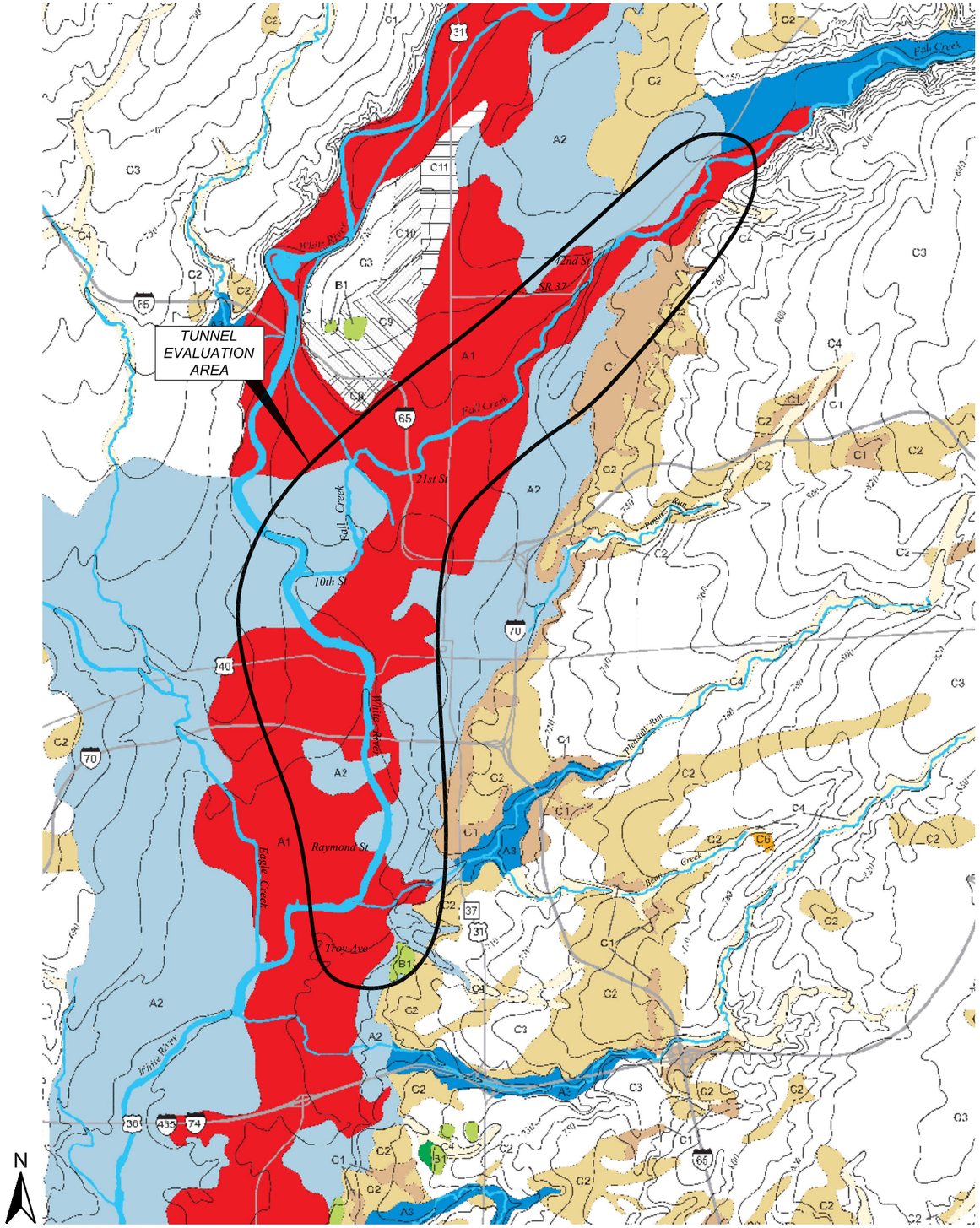

SOURCE: PUBLISHED INDIANA GEOLOGICAL SURVEY MAPS
PROVIDED ELECTRONICALLY BY MUNDELL & ASSOCIATES, INC

Explanation

Potentiometric Surface

Generalized contour representing line of equal static water level elevation in the shallow aquifer system associated with the pre-Wisconsin surface and overlying Wisconsin deposits. Contour interval: 10 feet.

Hydrogeologic Settings

A1 Thick sections of unconfined sand and gravel (occasionally stratified with a few small widely scattered till units. This setting characterizes the axis of the White River Valley, which is the regional discharge area for all aquifers in the county.

A2 Variable thickness of outwash overlying complexly interbedded sand and gravel and till. Thick unbroken sections of sand and gravel are present locally. Sand and gravel units at depth are typically confined or semi confined by bodies of till, whereas the upper portions of the system are commonly unconfined.

A3 Similar to setting A2 but occurs in narrow bands along the valleys of the larger streams that cross upland areas away from the White River. The potentiometric surface slopes strongly into the valley axis.

B1 Hummocky ridges and mounds composed chiefly of sand and gravel locally having an irregular cover of till and some lenses of till within. Generally characterized by steep surface topography and large local relief.

B2 Hummocky ridges and mounds composed chiefly of till-like sediment interbedded with lesser sand and gravel. The granular units locally form thick but narrow channels. Generally characterized by moderate to steep surface slopes, slowly permeable soils, and moderate to large local relief.

C1 Relatively continuous bodies of sand and gravel along the interface between the upper and lower sequences (see Plate 2) and capped by less than 10 feet of locally discontinuous till.

C2 Similar to setting C1 but the sand and gravel is consistently confined by upper sequence till greater than 10 feet thick and commonly more than 20 feet thick.

C3 Thick sections of Wisconsin till that locally contain a few small widely scattered lenses of sand and gravel. May or may not overlie granular material along the pre-Wisconsin surface. This setting is widespread on uplands.

C4 Valleys of small upland streams formed chiefly in till locally having exhumed sand and gravel in valley floor. Some alluvium is usually present in floodplains.

C5 Uplands and small stream valleys in southwestern Marion County characterized by less than 20 feet of glacial sediment over sandstone of the Borden Group. This setting occurs over relatively limited areas but may form localized recharge areas for the sandstone, which is the principal shallow aquifer in that part of the county.

C6 Dissected areas along small upland streams valleys where less than 20 feet of late Wisconsin sediments overlie sand and gravel along the pre-Wisconsin surface. This setting occurs over very limited areas, many of which are too small to show at the map scale.

C7 Dissected slope on west side of White River north of Williams Creek characterized by 10 to 20 feet of late Wisconsin till overlying an apron of sand and gravel. The thickness of sand and gravel is typically 20 to 40 feet but ranges from 10 to 60 feet. The till cap is thin or absent where dissected by streams. A lateral hydraulic connection exists between the sand and gravel apron and unconfined sand and gravel in the adjacent White River Valley.

C9, C10, C11 Hydrogeologic settings C8, C9, C10, and C11 all occur in areas of very sparse or no subsurface data. Consequently, the hydrogeologic behavior of these areas is uncertain. Based on better-known characteristics of nearby areas that appear similar, they are thought to resemble one or more other settings in certain respects. The explanation for setting C8, for example, indicates that the setting may be the same as, or not somewhat like, setting C3, C1, or A3. Therefore, the hydrogeologic behavior of small areas or environmental sites within these settings should be evaluated in the context of local subsurface data.

Map unit	Water table (general; feet below surface)	Recharge/Discharge	Recharge potential	Sensitivity to contamination
A1	5 to 20	regional discharge area	very high for shallow unconfined units	very high
A2	10 to 25 (unconfined)	regional discharge for deep aquifers, local recharge for shallow aquifers	very high for shallow parts of the system	deep confined units: low shallow unconfined: high
A3	5 to 20	local discharge	very high for shallow parts of the system	high to moderately low
B1	greater than 90	local recharge	high	high
B2	25 to 75; locally perched	local recharge	moderate to high	low to moderate
C1	less than 10	local recharge	moderate; higher in depressions	deep confined units: low shallow unconfined: high
C2	within a few feet of land surface	local recharge	low	low
C3	less than 10	local recharge	low	low
C4	near or surface water bodies	local discharge	low	low
C5	greater than 20; locally perched	local recharge	moderate	low to high
C6		recharge and discharge	moderate	moderate
C7	greater than 10 feet below till confining unit	local recharge	moderate to high	moderate to high

BROWN, FLEMING, AND FERGUSON, INDIANA GEOLOGICAL SURVEY, OPEN FILE STUDY 00-14, 2000

POTENTIOMETRIC SURFACE AND HYDROGEOLOGIC SETTING OF THE SHALLOW AQUIFER IN MARION COUNTY

NOT TO SCALE

BLACK & VEATCH

GEC Gulf Engineers and Consultants

DEPT OF PUBLIC WORKS/USACE
FALL CREEK EVALUATION STUDY
FINAL REPORT

POTENTIOMETRIC SURFACE AND HYDROGEOLOGIC SETTING OF THE SHALLOW AQUIFER IN MARION COUNTY

PROJECT NO.
41330

FIGURE
2.6

FD41330_B
D41330_B