GEOLOGIC MAP GM-19

STATE OF WASHINGTON

DEPARTMENT OF NATURAL RESOURCES

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DIVISION OF GEOLOGY AND EARTH RESOURCES

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GEOLOGIC FACTORS AFFECTING WASTE DISPOSAL PRACTICES, GIG HARBOR PENINSULA, PIERCE COUNTY, WASHINGTON

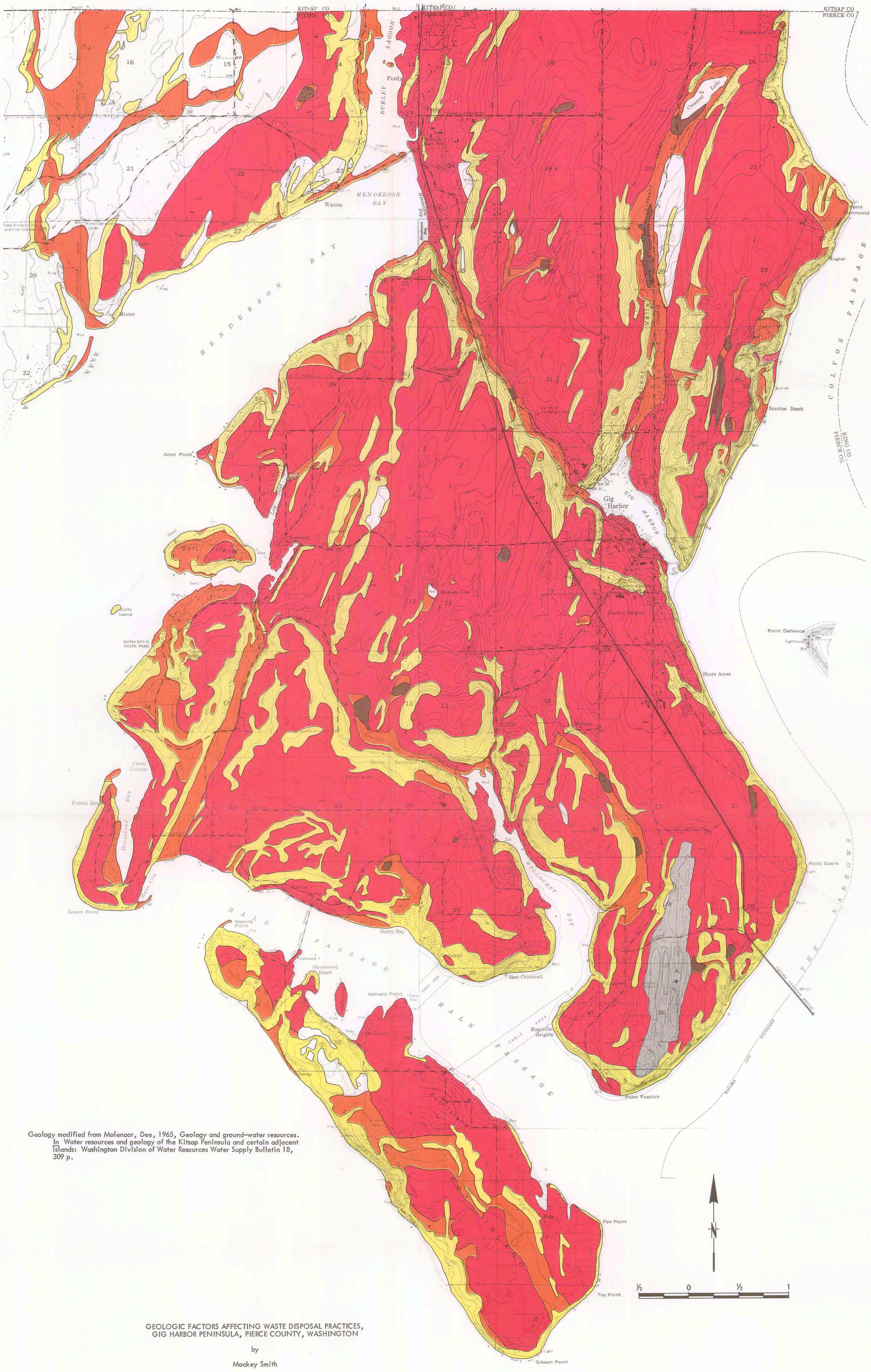
By

MACKEY SMITH

PREPARED IN COOPERATION WITH THE
U.S. GEOLOGICAL SURVEY AND PIERCE COUNTY

1976

For sale by Department of Natural Resources, Olympia, Washington
Price $1.00



Geology modified from Molenaar, Dee, 1965, Geology and ground-water resources. In Water resources and geology of the Kitsap Peninsula and certain adjacent islands: Washington Division of Water Resources Water Supply Bulletin 18, 309 p.

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Unit	Material	Relative slope	Land surface drainage	Water table	Relative rate of infiltration	Comments[1]
	Thick sand and gravel (generally more than 20 ft)	Moderate to low	Very good	Variable, but generally deep	High	Very permeable; septic-tank systems function well, but effluent from them and leachate from sanitary landfills may move rapidly down to the ground water and then to surface waters.
	Glacial materials on valley sides; mostly sand and gravel, but some till and fine-grained sediments (300 ft maximum thickness)	Generally steep	Very good	Variable, depends on time of year, material, and topography	Generally moderate	Geologic material varies greatly. Presence of fine-grained beds may cause waste liquids to surface along exposures of these beds at slope. Sand and gravel beds exposed in some slopes are among most important aquifers in the area, and should not be contaminated. Poor sanitary landfill location.
	Flood plain alluvium; sand and gravel (generally more than 10 ft thick) with some fine-grained sediments	Very low	Variable	Generally a few feet below the land surface	Variable, but generally moderate	Where the water table is shallow, the opportunity is greatly increased for waste liquids to reach the ground water and, thereafter, nearby surface water—poor conditions for sanitary landfills. Septic tanks may contaminate shallow wells; seasonably high water table may inundate septic tanks. Where water table is low, septic tank systems function well.
	Till sometimes overlain by a thin veneer (generally less than 5 ft) of sand and gravel mostly on the uplands	Generally low	Variable	Perched on till in places, otherwise in sand and gravel beneath till	Variable, but very poor where till near surface	Poorly permeable till at shallow depth from surface generally limits the effectiveness of septic tank systems. Till affords best conditions for sanitary landfills; pore spaces in till can contain large volumes of waste liquid, while low permeability greatly retards downward percolation to underlying aquifers. The configuration of the upper till surface is important in waste containment. Waste fluids readily accumulate atop till and are then able to seep laterally to nearby surface waters.
	Peat and fine-grained sediment (average thickness about 10 ft)	Very poor	Very poor	Shallow	Low	Conditions of shallow water table, low infiltration rate, and general close proximity to surface waters are unfavorable conditions for waste disposal.
	Original topography disturbed by removal of some Pleistocene deposits, grading, and artificial fill.					

[1] This map is to be used for pre-planning purposes only and is not intended as a substitute for on-site investigation.