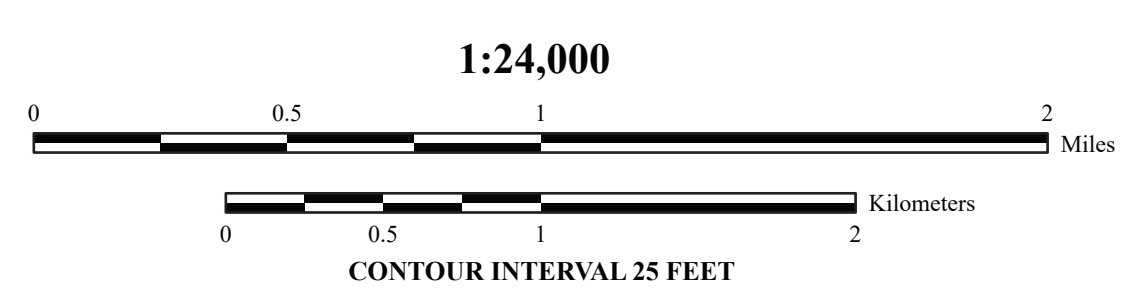
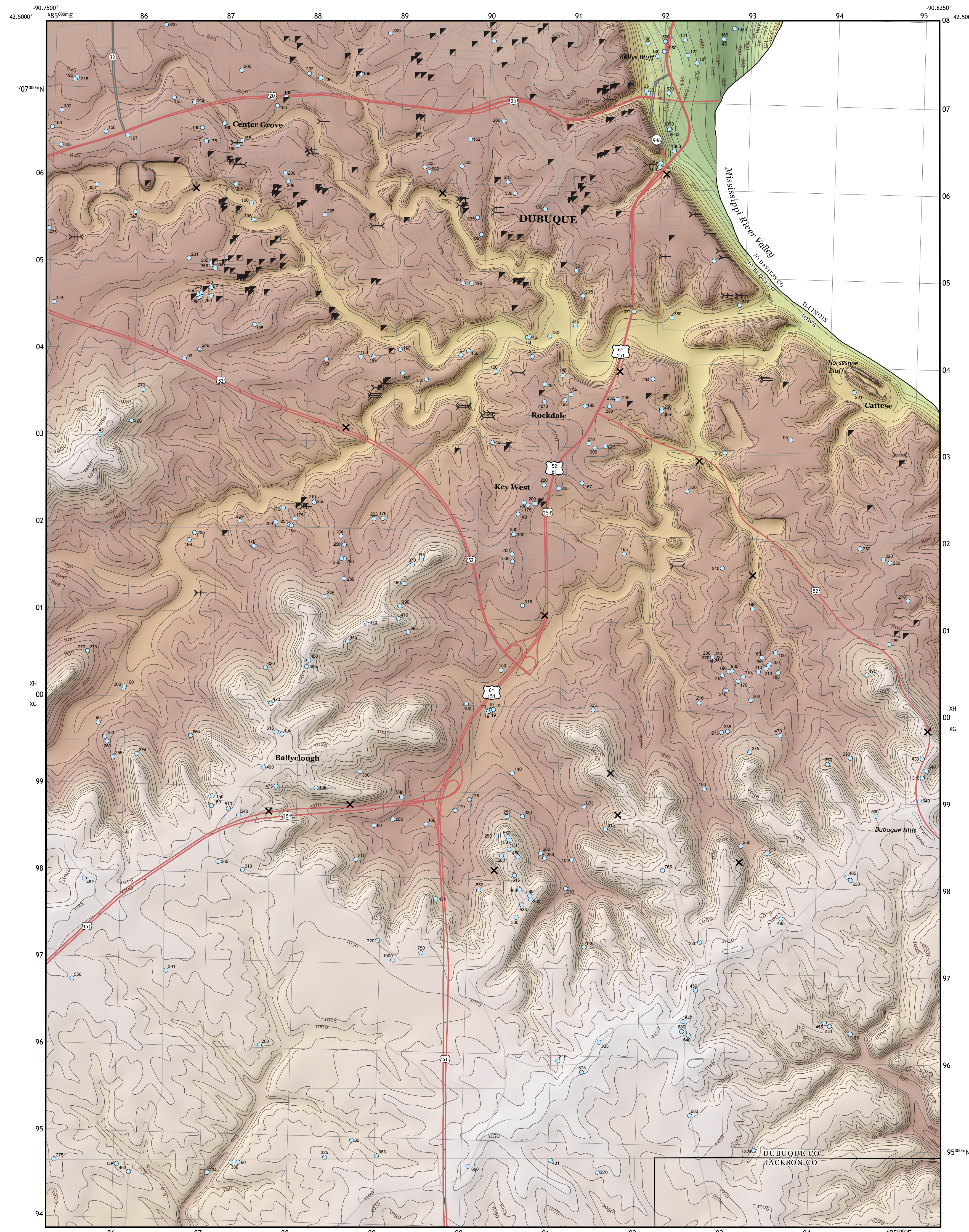


# BEDROCK ELEVATION AND QUATERNARY THICKNESS MAPS OF THE DUBUQUE SOUTH 7.5' QUADRANGLE, DUBUQUE AND JACKSON COUNTIES, IOWA, AND JO DAVIESS COUNTY, ILLINOIS

## BEDROCK ELEVATION

Ryan Clark, Jack Malone, and Phil Kerr  
Iowa Geological Survey, IIHR-Hydroscience & Engineering, University of Iowa, Iowa City, Iowa

## QUATERNARY THICKNESS



### INTRODUCTION

The Dubuque South 7.5' Quadrangle in Dubuque County, Iowa, is situated at the intersection of three landform regions, the East-Central Drift Plain, Paleozoic Plateau, and Mississippi Alluvial Plain. The southern third of the mapping area is marked by the Silurian Escarpment, a prominent ridge of resistant dolostone that defines the boundary between the East-Central Drift Plain and the Paleozoic Plateau. Both of these landform regions are characterized by thin (less than 30 feet) glacial deposits of loess and/or till draped over Silurian- and Ordovician-age bedrock units. The Mississippi Alluvial Plain occupies the northeastern corner of the quadrangle and is bounded by steep bluffs of Ordovician-age carbonates of the Galena Group. The Mississippi River incised more than 300 feet into Middle and Lower Ordovician rocks that are overlain by alluvial sediments (up to 300 feet thick). The bedrock surface of the Dubuque South 7.5' Quadrangle is dominated by strata of the Ordovician System with carbonates of the Silurian System occupying the southern third of the mapping area.

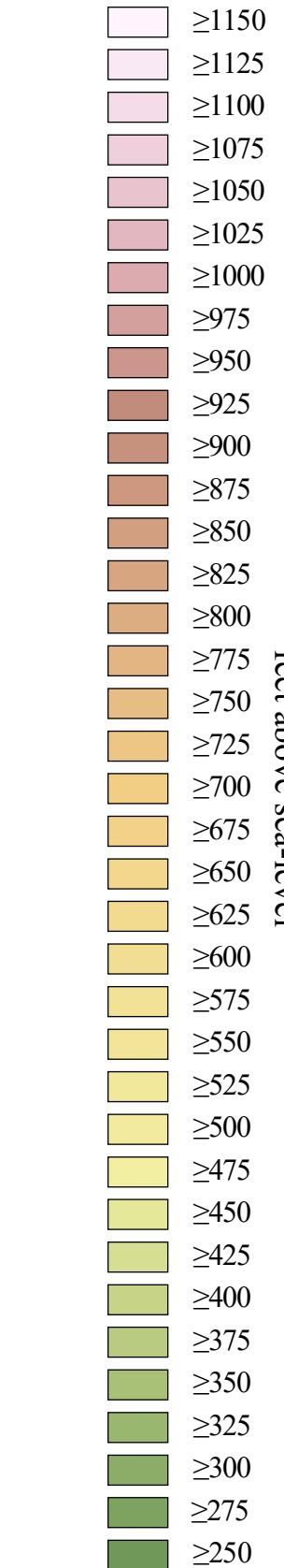
### METHODOLOGY

The Bedrock Elevation and Quaternary Thickness Maps of the Iowa portion of the Dubuque South 7.5' Quadrangle were constructed using the same datasets as the Bedrock Geologic Map (Open File Map OFM-24-07). Numerous bedrock exposures exist in the mapping area, primarily exposing dolostones of the Silurian System along the escarpment as well as Galena Group carbonates along roadcuts, stream valleys, and the Mississippi River Valley. Four active and two abandoned rock quarries occur within the quadrangle. Geologic reconnaissance of 15 bedrock outcrops, three active quarries, and two abandoned quarries within the mapping area was conducted during field activities. Further subsurface information was derived from an assessment of more than 350 borehole records, over 150 of which have lithologic strip logs. An additional 30 strip logs were created for this mapping project.

Each of these records was checked for locational accuracy using information from the driller's logs, historic plat books, county assessor information, and direct communication with landowners. The depth to the surficial-bedrock contact was determined for each well and assigned an elevation value by subtracting it from the surface digital elevation model (DEM). These data points provided the framework for the Bedrock Elevation Map. Additional information was gained from an assessment of the Natural Resources Conservation Service (NRCS) County Soil Survey by identifying soil series that indicate shallow bedrock.

To create the Bedrock Elevation Map, bedrock elevation contours (drawn at a 25-foot contour interval) were digitized manually using ArcGIS Pro 3.0 software. The bedrock elevation raster was then generated using interpolations of the bedrock surface created with the 'Topo to Raster' geoprocessing tool (ArcGIS Pro 3.2). The Quaternary Thickness Map was created by subtracting the bedrock elevation raster values from the surficial DEM raster. The resulting surface was rounded to the nearest integer and contours were generated from this result and then smoothed.

### BEDROCK ELEVATION



### MAP SYMBOLS

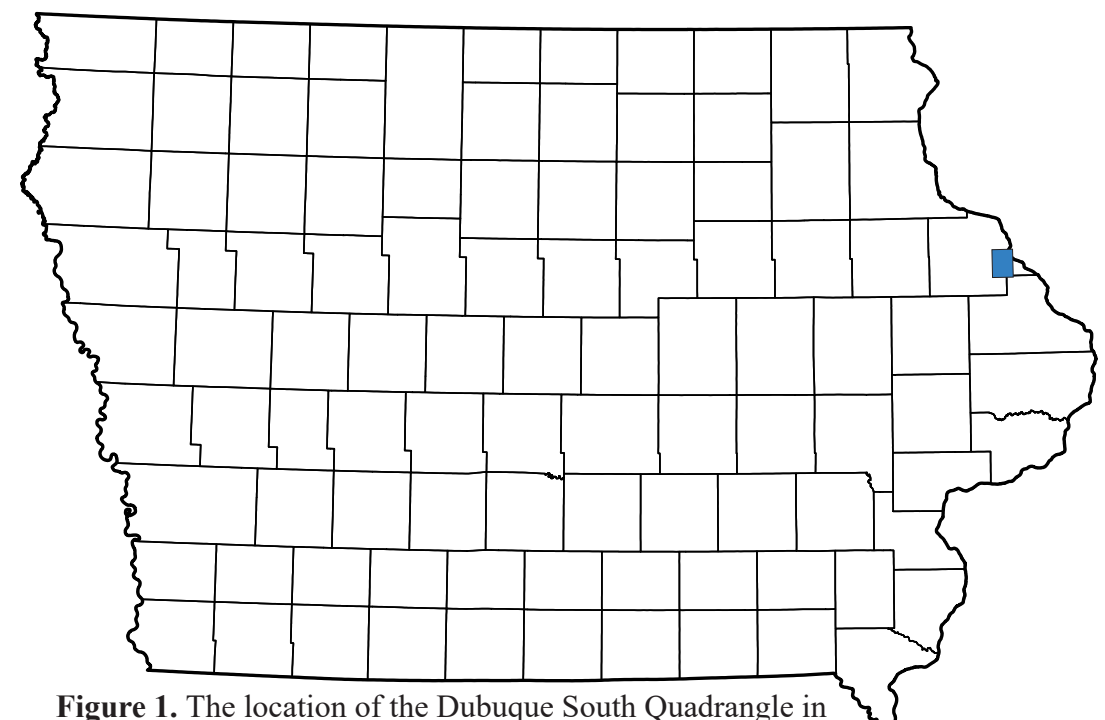
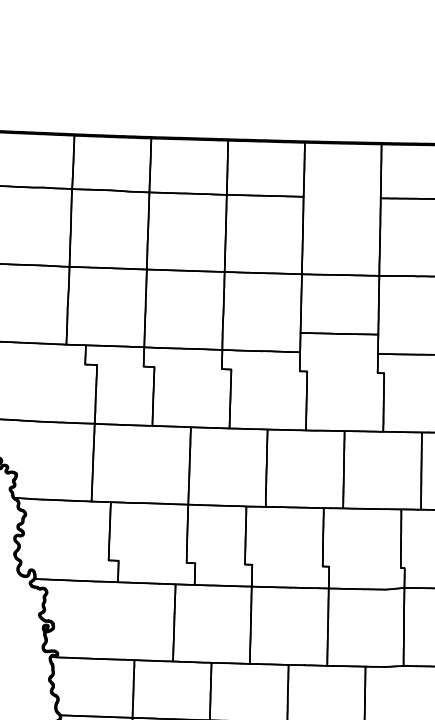
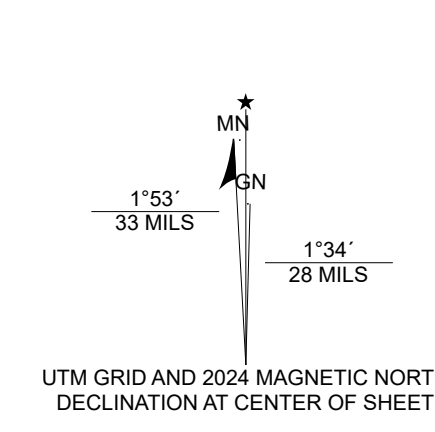
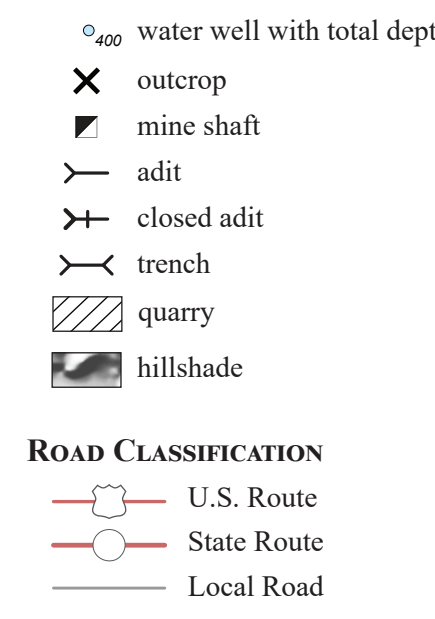


Figure 1. The location of the Dubuque South Quadrangle in Iowa.

ADJOINING QUADRANGLES		
1	2	3
4	5	6
7	8	

1 Shenell, IA  
2 Dubuque North, IA, WI, IL  
3 Kessler, WI  
4 Potosi, IA  
5 Menominee, IA, IL  
6 Bernard, IA  
7 Zwingli, IA  
8 La Motte, IA

### ACKNOWLEDGEMENTS

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Digital cartography by P. Kerr. Base map from U.S. Geological Survey (USGS) Dubuque South 7.5' Quadrangle map, published by the USGS in 2022. Map projection and coordinate system based on Universal Transverse Mercator (UTM) Zone 15N, datum NAD83. The maps are based on interpretations of the best available information at the time of mapping. Map interpretations are not a substitute for detailed site-specific studies. 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. Supported in part by the USGS Cooperative Agreement Number G23AC00497 National Cooperative Geologic Mapping Program (STATEMAP).

### QUATERNARY THICKNESS

