Plate 2

Geologic Map of the Study Area

Geologic and Hydrogeologic Study of the Residential Acreage Zoned Area of Marion County Underlain by the Columbia River Basalt and Older Rock

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Oregon State Plane Coordinate System
East Zone, NAD83 Datum

Map Scale: 1 inch equals 1 Mile

Geologic Units

Unit	Member	Description
Surficial Deposits		
Qls		Landslide deposits of Quaternary and Holocene age
Qal		Stream and floodplain alluvial deposits of Quaternary to Holocene age, includes silt, silty sand, sand and gravel deposits of the Willamette, Santiam, and Pudding Rivers, and their tributaries
Qbl		Unmapped (Block) Area of Basin Margins underlain by apparent landslide deposits composed of weakened and slightly displaced blocks of Columbia River Basalt
Qoa		Older alluvial deposits of probable Late Pliocene and/or Quaternary age. Largely composed of gravel and sandy gravel terrace deposits bordering the floodplains of the Willamette, Santiam and Pudding Rivers
Neogene Sedimentary Rocks		
Tsc		Sedimentary rocks of the Miocene, Pliocene, and possibly latest Quaternary age, that overlie the Columbia River Basalt. Includes Sandrock Formation nonconsolidated rocks and Tillamook Formation siltstone and tuffaceous deposits
Columbia River Basalt Group		
Tcw		Frenchman Springs Basalt – member of the Wanapum Basalt formations is of late Miocene age, and includes the following flows in the study area: Wahtum, Roza, Eden and Sillusi.
Tcr		Basalt of Sand Hollow: 1 or 2 flows
Tcg		Basalt of Silver Falls: 1 flow in west part of area, 2 in east
		Basalt of Grande Ronde: 1 or 2 flows that occur in certain cor into Tg
Tcm		Grande Ronde Basalt – formation is of middle to late Miocene age and includes the following flows and groups of flows in the study area: Wahtum, Roza, Eden and Sillusi, Wilkins, & m
Tcp		Basalt of Pomona: 1 flow but occasionally 2 flow units present
Tcw		Basalt of Winter Water: generally 2 flows, but only 1 present in some of the area
Tcy		Basalt of Ortley: variable number of flows throughout area. Unit includes both pre-Basalt topographic highs, as many as 5 flows present in pre-Basalt Grizzly and Umtanum
Tcu		Unlumped Tg flows: Umtanum Basalt, with overlaid paleomagnetic polarity anomaly (Mn) that underlies the Ortley flows north of Jefferson
Tcu		Undifferentiated Grande Ronde Basalt flows within or Eastern Portland Tgs, Tgw, Tgs or Tgr2, but specific identification not yet made
Rock Older than the Columbia River Basalt		
Tr		Intrusive dikes and sills of basalt, andesite and gabbro mapped on Rolls Hill (~3 mi. SSW of Jefferson Dome, 2001). The Tr intrusives are chemically distinct from the Columbia River Basalt but may appear similar in areas of limited outcrop. The Tr is probably correlative the Little Butte Volcanic Series Black and others, 1994)
Tr		Sedimentary and volcanic rocks older than the Columbia River Basalt, includes Philomath Sandstone Tsms in small part of area (Wright, 1972; Hampton, 1972; Prasad, 1975). Little Butte Volcanic Series in the east part of the study area (Black and others, 1994), and Molalla Formation in the north part (Walker, 1990)

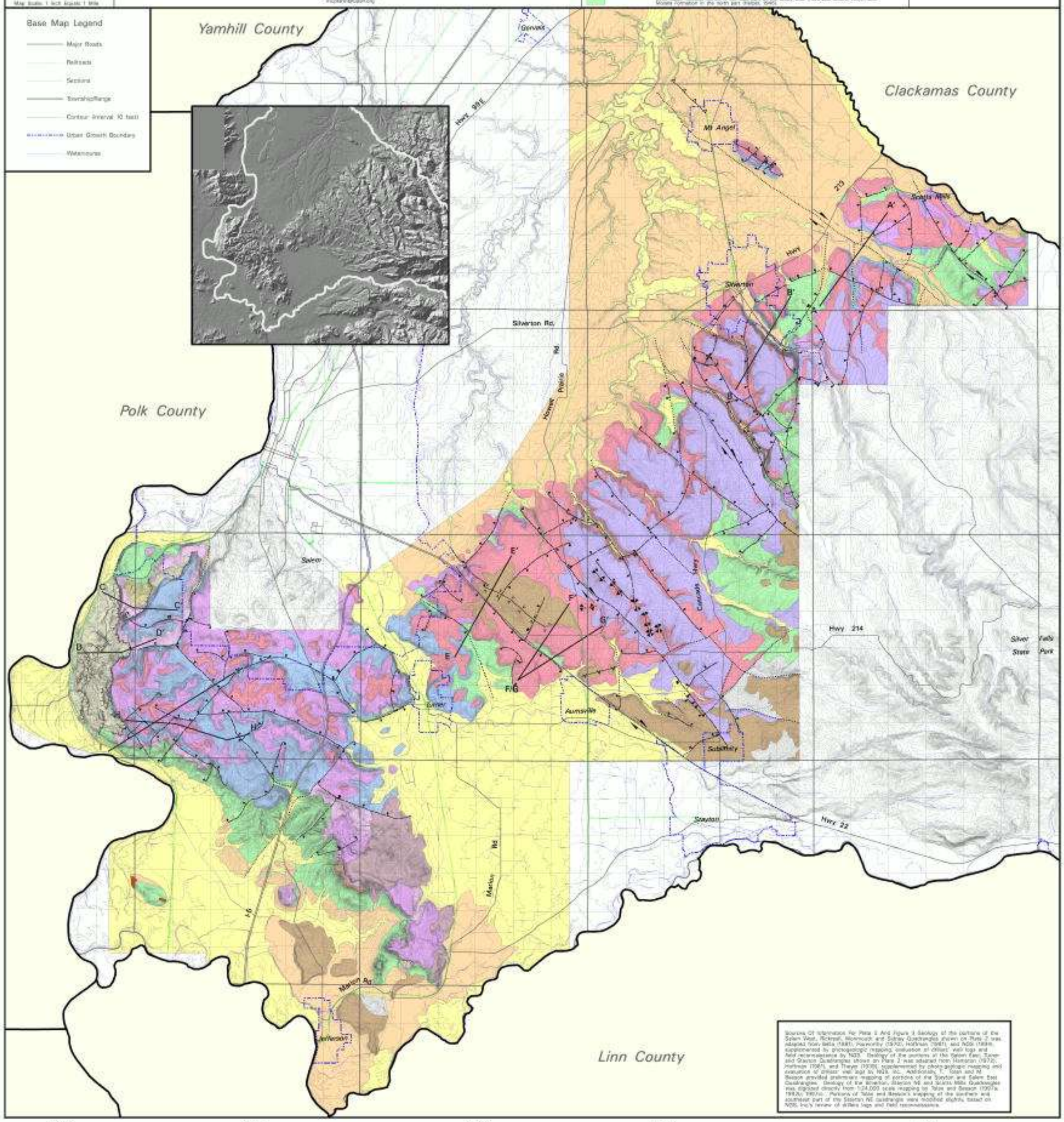
Line Symbols

- Contact between geologic units
- Landslide scarp, hatch marks on downslopped side
- Fault, approximate location, dashed where buried below valley alluvial. Bolts show downside (hinge) arrows show relative horizontal (left or right) or Rows 2 and relative vertical motion on the cross sections (Figure 2)
- Anticline, arrows show direction of dip relative to fold axis
- Syncline, arrows show direction of dip relative to fold axis
- Monocline (synform), arrows show direction of dip relative to fold axis
- Monocline (synform), arrows show direction of dip relative to fold axis
- Location of Cross Sections shown on Figure 1

Warning to Geologists and other Earth Scientists: Isotopic correlation on this map may differ from some standards. Please use the legend carefully.

Base Map Legend

- Major Roads
- Railroads
- Sections
- Township/Range
- Contour Interval 10 feet
- Urban Growth Boundary
- Watercourse



Sources of information for Plate 2 and Figure 2 Geology of the portions of the Salem West, Rickreall, Monmouth and Sidney Quadrangles shown on Plate 2 was adapted from Wells (1981), Hawkins (1970), Hoffman (1981), and NDS (1996) supplemented by photogeologic mapping, evaluation of drillers' well logs and field reconnaissance by NGS. Geology of the portions of the Salem East, Turner and Stayton Quadrangles shown on Plate 2 was adapted from Hampton (1972), Hoffman (1981), and Thayer (1939) supplemented by photogeologic mapping and evaluation of drillers' well logs by NGS, Inc. Additionally, T. Tolan and M. Beeson provided preliminary mapping of portions of the Stayton and Salem East Quadrangles. Geology of the Silverton, Silverton NE and Scotts Mills Quadrangles was digitized directly from 1:24,000 scale mapping by Tolan and Beeson (1997a, 1997b, 1997c). Portions of Tolan and Beeson's mapping of the northern and southeast part of the Silverton NE quadrangle were modified slightly based on NDS, Inc's review of drillers logs and field reconnaissance.