DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0310	1	75
				(2)	HWY. 108-HWY. 67 (S)			

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

HWY. 108-HWY. 67 (S)

MILLER COUNTY

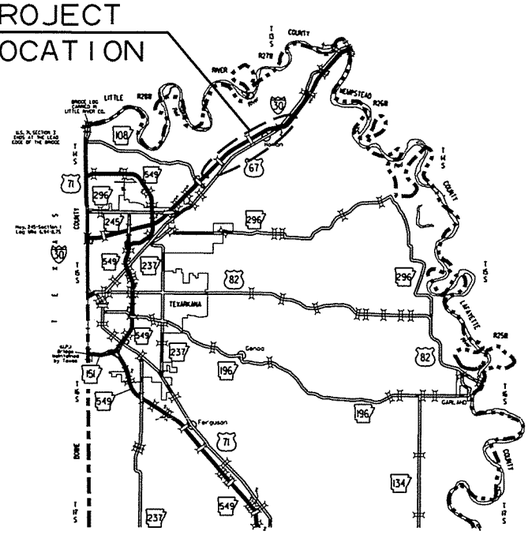
ROUTE 30 SECTION II

JOB BB0310

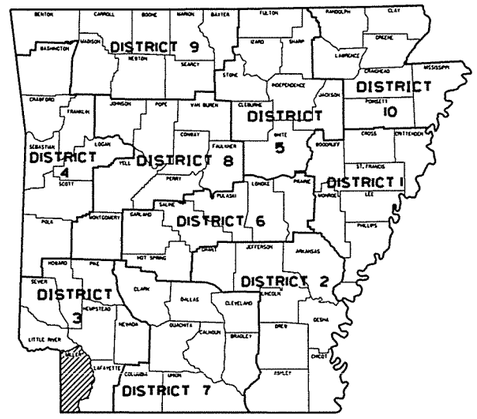
FED. AID PROJ. NHPP-PEN-30-1(154)7

NOT TO SCALE

PROJECT LOCATION



VICINITY MAP



ARK. HWY. DIST. NO. 3

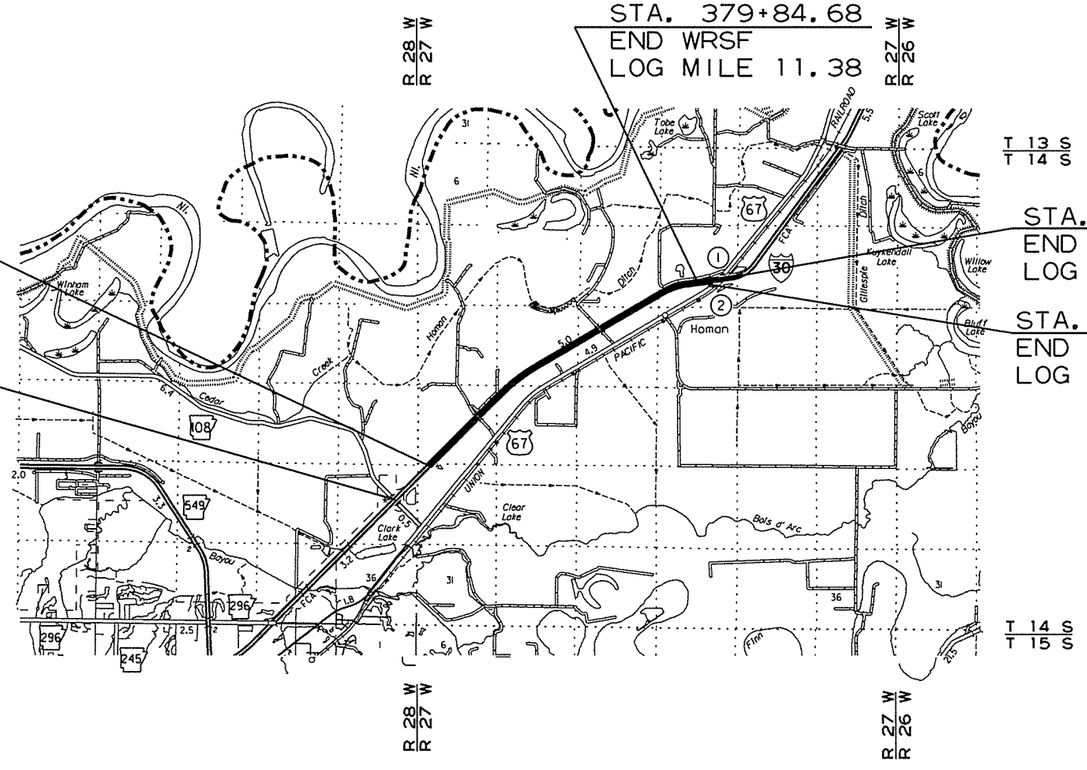
STA. 379+84.68
END WRSF
LOG MILE 11.38

STA. 153+81.12
BEGIN PAVEMENT REHABILITATION
LOG MILE 7.11

STA. 122+97.38
BEGIN JOB BB0310
BEGIN WRSF
LOG MILE 6.53

STA. 393+16.00
END JOB BB0310
LOG MILE 11.64

STA. 379+05.35
END PAVEMENT REHABILITATION
LOG MILE 11.51



DESIGN TRAFFIC DATA

DESIGN YEAR	2035
2016 ADT	28,000
2036 ADT	39,000
2036 DHV	4,290
DIRECTIONAL DISTRIBUTION	0.60
TRUCKS	48%
DESIGN SPEED	70 MPH

BRIDGE DATA

(1) STA. 387+44.88 BR. END
489'-3 1/8" COMPOSITE W-BEAM
BR. NO. A03796
40'-0" CLEAR RDWY.
STA.392+34.14 BR. END

(2) STA. 386+37.11 BR. END
499'-3 1/8" COMPOSITE W-BEAM
BR. NO. B03796
40'-0" CLEAR RDWY.
STA. 391+36.37 BR. END

N

APPROVED

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 7836
M.E. BANKS

12-7-15

DEPUTY DIRECTOR
AND CHIEF ENGINEER

BEGINNING OF PROJECT	MID POINT OF PROJECT	END OF PROJECT
LATITUDE = N 33°30'37" LONGITUDE = W 93°56'45"	LATITUDE = N 33°32'06" LONGITUDE = W 93°54'49"	LATITUDE = N 33°32'59" LONGITUDE = W 93°52'29"

GROSS LENGTH OF PROJECT	27018.62	FEET	OR	5.117	MILES
NET	ROADWAY	26524.36		5.023	
NET	BRIDGES	494.26		0.094	
NET	PROJECT	27018.62		5.117	

10/21/2015

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0310	2	75

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

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-3-15

INDEX OF SHEETS

GENERAL NOTES

1. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
2. 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.
3. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
4. 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.
5. 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.
6. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
7. 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.

GOVERNING SPECIFICATIONS

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

NUMBER	TITLE
ERRATA_____	ERRATA FOR THE BOOK OF STANDARD SPECIFICATIONS
FHWA-1273__	REQUIRED CONTRACT PROVISIONS FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - NOTICE TO CONTRACTORS
FHWA-1273__	SUPPLEMENT - SPECIFIC EQUAL EMPLOYMENT OPPORTUNITY RESPONSIBILITIES (23 U.S.C. 140)
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - GOALS AND TIMETABLES
FHWA-1273__	SUPPLEMENT - EQUAL EMPLOYMENT OPPORTUNITY - FEDERAL STANDARDS
FHWA-1273__	SUPPLEMENT - TRAINING PROGRAM - JOB BB0310
FHWA-1273__	SUPPLEMENT - POSTERS AND NOTICES REQUIRED FOR FEDERAL-AID PROJECTS
FHWA-1273__	SUPPLEMENT - WAGE RATE DETERMINATION
100-3_____	CONTRACTOR'S LICENSE
108-1_____	LIQUIDATED DAMAGES
400-1_____	TACK COATS
410-1_____	CONSTRUCTION REQUIREMENTS AND ACCEPTANCE OF ASPHALT CONCRETE PLANT MIX COURSES
604-1_____	RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
620-1_____	MULCH COVER
JOB BB0310__	AUTOMATED WORK ZONE INFORMATION SYSTEM
JOB BB0310__	BIDDING REQUIREMENTS AND CONDITIONS
JOB BB0310__	BRIDGE DECK REPAIR FOR POLYMER OVERLAYS
JOB BB0310__	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB BB0310__	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB BB0310__	CONCRETE DITCH PAVING
JOB BB0310__	CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS
JOB BB0310__	COORDINATION OF WORK
JOB BB0310__	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB BB0310__	EMPLOYMENT REPORTING
JOB BB0310__	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB BB0310__	HIGH PERFORMANCE PAVEMENT MARKING
JOB BB0310__	MAINTENANCE OF TRAFFIC
JOB BB0310__	MANDATORY ELECTRONIC CONTRACT
JOB BB0310__	PARTNERING REQUIREMENTS
JOB BB0310__	POLYMER OVERLAY
JOB BB0310__	PROSECUTION AND PROGRESS
JOB BB0310__	REMOVAL AND DISPOSAL OF PLOWABLE PAVEMENT MARKER
JOB BB0310__	REMOVAL AND DISPOSAL OF PORTLAND CEMENT CONCRETE PAVEMENT GRINDING RESIDUE
JOB BB0310__	REMOVING EXISTING PORTLAND CEMENT CONCRETE PAVEMENT
JOB BB0310__	RUMBLE STRIP REMOVAL
JOB BB0310__	SEQUENCE OF CONSTRUCTION
JOB BB0310__	SITE USE (A+C METHOD)
JOB BB0310__	SOIL STABILIZATION
JOB BB0310__	STORM WATER POLLUTION PREVENTION PLAN
JOB BB0310__	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB BB0310__	THERMOPLASTIC RUMBLE BAR
JOB BB0310__	TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
JOB BB0310__	UTILITY ADJUSTMENTS
JOB BB0310__	VALUE ENGINEERING
JOB BB0310__	VERY EARLY STRENGTH CONCRETE
JOB BB0310__	WARM MIX ASPHALT
JOB BB0310__	WIRE ROPE SAFETY FENCE MAINTENANCE MATERIALS
JOB BB0310__	WIRE ROPE SAFETY FENCE (POST REPAIR)
JOB BB0310__	WIRE ROPE SAFETY FENCE (WRSF) SPECIFICATIONS
JOB BB0310__	WRSF TRAINING WORKSHOP

9/11/2015

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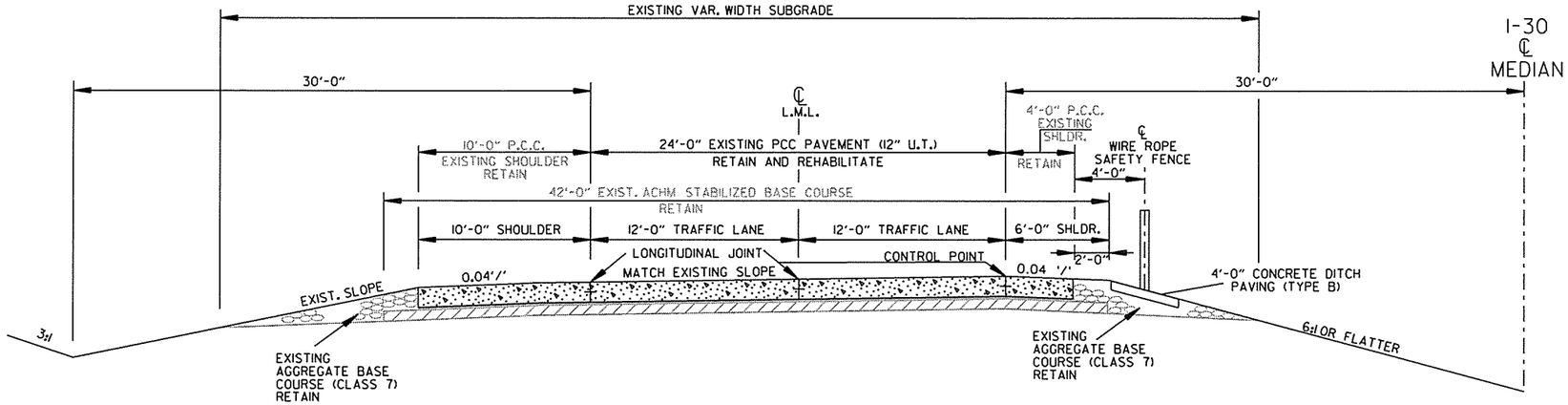
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0310	3	75

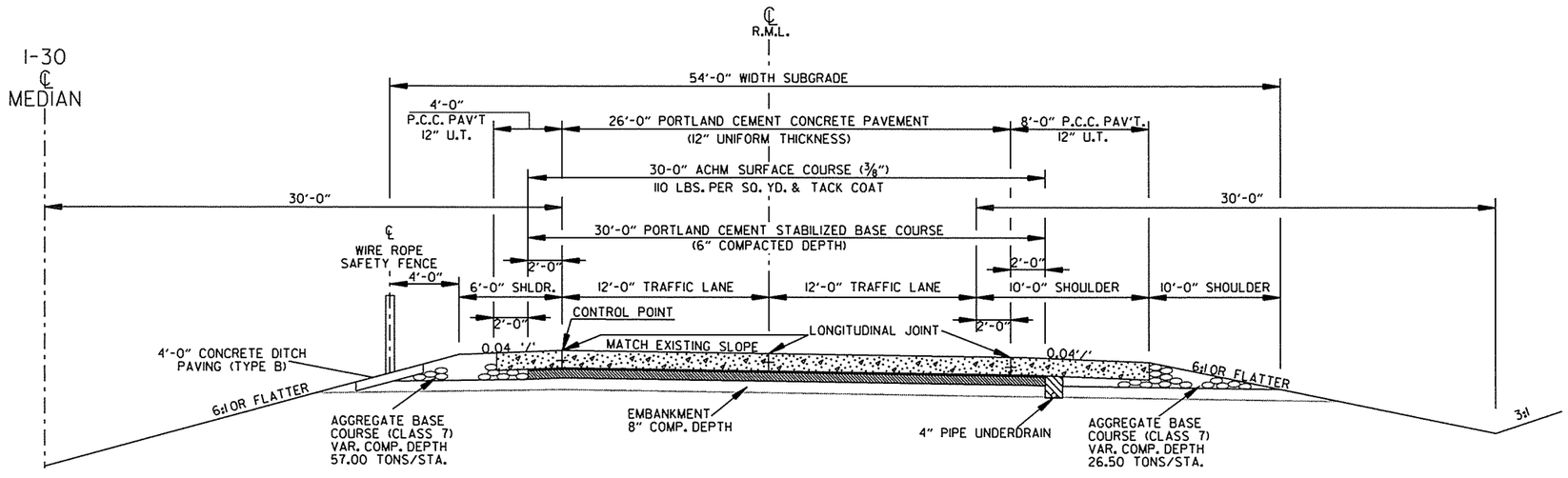
(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-3-15



I-30 WESTBOUND LANES
PCC PAVEMENT REHABILITATION

STA. 153+81.12 TO STA. 387+79.02



I-30 EASTBOUND LANES
FULL DEPTH RECONSTRUCTION

STA. 153+81.12 TO STA. 379+05.35

9/11/2015

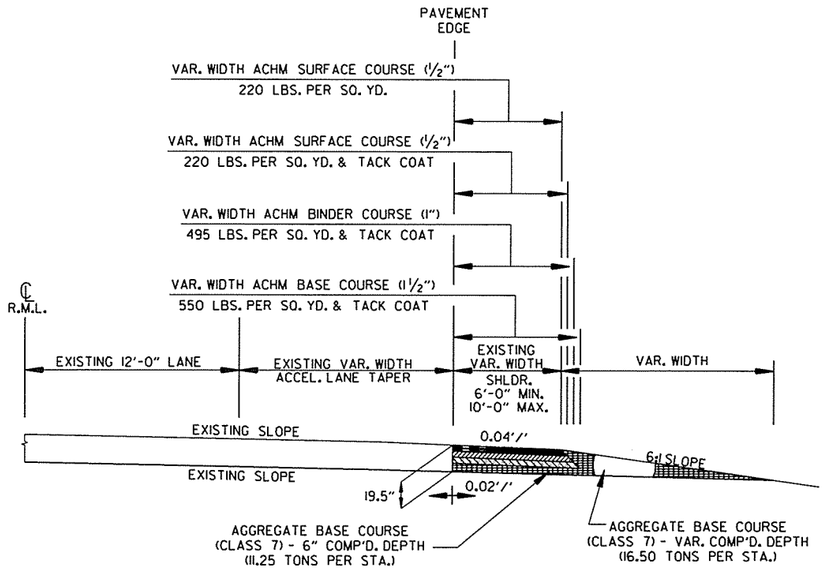
RBB0310.DGN

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.		BB0310	4	75

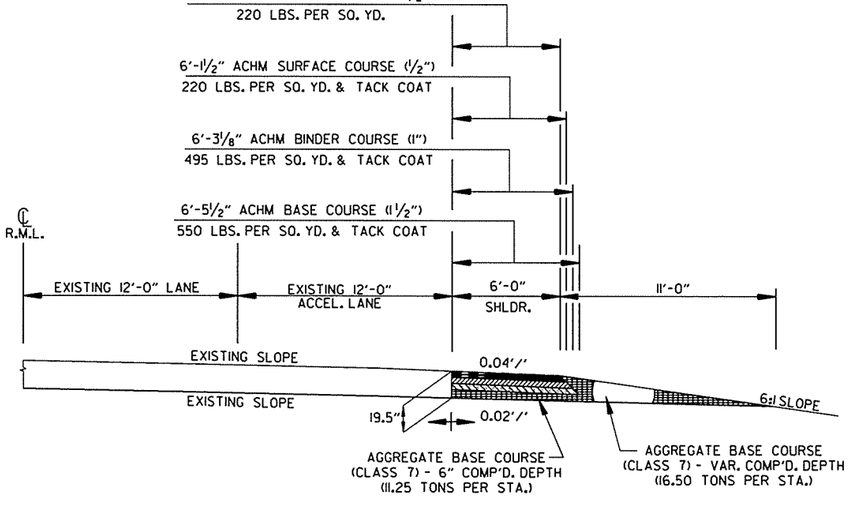
(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-3-15



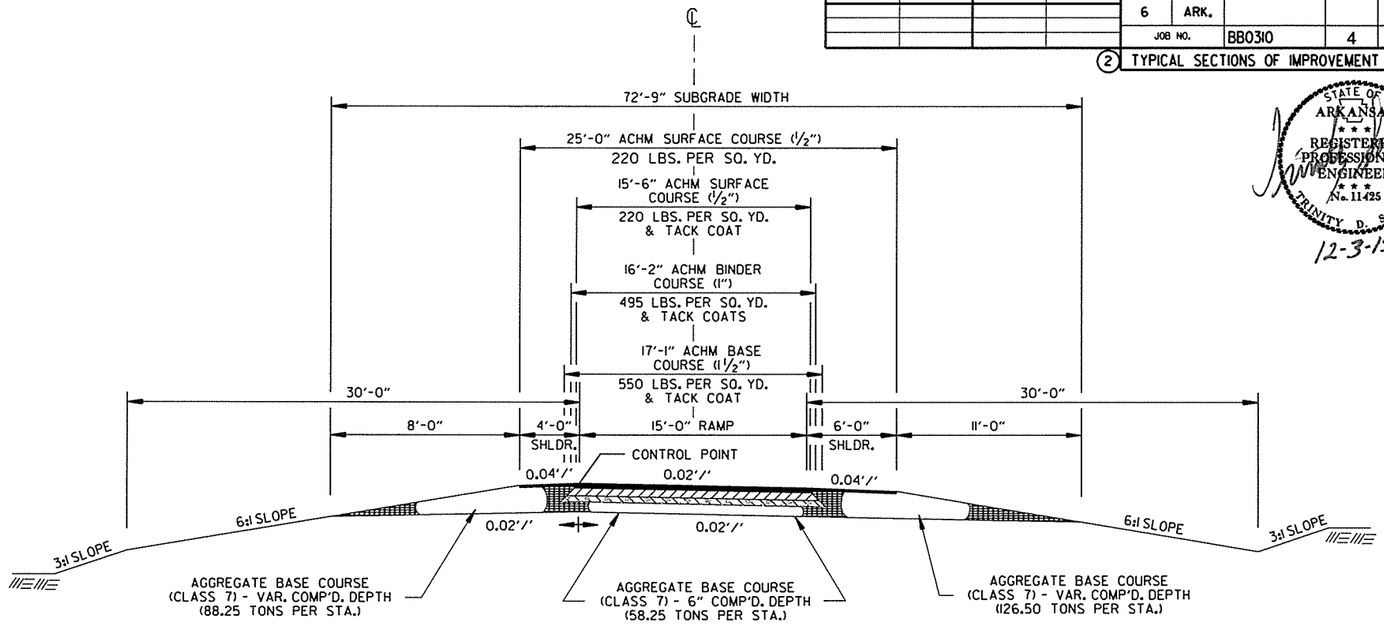
TEMPORARY WIDENING FOR M.O.T.
(SHOWN IN DIRECTION OF TRAFFIC)

RIGHT OF RIGHT MAIN LANES
STA. 176+66 TO STA. 181+85



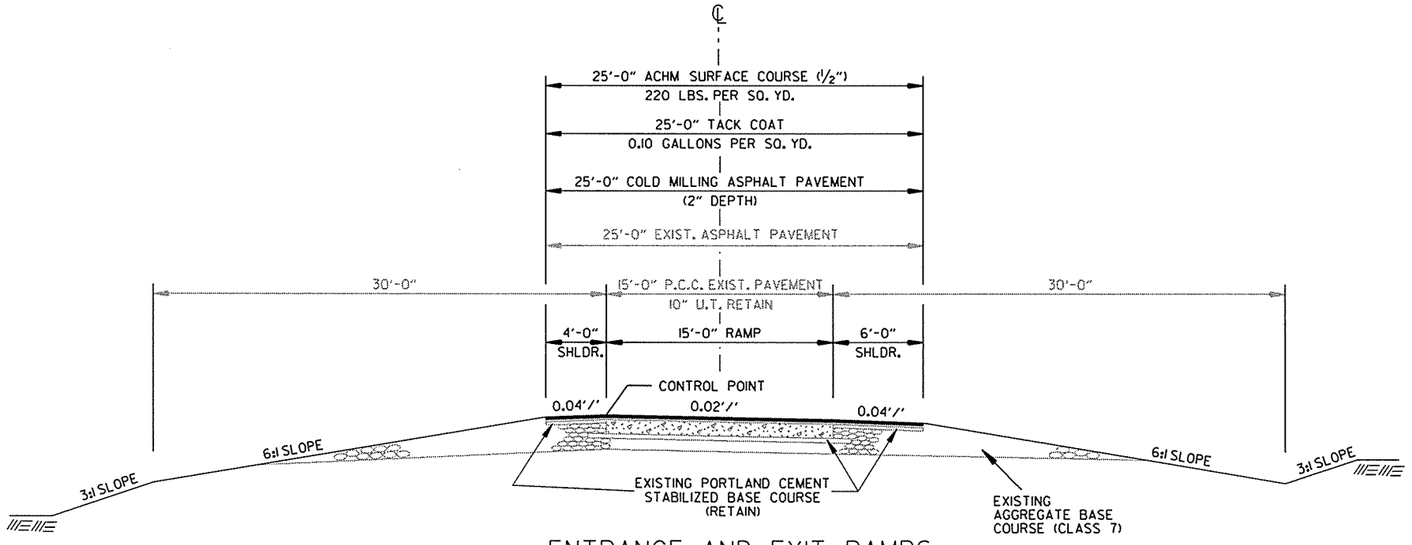
TEMPORARY SHOULDER RECONSTRUCTION FOR M.O.T.
(SHOWN IN DIRECTION OF TRAFFIC)

RIGHT OF RIGHT MAIN LANES
STA. 168+66 TO STA. 176+66



HWY. 67 TEMPORARY EXIT RAMP
(SHOWN IN DIRECTION OF TRAFFIC)

STA. 374+34.14 TO STA. 379+06.80



ENTRANCE AND EXIT RAMPS
MILL AND INLAY

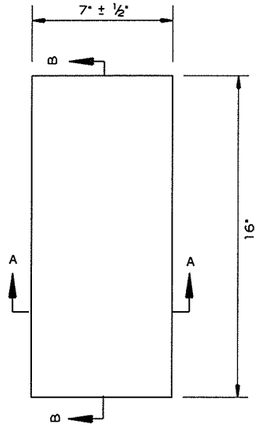
9/11/2015

RBB0310.DGN

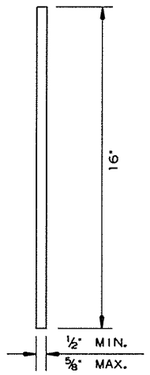
TYPICAL SECTIONS OF IMPROVEMENT

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.		BB0310	5	75

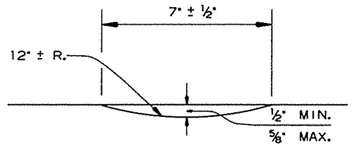
(2) SPECIAL DETAILS



PLAN

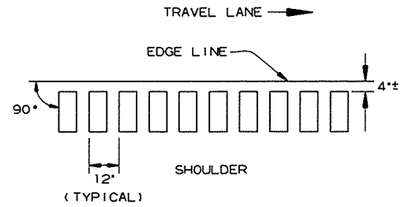


SECTION B-B



SECTION A-A

DETAILS OF RUMBLE STRIPS



LOCATION PLAN OF RUMBLE STRIPS

LEFT OR RIGHT SHOULDER

PLAN VIEW

NOTES:

1. ALIGNMENT OF RUMBLE STRIPS SHALL GENERALLY BE STRAIGHT AND OFFSET APPROXIMATELY 4" FROM THE OUTER EDGE OF THE EDGE LINE. THIS OFFSET MAY BE ADJUSTED TO ACCOMMODATE VARIATIONS IN THE EDGE LINE.
2. THE ½" DEPTH SHALL GENERALLY APPLY FOR THE ENTIRE 16" LENGTH. SOME VARIATION TO SUIT SHOULDER SLOPE BREAKS MAY BE NECESSARY.
3. RUMBLE STRIPS SHALL NOT BE INSTALLED ON BRIDGE DECKS, APPROACH SLABS, OR ACROSS TRANSVERSE JOINTS OF CONCRETE SHOULDERS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-3-15

11/9/2015

RBB0310.DGN

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.		BB0310	6	75

(2) SPECIAL DETAILS

STATE OF ARKANSAS
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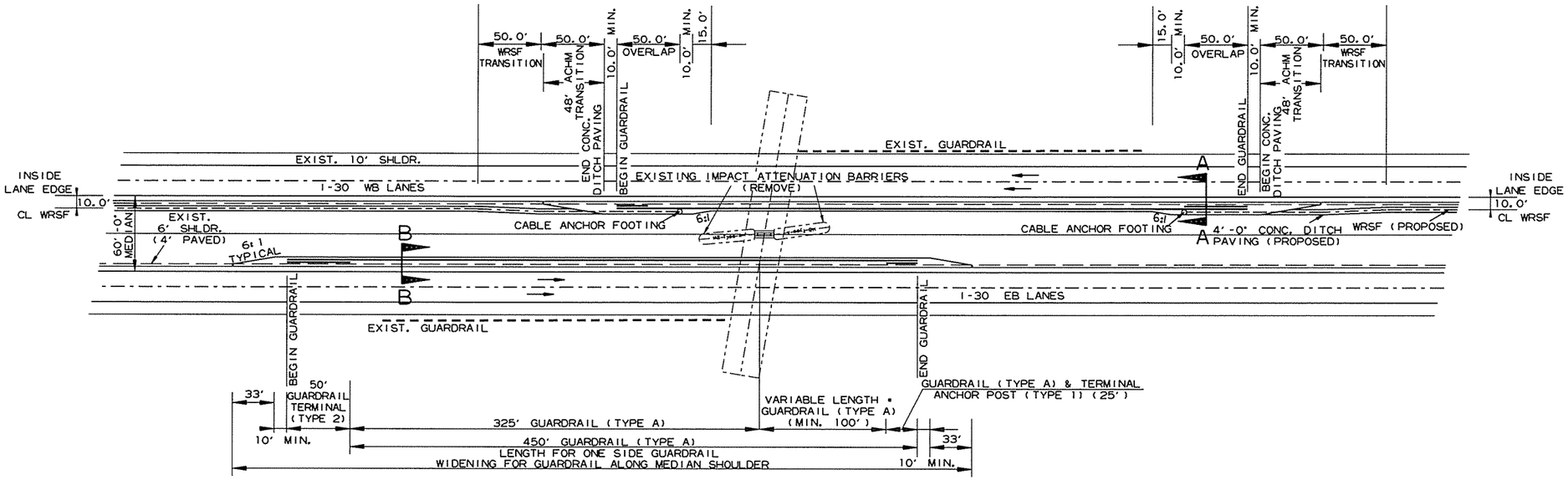
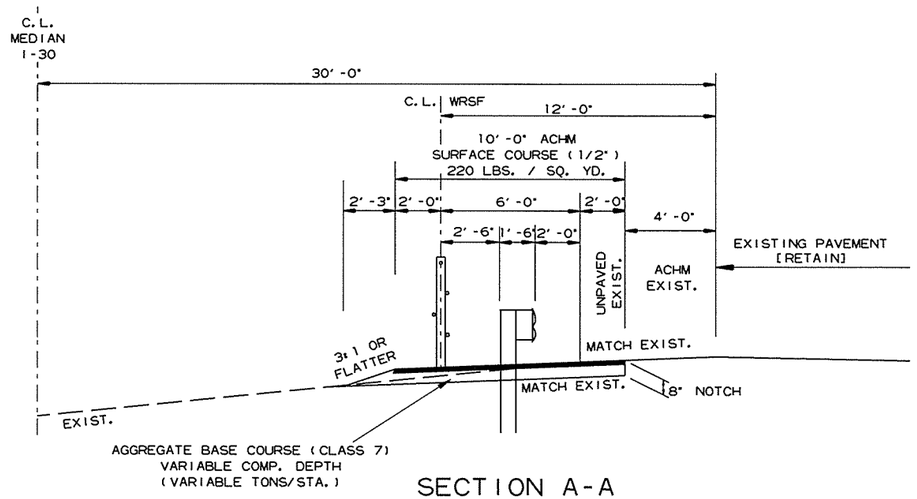
TRINITY D. SMITH
12-3-15

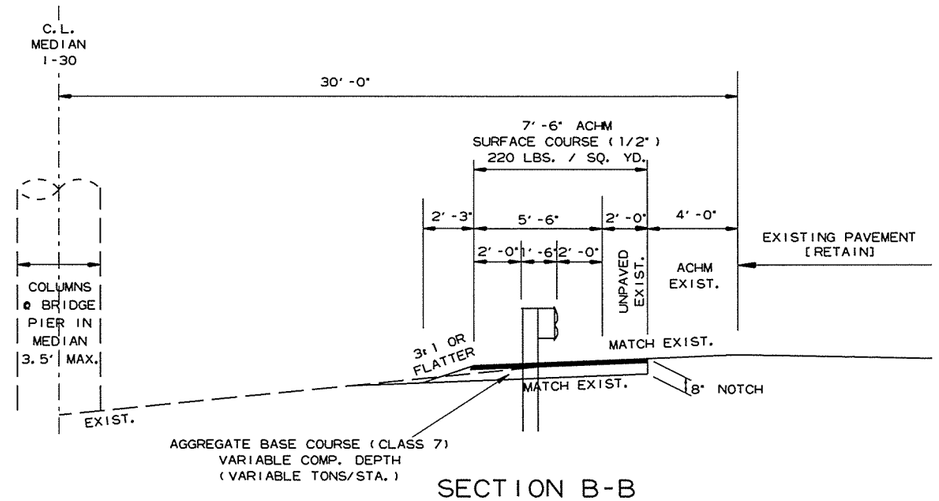


DETAIL AT OVERPASSES

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



SECTION A-A



SECTION B-B

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

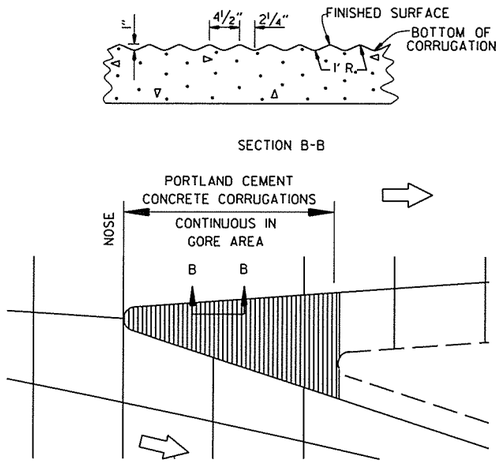
11/9/2015

RBB0310.DGN

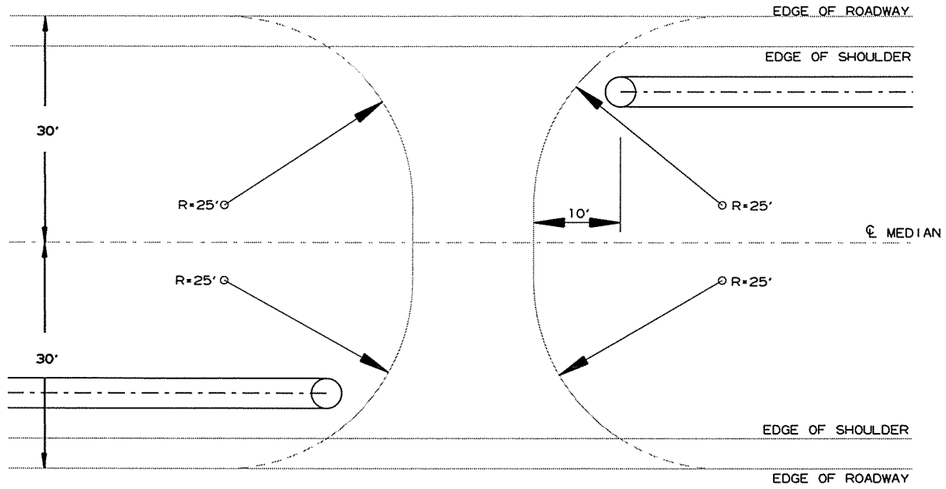
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		880310	7	75

(2) SPECIAL DETAILS

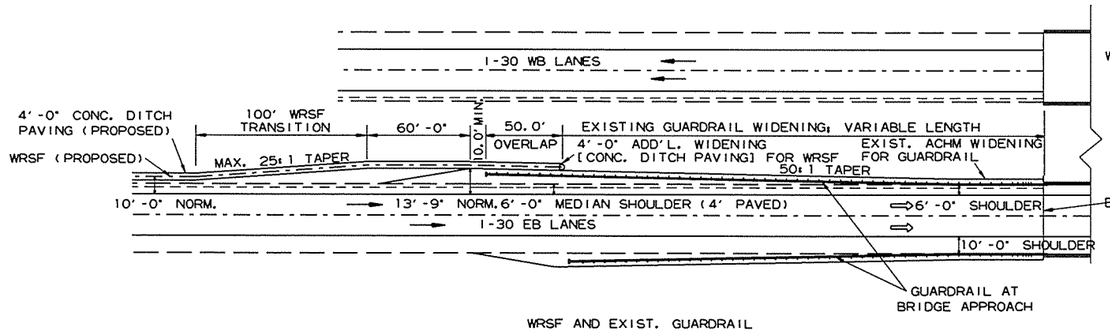
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-3-15



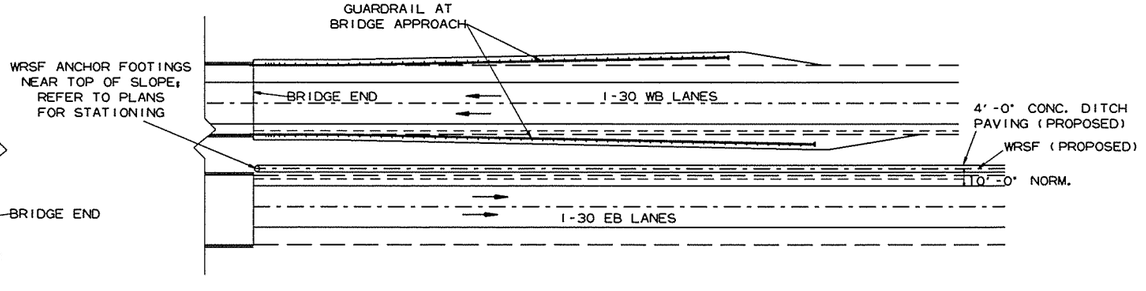
LAYOUT OF SHOULDER CORRUGATIONS IN EXIT GORE AREAS



DETAIL OF EXISTING MEDIAN CROSSING



WRSF AND EXIST. GUARDRAIL ON SAME SIDE OF MEDIAN



WRSF AND EXIST. GUARDRAIL ON OPPOSITE SIDES OF MEDIAN

DETAIL OF WIRE ROPE SAFETY FENCE AT EXISTING BRIDGE ENDS

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

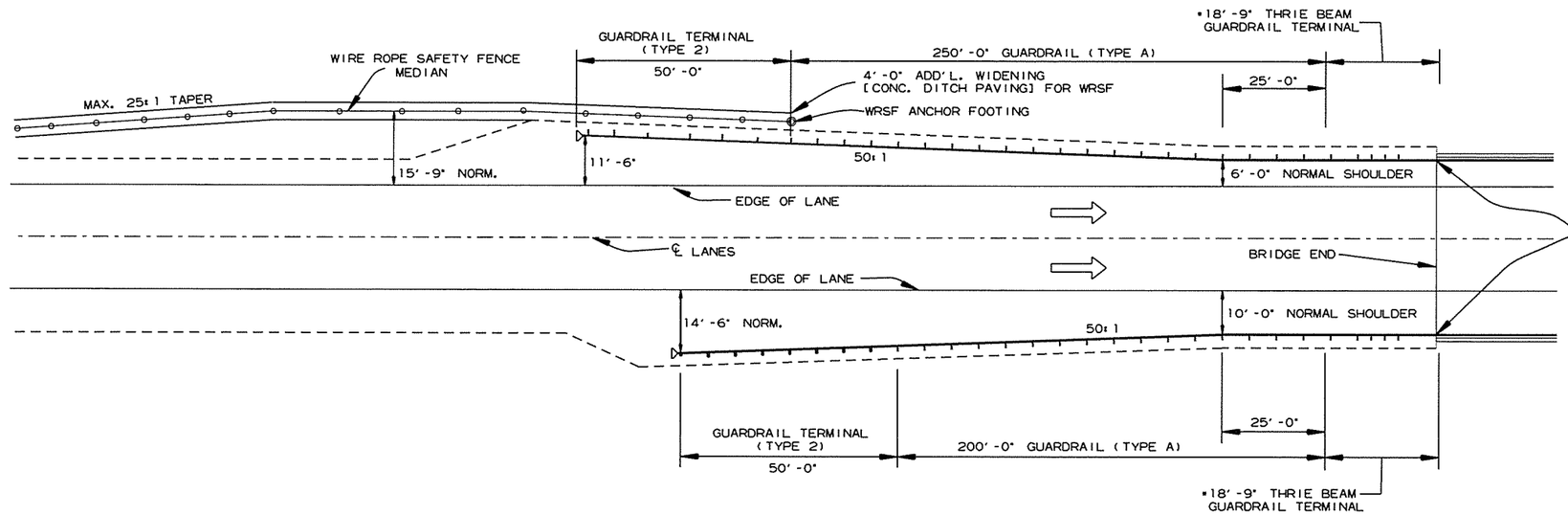
11/9/2015

RBB0310.DGN

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.		BB0310	8	75

(2) SPECIAL DETAILS



THRIE BEAM GUARDRAIL CONNECTION AT BRIDGE END. SEE STD. DWG. GR-10.

* THE CONTRACTOR SHALL DRILL 1" DIA. HOLES FOR THE NEW THRIE BEAM CONNECTION BOLTS IN THE EXISTING TRANSITION RAIL. CARE SHALL BE EXERCISED TO AVOID THE EXISTING REINFORCING STEEL IN THE RAIL. THIS WORK WILL NOT BE PAID FOR DIRECTLY BUT SHALL BE CONSIDERED INCLUDED IN THE VARIOUS CONTRACT ITEMS. SEE STANDARD DRAWING GR-10 FOR ADDITIONAL DETAILS.

TYPICAL LAYOUT OF GUARDRAIL AT BRIDGE ENDS

STATE OF ARKANSAS
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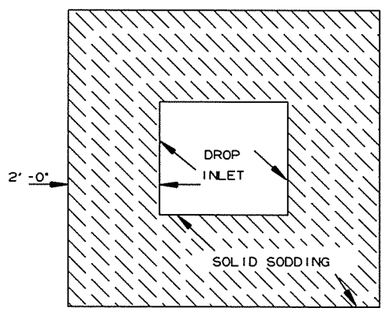
TRINITY D. SMITH
12-3-15



DETAIL FOR SOLID SODDING AROUND DROP INLETS

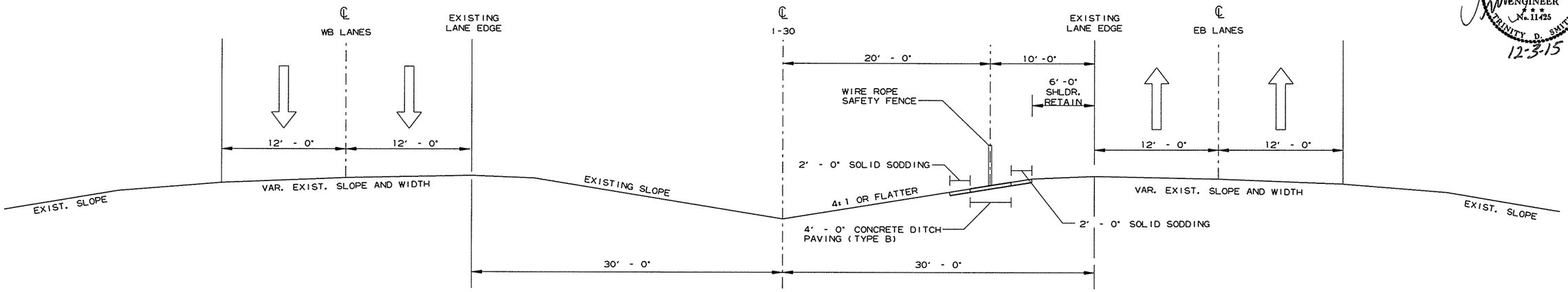
11/9/2015

RBB0310.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0310	9	75

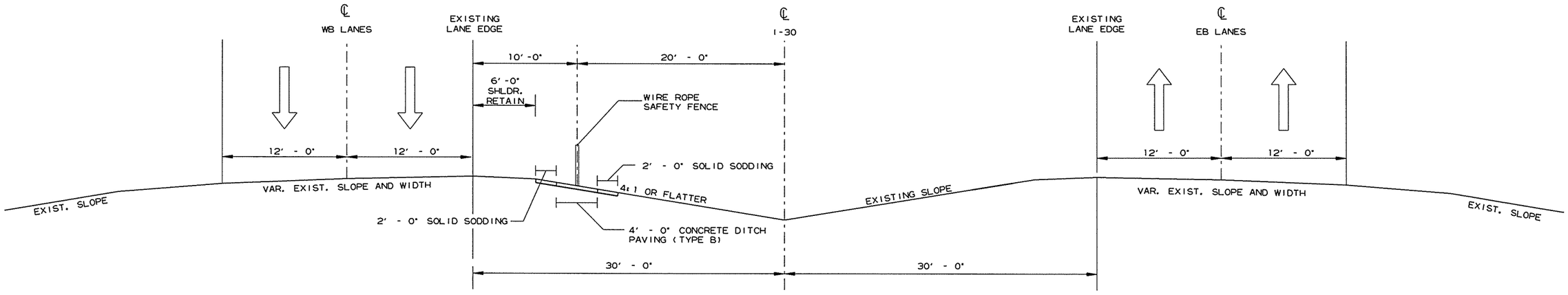
(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-3-15



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

STA. 122+97.38 TO STA. 196+24.44
STA. 200+13.10 TO STA. 328+23.81



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

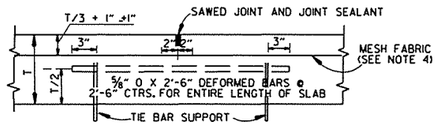
STA. 328+41.81 TO STA. 379+84.68

11/9/2015

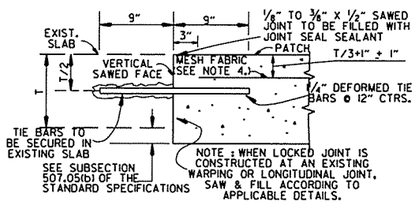
RBB0310.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0310	10	75

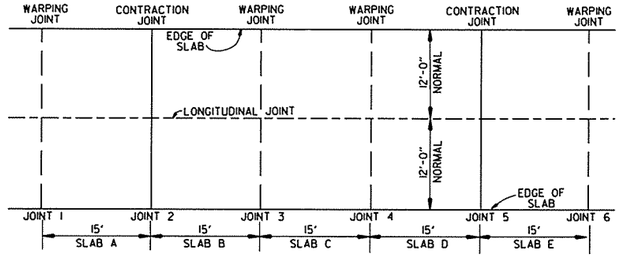
(2) SPECIAL DETAILS



SECTION A-A
TIED LONGITUDINAL JOINT

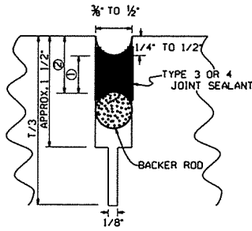


SECTION D-D
LOCKED JOINT

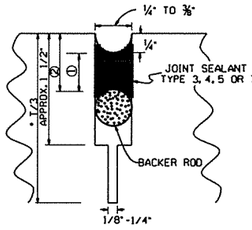


PLAN OF PAVEMENT REPAIR
(FULL SLABS)

LOCKED JOINTS ARE TO BE CONSTRUCTED AT RECONSTRUCTED SLABS.

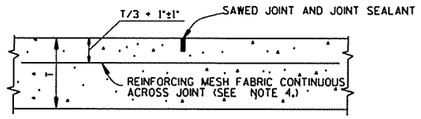


DETAIL OF SAWED CONTRACTION JOINT



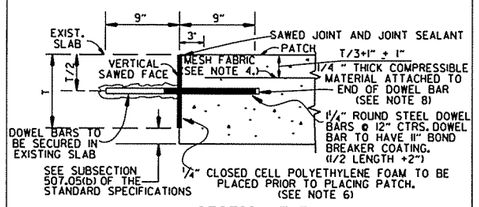
*NOTE: T/3 SAW CUT NOT REQUIRED FOR LONGITUDINAL CONSTRUCTION JOINT.

DETAIL OF SAWED
TIED LONGITUDINAL JOINT
AND WARPING JOINT



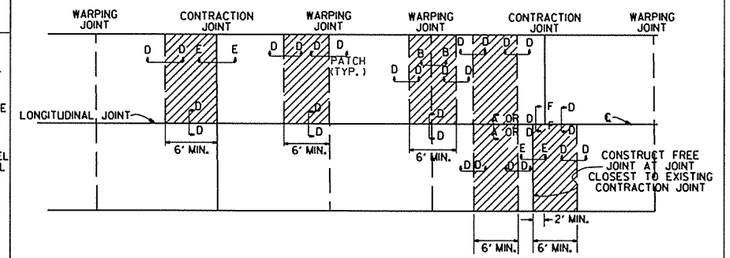
SECTION B-B

WARPING JOINT

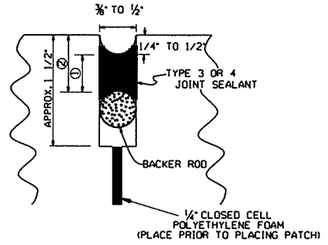


SECTION E-E

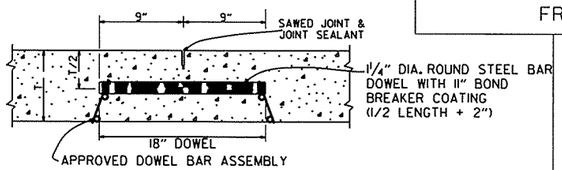
FREE TRANSVERSE JOINT



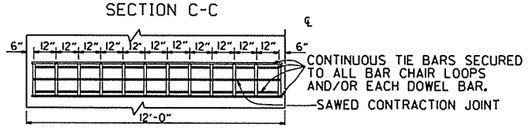
PLAN OF PAVEMENT REPAIR
(PARTIAL SLABS)



DETAIL OF SAWED FREE TRANSVERSE &
FREE LONGITUDINAL JOINT



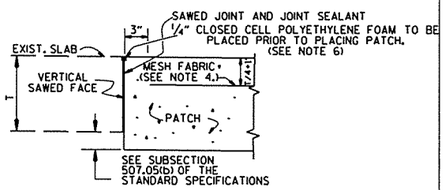
SECTION C-C



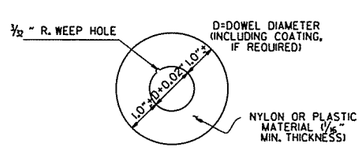
ONE-HALF 24' PAVEMENT
12 DOWELS
PLAN - CONTRACTION JOINT

NOTE: FOR 20' PAVEMENT USE 20 DOWELS @ 12" CTRS. WITH 6" SPACING FROM C.L. AND EDGE OF SLAB TO FIRST BAR. FOR 15' PAVEMENT USE 15 DOWELS @ 12" CTRS. WITH 6" SPACING FROM C.L. AND EDGE OF SLAB TO FIRST BAR. FOR 26' PAVEMENT USE 26 DOWELS @ 12" CTRS. WITH 6" SPACING FROM C.L. AND EDGE OF SLAB TO FIRST BAR. FOR PAVEMENT WIDTHS OTHER THAN THOSE SHOWN ABOVE, USE DOWELS AT 12" CTRS. WITH 6" MAX. SPACING FROM C.L. TO FIRST BAR. DISTANCE FROM EDGE OF SLAB TO FIRST BAR SHALL BE ADJUSTED TO MAINTAIN 12" DOWEL BAR SPACING

CONTRACTION JOINT DETAILS



SECTION F-F
FREE LONGITUDINAL JOINT



DETAIL OF EPOXY
RETENTION DISK

NOTE: EPOXY RETENTION DISK SHALL BE SLIPPED TIGHTLY OVER TIE BARS AND FIRMLY AGAINST THE SLAB FACE AFTER INSERTING TIE BAR AND EPOXY INTO HOLE

JOINT CONFIGURATION FOR
TYPE 3 OR 4 JOINT SEALANT

JOINT WIDTH	SEALANT THICKNESS ①	BACKER ROD DIAMETER	BACKER ROD PLACEMENT DEPTH ②
INCHES			
¼	¼	⅜	½
⅜	¼	½	½
½	¼	⅝	½

JOINT CONFIGURATION FOR
TYPE 5 OR 7 JOINT SEALANT

JOINT WIDTH	SEALANT THICKNESS ①	BACKER ROD DIAMETER	BACKER ROD PLACEMENT DEPTH ②
INCHES			
¼	½	⅜	¾
⅜	¾	½	1

NOTES FOR PAVEMENT REPAIR

1. EXACT SIZE AND LOCATION OF AREA TO BE REPAIRED SHALL BE DETERMINED BY THE ENGINEER. ALL PATCHES SHALL EXTEND ACROSS THE FULL WIDTH OF THE SLAB AS SHOWN IN THESE DETAILS.
2. THE FINAL SURFACE FINISH FOR PATCHES SHALL MATCH THAT OF THE EXISTING PAVEMENT.
3. WHEN AREA TO BE REPAIRED INCLUDES AN EXISTING JOINT, THE JOINT SHALL BE RECONSTRUCTED TO THE CONFIGURATION SHOWN IN THESE DETAILS.
4. ALL REPAIRED AREAS SHALL BE REINFORCED WITH MESH FABRIC AS SHOWN. DEPTH OF MESH PLACEMENT SHALL HAVE A TOLERANCE OF +1INCH. MESH FABRIC SHALL BE 12 x 12 - W4 x W4 WELDED WIRE FABRIC (MINIMUM WIRE SIZE). LAPS SHALL BE MINIMUM 6" IN EACH DIRECTION.
5. FORMS FOR PAVEMENT REPAIR SHALL BE METAL UNLESS OTHERWISE APPROVED BY THE ENGINEER.
6. CLOSED CELL POLYETHYLENE FOAM SHALL BE SECURED TO SAWED FACE OF EXISTING P.C.C. PAVEMENT WITH ADHESIVE OR ADHESIVE TAPE AS APPROVED BY THE ENGINEER AND TRIMMED FLUSH WITH TOP OF EXISTING SLAB TO PREVENT DISPLACEMENT WHEN THE PATCH IS BEING PLACED.
7. WHEN THE PATCH IS PLACED OVER GRANULAR BASE, REMOVE ANY LOOSE BASE MATERIAL, COMPACT REMAINING BASE AS NECESSARY AND PLACE PATCH. WHEN PATCH IS PLACED OVER TREATED BASE, REMOVE ANY LOOSE BASE MATERIAL AND PLACE PATCH.
8. ¼" THICK COMPRESSIBLE MATERIAL SHALL BE ATTACHED TO THE ENDS OF DOWEL BARS AT ALL FREE TRANSVERSE JOINTS (SEE SECTION E-E). THE MATERIAL SHALL BE THE SAME DIAMETER AS THE DOWEL BAR. A PLASTIC CAP OR OTHER TYPE OF DEVICE MAY BE USED WITH THE APPROVAL OF THE ENGINEER.
9. DOWEL BARS SHALL BE PLACED IN ACCORDANCE WITH THE DIMENSIONS SHOWN. A TOLERANCE OF PLUS OR MINUS 1" WILL BE ALLOWED FOR VERTICAL AND LATERAL PLACEMENT AND A TOLERANCE OF PLUS OR MINUS ¼" WILL BE ALLOWED FOR THE TILT AND SKEW.

DETAILS OF PORTLAND CEMENT
CONCRETE PAVEMENT PATCHING
(MAIN LANES)

SPECIAL DETAILS

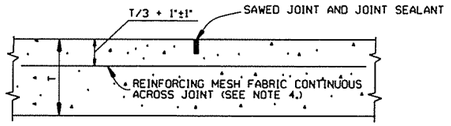
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-3-15

11/9/2015

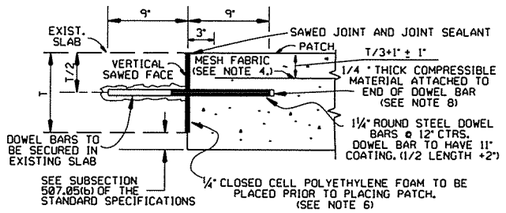
RBB0310.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0310	11	75

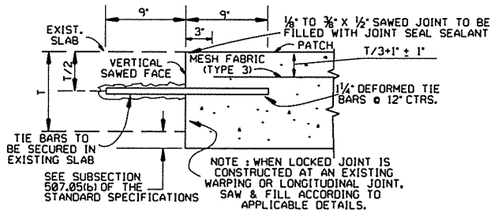
(2) SPECIAL DETAILS



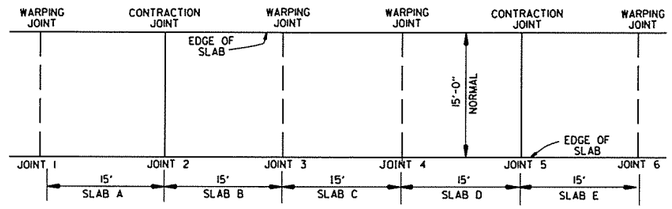
SECTION B-B
WARPING JOINT



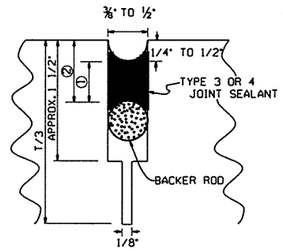
SECTION E-E
FREE TRANSVERSE JOINT



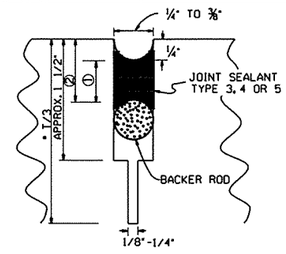
SECTION D-D



PLAN OF PAVEMENT REPAIR
(FULL SLABS)

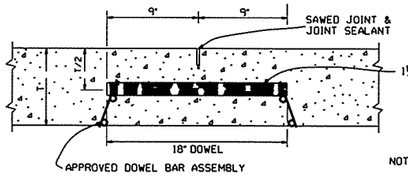


DETAIL OF SAWED CONTRACTION JOINT



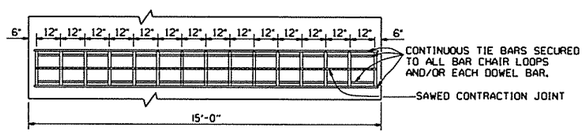
*NOTE: T/3 SAW CUT NOT REQUIRED FOR LONGITUDINAL CONSTRUCTION JOINT.

DETAIL OF SAWED
WARPING JOINT



NOTE: EACH DOWEL TO BE COATED THE ENTIRE LENGTH OF THE BAR UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

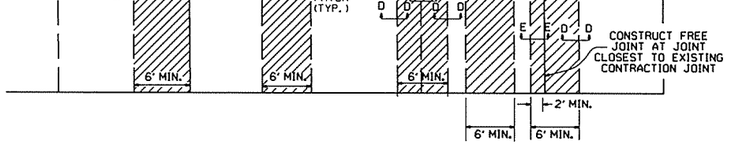
SECTION C-C



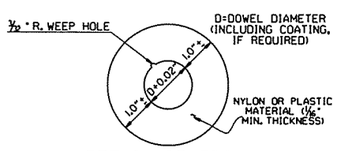
15' PAVEMENT
15 DOWELS
PLAN - CONTRACTION JOINT

NOTE: FOR 15' PAVEMENT USE 15 DOWELS @ 12" CTRS. WITH 6" SPACING FROM C.L. AND EDGE OF SLAB TO FIRST BAR. FOR PAVEMENT WIDTHS OTHER THAN THOSE SHOWN ABOVE, USE DOWELS AT 12" CTRS. WITH 6" MAX. SPACING FROM C.L. TO FIRST BAR. DISTANCE FROM EDGE OF SLAB TO FIRST BAR SHALL BE ADJUSTED TO MAINTAIN 12" DOWEL BAR SPACING

CONTRACTION JOINT DETAILS



PLAN OF PAVEMENT REPAIR
(PARTIAL SLABS)



DETAIL OF EPOXY
RETENTION DISK

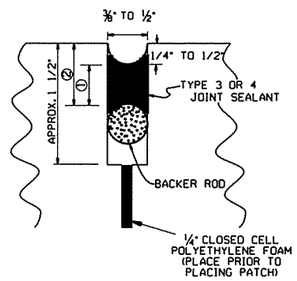
NOTE: EPOXY RETENTION DISK SHALL BE SLIPPED TIGHTLY OVER TIE BARS AND FIRMLY AGAINST THE SLAB FACE AFTER INSERTING TIE BAR AND EPOXY INTO HOLE

JOINT CONFIGURATION FOR
TYPE 3 OR 4 JOINT SEALANT

JOINT WIDTH	SEALANT THICKNESS ①	BACKER ROD DIAMETER	BACKER ROD PLACEMENT DEPTH ②
INCHES			
¼	¼	⅜	½
⅜	¼	½	½
½	¼	⅝	½

JOINT CONFIGURATION FOR
TYPE 5 JOINT SEALANT

JOINT WIDTH	SEALANT THICKNESS ①	BACKER ROD DIAMETER	BACKER ROD PLACEMENT DEPTH ②
INCHES			
¼	½	⅜	¾
⅜	¾	½	1



DETAIL OF SAWED FREE
TRANSVERSE JOINT

NOTES FOR PAVEMENT REPAIR

1. EXACT SIZE AND LOCATION OF AREA TO BE REPAIRED SHALL BE DETERMINED BY THE ENGINEER. ALL PATCHES SHALL EXTEND ACROSS THE FULL WIDTH OF THE SLAB AS SHOWN IN THESE DETAILS.
2. THE FINAL SURFACE FINISH FOR PATCHES SHALL MATCH THAT OF THE EXISTING PAVEMENT.
3. WHEN AREA TO BE REPAIRED INCLUDES AN EXISTING JOINT, THE JOINT SHALL BE RECONSTRUCTED TO THE CONFIGURATION SHOWN IN THESE DETAILS.
4. ALL REPAIRED AREAS SHALL BE REINFORCED WITH MESH FABRIC AS SHOWN. DEPTH OF MESH PLACEMENT SHALL HAVE A TOLERANCE OF +1INCH. MESH FABRIC SHALL BE 12 x 12 - W4 x W4 WELDED WIRE FABRIC (MINIMUM WIRE SIZE). LAPS SHALL BE MINIMUM 6" IN EACH DIRECTION. MINIMUM COVER AT EDGES SHALL BE 2".
5. FORMS FOR PAVEMENT REPAIR SHALL BE METAL UNLESS OTHERWISE APPROVED BY THE ENGINEER.
6. CLOSED CELL POLYETHYLENE FOAM SHALL BE SECURED TO SAWED FACE OF EXISTING P.C.C. PAVEMENT WITH ADHESIVE OR ADHESIVE TAPE AS APPROVED BY THE ENGINEER AND TRIMMED FLUSH WITH TOP OF EXISTING SLAB TO PREVENT DISPLACEMENT WHEN THE PATCH IS BEING PLACED.
7. WHEN THE PATCH IS PLACED OVER GRANULAR BASE, REMOVE ANY LOOSE BASE MATERIAL, COMPACT REMAINING BASE AS NECESSARY AND PLACE PATCH. WHEN PATCH IS PLACED OVER TREATED BASE, REMOVE ANY LOOSE BASE MATERIAL AND PLACE PATCH.
8. ¼" THICK COMPRESSIBLE MATERIAL SHALL BE ATTACHED TO THE ENDS OF DOWEL BARS AT ALL FREE TRANSVERSE JOINTS (SEE SECTION E-E). THE MATERIAL SHALL BE THE SAME DIAMETER AS THE DOWEL BAR. A PLASTIC CAP OR OTHER TYPE OF DEVICE MAY BE USED WITH THE APPROVAL OF THE ENGINEER.
9. DOWEL BARS SHALL BE PLACED IN ACCORDANCE WITH THE DIMENSIONS SHOWN. A TOLERANCE OF PLUS OR MINUS ONE INCH WILL BE ALLOWED FOR VERTICAL AND LATERAL PLACEMENT AND A TOLERANCE OF PLUS OR MINUS ¼" WILL BE ALLOWED FOR THE TILT AND SKEW.

DETAILS OF PORTLAND CEMENT
CONCRETE PAVEMENT PATCHING
(RAMPS)

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-3-15

11/9/2015

RBB0310.DGN

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.		BB0310	12	75

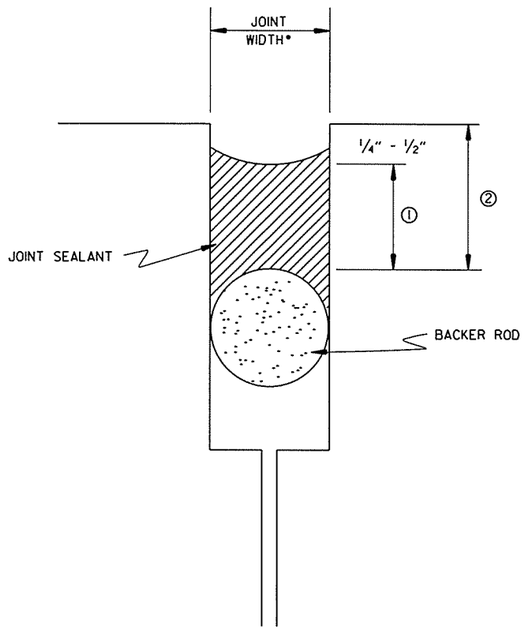
(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-3-15

JOINT CONFIGURATION FOR TYPE 3 & 4 JOINT SEALANT

JOINT WIDTH	SEALANT THICKNESS ①	BACKER ROD DIAMETER	BACKER ROD PLACEMENT DEPTH ②
	INCHES		
1/4	1/4	3/8	1/2
3/8	1/4	1/2	1/2
1/2	1/4	5/8	1/2
5/8	5/16	3/4	9/16
3/4	3/8	7/8	7/8
7/8	7/16	1	11/16
1	1/2	1 1/4	3/4
1 TO 1 1/2	1/2	1 1/4 +	3/4

NOTE: JOINTS GREATER THAN 1 1/2" IN WIDTH SHALL BE SEALED WITH TYPE 5 JOINT SEALANT.



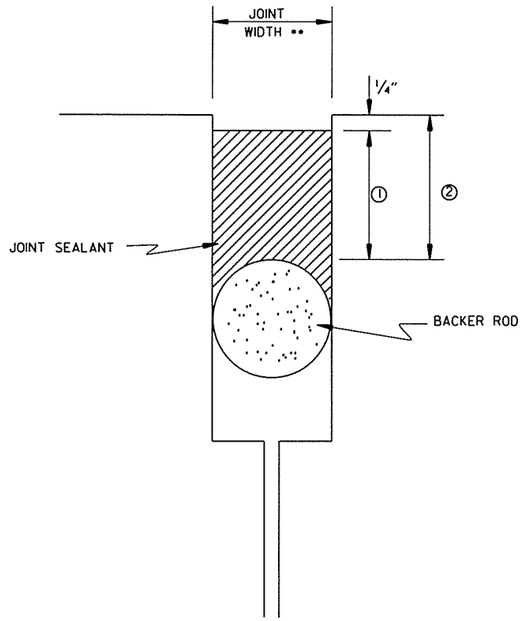
DETAILS OF TYPE A OR TYPE B JOINT REHABILITATION

• CONTRACTION JOINTS SHALL BE SAWED TO MIN. WIDTH OF 3/8".

WARPING & LONGITUDINAL JOINTS SHALL BE SAWED TO MIN. WIDTH OF EXISTING WIDTH +1/8" (1/16" ON EACH SIDE).

JOINT CONFIGURATION FOR TYPE 5 JOINT SEALANT

JOINT WIDTH	APPROX. WIDTH TO DEPTH RATIO	SEALANT THICKNESS ①	BACKER ROD DIAMETER	BACKER ROD PLACEMENT DEPTH ②
INCHES		INCHES		
1/4	1:2	1/2	3/8	3/4
3/8		3/4	1/2	1
1/2		1	5/8	1 1/4
5/8		1 1/4	3/4	1 1/2
3/4	1:1.75	1 3/8	7/8	1 5/8
7/8		1 1/2	1	1 3/4
1	1:1.6	1 5/8	1 1/4	1 7/8
1 TO 3		1 5/8 +	1 1/4 +	1 7/8 +



DETAILS OF TYPE B JOINT REHABILITATION

•• WARPING & LONGITUDINAL JOINTS SHALL BE SAWED TO MIN. WIDTH OF EXISTING WIDTH +1/8" (1/16" ON EACH SIDE).

NOTE:

FOR JOINTS WIDER THAN 1 1/2", THE CONTRACTOR SHALL HAVE THE OPTION OF COMPLETELY FILLING THE JOINT IN LIEU OF USING A BACKER ROD.

REFER TO SECTION 509 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL INFORMATION.

11/9/2015

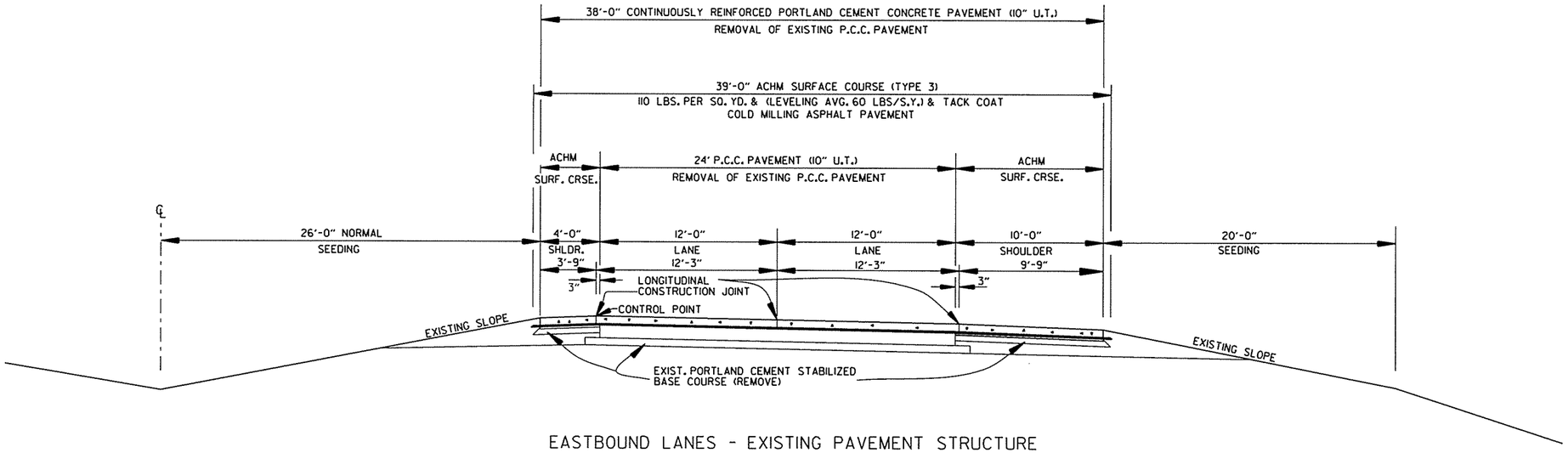
RBB0310.DGN

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.		BB0310	13	75

(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-3-15



EASTBOUND LANES - EXISTING PAVEMENT STRUCTURE

(SHOWN IN DIRECTION OF TRAFFIC)
FOR INFORMATION ONLY
EXISTING PAVEMENT DEPTH MAY VARY

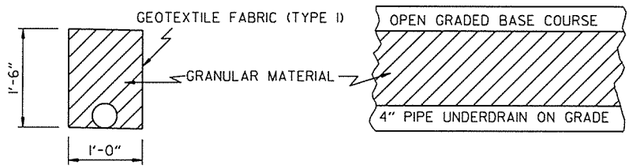
9/11/2015

RBB0310.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0310	14	75

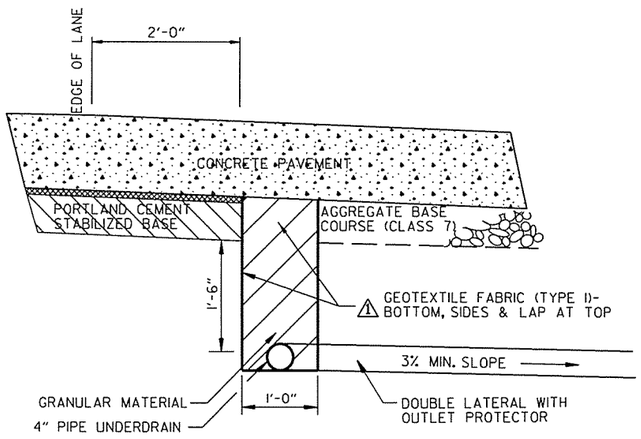
(2) SPECIAL DETAILS

DETAILS OF PIPE UNDERDRAINS

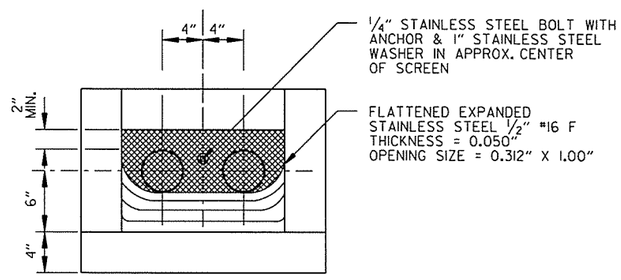


NOTE: GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF SECTION 625 FOR TYPE I.

⚠1 IN LIEU OF LAPPING THE GEOTEXTILE FABRIC, THE CONTRACTOR MAY (WITH APPROVAL OF THE ENGINEER) UTILIZE AN ALTERNATE METHOD FOR PROVIDING POSITIVE CLOSURE.



SECTION A-A
FULL DEPTH CONSTRUCTION



DETAIL OF RODENT SCREEN

NOTES FOR PIPE UNDERDRAINS

1. GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF SECTION 625 FOR TYPE I. PAYMENT FOR GEOTEXTILE FABRIC AND GRANULAR FILTER MATERIAL SHALL BE INCLUDED IN THE PRICE BID PER LIN. FT. FOR "4" PIPE UNDERDRAINS" IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.

2. 4" NON-PERFORATED SCHEDULE 40 PVC PIPE LATERALS WITH OUTLET PROTECTORS SHALL BE INSTALLED AS SHOWN HEREON OR AS ON STD. DWG. PU-1. LATERALS WILL BE MEASURED AND PAID FOR AS "4" PIPE UNDERDRAINS." UNDERDRAIN OUTLET PROTECTORS WILL BE MEASURED AND PAID FOR BY THE UNIT IN ACCORDANCE WITH SECTION 611 OF THE STANDARD SPECIFICATIONS.

3. 4" PIPE UNDERDRAINS SHALL BE PLACED ON THE LOW SIDE OF SUPERELEVATED ROADWAYS AS SHOWN ON THE TYPICAL SECTIONS. 4" PIPE UNDERDRAINS SHALL BE CONNECTED TO MEDIAN DROP INLETS WHERE DIRECTED BY THE ENGINEER. PAYMENT FOR CONNECTING TO DROP INLETS SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR "4" PIPE UNDERDRAINS."

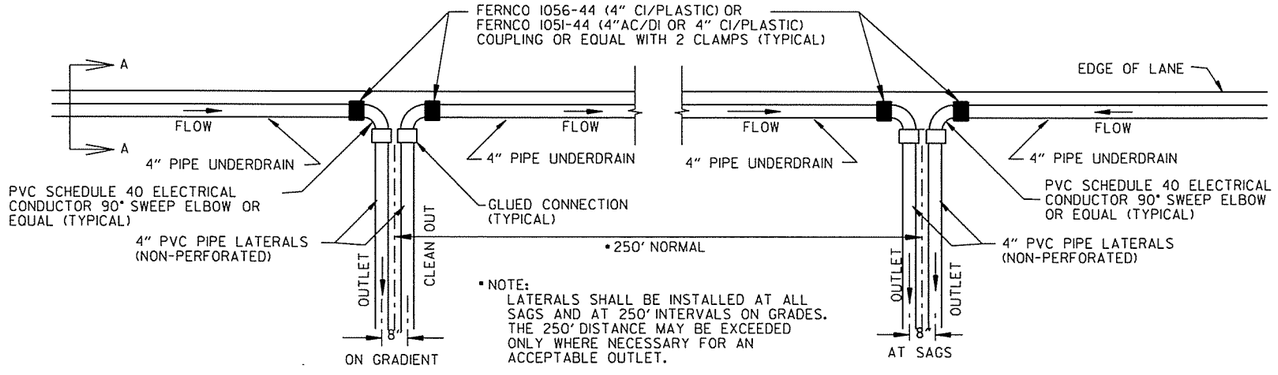
4. THE LOCATION OF ALL LATERALS SHALL BE MARKED WITH 4" X 12" PERMANENT PAVEMENT MARKING TAPE (TYPE III WHITE) AT THE OUTSIDE EDGE OF THE SHOULDER, PLACED TRANSVERSE TO TRAFFIC. PAYMENT SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

5. THE RODENT SCREEN SHOWN HEREON SHALL BE USED IN LIEU OF THE RODENT SCREEN SHOWN ON STD. DWG. PU-1. PAYMENT FOR THE RODENT SCREEN SHALL BE INCLUDED IN THE PRICE BID PER EACH FOR "UNDERDRAIN OUTLET PROTECTORS."

6. ANY EXISTING UNDERDRAINS THAT INTERFERE WITH INSTALLATION OF THE NEW UNDERDRAIN SYSTEM SHALL BE REMOVED AND DISPOSED OF AS DIRECTED BY THE ENGINEER. PAYMENT FOR LATERALS TO BE REMOVED OR ABANDONED SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.

7. AT LOCATIONS WHERE A SINGLE LATERAL IS USED, THE CONTRACTOR SHALL HAVE THE FOLLOWING OPTIONS: 1.) INSTALL OUTLET PROTECTOR AS SHOWN ON STANDARD DRAWING PU-1 AND GROUT THE UNUSED HOLE OR 2.) INSTALL AN OUTLET PROTECTOR WITH A SINGLE HOLE. PAYMENT SHALL BE INCLUDED IN THE PRICE BID EACH FOR "UNDERDRAIN OUTLET PROTECTORS."

8. 4" PIPE UNDERDRAIN SHALL BE PLACED SUCH THAT POSITIVE DRAINAGE IS ACHIEVED.



PLAN DETAIL OF PIPE UNDERDRAIN LATERALS

NOTE:
PVC PIPE FOR LATERALS SHALL MEET THE REQUIREMENTS OF ASTM D 1785 (LATEST REVISION) FOR SCHEDULE 40 PIPE. UNDERDRAIN OUTLET PROTECTORS SHALL BE INSTALLED ON NEW LATERALS. (REFER TO STD. DWG. PU-1. & NOTE #5.)

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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.	BB0310		15	75

(2) TEMPORARY EROSION CONTROL DETAILS

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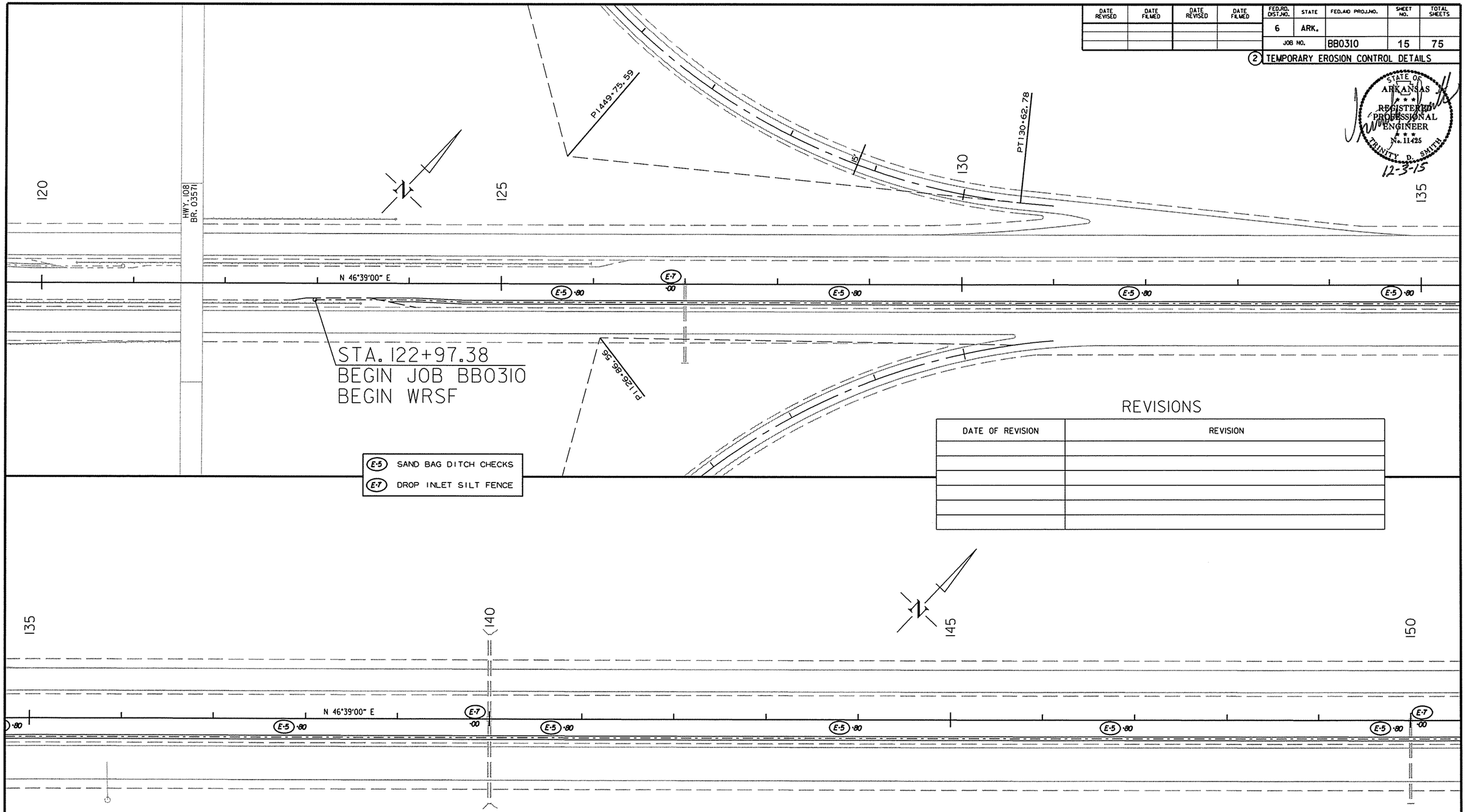

REVISIONS

DATE OF REVISION	REVISION

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TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0310	16	75

(2) TEMPORARY EROSION CONTROL DETAILS

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REGISTERED PROFESSIONAL ENGINEER
No. 11425
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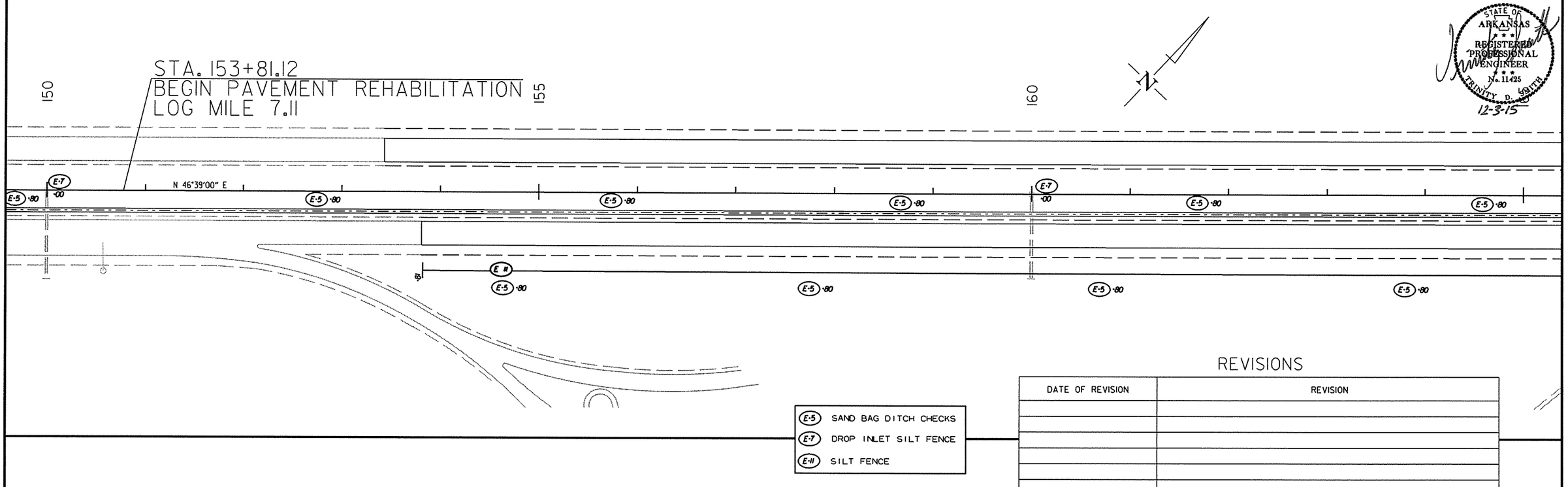
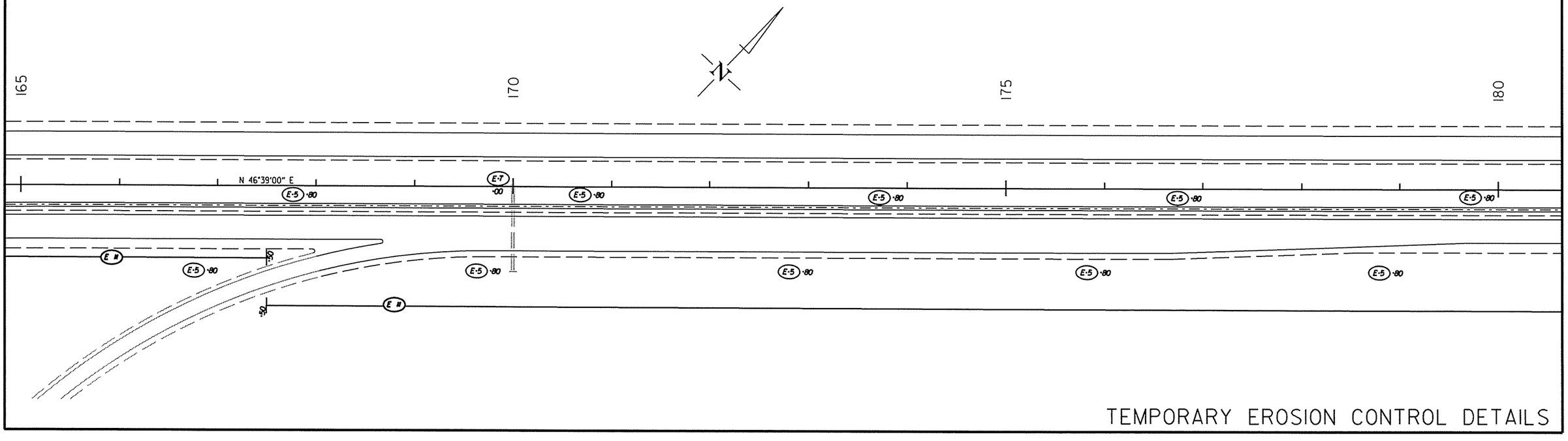
12-3-15





(E-5) SAND BAG DITCH CHECKS
(E-7) DROP INLET SILT FENCE
(E-11) SILT FENCE

REVISIONS

DATE OF REVISION	REVISION

10/20/2015

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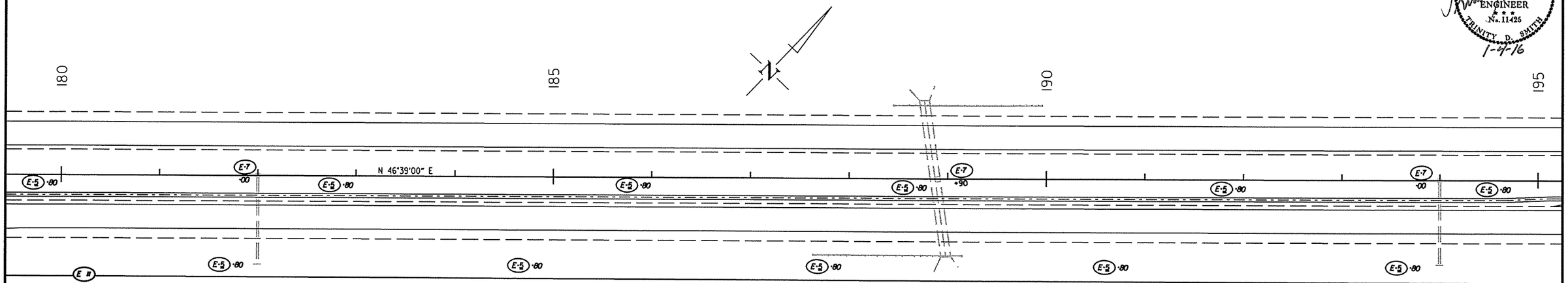
TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
12-31-15				6	ARK.			
				JOB NO.		BB0310	17	75

(2) TEMPORARY EROSION CONTROL DETAILS

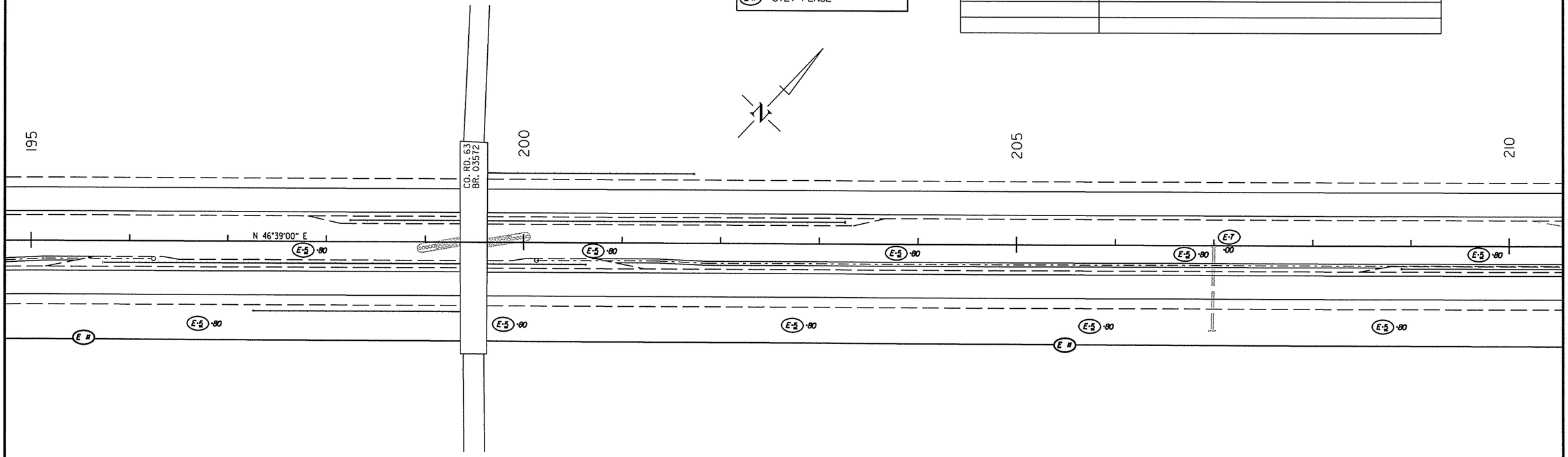
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-4-16



E-5 SAND BAG DITCH CHECKS
E-7 DROP INLET SILT FENCE
E-11 SILT FENCE

REVISIONS

DATE OF REVISION	REVISION



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TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
12-31-15				6	ARK.			
				JOB NO.		BB0310	18	75

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
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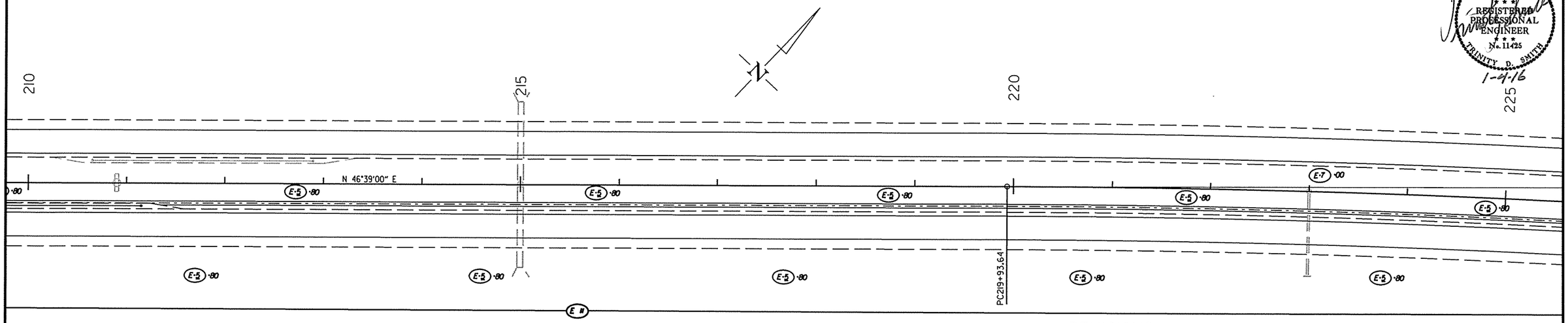
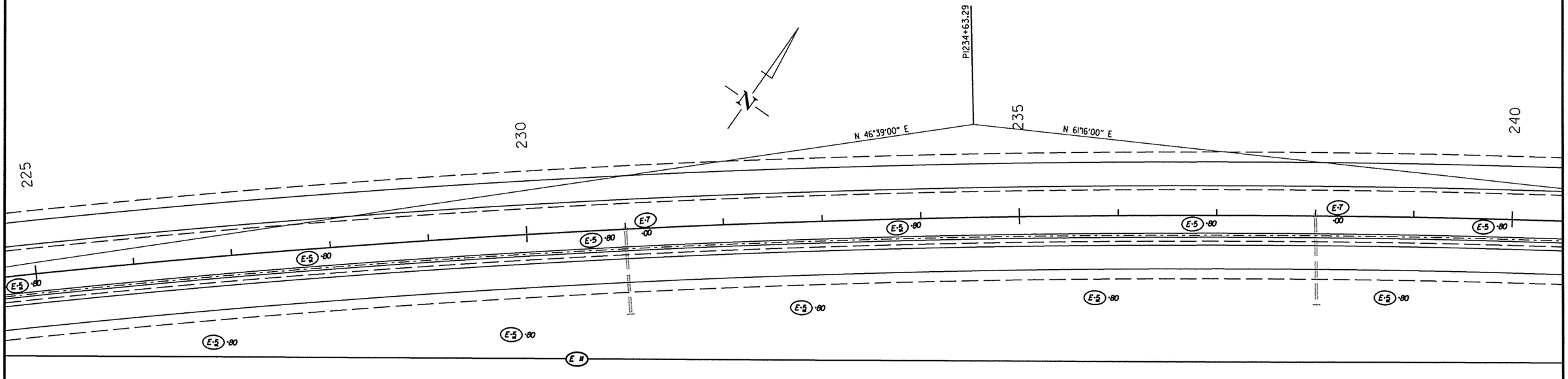
1-4-16



(E-5) SAND BAG DITCH CHECKS
(E-7) DROP INLET SILT FENCE
(E-11) SILT FENCE

REVISIONS

DATE OF REVISION	REVISION



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TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0310	19	75

(2) TEMPORARY EROSION CONTROL DETAILS

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No. 11425
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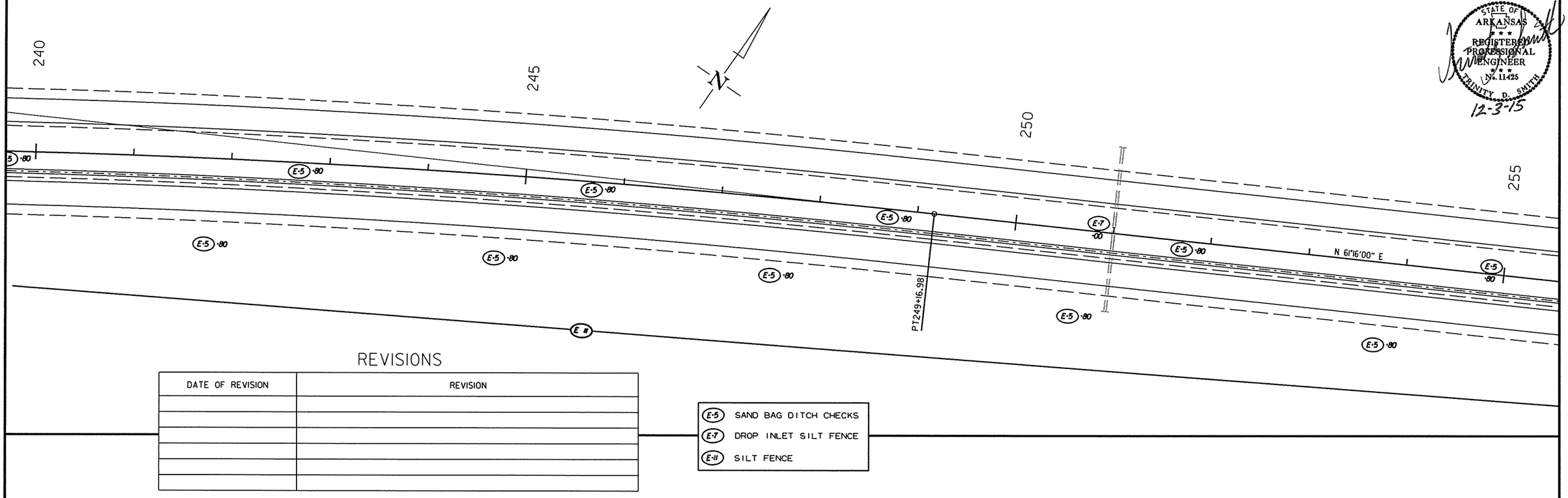
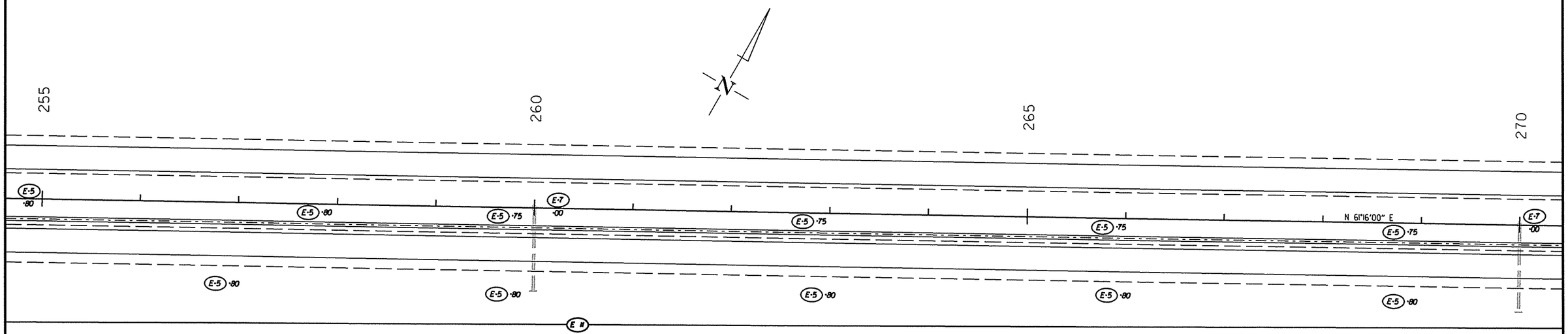


REVISIONS

DATE OF REVISION	REVISION

(E-5) SAND BAG DITCH CHECKS
(E-7) DROP INLET SILT FENCE
(E-11) SILT FENCE



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TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0310	20	75

(2) TEMPORARY EROSION CONTROL DETAILS

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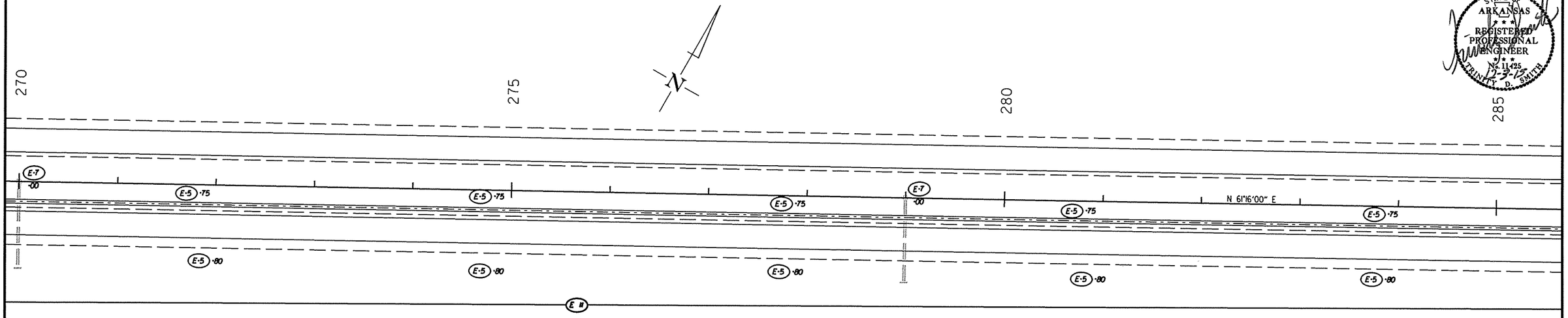
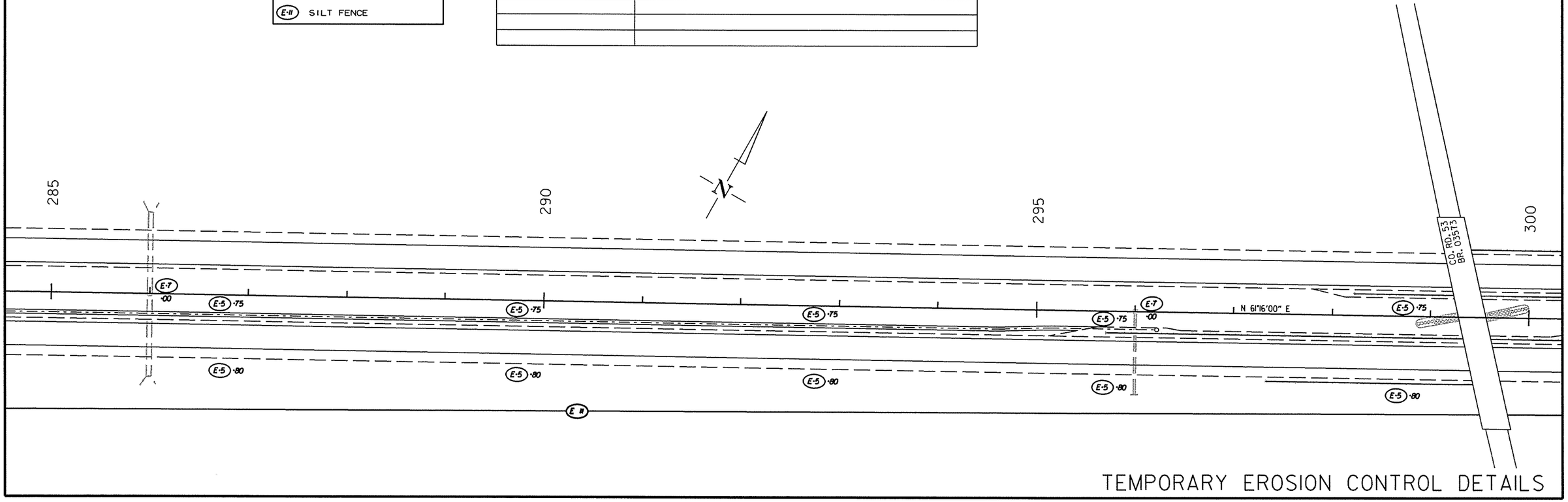


(E-5) SAND BAG DITCH CHECKS
(E-7) DROP INLET SILT FENCE
(E-11) SILT FENCE

REVISIONS

DATE OF REVISION	REVISION



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TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0310	21	75

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
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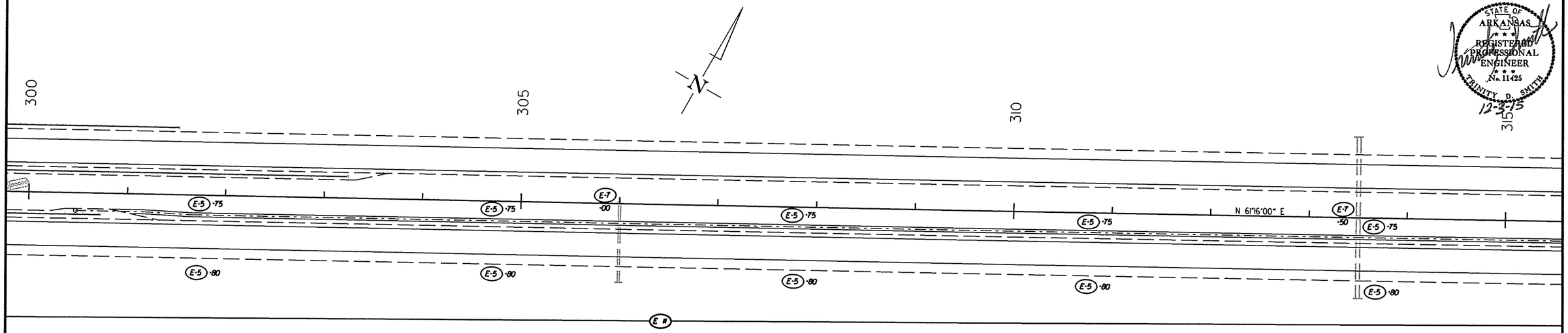
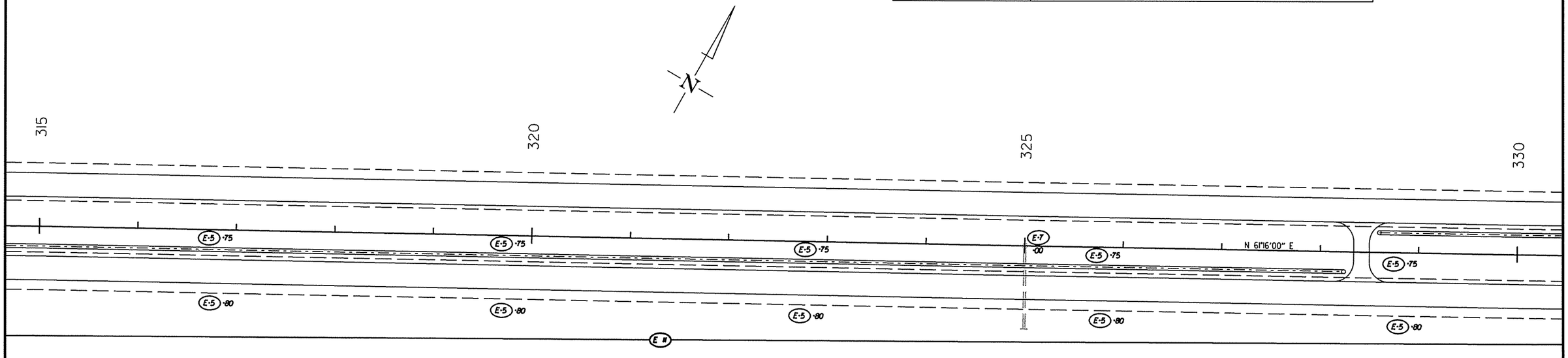


(E-5) SAND BAG DITCH CHECKS
(E-7) DROP INLET SILT FENCE
(E-11) SILT FENCE

REVISIONS

DATE OF REVISION	REVISION



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TEMPORARY EROSION CONTROL DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0310	22	75

(2) TEMPORARY EROSION CONTROL DETAILS

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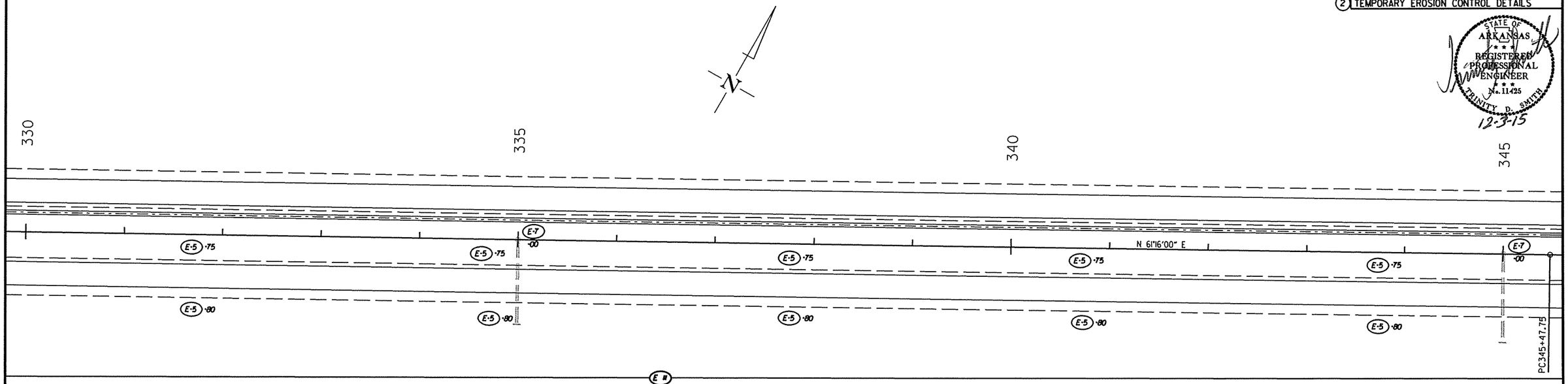
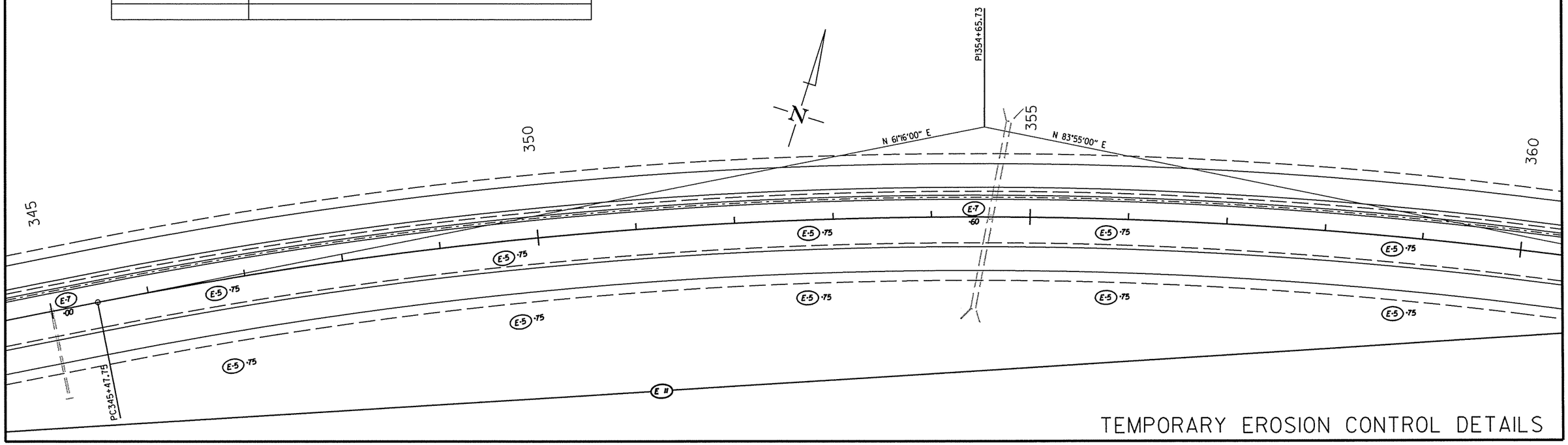


REVISIONS

DATE OF REVISION	REVISION

(E-5) SAND BAG DITCH CHECKS
(E-7) DROP INLET SILT FENCE
(E-11) SILT FENCE



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TEMPORARY EROSION CONTROL DETAILS

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				6	ARK.			
				JOB NO.		BB0310	23	75

(2) TEMPORARY EROSION CONTROL DETAILS

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DATE OF REVISION	REVISION

- (E-5) SAND BAG DITCH CHECKS
- (E-7) DROP INLET SILT FENCE
- (E-11) SILT FENCE

STA. 379+84.68
END WRSF
LOG MILE 11.38

STA. 379+05.35
END FULL DEPTH
RECONSTRUCTION

BR. NO. A3796

BR. NO. B3796

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TEMPORARY EROSION CONTROL DETAILS

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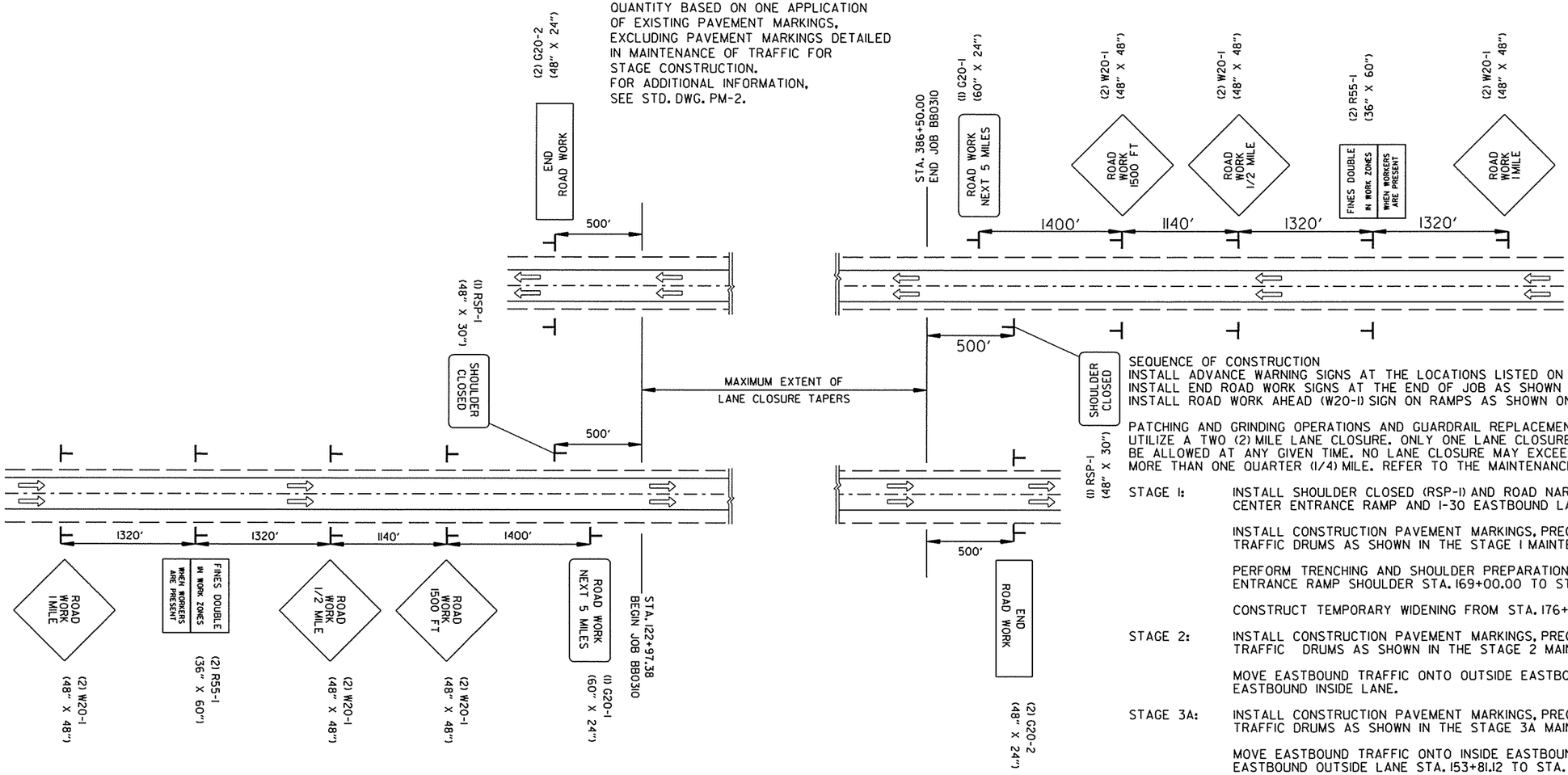
				6	ARK.			
				JOB NO.		BB0310	24	75

(2) MAINTENANCE OF TRAFFIC DETAILS

NOTE:
CONSTRUCTION PAVEMENT MARKINGS QUANTITY BASED ON ONE APPLICATION OF EXISTING PAVEMENT MARKINGS, EXCLUDING PAVEMENT MARKINGS DETAILED IN MAINTENANCE OF TRAFFIC FOR STAGE CONSTRUCTION.
FOR ADDITIONAL INFORMATION, SEE STD. DWG. PM-2.



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SEQUENCE OF CONSTRUCTION
INSTALL ADVANCE WARNING SIGNS AT THE LOCATIONS LISTED ON THE ADVANCE WARNING DETAILS.
INSTALL END ROAD WORK SIGNS AT THE END OF JOB AS SHOWN ON THE ADVANCE WARNING DETAILS.
INSTALL ROAD WORK AHEAD (W20-1) SIGN ON RAMPS AS SHOWN ON THE ADVANCE WARNING DETAILS.

PATCHING AND GRINDING OPERATIONS AND GUARDRAIL REPLACEMENT IN THE WESTBOUND LANES SHALL UTILIZE A TWO (2) MILE LANE CLOSURE. ONLY ONE LANE CLOSURE IN THE WESTBOUND LANES WILL BE ALLOWED AT ANY GIVEN TIME. NO LANE CLOSURE MAY EXCEED THE ACTIVE WORK AREA BY MORE THAN ONE QUARTER (1/4) MILE. REFER TO THE MAINTENANCE OF TRAFFIC SPECIAL PROVISION.

STAGE 1: INSTALL SHOULDER CLOSED (RSP-1) AND ROAD NARROWS 500' (W5-1) ON WELCOME CENTER ENTRANCE RAMP AND I-30 EASTBOUND LANES.

INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

PERFORM TRENCHING AND SHOULDER PREPARATION ON 6 FT. OF WELCOME CENTER ENTRANCE RAMP SHOULDER STA. 169+00.00 TO STA. 176+65.59.

CONSTRUCT TEMPORARY WIDENING FROM STA. 176+65.59 TO STA. 181+85.00

STAGE 2: INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

MOVE EASTBOUND TRAFFIC ONTO OUTSIDE EASTBOUND LANE AND RECONSTRUCT EASTBOUND INSIDE LANE.

STAGE 3A: INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 3A MAINTENANCE OF TRAFFIC DETAILS.

MOVE EASTBOUND TRAFFIC ONTO INSIDE EASTBOUND LANE AND RECONSTRUCT EASTBOUND OUTSIDE LANE STA. 153+81.12 TO STA. 180+48.00.

CONSTRUCT TEMPORARY EXIT RAMP FOR HWY. 67 STA. 371+00.00 TO STA. 379+24.77.

STAGE 3B: INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 3B MAINTENANCE OF TRAFFIC DETAILS.

MAINTAIN EASTBOUND TRAFFIC ON INSIDE EASTBOUND LANE AND RECONSTRUCT EASTBOUND OUTSIDE LANE STA. 180+48.00 TO STA. 372+38.57.

STAGE 3C: INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 3C MAINTENANCE OF TRAFFIC DETAILS.

MAINTAIN EASTBOUND TRAFFIC ON INSIDE EASTBOUND LANE AND RECONSTRUCT EASTBOUND OUTSIDE LANE STA. 372+38.57 TO STA. 386+50.00.

REMOVE TEMPORARY EXIT RAMP STA. 371+00.00 TO STA. 379+24.77.

STAGE 4: CONSTRUCT GUARDRAIL WIDENING, GUARDRAIL AND WIRE ROPE SAFETY FENCE, PLACE PERMANENT PAVEMENT MARKINGS.

ADVANCE SIGNS AT JOB ENDS MAINTENANCE OF TRAFFIC DETAILS

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				6	ARK.			
				JOB NO.		BB0310	25	75

(2) MAINTENANCE OF TRAFFIC DETAILS

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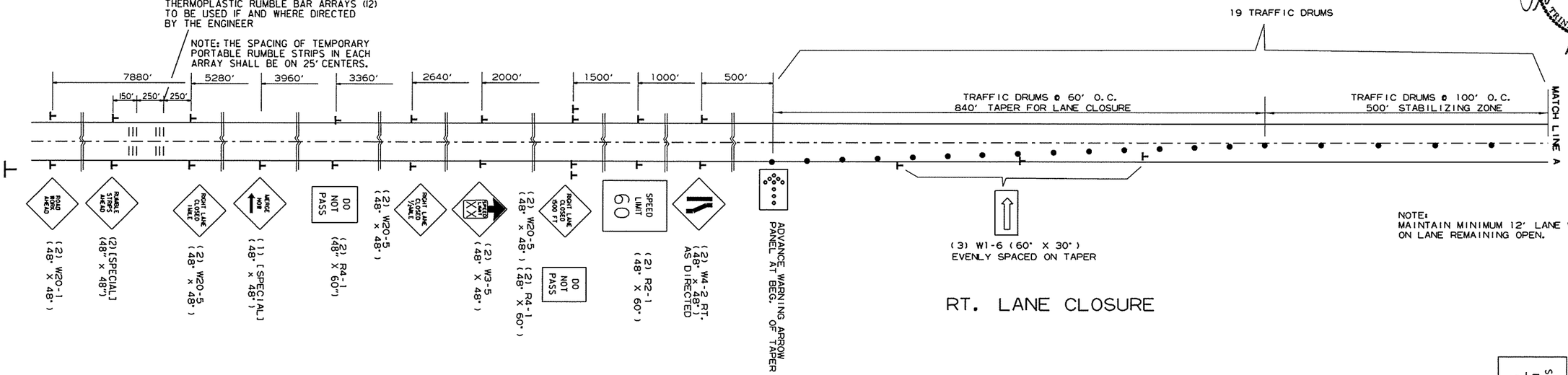
PORTABLE CHANGEABLE MESSAGE SIGN TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

THERMOPLASTIC RUMBLE BAR ARRAYS (12) TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER

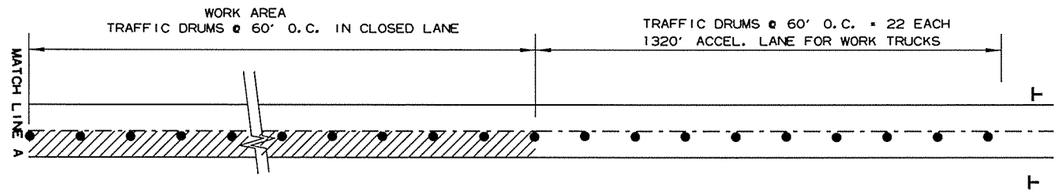
NOTE: THE SPACING OF TEMPORARY PORTABLE RUMBLE STRIPS IN EACH ARRAY SHALL BE ON 25' CENTERS.



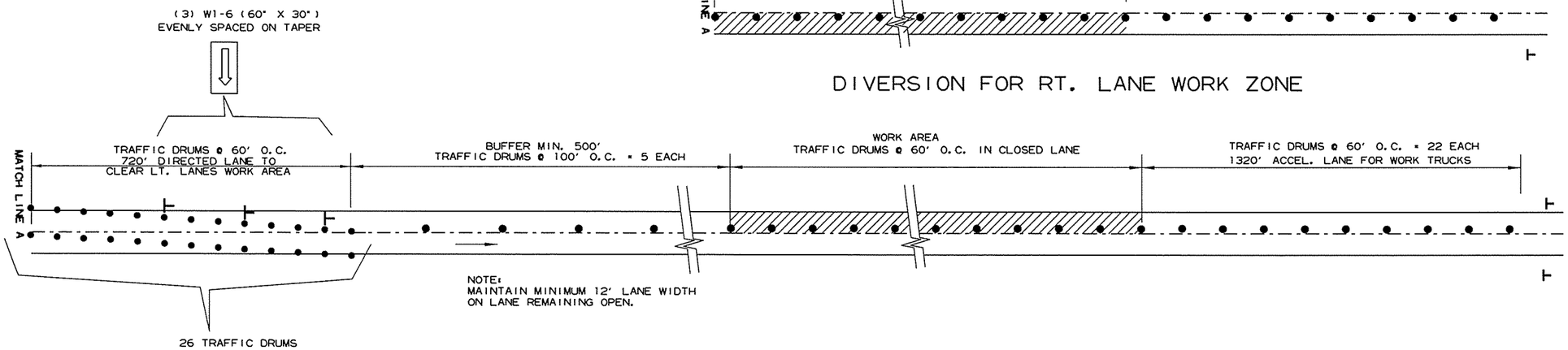
RT. LANE CLOSURE

NOTE:
MAINTAIN MINIMUM 12' LANE WIDTH ON LANE REMAINING OPEN.

SPEED LIMIT SIGNS ARE ALSO PROVIDED FOR PLACEMENT PAST ENTRANCE RAMPS WITHIN THE WORK ZONE.



DIVERSION FOR RT. LANE WORK ZONE



DIVERSION FOR LT. LANE WORK ZONE

SPEED LIMIT 70
(2) R2-1 (48" X 60")

SPEED LIMIT 70
(2) R2-1 (48" X 60")

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LANE CLOSURE MAINTENANCE OF TRAFFIC DETAILS

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				6	ARK.			
				JOB NO.		BB0310	26	75

(2) MAINTENANCE OF TRAFFIC DETAILS

ADVANCE WARNING SIGNS FOR ENTRANCE AND EXIT RAMPS
ROAD WORK AHEAD (3) = 48 SQ. FT.
END ROAD WORK (3) = 24 SQ. FT.

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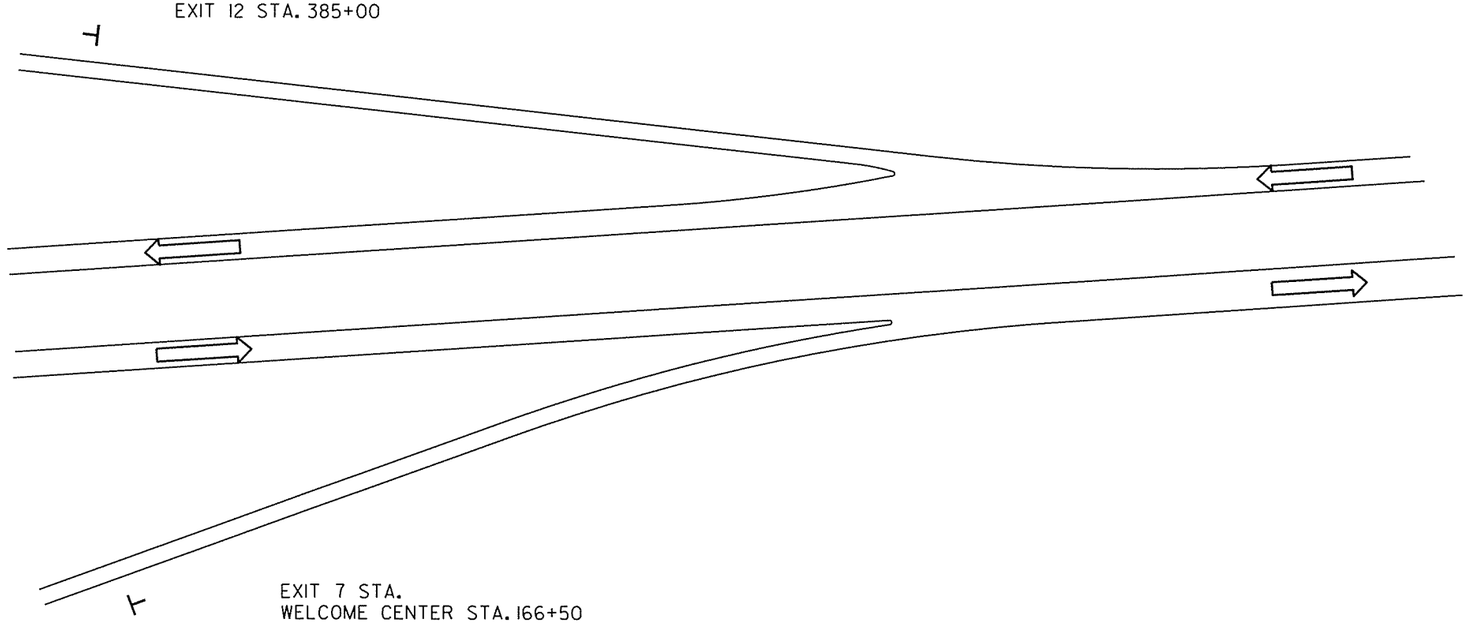
(1) G20-2 (48" X 24")
END ROAD WORK

EXIT 7 STA. 128+50
WELCOME CENTER STA. 154+50
EXIT 12 STA. 385+00



EXIT 7 STA.
WELCOME CENTER STA. 166+50
EXIT 12 STA. 389+00

ROAD WORK AHEAD

(1) W20-1 (48" X 48")

DETAIL OF ENTRANCE AND EXIT RAMPS
EXIT 7
WELCOME CENTER
EXIT 12

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DETAIL OF RAMPS
MAINTENANCE OF TRAFFIC DETAILS

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				6	ARK.			
				JOB NO.		BB0310	27	75

(2) MAINTENANCE OF TRAFFIC DETAILS

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REGISTERED PROFESSIONAL ENGINEER
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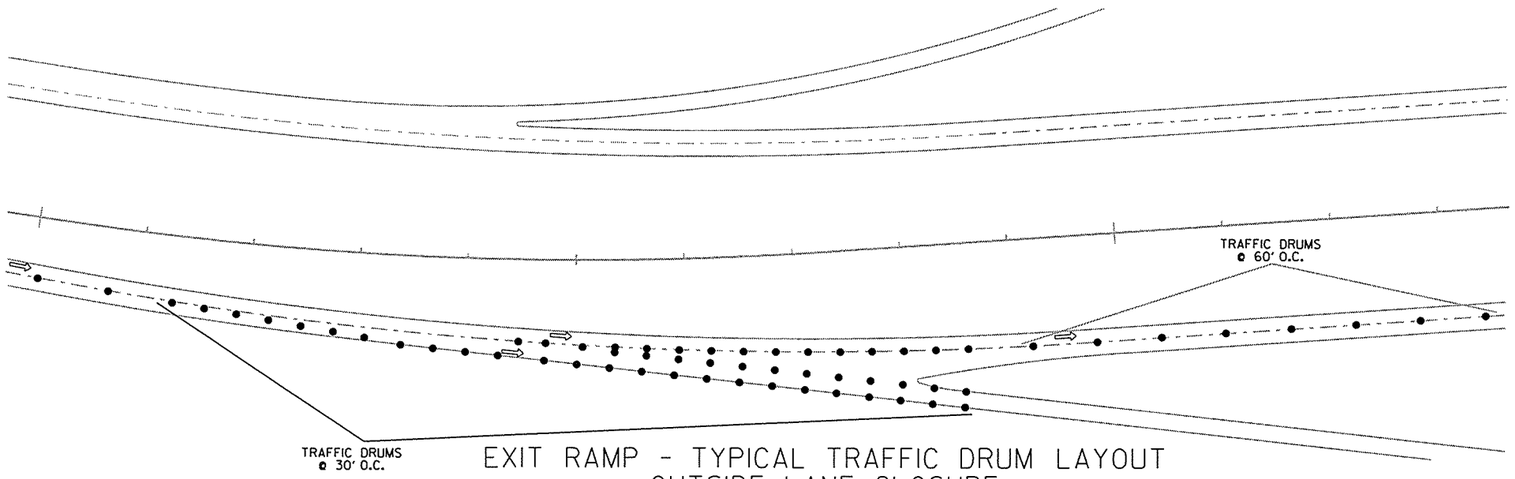
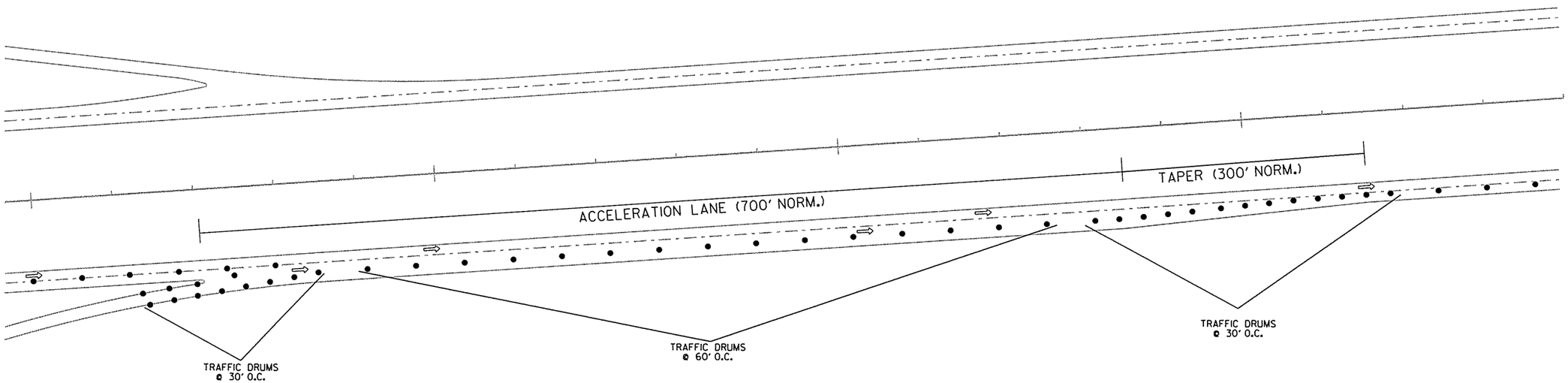
12-3-15



EXIT RAMP - TYPICAL TRAFFIC DRUM LAYOUT
OUTSIDE LANE CLOSURE



ENTRANCE RAMP - EASTBOUND MAIN LANES
ACCELERATION LANE CLOSURE

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DETAIL OF RAMPS WITH LANE CLOSURE
MAINTENANCE OF TRAFFIC DETAILS

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				6	ARK.			
				JOB NO.		BB0310	28	75

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
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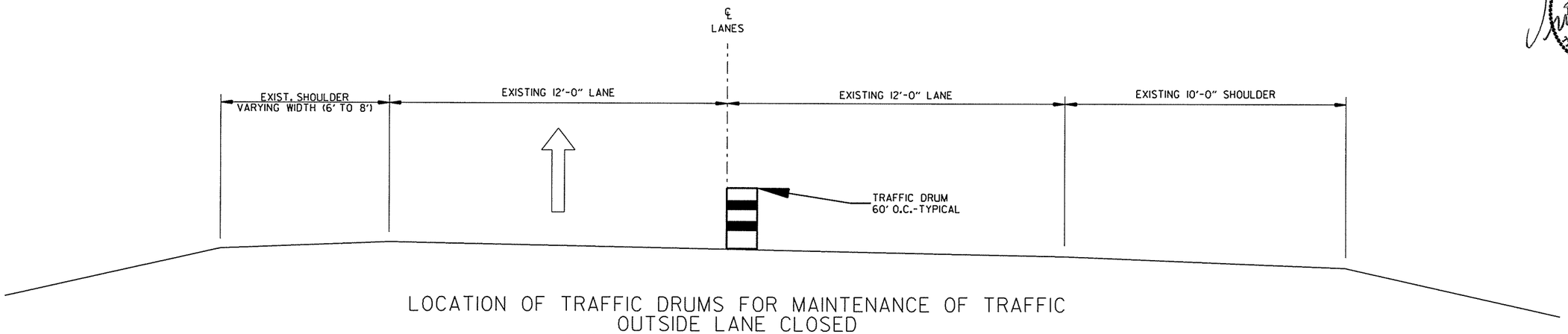
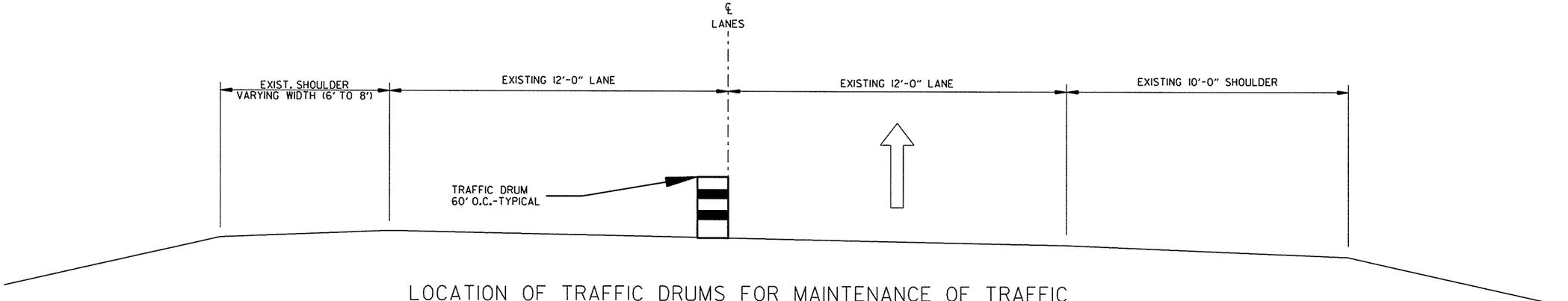
REGISTERED PROFESSIONAL ENGINEER
12-3-15



LOCATION OF TRAFFIC DRUMS FOR MAINTENANCE OF TRAFFIC
OUTSIDE LANE CLOSED
(SHOWN IN DIRECTION OF TRAFFIC)



LOCATION OF TRAFFIC DRUMS FOR MAINTENANCE OF TRAFFIC
INSIDE LANE CLOSED
(SHOWN IN DIRECTION OF TRAFFIC)

10/1/2015

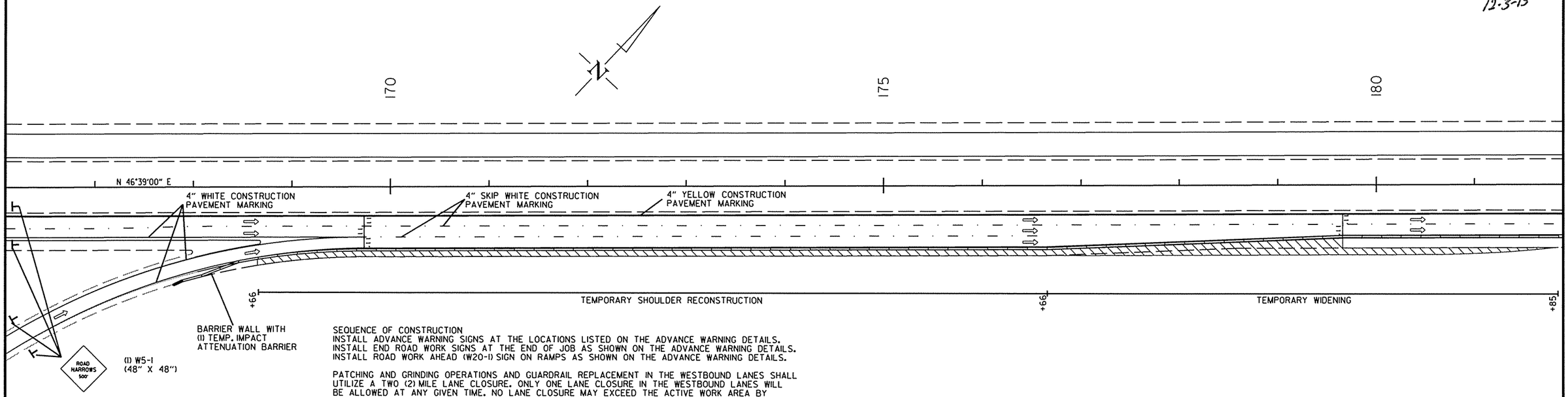
RBB0310.DGN

MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0310	29	75

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-3-15



SEQUENCE OF CONSTRUCTION
INSTALL ADVANCE WARNING SIGNS AT THE LOCATIONS LISTED ON THE ADVANCE WARNING DETAILS.
INSTALL END ROAD WORK SIGNS AT THE END OF JOB AS SHOWN ON THE ADVANCE WARNING DETAILS.
INSTALL ROAD WORK AHEAD (W20-1) SIGN ON RAMPS AS SHOWN ON THE ADVANCE WARNING DETAILS.

PATCHING AND GRINDING OPERATIONS AND GUARDRAIL REPLACEMENT IN THE WESTBOUND LANES SHALL UTILIZE A TWO (2) MILE LANE CLOSURE. ONLY ONE LANE CLOSURE IN THE WESTBOUND LANES WILL BE ALLOWED AT ANY GIVEN TIME. NO LANE CLOSURE MAY EXCEED THE ACTIVE WORK AREA BY MORE THAN ONE QUARTER (1/4) MILE. REFER TO THE MAINTENANCE OF TRAFFIC SPECIAL PROVISION.

STAGE 1: INSTALL SHOULDER CLOSED (RSP-1) AND ROAD NARROWS 500' (W5-1) ON WELCOME CENTER ENTRANCE RAMP AND I-30 EASTBOUND LANES.

INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

PERFORM TRENCHING AND SHOULDER PREPARATION ON 6 FT. OF WELCOME CENTER ENTRANCE RAMP SHOULDER STA. 169+00.00 TO STA. 176+65.59.

CONSTRUCT TEMPORARY WIDENING FROM STA. 176+56.59 TO STA. 181+85

STAGE 2: INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

MOVE EASTBOUND TRAFFIC ONTO OUTSIDE EASTBOUND LANE AND RECONSTRUCT EASTBOUND INSIDE LANE.

STAGE 3A: INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 3A MAINTENANCE OF TRAFFIC DETAILS.

MOVE EASTBOUND TRAFFIC ONTO INSIDE EASTBOUND LANE AND RECONSTRUCT EASTBOUND OUTSIDE LANE STA. 153+81.12 TO STA. 180+48.00.

CONSTRUCT TEMPORARY EXIT RAMP FOR HWY. 67 STA. 371+00.00 TO STA. 379+24.77.

STAGE 3B: INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 3B MAINTENANCE OF TRAFFIC DETAILS.

MAINTAIN EASTBOUND TRAFFIC ON INSIDE EASTBOUND LANE AND RECONSTRUCT EASTBOUND OUTSIDE LANE STA. 180+48.00 TO STA. 372+38.57.

STAGE 3C: INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 3C MAINTENANCE OF TRAFFIC DETAILS.

MAINTAIN EASTBOUND TRAFFIC ON INSIDE EASTBOUND LANE AND RECONSTRUCT EASTBOUND OUTSIDE LANE STA. 372+38.57 TO STA. 386+50.00.

REMOVE TEMPORARY EXIT RAMP STA. 371+00.00 TO STA. 379+24.77.

STAGE 4: CONSTRUCT GUARDRAIL WIDENING, GUARDRAIL AND WIRE ROPE SAFETY FENCE. PLACE PERMANENT PAVEMENT MARKINGS.

10/1/2015

RBB0310.DGN

STAGE 1
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0310	30	75

(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCE OF CONSTRUCTION
INSTALL ADVANCE WARNING SIGNS AT THE LOCATIONS LISTED ON THE ADVANCE WARNING DETAILS.
INSTALL END ROAD WORK SIGNS AT THE END OF JOB AS SHOWN ON THE ADVANCE WARNING DETAILS.
INSTALL ROAD WORK AHEAD (W20-1) SIGN ON RAMPS AS SHOWN ON THE ADVANCE WARNING DETAILS.

PATCHING AND GRINDING OPERATIONS AND GUARDRAIL REPLACEMENT IN THE WESTBOUND LANES SHALL UTILIZE A TWO (2) MILE LANE CLOSURE. ONLY ONE LANE CLOSURE IN THE WESTBOUND LANES WILL BE ALLOWED AT ANY GIVEN TIME. NO LANE CLOSURE MAY EXCEED THE ACTIVE WORK AREA BY MORE THAN ONE QUARTER (1/4) MILE. REFER TO THE MAINTENANCE OF TRAFFIC SPECIAL PROVISION.

STAGE 1: INSTALL SHOULDER CLOSED (RSP-1) AND ROAD NARROWS 500' (W5-1) ON WELCOME CENTER ENTRANCE RAMP AND I-30 EASTBOUND LANES.

INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

PERFORM TRENCHING AND SHOULDER PREPARATION ON 6 FT. OF WELCOME CENTER ENTRANCE RAMP SHOULDER STA. 169+00.00 TO STA. 176+65.59.

CONSTRUCT TEMPORARY WIDENING FROM STA. 176+56.59 TO STA. 181+85

STAGE 2: INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

MOVE EASTBOUND TRAFFIC ONTO OUTSIDE EASTBOUND LANE AND RECONSTRUCT EASTBOUND INSIDE LANE.

STAGE 3A: INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 3A MAINTENANCE OF TRAFFIC DETAILS.

MOVE EASTBOUND TRAFFIC ONTO INSIDE EASTBOUND LANE AND RECONSTRUCT EASTBOUND OUTSIDE LANE STA. 153+81.12 TO STA. 180+48.00.

CONSTRUCT TEMPORARY EXIT RAMP FOR HWY. 67 STA. 371+00.00 STA. 379+24.77.

STAGE 3B: INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 3B MAINTENANCE OF TRAFFIC DETAILS.

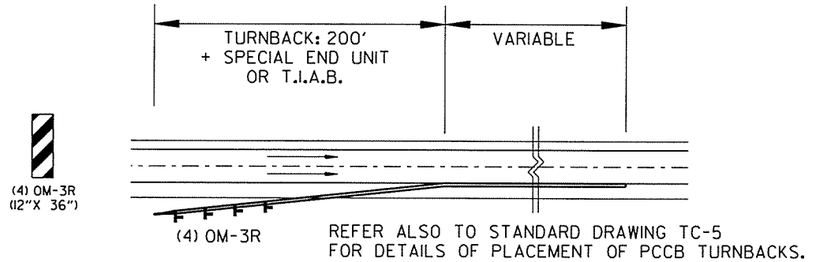
MAINTAIN EASTBOUND TRAFFIC ON INSIDE EASTBOUND LANE AND RECONSTRUCT EASTBOUND OUTSIDE LANE STA. 180+48.00 TO STA. 372+38.57.

STAGE 3C: INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 3C MAINTENANCE OF TRAFFIC DETAILS.

MAINTAIN EASTBOUND TRAFFIC ON INSIDE EASTBOUND LANE AND RECONSTRUCT EASTBOUND OUTSIDE LANE STA. 372+38.57 TO STA. 386+50.00.

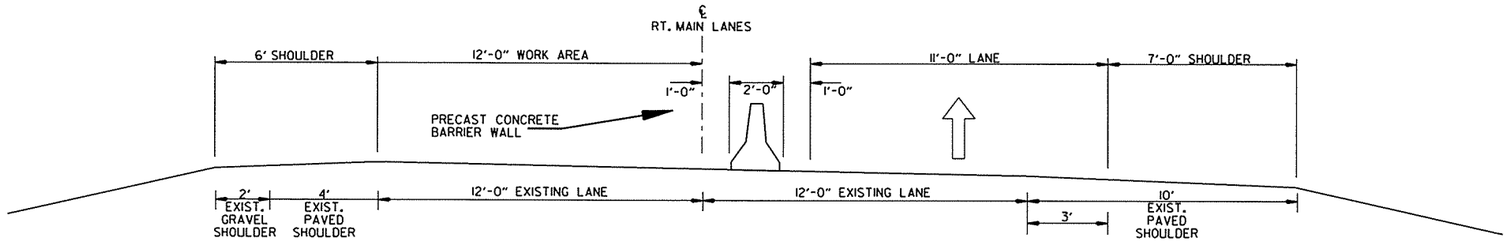
REMOVE TEMPORARY EXIT RAMP STA. 371+00.00 TO STA. 379+24.77.

STAGE 4: CONSTRUCT GUARDRAIL WIDENING, GUARDRAIL AND WIRE ROPE SAFETY FENCE, PLACE PERMANENT PAVEMENT MARKINGS.

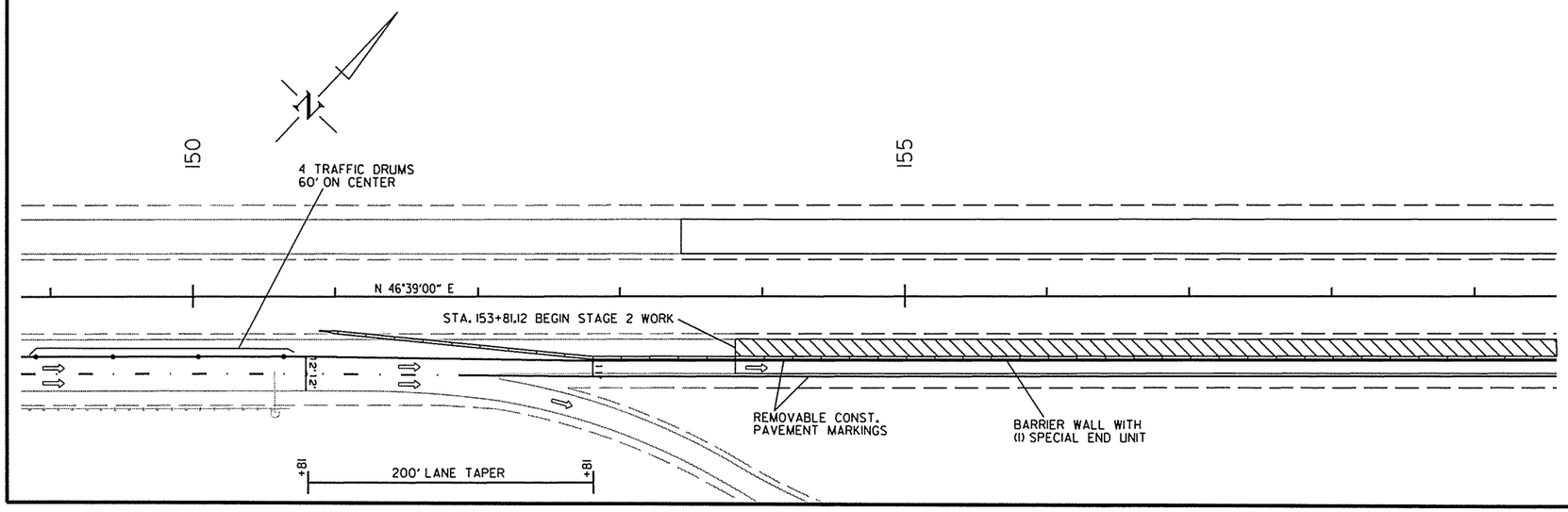


REFER ALSO TO STANDARD DRAWING TC-5 FOR DETAILS OF PLACEMENT OF PCCB TURNBACKS.

DETAIL OF OBJECT MARKERS
AT PRECAST CONCRETE BARRIER TURNBACKS



LOCATION OF BARRIER WALL FOR
EASTBOUND INSIDE LANE CLOSURE
STAGE 2 STA. 153+81.12 TO STA. 393+96.00



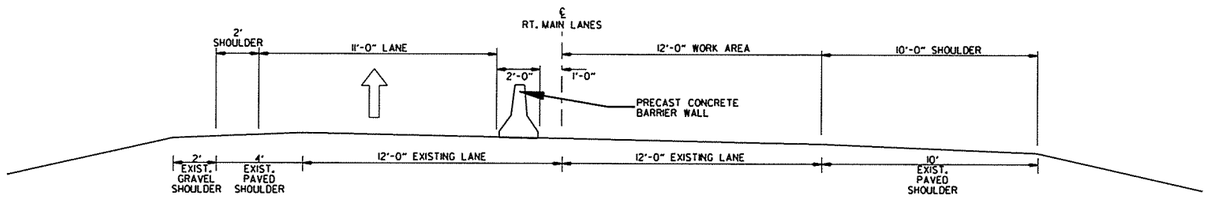
STAGE 2
MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-3-15

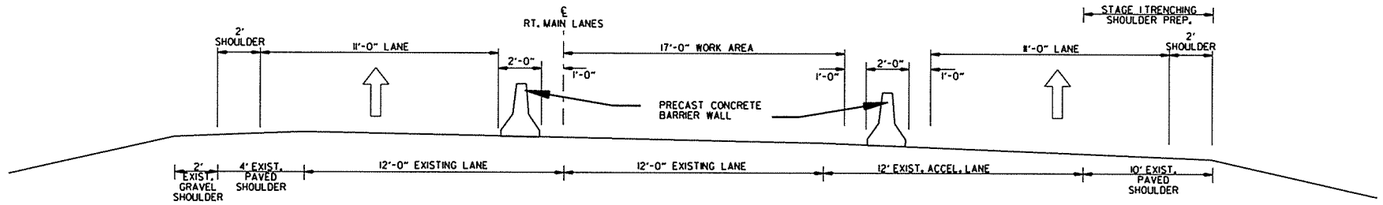
10/1/2015
RBB0310.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0310	31	75

(2) MAINTENANCE OF TRAFFIC DETAILS



LOCATION OF BARRIER WALL FOR
EASTBOUND OUTSIDE LANE CLOSURE
STAGE 3 STA. 153+81.12 TO STA. 168+00.00
STA. 180+80.00 TO STA. 393+96.00



LOCATION OF BARRIER WALL FOR
EASTBOUND OUTSIDE LANE CLOSURE
STAGE 3 STA. 168+00.00 TO STA. 180+80.00

SEQUENCE OF CONSTRUCTION
INSTALL ADVANCE WARNING SIGNS AT THE LOCATIONS LISTED ON THE ADVANCE WARNING DETAILS.
INSTALL END ROAD WORK SIGNS AT THE END OF JOB AS SHOWN ON THE ADVANCE WARNING DETAILS.
INSTALL ROAD WORK AHEAD (W20-1) SIGN ON RAMPS AS SHOWN ON THE ADVANCE WARNING DETAILS.

PATCHING AND GRINDING OPERATIONS AND GUARDRAIL REPLACEMENT IN THE WESTBOUND LANES SHALL UTILIZE A TWO (2) MILE LANE CLOSURE. ONLY ONE LANE CLOSURE IN THE WESTBOUND LANES WILL BE ALLOWED AT ANY GIVEN TIME. NO LANE CLOSURE MAY EXCEED THE ACTIVE WORK AREA BY MORE THAN ONE QUARTER (1/4) MILE. REFER TO THE MAINTENANCE OF TRAFFIC SPECIAL PROVISION.

STAGE 1: INSTALL SHOULDER CLOSED (RSP-1) AND ROAD NARROWS 500' (W5-1) ON WELCOME CENTER ENTRANCE RAMP AND I-30 EASTBOUND LANES.

INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

PERFORM TRENCHING AND SHOULDER PREPARATION ON 6 FT. OF WELCOME CENTER ENTRANCE RAMP SHOULDER STA. 169+00.00 TO STA. 176+65.59.

CONSTRUCT TEMPORARY WIDENING FROM STA. 176+56.59 TO STA. 181+85

STAGE 2: INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

MOVE EASTBOUND TRAFFIC ONTO OUTSIDE EASTBOUND LANE AND RECONSTRUCT EASTBOUND INSIDE LANE.

STAGE 3A: INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 3A MAINTENANCE OF TRAFFIC DETAILS.

MOVE EASTBOUND TRAFFIC ONTO INSIDE EASTBOUND LANE AND RECONSTRUCT EASTBOUND OUTSIDE LANE STA. 153+81.12 TO STA. 180+48.00.

CONSTRUCT TEMPORARY EXIT RAMP FOR HWY. 67 STA. 371+00.00 TO STA. 379+24.77.

STAGE 3B: INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 3B MAINTENANCE OF TRAFFIC DETAILS.

MAINTAIN EASTBOUND TRAFFIC ON INSIDE EASTBOUND LANE AND RECONSTRUCT EASTBOUND OUTSIDE LANE STA. 180+48.00 TO STA. 372+38.57.

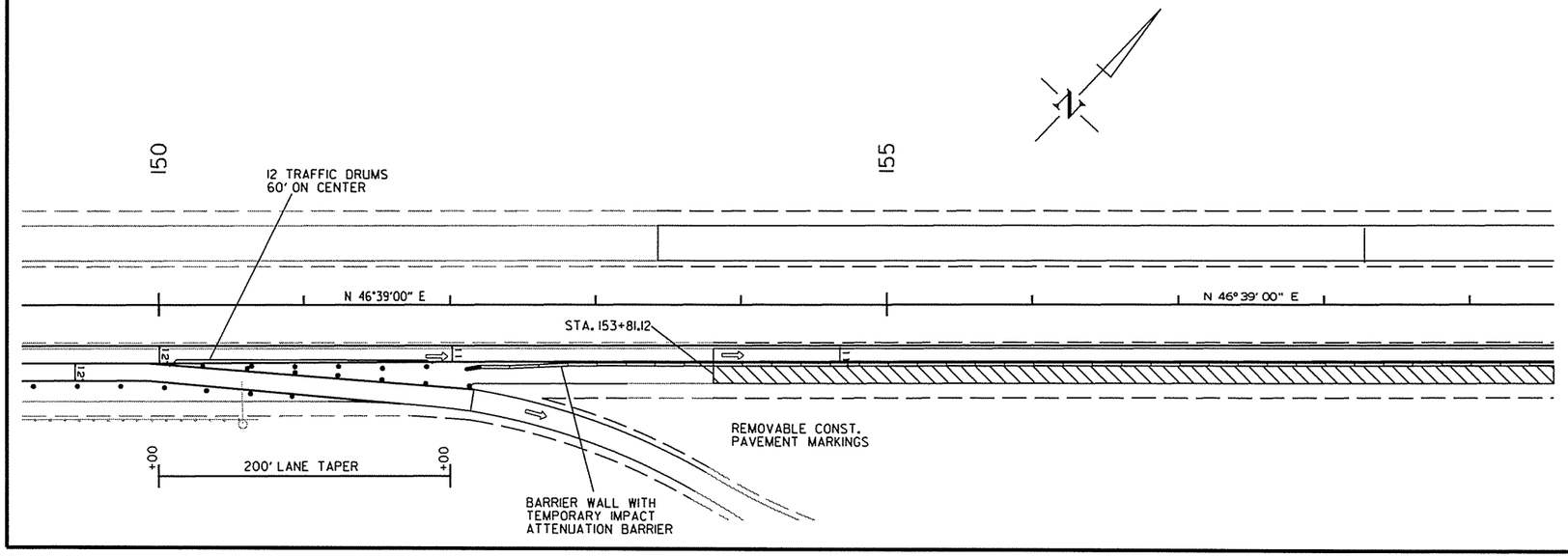
STAGE 3C: INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 3C MAINTENANCE OF TRAFFIC DETAILS.

MAINTAIN EASTBOUND TRAFFIC ON INSIDE EASTBOUND LANE AND RECONSTRUCT EASTBOUND OUTSIDE LANE STA. 372+38.57 TO STA. 386+50.00.

REMOVE TEMPORARY EXIT RAMP STA. 371+00.00 TO STA. 379+24.77.

STAGE 4: CONSTRUCT GUARDRAIL WIDENING, GUARDRAIL AND WIRE ROPE SAFETY FENCE, PLACE PERMANENT PAVEMENT MARKINGS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-3-15



10/1/2015

RBB0310.DGN

STAGE 3
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0310	32	75

(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCE OF CONSTRUCTION
INSTALL ADVANCE WARNING SIGNS AT THE LOCATIONS LISTED ON THE ADVANCE WARNING DETAILS.
INSTALL END ROAD WORK SIGNS AT THE END OF JOB AS SHOWN ON THE ADVANCE WARNING DETAILS.
INSTALL ROAD WORK AHEAD (W20-1) SIGN ON RAMPS AS SHOWN ON THE ADVANCE WARNING DETAILS.

PATCHING AND GRINDING OPERATIONS AND GUARDRAIL REPLACEMENT IN THE WESTBOUND LANES SHALL UTILIZE A TWO (2) MILE LANE CLOSURE. ONLY ONE LANE CLOSURE IN THE WESTBOUND LANES WILL BE ALLOWED AT ANY GIVEN TIME. NO LANE CLOSURE MAY EXCEED THE ACTIVE WORK AREA BY MORE THAN ONE QUARTER (1/4) MILE. REFER TO THE MAINTENANCE OF TRAFFIC SPECIAL PROVISION.

STAGE 1: INSTALL SHOULDER CLOSED (RSP-1) AND ROAD NARROWS 500' (W5-1) ON WELCOME CENTER ENTRANCE RAMP AND I-30 EASTBOUND LANES.

INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE I MAINTENANCE OF TRAFFIC DETAILS.

PERFORM TRENCHING AND SHOULDER PREPARATION ON 6 FT. OF WELCOME CENTER ENTRANCE RAMP SHOULDER STA. 169+00.00 TO STA. 176+65.59.

CONSTRUCT TEMPORARY WIDENING FROM STA. 176+56.59 TO STA. 181+85

STAGE 2: INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

MOVE EASTBOUND TRAFFIC ONTO OUTSIDE EASTBOUND LANE AND RECONSTRUCT EASTBOUND INSIDE LANE.

STAGE 3A: INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 3A MAINTENANCE OF TRAFFIC DETAILS.

MOVE EASTBOUND TRAFFIC ONTO INSIDE EASTBOUND LANE AND RECONSTRUCT EASTBOUND OUTSIDE LANE STA. 153+81.12 TO STA. 180+48.00.

CONSTRUCT TEMPORARY EXIT RAMP FOR HWY. 67 STA. 371+00.00 TO STA. 379+24.77.

STAGE 3B: INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 3B MAINTENANCE OF TRAFFIC DETAILS.

MAINTAIN EASTBOUND TRAFFIC ON INSIDE EASTBOUND LANE AND RECONSTRUCT EASTBOUND OUTSIDE LANE STA. 180+48.00 TO STA. 372+38.57.

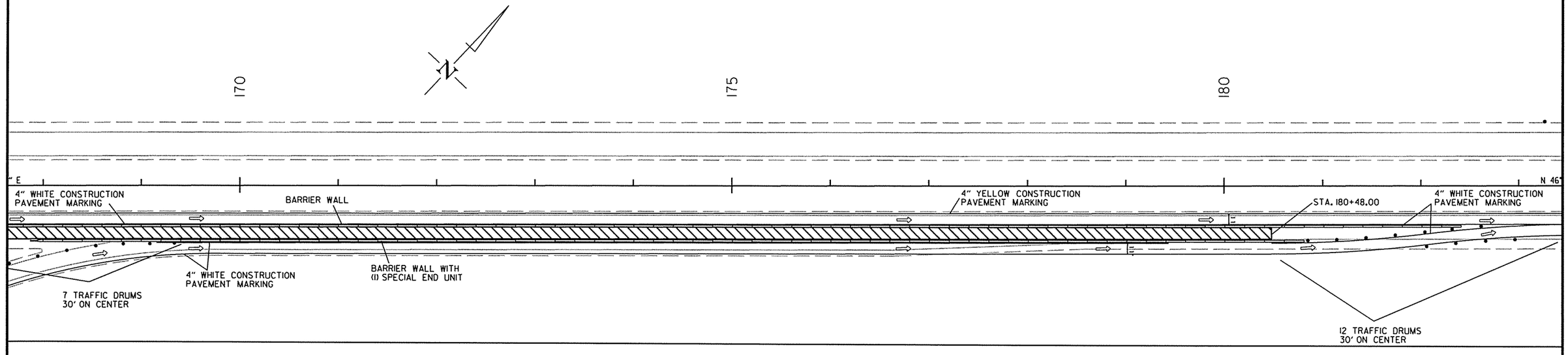
STAGE 3C: INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 3C MAINTENANCE OF TRAFFIC DETAILS.

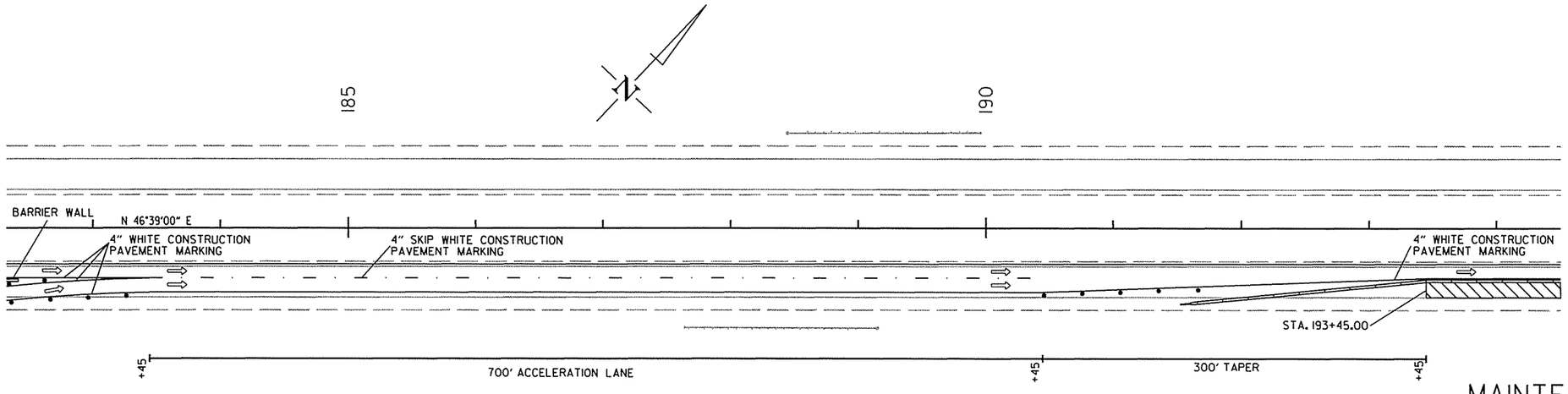
MAINTAIN EASTBOUND TRAFFIC ON INSIDE EASTBOUND LANE AND RECONSTRUCT EASTBOUND OUTSIDE LANE STA. 372+38.57 TO STA. 386+50.00.

REMOVE TEMPORARY EXIT RAMP STA. 371+00.00 TO STA. 379+24.77.

STAGE 4: CONSTRUCT GUARDRAIL WIDENING, GUARDRAIL AND WIRE ROPE SAFETY FENCE, PLACE PERMANENT PAVEMENT MARKINGS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-3-15





10/1/2015

RBB0310.DGN

STAGE 3A MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0310	33	75

(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCE OF CONSTRUCTION
INSTALL ADVANCE WARNING SIGNS AT THE LOCATIONS LISTED ON THE ADVANCE WARNING DETAILS.
INSTALL END ROAD WORK SIGNS AT THE END OF JOB AS SHOWN ON THE ADVANCE WARNING DETAILS.
INSTALL ROAD WORK AHEAD (W20-1) SIGN ON RAMPS AS SHOWN ON THE ADVANCE WARNING DETAILS.

PATCHING AND GRINDING OPERATIONS AND GUARDRAIL REPLACEMENT IN THE WESTBOUND LANES SHALL UTILIZE A TWO (2) MILE LANE CLOSURE. ONLY ONE LANE CLOSURE IN THE WESTBOUND LANES WILL BE ALLOWED AT ANY GIVEN TIME. NO LANE CLOSURE MAY EXCEED THE ACTIVE WORK AREA BY MORE THAN ONE QUARTER (1/4) MILE. REFER TO THE MAINTENANCE OF TRAFFIC SPECIAL PROVISION.

STAGE 1: INSTALL SHOULDER CLOSED (RSP-1) AND ROAD NARROWS 500' (W5-1) ON WELCOME CENTER ENTRANCE RAMP AND I-30 EASTBOUND LANES.

INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

PERFORM TRENCHING AND SHOULDER PREPARATION ON 6 FT. OF WELCOME CENTER ENTRANCE RAMP SHOULDER STA. 169+00.00 TO STA. 176+65.59.

CONSTRUCT TEMPORARY WIDENING FROM STA. 176+56.59 TO STA. 181+85

STAGE 2: INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

MOVE EASTBOUND TRAFFIC ONTO OUTSIDE EASTBOUND LANE AND RECONSTRUCT EASTBOUND INSIDE LANE.

STAGE 3A: INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 3A MAINTENANCE OF TRAFFIC DETAILS.

MOVE EASTBOUND TRAFFIC ONTO INSIDE EASTBOUND LANE AND RECONSTRUCT EASTBOUND OUTSIDE LANE STA. 153+81.12 TO STA. 180+48.00.

CONSTRUCT TEMPORARY EXIT RAMP FOR HWY. 67 STA. 371+00.00 TO STA. 379+24.77.

STAGE 3B: INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 3B MAINTENANCE OF TRAFFIC DETAILS.

MAINTAIN EASTBOUND TRAFFIC ON INSIDE EASTBOUND LANE AND RECONSTRUCT EASTBOUND OUTSIDE LANE STA. 180+48.00 TO STA. 372+38.57.

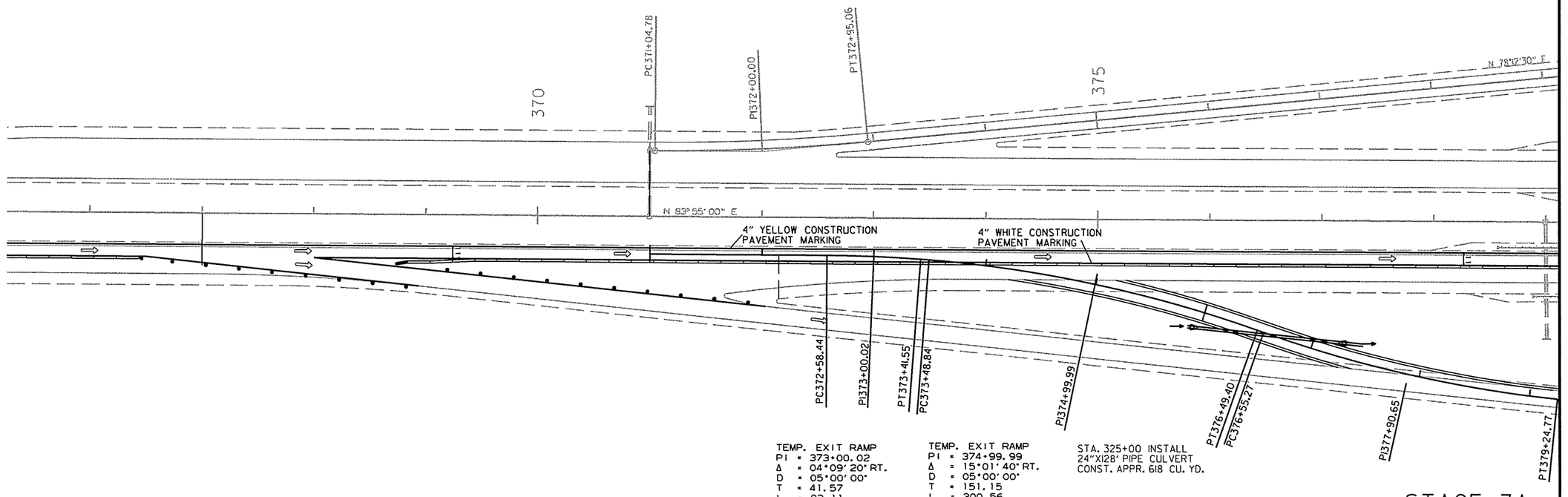
STAGE 3C: INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 3C MAINTENANCE OF TRAFFIC DETAILS.

MAINTAIN EASTBOUND TRAFFIC ON INSIDE EASTBOUND LANE AND RECONSTRUCT EASTBOUND OUTSIDE LANE STA. 372+38.57 TO STA. 386+50.00.

REMOVE TEMPORARY EXIT RAMP STA. 371+00.00 TO STA. 379+24.77.

STAGE 4: CONSTRUCT GUARDRAIL WIDENING, GUARDRAIL AND WIRE ROPE SAFETY FENCE. PLACE PERMANENT PAVEMENT MARKINGS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-3-15



TEMP. EXIT RAMP
PI = 373+00.02
Δ = 04°09'20" RT.
D = 05°00'00"
T = 41.57
L = 83.11
PC = 372+58.44
PT = 373+41.55
NO SUPER

TEMP. EXIT RAMP
PI = 374+99.99
Δ = 15°01'40" RT.
D = 05°00'00"
T = 151.15
L = 300.56
PC = 373+48.84
PT = 376+49.40
NO SUPER

STA. 325+00 INSTALL
24"X128' PIPE CULVERT
CONST. APPR. 618 CU. YD.

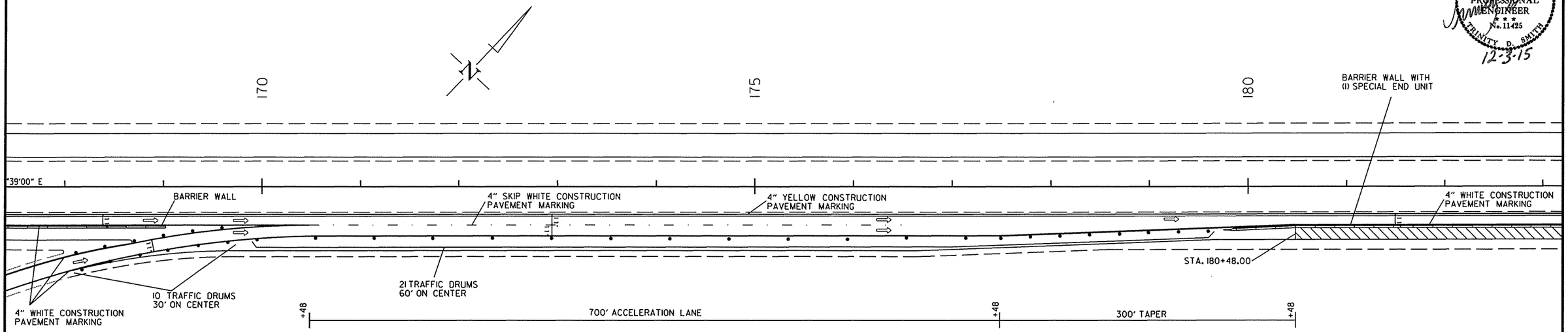
STAGE 3A
MAINTENANCE OF TRAFFIC DETAILS

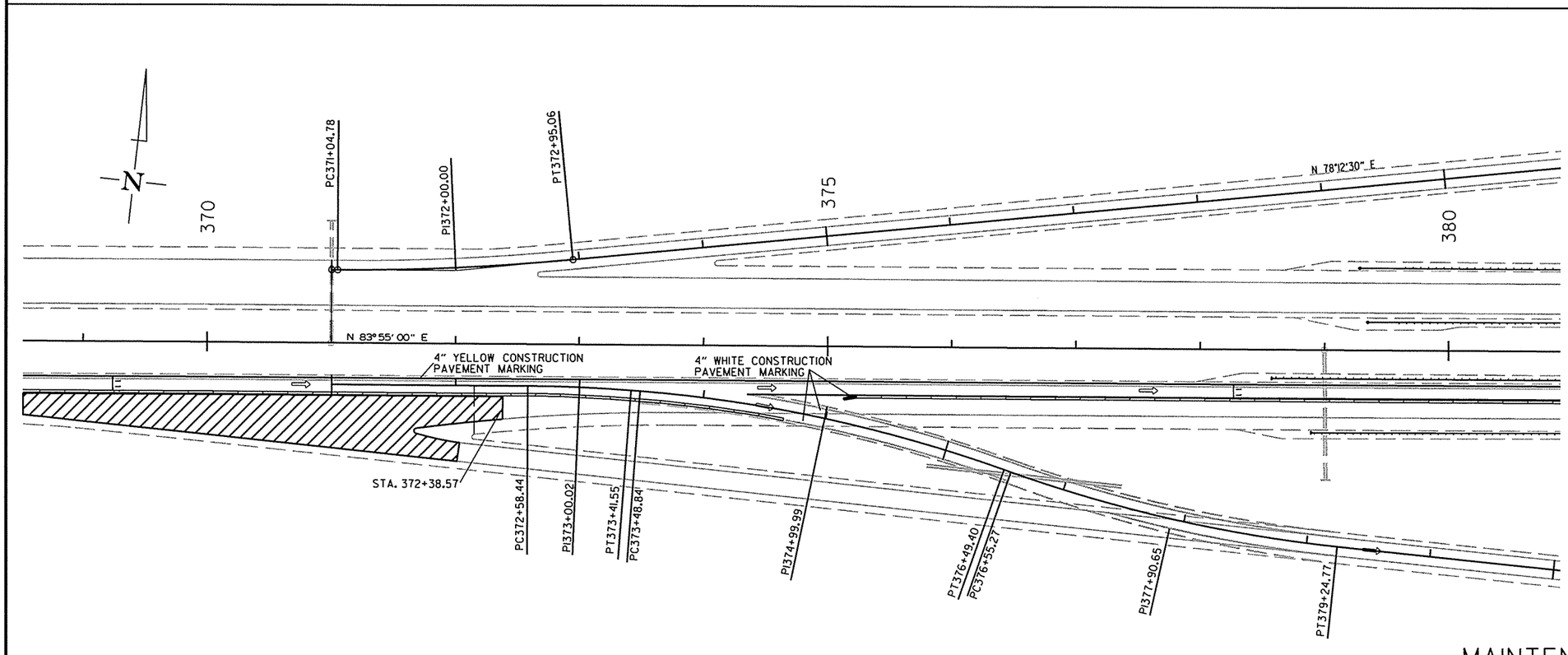
10/1/2015
RBB0310.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0310	34	75

(2) MAINTENANCE OF TRAFFIC DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-3-15





10/1/2015

RBB0310.DGN

STAGE 3B
MAINTENANCE OF TRAFFIC DETAILS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0310	35	75

(2) MAINTENANCE OF TRAFFIC DETAILS

SEQUENCE OF CONSTRUCTION
INSTALL ADVANCE WARNING SIGNS AT THE LOCATIONS LISTED ON THE ADVANCE WARNING DETAILS.
INSTALL END ROAD WORK SIGNS AT THE END OF JOB AS SHOWN ON THE ADVANCE WARNING DETAILS.
INSTALL ROAD WORK AHEAD (W20-1) SIGN ON RAMPS AS SHOWN ON THE ADVANCE WARNING DETAILS.

PATCHING AND GRINDING OPERATIONS AND GUARDRAIL REPLACEMENT IN THE WESTBOUND LANES SHALL UTILIZE A TWO (2) MILE LANE CLOSURE. ONLY ONE LANE CLOSURE IN THE WESTBOUND LANES WILL BE ALLOWED AT ANY GIVEN TIME. NO LANE CLOSURE MAY EXCEED THE ACTIVE WORK AREA BY MORE THAN ONE QUARTER (1/4) MILE. REFER TO THE MAINTENANCE OF TRAFFIC SPECIAL PROVISION.

STAGE 1: INSTALL SHOULDER CLOSED (RSP-1) AND ROAD NARROWS 500' (W5-1) ON WELCOME CENTER ENTRANCE RAMP AND I-30 EASTBOUND LANES.

INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 1 MAINTENANCE OF TRAFFIC DETAILS.

PERFORM TRENCHING AND SHOULDER PREPARATION ON 6 FT. OF WELCOME CENTER ENTRANCE RAMP SHOULDER STA. 169+00.00 TO STA. 176+65.59.

CONSTRUCT TEMPORARY WIDENING FROM STA. 176+56.59 TO STA. 181+85

STAGE 2: INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 2 MAINTENANCE OF TRAFFIC DETAILS.

MOVE EASTBOUND TRAFFIC ONTO OUTSIDE EASTBOUND LANE AND RECONSTRUCT EASTBOUND INSIDE LANE.

STAGE 3A: INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 3A MAINTENANCE OF TRAFFIC DETAILS.

MOVE EASTBOUND TRAFFIC ONTO INSIDE EASTBOUND LANE AND RECONSTRUCT EASTBOUND OUTSIDE LANE STA. 153+81.12 TO STA. 180+48.00.

CONSTRUCT TEMPORARY EXIT RAMP FOR HWY. 67 STA. 371+00.00 TO STA. 379+24.77.

STAGE 3B: INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 3B MAINTENANCE OF TRAFFIC DETAILS.

MAINTAIN EASTBOUND TRAFFIC ON INSIDE EASTBOUND LANE AND RECONSTRUCT EASTBOUND OUTSIDE LANE STA. 180+48.00 TO STA. 372+38.57.

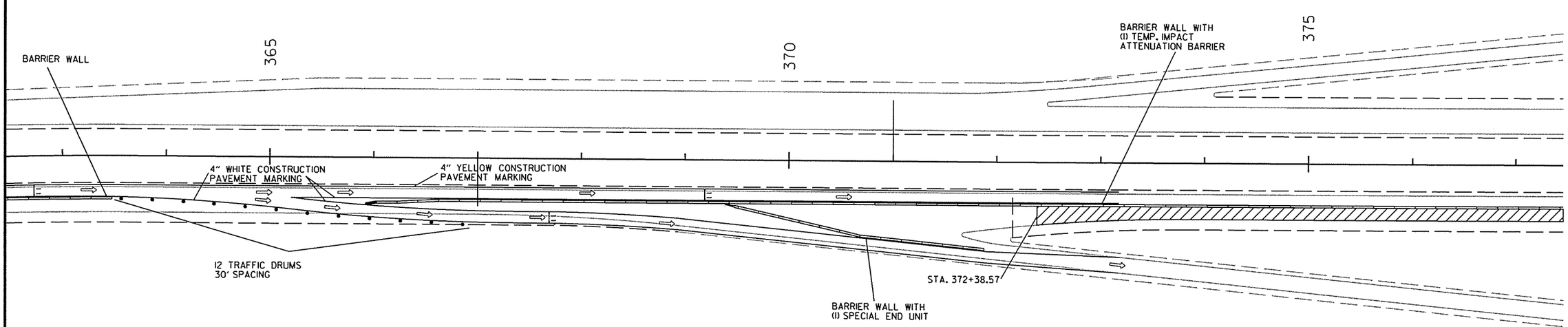
STAGE 3C: INSTALL CONSTRUCTION PAVEMENT MARKINGS, PRECAST CONCRETE BARRIERS, AND TRAFFIC DRUMS AS SHOWN IN THE STAGE 3C MAINTENANCE OF TRAFFIC DETAILS.

MAINTAIN EASTBOUND TRAFFIC ON INSIDE EASTBOUND LANE AND RECONSTRUCT EASTBOUND OUTSIDE LANE STA. 372+38.57 TO STA. 386+50.00.

REMOVE TEMPORARY EXIT RAMP STA. 371+00.00 TO STA. 379+24.77.

STAGE 4: CONSTRUCT GUARDRAIL WIDENING, GUARDRAIL AND WIRE ROPE SAFETY FENCE, PLACE PERMANENT PAVEMENT MARKINGS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-3-15



10/1/2015

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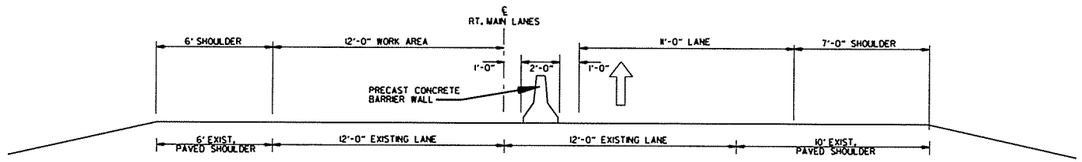
STAGE 3C
MAINTENANCE OF TRAFFIC DETAILS

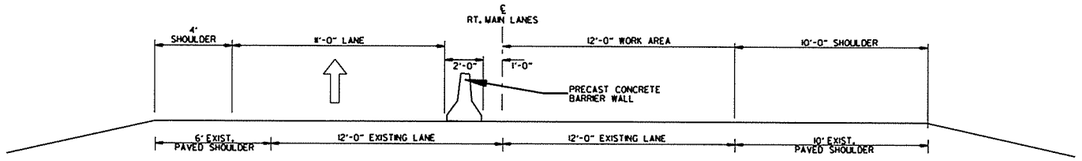
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0310	36	75

(2) MAINTENANCE OF TRAFFIC DETAILS

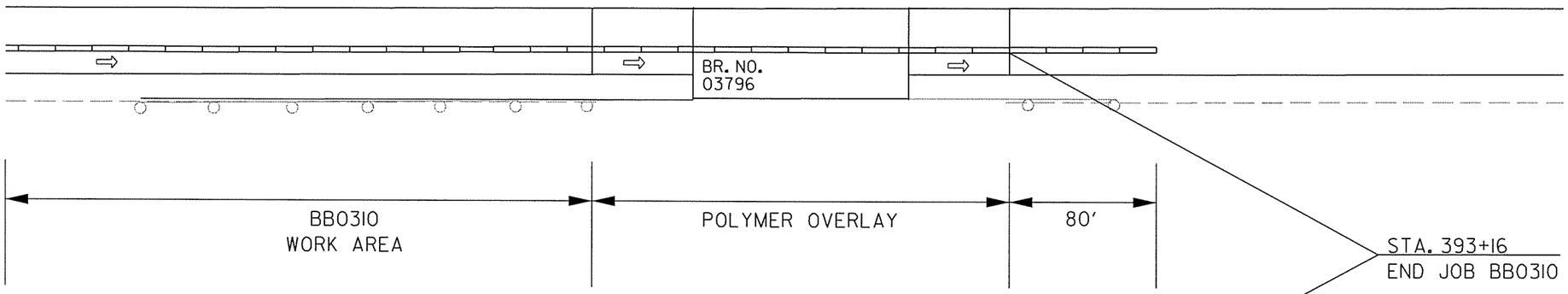
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-3-15



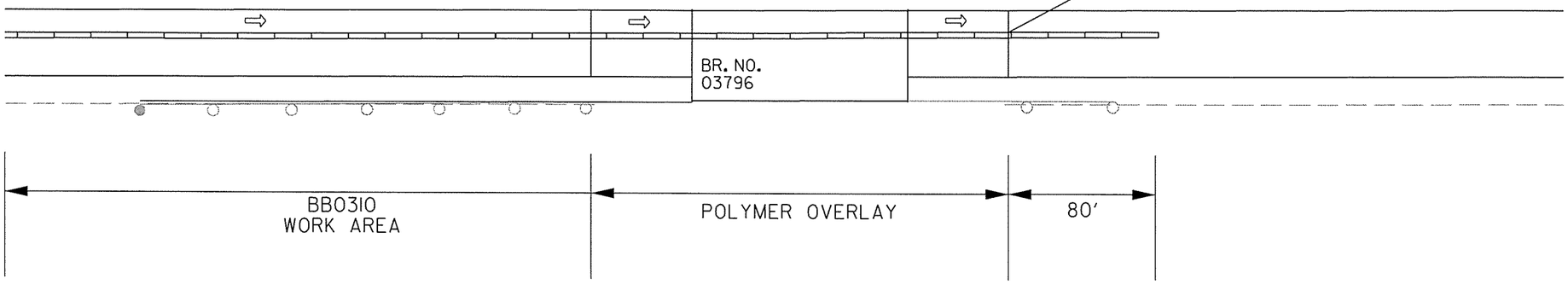
LOCATION OF BARRIER WALL FOR
EASTBOUND INSIDE BRIDGE WORK
STAGE 2



LOCATION OF BARRIER WALL FOR
EASTBOUND OUTSIDE BRIDGE WORK
STAGE 3



DIVERSION FOR INSIDE BRIDGE AND APPROACH SLAB WORK
STAGE 2



DIVERSION FOR OUTSIDE BRIDGE AND APPROACH SLAB WORK
STAGE 3

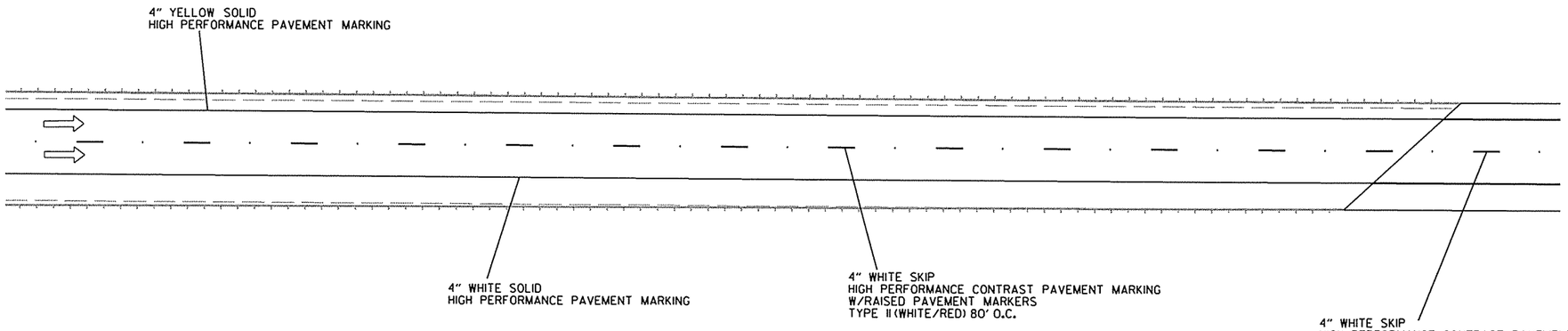
DETAIL OF BRIDGES
MAINTENANCE OF TRAFFIC DETAILS

10/1/2015
RBB0310.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0310	37	75

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-3-15



NOTE: SEE STD. DWG. PM-2 FOR ENTRANCE RAMP, EXIT RAMP, GORE AREAS, AND ACCEL. LANE PAV'T MARKING.

TYPICAL STRIPING DETAIL

I-30 EASTBOUND AND WESTBOUND LANES

9/9/2015

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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.		BB0310	38	75

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-3-15

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	STAGE 3	REMOVAL OF PERMANENT PAVEMENT MARKINGS	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	RAISED PAVEMENT MARKERS	HIGH PERFORMANCE CONTRAST PAVEMENT MARKING		
						TYPE II	4"		8"
						(WHITE/RED)	WHITE	YELLOW	WHITE
	LIN. FT. - EACH			LIN. FT.	LIN. FT.	EACH	LIN. FT.		LIN. FT.
REMOVAL OF PERMANENT PAVEMENT MARKINGS	5950	24508	25780	56238					
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	5950	24408	28125		58483				
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED)			660			660			
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING WHITE (4")			58627				58627		
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING YELLOW (4")			46787					46787	
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING WHITE (8")			948						948
TOTALS:				56238	58483	660	58627	46787	948

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

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	ADVANCE WARNINGS	STAGE 1	STAGE 2	STAGE 3A	STAGE 3B	STAGE 3C	MAXIMUM NUMBER REQUIRED	TOTAL SIGNS REQUIRED		TRAFFIC DRUMS	FURNISHING AND INSTALLING PRECAST CONC. BARRIER	RELOCATING PRECAST CONCRETE BARRIER	ADVANCE WARNING ARROW PANEL	PORTABLE CHANGEABLE MESSAGE SIGN	TEMP. IMPACT ATTEN. BARR.	TEMP. IMPACT ATTEN. BARR. (RELOCATION)	TEMP. IMPACT ATTEN. BARR. (REPAIR)	THERMO-PLASTIC RUMBLE BARS
			LIN. FT. - EACH							NO.	SQ. FT.	EACH	LIN. FT.	LIN. FT.	DAY	WEEK	EACH			LIN. FT.
W20-1	ROAD WORK 1 MILE	48"x48"	4						4	4	64.0									
W20-1	ROAD WORK 1/2 MILE	48"x48"	4						4	4	64.0									
W20-1	ROAD WORK 1500 FT.	48"x48"	4						4	4	64.0									
W20-5	RIGHT LANE CLOSED 1 MILE	48"x48"	4						4	4	64.0									
W20-5	RIGHT LANE CLOSED 1/2 MILE	48"x48"	4						4	4	64.0									
W20-5	RIGHT LANE CLOSED 1500 FT.	48"x48"	4						4	4	64.0									
W20-1	ROAD WORK AHEAD	48"x48"	7						7	7	112.0									
G20-2	END ROAD WORK	48"x24"	7						7	7	56.0									
G20-1	ROAD WORK NEXT 5 MILES	60"x24"	2						2	2	20.0									
R55-1	FINES DOUBLE IN WORK ZONES	36"x60"	4						4	4	60.0									
R2-1	SPEED LIMIT 60 MPH	48"x60"	7						7	7	140.0									
R2-1	SPEED LIMIT 70 MPH	48"x60"	4						4	4	80.0									
W1-6	LARGE ARROW	48"x24"	12						12	12	96.0									
W3-5	REDUCED SPEED AHEAD	48"x60"	4						4	4	80.0									
R4-1	DO NOT PASS	48"x60"	8						8	8	160.0									
RSP-1	SHOULDER CLOSED	48"x30"	2	1					2	2	20.0									
W4-2 RT.	MERGE RIGHT	48"x48"	4						4	4	64.0									
W5-1	ROAD NARROWS 500 FT.	48"x48"		4	4	4	4	4	4	4	64.0									
SPECIAL	MERGE NOW W/ ARROW	48"x48"	2						2	2	32.0									
SPECIAL	RUMBLE STRIPS AHEAD	48"x48"	4						4	4	64.0									
	TRAFFIC DRUMS			248	329	307	298	304	329			329								
	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER			1400	22573				22573				22573							
	RELOCATING PRECAST CONCRETE BARRIER				1400	3766	21353	21353	21353					21353						
	ADVANCE WARNING ARROW PANEL		2						2						580					
	PORTABLE CHANGEABLE MESSAGE SIGN		2						2							90				
	TEMPORARY IMPACT ATTENUATION BARRIER			1					1								1			
	TEMPORARY IMPACT ATTENUATION BARRIER (RELOCATION)						1	1	1									1		
	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)			1			1	1	1										1	
	THERMOPLASTIC RUMBLE BARS		144						144											144
TOTALS:											1432.0	329	22573	21353	580	90	1	1	1	144

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

NOTE: THE QUANTITY OF TRAFFIC DRUMS PROVIDED IS FOR ONE SIDE OF THE ROADWAY FOR THE FULL LENGTH OF THE JOB. HOWEVER, THE INSTALLATION OF TRAFFIC DRUMS SHALL NEVER EXCEED THE ACTUAL WORK AREA BY MORE THAN 1/4 MILE, UNLESS APPROVED BY THE ENGINEER.

8/28/2015

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
12-31-15				6	ARK.			
1-7-16				JOB NO.		BB0310	39	75

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-7-16

EARTHWORK

STATION	STATION	LOCATION / DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	* SOIL STABILIZATION
			CU. YD.		TON
371+00	379+25	TEMPORARY RAMP		618	
371+00	379+25	OBLITERATION OF TEMPORARY RAMP	618		
153+81	379+05	EASTBOUND MAIN LANES	45130	34710	
176+66	181+85	NOTCH AND WIDEN FOR M.O.T.	122		
* ENTIRE	PROJECT	TO BE USED IF AND WHERE			200
		DIRECTED BY THE ENGINEER			
TOTALS:			45870	35328	200

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

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

REMOVAL AND DISPOSAL OF CONCRETE PIER PROTECTION

STATION	STATION	LOCATION	LIN. FT.
197+26	199+26	BRIDGE NO. 03572 EB LANES	37
199+73	201+73	BRIDGE NO. 03572 WB LANES	37
295+72	300+72	BRIDGE NO. 03573 EB LANES	37
299+51	301+51	BRIDGE NO. 03573 WB LANES	37
TOTAL:			148

REMOVAL OF RUMBLE STRIP

STATION	STATION	LOCATION	LIN. FT.
122+97	182+00	INSIDE EB SHOULDER	5903
152+15	387+70	OUTSIDE EB SHOULDER	21985
TOTAL:			27888

REMOVAL OF EXISTING PORTLAND CEMENT CONCRETE PAVEMENT

STATION	STATION	LOCATION	LENGTH	WIDTH	REMOVAL OF EXISTING PORTLAND CEMENT CONCRETE
			FEET	FEET	SQ. YD.
153+81.12	379+05.35	R.M.L. FULL-DEPTH RECONSTRUCTION	22524	38.00	95101.3
153+81.12	379+05.35	R.M.L. FULL-DEPTH RECONSTRUCTION	23389	24.00	62370.7
TOTAL:					157472.0

TRENCHING AND SHOULDER PREPARATION

STATION	STATION	LOCATION	TRENCHING AND SHOULDER PREP.
			STATION
168+66	176+66	RT OF RIGHT MAIN LANES	8
TOTAL:			8

AUTOMATED WORK ZONE INFORMATION SYSTEM

LOCATION	FURNISH AND INSTALL VEHICLE DETECTION SYSTEM	FURNISH AND INSTALL VARIABLE MESSAGE SIGN	FURNISH AND INSTALL PUBLIC NOTIFICATION SYSTEM	FURNISH AND INSTALL CLOSED CIRCUIT TELEVISION SYSTEM	*AWIS OPERATION	AWIS MOBILIZATION	*DEVICE RELOCATION
	EACH	EACH	EACH	EACH	MONTHS	LUMP SUM	EACH
1/2 MILE SPACING FOR 6 MILES IN ADVANCE OF PROJECT	12						
1 MILE SPACING WITHIN THE WORK ZONE	5						
I-30 E.B. - IN ADVANCE OF EXITS : FOUR STATES FAIR BLVD. AND I-49 I-49 N.B. - IN ADVANCE OF ARKANSAS BLVD. EXIT		3					
STATELINE BLVD. EXIT			1				
STATELINE BLVD. AND I-49 INTERCHANGE				2			
					18	1.00	
* ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER							5
TOTALS:	17	3	1	2	18	1.00	5

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

REMOVAL AND DISPOSAL OF GUARDRAIL

STATION	STATION	LOCATION	LIN. FT.
197+26	199+26	BRIDGE NO. 03572	200
199+73	201+73	BRIDGE NO. 03572	200
208+90	211+15	LT. OF R.M.L.	225
295+72	300+72	BRIDGE NO. 03573	200
299+51	301+51	BRIDGE NO. 03573	200
378+59	387+09	BRIDGE NO. 03796	850
378+91	386+66	BRIDGE NO. 03796	775
379+28	388+03	BRIDGE NO. 03796	875
379+35	387+60	BRIDGE NO. 03796	825
391+61	406+79	BRIDGE NO. 03796	1518
391+95	407+47	BRIDGE NO. 03796	1552
392+91	410+22	BRIDGE NO. 03796	1731
392+57	412+72	BRIDGE NO. 03796	2015
TOTAL:			11166

NOTE: REMOVAL AND DISPOSAL OF GUARDRAIL INCLUDES REMOVAL AND DISPOSAL OF TERMINAL ANCHOR POSTS

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL						TEMPORARY EROSION CONTROL							
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	SOLID SODDING	TEMPORARY SEEDING	MULCH COVER	WATER	SAND BAG DITCH CHECKS (E-5)		DROP INLET SILT FENCE (E-7)	SILT FENCE (E-11)	*SEDIMENT REMOVAL & DISPOSAL
			ACRE	TON	ACRE	M.GAL.	ACRE	SQ.YD.	ACRE	ACRE	M.GAL.	BAG		LIN. FT.	LIN. FT.	CU. YD.
												PEN-30-1(154)7	NHPP-30-1(154)7			
122+97.38	379+84.68	I-30 MAIN LANES	18.27	36.54	18.27	1880.1	18.27	1312	35.55	35.55	3626.1	88	79	416	22769	859
*ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.			4.57	9.14	4.57	470.0	4.57	328	8.89	8.89	906.5					
TOTALS:			22.84	45.68	22.84	2350.1	22.84	1640	44.44	44.44	4532.6	167		416	22769	859

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.

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

8/28/2015

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QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
12-31-15				6	ARK.			
				JOB NO.		BB0310	40	75

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-4-16

REMOVAL AND DISPOSAL OF IMPACT ATTENUATION BARRIER

STATION	LOCATION	EACH
199+41	MEDIAN	2
299+33	MEDIAN	2
TOTAL:		4

4" PIPE UNDERDRAIN

STATION	STATION	LOCATIONS	4" PIPE UNDERDRAINS	UNDERDRAIN OUTLET PROTECTORS
			LIN. FT.	EACH
* ENTIRE PROJECT TO BE USED IF AND			13000	52
WHERE DIRECTED BY THE ENGINEER				
TOTALS:			13000	52

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

STRUCTURES

STATION	DESCRIPTION	TEMPORARY CULVERT	STD. DWG. NOS.
		24"	
		LIN. FT.	
376+52	TEMPORARY RAMP	158	FES-1, FES-2, PCC-1, PCM-1
TOTAL:		158	

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

GRINDING PORTLAND CEMENT CONCRETE PAVEMENT

LOG MILE	LOG MILE	LOCATION	LENGTH	WIDTH	GRINDING PORTLAND CEMENT CONCRETE
			FEET	FEET	SQ. YD.
7.11	11.51	WESTBOUND MAIN LANES - INSIDE LANE	23269	12.00	31025.3
TOTALS:					31025.3

NOTE: THE REMOVAL AND DISPOSAL OF PLOWABLE PAVEMENT MARKERS IN THE WESTBOUND LANES IN THE WESTBOUND LANES WILL NOT BE PAID FOR DIRECTLY BUT WILL BE INCLUDED IN THE PRICE BID FOR "GRINDING PORTLAND CEMENT CONCRETE PAVEMENT".

JOINT REHABILITATION

STATION	STATION	LOCATION	NUMBER OF JOINTS	LENGTH	TYPE A	TYPE B
				LIN. FT.	LIN. FT.	LIN. FT.
153+43	379+05	WESTBOUND MAIN LANES	1504	24.00	36096	22560
TOTALS:					36096	22560

CONCRETE DITCH PAVING (WRSF)

STATION	STATION	LOCATION	LENGTH	"W"	CONCRETE DITCH PAVING (TYPE B)	SOLID SODDING	WATER
			LIN. FT.	FEET	SQ. YD.	SQ. YD.	M. GAL.
122+97.30	196+41.30	LEFT OF RIGHT MAIN LANES	7344.00	4.00	3264.00	3264.00	41.13
200+41.30	296+95.30	LEFT OF RIGHT MAIN LANES	9654.00	4.00	4290.67	4290.67	54.06
300+95.30	328+23.81	LEFT OF RIGHT MAIN LANES	2728.51	4.00	1212.67	1212.67	15.28
328+23.81	379+73.30	RIGHT OF LEFT MAIN LANES	5149.49	4.00	2288.66	2288.66	28.84
TOTALS:					11056.00	11056.00	139.31

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

POLYMER OVERLAY

STATION	STATION	LOCATION	SQ. YD.
386+50	393+16	BRIDGE NO. A03796	2521
386+50	393+16	BRIDGE NO. B03796	2521
TOTAL:			5042

BRIDGE DECK REPAIR FOR POLYMER OVERLAYS

STATION	STATION	LOCATION	SQ. FT.
387+79	392+25	BRIDGE NO. B03796	660
TOTAL:			660

GUARDRAIL

STATION	STATION	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)	TERMINAL ANCHOR POST (TYPE 1)
			LIN. FT.	EACH		
195+63.10	200+63.10	BRIDGE NO. 03572 EB INSIDE LANE	500		1	1
197+25.95	199+25.95	BRIDGE NO. 03572 EB OUTSIDE LANE	200	1	1	
198+24.44	203+24.44	BRIDGE NO. 03572 WB INSIDE LANE	500		1	1
199+73.38	201+73.38	BRIDGE NO. 03572 WB OUTSIDE LANE	200	1	1	
208+90.00	211+15.00	EB INSIDE LANE	175		1	1
295+72.20	300+72.20	BRIDGE NO. 03573 EB INSIDE LANE	500		1	1
295+72.20	300+72.20	BRIDGE NO. 03573 EB OUTSIDE LANE	200	1	1	
298+22.20	303+22.20	BRIDGE NO. 03573 WB INSIDE LANE	500		1	1
299+50.74	301+50.74	BRIDGE NO. 03573 WB OUTSIDE LANE	200	1	1	
378+59.31	387+09.31	BRIDGE NO. 03573 EB INSIDE LANE	850	1	1	
378+91.00	386+66.00	BRIDGE NO. 03573 EB OUTSIDE LANE	775	1	1	
379+28.16	388+03.16	BRIDGE NO. 03573 WB OUTSIDE LANE	875	1		1
379+34.65	387+59.65	BRIDGE NO. 03573 WB INSIDE LANE	825	1		1
391+61.39	406+79.39	BRIDGE NO. 03796 EB OUTSIDE LANE	1518	1		1
391+95.11	407+47.11	BRIDGE NO. 03796 EB INSIDE LANE	1552	1		1
392+91.04	410+22.04	BRIDGE NO. 03796 WB OUTSIDE LANE	1731	1	1	
392+57.16	412+72.16	BRIDGE NO. 03796 WB INSIDE LANE	2015	1	1	
TOTALS:			13116	12	13	9

WIRE ROPE SAFETY FENCE

STATION	STATION	LOCATION	WIRE ROPE SAFETY FENCE	* WRSF ANCHOR	** WRSF MAINTENANCE MATERIALS	** WRSF POST REPAIR
			LIN. FT.	EACH	LUMP SUM	EACH
122+97.30	196+41.30	LEFT OF RIGHT MAIN LANES	7344	2		
200+41.30	296+95.30	LEFT OF RIGHT MAIN LANES	9654	2		
300+95.30	328+23.81	LEFT OF RIGHT MAIN LANES	2729	2		
328+23.81	379+73.30	RIGHT OF LEFT MAINLANES	5149	2		
** ENTIRE	PROJECT	IF AND WHERE DIRECTED BY THE ENGINEER			1.00	20
TOTALS:			24876	8	1.00	20

*SHOWN FOR INFORMATION ONLY
**QUANTITY ESTIMATED
SEE SECTION 104.03 OF THE STD. SPECS.

P.C.C.P. PATCHING

LOG MILE	LOG MILE	LOCATION	LENGTH	WIDTH	REM. OF EXIST. P.C.C.P.	P.C.C.P. PATCHING (10" U.T.)	P.C.C.P. PATCHING (12" U.T.)
			FEET	FEET	SQ. YD.	SQ. YD.	SQ. YD.
9.848	9.851	WESTBOUND MAIN LANES - INSIDE LANE	16	12.00	21.3	21.3	
9.901	9.904	WESTBOUND MAIN LANES - INSIDE LANE	16	12.00	21.3	21.3	
9.926	9.957	WESTBOUND MAIN LANES - INSIDE LANE	164	12.00	218.7	218.7	
10.059	10.080	WESTBOUND MAIN LANES - INSIDE LANE	111	12.00	148.0	148.0	
10.108	10.121	WESTBOUND MAIN LANES - INSIDE LANE	69	12.00	92.0	92.0	
11.312	11.315	WESTBOUND MAIN LANES - INSIDE LANE	16	12.00	21.3		21.3
11.519	11.525	WESTBOUND MAIN LANES - INSIDE LANE	32	12.00	42.7		42.7
* ENTIRE	PROJECT	IF AND WHERE DIRECTED BY ENGINEER			1155.7	1155.7	
TOTALS:					1721.0	1657.0	64.0

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

8/28/2015

RBB0310.DGN

QUANTITIES

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
12-31-15				6	ARK.			
				JOB NO.		BB0310	41	75

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-4-16

RUMBLE STRIPS IN P.C.C. SHOULDERS

STATION	STATION	LOCATION	* RUMBLE STRIPS IN P.C.C. SHOULDERS
			LIN.FT.
153+81	387+70	INSIDE EB SHOULDERS	23389
153+81	387+70	OUTSIDE EB SHOULDERS	23389
TOTAL:			46778

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

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	AVG. WIDTH	COLD MILLING ASPHALT PAVEMENT
			FEET	SQ. YD.
372+04.76	384+52.47	HWY. 67 EXIT RAMP	25.00	3465.86
372+49.46	388+73.77	HWY. 67 ENTRANCE RAMP	25.00	4511.97
TOTAL:				7977.83

NOTE: AVERAGE MILLING DEPTH 2".

CONCRETE BARRIER WALL

STATION	STATION	LOCATION	PIER PROTECTION (TYPE A)
			LIN. FT.
199+25.95	199+62.95	BRIDGE NO. 03572 EB OUTSIDE LANE	37
201+73.38	202+10.38	BRIDGE NO. 03572 WB OUTSIDE LANE	37
300+72.20	301+09.20	BRIDGE NO. 03573 EB OUTSIDE LANE	37
301+50.74	301+87.74	BRIDGE NO. 03573 WB OUTSIDE LANE	37
TOTAL:			148

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		TACK COAT				ACHM BASE COURSE (1 1/2")				ACHM BINDER COURSE (1")				ACHM SURFACE COURSE (1/2")							
				TON / STATION	TON	AVG. 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	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 70-22	TOTAL PG 70-22
			FEET			FEET				FEET			TON	FEET			TON	FEET			TON	FEET			TON	TON
SHOULDER PREPARATION AND WIDENING																										
168+66.00	176+65.59	SHOULDER RECONSTRUCTION	799.59	27.75	221.89	18.85	1674.70	0.03	50.24	6.46	573.93	550.00	157.83	6.26	556.16	495.00	137.65	6.13	544.61	220.00	59.91	6.00	533.06	220.00	58.64	118.55
176+65.59	180+65.65	SHOULDER WIDENING	400.06	VAR.	149.74	VAR.	1372.42	0.03	41.17	VAR.	472.29	550.00	129.88	VAR.	461.18	495.00	114.14	VAR.	438.95	220.00	48.28	VAR.	427.84	220.00	47.06	95.34
TEMPORARY RAMP																										
374+34.14	379+06.80	TEMPORARY EXIT RAMP HWY. 67	472.66	273.00	1290.36	45.85	2407.94	0.03	72.24	15.46	536.42	550.00	147.52	15.26	801.42	495.00	198.35	15.13	794.59	220.00	87.40	15.00	787.77	220.00	86.65	174.05
TOTALS:					1661.99		5455.06		163.65		1582.64		435.23		1818.76		450.14		1778.15		195.59		1748.67		192.35	387.94

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.9% MIN. AGGR.....5.1% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.9% MIN. AGGR.....4.1% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....96.2% MIN. AGGR.....3.8% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		PORTLAND CEMENT CONCRETE PAVEMENT 12" U.T.		ACHM SURFACE COURSE (3/8")				ACHM SURFACE COURSE (1/2")				PROCESSING CEMENT STABILIZED CRUSHED STONE BASE COURSE (6" COMPACTED DEPTH)		CEMENT IN CEMENT STABILIZED CRUSHED STONE BASE COURSE	AGGREGATE IN CEMENT STABILIZED CRUSHED STONE BASE COURSE
				TON / STATION	TON	AVG. WID.	SQ.YD.	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	POUND / SQ.YD.	PG 64-22	AVG. WID.	SQ.YD.	TON	TON
			FEET			FEET		FEET			TON	FEET			TON	FEET			
MAIN LANES																			
153+81.12	379+05.35	EASTBOUND MAIN LANES	22524.23	83.50	18807.73	38.00	95102.30	30.00	75080.77	110.00	4129.44					30.00	75080.77	1576.70	24701.57
372+04.76	384+52.47	HWY. 67 EXIT RAMP	1247.71									25.00	3465.86	220.00	381.24				
372+49.46	388+73.77	HWY. 67 ENTRANCE RAMP	1624.31									25.00	4511.97	220.00	496.32				
328+14.00	328+70.00	MEDIAN CROSSING	56.00									VAR.	1305.00	220.00	143.55				
WIDENING FOR GUARDRAIL																			
195+14.44	201+23.10	R.M.L. - LT.	608.66	VAR.	60.36							VAR.	373.61	220.00	41.10				
197+81.44	203+67.44	L.M.L. - RT.	586.00	14.25	78.80							7.50	460.83	220.00	50.69				
208+47.00	211+58.00	R.M.L. - LT.	311.00	14.25	39.62							7.50	231.67	220.00	25.48				
295+12.20	301+32.20	R.M.L. - LT.	620.00	VAR.	60.36							VAR.	373.61	220.00	41.10				
297+79.20	303+65.20	L.M.L. - RT.	586.00	14.25	78.80							7.50	460.83	220.00	50.69				
378+16.31	387+09.31	R.M.L. - LT.	893.00	14.25	124.90							7.50	730.42	220.00	80.35				
378+48.00	386+66.00	R.M.L. - RT.	818.00	11.25	90.17							7.50	667.92	220.00	73.47				
378+85.16	388+03.16	L.M.L. - LT.	918.00	11.25	101.42							7.50	751.25	220.00	82.64				
378+91.65	387+59.65	L.M.L. - RT.	868.00	14.25	121.34							7.50	709.58	220.00	78.05				
391+28.39	407+22.39	R.M.L. - RT.	1594.00	14.25	224.79							7.50	1314.58	220.00	144.60				
391+62.11	407+90.11	R.M.L. - LT.	1628.00	14.25	229.64							7.50	1342.92	220.00	147.72				
392+58.04	410+65.04	L.M.L. - LT.	1807.00	11.25	201.43							7.50	1492.08	220.00	164.13				
392+24.16	413+15.16	L.M.L. - RT.	2091.00	14.25	295.62							7.50	1728.75	220.00	190.16				
TOTALS:					20514.98		95102.30		75080.77		4129.44		19920.88		2191.29		75080.77	1576.70	24701.57

BASIS OF ESTIMATE:
CEMENT STABILIZED CRUSHED STONE BASE COURSE - AGGREGATE = 94.0%, CEMENT = 6.0%
ACHM SURFACE COURSE (3/8").....94.9% MIN. AGGR.....5.1% ASPHALT BINDER
ACHM SURFACE COURSE (1/2").....94.9% MIN. AGGR.....5.1% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 115 FOR PG 64-22

8/28/2015

RBB0310.DGN

QUANTITIES

SUMMARY OF QUANTITIES

ITEM NUMBER	ITEM	PEN-30-1(154)7	NHPP-30-1(154)7	QUANTITY	UNIT
SP	REMOVAL OF RUMBLE STRIP		27888	27888	LIN. FT.
202	REMOVAL AND DISPOSAL OF GUARDRAIL		11166	11166	LIN. FT.
202	REMOVAL AND DISPOSAL OF IMPACT ATTENUATION BARRIER		4	4	EACH
202	REMOVAL AND DISPOSAL OF CONCRETE PIER PROTECTION		148	148	LIN. FT.
SP & 202	REMOVAL OF EXISTING PORTLAND CEMENT CONCRETE PAVEMENT		159193	159193	SQ. YD.
210	UNCLASSIFIED EXCAVATION		45870	45870	CU. YD.
210	COMPACTED EMBANKMENT		35328	35328	CU. YD.
SP & 210	SOIL STABILIZATION		200	200	TON
215	TRENCHING AND SHOULDER PREPARATION		8	8	STATION
303	AGGREGATE BASE COURSE (CLASS 7)		22177	22177	TON
308	AGGREGATE IN CEMENT STABILIZED CRUSHED STONE BASE COURSE		24702	24702	TON
308	CEMENT IN CEMENT STABILIZED CRUSHED STONE BASE COURSE		1577	1577	TON
308	PROCESSING CEMENT STABILIZED CRUSHED STONE BASE COURSE		75081	75081	SQ. YD.
SS & 401	TACK COAT		164	164	GAL.
SP & 405	MINERAL AGGREGATE IN ACHM BASE COURSE (1 1/2")		418	418	TON
SP & 405	ASPHALT BINDER (PG 70-22) IN ACHM BASE COURSE (1 1/2")		17	17	TON
SP, SS, & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")		432	432	TON
SP, SS, & 406	ASPHALT BINDER (PG 70-22) IN ACHM BINDER COURSE (1")		18	18	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (3/8")		3918	3918	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (3/8")		211	211	TON
SP, SS, & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")		2447	2447	TON
SP, SS, & 407	ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2")		112	112	TON
SP, SS, & 407	ASPHALT BINDER (PG 70-22) IN ACHM SURFACE COURSE (1/2")		20	20	TON
412	COLD MILLING ASPHALT PAVEMENT		7978	7978	SQ. YD.
SP & 501	PORTLAND CEMENT CONCRETE PAVEMENT (12" UNIFORM THICKNESS)		95102	95102	SQ. YD.
SP & 507	PORTLAND CEMENT CONCRETE PAVEMENT PATCHING (10" UNIFORM THICKNESS)		1657	1657	SQ. YD.
SP & 507	PORTLAND CEMENT CONCRETE PAVEMENT PATCHING (12" UNIFORM THICKNESS)		64	64	SQ. YD.
509	JOINT REHABILITATION (TYPE A)		36096	36096	LIN. FT.
509	JOINT REHABILITATION (TYPE B)		22560	22560	LIN. FT.
SP & 510	GRINDING PORTLAND CEMENT CONCRETE PAVEMENT		31025	31025	SQ. YD.
601	MOBILIZATION		1.00	1.00	LUMP SUM
SP & 602	FURNISHING FIELD OFFICE		1	1	EACH
SP & 603	MAINTENANCE OF TRAFFIC		1.00	1.00	LUMP SUM
603	24" TEMPORARY CULVERT		158	158	LIN. FT.
SS & 604	SIGNS		1432	1432	SQ. FT.
SS & 604	TRAFFIC DRUMS		329	329	EACH
604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		22573	22573	LIN. FT.
604	RELOCATING PRECAST CONCRETE BARRIER		21353	21353	LIN. FT.
604	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS		58483	58483	LIN. FT.
604	REMOVAL OF PERMANENT PAVEMENT MARKINGS		56238	56238	LIN. FT.
604	ADVANCE WARNING ARROW PANEL		580	580	DAY
SP & 604	PORTABLE CHANGEABLE MESSAGE SIGN		90	90	WEEK
SP	AWIS MOBILIZATION		1.00	1.00	LUMP SUM
SP	AWIS OPERATION		18	18	MNTH
SP	DEVICE RELOCATION		5	5	EACH
SP	FURNISH AND INSTALL CLOSED CIRCUIT TELEVISION SYSTEM		2	2	EACH
SP	FURNISH AND INSTALL PUBLIC NOTIFICATION SYSTEM		1	1	EACH
SP	FURNISH AND INSTALL VARIABLE MESSAGE SIGN		3	3	EACH
SP	FURNISH AND INSTALL VEHICLE DETECTION SYSTEM		17	17	EACH
SP & 605	CONCRETE DITCH PAVING (TYPE B)	11056		11056	SQ. YD.
611	UNDERDRAIN OUTLET PROTECTORS		52	52	EACH
611	4" PIPE UNDERDRAINS		13000	13000	LIN. FT.
617	GUARDRAIL (TYPE A)		13116	13116	LIN. FT.
617	TERMINAL ANCHOR POSTS (TYPE 1)		9	9	EACH
617	GUARDRAIL TERMINAL (TYPE 2)		13	13	EACH
617	THRIE BEAM GUARDRAIL TERMINAL		12	12	EACH
SP	WIRE ROPE SAFETY FENCE	24876		24876	LIN. FT.
SP	WIRE ROPE SAFETY FENCE MAINTENANCE MATERIALS	1.00		1.00	LUMP SUM
SP	WIRE ROPE SAFETY FENCE (POST REPAIR)	20		20	EACH
620	LIME		46	46	TON
620	SEEDING		22.84	22.84	ACRE
SS & 620	MULCH COVER		67.28	67.28	ACRE
620	WATER	139.3	6882.7	7022.0	M.GAL.
621	TEMPORARY SEEDING		44.44	44.44	ACRE
621	SILT FENCE		22769	22769	LIN. FT.
621	SAND BAG DITCH CHECKS	88	79	167	BAG
621	DROP INLET SILT FENCE		416	416	LIN. FT.
621	SEDIMENT REMOVAL AND DISPOSAL		859	859	CU. YD.
623	SECOND SEEDING APPLICATION		22.84	22.84	ACRE
624	SOLID SODDING	11056	1640	12696	SQ. YD.
631	CONCRETE BARRIER WALL (PIER PROTECTION TYPE A)		148	148	LIN. FT.
635	ROADWAY CONSTRUCTION CONTROL		1.00	1.00	LUMP SUM
642	RUMBLE STRIPS IN PORTLAND CEMENT CONCRETE SHOULDERS		46778	46778	LIN. FT.
* SP & 719	INVERTED PROFILE THERMOPLASTIC CONTRAST PAVEMENT MARKING WHITE (4") (ALTERNATE NO. 1)		58627	58627	LIN. FT.
* SP	HIGH PERFORMANCE CONTRAST MARKING TAPE WHITE (4") (ALTERNATE NO. 2)		58627	58627	LIN. FT.
* SP & 719	INVERTED PROFILE THERMOPLASTIC CONTRAST PAVEMENT MARKING WHITE (8") (ALTERNATE NO. 1)		948	948	LIN. FT.
* SP	HIGH PERFORMANCE CONTRAST MARKING TAPE WHITE (8") (ALTERNATE NO. 2)		948	948	LIN. FT.
* SP & 719	INVERTED PROFILE THERMOPLASTIC CONTRAST PAVEMENT MARKING YELLOW (4") (ALTERNATE NO. 1)		46787	46787	LIN. FT.
* SP	HIGH PERFORMANCE CONTRAST MARKING TAPE YELLOW (4") (ALTERNATE NO. 2)		46787	46787	LIN. FT.
721	RAISED PAVEMENT MARKERS (TYPE II)		660	660	EACH
731	TEMPORARY IMPACT ATTENUATION BARRIER		1	1	EACH
731	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)		1	1	EACH
731	TEMPORARY IMPACT ATTENUATION BARRIER (RELOCATION)		1	1	EACH
SP	THERMOPLASTIC RUMBLE BAR		144	144	LIN. FT.
	STRUCTURES OVER 20' SPAN				
SP	BRIDGE DECK REPAIR FOR POLYMER OVERLAYS		660	660	SQ. FT.
SP	POLYMER OVERLAY		5042	5042	SQ. YD.

* DENOTES ALTERNATE BID ITEMS.

REVISIONS

DATE	REVISION	SHEET NUMBER
12/21/2015	REVISED "HIGH PERFORMANCE PAVEMENT MARKING" SPECIAL PROVISION	42
12/31/2015	REVISED TEMPORARY EROSION CONTROL SHEETS. REVISED PLAN SHEETS. REVISED "REMOVAL AND DISPOSAL OF GUARDRAIL" QUANTITY, "AGGREGATE BASE COURSE (CLASS 7)" QUANTITY, "AGGREGATE IN CEMENT STABILIZED CRUSHED STONE BASE COURSE" QUANTITY, "CEMENT IN CEMENT STABILIZED CRUSHED STONE BASE COURSE" QUANTITY, "PROCESSING CEMENT STABILIZED CRUSHED STONE BASE COURSE" QUANTITY, "MINERAL AGGREGATE IN ACHM SURFACE COURSE (3/8")" QUANTITY, "ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (3/8") " QUANTITY, "MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")" QUANTITY, "ASPHALT BINDER (PG 64-22) IN ACHM SURFACE COURSE (1/2") " QUANTITY, "PORTLAND CEMENT CONCRETE PAVEMENT (12" UNIFORM THICKNESS)" QUANTITY, "GUARDRAIL (TYPE A)" QUANTITY, "TERMINAL ANCHOR POSTS (TYPE 1)" QUANTITY, AND "GUARDRAIL TERMINAL (TYPE 2)" QUANTITY	17, 18, 39, 40, 41, 42, 45, 46
1/7/2016	REVISED "TRENCHING AND SHOULDER PREPARATION" QUANTITY	39, 42
1/8/2016	REVISED "REMOVAL AND DISPOSAL OF PORTLAND CEMENT CONCRETE PAVEMENT GRINGING RESIDUE" SPECIAL PROVISION	42

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
12-21-15 12-31-15 1-7-16		1-8-16		6	ARK.	JOB NO. BB0310	42	75

(2) SUMMARY OF QUANTITIES AND REVISIONS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 11425 TRINITY D. SMITH 1-8-16

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.		BB0310	43	75

(2) PLAN SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-3-15

STA. 127+00 IN PLACE-R.M.L.
TYPE "H" DROP INLET IN MEDIAN
4'X4'XH=4'-0" 2-OPENINGS
24"X84' R.C. PIPE OUTLET
RETAIN

P1449+75.59

120

HWY. 108
BR. 03571

125

130

PT 130+62.78

STA. 131+00.00 C.L. I-30 =
STA. 130+99.18 C.L. HWY. 108 EXIT RAMP

15' 12' 12' 4'

I-30 N 46°39'00" E

52'

STA. 121+63.20
CL I-30
CL HWY. 108

STA. 122+97.38
BEGIN JOB BB0310
BEGIN WRSF

P1126+86.56

+57

1960' ACCEL. LANE

STA. 131+00.00 C.L. I-30 =
STA. 130+99.92 C.L. HWY. 108
ENTRANCE RAMP

GUARDRAIL
STA. 134+06 TO STA. 136+17 RT. OF R.M.L.
RETAIN

STA. 140+00 IN PLACE
DBL. 5'X3'X178' R.C. BOX CULVERT
D.A. 450 AC. C=0.3
TYPE "K" DROP INLET IN MED.
5'X5'XH=2'-0" 2-OPENINGS
RETAIN

135

140

145

150

15' 12' 12' 4'

N 46°39'00" E I-30

52'

12' 12' 4' 10'

WRSF & CONCRETE
DITCH PAVING

1960' ACCEL. LANE

GUARDRAIL
STA. 134+06 TO STA. 136+17 RT. OF R.M.L.
RETAIN

STA. 135+84 IN PLACE-R.M.L.
OVERHEAD SIGN STRUCTURE
RETAIN

GUARDRAIL
STA. 148+75 TO STA. 150+68 RT. OF R.M.L.
RETAIN

STA. 150+00 IN PLACE-R.M.L.
TYPE "H" DROP INLET IN MEDIAN
4'X4'XH=4'-0" 2-OPENINGS
24"X88' R.C. PIPE OUTLET
RETAIN

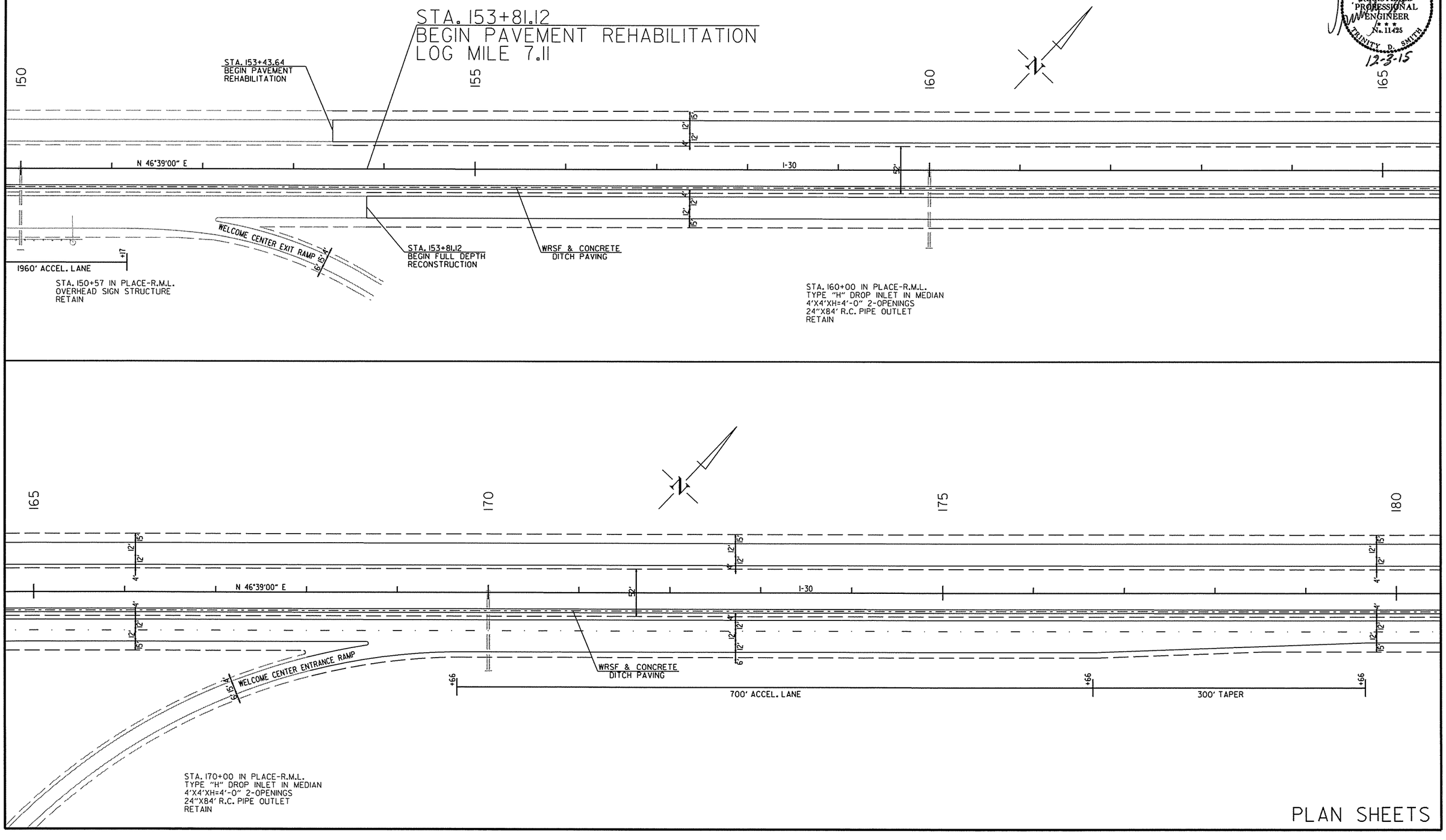
PLAN SHEETS

11/20/2015

RBB0310.DGN

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0310	44	75
				(2) PLAN SHEETS				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-3-15



11/20/2015

RBB0310.DGN

PLAN SHEETS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
12-31-15				6	ARK.			
				JOB NO.		BB0310	45	75
				(2) PLAN SHEETS				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-4-16

STA. 188+90 IN PLACE
DBL. 5'X4'X160' R.C. BOX CULVERT
RETAIN

GUARDRAIL
STA. 188+45 TO STA. 189+95 LT. OF L.M.L.
RETAIN

180 185 190 195

15' 12' 4' 12' 12' 4' 15'

N 46°39'00" E

52'

I-30

WRSF & CONCRETE DITCH PAVING

STA. 182+00 IN PLACE-R.M.L.
TYPE "H" DROP INLET IN MEDIAN
4'X4'XH=4'-0" 2-OPENINGS
24"X88' R.C. PIPE OUTLET
RETAIN

GUARDRAIL
STA. 187+65 TO STA. 189+15 RT. OF R.M.L.
RETAIN

STA. 194+00 IN PLACE-R.M.L.
TYPE "H" DROP INLET IN MEDIAN
4'X4'XH=4'-0" 2-OPENINGS
24"X84' R.C. PIPE OUTLET
RETAIN

PIER PROTECTION (TYPE A)
STA. 201+73.38 LT. OF L.M.L. TO STA. 202+10.38 LT. OF L.M.L.

REMOVAL AND DISPOSAL OF PIER PROTECTION
STA. 199+41.00 LT. OF L.M.L. TO STA. 199+69.00 LT. OF L.M.L.

REMOVAL AND DISPOSAL OF GUARDRAIL
STA. 199+73 LT. OF L.M.L. TO STA. 201+73 LT. OF L.M.L.

STA. 199+50.00
EXIST. 212.29' BR. NO. 03572
24'-0" CLEAR ROADWAY
RETAIN

195 200 205 210

CO. RD. 63
BR. 03572

15' 12' 4' 12' 12' 4' 15'

N 46°39'00" E

I-30

52'

STA. 196+24.44
END WRSF

STA. 200+13.10
BEGIN WRSF

STA. 199+50.00
CL I-30
CL CO. RD. 63

STA.	STA.	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)	TERMINAL ANCHOR POSTS (TYPE I)
197+25.95	199+25.95	RT. OF R.M.L.	200 LIN. FT.	1 EACH	1 EACH	
195+63.10	200+63.10	LT. OF R.M.L.	500 LIN. FT.		1 EACH	1 EACH
198+24.44	203+24.44	RT. OF L.M.L.	500 LIN. FT.		1 EACH	1 EACH
199+73.38	201+73.38	LT. OF L.M.L.	200 LIN. FT.	1 EACH	1 EACH	
209+40.00	211+15.00	LT. OF R.M.L.	175 LIN. FT.		1 EACH	1 EACH

REMOVAL AND DISPOSAL OF GUARDRAIL
STA. 197+26 RT. OF R.M.L. TO STA. 199+26 RT. OF R.M.L.

REMOVAL AND DISPOSAL OF PIER PROTECTION
STA. 199+31.00 RT. OF R.M.L. TO STA. 199+59.00 RT. OF R.M.L.

PIER PROTECTION (TYPE A)
STA. 199+25.95 RT. OF R.M.L. TO STA. 199+62.95 RT. OF R.M.L.

REMOVAL AND DISPOSAL OF IMPACT ATTENUATION BARRIER
STA. 199+50.00 C.L. OF I-30 = 2 EACH

STA. 207+00 IN PLACE-R.M.L.
TYPE "H" DROP INLET IN MEDIAN
4'X4'XH=4'-0" 2-OPENINGS
24"X84' R.C. PIPE OUTLET
RETAIN

12/31/2015

RBB0310.DGN

PLAN SHEETS

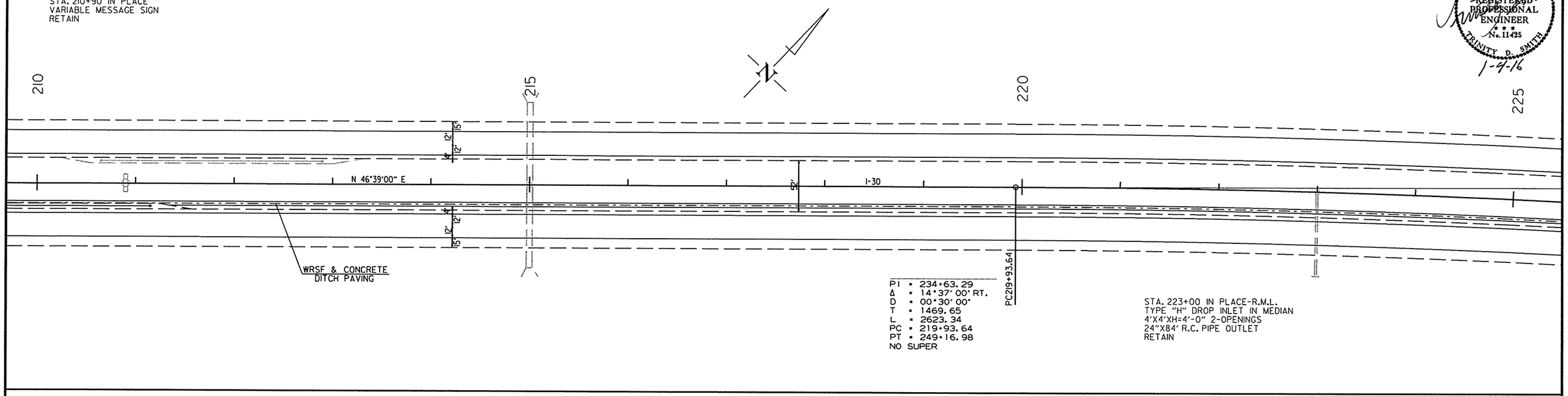
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
12-31-15				6	ARK.			
				JOB NO.		BB0310	46	75
				(2) PLAN SHEETS				

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
1-4-16

STA. 215+00 IN PLACE
TYPE "K" DROP INLET IN MEDIAN
6'X4'XH=1'-6" 2-OPENINGS
6'X3'X168' R.C. BOX CULV'T
RETAIN

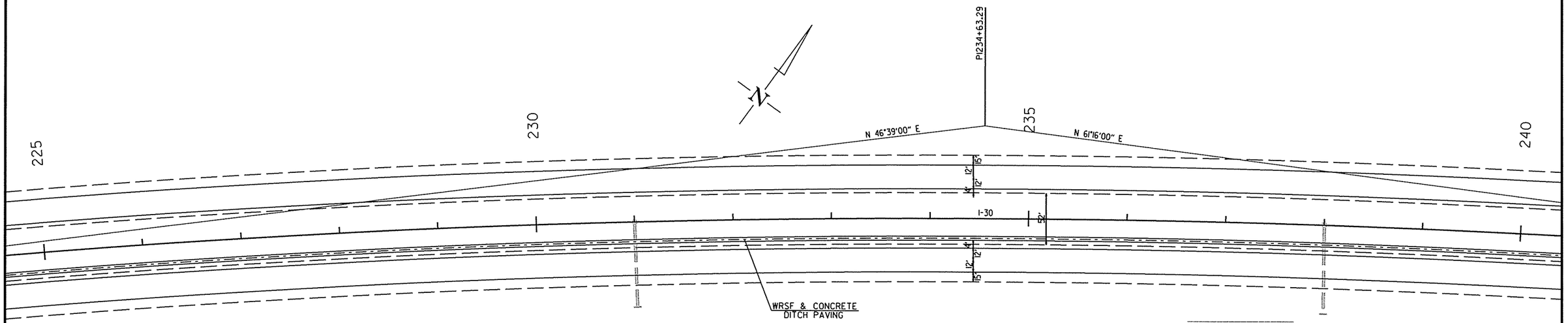
GUARDRAIL
STA. 210+65 TO STA. 212+90 RT. OF L.M.L.
RETAIN

STA. 210+90 IN PLACE
VARIABLE MESSAGE SIGN
RETAIN



PI = 234+63.29
Δ = 14°37' 00" RT.
D = 00°30' 00"
T = 1469.65
L = 2623.34
PC = 219+93.64
PT = 249+16.98
NO SUPER

STA. 223+00 IN PLACE-R.M.L.
TYPE "H" DROP INLET IN MEDIAN
4'X4'XH=4'-0" 2-OPENINGS
24"X84' R.C. PIPE OUTLET
RETAIN



PI = 234+63.29
Δ = 14°37' 00" RT.
D = 00°30' 00"
T = 1469.65
L = 2923.34
PC = 219+93.64
PT = 249+16.98
NO SUPER

STA. 231+00 IN PLACE-R.M.L.
TYPE "H" DROP INLET IN MEDIAN
4'X4'XH=4'-0" 2-OPENINGS
24"X84' R.C. PIPE OUTLET
RETAIN

STA. 238+00 IN PLACE-R.M.L.
TYPE "H" DROP INLET IN MEDIAN
4'X4'XH=4'-0" 1-OPENING
24"X88' R.C. PIPE OUTLET
RETAIN

12/31/2015

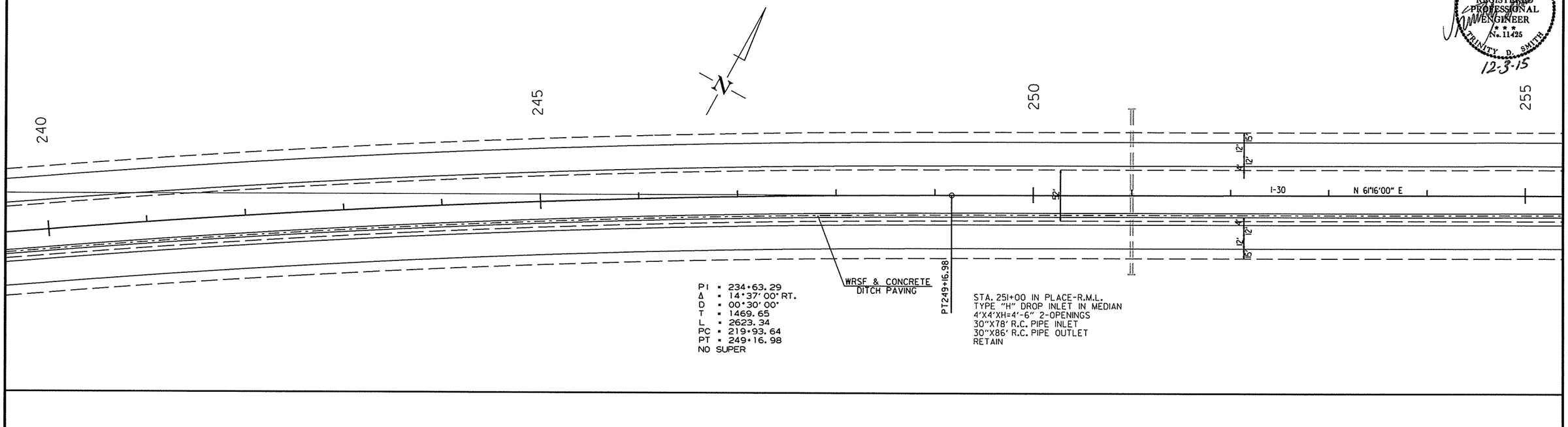
RBB0310.DGN

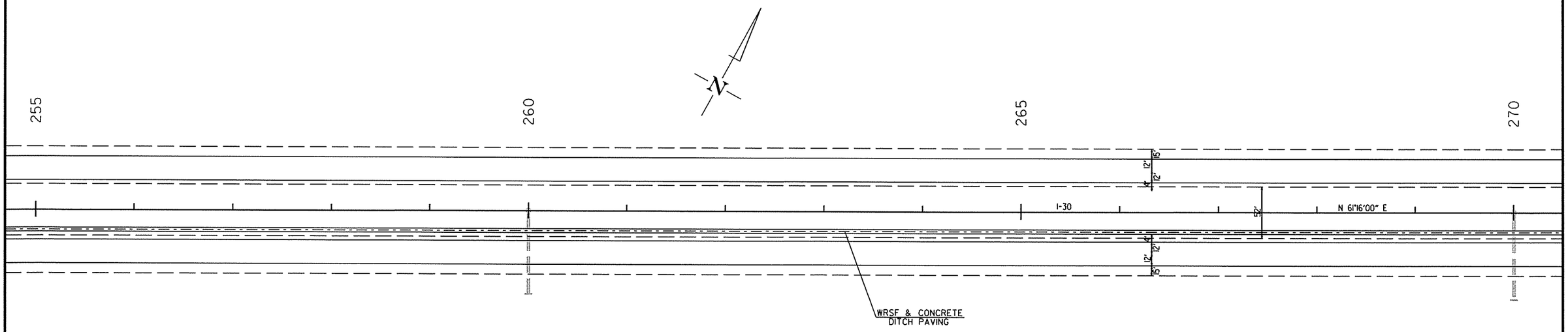
PLAN SHEETS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0310	47	75

(2) PLAN SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-3-15





11/20/2015

RBB0310.DGN

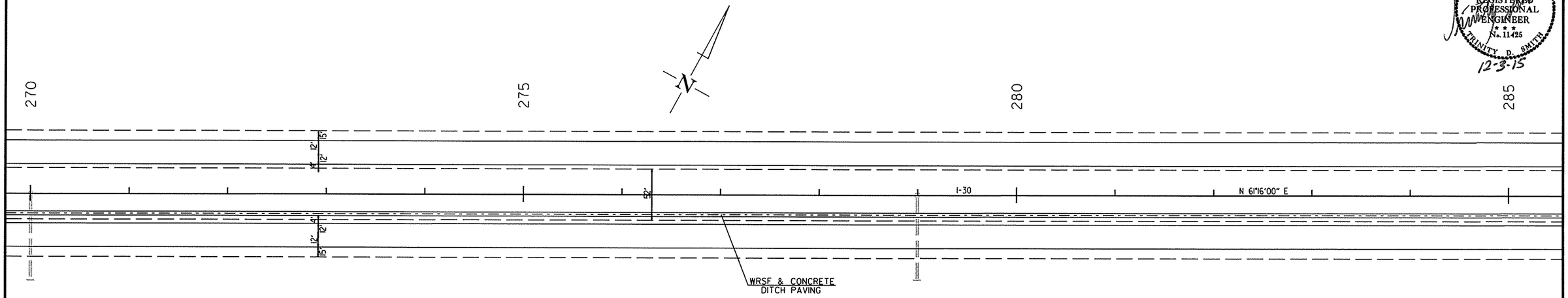
PLAN SHEETS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0310	48	75

(2) PLAN SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-3-15

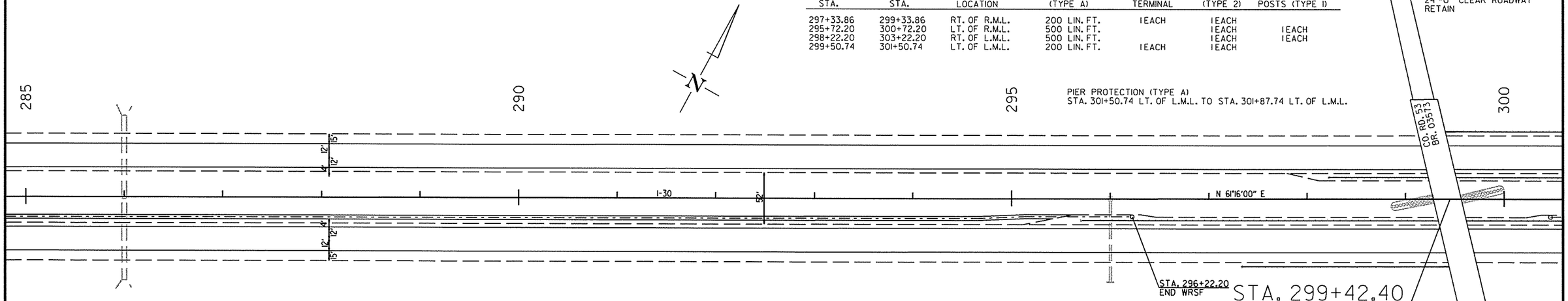


STA. 279+00 IN PLACE-R.M.L.
TYPE "H" DROP INLET IN MEDIAN
4'X4'XH=3'-9" 2-OPENINGS
24"X84' R.C. PIPE OUTLET
RETAIN

STA.	STA.	LOCATION	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)	TERMINAL ANCHOR POSTS (TYPE I)
297+33.86	299+33.86	RT. OF R.M.L.	200 LIN. FT.	1 EACH	1 EACH	
295+72.20	300+72.20	LT. OF R.M.L.	500 LIN. FT.		1 EACH	1 EACH
298+22.20	303+22.20	RT. OF L.M.L.	500 LIN. FT.		1 EACH	1 EACH
299+50.74	301+50.74	LT. OF L.M.L.	200 LIN. FT.	1 EACH	1 EACH	

PIER PROTECTION (TYPE A)
STA. 301+50.74 LT. OF L.M.L. TO STA. 301+87.74 LT. OF L.M.L.

STA. 299+42.40
EXIST. 212.29' BR. NO. 03572
24'-0" CLEAR ROADWAY
RETAIN



STA. 296+22.20
END WRSF

STA. 299+42.40
CL I-30
CL CO. RD. 53

STA. 286+00 IN PLACE-R.M.L.
TYPE "K" DROP INLET IN MEDIAN
5'X3'XH=1'-3" 2-OPENINGS
5'X3'X166' R.C. BOX CULV'T
RETAIN

STA. 296+00 IN PLACE-R.M.L.
TYPE "H" DROP INLET IN MEDIAN
4'X4'XH=3'-9" 2-OPENINGS
24"X82' R.C. PIPE OUTLET
RETAIN

REMOVAL AND DISPOSAL OF IMPACT ATTENUATION BARRIER
STA. 299+42.40 C.L. OF I-30 = 2 EACH

REMOVAL AND DISPOSAL OF GUARDRAIL
STA. 295+72 RT. OF R.M.L. TO STA. 300+72 RT. OF R.M.L.

PIER PROTECTION (TYPE A)
STA. 300+72.20 RT. OF R.M.L. TO STA. 301+09.20 RT. OF R.M.L.

PLAN SHEETS

11/20/2015

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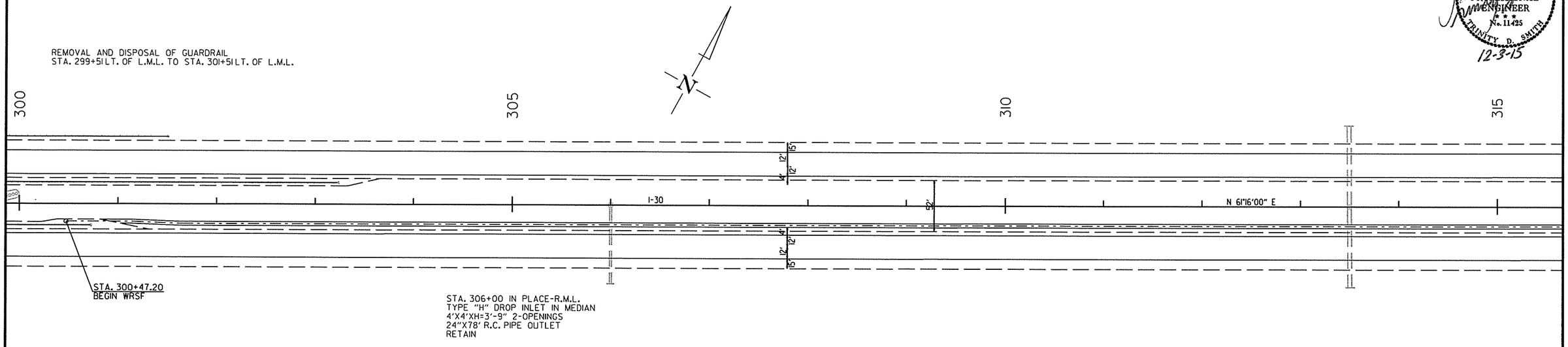
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0310	49	75
				(2) PLAN SHEETS				

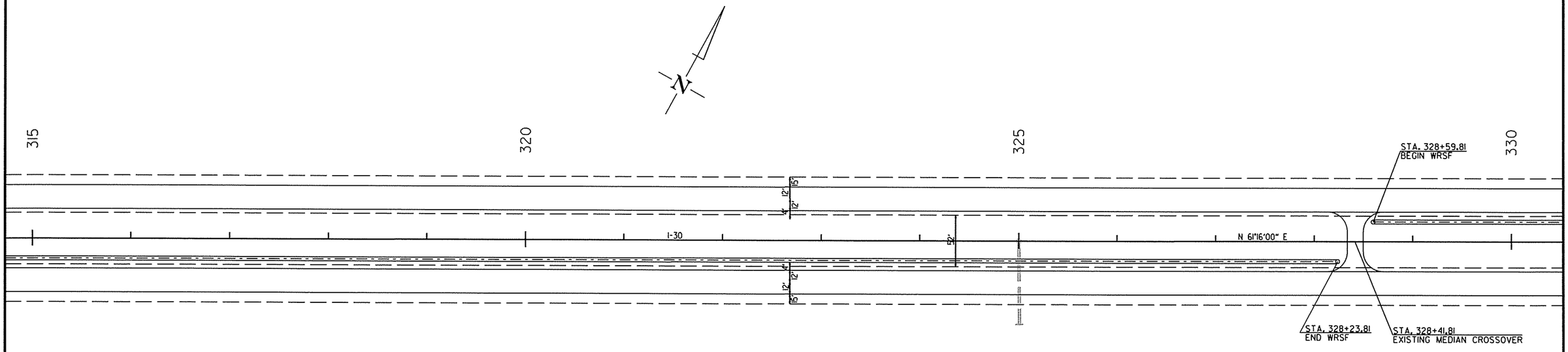
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-3-15

REMOVAL AND DISPOSAL OF GUARDRAIL
STA. 299+51 LT. OF L.M.L. TO STA. 301+51 LT. OF L.M.L.



STA. 306+00 IN PLACE-R.M.L.
TYPE "H" DROP INLET IN MEDIAN
4'X4'XH=3'-9" 2-OPENINGS
24"X78' R.C. PIPE OUTLET
RETAIN

STA. 313+50 IN PLACE-R.M.L.
TYPE "H" DROP INLET IN MEDIAN
6'X6'XH=5'-6" 2-OPENINGS
48"X80' R.C. PIPE INLET
48"X84' R.C. PIPE OUTLET
RETAIN



STA. 325+00 IN PLACE-R.M.L.
TYPE "H" DROP INLET IN MEDIAN
4'X4'XH=3'-9" 2-OPENINGS
24"X82' R.C. PIPE OUTLET
RETAIN

11/20/2015

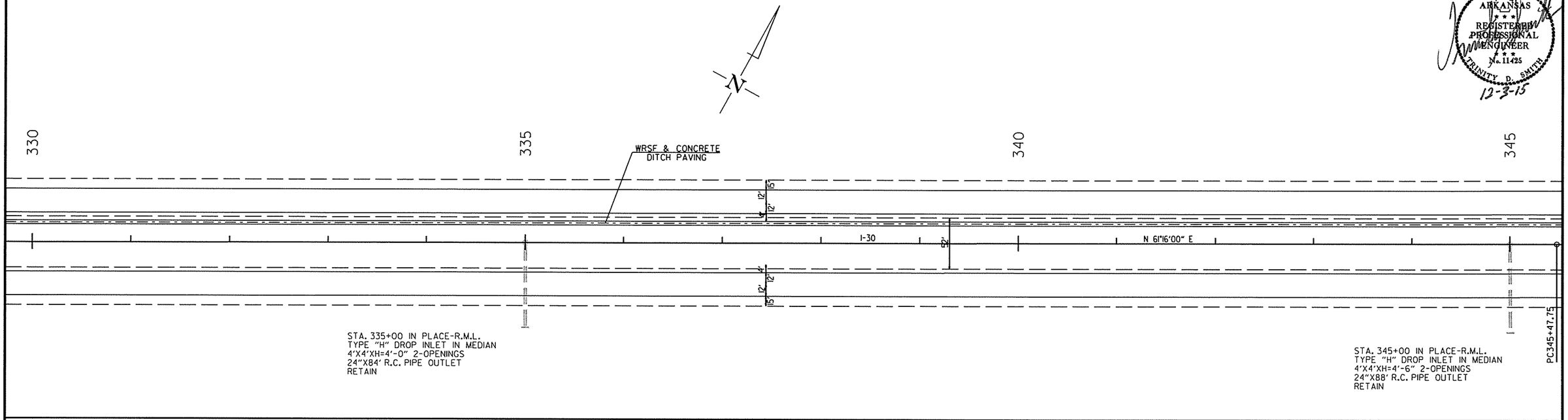
RBB0310.DGN

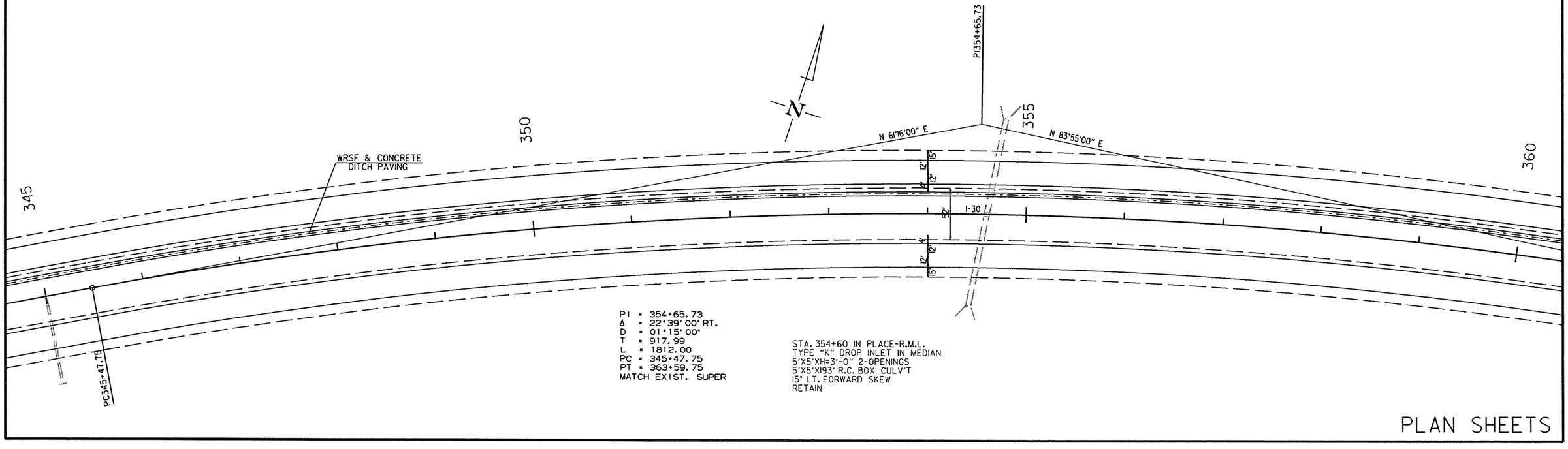
PLAN SHEETS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0310	50	75

(2) PLAN SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-3-15





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RBB0310.DGN

PLAN SHEETS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0310	51	75

(2) PLAN SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-3-15

HWY. 67 ENTRANCE RAMP
PI = 372+00.00
Δ = 05°42'30" RT.
D = 03°00'00"
T = 95.22
L = 190.28
PC = 371+04.78
PT = 372+95.06
NO SUPER

STA. 371+00 IN PLACE-L.M.L.
TYPE "H" DROP INLET IN MEDIAN
4'X4'XH=3'-9" 2-OPENINGS
24"X96' R.C. PIPE OUTLET
RETAIN

300' TAPER | 500' ACCEL. LANE

STA. 371+00.00 C.L. I-30 =
STA. 370+99.41 C.L. HWY. 67
ENTRANCE RAMP

WRSF & CONCRETE DITCH PAVING

PT363+59.75

PC371+04.78

PI372+00.00

PT372+95.06

HWY. 67 ENTRANCE RAMP

N 83°55'00" E

PI368+00.00

I-30

N 83°55'00" E

N 83°55'00" E

HWY. 67 TEMP. EXIT RAMP

N 08°04'19" E

PI374+99.99

HWY. 67 EXIT RAMP

PC372+58.44

PI373+00.02

PC373+41.55

PC373+48.84

N 89°37'30" E

PI = 354+65.73
Δ = 22°39'00" RT.
D = 01°15'00"
T = 917.99
L = 1812.00
PC = 345+47.75
PT = 363+59.75
MATCH EXIST. SUPER

STA. 367+00.00 C.L. I-30 =
STA. 366+99.23 C.L. HWY. 67 EXIT RAMP

STA. 365+00 IN PLACE-R.M.L.
TYPE "H" DROP INLET IN MEDIAN
4'X4'XH=6'-6" 2-OPENINGS
24"X102' R.C. PIPE OUTLET
RETAIN

PC367+04.78

PT368+95.06

HWY. 67 EXIT RAMP
PI = 368+00.00
Δ = 05°42'30" RT.
D = 03°00'00"
T = 95.22
L = 190.28
PC = 367+04.78
PT = 368+95.06
NO SUPER

TEMP. EXIT RAMP
PI = 373+00.02
Δ = 04°09'20" RT.
D = 05°00'00"
T = 41.57
L = 83.11
PC = 372+58.44
PT = 373+41.55
NO SUPER

TEMP. EXIT RAMP
PI = 374+99.99
Δ = 15°01'40" RT.
D = 05°00'00"
T = 151.15
L = 300.56
PC = 373+48.84
PT = 376+49.40
NO SUPER

STA.	STA.	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)	TERMINAL ANCHOR POSTS (TYPE I)
378+59.31	387+09.31	850 LIN. FT.	1 EACH	1 EACH	
378+91.00	386+66.00	775 LIN. FT.	1 EACH	1 EACH	
379+28.16	388+03.16	875 LIN. FT.	1 EACH		1 EACH
379+34.65	387+59.65	825 LIN. FT.	1 EACH		1 EACH

HWY. 67 ENTRANCE RAMP

N 78°12'30" E

STA. 379+84.68
END WRSF
LOG MILE 11.38

PC385+27.25

PI386+22.46

PT387+17.52

N 83°55'00" E

STA. 387+44.88
EXIST. 489.26' BR. NO. A03576
40'-0" CLEAR ROADWAY
POLYMER OVERLAY

REMOVAL AND DISPOSAL OF GUARDRAIL
STA. 379+28 LT. OF L.M.L. TO STA. 388+03 LT. OF L.M.L.
STA. 379+35 RT. OF L.M.L. TO STA. 387+60 RT. OF L.M.L.

BR. NO. A3796

PI374+99.99

N 83°55'00" E

I-30

BR. NO. B3796

STA. 379+00 IN PLACE-R.M.L.
TYPE "H" DROP INLET IN MEDIAN
4'X6'XH=6'-0" 1-OPENING
24"X102' R.C. PIPE OUTLET
RETAIN

STA. 379+05.35
END FULL DEPTH
RECONSTRUCTION

STA. 383+00 IN PLACE-R.M.L.
TYPE "H" DROP INLET IN MEDIAN
4'X6'XH=6'-0" 1-OPENING
24"X102' R.C. PIPE OUTLET
RETAIN

STA. 386+50.00
BEGIN POLYMER OVERLAY

STA. 388+12.00
CL I-30
CL HWY. 67

HWY. 67 EXIT RAMP

N 89°37'30" E

S 76°22'30" E

PT376+49.40

PC376+55.27

PI377+90.65

PT379+24.77

REMOVAL AND DISPOSAL OF GUARDRAIL
STA. 378+59 LT. OF R.M.L. TO STA. 387+09 LT. OF R.M.L.
STA. 378+91 RT. OF R.M.L. TO STA. 386+66 RT. OF R.M.L.

PI383+69.84

HWY. 67

STA. 386+37.11
EXIST. 499.26' BR. NO. B03576
40'-0" CLEAR ROADWAY
POLYMER OVERLAY AND
BRIDGE DECK REPAIR

TEMP. EXIT RAMP
PI = 374+99.99
Δ = 15°01'40" RT.
D = 05°00'00"
T = 151.15
L = 300.56
PC = 373+48.84
PT = 376+49.40
NO SUPER

TEMP. EXIT RAMP
PI = 377+90.65
Δ = 13°28'29" LT.
D = 05°00'00"
T = 135.37
L = 269.50
PC = 376+55.27
PT = 379+24.77
NO SUPER

PLAN SHEETS

11/20/2015

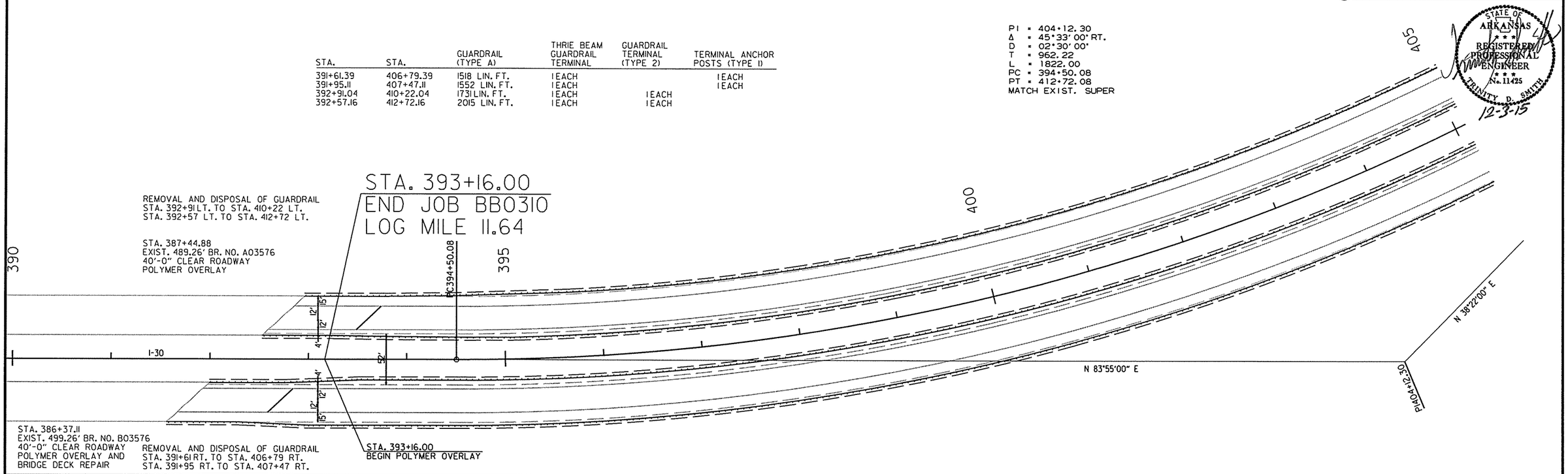
RBB0310.DGN

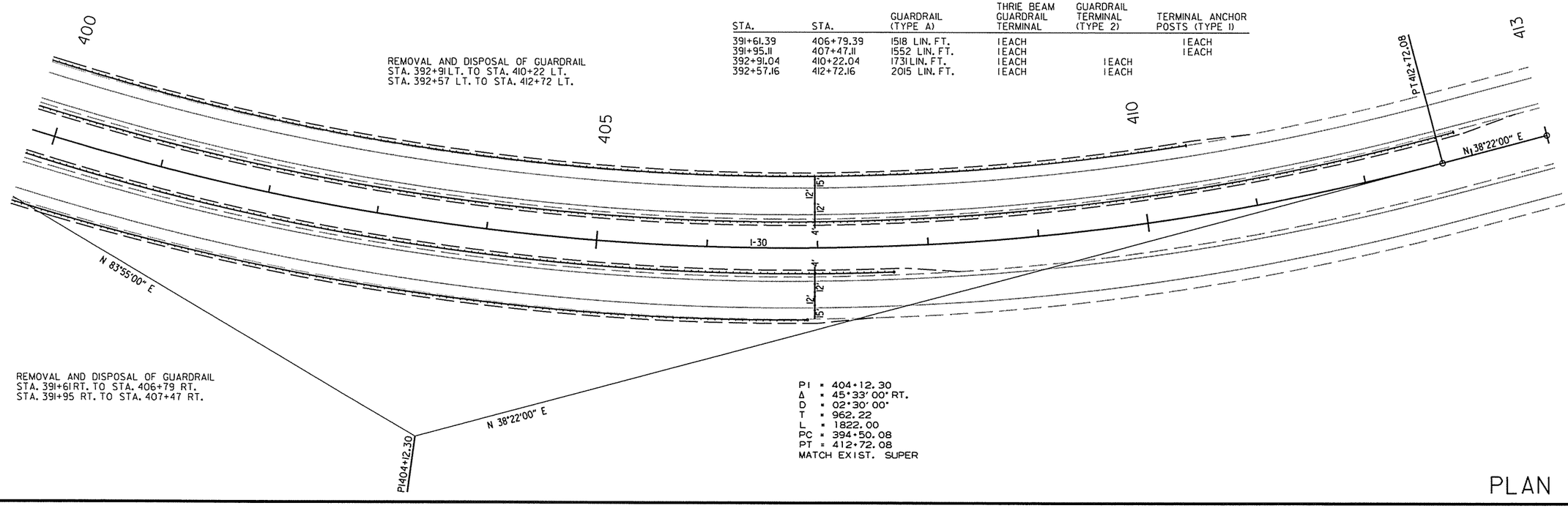
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0310	52	75
				(2) PLAN SHEETS				

STA.	STA.	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)	TERMINAL ANCHOR POSTS (TYPE I)
391+61.39	406+79.39	1518 LIN. FT.	1 EACH		1 EACH
391+95.11	407+47.11	1552 LIN. FT.	1 EACH		1 EACH
392+91.04	410+22.04	1731 LIN. FT.	1 EACH	1 EACH	
392+57.16	412+72.16	2015 LIN. FT.	1 EACH	1 EACH	

PI = 404+12.30
Δ = 45°33' 00" RT.
D = 02°30' 00"
T = 962.22
L = 1822.00
PC = 394+50.08
PT = 412+72.08
MATCH EXIST. SUPER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11425
TRINITY D. SMITH
12-3-15





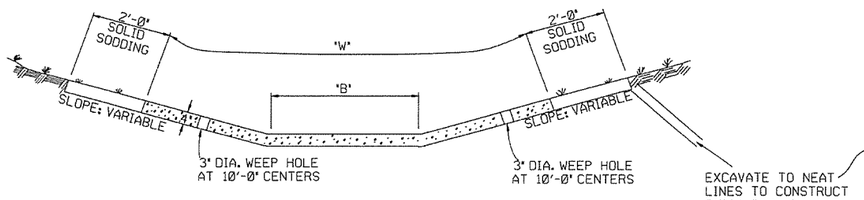
STA.	STA.	GUARDRAIL (TYPE A)	THRIE BEAM GUARDRAIL TERMINAL	GUARDRAIL TERMINAL (TYPE 2)	TERMINAL ANCHOR POSTS (TYPE I)
391+61.39	406+79.39	1518 LIN. FT.	1 EACH		1 EACH
391+95.11	407+47.11	1552 LIN. FT.	1 EACH		1 EACH
392+91.04	410+22.04	1731 LIN. FT.	1 EACH	1 EACH	
392+57.16	412+72.16	2015 LIN. FT.	1 EACH	1 EACH	

PI = 404+12.30
Δ = 45°33' 00" RT.
D = 02°30' 00"
T = 962.22
L = 1822.00
PC = 394+50.08
PT = 412+72.08
MATCH EXIST. SUPER

11/20/2015

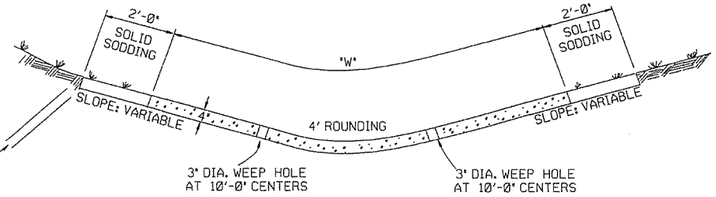
RBB0310.DGN

REFER TO TABULATION OF QUANTITIES FOR 'W' & 'B' DIMENSIONS



TYPE A

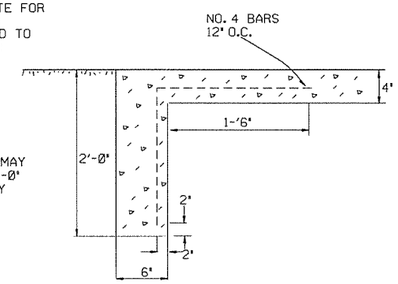
REFER TO TABULATION OF QUANTITIES FOR 'W' DIMENSIONS



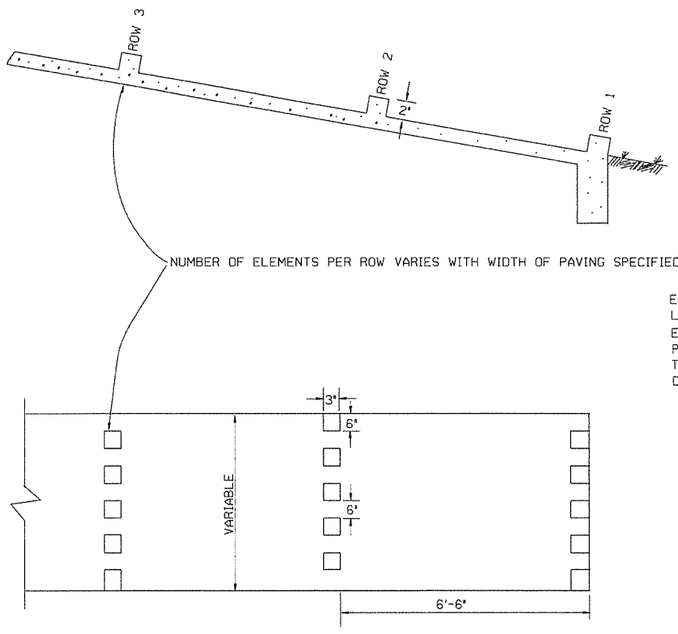
TYPE B

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

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



TOE WALL DETAIL FOR CONCRETE DITCH PAVING



ENERGY DISSIPATORS
(NO SCALE)

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

GENERAL NOTES:

THE FULL WIDTH OF EACH SECTION SHALL BE POURED MONOLITHICALLY.

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

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

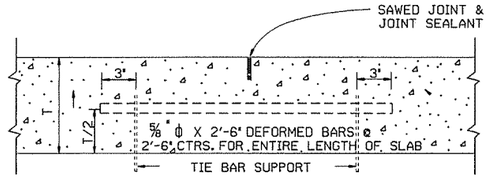
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

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

ARKANSAS STATE HIGHWAY COMMISSION

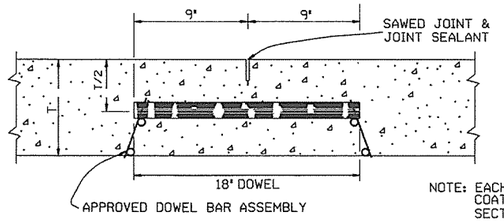
CONCRETE DITCH PAVING

STANDARD DRAWING CDP-1



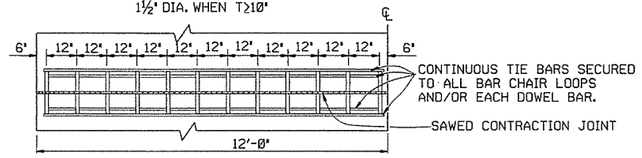
LONGITUDINAL JOINT

NOTE: THE TIE BAR SUPPORT SHOWN ABOVE MAY BE ELIMINATED IF OTHER APPROVED METHODS FOR PLACING AND SUPPORTING THE TIE BARS ARE PROVIDED.
TIE BARS SHALL BE 15' FROM TRANSVERSE JOINTS.



NOTE: EACH DOWEL TO BE COATED ACCORDING TO SECTION 502 OF THE STANDARD SPECIFICATIONS.

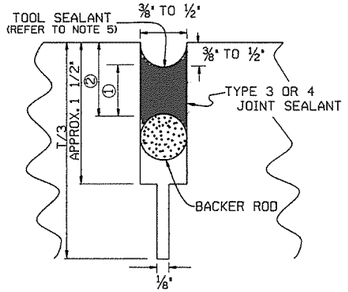
ROUND STEEL BAR DOWEL
1¼" DIA. WHEN T<10"
1½" DIA. WHEN T≥10"



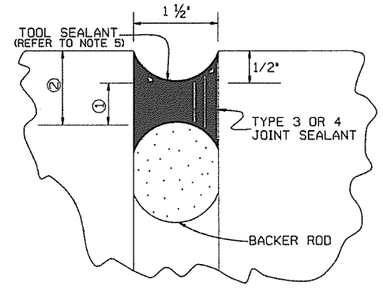
ONE-HALF 24' PAVEMENT
12 DOWELS
PLAN

NOTE: FOR 20' PAVEMENT USE 20 DOWELS @ 12" CTRS. WITH 6" SPACING FROM C.L. AND EDGE OF SLAB TO FIRST BAR.
FOR 15' PAVEMENT USE 15 DOWELS @ 12" CTRS. WITH 6" SPACING FROM C.L. AND EDGE OF SLAB TO FIRST BAR.
FOR 26' PAVEMENT USE 26 DOWELS @ 12" CTRS. WITH 6" SPACING FROM C.L. AND EDGE OF SLAB TO FIRST BAR.
FOR PAVEMENT WIDTHS OTHER THAN THOSE SHOWN ABOVE, USE DOWELS AT 12" CTRS. WITH 6" MAX. SPACING FROM C.L. TO FIRST BAR. DISTANCE FROM EDGE OF SLAB TO FIRST BAR SHALL BE ADJUSTED TO MAINTAIN 12" DOWEL BAR SPACING

CONTRACTION JOINT DETAILS



DETAIL OF SAWED CONTRACTION JOINT



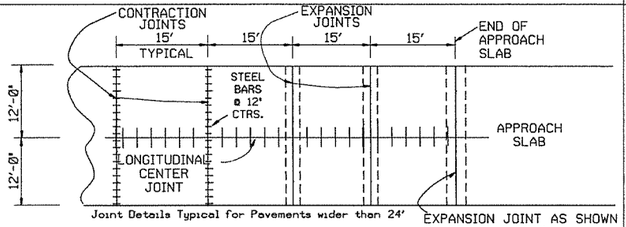
DETAIL OF EXPANSION JOINT

JOINT CONFIGURATION FOR TYPE 3 OR 4 JOINT SEALANT

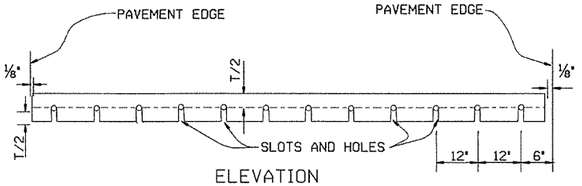
JOINT WIDTH	SEALANT THICKNESS ①	BACKER ROD DIAMETER	BACKER ROD PLACEMENT DEPTH ②
INCHES			
¼	¼	⅜	½
⅜	¼	½	½
½	¼	⅝	½
⅝	⅜	¾	⅝
¾	⅜	⅞	⅞
1 ½	¾	2	1 ¼

JOINT CONFIGURATION FOR TYPE 5 JOINT SEALANT

JOINT WIDTH	SEALANT THICKNESS ①	BACKER ROD DIAMETER	BACKER ROD PLACEMENT DEPTH ②
INCHES			
¼	½	⅜	¾
¾	¾	½	1

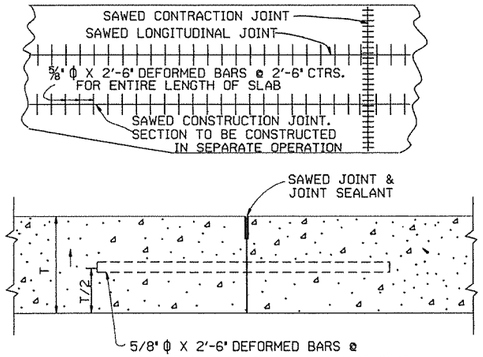


PLAN SHOWING EXPANSION JOINTS AT BRIDGE APPROACH SLABS



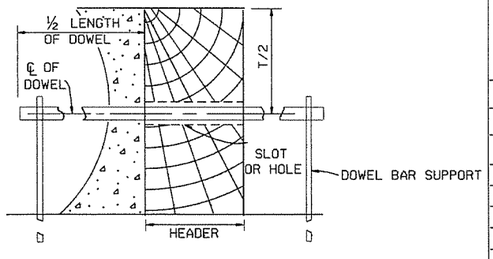
ELEVATION

NOTE: ALL DOWEL BARS SHALL CONFORM TO THE DETAILS FOR CONTRACTION JOINTS.



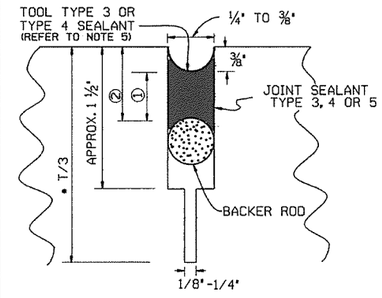
NOTE: TIE BARS SHALL BE 15' FROM TRANSVERSE JOINTS.

LONGITUDINAL CONSTRUCTION JOINT



SECTION

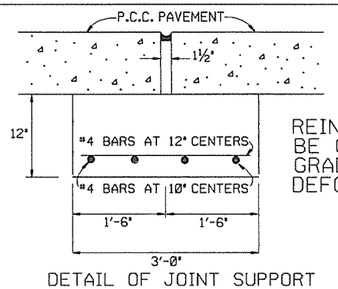
TRANSVERSE CONSTRUCTION JOINT



•NOTE: T/3 SAW CUT NOT REQUIRED FOR LONGITUDINAL CONSTRUCTION JOINT.

DETAIL OF SAWED LONGITUDINAL JOINT AND LONGITUDINAL CONSTRUCTION JOINT

DATE	REVISION	DATE FILMED
5-25-06	ADDED GENERAL NOTE 7	
10-9-03	REMOVED TIE BAR COATING & REVISED GENERAL NOTES	
11-16-01	ADDED TOOL SEALANT AND NOTE 5; REVISED NOTE 3	
4-26-96	REVISED CONTRACTION JOINT NOTE	
11- 3-94	ADDED NOTE RE: REINF. BARS	
4- 1-93	REVISED DOWEL BARS & GEN. NOTES	4- 1-93
10- 1-92	REVISED DOWEL SPACING	10- 1-92
8- 15-91	ADDED SPAC FOR CONTR JTS & DEL KEYWAY	
05-24-90	REVISED TIE BAR, DOWEL & JOINT SIZE	
01-25-90	ADDED EXPANSION JOINT	01-25-90
11-30-89	CHANGED T/4+1 TO T/3+1	11-30-89
03-23-89	ALTERED SAWED JOINT & ADDED NOTE	512-03-23-89
07-15-88	REVISED AND REDRAWN	632-07-15-88



REINFORCING SHALL BE GRADE 40 OR GRADE 60 DEFORMED BARS.

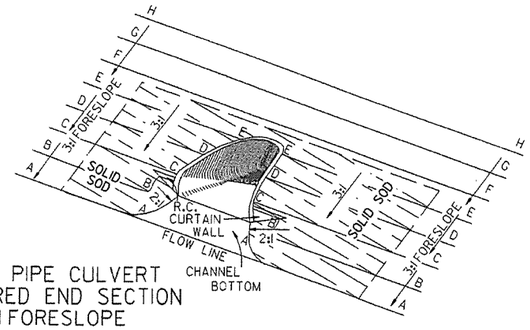
DETAIL OF JOINT SUPPORT FOR EXPANSION JOINTS

GENERAL NOTES
1. 'T' DENOTES THICKNESS OF SLAB.
2. DOWEL BARS SHALL BE PLACED IN ACCORDANCE WITH THE DIMENSIONS SHOWN. A TOLERANCE OF PLUS OR MINUS ONE INCH WILL BE ALLOWED FOR THE VERTICAL AND LATERAL PLACEMENT AND A TOLERANCE OF PLUS OR MINUS ¼" WILL BE ALLOWED FOR THE TILT AND SKEW. DOWEL BARS SHALL BE FIELD COATED FOR A MINIMUM DISTANCE OF 2" GREATER THAN HALF THE LENGTH OF THE BAR WITH AN APPROVED GREASE AS A BOND BREAKER JUST PRIOR TO PLACEMENT OF CONCRETE.
3. THE EXPANSION JOINT SUPPORT MAY BE CONSTRUCTED WITH CLASS 'A', 'S' OR PAVING CONCRETE. PAYMENT FOR THE JOINT SUPPORT SHALL BE FOR THE CONTRACT UNIT PRICE BID FOR THE CLASS OF CONCRETE SPECIFIED IN THE PLANS. PAYMENT FOR ALL OTHER WORK AND MATERIALS REQUIRED FOR THE CONSTRUCTION OF THE JOINT SUPPORT SHALL BE INCLUDED IN THE PRICE BID FOR THE ABOVE ITEMS.
4. CONTRACTION JOINTS SHALL BE CONSTRUCTED ON 15' CENTERS.
5. TOOLING NOT REQUIRED FOR SELF-LEVELING SILICONE.
6. UNLESS OTHERWISE SPECIFIED IN THE PLANS, CONCRETE SHOULDERS SHALL BE CONSTRUCTED ACCORDING TO THE DETAILS SHOWN HEREON. CONTRACTION JOINTS SHALL MATCH CONTRACTION JOINTS IN THE LANES.
7. TIE WIRES IN DOWEL BAR ASSEMBLIES SHALL NOT BE CUT PRIOR TO PLACEMENT OF PAVING CONCRETE.

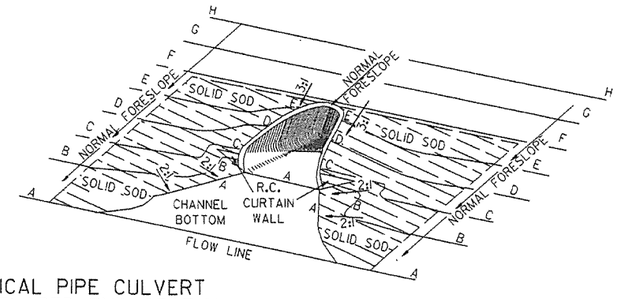
ARKANSAS STATE HIGHWAY COMMISSION

TRANSVERSE & LONGITUDINAL JOINTS FOR CONCRETE PAVEMENT (NON-REINFORCED)

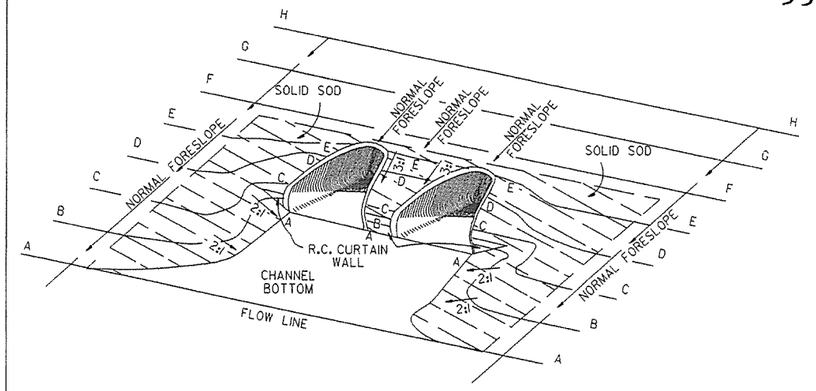
STANDARD DRAWING CPTJ - 6A



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

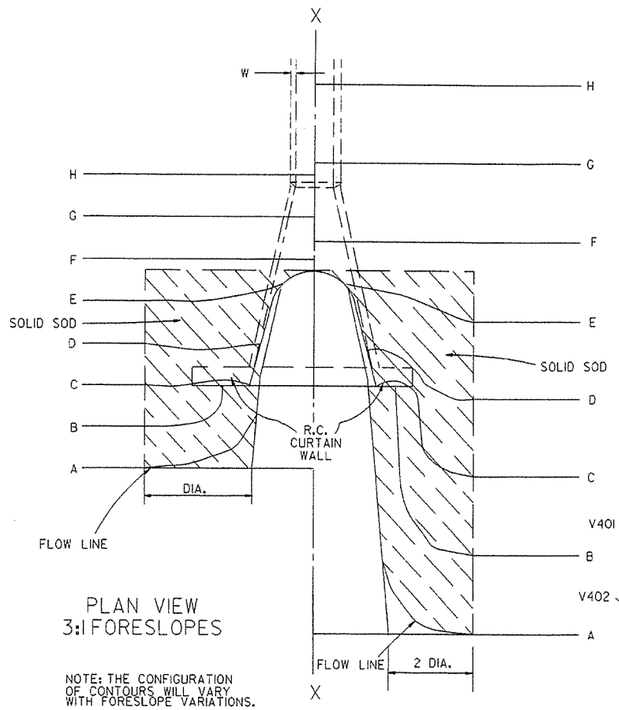
PIPE DIA.	H_1	L_1	L	L (DBL.)/2	SINGLE R.C.P.C. CONC.	SINGLE R.C.P.C. REINF. STEEL	DOUBLE R.C.P.C. CONC.	DOUBLE R.C.P.C. REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0	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

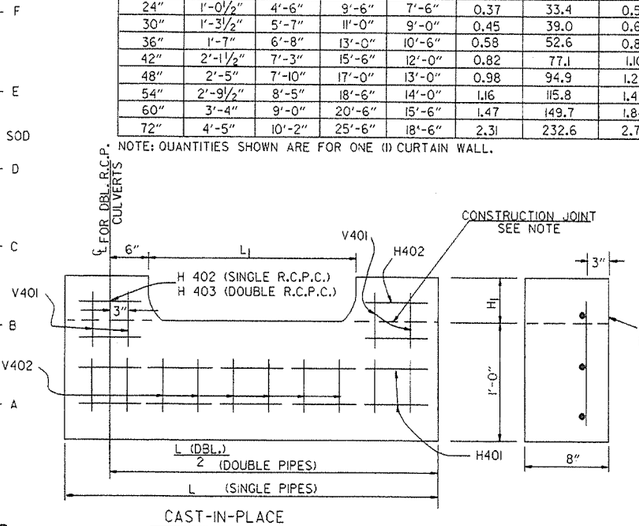
ALL REINFORCING STEEL #4 BARS @ 6" O.C.



PLAN VIEW
3:1 FORESLOPES

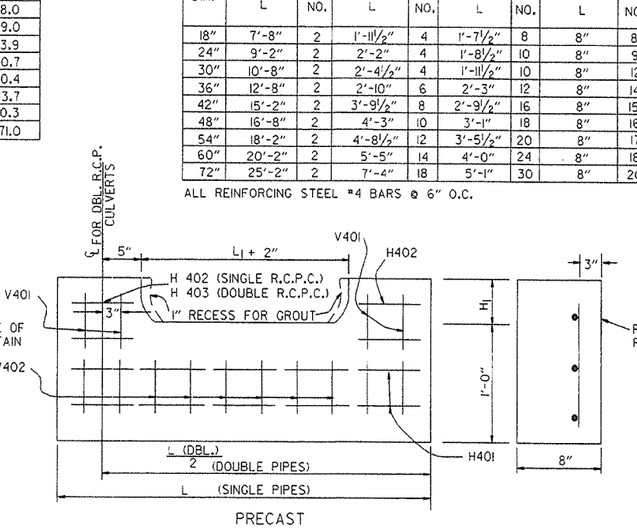
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

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

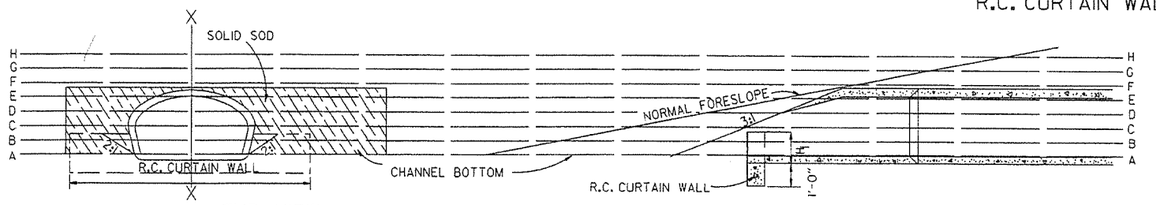
SOLID SODDING

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

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

GENERAL NOTES

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



END VIEW

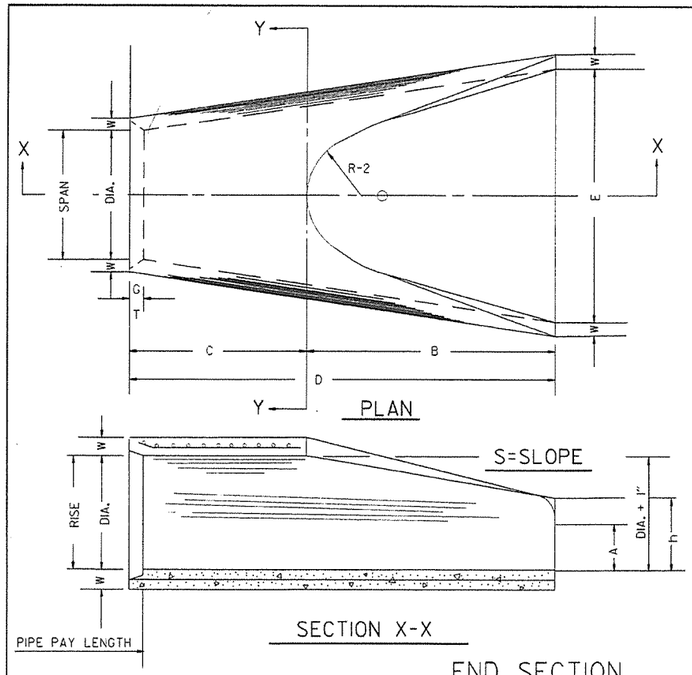
SECTIONAL VIEW "X-X"

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

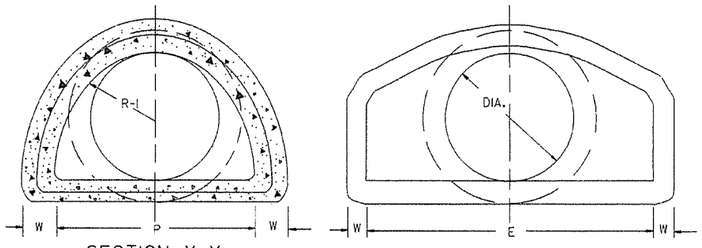
STANDARD DRAWING FES-1



END SECTION
FOR REINFORCED CONCRETE PIPE CULVERTS

TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. ± 1"	P	R-1	R-2	G-T	WT.	h
18"	2½"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15½"	12"	2"	1000	1'-0½"
24"	3"	9½"	3'-7½"	2'-6"	6'-1½"	4'-0"	3:1	25"	33¾"	16¹³⁄₁₆"	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"	47¹³⁄₁₆"	24⅜"	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"	36¹¹⁄₁₆"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77¹³⁄₁₆"	38¹³⁄₁₆"	24"	5"	13250	4'-6"

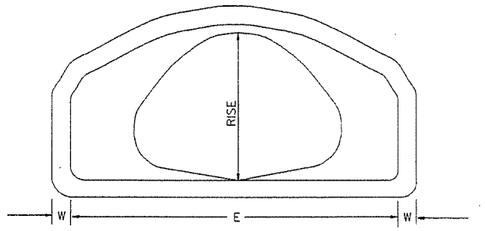


NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

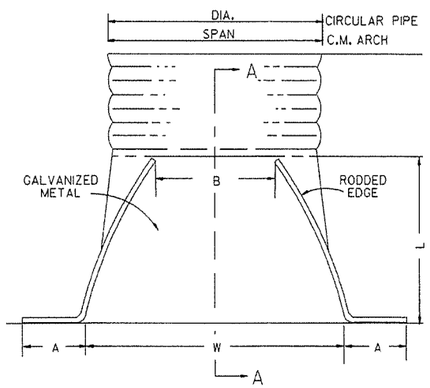
ARCH PIPE

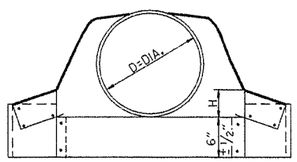
EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½:1
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅛"	13"	2½"	2½:1
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅛"	14"	2½"	2½:1
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36¹¹⁄₁₆"	15"	2½"	2½:1
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47¹³⁄₁₆"	20"	3"	2½:1
36	43¾	44	26⅝	27	4"	10½"	4'-0"	2'-11½"	6'-1½"	6'-6"	54⅜"	22"	3½"	2½:1
42	51⅛	51	31⅝	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½:1
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70⅝"	24"	4¼"	2½:1
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72¹⁄₁₆"	24"	4¾"	2¼:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77¹³⁄₁₆"	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

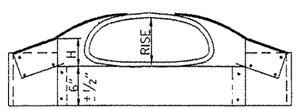




CIRCULAR PIPE

CIRCULAR PIPE

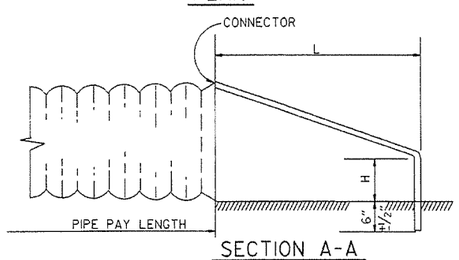
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½:1
15	16	7	8	6	26	30	2½:1
18	16	8	10	6	31	36	2½:1
21	16	9	12	6	36	42	2½:1
24	16	10	13	6	41	48	2½:1
30	14	12	16	8	51	60	2½:1
36	14	14	19	9	60	72	2½:1
42	12	16	22	11	69	84	2½:1
48	12	18	27	12	78	90	2½:1
54	12	18	30	12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

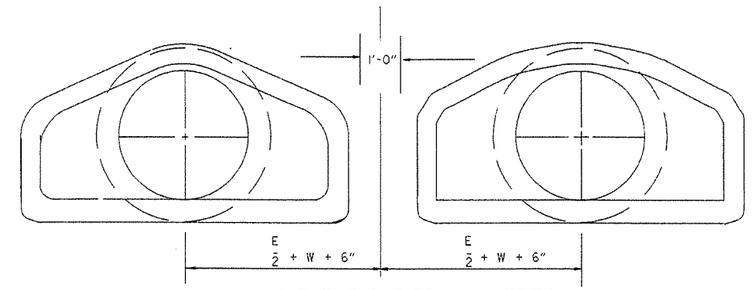
C.M. ARCH PIPE

EQUIV. DIA.	SPAN	RISE	A 1" ±	B MAX.	H 1" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½:1	16
18"	21	15	7	10	6	23	36	2½:1	16
21"	24	18	8	12	6	28	42	2½:1	16
24"	28	20	9	14	6	32	48	2½:1	16
30"	35	24	10	16	6	39	60	2½:1	14
36"	42	29	12	18	8	46	75	2½:1	14
42"	49	33	13	21	9	53	85	2½:1	12
48"	57	38	18	26	12	63	90	2½:1	12
54"	64	43	18	30	12	70	102	2¼:1	12
60"	71	47	18	33	12	77	114	2¼:1	12

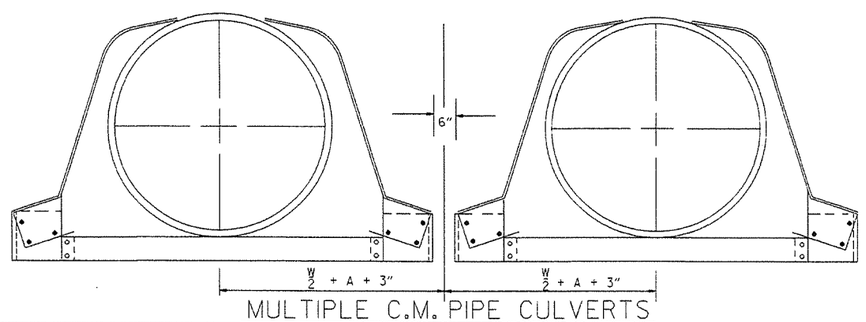


NOTE: ALTERNATE CONNECTIONS TO THE PIPE CULVERTS, IN ACCORDANCE WITH MANUFACTURER'S STANDARD PRACTICES, MAY BE MADE SUBJECT TO THE APPROVAL OF THE ENGINEER.

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



MULTIPLE R.C. PIPE CULVERTS



MULTIPLE C.M. PIPE CULVERTS

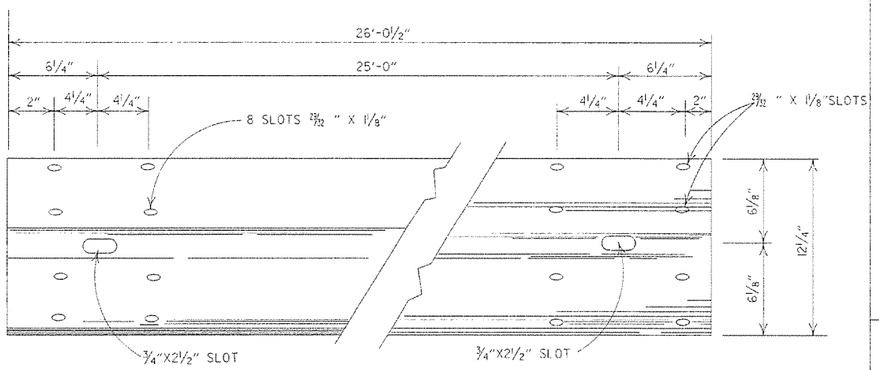
DATE	REVISION	FILMED
10-18-96	REVISED ASTM REF. TO AASHTO	10-18-96
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74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

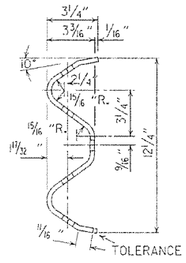
ARKANSAS STATE HIGHWAY COMMISION

FLARED END SECTION

STANDARD DRAWING FES-2

stdfes2.dgn

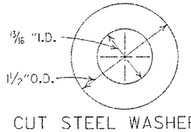




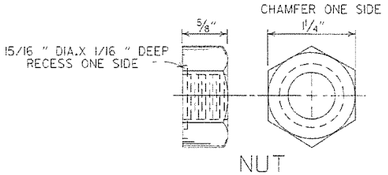
DETAILS OF
W-BEAM GUARD RAIL

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

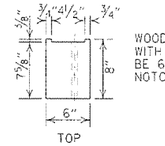
SPLICE BOLT
POST BOLT - SAME EXCEPT LENGTH



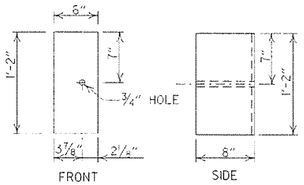
CUT STEEL WASHER



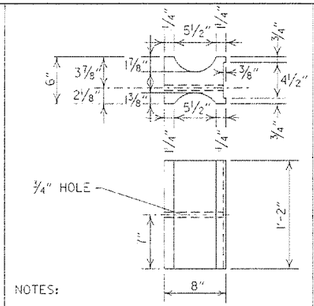
NUT



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



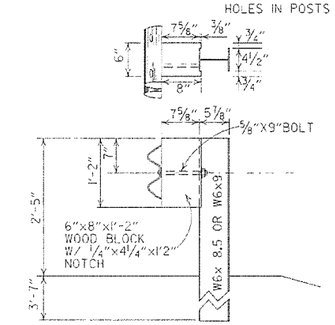
WOOD BLOCKOUT
(W-BEAM)



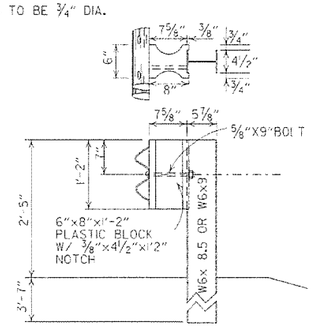
NOTES:
1. SIMILAR SHAPED PLASTIC BLOCKOUTS MAY BE USED AS LONG AS THEY MEET NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
2. DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCES.

PLASTIC BLOCKOUT
(W-BEAM)

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

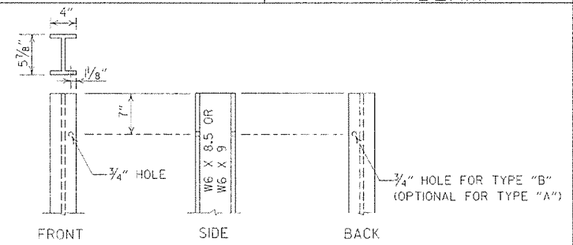


WOOD BLOCKOUT CONNECTIONS

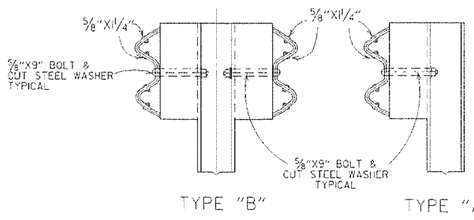


PLASTIC BLOCKOUT CONNECTIONS

DETAILS OF STEEL LINE POST CONNECTIONS
(W-BEAM)



STEEL POST



DETAILS OF STEEL LINE POST CONNECTIONS
(W-BEAM)

-GENERAL NOTES-

ALL BOLTS SHALL BE SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND NO MORE THAN 3/4" BEYOND IT.

WHERE W-BEAM GUARD RAIL CONTINUES, THE INTERMEDIATE SECTIONS SHALL HAVE A POST SPACING OF 6'-3" UNLESS OTHERWISE NOTED.

W-BEAM GUARD RAIL REPRESENTING INTERMEDIATE SECTIONS WILL BE MEASURED ALONG THE ROADWAY FACE FROM CENTERLINE OF POST TO CENTERLINE OF POST.

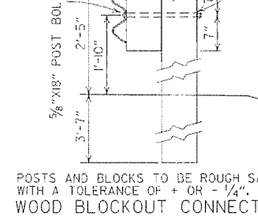
USE W-BEAM GUARD RAIL COMPONENTS OF SAME MATERIAL FOR ENTIRE JOB. FOR EXTENSIONS OR MODIFICATION OF EXISTING GUARD RAIL, W-BEAM GUARD RAIL COMPONENTS OF THE SAME TYPE AS THOSE EXISTING SHALL BE USED.

ANY BACKFILLING UNDER OR AROUND POST SHALL BE DAMP SAND THOROUGHLY TAMPED IN PLACE.

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

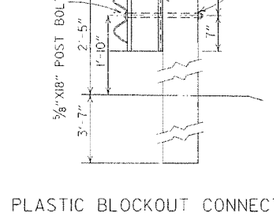
CONTRACTOR SHALL HAVE THE OPTION OF USING WOOD BLOCKOUTS FOR W-BEAM GUARD RAIL OR PLASTIC BLOCKOUTS, AS LONG AS BLOCKOUT USED MEETS NCHRP-350 TEST LEVEL 3 SPECIFICATIONS OR REQUIREMENTS FOR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) FOR W-BEAM GUARD RAIL.

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)

DATE	REVISION	DATE FILM
7-4-10	RAISED HEIGHT OF GUARD RAIL 1"	
0-15-09	ADDED REFERENCE TO MASH	
4-10-03	REVISED GENERAL NOTES	
9-22-02	REVISED DIMENSION ON WOOD & PLASTIC BLOCKOUT CONNECTONS & 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

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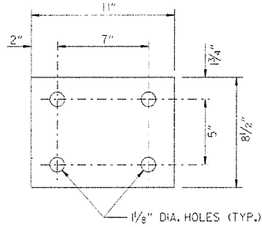
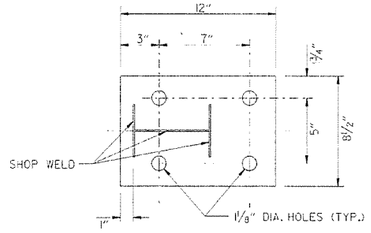
GUARD RAIL DETAILS

STANDARD DRAWING GR-8

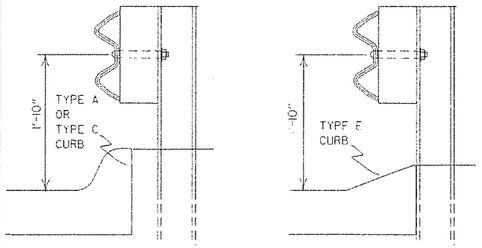


WASHER PLATE



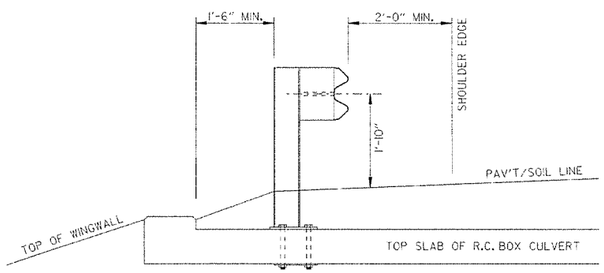
BASE PLATE

Note: Bolts, nuts, washers and plates shall be galvanized in accordance with Section 807 of the Standard Specifications.

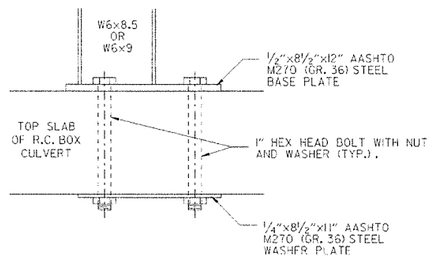


DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB (W-BEAM)

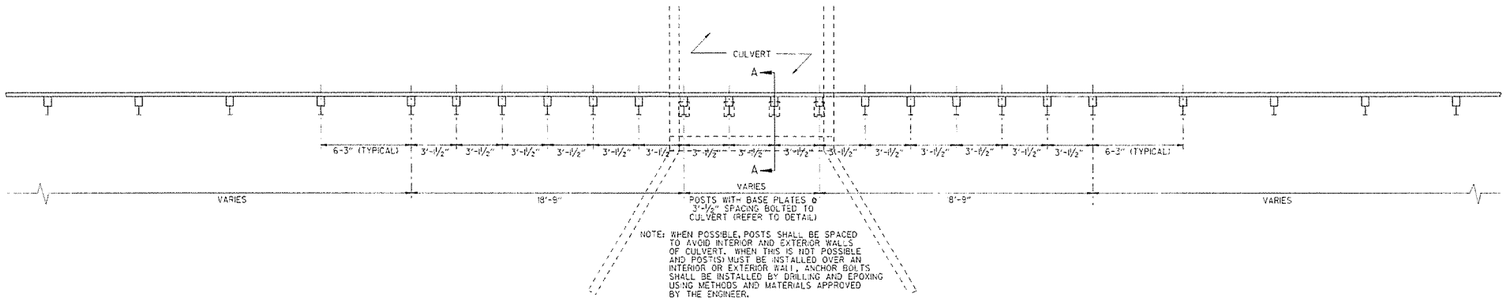
FOR DESIGN SPEEDS OF 50 MPH OR LESS ALL CURB FACES, AS SHOWN ON STD. DRWG. CC-1, MAY BE USED. FOR DESIGN SPEEDS OF 55 MPH OR MORE TYPE "E" CURB FACE SHALL BE USED.



SECTION A-A



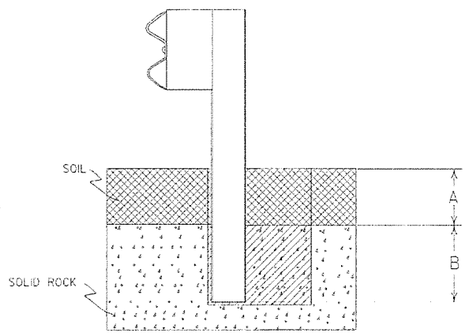
DETAIL OF CONNECTION



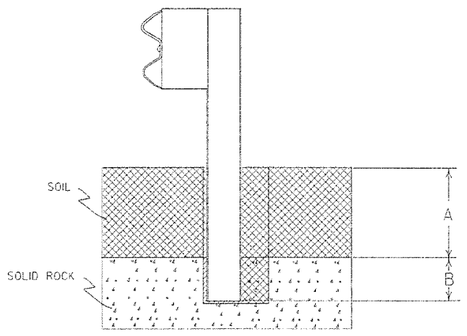
PLAN LAYOUT OF TYPE A GUARD RAIL AT LOW-FILL CULVERTS

NOTE: THIS DETAIL IS TO BE USED ONLY WHEN THE COVER OVER THE CULVERT DOES NOT PERMIT FULL EMBEDMENT OF GUARD RAIL POSTS AS SHOWN ON STD. DWG. GR-8.

Case 1

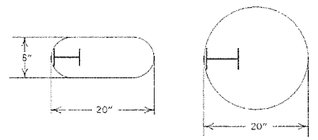


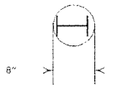
Case 2



Plan View Steel Posts

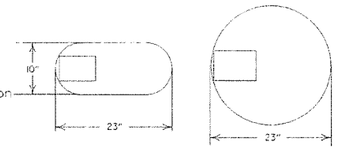
Either hole configuration acceptable

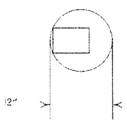




Plan View Wood Posts

Either hole configuration acceptable





Notes: For overlying soil depths (A) ranging from 0 to 18", the depth of required drilling (B) is equal to 24".

Zone A:
Backfill according to Section 617.03(a).

Zone B:
Backfill hole in 6" lifts with material meeting the requirements of Section 802.02(c) - Alternate gradation. Compact to 95% maximum dry density per ASTM D-698.

Notes: For overlying soil depths (A) ranging from 18" to 44", the depth of required drilling (B) is equal to either 12" or 44" minus the depth of soil whichever is less.

Zone A & B:
Backfill according to Section 617.03(a).

DETAIL OF POST PLACEMENT IN SOLID ROCK (W-BEAM)

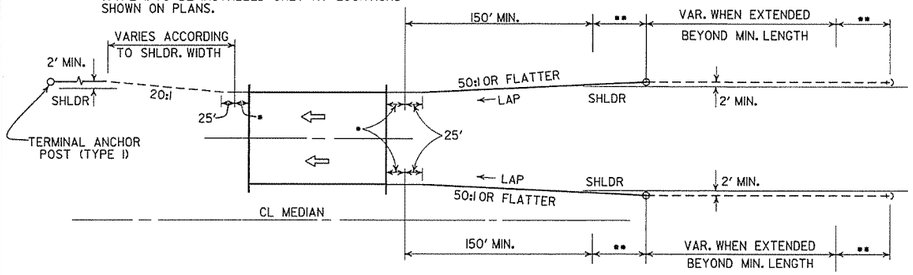
DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF GUARD RAIL 1"	
4-12-07	REVISED DETAIL OF GUARD RAIL PLACEMENT BEHIND CURB	
11-10-05	ADDED GUARD RAIL PLACEMENT BEHIND CURB; REVISED DETAIL OF CONNECTION	
11-18-04	REVISED POST PLACEMENT IN ROCK & CULVERT CONNECTION DETAILS. ADDED DETAIL FOR GUARD RAIL PLACEMENT AT LOW-FILL CULVERTS	
3-30-00	REMOVED CONCRETE INSERT ANCHOR	
8-12-98	CHANGED STEEL SPACER BLOCK TO WOOD BLOCKOUT, ADD. DET. OF GUARD RAIL CONNECTION TO R.C. BOX CULV'T. DELETED DET. OF STEEL LINE POST CONN.& ADDED DET. OF GUARD RAIL PLACE. BEHIND CURB & DET. OF POST PLACE. IN SOLID ROCK	
4-3-96	PLACED ARROWS AT CUT STEEL WASHERS	4-3-96
10-18-96	REV. ASTM REF. TO AASHTO	
11-22-95	ADDED OPTIONAL HOLES	
6-2-94	REVISED ALTERNATE POST SIZE	
8-5-93	REVISED STEEL POST SIZE	
10-1-92	REDRAWN & REVISED	10-1-92
8-2-90	DEL. WASHER ON ANCHOR ASSEMBLY	8-2-90
7-15-88	CONFORMED TO 1988 SPECS	
3-4-88	REVISED ANCHOR NOTE	
10-30-87	REVISED ANCHOR ASSEMBLY	712-10-30-87
10-30-87	REVISED PLACEMENT BEHIND CURB	547-10-30-87
10-9-87	REDRAWN & REVISED	803-10-9-87

ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

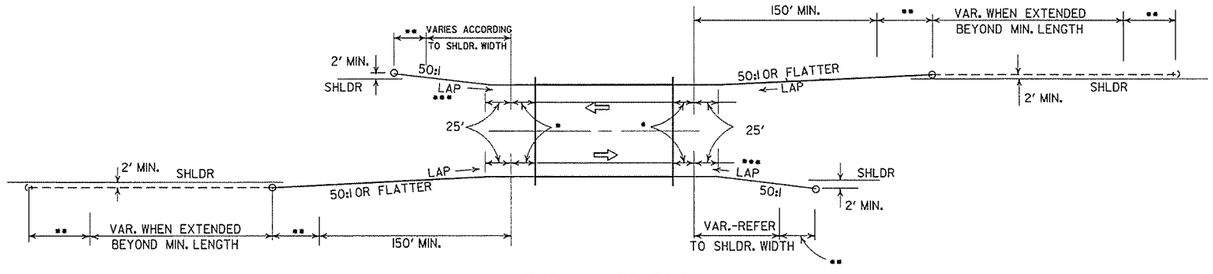
STANDARD DRAWING GR-8A

NOTE: GUARD RAIL WITH GUARD RAIL TERMINAL (TYPE I) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

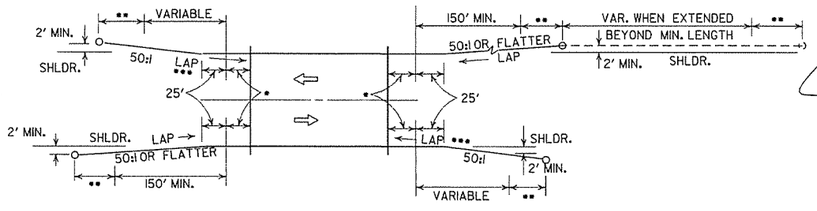
••• LAP OF GUARD RAIL SHALL BE AS SHOWN FOR A DISTANCE OF UP TO 200', CHANGE TO LAP IN DIRECTION OF TRAVEL.



TWO-WAY TRAFFIC

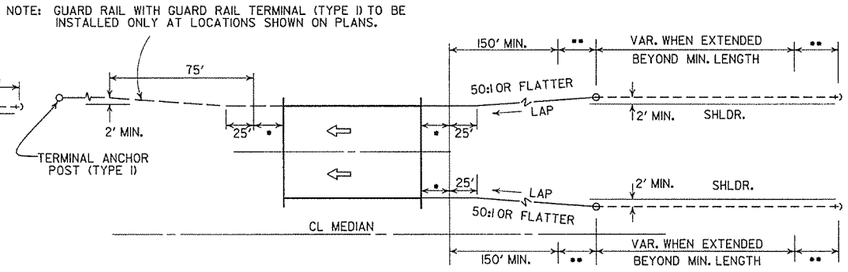
METHODS OF INSTALLATION OF GUARD RAIL AT LESS THAN FULL SHOULDER WIDTH BRIDGES USING GUARD RAIL TERMINAL (TYPE 2)

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



TWO-WAY TRAFFIC

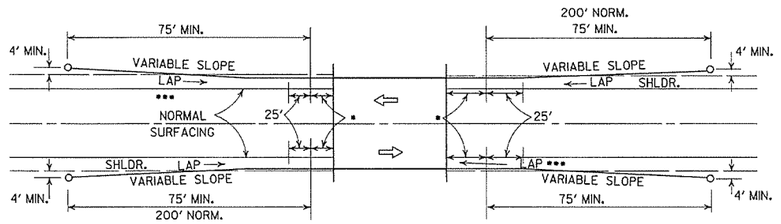
NOTE: GUARD RAIL WITH GUARD RAIL TERMINAL (TYPE I) TO BE INSTALLED ONLY AT LOCATIONS SHOWN ON PLANS.



ONE-WAY TRAFFIC

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

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



LEGEND

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

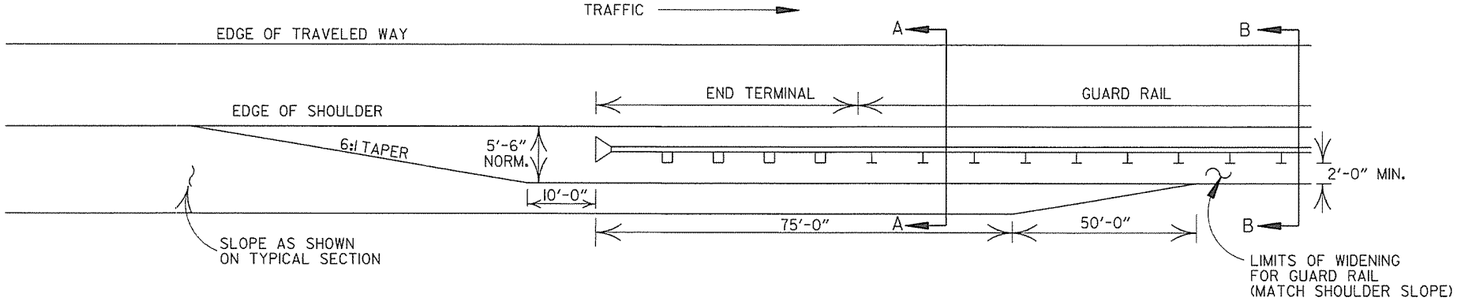
METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERMINAL (TYPE I) (FULL SHOULDER WIDTH OR LESS BRIDGES)

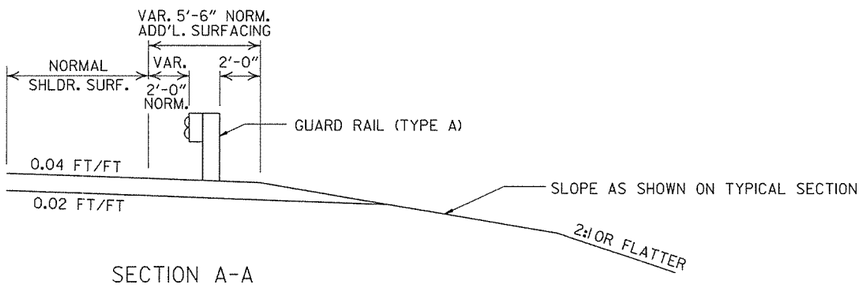
DATE	REVISION	DATE FILM
4-17-08	REVISED LAYOUTS	
11-10-05	REMOVED GUARD RAIL NOTES AND DETAILS	
11-16-01	DELETED NOTE-METHOD OF INSTALLATION OF GUARD RAIL USING GUARD RAIL TERM. (TY. I)	
1-12-00	ADDED CONSTRUCTION NOTE	1-12-00
6-26-97	REVISED LAYOUT	
10-1-92	REDRAWN & REVISED	10-1-92
	ADDED NOTE	
10-9-87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

ARKANSAS STATE HIGHWAY COMMISSION

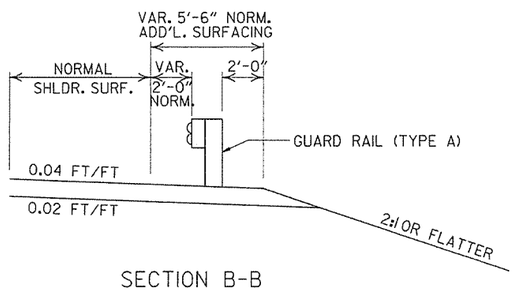
GUARD RAIL DETAILS

STANDARD DRAWING GR-9





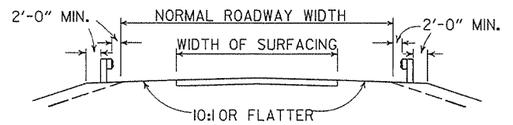
SECTION A-A



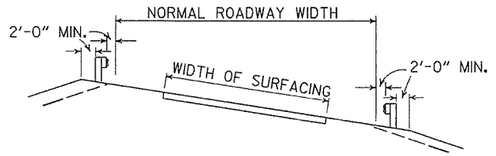
SECTION B-B

DETAILS OF WIDENING FOR GUARD RAIL

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

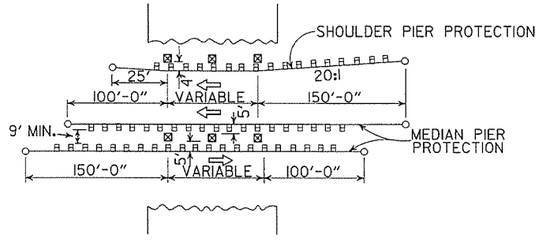


SECTION ON TANGENT



SECTION ON CURVE

DETAILS SHOWING POSITION OF GUARD RAIL ON HIGHWAY



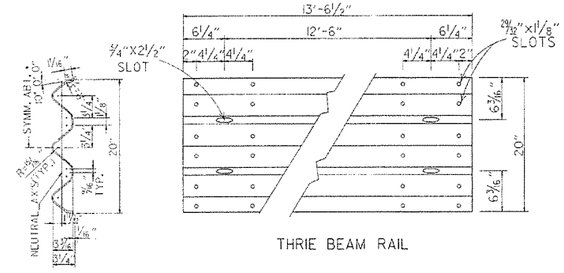
METHOD OF INSTALLATION OF GUARD RAIL AT FIXED OBSTACLE

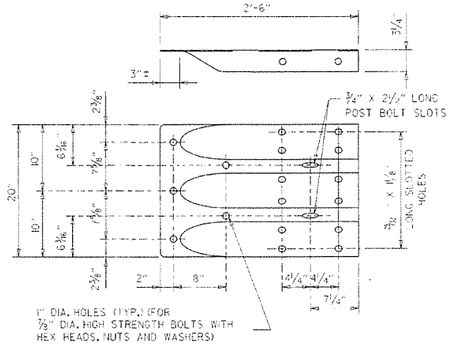
DATE	REVISION	DATE FILM
4-17-08	MINOR REVISION	
11-10-05	DRAWN	

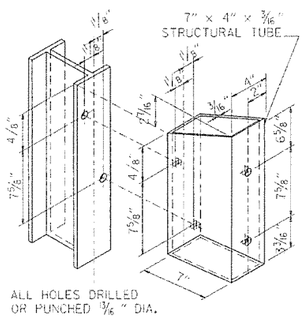
ARKANSAS STATE HIGHWAY COMMISSION

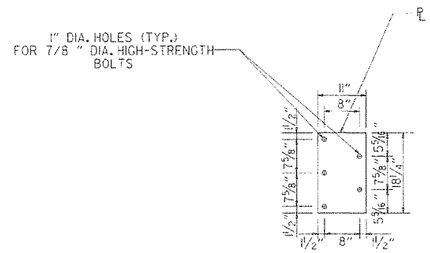
GUARD RAIL DETAILS

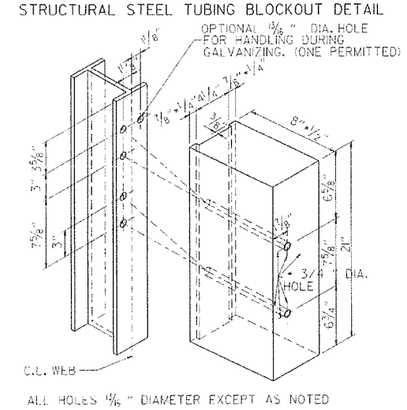
STANDARD DRAWING GR-9A











SECTION THRU THRIE BEAM RAIL

THRIE BEAM RAIL

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

STRUCTURAL STEEL TUBING BLOCKOUT DETAIL

SPECIAL END SHOE

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

CONNECTOR PLATE

CONNECTOR PLATE SHALL BE AASHTO M270, GR. 36 AND SHALL BE GALVANIZED AFTER FABRICATION. GALVANIZING SHALL CONFORM TO SUBSECTION 807.19 OF THE STANDARD SPECIFICATIONS. CONNECTOR PLATE TO BE BOLTED TO SPECIAL END SHOE USING ⅞" DIA. HIGH STRENGTH BOLTS, WITH THE HEADS PLACED ON THE TRAFFIC FACE. WASHERS SHALL BE USED UNDER THE HEAD AND NUT. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AND SHALL CONFORM TO SUBSECTION 807.06.

ALL HOLES 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.

(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

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 I.

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 #) OR NO. 1 1350 # SOUTHERN PINE.

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

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

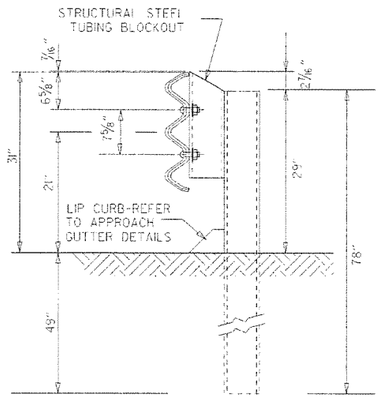
THRIE BEAM POSTS SHALL BE SAME MATERIAL AS W BEAM POSTS FOR ENTIRE JOB.

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

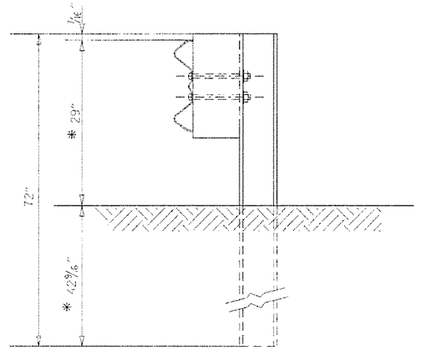
ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

STANDARD DRAWING GR-10

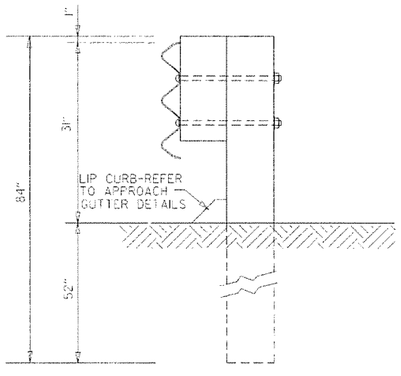


THRIE BEAM RAIL WITH STEEL TUBING BLOCKOUT
AND STEEL POST
POSTS 1-7

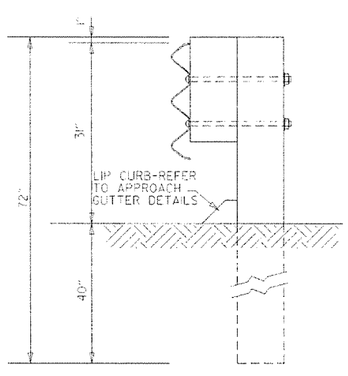


W-BEAM TO THRIE BEAM TRANSITION RAIL
WITH WOOD OR PLASTIC BLOCKOUT AND STEEL POST
POST 8

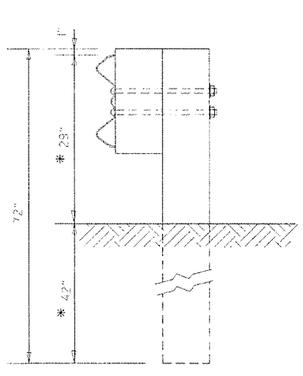
* NOTE:
THESE DIMENSIONS WILL NEED TO BE ADJUSTED IN THE FIELD TO MAKE THE TRANSITION FROM 21" MID POINT OF THRIE BEAM TO 22" MID POINT OF W-BEAM.



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.

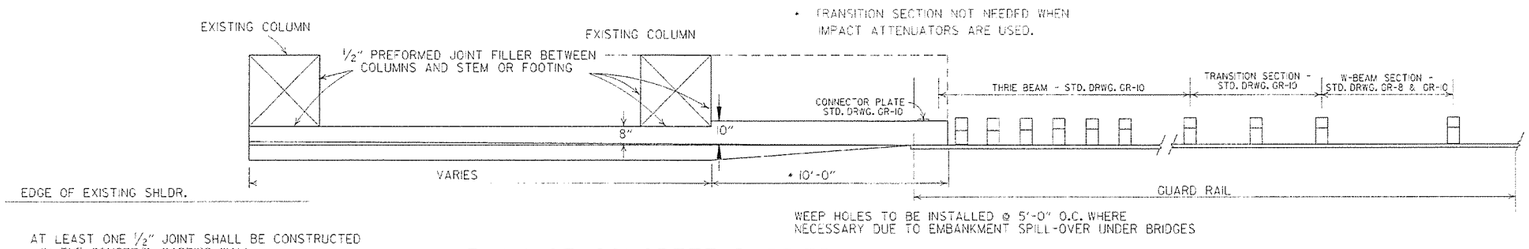
WOOD POSTS & WOOD BLOCKS SHALL BE EITHER DENSE NO. 1 STRUCTURAL OR BETTER 9.7 f (1400 f) OR NO. 1 (1350 f) SOUTHERN PINE.

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

ARKANSAS STATE HIGHWAY COMMISSION

GUARD RAIL DETAILS

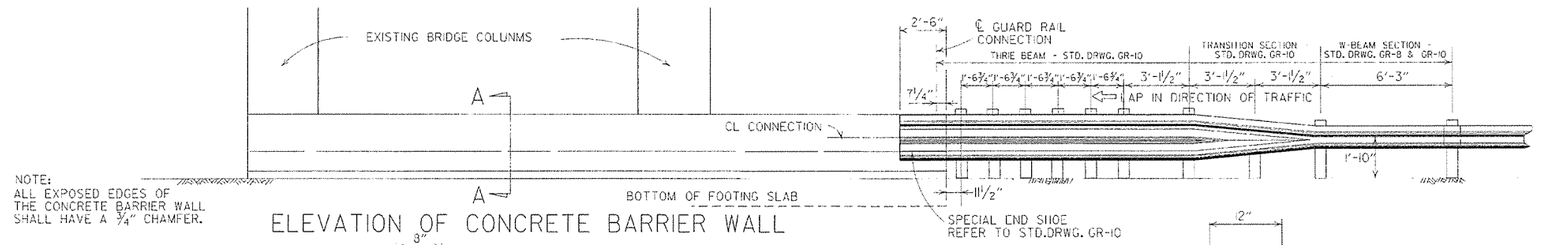
STANDARD DRAWING GR-10A



* TRANSITION SECTION NOT NEEDED WHEN IMPACT ATTENUATORS ARE USED.

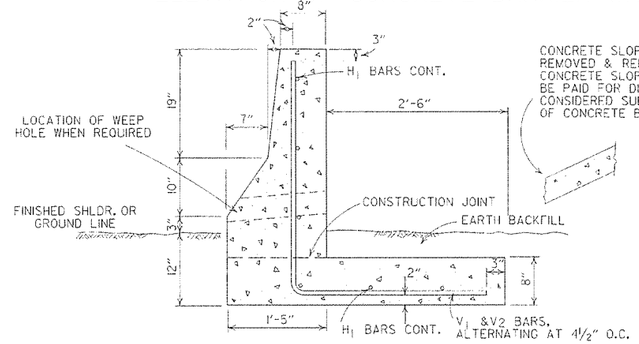
PLAN OF CONCRETE BARRIER WALL

AT LEAST ONE ½" JOINT SHALL BE CONSTRUCTED IN THE CONCRETE BARRIER WALL. JOINTS SHALL BE EQUALLY SPACED AT A MAXIMUM OF 25'-0" O.C. FILL JOINT WITH PREFORMED JOINT FILLER.



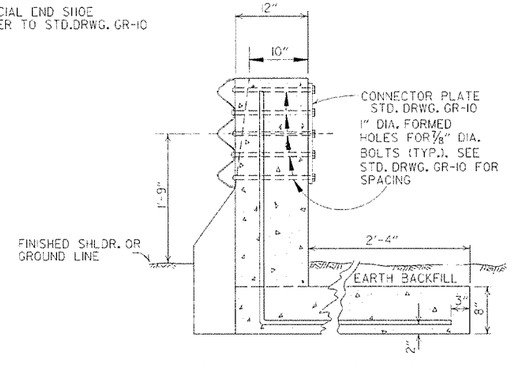
NOTE:
ALL EXPOSED EDGES OF THE CONCRETE BARRIER WALL SHALL HAVE A ¾" CHAMFER.

ELEVATION OF CONCRETE BARRIER WALL



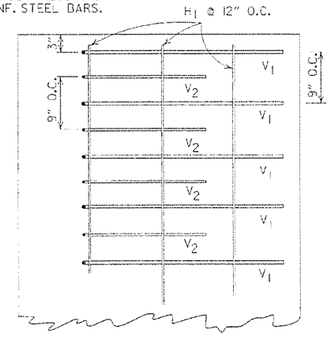
CONCRETE SLOPE PAVING TO BE REMOVED & REPLACED WHERE REQ'D. CONCRETE SLOPE PAVING WILL NOT BE PAID FOR DIRECTLY, BUT WILL BE CONSIDERED SUBSIDIARY TO THE ITEM OF CONCRETE BARRIER WALL.

SECTION A-A



SECTION THRU CONNECTION

IF FOR ANY REASON IT IS NECESSARY TO CONSTRUCT THE FOOTING AT A LOWER ELEVATION THAN IS SHOWN, THE STEM MAY BE LENGTHENED 1'-0" BETWEEN FIN. SHLDR. AND TOP OF FOOTING WITHOUT REQUIRING HEAVIER REINF. STEEL BARS.

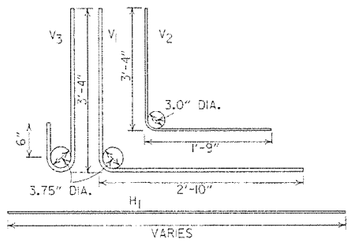


PLAN OF REINFORCING STEEL IN FOOTING

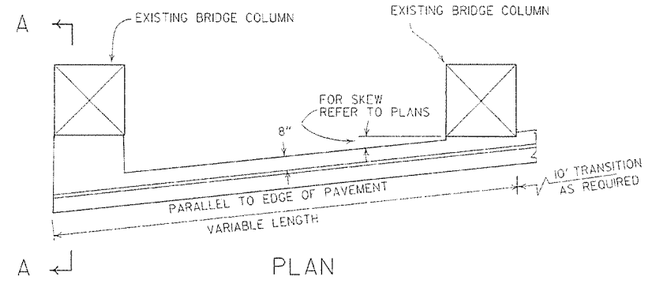
BAR LIST

MARK	NO.	SIZE	LENGTH
V1		#5	6'-2½"
V2		#4	5'-1"
V3		#5	2'-1⅛"
H1	6	4	VAR.

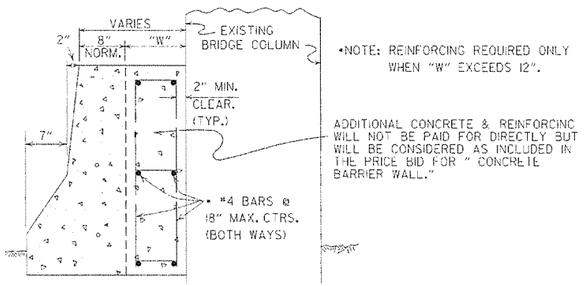
THE V3 BARS SHALL BE USED IN PLACE OF THE V1 & V2 BARS IN FRONT OF PIERS.



BEND DIAGRAMS



PLAN



*NOTE: REINFORCING REQUIRED ONLY WHEN "W" EXCEEDS 12".

SECTION A-A

DETAILS OF CONCRETE BARRIER WALL WHEN PIERS ARE SKEWED TO ROADWAY

DATE	REVISION	DATE FILM
7-14-10	RAISED HEIGHT OF W-BEAM 1"	
8-22-02	REV. SECTION A-A OF DETAILS OF CONCRETE BARRIER WALL	
6-28-00	MOVED DIMENSION LINE	
5-18-00	ADDED NOTE	
3-30-00	REVISED TO INCLUDE THRIE BEAM	
6-2-94	ADDED TRANSITION SECTION NOTE	
10-1-92	REDRAWN & REVISED	10-1-92
8-15-91	REVISED DRAWING PLAN CONC. BARR.	8-15-91
2-16-89	ADDED SKEWED DETAILS	594-2-16-89
7-14-88	CHANGED TITLE	
10-9-87	REDRAWN & REVISED	

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE BARRIER WALL
(PIER PROTECTION TYPE A)

STANDARD DRAWING GR-11

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	AHTD NOMINAL	AASHTO M 206	AHTD NOMINAL
INCHES	INCHES			
15	18	18	11	11
18	22	22	13½	14
21	26	26	15½	16
24	28½	29	18	18
30	36¼	36	22½	23
36	43⅜	44	26⅝	27
42	51⅛	51	31⅝	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87⅛	87
120	154	154	96⅞	97
132	168¾	169	106½	107

THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PERCENT FROM THE VALUES SPECIFIED BY AASHTO M206.

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

EQUIV. DIA.	AASHTO M 207	
	SPAN	RISE
INCHES	INCHES	
18	23	14
24	30	19
27	34	22
30	38	24
33	42	27
36	45	29
39	49	32
42	53	34
48	60	38
54	68	43
60	76	48
66	83	53
72	91	58
78	98	63
84	106	68

THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PERCENT FROM THE VALUES SPECIFIED BY AASHTO M207.

CONSTRUCTION SEQUENCE

1. PLACE STRUCTURAL BEDDING MATERIAL TO GRADE. DO NOT COMPACT.
2. INSTALL PIPE TO GRADE.
3. COMPACT STRUCTURAL BEDDING OUTSIDE THE MIDDLE THIRD OF THE PIPE.
4. PLACE AND COMPACT THE HAUNCH AREA UP TO THE MIDDLE OF THE PIPE.
5. COMPLETE BACKFILL ACCORDING TO SUBSECTION 606.03.(f)(1).

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

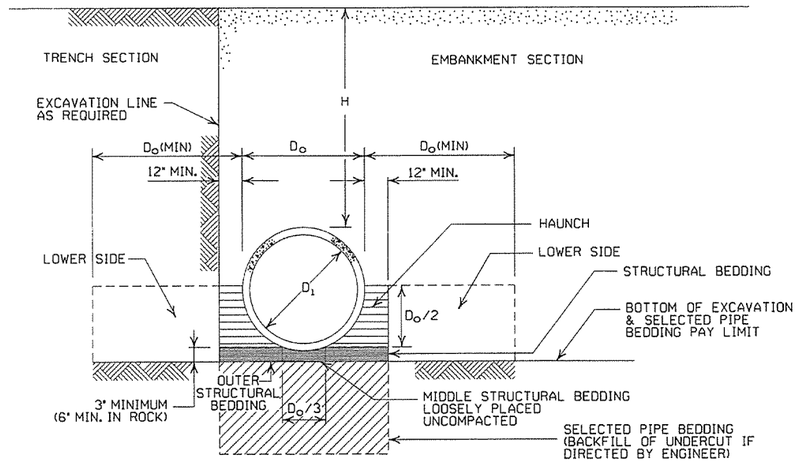
- LEGEND -

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

INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR HAUNCH AND STRUCTURAL BEDDING
TYPE 1	AGGREGATE BASE COURSE (CLASS 5 OR CLASS 7)
TYPE 2	SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4) OR TYPE 1 INSTALLATION MATERIAL*
TYPE 3**	AASHTO CLASSIFICATION A-1 THRU A-6 SOIL OR TYPE 1 OR 2 INSTALLATION MATERIAL

*SM-3 WILL NOT BE ALLOWED.

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

1. CONCRETE PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. CONCRETE PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. ALL PIPE SHALL CONFORM TO SECTION 606. CIRCULAR R.C. PIPE CULVERTS SHALL CONFORM TO AASHTO M170, R.C. ARCH PIPE CULVERTS SHALL CONFORM TO AASHTO M206 AND HORIZONTAL ELLIPTICAL PIPE CULVERTS SHALL CONFORM TO AASHTO M207.
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. NOT MORE THAN ONE LIFTING HOLE MAY BE PROVIDED IN CONCRETE PIPE TO FACILITATE HANDLING. HOLE MAY BE CAST IN PLACE, CUT INTO THE FRESH CONCRETE AFTER FORMS ARE REMOVED, OR DRILLED. THE HOLE SHALL NOT BE MORE THAN TWO INCHES IN DIAMETER OR TWO INCHES SQUARE. CUTTING OR DISPLACEMENT OF REINFORCEMENT WILL NOT BE PERMITTED. SPALLED AREAS AROUND THE HOLE SHALL BE REPAIRED IN A WORKMANLIKE MANNER. LIFTING HOLE SHALL BE FILLED WITH MORTAR, CONCRETE, OR OTHER METHOD AS APPROVED BY THE ENGINEER.
9. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
10. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED ABOVE AS THE HAUNCH), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

MINIMUM HEIGHT OF FILL "H" OVER CIRCULAR R.C. PIPE CULVERTS

	CLASS OF PIPE			
	CLASS III		CLASS IV	CLASS V
INSTALLATION TYPE	TYPE 1 OR 2	TYPE 3	ALL	ALL
PIPE ID (IN.)	FEET			
12-15	2	2.5	2	1
18-24	2.5	3	2	1
27-33	3	4	2	1
36-42	3.5	5	2	1
48	4.5	5.5	2	1
54-60	5	7	2	1
66-78	6	8	2	1
84-108	7.5	8	2	1

NOTE: FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM OF 12" OF PAVEMENT AND/OR BASE.

MAXIMUM HEIGHT OF FILL "H" OVER CIRCULAR R.C. PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE		
	CLASS III	CLASS IV	CLASS V
	FEET		
TYPE 1	21	32	50
TYPE 2	16	25	39
TYPE 3	12	20	30

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

MINIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
	FEET	
TYPE 2 OR TYPE 3	2.5	1.5

NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS.

NOTE: FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM OF 12" OF PAVEMENT AND/OR BASE.

MAXIMUM HEIGHT OF FILL "H" OVER R.C. ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS

INSTALLATION TYPE	CLASS OF PIPE	
	CLASS III	CLASS IV
	FEET	
TYPE 2	13	21
TYPE 3	10	16

NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS.

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECIFICATIONS	
5-18-00	REVISED TYPE 3 BEDDING & ADDED NOTE	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

CORRUGATED STEEL PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS (INCHES)				
		0.064	0.079	0.109	0.138	0.168
2⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM						
12	1	84	91			
15	1	67	73			
18	1	56	61			
24	1	42	46	59		
30	2	34	36	47		
36	2		30	39	41	
42	2		43	67	70	73
48	2		37	58	61	64
② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, BOLTED, OR HELICAL LOCK-SEAM						
36	1	48	60	88	111	118
42	1	41	51	72	90	102
48	1	36	45	64	77	85
54	2	32	40	59	71	79
60	2	29	36	53	64	71
66	2	26	33	47	58	64
72	2	24	30	44	53	59
78	2		28	41	49	54
84	2		26	38	45	51
90	2		24	35	43	45
96	2		22	33	40	44
102	2			31	38	42
108	2			30	35	39
114	2			28	34	37
120	2			27	32	35

CORRUGATED ALUMINUM PIPE (ROUND)

PIPE DIAMETER (INCHES)	① MINUMUM COVER TOP OF PIPE TO TOP OF GROUND "H" (FEET)	MAX. FILL HEIGHT "H" ABOVE TOP OF PIPE (FEET)				
		METAL THICKNESS IN INCHES				
		0.060	0.075	0.105	0.135	0.164
		2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM				
12	1	45	45			
18	2	30	30	52		
24	2	22	22	39	41	
30	2		18	31	32	34
36	2.5		15	26	27	28
42	2			43	43	44
48	2			40	41	43
54	2			35	37	38
60	2				33	34
66	2					31
72	2					29

CORRUGATED METAL PIPE ARCHES

EQUIV. DIA. (INCHES)	PIPE DIMENSION SPAN X RISE (INCHES)	MINUMUM CORNER RADIUS (INCHES)	STEEL				ALUMINUM			
			MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	MAX. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1		MIN. THICKNESS REQUIRED INCHES	① MIN. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	MAX. HEIGHT OF FILL, "H" (FT.) INSTALLATION TYPE 1	
			2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM				2 ⅔ INCH BY ½ INCH CORRUGATION RIVETED OR HELICAL LOCK-SEAM			
15	17x13	3	0.064	2	15		0.060	2	15	
18	21x15	3	0.064	2	15		0.060	2	15	
21	24x18	3	0.064	2.25	15		0.060	2.25	15	
24	28x20	3	0.064	2.5	15		0.075	2.5	15	
30	35x24	3	0.079	3	12		0.075	3	12	
36	42x29	3½	0.079	3	12		0.105	3	12	
42	49x33	4	0.079	3	12		0.105	3	12	
48	57x38	5	0.109	3	13		0.135	3	13	
54	64x43	6	0.109	3	14		0.135	3	14	
60	71x47	7	0.138	3	15		0.164	3	15	
66	77x52	8	0.168	3	15					
72	83x57	9	0.168	3	15					
			② 3 INCH BY 1 INCH OR 5 INCH BY 1 INCH CORRUGATION RIVETED, WELDED, OR HELICAL LOCK-SEAM							
				INSTALLATION TYPE 2	INSTALLATION TYPE 1	INSTALLATION TYPE 2	INSTALLATION TYPE 1			
36	40x31	5	0.079	3	2	12	15			
42	46x36	6	0.079	3	2	13	15			
48	53x41	7	0.079	3	2	13	15			
54	60x46	8	0.079	3	2	13	15			
60	66x51	9	0.079	3	2	13	15			
66	73x55	12	0.079	3	2	15	15			
72	81x59	14	0.079	3	2	15	15			
78	87x63	14	0.079	3	2	15	15			
84	95x67	16	0.109	3	2	15	15			
90	103x71	16	0.109	3	2	15	15			
96	112x75	18	0.109	3	2	15	15			
102	117x79	18	0.109	3	2	15	15			
108	128x83	18	0.138	3	2	15	15			

CONSTRUCTION SEQUENCE

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

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

INSTALLATION TYPE	MATERIAL REQUIREMENTS FOR STRUCTURAL BACKFILL AND STRUCTURAL BEDDING
TYPE 1	AGGREGATE BASE COURSE (CLASS 4, 5, 6, OR 7)
TYPE 2	SELECTED MATERIALS (CLASS SM-1, SM-2, OR SM-4) OR TYPE 1 INSTALLATION MATERIAL ③

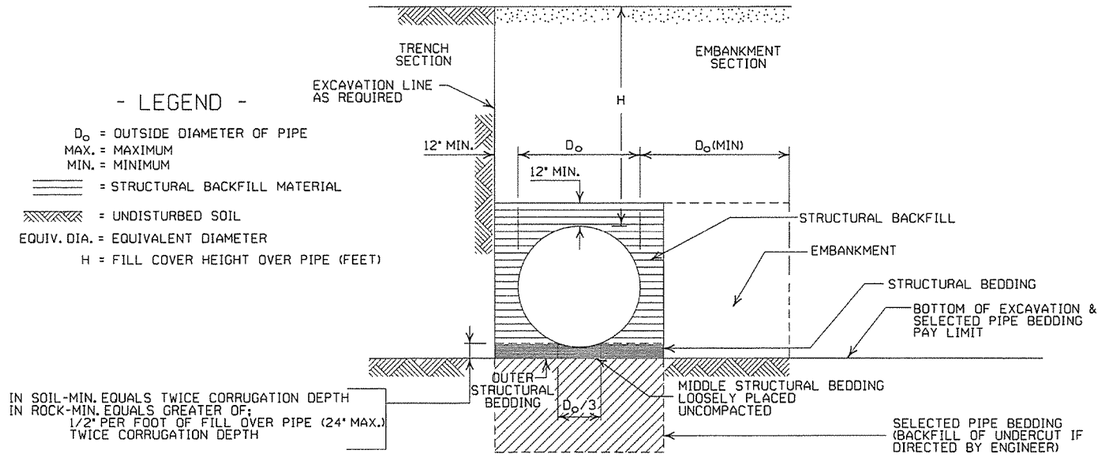
③ SM-3 WILL NOT BE ALLOWED.

EQUIVALENT METAL THICKNESSES AND GAUGES

METAL THICKNESS IN INCHES			GAUGE NUMBER
STEEL			
ZINC COATED	UNCOATED	ALUMINUM	
0.064	0.0598	0.060	16
0.079	0.0747	0.075	14
0.109	0.1046	0.105	12
0.138	0.1345	0.135	10
0.168	0.1644	0.164	8

- LEGEND -

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



EMBANKMENT AND TRENCH INSTALLATIONS

1. STRUCTURAL BACKFILL, EMBANKMENT, AND OUTER STRUCTURAL BEDDING MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY ACCORDING TO THE TYPE OR CLASS OF MATERIAL USED.
2. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE (ROUND).
3. INSTALALTION TYPE 1 SHALL BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 2⅔" X ½" CORRUGATION.
4. INSTALLATION TYPE 1 OR 2 MAY BE USED FOR CORRUGATED STEEL OR ALUMINUM PIPE ARCHES WITH 3" X 1" OR 5" X 1" CORRUGATION.

GENERAL NOTES

1. METAL PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION), WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. UNLESS OTHERWISE NOTED IN THE PLANS, SECTION AND SUBSECTION REFER TO THE STANDARD CONSTRUCTION SPECIFICATIONS.
2. METAL PIPE CULVERT DESIGN SHALL CONFORM TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, FIFTH EDITION (2010) WITH 2010 INTERIMS.
3. METAL PIPE CULVERT MATERIALS AND INSTALLATIONS SHALL CONFORM TO SECTION 606 AND JOB SPECIAL PROVISION "METAL PIPE".
4. ALL PIPE SHALL BE PROTECTED DURING CONSTRUCTION BY A COVER SUFFICIENT TO PREVENT DAMAGE FROM PASSAGE OF EQUIPMENT.
5. THE MINIMUM TRENCH WIDTH SHALL BE THE OUTSIDE DIAMETER OF THE PIPE PLUS 24 INCHES. THE MAXIMUM ALLOWABLE TRENCH WIDTH SHALL BE THE MINIMUM WIDTH PRACTICABLE FOR WORKING CONDITIONS.
6. MULTIPLE PIPE CULVERTS SHALL BE INSTALLED WITH A MINIMUM CLEARANCE OF 24 INCHES BETWEEN STRINGS OF PIPE. REFER TO STD. DWG. FES-2 FOR MINIMUM CLEARANCE WHERE FLARED END SECTIONS ARE USED.
7. IMPERVIOUS MATERIAL SHOULD BE PLACED AS DIRECTED BY THE ENGINEER AT THE ENDS OF THE CULVERT TO PREVENT LOSS OF STRUCTURAL BEDDING WHEN PERVIOUS MATERIAL IS USED FOR STRUCTURAL BEDDING AND/OR BACKFILL.
8. WHEN DIRECTED BY THE ENGINEER, UNSUITABLE MATERIAL THAT IS ENCOUNTERED AT THE BOTTOM OF THE EXCAVATED TRENCH (BELOW THE AREA IDENTIFIED AS "STRUCTURAL BEDDING" ABOVE) WILL BE EXCAVATED AND REPLACED WITH SELECTED PIPE BEDDING. THE QUANTITY OF MATERIAL REQUIRED TO BACKFILL THE UNDERCUT AREA UP TO THE SELECTED PIPE BEDDING PAY LIMIT DESIGNATED ABOVE WILL BE MEASURED AND PAID FOR AS "SELECTED PIPE BEDDING."
9. WHEN THE EXISTING MATERIAL EXCAVATED FOR THE PIPE TRENCH IS DETERMINED BY THE ENGINEER TO BE UNSUITABLE FOR BACKFILLING THE PIPE (ABOVE THE AREA IDENTIFIED AS STRUCTURAL BACKFILL), BORROW MATERIAL OR MATERIAL FROM THE ROADWAY EXCAVATION WILL BE USED TO BACKFILL THE PIPE. IF SUITABLE MATERIAL IS NOT AVAILABLE, THE ENGINEER MAY AUTHORIZE THE USE OF "SELECTED PIPE BACKFILL."

① FOR MINIMUM COVER VALUES, "H" SHALL INCLUDE A MINIMUM 12" OF PAVEMENT AND/OR BASE.

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

DATE	REVISION	DATE FILMED
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECS	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	

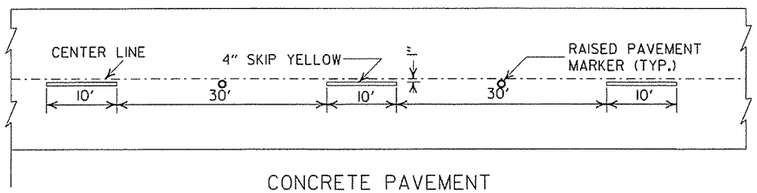
ARKANSAS STATE HIGHWAY COMMISSION

METAL PIPE CULVERT FILL HEIGHTS & BEDDING

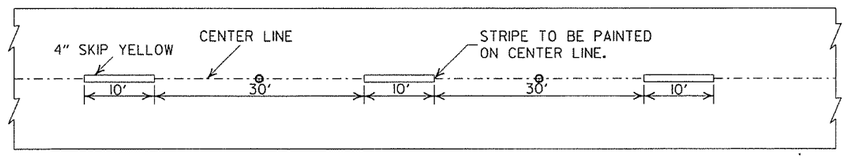
STANDARD DRAWING PCM-1

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.

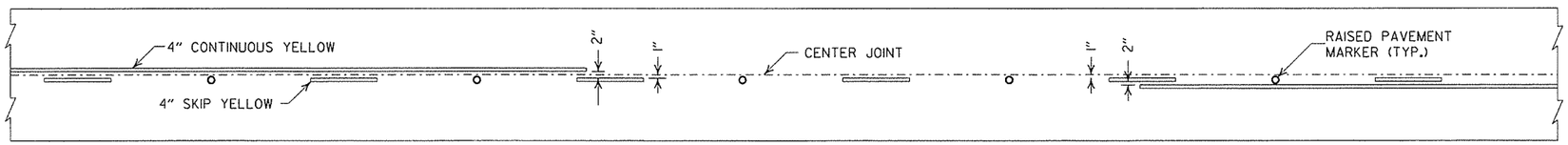


CONCRETE PAVEMENT

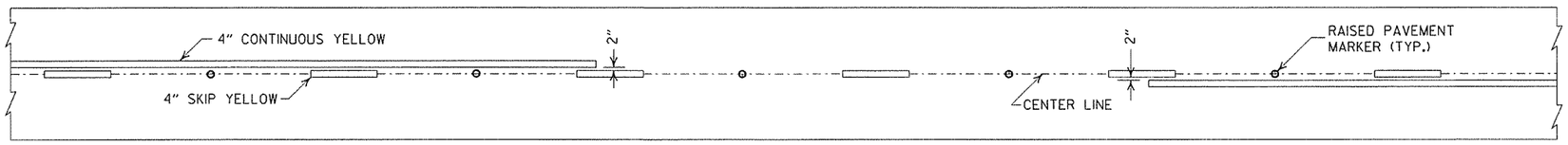


ASPHALT PAVEMENT

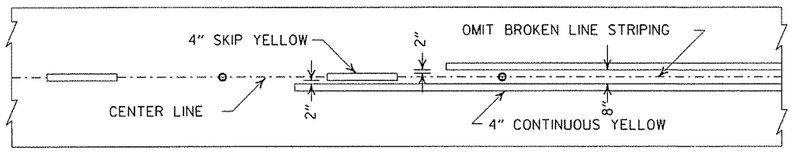
BROKEN LINE STRIPING



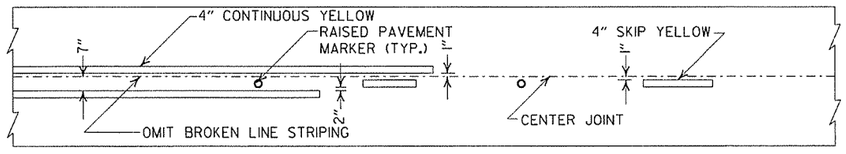
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

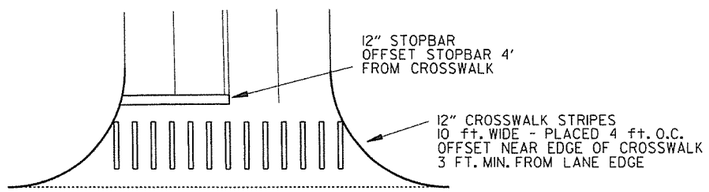


ASPHALT PAVEMENT

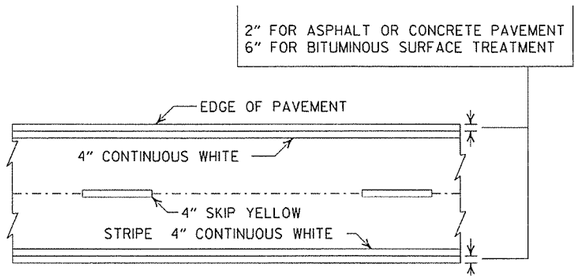


CONCRETE PAVEMENT

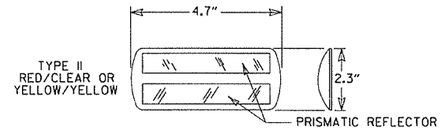
STRIPING AT ADJACENT NO PASSING LANES



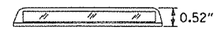
CROSSWALK AND STOPBAR DETAILS



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
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAV'T. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80	DRAWN	1-9-30-80

ARKANSAS STATE HIGHWAY COMMISSION

PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

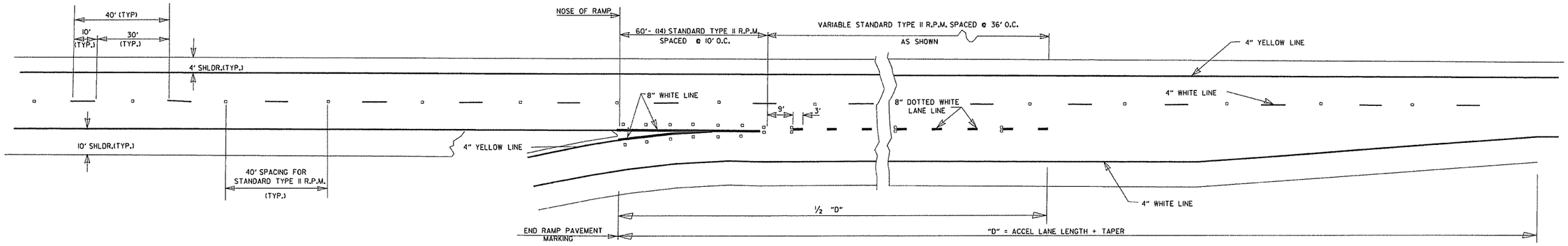
PAVEMENT MARKING QUANTITIES
(BASED ON 700' ACCEL. LANE + 300' TAPER)

ENTRANCE RAMP

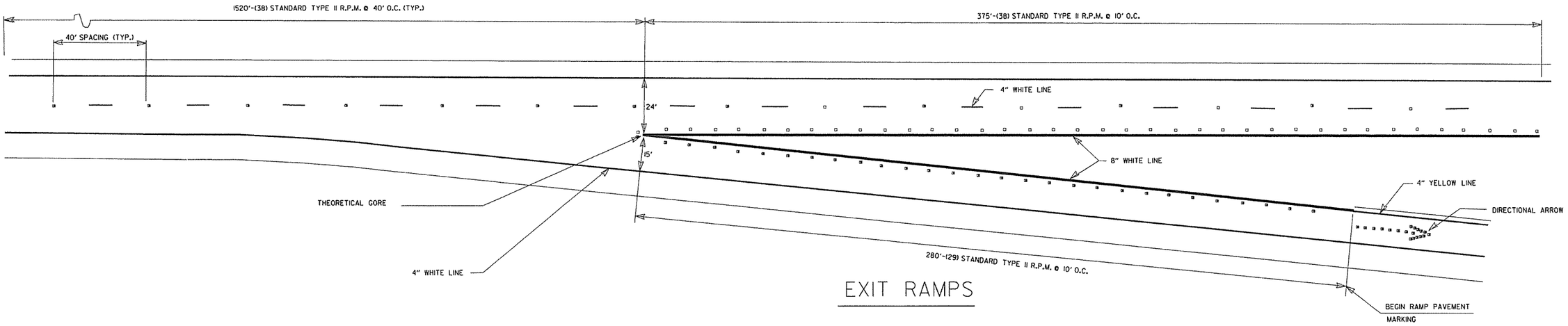
8" WHITE = 228 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) = 38 EACH

EXIT RAMP

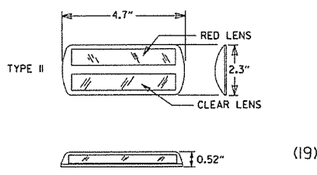
4" WHITE = 280 LIN. FT.
8" WHITE = 655 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) = 38 EACH
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) = 48 EACH
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) = 38 EACH



ENTRANCE RAMPS

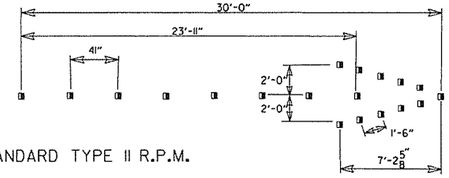


EXIT RAMPS



DETAIL OF
STANDARD
RAISED PAVEMENT MARKERS

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



(19) STANDARD TYPE II R.P.M.

DIRECTIONAL ARROWS

GENERAL NOTES:

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

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

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

DATE	REVISION	FILMED
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
7-26-12	REVISED RPM NOTATION	
12-15-11	REVISED RPMs ACCORDING TO LATEST POLICY	
11-17-10	REMOVED PLOWABLE PAVEMENT MARKERS	
6-3-10	REVISED PER 2009 MUTCD	
11-18-04	REVISED NOTES	
8-22-02	ADDED & REVISED NOTES; REV. ENTRANCE & EXIT RAMPS	
5-18-00	REMOVED HASHMARKS	
7-02-98	CHANGED TYPES TO ROMAN NUMERALS	
4-26-96	ADDED DIMENSIONS & QUANTITIES; REVISED LANE WIDTH ON EXIT RAMP	
2-2-95	PLACED IN USE	2-2-95

ARKANSAS STATE HIGHWAY COMMISSION

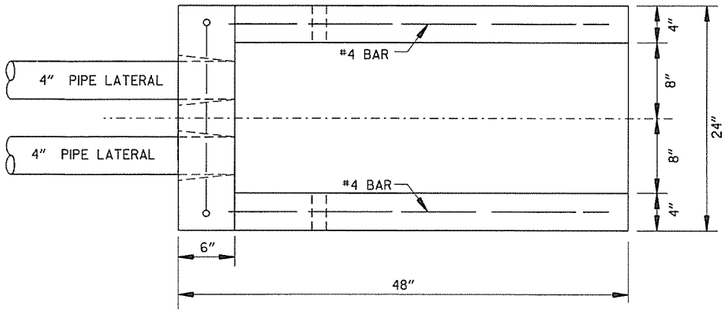
PERMANENT PAVEMENT MARKING
ON ACCESS CONTROLLED ROADWAYS

STANDARD DRAWING PM-2

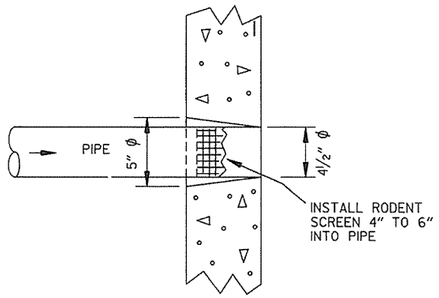
NOTE:
1. GRANULAR BACKFILL TO BE SUBSIDIARY TO PIPE UNDERDRAIN.

2. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE UNDERDRAIN COVER SHALL BE THOROUGHLY COMPACTED EARTH AND SHALL BE SUBSIDIARY TO PIPE UNDERDRAIN.

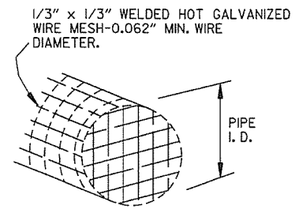
3. GRANULAR MATERIAL SHALL BE WRAPPED WITH GEOTEXTILE FABRIC. LAP FABRIC 12" OR THE WIDTH OF THE TRENCH AT THE TOP.



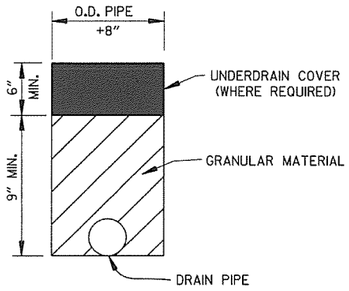
PLAN VIEW

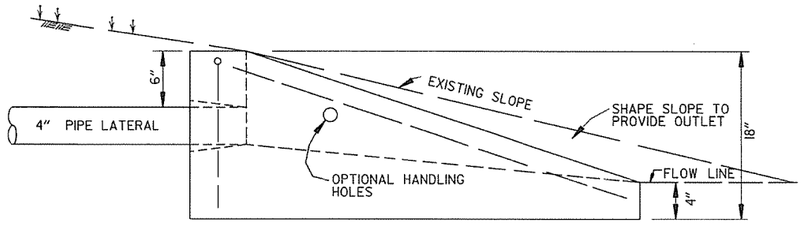


DETAIL OF HOLE FOR 4" PIPE

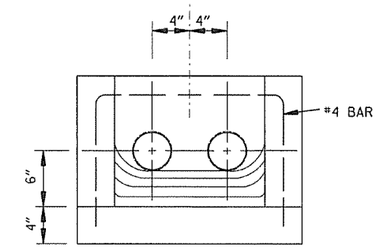


DETAIL OF RODENT SCREEN

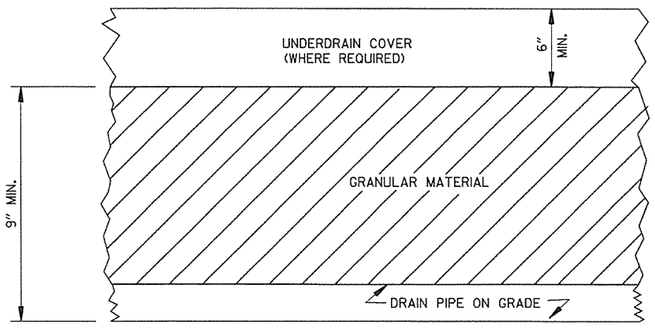




SIDE VIEW

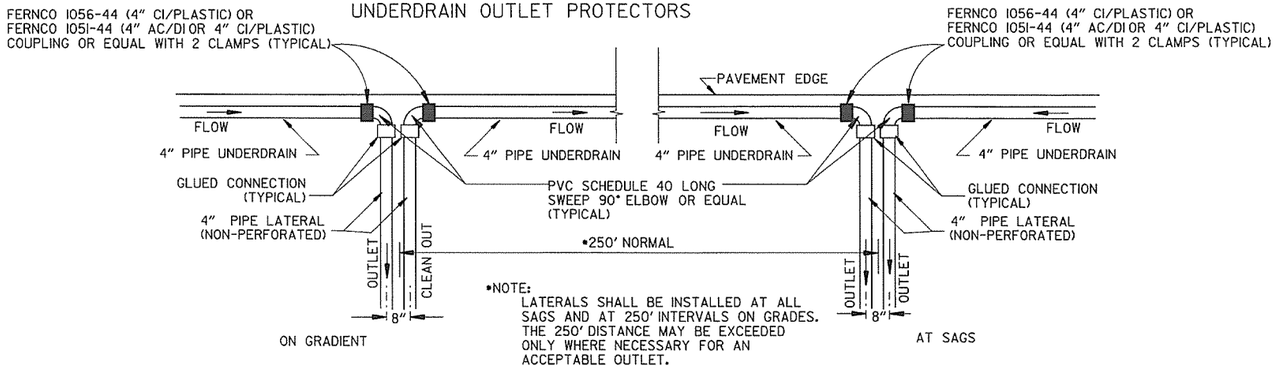


FRONT VIEW



DETAILS OF PIPE UNDERDRAIN

UNDERDRAIN OUTLET PROTECTORS



DETAIL OF PIPE UNDERDRAIN LATERALS WHEN PLACED ALONG PAVEMENT EDGE

NOTE: PVC PIPE FOR LATERALS SHALL MEET THE REQUIREMENTS OF ASTM D 1785 (LATEST REVISION) FOR SCHEDULE 40 PIPE.

DATE	REVISION	DATE FILMED
4-10-03	REVISED NOTE 3	
1-12-00	REVISED DETAIL OF UNDERDRAIN LATERALS	
11-18-98	REVISED NOTE	
10-18-96	REVISED MIN. DEPTH & GEOTEXTILE FABRIC	
4-26-96	ADDED LATERAL NOTE; 5½" TO 5"	
11-22-95	REVISED LATERALS	
7-20-95	REVISED LATERALS & ADDED NOTE	
11- 3-94	REVISED FOR DUAL LATERALS	11- 3-94
10- 1-92	SUBSTITUTED GEOTEXTILE	10- 1-92
8-15-91	ADDED POLYEDTHYLENE PIPE	8-15-91
11- 8-90	DELETED ALTERNATE NOTE	11- 8-90
1-25-90	ADDED 4" SNAP ADAPTER	1-25-90
11-30-89	DEL. (SUBGRADE); ADDED (WHERE REQUIRED)	11-30-89
7-15-88	ISSUED P.L.M.	647-7-15-88

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF PIPE UNDERDRAIN

STANDARD DRAWING PU-1

7-20-95 INSTD.PUI

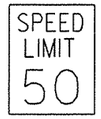
R1-1

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

R1-2

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

R2-1



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

W3-5

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

W3-5a

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

R4-1

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

R4-2

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

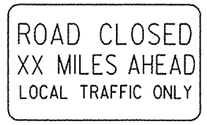
R5-1

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

R11-2

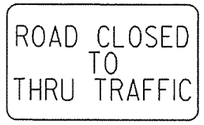
48"X30"

R11-3A



60"X30"

R11-4



60"X30"

RSP-1

48"X30"

W1-1

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

W1-2

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

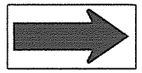
W1-3

STD. 48"X48"

W1-4

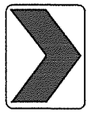
STD. 48"X48"

W1-6



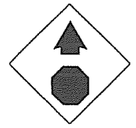
STD. 48"X24"
SPECIAL 60"X30"

W1-8



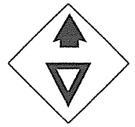
STD. 18"X24"
SPECIAL 24"X30"
EXPWY. 30"X36"
FWY. 36"X48"

W3-1



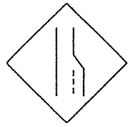
STD. 36"X36"
SPECIAL 48"X48"

W3-2



STD. 36"X36"
SPECIAL 48"X48"

W4-2



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

W5-1

STD. 36"X36"
SPECIAL 48"X48"

W6-3

EXPWY. 36"X36"
SPECIAL 48"X48"

W8-7

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

W9-2

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

W13-1

STD. 24"X24"

W20-1

STD. 48"X48"

W20-2

STD. 48"X48"

W20-3

STD. 48"X48"

W20-4

STD. 48"X48"

W20-5

STD. 48"X48"

W20-7a

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

W21-2

STD. 30"X30"
SPECIAL 36"X36"

W21-5

STD. 30"X30"
SPECIAL 36"X36"

W24-1

STD. 36"X36"

W1-4b

STD. 48"X48"

R56-1

STD. 18"X18"

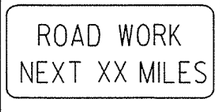
W8-11

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

W8-9

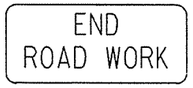
STD. 36"X36"
FWY. 48"X48"

G20-1



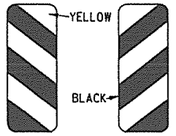
60"X24"

G20-2



48"X24"

OM-3L OM-3R



12"X36"

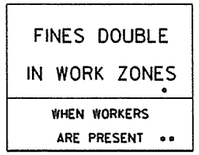
M4-9

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

M4-10

48"X18"

R55-1



36"X60"

• USE 6" C LETTERS
•• USE 4" D LETTERS

ADVANCE DISTANCES
(XXXX)

500 FT	½ MILE
1000 FT	¾ MILE
1500 FT	1 MILE
	AHEAD

GENERAL NOTES:

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

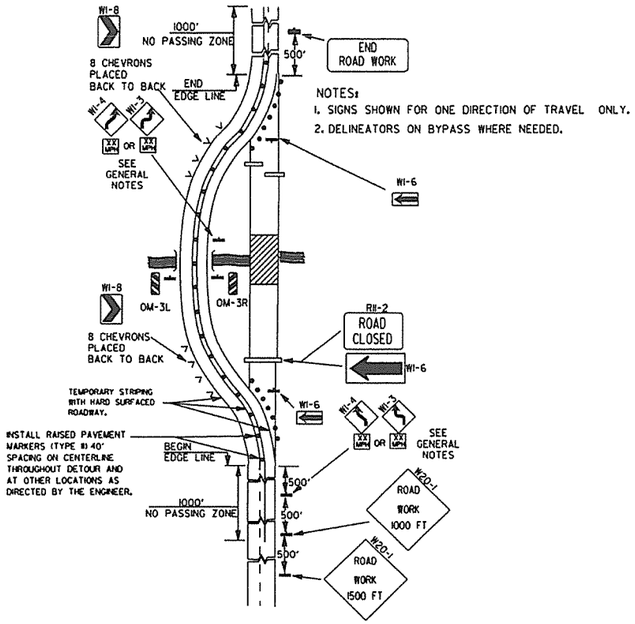
• NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY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

DATE	REVISION	FILMED
9-2-15	REVISED REDUCED SPEED LIMIT AHEAD SIGNS REVISED ROAD WORK NEXT XX MILES	
12-15-11	REVISED W24-1	
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

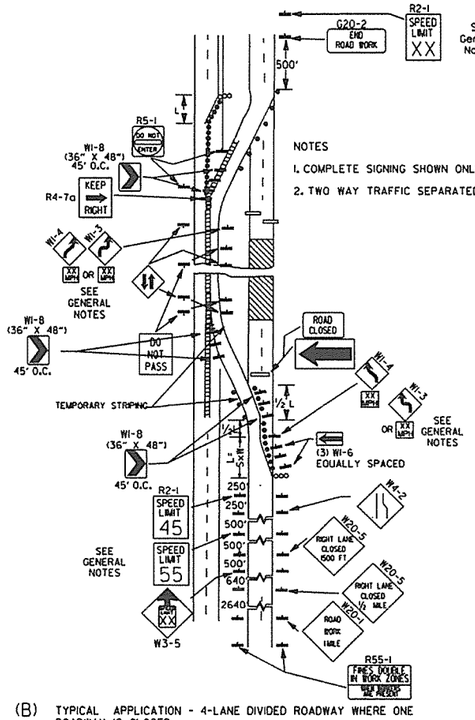
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



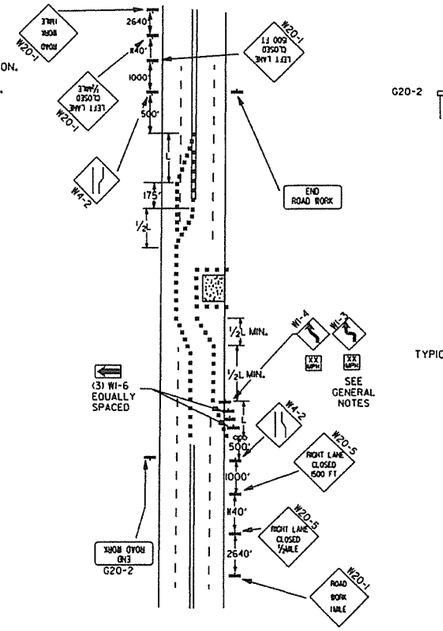
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.

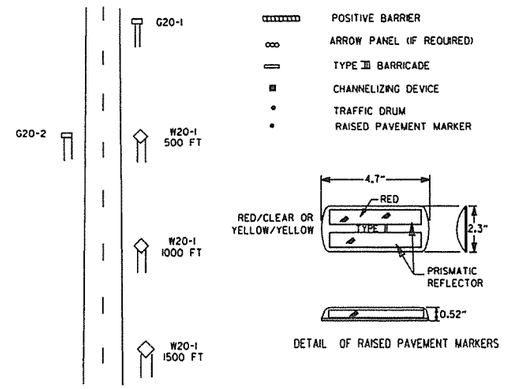


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

(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

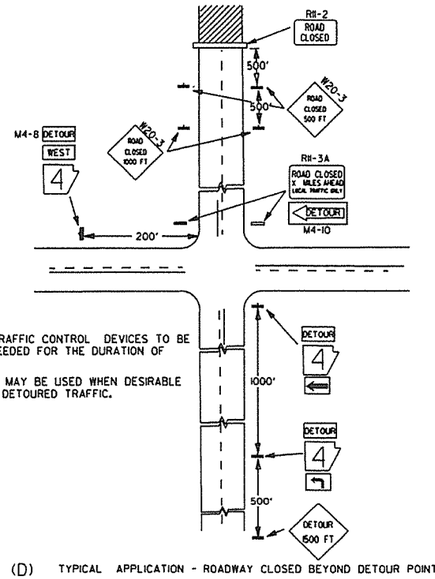
TAPER FORMULAE:

L=SXW FOR SPEEDS OF 45MPH OR MORE.

$L = \frac{WS^2}{60}$ FOR SPEEDS OF 40MPH OR LESS.

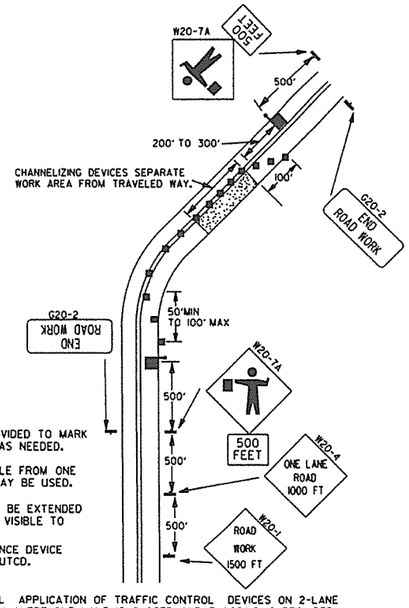
WHERE:
L= MINIMUM LENGTH OF TAPER.
S= NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.
W= WIDTH OF OFFSET.

GENERAL NOTES:
1. ADVISORY SPEED POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1 45MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 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.
8. DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE AHTD QUALIFIED PRODUCTS LIST.



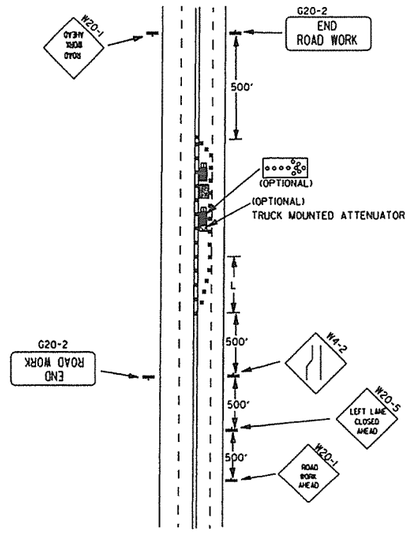
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

(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.



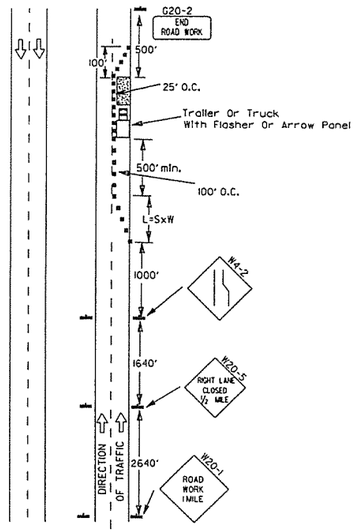
(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

DATE	REVISION	FILMED
9-2-15	REVISED NOTE 2, ADDED NOTE 8, REVISED DRAWING (A) & REPLACED R2-5A WITH W3-5	
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-8-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (G) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

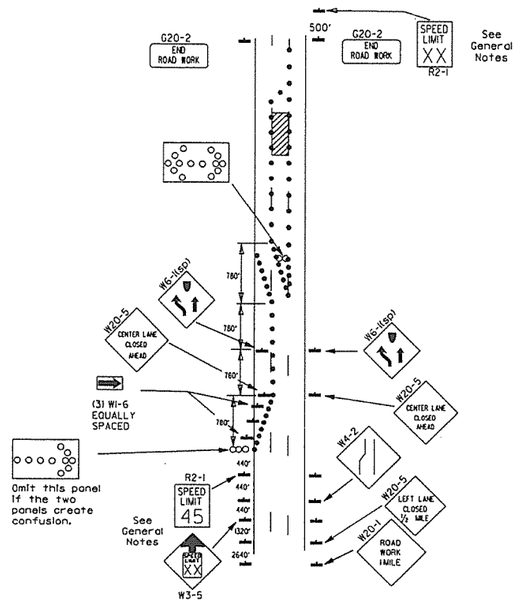
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

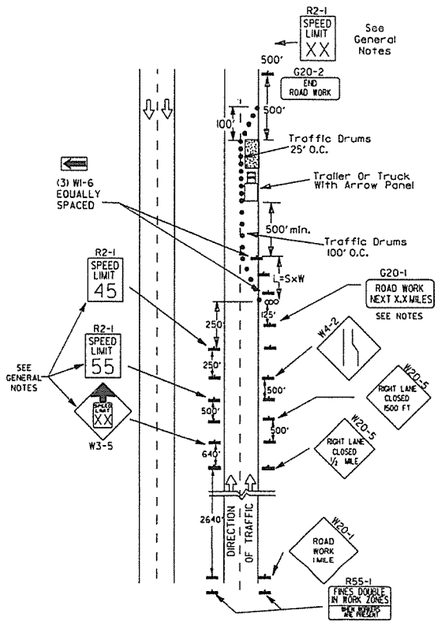
STANDARD DRAWING TC-2



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



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



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

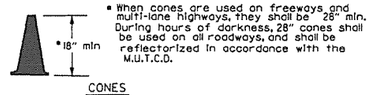
KEY:

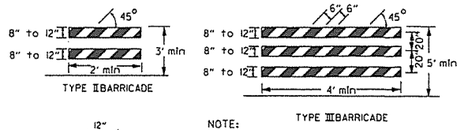
- Arrow Panel (If Required)
- Channelizing Device
- Traffic drum

GENERAL NOTES:

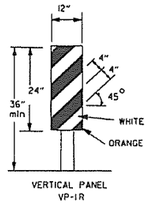
1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the W3-5 shall be installed at that location. Additional R2-1 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. The G20-1 sign will be required on jobs of over two miles in length. When the lane closure is not at the beginning of the project, the G20-1 sign shall be erected 125' in advance of the job limit. Additional W20-1 (1 MILE) signs are not required in advance of lane closures that begin inside the project limits.
8. Flaggers shall use STOP/SLOW paddles for controlling traffic through work zones. Flags may be used only for emergency situations.
9. All plastic drums and cones shall meet the requirements of NCHRP-350 or Manual For Assessing Safety Hardware (MASH).
10. Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.

Channelizing devices

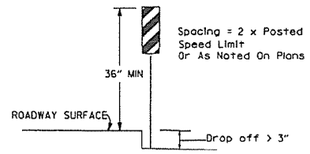




NOTE:
For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.



VERTICAL PANEL PLACEMENT



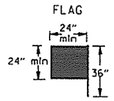
TRAFFIC CONTROL DEVICES
FOR
VERTICAL PAVEMENT DIFFERENTIALS

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.

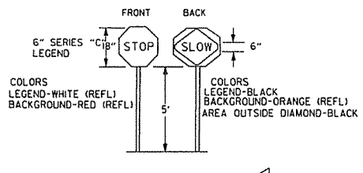
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.

FLAG



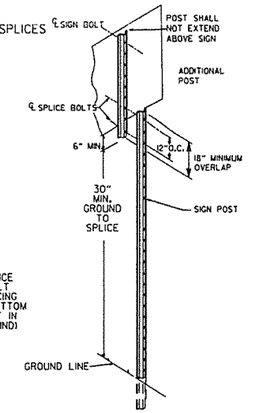
Flag shall be of good grade red material

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
9-2-15	REVISED NOTE 2 & REPLACED R2-5A WITH W3-5	
10-15-09	ADDED REFERENCE TO MASH	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED NOTE	
10-1-98	ADDED NOTE	
4-03-97	ADDED (SP) TO W6-1& REVISED TRAFFIC CONTROL DEVICES NOTE	
10-18-96	ADDED R55-1	
10-12-95	MOVED UPPER SPLICE	
6-8-95	REVISED SPLICE DETAIL, TEXT	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	

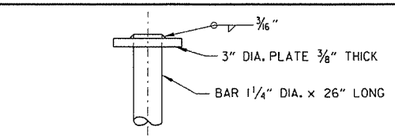
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

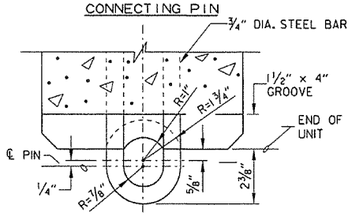
STANDARD DRAWING TC-3

REINFORCING BAR TABLE PER BARRIER UNIT

MARK	LOCATION	BAR SIZE	(NO. BARS)	SKETCH
H-1	HORIZONTAL IN BARRIER TIED INSIDE V-1 BARS	#5	(6)	19'-3"
H-2	CENTERED ABOVE DRAIN SLOTS LONG. & TRANSVERSELY	#5	(6)	6'-6"
H-3	TIED ABOVE H-1 BARS TO SUPPORT H-2, TIED TO V-1	#4	(2)	1'-6"
S-1	OVER LIFT HOLES	#4	(2)	2'-5", 90°, 3 3/8" R, LIFTING HOLE
S-2	HORIZ. AROUND SLOTS BETWEEN V-1'S @ DRAIN SLOTS	#4	(2)	1 1/2" R, SLOTS, 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°, 9 1/2", 2'-1 3/8", 4 3/8"

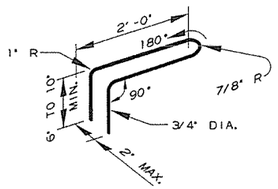


CONNECTING PIN

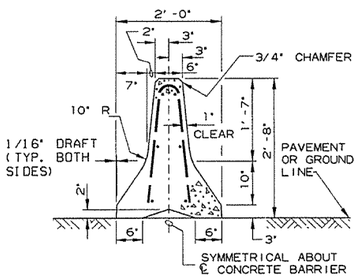


SECTION E-E

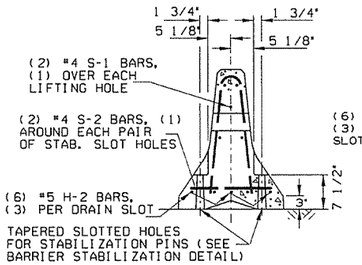
CONNECTION DETAILS



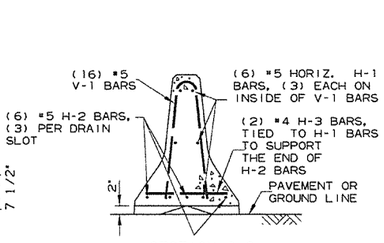
CONNECTION LOOP



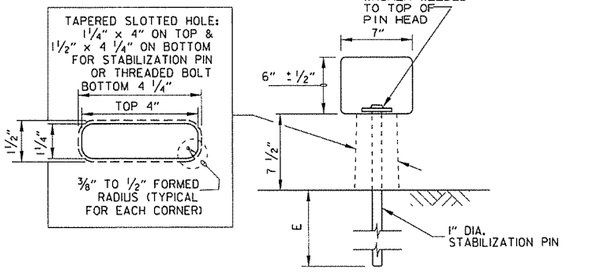
SECTION A-A



SECTION B-B



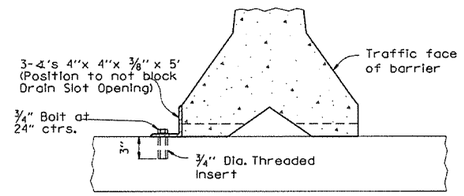
SECTION C-C



BARRIER STABILIZATION DETAIL

ROADWAY SECTION

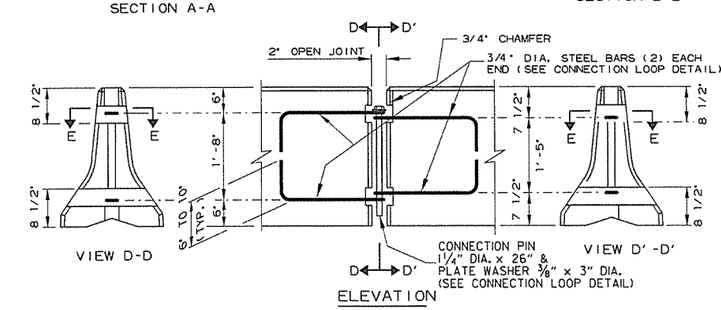
(E) 4" - Concrete Pavement
8" - Asphalt Pavement
12" - Shoulder Areas



NOTE: 3/4" Threaded Inserts shall be cast in place for all new bridge decks and drilled and grouted for existing bridge decks. 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

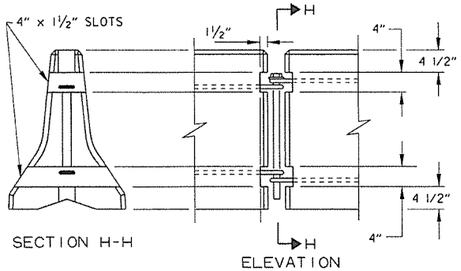
BRIDGE DECKS



VIEW D-D

VIEW D'-D'

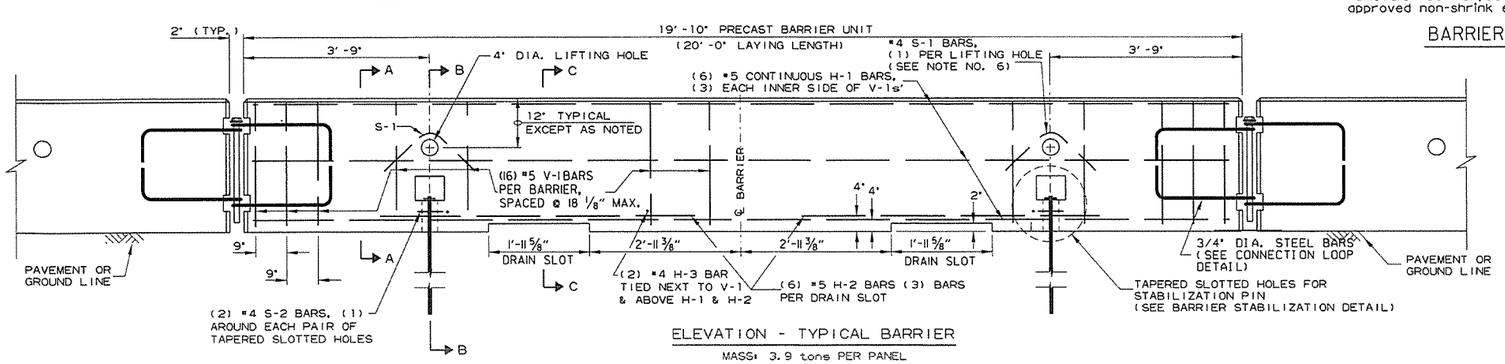
ELEVATION



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

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

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

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

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

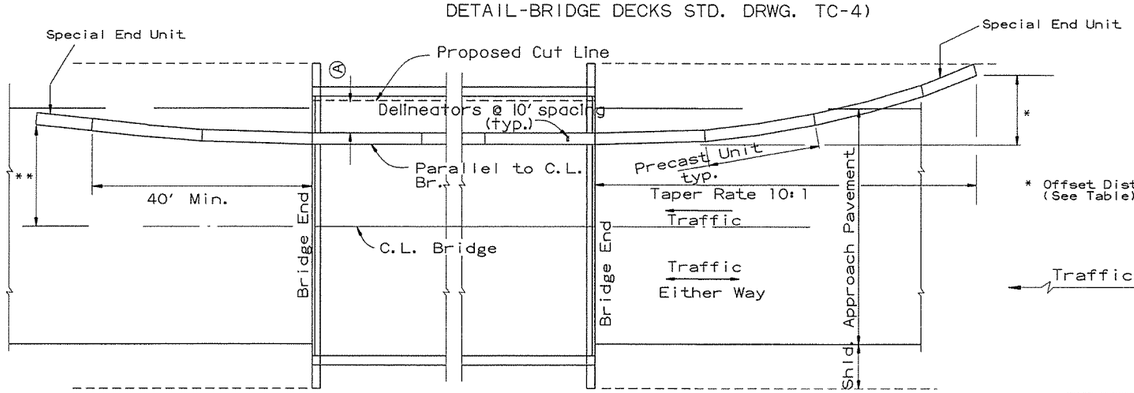
DATE	REVISION	FILMED
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-15-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED GENERAL NOTE 2	
8-22-02	ISSUED NEW DRAWING	

ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

STANDARD DRAWING TC-4

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

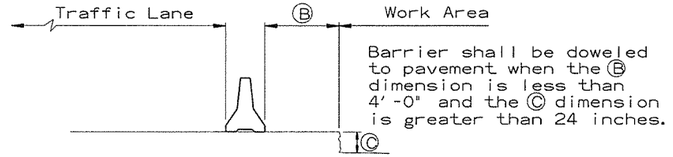


BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

* Offset Distance (See Table)

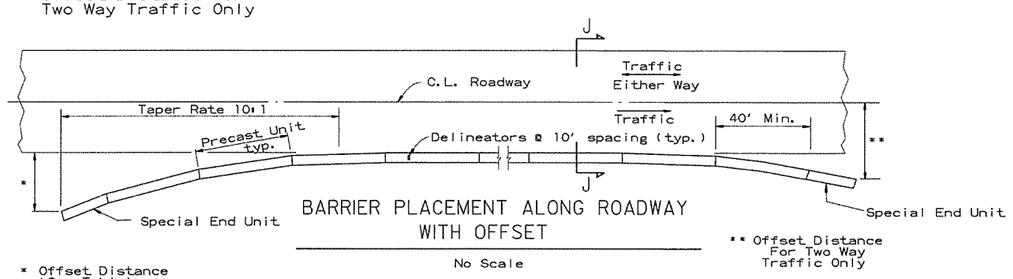
** Offset Distance for Two Way Traffic Only



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

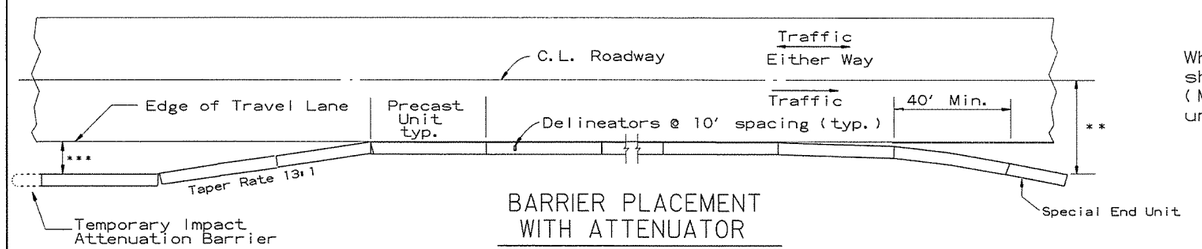
* Offset Distance (See Table)

** Offset Distance For Two Way Traffic Only

Offset Distance Table

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

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

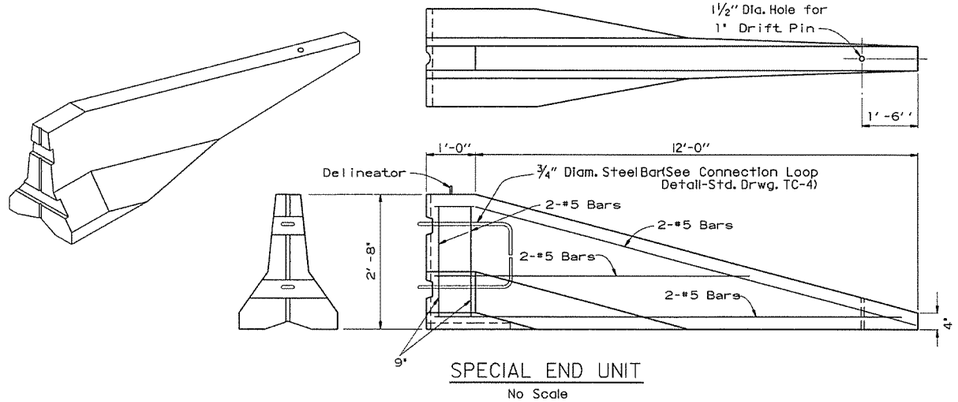


BARRIER PLACEMENT WITH ATTENUATOR

No Scale

** Offset Distance For Two Way Traffic Only

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



SPECIAL END UNIT

No Scale

General Notes

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

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

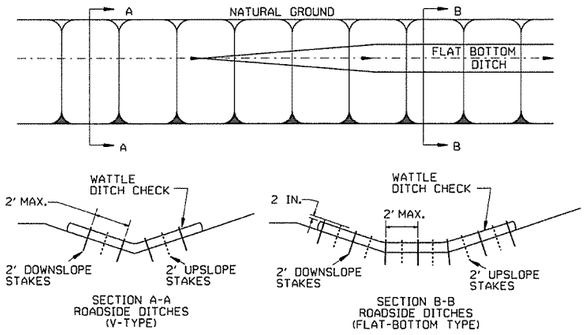
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

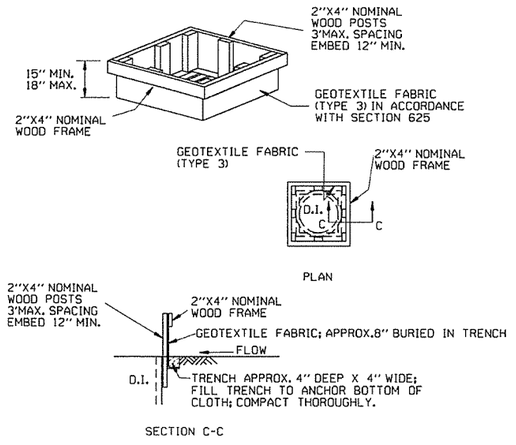
STANDARD DRAWING TC-5

GENERAL NOTES

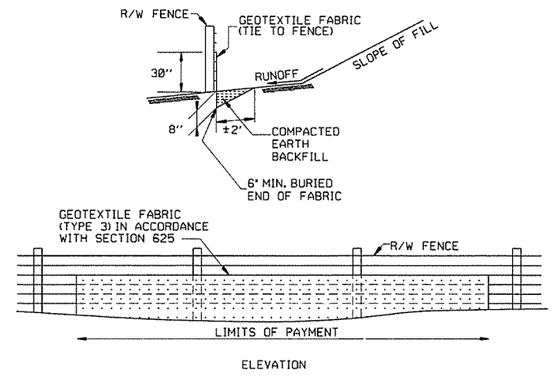
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



DROP INLET SILT FENCE (E-7)



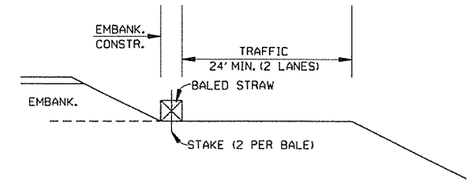
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

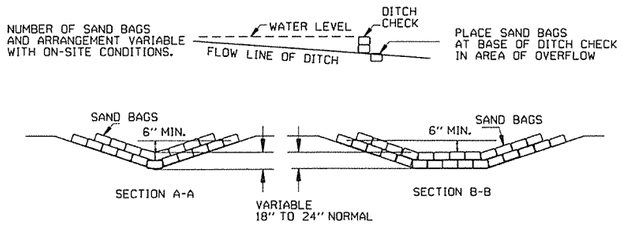
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

GENERAL NOTES

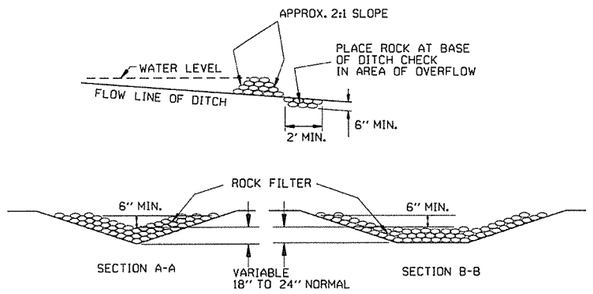
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.
2. NO GAPS SHALL BE LEFT BETWEEN BALES.
3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED BY THE BALE IN PLACE AS AUTHORIZED BY THE ENGINEER AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE BID PER BALE FOR BALED STRAW DITCH CHECKS.



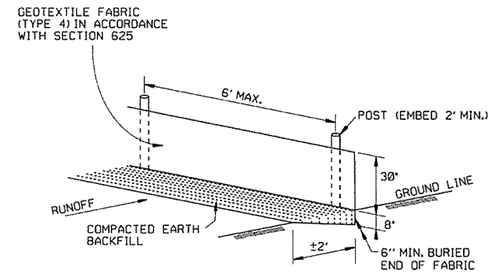
BALED STRAW FILTER BARRIER (E-2)



SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)



SILT FENCE (E-11)

GENERAL NOTES

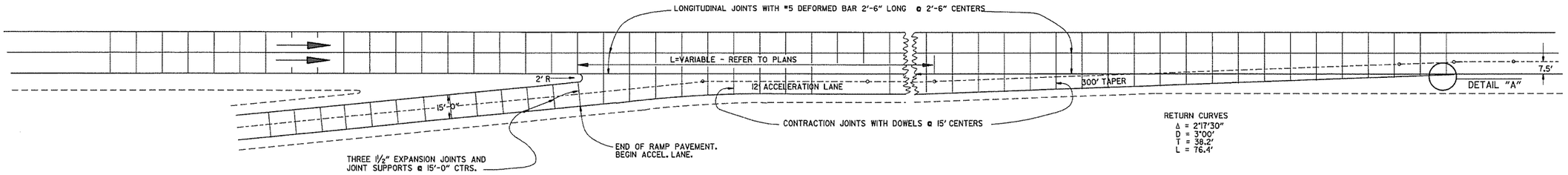
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

DATE	REVISION	FILMED
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK	
11-18-98	ADDED NOTES	
7-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)	
7-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95
7-15-94	REV. E-4 & E-11 MIN. 13" BURIED END OF FABRIC	
6-2-94	REVISED E-1,4,7 & 11; DELETED E-2 & 3	6-2-94
4-1-93	REDRAWN	
10-1-92	REDRAWN	
8-2-76	ISSUED R.D.M.	298-7-28-76

ARKANSAS STATE HIGHWAY COMMISSION

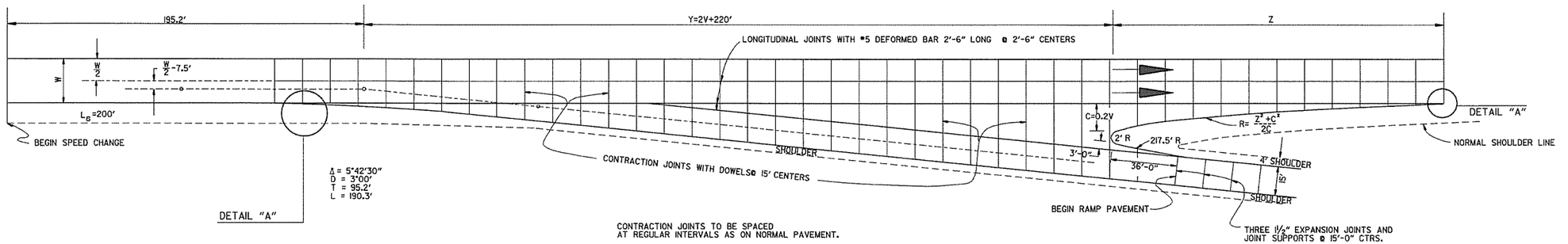
TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-1



ENTRANCE RAMP

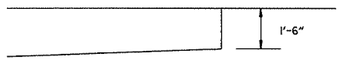
NOTE: JOINT SPACING ON THE MAIN LANES SHALL BE ADJUSTED AS NECESSARY TO CONFORM TO THESE JOINT LAYOUTS. THE MAIN LANE JOINT SPACING MAY BE REDUCED TO A 12' MINIMUM.



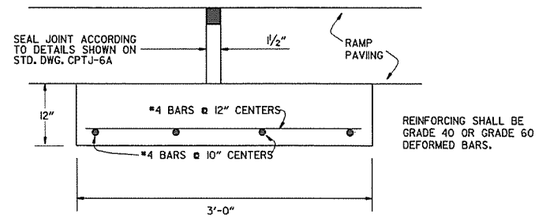
EXIT RAMP

EXIT RAMP

DESIGN SPEED V	Y	NOSE OFFSET C	LENGTH NOSE TAPER Z	RETURN RADIUS R	ADDITIONAL SURFACING SQ. YDS.
40	300.0	8.0	96.0	580.0	602.43
50	320.0	10.0	120.0	725.0	687.29
60	340.0	12.0	168.0	1182.0	790.55
70	360.0	14.0	210.0	1582.0	902.27



DETAIL "A"



DETAIL OF EXPANSION JOINT & JOINT SUPPORT

NOTE: THE EXPANSION JOINTS SHALL BE MEASURED AND PAID FOR AS P.C.C. PAVEMENT (RAMP THICKNESS). WHEN RAMP PAVING IS ASPHALT, EXPANSION JOINT IS NOT REQUIRED.
THE JOINT SUPPORT MAY BE CONSTRUCTED WITH CLASS "A", "S", OR PAVING CONCRETE. PAYMENT FOR THE JOINT SUPPORT SHALL BE FOR THE CONTRACT UNIT PRICE BID FOR THE CLASS OF CONCRETE USED. ALL OTHER WORK AND MATERIALS REQUIRED FOR THE CONSTRUCTION OF THE JOINT SUPPORT SHALL BE INCLUDED IN THE PRICE BID FOR THE ABOVE ITEMS.

DATE	REVISION	DATE FILM'D
8-22-02	DELETED NOTE	
11-16-01	CORRECTED SPELLING ON ENTRANCE RAMP NOTE	
5-13-99	ADDED, EDITED AND DELETED NOTES	
11-03-94	ADDED NOTE RE: REINF. BARS	
10-1-92	ADDED DETAIL A & OTHER MINOR CHANGES	10-1-92
1-25-90	REVISED EXPANSION JOINT	1-25-90
7-15-88	CONFORM'D TO 1988 SPECIFICATIONS	65C-7-15-88
3-2-81	ISSUED	511-10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD TURNOUT FOR ENTRANCE & EXIT RAMPS (NON-REINFORCED)

STANDARD DRAWING TR-1A