Muddy Creek at Furnas – Gosper County Line, Nebraska
00224600

LOCATION

Latitude and Longitude

40.35131, -99.9555

Road Log

On the right bank 10 ft. upstream from bridge on County Road 726, 2.2 miles west and 3.0 miles north of Arapahoe, NE.

Equipment Details

Recording Gage

Sutron OTT RLS non-contact radar and SatLink Data Logger (15 min interval). The instruments are housed in a 24"D x 30"W X 72"H stainless steel gage house. A solar panel with a 12-volt wet cell battery is used to power the instruments. The Sutron OTT radar is located on the upstream guard rail of the county bridge next to the wire-weight.

External Gage

A standard wire-weight gage is attached to the guardrail on the upstream side of the bridge is the reference gage. Check bar elevation is 38.78 ft.

Gage datum is 2188.279 ft. NAVD88, as established by the Lincoln Survey Dept. on May 21, 2014.

Bench Mark and Reference Marks

RM #1: Brass cap set in the right downstream wingwall. No markings were on the brass cap so an elevation of 35.00 ft. above gage datum was assigned to it on 9/6/05. Elevation, 34.99 ft. gage datum (levels July 25, 2019).

RM #2: Chiseled "□" on the right upstream wingwall. Elevation, 34.975 ft. gage datum (levels July 25, 2019).

RM #3: 5 ft. long, ¾" steel rebar pin set in concrete, 3 ft. below grade. Located in West-East fence line south of left downstream wing-wall continuing on the same angle of the wing-wall until it intersects with the barb wire fence. 41.25 ft. southeast of east end of the south concrete guard rail. Located near the base of the ninth (9TH) fence post west of the NE corner fence post of the south pasture. Elevation, 37.31 ft. gage datum (levels July 25, 2019).

RM #4: Chiseled "□" with a punched mark in the center. Located on the top of the North, concrete banister of the county bridge; 2.4 ft. East from the West end of the banister. Elevation 37.47 ft. gage datum (levels July 25, 2019).

RM #5: 5 ft. rebar, countersunk 6 inches, with NDNR aluminum cap located 3.8 ft. west from the wood post at the west end of the southwest guard rail. Elevation, 32.26 ft. gage datum (levels July 25, 2019).

RP #1: Chiseled "□" on the upstream camber of the bridge, approximately 1 ft. east of the wire weight. Elevation, 39.50 ft. gage datum (levels July 25, 2019).

Check Bar: Wire-weight gage located on the upstream guardrail of county bridge. Elevation of check bar, 38.79 ft. gage datum (levels July 25, 2019).

Hydrology

Drainage Area

240 sq. miles.

Channel and Control

The channel is fairly straight above the gage and to about 100 ft. below the gage. After 100 ft. the channel begins to curve to the right. Both banks are steep the left bank has moderate wood cover, while the right bank is mainly clear. The streambed is composed of soft silt and is subject to shifting.

Channel. There is a rock riffle located 150 ft. below the gage that generally acts as the low water control.

Discharge Measurements

Low and medium stage measurements are made by wading in the vicinity of the gage. High-water measurements are made from the county road bridge near the gage.

Floods

On May 24, 2008 a maximum discharge of 5520 cfs with a gage height of 28.19 ft. was observed.

Point of Zero Flow

Variable. About 4.00 ft. gage datum.

Winter Flow

Stage discharge relation will be affected by ice.

Regulation and Diversions

No regulation.

Natural flow affected by irrigation development above station and return flow from irrigated acres.

Accuracy

Records of stage are generally fair to good and measuring conditions are good to fair. Open- water records should be considered good and ice-affected records are poor.

Establishment and History

Established Sept. 9, 2005 by Nebraska Dept. of Natural Resources in cooperation with the Tri Basin NRD.

The original gage consisted of an Accubar pressure transducer with a Satlink Data Logger and Transmitter.

On April 4, 2013 the Accubar pressure transducer was replaced with a Sutron Constant Flow Bubbler.

On October 20th – 21st, 2013 the 4' x 3' x 4' "gun cabinet" style gage house was removed and a new, stainless steel 24" x 30" x 72" was installed in the same location.

April 11, 2022 the Sutron Constant Flow Bubbler (which was the main measuring device) was removed and the Sutron Radar became the main measuring device.

Revision History

Original description prepared March 19, 2005 by D. Gunderson

Revised on	February 27, 2009 by D. Gunderson
Revised on	August 20, 2013 by D. Gunderson
Revised on	June 20, 2014 by D. Gunderson
Revised on	March 23, 2016 by D. Gunderson
Revised on	August 20, 2019 by D. Gunderson
Revised on	December 15, 2022 by D. Gunderson