

Little Blue River below Spring Creek at Hebron, Nebraska 06883555

LOCATION

Latitude and Longitude

40.16152, -97.57627

Road Log

Located at left bank on downstream side of bridge on old U.S. Highway 81 (S. 13th St.) south side of Hebron.

Nearby Features

Equipment Details

Recording Gage

The recording gage is an OTT RLS radar connected to a Sutron SatLink 3 which collects values on a 15-minute cycle and transmits them on a one-hour cycle. The instruments are housed in a 30" W x 24" D x 72"H stainless steel gage house. A solar panel with a 12-volt sealed lead acid battery is used to power the instruments.

External Gage

Outside gage is a type A wire-weight gage mounted on the downstream side of bridge near center of bridge. Elevation of check bar is 22.55 feet, gage datum. Elevations were obtained from GPS during the establishment of this station on 05/17/2017.

Same elevation was collected during the run of the levels on 11/17/2018.

Elevation 22.55 from levels on 12/15/2022.

Bench Mark and Reference Marks

Original reference marks 1, 2, and Bench Mark 1 were installed when the station was established and are located on or near the bridge at south edge of Hebron.

RM 1 is a chiseled "X" located on east wing wall of the bridge (left downstream). Elevation 20.49 feet. Levels on 4/28/2022.

RM 2 is a chiseled "X" on the bridge deck by the wire weight. Elevation 20.71 feet. Levels on 4/28/2022.

BM 1 Origin located approximately 30' north of gage house. Rebar with a NeDNR aluminum cap. Elevation 18.78. Levels on 4/28/2022.

RM 3 is a chiseled "X" on the downstream rail of bridge 26' south of the north end of rail. Elevation 22.94. Levels on 4/28/2022.

RP 1 is a chiseled arrow on the bridge rail at station 147. Elevation 23.22. Levels on 4/28/2022.

Zero gage datum at this bridge has been maintained at 1432.125 NAVD 88 feet mean sea level since station was established 5/17/2017.

Hydrology

Drainage Area

1,476 square miles.

Channel and Control

Low water channel meanders down the original river course through the floodplain and south side of Hebron. The banks are rip rapped directly under the bridge; high channel is mostly earthen embankment and tree lined. The channel is slightly angular coming into the bridge and channel is straight downstream for about two hundred meters. Bed of stream consists of shifting silt and sand with caving banks above and below gage during times of high flow which routinely sediment and cover the orifice. The orifice was switched out in favor of a sand point on September 6, 2017. The low banks are covered with general grass and small trees. Channel control will exist at stages above seven feet until peak occurs. Back water occasionally affects the rating on rise depending on the possibility of high water and tributaries downstream.

Discharge Measurements

At low stages, wading measurements can be made in the vicinity of the gage. High water measurements are made from the downstream side of the bridge.

Floods

Extremes for Period of Record

Maximum discharge of 11,300 cubic feet per second was recorded on May 29, 2019, with maximum gage height of 15.63 feet; no flow not yet recorded.

Point of Zero Flow

1.18 feet stage obtained on June 19th, 2018.

Winter Flow

Stage-discharge relation may be affected by ice from November to March.

Regulation and Diversions

There is considerable pump withdrawal above and below the station for irrigation during summer months.

Accuracy

Records are considered fair except those for winter period which will be poor.

Cooperation

Little Blue Natural Resources district in Davenport, NE.

Establishment and History

Established May 17, 2017, at present site and datum. Department of Natural Resources in cooperation with Little Blue Natural Resources District funded this station. Nebraska D.N.R. instrumentation and publication of this station was started at this time.

On September 6, 2017 replacing open orifice end with the sand point.

On September 5, 2018 replaced H3553 bubbler unit.

On June 24th, 2019 replaced H3553 bubbler unit.

On August 30th, 2019 replaced H3553 bubbler unit.

On May 19th, 2022 replaced WaterLog H-522+ with a Sutron SL3 and H3553 bubbler unit with a OTT RLS radar.

On December 15th, 2022, the wire weight was moved further south on the bridge over channel. Wire weight check bar was surveyed at 22.55 gage datum.

Revision History

Original description by J. Vifquain, 11-17-2017

Revised by J. Hladik 11-8-2018

Revised by J. Vifquain 6-13-2019

Revised by J. Hladik 07-16-2021

Revised by L. Geyer 05-25-2022

Revised by L. Geyer 12-16-2022