Platte River at Brady, Nebraska Combined Stations

06765980 Platte River at Brady (Channel no. 1)

06765990 Platte River at Brady (Channel no. 4)

06766000 Combined Platte River at Brady

LOCATION 06766000 Combined

Hydrology

Drainage Area

56,200 square miles, approximately.

Floods

Peak discharge 23,500 cubic feet per second June 29, 1983.

Extremes for Period of Record

Peak discharge 23,500 cubic feet per second June 29, 1983; no flow August 22-24, 1941.

PERIOD OF RECORD

Irrigation season 1932, 1937 - 1938, Apr. 1939 - present (Monthly discharges only for some periods) published by the USGS up to Oct. 1, 1991. Records are good, except estimated records are poor.

REMARKS

Published by the Nebraska Department of Natural Resources as Channel #1, Channel #4 and Combined Stations starting Water Year 2016, prior to this date the record for Platte River at Brady only published as a combined Channel Flow station. Records are good, except estimated records are poor.

LOCATION 06765980 Platte River at Brady (Channel number 1)

Latitude and Longitude

41.01927 -100.3715

Road Log

North Channel gage (channel number 1): On left, bank 620 feet downstream from State Numbered Highway Link L56D Bridge, and 0.5 mile south of Brady, NE in Lincoln County on South Market Street in Brady. Approximately18 miles downstream from confluence on North Platte and South Platte Rivers.

Equipment Details

Recording Gage

SUTRON CBS flow meter connected to stream with a sand point orifice. SATLINK DCP communications installed so a near real time data is available in one-hour transmissions. Instrument powered from 12-volt gel cell battery connected to solar panel. All instruments housed in a 5 foot x 5 foot x 8 foot precut metal shelter.

Real-time data accessed through the internet at https://nednr.nebraska.gov/RealTime

External Gage

Wire-Weight gage attached to downstream bridge rail approximately 620 feet upstream of the gaging station house on the State Numbered Highway Link L56D Bridge.

Bench Mark and Reference Marks

Datum of gage is 2638.19 ft. NGVD29/2639.26 ft. NAVD88.

R.M. No. 1, R.M. No. 2, R.M. No. 3, R.M. No. 4, R.M. No. 5, R.M. No. 6,R.M. No. 7, R.M. No. 8, and the Staff gage Destroyed or removed.

R.M. No. 9: 1 inch Pipe in concrete 2 feet west of Pole 70 feet north of shelter. Elevation of 8.05 feet from levels dated October 1, 2013. (HWM survey).

R.M. No. 10: Spike in Pole west side of road North West of shelter. Elevation of 10.56 feet from levels dated April 27, 2011. Elevation not measured during levels dated October 1, 2013. (HWM survey)

R.M. No. 11: X in channel iron 27 feet east of shelter. Elevation of 10.43 feet from levels dated September 8, 2015

R.M. No. 12: X in concrete downstream side bridge rail 340 feet from the right side of bridge. Given elevation 29.39 feet September 28, 2017. **(ORIGIN)**

R.M. No. 13: X in concrete upstream bridge rail 270 feet from the right side of the bridge. Given Elevation 29.65 feet September 28, 2017.

R.M.No.14: X in concrete bridge deck 200 feet from the right side of bridge by rail. Given Elevation 27.41 feet September 28, 2017.

Wire-Weight Check-Bar: Base reference gage located on the downstream bridge rail approximately 620 ft. upstream of gaging station with a Check-Bar elevation of 28.52 feet by levels on September 28, 2017. ***Check-Bar elevation is set to read 27.62 feet*** due to the fall of the river to the gage site see (history).

Channel and Control

Flow approaches the gage at an angle; Banks are low and covered with heavy brush and tree growth. Small islands and sandbars will form during low flow. Terrain adjacent to the stream is gentle sloping farmland. Streambed composed of fine sand and silt subject to moderate shifting. Considerable stage fluctuation expected during summer months owing to the operation of a large canal diversion 18 miles upstream. Channel control will prevail under most conditions.

Discharge Measurements

Wading measurements made in vicinity of the gage. A cross-section can usually be found with few angles and flow well proportioned. High flows made from downstream side of NE Link 56 Bridge. Angles expected to be moderate to severe.

Point of Zero Flow

Variable on both channels due to soft shifting streambed.

Regulation and Diversions

Natural flow of river affected by trans mountain diversions. Storage reservoir, power developments, groundwater withdrawals and diversion for irrigation and return flow from irrigated areas.

Accuracy

Bi-weekly measurements during summer months and monthly measurement remainder of year, except during ice conditions, which are bi-weekly, should produce fair discharges. Ice conditions expected to be severe on Channel No. 1 during extended cold periods, producing poor results.

Establishment and History

November 18, 1938, Instruments in a wooden shelter on the right bank 150 feet downstream from Highway Bridge.

November 1942, gage relocated 50 feet downstream from the bridge on left bank.

October 2, 1950, gage moved to downstream side of the second pier from right bridge abutment. Instruments in a small box shelter on a 24-inch corrugated pipe well, at same datum.

September 16, 1981, a StaCom manometer installed in a 5 foot x 5 foot x 8 foot precut metal shelter 15 feet downstream from bridge on left bank.

On April 4, 1996, the Gage Datum was lowered 1 ft.

On December 13, 1996, StaCom manometer, Handar datalogger and Stevens A-35 water-stage recorders removed and replaced with a Model 4230 ISCO Bubbler Flow meter.

On November 9, 2006, the Wire-Weight removed from the discontinued (old) bridge in preparation for its removal and a Staff Gage installed as the base reference gage.

In early 2007, the old bridge removed.

On October 2, 2007, the 5 foot x 5 foot x 8 foot precut shelter was moved 75 ft. upstream. Station is located in the middle of the dead end of South Market Street in Brady.

On April 27, 2011, a Wire-Weight installed as the base reference gage on the State Numbered Highway Link L56D Bridge on the downstream bridge rail approximately 620 feet upstream from the gaging station and the Staff gage removed.

On October 1, 2013, a survey run to determine the elevation difference between the Wire-Weight location and the Gaging Station location. It was determined to be -0.90 ft. difference at the Gaging Station approximately 620 ft. downstream of the Wire-Weight.

On October 3, 2013, the Wire-Weight Check-Bar indicator changed from 28.50 ft. to 27.60 ft. to adjust for the -0.90 ft. difference between Wire-Weight location and the Gaging Station location.

On February 25, 2016, the ISCO equipment removed and the Sutron CBS unit along with the SatLink DCP transmitter installed. This station is now on the real time status with 1-hour transmissions uploaded to the world.

REMARKS

Published by the Nebraska Department of Natural Resources as Channel #1 starting Water Year 2016, prior to this date the record for Platte River at Brady only published as a combined Channel Flow station.

Records are good, except estimated records are poor.

Revision History

Original description prepared by: L.F. Hanks & Robert Follansbee 12-27-1938

Revised by: L.F. Hanks 12/02/1942

Revised by: C.V. Burns 10/02/1952

Revised by: J.W. Vassos 04/02/1985

Revised by: J.C. Retchless 04/04/1994

Revised by: J.W. Vassos 01/17/1996

Revised by: J.C. Retchless 03/31/1997

Revised by: J.C. Retchless 04/02/1998

Revised by: J.C. Retchless 01/20/1999

Revised by: J.C. Retchless 11/30/1999

Revised by: J.C. Retchless 11/27/2000

Revised by: J.C. Retchless 10/27/2003

Revised by: J.C. Retchless 01/04/2005

Revised by: Andrew Leisy 10/05/2009

Revised by: S. Wright 06/10/2014

Revised by: S. Figuric 02/15/2017

Revised by: J A Marburger 03/28/2017

Revised by: J A Marburger 12/06/2017

Revised by: J A Marburger 02/28/2019

LOCATION 06765990 Platte River at Brady (Channel no. 4)

Latitude and Longitude

40.98997 -100.3764

Road Log

State Numbered Highway Link L56D Bridge, 2.5 mile south of Brady, NE in Lincoln County on left bank 15 feet downstream from bridge. Alternatively, approximately 1 mile south on State Numbered Highway Link L56D from I-80 interchange exit 190 (Brady exit).

Equipment Details

Recording Gage

SUTRON CBS Flow meter connected to stream with an open-end orifice. A SATLINK DCP radio provides 1-hour data transmissions for near real time data retrieval. Instrument powered from 12-volt gel cell battery connected to solar panel. All equipment housed in a 3-foot x 2.5-foot box shelter on a pipe.

Real-time data accessed through the internet at https://nednr.nebraska.gov/RealTime

External Gage

Wire-Weight gage attached to downstream bridge rail.

Bench Mark and Reference Marks

Datum of gage is 2650.39 ft. NGVD29/2651.40 NAVD88.

R.M. No. 1 and R.M. No. 4: Destroyed.

R.M. No. 2: x on downstream wing wall of left end of bridge. Elevation of 12.57 feet from levels dated September 8, 2015**. (ORIGIN)**

R.M. No. 3: X on downstream wing wall of right end of bridge. Elevation of 12.51 feet from levels dated September 27, 2017.

R.M. No. 5: X in top of bolt head 36 feet from left end of downstream bridge curbing. Elevation of 13.58 feet from levels dated September 27, 2017.

Wire-Weight Check-Bar: On downstream bridge rail. Elevation of 14.77 feet from levels dated September 27, 2017.

Channel and Control

This is a narrow channel with the width of cross-section for measurements being between 30 and 75 feet. Flow in this channel is independent to that of Channel No. 1. The operation of the large canal diversion 18 miles upstream does not affect flow in this channel. The major portion of the flow under normal conditions is seepage and groundwater accumulation. During extreme high flows some flow can be expected to find its' way into this channel. A culvert under the State highway to the left of the gage may carry some overflow, which will bypass the gage. Streambed composed of fine sand and silt subject to moderate shifting. Channel control will prevail under most conditions.

Discharge Measurements

High flow measured from the downstream side of bridge on Channel No. 4. Cross-section will have little or no angles. Some overflow will bypass the gage through culvert under highway to left of gage during extreme high flow.

Point of Zero Flow

Variable due to soft shifting streambed.

Winter Flow

Ice conditions expected to be severe during extended cold periods.

Regulation and Diversions

Natural flow of river affected by Trans mountain diversions. Storage reservoir, power developments, groundwater withdrawals and diversion for irrigation and return flow from irrigated areas.

Accuracy

Bi-weekly measurements during summer months and monthly measurement remainder of year, except during ice conditions, which are bi-weekly, should produce fair discharges. Ice conditions expected to be severe during extended cold periods, producing poor results.

Establishment and History

November 18, 1938, Instruments in a welded iron shelter on an 18-inch metal pipe attached to downstream side of first bridge pier from left bank.

Instruments removed from gage on September 5, 1958, during construction work on bridge, and reinstalled on October 21, 1958. Temporary staff gage installed September 6, 1958 to gage datum, 100 feet below the bridge for use during the construction period.

On October 1, 1983, the Gage Datum was lowered 1.0 ft.

November 8, 1984 a StaCom manometer with a gas purge system connected to stream with a sand point orifice installed in a 48-inch CMP metal shelter on left bank 15 feet downstream from Highway Bridge.

On January 11, 1994, a 5 foot x 5 foot x 8 foot precut shelter was installed on same site as 48-inch CMP.

On June 6, 1995, G-2 manometer, Handar data logger and Stevens A-35 water-stage recorders removed and replaced with a Model 4230 ISCO Bubbler Flow Meter. ISCO connected to stream with an open-end orifice.

On February 25, 2016, the ISCO equipment removed and the Sutron CBS unit along with the SatLink DCP transmitter installed. This station is now on the real time status with 1-hour transmissions uploaded to the world. Gage house replaced at same time.

REMARKS

Published by the Nebraska Department of Natural Resources as Channel #4 starting Water Year 2016, prior to this date the record for Platte River at Brady only published as a combined Channel Flow station.

Records are good, except estimated records are poor.

Revision History

Original description prepared by: L.F. Hanks & Robert Follansbee 12/27/1938

Revised by: L.F. Hanks 12/02/1942

Revised by: C.V. Burns 10/02/1952

Revised by: J.W. Vassos 04/02/1985

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Revised by: J.C. Retchless 11/30/1999

Revised by: J.C. Retchless 11/27/2000

Revised by: J.C. Retchless 10/27/2003

Revised by: J.C. Retchless 01/04/2005

Revised by: Andrew Leisy 10/05/2009

Revised by: S. Wright 06/10/2014

Revised by: S. Figuric 02/15/2017

Revised by: J A Marburger 03/28/2017

Revised by: J A Marburger 12/06/2017

Revised by: J A Marburger 02/28/2019