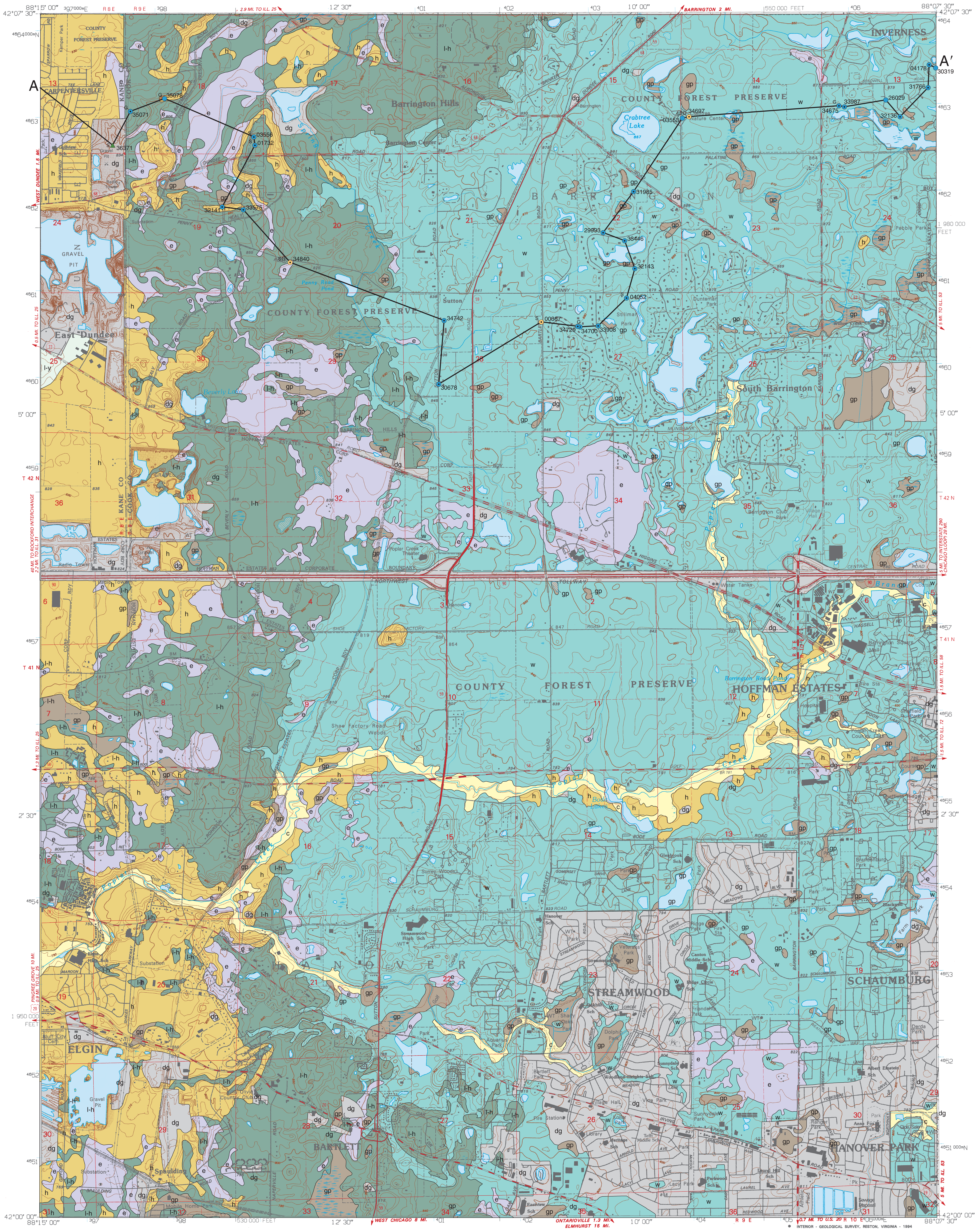
Illinois Department of Natural Resources
ILLINOIS STATE GEOLOGICAL SURVEY
William W. Shilts, Chief

SURFICIAL GEOLOGY OF STREAMWOOD QUADRANGLE
KANE AND COOK COUNTIES, ILLINOIS

STATEMAP Streamwood-SG

Andrew J. Stumpf
2007



QUATERNARY DEPOSITS

Description	Unit	Interpretation
HUDSON EPISODE (~12,500 radiocarbon years before present (B.P.) to today)		
Fill, compacted land, or other disturbed material; highly variable in grain size, and may contain man-made construction and mining debris; typical thickness: variable	Disturbed ground (dg)	**Human-disturbed deposits** found in gravel pits, retention ponds, along highway right-of-ways, and other excavations and landfills
Silt and clay with occasional sand lenses; brown to yellowish brown; loose to compact; may be mottled and gleyed; some bedding; organic-rich in places; typical thickness: 5 to 20 feet	Cahokia Formation (c)	**Postglacial** (**modern) alluvial deposits** present on active floodplains, natural levees; coarse deposits in channels, point bars, and tributary streams; locally may include silty slopewash deposits
Peat, muck and organic-rich sediment that may contain interbeds of silt, clay and some fine sand; black to dark brown; soft to firm; snail shells common; typical thickness: 5 to 20 feet	Grayslake Peat (gp)	**Organic deposits** accumulated in depressions, drainage-ways, and on floodplains; may include small areas of open water; may be interstratified with modern alluvium or lake sediment
WISCONSIN EPISODE (Late) (~25,000–12,500 radiocarbon years B.P.)		
Silt or clay; massive to bedded; gray to light brown; calcareous; soft to hard; some interbeds of sand; very few clasts; contains some organic material; generally abrupt upper and lower contacts; typical thickness: 5 to 30 feet	Equality Formation (e)	**Postglacial and proglacial lake deposits** that infill low-lying areas or depressions in drainage-ways and on moraines; at the surface, these sediments may interfinger with or overlain by the Cahokia Formation or Grayslake Peat
Sand and gravel; massive or stratified; yellow to grayish brown; calcareous; loose; sand and gravel is fine to coarse; very well to poorly sorted; typical thickness: 5 to 15 feet	Henry Formation (h)	**Proglacial outwash deposits** exposed on the surface and found in outwash plains, fans and deltas, and river channels deposited against or in front of melting glaciers
Diamicton; silty clay loam to silty clay; gray to yellowish brown; calcareous; pebbly; stiff; commonly contains silt and sand inclusions and sand and/or gravel lenses; typical thickness: 50 to 160 feet	Wadsworth Formation (w)	**Subglacial and ice-marginal sediment (till)** deposited by "Wadsworth" glacial ice; includes sediment that melted out on top of the glacier or along the ice margin that was reworked by mass movements and water
Diamicton; sandy loam to loam; friable; mostly oxidized yellowish brown; dolomite rich; contains lenses or beds of sand and gravel; typical thickness: 10 to 40 feet	Haeger Member, Lemont Formation (l-h)	**Subglacial and ice-marginal sediment (till)** deposited by "Haeger" glacial ice that formed the Woodstock and West Chicago Moraines
Sand and gravel; stratified; yellowish brown; predominantly medium sand to coarse gravel with some lenses of fine sand and silt; typically thickness 30 to 100 feet	Beverly Tongue, Henry Formation (cross sections only) (h-b)	**Proglacial outwash** deposited in front of "Haeger" glacial ice primarily in outwash plains, fans, and deltas
Diamicton; silty clay to silty clay loam; gray, but oxidizes to yellowish brown; soft; contains beds of sand and gravel or silt; typical thickness: 20 to 30 feet	Yorkville Member, Lemont Formation (l-y)	**Subglacial and ice-marginal sediment (till)** deposited by "Yorkville" glacial ice that formed the Minooka Moraine
Sand and gravel with interbeds of silt and clay; stratified to laminated; gray; predominantly medium sand to coarse gravel; typical thickness: 20 to 60 feet	Unnamed tongue, Henry Formation (cross sections only) (h(l-y))	**Proglacial outwash** deposited in front of "Yorkville" glacial ice primarily in outwash plains and channels
Interstratified silt, clay, and fine sand with intervals of coarser sand or loamy diamicton; bedded to massive; dark gray to light brown; calcareous; typically medium dense to hard; water well drillers often describe this material as "hardpan", "red sand", "red clay" or "sandy clay"; generally abrupt upper and lower contacts; typical thickness: 50 to 140 feet	Equality Formation undivided (cross sections only) (e-u)	**Proglacial lake deposits** that were deposited in front of glacial ice; deposited in lake basins as deltas, subaqueous fans, or subaqueous debris flows; near continuous unit in the sub-surface in eastern half of the quadrangle; forms an undulating topography that is mantled by younger sediments
Diamicton; silty clay loam to loam (roughly equal amounts of sand, silt, and clay); reddish brown to brown; calcareous; pebbly; hard; contains beds of sand and gravel, or sand; typical thickness 50 to 100 feet	Tiskilwa Formation (cross sections only) (t)	**Subglacial and ice-marginal sediment (till)** deposited by "Tiskilwa" glacial ice; forms an undulating topography blanketed by younger sediments
WISCONSIN EPISODE: Athens Subepisode (~55,000–29,000 years B.P.)		
Silt and clay; organic-rich; black to brown; leached of carbonate minerals; contains plant and wood fragments; typical thickness: less than 10 feet	Robein Member, Roxana Silt (cross sections only) (r-r)	**Interstadial (warm climate) soil and peat** that includes the A-horizon of Farmdale Geosol; primarily deposited as an accretion layer in low-lying areas; only locally preserved in the subsurface
ILLINOIS EPISODE (~200,000 –130,000 years B.P. and older)		
Diamicton; sandy loam to loam; pinkish gray to reddish brown; calcareous, very reactive to acid; gravelly and pebbly; very stiff to hard; contains beds and intervals of sand and gravel or silt; typical thickness: 20 to 60 feet	Glasford Formation glacial till (cross sections only) (g)	**Subglacial and ice-marginal sediment (till) and glacial outwash** deposited during pre-Wisconsin Episode glacial events
Sand, gravel, diamicton, and silt; sandy loam to silty clay loam; light brown to gray; calcareous; composite unit very variable in texture and other physical characteristics; hard to very stiff; sand and gravel is mostly composed of dolomite; typical thickness: 10 to 50 feet	Older sediment undifferentiated (cross sections only) (os)	Includes older sand and gravel, diamicton, stratified glacial lake sediments, and weathered or fractured bedrock

PRE-QUATERNARY DEPOSITS

Description	Unit	Interpretation
Rock; predominantly micro-crystalline dolomite that is cherty and shaly in places; some shale and shaly dolomite at depth; upper surface is commonly fractured with crevices and solution cavities; some oil staining and gas production	Bedrock (cross sections only)	**Carbonate shelf, subtidal to intertidal deposits** buried by ~140 to 280 feet of Quaternary sediments

Base map compiled by Illinois State Geological Survey from digital data (Raster Feature Separates) provided by the United States Geological Survey. Topography by photogrammetric methods from aerial photographs taken 1958. Field checked 1961. Revised from aerial photographs taken 1988. Field checked 1993. Map edited 1993.

North American Datum of 1927 (NAD 27)
Projection: Transverse Mercator
10,000-foot ticks: Illinois State Plane Coordinate system, east zone (Transverse Mercator)
1,000-meter ticks: Universal Transverse Mercator grid system, zone 16

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
SUPPLEMENTARY CONTOUR INTERVAL 5 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

Released by the authority of the State of Illinois: 2007

Geology based on field work by A. Stumpf, B. Barnhardt and J. Thomason from 2005–2007, the ISGS in 1962, D. Gross from 1968–1969, A. Hansel and H. Johnson from 1984–1987, and B. Curry and B. Dey from 2003–2007.

Digital cartography by J. Carrell, Z. Golshani, and J. Domier, Illinois State Geological Survey.

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Data Type

▲ Outcrop
● Stratigraphic boring
● Water well boring

SG 26211 — Labels indicate samples (S) or geophysical log (G). Boring and outcrop labels indicate the county number. Dot indicates boring is to bedrock.

Contact

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.

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

Illinois State Geological Survey

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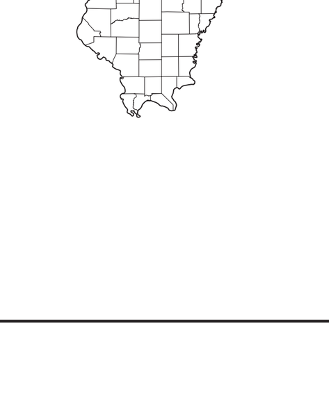

1	2	3
4		5
6	7	8

ADJOINING QUADRANGLES
1 Crystal Lake
2 Barrington
3 Lake Zurich
4 Elgin
5 Palatine
6 Geneva
7 West Chicago
8 Lombard

APPROXIMATE MEAN DECLINATION, 2007

ROAD CLASSIFICATION
Primary highway, hard surface
Secondary highway, hard surface
Light-duty road, hard or improved surface
Unimproved road
Interstate Route U.S. Route State Route

Purpose

Detailed geologic mapping on the Streamwood Quadrangle was completed as part of an ongoing, multi-year mapping program by the Illinois State Geological Survey (ISGS) to update geological information for Lake County and the adjacent areas of Cook, Kane and McHenry counties, in northeastern Illinois. Beginning in 2000, this new mapping has provided geological information that is regularly incorporated into decision-making on a wide variety of local and countywide issues that include protecting groundwater, locating new municipal water wells, designing and constructing foundations and structures, identifying potential aggregate resources, preservation of natural areas, and addressing a broad spectrum of land-use concerns. From this initial mapping, we plan to develop additional datasets and interpretive information that will be the basis for derivative geological products such as 3-D geology and hydrogeology models, analyses of aquifer-bearing strata for their conductivity and susceptibility to contamination, models of surface-groundwater interaction, and reports of material engineering properties and mineralogy and chemistry.

The Illinois State Geological Survey has implemented a mapping program to develop three-dimensional maps of the glacial geology from land surface to the top of bedrock in northeastern Illinois because this is the most rapidly growing area of population in the state and some communities are among the most rapidly growing in the country and have or may encounter geologic hazards during development. Although some of this region draws the majority of its drinking water from Lake Michigan, a significant part, including most of the rapidly-growing areas in the Streamwood area, rely upon groundwater from Quaternary-age glacial sand and gravel deposits or from shallow bedrock (fig. 1).

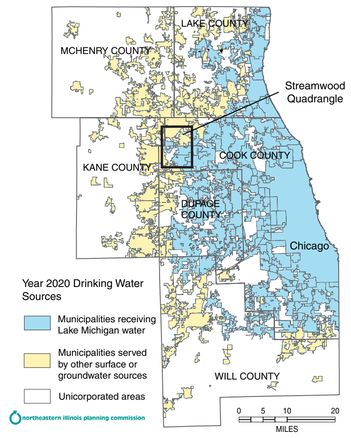

Figure 1 Year 2020 estimated domestic water sources in northeastern Illinois.

Funding

This mapping was completed for the STATEMAP component of the National Cooperative Geologic Mapping Program (NCGMP), which is administered by the United States Geological Survey (USGS). STATEMAP is a matching-funds grants program with state geological surveys and the USGS to develop digital geologic maps for areas where information is needed to solve critical earth science problems that will eventually become part of the state's database and the National Geologic Map Database component of the NCGMP.

For the FY06 mapping, the contract funds were allocated to develop a detailed map of the surficial geology, interpretative cross section, informational text, and an accompanying database for the Streamwood Quadrangle. Planned additional work includes development of derivative geologic and hydrogeologic map products.

Introduction

The Streamwood Quadrangle is located in northeastern Illinois and encompasses parts of Lake and Cook counties that include the city of Elgin, the villages of Streamwood, Hoffman Estates, Schaumburg, Hanover Park, Carpentersville, and Barrington Hills, and also unincorporated areas. The map area is located entirely within the watershed of the Fox River. The land surface ranges in elevation (above mean sea level) from a minimum of 720 feet where Popular Creek enters the quadrangle from the west to greater than 950 feet in the northwest corner of the quadrangle in Carpentersville. The map area is generally characterized by a broad, undulating upland that gently slopes westward towards the Fox River. Numerous natural (kettles) and man-made lakes occupy depressions on the landscape.

The surficial geology map and accompanying cross sections delineate geologic materials (formally called lithostratigraphic units) that are classified by their lithology (sediment type or rock type) and stratigraphic position. The stratigraphic nomenclature used here is from Willman and Frye (1970) and Hansel and Johnson (1996). Lithostratigraphic units in northeastern Illinois have a complex but mappable pattern of occurrence. The surficial geology map shows the distribution of geologic units at the land surface that are present in a specific, or stratigraphic, succession in the subsurface.

The surficial geology map, together with information on the subsurface distribution of geologic materials is necessary to identify opportunities and limitations for future development as well as determining likely consequences of past and future land-use decisions. The unique value of a surficial geology map springs from the wide variety of relevant interpretations that it supports for addressing societal and scientific issues. The surficial geology map is a basis upon which other derivative maps are produced for specific purposes such as assessment of groundwater resource potential, mineral resources, and geologic hazards.

Regional Setting

The surficial geology of northeastern Illinois is predominantly the result of continental glaciers and glacial meltwater during the Quaternary Period. Deposits from these glaciations occurring over the past 130,000 years B.P. (years before present) are often preserved in the subsurface. The Quaternary deposits at land surface represent at least three major glacial events that occurred during the last (Wisconsin Episode) glaciation between about 25,000 and 14,000 years B.P. These glaciers comprising the Lake Michigan Lobe deposited diamictons interpreted to be tills that comprise units of the Tiskilwa, Lemont (Haeger and Yorkville Members), and Wadsworth Formations (Hansel and Johnson 1996). These diamictons have distinctive textural and mineralogical compositions that allow them to be readily distinguished. The mapping area's proximity to multiple glacier margins and internal flow boundaries within the lobe has added more complexity to stratigraphic and spatial relationships between these glacial deposits. For example, meltwater generated from retreating and stagnating glaciers deposited sand and gravel (outwash) and fine-grained lake-sediment that infilled irregularities on the landscapes burying older sediment. Furthermore, internally these meltwater deposits can also have lateral and vertical variations in texture, structure, and mass properties that developed with changes in sedimentary environment.

In the Streamwood Quadrangle, the sediments deposited during the last glaciation range in thickness from 140 to 280 feet above bedrock. Three diamicton units, the Wadsworth Formation, Haeger Member and Yorkville Member tills, have been mapped at the land surface and form undulating to hummocky morainal uplands comprising segments of the Valparaiso Morainic System, Cary Moraine, Woodstock and West Chicago Moraines, and Minooka Moraine (fig. 2). Meltwater stream and river and lake sediments infilled channels and low-lying present in front of active and stagnate ice. In the subsurface, these sediments form tongues of proglacial sediment (Hansel and Johnson 1996) that are remnants of former channel and lake deposits. Modern river, lake, and organic-rich sediments are present at the surface in floodplains, channels, and shallow depressions.

The last glacial advance of the Lake Michigan Ice Lobe into the Streamwood Quadrangle occurred approximately 14,000 years B.P. and formed the Valparaiso Morainic System that covers the eastern two-thirds of the quadrangle. This morainal upland is composed of Wadsworth Formation till and blankets or mantles deposits of the older glacial advances.

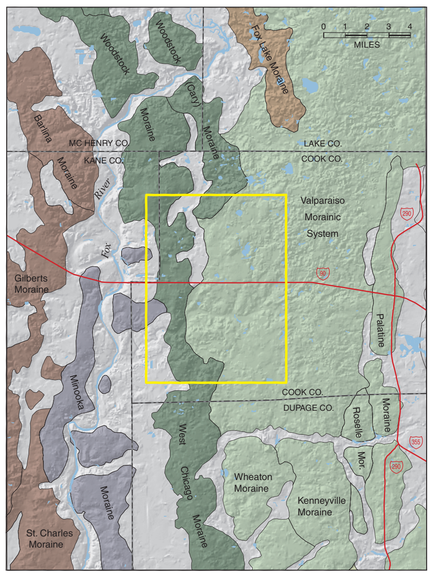

Figure 2 Surface topography and moraines of northeastern Illinois.

The western part of the upland is underlain by ice-marginal sediment e.g. stratified till (debris flows) indicating the position of maximum ice advance was further to the east.

In the western-third of the quadrangle, the upland includes the Woodstock and West Chicago Moraines, which formed during a phase of Hager Member ice advance ending before 15,000 years B.P. (Hansel and Johnson 1992). The boundary between moraines in the quadrangle has not been resolved by this mapping, but the West Chicago Moraine in northeastern Illinois has been defined by Johnson et al. (1985) and Hansel and Johnson (1987) as a superimposed feature that reflects in part a buried moraine that formed at the Haeger ice margin. In the map area, these moraines trend north to south across Kane and Cook Counties. The Woodstock Moraine is composed of sandy to gravelly till of the Haeger Member (Lemont Formation), but sand and gravel locally blankets some west-facing slopes.

At the western margin of the quadrangle, parts of the north to south-trending Minooka Moraine were mapped. The moraine is composed of gray-colored silty clay loam till of the Yorkville Member (Lemont Formation). The moraine is poorly defined in its northern sector, forming only a subtle ridge lying 10 to 20 feet above the surrounding topography.

Mapping Techniques

The surficial geology map is based largely on digital soils data for Cook and Kane Counties from the United States Department of Agriculture (USDA) and it's Natural Resources Conservation Service (NRCS) (Deniger 2004; USDA 2005) that was compiled by digitizing Mapes (1979) and Goddard (1979) 1:15,840-scale soil maps of the counties. Initially for this mapping, individual soil series were grouped by their parent material following (1) the classification key in Soils of Illinois (Fehrenbacher et al. 1984), (2) profile descriptions in the survey report, (3) NRCS field notes, (4) discussions with NRCS soil mappers, and (5) updated individual Soil Series Description sheets acquired either directly from the USDA or downloaded from their web site http://soildatamart.nrcs.usda.gov/Download.aspx?Survey=IL031&UseState=IL.

Following fieldwork and data analysis, the parent material classes were then grouped into more general geologic material classes, comprising five surficial geology mapping units, following the classification of deposits of Hansel and Johnson (1996). This process reduced the number of map units to a level that would be discernable on a 1:24,000-scale map (greater than 5 acres in size). The thickness of each surficial geologic unit is assumed to be at least 5 feet (the minimum depth that these mappers take soil cores), unless drilling or geophysics logging suggest otherwise. The legend of map units provides additional information on the character, thickness, and occurrence of materials encountered in different geologic mapping units.

Fieldwork undertaken for this mapping included drilling of test stratigraphic boreholes and undertaking geophysical (natural gamma-ray) downhole logging. Continuous cores from new stratigraphic test holes to depths ranging from 144 to 258 feet were acquired at three sites on a variety of geomorphic positions. The cores were described in detail and compared to geophysical (natural gamma-ray) data obtained from the boreholes (see below) to better understand and interpret the descriptive records from adjacent water wells. These test holes supplement existing data from two stratigraphic test boreholes drilled for the Illinois State Geological Survey by Layne-Western Company of America in 1962 (Lund 1966).

Natural gamma-ray logs collected in twelve drill holes (including stratigraphic boreholes, groundwater test borings, and private water wells) provide a semi-quantitative measure of the texture and mineralogy of unconsolidated sediments lying above bedrock. These data were augmented with geologic information from drilling logs of engineering and water-well borings, previously completed maps, LIDAR elevation data, a wetland survey, and aerial photographs to validate the surficial mapping units.

Geologic Units and Stratigraphic Relationships

The geologic materials mapped in the Streamwood Quadrangle represent a complex stratigraphy that includes diamictons, sand and gravel, and fine-grained sediments. The geometry of these deposits and the spatial relationships between them reflect a series of active ice advances and recessional margins, ice marginal environments, and proglacial meltwater systems. The geologic materials mapped in the subsurface record a sedimentary sequence of each glaciation that has been successively buried by younger deposits.

The oldest Quaternary sediments mapped in the quadrangle are remnants of pre-Wisconsin glacial and nonglacial events. These sediments are mapped exclusively in the subsurface and classified to a broad category (i.e. Older sediment), including gravelly and overconsolidated diamicton, laminated silt and clay, poorly sorted sand and gravel, and weathered/fractured bedrock lie directly on dolomite or shale bedrock. Sand and gravel in this interval is frequently utilized for residential and municipal water supplies.

Overlying the older sediment, or directly on bedrock is a discontinuous deposit of pinkish gray to reddish brown colored till classified to the Glasford Formation. Although similar in color and texture to the Tiskilwa Formation till mapped above (see below), this diamicton is often overlain by a dark brown to black colored organic-rich silt (Robein Silt) or gleyed and oxidized sediment (correlative to A and B horizons of a soil, respectively). This buried soil (paleosol) observed in the subsurface is a distinctive stratigraphic marker unit in the region delineating the top of nonglacial deposits that developed prior to the last (Wisconsin Episode) glaciation. Radiocarbon dating of the deposits has provided an age of this former land surface. Organic silt in drill core at NIPC #19 (County number 367) returned an age of 25,600 ±800 years B.P (ISGS #2783). Palynolgy and paleobotany studies indicate the organic material accumulated on poorly-drained and low- to flat-lying landscapes under cool climatic conditions (Hansel and Johnson 1996).

The Tiskilwa Formation till is encountered predominantly in the subsurface. Locally, this till outcrops in steep slopes under younger deposits, but its lateral extent is limited and covers too small areas that can be mapped. This silt loam diamicton contains beds or lenses of sand and gravel that was deposited during the first advance of Wisconsin Episode glaciers from the Lake Michigan basin approximately 24,000 years B.P. To the west and north of the quadrangle, the Tiskilwa Formation till often lies stratigraphically between sand and gravel of the Henry Formation, and therefore is an important subsurface aquitard layer in the regional groundwater flow system.

The silty clay loam to silty clay till of the Yorkville Member (Lemont Formation) is present on at land surface in the extreme western part of the quadrangle. In the subsurface, it composes a discontinuous unit below the Haeger Member till or Henry Formation outwash. Mapping by Curry (2007) in the Elgin Quadrangle to the west of the map area found that the till contains interbeds or lenses of sorted sediment and is crudely stratified in places. These characteristics suggest the Yorkville Member till was deposited in association with stagnant ice.

The sandy to gravelly till of the Haeger Member (Lemont Formation) was mapped at land surface west of Illinois Route 59. Because of its coarse texture and loose to medium dense consistency, the till is sometimes difficult to distinguishable from meltwater outwash deposits of the Henry Formation.

The Wadsworth Formation till covers approximately two-thirds of the quadrangle (see geology map and cross sections). This till is fairly uniform, however, it can also be comprised of interbeds of sorted material (glacial river and lake sediments), suggesting that materials deposited by debris-rich ice were significantly reworked at the margin and under the ice sheet. Although predominantly fine-grained, the upper part may have a sandier texture, especially at the base of slopes or in depressions on the uplands, where it has been modified by mass movements or water. The lower part can also be coarser textured, containing more gravel and rock fragments (clasts), up to boulder-size. The clast and gravel fractions have a high proportion of dolomite.

Glacial meltwater stream or river sediments (outwash) sand and gravel (Henry Formation) and modern river and stream sediments (Cahokia Formation) comprise predominantly the terraces, fans, deltas, and floodplains deposits mapped in the western part of the quadrangle and along the Popular Creek drainage. Thick and laterally extensive sand and gravel mapped to the west of Wadsworth and Haeger ice margins comprise large outwash plains. Beds of sand and gravel were encountered in the Wadsworth Formation till, but were too thin or discontinuous to be mapped.

Stratified silt or silty clay sediments mapped throughout the quadrangle both at land surface and in subsurface. At the land surface, these sediments occupy broad low-lying areas along active/inactive drainage-ways connecting many of the lakes, and locally in shallow depressions (kettles) or drainage channels on the morainal uplands. These laminated and bedded deposits, classified to the Equality Formation, are representative of sediments deposited in glacial lakes that developed during late glacial and postglacial times. Radiocarbon dating of organic material sampled from silt and clay cored at Cook County's Crabtree Nature Center (County number 34697) returned an age of 14,860 ±40 years B.P. (UCIAMS-26265).

Fine-grained sediments similar in character to those at land surface were mapped below Wadsworth Formation (see cross section). These sediments in some places are extremely thick, in excess of 140 feet, and core topographic highs in the eastern half of the quadrangle. These sediments are primarily fine to very fine sand, silt, and clay, but locally include diamicton or sand and gravel. Because these sediments have been overridden by glaciers of the Wadsworth Formation ice, they have been consolidated, and therefore usually harder to penetrate when drilling. Generally these sediments are dry, locally moist or saturated, but have not widely been utilized for a public water supply.

Due to the absence of intervening tills, deposits of sorted sediment or datable organic-material the precise age of these sediments is not known, and therefore are classified as an undivided tongue of the Equality Formation. These sediments were likely deposited during either the advance of Haeger Member ice or the melting of Tiskilwa Formation ice when the drainage was blocked and meltwater ponded. These sediments likely compose a system of ice-marginal fans, deltas and lake plains. Drainage and mass movements off debris-rich glaciers or the melting icebergs in the lake are sources of diamicton and coarse-grained sorted sediment within this glacial lake deposit.

Occupying similar positions on the landscape as deposits of the Equality Formation are peat, muck, and organic-rich silt (Grayslake Peat). These deposits often compose thin lenses of organic material that lie above or are interfingered with gleyed silt and clay deposits of the Equality Formation. The Grayslake Peat also is present on morainal uplands adjacent to lakes and in deeper depressions where sediment and organic material has accumulated.

Acknowledgments

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Many individuals and agencies associated with this and other mapping projects in northeastern Illinois provided important information and services to the author. Assistance with drilling, core description, and fieldwork was provided by J. Aud, J. Hutmacher, S. Wildman, C. Wilson, M. Barnhardt, J. Thomason and B. Curry; cartographic and GIS support was provided by J. Carrell, J. Domier, B. Stiff and V. Amacher, and geophysical logging was provided by D. Walgren and E. Breuer. Agencies that collaborated with the Streamwood mapping project included various agencies in the government of Cook County, USDA-NRCS in Illinois, villages of Hoffman Estates and Streamwood, Barrington Council of Governments, and private water-well drilling companies.

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