



EXPLANATION

- Qal**
Younger alluvium
Gravel, sand, silt, and clay, slightly stratified. Mostly well sorted beneath flood plains of larger rivers; less sorted near smaller streams. Thickness generally a few feet near small streams, about 20 or 30 feet along Sandy and Clackamas Rivers, 75 to 100 feet along Willamette River, and as much as 200 feet along Columbia River. Layers of well-sorted gravel and sand yield large amounts of water to wells; less sorted and finer grained materials yield smaller amounts.
- Qrc**
Alluvium of abandoned river channel
Principally silt and clay. Thickness commonly less than 50 feet but locally more than 100 feet. Largely non-water bearing or yields only small amounts of water to wells.
- Qti**
Younger terrace deposits
Bouldery gravel, sand, silt, and clay; poorly sorted. Includes mudflow deposits in Sandy River canyon. Generally 5 to 50 feet thick. Permeability mostly low; yields small amounts to some wells from perched ground water.
- Qp**
Fluviolacustrine deposits
Unconsolidated gravel, sand, silt, and clay, slightly stratified. Generally bouldery and coarse grained to the east and progressively finer grained to the west side of the area but contains some gravel layers throughout most of the area. Thickness generally less than 100 feet; locally, it may be as great as 150 feet. Gravel and sand beds are permeable but are mostly above regional water table and are unsaturated or yield only small amounts to wells from perched water. Where permeable beds extend below the regional water table, they yield moderate to large quantities to wells.
- Qp**
Piedmont deposits
Mostly silt and clay, but includes some sand, gravel, and mudflow deposits. Underlies the Kelso slope and old upland valleys to depths generally less than 100 feet. Generally non-water bearing or yields only small quantities to wells and springs from perched water.
- Qtv**
Boring Lava
Mostly gray massive basaltic lava; contains lesser amounts of buff and volcanic cinders. The lava occurs mostly as flow layers but includes sills and feeder dikes. Total thickness ranges from 5 to about 800 feet. Generally is above regional water table and yields only small to moderate amounts to wells and springs from perched water.
- Tt**
Troutdale Formation
Unconsolidated and partly consolidated gravel, sand, silt, and clay, commonly in the form of well-sorted sandy conglomerate. Thickness generally more than 100 feet and locally more than 800 feet. Layers of permeable gravel and sand below regional water table yield moderate to large amounts of water to wells and springs; similar beds above regional water table yield smaller less dependable supplies from perched ground water.
- Ts**
Sandy River Mudstone
Principally mudstone, claystone, and partly consolidated silt and clay but includes minor beds of sand and gravel. Total thickness is at least 300 and probably more than 1,000 feet. Generally impermeable and non-water bearing, but a few wells obtain small amounts of water from local layers of sand and gravel.
- Tc**
Columbia River Basalt
Dark basalt in accordantly layered flows that range from about 10 to 150 feet in thickness; total thickness 800 feet or more. Permeable zones at contacts between some flows yield moderate to large amounts of water to wells that penetrate the basalt below the regional water table and yield lesser amounts to springs and wells from perched ground water above the water table.

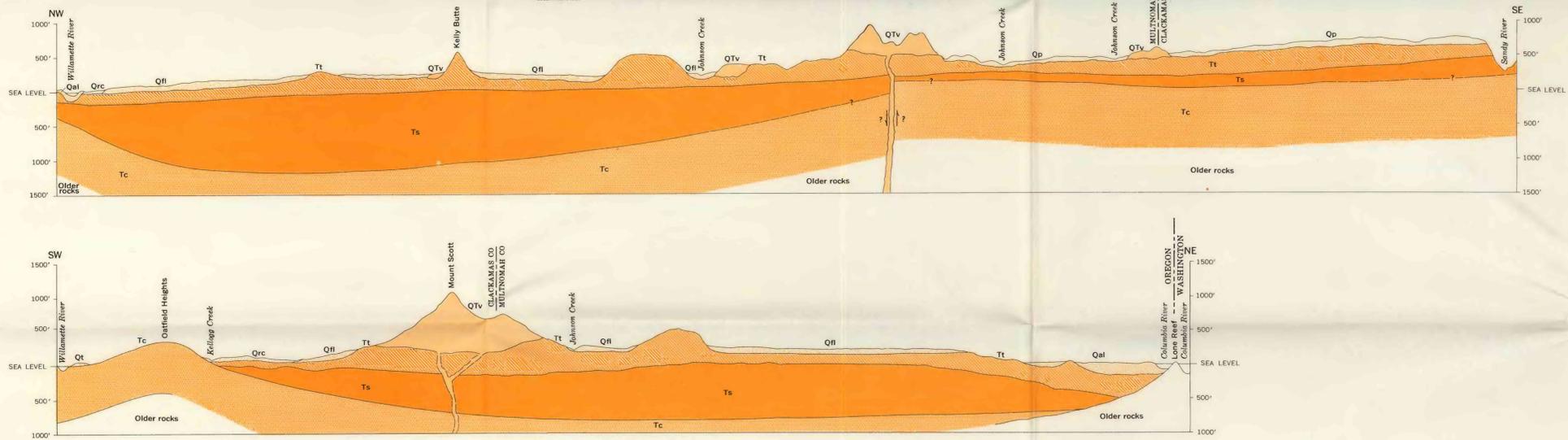
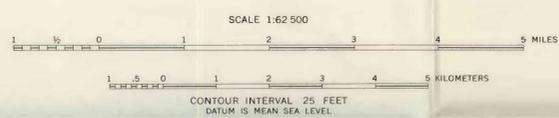
QUATERNARY

TERTIARY AND QUATERNARY

TERTIARY

Base from U.S. Geological Survey topographic quadrangles: Spring, 1912; Camas, 1934; Oregon City, 1912-39, and Portland, 1896-1940.

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1965—W64180
Geology by G. M. Hogenson December, 1959, and D. E. Trimble, 1962.



- Approximate contact
- Well described in this report
- Well with record published by the State of Oregon (see text)
- Spring (Numbering system described in text)

GEOLOGIC MAP AND DIAGRAMMATIC SECTIONS OF THE EAST PORTLAND AREA, OREGON, SHOWING THE LOCATIONS OF REPRESENTATIVE WELLS AND SPRINGS