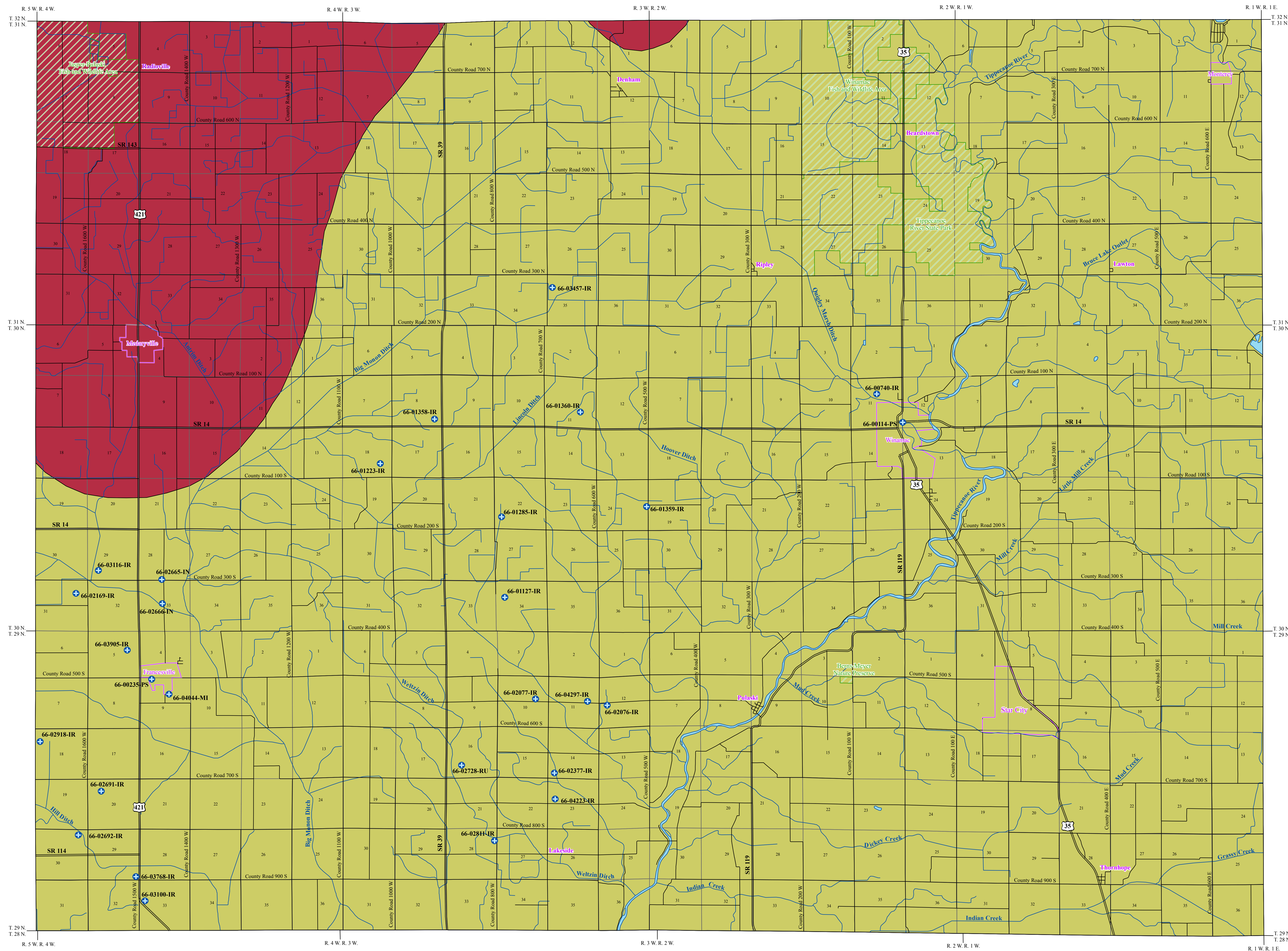


BEDROCK AQUIFER SYSTEMS OF PULASKI COUNTY, INDIANA



The occurrence of bedrock aquifers depends on the original composition of the rocks and subsequent changes which influence the hydraulic properties. Post-depositional processes, which promote jointing, fracturing, and solution activity of exposed bedrock, generally increase the hydraulic conductivity (permeability) of the upper portion of bedrock aquifer systems. Because permeability in many places is greatest near the bedrock surface, bedrock units within the upper 100 feet are commonly the most productive aquifers.

Unconsolidated deposits of varying thickness overlie bedrock aquifer systems in Pulaski County. Thickness of unconsolidated deposits ranges from less than 5 feet to 235 feet. Most of the bedrock aquifers, therefore, are under confined conditions. In other words, the potentiometric surface (water level) in most wells completed in bedrock rises above the top of the water-bearing formation.

The yield of a bedrock aquifer depends on its hydraulic characteristics and the nature of the overlying deposits. Shale and glacial till act as aquitards, restricting recharge to underlying bedrock aquifers. However, fracturing and/or jointing may occur in aquitards, which can increase recharge to the underlying aquifers. Hydraulic properties of the bedrock aquifers are highly variable.

The susceptibility of bedrock aquifer systems to surface contamination is largely dependent on the type and thickness of the overlying sediments. Because the bedrock aquifer systems have complex fracturing systems, once a contaminant has been introduced into a bedrock aquifer system, it will be difficult to track and remediate.

Two bedrock aquifer systems are identified for Pulaski County. They are the Devonian and Mississippian Coldwater, Ellsworth and Antrim Shales; and the Silurian and Devonian Carbonates.

Devonian and Mississippian - Coldwater, Ellsworth and Antrim Shales Aquifer System

Silurian and Devonian Carbonates Aquifer System

In Pulaski County only the Antrim Shale subgroups in the Coldwater, Ellsworth and Antrim Shales Aquifer System. The Antrim Shale in Indiana is typically described as brownish-black shale and is commonly considered an aquitard. Therefore, the system is an extremely limited ground-water resource. However, in some places the lower portion of the Antrim Shale may contain some limestone.

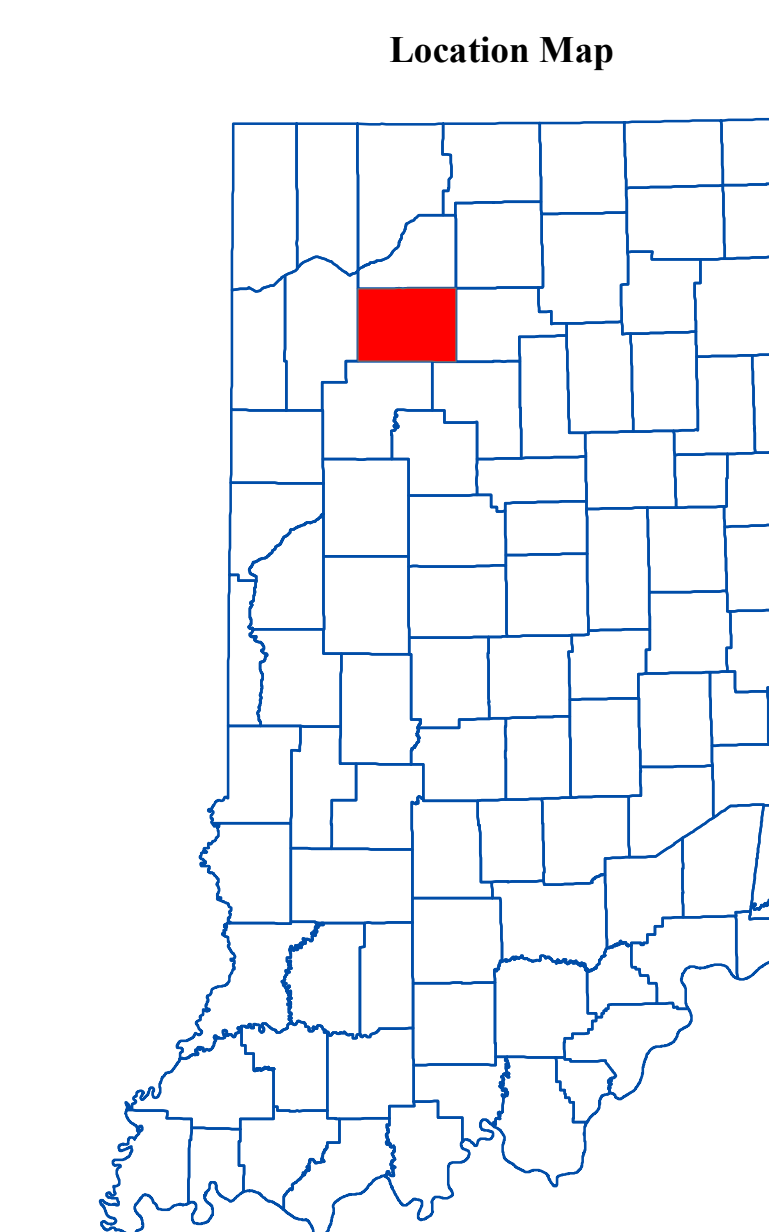
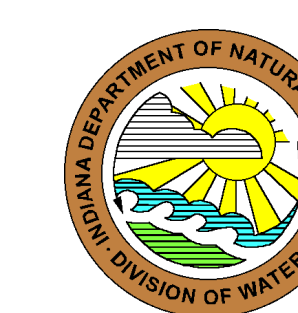
The Silurian and Devonian Carbonates Aquifer System subgroups over most of Pulaski County. The system includes Silurian age carbonate rock units of the Wabash Formation and Devonian age carbonate units of the Muscatatuck Group. Total thickness of the Silurian bedrock is up to 500 feet. Total thickness of the Devonian bedrock generally ranges from 50 to 75 feet. Depth to the bedrock surface ranges from about 5 to 235 feet.

The subarea for the Antrim Shale includes the northwest corner of Pulaski County along with a small area near the north-central county boundary. Depth to bedrock generally ranges from 45 to 112 feet. In general, reported thickness of the Antrim Shale in the subarea ranges from 1 to 50 feet.

The Silurian and Devonian Carbonates Aquifer System is capable of meeting the needs of domestic and some high-capacity users. Total well depths range from 40 to 500 feet with typical penetration into bedrock ranging from 15 to 110 feet. Domestic yields generally range from 5 to 45 gallons per minute (gpm) with static water levels ranging from 4 to 20 feet. There are 29 registered significant ground-water withdrawal facilities (6 wells) utilizing the Silurian and Devonian Carbonates Aquifer System with reported yields of individual wells ranging from 90 to 1400 gpm.

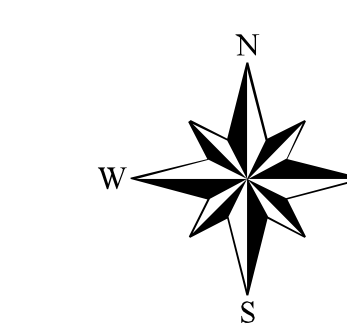
In Pulaski County only one well (dry hole) is reported in the Coldwater, Ellsworth and Antrim Shales Aquifer System. Many domestic wells either produce from the overlying unconsolidated deposits or penetrate through the shale in favor of the underlying Silurian and Devonian Carbonates. Because the permeability of shale materials is considered low and the overlying unconsolidated deposits are thick, susceptibility to contamination introduced at or near the surface is low.

Most of the Silurian and Devonian Carbonates Aquifer System in Pulaski County is overlain by thick clay deposits. These areas are generally considered at low risk to contamination. However, areas to the southwest where outwash materials directly overlie shallow bedrock are at high risk to contamination.



EXPLANATION

- Registered Significant Ground-Water Withdrawal Facility
- Stream
- County Road
- State Road & US Highway
- Municipal Boundary
- State Managed Property
- Lake & River



Map Use and Disclaimer Statement

We request that the following agency be acknowledged in products derived from this map: Indiana Department of Natural Resources, Division of Water. This map was compiled by staff of the Indiana Department of Natural Resources, Division of Water using data believed to be reasonably accurate. However, a degree of error is inherent in all maps. This product is distributed "as is" without warranties of any kind, either expressed or implied. This map is intended for use only at the published scale.

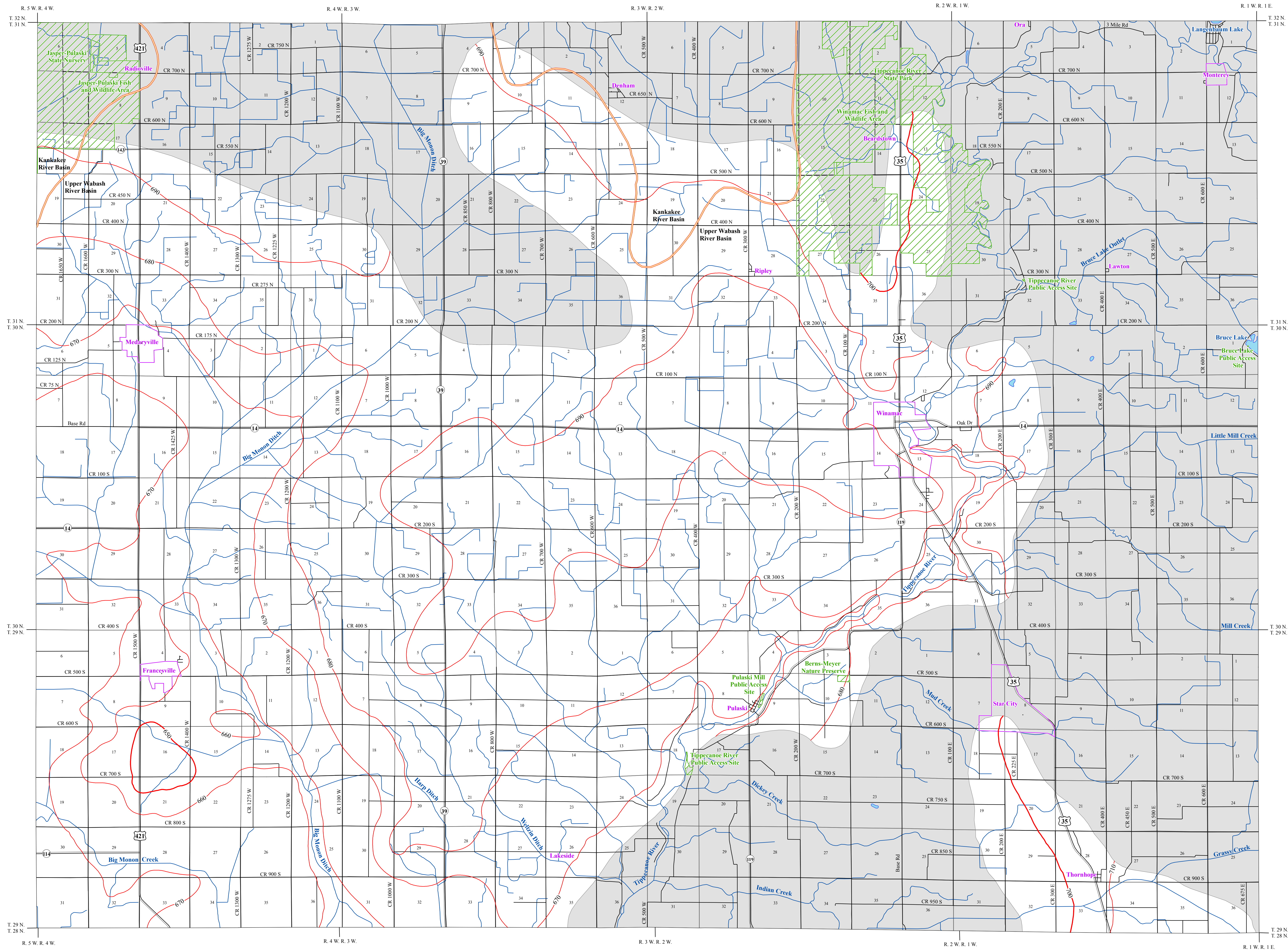
This map was created from several existing shapefiles. Township and Range Lines of Indiana (line shapefile, 20020621), Land Survey Lines of Indiana (polygon shapefile, 20020621) and County Boundaries of Indiana (polygon shapefile, 20020621), were all from the Indiana Geological Survey and based on a 1:24,000 scale, except the Bedrock Geology of Indiana (polygon shapefile, 20020318), which was at a 1:500,000 scale. Draft road shapefiles, System1 and System2 (line shapefiles, 2003), were from the Indiana Department of Transportation and based on a 1:24,000 scale. Populated Areas in Indiana 2000 (polygon shapefile, 20021000) was from the U.S. Census Bureau and based on a 1:100,000 scale. Streams27 (line shapefile, 20000420) was from the Center for Advanced Applications in GIS at Purdue University. Managed Areas 96 (polygon shapefile, various dates) was from IDNR.

Bedrock Aquifer Systems of Pulaski County, Indiana

by
Randal D. Maier
Division of Water, Resource Assessment Section

September 2008

POTENTIOMETRIC SURFACE MAP OF THE BEDROCK AQUIFERS OF PULASKI COUNTY, INDIANA



Pulaski County, Indiana is located in the northwestern portion of the state with most of the areal extent situated within the Upper Wabash River Basin. However, a portion of the northwest corner and the north-central part of the county is within the Kankakee River Basin.

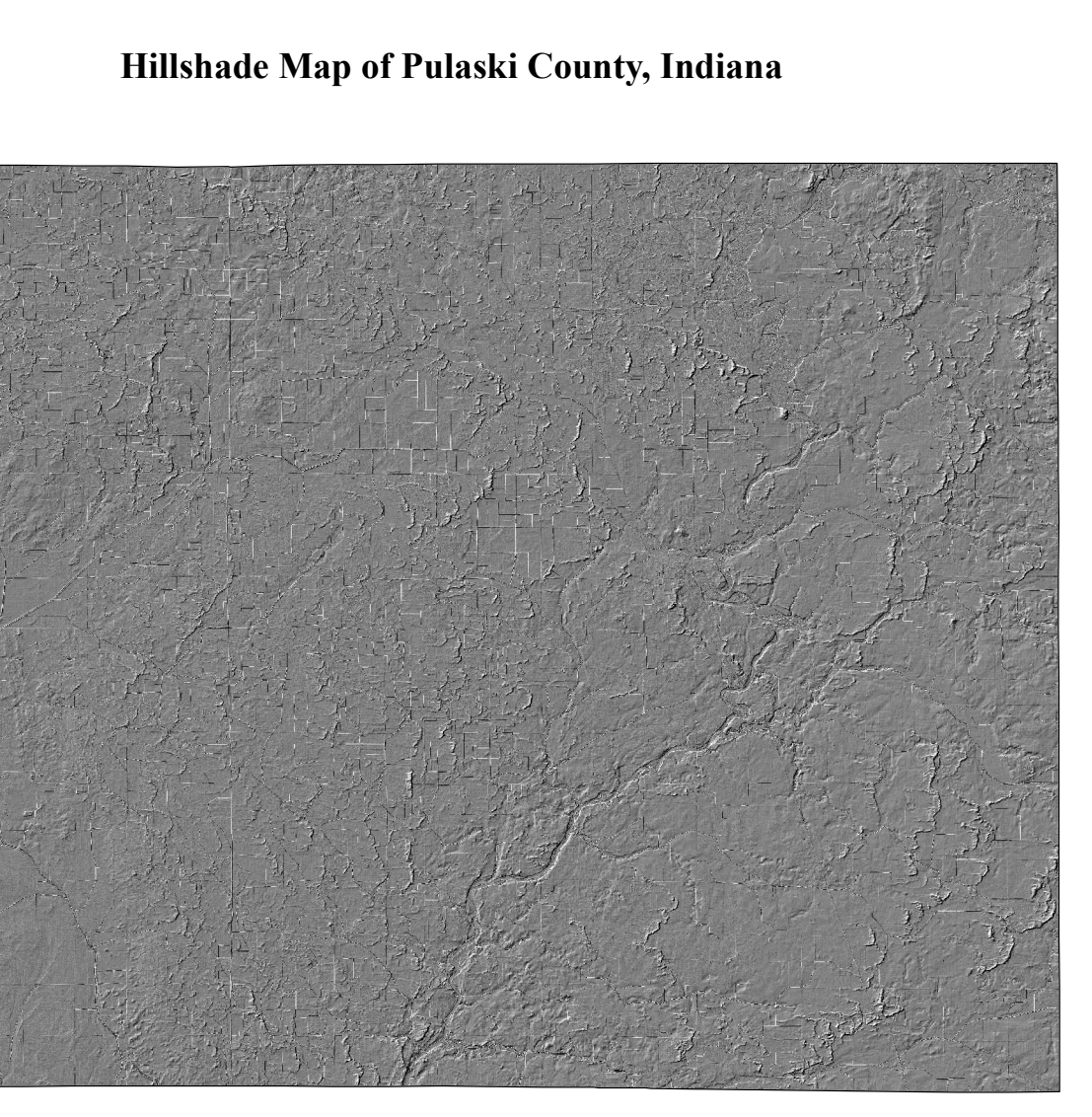
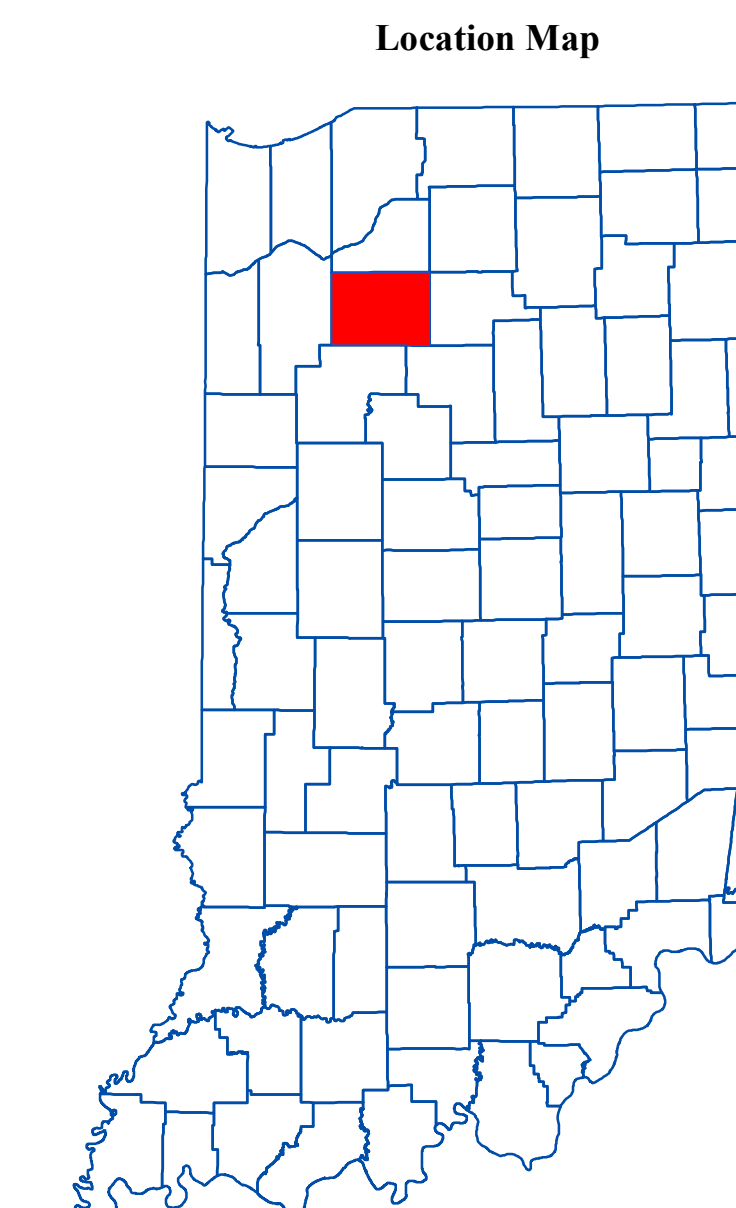
The mapped potentiometric surface (PSM) contour elevations represent lines of equal elevation relative to the measured groundwater levels in wells. In general, wells completed in a confined aquifer system are bound by impermeable layers and will have static water levels under hydrostatic pressure causing the water level to rise above the elevation of the aquifer resource. In contrast, an unconfined aquifer system is not bound by impermeable layers, therefore, the water level will not be under hydrostatic pressure and will not rise above the aquifer resource. Static water level measurements in individual wells used to construct the potentiometric surface map are indicative of the water level at the time of well completion. Therefore, current site specific conditions may differ due to local or seasonal variations in measured static water levels.

Coordinate locations of water well records were physically obtained in the field, determined through address geocoding, or reported on water well records. Elevation data were either obtained from topographic maps or a digital elevation model (DEM). Elevation and location quality control/quality assurance procedures were utilized to refine or remove data where errors were readily apparent.

In Pulaski County depth to bedrock varies from 5 feet to 235 feet (Maier, 2008). Wells completed in bedrock are generally completed in carbonate deposits of the Silurian and Devonian Carbonates Aquifer System. There are approximately 295 located wells that are completed in bedrock and utilized towards the mapping of the bedrock potentiometric surface. However, portions of the county are lacking in data and/or covered by more prolific unconsolidated deposits that limit the necessity to complete wells in bedrock. Therefore, potentiometric surface elevations contours have not been extended through these areas.

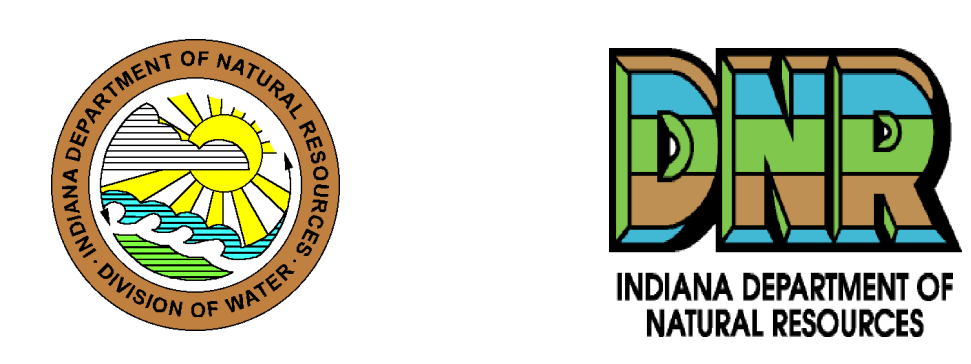
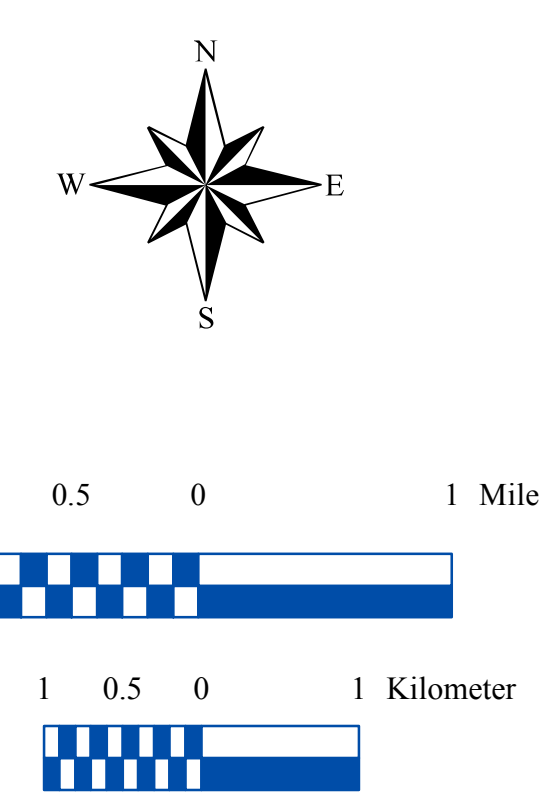
Potentiometric surface elevations range from a high of 710 feet mean sea level (msl) in the southeast region of the county, to a low of 650 feet msl in the southwest part of the county along Monon Ditch. Generalized groundwater flow direction for Pulaski County is towards major drainage relevant to the basin. Therefore, in the Upper Wabash River Basin, groundwater flow is towards the Tippecanoe River. However, for portions of the county within the Kankakee River Basin, groundwater flow is generally to the north and northwest out of the county towards the Kankakee River.

Maier, 2008. Bedrock Aquifer Systems of Pulaski County, Indiana. Indiana Department of Natural Resources, Division of Water, Aquifer Systems Map 51-B.



EXPLANATION

- 800 — Line of equal elevation, in feet above mean sea level
- Potentiometric Contour interval 10 feet
- Stream
- County Road
- State Road
- US Highway
- Basin Boundary
- Municipal Boundary
- State Managed Property
- Lake & River
- No Aquifer Material or Limited Data



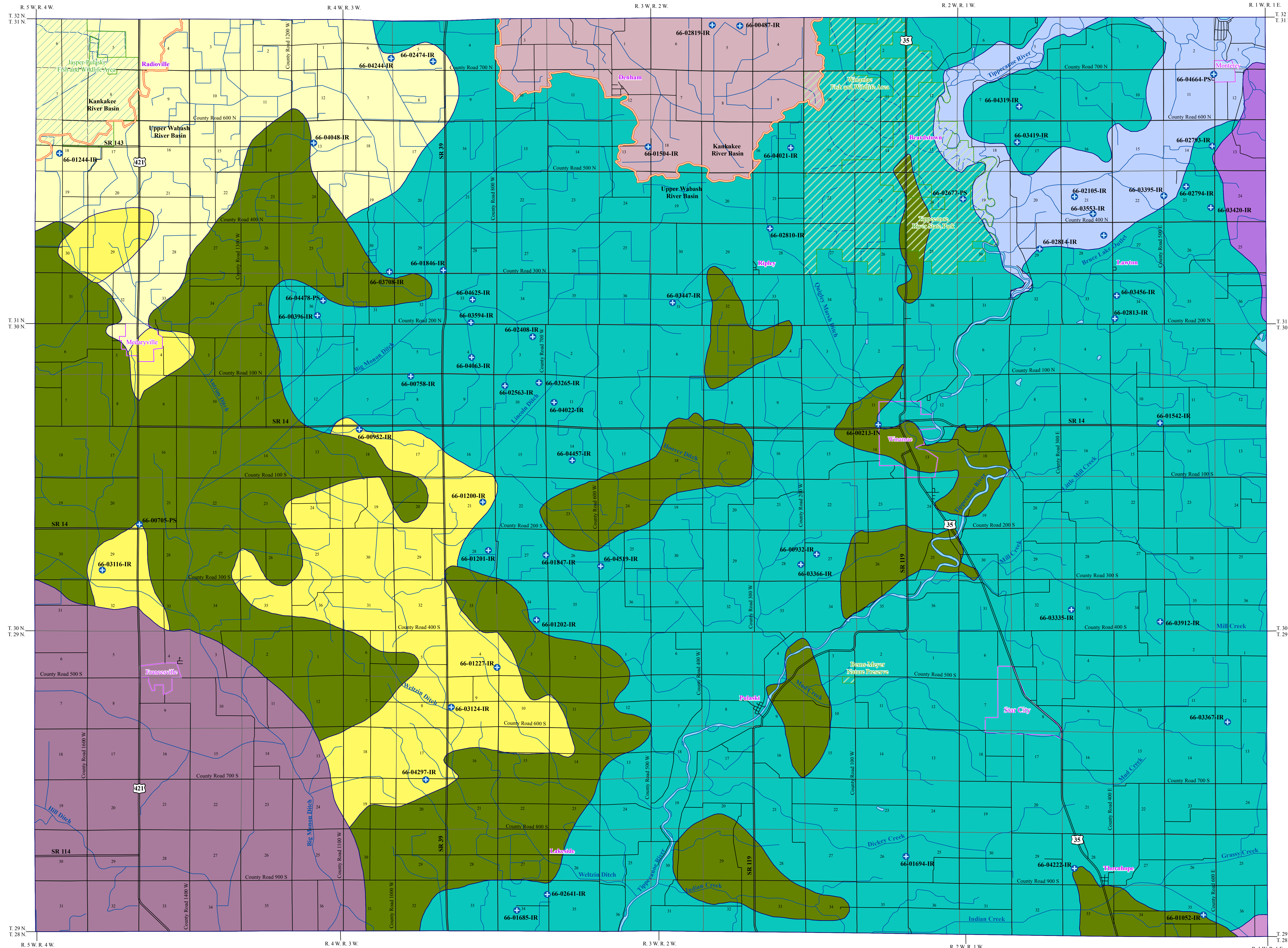
Map Use and Disclaimer Statement

We request that the following agency be acknowledged in products derived from this map. Indiana Department of Natural Resources, Division of Water. This map was compiled by staff of the Indiana Department of Natural Resources, Division of Water using data believed to be reasonably accurate. However, a degree of error is inherent in all maps. This product is distributed "as is" without warranties of any kind, either expressed or implied. This map is intended for use only at the published scale.

This map was created from several existing shapefiles. Township and Range Lines of Indiana (line shapefile, 20020621), Land Survey Lines of Indiana (polygon shapefile, 20020621), and County Boundaries of Indiana (polygon shapefile, 20020621) were all from the Indiana Geological Survey and based on a 1:24,000 scale. Draft road shapefiles, System1 and System2 (line shapefiles, 2003), were from the Indiana Department of Transportation and based on a 1:24,000 scale. Populated Areas in Indiana 2000 (polygon shapefile, 20021000) was from the U.S. Census Bureau and based on a 1:100,000 scale. Hydrography, Streams (NHID) (line shapefile, 20081218), Rivers (NHID) (polygon shapefile, 20081218), Lakes (NHID) (polygon shapefile, 20081218) was from the U.S. Geological Survey and the U.S. Environmental Protection Agency, and based on a 1:24,000 scale. County Hillshade image was from the U.S. Geological Survey National Elevation Dataset (raster image, 20107070). No Aquifer Material and Limited Data (polygon shapefile, Maier, 2013). Potentiometric Surface Map of the Bedrock Aquifers of Pulaski County, Indiana (line shapefiles, Maier, 2013) was based on a 1:24,000 scale.

Potentiometric Surface Map of the
Bedrock Aquifers of Pulaski County, Indiana
by
Randall D. Maier
Division of Water, Resource Assessment Section
March 2013

UNCONSOLIDATED AQUIFER SYSTEMS OF PULASKI COUNTY, INDIANA



Nine unconsolidated aquifer systems have been mapped in Pulaski County: the Till Veneer; the Kankakee Till; the Kankakee / Warsaw Till Subsystem; the Eolian Sands; the Natural Lakes and Moraines; the Maxinkuckee Moraine; the Kankakee / Warsaw / Plymouth Complex; the Kankakee; and the Wabash River and Tributaries Outwash System. Characteristics of the Natural Lakes and Moraine Aquifer System have been described and mapped as part of the previously published regional basin study report: Water Resource Availability in the St. Joseph River Basin, Indiana, IDNR, 1987. Characteristics of the Eolian Sands, the Kankakee, and the Maxinkuckee Moraine aquifer systems have been described and mapped as part of the previously published regional basin study report: Water Resource Availability in the Kankakee River Basin, Indiana, IDNR, 1990. Although characteristics and descriptions of the basin study aquifer systems are generalized over large portions of northern Indiana, the descriptions of the aquifer systems have been modified here to accommodate the individuality of Pulaski County. Boundaries of all aquifer systems described are commonly gradational, and individual aquifers may extend across aquifer system boundaries.

Thicknesses of unconsolidated sediments that overlie bedrock are quite variable in Pulaski County. Total thickness ranges from approximately 5 feet in the southwest, to as much as 235 feet in the central portion of the county.

Regional estimates of aquifer susceptibility to contamination from the surface can differ considerably from local reality. Variations within geologic environments can cause variations in susceptibility to surface contamination. In addition, man-made structures such as poorly constructed water wells, unplugged or temporarily abandoned wells, and open excavations, can provide contaminant pathways that bypass the naturally protective clays.

In Pulaski County, the Till Veneer Aquifer System is mapped along most of the southwest part of the county. This system is the most limited ground-water resource of the unconsolidated aquifer systems in the county.

This system consists primarily of thin till, generally 3 to 40 feet thick, that directly overlies an uneven bedrock surface. Limited sand and gravel deposits are available and nearly all wells started in the Till Veneer Aquifer System are completed in the underlying bedrock. However, in places, isolated in-trill sand and gravel deposits or deposits that directly overlie bedrock are present.

This aquifer system is generally not very susceptible to surface contamination because in-trill sand and gravel units are overlain by thick till deposits. However, some areas have surface sands and gravels with thinner underlying clay above the aquifer resource. These areas are considered moderately susceptible to contamination.

In Pulaski County the Kankakee Till Aquifer System is mapped in portions of the western third of the county. The system typically consists of thick clay with, in places, discontinuous surface and in-trill sands and gravels. The surface sands are primarily windblown deposits (generally 8 to 40 feet thick) and are not used as an aquifer resource. Total thicknesses of unconsolidated deposits range from 34 to 169 feet that may, in places, include discontinuous outwash deposits that range from 1 to 20 feet thick.

Well depths are generally 70 to 115 feet deep. Typical aquifer sands and gravels range from 3 to 15 feet thick and are capped by 30 to 75 feet of clay. This system is capable of meeting the needs of domestic and some high-capacity users. Domestic well yields are generally from 10 to 60 gallons per minute (gpm) with static water levels that range from 3 to 30 feet below surface. There are 7 registered significant ground-water withdrawal systems (9 wells) with yields that range from 250 to 800 gpm.

This system is generally not very susceptible to surface contamination because in-trill sand and gravel units are overlain by thick till deposits. However, in places surface sands and gravels are thicker with thinner clay deposits above the aquifer unit. These areas are considered at moderate to high risk of contamination.

The Kankakee / Warsaw Till Aquifer Subsystem is mapped throughout portions of central and western Pulaski County. The subsystem is mapped similar to that of the Kankakee Till Aquifer System. However, potential aquifer materials are thinner and potential yield is less than in the subsystem than the Kankakee Till Aquifer System. In places the subsystem is capped by 9 to 35 feet of surface sands that are primarily windblown deposits that are not used as an aquifer resource.

Nearly all of the wells in the subsystem utilize the underlying bedrock aquifer system. However, the subsystem has the potential of meeting the needs of some domestic users. Potential aquifer materials include thin, in-trill sand and gravel deposits that generally range from 2 to 15 feet thick and are capped by 40 to 120 feet of till. The subsystem is generally not very susceptible to surface contamination because in-trill sand and gravel units are overlain by thick till deposits.

The Eolian Sands Aquifer System in Pulaski County is mapped along part of the north-central edge of the county. Characteristics of this system generally involve windblown (eolian) sands at the surface with thick clay lenses separating the surface deposits from the deeper aquifer resource. However, in some isolated areas the clays are not present. Where present, clay thickness ranges from 3 to 75 feet with the surface sand generally ranging from 15 to 50 feet thick. Wells completed in the Eolian Sands Aquifer System generally range from 50 to 215 feet deep. Aquifer thickness ranges from 7 to 122 feet.

This system is capable of meeting the needs of domestic and some high-capacity users. Domestic well yields are commonly 15 to 50 gpm. Static water levels range from 4 to 20 feet below surface. There are 2 registered significant ground-water withdrawal facilities (2 wells) utilizing this system with reported yields ranging from 600 to 800 gpm.

This aquifer system is generally not very susceptible to surface contamination where in-trill sand and gravel units are overlain by thick till deposits. However, areas where overlying clays are thin or absent are at moderate to high risk of contamination.

In Pulaski County the Wabash River and Tributaries Outwash Aquifer System includes thick, glacially derived outwash deposits along with recent alluvial deposits that cap the outwash deposits in places. The system is mapped in the northeastern part of the county from near the town of Monterey southwest to the Tippecanoe River as well as along the floodplain of the Tippecanoe River.

Few wells are completed in this system in Pulaski County. Well depths range from 26 to 127 feet below surface with up to 118 feet of continuous sand and gravel. In places, aquifer materials are capped by silt, clay or sandy clay ranging from 2 to 15 feet thick. In addition, aquifer sand and gravel deposits may include a mixture of discontinuous clay, sandy clay or gravelly clay deposits 2 to 40 feet thick.

The Wabash River and Tributaries Outwash Aquifer System is capable of meeting the needs of domestic and high-capacity users. Domestic wells yield from 15 to 60 gpm. Static water levels are commonly 1 to 20 feet below surface. There are 5 registered significant ground-water withdrawal facilities (11 wells) in the outwash system in Pulaski County. Individual wells report yields ranging from 100 to 1100 gpm.

Areas that lack overlying clay or silt deposits are highly susceptible to contamination. However, where overlying clay or silt deposits are present the system is moderately susceptible to surface contamination.

Natural Lakes and Moraines Aquifer System

The Natural Lakes and Moraine Aquifer System in Pulaski County is an extension of a broad regional aquifer system initially described in the published report: Water Resource Availability in the St. Joseph River Basin, Indiana, IDNR, 1987. Only an extremely small portion in the southeast corner is mapped in Pulaski County. However, in nearby Cass County descriptive characteristics of this system include typical well depths that range from 65 to 130 feet deep. Clay thickness is commonly 30 to 60 feet with a aquifer deposits that are 10 to 25 feet thick. This system is capable of meeting the needs of domestic and some high-capacity users. This aquifer system is generally not very susceptible to surface contamination because in-trill sand and gravel units are overlain by thick till deposits.

Maxinkuckee Moraine Aquifer System

The Maxinkuckee Moraine Aquifer System is mapped along the northeastern edge of Pulaski County. Unconsolidated deposits are associated with a large moraine complex with varying characteristics that include discontinuous and isolated surficial sands and gravels, thick till sequences, with discontinuous in-trill sands and gravels, as well as deeper aquifer sands and gravels of varying thickness.

Few wells are reported in the Maxinkuckee Moraine Aquifer System in Pulaski County. However, one domestic well reports a yield of 50 gpm and one unregistered irrigation well is reported to yield 1000 gpm. Also, many wells are reported in nearby Fulton County with most wells producing from deep sand and gravel deposits capable of meeting the needs of domestic and high-capacity users. Well depths in Fulton County range from 27 to 245 feet but are commonly 60 to 120 feet. Typical aquifer thickness is from 7 to 30 feet, however, in places aquifer deposits may be thicker.

This aquifer system is generally not very susceptible to surface contamination because in-trill sand and gravel units are overlain by thick till deposits. However, wells that utilize the shallow sands and gravels are at moderate to high risk to surface contamination.

Kankakee / Warsaw / Plymouth Complex Aquifer System

The Kankakee / Warsaw / Plymouth Complex Aquifer System is mapped throughout most of the eastern and central portions of Pulaski County. Complex multiple glacial advances resulted in a sequence of multiple, stacked, till and outwash units that are quite variable in position and thickness. Characteristics of this system also include surface sands (primarily windblown deposits that are generally 8 to 27 feet thick and not used as an aquifer resource) that overlie a thick clay cap with discontinuous in-trill sands and gravels above the primary aquifer unit.

Well depths are commonly 50 to 110 feet. In places the system exhibits multiple sand and gravel deposits above the primary aquifer resource that are also a potential source of ground-water. The sand and gravel deposits vary from thin to massive and are typically discontinuous and overlain by a thick till. Total accumulative unconsolidated thickness above the aquifer unit generally includes 20 to 70 feet of clay and 18 to 50 feet of sands and gravels. Individually, the discontinuous sands and gravels are typically 4 to 24 feet thick and the deeper, more productive aquifer deposits are 5 to 24 feet thick.

The Kankakee / Warsaw / Plymouth Complex Aquifer System is capable of meeting the needs of domestic and some high-capacity users. Typical domestic yields range from 13 to 95 gpm. Static water levels commonly range from 6 to 15 feet below surface with some flowing wells reported. There are 43 registered significant ground-water withdrawal facilities (53 wells) with reported yields that range from 60 to 2000 gpm.

This aquifer system is not very susceptible to contamination where thick clay deposits overlie aquifer materials. However, in places clay deposits are thin or not present. These areas are at moderate to high risk to surface contamination.

Kankakee Aquifer System

The Kankakee Aquifer System is mapped in the northwest corner of Pulaski County and includes portions previously mapped as part of the regional basin study report: Water Resource Availability in the Kankakee River Basin, Indiana, IDNR, 1990. Characteristics of this system include unconfined, thick glacial outwash sands and gravels with discontinuous clay materials over bedrock. The clay deposits generally increase in thickness as the system grades into less prolific aquifer systems to the south.

Few wells are reported in the Kankakee Aquifer System in Pulaski County. Total well depths range from 31 to 125 feet with saturated sands and gravels up to 120 feet. Clay deposits range from 4 to 88 feet thick. Static water levels range from 5 to 25 feet below surface. This system is capable of meeting the needs of domestic and some high-capacity users. There are 3 registered significant ground-water withdrawal facilities (5 wells) with yields that range from 550 to 800 gpm. This system is at moderate to high risk to contamination.

Wabash River and Tributaries Outwash Aquifer System

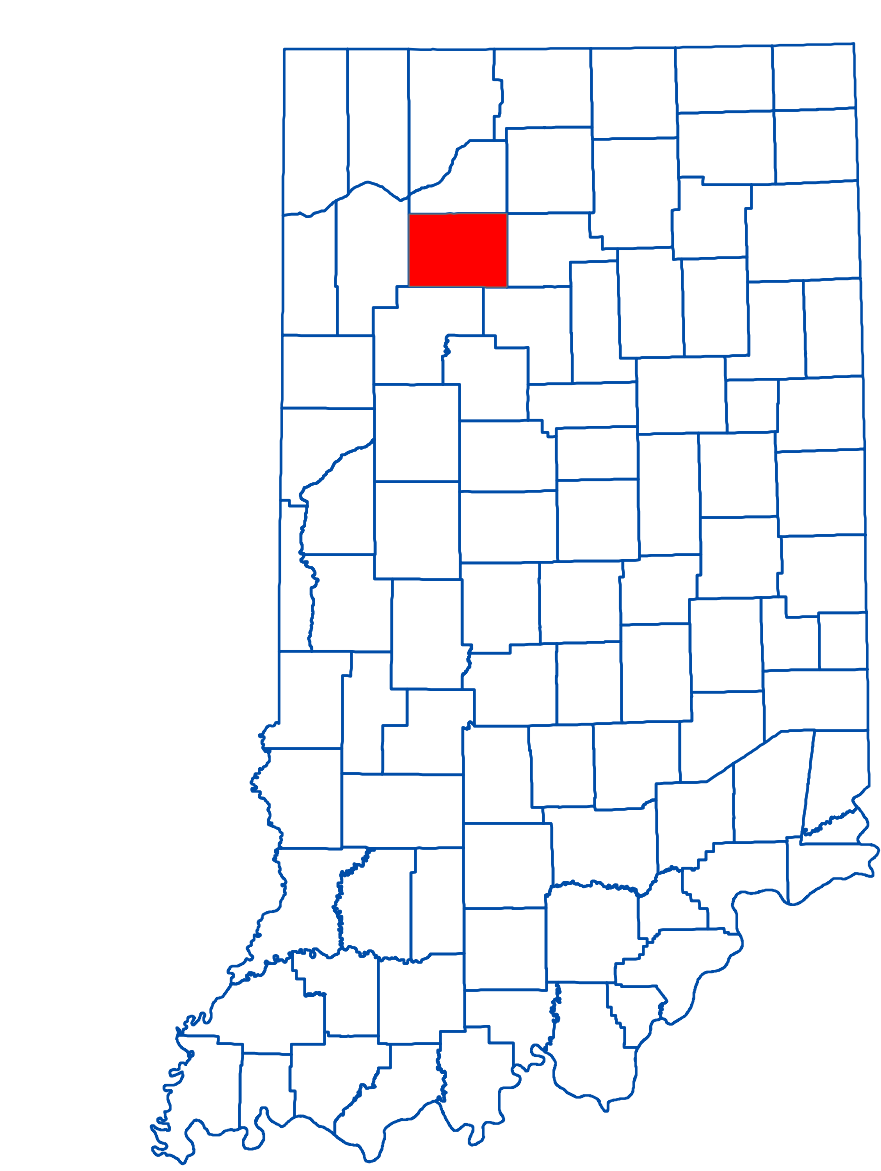
In Pulaski County the Wabash River and Tributaries Outwash Aquifer System includes thick, glacially derived outwash deposits along with recent alluvial deposits that cap the outwash deposits in places. The system is mapped in the northeastern part of the county from near the town of Monterey southwest to the Tippecanoe River as well as along the floodplain of the Tippecanoe River.

Few wells are completed in this system in Pulaski County. Well depths range from 26 to 127 feet below surface with up to 118 feet of continuous sand and gravel. In places, aquifer materials are capped by silt, clay or sandy clay ranging from 2 to 15 feet thick. In addition, aquifer sand and gravel deposits may include a mixture of discontinuous clay, sandy clay or gravelly clay deposits 2 to 40 feet thick.

The Wabash River and Tributaries Outwash Aquifer System is capable of meeting the needs of domestic and high-capacity users. Domestic wells yield from 15 to 60 gpm. Static water levels are commonly 1 to 20 feet below surface. There are 5 registered significant ground-water withdrawal facilities (11 wells) in the outwash system in Pulaski County. Individual wells report yields ranging from 100 to 1100 gpm.

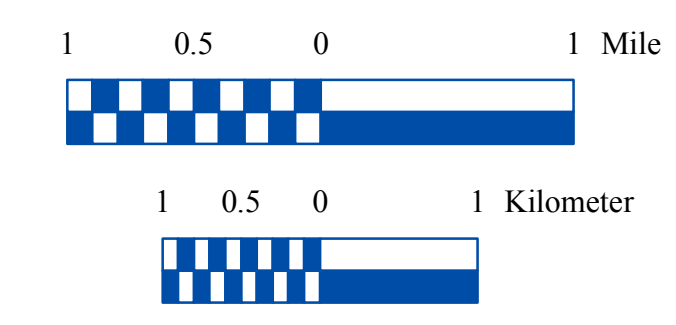
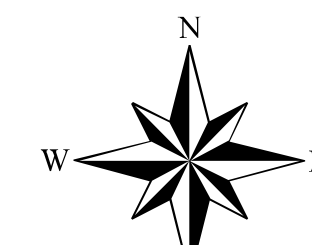
Areas that lack overlying clay or silt deposits are highly susceptible to contamination. However, where overlying clay or silt deposits are present the system is moderately susceptible to surface contamination.

Location Map



EXPLANATION

- Registered Significant Ground-Water Withdrawal Facility
- Stream
- County Road
- State Road & US Highway
- Basin Boundary
- Municipal Boundary
- State Managed Property
- Lake & River



Map Use and Disclaimer Statement

We request that the following agency be acknowledged in products derived from this map: Indiana Department of Natural Resources, Division of Water. This map was compiled by staff of the Indiana Department of Natural Resources, Division of Water using data believed to be reasonably accurate. However, a degree of error is inherent in all maps. This product is distributed "as is" without warranties of any kind, either expressed or implied. This map is intended for use only at the published scale.

This map was created from several existing shapefiles. Township and Range Lines of Indiana (line shapefile, 20020621), Land Survey Lines of Indiana (polygon shapefile, 20020621), and County Boundaries of Indiana (polygon shapefile, 20020621), were all from the Indiana Geological Survey and based on a 1:24,000 scale. Draft road shapefiles, System and System2 (line shapefiles, 2003), were from the Indiana Department of Transportation and based on a 1:24,000 scale. Populated Areas in Indiana 2000 (polygon shapefile, 20021000) was from the U.S. Census Bureau and based on a 1:100,000 scale. Stream27 (line shapefile, 20000420) was from the Center for Advanced Applications in GIS at Purdue University. Managed Areas 96 (polygon shape file, various dates) was from IDNR. Unconsolidated aquifer systems coverage (Maier, 2008) was based on a 1:24,000 scale.

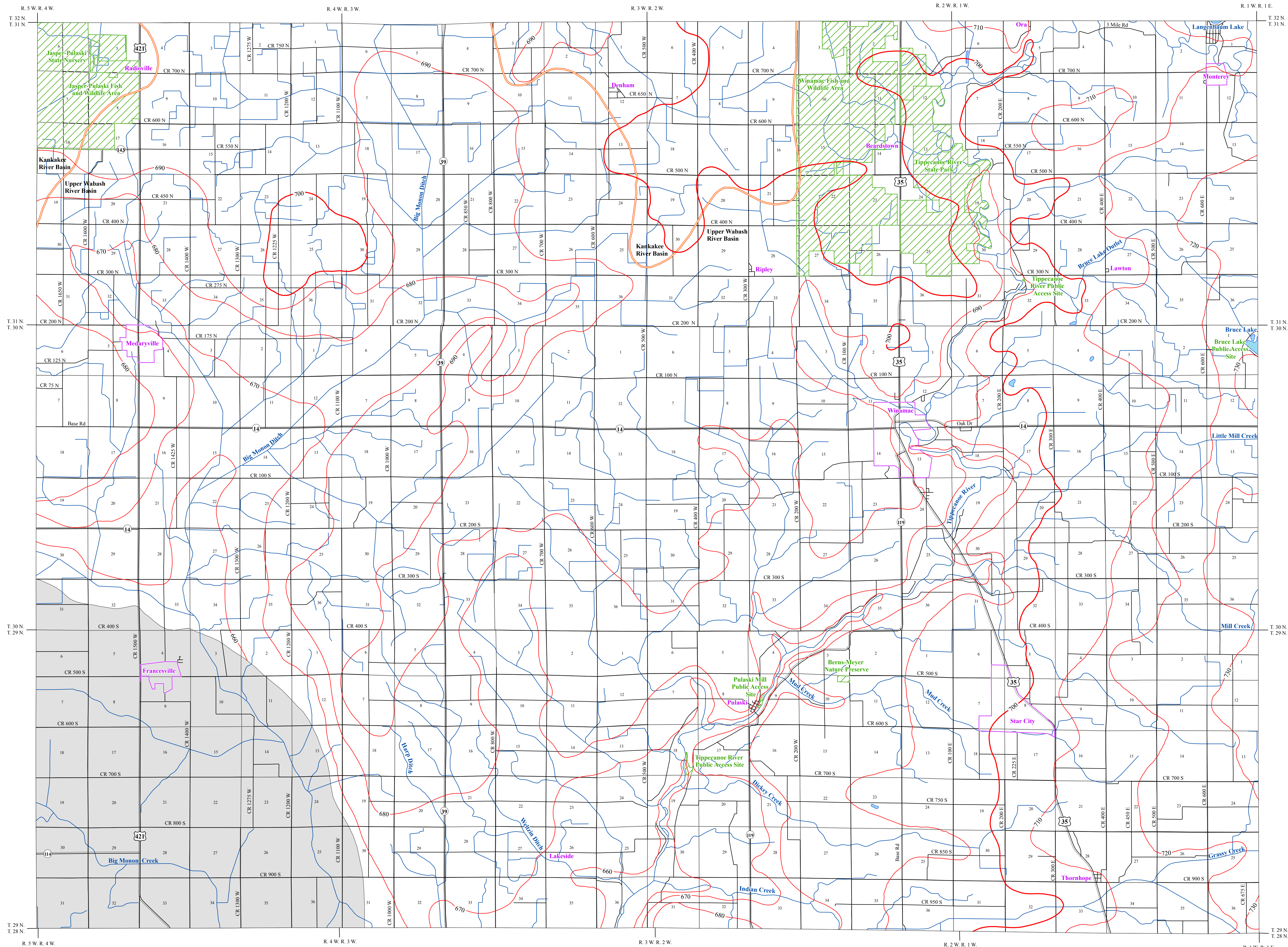
Unconsolidated Aquifer Systems of Pulaski County, Indiana

by
Randal D. Maier
Division of Water, Resource Assessment Section

September 2008

Map generated by Scott H. Dean
IDNR, Division of Water, Resource Assessment Section

POTENTIOMETRIC SURFACE MAP OF THE UNCONSOLIDATED AQUIFERS OF PULASKI COUNTY, INDIANA



Pulaski County, Indiana is located in the northwestern portion of the state with most of the area extent situated within the Upper Wabash River Basin. However, a portion of the northwest corner and the north-central part of the county is within the Kankakee River Basin.

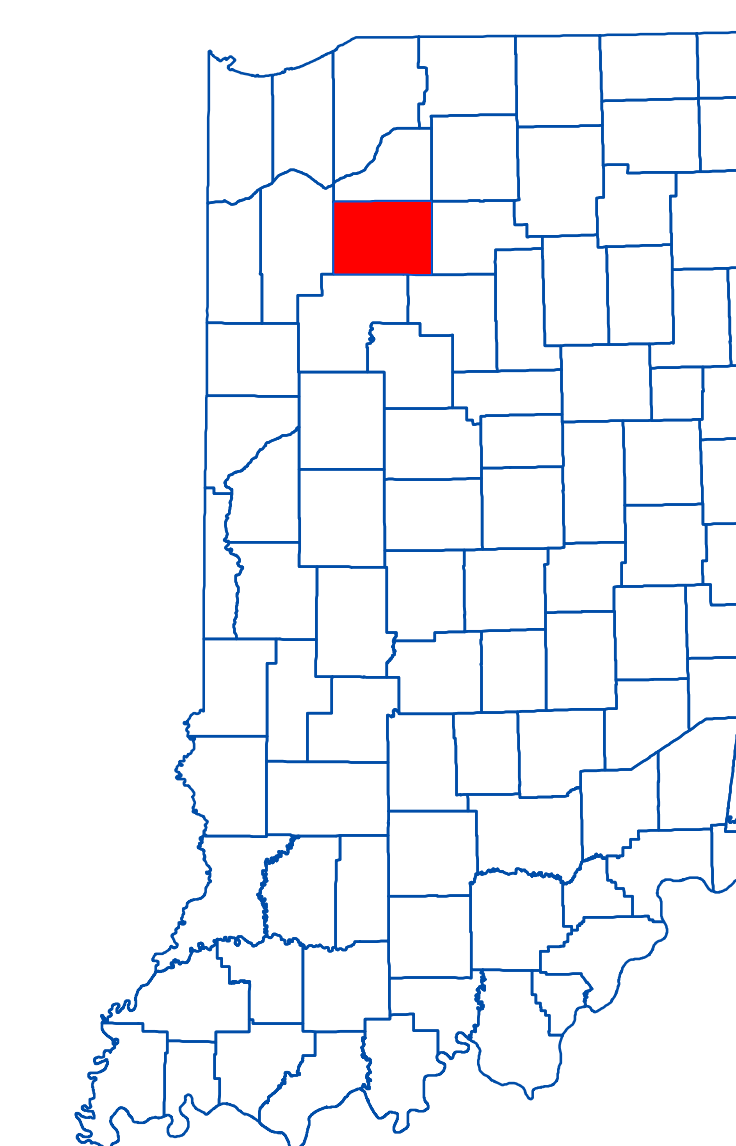
The mapped potentiometric surface (PSM) contour elevations represent lines of equal elevation relative to the measured groundwater levels in wells. In general, wells completed in a confined aquifer system are bound by impermeable layers and will have static water levels under hydrostatic pressure causing the water level to rise above the elevation of the aquifer resource. In contrast, an unconfined aquifer system is not bound by impermeable layers; therefore, the water level will not be under hydrostatic pressure and will not rise above the aquifer resource. Static water level measurements in individual wells used to construct the potentiometric surface map are indicative of the water level at the time of well completion. Therefore, current site specific conditions may differ due to local or seasonal variations in measured static water levels.

Coordinate locations of water well records were physically obtained in the field, determined through address geocoding, or reported on water well records. Elevation data were either obtained from topographic maps or a digital elevation model (DEM). Elevation and location quality control/quality assurance procedures were utilized to refine or remove data where errors were readily apparent.

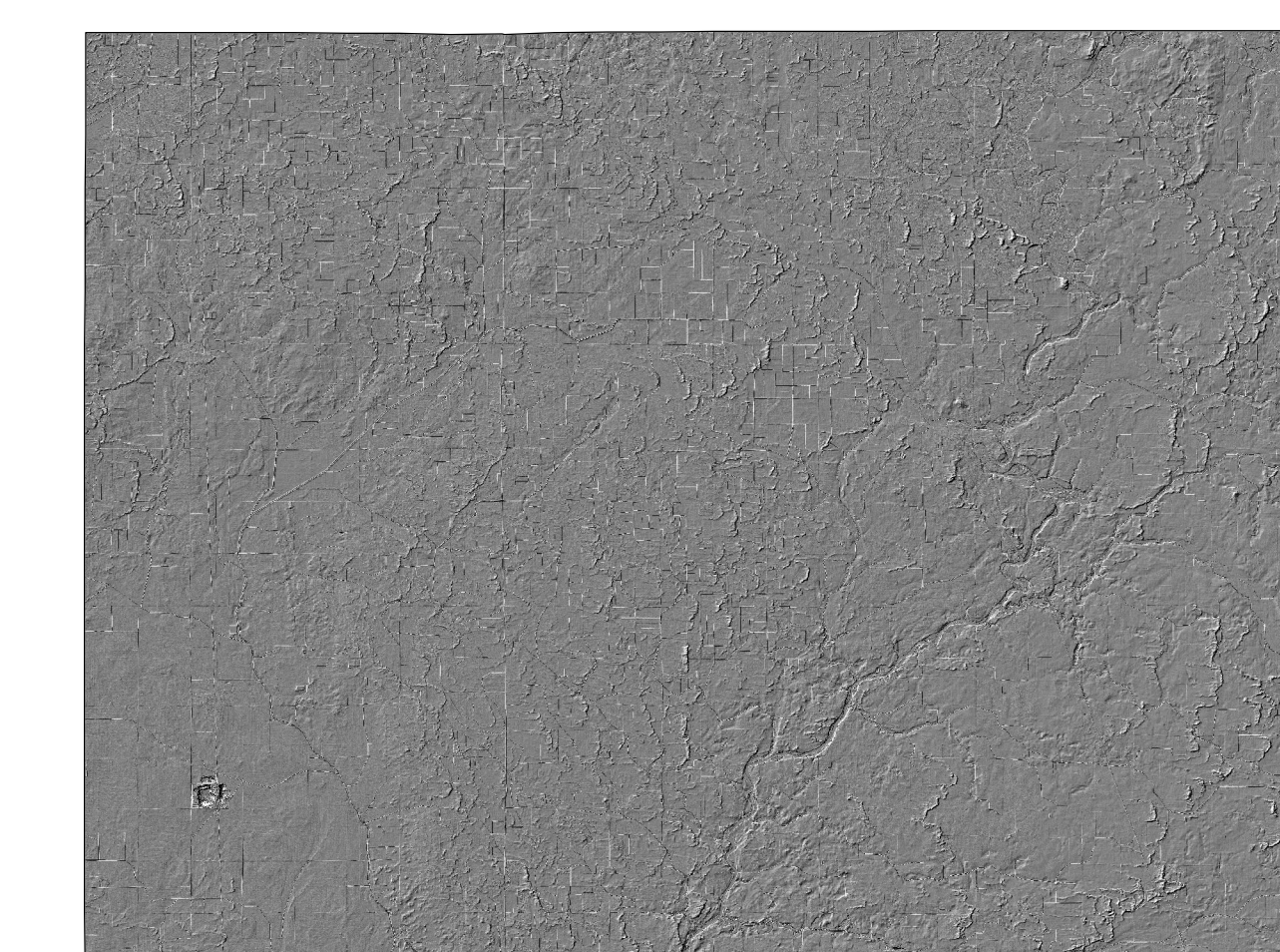
In Pulaski County well depths 100 feet or less were a priority in mapping the potentiometric surface. However, portions of western Pulaski County are lacking in data and/or are covered by deposits that have limited to non-existent aquifer potential. Therefore, potentiometric surface elevations contours have not been extended through these areas. There are approximately 781 unconsolidated water well records in the county located that are within the priority depth range.

Potentiometric surface elevations range from a high of 730 feet mean sea level (msl) along the east-central region of the county continuing to the southeast corner, to a low of 660 feet msl in the south-central part of the county along the Tippecanoe River. Generalized groundwater flow direction for Pulaski County is towards major drainage relevant to the basin. Therefore, in the Upper Wabash River Basin, groundwater flow is towards the Tippecanoe River. However, for portions of the county within the Kankakee River Basin, groundwater flow is generally north and northwest out of the county towards the Kankakee River.

Location Map

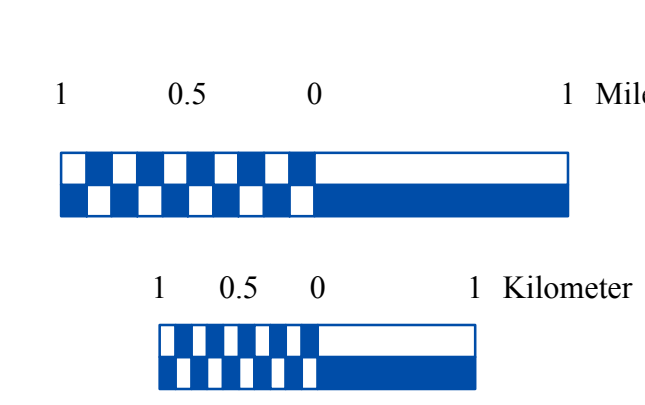
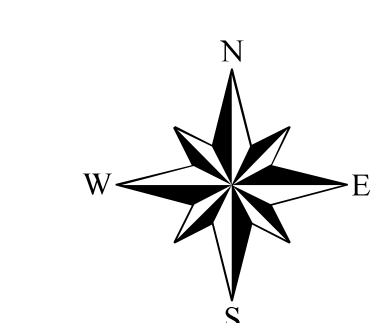


Hillshade Map of Pulaski County, Indiana



EXPLANATION

- 800 — Line of equal elevation, in feet above mean sea level
- Potentiometric Contour interval 10 feet
- Stream
- County Road
- State Road
- US Highway
- Basin Boundary
- Municipal Boundary
- State Managed Property
- Lake & River
- No Aquifer Material or Limited Data



Map Use and Disclaimer Statement

We request that the following agency be acknowledged in products derived from this map: Indiana Department of Natural Resources, Division of Water. This map was compiled by staff of the Indiana Department of Natural Resources, Division of Water using data believed to be reasonably accurate. However, a degree of error is inherent in all maps. This product is distributed "as is" without warranties of any kind, either expressed or implied. This map is intended for use only at the published scale.

This map was created from several existing shapefiles: Township and Range Lines of Indiana (line shapefile, 20020621), Land Survey Lines of Indiana (polygon shapefile, 20020621), and County Boundaries of Indiana (polygon shapefile, 20020621), were all from the Indiana Geological Survey and based on a 1:24,000 scale. Draft road shapefiles, System and System2 (line shapefiles, 2003), were from the Indiana Department of Transportation and based on a 1:24,000 scale. Populated Areas in Indiana 2000 (polygon shapefile, 20021000) was from the U.S. Census Bureau and based on a 1:100,000 scale. Hydrography, Streams (NHD) (line shapefile, 20081218), Rivers (NHD) (polygon shapefile, 20081218), Lakes (NHD) (polygon shapefile, 20081218) was from the U.S. Geological Survey and the U.S. Environmental Protection Agency, and based on a 1:24,000 scale. County Hillshade image was from the U.S. Geological Survey National Elevation Dataset (raster image, 20120720). Potentiometric Surface Map of the Unconsolidated Aquifers of Pulaski, Indiana (line shapefiles, Maier, 2013) was based on a 1:24,000 scale. No Aquifer Material and Limited Data (polygon shapefile) was based on the Unconsolidated Aquifer Systems of Pulaski County, Indiana (polygon shapefile, Maier, 2013).

Potentiometric Surface Map of the Unconsolidated Aquifers of Pulaski County, Indiana
by
Randal D. Maier
Division of Water, Resource Assessment Section
March 2013

Pulaski County

