Langlois Creek Log Weir Removal

Snohomish Basin Salmon Recovery Technical Committee
Site Overview
Existing Weir

- Roughly 50 feet downstream of Culvert # 933064
- Channel-spanning
- 18-inch diameter
- 16 feet long
- Vertical drop of 0.85 feet

(ESA, Jan. 2020)
Existing Weir

- Vertical drop > 0.79 feet
- WDFW fish passage barrier
- Traps upstream sediment
- Increases upstream streambed grade

(ESA, Jan. 2020)
Goal of Weir Removal

- Remove 18-inch diameter log
- Eliminate 0.85 foot vertical drop
- Regrade streambed to match the new upstream culvert profile, 1.7%
- Allow for fish passage
- Reduce the risk of a head cut moving upstream to new culvert
Proposed Design

LOG WEIR REMOVAL GRADING

SCALE: 1:10

Limit of Grading

Remove 18" Diameter Log Weir
See Sheet RF-02

Electrical Transformer
Buried Power Lines Are Present
Pipe or Restore

Install Coarse Band

0.85 Ft Drop at Existing Log Weir
Remove Weir and Grade Smooth

Profile

Scale: 1:10
Proposed Design

LIMIT OF WORK

REMOVE 18" DIAMETER LOG WEIR SEE SHEET RF-02

LANGLOIS CREEK

INSTALL COARSE BAND

FOR CULVERT GRADING SEE SHEET RF-05

CULVERT #933064

PIP OR RESTORE PSE ELECTRICAL TRANSFORMER. BURIED POWER LINES ARE PRESENT, PIP OR RESTORE

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Proposed Design

- Install coarse band of cobble mix to provide a deformable, light grade control
  - Use same coarse band cobble mix as used in new culvert
  - 12” cobble mix (gradation including ‘streambed sediment’)
  - Deformable to allow for long-term channel evolution without resulting in a drop
  - Stable enough to hold its form during typical flows, prevent head cut
Proposed Design Elements

• Stream dewatering
  − Flow bypass
  − Pump, diversion pump, temporary energy dissipater
• Log removal
• Streambed regrading
  − 1.7%
• Install coarse band (light grade control structure)
  − Band of coarse streambed material downstream of Culvert # 933064
  − Prevent head cut from moving upstream to Culvert # 933064
Project Examples – Suds Creek, Clark County, WA
Grade Control Structures

(ESA, Oct. 2014)
Project Examples – Derry Dell Creek, Tigard, OR
Grade Control Structure

- Larger grade control, but similar concept of using a deformable streambed mix
- Utilities present at this site

(ESA, Oct. 2014)
Project Examples – Derry Dell Grade Control Structure

(ESA, September 2020)
Project Examples – Derry Dell Grade Control Structures

(ESA, September 2020)
Project Examples – Derry Dell Grade Control Structures

(ESA, September 2020)
Conclusion

• Questions?

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(ESA, Jan. 2020)