APPENDIX H
NOMOGRAPHS AND CHARTS FOR STORM SEWER DESIGN

This Page Left Intentionally Blank

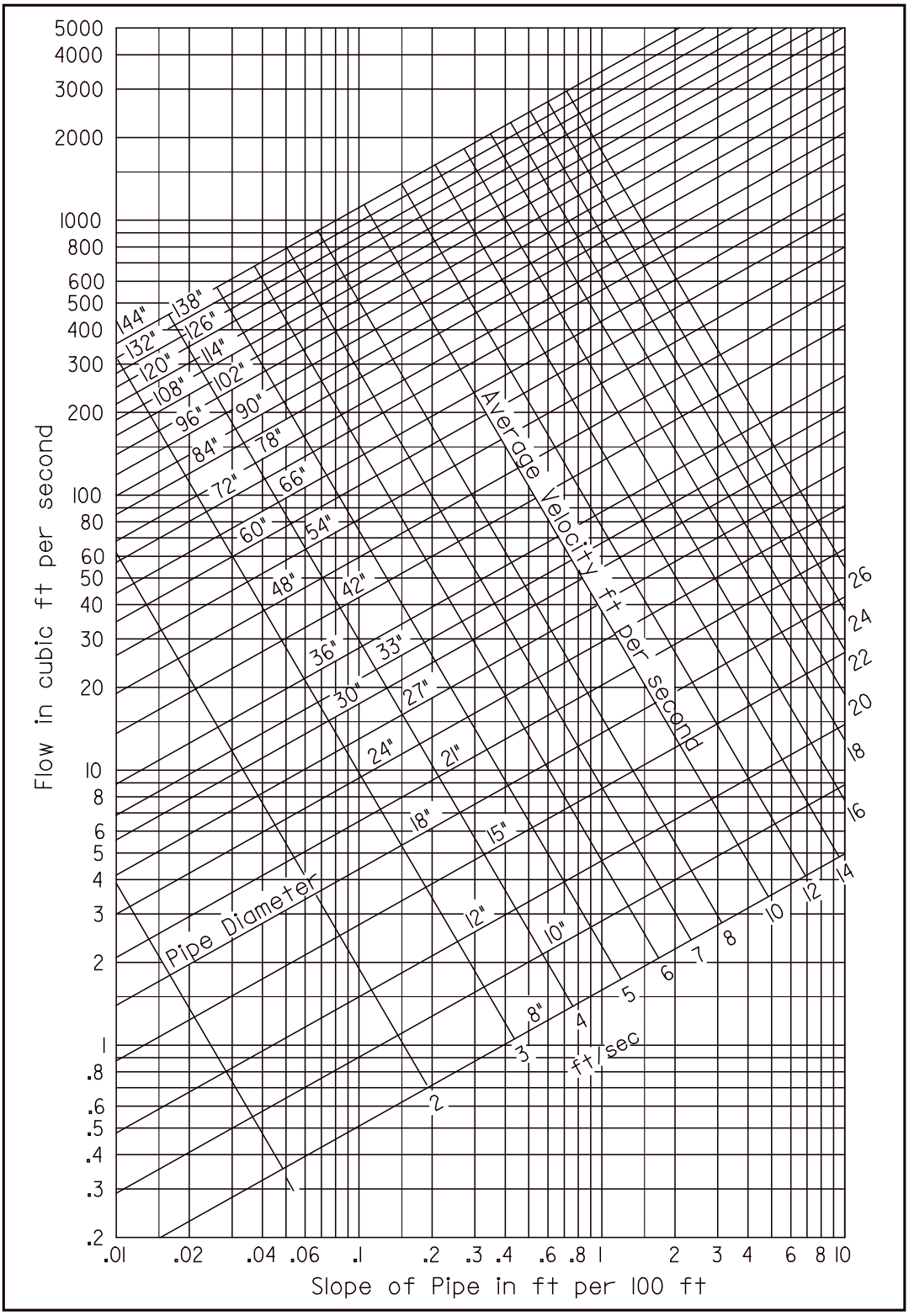


Exhibit H.1 Flow for Circular Pipe Flowing Full
Based on Manning's Equation (n=0.012)
(Source: Reference H.1)

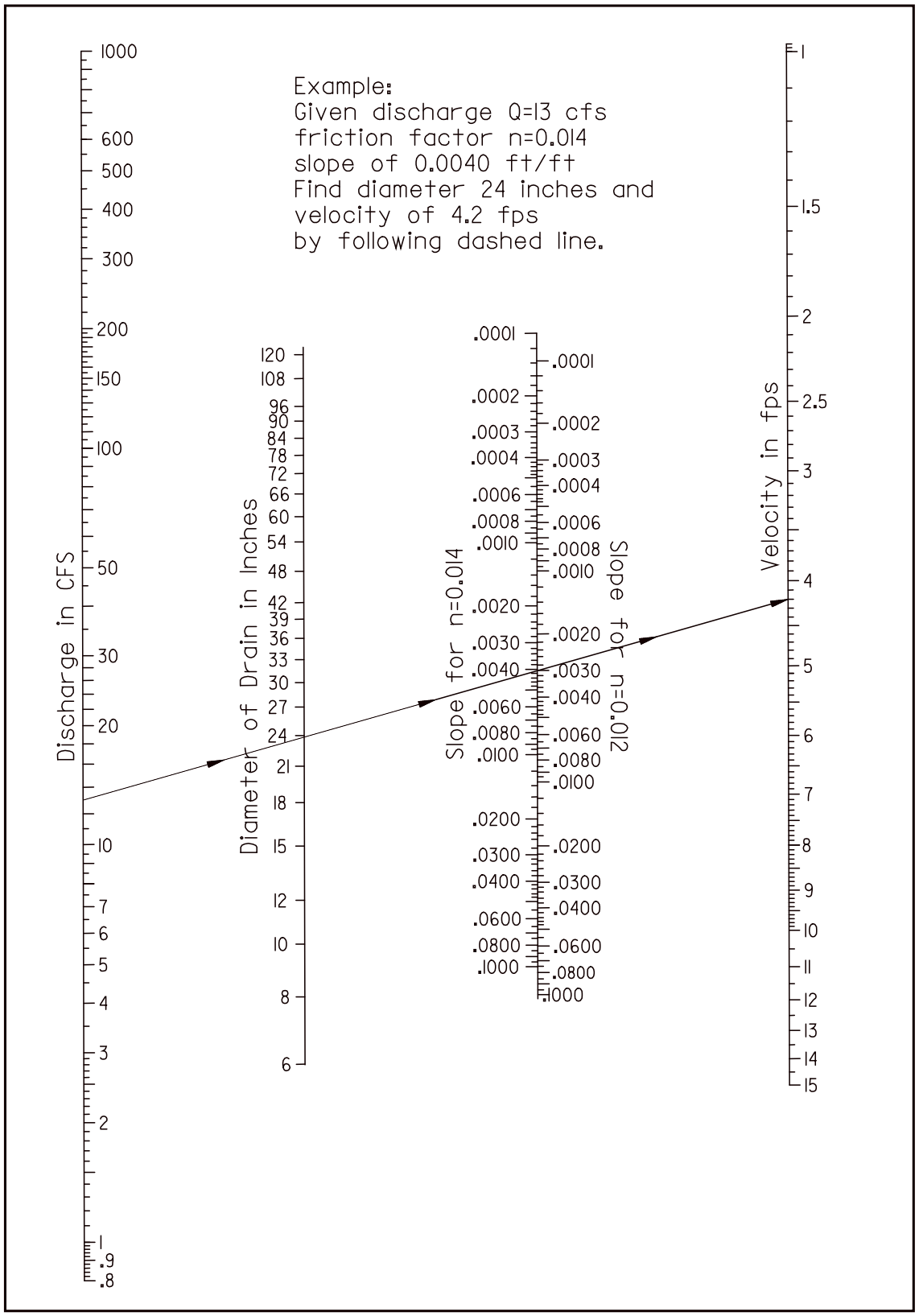


Exhibit H.2 Nomograph for Computing Required Size of Circular Pipe Flowing Full n=0.012 (Concrete) or n=0.014 (Clay)

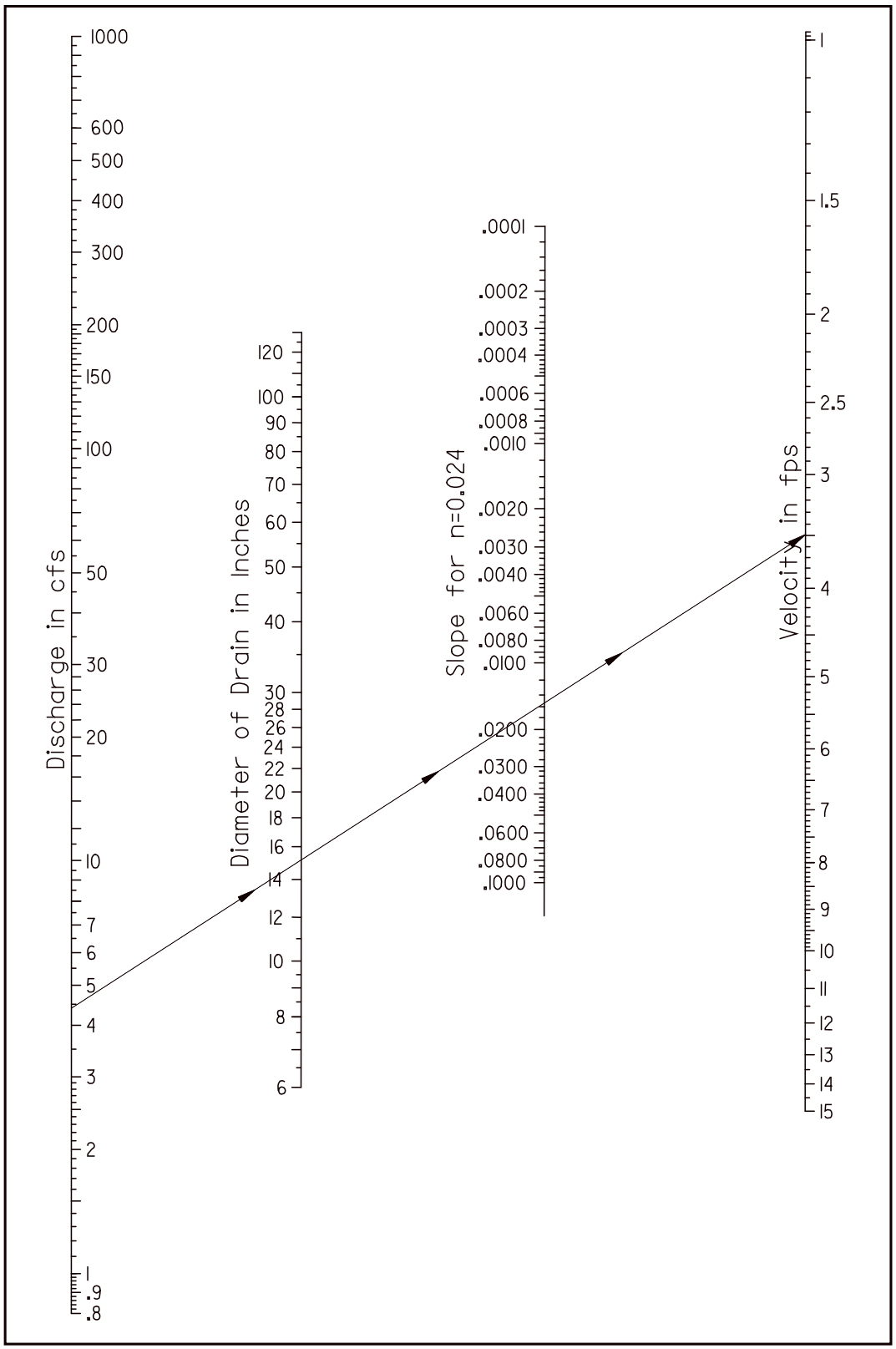


Exhibit H.3 Nomograph for Computing Required Size of Circular Pipe Flowing Full N=0.024 (CMP)

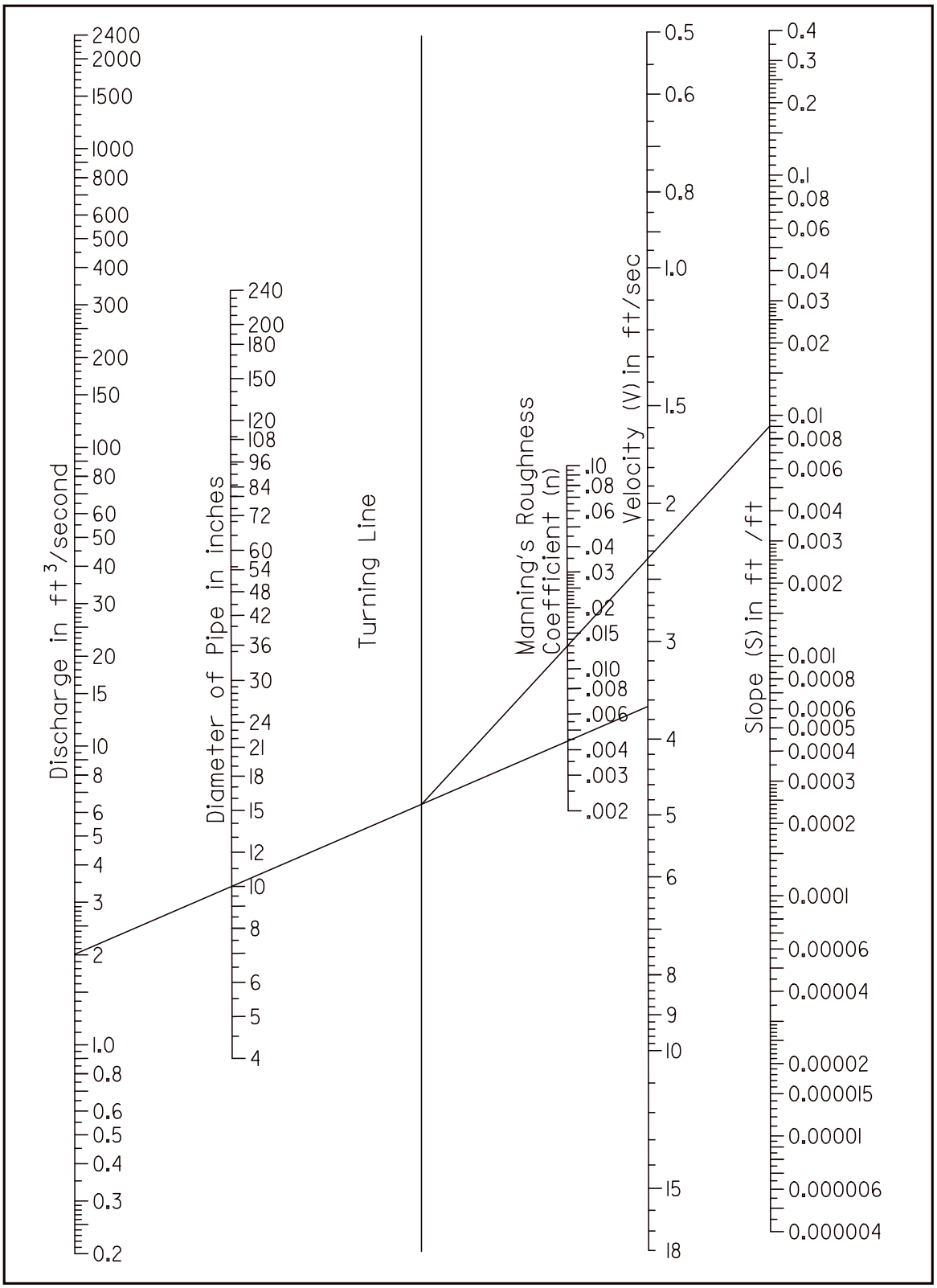


Exhibit H.4 Manning's Formula for Flow in Circular Pipe Flowing Full
(Source: Reference H.2)

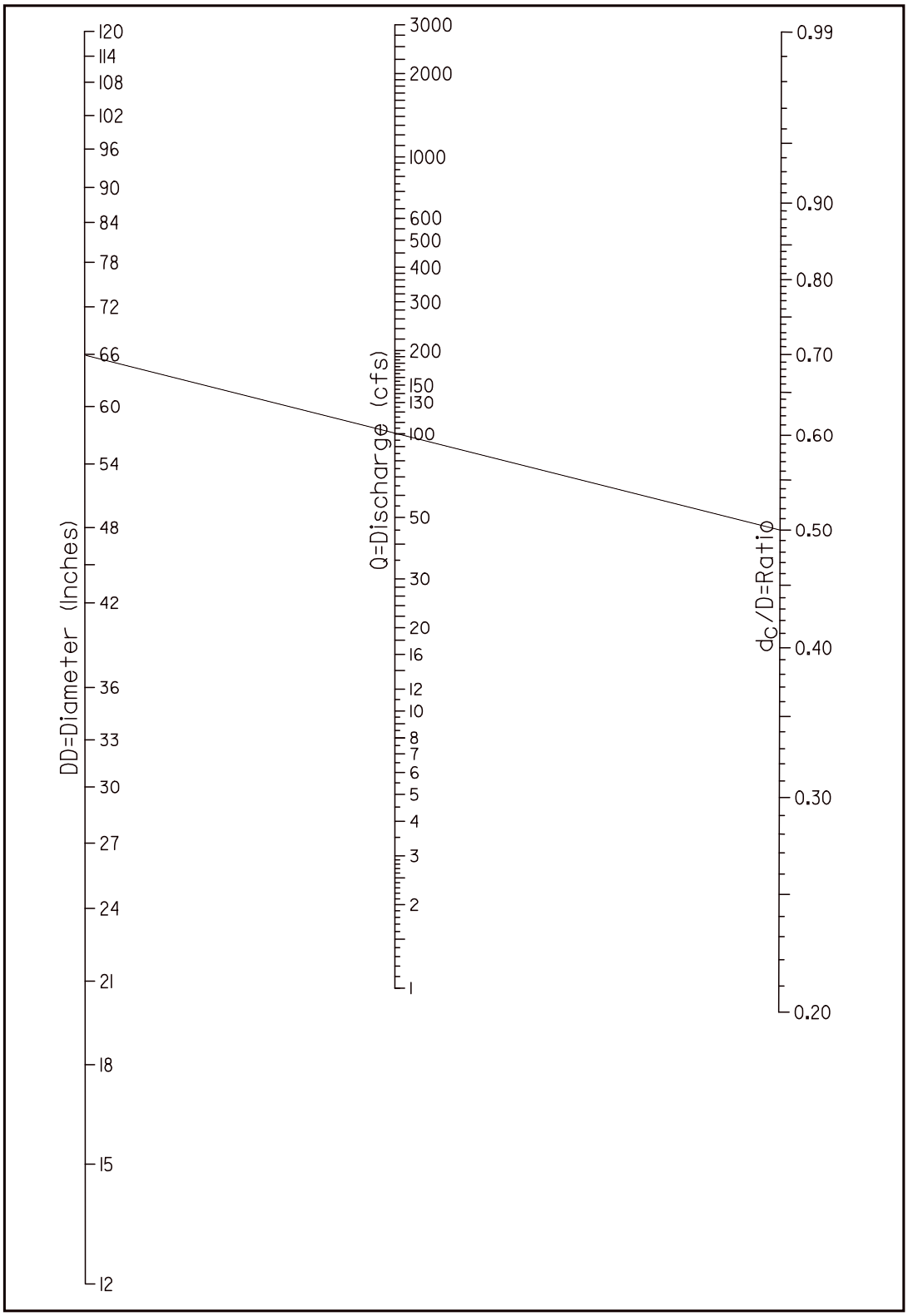
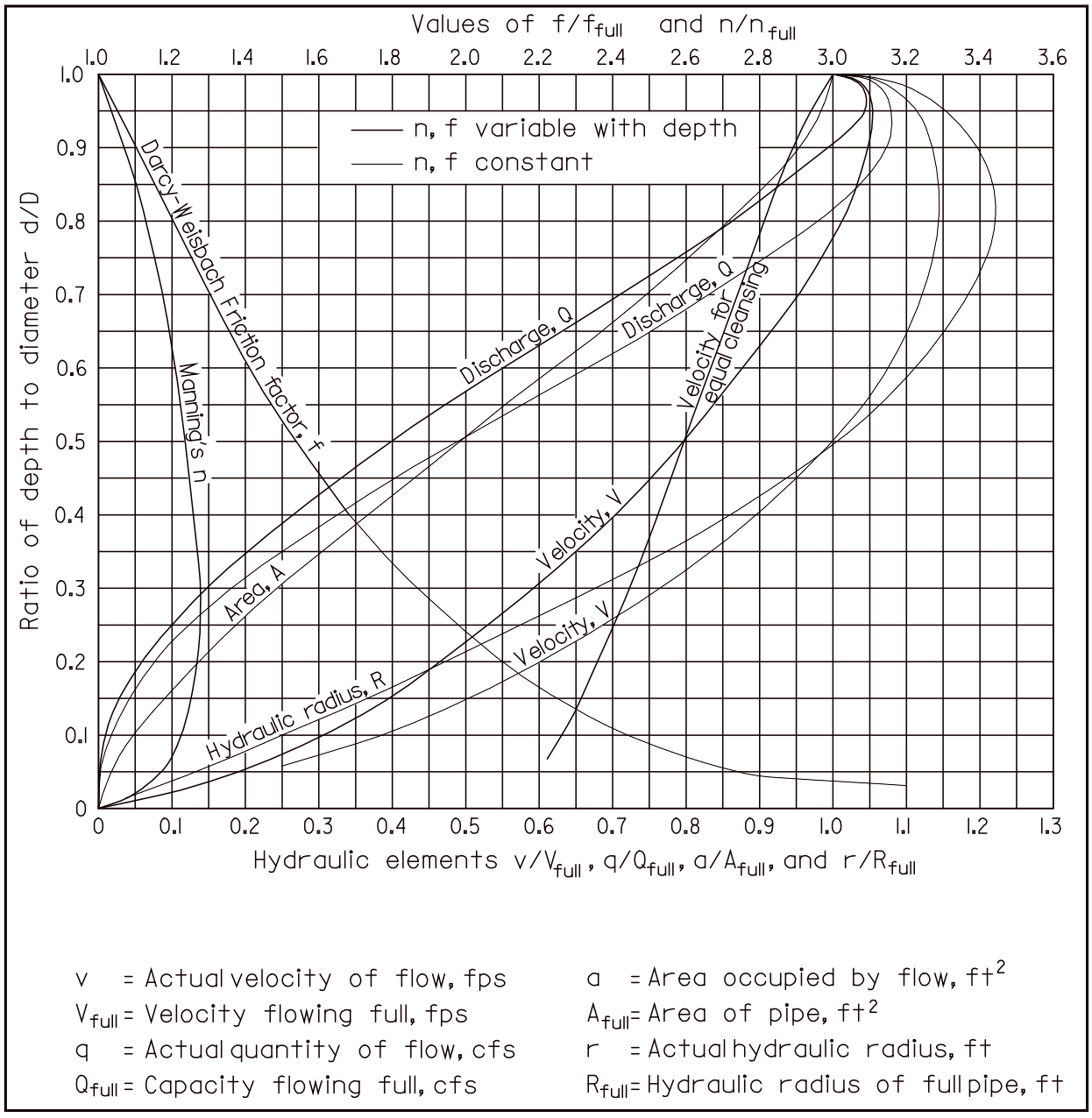


Exhibit H.5 Critical Depth of Flow for Circular Conduits
N=0.012 (Concrete) or n=0.024 (Corrugated Metal)



v = Actual velocity of flow, fps
V_{full} = Velocity flowing full, fps
q = Actual quantity of flow, cfs
Q_{full} = Capacity flowing full, cfs
a = Area occupied by flow, ft^2
A_{full} = Area of pipe, ft^2
r = Actual hydraulic radius, ft
R_{full} = Hydraulic radius of full pipe, ft

Exhibit H.6 Hydraulic Elements Chart
(Source: Reference H.3)

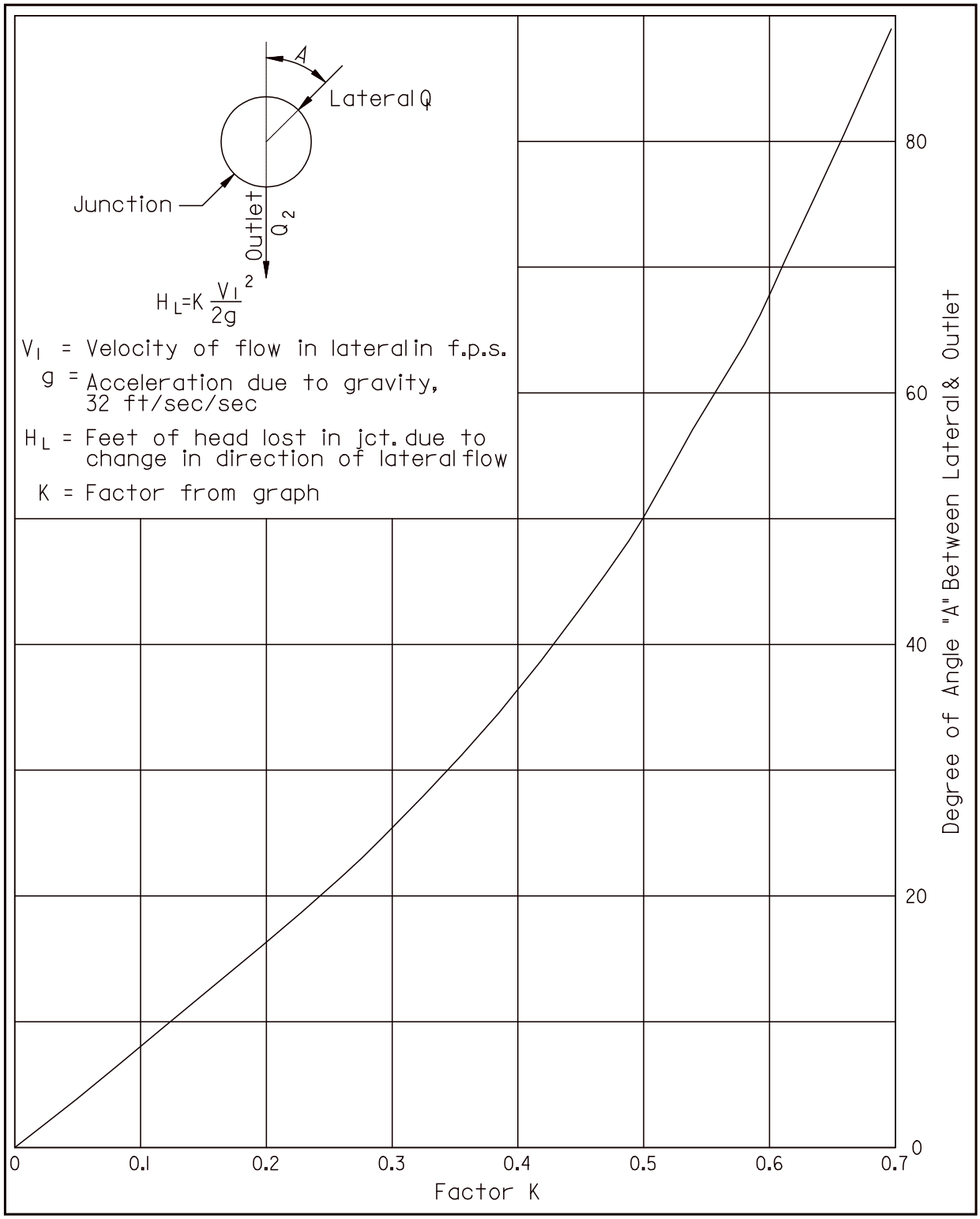


Exhibit H.7 Loss in Junction Due to Change in Direction of Flow in Lateral
(Source: Reference H.2)

REFERENCES

H.1 American Concrete Pipe Association. (http://www.concrete-pipe.org/index.php?cp_Session=805edca166f308d21f57c53735e572af)

H.2 U.S. Department of Transportation, Federal Highway Administration, Drainage of Highway Pavements, Hydraulic Engineering Circular (HEC) 12, FHWA-TS-84-202, 1984. (https://www.fhwa.dot.gov/engineering/hydraulics/pubs/hec/hec12.pdf)

H.3 American Society of Civil Engineers, Design and Construction of Sanitary and Storm Sewers, Manuals and Reports on Engineering Practice - No. 37, 1979 Edition.