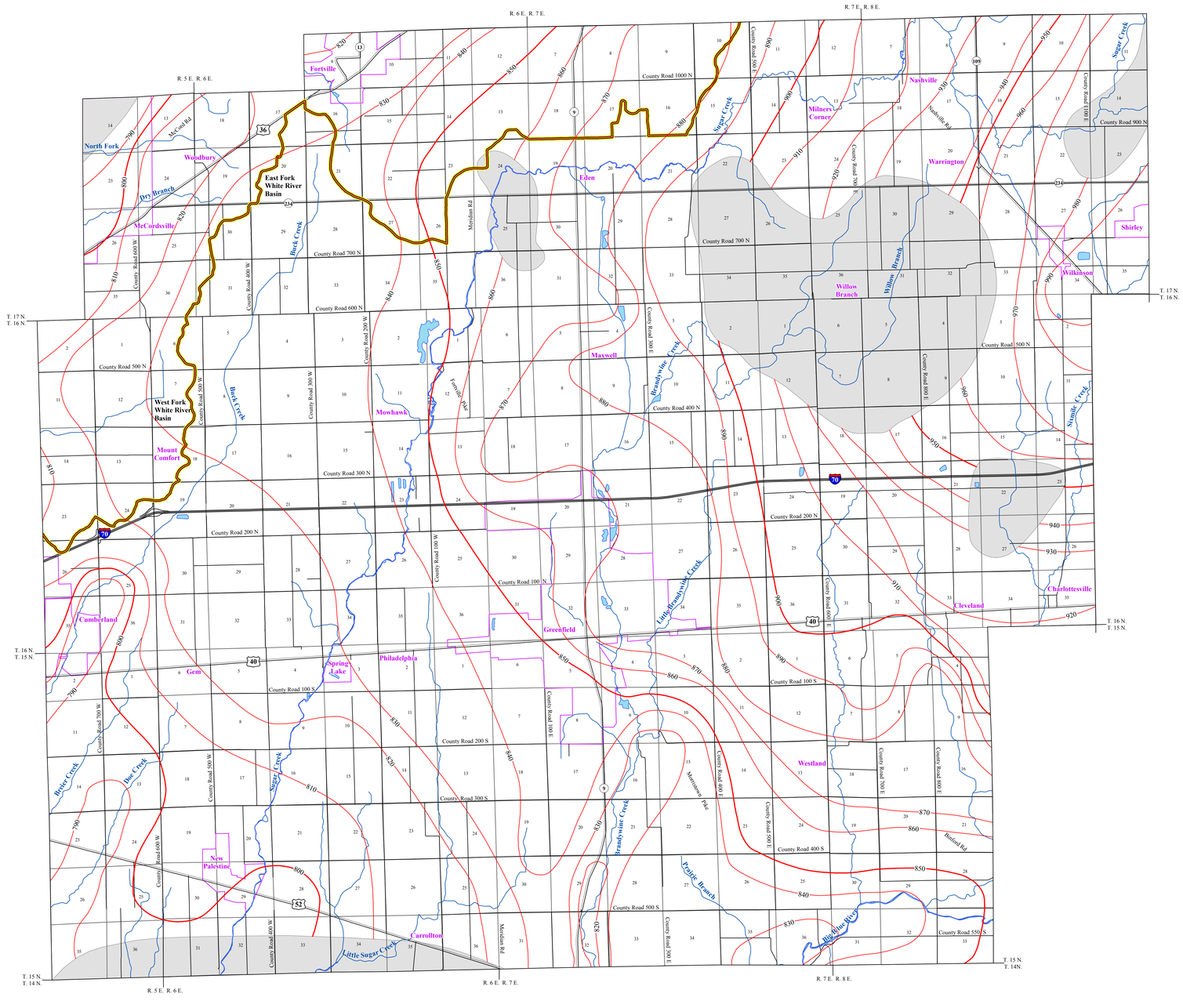
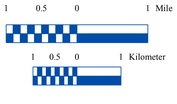
POTENTIOMETRIC SURFACE MAP OF THE BEDROCK AQUIFERS OF HANCOCK COUNTY, INDIANA





EXPLANATION

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

Hancock County, Indiana is located in the central portion of the state. The majority of the county is situated in the East Fork White River Basin, however, a relatively small area in the northwest section is located within the White and West Fork White River Basin.

The Potentiometric Surface Map (PSM) of the bedrock aquifers of Hancock County was mapped by contouring the elevations of 368 static water-levels reported on well records received primarily over a 50 year period. These wells are completed in bedrock aquifers at various depths, and typically, under confined conditions (bounded by impermeable layers above and below the water bearing formation). However, some wells were completed under unconfined (not bounded by impermeable layers) settings. The potentiometric surface is a measure of the pressure on water in a water bearing formation. Water in an unconfined aquifer is at atmospheric pressure and will not rise in a well above the top of the water bearing formation, in contrast to water in a confined aquifer which is under hydrostatic pressure and will rise in a well above the top of the water bearing formation. Portions of Hancock County were not mapped due to a general lack of water well data making it difficult to represent accurate PSM elevations. These areas are generally considered to have limited aquifer resources leaving it difficult to represent accurate PSM elevations (see Aquifer Systems Map 20-B; Bedrock Aquifer Systems of Hancock County, Indiana; Grove, 2005).

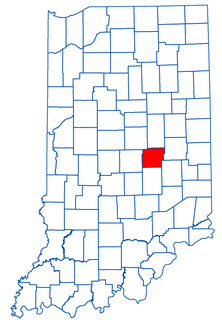
Static water-level measurements in individual wells used to construct county PSM's are indicative of the water-level at the time of well completion. The groundwater level within an aquifer constantly fluctuates in response to rainfall, evapotranspiration, groundwater movement, and groundwater pumpage. 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 PSM. Groundwater flow is naturally from areas of recharge toward areas of discharge. As a general rule, but certainly not always, groundwater flow approximates the overlying topography and intersects the land surface at major streams.

Universal Transverse Mercator (UTM) coordinates for the water wells were either physically obtained in the field, determined through address geocoding, or reported on water well records; however, the location of the majority of the water well records used to make the PSM were not 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.

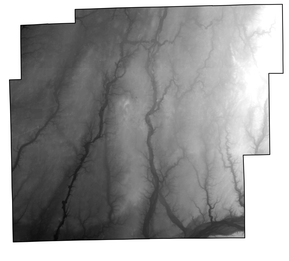
Bedrock static water levels in Hancock County range from a high of 1006 feet mean sea level (msl) in the northeast, to a low of 702 feet msl in the mid-western portion of the county. Groundwater flow direction within the White and West Fork White River Basin is northwest toward Fall Creek, and generally to the south-southwest, toward Sugar Creek and the Big Blue River, in the East Fork White River Basin.

The county PSM can be used to define the regional groundwater flow path and to identify significant areas of groundwater recharge and discharge. County PSM's represent overall regional characteristics and are not intended to be a substitute for site-specific studies.

Location Map



Digital Elevation Model of Hancock County, Indiana



Elevation (feet)

1056
555

Map generated by Joel D. Sanderson,
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Map Use and Disclaimer Statement

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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 (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. Digital Elevation Model image is derived from the Indiana Ortho/LiDAR Statewide Collection Program (2011). No Aquifer Material or Limited Data (polygon shapefile) was based on the Bedrock Aquifer Systems of Hancock County, Indiana (polygon shapefile, Grove, 2005). Potentiometric Surface Map of the Bedrock Aquifers of Hancock County, Indiana (line shapefiles, Schmidt, 2012) was based on a 1:24,000 scale.

Potentiometric Surface Map of the Bedrock Aquifers of Hancock County, Indiana

by
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