Generalized ice-age stratigraphy of the Quimper Peninsula area. Composite; no bluff (geologic section) contains all these units. OIS – oxygen isotope stage number derived from O^{18}/O^{16} ratios; even numbers are glacial periods, odd numbers are interglacial periods. Map unit symbols (from Schasse and Slaughter, 2005*) in arial; subscripts represent formation names, other details.

Period	Climatic environment	Age†, in 1000s of years BP	Unit	Most common appearance or lithology; selected locations with good exposures	Depositional environment and other exposures
Holocene	Post-glacial	5 – 0	Beaches, bars, and spits	Sand and gravel, locally littered with boulders of northern origin	Eroded from nearby bluffs; boulders (from glacial layers) too large for waves to move remain as a lag.
		5 – 0	Dunes Qd	Low linear hills of fine, uniform sand rimming shoreline bluffs	Eroded by wind from westerly-facing sandy bluffs bared by wave erosion
		6 – 5	Loess	Black sandy silt, about 3 ft thick, over latest glacial sediments. Water St., PT	Dust deposited by wind; preserved locally by 'rain-shadow'; overlies a cobble lag at till top
Pleistocene	Fraser Glaciation (*Vashon sediments deposited at this time*) OIS 2	13 – 11	Glacial marine drift (gmd)	Tan blocky-weathering clay, non-stratified, with isolated dropstones. North Beach	Texture and sparse marine fossils indicate deposition in shallow water and as debris from floating ice (gmd); locally overlies under-ice channel deposits
		18 – 13 20 – 18	Till Qgt	Gray, concrete-textured, non-layered; exposed as vertical surface in bluffs. Water Street, PT	Rock debris of clay to boulder sizes smeared at the base of ice onto earlier topography; Qgt_a is ablation till that formed when stagnant ice melted in place, common on uplands
			Glacial outwash sand Qga	Gray pebbly sand, angle-of-repose surface within bluffs. E of mill, PT	Deposited by braided, sand-laden meltwater streams from the advancing ice sheet on a vast plain
	Late Olympia	27-20	Alluvium Qc$_o$	Oxidized sand + gravel, peat, with terrestrial fossil frags. Locally overlain by lakebed silt. North Beach	Deposited in and along streams; later covered by a lake
	Olympia nonglacial OIS 3	37 – 25	Loess (West Beach Silt)	Yellow-tan silt, stands vertically; little or no stratification. Cape George	Aeolian deposit during a period colder than the present; Whidbey & Protection Is.
		60 – 37	Paleosol	Orange-brown sand with rocks and fine carbon, 3 feet thick	Intense rust coloration due to weathering during long period of no deposition; Whidbey & Protection Is.
	Possession Glaciation OIS 4	80 – 60	Glacial marine drift Qgp$_p$	Gray blocky-weathering glacial marine drift	Texture and sparse marine fossils indicate deposition as debris from floating ice in shallow water (gmd)
			Glacial drift	Gray pebbly sand. Cape George	Glacial deposit
			Glacial outwash sand	Gray pebbly sand, angle-of-repose slopes. North Beach	Deposited by braided, sand-laden meltwater streams from advancing ice sheet on a vast plain. Whidbey & Protection Is.
	Whidbey interglacial OIS 5	140 – 80	Whidbey For-mation Qc$_w$	Gray-brown stratified sand and silt, compacted black peat, tan sand; North Beach bluff f near Pt. Wilson	Setting like today's Skagit River flood-plain flats (La Conner to Burlington); climate as warm as and at times warmer than today's
	Double Bluff Glaciation 'OIS 6'	140 - 250	Double Bluff drift	Till overlain by glacial marine drift in places. Cape George	Ice-smeared rock debris, clay to boulder size, overlain by debris shed from floating ice. Ebey's Landing (Whidbey Is.; Protection Is. (OIS 6, long period between warmer 5 and 7)

† Geologic map of the Port Townsend South and part of the Port Townsend North 7.5-minute quadrangles, Jefferson County, Washington, Washington Division of Geology and Earth Resources Geologic Map GM-57; does not include the Cape George area. * BP, before present (*i.e.*, 1950). The practical limit of radiocarbon dating is ~45,000 yr, but this can be extended with certain (expensive) techniques. Some of these ages are guestimates with possible error of >±10%. In general, the older the sediment, the less precise its age.