

County Station	Activities 151479	Route Station	293	Section	11.14	PRD	12259	Shape Span Area	Elliptical
Span and Rise not Required for Elliptical Shape									
Constants and Calculated Values									
User Input		Constants and Calculated Values							
pH <sub>w</sub>	Abrasion Level	pH <sub>s</sub>	Sediment/Rise	End of Service Life GA	Service Life Required				
8.1	1.0	7.6	0	4	75				

Metal Conduit Durability Results													
Material		707.01, 707.04, or 707.03 Metallic coated (galvanized)	707.01 or 707.02 or 707.03 Metallic coated (galvanized) With Concrete Field Paving	707.01 or 707.02 Metallic coated (aluminized)	**707.01 or 707.02 Metallic coated (aluminized) with Concrete Field Paving	707.04 Polymeric Coated over galvanized steel	**707.04 Polymeric Coated with Concrete Field Paving	707.05 or 707.07 (707.01 or 707.02 Bluminous coated with Bluminous paved invert	**707.05 or 707.07 (707.01 or 707.02 Bluminous coated with Bluminous paved invert	**707.05 or 707.07 (707.01 or 707.02 Bluminous coated with Bluminous paved invert	**707.05 or 707.07 (707.01 or 707.02 Bluminous coated with Bluminous paved invert	**707.05 or 707.07 (707.01 or 707.02 Bluminous coated with Bluminous paved invert	**707.05 or 707.07 (707.01 or 707.02 Bluminous coated with Bluminous paved invert
Conduit Use and Shape		Culvert or Liner Pipe - Round or Pipe Arch	Culvert, Storm Sewer, or Liner Pipe Arch, and Culvert or Liner Pipe - Round or Pipe Arch	Culvert or Liner Pipe - Round or Pipe Arch	Culvert - Round or Pipe Arch	Culvert or Liner Pipe - Round or Pipe Arch	Culvert or Liner Pipe - Round or Pipe Arch	Culvert - Round or Pipe Arch	Culvert - Round or Pipe Arch	Culvert - Round or Pipe Arch	Culvert - Round or Pipe Arch	Culvert - Round or Pipe Arch	Culvert - Round or Pipe Arch
Corr. Depth (inches)		1	1/4 or 1/2	3/4	1	1/4 or 1/2	3/4	1	1/4 or 1/2	3/4	1	1/4 or 1/2	3/4
min gauge or thickness		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
max gauge or thickness		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gauge		16	16	16	16	16	16	16	16	16	16	16	16
Thickness (feet)		0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064
		14	14	14	14	14	14	14	14	14	14	14	14
		12	12	12	12	12	12	12	12	12	12	12	12
		10	10	10	10	10	10	10	10	10	10	10	10
		8	8	8	8	8	8	8	8	8	8	8	8
		7	7	7	7	7	7	7	7	7	7	7	7
		5	5	5	5	5	5	5	5	5	5	5	5
		3	3	3	3	3	3	3	3	3	3	3	3
Casing		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

Concrete Conduit Durability Results			
Material	**706.01 Non-reinforced Concrete Pipe	**706.02 Reinforced Concrete Pipe	**706.04 Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe
Conduit Use and Shape	Culvert or Storm Sewer - Round	Culvert or Storm Sewer - Round or Elliptical	Culvert or Storm Sewer - Elliptical

Plastic Conduit Durability Results									
Material	707.33 Corrugated Polyethylene Smooth Lined Pipe	707.34 Polyethylene Plastic Pipe Based on Outside Diameter (OD)	707.35 Polyethylene Profile Wall Pipe	707.43 Polyvinyl Chloride Corrugated Smooth Interior Pipe	707.44 Polyvinyl Chloride Profile Wall Pipe	707.45 Polyvinyl Chloride Solid Wall Pipe	707.46 Polyvinyl Chloride Drain Waste and Vent Pipe	707.47 ABS and Polyvinyl Chloride Composite Pipe	707.48 Polyvinyl Chloride Manholes and Damaged Solid Wall Pipe
Conduit Use and Shape	Culvert, Storm Sewer, or Liner Pipe - Round	Culvert, Storm Sewer, or Liner Pipe - Round	Culvert, Storm Sewer, or Liner Pipe - Round	Storm Sewer or Liner Pipe - Round	Storm Sewer or Liner Pipe - Round	Storm Sewer - Round	Storm Sewer - Round	Storm Sewer - Round	Storm Sewer - Round

Notes:

Many metal options are eliminated when abrasion level equals 4 or greater

Aluminum is only available between pH levels ranging from 5.0 to less than 9.0

Aluminized protective coating is 10 years when pH levels are outside of allowable for Aluminum

Polymeric coated is only available for gauges greater than 5.0 and less than 9.0

Concrete is only available for gauges greater than 5.0 and less than 9.0

Concrete is only available for gauges greater than 5.0 and less than 9.0

Epoxy is required on all concrete surfaces when pH<5

\*\*\*Minimum gauges set per industry comments; see Reference Data

Provide concrete field paving on corrugated metal conduits 60" or larger where the invert is always submerged due to tailwater conditions from a body of water

Designer is responsible to ensure the required gage thickness is available for the given pipe size

Constants	
Protective Coating Constant/Initial Service Life (years)	
Concrete Invert Paving	20
Aluminized	25
Aluminized Spiral Invert	25
Aluminized Spiral Invert	25
Bluminous coated w/ Blum. paved Invert	10
Bluminous lined	25
Galvanized	0