**Appendix 1**. Radiocarbon ages in the Carnation 7.5-minute quadrangle and the easternmost part of the Redmond 7.5-minute quadrangle. Many of the radiocarbon age determinations tabulated here were obtained by Associated Earth Sciences, Inc. (AESI) from the Olympia beds (local provenance) directly west of the study area on the Redmond Ridge East and Trilogy residential developments. We only report the radiocarbon ages that are in or near the quadrangle. Several more Olympia bed and other radiocarbon ages can be found in the Redmond Ridge area in AESI reports and additional radiocarbon ages can be obtained from cited AESI reports west of the quadrangle. Radiocarbon ages in the Carnation 7.5-minute quadrangle are located on Plate 1 of Dragovich and others (2010) as ‘age sites’. Sand geochemical, petrographic, provenance and other information are collected for many of the radiocarbon sites (Appendix 2-4). Photos of some of the sites are located in Appendix 7. All elevations are measured above mean sea level. ‘Sample elevation’ gives the elevation of the surface or subsurface samples (AESI and this study). ‘Geologic unit thickness” is the estimated thickness of the dated Quaternary geologic unit. Also, see Cross Sections A and B of Dragovich and others (2010) for geologic unit thickness near some of these age sites. ‘Unit top elevation’ gives the local elevation of the top of the dated Quaternary geologic unit. EP, exploration pit by AESI; EB - exploration boring by AESI. *Geologic units*: unit Qa: Snoqualmie River alluvium (Holocene); unit Qcol: Olympia beds, local provenance (Pleistocene); unit Qco: Olympia beds, Snoqualmie River provenance (Pleistocene); unit Qcws: Whidbey Formation, Snoqualmie River provenance (Pleistocene); unit Qcwp: Whidbey Formation, Puget Group provenance (Pleistocene); unit Qcpf: Nonglacial deposits, undivided (Pleistocene). See Dragovich and others (2007) for a compilation of radiocarbon sites in the Fall City quadrangle south of the map area; also see Dragovich and others (2009b) for a compilation of radiocarbon sites in the Snoqualmie quadrangle southeast of the present map area. See Sherrod and others (2008) for radiocarbon ages from fault trenches in the Redmond and Maltby quadrangles west and northwest of the Carnation quadrangle. Data organized below chronologically from youngest to ‘infinite’ age.

| **Boring**  **or Site**  **No.** | **Sample**  **Elevation**  **(ft)** | **Geologic**  **Unit Thick-ness**  **(ft)** | **Unit Top**  **Elev-ation**  **(ft)** | **Analyzed Organic Material** | **Radio-carbon**  **Age**  **(yr B.P.)** | **Notes, References and Geologic Unit** |
| --- | --- | --- | --- | --- | --- | --- |
| AESI EB-1 | ~67 | 29+ | ~80 | wood | 1,760 +/- 70 | Unpublished Associated Earth Sciences, Inc.; Site EB-1 sampled 2001 as part of the Project B Vault study (Associated Earth Sciences, 2001). Located at the base of Novelty Hill Road at the intersection with West Snoqualmie Valley Road NE, near the western boundary of the Carnation 7.5-minute quadrangle in the SW portion of Section 26,T26N R6E of the Redmond quadrangle; sampled from gray silt with fine to medium sand and local gravel, wood and organic fragments; unit Qa (Snoqualmie River alluvium). Recalibrated age is Cal AD 100 to 420 (Cal BP 1,860 to 1,530). 122° 0'13.30"W, 47°42'17.30"N. |
| 09-73D | ~100 | >200 | 300 | organic silt | 25,900 +/- 170 BP | MacDonald Park (this study). Sampled from organic silt inclusion within deformed lenses of medium sand throughout locally stratified dense mica-rich fine sand to silt; unit Qco. Sample from apparent injectite (diapir). See site 09-14E-1 for infinite age near this site. Also see AESI Sta-2-28 for similar age near this location. Located in the Carnation 7.5 minute quadrangle in the NW corner of Section 21, T25N R7E. Infinite age sample (09-14E-1) likely transported upward within a diapir and potentially was derived from an older nonglacial Snoqualmie River provenance geologic unit or from early (radiocarbon dead) Olympia-age deposits below the present erosional level. 121°92757’W, 47°64084’N. |
| AESI Sta-2-28 | ~100 | >200 | 300 | charcoal fragments | 27,620 +/- 260 BP | Unpublished Associated Earth Sciences, Inc.; sampled 1982 by Louie Lepp; unit Qco. Sample from charcoal fragments within apparent injectite (diapir). Located in the Carnation 7.5 minute quadrangle in NW corner of Section 21, T25N R7E. Located near radiocarbon sites 09-73D and 09-14E-1 in the southern part of MacDonald Park (Dragovich and others, 2010, Plate 1). Infinite age sample (09-14E-1) near this sample likely transported upward within a diapir and potentially was derived from an older nonglacial Snoqualmie River provenance geologic unit or from early (radiocarbon dead) Olympia-age deposits below the present erosional level. 121°92757’W, 47°64084’N. |
| AESI EB-18 | 485 | 14+ | 498 | organic silt | 29,730 +/- 260 | Unpublished Associated Earth Sciences, Inc.; Site EB-18 sampled 2007 as part of the Trilogy Parcel M project. Located close to EB-17 near the western boundary of the Carnation 7.5-minute quadrangle within the Redmond quadrangle in the NE portion of Section 27, T26N R6E; sampled from yellowish brown organic clayey silt in unit Qcol 122° 1'20.5"W, 47°42'40.10"N. |
| AESI  EB-3 | 571 | 16 | 572 | organic silt | 32,970  +/-  300 | Site EB-3 (boring #B-16 of this study) of the Redmond Ridge East project. See Table 4-1 of Associated Earth Sciences, Inc., 2004, Redmond Ridge East UPD/FCC and Panhandle preliminary plat, King County, Washington—Environmental impact statement; Technical report on geology, soils, and ground water: Associated Earth Sciences, Inc., 1 v. Located near the western portion of the Carnation 7.5-minute quadrangle within the Redmond quadrangle in the NE corner of Section 2, T25N R6E. Sampled from organic brown to green and gray silt with minor sand in unit Qcol. 122° 0'10.60"W, 47°40'55.20"N. |
| AESI  G-1 | 540 | 12.5 | 540 | organic silt | 35,210  +/-  200 | Site G-1 of the Redmond Ridge East project. See Table 4-1 of Associated Earth Sciences, Inc., 2004, Redmond Ridge East UPD/FCC and Panhandle preliminary plat, King County, Washington—Environmental impact statement; Technical report on geology, soils, and ground water: Associated Earth Sciences, Inc., 1 v. Located near the western portion of the Carnation 7.5- minute quadrangle within the Redmond 7.5-minute quadrangle in the NW corner of Section 2, T25N R6E. Sampled from organic silt to sandy silt in unit Qcol. 122° 0'37.4"W, 47°41'1.5"N. |
| AESI  H-2 | 543 | 21 | 543 | organic silt | 38,430  +/-  200 | Site H-2 of the Redmond Ridge East project. See Table 4-1 of Associated Earth Sciences, Inc., 2004, Redmond Ridge East UPD/FCC and Panhandle preliminary plat, King County, Washington—Environmental impact statement; Technical report on geology, soils, and ground water: Associated Earth Sciences, Inc., 1 v. Located near the western portion of the Carnation 7.5- minute quadrangle in the Redmond quadrangle in the NW corner of Section 2, T25N R6E. Sampled from gray to brown sandy silt to silty clay to fine sand in unit Qcol. 122° 0'31.50"W, 47°41'5.60"N. |
| AESI EB-17 | 484 | 12+ | 493 | peat | >39,640 | Unpublished Associated Earth Sciences, Inc.; Site EB-17 sampled 2007 as part of the Trilogy Parcel M project. Located close to EB-18 near the western portion of the Carnation 7.5-minute quadrangle in the Redmond quadrangle in the NE portion of Section 27, T26N R6E; sampled from peat in unit Qcol. 122° 1'18.00"W, 47°42'43.00"N. |
| AESI 7 | 653 | 15+ | 655 | organic sediment  wood (same interval) | 39,750 +/- 1,060  >45,850 | Site 7 of the Pegasus Project from EP-15. Sample was collected during field work for: Associated Earth Sciences, Inc. (2002), and reported in Associated Earth Sciences, Inc., (2004). Located in the Carnation 7.5-minute quadrangle in the NW portion of Section 12, T25N R6E. Sampled from organic sediment in unit Qcol. 121°59'24.30"W, 47°40'8.10"N. |
| AESI  EP-116 | 499 | 9+ | 507 (ground surface) | organic silt | 43,920  +/- 2,600 | Site EP-116 of the Trilogy Parcel O project. See Table 4-1 of Associated Earth Sciences, Inc., 2004, Redmond Ridge East UPD/FCC and Panhandle preliminary plat, King County, Washington—Environmental impact statement; Technical report on geology, soils, and ground water: Associated Earth Sciences, Inc., 1 v.. Located near EP-117 near the western portion of the Carnation 7.5- minute quadrangle in the Redmond quadrangle in the SW portion of Section 26, T26N R6E,; unit Qcol. 122° 0'53.00"W, 47°42'27.00"N. |
| AESI  Lot 133 | 506 | 3+ | 506 | peat | >40,810 | Unpublished Associated Earth Sciences, Inc.; sampled 2004 from an excavation in Trilogy - Parcel O. Located near EP-116 and EP-117 near the western boundary of the Carnation 7.5-minute quadrangle within the Redmond quadrangle in the NE portion of Section 26, T26N R6E; sampled from a layer of compressed peat; unit Qcol. 122° 0'52.30"W, 47°42'29.50"N. |
| 09-25C-1 | ~80 | >200 | 300 | charred material | >43,000 | Surface radiocarbon sample (this study). Located in the Carnation 7.5-minute quadrangle in the NE corner of Section 35, T26N R6E. Sample from scattered small charred wood fragments within compact cross-bedded medium sand with local gravel; unit Qcws; 121°59.859”W, 47°41.777”N. |
| 09-30E | ~160 | >200 | 380 | peat | >44,000 | Surface radiocarbon sample (this study); located in the Carnation 7.5-minute quadrangle in the NW corner of Section 25, T25N R6E. Sample from massive dense peat interbedded with a tephra and silt with plant fossils. Sample from peat in unit Qcwp. Tephrochronology of pumice at the same site suggests an age of about 128 ka (see text). 121°59.334’W, 47°37.698’N. |
| 09-41C | ~120 | >120 | 200 | wood | >44,000 | Surface radiocarbon sample (this study); located in the Carnation 7.5-minute quadrangle in the NE corner of Section 36, T26N R6E. Sample from scattered small subrounded detrital wood fragments within compact medium dense, mica-rich, very fine sand to fine sand with silt; unit Qco. See sites 09-41E, and 09-41D in Dragovich and others (2010) for geochemistry and petrography. Site 09-41E is similar in age and is located very close to 09-41C. Tentatively correlated with the Olympia beds because underlying glacial drift has weathering characteristics most consistent with the Possession glaciation; however, these Snoqualmie River provenance fluvial deposits could be older and correlative with the Whidbey Formation. |
| 09-41E | ~160 | >120 | 200 | charred wood fragments | >44,000 | Surface radiocarbon sample (this study); located in the Carnation 7.5-minute quadrangle in the NE corner of Section 36, T26N R6E. Sample from scattered small subrounded detrital charred wood fragments within compact cross-bedded medium sand with local gravel; unit Qco; See sites 09-41E and 09-41D in Dragovich and others (2010) for geochemistry and petrography. Site 09-41C is similar in age and is located very close to 09-41E. Tentatively correlated with the Olympia beds because underlying glacial drift has weathering characteristics most consistent with the Possession glaciation; however, these Snoqualmie River provenance fluvial deposits could be older and correlative with the Whidbey Formation. |
| 09-43G | ~185 | >240 | 340 | wood | >44,000 | Surface radiocarbon sample (this study); located in the Carnation 7.5-minute quadrangle in the NW corner of Section 16, T26N R7E. Sample from scattered small detrital wood fragments within deformed thin-bedded medium dense mica-rich medium sand; unit Qcpf. Bedding is tilted and displays sand dikes; See sites 09-43G-1, and 09-43G-2 in Dragovich and others (2010) for geochemistry and petrography. 121°55.416”W, 47°44.327”N. |
| AESI 7 | EP-10 sample= 646  EP-13 sample=  652 | 15+ | ~655 | wood | EP-10: >45,220  EP-13: >46,310 | Site 7 of the Pegasus Project EP-10 and EP-13. Sample was collected during field work for: Associated Earth Sciences, Inc. (2002), and reported in Associated Earth Sciences, Inc., (2004). Located in the Carnation 7.5-minute quadrangle in the NW portion of Section 12, T25N R6E; Both were sampled from wood in unit Qcol. EP-10: 121°59'28.40"W, 47°40'5.60"N; EP-13: 121°59'24.50"W, 47°40'7.10"N |
| 09-14E-1 | ~100 | >200 | 300 | charred angular wood fragment | >45,570 | Surface radiocarbon sample (this study); located in the Carnation 7.5-minute quadrangle in the NW corner of Section 21, T25N R7E. Sample from scattered small charred wood fragments within deformed lenses of medium sand throughout locally stratified dense mica-rich fine sand to silt; unit Qco. Sample from apparent injectite (diapir). See sites AESI Sta-2-28 and 09-73D for 25-27 ka ages at the same site. Outcropping bedding exhibits extreme tilting, disrupted bedding and isoclinal folding as a result of liquefaction. See site 09-14E geochemistry and petrography. Infinite age sample likely transported upward within a diapir and was probably derived from an older nonglacial Snoqualmie River provenance geologic unit below the present erosional level. 121°55.654’W, 47°38.455’N. |
| AESI  OBW-30 | 533 | 9+ | 36 | peat | >45,600 | Site OBW-30 of the Redmond Ridge East project. See Associated Earth Sciences, Inc. (AESI), 2007, Summary of SRS-1 No. 1 Infiltration Pond, General Geologic Hazard, and Geotechnical Engineering Recommendations, Recreation Complex, Redmond Ridge East, King County, Washington: Prepared for RR East Partners, Project No. KG070129A, October 31, 2007. Located near the western boundary of the Carnation 7.5-minute quadrangle within the Redmond quadrangle in the NW corner of Section 2, T25N R6E. Sample was taken from a peat layer in unit Qcol. 122° 0'35.33"W, 47°41'5.58"N. |
| AESI  EB-1 | 506 | 27 | 532 | organic silt | >45,770 | Site EB-1 of the Redmond Ridge East project. See Table 4-1 of Associated Earth Sciences, Inc., 2004, Redmond Ridge east UPD/FCC and Panhandle preliminary plat, King County, Washington—Environmental impact statement; Technical report on geology, soils, and ground water: Associated Earth Sciences, Inc., 1 v. Located near the western boundary of the Carnation 7.5-minute quadrangle within the Redmond quadrangle in the SW corner of Section 26, T26N R6E. Sampled from a gray to brown sandy silt to silty clay fine sand in unit Qcol. 122° 0'50.40"W, 47°40'53.00"N. |
| AESI  EP-117 | 502 | 10+ | 512 (ground surface) | organic silt | >47,600 | Site EP-117 of the Trilogy Parcel O project. See Table 4-1 of Associated Earth Sciences, Inc., 2004, Redmond Ridge East UPD/FCC and Panhandle preliminary plat, King County, Washington—Environmental impact statement; Technical report on geology, soils, and ground water: Associated Earth Sciences, Inc., 1 v. Located close to EP-116 near the western boundary of the Carnation 7.5-minute quadrangle within the Redmond quadrangle in the SW portion of Section 26, T26N R 6E. Sampled from blue gray to brown organic silt; unit Qcol. 122° 0'56.50"W, 47°42'25.90"N. |
| AESI site 5 | ~380 | 40 | ~400 | peat | >47,890 | Site 5 on Bagley landslide. See Table 4-1 in Associated Earth Sciences, Inc., 2004, Redmond Ridge East UPD/FCC and Panhandle preliminary plat, King County, Washington—Environmental impact statement; Technical report on geology, soils, and ground water: Associated Earth Sciences, Inc., 1 v. Sampled from fine sand, silt with layers of peat; unit Qcpf. The landslide is located near the western boundary of the Carnation 7.5-minute quadrangle within the Redmond 7.5-minute Quadrangle in the SW corner of Section 35, T26N R6E. |