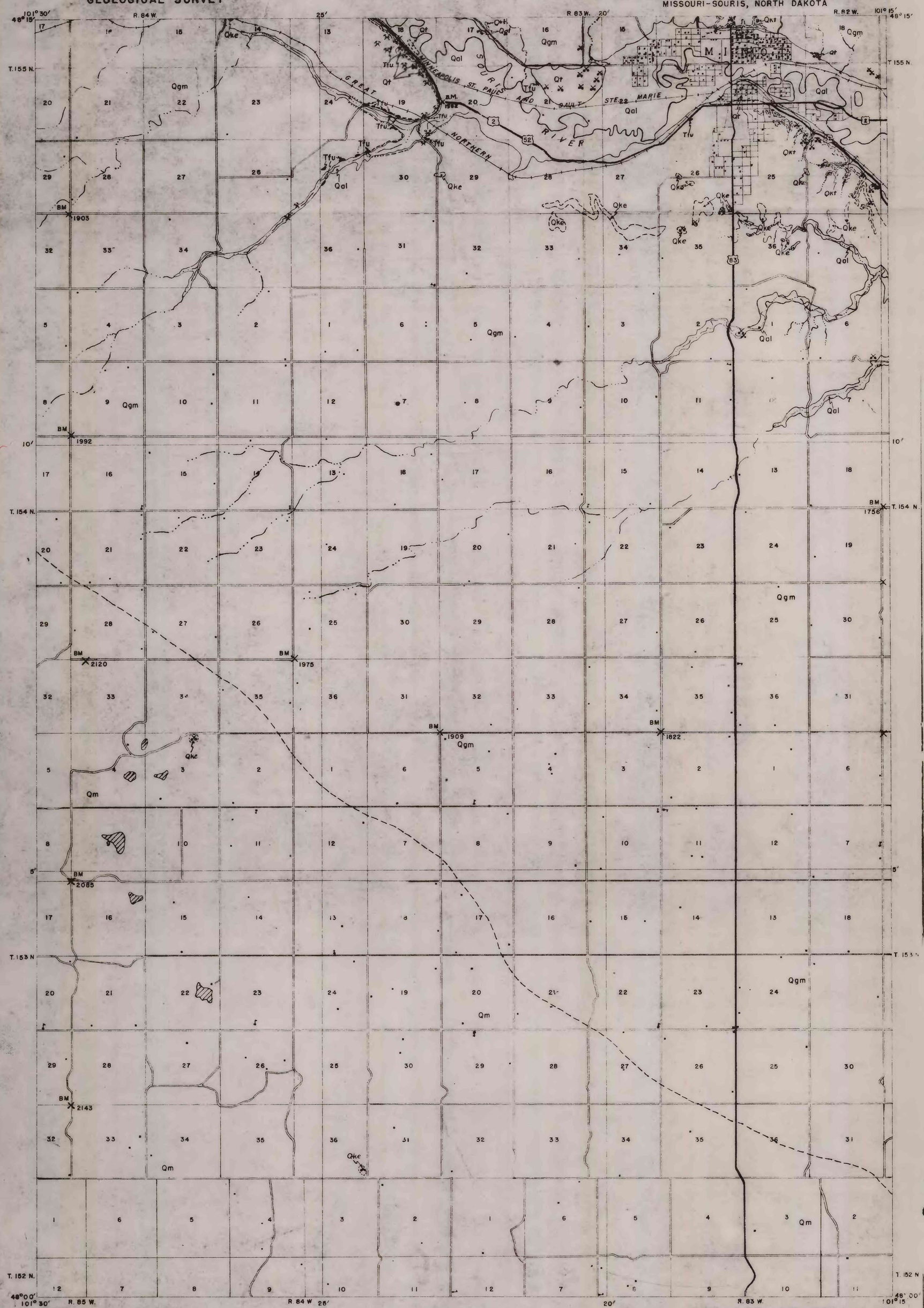
#165

47-7

U. S. DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Prepared as a part of the Department of Interior's program for development of the Missouri River Basin

MISSOURI RIVER BASIN
GEOLOGIC MAPPING AND MINERAL RESOURCE INVESTIGATION
MISSOURI-SOURIS, NORTH DAKOTA



Compiled on topographic base and in part from aerial photographs by use of the Salzsman projector.

PRELIMINARY

GEOLOGIC MAP OF THE MINOT QUADRANGLE, NORTH DAKOTA

SCALE 1:48000

Miles

Feet

Mapped in 1947 by Richard W. Lemke and J. Hiram Smith. Taken in part from mapping in 1945 by C.E. Prouty and Richard W. Lemke

EXPLANATION

Recent

Qal

Alluvium

Postglacial sand, silt, and clay constituting the floor of the Souris River valley and the larger tributaries; also includes larger alluvial or colluvial fans.

Pleistocene — Wisconsin stage — Late Wisconsin — QUATERNARY

Qgf

Glaciofluvial deposit, undetermined origin

Poorly sorted sand and fine-grained gravel in small mounds on flood plain of Souris River.

Qt

Outwash terrace deposits

Poorly to well sorted sand, gravel, and boulders as much as 6 feet long. Deposits, which are generally 25 to 40 feet thick, left as terrace remnants along valley walls of Souris River.

Qke

Kame and esker deposits, undifferentiated

Scattered or interconnected low mounds and ridges consisting of poorly sorted sand and gravel with minor amount of till.

Qgm

Ground moraine

Chiefly compact, highly impervious, stony, clay-rich till, locally mantled by sand, silt, or clay deposited by glacial meltwater. Commonly 75 to 100 feet thick. Also includes small deposits of alluvium or colluvium deposited in numerous kettles and other undrained depressions.

Qm

Moraine on Coteau du Missouri

Exceptionally hummocky poorly drained area of stony clay-rich till similar in composition to ground moraine but in most places considerably thicker.

Qkt

Exhumed kame terrace (?) deposits

Discontinuous ice contact deposits of sand and fine-grained gravel along walls of Souris River valley. Generally from 5 to 15 feet thick but in a few places as thick as 30 feet. Poorly to well sorted; beds commonly show considerable deformation. Deposits overlie till and in turn are buried in most places by younger till but partly exposed by Recent erosion.

Paleocene — TERTIARY

Tfu

Fort Union formation
Tongue River member

Continental beds of poorly to moderately consolidated sandstone, sand, siltstone, shaly clay, and lignite. Weathered exposures are gray to tan. Solid pattern shows individual exposure or area of closely spaced outcrops.

Contact, sharply defined

Contact, approximate

Contact, gradational or indefinite

Coal bed covered, location approximate

Coal bed covered, location inferred

Inactive lignite mine, slope or tunnel

Inactive lignite mine, open pit

Intermittent lake or pond

Spring

Gravel pit

Paved U. S. Highway

Road, secondary

Section boundary

Farm building

School

Church

BM 1836

Bench mark with altitude, location approximate

U. S. Geological Survey
OPEN FILE REPORT
This map is preliminary and has not been edited or reviewed for conformity with Geological Survey standards or nomenclature.

U.S. Geological Survey.
Reports: Open file series no.

Temp 165