### Vicinity Map

**Purpose:**
Rock Drop Stabilization Structures for Fisheries Habitat Restoration, Flood Protection, and Replacement Outfall Stabilization.

**Datum:**
N.G.V.D. September 27, 2000

**Application by:**
City of Cle Elum and Yakama Nation

**Located within:**
Sections 35 and 36, Township 20 N, Range 15 E, W.M.

**Adjacent property owner:**
Joe Bakun and Betty Brooks

**Address:**
119 W. First Street
Cle Elum, WA 98922-1159
Phone: 509.674.2262

**Longitude:**
120.55° 08.29” W

**Latitude:**
47.11° 09.35” N
### Purpose:

Rock Drop Stabilization Structures for Fisheries Habitat Restoration, Flood Protection, and Replacement Outfall Stabilization.

### Replacement Outfall Alternative Routes

- City of Cle Elum Wastewater Treatment Plant Outfall and Yakama Nation Hanson Ponds Habitat Restoration/Enhancement

### Datum:

N.G.V.D. September 27, 2000

### Application By:

City of Cle Elum and Yakama Nation

### Project Location:

- **Along:** Yakima River  
- **Within:** Kittitas County

### Located Within:

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- **State:** WA  
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#### Legend

- **Upland Communities:**  
  - Native riparian buffer  
  - Pine forest community

- **Wetland Communities:**  
  - Forested wetland community  
  - Emergent wetland community  
  - Rarvian wetland community

- **Aquatic Communities:**  
  - Beaver dam locations

Note: Communities not drawn to scale
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**APPLICATION BY:**
City of Cle Elum and Yakama Nation

**LONGITUDE:** 120.55° 08.29" W
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**PROJECT LOCATION:**
City of Cle Elum Wastewater Treatment Plant Outfall and Yakama Nation Hanson Ponds Habitat Restoration/Enhancement
PURPOSE:
Rock Drop Stabilization Structures for Fisheries Habitat Restoration, Flood Protection, and Replacement Outfall Stabilization.

SCHEMATIC ROCK DROP DESIGN:
City of Cle Elum Wastewater Treatment Plant Outfall and Yakama Nation Hanson Ponds Habitat Restoration/Enhancement

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**PURPOSE:**
Rock Drop Stabilization Structures for Fisheries Habitat Restoration, Flood Protection, and Replacement Outfall Stabilization.

**EXISTING CONDITIONS AND HISTORIC CHANNEL CHANGES**
City of Cle Elum Wastewater Treatment Plant Outfall and Yakama Nation Hanson Ponds Habitat Restoration/Enhancement

**PROJECT LOCATION:**
ALONG: Yakima River
WITHIN: Kittitas County

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Rock Drop Stabilization Structures for Fisheries Habitat Restoration, Flood Protection, and Replacement Outfall Stabilization.

ALONG: Yakima River
WITHIN: Kittitas County

City of Cle Elum Wastewater Treatment Plant Outfall and Yakama Nation Hanson Ponds Habitat Restoration/Enhancement

DATUM: N.G.V.D. September 27, 2000
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EXISTING CONDITIONS AND HISTORIC CHANNEL CHANGES

PROJECT LOCATION:
Detailed Rock Drop Construction Sequence

Sequence for Drop Structures

Placement of rock in an active channel shall normally follow the sequence listed below:

1. Excavate the keyway or sill in the farthest bank from the rock stockpile. Maintain a berm at the water’s edge and deposit the spoils out of the water to protect the water quality.

2. Place structural rock and willow cuttings in the far key and backfill void with finer material that will promote vegetative growth.

3. Place rock along the specified alignment without subexcavation if possible. Begin at the far key and proceed across the channel no more than three-quarters (3/4) of the stream width. If necessary, use the partially completed structure as a work platform to avoid excessively deep water.

4. Excavate keyway in the near bank following instructions in Step No. 1 and then repeat Step No. 2.

5. Place rock along the specified alignment beginning at the near key and extend structure to meet and mesh with the previously placed rock.

6. Complete the installation by dressing up the key areas and upper banks.

When rock can be stockpiled near both ends of the Drop (at Rock Drop 4 for example), the order of keyway construction will normally depend on using the sequence that minimizes in-water activity and water quality disturbance. In the case of Rock Drop 4, the south keyway would be considered the far keyway in the above discussion.

The following instructions may be altered if bed or bank scouring will not occur when the channel is constricted during construction.

Note:
On small Rock Drops (such as in the rock drops for Hanson Ponds) boat passage often is not required so the Boat Notch can be omitted. However, it may be desirable to provide a Small Notch to concentrate low flow in smaller Rock Drops.

**PURPOSE:**
Rock Drop Stabilization Structures for Fisheries Habitat Restoration, Flood Protection, and Replacement Outfall Stabilization.

**PROPOSED CONSTRUCTION SEQUENCE:**
Rock Drops and Boat Notch

**PROJECT LOCATION:**
Along: Yakima River
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**DATUM:**
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Purpose:
The Yakima River is threatening to flow north of the Washington State Department of Ecology (WSDOE) built dike by either lateral migration at the SW corner of Pond 2 or by overland flow during flooding. If a significant portion of the river begins to flow north of the dike, serious damage will occur. 1-30 could be damaged along the borrow pit or the East Interchange. Haussen’s Ponds would be destroyed, and the existing Sewage Treatment Plant would be exposed.

The project is intended to stop the lateral channel migration (Rock Drop 1), and allow for overland flood flow to safely pass through the Pond System. Dike Breach 4 will allow low flow to enter Pond 2 so that the off-river fishery can be enhanced. Near the East Interchange, the Rock Dikes and Dike Breaches are designed to protect 1-30 by allowing flood water back into the river; and enhance the off-river fishery.

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**PURPOSE:**
Rock Drop Stabilization Structures for Fisheries Habitat Restoration, Flood Protection, and Replacement Outfall Stabilization.

**EXISTING CLE ELUM WASTEWATER TREATMENT PLANT OUTFALL**
City of Cle Elum Wastewater Treatment Plant Outfall and Yakama Nation Hanson Ponds Habitat Restoration/Enhancement

**PROJECT LOCATION:**
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Proposed Erosion Control Measures

1. Temporary gravel berm to be installed around the periphery of the gravel bar.

2. Temporary construction access routes to minimize impacts to riparian or wetland habitat.

3. Erosion control measures and Best Management Practices (BMPs), such as silt fencing, to be employed along the river banks and in instream work areas.

Rock Drop Stabilization Structures for Fisheries Habitat Restoration, Flood Protection, and Replacement Outfall Stabilization.

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SHEET 8 of 9

PROPOSED EROSION CONTROL MEASURES

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**PURPOSE:**
Rock Drop Stabilization Structures for Fisheries Habitat Restoration, Flood Protection, and Replacement Outfall Stabilization.

**SHEET 9 of 9**
**REPLACEMENT OUTFALL CROSS-SECTION WITHIN ROCK DROP**

**PROJECT LOCATION:**
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