

Appendix C: Stream and Fish Report

June 9, 2009

Ed MacLeod
MacLeod Reckord
91 Marion Street
Seattle, Washington 98102

Re: Stream Enhancement and Fish Use Possibilities at Sammamish Valley Park
Watershed Company Reference Number: 080906

Dear Ed:

As agreed upon between Jenni Creveling of our office and Lauren Perry of yours, I visited the Sammamish Valley Park parcel and its environs in Redmond on June 1, 2009 to assess the potential for stream enhancements on and near the site, including the potential for fish use. My findings are as follows:

Setting:

City of Redmond stream mapping indicates the presence of a Class III stream flowing southward along the west boundary of Sammamish Valley Park (east side of Willows Road), then eastward along the south property boundary (north side of NE 116th Street; see Figure 1, below). This stream, identified as Stream A in the wetland delineation report, originates from the confluence of several Class IV drainages originating on the slopes extending upwards west of Willows Road. Downstream of the Sammamish Valley Park site, the stream continues eastward along an artificial, ditch-like channel along the north side of NE 116th Street, passing an adjacent parcel to join the Sammamish River on its west bank immediately downstream of NE 116th Street.

Where it flows southward in a roadside ditch along the *west* side of Willows Road, the stream appears as though it could carry a low level of flow perennially from springs along the toe of the slope, based on observations of the flows and the types of aquatic vegetation present. Verification of perennial flow would need to occur later in the dry season, during August or September. During the June 1, 2009 site visit, the flow present was discharged to the park site, passing first through a culvert under Willows Road and then through a second culvert under some railroad tracks. On that date, all of the flow (less than 0.1 cubic foot per second) dispersed into Wetland A extending eastward across the site. None of it remained within or re-entered the ditched channel extending first

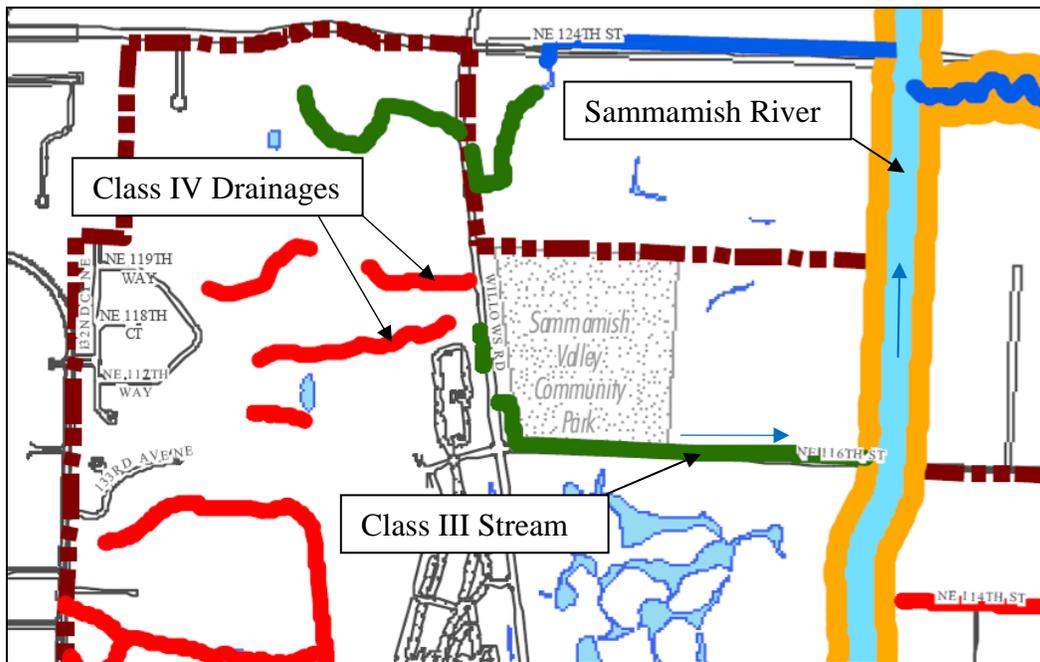


Figure 1. From City of Redmond Streams Classification Mapping.



Photo 1 – View eastward along the Class III drainage channel. Note reed canarygrass and exposed bed as a sign of previous standing water.

southward along Willows Road then eastward along NE 116th Street to the Sammamish River. This artificial channel was dry along its entire length on June 1, 2009, consisting primarily of a reed-canarygrass-choked swale with evidence of flow or at least standing water having been present during wetter periods (see Photo 1). At the river, any flow would pass through a 36-inch CMP through the levee along the river to be discharged down a steep, rocky riverbank, typically 4 to 5 feet vertically above the river surface under low or base flow conditions (see Photo 2).



Photo 2 – Facing downstream, northward along the Sammamish River; the culvert outfall for Stream A is under the reed canarygrass partway up the bank on the left side of the photo.

Fish Passage and Potential for Fish Habitat Creation and Fish Use:

Given 1) the perched outfall of the culverted stream outlet 4 to 5 feet up a steep bank above the river, and 2) the long stretches of only seasonally-flowing channel between the river and the site, it is doubtful that a reliable connection exists, or could be feasibly made, for fish to access the stream sections on or near the site from the river. Furthermore, the gradient of the culvert at the outlet is somewhat steeper – estimated at approximately 4 percent - than would be ideal or acceptable for fish passage. Basically,

the river would have to be at flood stage to backwater the culvert and provide ease of passage into the Class III, Stream A system.

Presuming that the stream flow entering the west side of the site from the culverts under the railroad and Willows Road is perennial, which is still subject to confirmation, it is possible that a very limited amount of habitat could be provided at and near the west property boundary for isolated populations of non-salmonid fish such as stickleback and other small, minnow-like "warm-water" fish. If temperatures could be kept cool enough (below 65-70° F.) to provide refuge throughout the summer, a very limited amount of habitat for cutthroat trout, a salmonid fish, might also be provided as well. However, such a population might not be self-sustaining given the very limited amount of such habitat that could be provided. Fish would have to be introduced initially and then perhaps reintroduced from time to time. It is unlikely that fish would be able to colonize such habitat initially from the river, or to re-colonize it later if they were to die out locally due to short-term unfavorable habitat conditions or the natural fluctuations of such small-size populations.

Due to space and gradient constraints, there would be little opportunity to create classic pool/riffle stream channel sections with a gravel substrate on-site. Rather, it is envisioned that any creation of fish habitat in conjunction with the wetland and other habitat enhancements being planned for the site would consist of low-banked channel sections with slow-moving water and/or ponded or open water wetland areas to be excavated near the west site boundary. Such features would be supplied with water from Stream A where it presently disperses into the wetlands on-site (see Photo 3). From these created ponds or ponded areas, water could continue to disperse eastward across the site, similarly to what it does now, to supply water (wetland hydrology) to existing and/or to-be-enhanced or created wetland areas.

An emphasis on native, non-salmonid fish is recommended. Certain of these fish can generally stand warmer water temperatures and lower dissolved oxygen levels than can salmonid fish. Examples of potentially-suited species include, but are not limited to, three-spined stickleback, Olympic mudminnow, and speckled dace. Somewhat of a curiosity due to their rarity, Olympic mudminnow have been collected locally in Cherry and Issaquah Creeks (Inland Fishes of Washington, Wydoski and Whitney, Second Edition, 2003), and may be suited to the type of habitat that would be created. Numerous other non-native, but endemic, species would also take well to such ponds or ponded habitat, including brown bullhead catfish and pumpkinseed sunfish. Cooperation with the Washington Department of Fish and Wildlife would be necessary in order to plant any fish species, native or not, into any habitat created for fish on-site.



Photo 3 – Area envisioned for the creation of ponds or open water wetlands that will increase the overall diversity of wildlife habitat, including habitat for amphibians and the provision of limited fish habitat.

Please call if you have any comments or questions, or if we can otherwise be of further assistance.

Sincerely,

Handwritten signature of Gregory P. Johnston in blue ink.

Gregory P. Johnston
Senior Fisheries Biologist, CFP