

**ANALYSIS OF DATA COLLECTED AT SPECIAL-STUDY SITES
PENNSYLVANIA FLUVIAL GEOMORPHIC REFERENCE REACH NETWORK**

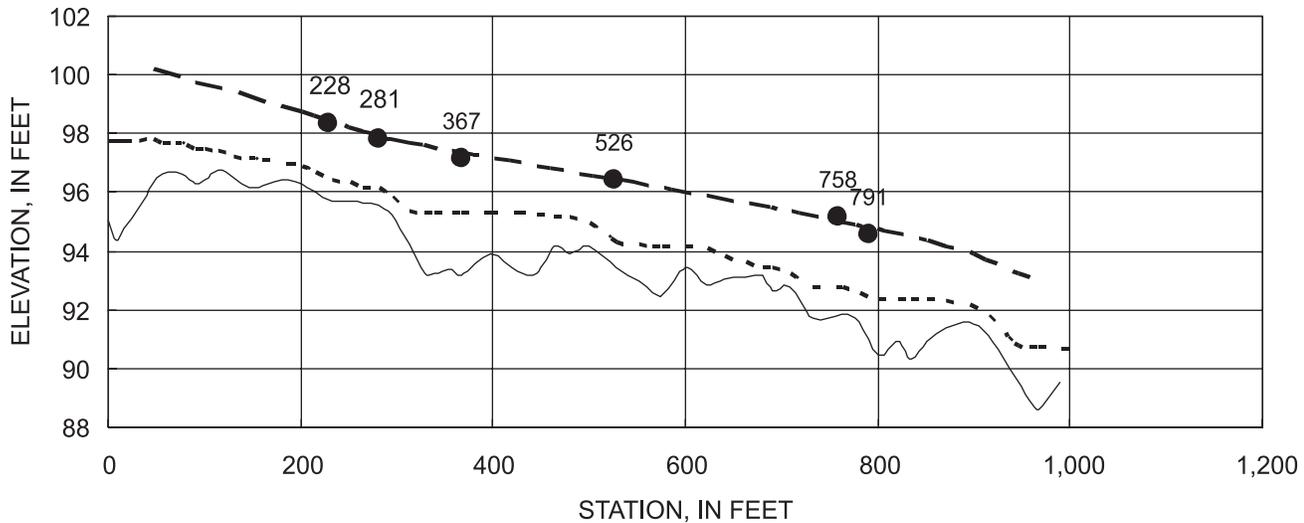
Fluvial geomorphic reference reaches provide long-term data and a basis on which to model stream stabilization and other fluvial-geomorphology based projects. The Pennsylvania Fluvial Geomorphic Reference Reach Network was established in 2004. Geomorphic data collected from stations in the network will be reported annually. It is expected that these data will be used by watershed managers and engineers in support of stream restoration efforts and to promote research in the area of fluvial geomorphology.

Fluvial geomorphic reference reaches are characterized by the pattern, profile, and dimension of the bankfull stream channel. These data are obtained through surveys of the longitudinal profile of the stream, numerous cross-section surveys, and quantification of the particle distribution of bottom material within the stream reach.

The longitudinal profile survey is a survey along the length of the stream displayed as if viewed from the side, or in profile. There are three components to the longitudinal profile; the bankfull surface; the water surface; and the streambed along the line of maximum depth and velocity, or thalweg. Locations of surveyed cross sections are plotted on the longitudinal profile along with their respective distance along the reach (station).

Cross-section surveys are surveyed perpendicular to the stream channel and are displayed as if looking in the downstream direction with station zero being located in the left overbank area. There are four components to the cross-section survey; the land surface of the streambed, streambanks, and overbank areas; the water surface on the day of the survey; and the water surface at two times the maximum bankfull water depth, or flood-prone width.

The data presented on the following pages were collected in a reach of Bermudian Creek near the USGS streamgaging station located near Heidlersburg, PA (USGS station number 01573849). Streamflow data collected at this station also are presented in this report. The Bermudian Creek station is the first reference reach established within the network. The slope of the water surface assigned to the longitudinal profile along the Bermudian Creek reach is 0.00652 feet per foot. For additional information, contact Pete Cinotto at the USGS Pennsylvania Water Science Center, Exton Office, 770 Pennsylvania Drive, Suite 116, Exton, PA 19341; 610-647-9008 (email pcinotto@usgs.gov).

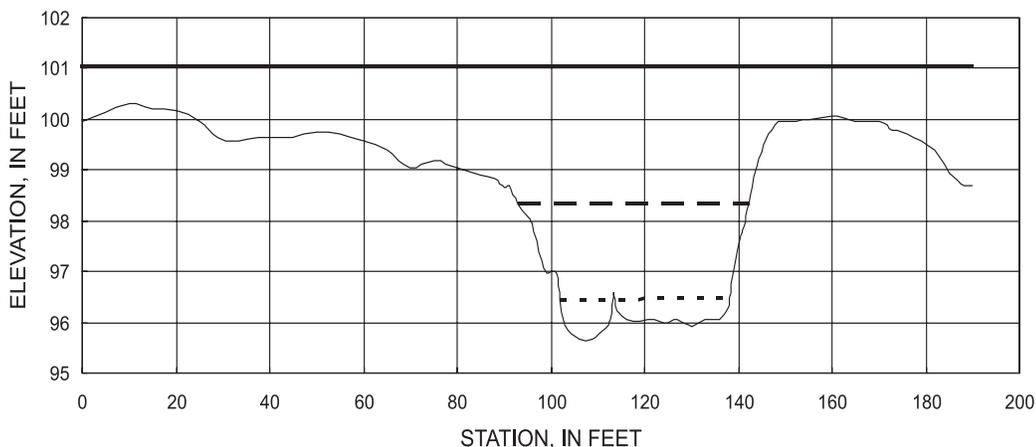


EXPLANATION



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BERMUDIAN CREEK CROSS SECTION STATION 228

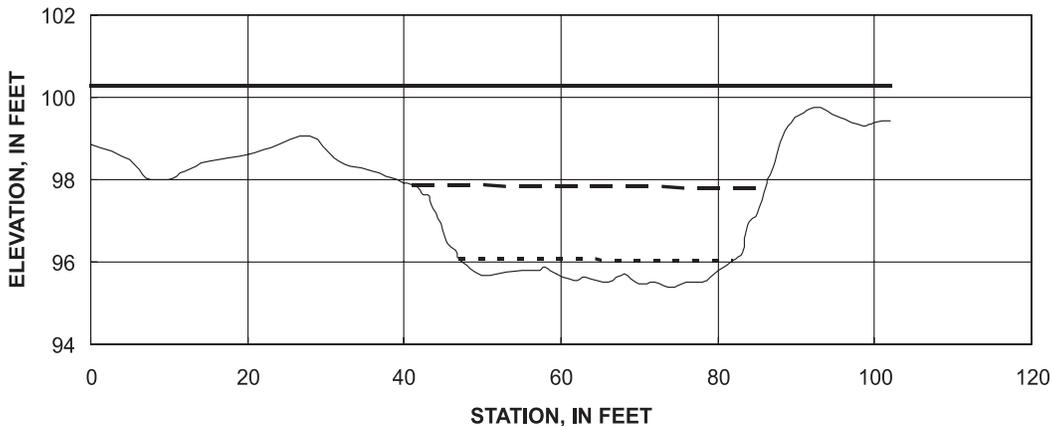


EXPLANATION

LAND SURFACE
 WATER SURFACE
 BANKFULL STAGE
 TWICE BANKFULL STAGE

Cross-section station	Cross-section type	Bankfull area	Bankfull mean depth	Bankfull width	Stream type ¹	D ₅₀ ²	D ₈₄ ³
228	Riffle	96.3	2.0	49.3	C4	54.6	113.4
¹ Rosgen, 1996 (Stream only classified in riffle sections)							
² D ₅₀ , particle size larger than 50 percent of the cumulative sample							
³ D ₈₄ , particle size larger than 84 percent of the cumulative sample							

BERMUDIAN CREEK CROSS SECTION STATION 281



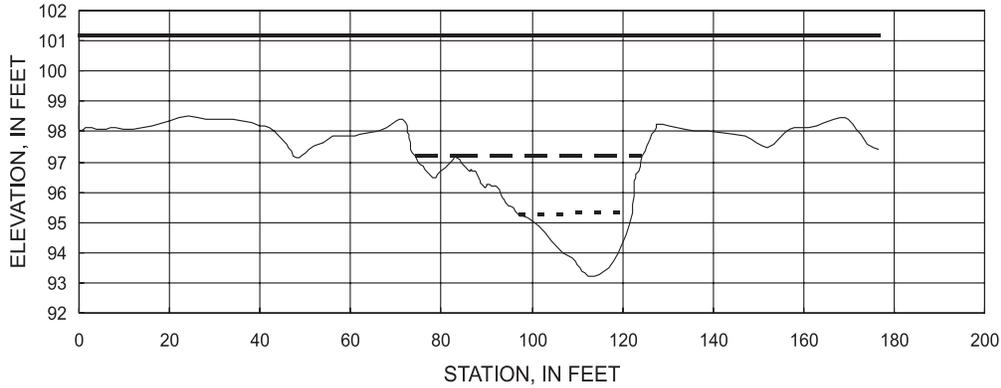
EXPLANATION

LAND SURFACE
 WATER SURFACE
 BANKFULL STAGE
 TWICE BANKFULL STAGE

Cross-section station	Cross-section type	Bankfull area	Bankfull mean depth	Bankfull width	Stream type ¹	D ₅₀ ²	D ₈₄ ³
281	Riffle	84.6	1.9	45.0	C4	41.5	110.9
¹ Rosgen, 1996 (Stream only classified in riffle sections)							
² D ₅₀ , particle size larger than 50 percent of the cumulative sample							
³ D ₈₄ , particle size larger than 84 percent of the cumulative sample							

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BERMUDIAN CREEK CROSS SECTION STATION 367

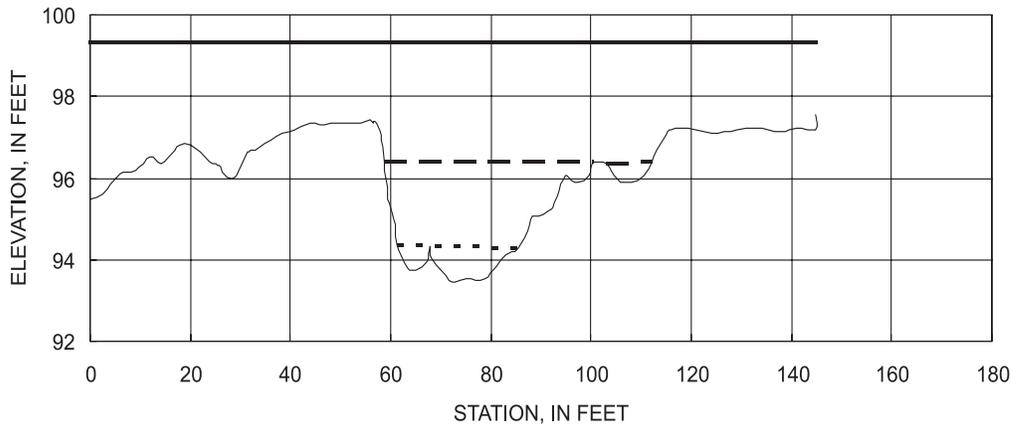


EXPLANATION

LAND SURFACE
 WATER SURFACE
 BANKFULL STAGE
 TWICE BANKFULL STAGE

Cross-section station	Cross-section type	Bankfull area	Bankfull mean depth	Bankfull width	Stream type ¹	D ₅₀	D ₈₄
367	Pool	94.5	1.3	50.4	N/A	52.6	111.7
¹ Rosgen, 1996 (Stream only classified in riffle sections)							
² D ₅₀ , particle size larger than 50 percent of the cumulative sample							
³ D ₈₄ , particle size larger than 84 percent of the cumulative sample							

BERMUDIAN CREEK CROSS SECTION STATION 526



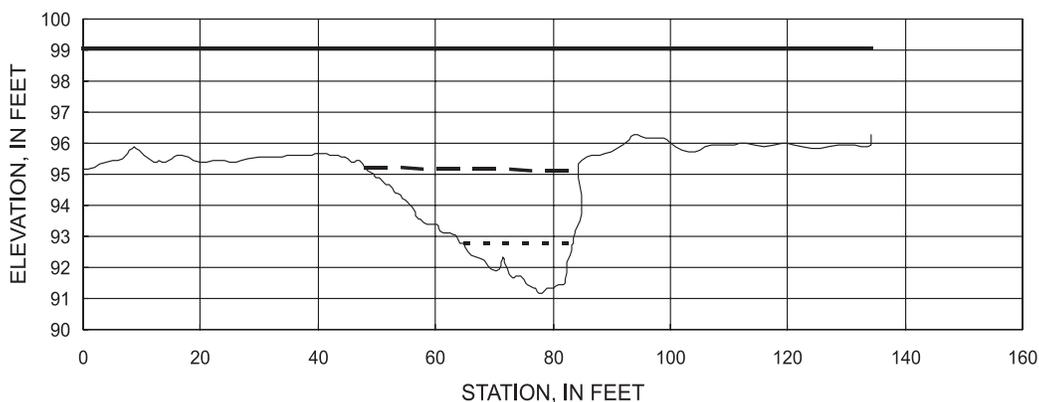
EXPLANATION

LAND SURFACE
 WATER SURFACE
 BANKFULL STAGE
 TWICE BANKFULL STAGE

Cross-section station	Cross-section type	Bankfull area	Bankfull mean depth	Bankfull width	Stream type ¹	D ₅₀	D ₈₄
526	Riffle	83.6	1.1	50.8	C4	33.8	99.9
¹ Rosgen, 1996 (Stream only classified in riffle sections)							
² D ₅₀ , particle size larger than 50 percent of the cumulative sample							
³ D ₈₄ , particle size larger than 84 percent of the cumulative sample							

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BERMUDIAN CREEK CROSS SECTION STATION 758

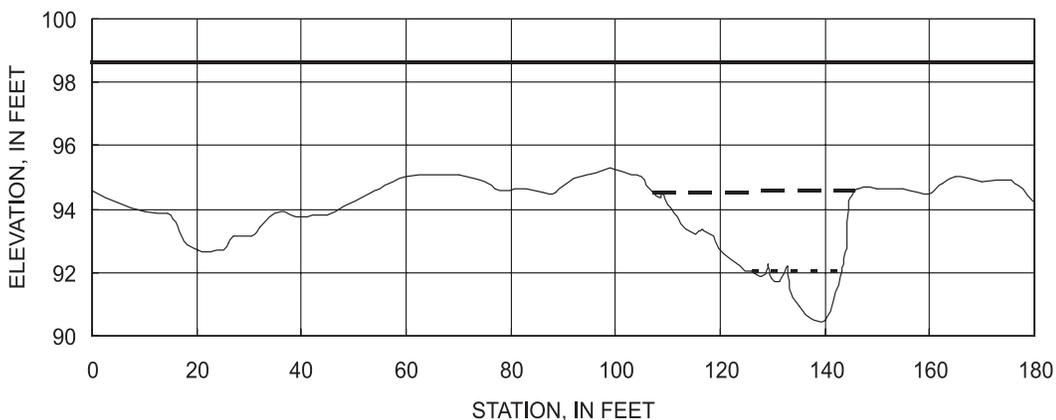


EXPLANATION

LAND SURFACE
 WATER SURFACE
 BANKFULL STAGE
 TWICE BANKFULL STAGE

Cross-section station	Cross-section type	Bankfull area	Bankfull mean depth	Bankfull width	Stream type ¹	D ₅₀	D ₈₄
758	Run	83.5	2.3	36.3	N/A	64.0	126.0
¹ Rosgen, 1996 (Stream only classified in riffle sections)							
² D ₅₀ , particle size larger than 50 percent of the cumulative sample							
³ D ₈₄ , particle size larger than 84 percent of the cumulative sample							

BERMUDIAN CREEK CROSS SECTION STATION 791



EXPLANATION

LAND SURFACE
 WATER SURFACE
 BANKFULL STAGE
 TWICE BANKFULL STAGE

Cross-section station	Cross-section type	Bankfull area	Bankfull mean depth	Bankfull width	Stream type ¹	D ₅₀	D ₈₄
791	Run	83.1	2.2	38.7	N/A	61.0	146.5
¹ Rosgen, 1996 (Stream only classified in riffle sections)							
² D ₅₀ , particle size larger than 50 percent of the cumulative sample							
³ D ₈₄ , particle size larger than 84 percent of the cumulative sample							