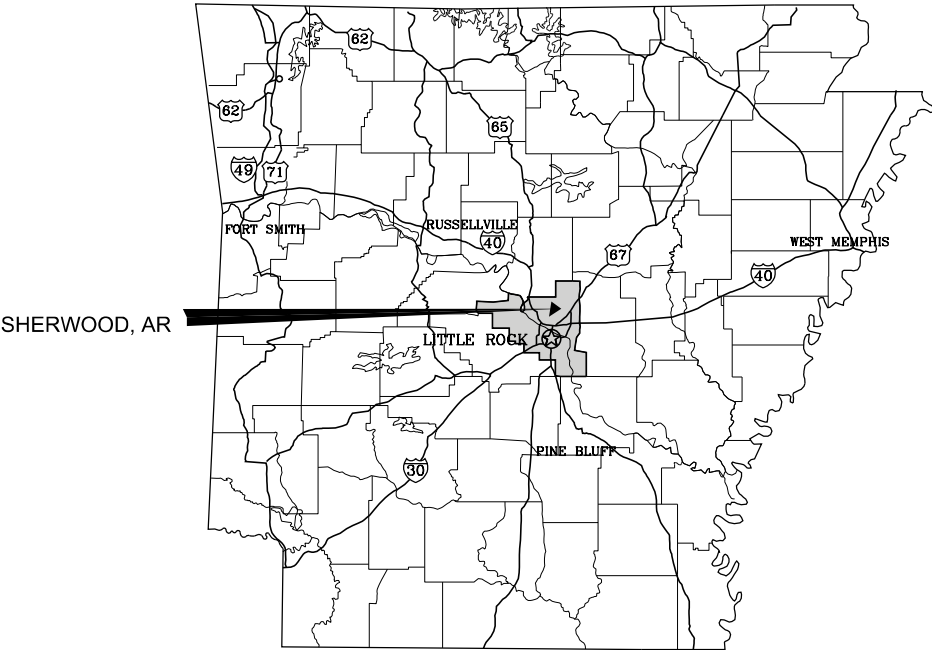


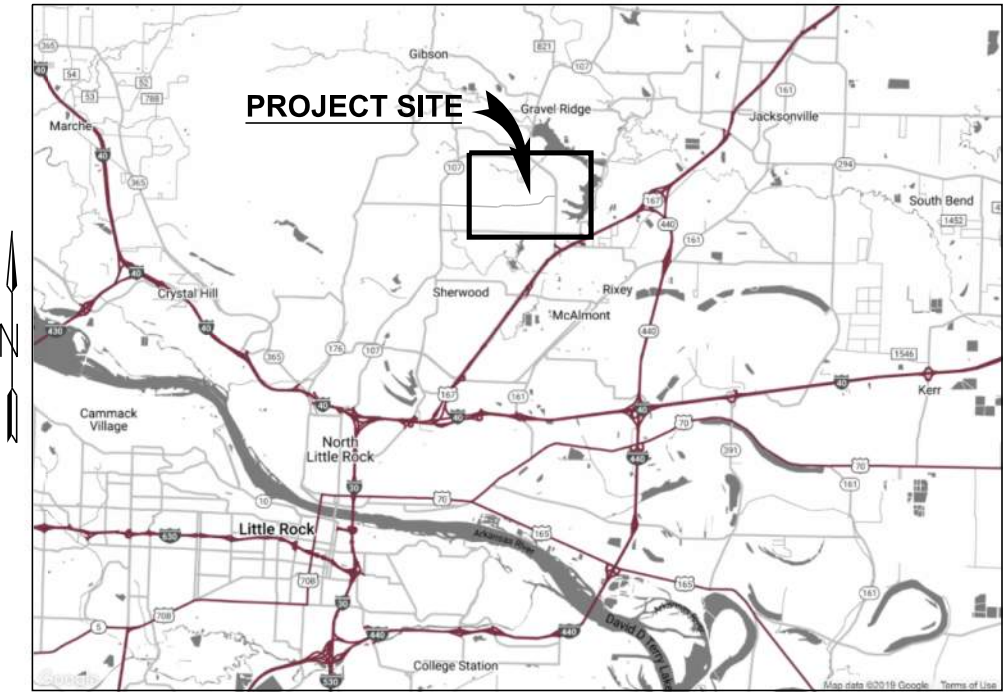
EAST MARYLAND AVENUE EXTENSION

CITY OF SHERWOOD

PULASKI COUNTY, ARKANSAS



LOCATION MAP




VICINITY MAP
NO SCALE

GARVER PROJECT NO. 18017194
JULY 2020




4701 Northshore Drive
North Little Rock, AR 72118
(501) 376-3633


100% DESIGN SUBMITTAL



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GARVER
LLC
No. 766
ARKANSAS-ENGINEER



STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 16145
CHARLES M. CULLEN

REV.	DATE	DESCRIPTION	BY



CITY OF SHERWOOD
PULASKI COUNTY, ARKANSAS

EAST MARYLAND AVENUE
EXTENSION

COVER SHEET

JOB NO.: 18017194
DATE: JULY 2020
DESIGNED BY: CMC
DRAWN BY: JAW

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DRAWING NUMBER
G-001

SHEET NUMBER
001


SHEET INDEX		
SHEET NO.	TITLE	DRAWING NO.
001	COVER SHEET	G-001
002	INDEX OF SHEETS, GENERAL NOTES, AND LEGEND	G-002
003	TYPICAL SECTIONS OF IMPROVEMENT	C-101
004 - 012	SPECIAL DETAILS	C-201 - C-209
013	TEMPORARY EROSION CONTROL NOTES, REVISION BOX, AND LEGEND	C-301
014 - 015	TEMPORARY EROSION CONTROL PLANS	C-302 - C-303
016	MAINTENANCE OF TRAFFIC PLANS	C-401
017	PERMANENT PAVEMENT MARKING PLANS	C-501
018	SOIL BORING LOGS	C-601
019 - 020	SURVEY CONTROL DETAILS	C-701 - C-702
021 - 024	PLAN AND PROFILE - MARYLAND AVE.	C-801 - C-804
025	PLAN AND PROFILE - WILLOW GROVE RD.	C-805
026	PLAN AND PROFILE - SANITARY SEWER	C-806
CX1 - CX11	CROSS SECTIONS - MARYLAND AVE.	C-901 - C-911
CX12 - CX13	CROSS SECTIONS - WILLOW GROVE RD.	C-912 - C-913


ARDOT STANDARD DRAWINGS		
TITLE	DRAWING NO.	DATE
FLARED END SECTION	FES-1	10-18-96
FLARED END SECTION	FES-2	10-18-96
DETAILS OF DROP INLETS (TYPE C)	FPC-9E	08-22-02
DETAILS OF DROP INLETS (TYPE MO)	FPC-9M	08-22-02
PRECAST CONCRETE BOX CULVERTS	PBC-1	01-28-15
CONCRETE PIPE CULVERT FILL HEIGHTS & BEDDING	PCC-1	02-27-14
PAVEMENT MARKING DETAILS	PM-1	02-27-20
REINFORCED CONCRETE BOX CULVERT DETAILS	RCB-1	07-26-12
EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS	RCB-2	11-20-03
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-1	11-07-19
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-2	11-07-19
STANDARD TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	TC-3	02-27-20
TEMPORARY EROSION CONTROL DEVICES	TEC-1	11-16-17
WHEELCHAIR RAMPS NEW CONSTRUCTIONS AND ALTERATIONS	WR-1	11-10-05


GENERAL NOTES:


1. CAUTION: UNDERGROUND UTILITIES EXIST WITHIN AND ADJACENT TO THE LIMITS OF CONSTRUCTION. AN ATTEMPT HAS BEEN MADE TO LOCATE THESE UTILITIES ON THE PLANS; HOWEVER, ALL EXISTING UTILITIES MAY NOT BE SHOWN AND THE ACTUAL LOCATIONS OF THE UTILITIES MAY VARY FROM THE LOCATIONS SHOWN. SOME UTILITIES MAY HAVE BEEN RELOCATED SINCE THE TIME OF DESIGN AND THE CONTRACTOR'S NOTICE TO PROCEED. PRIOR TO BEGINNING ANY TYPE OF EXCAVATION, THE CONTRACTOR SHALL CONTACT THE UTILITIES INVOLVED AND MAKE ARRANGEMENTS FOR THE LOCATION OF THE UTILITIES ON THE GROUND. THE CONTRACTOR SHALL MAINTAIN THE UTILITY LOCATION MARKINGS UNTIL THEY ARE NO LONGER NECESSARY. ARKANSAS STATE LAW, THE UNDERGROUND FACILITIES DAMAGE PREVENTION ACT, REQUIRES TWO WORKING DAYS ADVANCE NOTIFICATION THROUGH THE ARKANSAS ONE-CALL SYSTEM CENTER BEFORE EXCAVATING USING MECHANIZED EQUIPMENT OR EXPLOSIVES (EXCEPT IN THE CASE OF EMERGENCY). THE ONE-CALL SYSTEM PHONE NUMBER IS 1-800-482-8998. THE CONTRACTOR IS ADVISED THAT THERE IS A SEVERE PENALTY FOR NOT MAKING THIS CALL. NOT ALL UTILITY COMPANIES ARE MEMBERS OF THE ARKANSAS ONE-CALL SYSTEM; THEREFORE, THE CONTRACTOR IS ADVISED TO CONTACT ALL NON-MEMBER UTILITIES AS WELL AS THE ONE-CALL SYSTEM. THE LOCATION OF THE EXISTING UTILITIES SHOWN IN THE PLANS ARE APPROXIMATE, AND ARE THE LOCATIONS AT THE TIME OF DESIGN.
2. GRADE LINE DENOTES FINISHED GRADE WHERE SHOWN ON PLANS.
3. ALL PROPERTY CORNERS (IRON PINS) OR OTHER MONUMENTS LOCATED WITHIN THE PROPOSED CONSTRUCTION SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE ARDOT STANDARD SPECIFICATIONS.
4. THE CONTRACTOR SHALL NOT CLEAR AREAS WITHIN THE RIGHT-OF-WAY THAT ARE NOT AFFECTED BY CONSTRUCTION. SPECIAL CARE SHALL BE TAKEN TO ENSURE ALL TREES THAT DO NOT DIRECTLY INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE PROTECTED AND SAVED. CARE AND DISCRETION SHALL BE USED TO PROTECT TREES NOT IDENTIFIED FOR REMOVAL.
5. THIS PROJECT IS COVERED UNDER A SECTION 404 INDIVIDUAL PERMIT, NATIONWIDE PERMIT NO. 14, IDENTIFICATION NO. MVK-2012-838 DATED FROM MAY 30, 2019 UNTIL MARCH 18, 2022. REFER TO SECTION 110 OF THE STANDARD SPECIFICATIONS, EDITION 2014, FOR PERMIT REQUIREMENTS.
6. ALL PIPE, UNLESS OTHERWISE NOTED, SHALL BE REINFORCED CONCRETE PIPE (CLASS III)(TYPE 3 BEDDING).


LEGEND


 — BOREHOLE


 — CONTROL POINTS


 — SIGN


 — GAS METER


 — SANITARY MANHOLE


 — WATER VALVE


 — WATER METER


 — STORM DRAIN MANHOLE


 — TELEPHONE RISER


 — ELECTRIC JUNCTION BOX

 — FIBER OPTIC MANHOLE


 — UTILITY POLE

 — GUY ANCHOR

 — LIGHT POLE


 — EXISTING CENTERLINE

1260




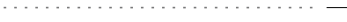
— EXISTING MAJOR CONTOUR

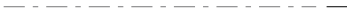
1259





— EXISTING MINOR CONTOUR


 — EXISTING STRUCTURE

 — EXISTING GRAVEL DRIVE


 — EXISTING DITCH TOPO

 — EXISTING STORM DRAIN

 — EXISTING VEGETATION LINE


 — EXISTING RIGHT-OF-WAY

W




— EXISTING WATER UTILITY

OHE




— EXISTING OVERHEAD ELECTRIC UTILITY

UGE




— EXISTING UNDERGROUND ELECTRIC UTILITY

G




— EXISTING GAS UTILITY

SS





— EXISTING SANITARY UTILITY

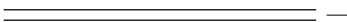
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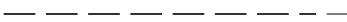



— EXISTING UNDERGROUND TELEPHONE UTILITY


 — PROPOSED PAVEMENT MARKING


 — PROPOSED CENTERLINE


 — PROPOSED STRUCTURE

 — PROPOSED STORM DRAIN


 — PROPOSED RIGHT-OF-WAY

 — PROPOSED CONSTRUCTION LIMITS


 — PROPOSED SPECIAL DITCH



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No.16145
CHARLES M. CULLEN


BY

DESCRIPTION

DATE

REV.

CITY OF SHERWOOD
PULASKI COUNTY, ARKANSAS



EAST MARYLAND AVENUE
EXTENSION

INDEX OF SHEETS,
GENERAL NOTES, AND
LEGEND

JOB NO.: 18017194
DATE: JULY 2020
DESIGNED BY: CMC
DRAWN BY: JAW

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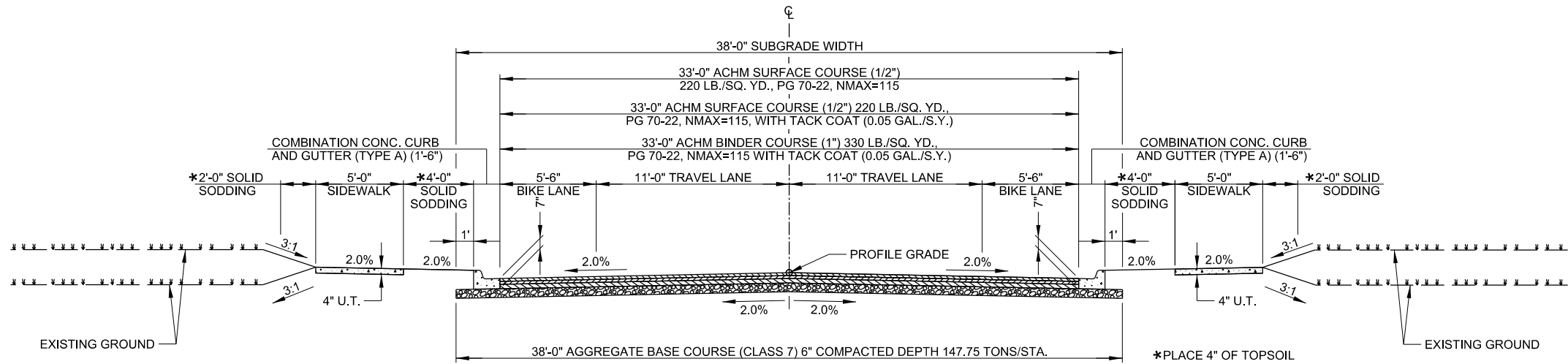
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G-002

SHEET
NUMBER **002**

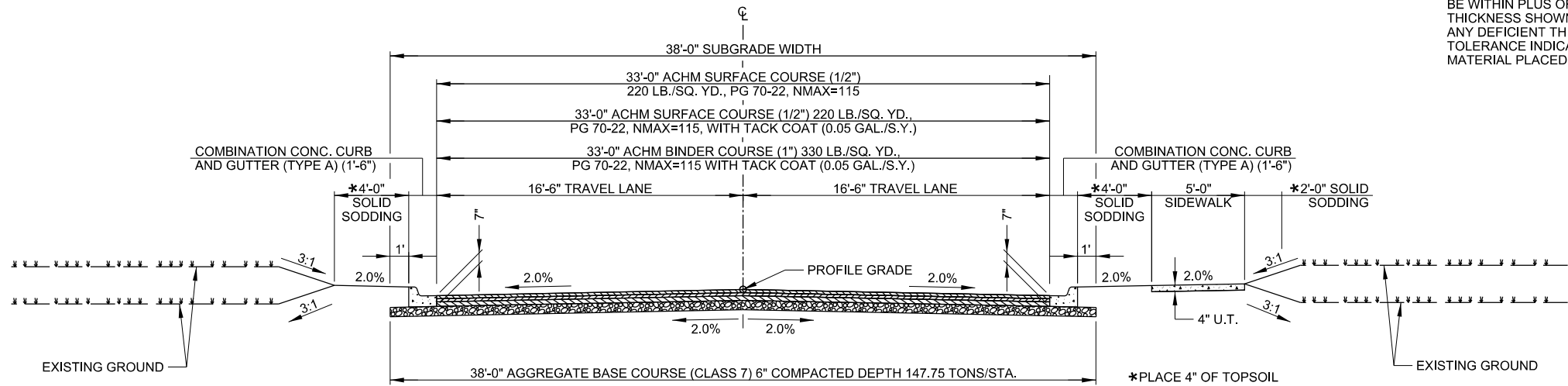
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WORKSPACE\Garver, 2012
L:\2016\16017194 - Sherwood - East Maryland Avenue\Drawings\MRLD-C-101-TS.dgn

CMCullen



MARYLAND AVE. TYPICAL SECTION
STA. 82+95.00 TO STA. 101+17.14

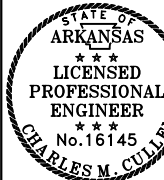
- NOTES:
1. REFER TO CROSS SECTIONS FOR DEVIATIONS FROM NORMAL SLOPES. NO CHANGES SHALL BE MADE FROM THE PLANNED SLOPES WITHOUT THE APPROVAL OF THE ENGINEER.
 2. THE THICKNESS OF AGGREGATE BASE COURSE SHALL BE WITHIN PLUS OR MINUS ONE INCH OF THE PLAN THICKNESS SHOWN. THE CONTRACTOR WILL CORRECT ANY DEFICIENT THICKNESS THAT DOES NOT MEET THE TOLERANCE INDICATED. PAYMENT WILL NOT BE MADE FOR MATERIAL PLACED IN EXCESS OF THE TOLERANCE INDICATED.



WILLOW GROVE RD. TYPICAL SECTION
STA. 7+85.00 TO STA. 9+82.51



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BY	DESCRIPTION	DATE	REV.



CITY OF SHERWOOD
PULASKI COUNTY, ARKANSAS

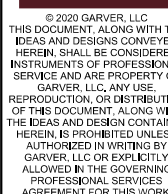
EAST MARYLAND AVENUE
EXTENSION

TYPICAL SECTIONS OF
IMPROVEMENT

JOB NO.: 18017194
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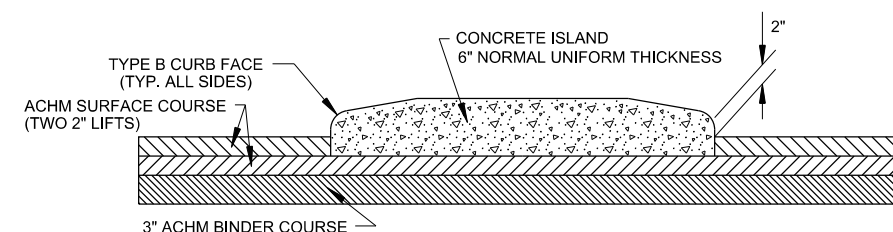
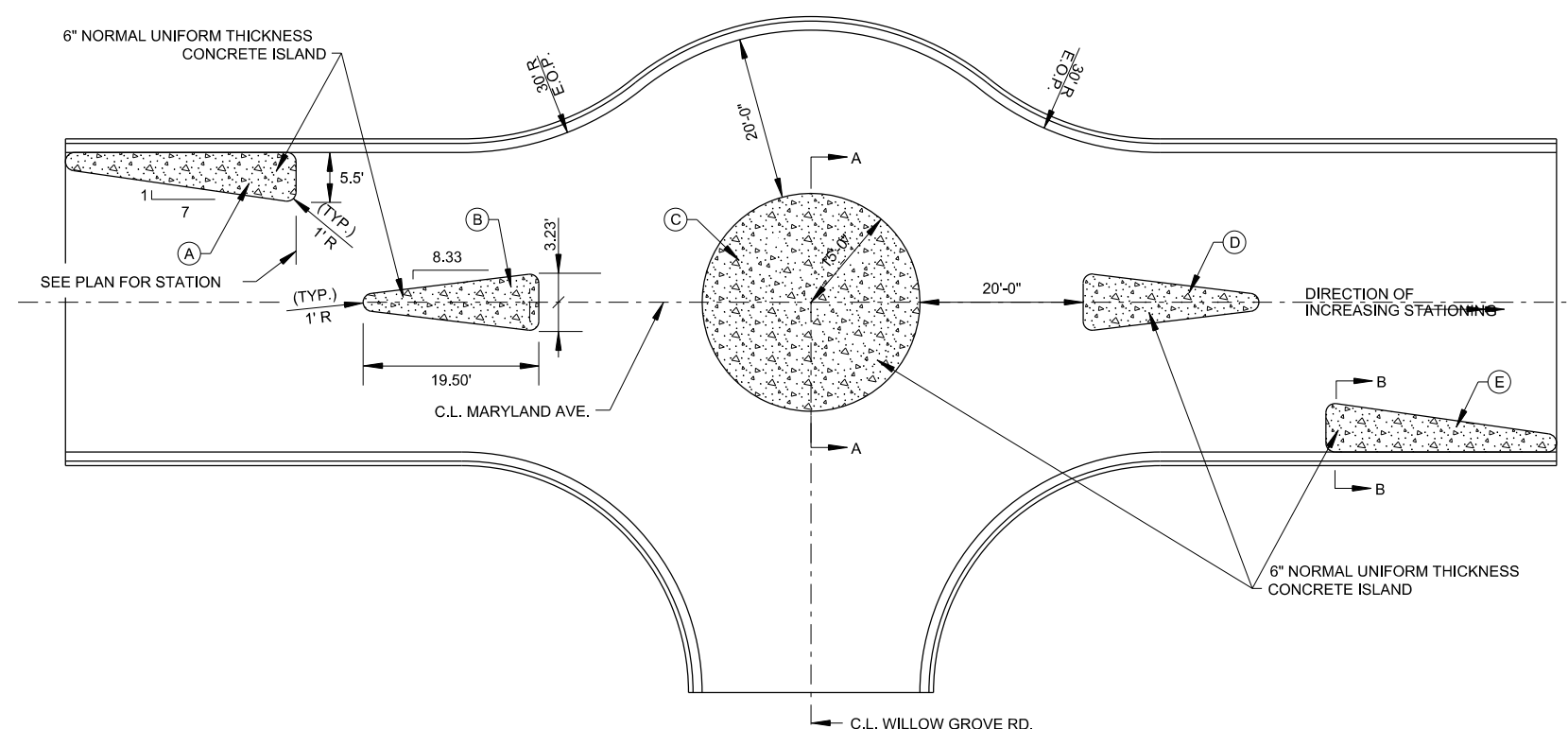
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C-101
SHEET
NUMBER **003**

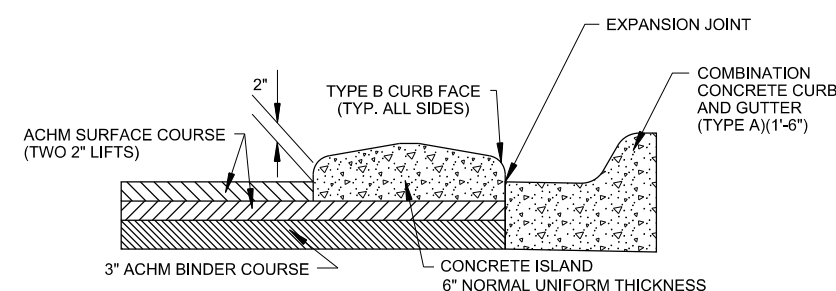


CONCRETE ISLANDS AT TRAFFIC CIRCLES					
LOCATION	A	B	C	D	E
	SQ. YDS.				
MARYLAND AVE. STA. 89+50.00	10.31	8.73	78.54	8.73	10.31

NOTE: QUANTITIES ARE FOR INFORMATION ONLY

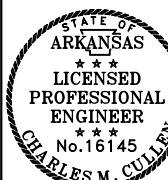


SECTION A-A



SECTION B-B

TRAFFIC CIRCLE DETAILS

[illegible]

CITY OF SHERWOOD
PULASKI COUNTY, ARKANSAS

EAST MARYLAND AVENUE

SPECIAL DETAILS

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DATE: JULY 2020
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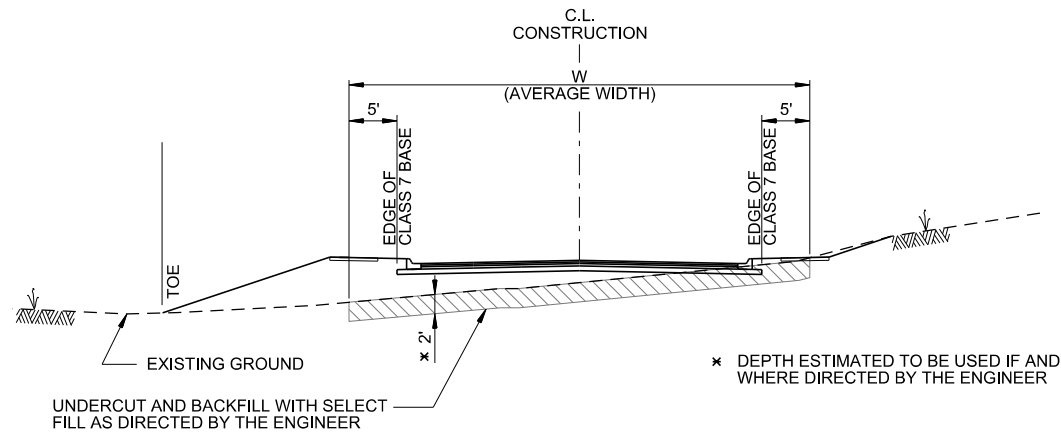
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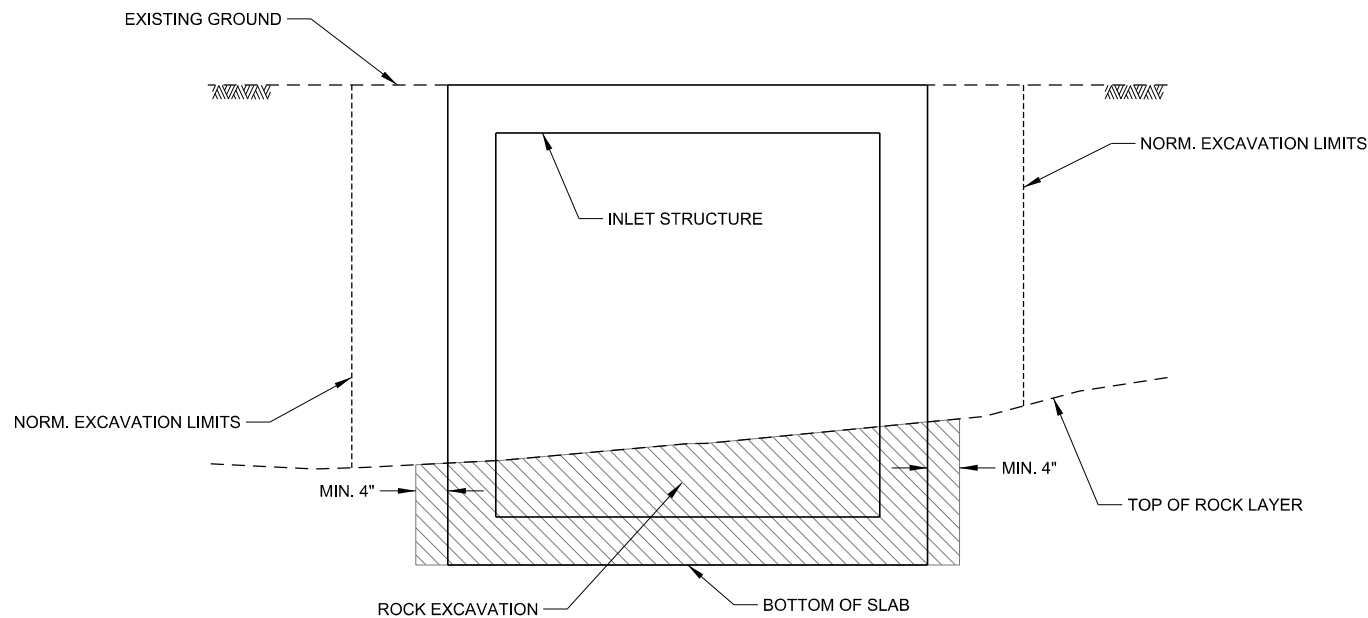
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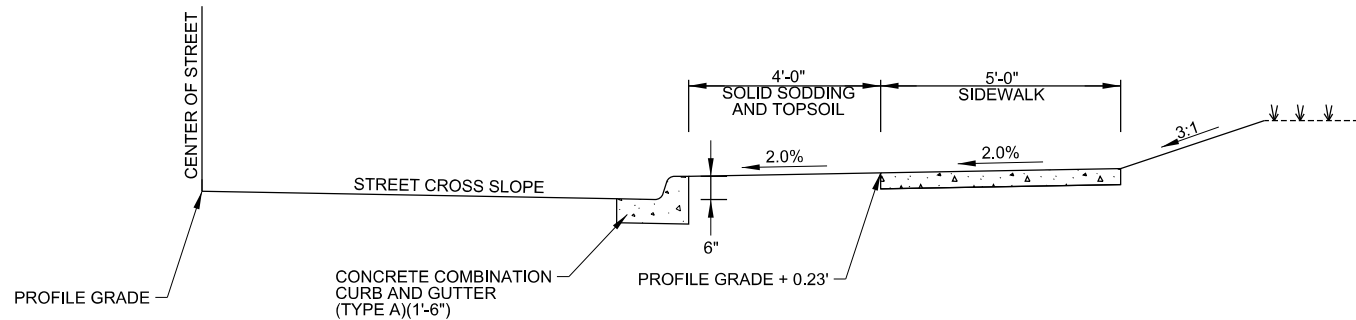
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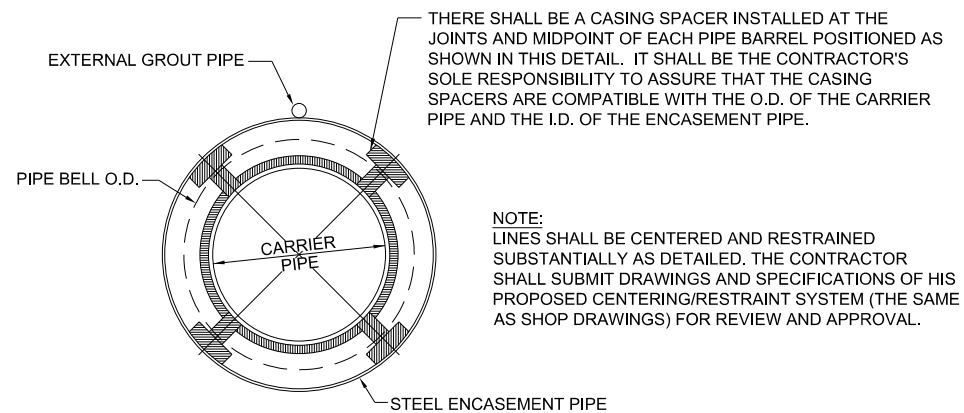
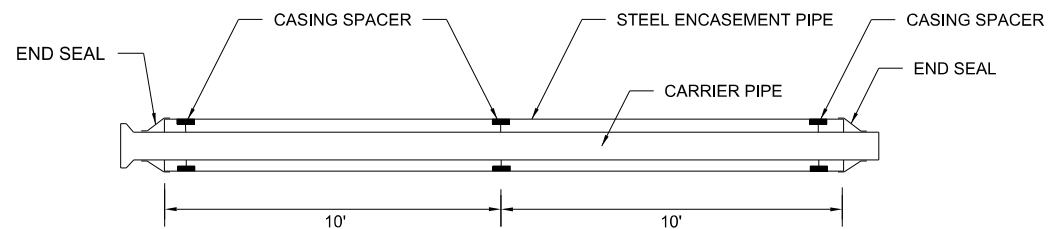
UNDERCUT DETAIL
 MARYLAND AVE. STA. 82+95.00 TO STA. 101+17.14 W = 48' (AVG.)
 WILLOW GROVE RD. STA. 7+85.00 TO STA. 9+82.51 W = 48' (AVG.)



INLET ROCK EXCAVATION DETAIL



TYPICAL SIDEWALK DETAIL



STEEL ENCASEMENT PIPE DETAILS



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REV.	DATE	DESCRIPTION	BY



CITY OF SHERWOOD
 PULASKI COUNTY, ARKANSAS
 EAST MARYLAND AVENUE
 EXTENSION

SPECIAL DETAILS

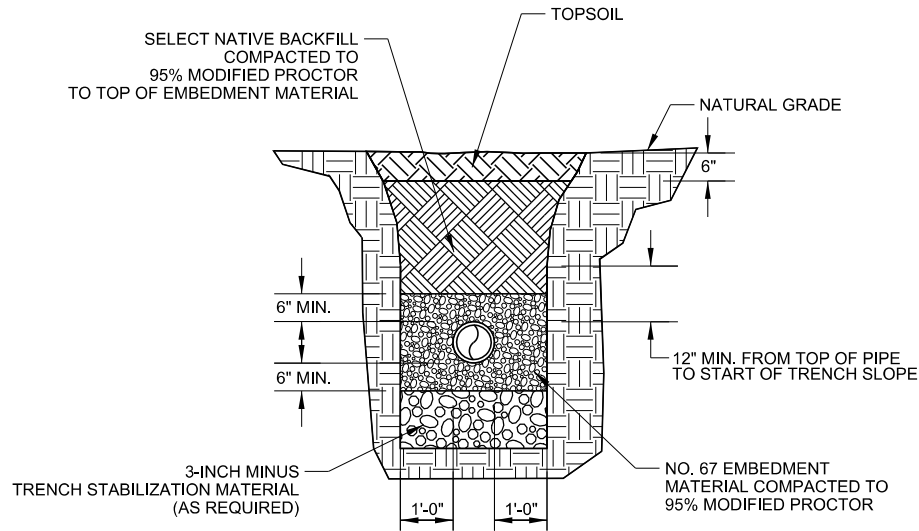
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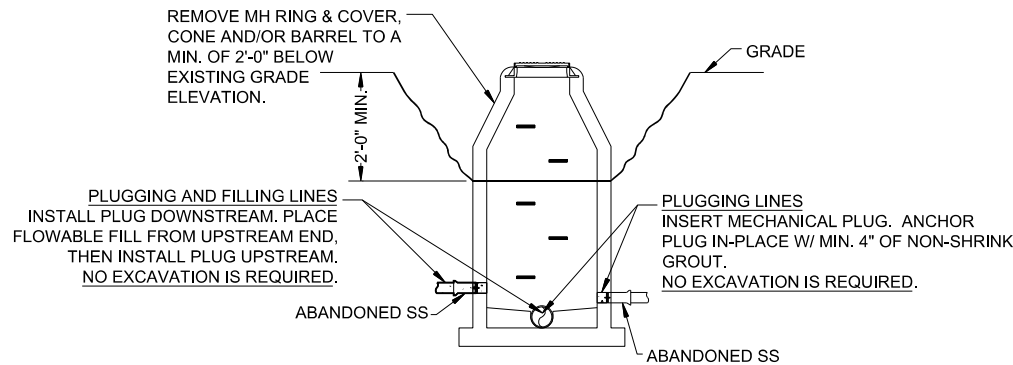
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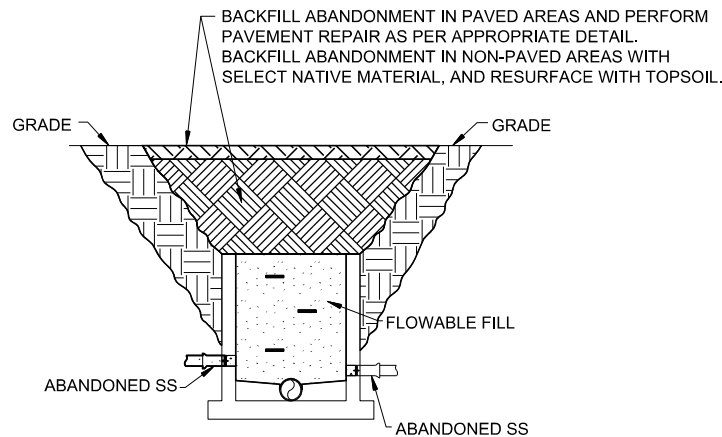
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TRENCH DETAIL

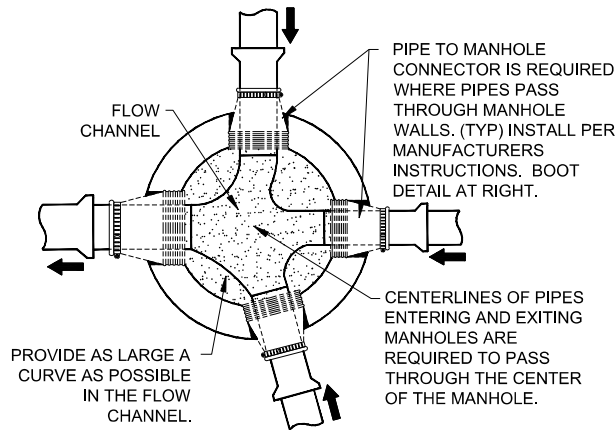


UTILITY LINE ABANDONMENT

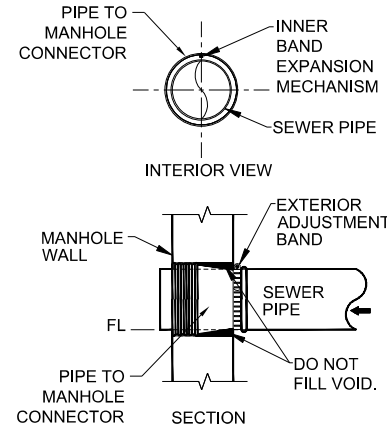


MANHOLE ABANDONMENT

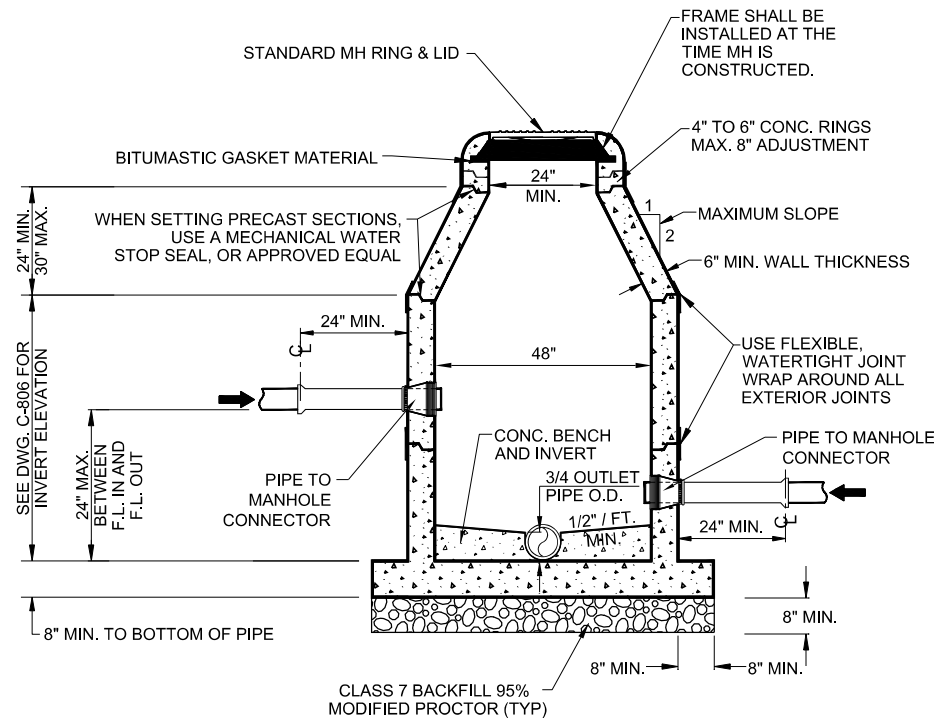
ABANDONMENT DETAILS



FLOW CHANNEL DETAIL



BOOT DETAIL



MANHOLE DETAIL

PRECAST MANHOLE DETAILS



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CITY OF SHERWOOD
PULASKI COUNTY, ARKANSAS

EAST MARYLAND AVENUE
EXTENSION

SPECIAL DETAILS

JOB NO.: 18017194
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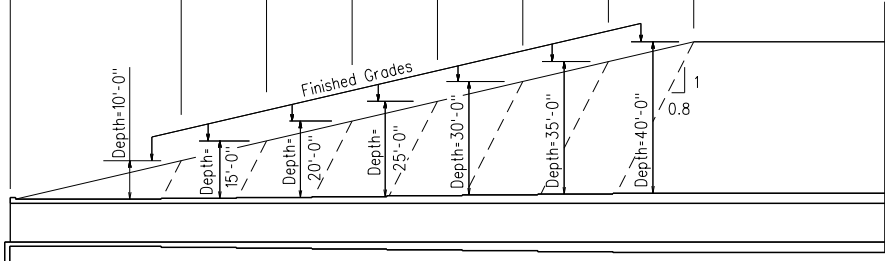
C-203

SHEET
NUMBER **006**

OUTLET SLOPE SECTION(S)

2:1 Slope	20'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"
3:1 Slope	30'-0"	15'-0"	15'-0"	15'-0"	15'-0"	15'-0"	15'-0"
4:1 Slope	40'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"	20'-0"

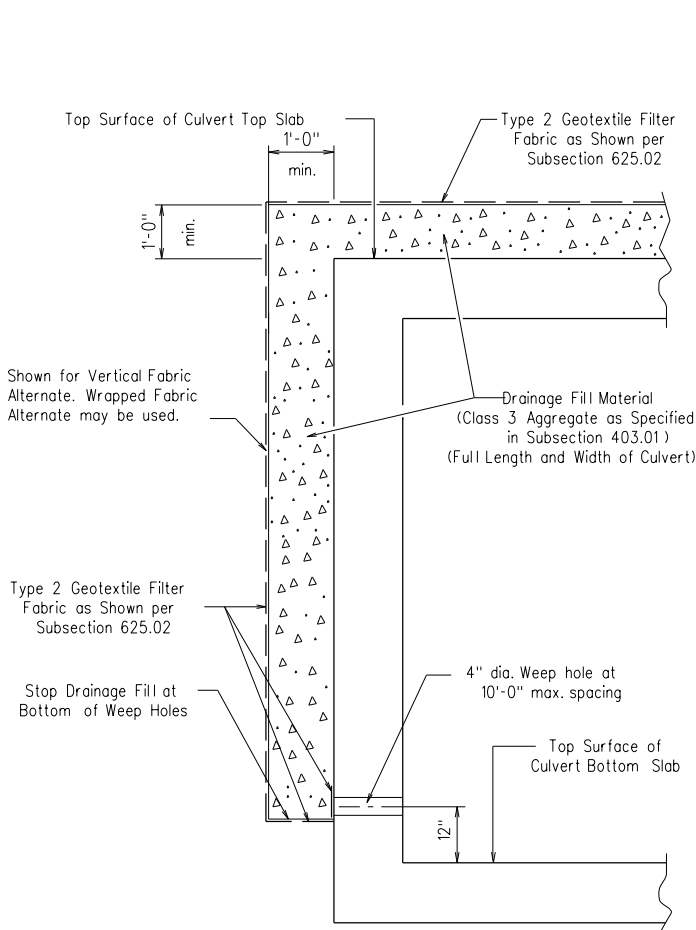
Note: For fill depths 10' and under, use Mid-Section full length of box culvert.



Slope Section Length @ 2:1 Slope	A=12'-0"	B=6'-0"	C=6'-0"	D=6'-0"	E=6'-0"	F=6'-0"	G=6'-0"	Mid-Section Length - Varies
Slope Section Length @ 3:1 Slope	A=22'-0"	B=11'-0"	C=11'-0"	D=11'-0"	E=11'-0"	F=11'-0"	G=11'-0"	Mid-Section Length - Varies
Slope Section Length @ 4:1 Slope	A=32'-0"	B=16'-0"	C=16'-0"	D=16'-0"	E=16'-0"	F=16'-0"	G=16'-0"	Mid-Section Length - Varies

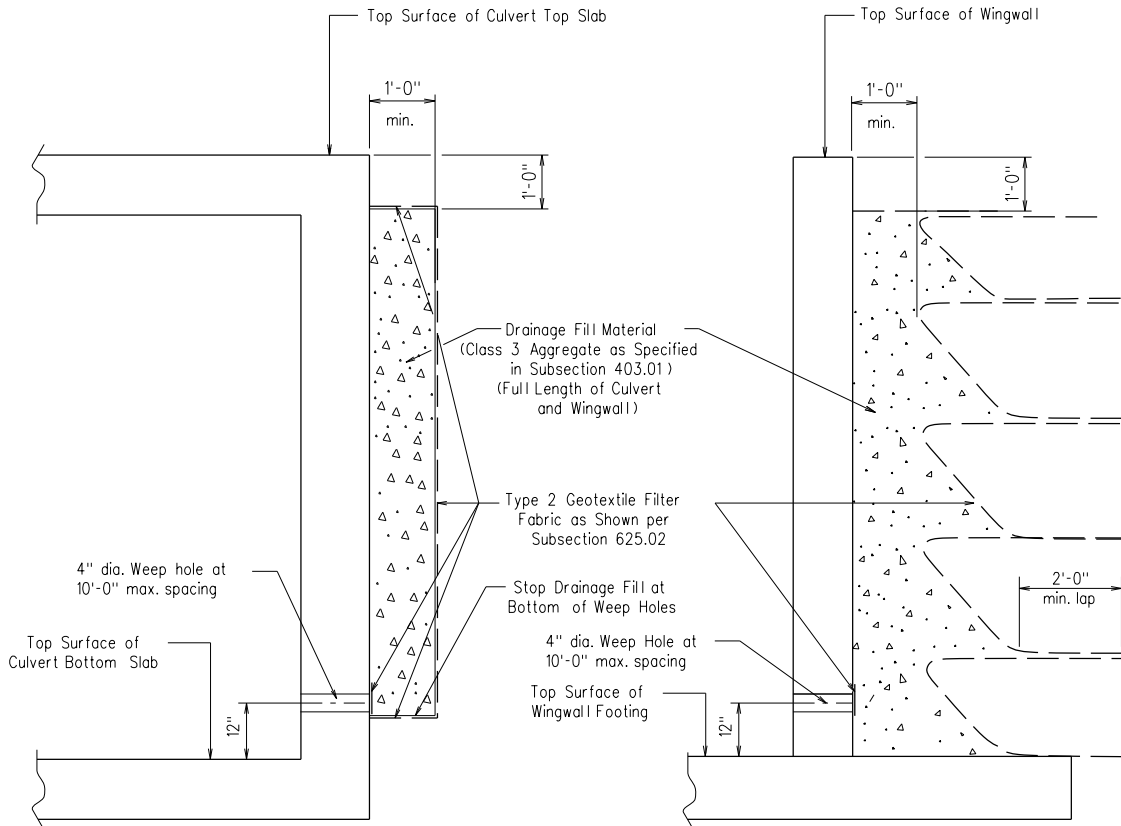
LONGITUDINAL SECTION LENGTH SCHEDULE FOR VARYING FILL DEPTHS OVER 10'

Lengths for Non-Skewed Boxes



CULVERT DRAINAGE DETAIL FOR ROCK FILL

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



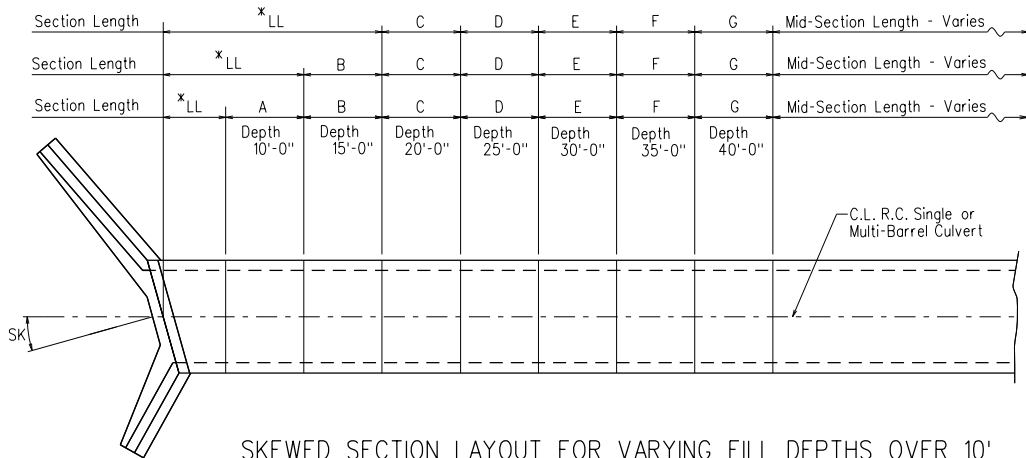
VERTICAL FABRIC ALTERNATE (Shown for Culvert, Similar for Wingwall)

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

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

WINGWALL & CULVERT DRAINAGE DETAIL

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



SKewed SECTION LAYOUT FOR VARYING FILL DEPTHS OVER 10'

GENERAL NOTES:

CONSTRUCTION SPECIFICATIONS: Arkansas State Highway and Transportation Department Standard Specifications for Highway Construction (2003 edition) with applicable supplemental specifications and special provisions. Section and Subsection refer to the Standard Construction Specifications unless otherwise noted in the Plans.

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

LIVE LOAD ING: HL-93

All concrete shall be Class S with a minimum 28-day compressive strength of 3,500 psi and shall be poured in the dry. All exposed corners to have 3/8" chamfers.

Reinforcing Steel shall be AASHTO M 31 or M 53, Grade 60.

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

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

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

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

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

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

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

When precast reinforced concrete box culverts are substituted for cast in place box culverts, they shall be manufactured according to ASTM C 1577 and meet the requirements of Special Provision "LRFD Precast Reinforced Concrete Box Culverts".

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



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BY				
DESCRIPTION				
DATE				
REV.				



CITY OF SHERWOOD
PULASKI COUNTY, ARKANSAS

EAST MARYLAND AVENUE
EXTENSION

SPECIAL DETAILS

JOB NO.: 18017194
DATE: JULY 2020
DESIGNED BY: CMC
DRAWN BY: JAW

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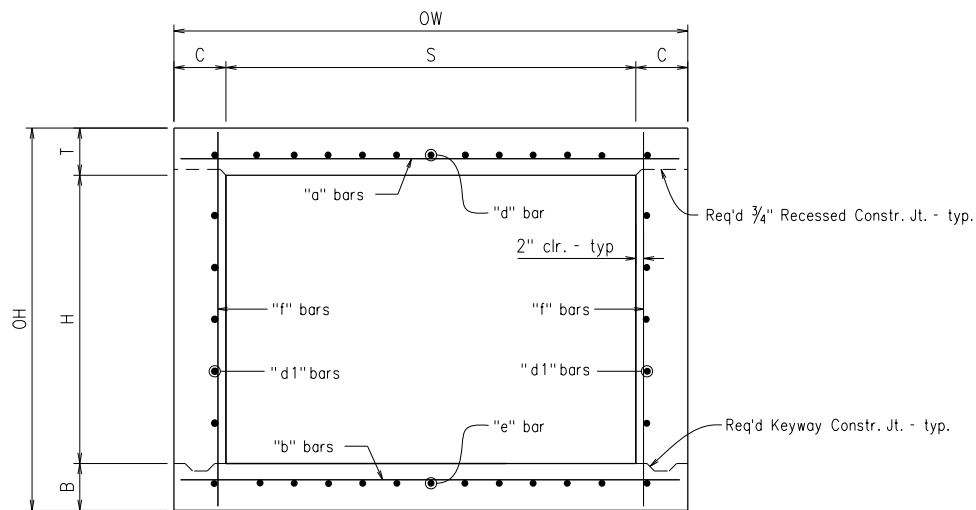
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C-206

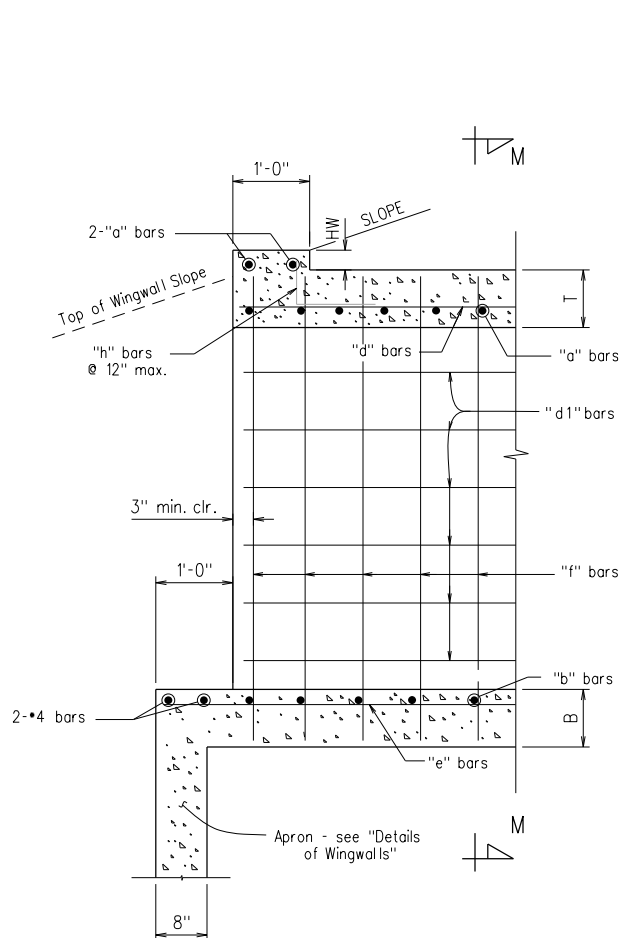
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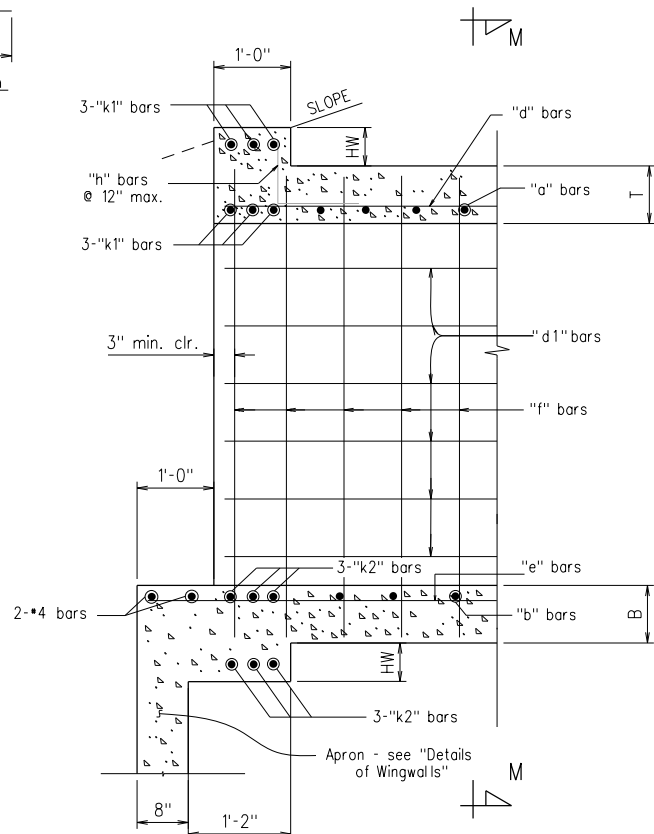
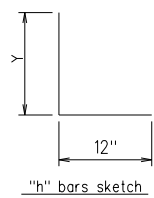
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7/17/2020 9:00:34 AM
WORKSPACE\Garver, 2012
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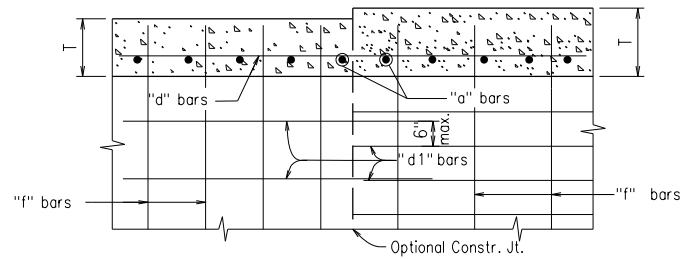
TYPICAL SECTION M-M



PART LONGITUDINAL SECTION
(Non-Skewed Ends)



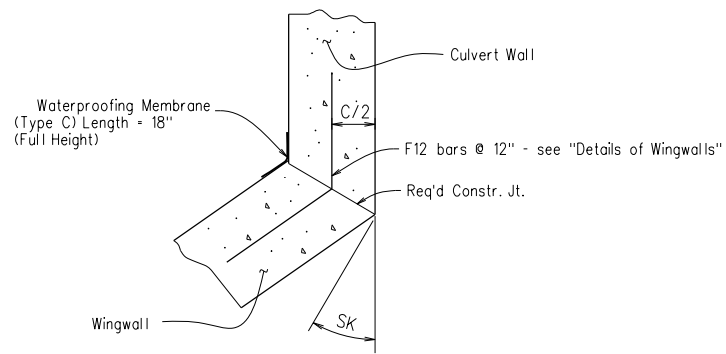
PART LONGITUDINAL SECTION N-N
(Skewed Ends)



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

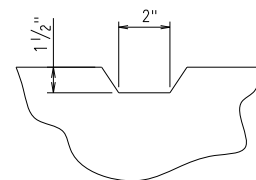
LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS

TOP SLAB SHOWN, BOTTOM SLAB SIMILAR

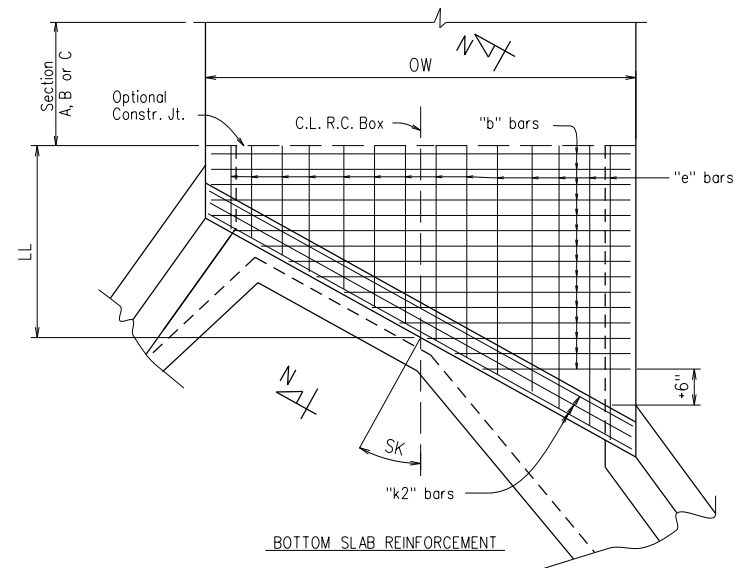
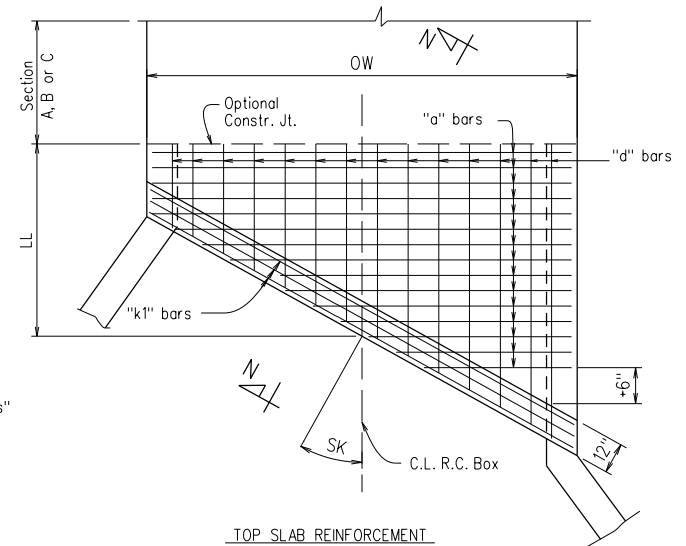


WINGWALL ATTACHMENT

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



TYPICAL KEYWAY DETAIL
(All Construction Joints)

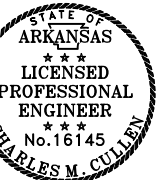


SKewed END SECTION DETAILS

SHEET 2 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT
DETAILS OF SINGLE BARREL
R.C. BOX CULVERT
SPECIAL DETAILS



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BY	DESCRIPTION	DATE	REV.



CITY OF SHERWOOD
PULASKI COUNTY, ARKANSAS
EAST MARYLAND AVENUE
EXTENSION

SPECIAL DETAILS

JOB NO.: 18017194
DATE: JULY 2020
DESIGNED BY: CMC
DRAWN BY: JAW

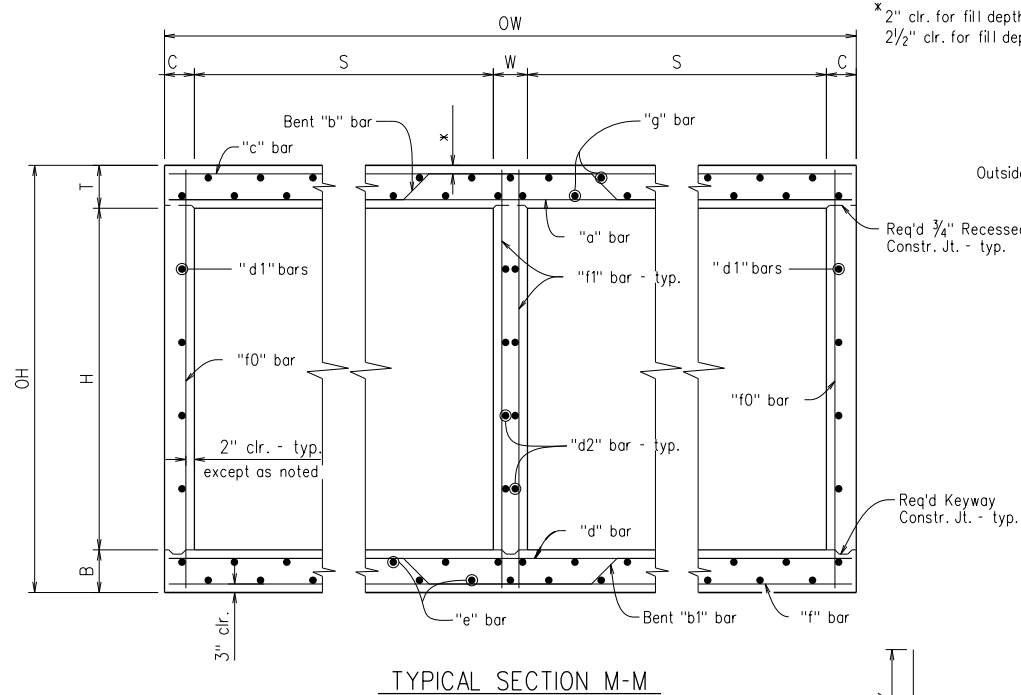
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DRAWING NUMBER

C-207

SHEET
NUMBER **010**

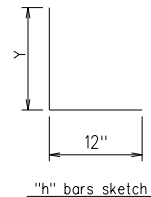
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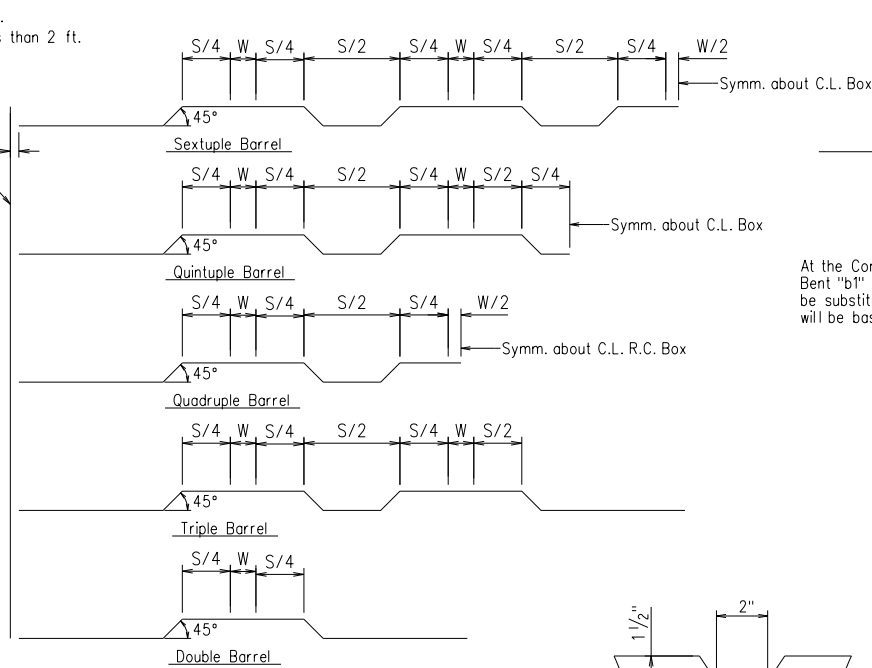
TYPICAL SECTION M-M

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

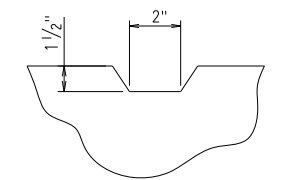
Bottom Slab
Straight "d" bars shall alternate with Bent "b1" bars in top.
Straight "f" bars shall alternate with Bent "b1" bars in bottom.



"h" bars sketch

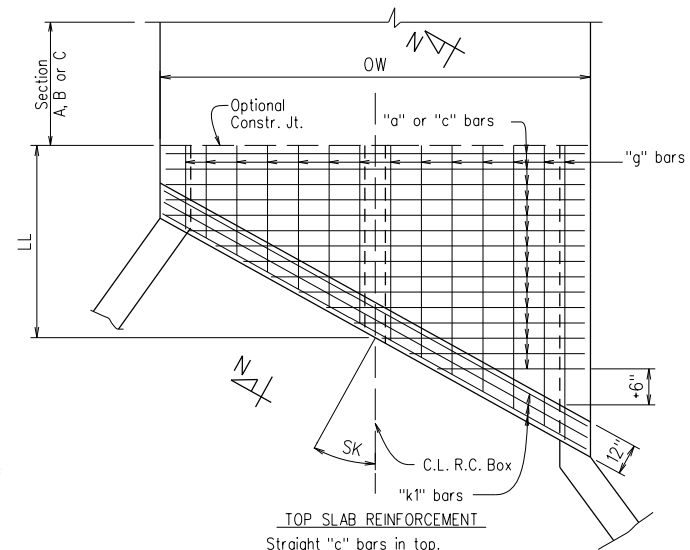
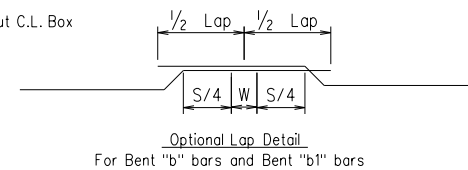


Bent "b" bars or Bent "b1" bars sketch

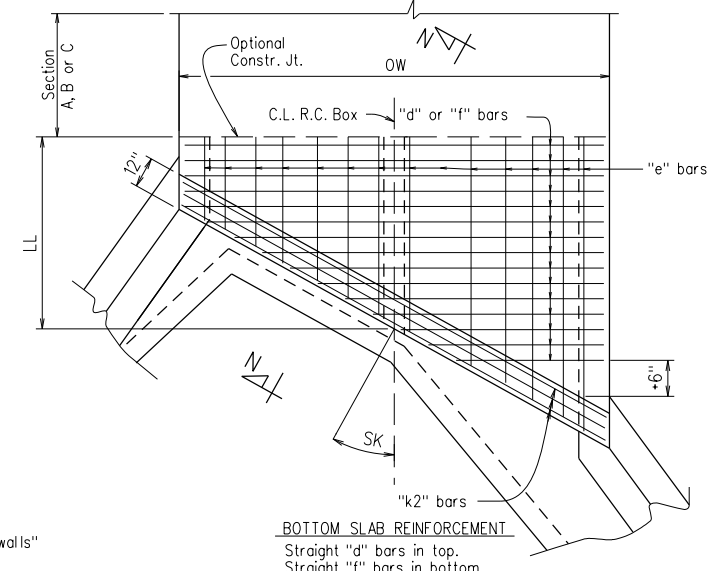


TYPICAL KEYWAY DETAIL
(All Construction Joints)

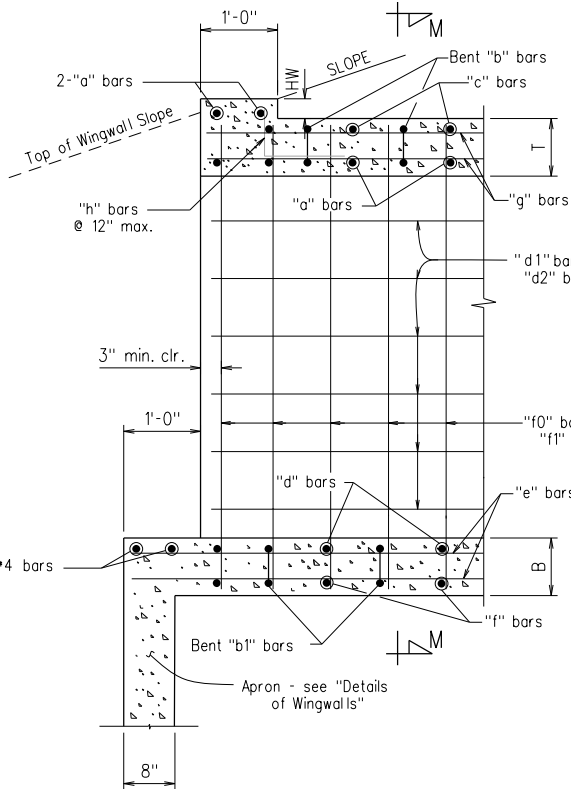
At the Contractor's option in lieu of providing Bent "b" or Bent "b1" bars, one bar top and bottom of equivalent size may be substituted for each bent bar. Payment for the reinforcing will be based on the weight of the "b" or "b1" bar.



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

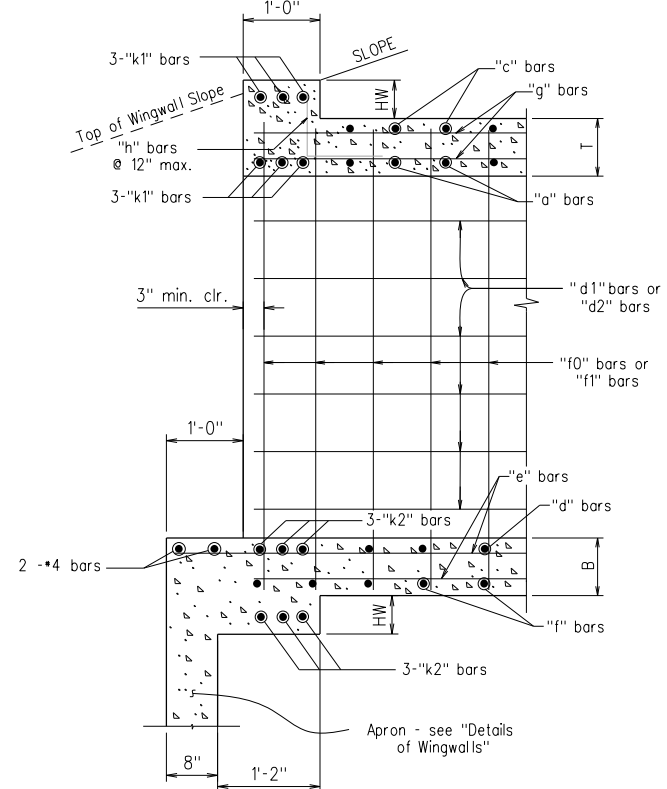


BOTTOM SLAB REINFORCEMENT
Straight "d" bars in top.
Straight "f" bars in bottom.



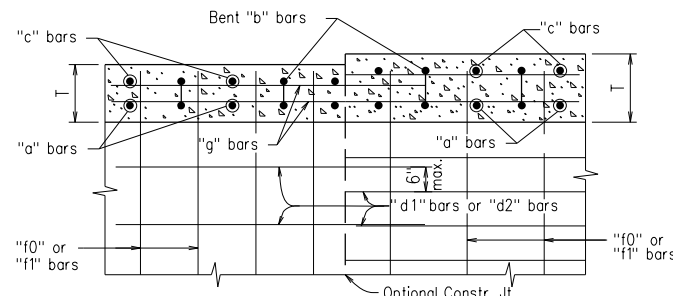
PART LONGITUDINAL SECTION

(Non-Skewed Ends)

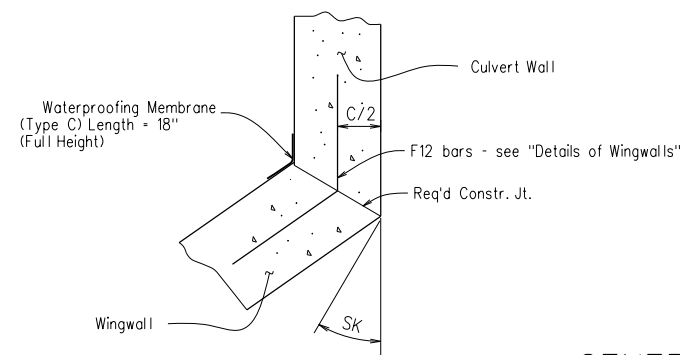


PART LONGITUDINAL SECTION N-N

(Skewed Ends)



LONGITUDINAL LAP DETAIL AT CHANGE IN SECTIONS
TOP SLAB SHOWN, BOTTOM SLAB SIMILAR



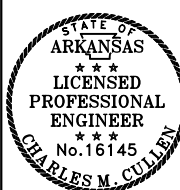
WINGWALL ATTACHMENT

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

SHEET 3 OF 4
GENERAL DETAILS OF R.C. BOX CULVERT
DETAILS OF MULTI-BARREL
R.C. BOX CULVERT
SPECIAL DETAILS



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DESCRIPTION	
DATE	
REV.	



CITY OF SHERWOOD
PULASKI COUNTY, ARKANSAS
EAST MARYLAND AVENUE
EXTENSION

SPECIAL DETAILS

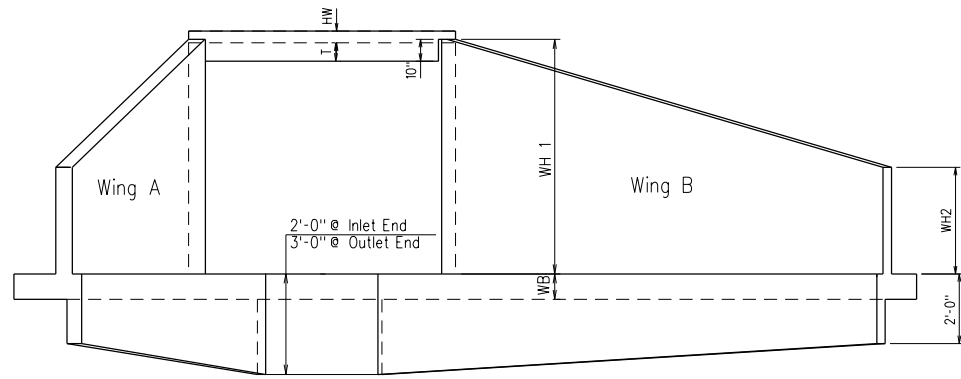
JOB NO.: 18017194
DATE: JULY 2020
DESIGNED BY: CMC
DRAWN BY: JAW

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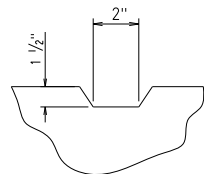
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C-208

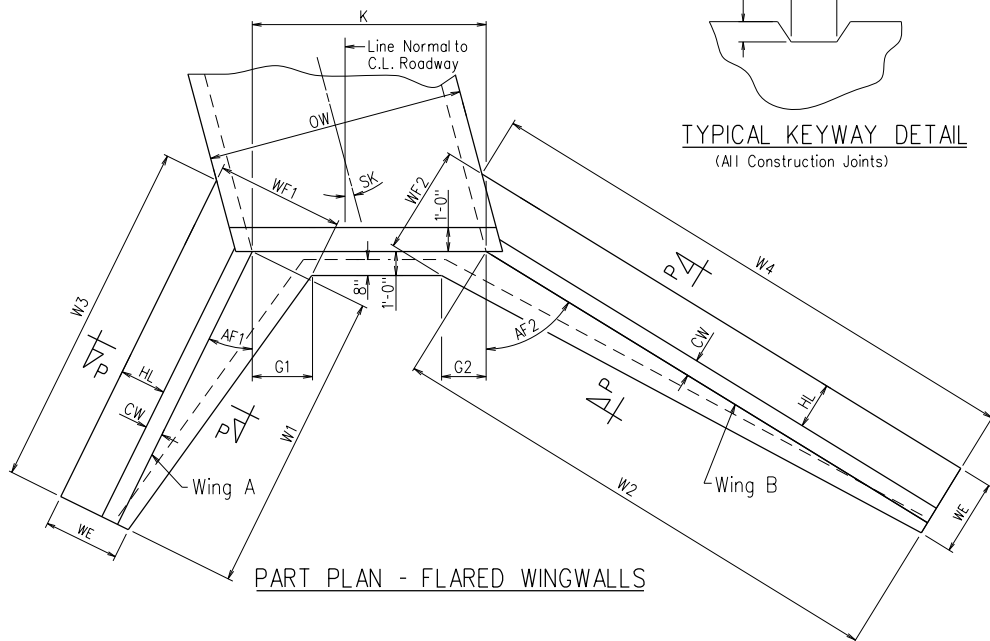
SHEET
NUMBER **011**



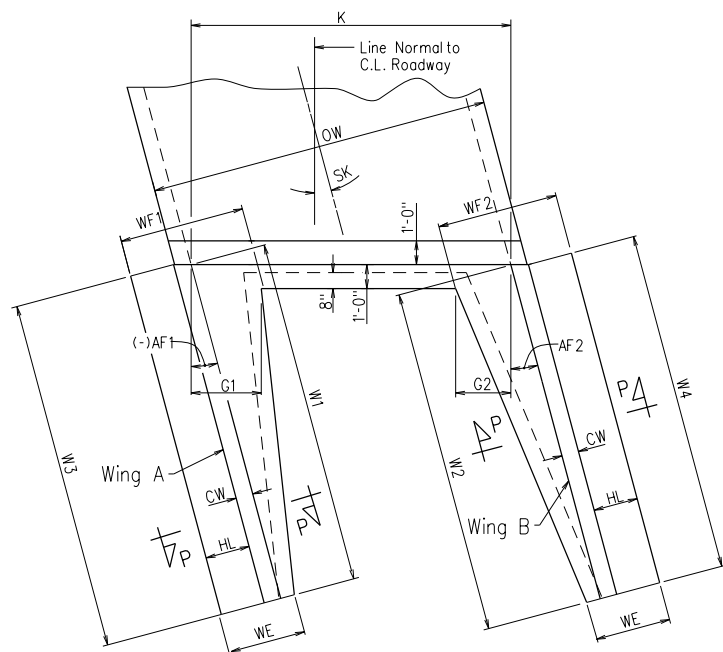
END ELEVATION
Flared Wingwalls Shown



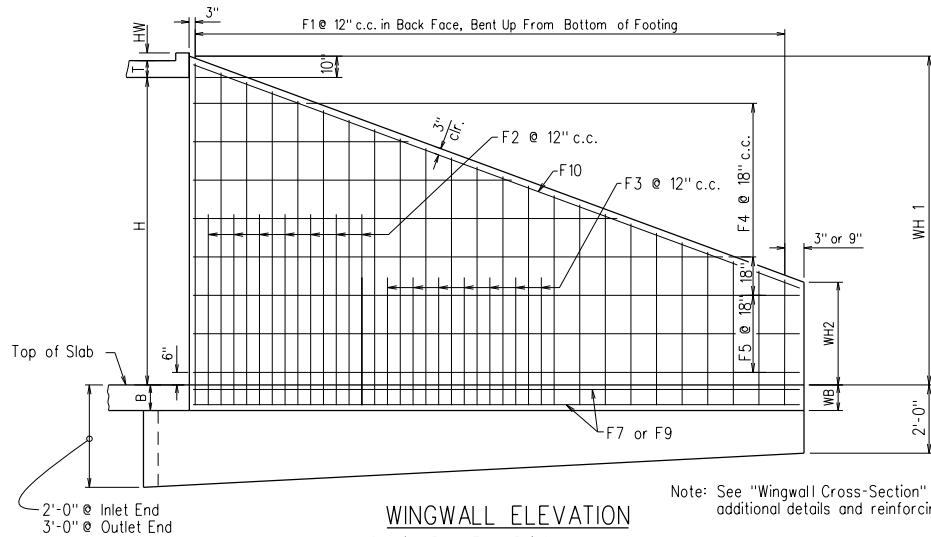
TYPICAL KEYWAY DETAIL
(All Construction Joints)



PART PLAN - FLARED WINGWALLS

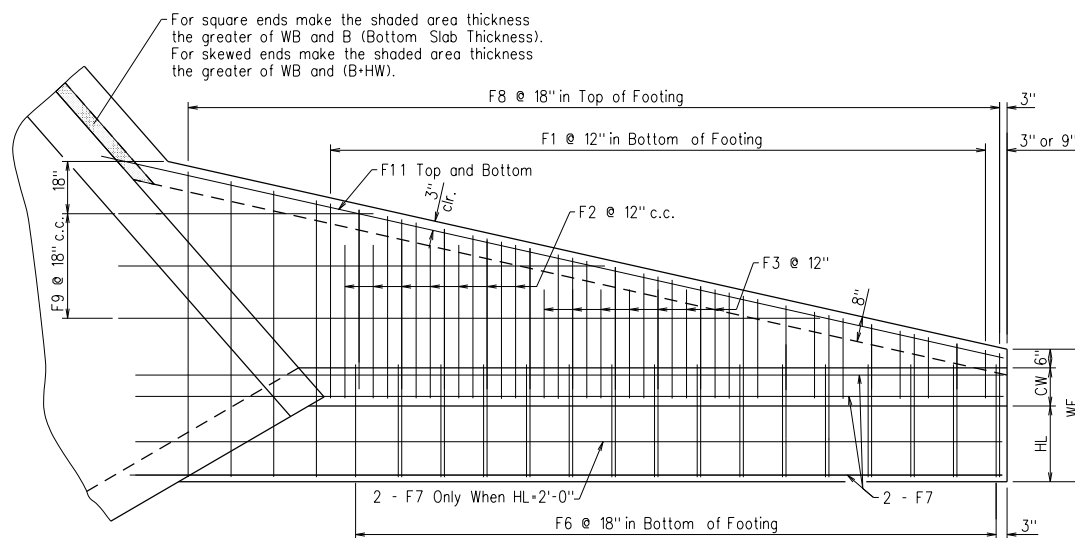


PART PLAN - PARALLEL WINGWALLS

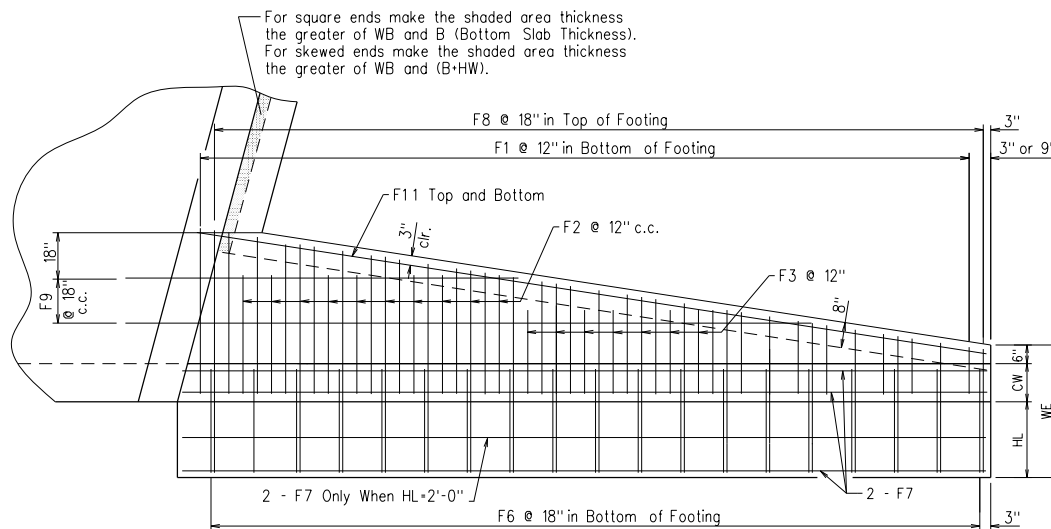


WINGWALL ELEVATION
Showing Back Face Reinforcement

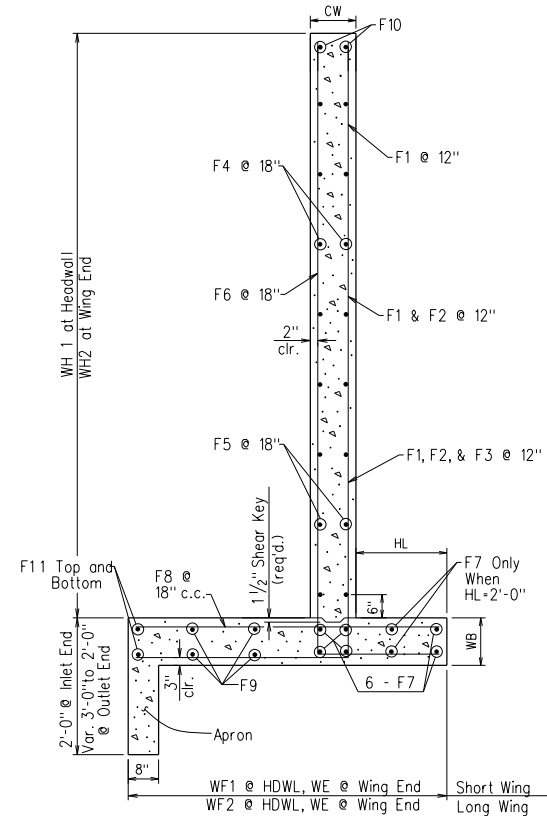
Note: See "Wingwall Cross-Section" for additional details and reinforcing



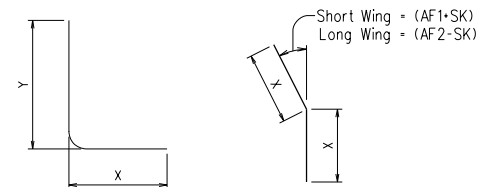
PLAN - FLARED WINGWALLS
Showing Footing Reinforcement



PLAN - PARALLEL WINGWALLS
Showing Footing Reinforcement



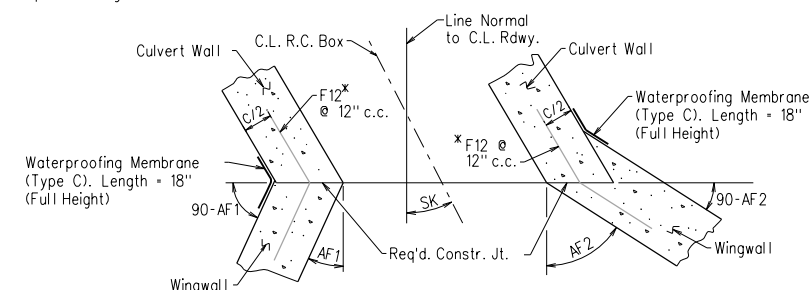
WINGWALL SECTION P-P



F1, F2, F3, & F6 BARS

F12 BAR

* F12 is a straight bar for parallel wingwalls

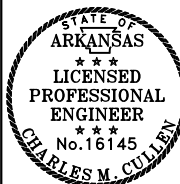


CONSTRUCTION JOINTS
Flared Wingwalls Shown

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



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REV.	



CITY OF SHERWOOD
PULASKI COUNTY, ARKANSAS
EAST MARYLAND AVENUE
EXTENSION

SPECIAL DETAILS

JOB NO.: 18017194
DATE: JULY 2020
DESIGNED BY: CMC
DRAWN BY: JAW

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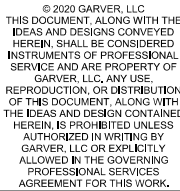
1. THE SYMBOLS SHOWN IN THE SHEET REPRESENT EROSION CONTROL DEVICES AS DETAILED IN THE ARDOT STANDARD ROADWAY DRAWINGS. THE SYMBOLS ARE NOT TO SCALE AND REPRESENT THE GENERAL LOCATION TO WHICH THE DEVICES SHALL BE PLACED. NO WORK OR EROSION CONTROL DEVICES SHALL BE PLACED OUTSIDE THE PERMANENT OR TEMPORARY CONSTRUCTION EASEMENTS.
2. ALL DISTURBED AREAS CONTAINING EXPOSED SOIL SHALL RECEIVE TEMPORARY EROSION AND SEDIMENT CONTROL APPLICATIONS. CONTRACTOR MAY CHOOSE TO UTILIZE ALTERNATIVE EROSION CONTROL PRODUCTS SUCH AS FILTER SOCKS AS APPROVED BY THE ENGINEER.
3. SILT FENCE AND FILTER SOCKS SHALL BE PLACED PRIOR TO THE CLEARING AND GRUBBING OPERATIONS.
4. SEE ARDOT STANDARD DRAWING TEC-1 FOR TEMPORARY EROSION CONTROL DEVICES.
5. POST-GRADING SLOPES WILL NOT BE SIGNIFICANTLY STEEPER THAN EXISTING GRADES.
6. LOCATION OF OFFSITE STORAGE OF MATERIALS IS TO BE DETERMINED BY THE CONTRACTOR. THE SWPPP WILL BE UPDATED ACCORDINGLY.
7. PAVED CONSTRUCTION ENTRANCES/EXITS EXIST ALONG THE PROPOSED ROUTE.
8. ALL DISTURBED AREAS WILL BE SEEDED OR SODDED UPON COMPLETION

1. INSTALL FILTER SOCKS / SILT FENCE.
2. CLEAR / GRUB ACTIVITIES.
3. INSTALL DITCH CHECKS.

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

[illegible]

	EXISTING CONTOUR
	PROPOSED CONTOUR
	DRAINAGE FLOW DIRECTION
	SILT FENCE
	CONSTRUCTION LIMITS
	SAND BAG DITCH CHECK
	ROCK DITCH CHECK
	DROP INLET SILT FENCE
	CONCRETE WASHOUT AREA
	STABILIZED CONSTRUCTION ENTRANCE/EXIT




REV.	DATE	DESCRIPTION	BY



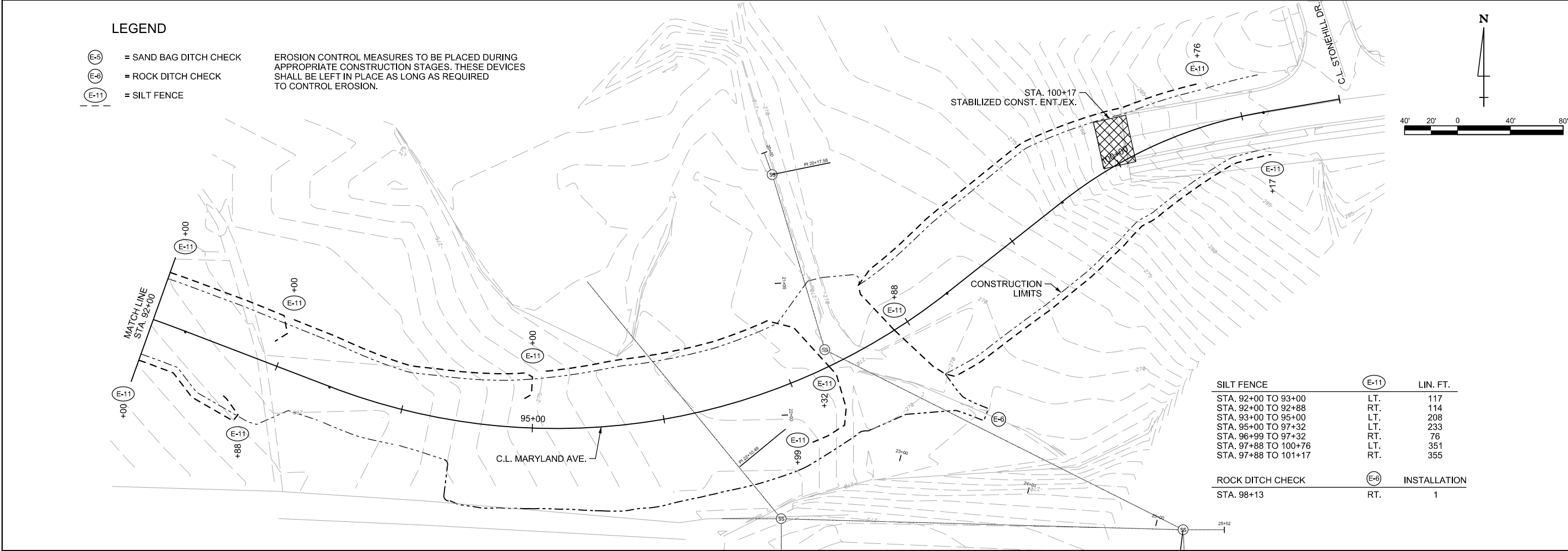
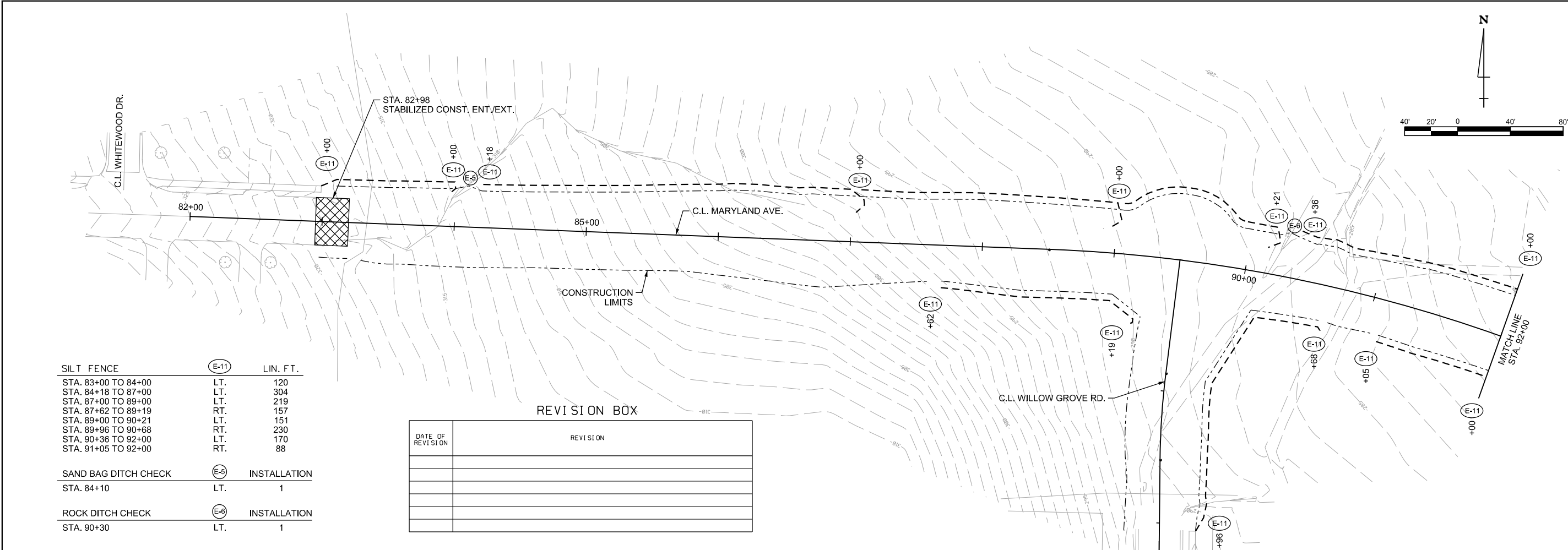
TEMPORARY EROSION
CONTROL NOTES,
REVISION BOX, AND
LEGEND

JOB NO.: 18017194
DATE: JULY 2020
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DRAWN BY: JAW

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SHEET NUMBER **013**



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STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 16145
CHARLES M. CULLEN

BY				
DESCRIPTION				
DATE				
REV.				

CITY OF SHERWOOD
PULASKI COUNTY, ARKANSAS

EAST MARYLAND AVENUE
EXTENSION

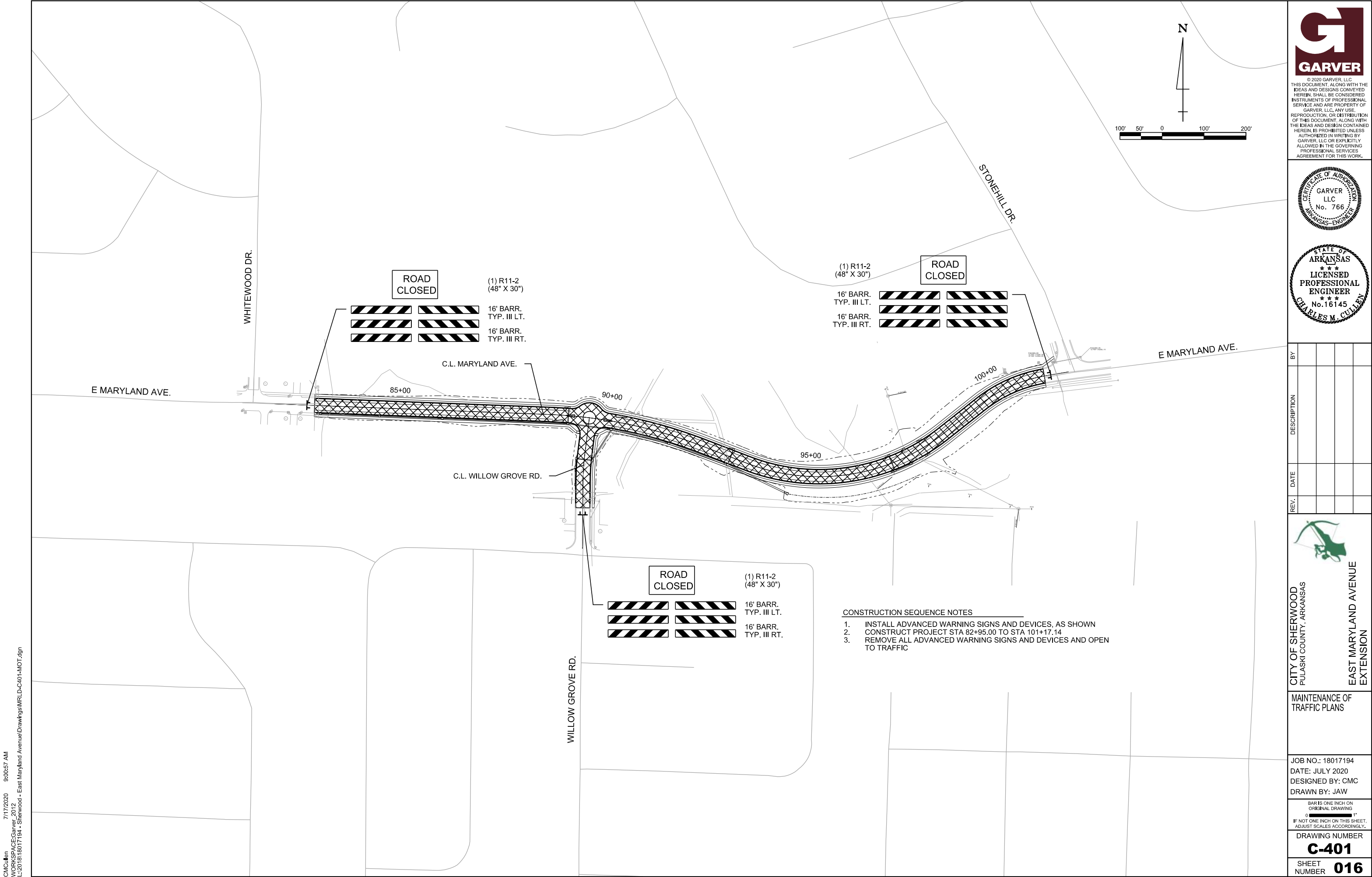
TEMPORARY EROSION CONTROL PLANS - CLEARING AND GRUBBING

JOB NO.: 18017194
DATE: JULY 2020
DESIGNED BY: CMC
DRAWN BY: JAW


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C-302


SHEET NUMBER **014**



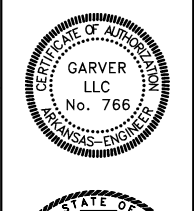
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WORKSPACE\Garver_2012
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CERTIFICATE OF AUTHORIZATION
GARVER
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No. 766
ARKANSAS-ENGINEER




STATE OF ARKANSAS

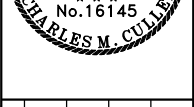
LICENSED PROFESSIONAL ENGINEER

No. 16145
CHARLES M. CULLEN

REV.	DATE	DESCRIPTION	BY



CITY OF SHERWOOD
PULASKI COUNTY, ARKANSAS



EAST MARYLAND AVENUE
EXTENSION

MAINTENANCE OF TRAFFIC PLANS

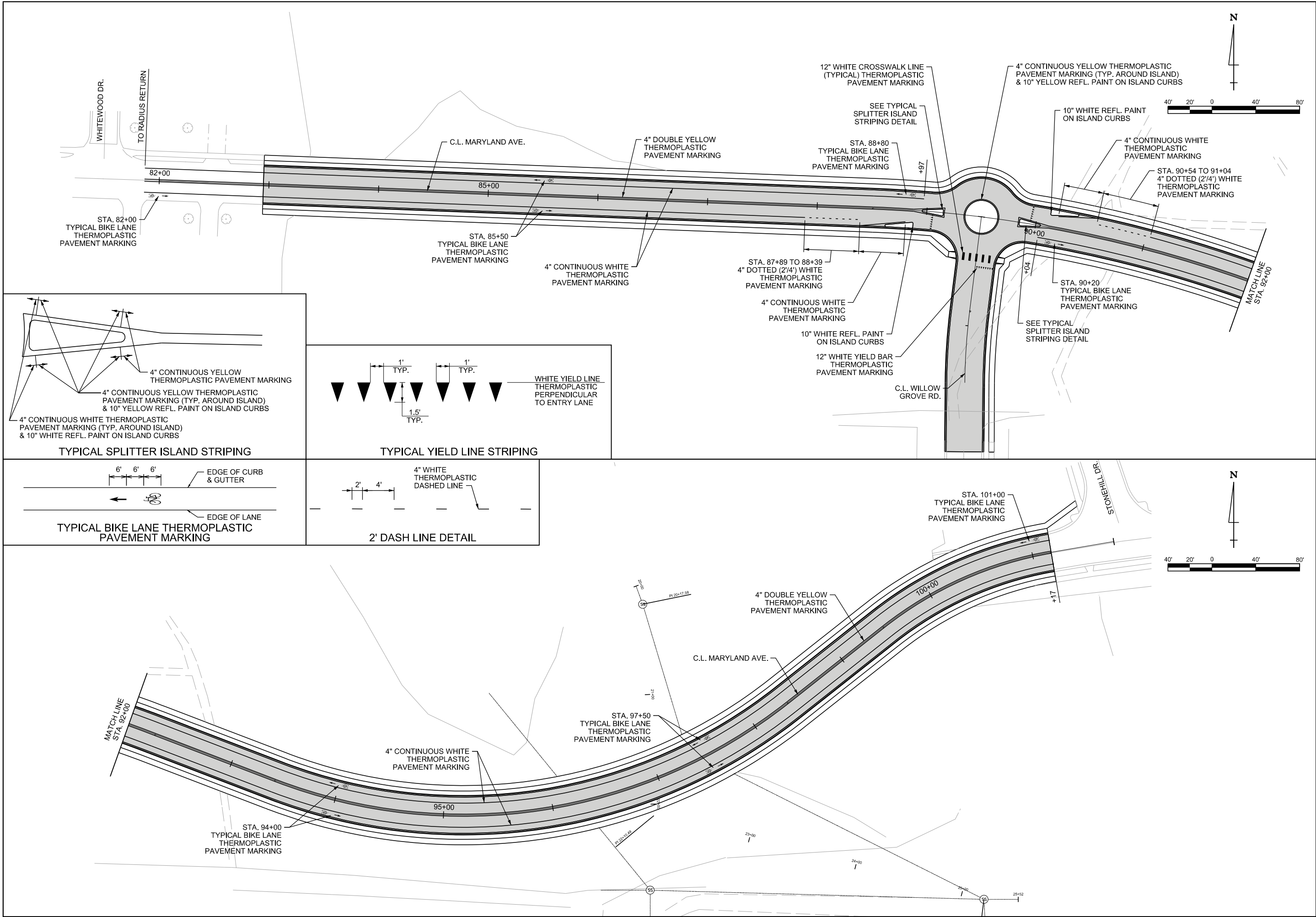
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DATE: JULY 2020
DESIGNED BY: CMC
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C-401

SHEET NUMBER **016**


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WORKSPACE\Garver_2012
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SOIL BORING LOG																
BORING NO.	APPROX. MARYLAND STA.	SAMPLE DEPTH (ft)	WATER CONTENT (%)	ATTERBERG LIMITS			SIEVE ANALYSIS PERCENT PASSING								UNIFIED CLASS.	AASHTO CLASS.
				LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	1 in.	3/4 in.	3/8 in.	#4	#10	#40	#200			
11	81+12, 1' RT.	0.5-1.5	6	26	17	9	---	---	---	---	---	---	36	CL	A-4	
12	85+78, 33' RT.	0.5-1.5	7	26	18	8	---	---	---	---	---	---	42	CL	A-4	
13	89+37, 21' LT.	2-3	8	28	16	12	---	---	---	---	---	---	68	CL	A-6	
13	89+37, 21' LT.	3-4	14	31	17	14	---	---	---	---	---	---	64	CL	A-6	
14	89+69, 192' RT.	1.5-2	12	31	21	10	---	---	---	---	---	---	---	SHALE		
15	92+60, 52' LT.	0.5-1.5	16	30	19	11	---	---	---	---	---	---	29	CL	A-6	
16	96+74, 148' LT.	0.5-1.5	28	23	18	5	---	---	---	---	---	---	50	ML	A-4	
17	99+80, 8' RT.	1-1.5	11	---	---	---	---	---	---	---	---	---	---	SC	A-2-4	



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GARVER LLC
No. 766
ARKANSAS-ENGINEER




STATE OF ARKANSAS

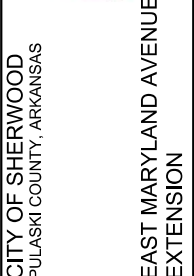
LICENSED PROFESSIONAL ENGINEER

No. 16145
CHARLES M. CULLEN

BY				
DESCRIPTION				
DATE				
REV.				



CITY OF SHERWOOD
PULASKI COUNTY, ARKANSAS



EAST MARYLAND AVENUE
EXTENSION

SOIL BORING LOGS

JOB NO.: 18017194
DATE: JULY 2020
DESIGNED BY: CMC
DRAWN BY: JAW

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DRAWING NUMBER

C-601

SHEET NUMBER

018

MIDPOINT:
LAT: 34-50-24
LONG: 092-12-55

SURVEY CONTROL COORDINATES

Project Name: 061295
Date: 2/27/2013
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	
1	184700.6263	1242902.2143	415.05	CTL	2"ALM MON
2	184665.9763	1243302.3922	402.97	CTL	2"ALM MON
3	184653.8635	1243706.4948	401.74	CTL	2"ALM MON
4	184643.6100	1244109.1615	414.71	CTL	2"ALM MON
5	184634.1317	1244488.4975	422.53	CTL	2"ALM MON
6	184624.6502	1244912.0345	432.23	CTL	2"ALM MON
7	184621.5387	1245349.2075	447.85	CTL	2"ALM MON
8	184614.5402	1245655.2936	450.00	CTL	2"ALM MON
9	184581.6716	1246026.9764	428.33	CTL	2"ALM MON
10	184561.6021	1246412.2400	418.87	CTL	2"ALM MON
11	184542.8933	1246770.0432	413.33	CTL	2"ALM MON
12	184536.1191	1247166.7721	404.91	CTL	2"ALM MON
13	184508.2425	1246952.6870	414.92	CTL	2"ALM MON
14	184526.5967	1246442.0078	418.49	CTL	CPS
15	184540.7520	1246158.4025	426.24	CTL	2"ALM MON
16	184556.6245	1245818.1668	440.13	CTL	2"ALM MON
17	184567.6957	1245559.2526	452.70	CTL	2"ALM MON
18	184583.4965	1245209.6794	444.20	CTL	2"ALM MON
19	184601.8136	1244700.3154	429.01	CTL	2"ALM MON
20	184611.4662	1244280.1203	418.35	CTL	2"ALM MON
21	184618.0636	1243931.4972	408.10	CTL	2"ALM MON
30	184554.9193	1250329.5692	325.30	CTL	2"ALM MON
31	184556.7976	1250613.2937	308.67	CTL	2"ALM MON
32	184553.4004	1251051.4791	289.49	CTL	2"ALM MON
38	184624.7669	1252060.1952	283.66	CTL	CPS
100	185144.4995	1242885.5978	431.44	GPS	
101	184680.4768	1243169.1445	404.03	GPS	
102	184686.5006	1252265.2406	288.62	GPS	
103	184834.5632	1253354.5480	270.37	GPS	

Note - 2" ALM MON = Standard - 5/8" Rebar with 2" Aluminum Cap stamped "GARVER CONTROL" and appropriate point number "#"
ALL DISTANCES ARE GROUND.
USE CAF = 1.0 FOR STAKEOUT FOR THIS PROJECT.
A PROJECT CAF OF 0.9999991244 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.
HORIZONTAL DATUM: NAD 83 (1997)
VERTICAL DATUM: NAVD 88 POSITIONAL ACCURACY THIRD ORDER, UNLESS SPECIFIED OTHERWISE
AT A SPECIFIC POINT, BASED ON TBM 918 FROM JOB 060497. 3 WIRE LEVEL RAN THROUGH POINTS 1-21, 30-32, 38, 100-103.

BASIS OF BEARING:
ARKANSAS STATE PLANE GRID BEARINGS - 0301-NORTH ZONE
DETERMINED FROM GPS CONTROL POINTS: 100 - 103
CONVERGENCE ANGLE: 0-08-03 LEFT AT PN: 101
GRID AZIMUTH = ASTRONOMICAL AZIMUTH - CONVERGENCE ANGLE.

PN:101
LT:34-50-25.8 LG:092-13-49.7
GRID NORTHING:184680.6385 GRID EASTING:1243170.2330
GROUND NORTHING:184680.4768 GROUND EASTING:1243169.1445

ALIGNMENT NAME: MARYLAND AVE.					
POINT	STATION	TYPE	NORTHING	EASTING	
8500	82+00.00	POB	184580.4693	1250327.0027	
8501	88+51.33	PC	184555.5559	1250977.8522	
8502	90+40.58	PI	184548.3169	1251166.9672	
8503	92+26.45	PT	184480.6544	1251343.7119	
8504	93+43.35	PC	184438.8601	1251452.8850	
8505	96+14.98	PI	184341.7441	1251706.5666	
8506	98+37.28	PT	184510.1873	1251919.6692	
8507	99+48.49	PC	184579.1459	1252006.9107	
8508	100+34.62	PI	184632.5585	1252074.4846	
8509	101+17.14	PT	184647.0001	1252159.3998	
8510	101+75.00	POE	184656.7011	1252216.4407	

ALIGNMENT NAME: WILLOW GROVE RD.					
POINT	STATION	TYPE	NORTHING	EASTING	
8520	6+88.39	POB	184236.7918	1251059.5125	
8521	8+47.99	PC	184396.3795	1251061.0630	
8522	8+80.87	PI	184429.2598	1251061.3825	
8523	9+13.68	PT	184461.8876	1251065.4614	
8524	10+00.00	POE	184547.5436	1251076.1696	

ALIGNMENT NAME: SANITARY SEWER					
POINT	STATION	TYPE	NORTHING	EASTING	
8540	20+00.00	POB	184616.0898	1251781.2074	
8541	20+17.58	PI	184599.5692	1251787.2297	
8542	22+10.49	PI	184406.9276	1251797.3895	
8543	25+20.82	PI	184330.6956	1252098.2039	
8544	25+52.01	POE	184330.6186	1252129.3991	



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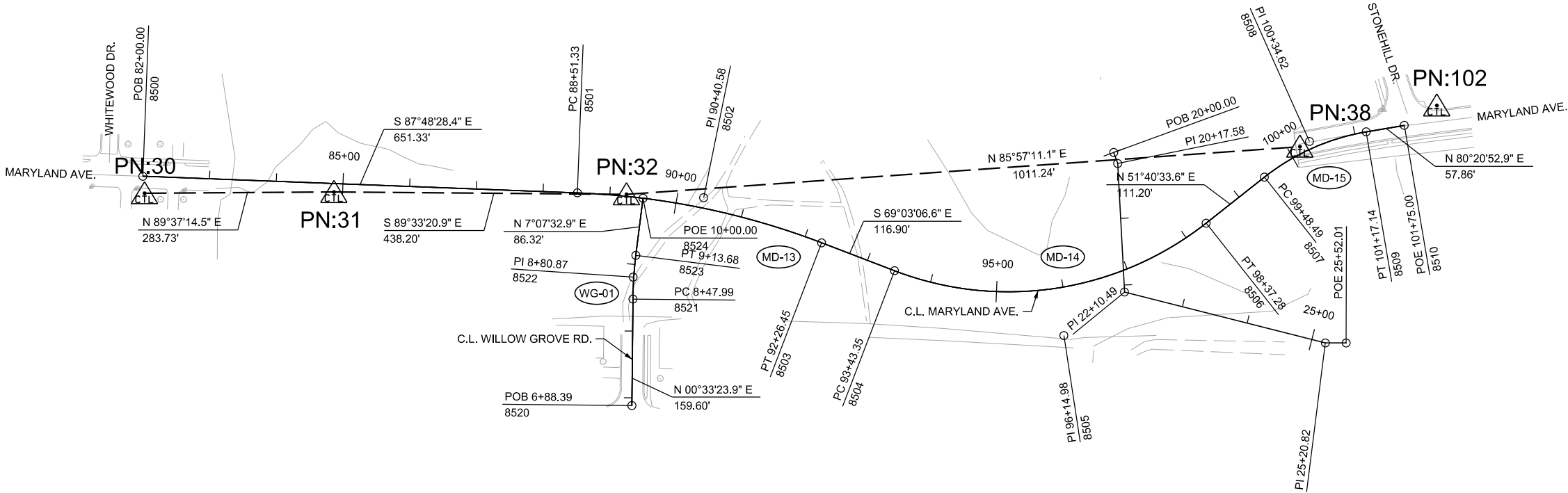


SURVEY CONTROL DETAILS

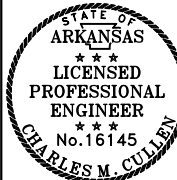
JOB NO.: 18017194
DATE: JULY 2020
DESIGNED BY: CMC
DRAWN BY: JAW

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C-701
SHEET NUMBER **019**



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CITY OF SHERWOOD
PULASKI COUNTY, ARKANSAS

EAST MARYLAND AVENUE
EXTENSION

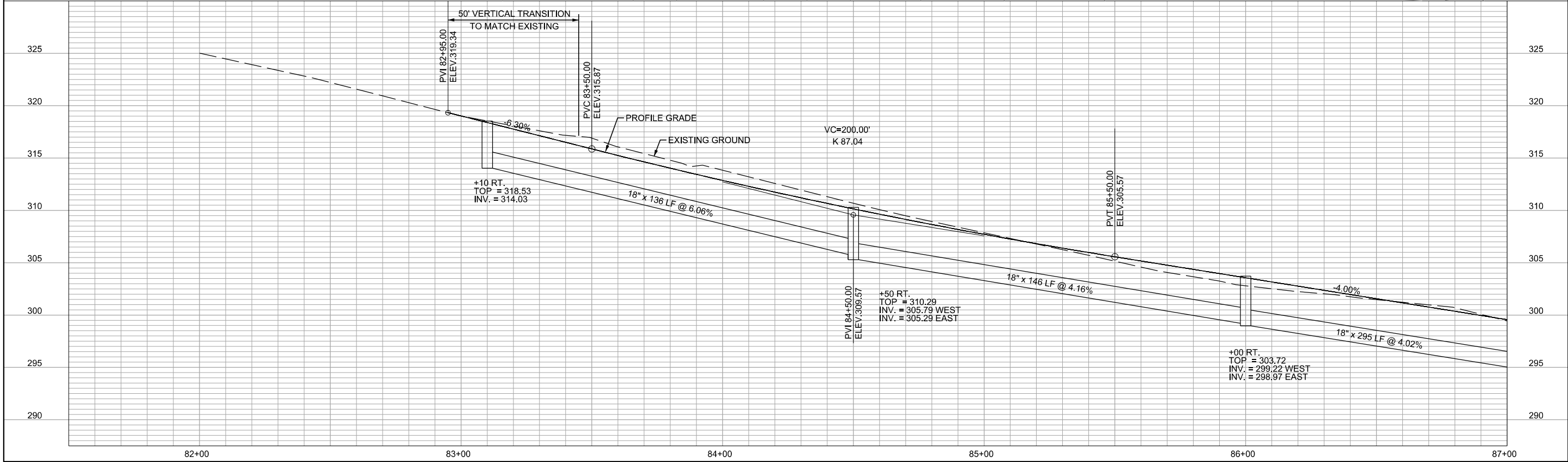
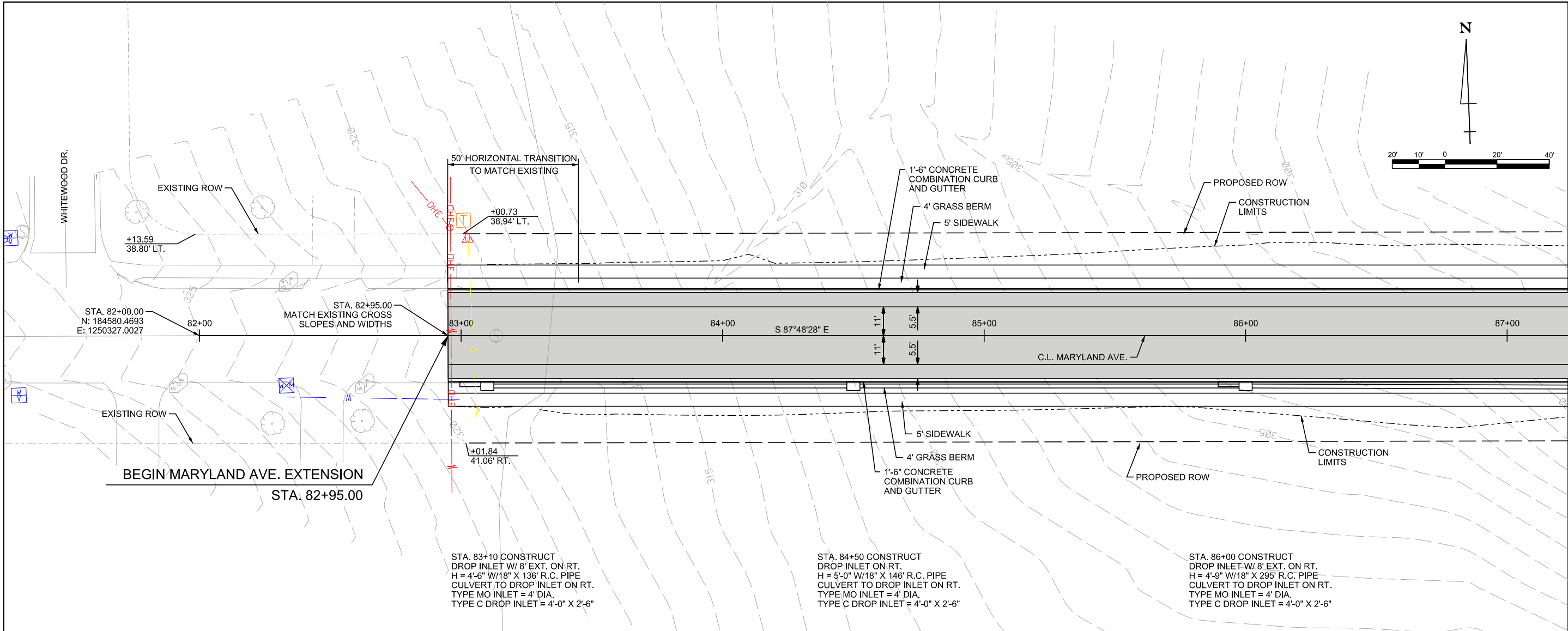
SURVEY CONTROL
DETAILS

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STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 16145
CHARLES M. CULLEN

REV.	DATE	DESCRIPTION	BY

CITY OF SHERWOOD
PULASKI COUNTY, ARKANSAS

EAST MARYLAND AVENUE
EXTENSION

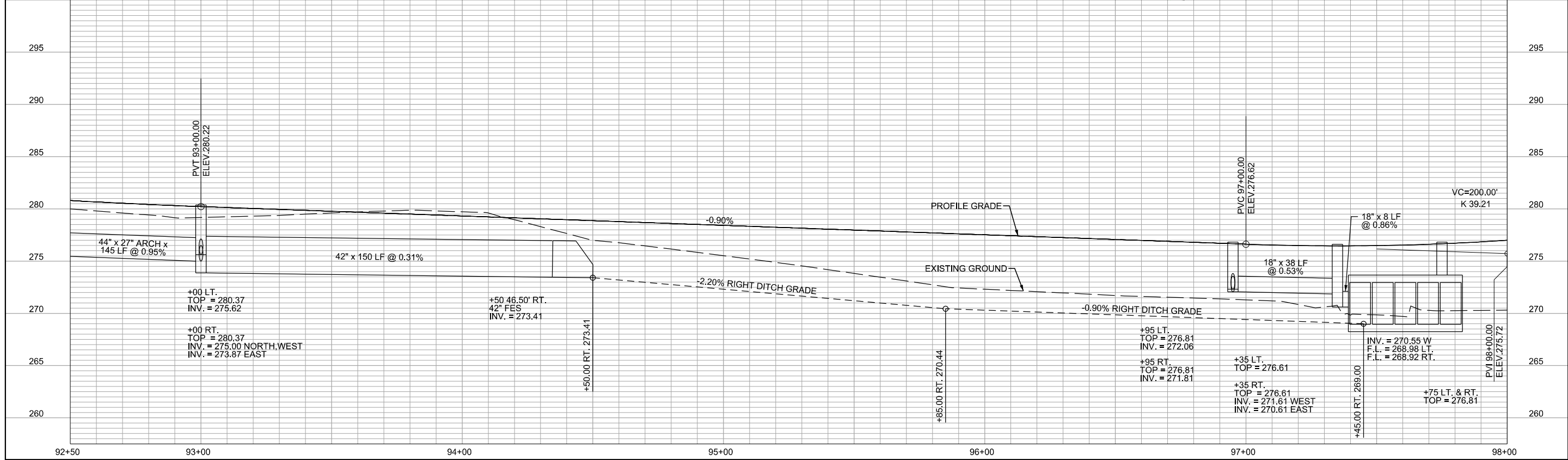
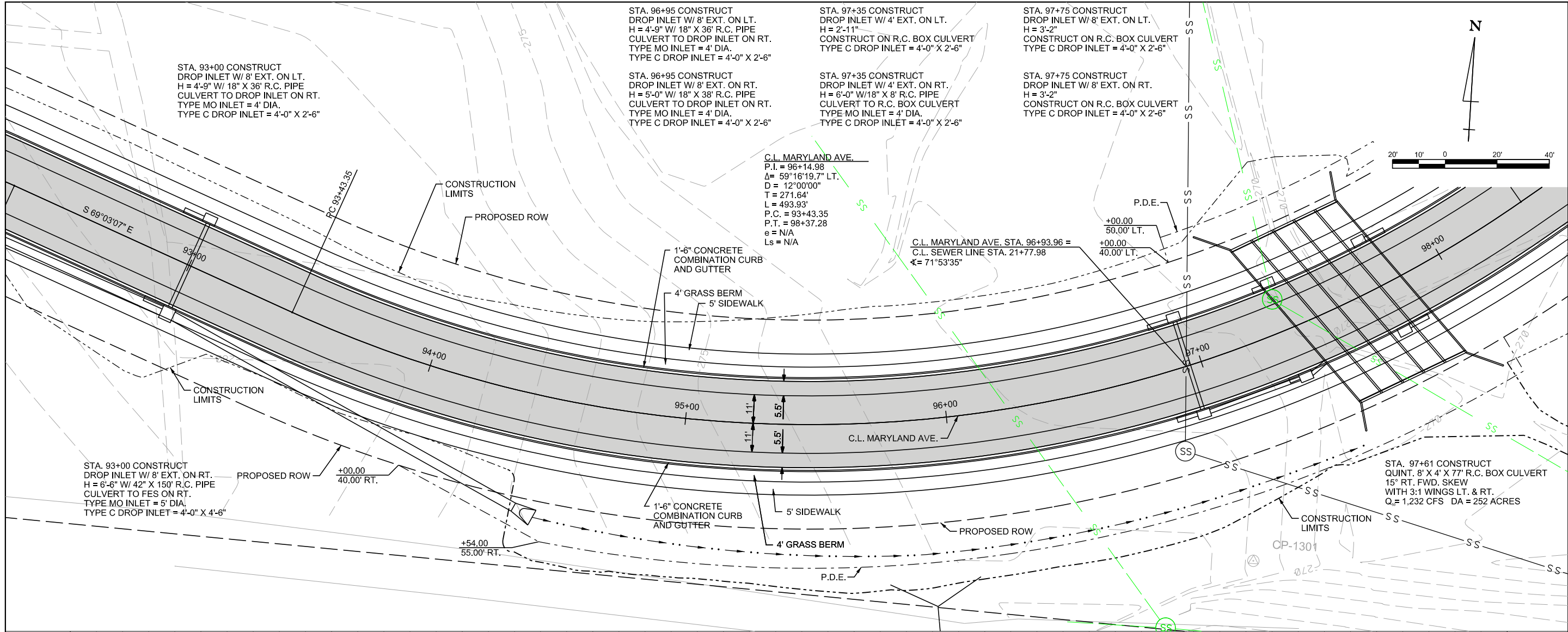
PLAN AND PROFILE -
MARYLAND AVE.

JOB NO.: 18017194
DATE: JULY 2020
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STATE OF
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LICENSED
PROFESSIONAL
ENGINEER
No. 16145
CHARLES M. CULLEN

BY				
DESCRIPTION				
DATE				
REV.				

CITY OF SHERWOOD
PULASKI COUNTY, ARKANSAS

EAST MARYLAND AVENUE
EXTENSION

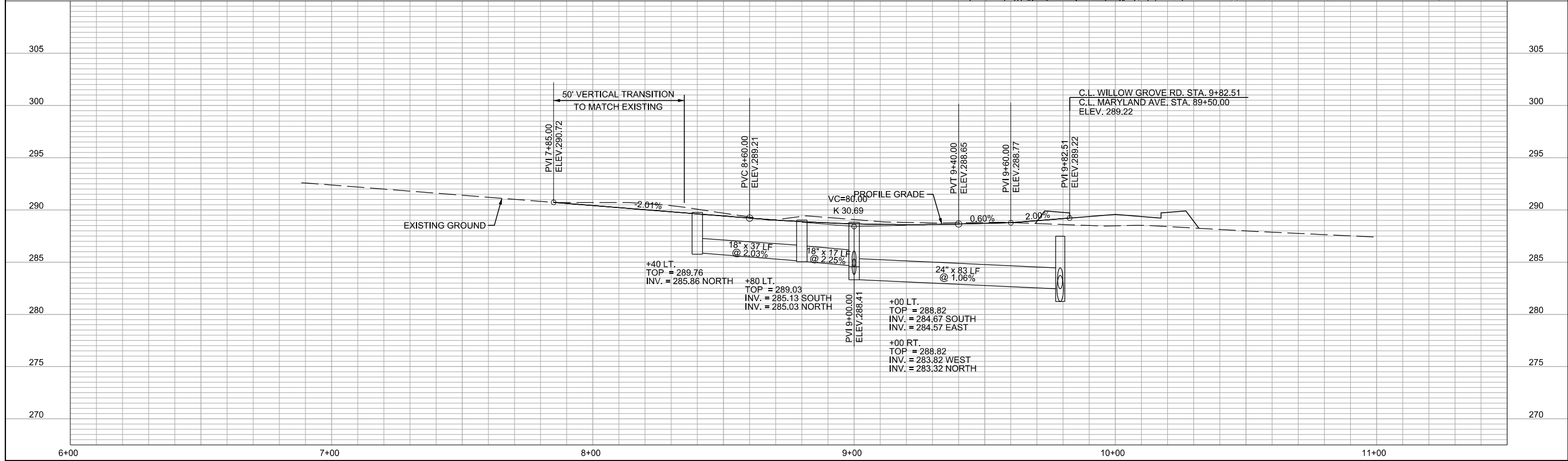
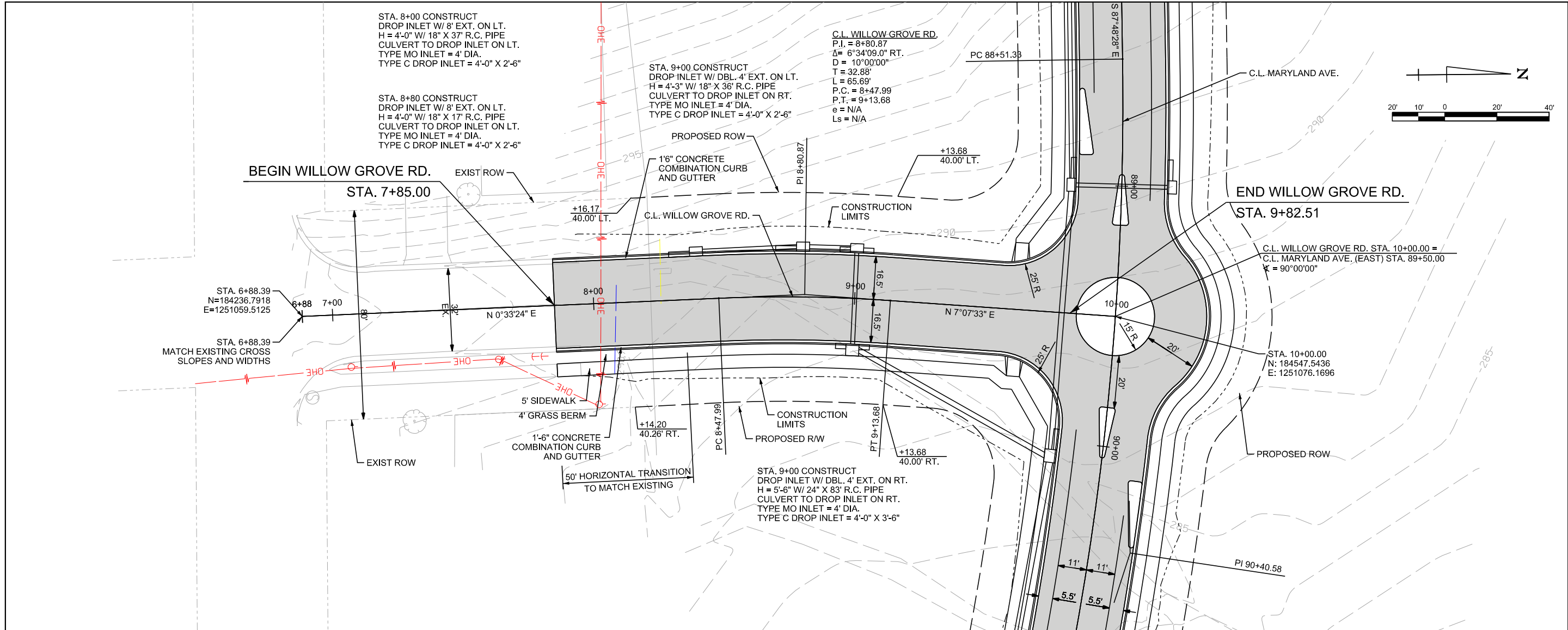
PLAN AND PROFILE -
MARYLAND AVE.

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STATE OF ARKANSAS

LICENSED PROFESSIONAL ENGINEER

No. 16145
CHARLES M. CULLEN

REV.	DATE	DESCRIPTION	BY

CITY OF SHERWOOD
PULASKI COUNTY, ARKANSAS

EAST MARYLAND AVENUE
EXTENSION

PLAN AND PROFILE -
WILLOW GROVE RD.

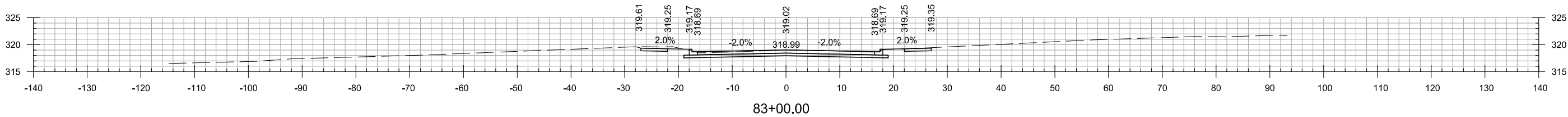
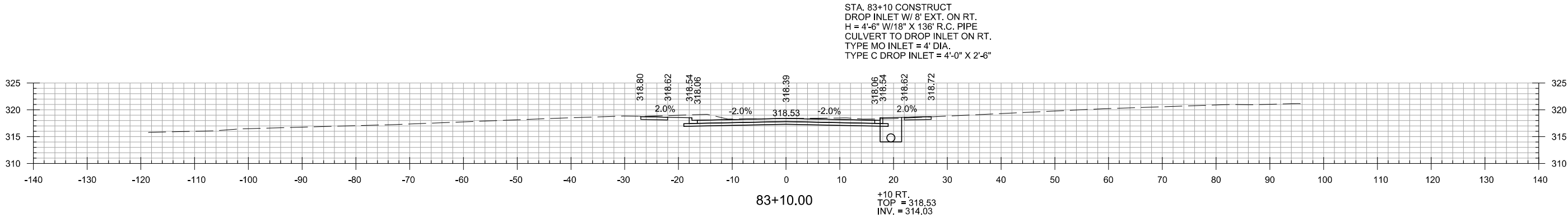
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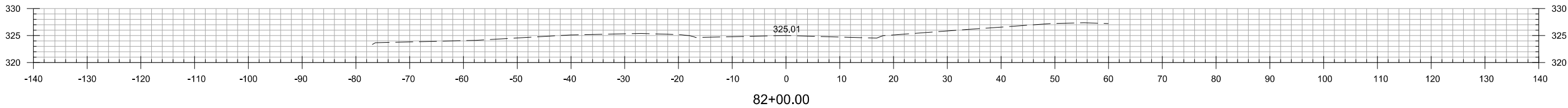
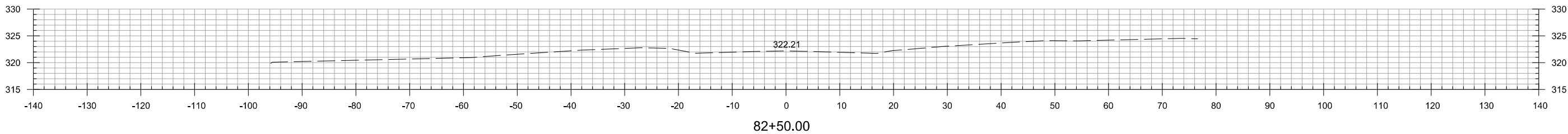
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STA. 82+95.00 BEGIN MARYLAND AVE. EXTENSION



MARYLAND AVE.
STA. 82+00 TO STA. 83+10



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EAST MARYLAND AVENUE
EXTENSION

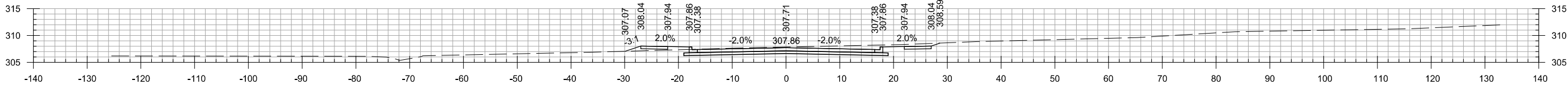
CROSS SECTIONS -
MARYLAND AVE.

JOB NO.: 18017194
DATE: JULY 2020
DESIGNED BY: CMC
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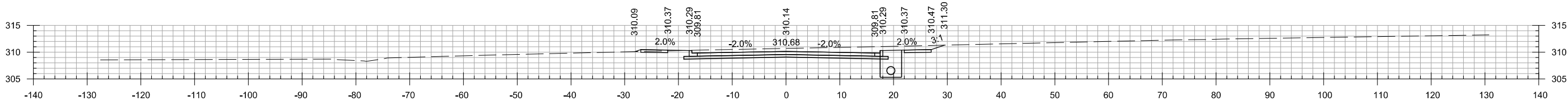
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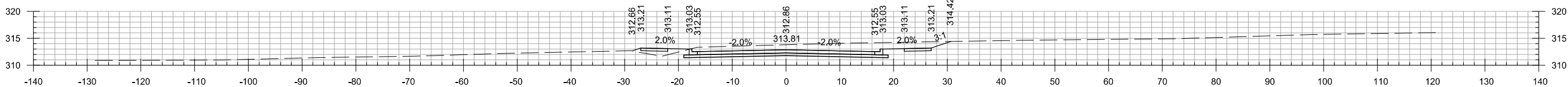
85+00.00

STA. 84+50 CONSTRUCT
DROP INLET ON RT.
H = 5'-0" W/18" X 146" R.C. PIPE
CULVERT TO DROP INLET ON RT.
TYPE MO INLET = 4' DIA.
TYPE C DROP INLET = 4'-0" X 2'-6"

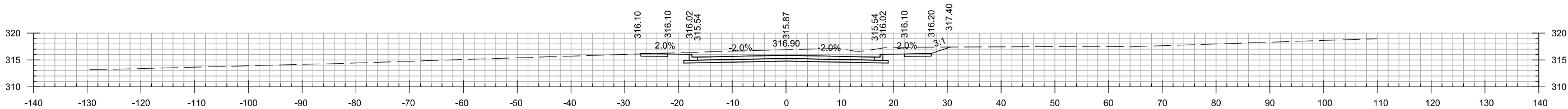


84+50.00

+50 RT.
TOP = 310.29
INV. = 305.79 WEST
INV. = 305.29 EAST



84+00.00



83+50.00

MARYLAND AVE.
STA. 83+50 TO STA. 85+00



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CITY OF SHERWOOD
PULASKI COUNTY, ARKANSAS

EAST MARYLAND AVENUE
EXTENSION

CROSS SECTIONS -
MARYLAND AVE.

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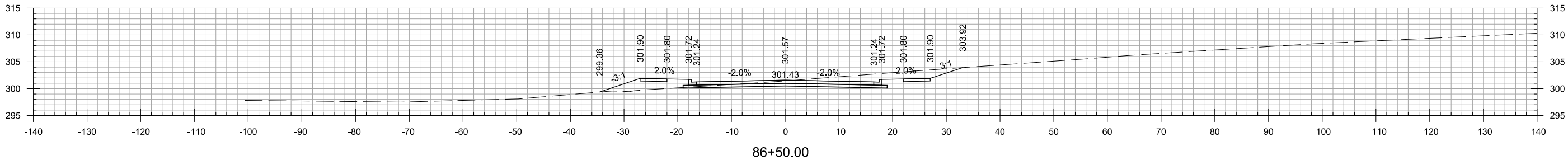
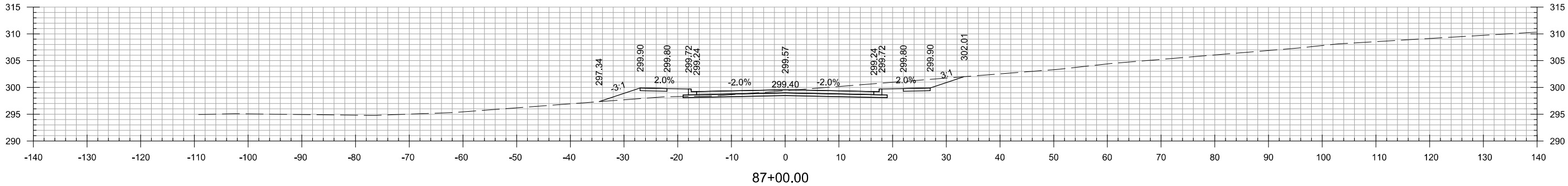
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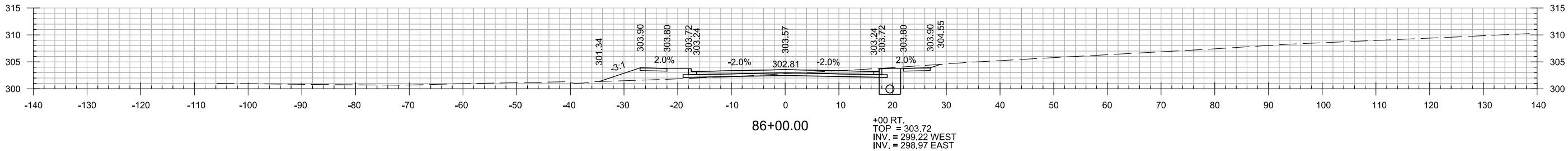
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SHEET
NUMBER **CX2**

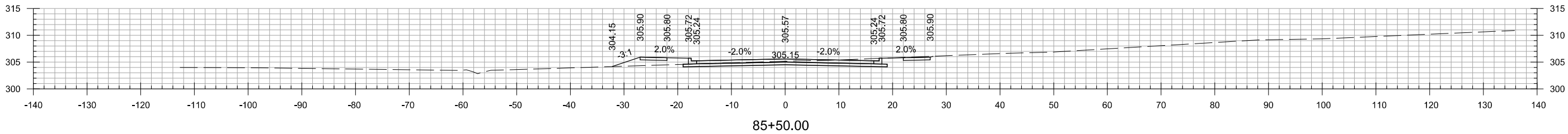
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STA. 86+00 CONSTRUCT
DROP INLET W/ 8' EXT. ON RT.
H = 4'-8" W/18" X 295' R.C. PIPE
CULVERT TO DROP INLET ON RT.
TYPE MO INLET = 4' DIA.
TYPE C DROP INLET = 4'-0" X 2'-6"



+00 RT.
TOP = 303.72
INV. = 299.22 WEST
INV. = 298.97 EAST



MARYLAND AVE.
STA. 85+50 TO STA. 87+00



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PULASKI COUNTY, ARKANSAS

EAST MARYLAND AVENUE
EXTENSION

CROSS SECTIONS -
MARYLAND AVE.

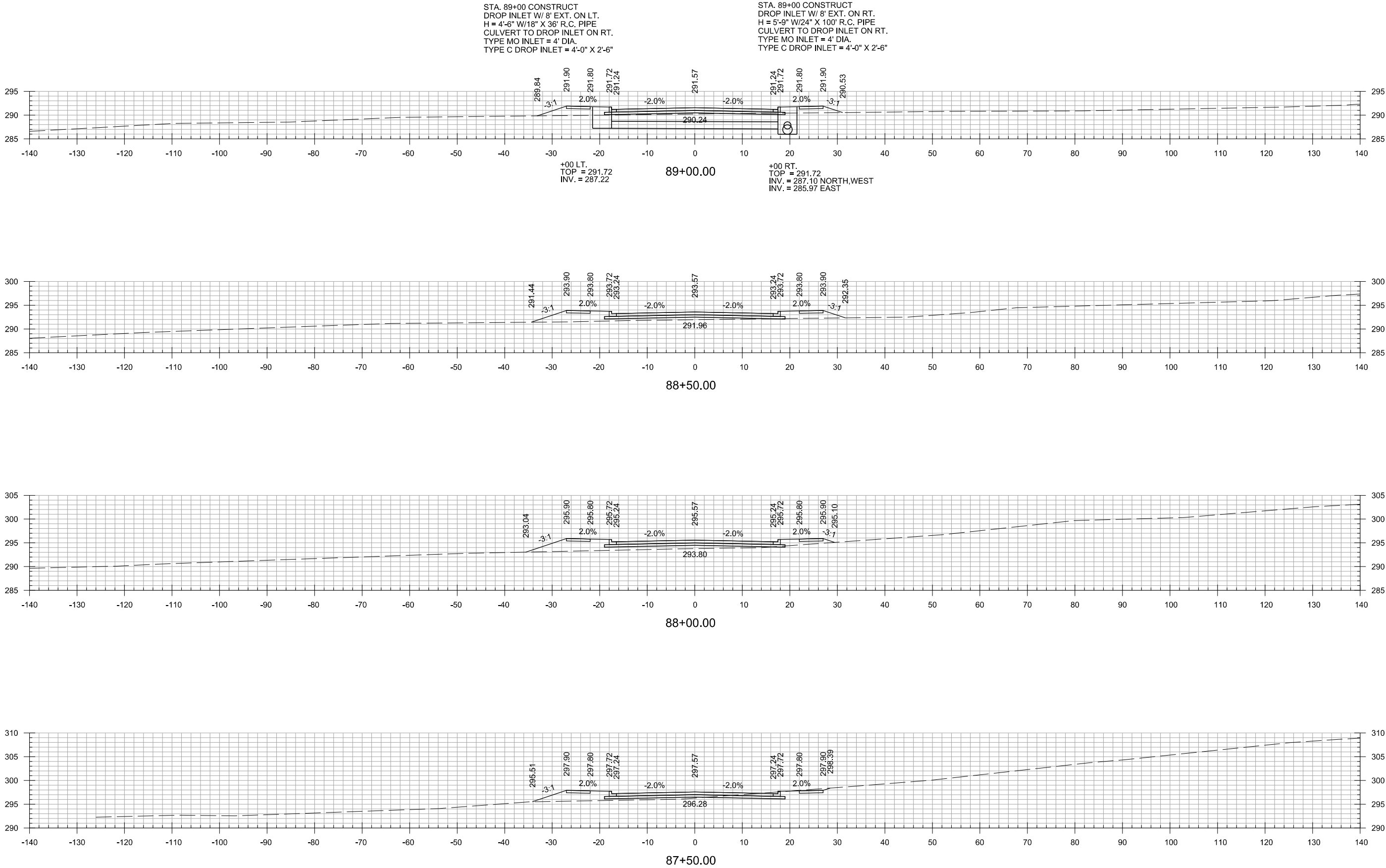
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DESIGNED BY: CMC
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C-903
SHEET
NUMBER **CX3**

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CITY OF SHERWOOD
PULASKI COUNTY, ARKANSAS

EAST MARYLAND AVENUE
EXTENSION

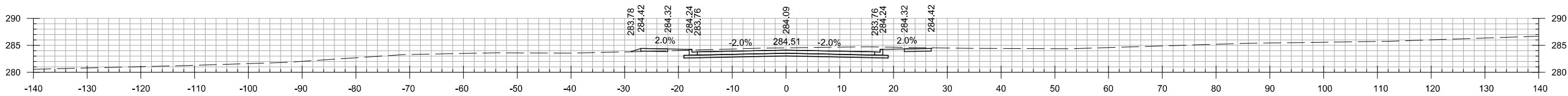
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DATE: JULY 2020
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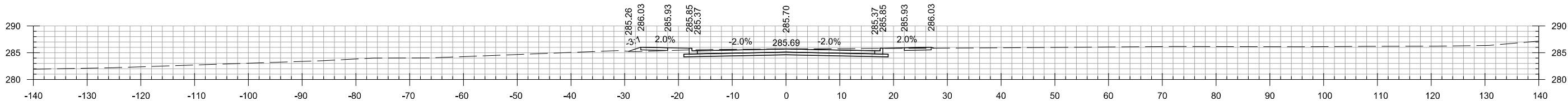
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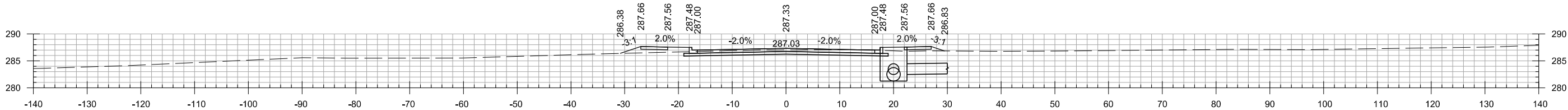


91+00.00



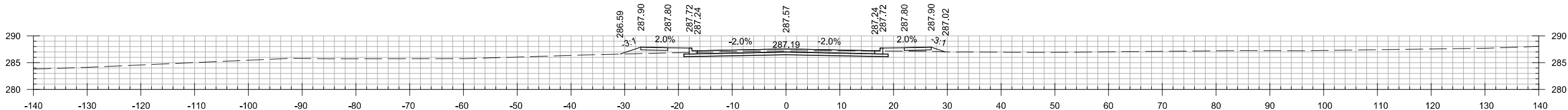
90+50.00

STA. 90+06 CONSTRUCT
DROP INLET W/ 8' EXT. ON RT.
H = 6'-3" W/ 30" X 138' R.C. PIPE
CULVERT TO DROP INLET ON RT.
TYPE MO INLET = 5' DIA.
TYPE C DROP INLET = 4'-0" X 3'-6"

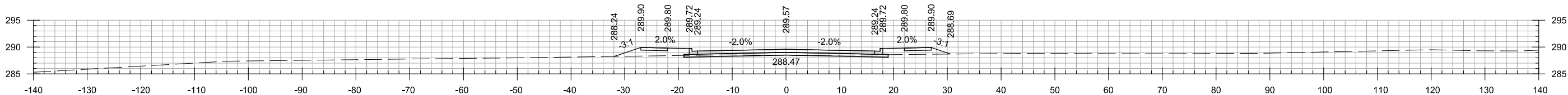


90+06.00

+06 RT.
TOP = 287.48
INV. = 282.45 SOUTH
INV. = 282.45 WEST
INV. = 281.23 EAST



90+00.00



89+50.00

MARYLAND AVE.
STA. 89+50 TO STA. 91+00



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CITY OF SHERWOOD
PULASKI COUNTY, ARKANSAS

EAST MARYLAND AVENUE
EXTENSION

CROSS SECTIONS -
MARYLAND AVE.

JOB NO.: 18017194
DATE: JULY 2020
DESIGNED BY: CMC
DRAWN BY: JAW

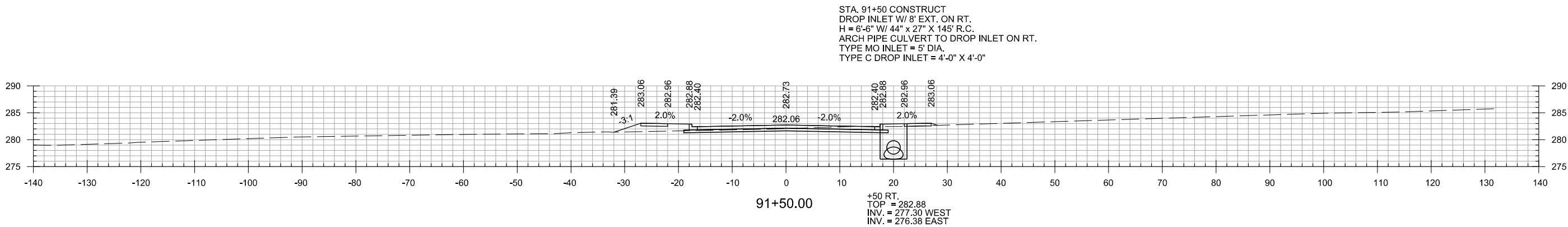
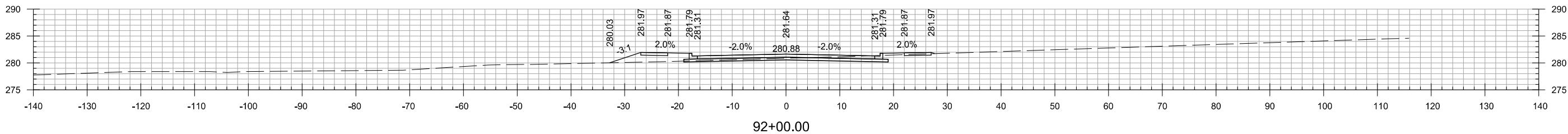
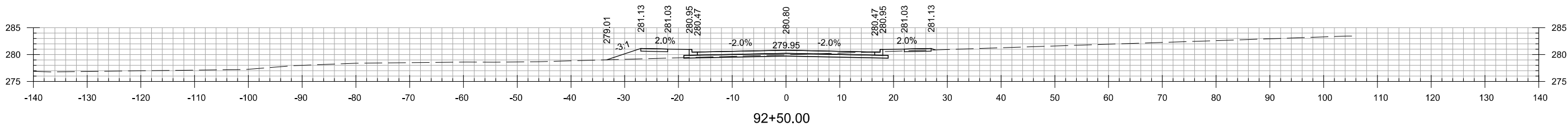
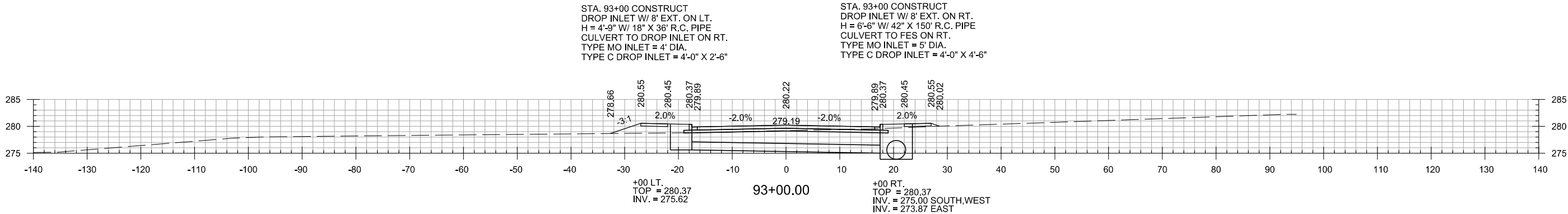
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C-905

SHEET
NUMBER **CX5**

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MARYLAND AVE.
STA. 91+50 TO STA. 93+00



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CITY OF SHERWOOD
PULASKI COUNTY, ARKANSAS

EAST MARYLAND AVENUE
EXTENSION

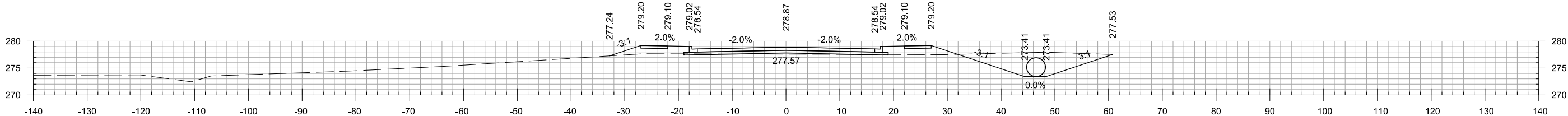
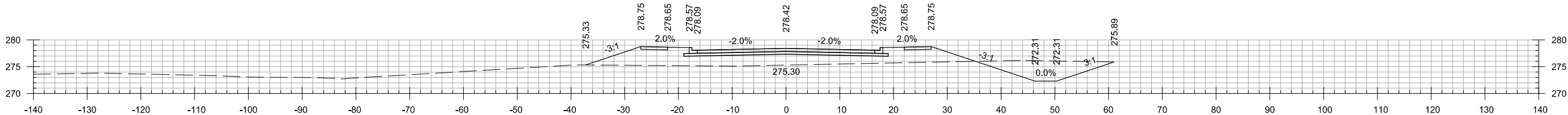
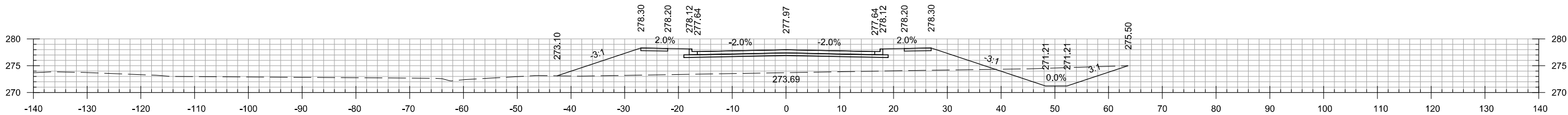
CROSS SECTIONS -
MARYLAND AVE.

JOB NO.: 18017194
DATE: JULY 2020
DESIGNED BY: CMC
DRAWN BY: JAW

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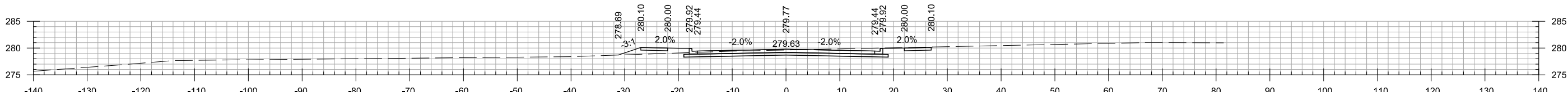
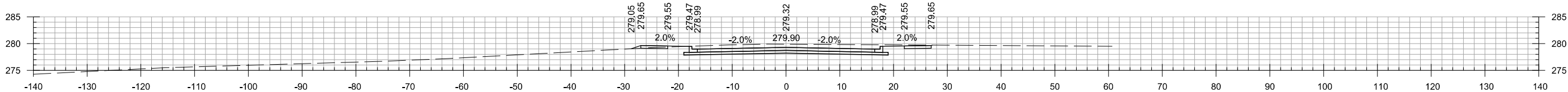
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C-906
SHEET
NUMBER **CX6**

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+50 46.50' RT.
42" FES
INV. = 273.41

STA. 94+50.00
BEGIN SP. DITCH RT. -2.20%
ELEV. 273.41



MARYLAND AVE.
STA. 93+50 TO STA. 95+50



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CITY OF SHERWOOD
PULASKI COUNTY, ARKANSAS

EAST MARYLAND AVENUE
EXTENSION

CROSS SECTIONS -
MARYLAND AVE.

JOB NO.: 18017194
DATE: JULY 2020
DESIGNED BY: CMC
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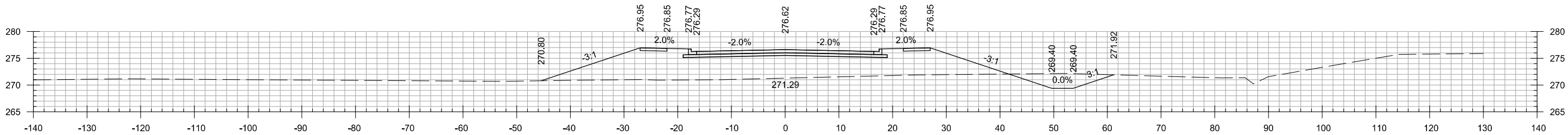
C-907

SHEET
NUMBER **CX7**

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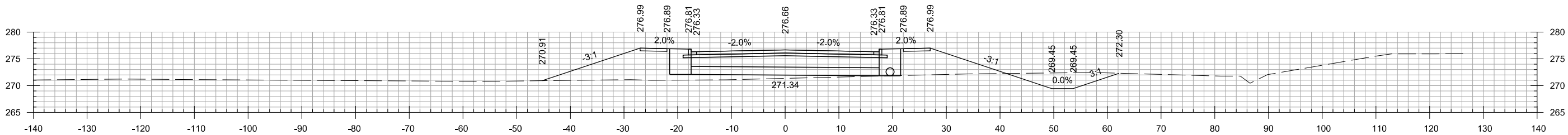
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WORKSPACE\Garver_2012



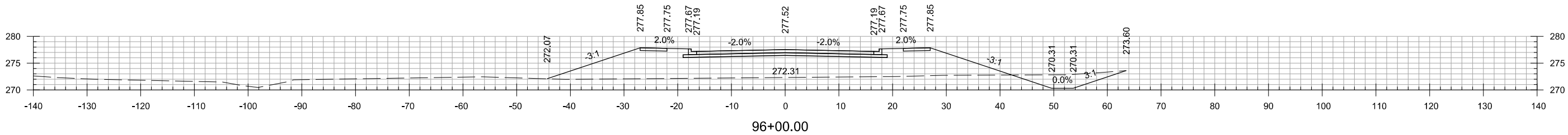
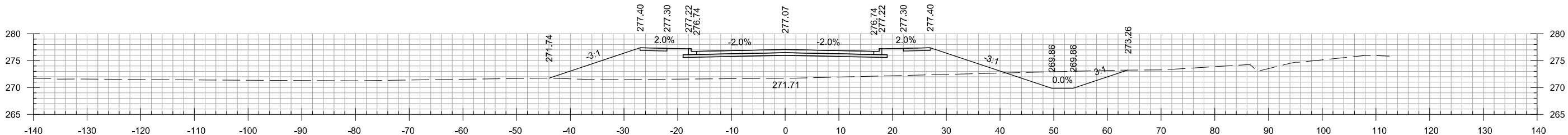
STA. 96+95 CONSTRUCT
DROP INLET W/ 8' EXT. ON LT.
H = 4'-9" W/ 18" X 36" R.C. PIPE
CULVERT TO DROP INLET ON RT.
TYPE MO INLET = 4' DIA.
TYPE C DROP INLET = 4'-0" X 2'-6"

STA. 96+95 CONSTRUCT
DROP INLET W/ 8' EXT. ON RT.
H = 5'-0" W/ 18" X 38" R.C. PIPE
CULVERT TO DROP INLET ON RT.
TYPE MO INLET = 4' DIA.
TYPE C DROP INLET = 4'-0" X 2'-6"



+95 LT.
TOP = 276.81
INV. = 272.06

+95 RT.
TOP = 276.81
INV. = 271.81



STA. 95+85.00
END SP. DITCH RT. -2.20%
BEGIN SP. DITCH RT. -0.90%
ELEV. 270.44

MARYLAND AVE.
STA. 96+00 TO STA. 97+00



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REV.	DATE	DESCRIPTION	BY



CITY OF SHERWOOD
PULASKI COUNTY, ARKANSAS

EAST MARYLAND AVENUE
EXTENSION

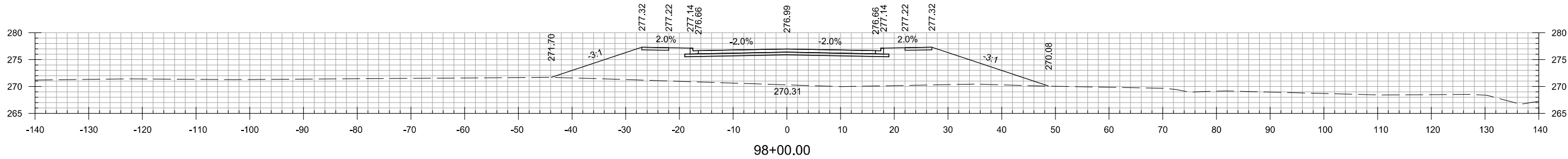
CROSS SECTIONS -
MARYLAND AVE.

JOB NO.: 18017194
DATE: JULY 2020
DESIGNED BY: CMC
DRAWN BY: JAW

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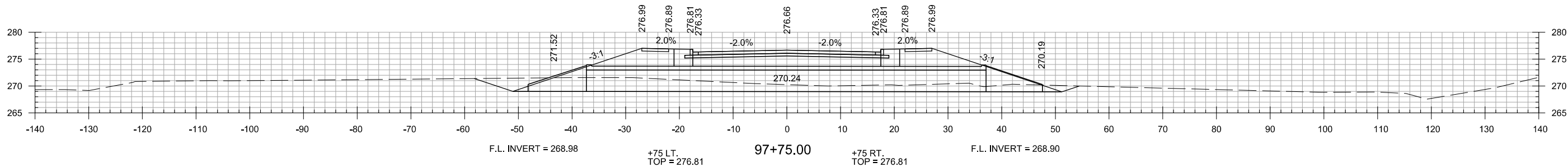
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C-908
SHEET
NUMBER **CX8**

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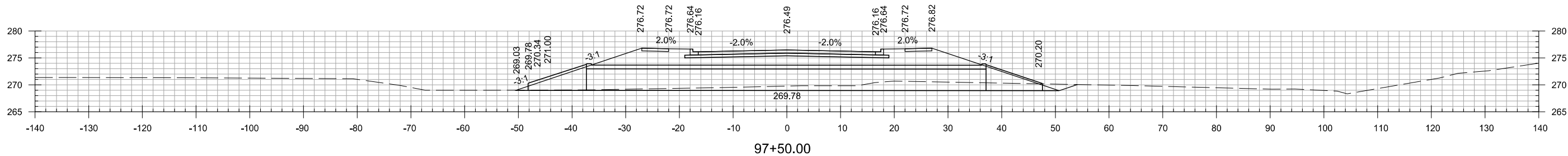


STA. 97+75 CONSTRUCT
DROP INLET W/ 8' EXT. ON LT.
H = 3'-2"
CONSTRUCT ON R.C. BOX CULVERT
TYPE C DROP INLET = 4'-0" X 2'-6"

STA. 97+75 CONSTRUCT
DROP INLET W/ 8' EXT. ON RT.
H = 3'-2"
CONSTRUCT ON R.C. BOX CULVERT
TYPE C DROP INLET = 4'-0" X 2'-6"



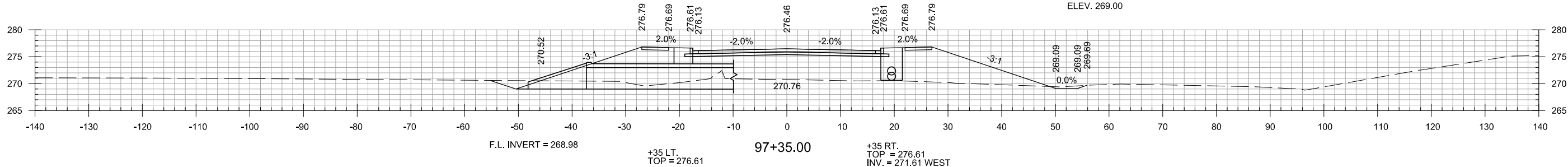
STA. 97+61 CONSTRUCT
QUINT. 8' X 4' X 77' R.C. BOX CULVERT
15° RT. FWD. SKEW
WITH 3:1 WINGS LT. & RT.
Q₁ = 1,232 CFS DA = 252 ACRES



STA. 97+35 CONSTRUCT
DROP INLET W/ 4' EXT. ON LT.
H = 2'-11"
CONSTRUCT ON R.C. BOX CULVERT
TYPE C DROP INLET = 4'-0" X 2'-6"

STA. 97+35 CONSTRUCT
DROP INLET W/ 4' EXT. ON RT.
H = 6'-0" W/ 18" X 8' R.C. PIPE
CULVERT TO R.C. BOX CULVERT
TYPE MO INLET = 4' DIA.
TYPE C DROP INLET = 4'-0" X 2'-6"

STA. 97+45.00
END SP. DITCH RT. -0.90%
ELEV. 269.00



MARYLAND AVE.
STA. 97+35 TO STA. 98+00



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BY				
DESCRIPTION				
DATE				
REV.				



CITY OF SHERWOOD
PULASKI COUNTY, ARKANSAS

EAST MARYLAND AVENUE
EXTENSION

CROSS SECTIONS -
MARYLAND AVE.

JOB NO.: 18017194
DATE: JULY 2020
DESIGNED BY: CMC
DRAWN BY: JAW

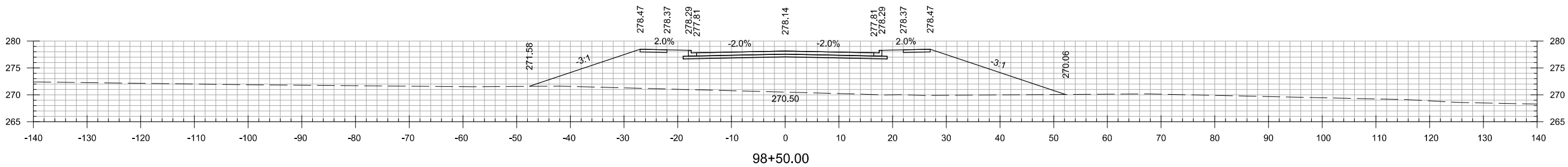
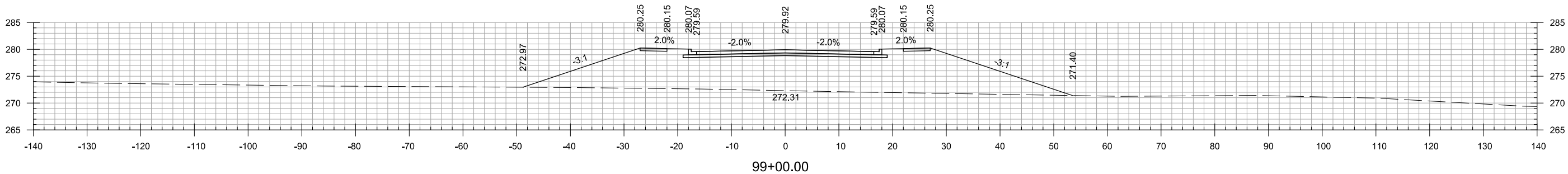
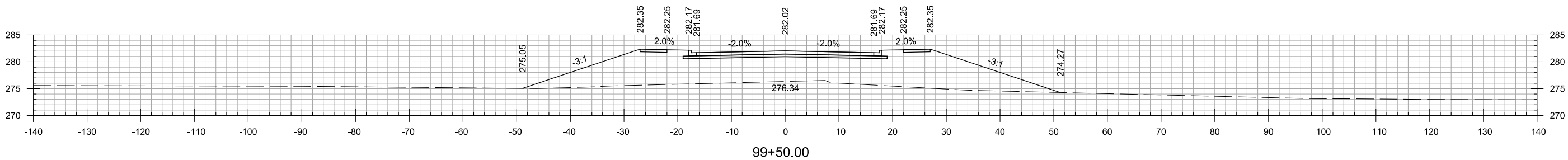
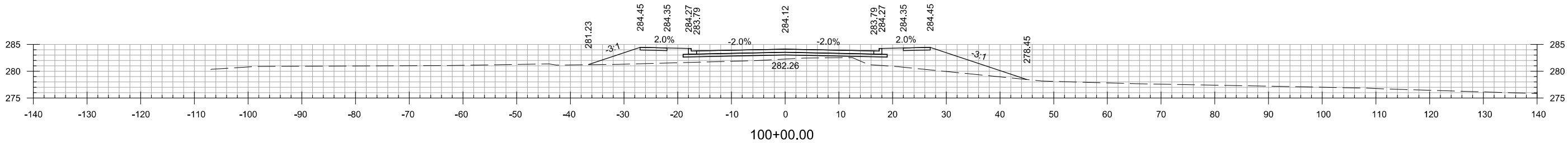
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C-909

SHEET
NUMBER **CX9**

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MARYLAND AVE.
STA. 98+50 TO STA. 100+00



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CITY OF SHERWOOD
PULASKI COUNTY, ARKANSAS

EAST MARYLAND AVENUE
EXTENSION

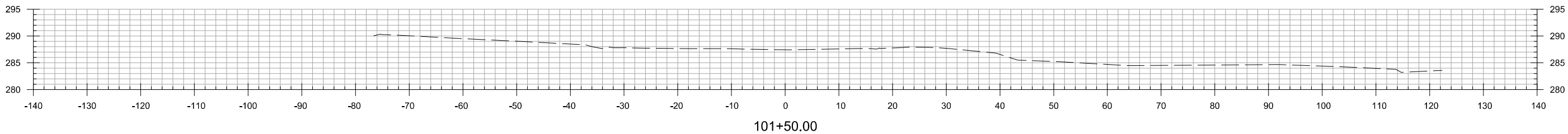
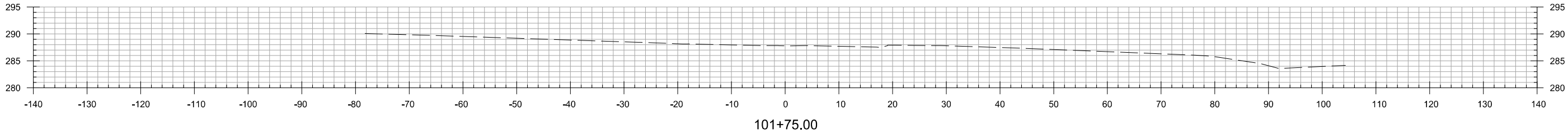
CROSS SECTIONS -
MARYLAND AVE.

JOB NO.: 18017194
DATE: JULY 2020
DESIGNED BY: CMC
DRAWN BY: JAW

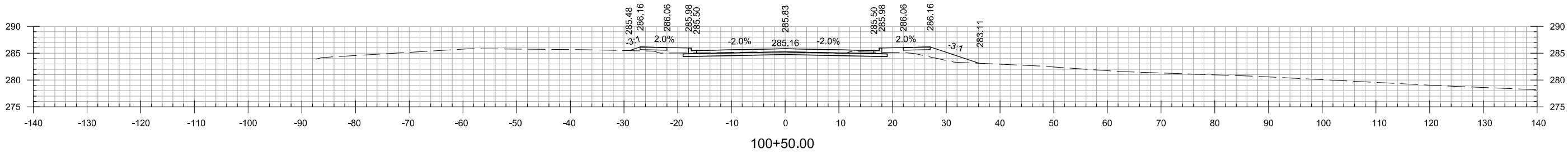
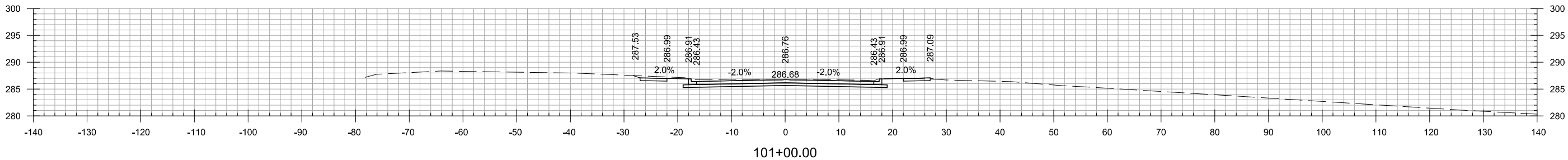
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C-910
SHEET
NUMBER **CX10**

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STA. 101+17.14 END MARYLAND AVE. EXTENSION



MARYLAND AVE.
STA. 100+50 TO STA. 101+75



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PULASKI COUNTY, ARKANSAS

EAST MARYLAND AVENUE
EXTENSION

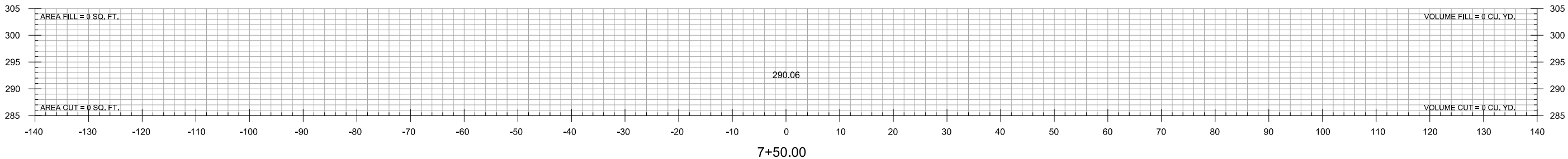
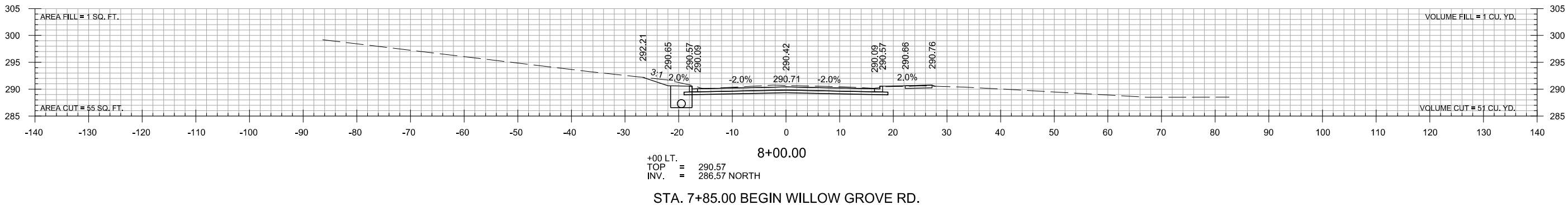
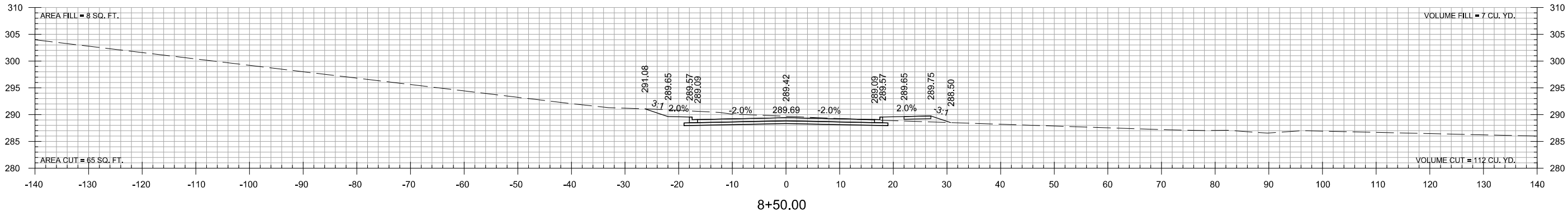
CROSS SECTIONS -
MARYLAND AVE.

JOB NO.: 18017194
DATE: JULY 2020
DESIGNED BY: CMC
DRAWN BY: JAW

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SHEET
NUMBER **CX11**

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WILLOW GROVE RD.
STA. 7+50 TO STA. 8+86



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CITY OF SHERWOOD
PULASKI COUNTY, ARKANSAS

EAST MARYLAND AVENUE
EXTENSION

CROSS SECTIONS -
WILLOW GROVE RD.

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DATE: JULY 2020
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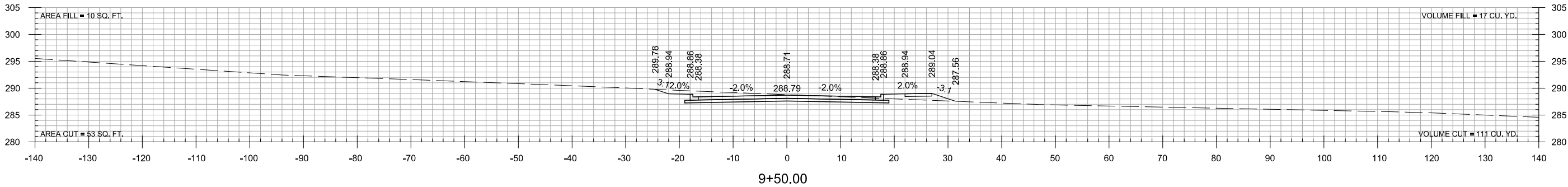
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SHEET
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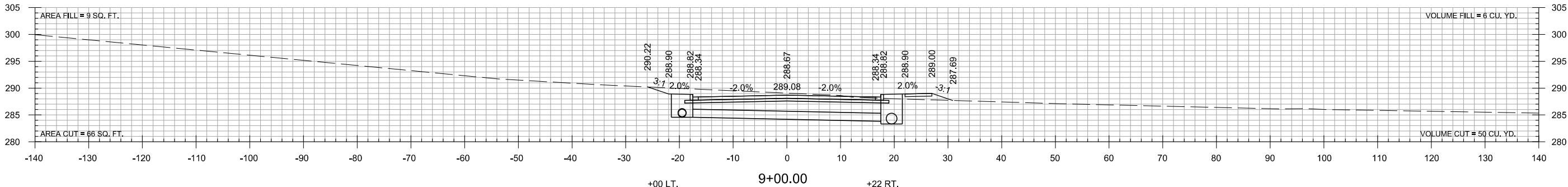
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STA. 9+82.51 END WILLOW GROVE RD.



STA. 9+00 CONSTRUCT
DROP INLET W/ DBL. 4' EXT. ON LT.
H = 4'-3" W/ 18" X 36" R.C. PIPE
CULVERT TO DROP INLET ON RT.
TYPE MO INLET = 4' DIA.
TYPE C DROP INLET = 4'-0" X 2'-6"

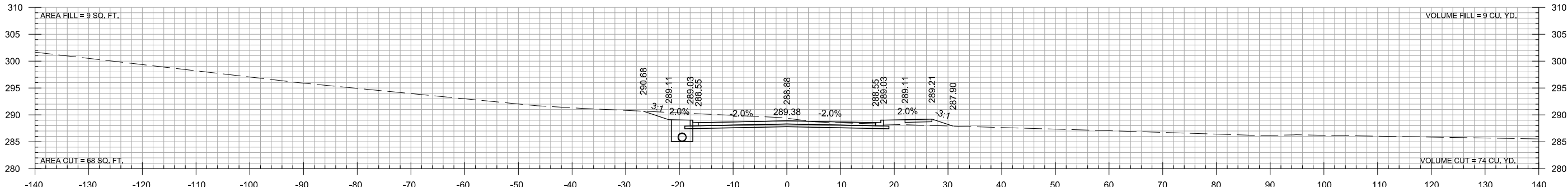
STA. 9+00 CONSTRUCT
DROP INLET W/ DBL. 4' EXT. ON RT.
H = 5'-6" W/ 24" X 83" R.C. PIPE
CULVERT TO DROP INLET ON RT.
TYPE MO INLET = 4' DIA.
TYPE C DROP INLET = 4'-0" X 3'-6"



+00 LT.
TOP = 288.82
INV. = 284.67 SOUTH
INV. = 284.57 EAST

+22 RT.
TOP = 288.82
INV. = 283.82 WEST
INV. = 283.32 NORTH

STA. 8+80 CONSTRUCT
DROP INLET W/ 8' EXT. ON LT.
H = 4'-0" W/ 18" X 17" R.C. PIPE
CULVERT TO DROP INLET ON LT.
TYPE MO INLET = 4' DIA.
TYPE C DROP INLET = 4'-0" X 2'-6"



+00 LT.
TOP = 289.03
INV. = 285.13 NORTH
INV. = 285.03 NORTH

WILLOW GROVE RD.
STA. 9+00 TO STA. 10+00



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REV.	DATE	DESCRIPTION	BY



CITY OF SHERWOOD
PULASKI COUNTY, ARKANSAS

EAST MARYLAND AVENUE
EXTENSION

CROSS SECTIONS -
WILLOW GROVE RD.

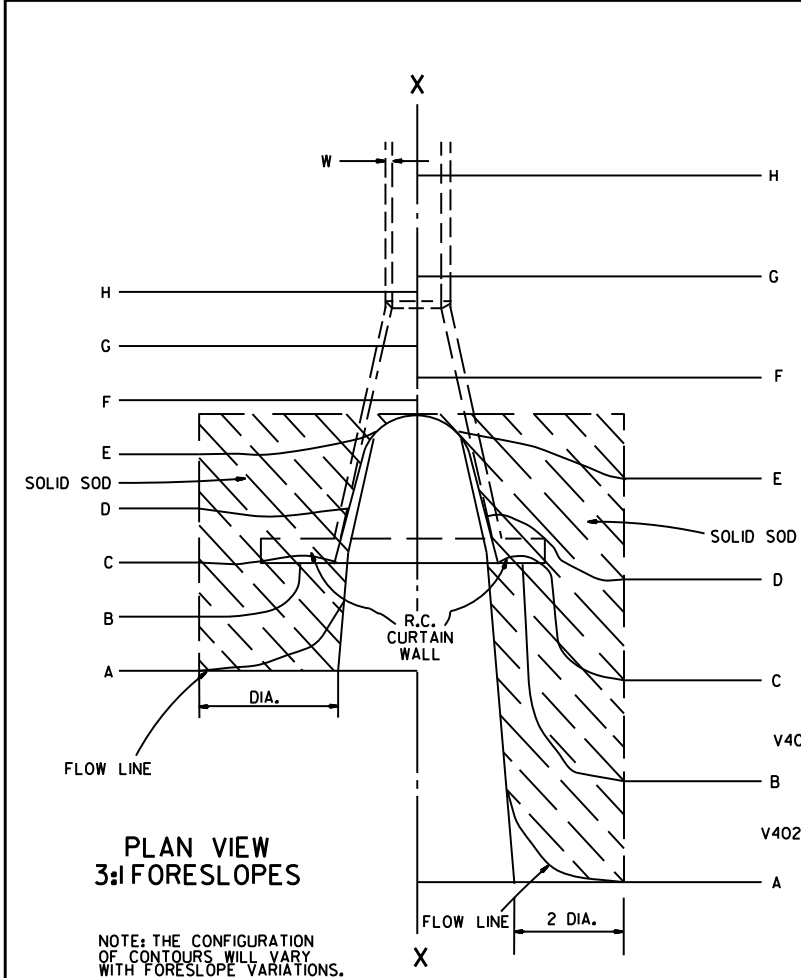
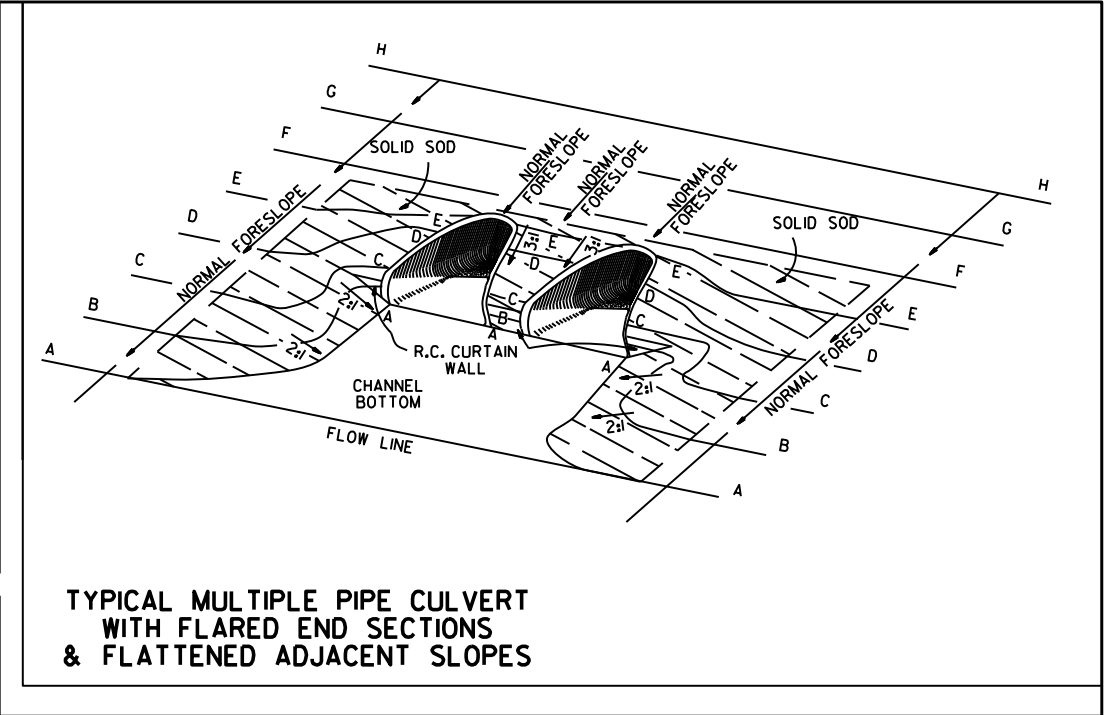
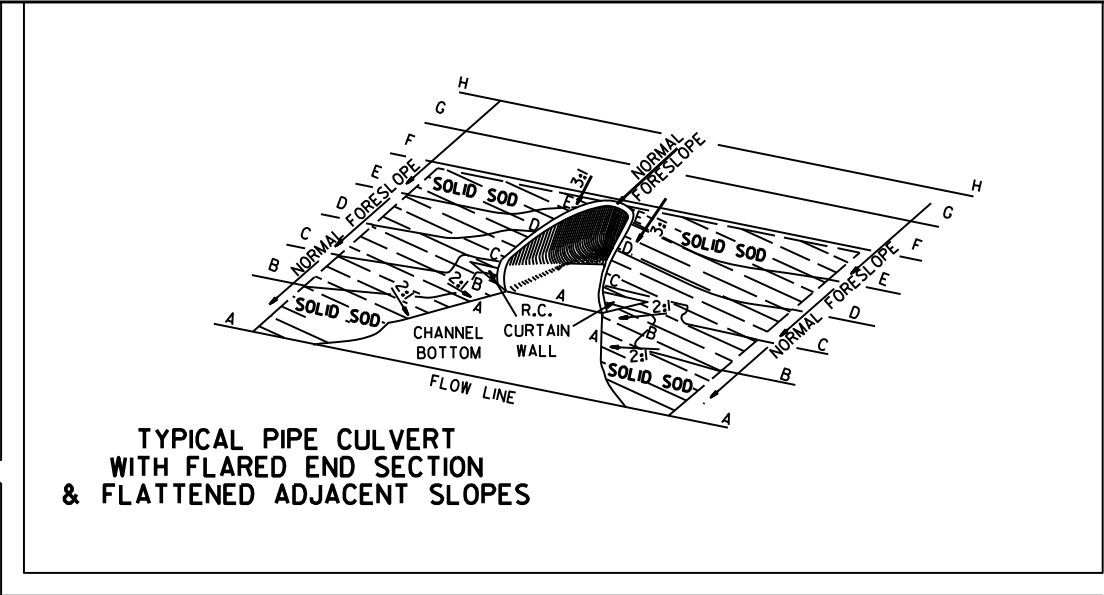
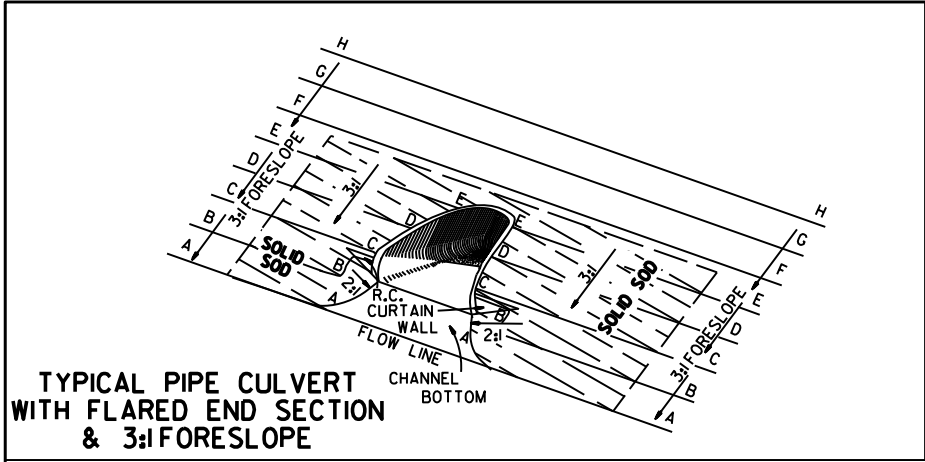
JOB NO.: 18017194
DATE: JULY 2020
DESIGNED BY: CMC
DRAWN BY: JAW

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C-913

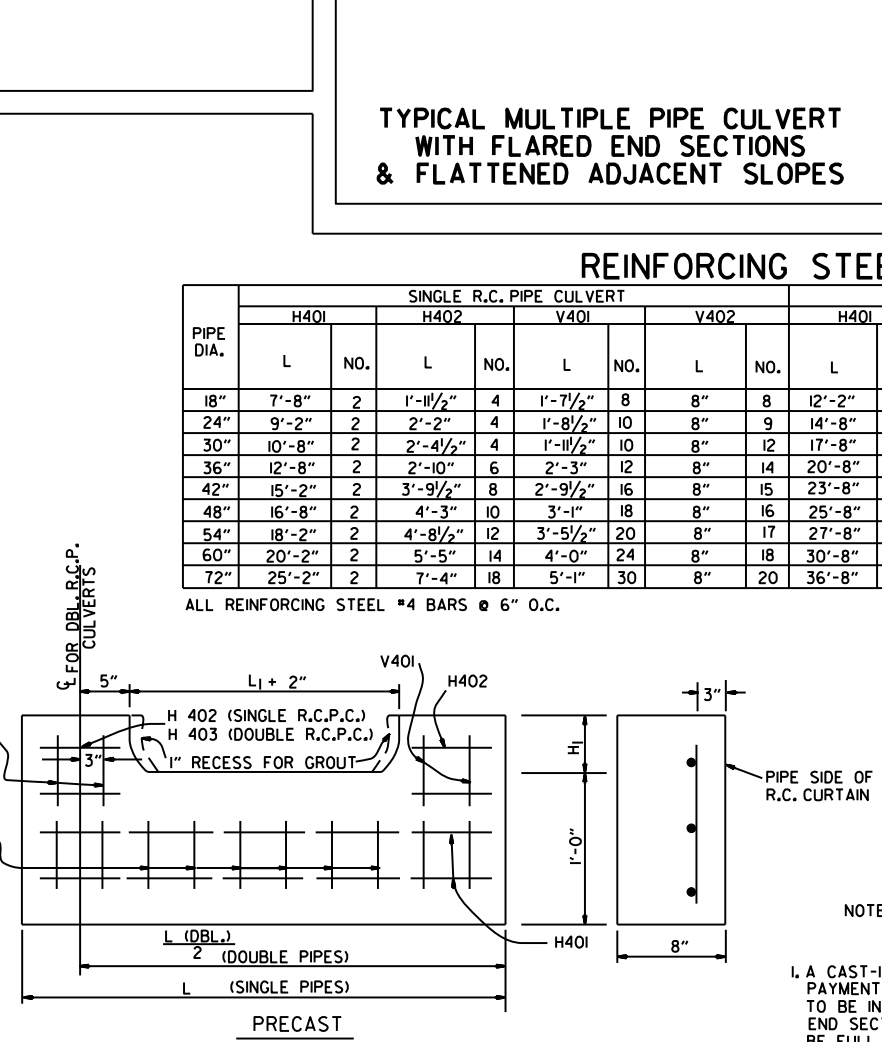
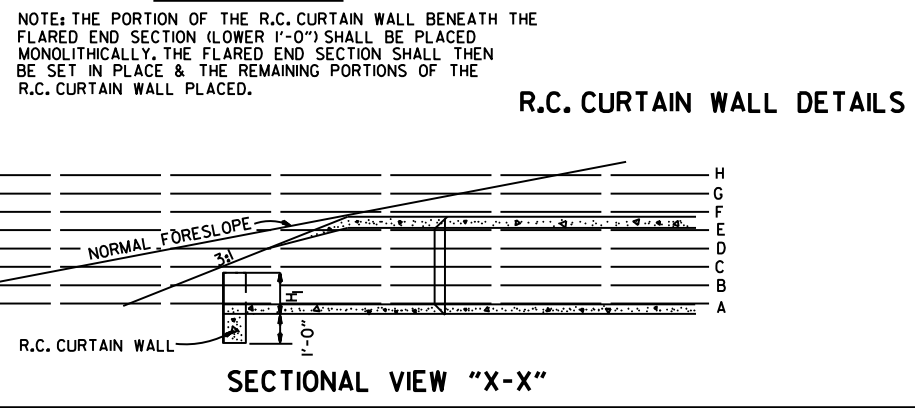
SHEET
NUMBER **CX13**



R.C. CURTAIN WALL DIMENSIONS & QUANTITIES

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

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



4

EL SCHEDULE

DOUBLE R.C. PIPE CULVERT

	H402		H403		V401		V402	
NO.	L	NO.	L	NO.	L	NO.	L	NO.
2	1'-11 $\frac{1}{2}$ "	4	8"	2	1'-7 $\frac{1}{2}$ "	10	8"	14
2	2'-2"	4	8"	2	1'-8 $\frac{1}{2}$ "	12	8"	18
2	2'-4 $\frac{1}{2}$ "	4	8"	2	1'-11 $\frac{1}{2}$ "	14	8"	22
2	2'-10"	6	8"	3	2'-3"	14	8"	28
2	3'-9 $\frac{1}{2}$ "	8	8"	4	2'-9 $\frac{1}{2}$ "	18	8"	30
2	4'-3"	10	8"	5	3'-1"	20	8"	32
2	4'-9"	12	8"	6	3'-5 $\frac{1}{2}$ "	22	8"	34
2	5'-5"	14	8"	7	4'-0"	26	8"	36
2	7'-4"	18	8"	9	5'-1"	33	8"	40

SOLID SODDING

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

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

GENERAL NOTES

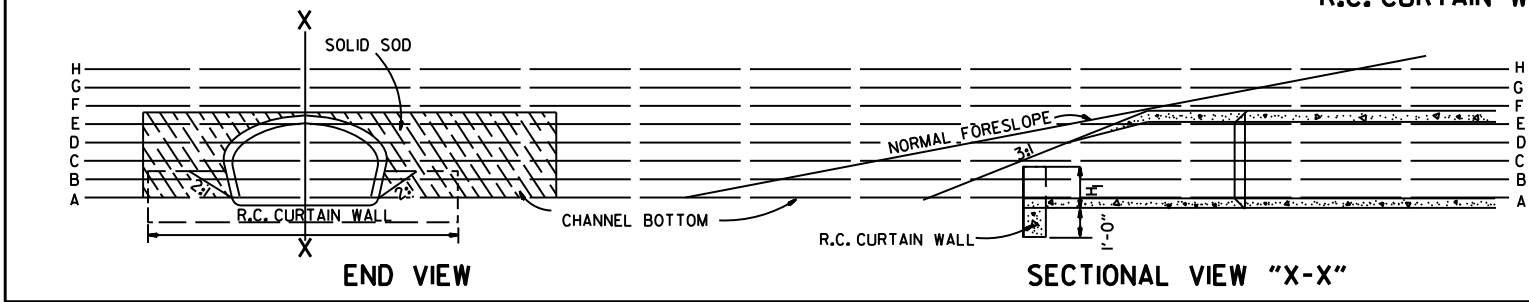
N-PLACE OR PRECAST CURTAIN WALL MAY BE USED.

FOR THE CURTAIN WALL SHALL BE CONSIDERED
CLUDED IN THE UNIT PRICE BID EACH FOR FLARED
TIONS OF THE SEVERAL SIZES, WHICH PRICE SHALL
COMPENSATION FOR FURNISHING ALL MATERIALS
G REINFORCING STEEL AND CONCRETE: FOR FORMS,
ND PLACING; FOR EXCAVATION AND BACKFILL, AND
LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY
LETE THE WORK.

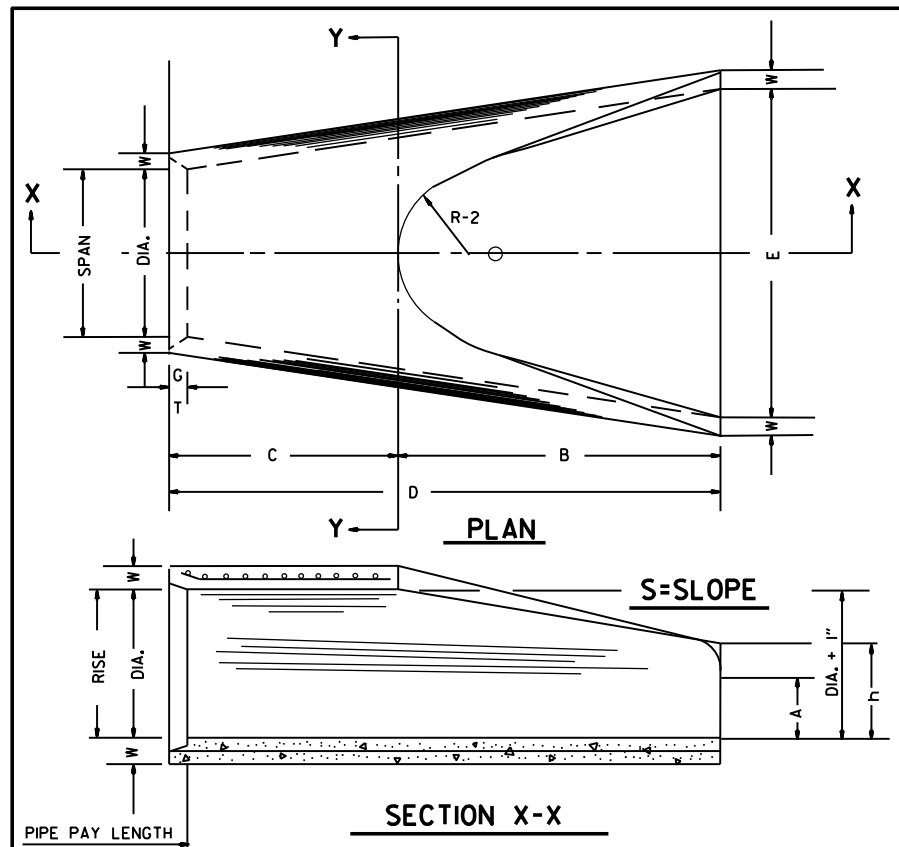
SED EDGES SHALL BE CHAMFERED 3/4".

E FOR CURTAIN WALL SHALL MEET THE REQUIREMENTS FOR
O S CONCRETE AS PROVIDED IN SECTION 802 OF THE
D SPECIFICATIONS OR FOR PAVING CONCRETE AS PROVIDED IN
501 OF THE STANDARD SPECIFICATIONS.

WIRE MESH 3 x 3 W/10 x W/10 MAY BE USED
OF REINFORCING BARS.

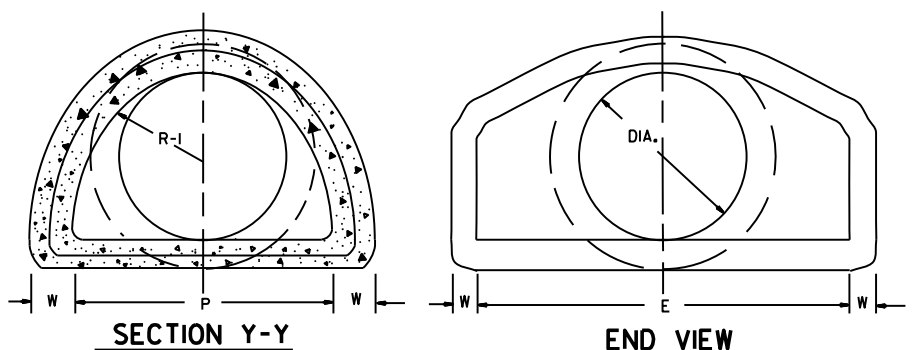


10-18-96	ADDED NOTE TO SOLID SODDING		ARKANSAS STATE HIGHWAY COMMISSION
10-12-95	CORRECTED SPELLING		
11-3-94	ADDED GENERAL NOTE NO. 4		
8-15-91	REV. CURTAIN WALL QUANT. STEEL SCH. & SOLID SOD QUANT.		
5-2-81	ALLOW PRECAST IN 2 OR MORE PIECES CHAMFER EDGES		
5-15-80	ADDED PRECAST WALL & GENERAL NOTES		
10-2-72	REVISED AND REDRAWN		
DATE	REVISION	FILMED	STANDARD DRAWING FES-1



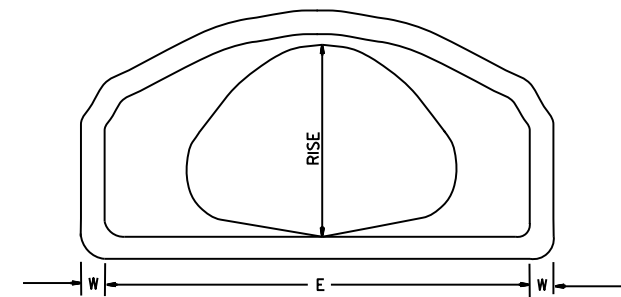
END SECTION
FOR REINFORCED CONCRETE PIPE CULVERTS

TABLE OF DIMENSIONS														
DIA.	WALL	A	B	C	D	E	S	DIA. + 1"	P	R-1	R-2	G-T	WT.	h
18"	2 1/2"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3:1	19"	29"	15 1/2"	12"	2"	1000	1'-0 1/2"
24"	3"	9 1/2"	3'-7 1/2"	2'-6"	6'-1 1/2"	4'-0"	3:1	25"	33 3/8"	16 3/8"	14"	2 1/2"	1600	1'-1 1/2"
30"	3 1/2"	1'-0"	4'-6"	1'-7 3/4"	6'-1 3/4"	5'-0"	3:1	31"	37"	18 1/2"	15"	3 1/4"	1940	1'-4 3/8"
36"	4"	1'-3"	5'-3"	2'-10 3/4"	8'-1 3/4"	6'-0"	3:1	37"	47 1/8"	24 3/8"	20"	3 1/2"	4100	1'-8"
42"	4 1/2"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3:1	43"	53 3/8"	27 1/2"	22"	3 3/2"	5380	2'-2 1/2"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3:1	49"	56 1/2"	28 1/2"	22"	3 1/2"	6550	2'-6"
54"	5 1/2"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3:1	55"	65 1/2"	33 3/8"	24"	4"	8750	2'-10 1/2"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3:1	61"	72 1/2"	36 1/8"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3:1	73"	77 3/8"	38 3/8"	24"	5"	13250	4'-6"

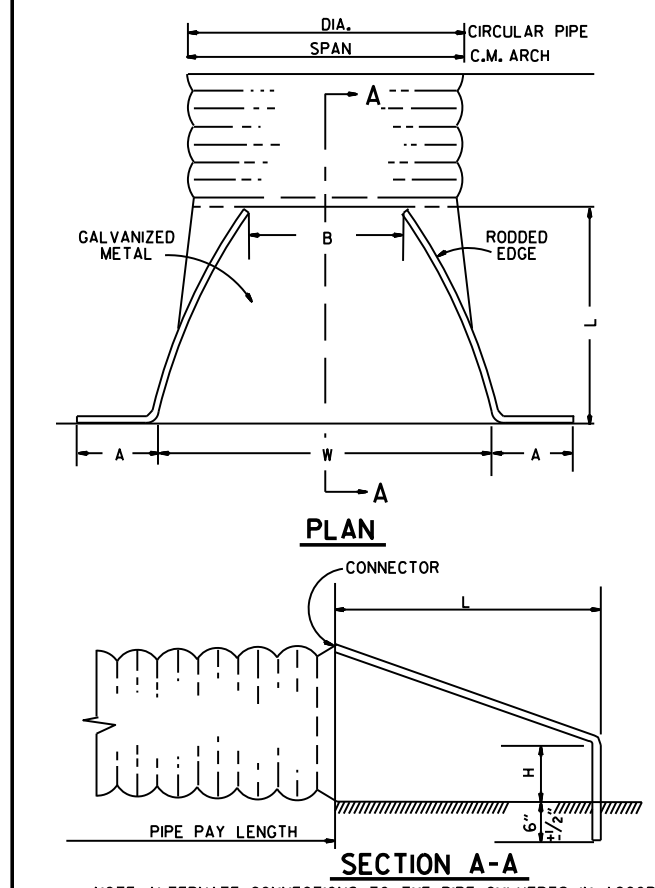


ARCH PIPE														
EQUIV. DIA.	• SPAN		• RISE		W	A	B	C	D	E	P	R2	G-T	S
	AASHTO M 206	AHD NOMINAL	AASHTO M 206	AHD NOMINAL										
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1 1/2"	2 1/2:1
18	22	22	13 1/2	14	2 1/2"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32 3/8"	13"	2 1/2"	2 1/2:1
21	26	26	15 1/2	16	2 3/4"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34 3/8"	14"	2 1/2"	2 1/2:1
24	28 1/2	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36 1/8"	15"	2 1/2"	2 1/2:1
30	36 1/4	36	22 1/2	23	3 1/2"	10"	3'-1"	3'-0 1/2"	6'-1 1/2"	6'-0"	47 1/8"	20"	3"	2 1/2:1
36	43 3/4	44	26 3/8	27	4"	10 1/2"	4'-0"	2'-1 1/2"	6'-1 1/2"	6'-6"	54 3/8"	22"	3 1/2"	2 1/2:1
42	51 1/8	51	31 1/8	31	4 1/2"	11 1/2"	4'-7"	1'-10 1/4"	6'-5 1/4"	7'-2"	59 1/2"	23"	3 3/4"	2 1/2:1
48	58 1/2	59	36	36	5"	1'-3"	5'-3"	2'-10 3/4"	8'-1 3/4"	7'-10"	70 3/8"	24"	4 1/4"	2 1/2:1
54	65	65	40	40	5 1/2"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72 1/8"	24"	4 3/4"	2 1/4:1
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77 3/8"	24"	5"	2 1/4:1

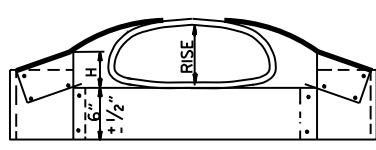
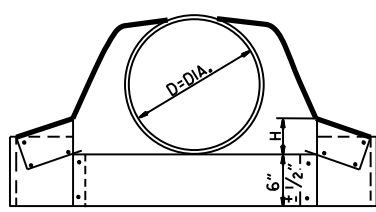
• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.



END VIEW
CONCRETE ARCH PIPE

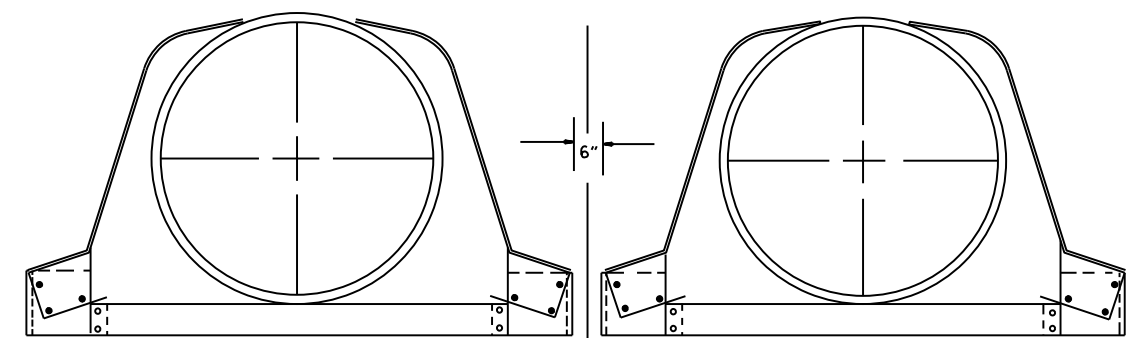
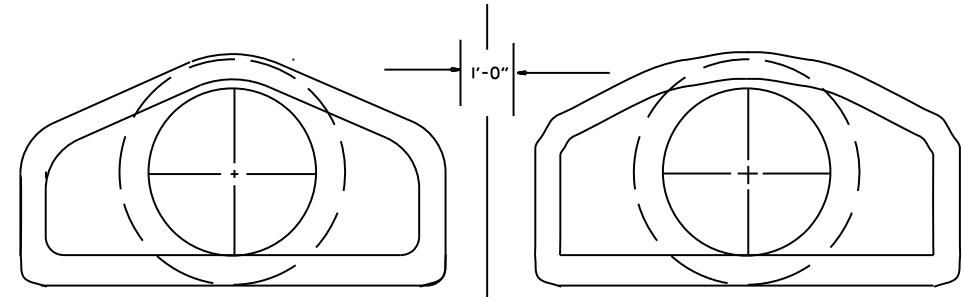


END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



CIRCULAR PIPE									
D. DIA.	GAUGE	A 1" ±	B. MAX.	H 1" ±	L 1 1/2" ±	W 2" ±	S		
12	16	6	6	6	21	24	2 1/2:1		
15	16	7	8	6	26	30	2 1/2:1		
18	16	8	10	6	31	36	2 1/2:1		
21	16	9	12	6	36	42	2 1/2:1		
24	16	10	13	6	41	48	2 1/2:1		
30	14	12	16	8	51	60	2 1/2:1		
36	14	14	19	9	60	72	2 1/2:1		
42	12	16	22	11	69	84	2 1/2:1		
48	12	18	27	12	78	90	2 1/2:1		
54	12	18	30	12	84	102	2:1		
60	12	18	33	12	87	114	1 3/4:1		
66	12	18	36	12	87	120	1 1/2:1		
72	12	18	39	12	87	126	1 1/3:1		

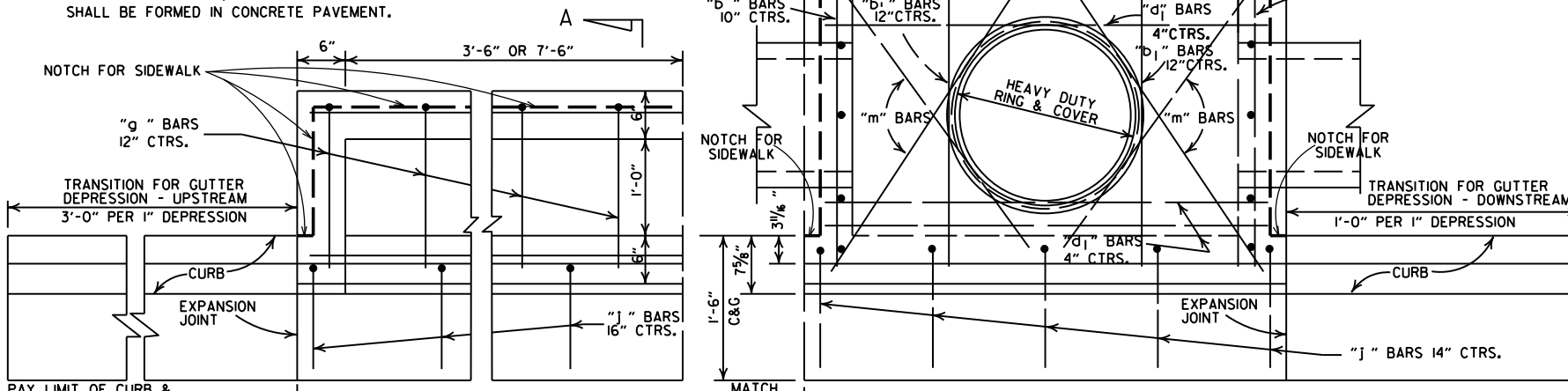
C.M. ARCH PIPE									
EQUIV. DIA.	SPAN	RISE	A 1" ±	B. MAX.	H 1" ±	L 1 1/2" ±	W 2" ±	S	GAUGE
15"	17	13	7	9	6	19	30	2 1/2:1	16
18"	21	15	7	10	6	23	36	2 1/2:1	16
21"	24	18	8	12	6	28	42	2 1/2:1	16
24"	28	20	9	14	6	32	48	2 1/2:1	16
30"	35	24	10	16	6	39	60	2 1/2:1	14
36"	42	29	12	18	8	46	75	2 1/2:1	14
42"	49	33	13	21	9	53	85	2 1/2:1	12
48"	57	38	18	26	12	63	90	2 1/2:1	12
54"	64	43	18	30	12	70	102	2 1/4:1	12
60"	71	47	18	33	12	77	114	2 1/4:1	12



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

NOTE: WHEN AN INLET IS PLACED ADJACENT TO CONCRETE PAVEMENT, THE GUTTER DEPRESSION SHALL BE FORMED IN CONCRETE PAVEMENT.

PLAN

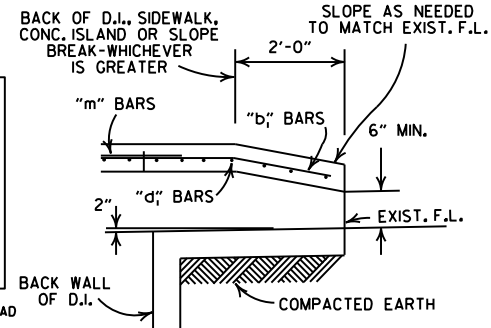
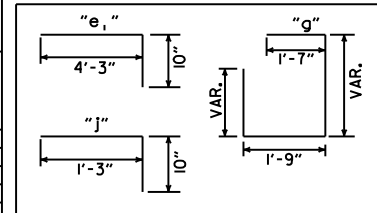


4'-0" LENGTH DROP INLET						DROP INLET EXTENSION			
PIPE SIZE	MIN. WIDTH	HEIGHT 5'-0"		PLUS OR MINUS PER LIN. FT. OF HEIGHT		4'-0"		8'-0"	
		CLASS A CONC.	REINF. STEEL	CLASS A CONC.	REINF. STEEL	CLASS A CONC.	REINF. STEEL	CLASS A CONC.	REINF. STEEL
18"	2'-6"	1.77	156	0.28	22	0.58	38	0.87	72
24"	2'-6"	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				
						DEDUCT FROM QUANTITY COMPUTED FOR EACH EXTENSION ADDED.			
						0.04	3		

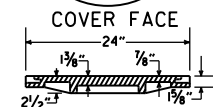
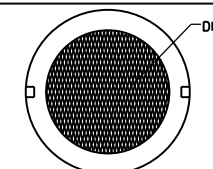
NOTE: QUANTITIES ARE APPROXIMATE AND ARE SHOWN FOR BIDDER INFORMATION ONLY.

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

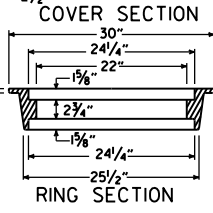
BAR DIAGRAM



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).



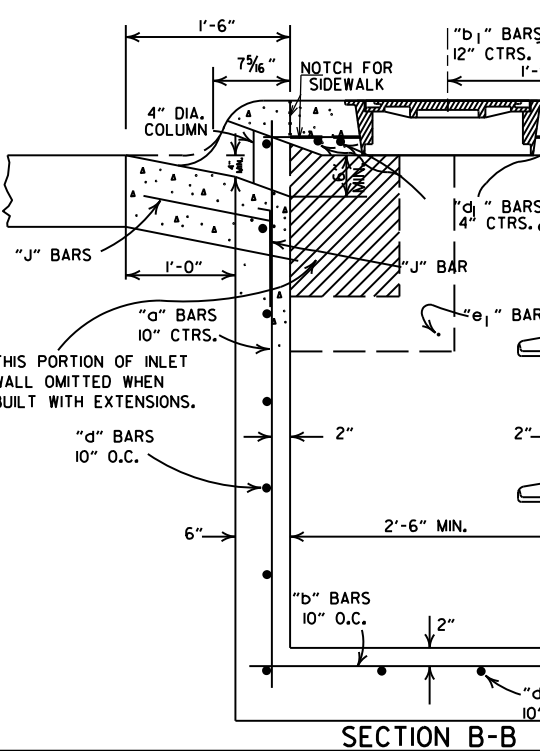
APPROXIMATE TOTAL WEIGHT = 333 LBS.



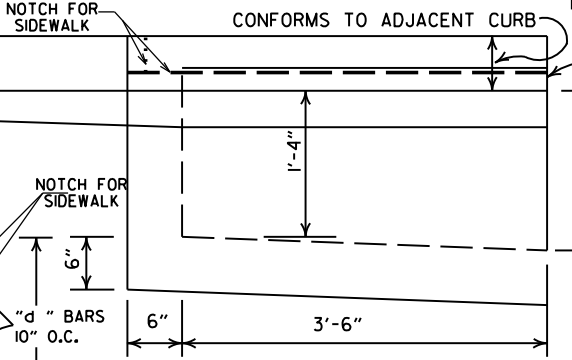
HEAVY DUTY RING & COVER

- GENERAL NOTES:
- ALL EXPOSED CORNERS TO HAVE 3/4" CHAMFER.
 - STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" HIGH AND OVER OF AS APPROVED BY THE ENGINEER.
 - ALL REIN. BARS SHALL BE #4 AND HAVE 1/2" COVER.
 - DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
 - THIS DROP INLET MAY BE CONSTRUCTED ON NEW OR EXISTING R.C. BOX CULVERT AS SHOWN ON F.P.C.-9.
 - WHEN PLANS CALL FOR DROP INLET OVER 10'-0" HIGH, FLOOR AND WALLS SHALL BE CONSTRUCTED AS SHOWN FOR TYPE "RM" DROP INLET (FPC-9D).
 - HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.
 - DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
 - 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.
 - 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.
 - HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
 - 4"x2" NOTCH SHALL BE FORMED IN ALL DROP INLETS TO SUPPORT SIDEWALK CONSTRUCTION. REFER TO DETAIL OF NOTCH FOR SIDEWALKS.
 - 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.

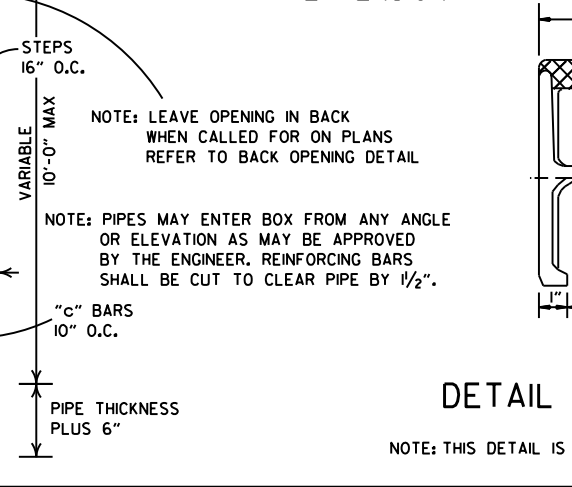
DETAIL OF NOTCH FOR SIDEWALKS



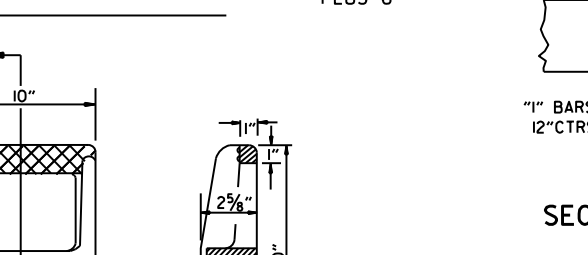
8' EXTENSION



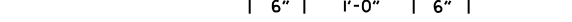
4' EXTENSION



ELEVATION



SECTION A-A



PLAN
DETAIL OF STEP FOR DROP INLET

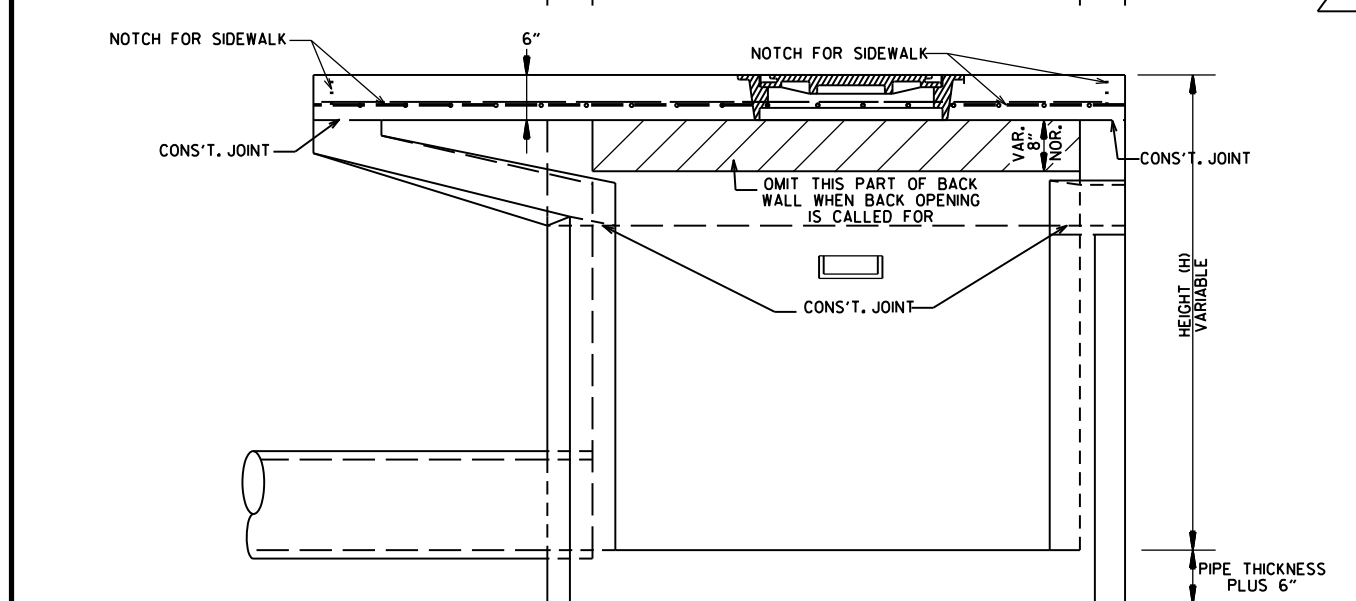
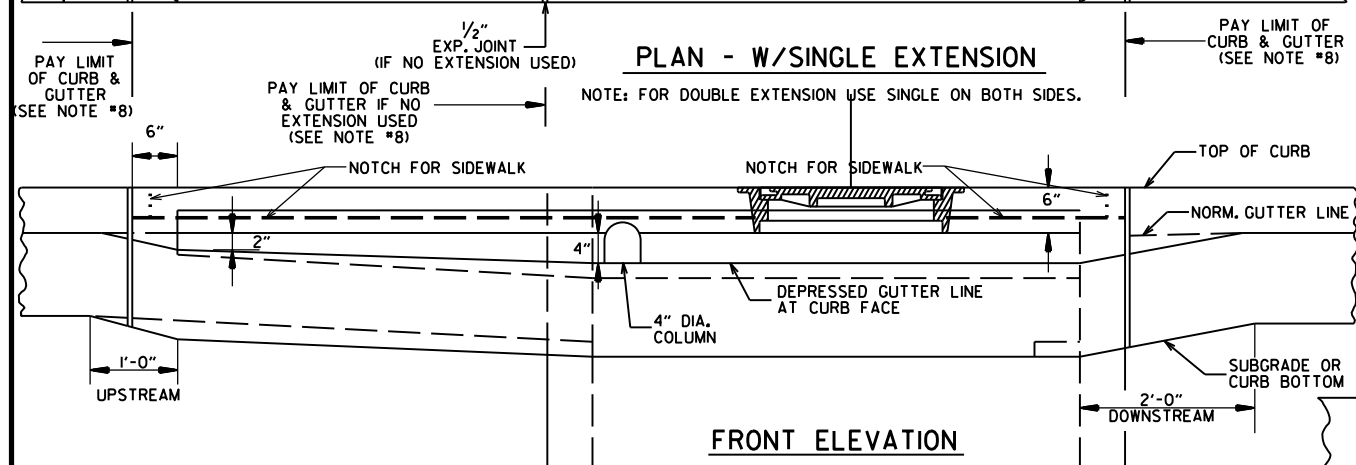
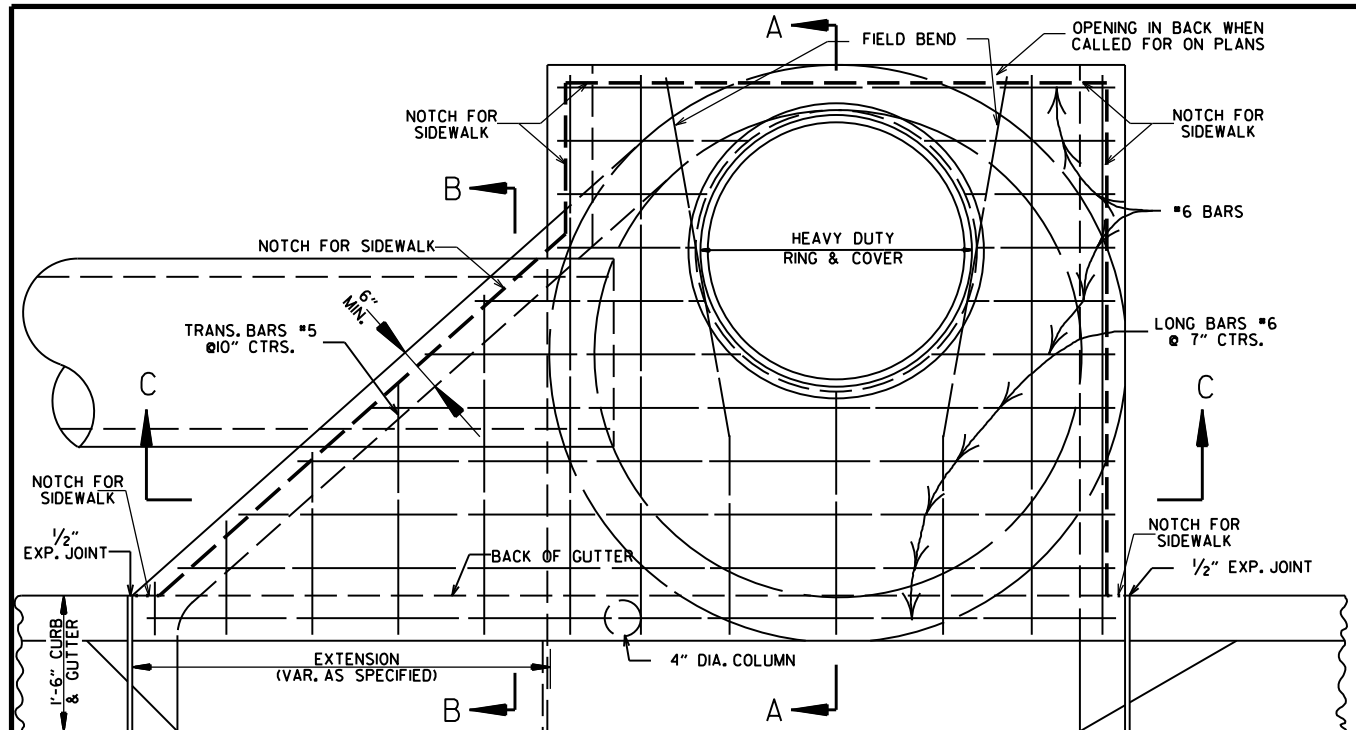
APPROX. WEIGHT = 11 LBS. (CAST IRON)
NOTE: THIS DETAIL IS TYPICAL. OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

DATE	REV.	DESCRIPTION	DATE	REV.	DESCRIPTION
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			

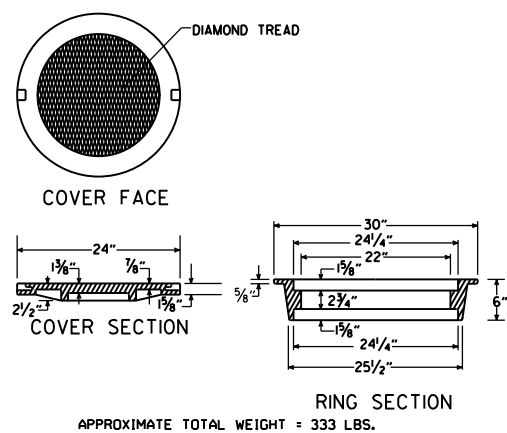
ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLETS
(TYPE C)

STANDARD DRAWING FPC-9E

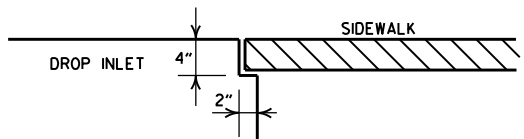


SECTION C-C

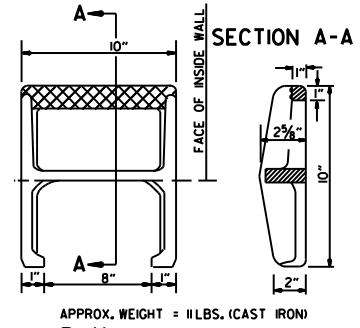


HEAVY DUTY RING & COVER

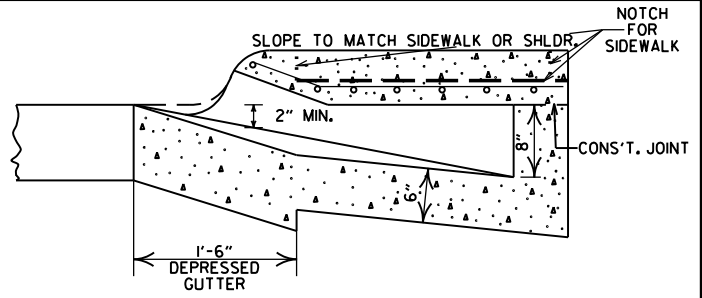
1. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
2. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
3. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.



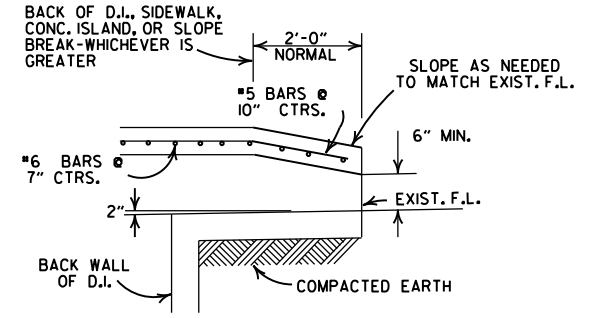
DETAIL OF NOTCH FOR SIDEWALKS



DETAIL OF STEP FOR DROP INLET



SECTION B-B



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 $\frac{3}{4}$ " 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. $\frac{1}{2}$ " 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.

LEAVE OPENING IN BACK WHEN CALLED FOR ON PLANS REFER TO BACK OPENING DETAIL

MINIMUM WALL THICKNESS			
DIA. OF D.I.	DIA. OF OUTLET PIPE	CAST IN PLACE	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"

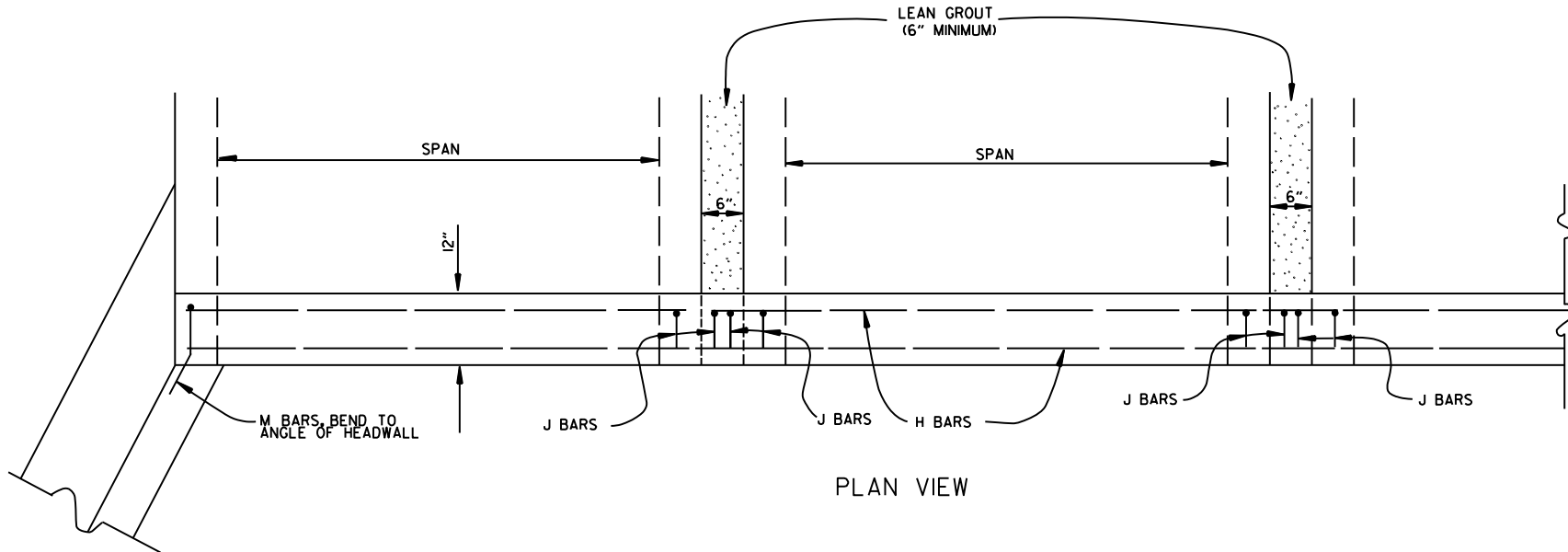
SECTION A-A

8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13	
11-12-00	REVISED HEAVY DUTY RING & COVER	
5-13-99	ADDED NOTCH DETAIL FOR SIDEWALKS	
7-02-98	REP. NOTE 8, REV. 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 11, ADJ. OPENING DIMENSION	
10-12-95	CORRECTED #6 BAR SPACING	
7-20-95	CORRECTED DIAMETER OF D.I. IN BOX	
2-2-95	TYPE C TO MO (OPEN BACK DETAIL)	
11-1-94	REV. BACK OPEN DETAIL & NOTE	11-1-94
8-15-91	REVISED GENERAL NOTES	8-15-91
8-15-91	REVISED NOTES 11, 12 & ADDED BK. OPEN DETAIL	8-15-91
11-30-89	ADDED NOTE NO. 12	11-30-89
4-24-89	ADDED NOTE & MINIMUM WALL THICKNESS	514-24-89
7-15-88	ADDED EXTEND NOTE TO SECTION A-A	639-7-15-88
11-14-87	MODIFIED WALL THICKNESS	783-11-14-87
15-12-87	ISSUED	2-6-12-87
DATE	REVISIONS	DATE FILMED

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLET (TYPE MO)

STANDARD DRAWING FPC-9M



BAR LIST				
BAR	NO.	SIZE	LENGTH	BAR BENDING DIAGRAM
H	2	#4	•	
I	•	#4	•	
J	•	#4	1'-5"	
L	•	#4	3'-2"	
M	•	#4	1'-8"	

• NOTE: LENGTH AND NUMBER OF BARS VARIES WITH SIZE OF CULVERT

GENERAL NOTES

WINGS, CURTAIN WALLS AND APRONS SHALL BE TIED TO THE PRECAST CULVERT SECTION BY CASTING BARS IN CULVERT END SECTIONS AS SHOWN OR BY DOWELING AND GROUTING. J BARS AND M BARS SHALL BE EMBEDDED A MINIMUM OF 10" IN PRECAST BOX.

WINGS, FOOTINGS, APRONS AND CURTAIN WALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE APPLICABLE WING DRAWING. STEEL AND CONCRETE QUANTITIES WILL BE ADJUSTED TO FIT THE IN-PLACE WIDTH & HEIGHT OF THE PRECAST CONCRETE BOX CULVERTS.

ALL EXPOSED CORNERS TO HAVE 3/4" CHAMFERS.

WING WALLS AND FOOTINGS MAY BE ADJUSTED IN THE FIELD AS DIRECTED BY THE ENGINEER.

ALL CONCRETE, REINFORCING STEEL, LEAN GROUT, MEMBRANE WATERPROOFING, DRAINAGE FILL MATERIAL, GEOTEXTILE FILTER FABRIC, LABOR, MATERIALS AND EQUIPMENT REQUIRED FOR INSTALLING PRECAST BOX CULVERTS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR THE ITEMS AS SPECIFIED IN SECTION 607 OF THE STANDARD SPECIFICATIONS.

LEAN GROUT SHALL CONSIST OF A SAND CEMENT MIXTURE MEETING THE FOLLOWING REQUIREMENTS: PORTLAND CEMENT SHALL BE TYPE I AND SHALL MEET THE REQUIREMENTS OF AASHTO M 85. SAND SHALL MEET THE REQUIREMENTS OF FINE AGGREGATE AS SPECIFIED IN SECTION 802.02 OF THE STANDARD SPECIFICATIONS. THE SAND CEMENT MIXTURE SHALL CONSIST OF NOT LESS THAN 1.5 SACKS OF PORTLAND CEMENT PER TON OF MATERIAL MIXTURE. THE MIXTURE SHALL CONTAIN SUFFICIENT WATER TO HYDRATE THE CEMENTS. THE SAND CEMENT MIXTURE SHALL BE PLACED IN MAXIMUM 8 INCH THICK LIFTS, LOOSE MEASURE, AND THOROUGHLY RODDED AND TAMPED AROUND BOX TO THOROUGHLY FILL ALL VOIDS.

MEMBRANE WATERPROOFING CONFORMING TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS SHALL BE APPLIED TO ALL BOX CULVERT JOINTS.

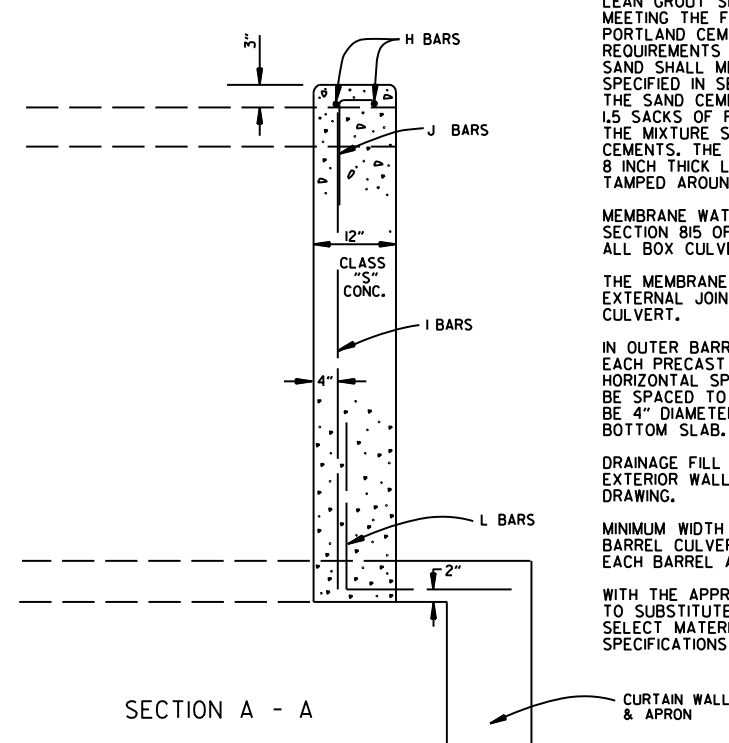
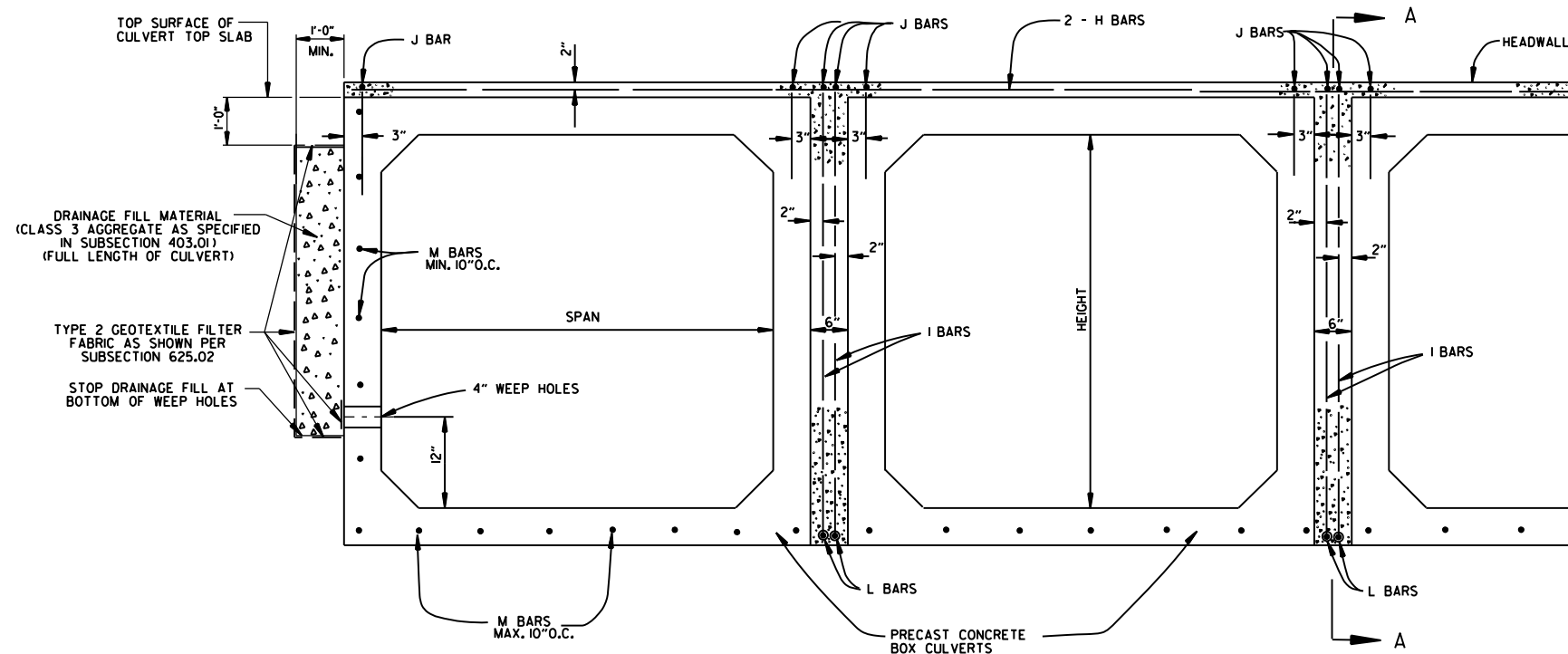
THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EXTERNAL JOINT AND SHALL EXTEND 1 FOOT DOWN THE SIDES OF THE CULVERT.

IN OUTER BARRELS, ONE WEEP HOLE IS REQUIRED IN EXTERIOR WALLS OF EACH PRECAST CULVERT SECTION. WEEP HOLES SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" IN THE ASSEMBLED CULVERT AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB.

DRAINAGE FILL MATERIAL WITH GEOTEXTILE FABRIC IS REQUIRED AT THE EXTERIOR WALLS OF THE ASSEMBLED CULVERT, SEE DETAILS ON THIS DRAWING.

MINIMUM WIDTH SHALL BE 12" (6" ON EACH SIDE OF JOINT). ON MULTIPLE BARREL CULVERTS, MEMBRANE WATERPROOFING SHALL BE APPLIED TO EACH BARREL AS DESCRIBED ABOVE.

WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, FLOWABLE SELECT MATERIAL CONFORMING TO SECTION 206 OF THE STANDARD SPECIFICATIONS IN LIEU OF LEAN GROUT.



1-28-15	REVISED GEOTEXTILE FABRIC PLACEMENT	
12-15-11	ADDED NOTE & DTLs FOR WEEP HOLE AND DRAINAGE FILL	
10-15-09	ADDED GENERAL NOTE	
11-10-05	REVISED SPACING OF "M" BARS	
4-10-03	REVISED GENERAL NOTES	
10-18-96	CORRECTED AASHTO REF.	
10-1-92	ADDED NOTE FOR MEMBRANE WATERPROOFING	
8-15-91	ADDED NOTE FOR LEAN GROUT	
11- 8-90	REVISED FOR 1991 SPECS	
11-30-89	ISSUED; JABE	
DATE	REVISION	DATE FILMED

ARKANSAS STATE HIGHWAY COMMISSION

PRECAST CONCRETE BOX CULVERTS

STANDARD DRAWING PBC-1

REINFORCED CONCRETE
ARCH PIPE DIMENSIONS

EQUIV. DIA.	SPAN		RISE	
	AASHTO M 206	ARDOT NOMINAL	AASHTO M 206	ARDOT NOMINAL
INCHES	INCHES			
15	18	18	11	11
18	22	22	13½	14
21	26	26	15½	16
24	28½	29	18	18
30	36¼	36	22½	23
36	43¾	44	26¾	27
42	51½	51	31½	31
48	58½	59	36	36
54	65	65	40	40
60	73	73	45	45
72	88	88	54	54
84	102	102	62	62
90	115	115	72	72
96	122	122	77½	77
108	138	138	87½	87
120	154	154	96¾	97
132	168¾	169	106½	107

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

REINFORCED CONCRETE
HORIZONTAL ELLIPTICAL
PIPE DIMENSIONS

EQUIV. DIA.	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)(ii).

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

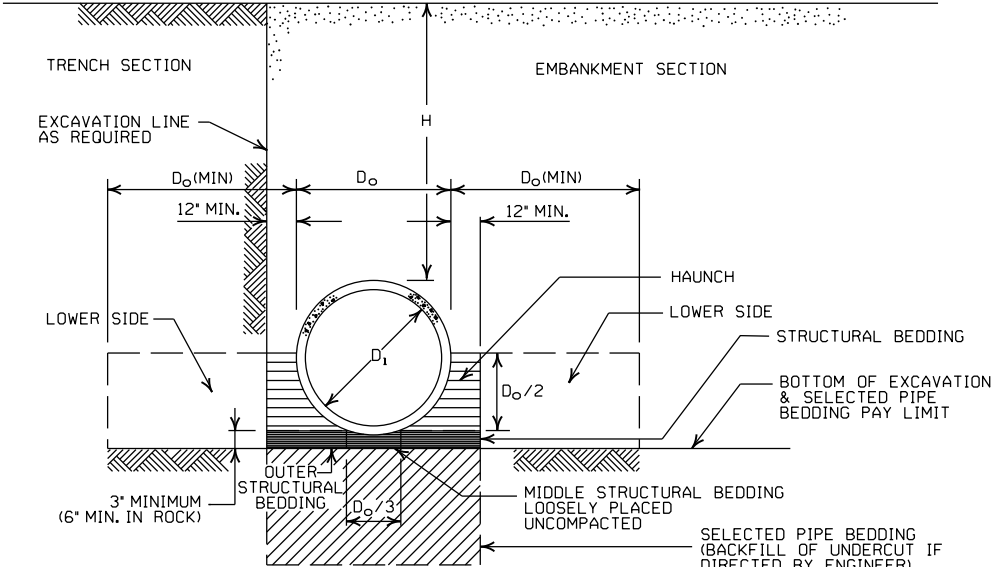
- LEGEND -

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

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

* SM-3 WILL NOT BE ALLOWED.

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



EMBANKMENT AND TRENCH INSTALLATIONS

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

GENERAL NOTES

1. CONCRETE PIPE CULVERT CONSTRUCTION SHALL CONFORM TO ARKANSAS DEPARTMENT OF TRANSPORTATION 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.

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 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.

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.

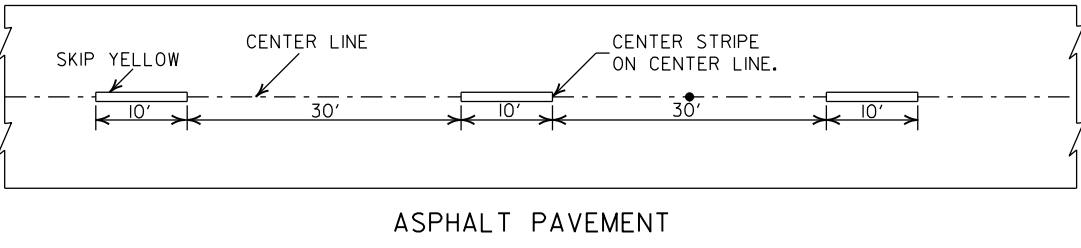
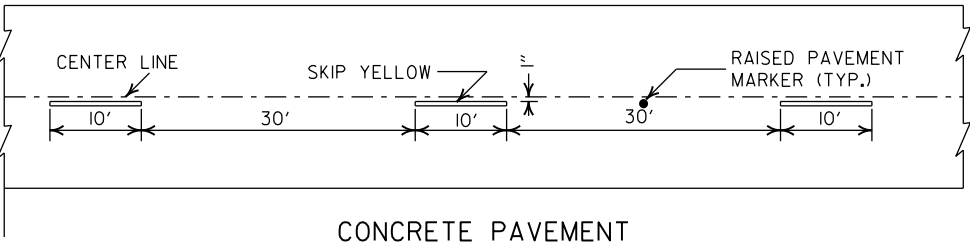
2-27-14	REVISED GENERAL NOTE 1.	
12-15-11	REVISED FOR LRFD DESIGN SPECIFICATIONS	
5-18-00	REVISED TYPE 3 BEDDING & ADDED NOTE	
3-30-00	REVISED INSTALLATIONS	
11-06-97	ISSUED	
DATE	REVISION	DATE FILMED

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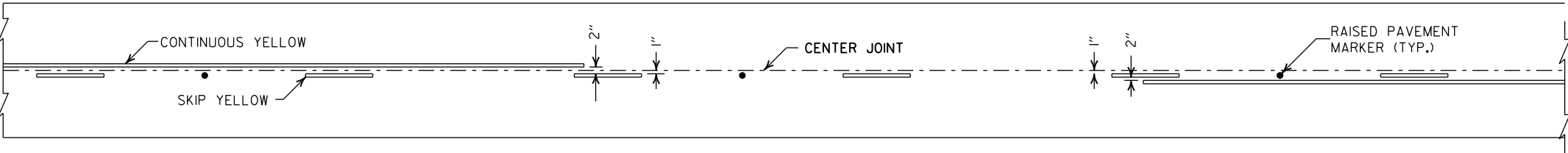
CONCRETE PIPE CULVERT
FILL HEIGHTS & BEDDING

STANDARD DRAWING PCC-1

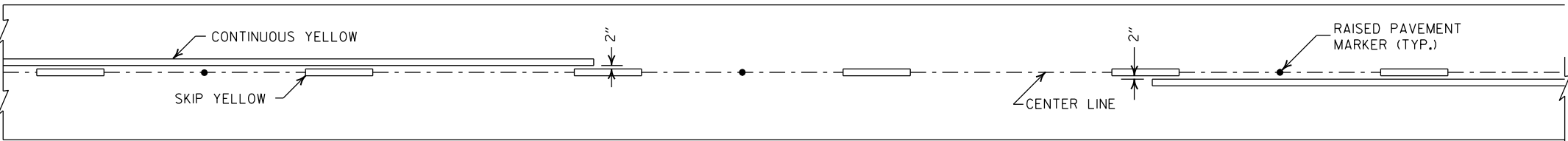




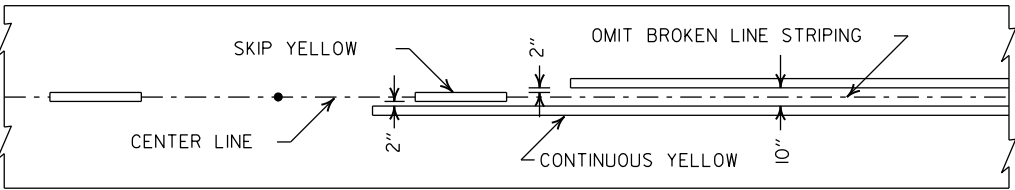
BROKEN LINE STRIPING



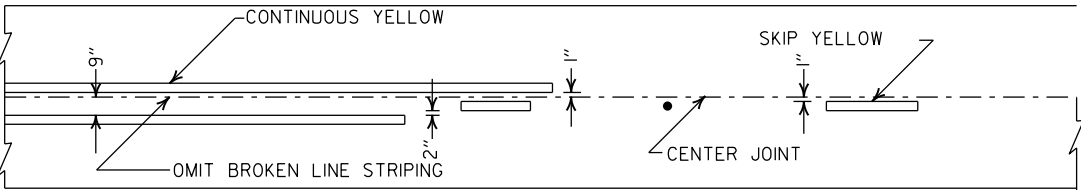
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

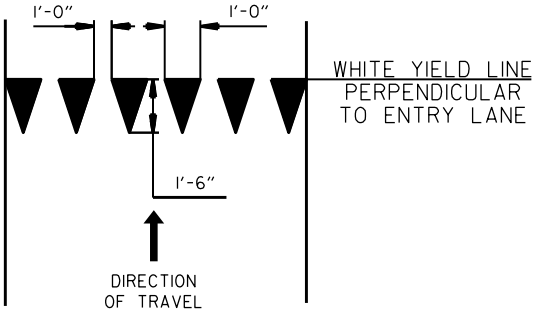


ASPHALT PAVEMENT

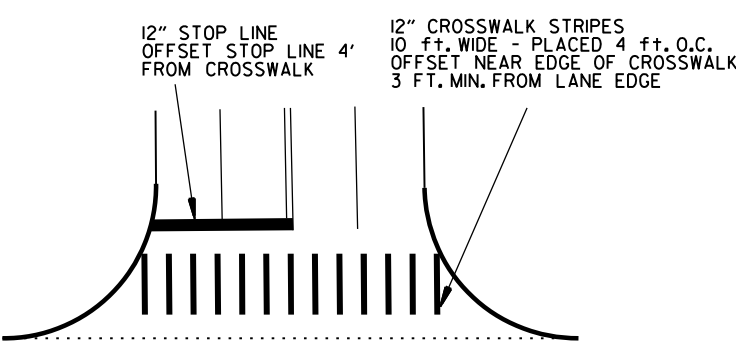


CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

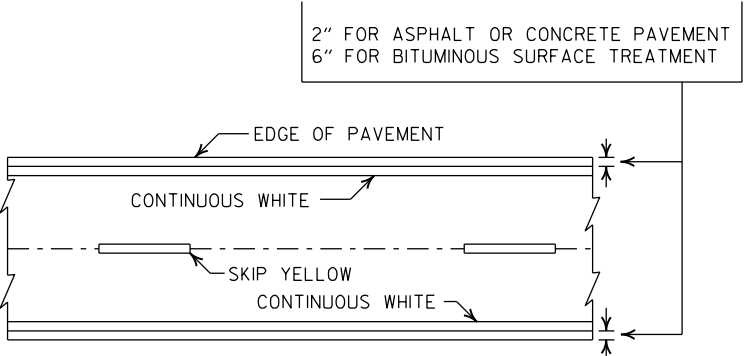


YIELD LINE DETAIL

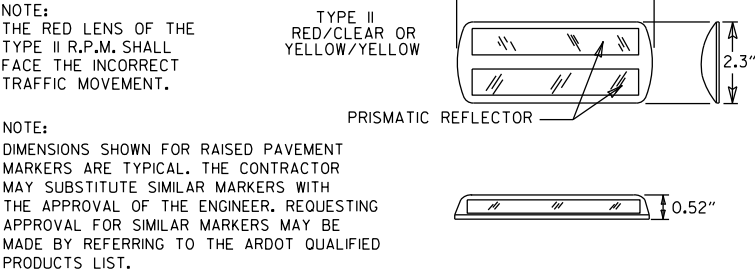


CROSSWALK AND STOP LINE DETAILS

- NOTES:
1. REFER TO THE STRIPING DETAILS FOR PAVEMENT MARKING LINE WIDTHS.
 2. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
 3. RAISED PAVEMENT MARKERS SHALL BE PLACED ON AN 80 FEET SPACING UNLESS OTHERWISE SHOWN IN THE PLANS.



PAVEMENT EDGE LINE MARKING



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

2-27-20	REVISED STOP LINE DETAILS	
6-1-17	ADDED YIELD LINE DETAIL	
5-12-16	REVISED LINE WIDTHS, SPACING, & NOTES	
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED 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
DATE	REVISION	FILMED

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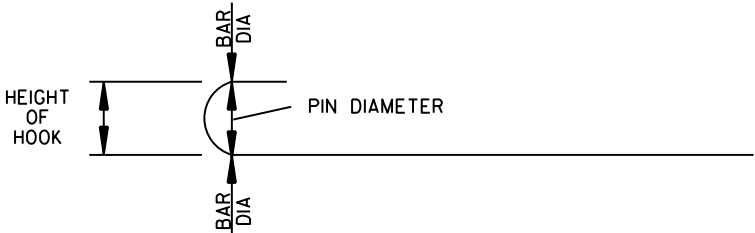
PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

STEEL FABRICATION: REINFORCING STEEL FABRICATION SHALL CONFORM TO THE DIMENSIONS LISTED IN THE TABLE BELOW:

BAR SIZE	PIN DIAMETER	HOOK EXTENSION "K"
3	2¼"	4"
4	3 "	4½"
5	3¾"	5"
6	4½"	6"
7	5¼"	7"
8	6"	8"

IF THE OVERALL HEIGHT OF THE HOOK (SEE DIAGRAM BELOW) FOR A "b", "b1", "b2" or "b3" BENT BAR IS GREATER THAN THE CORRESPONDING TOP OR BOTTOM SLAB THICKNESS, LESS 2¾ INCHES, EACH BENT BAR SHALL BE REPLACED WITH ONE HOOKED BAR AND ONE STRAIGHT BAR, USING LENGTHS AS SHOWN IN THE TABLE BELOW. THE TWO BARS SHALL BE THE SAME DIAMETER AS, AND PLACED AT THE SAME SPACING AS, THE "b", "b1", "b2" OR "b3" BENT BARS THEY REPLACE.



OVERALL HEIGHT OF HOOKED BAR DIAGRAM

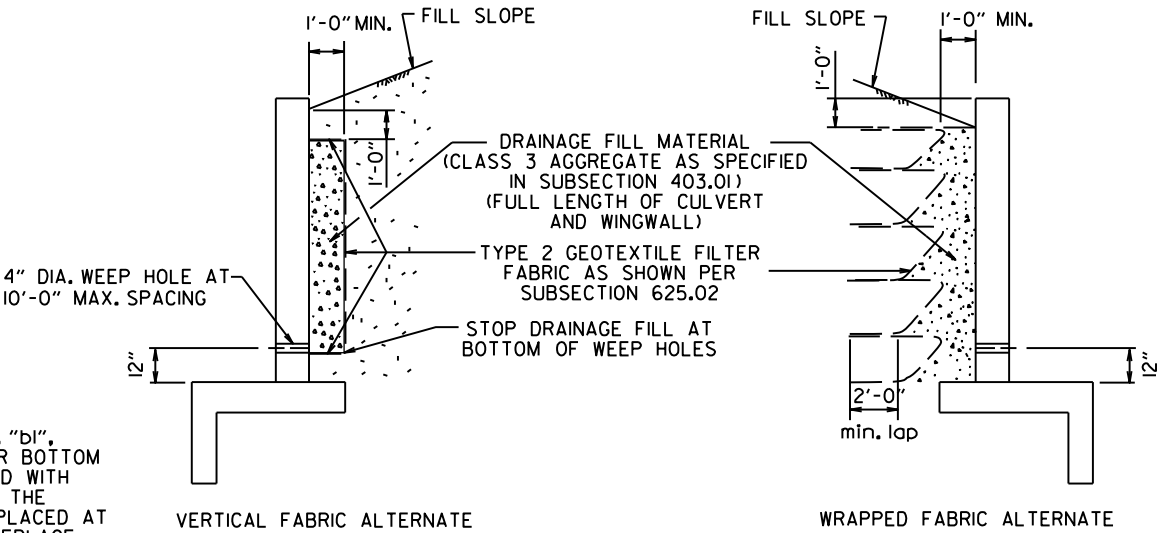
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

FOR SKEWED CULVERTS, THE REPLACEMENT STRAIGHT BAR MAY HAVE TO BE CUT IN FIELD TO FIT.

REPLACEMENT BAR LENGTHS TABLE

BAR SIZE: "b", "b1", "b2" OR "b3"	LENGTH OF HOOKED BAR	LENGTH OF STRAIGHT BAR
#4	L + 1' - 0"	SEE "c" BAR LENGTH
#5	L + 1' - 2"	SEE "c" BAR LENGTH
#6	L + 1' - 4"	SEE "c" BAR LENGTH
#7	L + 1' - 8"	SEE "c" BAR LENGTH
#8	L + 1' - 10"	SEE "c" BAR LENGTH
#9	L + 2' - 6"	SEE "c" BAR LENGTH

L = "OW" - 3 INCHES



WINGWALL & CULVERT DRAINAGE DETAIL

REINFORCED CONCRETE BOX CULVERT GENERAL NOTES

CONCRETE SHALL BE CLASS S WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI. REINFORCING STEEL SHALL BE AASHTO M 31OR M 53, GRADE 60.

CONSTRUCTION AND MATERIALS FOR WINGWALL & CULVERT DRAINAGE, INCLUDING WEEP HOLES AND GRANULAR MATERIAL, SHALL BE SUBSIDIARY TO THE BID ITEM, "CLASS S CONCRETE".

MEMBRANE WATERPROOFING SHALL CONFORM TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS.

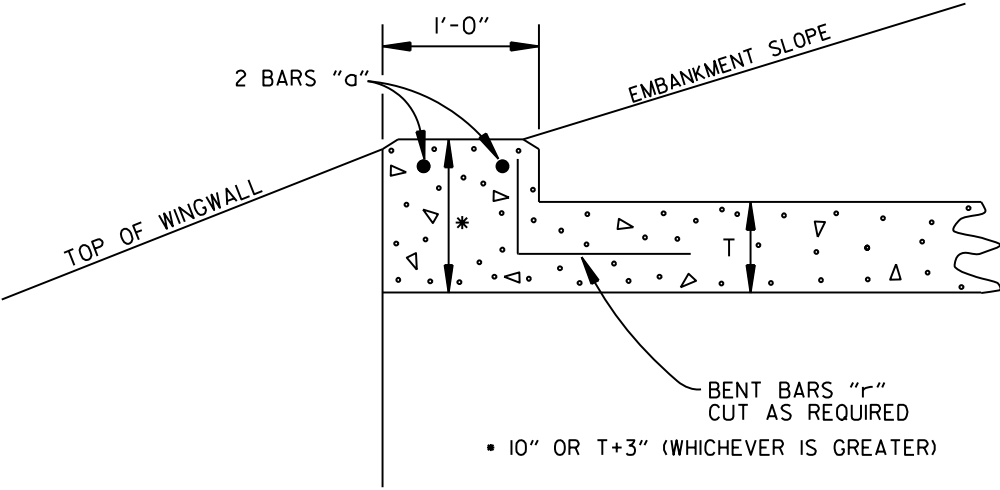
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

REINFORCING STEEL TOLERANCES: THE TOLERANCES FOR REINFORCING STEEL SHALL MEET THOSE LISTED IN "MANUAL OF STANDARD PRACTICE" PUBLISHED BY CONCRETE REINFORCING STEEL INSTITUTE (CRSI) EXCEPT THAT THE TOLERANCE FOR TRUSS BARS SUCH AS FIGURE 3 ON PAGE 7-4 OF THE CRSIMANUAL SHALL BE MINUS ZERO TO PLUS ½ INCH.

WEEP HOLES IN BOX CULVERT WALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB.

WEEP HOLES IN WINGWALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THERE SHALL BE A MINIMUM OF TWO (2) WEEP HOLES IN EACH WINGWALL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE WINGWALL FOOTING.

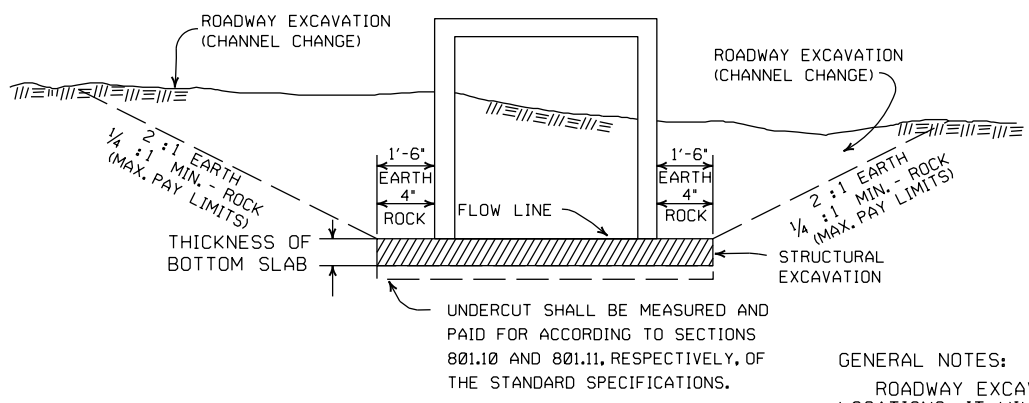
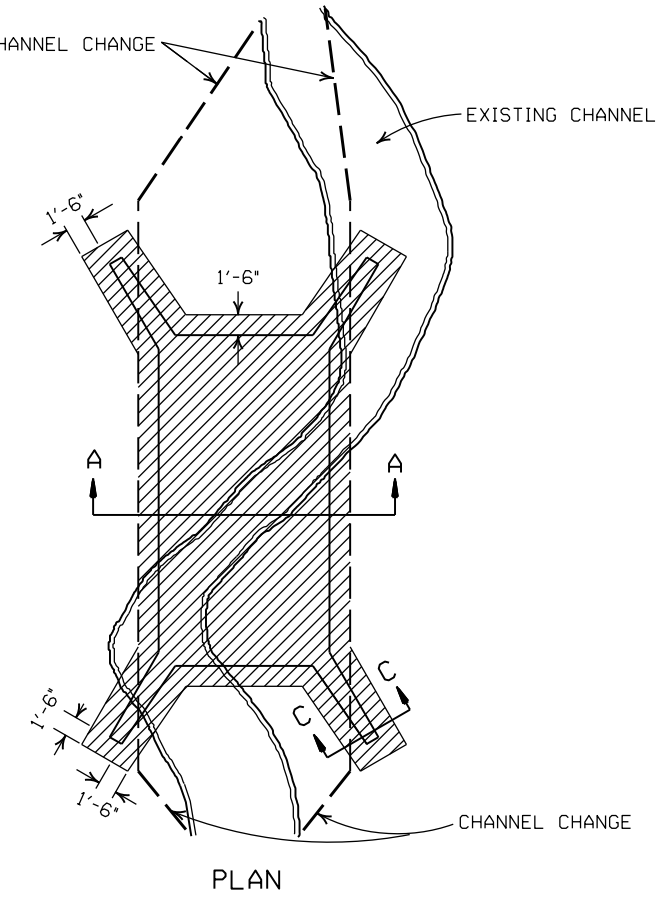
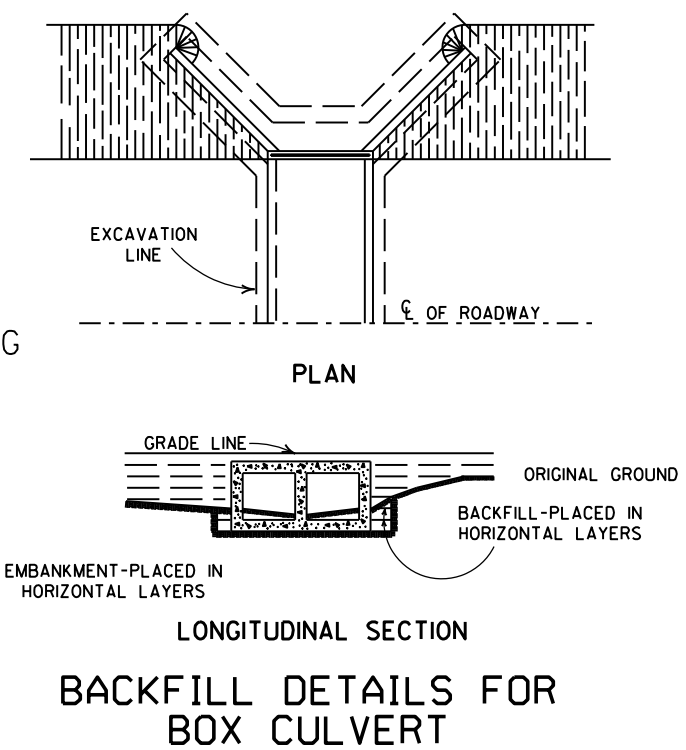
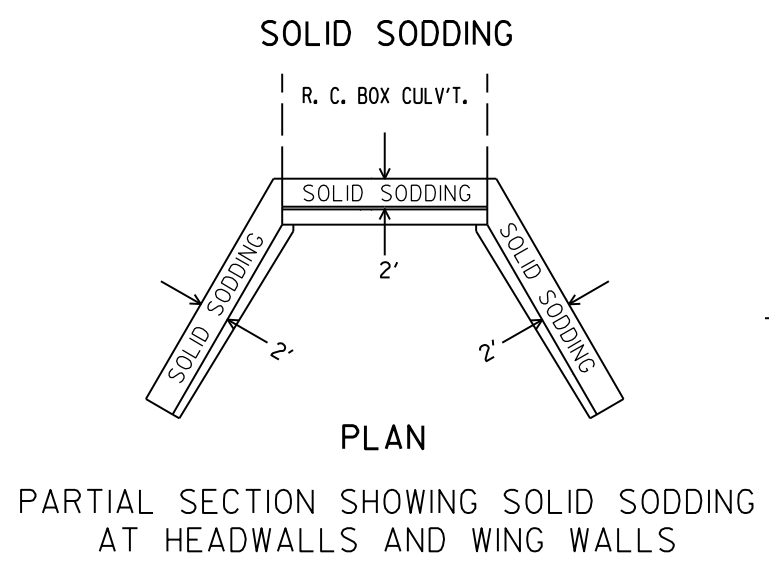
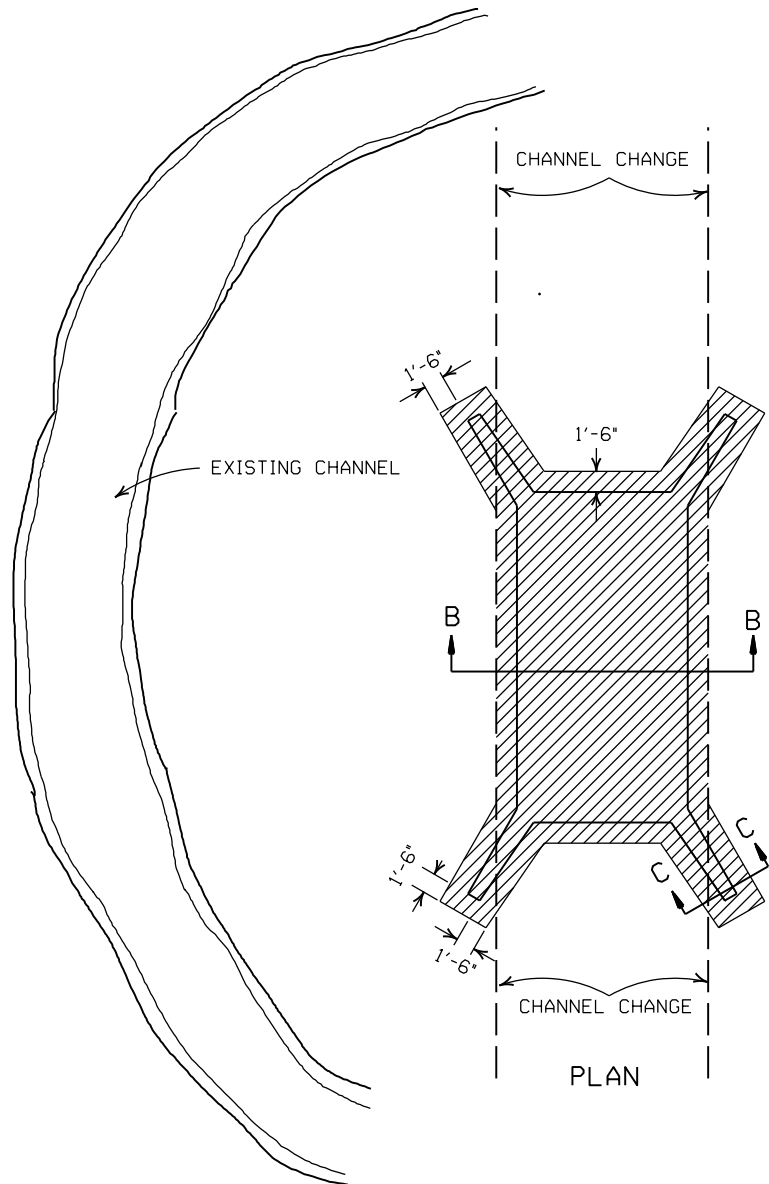
THE REQUIREMENTS SHOWN ON THIS DRAWING SHALL SUPERCEDE THE CORRESPONDING REQUIREMENTS ON ALL REINFORCED CONCRETE BOX CULVERT STANDARD DRAWINGS.



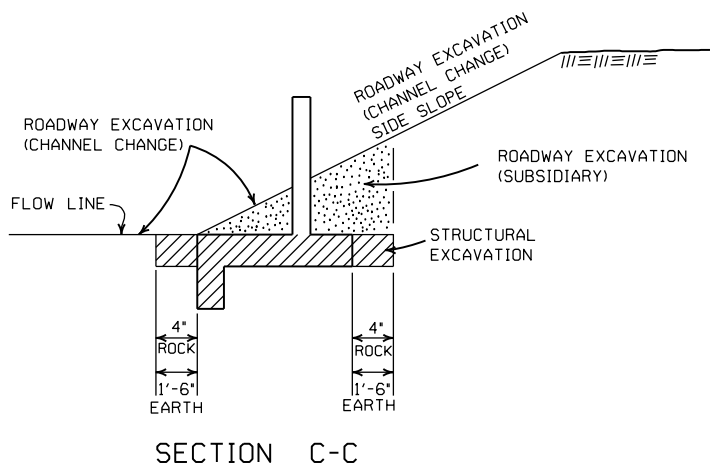
NOTE: FOR ALL SKEWED R.C. BOX CULVERTS THE LENGTH "K" OF THE MODIFIED HEADWALL SHALL BE EQUAL TO THE ROADWAY LENGTH "RL". THE ENDS OF THE HEADWALL SHALL BE CONSTRUCTED PARALLEL TO THE SKEW ANGLE OF THE BOX CULVERT.

R.C. BOX CULVERT HEADWALL MODIFICATIONS

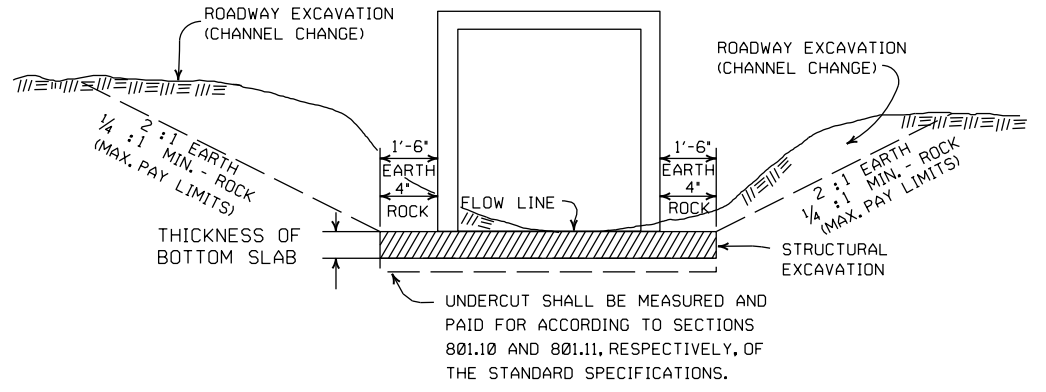
7/26/12	REV. DRAINAGE FILL MATERIAL & DETAIL		ARKANSAS STATE HIGHWAY COMMISSION
12/15/11	REQUIRE WEEP HOLES IN BOX CULVERT WALLS		
5-25-06	REV. GEN. NOTES AND DETAILS FOR WEEP HOLES; BAR DIAGRAM		
11-16-01	ADDED WINGWALL DRAINAGE DETAIL/EDITED GEN. NOTES		REINFORCED CONCRETE BOX CULVERT DETAILS
10-18-96	REV. ASTM REF. TO AASHTO & ADDED BAR DIAGRAM		
10-12-95	MOVED SOLID SODDING DETAIL TO RCB-2		
6-2-94	ADDED SOLID SODDING PLAN DETAIL		STANDARD DRAWING RCB-1
8-5-93	REVISED PIN DIAMETER TO SPECS.		
8-15-91	DRAWN AND ISSUED		
DATE	REVISION	DATE FILMED	



SECTION B-B
DETAILS FOR NEW CHANNELS



SECTION C-C



SECTION A-A
DETAILS THROUGH EXISTING CHANNELS


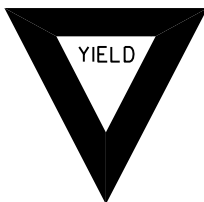



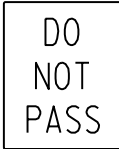



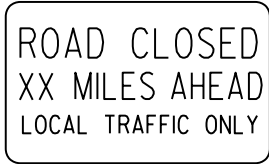


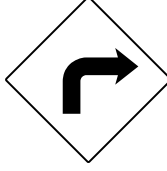





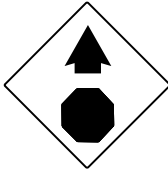
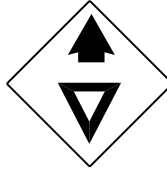
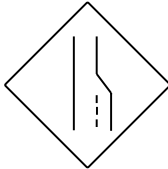

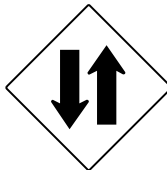

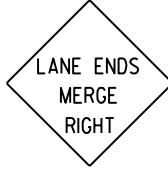













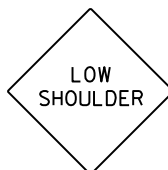

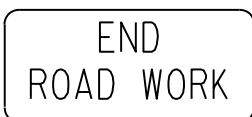
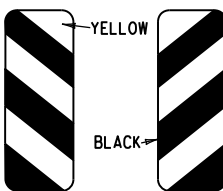


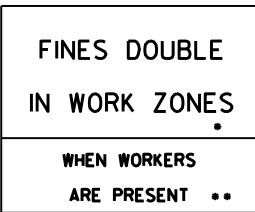
GENERAL NOTES:
ROADWAY EXCAVATION (CHANNEL CHANGE) WILL BE PAID FOR AT R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS ACTUALLY CUT AND WILL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS ABOVE THE FLOW LINE. ROADWAY EXCAVATION (CHANNEL CHANGE) SHALL BE MEASURED BY CROSS SECTIONS AND VOLUMES COMPUTED BY AVERAGE END AREA METHOD. ALL CHANNEL CHANGES SHALL BE BROUGHT TO GRADE PRIOR TO MAKING ANY EXCAVATION FOR STRUCTURES.
EXCAVATION FOR STRUCTURES WILL BE PAID FOR AT ALL R.C. BOX CULVERT LOCATIONS. IT WILL BE PAID TO THE LIMITS SHOWN AND SHALL BE CONFINED TO THAT PORTION OF THE INDICATED AREA THAT IS BELOW THE CHANNEL FLOW LINE.
ROADWAY EXCAVATION SHOWN IN SECTION C-C ABOVE AS SUBSIDIARY WILL NOT BE MEASURED OR PAID FOR DIRECTLY, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS OF EXCAVATION.

DATE	REVISION	FILMED
11-20-03	REVISED SECTION A-A NOTE	
8-22-02	REVISED SECTION B-B NOTE	
10-12-95	COMBINED 1891B AND 1888A	
1-4-83	REVISED GENERAL NOTES AND ADDED MAXIMUM PAY LIMIT NOTES.	674-1-4-83
2-2-76	EXCAV. PAY LIMITS	917-2-2-76
10-2-72	REVISED AND REDRAWN	564-10-16-72

ARKANSAS STATE HIGHWAY COMMISSION

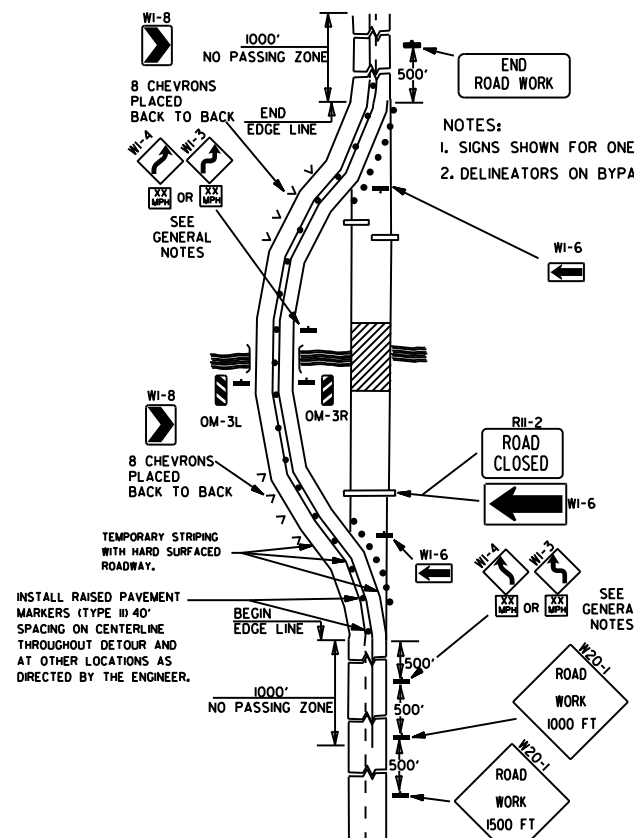
EXCAVATION PAY LIMITS, BACKFILL, & SOLID SODDING FOR BOX CULVERTS

STANDARD DRAWING RCB-2

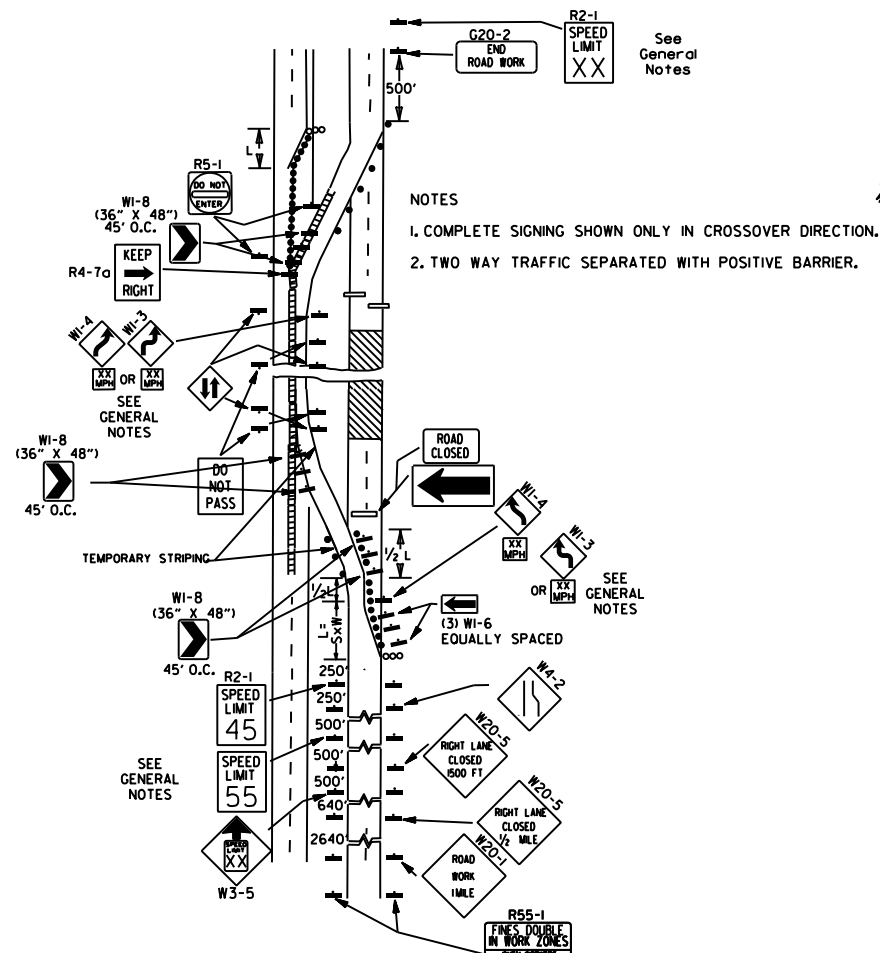
<div>RI-1</div> <div></div> <div>STANDARD 30"x30" EXPRESSWAY 36"x36" SPECIAL 48"x48"</div>	<div>RI-2</div> <div></div> <div>STD. 36"x36"x36" EXPWY. 48"x48"x48" FWY. 60"x60"x60"</div>	<div>R2-1</div> <div></div> <div>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</div>	<div>W3-5</div> <div></div> <div>STD. 36"x36" EXPWY. 48"x48" FWY. 48"x48"</div>	<div>W3-5a</div> <div></div> <div>STD. 36"x36" EXPWY. 48"x48" FWY. 48"x48"</div>	<div>R4-1</div> <div></div> <div>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</div>	<div>R4-2</div> <div></div> <div>STD. 24"x30" EXPWY. 36"x48" FWY. 48"x60"</div>	<div>ADVANCE DISTANCES (XXXX)</div> <div>500 FT 1/2 MILE 1000 FT 3/4 MILE 1500 FT 1 MILE AHEAD</div> <div>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 SO. 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 1MILE 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 MANUAL FOR ASSESSING SAFETY HARDWARE (MASH), WILL BE ACCEPTED. COMPLIANCE WITH THE REQUIREMENTS OF MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) IS REQUIRED FOR ALL PROJECTS.</div>
<div>R5-1</div> <div></div> <div>STD. 30"x30" EXPWY. 36"x36" SPECIAL 48"x48"</div>	<div>R11-2</div> <div></div> <div>48"x30"</div>	<div>R11-3A</div> <div></div> <div>60"x30"</div>	<div>R11-4</div> <div></div> <div>60"x30"</div>	<div>W21-5a</div> <div></div> <div>STD. 36"x36" FWY. 48"x48"</div>	<div>W1-1</div> <div></div> <div>STD. 36"x36" FWY. 48"x48"</div>	<div>W1-2</div> <div></div> <div>STD. 36"x36" FWY. 48"x48"</div>	
<div>W1-3</div> <div></div> <div>STD. 48"x48"</div>	<div>W1-4</div> <div></div> <div>STD. 48"x48"</div>	<div>W1-6</div> <div></div> <div>STD. 48"x24" SPECIAL 60"x30"</div>	<div>W1-8</div> <div></div> <div>STD. 18"x24" SPECIAL 24"x30" EXPWY. 30"x36" FWY. 36"x48"</div>	<div>W3-1</div> <div></div> <div>STD. 36"x36" SPECIAL 48"x48"</div>	<div>W3-2</div> <div></div> <div>STD. 36"x36" SPECIAL 48"x48"</div>	<div>W4-2</div> <div></div> <div>STD. 36"x36" FWY. 48"x48"</div>	
<div>W5-1</div> <div></div> <div>STD. 36"x36" SPECIAL 48"x48"</div>	<div>W6-3</div> <div></div> <div>EXPWY. 36"x36" SPECIAL 48"x48"</div>	<div>W8-7</div> <div></div> <div>EXPWY. 36"x36" FWY. 48"x48"</div>	<div>W9-2</div> <div></div> <div>STD. 36"x36" FWY. 48"x48"</div>	<div>W13-1</div> <div></div> <div>STD. 24"x24"</div>	<div>W20-1</div> <div></div> <div>STD. 48"x48"</div>	<div>W20-2</div> <div></div> <div>STD. 48"x48"</div>	<div>W20-3</div> <div></div> <div>STD. 48"x48"</div>
<div>W20-4</div> <div></div> <div>STD. 48"x48"</div>	<div>W20-5</div> <div></div> <div>STD. 48"x48"</div>	<div>W20-7a</div> <div><div>18" 500 FEET 24" W16-2</div></div> <div>STD. 36"x36" FWY. 48"x48"</div>	<div>W21-2</div> <div></div> <div>STD. 30"x30" SPECIAL 36"x36"</div>	<div>W21-5</div> <div></div> <div>STD. 30"x30" SPECIAL 36"x36"</div>	<div>W24-1</div> <div></div> <div>STD. 36"x36"</div>	<div>W1-4b</div> <div></div> <div>STD. 48"x48"</div>	<div>R56-1</div> <div></div> <div>STD. 18"x18"</div>
<div>W8-11</div> <div></div> <div>STD. 36"x36" FWY. 48"x48"</div>	<div>W8-9</div> <div></div> <div>STD. 36"x36" FWY. 48"x48"</div>	<div>G20-1</div> <div></div> <div>60"x24"</div>	<div>G20-2</div> <div></div> <div>48"x24"</div>	<div>OM-3L OM-3R</div> <div></div> <div>12"x36"</div>	<div>M4-9</div> <div></div> <div>STD. 30"x24" SPECIAL 48"x36" SPECIAL 60"x48"</div>	<div>M4-10</div> <div></div> <div>48"x18"</div>	<div>R55-1</div> <div></div> <div>36"x60"</div> <div>• USE 6" C LETTERS •• USE 4" D LETTERS</div>

11-07-19	REVISED FOR MASH	
4-13-17	DELETED RSP-1 & ADDED W21-5a	
9-2-15	REVISED REDUCED SPEED LIMIT AHEAD SIGNS REVISED ROAD WORK NEXT XX MILES	
12-15-11	REVISED W24-1	
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	
DATE	REVISION	FILMED

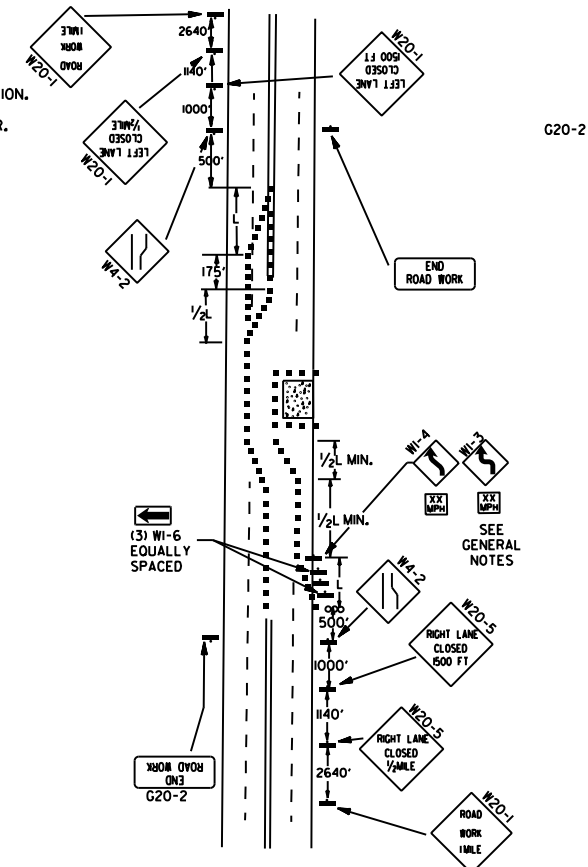
ARKANSAS STATE HIGHWAY COMMISSION
STANDARD TRAFFIC CONTROLS
FOR HIGHWAY CONSTRUCTION
STANDARD DRAWING TC-1



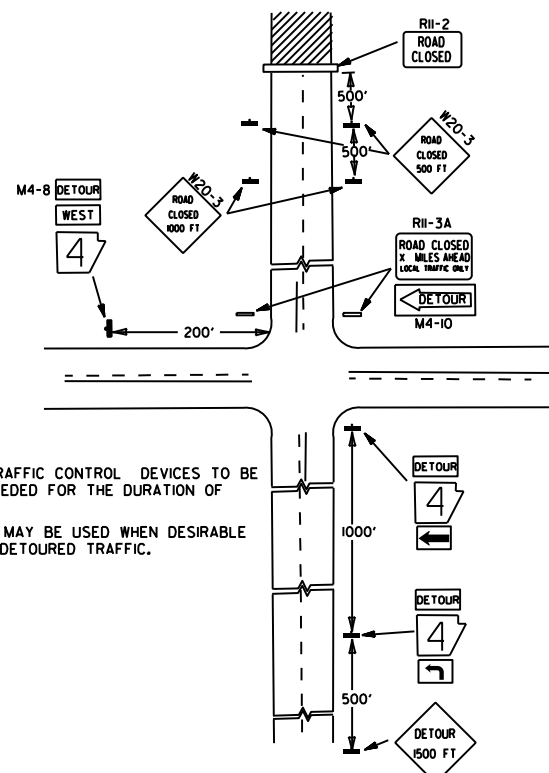
(A) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON A 2-LANE HIGHWAY WHERE THE ENTIRE ROADWAY IS CLOSED AND A BYPASS DETOUR IS PROVIDED.



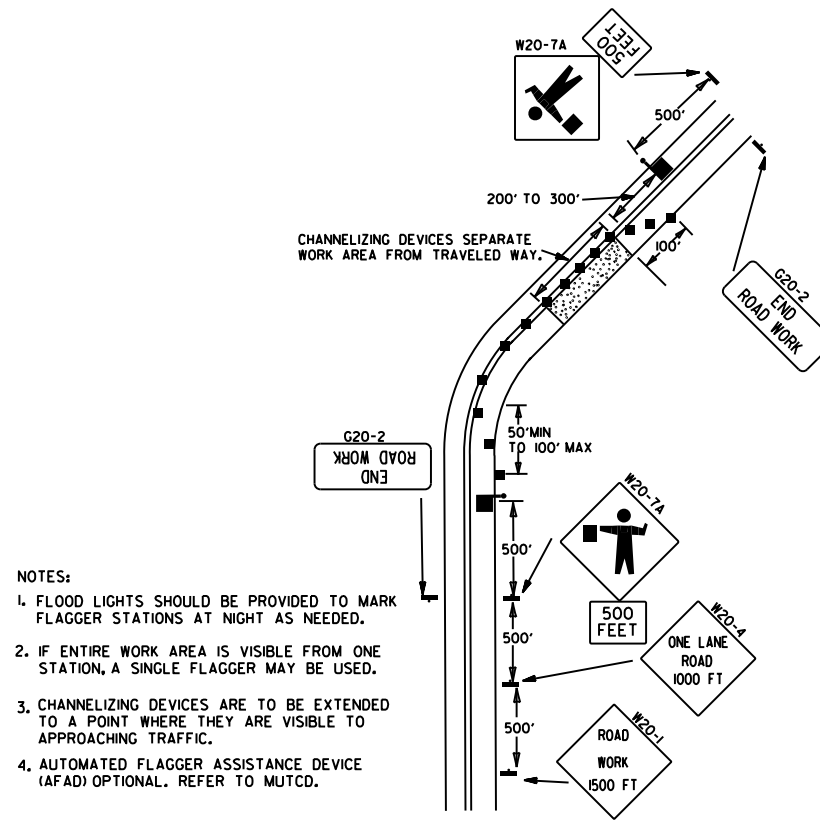
(B) TYPICAL APPLICATION - 4-LANE DIVIDED ROADWAY WHERE ONE ROADWAY IS CLOSED.



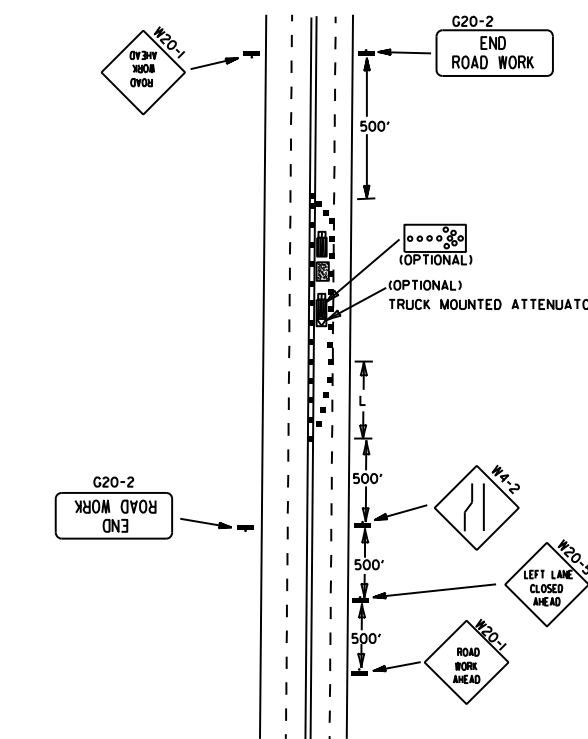
(C) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



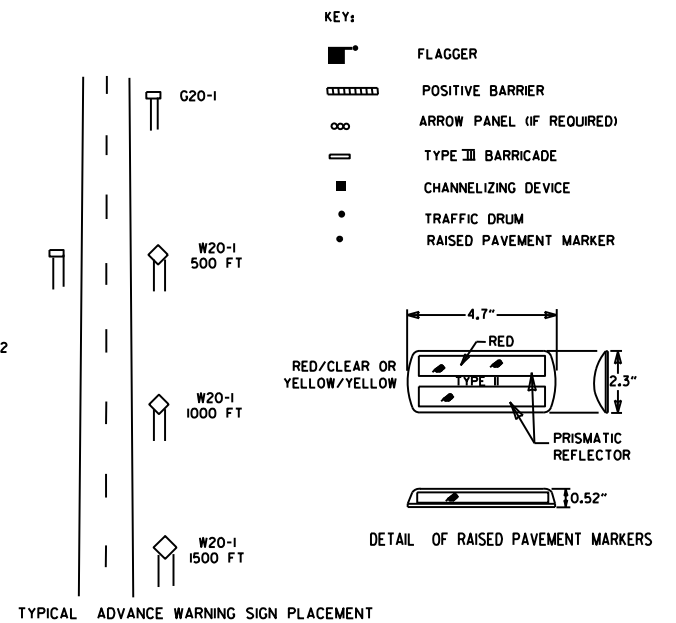
(D) TYPICAL APPLICATION - ROADWAY CLOSED BEYOND DETOUR POINT.



(E) TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES ON 2-LANE HIGHWAY WHERE ONE LANE IS CLOSED AND FLAGGING IS PROVIDED.

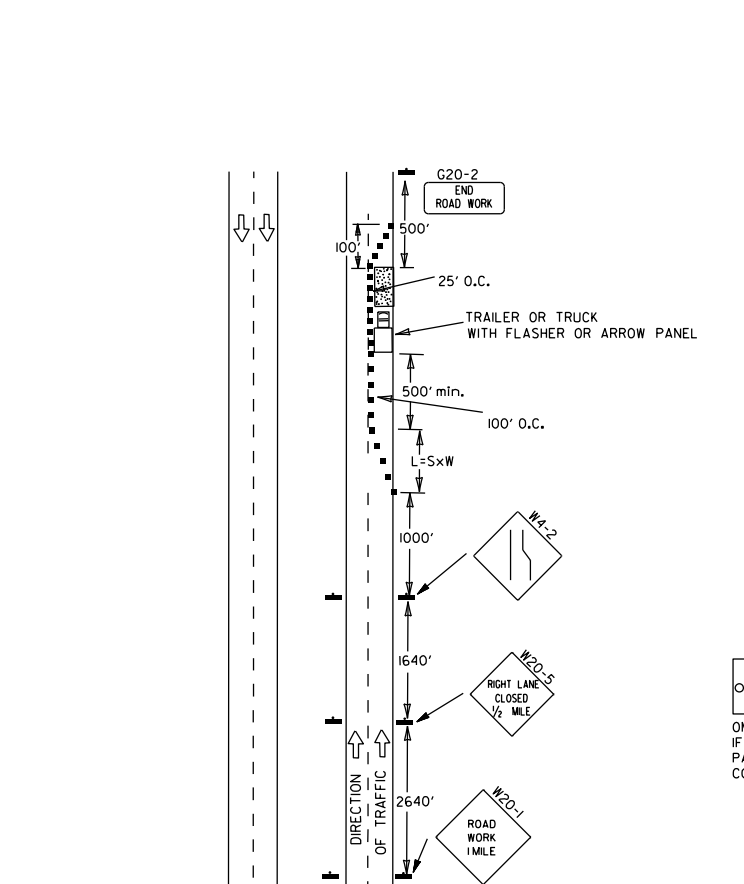


(F) TYPICAL APPLICATION - 4-LANE UNDIVIDED ROADWAY WITH INSIDE LANE CLOSED.

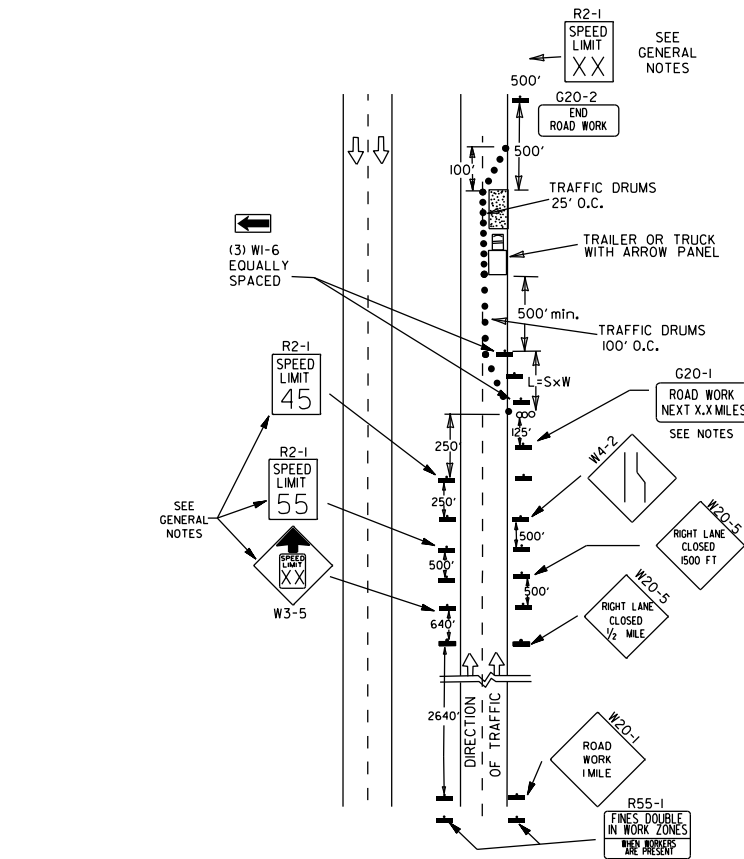


- GENERAL NOTES:
1. THE MAINTENANCE DIVISION SHALL CONDUCT A BALL BANK STUDY TO DETERMINE THE ADVISORY SPEED LIMIT PRIOR TO OPENING TO TRAFFIC. THE ADVISORY SPEED WILL BE POSTED ON W1-3 OR W1-4 CURVE WARNING SIGNS. USE W1-4 WHEN SPEED IS GREATER THAN 30MPH AND W1-3 WHEN 30MPH OR LESS.
 2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-155 SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-145MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-KXX SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
 3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-145 SHALL BE OMITTED. ADDITIONAL R2-155MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1MILE INTERVALS. AT THE END OF THE WORK AREA A R2-KXX SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
 4. THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHOULD BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT. BEYOND THE TAPER, MAXIMUM SPACING SHALL BE TWO TIMES THE SPEED LIMIT, OR AS DIRECTED BY THE ENGINEER.
 5. WARNING LIGHTS AND/OR FLAGS MAY BE MOUNTED TO SIGNS OR CHANNELIZING DEVICES AT NIGHT AS NEEDED.
 6. PAVEMENT MARKINGS NO LONGER APPLICABLE WHICH MIGHT CREATE CONFUSION IN THE MINDS OF VEHICLE OPERATORS SHALL BE REMOVED OR OBLITERATED AS SOON AS PRACTICABLE.
 7. TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL BE DELINEATED BY AFFIXING CONSPICUITY MATERIAL IN A CONTINUOUS LINE ON THE FACE OF THE TRAILER. WHEN PLACED ON OR ADJACENT TO THE SHOULDER AND NOT BEHIND A POSITIVE BARRIER, THESE DEVICES SHALL BE DELINEATED BY PLACING FIVE (5) TRAFFIC DRUMS, EQUALLY SPACED ALONG THE TRAFFIC SIDE OF THE DEVICE.
 8. DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE ARDOT QUALIFIED PRODUCTS LIST.
 9. ALL TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL MEET THE REQUIREMENTS OF THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).

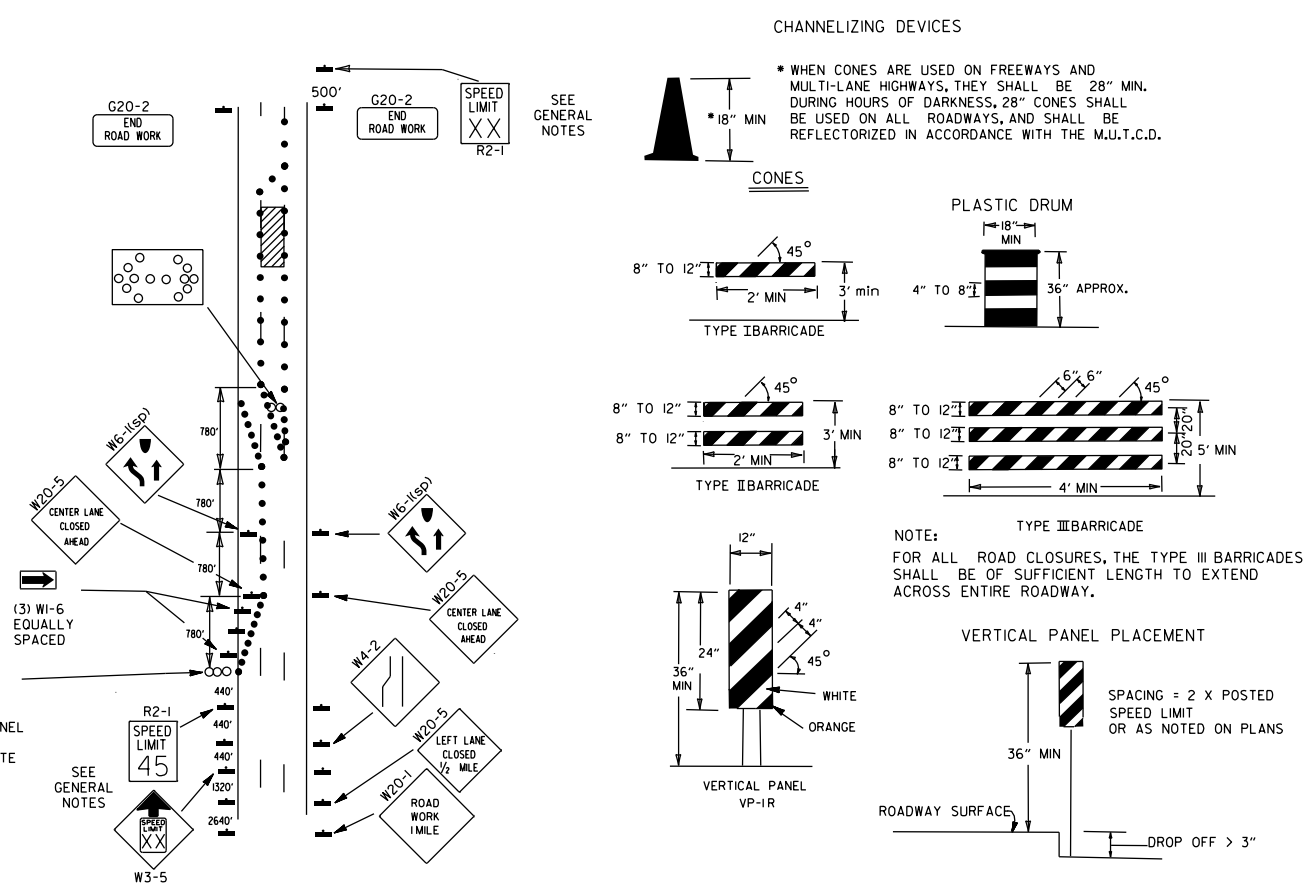
11-07-19	REVISED NOTE 1, ADDED NOTE 9	
9-2-15	REVISED NOTE 2, ADDED NOTE 8, REVISED DRAWING (A) & REPLACED R2-5A WITH W3-5	
9-12-13	REVISED DETAIL OF RAISED PAVEMENT MARKERS	
3-11-10	ADDED (AFAD)	
11-20-08	REVISED SIGN DESIGNATIONS	
11-18-04	ADDED GENERAL NOTE	
10-18-96	ADDED R55-1	
4-26-96	CORRECTED (a) BEHIND G20-2	
6-8-95	CORRECTED SIGN IDENT. ON W1-4A	6-8-95
2-2-95	REVISED PER PART VI, MUTCD, SEPT. 3, 1993	
8-15-91	DRAWN AND PLACED IN USE	
DATE	REVISION	FILMED



(A) TYPICAL APPLICATION - DAYTIME MAINTENANCE OPERATIONS OF SHORT DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



(C) TYPICAL APPLICATION - CONSTRUCTION OPERATIONS OF INTERMEDIATE TO LONG TERM DURATION ON A 4-LANE DIVIDED ROADWAY WHERE HALF OF THE ROADWAY IS CLOSED.



(B) TYPICAL APPLICATION - 3-LANE ONEWAY ROADWAY WHERE CENTER LANE IS CLOSED.

KEY:

- ARROW PANEL (IF REQUIRED)
- CHANNELIZING DEVICE
- TRAFFIC DRUM

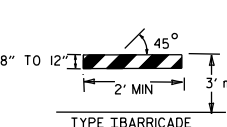
GENERAL NOTES:

1. A SPEED LIMIT REDUCTION MAY BE IMPLEMENTED ONLY WHEN DESIGNATED IN THE PLAN OR WHEN RECOMMENDED BY THE ROADWAY DESIGN DIVISION.
2. WHEN THE EXISTING SPEED LIMIT IS 55MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 45MPH, THE R2-1(55) SHALL BE OMITTED AND THE W3-5 SHALL BE INSTALLED AT THAT LOCATION. ADDITIONAL R2-1(45)MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1/4 MILE INTERVALS. AT THE END OF THE WORK AREA A R2-1(XX) SHALL BE INSTALLED TO MATCH ORIGINAL SPEED LIMIT.
3. WHEN THE EXISTING SPEED LIMIT IS 65MPH AND THE PLANS REQUIRE A SPEED LIMIT OF 55MPH, THE R2-1(65) SHALL BE OMITTED. ADDITIONAL R2-1(55)MPH SPEED LIMIT SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 1/4 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 ERCTED 125' IN ADVANCE OF THE JOB LIMIT. ADDITIONAL W20-1(1/4 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 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.
11. ALL TRAILER MOUNTED DEVICES SUCH AS ARROW PANELS AND PORTABLE CHANGEABLE MESSAGE SIGNS SHALL MEET THE REQUIREMENTS OF THE MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).

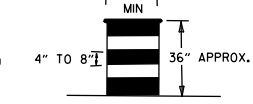
CHANNELIZING DEVICES

* WHEN CONES ARE USED ON FREEWAYS AND MULTI-LANE HIGHWAYS, THEY SHALL BE 28" MIN. DURING HOURS OF DARKNESS, 28" CONES SHALL BE USED ON ALL ROADWAYS, AND SHALL BE REFLECTORIZED IN ACCORDANCE WITH THE M.U.T.C.D.

CONES



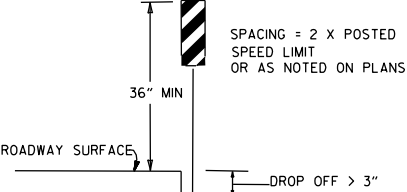
PLASTIC DRUM



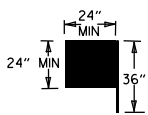
NOTE:

FOR ALL ROAD CLOSURES, THE TYPE III BARRICADES SHALL BE OF SUFFICIENT LENGTH TO EXTEND ACROSS ENTIRE ROADWAY.

VERTICAL PANEL PLACEMENT



FLAG



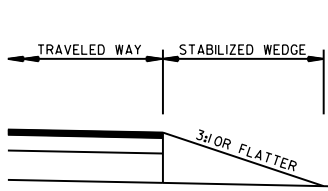
FLAG SHALL BE OF GOOD GRADE RED MATERIAL

TRAFFIC CONTROL DEVICES			
NON-INTERSTATE			
VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL	
		≤ 45 MPH	> 45 MPH
≤ 2"	CENTERLINE	W8-11 AND LANE STRIPING	W8-11 AND LANE STRIPING
> 2"	CENTERLINE	STANDARD LANE CLOSURE	STANDARD LANE CLOSURE
≤ 3"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9, EDGE LINE STRIPING, AND VERTICAL PANELS	W8-9, EDGE LINE STRIPING, AND VERTICAL PANELS
> 3"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND VERTICAL PANELS	W8-17, EDGE LINE STRIPING, AND VERTICAL PANELS
≤ 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS ⁽¹⁾	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS ⁽²⁾
> 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS ⁽¹⁾	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS ⁽²⁾
> 18"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS ⁽¹⁾	A STABILIZED WEDGE, W8-17, EDGE LINE STRIPING AND TRAFFIC DRUMS ⁽³⁾
> 24"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	PRECAST CONCRETE BARRIER ⁽⁴⁾ & EDGE LINES	PRECAST CONCRETE BARRIER ⁽⁴⁾ & EDGE LINES

INTERSTATE		
VERTICAL DIFFERENTIAL	LOCATION	TRAFFIC CONTROL
≤ 2"	CENTERLINE	W8-11 AND LANE STRIPING
≤ 2"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-9, EDGE LINE STRIPING, AND TRAFFIC DRUMS ⁽²⁾
> 2"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	W8-17, EDGE LINE STRIPING, AND TRAFFIC DRUMS ⁽²⁾
> 6"	EDGE OF TRAVELED LANE OR EDGE OF SHOULDER	PRECAST CONCRETE BARRIER & EDGE LINES

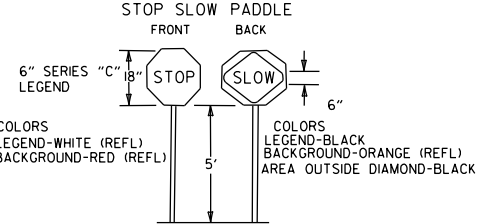
INTERSTATE AND NON-INTERSTATE		
FORESLOPE	HEIGHT	TRAFFIC CONTROL
1:1	> 2 FT	PRECAST CONCRETE BARRIER
2:1	≤ 5 FT	TRAFFIC DRUMS
2:1	> 5 FT	PRECAST CONCRETE BARRIER
Flatter than 2:1	N/A	TRAFFIC DRUMS

- GENERAL NOTES:
1. WHEN THE SHOULDER AREA IS USED AS PART OF THE TRAVELED LANE AND THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, THEN VERTICAL PANELS SHALL BE USED.
 2. WHEN THERE IS INSUFFICIENT WIDTH TO PLACE TRAFFIC DRUMS ON THE REMAINING SHOULDER WIDTH, A STABILIZED WEDGE SHALL BE USED.
 3. PRECAST CONCRETE BARRIER WALL CAN BE USED IN LIEU OF A STABILIZED WEDGE, W8-17 SIGN, EDGE LINE STRIPING, AND TRAFFIC DRUMS, IF AND WHERE DIRECTED BY THE ENGINEER.
 4. A STABILIZED WEDGE, W8-17 SIGN, EDGE LINE STRIPING, AND TRAFFIC DRUMS CAN BE USED IN LIEU OF PRECAST CONCRETE BARRIER WALL, IF AND WHERE DIRECTED BY THE ENGINEER.
 5. W21-5, W21-5a, AND/OR W21-5b SIGNS SHALL BE USED WHERE THE ROADWAY IS UNOBSTRUCTED IF AND WHERE DIRECTED BY THE ENGINEER.

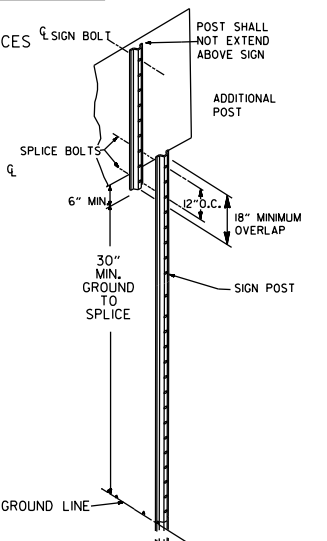


STABILIZED WEDGE

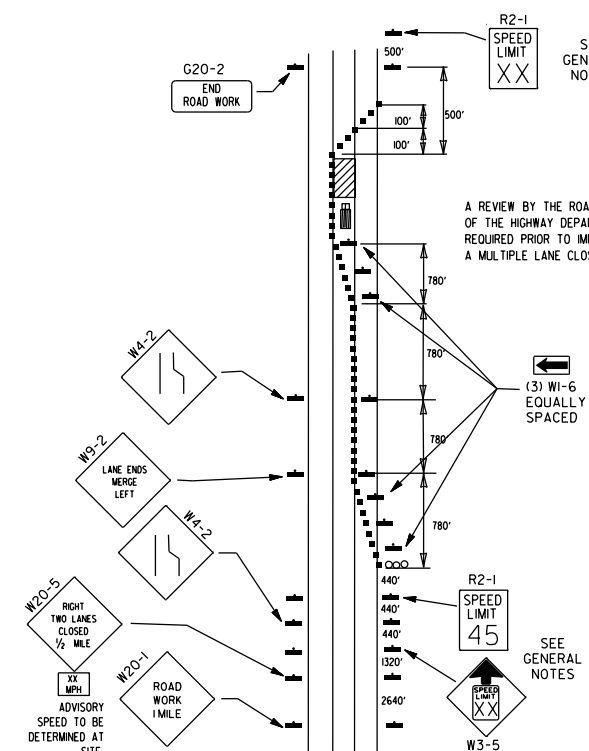
NOTE: MATERIALS FOR THE STABILIZED WEDGE SHALL MEET THE REQUIREMENTS PROVIDED IN SECTION 603.02 OF THE STANDARD SPECIFICATIONS.



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.

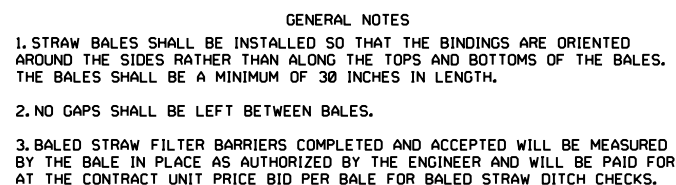


(D) TYPICAL APPLICATION - CLOSING MULTIPLE LANES OF A MULTILANE HIGHWAY.

2-27-20	REVISED TRAFFIC CONTROL DEVICES DETAILS	
11-07-19	REVISED NOTE 9, ADDED NOTE 11	
7-25-19	REVISED TRAFFIC CONTROL DEVICES DETAILS	
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	
DATE	REVISION	FILMED

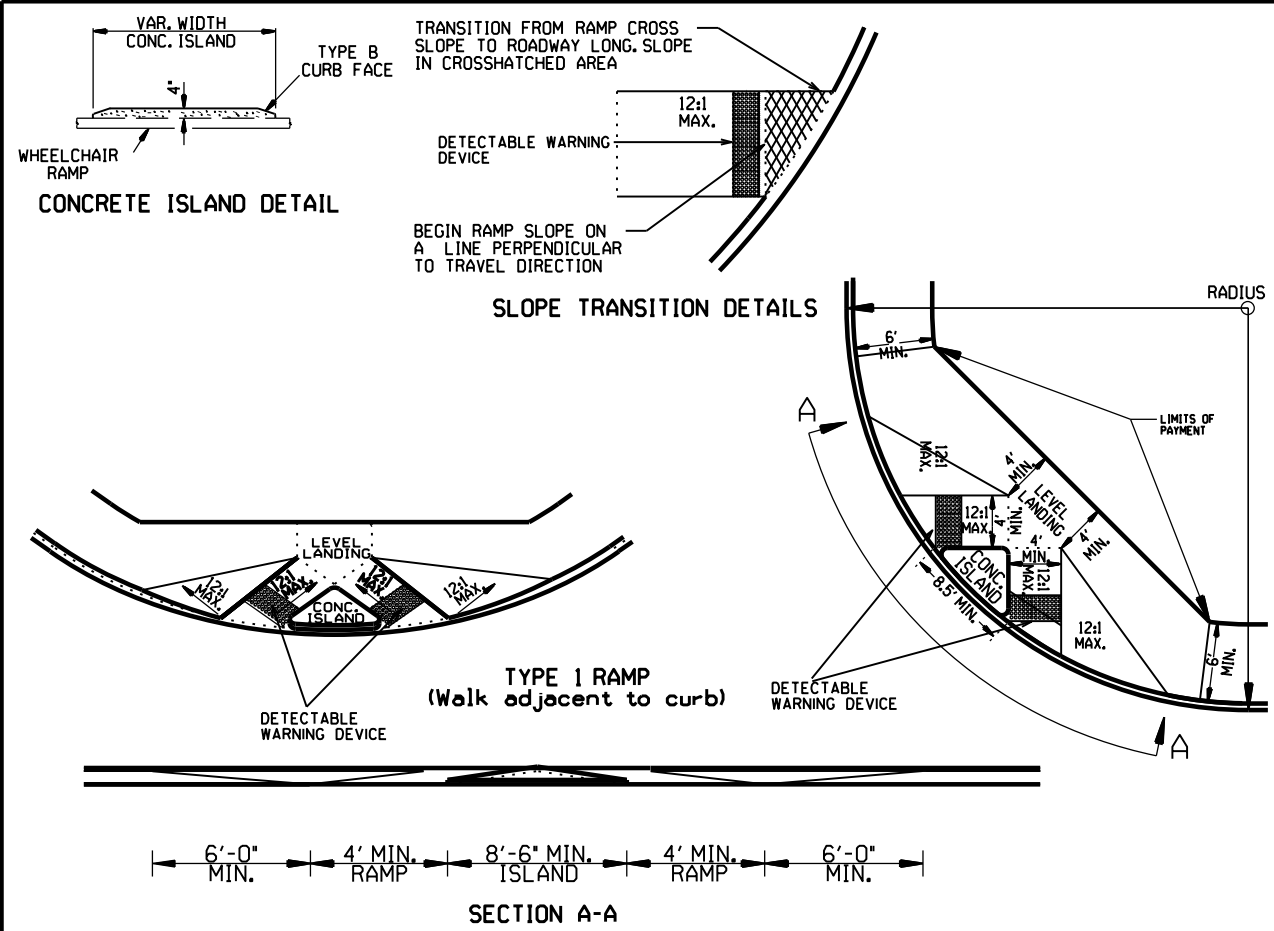
ARKANSAS STATE HIGHWAY COMMISSION
STANDARD TRAFFIC CONTROLS
FOR HIGHWAY CONSTRUCTION
STANDARD DRAWING TC-3

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



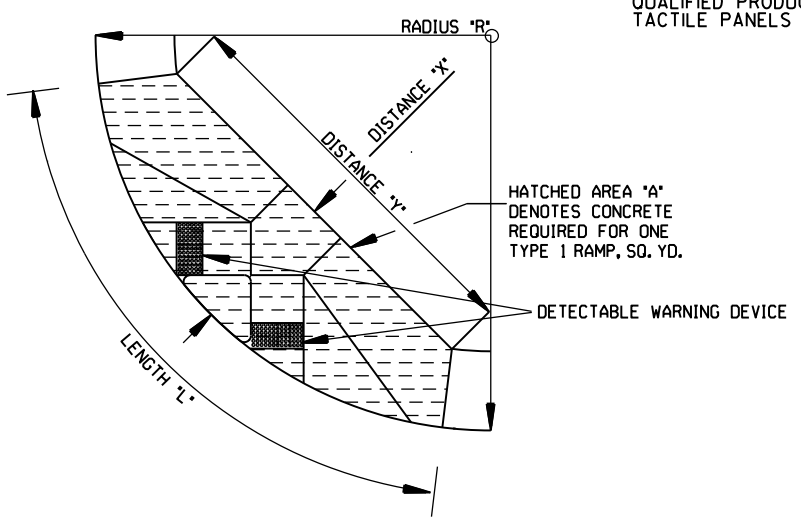
11-16-11	ADDED FILTER SOCK E-3 AND E-13	
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK	
11-18-98	ADDED NOTES	
07-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)	
07-20-95	REVISED SILT FENCE E-4 AND E-11	7-20-95
07-15-94	REV. E-4 & E-11 MIN. 13" BURIED END OF FABRIC	
06-02-94	REVISED E-1, 4, 7 & 11 DELETED E-2 & 3	6-2-94
04-03-93	REDRAWN	
10-01-92	REDRAWN	
08-02-76	ISSUED R.D.M.	298-7-28-7
DATF	REVISION	FILMED

ARKANSAS STATE HIGHWAY COMMISSION
TEMPORARY EROSION CONTROL DEVICES
STANDARD DRAWING TEC-1



TYPE 1 RAMP DIMENSIONS AND QUANTITIES

RADIUS "R"	DISTANCE "X"	DISTANCE "Y"	LENGTH "L"	RAMP AREA "A"
FEET	FEET	FEET	FEET	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	36.90
35	11.33	33.51	43.11	39.77
40	11.30	36.45	45.25	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

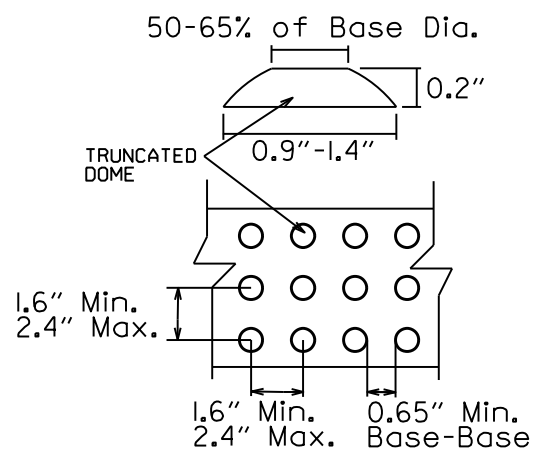
THE DETECTABLE WARNING DEVICE SHALL BE LOCATED SO THAT THE NEAREST EDGE OF THE DEVICE IS 6 TO 8 INCHES FROM THE FACE OF THE CURB.

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 ARDOT QUALIFIED PRODUCTS LIST FOR CAST-IN-PLACE TACTILE PANELS (ADA DETECTABLE WARNING).



DETECTABLE WARNING DEVICE DETAIL

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.

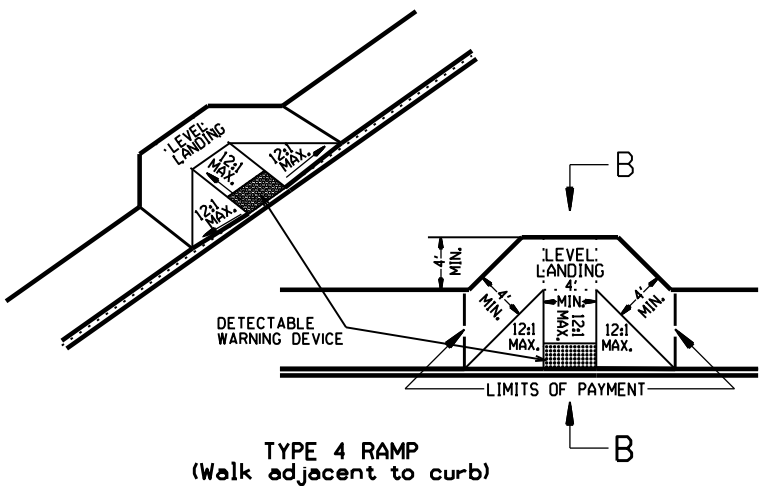
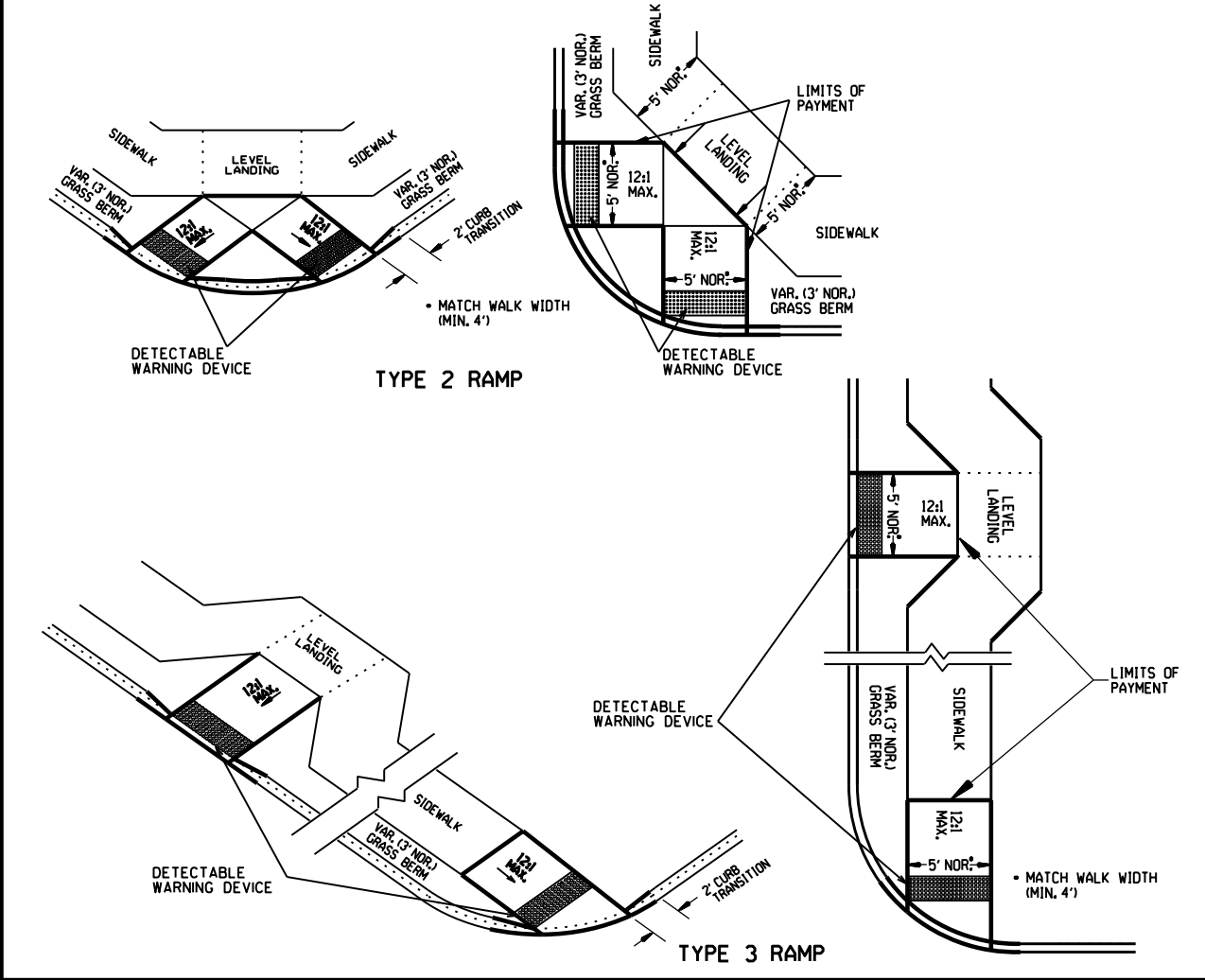
ALL PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION.

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.

NOTE: THE CROSS SLOPE OF THE RAMPS, LEVEL LANDINGS, AND SIDEWALKS SHALL NOT EXCEED 2.0% UNLESS REQUIRED TO MATCH STREET LONGITUDINAL GRADE.



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	REBROWN & REISSUED		
10-18-96	CORRECTED DIMENSIONS	10-18-96	
5-24-90	FROM 8:1 TO 12:1 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	