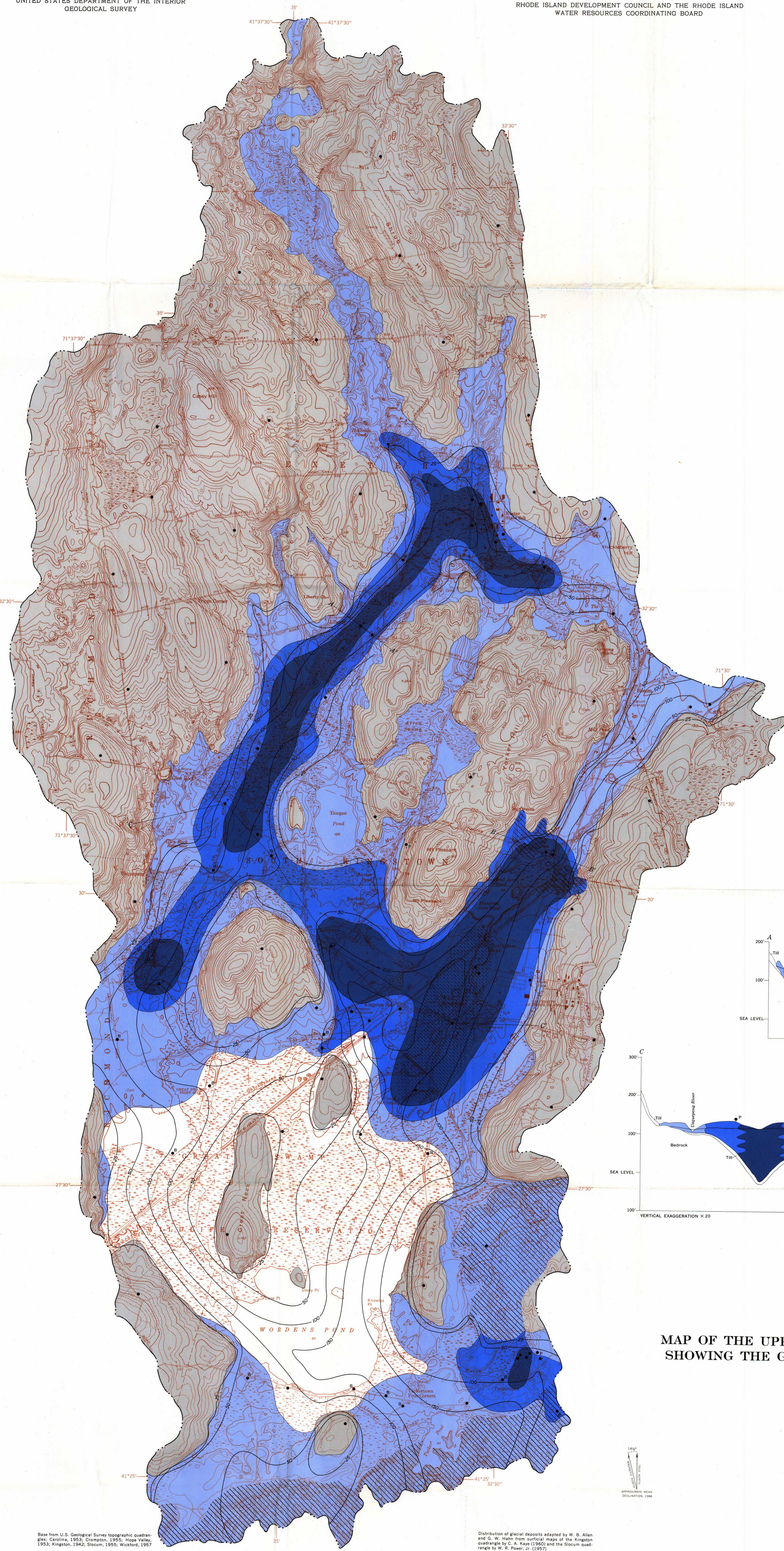




EXPLANATION

The upper Pawcatuck River basin is a geohydrologic system. Its physical characteristics, including its water-transmitting properties, are controlled by the geology. The basin is made up largely of unconsolidated glacial deposits of gravel, sand, silt, and clay. Postglacial alluvium, dune, and swamp deposits are thin and of small areal extent. Where the glacial deposits are sorted and stratified, they are called stratified deposits; when unstratified and unsorted, they are called till. The basin is underlain and, in most places, bounded by bedrock as shown by the sections.

GLACIAL DEPOSITS

Outwash deposits in this area have an average permeability of more than 1000 gpd per sq ft and in most places will yield 700 to 2000 gpm to properly constructed large-diameter screened wells. The area contains numerous discontinuous lenses of gravel and very coarse sand interbedded with less permeable finer grained outwash. Thus, permeabilities of individual beds may range from less than 1 to as much as 10,000 gpd per sq ft. Ice-contact deposits make up the material in the Queen River valley. In the southern part of the area, the coarse-grained beds are generally outwash-plain deposits. The fine-grained beds are mostly lacustrine.

Outwash deposits in this area have a range in average permeability of 100 to 1000 gpd per sq ft and in most places can yield up to 700 gpm to properly constructed large-diameter screened wells. The area contains discontinuous lenses of very coarse, coarse, and medium sand interbedded with finer grained sand and silt and small amounts of gravel. Permeabilities of individual beds may range from less than 1 to several thousand gpd per sq ft. The deposits to the north were formed adjacent to the ice; those to the south were laid down as outwash plain or lacustrine deposits.

Outwash deposits in this area have a range in average permeability of 20 to 100 gpd per sq ft. In most places yields to wells are generally less than 100 gpm. The saturated deposits are generally fine sand and small amounts of coarse, medium, and very fine sand, and very small amounts of gravel. Permeabilities of individual beds may range from less than 1 to 1000 gpd per sq ft. To the north, the fine sand was laid down as ice-contact deposits; to the south, it was laid down as lacustrine and outwash-plain deposits. Mixed deposits of till and poorly to well-sorted outwash are of morainal origin.

Lacustrine deposits Till Mixed till and outwash

Deposits in this area have a range in average permeability from less than 1 to as much as 10 gpd per sq ft, and soils generally yield less than 5 gpm. To the north, the deposits are till; to the south, they are till or lacustrine deposits of very fine sand, silt, and traces of clay.

Approximate area of a buried lens of coarse sand and gravel; lens has known thicknesses of 22 to 65 feet and is overlain by 30 to 65 feet of fine sand to silt and by a surficial layer of coarse sand and gravel as much as 65 feet thick. To the north, east, and west of this area, only the coarse surficial layer and the fine layer are present. To the south, in the vicinity of Great Swamp and Wordens Pond, the fine-grained material is predominant, and the coarse surficial layer may be very thin or absent.

BEDROCK

The consolidated rocks underlying the basin have a very low permeability and yield and transmit only very small quantities of water. The fractured upper parts of the bedrock or the joints at greater depths yield less than 1 to as much as 5 gpm to wells.

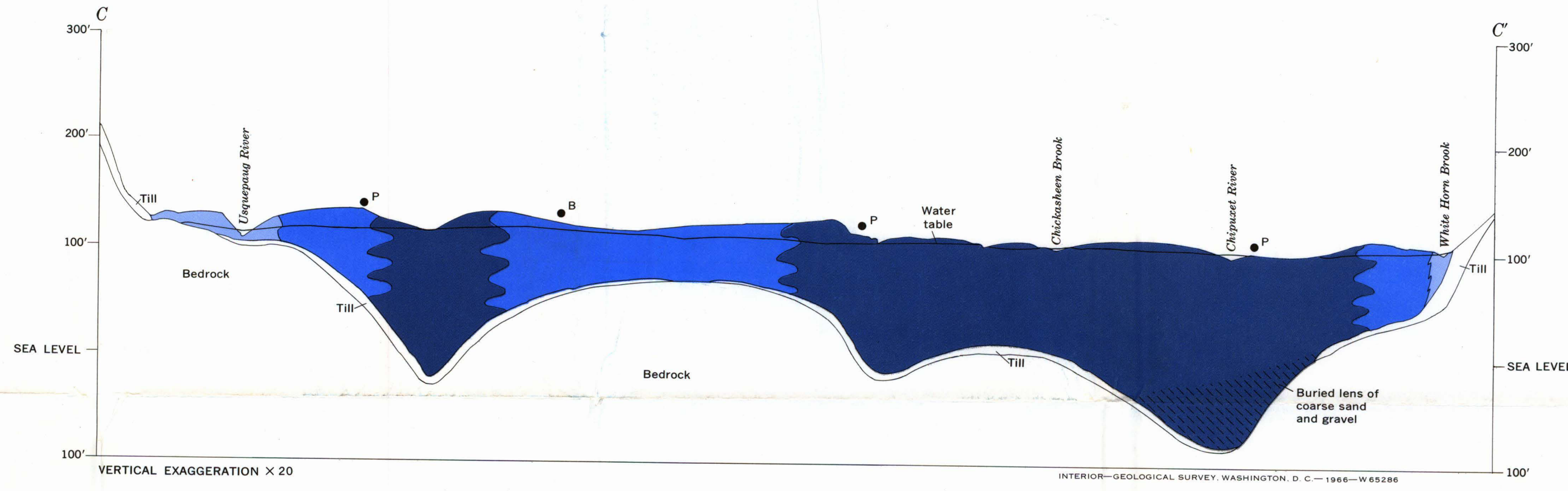
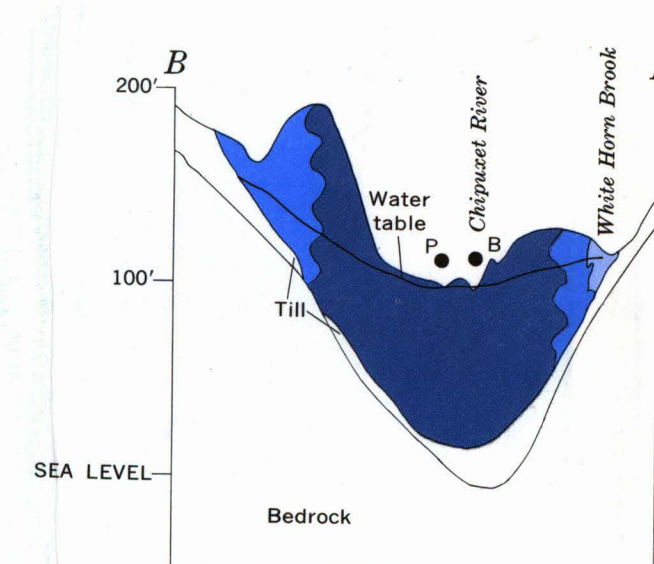
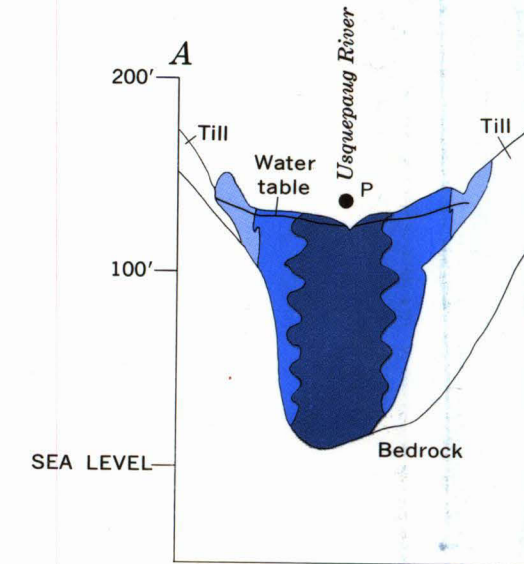
Contact

- Site of pumping test, average permeability determined from analysis of test.
- Test boring, average permeability based partly on laboratory permeability tests.
- Well, average permeability estimated from specific capacity or other miscellaneous data.

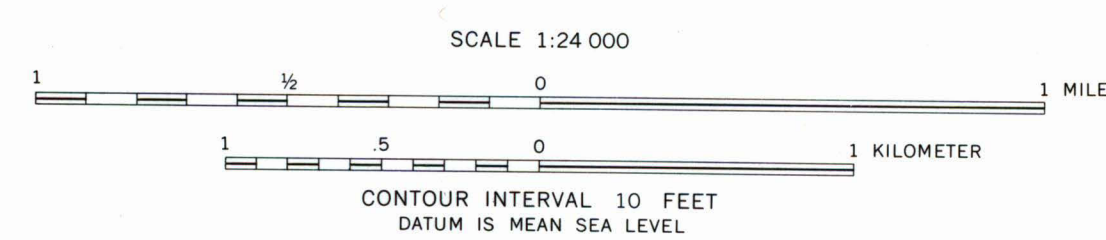
Isopach

Showing the estimated thickness of the stratified outwash. Interval 25 and 50 feet.

Boundary of upper Pawcatuck River basin



MAP OF THE UPPER PAWCATUCK RIVER BASIN, RHODE ISLAND
SHOWING THE GEOHYDROLOGIC SYSTEM AND ITS CAPACITY
TO TRANSMIT WATER



Distribution of glacial deposits adapted by W. B. Allen and G. W. Hein from surficial maps of the Kingston quadrangle by C. A. Kaye (1960) and the Slocum quadrangle by W. R. Power, Jr. (1957).

Base from U.S. Geological Survey topographic quadrangles: Carolina, 1953; Gromston, 1955; Hope Valley, 1953; Kingston, 1942; Slocum, 1955; Wickford, 1957.