

SUDAS Revision Submittal Form

Status Date: As of 5/12/2017 **Topic:** Depth of bury for polypropylene pipe
Manual: Design **Manual Location:** Section 9B-5, C, 3

Requested Revision:

Section 9B-5 (Depth of Bury Tables), C (Flexible Pipe Assumptions)

3. Polypropylene Assumptions: The depth of bury calculations for polypropylene pipe were completed in accordance with the AASHTO LRFD Bridge Design Specifications, Sixth Edition. Most of the design criteria are as noted below and the remaining load factors and modifiers are as specified in AASHTO.

- **General Design Criteria**
 - Design Interval: 50 years
 - Live load applied per NCHRP 647 (checked against AASHTO LRFD)
 - Deflection limit: $\Delta_A = 5\%$
- **Site Assumptions:**
 - Clay soils
 - Groundwater assumed 2 feet below ground surface
 - Unit weight of wet soil: $g_s = 120$ pcf
 - Void ratio of soil: $e = 1.9$ (soft, slightly organic clay)
- **Installation Properties**
 - Soil compaction: 90% (note: 95% is required by the specs, but a lower value was used for design to recognize the fact that trench compaction is difficult to achieve and sometimes lacking).
 - Pipe Embedment Material: Crushed stone envelope
 - Pipe Embedment Material Compaction: Dumped condition
 - Bedding coefficient = $K_B = 0.100$
 - Deflection lag factor: $D_L = 1.5$
- **AASHTO Load Factors & Modifiers**
 - Factor for uncertainty in groundwater: $K_{wa} = 1.0$
 - Installation Factor: $K_{gE} = 1.5$
 - Coefficient for Variation of Thrust: $K_2 = 1.0$ (at springline)
 - Load Factor for vertical earth pressure: $g_{EV} = 1.3$

Table 9B-5.09: Allowable Depth of Bury for Polypropylene Pipe

Pipe Diameter (inches)	ASTM F 2736 (feet)	ASTM F 2764 (feet)
12	24	---
15	25	---
18	22	---
24	20	---
30	22	22
36	---	21
42 ¹	---	22
48 ¹	---	23
54 ¹	---	21
60 ¹	---	21

¹ Storm Sewer only.
 Minimum depth of cover for all diameters 12 to 54 inches is 1 foot.
 Minimum cover for 60 inch pipe is 2 feet.

Reason for Revision: Addition of depth of bury tables for polypropylene pipe.

Comments: None.

District:	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input checked="" type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
Comments:	None.					
Action:	<input type="checkbox"/> Deferred		<input type="checkbox"/> Not Approved		<input checked="" type="checkbox"/> Approved	

District:	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
Comments:	None.					
Action:	<input type="checkbox"/> Deferred		<input type="checkbox"/> Not Approved		<input checked="" type="checkbox"/> Approved	

District:	<input checked="" type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
Comments:	None.					
Action:	<input type="checkbox"/> Deferred		<input type="checkbox"/> Not Approved		<input checked="" type="checkbox"/> Approved	

District:	<input type="checkbox"/> 1	<input checked="" type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 6
Comments:	None.					
Action:	<input type="checkbox"/> Deferred		<input type="checkbox"/> Not Approved		<input checked="" type="checkbox"/> Approved	

District:	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input checked="" type="checkbox"/> 6
Comments:	None.					
Action:	<input type="checkbox"/> Deferred		<input type="checkbox"/> Not Approved		<input checked="" type="checkbox"/> Approved	

District:	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input checked="" type="checkbox"/> 5	<input type="checkbox"/> 6
Comments:	Noted a typo. <i>Note - this was fixed.</i>					
Action:	<input type="checkbox"/> Deferred		<input type="checkbox"/> Not Approved		<input checked="" type="checkbox"/> Approved	

Final District Action Summary: All 6 districts approved.

Board of Directors Action: Approved.