State of Washington
Department of Fish and Wildlife

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April 16, 2008

TO: Greg Johnson, WDFW
FROM: J. Patrick Klavas, WDFW

SUBJECT: Pine Creek Fish Passage

These comments are based upon the review of the document created by Harbor Consulting Engineers, titled "*Pine Creek Fish Passage- Conceptual Engineering Design*", dated January 31, 2007.

1). Cover Page: WDFW disagrees with the selection and feasibility of the "concrete fish ladder and fishway culvert" option. See comment #6 listed below.

2). Page 3-6, flow data: Flow data was correlated from Rock Creek that only has six years of data (1962-1968). Standard error needs to be added to this flow data to ensure a more appropriate design range is met for 90% fish passage success. WDFW also prefers peak daily or hourly data for statistical analysis verses mean daily data to ensure 90% fish passage success.

3). Page 6, Dam Pool elevations: It was indicated that there is a typical water surface level range of 2-feet (263-265), however data in table indicates a range of nearly 10-feet (257.6 to 267.7). To ensure 90% fish passage, this full range of elevations must be met (including all expected streamflow scenarios) for design limits.

4). Page 8,Fish Passage Design: It was indicated, "...communications... with WDFW Habitat Engineers... revealed that a conceptual design...was accomplished but later determined not to be feasible". This statement appears to be incorrect or misrepresentative of the actual discussion. The WDFW conceptual design is similar to Alternative 4 and continues to be a viable option.

5). Page 8, Alternative 1- Submerged Culvert: This option appears to have major concerns relating to culvert depth in relationship to the active streambed elevation and sediment deposition loads. Based upon potential for long term fish passage success, this is not a viable option.

6). Page 9, Alternative 2- Fish Ladder: This option appears to have major concerns relating to the design. A)- Culvert invert elevation (i.e.) is too high. The upstream i.e. is perched by several feet at low flow and adding weirs inside the pipe will exacerbate this concern by raising the i.e. even higher. B)- The fishway design does not extended deep enough to ensure passage at low dam pool elevations (see comment # 3 above). C)- Sediment load and debris at this site will make maintenance and operation of a fishway impractical. D)- Fishway will likely only provide fish passage for adult salmon (not all species of all life stages). E)-Construction of a fishway will result in a direct loss of downstream aquatic habitat.

7). Page 9, Alternative 3- Highway & Railroad Bridge: This is the preferred option for WDFW, since it will provide unimpeded passage for all aquatic species for all life stage. This option will also allow for natural steam channel process to occur. Sediment load, gravel deposition, and debris movement will not be of concern. Maintenance and operation costs and concerns will be minimal.

8). Page 10, Alternative 4- Arch Culvert: This is a viable option for WDFW. If the elevation is set correctly and the width is adequately sized, it will provide unimpeded passage for salmon of all life stage. This option continues to have concerns with impeding natural steam channel processes. Sediment load, gravel deposition, and debris movement will continue to be a concern, but maintenance and operation could alleviate much of the associated risk.

9). Page 10, conclusion: WDFW disagrees with the selection and feasibility of the "concrete fish ladder and fishway culvert" option. See comment #6 listed above. In order of preference for unimpeded fish passage of all aquatic species and all life stages and allow for natural stream process including sediment load and debris movement, WDFW prefers Alternative #3, then Alternative #4.

If you have any additional questions or comments, please let me know.

Sincerely,

Patrick Klavas

CC: Mike Barber
Gina McCoy
Tim Rymer