

WHEN X = 18 INCHES

Y (inches)	Size of pipe (nominal diameter)				
	2-inch	3-inch	4-inch	5-inch	6-inch
	<u>G.p.m.</u>	<u>G.p.m.</u>	<u>G.p.m.</u>	<u>G.p.m.</u>	<u>G.p.m.</u>
1.80	166	346	624	1014	1400
2.40	144	305	557	907	1261
3.00	129	274	503	826	1153
3.60	117	251	462	754	1068
4.20	109	233	431	700	992
4.80	101	220	404	655	934
5.40	95	206	382	615	884
6.00	89	197	364	579	839
6.60	84	187	346	548	799
7.20	81	180	332	521	763
7.80	77	172	319	498	732
8.40	75	166	305	476	705

Exhibit 3-20 Flow of water from horizontal pipes (Ref. Purdue
 Eng. Expt. Bulletin 32, "Measurement of pipe flow
 by the coordinate method," August 1928) (Sheet 3 of 3)

REFERENCES

1. Handbook of Hydraulics, King & Brater, Fifth Edition
2. Hydraulic Charts for the Selection of Highway Culverts, Hydraulic Engineering Circular No. 5, Bureau of Public Roads, Department of Transportation
3. Hydraulic and Excavation Tables, U.S. Department of Interior, Bureau of Reclamation
4. Hydraulic Tables, U.S. Department of Defense, Corps of Engineers
5. Chow, VehTe; Open-Channel Hydraulics, McGraw-Hill Book Co., Inc., 1959
6. National Engineering Handbook, Section 5, Hydraulics

In addition to the above references, liberal use was made of material from the following references:

- a. Hydraulics Correspondence Course by George A. Lawrence, State Conservation Engineer, State of Utah
- b. Utah State Engineering Handbook, Section 5, Hydraulics
- c. Vinnard, J.K.; Elementary Fluid Mechanics, John Wiley and Sons, Inc., 1948

NEBRASKA REFERENCES

1. *Nebraska Irrigation Guide, SCS, 1983*
2. *Basic Hydraulics Training Handbook (Curbs), 1991 and 1992*
3. *Montana Stockwater Pipeline Manual, compiled by the Montana SCS Engineering Staff and adapted to Nebraska, December 1992, by Area and State Office Engineers*