

GEOLOGY OF THREE SITES IN ILLINOIS

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Illinois State Geological Survey

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HENNEPIN SITE

Location and Topography

The Hennepin site (fig. 1) is in northern Putnam County, approximately one-half mile east of the Illinois River. The area under study is outlined in figure 2, a portion of the DePue quadrangle topographic map, and includes T. 32 N., R. 2 W., Sections 1, 2, 3, 10, 11, and 12, and T. 33 N., R. 2 W., Sections 34, 35, and 36. The Hennepin area has gently rolling upland plains ranging from 650 to 700 feet in elevation. The nearly level, broad valleys of the nearby Illinois River and its tributaries are the principal features (McComas, 1968).

Geology

Unconsolidated Deposits (Quaternary)

The unconsolidated deposits that overlie the bedrock consist of glacial deposits (drift), recent river deposits (alluvium and sand), and windblown silt (loess). The thickness of the unconsolidated deposits is illustrated in figure 2, Topographic Map of Hennepin Site, and their distribution is shown on the map of surficial geology (fig. 3). Thickness of loess blanketing these units is shown in figure 4. The vertical sequence of the information is shown in figure 5. Those units shaded in red are found at the site.

**GEOLOGICAL
RECORDS SECTION**
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GEOLOGICAL SURVEY**

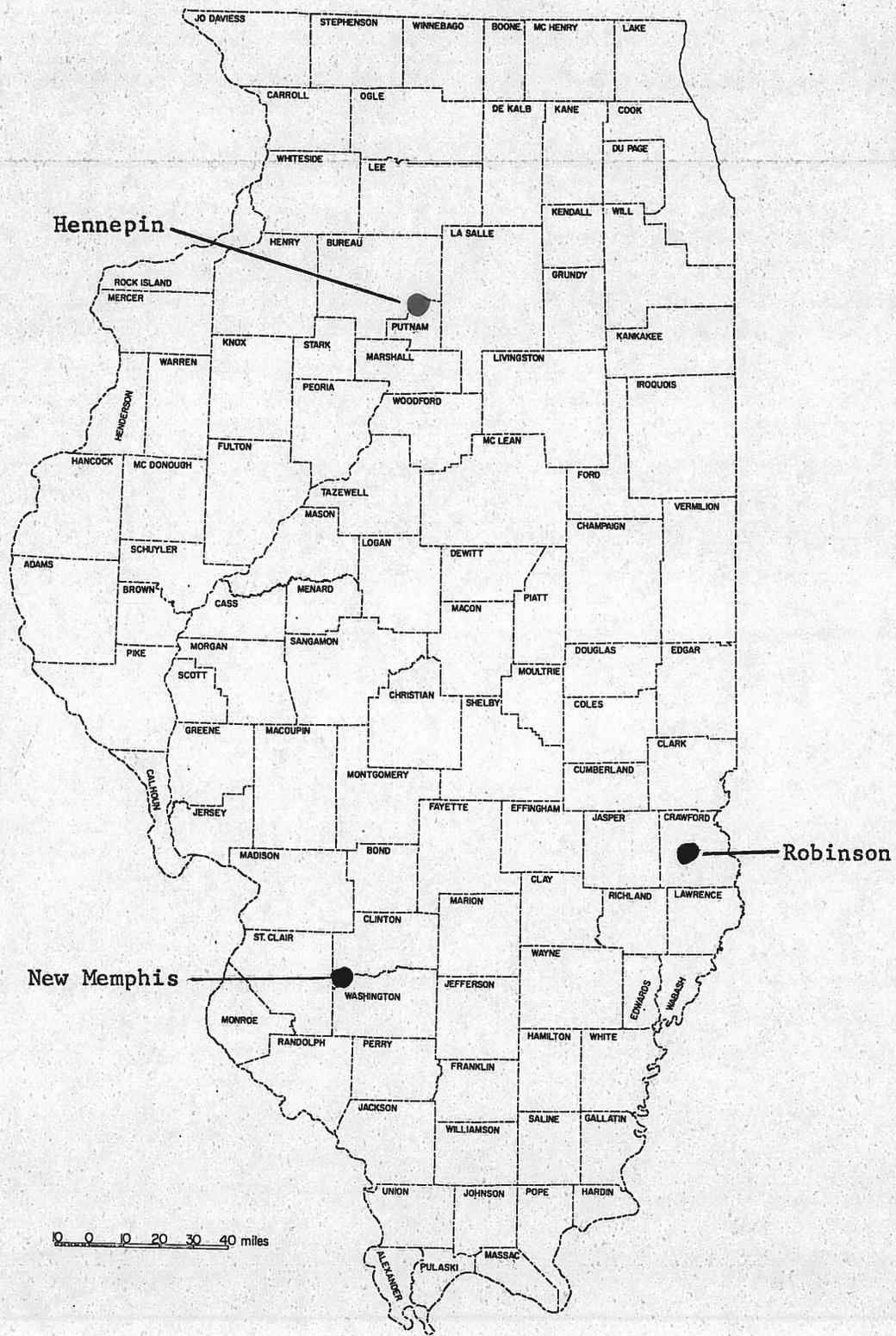
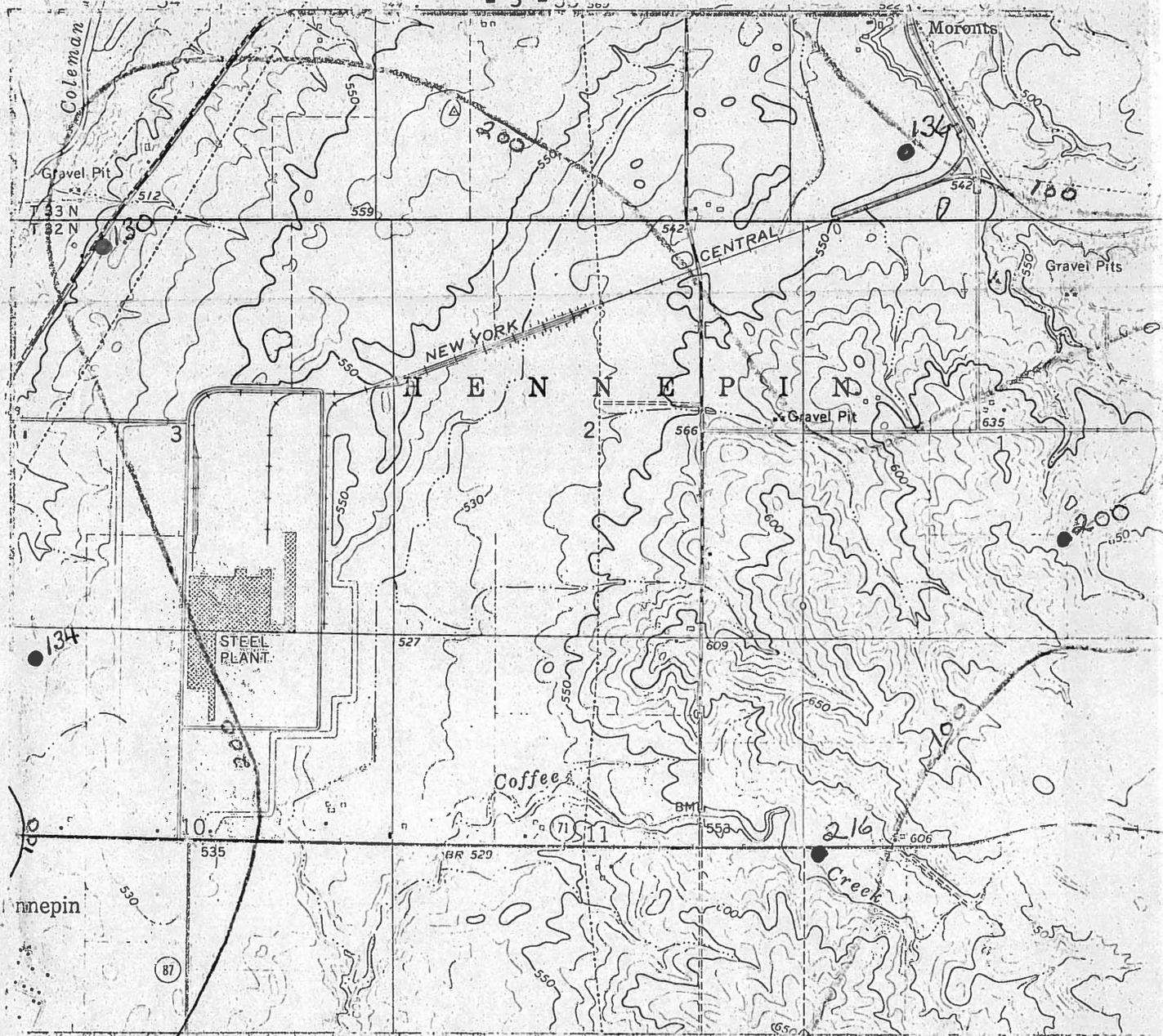


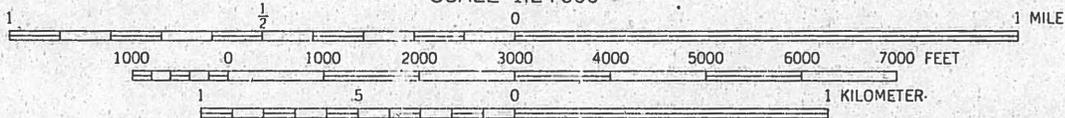
Fig. 1--Map of Illinois showing locations of proposed sites.

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20' 11 MI. TO ILL. 18 PEORIA 44 MI. (LACON 1:62 500) 3166 III 17'30" R. 2 W.

SCALE 1:24 000



CONTOUR INTERVAL 10 FEET
 DOTTED LINES REPRESENT 5-FOOT CONTOURS
 DATUM IS MEAN SEA LEVEL

IC NORTH SHEET

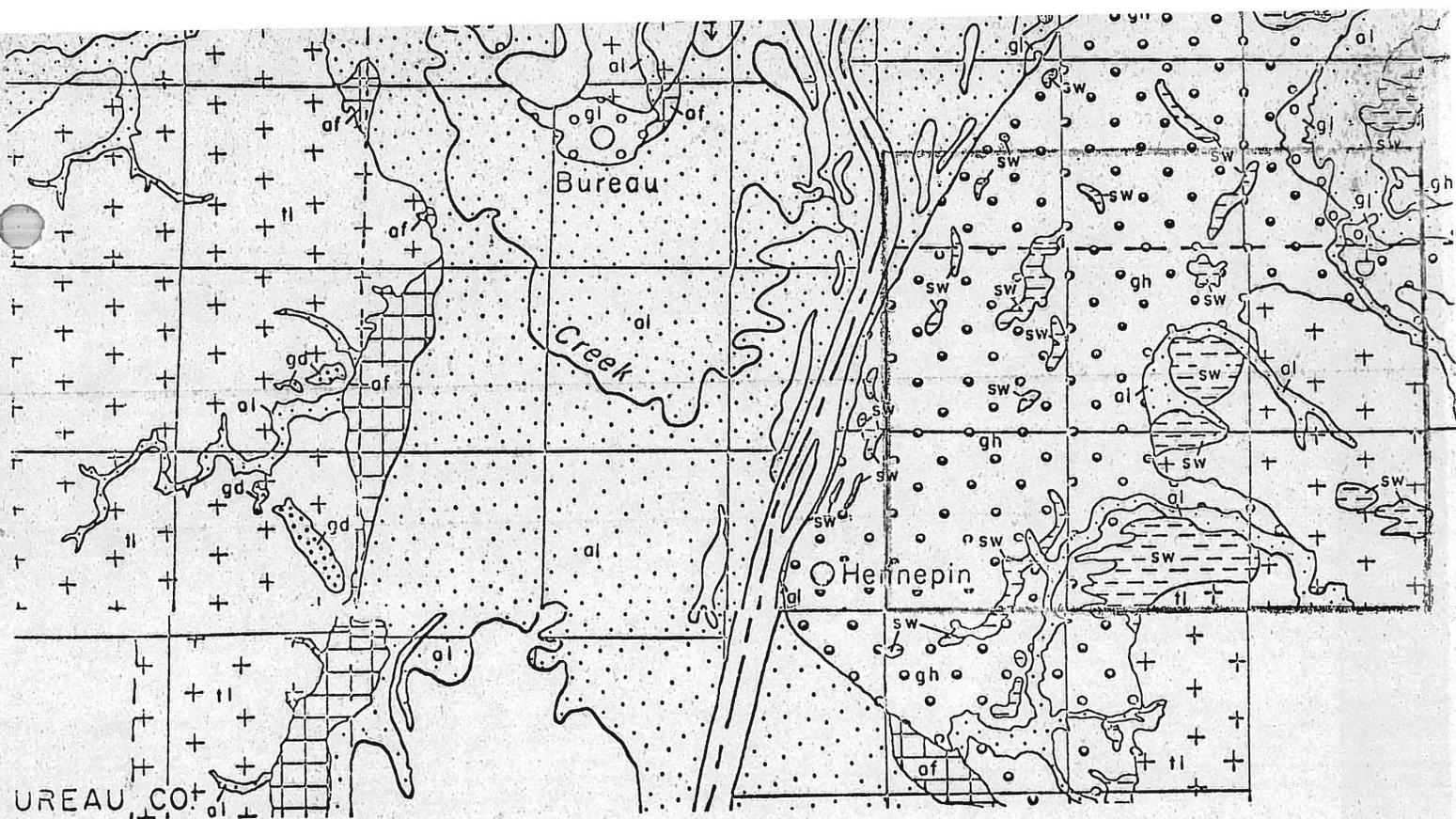
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS FOR SALE BY U. S. GEOLOGICAL SURVEY, WASHINGTON, D. C. 20242 AND BY THE STATE GEOLOGICAL SURVEY, URBANA, ILLINOIS 61801 A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

Depue, Ill.
 1966

100
 Drift thickness contour

Depth to bedrock
 Illinois State Geological Survey

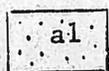
Fig. 2--Topographic map of Hennepin site.



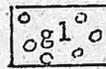
SURFICIAL GEOLOGY OF THE AREA BORDERING
THE ILLINOIS WATERWAY

La Salle District
and
Lacon District

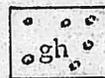
H. B. Willman
1973



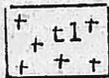
Alluvium
(Cahokia Alluvium)



Low-level terraces
(Henry Formation)



High-level terraces
(Henry Formation)



Till
(Wedron Formation)



Wind-blown sand
(Parkland Sand)

Fig. 3--Surficial geology of the Hennepin site.

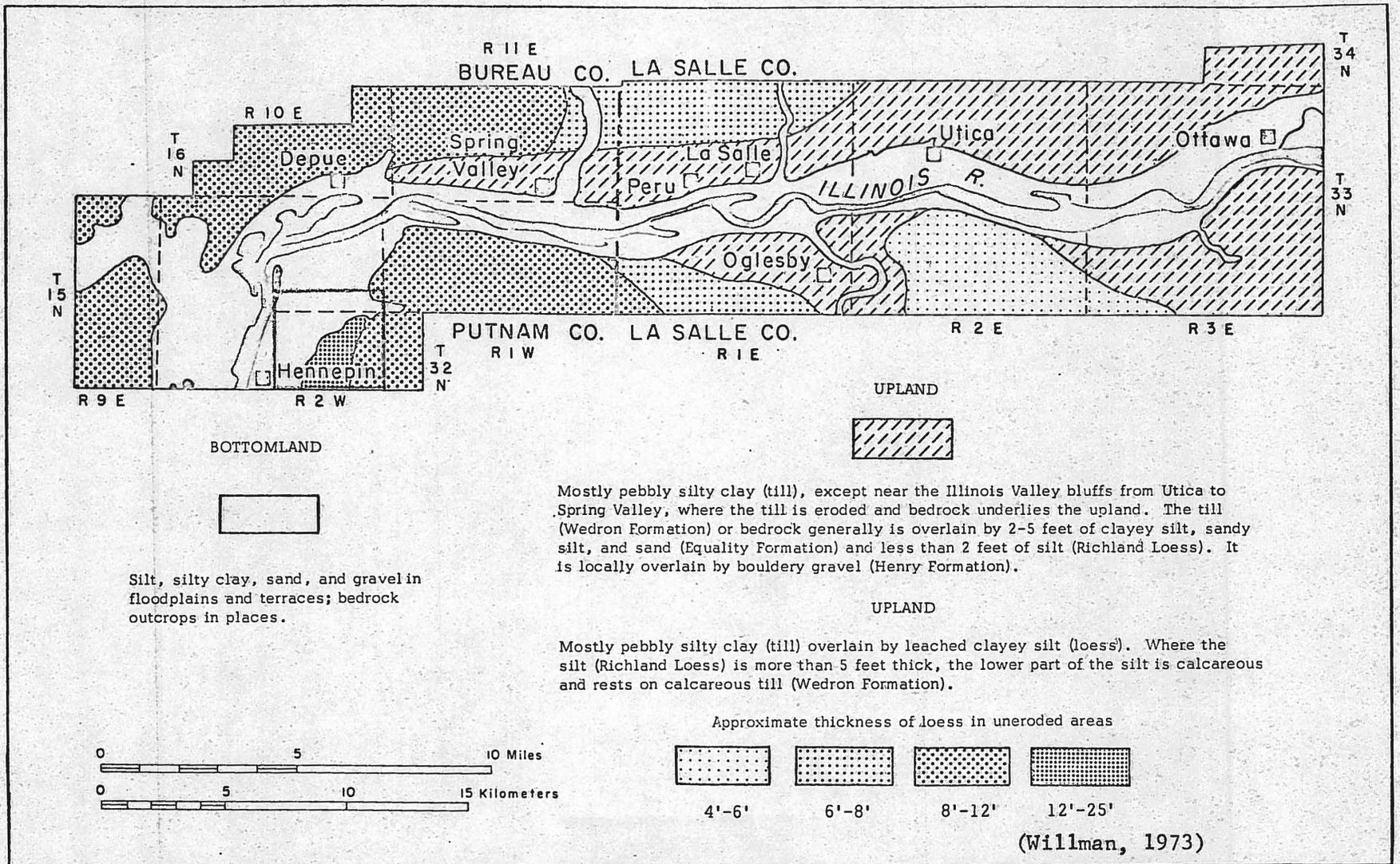


Fig. 4--Loess thickness map of the Hennepin site.

		AGE		ROCK UNITS					
SYSTEM	SERIES	STAGE	SUBSTAGE	FORMATIONS					
QUATERNARY	PLEISTOCENE	HOLO-CENE		Cahokia Alluvium aj, alg, af	Grayslake Peat p	Parkland Sand sw	Peyton Colluvium sp	Spartland Formation*	
			VALDERAN						
			TWOCREEKAN						
		WISCONSINAN	WOODFORDIAN		Peoria Loess*	Richland Loess*	Wedron Formation ††	Henry Formation gh, gl, sh, sl	Equality Formation gd, sd, st
					Morton Loess*				
				FARMDALIAN	Robein Silt*	Peddicorø Formation*			
				ALTONIAN	Roxona Silt*				
		SANGAMONIAN							
		ILLINOIAN		Loveland Silt*	Teneriffe Silt*	Glasford Formation ††	Pearl Formation sds		
				Petersburg Silt*					
		YARMOUTHIAN			Banner Formation*				
		KANSAN							
		AFTONIAN							
		NEBRASKAN			Enion Formation*				
TER-TIARY	PLIOCENE - PLEISTOCENE			Grover Gravel*					

Fig. 5 - Pleistocene (Glacial and Recent) formations along the Illinois Waterway, their relative ages, and the symbols of those mapped

Illinois State Geological Survey

The unconsolidated deposits in the area immediately surrounding the town of Hennepin generally consist of high, level terraces underlain by glacial outwash. The surfaces are 75 to 100 feet above the Illinois River. Although generally 10 to 30 feet thick in the tributary valleys, the deposits are as thick as 150 to 200 feet in the large terrace on which Hennepin is located. These terrace deposits are part of the Henry Formation (gh).

The Henry Formation consists mainly of gravel and sand which were transported by glacial meltwaters and deposited in the Illinois River Valley. These deposits often have a thin cover of leached silt and soil approximately 1 to 3 feet thick, and the upper few inches of the sand or gravel is usually leached (Willman, 1973). In the Hennepin area the Henry Formation is primarily a fine, sandy gravel with some pebbly sand. On Allforks Creek, to the northeast of Hennepin, the upper part of the formation is coarse and bouldery.

The uplands to the east of Hennepin, in Sections 1 and 12, T. 32 N., R. 2 W., are underlain by glacial till of the Wedron Formation (tl). This is a calcareous, pebbly, silty clay, mostly unsorted, occurring in sheet-like bodies 10 to 100 feet thick. The till sheets differ in composition: some have abundant cobbles and pebbles or lenses of sand and gravel, and in some, boulders are present, although not abundant. The till generally lacks jointing, but is moderately firm and compact (Willman, 1973).

The till of the uplands is overlain by 8 to 25 feet of loess (Richland). Loess is a wind-laid silt deposit which has been blown from the bottomlands

onto the bluffs and uplands. Glacial outwash in the Illinois Valley served as the source for the loess deposits.

The Cahokia Alluvium (al) is composed of gravel, sand, silt, and clay, but is dominantly poorly sorted sandy or clayey silt (Willman, 1973). The alluvium of the Illinois River is a flood-plain deposit, usually less than 20 feet thick in this area. It generally overlies the sand and gravel of the Henry Formation.

Deposits of Parkland Sand (sw) consist of well-sorted, medium sand, either in dunes or in sheet deposits. It is common on the sand and gravel terraces of the Illinois River bottomlands, but also occurs on the east uplands, as in this area.

Bedrock Formations

The bedrock immediately underlying the glacial deposits is the Carbondale Formation and Modesto Formation of Pennsylvanian age. The lower of the two, the Carbondale Formation, has an average thickness of 225 feet. It consists of shale, sandstone, clay, limestone, and the coal. The overlying Modesto Formation is approximately 180 feet thick and consists of shale, sandstone, clay, limestone, and thin coals. The vertical sequence of bedrock formations is shown in figure 6 (McComas, 1968).

Resources

Coal

The Colchester (No. 2) Coal has been mined approximately four miles east of Hennepin. No coal has been mined within the site area, and the Colchester Coal is the only bed known to attain a thickness of 18 inches or greater. The Colchester Coal averages approximately 36 inches in

AGE		ROCK UNITS			
SYSTEM	SERIES	FORMATION	MATERIALS	THICK* (ft)	SYMBOLS (pls. 1-7)
PENNSYLVANIAN	MISSOURIAN	Bond Formation	shale, limestone, clay, coal	90	Pc, c
		Modesto Formation	shale, sandstone, limestone, clay, coal	180	Pc, c
	DESMOINESIAN	Carbondale Formation	shale, sandstone, coal, clay, limestone	225	Pc, c
		Spoon Formation	sandstone, shale, clay, coal, limestone	0-50	Ps, s
	ATOKAN	Abbott Formation	sandstone, clay, shale	0-30	Pc, Pcg
MISSISSIPPIAN	VALMEYERAN	St. Louis Limestone	limestone	0-60	Msl, L
		Salem Limestone	limestone, shale	50	Msw, w
		Warsaw Shale	shale, limestone	50	Msw, w
		Keokuk Limestone	limestone	100	Mo, b
		Burlington Limestone	limestone	90	Mo, b
		Meppen Limestone	limestone, dolomite	6-18	Mo, b
	KINDERHOOKIAN	Chouteau Limestone	limestone	5-20	Mk, k
		Hannibal Shale	shale, siltstone	80	Mk, k
		Glen Park Limestone	limestone, oolite	5-6	Mk, k
DEVONIAN	UPPER	Louisiana Limestone	limestone	2-3	Mk, k
		Saverton Shale	shale, gray	1	Mk, k
		Grossy Creek Shale	shale, black	0-50	Mk, k
		Sweetland Creek Shale	shale, gray	0-1	Mk, k
		Sylamore Sandstone	sandstone	0- $\frac{1}{2}$	Mk, k
SILURIAN	NIAGARAN	Joliet Dolomite	dolomite	50	Se
	ALEXANDRIAN	Kankakee Dolomite	dolomite	40	Se
		Edgewood Dolomite	dolomite	10-100	Se
ORDOVICIAN	CINCINNATIAN	Brainard Shale	shale, limestone, siltstone	20-90	Ob, Omg
		Fort Atkinson Limestone	limestone, dolomite, shale	40	Of, Omg
		Scales Shale	shale, limestone	75	Omg
	CHAMPLAINIAN	Galena Group	dolomite, limestone	150	Op, Opg
		Platteville Group	limestone, dolomite	100	Op, Opg
		St. Peter Sandstone	sandstone	150	Osp, Ospg
	CANADIAN	Shakopee Dolomite	dolomite, sandstone, shale	250	Os, Osg

*Typical thickness where overlain by next younger formation.

Fig. 6 - Bedrock formations along the Illinois Waterway, their dominant materials, and the symbols of those mapped (Willman, 1973)

thickness and would lie at a depth of about 280 feet in the southeast quarter of the site area. Within the rest of the site area the Colchester Coal is thought to be either thin (less than 18 inches) or absent.

Gravel

Gravel sources are readily available in the area, as can be seen in figure 2. Presently there are gravel pits located in the SW $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$, Section 34, and SE $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$, Section 1.

Ground Water

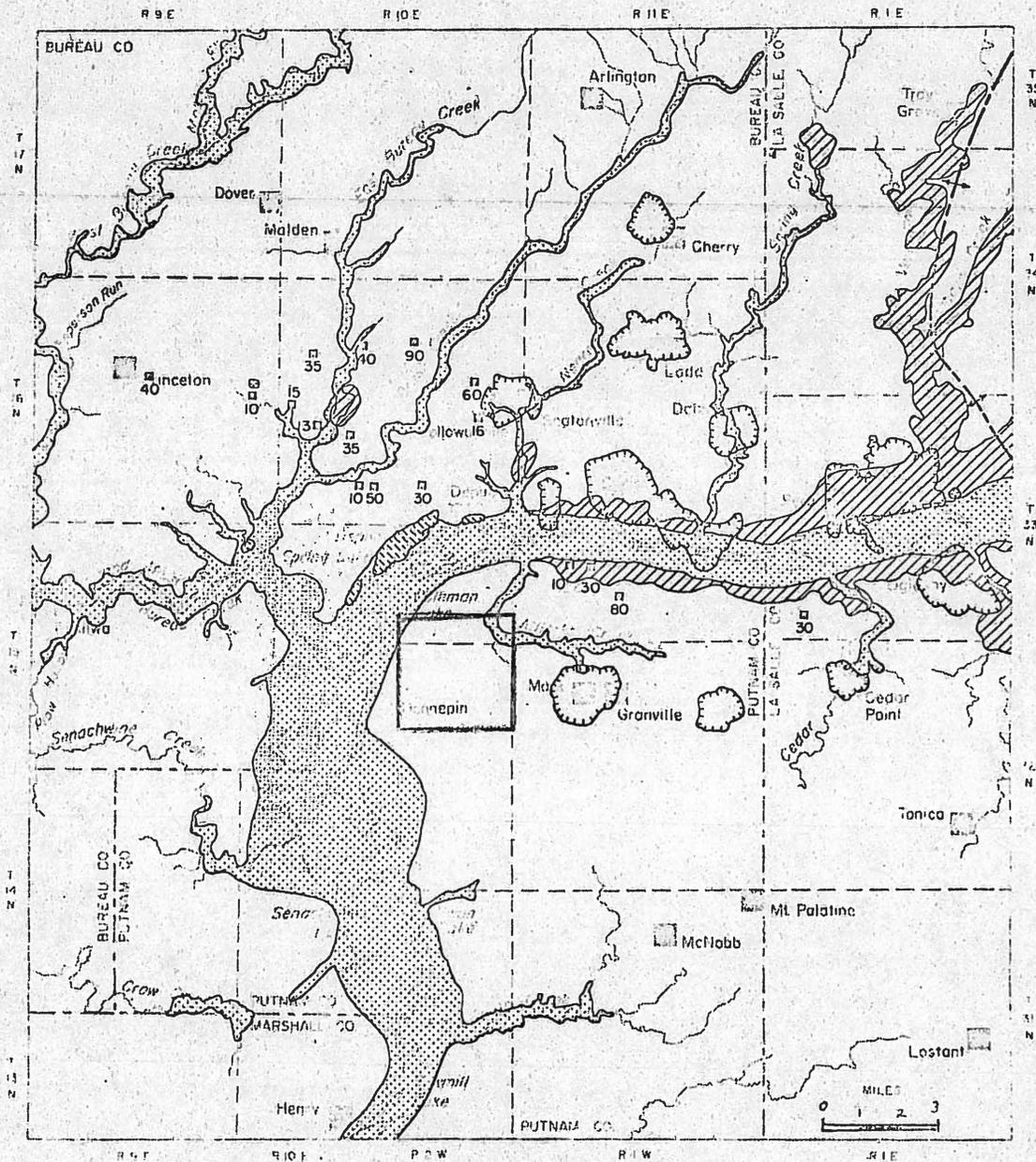
Adequate water supplies should be reasonably easy to obtain in the Hennepin area. It is a region where good to excellent sand and gravel aquifers are known to exist in the drift. The aquifers are highly permeable and widely distributed (McComas, 1965). The nature, depth, and areal distribution of the sand and gravel aquifers are shown in figure 7.

Also of significance in obtaining ground-water supplies is the Ticona Valley. This is a buried bedrock valley trending southwest-northeast directly through the area under study. Buried bedrock valleys are often the sites of large ground-water supplies due to the presence of deposits of sand and gravel.

Geologic Conditions Affecting Construction

The following discussion presents only the broad aspects of the geologic factors that influence construction. A regional picture of problem areas for construction is given in figure 8.

GEOLOGY AND LAND USE IN THE HENNEPIN REGION



- | | | | |
|---|---|---|--|
|  | Mined-out coal areas—might be subject to subsidence |  | Areas of thick, compressible surface peat and muck |
|  | Low areas subject to periodic flooding and high ground-water levels |  | Areas of reported buried peat
Approximate depth to peat |
|  | Areas with bedrock less than 30 feet from the surface with possible excavation problems |  | Axis of LaSalle Anticline |

Figure 8 - Areas that might present problems for construction.

(McComas, 1968)

Upland Till Plain Covered by Loess

The upland till plain coded as t1 (Wedron Formation) in figure 3 is a favorable area for siting heavy construction. The till has a high bearing capacity. The average water content—11.6 percent (from 3 values)—is slightly high. The till may be poorly drained and may tend to pond water. Till deposits are easily excavated. Generally the deposits are suitable for borrow material.

The overlying loess has a medium bearing capacity, and a moderately high water content of 21 percent (from 9 values). The bearing capacity of the loess may be very high where it is located permanently above the water table (Terzaghi and Peck, 1948). Problems that may be encountered in loess-covered areas are swelling during wet seasons, frost heaving, erosion of slopes, and seepage where a cut intersects the loess-till contact or the water table (Thornburn, 1963).

High-Level River Terrace

The high-level terrace in the lowlands, coded gh (Henry Formation) in figure 3, is a less favorable area for siting heavy construction than the upland till plain. Although the sand and gravel deposits have a high bearing capacity and a 21 percent (from 2 values) water content, which is average for sand and gravel, high ground-water levels are often present in the lowlands of the Illinois River and its tributaries. The regions immediately adjacent to the river are considered to be flood hazard areas (fig. 8). A site located on the eastern side of the terrace, at a somewhat higher elevation, might be more favorable. However, in sand and gravel deposits caving of the excavation can be a problem.

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NEW MEMPHIS SITE

Location and Topography

The New Memphis site is located in southern Clinton County (fig. 1), approximately 2.5 miles southeast of New Memphis, and 2 miles north of the Kaskaskia River, in Section 3, T. 1 S., R. 5 W. This area, shown on the enclosed copy of part of the topographic map of the Venedy 7.5-minute quadrangle (fig. 9), lies in the broad, nearly level flood plain of the Kaskaskia River, between 400 and 410 feet above sea level.

Geology

Unconsolidated materials in the area consist of alluvial sand, silt, clay, and gravel deposited in a valley cut in glacial drift (gravelly till and outwash). Terraces cut in the outwash (generally sands or sand and gravel of the Henry Formation) lie about 10 feet above the general elevation of the flood plain. Loess is thin to absent on the flood plain due to erosion by flood waters and surface runoff.

The surficial deposits of the upland areas (fig. 10), 20 to 25 feet above the level of the flood plain, consist of sands and silts deposited by glacial lakes. Loess may range from 0 to 25 feet in thickness. Loess and lake deposits overlie sand and gravel outwash of the Henry and Pearl Formations and gravelly till of the Glasford Formation.

The unconsolidated deposits in the site area range from 60 to 125 feet in thickness (fig. 11), and overlie shale, sandy shale, limestone, and coal of the Modesto Formation of Pennsylvanian age.

Figure 10

T. 1 N. Flood Plain of the
T. 1 S. Kaskaskia River and
Tributaries

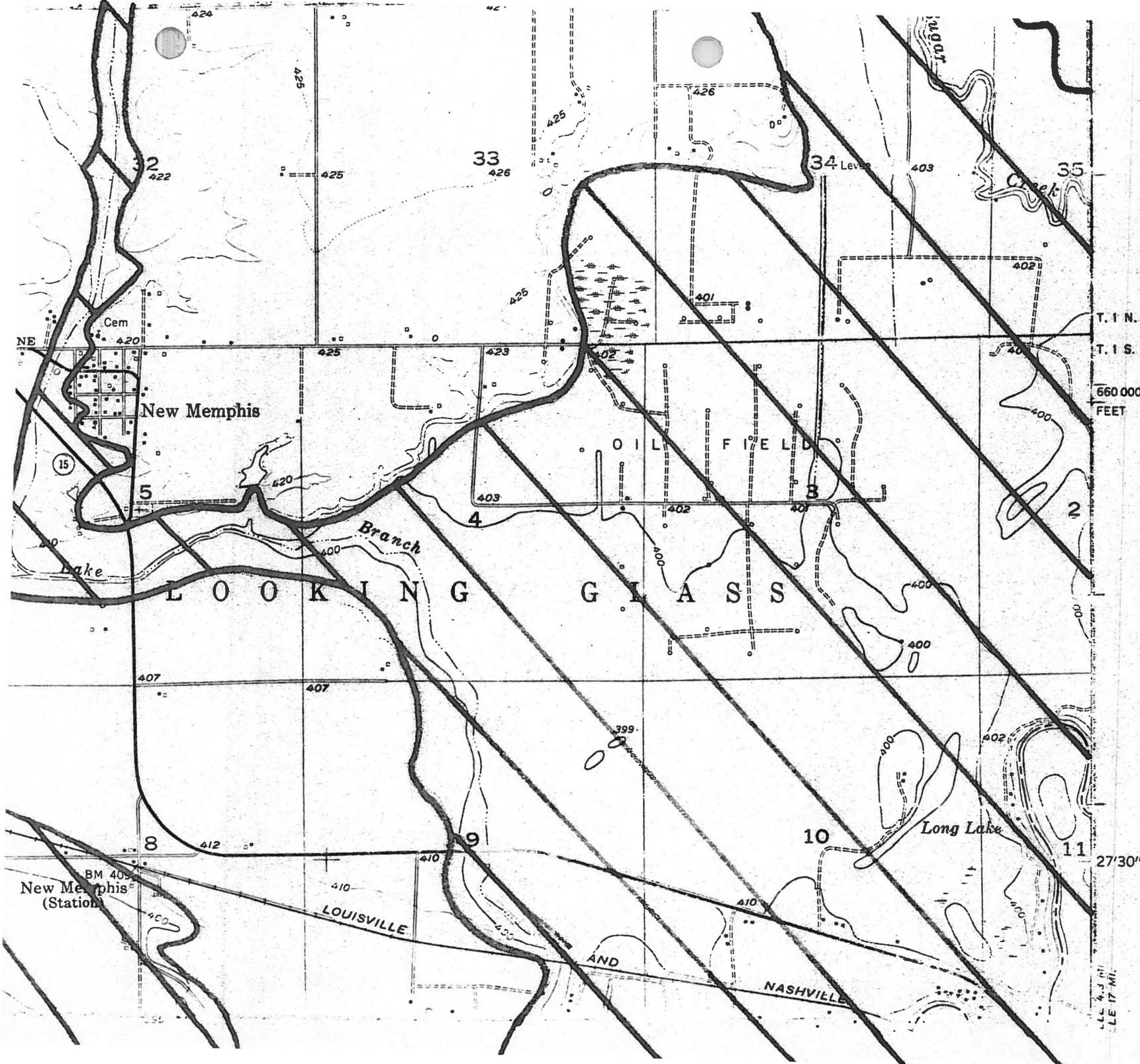
660 000
FEET



Flood Plain



Upland



Resources

Coal

This site contains some of the thickest Herrin (No. 6) Coal in Illinois. The Herrin Coal averages 8 feet in thickness and would lie between 230 and 265 feet below the surface within the site area. The site area contains more than 100,000 thousand tons of in-place reserves of the Herrin Coal. The above figure does not include the 1.1 square mile area beneath the oil field near the center of the site area.

The Herrin Coal has been mined in the vicinity of New Baden approximately 3 miles north of New Memphis and near Mascoutah about 5 miles west of New Memphis. The Monterey No. 2 mine is presently under construction within Section 13, T. 1 N., R. 5 W., Clinton County, approximately 5 miles northeast of New Memphis. Coal has not been mined within the site area.

The Herrin Coal is the only coal known to attain a thickness of 42 inches or greater within this area.

Construction Materials

Sand and gravel are readily available in the extensive deposits of outwash and alluvium along the Kaskaskia River Valley. Till in the upland areas should be suitable for borrow material and easily excavated.

Ground Water

Highly permeable and widely distributed sand and gravel aquifers along the Kaskaskia River Valley provide good probabilities for an industrial water supply.

Geologic Conditions Affecting Construction

The flood plain of the Kaskaskia River, consisting of alluvial deposits and terraces, is subject to frequent flooding. Poor drainage causes small lakes and swamps to occupy depressional areas in the flood plain. These conditions, as well as rapid erosion of terraces by flood waters, may present serious problems to construction. Excavations may cave and fill with water. Unstable conditions in poorly drained alluvial sands, and bearing capacities in general will be low.

The upland area north and east of New Memphis, in Sections 4 and 5, T. 1 S., R. 5 W., and Sections 32 and 33, T. 1 N., R. 5 W., is a more suitable location for construction. Poor drainage may be a problem in impermeable silts. Frost heaving and swelling may occur. Excavation should present few problems.

REFERENCES

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- Lidia F. Selkregg, Wayne A. Pryor, John P. Kempton, Groundwater geology in south-central Illinois: A preliminary geologic report: Illinois State Geol. Survey Circular 225, 1957.
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ROBINSON SITE

Location and Topography

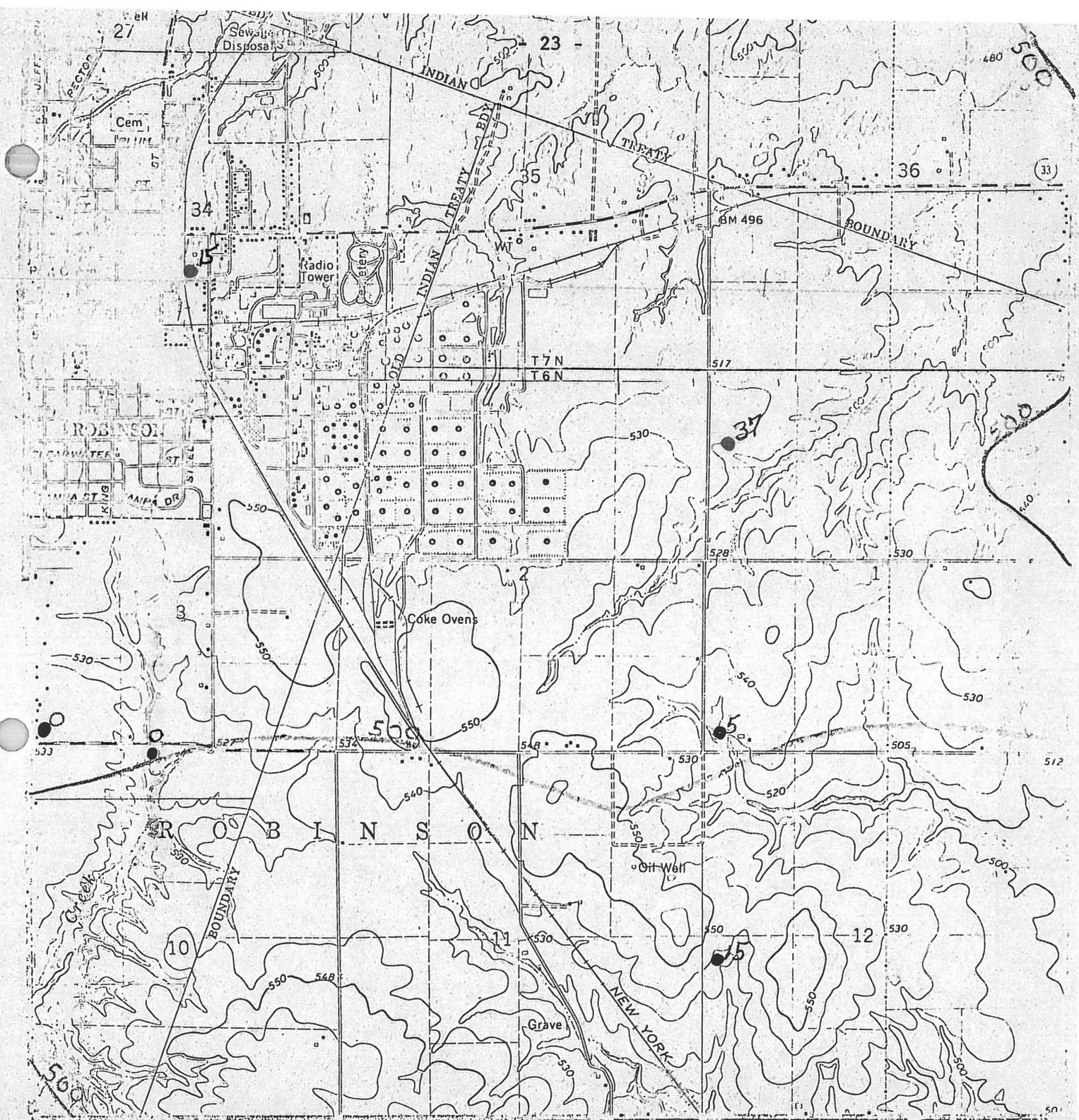
The Robinson site is located in central Crawford County (fig. 1), approximately 9 miles west of the Wabash River. The area under study is outlined in figure 12, which also gives information on depth to bedrock. The area includes T. 6 N., R. 12 W., Sections 1, 2, 3, 10, 11, and 12, and T. 7 N., R. 12 W., Sections 34, 35, and 36.

Robinson lies near the southern border of the Springfield Plain section. Drainage systems in this area are well developed. The uplands are low with respect to the master streams. The valleys are relatively shallow. Most of the principal streams have low gradients and occupy broad alluviated and terraced valleys (Leighton, Ekblaw, and Horberg, 1948).

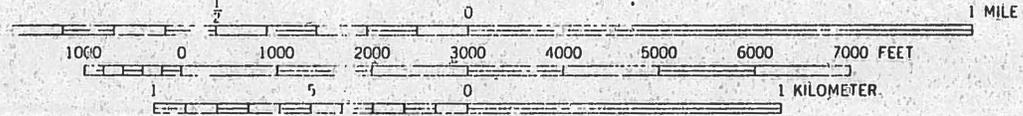
Geology

Unconsolidated Deposits

The unconsolidated deposits that overlie the bedrock consist mainly of glacial deposits and some recent river deposits. The glacial deposit covering the major part of the area is Illinoian till of the Glasford Formation which ranges in thickness from 0 to 40 feet. The till consists of a mixture of clay, sand, silt, and gravel, as can be seen in the analysis (fig. 13). In places, stratified sands and gravels may be found and organic silt and peat occur on the till surface (Sangamon Soil, fig. 5). This clayey deposit is blanketed by 6 to 10 feet of loess (Peoria, fig. 5).



SCALE 1:24 000



CONTOUR INTERVAL 10 FEET
 DOTTED LINES REPRESENT 5-FOOT CONTOURS
 DATUM IS MEAN SEA LEVEL

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
 FOR SALE BY U. S. GEOLOGICAL SURVEY, WASHINGTON, D. C. 20242
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Flat Rock, Ill. 1964
 Hutsonville, Ill.--Ind. 1966

500 Bedrock elevation
 ● Depth to bedrock

Fig. 12--Topographic map of the Robinson site.

Textural Analysis

<u>sand</u>	<u>silt</u>	<u>clay</u>
50	-- 20	-- 30
51	-- 25	-- 24
51	-- 23	-- 26
50	-- 24	-- 26

Clay Mineral Analysis

<u>expandable clay minerals</u>	<u>illite</u>	<u>kaolinite & chlorite</u>
23	63	14
18	67	15
18	68	14
12	64	24--unaltered sample

Fig. 13--Textural and compositional analyses of the Vandalia
Till, Glasford Formation.
Open file data--Illinois State Geological Survey

Along the east-west creek in the north-northeastern part of the Robinson area are alluvial deposits. These consist of silt, sand, and gravel with some colluvial and slack water materials. The following is a stratigraphic section of an exposure to the southeast of Robinson, illustrating the nature of the Pleistocene deposits:

Measured in roadcut in SW NE SW Sec. 6,
T. 5 N., R. 11 W., Crawford County, Illinois,
1961.

	Thickness (ft)
Pleistocene Series	
Wisconsinan Stage	
Woodfordian Substage	
Peoria Loess	
4. Loess, leached, fine grained, tan-brown, compact, massive; Modern Soil in top (P-1160 middle)	4.0
Altonian Substage	
Roxana Silt	
Markham Silt Member	
3. Colluvium of silt, sand and some pebbles, leached, clayey, tan-brown to reddish tan-brown; Chapin Soil (P-1159)	1.0
Illinoian Stage	
Glasford Formation	
2. Till; Sangamon Soil; B-zone, red-brown, Microblocky; contains clay skins and Mn-Fe pellets (P-1158) ..	3.0
1. Till, leached, yellow-tan, mottled with gray and brown, massive, compact, jointed (P-1157 lower)	4.0
Total	<hr/> 12.0

(Willman and Frye,
1970)

Bedrock Formations

The bedrock underlying most of the Robinson area is the Pennsylvanian Mattoon Formation. This formation consists of shale, sandstone, and thin beds of coal, reaching a total thickness of 175 feet or more.

Section 12, in the southeast corner of the study area, is underlain by the Bond Formation, also of Pennsylvanian age. The Bond Formation is 150 to 200 feet thick and consists of shale, sandstone, limestone, and thin coal beds. Figure 14 is a vertical sequence showing rock units in south-central Illinois, the Mattoon and Bond Formations being included in the McLeansboro Group.

Resources

Coal

Three coals are known to attain a thickness of 42 inches or more within the site area. The Danville (No. 7) Coal probably averages 3 to 3½ feet in thickness and lies approximately 64 feet above mean sea level. The Jamestown Coal lies 35 to 40 feet below the Danville Coal and would probably average 4 feet in thickness in this area. The Seelyville Coal lies approximately 330 feet below the Danville Coal and probably averages about 6½ feet in thickness. However, within Crawford County, this coal is known to be locally absent, and where present, the Seelyville Coal may contain a shale band up to one foot in thickness.

While all three of these coals have never been mined in eastern Illinois, they have all been mined, generally at shallower depths, northeast of the proposed site in Sullivan, Vigo, and Clay Counties, Indiana.

ILLINOIS STATE GEOLOGICAL SURVEY

SYSTEM	SERIES OR GROUP THICKNESS	FORMATION	GRAPHIC LOG	ROCK TYPE	WATER-YIELDING CHARACTERISTICS; DRILLING AND WELL CONSTRUCTION DETAILS
	Pleistocene 0-200			Unconsolidated glacial deposits, windblown silt (loess), and alluvium.	Thick sand and gravel deposits source of large supplies in major stream valleys. Thin upland sand and gravel deposits locally suitable for small supplies. Requires testing, screens, and development.
PENNSYLVANIAN	McLeansboro 0-1000			Shale, sandstone, limestone, and coal	Water-yielding character variable. Locally shallow sandstone and creviced limestone yield small supplies. Water quality usually becomes poorer with increasing depth. May require casing.
	Carbondale 0-300				
	Tradewater-Caseyville 0-1100				
MISSISSIPPIAN	Chester 0-1300	Kinkaid Degonia Clare Palestine Menard		Limestone, sandstone, and shale	Some sandstones, particularly Aux Vases, are important sources of groundwater in Madison, St. Clair, and Monroe counties. Limestone may yield domestic supplies. Too deep in eastern and central part of area to yield potable water. Shales may require casing.
		Baldwin Waltersburg Vienna Tar Springs Glen Dean Okaw Hardinsburg Galconda Ruma Cypress Paint Creek Yankee town Bethel Renault Aux Vases			
	Valmeyer 520-1500	Ste. Genevieve St. Louis Salem Warsaw Burlington-Keokuk Fern Glen		Limestone, dolomite, and shale	Dependable aquifer for small to medium supplies in Madison, St. Clair, and Monroe counties. St. Louis limestone particularly favorable. Crevices and solution channels may cause drilling difficulties.
	Kinderhook 0-250			Shale	Not water-yielding
DEVONIAN	0-200			Limestone, dolomite	May yield groundwater from joints and channels. Too deep to yield potable water.
SILURIAN	0-1000			Limestone, dolomite	
UPPER ORDOVICIAN	510±1300±	Madunketa Kimmswick-Plattin-Joachim St. Peter		Shale, dolomite, and sandstone	Dolomite may yield water in Mississippi River flat in Monroe county. Water in St. Peter sandstone highly mineralized.
LOWER ORDOVICIAN AND CAMBRIAN (extends down to crystalline basement rock)					

Fig. 14-- Rock units in south-central Illinois.
(Selkregg, Pryor, and Kempton, 1957)

Sand and Gravel

In the immediate area there are very few, or no, sand and gravel resources. However, sand and gravel is available in the Wabash River Valley region to the east.

Ground Water

The probability of obtaining adequate ground-water supplies from the drift in this area is low. The clay and mudstone which comprise the till do not generally yield even small amounts of water to wells. Water-bearing sand and gravel layers are necessary for obtaining water from the drift, and the Robinson area is essentially devoid of any such aquifers (fig. 15). Ground-water supplies are available from the nearby Wabash River Valley.

The Pennsylvanian bedrock may yield small supplies of water to wells which encounter sandstone or fractured limestone beds. However, the bedrock cannot be considered as a source of moderate or large supplies. The creek in Sections 35 and 36 may provide a source of water.

Geologic Conditions Affecting Construction

This discussion covers only the broad aspects of the geologic conditions which influence construction.

The till covering the major part of the area is the most favorable material in the area on which to site heavy construction. It has a high bearing strength, but also a high (18.5 percent average from 2 values) water content. In general, till deposits are easily excavated. A seasonally high water table, 1 to 2 feet below the surface, and the high susceptibility of the soil to frost heave may cause problems (Holhubner and Awalt, 1968).

GROUNDWATER IN SOUTH-CENTRAL ILLINOIS

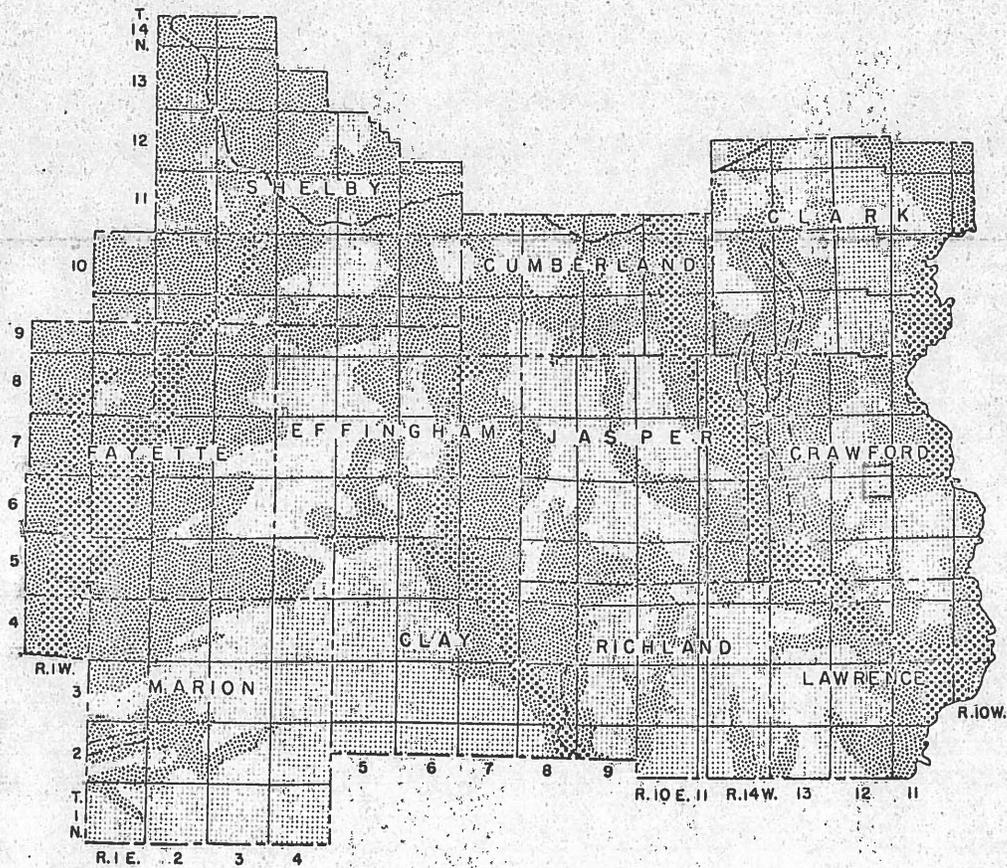
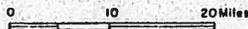


Fig. 15-- Probabilities of occurrence of sand and gravel aquifers.
(Selkregg, Pryor, and Kempton, 1957)

KEY

-  Good to excellent; aquifer highly permeable and widely distributed
-  Fair to good; aquifers variable in permeability, scattered and discontinuous
-  Area of thicker drift in bedrock valley; little subsurface information available; area merits further investigations
-  Poor; sand and gravel deposits generally absent
-  Limit of Illinoian glaciation
-  Limit of Wisconsin glaciation

SCALE



The alluvial deposits along the previously mentioned creek are a much less favorable location for heavy construction. The materials have a medium bearing capacity and a very high water content of 32.75 percent (average of 8 values). Seasonal flooding, seepage, and caving of the excavation are all problems to be considered in the immediate area of the creek.

Although bedrock at shallow depths may interfere with basement or water main and sewer construction, the shallow bedrock would be an advantage for the foundations of many structures. The bedrock has a high bearing capacity and low water content.

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