

APPENDIX C. RIVER FLOAT AND FIELD RECONNAISSANCE

Field Reconnaissance Summary
Lower Kalama Off-Channel Habitat Design
October 11, 2007
P.D. Powers

This memo provides summary notes and recommendations from a field reconnaissance of potential off-channel habitat in the Lower Kalama River. The reconnaissance was conducted by Pat Powers, Waterfall Engineering, Nello Picinich, Lower Columbia Fish Enhancement Group and Donna Hale Bighouse and Steve West from the Washington State Department of Fish and Wildlife. The objective for the day was to visit three off channel areas, walk through the sites and identify potential off channel restoration opportunities.

The river flow was 300 cfs. Low tide (1.3 feet) was at 1:02 pm. High tide was 8.5 feet at 4:59 pm. Note: the mean tide is 4.5.

Project KRR0.7 – WDFW Tidal and Groundwater Channels

The floodplain in this reach of river encompasses 45 acres, and is isolated from roads on all four sides. We parked at the boat ramp, walked upstream back and forth through the floodplain looking for low swales, disconnected wetlands, etc. Two potential restoration opportunities were identified. The first is a low swale which is connected to the Kalama River. The lower end appears to be tidal and had some flow. The swale runs to the west side of the access road. The second is a low elevation area within a stand of large cottonwood trees which could potentially be excavated and reconnected to the river or side channel. Data collection needed to further identify the restoration options include:

1. Level survey of the surrounding ground and swales relative to tidal elevations.
2. Exploration for groundwater and substrate with backhoe and installation of standpipes to monitor water levels relative to river flows, tides and seasonal groundwater changes.

Note: The water level on the other side of the West Kalama River road was surveyed by the Port in March of 2007. These measurements would help to determine the feasibility and type of off channel habitat (i.e. backwater channels versus groundwater fed).

Project KRL1.4 – Kalama River Left RM 1.4 – Groundwater Channel

This site is located on the left bank floodplain across the river from Camp Kalama near river mile 1.4. This area along the left bank floodplain is 20 acres in size. We parked above the gate and walked through the landowner's property to his house. We then had a brief discussion with the landowner and proceeded to hike upstream through the floodplain, weaving back and forth through very brushy areas between the river and high wall which delineates the channel migration zone on the left valley wall. One potential groundwater channel site was found along the toe of the hillside (wall based channel). The channel would be about 1000 feet long. The upper end of the floodplain terminates at a bedrock outcropping and quickly gains elevation.

Question: Is the landowner open to restoration work on this property?

Data collection needs to further identify restoration potential include:

1. Survey of the Kalama River water surface elevations and ground elevation in the swale at the upstream and downstream end.
2. Exploration for groundwater and substrate with backhoe and installation of standpipes to monitor groundwater levels relative to river flows, tides and seasonal groundwater changes.
3. Perform groundwater pump tests to evaluate the potential for flow and chum spawning.

Project KRL0.1 – Kalama River Left RM 0.1 – Tidal/Backwater Channels

This site consists of excavated tidal channels near the left bank, river mile 0.1 on the Port of Kalama Property. These channels function as backwater/refuge habitat at medium to high tide and when the Columbia River and/or Kalama River are high. The channels provide low velocity refuge areas with some shallow margins and several isolated pieces of large woody debris (LWD). The riparian area could be improved by removing reed canary grass and planting native trees and shrubs. The depth and width of the channels will be controlled in the long term by sediment from the Kalama River and tidal flushing action from high to low tide. The opportunities for additional restoration could be extension of the existing channels and/or addition of LWD. Data collection needs to further identify restoration potential include:

1. Ground topographic survey to determine the potential for extending channels.
2. Gage river and tidal levels to determine design water surface elevations.

Photo Documentation of Lower Kalama River

August 28, 2007

Float from WDFW Trap at RM 2.8 to Mouth

River Flow = 220 cfs

Columbia River Tidal Elevation (Varied 1.6 to 2.7)

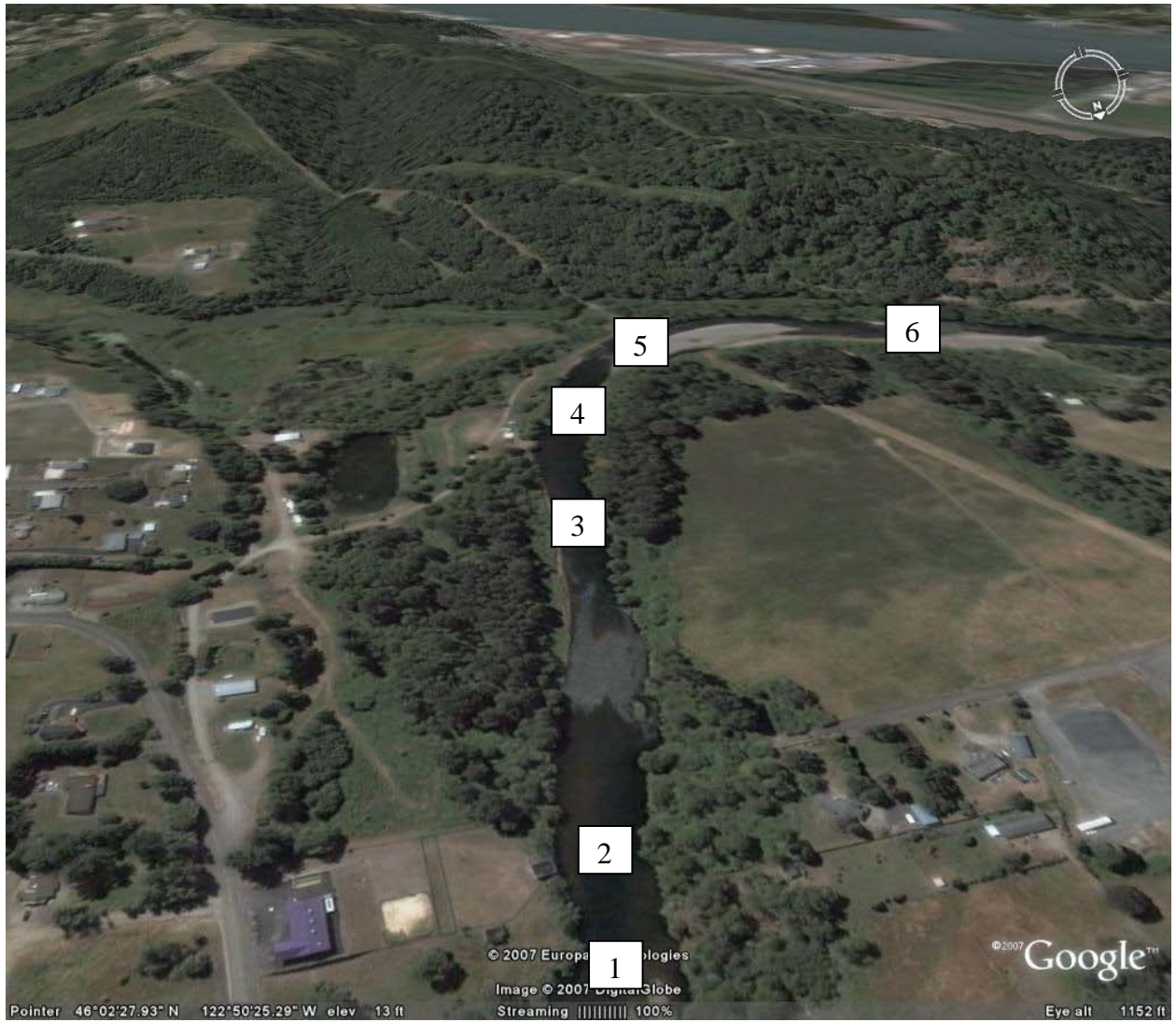


Photo Points 1 through 6.



Photo points 6 and 7.

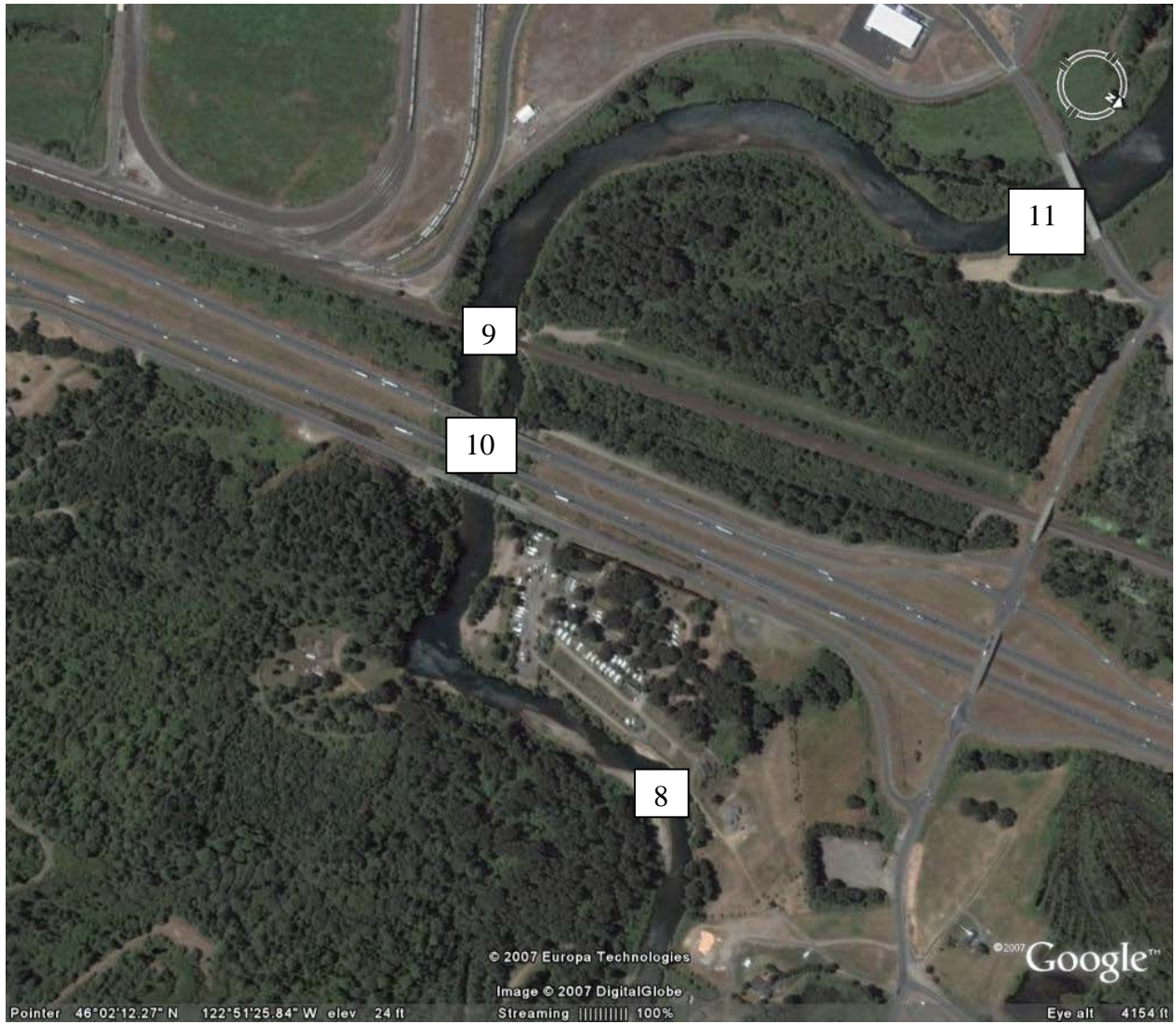


Photo Points 8 to 11.



Photo Points 12 to 15.



Photo 1 – View Upstream of WDFW Fish Trap Kalama River Mile 2.8.



Photo 2 – View downstream from WDFW fish Trap.



Photo 3 – View downstream RM 2.7. Note right bank is lined with riprap. This is the new Port Property. View further downstream is Ledgett’s property on the left bank.



Photo 4 – View downstream of eroding bank on Ledgett’s property. Immediately to left is a small LWD cluster.



Photo 5 - Abandoned Gas line.



Photo 6 - Riffle above Spencer Creek. Spencer Creek outlet in on the left bank. The bar on the left bank has aggraded over the last winter floods and the low flow channel has cut down through the middle of the bar and is actively head cutting upstream.



Photo 7 - Mouth of Spencer Creek.



Photo 8 - Right bank at Camp Kalama.



Photo 9 – View downstream under RR Bridge. There is a lot of LWD submerged on the left bank and along the left bank of the channel downstream. Fishing access is along the right bank.



Photo 10 – Upstream view I5 Bridge.



Photo 11 – WDFW boat ramp on the right bank just upstream of new bridge.



Photo 12 – Narrow piece of road near peninsula. Water depth was 17 feet.



Photo 13 – Mouth of Kalama River view upstream. Stumps to left in alignment with white house, actual location of channel 10 to 12 years ago.



Photo 14 – Tip of peninsula at mouth of River. Tide = 2.6.



Photo 15 – Mouth of Kalama River, shallowest point. Depth = 0.8 ft at a tide of 2.6.