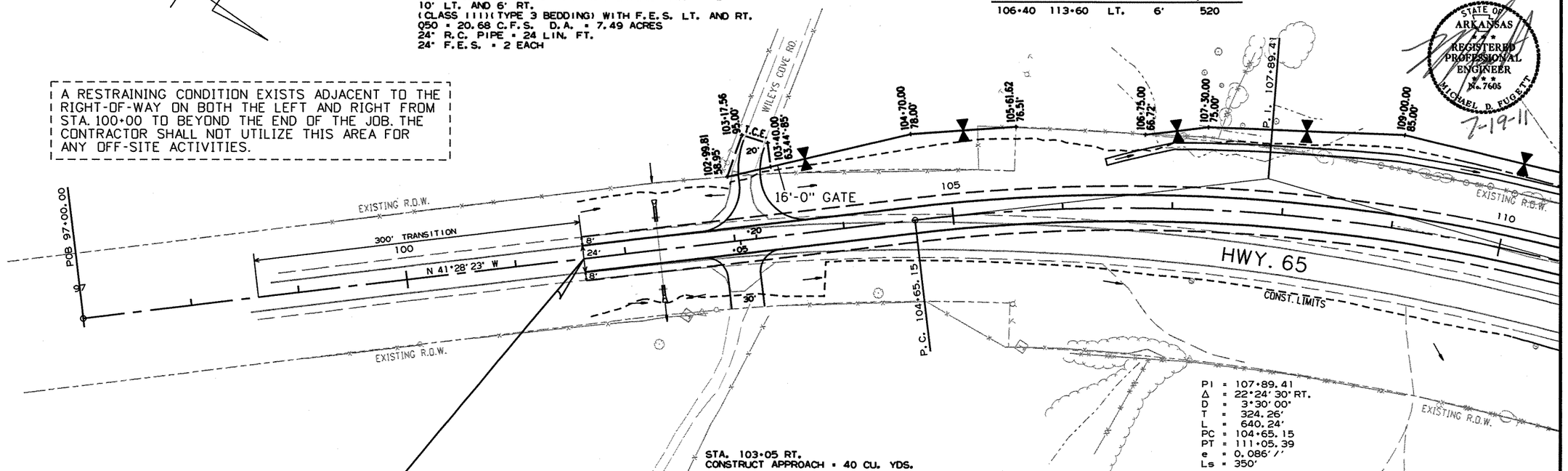
STA. 102+31 IN PLACE
24" x 66' R.C. PIPE CULVERT
WITH HEADWALLS LT. AND RT.
REMOVE HDWLS. LT. AND RT. AND EXTEND R.C. PIPE
10' LT. AND 6' RT.
(CLASS III)(TYPE 3 BEDDING) WITH F.E.S. LT. AND RT.
Q50 = 20.68 C.F.S. D.A. = 7.49 ACRES
24" R.C. PIPE = 24 LIN. FT.
24" F.E.S. = 2 EACH

CONCRETE DITCH PAVING HWY. 65

STA.	STA.	SIDE	"W"	SQ. YDS.
106+40	113+60	LT.	6'	520

A RESTRAINING CONDITION EXISTS ADJACENT TO THE RIGHT-OF-WAY ON BOTH THE LEFT AND RIGHT FROM STA. 100+00 TO BEYOND THE END OF THE JOB. THE CONTRACTOR SHALL NOT UTILIZE THIS AREA FOR ANY OFF-SITE ACTIVITIES.

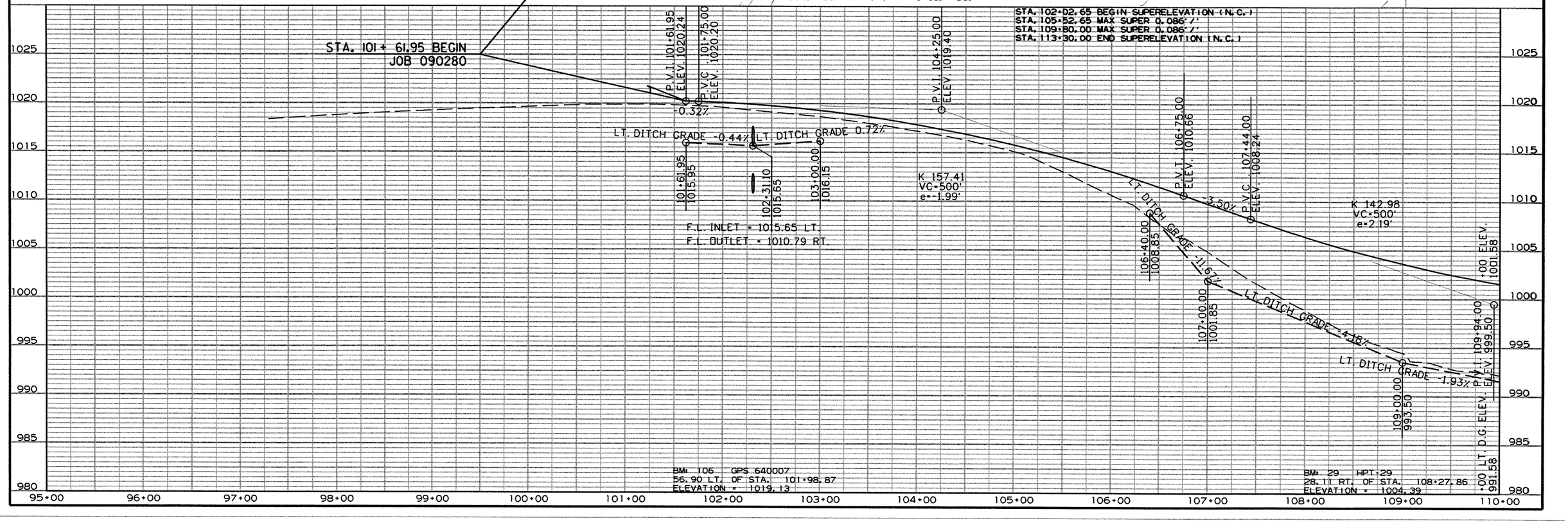
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. FUGETT
7-19-11



STA. 103+05 RT.
CONSTRUCT APPROACH = 40 CU. YDS.

STA. 101+61.95 BEGIN
JOB 090280

STA. 102+02.65 BEGIN SUPERELEVATION (N.C.)
STA. 105+52.65 MAX SUPER 0.086'/'
STA. 109+80.00 MAX SUPER 0.086'/'
STA. 113+30.00 END SUPERELEVATION (N.C.)



r090280.dgn 7/15/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	27	88

(2) PLAN & PROFILE SHEETS

A RESTRAINING CONDITION EXISTS ADJACENT TO THE RIGHT-OF-WAY ON BOTH THE LEFT AND RIGHT FROM STA. 100+00 TO BEYOND THE END OF THE JOB. THE CONTRACTOR SHALL NOT UTILIZE THIS AREA FOR ANY OFF-SITE ACTIVITIES.

CONCRETE DITCH PAVING HWY. 65

STA.	STA.	SIDE	"W"	SQ. YDS.
106+40	113+60	LT.	6'	520

COVE CREEK IS CLASSIFIED AS A PERENNIAL STREAM AND HAS A TOP OF CHANNEL ELEVATION OF 987 FT. MSL

STA. 120+55 IN PLACE
18" X 23' C.M. PIPE CULVERT
LT. SIDE DRAIN
REMOVE AND INSTALL
18" X 36' PIPE CULVERT
LT. SIDE DRAIN
CONSTRUCT APPROACH = 70 CU. YDS.

PI = 122+21.25
Δ = 27°53'14" LT.
D = 3°15'00"
T = 437.71'
L = 858.07'
PC = 117+83.54
PT = 126+41.61
e = 0.082'/'
Ls = 300'

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. PUGETT
7-19-11

PI = 107+89.41
Δ = 22°24'30" RT.
D = 3°30'00"
T = 324.26'
L = 640.24'
PC = 104+65.15
PT = 111+05.39
e = 0.086'/'
Ls = 350'

STA.	STA.	SIDE	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL (TYPE 2)
111+32.35	113+51.10	RT.	150'	1	1
112+57.35	113+51.10	LT.	25'	1	1
115+49.90	116+43.65	RT.	25'	1	1
115+49.90	117+68.65	LT.	150'	1	1

STA. 113+84 - STA. 115+22 IN PLACE
140' X 31' BRIDGE NO. A0679 CONSISTING OF FOUR 35' T-BEAM CONCRETE SPANS ON CONCRETE BENTS WITH SPREAD FOOTINGS
REMOVE AS EXISTING BRIDGE STRUCTURE
(SITE NO. 1) = 1.00 LUMP SUM

STA. 116+78 IN PLACE
24" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
24" X 42' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 85 CU. YDS.

HWY. 65 · EXISTING R.O.W. · CONST. LIMITS · 16'-0" GATE · N 19°03'53" W · P.C. · P.T. · P.I. 122+21.25

STA. 102+02.65 BEGIN SUPERELEVATION (N.C.)
STA. 105+52.65 MAX SUPER 0.086'/'
STA. 109+80.00 MAX SUPER 0.086'/'
STA. 113+30.00 END SUPERELEVATION (N.C.)

STA. 115+71.00 BEGIN SUPERELEVATION (N.C.)
STA. 118+71.00 MAX SUPER 0.082'/'
STA. 124+16.61 MAX SUPER 0.082'/'
STA. 127+16.61 END SUPERELEVATION (N.C.)

+00 ELEV. 1001.58 · +00 LT D.G. ELEV. 991.58 · K 142.98 VC=500' e=2.19' · P.V.T. 112+44.00 ELEV. 999.50 · Slope Intercept Sta. 113+53.00 · Beg. Bridge - Sta. 113+60.00 · End Bridge - Sta. 115+41.00 · Slope Intercept Sta. 115+48.00 · 111+00.00 989.65 · 113+60.00 988.00 · 115+41.00 989.00 · 050 DESIGN H.W. ELEV. = 994.40 FT. · 2H · LT. DITCH GRADE -1.93% · LT. DITCH GRADE -0.63% · 0.00% · LT. DITCH GRADE 0.80% · P.V.C. 120+67.11 ELEV. 999.50 · 120+40.00 993.00 · P.V.I. 122+42.11 ELEV. 999.50 · K 152.17 VC=350' e=1.01' · P.V.T. 124+17.11 ELEV. 1003.53 · +00 ELEV. 1005.26 · K 166.67 VC=250' e=-0.47' · 2.30% · P.V.C. 124+24.46 ELEV. 1003.69

CONSTRUCT
180'-0" INTEGRAL W-BEAM UNIT
(55'-70'-55' SPANS)
BR. NO. 07202
40'-0" CLEAR ROADWAY

NOTE:
FOR THE CONSTRUCTION OF TEMPORARY WORK RAMPS OR HAUL ROADS, THIS STREAM IS CLASSIFIED AS A PERENNIAL STREAM. THE STREAM BANK ELEVATION IS 987 FEET MSL BETWEEN STATIONS 114+00 AND 115+00. REFER TO SECTION 110.06(c) OF THE 2003 STANDARD SPECIFICATIONS.

BM: 107 GPS 640007A
34.67 LT. OF STA. 121+34.22
ELEVATION = 996.42

BM: 30 T-30
38.72 RT. OF STA. 123+37.08
ELEVATION = 1003.36

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

1015 · 1010 · 1005 · 1000 · 995 · 990 · 985 · 980 · 975 · 970

r090280.dgn 7/15/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	28	88

(2) PLAN & PROFILE SHEETS

A RESTRAINING CONDITION EXISTS ADJACENT TO THE RIGHT-OF-WAY ON BOTH THE LEFT AND RIGHT FROM STA. 100+00 TO BEYOND THE END OF THE JOB. THE CONTRACTOR SHALL NOT UTILIZE THIS AREA FOR ANY OFF-SITE ACTIVITIES.

PI = 122+21.25
Δ = 27°53' 14" LT.
D = 3°15' 00"
T = 437.71'
L = 858.07'
PC = 117+83.54
PT = 126+41.61
e = 0.082'/'
Ls = 300'

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7605
MICHAEL D. PUGETT
7-19-11

125+40.00
58.38'
126+41.61
P.T.
EXISTING R.O.W.
CONST. LIMITS
125
100' TRANSITION
130
131
POE 131+22.73
8'
24'
8'
N 46°57' 07" W
HWY. 65
EXISTING R.O.W.

	WIRE FENCE (TYPE C)	WIRE FENCE (TYPE D-1)	WIRE FENCE (TYPE D-2)
STA. 103+46.00 LT. OF C.L. TO STA. 113+60.00 LT. OF C.L. =	1107 LIN. FT.		
STA. 113+48.00 RT. OF C.L. TO STA. 113+60.00 RT. OF C.L. =		112 LIN. FT.	
STA. 115+41.00 RT. OF C.L. TO STA. 115+53.00 RT. OF C.L. =		105 LIN. FT.	
STA. 115+41.00 LT. OF C.L. TO STA. 115+52.00 LT. OF C.L. =			62 LIN. FT.
STA. 115+52.00 LT. OF C.L. TO STA. 120+47.00 LT. OF C.L. =			486 LIN. FT.
STA. 120+63.00 LT. OF C.L. TO STA. 125+40.00 LT. OF C.L. =			457 LIN. FT.

STA. 115+71.00 BEGIN SUPERELEVATION (N.C.)
STA. 118+71.00 MAX SUPER 0.082'/'
STA. 124+16.61 MAX SUPER 0.082'/'
STA. 127+16.61 END SUPERELEVATION (N.C.)

STA. 127 + 53.20
END CONST. HWY. 65

1035 1030 1025 1020 1015 1010 1005 1000 995 990

125+00 ELEV. 1005.26
P.V.I. 125+49.46 ELEV. 1006.57
P.V.T. 126+74.46 ELEV. 1007.57
P.V.I. 127+53.20 ELEV. 1008.20
0.80%
K 166.67
VC=250'
e=0.47'
RT. DITCH GRADE 0.90%
125+10.00 1000.33
127+00.00 1002.05

125+00 126+00 127+00 128+00 129+00 130+00 131+00 132+00 133+00 134+00 135+00 136+00 137+00 138+00 139+00 140+00

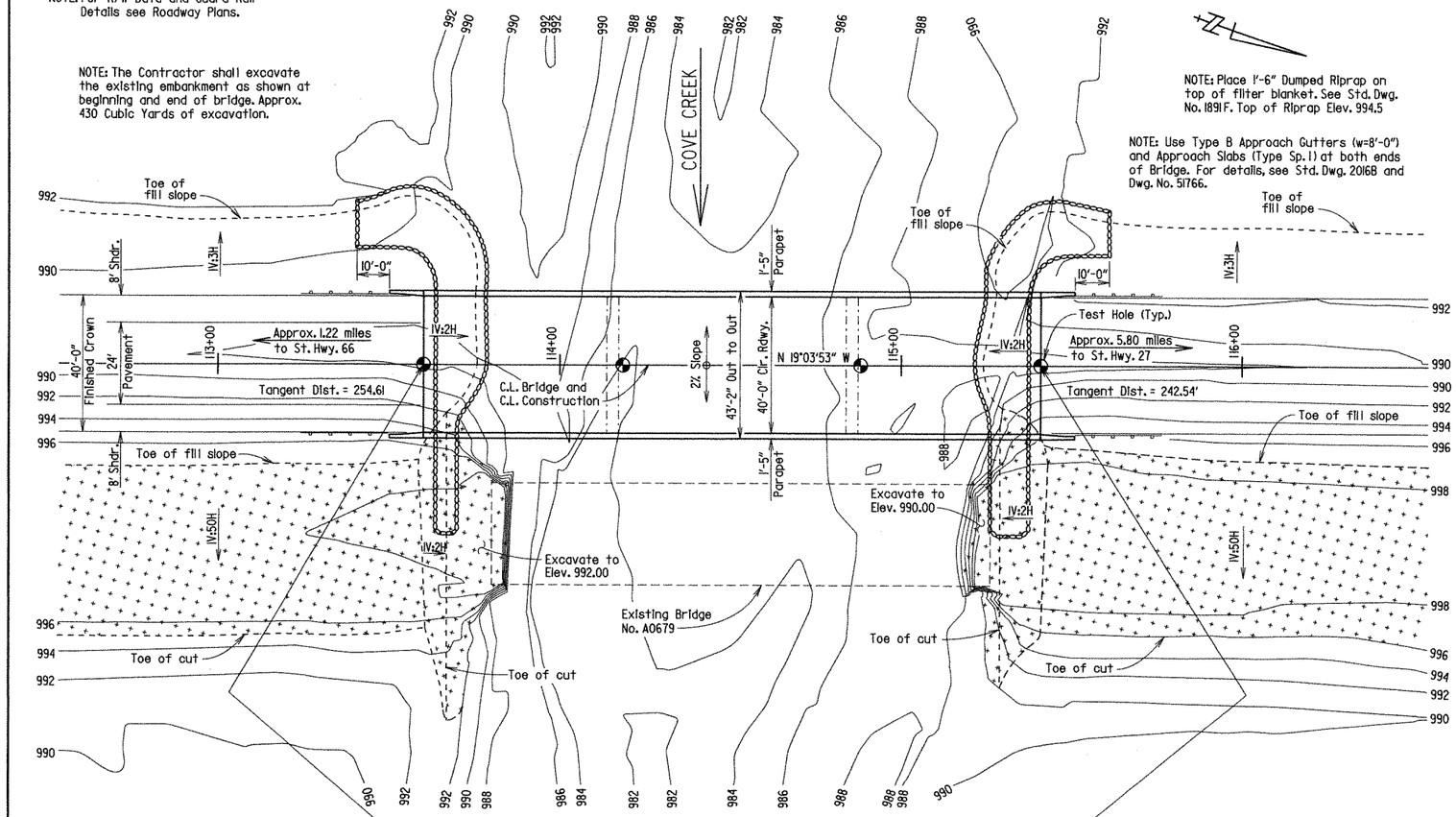
r090280.dgn 7/15/2011

NOTE: For R/W Data and Guard Rail Details see Roadway Plans.

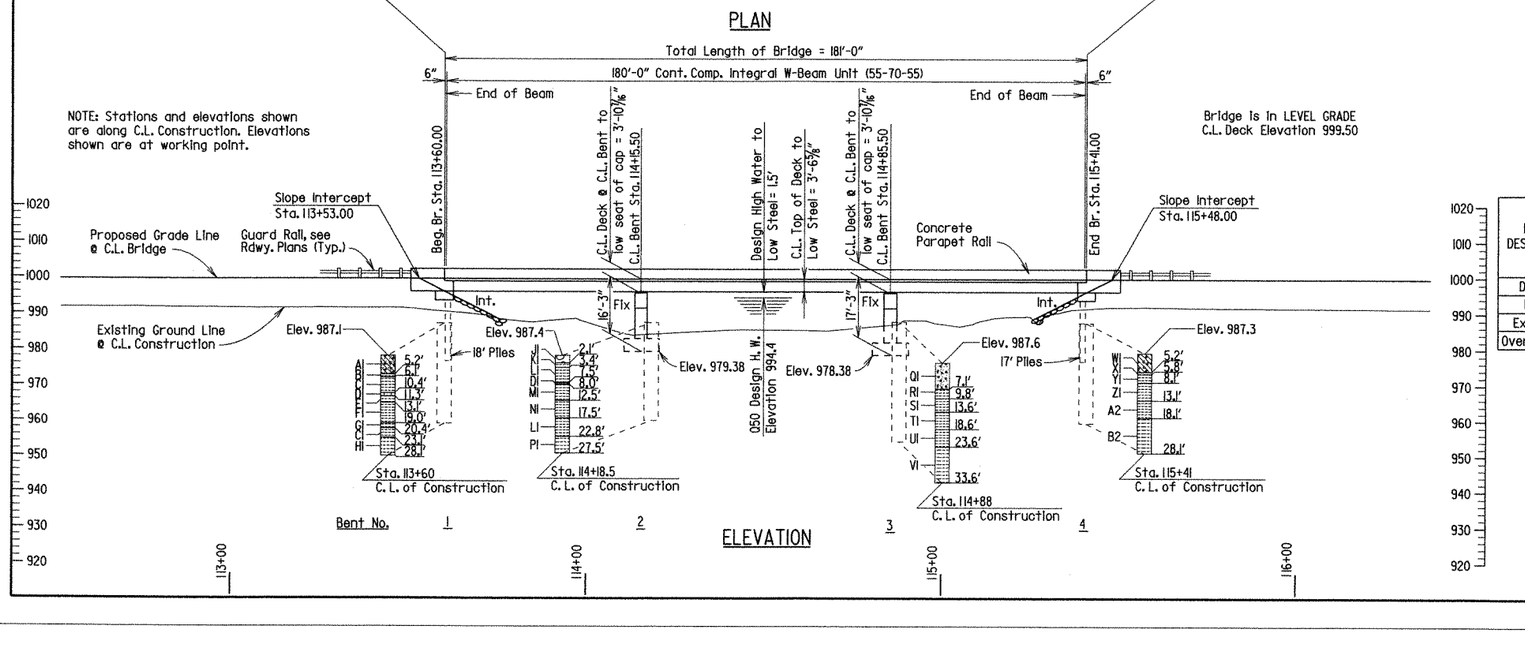
NOTE: The Contractor shall excavate the existing embankment as shown at beginning and end of bridge. Approx. 430 Cubic Yards of excavation.

NOTE: Place 1'-6" Dumped Riprap on top of filter blanket. See Std. Dwg. No. 1891F. Top of Riprap Elev. 994.5

NOTE: Use Type B Approach Gutters (w=8'-0") and Approach Slabs (Type Sp. 1) at both ends of Bridge. For details, see Std. Dwg. 2016B and Dwg. No. 51766.



PLAN



ELEVATION

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.		090280	29	88
				① 07202		LAYOUT		51756

GENERAL NOTES

BENCH MARK: HPT29 CPS 28.12' Rt. of C.L. Construction Sta. 108+27.86, Elevation 1004.39

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications 5th Edition (2010), with 2010 Interims.

LIVE LOADING: HL-93

SEISMIC ZONE : 1 S_{DI} = 0.087 SITE CLASS = B

MATERIALS AND STRENGTHS:

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

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

STEEL PILING: Piling in Bents 1 and 4 shall be HP12X53 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 material designated as Shale on the boring legend. Piling shall have a minimum penetration of 5 feet into material designated as Shale 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 the standard specifications. On all piles the Contractor shall use approved steel H-Pile driving points. Piles in end bents to be driven after embankment to bottom of cap is in place.

PREBORING: Preboring is required for all piling at Bents 1 and 4. Prebored holes shall have a diameter 6" greater than the greatest cross-sectional dimension of the pile for a depth of 10' below bottom of the cap. Additional preboring will be required to obtain minimum penetration into shale. The void space around the pile after completion of driving shall be backfilled with sand or pea gravel for 10' below the bottom of the cap. Any void space below 10' of the bottom of the cap shall be filled with an approved non-shrink grout. The Contractor shall be responsible for keeping prebored holes free of debris prior to backfilling, which may require the use of temporary casing or other approved methods. Any related cost for backfilling and temporary casing will not be paid for separately but shall be considered subsidiary to the item "Preboring". Preboring will be paid for in accordance with section 805.

FOOTINGS: Footings in intermediate bents shall be set a minimum of 2'-0" into material designated as Shale on the boring legend. The top of the footings shall be set at or below the existing channel bottom. 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 tine finish as specified for final finishing in subsection 802.20 for Class S Tined Bridge Roadway Surface Finish.

CLASS 2 PROTECTIVE SURFACE TREATMENT: Class 2 protective surface treatment shall be applied to the roadway surface and to the roadway face and top of the concrete parapet rail.

PIPE UNDER DRAIN: One Pipe Under drain with Outlet Protectors shall be installed behind each Bridge End in accordance with Section 611. Pipe Under drains will not be paid for directly but shall be considered subsidiary to "Unclassified Excavation".

DETAIL DRAWINGS:	DRAWING NO.
End Bents	51758
Intermediate Bents	51759
180' Integral W-Beam Unit	51760 - 51764
Elastomeric Bearings	51765
Steel Piles	14995A
Type B Approach Gutters	2016B
Approach Slabs	51766
Soil Borings	51757

EXISTING BRIDGE: Existing Bridge No. A0679 (Log Mile 6.21) is 31' wide and 140' long and consists of four 35' Concrete T-Beam spans supported by concrete bents with spread footings.

REMOVAL AND SALVAGE: After the proposed bridge is completed and opened to traffic, existing Bridge No. A0679 shall be removed in accordance with Section 205. All material from the existing bridge shall become the property of the Contractor.

MAINTENANCE OF TRAFFIC: See Roadway Plans.

HYDRAULIC DATA

FLOOD DESCRIPTION	FREQUENCY	DISCHARGE	①NATURAL WATER SURFACE ELEVATION	WATER SURFACE ELEVATION W/ BACKWATER
	YEARS	CFS	FEET	FEET
Design	50	8000	993.8	994.5
Base	100	9700	994.3	995.3
Extreme	500	11600	994.8	996.9
Overtopping	>500	—	—	—

① Unconstricted water surface elevation without structure and roadway approaches.
Estimated 100-Year backwater elevation with Existing Structures in place is 996.5 ft.
Proposed Low Bridge Member Elevation = 995.9
Drainage area = 12.2 square miles.
Historical H.W. Elev. = 995.3 ft.

STATE OF ARKANSAS
CHARLES P. BRAND
REGISTERED PROFESSIONAL ENGINEER
No. 14337
3/4/11
BRIDGE ENGINEER

SHEET 1 OF 2

LAYOUT OF BRIDGE OVER COVE CREEK

COVE CREEK STR. & APPRS. (S)
SEARCY COUNTY
ROUTE 65 SEC. 6

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 06/25/10 FILENAME: b090280_11.dgn
CHECKED BY: CPB DATE: 10/10 SCALE: 1"= 20'-0"
DESIGNED BY: CSL DATE: June 2010

BRIDGE NO. 07202 DRAWING NO. 51756

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.		090280	30	88
				(1) 07202		LAYOUT		51757

BORING LEGEND

AI-Moist to Wet, Stiff, Brown Clay with Sand and Gravel(Sandstone Fragments)(1)
BI-SHALE - Dark Gray, Weathered, Medium Hard
CI-SHALE - Dark Gray, Laminated, Slightly Weathered, Hard, with Slight Dip and Calcareous and Pyrite Seams
DI-SHALEY LIMESTONE - Gray, Medium Bedded, Slightly Weathered, Moderately Hard, with Slight Dip
EI-SHALE - Dark Gray, Laminated, Slightly Weathered, Hard, with Slight Dip and Calcareous, Pyrite and Vertically Fractured Seams
FI-SHALE - Dark Gray, Laminated, Slightly Weathered, Hard, with Slight Dip, Calcareous and Pyrite Seams, and some Slickensides
GI-SHALE - Dark Gray, Laminated, Weathered, Medium Hard, with Slight Dip
HI-SHALE WITH CALCAREOUS SANDSTONE SEAMS AND LAYERS - Dark Gray, Laminated, Slightly Weathered, Hard, with Slight Dip and Pyrite Seams
JI-Cobbles and Boulders
KI-SHALE - Dark Gray, Medium Hard(1)
LI-SHALE - Dark Gray, Laminated, Slightly Weathered, Hard, with Slight Dip
MI-SHALE - Dark Gray, Laminated, Slightly Weathered, Hard, with Slight Dip, Calcareous and Pyrite Seams and Trace of Coal
NI-SHALE - Dark Gray, Laminated, Slightly Weathered, Hard, with Slight Dip and Calcareous and Vertically Fractured Seams
PI-SHALE WITH CALCAREOUS SANDSTONE LAYERS - Dark Gray, Laminated, Slightly Weathered, Hard, with Slight Dip
QI-Moist to Wet, Medium Dense, Brown Sand with Gravel(Sandstone Fragments)(1)
RI-SHALE WITH WEATHERED SHALE SEAMS - Dark Gray, Medium Hard
SI-SHALE - Dark Gray, Laminated, Slightly Weathered, Hard, with Slight Dip and Calcareous Seams
TI-SHALE - Dark Gray, Laminated, Slightly Weathered, Hard, with Slight Dip, Calcareous, Pyrite and Highly Fractured Seams
UI-SHALE - Dark Gray, Laminated, Slightly Weathered, Hard, with Slight Dip, Calcareous and Fractured Seams
VI-SHALE WITH CALCAREOUS SANDSTONE SEAMS AND LAYERS - Dark Gray, Laminated, Slightly Weathered, Hard, with Slight Dip
WI-Moist to Wet, Stiff to Very Stiff, Brown Clay with Sand and Gravel(Sandstone Fragments)(1)
XI-SHALE - Dark Gray, Medium Hard
YI-SHALE - Dark Gray, Laminated, Weathered, Medium Hard, with Slight Dip, Calcareous, Pyrite and Fractured Seams
ZI-SHALE - Dark Gray, Laminated, Slightly Weathered, Hard, with Slight Dip, and Calcareous and Pyrite Seams
A2-SHALE - Dark Gray, Laminated, Slightly Weathered, Hard, with Slight Dip, Calcareous Pyrite and Vertically Fractured Seams
B2-SHALE WITH CALCAREOUS SANDSTONE SEAMS - Dark Gray, Laminated, Slightly Weathered, Hard, with Slight Dip, Pyrite Seams and some Slickensides

"N" VALUES

Sta. 113+60 - C. L. of Construction
4.6- 5.6,N=38
Sta. 114+18.5 - C. L. of Construction
3.2- 3.4,N=30(2)(2")
Sta. 114+88 - C. L. of Construction
5.2- 6.2,N=14
Sta. 115+41 - C. L. of Construction
4.7- 5.7,N=51

(1) Water Stratum Encountered.

(2) No movement of sampler for last 10 blows.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 13337
3-14-11
CHARLES P. BRAND

BRIDGE ENGINEER

SHEET 2 OF 2

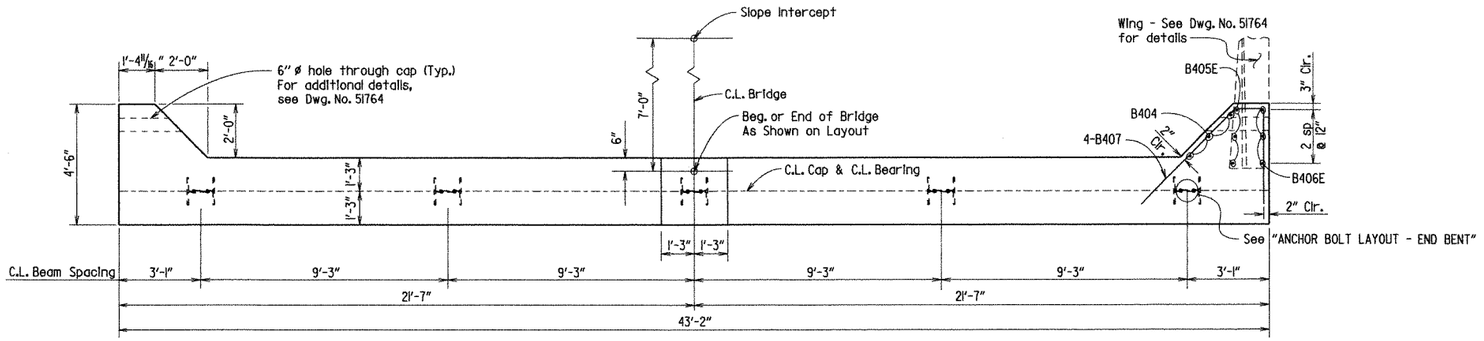
LAYOUT OF BRIDGE OVER COVE CREEK
COVE CREEK STR. & APPRS. (S)
SEARCY COUNTY
ROUTE 65 SEC. 6
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 06/25/10 FILENAME: b090280_1l.dgn
CHECKED BY: CNW DATE: 10/10 SCALE: 1"= 20'-0"
DESIGNED BY: CSL DATE: June 2010

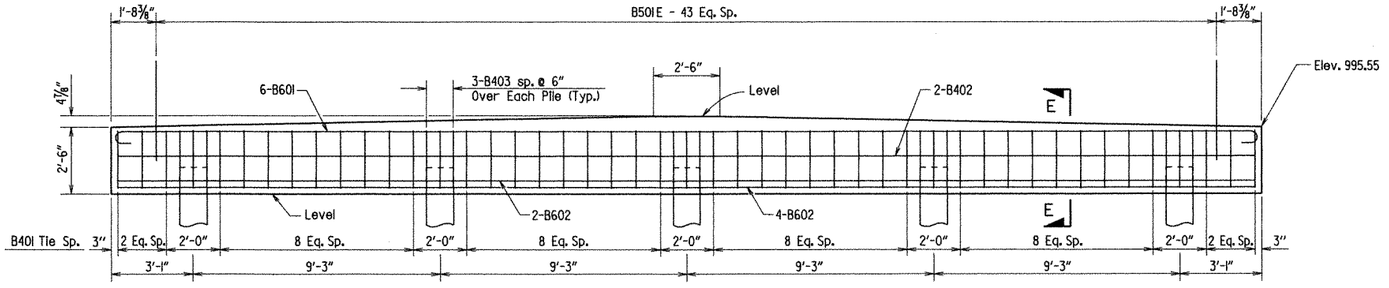
BRIDGE NO. 07202 DRAWING NO. 51757

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.		090280	31	88

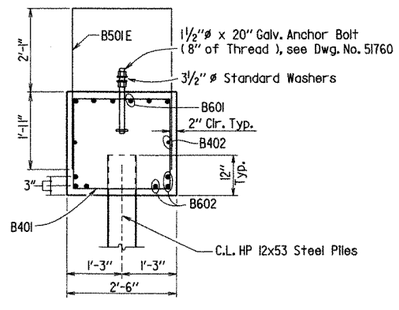
(1) 07202 DETAILS OF END BENTS 51758



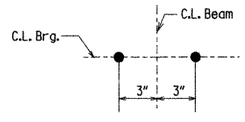
PLAN



ELEVATION
(Bent 1 - Looking Back)
(Bent 4 - Looking Ahead)



SECTION E-E
No Scale

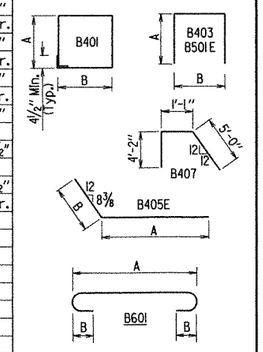


ANCHOR BOLT LAYOUT
END BENT
No Scale

BAR LIST (PER BENT)

Mark	No. Req'd.	Length	A	B	Pin Dia.
B401	42	9'-0"	2'-2"	2'-2"	2"
B402	2	42'-10"	-	-	Str.
B403	15	6'-4"	2'-2"	2'-2"	2"
B404	6	4'-5"	-	-	Str.
B405E	6	7'-2"	6'-1"	1'-2"	2"
B406E	6	8'-5"	-	-	Str.
B407	8	10'-2"	-	-	2"
B501E	44	10'-0"	4'-0"	2'-2"	2 1/2"
B601	6	44'-2"	42'-10"	6"	4 1/2"
B602	6	42'-10"	-	-	Str.

Bending Diagrams



Dimensions are out to out of bars

GENERAL NOTES

All concrete shall be Class "S" and have a minimum 28 day compressive strength f'c = 3500 psi. All exposed corners shall be chamfered 3/4" unless otherwise noted.

Reinforcing steel shall conform to AASHTO M 31 or M 53, Grade 60.

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

For anchor bolt details, see Dwg. No. 51760.

Bars with "E" suffix are Epoxy Coated.

For additional information, see Layout.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4337
3/4/11
CHARLES P. BRAND

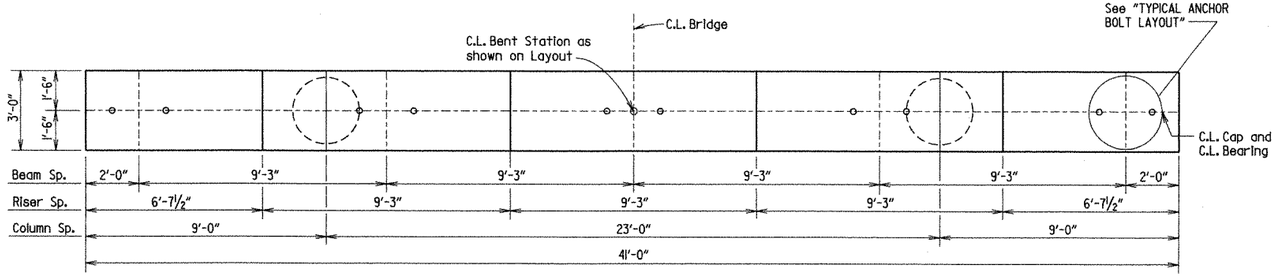
BRIDGE ENGINEER

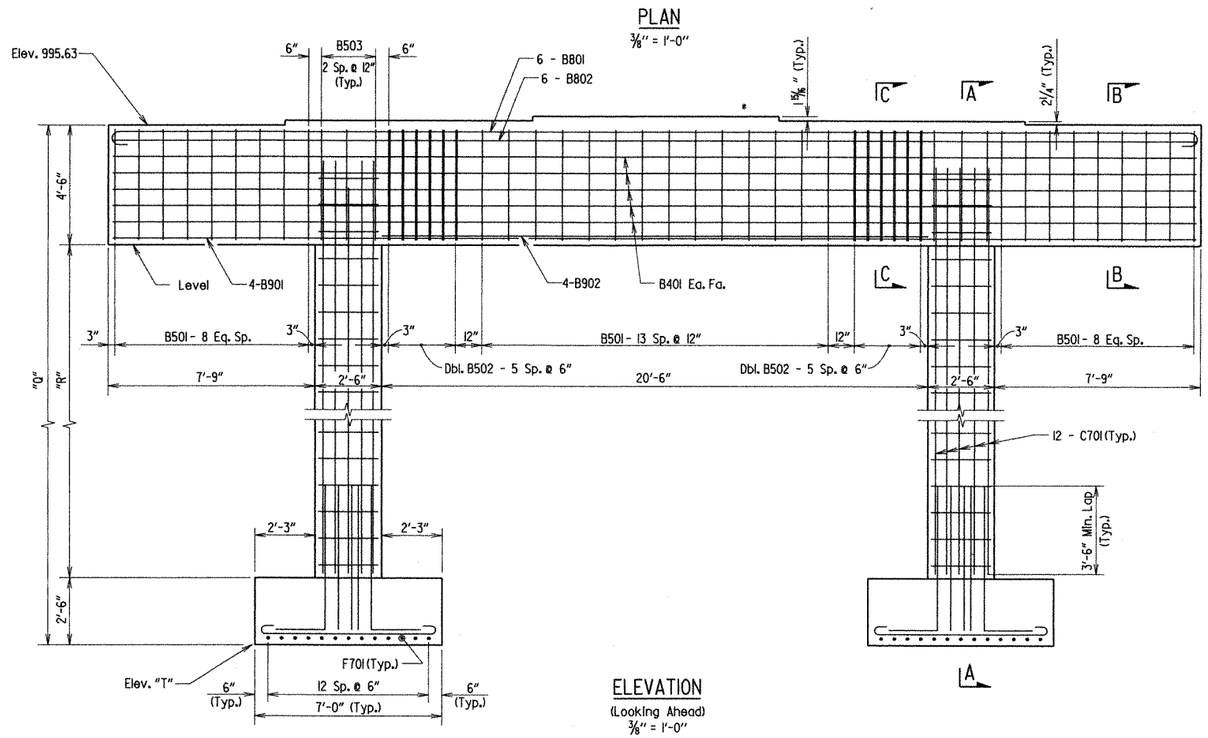
DETAILS OF END BENTS
COVE CREEK
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

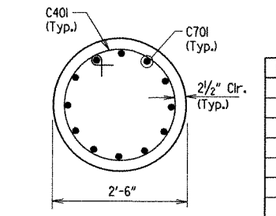
DRAWN BY: MRE DATE: 10/5/10 FILENAME: b090280_b1.dgn
CHECKED BY: RBR DATE: 12/10 SCALE: 3/8"= 1'-0" or as noted
DESIGNED BY: CMH DATE: 12/10

BRIDGE NO. 07202 DRAWING NO. 51758

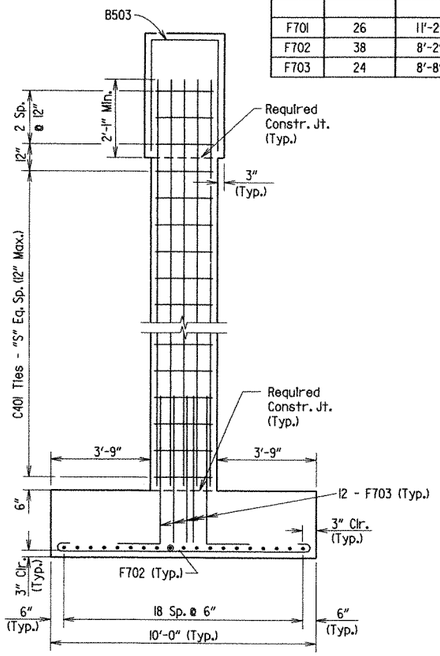
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				4	ARK.			
				JOB NO.		090280	32	88
				(1) 07202		DETAILS OF INT. BENTS		51759







TYPICAL COLUMN SECTION
¾" = 1'-0"

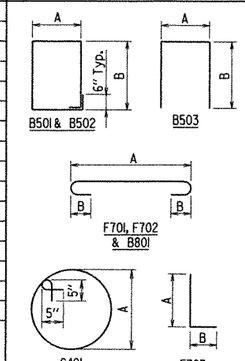


SECTION A-A
⅜" = 1'-0"

BAR LIST-PER BENT

MARK	NO. REQ'D.	LENGTH	'A'	'B'	P.D.
B401	10	40'-8"	-	-	Str.
B501	32	14'-2"	2'-8"	4'-2"	2½"
B502	24	12'-5"	1'-9½"	4'-2"	2½"
B503	6	10'-10"	2'-8"	4'-2"	2½"
B801	6	42'-6"	40'-8"	8"	6"
B802	6	40'-8"	-	-	Str.
B901	4	40'-8"	-	-	Str.
B902	4	20'-6"	-	-	Str.
C401	"C"	7'-8"	2'-1"	-	3"
C701	24	"D"	-	-	Str.
F701	26	11'-2"	9'-6"	7"	5¼"
F702	38	8'-2"	6'-6"	7"	5¼"
F703	24	8'-8"	7'-8"	1'-2"	5¼"

BENDING DIAGRAMS



Dimensions are out to out of bars.

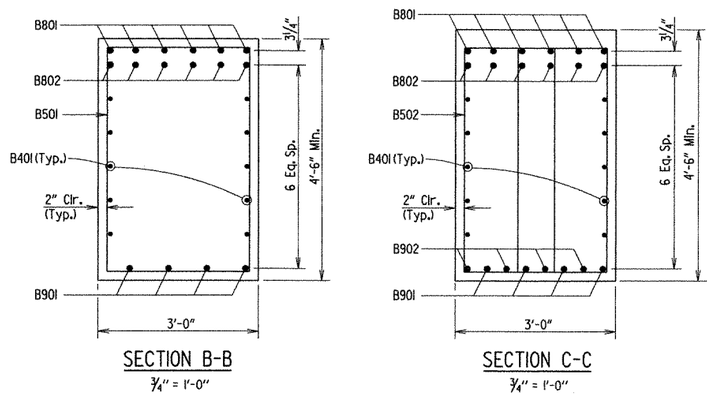
GENERAL NOTES:

All concrete shall be Class "S" with a minimum 28 day compressive strength of f'c = 3500 psi and shall be poured in the dry. All exposed corners to be chamfered ¾" unless otherwise noted.

All reinforcing steel shall conform to AASHTO M 31 or M 53, Gr. 60. (Yield strength= 60,000 psi.)

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

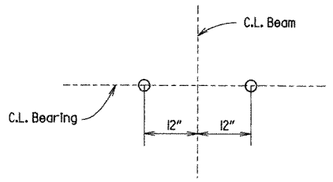
For additional information, see Layout.



SECTION B-B
¾" = 1'-0"

SECTION C-C
¾" = 1'-0"

ELEVATION
(Looking Ahead)
⅜" = 1'-0"



TYPICAL ANCHOR BOLT LAYOUT
¾" = 1'-0"

TABLE OF VARIABLES

BENT NO.	"C"	"D"	"Q"	"R"	"S"	"T"
2	24	13'-2"	16'-3"	9'-3"	8	979.38
3	26	14'-2"	17-3"	10'-3"	9	978.38

STATE OF ARKANSAS
CHARLES P. BRAND
REGISTERED PROFESSIONAL ENGINEER
No. 13537
5/4/11
BRIDGE ENGINEER

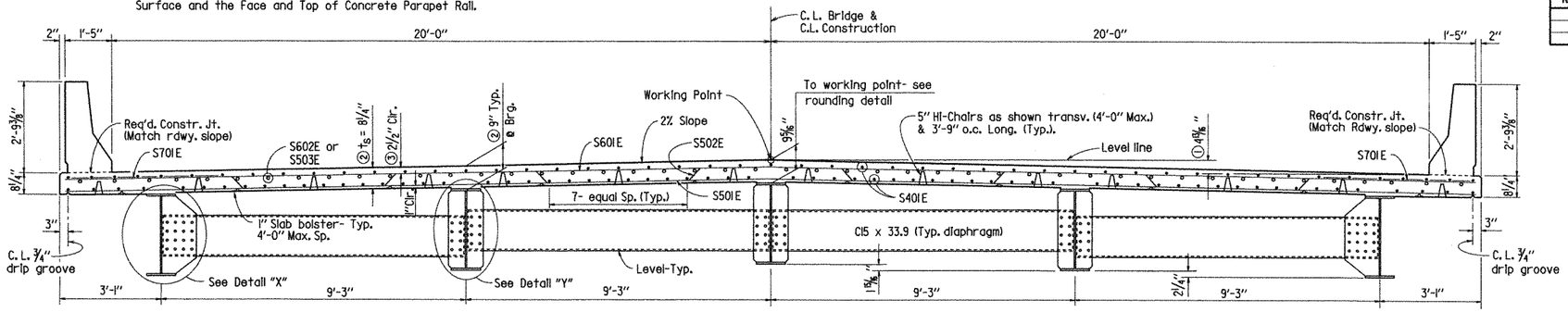
DETAILS OF INTERMEDIATE BENTS
COVE CREEK
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

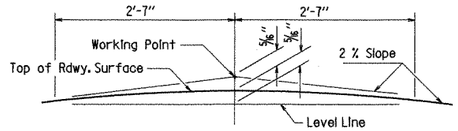
DRAWN BY: MRE DATE: 10/5/10 FILENAME: b090280_b2.dgn
CHECKED BY: TBR DATE: 12-/10 SCALE: AS NOTED
DESIGNED BY: CMW DATE: 12/10

BRIDGE NO. 07202 DRAWING NO. 51759

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.		090280	33	88
				① 07202		SPAN DETAILS	51760	

NOTE: Class 2 Protective Surface Treatment shall be applied to the Roadway Surface and the Face and Top of Concrete Parapet Rail.





NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL
No Scale

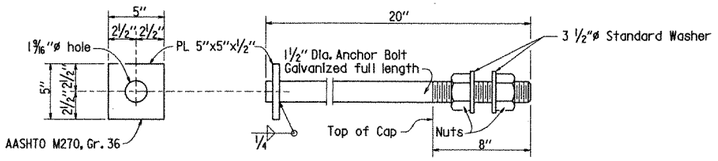
Slab Reinforcing:
Longitudinal: S401E Top & Bottom
S503E placed as shown at ends of unit (See Reinf. Plan)
S602E placed as shown over interior supports (See Reinf. Plan)
Transverse: S502E @ 15"o.c. bent up over beams — Alternate
S601E @ 15"o.c. in top, S501E @ 15"o.c. in bottom,
S701E @ 15"o.c. in top (See Detail A on Dwg. No. 51762)

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

NOTE: Bars with an "E" suffix are epoxy coated.

① Working point to gutter line
② Tolerance: Minus = ¼"
Plus = Equal to amount of slab thickening used to meet slab thickness tolerance-
See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE"
③ See "ADJUSTMENT FOR SLAB THICKNESS TOLERANCE"

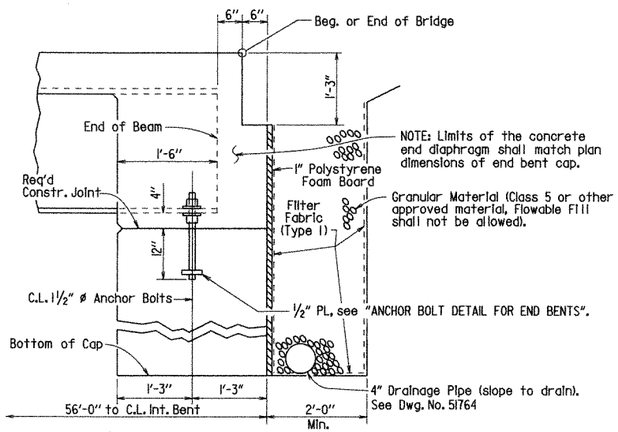
TYPICAL ROADWAY SECTION
½" = 1'-0"



Anchor Bolts and Nuts to be according to subsection 807.07 of the specifications. Washers shall be a standard washer.

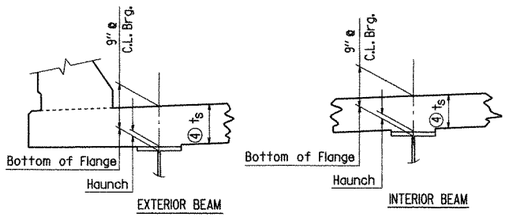
Use lower nut and washer to adjust to grade. Snug tight top nut and washer after grade is adjusted.

ANCHOR BOLT DETAIL FOR END BENTS
No Scale



SECTION AT END BENT
No Scale

NOTE: For additional details of pipe under drain see Std. Dwg. PU-1and Section 611 of the Standard Specifications. Pipe under drains, outlet protectors, granular materials, drain pipe, filter fabric and polystyrene foam board will not be measured or paid for separately, but will be considered subsidiary to the unit price bid for "Unclassified Excavation".



④ Tolerance when removable deck forming is used is + ½", - ¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

NOTES:

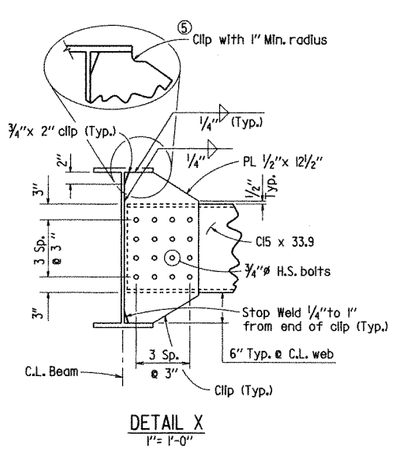
t_s = Slab thickness as shown on Typical Roadway Section.

Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance : Minimum - occurs when top flange contacts bottom reinforcing steel; Maximum - top flange thickness plus 1¾". No increase in concrete and structural steel quantities will be made to maintain tolerances.

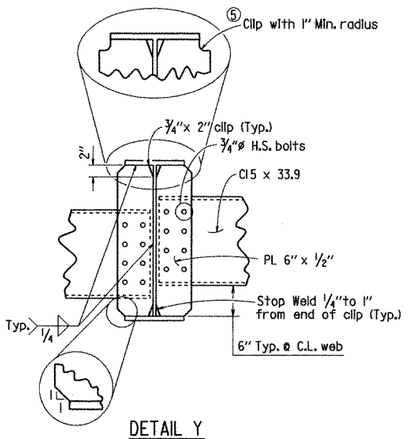
Tolerances shown are applicable only when removable deck forming is used. See Std. Dwg. No. 14991 for tolerances when permanent steel deck forms are used. Payment for concrete shall be based on removable deck forming.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE
No Scale

⑤ If permanent steel bridge deck forms are used, the Fabricator shall clip the plate as necessary to accommodate the deck form support.



DETAIL X
1"= 1'-0"



DETAIL Y
1"= 1'-0"

STATE OF ARKANSAS
CHARLES P. BRAND
REGISTERED PROFESSIONAL ENGINEER
No. 4337
3/4/11

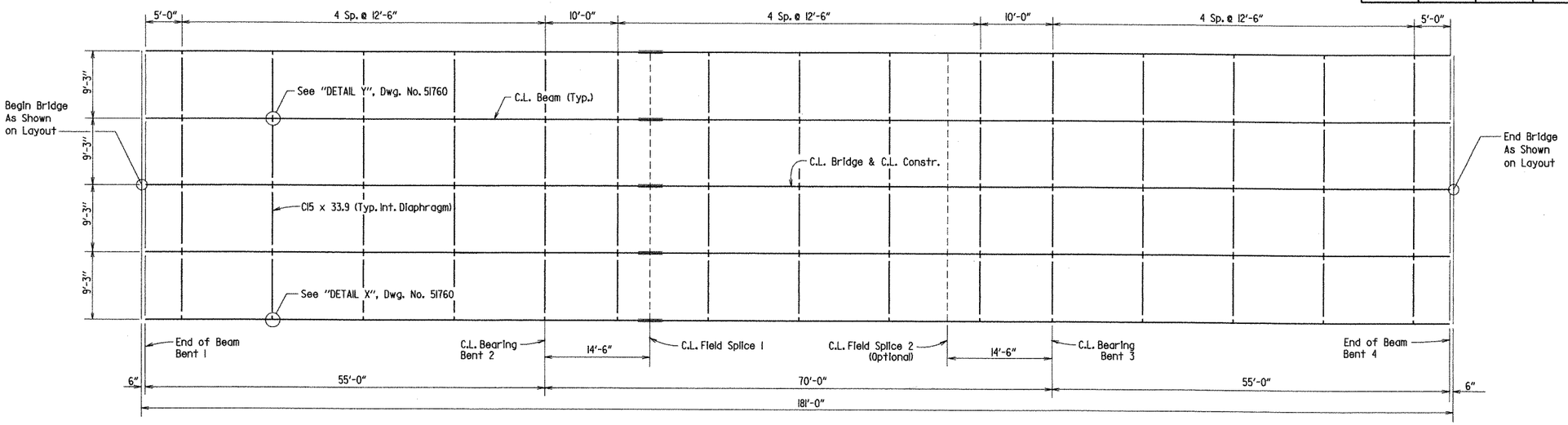
BRIDGE ENGINEER

SHEET 1 OF 5
DETAILS OF 180'-0" INTEGRAL W-BEAM UNIT
COVE CREEK
ROUTE SEC.
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

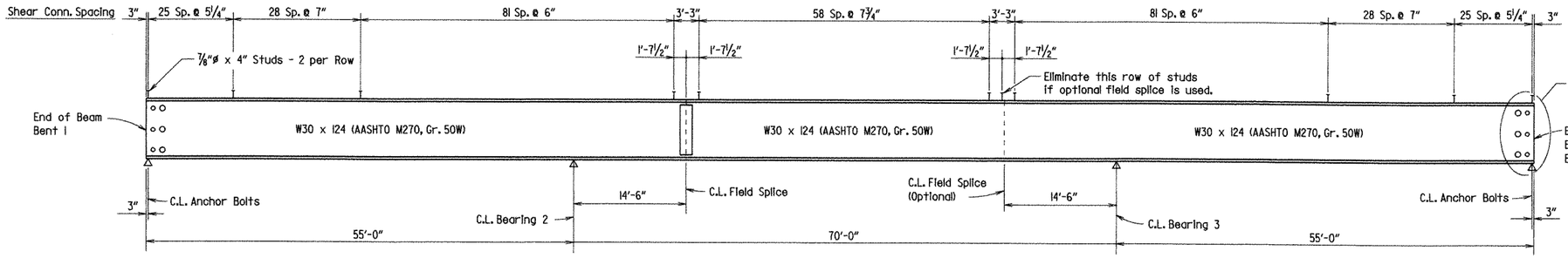
DRAWN BY:	MRE	DATE:	7-23-10	FILENAME:	b090280_sl.dgn
CHECKED BY:	RBR	DATE:	12/10	SCALE:	As shown
DESIGNED BY:	CMW	DATE:	12/10		

BRIDGE NO. 07202 DRAWING NO. 51760

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.		090280	34	88
				07202		SPAN DETAILS		51761

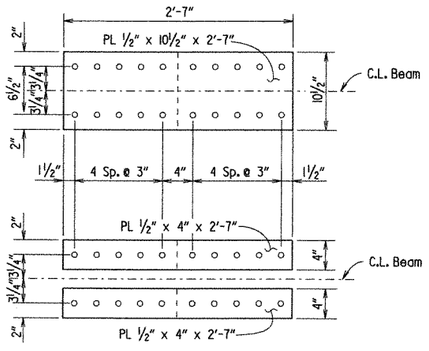


FRAMING PLAN

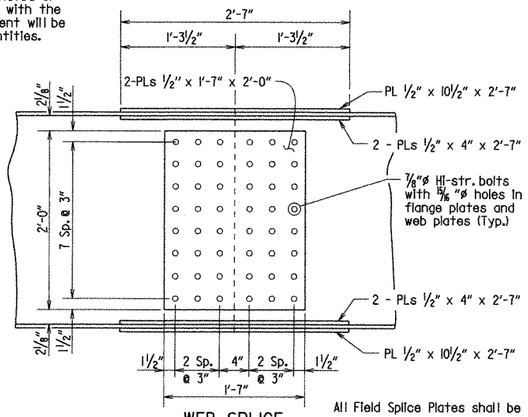


TYPICAL BEAM ELEVATION

NOTE:
Bolted Field Splices may be eliminated or Shop Welded Splices substituted with the approval of the Engineer. Payment will be made on the basis of plan quantities.



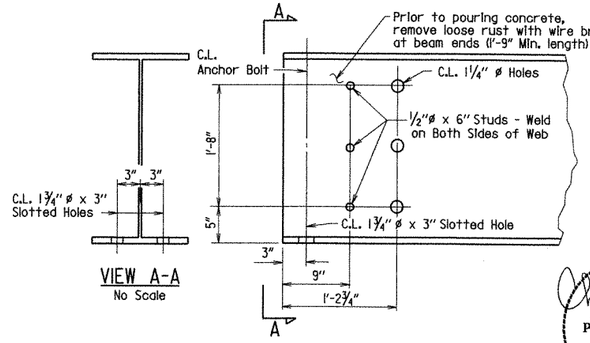
FLANGE SPLICE
TOP AND BOTTOM



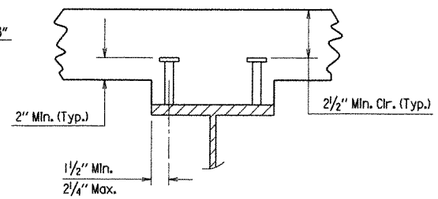
WEB SPLICE

All Field Splice Plates shall be AASHTO M270, Gr. 50W
All Field Splice Bolts shall be ⅞"ø H.S. Bolts
All Field Splice Bolt Holes shall be 15/16 "ø

DETAILS OF FIELD SPLICE



DETAIL OF BEAM END
No Scale



Stud Shear Connectors shown shall be ⅞"ø x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the Manufacturer. ¾"ø studs may be used in place of the ⅞"ø studs shown, at the ratio of 1.361 - ¾"ø studs in place of one ⅞"ø stud. ⅞"ø studs will be used as basis for measurement of structural steel in shear connectors. Maximum stud spacing = 24"

SHEAR CONNECTOR DETAIL
No Scale

STATE OF ARKANSAS
CHARLES P. BRAND
REGISTERED PROFESSIONAL ENGINEER
No. 4337
5/4/11

BRIDGE ENGINEER

SHEET 2 OF 5
DETAILS OF 180'-0" INTEGRAL W-BEAM UNIT
COVE CREEK
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

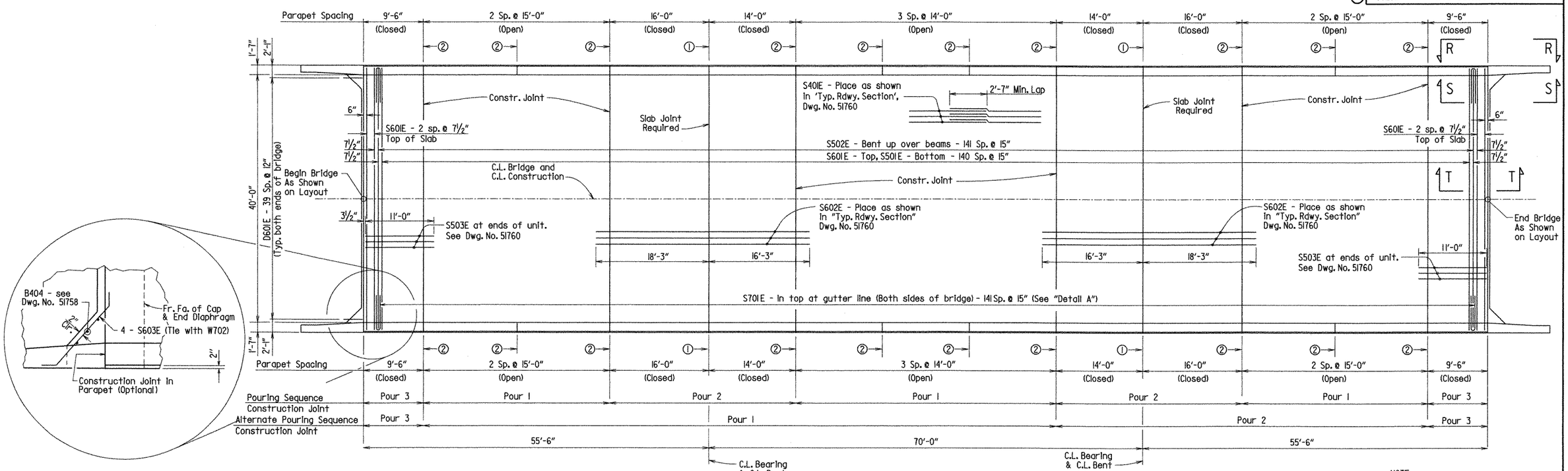
DRAWN BY: MRE DATE: 7-23-10 FILENAME: b090280_s2.dgn
CHECKED BY: RBR DATE: 12/10 SCALE: As shown
DESIGNED BY: CMW DATE: 12/10

BRIDGE NO. 07202 DRAWING NO. 51761

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.		090280	35	88
				(1) 07202		SPAN DETAILS		51762

(1) C.L. Full Depth Parapet Joint (1/4" to 1" Max.) Stop 4" from top of slab.

(2) C.L. Partial Depth Parapet Joint (1/4" to 1" Max.) Stop 1'-2" from top of slab.



NOTE:
For "VIEW R-R", "VIEW S-S" and "SECTION T-T" see Dwg. No. 51764

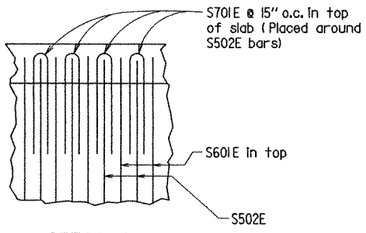
REINFORCING PLAN & DECK POURING SEQUENCE

Note: Pours with the same number may be placed simultaneously or separately. All Pours (1) must be placed before Pours (2) can be placed. All Pours (2) must be placed before Pours (3). 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.

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

The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

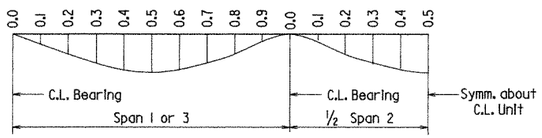


DETAIL A
No Scale

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
1 or 3	0.0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.030	0.030	0.212	0.182	0.213	0.184
	0.2	0.056	0.056	0.390	0.334	0.394	0.341
	0.3	0.073	0.073	0.508	0.436	0.515	0.447
	0.4	0.079	0.079	0.555	0.476	0.563	0.489
	0.5	0.076	0.076	0.529	0.453	0.537	0.466
	0.6	0.063	0.063	0.438	0.375	0.444	0.384
	0.7	0.043	0.043	0.302	0.259	0.304	0.263
	0.8	0.022	0.022	0.154	0.132	0.153	0.131
	0.9	0.005	0.005	0.035	0.030	0.033	0.026
½ Span 2	0.0	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.019	0.019	0.132	0.113	0.143	0.131
	0.2	0.053	0.053	0.372	0.319	0.399	0.362
	0.3	0.089	0.089	0.619	0.531	0.661	0.597
	0.4	0.114	0.114	0.796	0.683	0.848	0.766
C.L. Unit →	0.5	0.123	0.123	0.861	0.738	0.917	0.827

Table is symmetrical about C.L. Unit



DEAD LOAD DEFLECTIONS DIAGRAM (TYP.)

NOTE:
Camber for Dead Load Deflection plus Vertical curve ± 1/4" tolerance.
Deflections shown are from a chord from C.L. Bearing to C.L. Bearing.
Vertical curve corrections not included. Negative sign (-) indicates point above chord.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4337
3/2/11
CHARLES P. BRAND

BRIDGE ENGINEER

SHEET 3 OF 5

DETAILS OF 180'-0" INTEGRAL W-BEAM UNIT

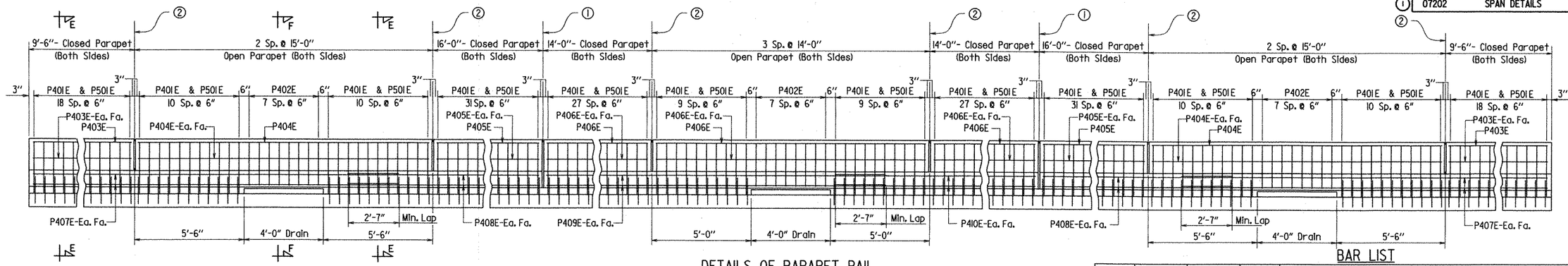
COVE CREEK
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 7-23-10 FILENAME: b090280_s3.dgn
CHECKED BY: RBR DATE: 12/10 SCALE: As shown
DESIGNED BY: CNW DATE: 12/10

BRIDGE NO. 07202 DRAWING NO. 51762

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.		090280	36	88
				①	07202	SPAN DETAILS		51763

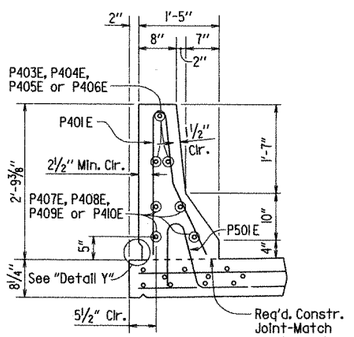


① C.L. Full-Depth Parapet Joint (1/4" to 1" Max.) as shown in "Reinforcing Plan & Deck Pouring Sequence" Dwg. No. 51762. Stop 4" from top of slab.

② C.L. Partial-Depth Parapet Joint (1/4" to 1" Max.) as shown in "Reinforcing Plan & Deck Pouring Sequence" Dwg. No. 51762. Stop 1'-2" from top of slab.

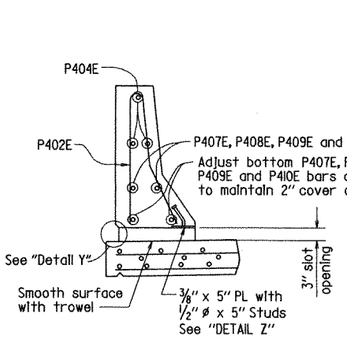
DETAILS OF PARAPET RAIL

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



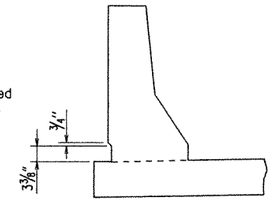
SECTION E-E

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



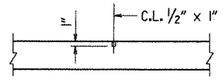
SECTION F-F

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



DETAIL Y

No Scale



Use 1/2" x 1" Type 3, 4 or 6 Joint Sealer. See subsections 501.02(h) and 501.05(j). Backer rod will not be required. Joint Sealer shall be measured and paid for as Class S(AE) Concrete-Bridge. Slab Joints shall extend to the outside edge of the deck slab. 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 slab has sufficiently set to allow sawing of the joints without damaging the slab. Slab Joints shall be placed at all pouring sequence construction joints and required slab joint locations.

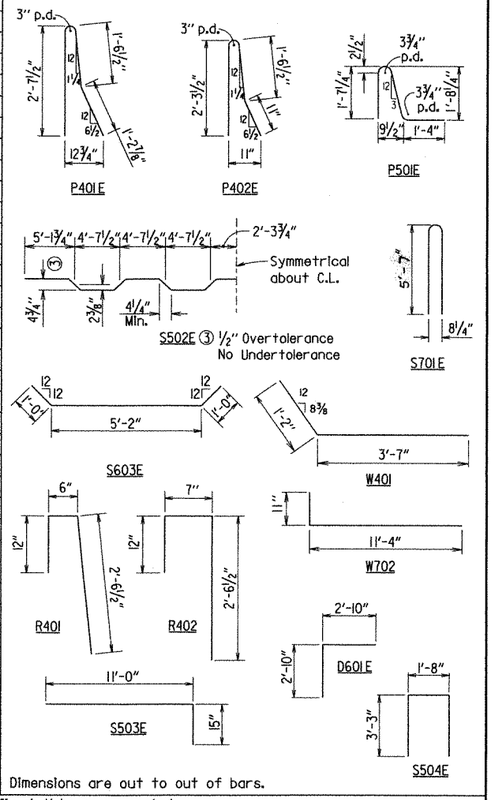
SLAB JOINT DETAIL

No Scale

BAR LIST

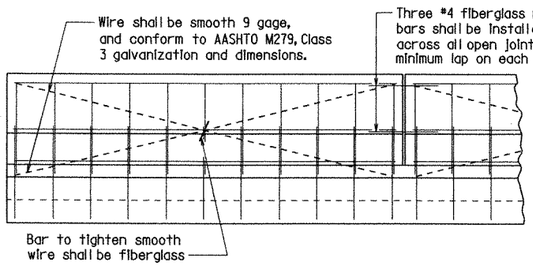
MARK	NO. REQ'D	LENGTH	P.D.
S401E	565	38'-2"	Str.
S402E	18	42'-10"	Str.
P401E	612	5'-6"	3"
P402E	112	4'-10"	3"
P403E	12	9'-2"	Str.
P404E	24	14'-8"	Str.
P405E	12	15'-8"	Str.
P406E	30	13'-8"	Str.
P407E	16	37'-8"	Str.
P408E	16	20'-1"	Str.
P409E	8	40'-0"	Str.
P410E	8	32'-3"	Str.
S501E	141	42'-10"	Str.
S502E	142	43'-8"	3"
S503E	92	12'-2"	2 1/2"
S504E	88	8'-0"	2 1/2"
P501E	612	4'-9"	3 3/4"
S601E	147	42'-10"	Str.
S602E	92	34'-6"	Str.
S603E	16	7'-2"	4 1/2
S701E	284	11'-6"	6 1/2"
R401	16	3'-11"	2"
R402	16	4'-0"	2"
R403	24	9'-8"	Str.
R404	24	2'-0"	Str.
R601	32	5'-11"	Str.
R602	12	5'-0"	Str.
W401	20	4'-9"	2"
W402	20	5'-11"	Str.
W701	12	11'-4"	Str.
W702	48	12'-1"	5 1/4"
D601E	80	5'-6"	4 1/2"

BENDING DIAGRAMS



Dimensions are out to out of bars.

NOTE: Bars designated with an "E" suffix shall be epoxy coated.

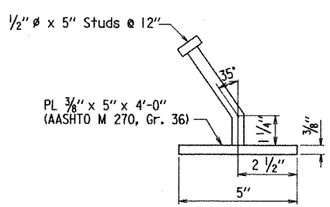


All panels shall be braced as required to prevent racking. All open joints shall be sawed as soon as practical to a minimum width of 1/4". To control cracking before sawing all joints must be grooved before the concrete is set. Sawing of the joints must be controlled so it will follow the grooved joint.

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.

DETAILS OF OPTIONAL SLIP FORMING OF CONCRETE PARAPET RAIL

No Scale



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 (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 Beam Spans (M270, Gr. 50W)."

STATE OF ARKANSAS
CHARLES P. BRAND
No. 4337
REGISTERED PROFESSIONAL ENGINEER
3/4/11

BRIDGE ENGINEER

SHEET 4 OF 5

DETAILS OF 180'-0" INTEGRAL W-BEAM UNIT

COVE CREEK

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 10-06-10 FILENAME: b090280_s4.dgn

CHECKED BY: RBR DATE: 12/10 SCALE: As shown

DESIGNED BY: CMW DATE: 12/10

BRIDGE NO. 07202 DRAWING NO. 51763

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.		090280	37	88
				① 07202		SPAN DETAILS		51764

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2003 Edition) with applicable supplemental specifications and special provisions.

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications 5th Edition (2010), with 2010 Interims.

LIVE LOADING: HL-93

MATERIALS AND STRENGTHS:
Concrete: All concrete shall be Class S(AE) with a minimum 28 day strength f'c = 4000 psi.

Reinforcing Steel: Reinforcing steel shall conform to AASHTO M31 or M53, Grade 60 (Yield Strength = 60,000 psi.).

Structural Steel: Structural steel shall conform to AASHTO M270, Gr. 50W (Fy = 50,000 psi.) or AASHTO M270 Gr.36 (Fy = 36,000 psi.).

STRUCTURAL STEEL:
All Structural Steel shall be AASHTO M270, Gr. 50W unless otherwise noted. All structural steel shall be paid for as "Structural Steel in Beam Spans (M270, Gr.50W)". Structural Steel completely embedded in concrete may be AASHTO M270. Gr. 36. AASHTO M270, Gr.50W steel shall not be painted. All exposed surfaces shall be cleaned in accordance with subsection 807.84e unless noted otherwise.

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 including web and flange splice plates are considered main load carrying members and shall meet the Longitudinal Charpy V-Notch Test specified in subsection 807.05. This work and material will not be paid for directly, but shall be considered subsidiary to the item "Structural Steel in Beam Spans (M270, Gr.50W)".

Steel 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.

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.

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

All beams shall be blocked in their true position in the shop as specified in subsection 807.54 (b)(1). The camber, length of sections, distance between bearings, and opening of joints shall be measured with the beams in their true position and this information shall become part of the permanent record of this job. The component parts shall be match marked in this assembly and those marks shall be shown on the erection diagram. All beam dimensions are based on a temperature of 60 degrees F. A tolerance of 1/4" (plus or minus) allowed for camber.

Field connections shall be bolted with high-strength bolts. Bolts shall be 3/4"ø, except as noted, and open holes shall be 15/16"ø unless otherwise noted. Holes for 3/4"ø bolts may be 15/16"ø. If a washer is supplied for use under both the nut and the head of the bolt. Bolt spacing shall be 2 1/2" for 3/4"ø bolts. For field splices, bolts shall be 7/8"ø bolts. Open holes shall be 15/16"ø. Bolt spacing shall be 3" for 7/8"ø bolts unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior beam web and on the bottom of the beam flanges.

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.

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.

Elastomeric Bearings shall be seated in accordance with subsection 808.08. This work and material will not be paid for directly but will be considered subsidiary to the item "Structural Steel in Beam Spans (M270, Gr. 50W)".

REINFORCING STEEL:
The reinforcing steel shall be accurately located in the forms and firmly held in place by steel wire supports, sufficient in size and number, to prevent displacement during the course of construction. The wire supports will not be paid for directly but will be considered subsidiary to the item "Reinforcing Steel-Bridge (Grade 60)".

CONCRETE:
All concrete shall be Class S(AE) with a minimum 28 day compressive strength f'c = 4000 psi. Concrete shall be poured in the dry and all exposed corners to be chamfered 3/4" unless otherwise noted.

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 diaphragms at end bents shall be poured monolithic with the slab.

The concrete deck shall be given a Tine Finish in accordance with subsection 802.19 for Class 5, Tined Bridge Roadway Surface Finish. Movement of the finishing machine across new concrete shall be on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour. Sufficient concrete must be placed ahead of the strike-off to fully load the beam.

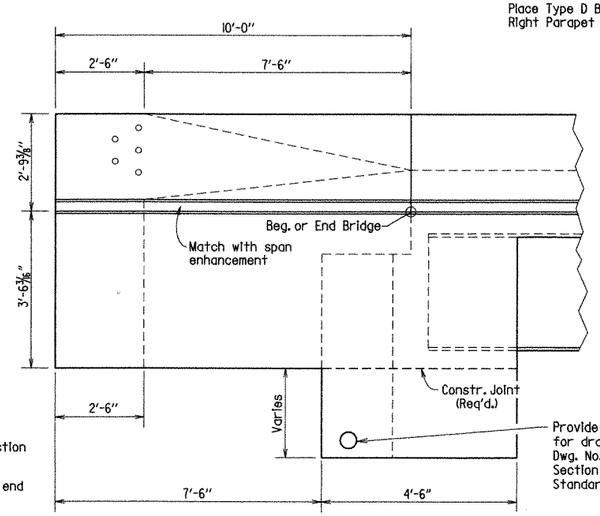
CLASS 2 PROTECTIVE SURFACE TREATMENT: Class 2 protective surface treatment shall be applied to the roadway surface and to the roadway face and top of the concrete parapet rail.

A minimum of 72 hours shall elapse between completion of the bridge deck 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.

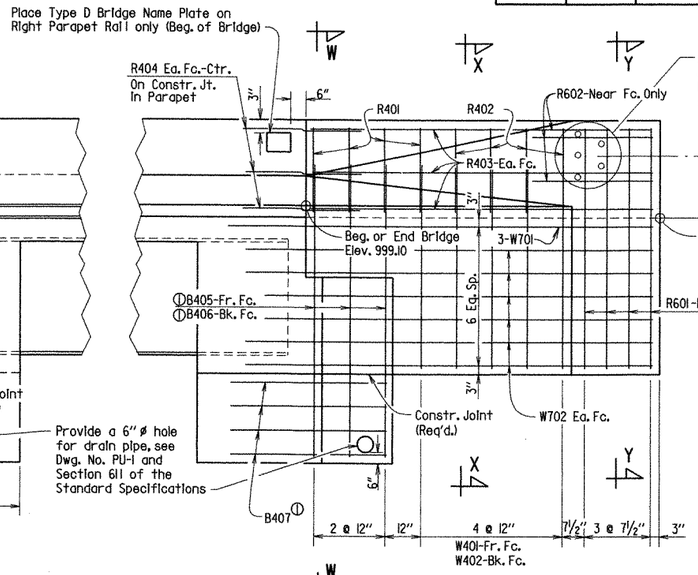
Load Distribution
Dead Load:

A. To W-Beam	Beam No.		
	Beam 1 & 5	795	
	Beam 2, 3 & 4	954	plf + Wt. of Structural Steel
B. To Composite Beam	Beam No.		
	Beam 1, 2, 3, 4 & 5	348	plf ②

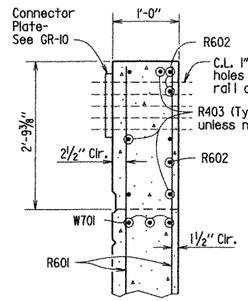
② Includes 192 plf future wearing surface.



VIEW R-R
No Scale

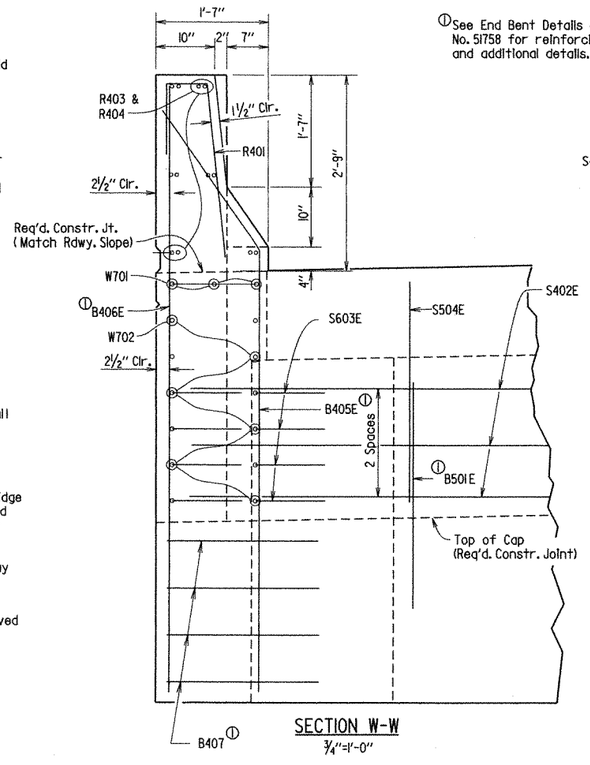


VIEW S-S
1/2" = 1'-0"

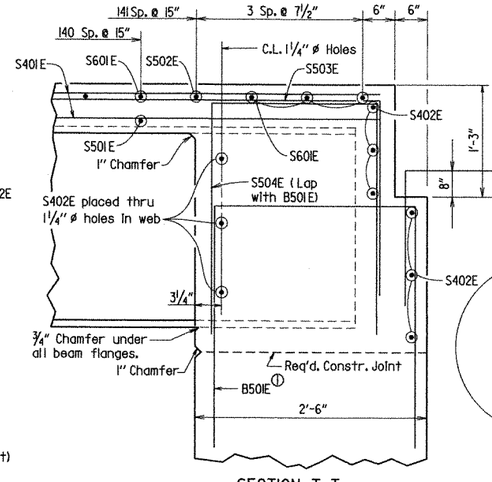


SECTION Y-Y
No Scale

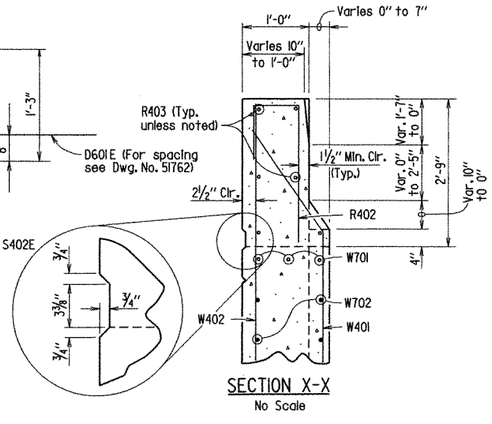
① See End Bent Details on Dwg. No. 51758 for reinforcing and additional details.



SECTION W-W
3/4"=1'-0"



SECTION T-T
No Scale



SECTION X-X
No Scale

STATE OF ARKANSAS
CHARLES P. BRAND
REGISTERED PROFESSIONAL ENGINEER
No. 4337
3/4/11

BRIDGE ENGINEER

SHEET 5 OF 5
DETAILS OF 180'-0" INTEGRAL W-BEAM UNIT
COVE CREEK
ROUTE SEC.

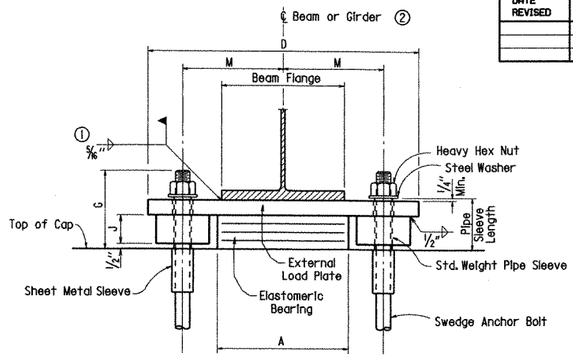
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: MRE DATE: 7-23-10 FILENAME: b090280_sl.dgn
CHECKED BY: RBR DATE: 12/10 SCALE: As shown
DESIGNED BY: CMN DATE: 13/10

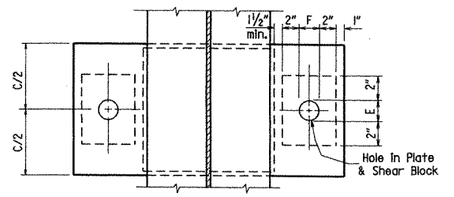
BRIDGE NO. 07202 DRAWING NO. 51764

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.		090280	38	88

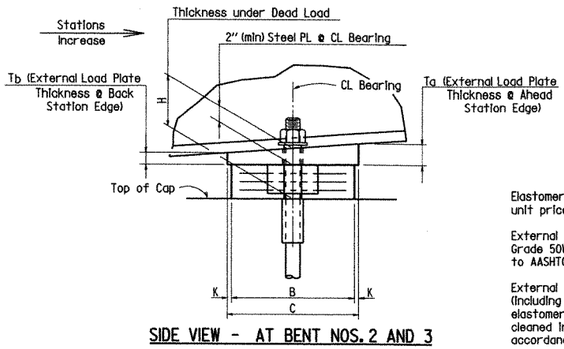
① 07202 ELASTOMERIC BEARINGS 51765



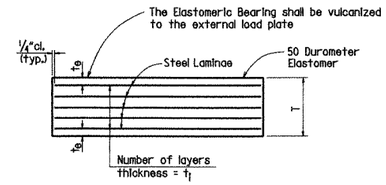
FRONT VIEW - AT BENT NOS. 2 AND 3



PLAN VIEW - AT BENT NOS. 2 AND 3



SIDE VIEW - AT BENT NOS. 2 AND 3

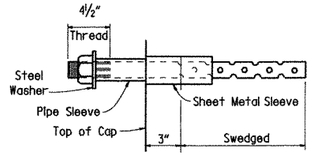


t_e = thickness of elastomer cover on top and bottom of pad

t_l = thickness of elastomer between steel laminae

N = number of elastomer layers of thickness t_l

ELASTOMERIC BEARING



ANCHOR BOLT DETAIL

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

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

① Care shall be taken to ensure that the external load plate is in full and complete contact with the beam or girder flange before welding begins.

② Centerline Beam or Girder shall align with centerline 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 A53, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or AASHTO M 298, Class 50.

External load plates with shear blocks shall be completely fabricated (including bevel and bolt holes) and shall be cleaned before vulcanizing to the elastomeric bearing. Surfaces 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 weathering steel.

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

Pipe Sleeves, Anchor Bolts, Washers and Nuts shall be paid for at the unit price bid for "Structural Steel in Beam Spans (M270, Gr.50W)". External load plates and shear blocks will not be measured or paid for separately but will be considered included in the unit bid price for "Elastomeric Bearings".

TABLE OF FABRICATOR VARIABLES

BRIDGE NO.	LOCATION BENT NO(S).	LOCATION UNIT	LOCATION BEAM NO.	BEARING TYPE	NO. of BEARINGS EACH BENT	*MAXIMUM DESIGN LOAD (KIPS)	ELASTOMERIC PAD G	ELASTOMERIC PAD H	ELASTOMERIC PAD A	ELASTOMERIC PAD B	ELASTOMERIC PAD N	ELASTOMERIC PAD t_l	ELASTOMERIC PAD t_e	ELASTOMERIC PAD NO. & THICKNESS OF STEEL LAMINAE	ELASTOMERIC PAD T	EXTERNAL LOAD PLATE C	EXTERNAL LOAD PLATE D	EXTERNAL LOAD PLATE E	EXTERNAL LOAD PLATE F	EXTERNAL LOAD PLATE J	EXTERNAL LOAD PLATE K	EXTERNAL LOAD PLATE M	EXTERNAL LOAD PLATE T_a	EXTERNAL LOAD PLATE T_b	ANCHOR BOLT (ø x L)	ANCHOR BOLT GRADE	PIPE SLEEVE SIZE (ø x L)	SHEET METAL SLEEVE SIZE (ø x L)	STEEL WASHER SIZE (O.D.)
07202	2	180'	1-5	Fix	5	204.00	6¾"	3 13/16"	14½"	12½"	2	½"	¼"	3 @ 12 Ga.	1 13/16"	13½"	32¼"	2¼"	2¼"	1¼"	½"	12"	2.00"	2.00"	1½"ø x 24"	55	1½"ø x 4⅛"	3"ø x 6"	3"
	3	180'	1-5	Fix	5	204.00	6¾"	3 13/16"	14½"	12½"	2	½"	¼"	3 @ 12 Ga.	1 13/16"	13½"	32¼"	2¼"	2¼"	1¼"	½"	12"	2.00"	2.00"	1½"ø x 24"	55	1½"ø x 4⅛"	3"ø x 6"	3"

*Maximum Design Load = Service I Limit State

Tabular Data by : MRE Date: 12/10

Checked by : KBR Date: 12/10

Designed by : CMW Date: 13/10

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 4537 3/4/11 CHARLES P. BRAND

BRIDGE ENGINEER

DETAILS OF ELASTOMERIC BEARINGS
COVE CREEK
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

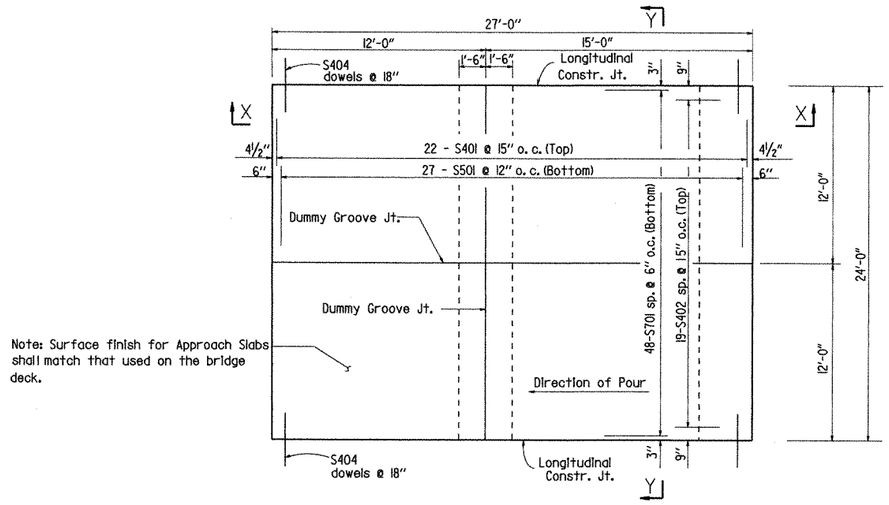
DRAWN BY: MRE DATE: 03/26/08 FILENAME: b090280_el.dgn

CHECKED BY: KBR DATE: 12/10 SCALE: No Scale

DESIGNED BY: Std. DATE:

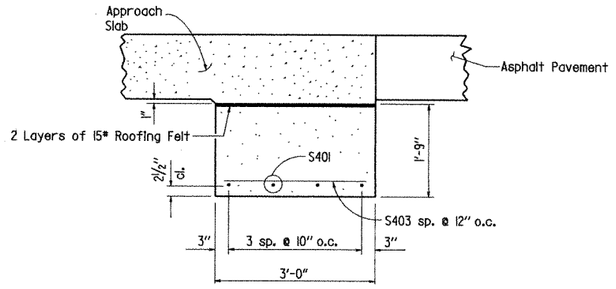
BRIDGE NO. 07202 DRAWING NO. 51765

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.		090280	39	88
				(1)	07207	APPROACH SLAB		51766



PLAN - APPROACH SLAB

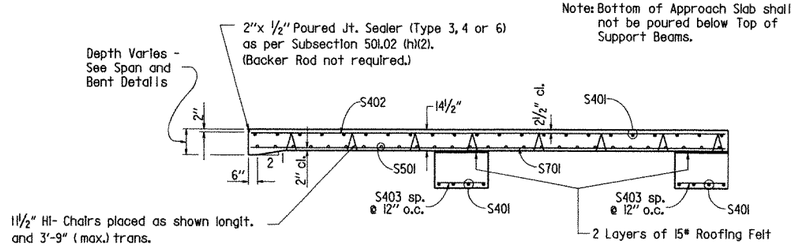
N.T.S.



DETAILS OF SUPPORT AT EXPANSION JOINT

¾" = 1'-0"

Note: Bottom of Approach Slab shall not be poured below Top of Support Beams.



SECTION X - X

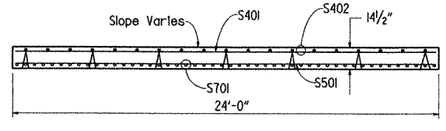
N.T.S.

BAR LIST

	Mark	No. Req'd.	Length
24'-0" slab width	S401	30	23'-8"
	S402	19	26'-8"
	S403	48	2'-8"
	S404	36	3'-0"
	S501	27	23'-8"
	S701	48	26'-8"

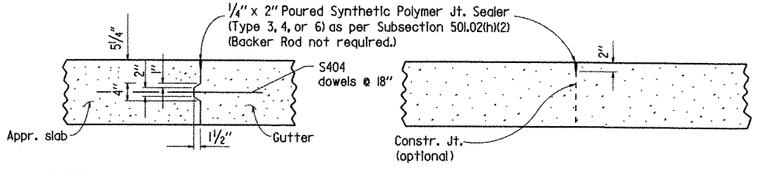
TABLE OF QUANTITIES FOR ONE TYPE SPECIAL APPROACH SLAB

Slab Width	Reinforcing Steel (lbs.)	Concrete (Cu. Yds.)
24'-0"	4,260	38.80



SECTION Y - Y

N.T.S.



DETAILS OF LONGITUDINAL CONSTRUCTION JOINT

¾" = 1'-0"

DETAILS OF DUMMY GROOVED JOINT

¾" = 1'-0"

GENERAL NOTES

Concrete shall be Class S (AE) (f'c = 4,000 psi).

Reinforcement Steel shall conform to AASHTO M31 or M53, Grade 60 (fy = 60,000 psi).

Approach Slabs will be measured and paid for in accordance with Section 504 of the Standard Specifications.

STATE OF ARKANSAS
CHARLES P. BRAND
REGISTERED PROFESSIONAL ENGINEER
No. 7337
3/4/11

BRIDGE ENGINEER

DETAILS OF APPROACH SLAB (TYPE SPECIAL I)

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: CMW DATE: 12-20-10 FILENAME: b090280_as.dgn

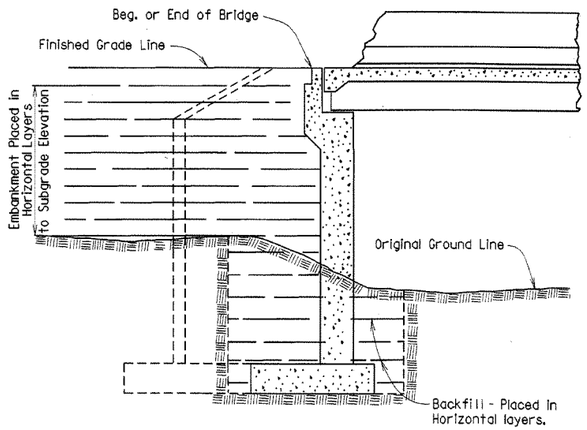
CHECKED BY: CSL DATE: March 2, 2011 SCALE: As Shown

DESIGNED BY: Std. DATE: —

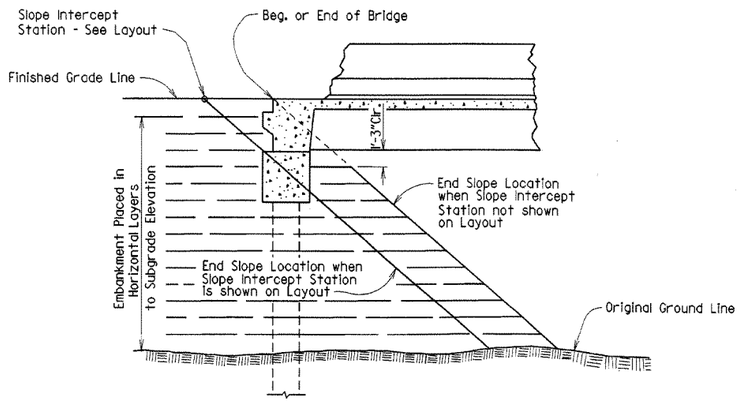
BRIDGE NO. 07202 DRAWING NO. 51766

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
04-10-2003				6	ARK.		40	
				JOB NO.				

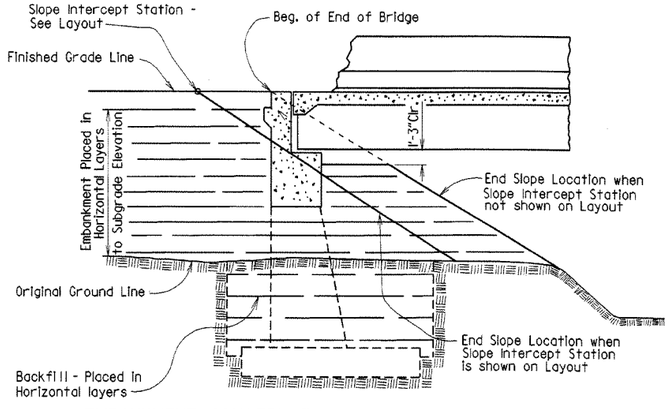
① EMBANKMENT & BACKFILL 1888A



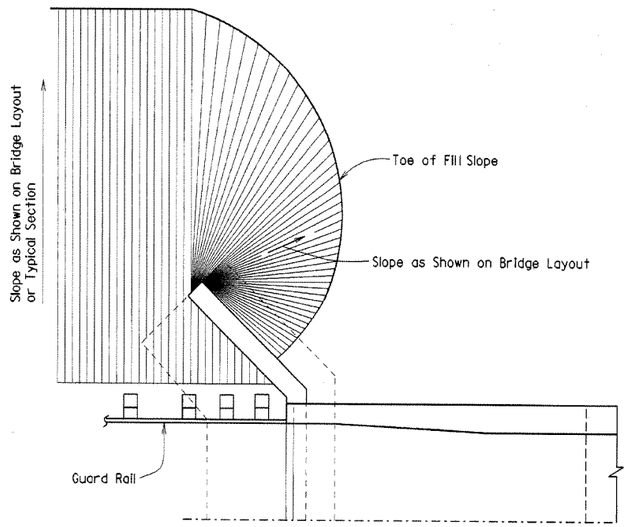
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



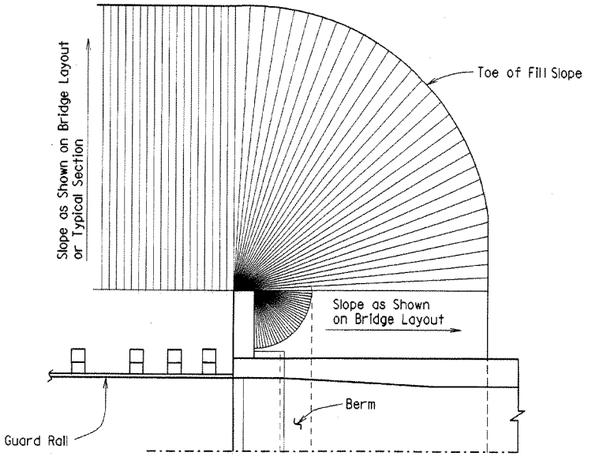
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



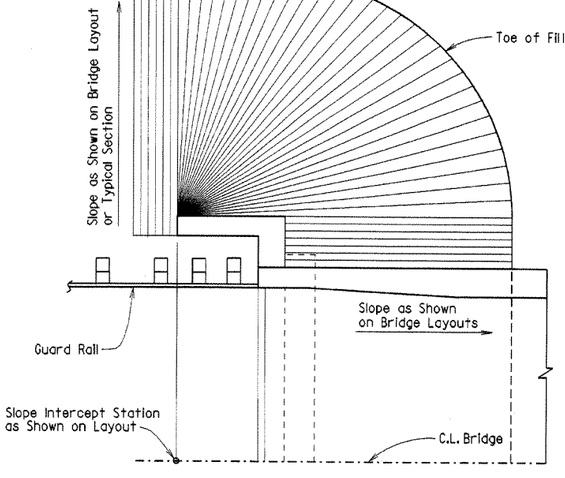
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



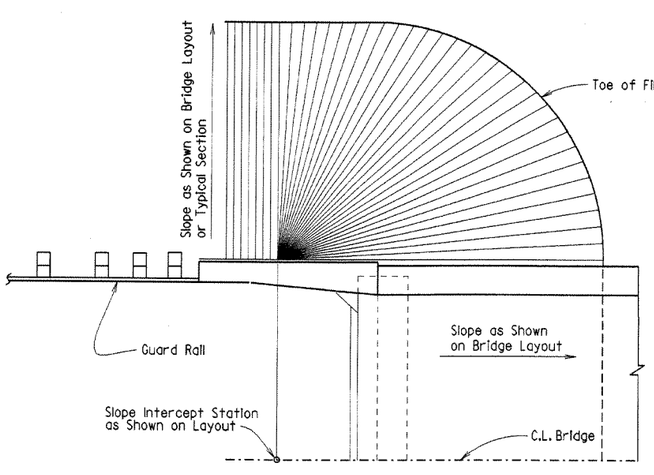
VERTICAL WALL ABUTMENTS



SPILL-THROUGH END BENTS WITH STUB WING



SPILL-THROUGH END BENTS WITH TURNBACK WING



SPILL-THROUGH END BENTS WITH TRANSITION WING

METHOD OF DETERMINING FILL SLOPE LOCATION AT BRIDGE ENDS

GENERAL NOTES

The Bridge End Embankment shall be defined as a section of embankment, not less than 20 feet long adjacent to the bridge end, together with the side slopes and slopes under the bridge end including around the end of wingwalls. Embankment adjacent to structures shall be constructed in 4 inch horizontal layers (loose measure) and compacted by the use of mechanical equipment to the satisfaction of the Engineer. Refer to subsections 210.09, 210.10 and 801.08 of the Specifications for construction requirements.

⚠ Revised and redrawn MJT 04-10-2003
Chk'd. By: CJF 04-10-2003

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4537
CHARLES P. BRAND

BRIDGE ENGINEER

EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

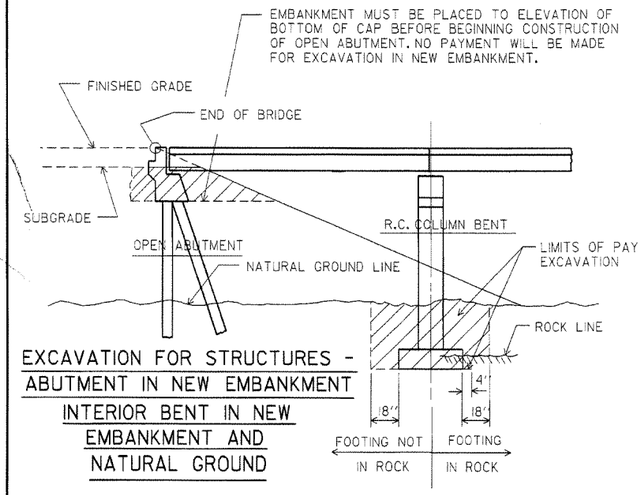
LITTLE ROCK, ARK.

DRAWN BY: MJT DATE: 04-10-2003 FILENAME: BI888A.STD
CHECKED BY: CJF DATE: 04-10-2003 SCALE: NO SCALE
DESIGNED BY: STD. DATE: ——

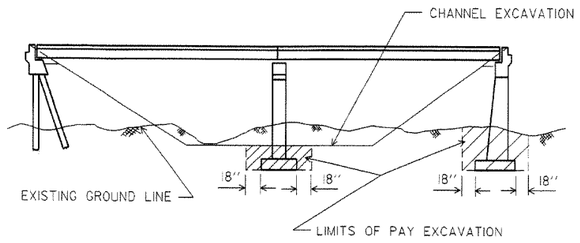
BRIDGE NO. DRAWING NO. 1888A

BI888A.STD

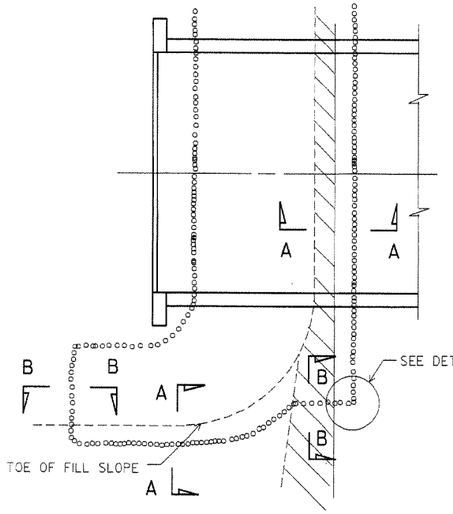
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
04-10-2003				6	ARK.		41	
				JOB NO.				
①				RIP. & EXCAV.			1891F	



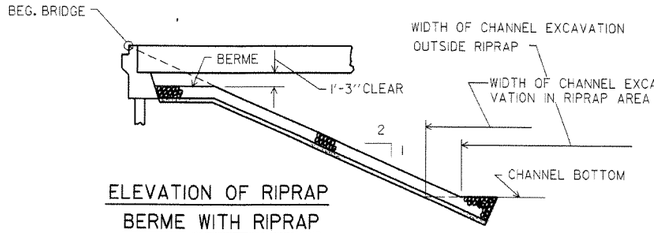
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



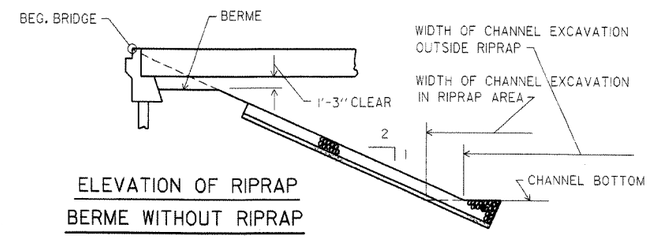
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



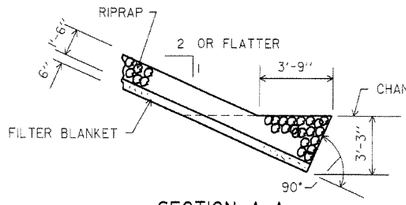
PLAN OF DUMPED RIPRAP



ELEVATION OF RIPRAP BERME WITH RIPRAP



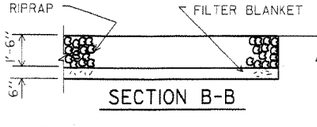
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



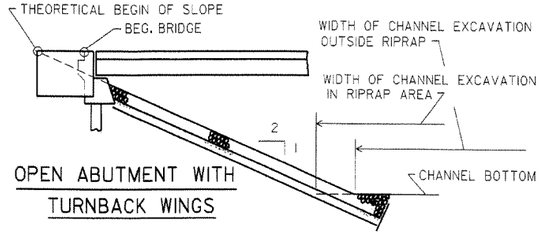
SECTION A-A

(TOE EXCAVATION IN SOIL)

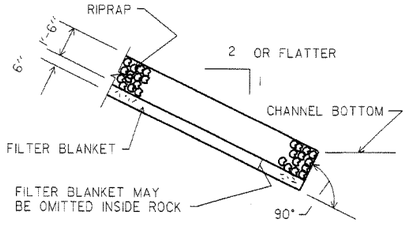
EXCAVATION FOR TOES IS NOT A PAY ITEM



SECTION B-B



OPEN ABUTMENT WITH TURNBACK WINGS



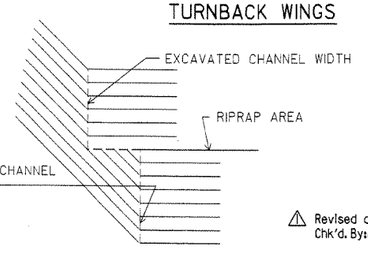
SECTION A-A

(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.



DETAIL C

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4337
CHARLES P. BRAND
BRIDGE ENGINEER

⚠ Revised and redrawn MJT 04-10-2003
Chk'd. By: CJF 04-10-2003

DETAILS FOR DUMPED RIPRAP AND FILTER BLANKET AND DETAILS FOR COMPUTING EXCAVATION FOR STRUCTURES

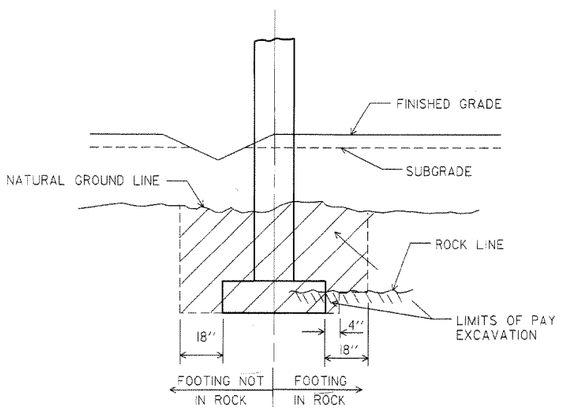
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

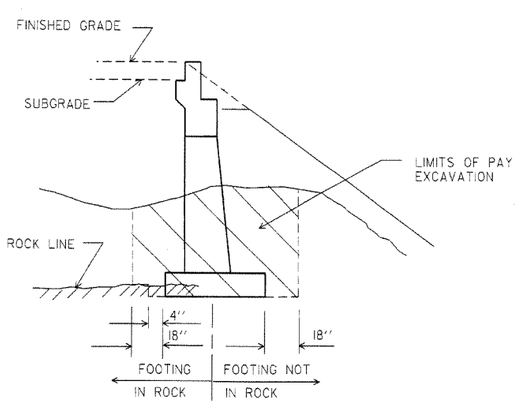
LITTLE ROCK, ARK.

DRAWN BY:	MJT	DATE:	04-10-2003	FILENAME:	BI891F.STD
CHECKED BY:	CJF	DATE:	04-10-2003	SCALE:	NO SCALE
DESIGNED BY:	STD.	DATE:	—		

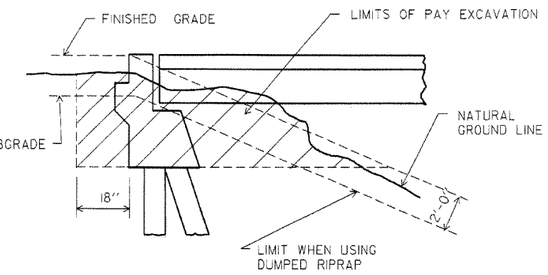
BRIDGE NO. DRAWING NO. 1891F



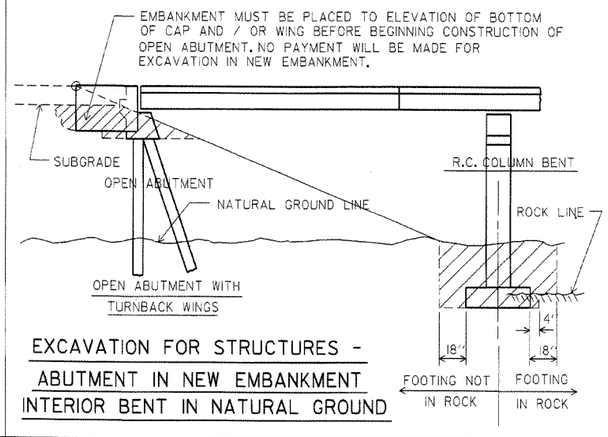
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT

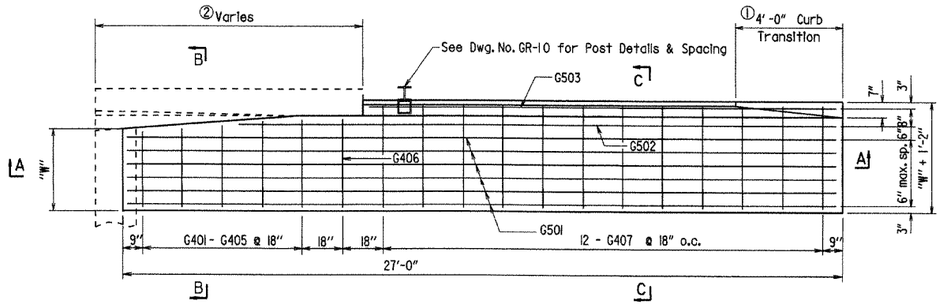


EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



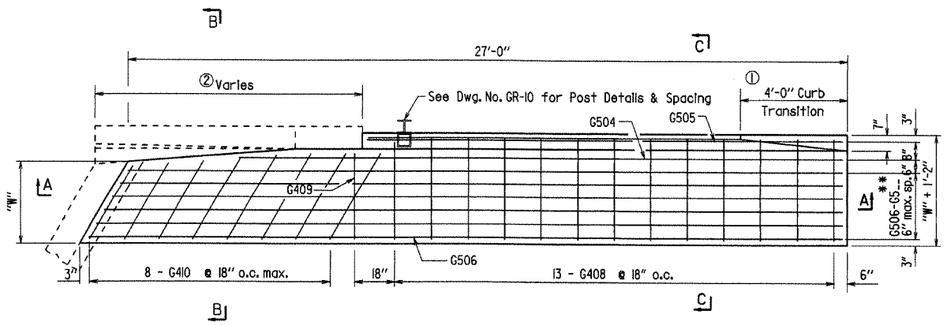
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND

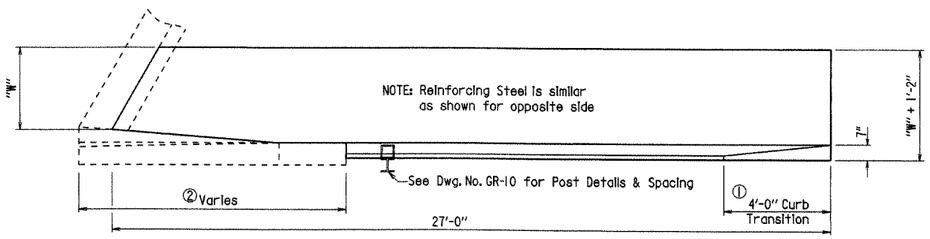
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
4-10-2003				6	ARK.		42	
07-14-2010				JOB NO.				
				TYPE B GUTTERS				2016B



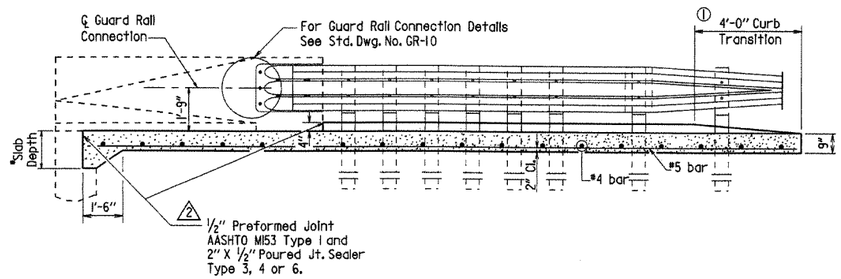
HALF PLAN OF APPROACH GUTTERS FOR SQUARE BRIDGE

② Length varies. See End Bent details for actual length. Quantities shown are for 10'-0" Transition Rail.





PLAN OF APPROACH GUTTERS FOR SKEWED BRIDGE

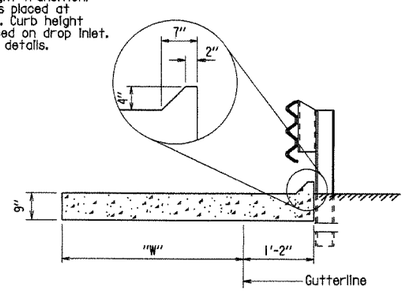


SECTION A - A

*Slab Depth Varies - See Span and Bent Details

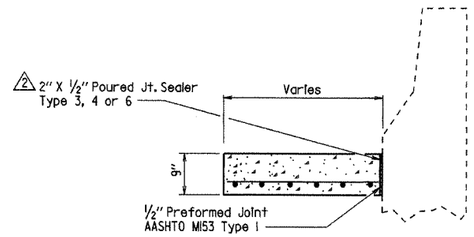
① Construct gutter curb with height-transition as shown if drop inlet is not placed at end of gutter.

Construct gutter curb full height (no height-transition) if drop inlet is placed at end of gutter. Curb height transition placed on drop inlet. See drop inlet details.



SECTION C - C

N.T.S.



SECTION B - B

N.T.S.

QUANTITIES FOR ONE SQUARE APPROACH GUTTER

"W" Width (ft.)	Reinforcing Steel (lbs.)	Concrete (cubic yards)
3	252	3.00
4	319	3.75
6	459	5.25
8	590	6.75

***BAR LIST ②
TYPE B GUTTER

Mark	No. Required for Width "W"				Length	Square or Skewed
	3'-0"	4'-0"	6'-0"	8'-0"		
G401-G405	1 each	1 each	1 each	1 each	"W" - 3" to "W" + 3"	Square
G406	1	1	1	1	"W" + 3"	Square
G407	12	12	12	12	"W" + 10"	Square
G408	13	13	13	13	"W" + 10"	Skewed
G409	1	1	1	1	"W" + 3"	Skewed
G410	8	8	8	8	*	Skewed
G501	6	8	12	16	26'-8"	Square
G502	1	1	1	1	22'-2"	Square
G503	1	1	1	1	17'-8"	Square
G504	1	1	1	1	*	Skewed
G505	1	1	1	1	*	Skewed
G506-G5__**	1 each	1 each	1 each	1 each	*	Skewed

*Bar Lengths vary with Skew,

**G512 for "W" = 3'
G514 for "W" = 4'
G518 for "W" = 6'
G522 for "W" = 8'

***Special bar list required when skew angle exceeds 40° for W = 8'; 50° for W = 6'; or 60° for W = 4'.

GENERAL NOTES

Concrete shall be Class S or Class S(AE) or mixture used for Portland Cement Concrete Pavement.

Reinforcement Steel shall conform to AASHTO M31 or M53, Grade 60 (fy = 60,000 psi).

Approach Gutters will be measured and paid for in accordance with Section 504 of the Standard Specifications.

1 Revised and redrawn 4-10-2003. By KDH Ck. By: CJF 4-10-2003

2 Added joint sealer type & revised transition rail length 07-14-2010 by MJT Checked by: CJF 07-14-2010

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4337
CHARLES P. BRAND

BRIDGE ENGINEER

DETAILS OF STANDARD TYPE B APPROACH GUTTERS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 4-10-2003 FILENAME: B2016B.STD
CHECKED BY: CJF DATE: 4-10-2003 SCALE: 3/8" = 1'-0"
DESIGNED BY: STD DATE:

BRIDGE NO. DRAWING NO. 2016B

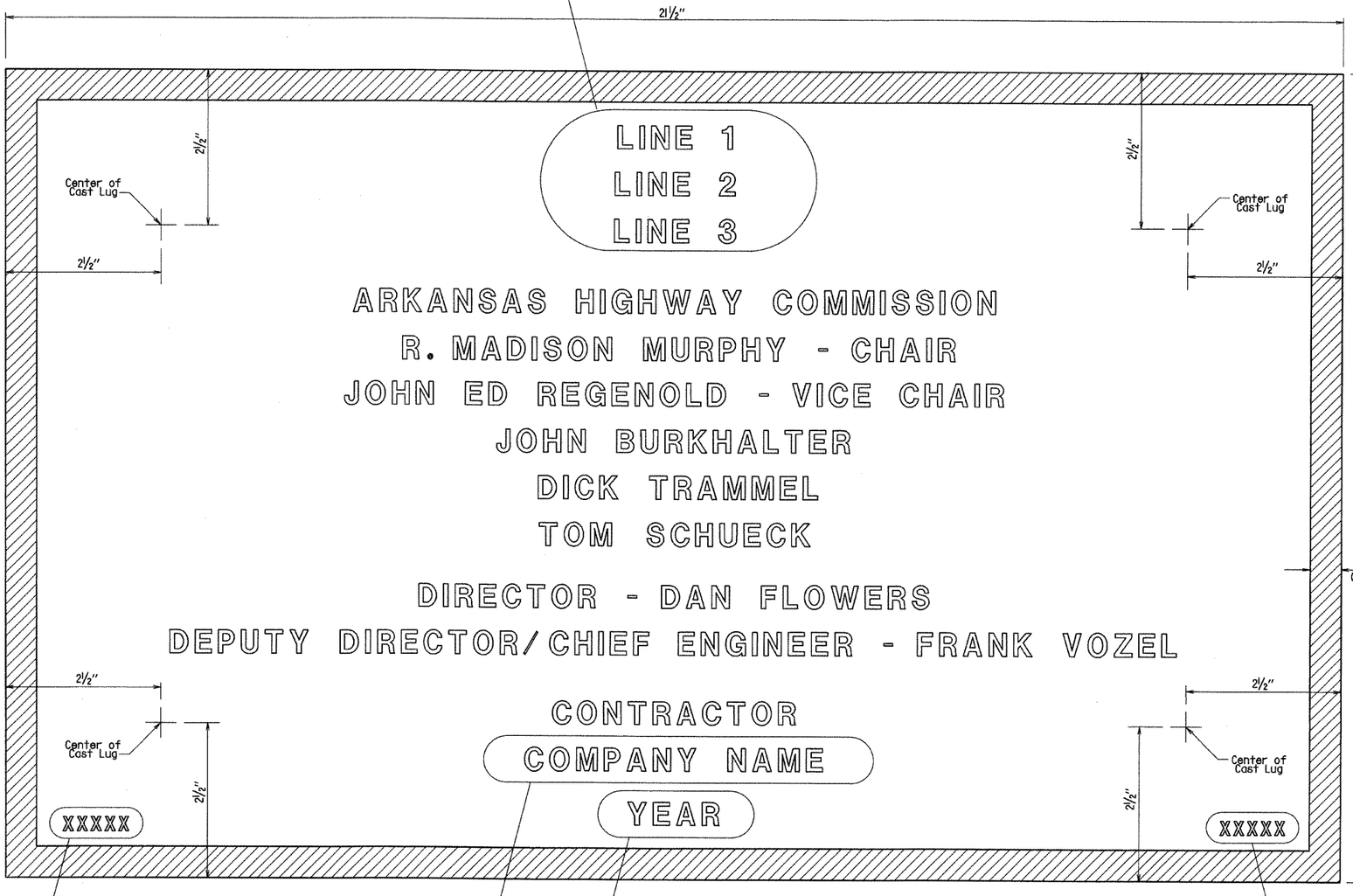
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
4-17-07		01-08-09	
8-16-07		11-23-10	
12-10-08		01-25-11	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	ARK.		43	
JOB NO.				

(1) NAME PLATE 2387

The name of the bridge as shown on the plans shall be placed on Lines 1 - 3 using 1/8" raised letters and numerals 3/8" high.

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



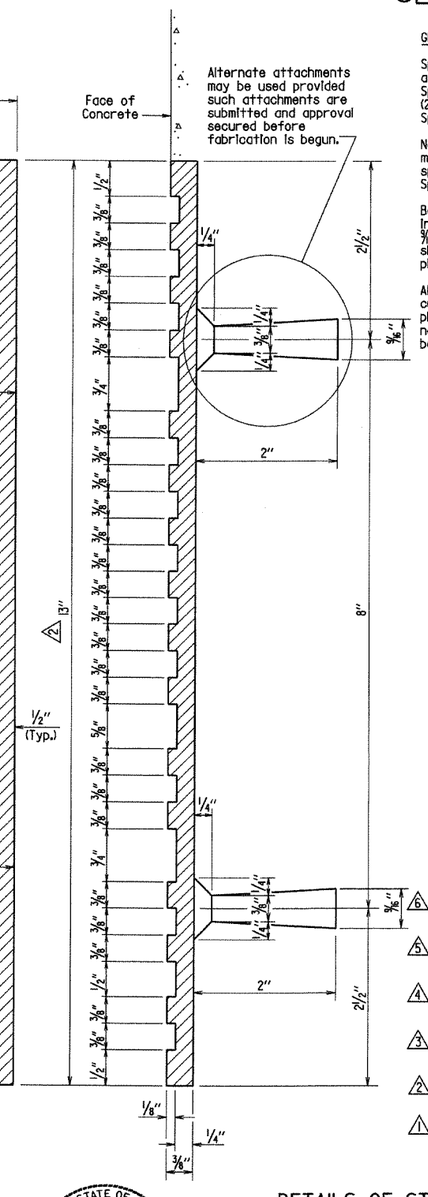
Place the design live loading here using 1/8" raised letters and numerals 1/4" high. Examples : HS 20
HL-93

Place the name of the company awarded the construction contract here using 1/8" raised letters and numerals 3/8" high. Example : ABCD CONSTRUCTION, INC.

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

Place the Bridge number here using 1/8" raised letters and numerals 1/4" high. Examples : AI234
05432

TYPICAL BRIDGE NAME PLATE



GENERAL NOTES

Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, (2003 Edition) with applicable Supplemental Specifications and Special Provisions.

Name plates shall be cast bronze and shall meet the material requirements as specified in Section 812 of the Standard Specifications.

Body of plate shall be 1/4" thick and shall include four tapering cone lugs 3/16" to 3/16"x 2" long. The border and all lettering shall be raised 1/8" above the face of plate and shall be polished.

All lettering shall be plain gothic, square cut and not tapered. The number of plates required and the location and name on the plate for each bridge shall be as designated on the plans.

6 Revised Commission Names 01-25-11 MJT
Checked By: CJF Date: 01-25-11

5 Revised Commission Names 11-23-10 MJT
Checked By: CJF Date: 11-23-10

4 Revised Commission Names 01-08-09 MJT
Checked By: CJF Date: 01-08-09

3 Revised Commission Names 12-10-08 MJT
Checked By: CJF Date: 12-10-08

2 Added Dimension 8-16-07 KDH
Checked By: SWP Date: 8-16-07

1 Revised and Redrawn
4-17-07 KDH Checked By: CJF

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4537
CHARLES P. BRAND

BRIDGE ENGINEER

DETAILS OF STANDARD TYPE D BRIDGE NAME PLATE

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

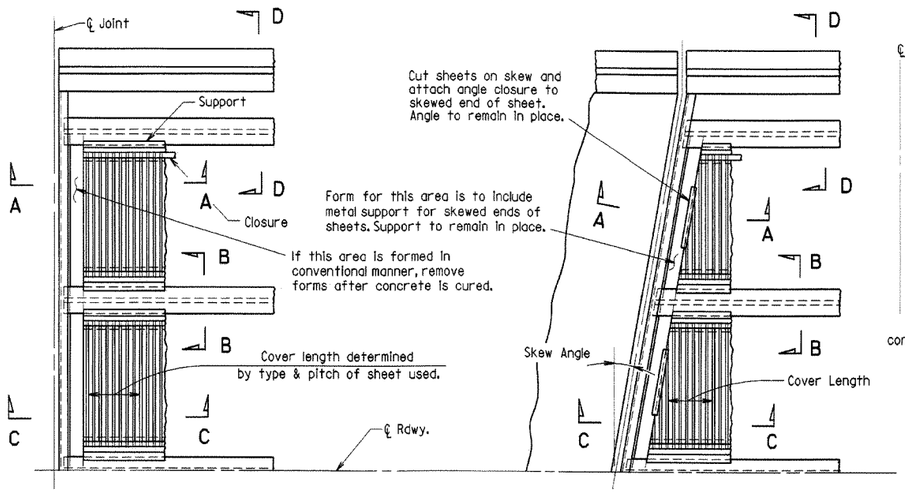
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 4-17-07 FILENAME: B2387.STD
CHECKED BY: CJF DATE: 4-17-07 SCALE: 1'-0" = 1'-0" OR AS NOTED
DESIGNED BY: STD. DATE: ——

BRIDGE NO. DRAWING NO. 2387

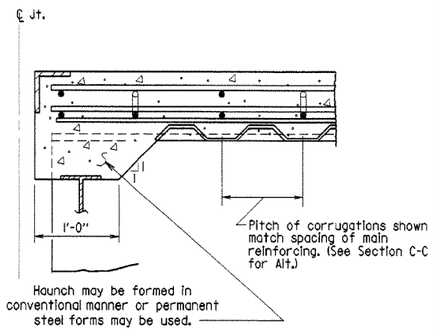
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
11-27-96						6	ARK.		44	
04-10-2003						JOB NO.				

① BR. DECK FORMS 14991

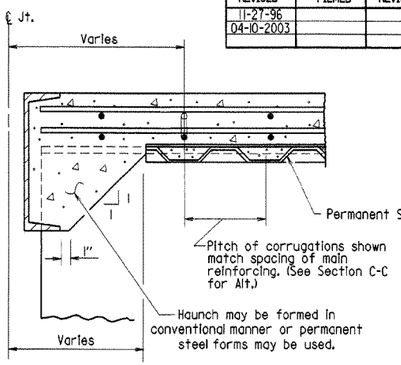


PART PLAN - SQUARE SPAN
3/8" = 1'-0"

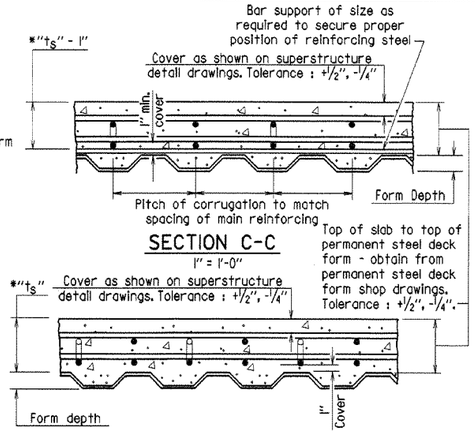
PART PLAN - SKEWED SPAN
3/8" = 1'-0"



SECTION A-A
N.T.S.
(Angle at end of span)

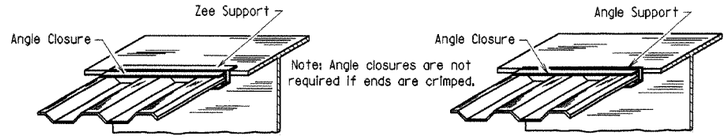


SECTION A-A
N.T.S.
(Channel at end of span)



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

SECTION C-C - ALTERNATE
1" = 1'-0"
(Applicable when corrugations do not match spacing of main reinforcement)



SKETCH OF PERMISSIBLE SUPPORTS
N.T.S.

*t_s = slab thickness as shown on superstructure detail drawings.

GENERAL NOTES

Permanent steel deck forms may be used at the Contractor's option and shall be at no additional cost to the Department. Such use may result in changes to the dead load deflection of the girder. Any cost for adjustments due to a change in the dead load deflection will be borne by the Contractor. Payment for deck concrete and structural steel will not be increased due to use of permanent steel deck forms.

Permanent steel deck forms shall conform to subsection 802.14(b) of the Standard Specifications. Detailed plans, including detailed calculations and manufacturer's technical brochure, shall be submitted to and approved by the Bridge Engineer before work of forming the bridge deck is started.

Welding of form supports to the tension flange of steel girders will be permitted only in areas where shear connectors are used. When welding is not allowed, the method of fastening Z or ∠ supports to the flange must be approved by the Bridge Engineer.

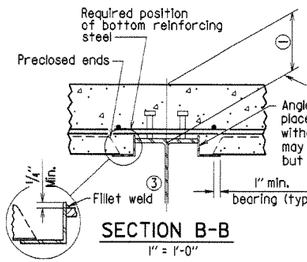
Form sheets shall be fastened to supporting members and to each other with galvanized metal screws sufficient in size and number to provide a secure attachment. Alternate methods of attachment must be approved by the Bridge Engineer.

When the pitch of form corrugations match the reinforcing spacing, transversely align form sheets across the bridge to maintain the correct orientation of continuous reinforcing bars in the corrugations.

Bar support rods, when used, shall be sized and spaced to adequately support the bottom reinforcing mat at the required position.

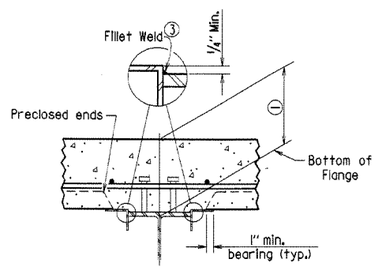
High chairs shall be sized to support the top mat of reinforcing at the proper position. High chairs shall be placed at locations shown on the detail drawings.

⚠2 Specifications: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2003 Edition), with applicable supplemental specifications and special provisions.

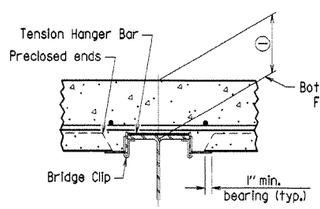


SECTION B-B
1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are used, and for all compression flanges)

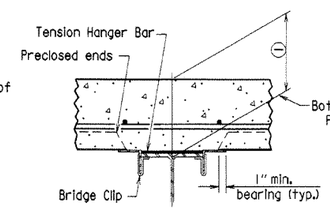
③ Minimum weld: 1/8" x 1" @ 18". More weld may be required; maximum length per weld = 1 1/2" (typ.)



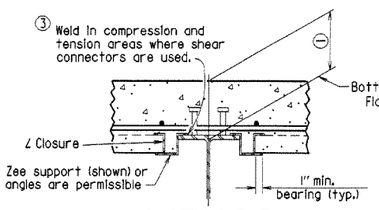
SECTION B-B
1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



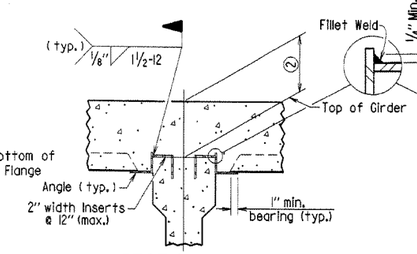
SECTION B-B
1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are not used)



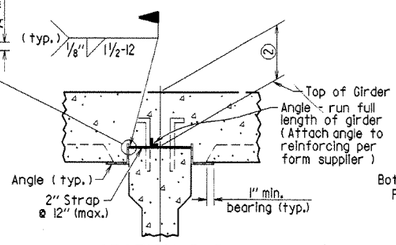
SECTION B-B
1" = 1'-0"
(Showing permissible support for tension flange where shear connectors are not used)



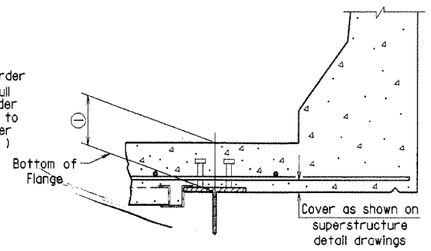
SECTION B-B
1" = 1'-0"
(Showing ∠ Closure)



SECTION B-B
(FOR CONCRETE GIRDERS)
1" = 1'-0"
(Showing support by insert cast in girder)



SECTION B-B
(FOR CONCRETE GIRDERS)
1" = 1'-0"
(Showing support by Strap)



SECTION D-D
1" = 1'-0"
Note: Only Bottom Reinforcing is shown.

① Distance from top of slab to bottom of top flange as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances : Minimum - occurs when either the top flange or the support angle leg contacts the bottom reinforcing steel; Maximum = t_s + 1 3/4" + flange thickness. See Section C-C for slab thickness tolerance between adjacent girder flanges.

② Distance from top of slab to top of girder as measured at centerline girder and as shown on superstructure detail drawings. This dimension may vary within the following limits to maintain the grade and slab thickness tolerances : Minimum - occurs when either the top of girder or the support angle leg contacts the bottom reinforcing steel; Maximum - value shown on the superstructure detail drawings when removable forms are used. See Section C-C for slab thickness tolerance between adjacent girder flanges.

⚠1 Redrawn and revised 11/27/96; MJT

⚠2 Revised for 2003 AHTD Construction Specifications and CPB Seal. MJT 04-10-2003
Chk'd. By: CPB 04-10-2003

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4537
CHARLES P. BRAND

BRIDGE ENGINEER

DETAILS OF PERMISSIBLE TYPE PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS

ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MJT DATE: 10-17-96
CHECKED BY: CPB DATE: 10-17-96
DESIGNED BY: STD. DATE: —
SCALE: as noted

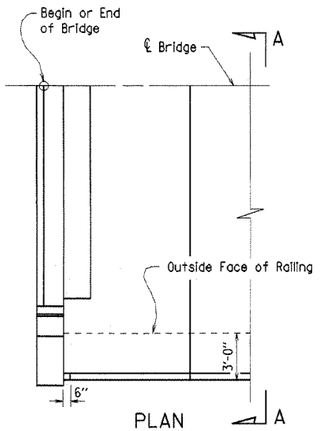
BRIDGE NO. DRAWING NO. 14991

BI4991.STD

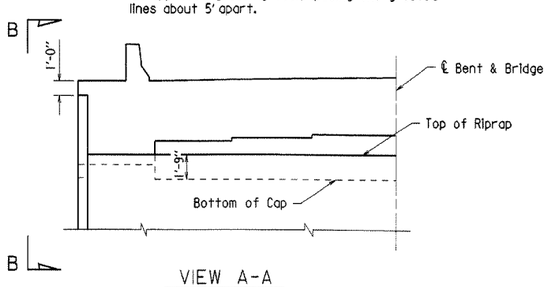
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
04-10-2003				6	ARK.		45	
				JOB NO.				

RIPRAP & PILE - 14995A

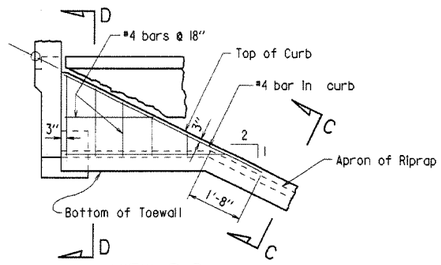
Note:
Sloped surfaces of concrete riprap to be marked off into blocks (construction joints optional) with an approved grooving tool, spacing the grooved lines about 5' apart.



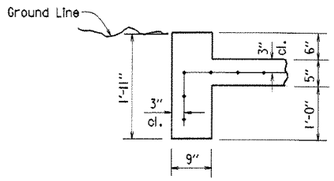
PLAN



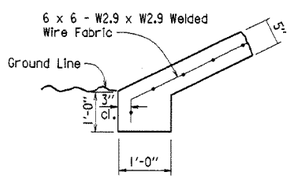
VIEW A-A



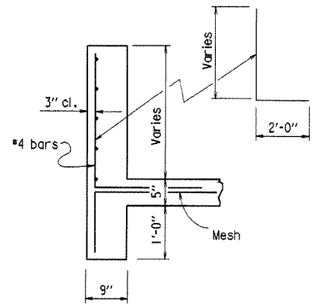
VIEW B-B



SECTION C-C

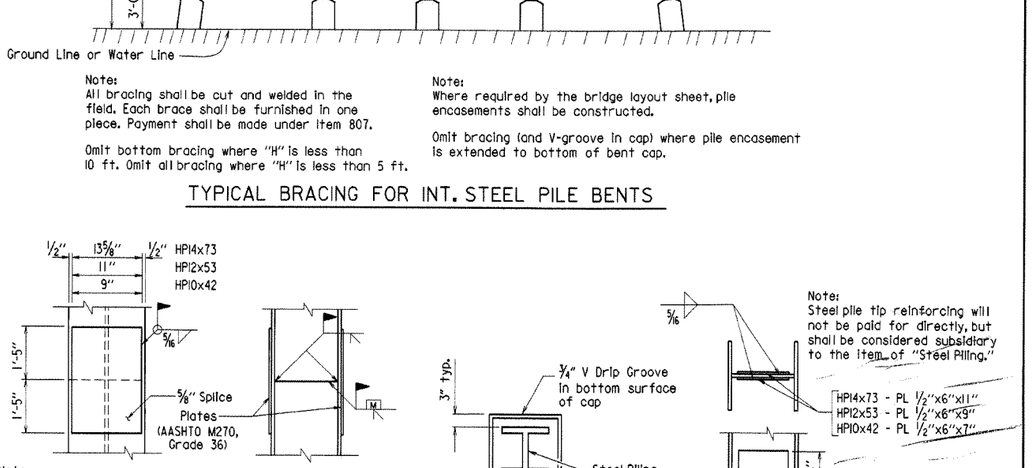


TOE WALL



SECTION D-D

DETAILS OF CONCRETE RIPRAP



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

Omit bottom bracing where "H" is less than 10 ft. Omit all bracing where "H" is less than 5 ft.

Note:
Where required by the bridge layout sheet, pile encasements shall be constructed.

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

TYPICAL BRACING FOR INT. STEEL PILE BENTS

Note:
The contractor may for his own convenience and at this own expense provide as many as three splices per pile for steel bearing piling. Minimum spacing between splices shall be 5 ft.

PILE SPLICE DETAIL

Scale : 1" = 1'-0"

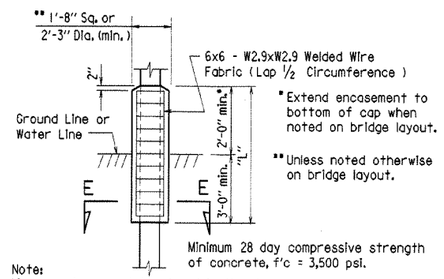
VIEW X-X

Note:
Steel pile tip reinforcing will not be paid for directly, but shall be considered subsidiary to the item of "Steel Piling."

HPI4x73 - PL ½"x6"x11"
HPI2x53 - PL ½"x6"x9"
HPI0x42 - PL ½"x6"x7"

REINFORCING DETAIL FOR STEEL TIP

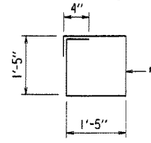
Scale : 1" = 1'-0"

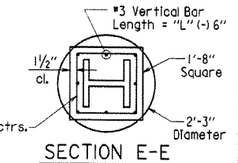


Note:
If concrete cannot be placed in the dry, seal concrete may be deposited under water. Concrete & welded wire fabric or reinforcing in encasements shall be paid for at the contract unit price per linear foot bid for "Pile Encasement."

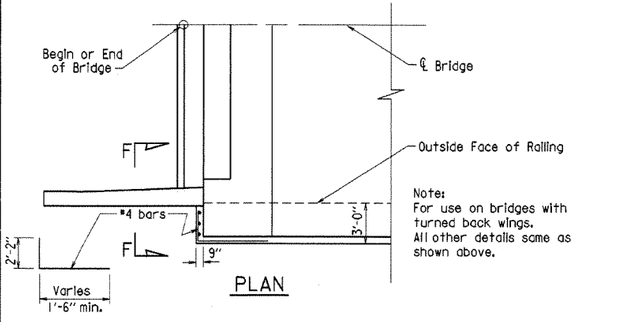
PILE ENCASEMENT DETAIL

Reinforcing Alternate
#3 Vertical - 8 per encasement
#3 ties @ 12" ctrs.
Yield Strength , fy = 60,000 psi.



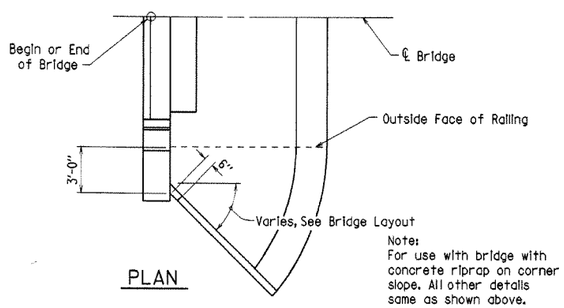


SECTION E-E
REINF. ALTERNATE



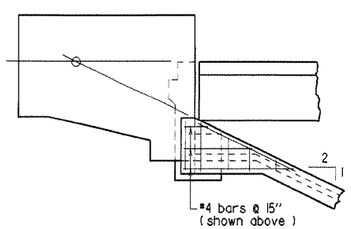
PLAN

Note:
For use on bridges with turned back wings. All other details same as shown above.

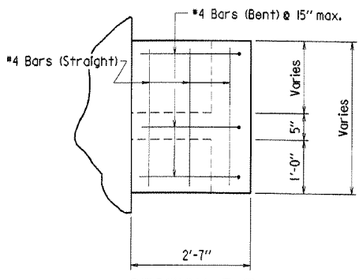


PLAN

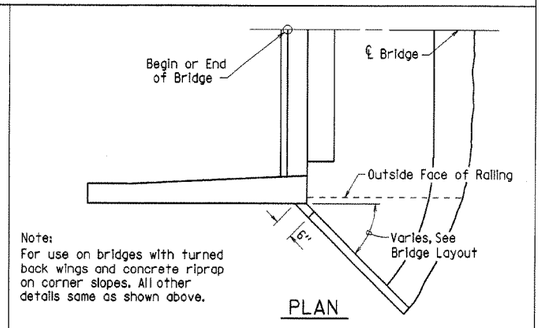
Note:
For use with bridge with concrete riprap on corner slope. All other details same as shown above.



ELEVATION



SECTION F-F



Note:
For use on bridges with turned back wings and concrete riprap on corner slopes. All other details same as shown above.

PLAN

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4337
CHARLES P. BRAND

BRIDGE ENGINEER

⚠ 1 Revised and redrawn MJT 04-10-2003
Chk'd. By: CJF 04-10-2003

DETAILS OF CONCRETE RIPRAP
AND MISC. DETAILS OF STEEL PILING

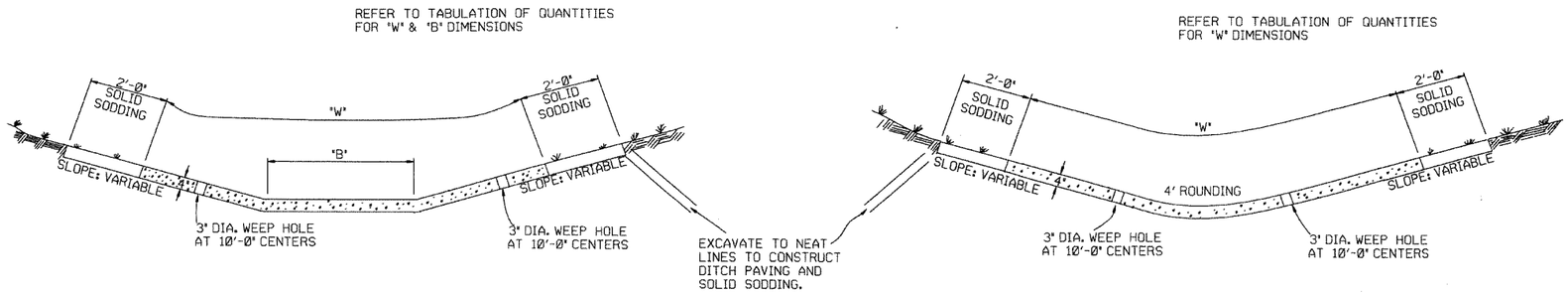
ROUTE SEC.

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: MJT DATE: 04-10-2003 FILENAME: BI4995A.STD
CHECKED BY: CJF DATE: 04-10-2003 SCALE: No Scale or As Noted
DESIGNED BY: STD. DATE: —

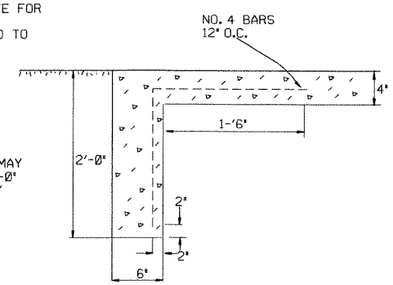
BRIDGE NO. DRAWING NO. 14995A



TYPE A

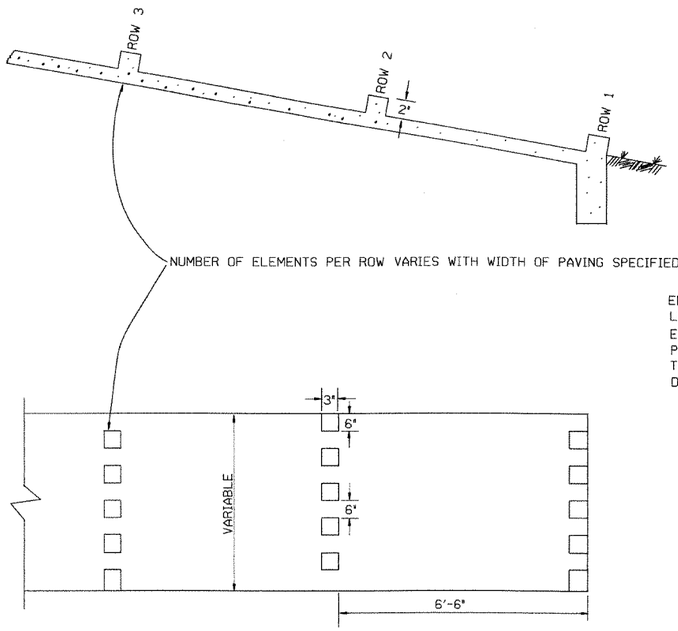
TYPE B

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



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

TOE WALL DETAIL FOR CONCRETE DITCH PAVING



ENERGY DISSIPATORS
(NO SCALE)

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

GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.

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

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

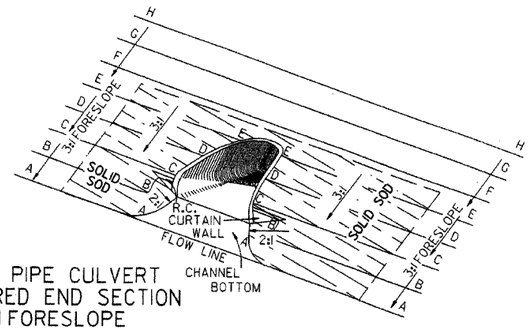
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

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

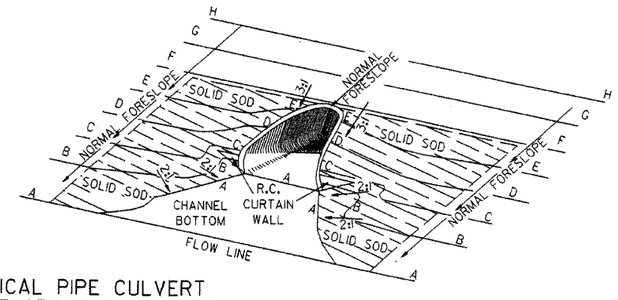
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

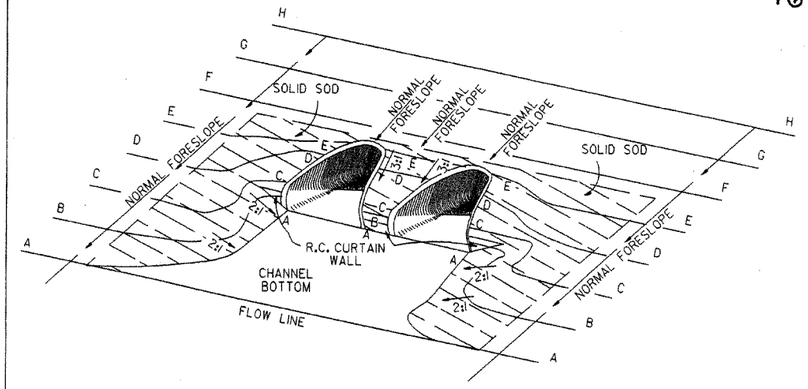
STANDARD DRAWING CDP-1



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



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



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

R.C. CURTAIN WALL
DIMENSIONS & QUANTITIES

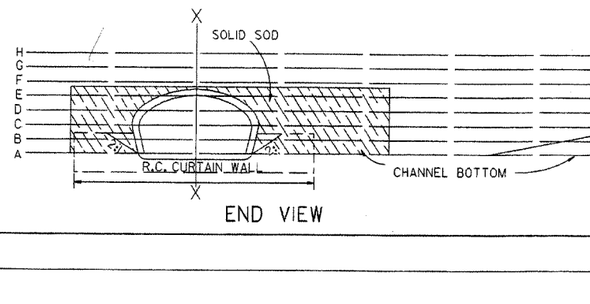
PIPE DIA.	H_1	L_1	L	L (DBL.)/2	SINGLE R.C.P.C. CONC.	SINGLE R.C.P.C. REINF. STEEL	DOUBLE R.C.P.C. CONC.	DOUBLE R.C.P.C. REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0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

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

REINFORCING STEEL SCHEDULE

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

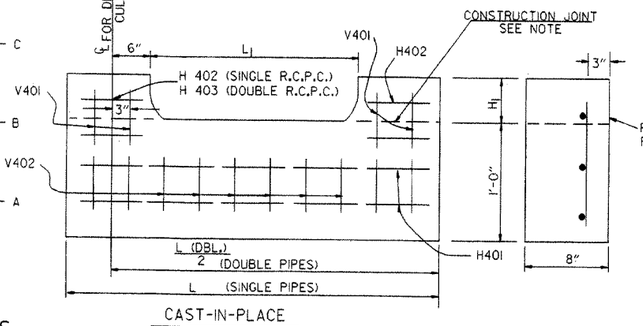
ALL REINFORCING STEEL #4 BARS @ 6" O.C.



PLAN VIEW
3:1 FORESLOPES

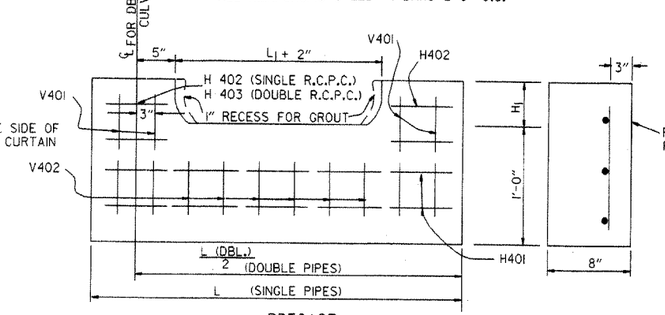
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES



CAST-IN-PLACE

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



PRECAST

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

R.C. CURTAIN WALL DETAILS

SOLID SODDING

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

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

GENERAL NOTES

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

END VIEW

SECTIONAL VIEW "X-X"

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

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

STANDARD DRAWING FES-1

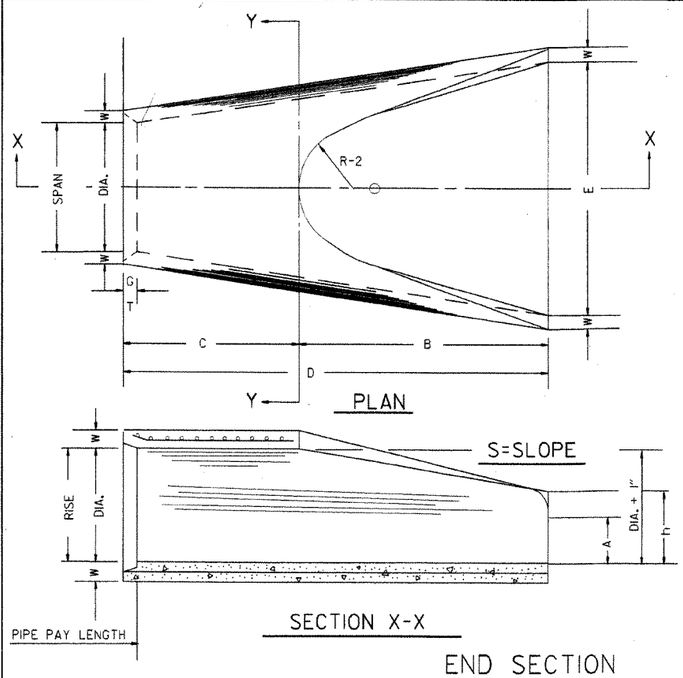
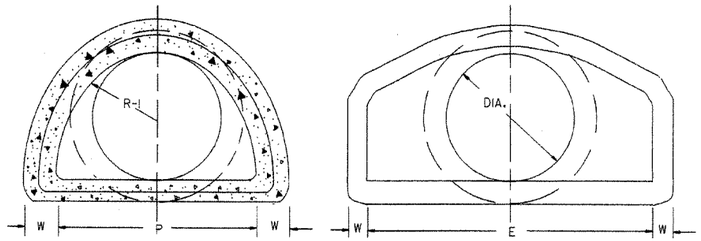


TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. + 1"	P	R-1	R-2	G-T	WT.	h
18"	2½"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15½"	12"	2"	1000	1'-0½"
24"	3"	9½"	3'-7½"	2'-6"	6'-1½"	4'-0"	3:1	25"	33⅜"	16Ⅼ⅛"	14"	2½"	1600	1'-1½"
30"	3½"	1'-0"	4'-6"	1'-7¾"	6'-1¾"	5'-0"	3:1	31"	37"	18½"	15"	3¼"	1940	1'-4⅝"
36"	4"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	6'-0"	3:1	37"	47Ⅼ⅛"	24⅝"	20"	3½"	4100	1'-8"
42"	4½"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	53⅞"	27½"	22"	3½"	5380	2'-2½"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3:1	49"	56½"	28½"	22"	3½"	6550	2'-6"
54"	5½"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3:1	55"	65½"	33⅛"	24"	4"	8750	2'-10½"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72½"	36Ⅼ⅛"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77Ⅼ⅛"	38Ⅼ⅛"	24"	5"	13250	4'-6"



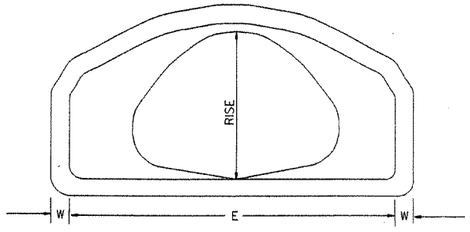
NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS

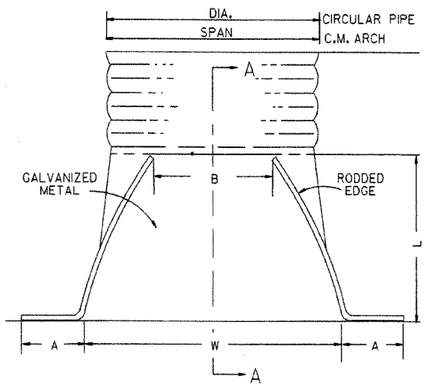
ARCH PIPE

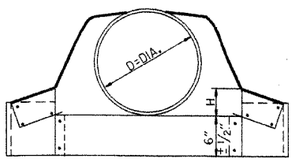
EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½:1
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅛"	13"	2½"	2½:1
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅛"	14"	2½"	2½:1
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36Ⅼ⅛"	15"	2½"	2½:1
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47Ⅼ⅛"	20"	3"	2½:1
36	43¾	44	26⅝	27	4"	10½"	4'-0"	2'-1½"	6'-1½"	6'-6"	54Ⅼ⅛"	22"	3½"	2½:1
42	51⅛	51	31⅜	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½:1
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70⅜"	24"	4¼"	2½:1
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72Ⅼ⅛"	24"	4¾"	2¼:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77Ⅼ⅛"	24"	5"	2¼:1

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

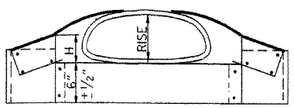


END VIEW
CONCRETE ARCH PIPE





CIRCULAR PIPE



C.M. ARCH PIPE

CIRCULAR PIPE

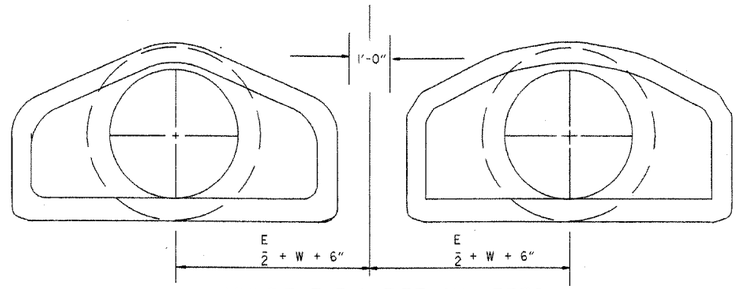
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½:1
15	16	7	8	6	26	30	2½:1
18	16	8	10	6	31	36	2½:1
21	16	9	12	6	36	42	2½:1
24	16	10	13	6	41	48	2½:1
30	14	12	16	8	51	60	2½:1
36	14	14	19	9	60	72	2½:1
42	12	16	22	11	69	84	2½:1
48	12	18	27	12	78	90	2½:1
54	12	18	30	12	84	102	2:1
60	12	18	33	12	87	114	1¾:1
66	12	18	36	12	87	120	1½:1
72	12	18	39	12	87	126	1 1/3:1

C.M. ARCH PIPE

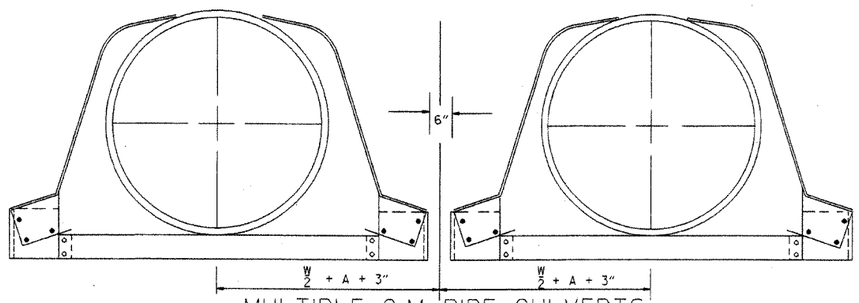
EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½:1	16
18"	21	15	7	10	6	23	36	2½:1	16
21"	24	18	8	12	6	28	42	2½:1	16
24"	28	20	9	14	6	32	48	2½:1	16
30"	35	24	10	16	6	39	60	2½:1	14
36"	42	29	12	18	8	46	75	2½:1	14
42"	49	33	13	21	9	53	85	2½:1	12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

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

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



MULTIPLE R.C. PIPE CULVERTS



MULTIPLE C.M. PIPE CULVERTS

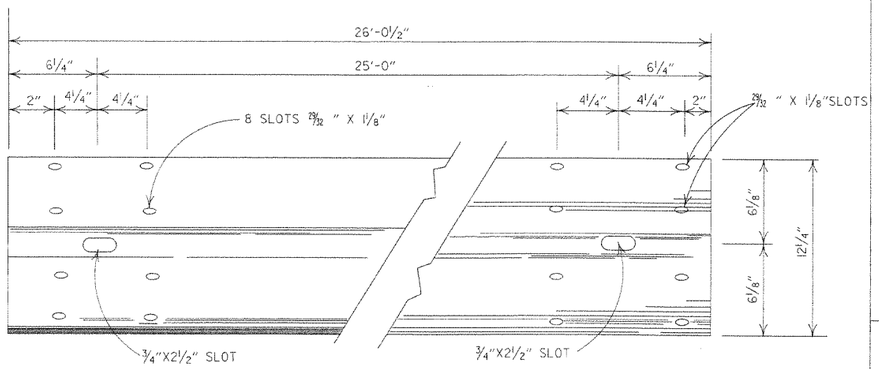
DATE	REVISION	FILMED
10-18-96	REVISED ASTM REF. TO AASHTO	10-18-96
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74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

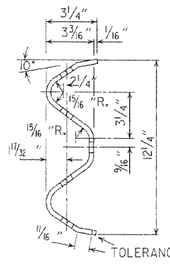
ARKANSAS STATE HIGHWAY COMMISION

FLARED END SECTION

STANDARD DRAWING FES-2

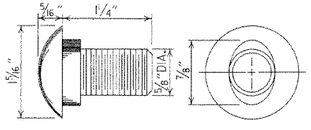
stdfes2.dgn



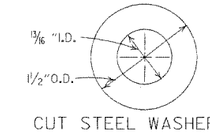


DETAILS OF W-BEAM GUARD RAIL

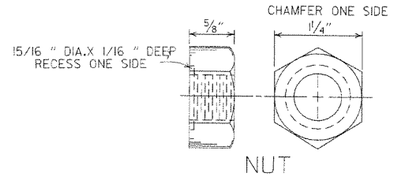
RAIL SECTION OF CLOSELY SIMILAR DIMENSIONS AND COMPARABLE STRENGTH MAY BE SUBSTITUTED IF APPROVED BY THE ENGINEER.



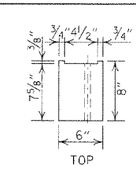
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



CUT STEEL WASHER

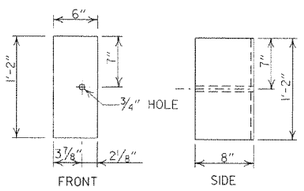


NUT

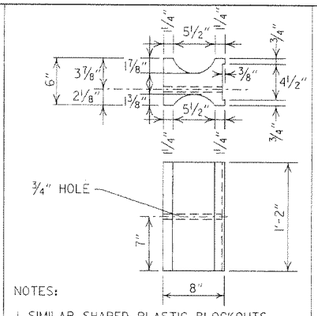


WOOD BLOCKOUT USED WITH WOOD POSTS SHALL BE 6"x8"x1'-2" WITH NO NOTCH REQUIRED.

TOP



WOOD BLOCKOUT (W-BEAM)

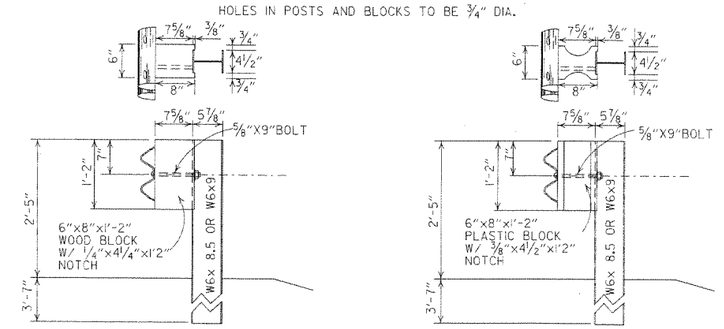


NOTES:

1. SIMILAR SHAPED PLASTIC BLOCKOUTS MAY BE USED AS LONG AS THEY MEET NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
2. DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCES.

PLASTIC BLOCKOUT (W-BEAM)

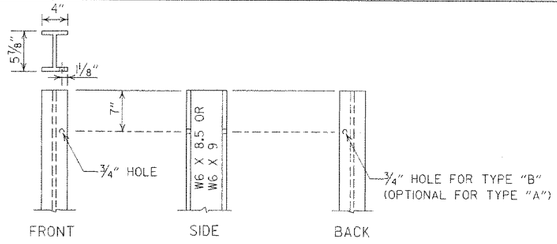
HOLES IN POSTS AND BLOCKS TO BE 3/4" DIA.



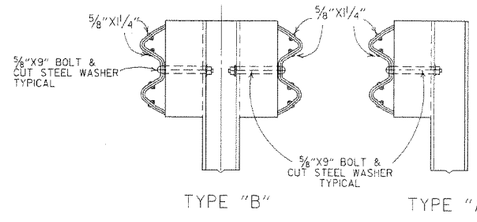
WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)



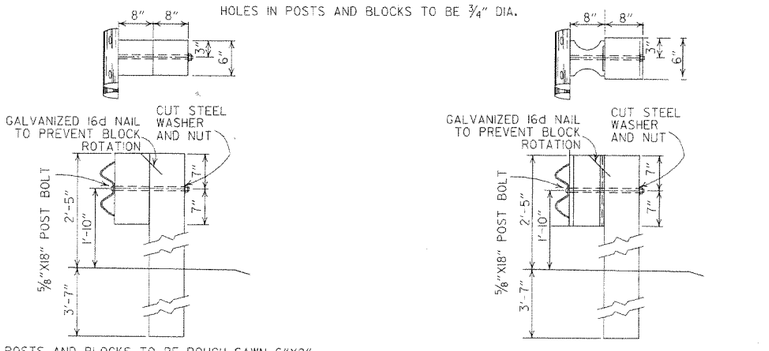
STEEL POST



TYPE "B" TYPE "A"

DETAILS OF STEEL LINE POST CONNECTIONS (W-BEAM)

HOLES IN POSTS AND BLOCKS TO BE 3/4" DIA.



POSTS AND BLOCKS TO BE ROUGH SAWN 6"x8" WITH A TOLERANCE OF + OR - 1/4".

WOOD BLOCKOUT CONNECTIONS

PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF WOOD LINE POST CONNECTIONS (W-BEAM)

-GENERAL NOTES-

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 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 9.7# (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

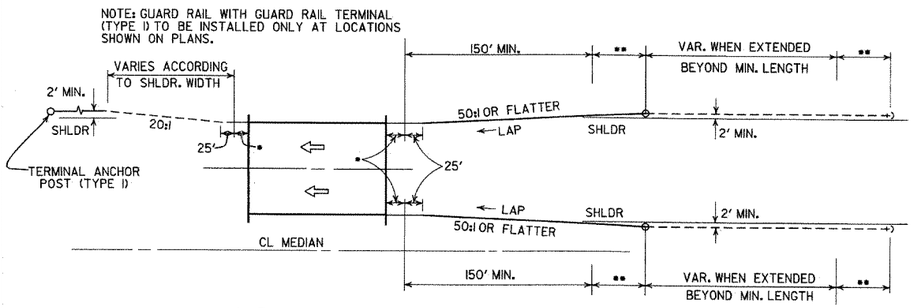
CONTRACTOR SHALL HAVE THE OPTION OF USING WOOD BLOCKOUTS FOR W-BEAM GUARD RAIL OR PLASTIC BLOCKOUTS, AS LONG AS BLOCKOUT USED MEETS NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) FOR W-BEAM GUARD RAIL.

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
10-15-09	ADDED REFERENCE TO MASH	
4-10-03	REVISED GENERAL NOTES	
8-22-02	REVISED DIMENSION ON WOOD & PLASTIC BLOCKOUT CONNECTIONS & ON STEEL POST	
11-16-01	REVISED WOOD BLOCKOUT & DETAILS OF WOOD LINE POST CONNECTIONS	
3-30-00	REMOVED GUARD RAIL AT BRIDGE ENDS	
1-12-00	ADDED PLASTIC BLOCKOUT	
8-12-98	REV. BLOCKOUTS TO WOOD, DELETED CONC. POST & REV. GENERAL NOTE, DELETED DET. OF GUARD RAIL REPLACE. BEHIND CURB & DET. OF POST PLACE. IN SOLID ROCK, & ADDED DETAILS OF STEEL LINE POST CONN. REMOVED BACK-UP PLATE, REVISED HOLES IN STEEL POLES	
4-3-97	REMOVED "LAP IN DIRECTION OF TRAFFIC" NOTE & PLACED ARROWS ON WASHERS	
10-18-96	REVISED WOOD POST NOTE	
6-2-94	ADDED ALT. STEEL POST SIZE	
8-5-93	REVISED STEEL POST SIZE	8-5-93
10-1-92	REDRAWN & REVISED	10-1-92
8-15-91	REVISED WASHER NOTE	8-15-91
8-2-90	REV. GEN. NOTE & DEPHT OF ANC. POST IN ROCK	8-2-90
7-15-88	REVISED SECTION 3 & GENERAL NOTES	
3-4-88	REV. ANCHOR POST, ELEV. NOTES & POST IN ROCK	780-3-4-88
10-30-87	REVISED WOOD LINE POST DETAIL	546-10-30-87
10-9-87	REDRAWN & REVISED	802-10-9-87

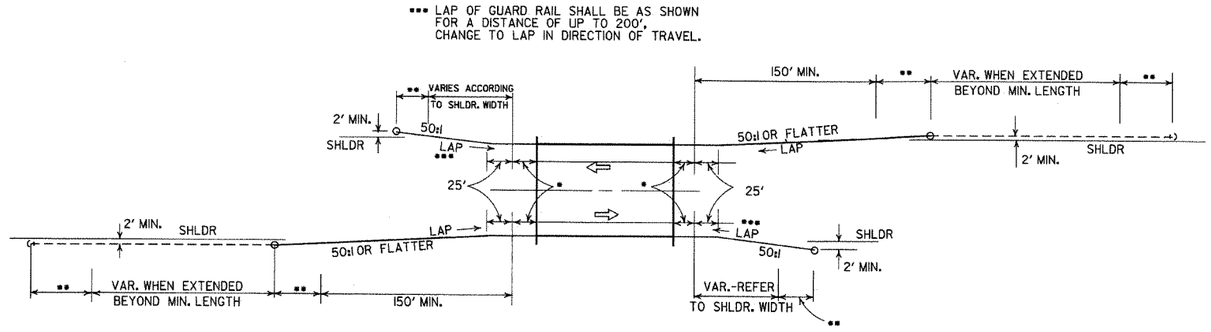
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-8



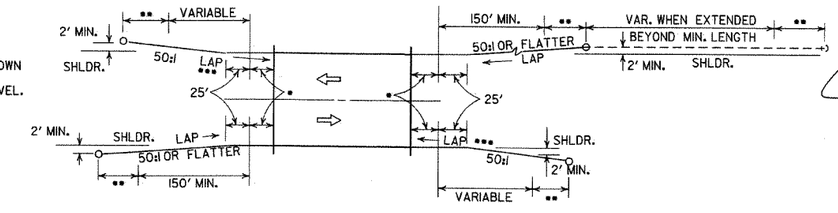
ONE-WAY TRAFFIC



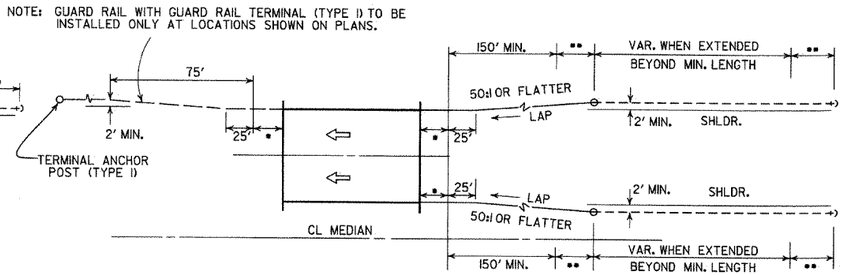
TWO-WAY TRAFFIC

METHODS OF INSTALLATION OF GUARD RAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



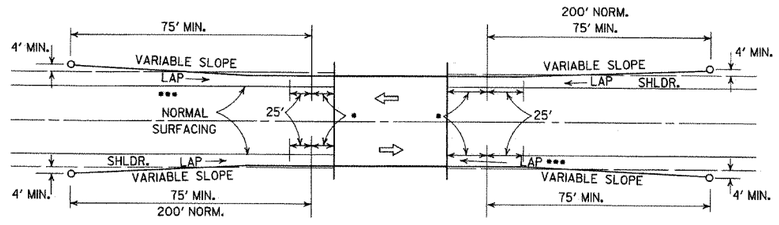
TWO-WAY TRAFFIC



ONE-WAY TRAFFIC

METHOD OF INSTALLATION OF GUARD RAIL AT FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



LEGEND

- ▪ THRIE BEAM GUARD RAIL TERMINAL
- ▪▪ GUARD RAIL TERMINAL (TYPE 2)

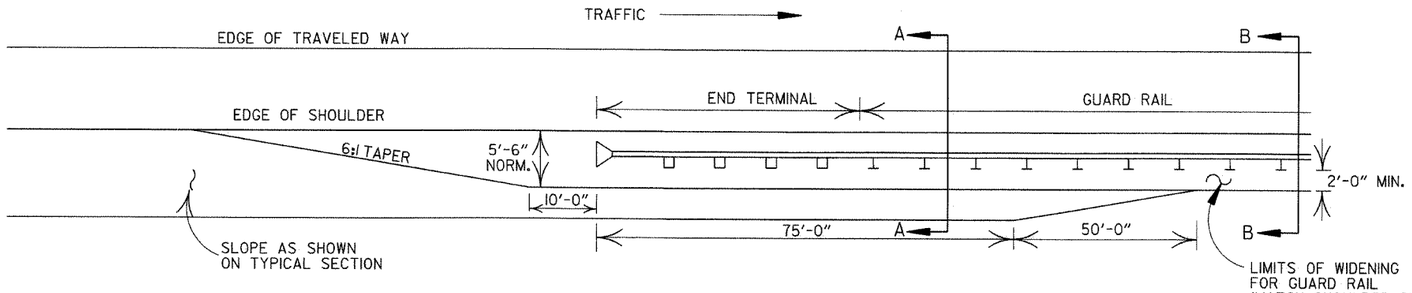
METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERMINAL (TYPE I) (FULL SHOULDER WIDTH OR LESS BRIDGES)

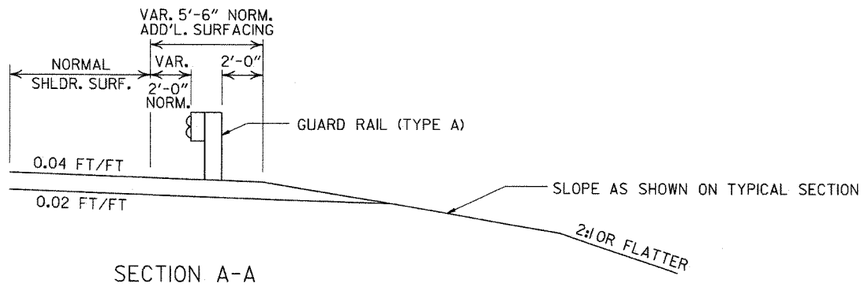
DATE	REVISION	DATE FILM
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARD RAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERM. (TY. I)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED	10-1-92
	ADDED NOTE	
10-9-87	REDRAWN & REVISED	

ARKANSAS STATE HIGHWAY COMMISSION

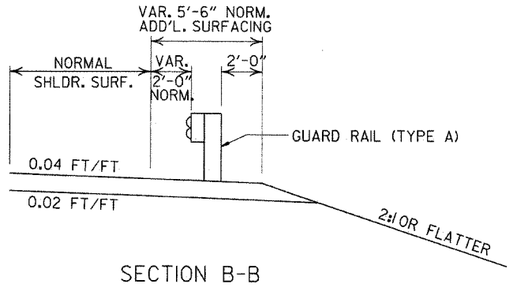
GUARD RAIL DETAILS

STANDARD DRAWING GR-9





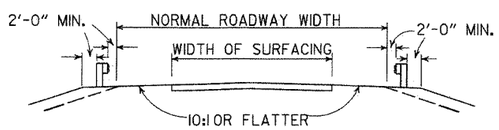
SECTION A-A



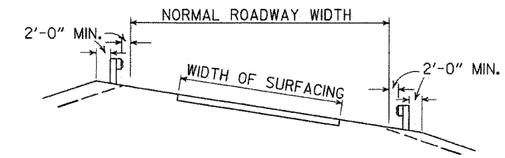
SECTION B-B

DETAILS OF WIDENING FOR GUARD RAIL

NOTE: NORMAL SECTION TO BE WIDENED APPROX. 5'-6" EACH SIDE TO SUPPORT GUARD RAIL.

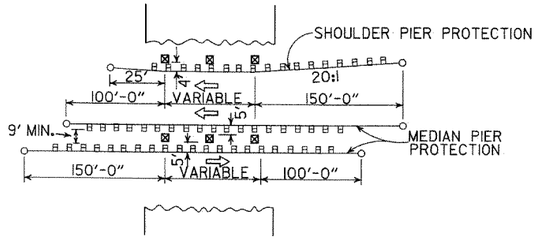


SECTION ON TANGENT



SECTION ON CURVE

DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY



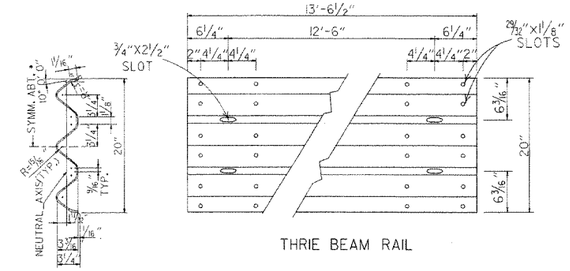
METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

DATE	REVISION	DATE FILM
4-17-08	MINOR REVISION	
11-10-05	DRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

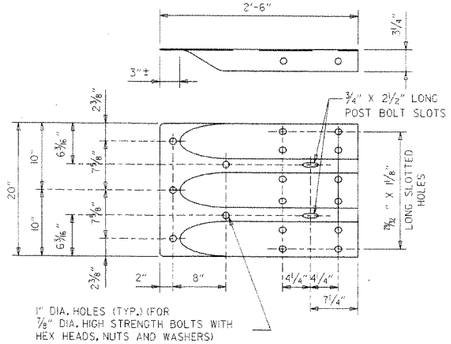
GUARD RAIL DETAILS

STANDARD DRAWING GR-9A



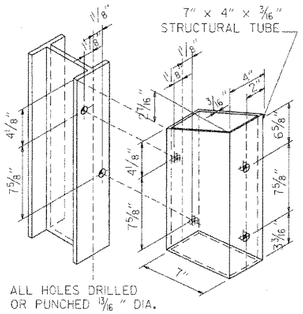
THRIE BEAM RAIL

SECTION THRU THRIE BEAM RAIL



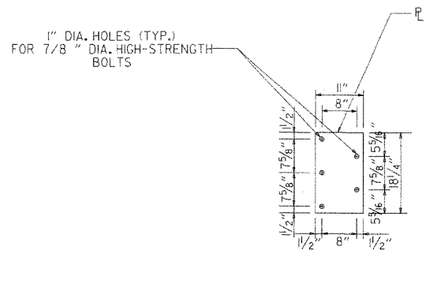
1" DIA. HOLES (TYP.) (FOR ⅞" DIA. HIGH STRENGTH BOLTS WITH HEX HEADS, NUTS AND WASHERS)

SPECIAL END SHOE



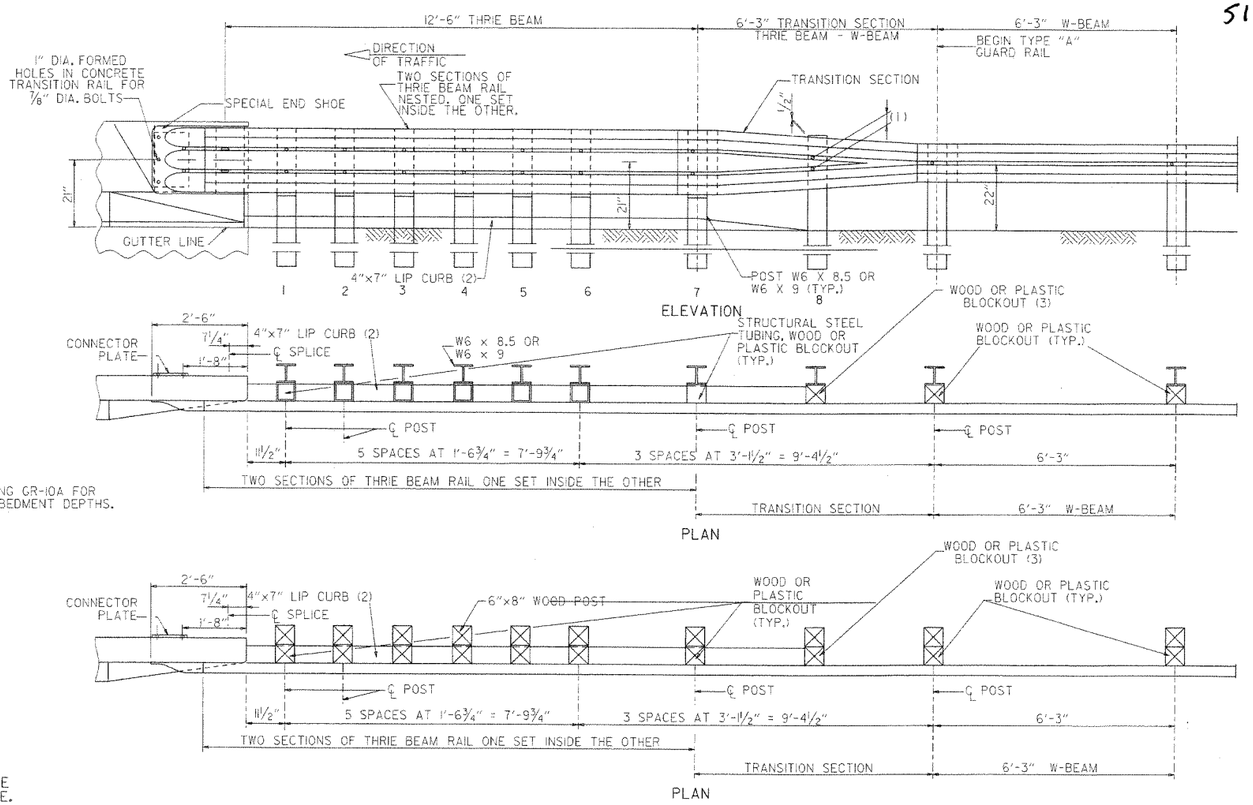
ATTACH BLOCKOUT TO POST USING ⅝" DIA. HEX HEAD BOLTS WITH 1½" O.D. CUT STEEL WASHERS AND NUT.

STRUCTURAL STEEL TUBING BLOCKOUT DETAIL



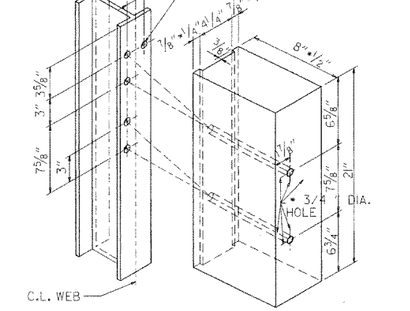
CONNECTOR PLATE

NOTE:
SEE STANDARD DRAWING GR-10A FOR GUARD RAIL POST EMBEDMENT DEPTHS.



(1) VERIFY BOLT SPACING FROM RAIL TRANSITION PRODUCER.
(2) REFER TO APPROACH GUTTER DETAILS.
(3) LENGTH OF BLOCKOUT ON POST 8 TO BE MODIFIED TO FIT RAIL WIDTH.

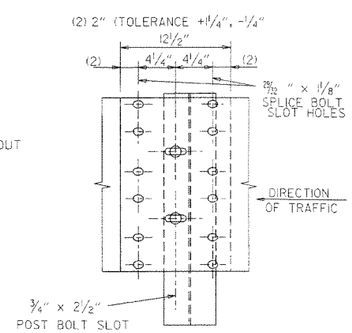
THRIE BEAM GUARD RAIL CONNECTION AT BRIDGE ENDS



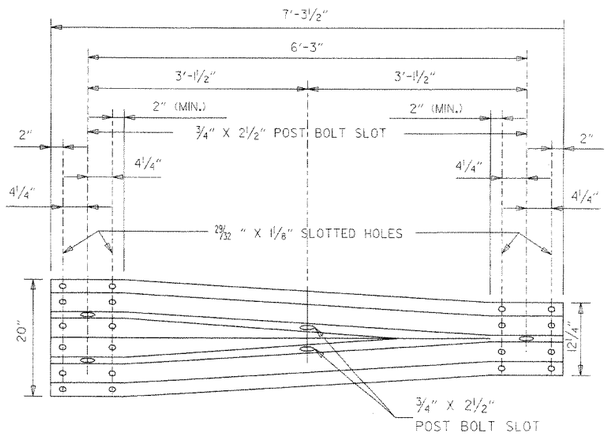
ALL HOLES 13/16" DIAMETER EXCEPT AS NOTED

HOLE PUNCHING DETAIL
FOR STEEL POST & WOOD OR PLASTIC BLOCKOUTS

NOTE: BLOCKS SHALL BE THE SAME TYPE THROUGHOUT THE PROJECT LIMITS.



THRIE BEAM RAIL SPLICE AT POST



TRANSITION SECTION

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 ¾" BEYOND IT.

ALL LAP SPLICES, INCLUDING SPECIAL END SHOES, SHALL BE MADE IN THE DIRECTION SHOWN ON STANDARD DRAWINGS GR-9 & GR-11.

WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7# (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

REFER TO STD. DRWG. GR-10A FOR POST DETAILS.

USE THRIE BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB.

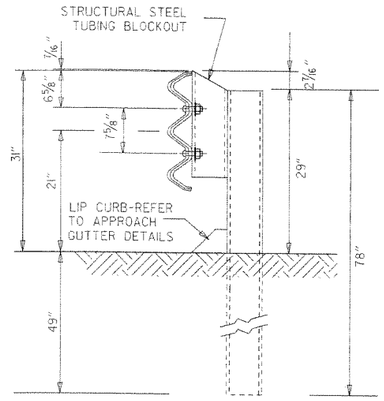
THRIE BEAM POSTS SHALL BE SAME MATERIAL AS W-BEAM POSTS FOR ENTIRE JOB.

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF W-BEAM 1"	
11-29-07	ADDED PLASTIC BLOCKOUTS	
11-10-05	ADDED NOTE FOR ATTACHING STEEL BLOCKOUT	
11-18-04	REVISED GENERAL NOTES	
10-9-03	REVISED GENERAL NOTES	
4-10-03	REVISED GENERAL NOTES	
8-22-02	REVISED NOTE (2)	
6-29-00	MOVED DIMENSION LINES	
5-18-00	ADDED NOTE	
3-30-00	DRAWN & ISSUED	

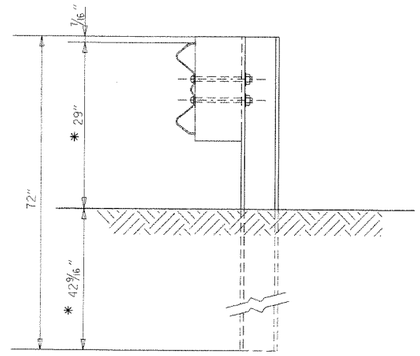
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10

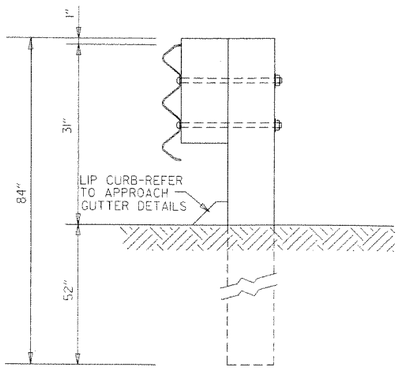


THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7

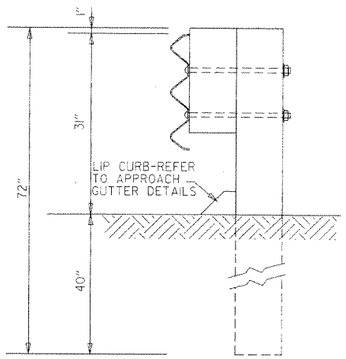


W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8

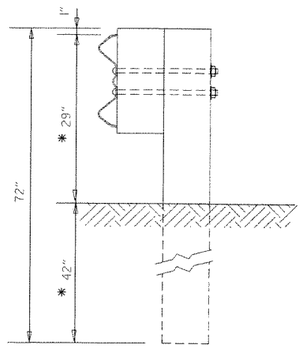
* NOTE:
THESE DIMENSIONS WILL NEED TO BE ADJUSTED IN THE FIELD TO MAKE THE TRANSITION FROM 21" MID POINT OF THRIE BEAM TO 22" MID POINT OF W-BEAM.



THRIE BEAM RAIL
WITH WOOD OR PLASTIC
BLOCKOUTS & WOOD POSTS
POSTS 1-6



THRIE BEAM RAIL
WITH WOOD OR PLASTIC
BLOCKOUT & WOOD POST
POST 7



W-BEAM TO THRIE BEAM
TRANSITION RAIL WITH WOOD OR
PLASTIC BLOCKOUT & WOOD POST
POST 8

GENERAL NOTES:

RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.

WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7f (1400 f) OR NO. 1 1350 f SOUTHERN PINE.

DATE	REVISION	DATE FILM
7-14-10	REVISED POST 8 DIMENSIONS	
11-29-07	ADDED PLASTIC BLOCKOUTS	
8-22-02	REVISED LIP CURB NOTE	
3-30-00	DRAWN & ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

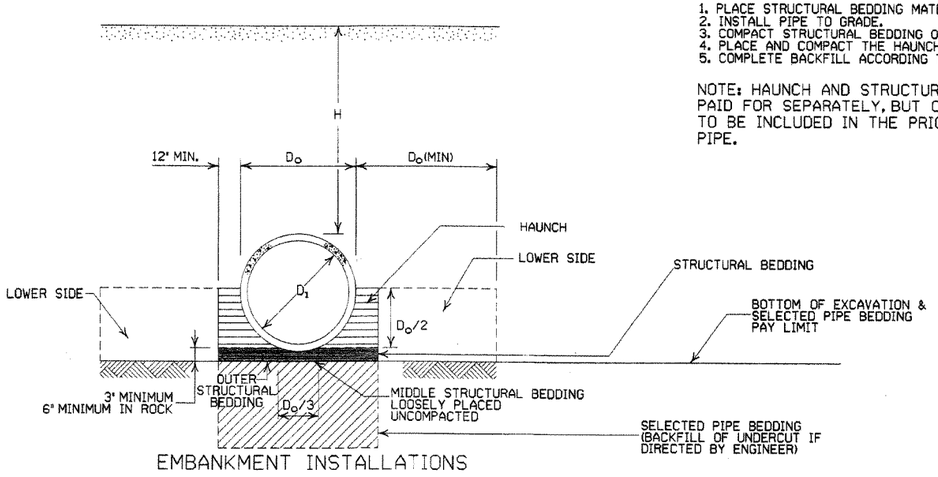
GUARD RAIL DETAILS

STANDARD DRAWING GR-10A

CONSTRUCTION SEQUENCE

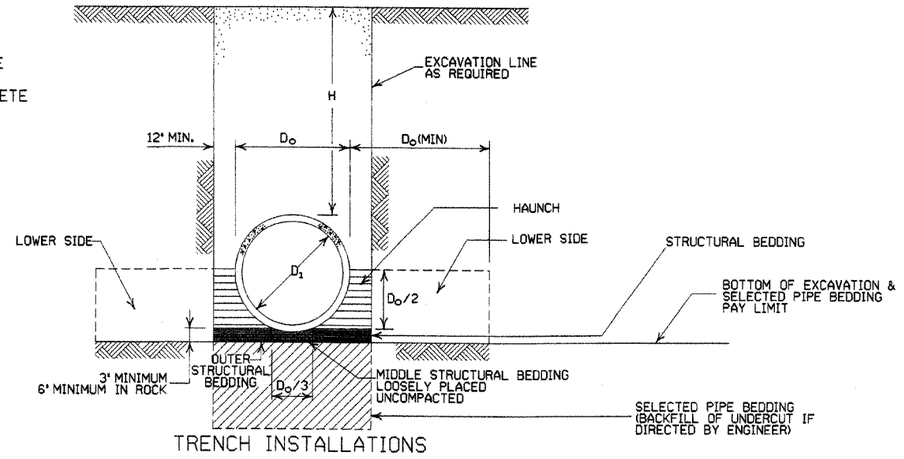
1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. PLACE AND COMPACT THE HAUNCH AREA UP TO THE MIDDLE OF THE PIPE.
5. COMPLETE BACKFILL ACCORDING TO SPECIFICATIONS.

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



EMBANKMENT INSTALLATIONS

1. MATERIAL IN THE LOWER SIDE, HAUNCH, AND OUTER STRUCTURAL BEDDING SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.



TRENCH INSTALLATIONS

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

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	•SPAN		• RISE	
	AASHTO M 206	AHD NOMINAL	AASHTO M 206	AHD NOMINAL
INCHES	INCHES			
15	18	18	11	11
18	22	22	13½	14
21	26	26	15½	16
24	28½	29	18	18
30	36¼	36	22½	23
36	43¾	44	26⅝	27
42	51⅛	51	31⅛	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77¼	77
108	138	138	87⅛	87
120	154	154	96⅞	97
132	168¾	169	106½	107

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

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

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

MAXIMUM HEIGHT OF FILL OVER R.C. PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE		
	CLASS III	CLASS IV	CLASS V
	FEET		
TYPE 1	21	32	50
TYPE 2	17	27	41
TYPE 3	13	20	32

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

GENERAL NOTES

1. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
2. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
4. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE.
5. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
6. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
7. NOT MORE THAN ONE LIFTING HOLE MAY BE PROVIDED IN CONCRETE PIPE TO FACILITATE HANDLING. HOLE MAY BE CAST IN PLACE, CUT INTO THE FRESH CONCRETE AFTER FORMS ARE REMOVED, OR DRILLED. THE HOLE SHALL NOT BE MORE THAN TWO INCHES IN DIAMETER OR TWO INCHES SQUARE. CUTTING OR DISPLACEMENT OF REINFORCEMENT WILL NOT BE PERMITTED. SPALLED AREAS AROUND THE HOLE SHALL BE REPAIRED IN A WORKMANLIKE MANNER. LIFTING HOLE SHALL BE FILLED WITH MORTAR, CONCRETE, OR OTHER METHOD AS APPROVED BY THE ENGINEER.
8. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS 'STRUCTURAL BEDDING' ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS 'SELECTED PIPE BEDDING.'
9. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS THE HAUNCH), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF 'SELECTED PIPE BACKFILL.'

- LEGEND -

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

DATE	REVISION	DATE FILMED
5-18-00	REVISED TYPE 3 BEDDING & ADDED NOTE	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND) H-20 LOADING

PIPE DIAMETER (INCHES)	MINUMUM COVER TOP OF PIPE TO TOP OF SUBGRADE (INCHES)	MAX. FILL HEIGHT ABOVE TOP OF PIPE (FEET)							
		METAL THICKNESS IN INCHES							
		0.064	0.079	0.109		0.138		0.168	
				ROUND	ELONG.	ROUND	ELONG.	ROUND	ELONG.
		2⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL							
12	12	84	91						
15	12	67	73						
18	12	56	61						
24	12	42	46	59					
30	12	34	36	47					
36•	12		30	39		41			
42•	12		43	46	67	48	70	50	73
48•	12		37	45	58	46	61	47	64
		3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION•• RIVETED, WELDED, HELICAL, OR BOLTED							
36	12	48	60	78	88	89	111	101	131
42	12	41	51	64	72	71	90	79	102
48	12	36	45	57	64	61	77	66	85
54	12	32	40	52	59	55	71	59	79
60•	12	29	36	49	53	51	64	54	71
66	12	28	33	47		49	58	51	64
72•	12	24	30	44		47	53	49	59
78	12		28	41		46	49	47	54
84•	12		26	38		45		46	51
90	12		24	35		43		45	
96•	12		22	33		40		44	
102	24			31		38		42	
108•	24			30		35		39	
114	24			28		34		37	
120•	24			27		32		35	

• MAX. FILL CAN BE INCREASED IN THESE DIAMETER PIPES BY USING THE NEXT LARGER CORRUGATION. REFER TO 'CORRUGATED METAL PIPE', REVISED 1970, PUBLISHED BY U.S. DEPARTMENT OF TRANSPORTATION, F.H.W.A., B.P.R.

•• WHERE THE STANDARD 2 ⅔"× ½" CORRUGATION AND GAUGE IS SPECIFIED FOR A GIVEN DIAMETER A 3" × 1" OR 5" × 1" CORRUGATION PIPE OF THE SAME DIAMETER MAY BE SUBSTITUTED, PROVIDING IT IS GAUGED FOR A FILL HEIGHT CONDITION EQUAL TO OR GREATER THAN THE MAXIMUM FILL HEIGHT CONDITION FOR THE SPECIFIED GAGE AND CORRUGATION

CORRUGATED ALUMINUM PIPE (ROUND) H-20 LOADING

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

EQUIVALENT METAL THICKNESSES AND GAUGES

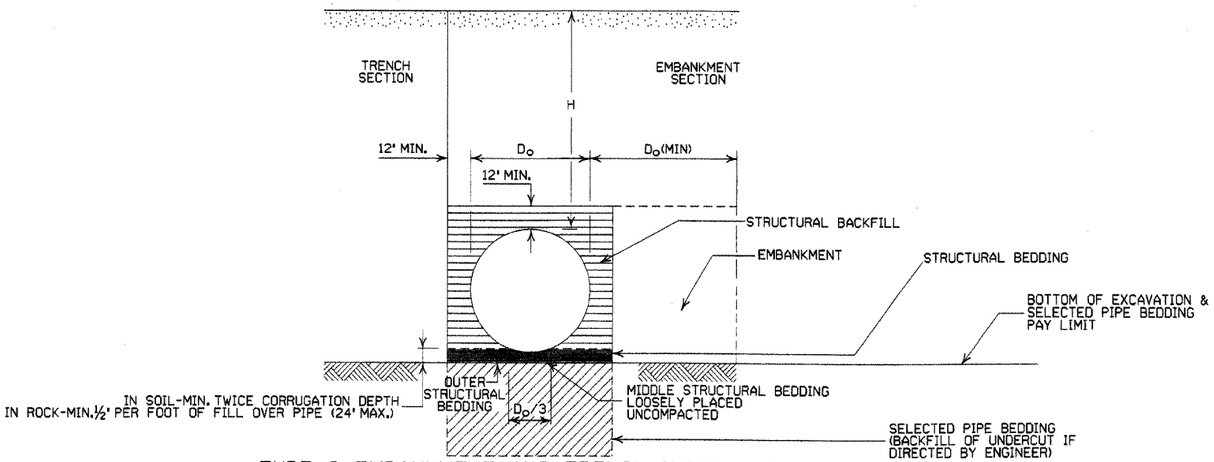
METAL THICKNESS IN INCHES			GAUGE NUMBER
STEEL			
ZINC COATED	UNCOATED	ALUMINUM	
0.064	0.0598	0.060	16
0.079	0.0747	0.075	14
0.109	0.1046	0.105	12
0.138	0.1345	0.135	10
0.168	0.1644	0.164	8
0.188	0.1838		7
0.218	0.2145		5
0.249	0.2451		3
0.280	0.2758		1

CORRUGATED METAL PIPE ARCHES (H - 20 LOADING)

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	MIN. COVER TOP OF PIPE TO TOP OF SUBGRADE FOR 2 TONS PER SQ. FT. (INCHES)	STEEL			ALUMINUM		
				MINIMUM THICKNESS REQUIRED INCHES	MAX. FILL HEIGHT ABOVE TOP OF PIPE(IN FT.) FOR THE FOLLOWING CORNER BEARING PRESSURE IN TONS PER SQ. FT.		MINIMUM THICKNESS REQUIRED INCHES	MAX. FILL HEIGHTS ABOVE TOP OF PIPE(IN FT.) FOR THE FOLLOWING CORNER BEARING PRESSURE IN TONS PER SQ. FT.	
					2 TONS	3 TONS[1]		2 TONS	3 TONS[1]
			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL				2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL		
15	17×13	3	12	0.064	13	15+	0.060	15	
18	21×15	3	12	0.064	12	15+	0.060	14	
21	24×18	3	12	0.064	10	15+	0.060	12	15+
24	28×20	3	12	0.064	10	15	0.060	10	15+
30	35×24	3	12	0.079	9	14	0.075	9	14
36	42×29	3½	12	0.079	9	13	0.075	9	13
42	49×33	4	12	0.079	8	12	0.105	8	12
48	57×38	5	12	0.109	8	12	0.135	8	12
54	64×43	6	12	0.109	8	12	0.135	8	12
60	71×47	7	12	0.138	8	12	0.164	8	12
66	77×52	8	12	0.168	8	12	0.164	8	12
72	83×57	9	12	0.168	9	13			
			3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION•• RIVETED, WELDED, OR HELICAL						
36	40×31	5	12	0.079	15	15+			
42	46×36	6	12	0.079	15	15+			
48	53×41	7	12	0.079	15	15+			
54	60×46	8	12	0.079	15	15+			
60	66×51	9	12	0.079	15	15+			
66	73×55	12	12	0.079	15	15+			
72	81×59	14	18	0.079	15	15+			
78	87×63	14	18	0.079	14	15+			
84	95×67	16	18	0.109	13	15+			
90	103×71	16	24	0.109	12	15+			
96	112×75	18	24	0.109	11	15+			
102	117×79	18	24	0.109	10	15			
108	128×83	18	24	0.138	9	14			

1 WHERE BEARING PRESSURE EXCEEDING 2 TONS PER SQUARE FOOT IS REQUIRED FOR GIVEN FILL HEIGHTS, THE FOUNDATION MATERIAL SHALL BE INVESTIGATED TO DETERMINE THE BEARING CAPACITY.

•• WHERE THE STANDARD 2 ⅔" × ½" CORRUGATION AND GAUGE IS SPECIFIED FOR A GIVEN DIAMETER, A 3" × 1" OR 5" × 1" CORRUGATION PIPE OF THE SAME DIAMETER MAY BE SUBSTITUTED, PROVIDING IT IS GAUGED FOR A FILL HEIGHT CONDITION EQUAL TO OR GREATER THAN THE MAXIMUM FILL HEIGHT CONDITION FOR THE SPECIFIED GAUGE AND CORRUGATION.



TYPE 2 EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.

CONSTRUCTION SEQUENCE

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

INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 2	•SELECTED MATERIALS (CLASS SM-1, SM-2 OR SM-3)

• AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7) MAY BE USED IN LIEU OF SELECTED MATERIAL

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

GENERAL NOTES

1. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
2. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES.
3. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
4. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE.
5. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
6. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
7. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS 'STRUCTURAL BEDDING' ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS 'SELECTED PIPE BEDDING.'
8. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF 'SELECTED PIPE BACKFILL.'

- LEGEND -

D_o = OUTSIDE DIAMETER OF PIPE
MAX. = MAXIMUM
MIN. = MINIMUM
= STRUCTURAL BACKFILL MATERIAL
= UNDISTURBED SOIL
ELONG. = ELONGATED
EQUIV. DIA. = EQUIVALENT DIAMETER
H = FILL COVER HEIGHT OVER PIPE (FEET)

DATE	REVISION	DATE FILMED
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

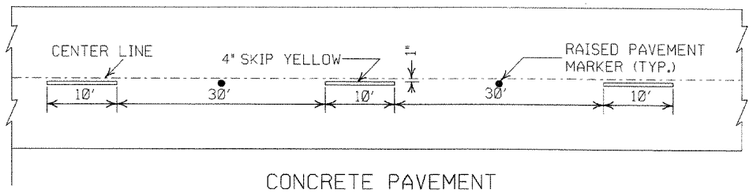
ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

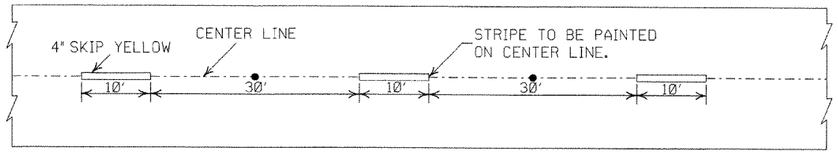
STANDARD DRAWING PCM-1

NOTES:

1. ALL LINES SHALL HAVE A WIDTH OF 4 INCHES.
2. THE THICKNESS AND RATE OF PAINT APPLICATION SHALL BE AS SPECIFIED IN SECTION 718 OF THE STANDARD SPECIFICATIONS.
3. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE 'MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.'
4. RAISED PAVEMENT MARKERS SHALL BE CENTERED BETWEEN SKIP LINES ON 40 FEET SPACING UNLESS OTHERWISE SHOWN ON THE PLANS.

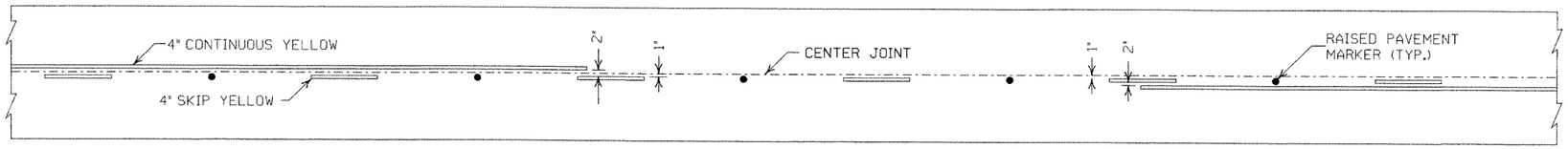


CONCRETE PAVEMENT

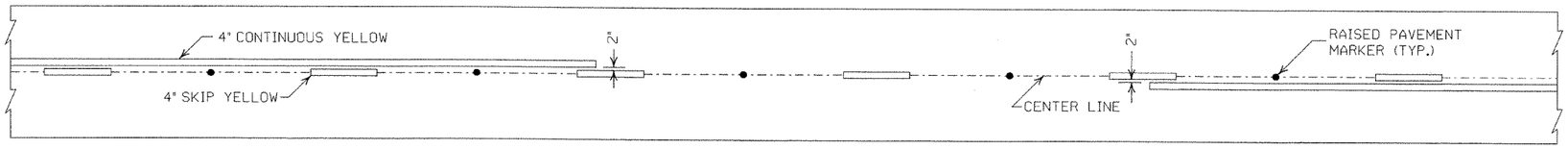


ASPHALT PAVEMENT

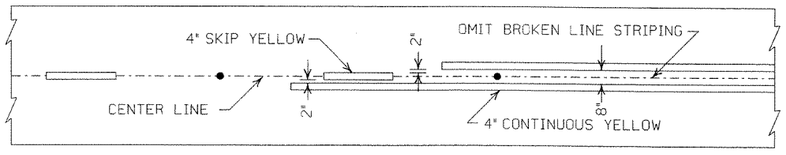
BROKEN LINE STRIPING



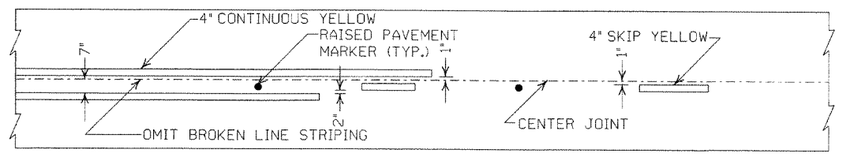
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

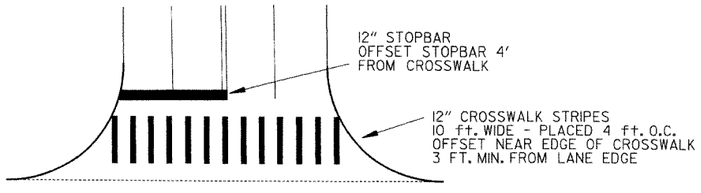


ASPHALT PAVEMENT

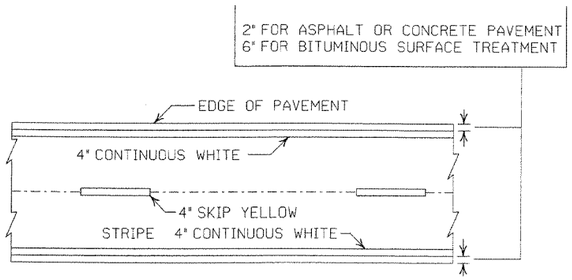


CONCRETE PAVEMENT

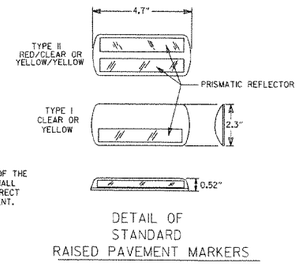
STRIPING AT ADJACENT NO PASSING LANES



CROSSWALK AND STOPBAR DETAILS



PAVEMENT EDGE LINE MARKING



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

DETAIL OF STANDARD RAISED PAVEMENT MARKERS

GENERAL NOTES:

THIS DRAWING SHOULD BE CONSIDERED AS TYPICAL ONLY AND THE FINAL LOCATION OF THE STRIPING AND RAISED PAVEMENT MARKERS SHALL BE DETERMINED BY THE ENGINEER.

THIS DRAWING SHOULD BE USED IN CONJUNCTION WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", LATEST REVISION.

NOTE:

DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE AHTD QUALIFIED PRODUCTS LIST.

DATE	REVISION	FILMED
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAV'T. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80	DRAWN	1-9-30-80

ARKANSAS STATE HIGHWAY COMMISSION

PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

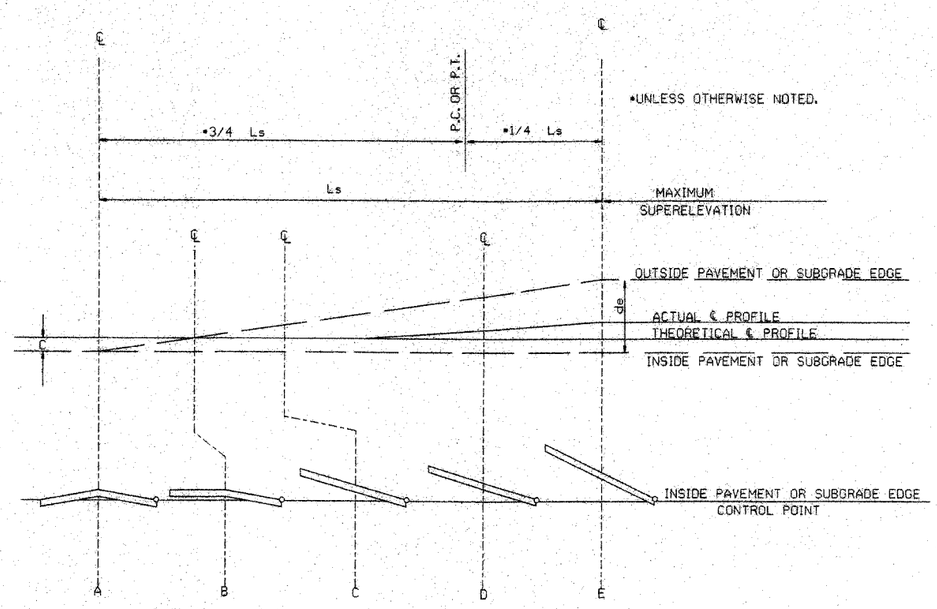
SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH e	30 MPH Ls (FT) MINIMUM	30 MPH Ls (FT) DESIRABLE	40 MPH e	40 MPH Ls (FT) MINIMUM	40 MPH Ls (FT) DESIRABLE	50 MPH e	50 MPH Ls (FT) MINIMUM	50 MPH Ls (FT) DESIRABLE	55 MPH e	55 MPH Ls (FT) MINIMUM	55 MPH Ls (FT) DESIRABLE	60 MPH e	60 MPH Ls (FT) MINIMUM	60 MPH Ls (FT) DESIRABLE	70 MPH e	70 MPH Ls (FT) MINIMUM	70 MPH Ls (FT) DESIRABLE
0° 15′	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 30′	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 45′	N.C.			N.C.			R.C.			0.022			0.023			0.028		
1° 00′	N.C.			N.C.			0.021			0.029			0.030			0.037	275	300
1° 15′	N.C.			R.C.			0.026			0.032			0.037	250	300	0.046		
1° 30′	N.C.			0.021			0.031	200		0.037	225	300	0.043			0.054		
1° 45′	N.C.			0.025	175		0.036			0.043			0.049			0.062		
2° 00′	R.C.			0.028			0.040			0.048			0.055			0.070		
2° 15′	R.C.			0.031			0.045		250	0.053			0.061			0.078	300	350
2° 30′	0.021			0.034			0.049			0.063			0.072			0.085	315	
2° 45′	0.023			0.037		200	0.053			0.067	230		0.077	260		0.091	335	
3° 00′	0.025	150		0.040			0.057			0.072	245		0.082	275		0.096	350	400
3° 15′	0.027			0.043			0.061			0.076	255		0.086	285		0.098	360	
3° 30′	0.029			0.046			0.065	205		0.080	265		0.090	295		0.100	360	
3° 45′	0.031		200	0.049			0.069	215		0.083	270		0.093	305	350			
4° 00′	0.033			0.051			0.072	225		0.087	280		0.096	315				
4° 30′	0.037			0.056			0.078	240		0.091	295	350	0.098	320				
5° 00′	0.040			0.061			0.083	250		0.094	300							
5° 30′	0.043			0.066	185		0.088	260		0.096	305							
6° 00′	0.046			0.070	190		0.092	270	300	0.100	315							
6° 30′	0.050			0.074	200		0.095	280										
7° 00′	0.053			0.078	210		0.098	285										
7° 30′	0.056			0.081	215		0.099	290										
8° 00′	0.058			0.084	220	250												
8° 30′	0.061			0.087	225													
9° 00′	0.063			0.089	230													
10° 00′	0.068	160		0.094	235													
11° 00′	0.072	170		0.097	250													
12° 00′	0.075	175		0.099	250													
13° 00′	0.080	180		0.100	250													
14° 00′	0.083	190																
15° 00′	0.086	195																
16° 00′	0.089	200																
17° 00′	0.091	200																
18° 00′	0.093	205																
19° 00′	0.095	210																
20° 00′	0.097	215	250															
21° 00′	0.098	215																
22° 00′	0.099	215																
23° 00′	0.099	215																
24° 00′	0.100	220																

D MAX = 24° 45′ | D MAX = 13° 15′ | D MAX = 8° 15′ | D MAX = 6° 30′ | D MAX = 5° 15′ | D MAX = 3° 30′

ABBREVIATIONS

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



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

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

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

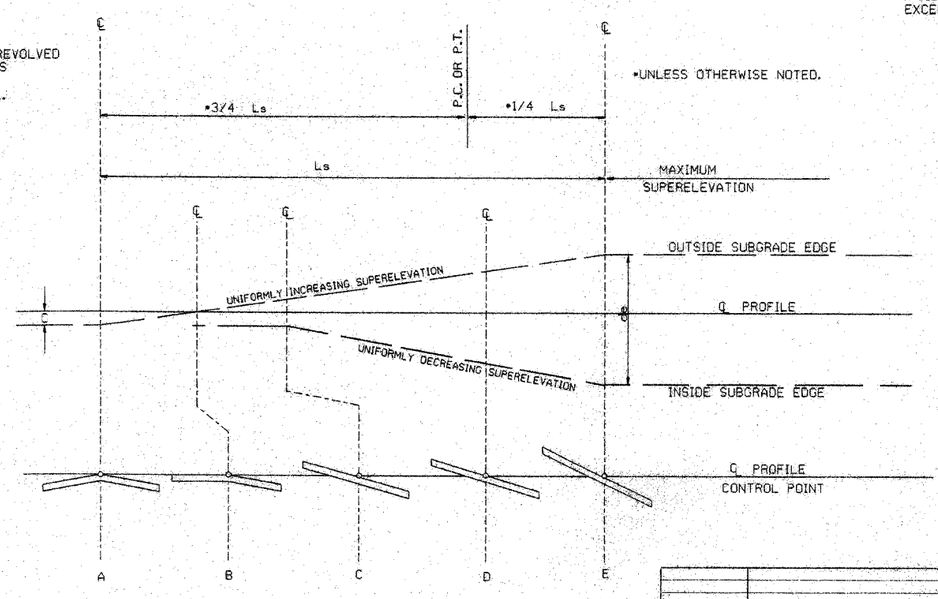
GENERAL NOTES

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

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

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

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



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

DATE	REVISION	DATE FILMED
10-18-96	ADDED FORMULA	10-18-96
01-09-87	ISSUED	534-1-9-87

ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

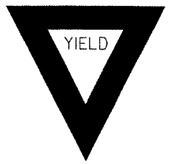
STANDARD DRAWING SE-2

FILE STDSE2.DGN

R1-1

STANDARD 30"X30"
EXPRESSWAY 36"X36"
SPECIAL 48"X48"

R1-2



STD. 36"X36"X36"
EXPWY. 48"X48"X48"
FWY. 60"X60"X60"

R2-1

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

R2-5A

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

R2-5C

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

R4-1

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

R4-2

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

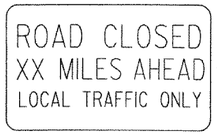
R5-1

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

R11-2

48"X30"

R11-3A



60"X30"

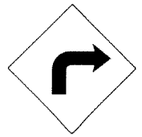
R11-4

60"X30"

RSP-1

48"X30"

W1-1



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

W1-2

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

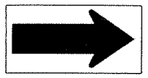
W1-3

STD. 48"X48"

W1-4

STD. 48"X48"

W1-6

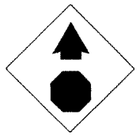


STD. 48"X24"
SPECIAL 60"X30"

W1-8

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

W3-1

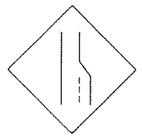


STD. 36"X36"
SPECIAL 48"X48"

W3-2

STD. 36"X36"
SPECIAL 48"X48"

W4-2



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

W5-1

STD. 36"X36"
SPECIAL 48"X48"

W6-3

EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7

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

W9-2

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

W13-1

STD. 24"X24"

W20-1

STD. 48"X48"

W20-2

STD. 48"X48"

W20-3

STD. 48"X48"

W20-4

STD. 48"X48"

W20-5

STD. 48"X48"

W20-7a

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

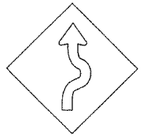
W21-2

STD. 30"X30"
SPECIAL 36"X36"

W21-5

STD. 30"X30"
SPECIAL 36"X36"

W24-1



STD. 36"X36"

W1-4b

STD. 48"X48"

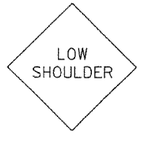
R56-1

STD. 18"X18"

W8-11

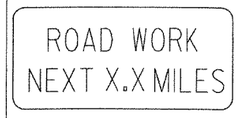
STD. 36"X36"
FWY. 48"X48"

W8-9



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

G20-1



60"X24"

G20-2

48"X24"

OM-3L OM-3R

12"X36"

M4-9

STD. 30"X24"
SPECIAL 48"X36"
SPECIAL 60"X48"

M4-10

48"X18"

R55-1

FINES DOUBLE
IN WORK ZONES *

WHEN WORKERS
ARE PRESENT **

36"X60"

* USE 6" C LETTERS
** USE 4" D LETTERS

ADVANCE DISTANCES
(XXXX)

500 FT	1/2 MILE
1000 FT	3/4 MILE
1500 FT	1 MILE
	AHEAD

GENERAL NOTES:

1. ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION.
2. TRAFFIC CONTROL DEVICES SHALL BE SET UP JUST BEFORE THE START OF CONSTRUCTION OPERATIONS AND SHALL BE PROPERLY MAINTAINED DURING THE TIME SUCH CONDITIONS EXIST. THEY SHALL REMAIN IN PLACE ONLY AS LONG AS NEEDED AND REMOVED THEREAFTER.
3. EXISTING SIGNS AND CONSTRUCTION SIGNS SHALL BE KEPT IN PROPER POSITION, AND BE CLEAN AND LEGIBLE AT ALL TIMES. SIGNS THAT DO NOT APPLY TO EXISTING CONDITIONS SHALL BE REMOVED. SIGNS THAT ARE DAMAGED, DEFACED, OR THAT ACCUMULATE DIRT DURING CONSTRUCTION SHALL BE CLEANED, REPAIRED, OR REPLACED.
- 4. SIGNS ARE USUALLY MOUNTED ON A SINGLE POST, ALTHOUGH THOSE WIDER THAN 36" OR LARGER THAN 10 SQ. FT. SHALL BE MOUNTED ON TWO POSTS OR ABOVE A TYPE III BARRICADE.
- 5. SIGN POSTS DIRECT BURIED IN SOIL SHALL BE 2 LB. MINIMUM CHANNEL POST OR 4"x4" WOOD POSTS. CHANNEL POSTS SHALL BE PAINTED GREEN. WOOD POSTS SHALL BE PAINTED WHITE. ALL POSTS SHALL BE NEATLY CONSTRUCTED, AND SHALL BE REPLUMBED, CLEANED, OR REPAIRED AS NEEDED FOR THE DURATION OF THE JOB. THERE SHALL NOT BE MORE THAN 2 POSTS IN A 7' PATH FOR WOOD OR CHANNEL POSTS. ANY CHANNEL POST SPLICE SHALL BE IN ACCORDANCE WITH STANDARD DRAWING TC-3.
6. POST MOUNTED SIGNS IN RURAL AREAS SHALL BE CONSTRUCTED WITH THE NEAR EDGE OF THE SIGN FROM 6 TO 12 FEET FROM THE PAVEMENT EDGE. SIGNS IN URBAN AREAS AND BARRICADE MOUNTED SIGNS SHALL BE MOUNTED A MINIMUM OF 2 FEET FROM THE PAVEMENT EDGE.
7. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN URBAN AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE. ALL POST AND BARRICADE MOUNTED SIGNS MOUNTED IN RURAL AREAS SHALL BE MOUNTED A MINIMUM DISTANCE OF 7' FROM THE BOTTOM OF THE SIGN TO THE ROADWAY SURFACE, EXCEPT A MINIMUM OF 6' SHALL BE USED WHEN MOUNTING AN ADVISORY SIGN BELOW A WARNING SIGN. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR INTERMEDIATE TERM STATIONARY WORK CONDITIONS. THE SIGNS MINIMUM MOUNTING HEIGHT SHALL BE 5'. RETROREFLECTIVE DEVICES SHALL BE USED. TEMPORARY SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS FOR SHORT-TERM, SHORT DURATION, AND MOBILE CONDITIONS. THEY SHALL BE NO LESS THAN ONE (1) FOOT ABOVE THE TRAVELED WAY. LONG-TERM STATIONARY SIGNS SHALL BE DIRECT BURIED IN SOIL, UNLESS CONDITIONS NECESSITATE THE USE OF PORTABLE SIGNS, OR AS APPROVED BY THE ENGINEER. CONCRETE PADS, CONCRETE OR ROCK BALLAST, OR OTHER SOLID MATERIALS SHALL NOT BE UTILIZED WITH PORTABLE SIGN SUPPORTS.
8. FLAGGERS SHALL USE REFLECTORIZED STOP-SLOW PADDLES. FLAGS MAY BE USED ONLY FOR EMERGENCY SITUATIONS.
9. MOST OF THE SIGNS SHOWN ARE ORIENTED TO THE RIGHT. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF MIRROR IMAGES OF THESE SIGNS WHERE THE REVERSE ORIENTATION MIGHT BETTER CONVEY TO MOTORISTS THE PROPER DIRECTION OF MOVEMENT.
10. R55-1 SIGNS SHALL BE PLACED AT LEAST 1500' BUT NOT MORE THAN 1 MILE IN ADVANCE OF THE WORK ZONE. IF A SPEED LIMIT REDUCTION IS IN EFFECT, THE SIGN SHALL BE PLACED A MINIMUM OF 500' IN ADVANCE OF THE "REDUCED SPEED AHEAD" SIGN.

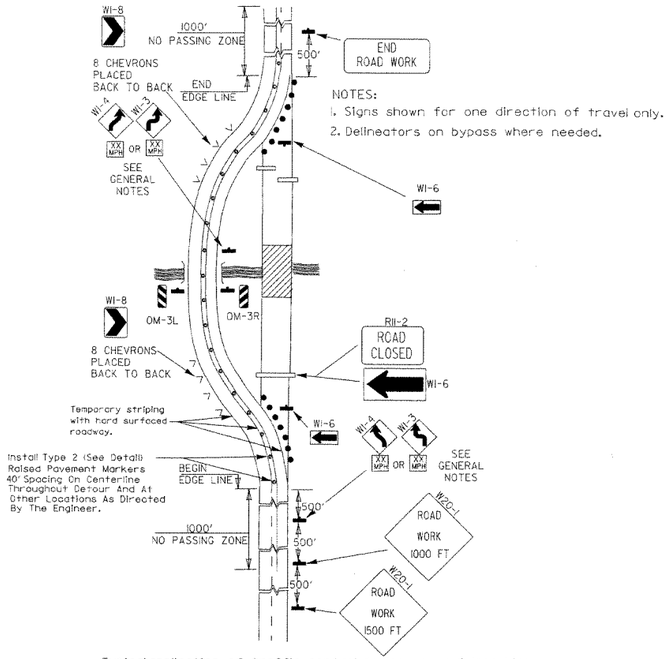
* NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.

DATE	REVISION	FILMED
11-17-10	DELETED W8-9a & ADDED W8-9	
10-15-09	ADDED REFERENCE TO MASH & ADDED SIGN W24-1	
4-17-08	REVISED SIGN DESIGNATIONS	
11-18-04	REVISED NOTES	
10-9-03	REVISED NOTE 1	
11-16-01	REVISED NOTE 7	
9-28-00	REVISED NOTE	
11-18-98	ADDED NOTE	
6-26-97	REVISED NOTE 5	
4-03-97	REVISED NOTE 5	
10-18-96	ADDED CONTROLLED ACCESS HWY. SIGN & TO NOTE 7	
10-12-95	ADDED R55-1	
6-8-95	REVISED TO CORRECT SIGN ILLUSTRATIONS	6-8-95
2-2-95	REVISED PER PART VI, MUTCD SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION

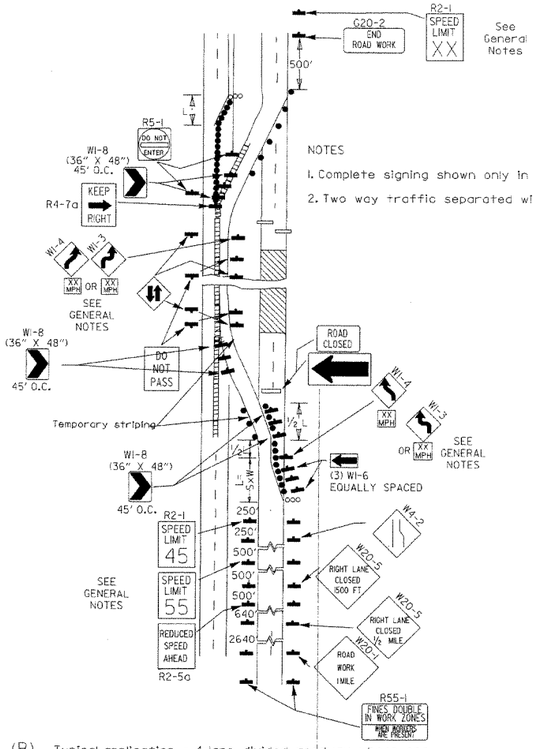
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



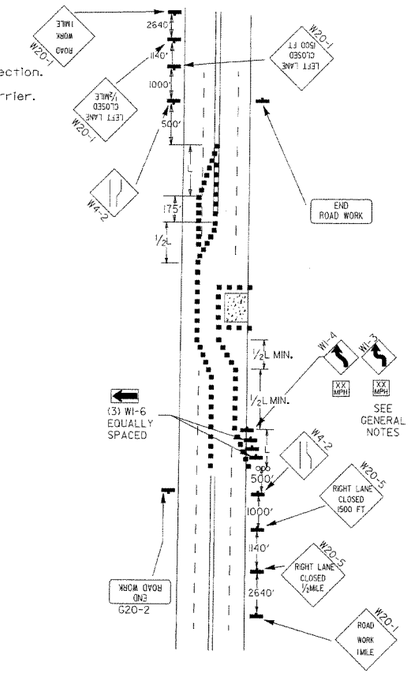
NOTES:
1. Signs shown for one direction of travel only.
2. Delineators on bypass where needed.

(A) Typical application of traffic control devices on a 2-lane highway where the entire roadway is closed and a bypass detour is provided.

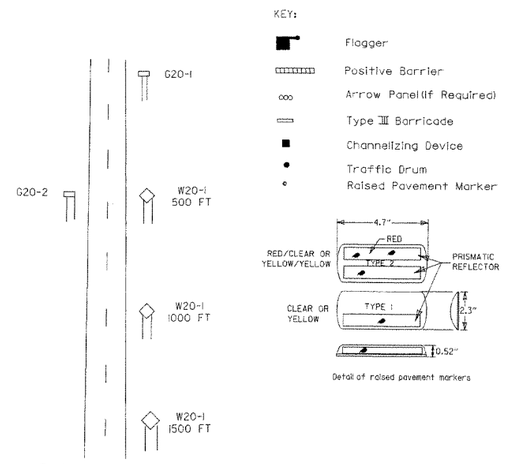


NOTES
1. Complete signing shown only in crossover direction.
2. Two way traffic separated with positive barrier.

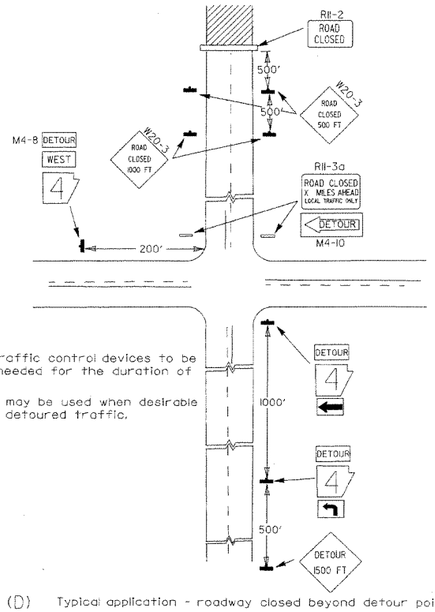
(B) Typical application - 4-lane divided roadway where one roadway is closed.



(C) Typical application - 4-lane undivided roadway where half of the roadway is closed.

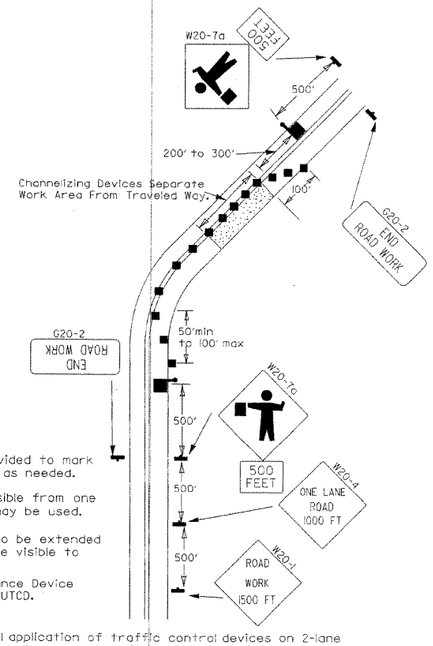


Typical advance warning sign placement



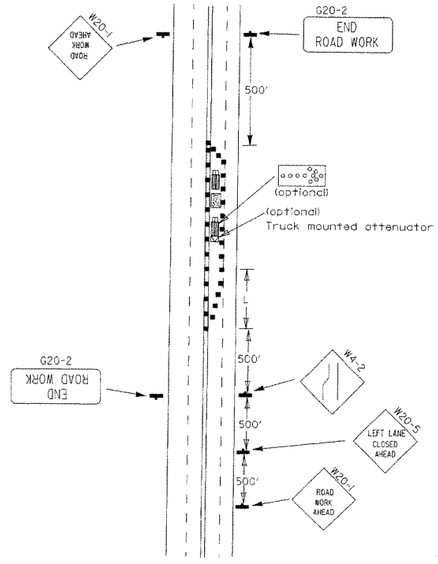
NOTES:
1. Regulatory traffic control devices to be modified as needed for the duration of the detour.
2. Street names may be used when desirable for directing detoured traffic.

(D) Typical application - roadway closed beyond detour point.



NOTES:
1. Flood lights should be provided to mark flagger stations at night as needed.
2. If entire work area is visible from one station, a single flagger may be used.
3. Channelizing devices are to be extended to a point where they are visible to approaching traffic.
4. Automated Flagger Assistance Device (AFAD) optional. Refer to MUTCD.

(E) Typical application of traffic control devices on 2-lane highway where one lane is closed and flagging is provided.



(F) Typical application - 4-lane undivided roadway with inside lane closed.

Taper formulae:

$L = S \times W$ for speeds of 45mph or more.

$L = \frac{WS^2}{60}$ for speeds of 40mph or less.

Where:
L= Minimum length of taper.
S= Numerical value of posted speed limit prior to work or 85th percentile speed.
W= Width of offset.

GENERAL NOTES:

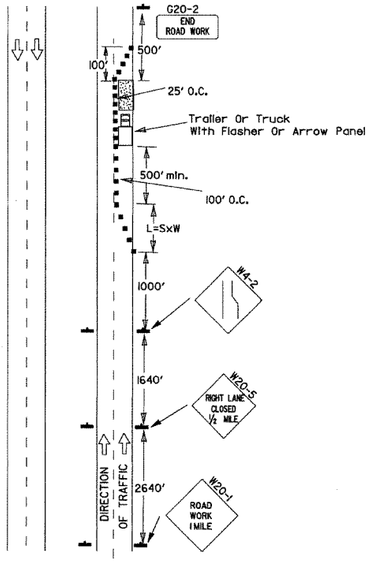
1. Advisory speed posted on WI-3 or WI-4 curve warning signs to be determined at site. Use WI-4 when speed is greater than 30mph and WI-3 when 30mph or less.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the R2-5A shall be installed at that location. Additional R2-1 45mph speed limit signs shall be installed at a maximum of 1mile intervals. At the end of the work area a R2-1(xx) shall be installed to match original speed limit.
3. When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(45) shall be omitted. Additional R2-1 55mph speed limit signs shall be installed at a maximum of 1mile intervals. At the end of the work area a R2-1(xx) shall be installed to match original speed limit.
4. The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit, or as directed by the Engineer.
5. Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
6. Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
7. Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.

DATE	REVISION	FILMED
3-11-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON WI-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

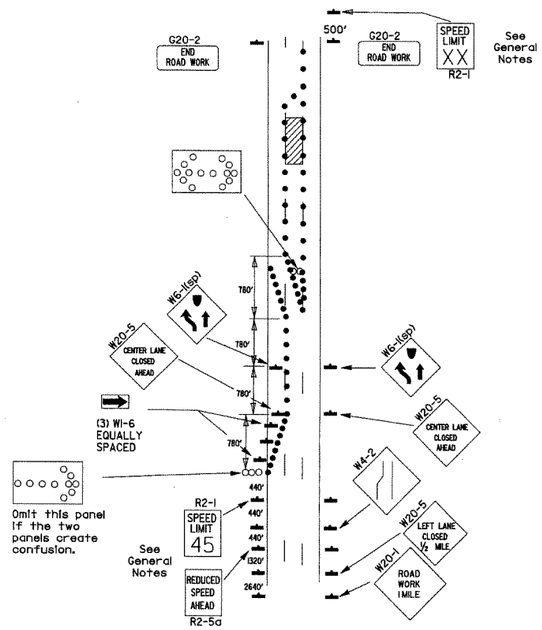
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

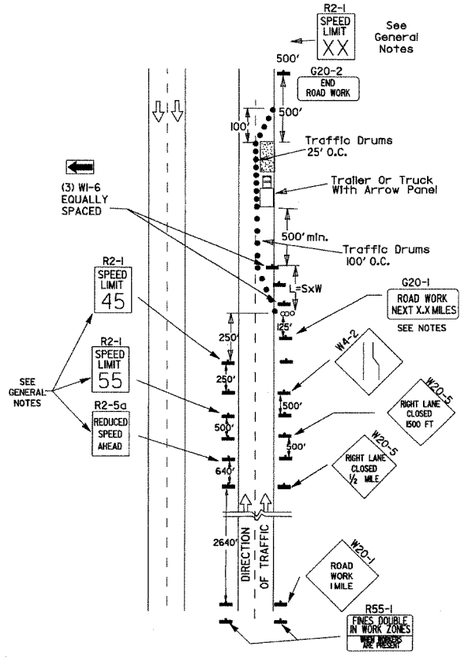
STANDARD DRAWING TC-2



(A) Typical application - daytime maintenance operations of short duration on a 4-lane divided roadway where half of the roadway is closed.



(B) Typical application - 3-lane oneway roadway where center lane is closed.



(C) Typical application - construction operations of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.

KEY:

ooo Arrow Panel (if Required)

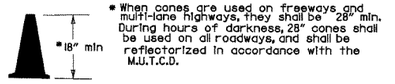
■ Channelizing Device

● Traffic drum

GENERAL NOTES:

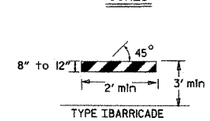
1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the R2-5A shall be installed at that location. Additional R2-1 45mph speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
3. When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(45) shall be omitted. Additional R2-1 55mph speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
4. The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit or as directed by the Engineer.
5. Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
6. Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
7. The G20-1 sign will be required on jobs of over two miles in length. When the lane closure is not at the beginning of the project, the G20-1 sign shall be erected 125' in advance of the job limit. Additional W20-1 (1 MILE) signs are not required in advance of lane closures that begin inside the project limits.
8. Flaggers shall use STOP/SLOW paddles for controlling traffic through work zones. Flags may be used only for emergency situations.
9. All plastic drums and cones shall meet the requirements of NCHRP-350 or Manual For Assessing Safety Hardware (MASH).
10. Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.

Channelizing devices



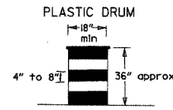
* When cones are used on freeways and multi-lane highways, they shall be 28" min. During hours of darkness, 28" cones shall be used on all roadways, and shall be reflectorized in accordance with the M.U.T.C.D.

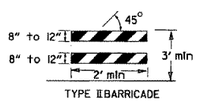
CONES



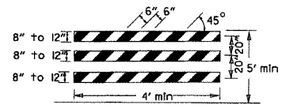
TYPE I BARRICADE

PLASTIC DRUM



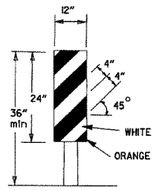


TYPE II BARRICADE



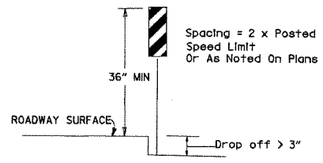
TYPE III BARRICADE

NOTE:
For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.



VERTICAL PANEL
VP-1R

VERTICAL PANEL PLACEMENT



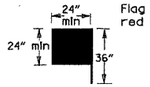
TRAFFIC CONTROL DEVICES
FOR
VERTICAL PAVEMENT DIFFERENTIALS

VERTICAL DIFFERENTIAL	LOCATIONS	TRAFFIC CONTROL
1" to 3"	Centerline, lane lines	W8-11
1" to 3"	Edge of shoulder	W8-9
Greater than 3"	Lane lines	Standard lane closure required
Greater than 3"	Edge of traveled lane	*RSP-1 and vertical panels, drums or concrete barrier
Greater than 3"	Edge of shoulder	*Vertical panels, drums or concrete barrier

▪ When shown on the plans concrete barrier will be used.

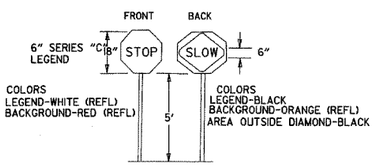
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.

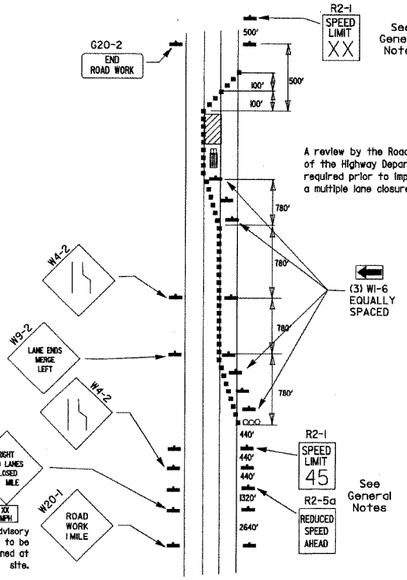
FLAG



Flag shall be of good grade red material

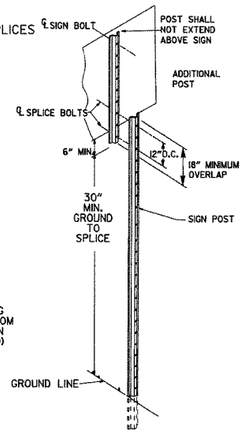
STOP SLOW PADDLE





(D) Typical application - closing multiple lanes of a multilane highway.

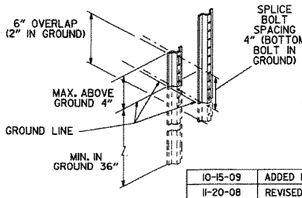
DETAIL OF SPLICES



NOTES: USE SPLICES ONLY WHEN NECESSARY FOR INSTALLATION. TYPICAL INSTALLATION SHOULD HAVE NO SPLICES (SEE STD. DRAWING NO. SHS-2)

NORMAL INSTALLATIONS WILL REQUIRE 1/4" DIA. BOLTS TO MOUNT SIGNS TO POST AND 5/16" DIA. BOLTS TO ASSEMBLE THE VARIOUS POST SUPPORTS. EACH OF THESE BOLTS SHALL BE CARRIAGE BOLTS.

SIGN POSTS SHALL BE PAINTED GREEN; SIGNS SHALL NOT BE PAINTED, AND ALL SIGN POSTS SHALL BE PLUMB.



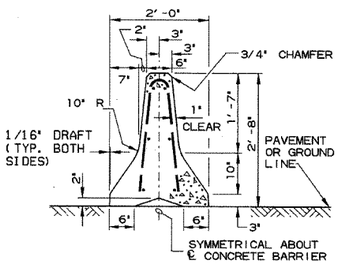
DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1 & REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

ARKANSAS STATE HIGHWAY COMMISSION

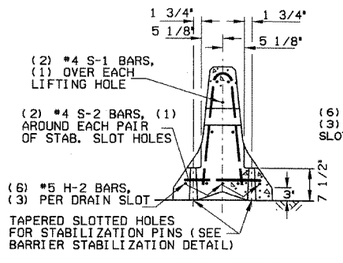
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-3

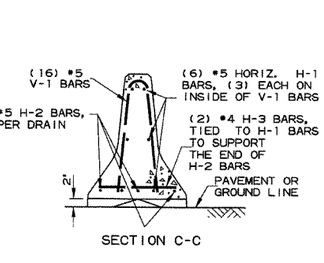
REINFORCING BAR TABLE PER BARRIER UNIT				
MARK	LOCATION	BAR SIZE	(NO. BARS)	SKETCH
H-1	HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS	#5	(6)	19'-3"
H-2	CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY	#5	(6)	6'-6"
H-3	TIED ABOVE H-1 BARS TO SUPPORT H-2, TIED TO V-1	#4	(2)	1'-6"
S-1	OVER LIFT HOLES	#4	(2)	2'-5", LIFTING HOLE, 90°, 3 3/8" R
S-2	HORIZ. AROUND SLOTS BETWEEN V-1'S @ DRAIN SLOTS	#4	(2)	1 1/2" R, SLOTS, 7", 1'-6", 1" MIN. CLEAR TO BAR, 5'-1" BAR W/(4) 1 1/2" R BENDS & MIN. 1'-0" OVERLAP
V-1	VERTICAL IN BARRIER(3) EACH END & (2) AT EACH DRAIN SLOTS	#5	(16)	TOTAL LENGTH 4'-9", 2 3/16" R, 12°, 1 1/2", #9, 2'-1 3/8", 4 3/8"



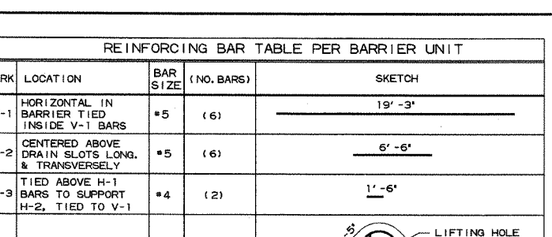
SECTION A-A



SECTION B-B

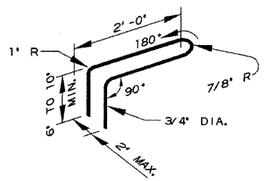


SECTION C-C

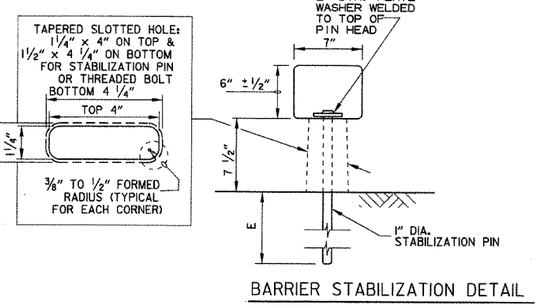


SECTION E-E

CONNECTION DETAILS



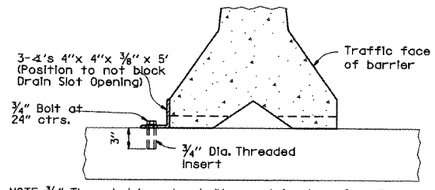
CONNECTION LOOP



BARRIER STABILIZATION DETAIL

ROADWAY SECTION

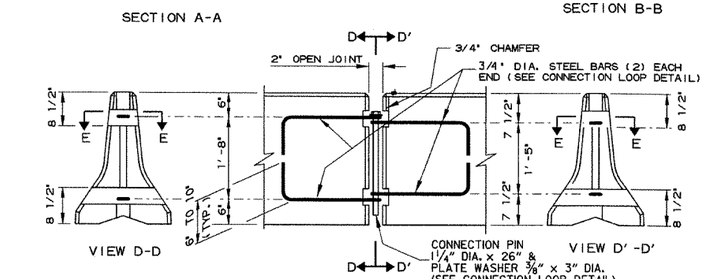
(E) 4" - Concrete Pavement
8" - Asphalt Pavement
12" - Shoulder Areas



NOTE: 3/4" Threaded Inserts shall be cast in place for all new bridge decks and drilled and grouted for existing bridge decks to be retained. Inserts shall have a minimum ultimate load capacity of 8000 lbs. in tension. After removal of barrier, bolts, and angles, the inserts shall be filled with approved non-shrink epoxy.

BARRIER STABILIZATION DETAIL

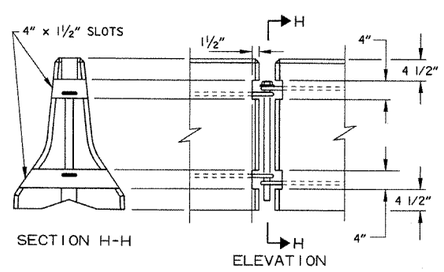
BRIDGE DECKS



VIEW D-D

VIEW D'-D'

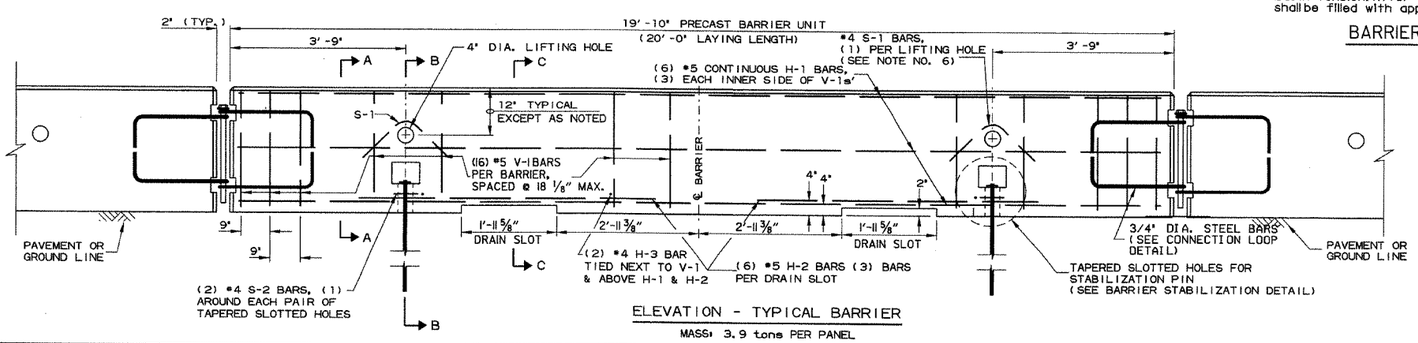
ELEVATION



SECTION H-H

ELEVATION

BARRIER REMOVAL SLOT DETAILS



ELEVATION - TYPICAL BARRIER

MASS: 3.9 tons PER PANEL

General Notes

(1) The contractor shall furnish the Precast Concrete Barrier Units and shall be responsible for the manufacture, shipment, storage, placement and removal. At the completion of the project, the precast units will remain the property of the contractor.

(2) Materials shall meet the following minimum requirements;
Concrete: 2500 psi compressive strength at 28 days.
Reinforcing Steel: AASHTO M 31 or M 53, Grade 60
Structural Steel: AASHTO-M270 Grade 36 shall be used for the Connection Pin, Connection Loops, and Stabilization Pins. A One Piece Pin with a 3" rounded top may be used in place of the detailed Connection Pin.
Delineators: Delineators shall be mounted at 10' spacing on top of precast barrier.

In applications where barrier walls within 6 feet of a traffic lane, additional delineators shall be placed on the barrier at 10' spacing approximately one (1) foot from the top of the barrier. Delineators shall be on the AHTD Qualified Products List for Construction Concrete Barrier Markers.
Delineator color shall be in accordance with the Manual on Uniform Traffic Control Devices.
Payment for delineators shall be considered included in the price bid per Lin. Ft. for "Furnishing and Installing Precast Concrete Barrier". The contractor shall certify to the Engineer that the material and the design used in the precast barrier units meets the requirements as shown on this standard drawing.

(3) Other Precast Concrete Barriers that have been crash tested and approved by the Federal Highway Administration to meet the requirements of NCHRP-350 test level 3 or Manual For Assessing Safety Hardware (MASH) will be accepted in lieu of the barrier shown. Drain slots shall be provided as needed or as directed by the Engineer. The Contractor shall furnish a certification of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) compliance for any other types of precast barrier to be used. The certification shall state that the precast concrete barrier meets the requirements of NCHRP Report 350 or Manual For Assessing Safety Hardware (MASH) and include a copy of the Federal Highway Administration's (FHWA) approval letter with all attachments. Precast concrete barrier units shall be fabricated and installed in accordance with crash testing and documentation provided in the FHWA approval letter. Mixing of shapes will not be allowed in a continuous line of units.

(4) Dowel holes in pavement or bridge slabs that are to remain in place shall be filled. Holes in concrete pavement and bridge slabs shall be filled with an approved non-shrink epoxy grout. Holes in asphalt pavement shall be filled with an approved asphalt joint filler. Payment for drilling and filling holes to be included in the price for various barrier items.

(5) Attach Units To Roadway Surface with Stabilization Pins and to Deck Slabs using bolts when required.

(6) A 4" White PVC Sleeve may be used to form the Lifting Hole and if used the Sleeve is to be left in place.

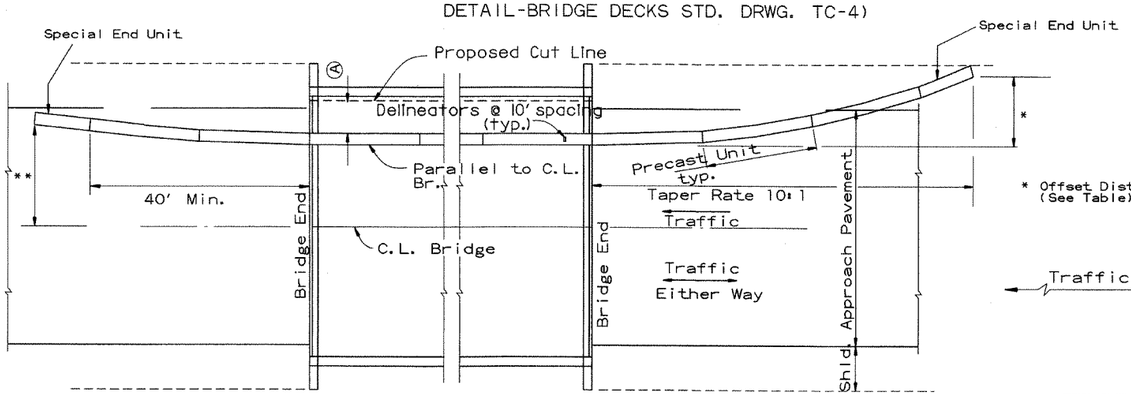
DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED GENERAL NOTE 2	
8-22-02	ISSUED NEW DRAWING	

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

STANDARD DRAWING TC-4

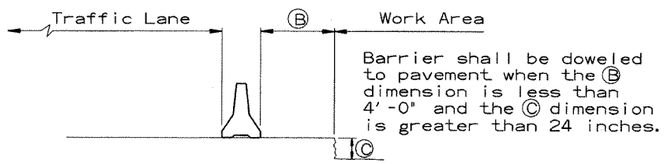
Ⓐ 4 feet or greater preferred. If less than 4 feet, Precast Units shall be connected to slab (SEE BARRIER STABILIZATION DETAIL-BRIDGE DECKS STD. DRWG. TC-4)



BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

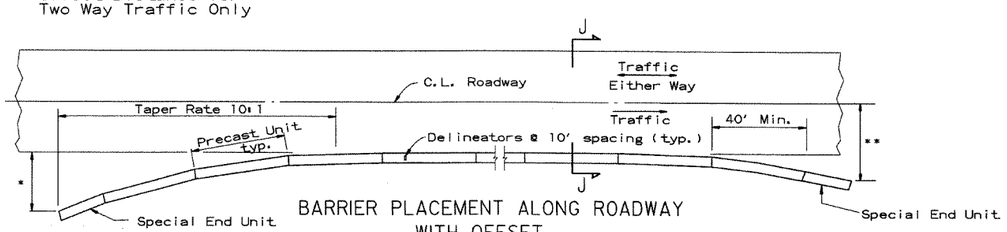
** Offset Distance for Two Way Traffic Only



Barrier shall be doweled to pavement when the Ⓑ dimension is less than 4'-0" and the Ⓒ dimension is greater than 24 inches.

SECTION J-J

No Scale



BARRIER PLACEMENT ALONG ROADWAY WITH OFFSET

No Scale

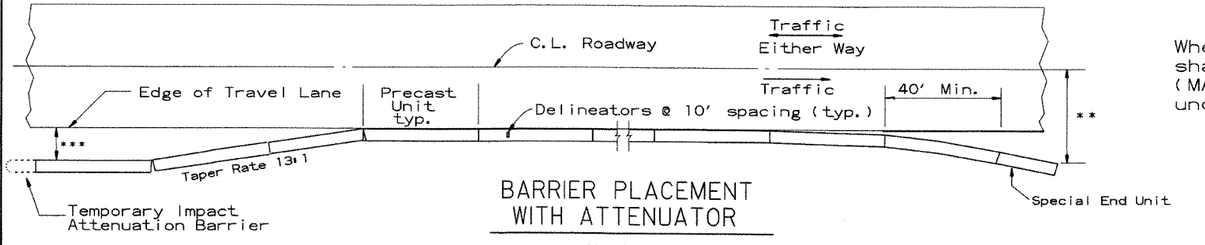
** Offset Distance For Two Way Traffic Only

* Offset Distance (See Table)

Offset Distance Table

Speed (MPH)	Offset Distance (FT.)
≤ 45	12
> 45	18

If offset distance is not attainable, then see "Barrier Placement With Attenuator" Detail shown below.

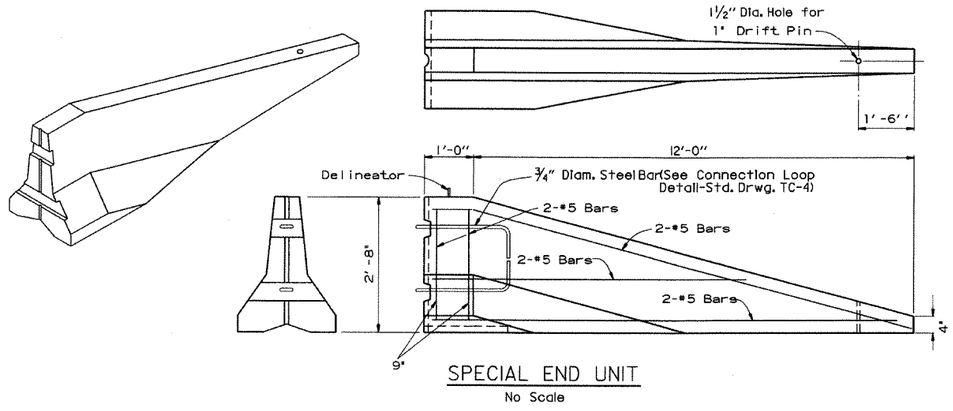


BARRIER PLACEMENT WITH ATTENUATOR

No Scale

*** Min. 3'-0" From Edge of Travel Lane to Nearest Edge of Attenuator

** Offset Distance For Two Way Traffic Only



SPECIAL END UNIT

No Scale

General Notes

When shown on the Plans, the ends of the Temporary Precast Concrete Barrier shall be protected with an NCHRP-350 or Manual For Assessing Safety Hardware (MASH) approved Crash Cushion. Payment for Crash Cushions shall be made under the item of "Temporary Impact Attenuation Barrier."

DATE	REVISION	FILMED
10-15-09	ADDED REFERENCE TO MASH	
5-25-06	REVISED BARRIER PLACEMENT	
8-22-02	ISSUED NEW DRAWING	

ARKANSAS STATE HIGHWAY COMMISSION

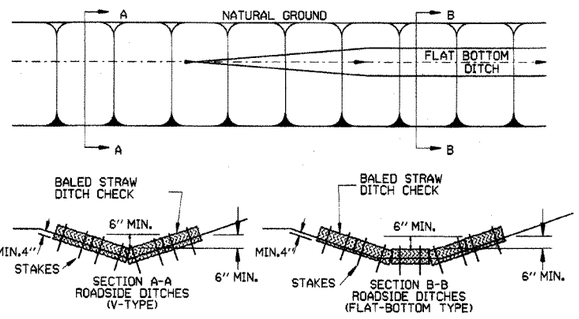
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

STANDARD DRAWING TC-5

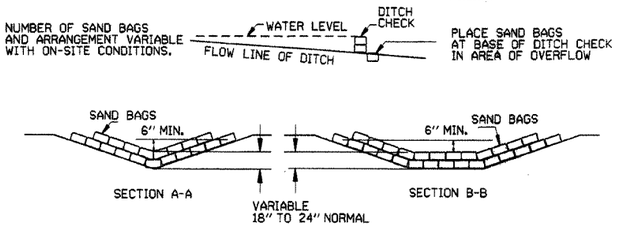
GENERAL NOTES

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

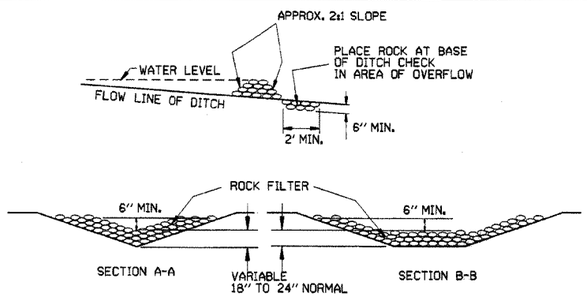
2. STRAW BALES SHALL BE KEYED INTO SOIL A MINIMUM OF 4' AND NO GAPS SHALL BE LEFT BETWEEN BALES.



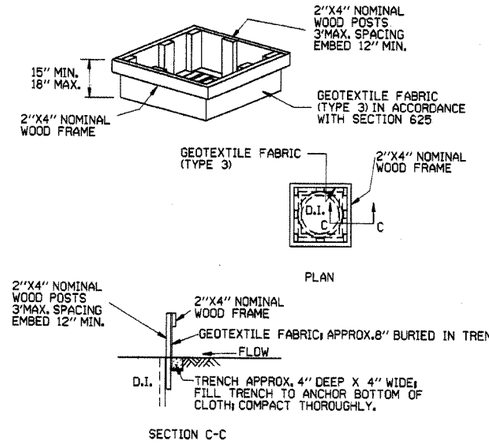
BALED STRAW DITCH CHECK (E-1)



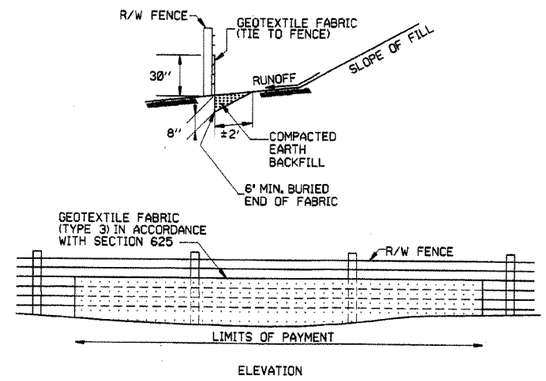
SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)



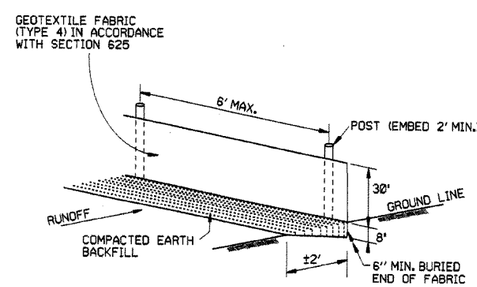
DROP INLET SILT FENCE (E-7)



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

GENERAL NOTES

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



SILT FENCE (E-11)

GENERAL NOTES

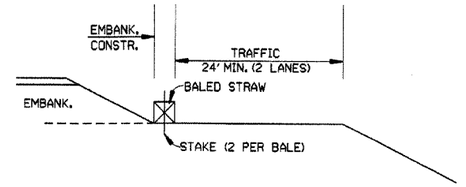
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

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.



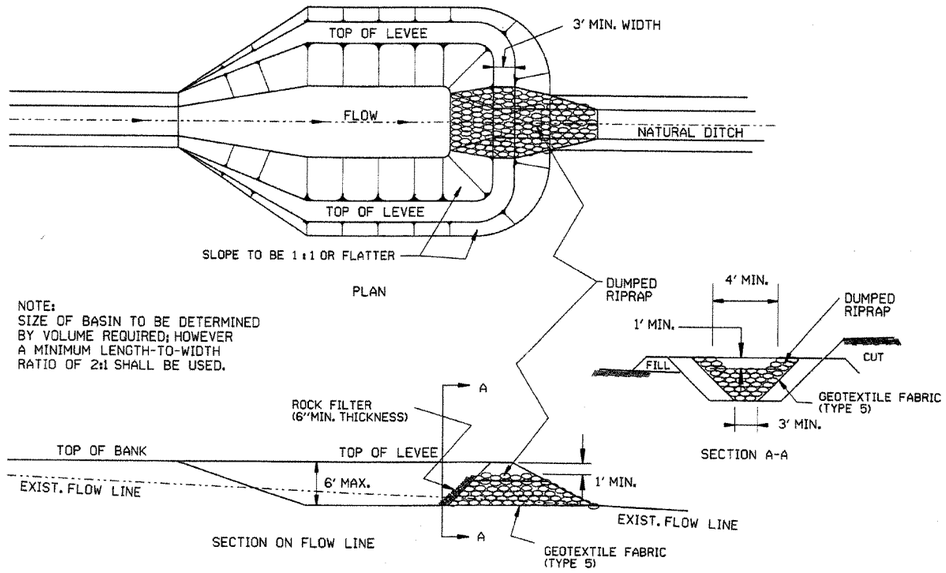
BALED STRAW FILTER BARRIER (E-2)

DATE	REVISION	FILMED
11-18-98	ADDED NOTES	11-18-98
7-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)	
7-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95
7-15-94	Rev. E-4 & E-11 Min. 13' Buried End of Fabric	
6-2-94	Revised E-1,4,7, & 11; Deleted E-2 & 3	6-2-94
4-1-93	REDRAWN	
10-1-92	REDRAWN	
8-2-76	ISSUED R.D.M.	298-7-28-76

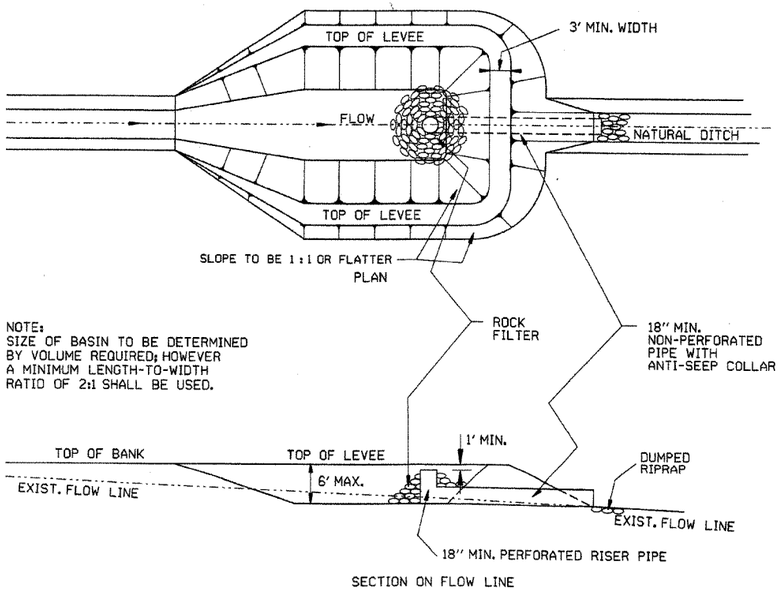
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

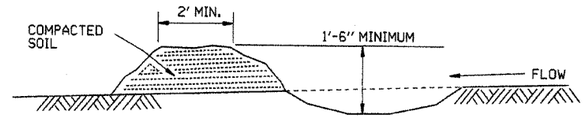
STANDARD DRAWING TEC-1



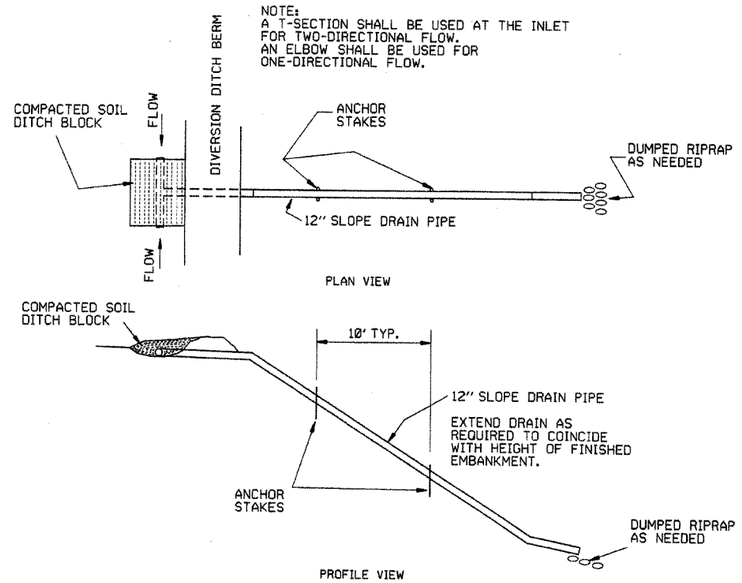
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



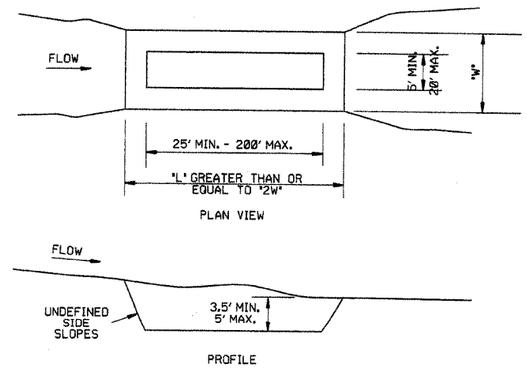
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

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

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

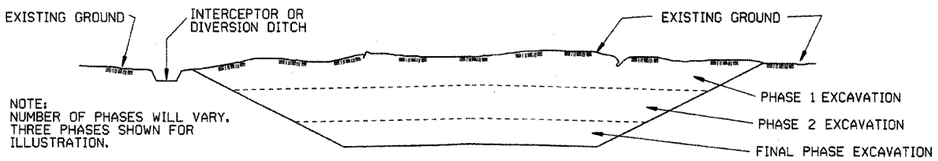
STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

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

EXCAVATION



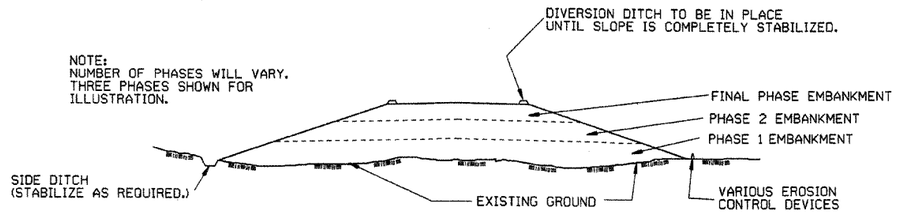
GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

EMBANKMENT



GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

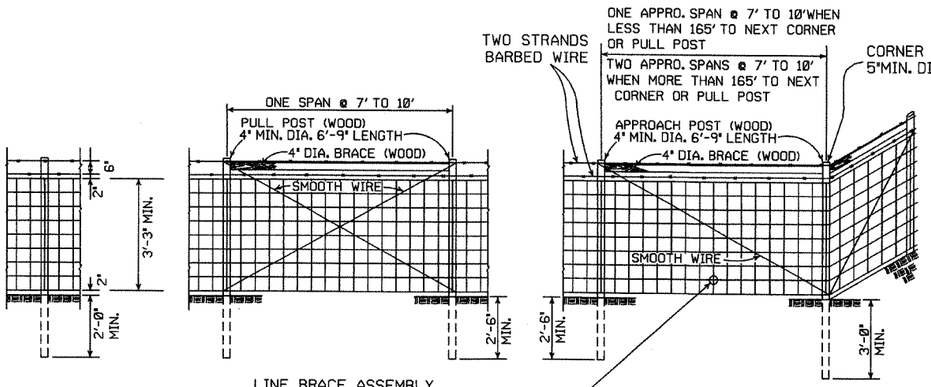
DATE	REVISION	FILMED
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

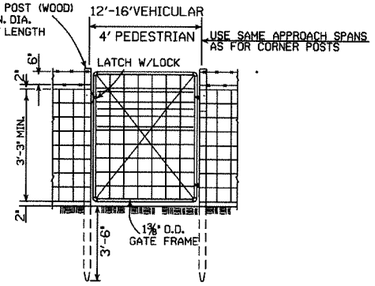
STANDARD DRAWING TEC-3

stdtec3.dgn



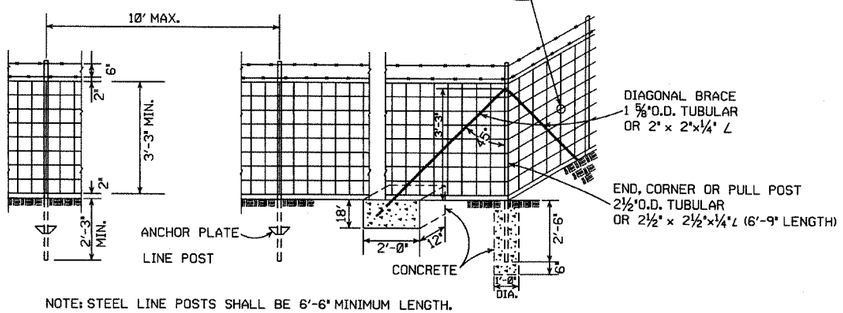
LINE POST
3" MIN. DIA. 6'-3" LENGTH
MAX. SPACING TO BE 10'-0"

LINE BRACE ASSEMBLY
MAX. SPACING TO BE 330'

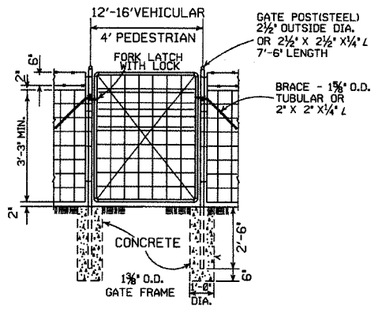


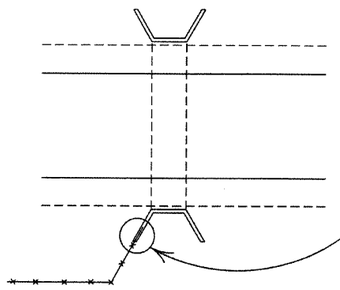
TYPE C FENCE (WOOD POSTS)

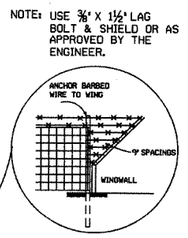
OTHER APPROVED TIES WILL BE PERMITTED



NOTE: STEEL LINE POSTS SHALL BE 6'-6" MINIMUM LENGTH.



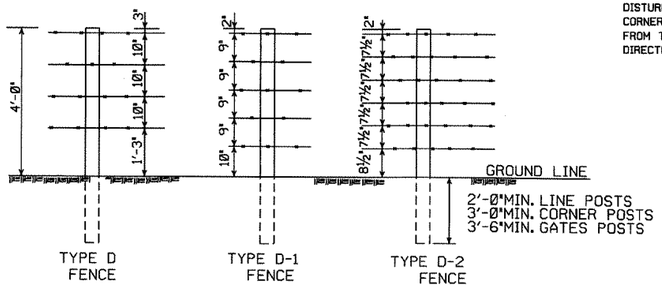




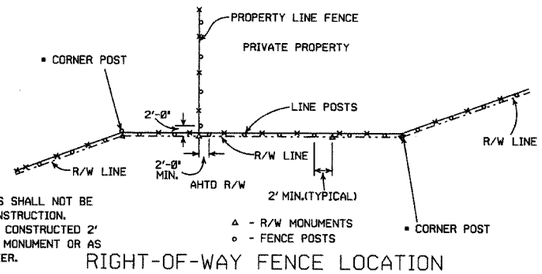
DETAIL OF FENCE CONSTRUCTION AT LARGE CULVERTS (5' IN HEIGHT AND OVER)

TYPE C FENCE (STEEL POSTS)

4 STRANDS BARBED WIRE (D)
5 STRANDS BARBED WIRE (D-1)
6 STRANDS BARBED WIRE (D-2)

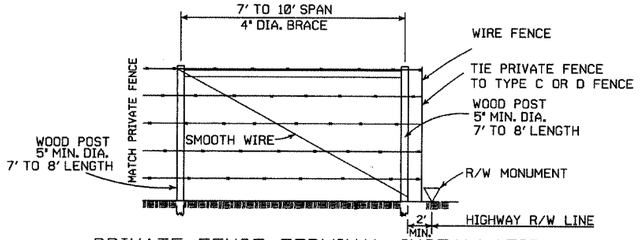


NOTE: SPACING AND SIZE (EXCEPT LENGTH) OF POSTS, APPROACH SPANS, PULL POST ASSEMBLIES, AND CORNER BRACING FOR TYPE D FENCE SHALL CONFORM TO TYPE C FENCE. USE GALVANIZED STAPLES ON WOOD POSTS AND APPROVED FASTENERS ON STEEL POSTS.

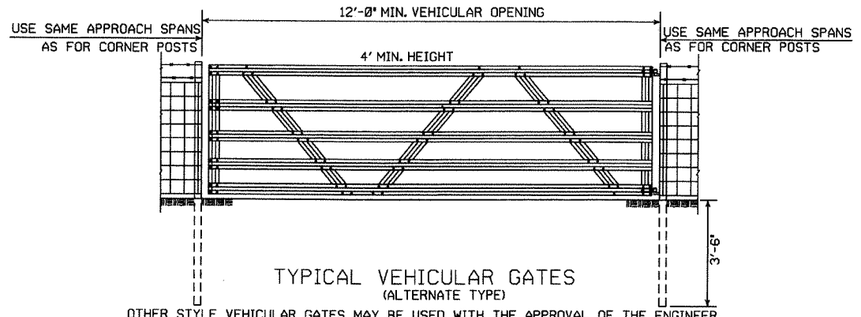


• NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

RIGHT-OF-WAY FENCE LOCATION



PRIVATE FENCE TERMINAL INSTALLATION
WHERE EXISTING FENCE CONSISTS OF STEEL POSTS, USE END POST ASSEMBLY AS SHOWN IN TYPE C FENCE OR OTHER END POST ASSEMBLY AS APPROVED BY THE ENGINEER.



TYPICAL VEHICULAR GATES
(ALTERNATE TYPE)
OTHER STYLE VEHICULAR GATES MAY BE USED WITH THE APPROVAL OF THE ENGINEER. THE METHOD OF SECURING GATE (LATCH AND/OR LOCK)SHALL MEET THE APPROVAL OF THE ENGINEER.

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.

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.

DATE	REVISION	FILMED
8-22-02	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

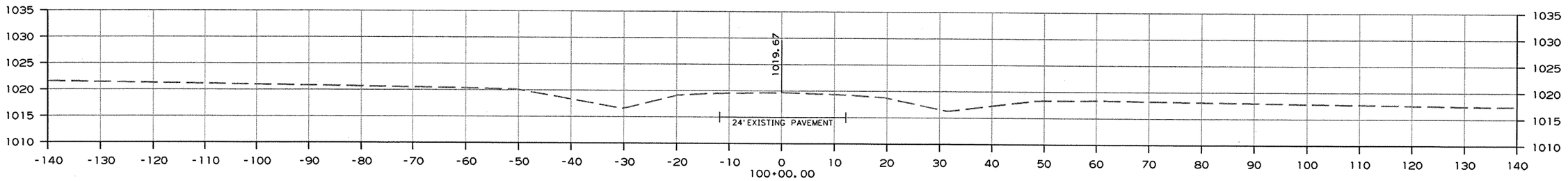
ARKANSAS STATE HIGHWAY COMMISSION

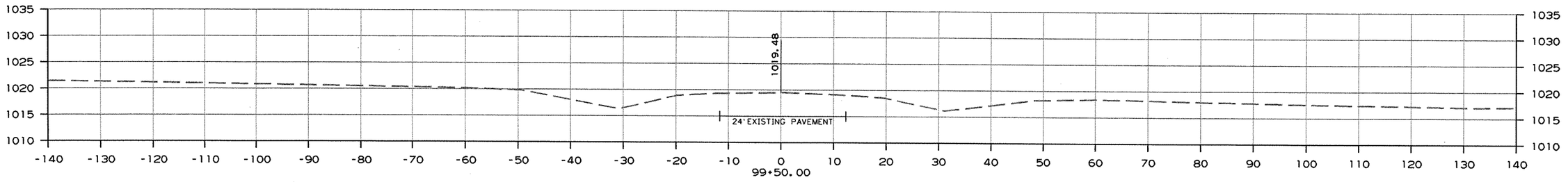
WIRE FENCE
TYPE C AND D

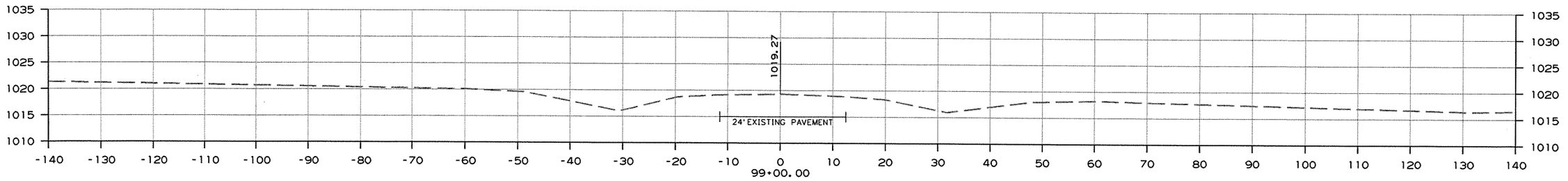
STANDARD DRAWING WF-4

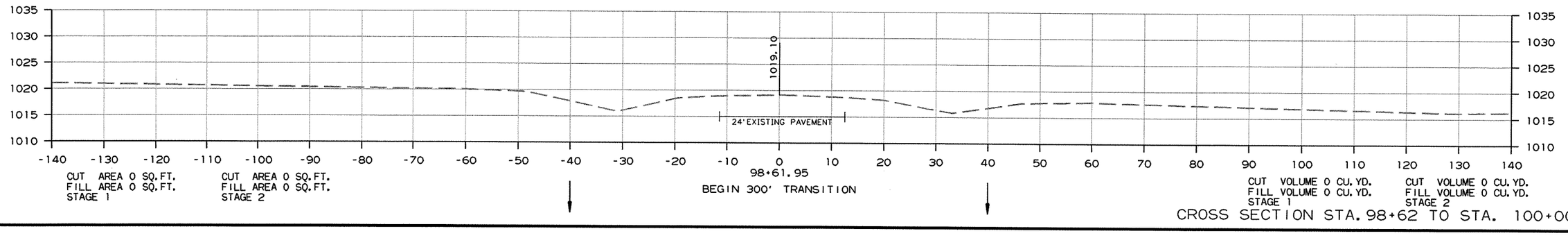
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	66	88

(2) CROSS SECTIONS









CUT AREA 0 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 1

CUT AREA 0 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 2

CUT VOLUME 0 CU.YD.
FILL VOLUME 0 CU.YD.
STAGE 1

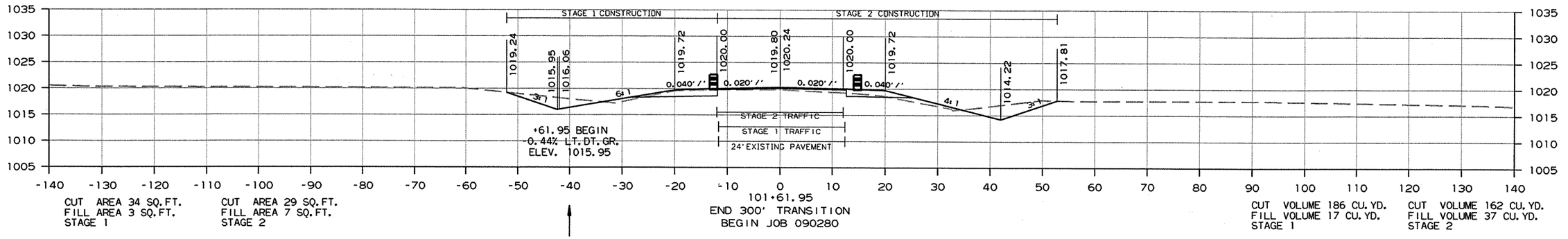
CUT VOLUME 0 CU.YD.
FILL VOLUME 0 CU.YD.
STAGE 2

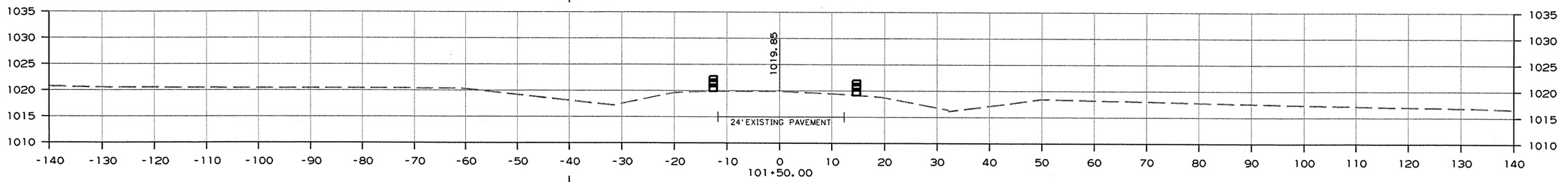
CROSS SECTION STA. 98+62 TO STA. 100+00

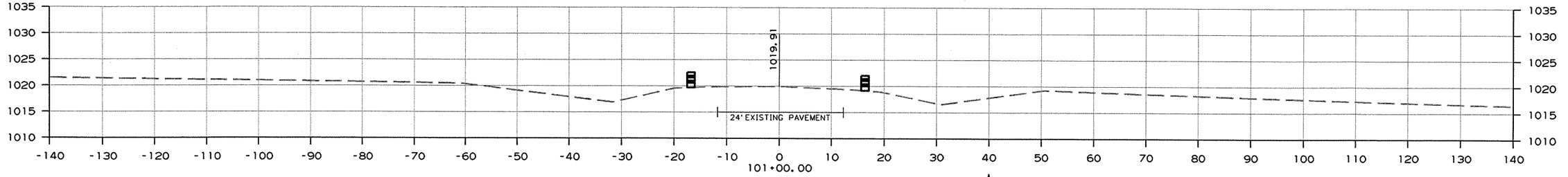
R090280.DGN 7/15/2011

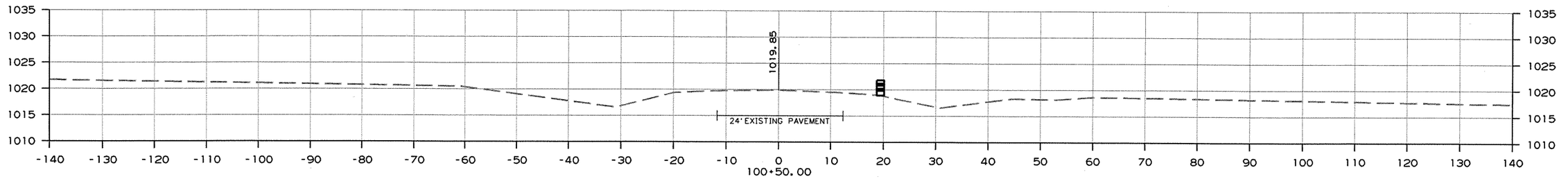
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	67	88

(2) CROSS SECTIONS







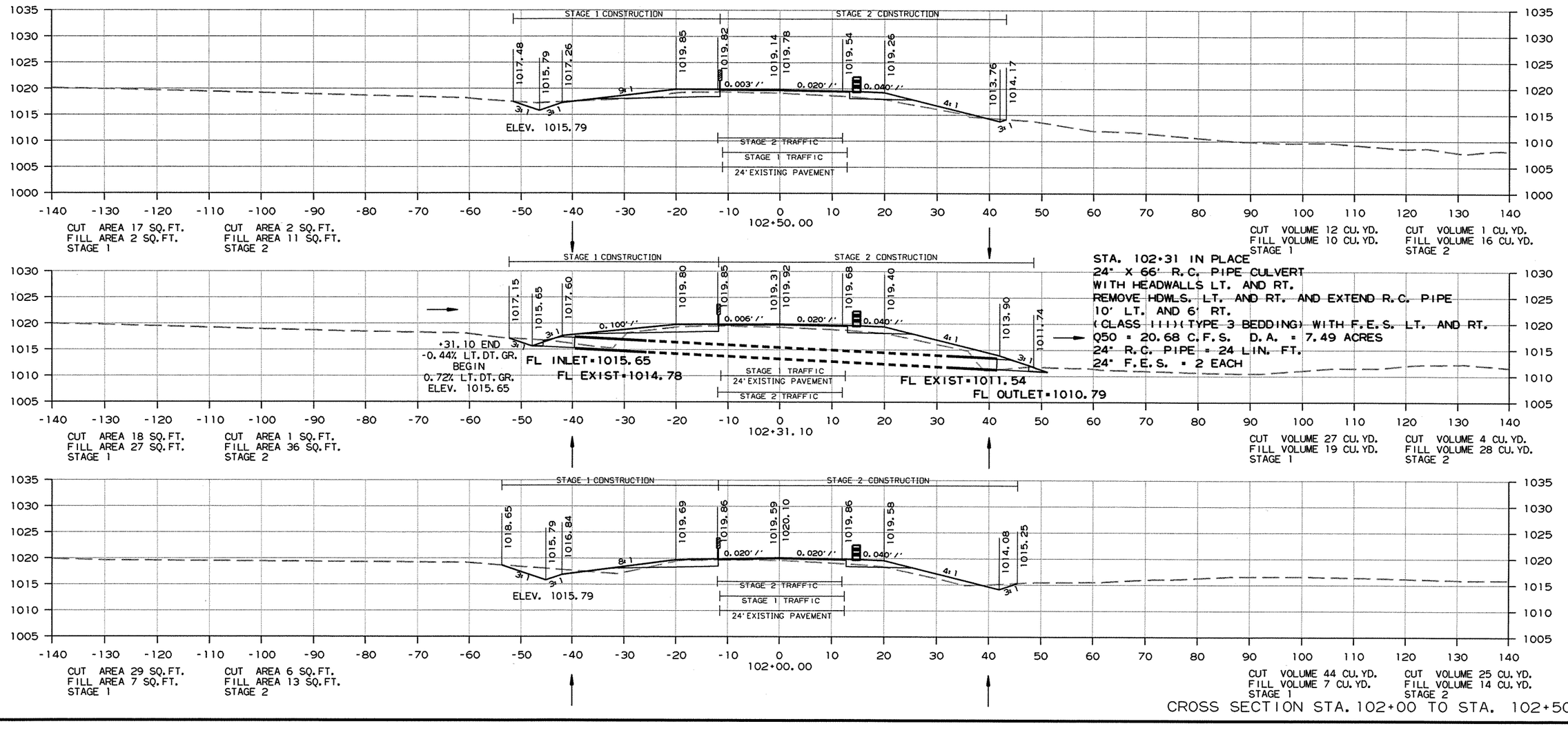


CROSS SECTION STA. 100+50 TO STA. 101+62

R090280.DGN 7/15/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	68	88

(2) CROSS SECTIONS

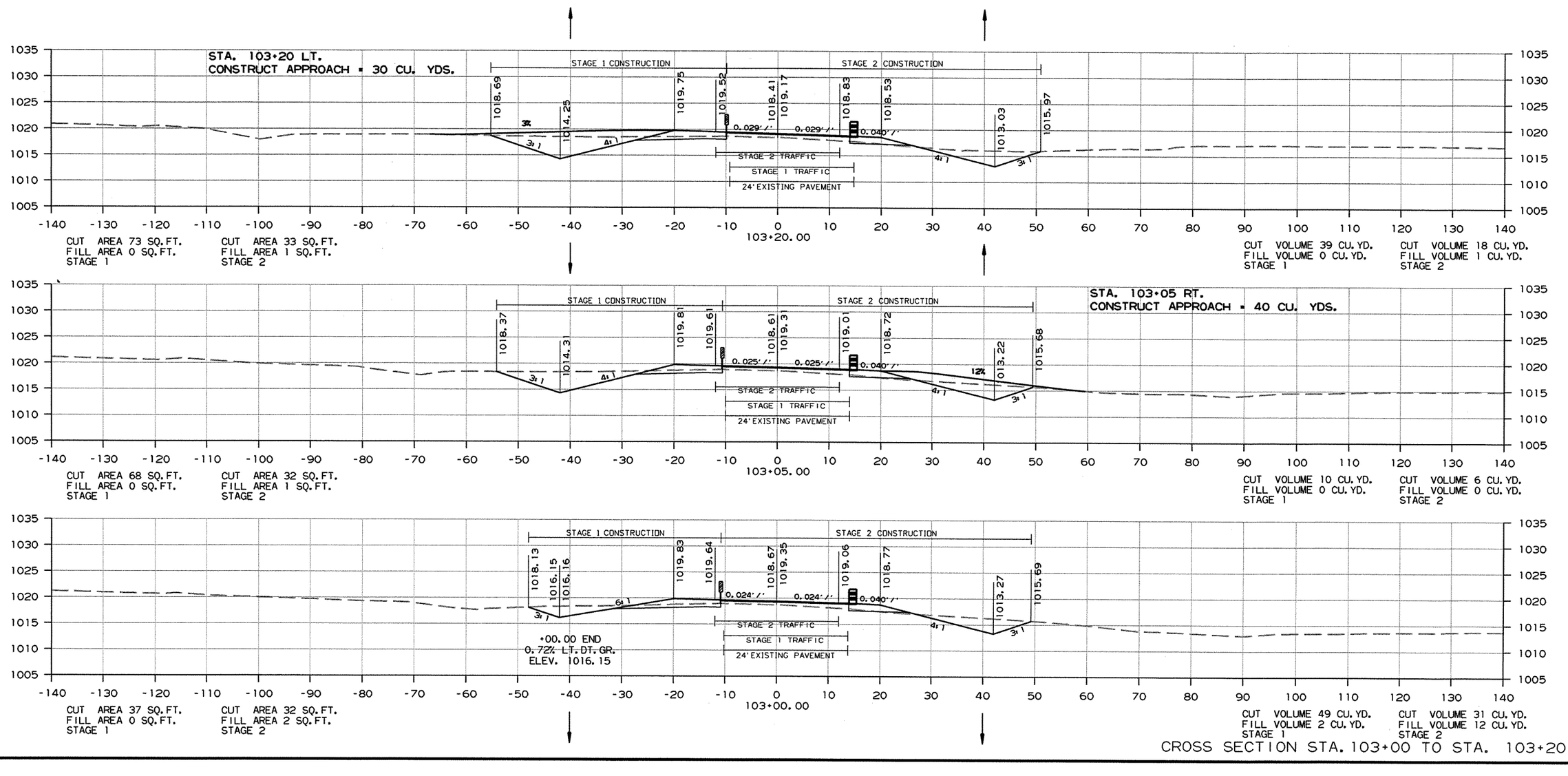


CROSS SECTION STA. 102+00 TO STA. 102+50

R090280.DGN 7/15/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	69	88

(2) CROSS SECTIONS

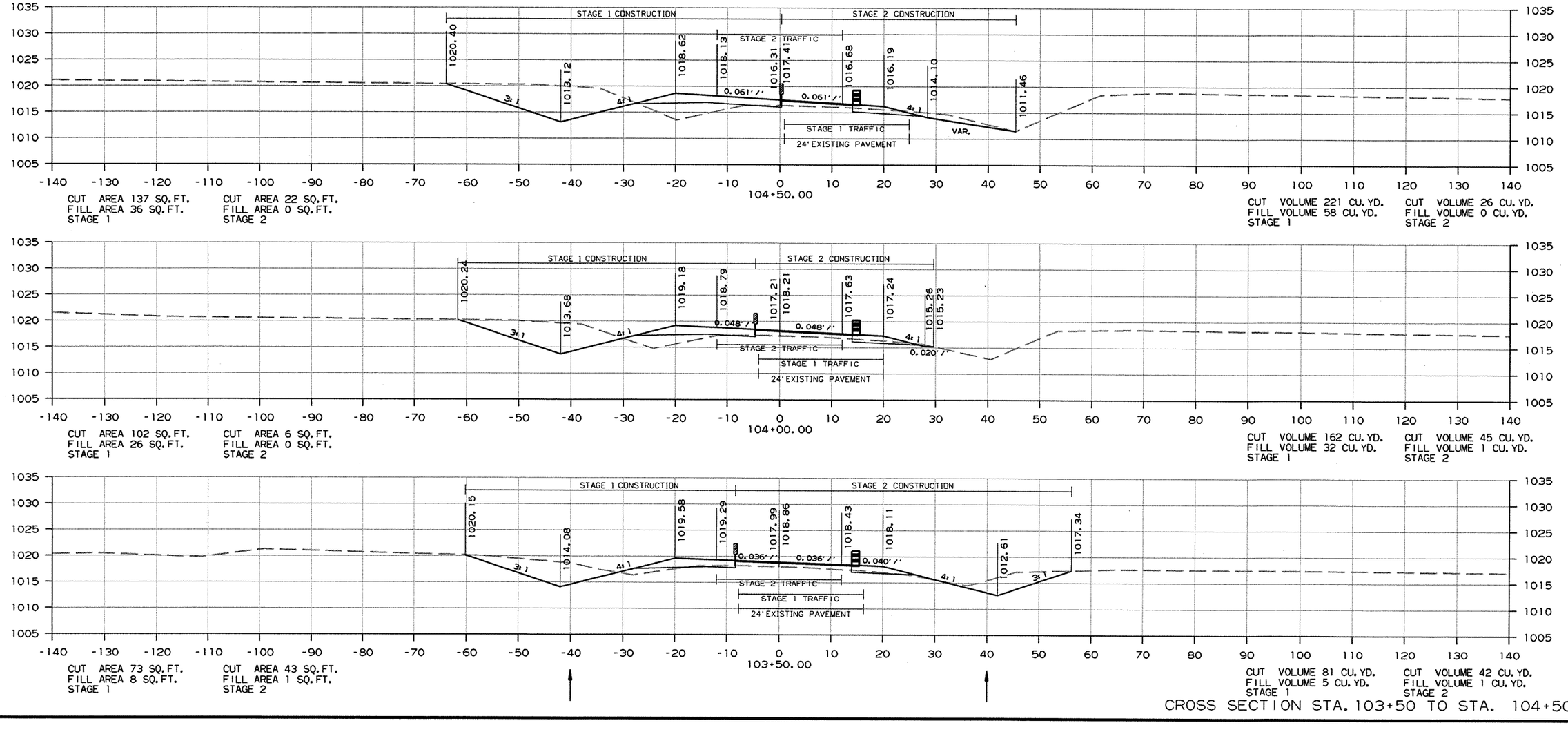


CROSS SECTION STA. 103+00 TO STA. 103+20

R090280.DGN 7/15/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	70	88

(2) CROSS SECTIONS

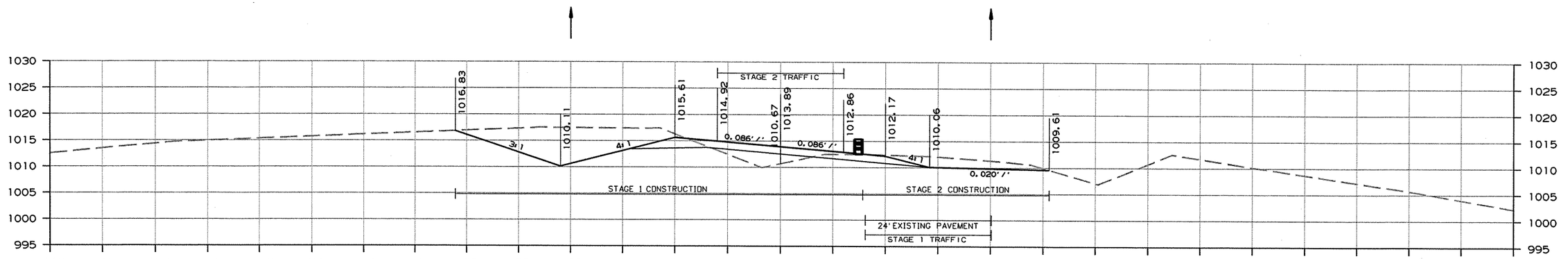


CROSS SECTION STA. 103+50 TO STA. 104+50

R090280.DGN 7/15/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	71	88

(2) CROSS SECTIONS

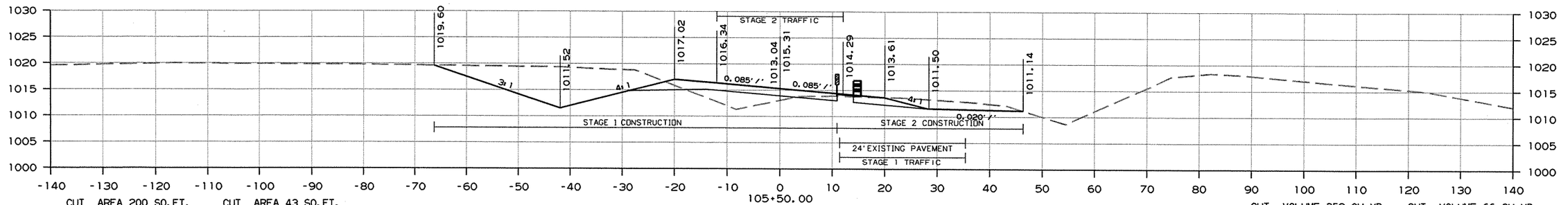


CUT AREA 200 SQ.FT.
FILL AREA 28 SQ.FT.
STAGE 1

CUT AREA 52 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 2

CUT VOLUME 371 CU.YD.
FILL VOLUME 59 CU.YD.
STAGE 1

CUT VOLUME 88 CU.YD.
FILL VOLUME 0 CU.YD.
STAGE 2

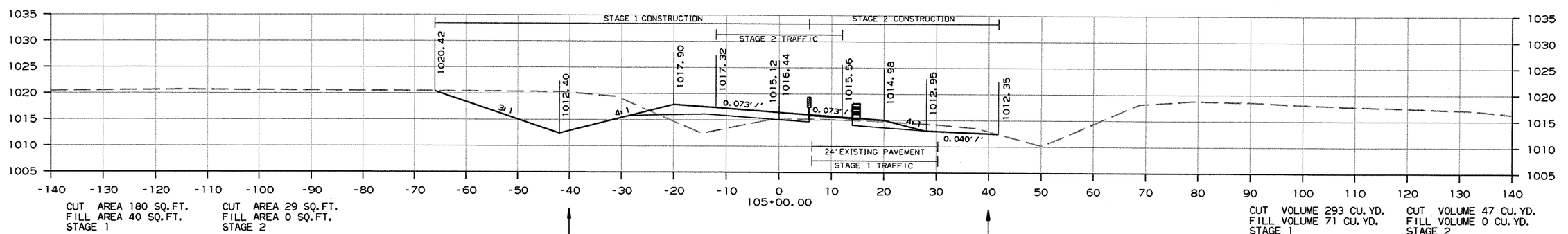


CUT AREA 200 SQ.FT.
FILL AREA 36 SQ.FT.
STAGE 1

CUT AREA 43 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 2

CUT VOLUME 352 CU.YD.
FILL VOLUME 71 CU.YD.
STAGE 1

CUT VOLUME 66 CU.YD.
FILL VOLUME 0 CU.YD.
STAGE 2



CUT AREA 180 SQ.FT.
FILL AREA 40 SQ.FT.
STAGE 1

CUT AREA 29 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 2

CUT VOLUME 293 CU.YD.
FILL VOLUME 71 CU.YD.
STAGE 1

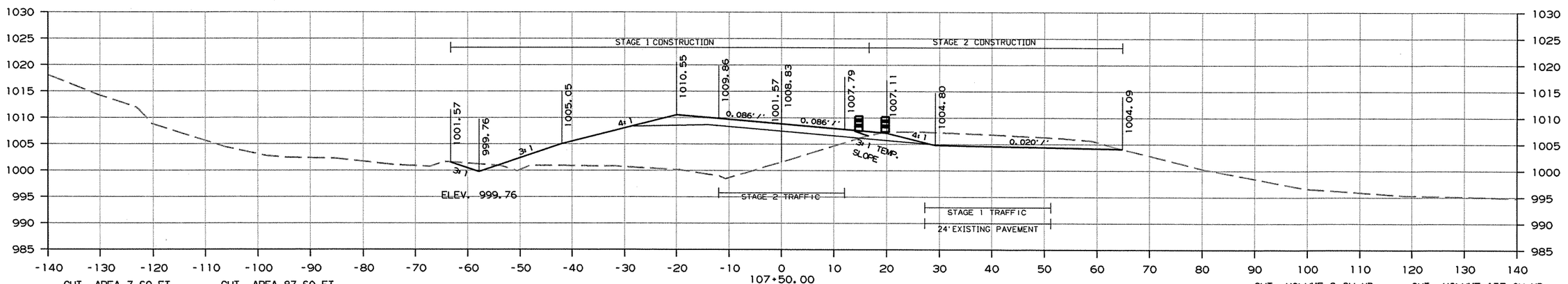
CUT VOLUME 47 CU.YD.
FILL VOLUME 0 CU.YD.
STAGE 2

CROSS SECTION STA. 105+00 TO STA. 106+00

R090280.DGN 7/15/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	72	88

(2) CROSS SECTIONS

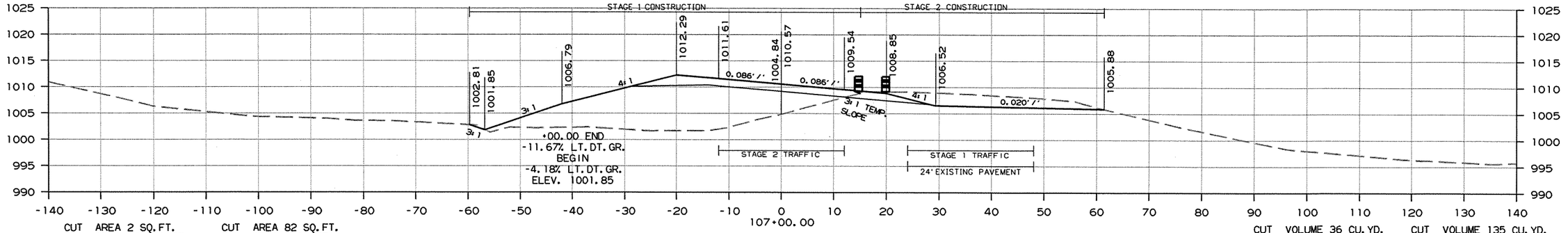


CUT AREA 7 SQ.FT.
FILL AREA 391 SQ.FT.
STAGE 1

CUT AREA 87 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 2

CUT VOLUME 8 CU.YD.
FILL VOLUME 696 CU.YD.
STAGE 1

CUT VOLUME 157 CU.YD.
FILL VOLUME 0 CU.YD.
STAGE 2

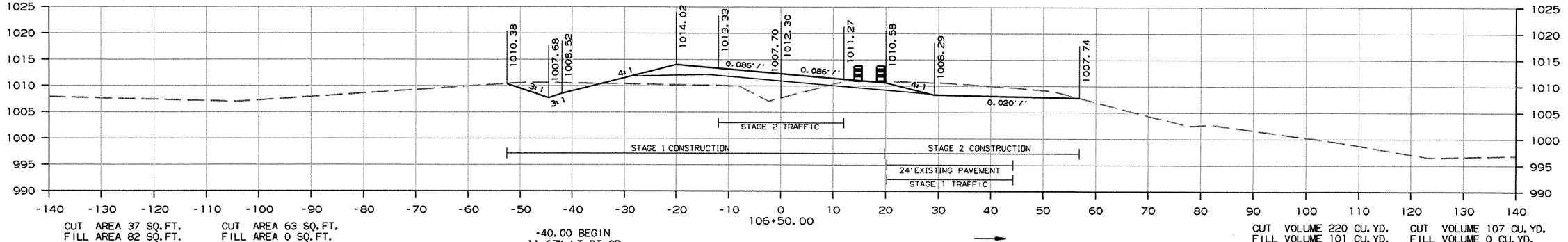


CUT AREA 2 SQ.FT.
FILL AREA 361 SQ.FT.
STAGE 1

CUT AREA 82 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 2

CUT VOLUME 36 CU.YD.
FILL VOLUME 410 CU.YD.
STAGE 1

CUT VOLUME 135 CU.YD.
FILL VOLUME 0 CU.YD.
STAGE 2



CUT AREA 37 SQ.FT.
FILL AREA 82 SQ.FT.
STAGE 1

CUT AREA 63 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 2

+40.00 BEGIN
-11.67% LT.DT.GR.
ELEV. 1008.85

CUT VOLUME 220 CU.YD.
FILL VOLUME 101 CU.YD.
STAGE 1

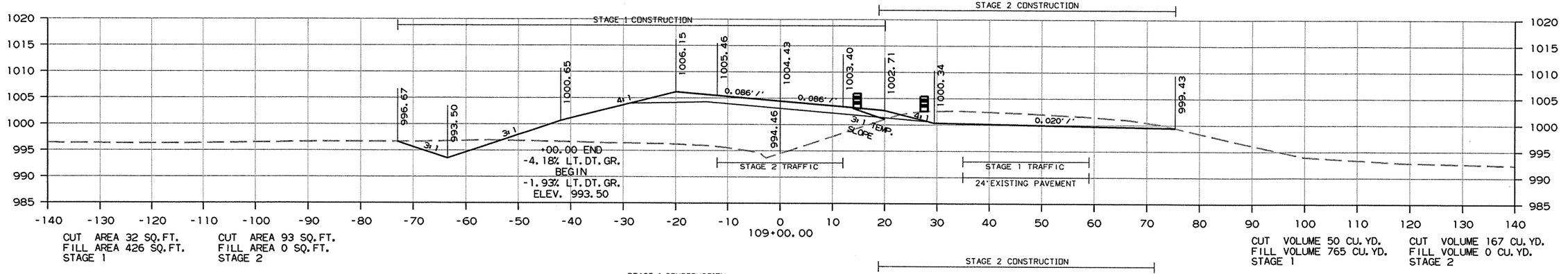
CUT VOLUME 107 CU.YD.
FILL VOLUME 0 CU.YD.
STAGE 2

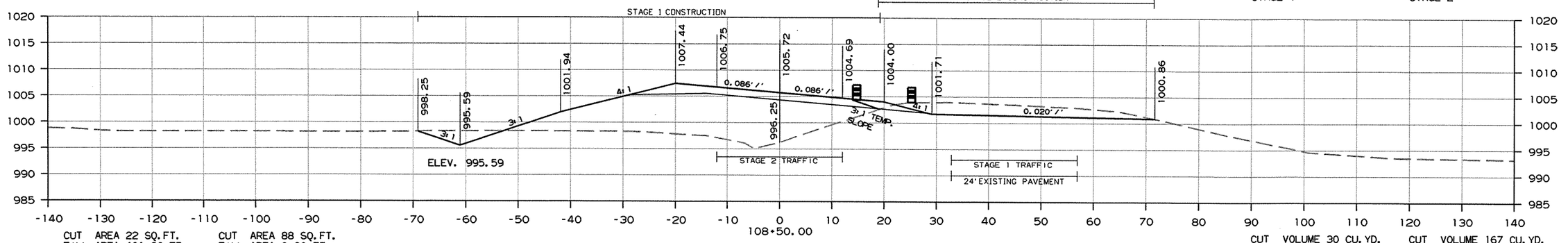
CROSS SECTION STA. 106+50 TO STA. 107+50

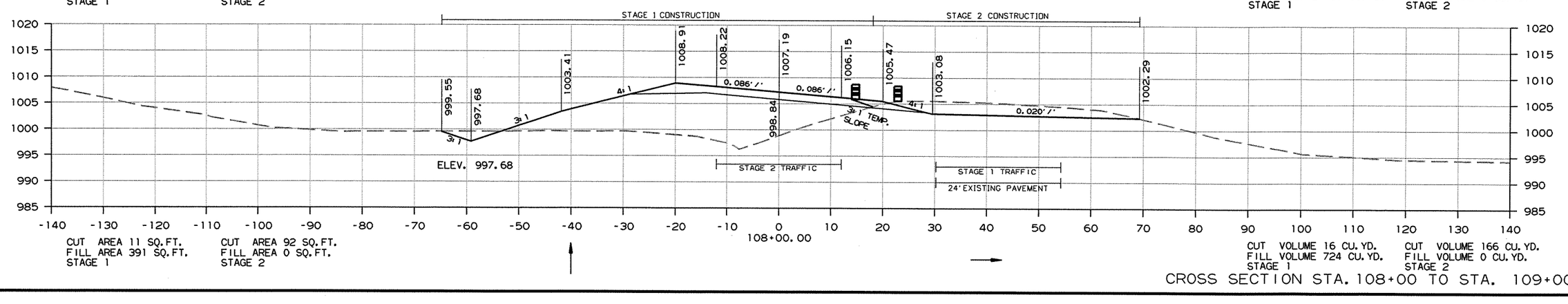
R090280.DGN 7/15/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	73	88

(2) CROSS SECTIONS





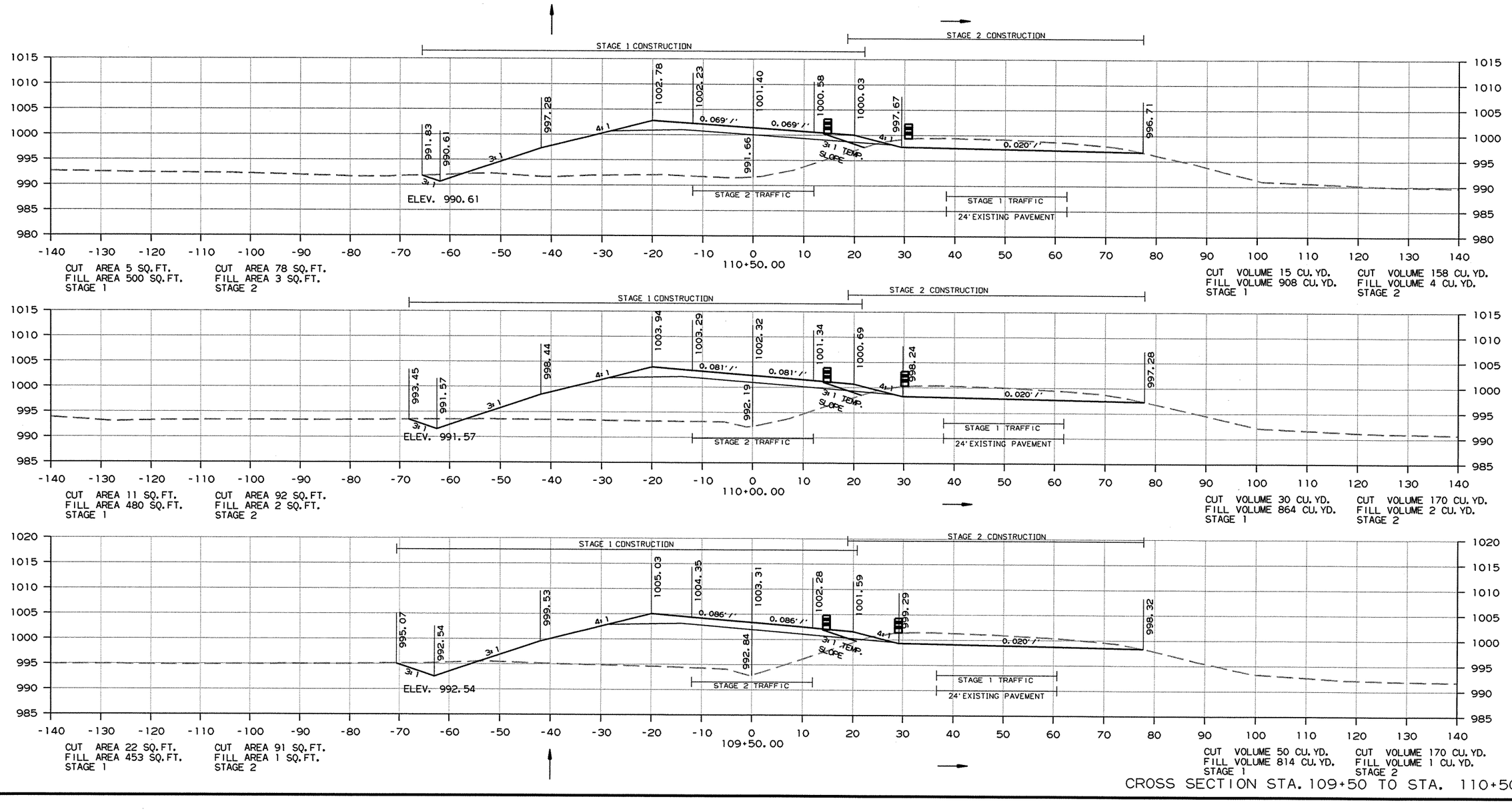


CROSS SECTION STA. 108+00 TO STA. 109+00

R090280.DGN 7/15/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	74	88

(2) CROSS SECTIONS

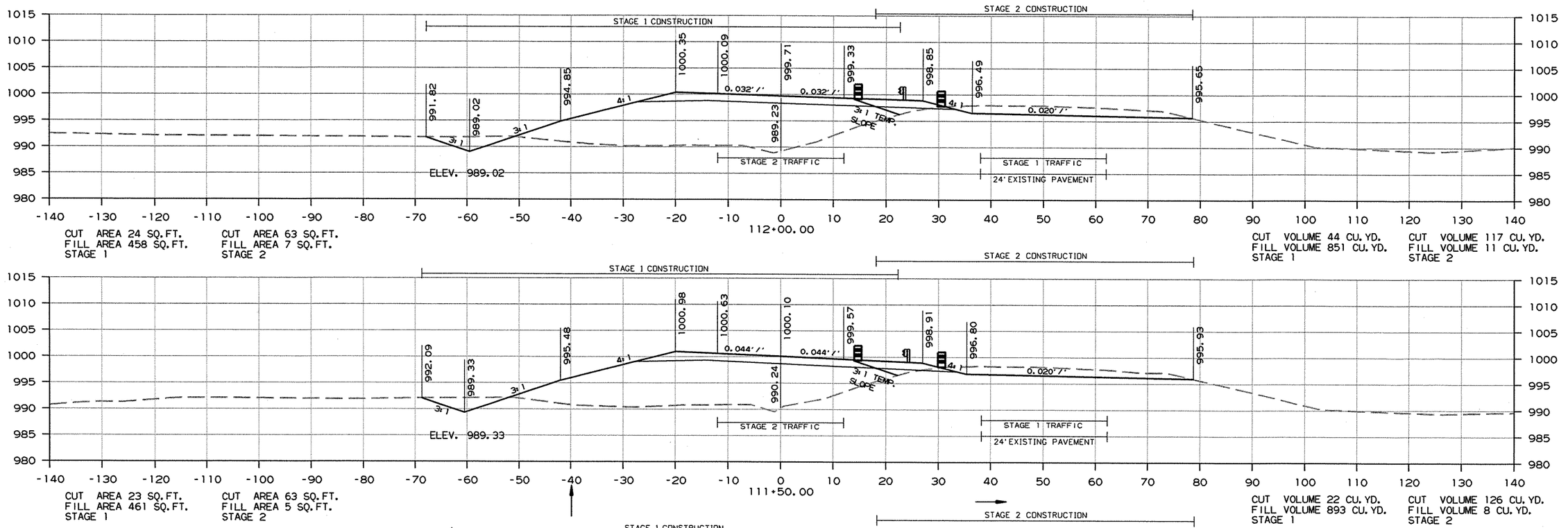


CROSS SECTION STA. 109+50 TO STA. 110+50

R090280.DGN 7/15/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	75	88

(2) CROSS SECTIONS



CUT AREA 24 SQ.FT.
FILL AREA 458 SQ.FT.
STAGE 1

CUT AREA 63 SQ.FT.
FILL AREA 7 SQ.FT.
STAGE 2

CUT VOLUME 44 CU.YD.
FILL VOLUME 851 CU.YD.
STAGE 1

CUT VOLUME 117 CU.YD.
FILL VOLUME 11 CU.YD.
STAGE 2

CUT AREA 23 SQ.FT.
FILL AREA 461 SQ.FT.
STAGE 1

CUT AREA 63 SQ.FT.
FILL AREA 5 SQ.FT.
STAGE 2

CUT VOLUME 22 CU.YD.
FILL VOLUME 893 CU.YD.
STAGE 1

CUT VOLUME 126 CU.YD.
FILL VOLUME 8 CU.YD.
STAGE 2

CUT AREA 0 SQ.FT.
FILL AREA 504 SQ.FT.
STAGE 1

CUT AREA 74 SQ.FT.
FILL AREA 4 SQ.FT.
STAGE 2

CUT VOLUME 5 CU.YD.
FILL VOLUME 930 CU.YD.
STAGE 1

CUT VOLUME 141 CU.YD.
FILL VOLUME 6 CU.YD.
STAGE 2

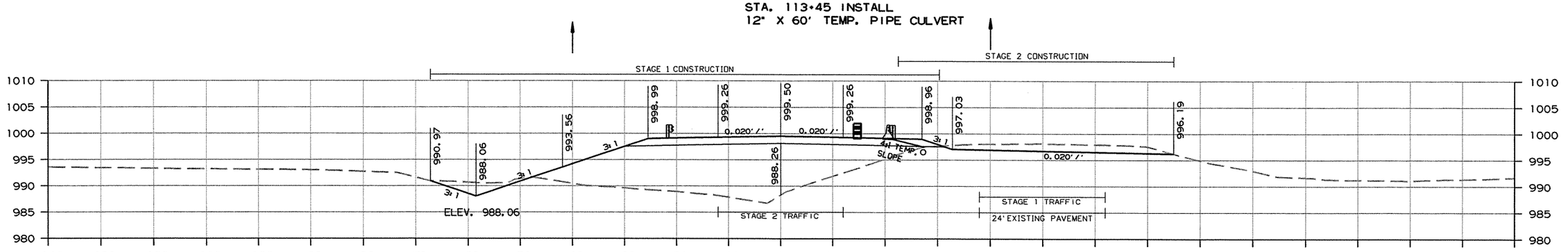
CROSS SECTION STA. 111+00 TO STA. 112+00

R090280.DGN 7/15/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	76	88

(2) CROSS SECTIONS

STA. 113+45 INSTALL
12" X 60' TEMP. PIPE CULVERT

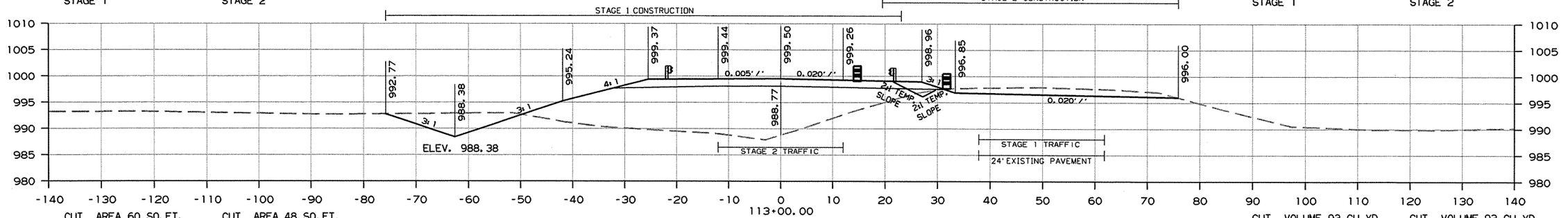


CUT AREA 28 SQ.FT.
FILL AREA 478 SQ.FT.
STAGE 1

CUT AREA 52 SQ.FT.
FILL AREA 7 SQ.FT.
STAGE 2

CUT VOLUME 82 CU.YD.
FILL VOLUME 886 CU.YD.
STAGE 1

CUT VOLUME 93 CU.YD.
FILL VOLUME 15 CU.YD.
STAGE 2

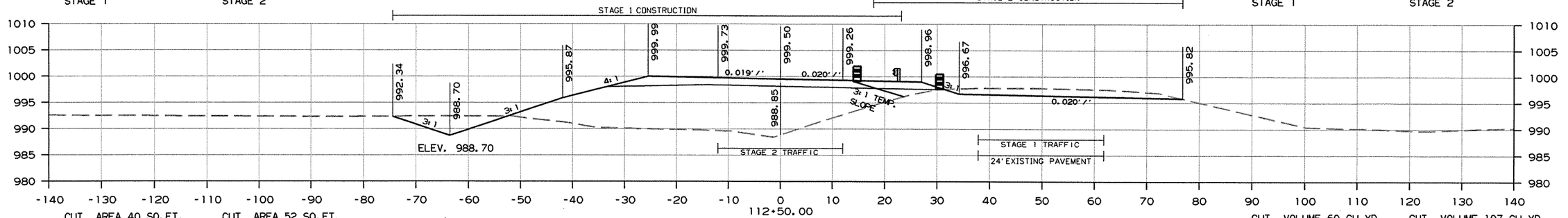


CUT AREA 60 SQ.FT.
FILL AREA 479 SQ.FT.
STAGE 1

CUT AREA 48 SQ.FT.
FILL AREA 9 SQ.FT.
STAGE 2

CUT VOLUME 93 CU.YD.
FILL VOLUME 893 CU.YD.
STAGE 1

CUT VOLUME 93 CU.YD.
FILL VOLUME 17 CU.YD.
STAGE 2



CUT AREA 40 SQ.FT.
FILL AREA 486 SQ.FT.
STAGE 1

CUT AREA 52 SQ.FT.
FILL AREA 10 SQ.FT.
STAGE 2

CUT VOLUME 60 CU.YD.
FILL VOLUME 874 CU.YD.
STAGE 1

CUT VOLUME 107 CU.YD.
FILL VOLUME 15 CU.YD.
STAGE 2

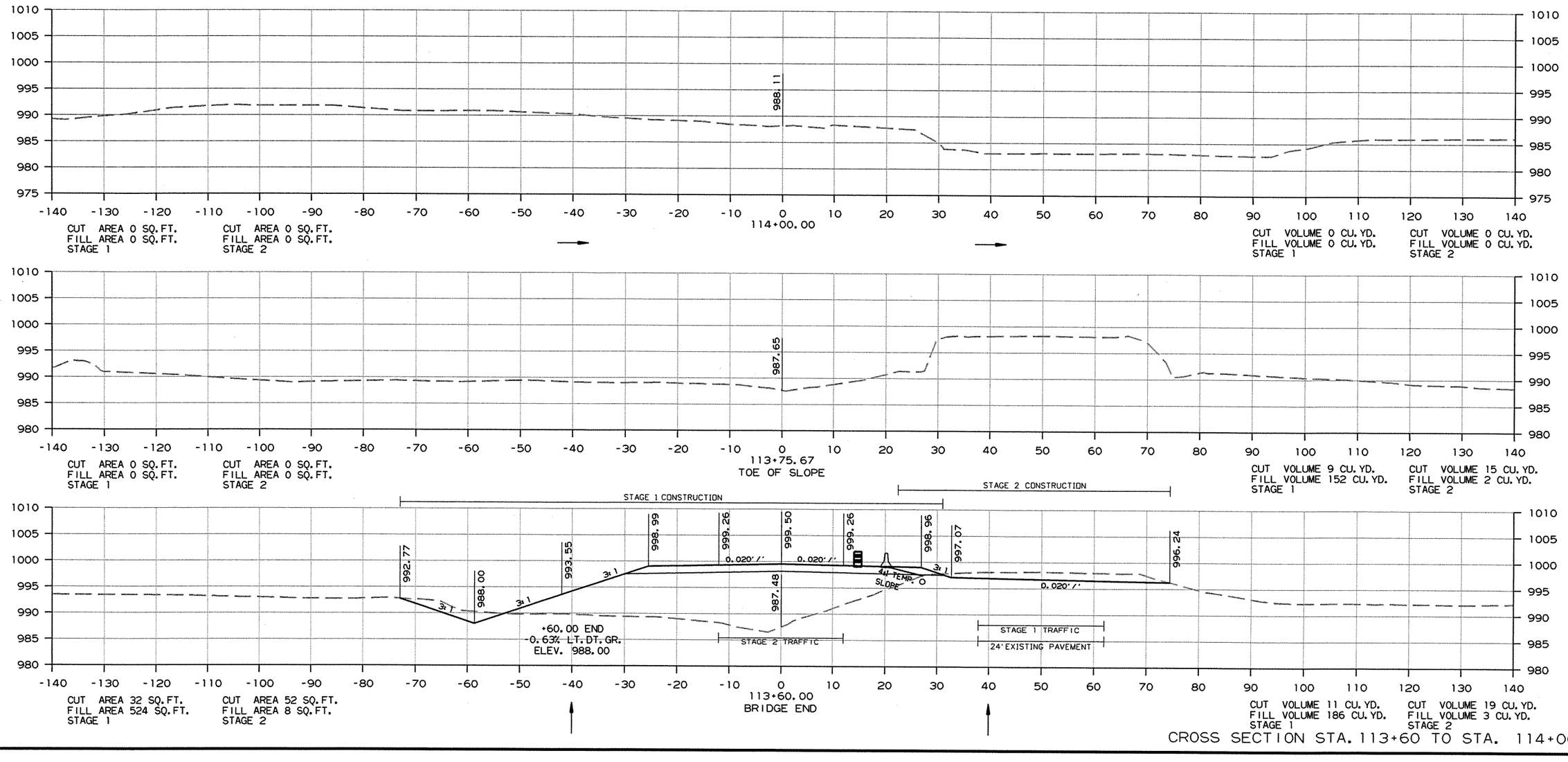
+14.35 BEGIN WIDENING FOR GUARDRAIL ON LT.

CROSS SECTION STA. 112+50 TO STA. 113+50

R090280.DGN 7/15/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	77	88

(2) CROSS SECTIONS

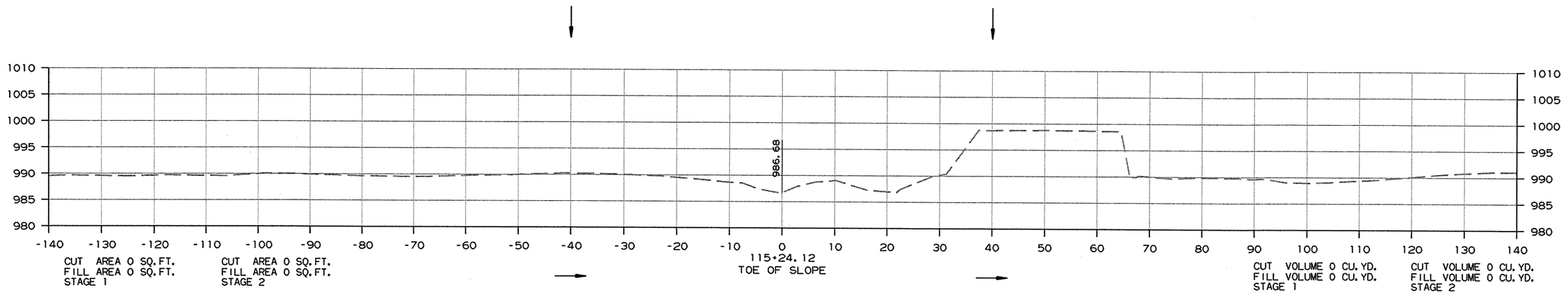


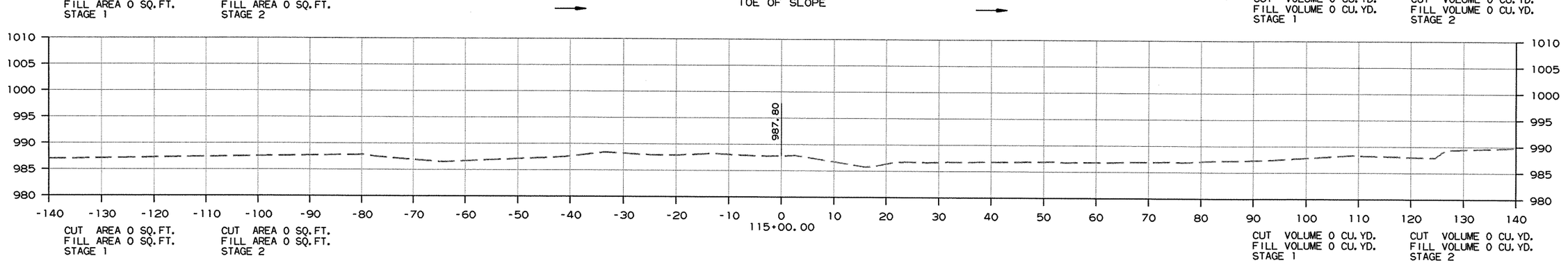
CROSS SECTION STA. 113+60 TO STA. 114+00

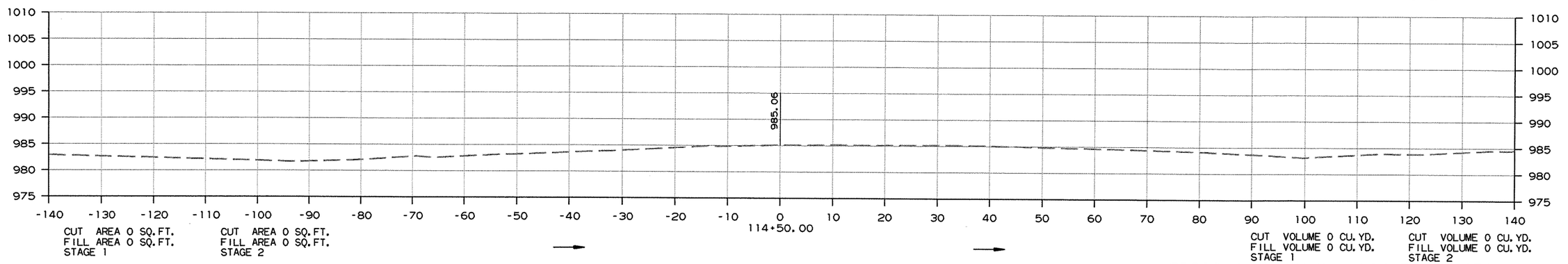
R090280.DGN 7/15/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	78	88

(2) CROSS SECTIONS





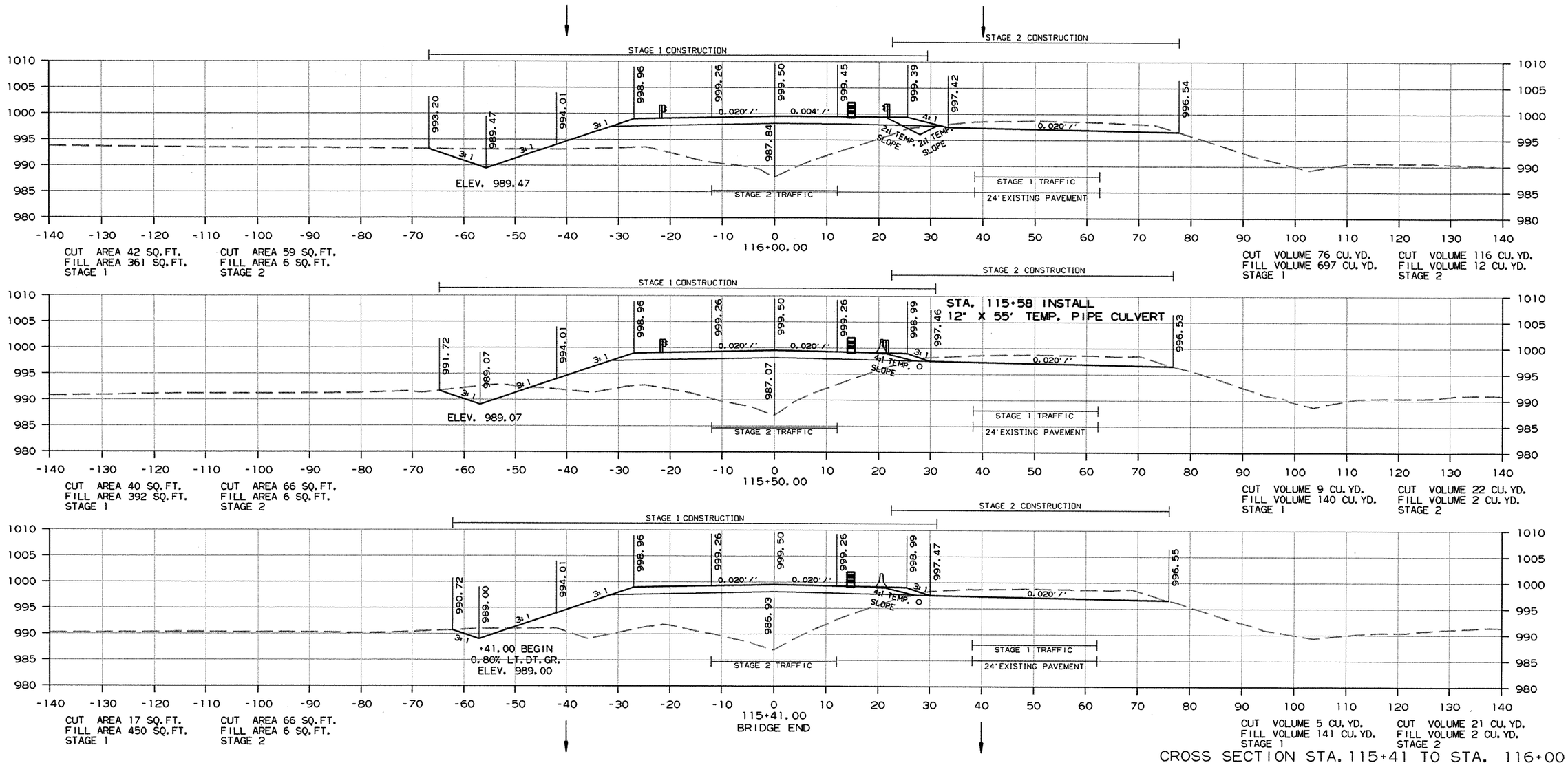


CROSS SECTION STA. 114+50 TO STA. 115+24

R090280.DGN 7/15/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	79	88

(2) CROSS SECTIONS

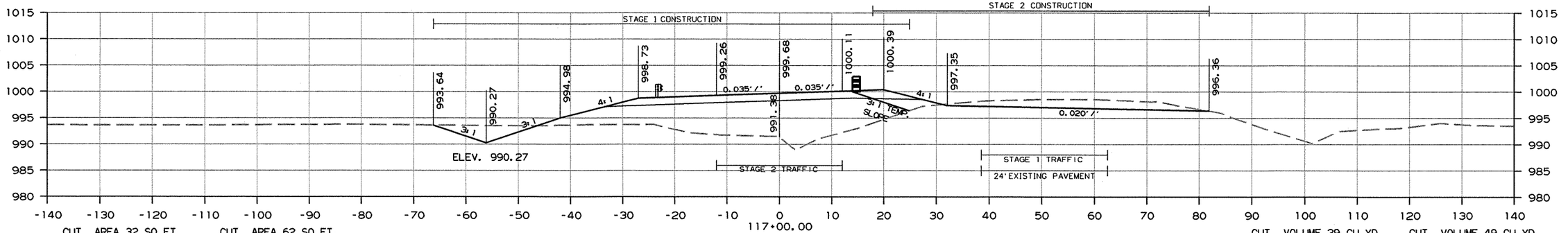


CROSS SECTION STA. 115+41 TO STA. 116+00

R090280.DGN 7/15/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	80	88

(2) CROSS SECTIONS



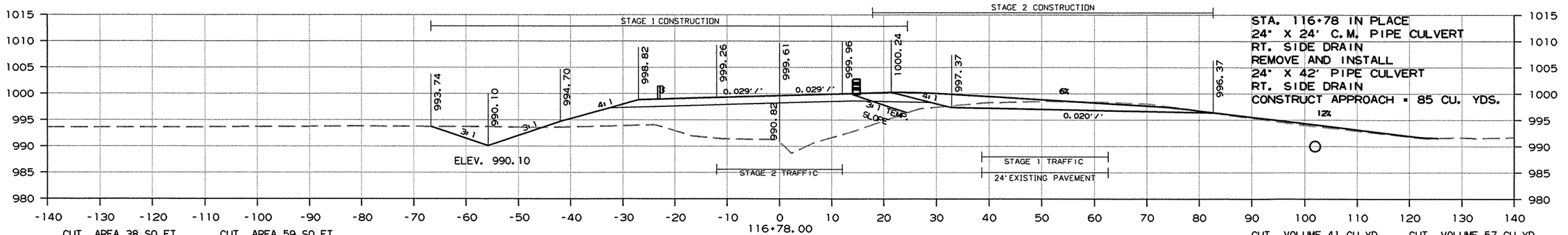
CUT AREA 32 SQ.FT.
FILL AREA 341 SQ.FT.
STAGE 1

CUT AREA 62 SQ.FT.
FILL AREA 15 SQ.FT.
STAGE 2

+86.65 END WIDENING FOR GUARDRAIL ON RT.

CUT VOLUME 29 CU.YD.
FILL VOLUME 277 CU.YD.
STAGE 1

CUT VOLUME 49 CU.YD.
FILL VOLUME 12 CU.YD.
STAGE 2



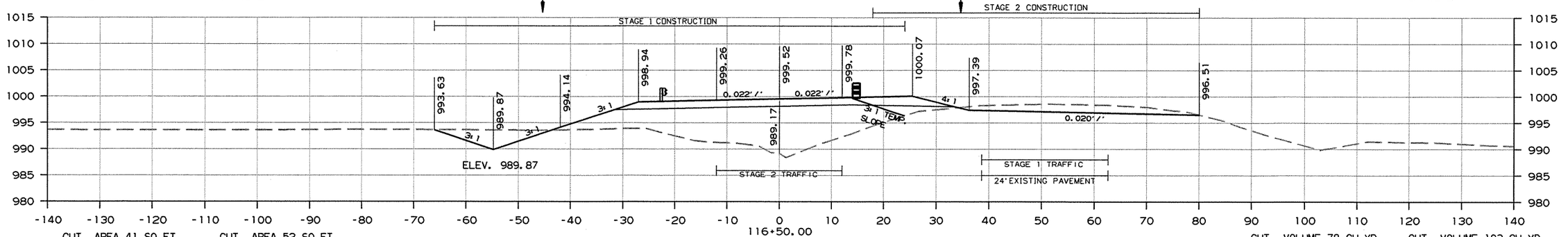
STA. 116+78 IN PLACE
24" X 24' C.M. PIPE CULVERT
RT. SIDE DRAIN
REMOVE AND INSTALL
24" X 42' PIPE CULVERT
RT. SIDE DRAIN
CONSTRUCT APPROACH = 85 CU. YDS.

CUT AREA 38 SQ.FT.
FILL AREA 339 SQ.FT.
STAGE 1

CUT AREA 59 SQ.FT.
FILL AREA 15 SQ.FT.
STAGE 2

CUT VOLUME 41 CU.YD.
FILL VOLUME 355 CU.YD.
STAGE 1

CUT VOLUME 57 CU.YD.
FILL VOLUME 15 CU.YD.
STAGE 2



CUT AREA 41 SQ.FT.
FILL AREA 346 SQ.FT.
STAGE 1

CUT AREA 52 SQ.FT.
FILL AREA 14 SQ.FT.
STAGE 2

CUT VOLUME 78 CU.YD.
FILL VOLUME 655 CU.YD.
STAGE 1

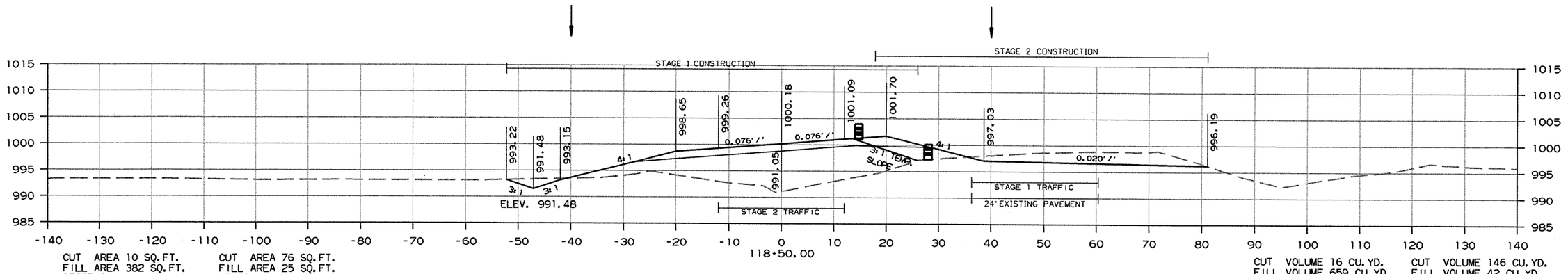
CUT VOLUME 103 CU.YD.
FILL VOLUME 19 CU.YD.
STAGE 2

CROSS SECTION STA. 116+50 TO STA. 117+00

R090280.DGN 7/15/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	81	88

(2) CROSS SECTIONS



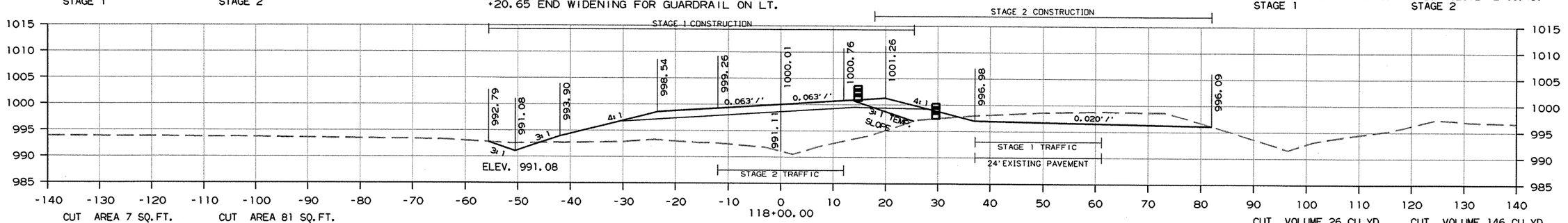
CUT AREA 10 SQ.FT.
FILL AREA 382 SQ.FT.
STAGE 1

CUT AREA 76 SQ.FT.
FILL AREA 25 SQ.FT.
STAGE 2

CUT VOLUME 16 CU.YD.
FILL VOLUME 659 CU.YD.
STAGE 1

CUT VOLUME 146 CU.YD.
FILL VOLUME 42 CU.YD.
STAGE 2

*20.65 END WIDENING FOR GUARDRAIL ON LT.

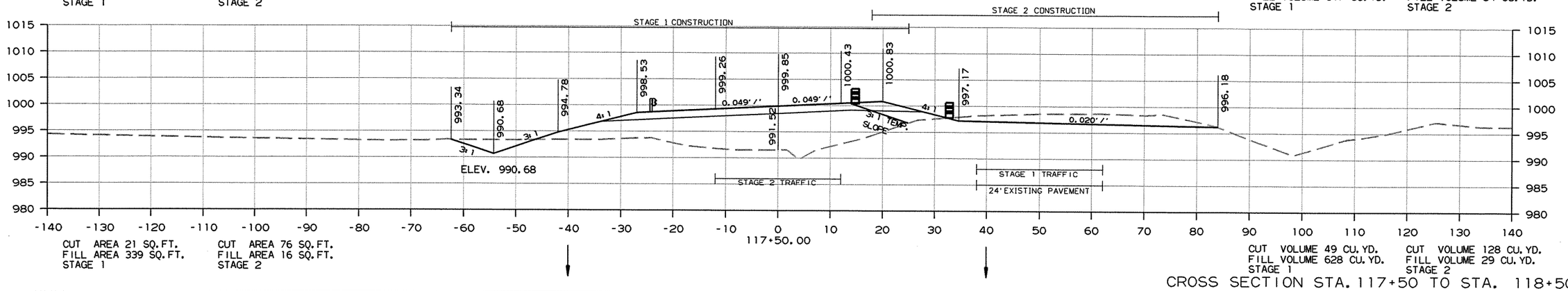


CUT AREA 7 SQ.FT.
FILL AREA 329 SQ.FT.
STAGE 1

CUT AREA 81 SQ.FT.
FILL AREA 21 SQ.FT.
STAGE 2

CUT VOLUME 26 CU.YD.
FILL VOLUME 617 CU.YD.
STAGE 1

CUT VOLUME 146 CU.YD.
FILL VOLUME 34 CU.YD.
STAGE 2



CUT AREA 21 SQ.FT.
FILL AREA 339 SQ.FT.
STAGE 1

CUT AREA 76 SQ.FT.
FILL AREA 16 SQ.FT.
STAGE 2

CUT VOLUME 49 CU.YD.
FILL VOLUME 628 CU.YD.
STAGE 1

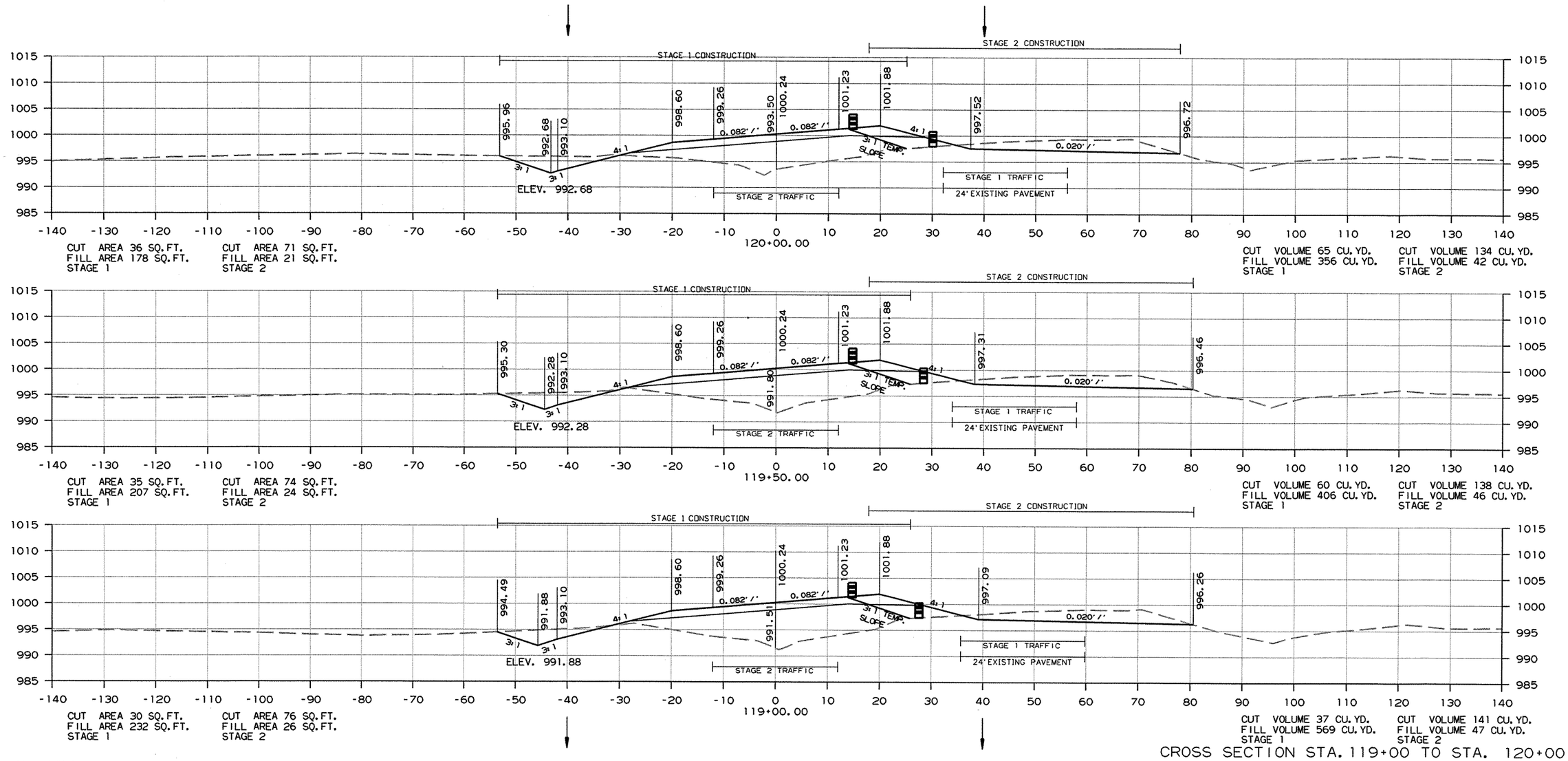
CUT VOLUME 128 CU.YD.
FILL VOLUME 29 CU.YD.
STAGE 2

CROSS SECTION STA. 117+50 TO STA. 118+50

R090280.DGN 7/15/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	82	88

(2) CROSS SECTIONS

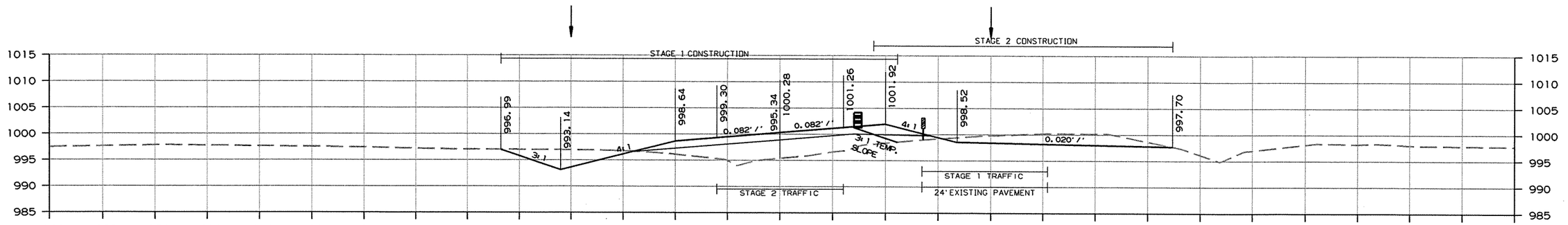


CROSS SECTION STA. 119+00 TO STA. 120+00

R090280.DGN 7/15/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	83	88

(2) CROSS SECTIONS

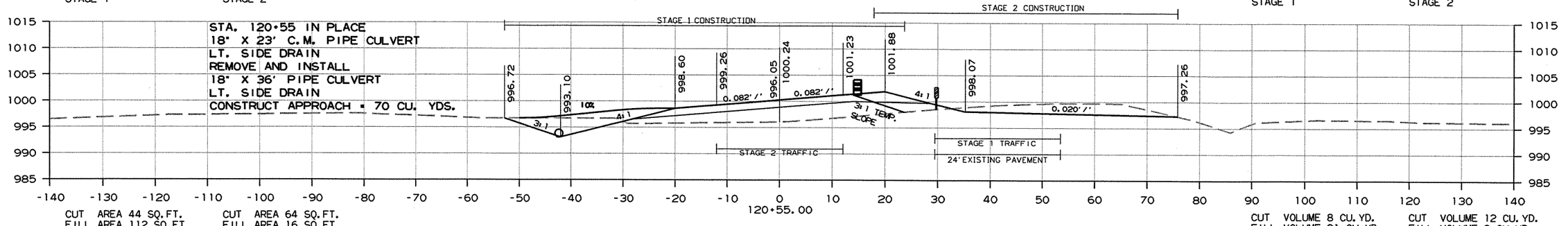


CUT AREA 49 SQ.FT.
FILL AREA 121 SQ.FT.
STAGE 1

CUT AREA 65 SQ.FT.
FILL AREA 10 SQ.FT.
STAGE 2

CUT VOLUME 78 CU.YD.
FILL VOLUME 194 CU.YD.
STAGE 1

CUT VOLUME 108 CU.YD.
FILL VOLUME 22 CU.YD.
STAGE 2

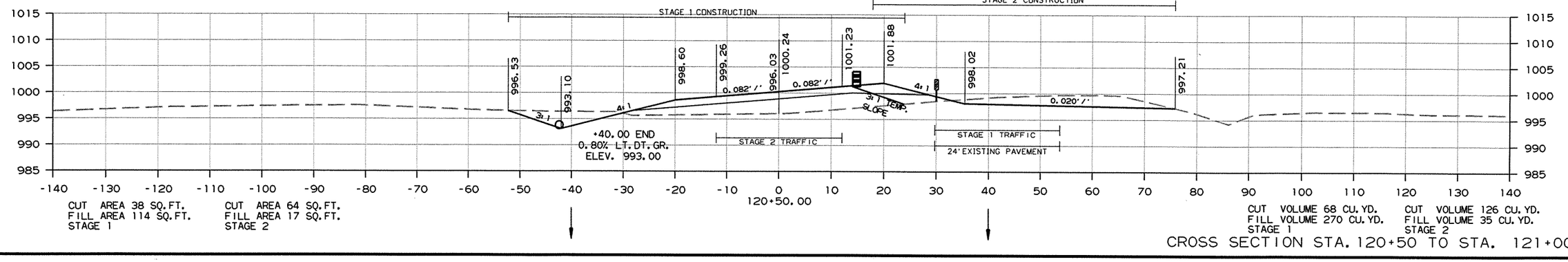


CUT AREA 44 SQ.FT.
FILL AREA 112 SQ.FT.
STAGE 1

CUT AREA 64 SQ.FT.
FILL AREA 16 SQ.FT.
STAGE 2

CUT VOLUME 8 CU.YD.
FILL VOLUME 21 CU.YD.
STAGE 1

CUT VOLUME 12 CU.YD.
FILL VOLUME 3 CU.YD.
STAGE 2



CUT AREA 38 SQ.FT.
FILL AREA 114 SQ.FT.
STAGE 1

CUT AREA 64 SQ.FT.
FILL AREA 17 SQ.FT.
STAGE 2

CUT VOLUME 68 CU.YD.
FILL VOLUME 270 CU.YD.
STAGE 1

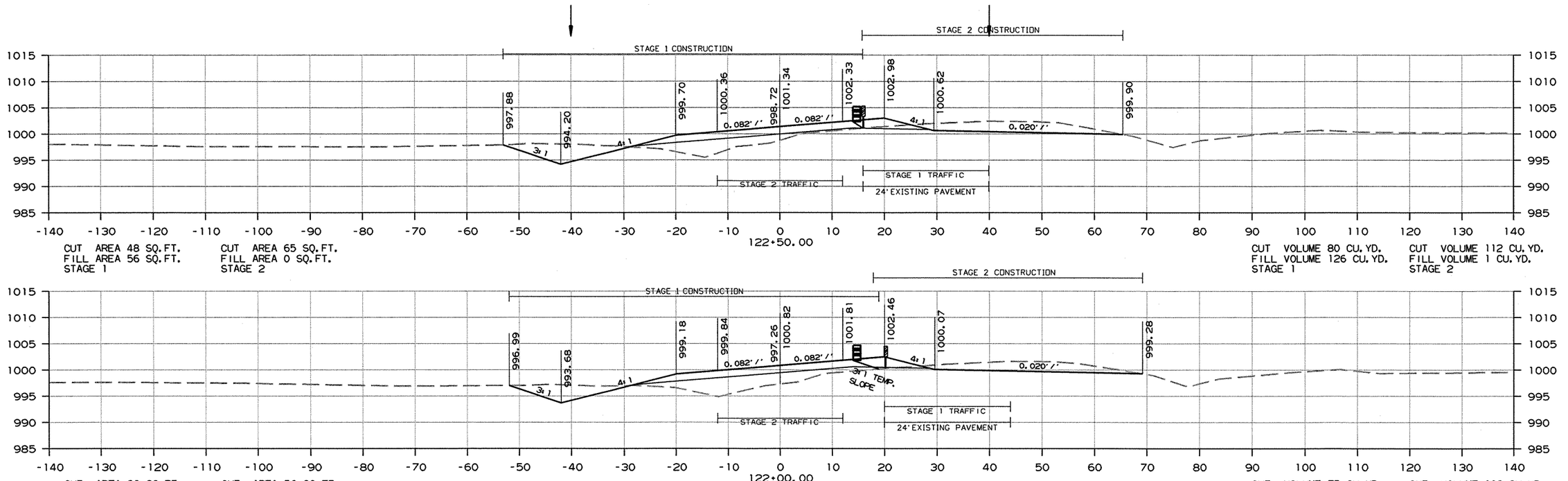
CUT VOLUME 126 CU.YD.
FILL VOLUME 35 CU.YD.
STAGE 2

CROSS SECTION STA. 120+50 TO STA. 121+00

R090280.DGN 7/15/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	84	88

(2) CROSS SECTIONS



122+50.00

CUT AREA 48 SQ.FT.
FILL AREA 56 SQ.FT.
STAGE 1

CUT AREA 65 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 2

CUT VOLUME 80 CU.YD.
FILL VOLUME 126 CU.YD.
STAGE 1

CUT VOLUME 112 CU.YD.
FILL VOLUME 1 CU.YD.
STAGE 2

122+00.00

CUT AREA 39 SQ.FT.
FILL AREA 80 SQ.FT.
STAGE 1

CUT AREA 56 SQ.FT.
FILL AREA 1 SQ.FT.
STAGE 2

CUT VOLUME 75 CU.YD.
FILL VOLUME 166 CU.YD.
STAGE 1

CUT VOLUME 106 CU.YD.
FILL VOLUME 5 CU.YD.
STAGE 2

121+50.00

CUT AREA 42 SQ.FT.
FILL AREA 99 SQ.FT.
STAGE 1

CUT AREA 58 SQ.FT.
FILL AREA 5 SQ.FT.
STAGE 2

CUT VOLUME 85 CU.YD.
FILL VOLUME 204 CU.YD.
STAGE 1

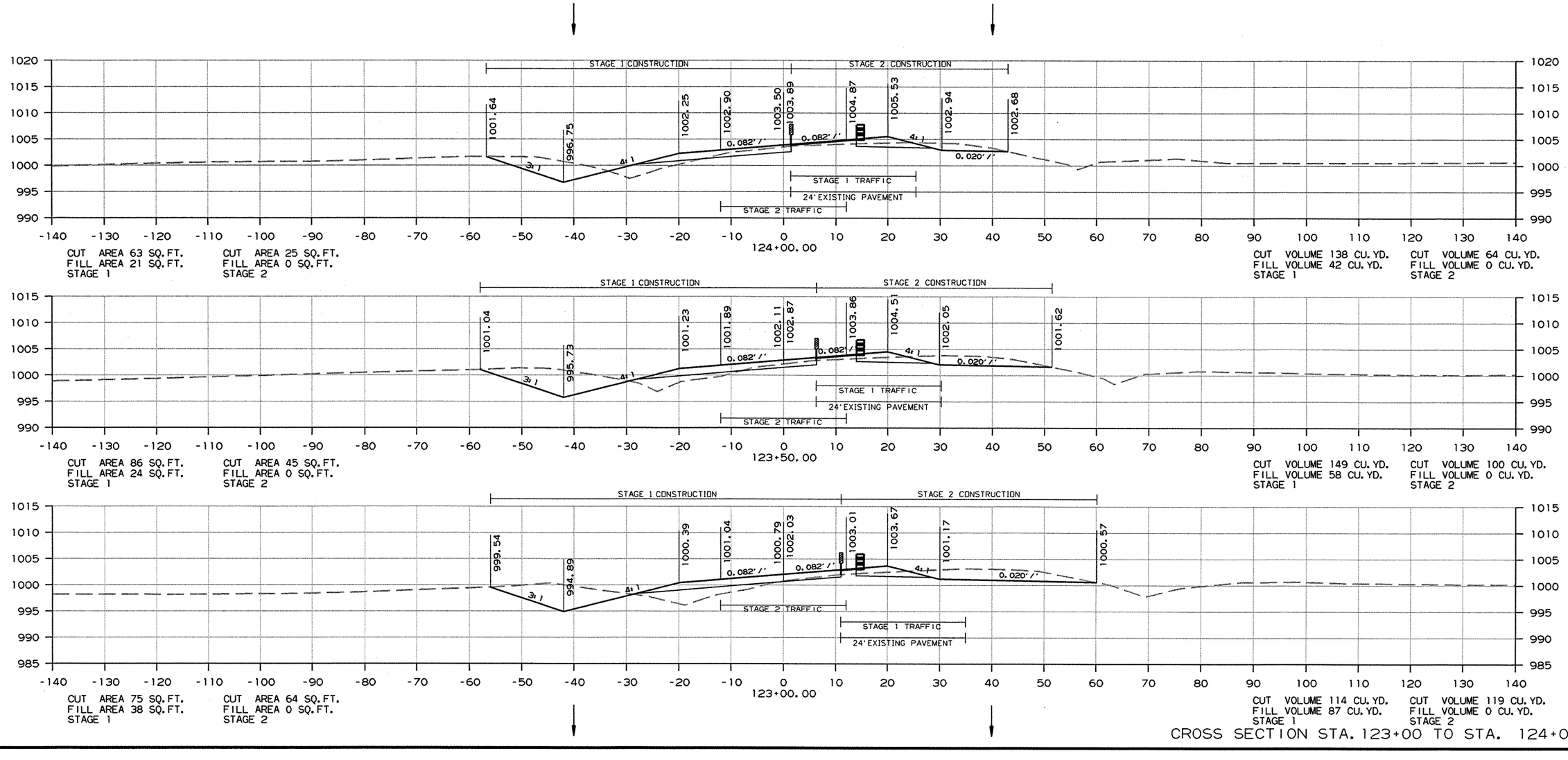
CUT VOLUME 114 CU.YD.
FILL VOLUME 14 CU.YD.
STAGE 2

CROSS SECTION STA. 121+50 TO STA. 122+50

R090280.DGN 7/15/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	85	88

(2) CROSS SECTIONS

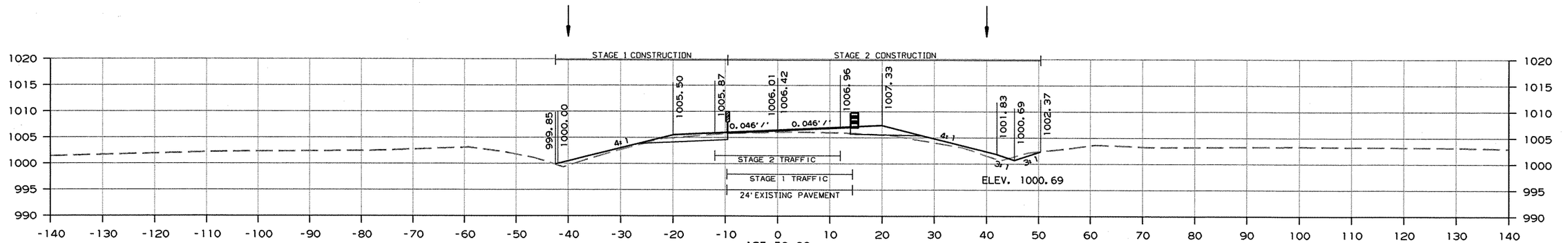


CROSS SECTION STA. 123+00 TO STA. 124+00

R090280.DGN 7/15/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	86	88

(2) CROSS SECTIONS



125+50.00

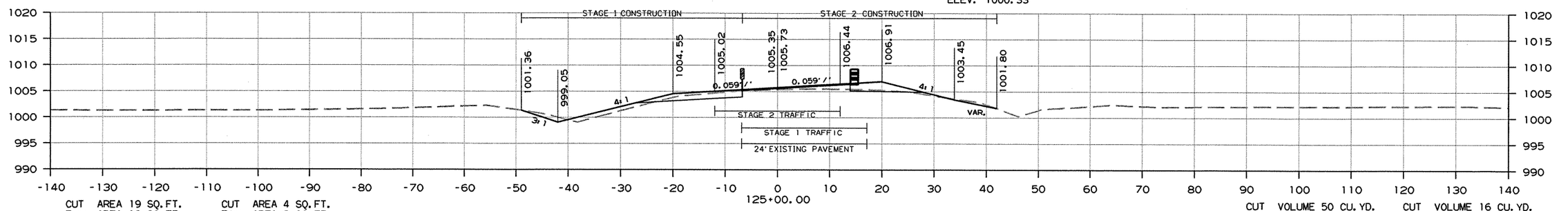
CUT AREA 13 SQ.FT.
FILL AREA 9 SQ.FT.
STAGE 1

CUT AREA 3 SQ.FT.
FILL AREA 15 SQ.FT.
STAGE 2

+10.00 BEGIN
0.90% RT.DT.GR.
ELEV. 1000.33

CUT VOLUME 30 CU.YD.
FILL VOLUME 19 CU.YD.
STAGE 1

CUT VOLUME 7 CU.YD.
FILL VOLUME 15 CU.YD.
STAGE 2



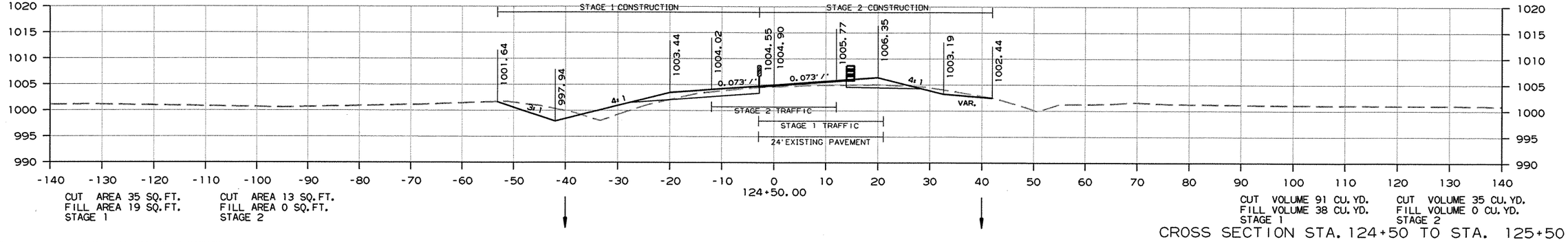
125+00.00

CUT AREA 19 SQ.FT.
FILL AREA 12 SQ.FT.
STAGE 1

CUT AREA 4 SQ.FT.
FILL AREA 2 SQ.FT.
STAGE 2

CUT VOLUME 50 CU.YD.
FILL VOLUME 29 CU.YD.
STAGE 1

CUT VOLUME 16 CU.YD.
FILL VOLUME 1 CU.YD.
STAGE 2



124+50.00

CUT AREA 35 SQ.FT.
FILL AREA 19 SQ.FT.
STAGE 1

CUT AREA 13 SQ.FT.
FILL AREA 0 SQ.FT.
STAGE 2

CUT VOLUME 91 CU.YD.
FILL VOLUME 38 CU.YD.
STAGE 1

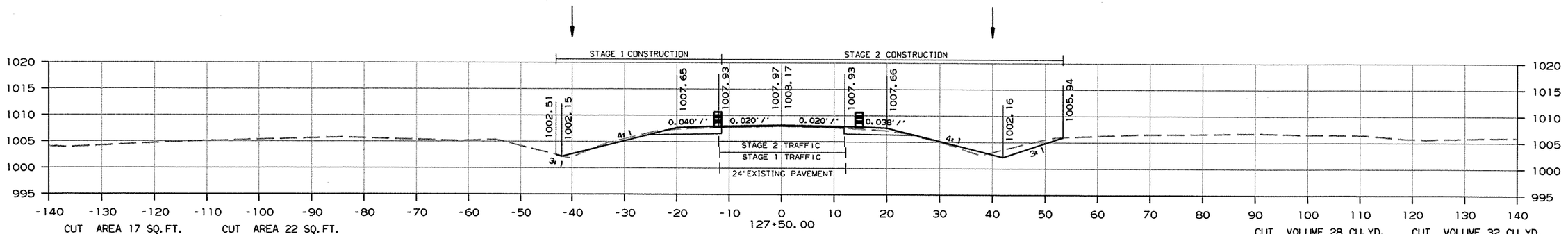
CUT VOLUME 35 CU.YD.
FILL VOLUME 0 CU.YD.
STAGE 2

CROSS SECTION STA. 124+50 TO STA. 125+50

R090280.DGN 7/15/2011

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	87	88

(2) CROSS SECTIONS

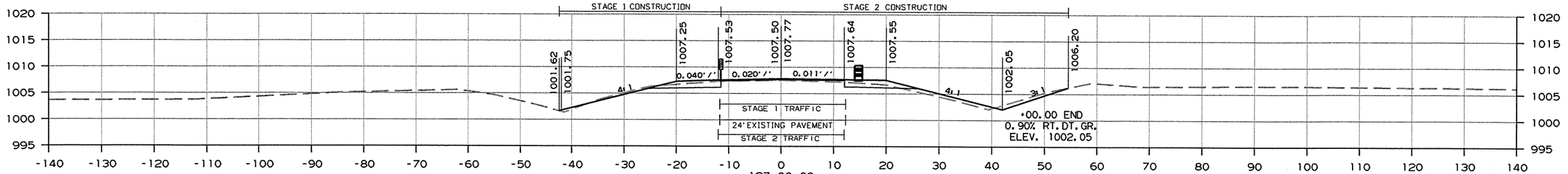


CUT AREA 17 SQ.FT.
FILL AREA 2 SQ.FT.
STAGE 1

CUT AREA 22 SQ.FT.
FILL AREA 4 SQ.FT.
STAGE 2

CUT VOLUME 28 CU.YD.
FILL VOLUME 3 CU.YD.
STAGE 1

CUT VOLUME 32 CU.YD.
FILL VOLUME 13 CU.YD.
STAGE 2

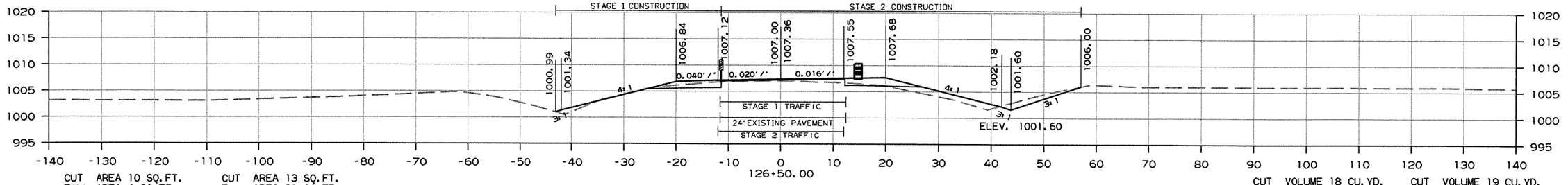


CUT AREA 13 SQ.FT.
FILL AREA 2 SQ.FT.
STAGE 1

CUT AREA 13 SQ.FT.
FILL AREA 10 SQ.FT.
STAGE 2

CUT VOLUME 21 CU.YD.
FILL VOLUME 5 CU.YD.
STAGE 1

CUT VOLUME 24 CU.YD.
FILL VOLUME 27 CU.YD.
STAGE 2

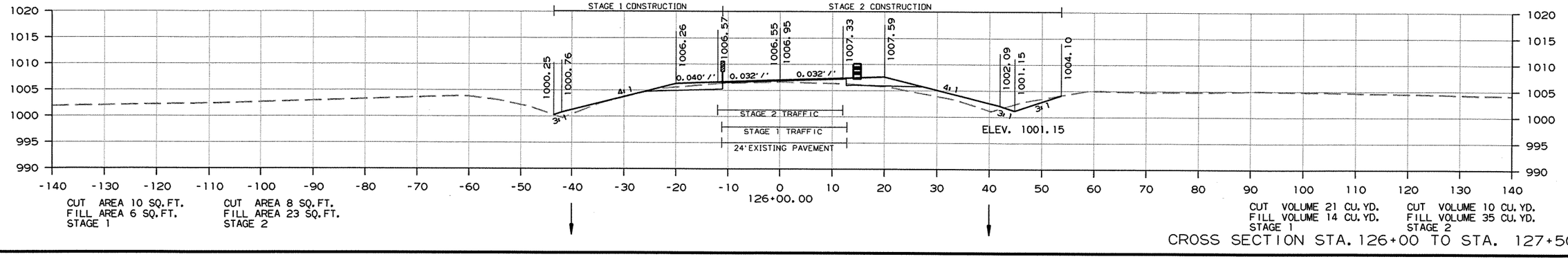


CUT AREA 10 SQ.FT.
FILL AREA 4 SQ.FT.
STAGE 1

CUT AREA 13 SQ.FT.
FILL AREA 20 SQ.FT.
STAGE 2

CUT VOLUME 18 CU.YD.
FILL VOLUME 10 CU.YD.
STAGE 1

CUT VOLUME 19 CU.YD.
FILL VOLUME 39 CU.YD.
STAGE 2



CUT AREA 10 SQ.FT.
FILL AREA 6 SQ.FT.
STAGE 1

CUT AREA 8 SQ.FT.
FILL AREA 23 SQ.FT.
STAGE 2

CUT VOLUME 21 CU.YD.
FILL VOLUME 14 CU.YD.
STAGE 1

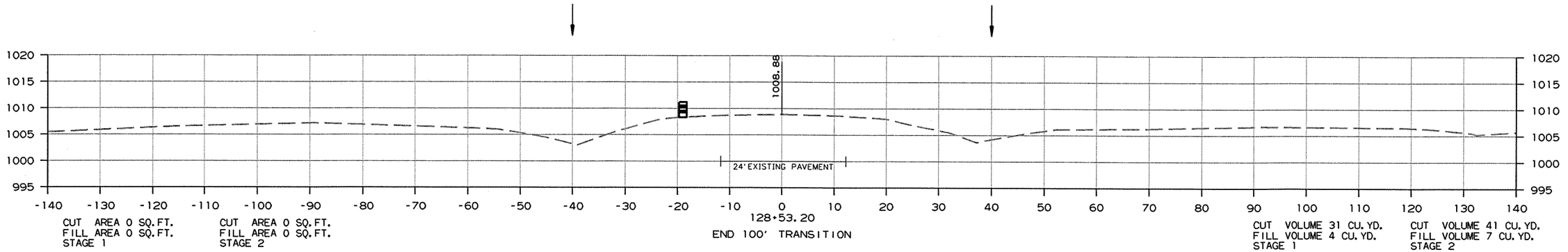
CUT VOLUME 10 CU.YD.
FILL VOLUME 35 CU.YD.
STAGE 2

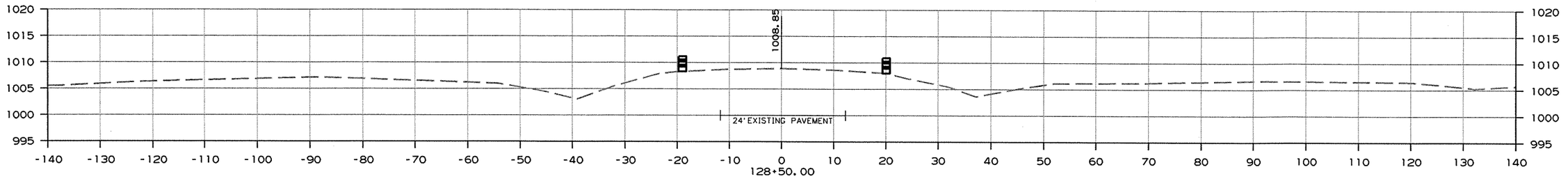
CROSS SECTION STA. 126+00 TO STA. 127+50

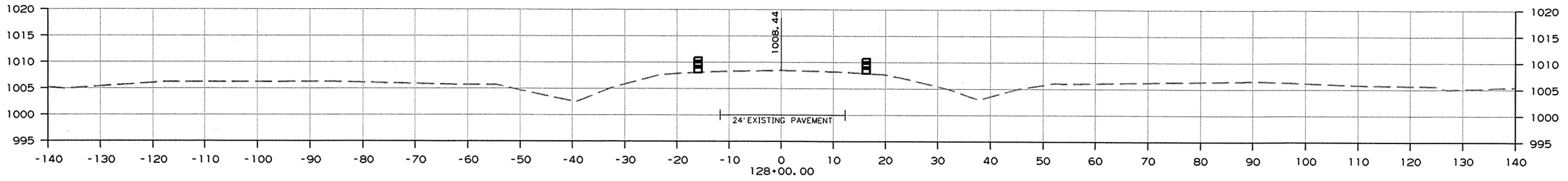
R090280.DGN 7/15/2011

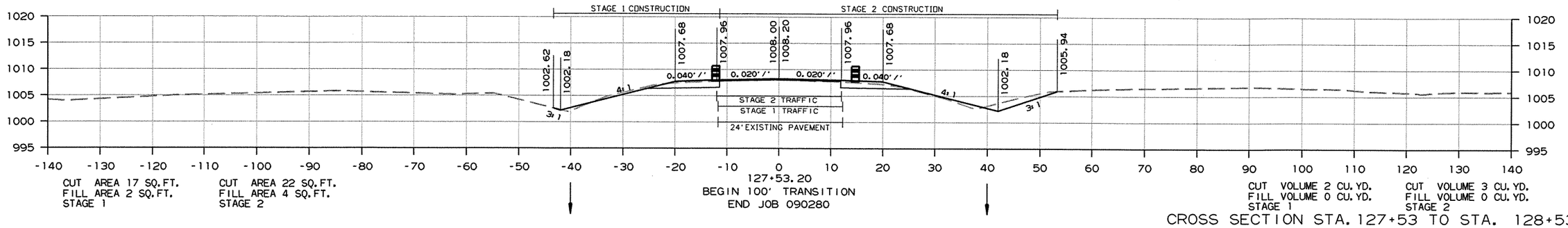
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		090280	88	88

(2) CROSS SECTIONS









CROSS SECTION STA. 127+53 TO STA. 128+53

R090280.DGN 7/15/2011