Crafton, Tull & Associates Inc.	DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		BB0413	1	160
					(2)	ELM SPRINGS RD. INTCHNG. IMPVTS. (F)			

"A FULLY CONTROLLED ACCESS FACILITY"

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

CONSTRUCTION PLANS FOR STATE HIGHWAY

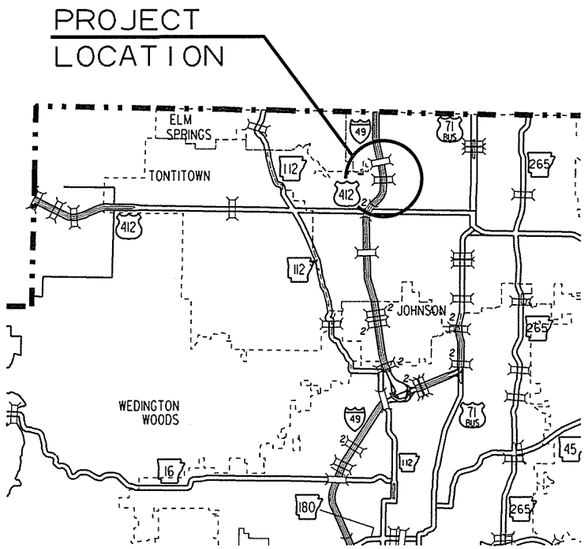
ELM SPRINGS RD. INTCHNG. IMPVTS. (F)

WASHINGTON COUNTY

ROUTE 49 SECTION 28

JOB BB0413

FED. AID PROJ. NHPP-540-1(76)73



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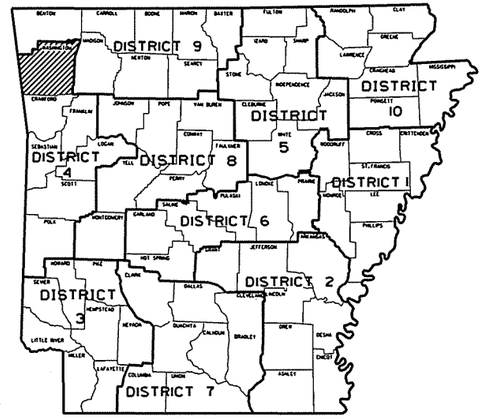

ARK. HWY. DIST. NO. 4

STA. 15+59.28

BEGIN JOB BB0413

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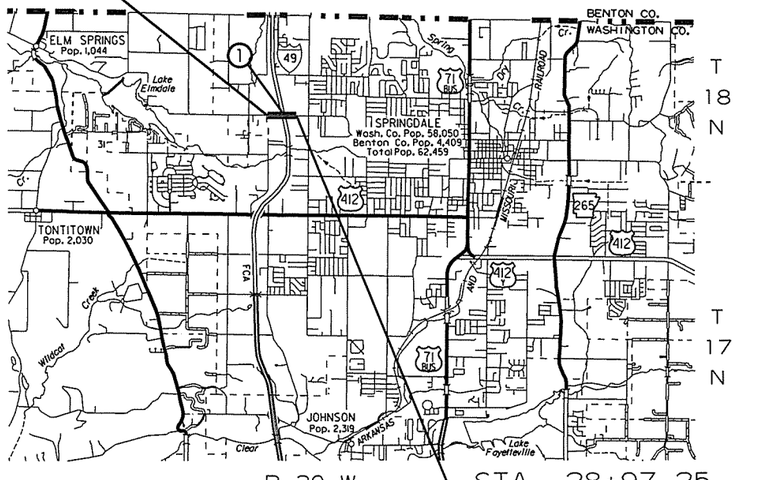

STA. 28+97.25

END JOB BB0413

BRIDGE STRUCTURES

(1) BR. END STA. 20+48.61
IN PLACE BRIDGE NO. 05945
52'-0" CLEAR ROADWAY
274'-4 9/16" TOTAL LENGTH
272'-0" CONT. COMP. W-BEAM UNIT
(48', 88', 88', 48')
RETAIN & WIDEN
70'-0" CLEAR ROADWAY
BR. END STA. 23+22.99
I-49 L.M. = 72.91

• DESIGN TRAFFIC DATA •

DESIGN YEAR	2036
2016 ADT	9,800
2036 ADT	14,000
2036 DHV	1,540
DIRECTIONAL DISTRIBUTION	0.60
TRUCKS	3%
DESIGN SPEED	40 MPH

BEGINNING OF PROJECT
LAT. = N 36°11'36"
LONG. = W 94°10'55"

MID-POINT OF PROJECT
LAT. = N 36°11'36"
LONG. = W 94°10'47"

END OF PROJECT
LAT. = N 36°11'36"
LONG. = W 94°10'39"

GROSS LENGTH OF PROJECT			1337.97	FEET	OR	0.253 MILES
NET	"	" ROADWAY	1063.59	"	"	0.201 "
NET	"	" BRIDGES	274.38	"	"	0.052 "
NET	"	" PROJECT	1337.97	"	"	0.253 "

CERTIFICATE OF AUTHORIZATION
CRAFTON, TULL & ASSOCIATES, INC.
No. 109
ARKANSAS ENGINEER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9620
1/28/16
HUBERT BURNS

P.E. BB0413

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142-160	CROSS SECTIONS			

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

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
02-25-16			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	2	160

(2) INDEX OF SHEETS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
JEROME PAUL DAVIS
No. 15560
Jerome P. Davis
2-25-16

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INDEX OF SHEETS

GENERAL NOTES

1. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
2. ALL PIPE LINES, POWER, TELEPHONE, AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS.
3. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATIONS SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U. S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE. PAYMENT WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS BID ITEMS.
5. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE STANDARD SPECIFICATIONS.
6. ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE SPARED AS DIRECTED BY THE ENGINEER. CARE AND DISCRETION SHALL BE USED TO INSURE THAT ALL TREES NOT TO BE REMOVED SHALL BE HARMED AS LITTLE AS POSSIBLE DURING THE CONSTRUCTION OPERATIONS
7. 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.
8. ALL FLEXIBLE BASE AND ASPHALTIC PAVEMENTS REMOVED SHALL BE PAID FOR UNDER THE ITEM NO. 210 - UNCLASSIFIED EXCAVATION.
9. THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAWING ALONG A NEAT LINE. AFTER SAWING, THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOVED IN A MANNER THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
10. THE CONTRACTOR SHALL CONTACT ALL FIBER OPTIC COMPANIES INVOLVED ON THIS PROJECT AT LEAST 5 WORKING DAYS BEFORE REMOVING AND INSTALLING ANY FENCING, AND TAKE EVERY PRECAUTION NECESSARY TO AVOID CONFLICT WITH THE FIBER OPTIC CABLES. THE CONTRACTOR SHALL TELEPHONE ARKANSAS ONE - CALL SYSTEM AT 800 - 482 - 8998 TO DETERMINE THE LOCATION OF THE BURIED FIBER OPTIC CABLES.
11. ANY REQUIRED EROSION CONTROL MEASURES FROM WASTING MATERIAL WILL BE AT CONTRACTOR'S EXPENSE.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
Jerry P. Davis
No. 15560
2-25-16
JEROME PAUL DAVIS

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 - 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 BB0413	ADAPTIVE TRAFFIC CONTROL SYSTEM
JOB BB0413	AIRPORT CLEARANCE REQUIREMENTS
JOB BB0413	ARCHITECTURAL FINISH
JOB BB0413	BIDDING REQUIREMENTS AND CONDITIONS
JOB BB0413	BROADBAND INTERNET SERVICE FOR ASPHALT CONCRETE PLANT
JOB BB0413	BROADBAND INTERNET SERVICE FOR FIELD OFFICE
JOB BB0413	CABINET DRAWER ASSEMBLY
JOB BB0413	CARGO PREFERENCE ACT REQUIREMENTS
JOB BB0413	CONTAINMENT SYSTEM
JOB BB0413	CONTRACTOR CERTIFICATION
JOB BB0413	COORDINATION OF WORK
JOB BB0413	DIRECT TENSION INDICATORS FOR HIGH STRENGTH BOLT ASSEMBLIES
JOB BB0413	DISADVANTAGED BUSINESS ENTERPRISE BIDDER'S RESPONSIBILITIES
JOB BB0413	EDGE CARD VIDEO PROCESSOR
JOB BB0413	ELECTRICAL CONDUCTORS FOR LUMINAIRES
JOB BB0413	ELECTRICAL CONDUCTORS-IN-CONDUIT
JOB BB0413	EMPLOYMENT REPORTING
JOB BB0413	GOALS FOR DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION
JOB BB0413	HIGH PERFORMANCE PAVEMENT MARKING
JOB BB0413	LED COUNTDOWN PEDESTRIAN SIGNAL HEAD
JOB BB0413	LED TRAFFIC SIGNAL HEAD
JOB BB0413	LED LUMINAIRE ASSEMBLY (BUG U0 TYPE)
JOB BB0413	LIGHTING
JOB BB0413	MAINTENANCE OF TRAFFIC
JOB BB0413	MANDATORY ELECTRONIC CONTRACT
JOB BB0413	MANDATORY ELECTRONIC DOCUMENT SUBMITTAL
JOB BB0413	NESTING SITES OF MIGRATORY BIRDS
JOB BB0413	OFF-SITE RESTRAINING CONDITIONS FOR BATS
JOB BB0413	PAINT CONTRACTOR LABEL
JOB BB0413	PARTNERING REQUIREMENTS
JOB BB0413	PROSECUTION AND PROGRESS
JOB BB0413	RELOCATION OF TRAFFIC SIGNAL HEAD
JOB BB0413	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT
JOB BB0413	SEQUENCE OF CONSTRUCTION
JOB BB0413	SERVICE POINT ASSEMBLY (TRAFFIC CONTROL DEVICES)
JOB BB0413	SERVICE POINT ASSEMBLY (UNDERGROUND SECONDARY SERVICE)
JOB BB0413	SHORING
JOB BB0413	SHORING FOR CULVERTS
JOB BB0413	SITE USE (A+C METHOD)
JOB BB0413	SOIL STABILIZATION
JOB BB0413	SPECIAL SAFETY REQUIREMENTS
JOB BB0413	STORM WATER POLLUTION PREVENTION PLAN
JOB BB0413	STREET NAME SIGN (MAST ARM MOUNTED)
JOB BB0413	SUBMISSION OF ASPHALT CONCRETE HOT MIX ACCEPTANCE TEST RESULTS
JOB BB0413	SYSTEM LOCAL CONTROLLER
JOB BB0413	TEXTURED COATING FINISH
JOB BB0413	TRAFFIC CONTROL DEVICES IN CONSTRUCTION ZONES
JOB BB0413	TRAFFIC SIGNAL CONTROLLER (MODIFICATION)
JOB BB0413	UTILITY ADJUSTMENTS
JOB BB0413	VALUE ENGINEERING
JOB BB0413	VIDEO DETECTOR ROTATION
JOB BB0413	WARM MIX ASPHALT

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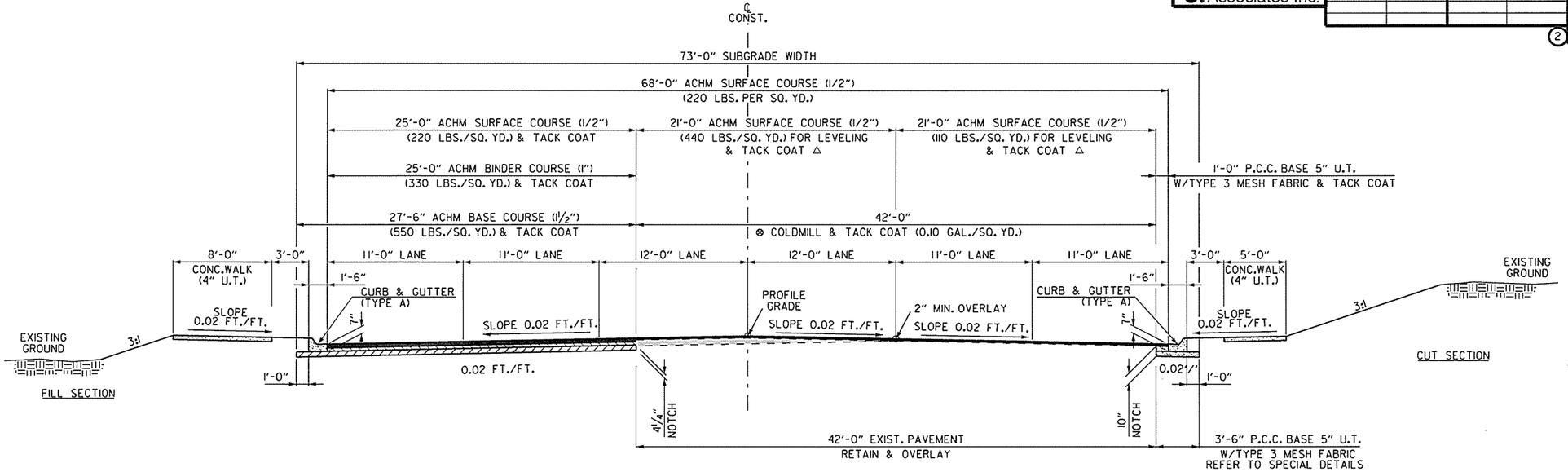
				6	ARK.			
				JOB NO.		BB0413	4	160

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
13560
JEROME PAUL DAVIS
1-26-16



△ LEVELING TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

⊗ COLDMILL TO REMOVE RUTTING IF & WHERE DIRECTED BY THE ENGINEER.

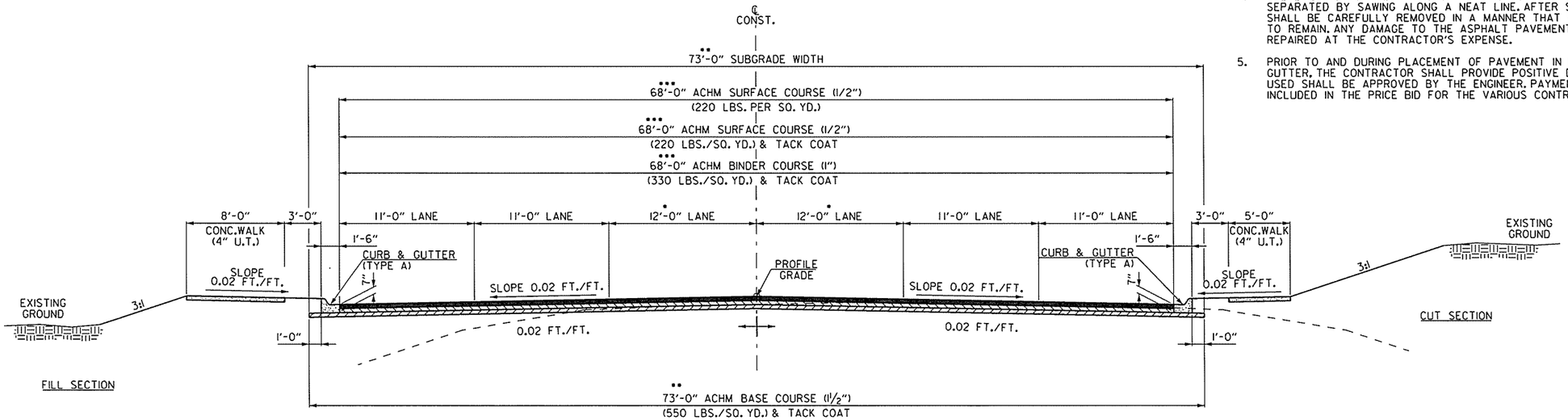
TYPICAL SECTION OF IMPROVEMENT
SIX LANES - ELM SPRINGS RD.
NOTCH & WIDENING

STA. 17+89.31 TO STA. 20+13.59

NOTE: 2" MILL & INLAY STA. 15+59.28 TO 17+23.79
TRANSITION FROM 2" MILL & INLAY AT STA. 16+89.31
TO 6 LANE SECTION AT STA. 17+89.31.

TYPICAL SECTION NOTES:

1. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
2. ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.
3. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.
4. 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 TO THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
5. PRIOR TO AND DURING PLACEMENT OF PAVEMENT IN FRONT OF THE CURB OR CURB AND GUTTER, THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AT ALL TIMES. THE METHOD(S) USED SHALL BE APPROVED BY THE ENGINEER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.



TYPICAL SECTION OF IMPROVEMENT
SIX LANES - ELM SPRINGS RD.
FULL DEPTH

STA. 20+13.59 TO BRIDGE 5945
BRIDGE 5945 TO STA. 23+58.20

NOTE: BEGIN WIDTH TRANSITION AT STA. 23+40.00 ON LEFT.
- • WIDTH VARIES FROM 12'-0" AT STA. 23+40.00 TO 11'-7 5/16" AT STA. 23+58.20.
- •• WIDTH VARIES FROM 73'-0" AT STA. 23+40.00 TO 72'-2 5/8" AT STA. 23+58.20.
- ••• WIDTH VARIES FROM 68'-0" AT STA. 23+40.00 TO 67'-2 5/8" AT STA. 23+58.20.

NOTE: TRANSITION FROM 6 LANE SECTION AT STA. 23+40.00 TO 5 LANE SECTION AT STA. 26+20.00.

TYPICAL SECTIONS OF IMPROVEMENT

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Crafton, Tull & Associates Inc.

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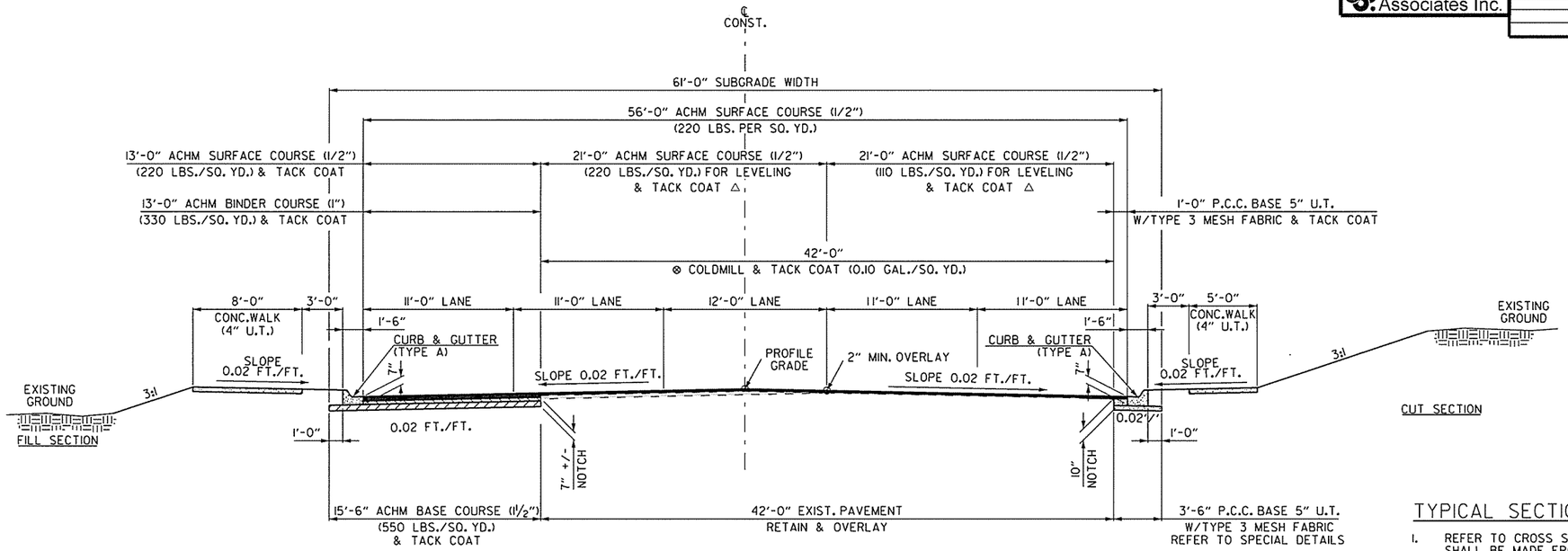
				6	ARK.			
				JOB NO.		BB0413	5	160

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15360
JEROME PAUL DAVIES
1-26-16



TYPICAL SECTION OF IMPROVEMENT
FIVE LANES - ELM SPRINGS RD.
NOTCH & WIDENING

STA. 26+20.00 TO STA. 26+97.25

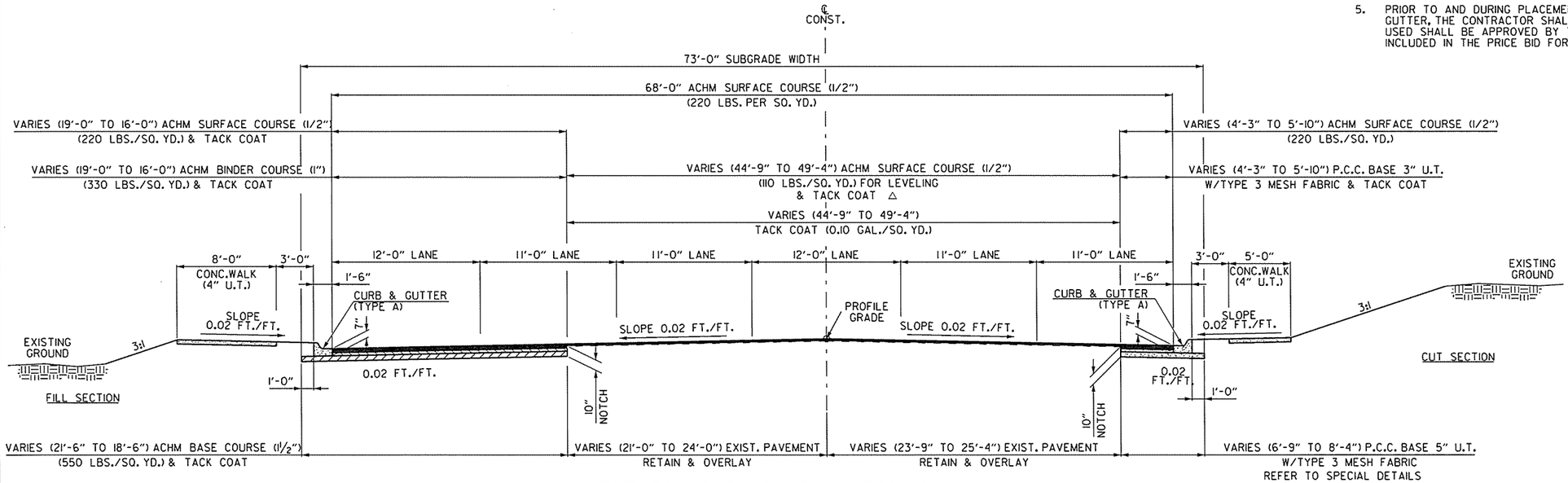
△ LEVELING TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

⊗ COLDMILL TO REMOVE RUTTING IF & WHERE DIRECTED BY THE ENGINEER.

NOTE: TRANSITION FROM 6 LANE SECTION AT STA. 23+58.20 TO 5 LANE SECTION AT STA. 26+20.00.

TYPICAL SECTION NOTES:

1. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
2. ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.
3. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.
4. 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 TO THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
5. PRIOR TO AND DURING PLACEMENT OF PAVEMENT IN FRONT OF THE CURB OR CURB AND GUTTER, THE CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AT ALL TIMES. THE METHOD(S) USED SHALL BE APPROVED BY THE ENGINEER. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE VARIOUS CONTRACT ITEMS.



TYPICAL SECTION OF IMPROVEMENT
SIX LANES - ELM SPRINGS RD.
NOTCH & WIDENING

STA. 26+97.25 TO STA. 27+97.25

NOTE: TRANSITION FROM 6 LANE SECTION AT STA. 26+97.25 TO 2" MILL & INLAY AT STA. 27+97.25.
2" MILL & INLAY STA. 27+97.25 TO 28+97.25

TYPICAL SECTIONS OF IMPROVEMENT

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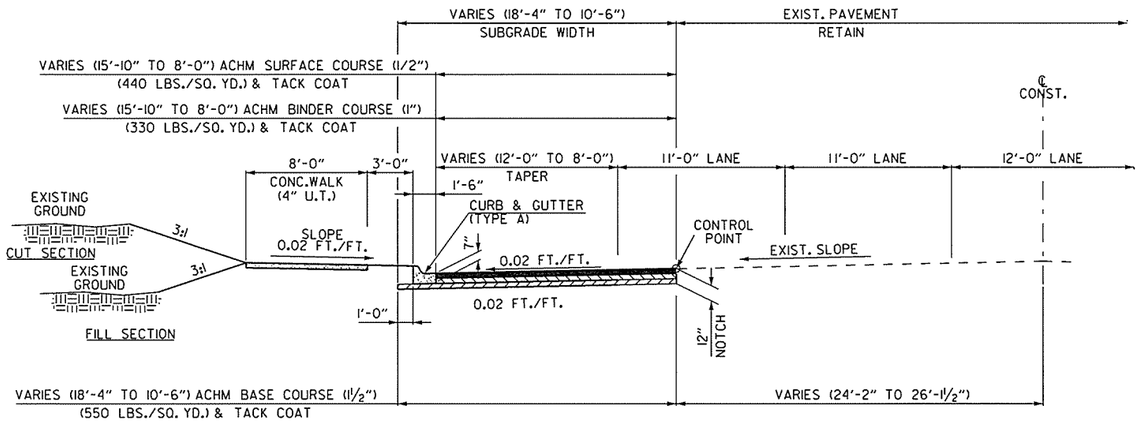
MODEL: TYPICAL SECTIONS OF IMPROVMENT

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RO. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	6	160

(2) TYPICAL SECTIONS OF IMPROVEMENT



TYPICAL SECTION OF IMPROVEMENT
AUX. LANE - ELM SPRINGS RD.
NOTCH & WIDENING

STA. 27+60.23 TO STA. 28+13.33

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15660
JEROME PAUL DAVIS

1-08-16

TYPICAL SECTION NOTES:

1. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
2. THE FINAL 2" OF SURFACE COURSE IS TO BE PLACED AFTER ALL OTHER COURSES HAVE BEEN LAID. LONGITUDINAL JOINTS SHALL BE AT LANE LINES.
3. 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 TO THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
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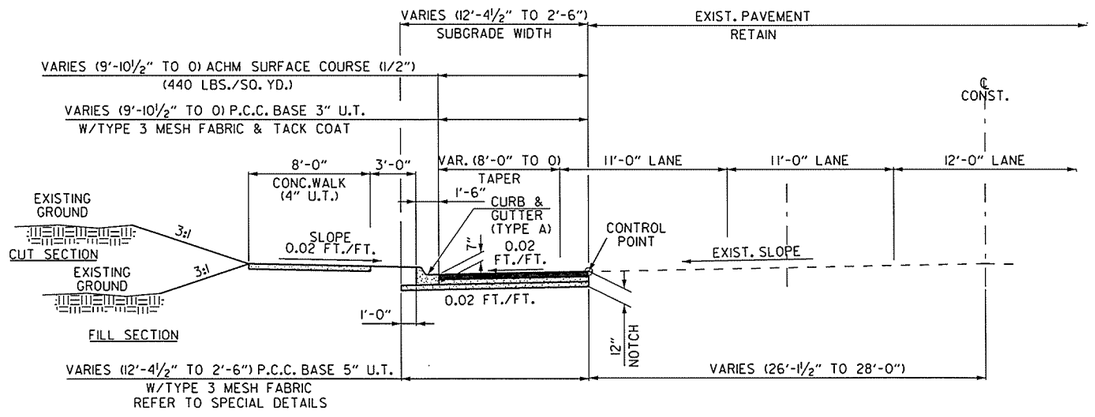

TYPICAL SECTION OF IMPROVEMENT
AUX. LANE - ELM SPRINGS RD.
NOTCH & WIDENING

STA. 28+13.33 TO STA. 28+80.00

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MODEL: TYPICAL SECTIONS OF IMPROVMENT

TYPICAL SECTIONS OF IMPROVEMENT

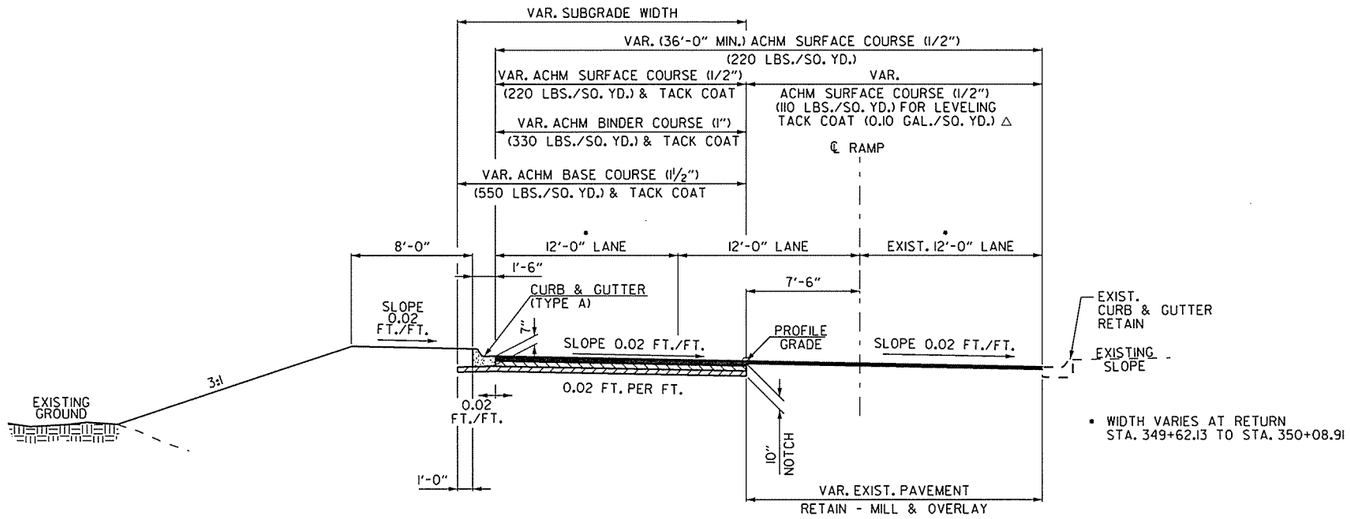
Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	7	160

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
15760
JEROME PAUL DAVIS

1-08-16



• WIDTH VARIES AT RETURN
STA. 349+62.13 TO STA. 350+08.91

△ LEVELING TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

TYPICAL SECTION OF IMPROVEMENT
THREE LANES - RAMP
NOTCH & WIDENING

(SHOWN IN DIRECTION OF TRAFFIC)
RAMP 3 STA. 349+62.13 TO STA. 350+08.91

TYPICAL SECTION NOTES:

1. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
2. ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.
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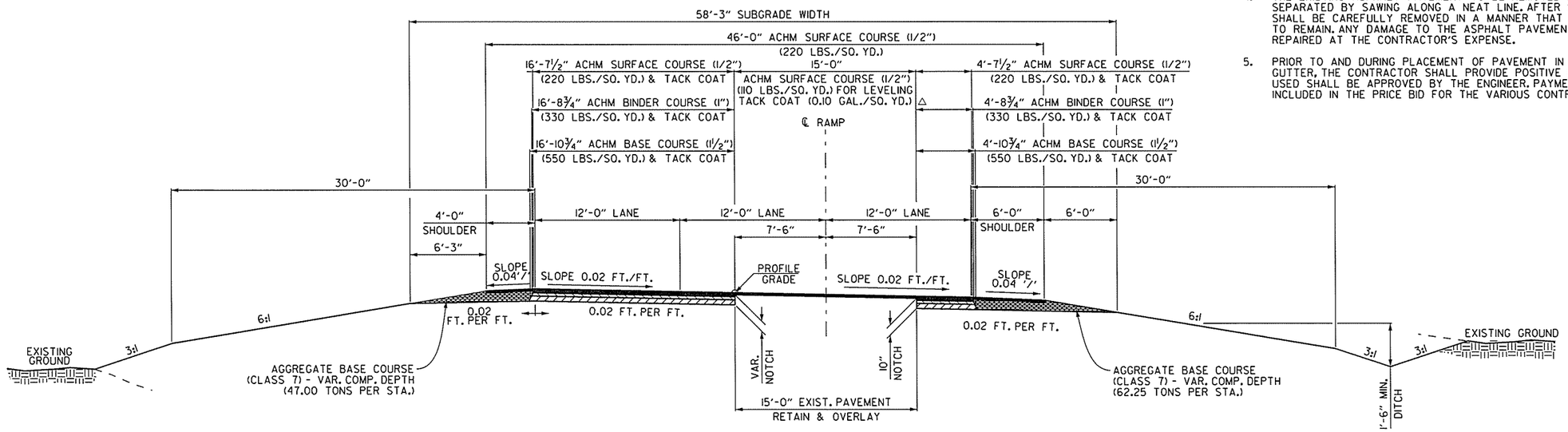

TYPICAL SECTION OF IMPROVEMENT
THREE LANES - RAMP
NOTCH & WIDENING

(SHOWN IN DIRECTION OF TRAFFIC)
RAMP 3 STA. 350+08.91 TO STA. 352+00.00

NOTE:
TRANSITION RAMP 3 FROM 3-12' LANES
AT STA. 352+00.00 TO EXIST. 1-15' LANE
AT STA. 354+50.00.

TYPICAL SECTIONS OF IMPROVEMENT

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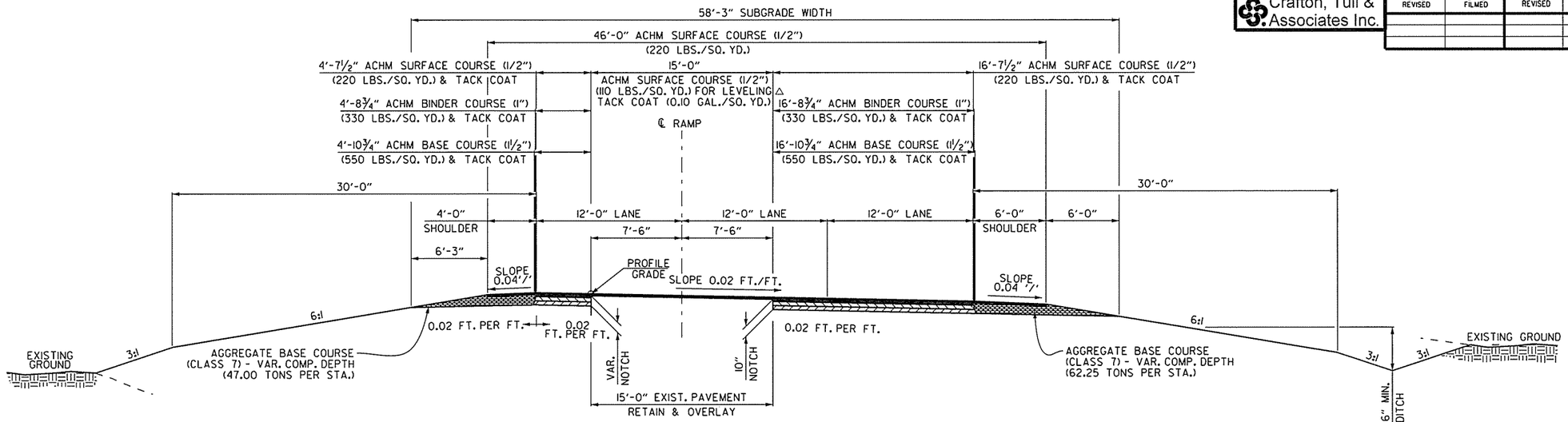
Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	8	160

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15568
JEROME PAUL DAVIS
1-08-16



TYPICAL SECTION OF IMPROVEMENT
THREE LANES - RAMP
NOTCH & WIDENING

(SHOWN IN DIRECTION OF TRAFFIC)
RAMP I STA. 345+40.00 TO STA. 347+26.31

NOTE:
TRANSITION RAMP I FROM EXIST. I-15' LANE AT STA. 342+90.00 TO 3-12' LANES AT STA. 345+40.00.

△ LEVELING TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

TYPICAL SECTION NOTES:

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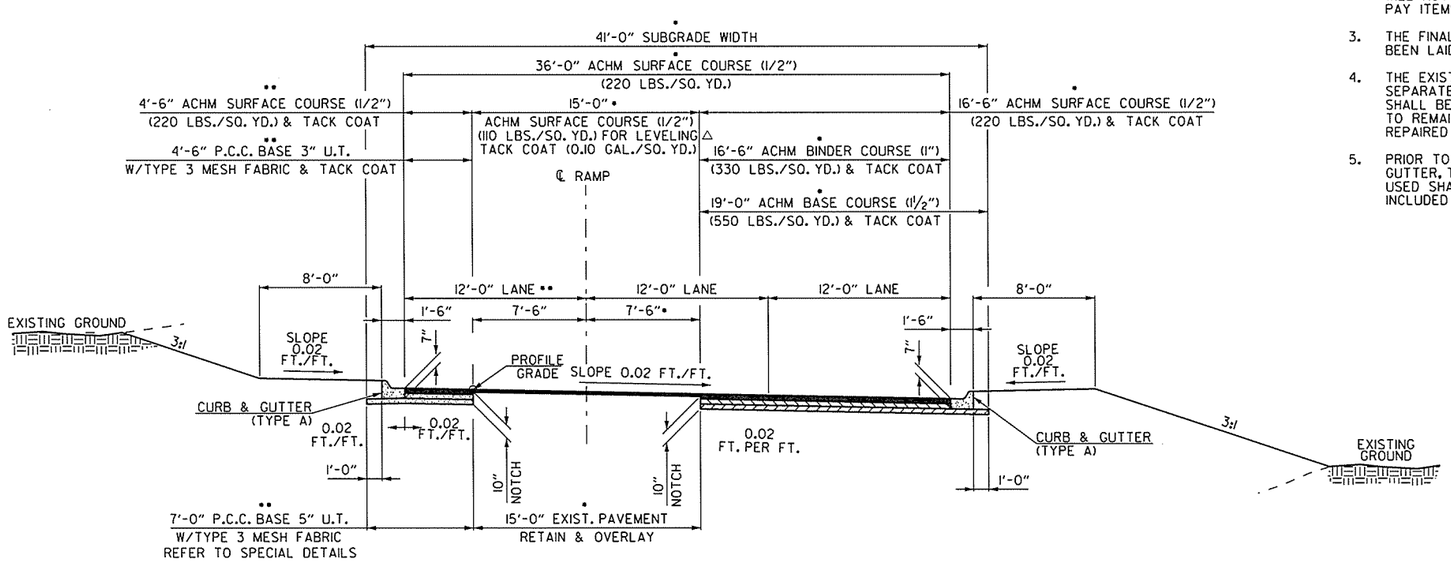

TYPICAL SECTION OF IMPROVEMENT
THREE LANES - RAMP
NOTCH & WIDENING

(SHOWN IN DIRECTION OF TRAFFIC)
RAMP I STA. 347+26.31 TO STA. 348+13.28

• WIDTH VARIES AT RETURN STA. 347+31.07 TO STA. 348+18.97

•• WIDTH VARIES AT RETURN STA. 347+79.66 TO STA. 348+18.97

TYPICAL SECTIONS OF IMPROVEMENT

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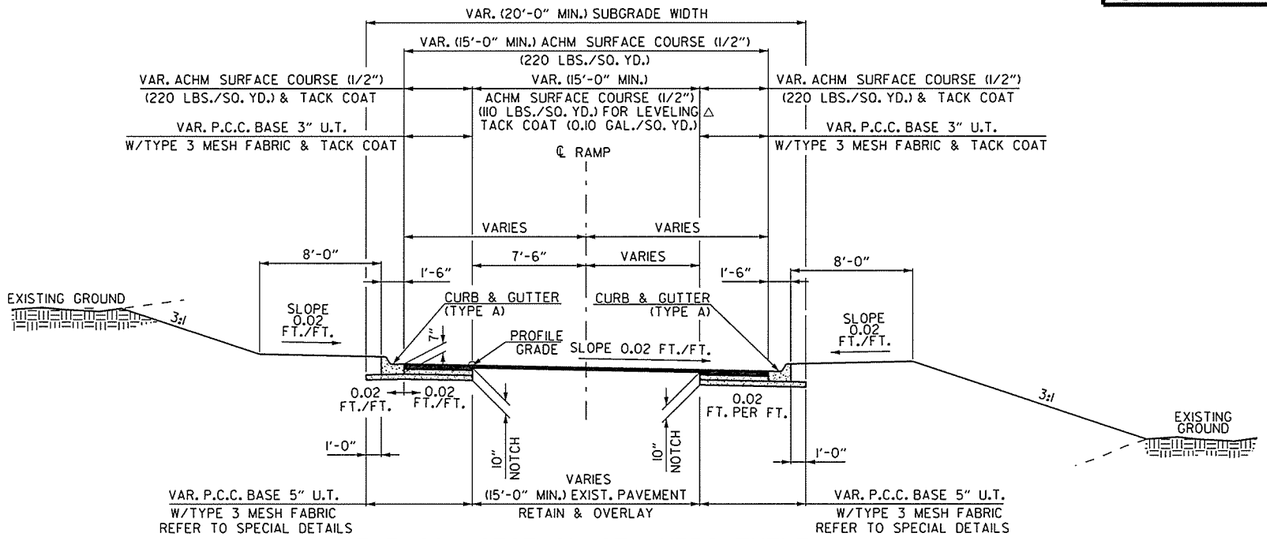
Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	9	160

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
1-08-16



TYPICAL SECTION OF IMPROVEMENT
RAMP RETURN
NOTCH & WIDENING

(SHOWN IN DIRECTION OF TRAFFIC)
RAMP 2 STA. 347+04.80 TO STA. 347+90.13
RAMP 4 STA. STA. 350+36.38 TO 349+53.42

△ LEVELING TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER.

TYPICAL SECTION NOTES:

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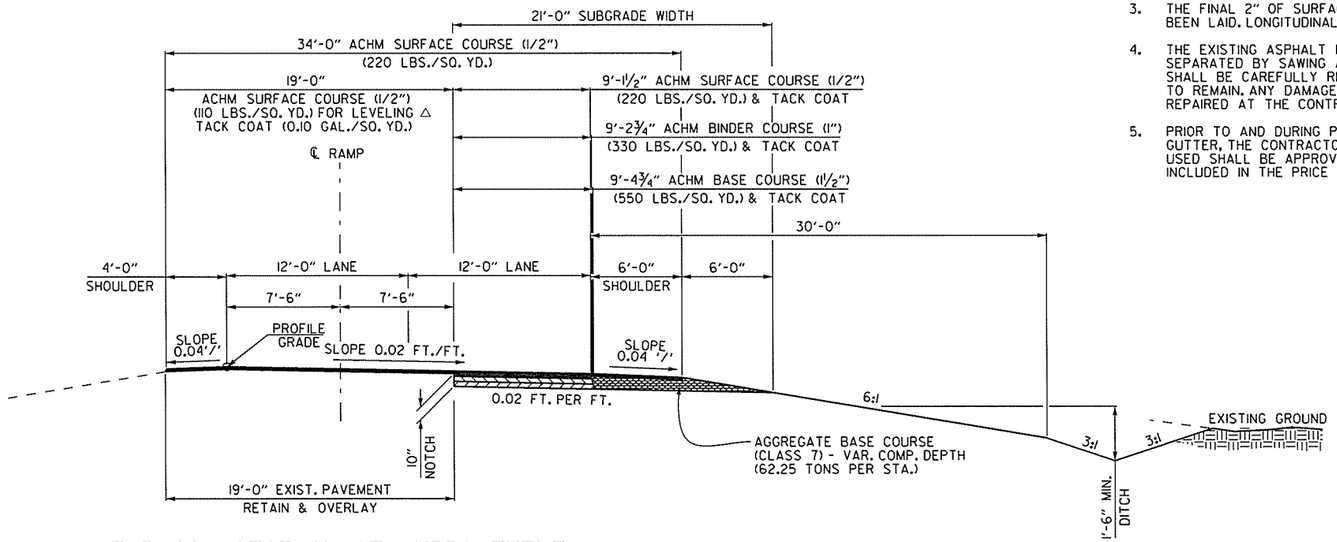

TYPICAL SECTION OF IMPROVEMENT
TWO LANES - RAMP
NOTCH & WIDENING

(SHOWN IN DIRECTION OF TRAFFIC)
RAMP 4 STA. 349+53.42 TO 340+00.00

NOTE:
TRANSITION RAMP 4 FROM 2-12' LANES AT STA. 340+00.00 TO EXIST. 1-15' LANE AT STA. 337+00.00

TYPICAL SECTIONS OF IMPROVEMENT

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Crafton, Tull & Associates Inc.

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				6	ARK.			
				JOB NO.		BB0413	10	160

(2) TYPICAL SECTIONS OF IMPROVEMENT

STATE OF ARKANSAS
* * *
REGISTERED PROFESSIONAL ENGINEER
* * *
No. 18560
JERRYE PAUL DAYS

1-08-16

TYPICAL SECTION NOTES:

1. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM THE NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
2. ASPHALT FOR LEVELING OF EXISTING PAVEMENT SHALL BE PLACED ONLY IF AND WHERE DIRECTED BY THE ENGINEER. CALCULATIONS FOR THE AMOUNT OF LEVELING AND/OR LEVELING OPERATIONS SHALL BE PERFORMED BEFORE CONSTRUCTING NOTCH AND WIDENING. CALCULATIONS WILL NOT BE PAID FOR DIRECTLY BUT PAYMENT WILL BE CONSIDERED INCLUDED IN THE VARIOUS PAY ITEMS.
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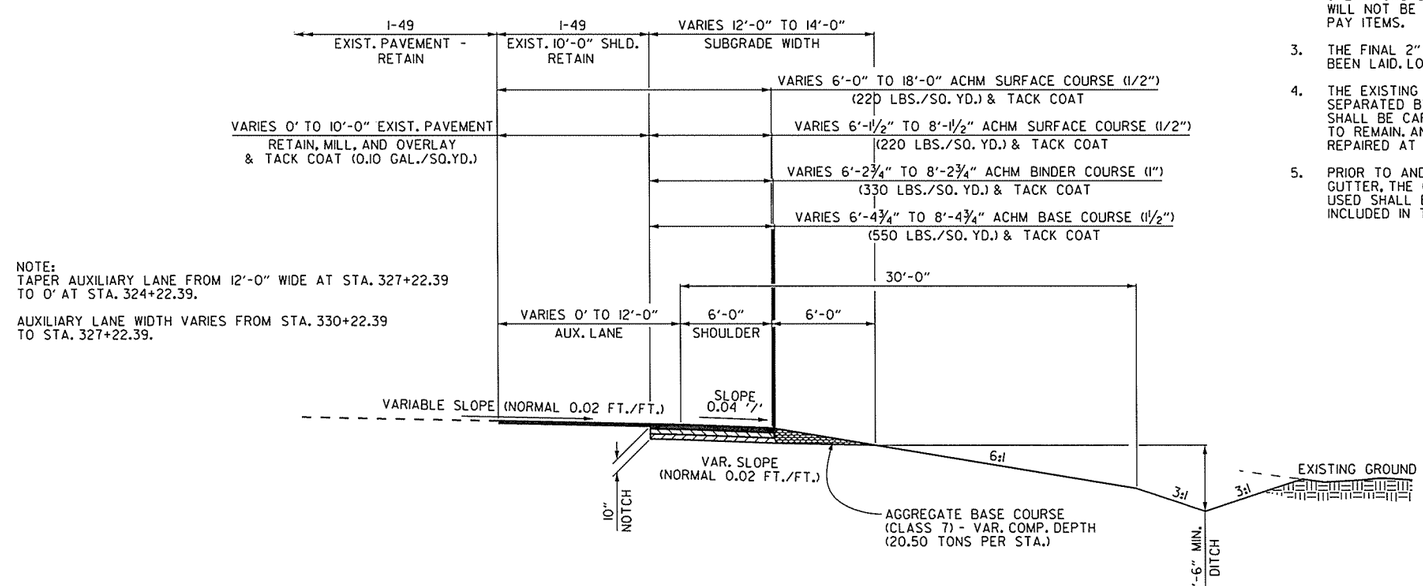

NOTE:
TAPER AUXILIARY LANE FROM 12'-0" WIDE AT STA. 327+22.39 TO 0' AT STA. 324+22.39.

AUXILIARY LANE WIDTH VARIES FROM STA. 330+22.39 TO STA. 327+22.39.

TYPICAL SECTION OF IMPROVEMENT
I-49 W/ AUXILIARY LANE
NOTCH & WIDENING S.B. LANE

(SHOWN IN DIRECTION OF TRAFFIC)
STA. 330+22.39 TO STA. 327+22.39

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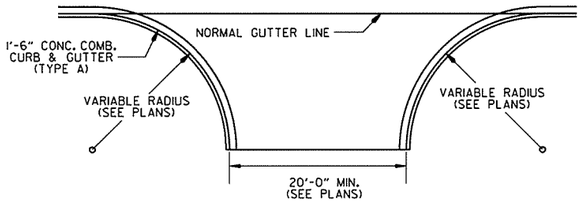
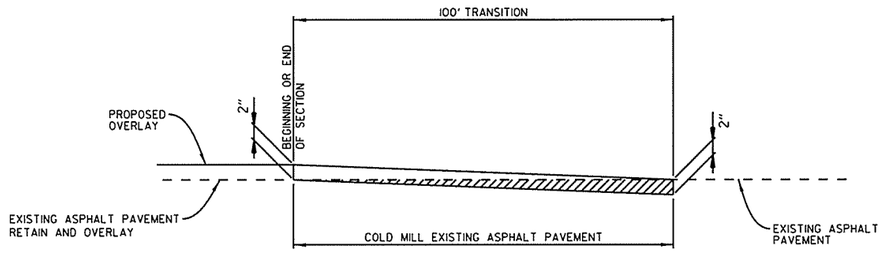
Crafton, Tull & Associates Inc.	DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		BB0413	11	160

(2) SPECIAL DETAILS

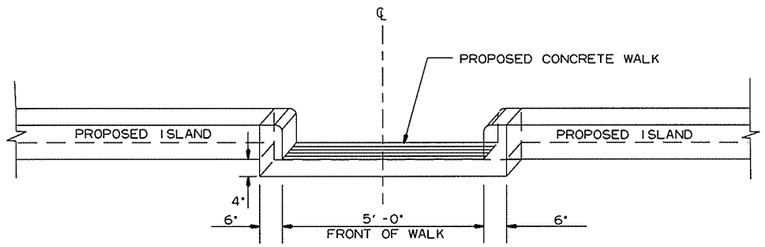


DETAIL OF TURNOUTS
ASPHALT STREETS, COUNTY ROADS
& STATE HIGHWAYS



MILL & OVERLAY TRANSITION DETAIL

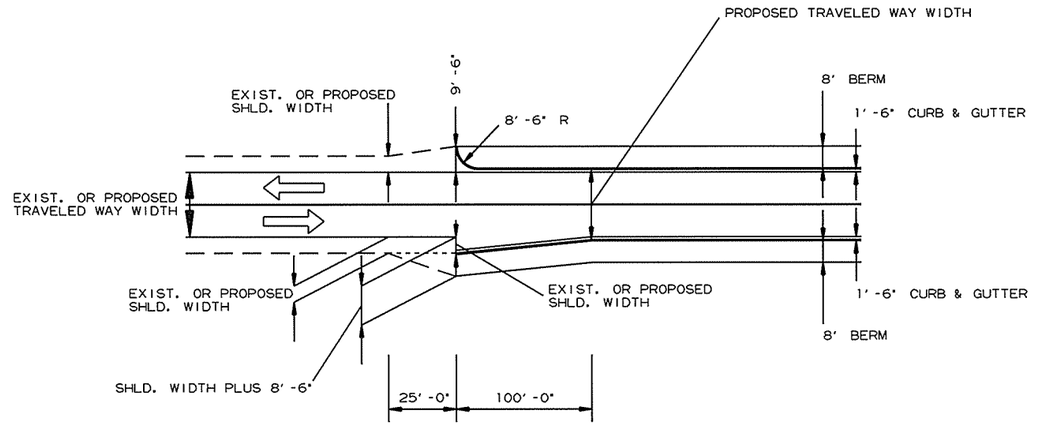
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
1-27-16



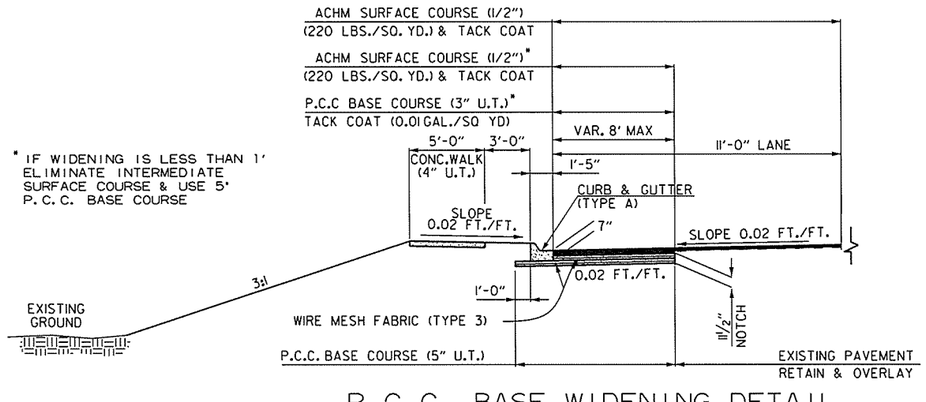
FACE SHALL MEET REQUIREMENTS OF TYPE B CURB

NOTE: CONCRETE WALK THROUGH ISLAND SHALL BE POURED MONOLITHICALLY. ALL MATERIALS REQUIRED TO CONSTRUCT CONCRETE WALK THRU ISLAND SHALL BE INCLUDED IN THE PRICE BID FOR CONCRETE ISLAND.

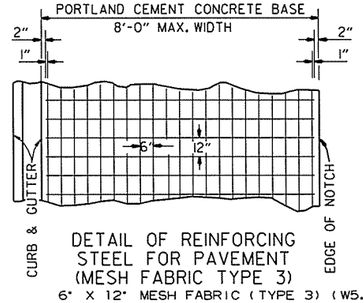
CONCRETE WALK THROUGH ISLAND



TRANSITION FROM OPEN SHOULDER
TO CURB & GUTTER SECTION



P.C.C. BASE WIDENING DETAIL



DETAIL OF REINFORCING STEEL FOR PAVEMENT (MESH FABRIC TYPE 3)

6" X 12" MESH FABRIC (TYPE 3) (W5.5 x W2.9) = 4.26 LBS./SQ. YD.

NOTES:

1. LAP MESH FABRIC MIN. 12" LONGITUDINALLY AND MIN. 6" TRANSVERSELY.
2. MESH FABRIC IS NOT REQUIRED WHEN WIDTH OF PORTLAND CEMENT CONCRETE BASE IS LESS THAN 12".
3. MESH FABRIC (TYPE 3) WILL NOT BE PAID FOR DIRECTLY, BUT FULL COMPENSATION THEREFORE WILL BE CONSIDERED INCLUDED IN THE CONTRACT PRICE BID PER SQ. YD. FOR PORTLAND CEMENT CONCRETE BASE (3" U.T.) AND PORTLAND CEMENT CONCRETE BASE (5" U.T.)
4. WIRE MESH FABRIC (TYPE 3) SHALL BE CENTERED IN THE THICKNESS OF EACH PORTLAND CEMENT CONCRETE BASE COURSE.

SPECIAL DETAILS

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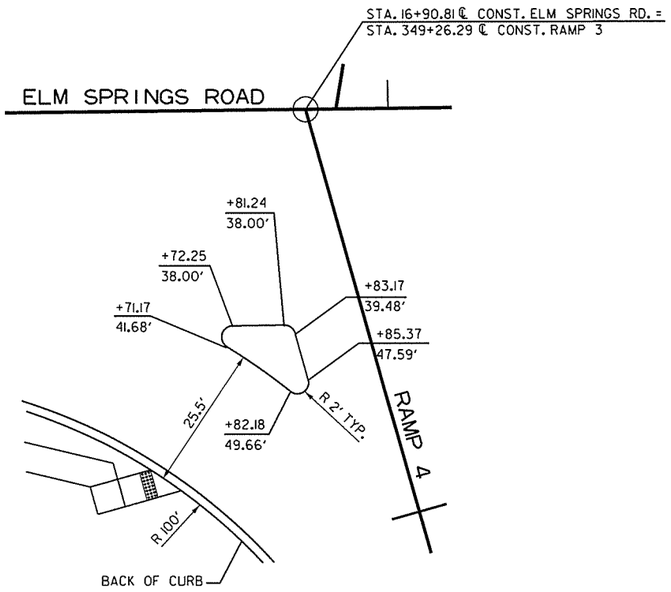
SCALE: 20:1
MODEL: SPECIAL DETAILS

Crafton, Tull & Associates Inc.

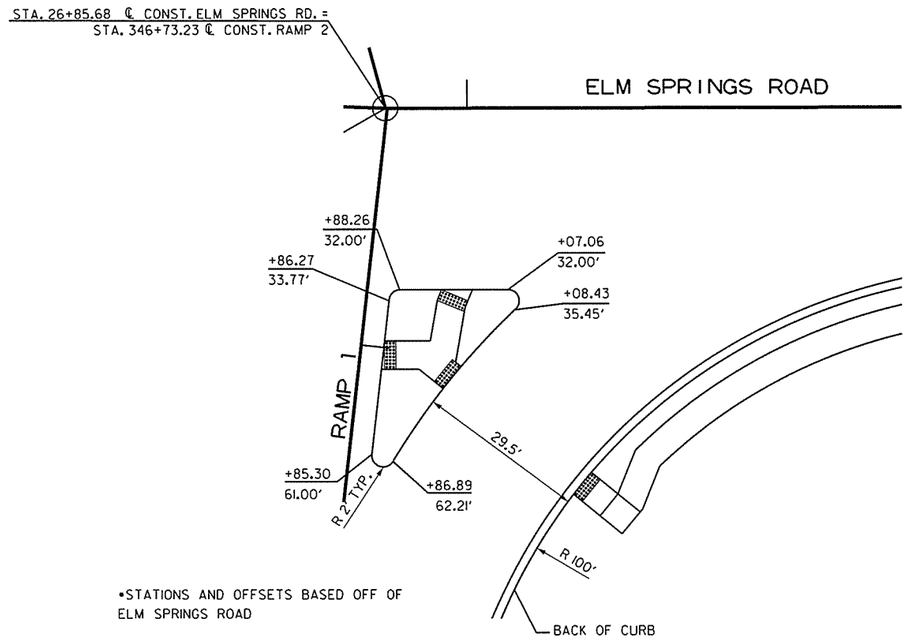
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	12	160

(2) SPECIAL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
Jerome P. Davis
No. 15560
JEROME PAUL DAVIS
1-08-16



•STATIONS AND OFFSETS BASED OFF OF ELM SPRINGS ROAD

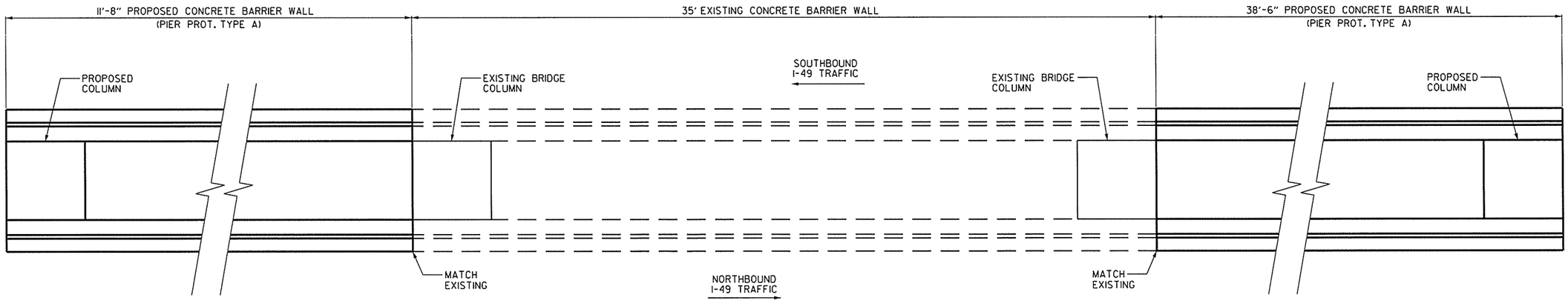


•STATIONS AND OFFSETS BASED OFF OF ELM SPRINGS ROAD

CONCRETE ISLAND DETAILS

GENERAL NOTES FOR CONCRETE BARRIER WALLS

1. ALL BARRIER WALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 631 OF THE STANDARD SPECIFICATIONS, 2014 EDITION.
2. SEE RDWY. STD. DWG. GR-11 FOR DETAILS.



CONCRETE BARRIER WALL LAYOUT

SPECIAL DETAILS

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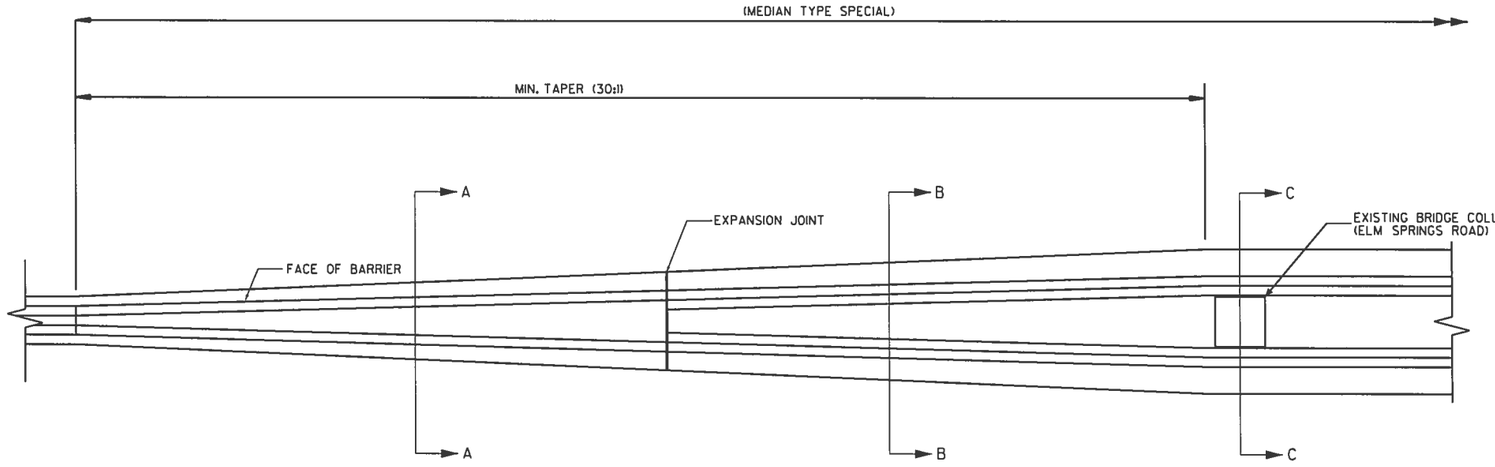
PLOTTED: 1/8/2016 12:59 SCALE: 20:1

G:\12103303_ElmSprngRd\TRANSP\dgn\special_details\BB0413 SpecialBarrier.dgn 1/8/2016 12:59

Crafton, Tull & Associates Inc.

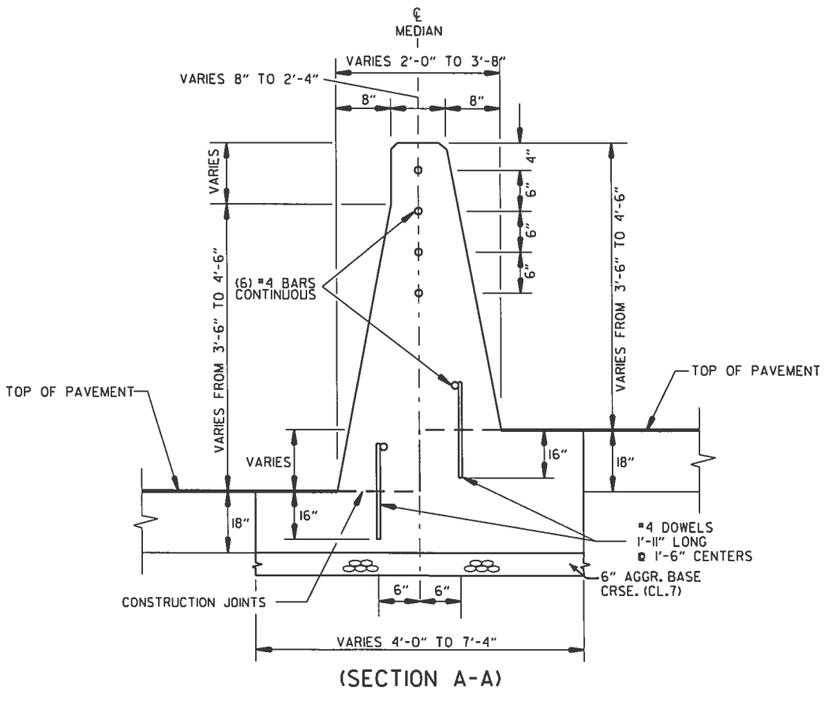
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
1-25-16				6	ARK.			
				JOB NO.		BB0413	12A	160

(2) SPECIAL DETAILS

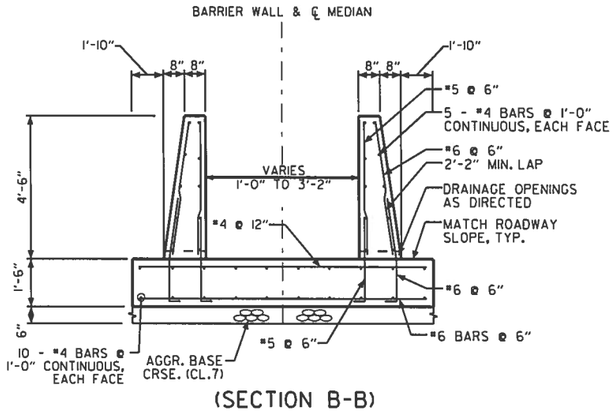


CONCRETE BARRIER WALL

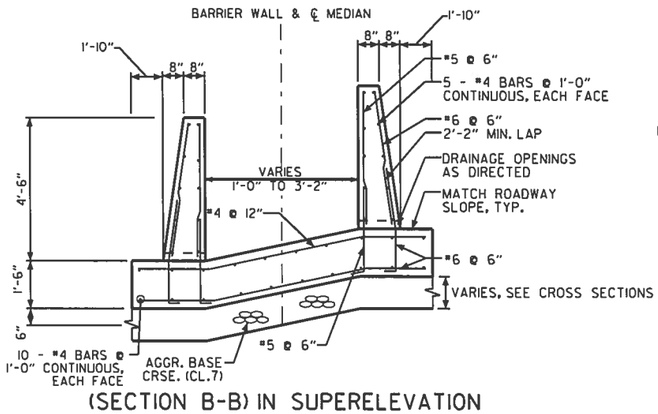
NOTE: TRANSITION FOR SOUTH SIDE SHOWN NORTH SIDE TRANSITION IS IDENTICAL.



(SECTION A-A)



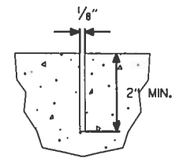
(SECTION B-B)



(SECTION B-B) IN SUPERELEVATION

DETAILS OF CONCRETE BARRIER WALL MEDIAN TYPE SPECIAL

(NOT TO SCALE)

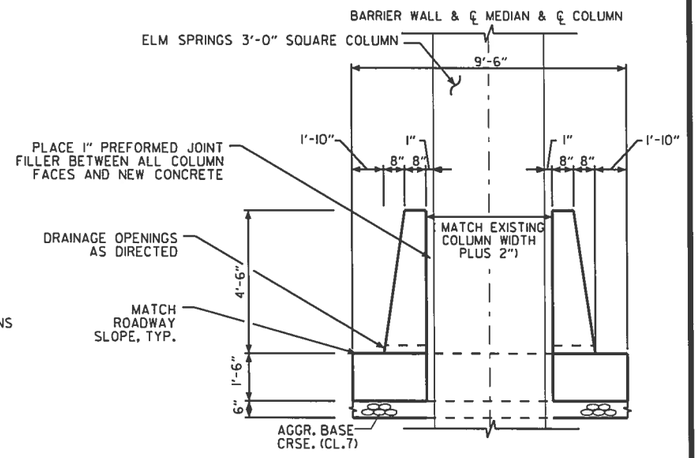


CONTRACTION JOINT DETAIL

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
Jerome Paul Davis
No. 15560
2-25-16

GENERAL NOTES FOR CONCRETE BARRIER WALLS

1. ALL BARRIER WALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 631 OF THE STANDARD SPECIFICATIONS, 2014 EDITION.
2. CONTRACTION JOINTS REQUIRED @ 15'-0" MAXIMUM SPACING. CONTRACTION JOINTS ARE NOT PERMITTED AT THE DOWEL BAR LOCATIONS.
3. ALL CONTRACTION JOINTS TO BE FORMED IN FRESH CONCRETE ON TOP AND IN SIDES OF BARRIER WALL.
4. THE DESIGN OF BARRIER WALL MEDIAN TYPE SPECIAL IS BASED ON A MINIMUM FOUNDATION BEARING CAPACITY OF 1500 POUNDS PER SQUARE FOOT. UNSTABLE FOUNDATION MATERIAL SHALL BE REMOVED AND REPLACED TO PROVIDE A FIRM FOUNDATION AS DIRECTED BY THE ENGINEER.
5. ALL EXPOSED EDGES OF CONCRETE BARRIER WALL SHALL HAVE A 3/4" CHAMFER.
6. SPACING BETWEEN EXPANSION JOINTS SHALL NOT EXCEED 400 FT. FOR BARRIER. EXPANSION JOINTS SHALL BE FORMED USING 1" PREFORMED JOINT FILLER. CONTINUOUS REINFORCEMENT SHALL BE CUT 2" CLEAR OF EXPANSION JOINTS.
7. MAINTAIN 3" CLEARANCE ON ALL FOOTING REINFORCEMENT AND 2" CLEARANCE ON ALL OTHER REINFORCEMENT.
8. FOR BARRIER SECTION C-C, SHIFT #6 BARS IN FOOTING EQUALLY TO EACH SIDE OF OPENINGS AT COLUMNS. MAINTAIN AT LEAST 3" O.C. SPACING. TRIM #4 BARS TO MAINTAIN 2" CLEARANCE.
9. CLASS 7 AGGREGATE BASE UNDER CONCRETE BARRIER WALL (MEDIAN TYPE SPECIAL) SHALL BE INSTALLED ACCORDING TO SECTION 303 OF THE STANDARD SPECIFICATIONS. SEPARATE PAYMENT WILL NOT BE MADE BUT WILL BE CONSIDERED SUBSIDIARY TO PAY ITEM "CONCRETE BARRIER WALL (MEDIAN TYPE SPECIAL)."



(SECTION C-C)

SEE SECTION B-B FOR REINFORCEMENT

* ELM SPRINGS ROAD

SPECIAL DETAILS

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Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	13	160

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
1-08-16

TEMPORARY EROSION CONTROL DETAILS - STAGE 1

N

50 25 0 25 50 100

STA. 15+59.28
BEGIN JOB BB0413

EXIST. R/W & C/A

PROPOSED R/W & C/A

RAMP 3

RAMP 4

RAMP 2

RAMP 1

ELM SPRINGS RD.

I-49

48TH ST.

N. 45TH ST.

P.I. 12+00.00

P.I. 20+38.70
Δ=00° 04'30.0" RT

P.I. 23+38.70
Δ=02° 03'24.9" RT

P.I. 26+85.68
Δ=01° 58'54.9" LT

P.T. 348+78.90

P.C. 348+47.89

P.I. 32+00.23

STA. 28+97.25
END JOB BB0413

PROPOSED PAVED PARKING

CB

FES

REVISIONS

DATE	REVISION

30

LEGEND

- (E-5) SAND BAG DITCH CHECK
- (E-7) INLET BARRIER SILT FENCE
- (E-4) (E-11) SILT FENCE
- (E-8) DIVERSION DITCH
- (E-12) SLOPE PIPE DRAIN (12")
- (E-14) SEDIMENT BASIN
- (E-6) ROCK DITCH CHECK
- GENERAL SITE FLOW DIRECTION INDICATOR

TEMPORARY EROSION CONTROL DETAILS - STAGE 1

N

50 25 0 25 50 100

USER: dd5109
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Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	14	160

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
1-08-16

TEMPORARY EROSION CONTROL DETAILS - STAGE 1

N

50 25 0 25 50 100

EXIST. R/W & C/A

PROPOSED R/W & C/A

EXISTING R/W & C/A

RAMP 4

RAMP 3

RAMP 2

RAMP 1

ELM SPRINGS RD.

P.I. 346+85.94

P.I. 348+78.90

P.C. 344+86.90

P.C. 356+33.21

P.I. 358+36.30

STA. 354+50.00
END CONST.
RAMP 3

STA. 347+90.13
END CONST.
RAMP 2

P.I. 352+39.89

P.I. 350+46.93

P.C. 348+17.89

P.I. 26+85.68
Δ=01° 58'54.9" LT

PAVED PARKING

CONCRETE DRAINAGE DITCH

DROP INLET

I-49

REVISIONS

DATE	REVISION

LEGEND

- (E-5) SAND BAG DITCH CHECK
- (E-7) INLET BARRIER SILT FENCE
- (E-4) (E-11) SILT FENCE
- (E-8) DIVERSION DITCH
- (E-12) SLOPE PIPE DRAIN (12")
- E-14 SEDIMENT BASIN
- (E-6) ROCK DITCH CHECK
- GENERAL SITE FLOW DIRECTION INDICATOR

TEMPORARY EROSION CONTROL DETAILS - STAGE 1

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SCALE: 100.0
MODEL: EROS CTL STAGE 1SHEETS

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	15	160

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER.
Jerome Davis
No. 15560
JEROME PAUL DAVIS
1-08-16

N

50 25 0 25 50 100

STA. 15+59.28
BEGIN JOB BB0413

EXIST. R/W & C/A

PROPOSED R/W & C/A

RAMP 3

RAMP 4

RAMP 2

RAMP 1

I-49

ELM SPRINGS RD.

N. 48TH ST.

N. 45TH ST.

P.I. 12+00.00

P.I. 20+38.70
Δ=00° 04'30.0" RT

P.I. 23+38.70
Δ=02° 03'24.9" RT

P.I. 26+85.68
Δ=01° 58'54.9" LT

P.C. 348+78.90

P.C. 348+47.89

P.I. 32+00.23

STA. 28+97.25
END JOB BB0413

PAVED PARKING

CB

+51 +00 +58 +40 +45 +92 +06

E-7 E-11 E-5

LEGEND

- E-5 · SAND BAG DITCH CHECK
- E-7 · INLET BARRIER SILT FENCE
- E-4 E-11 · SILT FENCE
- E-8 · DIVERSION DITCH
- E-12 · SLOPE PIPE DRAIN (12")
- E-14 · SEDIMENT BASIN
- E-6 · ROCK DITCH CHECK
- · GENERAL SITE FLOW DIRECTION INDICATOR

REVISIONS

DATE	REVISION

TEMPORARY EROSION CONTROL DETAILS - STAGE 2

TEMPORARY EROSION CONTROL DETAILS - STAGE 2

USER: dd5109
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PLOTTED: 1/8/2016 12:59
SCALE: 100:1
MODEL: EROS CTL STAGE 2 SHEETS

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	16	160

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
* * *
REGISTERED PROFESSIONAL ENGINEER
Jerry L. Ellis
No. 15560
JEROME PAUL DAVIS
1-08-16

36

N

50 25 0 25 50 100

EXIST. R/W & C/A

PROPOSED R/W & C/A

RAMP 4

P.I. 346+85.94

P.I. 348+78.90

P.C. 344+86.90

ELM SPRINGS RD.

RAMP 3

EXISTING R/W & C/A

STA. 354+50.00
END CONST.
RAMP 3

P.C. 356+33.21

P.I. 358+36.30

1-49

REVISIONS

DATE	REVISION

LEGEND

- (E-5) = SAND BAG DITCH CHECK
- (E-7) = INLET BARRIER SILT FENCE
- (E-4) (E-11) = SILT FENCE
- (E-8) = DIVERSION DITCH
- (E-12) = SLOPE PIPE DRAIN (12")
- (E-14) = SEDIMENT BASIN
- (E-6) = ROCK DITCH CHECK
- = GENERAL SITE FLOW DIRECTION INDICATOR

TEMPORARY EROSION CONTROL DETAILS - STAGE 2

RAMP 1

STA. 342+90.00
BEGIN CONST.
RAMP 1

EXISTING R/W & C/A

PROPOSED R/W & C/A

P.I. 26+85.68
Δ=01° 58'54.9" LT

ELM SPRINGS RD.

RAMP 2

P.I. 350+59.85

P.C. 348+47.89

P.I. 350+46.93

CONCRETE DRAIN

DROP INLET

PAVED PARKING

EXISTING R/W & C/A

STA. 347+90.13
END CONST.
RAMP 2

TEMPORARY EROSION CONTROL DETAILS - STAGE 2

USER: dd5109
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MODEL: EROS CTL STAGE 2 SHEETS

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Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	17	160

TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
1-08-16

DATE	REVISION

REVISIONS

LEGEND

- E-5 = SAND BAG DITCH CHECK
- E-7 = INLET BARRIER SILT FENCE
- E-4, E-11 = SILT FENCE
- E-8 = DIVERSION DITCH
- E-12 = SLOPE PIPE DRAIN (12")
- E-14 = SEDIMENT BASIN
- E-6 = ROCK DITCH CHECK
- = GENERAL SITE FLOW DIRECTION INDICATOR

335 340 345 325 330

STA. 337+00.00 BEGIN CONST. RAMP 4

EXISTING R/W & C/A

PROPOSED R/W & C/A

RAMP 4

P.C. 335+00.00

P.I. 334+96.40

P.I. 335+

P.I. 337+84.84

P.T. 339+96.15

P.T. 341+44.90

P.C. 344+86.90

I-49

STA. 324+22.39 BEGIN CONST. I-49 ACCEL. LANE

STA. 330+22.39 END CONST. I-49 ACCEL. LANE

P.C. 328+42.26

CONCRETE DRAIN

TEMPORARY EROSION CONTROL DETAILS - STAGE 2

TEMPORARY EROSION CONTROL DETAILS - STAGE 2

USER: dd5109
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MODEL: EROS CTL STAGE 2 SHEETS
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Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	18	160

(2) TEMPORARY EROSION CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
1-08-16

N

50 25 0 25 50 100

STA. 15+59.28
BEGIN JOB BB0413

EXIST. R/W & C/A

PROPOSED R/W & C/A

RAMP 3

I-49

P.I. 20+38.70
Δ=06° 04'30.0" RT

P.I. 23+38.70
Δ=02° 03'24.9" RT

ELM SPRINGS RD.

P.I. 12+00.00

48TH ST.

N.

EXIST. R/W & C/A

PROPOSED R/W & C/A

350'

RAMP 4

P.T. 348+78.90

PROPOSED R/W & C/A

P.I. 26+85.68
Δ=01° 58'54.9" LT

REVISIONS

DATE	REVISION

LEGEND

- (E-5) SAND BAG DITCH CHECK
- (E-7) INLET BARRIER SILT FENCE
- (E-4) (E-11) SILT FENCE
- (E-8) DIVERSION DITCH
- (E-12) SLOPE PIPE DRAIN (12")
- (E-14) SEDIMENT BASIN
- (E-6) ROCK DITCH CHECK
- GENERAL SITE FLOW DIRECTION INDICATOR

TEMPORARY EROSION CONTROL DETAILS - STAGE 3

RAMP 2

EXIST. R/W & C/A

P.C. 348+47.89

PROPOSED R/W & C/A

PAVED PARKING

N. 45TH ST.

P.I. 23+38.70
Δ=02° 03'24.9" RT

ELM SPRINGS RD.

P.I. 26+85.68
Δ=01° 58'54.9" LT

RAMP 1

PROPOSED R/W & C/A

STA. 28+97.25
END JOB BB0413

P.I. 32+00.23

N

50 25 0 25 50 100

TEMPORARY EROSION CONTROL DETAILS - STAGE 3

USER: dd5109
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SCALE: 100:1

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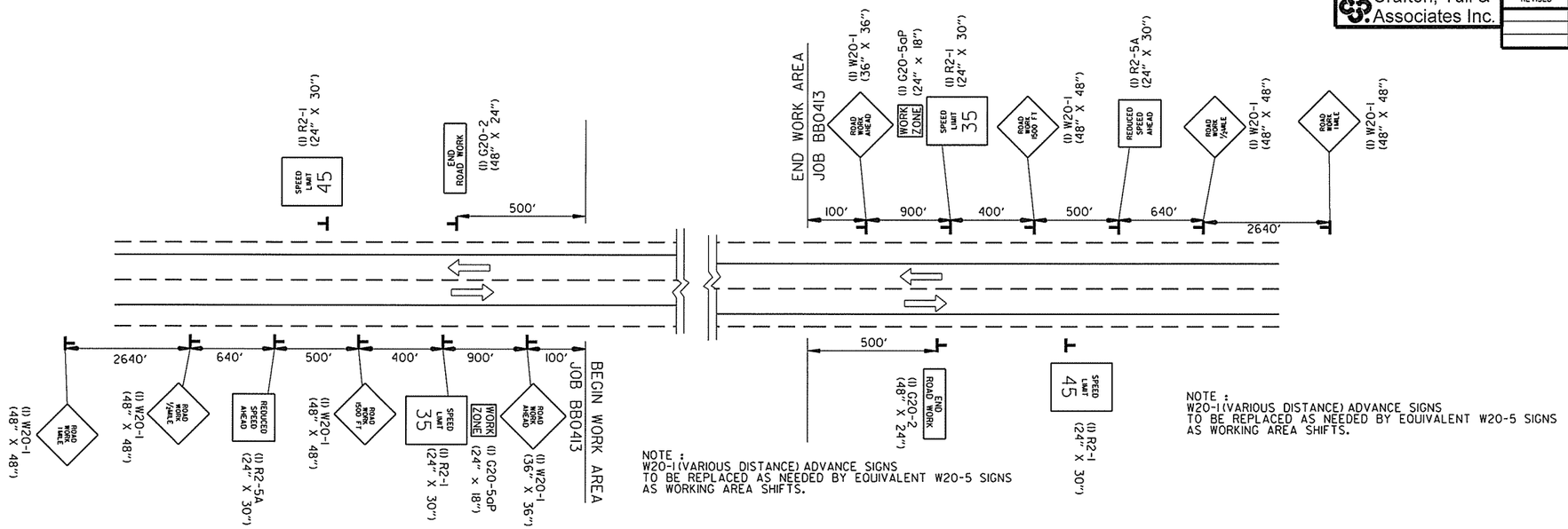
Crafton, Tull & Associates Inc.	DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		BB0413	19	160
					(2)	MAINTENANCE OF TRAFFIC			

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9620
HUBERT BURNS
2/2/16



NOTE :
W20-1(VARIOUS DISTANCE) ADVANCE SIGNS
TO BE REPLACED AS NEEDED BY EQUIVALENT W20-5 SIGNS
AS WORKING AREA SHIFTS.

NOTE :
W20-1(VARIOUS DISTANCE) ADVANCE SIGNS
TO BE REPLACED AS NEEDED BY EQUIVALENT W20-5 SIGNS
AS WORKING AREA SHIFTS.

ADVANCE SIGNS AT BEGINNING AND END OF JOB- ELM SPRINGS ROAD
ALL STAGES

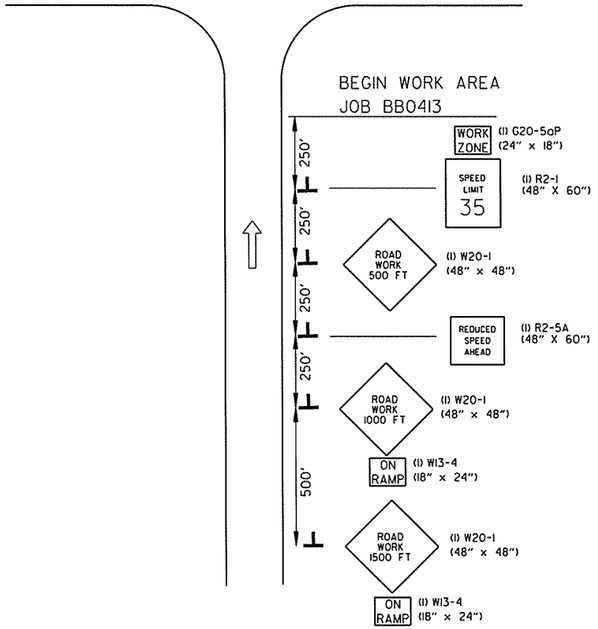
STAGE 1: NOTCH AND WIDEN ELM SPRINGS RD. LT. INSTALL DROP INLETS ELM SPRINGS RD. LT. NOTCH AND WIDEN RAMP 2 AND RAMP 3. WIDEN BRIDGE NO. 05945 LT. WIDEN CONNECTING STREETS TO ELM SPRINGS RD. LT. WIDENING WILL NOT INCLUDE FINAL LIFT OF ASPHALT IN STAGE 1.

STAGE 2: NOTCH AND WIDEN ELM SPRINGS RD. RT. INSTALL DROP INLETS ELM SPRINGS RD. RT. NOTCH AND WIDEN RAMP 1 AND RAMP 4. WIDEN BRIDGE NO. 05945 RT. WIDEN CONNECTING STREETS TO ELM SPRINGS RD. RT. WIDENING WILL NOT INCLUDE FINAL LIFT OF ASPHALT IN STAGE 2. NOTCH AND WIDEN RAMP 4 ACCELERATION LANE AT I-49.

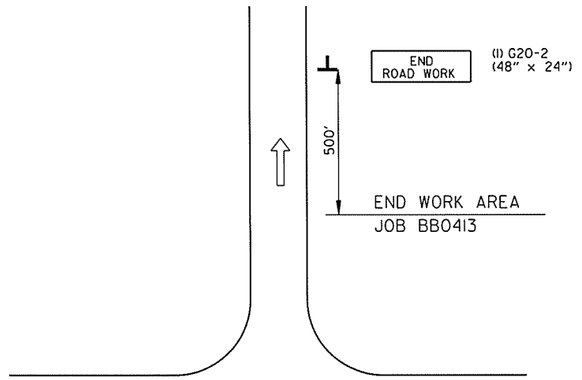
STAGE 3: CONSTRUCT CURB & GUTTER RT. & SIDEWALK AT BRIDGE ENDS AND ON BRIDGE.

STAGE 4: OPEN & OPERATIONAL INCLUDING INCLUDING FINAL 2" ACHM SURFACE COURSE, STRIPING, CLEANUP, & OPENING COMPLETED ROADWAY TO FULL TWO-WAY TRAFFIC UTILIZING ALL LANES.

ALL STAGES: REFER TO TRAFFIC SIGNAL PLANS FOR SIGNAL STAGING.



ADVANCE SIGNS AT EXIT RAMPS
ALL STAGES



ADVANCE SIGNS AT ENTRANCE RAMPS
ALL STAGES

MAINTENANCE OF TRAFFIC
ADVANCE SIGNS AT JOB ENDS

USER: fs513
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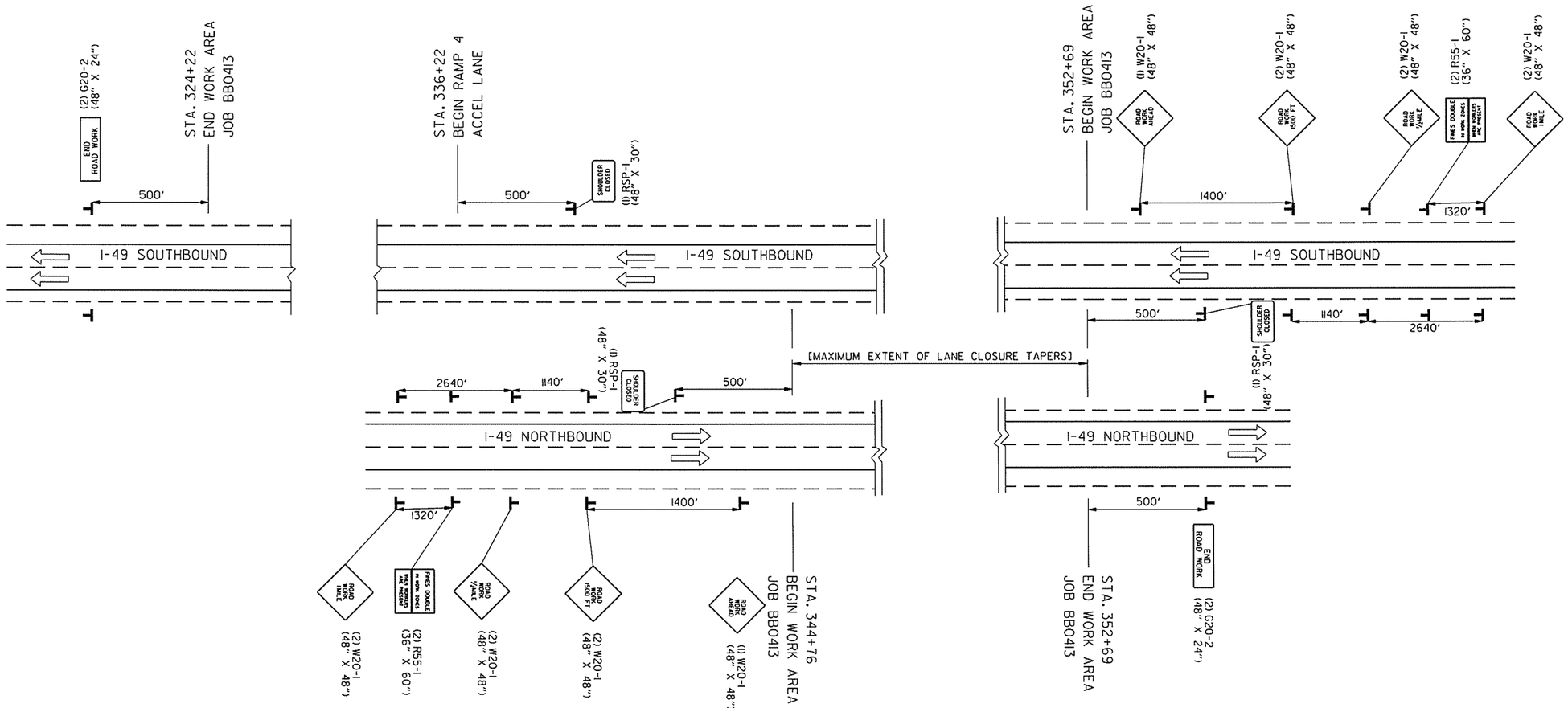
SCALE: 100:1
MODEL: NOT STAGE 1SHEETS

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	20	160

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9620
HUBERT BURNS
2/2/16



MAINTENANCE OF TRAFFIC
ADVANCE SIGNS ON I-49
ALL STAGES

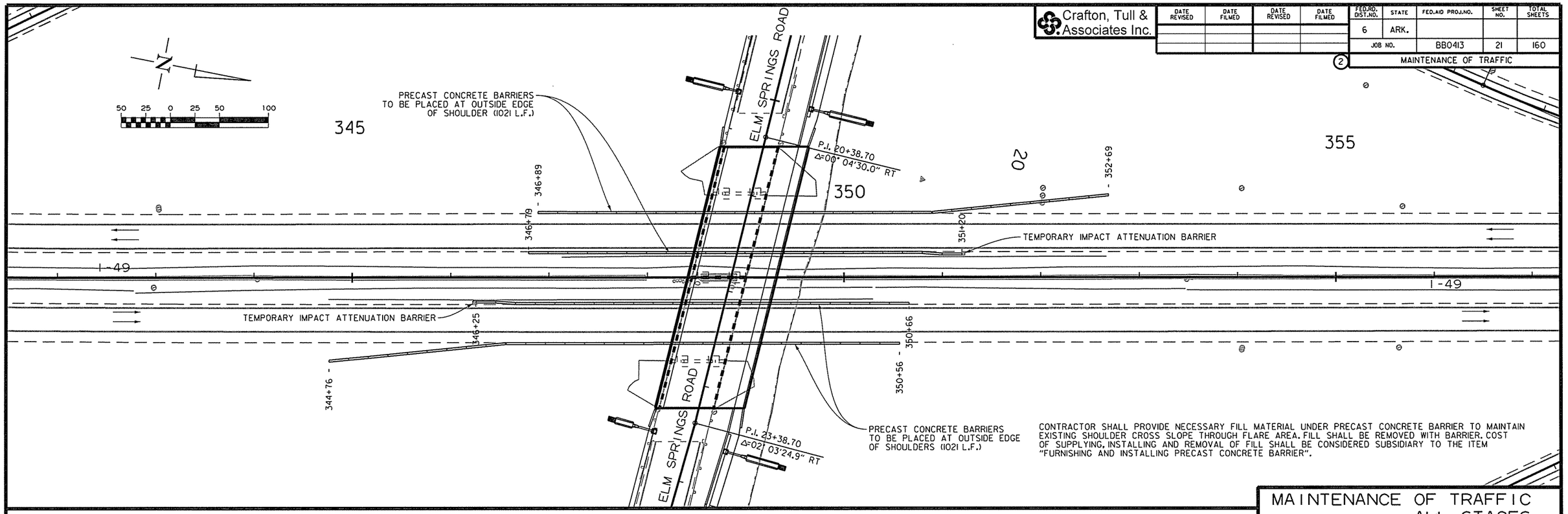
USER: fs513
DESIGN FILE: G:\12103303_ElmSprngRd\TRANSP\dgn\maint_of_traffic\BB0413 Maint of Traffic.dgn
PLOTTED: 2/2/2016 13:01 SCALE: 100:1 MODEL: NOT STAGE 1SHEETS

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	21	160

(2) MAINTENANCE OF TRAFFIC



CONTRACTOR SHALL PROVIDE NECESSARY FILL MATERIAL UNDER PRECAST CONCRETE BARRIER TO MAINTAIN EXISTING SHOULDER CROSS SLOPE THROUGH FLARE AREA. FILL SHALL BE REMOVED WITH BARRIER. COST OF SUPPLYING, INSTALLING AND REMOVAL OF FILL SHALL BE CONSIDERED SUBSIDIARY TO THE ITEM "FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER".

MAINTENANCE OF TRAFFIC ALL STAGES

ROAD WORK XXXX

SHOULDER CLOSED

END ROAD WORK

REQUIRED ROADWAY SIGNS:

1. PLACE "ROAD WORK 1 MILE", "ROAD WORK ½ MILE", "ROAD WORK 1500 FEET", "ROAD WORK 1000 FEET", AND "ROAD WORK 500 FEET" SIGNS AT RESPECTIVE DISTANCES FROM BEGINNING OF PRECAST CONCRETE BARRIERS ON BOTH NORTH AND SOUTH APPROACHES TO THE PROJECT. SIGNS SHALL BE INSTALLED ADJACENT TO THE EXISTING EDGE OF ASPHALT.
2. PLACE "SHOULDER CLOSED" SIGNS OFF BOTH SHOULDERS 500' FROM BEGINNING OF PRECAST CONCRETE BARRIERS BOTH NORTH AND SOUTH. PLACE "SHOULDER CLOSED" SIGN FOR I-49 SOUTHBOUND OUTSIDE SHOULDER 500' FROM THE BEGINNING OF RAMP 4 ACCEL. LANE.
3. PLACE "END ROAD WORK" SIGN 500 FEET FROM END OF PRECAST CONCRETE BARRIER FOR I-49 NORTHBOUND TRAFFIC. PLACE "END ROAD WORK" SIGN FOR I-49 SOUTHBOUND TRAFFIC 500' FROM THE END OF RAMP 4 ACCEL. LANE CONSTRUCTION.

GENERAL NOTES:

1. REFER TO SHEET 23 FOR TYPICAL SECTIONS OF STAGE CONSTRUCTION.
2. ALL CONSTRUCTION ACTIVITY MUST BE APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO FOLLOW THE MAINTENANCE OF TRAFFIC PLANS AND MINIMIZE DISTURBANCE TO THE PUBLIC DUE TO CONSTRUCTION ACTIVITIES.
3. THE CONTRACTOR IS RESPONSIBLE FOR ALL NECESSARY TEMPORARY STRIPING TO MAINTAIN TRAFFIC AS SHOWN ON THE PLANS.

CONSTRUCTION SEQUENCE NOTES:

STAGE 1, 2 & 3: MAINTAIN PRECAST CONCRETE BARRIERS THROUGH DURATION OF PROJECT. LANE CLOSURE OF THE I-49 MAIN LANES WILL NOT BE PERMITTED EXCEPT IN OFF-PEAK TRAFFIC TIMES AS SPECIFIED IN THE SPECIAL PROVISIONS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
1-08-16

MAINTENANCE OF TRAFFIC I-49 LANES

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	22	160

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
1-08-16

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

19 TRAFFIC DRUMS

7880′ | 5280′ | 3960′ | 3360′ | 2640′ | 2000′ | 1500′ | 1000′ | 500′

TRAFFIC DRUMS @ 60′ O.C.
840′ TAPER FOR LANE CLOSURE

TRAFFIC DRUMS @ 100′ O.C.
500′ STABILIZING ZONE

MATCH LINE A

ROAD WORK AHEAD — (2) W20-1 (48″ X 48″)
RIGHT LANE CLOSED 1 MILE — (2) W20-5 (48″ X 48″)
MERGE HERE — (1) [SPECIAL] (48″ X 48″)
DO NOT PASS — (2) R4-1 (48″ X 60″)
(2) W20-5 (48″ X 48″)
RIGHT LANE CLOSED 1 MILE
REDUCED SPEED AHEAD — (2) R2-5A (48″ X 60″)
(2) W20-5 (48″ X 48″)
RIGHT LANE CLOSED 1500 FT
DO NOT PASS — (2) R4-1 (48″ X 60″)
SPEED LIMIT 60 — (2) R2-1 (48″ X 60″)
(2) W4-2 RT. (48″ X 48″) AS DIRECTED
ADVANCE WARNING ARROW PANEL AT BEG. OF TAPER

(3) WI-6 (60″ X 30″) EVENLY SPACED ON TAPER

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

RT. LANE CLOSURE

SPEED LIMIT 60 — (2) R2-1 (48″ X 60″)

SPEED LIMIT 70

Crafton, Tull & Associates Inc.

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6	ARK.			
JOB NO.		BB0413	23	160

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
* * *
REGISTERED PROFESSIONAL ENGINEER
No. 15560
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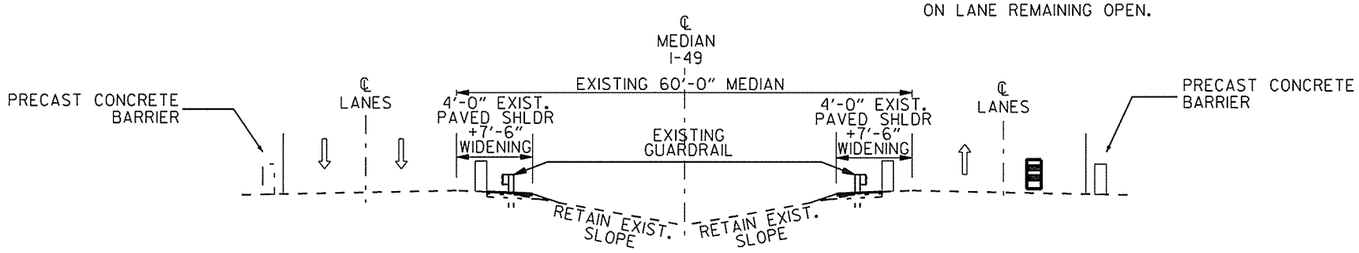
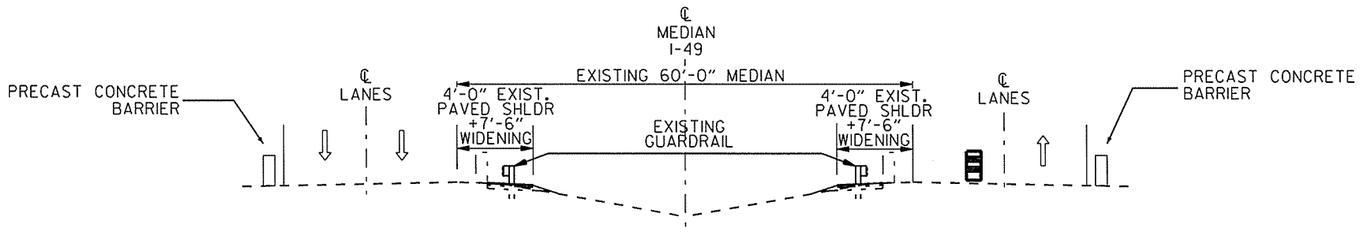
1-08-16

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



RT. LANE WORK ZONE FOR BRIDGE WIDENING



LT. LANE WORK ZONE FOR BRIDGE WIDENING

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

NOTE: ANY WORK ZONE OUTSIDE THE LIMITS OF THE LANE CLOSURE AREA MUST HAVE PRIOR WRITTEN APPROVAL OF THE ENGINEER AND ANY ADDITIONAL TRAFFIC CONTROL DEVICES REQUIRED SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE DEPARTMENT.

NOTE: REFER TO SP-MAINTENANCE OF TRAFFIC FOR LANE CLOSURE LIMITATIONS AND RESTRICTIONS. QUANTITY OF TRAFFIC DRUMS PROVIDED IN THE CONTRACT IS THE MAXIMUM NUMBER REQUIRED FOR ONE LANE CLOSURE.

MAINTENANCE OF TRAFFIC
WORK AREAS 1-49

USER: dd5109
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PLOTTED: 1/8/2016 13:00 SCALE: 100.1 MODEL: MOT STAGE 1SHEETS

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	24	160

(2) MAINTENANCE OF TRAFFIC

15 20 25 30

N

50 25 0 25 50 100

BEGIN WORK AREA JOB BB0413 +48

(1) G20-2 (48" X 24")

END ROAD WORK

ADVANCE SIGN SERIES

P.I. 12+00.00

N. 48TH ST.

(1) W4-2 RT. (48" X 48")

RIGHT LANE MUST TURN RIGHT (1) R3-7 RT. (30" X 30")

3 DRUMS (EO. SP.)

9 DRUMS 45' MAX. SP.

DBL. YELLOW CONST. PVMT. MARKING

WHITE CONST. PVMT. MARKING (12" WIDE)

RAMP 3

RAMP 4

350

4 VERT. PANELS (EO. SP.)

ELM SPRINGS RD.

CONST. TEMP. PAVING ON RT. (WIDTH VARIES) +90 +40

4 DRUMS (70' MAX. SP.)

SHOULDER CLOSED (1) RSP-1 (48" X 30")

LEFT LANE MUST TURN LEFT (1) R3-7 LT. (30" X 30")

53' P.C.C.B. TAPER +99 +52

WHITE CONST. PVMT. MARKING

DBL. YELLOW CONST. PVMT. MARKING

35 M.P.H.

(1) W13-1 (18" X 18")

(1) W24-1 (36" X 36")

P.T. 348+78.90

+02 +52 50' LANE TAPER

WHITE REMOVABLE CONST. PVMT. MARKING

DBL. YELLOW REMOVABLE CONST. PVMT. MARKING

SPECIAL END UNIT

I-49

REFER TO I-49 MAINTENANCE OF TRAFFIC DETAIL SHEETS.

P.C. 348+47.89

+12 CONST. TEMP. PAVING ON RT.(WIDTH VARIES) +15

+32 132' P.C.C.B. TAPER +64 250' MIN.

5 DRUMS (35' SP.) 70' 6 DRUMS (EO. SP.)

SPECIAL END UNIT

DBL. YELLOW CONST. PVMT. MARKING

466 L.F. TEMP. PRECAST CONC. BARRIER

LEFT LANE MUST TURN LEFT (1) R3-7 LT. (30" X 30")

+52 60' LANE TAPER +12

WHITE CONST. PVMT. MARKING

WHITE CONST. PVMT. MARKING (12" WIDE)

MAINTENANCE OF TRAFFIC STAGE 1

STAGE 1 STRIPING
REMOVAL OF PERMANENT PAVEMENT MARKINGS = 2,515 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS = 4,696 LIN. FT.
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS = 950 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS (ARROWS) = 8 EACH
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS (WORDS) = 7 EACH

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
1-27-16

REFER TO I-49 MAINTENANCE OF TRAFFIC DETAIL SHEETS.

+12 CONST. TEMP. PAVING ON RT.(WIDTH VARIES) +15

+32 132' P.C.C.B. TAPER +64 250' MIN.

5 DRUMS (35' SP.) 70' 6 DRUMS (EO. SP.)

SPECIAL END UNIT

7 DRUMS (EO. SP.)

SHOULDER CLOSED (1) RSP-1 (48" X 30")

45' 45' 100' MIN.

END WORK AREA JOB BB0413 +81

END WORK AREA JOB BB0413

4 DRUMS (EO. SP.)

BEGIN WORK AREA JOB BB0413 +77

4 DRUMS (EO. SP.)

ELM SPRINGS RD.

N. 45TH ST.

100' MIN.

ADVANCE SIGN SERIES

(1) W20-1 (48" X 48") ROAD WORK AHEAD

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

(1) W24-1 (36" X 36")

(1) W13-1 (18" X 18")

35 M.P.H.

ADVANCE SIGN SERIES

500'

100' MIN.

RAMP 2

RAMP 1

I-49

DBL. YELLOW CONST. PVMT. MARKING

466 L.F. TEMP. PRECAST CONC. BARRIER

LEFT LANE MUST TURN LEFT (1) R3-7 LT. (30" X 30")

+52 60' LANE TAPER +12

WHITE CONST. PVMT. MARKING

WHITE CONST. PVMT. MARKING (12" WIDE)

WHITE CONST. PVMT. MARKING

END WORK AREA JOB BB0413

P.I. 32+00.23

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

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

MAINTENANCE OF TRAFFIC STAGE 1

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	25	160

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
1-27-16

RAMP 4 CURVE DATA
P.I. 346+85.94
Δ = 24°30'00.0" RT.
D = 3°00'00"
T = 199.04'
L = 392.00'
P.C. 344+86.90
P.T. 348+78.90
e = 0.074'/'
Ls = 200'

RAMP 3 CURVE DATA
P.I. 358+36.30
Δ = 18°07'30.0" LT.
D = 4°30'00"
T = 203.09'
L = 402.78'
P.C. 356+33.21
P.T. 360+35.99
e = MATCH EXISTING SUPER

50 25 0 25 50 100

12 VERTICAL PANELS @ 90' MAX. SPACING (6 EACH SIDE)

BEGIN WORK AREA JOB BB0413 +50

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

ROAD WORK AHEAD

ADVANCE SIGN SERIES AT EXIT RAMP

100'

P.C. 356+33.21

10' MIN.

4 VERTICAL PANELS (EQ. SP.)

WHITE CONST. PVMT. MARKING

RAMP 4

RAMP 3

ELM SPRINGS RD.

P.I. 346+85.94

P.T. 348+78.90

P.C. 344+86.90

350

355

P.I. 358+36.30

I-49

20

MAINTENANCE OF TRAFFIC STAGE 1

50 25 0 25 50 100

BEGIN WORK AREA JOB BB0413 +90

ADVANCE SIGN SERIES AT EXIT RAMP

100'

RAMP 1

340

345

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

ROAD WORK AHEAD

ELM SPRINGS RD.

(1) R3-7 LT. (30" X 30")

LEFT LANE MUST TURN LEFT

+52

60' LANE TAPER

+12

WHITE CONST. PVMT. MARKING

WHITE CONST. PVMT. MARKING (12" WIDE)

5 DRUMS (35' SP.)

SPECIAL END UNIT

70'

6 DRUMS (EQ. SP.)

P.C.C.B. TAPER

+64

250' MIN.

7 DRUMS (EQ. SP.)

SHOULDER CLOSED

(1) RSP-1 (48" X 30")

45'

END WORK AREA JOB BB0413 +80

(1) W24-1 (36" X 36")

35 M.P.H.

(1) W13-1 (18" X 18")

ADVANCE SIGN SERIES

END ROAD WORK

(1) G20-2 (48" X 24")

P.I. 350+46.93

P.C. 348+47.89

10' MIN.

500'

RAMP 2

25

350

P.I. 352+39.89

RAMP 2 CURVE DATA
P.I. 350+46.93
Δ = 24°30'00.0" LT.
D = 6°15'00"
T = 199.04'
L = 392.00'
P.C. 348+47.89
P.T. 352+39.89
e = MATCH EXISTING SUPER

MAINTENANCE OF TRAFFIC STAGE 1

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PLOTTED: 1/27/2016 10:02 SCALE: 100.1 MODEL: NOT STAGE 1SHEETS

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	26	160

(2) MAINTENANCE OF TRAFFIC

MAINTENANCE OF TRAFFIC STAGE 2

STAGE 2 STRIPING
REMOVAL OF PERMANENT PAVEMENT MARKINGS = 2,700 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS = 10,761 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS (ARROWS) = 14 EACH
CONSTRUCTION PAVEMENT MARKINGS (WORDS) = 1 EACH
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS = 1,313 FT.
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS = 3,821 LIN. FT.
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS (ARROWS) = 8 EACH

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
1-27-16

MAINTENANCE OF TRAFFIC STAGE 2

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	27	160

(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
1-27-16

RAMP 4 CURVE DATA
P.I. 337+54.84
Δ = 32°15'00.0" LT.
D = 6°30'00"
T = 254.84'
L = 496.15'
P.C. 335+00.00
P.T. 339+96.15
e = 0.095'/'
Ls = 350'

RAMP 4 CURVE DATA
P.I. 346+85.94
Δ = 24°30'00.0" RT.
D = 3°00'00"
T = 199.04'
L = 392.00'
P.C. 344+86.90
P.T. 348+78.90
e = 0.074'/'
Ls = 200'

50 25 0 25 50 100

30 VERTICAL PANELS
(90' MAX. SP. ON BOTH SIDES)

P.T. 339+96.15

P.I. 346+85.94

345

RAMP 4

340

350

3 DRUMS (EO. SP.)

SHOULDER CLOSED

I-49 (SB) X 30'

P.C. 344+86.90

P.I. 348+78.90

10' MIN.

P.I. 337+54.84

I-49

P.T. 341+44.90

NOTE: MINIMUM LANE WIDTH OF 10' SHALL BE MAINTAINED AT ALL TIMES ON RAMP.

ELM SPRINGS RD.

RAMP 3

MAINTENANCE OF TRAFFIC
STAGE 2

I-49 CURVE DATA
P.I. 334+96.40
Δ = 13°01'35.0" LT.
D = 1°00'00"
T = 654.14'
L = 1302.64'
P.C. 328+42.26
P.T. 341+44.90
e = MATCH EXISTING SUPER

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

END WORK AREA JOB BB0413 +22

325

500'

330

335

5 VERTICAL PANELS (90' MAX. SP.)

P.C. 335+00.00

+92

130' LANE TAPER

4" WHITE SKIP REMOVABLE PAVEMENT MARKING

793 L.F. TEMP. PRECAST CONC. BARRIER

P.C. 328+42.26

+22

P.C.C.B. TAPER

+02

SPECIAL END UNIT

18'

RAMP 4

12'
12'
11'
11'
11'
12'
12'
12'

I-49

130' LANE TAPER

52

P.I. 334+96.40

P.I. 335+00.73

RAMP 1

P.C. 333+00.00

RAMP 1 CURVE DATA
P.I. 335+00.73
Δ = 12°00'00.0" RT.
D = 3°00'00"
T = 200.73'
L = 400.00'
P.C. 333+00.00
P.T. 337+00.00
e = MATCH EXISTING SUPER

335

P.T. 337+00.00

MAINTENANCE OF TRAFFIC
STAGE 2

50 25 0 25 50 100

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MODEL: MOT STAGE 2 SHEETS

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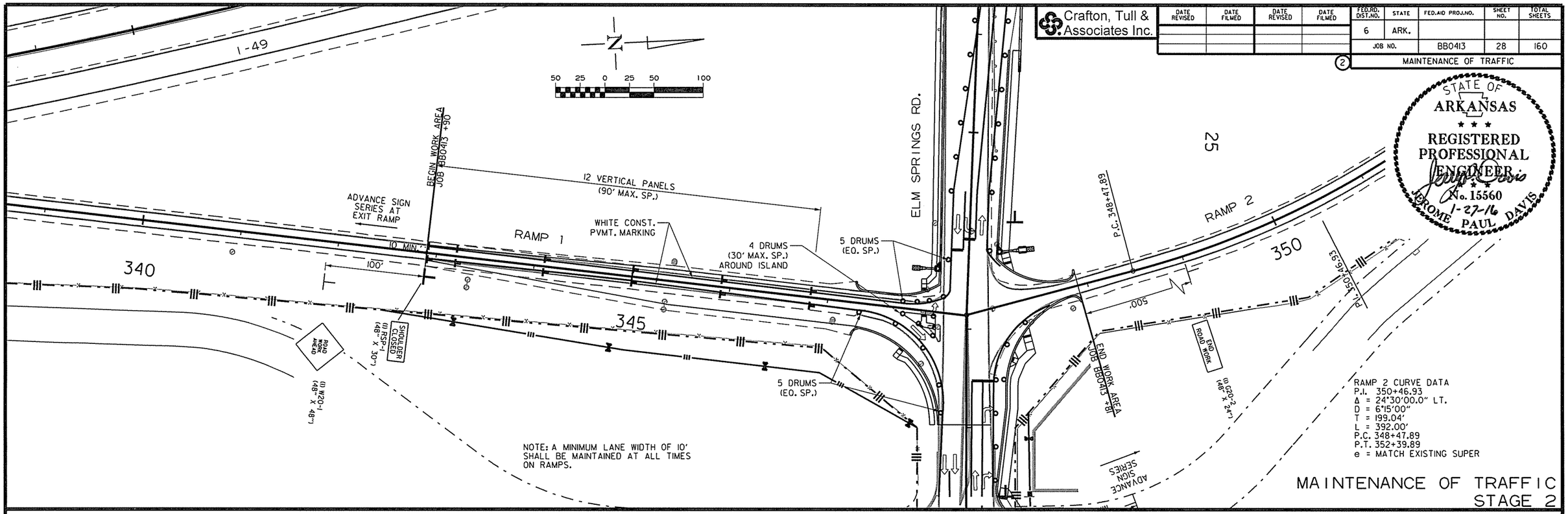
(2) MAINTENANCE OF TRAFFIC

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
1-27-16
JEROME PAUL DAVIS



RAMP 2 CURVE DATA
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Δ = 24°30'00.0" LT.
D = 6°15'00"
T = 199.04'
L = 392.00'
P.C. 348+47.89
P.T. 352+39.89
e = MATCH EXISTING SUPER

MAINTENANCE OF TRAFFIC
STAGE 2

MAINTENANCE OF TRAFFIC
STAGE 2

USER: fe513
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Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	29	160

(2) MAINTENANCE OF TRAFFIC

15 | 20 | 25

STAGE 3: CONSTRUCT CURB & GUTTER, SIDEWALK AT BRIDGE ENDS AND ON BRIDGE LT. SIDE ELM SPRINGS RD.

N

50 25 0 25 50 100

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

BEGIN WORK AREA JOB BB0413 +48

RAMP 3

350

WHITE CONST. PVMT. MARKING (12" WIDE)

+75 115' LANE TAPER +90

4 DRUMS (35' MAX. SP.)

WHITE CONST. PVMT. MARKING

12 DRUMS (70' MAX. SP.)

NOTE: BARRIER ON I-49 REMOVED AS CONSTRUCTION ACTIVITY IS COMPLETED ON I-49.

P.C. 348+47.89

WHITE CONST. PVMT. MARKING (12" WIDE)

WHITE CONST. PVMT. MARKING

ELM SPRINGS RD.

12' 12' 12' 10' 11' 11' 11' 12' 11' 11' 11' 11' 15' 12' 11' 11'

100'

WHITE CONST. PVMT. MARKING

DBL. YELLOW CONST. PVMT. MARKING

DBL. YELLOW CONST. PVMT. MARKING

WHITE CONST. PVMT. MARKING

ADVANCE SIGN SERIES

P.I. 12+00.00

RIGHT LANE MUST TURN RIGHT

(1) R3-7 RT. (30" X 30")

N. 48TH ST.

P.I. 348+78.90

RAMP 4

I-49

WHITE REMOVABLE CONST. PVMT. MARKING

DBL. YELLOW REMOVABLE CONST. PVMT. MARKING

MAINTENANCE OF TRAFFIC STAGE 3

STAGE 3 STRIPING
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS = 8,787 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS = 4,007 LIN. FT.
CONSTRUCTION PAVEMENT MARKINGS (ARROWS) = 17 EACH
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS = 1,602 LIN. FT.
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS (ARROWS) = 14 EACH

25 | 30

I-49

RAMP 2

500'

P.C. 348+47.89

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

ADVANCE SIGN SERIES

100' MIN.

END WORK AREA JOB BB0413 +81

5 DRUMS (EQ. SP.)

RIGHT LANE MUST TURN RIGHT

(1) R3-7 RT. (30" X 30")

N. 45TH ST.

END WORK AREA JOB BB0413

WHITE CONST. PVMT. MARKING 3' LONG W/9' GAPS

BEGIN WORK AREA JOB BB0413 +77

(1) W20-1 (48" X 48") ROAD WORK AHEAD

ADVANCE SIGN SERIES

50 25 0 25 50 100

12 DRUMS (70' MAX. SP.)

WHITE CONST. PVMT. MARKING (12" WIDE)

WHITE CONST. PVMT. MARKING

ELM SPRINGS RD.

15' 12' 11' 11' 12' 11' 11' 11' 11'

DBL. YELLOW CONST. PVMT. MARKING

WHITE CONST. PVMT. MARKING

WHITE CONST. PVMT. MARKING

WHITE REMOVABLE CONST. PVMT. MARKING

DBL. YELLOW REMOVABLE CONST. PVMT. MARKING

END WORK AREA JOB BB0413

P.I. 32+00.23

100' MIN.

ADVANCE SIGN SERIES

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

RAMP 1

I-49

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
1-27-16
JEROME PAUL DAVIS

MAINTENANCE OF TRAFFIC STAGE 3

USER: fe513
DESIGN FILE: G:\12103303_ElmSprngRd\TRANSP\dgn\maint_of_traffic\BB0413 Maint of Traffic.dgn
PLOTTED: 1/27/2016 10:02 SCALE: 100# MODEL: MOT STAGE 3 SHEETS

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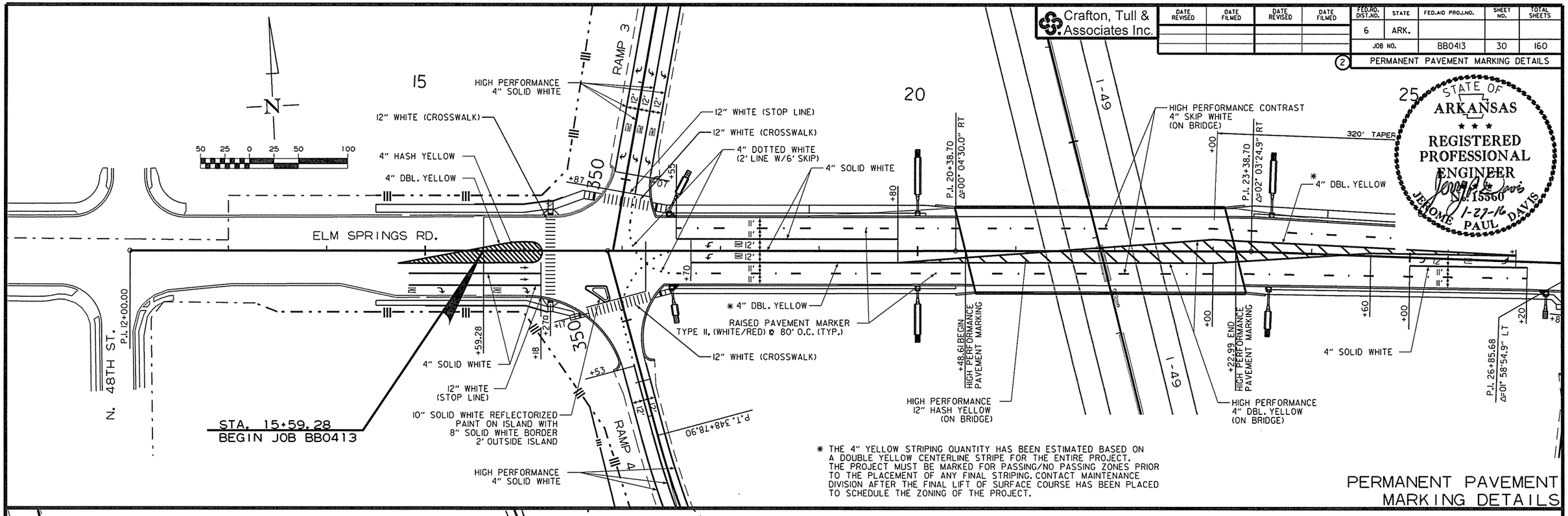
Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	30	160

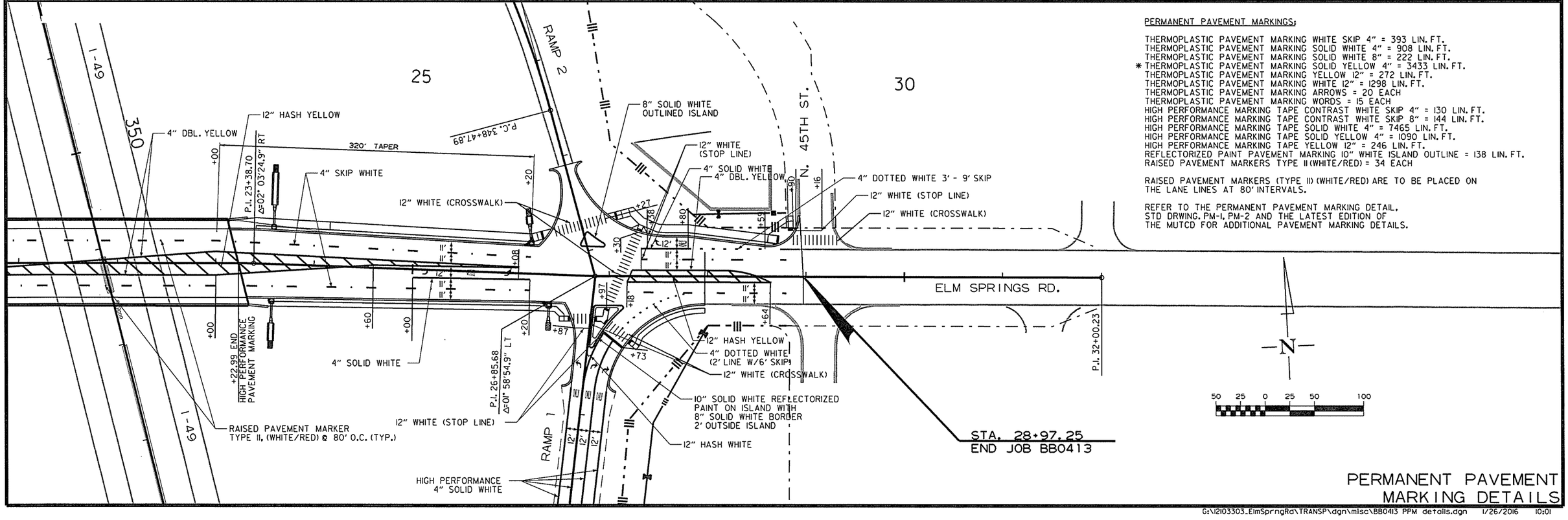
(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15360
JEROME PAUL DAVIS
1-27-16



* THE 4" YELLOW STRIPING QUANTITY HAS BEEN ESTIMATED BASED ON A DOUBLE YELLOW CENTERLINE STRIPE FOR THE ENTIRE PROJECT. THE PROJECT MUST BE MARKED FOR PASSING/NO PASSING ZONES PRIOR TO THE PLACEMENT OF ANY FINAL STRIPING. CONTACT MAINTENANCE DIVISION AFTER THE FINAL LIFT OF SURFACE COURSE HAS BEEN PLACED TO SCHEDULE THE ZONING OF THE PROJECT.

PERMANENT PAVEMENT MARKING DETAILS



PERMANENT PAVEMENT MARKINGS:

THERMOPLASTIC PAVEMENT MARKING WHITE SKIP 4" = 393 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING SOLID WHITE 4" = 908 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING SOLID WHITE 8" = 222 LIN. FT.
* THERMOPLASTIC PAVEMENT MARKING SOLID YELLOW 4" = 3433 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING YELLOW 12" = 272 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING WHITE 12" = 1298 LIN. FT.
THERMOPLASTIC PAVEMENT MARKING ARROWS = 20 EACH
THERMOPLASTIC PAVEMENT MARKING WORDS = 15 EACH
HIGH PERFORMANCE MARKING TAPE CONTRAST WHITE SKIP 4" = 130 LIN. FT.
HIGH PERFORMANCE MARKING TAPE CONTRAST WHITE SKIP 8" = 144 LIN. FT.
HIGH PERFORMANCE MARKING TAPE SOLID WHITE 4" = 7465 LIN. FT.
HIGH PERFORMANCE MARKING TAPE SOLID YELLOW 4" = 1090 LIN. FT.
HIGH PERFORMANCE MARKING TAPE YELLOW 12" = 246 LIN. FT.
REFLECTORIZED PAINT PAVEMENT MARKING 10" WHITE ISLAND OUTLINE = 138 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) = 34 EACH

RAISED PAVEMENT MARKERS (TYPE II) (WHITE/RED) ARE TO BE PLACED ON THE LANE LINES AT 80' INTERVALS.

REFER TO THE PERMANENT PAVEMENT MARKING DETAIL, STD DRWING. PM-1, PM-2 AND THE LATEST EDITION OF THE MUTCD FOR ADDITIONAL PAVEMENT MARKING DETAILS.

PERMANENT PAVEMENT MARKING DETAILS

USER: fs513
DESIGN FILE: G:\12103303_ElmSprngRd\TRANSP\dgn\misc\BB0413 PPM details.dgn
PLOTTED: 1/26/2016 10:01
SCALE: 100:1
MODEL: PPM sheets

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Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	31	160

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
JEROME PAUL DAVIS
No. 15560
1-27-16

12" WHITE (CROSSWALK)
12" WHITE (STOP LINE)
10" SOLID WHITE REFLECTORIZED PAINT ON ISLAND WITH 8" SOLID WHITE BORDER 2' OUTSIDE ISLAND
RAMP 4
RAMP 3
P.I. 346+85.94
P.T. 348+76.90
4" DOTTED WHITE (2' LINE W/6' SKIP)
HIGH PERFORMANCE 4" SOLID WHITE
ELM SPRINGS RD.
12" WHITE (STOP LINE)
4" SOLID WHITE
RAISED PAVEMENT MARKER TYPE II, (WHITE/RED) @ 80' O.C. (TYP.)
4" SKIP WHITE
P.C. 344+86.90
HIGH PERFORMANCE 4" SOLID WHITE
250' TAPER
P.C. 356+33.21
P.I. 358+36.30
I-49
PERMANENT PAVEMENT MARKING DETAILS

* THE 4" YELLOW STRIPING QUANTITY HAS BEEN ESTIMATED BASED ON A DOUBLE YELLOW CENTERLINE STRIPE FOR THE ENTIRE PROJECT. THE PROJECT MUST BE MARKED FOR PASSING/NO PASSING ZONES PRIOR TO THE PLACEMENT OF ANY FINAL STRIPING. CONTACT MAINTENANCE DIVISION AFTER THE FINAL LIFT OF SURFACE COURSE HAS BEEN PLACED TO SCHEDULE THE ZONING OF THE PROJECT.

4" SKIP WHITE
RAISED PAVEMENT MARKER TYPE II, (WHITE/RED) @ 80' O.C. (TYP.)
ELM SPRINGS RD.
12" HASH YELLOW
4" DBL. YELLOW
4" SOLID WHITE
12" WHITE (STOP LINE)
P.I. 26+85.68
Δ=01° 58'54.9" LT
HIGH PERFORMANCE 4" SOLID WHITE
12" WHITE (CROSSWALK)
10" SOLID WHITE REFLECTORIZED PAINT ON ISLAND WITH 8" SOLID WHITE BORDER 2' OUTSIDE ISLAND
RAMP 1
RAMP 2
P.I. 352+39.89
P.C. 348+47.89
P.I. 350+46.93
12" WHITE (CROSSWALK)
8" SOLID WHITE OUTLINED ISLAND
250' TAPER
12" WHITE (STOP LINE)
12" WHITE (CROSSWALK)
4" DOTTED WHITE (2' LINE W/6' SKIP)
* 4" DBL. YELLOW
4" SKIP WHITE
4" SOLID WHITE
12" HASH YELLOW
PAVED PARKING
4" WHITE (3' LINE W/9' SKIP)
I-49
PERMANENT PAVEMENT MARKING DETAILS

USER: fs513
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PLOTTED: 1/27/2016 11:06
MODEL: PPM sheets
SCALE: 100:1

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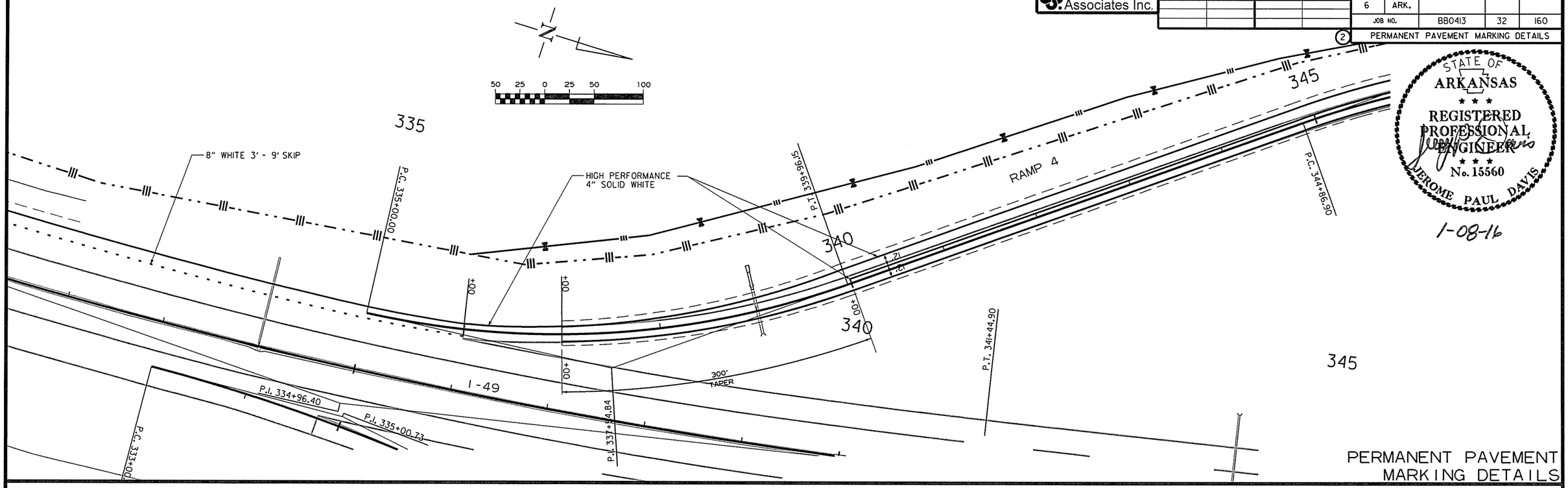
Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

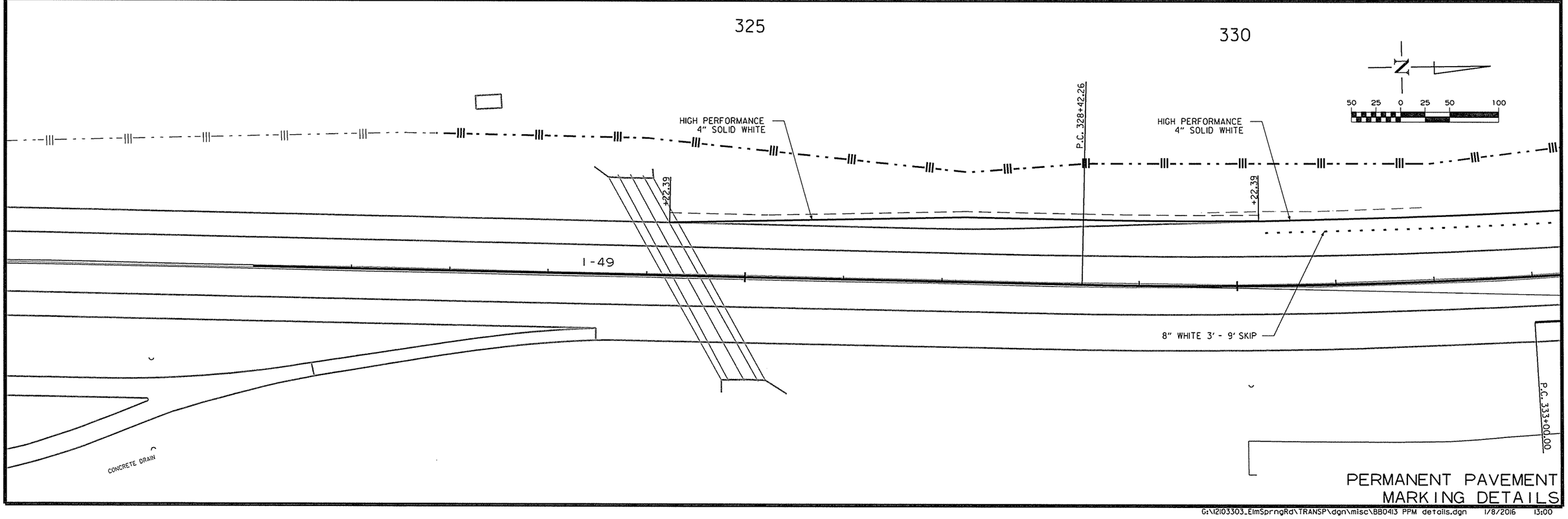
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	32	160

(2) PERMANENT PAVEMENT MARKING DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
1-08-16



PERMANENT PAVEMENT MARKING DETAILS



PERMANENT PAVEMENT MARKING DETAILS

USER: dd5109
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PLOTTED: 1/8/2016 13:00
MODEL: PPM sheets
SCALE: 100:1

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Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	33	160

(2) QUANTITIES

STATE OF ARKANSAS
HUBERT BURNS
REGISTERED PROFESSIONAL ENGINEER
No. 9620
2/2/16

ADVANCE WARNING SIGNS AND DEVICES

SIGN NUMBER	DESCRIPTION	SIGN SIZE	STAGE 1	STAGE 2	STAGE 3	MAXIMUM NUMBER REQUIRED		TRAFFIC DRUMS	VERTICAL PANELS	TEMPORARY IMPACT ATTENUATION BARRIER	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)	PORTABLE CHANGEABLE MESSAGE SIGN	ADVANCE WARNING ARROW PANEL	FURNISHING & INSTALLING PRECAST CONCRETE BARRIER	RELOCATING PRECAST CONCRETE BARRIER
			EACH-LIN.FT.			NO.	SQ.FT.	EACH				WEEK	DAY	LIN.FT.	
G20-2	END ROAD WORK	48"x24"	6	6	6	6	48.0								
G20-5aP	WORK ZONE	24"x18"	2	2	2	2	6.0								
R2-1	SPEED LIMIT 35 MPH	48"x60"	2	2	2	2	40.0								
R2-1	SPEED LIMIT 60 MPH	48"x60"	2	2		2	40.0								
R2-1	SPEED LIMIT 70 MPH	48"x60"	2	2		2	40.0								
R2-1	SPEED LIMIT 35 MPH	24"x30"	2	2	2	2	32.0								
R2-1	SPEED LIMIT 45 MPH	24"x30"	2	2	2	2	32.0								
R2-5A	REDUCED SPEED AHEAD	24"x30"	2	2	2	2	40.0								
R2-5A	REDUCED SPEED AHEAD	48"x60"	2	2	2	2	10.0								
R3-7 LT.	LEFT LANE MUST TURN LEFT	30"x30"	2			2	13.0								
R3-7 RT.	RIGHT LANE MUST TURN RIGHT	30"x30"	1	2	2	2	13.0								
R4-1	DO NOT PASS	48"x60"	2	2	2	2	40.0								
R55-1	FINES DOUBLE IN WORK ZONES	36"x60"	4	4	4	4	60.0								
RSP-1	SHOULDER CLOSED	48"x30"	4	4	2	4	40.0								
W1-6	LARGER ARROW	60"x30"	3	3		3	38.0								
W4-2 RT.	RIGHT LANE CLOSING GRAPHIC	48"x48"	3			3	48.0								
W4-2 LT.	LEFT LANE CLOSING GRAPHIC	48"x48"		2		2	32.0								
W13-1	SPEED LIMIT ADVISORY	24"x24"	1	1		1	4.0								
W13-4	ON RAMP	18"x24"	4	4	4	4	12.0								
W20-1	ROAD WORK AHEAD	48"x48"	6	6	6	6	96.0								
W20-1	ROAD WORK 500 FT.	48"x48"	2	2	2	2	32.0								
W20-1	ROAD WORK 1000 FT.	48"x48"	2	2	2	2	32.0								
W20-1	ROAD WORK 1500 FT.	48"x48"	8	8	8	8	128.0								
W20-1	ROAD WORK 1/2 MILE	48"x48"	6	6	6	6	96.0								
W20-1	ROAD WORK 1 MILE	48"x48"	6	6	6	6	96.0								
W20-5	RIGHT LANE CLOSED 1500 FT.	48"x48"	2			2	32.0								
W20-5	RIGHT LANE CLOSED 1/2 MILE	48"x48"	2			2	32.0								
W20-5	RIGHT LANE CLOSED 1 MILE	48"x48"	2			2	32.0								
W20-5	LEFT LANE CLOSED 1500 FT.	48"x48"		2		2	32.0								
W20-5	LEFT LANE CLOSED 1/2 MILE	48"x48"		2		2	32.0								
W20-5	LEFT LANE CLOSED 1 MILE	48"x48"		2		2	32.0								
W24-1	LANE SHIFT	36"x36"	1	1		1	9.0								
	TRAFFIC DRUMS		94	128	21	128		128							
	VERTICAL PANELS		16	47		47			47						
	FURNISHING & INSTALLING PRECAST CONC. BARRIER		2693	3567	2042	3567								3567	
	RELOCATING PRECAST CONCRETE BARRIER			466		466									466
	TEMPORARY IMPACT ATTENUATION BARRIER		2	2	2	2				2					
	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)		2	2	2	2					2				
	PORTABLE CHANGEABLE MESSAGE SIGN		2	2	2	2						55			
	ADVANCE WARNING ARROW PANEL		2	2		2							160		
TOTALS:							1269.0	128	47	2	2	55	160	3567	466

THIS IS A HIGH TRAFFIC VOLUME ROAD AS DEFINED IN SECTION 604.03, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2014 EDITION.
NOTE: THE QUANTITY OF TRAFFIC DRUMS PROVIDED FOR I-49 IS FOR ONE SIDE OF 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.

CONSTRUCTION PAVEMENT MARKINGS AND PERMANENT PAVEMENT MARKINGS

DESCRIPTION	STAGE 1	STAGE 2	STAGE 3	END OF JOB	REMOVAL OF PERMANENT PAVEMENT MARKINGS	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS			REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	CONSTRUCTION PAVEMENT MARKINGS			RAISED PAVEMENT MARKERS	THERMOPLASTIC PAVEMENT MARKING						HIGH PERFORMANCE MARKING TAPE					HIGH PERFORMANCE CONTRAST MARKING TAPE	REFLECTORIZED PAVEMENT MARKING
														4"		8"	12"			4"	4"	8"	4"	12"	4"	10"
	LIN. FT.-EACH				LIN. FT.	LIN. FT.	ARROWS	WORDS	LIN. FT.	LIN. FT.	ARROWS	WORDS	TY. II (WHT/RED)	WHITE	YELLOW	WHITE	WHITE	YELLOW	WORDS	ARROWS	WHITE SKIP	WHITE		YELLOW		WHITE	WHITE
							EACH				EACH		EACH	LIN. FT.					EACH		LIN. FT.						
REMOVAL OF PERMANENT PAVEMENT MARKINGS	2515	2700	9880		15095																						
REMOVABLE CONSTRUCTION PAVEMENT MARKINGS	950	1313	1602						3865																		
CONSTRUCTION PAVEMENT MARKINGS	4696	10761	4007							19464																	
CONSTRUCTION PAVEMENT MARKINGS (ARROWS)	8	14	17								39																
CONSTRUCTION PAVEMENT MARKINGS (WORDS)		1										1															
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS		3821	8787			12608																					
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS (ARROWS)		8	14	17			39																				
REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS (WORDS)	7			1				8																			
RAISED PAVEMENT MARKERS (TYPE II) (WHITE/RED)				34									34														
HIGH PERFORMANCE CONTRAST PAVEMENT MARKING WHITE (4")				130																					130		
HIGH PERFORMANCE PAVEMENT MARKING WHITE (8")				144																			144				
HIGH PERFORMANCE PAVEMENT MARKING WHITE (4")				7465																		7465					
HIGH PERFORMANCE PAVEMENT MARKING (SKIP LINE) WHITE (4")				393																	393						
HIGH PERFORMANCE PAVEMENT MARKING YELLOW (4")				1090																				1090			
HIGH PERFORMANCE PAVEMENT MARKING YELLOW (12")				246																					246		
THERMOPLASTIC PAVEMENT MARKING WHITE (4")				908										908													
THERMOPLASTIC PAVEMENT MARKING WHITE (12")				1298													1298										
THERMOPLASTIC PAVEMENT MARKING WHITE (8")				222												222											
THERMOPLASTIC PAVEMENT MARKING YELLOW (12")				246														246									
THERMOPLASTIC PAVEMENT MARKING YELLOW (4")				3433											3433												
THERMOPLASTIC PAVEMENT MARKING (WORDS)				15															15								
THERMOPLASTIC PAVEMENT MARKING (ARROWS)				21																21							
REFLECTORIZED PAINT PAVEMENT MARKING WHITE (10")				138																							138
TOTALS:					15095	12608	39	8	3865	19464	39	1	34	908	3433	222	1298	246	15	21	393	7465	144	1090	246	130	138

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

USER: fes13
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PLOTTED: 2/2/2016 13:02
MODEL: QUANTITIES
SCALE: 1&1

QUANTITIES

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
02-25-16			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	34	160

(2) QUANTITIES

STATE OF ARKANSAS
* * *
REGISTERED PROFESSIONAL ENGINEER
No. 15560
2-25-16
JEROME PAUL DAVIS

EROSION CONTROL

STATION	STATION	LOCATION	PERMANENT EROSION CONTROL					TEMPORARY EROSION CONTROL									
			SEEDING	LIME	MULCH COVER	WATER	SECOND SEEDING APPLICATION	TEMPORARY SEEDING	MULCH COVER	WATER	WATTLE (12") DITCH CHECK	SAND BAG DITCH CHECKS	ROCK DITCH CHECKS	DROP INLET SILT FENCE	SILT FENCE		* SEDIMENT REMOVAL AND DISPOSAL
											(E-1)	(E-5)	(E-6)	(E-7)	(E-4)	(E-11)	
			ACRE	TON	ACRE	M. GAL.	ACRE	ACRE	ACRE	M. GAL.	LIN. FT.	BAG	CU. YD.	LIN.FT.	LIN.FT.		CU. YD.
ENTIRE JOB:	ENTIRE JOB:	ELM SPRINGS RD. ON LT. STAGE 1	0.78	1.6	0.78	79.6	0.78	0.78	0.78	15.9				36		787.01	33
ENTIRE JOB:	ENTIRE JOB:	RAMP 2 STAGE 1										44	6				12
ENTIRE JOB:	ENTIRE JOB:	RAMP 3 STAGE 1	0.76	1.5	0.76	77.5	0.76	0.76	0.76	15.5		66	3			364.59	24
ENTIRE JOB:	ENTIRE JOB:	I-49 STAGE 1											6				9
ENTIRE JOB:	ENTIRE JOB:	ELM SPRINGS RD. ON RT. STAGE 2	0.70	1.4	0.70	71.4	0.70	0.70	0.70	14.3				72		801.23	35
ENTIRE JOB:	ENTIRE JOB:	RAMP 1 STAGE 2	1.01	2.0	1.01	103.0	1.01	1.01	1.01	20.6		132	18				36
ENTIRE JOB:	ENTIRE JOB:	RAMP 4 STAGE 2	1.85	3.7	1.85	188.7	1.85	1.85	1.85	37.7		242	30		35.16	397.86	77
ENTIRE JOB:	ENTIRE JOB:	ELM SPRINGS RD. LT. STAGE 3												36			1
ENTIRE JOB:	ENTIRE JOB:	ELM SPRINGS RD. ON LT.															
ENTIRE JOB:	ENTIRE JOB:	ELM SPRINGS RD. ON RT.															
ENTIRE JOB:			**5.10**	**10.2**	**5.10**	**520.2**	**5.10**	**5.10**	**5.10**	**104.0**		**484**	**63**	**144**	**35.16**	**2350.69**	**227**
***ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER**			**2.00**	**4.0**	**2.00**	**182.1**	**1.79**	**2.00**	**2.00**	**40.8**	**100**	**169**	**22**	**50**	**12.00**	**823.00**	**79**
TOTALS:			**7.10**	**14.2**	**7.10**	**702.3**	**6.89**	**7.10**	**7.10**	**144.8**	**100**	**653**	**85**	**194**	**47.16**	**3173.69**	**306**

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
DROP INLET SILT FENCE.....18 LIN.FT./LOCATION
ROCK DITCH CHECKS.....3 CU. YDS. PER DITCH CHECK

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.
NOTE: QUANTITIES ESTIMATED. SEE SEC. 104.03 OF THE STANDARD SPECIFICATIONS.

STRUCTURES

STATION	DESCRIPTION	REINFORCED CONCRETE PIPE CULVERT CLASS III		FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		DROP INLETS TYPE MO	DROP INLET EXTENSIONS 4'	MODIFYING DROP INLETS	SOLID SODDING	WATER	STD. DWG. NOS.
		18"	30"	18"	30"						
		LIN. FT.		EACH					SQ. YD.	M.GAL.	
17+51	DROP INLET ON RT	10		1		1	1		5	0.06	FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
17+48	DROP INLET ON LT	15		1		1	1		5	0.06	FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
20+00	DROP INLET ON RT	7		1		1			5	0.06	FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
20+00	DROP INLET ON LT	11		1		1			5	0.06	FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
23+58	DROP INLET ON RT	14		1		1			5	0.06	FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
23+58	DROP INLET ON LT	14		1		1			5	0.06	FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
26+20	DROP INLET ON LT	12		1		1	1		5	0.06	FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
26+40	DROP INLET ON RT	10		1		1	1		5	0.06	FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
339+00	EXTEND PIPE RAMP 4		22		1				13	0.16	FPC-9M,FPC-9E,PCC-1,FES-1,FES-2
350+00	MODIFY DROP INLET I-49 ON LT							1			FPC-9S
350+00	MODIFY DROP INLET I-49 ON RT							1			FPC-9S
TOTALS:		**93**	**22**	**8**	**1**	**8**	**4**	**2**	**53**	**0.64**	

BASIS OF ESTIMATE:
WATER.....12.6 GAL. / SQ. YD. OF SOLID SODDING.
NOTE: FOR R.C. PIPE CULVERT INSTALLATIONS USE TYPE 3 BEDDING UNLESS OTHERWISE SPECIFIED.
NOTE: FOR C.M. PIPE CULVERT INSTALLATIONS USE TYPE 2 BEDDING UNLESS OTHERWISE SPECIFIED.
NOTE: QUANTITIES ESTIMATED. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

CONCRETE BASE

STATION	STATION	LOCATION	LENGTH	TACK COAT 0.10 GAL. PER SQ.YD.			PORTLAND CEMENT CONCRETE BASE			
				AVG. WID.	SQ.YD.	GAL.	AVG. WID.	3 " U.T.	AVG. WID.	5" U.T.
			FT.	FT.			FT.	SQ.YD.	FT.	SQ.YD.
17+89.31	20+13.59	ELM SPRINGS NOTCH & WIDEN RT.	224.28	1.00	24.92	2.50	1.00	25	3.5	88
23+67.76	24+41.08	ELM SPRINGS NOTCH & WIDEN RT.	73.32	1.00	8.15	0.80	1.00	9	3.5	29
24+41.08	26+55.94	ELM SPRINGS NOTCH & WIDEN RT.	214.86	VAR.	50.32	5.00	VAR.	51	VAR.	111
28+13.33	28+97.28	ELM SPRINGS - AUXILLARY LANE - NOTCH & WIDEN LT.	83.95	VAR.	46.83	4.70	VAR.	47	VAR.	75
RAMPS										
347+26.31	348+17.96	NOTCH AND WIDEN RAMP 1 LT.	91.65	VAR.	68.2	6.80	VAR.	69	4.5	94
346+95.93	347+90.13	NOTCH AND WIDEN RAMP 2 LT.	94.20	VAR.	94.29	9.40	VAR.	95	VAR.	120
346+95.93	347+90.13	NOTCH AND WIDEN RAMP 2 RT.	94.20	VAR.	131.8	13.20	VAR.	132	VAR.	169
349+53.42	350+50.90	NOTCH AND WIDEN RAMP 4 LT.	97.48	VAR.	51.0	5.10	VAR.	52	3.5	76
349+53.42	350+25.98	NOTCH AND WIDEN RAMP 4 RT.	72.56	VAR.	76.3	7.60	VAR.	77	4.5	114
TOTALS:						**55.10**		**557**		**876**

COLD MILLING ASPHALT PAVEMENT

STATION	STATION	LOCATION	COLD MILLING ASPHALT PAVEMENT
			SQ.YD.
15+59	17+23	ELM SPRINGS RD. MILL & INLAY	1635
17+23	20+14	ELM SPRINGS RD.	1426
23+58	26+28	ELM SPRINGS RD.	1299
27+97	28+97	ELM SPRINGS RD. MILL & INLAY	634
341+90	342+90	RAMP 1	163
347+90	348+90	RAMP 2	161
354+50	355+50	RAMP 3	170
336+00	337+00	RAMP 4	173
327+22	330+22	I-49 AUXILARY LANE	200
TOTAL:			5861

FENCING

STATION	STATION	LOCATION	WIRE FENCE (TYPE A)
			LIN.FT.
15+60	16+07	ELM SPRINGS RD. RT.	48
16+00	16+30	ELM SPRINGS RD. LT.	33
342+50	348+05	RAMP 1 RT.	565
336+00	349+25	RAMP 4 LT.	1313
TOTAL:			1959

CONCRETE WALKS

STATION	STATION	SIDE	DESCRIPTION	LENGTH	CONCRETE WALKS
				LIN.FT.	SQ.YD.
14+50	16+03	RT.	ELM SPRINGS RD.	153	85
16+03	16+51	RT.	ELM SPRINGS RD. RADIUS	54	30
14+50	16+01	LT.	ELM SPRINGS RD.	151	134
16+01	16+67	LT.	ELM SPRINGS RD. RADIUS	69	61
17+40	20+08	LT.	ELM SPRINGS RD.	268	238
20+08	20+39	LT.	ELM SPRINGS RD. BRDG. APPR.	31	33
17+44	20+39	RT.	ELM SPRINGS RD.	295	164
20+39	20+58	RT.	ELM SPRINGS RD. BRDG. APPR.	19	15
23+13	23+40	LT.	ELM SPRINGS RD. BRDG. APPR.	27	29
23+40	26+26	LT.	ELM SPRINGS RD.	286	254
23+33	23+55	RT.	ELM SPRINGS RD. BRDG. APPR.	22	18
23+55	26+47	RT.	ELM SPRINGS RD.	292	162
26+47	26+53	RT.	ELM SPRINGS RD. RADIUS	15	8
27+13	28+62	LT.	ELM SPRINGS RD. RADIUS	155	138
28+84	28+84	LT.	ELM SPRINGS RD. RADIUS	5	3
27+25	28+97	RT.	ELM SPRINGS RD. RADIUS	86	48
TOTAL:					1420

QUANTITIES

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MODEL: QUANTITIES

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
02-25-16			

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	35	160

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
JEROME PAUL DAVIS
2-25-16

CONCRETE DITCH PAVING

STATION	STATION	LOCATION	LENGTH	WIDTH	CONC. DITCH PAVING (TYPE B)	SOLID SODDING	*WATER
			FT.	FT.	SQ.YD.		M. GAL.
17+35	17+55	ELM SPRINGS RD. RT.	11	6.5	8	5	0.06
17+56	17+56	ELM SPRINGS RD. LT.	19	6.5	14	8	0.10
20+00	20+00	ELM SPRINGS RD. RT.	32	6.5	23	14	0.18
20+00	20+00	ELM SPRINGS RD. LT.	38	6.5	27	17	0.21
23+58	23+58	ELM SPRINGS RD. RT.	18	6.5	13	8	0.10
23+58	23+58	ELM SPRINGS RD. LT.	33	6.5	24	15	0.19
26+17	26+17	ELM SPRINGS RD. LT.	8	6.5	6	4	0.05
TOTALS:					115	71	0.89

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

REMOVAL AND DISPOSAL OF ITEMS

STATION	STATION	LOCATION	CURB AND GUTTER	CONCRETE ISLANDS	CONCRETE WALKS	GUARDRAIL	APPROACH SLAB AND GUTTERS
			LIN. FT.	SQ.YD.	SQ.YD.	LIN. FT.	EACH
18+59	20+57	ELM SPRINGS RD. RT.				198	
19+69	20+46	ELM SPRINGS RD. LT.				77	
20+11	20+57	ELM SPRINGS RD.					1
23+20	23+66	ELM SPRINGS RD.					1
23+20	25+20	ELM SPRINGS RD. RT.				200	
23+32	24+09	ELM SPRINGS RD. RT.				77	
27+48	28+87	ELM SPRINGS RD. LT.			80		
27+50	28+94	ELM SPRINGS RD. LT.	165				
27+53	27+97	ELM SPRINGS RD. RT.			18		
347+31	348+26	RAMP 1 RT.	157				
348+04	348+18	RAMP 1 RT.		13			
349+76	350+49	RAMP 4 LT.	113				
TOTALS:			435	13	98	552	2

DUMPED RIPRAP & FILTER BLANKET

STATION	SIDE	DUMPED RIPRAP	* FILTER BLANKET
		CU.YD.	SQ.YD.
17+48	LT.	5	9
17+51	RT.	5	9
20+00	LT.	5	9
20+00	RT.	5	9
23+58	LT.	5	9
23+58	RT.	5	9
26+20	LT.	5	9
26+40	LT.	5	9
TOTALS:		40	72

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

CONCRETE BARRIER WALL

STATION	STATION	LOCATION	MEDIAN TYPE SPECIAL
			LIN. FT.
347+66	350+11	I-49 - C.L. MEDIAN	245
TOTALS:			245

WHEELCHAIR RAMPS

STATION	SIDE	TYPE 3
		SQ. YD.
16+27	LT.	7
16+28	RT.	8
16+52	RT.	5
16+67	LT.	8
17+40	LT.	7
17+44	RT.	5
26+26	LT.	10
26+56	RT.	4
27+13	LT.	10
27+25	RT.	3
27+33	LT.	8
28+75	LT.	42
TOTAL:		117

REMOVAL AND DISPOSAL OF FENCE

STATION	STATION	LOCATION	FENCE
			LIN. FT.
15+60	16+07	ELM SPRINGS RD. RT.	52
16+00	16+30	ELM SPRINGS RD. LT.	36
27+85	28+81	ELM SPRINGS RD. LT.	100
342+50	348+05	RAMP 1 RT.	576
336+00	349+25	RAMP 4 LT.	1318
TOTAL:			2082

EARTHWORK

STATION	STATION	LOCATION/DESCRIPTION	UNCLASSIFIED EXCAVATION	COMPACTED EMBANKMENT	SOIL STABILIZATION
			CU. YD.	CU. YD.	TON
ENTIRE	PROJECT	ELM SPRINGS ROAD	335	11862	
ENTIRE	PROJECT	I-49 ACCEL. LANE AT RAMP 4	348	62	
ENTIRE	PROJECT	RAMP 1 WIDENING	3499	420	
ENTIRE	PROJECT	RAMP 2 WIDENING	21	435	
ENTIRE	PROJECT	RAMP 3 WIDENING	255	2933	
ENTIRE	PROJECT	RAMP 4 WIDENING	7331	1342	
ENTIRE	PROJECT	TO BE USED IF AND WHERE		1000 *	40 *
		DIRECTED BY THE ENGINEER			
TOTALS:			11789	18054	40

NOTE: EARTHWORK QUANTITIES AT THE LOCATIONS SHOWN ABOVE SHALL BE PAID FOR AS PLAN QUANTITY.
* QUANTITIES ESTIMATED. SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.
COMPACTION WILL BE AT THE SATISFACTION OF THE ENGINEER.

CONCRETE ISLANDS

STATION	STATION	LOCATION	CURB FACE TYPE	CONCRETE ISLANDS
				SQ.YD.
16+71	16+85	ELM SPRINGS RD. RT.	"A"	12
26+85	27+10	ELM SPRINGS RD. RT.	"A"	45
TOTAL:				57

CONCRETE COMBINATION CURB AND GUTTER (TYPE A) (1' 6")

STATION	STATION	SIDE	DESCRIPTION	CONC. COMB. CURB AND GUTTER (TYPE A) (1' 6")
				LIN.FT.
349+54	350+51	LT.	RAMP 4 RETURN	137
349+54	350+26	RT.	RAMP 4 RETURN	92
17+42	17+48	RT.	ELM SPRINGS RD.	6
17+57	19+97	RT.	ELM SPRINGS RD.	240
20+02	20+57	RT.	ELM SPRINGS RD.	55
349+67	350+09	RT.	RAMP 3 RETURN	49
17+34	17+45	LT.	ELM SPRINGS RD.	11
17+54	19+97	LT.	ELM SPRINGS RD.	243
20+02	20+40	LT.	ELM SPRINGS RD.	38
23+15	23+55	LT.	ELM SPRINGS RD.	42
23+60	26+14	LT.	ELM SPRINGS RD.	254
26+23	26+28	LT.	ELM SPRINGS RD.	5
23+31	23+55	RT.	ELM SPRINGS RD.	24
23+60	26+33	RT.	ELM SPRINGS RD.	273
26+42	26+56	RT.	ELM SPRINGS RD.	14
347+17	347+90	LT.	RAMP 2 RETURN	93
346+94	347+90	RT.	RAMP 2 RETURN	137
347+26	348+12	LT.	RAMP 1 RETURN	94
347+26	348+27	RT.	RAMP 1 RETURN	152
27+60	28+93	LT.	ELM SPRINGS RD.	152
TOTAL:				2111

BENCH MARKS

STATION	DESCRIPTION	BENCH MARKS
		EACH
23+19	BRIDGE END ON RT.	1
TOTAL:		1

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

SELECTED PIPE BEDDING

LOCATION	SELECTED PIPE BEDDING
	CU.YD.
ENTIRE PROJECT TO BE USED IF AND WHERE DIRECTED BY THE ENGINEER	30
TOTAL:	30

NOTE: QUANTITY ESTIMATED.
SEE SECTION 104.03 OF THE STANDARD SPECIFICATIONS.

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Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	36	160

(2) QUANTITIES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
Jerome P. Davis
No. 15560
JEROME PAUL DAVIS
1-27-16

BASE AND SURFACING

STATION	STATION	LOCATION	LENGTH	AGGREGATE BASE COURSE (CLASS 7)		ACHM SURFACE COURSE (1/2")				ACHM SURFACE COURSE (1/2") - WIDENING				ACHM BINDER COURSE (1") - WIDENING				ACHM BASE COURSE (1 1/2") - WIDENING				TACK COAT			
			FT.	TON / STATION	TON	AVG. WID. FEET	SQ.YD.	POUND / SQ.YD.	PG 76-22 TON	AVG. WID. FT.	SQ.YD.	POUND / SQ.YD.	PG 76-22 TON	AVG. WID. FT.	SQ.YD.	POUND / SQ.YD.	PG 70-22 TON	AVG. WID. FT.	SQ.YD.	POUND / SQ.YD.	PG 70-22 TON	AVG. WID. FT.	SQ.YD.	GALLONS/ SQ.YD.	GALLONS
ELM SPRINGS RD.																									
15+59.28	17+23.79	COLD MILL & TRANSITION	164.51			89.47	1635.41	220.00	179.90													89.47	1635.41	0.10	163.54
17+23.79	20+10.48	OVERLAY	286.69			68.00	2166.10	220.00	238.27													43.93	1399.37	0.10	139.94
17+32.11	20+08.18	NOTCH & WIDEN LT.	276.07							25.00	766.86	220.00	84.35	25.00	766.86	330.00	126.53	27.50	843.55	550.00	231.98	77.50	2377.27	0.03	71.32
20+13.59	20+48.61	FULL DEPTH	35.02			68.00	264.60	220.00	29.11	68.00	264.60	220.00	29.11	68.00	264.60	330.00	43.66	73.00	284.05	550.00	78.11	204.00	793.79	0.03	23.81
23+22.99	23+58.20	FULL DEPTH	35.21			68.00	266.03	220.00	29.26	68.00	266.03	220.00	29.26	68.00	266.03	330.00	43.90	73.00	285.59	550.00	78.54	204.00	798.09	0.03	23.94
23+51.89	26+28.07	NOTCH & WIDEN LT.	276.18							16.20	497.12	220.00	54.68	16.20	497.12	330.00	82.03	18.70	573.84	550.00	157.81	51.10	1568.09	0.03	47.04
24+41.08	26+55.94	NOTCH & WIDEN RT.	214.86							2.11	50.37	220.00	5.54									2.11	50.37	0.03	1.51
23+58.20	26+28.07	OVERLAY	269.87			65.45	1962.55	220.00	215.88	2.64	79.16	440.00	17.42									42.65	1278.88	0.10	127.89
27+60.23	28+13.33	AUXILIARY LANE - NOTCH & WIDEN LT.	53.10			14.27	84.19	220.00	9.26	14.27	84.19	439.00	18.48	14.27	84.19	330.00	13.89	16.77	98.94	550.00	27.21	45.31	267.33	0.03	8.02
28+13.33	28+93.72	AUXILIARY LANE - NOTCH & WIDEN LT.	80.39							5.24	46.80	440.00	10.30									5.24	46.80	0.03	1.40
26+28.07	27+97.25	OVERLAY	169.18			46.80	879.74	220.00	96.77													46.80	879.74	0.10	87.97
27+97.25	28+97.25	COLD MILL & TRANSITION	100.00			57.08	634.22	220.00	69.76													57.08	634.22	0.10	63.42
RAMPS																									
342+90.00	348+26.66	RAMP 1 - OVERLAY	536.66			43.21	2576.56	220.00	283.42																
342+90.00	345+40.00	RAMP 1 - NOTCH & WIDEN LT.	250.00	47.00	117.50					1.81	50.28	220.00	5.53	1.91	53.06	330.00	8.75	2.16	60.00	550.00	16.50	5.88	163.33	0.03	4.90
345+40.00	347+26.31	RAMP 1 - NOTCH & WIDEN LT.	186.31	47.00	87.57					4.63	95.85	220.00	10.54	4.73	97.92	330.00	16.16	4.90	101.44	550.00	27.89	14.26	295.20	0.03	8.86
342+90.00	345+40.00	RAMP 1 - NOTCH & WIDEN RT.	250.00	62.25	155.63					8.93	248.06	220.00	27.29	9.03	250.83	330.00	41.39	9.07	251.94	550.00	69.28	27.03	750.83	0.03	22.52
345+40.00	347+26.31	RAMP 1 - NOTCH & WIDEN RT.	186.31	62.25	115.98					16.93	350.47	220.00	38.55	17.03	352.54	330.00	58.17	17.10	353.99	550.00	97.35	51.06	1057.00	0.03	31.71
347+26.31	348+17.96	RAMP 1 - RETURN - NOTCH & WIDEN LT.	91.65							6.70	68.23	220.00	7.51									6.70	68.23	0.03	2.05
347+26.31	348+17.96	RAMP 1 - RETURN - NOTCH & WIDEN RT.	91.65							15.79	160.79	220.00	17.69	15.79	160.79	330.00	26.53	18.29	186.25	550.00	51.22	49.87	507.84	0.03	15.24
346+95.93	347+90.13	RAMP 2 - OVERLAY	94.20			55.40	579.85	220.00	63.78																
346+95.93	347+90.13	RAMP 2 - RETURN - NOTCH & WIDEN LT.	94.20							9.01	94.30	220.00	10.37									9.01	94.30	0.03	2.83
346+95.93	347+90.13	RAMP 2 - RETURN - NOTCH & WIDEN RT.	94.20							12.59	131.78	220.00	14.50									12.59	131.78	0.03	3.95
349+41.39	354+50.26	RAMP 3 - OVERLAY	508.87			37.65	2128.77	220.00	234.16																
350+06.07	352+00.00	RAMP 3 - NOTCH & WIDEN LT.	193.93	62.25	120.72					16.12	347.35	220.00	38.21	16.22	349.50	330.00	57.67	16.39	353.17	550.00	97.12	48.73	1050.02	0.03	31.50
352+00.00	354+50.00	RAMP 3 - NOTCH & WIDEN LT.	250.00	62.25	155.63					7.81	216.94	220.00	23.86	7.91	219.72	330.00	36.25	8.08	224.44	550.00	61.72	23.80	661.11	0.03	19.83
350+08.91	352+00.00	RAMP 3 - NOTCH & WIDEN RT.	191.09	47.00	89.81					4.47	94.91	220.00	10.44	4.58	97.24	330.00	16.05	4.75	100.85	550.00	27.73	13.80	293.00	0.03	8.79
352+00.00	354+50.00	RAMP 3 - NOTCH & WIDEN RT.	250.00	47.00	117.50					2.50	69.44	220.00	7.64	2.61	72.50	330.00	11.96	2.77	76.94	550.00	21.16	7.88	218.89	0.03	6.57
349+41.39	350+08.91	RAMP 3 RETURN - NOTCH & WIDEN RT.	67.52							20.22	151.69	220.00	16.69	20.22	151.69	330.00	25.03	22.12	165.95	550.00	45.64	62.56	469.34	0.03	14.08
337+00.00	350+50.90	RAMP 4 - OVERLAY	1350.90			33.09	4966.81	220.00	546.35																
337+00.00	340+00.00	RAMP 4 - NOTCH & WIDEN LT.	300.00	62.25	186.75					3.83	127.67	220.00	14.04	3.92	130.67	330.00	21.56	4.06	135.33	550.00	37.22	11.81	393.67	0.03	11.81
340+00.00	349+53.42	RAMP 4 - NOTCH & WIDEN LT.	953.42	62.25	593.50					9.91	1049.82	220.00	115.48	10.03	1062.53	330.00	175.32	10.24	1084.78	550.00	298.31	30.18	3197.14	0.03	95.91
349+53.42	350+50.90	RAMP 4 RETURN - NOTCH & WIDEN LT.	97.48							7.28	78.85	220.00	8.67									7.28	78.85	0.03	2.37
349+53.42	350+25.98	RAMP 4 RETURN - NOTCH & WIDEN RT.	72.56							6.33	51.03	220.00	5.61									6.33	51.03	0.03	1.53
I-49																									
327+22.39	330+22.39	COLD MILL & INLAY	300.00			6.71	223.67	220.00	24.60													6.71	223.67	0.10	22.37
324+22.39	330+22.39	I-49 AUXILARY LANE - FULL DEPTH	600.00	20.50	123.00	12.00	800.00	220.00	88.00	5.95	396.67	220.00	43.63	6.05	403.33	330.00	66.55	6.22	414.67	550.00	114.03	24.00	1600.00	0.03	48.00
ADDITIONAL FOR LEVELING																									
17+89.31	20+13.59	ELM SPRINGS RD. - LEVELING - LT.	224.28			21.00	523.32	440.00	115.13													21.00	523.32	0.03	15.70
17+89.31	20+13.59	ELM SPRINGS RD. - LEVELING - RT.	224.28			21.00	523.32	110.00	28.78													21.00	523.32	0.03	15.70
26+20.00	26+97.25	ELM SPRINGS RD. - LEVELING - LT.	77.25			21.00	180.25	220.00	19.83													21.00	180.25	0.03	5.41
26+20.00	26+97.25	ELM SPRINGS RD. - LEVELING - RT.	77.25			21.00	180.25	110.00	9.91													21.00	180.25	0.03	5.41
26+97.25	27+97.25	ELM SPRINGS RD. - LEVELING - RT.	100.00			47.04	522.67	110.00	28.75													47.04	522.67	0.10	52.27
342+90.00	348+17.96	RAMP 1 - LEVELING	527.96			18.31	1074.11	110.00	59.08													18.31	1074.11	0.10	107.41
346+95.93	347+90.13	RAMP 2 - LEVELING	94.20			34.00	355.87	110.00	19.57													34.00	355.87	0.10	35.59
349+41.39	354+50.26	RAMP 3 - LEVELING	508.87			13.27	750.30	110.00	41.27													13.27	750.30	0.10	75.03
337+00.00	350+50.90	RAMP 4 RETURN - LEVELING	1350.90			19.37	2907.44	110.00	159.91													19.37	2907.44	0.10	290.74
TOTALS:					1863.59		26186.03		2590.75		5839.26		665.39		5281.12		871.40		5595.72		1538.82		30052.12		1717.88

BASIS OF ESTIMATE:
ACHM SURFACE COURSE (1/2").....94.5% MIN. AGGR.....5.5% ASPHALT BINDER
ACHM BINDER COURSE (1").....95.7% MIN. AGGR.....4.3% ASPHALT BINDER
ACHM BASE COURSE (1 1/2").....96.0% MIN. AGGR.....4.0% ASPHALT BINDER
MAXIMUM NUMBER OF GYRATIONS = 160 FOR PG 70-22
MAXIMUM NUMBER OF GYRATIONS = 205 FOR PG 76-22

USER: fs913
DESIGN FILE: G:\12103303_ElmSprngRd\TRANSP\dgn\quantities\BB0413 Qty.dgn MODEL: QUANTITIES
PLOTTED: 1/26/2016 12:01 SCALE: 1:1

QUANTITIES

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	37	160
① 05945	BRIDGE QUANTITIES			56872

SCHEDULE OF BRIDGE QUANTITIES - JOB NO. BB0413

BRIDGE NO.	CODE NO.	NAME PLATE TITLE	UNIT OF STRUCTURE	ITEM NO.	801	802	802	803	804	804	805 ①	805	806	806	SP & 807	807 ②	808	809	812	816	820 ②	821	SP JOB BB0413	SP JOB BB0413 ③
				ITEM	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE	CLASS S CONCRETE -BRIDGE	CLASS S (AE) CONCRETE -BRIDGE	CLASS 2 PROTECTIVE SURFACE TREATMENT	REINFORCING STEEL - BRIDGE (GRADE 60)	EPOXY COATED REINFORCING STEEL (GRADE 60)	STEEL PILING (HP 12X53)	PREBORING	METAL BRIDGE RAILING (TYPE H)	TRANSITIONAL APPROACH RAILING	STRUCTURAL STEEL IN BEAM SPANS (M 270, GRADE 50)	PAINTING STRUCTURAL STEEL	ELASTOMERIC BEARINGS	SILICONE JOINT SEALANT	BRIDGE NAME PLATE (TYPE D)	CONCRETE RIPRAP	CLEANING AND PAINTING EXISTING STRUCTURAL STEEL (TYPE II)	MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO.)	ARCHITECTURAL FINISH	TEXTURED COATING FINISH
				UNIT	CU. YD.	CU. YD.	CU. YD.	SQ. YD.	LB.	LB.	LIN. FT.	LIN. FT.	LIN. FT.	EACH	LB.	TON	CU. IN.	LIN. FT.	EACH	CU. YD.	TON	LUMP SUM	SQ. FT.	SQ. YD.
05945	X771	ELM SPRINGS ROAD	BENT NO. 1			21.25		10.0	2560		286	144		2	1923					89			37	99
			BENT NO. 2		100	62.31			12588		527	170												271
			BENT NO. 3		92	62.22			12577		408	170												271
			BENT NO. 4		103	62.11			12577		459	170												271
			BENT NO. 5			21.11		10.0	2578		342	180		2	1923					83			37	99
			272'-0" CONT. COMP. W-BEAM UNIT				709.00	2599.0		208370			530		499374	249.6	22068.6	204	1				1633	675
			EXIST. BR. NO. 05945																		175.3	1		
			TOTALS FOR JOB BB0413		295	229.00	709.00	2619.0	42880	208370	2022	834	530	4	503220	249.6	22068.6	204	1	172	175.3	1	1707	1686

① STEEL PILING (GRADE 50) SHALL HAVE SPECIAL DRIVING POINTS WHICH SHALL NOT BE PAID FOR DIRECTLY, BUT SHALL BE CONSIDERED SUBSIDIARY TO THE ITEM "STEEL PILING (HP 12X53)."

② THE COLOR OF PAINT FOR STRUCTURAL STEEL SHALL CONFORM TO FEDERAL STD. 595B, COLOR CHIP NO. 20108 (DARK BROWN).

③ THE COLOR FOR TEXTURED COATING FINISH SHALL CONFORM TO FEDERAL STD. 595B, COLOR CHIP NO. 33522 (LIGHT BROWN) & NO. 30219 (MEDIUM BROWN).

STATE OF ARKANSAS
Jose K. Joseph
REGISTERED PROFESSIONAL ENGINEER
No. 15634
JOSE K. JOSEPH
1/28/16

SCHEDULE OF BRIDGE QUANTITIES
INTERSTATE 49 (ELM SPRINGS RD.)
ELM SPRINGS RD. INTCHNG. IMPVTS. (F)
WASHINGTON COUNTY
ROUTE 49 SEC. 28
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: LLW DATE: 01-28-15 FILENAME: bbb0413_qt.dgn
CHECKED BY: CAW DATE: 03-02-15 SCALE: NOT TO SCALE
DESIGNED BY: LLW DATE: 01-28-15
BRIDGE NO. 05945 DRAWING NO. 56872

USER: lw7300
DESIGN FILE: G:\2103303.ElmSpringRd\TRANSP\dgn\bridge\bbb0413_qt.dgn
PLOTTED: 1/28/2016 16:55 SCALE: 2:1

USER: fs513
DESIGN FILE: G:\12103303_ElmSprngRd\TRANSP\dgn\quantities\BB0413 Qty.dgn
PLOTTED: 2/25/2016 16:26 SCALE: 16:1 MODEL: QUANTITIES

SUMMARY OF QUANTITIES (BOX 1 OF 2)

	ITEM NUMBER	ITEM		QUANTITY	UNIT
	202	REMOVAL AND DISPOSAL OF FENCE		2082	LIN. FT.
	202	REMOVAL AND DISPOSAL OF CURB AND GUTTER		435	LIN. FT.
	202	REMOVAL AND DISPOSAL OF CONCRETE ISLANDS		13	SQ. YD.
	202	REMOVAL AND DISPOSAL OF CONCRETE WALKS		98	SQ. YD.
	202	REMOVAL AND DISPOSAL OF GUARDRAIL		552	LIN. FT.
	202	REMOVAL AND DISPOSAL OF APPROACH SLAB AND GUTTERS		2	EACH
	210	UNCLASSIFIED EXCAVATION		11789	CU. YD.
	210	COMPACTED EMBANKMENT		18054	CU. YD.
	SP & 210	SOIL STABILIZATION		40	TON
	303	AGGREGATE BASE COURSE (CLASS 7)		1864	TON
	309	PORTLAND CEMENT CONCRETE BASE (3" UNIFORM THICKNESS)		557	SQ. YD.
	309	PORTLAND CEMENT CONCRETE BASE (5" UNIFORM THICKNESS)		876	SQ. YD.
	SS & 401	TACK COAT		1773	GAL.
	SP & 405	MINERAL AGGREGATE IN ACHM BASE COURSE (1 1/2")		1477	TON
	SP & 405	ASPHALT BINDER (PG70-22) IN ACHM BASE COURSE (1 1/2")		62	TON
	SP, SS & 406	MINERAL AGGREGATE IN ACHM BINDER COURSE (1")		834	TON
	SP, SS & 406	ASPHALT BINDER (PG70-22) IN ACHM BINDER COURSE (1")		37	TON
	SP, SS & 407	MINERAL AGGREGATE IN ACHM SURFACE COURSE (1/2")		3077	TON
	SP, SS & 407	ASPHALT BINDER (PG76-22) IN ACHM SURFACE COURSE (1/2")		179	TON
	412	COLD MILLING ASPHALT PAVEMENT		5861	SQ. YD.
	601	MOBILIZATION		1.00	LUMP SUM
	SP & 602	FURNISHING FIELD OFFICE		1	EACH
	SP & 603	MAINTENANCE OF TRAFFIC		1.00	LUMP SUM
	SS & 604	SIGNS		1269	SQ. FT.
	SS & 604	TRAFFIC DRUMS		128	EACH
	SS & 604	VERTICAL PANELS		47	EACH
	604	REMOVABLE CONSTRUCTION PAVEMENT MARKINGS		3865	LIN. FT.
	604	REMOVAL OF PERMANENT PAVEMENT MARKINGS		15095	LIN. FT.
	604	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS		12608	LIN. FT.
	604	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS (ARROWS)		39	EACH
	604	REMOVAL OF CONSTRUCTION PAVEMENT MARKINGS (WORDS)		8	EACH
	604	FURNISHING AND INSTALLING PRECAST CONCRETE BARRIER		3567	LIN. FT.
	604	RELOCATING PRECAST CONCRETE BARRIER		466	LIN. FT.
	604	CONSTRUCTION PAVEMENT MARKINGS		19464	LIN. FT.
	604	CONSTRUCTION PAVEMENT MARKINGS (ARROWS)		39	EACH
	604	CONSTRUCTION PAVEMENT MARKINGS (WORDS)		1	EACH
	604	ADVANCE WARNING ARROW PANEL		160	DAY
	SP & 604	PORTABLE CHANGEABLE MESSAGE SIGN		55	WEEK
	605	CONCRETE DITCH PAVING (TYPE B)		115	SQ. YD.
	606	18" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		93	LIN. FT.
	606	30" REINFORCED CONCRETE PIPE CULVERTS (CLASS III)		22	LIN. FT.
	606	18" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		8	EACH
	606	30" FLARED END SECTIONS FOR REINFORCED CONCRETE PIPE CULVERTS		1	EACH
	606	SELECTED PIPE BEDDING		30	CU. YD.
	609	DROP INLETS (TYPE MO)		8	EACH
	609	DROP INLET EXTENSIONS (4')		4	EACH
	619	WIRE FENCE (TYPE A)		1959	LIN. FT.
	620	LIME		14	TON
	620	SEEDING		7.10	ACRE
	SS & 620	MULCH COVER		14.20	ACRE
	620	WATER		848.6	M. GAL.
	621	TEMPORARY SEEDING		7.10	ACRE
	621	SILT FENCE		3221	LIN. FT.
	621	SAND BAG DITCH CHECKS		653	BAG
	621	DROP INLET SILT FENCE		194	LIN. FT.
	621	SEDIMENT REMOVAL AND DISPOSAL		306	CU. YD.
	621	ROCK DITCH CHECKS		85	CU. YD.
	621	WATTLE (12")		100	LIN. FT.
	623	SECOND SEEDING APPLICATION		6.89	ACRE
	624	SOLID SODDING		124	SQ. YD.
	631	CONCRETE BARRIER WALL (MEDIAN TYPE SPECIAL)		245	LIN. FT.
	632	CONCRETE ISLAND		57	SQ. YD.
	633	CONCRETE WALKS		1420	SQ. YD.
	634	CONCRETE COMBINATION CURB AND GUTTER (TYPE A) (1' 6")		2111	LIN. FT.
	635	ROADWAY CONSTRUCTION CONTROL		1.00	LUMP SUM
	640	MODIFYING DROP INLETS		2	EACH
	641	WHEELCHAIR RAMPS (TYPE 3)		117	SQ. YD.
	SP & 701	SYSTEM LOCAL CONTROLLER TS 2 -TYPE 2, E-NET (8 PHASES)		2	EACH
	SP & 706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)		21	EACH
	SP & 706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)		1	EACH
	SP & 707	COUNTDOWN PEDESTRIAN SIGNAL HEAD, LED		14	EACH
	708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)		3931	LIN. FT.
	708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)		247	LIN. FT.
	708	TRAFFIC SIGNAL CABLE (12C/14 A.W.G.)		139	LIN. FT.
	708	TRAFFIC SIGNAL CABLE (20C/14 A.W.G.)		915	LIN. FT.
	709	GALVANIZED STEEL CONDUIT (1.25")		20	LIN. FT.
	710	NON-METALLIC CONDUIT (2")		205	LIN. FT.
	710	NON-METALLIC CONDUIT (3")		714	LIN. FT.
	711	CONCRETE PULL BOX (TYPE 1)		1	EACH
	711	CONCRETE PULL BOX (TYPE 1 HD)		4	EACH
	711	CONCRETE PULL BOX (TYPE 2)		1	EACH
	711	CONCRETE PULL BOX (TYPE 2 HD)		8	EACH
	713	SPAN WIRE ASSEMBLY		1	EACH
	714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (34')		2	EACH
	714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (38')		1	EACH
	714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (42')		1	EACH
	714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (48')		1	EACH
	714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (56')		1	EACH
	714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (70')		1	EACH
	715	TRAFFIC SIGNAL PEDESTAL POLE WITH FOUNDATION		6	EACH
	716	TREATED WOOD POLE (CLASS 3, 40')		1	EACH
	718	REFLECTORIZED PAINT PAVEMENT MARKING WHITE (10")		138	LIN. FT.
	719	THERMOPLASTIC PAVEMENT MARKING WHITE (4")		908	LIN. FT.
	719	THERMOPLASTIC PAVEMENT MARKING WHITE (8")		222	LIN. FT.
	719	THERMOPLASTIC PAVEMENT MARKING WHITE (12")		1298	LIN. FT.
	719	THERMOPLASTIC PAVEMENT MARKING YELLOW (4")		3433	LIN. FT.
	719	THERMOPLASTIC PAVEMENT MARKING YELLOW (12")		246	LIN. FT.
	719	THERMOPLASTIC PAVEMENT MARKING (WORDS)		15	EACH
	719	THERMOPLASTIC PAVEMENT MARKING (ARROWS)		21	EACH
*	SP & 719	INVERTED PROFILE THERMOPLASTIC PAVEMENT MARKING WHITE (4")	(ALTERNATE NO. 1)	7465	LIN. FT.
*	SP	HIGH PERFORMANCE MARKING TAPE WHITE (4")	(ALTERNATE NO. 2)	7465	LIN. FT.
*	SP & 719	INVERTED PROFILE THERMOPLASTIC PAVEMENT MARKING (SKIP LINE) WHITE (4")	(ALTERNATE NO. 1)	393	LIN. FT.
*	SP	HIGH PERFORMANCE MARKING TAPE (SKIP LINE) WHITE (4")	(ALTERNATE NO. 2)	393	LIN. FT.
*	SP & 719	INVERTED PROFILE THERMOPLASTIC PAVEMENT MARKING WHITE (8")	(ALTERNATE NO. 1)	144	LIN. FT.
*	SP	HIGH PERFORMANCE MARKING TAPE WHITE (8")	(ALTERNATE NO. 2)	144	LIN. FT.

* DENOTES ALTERNATE BID ITEMS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
PAUL DAVIS
2-25-16

SUMMARY OF QUANTITIES

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Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
02-25-16			

2

SUMMARY OF QUANTITIES

DESIGN DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.		38	160

JOB NO. BB0413

USER: dd5109
DESIGN FILE: G:\12103303_ElmSpringRd\TRANSP\dgn\quantities\BB0413 Qty.dgn
PLOTTED: 3/9/2016 14:59 SCALE: 16:1 MODEL: QUANTITIES

SUMMARY OF QUANTITIES (BOX 2 OF 2)

	ITEM NUMBER	ITEM		QUANTITY	UNIT
*	SP & 719	INVERTED PROFILE THERMOPLASTIC PAVEMENT MARKING YELLOW (4")	(ALTERNATE NO. 1)	1090	LIN. FT.
*	SP	HIGH PERFORMANCE MARKING TAPE YELLOW (4")	(ALTERNATE NO. 2)	1090	LIN. FT.
*	SP & 719	INVERTED PROFILE THERMOPLASTIC PAVEMENT MARKING YELLOW (12")	(ALTERNATE NO. 1)	246	LIN. FT.
*	SP	HIGH PERFORMANCE MARKING TAPE YELLOW (12")	(ALTERNATE NO. 2)	246	LIN. FT.
*	SP & 719	INVERTED PROFILE THERMOPLASTIC CONTRAST PAVEMENT MARKING WHITE (4")	(ALTERNATE NO. 1)	130	LIN. FT.
*	SP	HIGH PERFORMANCE CONTRAST MARKING TAPE WHITE (4")	(ALTERNATE NO. 2)	130	LIN. FT.
	721	RAISED PAVEMENT MARKERS (TYPE II)		34	EACH
	731	TEMPORARY IMPACT ATTENUATION BARRIER		2	EACH
	731	TEMPORARY IMPACT ATTENUATION BARRIER (REPAIR)		2	EACH
	733	VIDEO MONITOR (CLR)		2	EACH
	SP & 733	VIDEO PROCESSOR, EDGE CARD (2 CAMERA)		7	EACH
	SP & 733	VEHICLE DETECTOR RACK (16 CHANNEL)		2	EACH
	SP	TRAFFIC SIGNAL CONTROLLER (MODIFICATION)		1	EACH
	816	DUMPED RIPRAP		40	CU. YD.
	816	FILTER BLANKET		72	SQ. YD.
	SP	18" STREET NAME SIGN		2	EACH
	SP	ATCS PROCESSING UNIT		2	EACH
	SP	ELECTRICAL CONDUCTORS FOR LUMINAIRES		813	LIN. FT.
	SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/ 8 A.W.G., E.G.C.)		974	LIN. FT.
	SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/ 6 A.W.G.)		20	LIN. FT.
	SP	ETHERNET SWITCH T100 HARDENED (8-PORT)		2	EACH
	SP	LED LUMINAIRE ASSEMBLY		5	EACH
	SP	NET-ACCESS RADIO (5.8 GHz, 32 MBPS)		1	EACH
	SP	NET-SUBSCRIBER RADIO (5.8 GHz, 32 MBPS)		1	EACH
	SP	NETWORK CABLE, EXTERIOR, CAT 5		2797	LIN. FT.
	SP	RELOCATION OF TRAFFIC SIGNAL HEAD		23	EACH
	SP	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT		1.00	LUMP SUM
	SP	SERVICE POINT ASSEMBLY (2 CIRCUITS)		1	EACH
	SP	VIDEO DETECTOR (IP)		13	EACH
	SP	VIDEO DETECTOR ROTATION		7	EACH
		STRUCTURES OVER 20'-0" SPAN			
	636	BRIDGE CONSTRUCTION CONTROL		1.00	LUMP SUM
	801	UNCLASSIFIED EXCAVATION FOR STRUCTURES-BRIDGE		295	CU. YD.
	802	CLASS S CONCRETE-BRIDGE		229.00	CU. YD.
	802	CLASS S (AE) CONCRETE-BRIDGE		709.00	CU. YD.
	803	CLASS 2 PROTECTIVE SURFACE TREATMENT		2619.0	SQ. YD.
	804	REINFORCING STEEL-BRIDGE (GRADE 60)		42880	LB.
	804	EPOXY COATED REINFORCING STEEL (GRADE 60)		208370	LB.
	805	STEEL PILING (HP 12X53)		2022	LIN. FT.
	805	PREBORING		834	LIN. FT.
	806	METAL BRIDGE RAILING (TYPE H)		530	LIN. FT.
	806	TRANSITIONAL APPROACH RAILING		4	EACH
	SP & 807	STRUCTURAL STEEL IN BEAM SPANS (M270-GR50)		503220	LB.
	807	PAINTING STRUCTURAL STEEL		249.6	TON
	808	ELASTOMERIC BEARINGS		22068.6	CU. IN.
	809	SILICONE JOINT SEALANT		204	LIN. FT.
	812	BRIDGE NAME PLATE (TYPE D)		1	EACH
	816	CONCRETE RIPRAP		172	CU. YD.
	820	CLEANING AND PAINTING EXISTING STRUCTURAL STEEL (TYPE II)		175.3	TON
	821	MODIFICATION OF EXISTING BRIDGE STRUCTURE (BRIDGE NO. 05945)		1.00	LUMP SUM
	SP	TEXTURED COATING FINISH		1686	SQ. YD.
	SP	ARCHITECTURAL FINISH		1707	SQ. FT.

* DENOTES ALTERNATE BID ITEMS.

REVISIONS

DATE	REVISION	SHEET NUMBER
2/25/2016	ADDED SHTS.12A,118A, ITEM MOD. DROP INLETS, SP "MANDATORY ELECTRONIC DOCUMENT SUBMITTAL",ADDED SPECIAL DETAIL, ADDED ITEM CONCRETE BARRIER WALL TYPE SPECIAL	2,3,12A,34,35,38,39,118A
3/7/2016	REVISED CONCRETE RIPRAP NOTE FOR CLARITY	39,76

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
PAUL DAVIS
3-07-16

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED
02-25-16			
03-07-16			

2

RECORD DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.	BB0413	39	160

SUMMARY OF QUANTITIES & REVISIONS

SUMMARY OF QUANTITIES & REVISIONS

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SURVEY CONTROL COORDINATES

Project Name: BB0413 - Survey Ctl
Date: 1/31/2013
Coordinate System: ARKANSAS STATE PLANE - NORTH ZONE BASED ON GPS CONTROL.
PROJECTED TO GROUND.
Units: U.S. SURVEY FOOT

Point Name	Northing	Easting	Elev	Feature	Description
100	640169.1054	661396.8193	1280.75	GPS	*AHTD GPS 720034A
101	642492.8042	662000.3683	1275.92	GPS	*AHTD GPS 720034
102	653467.9567	671555.8815	1248.19	GPS	*AHTD GPS 720018 RESET
103	633341.4840	667878.9163	1259.23	GPS	*AHTD GPS 720032
104	649060.6371	669973.0200	1294.44	GPS	*AHTD GPS AGRONOMY
105	677788.3766	667280.2309	1342.73	GPS	*AHTD GPS MON. 720021
814	675150.3965	666949.4555	1339.90	TBM	CUT SQUARE I-49 SPRINGDALE
815	676056.1725	667036.4844	1328.11	TBM	CUT SQUARE I-49 SPRINGDALE
816	677596.9434	667166.6304	1343.89	TBM	STANDRD AHTD DISK I-49 SPRINGDALE
817	678582.0153	667888.4438	1322.05	TBM	CUT SQUARE I-49 SPRINGDALE
818	679286.1216	668634.7391	1310.16	TBM	CUT SQUARE I-49 SPRINGDALE
819	679924.6949	669323.6822	1307.87	TBM	STANDARD AHTD DISK I-49 SPRINGDALE
820	680885.9025	669392.5290	1303.88	TBM	CUT SQUARE I-49 SPRINGDALE
821	681852.8287	669529.0968	1295.80	TBM	CUT SQUARE I-49 SPRINGDALE
822	682735.5684	669429.2921	1312.21	TBM	CUT SQUARE I-49 SPRINGDALE
823	683723.9709	669282.3046	1323.41	TBM	CUT SQUARE I-49 SPRINGDALE
824	684162.8681	669059.8146	1347.42	TBM	STNDARD AHTD DISK I-49 SPRINGDALE
825	684651.1496	669100.6476	1325.82	TBM	CUT SQUARE I-49 SPRINGDALE
826	686397.2785	668757.7934	1322.49	TBM	CUT SQUARE I-49 SPRINGDALE
827	687405.2743	668601.8782	1295.80	TBM	CUT SQUARE I-49 SPRINGDALE
828	688459.0128	668606.6750	1268.20	TBM	CUT SQUARE TOPO REFERENCE I-49
829	689454.7757	668641.5137	1253.71	TBM	CUT SQUARE I-49 SPRINGDALE
830	690456.5871	668674.5849	1238.53	TBM	CUT SQUARE TOPO REFERENCE I-49
831	692253.2638	668772.7495	1204.07	TBM	CUT SQUARE I-49 SPRINGDALE
832	693921.4329	669181.1496	1207.51	TBM	AHTD STANDARD DISK I-49 SPRINGDALE
833	695077.5816	669455.7700	1231.14	TBM	CUT SQUARE I-49 SPRINGDALE
834	696085.4336	669577.2630	1269.53	TBM	AHTD STANDARD DISK I-49 SPRINGDALE
835	696147.7431	669729.0929	1249.04	TBM	CUT SQUARE IN BASE OF CABLE ANCHOR
836	697361.4812	670189.6200	1255.54	TBM	CUT SQUARE BASE OF SIGN POST I-49
837	697873.0298	670798.9527	1249.67	TBM	CUT SQUARE I-49 SPRINGDALE
838	663358.6967	669673.9011	1166.97	TBM	CUT SQUARE I-49 SPRINGDALE
839	664013.1356	668574.3497	1177.80	TBM	CUT SQUARE I-49 SPRINGDALE
840	664476.8190	666870.8289	1217.35	TBM	CUT SQUARE I-49 SPRINGDALE
841	672399.9763	667762.9441	1368.36	TBM	CUT SQUARE I-49 SPRINGDALE
842	672533.1206	665671.8776	1340.87	TBM	CUT X IN BOLT TOP OF FIRE HYDRANT NOR
843	677611.8585	668402.7333	1336.54	TBM	SQ CUT I-49 SPRINGDALE
844	677723.2483	667456.8014	1320.81	TBM	CUT SQUARE I-49 SPRINGDALE
845	677831.8011	665890.0752	1311.49	TBM	CUT SQUARE TOPO REFERENCE I-49
846	684085.6799	670499.6823	1327.89	TBM	CUT SQUARE I-49 SPRINGDALE
847	684300.4515	668165.6510	1326.98	TBM	CUT SQUARE I-49 SPRINGDALE
848	695954.8793	671385.8961	1277.72	TBM	CUT X IN TOP FIRE HYDRANT 30' SOUTH O
900	628878.7558	667768.5363	1241.400	BM	NGS MARK Q 310 1989
901	630043.7573	667673.8200	1238.13	BM	USGS BRASS CAP STAMPED J27 1932 ON RR
902	630402.1391	666376.6382	1236.22	BM	SQUARE CUT IN CENTER OF
903	631080.5412	664628.4634	1264.00	BM	SQUARE CUT IN NORTH END OF
904	632305.5167	664208.7706	1255.67	BM	SQUARE CUT IN NORTH END OF
905	633473.2935	663792.7270	1281.19	BM	SQUARE CUT IN SOUTHEAST CORNER
906	633921.1975	664933.4096	1271.16	BM	SQUARE CUT IN CATCH BASIN OF
907	633675.7703	663971.8881	1260.27	BM	SQUARE CUT IN EAST END OF
908	633504.7763	663320.9446	1263.29	BM	SQUARE CUT IN BASE OF SIGNAL PO
909	633249.1651	662521.6654	1271.35	BM	SQUARE CUT IN BACK OF CATCH BAS
910	634355.2251	663171.6127	1270.74	BM	SQUARE CUT IN CATCH BASIN AT
911	635730.1559	662823.4266	1288.76	BM	SQUARE CUT IN NORTH END OF DROP
912	636492.2009	662518.6182	1301.23	BM	SQUARE CUT IN NORTH END DROP IN
913	637663.4835	662121.9048	1314.59	BM	SQUARE CUT IN CENTER OF HEADWAL
914	638878.4338	661648.2244	1306.16	BM	SQUARE CUT IN SOUTH END OF DROP
915	639793.2972	661403.6930	1287.12	BM	SQUARE CUT IN NORTH END OF DROP
916	641046.6726	661547.1748	1261.59	BM	SQUARE CUT IN SOUTH END OF DROP
917	642251.6212	662040.1656	1252.44	BM	SQUARE CUT IN SOUTH END OF DROP
918	642328.1703	663510.3170	1237.98	BM	SQUARE CUT IN NORTH END OF HEAD
919	642386.4913	662630.1447	1252.07	BM	SQUARE CUT IN BASE OF SIGNAL PO
920	642429.8510	661981.2351	1276.95	BM	SQUARE CUT IN SOUTHWEST CORNER
921	642513.8388	660570.8018	1259.06	BM	SQUARE CUT IN SOUTHWEST CORNER
922	643730.0947	662693.6999	1242.56	BM	SQUARE CUT IN DROP INLET OF
923	644359.6922	663057.1469	1230.17	BM	SQUARE CUT IN NORTH HEADWALL
924	645385.4266	663686.1538	1243.41	BM	SQUARE CUT IN CENTER HEADWALL
925	646539.4485	664464.8199	1262.89	BM	SQUARE CUT SOUTHEAST CORNER OF
926	645318.5647	664525.1971	1251.41	BM	SQUARE CUT IN CENTER OF HEADWAL
927	646664.6400	664563.0374	1242.31	BM	AHTD DISK SET IN CENTER HEADWAL
928	647631.3199	664398.3182	1267.14	BM	SQUARE CUT IN CENTER OF HEADWAL
929	647645.5263	663483.3369	1263.21	BM	SQUARE CUT IN TOP OF CATCH BASI
930	647717.9656	665202.6045	1274.60	BM	SQUARE CUT IN DROP INLET IN
931	648749.5405	665911.1776	1289.20	BM	SQUARE CUT IN DROP INLET IN
932	650169.8197	666888.1341	1269.24	BM	SQUARE CUT IN DROP INLET IN
933	650870.2209	667367.0251	1244.36	BM	SQUARE CUT IN DROP INLET IN
934	651672.7665	668004.1838	1224.75	BM	SQUARE CUT IN DROP INLET NORTH
935	652160.4629	668439.7602	1223.85	BM	SQUARE CUT IN DROP INLET NORTH
936	652756.9200	669508.3771	1223.31	BM	SQUARE CUT CENTER OF STORM MANH
937	653287.5617	670520.0001	1222.93	BM	SQUARE CUT EAST END OF HEADWALL
938	653627.8408	671911.7083	1217.92	BM	SQUARE CUT IN HEADWALL SOUTH OF
939	654208.6324	673193.6049	1237.16	BM	SQUARE CUT IN NORTHWEST CORNER
940	654204.2767	673331.5908	1212.080	BM	NGS MARK K 310 1989 ST VT
941	653340.7783	670098.6661	1245.66	BM	SQUARE CUT IN NORTHEAST CORNER
942	653108.5117	670376.6307	1245.10	BM	AHTD CAP
943	653475.3610	671554.3789	1248.57	BM	SOUTHEAST CORNER OF BR*5916
944	653776.8049	671641.1146	1246.91	BM	SQUARE CUT NORTHEAST CORNER OF
945	654749.2107	671238.0484	1220.41	BM	SQ CUT

SURVEY CONTROL COORDINATES (CONTINUED)

Point Name	Northing	Easting	Elev	Feature	Description
946	655456.7223	669850.5221	1219.73	BM	SQUARE CUT AT BASE OF HWY SIGN
947	656439.6900	669472.2127	1251.72	BM	SQUARE CUT SOUTHEAST CORNER OF
948	657722.2372	668897.5404	1287.97	BM	SQUARE CUT BASE OF HWY SIGN
949	653646.2268	670335.2791	1218.37	BM	SQUARE CUT IN CENTER OF HEADWAL
950	652711.9785	668498.6783	1233.33	BM	SET IN BASE OF SIGNAL LIGHT
951	653529.8248	668453.6313	1209.83	BM	SQUARE CUT IN BASE OF SIGNAL PO
952	654555.0208	668310.9906	1207.74	BM	PAINTED BOLT ON FIRE HYDRANT
1019	674861.4731	667017.3728	1345.90	CTL	*5/8" Rebar with 2" Aluminum Cap
1020	675656.6157	667020.1311	1334.75	CTL	*5/8" Rebar with 2" Aluminum Cap
1021	676562.1404	667031.0014	1327.51	CTL	*5/8" Rebar with 2" Aluminum Cap
1022	677302.6668	667151.4325	1339.10	CTL	*5/8" Rebar with 2" Aluminum Cap
1023	678374.7823	667780.1725	1327.07	CTL	*5/8" Rebar with 2" Aluminum Cap
1024	679488.9632	669056.6742	1315.59	CTL	*5/8" Rebar with 2" Aluminum Cap
1025	680212.3344	669394.6040	1312.21	CTL	*5/8" Rebar with 2" Aluminum Cap
1026	680972.0889	669466.5725	1305.26	CTL	*5/8" Rebar with 2" Aluminum Cap
1027	681829.5051	669502.1539	1302.57	CTL	*5/8" Rebar with 2" Aluminum Cap
1028	682685.1071	669508.1718	1314.96	CTL	*5/8" Rebar with 2" Aluminum Cap
1029	683446.0375	669407.4681	1324.25	CTL	*5/8" Rebar with 2" Aluminum Cap
1030	684086.8276	669283.7225	1325.70	CTL	*5/8" Rebar with 2" Aluminum Cap
1031	684887.2617	669126.1376	1328.49	CTL	*5/8" Rebar with 2" Aluminum Cap
1032	685737.7229	668966.7821	1330.26	CTL	*5/8" Rebar with 2" Aluminum Cap
1033	686559.2991	668800.7561	1321.35	CTL	*5/8" Rebar with 2" Aluminum Cap
1034	687403.3259	668673.7495	1297.29	CTL	*5/8" Rebar with 2" Aluminum Cap
1035	688125.4877	668664.0489	1276.36	CTL	*5/8" Rebar with 2" Aluminum Cap
1036	689063.5449	668698.2032	1261.49	CTL	*5/8" Rebar with 2" Aluminum Cap
1037	689866.0135	668726.0337	1249.47	CTL	*5/8" Rebar with 2" Aluminum Cap
1038	690678.3234	668755.2629	1235.78	CTL	*5/8" Rebar with 2" Aluminum Cap
1039	691515.9389	668784.8614	1216.95	CTL	*5/8" Rebar with 2" Aluminum Cap
1040	692309.7895	668850.4769	1204.61	CTL	*5/8" Rebar with 2" Aluminum Cap
1041	693038.8307	669006.2954	1197.46	CTL	*5/8" Rebar with 2" Aluminum Cap
1042	693885.5393	669220.8458	1205.81	CTL	*5/8" Rebar with 2" Aluminum Cap
1043	694613.7071	669409.3258	1226.61	CTL	*5/8" Rebar with 2" Aluminum Cap
1044	695415.8267	669613.8186	1238.66	CTL	*5/8" Rebar with 2" Aluminum Cap
1045	696193.5041	669813.8825	1249.89	CTL	*5/8" Rebar with 2" Aluminum Cap
1046	663847.1736	668826.5892	1164.98	CTL	*5/8" Rebar with 2" Aluminum Cap
1047	664099.4386	668220.3901	1186.68	CTL	*5/8" Rebar with 2" Aluminum Cap
1048	664422.7548	667587.4159	1217.37	CTL	*5/8" Rebar with 2" Aluminum Cap
1049	664494.4587	667061.0353	1221.09	CTL	*5/8" Rebar with 2" Aluminum Cap
1050	663872.8188	667646.1646	1202.90	CTL	*5/8" Rebar with 2" Aluminum Cap
1051	664625.9869	668198.5114	1211.22	CTL	*5/8" Rebar with 2" Aluminum Cap
1052	664868.3885	667631.7937	1233.11	CTL	*5/8" Rebar with 2" Aluminum Cap
1053	672395.6435	667752.2248	1367.51	CTL	*5/8" Rebar with 2" Aluminum Cap
1054	672430.2882	667084.9902	1377.15	CTL	*5/8" Rebar with 2" Aluminum Cap
1055	672484.6845	666624.7460	1365.60	CTL	*5/8" Rebar with 2" Aluminum Cap
1056	672517.5565	665673.2267	1339.47	CTL	*5/8" Rebar with 2" Aluminum Cap
1057	677028.0127	667277.7174	1332.32	CTL	*5/8" Rebar with 2" Aluminum Cap
1058	677613.7238	668160.3457	1337.79	CTL	*5/8" Rebar with 2" Aluminum Cap
1059	677618.6711	667592.7734	1322.58	CTL	*5/8" Rebar with 2" Aluminum Cap
1060	677669.6500	666785.4386	1331.13	CTL	*5/8" Rebar with 2" Aluminum Cap
1061	677819.0905	665839.0262	1312.12	CTL	*5/8" Rebar with 2" Aluminum Cap
1062	677069.6285	666851.5159	1334.28	CTL	*5/8" Rebar with 2" Aluminum Cap
1063	678115.0853	666896.2937	1324.13	CTL	*5/8" Rebar with 2" Aluminum Cap
1064	678314.5782	667420.4594	1331.82	CTL	*5/8" Rebar with 2" Aluminum Cap
1065	683495.3493	669629.6844	1330.82	CTL	*5/8" Rebar with 2" Aluminum Cap
1066	684080.9489	670540.8811	1327.50	CTL	*5/8" Rebar with 2" Aluminum Cap
1067	684113.0228	669736.8921	1334.89	CTL	*5/8" Rebar with 2" Aluminum Cap
1068	684241.8008	668727.0606	1333.58	CTL	*5/8" Rebar with 2" Aluminum Cap
1069	684308.7735	667766.8428	1323.96	CTL	*5/8" Rebar with 2" Aluminum Cap
1070	683639.0505	668868.2830	1329.64	CTL	*5/8" Rebar with 2" Aluminum Cap
1071	684667.9812	669526.3772	1332.65	CTL	*5/8" Rebar with 2" Aluminum Cap
1072	685027.3095	668854.3169	1329.72	CTL	*5/8" Rebar with 2" Aluminum Cap
1073	695353.6289	669704.9629	1242.56	CTL	*5/8" Rebar with 2" Aluminum Cap
1074	695997.7953	671061.4675	1277.05	CTL	*5/8" Rebar with 2" Aluminum Cap
1075	696027.3723	670195.2037	1269.91	CTL	*5/8" Rebar with 2" Aluminum Cap
1076	696087.3095	669187.8881	1266.89	CTL	*5/8" Rebar with 2" Aluminum Cap
1077	695539.1338	669361.3872	1250.33	CTL	*5/8" Rebar with 2" Aluminum Cap
1078	696543.9434	670146.2695	1260.98	CTL	*5/8" Rebar with 2" Aluminum Cap
1079	696499.1217	669424.9629	1267.37	CTL	*5/8" Rebar with 2" Aluminum Cap
7252	682899.2238	669477.3389	1319.00	CTL	MAG NAIL LIDAR TARGET
7253	684759.4848	669143.6424	1329.09	CTL	MAG NAIL LIDAR TARGET
7254	685362.4566	669024.2039	1331.78	CTL	MAG NAIL LIDAR TARGET
7261	684839.6198	668822.9393	1331.02	CTL	MAG NAIL LIDAR TARGET
7262	684236.7150	668689.8362	1333.99	CTL	MAG NAIL LIDAR TARGET
7263	684261.7926	667796.4050	1324.97	CTL	MAG NAIL LIDAR TARGET
7264	684227.8808	667795.3758	1324.62	CTL	MAG NAIL LIDAR TARGET
7265	684183.4365	668685.5369	1333.98	CTL	MAG NAIL LIDAR TARGET
7266	684130.4124	669765.6351	1334.13	CTL	MAG NAIL LIDAR TARGET
7267	684070.1879	670814.4026	1326.08	CTL	MAG NAIL LIDAR TARGET
7268	684141.0133	670817.8256	1326.15	CTL	MAG NAIL LIDAR TARGET
7269	684188.0224	669737.1129	1334.04	CTL	MAG NAIL LIDAR TARGET
7270	684776.5317	669439.0352	1331.82	CTL	MAG NAIL LIDAR TARGET
7271	683805.7676	668801.9725	1330.95	CTL	MAG NAIL LIDAR TARGET
7272	683714.7111	669625.1609	1329.35	CTL	MAG NAIL LIDAR TARGET
7332	686325.6207	668742.9390	1326.86	CTL	MAG NAIL LIDAR TARGET
7333	683597.2749	669278.9570	1325.92	CTL	MAG NAIL LIDAR TARGET
7334	682409.6217	669411.2015	1311.61	CTL	MAG NAIL LIDAR TARGET
7337	682409.5934	669465.4846	1311.20	CTL	MAG NAIL LIDAR TARGET

NOTE: SURVEY CONTROL COORDINATES ARE CONTINUED ON THE NEXT SHEET.

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	40	160

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
JEROME PAUL DAVIS
No. 15560

1-08-16

SURVEY CONTROL DETAILS

USER: dd5109
DESIGN FILE: G:\12103303_ElmSprngRd\TRANSP\dgn\BB0413 Survey Ctl.dgn
PLOTTED: 1/8/2016 13:26 SCALE: 100.0 MODEL: SURVEY CONTROL DETAILS

SURVEY CONTROL COORDINATES (CONTINUED)

Point Name	Northing	Easting	Elev	Feature	Description
7338	683607.5670	669334.5229	1325.88	CTL	MAG NAIL LIDAR TARGET
7339	686336.5655	668798.4031	1327.16	CTL	MAG NAIL LIDAR TARGET
7352	685368.8111	668894.8425	1331.67	CTL	MAG NAIL LIDAR TARGET
7353	684736.5457	669019.9130	1329.14	CTL	MAG NAIL LIDAR TARGET
7354	683013.2926	669341.7761	1318.83	CTL	MAG NAIL LIDAR TARGET
9915	656192.0699	673293.9522	1198.650	BM	NGS MARK A27 1932 BRASS CAP

*Note - Rebar and Cap - Standard - 5/8" Rebar with 2" Aluminum Cap stamped
*(standard markings common to all caps), or as indicated
(other markings indicated in the point description of the individual point).
ALL DISTANCES ARE GROUND.
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT.
A PROJECT CAF OF 0.9999168402 HAS BEEN USED TO COMPUTE THE ABOVE GROUND COORDINATES.
THIS CAF IS INTENDED FOR USE WITHIN THE PROJECT LIMITS.
GRID DISTANCE = GROUND DISTANCE X CAF.
GRID COORDINATES ARE STORED UNDER FILE NAME S012070gi_A.CTL
HORIZONTAL DATUM: NAD 83 (1997)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE AT A SPECIFIC POINT.

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

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 720018 RESET / AGRONOMY - 720032 / 720034 - 720034A
CONVERGENCE ANGLE: 01-16-50.89 LEFT AT LT: 36-04-42.1 LG: 094-12-03.9
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

ELM SPRINGS RD (CL CONST ELM SPRINGS RD)

POINT NAME		STATION	NORTHING	EASTING
8034	POB	12+00.00	684245.3182	668204.7478
8035	PI	20+38.70	684205.2137	669042.4884
8036	PI	23+38.70	684190.4763	669342.1262
8013	PI	26+85.68	684161.0030	669687.8533
8004	POE	32+00.23	684135.0531	670201.7485

I-49 (CL CONST I-49)

POINT NAME		STATION	NORTHING	EASTING
8033	POB	320+00.00	681334.0895	669407.1756
8005	PC	328+42.26	682175.8698	669435.5980
	PI	334+96.40	682829.6368	669457.6723
8006	CC		682369.2168	663709.2833
8007	PT	341+44.90	683471.5555	669331.8195
8002	PI	348+72.80	684185.8566	669191.7756
8008	POE	374+58.80	686723.5442	668694.2437

RAMP 1 (CL CONST RAMP 1)

POINT NAME		STATION	NORTHING	EASTING
8009	PC	333+00.00	682635.6255	669479.2133
	PI	335+00.73	682836.1461	669469.9546
8010	CC		682723.7163	671387.0400
8011	PT	337+00.00	683034.2099	669502.5888
8012	POE	348+41.97	684160.9833	669688.2428

RAMP 2 (CL CONST RAMP 2)

POINT NAME		STATION	NORTHING	EASTING
8013	POB	346+73.23	684161.0030	669687.8533
8014	PC	348+47.89	684331.7746	669651.2143
	PI	350+46.93	684526.3880	669609.4601
8015	CC		684139.4663	668754.8796
8016	PT	352+39.89	684686.1634	669490.7605
8017	PC	357+49.18	685094.9802	669187.0443
	PI	360+08.65	685303.2619	669032.3086
8018	CC		685778.3515	670106.8954
8019	PT	362+59.51	685557.8838	668982.3882

RAMP 3 (CL CONST RAMP 3)

POINT NAME		STATION	NORTHING	EASTING
8020	POB	349+26.29	684221.8538	668694.9955
8021	PC	356+33.21	684911.3724	668850.9010
	PI	358+36.30	685109.4573	668895.6896
8022	CC		685192.1733	667609.0114
8023	PT	360+35.99	685311.6466	668876.6333
8024	PC	364+04.89	685678.9160	668842.0181
	PI	365+00.11	685773.7136	668833.0835
8025	CC		685499.7061	666940.5854
8026	PT	365+95.17	685867.1523	668814.7641

RAMP 4 (CL CONST RAMP 4)

POINT NAME		STATION	NORTHING	EASTING
8027	PC	335+00.00	682828.0351	669361.8766
	PI	337+54.84	683082.0396	669341.2451
8028	CC		682756.6723	668483.2966
8029	PT	339+96.15	683285.8489	669188.2560
8030	PC	344+86.90	683678.3244	668893.6449
	PI	346+85.94	683837.5086	668774.1536
8031	CC		684228.6681	669626.8026
8032	PT	348+78.90	684031.9122	668731.4337
8037	POE	350+73.63	684222.1054	668689.6391

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
1-08-16

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	42	160

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
1-08-16

N

0 25 50 100 FEET
BAR SCALE

PN: 1069
PD: REBAR & 2" ALUMINUM CAP I-49

PN: 7263
PD: MAG NAIL

PN: 7264
PD: MAG NAIL

PN: 847
PD: CUT SQUARE I-49 SPRINGDALE

STA. 16+90.81 ℄ CONST. ELM SPRINGS RD. =
STA. 349+26.29 ℄ CONST. RAMP 3
Δ = 80°00'00"

ELM SPRINGS RD.

15

8034

S87°15'33.2"E

8037

PN: 1068
PD: REBAR & 2" ALUMINUM CAP I-49

PN: 7262
PD: MAG NAIL

8020

S87°11'03.2"E

8035

8002

PN: 7265
PD: MAG NAIL

STA. 16+85.45 ℄ CONST. ELM SPRINGS RD. =
STA. 350+73.63 ℄ CONST. RAMP 4
Δ = 74°51'56"

350

8015

N12°23'37.2"W

RAMP 3

N12°44'26.8"E

350

STA. 348+85.16 ℄ CONST. I-49 =
STA. 21+85.79 ℄ CONST. ELM SPRINGS RD.
Δ = 76°05'30"

I-49

20

PI 20+38.70
Δ=00°04'30.0" RT

PN: 824
PD: STNDARD AHTD DISK I-49
SPRINGDALE

8032

PT 348+78.90

RAMP 4

RAMP 4 CURVE DATA
P.I. 346+85.94
Δ = 24°30'00.0" RT.
D = 6°15'00"
T = 199.04'
L = 392.00'
P.C. 344+86.90
P.T. 348+78.90

PN: 7271
PD: MAG NAIL

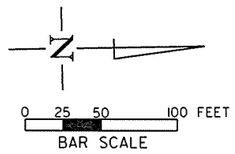
SURVEY CONTROL DETAILS

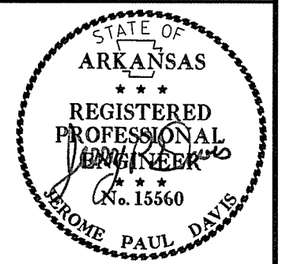
USER: dd5109
DESIGN FILE: G:\12103303_ElmSprngRd\TRANSP\dgn\BB0413 Survey Ctl.dgn
PLOTTED: 1/8/2016 13:26
SCALE: 100.1
MODEL: SURVEY CONTROL DETAILS

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	43	160

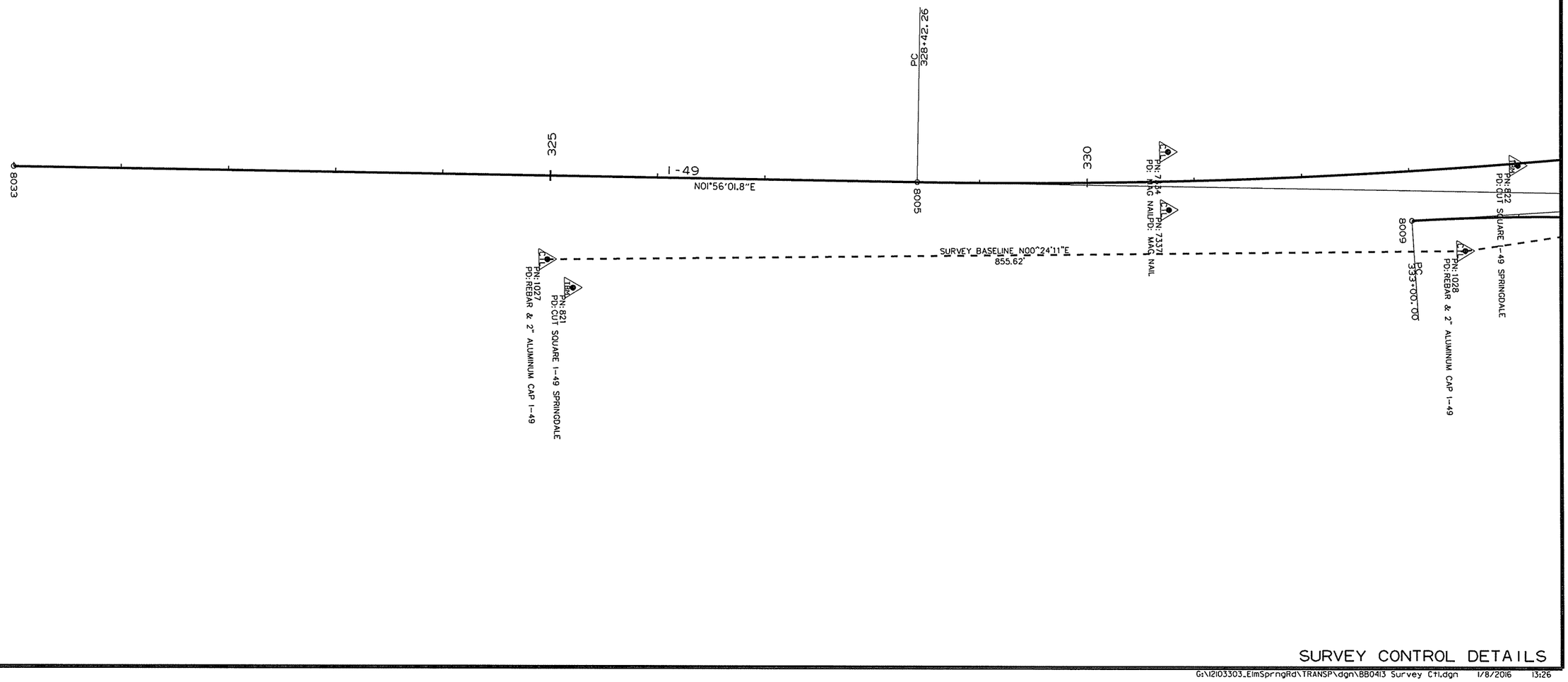
(2) SURVEY CONTROL DETAILS





1-08-16

I-49 CURVE DATA
P.I. 334+96.40
Δ = 13°01'35.0" LT.
D = 1°00'00"
T = 654.14'
L = 1302.64'
P.C. 328+42.26
P.T. 341+44.90



SURVEY CONTROL DETAILS

USER: dd5109
DESIGN FILE: G:\12103303_ElmSprngRd\TRANSP\dgn\BB0413 Survey Ctl.dgn
PLOTTED: 1/8/2016 13:26 SCALE: 100:1 MODEL: SURVEY CONTROL DETAILS

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	44	160

SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS

1-08-16

RAMP 4 CURVE DATA
P.I. 337+54.84
Δ = 32°15'00.0" LT.
D = 6°30'00"
T = 254.84'
L = 496.15'
P.C. 335+00.00
P.T. 339+96.15

I-49 CURVE DATA
P.I. 334+96.40
Δ = 13°01'35.0" LT.
D = 1°00'00"
T = 654.14'
L = 1302.64'
P.C. 328+42.26
P.T. 341+44.90

0 25 50 100 FEET
BAR SCALE

RAMP 4
N36°53'37.2"W
PC 334+86.90
PT 339+96.15
PN: 1027 PD: REBAR & 2" ALUMINUM CAP I-49
PN: 7221 PD: MAG NAIL
PI 20+38.70 Δ=00°04'30.0" RT
PN: 824 PD: STANDARD SPRINGDALE AHTD DISK I-49
PN: 7354 PD: MAG NAIL
PN: 822 PD: CUT SQUARE I-49 SPRINGDALE
PN: 7353 PD: MAG NAIL
PN: 823 PD: CUT SQUARE I-49 SPRINGDALE
PN: 1028 PD: REBAR & 2" ALUMINUM CAP I-49
PN: 7252 PD: MAG NAIL
PN: 1029 PD: REBAR & 2" ALUMINUM CAP I-49
PN: 7338 PD: MAG NAIL
PN: 1030 PD: REBAR & 2" ALUMINUM CAP I-49
PN: 1065 PD: REBAR & 2" ALUMINUM CAP I-49
PN: 7272 PD: MAG NAIL
I-49
N11°05'33.2"W
SURVEY BASELINE N07°32'20"W 767.57'
SURVEY BASELINE N10°55'48"W 652.63'
N09°21'22.8"E
RAMP 1
PC 335+00.00
PT 337+00.00
N37°11'03.2"E
S85°07'38.3"E
8027 8029 8030 8031 8036 8007 8011 8012 8002
335 340 345

RAMP 1 CURVE DATA
P.I. 335+00.73
Δ = 12°00'00.0" RT.
D = 3°00'00"
T = 200.73'
L = 400.00'
P.C. 333+00.00
P.T. 337+00.00

SURVEY CONTROL DETAILS

USER: dd5109
DESIGN FILE: G:\12103303_ElmSprngRd\TRANSP\dgn\BB0413 Survey Ctl.dgn
PLOTTED: 1/8/2016 13:26
SCALE: 100.0
MODEL: SURVEY CONTROL DETAILS

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Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	45	160

(2) SURVEY CONTROL DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
1-08-16

RAMP 3 CURVE DATA
P.I. 358+36.30
Δ = 18°07'30.0" LT.
D = 4°30'00"
T = 203.09'
L = 402.78'
P.C. 356+33.21
P.T. 360+35.99

RAMP 3 CURVE DATA
P.I. 365+00.11
Δ = 5°42'30.0" LT.
D = 3°00'00"
T = 95.22'
L = 190.28'
P.C. 364+04.89
P.T. 365+95.17

RAMP 2 CURVE DATA
P.I. 360+08.65
Δ = 25°31'00.0" RT.
D = 5°00'00"
T = 259.47'
L = 510.33'
P.C. 357+49.18
P.T. 362+59.51

N12°44'26.8"E
N11°05'33.2"W
N05°23'03.2"W
N36°36'33.2"W
SURVEY BASELINE N11^08'15"W 815.80'
SURVEY BASELINE N10^36'46"W 865.26'
SURVEY BASELINE N11^25'29"W 838.18'

PN: 7261 PD: MAG NAIL
PN: 1072 PD: REBAR & 2" ALUMINUM CAP I-49
PN: 7352 PD: MAG NAIL
PN: 7353 PD: MAG NAIL
PN: 825 PD: CUT SQUARE SPRINGDALE
PN: 7253 PD: MAG NAIL
PN: 1031 PD: REBAR & 2" ALUMINUM CAP I-49
PN: 7254 PD: MAG NAIL
PN: 1032 PD: REBAR & 2" ALUMINUM CAP I-49
PN: 1033 PD: REBAR & 2" ALUMINUM CAP I-49
PN: 7270 PD: MAG NAIL
PN: 1071 PD: REBAR & 2" ALUMINUM CAP I-49

PC 356+33.21
PT 360+35.99
PC 364+04.89
PT 365+95.17
PT 362+59.51
PC 357+49.18
PT 352+39.89

8021 8023 8024 8026 8017 8016

355 360 365

RAMP 3
RAMP 2
I-49

0 25 50 100 FEET
BAR SCALE

USER: dd5109
DESIGN FILE: G:\12103303_ElmSprngRd\TRANSP\dgn\BB0413 Survey Ctl.dgn
PLOTTED: 1/8/2016 13:26
SCALE: 100:1
MODEL: SURVEY CONTROL DETAILS

SURVEY CONTROL DETAILS

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	46	160

(2) SURVEY CONTROL DETAILS

8016
PN: 1071
PD: REBAR & 2" ALUMINUM CAP I-49

PT 352+39.89

RAMP 2 CURVE DATA
P.I. 350+46.93
Δ = 24°30'00.0" LT.
D = 6°15'00"
T = 199.04'
L = 392.00'
P.C. 348+47.89
P.T. 352+39.89

350

RAMP 2

PC 348+47.89

8014

PI 26+85.68
Δ=01°58'54.9" LT

PI STA. 26+85.68 ℄ CONST. ELM SPRINGS RD. =
STA. 346+73.23 ℄ CONST. RAMP 2
Δ = 73°01'05"

PI 23+38.70
Δ=02°03'24.9" RT

25

8031

N12°06'33.2"W

S87°11'03.2"E

8036

S85°07'38.3"E

8012

8013

30

ELM SPRINGS RD.

S87°06'33.2"E

8004

PN: 7269
PD: MAG NAIL

PN: 7266
PD: MAG NAIL

PN: 1067
PD: REBAR & 2" ALUMINUM CAP I-49

PN: 1030
PD: REBAR & 2" ALUMINUM CAP I-49

RAMP 1

STA. 26+86.07 ℄ CONST. ELM SPRINGS RD. =
STA. 348+41.97 ℄ CONST. RAMP 1
Δ = 83°32'04"

SURVEY BASELINE N10°55'48"W 652.63'

345

I-540

PN: 846
PD: CUT SQUARE I-49 SPRINGDALE

TBM

PN: 1066
PD: REBAR & 2" ALUMINUM CAP I-49

PN: 72
PD: M

PN: 72
PD: M

—N—

0 25 50 100 FEET
BAR SCALE

STATE OF ARKANSAS
* * *
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS

1-08-16

USER: dd5109
DESIGN FILE: G:\12103303_ElmSprngRd\TRANSP\dgn\BB0413 Survey Ctl.dgn MODEL: SURVEY CONTROL DETAILS
PLOTTED: 1/8/2016 13:26 SCALE: 100:1

SURVEY CONTROL DETAILS

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DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

Crafton, Tull & Associates Inc.

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	47	160

(2) PLAN & PROFILE - ELM SPRINGS RD.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
1-06-16

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
15+60	16+07	ELM SPRGS. RD. RT.	52
16+00	16+30	ELM SPRGS. RD. LT.	36

WIRE FENCE (TYPE A)

STA.	STA.	SIDE	LIN. FT.
15+60	16+07	ELM SPRGS. RD. RT.	48
16+00	16+30	ELM SPRGS. RD. LT.	33

DENOTES COLD MILL & INLAY

REMOVAL AND DISPOSAL OF GUARDRAIL

STA.	STA.	SIDE	LIN. FT.
18+59	20+57	ELM SPRGS. RD. RT.	198
19+69	20+46	ELM SPRGS. RD. LT.	77
23+20	25+20	ELM SPRGS. RD. LT.	200
23+32	24+09	ELM SPRGS. RD. RT.	77

STA. 16+27 LT. CONSTRUCT TYPE 3 WHEELCHAIR RAMP = 8 SQ. YDS.

STA. 16+67 LT. CONSTRUCT TYPE 3 WHEELCHAIR RAMP = 8 SQ. YDS.

STA. 17+40 LT. CONSTRUCT TYPE 3 WHEELCHAIR RAMP = 8 SQ. YDS.

15

STA. 17+48 CONSTRUCT D.I. ON LT. W/4' EXT. H=4'-0" WITH 18" x 15' R.C. PIPE CULVERT (CLASS III)(TYPE 3 BEDDING) OUTLET W/FES ON LT. TY C = 4' X 4' TY MO = 4' I.D. 5 CU. YDS. DUMPED RIPRAP

20

STA. 20+00 CONSTRUCT D.I. ON LT. H=4'-0" WITH 18" x 11' R.C. PIPE CULVERT (CLASS III)(TYPE 3 BEDDING) OUTLET W/FES ON LT. TY C = 4' X 4' TY MO = 4' I.D. 5 CU. YDS. DUMPED RIPRAP

STA. 23+58 CONSTRUCT D.I. ON LT. H=4'-0" WITH 18" x 14' R.C. PIPE CULVERT (CLASS III)(TYPE 3 BEDDING) OUTLET W/FES ON LT. TY C = 4' X 4' TY MO = 4' I.D. 5 CU. YDS. DUMPED RIPRAP

STA. 16+90.81 ℄ CONST. ELM SPRINGS RD. = STA. 349+26.29 ℄ CONST. RAMP 3 Δ = 80°00'00"

RAMP 3

N12°44'26.8"E

I-49

EXIST. R/W

EXIST. R/W & C/A

+50 BEG. EXIST. C/A

8'-0" WALK

3'

LIMITS OF CONST.

STA. 14+50.00 BEGIN SIDEWALK LEFT

S87°15'33.2"E

℄ CONST.

P.I. 20+38.70 Δ=00°04'30.0" RT

P.I. 23+38.70 Δ=02°03'24.9" RT

1'-6" C&G

68'

S87°11'03.2"E

S85°07'38.3"E

ELM SPRINGS RD.

STA. 14+50.00 BEGIN SIDEWALK RIGHT

P.I. 12+00.00

N. 48TH ST.

5'-0" WALK

STA. 17+51 CONSTRUCT D.I. ON RT. W/4' EXT. H=4'-0" WITH 18" x 10' R.C. PIPE CULVERT (CLASS III)(TYPE 3 BEDDING) OUTLET W/FES ON RT. TY C = 4' X 4' TY MO = 4' I.D. 5 CU. YDS. DUMPED RIPRAP

STA. 15+59.28 BEGIN JOB BB0413

CONCRETE ISLAND CURB FACE TYPE "A"

+25 58.90' END PROP. C/A

PROPOSED R/W & C/A

STA. 16+28 RT. CONSTRUCT TYPE 3 WHEELCHAIR RAMP = 8 SQ. YDS.

RAMP 4

STA. 16+85.45 ℄ CONST. ELM SPRINGS RD. = STA. 350+73.63 ℄ CONST. RAMP 4 Δ = 74°51'56"

STA. 348+85.16 ℄ CONST. I-49 = STA. 21+85.79 ℄ CONST. ELM SPRINGS RD. Δ = 76°05'30"

P.I. 348+78.90

STA. 17+44 RT. CONSTRUCT TYPE 3 WHEELCHAIR RAMP = 6 SQ. YDS.

STA. 20+00 CONSTRUCT D.I. ON RT. H=4'-0" WITH 18" x 7' R.C. PIPE CULVERT (CLASS III)(TYPE 3 BEDDING) OUTLET W/FES ON RT. TY C = 4' X 4' TY MO = 4' I.D. 5 CU. YDS. DUMPED RIPRAP

STA. 23+58 CONSTRUCT D.I. ON RT. H=4'-0" WITH 18" x 14' R.C. PIPE CULVERT (CLASS III)(TYPE 3 BEDDING) OUTLET W/FES ON RT. TY C = 4' X 4' TY MO = 4' I.D. 5 CU. YDS. DUMPED RIPRAP

ELM SPRINGS RD.

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	"W"	SQ. YDS.
17+35	17+55	RT. ELM SPRINGS RD.	6'-6"	14
17+56	17+56	LT. ELM SPRINGS RD.	6'-6"	8
20+00	20+00	RT. ELM SPRINGS RD.	6'-6"	23
20+00	20+00	LT. ELM SPRINGS RD.	6'-6"	27
23+58	23+58	RT. ELM SPRINGS RD.	6'-6"	13
23+58	23+58	LT. ELM SPRINGS RD.	6'-6"	24

274'-4 9/16" EXISTING BRIDGE

PVI 21+75.00 ELEV. 1357.35

STA. 20+48.6 BEGIN BRIDGE

STA. 23+22.99 END BRIDGE

IN PLACE 272'-0" CONT. W-BEAM UNIT BRIDGE NO. 3945 52'-0" CLEAR ROADWAY RETAIN & WIDEN 70'-0" CLEAR ROADWAY

-4.53%

100' TRANSITION

PROPOSED GRADE

20+00 RT. TOP = 1346.90 FL. = 1342.90

23+58 RT. TOP = 1346.69 FL. = 1342.69

VC=685' K = 76 SSD = 404

5.57%

4.51%

5.47%

EXISTING GROUND

17+51 RT. TOP = 1337.61 FL. = 1333.61

PVI 16+89.31 ELEV. 1334.37

PVI 17+89.31 ELEV. 1339.94

PVC 18+32.50 ELEV. 1341.89

20+00 LT. TOP = 1346.90 FL. = 1342.90

23+58 LT. TOP = 1346.69 FL. = 1342.69

17+48 LT. TOP = 1337.44 FL. = 1333.44

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

1360 1355 1350 1345 1340 1335 1330 1325 1320 1315

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00 25+00

USER: dd5109
DESIGN FILE: G:\12103303_ElmSprngRd\TRANSP\dgn\p&p\BB0413 pp01Elm Springs Rd.dgn
PLOTTED: 1/8/2016 13:02
MODEL: PLAN AND PROFILE
SCALE: 100:1

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Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	48	160

(2) PLAN & PROFILE - ELM SPRINGS RD.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
1-08-16

STA. 26+26 LT. CONSTRUCT TYPE 3 WHEELCHAIR RAMP = 10 SQ. YDS.

25

STA. 26+20 CONSTRUCT D.I. ON LT. W/ 4' EXT. H=4'-0" WITH 18" x 12' R.C. PIPE CULVERT (CLASS III)(TYPE 3 BEDDING) OUTLET W/FES ON LT.
TY C = 4' X 4'
TY MO = 4" I.D.
5 CU. YDS. DUMPED RIPRAP

280' TRANSITION

P.C. 348+47.89

320' TAPER

P.I. 23+38.70
Δ=02° 03' 24.9" RT

LIMITS OF CONST.

1'-6" C&G
8'-0" WALK
3'

S85°07'38.3"E
℄ CONST.

STA. 26+40 CONSTRUCT D.I. ON RT. W/ 4' EXT. H=4'-0" WITH 18" x 10' R.C. PIPE CULVERT (CLASS III)(TYPE 3 BEDDING) OUTLET W/FES ON RT.
TY C = 4' X 4'
TY MO = 4" I.D.
5 CU. YDS. DUMPED RIPRAP

P.I. 26+85.68
Δ=01° 58' 54.9" LT

N09°21'22.8"E

STA. 26+56 RT. CONSTRUCT TYPE 3 WHEELCHAIR RAMP = 4 SQ. YDS.

STA. 26+86.07 ℄ CONST. ELM SPRINGS RD. =
STA. 348+41.97 ℄ CONST. RAMP 1
Δ = 83°32' 04"

RAMP 1

RAMP 2

EXIST. R/W & C/A

30

STA. 27+13 LT. CONSTRUCT TYPE 3 WHEELCHAIR RAMP = 10 SQ. YDS.

STA. 27+33 LT. CONSTRUCT TYPE 3 WHEELCHAIR RAMP = 8 SQ. YDS.

PI STA. 26+85.68 ℄ CONST. ELM SPRINGS RD. =
STA. 346+73.23 ℄ CONST. RAMP 2
Δ = 73°01' 05"

SOURCE GAS

100' TAPER

PROPOSED R/W & C/A

PAINTED ISLAND

+85 63.05' END PROP. C/A
+80 REVERSED CURVE PARKING
+79.87 65' BEGIN PROP. C/A

N. 45TH ST.

+80 BEGIN EXIST. C/A

EXIST. R/W

S87°06'33.2"E ELM SPRINGS RD.

APPROX. EXIST. R/W

P.I. 32+00.23

+80 END EXIST. C/A

+00 400.73' C/A PROP. CURVE

CONCRETE ISLAND CURB FACE TYPE "A"

EXIST. R/W & C/A

PROPOSED R/W & C/A

STA. 27+25 RT. CONSTRUCT TYPE 3 WHEELCHAIR RAMP = 4 SQ. YDS.

STA. 28+97.25
END JOB BB0413

CONCRETE DITCH PAVING (TYPE B)

STA.	STA.	SIDE	"W"	SQ. YDS.
26+17	26+17	LT. ELM SPRGS. RD.	6'-6"	6

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
27+85	28+81	ELM SPRINGS RD. LT.	100

N

DENOTES MILL & INLAY

ELM SPRINGS RD.

STA. 23+22.99 END BRIDGE

PROPOSED GRADE
23+58 RT.
TOP = 1346.69
FL. = 1342.69
-4.53%

PVRC 25+17.50
Elev 1341.63

100' TRANSITION

26+40 RT.
TOP = 1337.30
FL. = 1333.30
VC=205'
K = 68

-4.53%
-1.50%
-1.58%

23+58 LT.
TOP = 1346.69
FL. = 1342.69

PVI 26+20.00
ELEV. 1337.18

PVT 27+22.50
Elev 1335.64

PVI 27+25.00
ELEV 1335.60

PVI 27+97.25
ELEV. 1334.46

EXISTING GROUND

26+20 LT.
TOP = 1337.88
FL. = 1333.88

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

1360 1355 1350 1345 1340 1335 1330 1325 1320 1315

23+00 24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00 38+00

USER: dd5109
DESIGN FILE: G:\12103303_ElmSprngRd\TRANSP\dgn\p&p\BB0413 pp02 Elm Springs Rd.dgn
PLOTTED: 1/8/2016 13:02
SCALE: 100'
MODEL: PLAN AND PROFILE

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Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	49	160

PLAN & PROFILE - RAMP 1

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
1-08-16

RAMP 1

RAMP 2

I-49

RAMP 4

+00.38 PROP. BEGIN B/L

P.I. 337+44.84

P.I. 335+00.73

STA. 342+90.00
BEGIN CONST.
RAMP 1

GRADE TO DRAIN

GRADE TO DRAIN

RAMP 1

LIMITS OF CONST.

P.I. 26+85.68
Δ=01° 58'54.9" LT

4'-0" SHLDR.

+26.31

N09°21'22.8"E

12' 12'

4'

28'

32'

340

345

335

P.I. 337+00.00

+50 62.82' BEGIN PROP. C/A

EXIST. R/W & C/A

PROPOSED R/W & C/A

+00 75'

+40

6'-0" SHLDR.

LIMITS OF CONST.

+00 75'

CONCRETE ISLAND CURB FACE TYPE "A" (2' R TYP.)

+00.33 50.12' END PROP. C/A

+80 END EXIST. C/A

58°06'45.3"E

+85 63.05' END PROP. C/A

+79.87 65' BEGIN PROP. C/A

PAVED PARKING

N12°06'33.2"W

S85°07'38.3"E

100' TRANSITION

250' TAPER

RAMP I CURVE DATA
P.I. 335+00.73
Δ = 12°00'00.0" RT.
D = 3°00'00"
T = 200.73'
L = 400.00'
P.C. 333+00.00
P.T. 337+00.00
e = MATCH EXISTING SUPER

RAMP I STA. 338+00 IN PLACE
24" X 52' R.C. PIPE CULVERT
WITH F.E.S. LT. & RT.
D.A. = 6.5 AC. 050= 20 CFS
RETAIN

DENOTES MILL & INLAY

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
342+50	348+05	RAMP I RT.	576

WIRE FENCE (TYPE A)

STA.	STA.	SIDE	LIN. FT.
342+50	348+05	RAMP I RT.	565

P.I. STA. 26+85.68 ℄ CONST. ELM SPRINGS RD. =
STA. 346+73.23 ℄ CONST. RAMP 2
Δ = 73°01'05"

STA. 26+86.07 ℄ CONST. ELM SPRINGS RD. =
STA. 348+41.97 ℄ CONST. RAMP 1
Δ = 83°32'04"

STA. 347+50.00 BEGIN TRANSITION TO ELM SPRINGS RD. (NC)
STA. 348+13.28 END TRANSITION

28.00' RT. OF ℄ ELM SPRINGS RD. STA. 26+76.35 =
7.50' LT. OF ℄ RAMP 1 STA. 348+13.28
ELEV. 1335.93

100' TRANSITION

PVI 342+90.00
ELEV. 1328.60

PROPOSED GRADE

PVI 346+25.00
ELEV. 1333.02

NO V.C.

1.55%

1.32%

EXISTING GROUND

347+25 1' DT.
1329.59

25' RT. DT.
1330.15

347+92 1' DT. OR.
1333.04

3.66' RT. DT. OR.

10' RT. DT.
1332.80

GRADE TO DRAIN LT.

GRADE TO DRAIN RT.

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

1345 1340 1335 1330 1325 1320 1315 1310 1305 1300

335+00 336+00 337+00 338+00 339+00 340+00 341+00 342+00 343+00 344+00 345+00 346+00 347+00 348+00 349+00 350+00

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Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	50	160

PLAN & PROFILE - RAMP 2

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
1-08-16

RAMP 2 CURVE DATA
P.I. 350+46.93
Δ = 24°30'00.0" LT.
D = 6°15'00"
T = 199.04'
L = 392.00'
P.C. 348+47.89
P.T. 352+39.89
e = MATCH EXISTING SUPER

RAMP 1
P.I. 26+85.68
Δ=01°58'54.9" LT.
N09°21'22.8"E
ELM SPRINGS RD.
S85°07'38.3"E
25
LIMITS OF CONST.
P.C. 348+47.89
STA. 347+90.13
END CONST.
RAMP 2
N12°06'33.2"W
34'
32'
27'
25'
100' TRANSITION
P.T. 352+39.89
DENOTES MILL & INLAY
N36°36'33.2"W
RAMP 2
355
350
P.C. 357+49.18
+00.33
50.12'
END PROP. C/A
END EXIST. C/A
+80
+85
65.05'
END PROP. C/A
PAINTED ISLAND
LIMITS OF CONST.
EXIST. R/W & C/A
+79.87
65'
BEGIN PROP. C/A
+80
BEGIN EXIST. C/A
S87°06'33.2"E
P.I. 350+46.93
PI STA. 26+85.68 ℄ CONST. ELM SPRINGS RD. =
STA. 346+73.23 ℄ CONST. RAMP 2
Δ = 73°01'05"
STA. 26+86.07 ℄ CONST. ELM SPRINGS RD. =
STA. 348+41.97 ℄ CONST. RAMP 1
Δ = 83°32'04"

RAMP 2 STA. 351+00 IN PLACE
48" X 60' R.C. PIPE CULVERT
WITH F.E.S. LT. & RT.
D.A. = 28.1AC. 050= 70.3 CFS
RETAIN

RAMP 2 CURVE DATA
P.I. 360+08.65
Δ = 25°31'00.0" RT.
D = 5°00'00"
T = 259.47'
L = 510.33'
P.C. 357+49.18
P.T. 362+59.51
e = -0.064'/'
Ls = 200'

RAMP 2

STA. 347+04.80 TRANSITION FROM ELM SPRINGS RD.
STA. 347+67.00 END TRANSITION (NC)
STA. 349+67.00 MATCH EXIST. (0.054'/')

28.00' LT. OF ℄ ELM SPRINGS RD. STA. 26+59.29 =
7.50' LT. OF ℄ RAMP 2 STA. 347+04.80
ELEV. 1336.09

PROPOSED GRADE
PVI 347+90.13
ELEV. 1335.45
-0.75%
100 TRANSITION
EXISTING GROUND

1350 1345 1340 1335 1330 1325 1320 1315 1310 1305

345+00 346+00 347+00 348+00 349+00 350+00 351+00 352+00 353+00 354+00 355+00 356+00 357+00 358+00 359+00 360+00

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

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Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	51	160

(2) PLAN & PROFILE - RAMP 3

DENOTES MILL & INLAY

RAMP 3 STA. 355+50 IN PLACE
48" X 100' R.C. PIPE CULVERT
(30° LT. FWD. SKEW) WITH
F.E.S. LT. & RT.
D.A. = 42.1 AC. Q50=105.3 CFS
RETAIN

RAMP 3 CURVE DATA
P.I. 358+36.30
Δ = 18°07'30.0" LT.
D = 4°30'00"
T = 203.09'
L = 402.78'
P.C. 356+33.21
P.T. 360+35.99
e = MATCH EXISTING SUPER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
1-08-16

STA. 16+85.45 ℄ CONST. ELM SPRINGS RD. =
STA. 350+73.63 ℄ CONST. RAMP 4
Δ = 74°51'56"

STA. 354+50.00
END CONST.
RAMP 3

EXIST. R/W & C/A

LIMITS OF CONST.

S87°15'33.2"E

N12°23'37.2"W

RAMP 4

ELM SPRINGS RD.

6'-0" SHLDR.

4'-0" SHLDR.

12'-12'

+08.85

+00

250' TAPER

100' TRANSITION

N12°44'26.8"E

P.C. 356+33.21

P.T. 360+35.99

P.I. 358+36.30

N05°23'03.2"W

N11°05'33.2"W

P.I. 360+08.65

P.I. 362+39.51

RAMP 2

I-49

LIMITS OF CONST.

STA. 16+90.81 ℄ CONST. ELM SPRINGS RD. =
STA. 349+26.29 ℄ CONST. RAMP 3
Δ = 80°00'00"

RAMP 3

STA. 349+62.13 TRANSITION FROM ELM SPRINGS RD.
STA. 350+50.00 END TRANSITION (NC)

34.00' LT. OF ℄ ELM SPRINGS RD. STA. 17+04.42 =
7.50' RT. OF ℄ RAMP 3 STA. 349+62.13
ELEV. 1334.42

100' TRANSITION

PVI 350+62.13
ELEV. 1334.28

PROPOSED GRADE

-0.50%

EXISTING GROUND

100' TRANSITION

PVI 354+50.00
ELEV. 1332.34

-0.51% LT. DI. GR.

-0.51% RT. DI. GR.

35' LT. DI. ℄
1327.54

35' LT. DI. ℄
1326.63

15' RT. DI. ℄
1322.18

25' RT. DI. ℄
1321.52

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

1355 1350 1345 1340 1335 1330 1325 1320 1315 1310

348+00 349+00 350+00 351+00 352+00 353+00 354+00 355+00 356+00 357+00 358+00 359+00 360+00 361+00 362+00 363+00

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Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	52	160

(2) PLAN & PROFILE - RAMP 4

DENOTES MILL & INLAY

RAMP 4 STA. 339+00 IN PLACE
30" X 46' R.C. PIPE CULVERT
WITH F.E.S. LT. & RT.
RETAIN AND EXTEND 18' LT.
WITH S.E.S. LT.
(CLASS III) (TYPE 3 BEDDING)
D.A. = 8.0 AC. 050=22 CFS
30" R.C. PIPE = 22"
30" F.E.S. = 1EACH

RAMP 4 CURVE DATA
P.I. 337+54.84
Δ = 32°15'00.0" LT.
D = 6°30'00"
T = 254.84'
L = 496.15'
P.C. 335+00.00
P.T. 339+96.15
e = 0.095'/'
Ls = 350'

STA. 337+00.00
BEGIN CONST.
RAMP 4

STA. 16+85.45 ℄ CONST. ELM SPRINGS RD. =
STA. 350+73.63 ℄ CONST. RAMP 4
Δ = 74°51'56"

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
1-08-16
JEROME PAUL DAVIS

335 345 340 350

GRADE TO DRAIN
P.C. 335+00.00
+00 16.48' BEGIN PROP. C/A
100' TRANSITION
+00 95
P.I. 339+96.15
PROPOSED R/W & C/A
+00 90
LIMITS OF CONST.
EXIST. R/W & C/A
+25 85
+86.90 70'
P.I. 346+85.94
+00.23 59.93'
+00 65
PROPOSED R/W & C/A
LIMITS OF CONST.
EXIST. R/W & C/A
+25 56.90' END PROP C/A
EXIST. R/W & C/A
ELM SPRINGS RD.
NOSE 57.94' 336+22.39
I-49
6'-0" SHLDR.
12'
4'-0" SHLDR.
N36°53'37.2"W
RAMP 4
P.C. 344+86.90
P.I. 337+54.84
300' TAPER
00+
P.T. 341+44.90
P.T. 348+78.90
+53.42
CONCRETE ISLAND CURB FACE TYPE "A" (2' R TYP.)
LIMITS OF CONST.
N72°23'37.2"W
S87°15'33.2"E
RAMP 3
RAMP 4
337+00.00

REMOVAL AND DISPOSAL OF FENCE

STA.	STA.	SIDE	LIN. FT.
336+00	349+05	RAMP 4 LT.	1318

WIRE FENCE (TYPE A)

STA.	STA.	SIDE	LIN. FT.
336+00	349+25	RAMP 4 LT.	1313

RAMP 4 CURVE DATA
P.I. 346+85.94
Δ = 24°30'00.0" RT.
D = 6°15'00"
T = 199.04'
L = 392.00'
P.C. 344+86.90
P.T. 348+78.90
e = 0.074'/'
Ls = 200'

STA. 337+00.00 MATCH EXIST. SUPERELEVATION (-0.080'/')
STA. 337+75.00 MAX. SUPERELEVATION (-0.095'/')
STA. 339+08.65 MAX. SUPERELEVATION (-0.095'/')
STA. 342+58.65 END SUPERELEVATION (NC)

STA. 343+36.90 BEGIN SUPERELEVATION
STA. 345+36.90 MAX. SUPERELEVATION (0.074'/')
STA. 347+65.83 MAX. SUPERELEVATION (0.074'/')
STA. 350+25.98 MATCH ELM SPRINGS RD.

34.00' RT. OF ℄ ELM SPRINGS RD. STA. 17+02.41 =
7.50' RT. OF ℄ RAMP 4 STA. 350+36.38
ELEV. 1334.93

57.94' LT. OF ℄ MED. STA. 336+22.39 =
7.50' RT. OF ℄ RAMP 4 STA. 336+20.80
EXIST. RAMP NOSE

PVI 337+00.00 ELEV. 1319.04
PVI 337+80.00 ELEV. 1320.44
PVI 340+10.00 ELEV. 1323.14
PVI 342+25.00 ELEV. 1325.54
PVI 349+36.38 ELEV. 1334.03

1.75% 1.17% 1.12% 1.19%
NO V.C. NO V.C. NO V.C.
100' TRANSITION
PROPOSED GRADE
EXISTING GROUND
0.50% LT. DT. GR.
3.87% LT. DT. GR.
FL IN = 1315.11 RT.
FL OUT = 1313.74 LT.
337+00.00 LT. DT. ℄ 1311.79
339+00.00 LT. DT. ℄ 1312.79
341+00.00 LT. DT. ℄ 1318.53

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

1345 1340 1335 1330 1325 1320 1315 1310 1305 1300

336+00 337+00 338+00 339+00 340+00 341+00 342+00 343+00 344+00 345+00 346+00 347+00 348+00 349+00 350+00 351+00

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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	53	160

2 PLAN & PROFILE - I-49

I-49 STA. 324+40 IN PLACE
TRP. 12' X 7' X 240' R.C. BOX CULVERT
WITH HDWLS. LT. & RT.
(30° RT. FWD. SKEW)
D.A. = 1648.9 AC. Q50=1463 CFS
RETAIN

I-49 CURVE DATA
P.I. 334+96.40
Δ = 13°01'35.0" LT.
D = 1°00'00"
T = 654.14'
L = 1302.64'
P.C. 328+42.26
P.T. 341+44.90
e = MATCH EXISTING SUPER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
1-08-16
JEROME PAUL DAVIS

325 330 335

300' TAPER

900' ACCELERATION LANE

EXISTING 600' ACCELERATION LANE

+22.39

LIMITS OF CONST.

EXIST. R/W & C/A

PROPOSED R/W & C/A

P.C. 328+42.26

P.C. 335+00.00

+00 BEGIN PROP. C/A

EX. 4' SHLDR.

EX. 10' SHLDR.

EX. 24' LANES

16' SHLDR.

12'

EX. 6' SHLDR.

EX. 36' LANES

60'

90'

RAMP 4

8007

NOSE

22.96'

57.19'

P.I. 341+44.90

I-49

N01°56'01.8"E

8005

℄ MED. I-49

P.I. 334+96.40

P.I. 335+00.73

8009

8011

RAMP 1

P.C. 333+00.00

P.T. 337+00.00

335

CURB

STA. 324+22.39
BEGIN CONST.
I-49 ACCEL. LANE

I-49

STA. 326+17.20 BEGIN SUPERELEVATION (NC)
STA. 329+17.20 MATCH EXIST. SUPERELEVATION (-0.032'/' +/-)

NOTCH AND WIDEN LT. LANES

STA. 324+22.39 BEGIN NOTCH AND WIDEN LT. LANES

STA. 330+22.39 END NOTCH AND WIDEN LT. LANES

57.94' LT. OF ℄ MED. STA. 336+22.39 =
7.50' RT. OF ℄ RAMP 4 STA. 336+20.80

EXISTING GROUND
RT. EDGE L.M.L. I-49

EXISTING GROUND
LT. EDGE L.M.L. I-49

2.72% LT. DT. GR.

2.29% LT. DT. GR.

85 LT. DT. 1297.93

50 LT. DT. 1299.70

05 LT. DT. 1300.96

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

1330 1325 1320 1315 1310 1305 1300 1295 1290 1285

323+00 324+00 325+00 326+00 327+00 328+00 329+00 330+00 331+00 332+00 333+00 334+00 335+00 336+00 337+00 338+00

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FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	54	160

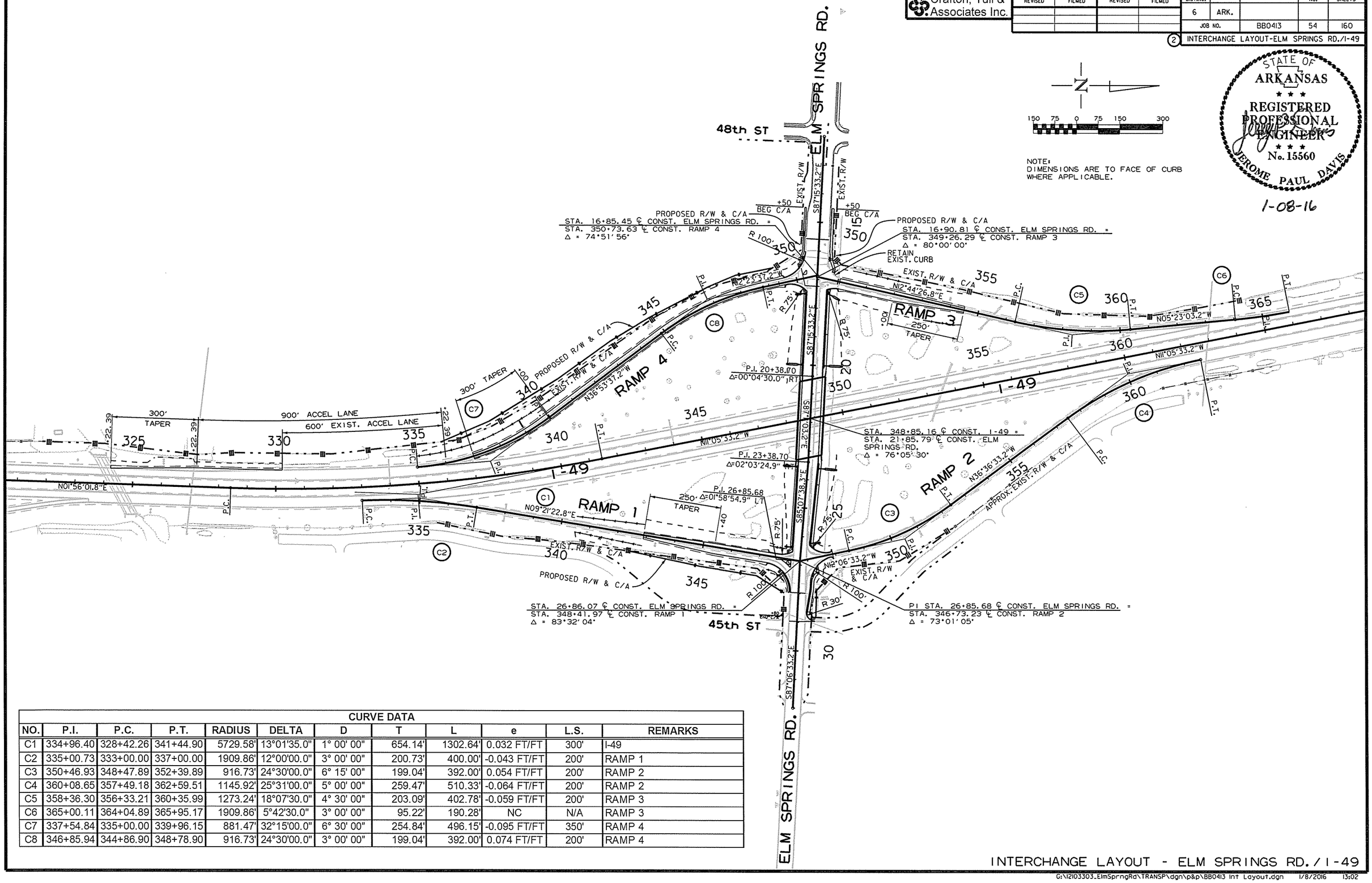
2 INTERCHANGE LAYOUT-ELM SPRINGS RD./I-49

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
1-08-16

N

150 75 0 75 150 300

NOTE:
DIMENSIONS ARE TO FACE OF CURB WHERE APPLICABLE.



CURVE DATA

NO.	P.I.	P.C.	P.T.	RADIUS	DELTA	D	T	L	e	L.S.	REMARKS
C1	334+96.40	328+42.26	341+44.90	5729.58'	13°01'35.0"	1° 00' 00"	654.14'	1302.64'	0.032 FT/FT	300'	I-49
C2	335+00.73	333+00.00	337+00.00	1909.86'	12°00'00.0"	3° 00' 00"	200.73'	400.00'	-0.043 FT/FT	200'	RAMP 1
C3	350+46.93	348+47.89	352+39.89	916.73'	24°30'00.0"	6° 15' 00"	199.04'	392.00'	0.054 FT/FT	200'	RAMP 2
C4	360+08.65	357+49.18	362+59.51	1145.92'	25°31'00.0"	5° 00' 00"	259.47'	510.33'	-0.064 FT/FT	200'	RAMP 2
C5	358+36.30	356+33.21	360+35.99	1273.24'	18°07'30.0"	4° 30' 00"	203.09'	402.78'	-0.059 FT/FT	200'	RAMP 3
C6	365+00.11	364+04.89	365+95.17	1909.86'	5°42'30.0"	3° 00' 00"	95.22'	190.28'	NC	N/A	RAMP 3
C7	337+54.84	335+00.00	339+96.15	881.47'	32°15'00.0"	6° 30' 00"	254.84'	496.15'	-0.095 FT/FT	350'	RAMP 4
C8	346+85.94	344+86.90	348+78.90	916.73'	24°30'00.0"	3° 00' 00"	199.04'	392.00'	0.074 FT/FT	200'	RAMP 4

INTERCHANGE LAYOUT - ELM SPRINGS RD./I-49

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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.		BB0413	55	160

2 INTERCHANGE LAYOUT-ELM SPRINGS RD./I-49

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15560
JEROME PAUL DAVIS
1-08-16

NOTE:
DIMENSIONS ARE TO FACE OF CURB WHERE APPLICABLE.

INSET A

INSET B

STA. 16+85.45 ℄ CONST. ELM SPRINGS RD. =
STA. 350+73.63 ℄ CONST. RAMP 4
Δ = 74°51'56"

STA. 16+90.81 ℄ CONST. ELM SPRINGS RD. =
STA. 349+26.29 ℄ CONST. RAMP 3
Δ = 80°00'00"

STA. 348+85.16 ℄ CONST. I-49 =
STA. 21+85.79 ℄ CONST. ELM SPRINGS RD.
Δ = 76°05'30"

PI STA. 26+85.68 ℄ CONST. ELM SPRINGS RD.
STA. 346+73.23 ℄ CONST. RAMP 2
Δ = 73°01'05"

STA. 26+86.07 ℄ CONST. ELM SPRINGS RD. =
STA. 348+41.97 ℄ CONST. RAMP 1
Δ = 83°32'04"

INTERCHANGE LAYOUT - ELM SPRINGS RD./I-49

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TRAFFIC SIGNAL NOTES:

1. PERFORM ELECTRICAL WORK IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE NFPA 70 (2014) NATIONAL ELECTRICAL CODE, NFPA 101(2012) LIFE SAFETY CODE, STATE ELECTRICAL CODE AND LOCAL ELECTRICAL CODE.

2. EXTEND GREEN EQUIPMENT GROUNDING CONDUCTOR (EGC) FROM GROUND BAR AT MAIN BREAKER TO CONTROL PANEL AND TO FIRST POLE. SOLIDLY BOND EGC TO GROUND LUG OF CONTROL CABINET AND TO POLE GROUND. ENSURE THAT ONLY ONE NEUTRAL-TO-GROUND BOND EXISTS IN THE SYSTEM AND THAT IT IS AT THE MAIN BREAKER.

3. CONNECT TO THE EXISTING ELECTRICAL SERVICE AT THE MAIN BREAKER FOR THE SOUTHBOUND RAMPS INTERSECTION. REMOVE AND REINSTALL THE MAIN BREAKER SERVICE POINT FOR THE NORTHBOUND RAMPS INTERSECTION. INSTALL CONDUIT, ELETRICAL SERVICE WIRE (2c AWG #6 USE RATED, WITH GROUND TYPICAL), AND PERFORM WIRING TO MAINTAIN ELECTRICAL SERVICE. CONDUIT IS PAID FOR AS A SEPARATE ITEM OF THIS CONTRACT. TWO CIRCUIT BREAKERS, CONSIDERED SUBSIDIARY TO THE CONTROL EQUIPMENT FOR STREET LIGHTING ARE INCLUDED FOR EACH INTERSECTION. AS PART OF THE SIGNAL INSTALLATION, STREET LIGHTING CIRCUIT (2c AWG #12 UF RATED, TYPICAL) SHALL BE KEPT FROM THE CIRCUIT SERVING THE TRAFFIC SIGNAL CONTROL EQUIPMENT FROM THE POINT OF TIE -IN AT THE SECONDARY BREAKER PROVIDED BY THE CONTRACTOR.

4. CONTRACTOR SHALL CONNECT A SEPARATE NEUTRAL FOR EACH LOAD SWITCH REPRESENTED ON EACH SIGNAL POLE.

5. TRAFFIC CONTROLLER CABINET SHALL HAVE 16 LOAD BAYS AND LAYOUT SHALL BE SUCH THAT IT IS NOT NECESSARY TO SHUT DOWN POWER OR REMOVE LOAD SWITCHES IN ORDER TO EASILY TEST OR MODIFY DETECTOR INPUTS TO THE CONTROLLER.

6. CONTROLLER CABINET SHALL BE WIRED SUCH THAT, DURING FLASH OPERATIONS, POWER TO THE LOAD SWITCHES CANNOT BACKFEED TO LOAD SWITCH POWER BUSS.

7. ALL PARTS OF THIS INSTALLATION SHALL BE IN ACCORDANCE WITH THE ARKANSAS HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARDS AND DETAILS, AND WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITIONS.

8. CONDUIT INSTALLED UNDER ROADWAY SURFACES SHALL BE INSTALLED BY PUSHING OR BORING METHODS. IF THE ENGINEER DETERMINES THIS IS NOT FEASIBLE, THEN A TRENCHING METHOD MAY BE USED.

9. TRAFFIC SIGNAL POLES SHALL BE GALVANIZED. BACKPLATES SHALL BE SUPPLIED FOR ALL SIGNAL HEADS.

10. PAVEMENT MARKING SHOWN FOR REFERENCE ONLY. SEE PAVEMENT MARKING PLAN SHEETS.

11. FOUNDATION FOR ALL POLES SHALL BE EXTENDED IF NECESSARY TO ACCOMMODATE THE REQUIREMENTS FOR SIGNAL HEAD CLEARANCE ABOVE ROADWAY ONLY AT LOCATIONS WHERE THE GROUND ELEVATION AT THE POLE IS BELOW THE ELEVATION OF THE ROADWAY (SEE NOTES ON SPECIAL DETAILS). PAYMENT WILL BE INCLUDED IN SECTION 714, AHTD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

12. ALL PULL BOXES SHALL BE (TYPE 2 HD) UNLESS OTHERWISE INDICATED.
ALL CONDUIT SHALL BE 3" DIAMETER UNLESS SPECIFIED ON PLANS.

13. CONTRACTOR SHALL NOTIFY ALL EXISTING UTILITY OWNERS BEFORE BEGINNING WORK ON THIS PROJECT.

14. LUMINAIRE ASSEMBLIES SHALL BE OF THE FULL CUTOFF TYPE.

15. HARDWARE INPUTS MAY BE DETERMINED BY SUPPLIER. EACH DETECTOR OUTPUT SHALL INPUT THE CONTROLLER THROUGH A SEPARATE INPUT UNLESS OTHERWISE NOTED AND BE PROGRAMMED TO ACTUATE THE ASSOCIATED PHASE. COMBINATION (COMB.) DETECTORS SHALL ALSO BE PROGRAMMED TO PROVIDE VEHICLE COUNT/OCCUPANCY DATA.

16. THE LOCAL RADIO WITH ANTENNA SHALL BE COMPATIBLE WITH THE EXISTING CLOSED LOOP COORDINATION SYSTEM IN THE CITY.

17. TO DETERMINE UTILITY CLEARANCES ABOVE THE TRAFFIC SIGNAL POLE, REFER TO THE POLE SCHEDULE FOR VERTICAL SHAFT HEIGHT. WHERE THE POLE SCHEDULE INDICATES THAT A LUMINAIRE ARM WILL BE USED, 38 FEET SHOULD BE USED TO DETERMINE UTILITY CLEARANCE ABOVE THE LUMINAIRE ARM. WHERE THE POLE SCHEDULE INDICATES A TRAFFIC SIGNAL POLE WITHOUT A LUMINAIRE ARM, A HEIGHT OF 21' SHOULD BE USED TO DETERMINE UTILITY CLEARANCE ABOVE THE TRAFFIC SIGNAL MAST ARM. AN ADDITIONAL 6 FEET SHOULD BE USED DIRECTLY ABOVE "VIDEO DETECTORS" AT LOCATIONS SHOWN ON THE SIGNAL PLANS.

18. THE DESIRABLE MINIMUM DISTANCE FROM THE FACE OF ROADWAY CURB OR SHOULDER EDGE TO THE FACE OF NON-BREAKAWAY POLE OR OBSTRUCTION IS 6 FEET. REFER TO TRAFFIC SIGNAL PLANS FOR SPECIFIC LOCATION OF POLES, CONTROLLER AND ANY OTHER NON-BREAKAWAY OBSTRUCTIONS. REFER TO "DESIGN PARAMETERS, MINIMUM CLEAR ZONE DISTANCE" FOR MINIMUM DISTANCE FROM THE EDGE OF TRAVELED WAY TO THE FACE OF A NON-BREAKAWAY POLE OR OBSTRUCTION. TRAFFIC SIGNAL POLES OR ANY OTHER NON-BREAKAWAY OBSTRUCTION SHALL NOT BE INSTALLED WITHIN THE CLEAR ZONE.

19. AS DETERMINED BY THE ENGINEER, FOUNDATION EMBEDMENT MAY BE DECREASED BY A MAXIMUM OF TWO FEET IF COMPETENT ROCK IS ENCOUNTERED PRIOR TO ACHIEVING PLAN EMBEDMENT AND AT LEAST HALF OF THE REMAINING PLAN EMBEDMENT LENGTH IS KEYED INTO COMPETENT ROCK.

TRAFFIC SIGNAL NOTES: (CONT'D).

20. CONNECTION OF TRAFFIC SIGNAL DISPLAYS TO FIELD WIRING SHALL UTILIZE AN APPROVED TERMINAL STRIP TO BE INSTALLED IN EACH POLE BEHIND THE HAND-HOLE COVER AT THE BASE OF POLE. THE TERMINAL STRIP SHALL PROVIDE PROTECTION TO PREVENT EXPOSURE TO THE PUBLIC IN THE EVENT THAT THE POLE COVER IS MISSING. PAYMENT FOR TERMINAL STRIPS SHALL BE INCLUDED IN ITEM 714 -- TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION.

21. CONTROLLER CABINET LAYOUT AND ORIENTATION SHALL CONFORM TO IMSA STANDARDS.

22. ONE VIDEO PROGRAMMING MODULE SHALL BE PROVIDED FOR AIMING AND SETUP OF DETECTORS IF THE VIDEO SYSTEM CANNOT BE ADJUSTED THROUGH HARDWARE AND SOFTWARE PROVIDED BY ITEMS WITHIN THE JOB.

23. TRAFFIC SIGNAL CONTRACTOR MUST NOTIFY RESIDENT ENGINEER OR ASSIGNED DEPARTMENT PROJECT INSPECTOR EACH DAY PRIOR TO SIGNAL-RELATED WORK. NO WORK ON TRAFFIC SIGNALS WILL BE ALLOWED OR APPROVED WITHOUT THIS PRIOR NOTIFICATION.

24. ALL STEEL POLES SHALL BE DESIGNED TO MEET THE AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS", 4TH EDITION (2001, WITH 2003 AND 2006 INTERIMS).

25. DOOR PANEL TEST PUSHBUTTONS SHALL ACTUATE INDICATED PHASES. DETECTOR ASSIGNMENTS AND/OR SIDE PANEL JUMPERS MAY REQUIRE MODIFICATIONS.

26. EXISTING EMERGENCY VEHICLE PREEMPTION SYSTEMS ARE THE PROPERTY OF THE CITY OF SPRINGDALE.

27. INTERCEPT THE EXISTING FIBER-OPTIC COMMUNICATIONS CABLE WITH A NEW TYPE 1HD PULL BOX. REMOVE FROM EXISTING CABINET AND REINSTALL IN NEW 2" NMC TO CONNECT TO NEW CONTROLLER. THE COST IS TO BE INCLUDED IN THE PRICES FOR OTHER ITEMS BID.

SEQUENCE NOTES:

ELM SPRINGS ROAD AT I-49 SOUTHBOUND RAMPS

STAGE 1

RETAIN EXISTING SIGNALS IN OPERATION. INSTALL TEMPORARY POLE TA AND TEMPORARY SPAN TO SUPPORT EXISTING SIGNAL HEAD 1. RELOCATE EXISTING SIGNAL HEAD 1 FROM THE EXISTING MAST ARM TO TEMPORARY LOCATION ON THE TEMPORARY SPAN. RECONFIGURE VIRTUAL DETECTION ZONES AS NEEDED.

STAGE 2

MAINTAIN EXISTING SIGNALS IN OPERATION. RELOCATE EXISTING SIGNAL HEAD 1 BACK TO EXISTING MAST ARM AND RELOCATE OTHER SIGNAL HEADS AS NEEDED. RECONFIGURE VIRTUAL DETECTION ZONES AS NEEDED.

STAGE 3

MAINTAIN EXISTING SIGNAL IN OPERATION. INSTALL NEW SIGNAL. INSTALL TEMPORARY VIRTUAL DETECTION ZONES FOR STAGE 3 TRAFFIC. RECONFIGURE VIRTUAL DETECTION ZONES AS NEEDED. PLACE NEW SIGNAL INTO OPERATION. REMOVE OLD SIGNAL POLES, CONTROLLER AND CABINET, AND PULL BOXES. ABANDON OLD CONDUITS IN PLACE. COVER PEDESTRIAN DISPLAYS UNTIL ALL HANDICAP RAMPS AND CROSSWALK MARKINGS ARE COMPLETE. AFTER COMPLETION OF STAGE 3 ROADWAY CONSTRUCTION, RELOCATE NEW DISPLAYS TO PERMANENT LOCATIONS AND INSTALL PERMANENT CONFIGURATIONS OF VIRTUAL DETECTION ZONES.

ELM SPRINGS ROAD AT I-49 NORTHBOUND RAMPS

STAGE 1

RETAIN EXISTING SIGNALS IN OPERATION. RELOCATE EXISTING SIGNAL HEADS ON THE EXISTING SPANS. RECONFIGURE VIRTUAL DETECTION ZONES AS NEEDED.

STAGE 2

MAINTAIN EXISTING SIGNALS IN OPERATION. RELOCATE EXISTING SIGNAL HEADS AS NEEDED.

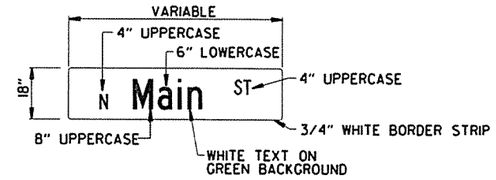
STAGE 3

INSTALL NEW SIGNAL. IN THE NEW CABINET, INSTALL TEMPORARY VIRTUAL DETECTION ZONES FOR STAGE 3 TRAFFIC. PLACE NEW SIGNAL INTO OPERATION, WITH NEW SIGNAL HEADS IN TEMPORARY LOCATIONS. REMOVE OLD SIGNAL POLES, CONTROLLER AND CABINET, AND PULL BOXES. DELIVER THE CABINET AND ITS FURNISHINGS TO THE CITY OF SPRINGDALE. ABANDON OLD CONDUITS IN PLACE. COVER THE PEDESTRIAN DISPLAYS UNTIL ALL HANDICAP RAMPS AND CROSSWALK MARKINGS ARE COMPLETE. AFTER COMPLETION OF STAGE 3 ROADWAY CONSTRUCTION, RELOCATE NEW SIGNAL HEADS TO PERMANENT LOCATIONS AND INSTALL PERMANENT CONFIGURATIONS OF VIRTUAL DETECTION ZONES.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	56	160
				(2)	TRAFFIC SIGNAL NOTES			

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11991
ROBERT E. Mc IVOR JR.
1/28/16

OVERHEAD STREET NAME MARKER STANDARD MAST ARM MOUNTED



NOTES:
1. REFLECTIVE SHEETING SHALL COMPLY WITH ASTM 4956 TYPE 8 OR 9 REFLECTIVE SHEETING. SHEETING AND LEGEND SHALL BE APPLIED IN SUCH A MANNER TO PROVIDE WRINKLE- AND BUBBLE-FREE SURFACES. APPLICATION OF SHEETING IS CAUSE FOR REJECTION OF MATERIALS DUE TO WORKMANSHIP.

2. ALUMINUM SIGN BLANK SHALL BE ALLOY 6061-T6 OR 5052-H38. THE ALUMINUM SIGN SHALL ALSO BE ANODIZED. THE ALUMINUM SHEETING SHALL BE 0.100 INCH NOMINAL THICKNESS AND OF THE SIZE SHOWN WITH 1.5" CORNER RADII. PRIOR TO FABRICATION OF THE SIGNS, THE LAYOUT SHALL FIRST BE APPROVED BY AN AGENT OF THE CITY.

3. WHEN CROSSROAD HAS TWO NAMES, THE SIGN FOR THE CROSSROAD TO THE LEFT MAY BE INSTALLED ON THE BACKSIDE OF THE MAST ARM OF THE NEARSIDE LEFT POLE. SEE STD. DETAIL SHEET FOR MORE INFORMATION FOR MOUNTING ON MAST ARM ASSEMBLY.

4. THE SERIES C 2000 STANDARD ALPHABET SHALL BE USED FOR ALL LETTERS.

LOCATION: I-49 RAMPS/ELM SPRINGS RD.
CITY: SPRINGDALE
COUNTY: WASHINGTON
DISTRICT: 4 SCALE: N/A DRAWN BY: JC

DATE: 1/28/16 FILE NAME: NOTES.DGN

USER: 11656
DESIGN FILE: R:\647673\TRAFFIC SIGNALS\ELM SPRINGS\NOTES.DGN MODEL: ELM SPRINGS RD. SIGNALS
PLOTTED: 1/28/16 11:11 SCALE: 40:1

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	57	160

(2) TRAFFIC SIGNAL QUANTITIES

TRAFFIC SIGNAL QUANTITIES

ITEM NO.	ITEM	STAGE 1 SB RAMPS 3 AND 4	STAGE 1 NB RAMPS 1 AND 2	STAGE 2 SB RAMPS 3 AND 4	STAGE 2 NB RAMPS 1 AND 2	SUBTOTAL SB RAMPS 3 AND 4	SUBTOTAL NB RAMPS 1 AND 2	PERMANENT SB RAMPS 3 AND 4	PERMANENT NB RAMPS 1 AND 2	TOTAL QUANTITY	UNIT
SP & 701	SYSTEM LOCAL CONTROLLER TS 2-TYPE 2, E-NET (8 PHASES)							1	1	2	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (3 SECTION, 1 WAY)							11	10	21	EACH
SP & 706	TRAFFIC SIGNAL HEAD, LED, (4 SECTION, 1 WAY)								1	1	EACH
SP & 707	COUNTDOWN PEDESTRIAN SIGNAL HEAD, LED							6	8	14	EACH
708	TRAFFIC SIGNAL CABLE (5C/14 A.W.G.)							1652	2279	3931	LIN. FT.
708	TRAFFIC SIGNAL CABLE (7C/14 A.W.G.)	80				80		105	62	247	LIN. FT.
708	TRAFFIC SIGNAL CABLE (12C/14 A.W.G.)								139	139	LIN. FT.
708	TRAFFIC SIGNAL CABLE (20C/14 A.W.G.)							411	504	915	LIN. FT.
709	GALVANIZED STEEL CONDUIT (1.25")							10	10	20	LIN. FT.
710	NON-METALLIC CONDUIT (2")							137	68	205	LIN. FT.
710	NON-METALLIC CONDUIT (3")							280	434	714	LIN. FT.
711	CONCRETE PULL BOX (TYPE 1)							1		1	EACH
711	CONCRETE PULL BOX (TYPE 1 HD)							2	2	4	EACH
711	CONCRETE PULL BOX (TYPE 2)								1	1	EACH
711	CONCRETE PULL BOX (TYPE 2 HD)							4	4	8	EACH
713	SPAN WIRE ASSEMBLY	1				1				1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (34')							1	1	2	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (38')								1	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (42')								1	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (48')							1		1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (56')								1	1	EACH
714	TRAFFIC SIGNAL MAST ARM AND POLE WITH FOUNDATION (70')							1		1	EACH
715	TRAFFIC SIGNAL PEDESTAL POLE WITH FOUNDATION							3	3	6	EACH
716	TREATED WOOD POLE (CLASS 3, 40')	1				1				1	EACH
733	VIDEO MONITOR (CLR)							1	1	2	EACH
SP & 733	VIDEO PROCESSOR, EDGE CARD (2 CAMERA)							3	4	7	EACH
SP & 733	VEHICLE DETECTOR RACK (16 CHANNEL)							1	1	2	EACH
SP	18" STREET NAME SIGN							1	1	2	EACH
SP	ATCS PROCESSING UNIT							1	1	2	EACH
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (1C/ 8 A.W.G., E.G.C.)							468	506	974	LIN. FT.
SP	ELECTRICAL CONDUCTORS-IN-CONDUIT (2C/ 6 A.W.G.)							10	10	20	LIN. FT.
SP	ELECTRICAL CONDUCTORS FOR LUMINAIRES							370	443	813	LIN. FT.
SP	ETHERNET SWITCH T100 HARDENED (8-PORT)							1	1	2	EACH
SP	LED LUMINAIRE ASSEMBLY							2	3	5	EACH
SP	NET-ACCESS RADIO (5.8 GHz, 32 MBPS)							1		1	EACH
SP	NET-SUBSCRIBER RADIO (5.8 GHz, 32 MBPS)								1	1	EACH
SP	NETWORK CABLE, EXTERIOR, CAT 5		150				150	813	1834	2797	LIN. FT.
SP	RELOCATION OF TRAFFIC SIGNAL HEAD	3	5	5	5	8	10	2	3	23	EACH
SP	REMOVAL OF TRAFFIC SIGNAL EQUIPMENT							0.50	0.50	1.00	LUMP SUM
SP	SERVICE POINT ASSEMBLY (2 CIRCUITS)							1		1	EACH
SP	TRAFFIC SIGNAL CONTROLLER (MODIFICATION)		1				1			1	EACH
SP	VIDEO DETECTOR (IP)		1				1	5	7	13	EACH
SP	VIDEO DETECTOR ROTATION	1	0	3	3	4	3			7	EACH

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No.11991
ROBERT E. Mc IVOR JR.
2/3/16

LOCATION: I-49 RAMPS/ELM SPRINGS RD.
CITY: SPRINGDALE
COUNTY: WASHINGTON
DISTRICT: 4 SCALE: N/A DRAWN BY: JC

DATE: 2/2/16 FILE NAME: QUANTITY TABLE.DGN

USER: 11656
DESIGN FILE: R:\647673\TRAFFIC SIGNALS\ELM SPRINGS\QUANTITY TABLE.DGN MODEL: ELM SPRINGS RD. SIGNALS
PLOTTED: 2/2/16 19:53 SCALE: N/A

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	58	160
				(2)	SIGNALIZATION PLAN			

STAGE I SB

DESIGN PARAMETERS

POSTED SPEED LIMIT:
40 MPH EAST AND WEST APPROACH
35 MPH NORTH APPROACH
NO BUS STOPS
NO RAILROAD TRACKS
EXISTING FIBER OPTI INTERCONNECTIONS
NO FIRE STATION
NO PARKING
NO SIGHT DISTANCE RESTRICTIONS

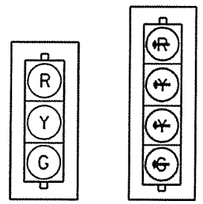
LOCATION OF STOP LINES
SHOWN ON PAVEMENT MARKING PLAN.
SEE SEPARATE SHEET.

MINIMUM CLEAR ZONE DISTANCE
2' FEET BEHIND BACK OF CURB

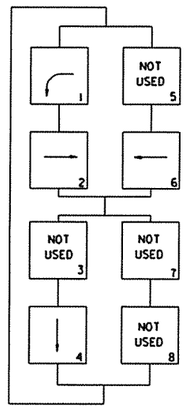
NOTES:
1. TRAFFIC SIGNAL OPERATIONS SHALL BE MAINTAINED THROUGHOUT ALL CONSTRUCTION PHASES. EXISTING POLES EA AND EB AND THE EXISTING CONTROLLER ARE TO BE KEPT IN SERVICE UNTIL THE NEW SIGNAL IS READY TO COMMENCE OPERATIONS.
2. EXISTING EMERGENCY VEHICLE PREEMPTION SYSTEM TO REMAIN IN SERVICE.

EXISTING SIGNAL FACES

12" LENSES



EXISTING PHASING DIAGRAM



STAGE I:
MAINTAIN SERVICE POINT FOR TEMPORARY USE.

EXIST. VIRTUAL DETECTION ZONE TO REMAIN.

EXIST. R.O.W.

RELOCATE EXISTING DISPLAY [1] TO TEMP. SPAN WIRE. RELOCATE DISPLAYS FOR WESTBOUND TRAFFIC ON EXISTING MAST ARM.

EXISTING PULL BOX

2" NMC

EXISTING VIRTUAL DETECTION ZONES TO BE REMOVED FROM SERVICE.

EXISTING OPERATIONS TO CONTINUE USING EXISTING CONTROLLER.

ROTATE DETECTOR (VI)

INSTALL TEMP. STOP LINE

INSTALL TEMP. PAVEMENT MARKING ARROWS

WORK ZONE

Vz21B

Vz22B COMB.

EXISTING 6'X6' DETECTION ZONE

Vz 62 COMB.

Vz 61

Vz 12

Vz 11 COMB.

ELM SPRINGS RD.

VIRTUAL 6'X50' PRESENCE ZONE

INSTALL TEMP. PAVEMENT MARKING ARROWS

VIRTUAL 6'X6' DETECTION ZONES 100' BEHIND STOP LINE.

VIRTUAL 6'X6' DETECTION ZONES 85' BEHIND STOP LINE.

VIRTUAL 6'X6' DETECTION ZONE 230' BEHIND STOP LINE.

EXISTING VIRTUAL DETECTION ZONE TO REMAIN

INSTALL 40', CLASS 3 TREATED WOOD POLE WITH GUY. CONNECT SPAN WIRE TO EXISTING MAST ARM SIGNAL POLE.

EXISTING PULL BOXES WITH EXISTING SIGNAL CABLES TO REMAIN IN SERVICE.

I-49 SB RAMP 3

I-49 SB RAMP 4

EA

EB

TA

15

20 D.I.

350

351

Vz42 COMB.

DETECTOR SPACING CHART

POSTED SPEED	DIST. FROM STOP LINE	
	LEAD ZONE	LAG ZONE
ELM SPRINGS - 40 MPH	230'	100'

SCALE IN FEET
0 20' 40' 80'

STAGE I CONSTRUCTION: SB RAMPS 3 AND 4

LOCATION: I-49 RAMPS/ELM SPRINGS RD.
CITY: SPRINGDALE
COUNTY: WASHINGTON
DISTRICT: 4 SCALE: N/A DRAWN BY: rch

DATE: 2/2/16 FILE NAME: SIGNAL STAGE 1_SOUTHBOUND.DGN

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No.11991
ROBERT E. Mc IVOR JR.
2/3/16

USER: ll656
DESIGN FILE: R:\647673\TRAFFIC SIGNALS\ELM SPRINGS\SIGNAL STAGE 1_SOUTHBOUND.DGN MODEL: ELM SPRINGS RD. SIGNALS
PLOTTED: 2/2/16 20:16 SCALE: 40:1

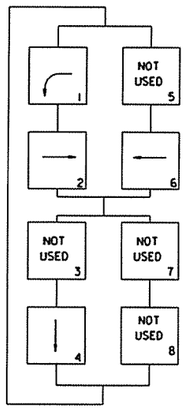
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	59	160

(2) SIGNALIZATION PLAN

STAGE 1 SB

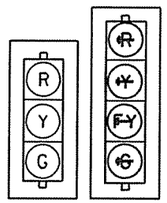
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11991
ROBERT E. Mc IVOR JR.
1/28/16

EXISTING PHASING DIAGRAM



EXISTING SIGNAL FACES @ I-49 SOUTHBOUND RAMPS

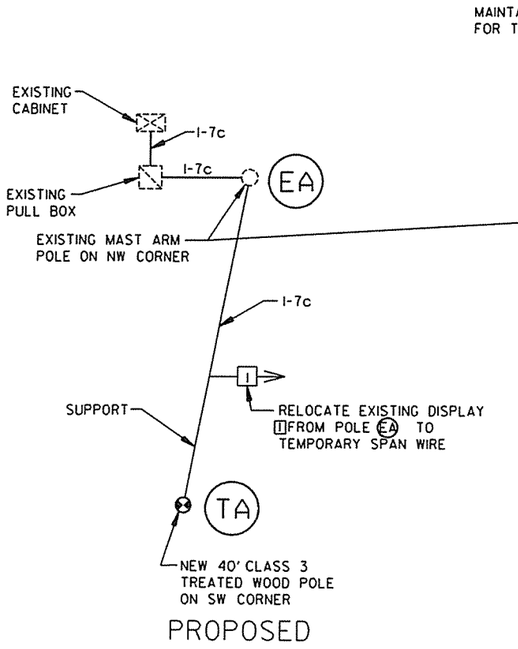
12" LENSES

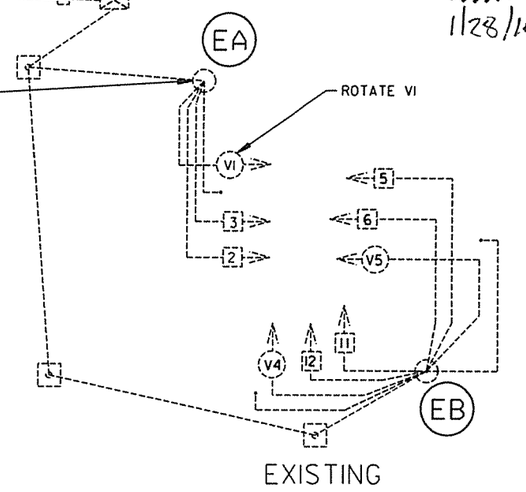


INTERVAL CHART

SIGNAL FACES	I-49 RAMPS 3 & 4/ELM SPRINGS RD. I+6	CLR.	2+6	CLR.	4+7	CLR.	FLASH SEQ.
1	~~G~~	•	~~FY~~	•••	~~R~~	~~R~~	~~R~~
2 & 3	G	••	G	••	R	R	R
5 & 6	R	R	G	••	R	R	R
11 & 12	R	R	R	R	G	••	R

• DENOTES GREEN OR YELLOW ARROW DEPENDING ON NEXT PHASE.
•• DENOTES GREEN OR YELLOW BALL DEPENDING ON NEXT PHASE.
••• DENOTES FLASHING YELLOW ARROW OR YELLOW ARROW DEPENDING ON NEXT PHASE.





WIRING MODIFICATIONS DIAGRAM

RAMPS 3 AND 4
SOUTHBOUND

STAGE 1

EXISTING CABLES MAY NOT PROVIDE ADEQUATE SLACK TO RE-POSITION DISPLAY.
EXISTING WIRING CONFIGURATION TO REMAIN IN PLACE EXCEPT FOR MODIFICATIONS NEEDED FOR DISPLAY 1

NOTES TO CONTRACTOR:

1. ALL DETECTOR RACK CHANNELS, INCLUDING UNUSED, SHALL BE BROUGHT TO TERMINAL STRIP IN DETECTOR AREA OF CABINET.
2. THE LOCAL GOVERNMENT SHALL BE RESPONSIBLE FOR PROVIDING POWER TO THE SERVICE POINT.
3. A SEPARATE SOLID GROUND WIRE BETWEEN ALL STEEL POLES, CABINET, AND GROUND RODS IS REQUIRED AS SHOWN ON THE STANDARD DRAWINGS. ALL BONDS BETWEEN RODS AND GROUNDING CONDUCTORS ARE TO BE FUSION WELDS.

DETECTOR SYSTEM DESCRIPTION: JOB BB0413

I-49 RAMPS 3 & 4/ELM SPRINGS RD. DETECTOR ASSIGNMENTS				HARDWARE INPUTS BY SUPPLIER			PROGRAM ASSIGNMENTS			EXISTING CAMERA		DOOR PANEL TEST BUTTON
							LOCAL		MASTER SYSTEM DETECTOR NUMBERS			
DET. ID*	LOCATION DIRECTION	TYPE	RECONFIGURE •	CAB. TRM *	AMP. CHN. *	CON. INP. *	PHS	SYSTEM DET.*				
Vz11	WB LEFT TURN FAR	COMB.	YES		1	V9	1	1		CAMERA VI		1
Vz12	WB LEFT TURN	LOCAL	YES		2	VI	1			CAMERA VI		1
Vz21 B	EB ADVANCE	LOCAL	NO		5	V2	2			CAMERA V5		2
Vz22 B	EB NEAR	COMB.	NO		6	V10	2	2		CAMERA V5		2
Vz41	SB ADVANCE	COMB.	NO		9	V12	4	4		CAMERA V4		4
Vz42	SB NEAR	LOCAL	NO		10	V4	4			CAMERA V4		4
Vz61	WB ADVANCE	LOCAL	YES		3	V6	6			CAMERA VI		6
Vz62	WB NEAR	COMB.	YES		4	V14	6	6		CAMERA VI		6

* RECONFIGURE THESE VIRTUAL ZONES STAGE 1. SPARE: 7,8,11-16

CONTROLLER INPUT ABBREVIATIONS:
V = VEHICULAR INPUT
D = SYSTEM OR AUXILIARY INPUT

STAGE 1 CONSTRUCTION: SB RAMPS 3 AND 4

LOCATION: I-49 RAMPS/ELM SPRINGS RD.
CITY: SPRINGDALE
COUNTY: WASHINGTON
DISTRICT: 4 SCALE: N/A DRAWN BY: rch

DATE: 1/28/16 FILE NAME: ELM_SPRING SIGNAL STAGE 1_SOUTHBOUND_WIRINGMODDIAGRAM.DGN

USER: 11656
DESIGN FILE: R:\647673\TRAFFIC SIGNALS\ELM SPRINGS\ELM_SPRING SIGNAL STAGE 1_SOUTHBOUND_WIRINGMODDIAGRAM.DGN
PLOTTED: 1/28/16 8#8 SCALE: 40# MODEL: ELM SPRINGS RD. SIGNALS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	60	160

(2) SIGNALIZATION PLAN

STAGE 2 SB

DESIGN PARAMETERS

POSTED SPEED LIMIT:
40 MPH EAST AND WEST APPROACH
35 MPH NORTH APPROACH
NO BUS STOPS
NO RAILROAD TRACKS
EXISTING FIBER OPTIC INTERCONNECTIONS
NO FIRE STATION
NO PARKING
NO SIGHT DISTANCE RESTRICTIONS

LOCATION OF STOP LINES SHOWN ON PAVEMENT MARKING PLAN. SEE SEPARATE SHEET.

MINIMUM CLEAR ZONE DISTANCE 2' FEET BEHIND BACK OF CURB

EXISTING SIGNAL FACES

12" LENSES

SIGNAL HEADS 1, 2, 3, 5 & 6 TO BE RELOCATED.

STAGE 2:
REMOVE TEMPORARY POLE TA AND THE TEMPORARY SPAN. ADJUST SIGNAL HEADS AND MAINTAIN VIRTUAL DETECTION ZONES TO MAINTAIN SIGNAL OPERATIONS.

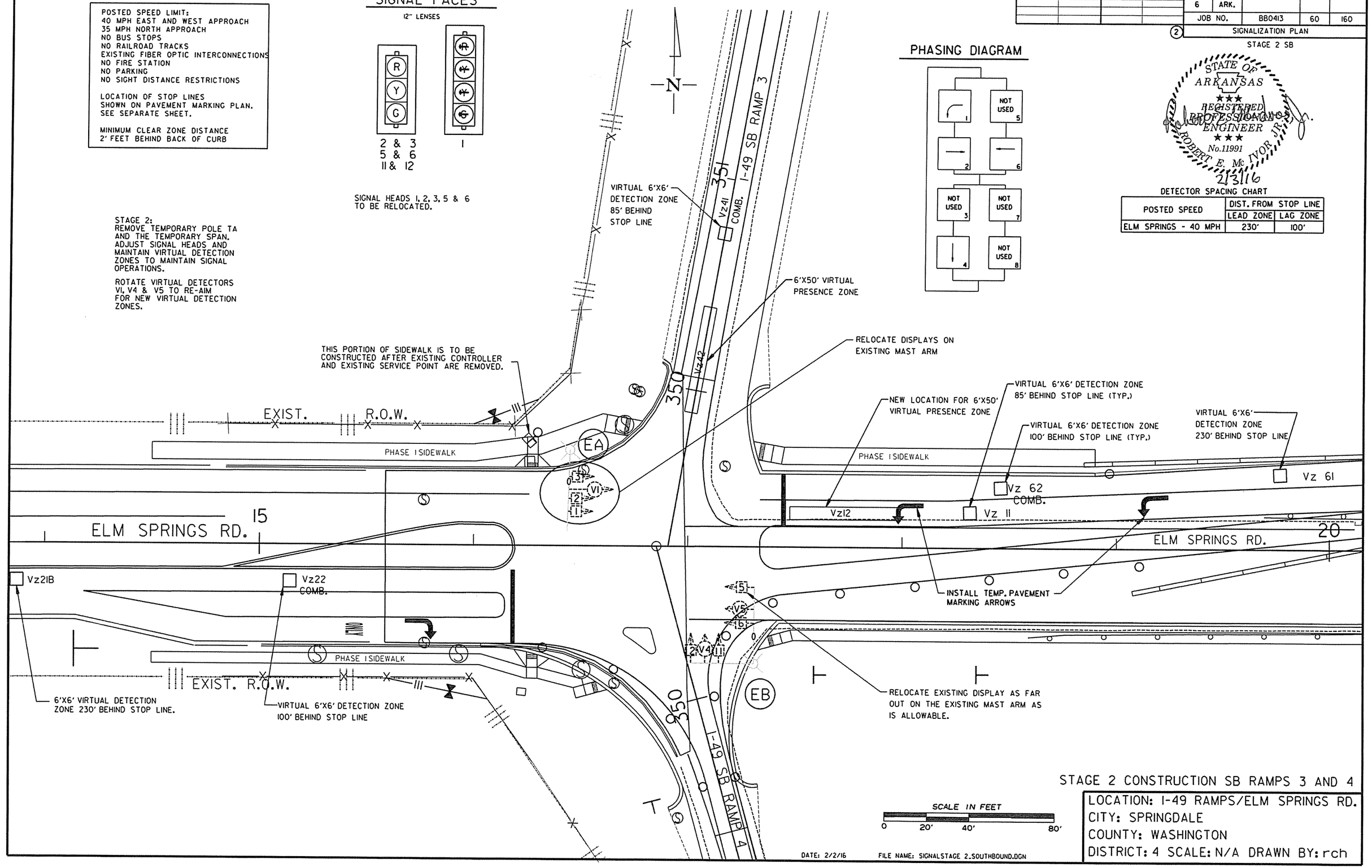
ROTATE VIRTUAL DETECTORS V1, V4 & V5 TO RE-AIM FOR NEW VIRTUAL DETECTION ZONES.

PHASING DIAGRAM

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
ROBERT E. Mc IVOR JR.
No. 11991
2/3/16

DETECTOR SPACING CHART

POSTED SPEED	DIST. FROM STOP LINE	
	LEAD ZONE	LAG ZONE
ELM SPRINGS - 40 MPH	230'	100'



STAGE 2 CONSTRUCTION SB RAMPS 3 AND 4

LOCATION: I-49 RAMPS/ELM SPRINGS RD.
CITY: SPRINGDALE
COUNTY: WASHINGTON
DISTRICT: 4 SCALE: N/A DRAWN BY: rch

DATE: 2/2/16 FILE NAME: SIGNALSTAGE 2_SOUTHBOUND.DGN

USER: 11656
DESIGN FILE: R:\647673\TRAFFIC SIGNALS\ELM SPRINGS\SIGNAL STAGE 2_SOUTHBOUND.DGN MODEL: ELM SPRINGS RD. SIGNALS
PLOTTED: 2/2/16 20:20 SCALE: 40:1

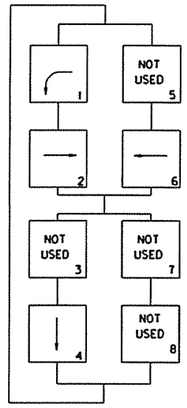
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	61	160

(2) SIGNALIZATION PLAN

STAGE 2 SB

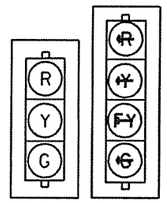
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No.11991
ROBERT E. Mc IVOR JR.
1/28/16

EXISTING PHASING DIAGRAM



EXISTING SIGNAL FACES @ I-49 SOUTHBOUND RAMPS

12" LENSES



INTERVAL CHART

SIGNAL FACES	I-49 RAMPS 3 & 4/ELM SPRINGS RD. I+6	CLR.	2+6	CLR.	4+7	CLR.	FLASH SEQ.
1	~~G~~	•	~~FY~~	•••	~~R~~	~~R~~	~~R~~
2 & 3	G	••	G	••	R	R	R
5 & 6	R	R	G	••	R	R	R
11 & 12	R	R	R	R	G	••	R

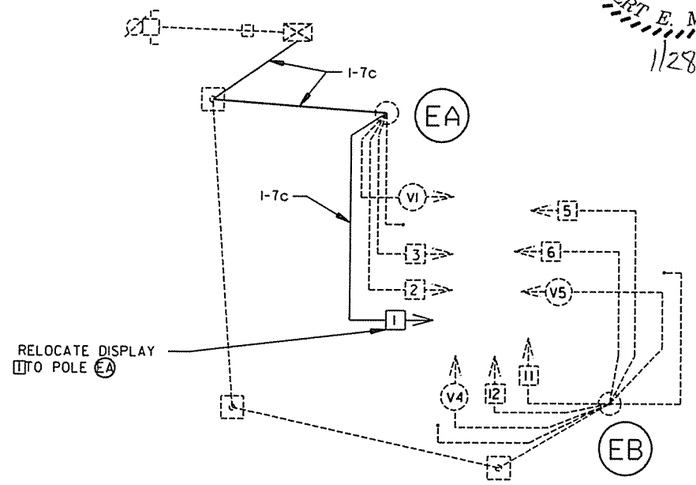
• DENOTES GREEN OR YELLOW ARROW DEPENDING ON NEXT PHASE.
•• DENOTES GREEN OR YELLOW BALL DEPENDING ON NEXT PHASE.
••• DENOTES FLASHING YELLOW ARROW OR YELLOW ARROW DEPENDING ON NEXT PHASE.

DETECTOR SYSTEM DESCRIPTION: JOB BB0413

I-49 RAMPS 3 & 4/ELM SPRINGS RD. DETECTOR ASSIGNMENTS				HARDWARE INPUTS BY SUPPLIER			PROGRAM ASSIGNMENTS LOCAL		MASTER SYSTEM DETECTOR NUMBERS	EXISTING CAMERA		DOOR PANEL TEST BUTTON
DET. ID*	LOCATION DIRECTION	TYPE	RECONFIGURE •	CAB. TRM #	AMP. CHN. #	CON. INP. #	PHS	SYSTEM DET.#				
Vz11	WB LEFT TURN FAR	COMB.	YES		1	V9	1	1		VI		1
Vz12	WB LEFT TURN	LOCAL	YES		2	VI	1			VI		1
Vz21	EB ADVANCE	LOCAL	YES		5	V2	2			V5		2
Vz22	EB NEAR	COMB.	YES		6	V10	2	2		V5		2
Vz41	SB ADVANCE	COMB.	YES		9	V4	4	4		V4		4
Vz42	SB RIGHT TURN	LOCAL	YES		10	P3	4			V4		4
Vz61	WB ADVANCE	LOCAL	YES		3	V14	6			VI		6
Vz62	WB NEAR	COMB.	YES		4	V6	6	6		VI		6

*RECONFIGURE THESE VIRTUAL ZONES STAGE 2. SPARE: 7, 8, 11 - 16

CONTROLLER INPUT ABBREVIATIONS:
V = VEHICULAR INPUT
D = SYSTEM OR AUXILIARY INPUT



WIRING MODIFICATIONS DIAGRAM

RAMPS 3 AND 4
SOUTHBOUND

STAGE 2

ADJUST DISPLAYS AS NEEDED TO MAINTAIN COMPLIANCE WITH MUTCD AND AHTD REQUIREMENTS.

NOTES TO CONTRACTOR:

1. ALL DETECTOR RACK CHANNELS, INCLUDING UNUSED, SHALL BE BROUGHT TO TERMINAL STRIP IN DETECTOR AREA OF CABINET.
2. THE LOCAL GOVERNMENT SHALL BE RESPONSIBLE FOR PROVIDING POWER TO THE SERVICE POINT.
3. A SEPARATE SOLID GROUND WIRE BETWEEN ALL STEEL POLES, CABINET, AND GROUND RODS IS REQUIRED AS SHOWN ON THE STANDARD DRAWINGS. ALL BONDS BETWEEN RODS AND GROUNDING CONDUCTORS ARE TO BE FUSION WELDS.

STAGE 2 CONSTRUCTION: SB RAMPS 3 AND 4

LOCATION: I-49 RAMPS/ELM SPRINGS RD.
CITY: SPRINGDALE
COUNTY: WASHINGTON
DISTRICT: 4 SCALE: N/A DRAWN BY: rch

DATE: 1/26/16 FILE NAME: SIGNAL STAGE 2_SOUTHBOUND_WIRINGMODDIAGRAM.DGN

USER: 11656
DESIGN FILE: R:\647673\TRAFFIC SIGNALS\ELM SPRINGS\SIGNAL STAGE 2_SOUTHBOUND_WIRINGMODDIAGRAM.DGN
PLOTTED: 1/26/16 22:02 SCALE: 40:1 MODEL: ELM SPRINGS RD. SIGNALS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	62	160

(2) SIGNALIZATION PLAN
STAGE 3 SB

DESIGN PARAMETERS

POSTED SPEED LIMIT:
40 MPH EAST AND WEST APPROACH
35 MPH NORTH APPROACH
NO BUS STOPS
NO RAILROAD TRACKS
EXISTING FIBER OPTIC INTERCONNECTIONS
NO FIRE STATION
NO PARKING
NO SIGHT DISTANCE RESTRICTIONS

LOCATION OF STOP LINES
SHOWN ON PAVEMENT MARKING PLAN.
SEE SEPARATE SHEET.

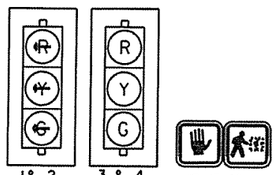
MINIMUM CLEAR ZONE DISTANCE
2' FEET BEHIND BACK OF CURB

DETECTOR SPACING CHART

POSTED SPEED	DIST. FROM STOP LINE	
	LEAD ZONE	LAG ZONE
ELM SPRINGS - 40 MPH	230'	100'

SIGNAL FACES

12" LENSES



1& 2
8 & 9

3 & 4
5, 6, 7
10 & 11

12, 13, 14,
15, 16, 17

STAGE 3:
INSTALL NEW CONTROLLER, POLES, CONDUITS, PULL BOXES, SIGNAL HEADS AND WIRING.
PLACE NEW SIGNAL INTO OPERATION.
SEE SIGNALIZATION PLAN FOR FINAL CONDITION.
INSTALL TEMPORARY VIRTUAL DETECTION ZONES.
REMOVE OLD SIGNAL POLES, CONTROLLER, AND PULL BOXES. ABANDON OLD CONDUITS IN PLACE.

INSTALL NET ACCESS RADIO WITH ANTENNA AT POLE A

REPLACE EXISTING SERVICE POINT

INSTALL 2" NMC FOR COMMUNICATIONS CABLE

INTERCEPT FIBER-OPTIC COMMUNICATIONS CABLE WITH NEW TYPE I PULL BOX AT LOCATION OF ENTRANCE TO EXIST. CABINET. SEE NOTE ON WIRING DIAGRAM.

I-49 SB RAMP 3

Vz41 COMB.

Vz11 COMB.

NEW VIRTUAL 6'X6' DETECTION ZONES 85' BEHIND STOP LINE.

VIRTUAL 6'X50' DETECTION ZONES

Vz42

Vz72

350'

ADJUST DISPLAYS TO NEEDED LOCATIONS. DISPLAY [1] TO BE COVERED UNTIL ITS LANE IS IN SERVICE.

TYPE IHD PULL BOX

50' VIRTUAL DETECTION ZONE

Vz62A COMB.

Vz62B

Vz12

Vz11 COMB.

Vz61A

Vz61B

Vz21A

Vz21B

Vz22A

Vz22B

3" NMC

70'

34'

48'

350'

INSTALL TEMP. PAVEMENT MARKING ARROWS

NEW VIRTUAL 6'X6' DETECTION ZONES 100' BEHIND STOP LINE.

INSTALL TEMP. PAVEMENT MARKING ARROWS

VIRTUAL 6'X6' DETECTION ZONES 230' BEHIND STOP LINE.

VIRTUAL 6'X6' DETECTION ZONES 100' BEHIND STOP LINE.

TYPE IHD PULL BOX

3" NMC

I-49 SB RAMP 4

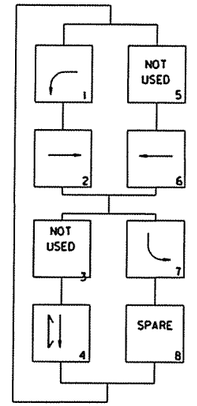
NEW VIRTUAL 6'X6' DETECTION ZONES 85' BEHIND STOP LINE.

92°55'

ANTENNA ORIENTATION

SCALE IN FEET
0 20' 40' 80'

I-49 SOUTHBOUND RAMPS AT ELM SPRINGS PHASING DIAGRAM



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No.11991
ROBERT E. Mc IVOR JR.
2/3/16

NOTES:
1. COVER PEDESTRIAN DISPLAYS UNTIL CROSSWALK MARKINGS AND WHEELCHAIR RAMPS ARE IN PLACE.
2. CAMERA V6 IS TO BE INSTALLED ON THE LUMINAIRE ARM OF POLE A.
3. PERMANENT SIGNAL MUST BE OPERATIONAL BEFORE THE EXISTING SIGNAL IS REMOVED.

STAGE 3 CONSTRUCTION: SB RAMPS 3 AND 4

LOCATION: I-49 RAMPS/ELM SPRINGS RD.
CITY: SPRINGDALE
COUNTY: WASHINGTON
DISTRICT: 4 SCALE: N/A DRAWN BY: rch

DATE: 2/2/16 FILE NAME: ELM_SPRINGS_SIGNAL STAGE 3_SOUTHBOUND.DGN

USER: li656
DESIGN FILE: R:\647673\TRAFFIC SIGNALS\ELM SPRINGS\SIGNAL STAGE 3_SOUTHBOUND.DGN MODEL: ELM SPRINGS RD. SIGNALS
PLOTTED: 2/2/16 20:29 SCALE: 1"=40'

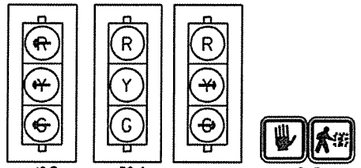
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	63	160

(2) SIGNALIZATION PLAN

STAGE 3 SB

SIGNAL FACES @ I-49 SOUTHBOUND RAMPS

12" LENSES



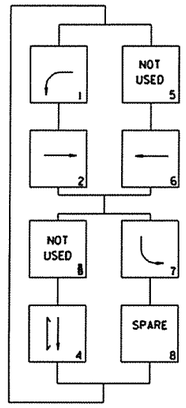
NOTE:
COVER PEDESTRIAN DISPLAYS UNTIL CROSSWALK MARKING IS IN PLACE.

INTERVAL CHART

SIGNAL FACES	I-49 RAMPS 3 & 4/ELM SPRINGS RD. I+6	CLR.	2+6	CLR.	4+7	CLR.	FLASH SEQ.
1&2	~~G~~	•	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
3&4	G	••	G	••	R	R	R
5,6&7	R	R	G	••	R	R	R
8&9	~~R~~	~~R~~	~~R~~	~~R~~	~~G~~	•	~~R~~
10&11	R	R	R	R	G	••	R

• DENOTES GREEN OR YELLOW ARROW DEPENDING ON NEXT PHASE.
•• DENOTES GREEN OR YELLOW BALL DEPENDING ON NEXT PHASE.
••• DENOTES FLASHING YELLOW ARROW OR YELLOW ARROW DEPENDING ON NEXT PHASE.

I-49 SOUTHBOUND RAMPS AT ELM SPRINGS PHASING DIAGRAM



DETECTOR SYSTEM DESCRIPTION: JOB BB0413

I-49 RAMPS 3 & 4/ELM SPRINGS RD. DETECTOR ASSIGNMENTS				HARDWARE INPUTS BY SUPPLIER			PROGRAM ASSIGNMENTS			CAMERA	TUBE LENGTH	DOOR PANEL TEST BUTTON
							LOCAL		MASTER SYSTEM DETECTOR NUMBERS			
DET. ID#	LOCATION DIRECTION	TYPE	RECONFIGURE ? ••	CAB. TRM #	AMP. CHN. #	CON. INP. #	PHS	SYSTEM DET.#				
Vz11	WB LEFT TURN FAR	COMB.	YES		1	V9	1	1		CAMERA VI	23"	1
Vz12	WB LEFT TURN	LOCAL	YES		2	VI	1			CAMERA VI	23"	1
Vz21A&B	EB ADVANCE	LOCAL	YES		5	V2	2			CAMERA V2	74"	2
Vz22 A&B	EB NEAR	COMB.	YES		6	V10	2	2		CAMERA V5	37"	2
Vz41	SB RIGHT ADVANCE	COMB.	YES		9	V12	4	4		CAMERA V4	23"	4
Vz42	SB RIGHT NEAR	LOCAL	YES		10	V4	4			CAMERA V4	23"	4
Vz61A&B	WB ADVANCE	LOCAL	YES		3	V6	6			CAMERA V6	23"	6
Vz62 A&B	WB NEAR	COMB.	YES		4	V14	6	6		CAMERA VI	23"	6
Vz71	SB LEFT ADVANCE	COMB.	YES		11	V15	7	7		CAMERA V4	23"	7
Vz72	SB LEFT NEAR	LOCAL	YES		12	V7	7			CAMERA V4	23"	7

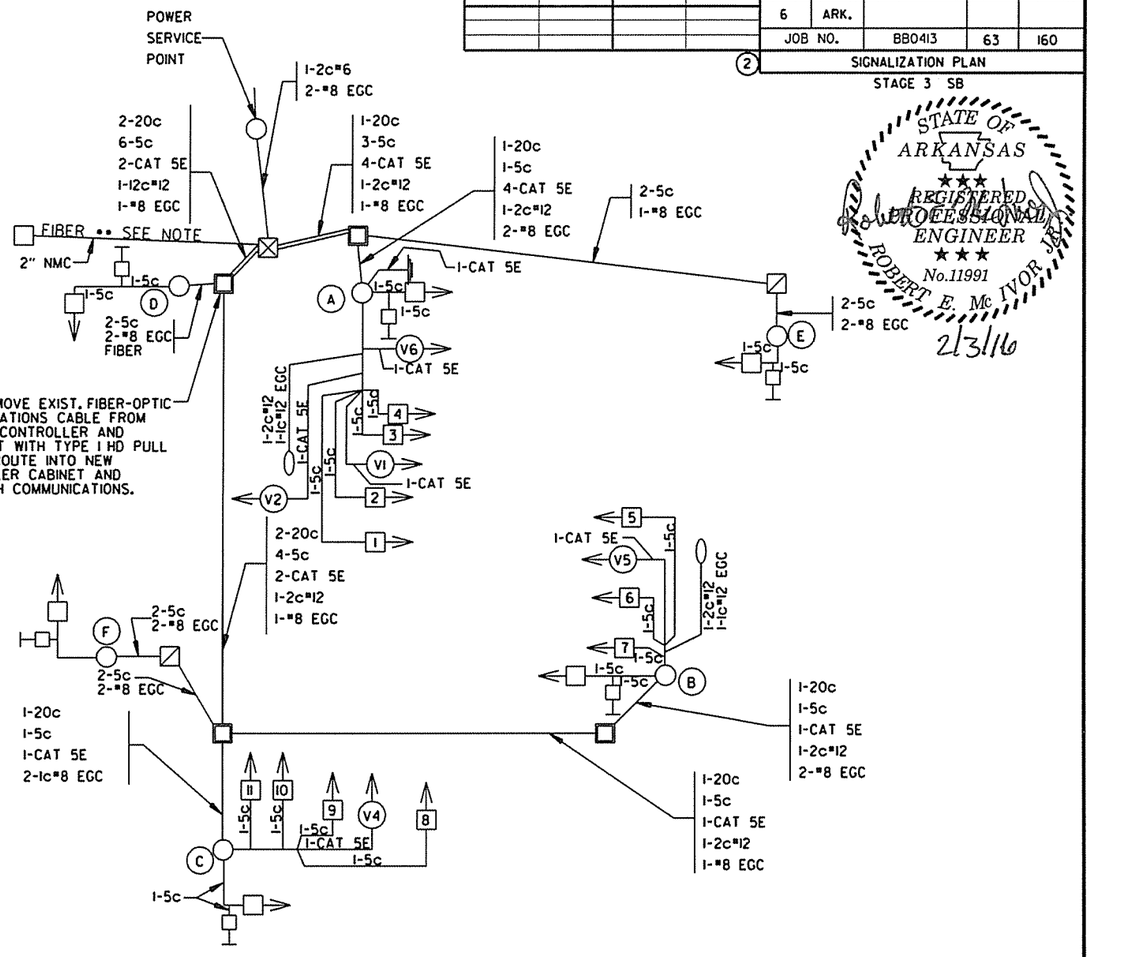
SPARE: 7,8,13-16

STAGE 3

NOTES TO CONTRACTOR:

1. ALL DETECTOR RACK CHANNELS, INCLUDING UNUSED, SHALL BE BROUGHT TO TERMINAL STRIP IN DETECTOR AREA OF CABINET.
2. THE LOCAL GOVERNMENT SHALL BE RESPONSIBLE FOR PROVIDING POWER TO THE SERVICE POINT.
3. A SEPARATE SOLID GROUND WIRE BETWEEN ALL POLES, CABINET, AND GROUND RODS IS REQUIRED AS SHOWN ON THE STANDARD DRAWINGS. ALL BONDS BETWEEN RODS AND GROUNDING CONDUCTORS ARE TO BE FUSION WELDS.
4. WHERE CAT 5E CABLE IS SHOWN FOR EACH VIDEO DETECTOR, A SEPARATE 3-CONDUCTOR POWER CABLE IS ALSO NEEDED, TO BE INCLUDED IN THE PRICE BID FOR THE ITEM "NETWORK CABLE, EXTERIOR CAT 5." SEE THE SPECIAL PROVISION FOR ADAPTIVE TRAFFIC CONTROL SYSTEM.

CONTROLLER INPUT ABBREVIATIONS:
V = VEHICULAR INPUT
D = SYSTEM OR AUXILIARY INPUT



WIRING MODIFICATIONS DIAGRAM

RAMPS 3 AND 4
SOUTHBOUND

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No.11991
ROBERT E. Mc IVOR JR.
2/3/16

STAGE 3 CONSTRUCTION SB RAMPS 3 AND 4

LOCATION: I-49 RAMPS/ELM SPRINGS RD.
CITY: SPRINGDALE
COUNTY: WASHINGTON
DISTRICT: 4 SCALE: N/A DRAWN BY: rch

DATE: 2/3/16 FILE NAME: SIGNAL STAGE 3_SOUTHBOUNDWIRINGMODDIAGRAM.DGN

USER: H656
DESIGN FILE: R:\647673\TRAFFIC SIGNALS\ELM SPRINGS\SIGNAL STAGE 3_SOUTHBOUND_WIRINGMODDIAGRAM.DGN
PLOTTED: 2/3/16 8:51 SCALE: 40d MODEL: ELM SPRINGS RD. SIGNALS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	64	160

(2) SIGNALIZATION PLAN

SB RAMPS

NOTE:
PERMANENT SIGNAL MUST BE OPERATIONAL BEFORE THE EXISTING SIGNAL IS REMOVED.

DETECTOR SPACING CHART

POSTED SPEED	DIST. FROM STOP LINE	
	LEAD ZONE	LAG ZONE
ELM SPRINGS - 40 MPH	230'	100'

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No.11991
ROBERT E. Mc IVOR JR.
1/28/16

LEGEND
- TYPE 2 CONC. PULL BOX HD
- TYPE 1HD CONC. PULL BOX
- CONTROLLER CABINET
- SIGNAL HEAD
- VIDEO DETECTOR
- NMC - NON METALLIC CONDUIT

VIRTUAL 6'X6' DETECTION ZONES (TYP.) 85' BEHIND STOP LINE
VIRTUAL 6'X50' PRESENCE ZONES (TYP.) Vz42, Vz72A AND Vz72B
VIRTUAL 6'X6' DETECTION ZONES (TYP.) 230' BEHIND STOP LINE
VIRTUAL 6'X6' DETECTION ZONES (TYP.) 100' BEHIND STOP LINE
VIRTUAL 6'X6' DETECTION ZONES (TYP.) 100' BEHIND STOP LINE
VIRTUAL 6'X6' DETECTION ZONES (TYP.) 230' BEHIND STOP LINE
VIRTUAL 6'X50' PRESENCE ZONES (TYP.) Vz12A AND Vz12B
VIRTUAL 6'X6' DETECTION ZONES (TYP.) 85' BEHIND STOP LINE

Vz41 COMB.
Vz71A COMB.
Vz71B
Vz42
Vz72A
Vz72B
Vz62A COMB.
Vz62B
Vz61A
Vz61B
Vz12A
Vz12B
Vz11A COMB.
Vz11B
Vz21A
Vz21B
Vz22A COMB.
Vz22B

℄ I-49 RAMP 3 SB
℄ I-49 SB RAMP 4
℄ I-49 SB
℄ ELM SPRINGS RD.
EB I-49
EXIST. R.O.W.
EXIST. R.O.W.
350
349
15
20 D.I.

SCALE IN FEET
0 30' 60' 120'

PERMANENT SIGNAL SB RAMPS 3 AND 4

LOCATION: I-49 RAMPS/ELM SPRINGS RD.
CITY: SPRINGDALE
COUNTY: WASHINGTON
DISTRICT: 4 SCALE: N/A DRAWN BY: JC

DATE: 1/26/16 FILE NAME: ELM_SPRINGS_SIGNAL_SOUTHBOUND_1.DGN

USER: 11656
DESIGN FILE: R:\647673\TRAFFIC SIGNALS\ELM SPRINGS\ELM_SPRINGS_SIGNAL_SOUTHBOUND_1.DGN MODEL: ELM SPRINGS RD. SIGNALS
PLOTTED: 1/26/16 22:28 SCALE: 60:1

I-49 SB RAMPS 3 & 4 AT ELM SPRINGS POLE LOCATIONS

POLE	LOCATION & STATION	OFFSET	X, Y COORODINATES
A	ELM SPRINGS - STA. 16+65.02	63' LT.	668,672.25, 684,285.87
B	ELM SPRINGS - STA. 17+46.86	47' RT.	668,748.75, 684,172.63
C	ELM SPRINGS - STA. 16+50.30	73' RT.	668,651.06, 684,151.33
D	ELM SPRINGS - STA. 16+28.99	53' LT.	668,635.76, 684,277.30
E	ELM SPRINGS - STA. 17+43.38	49' LT.	668,749.85, 684,268.30
F	ELM SPRINGS - STA. 16+29.30	64' RT.	668,630.49, 684160.83

I-49 SB RAMPS 3 & 4 AT ELM SPRINGS POLE DIMENSIONS

POLE	MAST ARM	MAST ARM ANGLE	POLE HEIGHT	LUM. ARMS	* LUM. ANGLE
A	70'	180°	35'	25'	180°
B	34'	180°	35'	15'	180°
C	48'	270°	21'	N/A	N/A
D	N/A	N/A	15'	N/A	N/A
E	N/A	N/A	15'	N/A	N/A
F	N/A	N/A	15'	N/A	N/A

ANGLES MEASURED CLOCKWISE FROM HAND HOLE

LEGEND

- TYPE 2 CONC. PULL BOX HD
- TYPE 1HD CONC. PULL BOX
- TYPE 1 CONC. PULL BOX
- CONTROLLER CABINET
- SIGNAL HEAD
- VIDEO DETECTOR
- NMC - NON METALLIC CONDUIT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	65	160

(2) SIGNALIZATION PLAN

SB RAMPS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
ROBERT E. Mc IVOR JR.
No.11991
2/3/16

INSTALL ETHERNET RADIO COMMUNICATIONS TO COMPLY WITH THE CITY OF SPRINGDALE SYSTEM. SEE SPECIAL PROVISIONS FOR ATCS.

INTERCEPT EXIST. FIBER-OPTIC CABLE IN TYPE I PULL BOX. CONNECT TO CONTROLLER CABINET WITH 2" NMC

INSTALL NET ACCESS RADIO WITH ANTENNA ON POLE A

SERVICE POINT

EXIST. R.O.W.

2 @ 3" NMC

2" NMC

TYPE 1HD CONC. PULL BOX

VIRTUAL 6'X6' DETECTION ZONES (TYP.) 85' BEHIND STOP LINE

VIRTUAL 6'X50' PRESENCE ZONES (TYP.) Vz42, Vz72A AND Vz72B

VIRTUAL 6'X6' DETECTION ZONES (TYP.) 230' BEHIND STOP LINE

VIRTUAL 6'X6' DETECTION ZONES (TYP.) 100' BEHIND STOP LINE

VIRTUAL 6'X6' DETECTION ZONES (TYP.) 100' BEHIND STOP LINE

EXISTING POLE TO BE REMOVED

℄ I-49 SB RAMP 3

℄ ELM SPRINGS RD.

VIRTUAL 6'X50' PRESENCE ZONES (TYP.) Vz12A AND Vz12B

VIRTUAL 6'X6' DETECTION ZONES (TYP.) 85' BEHIND STOP LINE

VIRTUAL 6'X6' DETECTION ZONES (TYP.) 230' BEHIND STOP LINE

EXISTING POLE TO BE REMOVED

TYPE 1HD CONC. PULL BOX

℄ I-49 SB RAMP 4

Vz41, Vz71A COMB., Vz71B, Vz42, Vz72A, Vz72B, Vz62A, Vz62B, Vz61A, Vz61B, Vz12A, Vz12B, Vz11A COMB., Vz11B, Vz21A, Vz21B, Vz22A COMB., Vz22B

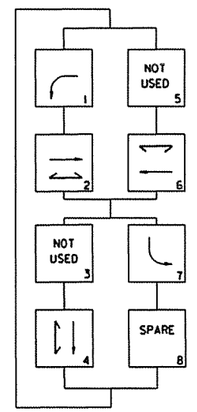
350 ft, 70 ft, 34 ft, 48 ft, 349 ft

N — 92°55'

ANTENNA ORIENTATION

ORIENTED TOWARDS INTERSECTIONS OF ELM SPRINGS ROAD AT I-49 NORTHBOUND RAMPS.

I-49 SOUTHBOUND RAMPS AT ELM SPRINGS PHASING DIAGRAM

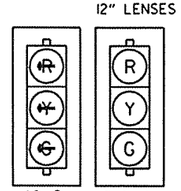


DETECTOR SPACING CHART

POSTED SPEED	DIST. FROM STOP LINE	
	LEAD ZONE	LAG ZONE
ELM SPRINGS - 40 MPH	230'	100'

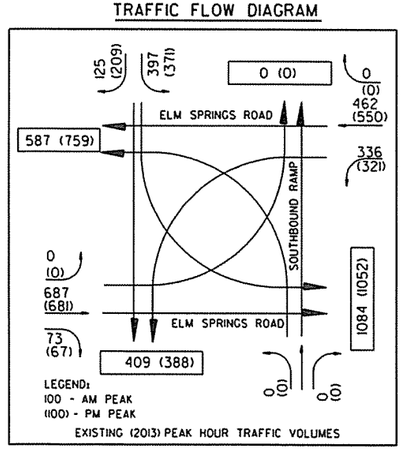
I-49 SOUTHBOUND RAMPS @ ELM SPRINGS SIGNAL FACES

12" LENSES



1& 2 8 & 9 — 3 & 4 5, 6 7 10 & 11 — 12, 13, 14, 15, 16, 17

TRAFFIC FLOW DIAGRAM



NOTES:
1. THE CONTRACTOR IS TO REPLACE EXISTING SERVICE POINT AND MAIN BREAKER (UNDERGROUND ELECTRIC FEED). THE BREAKER MUST BE WITHIN TEN FEET OF THE NEW CONTROLLER.
2. MOUNT CAMERA V6 ON THE LUMINAIRE ARM ON POLE A.

DESIGN PARAMETERS

POSTED SPEED LIMIT:
40 MPH EAST AND WEST APPROACH
35 MPH NORTH APPROACH
NO BUS STOPS
NO RAILROAD TRACKS
EXISTING FIBER OPTIC INTERCONNECTIONS
NO FIRE STATION
NO PARKING
NO SIGHT DISTANCE RESTRICTIONS

LOCATION OF STOP LINES SHOWN ON PAVEMENT MARKING PLAN. SEE SEPARATE SHEET.

MINIMUM CLEAR ZONE DISTANCE 2' FEET BEHIND BACK OF CURB

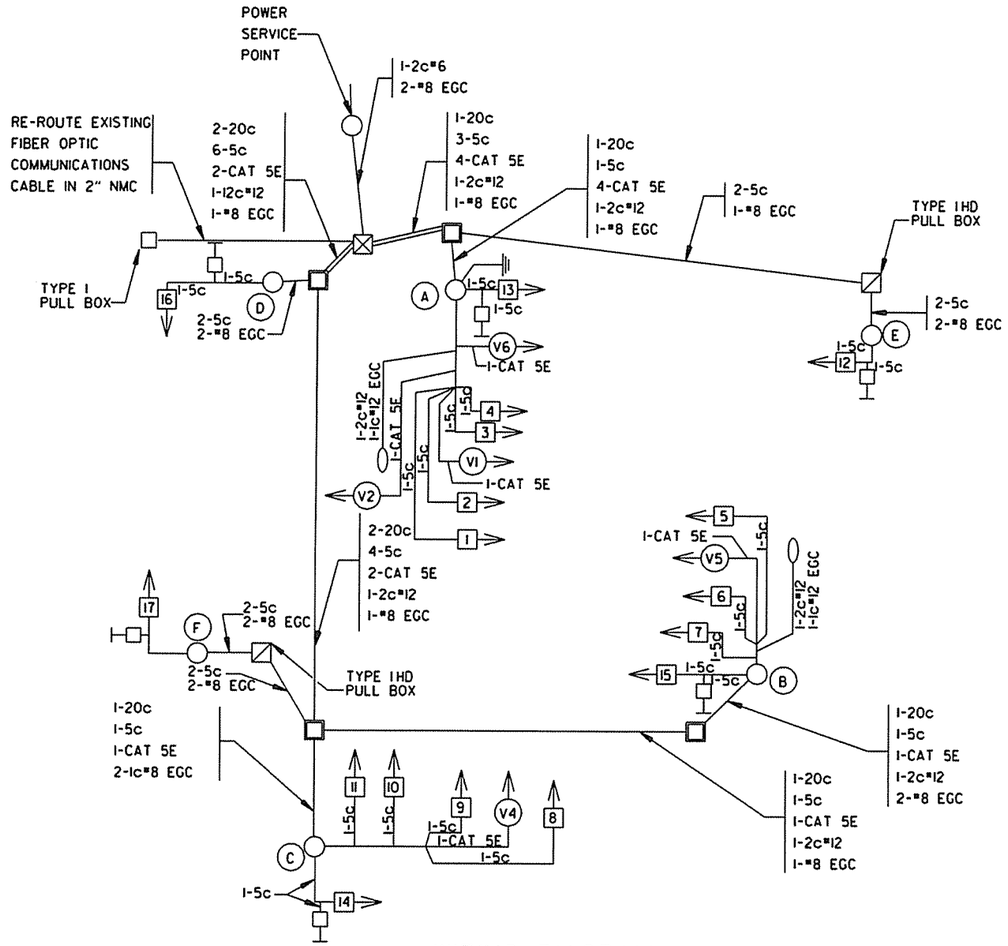
SCALE IN FEET
0 20' 40' 80'

DATE: 2/3/16 FILE NAME: ELM.SPRINGS.SIGNAL.SOUTHBOUND.DGN

PERMANENT SIGNAL SB RAMPS 3 AND 4

LOCATION: I-49 RAMPS/ELM SPRINGS RD.
CITY: SPRINGDALE
COUNTY: WASHINGTON
DISTRICT: 4 SCALE: N/A DRAWN BY: JC

USER: ll656
DESIGN FILE: R:\647673\TRAFFIC SIGNALS\ELM SPRINGS\ELM.SPRINGS.SIGNAL.SOUTHBOUND.DGN
PLOTTED: 2/3/16 14:58 SCALE: 9:20 MODEL: ELM SPRINGS RD. SIGNALS



WIRING DIAGRAM

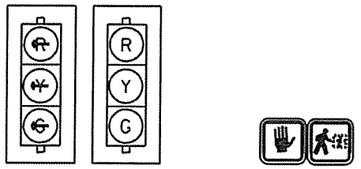
RAMPS 3 AND 4
SOUTHBOUND

NOTES TO CONTRACTOR:

1. ONE SEPARATE 1-5c IS RUN TO EACH POLE FOR THE PEDESTRIAN PUSH BUTTON.
2. ALL DETECTOR RACK CHANNELS, INCLUDING UNUSED, SHALL BE BROUGHT TO TERMINAL STRIP IN DETECTOR AREA OF CABINET.
3. THE LOCAL GOVERNMENT SHALL BE RESPONSIBLE FOR PROVIDING POWER TO THE SERVICE POINT.
4. A SEPARATE SOLID GROUND WIRE BETWEEN ALL POLES, CABINET, AND GROUND RODS IS REQUIRED AS SHOWN ON THE STANDARD DRAWINGS. ALL BONDS BETWEEN RODS AND GROUNDING CONDUCTORS ARE TO BE FUSION WELDS.
5. WHERE CAT 5E CABLE IS SHOWN FOR EACH VIDEO DETECTOR, A SEPARATE 3-CONDUCTOR POWER CABLE IS ALSO NEEDED, TO BE INCLUDED IN THE PRICE BID FOR THE ITEM "NETWORK CABLE, EXTERIOR CAT 5." SEE THE SPECIAL PROVISION FOR ADAPTIVE TRAFFIC CONTROL SYSTEM.

SIGNAL FACES @ I-49 SOUTHBOUND RAMPS

12" LENSES



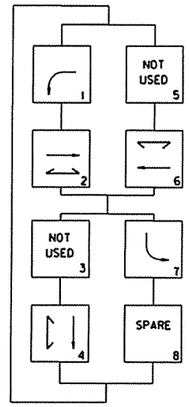
1&2 8&9 — 3&4 5,6&7 10&11 — 12,13, 14,15, 16,17

INTERVAL CHART

SIGNAL FACES	I-49 RAMPS 3 & 4/ELM SPRINGS RD. 1+6	CLR.	2+6	CLR.	4+7	CLR.	FLASH SEQ.
1&2	~~G~~	•	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
3&4	G	••	G	••	R	R	R
5,6&7	R	R	G	••	R	R	R
8&9	~~R~~	~~R~~	~~R~~	~~R~~	~~G~~	•	~~R~~
10&11	R	R	R	R	G	••	R
12&13	DW	DW	W	FDW	DW	DW	BLK
14&15	DW	DW	W	FDW	DW	DW	BLK
16&17	DW	DW	DW	DW	W	FDW	BLK

• DENOTES GREEN OR YELLOW ARROW DEPENDING ON NEXT PHASE.
•• DENOTES GREEN OR YELLOW BALL DEPENDING ON NEXT PHASE.
••• DENOTES FLASHING YELLOW ARROW OR YELLOW ARROW DEPENDING ON NEXT PHASE.

I-49 RAMPS 3 AND 4 PHASING DIAGRAM



DETECTOR SYSTEM DESCRIPTION: JOB BB0413

I-49 RAMPS 3 & 4/ELM SPRINGS RD. DETECTOR ASSIGNMENTS				HARDWARE INPUTS BY SUPPLIER			PROGRAM ASSIGNMENTS					
							LOCAL		MASTER SYSTEM DETECTOR NUMBERS		TUBE LENGTHS	DOOR PANEL TEST BUTTON
DET. ID#	LOCATION DIRECTION	TYPE	DET.#	CAB. TRM #	AMP. CHN. #	CON. INP. #	PHS	SYSTEM DET.#				
Vz11A&B	WB LEFT TURN FAR	COMB.			1	V9	1	1		CAMERA V1	23"	1
Vz12 A&B	WB LEFT TURN	LOCAL			2	V1	1			CAMERA V1	23"	1
Vz21A&B	EB ADVANCE	LOCAL			5	V2	2			CAMERA V2	74"	2
Vz22 A&B	EB NEAR	COMB.			6	V10	2	2		CAMERA V5	23"	2
Vz41	SB RIGHT ADVANCE	COMB.			9	V12	4	4		CAMERA V4	23"	4
Vz42	SB RIGHT TURN	LOCAL			10	V4	4			CAMERA V4	23"	4
Vz61A&B	WB ADVANCE	LOCAL			3	V6	6			CAMERA V6	23"	6
Vz62 A&B	WB NEAR	COMB.			4	V14	6	6		CAMERA V1	23"	6
Vz71A&B	SB LEFT TURN FAR	COMB.			11	V15	7	7		CAMERA V4	23"	7
Vz72 A&B	SB LEFT TURN	LOCAL			12	V7	7			CAMERA V4	23"	7
PB2 A&B	I-49 SB ENT. RAMP	PED.				P2	2					P2
PB4 A&B	ELM SPR. WEST LEG	PED.				P4	4					P4
PB6 A&B	I-49 SB EXIT RAMP	PED.				P6	6					P6

SPARE: 7, 8, 13-16

CONTROLLER INPUT ABBREVIATIONS:
V = VEHICULAR INPUT
D = SYSTEM OR AUXILIARY INPUT
P = PEDESTRIAN INPUT

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	66	160

(2) SIGNALIZATION PLAN
WIRING

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No.11991
ROBERT E. Mc IVOR JR.
2/3/16

PERMANENT SIGNAL

LOCATION: I-49 RAMPS/ELM SPRINGS RD.
CITY: SPRINGDALE
COUNTY: WASHINGTON
DISTRICT: 4 SCALE: N/A DRAWN BY: JC

DATE: 2/2/16 FILE NAME: ELM_SPRING_SIGNAL_SOUTHBOUND_WIRINGANDCHARTS.DGN

USER: 11656
DESIGN FILE: R:\647673\TRAFFIC SIGNALS\ELM SPRINGS\ELM_SPRING_SIGNAL_SOUTHBOUND_WIRINGANDCHARTS.DGN MODEL: ELM SPRINGS RD. SIGNALS
PLOTTED: 2/2/16 2h23 SCALE: 40:1

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	67	160

(2) SIGNALIZATION PLAN

TEMPORARY SIGNAL PLAN STAGE I NB

PHASING DIAGRAM

SIGNAL FACES

12" LENSES

1 & 2
4 & 5
6 & 7
EXISTING FACES

3

STAGE I:

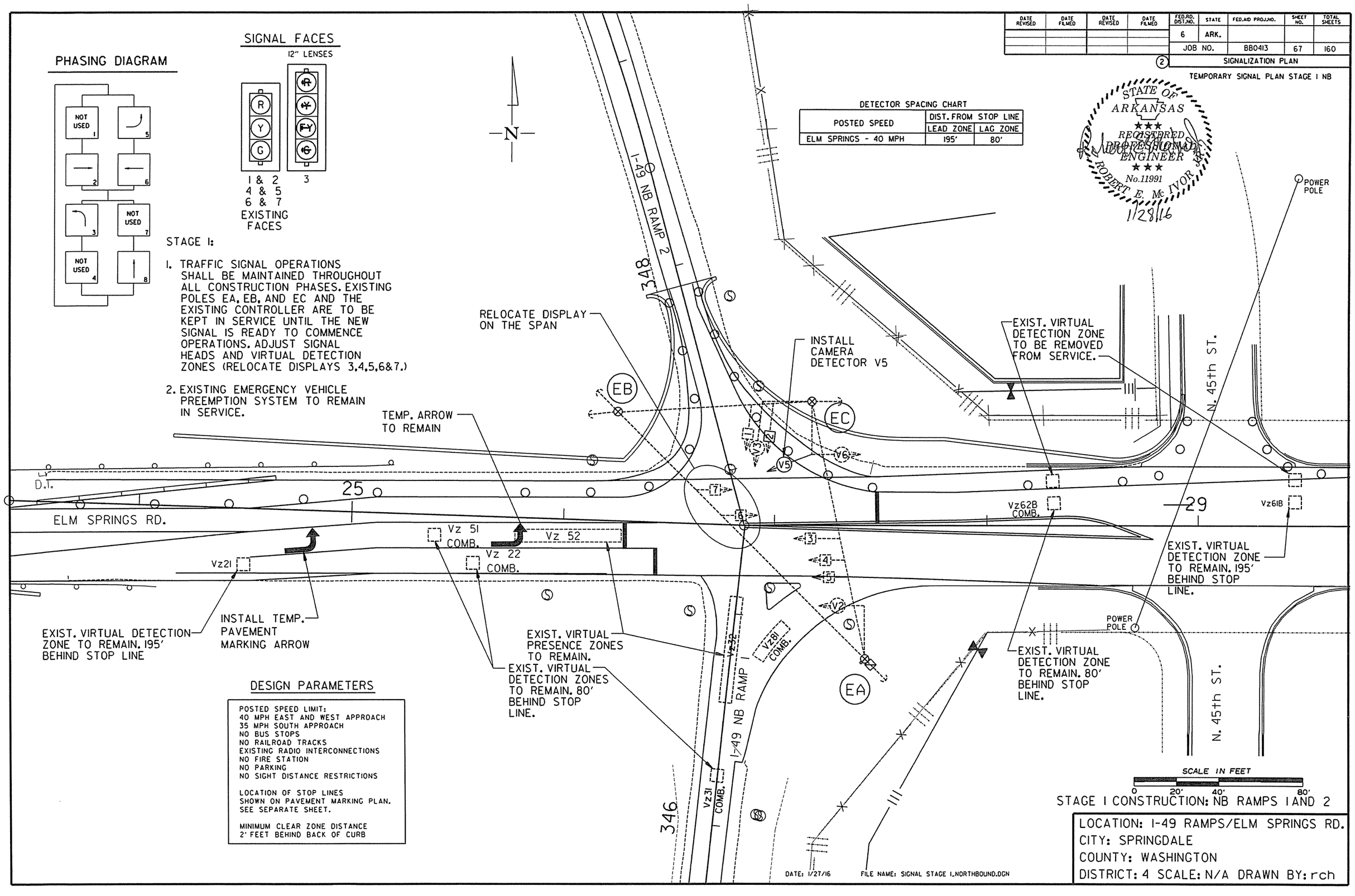
1. TRAFFIC SIGNAL OPERATIONS SHALL BE MAINTAINED THROUGHOUT ALL CONSTRUCTION PHASES. EXISTING POLES EA, EB, AND EC AND THE EXISTING CONTROLLER ARE TO BE KEPT IN SERVICE UNTIL THE NEW SIGNAL IS READY TO COMMENCE OPERATIONS. ADJUST SIGNAL HEADS AND VIRTUAL DETECTION ZONES (RELOCATE DISPLAYS 3,4,5,6&7.)

2. EXISTING EMERGENCY VEHICLE PREEMPTION SYSTEM TO REMAIN IN SERVICE.

DETECTOR SPACING CHART

POSTED SPEED	DIST. FROM STOP LINE	
	LEAD ZONE	LAG ZONE
ELM SPRINGS - 40 MPH	195'	80'

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No.11991
ROBERT E. Mc IVOR, JR.
1/28/16



DESIGN PARAMETERS

POSTED SPEED LIMIT:
40 MPH EAST AND WEST APPROACH
35 MPH SOUTH APPROACH
NO BUS STOPS
NO RAILROAD TRACKS
EXISTING RADIO INTERCONNECTIONS
NO FIRE STATION
NO PARKING
NO SIGHT DISTANCE RESTRICTIONS

LOCATION OF STOP LINES SHOWN ON PAVEMENT MARKING PLAN. SEE SEPARATE SHEET.

MINIMUM CLEAR ZONE DISTANCE
2' FEET BEHIND BACK OF CURB

STAGE I CONSTRUCTION: NB RAMPS 1 AND 2

LOCATION: I-49 RAMPS/ELM SPRINGS RD.
CITY: SPRINGDALE
COUNTY: WASHINGTON
DISTRICT: 4 SCALE: N/A DRAWN BY: rch

DATE: 1/27/16 FILE NAME: SIGNAL STAGE I_NORTHBOUND.DGN

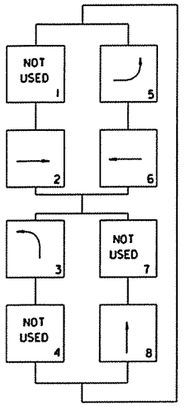
USER: 11656
DESIGN FILE: R:\647673\TRAFFIC SIGNALS\ELM SPRINGS\ SIGNAL STAGE I_NORTHBOUND.DGN MODEL: ELM SPRINGS RD. SIGNALS
PLOTTED: 1/27/16 14:12 SCALE: 40:1

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	68	160

(2) SIGNALIZATION PLAN

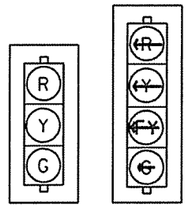
TEMPORARY SIGNAL PLAN STAGE I NB

I-49 NORTHBOUND RAMPS AT ELM SPRINGS PHASING DIAGRAM



SIGNAL FACES @ I-49 NORTHBOUND RAMPS

12" LENSES



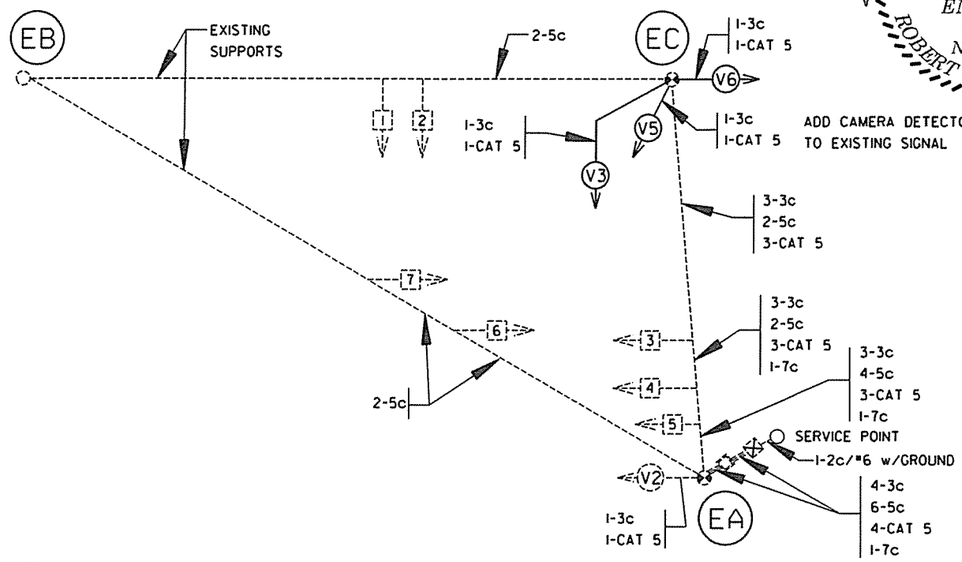
1 & 2
4 & 5
6 & 7

3

INTERVAL CHART

SIGNAL FACES	I-49 RAMPS 1 & 2 / ELM SPRINGS RD.						FLASH SEQ.
	2+5	CLR.	2+6	CLR.	3+8	CLR.	
1&2	R	R	R	R	G	••	R
3	~~G~~	•	~~FY~~	•••	~~R~~	~~R~~	~~R~~
4&5	G	••	G	••	R	R	R
6&7	R	R	G	••	R	R	R

• DENOTES GREEN OR YELLOW ARROW DEPENDING ON NEXT PHASE.
•• DENOTES GREEN OR YELLOW BALL DEPENDING ON NEXT PHASE.
••• DENOTES FLASHING YELLOW ARROW OR YELLOW ARROW DEPENDING ON NEXT PHASE.



STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
ROBERT E. Mc IVOR SR.
No.11991
1/26/16

WIRING EXISTING DIAGRAM

RAMPS 1 AND 2
NORTHBOUND

STAGE I

EXISTING CABLES SHOULD PROVIDE ADEQUATE SLACK TO RE-POSITION DISPLAY.

NOTES TO CONTRACTOR:

1. ALL DETECTOR RACK CHANNELS, INCLUDING UNUSED, SHALL BE BROUGHT TO TERMINAL STRIP IN DETECTOR AREA OF CABINET.
2. THE LOCAL GOVERNMENT SHALL BE RESPONSIBLE FOR PROVIDING POWER TO THE SERVICE POINT.
3. A SEPARATE SOLID GROUND WIRE BETWEEN ALL POLES, CABINET, AND GROUND RODS IS REQUIRED AS SHOWN ON THE STANDARD DRAWINGS. ALL BONDS BETWEEN RODS AND GROUNDING CONDUCTORS ARE TO BE FUSION WELDS.

DETECTOR SYSTEM DESCRIPTION: JOB BB0413											
I-49 RAMPS 1 & 2/ELM SPRINGS RD. DETECTOR ASSIGNMENTS				HARDWARE INPUTS BY SUPPLIER			PROGRAM ASSIGNMENTS			EXISTING DETECTORS	TUBE LENGTH	DOOR PANEL TEST BUTTON
							LOCAL		MASTER SYSTEM DETECTOR NUMBERS			
DET. ID*	LOCATION DIRECTION	TYPE	RECONFIGURE ? **	CAB. TRM *	AMP. CHN. *	CON. INP. *	PHS	SYSTEM DET.*				
Vz21	EB ADVANCE	LOCAL	YES		1	V2	2			CAMERA V2	23"	2
Vz22	EB NEAR	COMB.	NO		2	V10	2	2		CAMERA V2	23"	2
Vz 31	NB LEFT TURN FAR	COMB.	NO		9	V11	3	3		CAMERA V3	23"	3
Vz32	NB LEFT TURN	LOCAL	NO		10	V3	3			CAMERA V3	23"	3
Vz 51	EB LEFT TURN FAR	COMB.	NO		3	V13	5	5		CAMERA V5	23"	5
Vz 52	EB LEFT TURN	LOCAL	NO		4	V5	5			CAMERA V5	23"	5
Vz61	WB ADVANCE	LOCAL	YES		5	V6	6			CAMERA V6	23"	6
Vz62	WB NEAR	COMB.	YES		6	V14	6	6		CAMERA V6	23"	6
Vz8 *	NB NEAR	COMB.	NO		12	V8	8	8		CAMERA V3	23"	8

* SET VIRTUAL ZONE Vz8 FOR AN 8-SECOND DELAY.
** RECONFIGURE THESE VIRTUAL ZONES STAGE I.

SPARE: 7,8,11,13-16

CONTROLLER INPUT ABBREVIATIONS:
V = VEHICULAR INPUT
D = SYSTEM OR AUXILIARY INPUT

STAGE I CONSTRUCTION NB RAMPS 1 AND 2

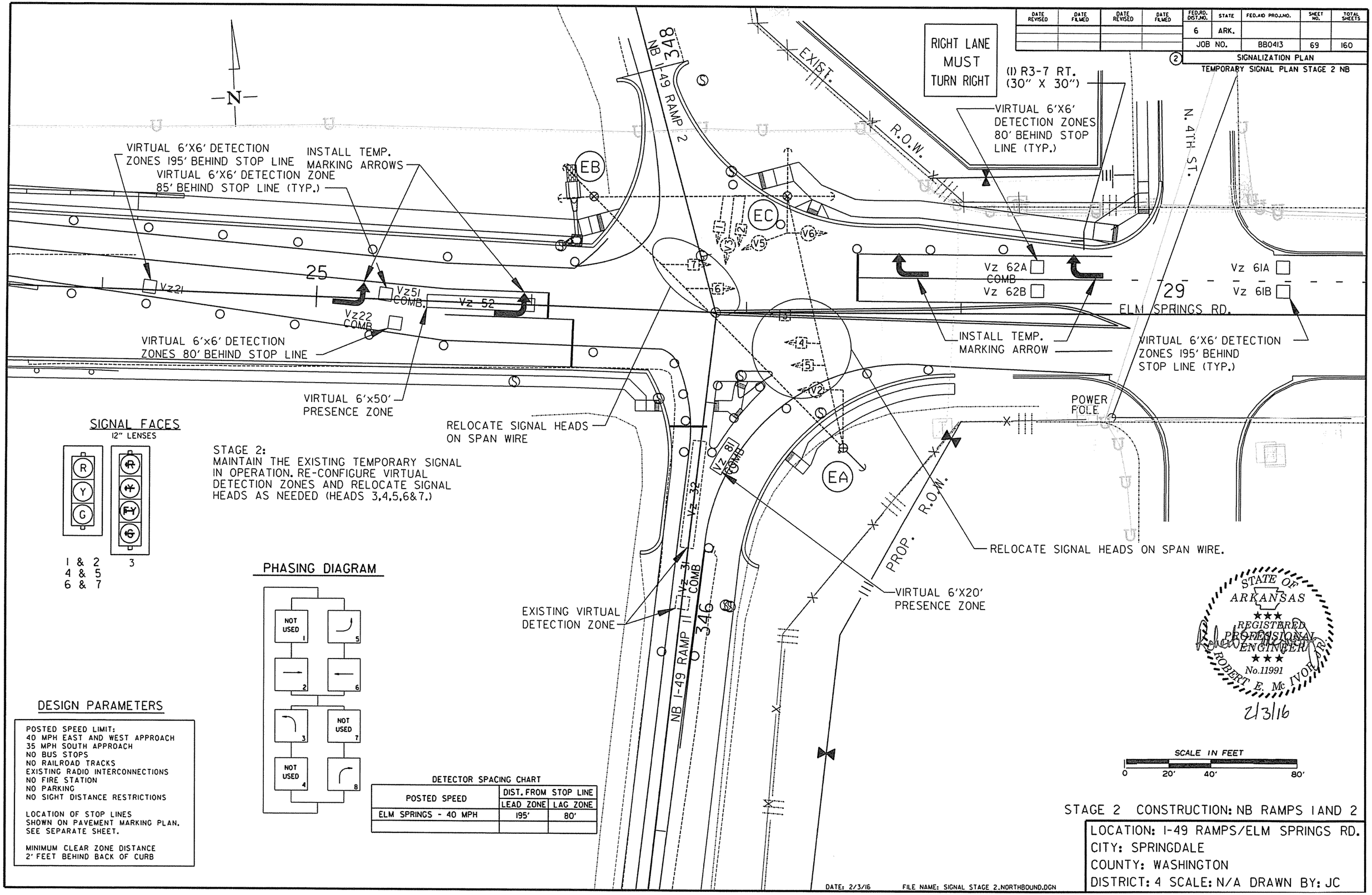
LOCATION: I-49 RAMPS/ELM SPRINGS RD.
CITY: SPRINGDALE
COUNTY: WASHINGTON
DISTRICT: 4 SCALE: N/A DRAWN BY: rch

DATE: 1/27/16 FILE NAME: ELM_SPRING_SIGNAL_STAGE 1_NORTHBOUNDWIRINGMODDIAGRAM.DGN

USER: 11656
DESIGN FILE: R:\647673\TRAFFIC SIGNALS\ELM SPRINGS\ELM_SPRING_SIGNAL_STAGE 1_NORTHBOUNDWIRINGMODDIAGRAM.DGN
PLOTTED: 1/27/16 14:45 SCALE: 40:1 MODEL: ELM SPRINGS RD. SIGNALS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	69	160

(2) SIGNALIZATION PLAN
TEMPORARY SIGNAL PLAN STAGE 2 NB



SIGNAL FACES

12" LENSES

STAGE 2:
MAINTAIN THE EXISTING TEMPORARY SIGNAL IN OPERATION. RE-CONFIGURE VIRTUAL DETECTION ZONES AND RELOCATE SIGNAL HEADS AS NEEDED (HEADS 3,4,5,6&7.)

PHASING DIAGRAM

DESIGN PARAMETERS

POSTED SPEED LIMIT:
40 MPH EAST AND WEST APPROACH
35 MPH SOUTH APPROACH
NO BUS STOPS
NO RAILROAD TRACKS
EXISTING RADIO INTERCONNECTIONS
NO FIRE STATION
NO PARKING
NO SIGHT DISTANCE RESTRICTIONS

LOCATION OF STOP LINES SHOWN ON PAVEMENT MARKING PLAN. SEE SEPARATE SHEET.

MINIMUM CLEAR ZONE DISTANCE
2' FEET BEHIND BACK OF CURB

DETECTOR SPACING CHART

POSTED SPEED	DIST. FROM STOP LINE	
	LEAD ZONE	LAG ZONE
ELM SPRINGS - 40 MPH	195'	80'

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No.11991
ROBERT E. Mc IVOR JR.
2/3/16

SCALE IN FEET
0 20' 40' 80'

STAGE 2 CONSTRUCTION: NB RAMPS 1 AND 2

LOCATION: I-49 RAMPS/ELM SPRINGS RD.
CITY: SPRINGDALE
COUNTY: WASHINGTON
DISTRICT: 4 SCALE: N/A DRAWN BY: JC

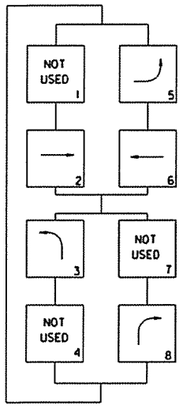
DESIGN FILE: R:\647673\TRAFFIC SIGNALS\ELM SPRINGS\SIGNAL STAGE 2.NORTHBOUND.DGN MODEL: ELM SPRINGS RD. SIGNALS
PLOTTED: 2/3/16 8:52 SCALE: 40:1
DATE: 2/3/16 FILE NAME: SIGNAL STAGE 2.NORTHBOUND.DGN

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.		BB0413	70	160

(2) SIGNALIZATION PLAN

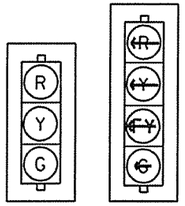
STAGE 2 NB

I-49 NORTHBOUND RAMPS AT ELM SPRINGS PHASING DIAGRAM



SIGNAL FACES @ I-49 NORTHBOUND RAMPS

12" LENSES



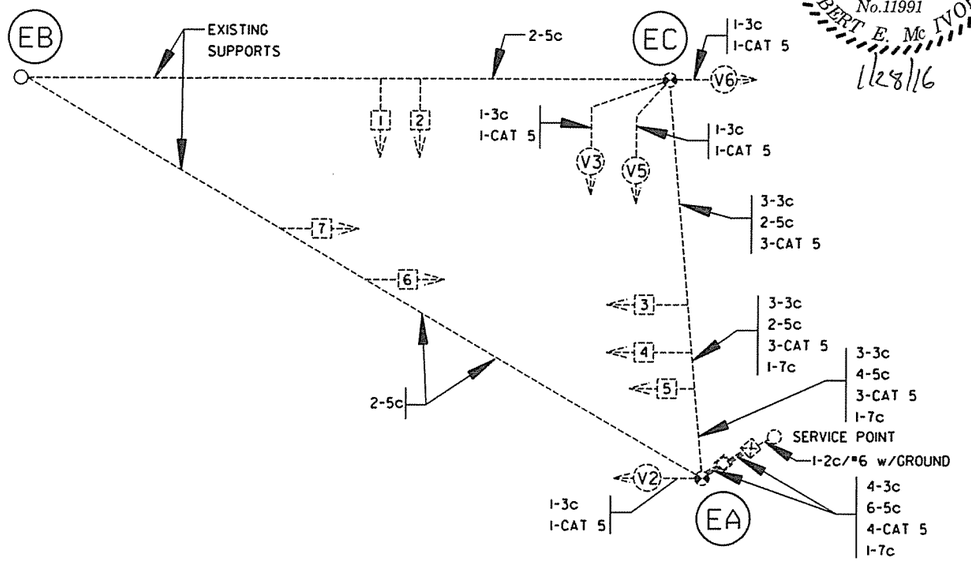
1 & 2
4 & 5
6 & 7

3

INTERVAL CHART

SIGNAL FACES	I-49 RAMPS 1 & 2 / ELM SPRINGS RD.						FLASH SEQ.
	2+5	CLR.	2+6	CLR.	3+8	CLR.	
1&2	R	•	R	R	G	••	R
3	~~G~~	••	~~FY~~	•••	~~R~~	~~R~~	~~R~~
4&5	G	••	G	••	R	R	R
6&7	R	R	G	••	R	R	R

• DENOTES GREEN OR YELLOW ARROW DEPENDING ON NEXT PHASE.
•• DENOTES GREEN OR YELLOW BALL DEPENDING ON NEXT PHASE.
••• DENOTES FLASHING YELLOW ARROW OR YELLOW ARROW DEPENDING ON NEXT PHASE.



WIRING DIAGRAM

RAMPS 1 AND 2
NORTHBOUND

STAGE 2

EXISTING CABLES SHOULD PROVIDE ADEQUATE SLACK TO RE-POSITION DISPLAY.

NOTES TO CONTRACTOR:

1. ALL DETECTOR RACK CHANNELS, INCLUDING UNUSED, SHALL BE BROUGHT TO TERMINAL STRIP IN DETECTOR AREA OF CABINET.
2. THE LOCAL GOVERNMENT SHALL BE RESPONSIBLE FOR PROVIDING POWER TO THE SERVICE POINT.
3. A SEPARATE SOLID GROUND WIRE BETWEEN ALL POLES, CABINET, AND GROUND RODS IS REQUIRED AS SHOWN ON THE STANDARD DRAWINGS. ALL BONDS BETWEEN RODS AND GROUNDING CONDUCTORS ARE TO BE FUSION WELDS.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No.11991
ROBERT E. Mc IVOR JR.
1/28/16

DETECTOR SYSTEM DESCRIPTION: JOB BB0413												
I-49 RAMPS 1 & 2/ELM SPRINGS RD. DETECTOR ASSIGNMENTS				HARDWARE INPUTS BY SUPPLIER			PROGRAM ASSIGNMENTS			EXISTING DETECTORS	TUBE LENGTH	DOOR PANEL TEST BUTTON
							LOCAL		MASTER SYSTEM DETECTOR NUMBERS			
DET. ID*	LOCATION DIRECTION	TYPE	RECONFIGURE **	CAB. TRM *	AMP. CHN. *	CON. INP. *	PHS	SYSTEM DET.*				
Vz2I	EB ADVANCE	LOCAL	YES		I	V2	2			CAMERA V2	23"	2
Vz22	EB NEAR	COMB.	YES		2	V10	2	2		CAMERA V2	23"	2
Vz 3I	NB LEFT TURN FAR	COMB.	NO		9	VII	3	3		CAMERA V3	23"	3
Vz32	NB LEFT TURN	LOCAL	NO		I0	V3	3			CAMERA V3	23"	3
Vz 5I	EB LEFT TURN FAR	COMB.	YES		3	VI3	5	5		CAMERA V5	23"	5
Vz 52	EB LEFT TURN	LOCAL	YES		4	V5	5			CAMERA V5	23"	5
Vz6I A&B	WB ADVANCE	LOCAL	YES		5	V6	6			CAMERA V6	23"	6
Vz62 A&B	WB NEAR	COMB.	YES		6	VI4	6	6		CAMERA V6	23"	6
Vz8 *	NB NEAR	COMB.	YES		I2	V8	8	8		CAMERA V3	23"	8

* SET VIRTUAL ZONE Vz8 FOR AN 8-SECOND DELAY. SPARE: 7,8,11,13-16
** RECONFIGURE THESE VIRTUAL ZONES STAGE 2.

CONTROLLER INPUT ABBREVIATIONS:
V = VEHICULAR INPUT
D = SYSTEM OR AUXILIARY INPUT

STAGE 2 CONSTRUCTION NB RAMPS 1 AND 2

LOCATION: I-49 RAMPS/ELM SPRINGS RD.
CITY: SPRINGDALE
COUNTY: WASHINGTON
DISTRICT: 4 SCALE: N/A DRAWN BY: rch

DATE: 1/27/16 FILE NAME: SIGNAL STAGE 2_NORTHBOUND_WIRINGMODDIAGRAM.DGN

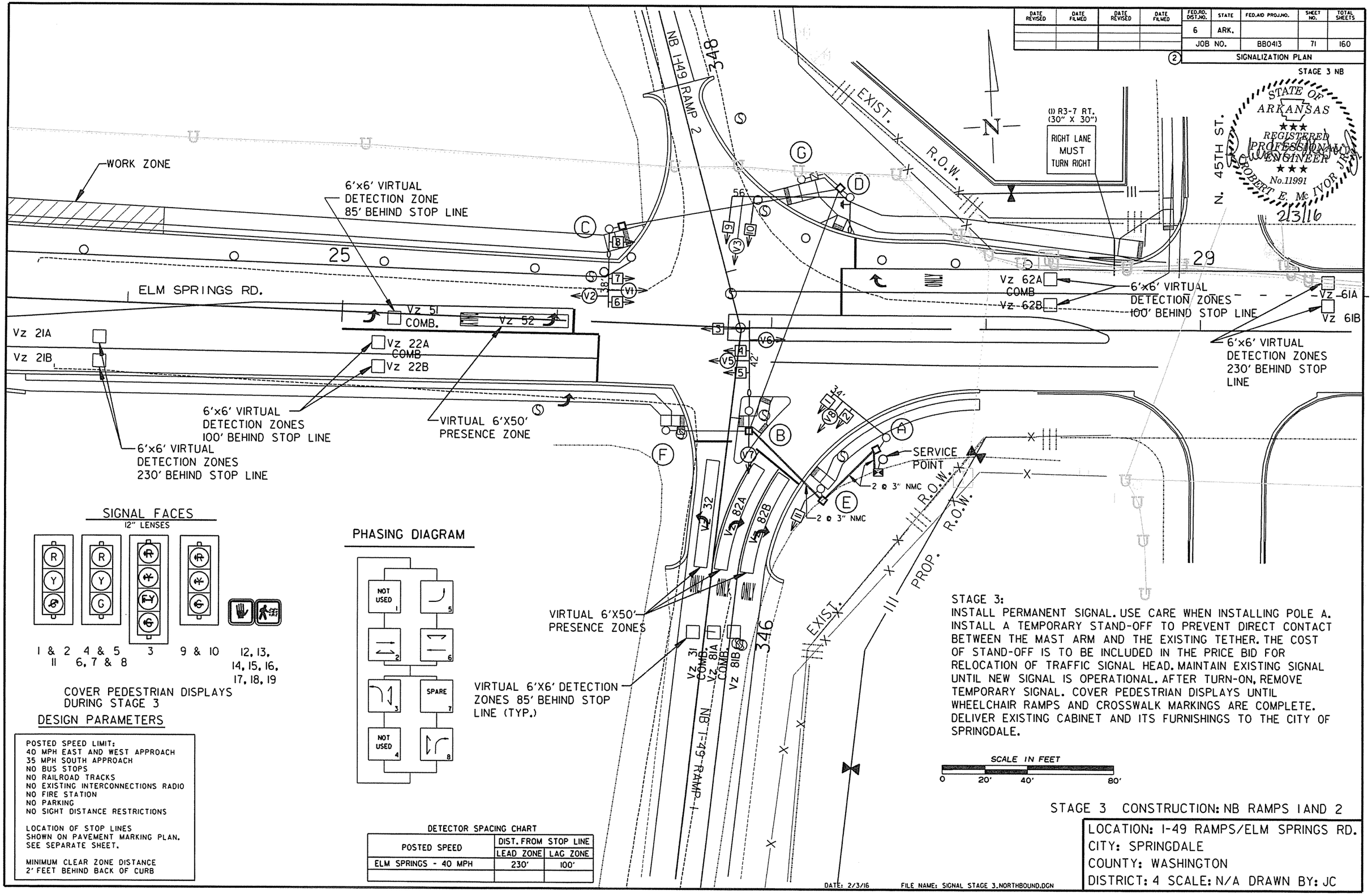
USER: II656
DESIGN FILE: R:\647673\TRAFFIC SIGNALS\ELM SPRINGS\SIGNAL STAGE 2_NORTHBOUND_WIRINGMODDIAGRAM.DGN
PLOTTED: 1/27/16 15:55 SCALE: 40ol MODEL: ELM SPRINGS RD. SIGNALS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	71	160

2 SIGNALIZATION PLAN

STAGE 3 NB

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11991
ROBERT E. Mc IVOR JR.
2/3/16



SIGNAL FACES
12" LENSES

1 & 2 4 & 5 3 9 & 10 12, 13, 14, 15, 16, 17, 18, 19
11 6, 7 & 8

COVER PEDESTRIAN DISPLAYS DURING STAGE 3

PHASING DIAGRAM

DESIGN PARAMETERS

POSTED SPEED LIMIT:
40 MPH EAST AND WEST APPROACH
35 MPH SOUTH APPROACH
NO BUS STOPS
NO RAILROAD TRACKS
NO EXISTING INTERCONNECTIONS RADIO
NO FIRE STATION
NO PARKING
NO SIGHT DISTANCE RESTRICTIONS

LOCATION OF STOP LINES SHOWN ON PAVEMENT MARKING PLAN. SEE SEPARATE SHEET.

MINIMUM CLEAR ZONE DISTANCE 2' FEET BEHIND BACK OF CURB

DETECTOR SPACING CHART

POSTED SPEED	DIST. FROM STOP LINE	
	LEAD ZONE	LAG ZONE
ELM SPRINGS - 40 MPH	230'	100'

STAGE 3:
INSTALL PERMANENT SIGNAL. USE CARE WHEN INSTALLING POLE A. INSTALL A TEMPORARY STAND-OFF TO PREVENT DIRECT CONTACT BETWEEN THE MAST ARM AND THE EXISTING TETHER. THE COST OF STAND-OFF IS TO BE INCLUDED IN THE PRICE BID FOR RELOCATION OF TRAFFIC SIGNAL HEAD. MAINTAIN EXISTING SIGNAL UNTIL NEW SIGNAL IS OPERATIONAL. AFTER TURN-ON, REMOVE TEMPORARY SIGNAL. COVER PEDESTRIAN DISPLAYS UNTIL WHEELCHAIR RAMPS AND CROSSWALK MARKINGS ARE COMPLETE. DELIVER EXISTING CABINET AND ITS FURNISHINGS TO THE CITY OF SPRINGDALE.

SCALE IN FEET
0 20' 40' 80'

STAGE 3 CONSTRUCTION: NB RAMPS 1 AND 2

LOCATION: I-49 RAMPS/ELM SPRINGS RD.
CITY: SPRINGDALE
COUNTY: WASHINGTON
DISTRICT: 4 SCALE: N/A DRAWN BY: JC

DATE: 2/3/16 FILE NAME: SIGNAL STAGE 3.NORTHBOUND.DGN

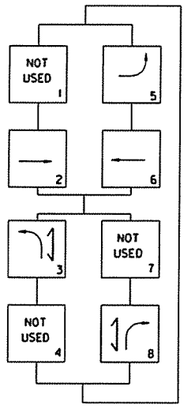
USER: I656
DESIGN FILE: R:\647673\TRAFFIC SIGNALS\ELM SPRINGS\SIGNAL STAGE 3.NORTHBOUND.DGN
PLOTTED: 2/3/16 9:27 SCALE: 40:1 MODEL: ELM SPRINGS RD. SIGNALS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	72	160

(2) SIGNALIZATION PLAN

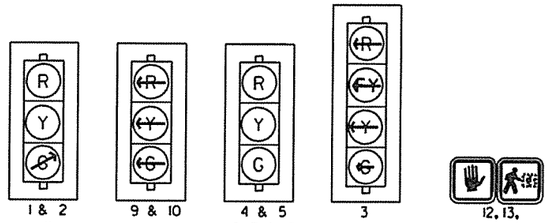
STAGE 3 NB

I-49 RAMPS 1 AND 2 PHASING DIAGRAM



SIGNAL FACES @ I-49 NORTHBOUND RAMPS

12" LENSES



COVER PEDESTRIAN DISPLAYS DURING STAGE 3.

INTERVAL CHART

SIGNAL FACES	I-49 RAMPS 1 & 2 /ELM SPRINGS RD.						FLASH SEQ.
	2+5	CLR.	2+6	CLR.	3+8	CLR.	
1&2, 11	R	R	R	R	~~G~~	••	R
3	~~G~~	•	~~FY~~	•••	~~R~~	~~R~~	~~R~~
4&5	G	••	G	••	R	R	R
6,7&8	R	R	G	••	R	R	R
9&10	~~R~~	~~R~~	~~R~~	~~R~~	~~G~~	•	~~R~~

• DENOTES GREEN OR YELLOW ARROW DEPENDING ON NEXT PHASE.
•• DENOTES GREEN OR YELLOW BALL DEPENDING ON NEXT PHASE.
••• DENOTES FLASHING YELLOW ARROW OR YELLOW ARROW DEPENDING ON NEXT PHASE.

DETECTOR SYSTEM DESCRIPTION: JOB BB0413

I-49 RAMPS 1 & 2/ELM SPRINGS RD. DETECTOR ASSIGNMENTS				HARDWARE INPUTS BY SUPPLIER			PROGRAM ASSIGNMENTS			CAMERA DETECTORS	TUBE LENGTH	DOOR PANEL TEST BUTTON
							LOCAL		MASTER SYSTEM			
DET. ID*	LOCATION DIRECTION	TYPE	RECONFIGURE **	CAB. TRM *	AMP. CHN. *	CON. INP. *	PHS	SYSTEM DET.*	DETECTOR NUMBERS			
Vz21A&B	EB ADVANCE	LOCAL	YES		1	V2	2			CAMERA V2	74"	2
Vz22 A&B	EB NEAR	COMB.	YES		2	V10	2	2		CAMERA V5	74"	2
Vz 31	NB LEFT TURN FAR	COMB.	YES		9	V11	3	3		CAMERA V3	74"	3
Vz32	NB LEFT TURN	LOCAL	YES		10	V3	3			CAMERA V3	74"	3
Vz 51	EB LEFT TURN FAR	COMB.	YES		3	V13	5	5		CAMERA V5	74"	5
Vz 52	EB LEFT TURN	LOCAL	YES		4	V5	5			CAMERA V5	74"	5
Vz61A&B	WB ADVANCE	LOCAL	YES		5	V6	6			CAMERA V6	74"	6
Vz62 A&B	WB NEAR	COMB.	YES		6	V14	6	6		CAMERA V1	74"	6
Vz81A&B	NB ADVANCE	COMB.			11	V16	8	8		CAMERA V7	POLE MT.	8
Vz82 A&B	NB NEAR	LOCAL			12	V8	8			CAMERA V8	23"	8

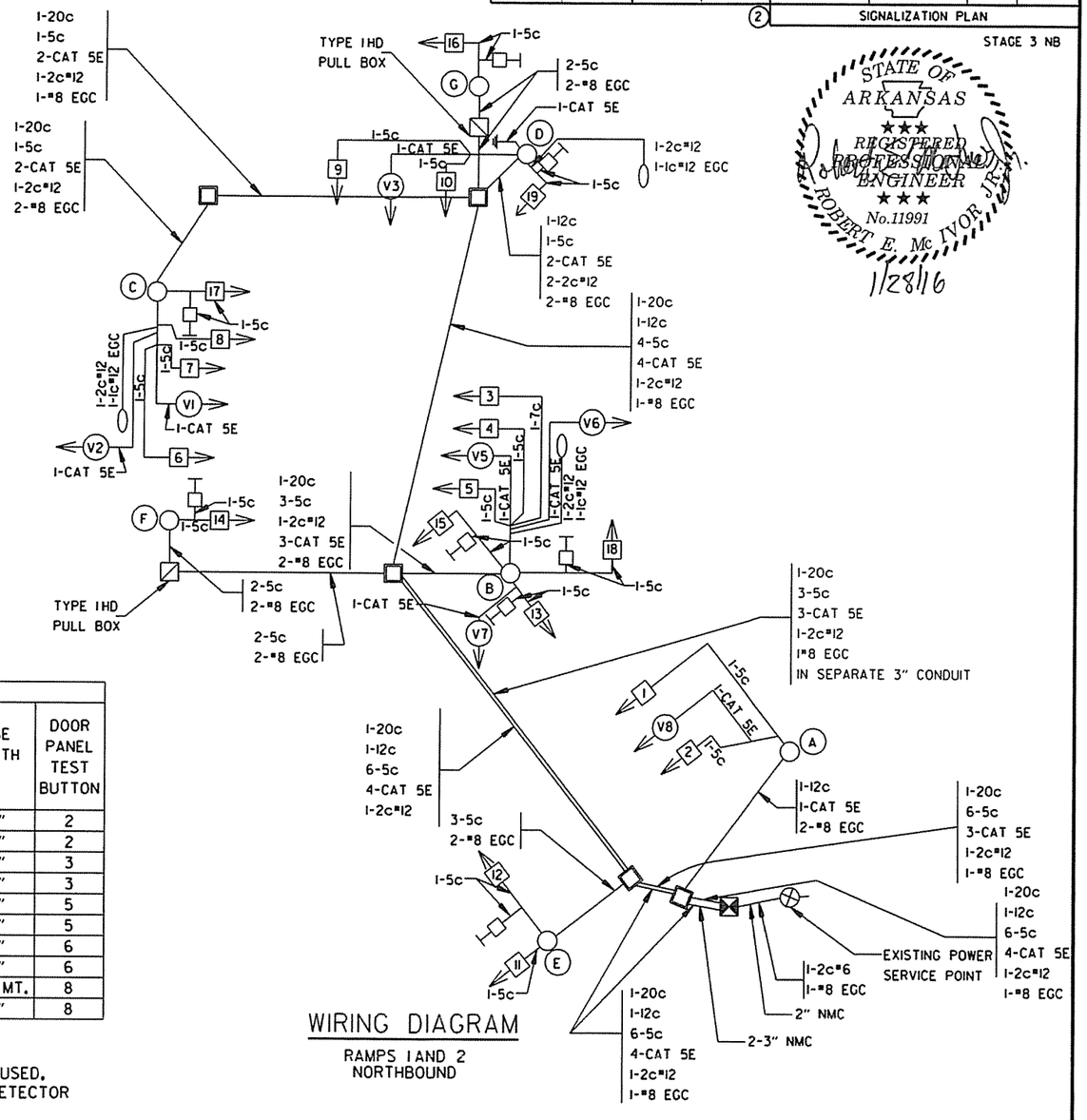
* SET VIRTUAL ZONES Vz81A&B FOR AN 8-SECOND DELAY.
** RECONFIGURE THESE VIRTUAL ZONES FOR STAGE 3.

SPARE: 7,8,11,13-16

CONTROLLER INPUT ABBREVIATIONS:
V = VEHICULAR INPUT
D = SYSTEM OR AUXILIARY INPUT

NOTES TO CONTRACTOR:

1. ALL DETECTOR RACK CHANNELS, INCLUDING UNUSED, SHALL BE BROUGHT TO TERMINAL STRIP IN DETECTOR AREA OF CABINET.
2. THE LOCAL GOVERNMENT SHALL BE RESPONSIBLE FOR PROVIDING POWER TO THE SERVICE POINT.
3. A SEPARATE SOLID GROUND WIRE BETWEEN ALL POLES, CABINET, AND GROUND RODS IS REQUIRED AS SHOWN ON THE STANDARD DRAWINGS. ALL BONDS BETWEEN RODS AND GROUNDING CONDUCTORS ARE TO BE FUSION WELDS.
4. WHERE CAT 5E CABLE IS SHOWN FOR EACH VIDEO DETECTOR A SEPARATE 3-CONDUCTOR POWER CABLE IS ALSO NEEDED. TO BE INCLUDED IN THE PRICE BID FOR THE "NETWORK CABLE, EXTERIOR CAT 5." SEE THE SPECIAL PROVISION FOR ADAPTIVE TRAFFIC CONTROL SYSTEM.



WIRING DIAGRAM

RAMPS 1 AND 2 NORTHBOUND

STAGE 3 CONSTRUCTION: NB RAMPS 1 AND 2

LOCATION: I-49 RAMPS/ELM SPRINGS RD.
CITY: SPRINGDALE
COUNTY: WASHINGTON
DISTRICT: 4 SCALE: N/A DRAWN BY: rch

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No.11991
ROBERT E. Mc IVOR JR.
1/28/16

DATE: 1/28/16 FILE NAME: SIGNAL STAGE 3_NORTHBOUND_WIRINGMODDIAGRAM.DGN

USER: 11656
DESIGN FILE: R:\647673\TRAFFIC SIGNALS\ELM SPRINGS\ SIGNAL STAGE 3_NORTHBOUND_WIRINGMODDIAGRAM.DGN
PLOTTED: 1/28/16 8:22 SCALE: 40 MODEL: ELM SPRINGS RD. SIGNALS

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	73	160

(2) SIGNALIZATION PLAN

NB RAMPS

DETECTOR SPACING CHART

POSTED SPEED	DIST. FROM STOP LINE	
	LEAD ZONE	LAG ZONE
ELM SPRINGS - 40 MPH	230'	100'

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11991
ROBERT E. Mc IVOR JR.
1/28/16

LEGEND

- TYPE 2 CONC. PULL BOX HD
- TYPE 1HD CONC. PULL BOX
- CONTROLLER CABINET
- SIGNAL HEAD
- VIDEO DETECTOR
- NMC - NON METALLIC CONDUIT

NOTE:
PERMANENT SIGNAL MUST BE OPERATIONAL BEFORE THE EXISTING SIGNAL IS REMOVED.

348

℄ I-49 NB RAMP 2

EXIST. R.O.W.

N. 45th ST.

VIRTUAL 6'X6' DETECTION ZONE 85' BEHIND STOP LINE

℄ ELM SPRINGS RD.

25

COMB. Vz51

Vz52

Vz21A

Vz21B

Vz22A COMB. Vz22B

VIRTUAL 6'X6' DETECTION ZONES (TYP.) 100' BEHIND STOP LINE

VIRTUAL 6'X50' PRESENCE ZONE Vz52

VIRTUAL 6'X6' DETECTION ZONES (TYP.) 230' BEHIND STOP LINE

VIRTUAL 6'X50' PRESENCE ZONE Vz32

Vz62A COMB. Vz62B

Vz61A

Vz61B

30

VIRTUAL 6'X6' DETECTION ZONES (TYP.) 100' BEHIND STOP LINE

VIRTUAL 6'X6' DETECTION ZONES (TYP.) 230' BEHIND STOP LINE

Vz32

Vz82A

Vz82B

VIRTUAL 6'X50' PRESENCE ZONES (TYP.) Vz82A AND Vz82B

PROP. R.O.W.

346

℄ I-49 NB RAMP 1

Vz31 COMB. Vz81A COMB. Vz81B

VIRTUAL 6'X6' DETECTION ZONES (TYP.) 85' BEHIND STOP LINES

℄ I-49

SCALE IN FEET
0 30' 60' 120'

PERMANENT SIGNAL NB RAMPS 1 AND 2

LOCATION: I-49 RAMPS/ELM SRINGS RD.
CITY: SPRINGDALE
COUNTY: WASHINGTON
DISTRICT: 4 SCALE: N/A DRAWN BY: JC

DATE: 1/28/16 FILE NAME: ELM_SPRINGS_SIGNAL_NORTHBOUND_1.DGN

USER: 11656
DESIGN FILE: R:\647673\TRAFFIC SIGNALS\ELM SPRINGS\ ELM_SPRINGS_SIGNAL_NORTHBOUND_1.DGN
PLOTTED: 1/28/16 7:38 SCALE: 60:1 MODEL: ELM SPRINGS RD. SIGNALS

I-49 RAMPS 1& 2 AT ELM SPRINGS POLE LOCATIONS

POLE	LOCATION & STATION	OFFSET	X, Y COORODINATES
A	ELM SPRINGS - STA. 27+59.46	48' RT.	669,753.65, 684,106.92
B	ELM SPRINGS - STA. 26+91.46	39' RT.	669,691.66, 684,121.90
C	ELM SPRINGS - STA. 26+22.66	43' LT.	669,628.75, 684,209.63
D	ELM SPRINGS - STA. 27+36.14	61' LT.	669,741.33, 684,219.54
E	ELM SPRINGS - STA. 27+23.68	75' RT.	669,722.04, 684,084.50
F	ELM SPRINGS - STA. 26+53.23	49' RT.	669,651.35, 684,114.77
G	ELM SPRINGS - STA. 27+13.20	69' LT.	669,718.83, 684,228.90

I-49 RAMPS 1& 2 AT ELM SPRINGS POLE DIMENSIONS

POLE	MAST ARM	MAST ARM ANGLE	POLE HEIGHT	LUM. ARMS	• LUM. ANGLE
A	34'	180°	21'	N/A	N/A
B	42'	180°	35'	15'	180°
C	38'	180°	35'	15'	180°
D	56'	270°	35'	15'	270°
E	N/A	N/A	15'	N/A	N/A
F	N/A	N/A	15'	N/A	N/A
G	N/A	N/A	15'	N/A	N/A

ANGLES MEASURED CLOCKWISE FROM HAND HOLE

DETECTOR SPACING CHART

POSTED SPEED	DIST. FROM STOP LINE	
	LEAD ZONE	LAG ZONE
ELM SPRINGS - 40 MPH	230'	100'

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	74	160

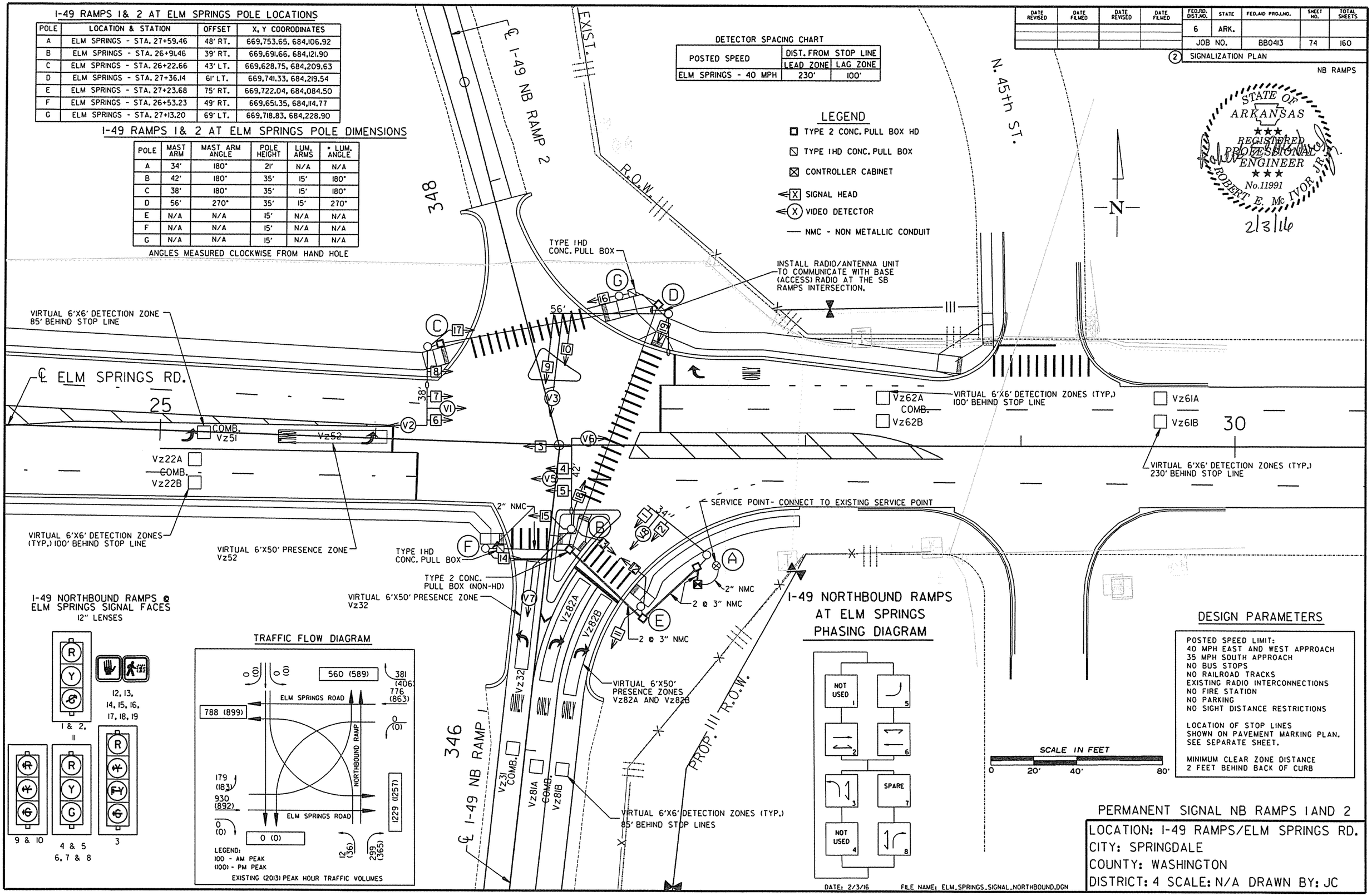
(2) SIGNALIZATION PLAN

NB RAMPS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
ROBERT E. McIVOR JR.
No.11991
2/3/16

LEGEND

- TYPE 2 CONC. PULL BOX HD
- TYPE IHD CONC. PULL BOX
- CONTROLLER CABINET
- SIGNAL HEAD
- VIDEO DETECTOR
- NMC - NON METALLIC CONDUIT



I-49 NORTHBOUND RAMPS @ ELM SPRINGS SIGNAL FACES

12" LENSES

TRAFFIC FLOW DIAGRAM

I-49 NORTHBOUND RAMPS AT ELM SPRINGS PHASING DIAGRAM

DESIGN PARAMETERS

POSTED SPEED LIMIT:
40 MPH EAST AND WEST APPROACH
35 MPH SOUTH APPROACH
NO BUS STOPS
NO RAILROAD TRACKS
EXISTING RADIO INTERCONNECTIONS
NO FIRE STATION
NO PARKING
NO SIGHT DISTANCE RESTRICTIONS

LOCATION OF STOP LINES SHOWN ON PAVEMENT MARKING PLAN. SEE SEPARATE SHEET.

MINIMUM CLEAR ZONE DISTANCE 2 FEET BEHIND BACK OF CURB

SCALE IN FEET
0 20' 40' 80'

PERMANENT SIGNAL NB RAMPS 1 AND 2

LOCATION: I-49 RAMPS/ELM SPRINGS RD.
CITY: SPRINGDALE
COUNTY: WASHINGTON
DISTRICT: 4 SCALE: N/A DRAWN BY: JC

DATE: 2/3/16 FILE NAME: ELM_SPRINGS_SIGNAL_NORTHBOUND.DGN

DESIGN FILE: R:\647673\TRAFFIC SIGNALS\ELM SPRINGS\ELM_SPRINGS_SIGNAL_NORTHBOUND.DGN MODEL: ELM SPRINGS RD. SIGNALS
PLOTTED: 2/3/16 8:57 SCALE: 40:1

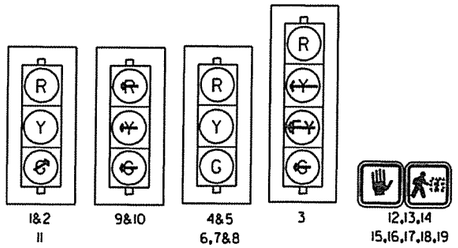
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	75	160

(2) SIGNALIZATION PLAN

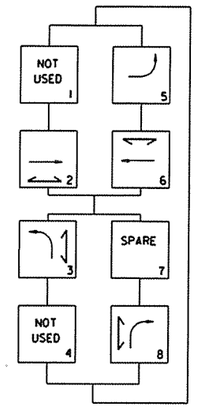
CHARTS

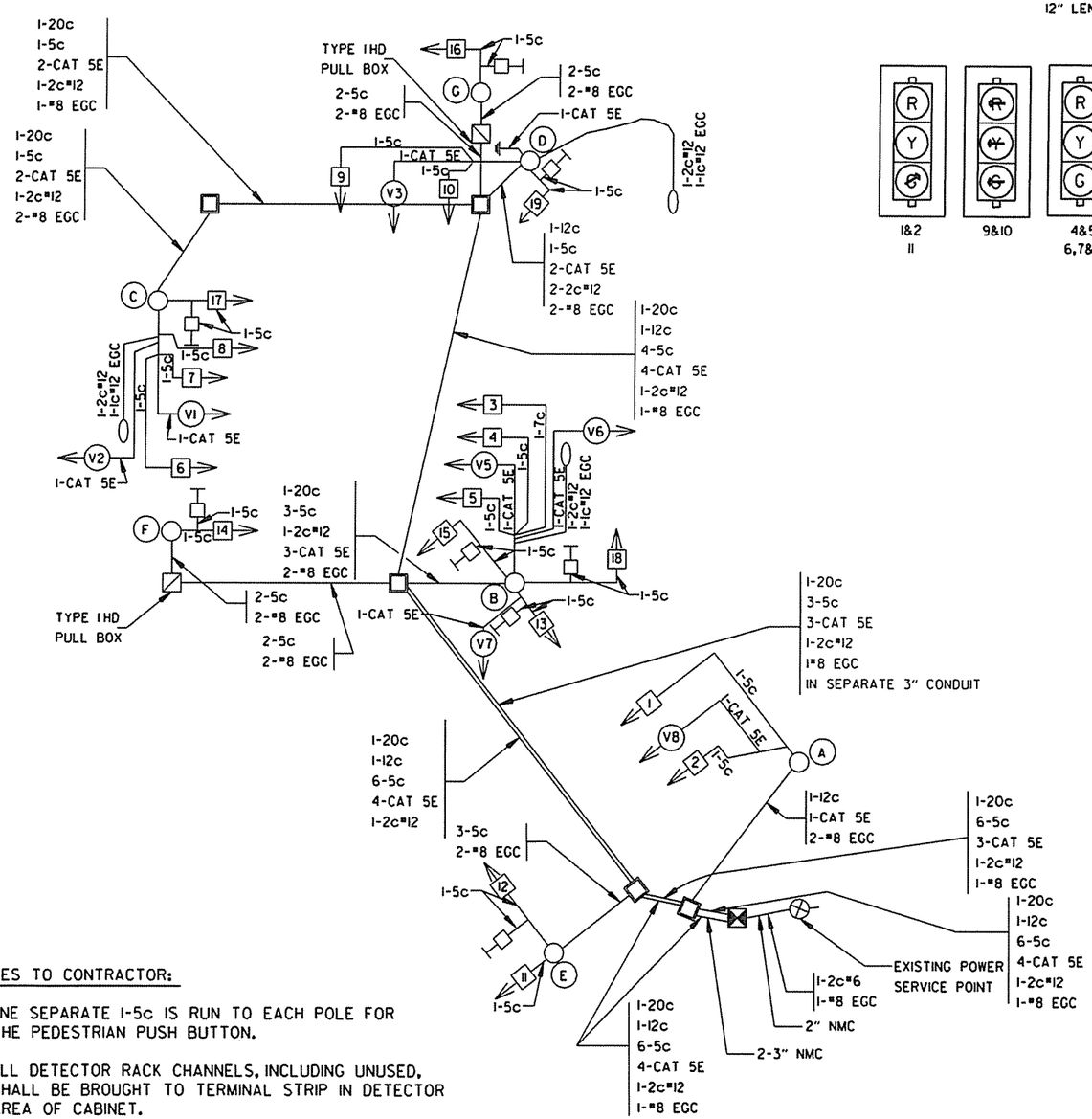
SIGNAL FACES @ I-49 NORTHBOUND RAMPS

12" LENSES



I-49 RAMPS 1 AND 2 PHASING DIAGRAM





WIRING DIAGRAM

RAMPS 1 AND 2 NORTHBOUND

NOTES TO CONTRACTOR:

1. ONE SEPARATE I-5c IS RUN TO EACH POLE FOR THE PEDESTRIAN PUSH BUTTON.
2. ALL DETECTOR RACK CHANNELS, INCLUDING UNUSED, SHALL BE BROUGHT TO TERMINAL STRIP IN DETECTOR AREA OF CABINET.
3. THE LOCAL GOVERNMENT SHALL BE RESPONSIBLE FOR PROVIDING POWER TO THE SERVICE POINT.
4. A SEPARATE SOLID GROUND WIRE BETWEEN ALL POLES, CABINET, AND GROUND RODS IS REQUIRED AS SHOWN ON THE STANDARD DRAWINGS. ALL BONDS BETWEEN RODS AND GROUNDING CONDUCTORS ARE TO BE FUSION WELDS.
5. WHERE CAT 5E CABLE IS SHOWN FOR EACH VIDEO DETECTOR, A SEPARATE 3-CONDUCTOR POWER CABLE IS ALSO NEEDED, TO BE INCLUDED IN THE PRICE BID FOR THE ITEM "NETWORK CABLE, EXTERIOR CAT 5." SEE THE SPECIAL PROVISION FOR ADAPTIVE TRAFFIC CONTROL SYSTEM.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 11991
ROBERT E. McNORJR.
4/3/16

INTERVAL CHART

SIGNAL FACES	I-49 RAMPS 1& 2/ELM SPRINGS RD. 2+5	CLR.	2+6	CLR.	3+8	CLR.	FLASH SEQ.
1, 2, &11	R	R	R	R	⇦	••	R
3	~~⇦G~~	•	~~⇦Y~~	•••	R	R	R
4&5	G	••	G	••	R	R	R
6,7&8	R	R	G	••	R	R	R
9&10	~~⇦R~~	~~⇦R~~	~~⇦R~~	~~⇦R~~	~~⇦G~~	•	R
12&13	W	FDW	W	FDW	DW	DW	BLK
14&15	W	FDW	W	FDW	DW	DW	BLK
16&17	DW	DW	W	FDW	DW	DW	BLK
18&19	DW	DW	DW	DW	W	FDW	BLK

• DENOTES GREEN OR YELLOW ARROW DEPENDING ON NEXT PHASE
•• DENOTES GREEN OR YELLOW BALL DEPENDING ON NEXT PHASE
••• DENOTES FLASHING YELLOW ARROW OR YELLOW ARROW DEPENDING ON NEXT PHASE

DETECTOR SYSTEM DESCRIPTION: JOB BB0413

I-49 RAMPS 1& 2/ELM SPRINGS RD. DETECTOR ASSIGNMENTS				HARDWARE INPUTS BY SUPPLIER			PROGRAM ASSIGNMENTS LOCAL		MASTER SYSTEM DETECTOR NUMBERS		TUBE LENGTHS	DOOR PANEL TEST BUTTON
DET. ID#	LOCATION DIRECTION	TYPE	DET.#	CAB. TRM #	AMP. CHN. #	CON. INP. #	PHS	SYSTEM DET.#				
Vz21 A&B	EB ADVANCE	LOCAL			1	V2	2			CAMERA V2	74"	2
Vz22 A&B	EB NEAR	COMB.			2	V10	2	2		CAMERA V5	23"	2
Vz31	NB LEFT TURN FAR	COMB.			9	V11	3	3		CAMERA V3	23"	3
Vz32	NB LEFT TURN	LOCAL			10	V3	3			CAMERA V3	23"	3
Vz51	EB LEFT TURN FAR	COMB.			3	V13	5	5		CAMERA V5	23"	5
Vz52	EB LEFT TURN	LOCAL			4	V5	5			CAMERA V5	23"	5
Vz61 A&B	WB ADVANCE	LOCAL			5	V6	6			CAMERA V6	74"	6
Vz62 A&B	WB NEAR	COMB.			6	V14	6	6		CAMERA V1	23"	6
Vz81 A&B	NB ADVANCE	COMB.			11	V16	8	8		CAMERA V7	POLE MT.	8
Vz82 A&B	NB NEAR	LOCAL			12	V8	8			CAMERA V8	23"	8
PB2 A&B	I-49 NB EXIT RAMP	PED.				P2	2					P2
PB6 A&B	I-49 NB ENT. RAMP	PED.				P6	6					P6
PB3 A&B	ELM SPR. EAST LEG	PED.				P3	3					P3

SPARE: 8, 13-16

CONTROLLER INPUT ABBREVIATIONS:
V = VEHICULAR INPUT
D = SYSTEM OR AUXILIARY INPUT
P = PEDESTRIAN INPUT

PERMANENT SIGNAL

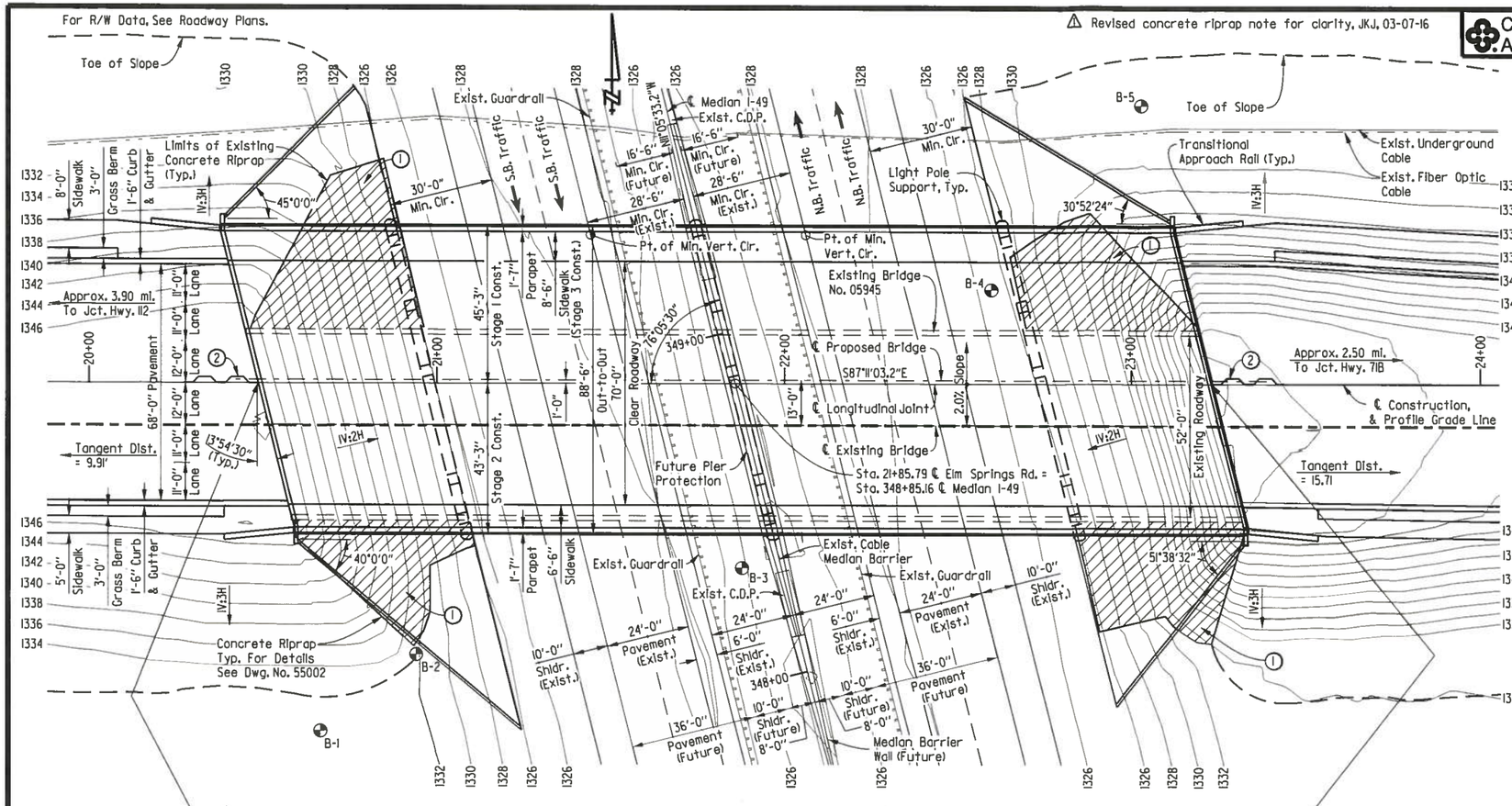
LOCATION: I-49 RAMPS/ELM SPRINGS RD.
CITY: SPRINGDALE
COUNTY: WASHINGTON
DISTRICT: 4 SCALE: N/A DRAWN BY: JC

DATE: 2/2/16 FILE NAME: ELM_SPRINGS_SIGNAL_NORTHBOUND_WIRINGANDCHARTS.DGN

USER: 11656
DESIGN FILE: R:\647673\TRAFFIC SIGNALS\ELM SPRINGS\ELM_SPRING_SIGNAL_NORTHBOUND_WIRINGANDCHARTS.DGN MODEL: ELM SPRINGS RD. SIGNALS
PLOTTED: 2/2/16 20:18 SCALE: 20:1

For R/W Data, See Roadway Plans.

⚠ Revised concrete riprap note for clarity, JKJ, 03-07-16

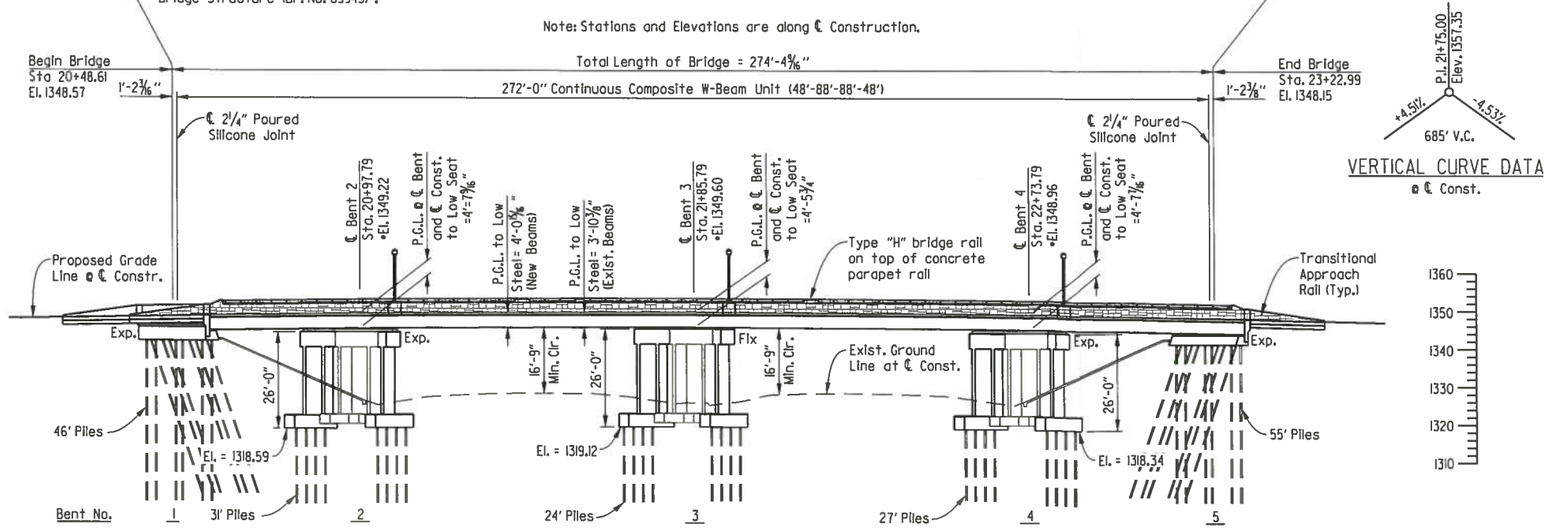


① Remove Existing Concrete Riprap & Replace with New Concrete Riprap, as necessary (See Std. Dwg. No. 55002). Removal shall extend to the location of an existing Construction Joint. Payment for ~~this work~~ removal ⚠ shall be considered subsidiary to the pay item "Modification of Existing Bridge Structure (Br. No. 05945)".

PLAN

② Shoring may be required during construction. Payment for this work, if required, will not be paid for directly. See SP Job No. BB0413 "Shoring".

Note: Stations and Elevations are along ℄ Construction.



ELEVATION

Note: The Foundation shown is the proposed new construction. Elevations shown are along ℄ Proposed Bridge. For Soil Boring Information, see Dwg. No. 56874.

*Elevations are at "Working Point," see "Rounding Detail" on Dwg. No. 56888.

VERTICAL CURVE DATA
@ ℄ Const.

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
03-07-16				6	ARK.			
				JOB NO.		BB0413	76	160
				1	05945	LAYOUT		56873

GENERAL NOTES

BENCH MARK: Square cut in drop inlet of median of I-49, 456.88' Rt. Centerline, Sta. 23+01.86, Elev. 1323.41.

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications 6th Edition (2012) with current interim specifications (new construction only).

LIVE LOADING: HL-93 SEISMIC PERFORMANCE ZONE: I S_{D1} :0.088 SITE CLASS: C

MATERIALS AND STRENGTHS:

Class S(AE) Concrete (Superstructure)	f'c = 4,000 psi
Class S Concrete (Substructure)	f'c = 3,500 psi
Reinforcing Steel (Grade 60 AASHTO M 31 or M 322 Type A)	fy = 60,000 psi
Structural Steel (AASHTO M 270, Gr. 50)	Fy = 50,000 psi
Structural Steel (AASHTO M 270, Gr. 36)	Fy = 36,000 psi

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

STEEL PILING: All new piling shall be HP 12x53 (Gr. 50) and shall be driven with an approved air, steam, or diesel hammer to a minimum safe bearing capacity of 96 tons per pile into the material designated as Hard to Very Hard Limestone on the boring legend. Lengths shown are for estimating quantities and for use in determining payment for cut-off and build-up in accordance with the Standard Specifications. Piles in End Bent 1 and 5 to be driven after embankment to bottom of cap is in place. On all piles the contractor shall use approved steel H-Pile driving points.

PREBORING: Preboring will be required for all new piling and shall extend from bottom of cap or footing to a minimum depth of 24' at End Bent 1, 30' at End Bent 5, and 10' at Intermediate bents. The length of prebored hole shall be backfilled in accordance with Subsection 805.08(a) to completely fill the remaining voids. The Contractor shall be responsible for keeping prebored holes free from debris prior to back filling which may require the use of temporary casings or other methods. Pile casings and backfill will not be paid for directly but shall be considered subsidiary the the Item "Preboring".

FOOTINGS: The footings at Bent 2-4 shall have a minimum cover above top of footing of 2'-0". Foundations for footings shall be prepared in accordance with Subsection 801.04 and backfilled according to Subsection 801.08.

BRIDGE DECK: The concrete bridge deck (except sidewalk) shall be given a tine finish as specified for final finishing in Subsection 802.19 for Class S Tined Bridge Roadway Surface Finish. The sidewalk surface shall be given a Class 6, Broomed Finish.

CLASS 2 PROTECTIVE SURFACE TREATMENT: Class 2 Protective Surface Treatment shall be applied to the roadway surface, sidewalk surface, and face of curb.

TEXTURED COATING FINISH: Class 3 Textured Coating Finish shall be applied to bridge surfaces in accordance with the Special Provision Job No. BB0413 "Textured Coating Finish" and Subsection 802.19(b)(3). The color of the finish shall be Light and Medium Brown and shall match Federal Std. 595B, Color Chip 33522 & 30219. Texture coating finish applied to the superstructure shall have no texture. Texture coating finish applied to the substructure shall have texture approximating the existing substructure. Textured coating finish shall not be applied on surfaces where Class 2 Protective Surface Treatment is applied.

PAINTING: All new Structural Steel except galvanized members and surfaces in contact with concrete shall be painted as specified in Section 807. The existing structural steel shall be cleaned and painted in accordance with Section 820 "Cleaning and Painting Existing Structural Steel (Type II)." Color of the paint shall be Dark Brown, Federal Std. 595B, Color Chip 20108. For additional information, see SP Job BB0413 "Containment System", "Contractor Certification" and "Paint Contractor Label".

DETAIL DRAWINGS:	DRAWING NUMBER
Stage Construction	56875-56878
End Bents	56879-56881
Intermediate Bents	56882-56885
Elastomeric Bearings	56886-56887
272'-0" Cont. Comp. W-Beam Unit	56888-56900
Transitional Approach Railing	56901

For Additional General Notes see Sheet No. 56874.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15634
JOSE K. JOSEPH
3/7/16

SHEET 1 OF 2

LAYOUT OF BRIDGE OVER
INTERSTATE 49 (ELM SPRINGS RD.)
ELM SPRINGS RD. INTCHNG. IMPVTS. (F)
WASHINGTON COUNTY
ROUTE 49 SEC. 28
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: LLW DATE: 04-07-14 FILENAME: bbb0413_ll.dgn
CHECKED BY: CAW DATE: 04-15-14 SCALE: 1" = 20'
DESIGNED BY: JKJ DATE: 03-28-14
BRIDGE NO. 05945 DRAWING NO. 56873

USER: lw7300 DESIGN FILE: G:\2103303.ElmSprngRd\TRANSPO\dgn\bridge\bbb0413_ll.dgn PLOTTED: 3/9/2016 09:06 SCALE: 40:1

Crafton, Tull & Associates Inc.

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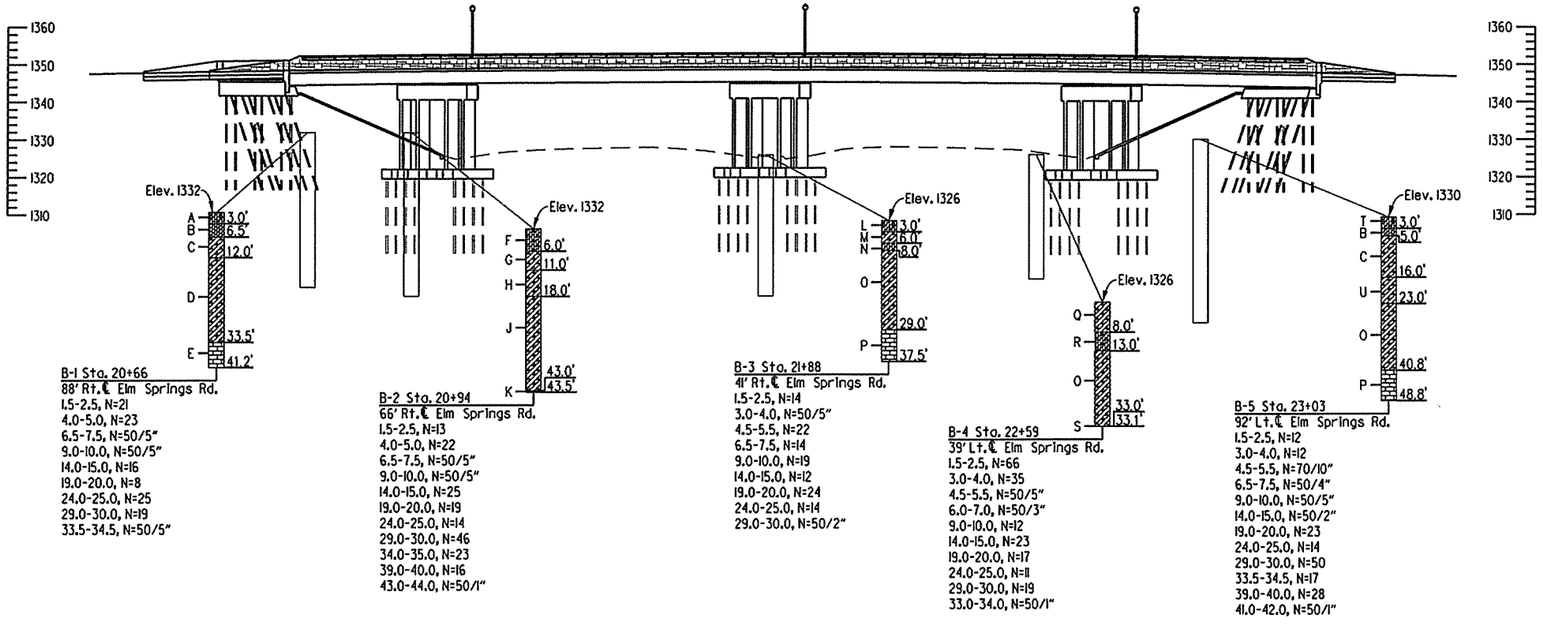
				6	ARK.			
				JOB NO.		BB0413	77	160
				(1) 05945		LAYOUT		56874



ELEVATION

BORING LEGEND

A. Stiff light brown silty clay with chert fragments (fill)
B. Stiff grayish tan and reddish brown silty clay with fine sandy clay seams
C. Dense to very dense light gray and white clayey fine to coarse chert gravel with reddish brown silty clay seams and layers
D. Stiff reddish brown silty clay with light gray and white fine to coarse chert fragments
E. Hard to very hard light gray limestone with chert inclusions, seams and layers and close stylolites
F. Stiff brown and gray silty clay with fine sand and chert fragments (fill)
G. Dense to very dense light gray and white clayey fine to coarse chert gravel with reddish brown silty clay seams
H. Medium dense light gray clayey fine to coarse chert gravel with reddish brown silty clay seams and layers
J. Medium dense light gray and white clayey fine to coarse chert gravel with grayish tan silty clay seams
K. Hard to very hard light gray limestone with chert inclusions, seams and layers
L. Stiff reddish brown silty clay with fine to coarse light gray chert fragments
M. Dense light gray and white clayey fine to coarse chert gravel with reddish brown silty clay seams and layers
N. Stiff reddish brown silty clay
O. Medium dense light gray and white clayey fine to coarse cherty gravel with grayish tan silty clay seams and layers
P. Hard to very hard gray limestone with chert inclusions, seams and layers and close stylolites
Q. Dense light gray and white clayey fine to coarse chert gravel with reddish brown silty clay seams
R. Stiff grayish tan clayey silt with light gray fine chert fragments
S. Hard to very hard gray limestone with chert inclusions, seams and layers
T. Stiff reddish brown silty clay with occasional light gray fine chert fragments (fill)
U. Medium dense light gray clayey fine to coarse chert gravel with reddish brown clayey silt seams and layers

General Notes (Cont'd.)

THE PROPOSED WORK CONSISTS OF: Widening the existing bridge, modifying the existing end bents, constructing new intermediate bents, cleaning and painting existing beams and diaphragms, removing and replacing the existing concrete deck, removing and replacing portions of the existing concrete riprap, replacing existing bearings at end bents, (see Method of Work Dwg. No. 56886), and replacing the joint seals. For additional requirements in conducting the work, see Section 821.

EXISTING BRIDGE: The Existing Bridge No. 05945 is approximately 54.83' wide and 274.38' long and consists of a continuous composite W-beam and reinforced concrete slab span, multi-column intermediate bents on spread footings, and steel pile end bents. Plans of the existing structure may be obtained upon request to the Construction Contract Procurement Section of the Program Management Division.

VERIFICATION: Except as noted, components of the existing bridge are to be retained and joined to proposed work. Information and dimensions shown are based on existing bridge plans. The Contractor is to adhere strictly to requirements for verification of the geometry of the existing bridge and its relationship to the proposed work described in Subsection 821.02 and make necessary adjustments to fit the proposed work to the existing structure. Payment for this work shall be considered subsidiary to the pay item "Modification of Existing Bridge Structure (Br. No. 05945)".

REMOVAL AND SALVAGE: All material removed from the existing bridge under item 821 shall be disposed of according to Section 205. All material removed from the existing bridge shall become the property of the Contractor.

MAINTENANCE OF TRAFFIC: See Roadway Plans and Special Provisions for more information.

STATE OF ARKANSAS
Jose K. Joseph
REGISTERED PROFESSIONAL ENGINEER
No. 15634
JOSE K. JOSEPH
1/28/16

SHEET 2 OF 2

LAYOUT OF BRIDGE OVER
INTERSTATE 49 (ELM SPRINGS RD.)
ELM SPRINGS RD. INTCHNG. IMPVTS. (F)
WASHINGTON COUNTY
ROUTE 49 SEC. 28
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: LLW DATE: 04-07-14 FILENAME: bbb0413_l2.dgn
CHECKED BY: CAW DATE: 04-15-14 SCALE: 1" = 20'
DESIGNED BY: JKJ DATE: 03-28-14
BRIDGE NO. 05945 DRAWING NO. 56874

USER: lw7300
DESIGN FILE: G:\2103303_ElmSpringRd\TRANSP\dgn\bridge\bbb0413_l2.dgn
PLOTTED: 1/28/2016 16:55 SCALE: 40:1

Crafton, Tull & Associates Inc.

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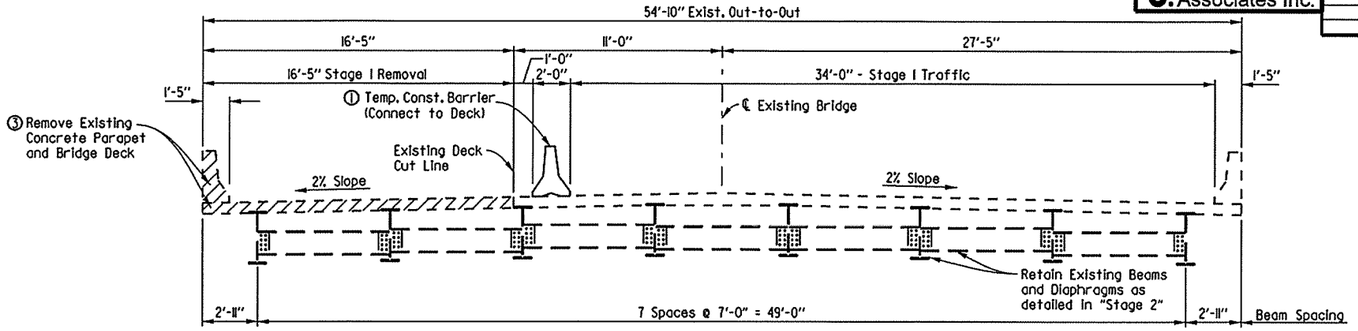
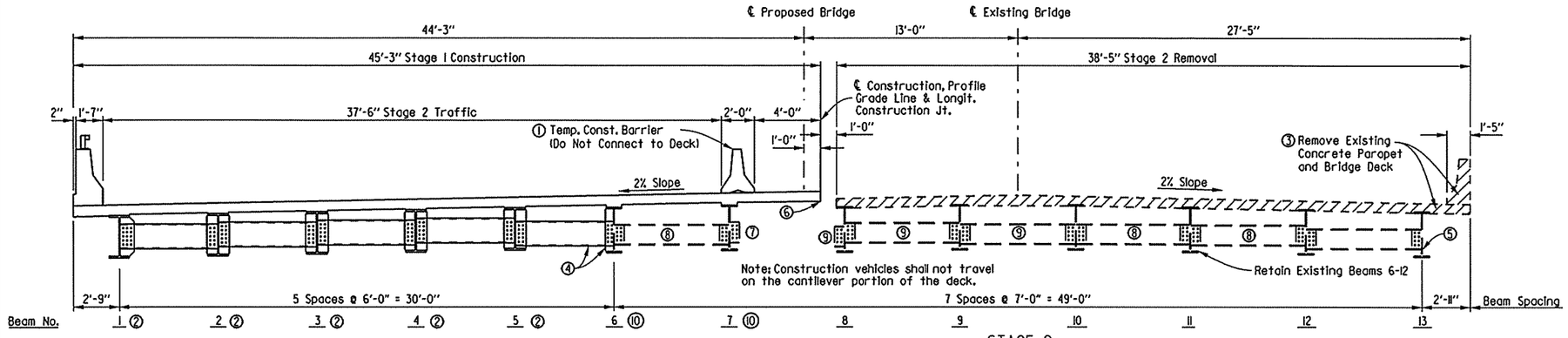
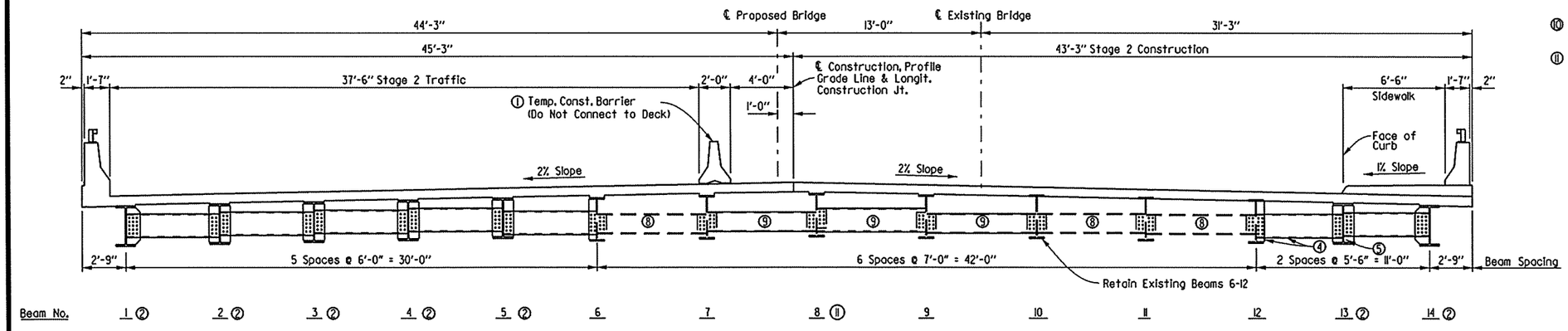
				JOB NO.		BB0413	78	160
				(1) 05945		STAGE CONSTRUCTION		56875



STAGE I
(Looking Ahead)



STAGE 2
(Looking Ahead)



STAGE 2
(Looking Ahead)

Notes:

① For Details of Temporary Precast Barrier, See Std. Dwg. No. TC-4.

② New beams and diaphragms.

③ Care shall be exercised during the removal of the existing deck to ensure that the bolted field splices, beams, diaphragms, shear studs and connection plates are not damaged. Damaged items that are not salvageable, as determined by the Engineer, shall be replaced by the Contractor at no additional payment. The interior spans of the existing deck shall be removed before the end spans are removed in order to ensure stability of the existing bridge.

④ Install new diaphragm and connection plate after deck removal but prior to deck pour. The new connection plate shall be field welded to the existing beam. See Typical Section for details.

⑤ Remove Existing Beam No. 13 and replace with new.

⑥ Use an approved Thread Type Mechanical Rebar Splices for use with Epoxy Coated Rebar from the AHTD QPL. See Dwg. No. 56888 for details.

⑦ Diaphragms in this bay shall be removed to facilitate the grade raise for Stage 2 construction. Payment for this work shall be included in Item 821.

⑧ Existing diaphragms to be retained.

⑨ New diaphragms to be installed by field drilling holes. Payment for this work shall be included in Item 821.

⑩ Raise Beam No. 6 and Beam No. 7 in Stage I, using built-up plates. See Dwg. No. 56887.

⑪ Raise Beam No. 8 in Stage 2 using built-up plates. See Dwg. No. 56887.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
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11/26/16

SHEET 1 OF 4
STAGE CONSTRUCTION DETAILS
ROUTE 49 SEC. 28
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

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CHECKED BY: CAW DATE: 04-15-14
DESIGNED BY: JKJ DATE: 03-28-14
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Crafton, Tull & Associates Inc.

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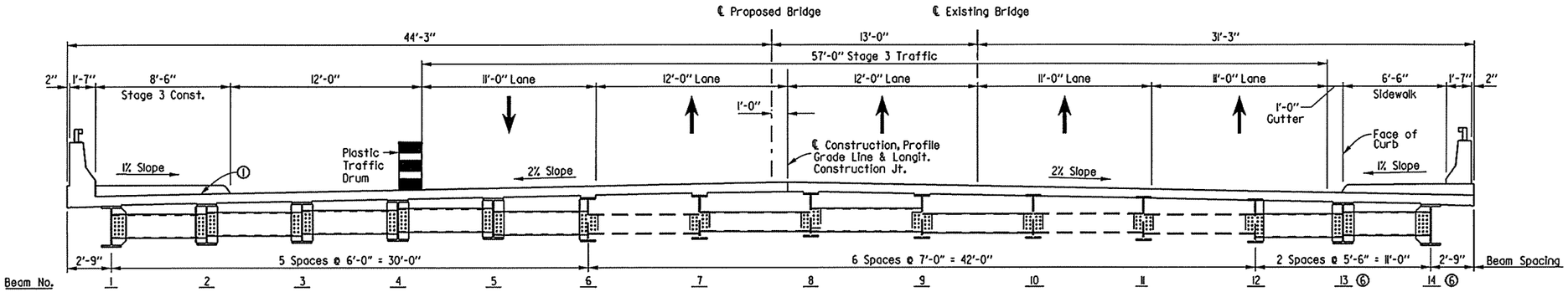
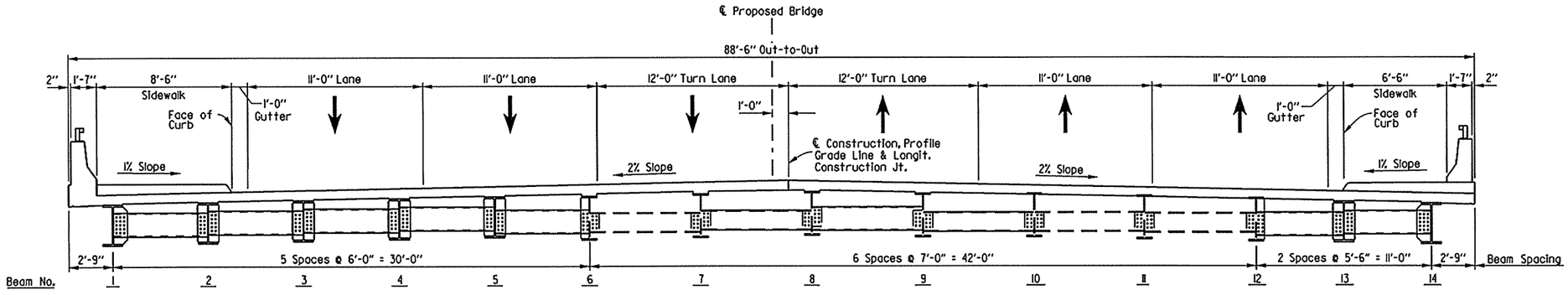


STAGE 3
(Looking Ahead)

Notes:

① Drill and dowel the proposed sidewalk reinforcement to the new bridge deck using an approved epoxy.



FINAL
(Looking Ahead)

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15634
JOSE K. JOSEPH
1/26/16

SHEET 2 OF 4
STAGE CONSTRUCTION DETAILS
ROUTE 49 SEC. 28
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: LLW DATE: 04-07-14 FILENAME: bbb0413_14.dgn
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BRIDGE NO. 05945 DRAWING NO. 56876

USER: lw7300
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Crafton, Tull & Associates Inc.

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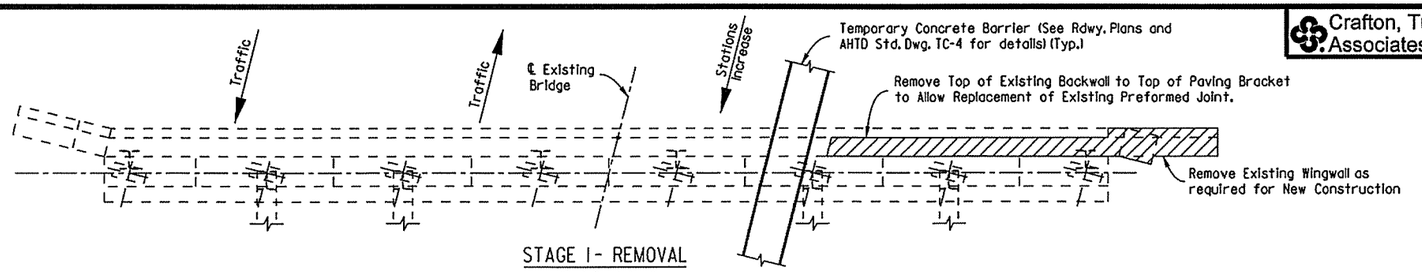
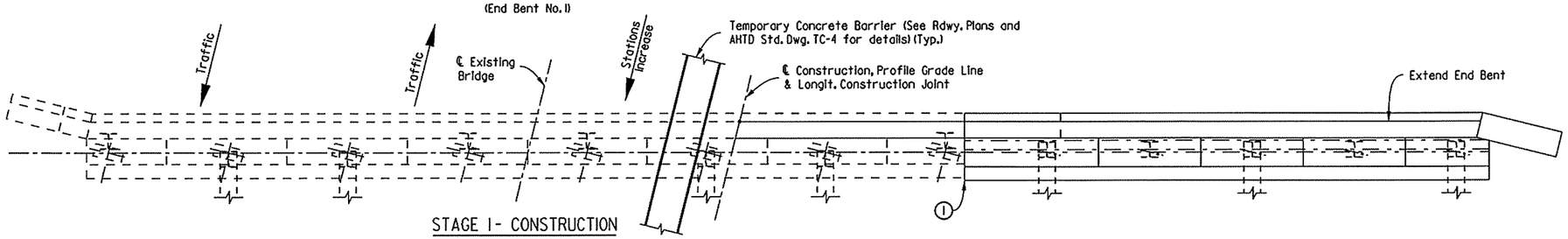
6	ARK.			
JOB NO.		BB0413	80	160
(1) 05945	STAGE CONSTRUCTION			56877

(1) Pour New End Bent Concrete Against Existing End Bent

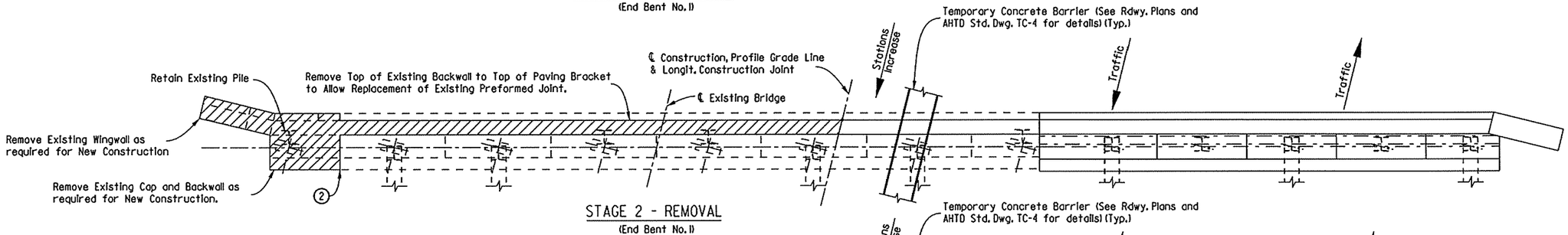
(2) Remove Existing Concrete. Clean and Retain Existing Horizontal Reinforcement.



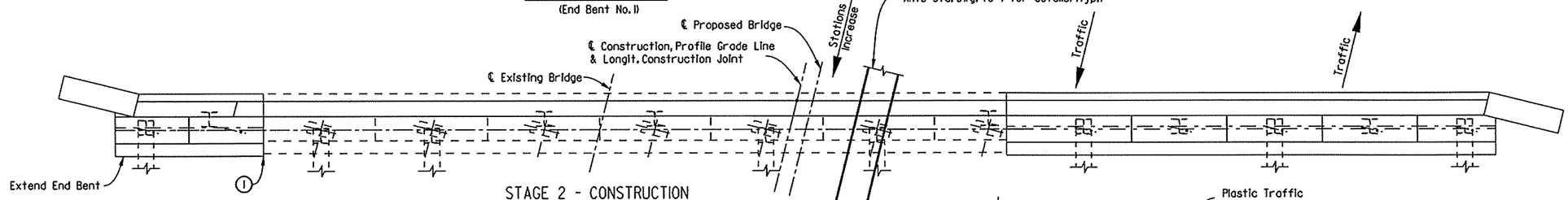
STAGE 1- REMOVAL
(End Bent No. 1)



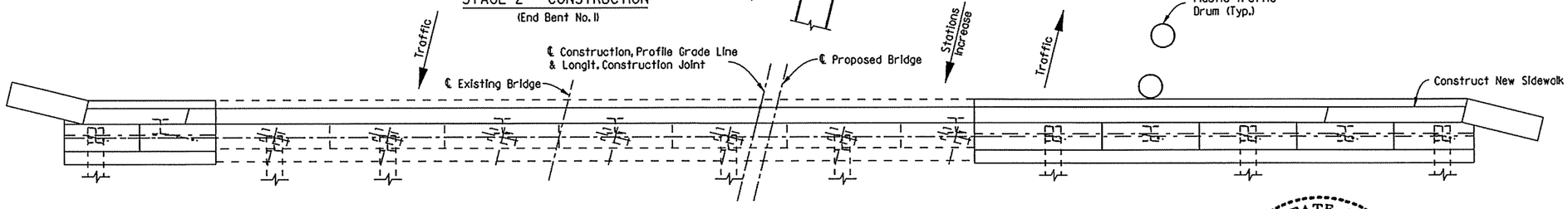
STAGE 1- CONSTRUCTION
(End Bent No. 1)



STAGE 2 - REMOVAL
(End Bent No. 1)



STAGE 2 - CONSTRUCTION
(End Bent No. 1)



STAGE 3 - CONSTRUCTION
(End Bent No. 1)

STATE OF ARKANSAS
Jose K. Joseph
REGISTERED 1/26/16
PROFESSIONAL ENGINEER
No. 15634
JOSE K. JOSEPH

SHEET 3 OF 4

STAGE CONSTRUCTION DETAILS

ROUTE 49 SEC. 28

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY:	TRU	DATE:	10-15-14	FILENAME:	bbb0413_15.dgn
CHECKED BY:	CAW	DATE:	02-19-15	SCALE:	NOT TO SCALE
DESIGNED BY:	JKJ	DATE:	09-26-14		

BRIDGE NO. 05945 DRAWING NO. 56877

USER: lw7300
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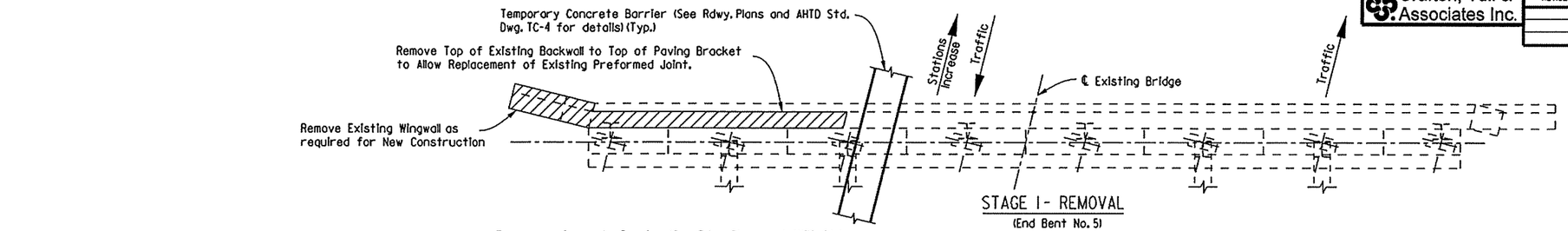
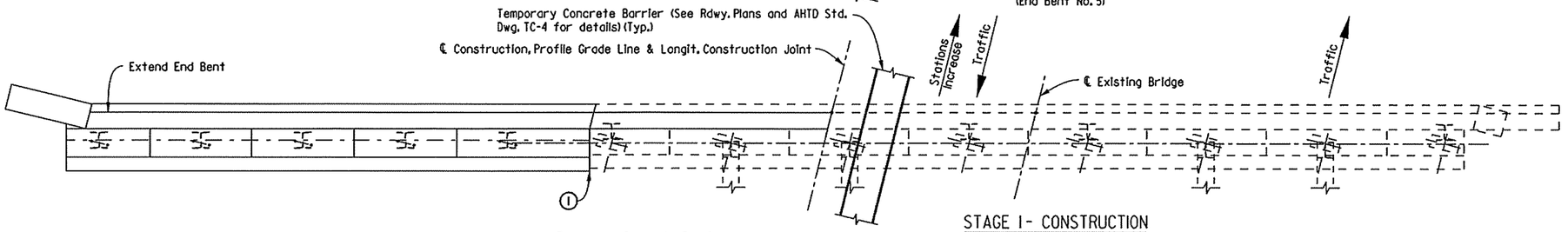
Crafton, Tull & Associates Inc.

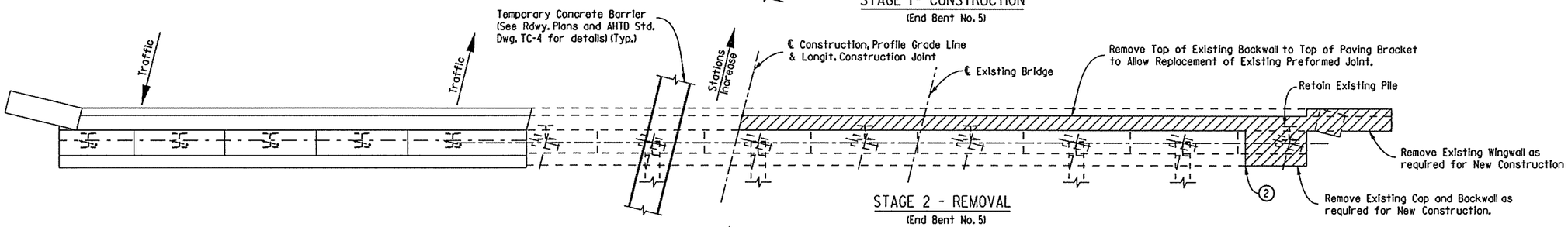
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	81	160
				(1) 05945		STAGE CONSTRUCTION		56878



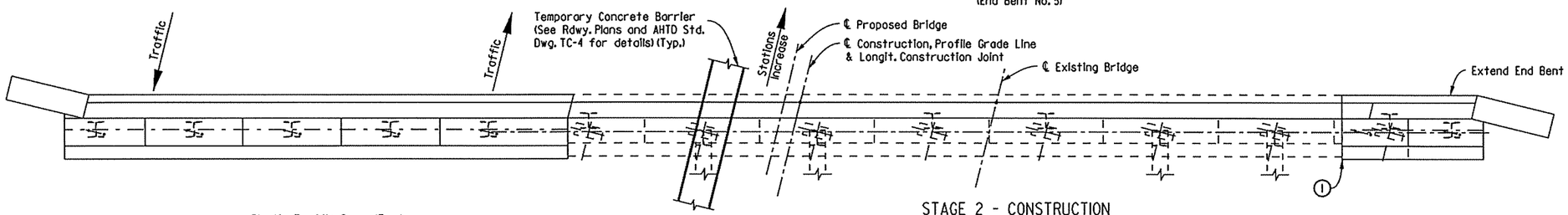
STAGE 1- REMOVAL
(End Bent No. 5)



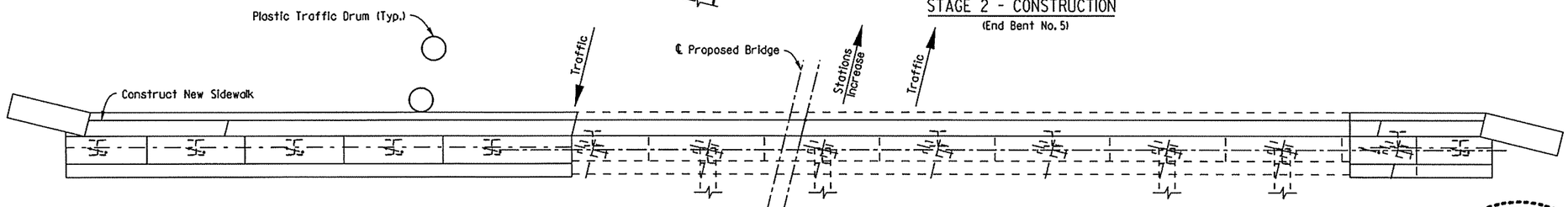
STAGE 1- CONSTRUCTION
(End Bent No. 5)



STAGE 2 - REMOVAL
(End Bent No. 5)



STAGE 2 - CONSTRUCTION
(End Bent No. 5)



STAGE 3 - CONSTRUCTION
(End Bent No. 5)

① Pour New End Bent Concrete Against Existing End Bent

② Remove Existing Concrete, Clean and Retain Existing Horizontal Reinforcement.

STATE OF ARKANSAS
Jose K. Joseph
REGISTERED PROFESSIONAL ENGINEER
No. 15634
JOSE K. JOSEPH
1/26/16

SHEET 4 OF 4
STAGE CONSTRUCTION DETAILS
ROUTE 49 SEC. 28
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TRM DATE: 10-15-14 FILENAME: bbb0413_16.dgn
CHECKED BY: CAW DATE: 02-19-15 SCALE: NOT TO SCALE
DESIGNED BY: JKJ DATE: 09-26-14

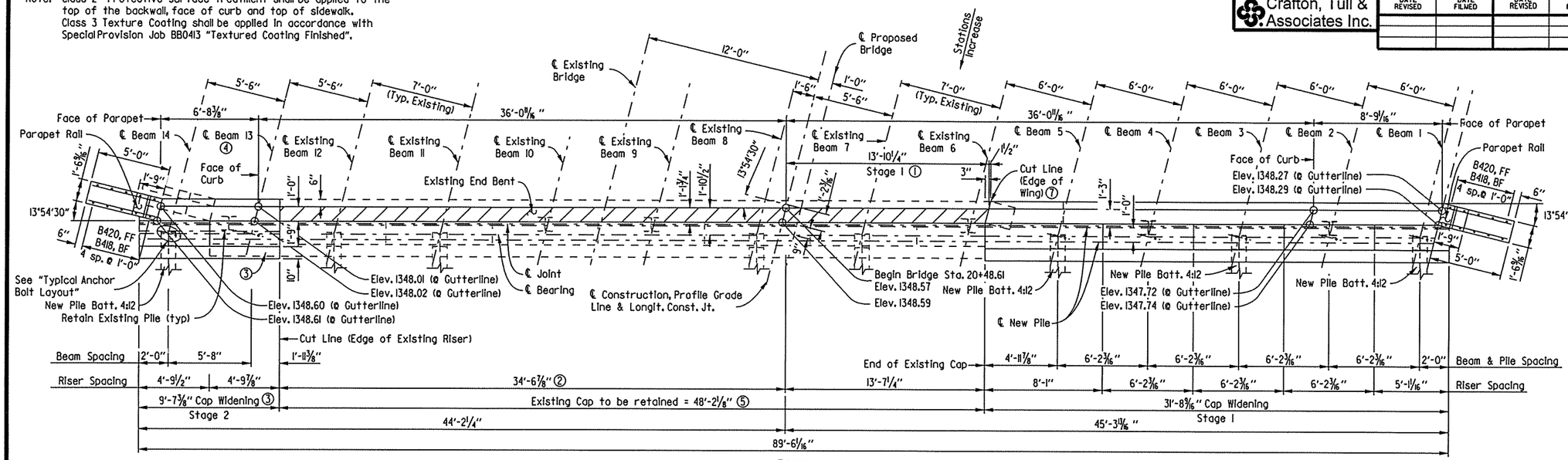
BRIDGE NO. 05945 DRAWING NO. 56878

USER: lw7300
DESIGN FILE: G:\2103303_ElmSpringRd\TRANSP\dgn\bridge\bbb0413_16.dgn SCALE: 8:1
PLOTTED: 1/26/2016 14:00

Note: Class 2 Protective Surface Treatment shall be applied to the top of the backwall, face of curb and top of sidewalk. Class 3 Texture Coating shall be applied in accordance with Special Provision Job BB0413 "Textured Coating Finished".

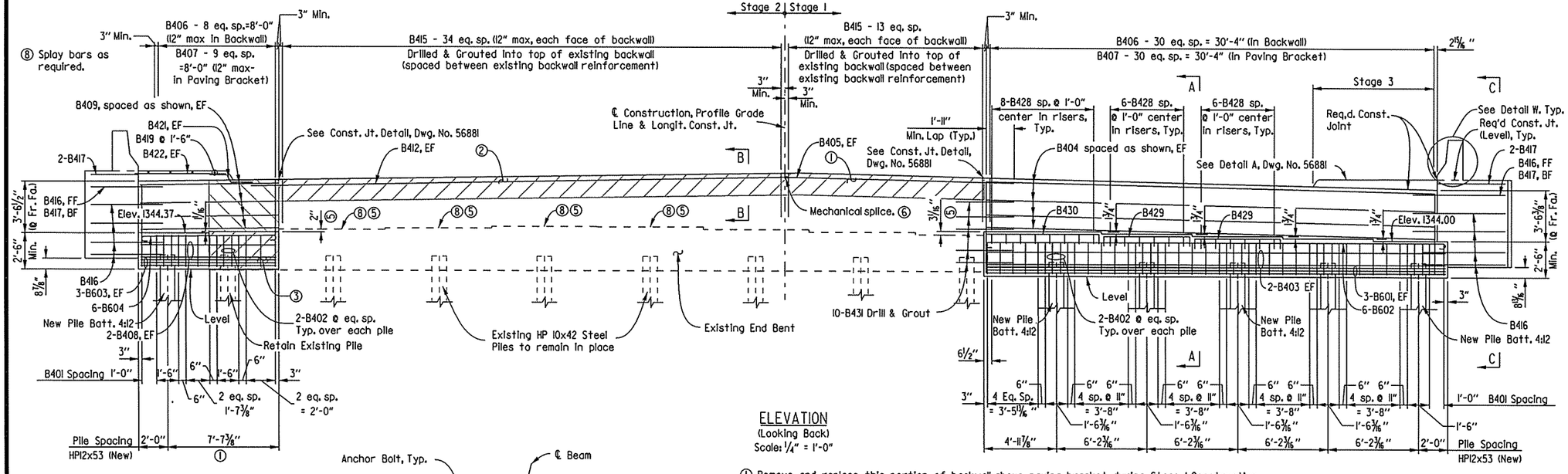
Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	82	160
				1	05945	END BENT 1		56879



PLAN

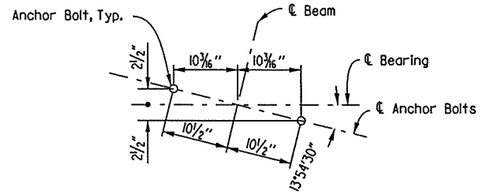
Scale: 1/4" = 1'-0"



ELEVATION

(Looking Back)

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



TYPICAL ANCHOR BOLT LAYOUT

Scale: 1" = 1'-0"

① Remove and replace this portion of backwall above paving bracket during Stage 1 Construction.

② Remove and replace this portion of backwall above paving bracket during Stage 2 Construction.

③ Remove existing Concrete. Clean and retain Existing Horizontal Reinforcement in cap and backwall.

④ Remove existing Beam 13 and replace with new Beam 13 at new location shown during Stage 2.

⑤ Based on original plans. Contractor shall verify in the field.

⑥ Extend reinforcing to provide a Mechanical Rebar Splice. Use an approved thread type Mechanical Rebar Splices for use with Epoxy Coated Rebar from AHTD QPL. Provide Mechanical splices with 125 percent of the required yield strength of the reinforcing steel.

⑦ Remove existing concrete parapet and wing. Cut reinforcement at cut line.

⑧ Remove the top 1 1/4" of existing concrete risers under Beams 9-12. Prepare concrete surface to install new elastomeric bearings per Subsection 808.08. See Dwg. No. 56886 for additional details. Prior to removal, the Contractor shall locate the existing reinforcement and determine the existing reinforcement cover and provide this information to the Engineer. Payment for this work shall be subsidiary to "Modification of Existing Bridge Structure (Br. No. 05945)".

LEGEND

EF = Each Face
FF = Front Face
BF = Back Face

GENERAL NOTES

All Concrete shall be Class "S" and poured in the dry. All exposed corners to be chamfered 3/4" unless otherwise noted.

All Reinforcing Steel shall be Grade 60 (fy = 60,000 psi) AASHTO M 31 or M 322, Type A with mill test reports.

The backwall shall not be poured before the beams are in place. Backwall may be placed prior to placing the adjacent concrete deck only if the optional backwall construction joint is used. See Detail Z for additional information.

Structural Steel in end bents shall be AASHTO M 270, Gr. 50 and shall be included in the bid item "Structural Steel in Beam Spans (M270, Gr. 50)." Structural steel, except surfaces in contact with concrete, shall be cleaned and painted in accordance with Section 807.

If anchor bolts are drilled into cap during Stage 1 or Stage 2 widening, top reinforcing bars shall be properly placed to avoid damage. The existing reinforcing steel in the top of existing cap may be drilled during placement of the new anchor bolts for Stage 2 Construction.

Drill and grout bars where shown using an approved cement or epoxy system from the QPL. Minimum embedment shall be 12" for cement based grout. Minimum embedment shall be per the manufacturer's recommendations for epoxy based grout.

Work required to remove & dispose portions of the existing bridge, retain and clean existing reinforcing steel, and any required doweling will not be paid for directly but will be considered subsidiary to the item "Modification of Existing Bridge Structure (Br. No. 05945)".

For Details of Elastomeric Bearings, See Dwg. No. 56886
For Bar List and Bending Diagrams, See Dwg. No. 56881
For Details of Wingwall and Rail, See Dwg. No. 56881

For Sections A-A thru C-C, See Dwg. No. 56881

For additional information, see Layout.

STATE OF ARKANSAS
Jose K. Joseph
REGISTERED PROFESSIONAL ENGINEER
No. 15634
JOSE K. JOSEPH
2/11/16

END BENT 1 DETAILS

ROUTE 49 SEC. 28

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: TRM DATE: 10-20-14 FILENAME: bbb0413_bll.dgn
CHECKED BY: CAW DATE: 02-22-15 SCALE: 1/4" = 1'-0"
DESIGNED BY: LLW DATE: 10-15-14

BRIDGE NO. 05945 DRAWING NO. 56879

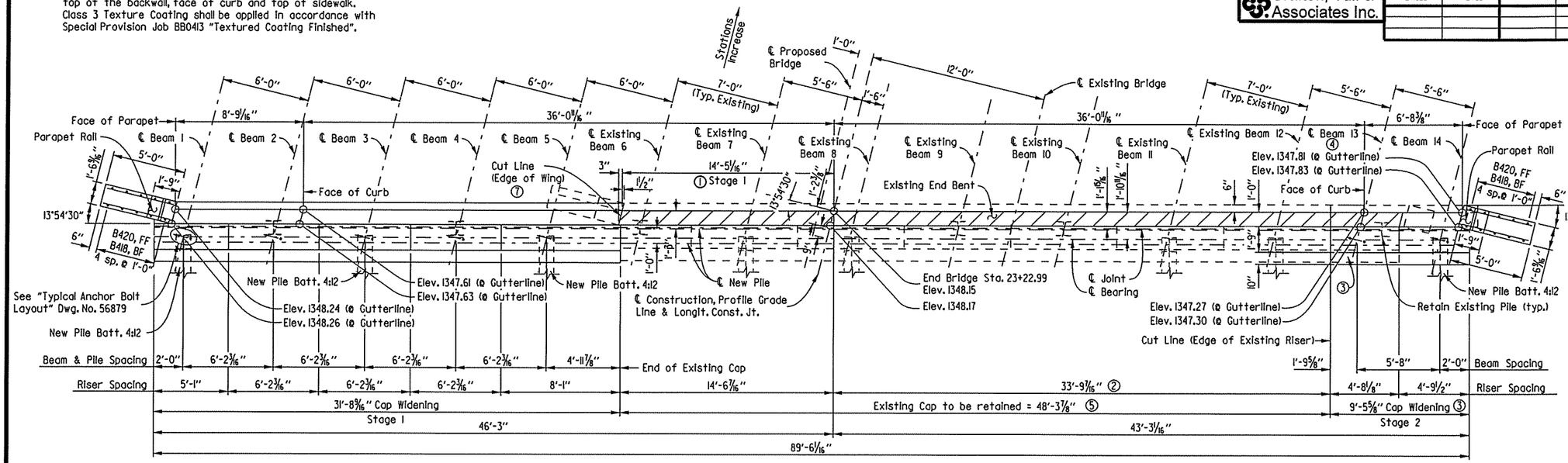
USER: lw7300
DESIGN FILE: G:\2103303.ElmSprngRd\TRANSP\dgn\bridge\bbb0413_bll.dgn
PLOTTED: 2/2/2016 10:15 SCALE: Bd

Note: Class 2 Protective Surface Treatment shall be applied to the top of the backwall, face of curb and top of sidewalk. Class 3 Texture Coating shall be applied in accordance with Special Provision Job BB0413 "Textured Coating Finished".

Crafton, Tull & Associates Inc.

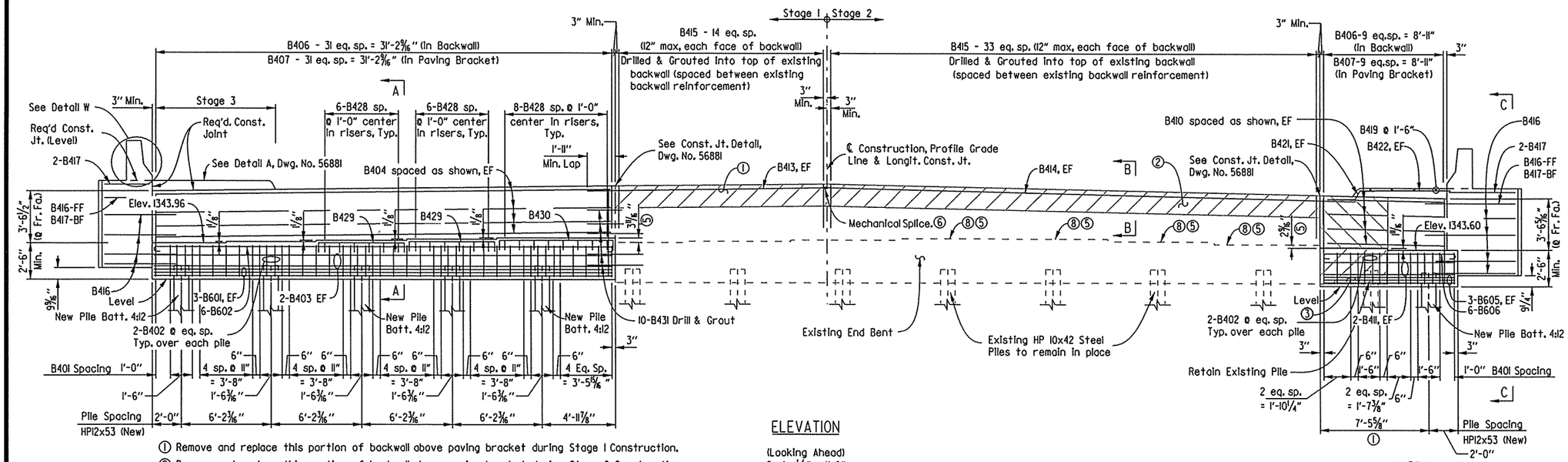
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	83	160
(1) 05945		END BENT 5		56880



PLAN

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



ELEVATION

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

① Remove and replace this portion of backwall above paving bracket during Stage 1 Construction.
② Remove and replace this portion of backwall above paving bracket during Stage 2 Construction.
③ Remove existing Concrete. Clean and retain Existing Horizontal Reinforcement in cap and backwall.
④ Remove existing Beam 13 and replace with new Beam 13 at new location shown during Stage 2.
⑤ Based on original plans. Contractor shall verify in the field.
⑥ Extend reinforcing to provide a Mechanical Rebar Splice. Use an approved thread type Mechanical Rebar Splices for use with Epoxy Coated Rebar from AHTD QPL. Provide Mechanical splices with 125 percent of the required yield strength of the reinforcing steel.
⑦ Remove existing concrete parapet and wing. Cut reinforcement at cut line.
⑧ Remove the top 1/4" of existing concrete risers under Beams 9-12. Prepare concrete surface to install new elastomeric bearings per Subsection 808.08. See Dwg. No. 56886 for additional details. Prior to removal, the Contractor shall locate the existing reinforcement and determine the existing reinforcement cover and provide this information to the Engineer. Payment for this work shall be subsidiary to "Modification of Existing Bridge Structure (Br. No. 05945)".

LEGEND

EF = Each Face
FF = Front Face
BF = Back Face

GENERAL NOTES

All Concrete shall be Class "S" and poured in the dry. All exposed corners to be chamfered 3/4" unless otherwise noted.

All Reinforcing Steel shall be Grade 60 (fy = 60,000 psi) AASHTO M 31 or M 322, Type A with mill test reports.

The backwall shall not be poured before the beams are in place. Backwall may be placed prior to placing the adjacent concrete deck only if the optional backwall construction joint is used. See Detail Z for additional information.

Structural Steel in end bents shall be AASHTO M 270, Gr. 50 and shall be included in the bid item "Structural Steel in Beam Spans (M270, Gr. 50)." Structural steel, except surfaces in contact with concrete, shall be cleaned and painted in accordance with Section 807.

If anchor bolts are drilled into cap during Stage 1 or Stage 2 widening, top reinforcing bars shall be properly placed to avoid damage. The existing reinforcing steel in the top of existing cap may be drilled during placement of the new anchor bolts for Stage 2 Construction.

Drill and grout bars where shown using an approved cement or epoxy system from the QPL. Minimum embedment shall be 12" for cement based grout. Minimum embedment shall be per the manufacturer's recommendations for epoxy based grout.

Work required to remove & dispose portions of the existing bridge, retain and clean existing reinforcing steel, and any required doweling will not be paid for directly but will be considered subsidiary to the item "Modification of Existing Bridge Structure (Br. No. 05945)".

For Details of Elastomeric Bearings, See Dwg. No. 56886
For Bar List and Bending Diagrams, See Dwg. No. 56881
For Details of Wingwall and Rail, See Dwg. No. 56881

For Sections A-A thru C-C, See Dwg. No. 56881

For additional information, see Layout.

STATE OF ARKANSAS
Jose K. Joseph
REGISTERED PROFESSIONAL ENGINEER
No. 15634
JOSE K. JOSEPH
2/1/16

END BENT 5 DETAILS

ROUTE 49 SEC. 28
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

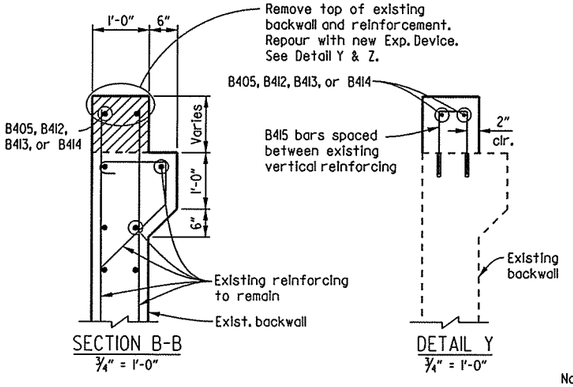
DRAWN BY: TRM	DATE: 10-20-14	FILENAME: bbb0413_b5l.dgn	
CHECKED BY: CAW	DATE: 02-22-15	SCALE: 1/4" = 1'-0"	
DESIGNED BY: LLW	DATE: 10-15-14		

BRIDGE NO. 05945 DRAWING NO. 56880

USER: lw7300
DESIGN FILE: G:\2103303.ElmSprngRd\TRANSP\dgn\bridge\bbb0413_b5l.dgn
PLOTTED: 2/2/2016 10:15
SCALE: 8:1

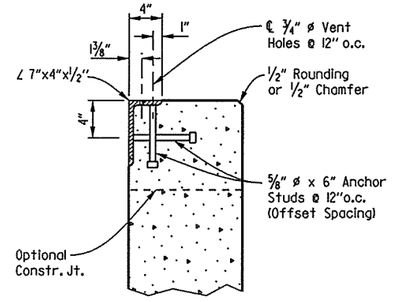
Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	84	160
				(1) 05945		END BENT DETAILS		56881



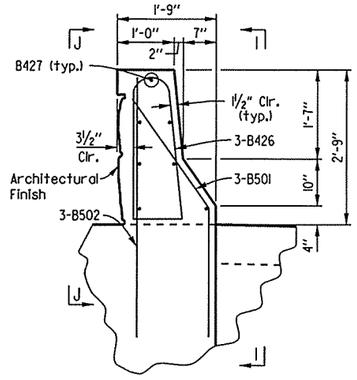
SECTION B-B
3/4" = 1'-0"

DETAIL Y
3/4" = 1'-0"



Note: For additional Joint Details, See Dwg. No. 56898

DETAIL Z
No Scale



DETAIL W
No Scale

LEGEND

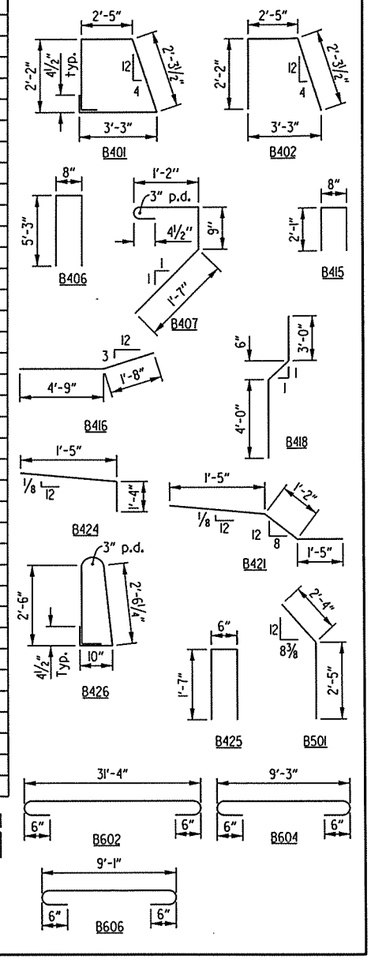
EF = Each Face
FF = Front Face
BF = Back Face
u.n.o = Unless Noted Otherwise

BAR LIST

MARK	NO. REQ'D. BENT 1	NO. REQ'D. BENT 5	LENGTH	P.D.
B401	47	47	10'-6"	2"
B402	14	14	6'-9"	2"
B403	4	4	31'-4"	Str.
B404	8	8	30'-8"	Str.
B405	2	---	15'-7"	Str.
B406	40	42	11'-0"	2"
B407	40	42	3'-11"	2"
B408	4	---	9'-5"	Str.
B409	8	---	9'-3"	Str.
B410	---	8	9'-3"	Str.
B411	---	4	9'-3"	Str.
B412	2	---	36'-9"	Str.
B413	---	2	16'-6"	Str.
B414	---	2	35'-9"	Str.
B415	49	49	4'-8"	2"
B416	18	18	6'-5"	2"
B417	6	6	4'-8"	Str.
B418	10	10	7'-6"	2"
B419	4	4	9"	Str.
B420	10	10	5'-8"	Str.
B421	2	2	3'-10"	3"
B422	2	2	6'-6"	Str.
B423	2	2	9'-1"	Str.
B424	2	2	2'-8"	3"
B425	8	8	3'-6"	2"
B426	6	6	6'-9"	3"
B427	14	14	1'-0"	Str.
B428	20	20	4'-3"	2"
B429	6	6	7'-8"	2"
B430	3	3	10'-5"	2"
B431	10	10	4'-0"	Str.
B501	6	6	4'-9"	3"
B502	6	6	5'-0"	Str.
B601	6	6	31'-4"	Str.
B602	6	6	32'-8"	4 1/2"
B603	6	---	9'-3"	Str.
B604	6	---	10'-7"	4 1/2"
B605	---	6	9'-1"	Str.
B606	---	6	10'-5"	4 1/2"

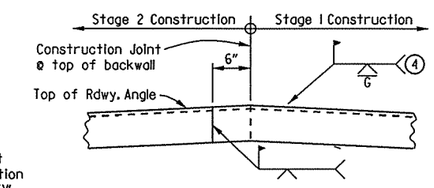
BENDING DIAGRAMS

Dimensions are out to out of bars.



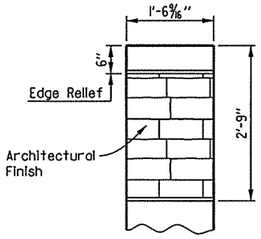
Note:
Drill and grout bars where shown using an approved cement or epoxy system. Minimum embedment shall be 1'-0" for cement based grout. Minimum embedment shall be per the manufacturer's recommendations for epoxy based grout.

Dowels shall be located to avoid damaging the existing backwall reinforcing steel. Payement for drill and grout and placement shall be considered subsidiary to "Modification of Existing Bridge Strtucture (Br. No. 05945)".

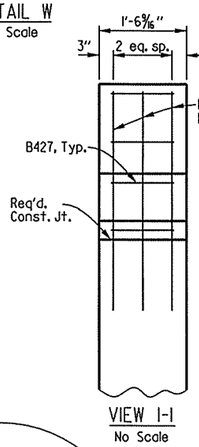


④ Grind flush from top of deck to top of Bumper Plate.

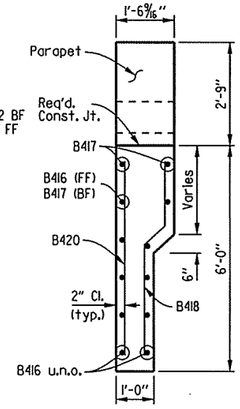
DETAIL OF WELD LOCATION FOR JOINT ARMOR PLATE



VIEW J-J
No Scale

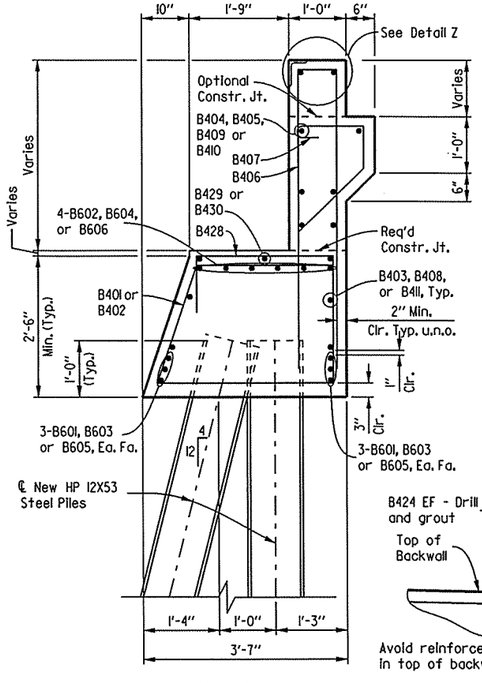


VIEW 1-1
No Scale

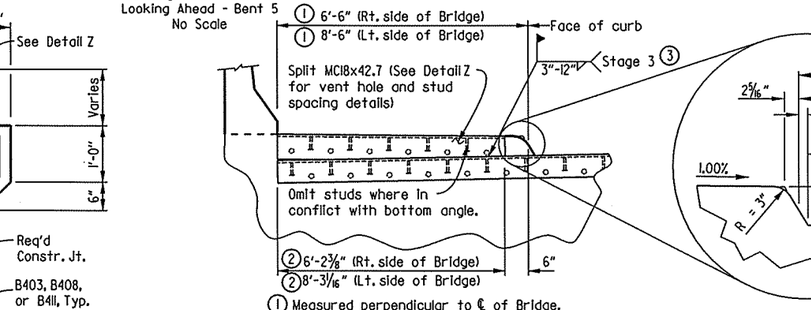


SECTION C-C
No Scale

Looking Back - Bent 1
Looking Ahead - Bent 5
No Scale

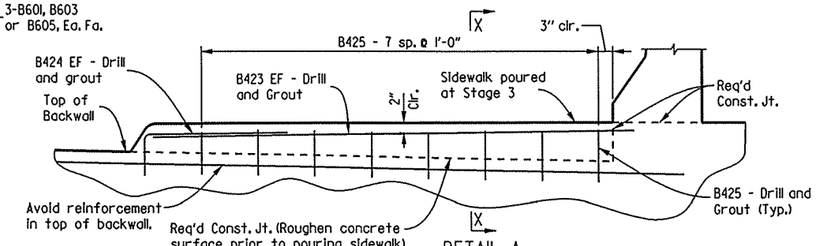


SECTION A-A
3/4" = 1'-0"

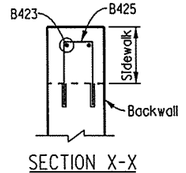


1 Measured perpendicular to ℄ of Bridge.
2 Measured parallel to skew.
3 8'-6" Sidewalk Only.

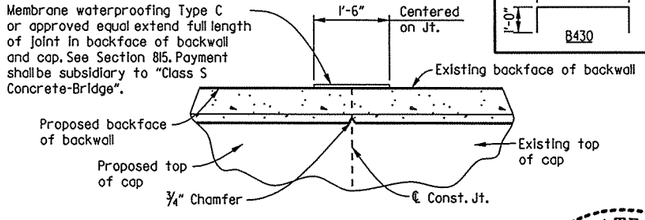
SIDEWALK AND CURB DETAIL
(Looking @ front face of backwall)
1/2" = 1'-0"



DETAIL A
Stage 3 Construction
(Looking Back, Bent 1)
3/4" = 1'-0"



SECTION X-X
No Scale



CONSTRUCTION JOINT DETAIL
No Scale

STATE OF ARKANSAS
Jose K. Joseph
REGISTERED PROFESSIONAL ENGINEER
No. 15634
JOSE K. JOSEPH
4/7/16

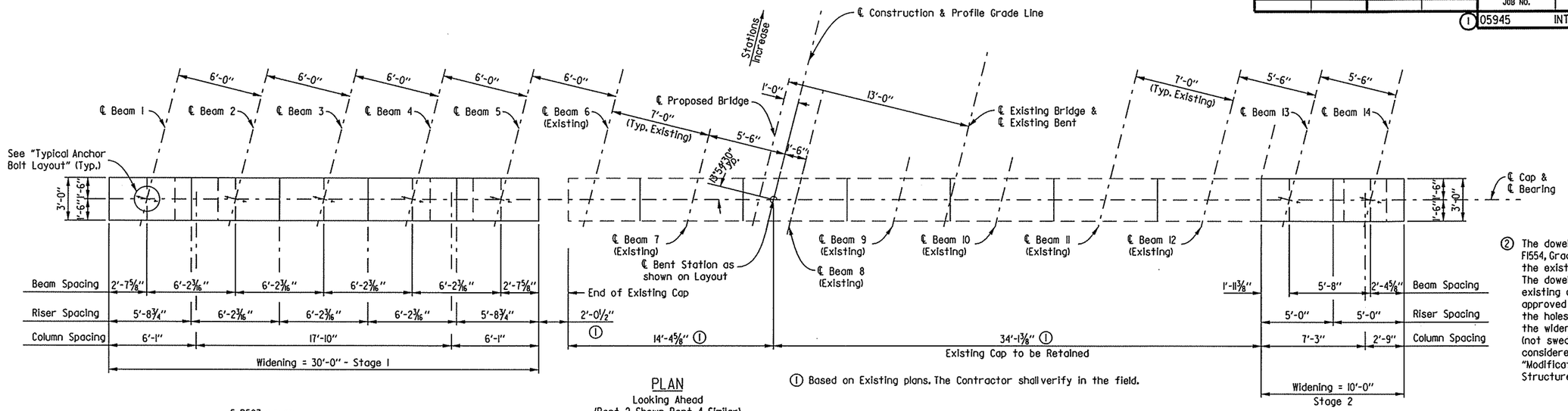
COMMON END BENT DETAILS
ROUTE 49 SEC. 28
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TRM DATE: 10-14-14 FILENAME: bbb0413.bl2.dgn
CHECKED BY: CAW DATE: 02-22-15 SCALE: SEE DETAILS
DESIGNED BY: LLW DATE: 10-22-14
BRIDGE NO. 05945 DRAWING NO. 56881

USER: bc5100
DESIGN FILE: G:\2103303.ElmSprngRd\TRANSP\dgn\bridge\bbb0413.bl2.dgn
PLOTTED: 1/7/2016 12:07 SCALE: 8:1

Crafton, Tull & Associates Inc.

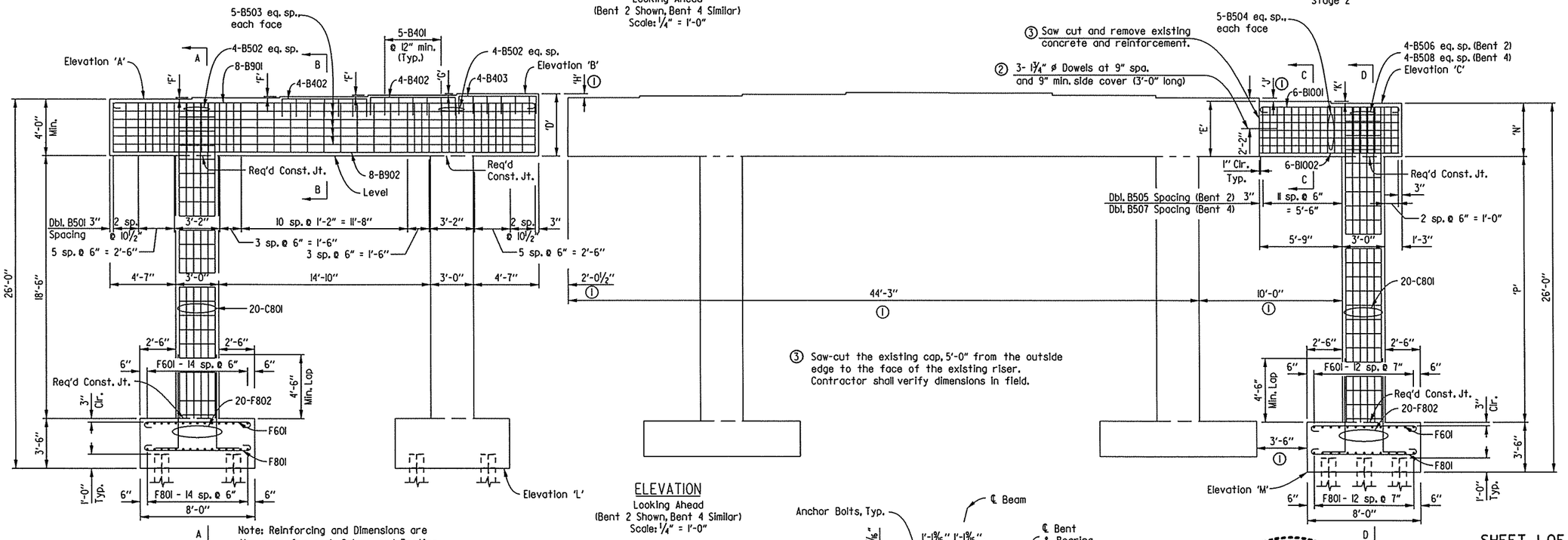
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	85	160
				(1) 05945		INT BENT DETAILS		56882



PLAN
Looking Ahead
(Bent 2 Shown, Bent 4 Similar)
Scale: ¼" = 1'-0"

(1) Based on Existing plans. The Contractor shall verify in the field.

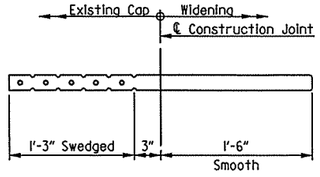
(2) The dowels shall conform to ASTM F1554, Grade 105. The end embeded into the existing Cap shall be swedged. The dowels shall be secured in the existing cap using an AHTD OPL approved epoxy that completely fills the holes. The end of the dowels on the widened side shall be smooth (not swedged). Payment shall be considered subsidiary to "Modification of Existing Bridge Structure (Br. No. 05945)".



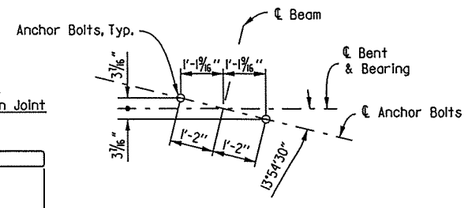
Note: Reinforcing and Dimensions are the same for each Column and Footing.

Bent	A	B	C	D	E	F	G	H (1)	J (1)	K	L	M	N	P
2	1344.59	1345.13	1344.84	4'-6½"	4'-0¼"	1⅝"	1⅝"	2¹¹⁄₁₆"	2⅝"	1¾"	1318.59	1318.84	3'-11⅞"	18'-6⅞"
4	1344.56	1344.97	1344.34	4'-4⅝"	3'-11"	1¼"	1¾"	3⅛"	3"	1⅝"	1318.56	1318.34	3'-9⅝"	18'-8⅛"

ELEVATION
Looking Ahead
(Bent 2 Shown, Bent 4 Similar)
Scale: ¼" = 1'-0"



DOWEL DETAIL
No Scale



TYPICAL ANCHOR BOLT LAYOUT
Scale: 1" = 1'-0"
(Bent 2 & 4)

(3) Saw-cut the existing cap, 5'-0" from the outside edge to the face of the existing riser. Contractor shall verify dimensions in field.

STATE OF ARKANSAS
Jose K. Joseph
REGISTERED PROFESSIONAL ENGINEER
No. 15634
JOSE K. JOSEPH
1/7/16

SHEET 1 OF 2

DETAILS OF INT. BENTS 2 & 4
ELM SPRINGS RD
WASHINGTON COUNTY
ROUTE 49 SEC. 28
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: LLW DATE: 01-09-15 FILENAME: bbb0413_b21.dgn
CHECKED BY: CAW DATE: 02-26-15 SCALE: 1/4" = 1'-0"
DESIGNED BY: LLW DATE: 12-30-14
BRIDGE NO. 05945 DRAWING NO. 56882

USER: bc5100
DESIGN FILE: G:\2103303_ElmSpringRd\TRANSP\dgn\bridge\bbb0413_b21.dgn
PLOTTED: 1/7/2016 12:07 SCALE: 8:1

Crafton, Tull & Associates Inc.	DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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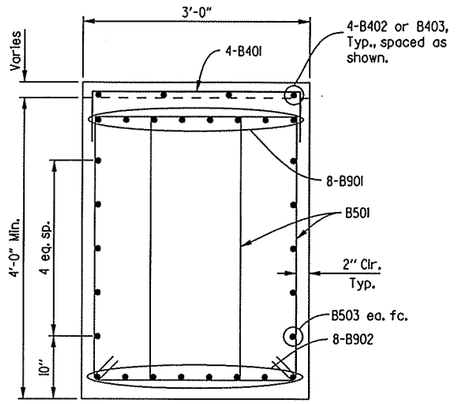
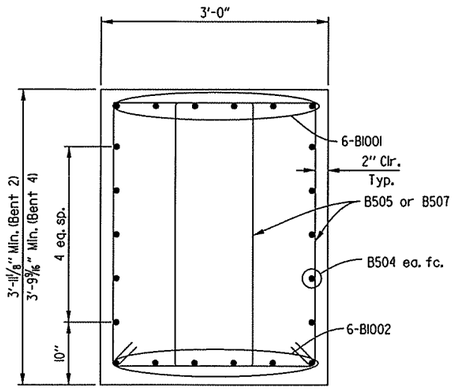
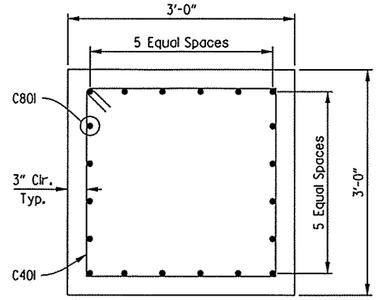
					JOB NO.		BB0413	86	160
					(1) 05945		INT BENT DETAILS		56883



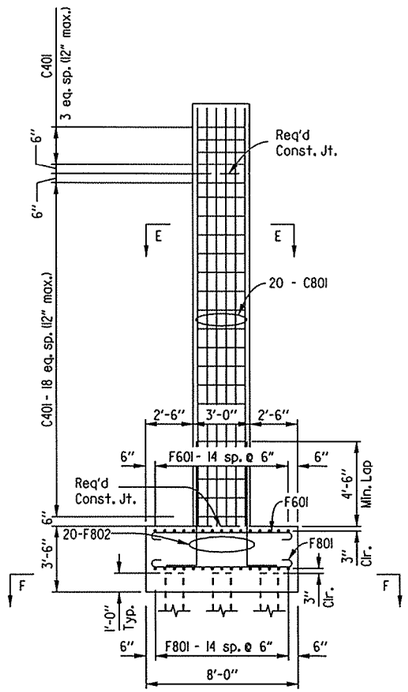
SECTION B-B
Scale: 1" = 1'-0"



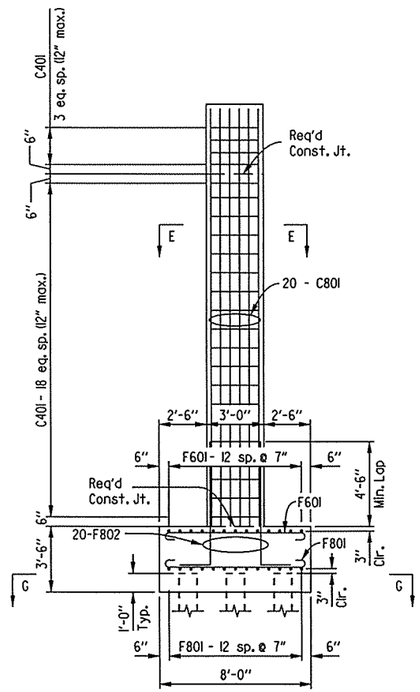
SECTION C-C
Scale: 1" = 1'-0"



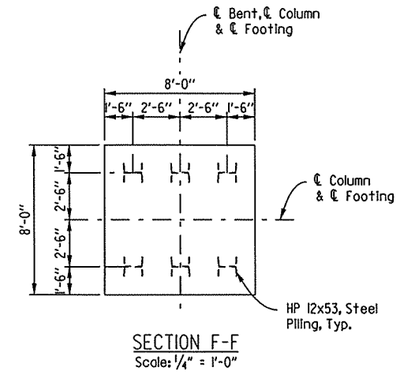
SECTION E-E
Scale: 1" = 1'-0"



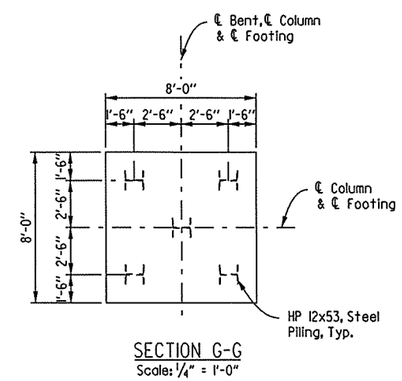
SECTION A-A
Scale: ¼" = 1'-0"



SECTION D-D
Scale: ¼" = 1'-0"



SECTION F-F
Scale: ¼" = 1'-0"



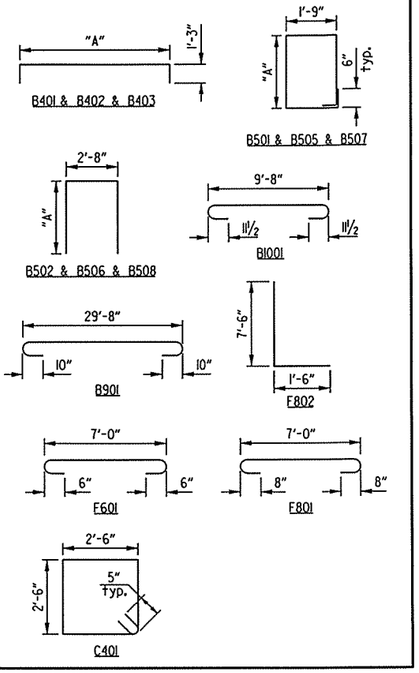
SECTION G-G
Scale: ¼" = 1'-0"

BAR LIST (PER BENT)

	MARK	NO. REQ'D.	LENGTH	"A"	P.D.
	B401	15	5'-0"	2'-8"	2"
	B402	8	8'-2"	5'-10"	2"
	B403	4	7'-8"	5'-4"	2"
	B501	66	11'-4"	3'-8"	2½"
	B502	8	9'-10"	3'-8"	2½"
	B503	10	29'-8"	---	Str.
	B504	10	9'-9"	---	Str.
(1)	B505	30	11'-2"	3'-7"	2½"
(1)	B506	4	9'-8"	3'-7"	2½"
(2)	B507	30	10'-10"	3'-5"	2½"
(2)	B508	4	9'-4"	3'-5"	2½"
	B901	8	32'-2"	---	9"
	B902	8	29'-8"	---	Str.
	B1001	6	12'-6"	---	10"
	B1002	6	9'-9"	---	Str.
	C401	69	10'-6"	---	3"
	C801	60	22'-0"	---	Str.
	F601	86	8'-4"	---	4½"
	F801	86	8'-10"	---	6"
	F802	60	9'-0"	---	6"

BENDING DIAGRAMS

Dimensions are out to out of bars.



(1) Bent 2 only
(2) Bent 4 only

GENERAL NOTES

Concrete shall be Class 'S' with a minimum 28 day compressive strength of f'c = 3,500 p.s.i. Concrete shall be poured in the dry. All exposed corners shall be chamfered ¾" unless otherwise noted.

All Reinforcing Steel shall be Grade 60 (fy = 60,000 psi) AASHTO M 31 or M 322, Type A with mill test reports.

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

Work required to remove & dispose portions of the existing bridge and any required doweling will not be paid for directly but will be considered subsidiary to the item "Modification of Existing Bridge Structure (Br. No. 05945)".

For details of Elastomeric Bearings see Dwg. No. 56886.

For additional information see Layout and Dwg. No. 56873.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 15634
JOSE K. JOSEPH
1/7/16

SHEET 2 OF 2

DETAILS OF INT. BENTS 2 & 4
ELM SPRINGS RD
WASHINGTON COUNTY
ROUTE 49 SEC. 28
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

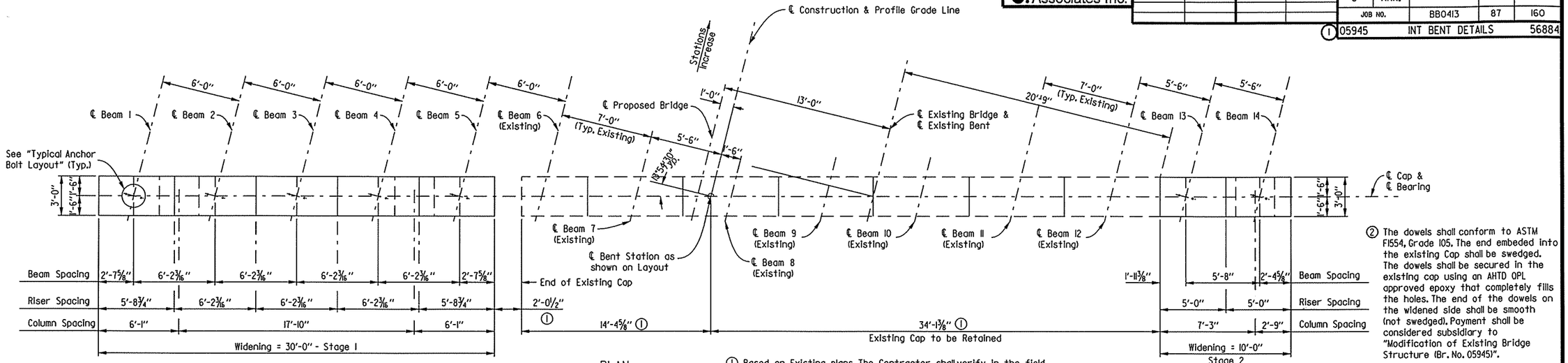
DRAWN BY: LLW DATE: 01-09-15
CHECKED BY: CAW DATE: 02-26-15
DESIGNED BY: LLW DATE: 12-30-14
FILENAME: bbb0413.b22.dgn
SCALE: ¼" = 1'-0"

BRIDGE NO. 05945 DRAWING NO. 56883

USER: bc5100
DESIGN FILE: G:\2103303.ElmSpringRd\TRANSP\dgn\bridge\bbb0413.b22.dgn
PLOTTED: 1/7/2016 12:07 SCALE: 81

Crafton, Tull & Associates Inc.

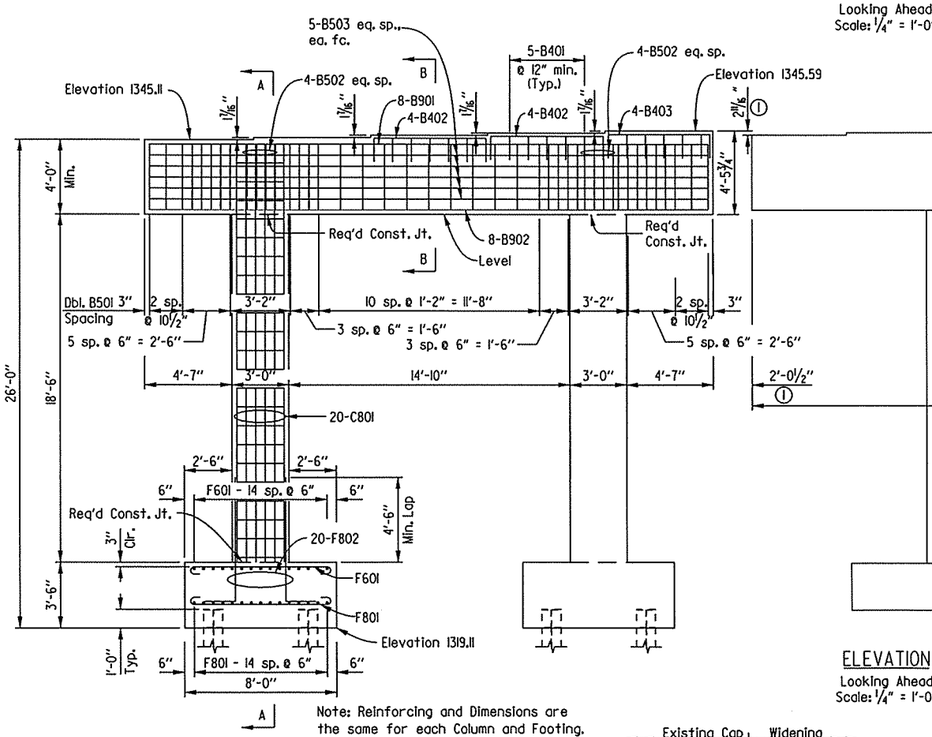
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	87	160
				(1) 05945		INT BENT DETAILS		56884



PLAN
Looking Ahead
Scale: ¼" = 1'-0"

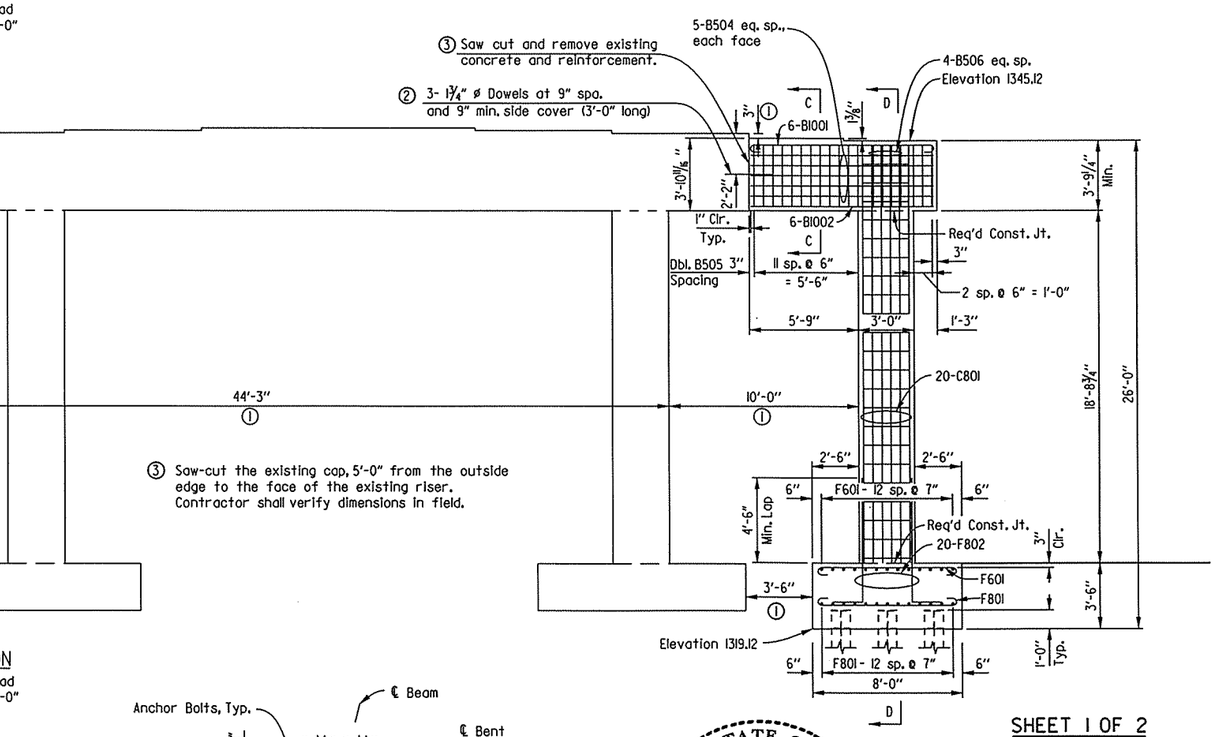
① Based on Existing plans. The Contractor shall verify in the field.

② The dowels shall conform to ASTM F1554, Grade 105. The end embeded into the existing Cap shall be swedged. The dowels shall be secured in the existing cap using an AHTD OPL approved epoxy that completely fills the holes. The end of the dowels on the widened side shall be smooth (not swedged). Payment shall be considered subsidiary to "Modification of Existing Bridge Structure (Br. No. 05945)".

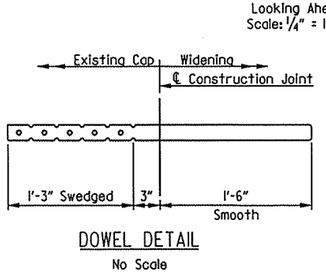


Note: Reinforcing and Dimensions are the same for each Column and Footing.

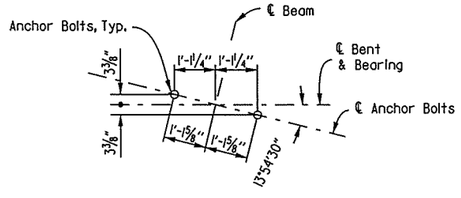
ELEVATION
Looking Ahead
Scale: ¼" = 1'-0"



③ Saw-cut the existing cap, 5'-0" from the outside edge to the face of the existing riser. Contractor shall verify dimensions in field.



DOWEL DETAIL
No Scale



TYPICAL ANCHOR BOLT LAYOUT
Scale: 1" = 1'-0"

STATE OF ARKANSAS
Jose K. Joseph
REGISTERED PROFESSIONAL ENGINEER
No. 15634
JOSE K. JOSEPH
1/7/16

SHEET 1 OF 2

DETAILS OF INT. BENT 3
ELM SPRINGS RD
WASHINGTON COUNTY
ROUTE 49 SEC. 28

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY:	LLW	DATE:	01-09-14	FILENAME:	bbb0413_b3l.dgn
CHECKED BY:	CAW	DATE:	02-26-15	SCALE:	¼" = 1'-0"
DESIGNED BY:	LLW	DATE:	12-30-14		

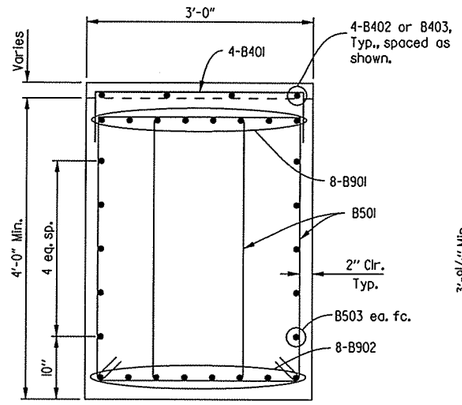
BRIDGE NO. 05945 DRAWING NO. 56884

USER: bc5100
DESIGN FILE: G:\2103303_ElmSpringRd\TRANSP\dgn\bridge\bbb0413_b3l.dgn SCALE: 8:1
PLOTTED: 1/7/2016 12:07

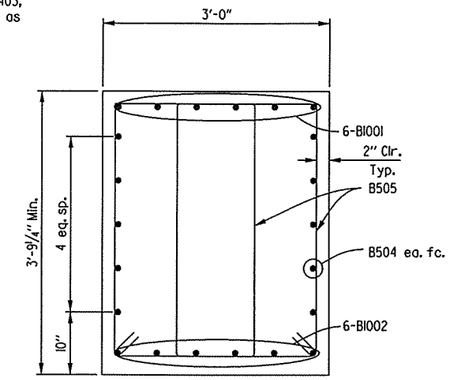
Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

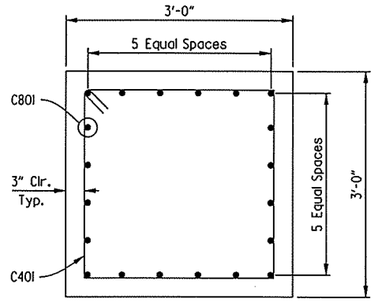
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	88	160
(1) 05945		INT BENT DETAILS		56885



SECTION B-B
Scale: 1" = 1'-0"



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



SECTION E-E
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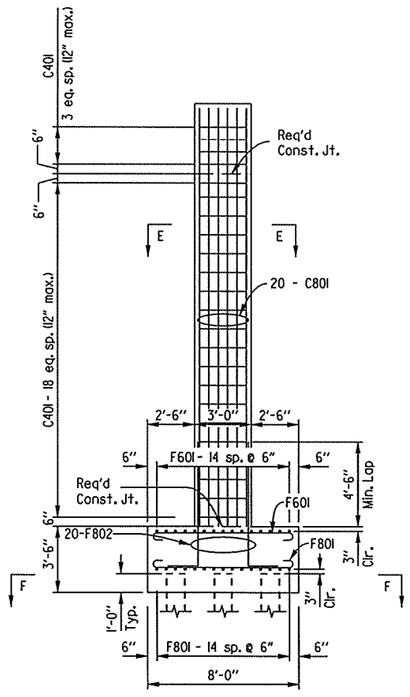
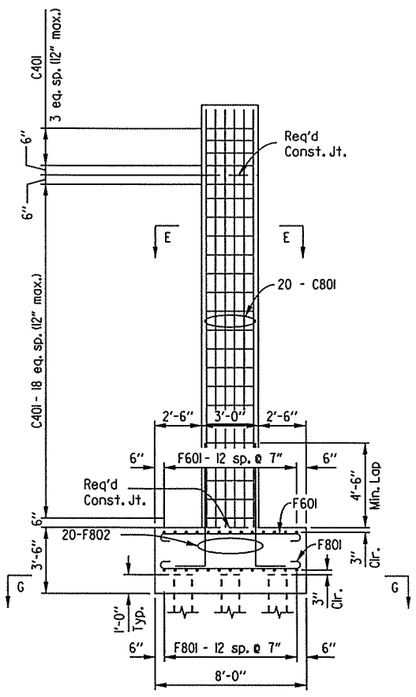
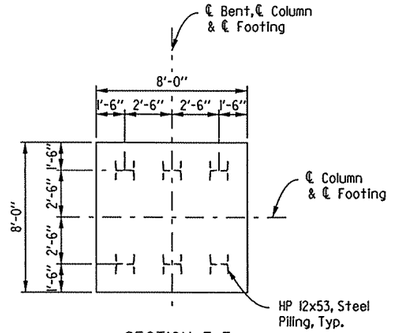


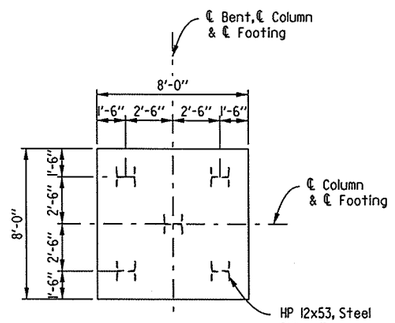
SECTION A-A
Scale: 1/4" = 1'-0"



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



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



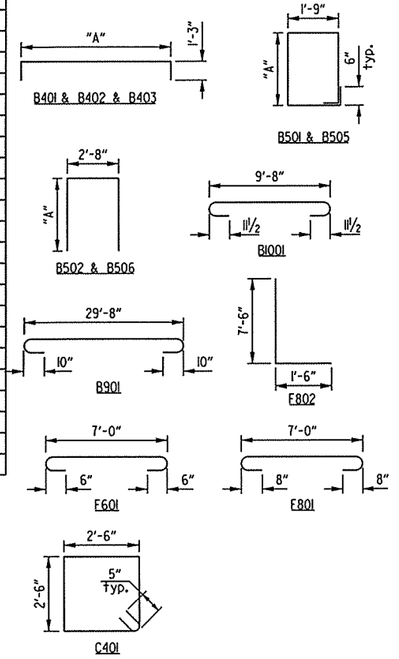
SECTION G-G
Scale: 1/4" = 1'-0"

BAR LIST

MARK	NO. REQ'D.	LENGTH	"A"	P.D.
B401	15	5'-0"	2'-8"	2½"
B402	8	8'-2"	5'-10"	2½"
B403	4	7'-8"	5'-4"	2½"
B501	66	11'-4"	3'-8"	2½"
B502	8	9'-10"	3'-8"	2½"
B503	10	29'-8"	---	Str.
B504	10	9'-9"	---	Str.
B505	30	10'-10"	3'-5"	2½"
B506	4	9'-4"	3'-5"	2½"
B901	8	32'-2"	---	9"
B902	8	29'-8"	---	Str.
B1001	6	12'-6"	---	10"
B1002	6	9'-9"	---	Str.
C401	69	10'-6"	---	3"
C801	60	22'-0"	---	Str.
F601	86	8'-4"	---	4½"
F801	86	8'-10"	---	6"
F802	60	9'-0"	---	6"

BENDING DIAGRAMS

Dimensions are out to out of bars.



GENERAL NOTES

Concrete shall be Class 'S' with a minimum 28 day compressive strength of f'c = 3,500 p.s.i. Concrete shall be poured in the dry. All exposed corners shall be chamfered ¾" unless otherwise noted.

All Reinforcing Steel shall be Grade 60 (fy = 60,000 psi) AASHTO M 31 or M 322, Type A with mill test reports.

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

Work required to remove & dispose portions of the existing bridge and any required doweling will not be paid for directly but will be considered subsidiary to the item "Modification of Existing Bridge Structure (Br. No. 05945)".

For details of Elastomeric Bearings see Dwg. No. 56886.

For additional information see Layout and Dwg. No. 56873.

STATE OF ARKANSAS
Jose K. Joseph
REGISTERED PROFESSIONAL ENGINEER
No. 15634
JOSE K. JOSEPH
1/7/16

SHEET 2 OF 2

DETAILS OF INT. BENTS 3
ELM SPRINGS RD
WASHINGTON COUNTY
ROUTE 49 SEC. 28

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: LLW DATE: 01-09-15 FILENAME: bbb0413.b32.dgn
CHECKED BY: CAW DATE: 02-26-15 SCALE: 1/4" = 1'-0"
DESIGNED BY: LLW DATE: 12-30-14

BRIDGE NO. 05945 DRAWING NO. 56885

USER: bc5100
DESIGN FILE: G:\2103303_ElmSpringRd\TRANSP\dgn\bridge\bbb0413_b32.dgn
PLOTTED: 1/7/2016 12:07 SCALE: 8:1

TABLE OF FABRICATOR VARIABLES

Br. No.	Location: Bent No.	Location: Beam No.	Bearing Type	No. of Bearings Each Bent	*Maximum Design Load (Kips)	G	H	Elastomeric Pad: A	B	N	T_1	T_e	No. & Thickness of Steel Laminae	External Load Plate: T	C	D	E	F	J	K	M	Ta	Tb	Anchor Bolt: Anchor Bolt ø X L	Grade	Pipe Sleeve Size (ø X L)	Sheet Metal Sleeve Size (ø X L)	Steel Washer Size (O.D.)
05945	1	1-5	Exp.	5	81	6 15/16"	4 7/16"	17"	6"	3	1/2"	1/4"	4 @ 12 Ga.	2 7/16"	7"	26"	4 1/8"	2"	---	1/2"	10 1/2"	2.06"	1.87"	1 1/4" x 22"	55	1 1/4" x 4 5/8"	3" X 6"	2 1/2"
	1	6-12	Exp.	7	53	6 3/16"	4 1/16"	15"	7"	2	7/16"	1/4"	3 @ 12 Ga.	1 3/4"	8"	26 1/2"	4 3/16"	2"	---	1/2"	③ 10 3/4"	1.32"	1.18"	1 1/4" x 21"	36	1 1/4" x 4 5/16"	3" X 6"	2 1/2"
	1	13-14	Exp.	2	76	6 15/16"	4 7/16"	17"	6"	3	1/2"	1/4"	4 @ 12 Ga.	2 7/16"	7"	26"	4 1/8"	2"	---	1/2"	10 1/2"	2.05"	1.89"	1 1/4" x 22"	55	1 1/4" x 4 5/8"	3" X 6"	2 1/2"
	2	1-5	Exp.	5	236	8 1/8"	5 5/8"	19"	12"	5	1/2"	1/4"	6 @ 12 Ga.	3 11/16"	13"	36"	3 1/2"	2"	3 1/8"	1/2"	14"	2.07"	1.93"	1 1/4" x 24"	55	1 1/4" x 5 1/8"	3" X 6"	2 1/2"
	2	13-14	Exp.	2	223	8 1/8"	5 5/8"	19"	12"	5	1/2"	1/4"	6 @ 12 Ga.	3 11/16"	13"	36"	3 1/2"	2"	3 1/8"	1/2"	14"	2.06"	1.94"	1 1/4" x 24"	55	1 1/4" x 5 1/8"	3" X 6"	2 1/2"
	3	1-5	Flx	5	288	7 3/4"	5"	18"	11"	4	1/2"	1/4"	5 @ 12 Ga.	3 1/16"	12"	35 1/2"	2 1/4"	2 1/4"	2 1/2"	1/2"	13 5/8"	2.00"	2.01"	1 1/2" x 25"	55	1 1/2" x 5 1/4"	3" X 6"	3"
	3	13-14	Flx	2	272	7 3/4"	5"	18"	11"	4	1/2"	1/4"	5 @ 12 Ga.	3 1/16"	12"	35 1/2"	2 1/4"	2 1/4"	2 1/2"	1/2"	13 5/8"	1.98"	2.03"	1 1/2" x 25"	55	1 1/2" x 5 1/4"	3" X 6"	3"
	4	1-5	Exp.	5	236	8 1/8"	5 5/8"	19"	12"	5	1/2"	1/4"	6 @ 12 Ga.	3 11/16"	13"	36"	3 1/2"	2"	3 1/8"	1/2"	14"	1.92"	2.16"	1 1/4" X 24"	55	1 1/4" x 5 1/8"	3" X 6"	2 1/2"
	4	13-14	Exp.	2	223	8 1/8"	5 5/8"	19"	12"	5	1/2"	1/4"	6 @ 12 Ga.	3 11/16"	13"	36"	3 1/2"	2"	3 1/8"	1/2"	14"	1.91"	2.19"	1 1/4" X 24"	55	1 1/4" x 5 1/8"	3" X 6"	2 1/2"
	5	1-5	Exp.	5	81	6 15/16"	4 7/16"	17"	6"	3	1/2"	1/4"	4 @ 12 Ga.	2 7/16"	7"	26"	4 1/8"	2"	---	1/2"	10 1/2"	1.93"	2.13"	1 1/4" x 22"	55	1 1/4" x 4 5/8"	3" X 6"	2 1/2"
	5	6-12	Exp.	7	53	6 3/16"	4 1/16"	15"	7"	2	7/16"	1/4"	3 @ 12 Ga.	1 3/4"	8"	26 1/2"	4 3/16"	2"	---	1/2"	③ 10 3/4"	1.18"	1.32"	1 1/4" x 21"	36	1 1/4" x 4 5/16"	3" X 6"	2 1/2"
	5	13-14	Exp.	2	76	6 15/16"	4 7/16"	17"	6"	3	1/2"	1/4"	4 @ 12 Ga.	2 7/16"	7"	26"	4 1/8"	2"	---	1/2"	10 1/2"	1.93"	2.15"	1 1/4" x 22"	55	1 1/4" x 4 5/8"	3" X 6"	2 1/2"

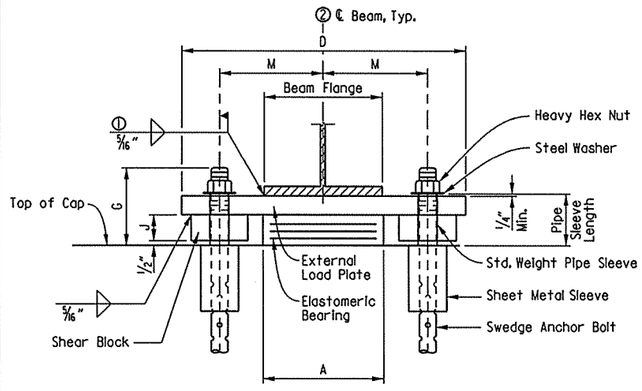
*Maximum Design Load = Service I Limit State

Note:
The direction of bevel of the external load plate may not be accurately depicted with respect to Ta and Tb values shown in TABLE OF FABRICATOR VARIABLES.

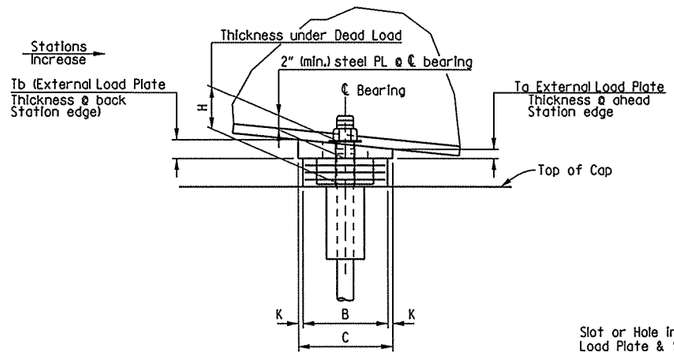
① Care shall be taken to ensure that the External Load plate is in full and complete contact with the Beam Flange before welding begins

② Center line of Beam shall be aligned with center line of Elastometric pad.

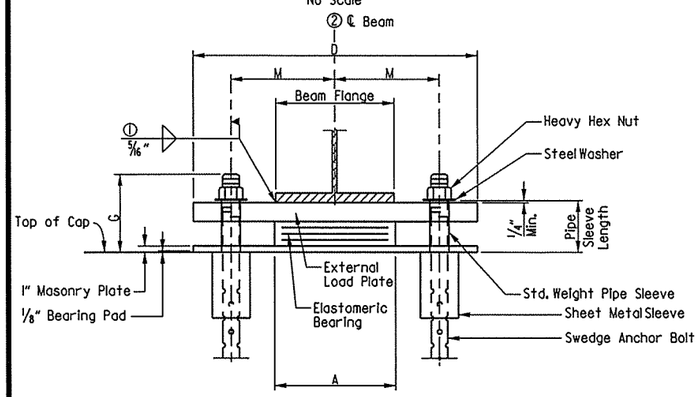
③ Remove existing anchor bolts 1 1/4" below the top of cap and fill holes with approved non-shrink grout. New anchor bolts have been positioned to provide 1" clearance between new and existing anchor bolts. The Contractor shall verify the location of existing anchor bolts at all bents.



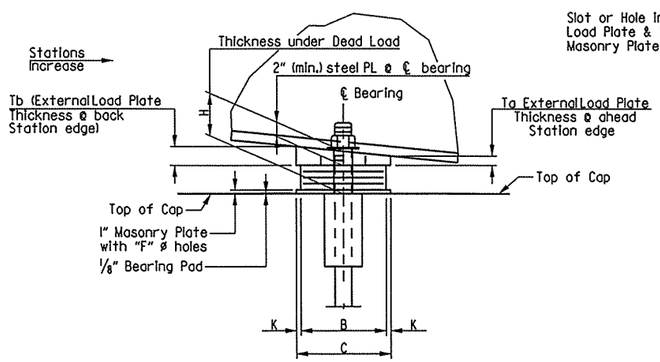
FRONT VIEW
No Scale



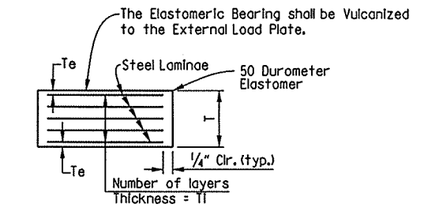
SIDE VIEW
No Scale



FRONT VIEW- AT BENTS 1&5
Beam 6-12
No Scale

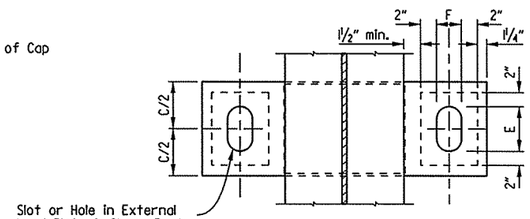


SIDE VIEW- AT BENTS 1&5
Beam 6-12
No Scale

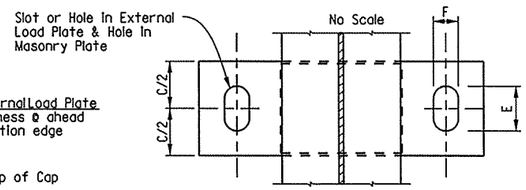


Te = thickness of Elastomer cover on top and bottom of pad
Ti = thickness of Elastomer between Steel Laminae
N = number of Elastomer layers of thickness Ti

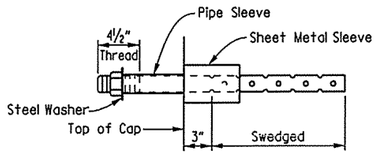
ELASTOMERIC BEARING



PLAN VIEW
No Scale



PLAN VIEW- AT BENTS 1&5
Beam 6-12
No Scale



ANCHOR BOLT DETAIL
No Scale

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

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

GENERAL NOTES

Elastomeric bearings shall conform to Section 808 of the Standard Specifications and shall be paid for at the unit price bid for "Elastomeric Bearings". Long-duration testing of random lot samples specified in Subsection 808.05 is required.

External load plates, masonry plates, and shear blocks shall conform to AASHTO M 270, Grade 50. Pipe sleeves shall be ASTM A53, Grade B, and shall be galvanized to conform to AASHTO M 232, Class C or ASTM B695.

External load plates, masonry plates, and shear blocks shall be completely fabricated (including bevel and bolt holes) and shall be cleaned before vulcanizing to the elastomeric bearing. Surfaces in contact with the elastomeric bearing shall be cleaned in accordance with Subsection 808.03. Other surfaces shall be blast cleaned in accordance with Subsection 807.84(b) and painted according to Subsection 807.75. Color of the paint shall be Dark Brown, Federal Std. 595B, Color Chip 20108.

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

Bearings shall be seated in accordance with Subsection 808.08.

Pipe Sleeves, Anchor Bolts, Washers, and Nuts shall be paid for at the unit price bid "Structural Steel in Beam Spans (M270, Gr. 50)". The cost of all other items in the bearing assembly shall be subsidiary to the price bid for "Elastomeric Bearings".

STATE OF ARKANSAS
JOSE K. JOSEPH
REGISTERED PROFESSIONAL ENGINEER
No. 15634
JOSE K. JOSEPH
2/11/16

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	89	160
				① 05945		BEARING DETAILS		56886

DETAILS OF
ELASTOMERIC BEARINGS
ROUTE 49 SEC. 28
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TRW DATE: 10-16-13 FILENAME: bbb0413_el.dgn
CHECKED BY: CAW DATE: 02-26-15 SCALE: NOT TO SCALE
DESIGNED BY: JKJ DATE: 10-15-13

BRIDGE NO. 05945 DRAWING NO. 56886

USER: lw7300
DESIGN FILE: G:\2103303_ElmSpringRd\TRANSP\dgn\bridge\bbb0413_el.dgn SCALE: 16:1
PLOTTED: 2/1/2016 10:28

GENERAL NOTES

Governing specifications are the Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction, (2014 edition), with applicable Supplemental Specifications and Special Provisions.

All structural steel shall be AASHTO designation M270, Gr. 50 unless otherwise noted and shall be paid for under the bid item "Modification of Existing Bridge Structure (Br. No. 05945)". M270, Gr. 50 steel shall be painted. All exposed surfaces to be cleaned in accordance with Subsection 807.84(e).

All welding to be performed by a certified welder as approved by the Engineer. All welding shall conform to the current AASHTO/AWS D1.5 Welding Code.

Structural steel build-up plates shall be seated in accordance with Subsection 807.66.

WORK TO BE PERFORMED: The Contractor shall verify that the planned bearing build-ups- including the number of each type bearing build-up, the dimensions, bolt spacing, bolt sizes and lengths are correct and consistent with the existing conditions. This information shall be furnished to the Engineer, and also included with the structural steel fabrication drawings submitted for approval to the Engineer.

Nuts for anchor bolts or high strength bolts shall be tightened until all connected pieces are in snug contact. After nuts for high strength bolts are tightened, bolt threads shall be jammed to prevent loosening of the nut.

Loads to determine jack capacities can be found on the following Dwg. Nos.:
Bridge 05945 24960-24967 & 25010-25011

Sheets from the existing bridge plans can be obtained from the Construction Contract Procurement Section of the Program Management Division for Bridge No. 05949. All information required to complete the work shallbe field verified by the Contractor.

BRIDGE RAISING CONSTRUCTION REQUIREMENTS: Prior to beginning the work, the Contractor shall submit to the Engineer proof of a current license with the Contractors Licensing Board for the State of Arkansas showing that he is licensed to perform this type work. Should the Contractor elect to subcontract this work, the subcontractor shall submit to the Engineer proof of a current license with the Contractors Licensing Board for the State of Arkansas showing that he is licensed to perform this type work.

At least three weeks prior to beginning the raising work, the Contractor shall submit to the Engineer his plan for performing the work for informational and record purposes. The submitted plan shall include, but not be limited to, the following:

- Supporting calculations
- Working drawings
- Details of the procedures, materials, blocking system, and other required supports
- Equipment to be used
- Contingency plan

The plan shall be signed and sealed by an Arkansas Registered Professional Engineer, who will be the Engineer of Record for the raising work. Immediately prior to beginning the raising work the Engineer of Record shall provide written certification to the Department's Resident Engineer that the adequacy of all components has been verified, and that the raising system is installed in accordance with the submitted plan. The Engineer of Record shall be present on the project site during the raising of the existing bridge and shall ensure that the lifting operation proceeds in accordance with his plan.

The proposed method for raising the structure shall conform to the following:

The arrangement of points of load application shall be such that the allowable stresses for bearing, shear and flexure will not be exceeded for any material required to carry the load. The jacks used shall have a minimum capacity of two times the calculated load.

Suitable blocking (i.e. cribbing, shoring, shimming, falsework), independent of the jacking system, shall be provided to prevent the beams/girders from excessive dropping resulting from jack failure or other causes during raising operations and until the beams/girders are in final position on the new build-ups/supports. A maximum incremental lift height of two and one-half inches (2-1/2"), before blocking is installed, will be allowed. Blocking used as temporary supports shall be sized such that the overall lateral stability of the blocking is assured. Incremental blocking shall be carefully placed to maintain lateral stability of the span(s) being lifted should such blocking be required to support the span loads due to repositioning of jacks, failure of jacks, or other anticipated or unanticipated situations. Lateral movement during the jacking operation shall be kept to a minimum.

All jacking shall be from the existing bent cap.

Prior to jacking, the Contractor shall verify that the vertical movement is not restricted by any anchor bolts, sliding plates, closed joints or other appurtenances.

Vertical forces for lifting shall be applied to either the bottom flange or the underside of the top flange of the beams/girders as near the centerline bearings as possible. Care shall be exercised that all beams/girders on a bearing line at the same bent are raised simultaneously and uniformly. In addition, at no time during raising operations shall the relative elevation on a simple span or continuous unit at a bent deviate by more than one and one-half inches (1-1/2") from the relative elevation at any other bent for that span or unit.

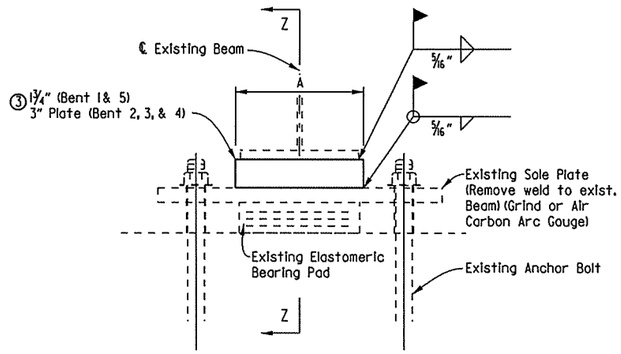
Adequate external guides or force shall be provided to assure true vertical lifting and lateral stability of the span or unit during the jacking operation. Lateral movement during the jacking operation shall be kept to a minimum.

The submitted plan shall include calculations verifying the adequacy of such blocking.

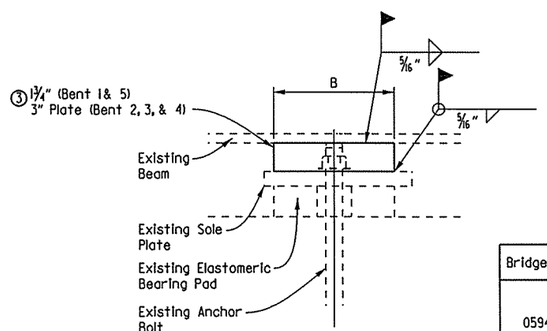
The Contractor shall raise the structure in accordance with the plan submitted to the Engineer. The results obtained by the use of the raising method are the Contractor's responsibility. The Contractor shall be responsible for any damage caused by his operation in the process of raising the structure and shall repair such damage without additional compensation.

The Contractor shall add build-up plates after concrete deck has been removed and before new deck is placed.

Payment shall be subsidiary to "Modification of Existing Bridge Structure (Br. No. 05945)".



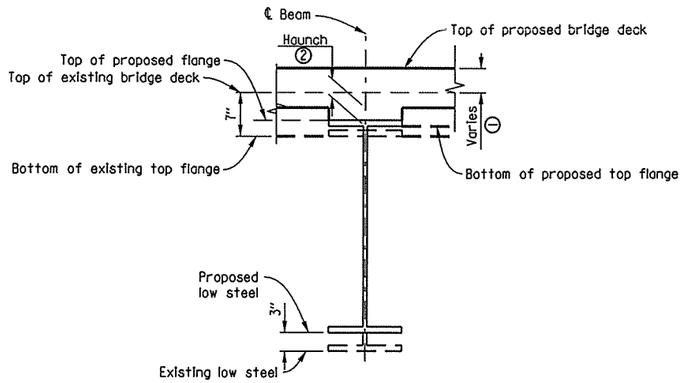
ELASTOMERIC BEARING BUILD-UP
(Bents 1, 2, 3, 4, & 5
Beams 6-8)
No Scale



SECTION Z-Z
No Scale

Bridge No.	Location	A	B
05945	Bts. 1&5	13"	7"
	Bts. 2&4	13"	11"
	Bt. 3	13"	12"

Note:
Build-up dimensions are based upon original drawings. It is the Contractor's responsibility to field verify all dimensions of the existing bearings prior to fabrication of build-ups.



TYPICAL SECTION AT EXISTING BEAMS
No Scale
Beams 6-8

(1) Proposed profile grade line is 2⅞" higher than existing profile grade line. See Rdwy. Plans for details. The existing Beam Nos. 6, 7, & 8 shall be raised and set on 3" steel plates at Bents 2, 3, & 4 and 1¾" steel plates at Bent 1 & 5.

(2) Haunch varies. See "Adjustment for Slab Thickness Tolerance" on Dwg. No. 56889.

(3) Contractor may vary plate thickness to stay within tolerance. See "Adjustment for Slab Thickness Tolerance" on Dwg. No. 56889.

STATE OF ARKANSAS
Jose K. Joseph
REGISTERED PROFESSIONAL ENGINEER
No. 15634
JOSE K. JOSEPH
2/1/16

MODIFICATION DETAILS FOR
EXISTING BRIDGE 05945
ROUTE 49 SEC. 28
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TRM DATE: 10-24-14 FILENAME: bbb0413_e2.dgn
CHECKED BY: CAW DATE: 03-01-15 SCALE: NOT TO SCALE
DESIGNED BY: JKJ DATE: 10-22-14
BRIDGE NO. 05945 DRAWING NO. 56887

USER: lw7300
DESIGN FILE: G:\2103303_ElmSpringRd\TRANSPV\dgn\bridge\bbb0413_e2.dgn
PLOTTED: 2/1/2016 10:28 SCALE: 16:1

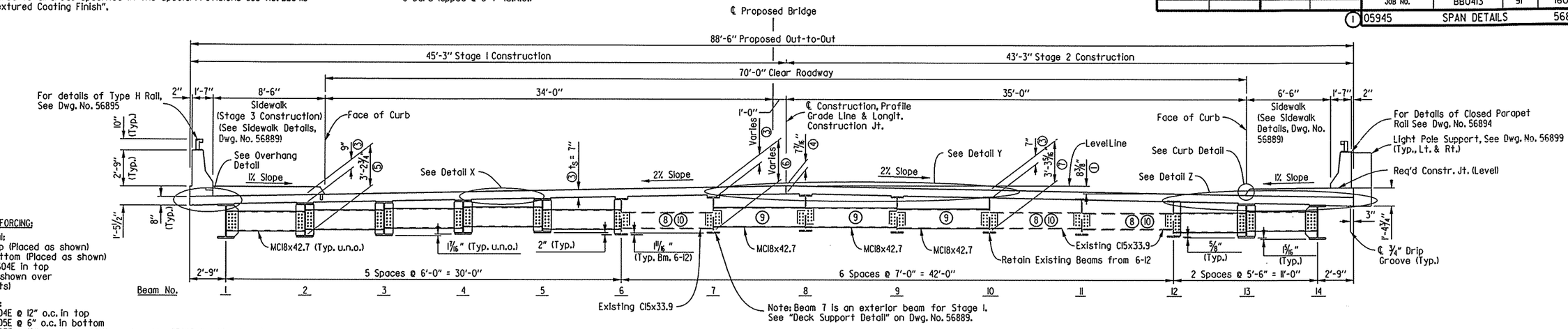
Note: Class 2 Protective Surface Treatment shall be applied to the roadway surface, curb and sidewalk surface. Class 3 Textured Coating Finish shall be applied to all areas specified in the Special Provisions Job No. BB0413 "Textured Coating Finish".

Note: All bars designated with an "E" Suffix are to be Epoxy Coated.
#4 bars lapped @ 1'-6"
#5 bars lapped @ 2'-7" (u.n.o.)
#6 bars lapped @ 3'-1" (u.n.o.)

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	91	160
(1) 05945		SPAN DETAILS		56888

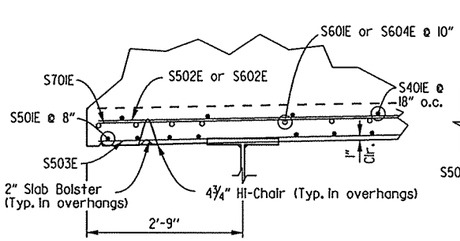


SLAB REINFORCING:

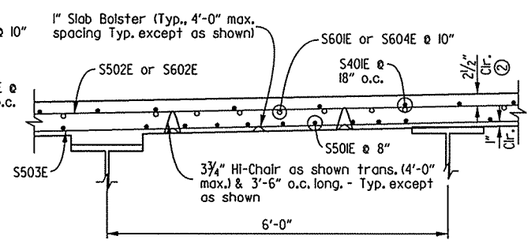
Longitudinal:
S40IE in top (Placed as shown)
S50IE in bottom (Placed as shown)
S60IE or S604E in top (Placed as shown over int. supports)

Transverse:
S502E & S504E @ 12" o.c. in top
S503E & S505E @ 6" o.c. in bottom
S602E & S603E @ 12" o.c. in top (Alternate with S502E & S504E bars)
S70IE @ 12" o.c. in top (space under #6 bars in both overhangs)

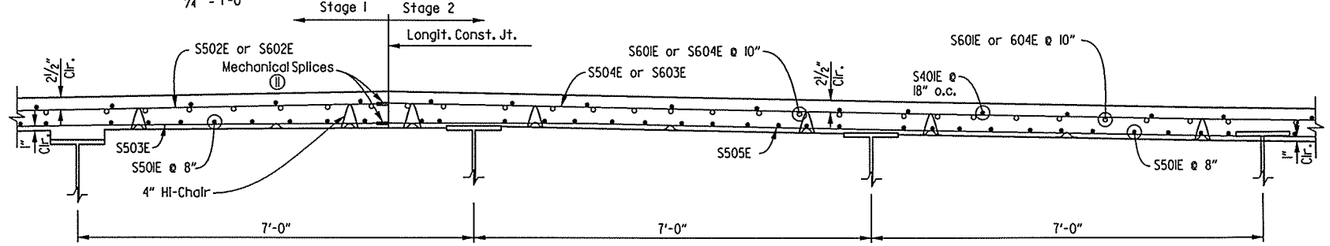
TYPICAL ROADWAY SECTION
(Looking Ahead)
¼" = 1'-0"



OVERHANG DETAIL
¾" = 1'-0"



DETAIL X
(Between Beams 1 to 6)
¾" = 1'-0"



DETAIL Y
(Between Beams 7 to 10)
¾" = 1'-0"

(1) Working Point to gutterline. See "Rounding Detail".

(2) Tolerances:
Minus = ¼"
Plus = Equal to amount of slab thickening used to meet slab thickness tolerance
See "Adjustment for Slab Thickness Tolerance".

(3) See "Adjustment for Slab Thickness Tolerance". See Dwg. No. 56889

(4) To Working Point. See "Rounding Detail".

(5) Measured at ℄ Bearing and ℄ Proposed Beams 1-5 and Beams 13-14.

(6) Measured at ℄ Bearing and ℄ Exist. Beams: 3'-6⅛" (Beam 6)
3'-6⅛" (Beam 7)
3'-5⅜" (Beam 8)
3'-5" (Beam 9)

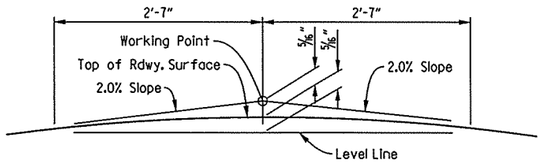
(7) Measured at ℄ Bearing and ℄ Exist. Beams 10-12.

(8) Existing diaphragms to be retained.

(9) New MC18x42.7 diaphragms to be installed by field drilling holes. Payment for this work shall be included in Item 821. The diaphragm and end strut holes located in the bay between Beam Nos. 7 & 8 may be field drilled after the completion of the Stage 2 Construction deck pour. The diaphragm and end strut bolts located in the bay between Beam Nos. 7 & 8 shall be tightened after the completion of the Stage 2 Construction deck pour.

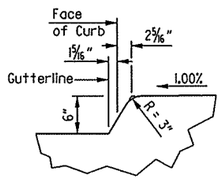
(10) Bolts in the existing diaphragm and end struts may be loosened or removed to the satisfaction of the Engineer to install build-up plates. Any existing bolt that is loosened or removed shall be replaced with a new high-strength bolt.

(11) Extend reinforcing to provide a Mechanical Rebar Splice. Use an approved thread type Mechanical Rebar Splice for use with Epoxy Coated Rebar from the AHTD QPL. Provide Mechanical splices with 125 percent of the required yield strength of the reinforcing steel. Mechanical rebar splices will not be paid for directly but shall be considered subsidiary to "Epoxy Coated Reinforcing Steel (Grade 60)".

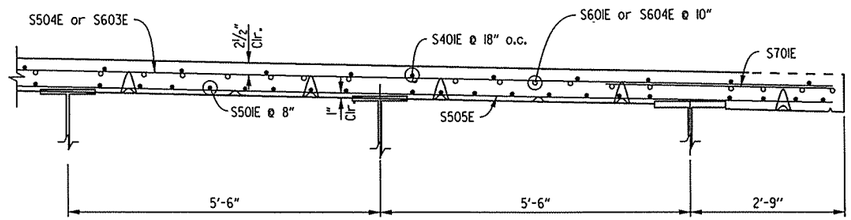


NOTE: Working Point matches Theoretical Roadway Grade.

ROUNDING DETAIL
No Scale



CURB DETAIL
No Scale



DETAIL Z
(Between Beams 12 to 14)
¾" = 1'-0"

Permanent steel bridge deck forms are required. See Special Provision Job No. BB0413 "Special Safety Requirements". The minimum bridge deck thickness shall be maintained as shown on the plans. A corrugation filler, composed of polystyrene or other approved material, shall be adequately bonded to the corrugations. No additional concrete weight of the bridge deck is allowed. The total additional weight of the permanent steel bridge deck forms and corrugation filler shall not exceed 5 p.s.f. The cost of permanent steel bridge deck forms and corrugation filler shall be considered subsidiary to the bid item, "Class S(AE) Concrete - Bridge".

STATE OF ARKANSAS
Jose K. Joseph
REGISTERED PROFESSIONAL ENGINEER
No. 15634
JOSE K. JOSEPH
11/7/16

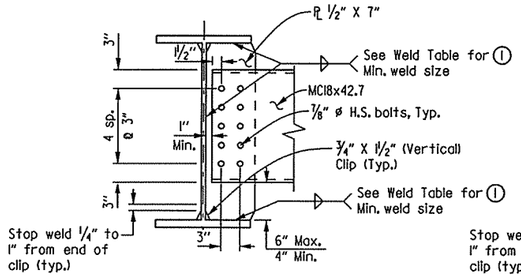
SHEET 1 OF 13
272'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
ROUTE 49 SEC. 28
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY:	TRM	DATE:	10-14-14	FILENAME:	bbb0413_sl.dgn
CHECKED BY:	CAW	DATE:	02-27-15	SCALE:	1/4" = 1'-0"
DESIGNED BY:	JKJ	DATE:	09-30-14		

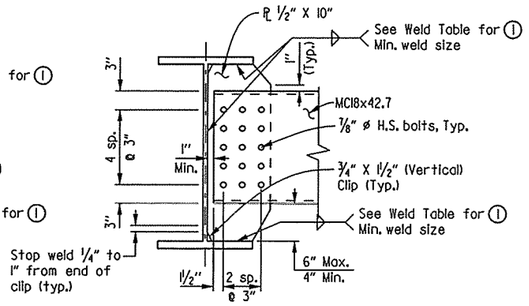
BRIDGE NO. 05945 DRAWING NO. 56888

USER: bc5100
DESIGN FILE: G:\2103303_ElmSpringRd\TRANSP\dgn\bridge\bbb0413_sl.dgn SCALE: 8:1
PLOTTED: 11/7/2016 12:07

Crafton, Tull & Associates Inc.	DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		BB0413	92	160
					(1) 05945		SPAN DETAILS		56889



TYPICAL INTERIOR CONNECTION PLATE

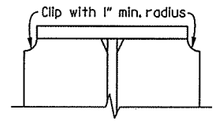


TYPICAL EXTERIOR CONNECTION PLATE

NEW DIAPHRAGM CONNECTION DETAILS

1" = 1'-0"

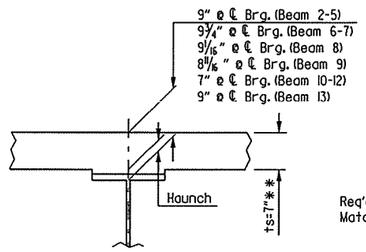
(1) Field weld to existing Beam No. 6 during Stage 1 and existing Beam No. 12 during Stage 2.



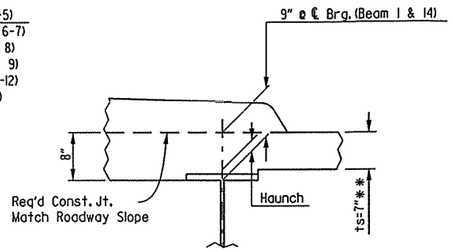
Note: The fabricator shall clip the plate as necessary to accommodate the deck form support.

PLATE CLIP DETAIL

No Scale



INTERIOR GIRDER



EXTERIOR GIRDER

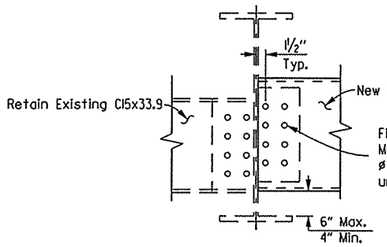
** Tolerance is +½", -¼". Haunch forming is required and shall be adjusted to maintain slab thickness tolerance.

Notes:
Tolerances shown are applicable for special permanent steel bridge deck forms required. See Dwg. No. 56888.

Haunch dimension may vary within the following limits to maintain the grade and slab thickness tolerance: Minimum - occurs when top flange contacts bottom of slab; Maximum - flange thickness +2.25". No increase in concrete and structural steel quantities will be made to maintain tolerances.

ADJUSTMENT FOR SLAB THICKNESS TOLERANCE

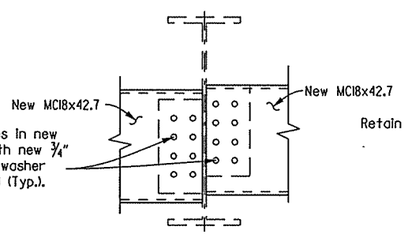
No Scale



EXISTING DIAPHRAGM CONNECTION DETAILS

Beam 7 Shown, Beam 10 Similar

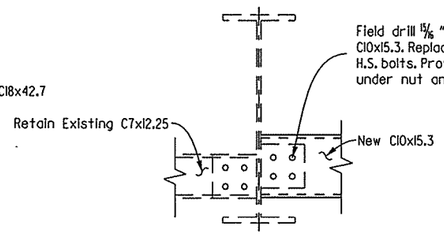
1" = 1'-0"



EXISTING DIAPHRAGM CONNECTION DETAILS

Beam 8 Shown, Beam 9 Similar

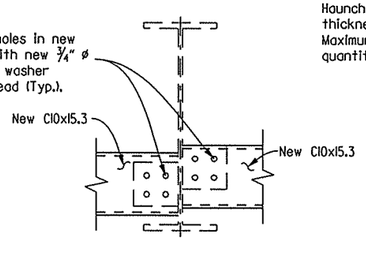
1" = 1'-0"



END STRUT CONNECTIONS

Beam 7 Shown, Beam 10 Similar

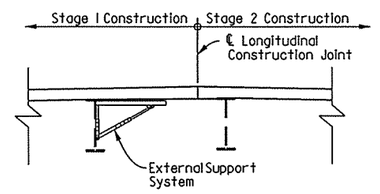
1" = 1'-0"



END STRUT CONNECTIONS

Beam 8 Shown, Beam 9 Similar

1" = 1'-0"

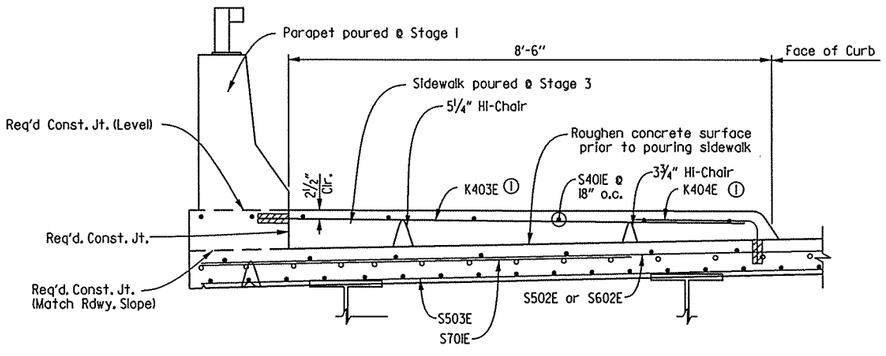


Stage 1 external supports in this bay shall remain in place until after completion of the Stage 2 deck pour. See Subsection 802.15 for additional information regarding their removal.

DECK SUPPORT AT LONGITUDINAL CONSTRUCTION JOINT

(Looking Ahead)

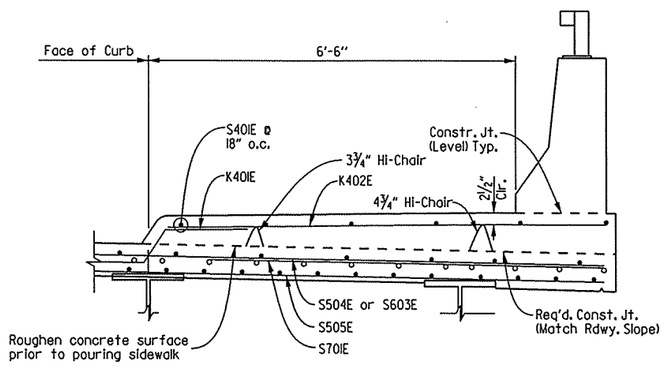
No Scale



STAGE 3 SIDEWALK

(Looking Ahead)

Scale: ¾" = 1'-0"



STAGE 2 SIDEWALK

(Looking Ahead)

Scale: ¾" = 1'-0"

SIDEWALK REINFORCING:

Transverse:	Longitudinal:
K401E, K402E, K403E, & K404E @ 18"	S401E in top (Placed as shown)

(1) Grout K403E & K404E bars into 4" deep drilled holes. Grout used shall be an approved epoxy grout listed on the QPL. Hole diameter and installation procedure shall be as recommended by the grout manufacturer. Dowels shall be located to avoid damaging deck reinforcing. Payment for grouting and placement shall be considered subsidiary to "Epoxy Coated Reinforcing Steel (Grade 60)".

STATE OF ARKANSAS
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REGISTERED PROFESSIONAL ENGINEER
No. 15634
JOSE K. JOSEPH
1/7/16

SHEET 2 OF 13

272'-0" CONTINUOUS COMPOSITE W-BEAM UNIT

ROUTE 49 SEC. 28

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: TRM DATE: 10-14-14 FILENAME: bbb0413_s2.dgn

CHECKED BY: CAW DATE: 02-27-15 SCALE: 1/4" = 1'-0"

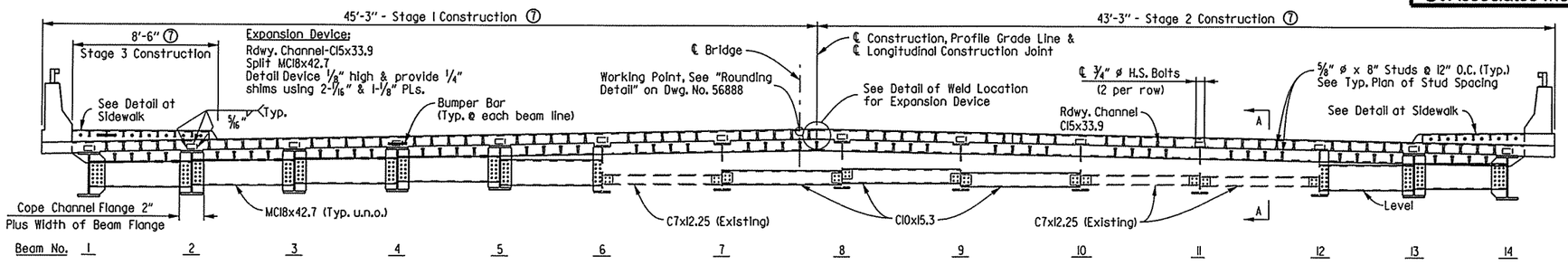
DESIGNED BY: JKJ DATE: 09-30-14

BRIDGE NO. 05945 DRAWING NO. 56889

USER: bc5100
DESIGN FILE: G:\1203303_ElmSpringRd\TRANSPV\dgn\bridge\bbb0413_s2.dgn SCALE: 8:1
PLOTTED: 1/7/2016 12:07

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	93	160
				(1)	05945	SPAN DETAILS		56890

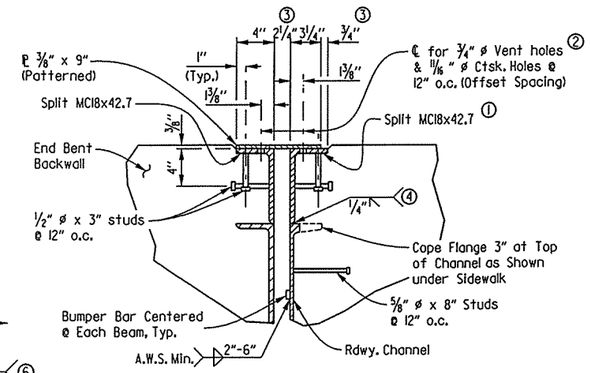


⑦ Measured Perpendicular to ℄ Bridge

TYP. SECTION THROUGH JOINT

(Looking Ahead at Bent 1, Bent 5 Similar)
Scale: 1/4" = 1'-0"

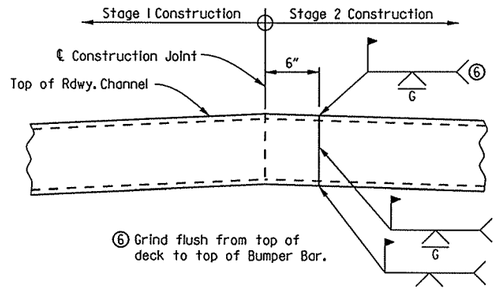
For Details of Poured Silicone Joint, See Dwg. No. 56898



SECTION B-B

No Scale

Note: Concrete shall be hand packed under the Joint Armor in the sidewalk. For expansion joint detail See "Detail of Poured Silicone Joint Seal" Dwg. No. 56898.



DETAIL OF WELD LOCATION FOR EXPANSION DEVICE

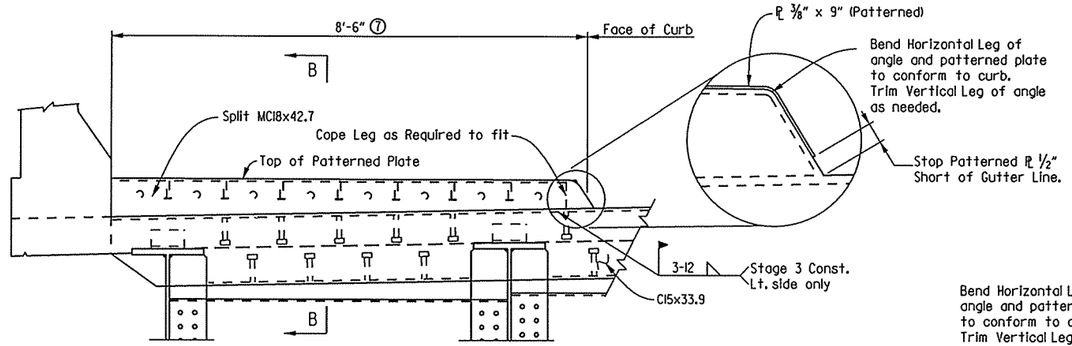
Looking Ahead - Bent 1, Bent 5 similar
No Scale

① Trim Vertical Leg as needed.

② Ctsk. 11/16" ø holes in 3/8" patterned plate. Top 4" Leg for ASTM A449 5/8" ø screws @ 12" o.c. Install screws in the shop and ship as a unit. Screws on the span side to be removed. Screws on backwall side to remain in place after erection. See "Expansion Device Installation" See Dwg. No. 56898.

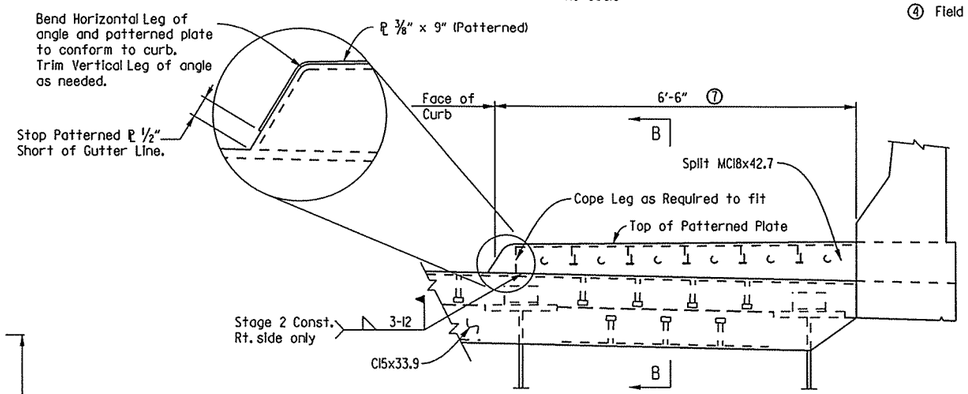
③ Dimensions Shown @ 60° F.

④ Field weld during Stage 3.



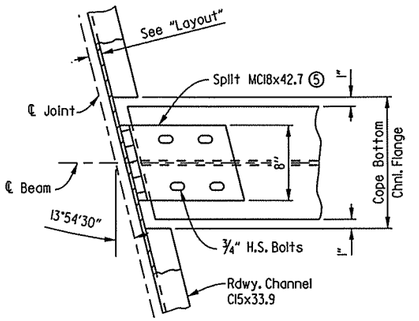
EXPANSION DEVICE DETAIL AT LEFT SIDEWALK

(Looking Ahead Bent 1, Bent 5 Opposite Hand)
Scale: 3/4" = 1'-0"



EXPANSION DEVICE DETAIL AT RIGHT SIDEWALK

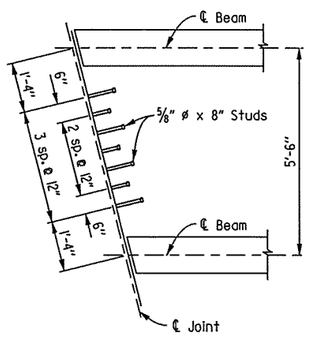
(Looking Ahead Bent 1, Bent 5 Opposite Hand)
Scale: 3/4" = 1'-0"



CHANNEL CONNECTION DETAILS

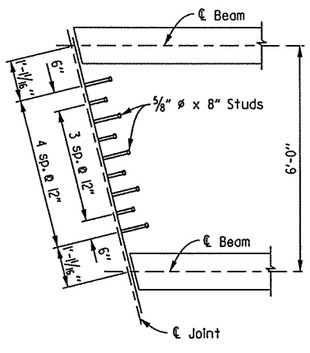
No Scale

⑤ Before fabrication, the Contractor shall verify the locations of the holes in the existing beam flanges so as to properly align with slots in the split channels.



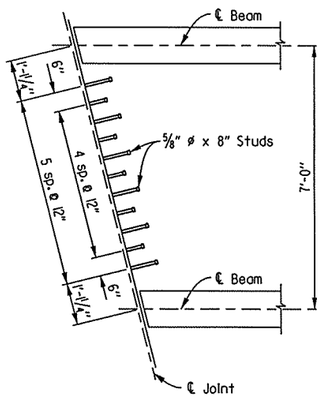
PLAN OF STUD SPACING

1/2" = 1'-0"
(Between New Beams and Between New and Exisitng Beams)



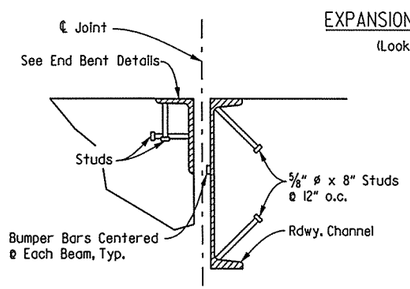
PLAN OF STUD SPACING

1/2" = 1'-0"
(Between New Beams and Between New and Exisitng Beams)



PLAN OF STUD SPACING

1/2" = 1'-0"
(Between Existing Beams)



SECTION A-A

No Scale

STATE OF ARKANSAS
Jose K. Joseph
REGISTERED PROFESSIONAL ENGINEER
No. 15634
JOSE K. JOSEPH
1/7/16

SHEET 3 OF 13
272'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
ROUTE 49 SEC. 28
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TRM	DATE: 10-09-14	FILENAME: bbb0413_s3.dgn	
CHECKED BY: CAW	DATE: 02-26-15	SCALE: 1/4" = 1'-0"	
DESIGNED BY: JKJ	DATE: 09-15-14		

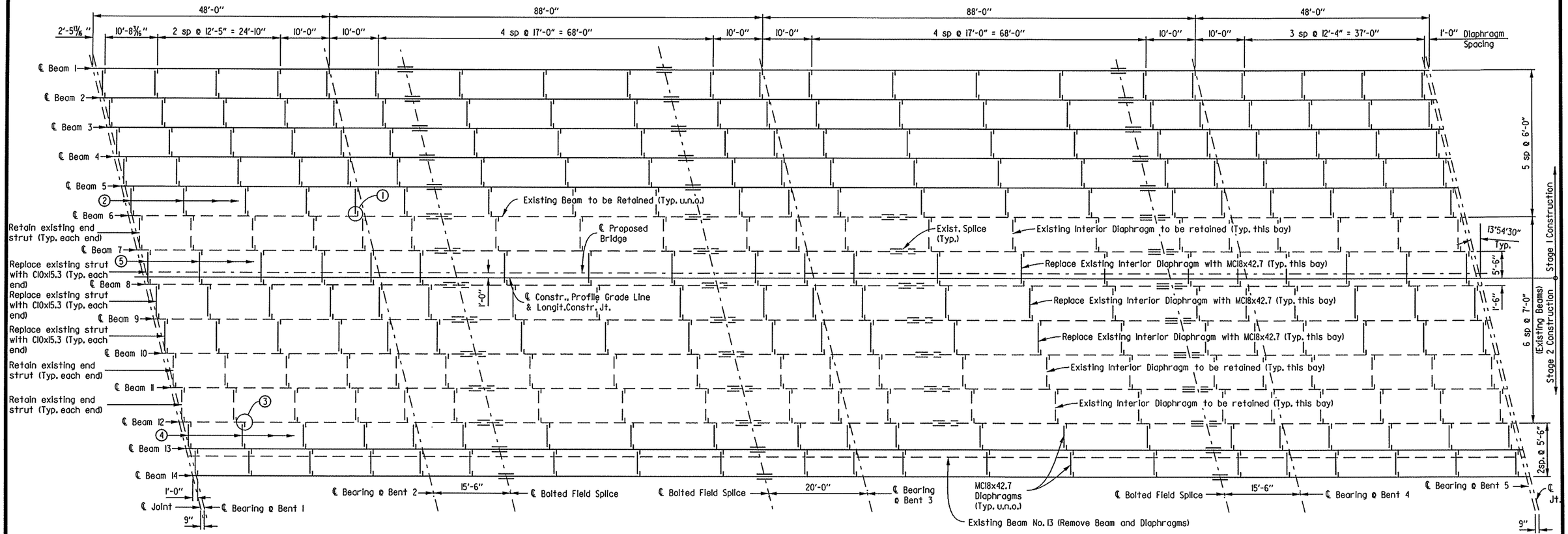
BRIDGE NO. 05945 DRAWING NO. 56890

USER: bc5100
DESIGN FILE: G:\2103303_ElmSpringRd\TRANSP\dgn\bridge\bbb0413_s3.dgn
PLOTTED: 1/7/2016 12:07 SCALE: 81

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	94	160
(1) 05945		SPAN DETAILS		56891



FRAMING PLAN
1" = 10'-0"

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

All field splice bolts shall be 7/8" ø Hi-str. bolts
All holes for splice bolts shall be 15/16" ø
All field splice plates shall be AASHTO M270 Gr. 50 steel.

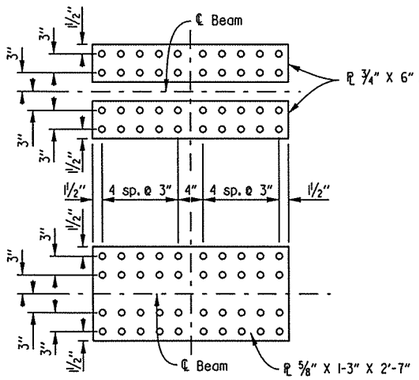
(1) Install new Connection PL's on existing beam during Stage 1 prior to pouring deck slab. (Typ. Beam No. 6)

(2) Install diaphragms during Stage 1 Construction prior to pouring deck slab. (This bay only)

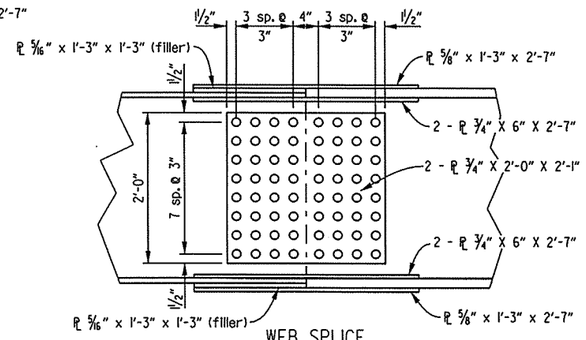
(3) Install new Connection PL's on existing beam during Stage 2 prior to pouring deck slab. (Typ. Beam No. 12)

(4) Install diaphragms during Stage 2 Construction prior to pouring deck slab. (This bay only)

(5) Install diaphragms during Stage 2 Construction. Holes may be field drilled after Stage 2 deck pours are complete. Tighten bolts after all Stage 2 deck pours are complete (this bay only).



FLANGE SPLICE



WEB SPLICE

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

STATE OF ARKANSAS
Jose K. Joseph
REGISTERED PROFESSIONAL ENGINEER
No. 15634
JOSE K. JOSEPH
1/27/16

SHEET 4 OF 13
272'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
ROUTE 49 SEC. 28
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TRM	DATE: 10-10-14	FILENAME: bbb0413_s4.dgn	
CHECKED BY: CAW	DATE: 02-27-15	SCALE: 1" = 10'-0"	
DESIGNED BY: JKJ	DATE: 09-30-14		

BRIDGE NO. 05945 DRAWING NO. 56891

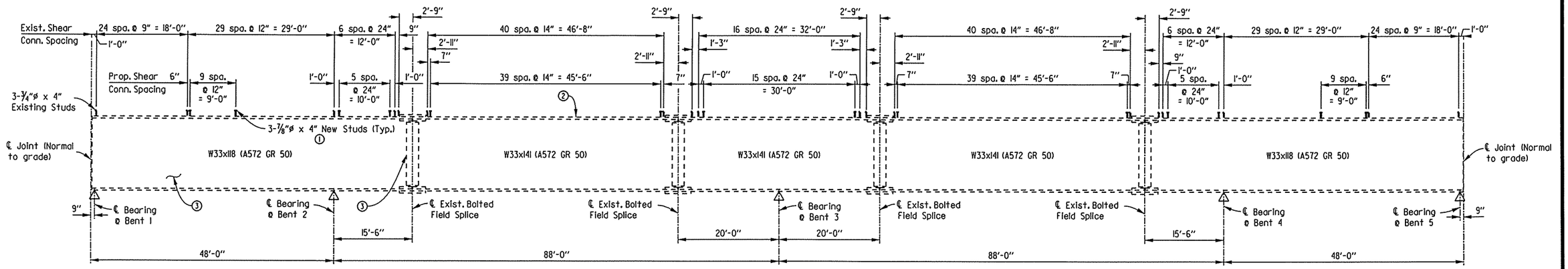
USER: bc5100
DESIGN FILE: G:\2103303_ElmSpringRd\TRANSPS\dgn\bridge\bbb0413_s4.dgn SCALE: 20:1
PLOTTED: 1/7/2016 12:07

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	95	160

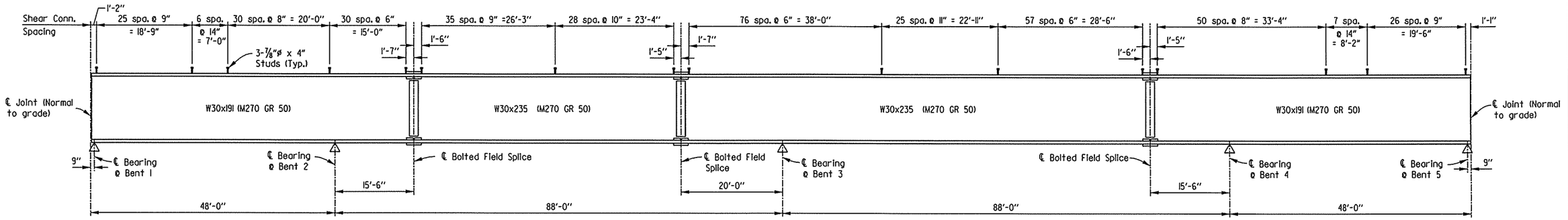
(1) 05945 SPAN DETAILS 56892



Note: Dimensions and details based on original plans.
The existing paint system on the existing beams consists of a lead based paint. The Contractor shall take all necessary steps according to state and federal regulations to protect the workers, public, and the environment when modifying the existing beams.

BEAM ELEVATION - EXISTING BEAMS NO. 6-12

No Scale



BEAM ELEVATION - PROPOSED BEAMS NO. 1-5, 13-14

No Scale

(1) Add one row of new studs between existing rows where indicated.

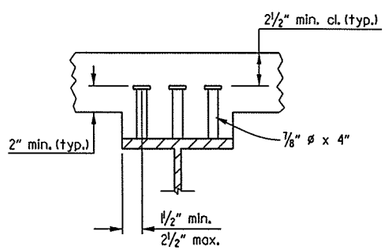
(2) After deck removal and prior to installation of new shear connectors, the existing top of beams and shear connectors shall be cleaned. Any damaged shear connectors shall be replaced as directed by the Engineer. Payment will not be paid for directly but shall be considered subsidiary to the item "Modification of Existing Bridge Structure (Br. No. 05949)".

(3) Retain, clean, and paint existing beams, bolted field splices, diaphragms, end struts, and connection plates where indicated. The existing structural steel shall be cleaned and painted in accordance with Section 820 "Cleaning and Painting Existing Structural Steel (Type II)".

TABLE FOR WELDS

Material Thickness of Thicker Part Joined (inches)	Minimum Size of Fillet Weld (inches)	Single Pass Weld Must Be Used
To 3/4" Inclusive	1/4"	
Over 3/4"	5/16"	

NOTE: When A Fillet Weld size, as shown on the Plans, is larger than the minimum, the first pass shall be that specified for minimum size of Fillet Weld.



SHEAR CONNECTOR DETAIL

No Scale

Stud Shear Connectors shown shall be 7/8" ø x 4" long, granular flux filled, solid fluxed or equal, and automatically end welded to the beam flange in accordance with the recommendations of the manufacturer.

After deck removal and prior to installation of new shear connectors, the existing top of beams and shear connectors shall be cleaned. Any damaged shear connectors shall be replaced as directed by the Engineer. Payment will not be paid for directly but shall be considered subsidiary to the item "Modification of Existing Bridge Structure (Br. No. 05945)".

STATE OF ARKANSAS
Jose K. Joseph
REGISTERED PROFESSIONAL ENGINEER
No. 15634
JOSE K. JOSEPH
1/7/16

SHEET 5 OF 13
272'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
ROUTE 49 SEC. 28
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TRM DATE: 10-10-14 FILENAME: bbb0413_s5.dgn
CHECKED BY: CAW DATE: 02-27-15 SCALE: 1" = 10'-0"
DESIGNED BY: JKJ DATE: 09-30-14

BRIDGE NO. 05945 DRAWING NO. 56892

USER: bc5100
DESIGN FILE: G:\2103303_ElmSpringRd\TRANSP\dgn\bridge\bbb0413_s5.dgn SCALE: 20:1
PLOTTED: 1/7/2016 12:07

Ⓕ ℄ Full-Depth Parapet Joint (¼" to 1" max.)
Stop 4" from top of sidewalk. See Dwg. No. 56894

Ⓟ ℄ Partial-Depth Parapet Joint (¼" to 1" max.)
Stop 1'-2" from top of sidewalk. See Dwg. No. 56894

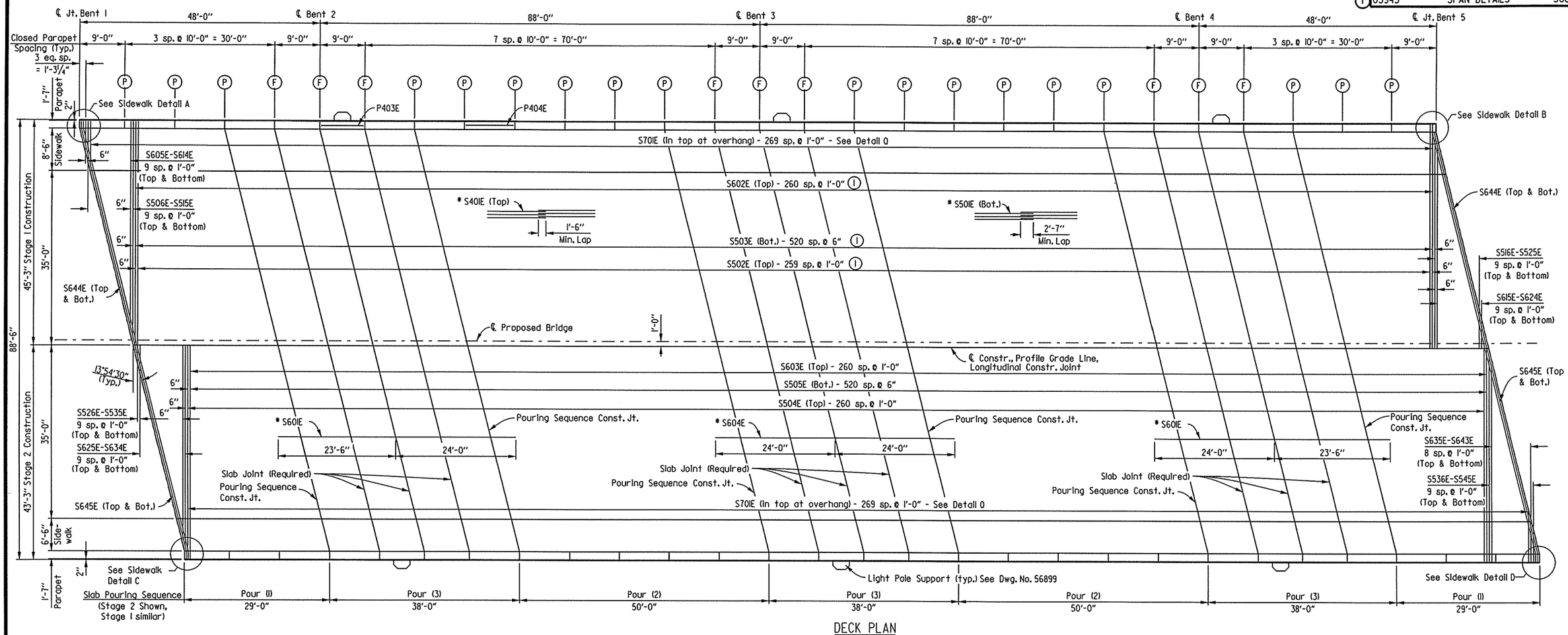
Ⓘ Use an approved Thread Type Mechanical Rebar Splices for use with Epoxy Coated Rebar from AHTD QPL. See Dwg. No. 56888 for details.

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

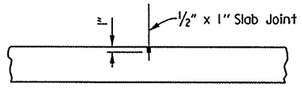
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	96	160

Ⓘ 05945 SPAN DETAILS 56893



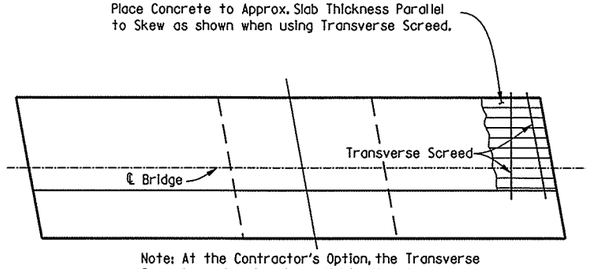
DECK PLAN

Scale: 1" = 10'-0"



SLAB JOINT DETAIL

No Scale



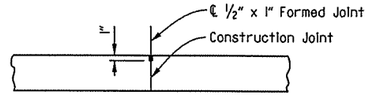
Note: At the Contractor's Option, the Transverse Screed may be placed parallel to the skew or perpendicular to ℄ Bridge.

CONCRETE PLACEMENT PROCEDURE

No Scale

Note:
Use Type 3 or 4 joint sealer. See Sections 501.02(h) and 501.05(j) of the Standard Specifications. Backer rod filler will not be required. Paid for under "Class S(AE) Concrete - Bridge". Slab joints shall extend to the outside edge of the deck slab and across the top of the sidewalk to the outside edge. Joint sealer shall not be placed on the deck slab under the sidewalk area on the right side but joint sealer shall be placed on the deck slab under the sidewalk area on the left side. Slab joints shall be installed before the parapet railing or sidewalk is poured. If slab joints are to be sawed, they shall be sawed as soon as the concrete has sufficiently set to allow sawing of the joints without damage to the slab. Slab joints shall align with parapet joints. Slab joints shall be placed at all pouring sequence construction joints and required slab joint locations.

* These bars shall be placed as shown in "Typical Roadway Section", Dwg. No. 56888



Use Type 3 or 4 Joint Sealer. See Subsections 501.02(h) and 501.05(j). Backer Rod shall not be installed. This joint shall be formed. Paid for under "Class S(AE) Concrete - Bridge". Sealant must be gray or other color similar to concrete.

LONGITUDINAL CONSTRUCTION JOINT

No Scale

Notes:
Required slab joints and pouring sequence construction joints shall align with open joints at the front face of the parapets.

Pours with the same number may be placed simultaneously or separately. For each stage, all Pours (1) must be placed before Pours (2) can be placed. Likewise, all Pours (2) must be placed before Pours (3) can be placed. 48 hours shall elapse between the end of a pour and the start of the next pour. 72 hours shall elapse between the end of a pour and the start of an adjacent pour. A minimum of 72 hours shall elapse between the completion of the deck for each stage before pouring the sidewalk. A minimum of 72 hours shall elapse between the completion of the sidewalk in Stage 2 and pouring of the parapet rail. Any railing or sidewalk pours made before the entire slab in the respective stage has been placed must be approved by the Engineer.

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

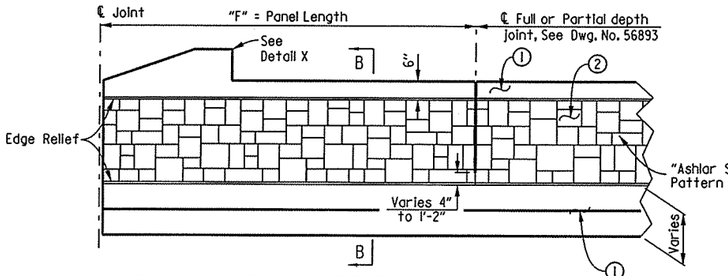
STATE OF ARKANSAS
Jose Joseph
REGISTERED PROFESSIONAL ENGINEER
No. 15634
JOSE K. JOSEPH
1/7/16

SHEET 6 OF 13
272'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
ROUTE 49 SEC. 28
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TRM DATE: 12-10-14
CHECKED BY: CAW DATE: 02-27-15
DESIGNED BY: JKJ DATE: 11-20-14
FILENAME: bbb0413_s6.dgn
SCALE: 1" = 10'-0"

BRIDGE NO. 05945 DRAWING NO. 56893

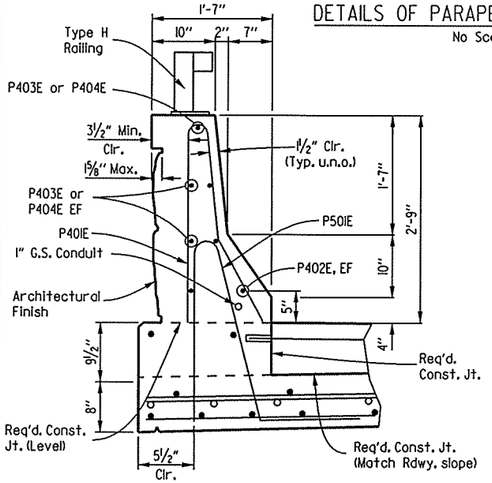
USER: bc5100
DESIGN FILE: G:\12103303.ElmSpringRd\TRANSP\dgn\bridge\bbb0413_s6.dgn SCALE: 20:1
PLOTTED: 1/7/2016 12:07



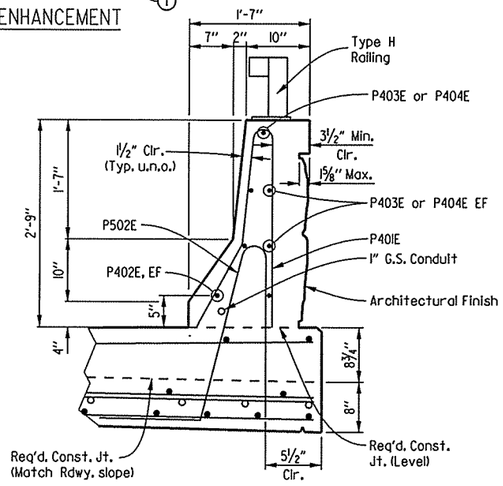
DETAILS OF PARAPET ENHANCEMENT
No Scale

① Class 3 Textured Coating Finish (Color = Light Brown, Color Chip No. 33522)

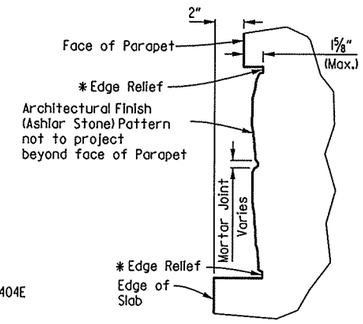
② Class 3 Textured Coating Finish (Color = Medium Brown, Color Chip No. 30219)



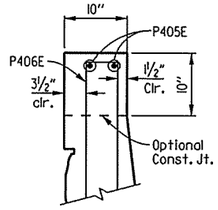
STAGE 1 SECTION A-A
1" = 1'-0"



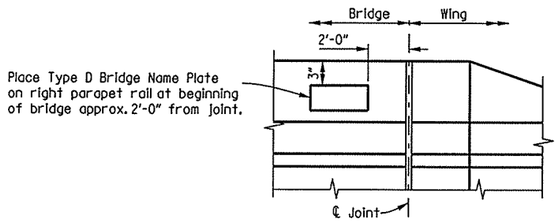
STAGE 2 SECTION A-A
1" = 1'-0"



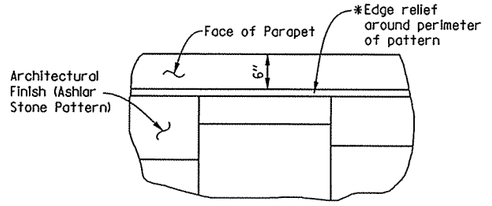
SECTION B-B
No Scale



SECTION X-X
1" = 1'-0"

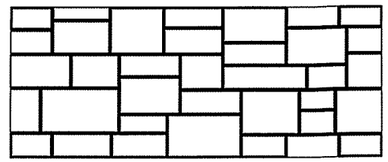


NAME PLATE DETAIL
No Scale



EDGE DETAIL
No Scale

*Provide edge relief around perimeter of pattern. Edge relief dimensions shall match manufacturers edge distance.



ARCHITECTURAL FINISH DETAIL
(Ashlar Stone)
No Scale

General Notes:

The pattern finish shall be applied to the exposed surfaces in accordance with the Special Provision Job No. BB0413 "Architectural Finish" and as shown in plans. Care shall be taken with form liner handling and installation to insure aesthetic quality of the pattern finish is maintained. Where form liner panels require modification to conform to the location, dimensions, and lines shown in the plans, the Contractor shall provide edge relief matching that of the unaltered form liner. Payment for pattern finish shall be in accordance with Special Provision Job No. BB0413 "Architectural Finish".

No adjustments will made in concrete volume due to the use of "Architectural Finish". Class "S(AE)" Concrete shall be measured in accordance with Subsection 802.24(a). Care shall be taken in placing concrete to avoid segregation and to elimate flow lines.

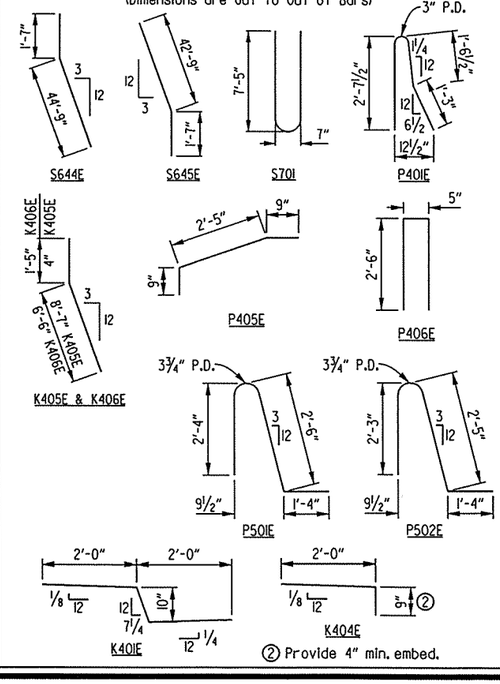
Class 3 Textured Coated Finish shall be applied to surfaces as specified in Special Provision Job No. BB0413 "Textured Coating Finish".

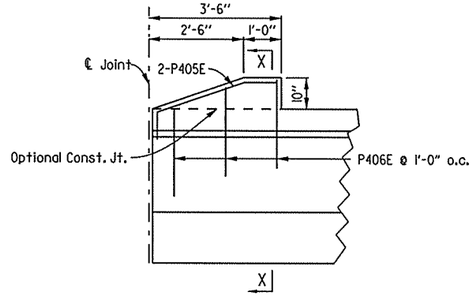
For details and dimensions not shown see Dwg. No. 56893.

BAR LIST

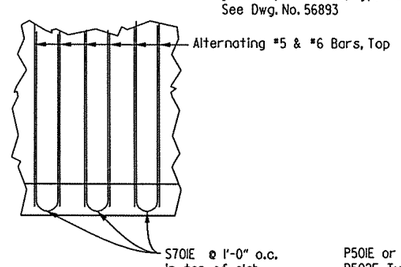
Mark	Number Required	Length	Pin Diameter
S401E	496	35'-3"	Str.
S501E	1072	36'-3"	Str.
S502E	260	45'-1"	Str.
S503E	521	45'-1"	Str.
S504E	261	43'-1"	Str.
S505E	521	43'-1"	Str.
S506E-S515E	2 each	7'-1" to 43'-5"	Str.
S516E-S525E	2 each	6'-6" to 42'-10"	Str.
S526E-S535E	2 each	2'-6" to 38'-10"	Str.
S536E-S545E	2 each	5'-1" to 40'-5"	Str.
S601E	106	35'-9"	Str.
S602E	261	45'-1"	Str.
S603E	261	43'-1"	Str.
S604E	106	33'-3"	Str.
S605E-S614E	2 each	5'-0" to 41'-4"	Str.
S615E-S624E	2 each	4'-6" to 40'-10"	Str.
S625E-S634E	2 each	4'-6" to 40'-10"	Str.
S635E-S643E	2 each	7'-1" to 39'-4"	Str.
S644E	8	46'-6"	4½"
S645E	8	44'-4"	4½"
S701E	540	15'-1"	5¼"
K401E	182	4'-9"	3"
K402E	182	7'-11"	Str.
K403E	180	8'-6"	Str.
K404E	180	2'-8"	3"
K405E	4	8'-11"	3"
K406E	4	7'-11"	3"
P401E	1032	5'-6"	3"
P402E	32	39'-0"	Str.
P403E	80	8'-6"	Str.
P404E	200	9'-6"	Str.
P405E	8	3'-10"	3"
P406E	12	5'-3"	3"
P501E	544	6'-3"	2½"
P502E	544	6'-1"	2½"

Bending Diagrams
Bars with "E" suffix shall be epoxy coated.
(Dimensions are Out to Out of Bars)

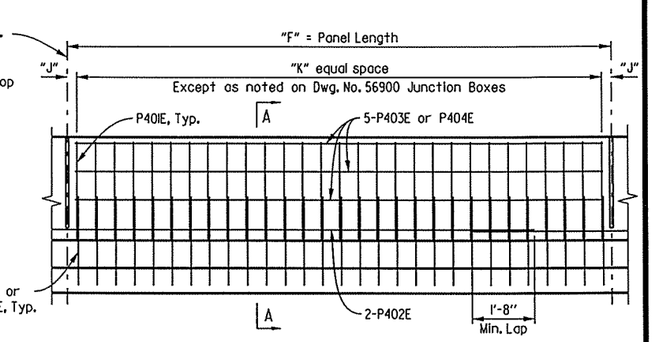




DETAIL X
½" = 1'-0"

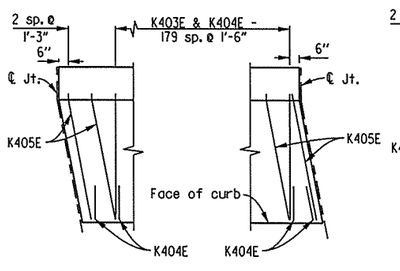


DETAIL Q
No Scale



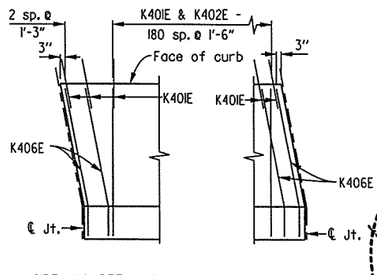
NOTE: See Dwg. No. 56893 for parapet layout.

DETAILS OF CLOSED PARAPET
½" = 1'-0"



SIDEWALK DETAIL A
¼" = 1'-0"

SIDEWALK DETAIL B
¼" = 1'-0"



SIDEWALK DETAIL C
¼" = 1'-0"

SIDEWALK DETAIL D
¼" = 1'-0"

TABLE OF RAIL VARIABLES

"F"	"J"	"K"	Longitudinal Bars
9'-0"	3"	17	P402E, P403E
10'-0"	3"	19	P402E, P404E

STATE OF ARKANSAS
Jose K. Joseph
REGISTERED PROFESSIONAL ENGINEER
No. 15634
JOSE K. JOSEPH
1/7/16

SHEET 7 OF 13
272'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
ROUTE 49 SEC. 28
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TRM DATE: 11-25-14
CHECKED BY: CAW DATE: 02-27-15
DESIGNED BY: JKJ DATE: 11-20-14
FILENAME: bbb0413_s7.dgn
SCALE: 1" = 1'-0"

BRIDGE NO. 05945
DRAWING NO. 56894

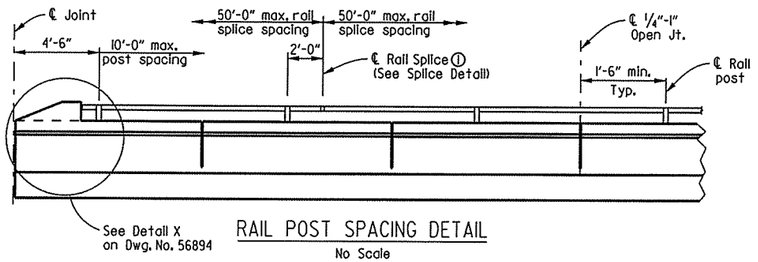
Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	97	160
				1 05945		SPAN DETAILS		56894

USER: bc5100
DESIGN FILE: G:\2103303_ElmSpringRd\TRANSP\dgn\bridge\bbb0413_s7.dgn
PLOTTED: 1/7/2016 12:07
SCALE: 2:1

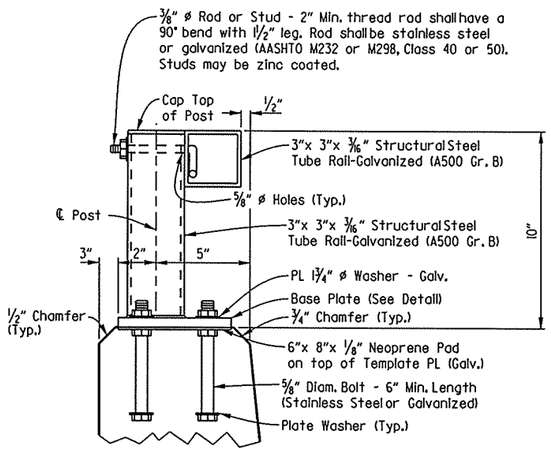
Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	98	160
				(1) 05945		SPAN DETAILS		56895

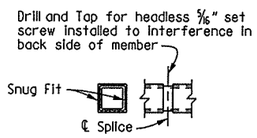


RAIL POST SPACING DETAIL
No Scale

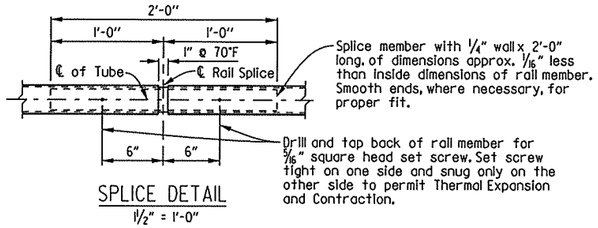
① Note: Splices to be at 50' maximum spacing. Rail sections must be fabricated to attach to at least three posts. ℄ Splices shall be located at a minimum of 2'-0" from ℄ Post.



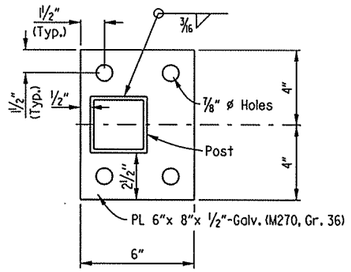
TYPE H RAIL
3" = 1'-0"



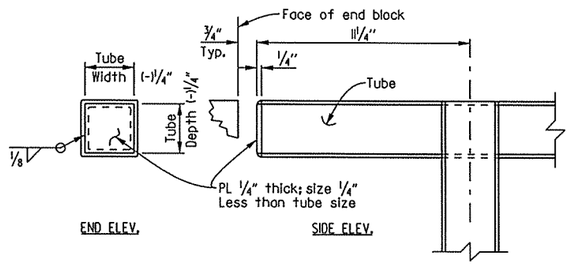
ALTERNATE INSTALLATION
No Scale



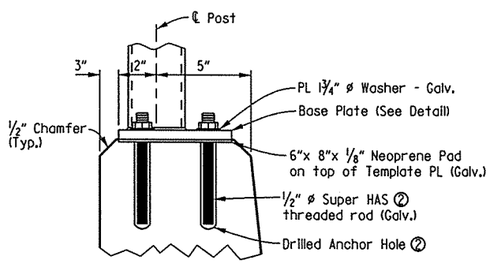
SPLICE DETAIL
1 1/2" = 1'-0"



BASE PLATE
3" = 1'-0"



DETAILS OF END CAPS
3" = 1'-0"



ALTERNATE POST ANCHOR SYSTEM
3" = 1'-0"

② Hilti HIT RE 500 Epoxy Adhesive Anchor System with 4 1/2" embedment or an approved equal. The Hilti Epoxy Adhesive Anchor System shall be installed in accordance with manufacturer's recommendations.

GENERAL NOTES FOR BRIDGE RAILING

Rail layout shall conform to vertical and horizontal alignment of the bridge. All Posts shall be vertical.

Base plates shall not be placed upon areas that are improperly finished, deformed or irregular.

Shop drawings showing details of railing shall be submitted and approval secured prior to fabrication.

MATERIALS:

Structural Tubing shall be AASHTO M270, Gr. 36 or ASTM A500-Grade B. Railing, Base Plates, End Cap Plates and Misc. Steel shall be AASHTO M270 Gr. 36.

Cast in place anchor bolts shall be of stainless steel or high strength steel.
Stainless steel anchor bolts shall conform to ASTM A193 or A320-Grade B8 with a minimum yield strength of 80,000 psi. High strength steel anchor bolts
shall conform to AASHTO M164 or A354-Grade BC, galvanized in accordance with AASHTO M232 or M298, Class 40 or 50.

Bolts shall conform to the requirements of ASTM A193 Grade B8, B8N or B8C, Class 2 (Stainless Steel).

Nuts shall conform to AASHTO M292, Gr. 8A (Stainless Steel) or AASHTO M232 or M298, Class 40 or 50 (Galvanized).

Washers shall be Stainless Steel and conform to the requirements of ASTM A167-Type 302 with dimensions meeting ASTM F436 or high-strength steel conforming to AASHTO M293 and galvanized in accordance with AASHTO M232 or M298, Class 40 or 50.

Splice Set Screws shall conform to the requirements of ASTM A193 or A320-Grade B8 (Stainless Steel) or AASHTO M270, Gr. 36 (Galvanized).

Plate Washers shall be Stainless Steel and conform to the requirements of ASTM A167-Type 302 or AASHTO M270, Gr. 36, galvanized in accordance with AASHTO M232 or M298, Class 40 or 50. Plate Washers shall have dimensions meeting the requirements of ANSI/ASME B18.22.1, Type A plain washer (Wide Series).

Threads for bolts, screws, and nuts shall conform to American Standard Course
Series, Class 2 FIT, ASA Specification B1.1.

Mixing of Stainless Steel and Galvanized fastners will not permitted.

Steel Rail Members shall be galvanized in accordance with AASHTO M111, after fabrication and shall receive a powder coating process after galvanizing. Galvanizing shall not interfere with the powder coating process. Galvanized surfaces shall be prepared in accordance with Subsection 807.87 and the powder coating manufacturer's recommendations before application of the powder coating process. The powder coating process shall be a two coat process applied using electrostatic spray. The base coat shall be a thermosetting epoxy powder with a minimum thickness of 2 - 4 mils. The top coat shall be tough polyester powder with a minimum thickness of 2 - 4 mils. Color shall match Federal Standard 595B color chip No. 20108, brown as approved by the Engineer. Coated galvanized framework shall have a salt spray resistance of 3000 hours using ASTM B117 without loss of adhesion. The powder coating process shall be in accordance with Manufacturer recommendations.

Metal Bridge Railing, including posts, fasteners, base plates, template plates, anchor bolts, neoprene pad, galvanizing and powder coatings; fabrication and erection; and all incidentals necessary to complete the work shall be paid for in accordance with Section 806 at the contact unit price per linear foot bid for "Metal Bridge Railing (Type H).

STATE OF ARKANSAS
Jose K. Joseph
REGISTERED PROFESSIONAL ENGINEER
No. 15634
JOSE K. JOSEPH
1/7/16

SHEET 8 OF 13
272'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
ROUTE 49 SEC. 28
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TRM DATE: 10-10-14 FILENAME: bbb0413_s8.dgn
CHECKED BY: CAW DATE: 02-27-15 SCALE: 1" = 1'-0"
DESIGNED BY: JKJ DATE: 10-01-14
BRIDGE NO. 05945 DRAWING NO. 56895

USER: bc5100
DESIGN FILE: G:\2103303_ElmSpringRd\TRANSP\dgn\bridge\bbb0413_s8.dgn
PLOTTED: 1/7/2016 12:08 SCALE: 2:1

SUPERSTRUCTURE GENERAL NOTES

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

DESIGN SPECIFICATIONS: AASHTO LRFD Bridge Design Specifications (6th Edition) with current Interim Revisions. (New Construction Only)

LIVE LOADING: HL-93

MATERIALS AND STRENGTHS:

Class S(AE) Concrete	f'c = 4,000 psi
Reinforcing Steel (AASHTO M 31 or M 322 Type A, Gr. 60)	fy = 60,000 psi
Structural Steel (AASHTO M 270, Gr. 50)	fy = 50,000 psi
Structural Steel (AASHTO M 270, Gr. 36)	fy = 36,000 psi

CONCRETE:
Concrete shall be poured in the dry and all exposed corners to be chamfered ¾" unless otherwise noted. All concrete shall be Class S(AE) with a minimum 28 day compressive strength f'c = 4,000 psi.

The superstructure details shown are for use with special permanent steel bridge deck forms and are the basis for measurement of Class S(AE) Concrete. See Dwg. No. 56888 & 56889 for additional information.

Concrete in bridge superstructure shall be placed, consolidated, and screeded off for the entire pour before any concrete has taken its initial set. This may require the use of a retarding agent. The Contractor must obtain approval from the Engineer for any deviations from the pouring sequence shown.

The pour rate shall be adequate to avoid the excessive use of retarding agents. Retarding agent dosage shall not exceed Manufacturer's recommended rate for general concrete applications. The Contractor should consult with the concrete additive manufacturer to determine acceptable dosage rates for this application that will allow final curing of the bridge deck to begin as soon as possible. Excessive loss of deck moisture due to evaporation may lead to early initial set of the concrete. Additional efforts, such as fogging, may be required to control evaporation so that initial set requirements will be met.

If membrane curing compound is used as an interim cure for the bridge deck, it shall be applied as soon as possible after final finishing at the application rate specified in subsection 802.17(b) using equipment that will permit immediate application. Slab joints will be required at the locations shown in the "Reinforcing Plan."

Slab joints from Stage 2 construction shall align with slab joints from Stage 1 construction. Required Slab Joints shall align with the parapet open joint. The slab concrete shall be at or above its compressive strength before traffic shall be allowed on the slab. The Contractor shall submit a work plan at least 30 days prior to the deck pour. Approval of the plan does not relieve the contractor's responsibility to obtain satisfactory results.

The sidewalk surface shall be given a Class 6, Broomed Finish. The Concrete Deck shall be given a tine finish in accordance with Subsection 802.19 for Class 5 Tined Bridge Roadway surface finish. Movement of the finishing machine across new concrete shall be on planks placed on the surface and shall be prohibited for 72 hours after finishing the pour. Sufficient concrete must be placed ahead of the strike-off to fully load the beam.

REINFORCING STEEL:
All Reinforcing Steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322 Type A with mill test reports. The Reinforcing Steel is to be accurately located in the forms and firmly held in place by steel wire supports, sufficient in number and size to prevent displacement during the course of construction. The wire supports will not be paid for directly, but will be considered subsidiary to the item "Epoxy Coated Reinforcing Steel (Grade 60)".

NEW STRUCTURAL STEEL:
All new Structural Steel shall be AASHTO M270, Grade 50 unless otherwise noted and shall be paid for as "Structural Steel in Beam Spans (M 270, Gr. 50)". All exposed surfaces shall be cleaned in accordance with Subsection 807.84 unless otherwise noted. Structural Steel completely embedded in concrete may be AASHTO M 270, Grade 36.

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

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

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

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

All beams shall be blocked in their true position in the shop in groups with webs horizontal and as specified in Subsection 807.54(b)(2). The camber, length of sections, distance between bearings and opening of joints shall be measured with the beams in their true positions and this information shall become part of the permanent records of this job. The component parts shall be match marked in this assembly and those marks shall be shown on the erection diagram. All beam dimensions are based on a temperature of 60°F. A tolerance of ¼" (plus or minus) allowed for camber.

Flange Field Splice Plates shall be cut and fabricated so that the primary direction of rolling is parallel to the direction of the main tensile and/or compressive stresses.

All welding that is to be done during fabrication of structural steel, including temporary welds, shall be detailed on the shop drawings and submitted for approval. If additional welds are required, whether permanent or temporary, a formal request with detailed drawings shall be submitted to the Engineer for approval; however, additional welds used for attaching aisework support devices to the structural steel that do not exceed the limitations of Subsection 802.13 will not require approval prior to construction. Field welding of new diaphragm connection plates to the existing beams shall be as shown in the plans. All welding shall conform to Subsection 807.26.

Field Connections shall be bolted with High-Strength Bolts and shall be ⅞" ø with 15/16" open holes at spacing of 3" o.c. unless otherwise noted. Bolts shall be placed with heads on the outside face of the exterior Beam Webs and on the bottom of the Beam Flanges. Any existing bolt that is loosened or removed shall be replaced with a new high strength bolt.

Diaphragms shall be installed as Beams are erected except as noted. All bolts in Diaphragms and Field Splices shall be installed and tightened except as noted in accordance with Subsection 807.71 prior to pouring the Concrete Deck.

All contact surfaces between plates at field splices shall be free of oil, rust or scale before assembly.

PAINTING NEW STRUCTURAL STEEL:
All structural steel except galvanized members, machined surfaces, and some surfaces in contact with concrete shall be painted as specified in Section 807.75. The color of the paint shall match the Federal Standard 595B Color chip No. 20108, Brown.

PAINTING EXISTING STRUCTURAL STEEL:
The existing paint system on the existing beams consists of a lead based paint system. The Contractor shall take all necessary steps according to state and federal regulations to protect the workers, public, and the environment when modifying the existing beams. The Existing Structural Steel, including steel bearings, sole plates, and masonry plates, shall be cleaned and painted in accordance with the Section 820 "Cleaning and Painting Existing Structural Steel (Type II)." For additional information, see SP Job BB0413 "Containment System", "Contractor Certification", and "Paint Contractor Label". The paint color and finish shall match that used for the new structure steel.

The area of the existing beams where new diaphragm connection plates, new build up plates, and new shear connectors will be field welded shall be cleaned and painted in accordance with Section 807.

Any existing bolt that is loosened or removed shall be replaced by a new high-strength bolt.

The elastomeric bearing pads shall be protected against overspray.

REMOVAL OF EXISTING DECK:
Care shall be exercised during the removal of the existing deck to ensure that the existing structural steel, including shear connectors, are not damaged. Damaged items that are not salvageable, as determined by the Engineer, shall be replaced at the Contractors expense.

The deck removal shall progress in a manner that will ensure the stability of the existing structure. The concrete deck in the end spans shall not be removed before the deck in the interior spans over I-49 have been removed.

The existing concrete deck shall be completely removed to the top flange of the existing beams. The portions of the top flange that will be embedded in new concrete shall be cleaned and free of laitance and protected until the new deck is placed for the respective Stage of Construction. This work will not be paid for directly but will be considered subsidiary to the item "Modification of Existing Bridge Structure (Br. No. 05945)".

METHOD OF WORK:
The Contractor shall remove portions of the existing deck in Stages as shown in "Stage Construction Details" Dwg. No. 56875. After Stage I Construction of all bents have been constructed to the satisfaction of the Engineer, the Contractor shall loosen the diaphragm and end strut bolts between Beam No. 6, Beam No. 7 and Beam No. 8, as shown in the plans. Once the diaphragms and end struts have been removed, Beam No. 6 and Beam No. 7 shall be raised to facilitate the installation of new build-up plates and new end bent bearings. After the build-up plates and new end bearings have been installed at Beam No. 6 and Beam No. 7, new connection plate, diaphragms and struts shall be connected with new bolts, nuts and washers. The diaphragm between Beam No. 7 and Beam No. 8 shall not be attached in Stage I. For Stage 2, the Contractor shall remove remaining portions of the existing deck as shown in "Stage Construction Details", Dwg. No. 56875 and loosen the diaphragm and end strut bolts between Beam No. 12 and existing Beam No. 13 shall be removed. The new Bents for Stage 2 shall be constructed to the satisfaction of the Engineer. New end bent bearings shall be added to Beam No. 8, Beam No. 9, Beam No. 10, Beam No. 11 and Beam No. 12. The existing diaphragms between Beam No. 8 and Beam No. 9 shall be removed and Beam No. 8 shall be raised to facilitate the installation of new build-up plates and new end bent bearings. After the build-up plates have been installed, new connection plate, diaphragms and struts shall be connected with new bolts, nuts and washers between Beam No. 8 and Beam No. 9 and between Beam No. 9 and Beam No. 10 as shown in the plans. New Diaphragms and end struts shall be installed between Beam No. 7 and Beam No. 8. The diaphragm and end strut holes located in the bay between Beam Nos. 7 & 8 may be field drilled after the completion of the Stage 2 Construction deck pour. The diaphragm and end strut bolts located in the bay between Beam Nos. 7 & 8 shall be tightened after the completion of the Stage 2 Construction deck pour.This work will not be paid for directly but will be considered subsidiary to the item "Modification of Existing Bridge Structure (Br. No. 05945)".

All applicable provisions of Section 807, as determined by the Engineer, shall be followed. See Special Provision Job BB0413 "Special Safety Requirements for Bridges" for additional information.

The Contractor may submit an alternate Method of Work. The plan shall be submitted to the Engineer for information and record keeping purposed at least three weeks prior to any work being performed. The submittal shall be prepared and/or approved by an Arkansas Professional Engineer and shall include sufficient details and information to the Engineer's satisfaction. The Contractor shall be responsible for the results obtained by the use of the alternate Method of Work. All work, materials, and labor required for the Contractor to develop and execute the plan will not be paid directly but will be considered subsidiary to the item "Modification of Existing Bridge Structure (Br. No. 05945)".

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	99	160
				(1) 05945		SPAN DETAILS		56896

STATE OF ARKANSAS
Jose K. Joseph
REGISTERED PROFESSIONAL ENGINEER
No. 15634
JOSE K. JOSEPH
2/1/16

SHEET 9 OF 13
272'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
ROUTE 49 SEC. 28
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TRW DATE: 10-14-14 FILENAME: bbb0413_s9.dgn
CHECKED BY: CAW DATE: 03-01-15 SCALE: 1" = 1'-0"
DESIGNED BY: JKJ DATE: 10-02-14
BRIDGE NO. 05945 DRAWING NO. 56896

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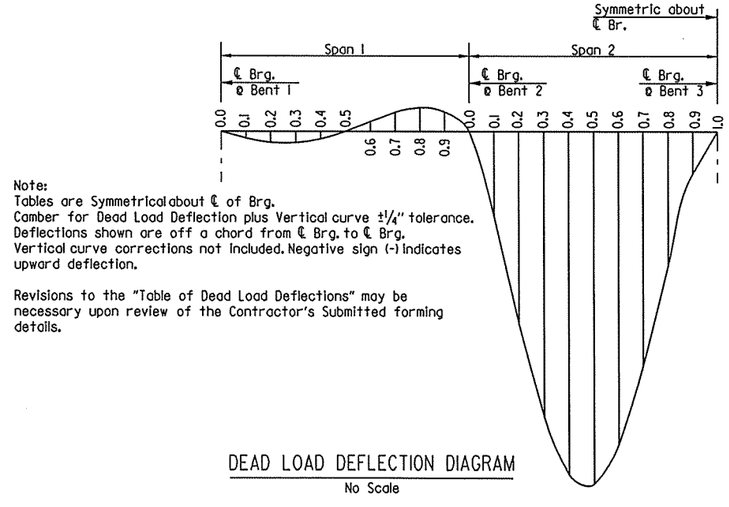
PLOTTED: 2/1/2016 10:29

Crafton, Tull & Associates Inc.	DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		BB0413	100	160
					(1) 05945		SPAN DETAILS		56897

		TABLE OF DEAD LOAD DEFLECTIONS - INCHES BEAM NO. 1-5						EXISTING BEAMS 6-12		TABLE OF DEAD LOAD DEFLECTIONS - INCHES BEAM NO. 13-14					
Span	Point of Deflection	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet + Sidewalk		Structural Steel	Structural Steel + Slab	Structural Steel		Structural Steel + Slab		Structural Steel + Slab + Parapet + Sidewalk	
		Interior	Exterior	Interior	Exterior	Interior	Exterior	Interior	Interior	Interior	Exterior	Interior	Exterior	Interior	Exterior
1	0.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.002	0.002	0.014	0.014	0.024	0.024	0.003	0.028	0.002	0.002	0.013	0.013	0.024	0.024
	0.2	0.002	0.002	0.023	0.022	0.040	0.039	0.003	0.046	0.002	0.002	0.021	0.021	0.040	0.040
	0.3	0.000	0.000	0.023	0.022	0.041	0.040	0.002	0.048	0.000	0.000	0.021	0.021	0.041	0.041
	0.4	-0.004	-0.004	0.013	0.012	0.026	0.026	-0.003	0.032	-0.004	-0.004	0.012	0.012	0.026	0.026
	0.5	-0.011	-0.011	-0.006	-0.006	-0.002	-0.002	-0.010	0.002	-0.011	-0.011	-0.006	-0.006	-0.002	-0.002
	0.6	-0.018	-0.018	-0.028	-0.028	-0.038	-0.037	-0.017	-0.040	-0.018	-0.018	-0.028	-0.028	-0.038	-0.038
	0.7	-0.024	-0.024	-0.049	-0.048	-0.072	-0.071	-0.023	-0.078	-0.024	-0.024	-0.047	-0.047	-0.072	-0.072
	0.8	-0.025	-0.025	-0.059	-0.058	-0.090	-0.088	-0.025	-0.098	-0.025	-0.025	-0.057	-0.057	-0.090	-0.090
	0.9	-0.019	-0.019	-0.048	-0.046	-0.074	-0.072	-0.019	-0.080	-0.019	-0.019	-0.045	-0.045	-0.074	-0.074
2	0.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	0.1	0.071	0.071	0.199	0.193	0.314	0.308	0.072	0.340	0.071	0.071	0.188	0.188	0.315	0.315
	0.2	0.159	0.159	0.451	0.439	0.713	0.700	0.162	0.777	0.159	0.159	0.427	0.427	0.716	0.716
	0.3	0.235	0.235	0.670	0.652	1.057	1.038	0.240	1.157	0.235	0.235	0.634	0.634	1.062	1.062
	0.4	0.281	0.281	0.804	0.783	1.268	1.245	0.287	1.390	0.281	0.281	0.761	0.761	1.274	1.274
	0.5	0.287	0.287	0.826	0.803	1.304	1.280	0.294	1.429	0.287	0.287	0.781	0.781	1.310	1.310
	0.6	0.254	0.254	0.732	0.712	1.159	1.138	0.260	1.267	0.254	0.254	0.692	0.692	1.165	1.165
	0.7	0.189	0.189	0.545	0.530	0.867	0.851	0.193	0.943	0.189	0.189	0.515	0.515	0.871	0.871
	0.8	0.107	0.107	0.309	0.301	0.496	0.487	0.110	0.536	0.107	0.107	0.292	0.292	0.499	0.499
	0.9	0.033	0.033	0.096	0.094	0.155	0.152	0.034	0.167	0.033	0.033	0.091	0.091	0.156	0.156
Sym. About ℄ Br. ▶	1.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000



DEAD LOAD DEFLECTION DIAGRAM
No Scale

Note:
Tables are Symmetrical about ℄ of Brg.
Camber for Dead Load Deflection plus Vertical curve ±1/4" tolerance.
Deflections shown are off a chord from ℄ Brg. to ℄ Brg.
Vertical curve corrections not included. Negative sign (-) indicates upward deflection.

Revisions to the "Table of Dead Load Deflections" may be necessary upon review of the Contractor's Submitted forming details.

STATE OF ARKANSAS
Jose K. Joseph
REGISTERED PROFESSIONAL ENGINEER
No. 15634
JOSE K. JOSEPH
1/7/16

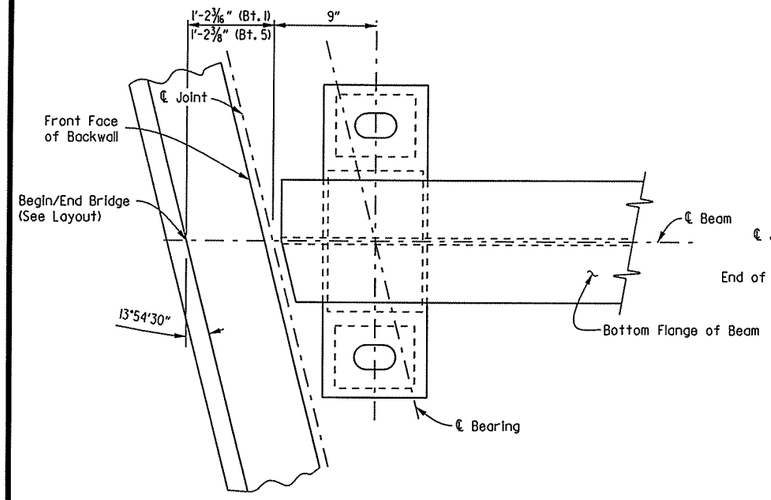
SHEET 10 OF 13
272'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
ROUTE 49 SEC. 28
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TRW DATE: 10-14-14 FILENAME: bbb0413_sl0.dgn
CHECKED BY: CAW DATE: 02-27-15 SCALE: 1" = 1'-0"
DESIGNED BY: LLW DATE: 10-13-14
BRIDGE NO. 05945 DRAWING NO. 56897

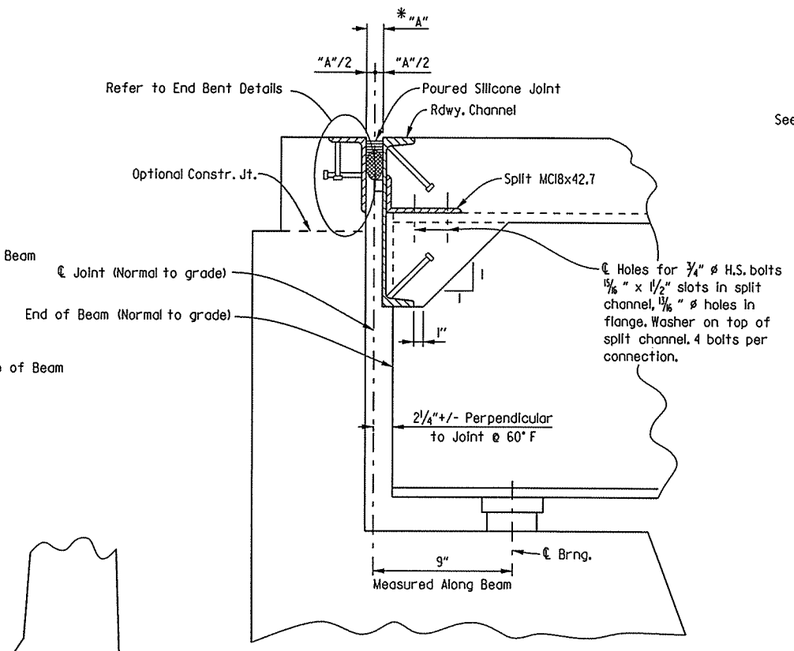
USER: bc5100
DESIGN FILE: G:\2103303.ElmSprngRd\TRANSP\dgn\bridge\bbb0413_sl0.dgn
PLOTTED: 1/7/2016 12:08 SCALE: 2:1

Crafton, Tull & Associates Inc.

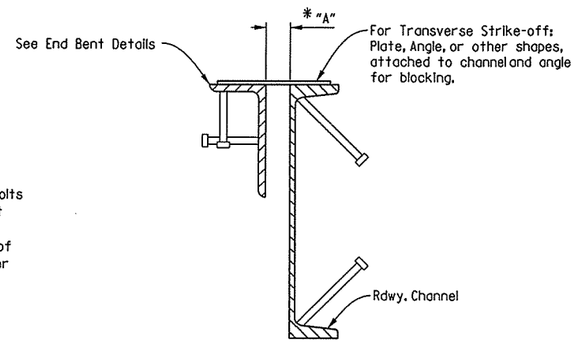
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	101	160
				1	05945	SPAN DETAILS		56898



PLAN OF BEARING AT END BENTS
No Scale



SECTION THRU JOINT AT END BENTS
No Scale

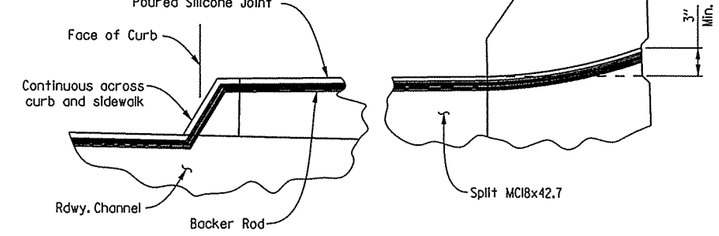


Note: Each expansion joint device shall be blocked in the Shop by the Fabricator and the blocking details shall be shown on the Shop Drawings. Blocking shall not be removed until the slab is complete. Blocking shall be placed within 2 feet of each end of the device and with a maximum spacing of 8 feet.

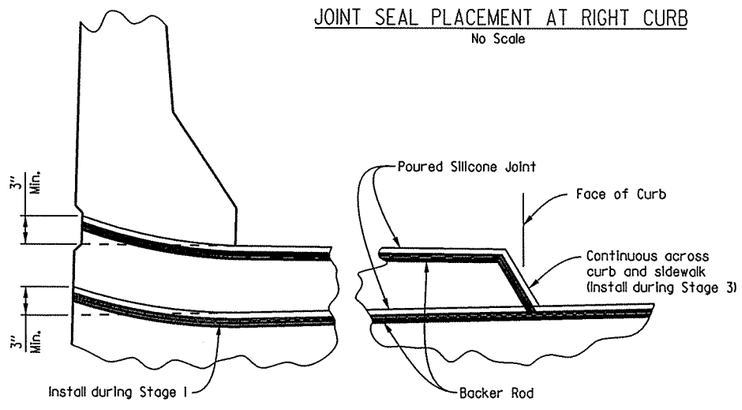
DETAILS FOR BLOCKING EXPANSION JOINT DEVICE
No Scale

JOINT ERECTION DIMENSIONS

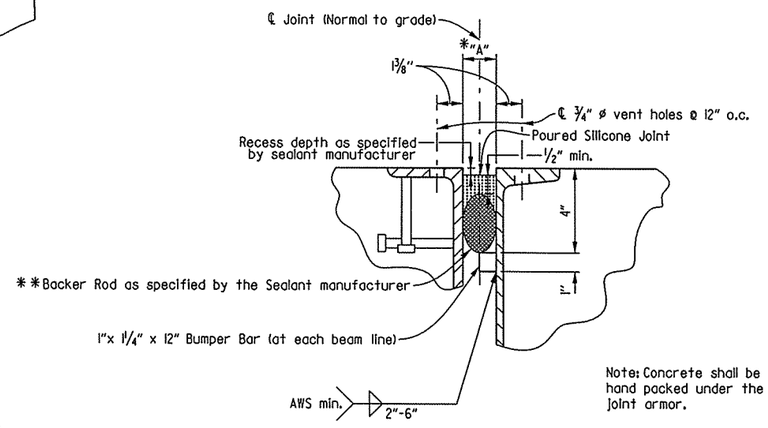
Width perpendicular to joint at 24 hour average temperature of:			
Bent No.	40° F	60° F	80° F
1	2 1/16"	2 1/4"	2 1/16"
5	2 1/16"	2 1/4"	2 1/16"



JOINT SEAL PLACEMENT AT RIGHT CURB
No Scale



JOINT SEAL PLACEMENT AT LEFT CURB
No Scale



DETAIL OF POURED SILICONE JOINT
No Scale

* Installation is limited to 40° F min. and 80° F max. See table of Joint Erection Dimensions for installation temperatures other than 60° F.

** The Backer Rod shall not exceed the dimensions recommended by the manufacturer. The Contractor shall verify separation of the backer rod from the joint material after joint material has set.

EXPANSION DEVICE INSTALLATION

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

1) The concrete span pour adjacent to joint shall be placed before the end bent backwall is placed. After the end bent backwall forms are in place and the beams erected, the blocked expansion device shall be installed and adjusted for grade. All Connection bolts shall be fully tightened prior to placing the deck concrete adjacent ot the bent. Immediately prior to pouring the backwall concrete, the blocking shall be removed, the opening adjusted for temperature, and the backwall constructed.

2) The backwall shall be poured to the optional construction joint after beams are erected. The blocked expansion device shall be installed and adjusted for grade. All connection bolts shall be fully tightened prior to placing the deck concrete adjacent to the bent. Immediately prior to pouring the remainder of the backwall concrete, the blocking shall be removed and the opening adjusted for temperature.

STATE OF ARKANSAS
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REGISTERED PROFESSIONAL ENGINEER
No. 15634
JOSE K. JOSEPH
1/7/16

SHEET 11 OF 13
272'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
ROUTE 49 SEC. 28
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TRM DATE: 11-24-14
CHECKED BY: CAW DATE: 03-01-15
DESIGNED BY: JKJ DATE: 11-20-14
FILENAME: bbb0413_sill.dgn
SCALE: NOT TO SCALE

BRIDGE NO. 05945 DRAWING NO. 56898

USER: bc5100
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Crafton, Tull & Associates Inc.

Crafton, Tull & Associates Inc.	DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
					6	ARK.			
					JOB NO.		BB0413	102	160
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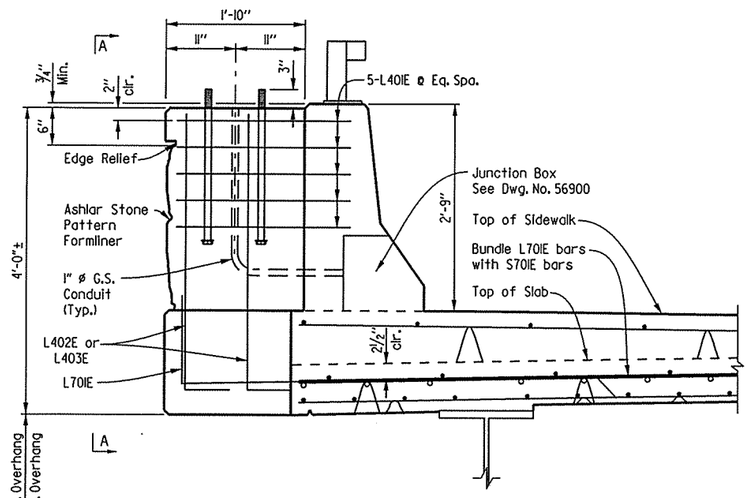


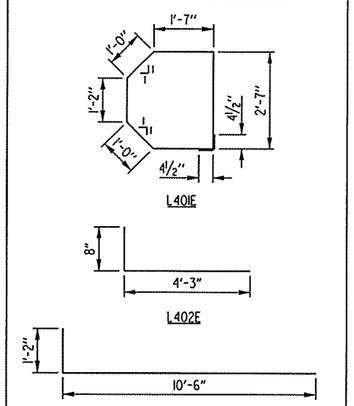
SECTION THRU PARAPET & SLAB AT LIGHT POLE SUPPORT

Note: For details of Ashlar Stone Pattern Formliner, See Dwg. No. 56894

BAR LIST - ONE LIGHT POLE SUPPORT

Mark	No. Req'd.	Length	Pin Dia.
L401E	5	9'-3"	2"
L402E	4	4'-3"	3"
L701E	5	11'-7"	5¼"

Bending Diagram
Dimensions are out to out of bars.



GENERAL NOTES

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

All Reinforcing Steel shall be Grade 60 (fy = 60,000 psi) AASHTO M 31 or M 322, Type A with mill test reports.

Class 3 Textured Coating Finish shall be applied to the exposed surfaces of the Light Pole Support.

Anchor bolts, nuts, and washers shall conform to Subsection 807.07. Anchor bolts shall be Grade 55.

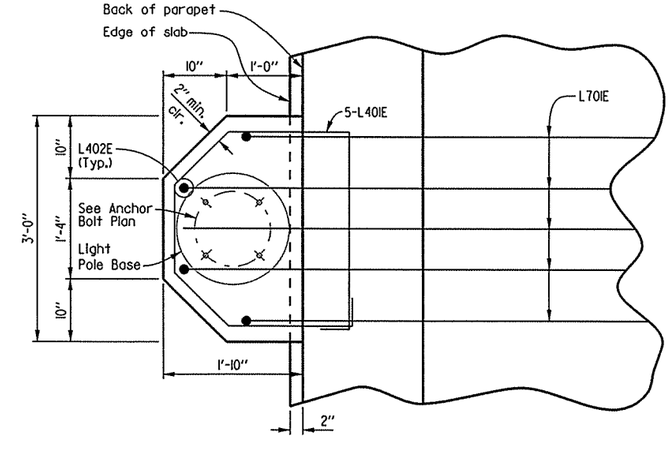
Anchor bolt assemblies, nuts, and voids shall be furnished and installed by the Contractor. The Contractor shall verify the anchor bolt spacings shown on the plans are correct for the light poles that will be furnished by the light pole supplier.

The Contractor shall coordinate the installation of the lighting conduit with the installation of the electrical cable and light poles. The Contractor shall provide access to the junction boxes, including any work platform necessary for their access.

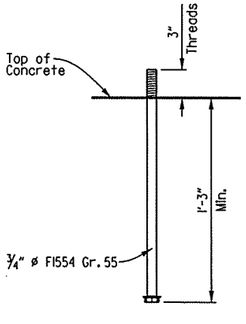
The Contractor shall furnish and install 1" galvanized steel conduit as shown on the plans. The conduit shall be cast into the bottom of the parapet. See Dwg. No. 56900. The conduit, fittings and miscellaneous hardware shall conform to Section 709 of the Standard Specifications. The Contractor shall provide pull wires in the Galvanized Steel (G.S.) conduit during installation.

See Rdwy. plans and Special Provision Job No. BB0413 "Lighting" for information on lighting details not covered on this sheet.

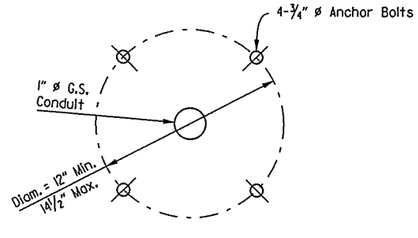
Payment for Class S(AE) Concrete, Reinforcing Steel and Class 3 Textured Coating Finish shall be made under their respective bid items. Payment for Lighting items shown on the plans, including anchor bolts, anchor plates, nuts, washers, galvanized steel conduit, junction boxes, expansion fittings, and for all materials, labor, equipment, tools, and incidentals necessary to complete the work shall not be paid for directly, but shall be considered subsidiary to other bid items.



LIGHT POLE SUPPORT AT PARAPET PLAN



ANCHOR BOLT ELEVATION
(4 bolts per Light Pole)

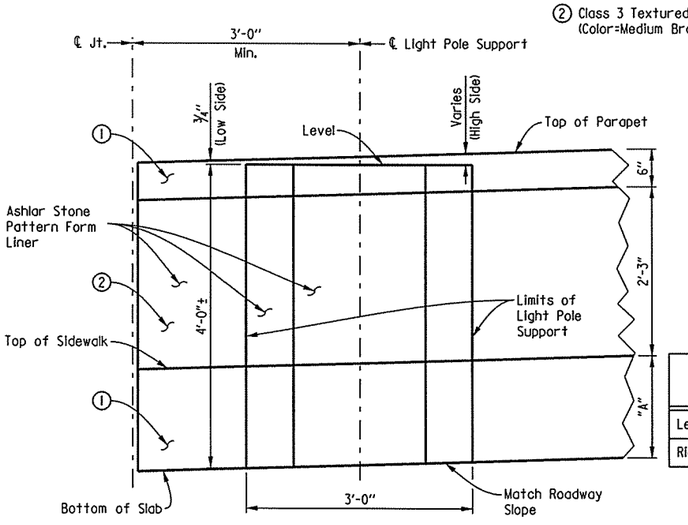


ANCHOR BOLT PLAN
(6 Light Poles per Bridge)

Note: Contractor shall verify the bolt circle diameter matches the light pole base prior to installing anchor bolts. The light pole base shall not hang over the face of the light standard support.

(1) Class 3 Textured Coating Finish (Color=Light Brown, Color Chip No. 33522)

(2) Class 3 Textured Coating Finish (Color=Medium Brown, Color Chip No. 30219)



Location	"A"
Left Side (Stage 1)	1'-5½"
Right Side (Stage 2)	1'-4¾"

LIGHT POLE SUPPORT ELEVATION
(Looking at Outside Face)

STATE OF ARKANSAS
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SHEET 12 OF 13
272'-0" CONTINUOUS COMPOSITE W-BEAM UNIT
ROUTE 49 SEC. 28
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TRW DATE: 10-14-14 FILENAME: bbb0413_sl2.dgn
CHECKED BY: CAW DATE: 02-27-15 SCALE: NOT TO SCALE
DESIGNED BY: LLW DATE: 10-01-14
BRIDGE NO. 05945 DRAWING NO. 56899

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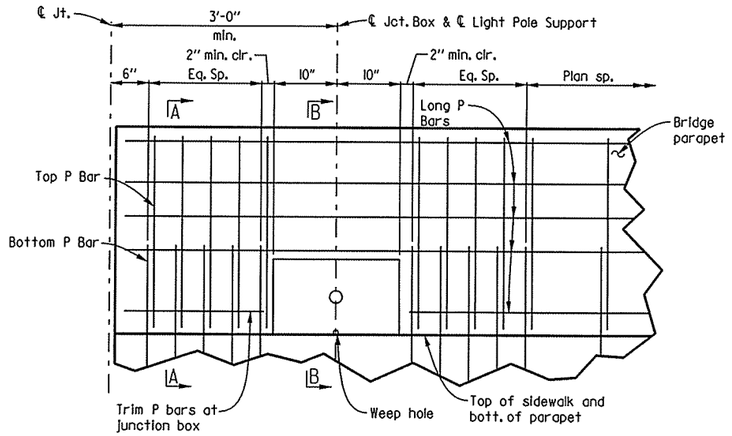
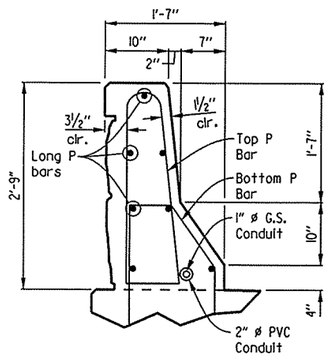


REINFORCEMENT DETAILS FOR JUNCTION BOXES AT BRIDGE ENDS

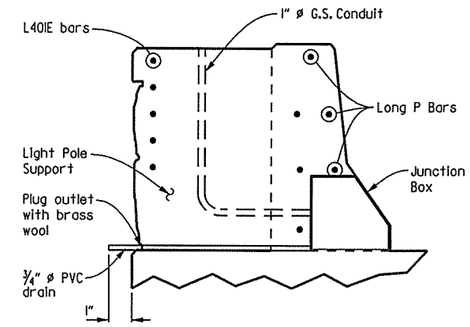
No Scale

Note: Conduit not shown for clarity. When parapet reinforcing conflicts with junction boxes, relocate as shown above.



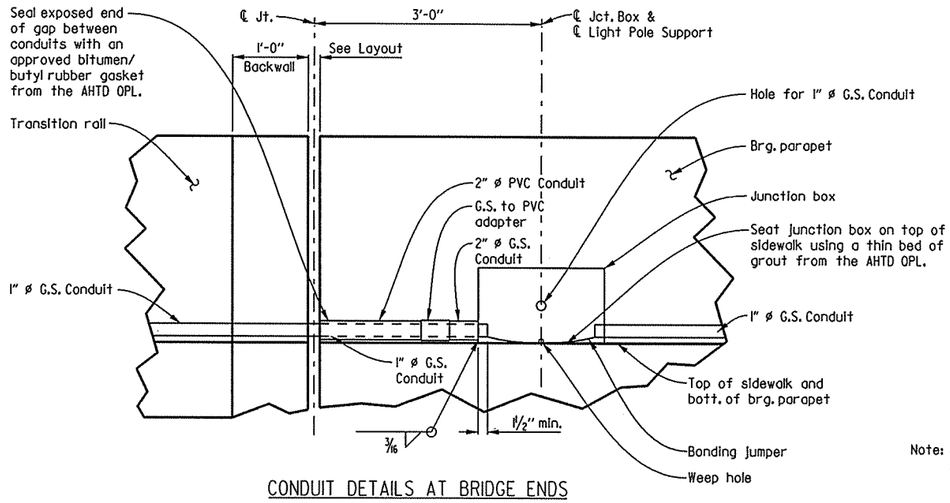
SECTION A-A

No Scale



SECTION B-B

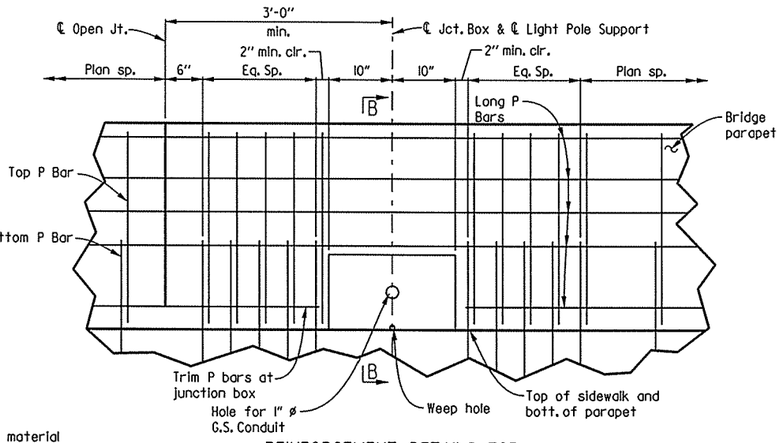
No Scale



CONDUIT DETAILS AT BRIDGE ENDS

No Scale

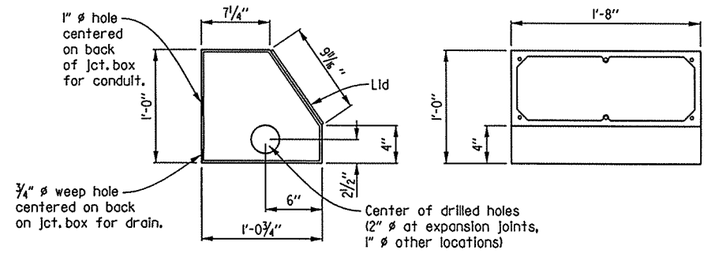
Note: Reinforcement not shown for clarity. Place conduit below parapet open joint.



REINFORCEMENT DETAILS FOR JUNCTION BOXES AT INTERIOR BENTS

No Scale

Note: Conduit not shown for clarity. When parapet reinforcing conflicts with junction boxes, relocate as shown above.



JUNCTION BOX DETAILS (PARAPET)

No Scale

Note: Junction Box material shall be ¼" M270, Gr. 36 steel. Lid material shall be ⅜" A36 steel. Fasteners shall be ⅝" ø x ¾" S.S. FH Socket Screws. Weld per AHTD Std. Spec. Hot dip galvanize after fabrication per AASHTO M 111. Prefabricated Junction Boxes may be substituted by the Contractor if approved by the Engineer. The junction boxes shall be adequately anchored to the parapet by means of an approved mechanical device. Junction Boxes shall not interfere with expansion joints.

Payment for Lighting items shown on the plans, including anchor bolts, anchor plates, nuts, washers, galvanized steel conduit, junction boxes, expansion fittings, and for all materials, labor, equipment, tools, and incidentals necessary to complete the work shall not be paid for directly, but shall be considered subsidiary to other bid items.

STATE OF ARKANSAS
Jose K. Joseph
REGISTERED PROFESSIONAL ENGINEER
No. 15634
JOSE K. JOSEPH
1/7/16

SHEET 13 OF 13

272'-0" CONTINUOUS COMPOSITE W-BEAM UNIT

ROUTE 49 SEC. 28

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: TRW DATE: 10-14-14 FILENAME: bbb0413_sl3.dgn
CHECKED BY: CAW DATE: 02-27-15 SCALE: NOT TO SCALE
DESIGNED BY: LLW DATE: 10-01-14

BRIDGE NO. 05945 DRAWING NO. 56900

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PLOTTED: 1/7/2016 12:08 SCALE: 2:1

Crafton, Tull & Associates Inc.	DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
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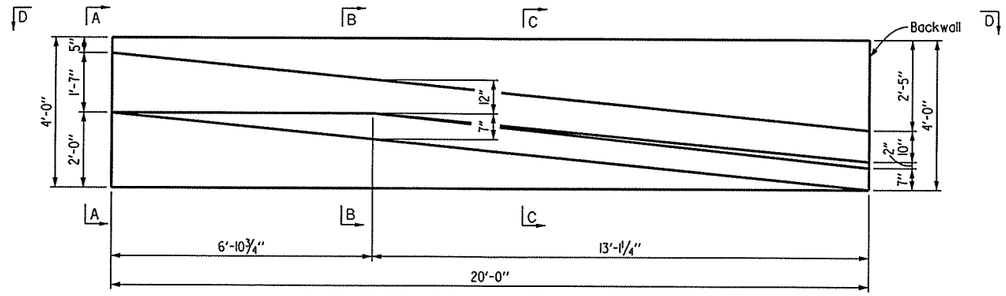
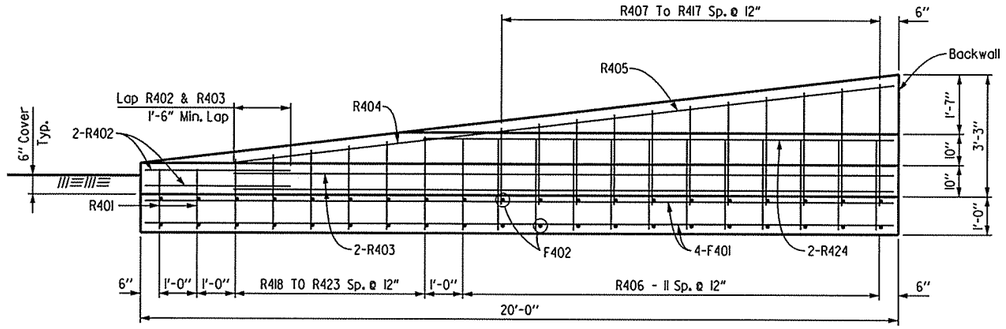
					JOB NO.		BB0413	104	160
					(1) 05945		TRANS. APPR. RAIL		56901



PLAN OF TRANSITIONAL APPROACH RAILING

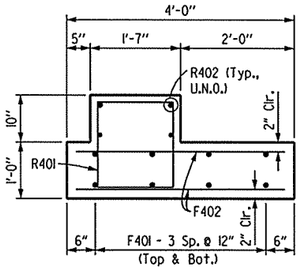
Note: Railings on opposite side are opposite hand to each other.

Scale: ½" = 1'-0"



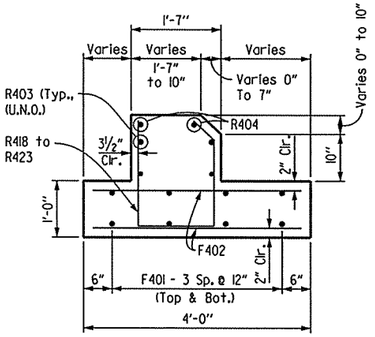
ELEVATION OF TRANSITIONAL APPROACH RAILING

Scale: ½" = 1'-0"



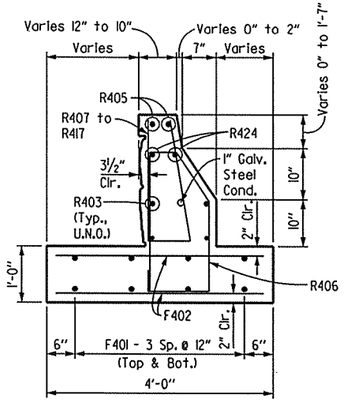
VIEW A - A

¾" = 1'-0"



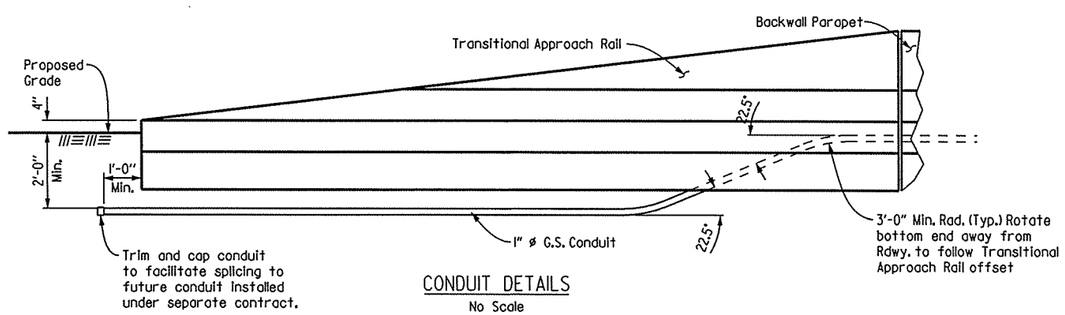
SECTION B - B

¾" = 1'-0"



SECTION C - C

¾" = 1'-0"



CONDUIT DETAILS

No Scale

FOR INFORMATION ONLY

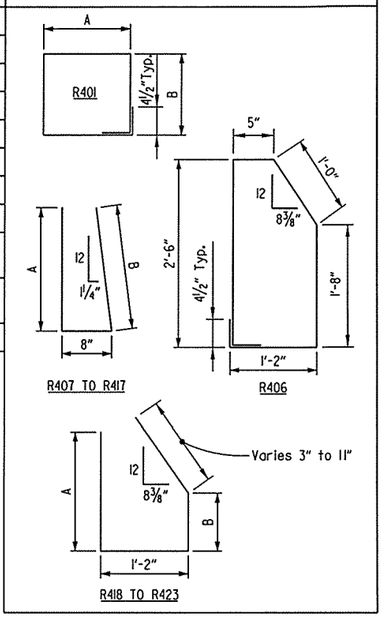
SCHEDULE OF QUANTITIES PER RAIL UNIT

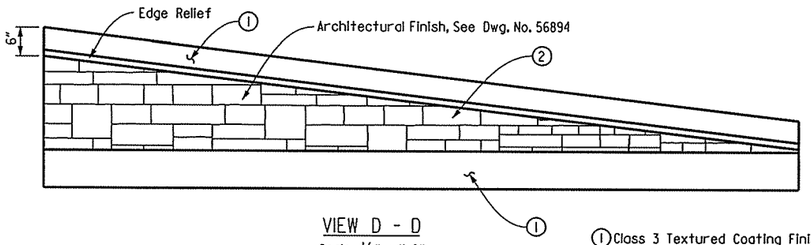
Class "S(AE)" Concrete	Reinforcing Steel (Grade 60)	Textured Coating Finish
4.8 Cu. Yds.	420 Lbs.	10 sq. yd.

BAR LIST - ONE TRANSITIONAL RAIL

Mark	No. Req'd.	Length	A	B	Pin Dia.
F401	8	19'-8"			Str.
F402	40	3'-8"			Str.
R401	2	5'-8"	1'-2"	1'-6"	2"
R402	4	4'-0"			Str.
R403	4	17'-10"			Str.
R404	2	4'-6"			Str.
R405	2	13'-0"			Str.
R406	12	7'-2"			2"
R407 to R417	1 Ea.	3'-5" to 6'-7"	1'-5" to 3'-0"	1'-5½" to 3'-0½"	2"
R418 to R423	1 Ea.	4'-5" to 5'-11"	1'-6½" to 2'-5"	1'-6½"	2"
R424	2	12'-11"			Str.

Bending Diagram
Dimensions Are Out To Out Of Bars.





VIEW D - D

Scale: ½" = 1'-0"

(1) Class 3 Textured Coating Finish (Color=Light Brown, Color Chip No. 33522)

(2) Class 3 Textured Coating Finish (Color=Medium Brown, Color Chip No. 30219)

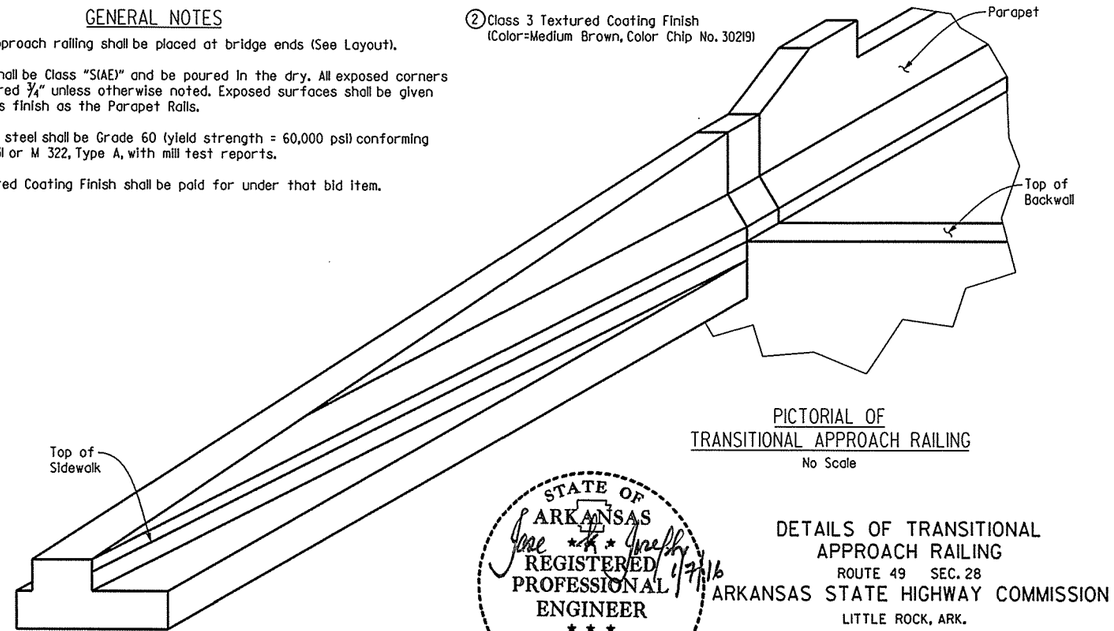
GENERAL NOTES

Transitional approach railing shall be placed at bridge ends (See Layout).

All concrete shall be Class "S(AE)" and be poured in the dry. All exposed corners to be chamfered ¾" unless otherwise noted. Exposed surfaces shall be given the same Class finish as the Parapet Rails.

All reinforcing steel shall be Grade 60 (yield strength = 60,000 psi) conforming to AASHTO M 31 or M 322, Type A, with mill test reports.

Class 3 Textured Coating Finish shall be paid for under that bid item.



PICTORIAL OF TRANSITIONAL APPROACH RAILING

No Scale

STATE OF ARKANSAS
Jose K. Joseph
REGISTERED PROFESSIONAL ENGINEER
No. 15634
JOSE K. JOSEPH
1/7/16

DETAILS OF TRANSITIONAL APPROACH RAILING
ROUTE 49 SEC. 28
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: TRM DATE: 10-14-14 FILENAME: bbb0413_sl4.dgn
CHECKED BY: CAW DATE: 02-27-15 SCALE: 1" = 1'-0"
DESIGNED BY: JKJ DATE: 10-01-14
BRIDGE NO. 05945 DRAWING NO. 56901

USER: bc5100
DESIGN FILE: G:\2103303_ElmSpringRd\TRANSPV\dgn\bridge\bbb0413_sl4.dgn
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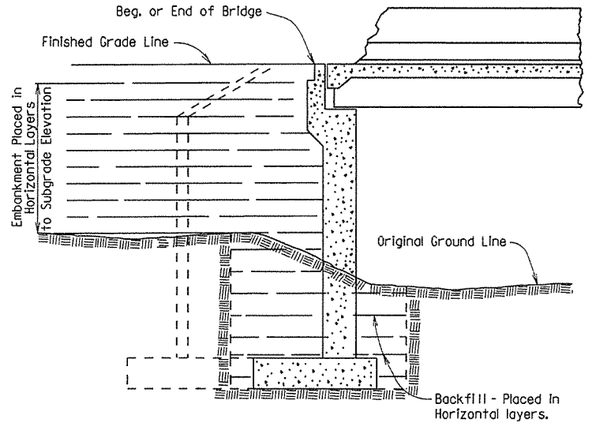
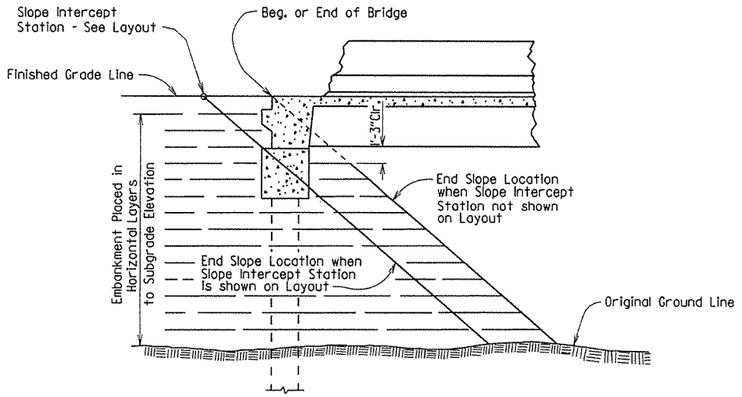
SCALE: 4:1

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		105	
				JOB NO.				

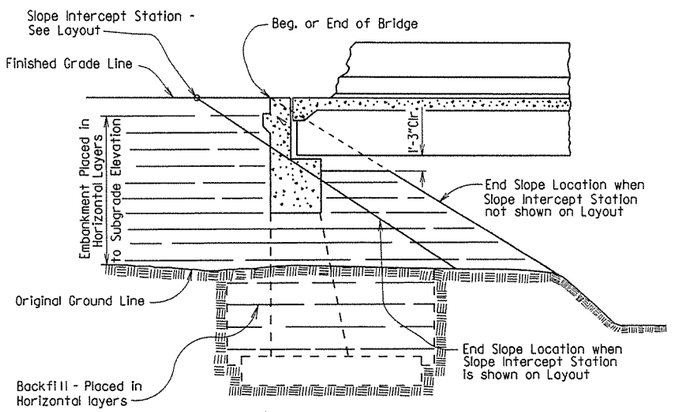
① EMBANKMENT & BACKFILL 55000



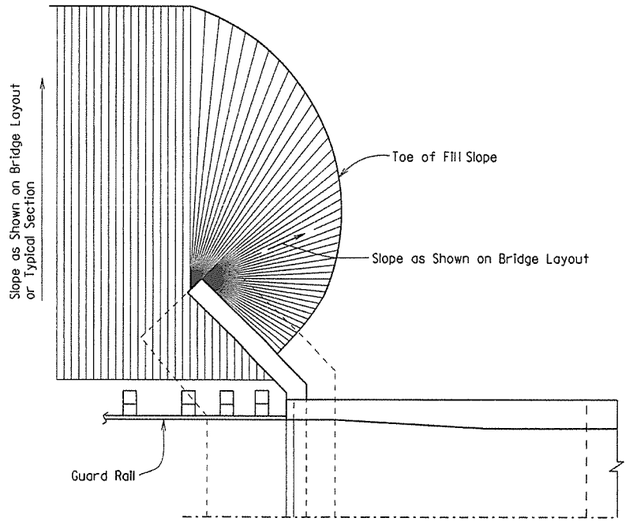
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT VERTICAL WALL ABUTMENTS



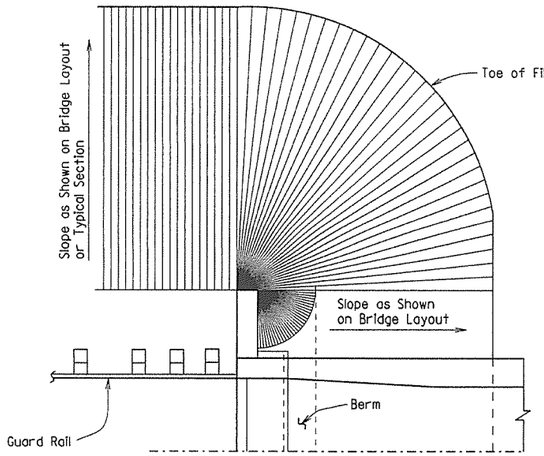
EMBANKMENT CONSTRUCTION AT SPILL-THROUGH PILE END BENTS



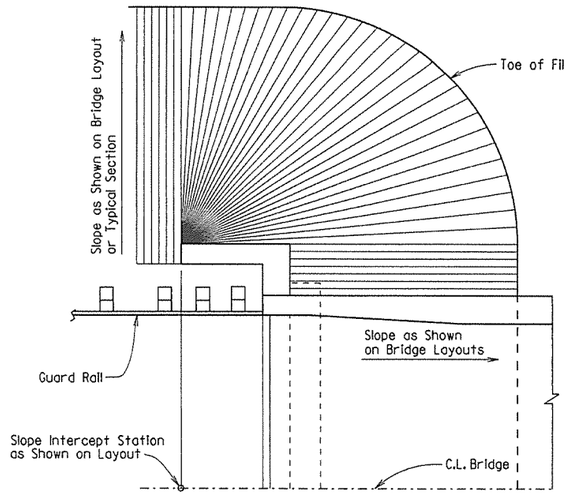
EMBANKMENT CONSTRUCTION AND FOOTING BACKFILL AT SPILL-THROUGH END BENTS



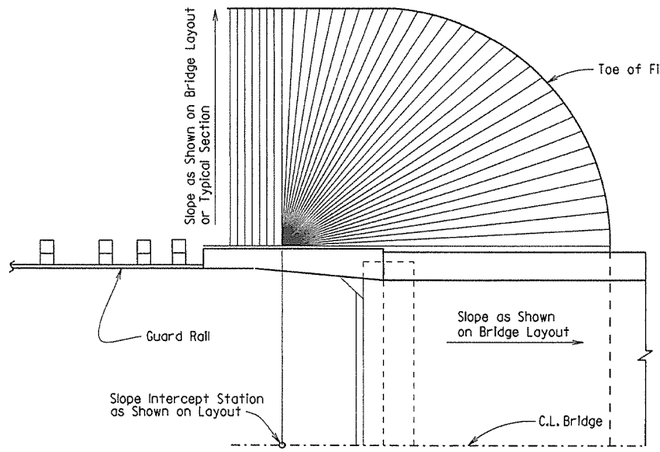
VERTICAL WALL ABUTMENTS



SPILL-THROUGH END BENTS WITH STUB WING



SPILL-THROUGH END BENTS WITH TURNBACK WING



SPILL-THROUGH END BENTS WITH TRANSITION WING

METHOD OF DETERMINING FILL SLOPE LOCATION AT BRIDGE ENDS

GENERAL NOTES

The Bridge End Embankment shall be defined as a section of embankment, not less than 20 feet long adjacent to the bridge end, together with the side slopes and slopes under the bridge end including around the end of wingwalls. Embankment adjacent to structures shall be constructed in 6 inch horizontal layers (loose measure) and compacted by the use of mechanical equipment to the satisfaction of the Engineer. Refer to Subsections 210.09, 210.10 and 801.08 for construction requirements.

STANDARD DETAILS FOR EMBANKMENT CONSTRUCTION AND BACKFILL AT BRIDGE ENDS

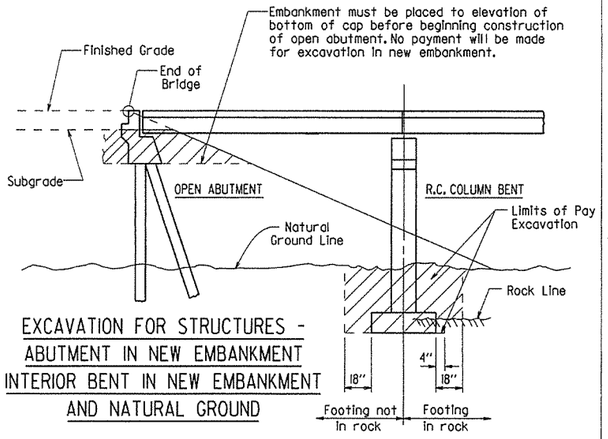
ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55000.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: -

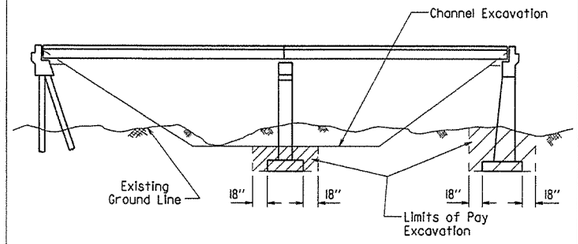
DRAWING NO. 55000

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		106	
				JOB NO.				

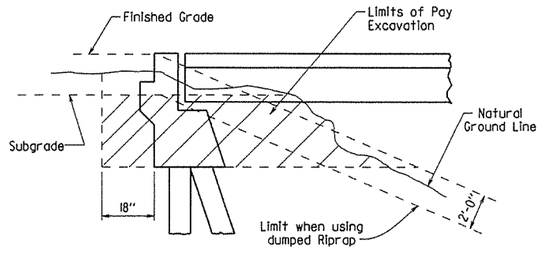
(1) RIPRAP & EXCAV. 55001



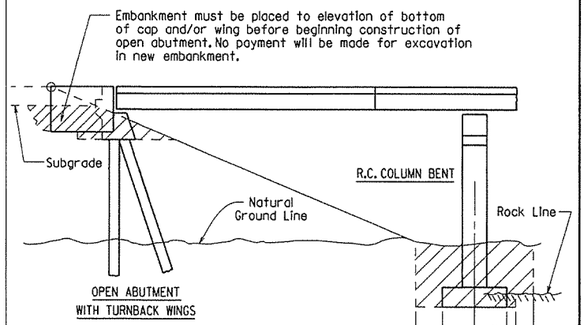
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NEW EMBANKMENT AND NATURAL GROUND



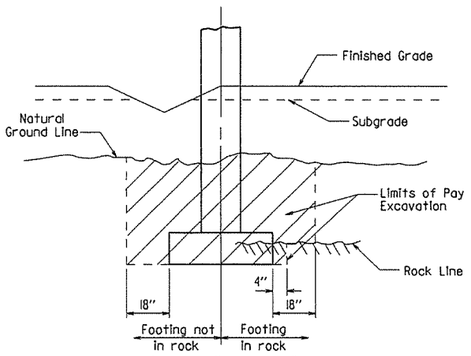
EXCAVATION FOR STRUCTURES - BRIDGE LOCATION WITH DESIGNATED CHANNEL CHANGE



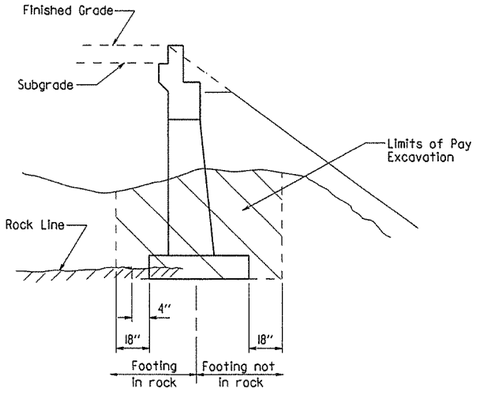
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND



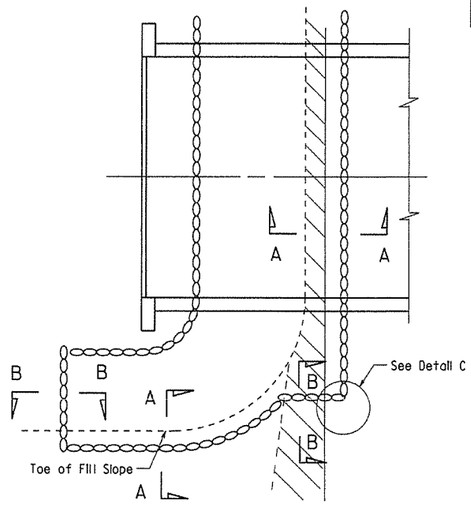
EXCAVATION FOR STRUCTURES - ABUTMENT IN NEW EMBANKMENT INTERIOR BENT IN NATURAL GROUND



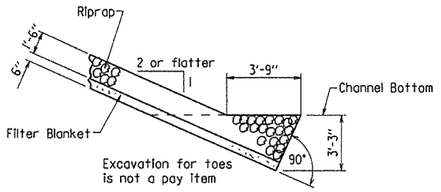
EXCAVATION FOR STRUCTURES - BENT IN ROADWAY FILL SECTION AND NATURAL GROUND



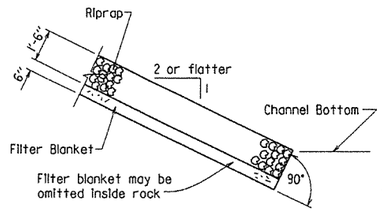
EXCAVATION FOR STRUCTURES - ABUTMENT IN NATURAL GROUND AND NEW EMBANKMENT



PLAN OF DUMPED RIPRAP



SECTION A-A
(Toe Excavation in Soil)

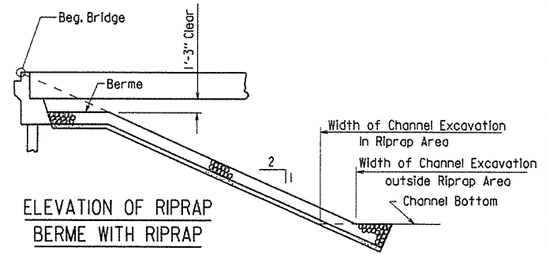


SECTION A-A
(Toe Excavation in Rock)

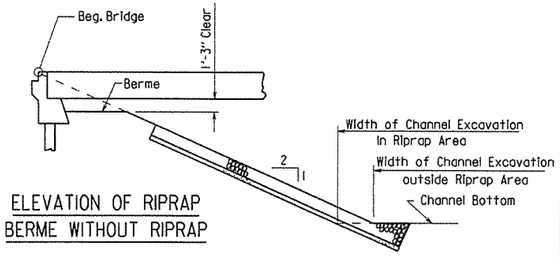
Note : Use this type of toe when rock is encountered which is in a stable condition.

Note : In lieu of an aggregate filter blanket, a synthetic fiber geotextile fabric complying with the requirements of Subsection 816.02(e) may be used.

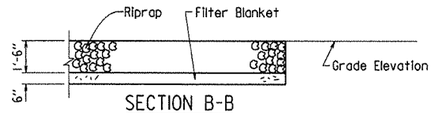
Note : Details for computing excavation for structures are included for information as to how plan quantities were calculated and for use when adjusting quantities when changing footing elevation.



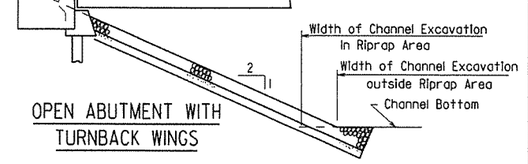
ELEVATION OF RIPRAP BERME WITH RIPRAP



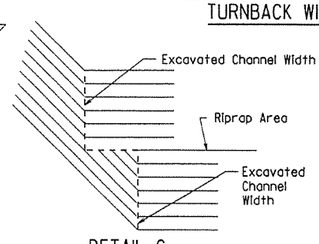
ELEVATION OF RIPRAP BERME WITHOUT RIPRAP



SECTION B-B



OPEN ABUTMENT WITH TURNBACK WINGS



DETAIL C

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

ARKANSAS STATE HIGHWAY COMMISSION

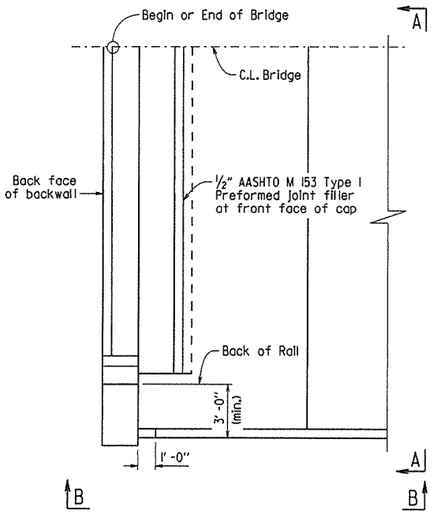
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014
CHECKED BY: BEF DATE: 2-27-2014
DESIGNED BY: STD. DATE:

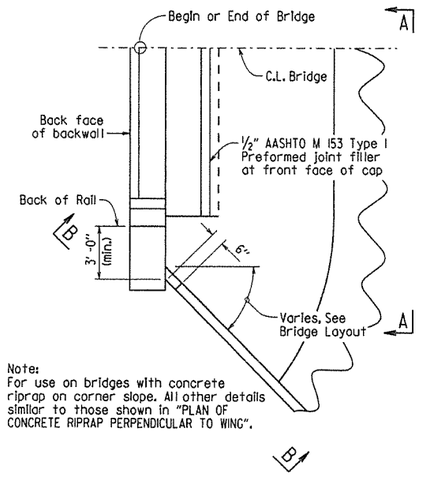
FILENAME: b55001.dgn
SCALE: NO SCALE

DRAWING NO. 55001

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



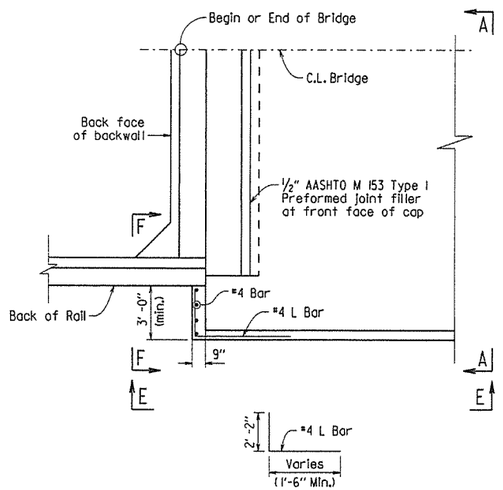
PLAN OF CONCRETE RIPRAP
PERPENDICULAR TO WING
¼" = 1'-0"



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

PLAN OF CONCRETE RIPRAP
AT ANGLE TO WING
¼" = 1'-0"

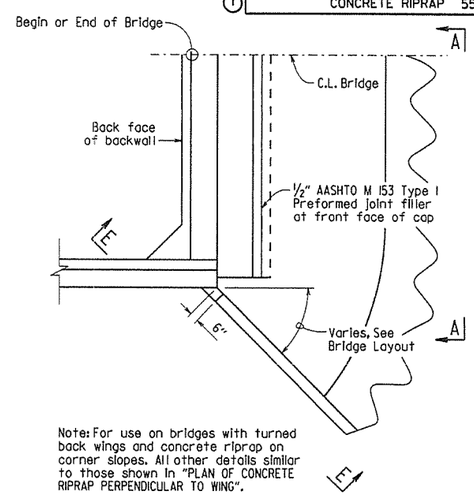
Note:
For use on bridges with turned back wings. All other details similar to those shown in "PLAN OF CONCRETE RIPRAP PERPENDICULAR TO WING".



PLAN OF CONCRETE RIPRAP
PERPENDICULAR TO TURNED BACK WING
¼" = 1'-0"

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		107	
				JOB NO.				

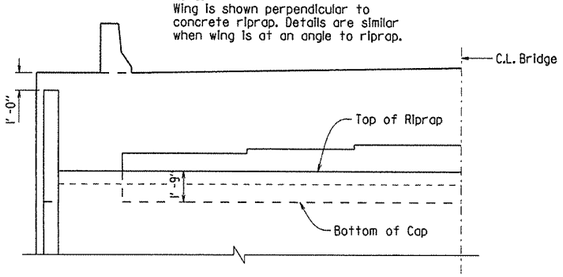
① CONCRETE RIPRAP 55002



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

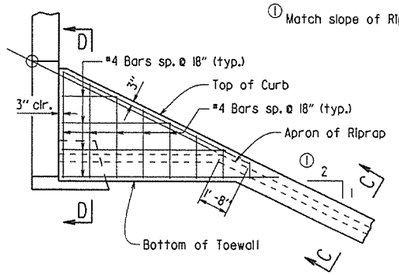
PLAN OF CONCRETE RIPRAP
AT ANGLE FROM TURNED BACK WING
¼" = 1'-0"

Note:
Wing is shown perpendicular to concrete riprap. Details are similar when wing is at an angle to riprap.

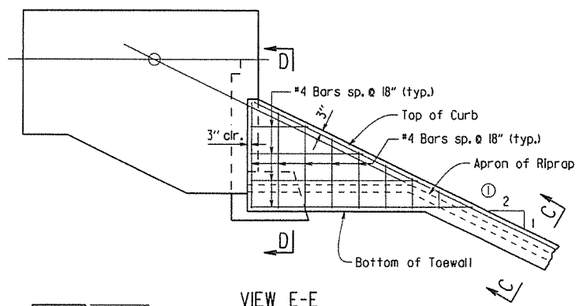


VIEW A-A
¼" = 1'-0"

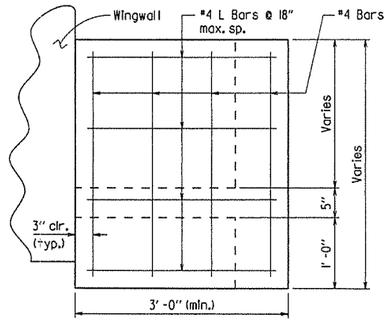
① Match slope of Riprap Apron.



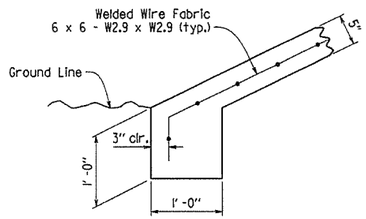
VIEW B-B
¼" = 1'-0"



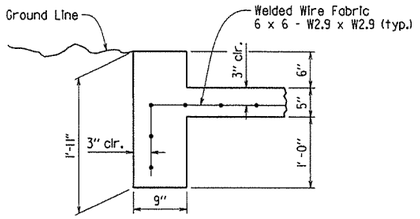
VIEW E-E
¼" = 1'-0"



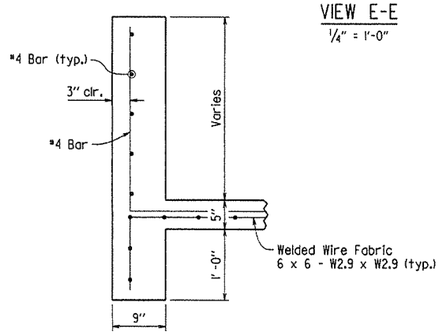
VIEW F-F
1" = 1'-0"



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



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



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

GENERAL NOTES

All concrete shall be Class A with a minimum compressive strength, f'c = 2,100 psi.

Welded wire fabric shall conform to AASHTO M55 or M221.

STANDARD DETAILS FOR CONCRETE RIPRAP

ARKANSAS STATE HIGHWAY COMMISSION

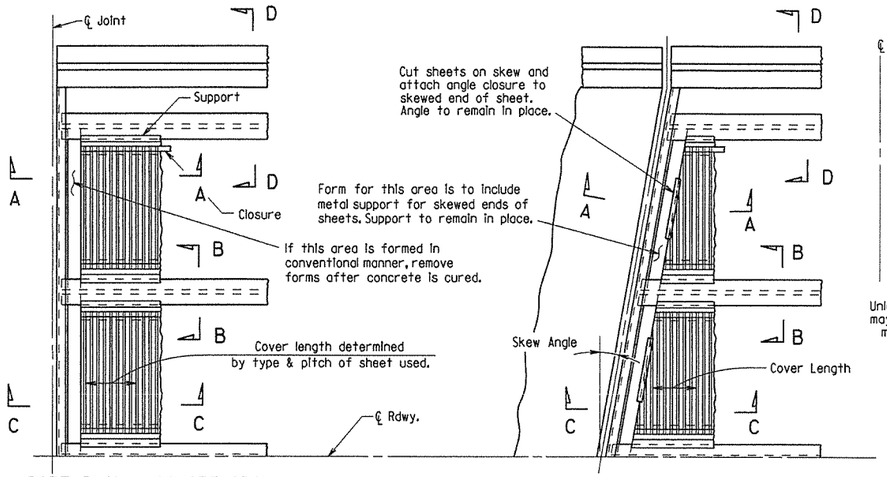
LITTLE ROCK, ARK.

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

DRAWING NO. 55002

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		108	
				JOB NO.				

① BRIDGE DECK FORMS 55005

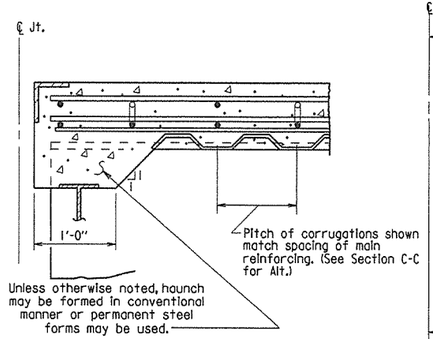


PART PLAN - SQUARE SPAN

3/8" = 1'-0"

PART PLAN - SKEWED SPAN

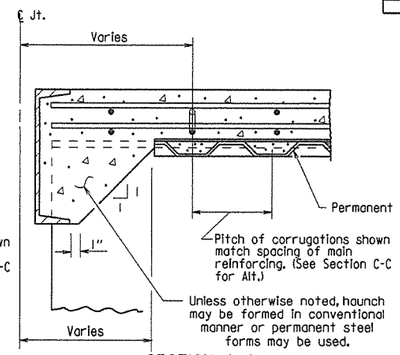
3/8" = 1'-0"



SECTION A-A

N.T.S.

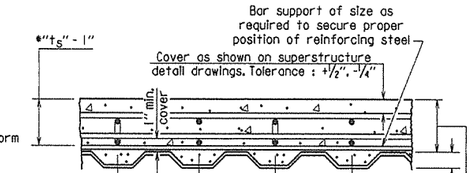
(Angle at end of span)



SECTION A-A

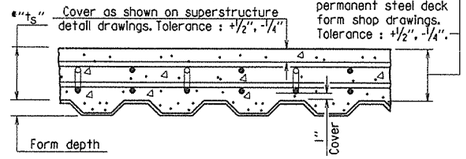
N.T.S.

(Channel at end of span)



SECTION C-C

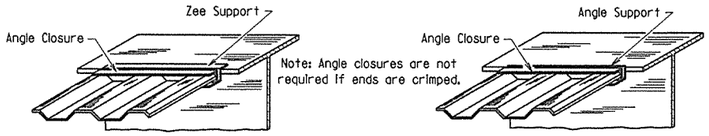
1" = 1'-0"



SECTION C-C - ALTERNATE

1" = 1'-0"

(Applicable when corrugations do not match spacing of main reinforcement)



SKETCH OF PERMISSIBLE SUPPORTS

N.T.S.

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

GENERAL NOTES

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

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

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

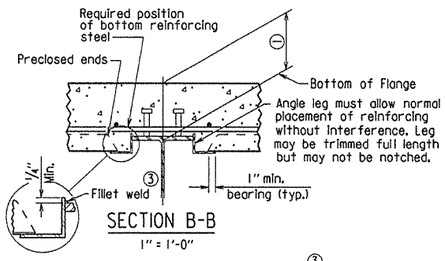
Form sheets shall be fastened to supporting members and to each other with galvanized metal screws sufficient in size and number to provide a secure attachment. Alternate methods of attachment must be approved by the Engineer.

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

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

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

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

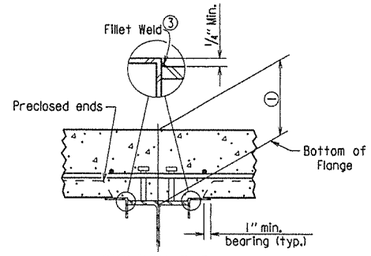


SECTION B-B

1" = 1'-0"

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

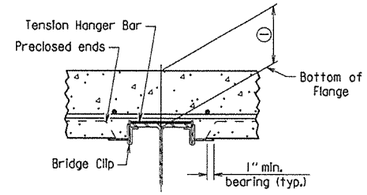
③ Minimum weld: 1/8" x 1' @ 18". More weld may be required; maximum length per weld = 1 1/2" (typ.)



SECTION B-B

1" = 1'-0"

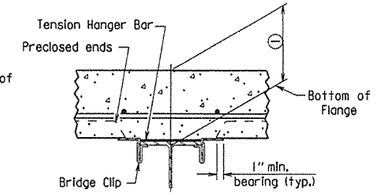
(Showing permissible support for tension flange where shear connectors are used and for all compression flanges)



SECTION B-B

1" = 1'-0"

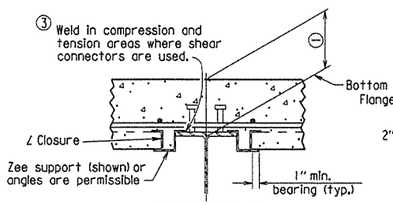
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

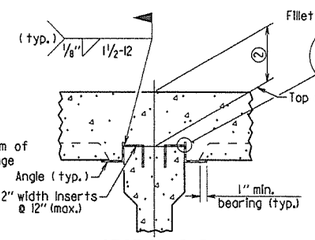
(Showing permissible support for tension flange where shear connectors are not used)



SECTION B-B

1" = 1'-0"

(Showing ∠ Closure)

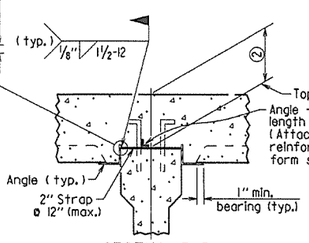


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by insert cast in girder)

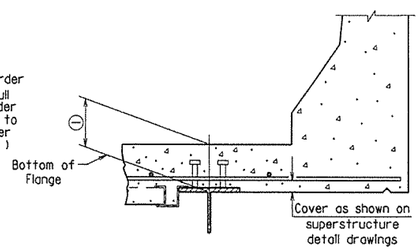


SECTION B-B

(FOR CONCRETE GIRDERS)

1" = 1'-0"

(Showing support by Strap)



SECTION D-D

1" = 1'-0"

Note: Only Bottom Reinforcing is shown.

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

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

STANDARD DETAILS FOR PERMANENT STEEL BRIDGE DECK FORMS FOR STEEL & CONCRETE GIRDER SPANS

ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55005.dgn

CHECKED BY: BEF DATE: 2-27-2014 SCALE: NONE

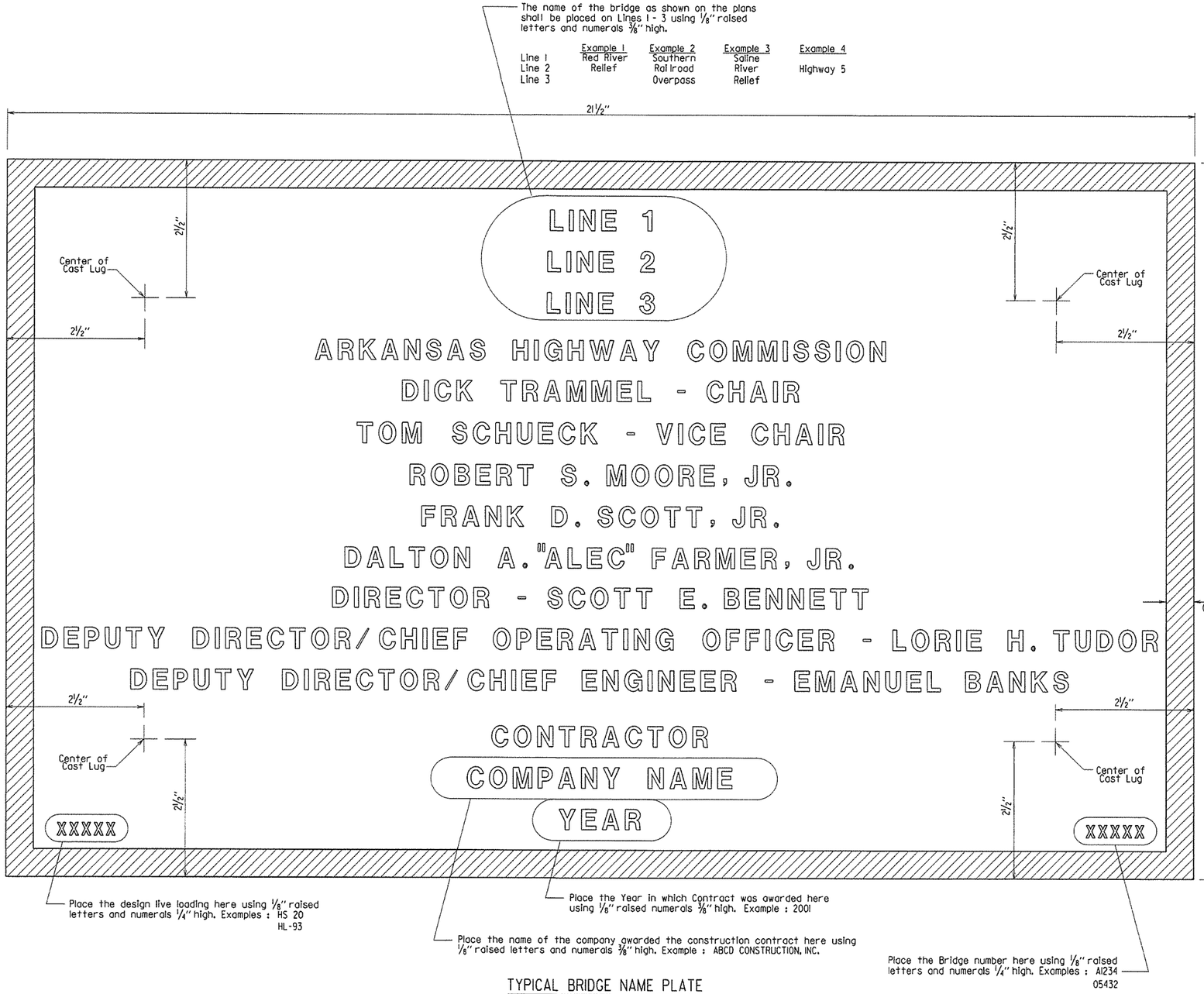
DESIGNED BY: STD. DATE: —

DRAWING NO. 55005

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
12-1-14				6	ARK.		109	
1-14-15				JOB NO.				
				① TYPE D NAME PLATE			55010	

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

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



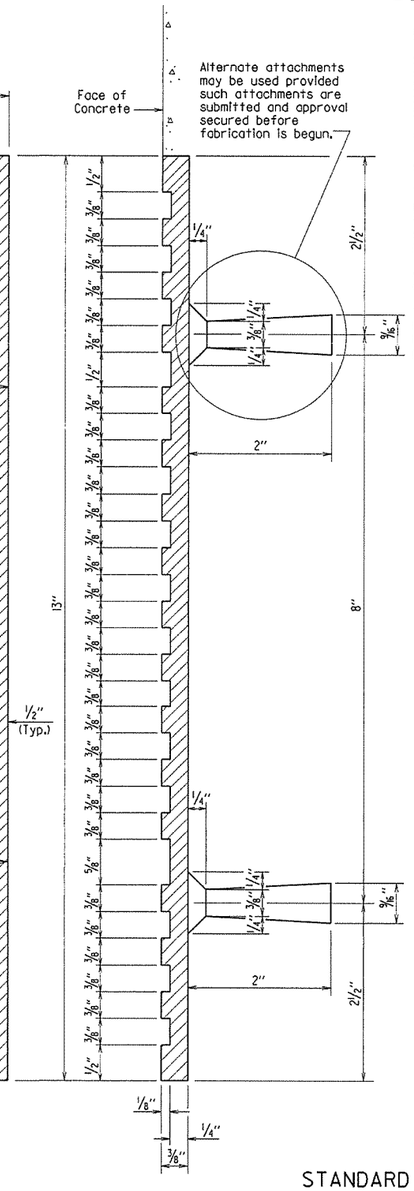
Place the design live loading here using 1/8" raised letters and numerals 1/4" high. Examples : HS 20
HL-93

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

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

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

TYPICAL BRIDGE NAME PLATE



GENERAL NOTES

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

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

Body of plate shall be 1/4" thick and shall include four tapering cone lugs 3/8" to 7/16" x 2" long. The border and all lettering shall be raised 1/8" above the face of plate and shall be polished.

All lettering shall be plain gothic, square cut and not tapered.

The number of plates required and the location and name on the plate for each bridge shall be as designated on the plans.

② Revised Chair and Vice Chair
Added New Commissioner
1-14-15 KDH Checked By: CRE

① Revised Deputy Director/
Chief Engineer
Added Deputy Director/
Chief Operating Officer
12-1-14 KDH Checked By: CRE

STANDARD DETAILS FOR
TYPE D BRIDGE NAME PLATE

ARKANSAS STATE HIGHWAY COMMISSION
LITTLE ROCK, ARK.

DRAWN BY: KDH DATE: 2-27-2014 FILENAME: b55010.dgn
CHECKED BY: BEF DATE: 2-27-2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: —

DRAWING NO. 55010

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.		110	
				JOB NO.				
				①		STEEL H-PILES		55020

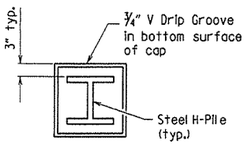
GENERAL NOTES FOR STEEL H-PILES:

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

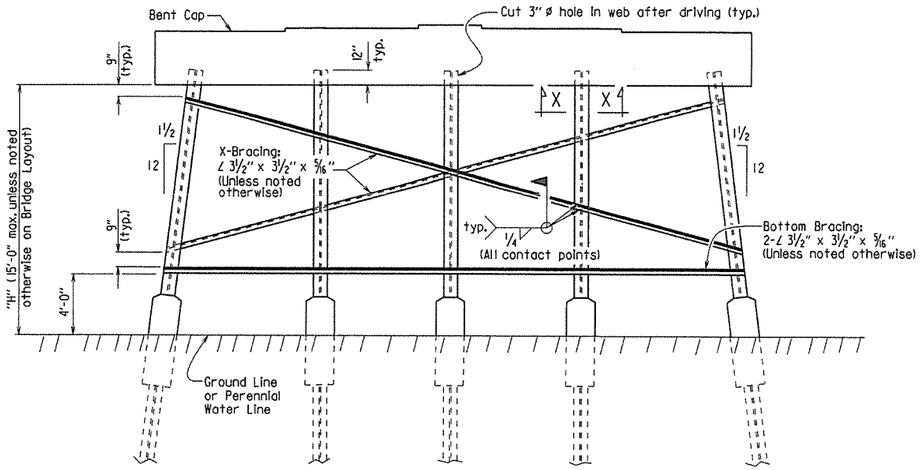
See Bridge Layout and Bent Details for pile size, estimated length, spacing, pile anchorage (if required) and for driving information.

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

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



VIEW X-X



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

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

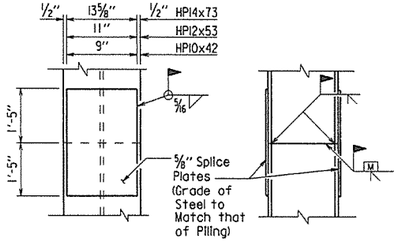
Omit X-Bracing and Bottom Bracing when "H" is 5 feet or less.

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

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

TYPICAL DETAILS OF H-PILE TRESTLE INTERMEDIATE BENT

(Shown with Partial Height Encasement)

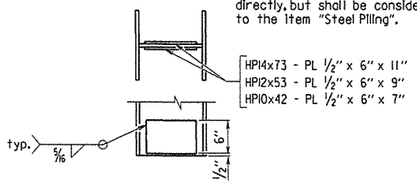


Note:
The Contractor may for his own convenience and at his own expense provide as many as three splices per pile. Minimum spacing between splices shall be 5 feet.

TYPICAL SPLICE DETAILS

Notes:
Steel pile tip reinforcing not required when approved H-Pile driving points are used.

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



REINFORCING DETAIL FOR STEEL H-PILE TIP

GENERAL NOTES FOR H-PILE ENCASEMENTS:

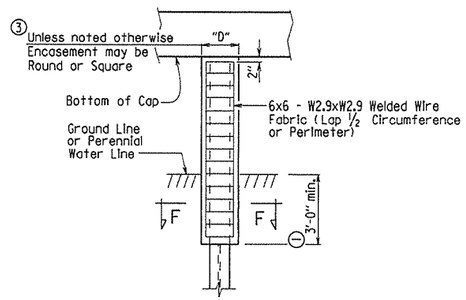
See Bridge Layout for additional notes and required location of pile encasements.

All concrete shall be Class S with a minimum 28-day compressive strength, f'c = 3,500 psi. If concrete cannot be placed in the dry, Seal Concrete may be used from top to bottom of encasement.

Reinforcing steel shall be Grade 60 conforming to AASHTO M 31 or M 322, Type A.

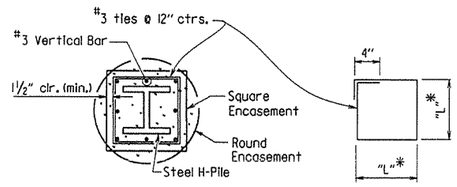
Welded Wire Fabric shall conform to AASHTO M 55 or M 221. Galvanized Corrugated Steel Pipe shall conform to AASHTO M 36 and M 218.

Concrete, welded wire fabric or reinforcing steel and galvanized pipe shall not be paid for directly, but shall be considered subsidiary to the item "Pile Encasement".



PILE ENCASEMENT DETAIL FOR STEEL H-PILES

④ (Shown with Encasement to Bottom of Cap)

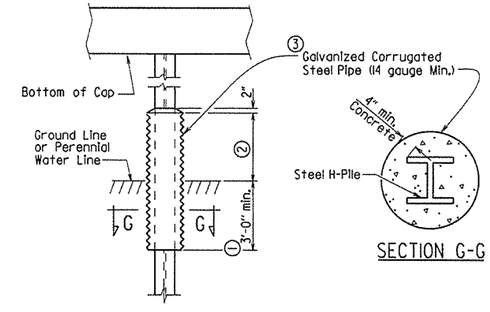


SECTION F-F

*Measured out-to-out of bar.

TABLE OF VARIABLES FOR PILE ENCASEMENT

Pile Size	"D" Square Encsmt.	"D" Round Encsmt.	"L"*
HPI0x42	1'-7"	2'-0"	1'-4"
HPI2x53	1'-8"	2'-2"	1'-5"
HPI4x73	1'-11"	2'-6"	1'-8"



SECTION G-G

⑤ ALTERNATE PILE ENCASEMENT DETAIL FOR STEEL H-PILES

(Shown with Partial Height Encasement)

① Unless otherwise noted on Bridge Layout.

② 3'-0" minimum or as shown on Bridge Layout.

③ Encasement dimensions shall be sized to maintain a minimum concrete cover of 4" from the H-Pile. Reinforcement shall be sized to provide a minimum concrete cover of 1½" and a minimum clearance of 1¼" from the pile.

④ Alternate pile encasement, when not extended to bottom of cap, shall have 2" concrete taper for water runoff as shown in the Partial Height Encasement detail.

⑤ Alternate pile encasement may not be allowed. See Bridge Layout.

This document was originally issued and sealed by Carl J. Fuselier, PE No. 7510, on February 27, 2014. This copy is not a signed and sealed document.

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

BRIDGE ENGINEER

STANDARD DETAILS FOR STEEL H-PILES AND PILE ENCASEMENTS

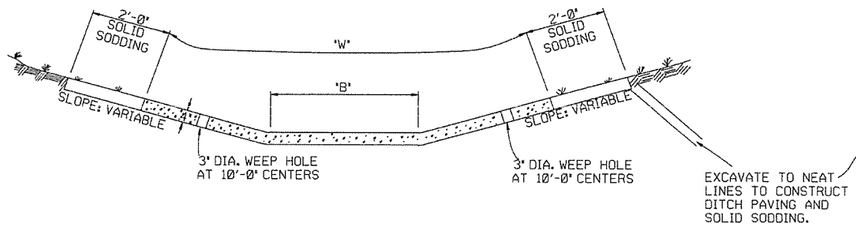
ARKANSAS STATE HIGHWAY COMMISSION

LITTLE ROCK, ARK.

DRAWN BY: A.M.S. DATE: 2/27/2014 FILENAME: b55020.dgn
CHECKED BY: B.E.F. DATE: 2/27/2014 SCALE: NO SCALE
DESIGNED BY: STD. DATE: —

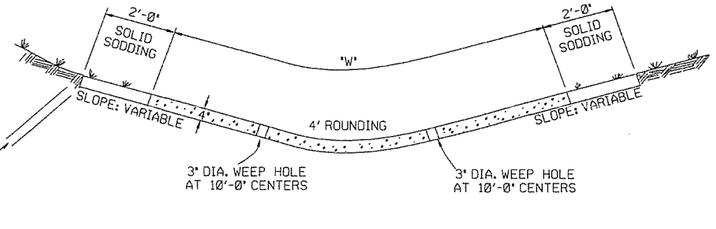
DRAWING NO. 55020

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



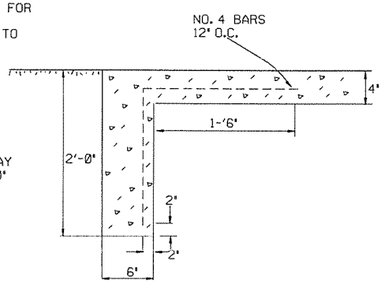
TYPE A

REFER TO TABULATION OF QUANTITIES FOR 'W' DIMENSIONS



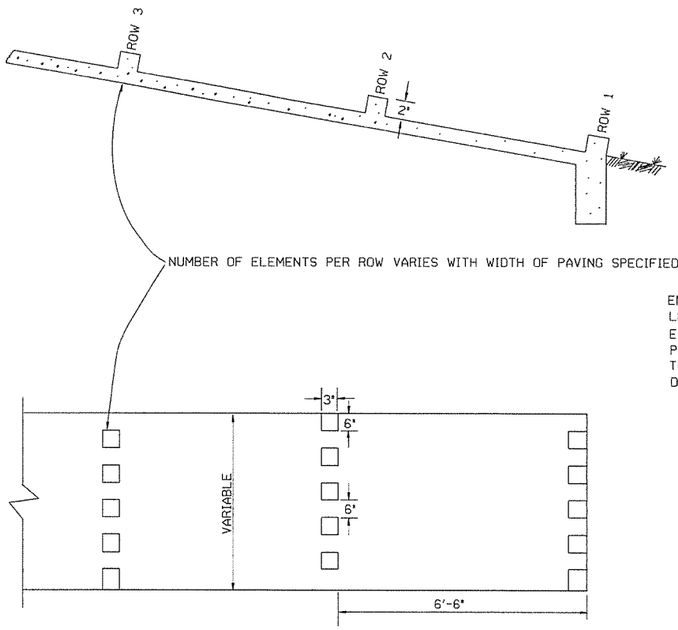
TYPE B

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.

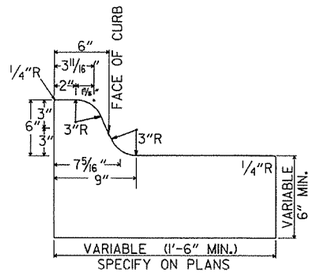
1" WIDE TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE DITCH PAVING AT 45' INTERVALS. THE SPACE SHALL BE FILLED WITH APPROVED JOINT FILLER COMPLYING WITH AASHTO M213.

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
DATE	REVISION	DATE FILM'D

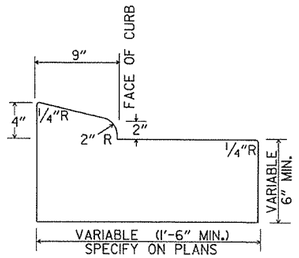
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE DITCH PAVING

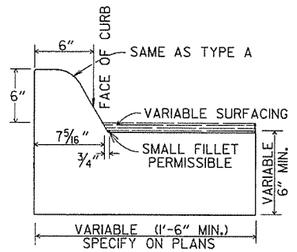
STANDARD DRAWING CDP-1



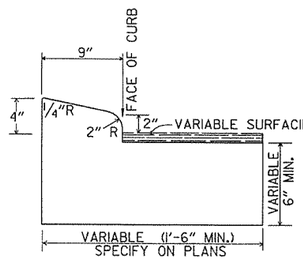
TYPE A



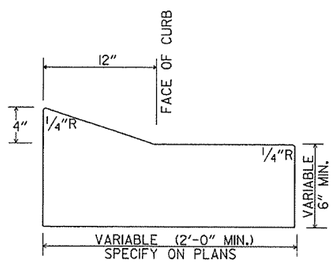
TYPE B-1



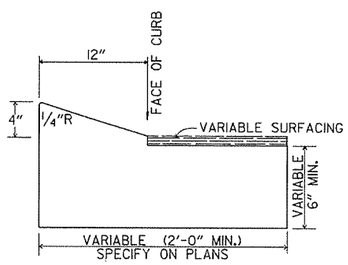
TYPE C



TYPE B-2

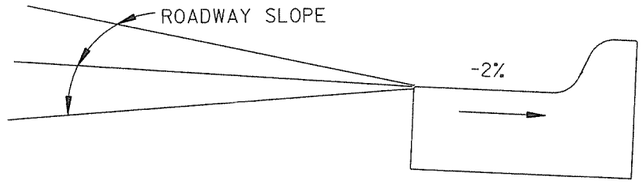


TYPE E-1



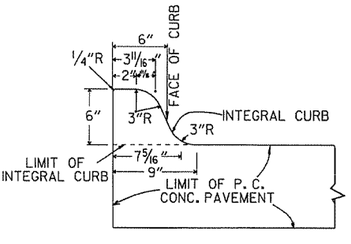
TYPE E-2

CONCRETE COMBINATION CURB AND GUTTER

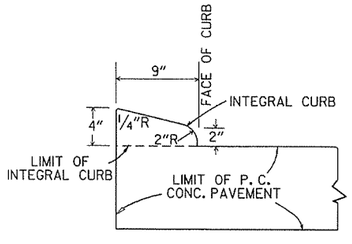


DETAIL OF GUTTER SLOPE

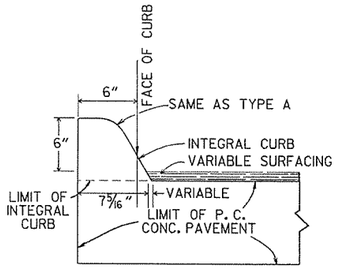
GUTTER SHALL BE CONSTRUCTED ON 2% SLOPE AWAY FROM ROADWAY, REGARDLESS OF ROADWAY SLOPE.



TYPE A

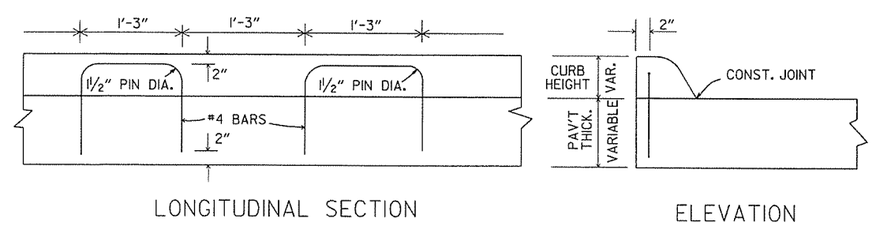


TYPE B



TYPE C

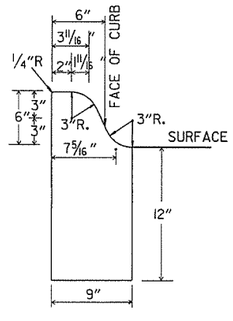
INTEGRAL CURB



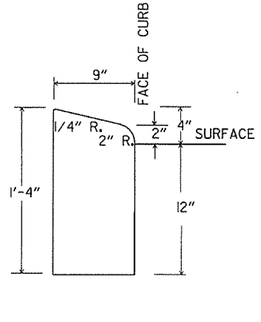
LONGITUDINAL SECTION

ELEVATION

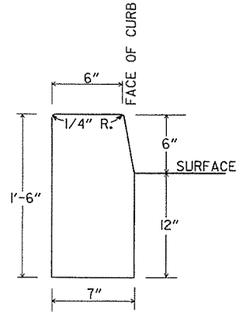
ALTERNATE CONSTRUCTION METHOD FOR INTEGRAL CURB



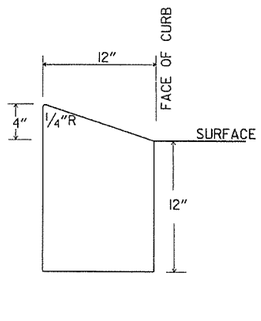
TYPE A



TYPE B

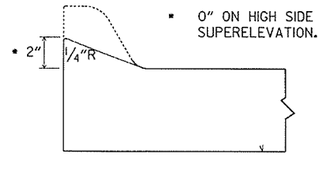


TYPE D



TYPE E

CONCRETE CURB



NOTE: USE MODIFIED CURB AS SPECIFIED ON STD. DR-1. COMPENSATION FOR MODIFIED CURB WILL BE CONSIDERED INCLUDED IN THE PRICE BID FOR THE TYPE OF CURB OR CURB AND GUTTER SPECIFIED.

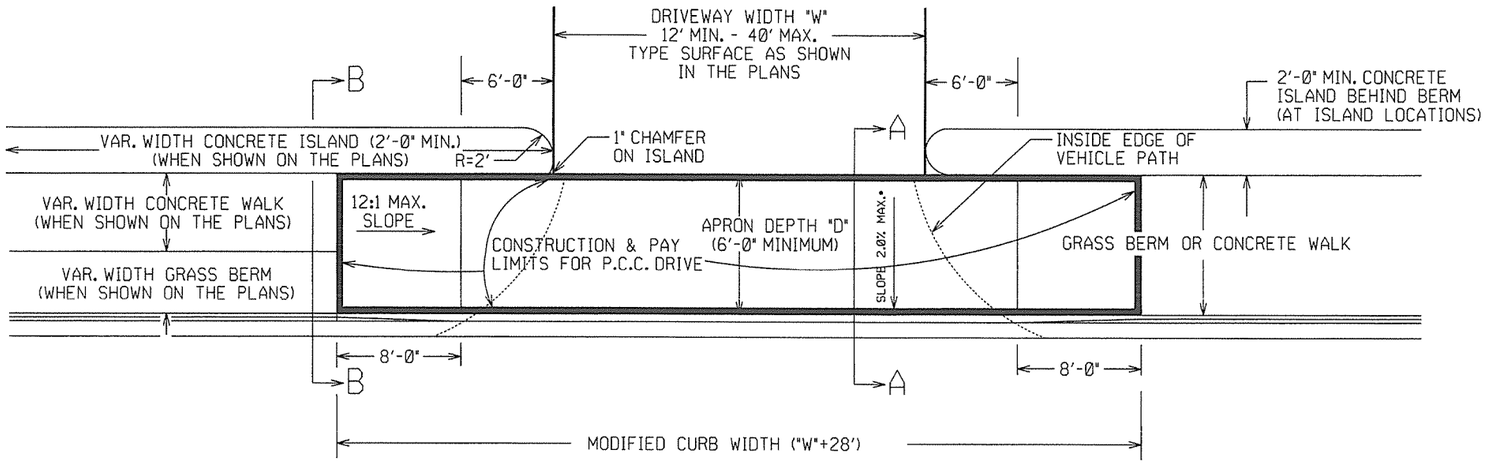
DETAILS OF MODIFIED CURB

DATE	REVISION	DATE FILMED
11-29-07	REVISED GUTTER SLOPE & MODIFIED CURB DETAILS	
11-10-05	ADDED DETAILS OF TYPE E CURBS	
11-16-01	REVISED CONCRETE CURB TYPE B	
11-18-98	REVISED MODIFIED CURB	
6-2-94	ADDED NOTE TO SPECIAL MODIFIED CURB	
8-5-93	CORRECTED GUTTER SLOPE	8-5-93
10-1-92	ADDED DETAILS OF GUTTER SLOPE	10-1-92
5-24-90	ADDED DETAILS OF MODIFIED CURB	5-24-90
11-30-89	VARIBLE DEPTH TYPE A & B I	11-30-89
7-15-88	REVISED MODIFIED CURB	630-7-15-88
11-1-73	REVISED MODIFIED CURB	500-11-1-73
10-2-72	REVISED AND REDRAWN	512-10-2-72

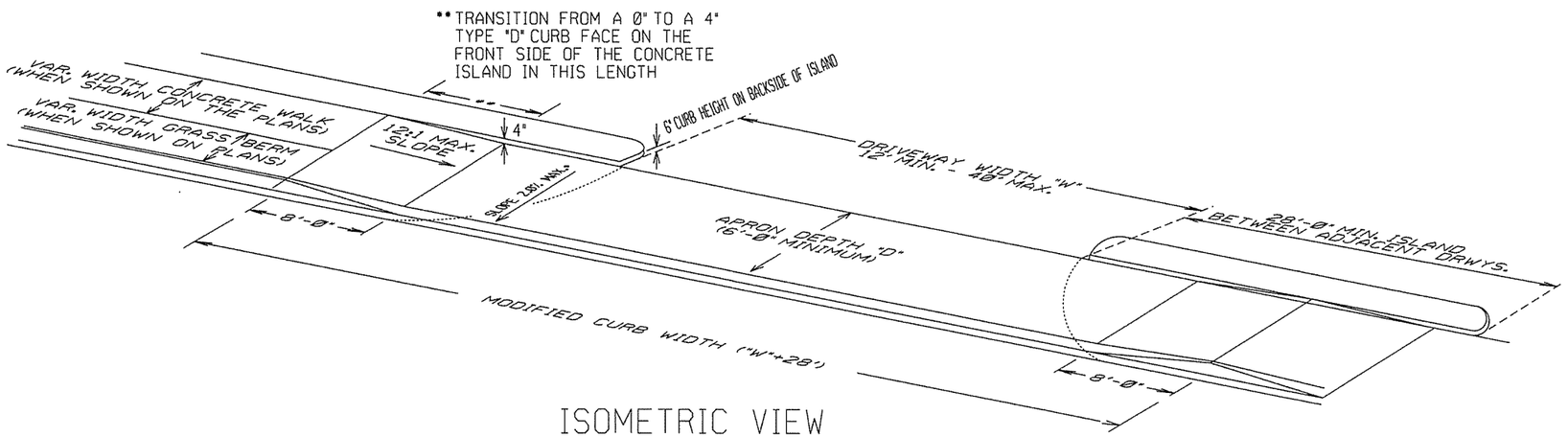
ARKANSAS STATE HIGHWAY COMMISSION

CURBING DETAILS

STANDARD DRAWING CG-1

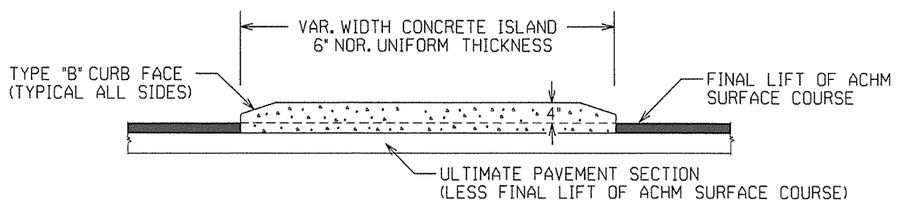


PLAN VIEW

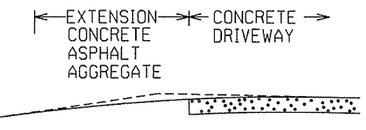


ISOMETRIC VIEW

REFER TO PLANS FOR TYPE OF CURB FACE TO BE USED. NO DIRECT PAYMENT WILL BE MADE FOR THE CURB FACES SHOWN ON THE ISLAND DETAILS. PAYMENT FOR THE CURB FACE WILL BE INCLUDED IN THE UNIT PRICE BID FOR THE ITEM "CONCRETE ISLAND".



CURBED ISLANDS FOR CHANNELIZATION



EXTENSION TYPICAL SECTIONS

1: CONCRETE - 6" P.C. CONCRETE DRIVEWAY

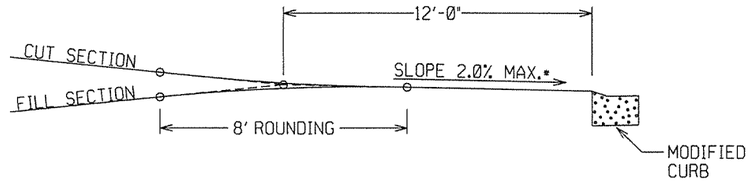
2: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
4" ACHM BINDER COURSE.(1") OR
4" ACHM BASE COURSE (1-1/2")

3: ASPHALT - 2" ACHM SURFACE COURSE (1/2")
7" AGGREGATE BASE COURSE

4: AGGREGATE - 6" AGGREGATE BASE COURSE

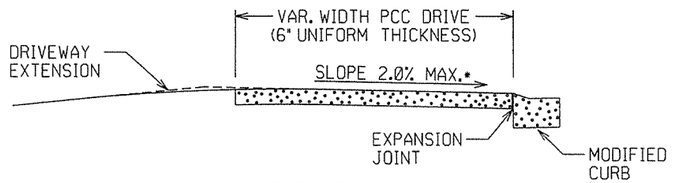
THE TYPE OF EXTENSION SHALL BE AS SHOWN IN THE PLANS. THE CONTRACTOR MAY, WITH THE APPROVAL OF THE ENGINEER, SUBSTITUTE A LOWER NUMBERED TYPE OF EXTENSION IN LIEU OF THE TYPE SPECIFIED IN THE PLANS, BUT AT NO ADDITIONAL COST TO THE DEPARTMENT.

DRIVEWAY EXTENSION DETAILS

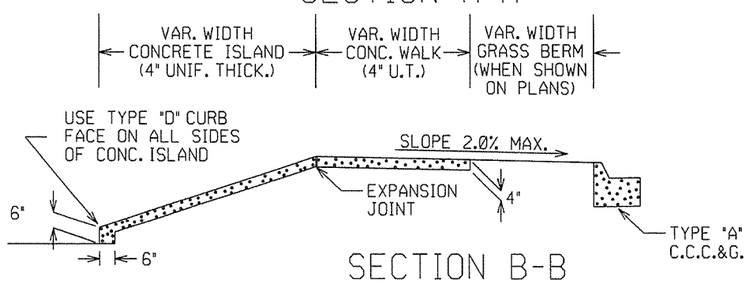


DRIVEWAY VERTICAL ALIGNMENT DETAILS

* NOTE: DRIVEWAYS MAY NOT BE SLOPED AWAY FROM THE ROADWAY UNLESS APPROVED BY THE ENGINEER.



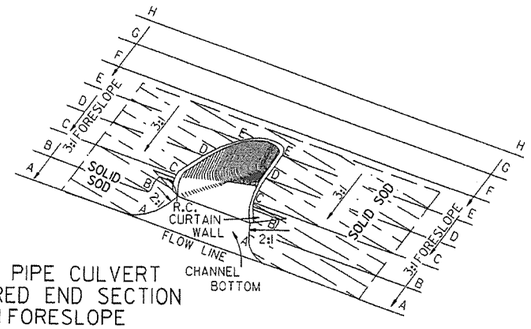
SECTION A-A



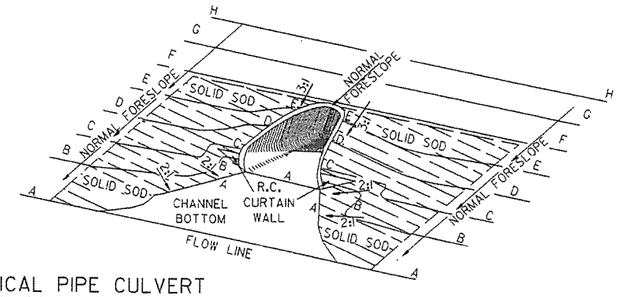
SECTION B-B
CURBED ISLAND BEHIND WALK

DATE REV	DATE FILMED	DESCRIPTION
2-27-14		REVISED PLAN & ISOMETRIC VIEW
11-29-07		ADDED CHANNELIZATION ISLAND WITH TYPE C CURB FACE & REVISED DRIVEWAY SLOPE NOTE & VERTICAL ALIGNMENT DETAIL
11-10-05		REV. APRON SLOPE & DEPTH OF AGG. BASE.
8-22-02		ADDED ISLAND DETAILS & NOTES
3-30-00		REV. MOD. CURB WIDTH & TRANS. NOTE
11-19-98		REVISED NOTES
11-18-98		REDRAWN AND REISSUED

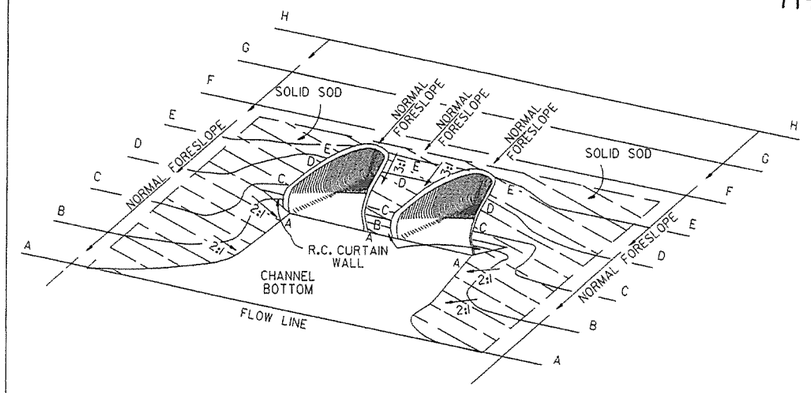
ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF DRIVEWAYS & ISLANDS
STANDARD DRAWING DR-1



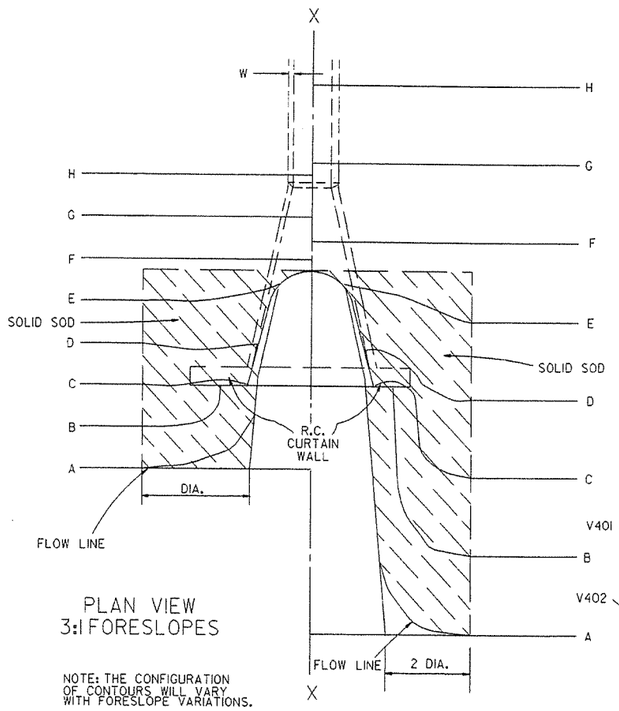
TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& 3:1 FORESLOPE



TYPICAL PIPE CULVERT
WITH FLARED END SECTION
& FLATTENED ADJACENT SLOPES



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



PLAN VIEW
3:1 FORESLOPES

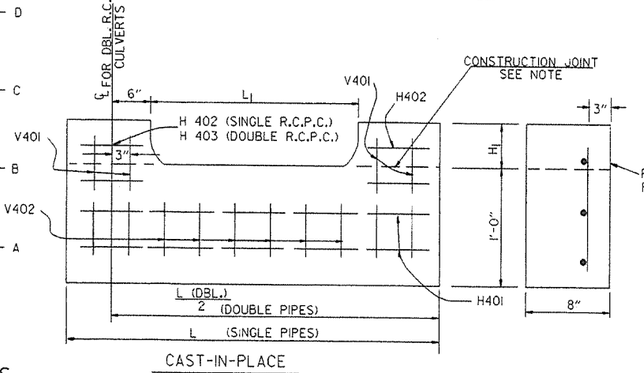
NOTE: THE CONFIGURATION OF CONTOURS WILL VARY WITH FORESLOPE VARIATIONS.

PLAN VIEW
FLATTENED FORESLOPES

R.C. CURTAIN WALL DIMENSIONS & QUANTITIES

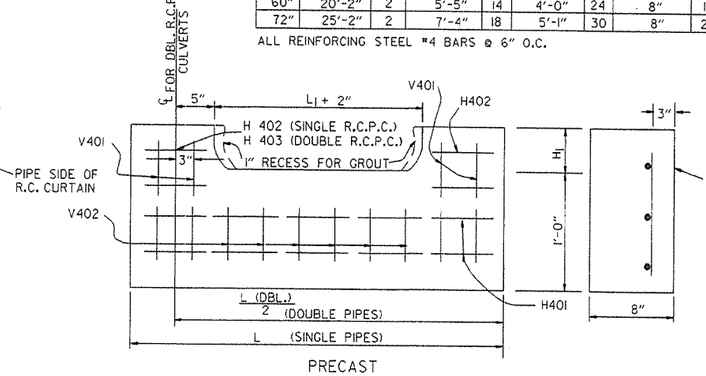
PIPE DIA.	H_1	L_1	L	L (DBL.)/2	SINGLE R.C.P.C. CONC.	SINGLE R.C.P.C. REINF. STEEL	DOUBLE R.C.P.C. CONC.	DOUBLE R.C.P.C. REINF. STEEL
					CU. YDS.	LBS.	CU. YDS.	LBS.
18"	11½"	3'-5"	8'-0"	6'-3"	0.31	27.7	0.45	39.5
24"	1'-0½"	4'-6"	9'-6"	7'-6"	0.37	33.4	0.53	48.0
30"	1'-3½"	5'-7"	11'-0"	9'-0"	0.45	39.0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



CAST-IN-PLACE

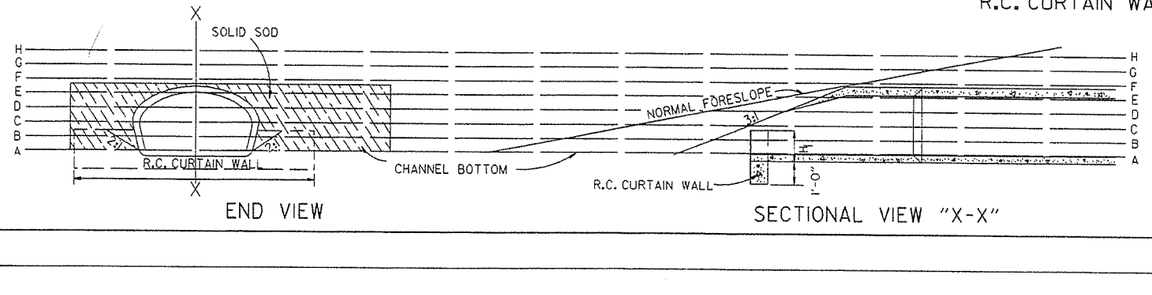
NOTE: THE PORTION OF THE R.C. CURTAIN WALL BENEATH THE FLARED END SECTION (LOWER 1'-0") SHALL BE PLACED MONOLITHICALLY. THE FLARED END SECTION SHALL THEN BE SET IN PLACE & THE REMAINING PORTIONS OF THE R.C. CURTAIN WALL PLACED.



PRECAST

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

R.C. CURTAIN WALL DETAILS



END VIEW

SECTIONAL VIEW "X-X"

REINFORCING STEEL SCHEDULE

PIPE DIA.	SINGLE R.C. PIPE CULVERT H401 L	NO.	H402 L	NO.	V401 L	NO.	V402 L	NO.	DOUBLE R.C. PIPE CULVERT H401 L	NO.	H402 L	NO.	H403 L	NO.	V401 L	NO.	V402 L	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.

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

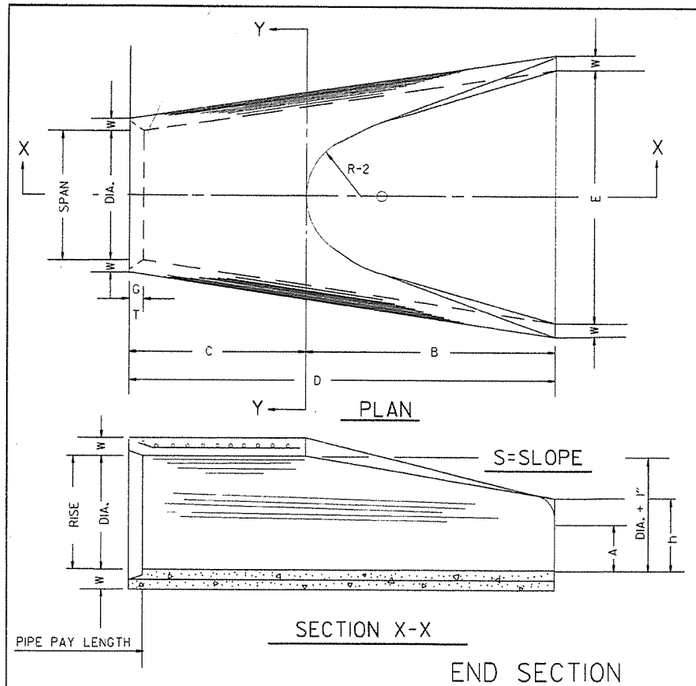
1. A CAST-IN-PLACE OR PRECAST CURTAIN WALL MAY BE USED. PAYMENT FOR THE CURTAIN WALL SHALL BE CONSIDERED TO BE INCLUDED IN THE UNIT PRICE BID EACH FOR FLARED END SECTIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIALS INCLUDING REINFORCING STEEL AND CONCRETE: 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 W/10 x W10 MAY BE USED IN LIEU OF REINFORCING BARS.

DATE	REVISION	FILMED
10-18-96	ADDED NOTE TO SOLID SODDING	10-18-96
10-12-95	CORRECTED SPELLING	
11- 3-94	ADDED GENERAL NOTE NO. 4	
8-15-91	REV. CURTAIN WAL. 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

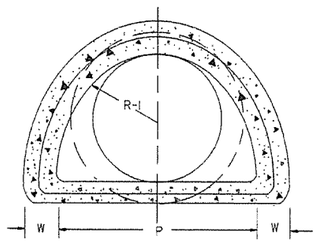
STANDARD DRAWING FES-1



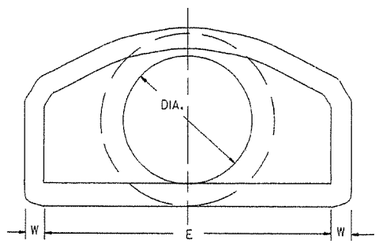
END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS

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"	33 3/16"	16 5/16"	14"	2½"	1600	1'-1½"
30"	3½"	1'-0"	4'-6"	1'-7 3/4"	6'-1 3/4"	5'-0"	3:1	31"	37"	18½"	15"	3¼"	1940	1'-4 5/8"
36"	4"	1'-3"	5'-3"	2'-10 1/4"	8'-1 1/4"	6'-0"	3:1	37"	47 11/16"	24 5/16"	20"	3½"	4100	1'-8"
42"	4½"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	53 1/8"	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"	33 1/8"	24"	4"	8750	2'-10½"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72½"	36 11/16"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77 13/16"	38 15/16"	24"	5"	13250	4'-6"



SECTION Y-Y



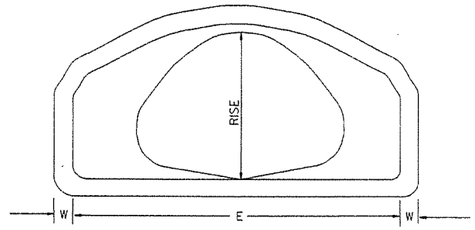
END VIEW

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

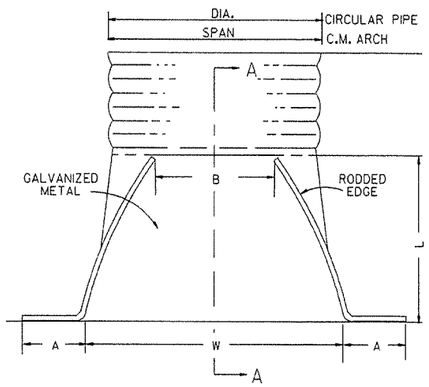
ARCH PIPE

EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½:1
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅛"	13"	2½"	2½:1
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅛"	14"	2½"	2½:1
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36 11/16"	15"	2½"	2½:1
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47 11/16"	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	31 3/16	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½:1
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70 5/16"	24"	4¼"	2½:1
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72 1/16"	24"	4¾"	2¼:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 13/16"	24"	5"	2¼:1

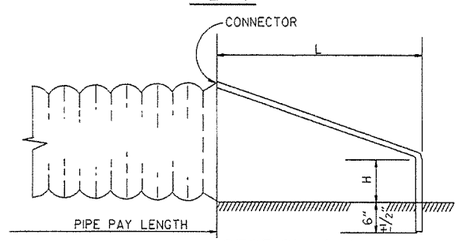
• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.



END VIEW
CONCRETE ARCH PIPE

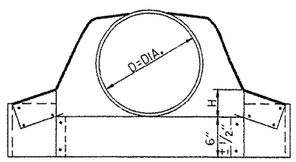


PLAN

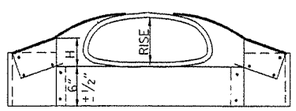


SECTION A-A

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



CIRCULAR PIPE



C.M. ARCH PIPE

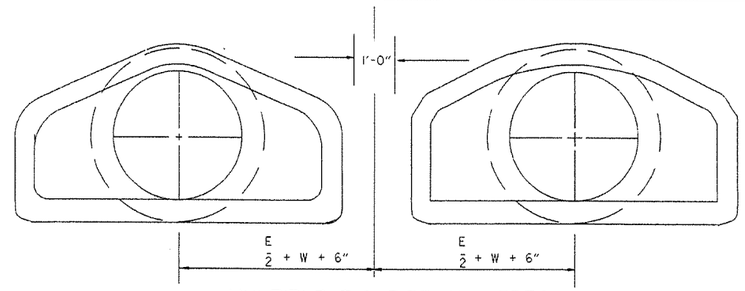
CIRCULAR PIPE

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

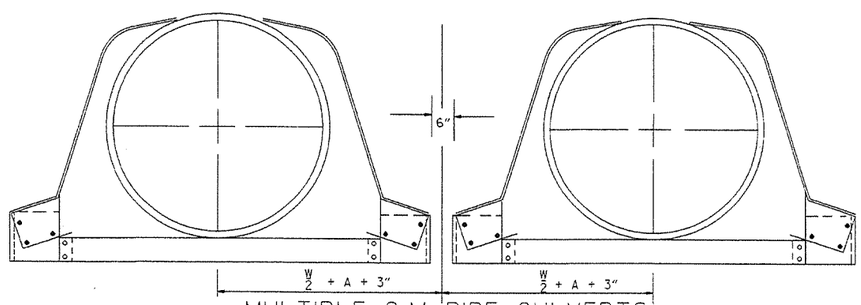
C.M. ARCH PIPE

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

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



MULTIPLE R.C. PIPE CULVERTS



MULTIPLE C.M. PIPE CULVERTS

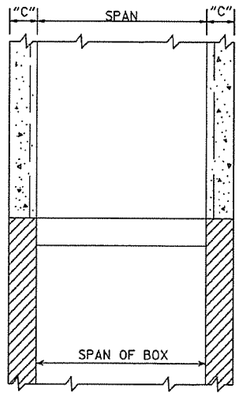
DATE	REVISION	FILMED
10-18-96	REVISED ASTM REF. TO AASHTO	10-18-96
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74
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

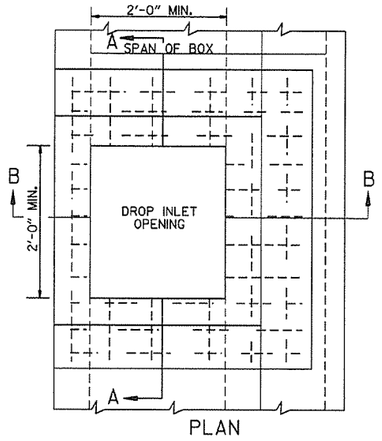
FLARED END SECTION

STANDARD DRAWING FES-2

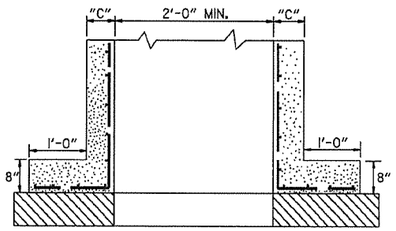
stdfes2.dgn



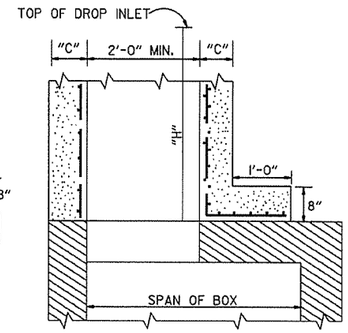
SECTION B-B



PLAN

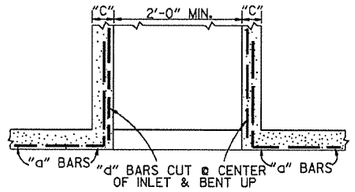


SECTION A-A

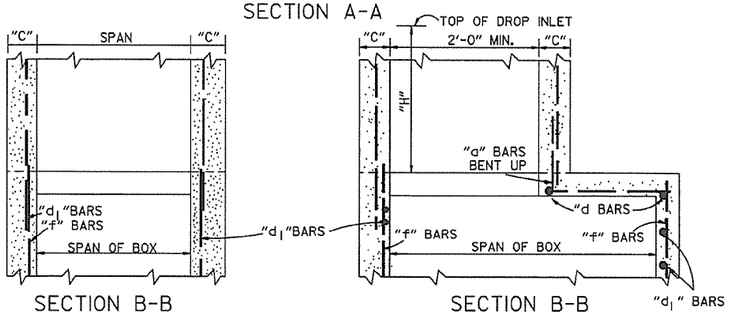


SECTION B-B

METHOD OF CONSTRUCTING DROP INLET ON EXISTING R.C. BOX CULVERT



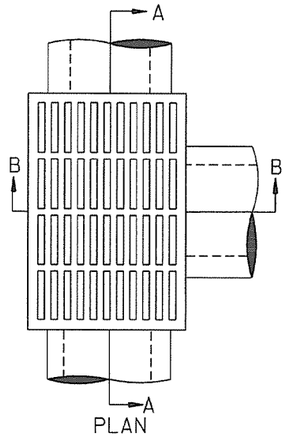
SECTION A-A



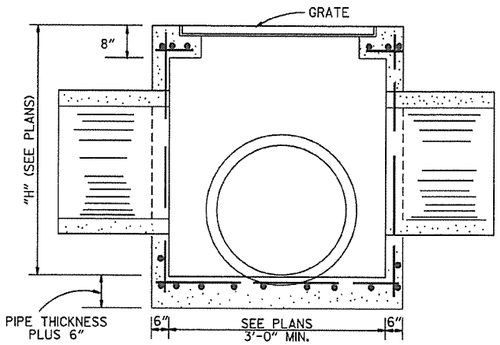
SECTION B-B SECTION B-B

METHOD OF CONSTRUCTING DROP INLET ON NEW R.C. BOX CULVERT

NOTE: "C" DIMENSIONS AND REINFORCING BAR SIZES, SHALL CONFORM TO THOSE SHOWN ON STANDARD DRAWING FOR DROP INLET.

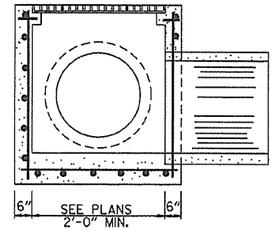


PLAN



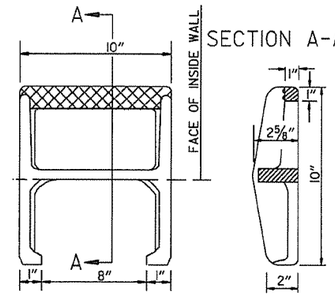
SECTION A-A

NOTE: REINF. BARS TO BE #4 BARS ON 6" CTRS. WITH 1½" MIN. COVER. THIS TYPE DROP INLET TO BE USED WHERE NOT SUBJECTED TO TRAFFIC.



SECTION B-B

DROP INLET (TYPE E)

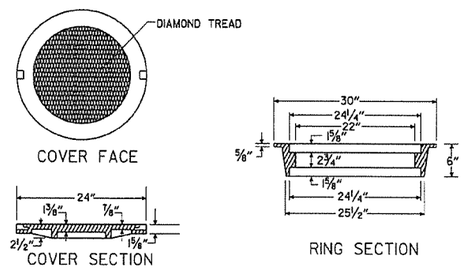


APPROX. WEIGHT = 11 LBS. (CAST IRON)

PLAN

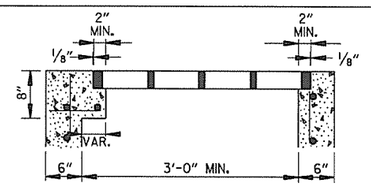
NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

DETAIL OF STEP FOR DROP INLET

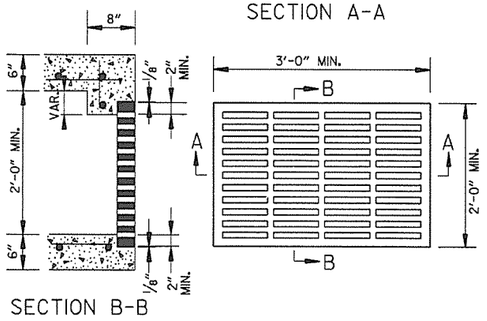


APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER



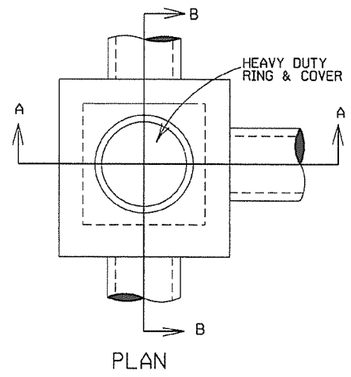
SECTION A-A



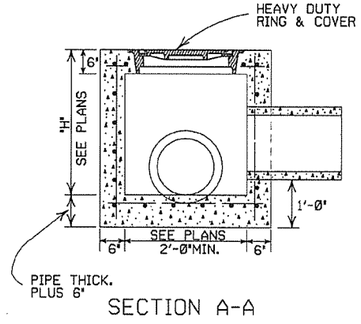
SECTION B-B

APPROXIMATE MINIMUM WATERWAY OPENING = 260 SQ. IN.

GRATE FOR TYPE E DROP INLET

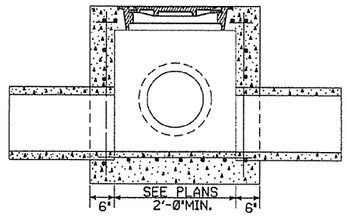


PLAN



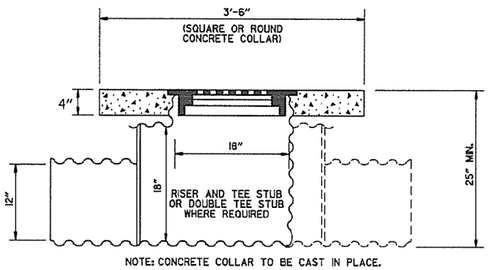
SECTION A-A

NOTE: REINF. BARS TO BE #4 BARS ON 6" CTRS. WITH 1½" MIN. COVER. THIS TYPE JUNCTION BOX TO BE USED WHERE NOT SUBJECTED TO TRAFFIC.

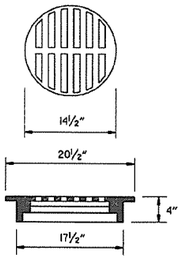


SECTION B-B

JUNCTION BOX (TYPE E)



NOTE: CONCRETE COLLAR TO BE CAST IN PLACE. 12" PIPE CULVERTS TO BE MEASURED AND PAID FOR AS " 12" SIDE DRAIN ".



USE NEENAH R-5901-C OR EQUIVALENT BICYCLE SAFE FRAME AND GRATE

DETAIL OF YARD DRAIN

GENERAL NOTES:

1. ALL EXPOSED CORNERS SHALL BE ¾" CHAMFERED.
2. STEPS SHALL BE INSTALLED ON 16" CENTERS ON ALL INLETS 4'-0" HIGH OR OVER, OR AS APPROVED BY THE ENGINEER.
3. EXPANSION JOINT MATERIAL SHALL BE ¾" PREFORMED FIBER.
4. GRATE OR GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105 CLASS 35B. GRATE MAY BE USED WITHOUT FRAME.
5. GRATE AND FRAME SHALL NOT BE PAINTED.
6. GRATE SHALL BE BICYCLE SAFE.
7. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
8. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
9. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
10. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

DATE REV.	REVISION	DATE FILMED
11-16-01	ADDED NOTE 10	
1-12-00	REVISED HEAVY DUTY RING & COVER	
7-02-98	CHANGED GRATE DETAIL, DELETED DI(TYPE D), REPLACED RING & COVER W/HEAVY DUTY RING & COVER, ADDED JUNCTION BOX (TYPE E)	
6-26-97	ADDED DIMENSION TO TYPE IV-A	
10-18-96	ADDED DETAIL OF YARD DRAIN	
8-15-91	DELETE TYPE IV GRATE	
7-15-88	REVISED STEP DETAIL	
5-20-83	REVISED DETAILS OF GRATES (TYPE IV & IV-A)	
2-4-83	ADDED GENERAL NOTE NO. 4	
3-2-81	ADDED TYPE IV-A GRATE	
5-22-74	DELETED INLET (TYPE F) & GRATE (TYPE III)	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS & JUNCTION BOXES

STANDARD DRAWING FPC-9

4'-0" LENGTH DROP INLET

PIPE SIZE	MIN. WIDTH	HEIGHT 5'-0" CLASS A CONC.	HEIGHT 5'-0" REINF. STEEL	PLUS OR MINUS PER LIN. FT. OF HEIGHT CLASS A CONC.	PLUS OR MINUS PER LIN. FT. OF HEIGHT REINF. STEEL
		CU. YDS.	POUNDS	CU. YDS.	POUNDS
18"	2'-6"	1.77	156	0.28	22
24"	2'-6"	1.79	156	0.28	22
30"	3'-2"	2.39	205	0.30	26
36"	3'-8"	2.63	236	0.32	28
42"	4'-4"	2.95	250	0.34	30
48"	4'-10"	3.21	265	0.36	32

NOTE: QUANTITIES ARE APPROXIMATE AND ARE SHOWN FOR BIDDER INFORMATION ONLY.

DROP INLET EXTENSION

4'-0" CLASS A CONC.	4'-0" REINF. STEEL	8'-0" CLASS A CONC.	8'-0" REINF. STEEL
CU. YDS.	POUNDS	CU. YDS.	POUNDS
0.58	38	0.87	72

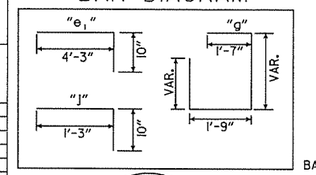
DEDUCT FROM QUANTITY COMPUTED FOR EACH EXTENSION ADDED.

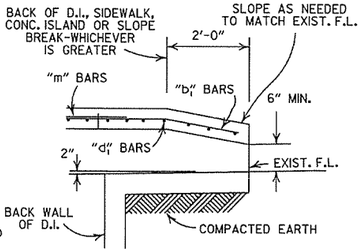
0.04	3

DEDUCT FROM QUANTITY COMPUTED FOR EACH PIPE ENTERING INLET

INSIDE DIA. PIPE	CLASS A CONC.	REINF. STEEL
INCHES	CU. YDS.	POUNDS
18	0.05	2
24	0.09	3
30	0.13	4
42	0.24	8

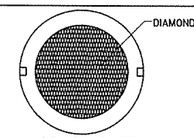
BAR DIAGRAM

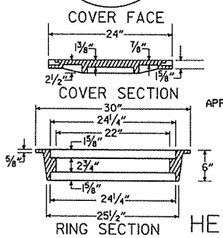




BACK OPENING

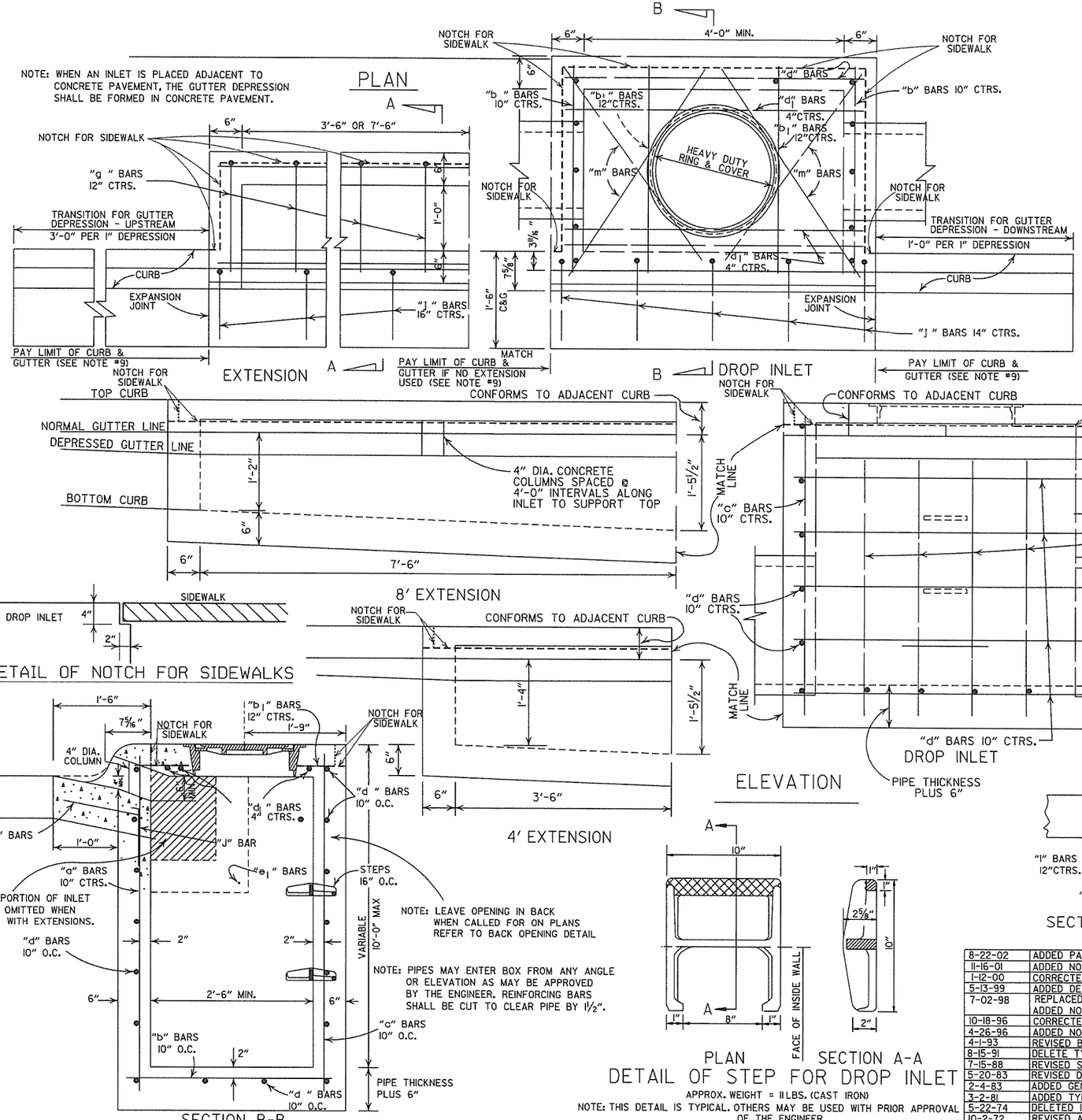
WHEN OPENING IN BACK IS CALLED FOR ON PLANS EXTEND OPENING AS SHOWN IN DETAIL. PAYMENT TO BE INCLUDED IN PRICE BID FOR DROP INLET (TYPE C).





HEAVY DUTY RING & COVER

GENERAL NOTES:
1. ALL EXPOSED CORNERS TO HAVE ¾" CHAMFER.
2. STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" HIGH AND OVER OF AS APPROVED BY THE ENGINEER.
3. ALL REINF. BARS SHALL BE #4 AND HAVE 1½" COVER.
4. DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
5. THIS DROP INLET MAY BE CONSTRUCTED ON NEW OR EXISTING R.C. BOX CULVERT AS SHOWN ON F.P.C.-9.
6. WHEN PLANS CALL FOR DROP INLET OVER 10'-0" HIGH, FLOOR AND WALLS SHALL BE CONSTRUCTED AS SHOWN FOR TYPE "RM" DROP INLET (F.P.C.-9D).
7. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
8. DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
9. PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
10. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
11. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
12. 4"x2" NOTCH SHALL BE FORMED IN ALL DROP INLETS TO SUPPORT SIDEWALK CONSTRUCTION. REFER TO DETAIL OF NOTCH FOR SIDEWALKS.
13. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

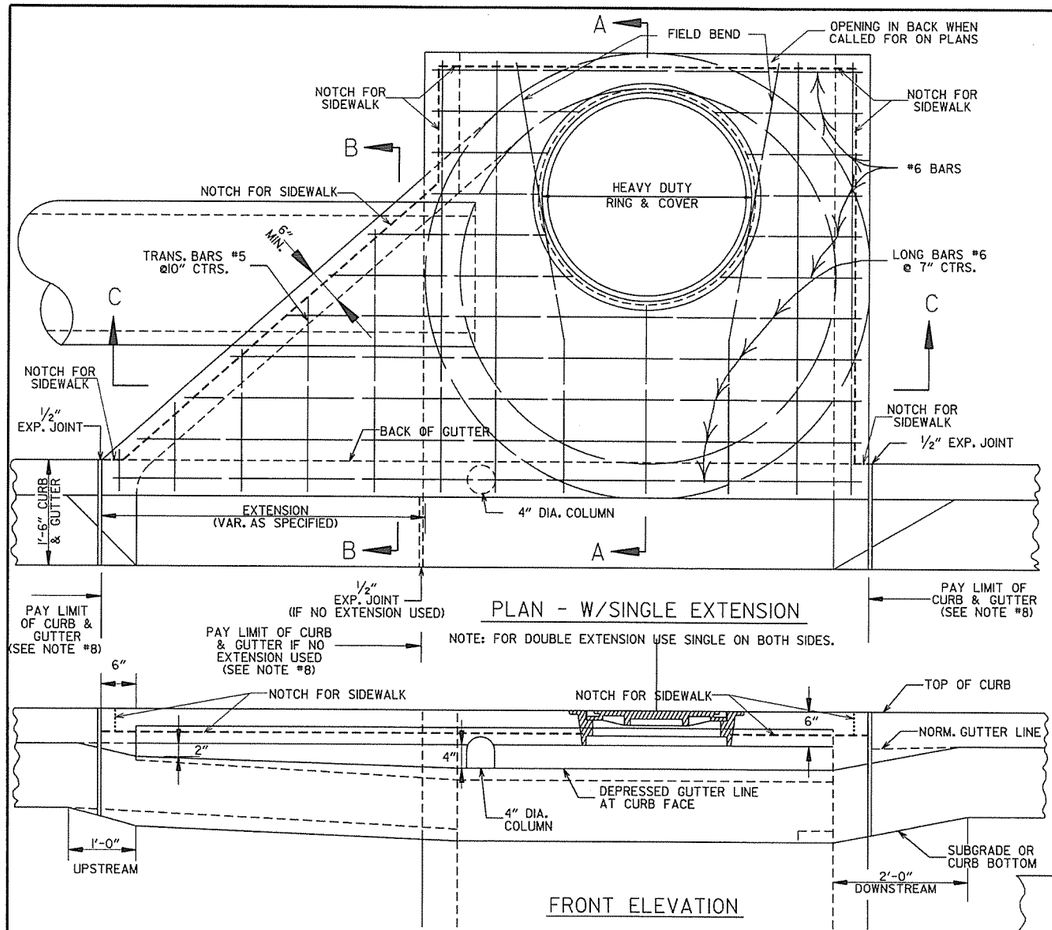


DATE REV.	REVISION	DATE FILMED
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13; REVISED SECTION B-B	
1-12-00	CORRECTED DIMENSION ON SECTION B-B & REVISED RING & COVER	
5-13-99	ADDED DETAIL OF NOTCH FOR SIDEWALKS	
7-02-98	REPLACED RING & COVER W/HEAVY DUTY RING & COVER ADDED NOTES 9,10,&11	
10-18-96	CORRECTED SPELLING	
4-26-96	ADDED NOTE 8 & REVISED (4')(8') EXTENSION TITLES	10-18-96
4-1-93	REVISED BACK OPENING & NOTE	
8-15-91	DELETE TYPE IV GRATE	
7-15-88	REVISED STEP DETAIL	
5-20-83	REVISED DETAILS OF GRATES (TYPE IV & IV-A)	
2-4-83	ADDED GENERAL NOTE NO. 4	
3-2-81	ADDED TYPE IV-A GRATE	
5-22-74	DELETED INLET (TYPE F) & GRATE (TYPE III)	
10-2-72	REVISED AND REDRAWN	

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS (TYPE C)

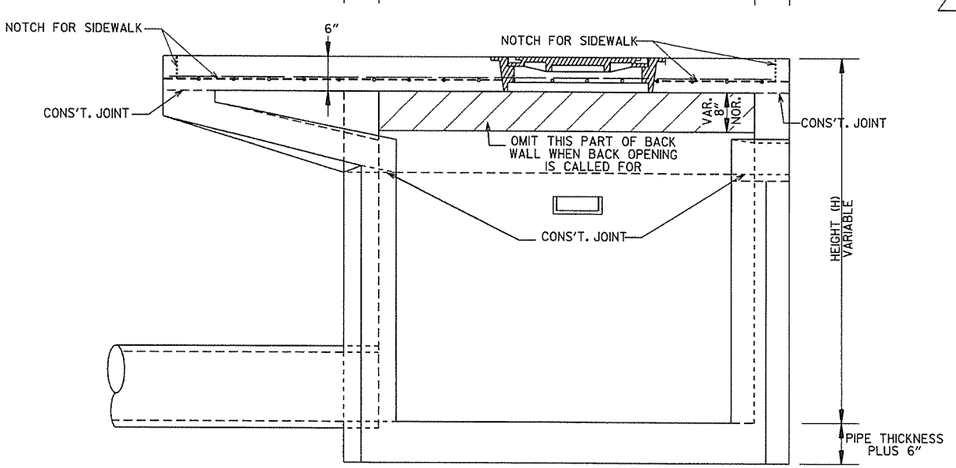
STANDARD DRAWING FPC-9E



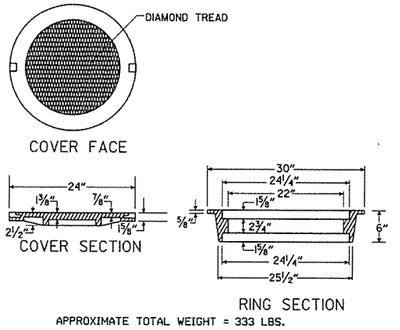
PLAN - W/SINGLE EXTENSION

NOTE: FOR DOUBLE EXTENSION USE SINGLE ON BOTH SIDES.

FRONT ELEVATION



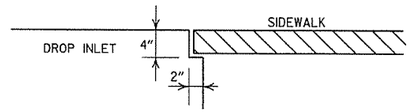
SECTION C-C



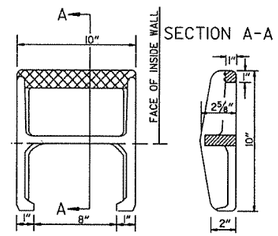
APPROXIMATE TOTAL WEIGHT = 333 LBS.

HEAVY DUTY RING & COVER

1. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
2. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
3. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.



DETAIL OF NOTCH FOR SIDEWALKS

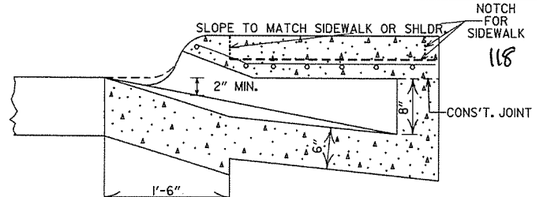


APPROX. WEIGHT = 11 LBS. (CAST IRON)

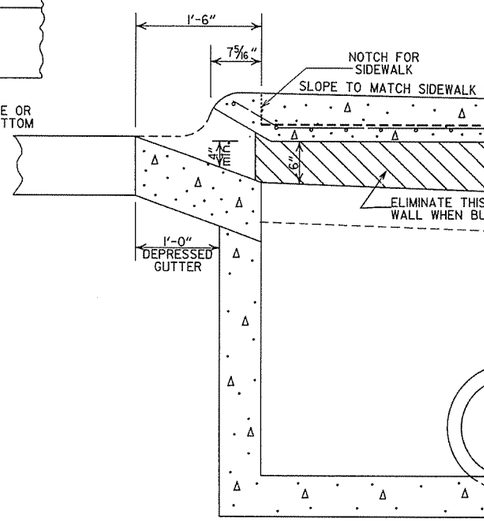
PLAN

NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

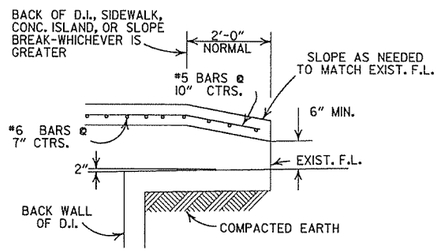
DETAIL OF STEP FOR DROP INLET



SECTION B-B



SECTION A-A



BACK OPENING

WHEN OPENING IN BACK IS CALLED FOR ON PLANS EXTEND OPENING AS SHOWN IN DETAIL. PAYMENT TO BE INCLUDED IN PRICE BID FOR DROP INLET (TYPE MO).

GENERAL NOTES:

1. ALL EXPOSED CORNERS TO HAVE 3/4" CHAMFER.
2. STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" HIGH AND OVER OR AS DIRECTED BY THE ENGINEER.
3. ALL REINFORCING BARS SHALL BE GRADE 60 AND HAVE MIN. 1 1/2" COVER.
4. DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
5. 4" DIA. COLUMNS SPACED AT MAX. 4'-0" INTERVALS SHALL BE INSTALLED ALONG INLET AND EXTENSION TO SUPPORT TOP.
6. BASE AND INLET WALLS SHALL BE CAST MONOLITHICALLY.
7. THE THROAT SHALL BE CAST INTEGRALLY WITH THE GUTTER.
8. PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
9. PIPES MAY ENTER DROP INLET FROM ANY ANGLE OR ELEVATION AS MAY BE APPROVED BY THE ENGINEER.
10. APPROPRIATE SIZE TYPE C DROP INLETS MAY BE SUBSTITUTED FOR TYPE MO DROP INLETS AS APPROVED BY THE ENGINEER. PAYMENT TO BE AS DROP INLET (TYPE MO).
11. DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
12. 4"x2" NOTCH SHALL BE FORMED IN ALL DROP INLETS TO SUPPORT SIDEWALK CONSTRUCTION. REFER TO DETAIL OF NOTCH FOR SIDEWALKS.
13. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.

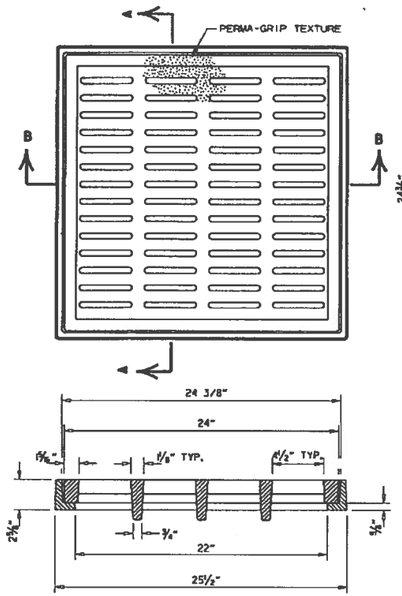
DIA. OF D.I.	DIA. OF OUTLET PIPE	MINIMUM WALL THICKNESS CAST IN PLACE	MINIMUM WALL THICKNESS PRECAST
4' I.D.	12" THRU 27"	6"	5"
5' I.D.	30" THRU 42"	8"	6"
6' I.D.	48" THRU 54"	8"	7"

DATE	REVISIONS	DATE FILMED
8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13	
1-12-00	REVISED HEAVY DUTY RING & COVER	
5-13-99	ADDED NOTCH DETAIL FOR SIDEWALKS	
7-02-98	REP. NOTE 8, REM. PLAN DET., REV. PICTURE FOR NEW RING & COVER, ADDED HEAVY DUTY RING & COVER AND DETAIL OF STEP FOR DROP INLET	
4-26-96	ADDED NOTE (L ADJ. OPENING DIMENSION	
10-12-95	CORRECTED #6 BAR SPACING	
1-20-95	CORRECTED DIAMETER OF D.I. IN BOX	
2-2-95	TYPE C TO MO (OPEN BACK DETAIL)	
11-3-94	REVISED GENERAL NOTES	11-3-94
4-1-93	REV. BACK OPEN DETAIL & NOTE	4-1-93
8-15-91	REVISED NOTES 11,12 & ADDED BK.OPEN DETAIL	8-15-91
11-30-89	ADDED NOTE NO. 12	11-30-89
5-23-89	ADDED NOTE & MINIMUM WALL THICKNESS	583-5-23-89
1-15-88	ADDED EXTEND NOTE TO SECTION A-A	1695-7-15-88
1-14-87	MODIFIED WALL THICKNESS	783-1-14-87
6-12-87	ISSUED	4-6-12-87

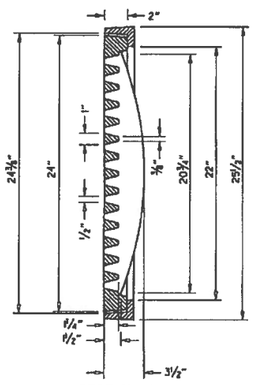
ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLET (TYPE MO)

STANDARD DRAWING FPC-9M



SECTION B-B

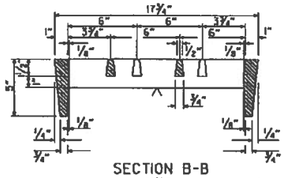


SECTION A A

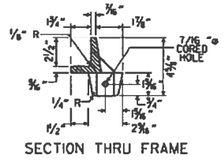
GENERAL NOTES (PEDESTRIAN GRATE & FRAME)

1. THE PEDESTRIAN GRATE SHALL BE ORIENTED IN THE TOP OF THE DROP INLET SO THAT THE ½" OPENINGS ARE PERPENDICULAR TO THE PATH OF PEDESTRIAN TRAVEL.
2. THE PEDESTRIAN GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105, CLASS 35B, & AASHTO M 306.
3. THE GRATE AND FRAME SHALL NOT BE PAINTED.
4. THE GRATE AND FRAME SHALL BE INSTALLED IN THE DROP INLET IN THE ASSEMBLED POSITION.
5. THE APPROXIMATE WEIGHT OF THE GRATE AND FRAME SHALL BE 218 LBS.
6. THE MINIMUM WATERWAY OPENING SHALL BE 122 SQ. IN.

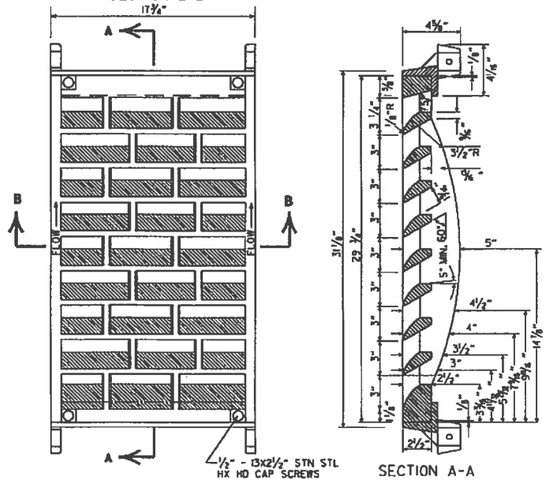
DETAILS OF PEDESTRIAN GRATE AND FRAME



SECTION B-B



SECTION THRU FRAME

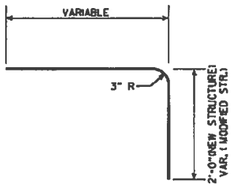


SECTION A-A

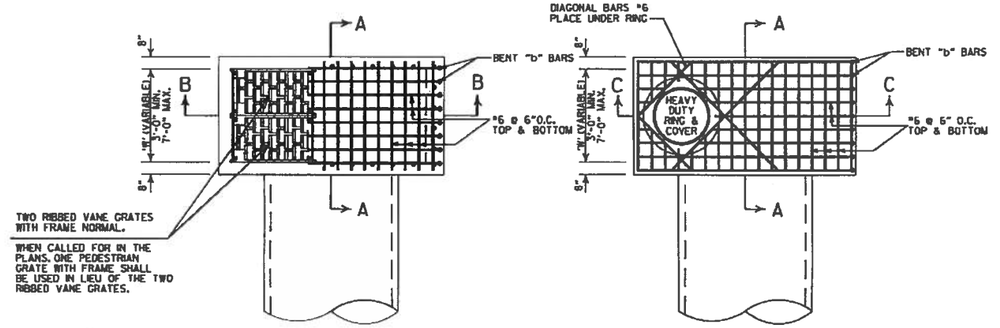
DETAILS OF RIBBED VANE GRATE AND FRAME

GENERAL NOTES (RIBBED VANE GRATE & FRAME)

1. RIBBED VANE GRATE AND FRAME SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105, CLASS 35B, & AASHTO M 306.
2. GRATE AND FRAME SHALL NOT BE PAINTED.
3. GRATE AND FRAME SHALL BE INSTALLED IN DROP INLET IN ASSEMBLED POSITION.
4. APPROXIMATE WEIGHT OF GRATE SHALL BE 170 LBS.



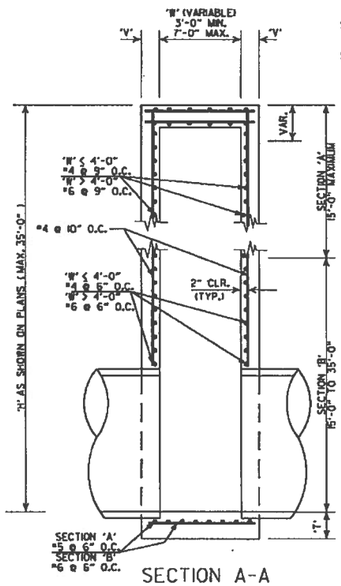
DETAIL OF BENT "b" BAR



SECTION 'A' 'V' = 8"

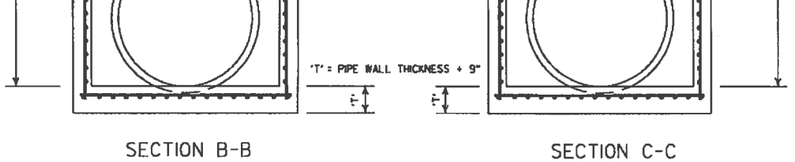
SECTION 'B' (W≤4'-0") 'V' = 8"

SECTION 'B' (W>4'-0") 'V' = 10"



SECTION A-A

DETAILS OF DROP INLET (TYPE ST)



SECTION B-B

SECTION C-C

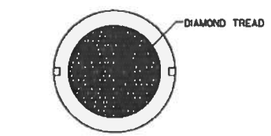
DETAILS OF JUNCTION BOX (TYPE ST)

GENERAL NOTES (TYPE ST DROP INLET & JUNCTION BOX)

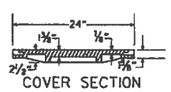
1. THE "D" DIMENSION SHALL MATCH THE FINAL LIFT OF ACHM SURFACE COURSE SHOWN IN THE PLANS WHEN ASPHALT PAVING SURROUNDS THE GRATE OR RING COVER, AND SHALL BE 0" AT OTHER INSTALLATIONS.
2. THE STEPS SHALL BE OMITTED WHERE "H" IS LESS THAN 4'-0".
3. ALL EXPOSED CORNERS ARE TO HAVE A ¾" CHAMFER.

GENERAL NOTES (HEAVY DUTY RING & COVER):

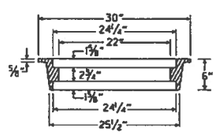
1. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M 105, CLASS 35B, & AASHTO M 306.
2. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
3. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
4. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.



COVER FACE



COVER SECTION



RING SECTION

HEAVY DUTY RING & COVER

APPROXIMATE TOTAL WEIGHT = 333 LBS.

DATE REVISED	DATE FILMED	DESCRIPTION
7-26-12		REMOVED NOTE 4, REVISED 'T', REVISED BOTTOM SLAB REBAR FOR SECTION 'A', SHOWED REBAR CLEARANCE IN SECTIONS
11-16-01		ADDED NOTE 4
1-12-00		REVISED HEAVY DUTY RING & COVER
5-13-99		ADDED PEDESTRIAN FRAME & GRATE
7-02-98		REMOVED NOTE 5, REV. DIMENSIONS, ADDED HEAVY DUTY RING & COVER ADDED AASHTO REF. REVISED GRATE
10-18-96		REVISED ASTM REF. TO AASHTO
10-1-92		REVISED & REISSUED
8-15-91	8-15-91	REVISED & REISSUED

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLET & JUNCTION BOX (TYPE ST)

STANDARD DRAWING FPC-9S

REINFORCED CONCRETE ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	AHTD NOMINAL	AASHTO M 206	AHTD NOMINAL
INCHES	INCHES			
15	18	18	11	11
18	22	22	13½	14
21	26	26	15½	16
24	28½	29	18	18
30	36¼	36	22½	23
36	43⅜	44	26⅝	27
42	51⅛	51	31 5/16	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87⅛	87
120	154	154	96⅞	97
132	168¾	169	106½	107

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

REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE DIMENSIONS

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

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

CONSTRUCTION SEQUENCE

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

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

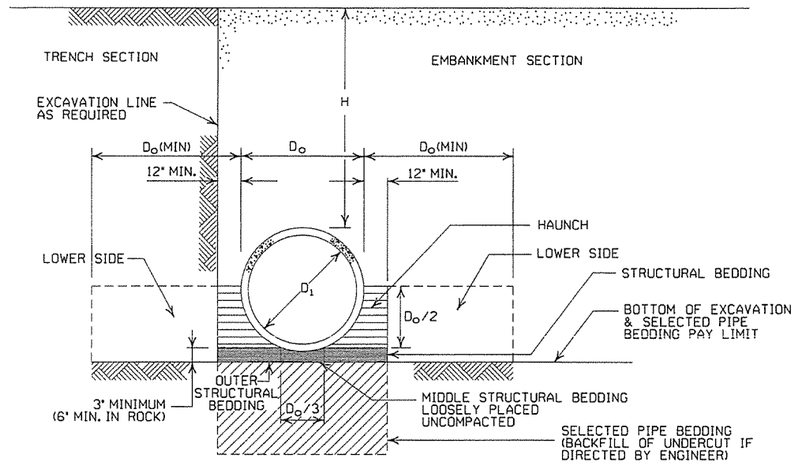
- LEGEND -

D_1 = 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

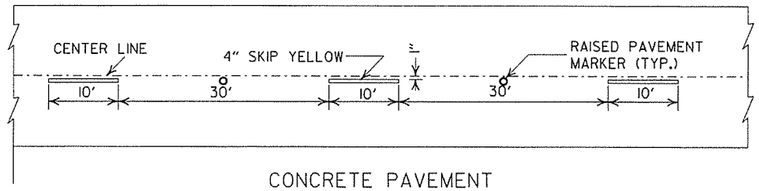
NOTE: TYPE 1 INSTALLATION WILL NOT BE ALLOWED FOR ARCH & HORIZONTAL ELLIPTICAL PIPE CULVERTS.

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	

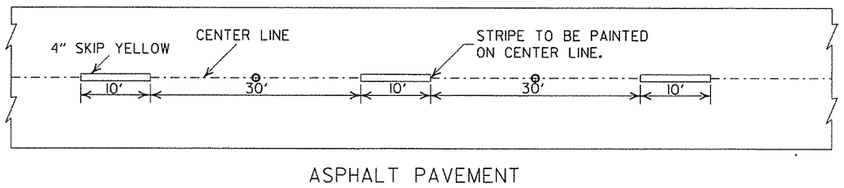
ARKANSAS STATE HIGHWAY COMMISSION

CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

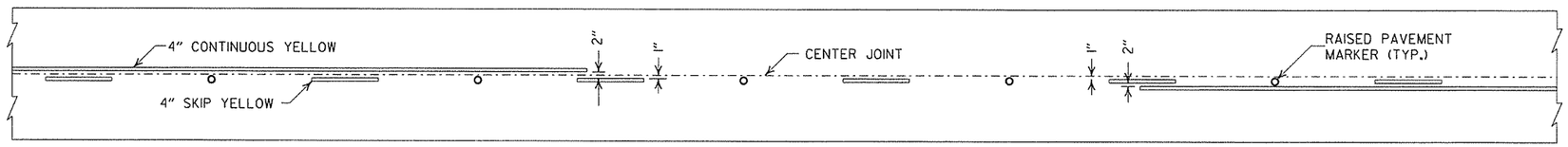


CONCRETE PAVEMENT

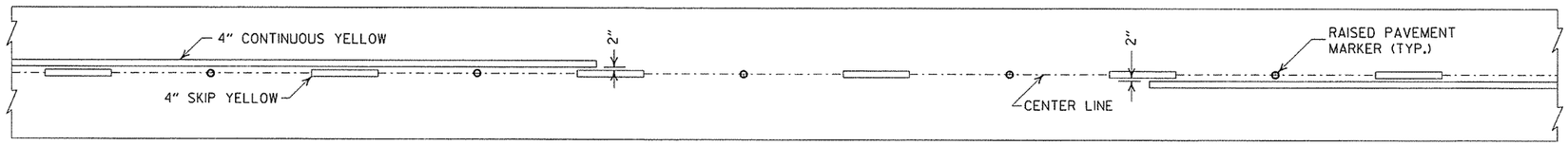


ASPHALT PAVEMENT

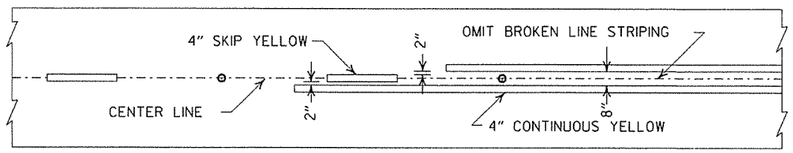
BROKEN LINE STRIPING



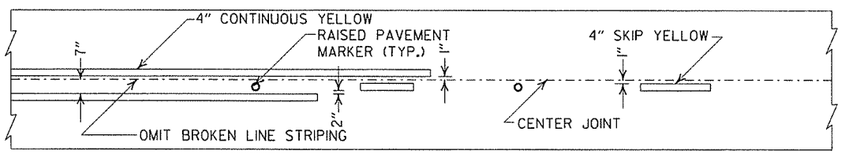
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT



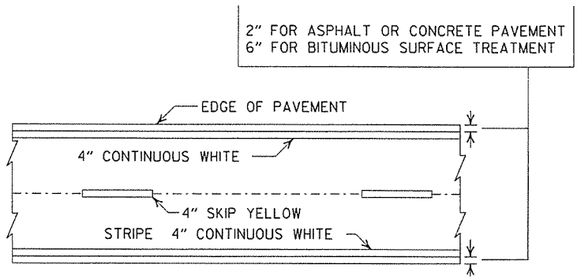
ASPHALT PAVEMENT



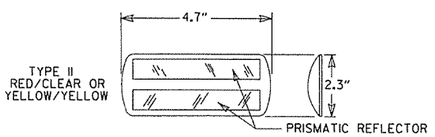
CONCRETE PAVEMENT

NOTES:

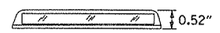
1. ALL LINES SHALL HAVE A WIDTH OF 4 INCHES.
2. THE THICKNESS AND RATE OF PAINT APPLICATION SHALL BE AS SPECIFIED IN SECTION 718 OF THE STANDARD SPECIFICATIONS.
3. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
4. RAISED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



PAVEMENT EDGE LINE MARKING



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



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

GENERAL NOTES:

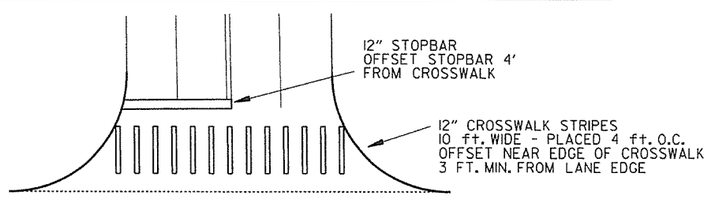
THIS DRAWING SHOULD BE CONSIDERED AS TYPICAL ONLY AND THE FINAL LOCATION OF THE STRIPING AND RAISED PAVEMENT MARKERS SHALL BE DETERMINED BY THE ENGINEER.

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

NOTE:

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

STRIPING AT ADJACENT NO PASSING LANES



CROSSWALK AND STOPBAR DETAILS

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

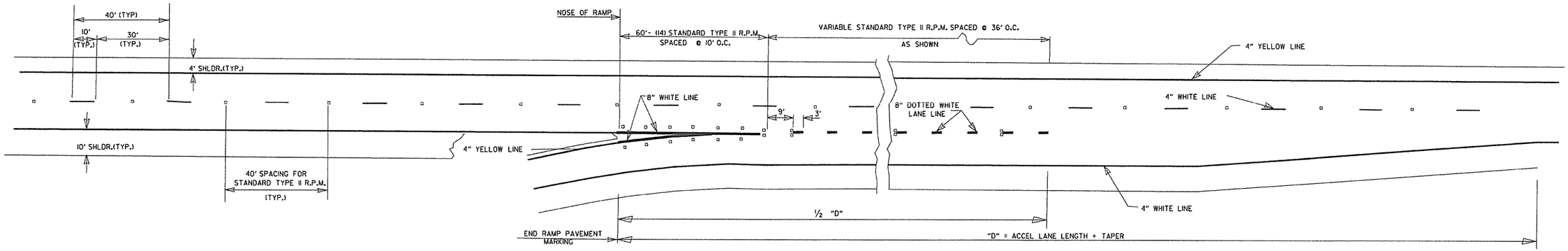
PAVEMENT MARKING QUANTITIES
(BASED ON 700' ACCEL. LANE + 300' TAPER)

ENTRANCE RAMP

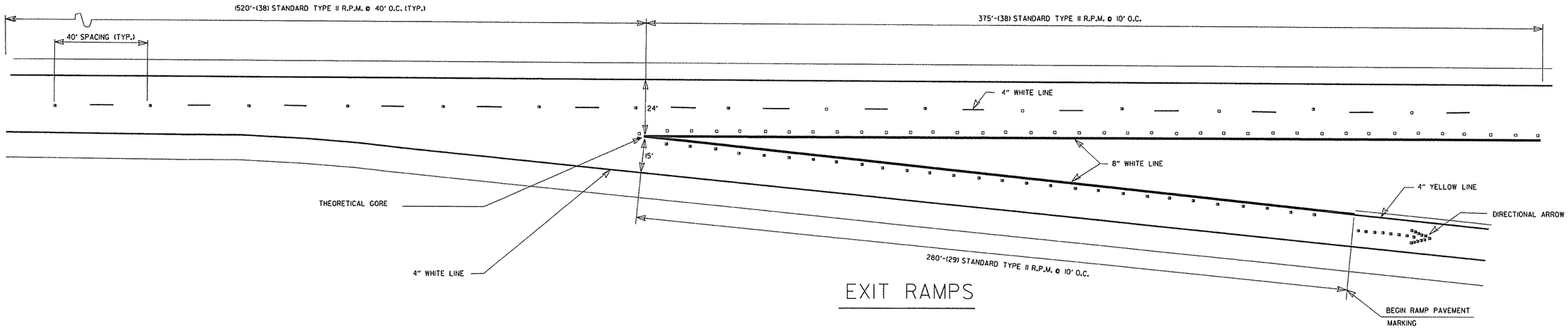
8" WHITE = 228 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) = 38 EACH

EXIT RAMP

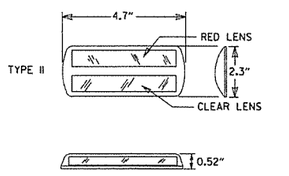
4" WHITE = 280 LIN. FT.
8" WHITE = 655 LIN. FT.
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) = 38 EACH
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) = 48 EACH
RAISED PAVEMENT MARKERS TYPE II (WHITE/RED) = 38 EACH



ENTRANCE RAMPS

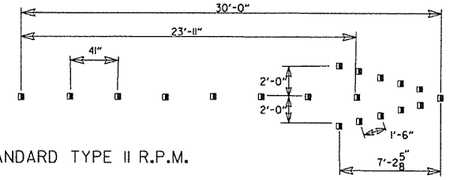


EXIT RAMPS



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.

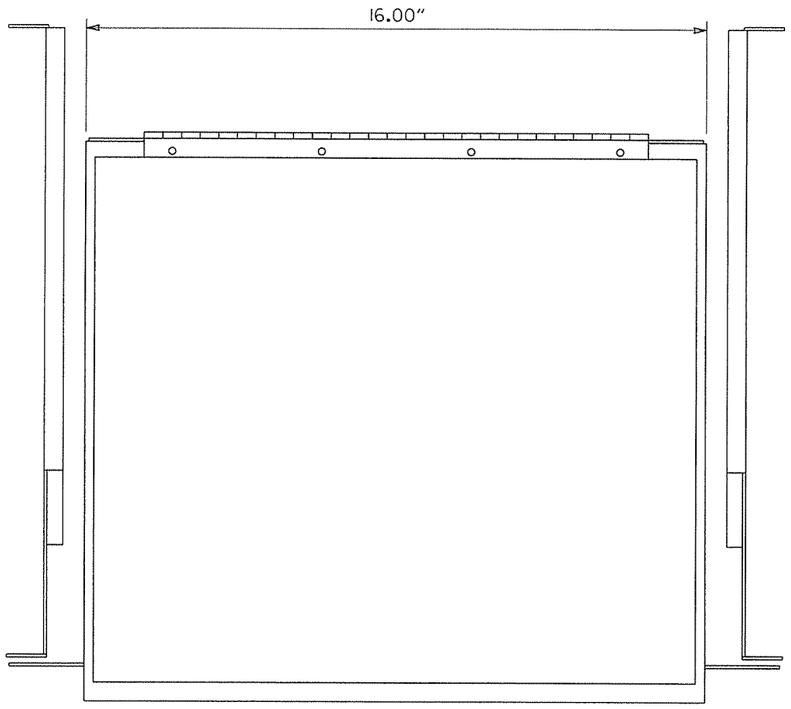
DATE	REVISION	FILMED
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
7-26-12	REVISED RPM NOTATION	
12-15-11	REVISED RPMs ACCORDING TO LATEST POLICY	
11-17-10	REMOVED PLOWABLE PAVEMENT MARKERS	
6-3-10	REVISED PER 2009 MUTCD	
11-18-04	REVISED NOTES	
8-22-02	ADDED & REVISED NOTES; REV. ENTRANCE & 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

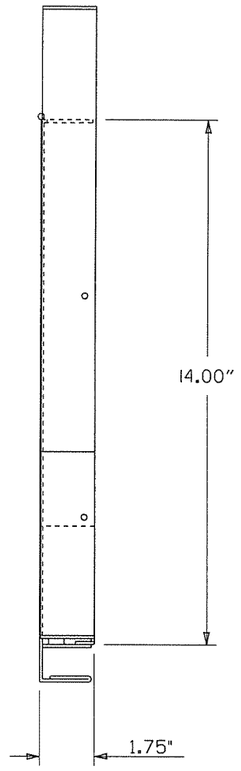
ARKANSAS STATE HIGHWAY COMMISSION

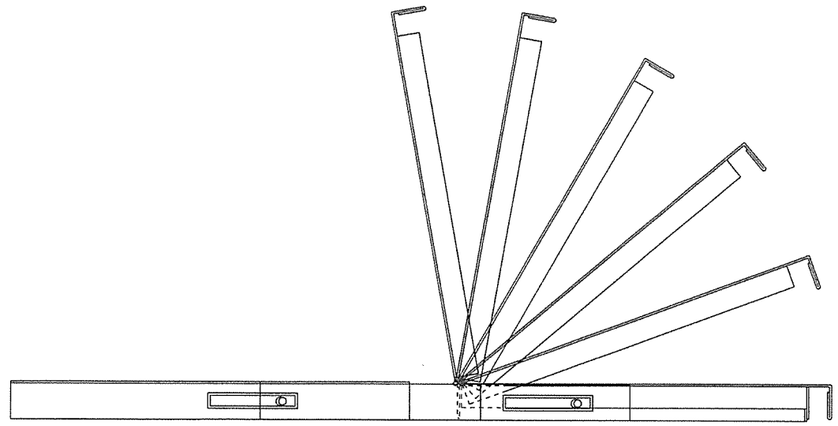
PERMANENT PAVEMENT MARKING ON ACCESS CONTROLLED ROADWAYS

STANDARD DRAWING PM-2

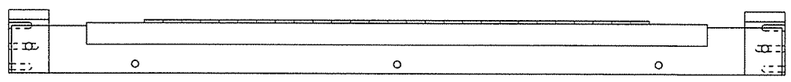
DRAWER PLAN VIEW



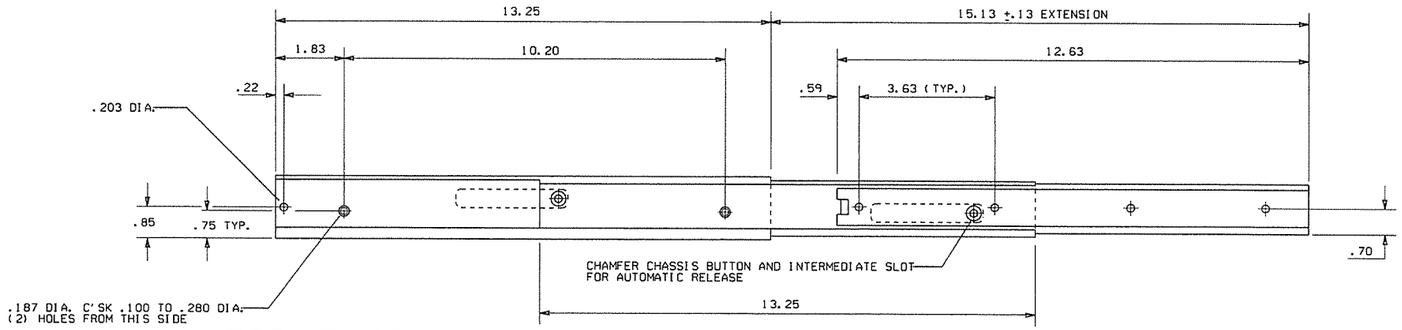




NOTES:
1. RIGHT HAND SLIDE SHOWN, LEFT SLIDE OPPOSITE.
2. GENERAL DEVICES (CC3002-99-0102) OR EQUAL AND CONTAINS (1) RIGHT HAND SLIDE ASSEMBLY, (1) LEFT HAND SLIDE ASSEMBLY.
3. ALL HARDWARE NECESSARY TO FASTEN SLIDE ASSEMBLY TO UNDERSIDE OF CONTROLLER SHELF SHALL BE INCLUDED.



FRONT VIEW



RIGHT SIDE ASSEMBLY

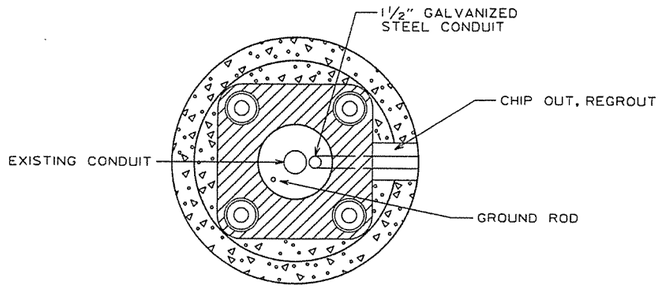
9-12-13	ISSUED AS STANDARD DRAWING	
6-15-05	ISSUED	
DATE	REVISION	DATE FILM

ARKANSAS STATE HIGHWAY COMMISSION

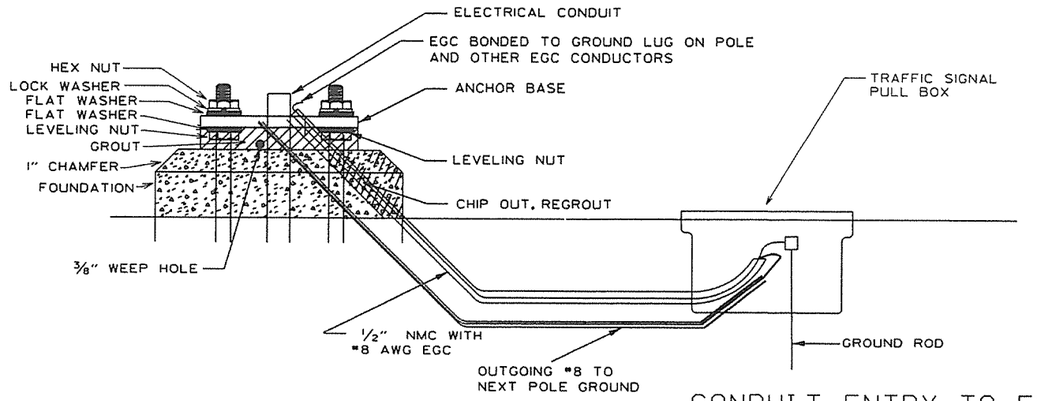
CONTROLLER CABINET
UTILITY DRAWER

STANDARD DRAWING SD-5

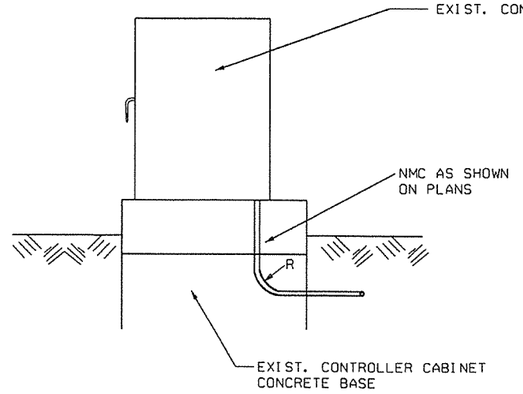
CONDUIT ENTRY TO EXISTING POLE BASE



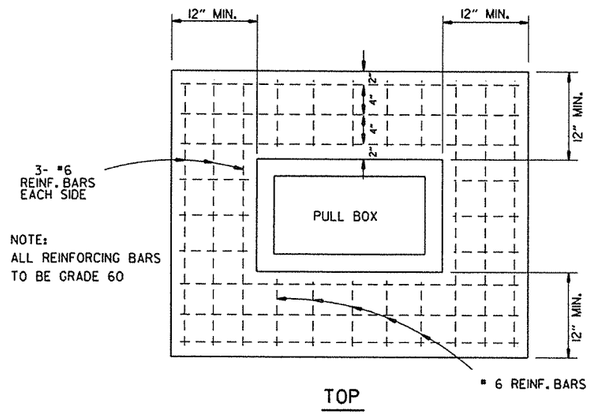
ANCHOR BASE



CONDUIT ENTRY TO EXISTING CONTROLLER CABINET

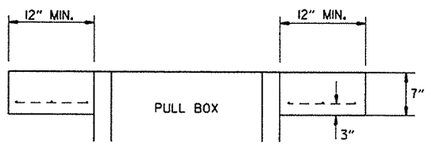


NOTE: ENTRY TO CABINET SHALL BE THROUGH A CUT IN THE BASE SUFFICIENT TO PROVIDE ADEQUATE CONDUIT RADIUS FOR ITEM.



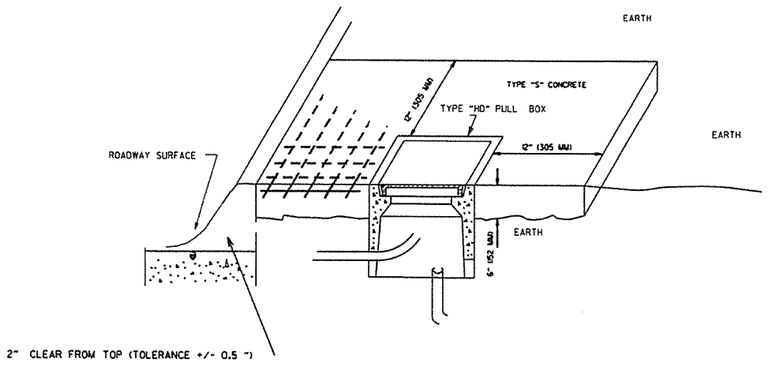
NOTE:
ALL REINFORCING BARS TO BE GRADE 60

TOP



ELEVATION

TYPE "HD" CONCRETE PULL BOX DETAIL



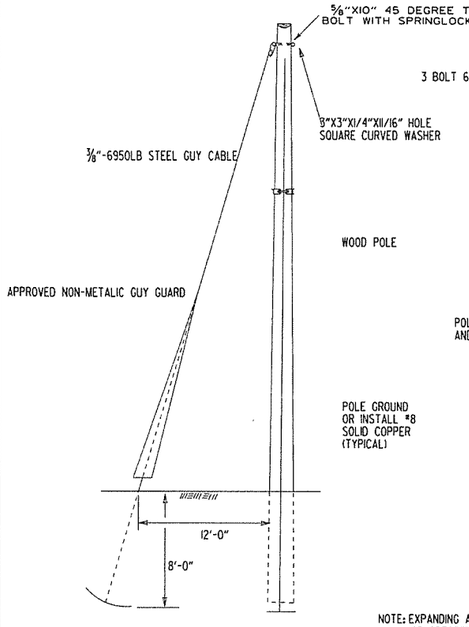
NOTE: ALL TYPE I AND TYPE 2 HD PULL BOXES ARE INSTALLED WITH AN APRON OF CONCRETE 12" (305 MM) WIDE AND 7" (178 MM) IN DEPTH. ALL PAYMENT SHALL BE INCLUDED IN THE PRICE OF THE TYPE HD PULL BOX. PULL BOX SHALL BE INSTALLED FLUSH TO SURROUNDING GRADE UNLESS OTHERWISE INSTRUCTED BY THE ENGINEER. THE CONCRETE SHALL BE CLASS "S." THREE #6 REINFORCING BARS IN THE APRON ON ALL SIDES OF THE PULL BOX IS REQUIRED IN CONCRETE.

DATE	REVISION	DATE FILM
9-2-15	REVISED PULL BOX DEPTH	
9-12-13	ISSUED AS STANDARD DRAWING	
5-21-09	REVISED GROUNDING	
7-31-08	ADDED & REVISED CONDUIT ENTRY	
6-23-04	REVISED CLEARANCE AT CURB ENTRY	
1-4-02	ADDED REINFORCING TO BOX APRON	
7-2-01	REVISED	
12-27-99	REVISED NOTES	
11-18-98	ISSUED	

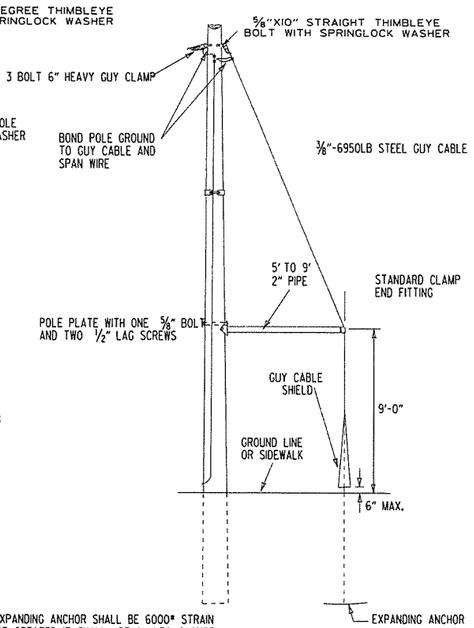
ARKANSAS STATE HIGHWAY COMMISSION

HEAVY DUTY PULL BOX

STANDARD DRAWING SD-6



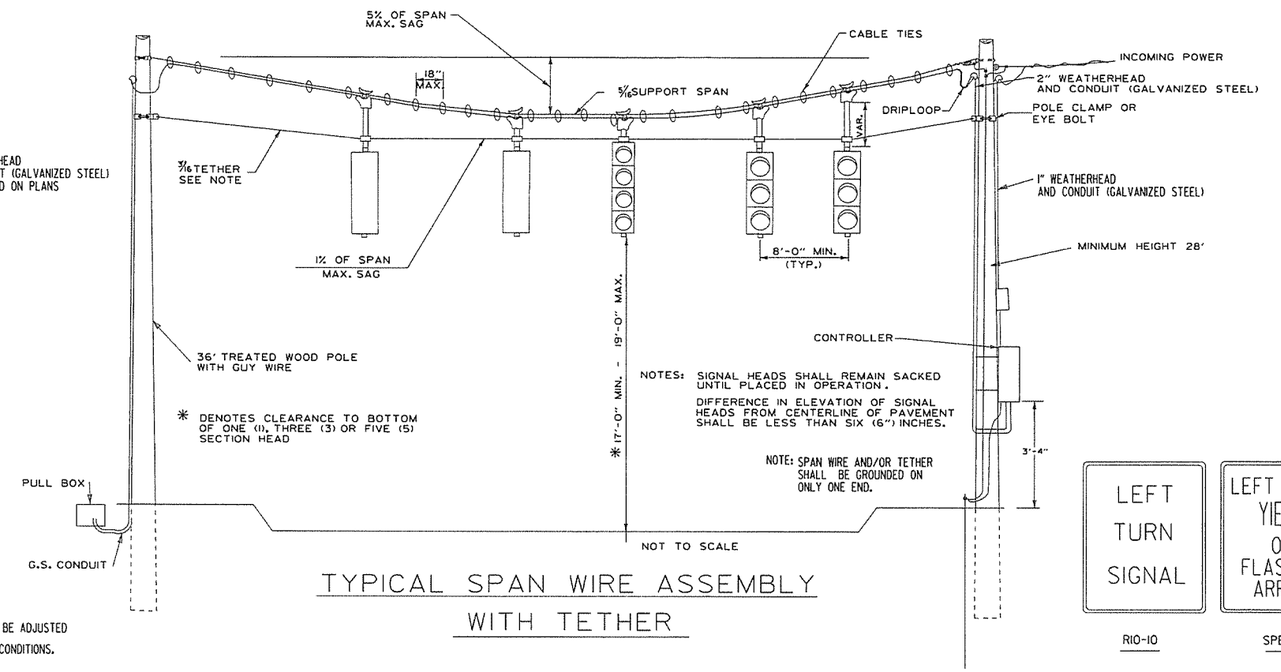
STANDARD GUY INSTALLATION



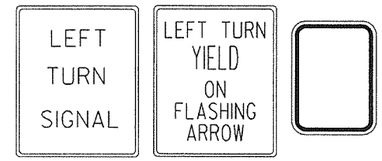
NOTE: EXPANDING ANCHOR SHALL BE 6000# STRAIN OR GREATER. IT SHALL BE A "NEW CHANCE 8-WAY EXPANDING ANCHOR", WITH A ⅝" MINIMUM GUY ROD.

SIDEWALK GUY INSTALLATION

NOTE: CONDUIT INSTALLATION MAY BE ADJUSTED BY THE ENGINEER TO MEET FIELD CONDITIONS.



TYPICAL SPAN WIRE ASSEMBLY WITH TETHER

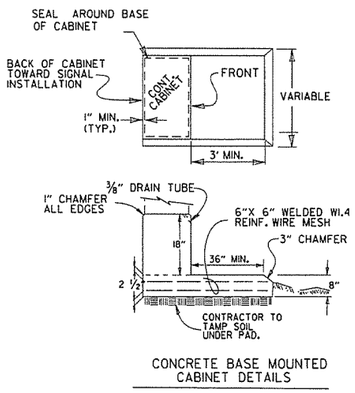


R10-10 | SPECIAL | R10-3E (SEE MUTCD)

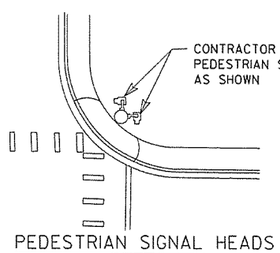
NOTES: SPAN WIRE POLES SHALL BE MOUNTED A MINIMUM OF 4' BEHIND CURB OR SHOULDER.

SPAN WIRE ASSEMBLIES WILL REQUIRE TETHER UNLESS OTHERWISE NOTED ON PLAN SHEETS. CABLE TIES SHALL BE SUITABLE FOR OUTSIDE USE (BLACK).

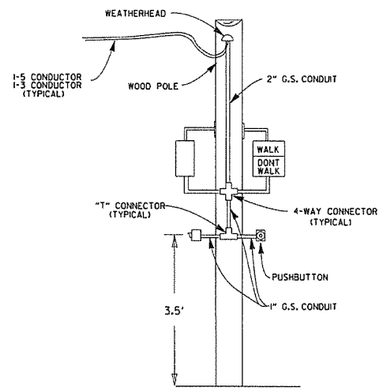
THE CONTROLLER POWER SUPPLY GROUND BUSS SHALL BE BONDED TO THE GROUND ROD WITH A #8 AWG SOLID COPPER WIRE. ON EXISTING INSTALLATIONS WITH NO GROUND ROD, CONTRACTOR SHALL INSTALL A 10' X ⅝" COPPERWELD GROUND ROD.



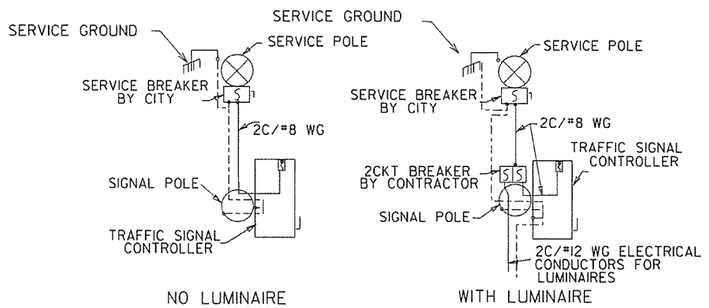
CONCRETE BASE MOUNTED CABINET DETAILS



PEDESTRIAN SIGNAL HEADS



WOODEN POLE INSTALLATION OF PED HEADS



SERVICE DISCONNECT

NOTE: ELECTRICAL GROUND CONDUCTOR IS BONDED TO ALL METAL ENCLOSURES

NOTES:

EACH ITEM "TRAFFIC SIGNAL HEAD (4 SEC., I-WAY)" SHALL INCLUDE A SPECIAL SIGN AS SHOWN, ATTACHED TO THE MAST ARM OR SPAN ASSEMBLY 12" TO THE RIGHT OF THE SIGNAL HEAD UNLESS REMOVED WITHIN SIGNAL PLAN NOTES.

SIGN BLANK SHALL BE CONSTRUCTED OF ALLUMINUM ALLOY (ASTM DESIGNATION B-209, ALLOY 5052-H38) WITH A THICKNESS OF 0.100 INCH.

SIGN FACE SHALL BE CONSTRUCTED OF HIGH INTENSITY SHEETING (TYPE III) WITH SILKSCREEN LEGEND AND BORDER.

EACH ITEM "TRAFFIC SIGNAL HEAD (3 SEC., I-WAY)" TO BE USED AS A LEFT TURN INDICATION ONLY SHALL INCLUDE A SIGN (R10-10) AS SHOWN, ATTACHED TO THE MAST ARM OR SPAN ASSEMBLY 12" TO THE RIGHT OF THE SIGNAL HEAD.

SIGNAL OPERATION NOTES:

FLASHING OPERATION - PRIOR TO NORMAL OPERATION, SIGNAL SHALL BE FLASHED FOR A PERIOD OF 3 TO 5 WORKING DAYS. SIGNAL SHALL BE PLACED IN OPERATION ONLY ON A REGULAR WORK DAY, EXCEPT FRIDAY.

THE CONTRACTOR MAY BE REQUIRED TO ALTER THE FLASHING DISPLAY DURING THE TEMPORARY FLASH PERIOD. AT THE TIME THE INTERSECTION IS PLACED IN PERMANENT OPERATION, THE FLASH SEQUENCE SHALL THEN BE RETURNED TO THAT INDICATED ON THE PLAN SHEETS. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED FOR THESE ALTERATIONS IN FLASH SEQUENCE.

UNLESS OTHERWISE DIRECTED BY THE ENGINEER, CABINET ORIENTATION SHALL BE SUCH THAT THE BACK OF THE CABINET IS PARALLEL TO THE STREET AND POSITIONED TO ALLOW VISIBILITY OF THE SIGNAL DISPLAY WHILE OBSERVING THE CONTROLLER FRONT PANEL.

DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, 4TH EDITION (2001) WITH 2003 AND 2006 INTERIMS.

CONSTRUCTION SPECIFICATIONS: ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION) WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

BASE WIND SPEED: 90 MPH

STEEL MEMBERS CONSIDERED MAIN LOAD CARRYING MEMBERS WITH THICKNESS GREATER THAN ½" SHALL MEET THE LONGITUDINAL CHARPY V-NOTCH TEST SPECIFIED IN SUBSECTION 807.05 OF THE STANDARD SPECIFICATIONS.

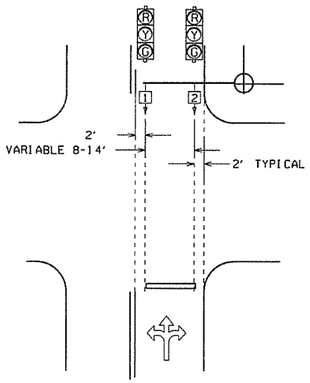
DATE	REVISION	DATE FILM
2-27-14	REVISED NOTES.	
9-12-13	ISSUED AS STANDARD DRAWING	
7-21-11	REVISED PED SIGN, CABINET GROUNDING	
4-17-08	REVISED TO 2001 AASHTO STANDARDS	
10-12-04	REV. CABINET ORIENT. & SIGNAL OPER.	
5-22-02	REV. TYP. SPAN WIRE ASSEMBLY	
12-27-99	REVISED	
11-18-98	REVISED NOTES	
11-21-95	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

SPAN WIRE ASSEMBLY WOOD POLE

STANDARD DRAWING SD-7

(A)



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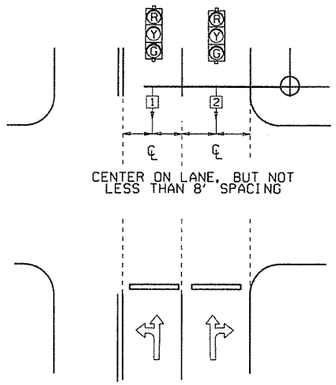

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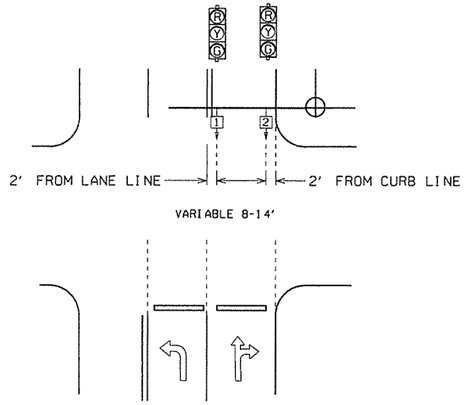
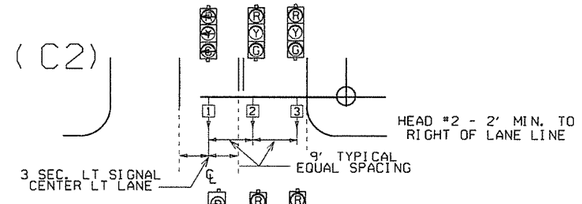
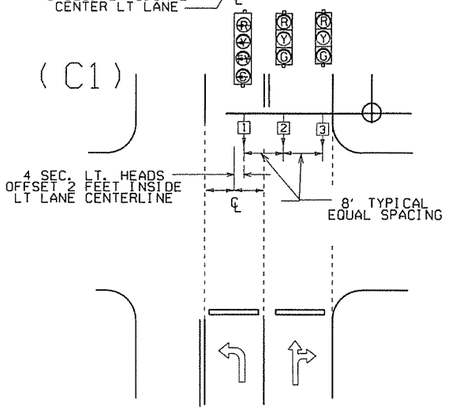


(C2)



(C1)



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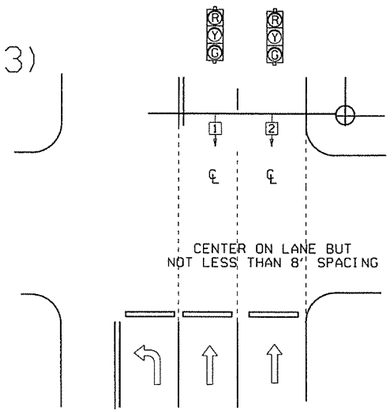

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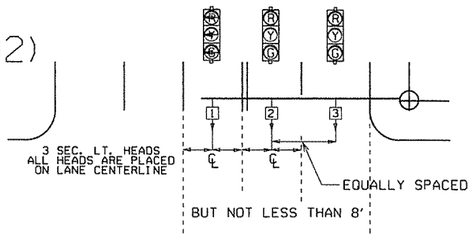
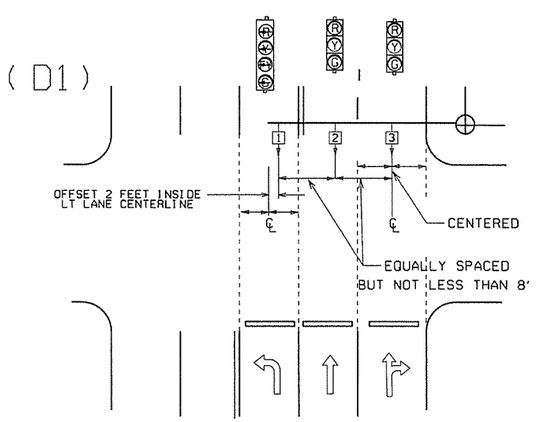
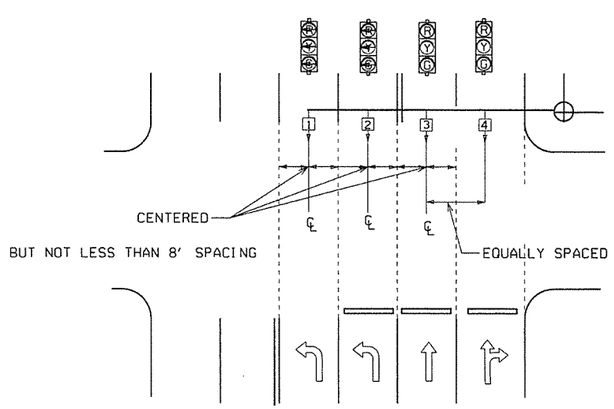


(D1)



NOTE: WHERE LEFT TURN HEAD (HEAD 1 ON D1 AND D2) IS NOT CALLED FOR ON PLANS, MAST ARM LENGTH MAY STILL BE ALLOWED FOR FUTURE INSTALLATION. HEADS FOR THROUGH MOVEMENTS SHALL STILL BE ALIGNED WITH THROUGH LANES AS SHOWN ON DETAILS.

(E)



℄ = CENTER OF LANE FROM APPROACH SIDE

GENERAL NOTES:

1. FOUR SECTION 'PROTECTED/PERMISSIVE' LEFT TURN HEADS SHOULD BE PLACED A MINIMUM OF TWO (2') FEET TO THE RIGHT OF THE CENTERLINE OF THE APPROACHING LEFT TURN LANE.

2. THREE SECTION 'PROTECTED' LEFT TURN HEADS SHOULD BE PLACED ON THE CENTERLINE OF THE APPROACHING LEFT TURN LANE.

3. WHEN IT IS NECESSARY TO PLACE POLES OTHER THAN AS SHOWN ON PLAN SHEET(S) RESULTING IN MAST ARM EXTENDING MORE THAN TWO FEET PAST (TO THE LEFT OF) THE CENTERLINE OF THE APPROACHING LEFT TURN LANE, MAST ARM SHALL BE CUT TO APPROPRIATE LENGTH AS DETERMINED BY THE ENGINEER, AND A NEW END CAP PROVIDED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THIS PRIOR TO INSTALLING THE MAST ARM IF ADDITIONAL COMPENSATION IS REQUIRED.

4. SIGNAL HEAD SPACING SHALL, IN NO CASE, BE LESS THAN EIGHT (8') FEET BETWEEN HEADS ON CENTER, MEASURED HORIZONTALLY PERPENDICULAR TO THE APPROACH.

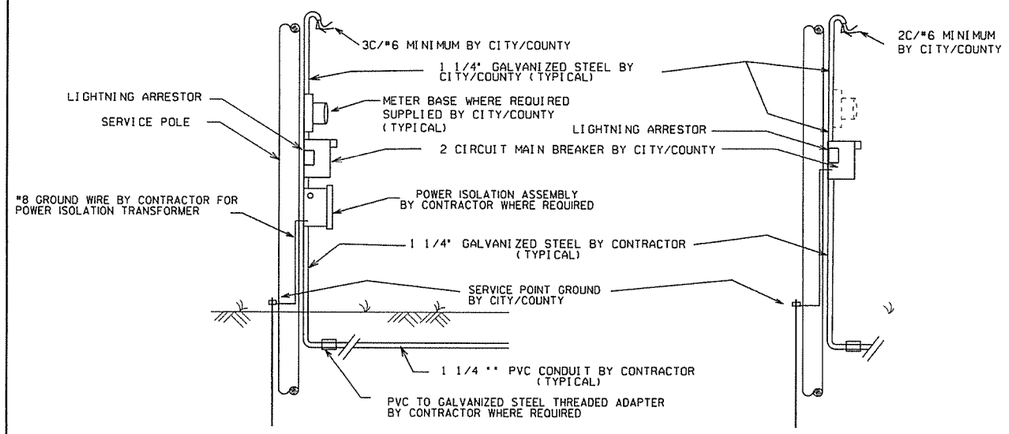
5. ALL SIGNAL HEADS SHOWN ON THIS DETAIL SHEET SHALL BE LOCATED ACCORDING TO THE DIMENSIONS SHOWN IN RELATION TO THE APPROACH SIDE OF THE INTERSECTION.

6. MAXIMUM MOUNTING HEIGHT OF SIGNAL FACES LOCATED BETWEEN 40 FEET AND 53 FEET FROM STOP BAR SHALL BE IN ACCORDANCE WITH FIGURE 4D-1 OF 2009 MUTCD.

			ARKANSAS STATE HIGHWAY COMMISSION
9-12-13	ISSUED AS STANDARD DRAWING		SIGNAL HEAD PLACEMENT
3-11-10	2009 MUTCD		
12-9-99	ISSUED		STANDARD DRAWING SD-8
DATE	REVISION	DATE FILM	

MAIN BREAKER NOT NEAR CONTROLLER CABINET SECONDARY REQUIRED

WITH POWER ISOLATION ASSEMBLY



WITHOUT POWER ISOLATION ASSEMBLY

NOTES TO CONTRACTOR AND AGENCY RESPONSIBLE FOR MAINTENANCE OF THE INTERSECTION (CITY/COUNTY)

ELECTRICAL SERVICE TYPICALLY FALLS INTO TWO CATEGORIES: MAIN BREAKER NEAR CONTROLLER CABINET; AND MAIN BREAKER NOT NEAR CONTROLLER CABINET. THE CONTRACTOR'S AND THE CITY'S OR COUNTY'S RESPONSIBILITY VARIES ACCORDINGLY AS INDICATED ON THESE DETAILS.

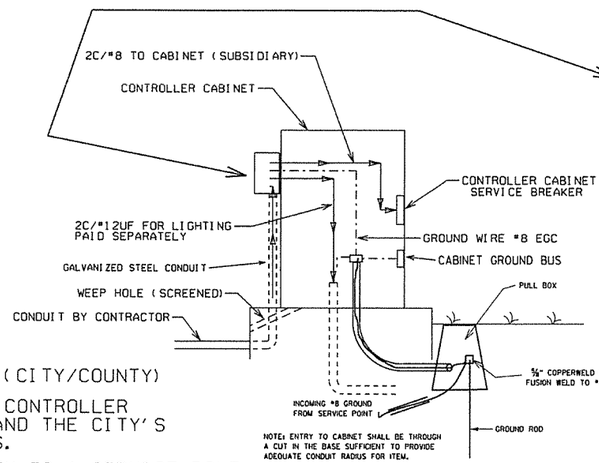
1. ALL SITUATIONS: ELECTRICAL SERVICE SHALL BE PROVIDED BY THE CITY/COUNTY TO A SERVICE POLE WITH EXTERNAL RAINTIGHT BREAKER (MAIN BREAKER) AT A MUTUALLY ACCEPTABLE POINT WITHIN THE RIGHT-OF-WAY. SERVICE POINT INCLUDES GALVANIZED STEEL CONDUIT TO A POINT 18" BELOW GROUND LINE, TWO CIRCUIT MAIN BREAKER, LIGHTNING ARRESTOR, POWER ISOLATION ASSEMBLY WHERE REQUIRED, METER LOOP IF REQUIRED BY LOCAL UTILITY, ELECTRICAL CONDUCTORS AND WEATHERHEAD. WHERE STREET LIGHTING IS INCLUDED AS PART OF SIGNAL INSTALLATION, STREET LIGHTING CIRCUIT (2C/#12 AWG UF RATED, TYPICAL) SHALL BE KEPT SEPARATE FROM THE CIRCUIT SERVING TRAFFIC SIGNAL. SERVICE WIRE AND WIRING FROM THE CONTROLLER TO MAIN BREAKER IS PROVIDED BY THE CONTRACTOR AS A PART OF THIS CONTRACT. WIRE AND WIRING FROM MAIN BREAKER, AND CONNECTION TO THE UTILITY IS THE RESPONSIBILITY OF THE CITY/COUNTY.

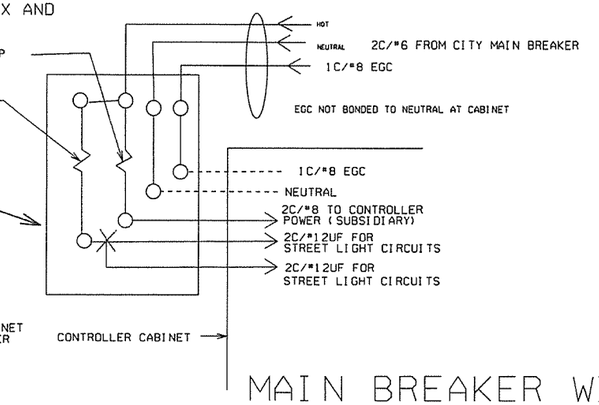
2. MAIN BREAKER NOT NEAR CONTROLLER CABINET: THE MAIN BREAKER ASSEMBLY, GALVANIZED STEEL CONDUIT, WEATHERHEAD AND WIRE ABOVE MAIN BREAKER AND CONNECTION TO THE UTILITY SHALL BE PROVIDED BY CITY/COUNTY. CONTRACTOR SHALL PROVIDE AS PART OF CONTRACT SECONDARY BREAKER, CONDUIT, WIRE AND WIRING TO THE MAIN BREAKER.

3. MAIN BREAKER NEAR CONTROLLER CABINET: ALL COMPONENTS OF THE SERVICE POINT WITH THE EXCEPTION OF THE WIRE AND WIRING ABOVE THE MAIN BREAKER IS FURNISHED AND INSTALLED BY THE CONTRACTOR. WIRING FROM MAIN BREAKER INCLUDING CONNECTION TO THE UTILITY, IS THE RESPONSIBILITY OF THE CITY/COUNTY. IF METER LOOP IS REQUIRED, METER BASE AND HARDWARE IS PROVIDED BY THE CITY/COUNTY AND INSTALLED BY THE CONTRACTOR.

GROUND ROD-A 10'X ⅝" GROUND ROD SHALL BE INSTALLED IN THE PULL BOX FOR EACH POLE AND THE CONTROLLER. PAYMENT FOR THE GROUND ROD AND ½" NMC SHALL BE INCLUDED IN ITEM 701. THE PULL BOX AND CONDUCTOR BOX SHALL BE PAID FOR SEPARATELY.

SECONDARY BREAKER BY CONTRACTOR (SUBSIDIARY)

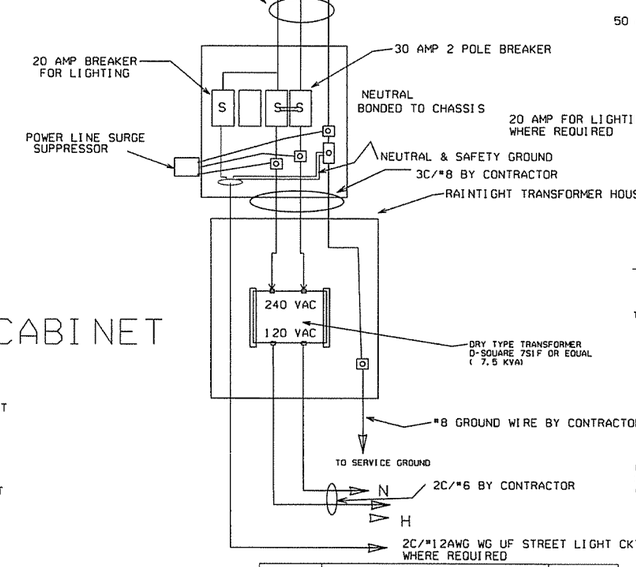




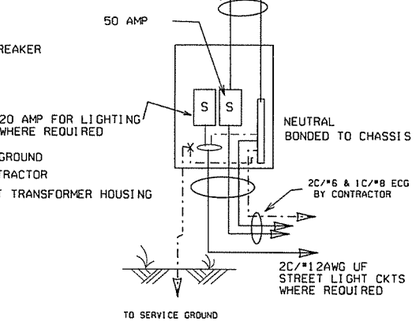
MAIN BREAKER WIRING (TYPICAL)

SERVICE GROUND IS TYPICALLY TIED TO NEUTRAL AT THE MAIN BREAKER. AS SUCH, CONTROLLER GROUND IS NOT TIED TO NEUTRAL AT SECONDARY BREAKER OR IN CONTROLLER CABINET.

WITH POWER ISOLATION ASSEMBLY
4 CIRCUIT MAIN BREAKER

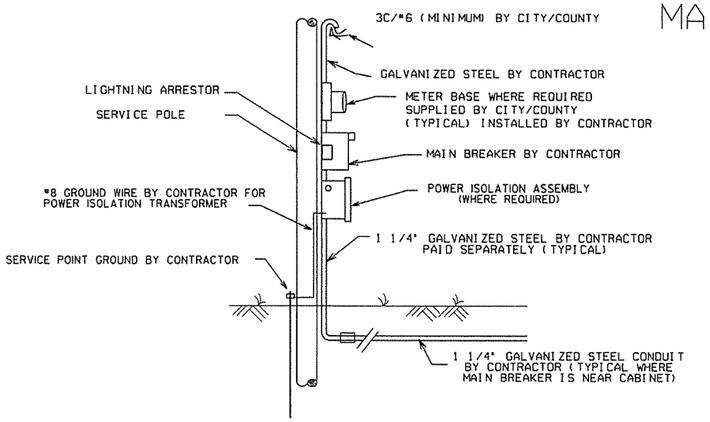


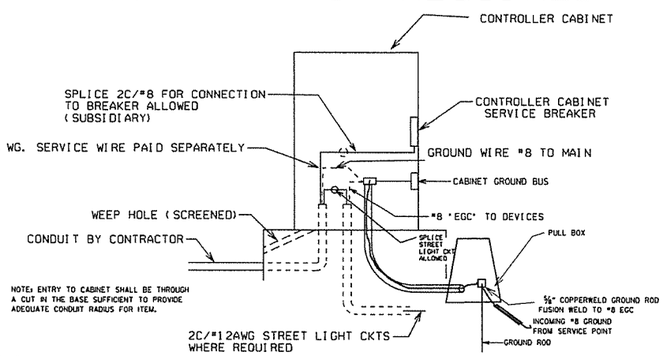
WITHOUT POWER ISOLATION ASSEMBLY
2 CIRCUIT MAIN BREAKER



NOTE: ELECTRICAL GROUND CONDUCTOR (EGC) ADDED 3-3-2003, CONSISTING OF A 1C/#8AWG CU GREEN WIRE AS PER NATIONAL ELECT. CODES.

MAIN BREAKER NEAR CONTROLLER CABINET SECONDARY NOT REQUIRED





DATE	REVISION	DATE FILM
9-12-13	ISSUED AS STANDARD DRAWING	
4-18-13	ADDED LIGHTNING ARRESTOR	
5-21-09	REVISED GROUNDING	
7-31-08	REVISED GROUNDING	
3-3-03	ADDED EGC NOTE	
9-26-01	REVISED	
12-27-99	REVISED	
7-28-99	REVISED	
2-5-99	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

SERVICE POINT

STANDARD DRAWING SD-9

NOTES, PED AND TRAFFIC SIGNAL HEAD SIGNS:
EACH ITEM "TRAFFIC SIGNAL HEAD (4 SEC., 1-WAY)" SHALL INCLUDE A SPECIAL SIGN AS SHOWN, ATTACHED TO THE MAST ARM OR SPAN ASSEMBLY 12' TO THE RIGHT OF THE SIGNAL HEAD UNLESS REMOVED WITHIN THE SIGNAL PLAN NOTES.

EACH ITEM "TRAFFIC SIGNAL HEAD (3 SEC., 1-WAY)" TO BE USED AS A LEFT TURN INDICATION ONLY SHALL INCLUDE A SIGN (R10-10) AS SHOWN, ATTACHED TO THE MAST ARM OR SPAN ASSEMBLY 12' TO THE RIGHT OF THE SIGNAL HEAD.

EACH PEDESTRIAN PUSHBUTTON SHALL HAVE ONE R10-3E SIGN ATTACHED TO THE POLE ABOVE THE BUTTON. ALL SIGN FACES SHALL BE CONSTRUCTED OF HIGH INTENSITY SHEETING (TYPE III) WITH SILKSCREEN LEGEND AND BORDER.

ALL SIGN BLANKS SHALL BE CONSTRUCTED OF ALUMINUM ALLOY (ASTM DESIGNATION B-209. ALLOY 5052-H38) WITH THICKNESS OF 0.100 INCH.

GENERAL NOTES:
1. MAST ARM POLES SHALL BE MOUNTED A MINIMUM OF 4 FT. BEHIND CURB OR SHOULDER.

2. OCTAGONAL POLES AND ARMS MEETING THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS CAN BE INSTALLED IN LIEU OF ROUND. ALL POLES AND ARMS IN A JOB MUST BE THE SAME SHAPE.

3. MINIMUM STRUCTURAL REQUIREMENTS:
DESIGN SPECIFICATIONS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, 4TH EDITION (2001) WITH 2003 AND 2006 INTERIMS.

USE FATIGUE CATEGORY I FOR ALL STRUCTURES ON ROUTES WHERE THE SPEED LIMIT IS 65 MPH AND GREATER AT THE STRUCTURE LOCATION AND ON ROUTES WHERE SPEED LIMIT IS GREATER THAN 45 MPH WITH AN ARM 60' OR LONGER.

USE FATIGUE CATEGORY II FOR STRUCTURES ON ROUTES WITH A SPEED LIMIT LESS THAN 65 MPH AND GREATER THAN 45 MPH WITH ARMS LESS THAN 60' AND ROUTES WITH SPEED LIMITS OF 45 MPH AND LESS WITH AN ARM 60' OR LONGER.

USE FATIGUE CATEGORY III FOR ALL STRUCTURES WHERE SPEED LIMIT IS 45 MPH AND LESS AND ARMS LESS THAN 60'.

CONSTRUCTION SPECIFICATIONS: ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (CURRENT EDITION) WITH APPLICABLE SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

BASE WIND SPEED: 90 MPH.

STEEL MEMBERS CONSIDERED MAIN LOAD CARRYING MEMBERS WITH A THICKNESS GREATER THAN 1/2" SHALL MEET THE LONGITUDINAL CHARPY V-NOTCH TEST SPECIFIED IN SUBSECTION 807.05 OF THE STANDARD SPECIFICATIONS.

DEAD LOAD: AS A MINIMUM, DESIGN SHALL BE BASED ON THE FIXED ATTACHMENTS SHOWN BELOW OR AS MODIFIED IN THE PLANS.

ALL SIGNAL HEADS TO BE ONE WAY, 12 INCH, AND HAVE 5 IN. BACK PLATES:

HEADS AT END OF ARM - ONE 4 SEC., 85 LB., 16.0 SQ. FT. ONE SIGN MOUNTED 3 FT. FROM SIGNAL = 2' X 0" X 2' = 6"; 20 LB. REMAINING HEADS SPACED A 8 FT. = 3 SEC., 56 LB., TWO 5 SEC):
14.4 SQ. FT. DESIGN TO ACCOMMODATE (INCLUDING
2 HEADS FOR ARMS 10 TO 16 FT.
2 HEADS FOR ARMS 10 TO 16 FT., INCLUDING LB.
3 HEADS FOR 18 TO 24 FT. ARMS;
4 HEADS FOR OVER 26 FT. ARMS.

STREET NAME SIGN -- 72" X 18", 36 LB., MOUNTED SUCH THAT OUTSIDE EDGE IS NOT GREATER THAN 12 FT. FROM POLE. DEPENDING UPON POSITION OF SIGNAL HEAD ADJACENT TO POLE. SIGN MAY OVERLAP POLE SHAFT ROADWAY LUMINAIRES (WHERE REQUIRED ON PLAN SHEET) = VARIABLE ARM LENGTH (MAX.), 3.3 SQ. FT., 75 LB. PED SIGNALS -- TWO 2 SEC. 12 INCH MOUNTED 8 FT. FROM BASE OF POLE.
POST MOUNTED 3 SEC. SIGNAL HEAD AT 10 FT. ON SIDE OF POLE.

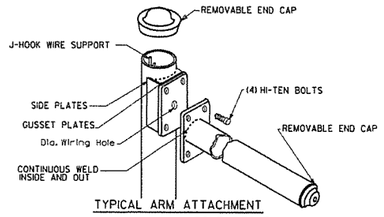
4. POLE/MAST ARM CAP -- POLE AND MAST ARMS CAPS SHALL BE PROVIDED, FABRICATED OF EITHER STEEL OR CAST ALUMINUM.

5. HAND HOLE -- HAND HOLES SHALL BE 4 X 6 INCHES FOR STANDARD, AND 3 X 5 INCHES FOR PED POLES, MINIMUM PLACED APPROXIMATELY 12 INCHES FROM BASE, AND SHALL BE FIXED WITH A BOLT DOWN COVER. A VACUUM FORMED ABS COVER IS AN ACCEPTABLE ALTERNATE TO STEEL. POLES GREATER THAN 21 FT. IN HEIGHT (FOR ROADWAY LUMINAIRE ATTACHMENT) SHALL INCLUDE A HAND HOLD WITHIN 12 INCHES OF MAST ARM(S) ATTACHMENT(S).

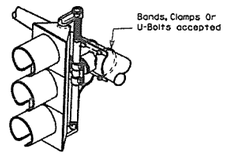
6. POLE/MAST ARM TAPER AND SLOPE - AVERAGE TAPER OF SIGNAL ARMS AND POLE SHALL BE 0.125 TO 0.15 INCHES PER FT.

MAST ARM CENTERLINE ANGLE AT ATTACHMENT POINT WITH POLE SHALL MAINTAIN NOT LESS THAN 0.5 DEGREES OR MORE THAN 4 DEGREES POSITIVE SLOPE WITH A LINE PERPENDICULAR TO THE POLE CENTERLINE. THE ARM SHALL MAINTAIN A POSITIVE AFTER IT IS PLACED UNDER LOAD.

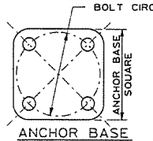
7. NUT COVERS - EACH POLE SHALL INCLUDE A BOLT DOWN NUT COVER FOR EACH ANCHOR BOLT.



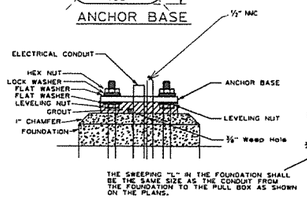
TYPICAL ARM ATTACHMENT

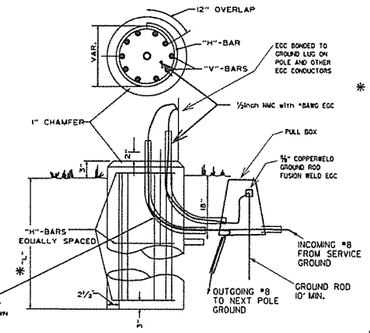


NOTE: THE SIGNAL SHALL BE CONNECTED TO THE MAST ARM BY BRACKETING AS DIRECTED BY THE ENGINEER.



ANCHOR BASE



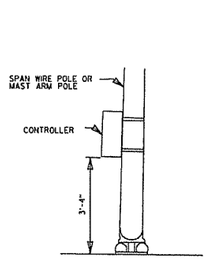


THE GROUND ROD SHALL BE FUSION WELDED TO A 1C/#8 A.W.G. SOLID COPPER GROUND WIRE. ATTACHMENT TO THE PRIMARY GROUND MAY BE BY AN APPROVED CLAMP. THE ROD IS TO BE LOCATED IN THE CONCRETE PULL BOX.

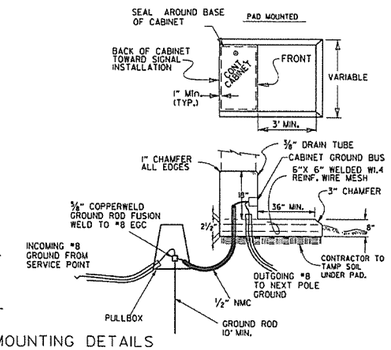
TYPICAL FOUNDATION DETAILS

POLE FOUNDATION MINIMUM DIMENSIONS AND STEEL REINFORCING. ALL REINFORCING STEEL SHALL BE GRADE 40 MIN.

ARM LENGTH	FDN. DIAMETER	DEPTH "L" *	STEEL VERT.	STEEL HORZ.	STEEL O/C.
PED	30"	7'-0"	12-#7 (6'-6")	10-#4	8.44"
2' to 12'	30"	10'-6"	12-#7 (10'-0")	15-#4	8.42"
over 12' to 20'	30"	11'-6"	12-#7 (11'-0")	16-#4	8.66"
over 20' to 35'	36"	12'-6"	13-#8 (12'-0")	17-#4	8.88"
over 35' to 50'	36"	13'-6"	13-#8 (13'-0")	19-#4	8.56"
over 50' to 72'	42"	14'-6"	18-#8 (14'-0")	20-#4	8.74"
Twins to 20'	30"	16'-0"	12-#6 (15'-6")	22-#4	8.76"
Twins over 20' to 44'	36"	16'-0"	13-#8 (15'-6")	22-#4	8.76"
Twins over 44' to 50'	42"	16'-0"	18-#8 (15'-6")	22-#4	8.76"
Twins over 50' to 72'	42"	16'-6"	18-#8 (16'-0")	23-#4	8.64"



SPAN WIRE SUPPORT POLE AND MAST ARM POLE MOUNTED



CONTROLLER CABINET MOUNTING DETAILS

UNLESS OTHERWISE DIRECTED BY THE ENGINEER, CABINET ORIENTATION SHALL BE SUCH THAT THE BACK OF THE CABINET IS PARALLEL TO THE STREET AND POSITIONED TO ALLOW VISIBILITY OF THE SIGNAL DISPLAY WHILE OBSERVING THE CONTROLLER FRONT PANEL.

8. GROUND ROD - A 10' X 5/8" GROUND ROD SHALL BE INSTALLED IN THE PULL BOX FOR EACH POLE AND THE CONTROLLER. PAYMENT FOR THE GROUND ROD AND 1/2" NMC SHALL BE INCLUDED IN ITEM 714 FOR SIGNAL POLES AND ITEM 701 FOR THE CONTROLLER. THE PULL BOX AND CONDUCTOR BOX SHALL BE PAID FOR SEPARATELY.

9. POLE BASE/FOUNDATION - ANCHOR BOLTS SHALL INCLUDE AS A MINIMUM, ONE LEVELING NUT, TWO FLAT WASHERS, ONE LOCK WASHER, AND ONE HEX. NUT. PERIMETER OF ANCHOR BASE SHALL BE GROUTED WITH A 1/4" WEEP HOLE. ALL CONCRETE SHALL BE CLASS "S" OR GREATER.

10. CONCRETE - ALL CONCRETE FOR CONTROLLER CABINET AND POLE FOUNDATIONS SHALL BE CLASS "S" OR GREATER.

11. PEDESTRIAN PHASES - PEDESTRIAN MOVEMENTS SHALL BE PUSH BUTTON ACTUATED AND CONCURRENTLY TIMED, UNLESS OTHERWISE INDICATED ON THE PLAN SHEET(S). FURNISHING AND INSTALLING PED PUSH SWITCH SHALL BE CONSIDERED SUBSIDIARY TO THE ITEM PEDESTRIAN SIGNAL HEAD.

SIGNAL OPERATION NOTES:

FLASHING OPERATION - PRIOR TO NORMAL OPERATION, SIGNAL SHALL BE FLASHED FOR A PERIOD OF 3 TO 5 WORK DAYS OR AS DIRECTED BY THE ENGINEER. SIGNAL SHALL BE PLACED IN OPERATION ONLY ON A REGULAR WORK DAY, EXCEPT FRIDAY.

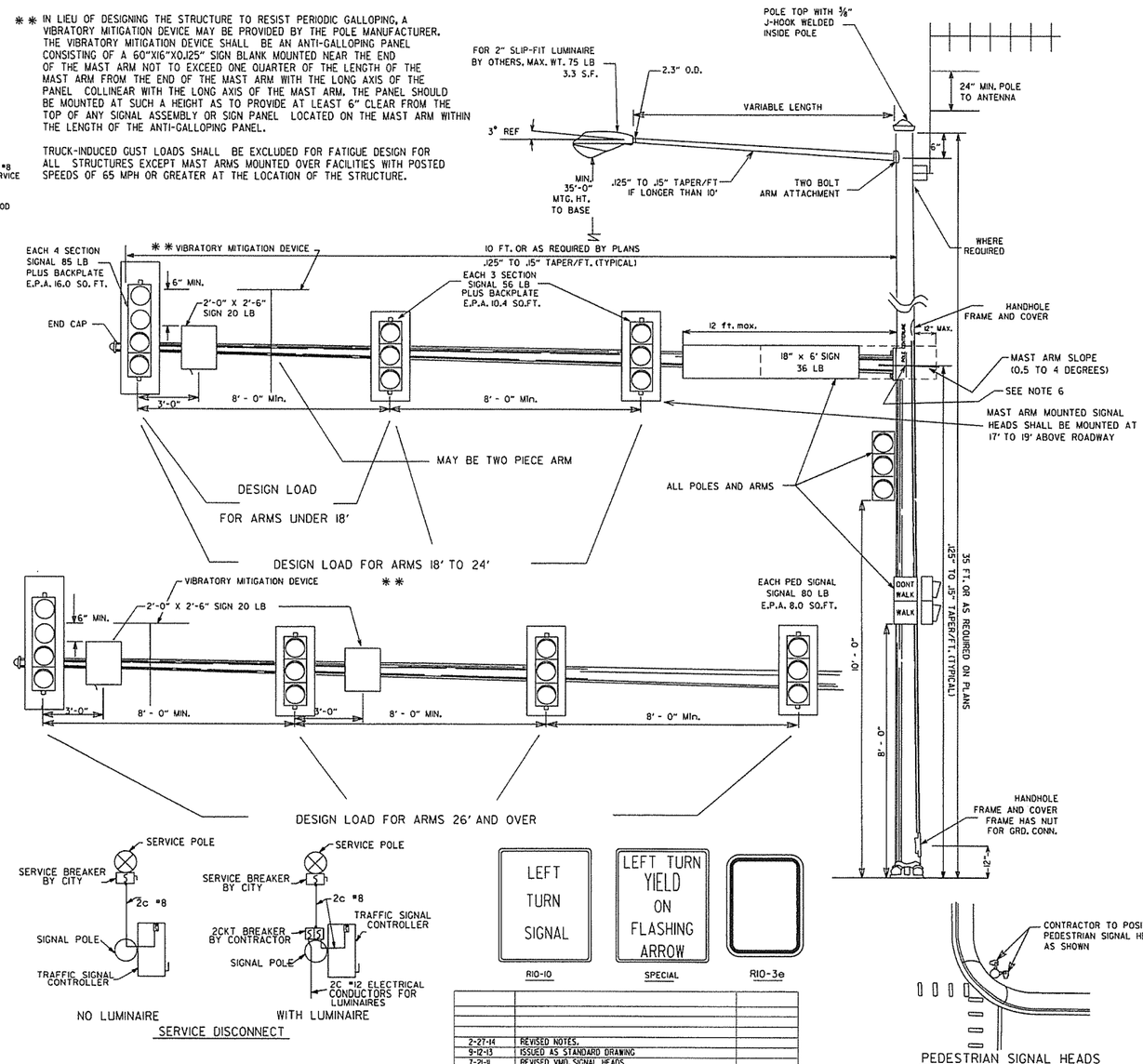
THE CONTRACTOR MAY BE REQUIRED TO ALTER THE FLASHING DISPLAY DURING THE TEMPORARY FLASH PERIOD. AT THE TIME INTERSECTION IS PLACED IN PERMANENT OPERATION, THE FLASH SEQUENCE SHALL THEN BE RETURNED TO THAT INDICATED ON THE PLAN SHEETS. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED FOR THESE ALTERATIONS IN FLASH SEQUENCE.

SPECIAL NOTE: 90 MPH WIND ZONE DESIGN, SEE NOTE 3. MINIMUM STRUCTURAL REQUIREMENTS.

* WHEN THE GROUND ELEVATION AT THE POLE IS LOWER THAN THE ROADWAY ELEVATION, THE LENGTH OF FOUNDATION ABOVE THE GROUND MAY BE INCREASED TO PROVIDE THE REQUIRED SIGNAL HEAD CLEARANCE ABOVE THE ROADWAY. WHEN THE REQUIRED LENGTH OF FOUNDATION ABOVE THE GROUND IS 18" OR LESS, NO INCREASE IN DEPTH "L" WILL BE REQUIRED. WHEN THE REQUIRED LENGTH OF FOUNDATION ABOVE THE GROUND IS 5'-6" OR LESS, INCREASE DEPTH "L" BY 1'-0". FOR LENGTHS GREATER THAN 5'-6", DEPTH "L" SHALL BE ADJUSTED AS DIRECTED BY THE ENGINEER. LONGITUDINAL REINFORCING, AS SHOWN IN THE TABLE, SHALL BE PROVIDED FOR THE LENGTH OF THE EXTENDED SHAFT AND #4 TIES SHALL BE PROVIDED AT A SPACING NOT TO EXCEED 9" ON CENTERS. PAYMENT WILL BE IN ACCORDANCE WITH SECTION 714 OF THE STANDARD SPECIFICATIONS.

** IN LIEU OF DESIGNING THE STRUCTURE TO RESIST PERIODIC GALLOPING, A VIBRATORY MITIGATION DEVICE MAY BE PROVIDED BY THE POLE MANUFACTURER. THE VIBRATORY MITIGATION DEVICE SHALL BE AN ANTI-GALLOPING PANEL CONSISTING OF A 60"X16"X0.125" SIGN BLANK MOUNTED NEAR THE END OF THE MAST ARM NOT TO EXCEED ONE QUARTER OF THE LENGTH OF THE MAST ARM FROM THE END OF THE MAST ARM WITH THE LONG AXIS OF THE PANEL COLLINEAR WITH THE LONG AXIS OF THE MAST ARM. THE PANEL SHOULD BE MOUNTED AT SUCH A HEIGHT AS TO PROVIDE AT LEAST 6" CLEAR FROM THE TOP OF ANY SIGNAL ASSEMBLY OR SIGN PANEL LOCATED ON THE MAST ARM WITHIN THE LENGTH OF THE ANTI-GALLOPING PANEL.

TRUCK-INDUCED GUST LOADS SHALL BE EXCLUDED FOR FATIGUE DESIGN FOR ALL STRUCTURES EXCEPT MAST ARMS MOUNTED OVER FACILITIES WITH POSTED SPEEDS OF 65 MPH OR GREATER AT THE LOCATION OF THE STRUCTURE.



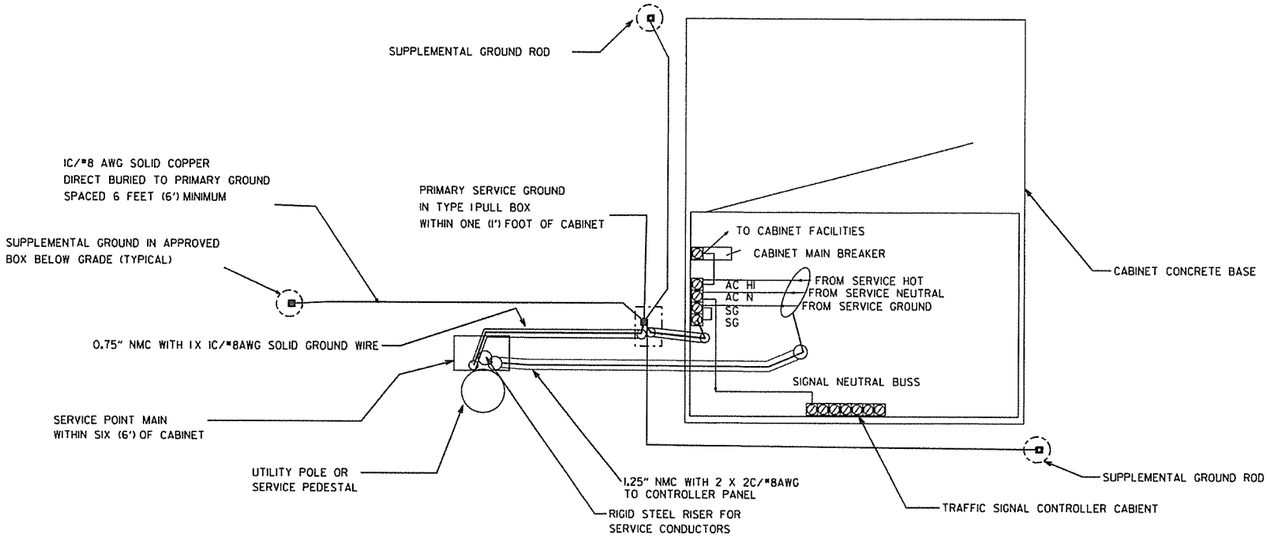
SERVICE DISCONNECT

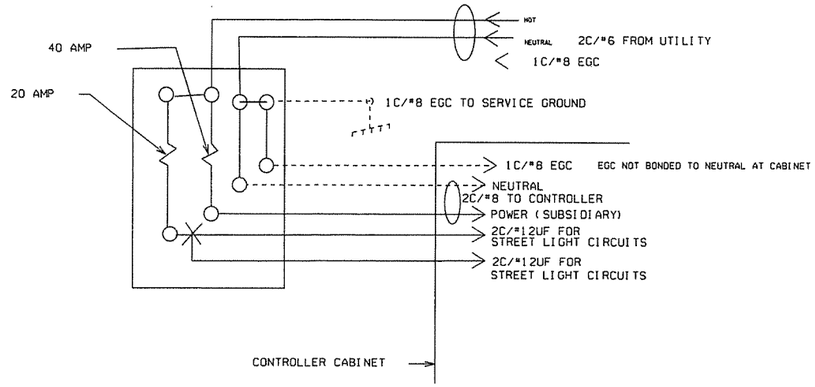
DATE	REVISION	DATE FILM
2-27-14	REVISED NOTES.	
9-12-13	ISSUED AS STANDARD DRAWING	
7-21-9	REVISED VMD, SIGNAL HEADS	
5-21-09	REVISED GROUNDING	
7-31-08	REVISED GROUNDING	
4-25-08	ADDED VIBRATORY MITIGATION DEVICE & NOTES	
4-18-08	REVISED AASHTO NOTES	
4-17-08	REVISED TO 2006 AASHTO STANDARDS	
10-12-04	REVISED CABINET ORIENTATION	
6-23-04	REVISED	
5-11-04	REV. NOTE 3/AASHTO REQUIREMENTS	
6-11-01	REV. NOTES & POLE MAST ARM SLOPE	
4-1-01	REVISED POLE TAPERS	
4-25-00	REV. NOTES & SIGNAL HEAD PLACEMENT	
11-22-99	REVISED FOUNDATION DETAILS	
11-17-98	REVISED DETAILS AND NOTES	
11-21-95	ISSUED	

ARKANSAS STATE HIGHWAY COMMISSION

STEEL POLE WITH MAST ARM

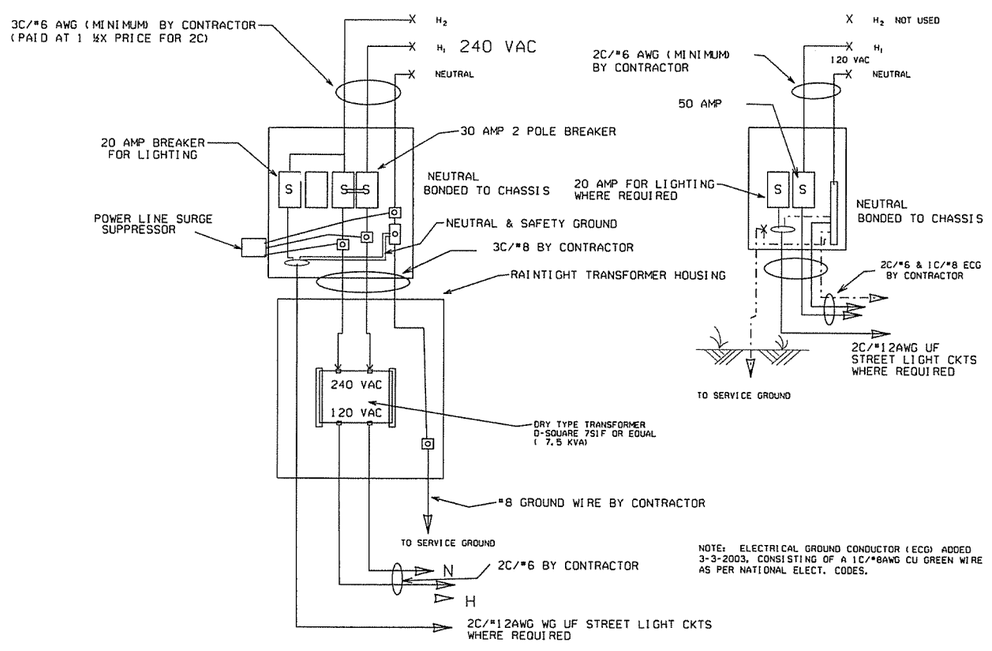
STANDARD DRAWING SD-11





MAIN BREAKER WIRING (TYPICAL)

SERVICE GROUND IS TYPICALLY TIED TO NEUTRAL AT THE MAIN BREAKER. AS SUCH, CONTROLLER GROUND IS NOT TIED TO NEUTRAL AT SECONDARY BREAKER OR IN CONTROLLER CABINET.



1. LOCATION OF SERVICE: TO MEET THE REQUIREMENTS FOR SAFETY AND MAXIMIZE LIGHTNING PROTECTION, THE "SERVICE POINT MAIN" FROM THE UTILITY PRIMARY SERVICE POINT MUST BE WITHIN SIX (6') FEET OF THE TRAFFIC SIGNAL CONTROLLER CABINET. ELECTRICAL SERVICE SHALL BE PROVIDED BY THE CITY/COUNTY TO A SERVICE POLE OR PEDISTAL WITH EXTERNAL RAINTIGHT BREAKER (MAIN BREAKER) AT A MUTUALLY ACCEPTABLE POINT WITHIN THE RIGHT-OF-WAY. SERVICE POINT INCLUDES GALVANIZED STEEL CONDUIT TO A POINT 18" BELOW GROUND LINE, TWO CIRCUIT MAIN BREAKER, POWER ISOLATION ASSEMBLY WHERE REQUIRED, METER LOOP IF REQUIRED BY LOCAL UTILITY, ELECTRICAL CONDUCTORS AND WEATHERHEAD. WHERE STREET LIGHTING IS INCLUDED AS PART OF SIGNAL INSTALLATION, STREET LIGHTING CIRCUIT (2C/#12 AWG UF RATED, TYPICAL) SHALL BE KEPT SEPARATE FROM THE CIRCUIT SERVING TRAFFIC SIGNAL. SERVICE WIRE AND WIRING FROM THE CONTROLLER TO MAIN BREAKER IS PROVIDED BY THE CONTRACTOR AS A PART OF THIS CONTRACT. WIRE AND WIRING FROM MAIN BREAKER, AND CONNECTION TO THE UTILITY IS THE RESPONSIBILITY OF THE CITY/COUNTY.

2. METER LOOP: ALL COMPONENTS OF THE SERVICE POINT WITH THE EXCEPTION OF THE WIRE AND WIRING ABOVE THE MAIN BREAKER IS FURNISHED AND INSTALLED BY THE CONTRACTOR. WIRING FROM MAIN BREAKER INCLUDING CONNECTION TO THE UTILITY, IS THE RESPONSIBILITY OF THE CITY/COUNTY. IF METER LOOP IS REQUIRED, METER BASE AND HARDWARE IS PROVIDED BY THE CITY/COUNTY AND INSTALLED BY THE CONTRACTOR.

3. SUPPLEMENTAL GROUND RODS: SUPPLEMENTAL GROUND RODS ARE FUSION WELDED TO 1 C/#8AWG. SOLID COPPER GROUND WIRE. ATTACHMENT TO PRIMARY GROUND MAY BE BY AN APPROVED CLAMP. RODS ARE LOCATED IN A BOX APPROVED BY THE ENGINEER MEETING THE SAME LOADING REQUIREMENTS AS SECTION 711 CONCRETE PULL BOX OF THE STANDARD SPECIFICATION, WITH THE EXCEPTION TO DIMENSIONS. BOX MAY BE EITHER ROUND OR SQUARE APPROXIMATELY SIX (6") INCHES MINIMUM INSIDE DIMENSIONS AND SIX (6") INCHES DEPTH. (STRONGWELL PC0608BA06 WITH PC0608CA00 LID OR EQUAL)

9-12-13	ISSUED AS STANDARD DRAWING	
1-17-08	ISSUED	
DATE	REVISION	DATE FILM

ARKANSAS STATE HIGHWAY COMMISSION

SERVICE POINT INSTALLATION WITH SUPPLEMENTAL GROUNDING ARRAY

STANDARD DRAWING SD-12

SUPERELEVATION TABLE FOR ONE - WAY TRAFFIC

DEGREE OF CURVE	30 MPH e	30 MPH Ls (FT) MINIMUM	30 MPH Ls (FT) DESIRABLE	40 MPH e	40 MPH Ls (FT) MINIMUM	40 MPH Ls (FT) DESIRABLE	50 MPH e	50 MPH Ls (FT) MINIMUM	50 MPH Ls (FT) DESIRABLE	55 MPH e	55 MPH Ls (FT) MINIMUM	55 MPH Ls (FT) DESIRABLE	60 MPH e	60 MPH Ls (FT) MINIMUM	60 MPH Ls (FT) DESIRABLE	65 MPH e	65 MPH Ls (FT) MINIMUM	65 MPH Ls (FT) DESIRABLE	70 MPH e	70 MPH Ls (FT) MINIMUM	70 MPH Ls (FT) DESIRABLE
0° 15′	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 30′	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
0° 45′	N.C.			N.C.			N.C.			N.C.			N.C.			N.C.			N.C.		
1° 00′	N.C.			N.C.			R.C.			N.C.			N.C.			N.C.			N.C.		
1° 15′	N.C.			R.C.			R.C.			R.C.			N.C.			N.C.			N.C.		
1° 30′	N.C.			0.021			0.021			0.022			0.023			0.025			0.028		
1° 45′	N.C.			0.025			0.026			0.026			0.030			0.033			0.037		
2° 00′	R.C.			0.028	175		0.031	200		0.032	225		0.037	250		0.041	250		0.046	275	
2° 15′	R.C.			0.031			0.036			0.037			0.043			0.048			0.054		
2° 30′	0.021			0.034			0.040			0.043			0.049			0.055			0.062		
2° 45′	0.023			0.037			0.045			0.048			0.055			0.062			0.070		
3° 00′	0.025			0.040			0.049			0.053			0.061			0.069	265		0.078	300	
3° 15′	0.027	150		0.043			0.053			0.058			0.067			0.075	280		0.085	315	400
3° 30′	0.029			0.046			0.057			0.063			0.072			0.081	300		0.091	335	
3° 45′	0.031			0.049			0.061			0.067	230		0.077	260		0.087	315		0.096	350	
4° 00′	0.033			0.051			0.065	205		0.072	245		0.082	275		0.090	325	400	0.098	360	450
4° 30′	0.037			0.056			0.072	225		0.076	255		0.086	285		0.095	340		0.100	360	
5° 00′	0.040			0.061			0.078	240		0.080	265		0.090	295	400	0.097	345				
5° 30′	0.043			0.066	185		0.083	250		0.083	270		0.093	305		0.099	350				
6° 00′	0.046			0.070	190		0.088	260		0.087	280		0.096	315							
6° 30′	0.050			0.074	200		0.092	270		0.091	295		0.098	320							
7° 00′	0.053			0.078	210		0.095	280	350	0.094	300	400									
7° 30′	0.056			0.081	215		0.098	285		0.096	305										
8° 00′	0.058			0.084	220		0.099	290		0.100	315										
8° 30′	0.061			0.087	225	300	0.100	290													
9° 00′	0.063			0.089	230																
10° 00′	0.068	160		0.094	235																
11° 00′	0.072	170		0.097	250																
12° 00′	0.076	175		0.099	250																
13° 00′	0.080	180		0.100	250																
14° 00′	0.083	190																			
15° 00′	0.086	195																			
16° 00′	0.089	200																			
17° 00′	0.091	200																			
18° 00′	0.093	205																			
19° 00′	0.095	210																			
20° 00′	0.097	215	300																		
21° 00′	0.098	215																			
22° 00′	0.099	215																			
23° 00′	0.099	215																			
24° 00′	0.100	220																			

D MAX = 24° 45′ | D MAX = 13° 15′ | D MAX = 8° 15′ | D MAX = 6° 30′ | D MAX = 5° 15′ | D MAX = 4° 15′ | D MAX = 3° 30′

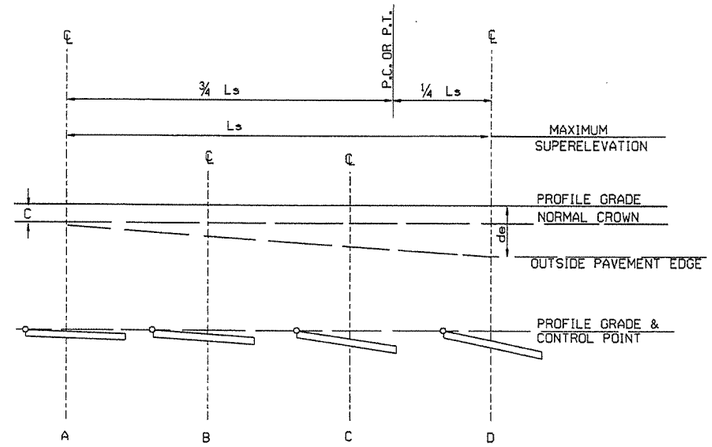
GENERAL NOTES

1. ON PAVEMENT WITH ONE-WAY TRAFFIC, THE SUPERELEVATION SHALL BE REVOLVED ON THE PROFILE GRADE POINT.
2. SUPERELEVATION VALUES SHOWN ON THE CROSS SECTIONS ARE VALUES (+) OR (-) TO BE ADDED OR SUBTRACTED FROM THE POINT OF CONTROL.
3. LENGTHS FOR Ls MAY BE ROUNDED IN MULTIPLES OF 25 FT. OR 50 FT. TO PERMIT SIMPLER CALCULATIONS.
4. MINIMUM Ls VALUES MAY BE USED FOR RAMPS; DESIRABLE VALUES SHALL APPLY TO MAIN LANES.
5. DIVIDED PAVEMENTS WIDER THAN 4 LANES SHALL HAVE ADDITIONAL TRANSITION LENGTHS AS FOLOWS:

6 LANE DIVIDED---------+20%
8 LANE DIVIDED---------+50%

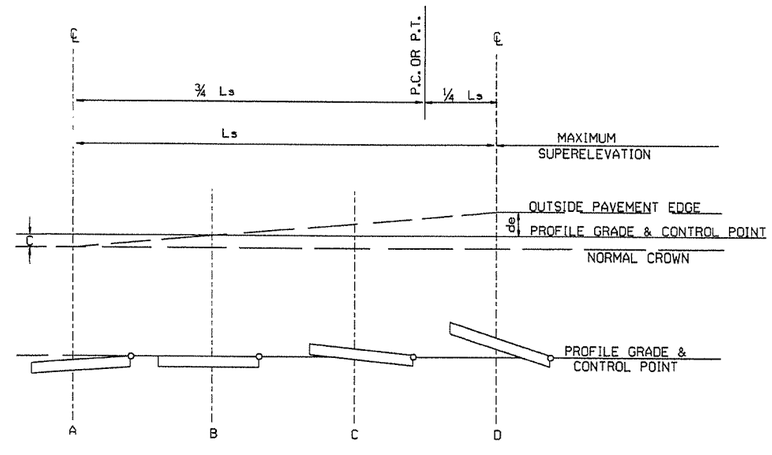
ABBREVIATIONS

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



ONE-WAY TRAFFIC
INSIDE LANE

SUPERELEVATION FORMULA = $S = -\frac{L(de-C)}{Ls} - C$



ONE-WAY TRAFFIC
OUTSIDE LANE

SUPERELEVATION FORMULA = $S = +\frac{L(de+C)}{Ls} - C$

DATE	REVISION	DATE FILMED
01-09-87	ISSUED	578-1-15-87

ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR ONE-WAY TRAFFIC

STANDARD DRAWING SE-1

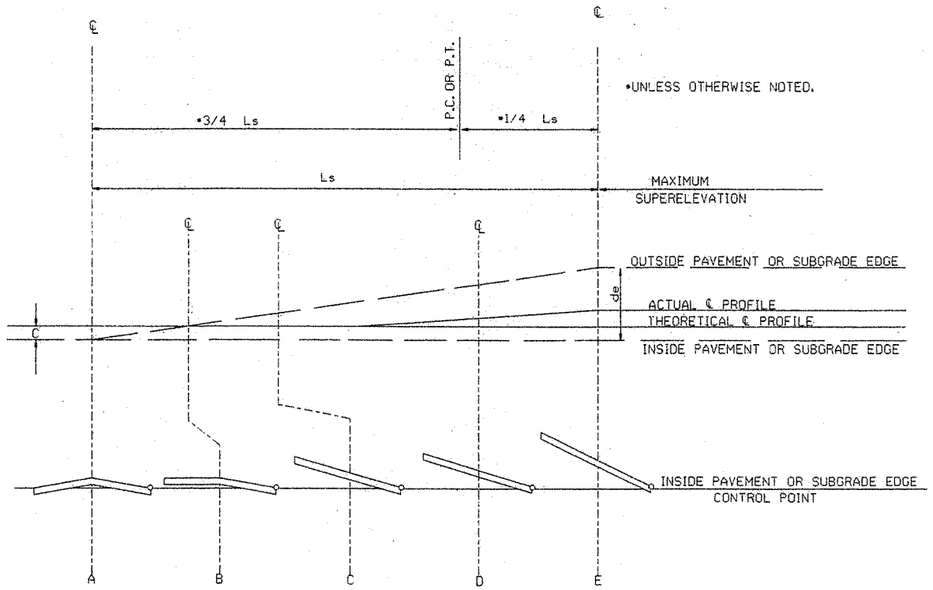
SUPERELEVATION TABLE FOR TWO - WAY TRAFFIC

DEGREE OF CURVE	30 MPH e	30 MPH Ls (FT) MINIMUM	30 MPH Ls (FT) DESIRABLE	40 MPH e	40 MPH Ls (FT) MINIMUM	40 MPH Ls (FT) DESIRABLE	50 MPH e	50 MPH Ls (FT) MINIMUM	50 MPH Ls (FT) DESIRABLE	55 MPH e	55 MPH Ls (FT) MINIMUM	55 MPH Ls (FT) DESIRABLE	60 MPH e	60 MPH Ls (FT) MINIMUM	60 MPH Ls (FT) DESIRABLE	70 MPH e	70 MPH Ls (FT) MINIMUM	70 MPH Ls (FT) DESIRABLE
0° 15′	N. C.			N. C.			N. C.			N. C.			N. C.			N. C.		
0° 30′	N. C.			N. C.			N. C.			N. C.			N. C.			N. C.		
0° 45′	N. C.			N. C.			R. C.			0.022			0.023			0.028		
1° 00′	N. C.			N. C.			0.021			0.026			0.030			0.037	275	300
1° 15′	N. C.			R. C.			0.026			0.032			0.037			0.046		
1° 30′	N. C.			0.021			0.031	200		0.037	225		0.043	250		0.054		
1° 45′	N. C.			0.025	175		0.036			0.043		300	0.049		300	0.062		
2° 00′	R. C.			0.028			0.040		250	0.048			0.055			0.070		
2° 15′	R. C.			0.031			0.045			0.053			0.061			0.078	300	350
2° 30′	0.021			0.034			0.049			0.058			0.067			0.085	315	
2° 45′	0.023			0.037		200	0.053			0.063			0.072			0.091	335	
3° 00′	0.025			0.040			0.057			0.067	230		0.077	260		0.096	350	400
3° 15′	0.027	150		0.043			0.061			0.072	245		0.082	275		0.098	360	
3° 30′	0.029			0.046			0.065	205		0.076	255		0.086	285		0.100	380	
3° 45′	0.031		200	0.049			0.069	215		0.080	265		0.090	295	350			
4° 00′	0.033			0.051			0.072	225		0.083	270		0.093	305				
4° 30′	0.037			0.056			0.078	240		0.087	280		0.096	315				
5° 00′	0.040			0.061			0.083	250		0.091	295		0.098	320				
5° 30′	0.043			0.066	185		0.088	260		0.094	300	350						
6° 00′	0.046			0.070	190		0.092	270		0.096	305							
6° 30′	0.050			0.074	200		0.095	280	300	0.100	315							
7° 00′	0.053			0.078	210		0.098	285										
7° 30′	0.056			0.081	215		0.099	290										
8° 00′	0.058			0.084	220		0.100	290										
8° 30′	0.061			0.087	225	250												
9° 00′	0.063			0.089	230													
10° 00′	0.068	160		0.094	235													
11° 00′	0.072	170		0.097	250													
12° 00′	0.076	175		0.099	250													
13° 00′	0.080	180		0.100	250													
14° 00′	0.083	190																
15° 00′	0.086	195																
16° 00′	0.089	200																
17° 00′	0.091	200																
18° 00′	0.093	205																
19° 00′	0.095	210																
20° 00′	0.097	215	250															
21° 00′	0.098	215																
22° 00′	0.099	215																
23° 00′	0.099	215																
24° 00′	0.100	220																

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

ABBREVIATIONS

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



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

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

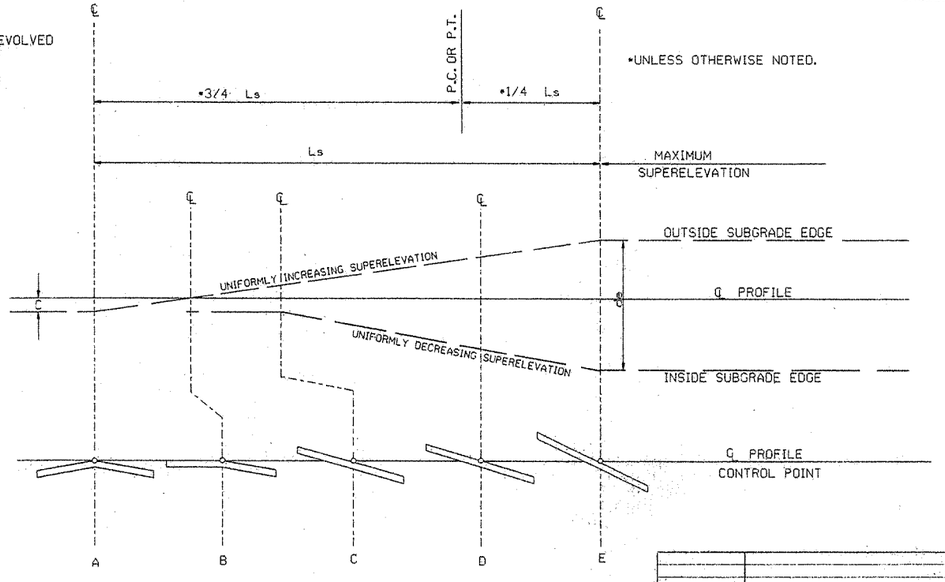
GENERAL NOTES

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

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

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

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



STANDARD METHOD WHEN SUPERELEVATION REVOLVES AROUND CENTER LINE

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

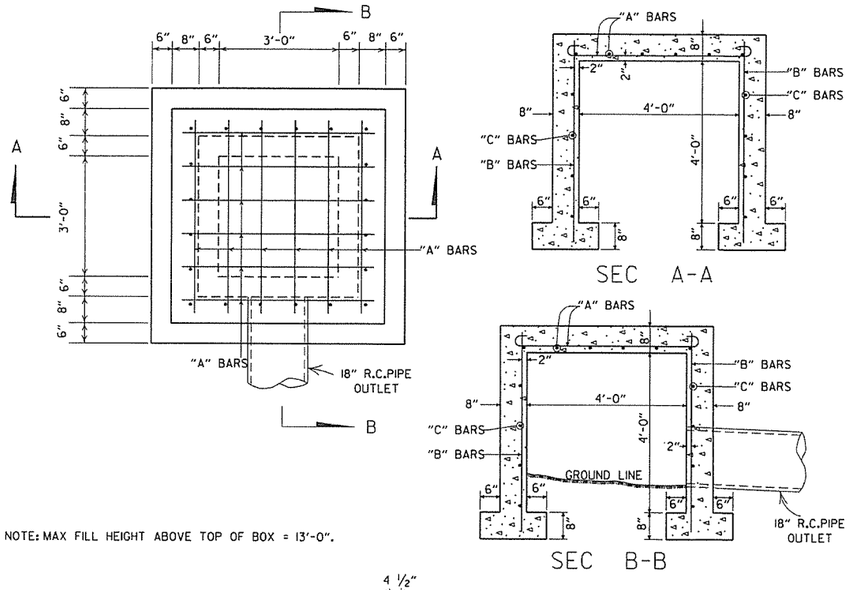
DATE	REVISION	DATE FILMED
10-18-96	ADDED FORMULA	10-18-96
01-09-87	ISSUED	534-1-9-87

ARKANSAS STATE HIGHWAY COMMISSION

TABLES AND METHOD OF SUPERELEVATION FOR TWO-WAY TRAFFIC

STANDARD DRAWING SE-2

FILE STDSE2.DGN

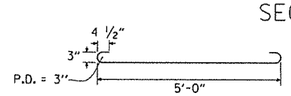


NOTE: MAX FILL HEIGHT ABOVE TOP OF BOX = 13'-0".

STEEL SCHEDULE

BARS	NUMBER	LENGTH	SPACING
"A"	12	6'-0"	10"
"B"	20	5'-0"	10 ½"
"C"	16	5'-0"	12"

ALL STEEL TO BE #4 BARS



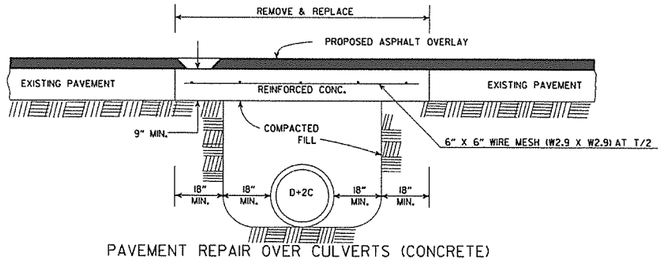
QUANTITIES

CONCRETE 3.31 CU. YDS.
REINFORCING STEEL 168 LB.

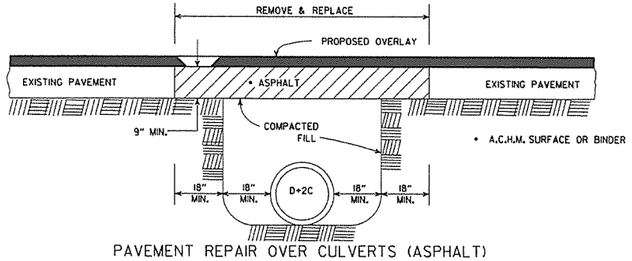
GENERAL NOTE:

THE PAY ITEMS FOR REINFORCED CONCRETE SPRING BOXES SHALL BE FOR THE QUANTITIES OF CONCRETE OF THE CLASS SPECIFIED, REINFORCING STEEL, EXCAVATION FOR STRUCTURES AND 18" R.C. PIPE CULVERT.

REINFORCED CONCRETE SPRING BOX



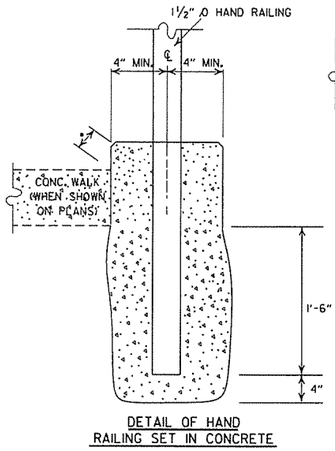
PAVEMENT REPAIR OVER CULVERTS (CONCRETE)



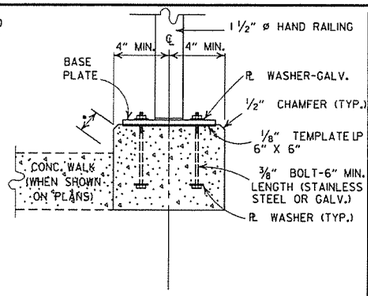
PAVEMENT REPAIR OVER CULVERTS (ASPHALT)

DETAIL SHOWING REPAIR OF EXISTING PAVEMENT AT CULVERT INSTALLATIONS

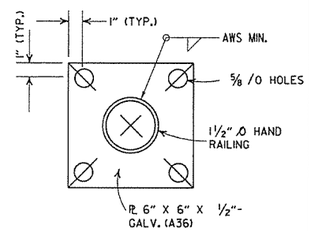
• A 2" MIN. HIGH CURB IS REQUIRED WHEN CONCRETE WALK IS ADJACENT TO THE HAND RAILING. PAYMENT FOR CURB SHALL BE CONSIDERED INCLUDED IN THE PRICE BID FOR CONCRETE WALKS.



DETAIL OF HAND RAILING SET IN CONCRETE

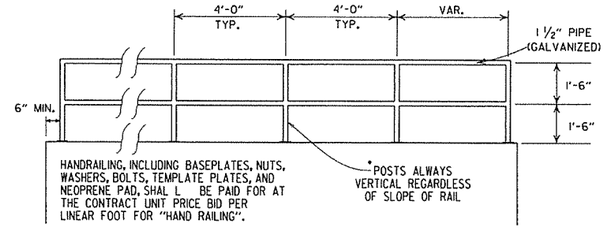


POST CONNECTION TO WALL

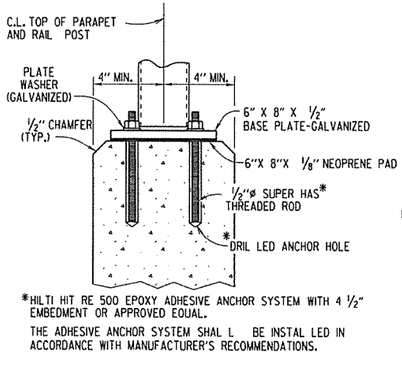


BASE PLATE

POST CONNECTION DETAILS

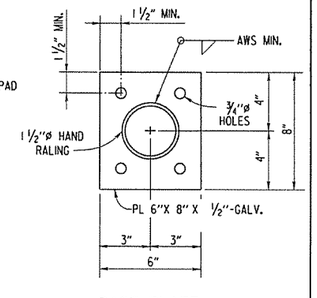


HAND RAILING SHALL CONFORM TO SECTION 633.



*HILTI HIT RE 500 EPOXY ADHESIVE ANCHOR SYSTEM WITH 4 ½" EMBEDMENT OR APPROVED EQUAL.

THE ADHESIVE ANCHOR SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

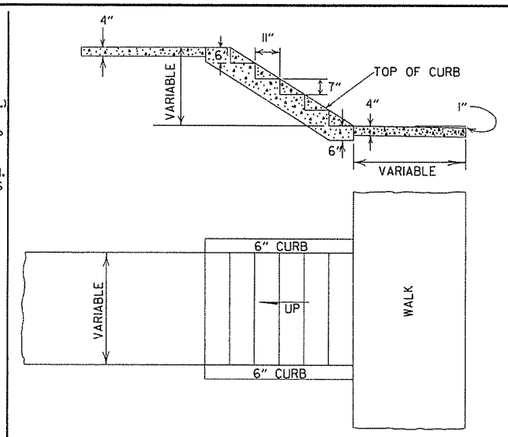


POST CONNECTION TO WALL

BASE PLATE

DETAILS OF ALTERNATE POST ANCHOR SYSTEM (EPOXY ADHESIVE ANCHORS)

HAND RAILING DETAILS



GENERAL NOTES

1. RISE AND TREAD DIMENSIONS OF STEPS MAY BE VARIED AS DIRECTED BY THE ENGINEER, HOWEVER, TREAD WIDTHS SHALL BE 11" MIN. ALL STEPS IN A FLIGHT SHALL HAVE CONSISTENT TREAD & RISER DIMENSIONS.
2. 1" TRANSVERSE EXPANSION JOINTS SHALL BE PLACED IN CONCRETE WALKS AT 45' INTERVALS.

DETAILS OF CONCRETE STEPS & WALKS

DATE	REVISION	DATE FILMED
9-12-13	REVISED REINFORCED CONCRETE SPRING BOX	
7-26-12	REMOVED RETAINING WALL DETAILS & REVISED HAND RAILING DETAILS	
4-17-08	REV. JOINT & FOOTING STEP DETAILS	
11-29-07	REVISED RETAINING WALL DRAINAGE	
5-25-06	REVISED PVMT REPAIR OVER CULVERTS (CONC); REVISED REINFORCED CONC SPRING BOX	
10-9-03	REVISED PIPE RAILING DETAILS TO HAND RAILING DETAILS	
4-10-03	REVISED RETAINING WALL DRAWING	
8-22-02	ADDED HAND RAILING DETAIL	
11-16-01	REVISED PVMT REPAIR OVER CULVERTS (CONC); CORRECTED SPELLING IN GENERAL NOTES	
11-18-98	ADDED GENERAL NOTES TO CONCRETE STEPS & WALKS	
7-02-98	ENLARGED PIPE	
4-03-97	ADDED NOTE TO STEEL BAR SCHED.	
10-18-96	CORRECTED SPELLING	
4-26-96	ADD WEEP HOLE;REV. JOINT SPACING IN RET. WALL	
6-2-94	CHANGED CONST. TO CONTRACTION JOINT	
10-1-92	CHANGED MESH FABRIC TO WIRE MESH	10-1-92
8-15-91	DELETED HDWL MODIFICATION DETAIL	8-15-91
11-8-90	DELETED COLD MIX FROM CULV'T. REPAIR	11-8-90
11-30-89	REV. RETAINING WALL STEEL SCHEDULE	11-30-89
11-17-88	V. BARS BEHIND ARROW	665-11-17-88
7-15-88	REV. PAVEMENT REPAIR ADDED HDWL. MODS, DEL. PIPE UNDERDRAINS	649-7-15-88
11-1-84	REV. TRENCH FOR PIPE UNDERDRAIN	510-11-1-84
1-4-83	ELIMINATED CONC. CLASS & ADDED CHAMFER NOTE	682-1-4-83
3-2-81	SPELLING OF "UNDERDRAIN"	721-3-2-81
4-20-79	REV. UNDERDRAIN DET& PAVEMENT REPAIR	674-4-20-79
2-2-76	12"MIN. GRAN. MAT'L. OVER PIPE	919-2-2-76
4-10-75	REM. SPECS. FOR GRAN. MAT'L.	568-4-10-75-853
5-22-74	GRANULAR MAT'L. TO BE SB-3	567-5-22-74-740
10-2-72	REVISED AND REDRAWN	564-10-16-72

ARKANSAS STATE HIGHWAY COMMISSION

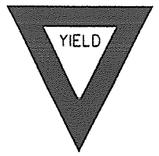
DETAILS OF SPECIAL ITEMS

STANDARD DRAWING SI - 1

R1-1

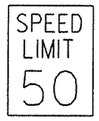
STANDARD 30"X30"
EXPRESSWAY 36"X36"
SPECIAL 48"X48"

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"

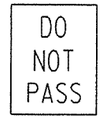
W3-5

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"

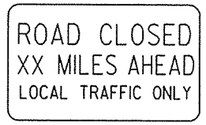
R5-1

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

R11-2

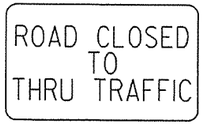
48"X30"

R11-3A



60"X30"

R11-4

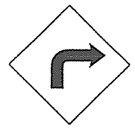


60"X30"

RSP-1

48"X30"

W1-1



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

W1-2

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

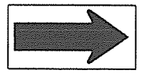
W1-3

STD. 48"X48"

W1-4

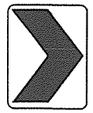
STD. 48"X48"

W1-6



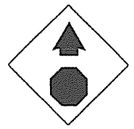
STD. 48"X24"
SPECIAL 60"X30"

W1-8



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

W3-1

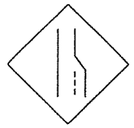


STD. 36"X36"
SPECIAL 48"X48"

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"

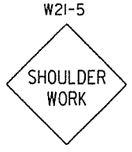
W20-7a

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"

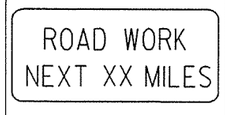
W8-11

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

W8-9

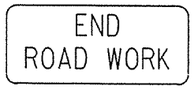
STD. 36"X36"
FWY. 48"X48"

G20-1



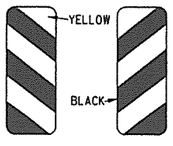
60"X24"

G20-2



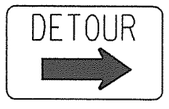
48"X24"

OM-3L OM-3R



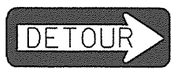
12"X36"

M4-9



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

M4-10



48"X18"

R55-1

FINES DOUBLE
IN WORK ZONES •
WHEN WORKERS
ARE PRESENT ••

36"X60"

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

ADVANCE DISTANCES
(XXXX)

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

GENERAL NOTES:

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

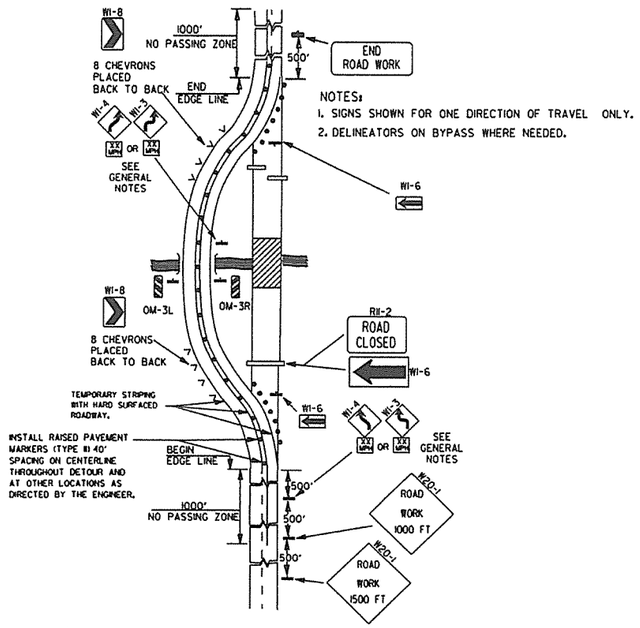
- NOTE: SUPPORTS FOR SIGNS, BARRICADES, AND VERTICAL PANELS THAT ARE DIFFERENT FROM THE REQUIREMENTS SHOWN IN NOTES 4 & 5, BUT MEET THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF NCHRP-350 OR MANUAL FOR ASSESSING SAFETY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

DATE	REVISION	FILMED
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

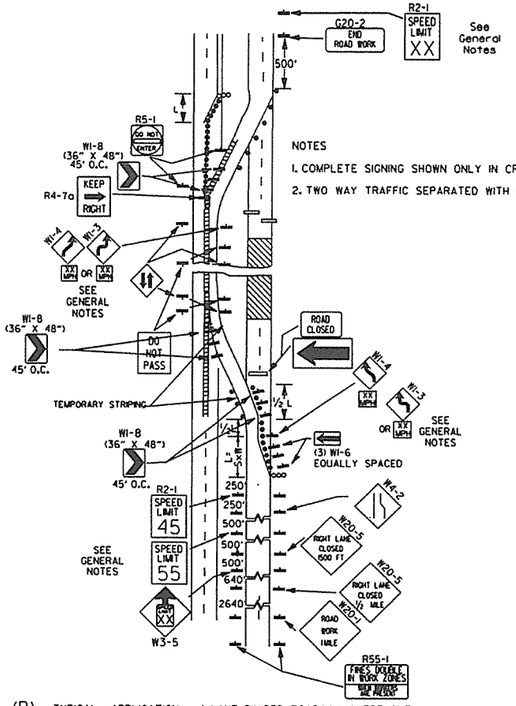
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

STANDARD DRAWING TC-1



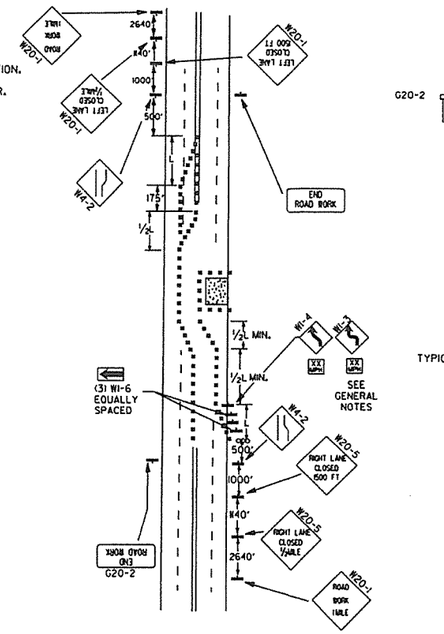
NOTES:
1. SIGNS SHOWN FOR ONE DIRECTION OF TRAVEL ONLY.
2. DELINEATORS ON BYPASS WHERE NEEDED.

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

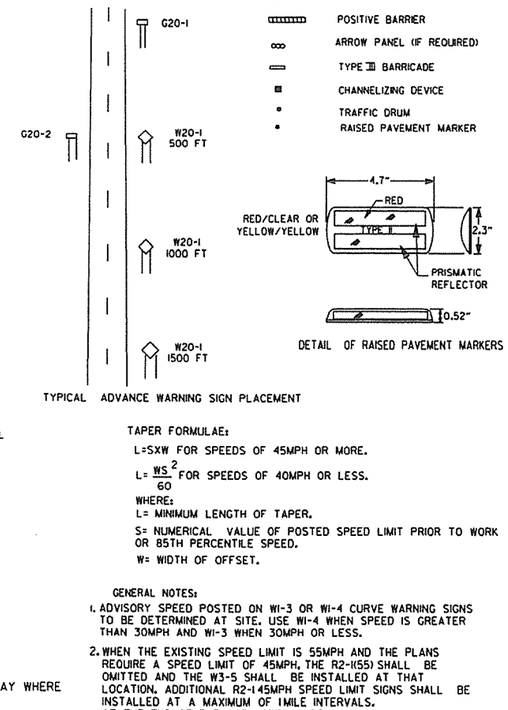


NOTES
1. COMPLETE SIGNING SHOWN ONLY IN CROSSOVER DIRECTION.
2. TWO WAY TRAFFIC SEPARATED WITH POSITIVE BARRIER.

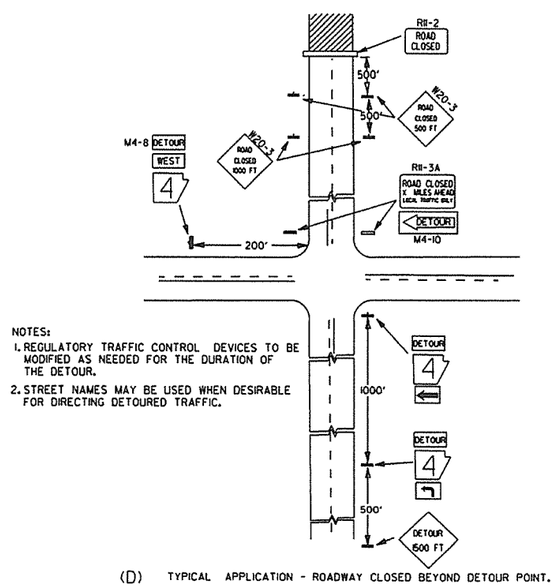
(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.



(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.

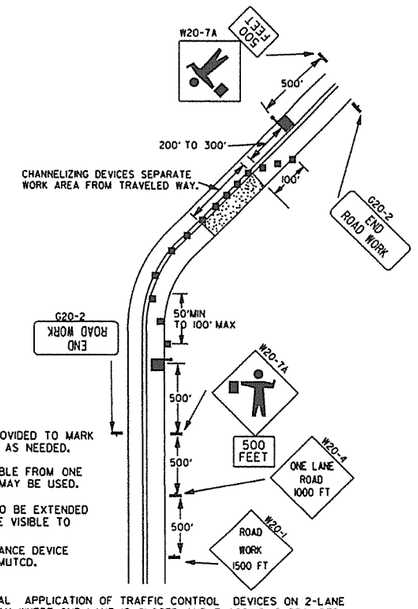


TYPICAL ADVANCE WARNING SIGN PLACEMENT



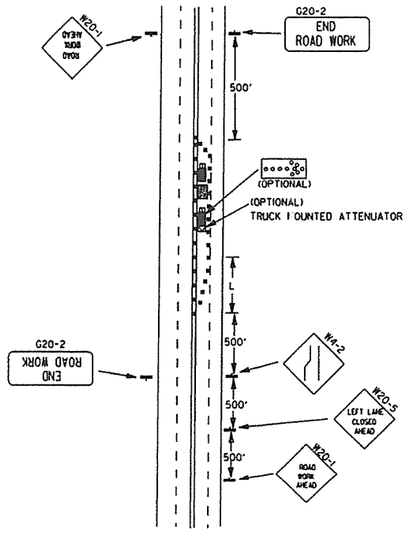
NOTES:
1. REGULATORY TRAFFIC CONTROL DEVICES TO BE MODIFIED AS NEEDED FOR THE DURATION OF THE DETOUR.
2. STREET NAMES MAY BE USED WHEN DESIRABLE FOR DIRECTING DETOURED TRAFFIC.

(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.



NOTES:
1. FLOOD LIGHTS SHOULD BE PROVIDED TO MARK FLAGGER STATIONS AT NIGHT AS NEEDED.
2. IF ENTIRE WORK AREA IS VISIBLE FROM ONE STATION, A SINGLE FLAGGER MAY BE USED.
3. CHANNELIZING DEVICES ARE TO BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
4. AUTOMATED FLAGGER ASSISTANCE DEVICE (AFAD) OPTIONAL. REFER TO MUTCD.

(E) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY WHERE ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.



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

TAPER FORMULAE:

L=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.

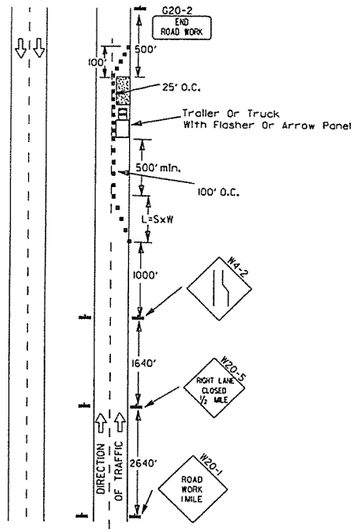
GENERAL NOTES:
1. ADVISORY SPEED POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS TO BE DETERMINED AT SITE. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 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.

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	

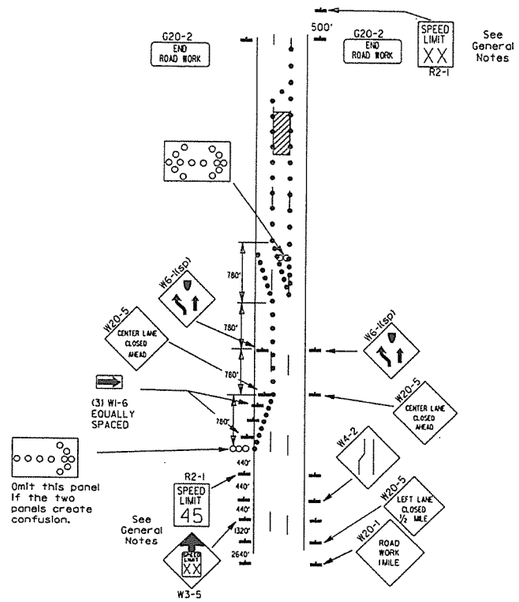
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

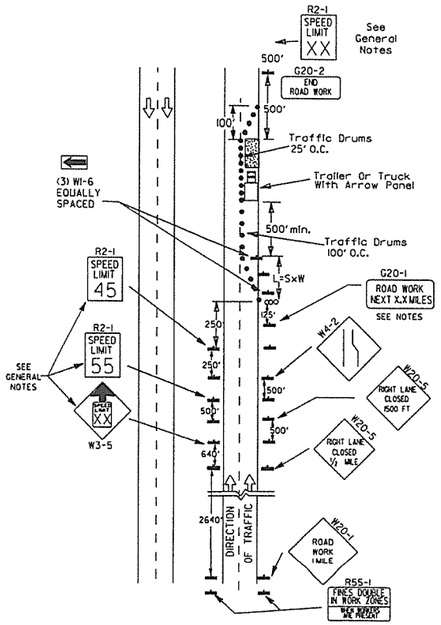
STANDARD DRAWING TC-2



(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 operatipns of intermediate to long term duration on a 4-lane divided roadway where half of the roadway is closed.

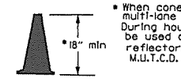
KEY:

- ○○○ Arrow Panel (If Required)
- ■ Channelizing Device
- ● Traffic drum

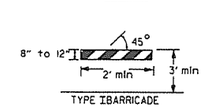
GENERAL NOTES:

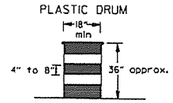
1. A speed limit reduction may be implemented ONLY when designated in the plan or when recommended by the Roadway Design Division.
2. When the existing speed limit is 55mph and the plans require a speed limit of 45mph, the R2-1(55) shall be omitted and the W3-5 shall be installed at that location. Additional R2-1 45mph speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
3. When the existing speed limit is 65mph and the plans require a speed limit of 55mph, the R2-1(45) shall be omitted. Additional R2-1 55mph speed limit signs shall be installed at a maximum of 1 mile intervals. At the end of the work area a R2-1(XX) shall be installed to match original speed limit.
4. The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit. Beyond the taper, maximum spacing shall be two times the speed limit or as directed by the Engineer.
5. Warning lights and/or flags may be mounted to signs or channelizing devices at night as needed.
6. Pavement markings no longer applicable which might create confusion in the minds of vehicle operators shall be removed or obliterated as soon as practicable.
7. The G20-1 sign will be required on jobs of over two miles in length. When the lane closure is not at the beginning of the project, the G20-1 sign shall be erected 125' in advance of the job limit. Additional W20-1 (1 MILE) signs are not required in advance of lane closures that begin inside the project limits.
8. Flaggers shall use STOP/SLOW paddles for controlling traffic through work zones. Flags may be used only for emergency situations.
9. All plastic drums and cones shall meet the requirements of NCHRP-350 or Manual For Assessing Safety Hardware (MASH).
10. Trailer mounted devices such as arrow panels and portable changeable message signs shall be delineated by affixing conspicuity material in a continuous line on the face of the trailer. When placed on or adjacent to the shoulder and not behind a positive barrier, these devices shall be delineated by placing five (5) traffic drums, equally spaced along the traffic side of the device.

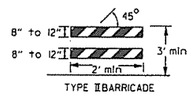
Channelizing devices

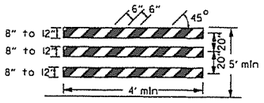


* When cones are used on freeways and multi-lane highways, they shall be 28" min. During hours of darkness, 28" cones shall be used on all roadways, and shall be reflectorized in accordance with the M.U.T.C.D.

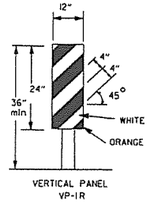




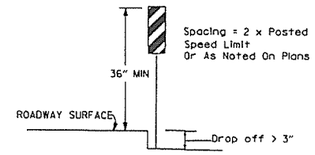




NOTE:
For all road closures, the Type III barricades shall be of sufficient length to extend across entire roadway.



VERTICAL PANEL PLACEMENT



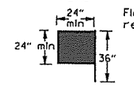
TRAFFIC CONTROL DEVICES
FOR
VERTICAL PAVEMENT DIFFERENTIALS

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.

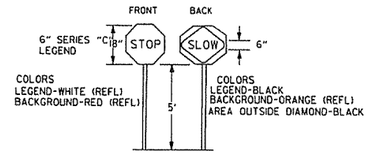
When the shoulder area is used as part of the traveled lane and there is insufficient width to place drums on the remaining shoulder width, then vertical panels shall be used.

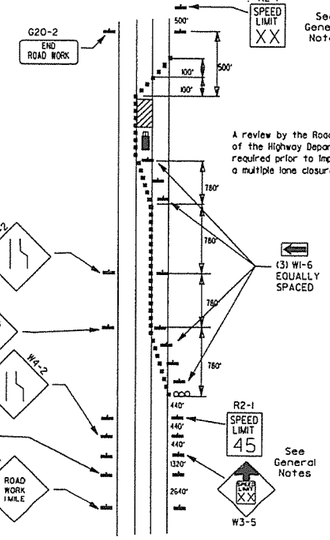
FLAG



Flag shall be of good grade red material

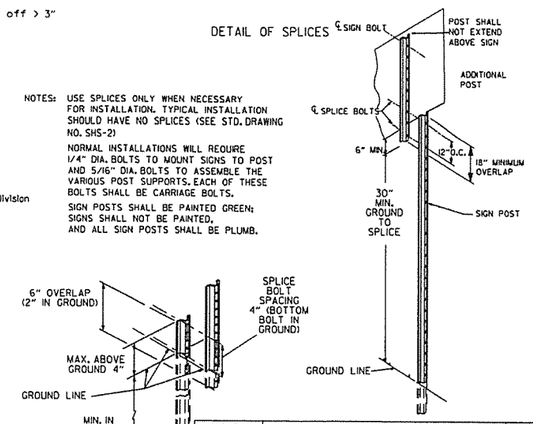
STOP SLOW PADDLE





(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	

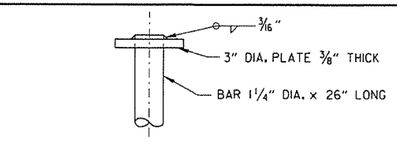
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION

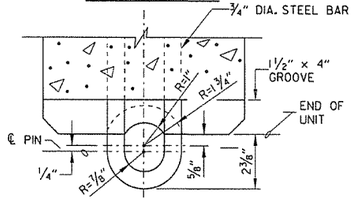
STANDARD DRAWING TC-3

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", LIFTING HOLE, 90°, 3 3/8" R
S-2	HORIZ. AROUND SLOTS BETWEEN V-1'S @ DRAIN SLOTS	#4	(2)	1 1/2" R, SLOTS, 7", 1" MIN. CLEAR TO BAR, 5'-1" BAR W/(4) 1 1/2" R BENDS & MIN. 1'-0" OVERLAP, 1'-6"
V-1	VERTICAL IN BARRIER(3) EACH END & (2) AT EACH DRAIN SLOTS	#5	(16)	TOTAL LENGTH 4'-9", 2 3/16" R, 12°, 9 1/2", 2'-1 3/8", 4 3/8"

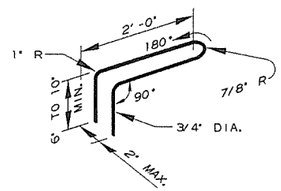


CONNECTING PIN

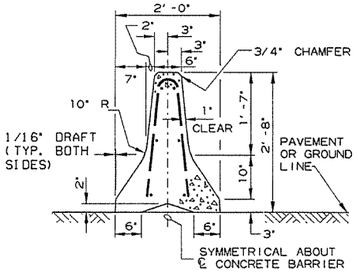


SECTION E-E

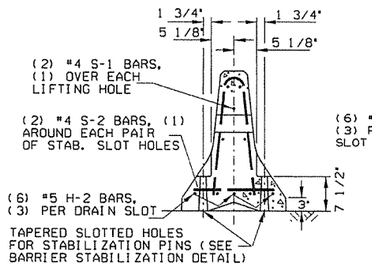
CONNECTION DETAILS



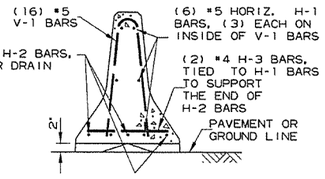
CONNECTION LOOP



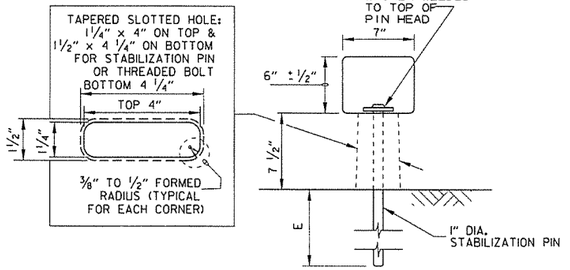
SECTION A-A



SECTION B-B



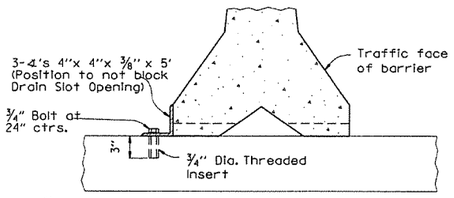
SECTION C-C



BARRIER STABILIZATION DETAIL

ROADWAY SECTION

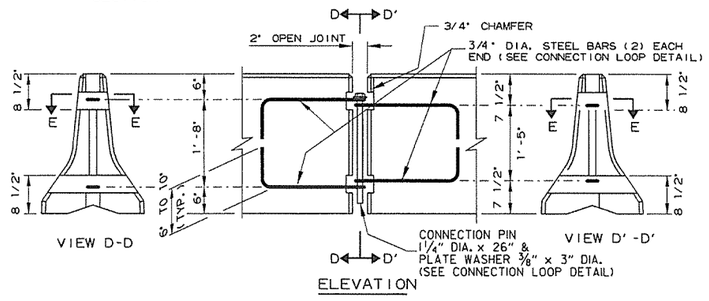
(E) 4" - Concrete Pavement
8" - Asphalt Pavement
12" - Shoulder Areas



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

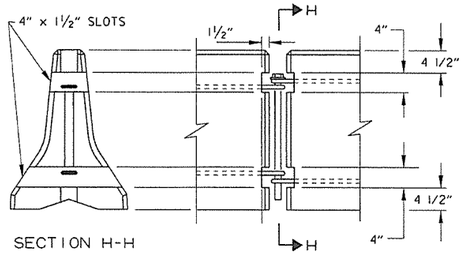
BRIDGE DECKS



VIEW D-D

VIEW D'-D'

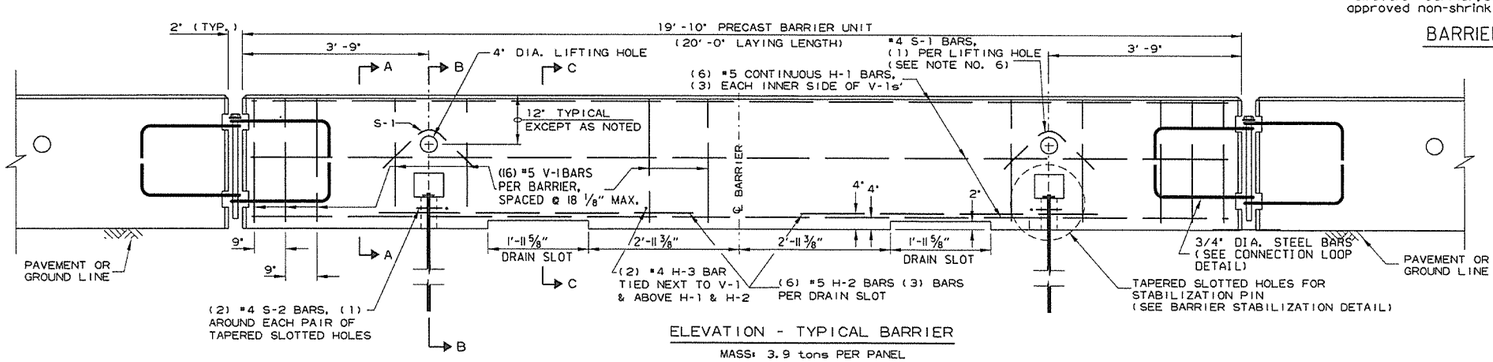
ELEVATION



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.

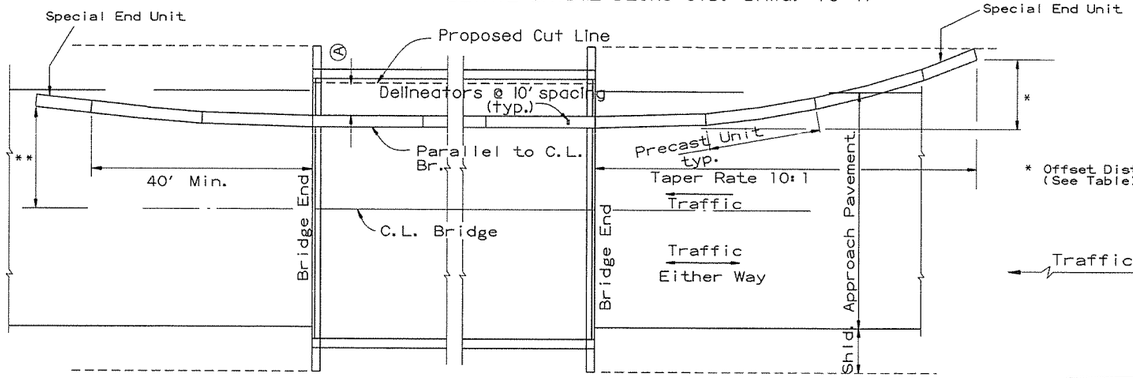
DATE	REVISION	FILMED
2-27-14	REVISED BARRIER STABILIZATION DETAIL	
10-15-09	ADDED REFERENCE TO MASH	
8-5-09	REV. NOTE 3 CONCERNING DRAIN SLOTS	
11-29-07	REVISED NOTE 3	
5-25-06	DELETED GENERAL NOTE 7	
11-18-04	REVISED BARRIER STABILIZATION DETAIL BRIDGE DECKS	
4-10-03	REVISED GENERAL NOTE 2	
8-22-02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

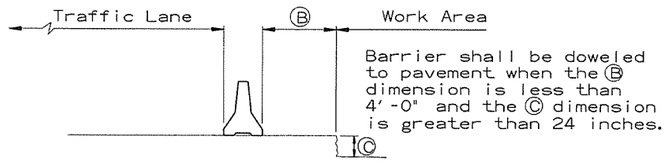


BARRIER PLACEMENT ALONG BRIDGE WITH OFFSET

No Scale

* Offset Distance (See Table)

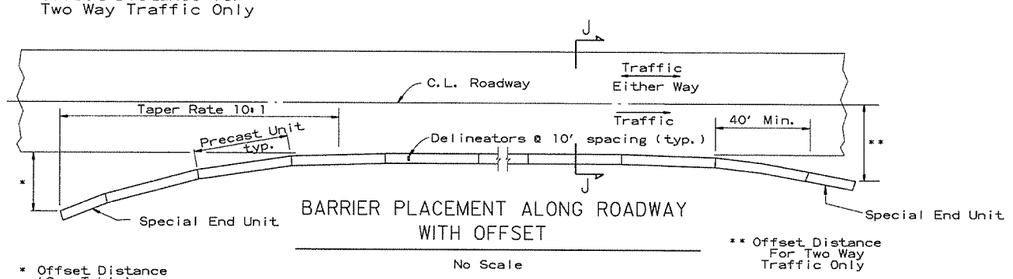
** Offset Distance for Two Way Traffic Only



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

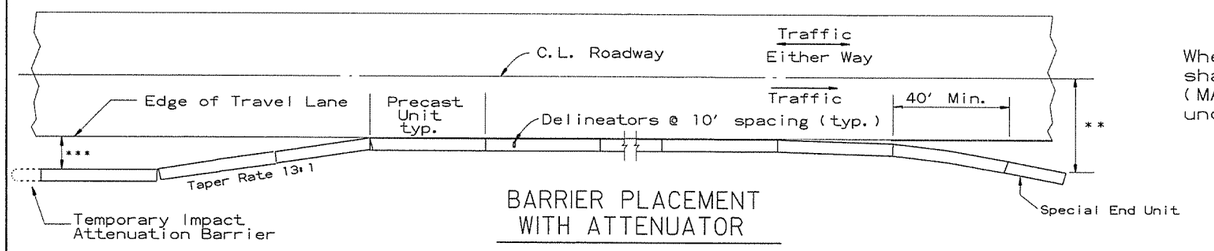
* Offset Distance (See Table)

** 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.

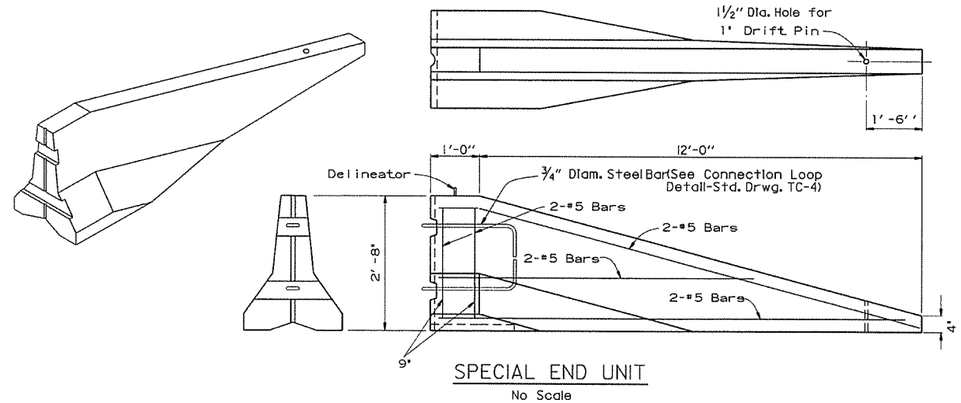


BARRIER PLACEMENT WITH ATTENUATOR

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	

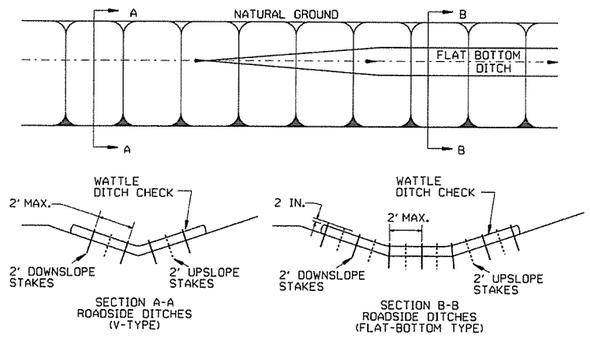
ARKANSAS STATE HIGHWAY COMMISSION

STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION - TEMPORARY PRECAST BARRIER

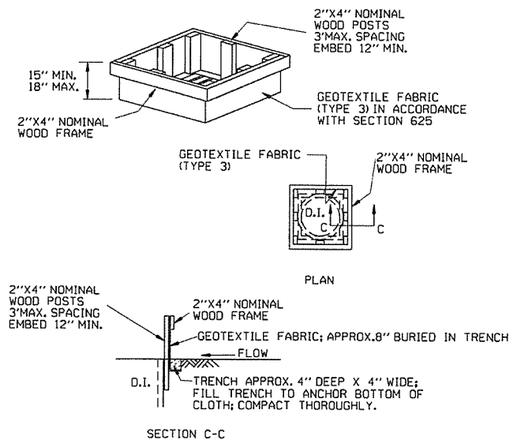
STANDARD DRAWING TC-5

GENERAL NOTES

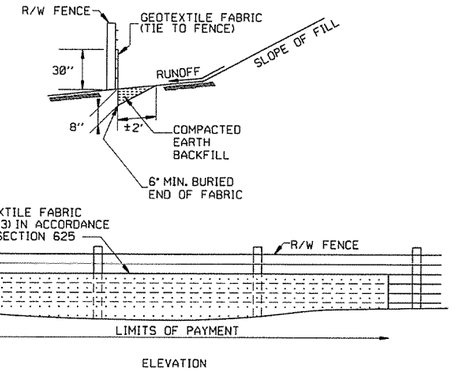
INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.



WATTLE DITCH CHECK (E-1)



DROP INLET SILT FENCE (E-7)



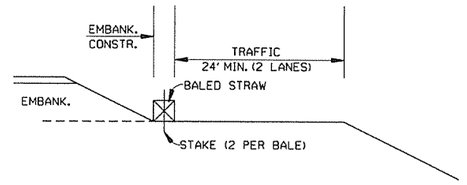
SILT FENCE ON R/W FENCE (E-4)

GENERAL NOTES

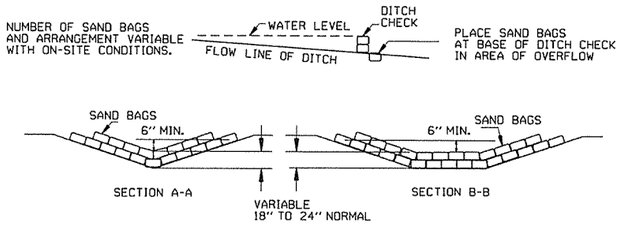
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST, OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

GENERAL NOTES

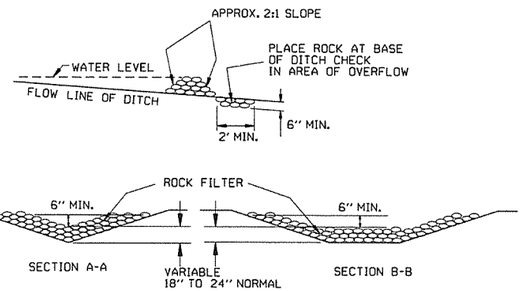
1. STRAW BALES SHALL BE INSTALLED SO THAT THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES. THE BALES SHALL BE A MINIMUM OF 30 INCHES IN LENGTH.
2. NO GAPS SHALL BE LEFT BETWEEN BALES.
3. BALED STRAW FILTER BARRIERS COMPLETED AND ACCEPTED WILL BE MEASURED 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.



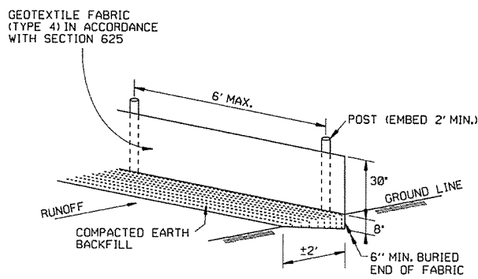
BALED STRAW FILTER BARRIER (E-2)



SAND BAG DITCH CHECK (E-5)



ROCK DITCH CHECK (E-6)



SILT FENCE (E-11)

GENERAL NOTES

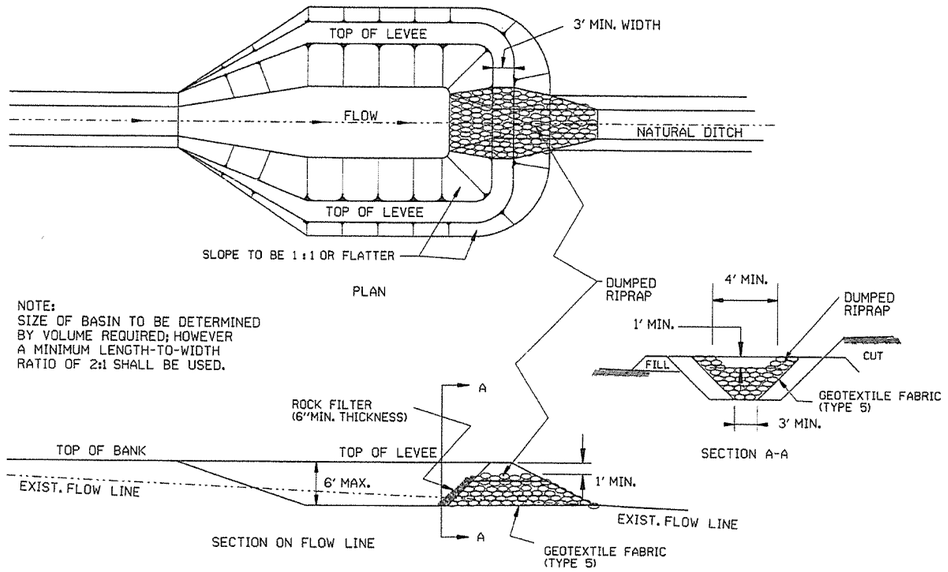
GEOTEXTILE FABRIC SHALL BE SPLICED TOGETHER WITH A SEWN SEAM ONLY AT A SUPPORT POST OR TWO SECTIONS OF FENCE MAY BE OVERLAPPED INSTEAD. PAYMENT OF ADDITIONAL MATERIAL FOR OVERLAP WILL NOT BE MADE.

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

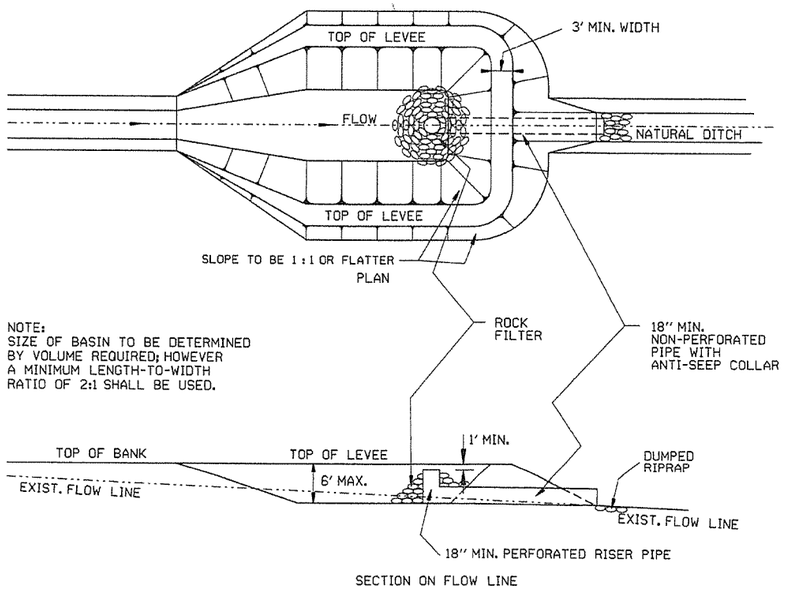
ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

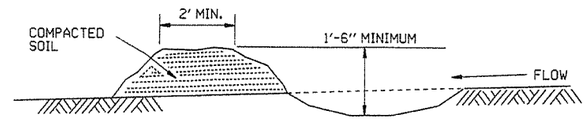
STANDARD DRAWING TEC-1



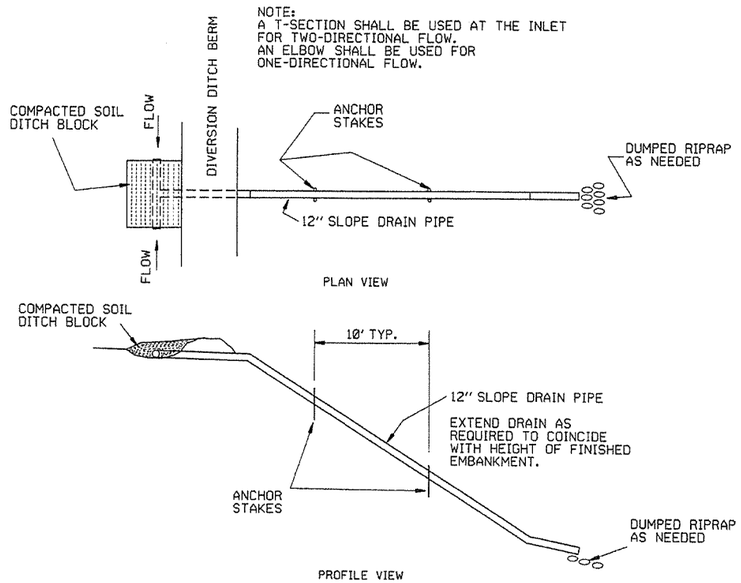
SEDIMENT BASIN WITH RIPRAP OUTLET (E-9)



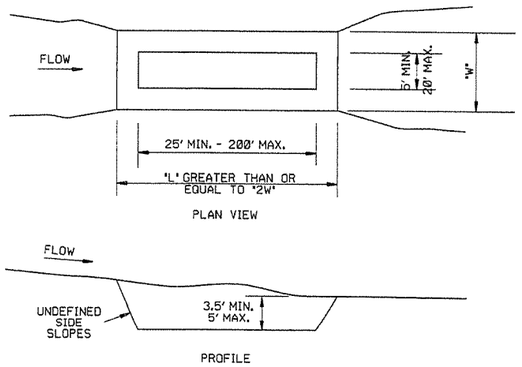
SEDIMENT BASIN WITH PIPE OUTLET (E-10)



DIVERSION DITCH (E-8)



SLOPE DRAIN (E-12)



SEDIMENT BASIN (E-14)

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

FILMED

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

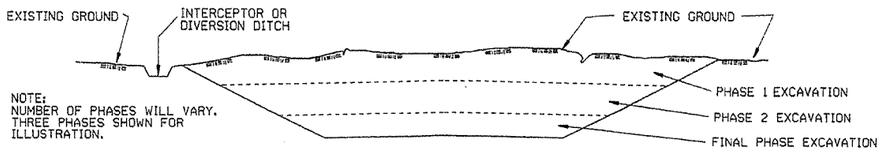
STANDARD DRAWING TEC-2

CLEARING AND GRUBBING

CONSTRUCTION SEQUENCE

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

EXCAVATION



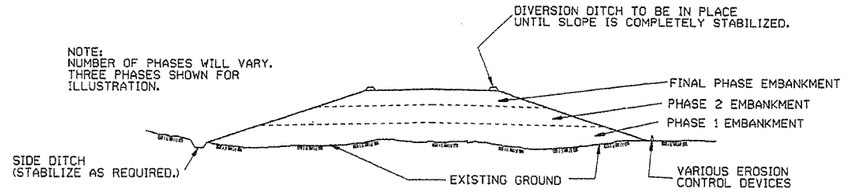
GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

EMBANKMENT



GENERAL NOTE

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

CONSTRUCTION SEQUENCE

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

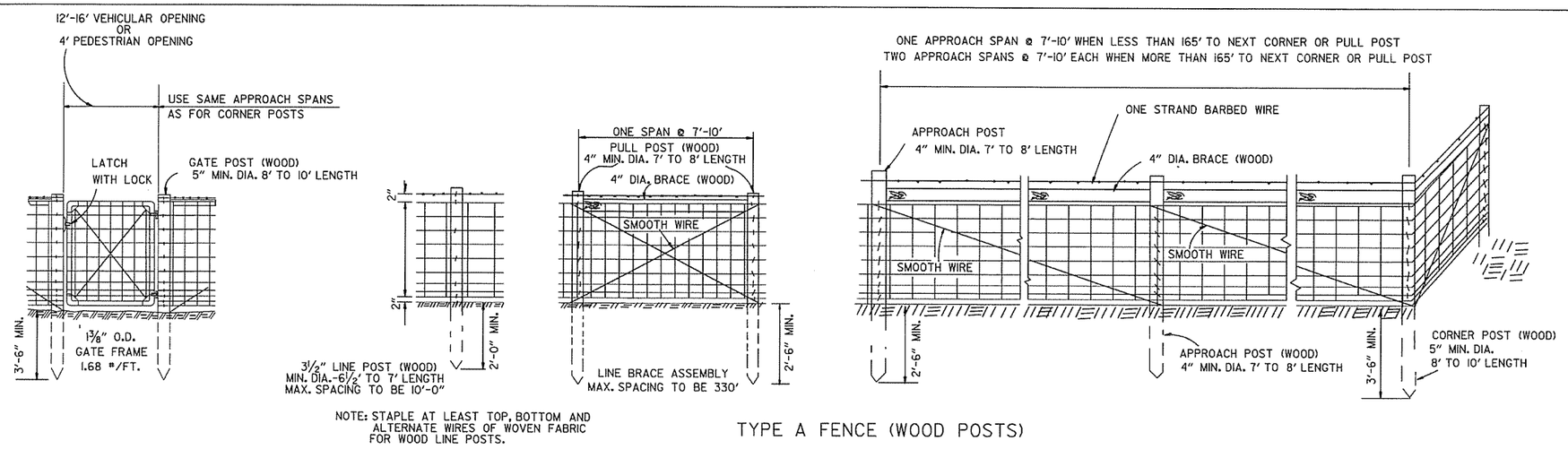
DATE	REVISION	FILMED
11-03-94	CORRECTED SPELLING	
6-2-94	Drawn & Issued	6-2-94

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

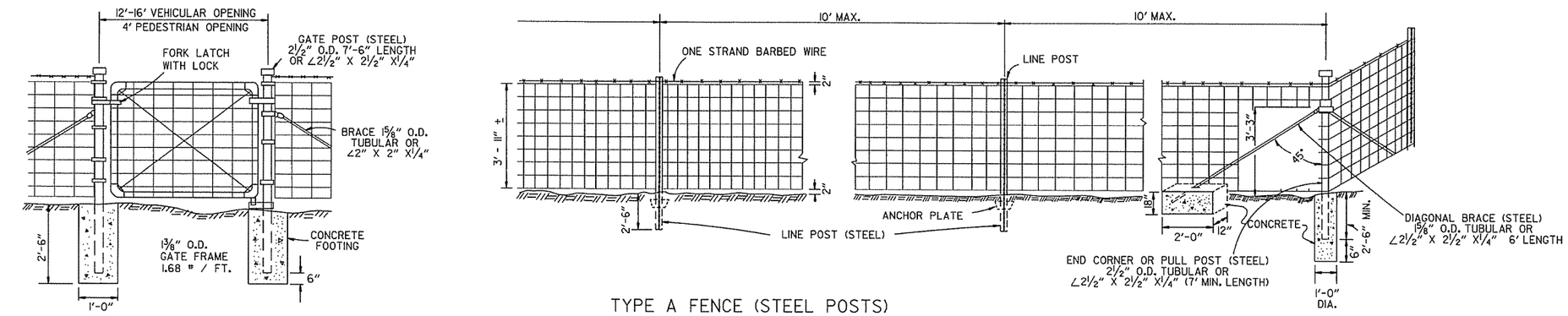
STANDARD DRAWING TEC-3

stdtec3.dgn

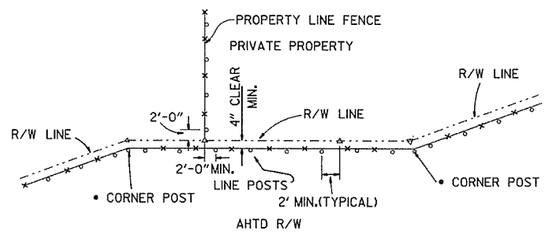


NOTE: STAPLE AT LEAST TOP, BOTTOM AND ALTERNATE WIRES OF WOVEN FABRIC FOR WOOD LINE POSTS.

TYPE A FENCE (WOOD POSTS)



TYPE A FENCE (STEEL POSTS)

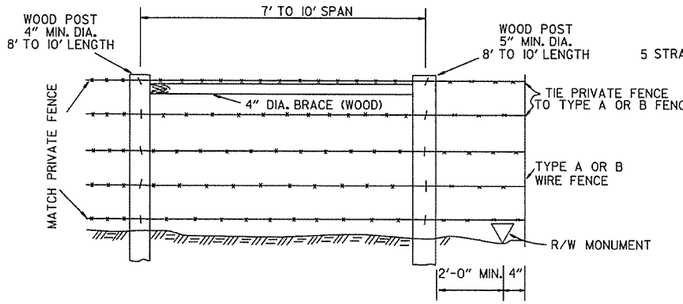


*NOTE: RIGHT-OF-WAY MONUMENTS SHALL NOT BE DISTURBED BY FENCE CONSTRUCTION. CORNER POSTS SHALL BE CONSTRUCTED 2' FROM THE RIGHT-OF-WAY MONUMENT OR AS DIRECTED BY THE ENGINEER.

△ - R/W MONUMENTS

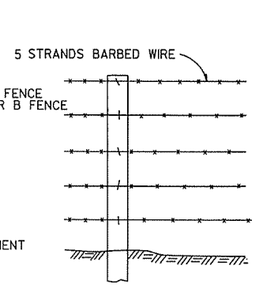
○ - FENCE POSTS

RIGHT-OF-WAY FENCE LOCATION



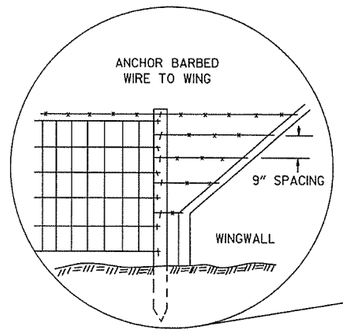
WHERE EXISTING PRIVATE FENCE CONSISTS OF STEEL POSTS, USE END POST ASSEMBLY AS SHOWN WITH TYPE A FENCE OR OTHER END POST ASSEMBLY AS APPROVED BY THE ENGINEER.

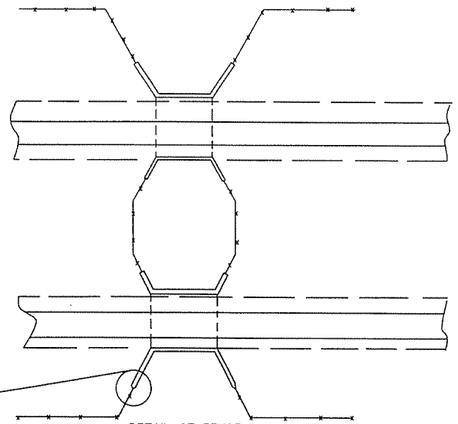
PRIVATE FENCE TERMINAL INSTALLATION



SPACING AND SIZE OF POSTS FOR TYPE B FENCE SHALL BE THE SAME AS TYPE A FENCE.

TYPE B FENCE





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

GENERAL NOTES:

STEEL LINE POSTS SHALL BE GALVANIZED, 7 FT. IN LENGTH.

TUBULAR END, CORNER, PULL, OR DIAGONAL BRACES MUST CONFORM TO THE DIMENSIONS AND WEIGHTS SPECIFIED ON STANDARD DRAWING WF-3 (CHAIN LINK).

THE CONTRACTOR SHALL FURNISH AT LEAST 25% OF WOOD LINE POSTS OF 7' LENGTHS IN ORDER TO PROVIDE SUFFICIENT SET IN SOFT GROUND OR SMALL DEPRESSIONS.

GATE HINGES AND LATCHES WITH LOCKS TO BE OF A TYPE APPROVED BY THE ENGINEER. DRIVEWAY GATES, EITHER SINGLE 12' OR 16' OR DOUBLE 6' TO 8' OPENINGS OF THE SAME TYPE AS THE PEDESTRIAN GATE, SHALL BE INSTALLED ON THE RIGHT SIDE OF EACH THROUGH LANE ROAD AT LARGE CULVERTS OR BRIDGE CROSS FENCE FOR USE BY MAINTENANCE EQUIPMENT. LOCATION OF GATES TO BE SHOWN ON THE PLANS OR AS DESIGNATED BY THE ENGINEER.

AT STREAM CROSSINGS THE FENCE SHALL NOT BE CONSTRUCTED ACROSS LARGE STREAMS. WHERE CLEARANCE IS SUFFICIENT FROM THE TOP OF BANK TO THE BRIDGE STRUCTURE, A CROSS CONNECTION SHALL BE CONSTRUCTED BETWEEN THE FENCE ON EACH SIDE OF THE ROAD. WHERE THE CLEARANCE IS NOT SUFFIEICNT, THE FENCE SHALL BE TERMINATED WITH CROSS CONNECTIONS AND END POSTS ADJACENT TO THE BRIDGE ABUTMENTS OR CULVERT WINGWALLS.

SPLICE FOR WOVEN WIRE BETWEEN PULL POST SHALL BE BY THE "WESTERN UNION METHOD" AS DESCRIBED AS FOLLOWS: THE VERTICAL WIRES FOR EACH END OF THE FENCE FABRIC SHALL BE PLACED SIDE BY SIDE AND THE PROJECTING HORIZONTAL WIRES SHALL BE WRAPPED A MINIMUM OF 4 TIMES AROUND THE HORIZONTAL WIRES OF THE FIRST WEB.

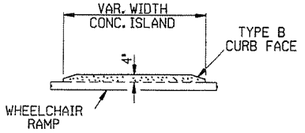
SPLICE FOR BARBED WIRE BETWEEN PULL POST ASSEMBLY SHALL BE BY THE "EYE METHOD": AS DESCRIBED AS FOLLOWS: THE ENDS OF THE BARBED WIRE SHALL BE BENT TO FORM A LOOP. THE LOOPS SHALL BE CONNECTED, AFTER THE LOOPS ARE CONNECTED THE ENDS OF THE WIRE SHALL BE WRAPPED AROUND THE PROJECTING WIRE A MINIMUM OF 4 TIMES FOR EACH WIRE LOOP.

DATE	REVISION	DATE FILMED
8-22-02	REVISED GENERAL NOTES	
10-18-96	REVISED ASTM REF. TO AASHTO	
11-22-95	REVISED R-O-W LOCATION DETAIL	
6-2-94	ADDED CORNER POST NOTE	6-2-94
8-5-93	REVISED R-O-W LOCATION DETAIL	8-5-93
10-1-92	ADDED STAPLE NOTE	
8-2-90	REV'D PULL POST LENGTH	
11-30-89	DELETED CLASS CONC.	
7-15-88	ADDED SPLICE NOTES	
7-15-88	ADDED HEIGHT DIMENSION	
4-3-87	REVISED VARIOUS NOTES	
	AND GENERAL NOTES	
11-1-84	MAX. POST SPACING	
1-4-83	MIN. DIA. LINE POST	
10-2-72	REVISED & REDRAWN	

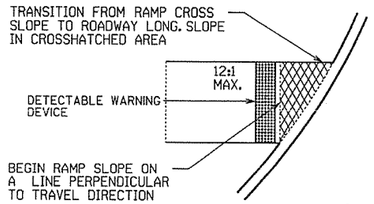
ARKANSAS STATE HIGHWAY COMMISSION

WIRE FENCE
TYPE A AND B

STANDARD DRAWING WF-1



CONCRETE ISLAND DETAIL



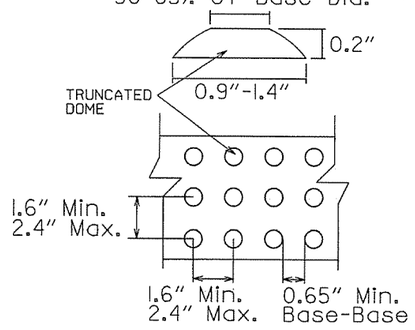
SLOPE TRANSITION DETAILS

TYPE 1 RAMP DIMENSIONS AND QUANTITIES

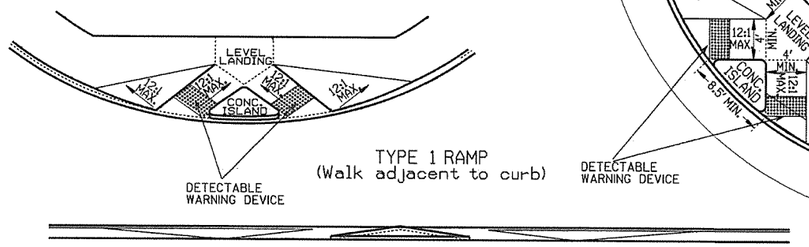
RADIUS "R" FEET	DISTANCE "X" FEET	DISTANCE "Y" FEET	LENGTH "L" FEET	RAMP AREA "A" SQ. YD.
15	11.67	18.82	32.18	26.21
20	11.52	22.28	35.46	30.07
25	11.43	26.60	38.77	33.80
30	11.37	30.26	40.93	36.30
35	11.33	33.51	43.11	39.77
40	11.30	36.45	45.26	42.45
45	11.27	39.16	47.34	44.97
50	11.25	41.69	49.36	47.35
55	11.24	44.07	51.31	49.63
60	11.22	46.33	53.21	51.80

GENERAL NOTES FOR DETECTABLE WARNING DEVICES

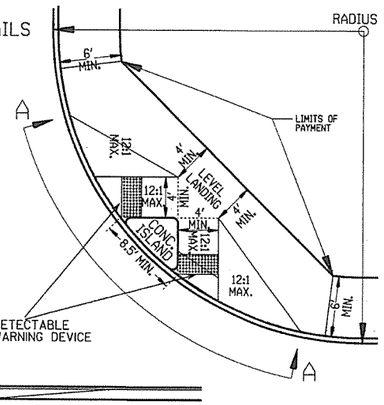
THE DETECTABLE WARNING DEVICE SHALL BE LOCATED SO THAT THE NEAREST EDGE OF THE DEVICE IS 6 TO 8 INCHES FROM THE FACE OF THE CURB.
TRUNCATED DOMES IN THE DETECTABLE WARNING SURFACE SHALL MEET THE REQUIREMENTS OF THE GEOMETRIC CONFIGURATION SHOWN.
DOMES SHALL BE ALIGNED ON A SQUARE GRID IN THE PREDOMINANT DIRECTION OF TRAVEL TO PERMIT WHEELS TO ROLL BETWEEN DOMES.
DETECTABLE WARNING DEVICE SHALL BE 24 INCHES IN THE DIRECTION OF TRAVEL AND EXTEND THE FULL WIDTH OF THE CURB RAMP OR FLUSH SURFACE.
DETECTABLE WARNING DEVICE SHALL BE ON THE AHTD QUALIFIED PRODUCTS LIST FOR CAST-IN-PLACE TACTILE PANELS (ADA DETECTABLE WARNING).

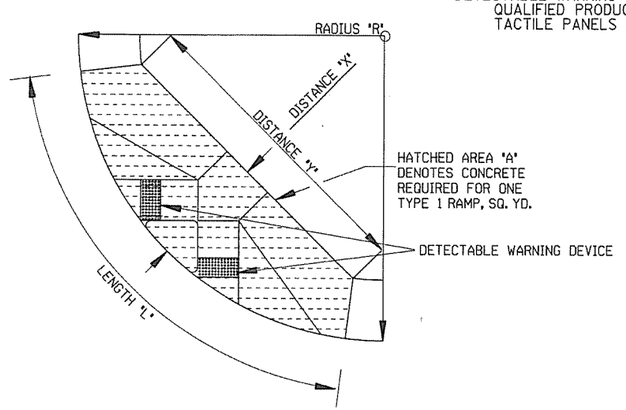


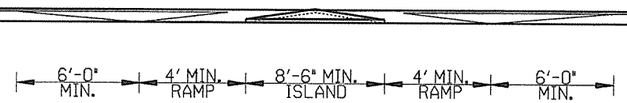
DETECTABLE WARNING DEVICE DETAIL



TYPE 1 RAMP
(Walk adjacent to curb)





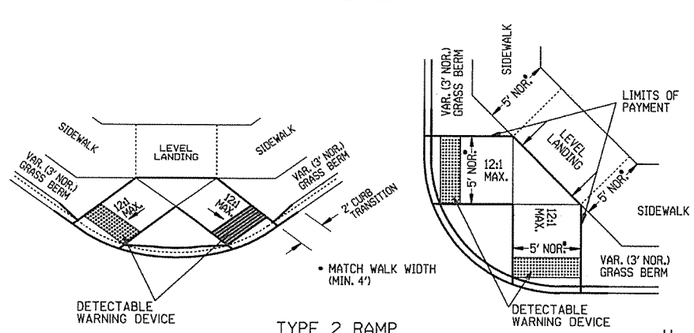


SECTION A-A

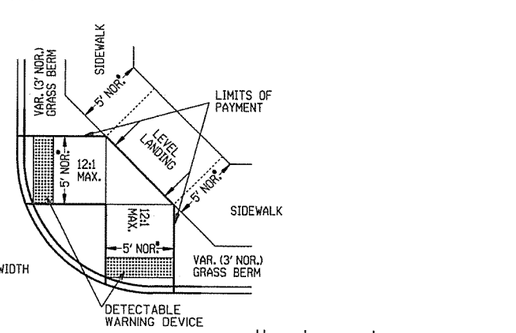
NOTE:
THE CROSS SLOPE OF THE RAMPS, LEVEL LANDINGS, AND SIDEWALKS SHALL NOT EXCEED 2.0% UNLESS REQUIRED TO MATCH STREET LONGTITUDINAL GRADE.

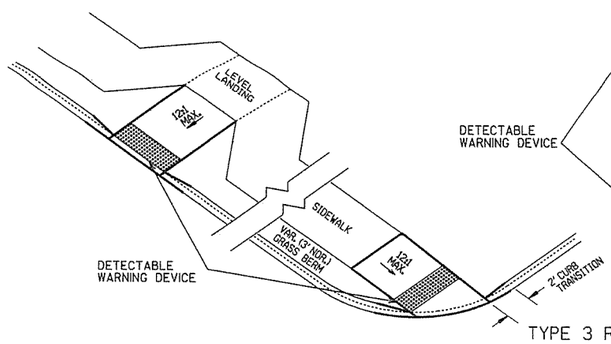
GENERAL NOTES:

IN NEW CONSTRUCTION, UNLESS OTHERWISE INDICATED ON THE PLANS, WHEELCHAIR RAMPS ARE TO BE PROVIDED AT ALL CORNERS OF CURBED STREET INTERSECTIONS AND MID-BLOCK CROSSWALK LOCATIONS.
IN ALTERATIONS WHEELCHAIR RAMPS ARE TO BE PROVIDED AT CURBED STREET INTERSECTIONS WITH PEDESTRIAN TRAFFIC AND MID-BLOCK CROSSWALK LOCATIONS.
THE LENGTH OF THE RAMP SHALL BE SUCH THAT THE SLOPE DOES NOT EXCEED 12:1. THE SURFACE TEXTURE OF THE RAMP SHALL CONFORM TO A CLASS 6 FINISH ACCORDING TO SECTION 802.19.
THE NORMAL GUTTER GRADE SHALL BE MAINTAINED THROUGH THE AREA OF THE RAMP.
ALL PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION.
THE MINIMUM THICKNESS OF THE RAMP, WALK, & LANDING SHALL BE 4".
THE MINIMUM WIDTH OF THE RAMPS SHALL BE THE WALK WIDTH OR 36", WHICHEVER IS GREATER.
RAMPS SHALL BE MODIFIED AS NECESSARY TO INSURE THAT THEY ARE PARALLEL TO A LINE DRAWN FROM THE CENTER OF ONE RAMP TO THE CENTER OF THE RAMP ON THE OPPOSITE SIDE OF THE INTERSECTION.
THE DIMENSIONS AND QUANTITIES SHOWN ON THIS DRAWING ARE FOR A 90° INTERSECTION ONLY. DIMENSIONS AND QUANTITIES FOR SKEWED INTERSECTIONS WILL VARY, AND ARE TO BE DETERMINED BY THE ENGINEER.

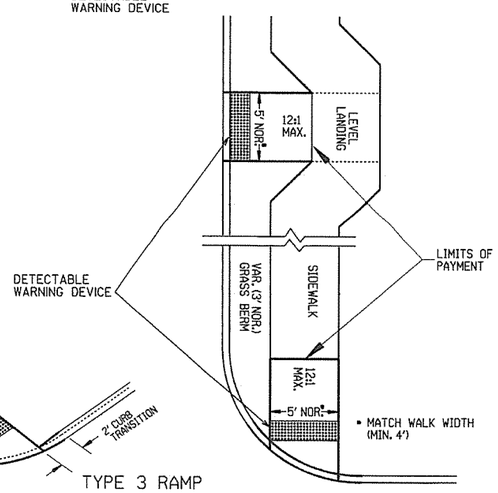


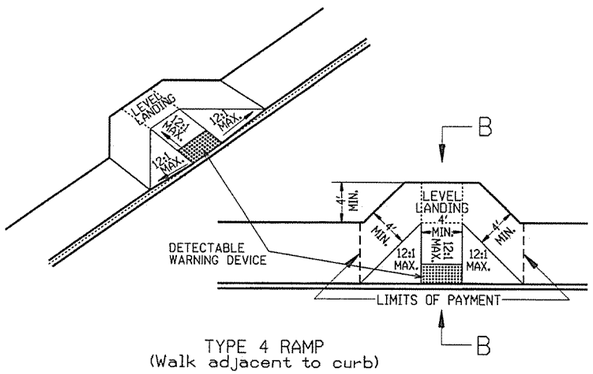
TYPE 2 RAMP



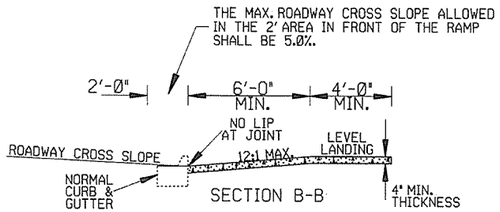


TYPE 3 RAMP





TYPE 4 RAMP
(Walk adjacent to curb)



SECTION B-B

RAMP SELECTION CRITERIA

FIRST CHOICE	TYPE 1	CORNER LOCATIONS WITH THE WALK ADJACENT TO THE CURB (BOTH NEW CONSTRUCTION AND ALTERATIONS).
	TYPE 2	CORNER LOCATIONS WITH THE WALK OFFSET FROM THE CURB A DISTANCE INSUFFICIENT TO ALLOW THE REQUIRED RAMP SLOPE (BOTH NEW CONSTRUCTION AND ALTERATIONS).
	TYPE 3	CORNER LOCATIONS WITH THE WALK OFFSET FROM THE CURB A DISTANCE SUFFICIENT TO ALLOW THE REQUIRED RAMP SLOPE (BOTH NEW CONSTRUCTION AND ALTERATIONS).
	TYPE 4	TANGENT LOCATIONS (BOTH NEW CONSTRUCTION AND ALTERATIONS).
SECOND CHOICE	TYPE 5	TANGENT LOCATIONS (ALTERATIONS ONLY).
THIRD CHOICE	TYPE 6	CORNER LOCATIONS (ALTERATIONS ONLY). THIS RAMP MAY BE USED ONLY IF THE TYPE 5 RAMPS CANNOT BE PLACED AT THE ENDS OF THE RADIUS.
FOURTH CHOICE		IF SITE CONSTRAINTS PREVENT THE CONSTRUCTION OF ANY OF THE TYPES LISTED, THEN AND ONLY THEN CAN THE 12:1 MAX. SLOPE ON THE RAMP BE EXCEEDED TO PROVIDE ACCESS TO THE STREET LEVEL (ALTERATIONS ONLY). THE SLOPE CAN BE STEEPENED TO A 10:1 MAX. FOR A MAX. LENGTH OF 5' OR A 8:1 MAX. FOR A MAX. LENGTH OF 2'. SLOPES STEEPER THAN 8:1 ARE NOT ALLOWED UNDER ANY CIRCUMSTANCES.

NOTE: IN ALTERATIONS, THE SELECTION OF THE TYPE OF WHEELCHAIR RAMP TO BE CONSTRUCTED SHALL BE BASED ON THE AMOUNT OF RIGHT-OF-WAY AVAILABLE, AND ON THE PRESENCE OF OTHER SITE CONSTRAINTS (UTILITIES, BUILDINGS, ETC.). THE TABLE ABOVE LISTS THE ORDER IN WHICH THE RAMPS ARE TO BE CONSIDERED.

AN ALTERATION IS DEFINED AS A PROJECT THAT CHANGES OR AFFECTS THE USE OF A PEDESTRIAN PATHWAY (OVERLAYS, SIGNALIZATION PROJECTS, ETC.) BUT DOES NOT REQUIRE THE PURCHASE OF ADDITIONAL RIGHT-OF-WAY. ALL PROJECTS THAT REQUIRE THE PURCHASE OF ADDITIONAL RIGHT-OF-WAY WILL USUALLY BE CONSIDERED NEW CONSTRUCTION FOR THE PURPOSES OF THE CHART ABOVE.

DATE	REVISION	DATE FILM
11-10-05	REVISED TO NEW SIDEWALK POLICY	
10-9-03	REVISED GEN. NOTES & ADDED NOTE	
4-10-03	REV. DETECTABLE WARNING DEVICES	
8-22-02	ADD DETECTABLE WARNING DEVICES	
3-30-00	ADD. SLOPE TRANS. & REV. ISL. DIMS.	
11-18-98	REVISED NOTES	
8-12-98	REVISED TEXTURE	
7-02-98	REDRAWN & REISSUED	
10-18-96	CORRECTED DIMENSIONS	10-18-96
5-24-90	FROM8UTOI2/MAX.SLOPES	5-24-90
7-15-88	ADJUSTED MAX. SLOPE	652-7-15-88
7-14-88	INCLUD."CONC. ISLD."IN PAY ITEM	-------
6-02-76	ISSUED-P.H.D.	299-7-28-76

ARKANSAS STATE HIGHWAY COMMISSION

WHEELCHAIR RAMPS
NEW CONSTRUCTION
AND ALTERATIONS

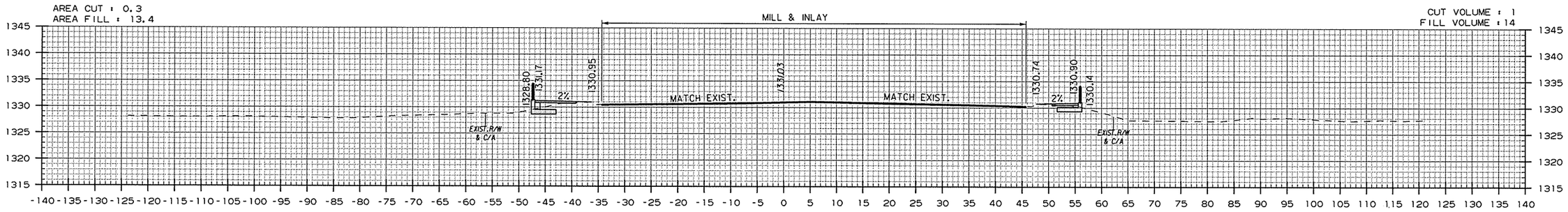
STANDARD DRAWING WR-1

Crafton, Tull & Associates Inc.

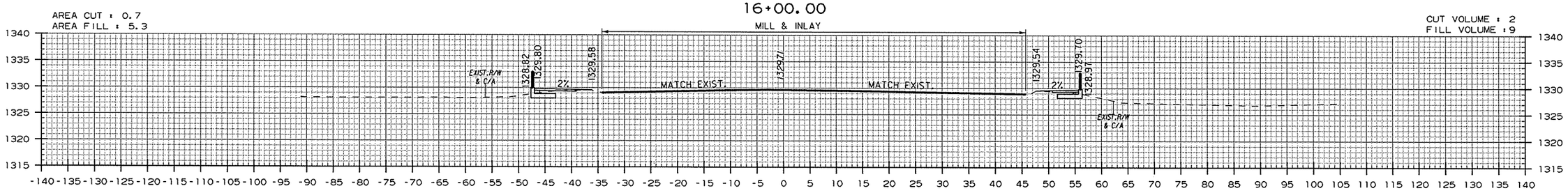
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	142	160

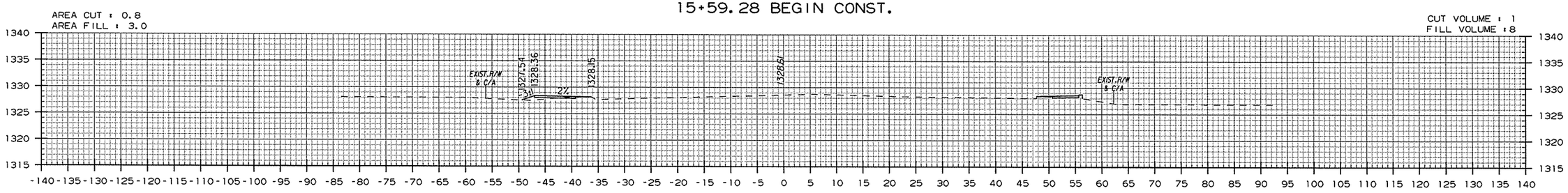
(2) CROSS SECTIONS



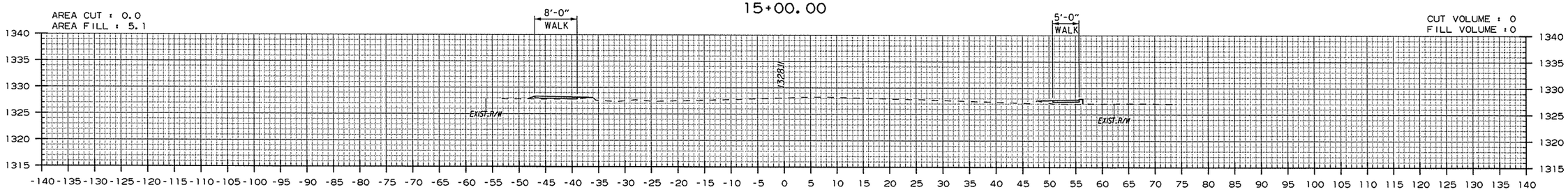
16+00.00



15+59.28 BEGIN CONST.



15+00.00



14+50.00 BEGIN SIDEWALK LT. & RT.

ELM SPRINGS ROAD
STA. 14+50.00 TO STA. 16+00.00

USER: dd5109
DESIGN FILE: G:\12103303_ElmSprngRd\TRANSP\dgn\xsect\rBB0413 CX.dgn
PLOTTED: 1/8/2016 13:27 SCALE: 20:1 MODEL: CROSS SECTIONS

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	143	160

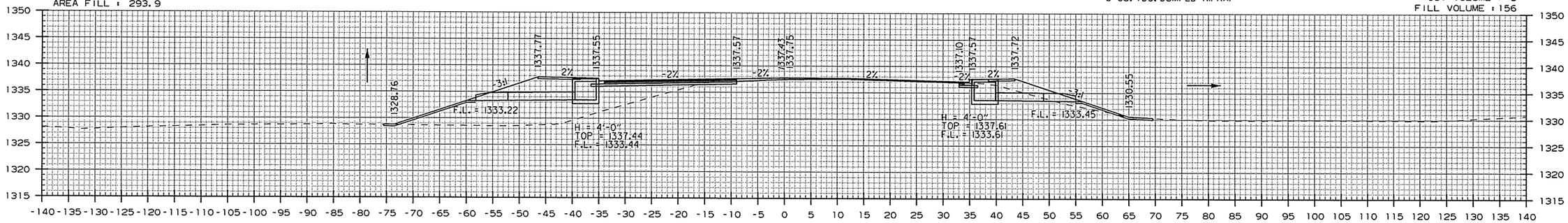
(2) CROSS SECTIONS

STA. 17+48 CONSTRUCT
D.I. ON LT. W/ 4' EXT. H=4'-0"
WITH 18" x 15' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
OUTLET W/FES ON LT.
TY C = 4' X 4'
TY MO = 4' I.D.
5 CU. YDS. DUMPED RIPRAP

STA. 17+51 CONSTRUCT
D.I. ON RT. W/ 4' EXT. H=4'-0"
WITH 18" x 10' R.C. PIPE CULVERT
(CLASS III) (TYPE 3 BEDDING)
OUTLET W/FES ON RT.
TY C = 4' X 4'
TY MO = 4' I.D.
5 CU. YDS. DUMPED RIPRAP

AREA CUT : 7.8
AREA FILL : 293.9

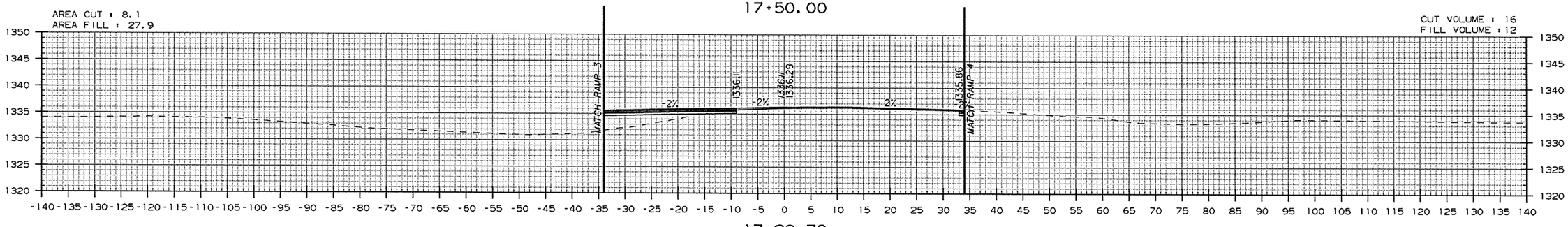
CUT VOLUME : 8
FILL VOLUME : 156



17+50.00

AREA CUT : 8.1
AREA FILL : 27.9

CUT VOLUME : 16
FILL VOLUME : 12

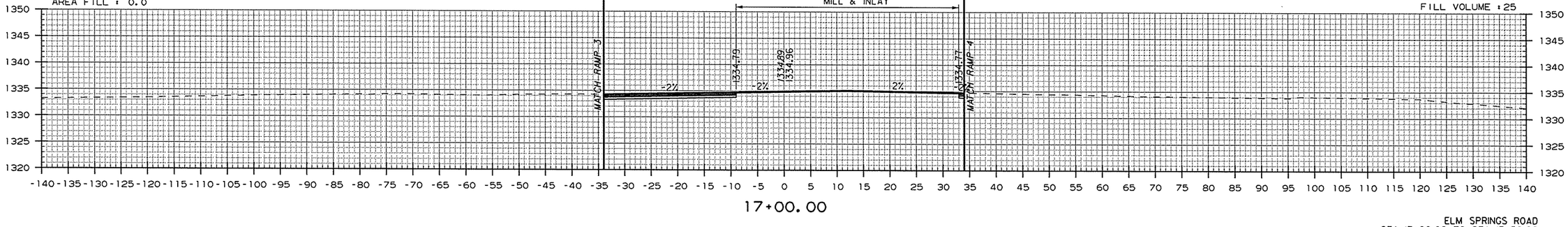


17+23.79

AREA CUT : 28.4
AREA FILL : 0.0

MILL & INLAY

CUT VOLUME : 53
FILL VOLUME : 25



17+00.00

ELM SPRINGS ROAD
STA. 17+00.00 TO STA. 17+50.00

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PLOTTED: 1/8/2016 13:27
SCALE: 20:1
MODEL: CROSS SECTIONS

Crafton, Tull & Associates Inc.

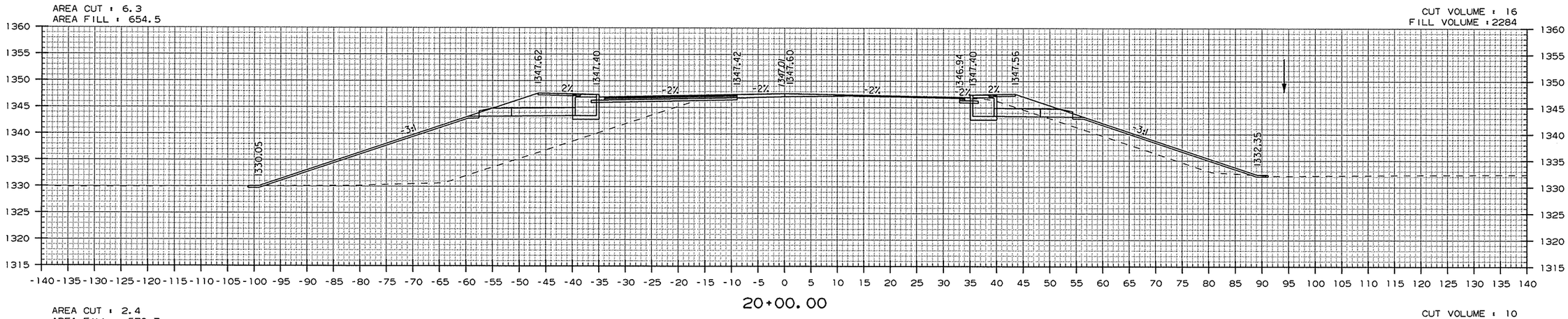
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

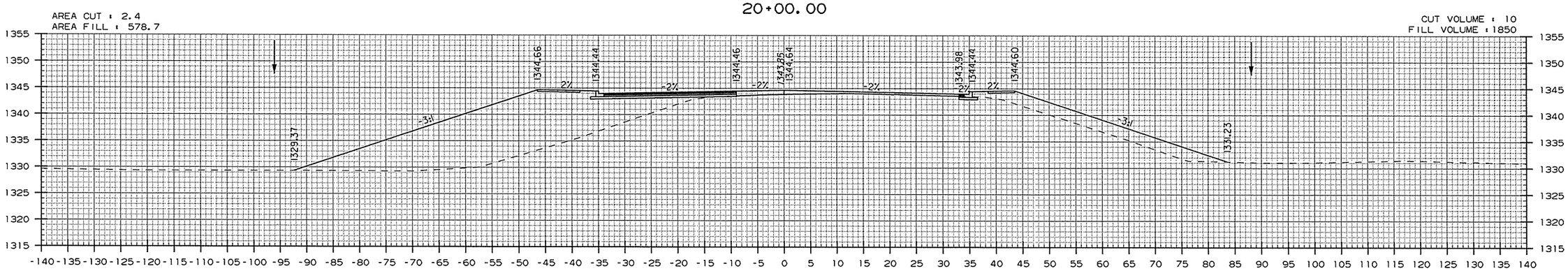
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	144	160

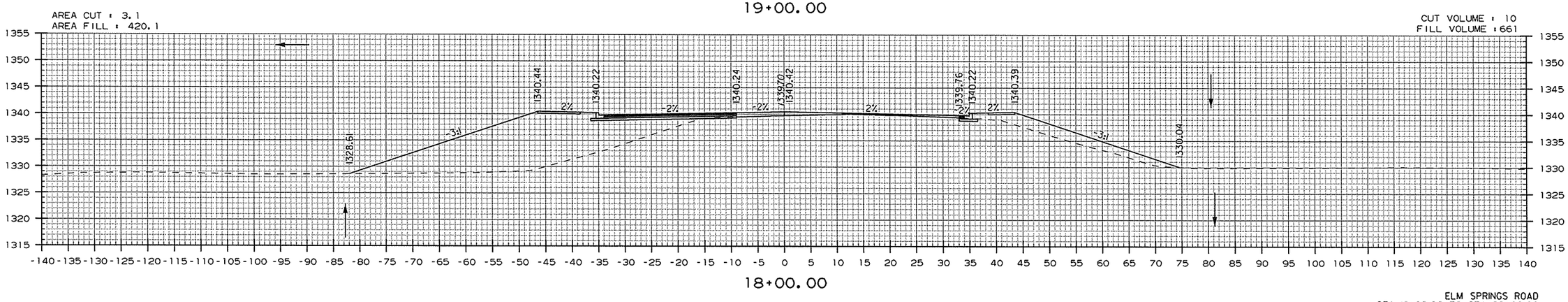
(2) CROSS SECTIONS

STA. 20+00 CONSTRUCT
D.I. ON LT. H=4'-0"
WITH 18" x 17' R.C. PIPE CULVERT
(CLASS III)(TYPE 3 BEDDING)
OUTLET W/FES ON LT.
TY C = 4' X 4'
TY MO = 4' I.D.
5 CU. YDS. DUMPED RIPRAP

STA. 20+00 CONSTRUCT
D.I. ON RT. H=4'-0"
WITH 18" x 7' R.C. PIPE CULVERT
(CLASS III)(TYPE 3 BEDDING)
OUTLET W/FES ON RT.
TY C = 4' X 4'
TY MO = 4' I.D.
5 CU. YDS. DUMPED RIPRAP







ELM SPRINGS ROAD
STA. 18+00.00 TO STA. 20+00.00

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PLOTTED: 1/8/2016 13:28 SCALE: 20:1

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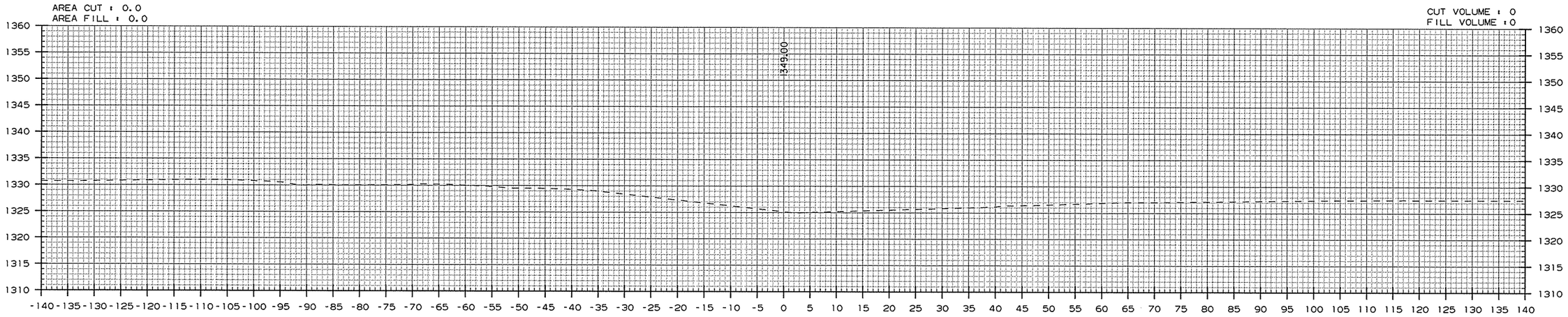
Crafton, Tull & Associates Inc.

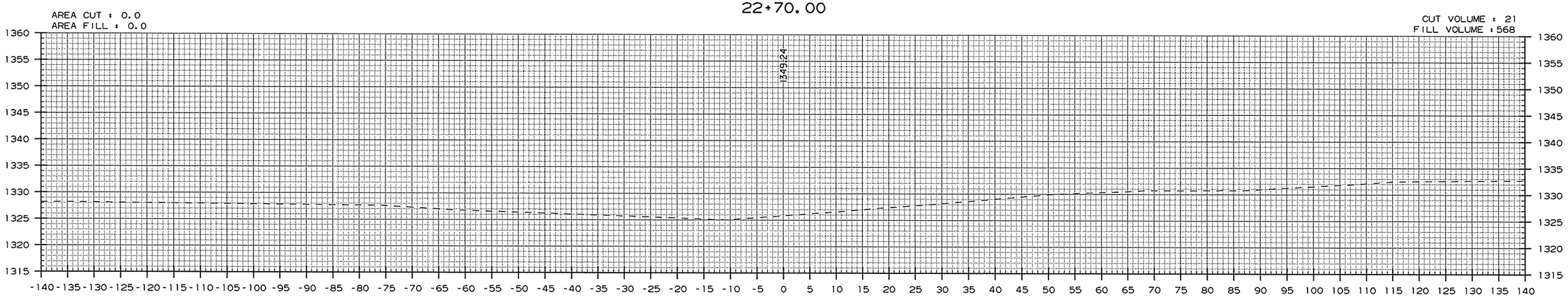
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	145	160

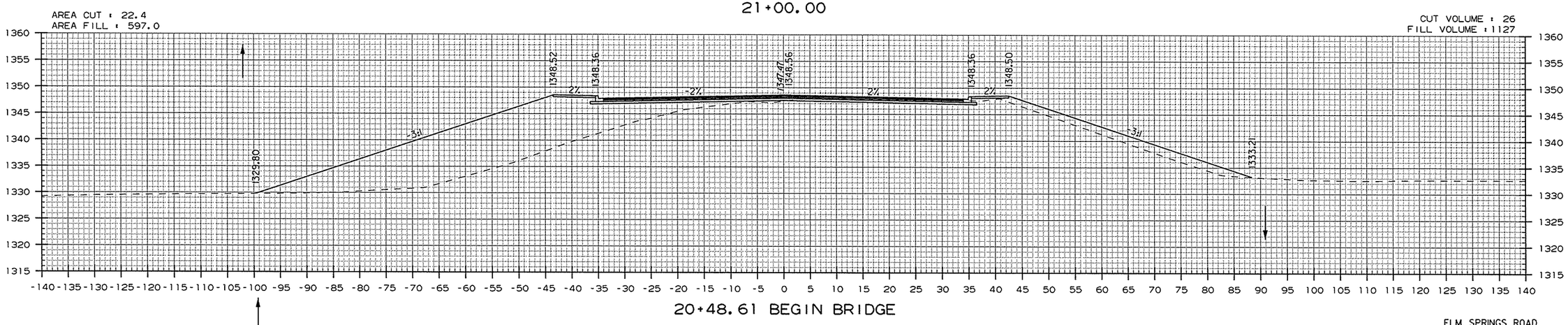
(2) CROSS SECTIONS



22+70.00



21+00.00



20+48.61 BEGIN BRIDGE

ELM SPRINGS ROAD
STA. 20+48.61 TO STA. 22+70.00

USER: dd5109
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PLOTTED: 1/8/2016 13:28
SCALE: 20:1
MODEL: CROSS SECTIONS

Crafton, Tull & Associates Inc.

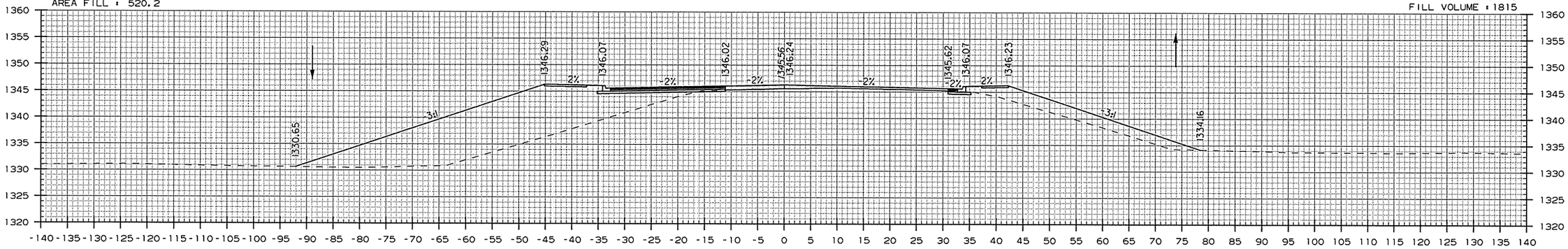
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	146	160

(2) CROSS SECTIONS

AREA CUT = 3.5
AREA FILL = 520.2

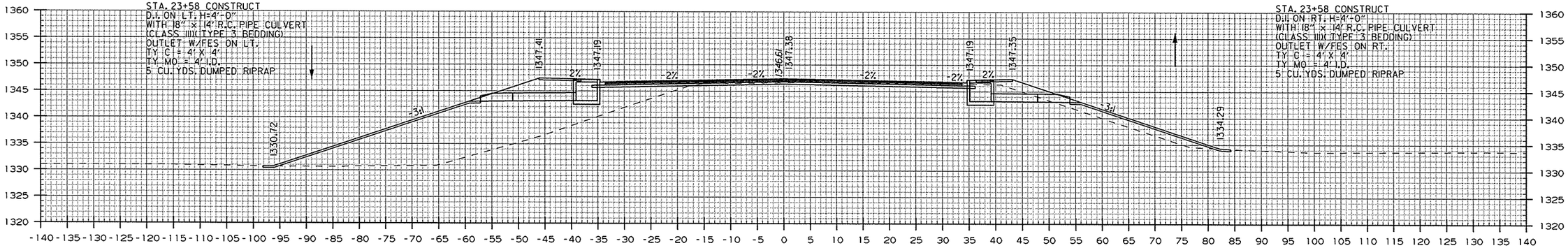
CUT VOLUME = 8
FILL VOLUME = 1815



24+00.00

STA. 23+58 CONSTRUCT
D.I. ON LT. H=4'-0"
WITH 18" x 14' R.C. PIPE CULVERT
(CLASS III)(TYPE 3 BEDDING)
OUTLET W/FES ON LT.
TY C = 4' X 4'
TY MO = 4' I.D.
5 CU. YDS. DUMPED RIPRAP

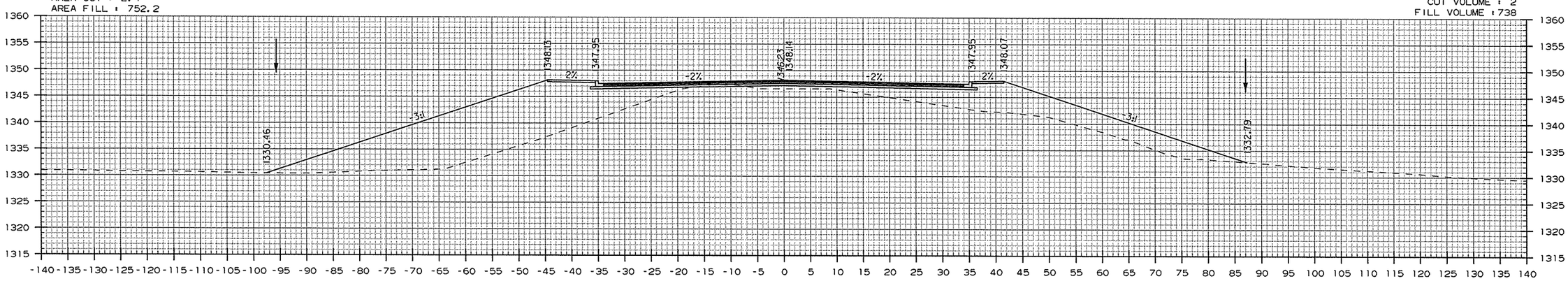
STA. 23+58 CONSTRUCT
D.I. ON RT. H=4'-0"
WITH 18" x 14' R.C. PIPE CULVERT
(CLASS III)(TYPE 3 BEDDING)
OUTLET W/FES ON RT.
TY C = 4' X 4'
TY MO = 4' I.D.
5 CU. YDS. DUMPED RIPRAP



23+58.00

AREA CUT = 2.4
AREA FILL = 752.2

CUT VOLUME = 2
FILL VOLUME = 738



23+22.99 END BRIDGE

ELM SPRINGS ROAD
STA. 23+22.99 TO STA. 24+00.00

USER: dd5109
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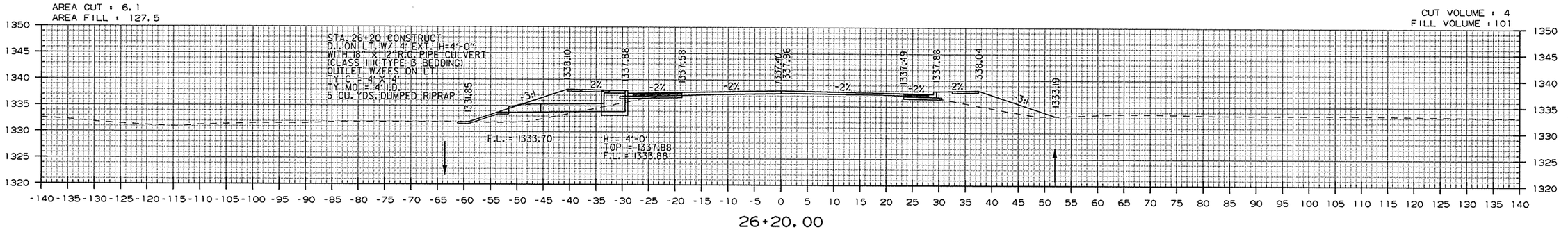
PLOTTED: 1/8/2016 13:28
SCALE: 20:1
MODEL: CROSS SECTIONS

G:\12103303_ElmSprngRd\TRANSP\dgn\xsect\rBB0413 CX.dgn 1/8/2016 13:28

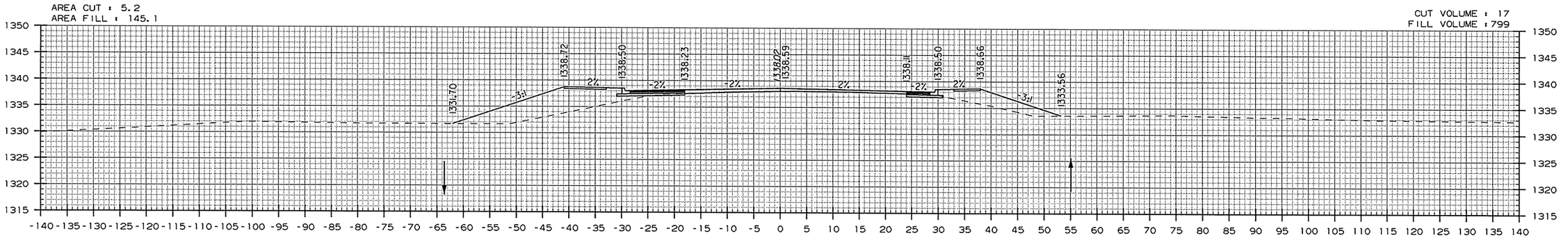
Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	147	160

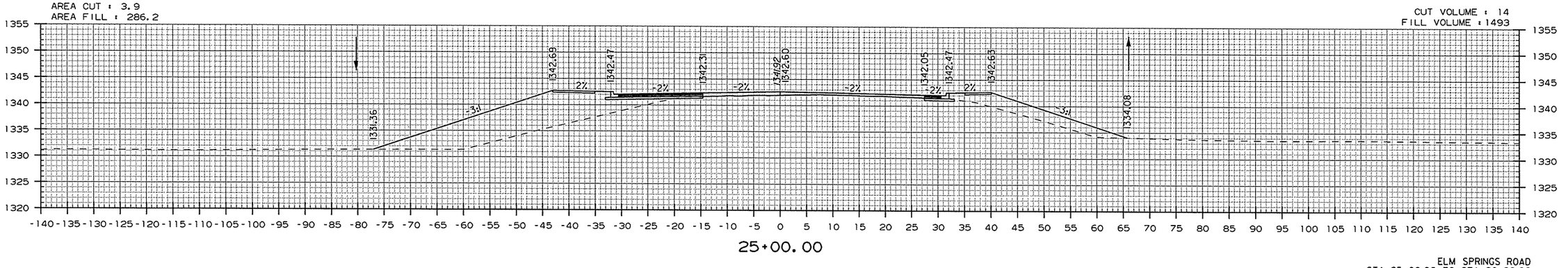
(2) CROSS SECTIONS



26+20.00



26+00.00



25+00.00

ELM SPRINGS ROAD
STA. 25+00.00 TO STA. 26+20.00

USER: gdsl09
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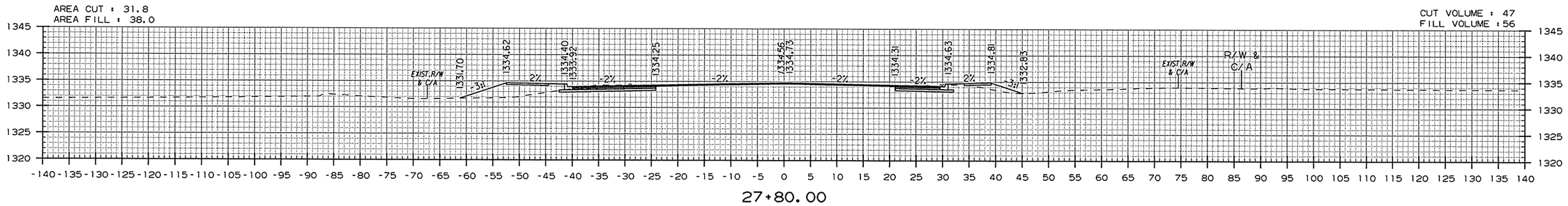
PLOTTED: 1/8/2016 13:29 SCALE: 20:1

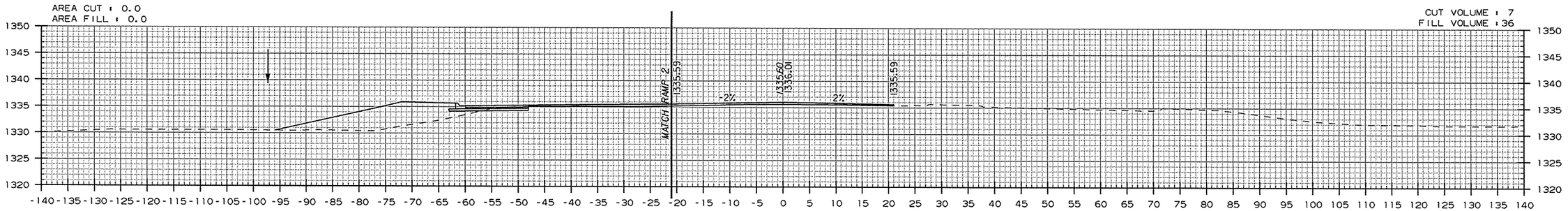
Crafton, Tull & Associates Inc.

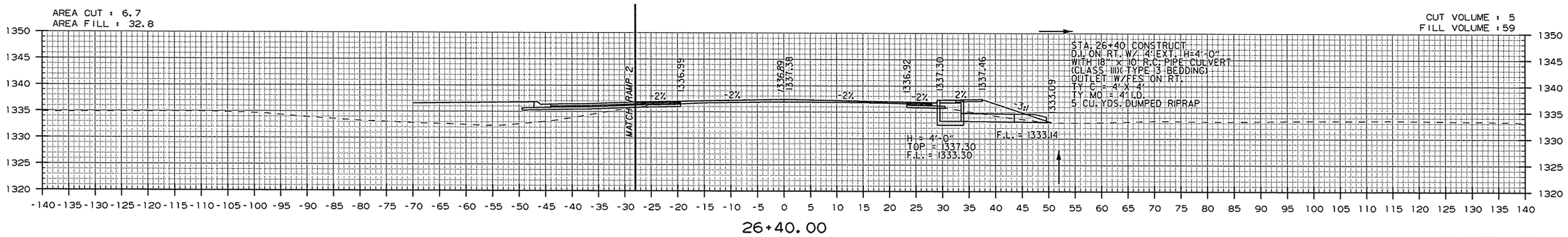
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	148	160

(2) CROSS SECTIONS







ELM SPRINGS ROAD
STA. 26+40.00 TO STA. 27+80.00

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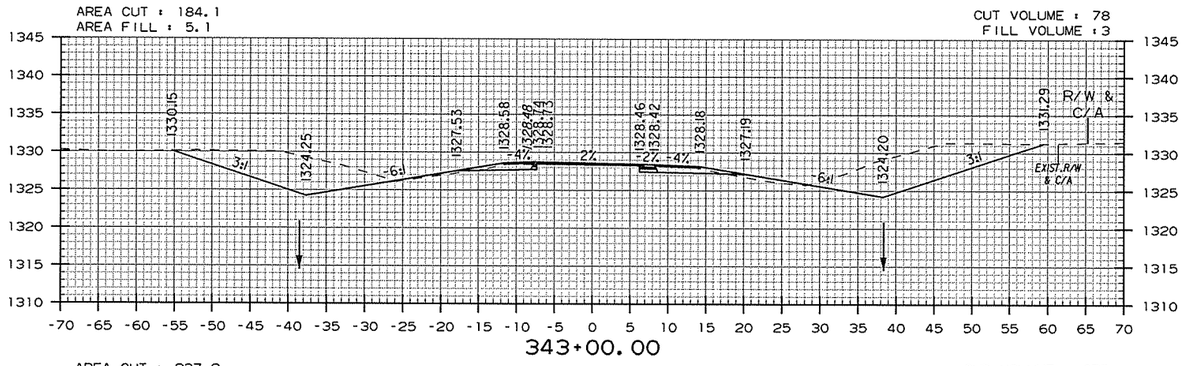
PLOTTED: 1/8/2016 13:29 SCALE: 20:1

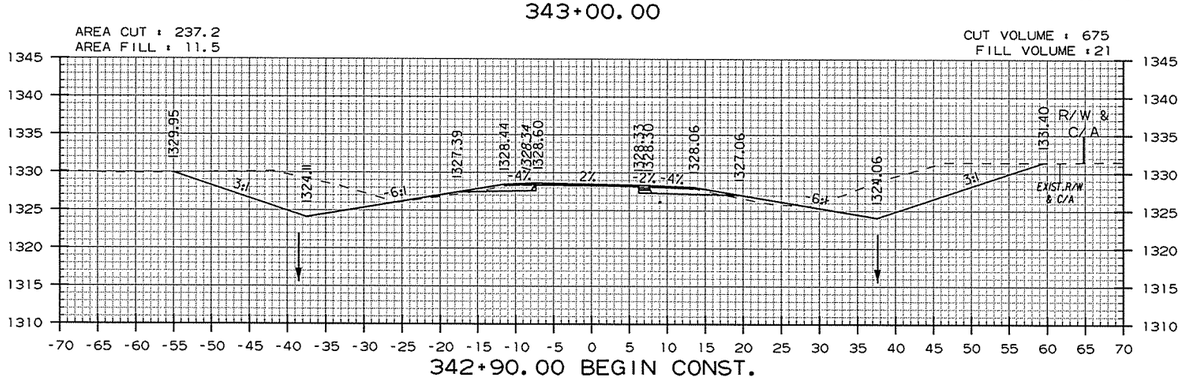
Crafton, Tull & Associates Inc.

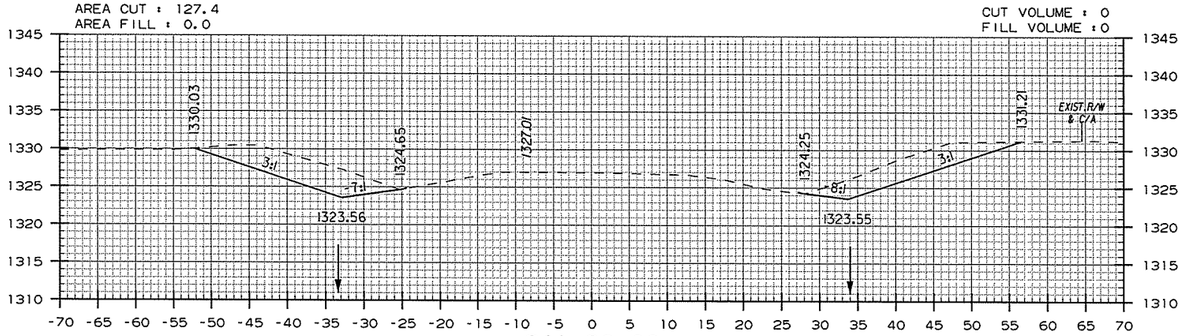
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

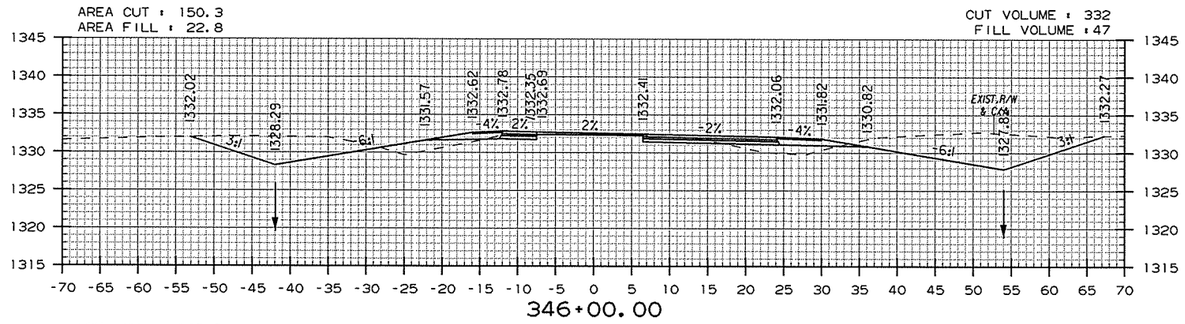
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	149	160

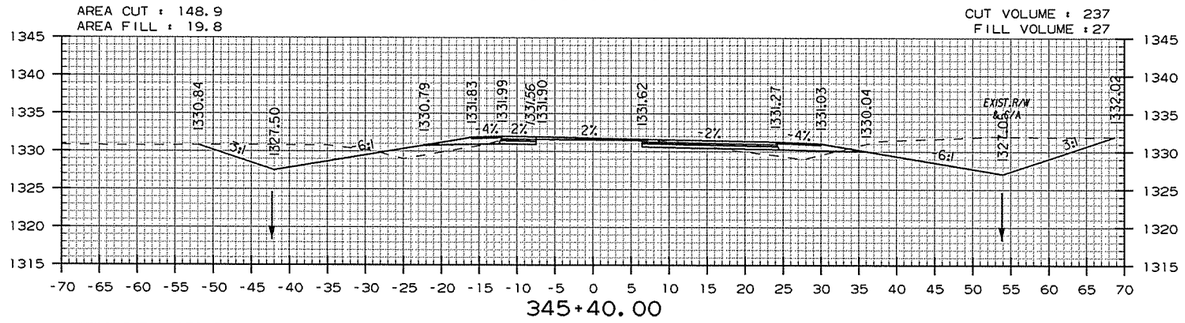
(2) CROSS SECTIONS

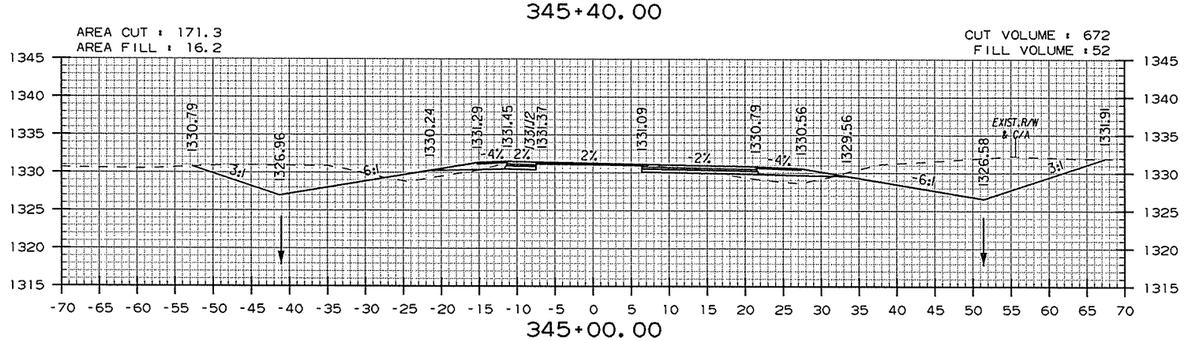


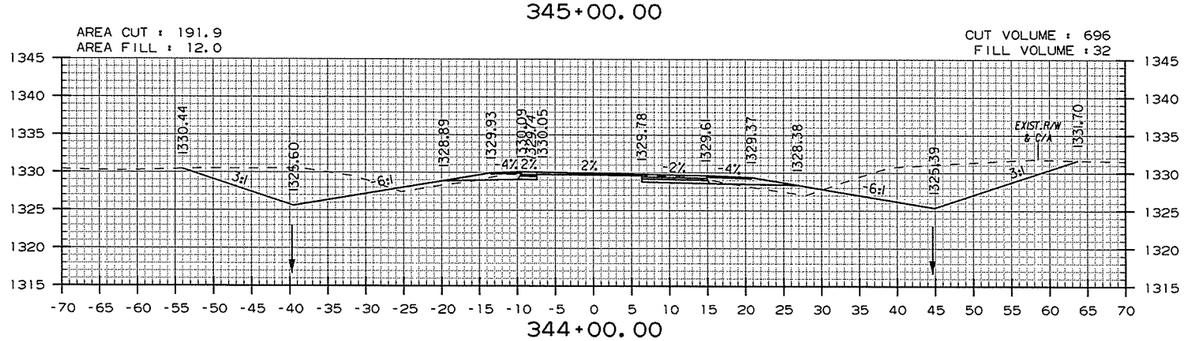












RAMP I
STA. 341+90.00 TO STA. 346+00.00

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PLOTTED: 1/8/2016 13:29 SCALE: 20:1 MODEL: CROSS SECTIONS

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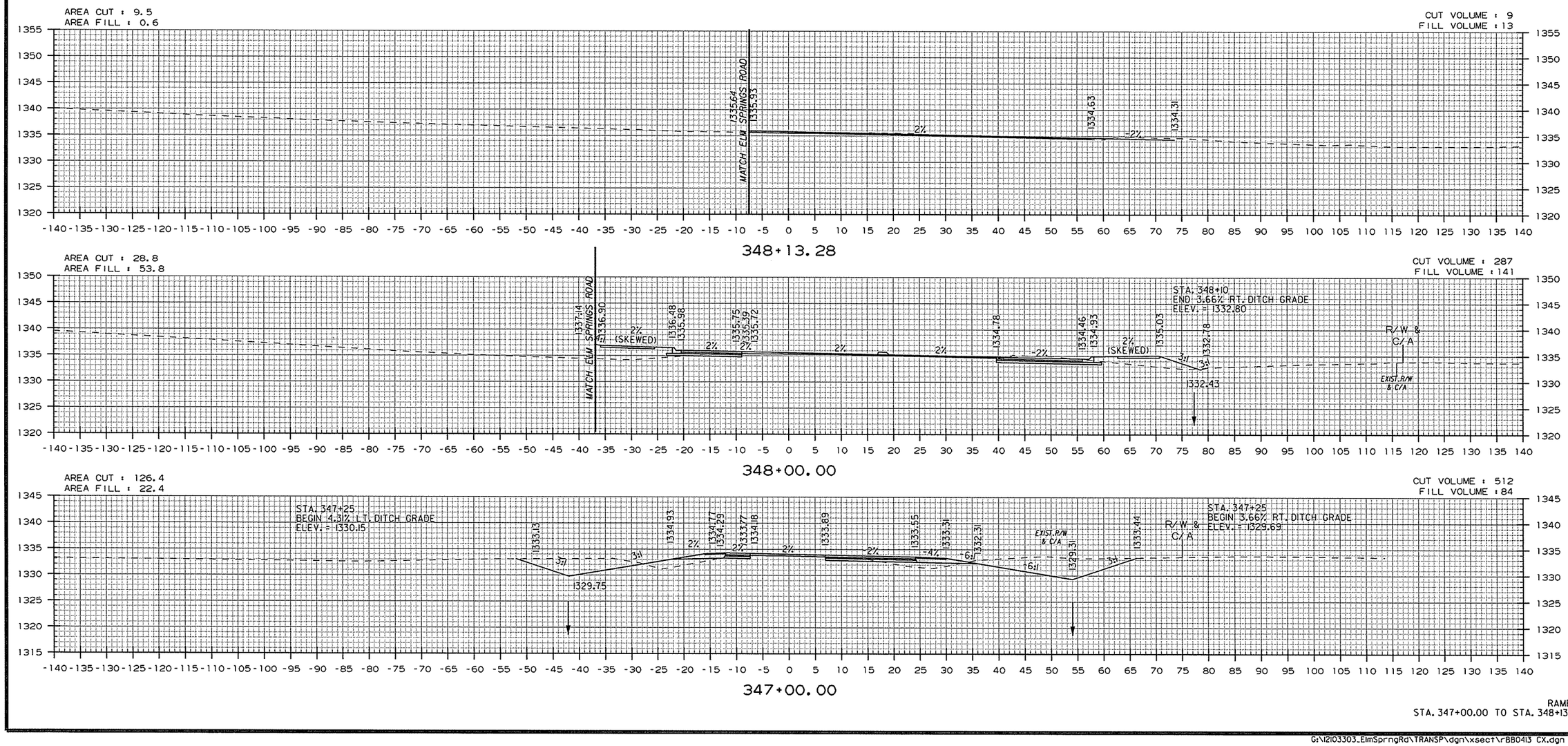
Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	150	160

(2) CROSS SECTIONS



RAMP 1
STA. 347+00.00 TO STA. 348+13.28

USER: dd5109
DESIGN FILE: G:\12103303_ElmSprngRd\TRANSP\dgn\xsect\rBB0413 CX.dgn
PLOTTED: 1/8/2016 13:29
SCALE: 20:1
MODEL: CROSS SECTIONS

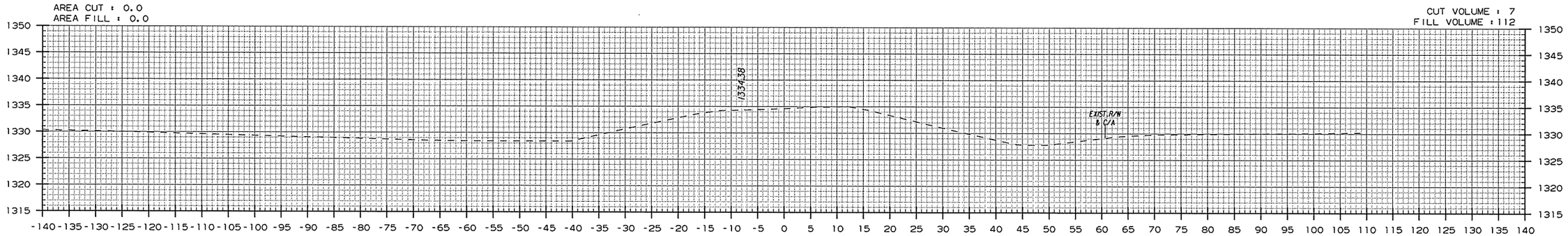
G:\12103303_ElmSprngRd\TRANSP\dgn\xsect\rBB0413 CX.dgn 1/8/2016 13:29

Crafton, Tull & Associates Inc.

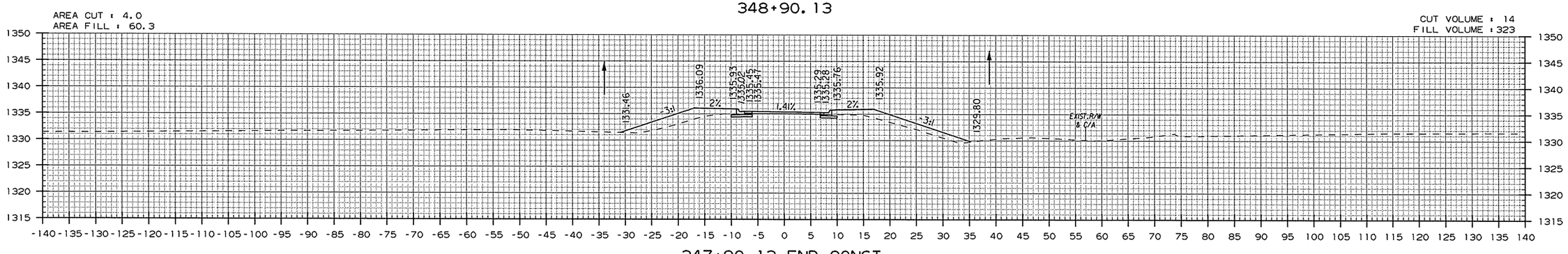
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	151	160

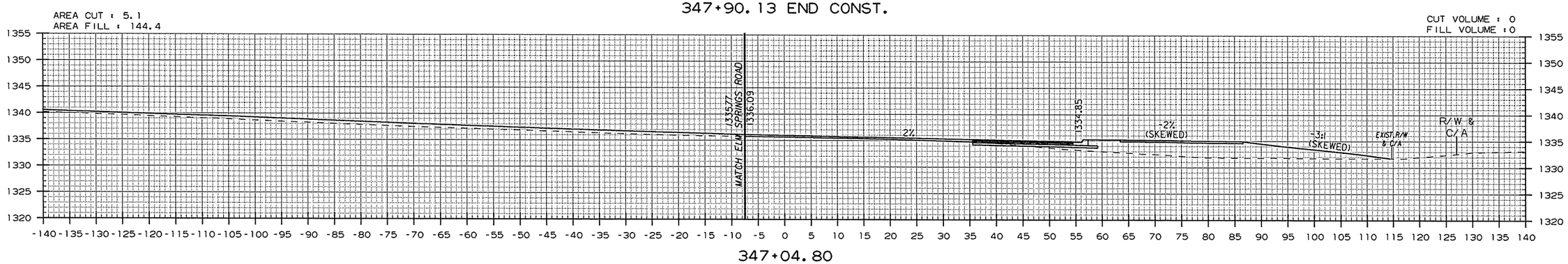
(2) CROSS SECTIONS



348+90.13



347+90.13 END CONST.



347+04.80

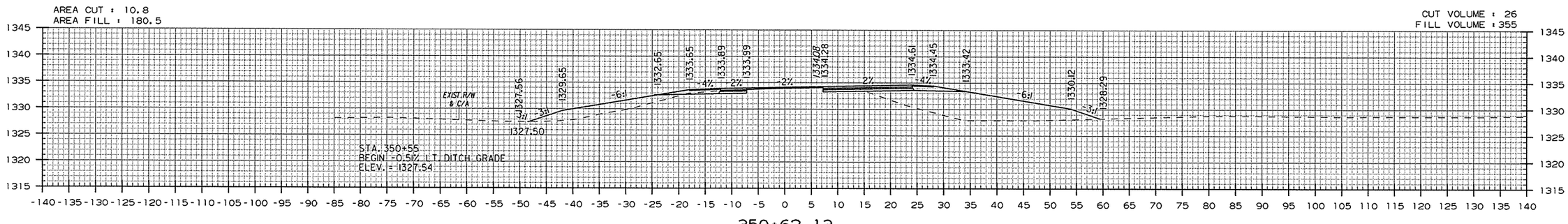
RAMP 2
STA. 347+04.80 TO STA. 348+90.13

USER: dd5109
DESIGN FILE: G:\12103303_ElmSprngRd\TRANSP\dgn\xsect\rBB0413 CX.dgn
PLOTTED: 1/8/2016 13:29
SCALE: 20:1
MODEL: CROSS SECTIONS

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	152	160

(2) CROSS SECTIONS



RAMP 3
STA. 349+62.13 TO STA. 350+62.13

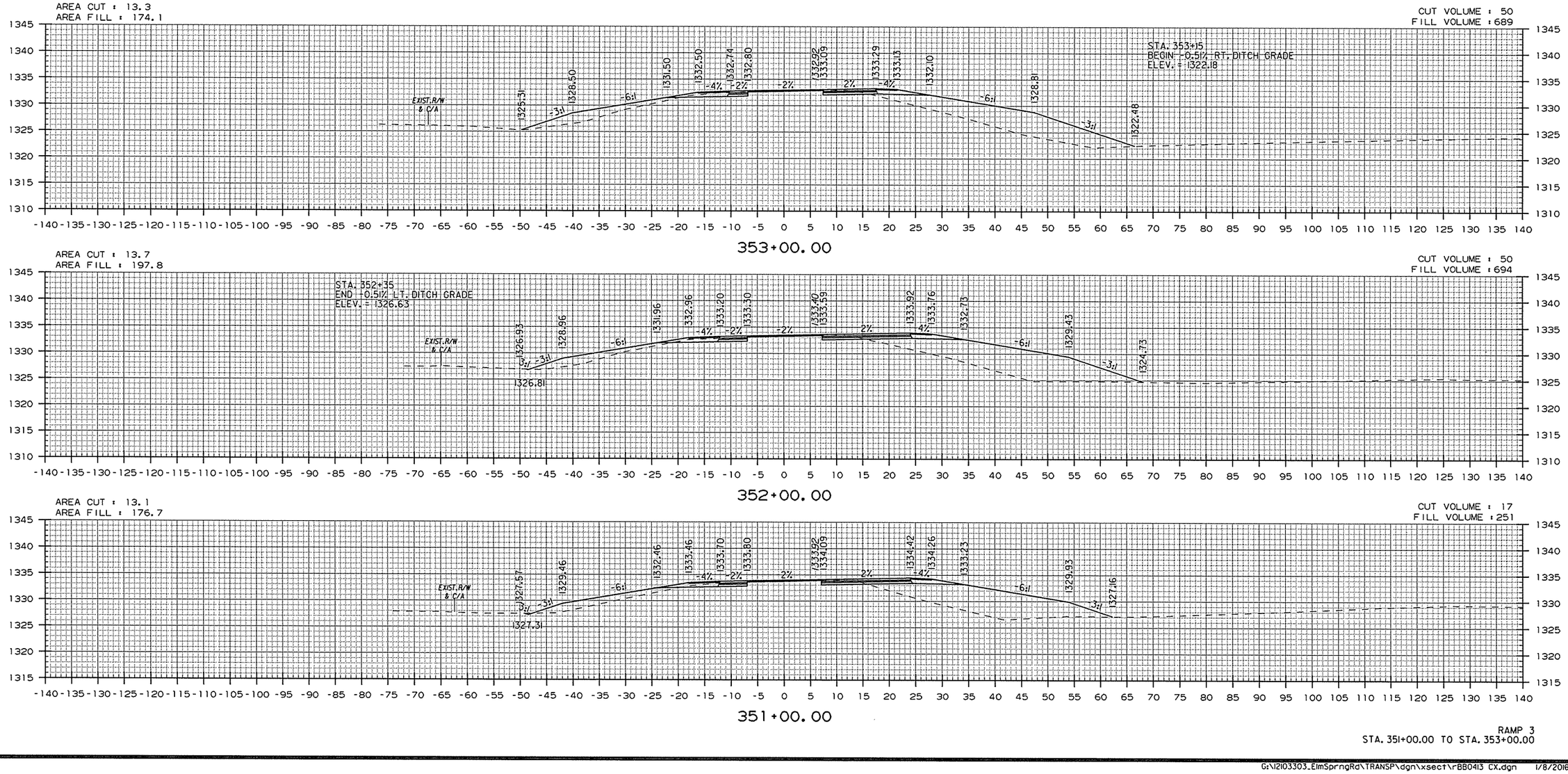
USER: dd5109
DESIGN FILE: G:\12103303_ElmSprngRd\TRANSP\dgn\xsect\rBB0413 CX.dgn
PLOTTED: 1/8/2016 13:30
SCALE: 20:1
MODEL: CROSS SECTIONS

Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	153	160

(2) CROSS SECTIONS



RAMP 3
STA. 351+00.00 TO STA. 353+00.00

USER: dd5109
DESIGN FILE: G:\12103303_ElmSprngRd\TRANSP\dgn\xsect\rBB0413 CX.dgn
PLOTTED: 1/8/2016 13:31
SCALE: 20:1
MODEL: CROSS SECTIONS

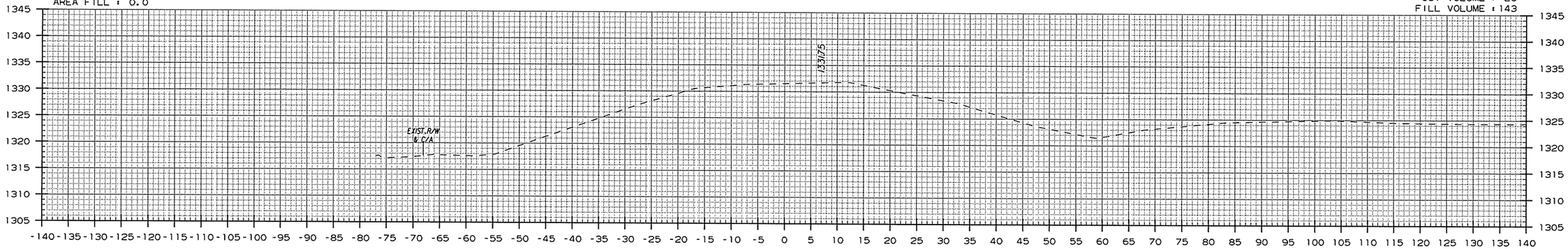
Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	154	160

(2) CROSS SECTIONS

AREA CUT : 0.0
AREA FILL : 0.0

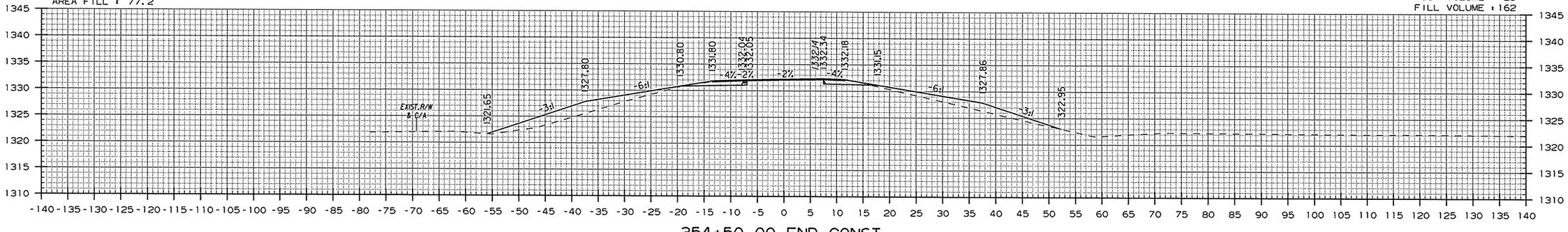
CUT VOLUME : 26
FILL VOLUME : 143



355+50.00

AREA CUT : 14.0
AREA FILL : 77.2

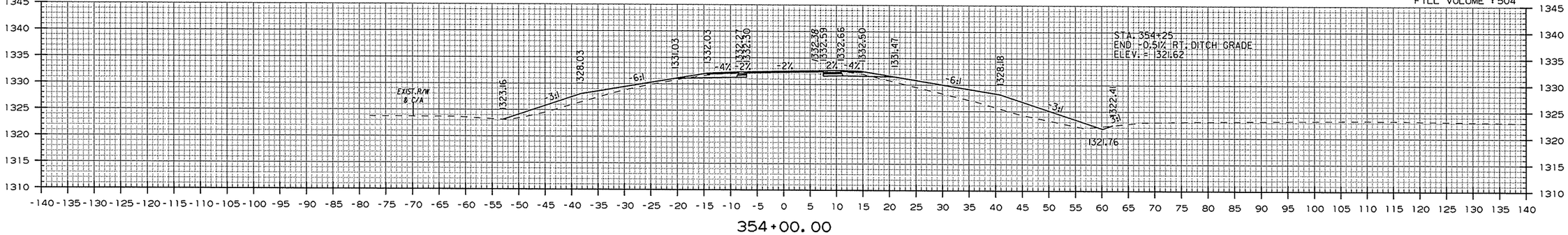
CUT VOLUME : 25
FILL VOLUME : 162



354+50.00 END CONST.

AREA CUT : 12.6
AREA FILL : 98.2

CUT VOLUME : 48
FILL VOLUME : 504



354+00.00

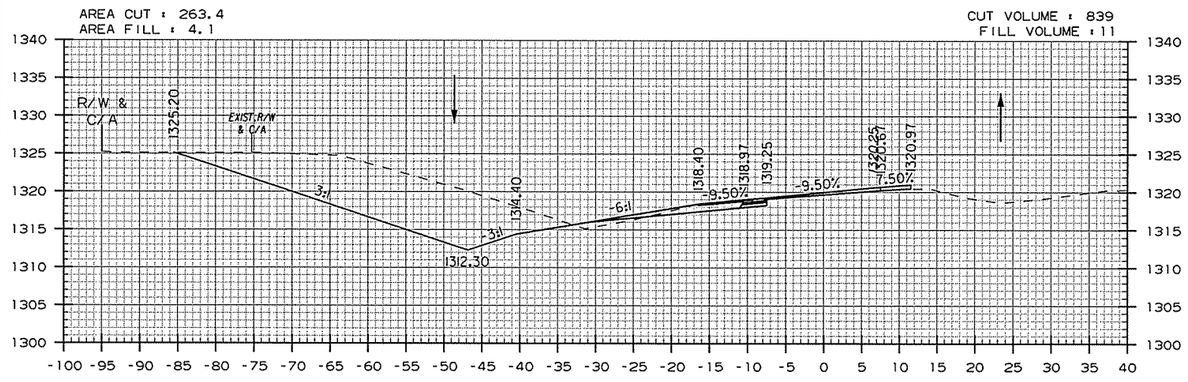
RAMP 3
STA. 354+00.00 TO STA. 355+50.00

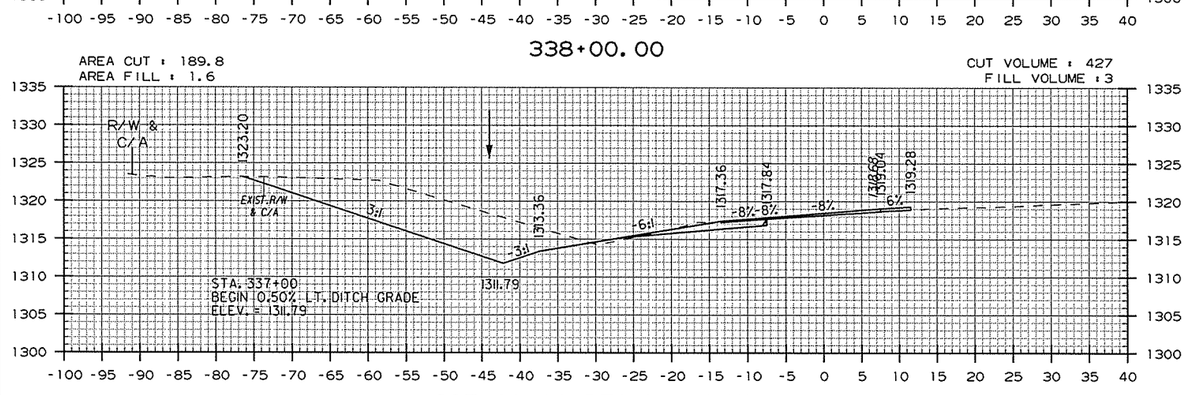
USER: dd5109
DESIGN FILE: G:\12103303_ElmSprngRd\TRANSP\dgn\xsect\rBB0413 CX.dgn
PLOTTED: 1/8/2016 13:31
SCALE: 20:1
MODEL: CROSS SECTIONS

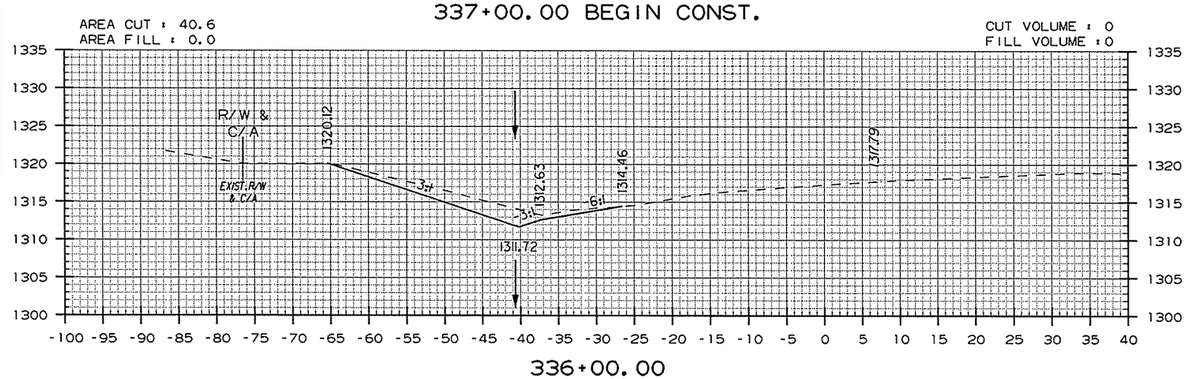
Crafton, Tull & Associates Inc.

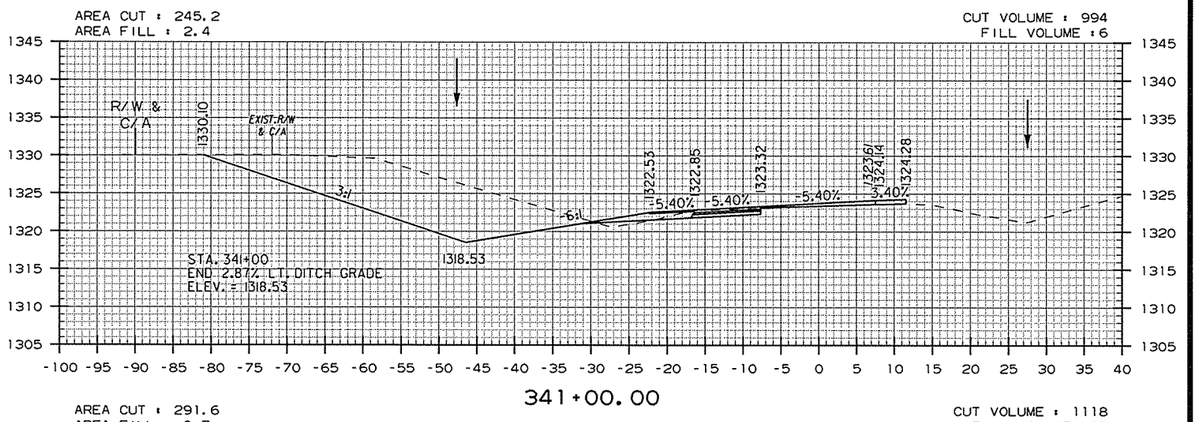
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	155	160
				(2)	CROSS SECTIONS			

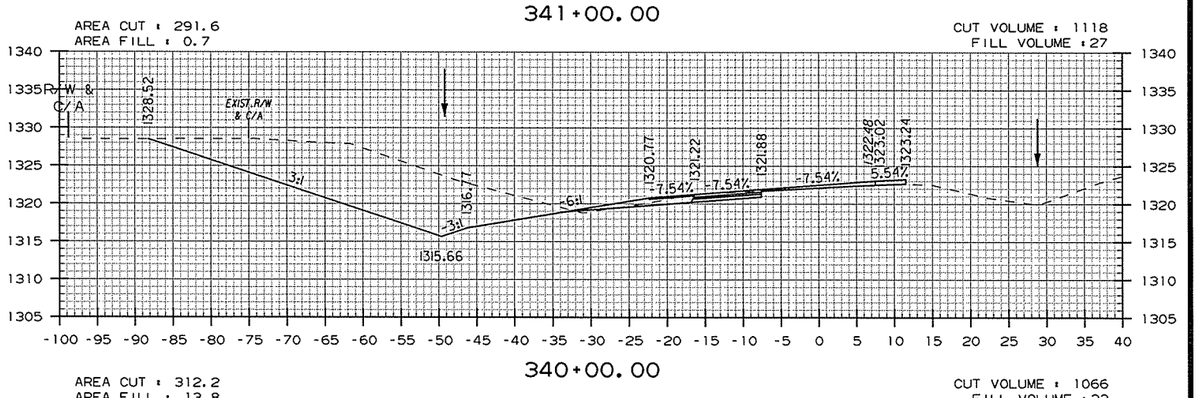
STA. 337+00.00 MATCH EXIST. SUPERELEVATION (-0.080'/')
STA. 337+75.00 MAX. SUPERELEVATION (-0.095'/')
STA. 339+08.65 MAX. SUPERELEVATION (-0.095'/')
STA. 342+58.65 END SUPERELEVATION (NC)

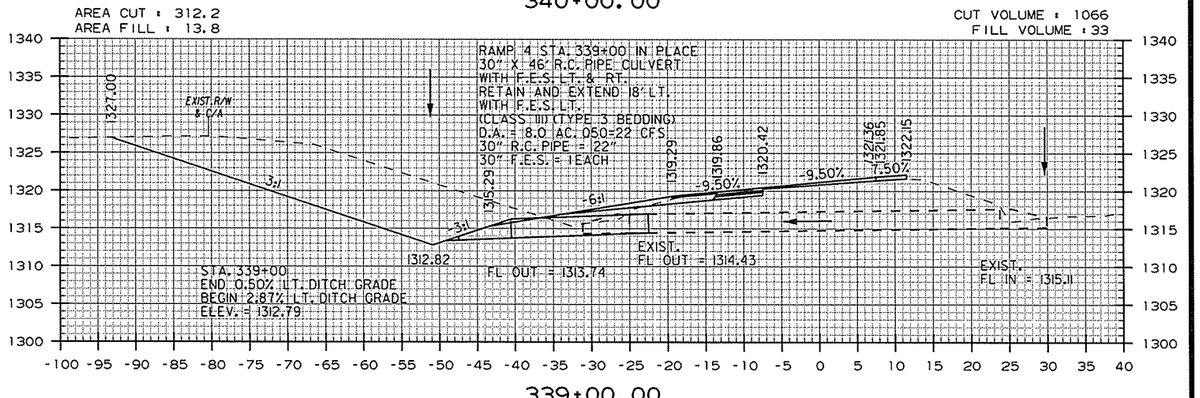












RAMP 4
STA. 336+00.00 TO STA. 341+00.00

USER: dd5109
DESIGN FILE: G:\12103303.ElmSprngRd\TRANSP\dgn\xsect\rBB0413 CX.dgn
PLOTTED: 1/8/2016 13:31
SCALE: 20:1
MODEL: CROSS SECTIONS

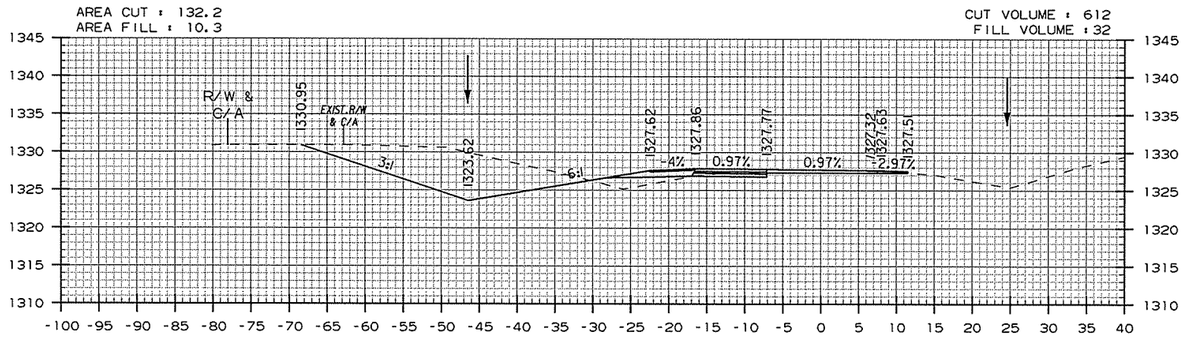
Crafton, Tull & Associates Inc.

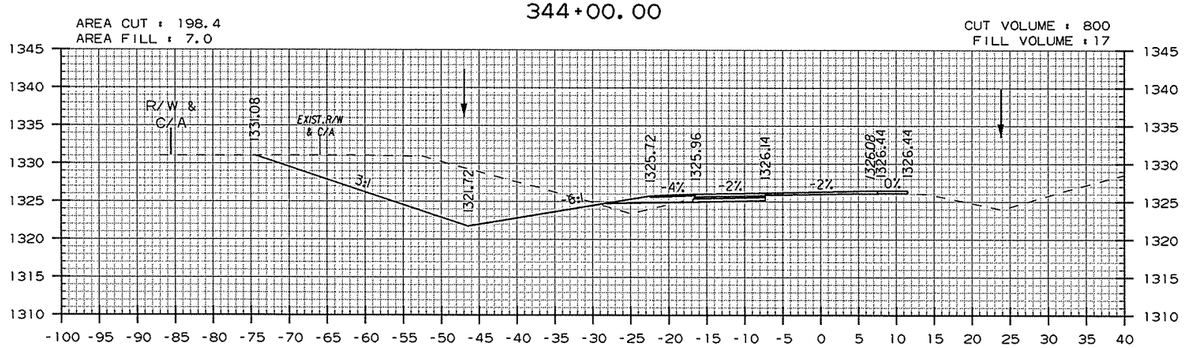
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

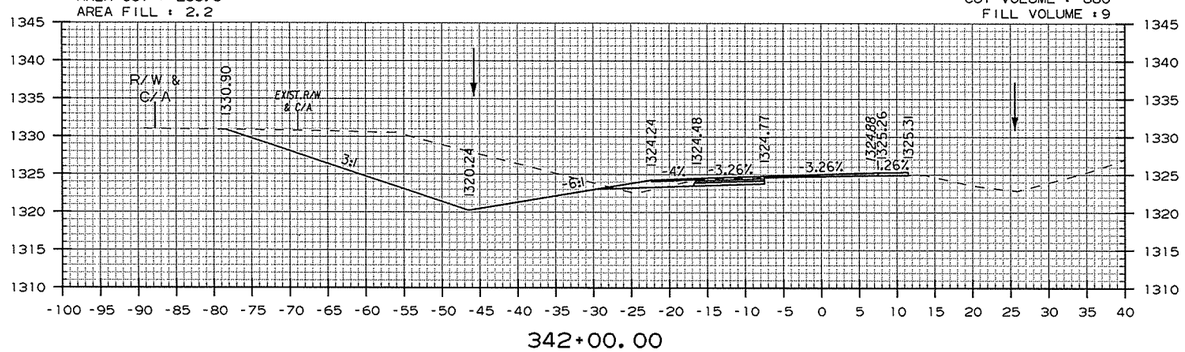
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	156	160

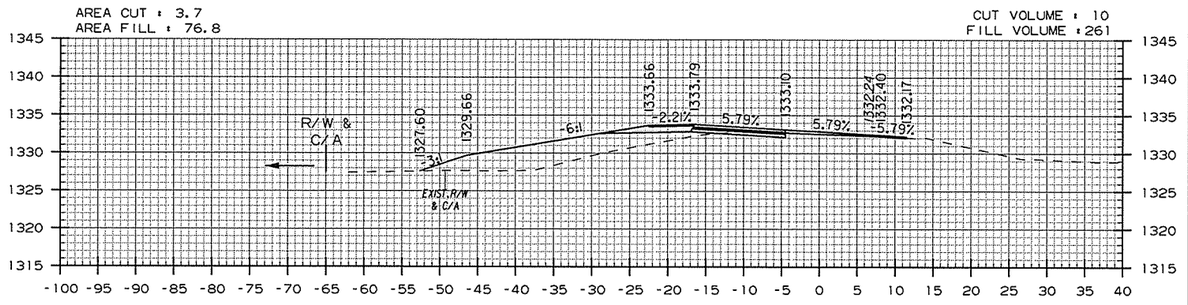
(2) CROSS SECTIONS

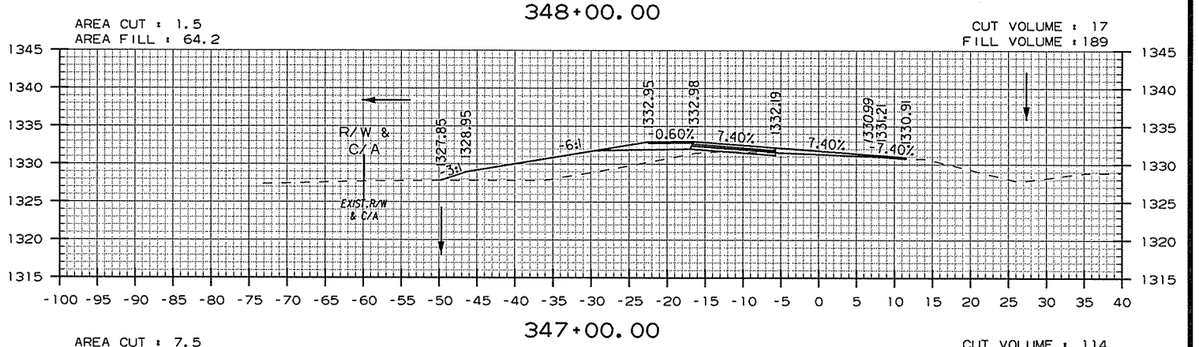
STA. 343+36.90 BEGIN SUPERELEVATION
STA. 345+36.90 MAX. SUPERELEVATION (0.074'/')
STA. 347+65.83 MAX. SUPERELEVATION (0.074'/')
STA. 350+25.98 MATCH ELM SPRINGS RD.

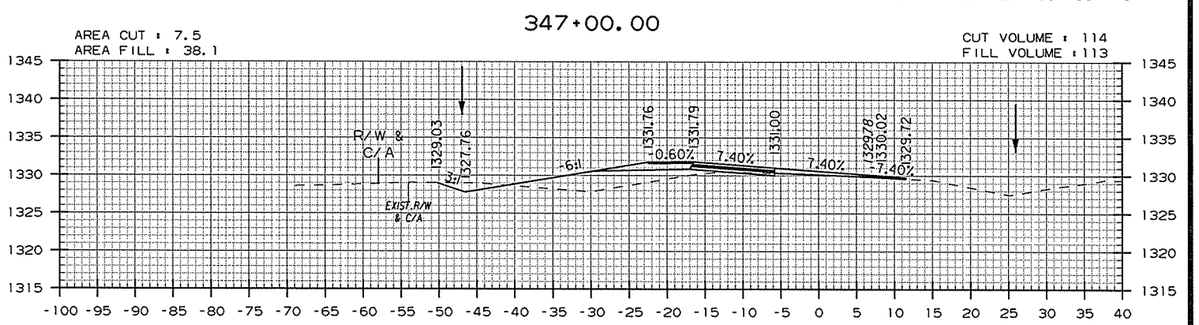


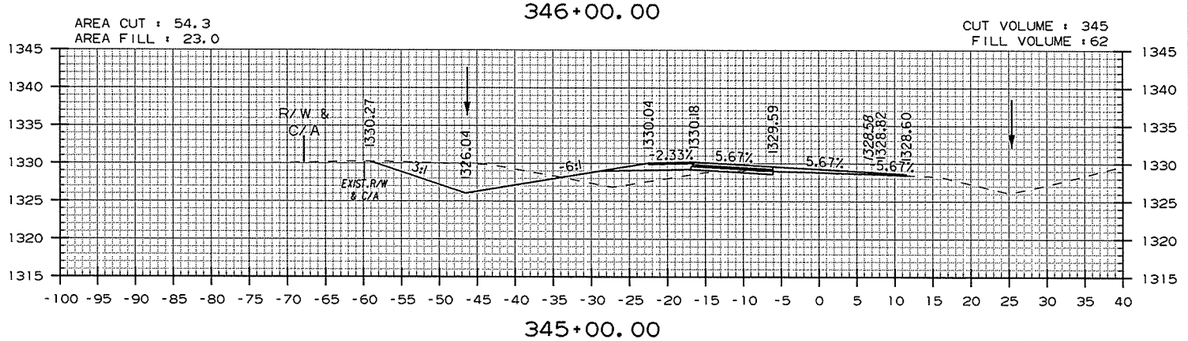








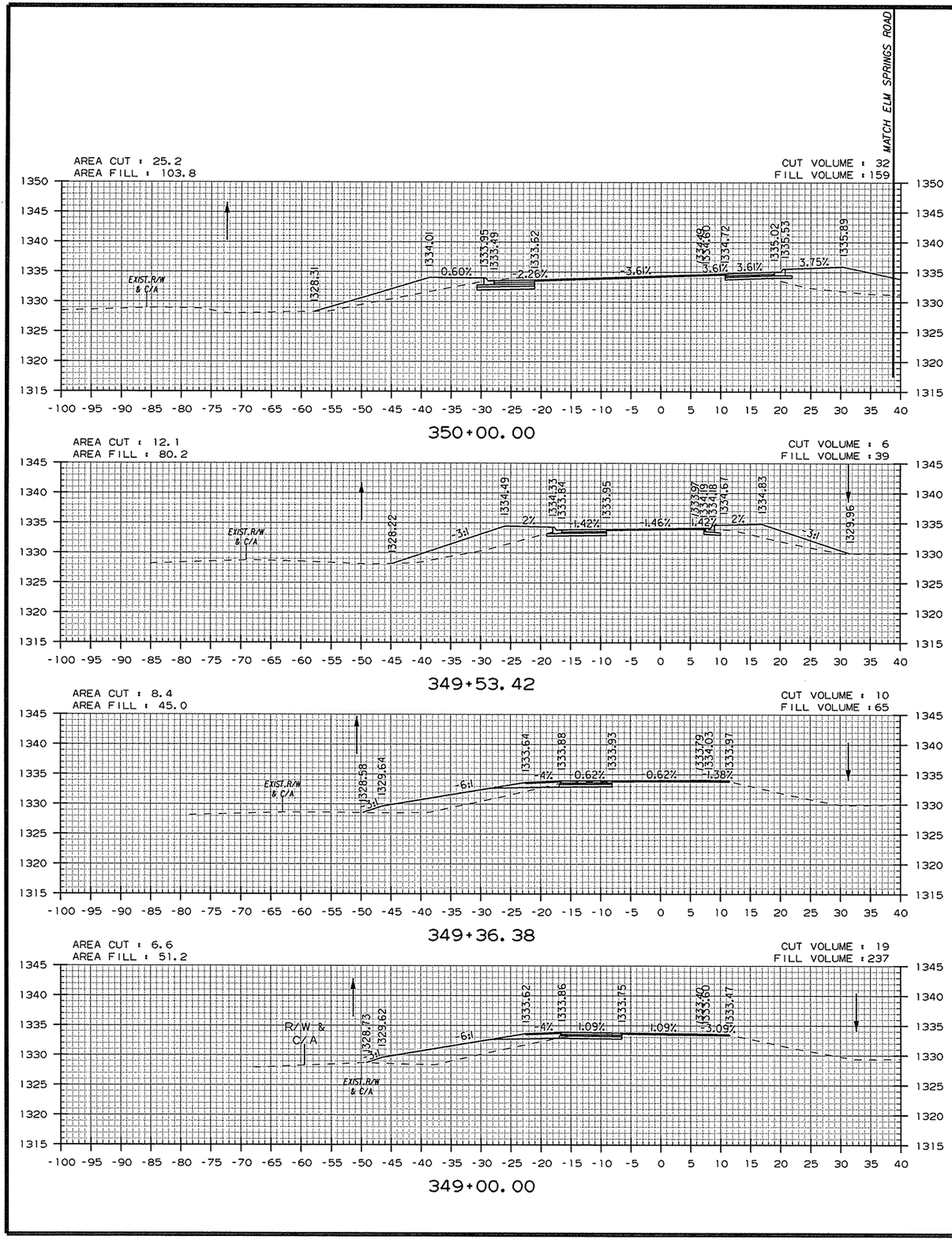




RAMP 4
STA. 342+00.00 TO STA. 348+00.00

USER: dd5109
DESIGN FILE: G:\12103303_ElmSprngRd\TRANSP\dgn\xsect\rBB0413 CX.dgn
PLOTTED: 1/8/2016 13:31
SCALE: 20:1
MODEL: CROSS SECTIONS

G:\12103303_ElmSprngRd\TRANSP\dgn\xsect\rBB0413 CX.dgn 1/8/2016 13:31



RAMP 4
STA. 349+00.00 TO STA. 350+36.38

USER: fs513
DESIGN FILE: G:\12103303_ElmSprngRd\TRANSP\dgn\xsect\rBB0413 CX.dgn
PLOTTED: 1/26/2016 12:02
SCALE: 20:1
MODEL: CROSS SECTIONS

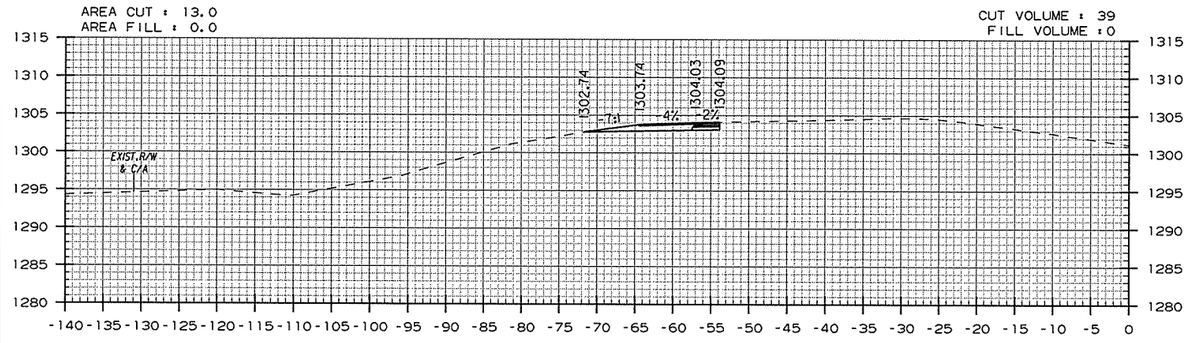
Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED

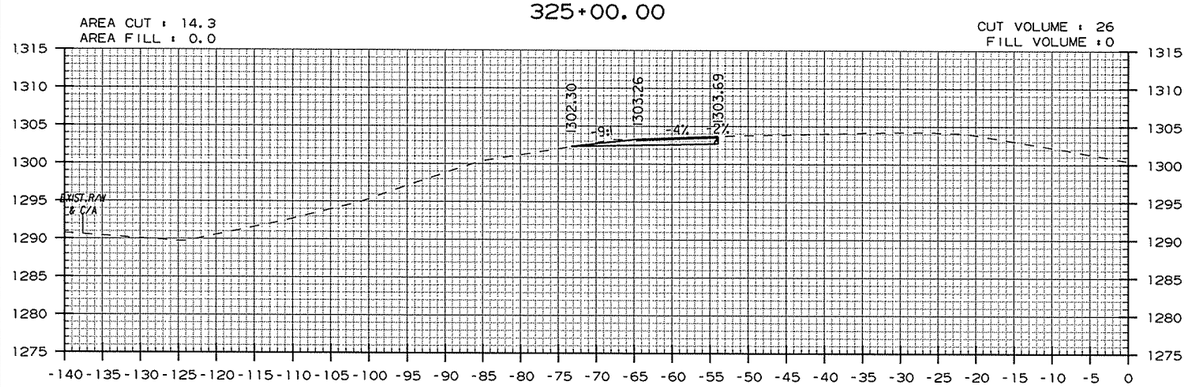
FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
6	ARK.			
JOB NO.		BB0413	158	160

(2) CROSS SECTIONS

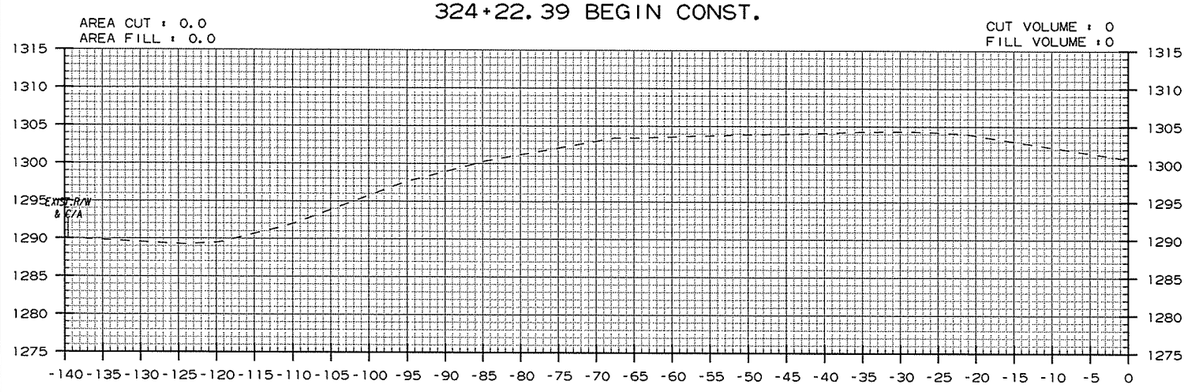
STA. 326+17.20 BEGIN SUPERELEVATION (NC)
STA. 329+17.20 MATCH EXIST. SUPERELEVATION (-0.032'/' +/-)



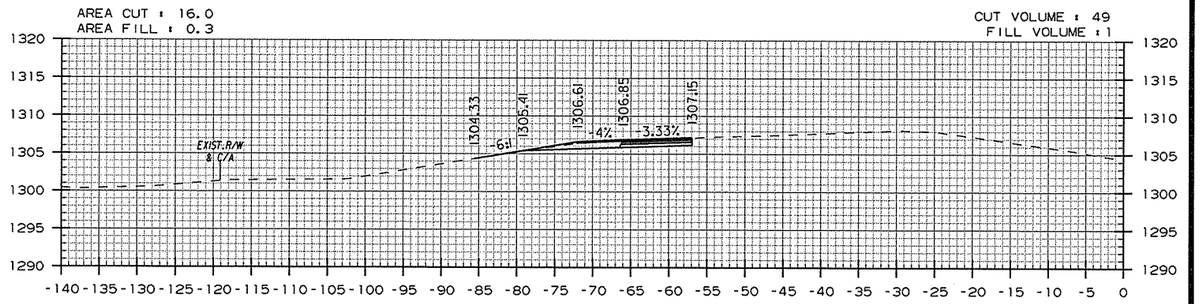
325+00.00



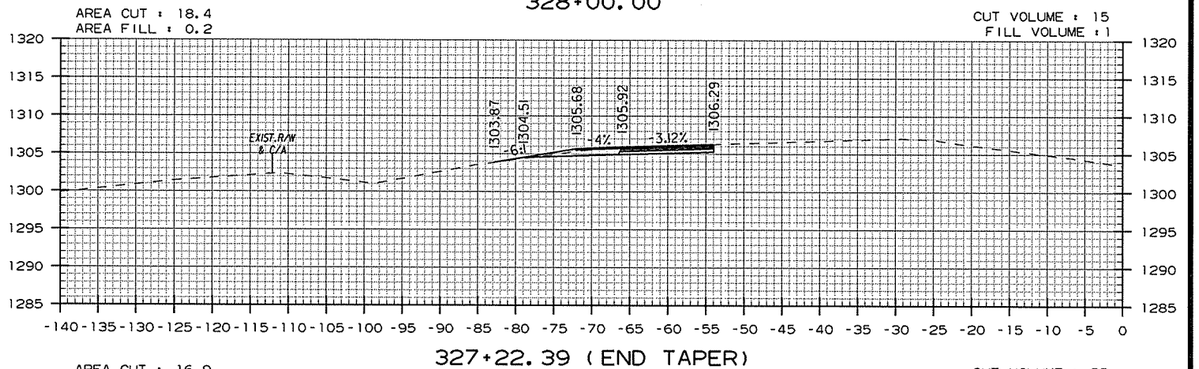
324+22.39 BEGIN CONST.



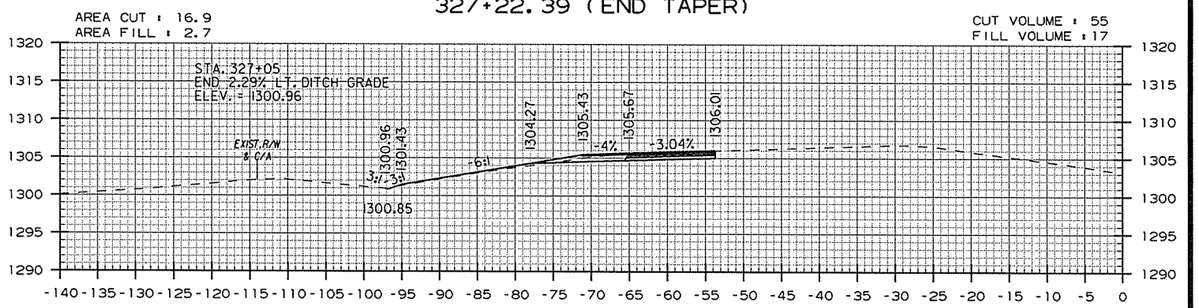
323+22.39



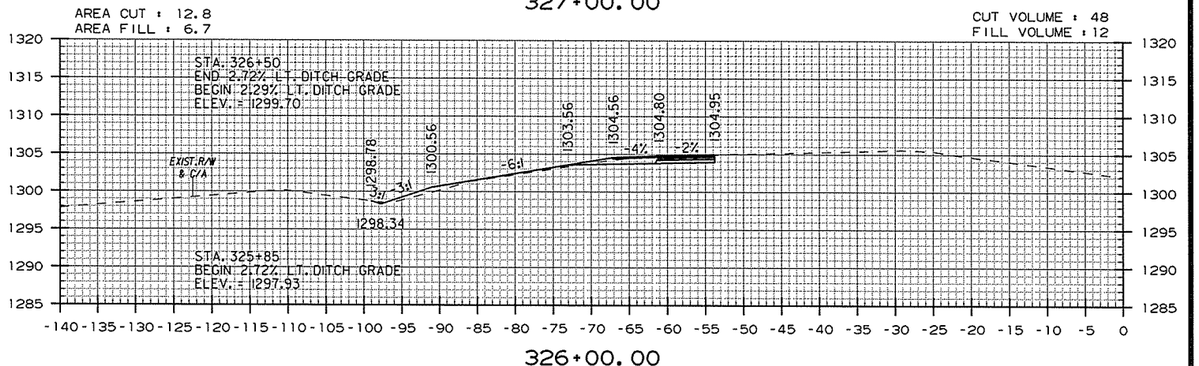
328+00.00



327+22.39 (END TAPER)



327+00.00



326+00.00

I-49 (RAMP 4 ACCEL LANE)
STA. 323+22.39 TO STA. 328+00.00

USER: dd5109
DESIGN FILE: G:\12103303_ElmSprngRd\TRANSP\dgn\xsect\rBB0413 CX.dgn
PLOTTED: 1/8/2016 13:32 SCALE: 20:1 MODEL: CROSS SECTIONS

G:\12103303_ElmSprngRd\TRANSP\dgn\xsect\rBB0413 CX.dgn 1/8/2016 13:32

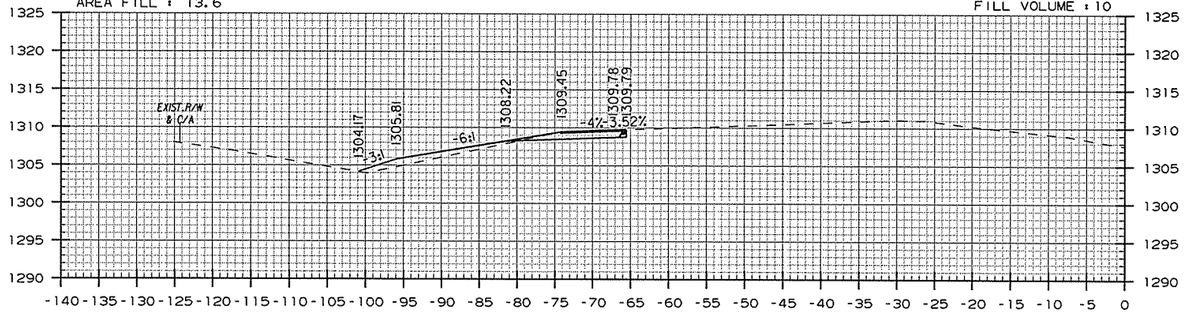
Crafton, Tull & Associates Inc.

DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	159	160

(2) CROSS SECTIONS

AREA CUT : 11.1
AREA FILL : 13.6

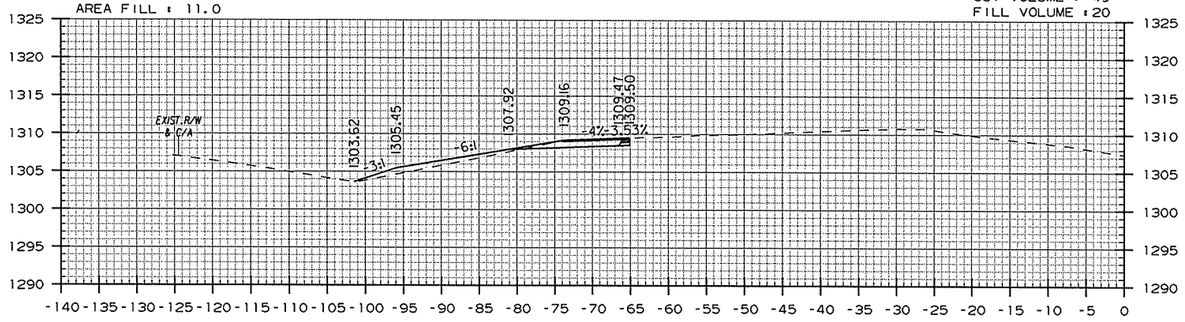
CUT VOLUME : 9
FILL VOLUME : 10



330+22.39 END CONST.

AREA CUT : 11.3
AREA FILL : 11.0

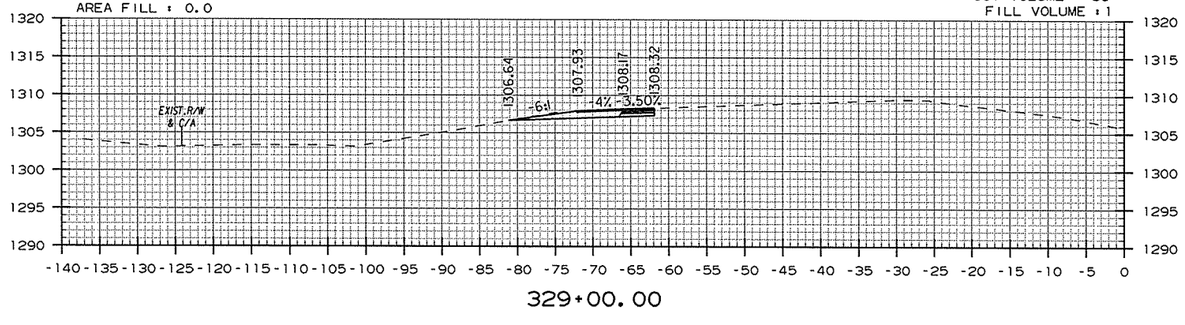
CUT VOLUME : 49
FILL VOLUME : 20



330+00.00

AREA CUT : 15.2
AREA FILL : 0.0

CUT VOLUME : 58
FILL VOLUME : 1



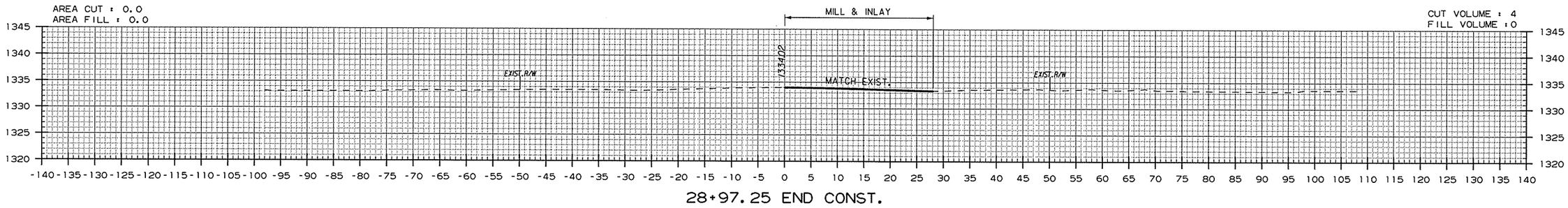
329+00.00

I-49 (RAMP 4 ACCEL LANE)
STA. 329+00.00 TO STA. 330+22.39

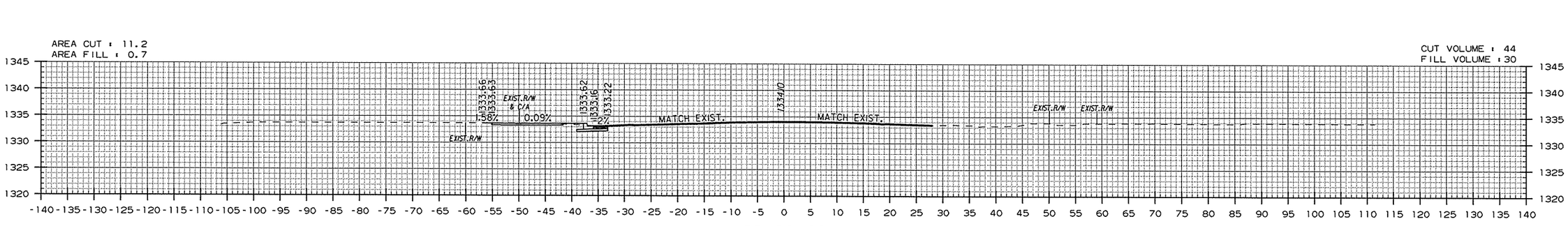
USER: dd5109
DESIGN FILE: G:\12103303_ElmSprngRd\TRANSP\dgn\xsect\rBB0413 CX.dgn
PLOTTED: 1/8/2016 13:32
SCALE: 20:1
MODEL: CROSS SECTIONS

Crafton, Tull & Associates Inc.

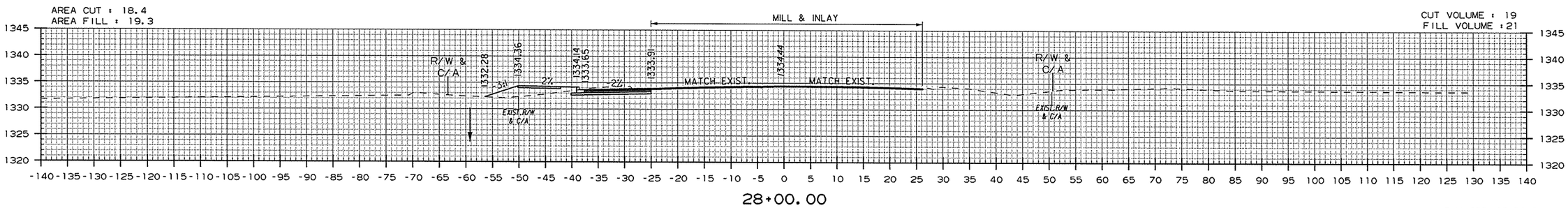
DATE REVISED	DATE FILMED	DATE REVISED	DATE FILMED	FED.RD. DIST.NO.	STATE	FED.AID PROJ.NO.	SHEET NO.	TOTAL SHEETS
				6	ARK.			
				JOB NO.		BB0413	160	160
				(2)	CROSS SECTIONS			



28+97.25 END CONST.



28+80.00



28+00.00

ELM SPRINGS ROAD
STA. 28+00.00 TO STA. 28+97.25

USER: fs513
DESIGN FILE: G:\12103303_ElmSprngRd\TRANSP\dgn\xsect\rBB0413 CX.dgn MODEL: CROSS SECTIONS
PLOTTED: 1/26/2016 12:02 SCALE: 20:1