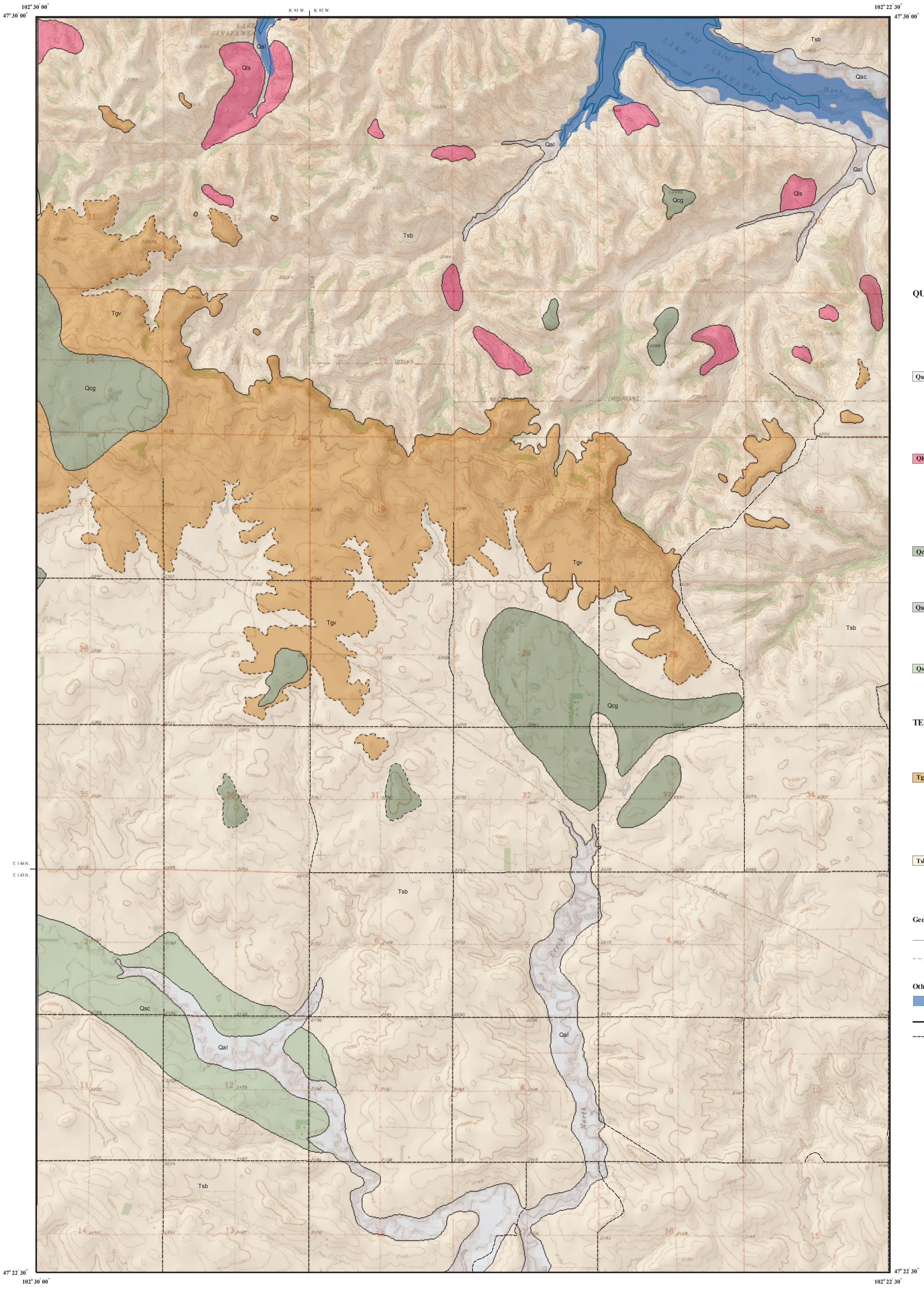
North Dakota Geological Survey
John P. Bluemle, State Geologist

Surface Geology

Halliday NW Quadrangle, North Dakota



Edward C. Murphy

2004

UNIT DESCRIPTIONS

QUATERNARY SYSTEM

RECENT

OAHE FORMATION

Qal **Alluvium**

Brownish gray to black sand, silt, clay, and lenses of gravel; floodplain deposits (typically less than 30 feet thick) along recent drainages. Not differentiated where it overlies Qac.

RECENT/PLEISTOCENE

Qls **Landslide Deposits**

Variable mixture of strata and deposits that have slid to the base of steep slopes.

PLEISTOCENE

COLEHARBOR GROUP

Qcg **Glacial Deposits**

Grayish brown, sandy, silty, bouldery clay with lenses of sand and gravel (glacial till). May occasionally include thick deposits of glacial outwash.
Generally preserved as a veneer in the uplands.

Qac **Proglacial Channels**

Generally contain 50 to 200 feet of sand and gravel, silt, clay, and till (meltwater-channel fill). Overlain by Recent alluvium (Qal) of variable thickness. This map unit was created to distinguish between these very thick channel deposits and the moderate to thin deposits mapped as Qal.

Qsc **Glacial Channels**

Generally contain less than 50 feet of channel fill deposits (sand and gravel, silt, and clay) typically much narrower than the proglacial channels. Overlain by Recent alluvium of variable thickness.

TERTIARY SYSTEM

EOCENE-PALEOCENE

Tgv **GOLDEN VALLEY FORMATION**

Camels Butte Member:
Alternating beds of yellowish brown to brown, micaceous sandstone, siltstone, mudstone, claystone, and lignite.
Bear Den Member:
Brightly colored, kaolinitic claystone, mudstone, and sandstone typically overlain by a thin silicious bed (silcrete) or lignite.

Tsb **SENTINEL BUTTE FORMATION**

Alternating beds of grayish brown to gray sandstone, siltstone, mudstone, claystone, and lignite.

Geologic Symbols

——— Known contact between two geologic units.

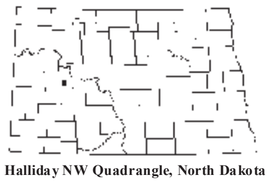
- - - - Approximate contact between two geologic units.

Other Features

Water

Paved Road

Unpaved Road



Halliday NW Quadrangle, North Dakota

Scale 1:24,000

0 0.5 1

Miles

Lambert Conformal Conic Projection
Standard Parallels 47° 22' 30" and 47° 30' 00"

N
W E
S

This geologic map was funded in part by the
USGS National Cooperative Geologic Mapping Program.

Cartographic Compilation: E. L. Kadrmas and R. D. Shjeflo