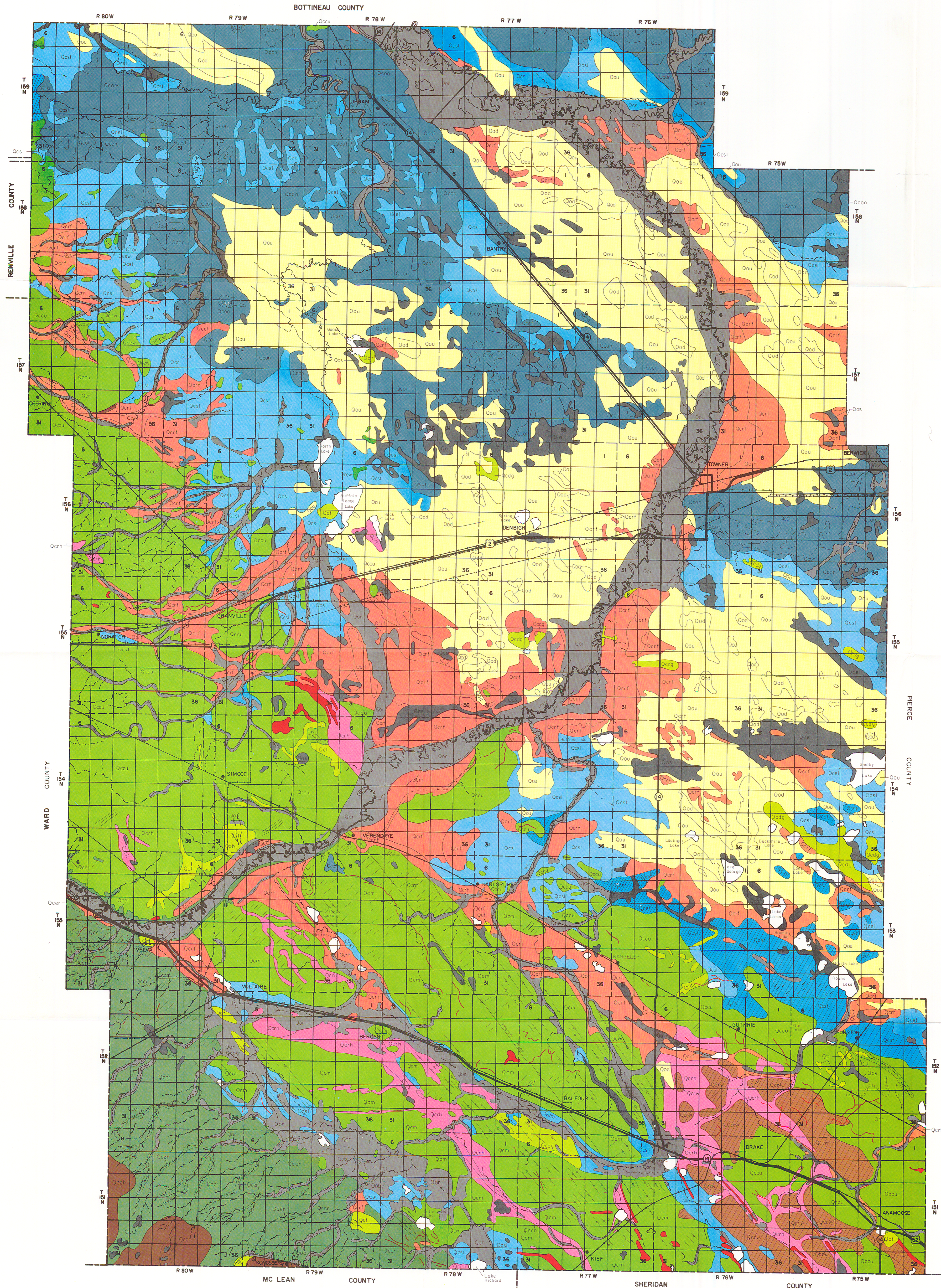


PLATE 1 GEOLOGIC MAP OF MC HENRY COUNTY

PART 1 PLATE 1
BULLETIN 74
COUNTY GROUNDWATER STUDIES NO. 33

NORTH DAKOTA GEOLOGICAL SURVEY
NORTH DAKOTA STATE WATER COMMISSION



LEGEND See text for a more complete explanation of map units.

ROCK UNITS	DESCRIPTION
FORMATION AND FACIES Symbol	Texture, color, topography or landform, and origin.
OAHE FORMATION	
Clay Facies Qo	Clay, sand, silt, and gravel with dispersed, organic material.
Qob	Pond and slough sediment. Dark, obscurely bedded clay and silt; in modern ephemeral ponds.
Silt and Sand Facies Qor/Qob Qou Qod	Qor/Qob: River sediment. Dark, obscurely bedded clay and silt (Qob, overbank sediment); generally overlying cross-bedded sand (Qor, channel sediment); on flat plains of modern streams. Qou: Windblown sediment. Well-sorted, fine sand and black silt with obscure bedding and weak paleosols; undulating to slightly rolling (Qou) to strongly rolling dunes with up to 65 feet of local relief (Qod).
COLEHARBOR GROUP	
Silt Facies Qc Qcrl Qcon Qcfl Qcsl	Qc: Pebbly, sandy, silty clay with limestones, dolomite, granite, gneiss, and basalt pebbles and associated nonorganic, bedded clay, silt, sand, and gravel. Qcrl: Lake sediment. Laminated silty clay, clayey silt, and fine sand of glacier-dammed lakes; yellowish-brown to dark-gray in exposures depending on weathering intensity. Qcon: Offshore to nearshore lake sediment (mainly turbidity-current sediment). Silt and well-sorted very fine to medium sand with flat bedding. Commonly with blowout topography. Qcfl: Offshore to nearshore lake sediment. Silt to fine sand; generally obscured by a covering of collian material. Qcsl: Nearshore lake sediment. Sand and fine gravel deposited by streams near the lake shore.
Sand and Gravel Facies Qcrf Qcrh Qcrw	Qcrf: River sediment. Moderately well-sorted, cross-bedded sand and plane-bedded gravel, including sediment of meltwater rivers. Qcrf: Flat, fluvial plains. Flat-bedded sediment of nearly level plains and river terraces, commonly with braided channel scars; relief of 1 to 10 feet. Qcrh: Collapsed fluvial plains. Faulted and contorted sediment with hilly topography; relief up to 50 feet. Qcrw: Patches of gravel or sand overlying glacial sediment. Water-worn till surface.
Till Facies Qcu Qcr Qch Qcw Qcn Qcd Qcm Qct	Qcu: Gently undulating to undulating surface with poorly integrated drainage; local relief generally less than 10 feet. Qcr: Rolling surface with kettles, partially to nonintegrated drainage, and numerous ice-disintegration features; slopes to the northeast, away from the Missouri Escarpment; local relief generally less than 50 feet. Qch: Hilly surface with numerous kettles, nonintegrated drainage, and abundant ice-disintegration features; local relief commonly more than 100 feet. Qcw: Nearly smooth, bouldery surface of glacial sediment; veneer of sand or gravel in places; wave-worn surface found mainly in the northwestern part of the county. Qcn: Steeply sloping, bouldery surface of glacial sediment found mainly adjacent to deep coulees and along the Souris River in the western part of the county. Qcd: Areas covered by a thin layer of till. Veneer of till draped over and only slightly modifying the pre-existing (pre-glacial bedrock or older till or gravel surface) topography; relief up to 75 feet locally. Qcm: Subglacially molded surface. Numerous shear marks caused by glacial erosion; commonly less than 20 feet of local relief; individual shear marks (drumlin-like features and associated grooves) are indicated on the map by lines (see symbols, below). Qct: Ice-thrust masses. Glacial sediment that has been draped over glacial or preglacial sediment or rock that has been sheared up into thrust faults or folds near the ice margin; hilly areas with intense internal linearity; local concentrations of gravel and boulders; local relief may exceed 150 feet.

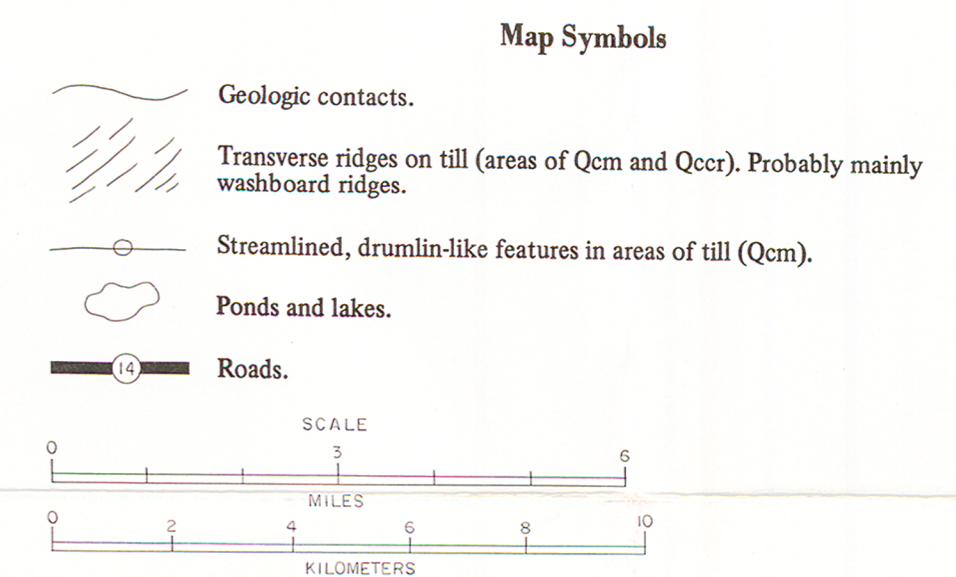
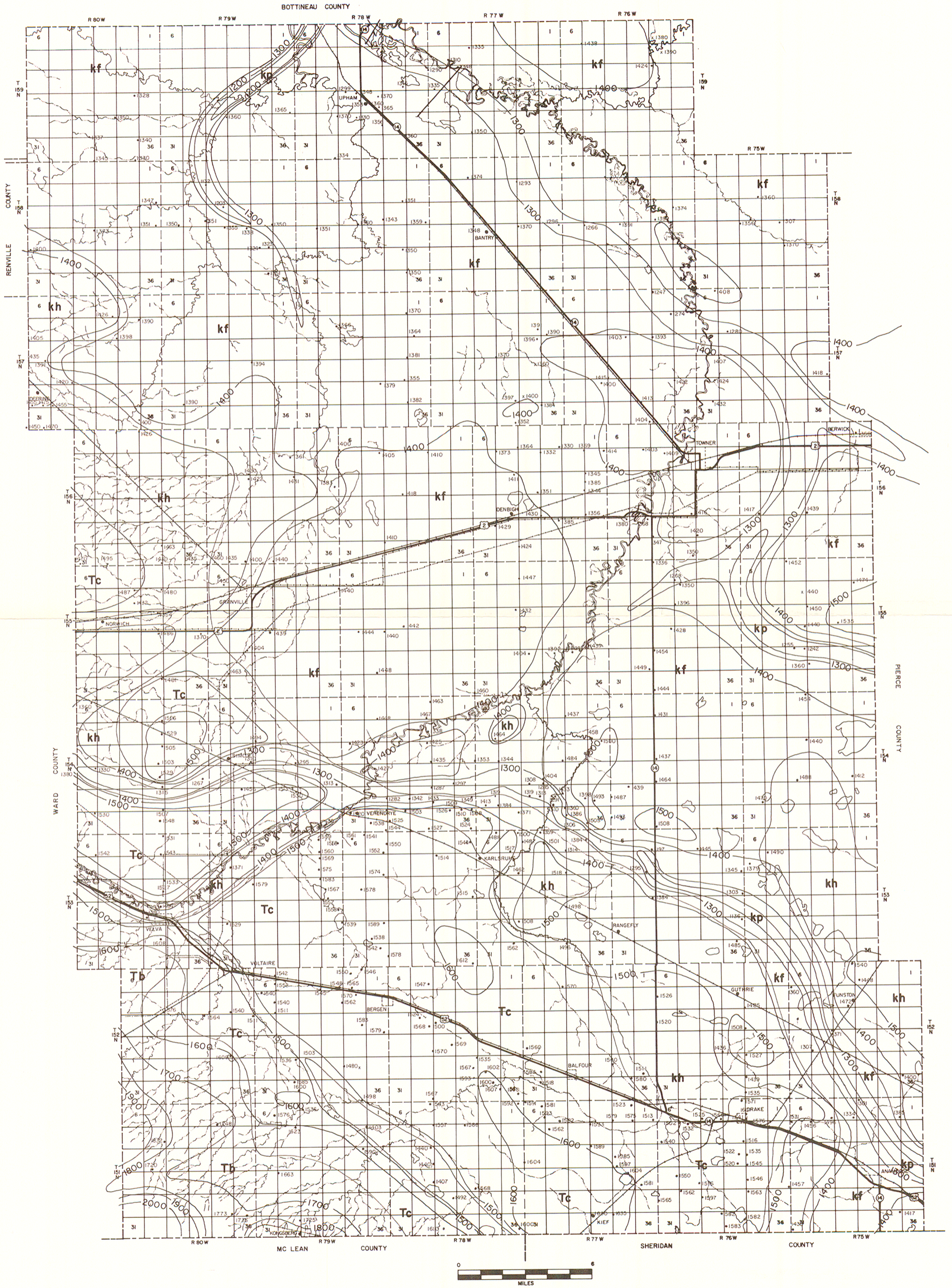
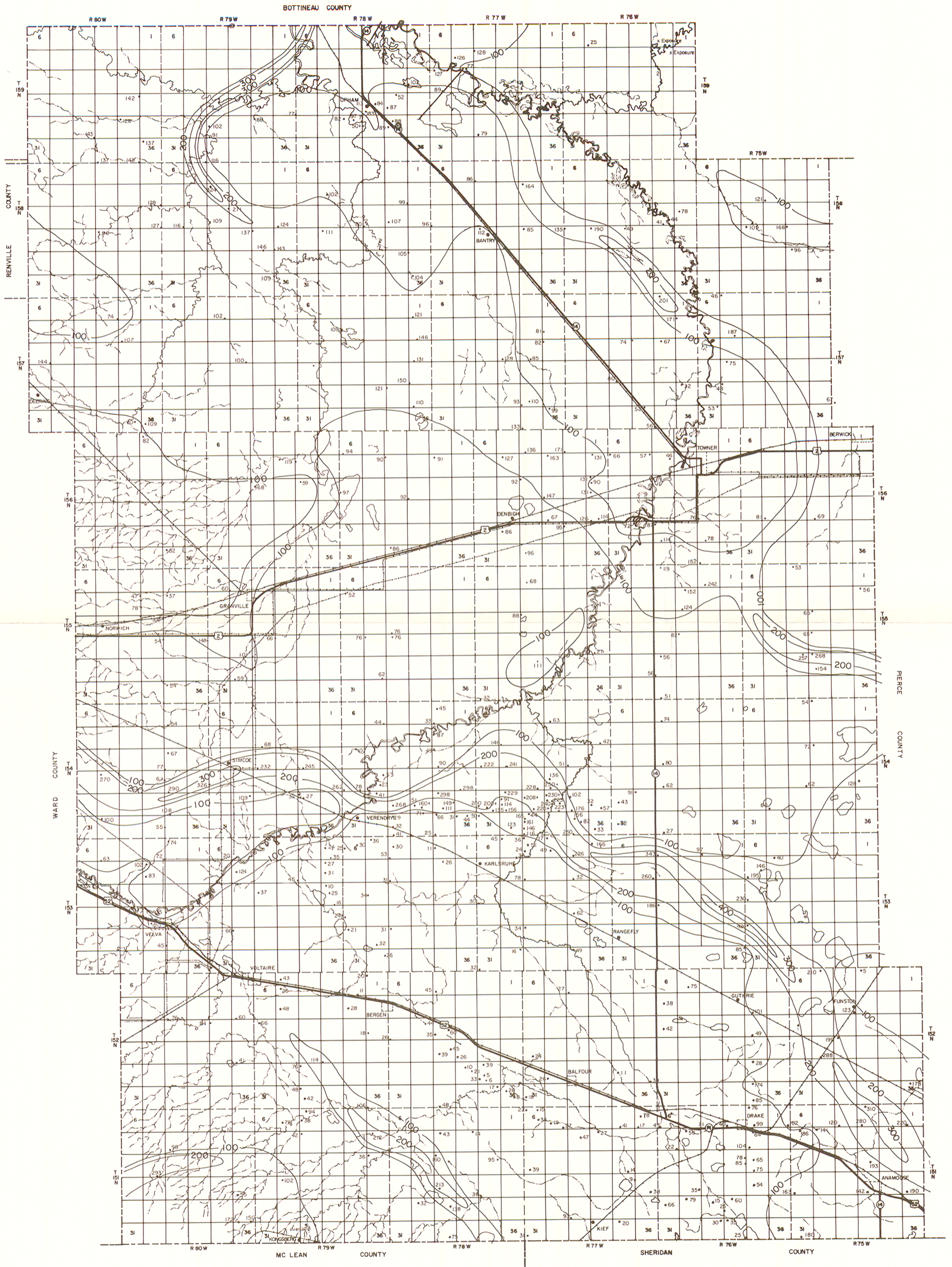


PLATE 2. GEOLOGIC AND TOPOGRAPHIC MAP OF THE PREGLACIAL SURFACE IN MC HENRY COUNTY



MC HENRY COUNTY

PLATE 3. THICKNESS OF THE GLACIAL AND RELATED DEPOSITS ON THE PREGLACIAL SURFACE IN MC HENRY COUNTY



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MILES
MC HENRY COUNTY