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, HPGN 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.
Qjb		(Jumbled Block) Area of Salem Heights underlain by apparent landslide deposit comprised of transported and slightly disrupted blocks of Columbia River Basalt
Qalo		Older alluvial deposits of probable Late Pliocene and/or Quaternary age. Largely comprised of gravel and sandy gravel terrace deposits bordering the floodplains of the Willamette, Santiam and Pudding Rivers
		Neogene Sedimentary Rocks
Tsa		Sedimentary rocks of the Miocene, Pliocene, and possibly early Quanternary age, that overlie the Columbia River Basalt. Includes Sardine Formation volcaniclastic rocks and Troutdale Formation stream, delta and lake deposits.
		Columbia River Basalt Group
		Frenchman Springs Basalt member of the Wanapum Basalt Formations is of Late Miocene age, and includes the following flows in the study area (Hoffman, 1981; NGS,
Tfsh		Basalt of Sand Hollow, 1 or 2 flows.
Tfsf		Basalt of Silver Falls, 1 flow in west part of area, 2 in east
Tfg		Basalt of Gingko unit, 1 or 2 flows that occur in canyon cut into Tg.
		Grande Ronde Basalt Formation is of Middle to Late Miocene age, and includes the following flows and groups of flows in the study area. (Hoffman, 1981; Tolan and Beeson, 1997a, b, c).
Tgs		Basalt of Sentinel Falls, 1 flow but occasionally 2 flow units present.
Tgw		Basalt of Winter Water, generally 2 flows, but only 1 present in some of the area
Tgo		Basalt of Ortley, variable number of flows throughout area. Unit missing over pre-Basalt topographic highs, as many as 5 flows present in pre-Basalt lowlands and drainages
Tgr2		Unnamed Tg flows (Wapshilla Ridge?) with reversed paleomagnetic polarity (hoffman 1981) that underlie the Ortley flows north of Jefferson
Tcu		Undifferentiated Grande Basalt flows north of Stayton. Probably Tgs, Tgw, Tgo or Tgr2, but positive identification not yet made
		Rock Older than the Columbia River Basalt
Ti		Intrusive dikes and sills of basalt, andesite and gabbro mapped on Roby Hill ~6 mi. WNW of Jefferson (Bella, 1981). The Ti intrusives are chemically distinct from the Columbia River Basalt but may appear similar in areas of limited outcrop. The Ti is propably correlative the Little Butte Volcanic Series (Peck and others, 1964)
Ts		Sedimentary and Volcanic rocks older that the Columbia River Basalt. Includes Miocene Sedimentary Strata in west part of area (thayer, 1939, hampton, 1972; Foxworthy, 1970); Little Butte Volcanic Series in the east part of the study area (Peck and others, 1964), and Molalla Formation in the north part (Harper, 1946).

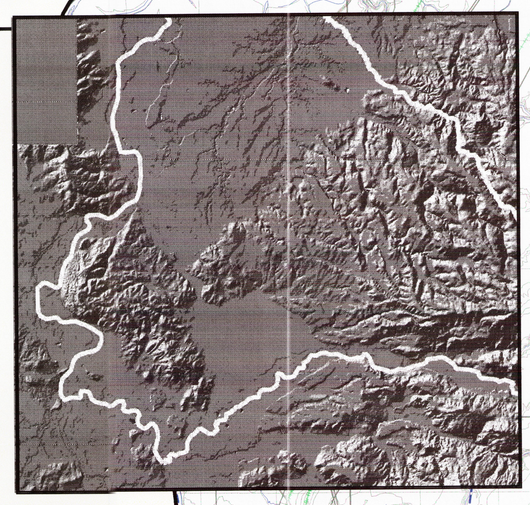
Line Symbols

- Contact between geologic units
- Landslide scarp, hatch marks on downdropped side
- Fault, approximate location, dotted where buried below younger units. Balls show downside offset. Arrows show relative horizontal motion on Plate 2 and relative vertical motion on the cross sections (figure 3)
- Anticline, arrrows show direction of dip relative to fold axis
- Syncline, arrows show direction of dip relative to fold axis
- Monocline (antiform), arrrows 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 3

Warning to Geologists and other Earth Scientists: feature symbolization 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



Yamhill County
Clackamas County
Polk County
Linn County
Gervais
Mt Angel
Scotts Mills
Silverton
Salem
Turner
Aumsville
Sublimity
Stayton
Jefferson
Hwy 99E
Silverton Rd.
Howell Prairie Rd.
Cascade Hwy
Hwy 214
Hwy 22
213
Marion Rd
Marion Rd
I-5
Silver Falls State Park
A
A′
B
B′
C
C′
D
D′
E
E′
F/G
F′
G′
H
H′
I
T5S
T6S
T7S
T8S
T9S
T10S
R4W
R3W
R2W
R1W
R1E

Sources Of Information For Plate 2 And Figure 3 Geology of the portions of the Salem West, Rickreall, Monmouth and Sidney Quadrangles shown on Plate 2 was adapted from Bella (1981), Foxworthy (1970), Hoffman (1981), and NGS (1994), 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 photo-geologic 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, Stayton 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 southern and southeast part of the Stayton NE quadrangle were modified slightly, based on NGS, Inc.'s review of drillers logs and field reconnaissance.