



MISSISSIPPI DEPARTMENT OF  
ENVIRONMENTAL QUALITY  
OFFICE OF GEOLOGY  
OPEN-FILE REPORT 189

## GEOLOGIC MAP of the WILLOWS QUADRANGLE Claiborne and Warren Counties, Mississippi



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2004

### DESCRIPTION OF MAP UNITS

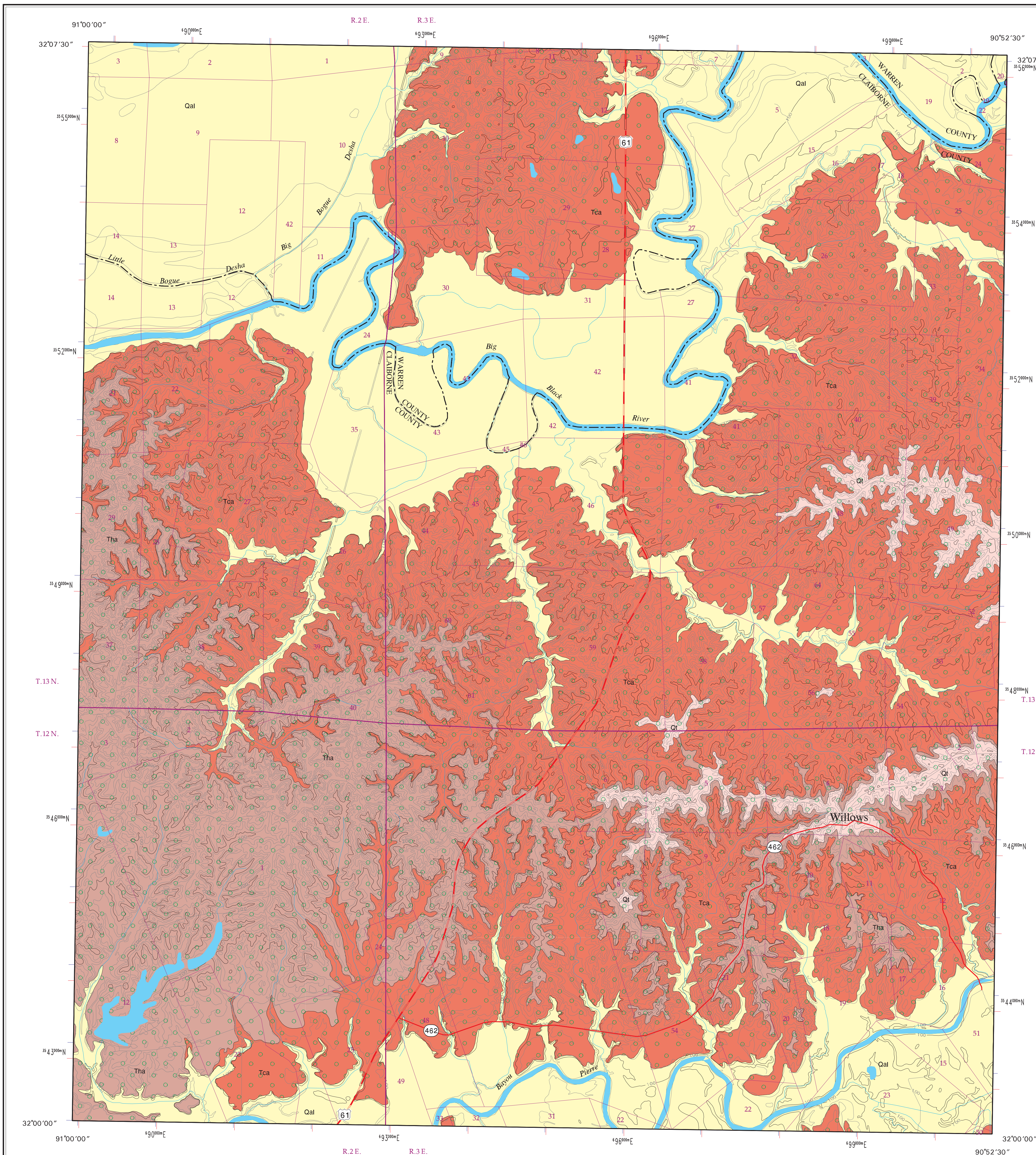
QUATERNARY	HOLOCENE	<div><div>Qal</div></div>	<b>ALLUVIUM</b>
			Flood plain sands, silts, gravels, and clays.
	PLEISTOCENE	<div><div><div></div><div></div><div></div></div></div>	<b>LOESS</b>
		Silt, buff to tan, pale yellow, red, or gray, sandy to clayey, quartzose to feldspathic. Loess is typically calcareous with dolomite and calcite; however, the upper portion of the loess is highly weathered, leached / noncalcareous, very clayey, and has been referred to as "brown loam." Loess is an eolian deposit derived from glacial outwash. Loess deposits unconformably blanket the pre-loess topography with substantial local variations in thickness. In places, weathered loess contains secondary deposits of small calcareous concretions (caliche, loess dolls). The basal few feet of loess grade into the sands and gravels of the Pre-loess terrace-derived valley fill deposits.	
		<div><div>Qt</div></div>	<b>PRE-LOESS TERRACE DEPOSITS</b>
			Sand, yellow, orange, purple, red, pink, fine- to coarse-grained, predominantly quartzose, cross-bedded to massive; graveliferous, pea to large cobble size clasts, clasts of sandstone up to boulder size not uncommon. Gravels are predominantly chert with lesser amounts of vein quartz, metaquartzite, agate, sandstone, and rare rhyolite clasts; clay, pink to white, generally occurring as discontinuous lenses and as rip-up clasts, clasts may be boulder size. Conglomeratic ironstone ledges are common in the graveliferous sands at the base of the deposits, which overlies the Catahoula and Hattiesburg formations unconformably. "Head-of-hollow," terrace-derived valley fill deposits are common at lower elevations and are isolated to valley walls. These small deposits are of such limited extent as not to warrant representation on this map.
		<div><div>Tha</div></div>	<b>HATTIESBURG FORMATION</b>
			Clay, green, gray, brown, weathers white to brown, silty to sandy, locally lignitic; sand, gray, pale yellow to white, fine- to coarse-grained, cross-bedded to massive with rare thinly-bedded pea gravels (gravels consist of black chert and milky quartz, are highly polished, subangular to well rounded), often indurated to sandstones and orthoquartzites at surface, predominantly quartzose with lesser amounts of chert, metaquartzite, mica, and heavy minerals, slightly glauconitic in places, silicified wood and fossil palm common. The base of the Hattiesburg Formation is designated at the base of a sand unit of regional extent that occurs at the approximate horizon of the base of the Fleming Formation in Louisiana and the middle-Miocene Amos Sand in Alabama.
TERTIARY	MIOCENE	<div><div>Tca</div></div>	<b>CATAHOULA FORMATION</b>
			Sand, gray, pale yellow to white, fine- to coarse-grained, cross-bedded to massive with rare thinly-bedded pea gravels (gravels consist of black chert and milky quartz, are highly polished, subangular to well rounded), often indurated to sandstones and opaline-cemented orthoquartzites at surface (in some rare cases sandstones and orthoquartzites exhibit vibrantly colored opalescence similar to that of precious opal), sands are predominantly quartzose with lesser amounts of chert, metaquartzite, mica, and heavy minerals, slightly glauconitic in places, silicified wood and fossil palm common; clay, green, gray, brown, weathers white to brown exhibiting a "popcorn" appearance, silty to sandy, lignite common in basal clays.

Geology field checked in 2004 using the 1963, photoinspected 1973, U.S. Geological Survey 7.5-minute topographic quadrangle, 1927 North American datum, contour interval 20 feet. Mississippi Transverse Mercator projection, 1983 North American datum, GR580 spheroid, 1000-meter Universal Transverse Mercator grid ticks, zone 16; 1983 datum shown in red, 1927 datum shown in blue.

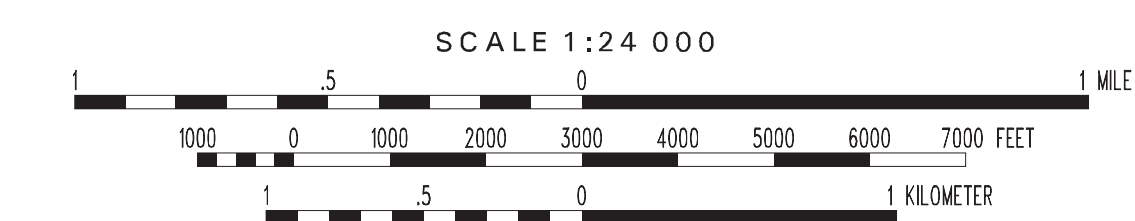
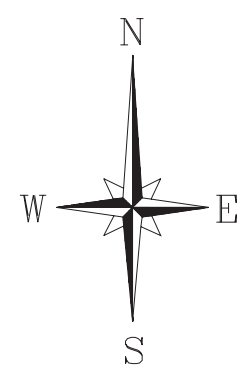
Sources: Road and water features, USGS Digital Line Graph data, 1:100,000 scale. Public Land Survey System and contours, Mississippi Automated Resource Information System (MARIS), 1:24,000 scale.

Geographic Information System by Daniel W. Morse. Geologic maps are only a guide to current understanding and do not eliminate the need for detailed investigations of specific sites for specific purposes.

This map was produced by the Mississippi Office of Geology in cooperation with the U.S. Geological Survey, National Geologic Mapping Program, under STATEMAP grant #03f1QA0073.



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WILLOWS QUADRANGLE  
Claiborne and Warren Counties,  
Mississippi



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