

County	LAW	Route	52	Section	21.52	PID	118119	Shape	Circular
Station	208+36.96	Station	209+09.19					Span x Rise	12

User Input	
pH <sub>c</sub>	Abrasion Level
7.0	1.0

Constants and Calculated Values			
pH <sub>s</sub>	Sediment/Rise	End of Service Life GA	Service Life Required
7.6	0	4	75

Metal options: 12" Type B conduit, 707.02 (0.064) Aluminized, 707.04 (0.064)

Metal Conduit Durability Results																							
Material		707.01 , 707.02, 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 galvanized) 1/2 Bituminous coated with Bituminous paved invert	***707.05 or 707.07 (707.01 or 707.02 aluminized) 1/2 Bituminous coated with Bituminous paved invert	**707.11 Polymer Precoated spiral rib steel	**707.12 or 707.17 Aluminum coated spiral rib steel	707.13 or 707.14 (707.01 or 707.02 galvanized) Bituminous lined galvanized steel	707.13 or 707.14 (707.01 or 707.02 aluminized) Bituminous lined aluminized steel	707.15 Galvanized steel box	**707.18 Polymer Precoated, Galvanized Steel Conduits with precoated galvanized smooth steel interior liner	**707.19 Aluminum coated Steel Conduits with precoated galvanized smooth steel interior liner	**707.20 Galvanized Coated Steel Conduits with precoated galvanized smooth steel interior liner	**748.06 Steel Casing Pipe non-galvanized	707.21 or 707.22 Aluminum	707.23 Aluminum Structural Plate	707.24 Aluminum Spiral Rib	707.25 Aluminum Box	707.21, 707.22, or 707.23 Aluminum Alloy or Aluminum Alloy Structural Plate with Concrete Invert Paving
Conduit Use and Shape		Culvert or Liner Pipe - Round or Pipe Arch	Culvert-Round, Pipe Arch, and Arch	Culvert or Liner Pipe -Round or Pipe Arch	Culvert -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	Storm Sewer or Liner Pipe- Round	Liner Pipe- Round or Pipe Arch	Storm Sewer - Round or Pipe Arch	Storm Sewer -Round or Pipe Arch	Culvert -Box	Liner Pipe -Round	Liner Pipe -Round	Liner Pipe - Round	Culvert or Liner Pipe- Round, Pipe Arch, or Box	Culvert or Liner Pipe- Round or Pipe Arch	Culvert or Liner Pipe - Round, Pipe Arch, and Arch	Storm Sewer or Liner Pipe -Round	Culvert -Box	Culvert - Round or Pipe Arch
min gauge or thickness	Corr. Depth (inches)	16	16	16	16	16	16	16	16	N/A	N/A	16	16	N/A	N/A	N/A	N/A	0.5	16	N/A	N/A	N/A	16
	1	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
	2	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
	3/4	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	1/4 or 1/2	14	14	14	14	14	14	14	14	N/A	N/A	14	14	N/A	N/A	N/A	N/A	0.5	12	N/A	N/A	N/A	12
	1	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
	2	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
	3/4	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	Thickness (inches)																						
16	0.064																						
14	0.079																						
12	0.109																						
10	0.138																						
8	0.168																						
7	0.188																						
5	0.218																						
3	0.249																						
1	0.28																						
Casing	0.5																						

Concrete Conduit Durability Results						
Material	**706.01 Non-reinforced Concrete Pipe	**706.02 Reinforced Concrete Circular Pipe	**706.03 Reinforced Concrete Pipe, Epoxy Coated	**706.04 Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe	**706.05 Precast Reinforced Concrete Box Sections	706.08 Clay Drain Tile
Conduit Use and Shape	Culvert or Storm Sewer - Round	Culvert or Storm Sewer -Round	Culvert or Storm Sewer - Round or Elliptical	Culvert or Storm Sewer -Elliptical	Culvert or Storm Sewer - Box	Culvert or Storm Sewer - Round

Concrete options: 12" Type B conduit, 706.02

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	707.42 Polyvinyl Chloride Corrugated Smooth Interior Pipe	707.43 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 Large- Diameter Solid Wall Pipe	707.65 Corrugated Polypropylene Smooth Lined Pipe	707.75 Glass-Fiber- Reinforced Polymer Mortar Pipe	707.85 Steel Reinforced Thermoplastic Ribbed Pipe	748.02 Polyvinyl Chloride (PVC) Pipe, Joints, and Fittings
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	Culvert or Storm Sewer - Round	Culvert, Storm Sewer, or Liner Pipe - Round	Culvert or Liner Pipe - Round	Storm Sewer - Round

Plastic options: 12" Type B conduit, 707.33, 707.34, 707.35, 707.42, 707.43, 707.45, 707.46, 707.47, 707.65, 707.75,748.02

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 0 years when pH levels are outside of allowable for Aluminum
- Polymeric coated is only available for pH ranges greater than 5.0 and less than 9.0
- Options were eliminated when the NCSPA online Service Life Calculator did not recommend option; typically due to abrasive conditions or pH limitations
- Epoxy is required on all concrete surfaces when pH<5
- \*\* Smooth lined conduit
- \*\*\* Minimum gauges set per industry comments; see Reference Dat
- Provide concrete field paving on corrugated metal conduits 60" or larger where the invert is always submerged due to tail water conditions from a body of water

Constants	
Protective Coating	Constants-Initial Service Life (years)
Concrete Invert Paving=	20
Aluminized=	35
Aluminized Spiral Rib=	35
Polymeric=	50
Bituminous coated w/ bitum. paved invert=	10
Bituminous lined =	25
Galvanized=	0

Final Pay Item for Plans

Metal options: 12" Type B conduit, 707.02 (0.064) Aluminized, 707.04 (0.064)  
Concrete options: 12" Type B conduit, 706.02  
Plastic options: 12" Type B conduit, 707.33, 707.34, 707.35, 707.42, 707.43, 707.45, 707.46, 707.47, 707.65, 707.75,748.02

County	LAW	Route	52	Section	21.52	PID	118119	Shape	Circular
Station	1269+64.70	Station	1269+77.53						

User Input	
pH <sub>u</sub>	Abrasion Level
7.0	1.0

Constants and Calculated Values			
pH <sub>s</sub>	Sediment/Rise	End of Service Life GA	Service Life Required
7.6	0	4	75

Metal options:15" Type B Conduit, 707.02 (0.064) Aluminized, 707.04 (0.064)

Metal Conduit Durability Results																						
Material	707.01 , 707.02, 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 galvanized) 1/2 Bituminous coated with Bituminous paved invert	***707.05 or 707.07 (707.01 or 707.02 aluminized) 1/2 Bituminous coated with Bituminous paved invert	**707.11 Polymer Precoated spiral rib steel	**707.12 or 707.17 Aluminum coated spiral rib steel	707.13 or 707.14 (707.01 or 707.02 galvanized) Bituminous lined galvanized steel	707.13 or 707.14 (707.01 or 707.02 aluminized) Bituminous lined aluminized steel	707.15 Galvanized steel box	**707.18 Polymer Precoated, Galvanized Steel Conduits with precoated galvanized smooth steel interior liner	**707.19 Aluminum coated Steel Conduits with precoated galvanized smooth steel interior liner	**707.20 Galvanized Coated Steel Conduits with precoated galvanized smooth steel interior liner	**748.06 Steel Casing Pipe non-galvanized	707.21 or 707.22 Aluminum	707.23 Aluminum Structural Plate	707.24 Aluminum Spiral Rib	707.25 Aluminum Box	707.21, 707.22, or 707.23 Aluminum Alloy or Aluminum Alloy Structural Plate with Concrete Invert Paving
Conduit Use and Shape	Culvert or Liner Pipe - Round or Pipe Arch	Culvert-Round, Pipe Arch, and Arch	Culvert or Liner Pipe -Round or Pipe Arch	Culvert -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	Storm Sewer or Liner Pipe- Round	Liner Pipe- Round or Pipe Arch	Storm Sewer - Round or Pipe Arch	Storm Sewer -Round or Pipe Arch	Culvert -Box	Liner Pipe -Round	Liner Pipe -Round	Liner Pipe - Round	Culvert or Liner Pipe- Round, Pipe Arch, or Box	Culvert or Liner Pipe- Round or Pipe Arch	Culvert or Liner Pipe - Round, Pipe Arch, and Arch	Storm Sewer or Liner Pipe -Round	Culvert -Box	Culvert - Round or Pipe Arch
min gauge or thickness	Corr. Depth (inches)	16	16	16	16	16	16	16	N/A	N/A	16	16	N/A	N/A	N/A	N/A	0.5	16	N/A	N/A	N/A	16
	1/4 or 1/2	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
	1	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
	2	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	3/4	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	0.5	N/A	N/A	N/A	N/A	N/A
	1/4 or 1/2	14	14	14	14	14	14	14	N/A	N/A	14	14	N/A	N/A	N/A	N/A		12	N/A	N/A	N/A	12
	1	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
	2	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
Casing	3/4	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
	1/4 or 1/2	14	14	14	14	14	14	14	N/A	N/A	14	14	N/A	N/A	N/A	N/A	0.5	12	N/A	N/A	N/A	12
	1	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
	2	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
	3/4	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	Thickness (inches)	16	0.064																			
14	0.079																					
12	0.109																					
10	0.138																					
8	0.168																					
7	0.188																					
5	0.218																					
3	0.249																					
1	0.28																					
Casing	0.5																					

Concrete options: 15" Type B conduit, 706.02

Concrete Conduit Durability Results						
Material	**706.01 Non-reinforced Concrete Pipe	**706.02 Reinforced Concrete Circular Pipe	**706.03 Reinforced Concrete Pipe, Epoxy Coated	**706.04 Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe	**706.05 Precast Reinforced Concrete Box Sections	706.08 Clay Drain Tile
Conduit Use and Shape	Culvert or Storm Sewer - Round	Culvert or Storm Sewer -Round	Culvert or Storm Sewer - Round or Elliptical	Culvert or Storm Sewer -Elliptical	Culvert or Storm Sewer - Box	Culvert or Storm Sewer - Round

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	707.42 Polyvinyl Chloride Corrugated Smooth Interior Pipe	707.43 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 Large- Diameter Solid Wall Pipe	707.65 Corrugated Polypropylene Smooth Lined Pipe	707.75 Glass-Fiber- Reinforced Polymer Mortar Pipe	707.85 Steel Reinforced Thermoplastic Ribbed Pipe	748.02 Polyvinyl Chloride (PVC) Pipe, Joints, and Fittings
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	Culvert or Storm Sewer - Round	Culvert, Storm Sewer, or Liner Pipe - Round	Culvert or Liner Pipe - Round	Storm Sewer - Round

Plastic options: 15" Type B conduit, 707.33, 707.34, 707.35, 707.42, 707.43, 707.45, 707.46, 707.47, 707.65, 707.75,748.02

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 0 years when pH levels are outside of allowable for Aluminum  
Polymeric coated is only available for pH ranges greater than 5.0 and less than 9.0  
Options were eliminated when the NCSPA online Service Life Calculator did not recommend option; typically due to abrasive conditions or pH limitations  
Epoxy is required on all concrete surfaces when pH<5  
\*\* Smooth lined conduit  
\*\*\* Minimum gauges set per industry comments; see Reference Dat  
Provide concrete field paving on corrugated metal conduits 60" or larger where the invert is always submerged due to tail water conditions from a body of water

Constants	
Protective Coating	Constants-Initial Service Life (years)
Concrete Invert Paving=	20
Aluminized=	35
Aluminized Spiral Rib=	35
Polymeric=	50
Bituminous coated w/ bitum. paved invert=	10
Bituminous lined =	25
Galvanized=	0

Final Pay Item for Plans

Metal options:15" Type B Conduit, 707.02 (0.064)  
Aluminized, 707.04 (0.064)  
Concrete options: 15" Type B conduit, 706.02  
Plastic options: 15" Type B conduit, 707.33,  
707.34, 707.35, 707.42,  
707.43, 707.45, 707.46, 707.47, 707.65,  
707.75,748.02

County	LAW	Route	52	Section	21.52	PID	118119	Shape	Circular
Station	1268+79	Station	1268+93.54					Span x Rise	36

User Input	
pH <sub>u</sub>	Abrasion Level
7.0	1.0

Constants and Calculated Values			
pH <sub>s</sub>	Sediment/Rise	End of Service Life GA	Service Life Required
7.6	0	4	75

Metal options: 36" Type C conduit, 707.02 (0.064) Aluminized, 707.04 (0.064)

Metal Conduit Durability Results																							
Material		707.01 , 707.02, 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 galvanized) 1/2 Bituminous coated with Bituminous paved invert	***707.05 or 707.07 (707.01 or 707.02 aluminized) 1/2 Bituminous coated with Bituminous paved invert	**707.11 Polymer Precoated spiral rib steel	**707.12 or 707.17 Aluminum coated spiral rib steel	707.13 or 707.14 (707.01 or 707.02 galvanized) Bituminous lined galvanized steel	707.13 or 707.14 (707.01 or 707.02 aluminized) Bituminous lined aluminized steel	707.15 Galvanized steel box	**707.18 Polymer Precoated, Galvanized Steel Conduits with precoated galvanized smooth steel interior liner	**707.19 Aluminum coated Steel Conduits with precoated galvanized smooth steel interior liner	**707.20 Galvanized Coated Steel Conduits with precoated galvanized smooth steel interior liner	**748.06 Steel Casing Pipe non-galvanized	707.21 or 707.22 Aluminum	707.23 Aluminum Structural Plate	707.24 Aluminum Spiral Rib	707.25 Aluminum Box	707.21, 707.22, or 707.23 Aluminum Alloy or Aluminum Alloy Structural Plate with Concrete Invert Paving
Conduit Use and Shape		Culvert or Liner Pipe - Round or Pipe Arch	Culvert-Round, Pipe Arch, and Arch	Culvert or Liner Pipe -Round or Pipe Arch	Culvert -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	Storm Sewer or Liner Pipe- Round	Liner Pipe- Round or Pipe Arch	Storm Sewer - Round or Pipe Arch	Storm Sewer -Round or Pipe Arch	Culvert -Box	Liner Pipe -Round	Liner Pipe -Round	Liner Pipe - Round	Culvert or Liner Pipe- Round, Pipe Arch, or Box	Culvert or Liner Pipe- Round or Pipe Arch	Culvert or Liner Pipe - Round, Pipe Arch, and Arch	Storm Sewer or Liner Pipe -Round	Culvert -Box	Culvert - Round or Pipe Arch
min gauge or thickness	Corr. Depth (inches)																						
	1/4 or 1/2	16	16	16	16	16	16	16	16	N/A	N/A	16	16	N/A	16	16	16		14	N/A	N/A	N/A	14
	1	16	16	16	16	16	16	16	16	N/A	N/A	16	16	N/A	N/A	N/A	N/A		16	N/A	N/A	N/A	16
	2	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
	3/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	16	16	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	14	N/A	N/A
max gauge or thickness	1/4 or 1/2	10	10	10	10	10	10	10	10	N/A	N/A	10	10	N/A	12	12	12		8	N/A	12	N/A	8
	1	10	10	10	10	10	10	10	10	N/A	N/A	10	10	N/A	N/A	N/A	N/A		10	N/A	N/A	N/A	10
	2	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
	3/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	12	12	N/A	N/A	N/A	N/A	N/A	N/A		N/A	N/A	12	N/A	N/A
Gauge	Thickness (inches)																						
16	0.064																						
14	0.079																						
12	0.109																						
10	0.138																						
8	0.168																						
7	0.188																						
5	0.218																						
3	0.249																						
1	0.28																						
Casing	0.5																						

Concrete Conduit Durability Results						
Material	**706.01 Non-reinforced Concrete Pipe	**706.02 Reinforced Concrete Circular Pipe	**706.03 Reinforced Concrete Pipe, Epoxy Coated	**706.04 Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe	**706.05 Precast Reinforced Concrete Box Sections	706.08 Clay Drain Tile
Conduit Use and Shape	Culvert or Storm Sewer - Round	Culvert or Storm Sewer -Round	Culvert or Storm Sewer - Round or Elliptical	Culvert or Storm Sewer -Elliptical	Culvert or Storm Sewer - Box	Culvert or Storm Sewer - Round

Concrete options: 36" Type C conduit, 706.02

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	707.42 Polyvinyl Chloride Corrugated Smooth Interior Pipe	707.43 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 Large-Diameter Solid Wall Pipe	707.65 Corrugated Polypropylene Smooth Lined Pipe	707.75 Glass-Fiber-Reinforced Polymer Mortar Pipe	707.85 Steel Reinforced Thermoplastic Ribbed Pipe	748.02 Polyvinyl Chloride (PVC) Pipe, Joints, and Fittings
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	Culvert or Storm Sewer - Round	Culvert, Storm Sewer, or Liner Pipe - Round	Culvert or Liner Pipe - Round	Storm Sewer - Round

Plastic options: 36" Type C conduit, 707.33, 707.34, 707.35, 707.42, 707.43, 707.48, 707.65, 707.75, 707.85, 748.02

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 0 years when pH levels are outside of allowable for Aluminum
- Polymeric coated is only available for pH ranges greater than 5.0 and less than 9.0
- Options were eliminated when the NCSPA online Service Life Calculator did not recommend option; typically due to abrasive conditions or pH limitations
- Epoxy is required on all concrete surfaces when pH<5
- \*\* smooth lined conduit
- \*\*\*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 tail water conditions from a body of water

Constants	
Protective Coating Constants-Initial Service Life (years)	
Concrete Invert Paving=	20
Aluminized=	35
Aluminized Spiral Rib=	35
Polymeric=	50
Bituminous coated w/ bitum. paved invert=	10
Bituminous lined =	25
Galvanized=	0

Final Pay Item for Plans

Metal options: 36" Type C conduit, 707.02 (0.064) Aluminized, 707.04 (0.064)  
Concrete options: 36" Type C conduit, 706.02  
Plastic options: 36" Type C conduit, 707.33, 707.34, 707.35, 707.42, 707.43, 707.48, 707.65, 707.75, 707.85, 748.02