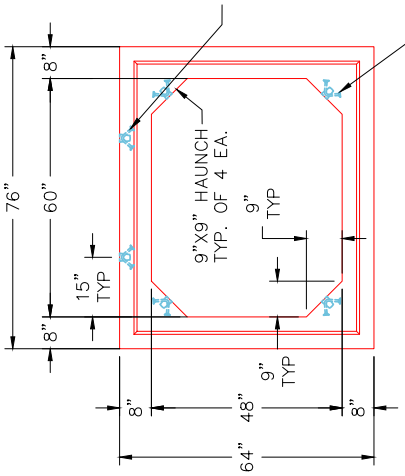
Job Name: 26-1508BC - Ferdinand State Park Culverts Replacement Job Location: Ferdinand, IN Contractor: WB Koester Construction, LLC	Plant: 100 9/15/2026 1:35:30 PM	Tech: Jared - F PC: E. Bradley	

Structure ID: CV-2 Box Culvert

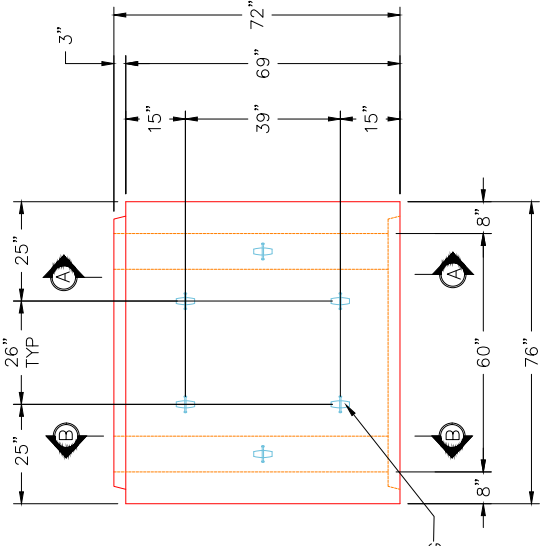
P6 BC048060-08W08T08F-09H BOX CULVERT (08W/08F/08T) T/G T/G

NOTES:

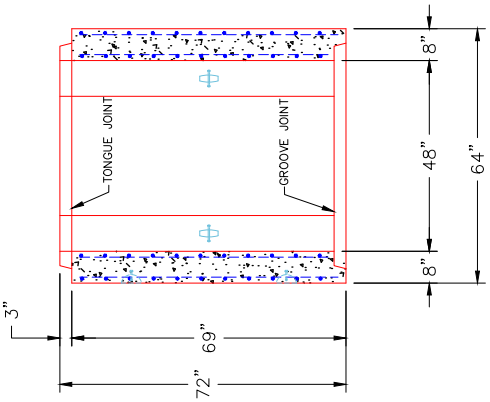
1. BOX CULVERT IS DESIGNED PER INDOT STANDARD SPECIFICATIONS IN ACCORDANCE W/ AASHTO LFRD 9TH EDITION.
2. LOAD REQUIREMENTS = HL93.
3. COVER DEPTH = 2' TO 5'.
4. CONCRETE: 5,000 PSI AT 28 DAYS.
5. TYPE 2 WATERPROOFING MEMBRANE TO BE PROVIDED & INSTALLED BY OTHERS.
6. REINFORCING PER ASTM C1577 (GARDE 60).
7. BOX CULVERT TO BE SEALED WITH CS-102 ROLL & CS-212 12" WRAP W/ CS-75 PRIMER (SUPPLIED BY ICAST).
8. WEIGHT = 12,425 LBS



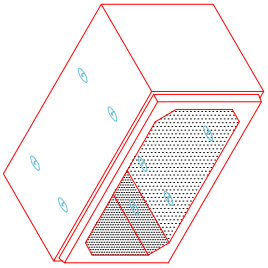
TOP VIEW



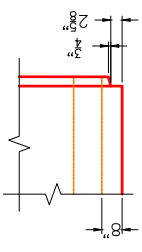
FRONT VIEW



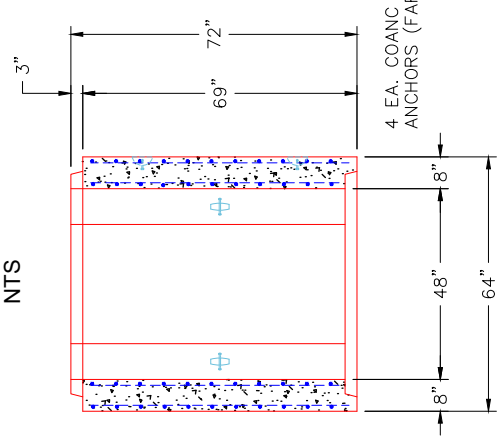
SECTION B-B



COMPONENT ISOMETRIC VIEW



JOINT DETAIL (TYP.)
NTS



SECTION A-A

Coating (Int): Coating (Ext):	Seam Up: Tongue Seam Dn: Groove	Wall Thickness: 8" Floor Height: 0"	Height (Int): 69" Height (Ext): 69"	Weight (Net): 12423 lb Volume (Net): 3.17cu.yd

Job Name: 26-1508BC - Ferdinand State Park Culverts Replacement Job Location: Ferdinand, IN Contractor: WB Koester Construction, LLC	Plant: 100 9/15/2026 1:35:30 PM	Tech: Jared - F PC: E. Bradley	

Structure ID: CV-2 Box Culvert

P6 BC048060-08W08T08F-09H BOX CULVERT (08W/08F/08T) T/G T/G

INFRASTRUCTURE PRECAST (ICAST)

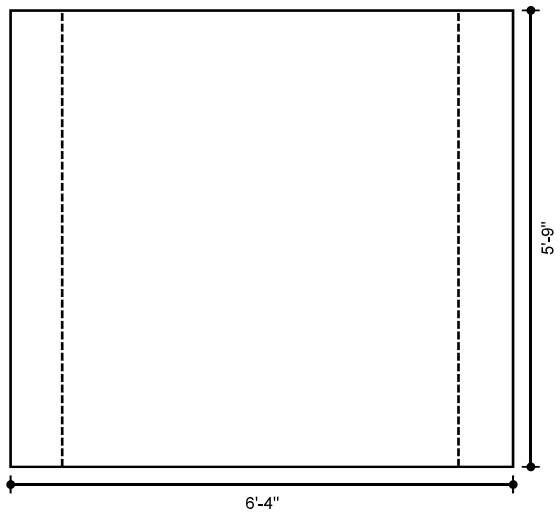
Sht_____of_____
By:J. Horsley
Ck:_____
9/22/2026 10:54:52 AM
Page 1 of 4

Project : Ferdinand State Forest Culvert
Task :
Client: W.B. Koester
Job No. : 26-1508BC
File: 5x4 BC Four Sided - 26-1508BC Ferdinand State Forest.tcx

Spec.: LRFD 9th ed.
Type of Culvert: Precast

Physical Dimensions

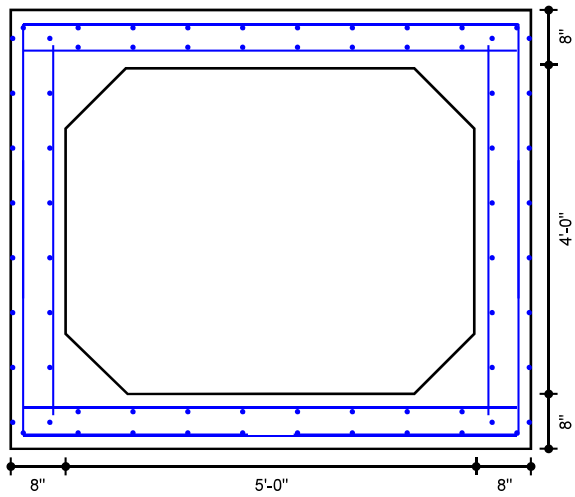
Clear Span:	5'-0"
Clear Height:	4'-0"
Top Slab:	8"
Bottom Slab:	8"
Ext. Wall:	8"
Fill Depth Range	
Maximum:	3.99 ft
Minimum:	2.00 ft
Increment:	0.50 ft
Length:	5'-9"
Skew Angle:	0.00 deg
Bottom Slab Support:	Full Slab
Top Haunch, Width:	9"
Top Haunch, Height:	9"
Bottom Haunch, Width:	9"
Bottom Haunch, Height:	9"



Plan View

Material Properties

Concrete	
Strength, f'c:	5.000 ksi
Density:	0.150 kcf
Elasticity, Ec:	4592 ksi
Type:	Normal wt
Steel	
Yield, fy:	60 ksi
Allow Stress:	36 ksi
Elasticity, Es:	29000 ksi
Soil	
Density:	0.120 kcf
Exposure Factor	
User-Defined:	1.00
Reinforcement Covers	
Ext. Cover Top Slab:	2"
Ext. Cover Bottom Slab	1 1/2"
Ext. Cover Walls	1 1/2"
Int. Cover Walls	1 1/2"
Int. Cover Top Slab	2"
Int. Cover Bottom Slab	2"



Typical Section

Controlling Ratings

Inventory Rating: 1.64
Operating Rating: 2.13

Loads

Live Load	
Vehicle Names:	KY HL-93
Traffic Direction:	Parallel
Eq. Height of Soil:	Calculated
Dead Load	
Future Wearing Surface:	0.000 klf
Additional Dead Load:	0.000 klf
Concentrated Loads:	none
Interior Water Pressure:	no
Exterior Water Pressure:	no

Lateral Soil Loads	
Eq. Fluid Press. Max:	60.00 pcf
Eq. Fluid Press. Min:	30.00 pcf

Job Name: 26-1508BC - Ferdinand State Park Culverts Replacement Job Location: Ferdinand, IN Contractor: WB Koester Construction, LLC	Plant: 100 9/15/2026 1:35:30 PM	Tech: Jared - F PC: E. Bradley	

Structure ID: CV-2 Box Culvert

P6 BC048060-08W08T08F-09H BOX CULVERT (08W/08F/08T) T/G T/G

INFRASTRUCTURE PRECAST (ICAST)

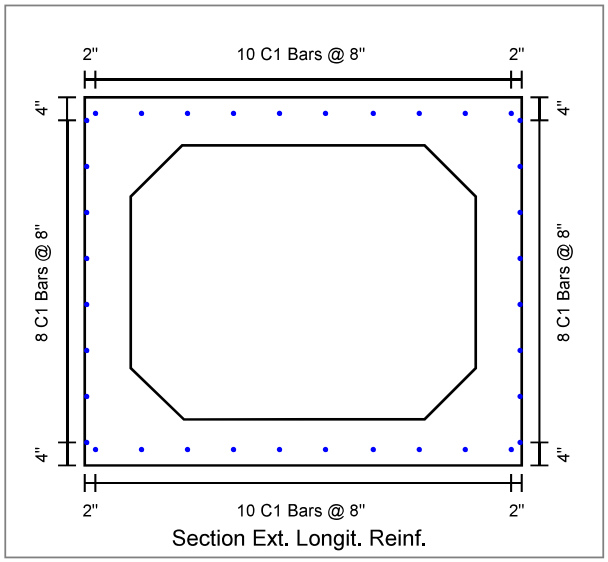
Sht_____of_____
By:J. Horsley
Ck:_____
9/22/2026 10:54:53 AM
p. 2 of 4

Project : Ferdinand State Forest Culvert
Task :
Client: W.B. Koester
Job No. : 26-1508BC
File: 5x4 BC Four Sided - 26-1508BC Ferdinand State Forest.etx

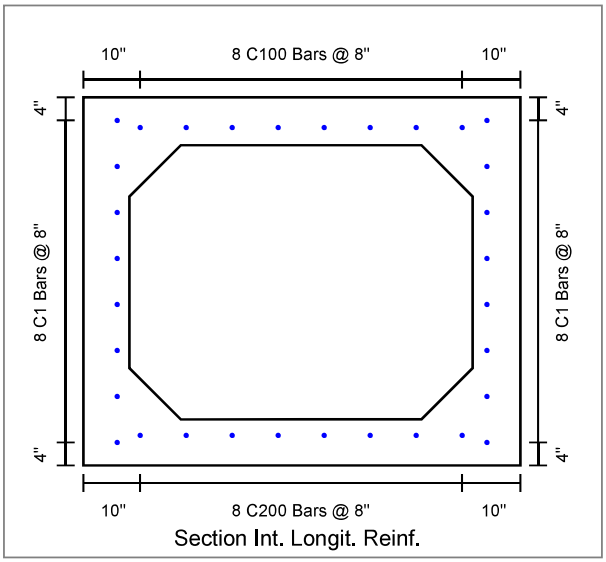
Concrete Summary
Volume of Concrete: 0.552 cy/ft Total Volume of Concrete: 3.174 cy

Reinforcing Steel Bar Schedule (lb)

Location	Mark	Qty	Size	Spacing	Type	Length	Hor.Leg	Ver.Leg	Tot.Weight
Top Slab(Int)	A100 (AS2)	9	5	8"	S	6'-0"	--	--	56.0
Bot Slab(Int)	A200 (AS3)	9	5	8"	S	6'-0"	--	--	56.0
Top Slab(Ext)	A300 (AS7)	9	5	8"	S	6'-0"	--	--	56.0
Bot Slab(Ext)	A400 (AS8)	9	5	8"	S	6'-0"	--	--	56.0
Corner(Top)	A1 (AS1)	18	5	8"	L	6'-5"	3'-1"	3'-4"	120.0
Corner(Bot)	A2 (AS1)	18	5	8"	L	6'-1"	2'-9"	3'-4"	114.0
Wall(Int)	B1 (AS4)	18	5	8"	S	4'-6"	--	--	84.0
Longit. Top (Int)	C100 (AS5)	8	5	8"	S	5'-8"	--	--	47.0
Longit. Bot (Int)	C200	8	5	8"	S	5'-8"	--	--	47.0
Longit. Top (Ext)	C1 (AS6)	10	5	8"	S	5'-8"	--	--	59.2
Longit. Bot (Ext)	C1 (AS6)	10	5	8"	S	5'-8"	--	--	59.2
Longit. Wall (Ext)	C1 (AS6)	16	5	8"	S	5'-8"	--	--	94.7
Longit. Wall (Int)	C1 (AS6)	16	5	8"	S	5'-8"	--	--	94.7
									944



Section Ext. Longit. Reinf.



Section Int. Longit. Reinf.

Job Name: 26-1508BC - Ferdinand State Park Culverts Replacement Job Location: Ferdinand, IN Contractor: WB Koester Construction, LLC	Plant: 100 9/15/2026 1:35:30 PM	Tech: Jared - F PC: E. Bradley	

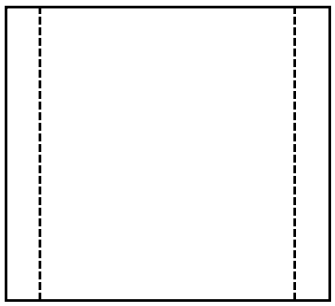
Structure ID: CV-2 Box Culvert

P6 BC048060-08W08T08F-09H BOX CULVERT (08W/08F/08T) T/G T/G

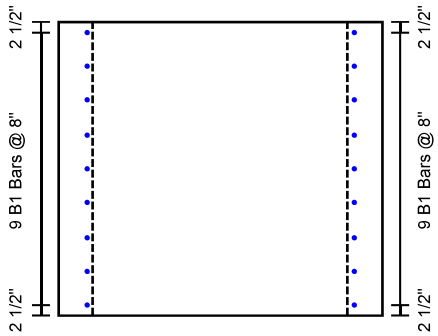
INFRASTRUCTURE PRECAST (ICAST)

Sht_____of_____
By:J. Horsley
Ck:_____
9/22/2026 10:54:53 AM
p. 3 of 4

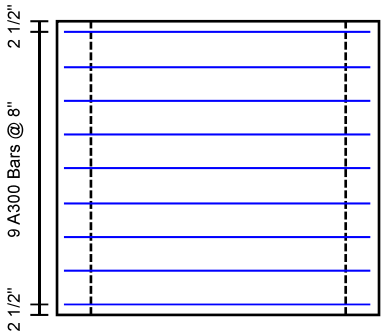
Project : Ferdinand State Forest Culvert
Task :
Client: W.B. Koester
Job No. : 26-1508BC
File: 5x4 BC Four Sided - 26-1508BC Ferdinand State Forest.stx



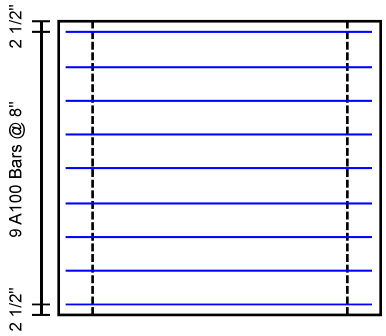
Ext. Wall Reinf.



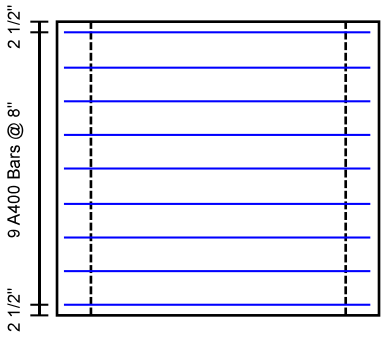
Int. Wall Reinf.



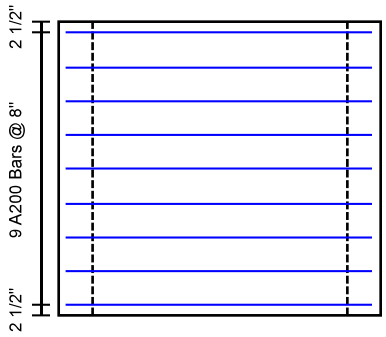
Top Slab Ext. Reinf.



Top Slab Int. Reinf.



Bottom Slab Ext. Reinf.



Bottom Slab Int. Reinf.

Job Name: 26-1508BC - Ferdinand State Park Culverts Replacement Job Location: Ferdinand, IN Contractor: WB Koester Construction, LLC	Plant: 100 9/15/2026 1:35:30 PM	Tech: Jared - F PC: E. Bradley	

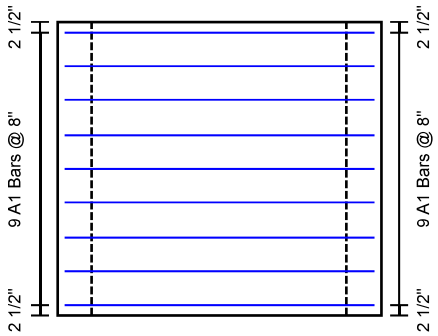
Structure ID: CV-2 Box Culvert

P6 BC048060-08W08T08F-09H BOX CULVERT (08W/08F/08T) T/G T/G

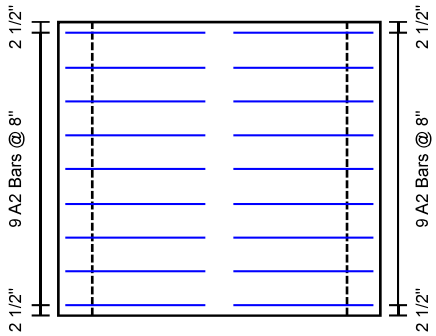
INFRASTRUCTURE PRECAST (ICAST)

Sht_____of_____
By:J. Horsley
Ck:_____
9/22/2026 10:54:53 AM
p. 4 of 4

Project : Ferdinand State Forest Culvert
Task :
Client: W.B. Koester
Job No. : 26-1508BC
File: 5x4 BC Four Sided - 26-1508BC Ferdinand State Forest.etx



Top Slab Corner Reinf.



Bottom Slab Corner Reinf.