

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	87 N-0615-01	2017	69	183



**GENERAL NOTES**

**DESIGN SPECIFICATION:** AASHTO LRFD Spec., 2007 Ed., 2009 Int.

**DESIGN LOADING:** HL93

**UNIT STRESSES:** Grade 4.0 Concrete  $f'c = 4,000$  p.s.i.  
Reinforcing Steel  $f_y = 60,000$  p.s.i.

**FILL HEIGHT:** Unless otherwise noted, the Design Fill Height is measured from the riding surface at the culvert and includes the surfacing.

**CONCRETE:** Use concrete conforming to Grade 4.0 Concrete. Bevel all exposed edges with a  $\frac{3}{4}$ " triangular molding.

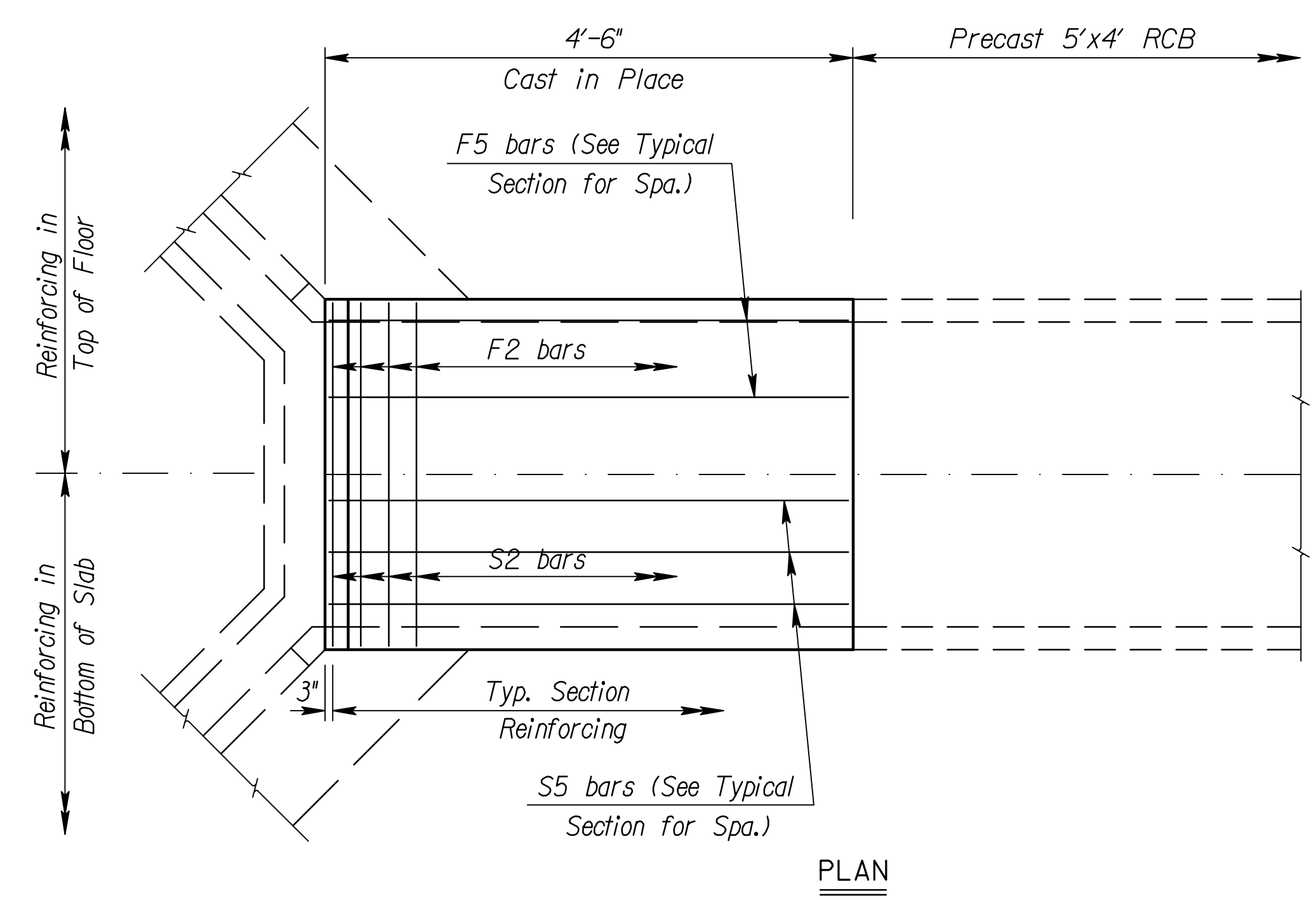
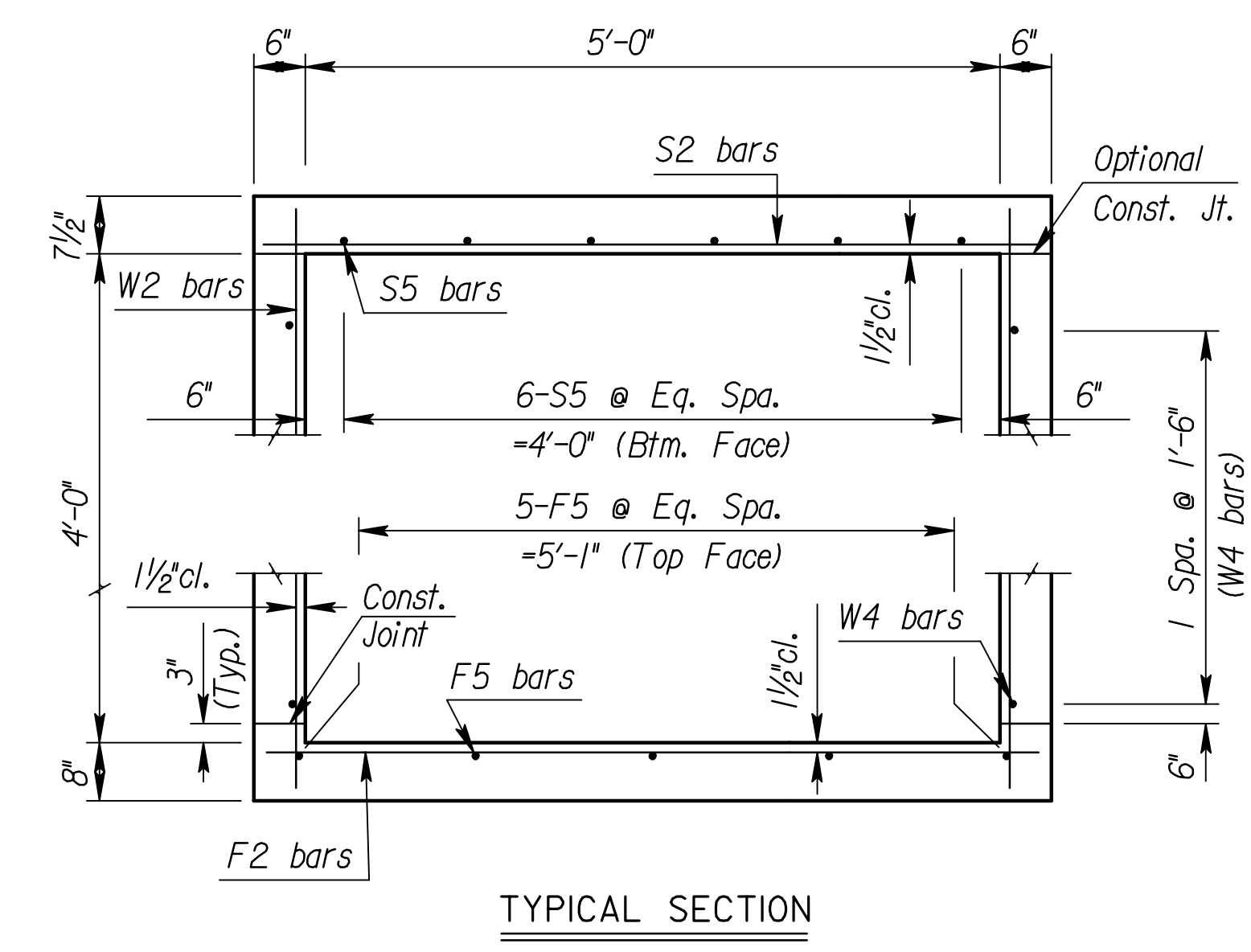
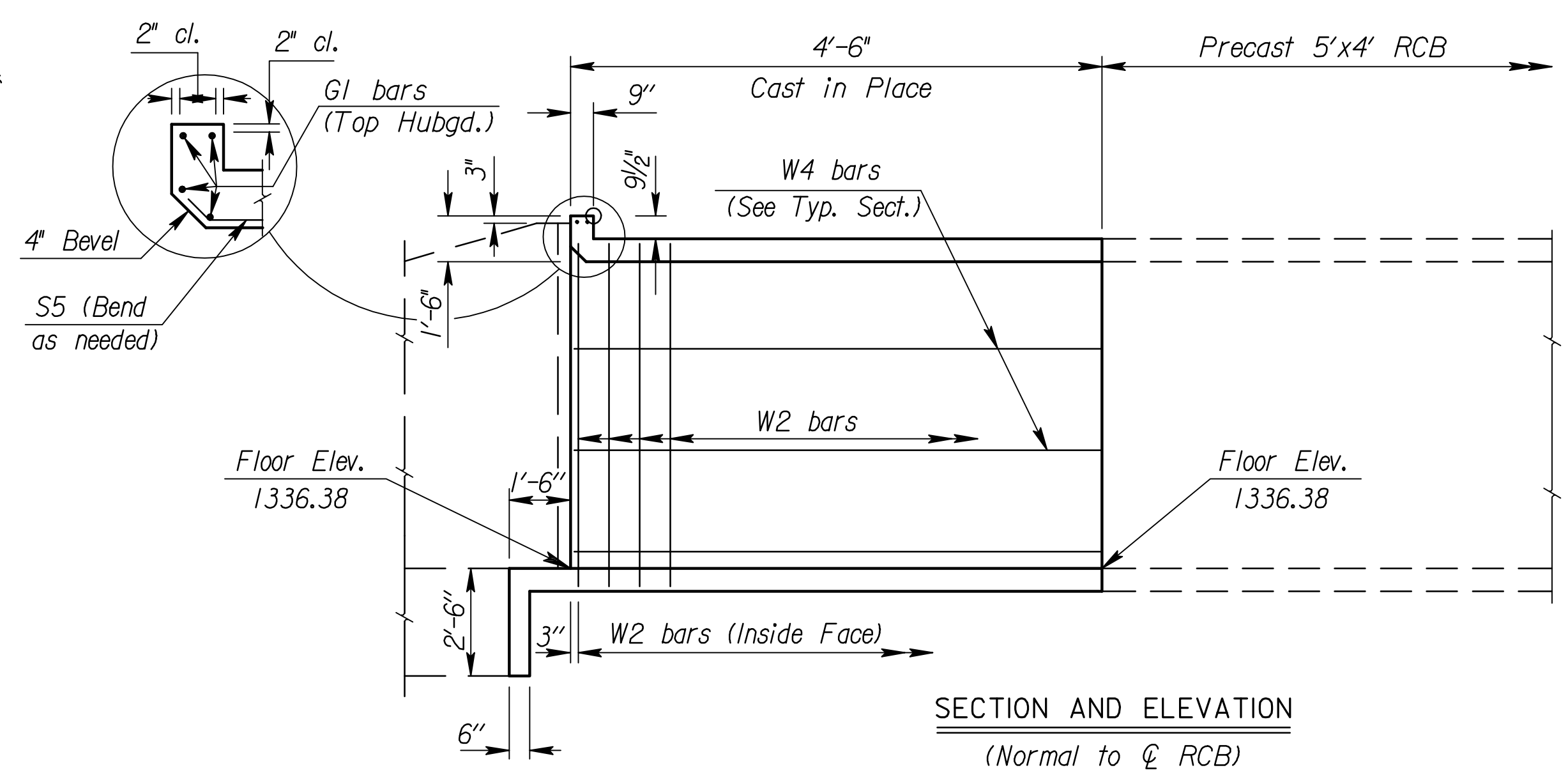
**REINFORCING:** Use reinforcing steel conforming to ASTM A615, Grade 60. All dimensions relative to reinforcing steel are to the centerline of the bar unless otherwise noted.

**SEAL COURSE:** The Engineer may require a seal course. The seal course shall be unreinforced Concrete (Commercial Grade) with a minimum depth of 3 inches or as determined by the Engineer. Concrete for the seal course shall be subsidiary to the bid item "Pipe, SWS, RCBC (5'x4)".

**FOUNDATION STABILIZATION:** The Foundation Stabilization quantity has been calculated to the limits shown on the "RCB Auxiliary Details" sheet. The depth may be increased by the Engineer. The Contractor may underrun Foundation Stabilization under the barrel if founded on firm material and with the Engineer's approval. Use Foundation Stabilization on all wingwalls unless founded on rock or granular material.

**QUANTITIES:** The quantities shown in the Culvert Summary include apron quantities.

**GRANULAR BACKFILL (WINGWALLS):** See the "Auxiliary Details" sheet.



⚠ For design purposes ONLY. Do NOT use for Construction

CULVERT SUMMARY													LRFR RATING FACTORS		
Floor Elev.	Crown Gr. Elev.	Design Fill Ht.	Skew	U.S. Wings	D.S. Wings	Scour Apron	Soil Saver	Concrete			Reinf. Steel (Gr. 60)			HL-93 Loading	
								Barrel (Cu.Yds.)	Wings (Cu.Yds.)	Total (Cu.Yds.)	Barrel (Lbs.)	Wings (Lbs.)	Total (Lbs.)	Inventory	Operating
1336.38	N/A	2	0	Flared	N/A	No	No	2.09	3.72	5.81	283	474	757	1.68	2.17

BAR SCHEDULE																							
F2			F5			S2			S5			W2			W4			G2					
Size	Spa.	No.	Length	Size	No.	Length	Size	Spa.	No.	Length	Size	No.	Length	Size	No.	Length	Size	No.	Length	Size	No.	Length	
5	5"	14	5'-8"	4	5	5'-8"	5	5"	11	5'-8"	5	6	4'-2"	4	9"	14	4'-11"	4	4	4'-2"	5	4	5'-8"

SUMMARY OF QUANTITIES	
Concrete (Grade 4.0)	5.8 C.Y.
Reinforcing Steel (Gr. 60)	757 Lbs.
Foundation Stabilization	3 C.Y.
Concrete for Seal Course (Set)	1 C.Y.
Granular Backfill (Wingwalls)	10 C.Y.

**NOTE:** The Summary of Quantities is provided for information only. All materials, labor, and equipment required for the construction of the Cast in Place RCB (as shown) shall be considered subsidiary to the bid item "Pipe, SWS, RCBC (5'x4)".

STREET IMPROVEMENTS FOR  
**127TH STREET EAST**  
FROM 13TH STREET NORTH TO 21ST STREET NORTH

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**STORM SEWER LINE 1 - 5' x 4' RCB DETAILS**

PROJECT NO.	472-85158	
DATE	11/29/17	
SCALE	NTS	
DESIGNED	DRAWN	CHECKED
JRA	DMU	KJS

NO.	REVISION	DATE

SHEET NO.  
**69 OF 183**

PLOTED: Wednesday, November 29, 2017 @ 02:55PM  
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