

Illinois State Geological Survey

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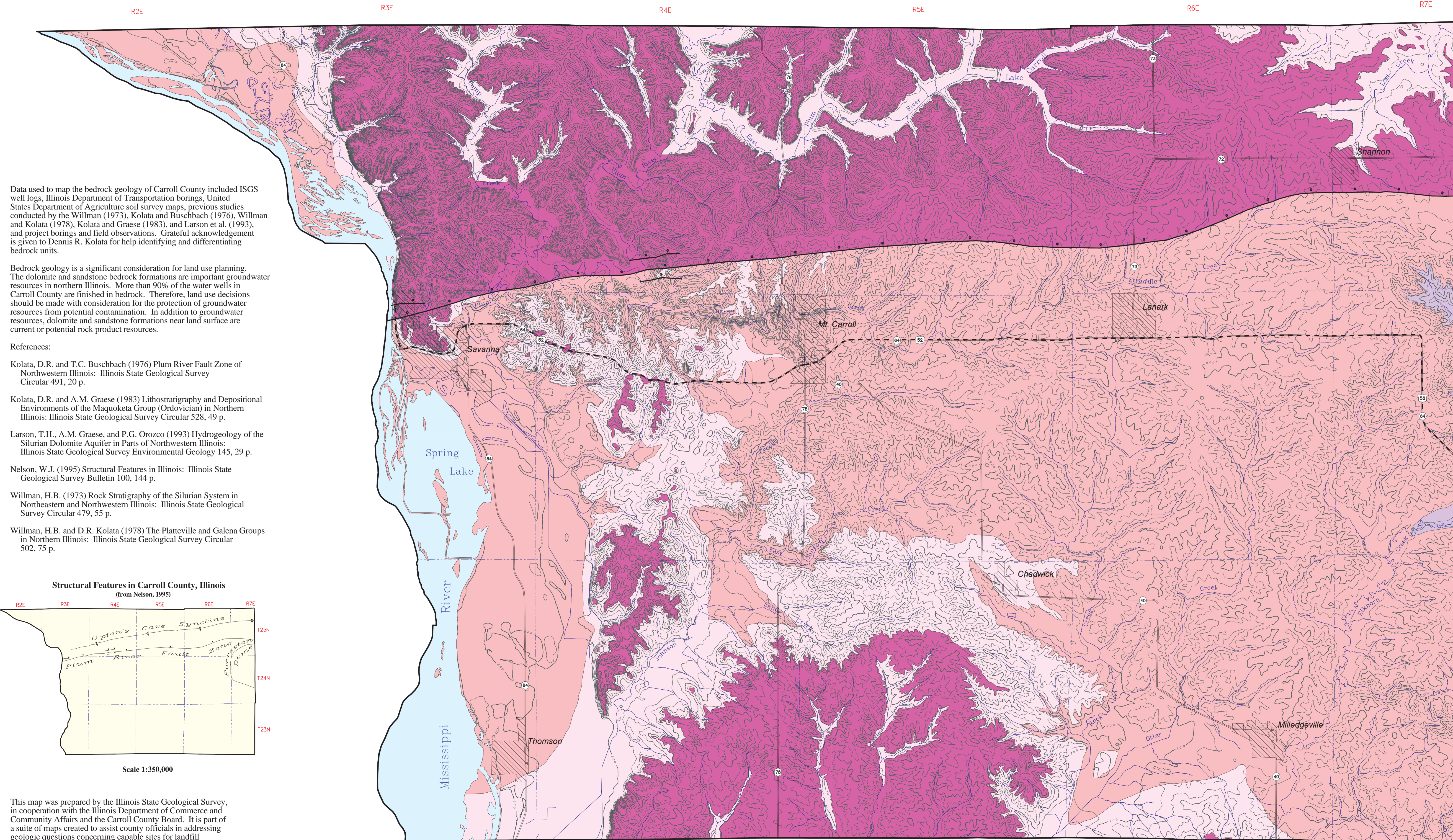
Bedrock Geology of Carroll County, Illinois

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Department of Natural Resources



Data used to map the bedrock geology of Carroll County included ISGS well logs, Illinois Department of Transportation borings, United States Department of Agriculture soil survey maps, previous studies conducted by the Willman (1973), Kolata and Buschbach (1976), Willman and Kolata (1978), Kolata and Graese (1983), and Larson et al. (1993), and project borings and field observations. Grateful acknowledgement is given to Dennis R. Kolata for help identifying and differentiating bedrock units.

Bedrock geology is a significant consideration for land use planning. The dolomite and sandstone bedrock formations are important groundwater resources in northern Illinois. More than 90% of the water wells in Carroll County are finished in bedrock. Therefore, land use decisions should be made with consideration for the protection of groundwater resources from potential contamination. In addition to groundwater resources, dolomite and sandstone formations near land surface are current or potential rock product resources.

References:

Kolata, D.R. and T.C. Buschbach (1976) Plum River Fault Zone of Northwestern Illinois: Illinois State Geological Survey Circular 491, 20 p.

Kolata, D.R. and A.M. Graese (1983) Lithostratigraphy and Depositional Environments of the Maquoketa Group (Ordovician) in Northern Illinois: Illinois State Geological Survey Circular 528, 49 p.

Larson, T.H., A.M. Graese, and P.G. Orozco (1993) Hydrogeology of the Silurian Dolomite Aquifer in Parts of Northwestern Illinois: Illinois State Geological Survey Environmental Geology 145, 29 p.

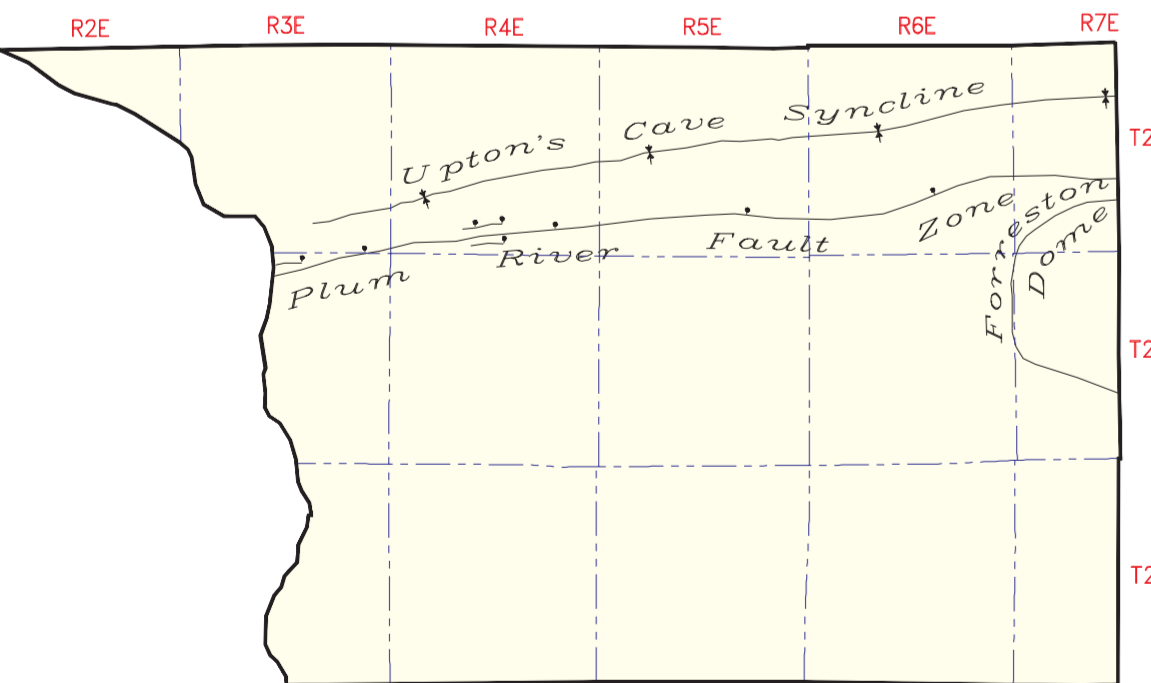
Nelson, W.J. (1995) Structural Features in Illinois: Illinois State Geological Survey Bulletin 100, 144 p.

Willman, H.B. (1973) Rock Stratigraphy of the Silurian System in Northeastern and Northwestern Illinois: Illinois State Geological Survey Circular 479, 55 p.

Willman, H.B. and D.R. Kolata (1978) The Platteville and Galena Groups in Northern Illinois: Illinois State Geological Survey Circular 502, 75 p.

Structural Features in Carroll County, Illinois

(from Nelson, 1995)



This map was prepared by the Illinois State Geological Survey, in cooperation with the Illinois Department of Commerce and Community Affairs and the Carroll County Board. It is part of a suite of maps created to assist county officials in addressing geologic questions concerning capable sites for landfill development. Maps produced for this study are intended for regional land use planning purposes. More detailed mapping is needed for site specific considerations. This map has been reviewed for scientific accuracy and has been edited to meet the quality standards of maps in the ISGS Map Series.

Explanation

SILURIAN SYSTEM

undifferentiated (0 - 150 feet thick)
Brownish gray dolomite; some beds contain white chert; very argillaceous at base. This cliff-forming rock outcrops in the uplands in southern Carroll County and north of the Plum River Fault Zone where it has been relatively downthrown 100- 400 feet. These rocks are exposed in the Mississippi River bluffs north of Savanna.

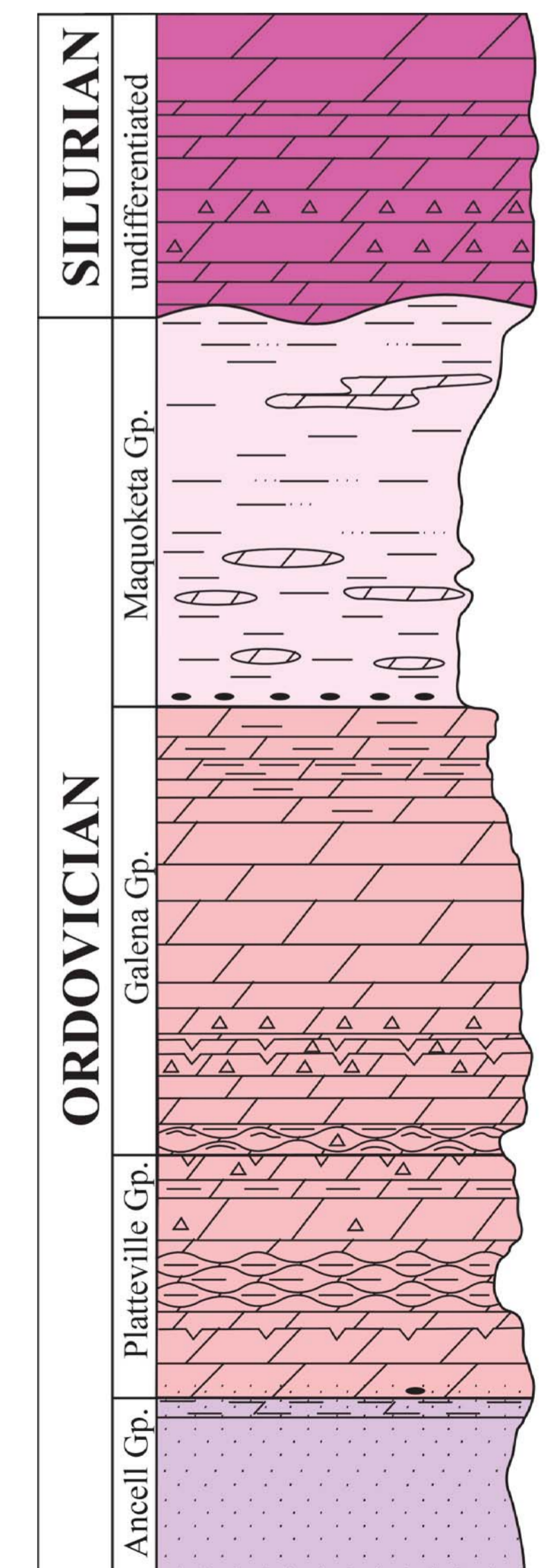
ORDOVICIAN SYSTEM

Maquoketa Group (0 - 200 feet thick)
Dolomitic greenish-gray silty shale with argillaceous dolomite lenses in the lower half. This slope-forming rock occur in road and railroad cuts in the western part of the county.

Galena and Platteville Groups (0 - 300 feet thick)
Brown and gray dolomites; some cherty beds; some argillaceous beds; clay (K- bentonite) beds. Platteville Group is finer grained and thinner bedded than the Galena Group. These cliff-forming rocks are exposed in the ravine of Carroll Creek in Mt. Carroll and many quarries throughout the county.

Ancell Group (100 - 200 feet thick)
Chiefly composed of pure fine to medium grained, well sorted quartz sandstone. The upper 25 feet is composed of interbedded dolomite, fine to medium grained sandstone and shale. These rocks are exposed along the crest of the Forrester Dome in eastern Carroll County.

- Plum River Fault Zone (Tail on down-thrown side)
- Surface topography in feet above mean sea level
Contour interval 25 feet
- US Highway
- State Highway
- Streams
- Municipality
- Water Bodies



Key

- Dolomite
- Argillaceous
- Shaly bedding planes
- Sandy
- Wavy, lenticular bedding
- Shale
- Silty
- Sandstone
- Dolomitic, shaly
- Corrosion surface
- Chert
- Phosphatic nodules

Modified from Willman (1973), Willman and Kolata (1978), and Kolata and Graese (1983).

