SURFICIAL GEOLOGY OF FRANKFORT QUADRANGLE
WILL AND COOK COUNTIES, ILLINOIS

Prairie Research Institute
ILLINOIS STATE GEOLOGICAL SURVEY

STATEMAP Frankfort-SG

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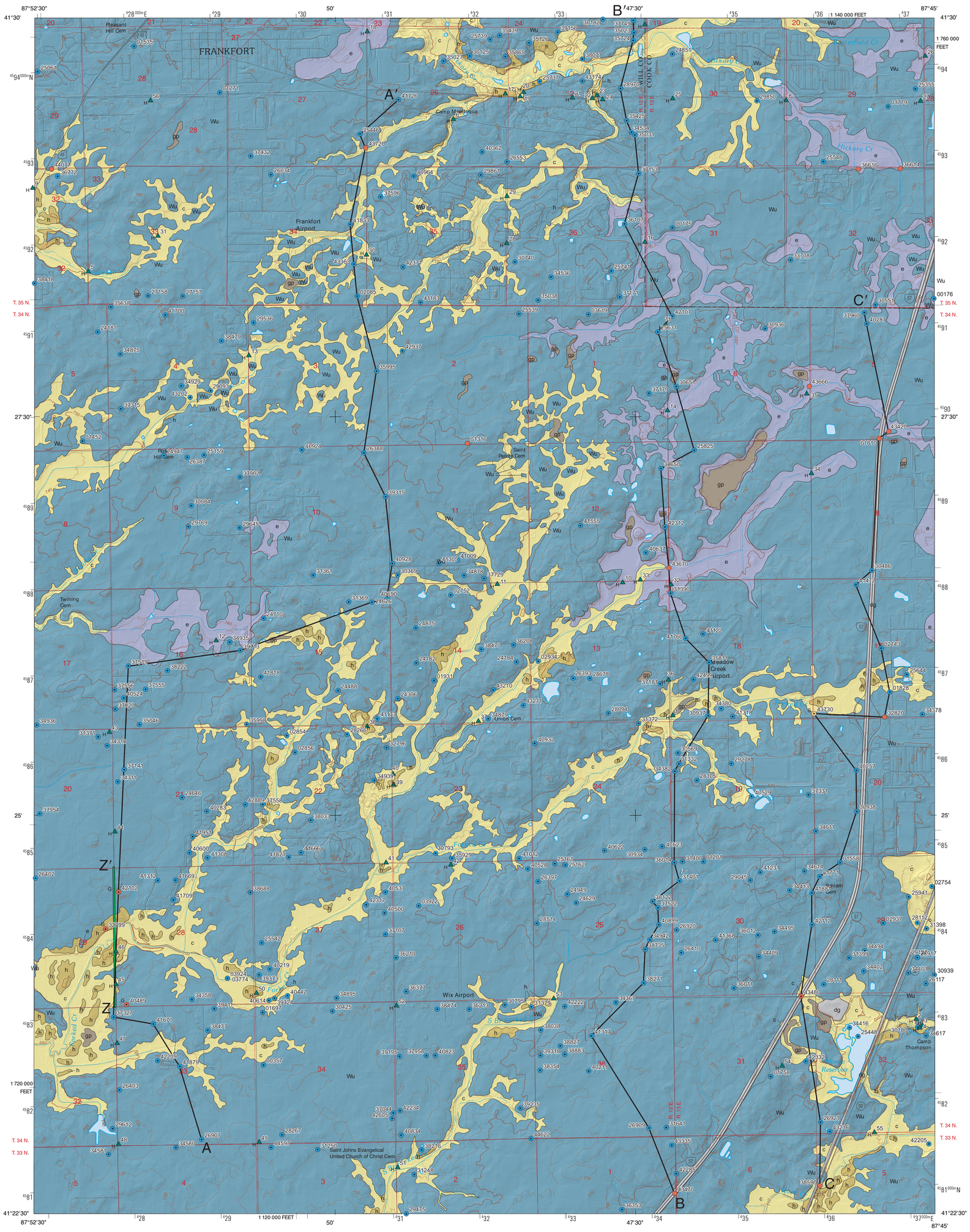
2015



QUATERNARY DEPOSITS

Description	Unit	Interpretation
HUDSON EPISODE (~14,700 years before present (B.P.) to today)[1]		
Diamicton, sand, gravel, silt, and peat; up to 10 feet thick	Disturbed ground dg	**Disturbed land;** includes former gravel pits and major areas of construction
Peat, muck, organic silt and clay; interbedded with sand, silt, and clay in some places; up to about 10 feet thick	Grayslake Peat gp	**Organic** debris deposited in depressions and at the toe of slopes that receive year-round moisture from groundwater; intertongues with the Equality and Cahokia Formations
Sand, silt, and clay; stratified; locally containing beds of sand; generally less than 20 feet thick	Cahokia Formation c	**Alluvium** in floodplains and channels of modern rivers and streams
Clay and silt with beds of fine sand; laminated; surficial deposits are generally less than 10 feet thick	Equality Formation e	**Lake sediment;** many deposits are slackwater; intertongues with alluvium of Cahokia Formation or Henry Formation
WISCONSIN EPISODE: Michigan Subepisode (~29,000–14,700 years B.P.)		
Sand, typically with little gravel, interbedded with uncommon beds of silt or diamicton; typically less than 35 feet thick	Henry Formation, undifferentiated h	**Outwash** deposited in glacial meltwater channels and in alluvial fans
Diamicton, loam to silty clay loam; uniform to vaguely stratified and gravelly in places, gray (unaltered) to brown, yellowish brown, and light gray (weathered); with lenses of sand and gravel; as much as about 100 feet thick	Wedron Group, undifferentiated Wu	**Ice-marginal sediment (flow till) and till;** unit has lithology consistent with the Wadsworth Formation at the surface, may include upper Haeger Member (Lemont Formation) in the subsurface
Fine to coarse sand with gravel; typically less than 75 feet thick	Henry underlying Wedron Group (cross sections only) h(Wu)	**Outwash** Unnamed tongue below the Wedron Group (undifferentiated) and above the Yorkville Member (Lemont Formation)
Diamicton, silty clay to silty clay loam, gray (cross sections only); with abundant large clasts of dolomite above bedrock surface; as much as about 70 feet thick	Lemont Formation, Yorkville Member (cross sections only) l-y	**Till and ice-marginal sediment;** unit occurs in subsurface only
Brown to gray fine gravel to sandy gravel, interbedded; typically less than 20 feet thick	Henry underlying Lemont, Yorkville (cross sections only) h(l-y)	**Outwash** Unnamed tongue below the Yorkville Member (Lemont Formation)

PRE-QUATERNARY DEPOSITS

SILURIAN SYSTEM (440-410 million years B.P.)		
Dolostone, fine-grained, uniform, cherty and shaly in places; gray to white	Racine Dolomite (cross sections only) Sr	**Dolomitized carbonate bank deposits**

[1]The time periods for the Wisconsin and Hudson episodes are reported in calibrated radiocarbon years before present (where "present" is considered to be 1950). We have calibrated our radiocarbon ages with the on-line program Calib 7.1 (Stuiver et al., 2005) using the IntCal13 correction curve (Reimer et al., 2013).

Data Type

- Hand auger station
- Stratigraphic boring
- Water-well boring
- Engineering boring
- SG 26211 — Labels indicate samples (s) or geophysical log (g). Boring labels indicate the county number. Outcrop labels indicate geologist's field number. Dot indicates boring or outcrop is to bedrock.
- Contact
- Z — Z′ Electrical resistivity profile line
- A — A′ Line of cross section

Note: The county number is a portion of the 12-digit API number on file at the ISGS Geological Records Unit. Most well and boring records are available online from the ISGS Web site.

Base map compiled by Illinois State Geological Survey from digital data (2012 U.S. Topo) provided by the United States Geological Survey. Contours and shaded relief derived from LiDAR data provided by Will County, 2004, and Cook County, 2008.

North American Datum of 1983 (NAD 83)
Projection: Transverse Mercator
10,000-foot ticks: Illinois Coordinate System of 1983, east zone
1,000-meter ticks: Universal Transverse Mercator grid system, zone 16

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SCALE 1:24,000
1 — 1/2 — 0 — 1 MILE
1000 — 0 — 1000 — 2000 — 3000 — 4000 — 5000 — 6000 — 7000 FEET
1 — .5 — 0 — 1 KILOMETER

BASE MAP CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

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Geology based on field work by Olivier J. Caron and Andrew C. Phillips, 2015.

Digital cartography by Deette M. Lund and Jennifer E. Carrell, Illinois State Geological Survey.

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This map has not undergone the formal Illinois Geologic Quadrangle map review process. Whether or when this map will be formally reviewed and published depends on the resources and priorities of the ISGS.

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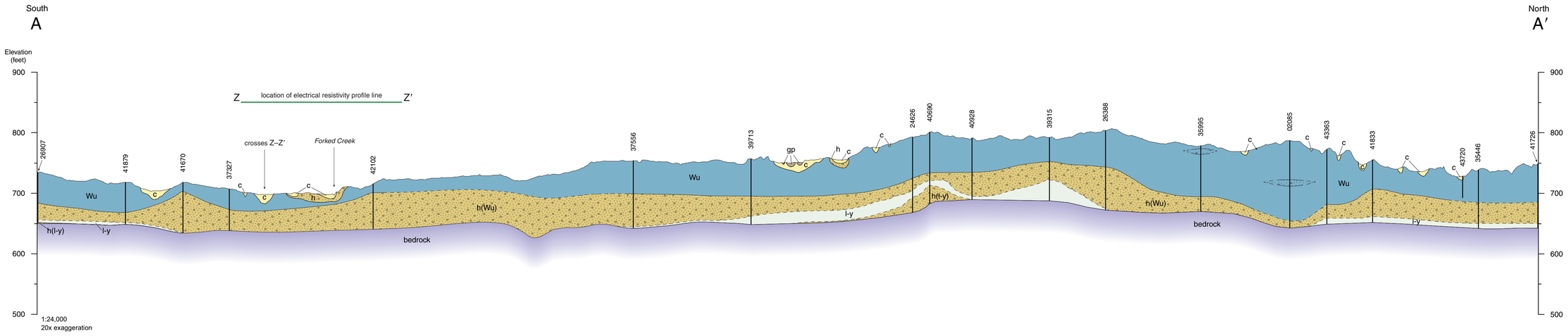
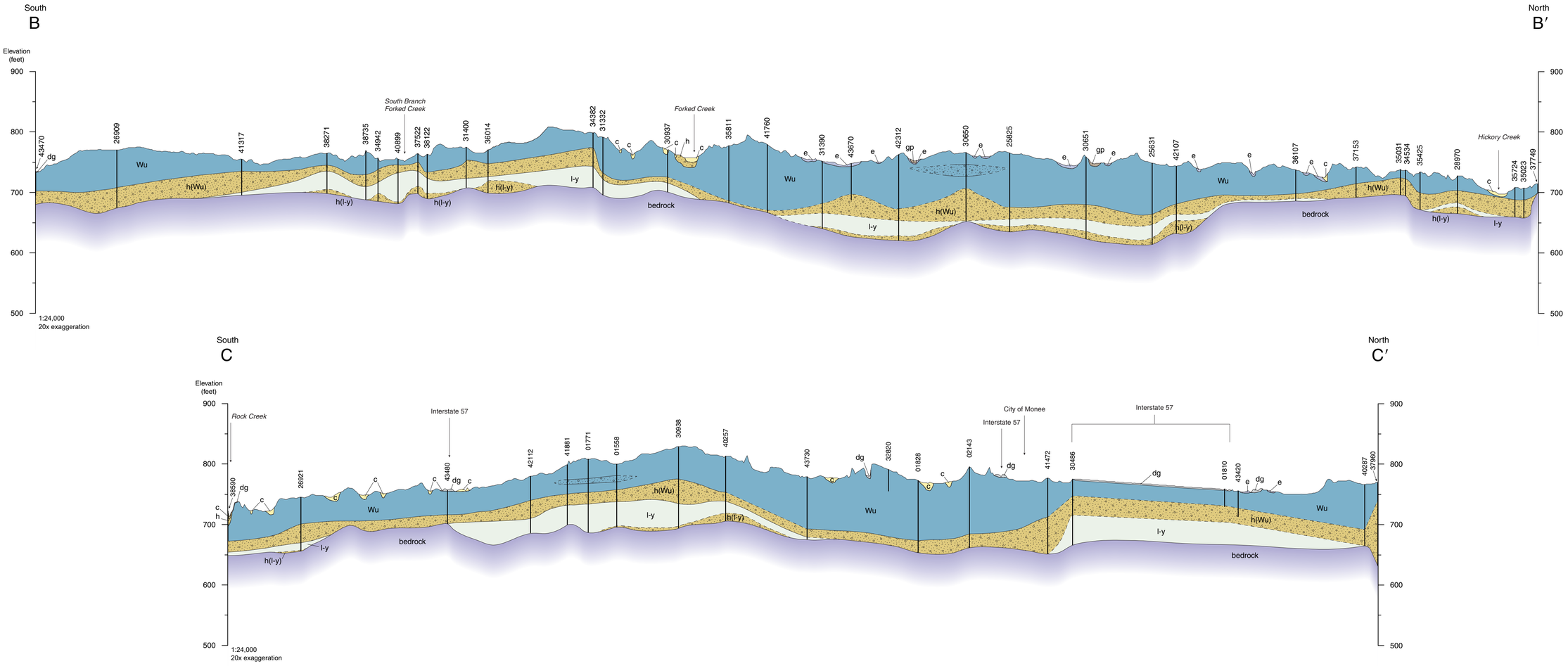
1	2	3
4		5
6	7	8

ADJOINING QUADRANGLES
1 Moneka
2 Tinley Park
3 Harvey
4 Manhattan
5 Steger
6 Wilton Center
7 Peotone
8 Beecher West

APPROXIMATE MEAN DECLINATION, 2015

ROAD CLASSIFICATION
Interstate Route — State Route
U.S. Route — Local road





dg disturbed ground
gp Grayslake Peat
c Cahokia Formation
e Equality Formation
h Henry Formation, undifferentiated
Wu Wedron Group, undifferentiated
h(Wu) Henry underlying Wedron Group
I-y Lemont Formation, Yorkville Member
h(I-y) Henry underlying Lemont, Yorkville
bedrock (Silurian)

Cross Sections

Sand and gravel

Diamicton, massive silt, or other fine-grained sediment

Contact

Inferred contact

Horizontal scale: 1 inch = 2,000 feet
Vertical scale: 1 inch = 100 feet
Vertical exaggeration: 20×

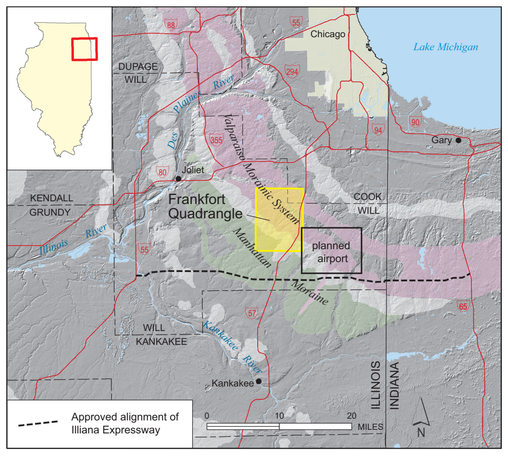


Figure M1 Location map for the Frankfort Quadrangle in northeastern Illinois. The map area is shown in relationship to the Valpairiso Morainic System. Moraines modified from Willman and Frye (1970). Dashed lines show approved alignment of the Illiana Expressway corridor, and the proposed South Suburban Airport (black box).

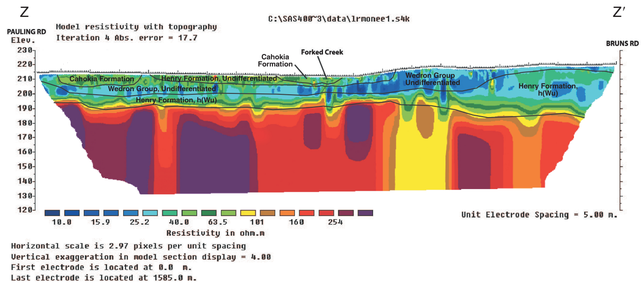


Figure M2 Earth electrical resistivity profile, Z-Z′, (8 ft nominal electrode spacing) totaling 1.6 km (1 mi) in length.

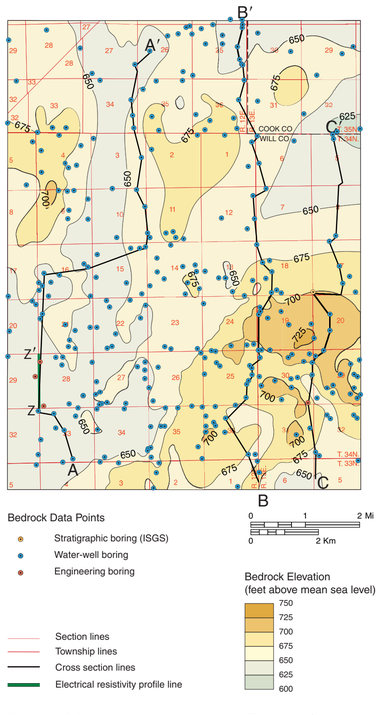


Figure M3 Bedrock topography of the Frankfort Quadrangle. Localities of all data that reliably indicate the bedrock surface are shown (many of these data are not shown on the surficial map). Map scale is 1:100,000.

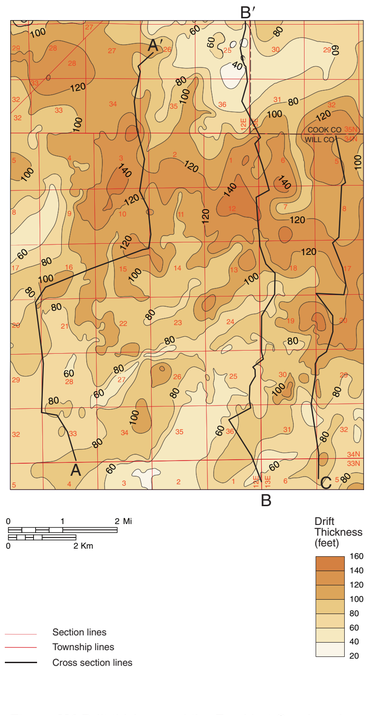


Figure M4 Drift thickness of the Frankfort Quadrangle. Drift includes all the unconsolidated sediments above bedrock (e.g., till, alluvium, outwash). Data point locations are the same in Figure 2. Map is 1:100,000.