

**VDOT 2016 Road and Bridge Standards**  
**Section 100 - Drainage Items**

Standard	Page	Title	NOTES
EW-1 EW-1A	101.01	Standard Endwall for Pipe Culverts 12" - 36" Circular and 23" X 14" - 53" X 34" Elliptical Pipes	
EW-1PC EW-1APC	101.02	Precast Endwall for Pipe Culverts 12" - 36" Circular and 23" X 14" - 53" X 34" Elliptical Pipes	
EW-2 EW-2A	101.03	Standard Endwall for Pipe Culverts 42" - 96" Circular and 60" X 38" - 106" X 68" Elliptical Pipes	
	101.04	Standard Endwall for Pipe Culverts 42" - 96" Circular Pipes	
	101.05	Standard Endwall for Pipe Culverts 60" X 38" - 106" X 68" Elliptical Pipes	
EW-2 PC	101.06	Precast Endwall for Pipe Culverts 42" - 96" Circular Pipe	
EW-2A PC	101.07	Precast Endwall for Pipe Culverts 60" x 38" - 106" x 68" Elliptical Pipes	
EW-2S	101.08	Standard Endwalls for Pipe Culverts 42" - 96" Circular Pipes 30 and 45 Degree Skew	
	101.09	Standard Endwalls for Pipe Culverts 42" - 96" Circular Pipes 30 and 45 Degree Skew	
EW-2S PC	101.10	Precast Endwall for Pipe Culverts 42" - 96" Circular Pipes with 30 and 45 Degree Skew	
EW-6	101.11	Standard Endwall for Multiple Pipe Culverts 12" - 36" Circular Pipes	
EW-6 PC	101.12	Precast Endwall for Multiple Pipe Culverts 12" - 36" Circular Pipes	
EW-6S	101.13	Standard Endwalls for Multiple Pipe Culverts 12"- 36" Circular Pipes with 30 Degree Skew	
	101.14	Standard Endwalls for Multiple Pipe Culverts 12"- 36" Circular Pipes with 45 Degree Skew	

**VDOT 2016 Road and Bridge Standards**  
**Section 100 - Drainage Items**

Standard	Page	Title	NOTES
EW-6S PC	101.15	Precast Endwall for Multiple Pipe Culverts 12" - 36" Circular Pipes 30 Degree Skew	
	101.16	Precast Endwall for Multiple Pipe Culverts 12" - 36" Circular Pipes 45 Degree Skew	
EW-7	101.17	Standard Endwalls for Multiple Pipe Culverts 42" - 96" Circular Pipes	
EW-7 PC	101.18	Precast Endwalls for Multiple Pipe Culverts 42" - 96" Circular Pipes	
EW-7S	101.19	Standard Endwalls for Multiple Pipe Culverts 42" - 96" Circular Pipe 30 Degree Skew	
	101.20	Standard Endwalls for Multiple Pipe Culverts 42" - 96" Circular Pipe 45 Degree Skew	
EW-7S PC	101.21	Precast Endwalls for Multiple Pipe Culverts 42" - 96" Circular Pipes with 45 Degree Skew	
EW-9	101.22	Standard Endwalls for Pipe Arches 13" - 38" Rise	
EW-9 PC	101.23	Precast Endwalls for Pipe Arches 13" - 38" Rise	
EW-10	101.24	Standard Endwalls for Multiple Pipe Arches 13" - 38" Rise	
EW-10 PC	101.25	Precast Endwalls for Multiple Pipe Arches 13" - 38" Rise	
EW-11	101.26	Precast Endwall with Load-Carrying Grate for 12" - 60" Circular Pipes	
	101.27	Pipe Endwall with Load-Carrying Grate for 12" - 60" Circular Pipes	
	101.28	Pipe Endwall with Load-Carrying Grate for 12" - 60" Circular Pipes	
EW-11A	101.29	Pipe Endwall with Load-Carrying Grate for 12" - 24" Circular Pipes	
	101.30	Pipe Endwall with Load-Carrying Grate for 12" - 24" Circular Pipes	
EW-11A PC	101.31	Precast Pipe Endwall with Load-Carrying Grate for 12" - 24" Circular Pipe	

**VDOT 2016 Road and Bridge Standards**  
**Section 100 - Drainage Items**

Standard	Page	Title	NOTES
EW-12	<a href="#">101.32</a>	Standard Endwall for Pipe Underdrain	
ES-1	<a href="#">102.01</a>	Flared End-Section for Concrete Pipe Culverts (12"-60")	
ES-1A	<a href="#">102.02</a>	Flared End-Section for 23" x 14" to 53" x 34" Elliptical Concrete Pipe Culverts	
ES-2	<a href="#">102.03</a>	Flared End-Section for 12" - 60" Corrugated Pipe Culverts	
ES-3	<a href="#">102.04</a>	Flared End-Section for Metal Pipe Arches 13" - 47" Rise	
	<a href="#">103.01</a>	Precast Unit Assembly Diagram	
	<a href="#">103.02</a>	General Notes - Precast	
T-DI-1	<a href="#">103.03</a>	Standard Precast Top Units	
T-DI-2	<a href="#">103.04</a>	Standard Precast Top Units	
T-DI-3, 4	<a href="#">103.05</a>	Standard Precast Top Units	
	<a href="#">103.06</a>	Standard Precast Top Units	
T-DI-5	<a href="#">103.07</a>	Standard Precast Top Units	
T-DI-7	<a href="#">103.08</a>	Standard Precast Top Units	
T-MH-2	<a href="#">103.09</a>	Standard Precast Manhole Top Units	
R-1, 2, 3	<a href="#">103.10</a>	Standard Precast Reducer and Riser Units	
B-1, 2	<a href="#">103.11</a>	Standard Precast Base Units	
B-3	<a href="#">103.12</a>	Standard Precast Base Unit Max Depth (H) 25'	

**VDOT 2016 Road and Bridge Standards**  
**Section 100 - Drainage Items**

Standard	Page	Title	NOTES
B-5	103.13	Corrugated Metal Tee Section Max Depth (H) 25'	
DI-1	104.01	Standard Drop Inlet 12"-24" Pipe: Maximum Depth (H) = 10'	
DI-1A	104.02	Standard Drop Inlet 12"-24" Pipe: Depth (H) = 10' to 20'	
DI-2A, 2B, 2C	104.03	Standard Curb Drop Inlet 12"-24" Pipe: Maximum Depth (H) = 9'	
	104.04	Standard Curb Drop Inlet 12"-24" Pipe: Maximum Depth (H) = 9'	
DI-2AA, 2BB, 2CC	104.05	Standard Curb Drop Inlet 12"-24" Pipe: Depth (H) = 9' to 20'	
DI-2D, 2E, 2F	104.06	Standard Curb Drop Inlet 30"-48" Pipe: Maximum Depth (H) = 9'	
	104.07	Standard Curb Drop Inlet 30"-48" Pipe: Maximum Depth (H) = 9'	
DI-2DD, 2EE, 2FF	104.08	Standard Curb Drop Inlet 30"-48" Pipe: Depth (H) = 9' to 20'	
DI-3A, 3B, 3C	104.09	Standard Curb Drop Inlet 12"-30" Pipe: Maximum Depth (H) = 8'	
	104.10	Standard Curb Drop Inlet 12"-30" Pipe: Maximum Depth (H) = 8'	
DI-3AA, 3BB, 3CC	104.11	Standard Curb Drop Inlet 12"-30" Pipe: Depth (H) = 8' to 20'	
DI-3D, 3E, 3F	104.12	Standard Curb Drop Inlet (with Utility Space) 12" - 30" Pipe: Maximum Depth (H) = 8'	
	104.13	Standard Curb Drop Inlet (with Utility Space) 12" - 30" Pipe: Maximum Depth (H) = 8'	
DI-3DD, 3EE, 3FF	104.14	Standard Curb Drop Inlet (with Utility Space) 12" - 30" Pipe: Depth (H) = 8' to 20'	
DI-4A, 4B, 4C	104.15	Standard Curb Drop Inlet 36"-48" Pipe: Maximum Depth (H) = 8'	
	104.16	Standard Curb Drop Inlet 36"-48" Pipe: Maximum Depth (H) = 8'	

**VDOT 2016 Road and Bridge Standards**  
**Section 100 - Drainage Items**

Standard	Page	Title	NOTES
DI-4AA, 4BB, 4CC	104.17	Standard Curb Drop Inlet 30"-48" Pipe: Depth (H) = 8' to 20'	
DI-4D, 4E, 4F	104.18	Standard Curb Drop Inlet 36" - 48" Pipe: Maximum Depth (H) = 8' (with Utility Space) 54" - 60" Pipe Max. (H) = 8' (Without Utility Space)	
	104.19	Standard Curb Drop Inlet 36" - 48" Pipe: Maximum Depth (H) = 8' (with Utility Space)	
DI-4DD, 4EE, 4FF	104.20	Standard Curb Drop Inlet (with Utility Space) 36" - 48" Pipe: Depth (H) = 8' to 16'	
DI-5	104.21	Standard Ditch Drop Inlet	
DI-7, 7A, 7B	104.22	Standard Median Drop Inlet 12" - 42" Pipe	
	104.23	Standard Median Drop Inlet 12" - 42" Pipe	
	104.24	Standard DI-7, 7A, or 7B with Flume Connection 12" to 36" Pipe	
DI-9	104.25	15" Pipe Tee Section Drop Inlet	
DI-10G, 10H, 10I	104.26	Concrete Median Barrier Drop Inlet (With MB-7D) 12" to 36" Pipe: Depth (H) = 20' Max.	
	104.27	Concrete Median Barrier Drop Inlet (With MB-7D) 12" to 36" Pipe: Depth (H) = 20' Max.	
DI-10J, 10K, 10L	104.28	Concrete Median Barrier Drop Inlet (With MB-8A) 12" to 24" Pipe: Depth (H) = 20' Max.	
	104.29	Concrete Median Barrier Drop Inlet (With MB-8A) 12" to 24" Pipe: Depth (H) = 20' Max.	
DI-12, 12A	104.30	Multigrate Drop Inlet for Pipe Sizes 12" - 72"	
	104.31	Multigrate Drop Inlet for Pipe Sizes 12" - 72"	
	104.32	Multigrate Drop Inlet for Pipe Sizes 12" - 72"	

**VDOT 2016 Road and Bridge Standards**  
**Section 100 - Drainage Items**

Standard	Page	Title	NOTES
DI-12B, 12C	104.33	Multigrate Drop Inlet for Pipe Sizes 12" - 36"	
	104.34	Multigrate Drop Inlet for Pipe Sizes 12" - 36"	
DI-13	104.35	Shoulder Slot Inlet	
	104.36	Shoulder Slot Inlet	
PI-1	104.37	Method of Outlet Pipe Installation for DI-13	
DI-14A, 14B, 14C	104.38	Concrete Median Barrier Drop Inlet 12" to 36" Pipe: Depth (H) =20' Max	
DI-14A, 14B, 14C	104.39	Concrete Median Barrier Drop Inlet 12" to 36" Pipe: Depth (H) =20' Max	
DI-14D, 14E, 14F	104.40	Concrete Median Barrier Drop Inlet 12" to 24" Pipe: Depth (H) =20' Max.	
	104.41	Concrete Median Barrier Drop Inlet 12" to 24" Pipe: Depth (H) =20' Max.	
DI-MB	104.42	Construction Method For Concrete Masonry Block Curb Drop Inlet	
IC-2	105.01	Standard Inlet Frame and Cover	
	105.02	Standard Inlet Frame and Cover	
IC-2	105.03	Precast Inlet and Frame Cover	
MH-1	106.01	Manhole for 12" to 48" Pipe Culverts	
	106.02	Standard Manhole Frame and Cover	

**VDOT 2016 Road and Bridge Standards**  
**Section 100 - Drainage Items**

Standard	Page	Title	NOTES
MH-1	106.03	Standard Manhole Frame and Cover	
	106.04	Standard Manhole Frame and Cover	
	106.05	Standard Manhole Frame and Cover	
MH-1A	106.06	Standard Manhole Frame and Cover	
MH-2	106.07	Precast Manhole	
IS-1	106.08	Standard Method for Shaping Manhole and Inlet Inverts	
ST-1	106.09	Standard Step	
JB-1	106.10	Junction Box Chamber Details for 48" - 72" Pipe Culverts Max. Depth (H)=20'	
	106.11	Junction Box Details for Angular Connections of 48" - 72" Pipe Culverts	
	106.12	Junction Box Tower Details for 48" - 72" Pipe Culverts Max. Depth (H)=20'	
	106.13	Junction Box Displacement Quantities for 48" - 72" Pipe Culverts	
SL-1	106.14	Typical Concrete Safety Slab for Drop Inlets, Manholes & Junction Boxes	
DSB-1	106.15	Drainage Structure Bedding for Drop Inlet, Manhole, and Junction Box	
PB-1	107.00	Installation of Pipe Culverts and Storm Sewers General Notes	
	107.01	Installation of Pipe Culverts and Storm Sewers Circular Pipe Bedding and Backfill - Method "A"	
	107.02	Installation of Pipe Culverts and Storm Sewers Elliptical Pipe Bedding and Backfill - Method "A"	

**VDOT 2016 Road and Bridge Standards**  
**Section 100 - Drainage Items**

Standard	Page	Title	NOTES
PB-1	107.03	Installation of Pipe Culverts and Storm Sewers Pipe Arch Bedding and Backfill	
	107.04	Installation of Box Culvert Bedding and Backfill Method "A"	
PC-1	107.05	Concrete Pipe - Height of Cover Table for HL-93 Live Load	
	107.06	Reinforced Elliptical Concrete Pipe - Height of Cover Table for HL-93 Live Load	
	107.07	Corrugated Steel Pipe - Height of Cover Table for HL-93 Live Loading	
	107.08	Corrugated Aluminum Alloy Pipe - Height of Cover Table for HL-93 Live Load	
	107.09	Corrugated Steel Pipe Arch - Height of Cover Table for HL-93 Live Load	
	107.10	Corrugated Aluminum Alloy Pipe Arch - Height of Cover Table for HL-93 Live Load	
	107.11	Structural Plate Steel Pipe - Height of Cover Table for HL-93 Live Load	
	107.12	Structural Plate Aluminum Alloy Pipe - Height of Cover Table for HL-93 Live Load	
	107.13	Structural Plate Steel Pipe Arch - Height of Cover Table for HL-93 Live Load	
	107.14	Structural Plate Steel Pipe Arch - Height of Cover Table for HL-93 Live Load	
	107.15	Structural Plate Aluminum Alloy Pipe Arch - Height of Cover Table for HL-93 Live Load	
	107.16	Aluminum Spiral Rib Pipe - Height of Cover Table for HL-93 Live Load	
	107.17	Steel Spiral Rib Pipe - Height of Cover Table for HL-93 Live Load	
	107.18	Cast Iron Pipe - Height of Cover Table for HL-93 Live Load	
	107.19	Plastic Pipe - Height of Cover Tables for HL-93 Live Load	



**VDOT 2016 Road and Bridge Standards**  
**Section 100 - Drainage Items**

Standard	Page	Title	NOTES
PC-1	<a href="#">107.20</a>	Allowable Pipe Criteria for Culvert and Storm Sewers	
	<a href="#">107.21</a>	Allowable Pipe Criteria for Culvert and Storm Sewers	
	<a href="#">107.22</a>	Allowable Pipe Criteria for Culvert and Storm Sewers	
PP-1	<a href="#">107.23</a>	Details for Backfilling Abandoned Culverts	
UD-1	<a href="#">108.01</a>	Standard Groundwater Underdrain	
UD-2	<a href="#">108.02</a>	Pipe Underdrain for use with Raised Grass Median Strips	
UD-3	<a href="#">108.03</a>	Standard Sidewalk Underdrain	
CD-1	<a href="#">108.04</a>	Standard Combination Underdrains (at lower end of cuts)	
CD-2	<a href="#">108.05</a>	Standard Combination Underdrains (at grade sags and bridge approaches)	
UD-4	<a href="#">108.06</a>	Standard Pavement Edgedrain	
	<a href="#">108.07</a>	Standard Pavement Edgedrain	
UD-5	<a href="#">108.08</a>	Prefabricated Geocomposite Retrofit Pavement Edgedrain	
UD-7	<a href="#">108.09</a>	Standard Retrofit Edgedrain	
PG-2A	<a href="#">109.01</a>	Standard Paved Ditches	
PG-3	<a href="#">109.02</a>	Standard Rip Rap Ditch and Slope Protection PG-3	
PG-4	<a href="#">109.03</a>	Standard Paved Flume for 12" - 24" Pipe	

**VDOT 2016 Road and Bridge Standards**  
**Section 100 - Drainage Items**

Standard	Page	Title	NOTES
PG-5	109.04	Standard Paved Ditches	
PG-6A, 6B	109.05	Standard Precast Paved Ditches (Concrete, Corrugated Metal & Bituminous Fiber Pipes)	
PG-7	109.06	Ditch Flume Connector	
SB-1	110.01	Standard Spring Box	
SB-1 PC	110.02	Precast Spring Box	
EG-1, 1A	111.01	Standard Energy Dissipator for use with Paved Flumes	
EG-1, 1A PC	111.02	Precast Energy Dissipator	
PS-2	112.01	Standard Pipe Spillout for 12" - 18" Pipe Culverts	
PS-3	112.02	Standard Pipe Spillout for 21" - 30" Pipe Culverts	
EC-1	113.01	Culvert Outlet Protection	
EC-2	113.02	Rolled Erosion Control Product Protective Covering Installation Criteria (Temporary Use)	
EC-3	113.03	Rolled Erosion Control Product Soil Stabilization Mat (Permanent Ditch Installation)	
	113.04	Rolled Erosion Control Product Soil Stabilization Mat (Culvert Outlet Protection Installation)	
	113.05	Rolled Erosion Control Product Soil Stabilization Mat (Permanent Slope Installation)	
EC-4	113.06	Rock Check Dams Type I & II	
EC-5	113.07	Temporary Silt Barriers, Silt Fence (Type A & B), and Brush Barrier	
	113.07A	Temporary Silt Barriers, Silt Fence (Type A & B), and Brush Barrier	
	113.07B	Temporary Silt Barriers, Silt Fence (Type A & B), and Brush Barrier	
	113.08	Temporary Silt Barriers, Silt Fence (Type A & B), and Brush Barrier	

**VDOT 2016 Road and Bridge Standards**  
**Section 100 - Drainage Items**

Standard	Page	Title	NOTES
EC-6	113.09	Inlet Protection (Type A and B)	
	113.10	Inlet Protection (Type C)	
EC-7	113.11	Typical Sediment Trap	
EC-8	113.12	Dewatering Basin	
EC-9	113.13	Temporary Diversion Dike	
EC-10	113.14	Temporary Berm and Slope Drain	
EC-11	113.15	Stabilized Construction Entrance	
EC-12	113.16	Temporary Diversion Channel	
EC-13	113.17	RipRap Weirs; Low Flow Diversion For Multiple Line Culvert Installations	
EC-14	113.18	Temporary Vehicular Watercourse Crossing	
EC-15	113.19	Sediment Retention Roll Slope Interrupter	
SWM-1	114.01	Cast in Place Stormwater Management Drainage Structure	
	114.02	Precast Stormwater Management Drainage Structure	
SWM-DR	114.04	Stormwater Management (SWM) Details	
	114.05	Stormwater Management (SWM) Details Debris Rack, Metal Plate, Water Quality Orifice, Concrete Cradle	
	114.06	Stormwater Management (SWM) Details Debris Rack, Metal Plate, Water Quality Orifice, Concrete Cradle	
	114.07	Stormwater Management Details Trash Rack for SWM Drainage Structures	
	114.08	Stormwater Management Details Trash Rack for SWM Drainage Structures	