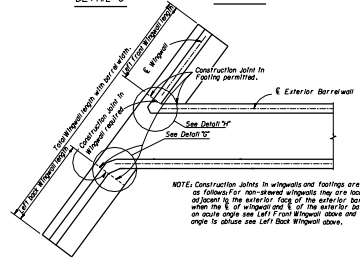
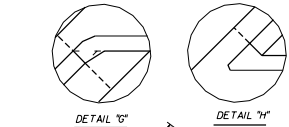


PLAN HEADWALL AND WINGWALL ALIGNMENT

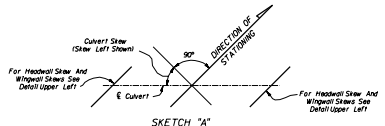


PART PLAN SHOWING WINGWALLS AND THE LOCATION OF CONSTRUCTION JOINTS

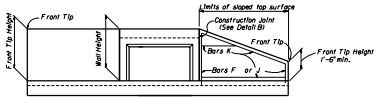
NOTES: Designs for box culverts under this index are to be produced only by computer analysis utilizing the program named PSTDM55. Designs under this index are to be limited to the live loads and dimensioned restraints shown in the General Notes of this index and to the fill on the barrow walls as shown in the roadway plans. It is the construction Contractor's responsibility to provide for supporting construction loads that exceed the above loadings.

P Within these limits the top surface of the wingwalls shall be level.
 PP Within these limits the top surface of the wingwalls shall be sloped.

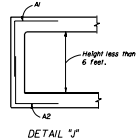
NOTE: Headwalls with skew angles between 5° and 120° require special design authorization. Other design options should be considered. Contact the District Drainage Engineer to obtain authorization.



SKETCH "A" CULVERT ALIGNMENT



END ELEVATION OF CULVERT



DETAIL "J"

GENERAL NOTES

DESIGN SPECIFICATIONS: A.A.S.H.T.O. 1996.
 LOADING: HS20-44, Modified for Military Loading as Required or HS25, see Structures Design Guidelines.
 SURFACE FINISH: The Class Surface Finish for all concrete surfaces shall be a generic surface finish.
 SKEWED CONSTRUCTION JOINTS: Construction joints in barrels of culverts with skewed wingwalls may be placed parallel to the headwalls and the reinforcing steel, in the slope may be cut provided that the cut reinforcing steel extends beyond the construction joint enough for splices to be made in accordance with the table below. Right into skew. The cost of construction joints shall be at the expense of the contractor.
 CULVERT EXTENSIONS: For cut backs and ties into existing concrete box culverts see Index No. 290

REINFORCING BAR SCHEDULE:

- A. When the depth is less than or equal to 2.0 feet, Bars C2 are utilized in the bottom of the top slab, in all other cases, Bars C2 are replaced with Bars C1 spaced at 18 inches on center.
- B. When the skew angle for a headwall equals 0 degrees plus or minus 10 degrees the respective S Bars (S2 or S3) will not be utilized.
- C. When the barrel height is less than 6 Feet, Bars B2 will be eliminated as shown in Detail J.
- D. If the span is less than five feet, Bars A1 and A2 will be Type II Bars.
- E. The portions of Bars "K" that extend thru Construction joints into wingwalls above footings shall be given one set of approved zinc rich paint and shall be encased in approved coated plastic (PVC) pipes filled with approved durable lubricant or cut back except. The length and inside diameter of the plastic pipe shall be approximately 1/4" larger than those of the bar.
- F. For culvert extensions Bar C1 is redesignated Bar C3 in the bottom slab.

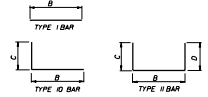


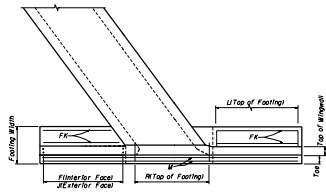
TABLE OF MINIMUM BAR SPICE LENGTHS

BAR SIZE	SPICE	BAR SIZE	SPICE
#4	1'-0"	#8	4'-8"
#5	2'-4"	#9	5'-3"
#6	2'-9"	#10	5'-0"
#7	4'-0"	#11	6'-6"

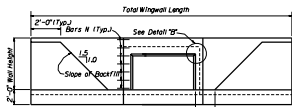
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
 ROAD DESIGN

CONCRETE BOX CULVERT
 CULVERT DETAILS

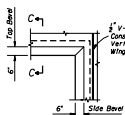
DESIGNED BY	DATE	APPROVED BY	
DRAWN BY	REVISIONS	DATE	
CHECKED BY			



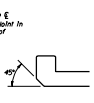
PART PLAN AT END OF CULVERT



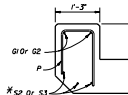
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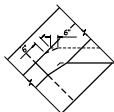
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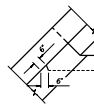
SECTION C-C



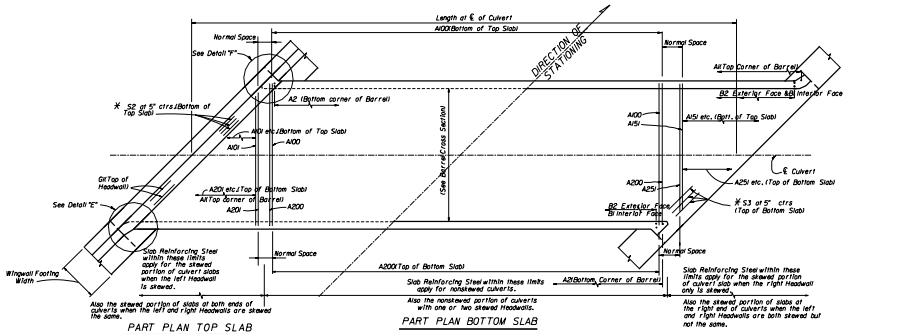
DETAIL "D"



DETAIL "E"

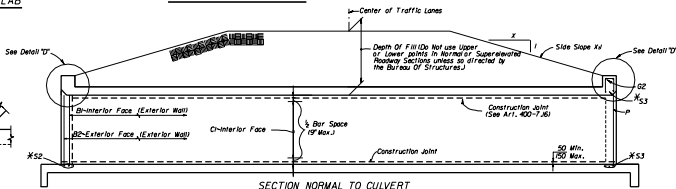


DETAIL "F"

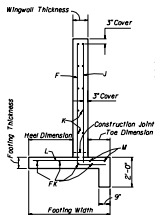


PART PLAN TOP SLAB

PART PLAN BOTTOM SLAB

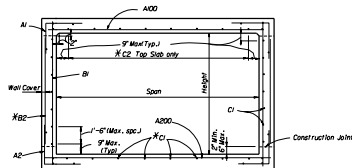


SECTION NORMAL TO CULVERT



SECTION THRU WINGWALL

NOTE: For Bars F, J, K, L and FK in the Wingwalls, the subscripts 1 thru 4 apply as follows:
 1-Left Top
 2-Left Back
 3-Right Front
 4-Right Back



SECTION THRU BARREL

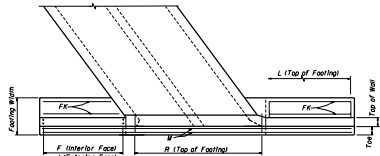
NOTE: The location of the first bar from the ends of the culvert shall not be less than 3", but not greater than one half the bar spacing.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
ROAD DESIGN

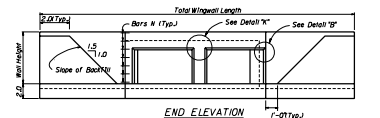
CONCRETE BOX CULVERT
SINGLE BARREL

Revised	Date	Approved By
		<i>I. A. McQuinn</i>
Designed By	DR-146	STATE OF FLORIDA ENGINEER
Drawn By	SPS	DATE
Checked By	ACB	00

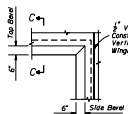
2 of 5 290



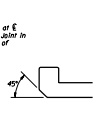
PART PLAN AT END OF CULVERT



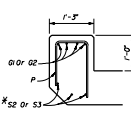
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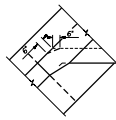
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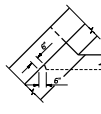
SECTION C-C



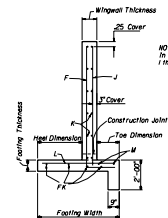
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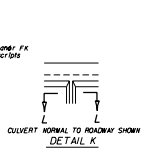
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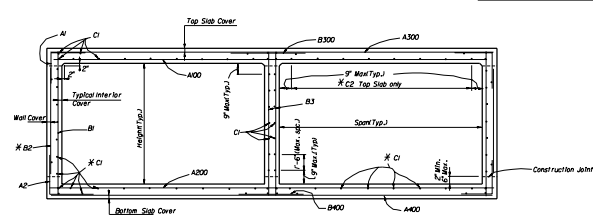
DETAIL "F"



SECTION THRU WINGWALL

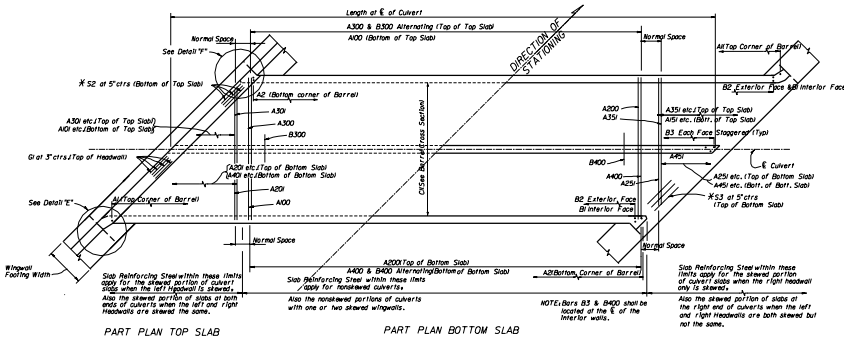


SECTION LL



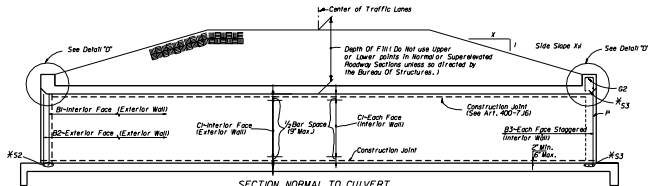
SECTION THRU BARREL

NOTE: The location of the first bar from the ends of the culvert shall not be less than 25", but not greater than one half the bar spacing.



PART PLAN TOP SLAB

PART PLAN BOTTOM SLAB



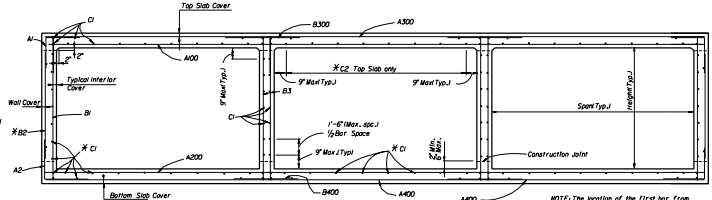
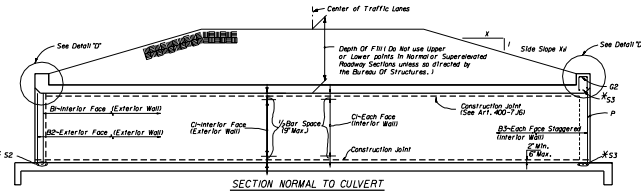
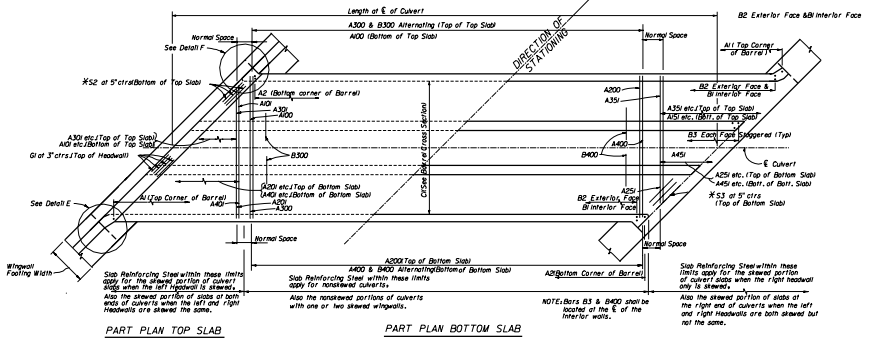
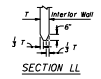
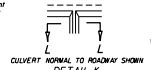
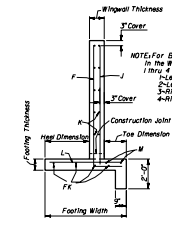
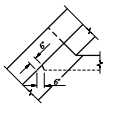
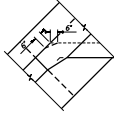
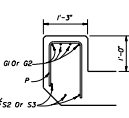
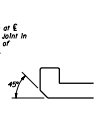
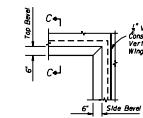
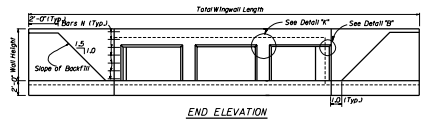
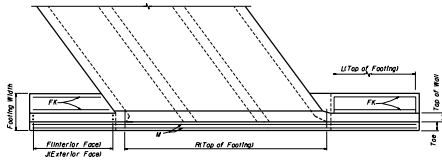
SECTION NORMAL TO CULVERT

See Culvert Details and Reinforcing Bar Schedules, Sheet 1 of 5

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
ROAD DESIGN

CONCRETE BOX CULVERT
DOUBLE BARREL

Issued By	Checked By	Approved By
DRG	ACB	<i>[Signature]</i>
Drawn By	Checked By	DATE
DRG	ACB	00
3 of 5		

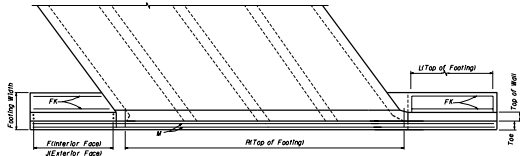


STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
ROAD DESIGN

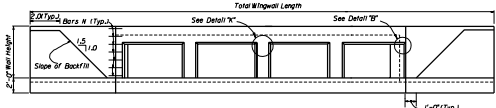
CONCRETE BOX CULVERT TRIPLE BARREL

Revised	Drawn By	Checked By	Dates	Approved By
	SPS	AKB	11/28/00	<i>A. A. Williams</i>
	AKB	AKB	02/04/05	

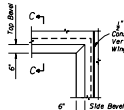
NOTES: The location of the first bar from the ends of the culvert shall not be less than 3", but not greater than one half the bar spacing.



PART PLAN AT END OF CULVERT

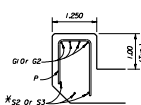


END ELEVATION

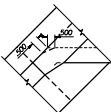


DETAIL "B"

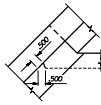
SECTION C-C



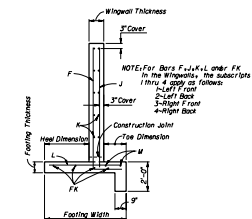
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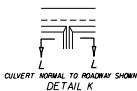
DETAIL "E"



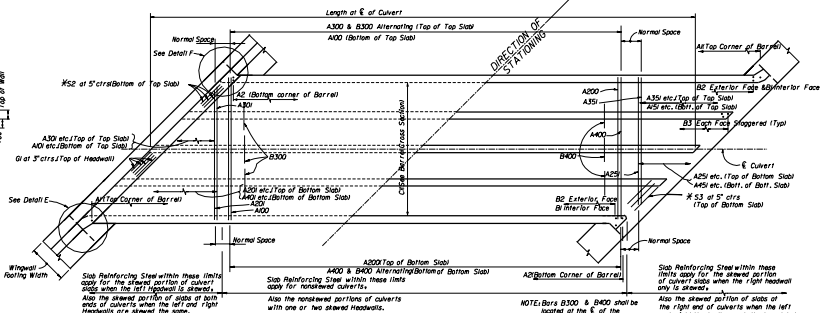
DETAIL "F"



SECTION THRU WINGWALL

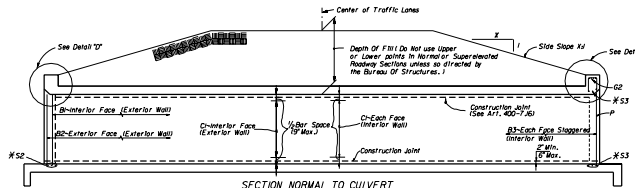


SECTION LL

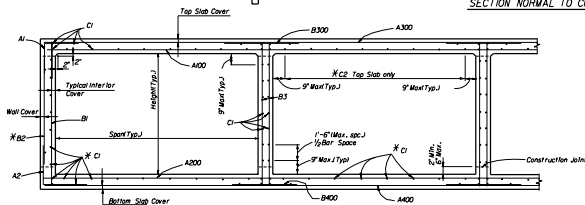


PART PLAN TOP SLAB

PART PLAN BOTTOM SLAB



SECTION NORMAL TO CULVERT



SECTION THRU BARREL

NOTE: The location of the first bar from the ends of the culvert shall not be less than 3', but not greater than one half the bar spacing.

NOTE: Bars B300 & B400 shall be located at the E of the Interlay Walls. Also the skewed portion of slabs on the right end of culverts when the left and right headwalls are both skewed but not the same.

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
ROAD DESIGN

CONCRETE BOX CULVERT
QUADRUPLE BARREL

Designed By:	Checked By:	Drawn By:	Checked By:	Name:	Date:	Approved By:	Date:
SPD	AKB	JHE	AKB	J. A. McNamee	11/16/88	J. A. McNamee	11/16/88
				SHEET NO. 5		TOTAL SHEETS 9	
				5 of 5			
				290			