

# POTENTIOMETRIC SURFACE MAP OF THE BEDROCK AQUIFERS OF JEFFERSON COUNTY, INDIANA

Jefferson County is located in southeast Indiana, and is bounded by the counties of Clark, Scott, Jennings, Ripley and Switzerland to the southwest, west, northwest, north and east, respectively. The state of Kentucky borders the county to the south. The northwest portion of the county lies within the East Fork White River Basin and the rest of the county lies within the Ohio River Basin.

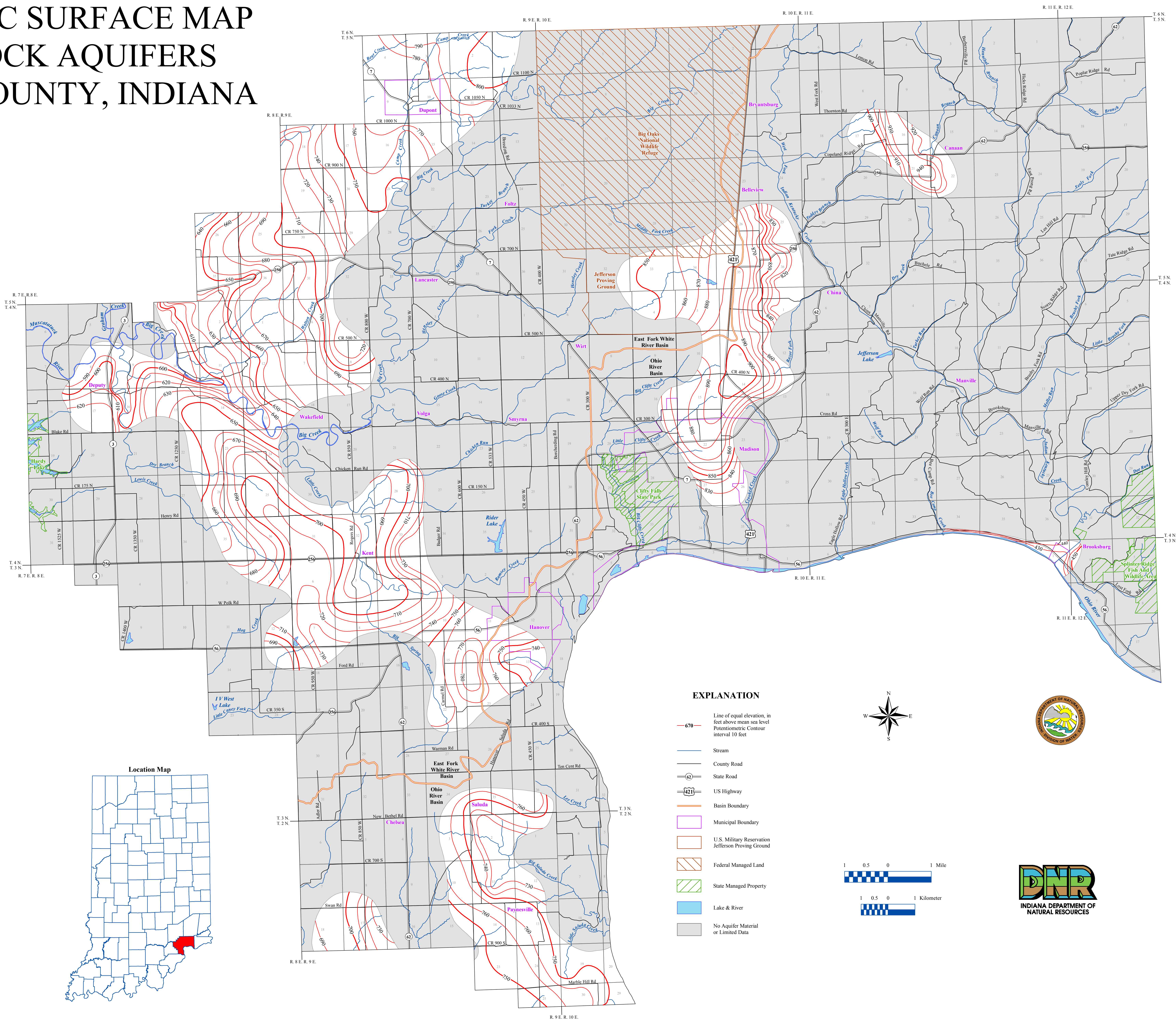
The potentiometric surface is a measure of the pressure on groundwater in a water bearing formation. Wells are completed in aquifers at various depths, and typically, under confined conditions (bounded by impermeable layers above and below the water bearing formation). However, some wells are completed under unconfined (not bounded by impermeable layers) settings. Water in a confined aquifer, which is under hydrostatic pressure, will rise in a well above the top of the water bearing formation. In contrast, groundwater in an unconfined aquifer, which is at atmospheric pressure, will not rise in a well above the top of the water bearing formation.

Static water-level measurements obtained from individual wells used to construct county potentiometric surface maps are indicative of the water-level at the time of well completion. The groundwater level within an aquifer constantly fluctuates in response to rainfall, evapotranspiration, groundwater movement and pumping. Therefore, measured static water-levels in an area may differ due to local or seasonal variations. Because fluctuations in groundwater are typically small, static water-levels can be used to construct a generalized potentiometric surface map. As a general rule, but certainly not always, groundwater flow approximates the overlying topography and intersects the land surface at major streams.

The potentiometric surface map of the bedrock aquifers was mapped by contouring the elevations of 146 static water-levels reported on well records received primarily over a 50 year period. Universal Transverse Mercator (UTM) coordinates, used in locating the water wells, were either physically obtained in the field, determined through address geocoding, or reported on water well records. The location of the majority of the water well records used to make the potentiometric surface map were field verified. Elevation data were obtained from a digital elevation model. Quality control/quality assurance procedures were utilized to refine or remove data where errors were readily apparent.

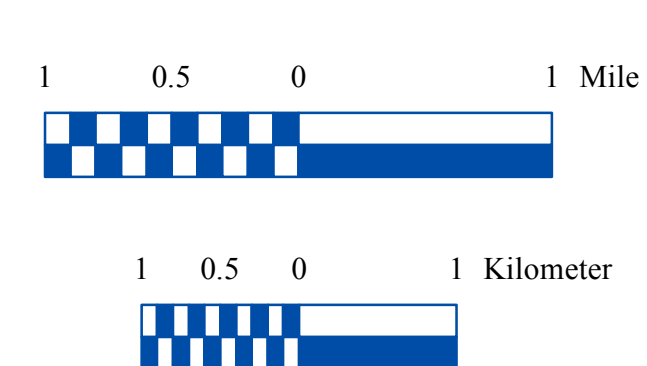
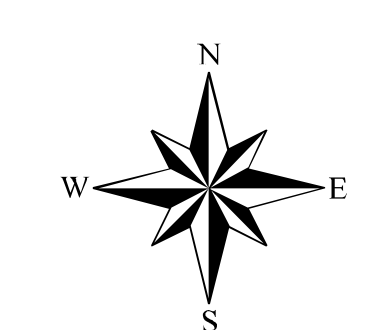
Potentiometric surface elevations range from a high of 940 feet mean sea level (msl) in the northeast portion of the county near Cansan, to a low of 430 feet sea level (msl) in the southeast portion of the county near Brooksbury. Regional groundwater flow in the northwest portion of the county is generally westerly towards the Muscatatuck River and its tributaries, Big Creek and Little Creek. However, in the rest of the county, the groundwater generally flows south towards the Ohio River and its tributaries. Potentiometric contours have not been extended through portions of the county that are lacking in data and/or covered by more prolific unconsolidated deposits which limits the necessity to complete wells in the bedrock.

The county potentiometric surface map can be used to define the regional groundwater flow path and to identify significant areas of groundwater recharge and discharge. These maps represent overall regional characteristics and are not intended to be a substitute for site-specific studies.

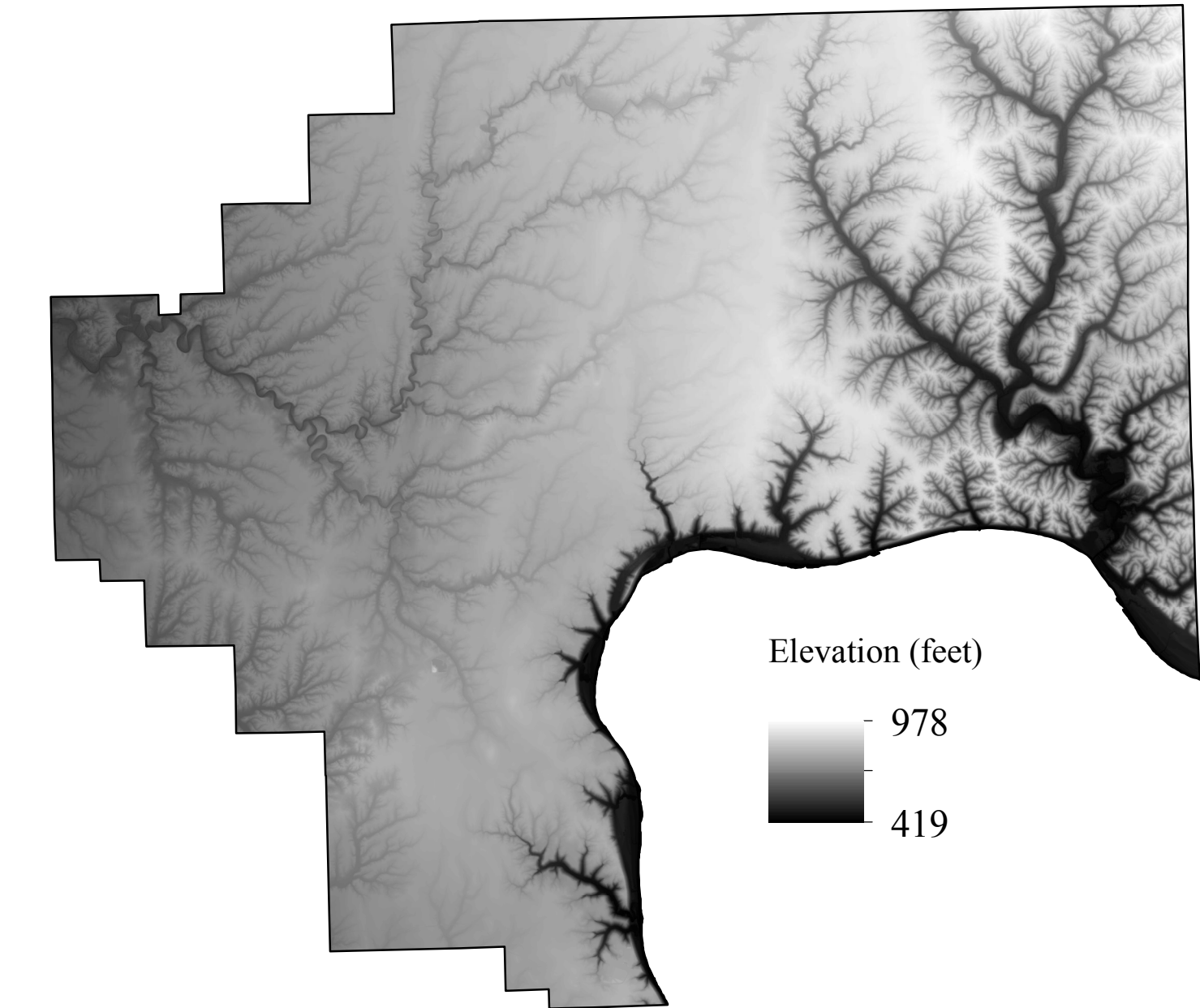


### EXPLANATION

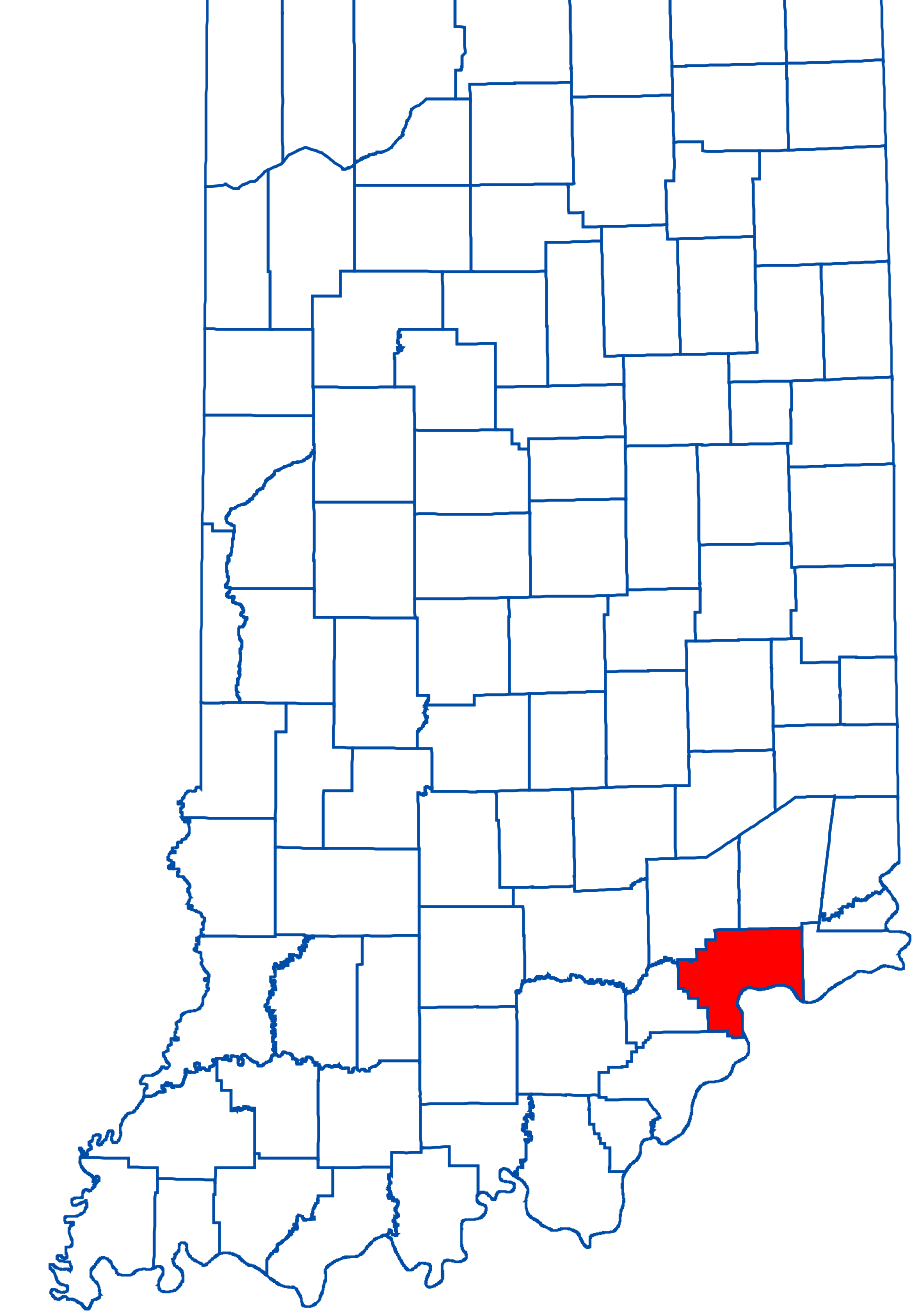
- Line of equal elevation, in feet above mean sea level. Potentiometric Contour interval 10 feet.
- Stream
- County Road
- State Road
- US Highway
- Basin Boundary
- Municipal Boundary
- U.S. Military Reservation Jefferson Proving Ground
- Federal Managed Land
- State Managed Property
- Lake & River
- No Aquifer Material or Limited Data



Digital Elevation Model of Jefferson County, Indiana



Location Map



### 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 is 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) are all from the Indiana Geological Survey and based on a 1:24,000 scale. Roads (TIGER and INDOT) (line shapefile, 2005) is from the Indiana Department of Transportation and based on a 1:100,000 scale. System1 (line shapefile, 2003) is from the Indiana Department of Transportation and based on a 1:24,000 scale. Incorporated Boundaries in Indiana (polygon shapefile, 20060501) is from the Graphics and Engineering Section, Indiana Department of Transportation. Hydrography, Streams (NHD) (line shapefile, 20081218), Rivers (NHD) (polygon shapefile, 20081218), and Lakes (NHD) (polygon shapefile, 20081218) are from the U.S. Geological Survey and based on a 1:24,000 scale. Basin boundaries are modified from Watershed Boundary Dataset (polygon shapefile, 2008) from the Natural Resource Conservation Service and based on a 1:24,000 scale. Managed Lands IDNR IN (polygon shapefile, 20100920) is from the Indiana Department of Natural Resources and based on a 1:24,000 scale. Digital Elevation Model image is derived from the Indiana OrthoLIDAR Statewide Collection Program (2011-13). Jefferson County Bedrock No Aquifer Material or Limited Data (polygon shapefile, Grove, 2018) and Potentiometric Surface Contours of the Bedrock Aquifers of Jefferson County, Indiana (line shapefile, Grove, 2018) are based on a 1:24,000 scale.

### Potentiometric Surface Map of the Bedrock Aquifers of Jefferson County, Indiana

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April 2018