WASHINGTON NATURAL AREAS PROGRAM

NATURAL AREA PRESERVE RECOMMENDATION

Proposed Expansion of Kennedy Creek NAP

SIZE: 33 acre expansion for a total of 422 acres

LOCATION: Portions of the NW1/4 of Sec 33 T19 R3W

OWNERSHIP: Private ownership, two separate owners.

JUSTIFICATION: The expansion includes riparian and upland buffer areas associated with approximately 1,520 feet of Schneider Creek. A hydrologic and salmonid habitat connection exists between the proposed expansion area and the primary natural features of the preserve.

PRIMARY ELEMENTS (2007 Natural Heritage Plan)

The primary elements within the current NAP boundary are: 1) moderate-salinity, high marsh wetland, 2) silty, moderate-salinity, low marsh wetland, and the 3) silty, low salinity, low marsh wetland. These elements are not present in the expansion area. However, expanding the NAP will add to their long-term viability by protecting water-quality and riparian habitat upstream.

OTHER FEATURES:

- Riparian and forest buffer
- Forested wetland
- Freshwater streams
- Mudflats
- Salmon
- Shorebirds

PHYSICAL FEATURES:

The recommended expansion of Kennedy Creek Natural Area Preserve includes portions of the Schneider Creek drainage that drains into Oyster Bay adjacent to the current preserve boundary.

This segment of Schneider Creek has an average channel width of approximately 25 feet. The creek has a relatively narrow active floodplain, up to about twice as wide as the channel. A series of variable, poorly-defined, riparian valley bottom terraces surround the

floodplain and are typically several times wider than the combined channel and floodplain.

The riparian terraces and adjacent slopes are hydrologically connected to Schneider Creek through their surface and ground water flow into the creek. During an inventory in February 2004 and March 2013 small seeps were seen flowing out of the mid slope toward Schneider Creek.

The following description of soils is from the U.S. Department of Agriculture Soil Survey of Thurston County Washington (Pringle 1990). The proposed expansion area is mapped as Kapowsin silt loam, 30-50% slopes, and 3-15% slopes, on the upper and mid slopes, respectively. Parent material is compact glacial till. Kapowsin silt loam 30-50% is moderately deep, moderately well drained soil on escarpments and till plains. The soil is characterized as having a perched seasonal high water table at 12-24 inches depth with rapid runoff and severe water erosion hazard.

Giles silt loam, 3-15% is found adjacent to Schneider Creek and on the terraces between the creek and Highway 101. Its origin is glacial outwash and it is considered to be a well-drained soil. Everett gravelly sandy loam, 3-15%, occupies a small portion of the northwest corner of the expansion area. The soil survey records were not field verified. However, field observations of hydrology and topography indicate that Hydroquents probably only extend a short distance onto the proposed expansion.

BIOLOGICAL FEATURES:

The expansion area includes forests of varying age classes and species. A forest stand that was harvested and replanted in 1995 is found on the mid and upper slopes above Schneider Creek in the eastern portion of the expansion area. This stand is dominated by Douglas-fir (*Pseudotsuga menziesii*) with a shaded understory dominated by swordfern (*Polystichum munitum*). Patches within the stand are co-dominated by Pacific madrone (*Arbutus menziesii*), cherry (*Prunus sp*.), beaked hazelnut (*Corylus cornuta*), and big leaf maple (*Acer macrophyllum*) with an understory comprised of snowberry (*Symphoricarpos albus*), Himalayan blackberry (*Rubus discolor*), dwarf Oregon grape (*Mahonia nervosa*) and oceanspray (*Holodiscus discolor*).

On the upper and middle slopes located on the western portion of the expansion area, there are patches of mature, approximately 70 year old forest co-dominated by Western redcedar (*Thuja plicata*) and big leaf maple (*Acer macrophyllum*). Douglas fir, western hemlock (*Tsuga heterophylla*) and grand fir (*Abies grandis*) are also present within this stand. The understory of the mid- and upper slopes is dominated mainly by swordfern with the presence of salal (*Gaultheria shallon*) and dwarf Oregon grape.

The lower slopes closer to the creek are dominated by red alder (*Alnus rubra*) and bigleaf maple, with patches of western redcedar and Douglas-fir. Swordfern dominates the understory of most of the lower slope. Most of the riparian terraces are covered with a tall young forest (probably similar in age to the adjacent 70 year old stand) composed of a

mixture of Douglas-fir, western redcedar, bigleaf maple, western hemlock, and red alder. The understory is dominated mainly by swordfern.

A small forested wetland, located on a riparian terrace at the base of a slope, is dominated by red alder and western red cedar. The understory is composed of Pacific water-parsley (*Oenanthe sarmentosa*), ladyfern (*Athyrium filix-femina*), and skunkcabbage (*Lysichiton americanus*). Also present were bull rush (*Scirpus microcarpus*), Henderson sedge (*Carex hendersonii*), piggy-back plant (*Tolmiea menziesii*), false lily-of-the-valley (*Mianthemum dilatatum*), Pacific waterleaf (*Hydrophyllum tenuipes*), Cooley hedgenettle (*Stachys cooleyae*), angled bittercress (*Cardamine angulata*), golden saxifrage (*Chrysosplenium glechomaefolium*), giant horsetail (*Equisetum telmateia*), and salmonberry (*Rubus spectabilis*). The survey was completed early enough in the season that additional species that are present may not have been identified.

The riparian floodplain is dominated by western red cedar, red alder and salmonberry but also has substantial areas of reed canarygrass.

Schneider Creek and associated uplands provide important habitat for several species of wildlife. Chum salmon (*Oncorhynchus keta*) carcasses were found in the adjacent uplands at least 20 feet from the stream channel. The stream also supports natural populations of coho salmon (*Oncorhynchus kisutch*), coastal cutthroat trout (*Oncorhynchus clarki clarki*) and steelhead (*Oncorhynchus mykiss*), and there are some other non-salmonid species of fish such as sculpin (*Cohus* spp.). American beaver (*Castor canadensis*) have had a significant impact on the stream and adjacent forest. Black-tailed deer (*Odocoileus hemionus*) droppings were seen in the forested area and northern raccoon (*Procyon lotor*) prints were found along the stream. Madrone is numerous enough on the site currently to provide substantial resources to fruit-eating birds.

CONDITION:

Fall chum salmon utilize Schneider Creek for spawning habitat. Approximately 150 feet of stream habitat adjacent to the home site has been significantly degraded. Large woody debris and riparian vegetation has been removed from this area. The remaining riparian habitat and creek channel on the proposed expansion area appear to provide good salmon habitat with sufficient large wood to create pools and riffles as well as conifer trees along the riparian to provide shade. The house and its associated structures could be removed and the site restored to provide contiguous salmon habitat along this portion of the creek.

On the riparian terraces and some of the lower slopes there are large western redcedar and Douglas-fir trees that provide shade and coarse woody debris for the stream. The terraces are dominated by native vegetation, with generally low abundance of non-native species (primarily Himalayan blackberry). Some of the streambanks and narrow floodplains are dominated or co-dominated by non-native reed canarygrass.

The upland forest area on the eastern portion of the expansion area is in fair ecological condition and includes mature forest that was logged and naturally regenerated. Few invasive plants were identified in this area and there is considerable vertical heterogeneity for the age of the stand.

On the western portion of the expansion area, the forest is in poor ecological condition having been harvested and replanted in 1995. This forest is densely stocked and could be thinned to create more structural diversity. Approximately 2 acres within the portion are between the creek and Highway 101 and are used as fields for part of the neighboring horse farm.

CURRENT USE:

Thurston County zoning for the expansion area is rural residential, with 1 residential unit allowed per every 5 acres. One of the proposed expansion area parcels is 5 acres and already includes a single family home. The home and associated structures are located within the flood plain within 30 feet of the creek. They are in very poor condition and threaten the water quality and habitat functions of the creek. The 28 acre property is forested and currently undeveloped. Timber was harvested from this property in 1995 and the forest was planted. According to the zoning regulations, it may be possible for the landowner to develop five home sites on this property.

PRESERVE DESIGN:

The Kennedy Creek Natural Area Preserve boundary expansion is designed to increase site protection and the long-term viability of the existing preserve. The expansion is located adjacent to the existing preserve. It includes the adjacent riparian and upland forest habitat of Schneider Creek, a major tributary to Oyster Bay. The west side is bounded by the preserve and the south side is bounded by Highway 101. The east side is defined by private property currently used as a horse farm. The north side is bounded by the top of the ridge with private properties on the other side.

The criterion used for boundary expansion was to strengthen the protection and connectivity between estuarine and associated stream riparian habitat on Schneider Creek. Forestlands, such as those along Schneider Creek that are adjacent to the current NAP influence the interception of rainfall, condensation, evapotranspiration and infiltration of moisture into the aquatic system (Lindenmayer and Franklin 2003). Forests also provide coarse woody debris recruitment into the estuary (Gonor 1988), a feature whose ecological role is not yet completely understood (Simensted 2003). While a portion of the expansion area forest is generally in early stages of development, long-term protection will allow these influences to develop as the forests mature. Other important riparian and estuarine connections include water quality and erosion control.

Kennedy and Schneider Creeks provide important spawning and rearing habitat for chum salmon. Spawned out chum carcasses in Kennedy and Schneider Creeks are considered an important source of nutrients for the estuary, and support various foods in the diet of

chum fry (Thompson 2001). Additionally, carcasses and live salmon are consumed by numerous species of wildlife (Cederholm et al. 2000). Thirty species of birds, mammals, invertebrates and fungi were observed consuming salmon in its various life stages at Kennedy Creek (Stockner 2003).

The expansion area is threatened by existing use as a home site and by future development. Current county zoning for the properties is one unit per five acres. Over the past 30 years, adjacent properties have seen a substantial increase in development.

MANAGEMENT CONSIDERATIONS:

The expansion would require house demolition, field restoration and approximately 150 feet of stream restoration, all of which are common management practices for natural areas program staff. A more detailed inventory and mapping of invasive species would be needed to direct invasive species control efforts, focusing on species such as reed canarygrass and Himalayan blackberry that threaten riparian function or forest development.

Fishing and hunting are known to occur in the vicinity. There is an ATV trail running through the property. These and other public uses will be addressed by the management planning process.

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Prepared by: Michele Zukerberg, David Wilderman and Joe Rocchio (April 9, 2013)

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