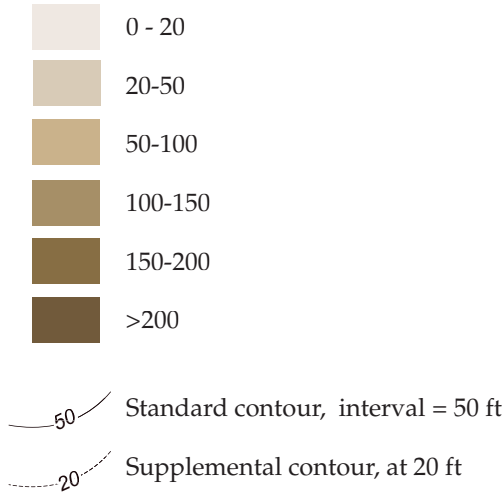


EXPLANATION

Thickness (in feet below land surface)



Depth to bedrock data points

Fully penetrating wells

- Coarse Grained
- Fine Grained
- Coarse-Fine Sequence
- Dirt/Fill
- Coarse Grained (Outlier)
- Fine Grained (Outlier)
- Coarse-Fine Sequence (Outlier)

Partially penetrating wells

- Coarse Grained
- Fine Grained
- Coarse-Fine Sequence

Other

- Rock outcrop
- Geophysical study — W.A.Sauk (unpub. data, 1994)

Numbers denote reported thicknesses that lie outside of contour interval

The surficial material of Iowa County varies in type and thickness across the county. The broad uplands of the county are blanketed by a thin veneer of fine-grained material that is absent at some locations and locally thick in others. The surficial material in the river valleys is thicker and coarser than that of the uplands; in the Wisconsin River valley, the thickness of unconsolidated material exceeds 150 ft.

About the data points

We compiled surficial material type and thickness data for Iowa County from 1) well constructors' reports (WCRs), 2) geologic logs produced by the Wisconsin Geological and Natural History Survey, 3) the county soil survey (NRCS, 2006), and 4) a geophysical study of surficial material thickness (W.A.Sauk, unpub. data, 1994).

Of the 2960 data points, 2531 represent water wells, 428 represent rock outcrops identified in the soil survey and one represents the geophysical study of Sauk (1994). The majority of water well data points – 2446 out of 2531 – report data from a WCR. In addition to the 428 rock outcrops identified in the soil survey, we identified 69 rock outcrops from WCRs and geologic logs for a total of 497 outcrops located on the map.

Data were characterized by material type based on the relative grain size and the nature of the material (table 1). The symbols that differentiate these categories on the map also indicate whether or not a well fully penetrates the surficial material, in other words, whether or not a well reaches bedrock. Most of the wells fully penetrate the surficial material and therefore provide a measurement of its total thickness; a minimum thickness of surficial material is provided at the 113 wells that do not reach bedrock.

We incorporated depth to bedrock data reported in the county soil survey in areas with few WCRs or geologic logs, such as river valleys. Depth to bedrock is reported in the soil survey as the minimum depth to bedrock for an area designated as a single soil unit; depths up to 5 ft are reported. We plotted all such soil unit areas and used these areas as a guide to placing the 20-ft contour line. In areas where the soil survey depth to bedrock was inconsistent with WCR data, we honored the WCRs.

Treatment of outlier data

Data points at which the reported surficial material thickness is outside the range of thickness established by the contours — for example, a well with a reported thickness of 40 ft in a region contoured as being less than 20 ft — were not used in the contouring process because the density of such points was low and there was insufficient data to inform an interpretation of the extent of the area in which thickness differed from the contoured range. These points represent locations where the surficial material thickness is locally thick or thin. For example, thick deposits of surficial material along valley walls represent colluvial deposits; these deposits result from mass wasting and vary in thickness. We could not delineate these areas of thick deposits, as we lacked information on which to base an interpretation of their spatial extent. Instead, we have highlighted points of anomalous thickness on the map by symbol color and a label of the reported thickness so that their presence may be noted. More locations of anomalous surficial material thickness are likely to exist than are identified on the map.

An existing depth to bedrock map for Sauk County (Gotkowitz and Zeiler, 2002) was compared to this map to determine whether the contours of surficial material thickness matched at the shared edge of the counties. An exact match was not found, possibly because the thickness contours for Iowa County were based on greater data density.

SOURCES OF INFORMATION

Gotkowitz, M.B., and Zeiler, K.K., 2002, Depth to bedrock map of Sauk County, Wisconsin: Wisconsin Geological and Natural History Survey Miscellaneous Map 54, scale 1:100,000.

Natural Resource Conservation Service, 2006, Soil survey geographic (SSURGO) database for Iowa County, Wisconsin: U.S. Department of Agriculture. http://www.ftw.nrcs.usda.gov/ssur_data.html.

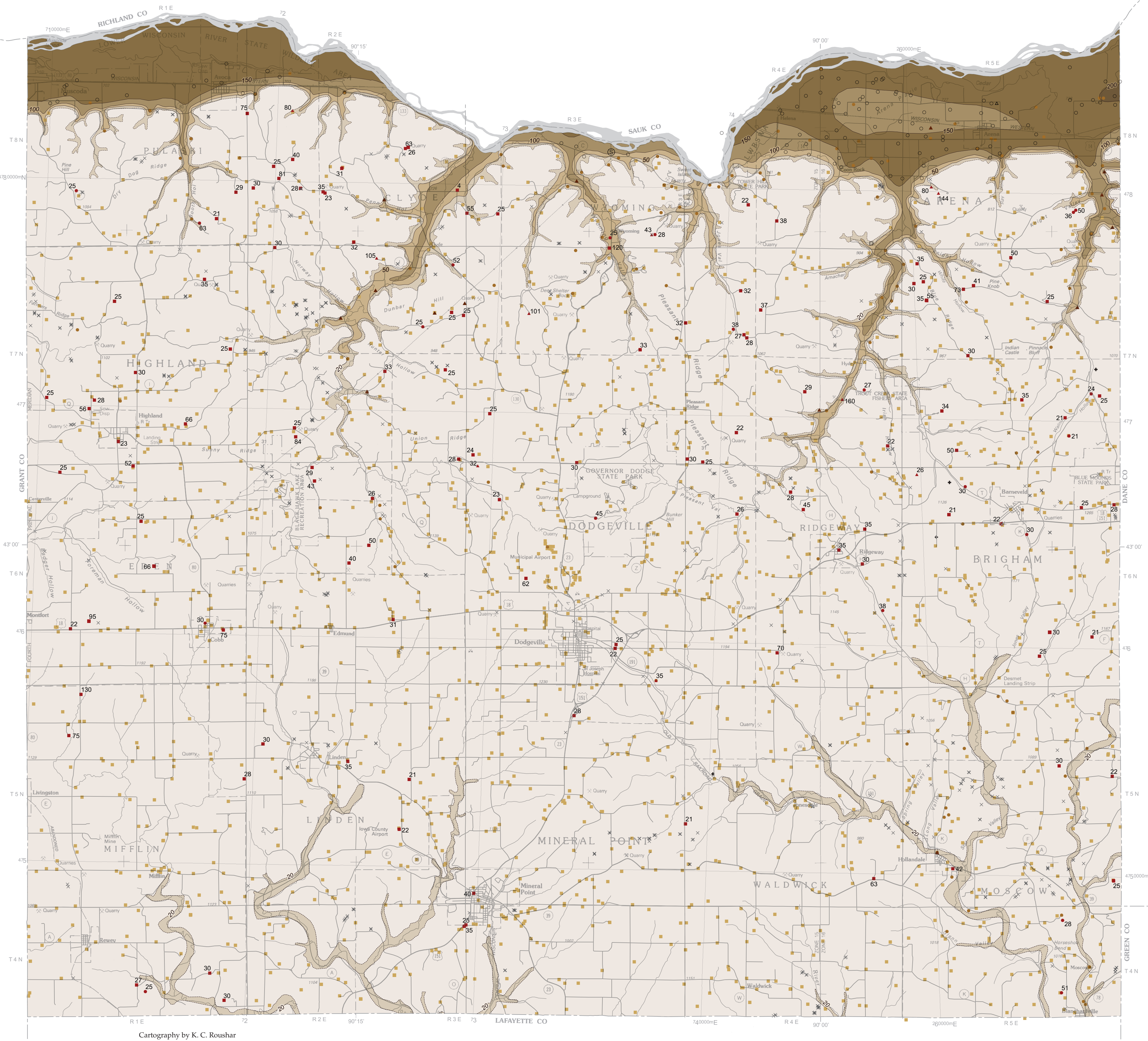
Wisconsin Department of Natural Resources, Well Constructors' Reports (1936–2004).

Wisconsin Geological and Natural History Survey, published and unpublished geologic logs (1939–2002).

Table 1. Surficial material categories and terms used to describe surficial material.

Surficial Material Category	Terms from Well Constructors' Reports
Fine grained	Clay, silt, soil, clay/dolomite, Rountree Formation
Coarse grained	Sand, gravel, sand & gravel
Coarse-fine grained sequence	Alternating layers of material included in fine-grained and coarse-grained categories
Dirt/fill	Dirt, fill
Rock outcrop	Bare rock, dolomite, sandstone, shale

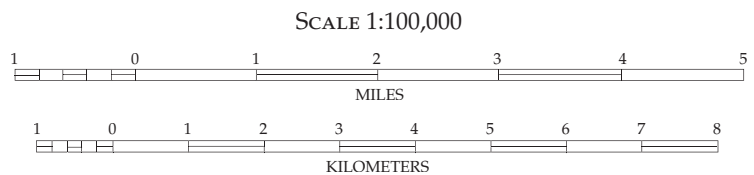
DEPTH TO BEDROCK MAP OF IOWA COUNTY, WISCONSIN



Cartography by K. C. Roushar

This map represents work performed by the Wisconsin Geological and Natural History Survey and is released to the open files in the interest of making the information readily available. This map has not been edited or reviewed for conformity with Wisconsin Geological and Natural History Survey standards and nomenclature.

The base map was constructed from U.S. Geological Survey digital line graph files (1990, scale 1:100,000) and modified by the Wisconsin Department of Natural Resources (1992) and the Wisconsin Geological and Natural History Survey (2009). Wisconsin Transverse Mercator Projection 1991 adjustment to the North American Datum of 1983 (NAD 83/91).



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