

## MEMORANDUM

**Date:** October 14, 2014

**To:** File

**From:** Nick Van Dyke

**Re:** Water District 63-C, 2014 Cat Creek, Little Camas Creek Measurements, Basin 63

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This memorandum is in response to a field work request (copy attached) from John Westra and Steve Lester to measure inflows into Little Camas Reservoir Basin, located in Township 01S Range 09E, and nearby Anderson Ranch Reservoir. Overall reason for the request is the expansion of Water District No. 63 above Lucky Peak Dam, order initiating district expansion dated October 2013. The expanded area of the Little Camas Reservoir Basin was designated Sub-District No. 63-C within Water District No. 63.

The primary inflows to the reservoir are Cat Creek and Little Camas Creek. Goal of the field work request is to establish a rating curve versus structure flow depth for both sources of inflows to the reservoir. The rating curve will help the watermaster of Sub-District 63-C quickly ascertain inflows from both sources. The rating curve was developed by determining a set location at each creek and 1) use a FlowTracker meter to get a cfs value 2) get a depth reading in inches. This will allow a quick estimate of cfs from a depth reading. Rating curves attached to this memo. **These rating curves should not be considered precise - estimates only.**

**Cat Creek:** Measurements were taken at the bridge over the creek off Wood Creek Road. A total of eight site visits were made between 3/19/2014 thru 5/23/2014.

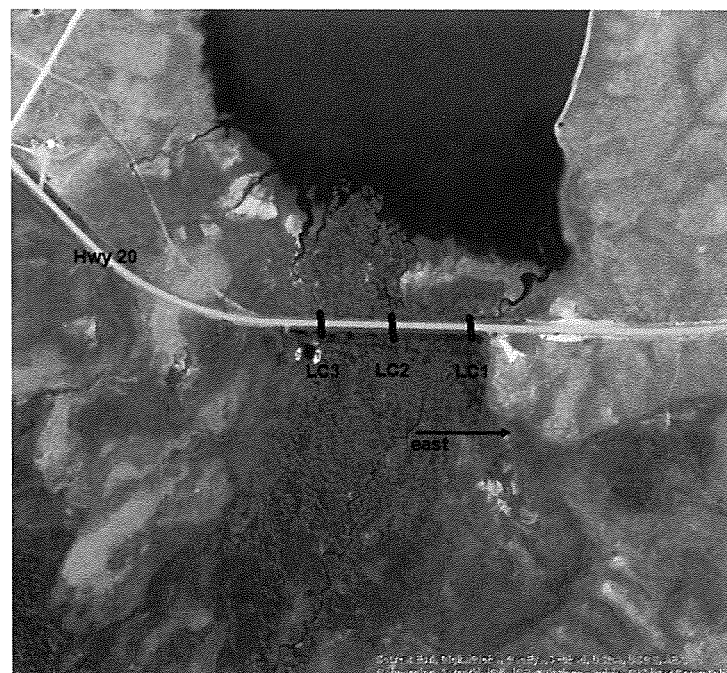


Cat Creek Bridge crossing, 3/19/2014. Looking east. FlowTracker measurements typically done about where photo is taken from relative to the bridge. Depth measurement consistently taken at spot arrow above points to.

Flows varied from a high of 5.5 cfs to a low of 0.7 cfs. Inches in depth varied from a high of 15 inches to 7 inches at the bridge. Should be noted beavers did cause variations in flow. Below is a picture taken just on the east side of the bridge. The beaver dam was constructed within a week. Photo taken 5/9/2014.



**Little Camas Creek:** Eight measurements were taken at Little Camas Creek, done at 3 points/culverts that pass under Highway 20. Culverts designated as **LC1**, **LC2**, and **LC3**. The rating curve developed was an average of the three culverts. As with Cat Creek, beaver construction obstructed/altered flows between measurements.



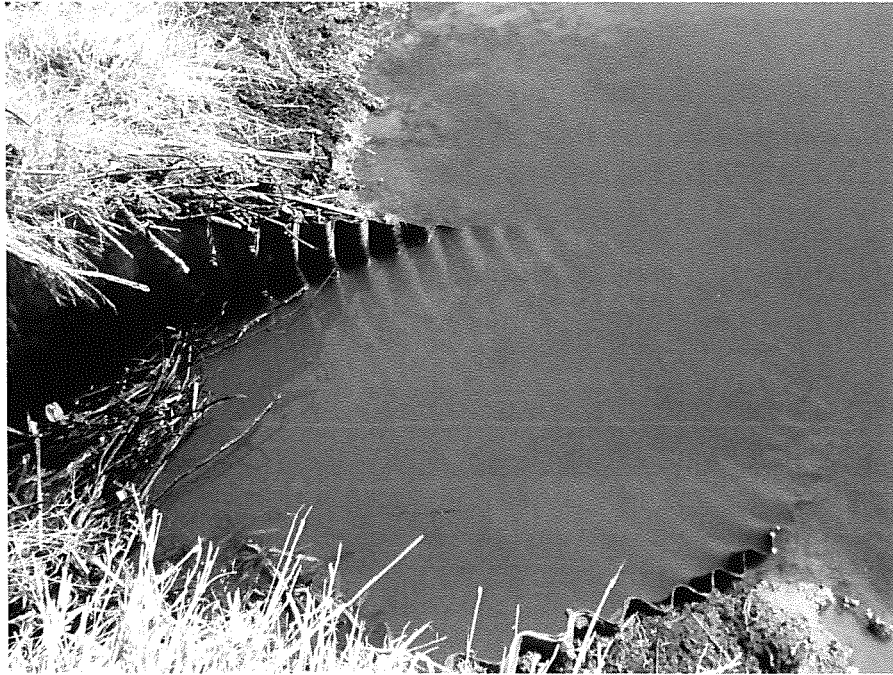
**LC1:** This culvert of the three was typically the highest flowing. FlowTracker measurements were done on a point in the creek about 100' from where water exited the culvert. Depth measurement was made at the very center of the end of the culvert (picture below).



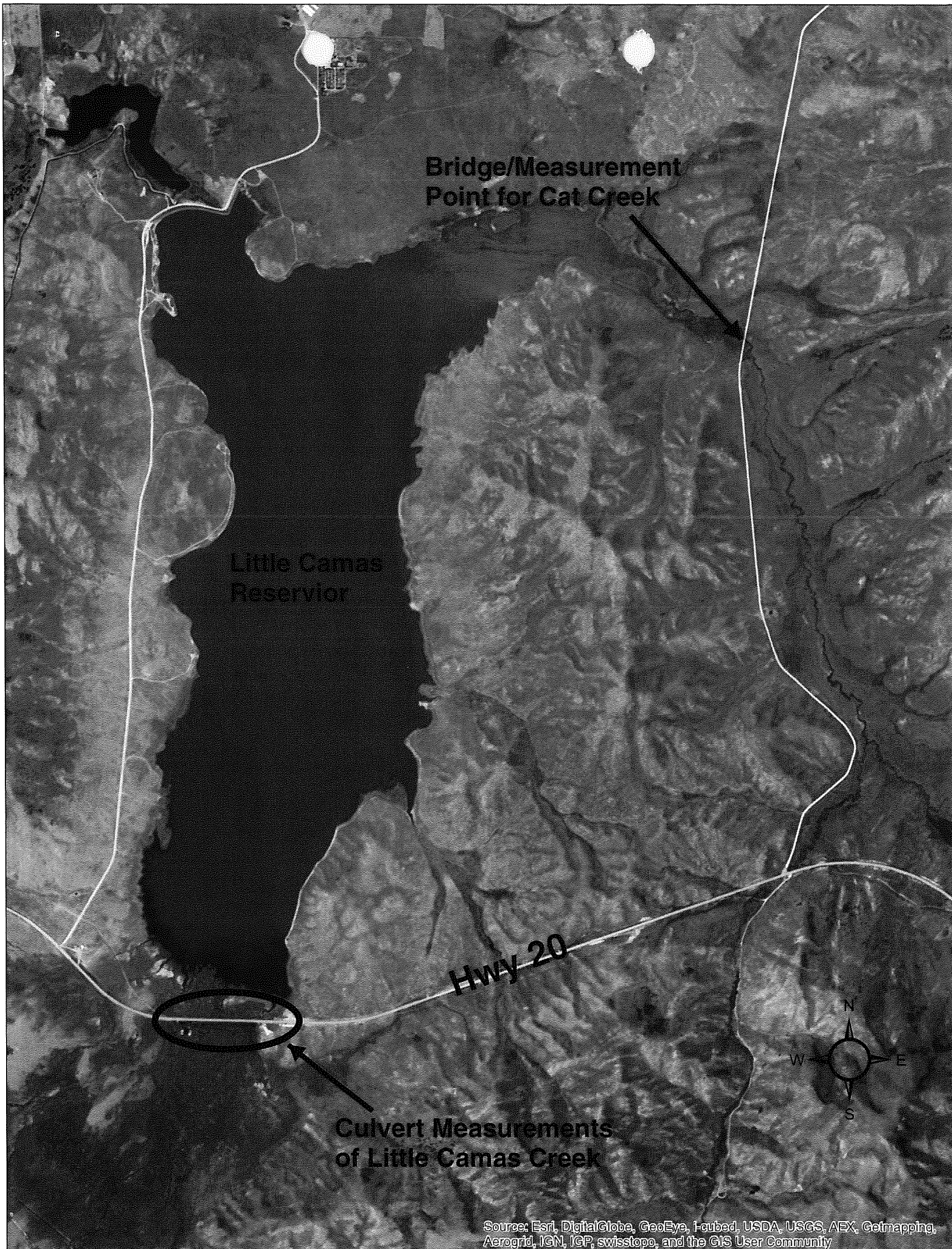
**LC2:** FlowTracker measurements were done at the beginning of the culvert on the south side of the road. Depth measurements were made at the same spot (picture below).



**LC3:** This culvert was typically the lowest flowing. FlowTracker measurements were done at the beginning of the culvert on the south side of the road. Depth measurements were made at the same spot (picture below). Note the beaver work in the culvert.





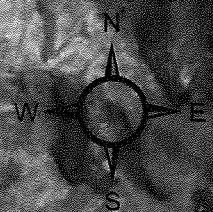


Bridge/Measurement  
Point for Cat Creek

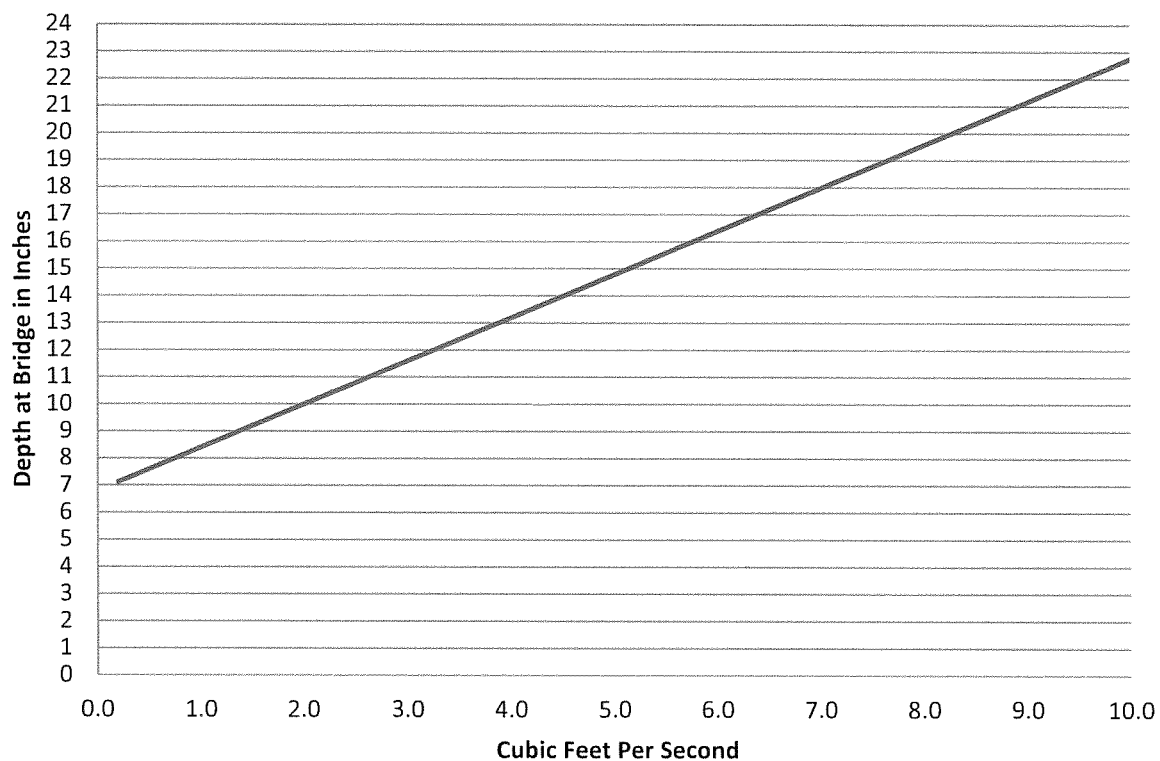
Little Camas  
Reservoir

Hwy 20

Culvert Measurements  
of Little Camas Creek



### Cat Creek at Wood Creek Road Bridge



### Little Camas Creek at Hwy 20

