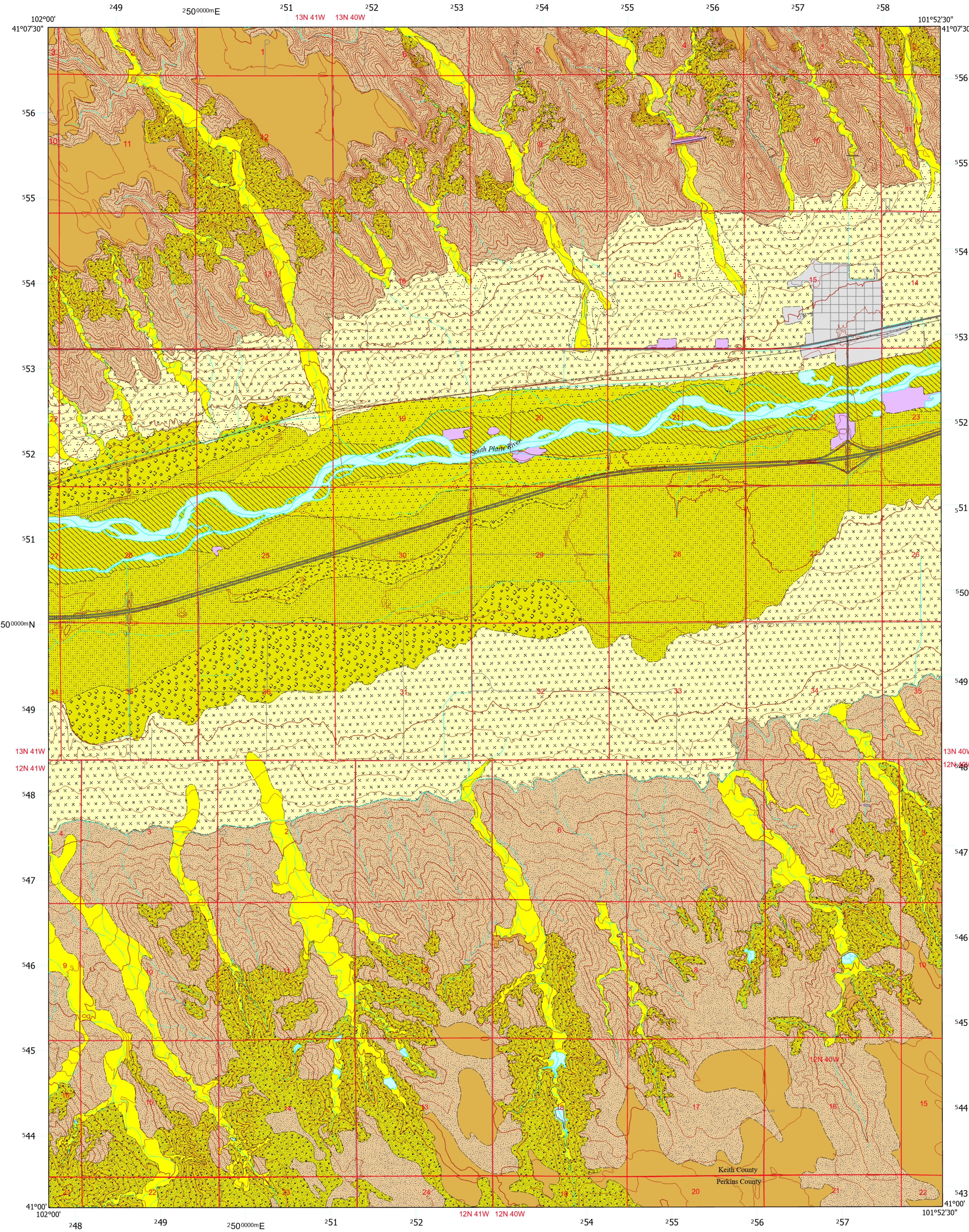


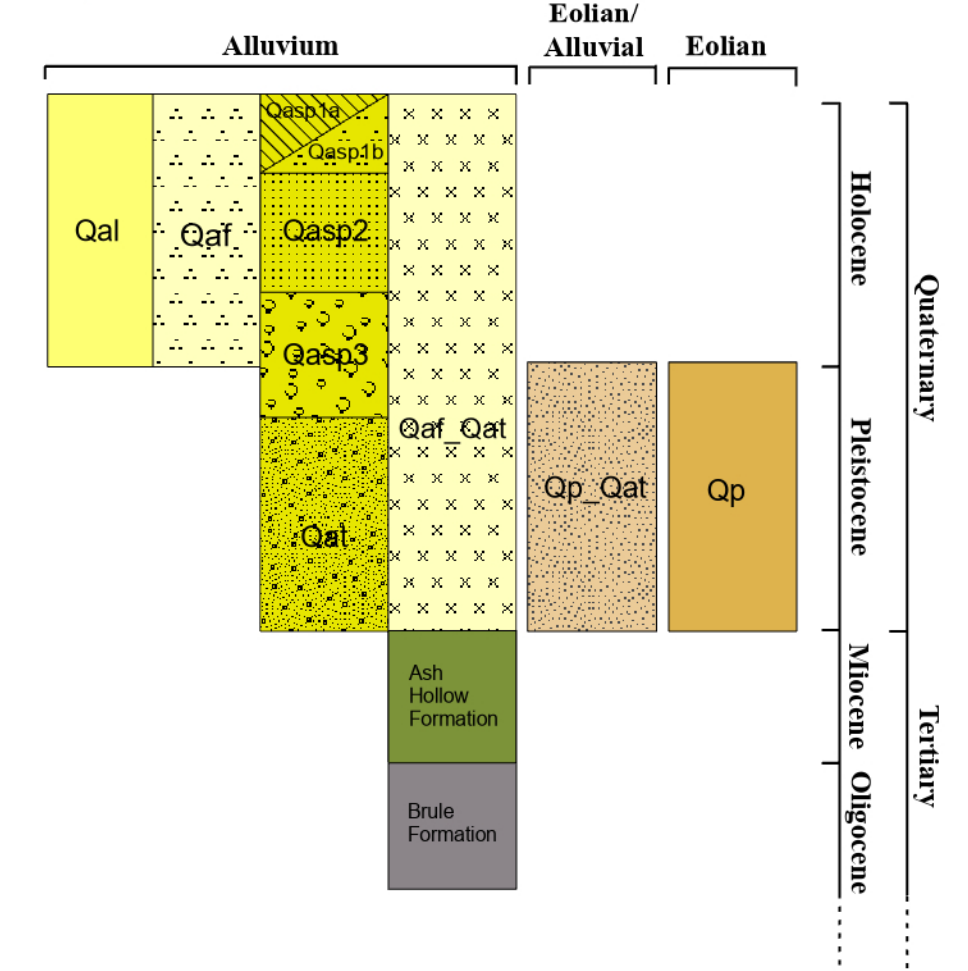
Surficial Geology of the Brule 7.5 Minute Quadrangle, Nebraska

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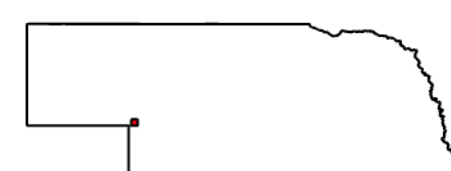
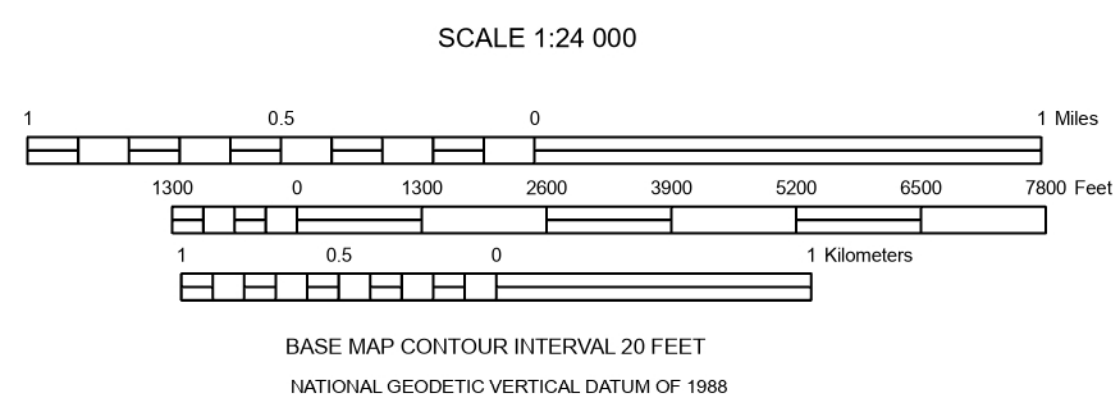
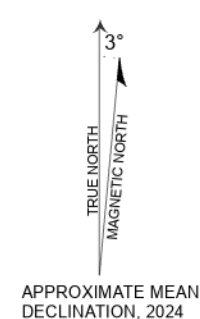


Description of Mapping Units

- Qal** **Quaternary alluvium of smaller streams (Holocene)**
Silt, sand and clay with local gravels
Alluvium produced from ephemeral and low-order streams headed in loess-covered uplands.
- Qaf** **Quaternary alluvial fan (Holocene)**
Clay, silt, and medium to fine sand
Holocene alluvial fan sediments derived primarily from Peoria Loess. Fans slope from the uplands toward the center of the South Platte River Valley, covering alluvial terraces.
- Qasp1a** **South Platte River Alluvium (Late Holocene to recent)**
Fine to coarse sand and gravel with local areas of silt or clay.
Floodplain sediments along the present South Platte River with evident bar and swale topography. These surfaces range from ~1 to ~1.4m (~3.3 to ~4.5 ft) above present river level and are subject to flooding.
- Qasp1b** **South Platte River Alluvium (Late Holocene to recent)**
Fine to coarse sand and gravel with local areas of silt or clay.
South Platte River floodplain deposits, these surfaces range from ~1.7 to ~2.0 m (~5.6 to ~6.4 ft) above present river level. Bar and swale topography is evident but not as clear as that present in Qasp1a.
- Qasp2** **South Platte River Alluvium (Middle Holocene)**
Silt and clay at the surface with fine to very coarse sand with gravel locally and
Alluvial terrace surface ranging from ~2.1 to ~2.3 m (~6.9 to ~7.6 ft) above present river level. An OSL age estimate from 2.7 m (9 feet) depth in the Brule 3 core indicates that the sediments were deposited ~6,500 ± 400 yrs
- Qasp2-pe** **South Platte River Paleochannel (Middle Holocene)**
Fine to very coarse sand with gravel.
Paleochannel of the South Platte River.
- Qasp3** **South Platte River Alluvium (Middle Holocene)**
Silt and clay overlying medium to fine sand with gravel.
Alluvial terrace with a surface ranging from ~2.6 to ~2.8 m (~8.4 to ~9.3 ft) above present river level.
- Qat-Qat** **Quaternary alluvial fan overlying terrace (Late Pleistocene to Holocene)**
Silt and silty clay overlying medium to fine sand with gravel.
Windblown silt and clay overlying gravelly alluvium derived from the South Platte River. Alluvial fill was deposited either prior to or during Peoria Loess deposition in the area. Two OSL age estimates from the alluvial deposits within the Qp_Qat mapping unit suggest the alluvium was deposited prior to 41,000 years ago. These deposits lie approximately 70 meters (230 feet) above the level of the present South Platte River.
- Qp** **Peoria Loess (Late Pleistocene)**
Silt to silty clay, locally sandy.
Wind-blown silt and clay with local sand. The Peoria Loess was deposited between approximately 25,000 to 14,000 years ago. It varies in thickness in the area ranging from 2-3 meters (7-10 feet) thick but may be considerably more outside of the mapping area.
- Qp_Qat** **Thin Peoria Loess over gravelly alluvium (Late Pleistocene)**
Silt and silty clay overlying medium to fine sand with gravel.
Windblown silt and clay overlying gravelly alluvium derived from the South Platte River. Alluvial fill was deposited either prior to or during Peoria Loess deposition in the area. Two OSL age estimates from the alluvial deposits within the Qp_Qat mapping unit suggest the alluvium was deposited prior to 41,000 years ago. These deposits lie approximately 70 meters (230 feet) above the level of the present South Platte River.
- Qte** **Terrace (Late Pleistocene)**
Coarse to very fine sand with gravel and silt.
Alluvial terrace fill exposed in both the north and south sides of the South Platte River Valley. These terraces were covered with Peoria Loess, but erosion has exposed these sediments. One OSL age from the Brule 4 core shows the age of the alluvial terrace fill here dates to 21,600 ± 2,700 years ago. This age suggests that the South Platte River has incised approximately 36 meters (119 feet) in the last ~22,000 years.
- F** **Fill**
Includes dams, road embankments, and other manmade structures.
- T** **Town**
The town of Brule, Nebraska.
- W** **Water**



North American Datum of 1983 (NAD 83)
Projection: Universal Transverse Mercator
1,000-meter ticks: Universal Transverse Mercator, zone 14T
Basemap compiled by Nebraska Conservation and Survey Division from digital data (2023 US Topo) provided by the United States Geological Survey and the Nebraska Department of Natural Resources. Shaded relief derived from 2011 LIDAR elevation data.



Big Springs NE	Brule NW	Brule NE
Big Springs	Brule	Brule SE
Verango NE	Brandon NW	Brandon NE

This geologic map was funded in part by the USGS National Cooperative Geologic Mapping Program under StateMap award number GS23AS0050, 2023. The views and conclusions contained in this document are those of the authors and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the U.S. Government.



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