

TABLE A1 - ALLOWABLE TYPE OF STORM SEWER PIPE FOR ROADWAYS THAT ARE CONSTRUCTED, FUNDED OR WILL ULTIMATELY BE MAINTAINED BY VDOT			
FUNCTIONAL CLASSIFICATION OF ROADS SYSTEM UNDER WHICH PIPE IS TO BE INSTALLED			
HIGHER FUNCTIONAL CLASS - HFC 75 - YEAR DESIGN LIFE		LOWER FUNCTIONAL CLASS - LFC 50 - YEAR DESIGN LIFE	
RURAL PRINCIPAL ARTERIAL, URBAN PRINCIPAL ARTERIAL, RURAL MINOR ARTERIAL, URBAN MINOR ARTERIAL, RURAL COLLECTOR ROADS, URBAN COLLECTOR STREETS, SUBDIVISION STREETS WITH AN ADT GREATER THAN 4000		RURAL LOCAL ROADS, URBAN LOCAL STREETS, SUBDIVISION STREETS WITH AN ADT LESS THAN OR EQUAL TO 4000	
ALLOWABLE PIPE CULVERTS	STATEWIDE	STATEWIDE EXCEPT LOCATIONS SHOWN IN TABLE B	LOCATION SHOWN IN TABLE B
NOTES 1 & 2			
CONCRETE	✓	✓	✓
ALUMINUM COATED TYPE 2 STEEL SPIRAL RIB		✓	
NOTE 3			
POLYMER COATED (10/10) CORRUGATED STEEL SPIRAL RIB		✓	✓
NOTE 3			
POLYMER COATED (10/10) CORRUGATED STEEL DOUBLE WALL (SMOOTH INTERIOR)	✓	✓	✓
NOTE 3			
ALUMINUM SPIRAL RIB		✓	✓
NOTE 3			
POLYVINYLCHLORIDE (PVC) PROFILE WALL PIPE (SMOOTH INTERIOR)	✓	✓	✓
POLYETHYLENE (PE) CORRUGATED TYPE S	✓	✓	✓
POLYPROPYLENE (PP) TYPE D OR S	✓	✓	✓

TABLE B EXCEPTIONS TO STATEWIDE APPLICATIONS		
COUNTIES (INCLUDING TOWNS)	CITIES	
ARLINGTON - EAST OF AND INCLUDING RTES. 95 & 395	SURRY - EAST OF AND INCLUDING RTE. 10	SUFFOLK - EAST OF AND INCLUDING RTE. 32
FAIRFAX - EAST OF AND INCLUDING RTES. 95 & 395	ISLE OF WIGHT - EAST OF AND INCLUDING RTE. 10	CHESAPEAKE WILLIAMSBURG VIRGINIA BEACH POQUOSON
PRINCE WILLIAM - EAST OF AND INCLUDING RTES. 95 & 395		HAMPTON PORTSMOUTH
WESTMORELAND JAMES CITY	ESSEX NORTHAMPTON	NEWPORT NEWS
LANCASTER ACCOMACK	MIDDLESEX STAFFORD	NORFOLK
MATTHEWS SPOTSYLVANIA	YORK KING GEORGE	ALEXANDRIA
GLOUCESTER NORTHUMBERLAND	RICHMOND	FREDERICKSBURG

TABLE C					
PIPE TYPE	ALLOWABLE pH RANGE (SEE NOTE 6)		ALLOWABLE RESISTIVITY RANGE (Ohms-cm)		ALLOWABLE VELOCITY (FPS) (SEE NOTE 4)
	MIN.	MAX.	MIN.	MAX.	MAXIMUM
UNCOATED GALVANIZED CORRUGATED STEEL	6.0	10.0	2000	10000	5
GALVANIZED STEEL STRUCTURAL PLATE	6.0	9.0	2000	10000	5
GALVANIZED STEEL STRUCTURAL PLATE WITH THICKENED INVERT	6.0	9.0	2000	10000	15
ALUMINUM COATED TYPE 2 CORRUGATED STEEL	5.0	9.0	1500	-	5
ALUMINUM COATED TYPE 2 SPIRAL RIB	5.0	9.0	1500	-	5
CORRUGATED ALUMINUM ALLOY	4.0	9.0	1500	-	5
CORRUGATED ALUMINUM ALLOY STRUCTURAL PLATE	4.0	9.0	1500	-	5
ALUMINUM SPIRAL RIB	4.0	9.0	1500	-	5
POLYMER COATED (10/10) CORRUGATED STEEL	4.0	9.0	750	-	10
POLYMER COATED CORRUGATED STEEL SPIRAL RIB	4.0	9.0	750	-	10
POLYMER COATED CORRUGATED STEEL DOUBLE WALL	4.0	9.0	750	-	10

NOTES:

- ALLOWABLE TYPES OF PIPES FOR A SPECIFIC AREA ARE TO CONFORM TO THE CRITERIA SHOWN IN TABLES A, A1, B, AND C. ANY DEVIATION MUST BE APPROVED BY THE STATE LOCATION AND DESIGN ENGINEER AND THE DISTRICT MATERIALS ENGINEER.
- SEE HEIGHT OF COVER TABLES FOR MINIMUM AND MAXIMUM COVER LIMITATIONS FOR EACH TYPE OF PIPE.
- SEE TABLE C FOR MINIMUM AND MAXIMUM pH, RESISTIVITY, AND VELOCITY LIMITATIONS FOR METAL PIPES. SEE TABLE D FOR REQUIRED GAUGE OF METAL PIPE.
- ALLOWABLE WATER VELOCITY IN PIPE WHERE ABRASIVE BEDLOAD IS PRESENT OR ANTICIPATED. MAXIMUM VELOCITY BASED ON 10 YEAR DESIGN DISCHARGE (Q).
- pH VALUES APPLY TO BOTH THE IN-SITU SOIL AND WATER. THE LESSER OF THE TWO VALUES SHALL APPLY.
- ph OF SOIL - AASHTO T289.
ph OF WATER - ASTM 1293-12 METHOD A
RESISTIVITY (MINIMUM) OF SOIL - AASHTO T288
- LARGE CULVERTS SHALL BE DESIGNED BY AN ENGINEER, REGISTERED IN THE COMMONWEALTH OF VIRGINIA, AND SHALL BE DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF VOLUME V, PART 2 OF THE MANUAL OF THE STRUCTURE AND BRIDGE DIVISION. A LARGE CULVERT IS ANY CULVERT THAT WILL BECOME PART OF THE STRUCTURE AND BRIDGE INVENTORY. THE GEOMETRIC DEFINITION OF THESE STRUCTURES IS PROVIDED IN THE CURRENT VERSION OF VDOT'S IIM-S&B-27.

VDOT
ROAD AND BRIDGE STANDARDS

SHEET 17 OF 18	REVISION DATE
107.21	11/15

A COPY OF THE ORIGINAL SEALED AND SIGNED STANDARD DRAWING IS ON FILE IN THE CENTRAL OFFICE

**ALLOWABLE PIPE CRITERIA FOR
CULVERT AND STORM SEWERS**

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE
232 302