



# INDIANA DEPARTMENT OF TRANSPORTATION

*Driving Indiana's Economic Growth*

## Design Memorandum No. 16-21 Technical Advisory

May 20, 2016

**TO:** All Design, Operations, and District Personnel, and Consultants

**FROM:** /s/Mark Bailey  
Mark Bailey  
Manager, Office of Hydraulics  
Bridges Division

**SUBJECT:** Semi-Smooth Pipe Interior Designation

**REVISES:** *Indiana Design Manual* Section 203-2.02(13) and Figure 203-2F

**EFFECTIVE:** Hydraulic Submittals on or after July 1, 2016

The Department has incorporated a semi-smooth interior designation for pipe culverts. Hydraulic calculations should use the Manning's "n" value of 0.015 for semi-smooth pipes during the pipe sizing process. The Department will not revisit previously approved hydraulic recommendations to evaluate a semi-smooth interior designation.

The minimum and maximum height of cover values and acceptable pipe types for semi-smooth pipes are an attachment to this memo and may be used for preliminary design purposes. Revisions to the INDOT *Standard Drawings* series 715-PHCL, Pipe Height of Cover Limits, will be made available upon approval by the Standards Committee.

The Pipe Material Selection Program is currently being updated to reflect the semi-smooth interior.

The referenced *Indiana Design Manual* section and figure have been revised to incorporate this change.

Design Memo 16-21 Semi-Smooth Pipe, Attachment 1

Material	Pipe Type				
	1	2	3	4	5
Spiral Rib Steel Pipe (SS)	x		x		x

3/4" x 3/4" x 7 1/2" SPIRAL RIB STEEL PIPE HEIGHT OF COVER LIMITS (ft)						
DIAMETER (in.)	THICKNESS (in.)					
	0.064		0.079		0.109	
	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
12	1.25	100.0	1.25	100.0	1.25	100.0
15	1.25	100.0	1.25	100.0	1.25	100.0
18	1.25	68.0	1.25	72.0	1.25	100.0
21	1.25	58.0	1.25	62.0	1.25	100.0
24	1.25	51.0	1.25	60.0	1.25	100.0
30	1.25	41.0	1.25	58.0	1.25	97.0
36	1.25	34.0	1.25	48.0	1.25	81.0
42	1.25	29.0	1.25	41.0	1.25	69.0
48	1.25	26.0	1.25	36.0	1.25	61.0
54	1.25	23.0	1.25	32.0	1.25	54.0
60			1.25	29.0	1.25	49.0
66			1.25	26.0	1.25	44.0
72			1.25	24.0	1.25	40.0
78					1.25	37.0
84					1.25	35.0
90					2.75	32.0
96					2.75	30.0
102					2.75	29.0
108					2.75	27.0