PIPELINE AIR VENT SIZE AND LOCATION CRITERIA

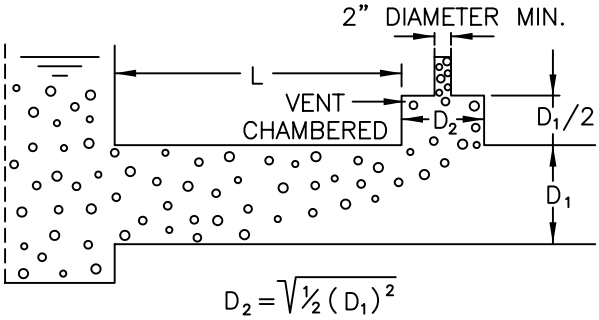
Vent location (As per Washington State Institute of Technology Bulletin 225)
Initial vent location for gravity flow pipeline downstream of inlet shall be as follows:

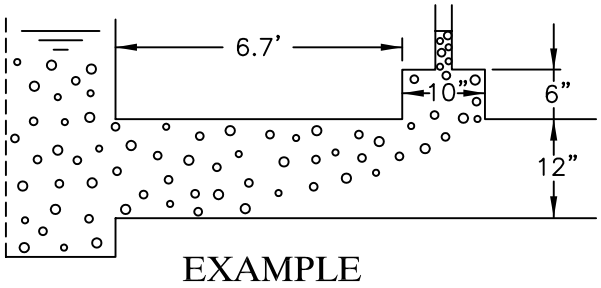
L = 1.76 (V) (D) When L = Distance In Feet
V = Average Velocity for Maximum Design Flow (FPS)
D = Pipe Diameter in Feet

Initial vent shall be vent chambered. The chamber shall have the following dimension as per NRCS-WY 430EE Standard: Cross Sectional Area = ½ Mainline Pipe Cross Sectional Area or Greater.
Height of Vent Chamber = ½ diameter above the pipe.

Comparison Chart

MAINLINE DIAMETER (IN)	CROSS SECTIONAL AREA (FT)	VENT PIPE AREA REQ. (IN)	VENT PIPE DIA. REQ. (IN)	VENT CHAMBER HEIGHT REQ. (IN)
36	7.07	3.53	27	18
30	4.91	2.45	21	15
27	3.98	1.99	21	13.5
24	3.14	1.57	18	12
21	2.40	1.20	15	10.5
18	1.77	.87	15	9
15	1.23	.62	12	7.5
12	.79	.40	10	6
10	.55	.28	8	5
8	.35	.18	6	4
6	.20	.10	4	3
4	.10	.05	3	2
3	.05	-	-	-





EXAMPLE: Given a Design Q = 3 CFS and a Pipe Size Determination of a 12 Inch Diameter

To Find Location

L = 1.76 (V) (D)
V = Q/A = 3 Cu Ft/Sec/ .79 Ft Sq
V = 3.8 Ft/Sec
L = 1.76 (3.8) (1) = 6.69 Ft

To Find the Initial Vent Size from the Preceding Chart

A 12" Pipe Cross Sectional Area Q = .79 Ft Sq
The Vent Must = .79/2 = .38 Ft Sq or More
Thus Requiring a 10" Diameter Pipe

To Find the Vent Chamber Height Above the Mainline

H = Mainline Diameter / 2 = 12"/2 = 6"