# Swift Creek Project Construction Diagram

This diagram shows the engineered controls and construction schedule for the Swift Creek Project.

## General Diagram Orientation

### General Project Location

The Swift Creek flood control and sediment management project is located east of Everson, WA in Whatcom County. Sumas, WA is located north and east of the diagram view. The Sumas Mountain Landslide is located uphill and southeast of the diagram.

### Swift Creek Path

The North and South Forks of Swift Creek originate from the western slope of Sumas Mountain and join at the base of Sumas Mountain east of Leibrant Road. After joining as one creek, it flows westward for approximately 1,500 feet and then southwest for approximately 3,000 feet. The creek then flows generally northwest for 1,000 feet and flows underneath Goodwin Road. It continues northwest for approximately 6,000 feet and then flows underneath Oat Coles Road. It continues generally southwest another 1,500 feet where it joins the Sumas River.

### Roads

Within the Swift Creek Project area, roads running east/west include South Pass Road to the north and Massey Road to the south. Roads running north/south include Oat Coles Road, Goodwin Road, and Leibrant Road (listed from west to east).

### Alluvial Fan

At the confluence of Swift Creek's North and South Forks, an alluvial fan extends from the base of Sumas Mountain west of Leibrant Road, north of South Pass Road, and south of Massey Road.

### Other orientation areas

#### Willams Pipelines

Natural gas pipelines extend from the north to the south through the project area paralleling Leibrant Road for approximately 4,000 feet before crossing Swift Creek at the base of Sumas Mountain.

#### Great Western Lumber Company

The company property extends on the west and east sides of Goodwin Road and south of South Pass Road. It is a neighboring property to the north of the Swift Creek Project labeled for community orientation.

### Access and Haul Route Roads and Bridges

An **interim access road** will be built from Goodwin Road (just north of the bridge over Swift Creek) heading east for approximately 300 feet, then northeast for approximately 1,200 feet, then east for 1,500 feet to the existing bridge over Swift Creek. The access road extends north/northeastward 1,500 feet on top of the debris flow deflection berm. **Another access road** extends from this deflection berm in a general northeast direction, then in an eastward direction for 2,400 feet to the confluence of the North and South Forks of Swift Creek.

The **existing Swift Creek Bridge** (within the project area) is located in the center of the Swift Creek Project at southern base of the deflection berm along the interim and long-term haul roads, approximately 2,700 feet east of Goodwin Road. A **potential replacement access bridge** is located approximately 300 feet upstream from existing bridge and connects to the southern portion of the Debris Flow Deflection Berm.

**Three branching haul routes roads** will be constructed from the **existing Swift Creek Bridge** and a **potential replacement access bridge**. The roads extend from the existing bridge to the south and then east (approximately 2,700 feet), to the southeast (approximately 900 feet), and northeast, then southeast (approximately 2,700 feet). These haul route roads connect to the Canyon Central Repository sites.

A **long-term haul road** will have two intersections with Goodwin Road: 1.) at the property line fence to the north (approximately 1,500 feet north of the Goodwin Road bridge over Swift Creek) and 2.) at the Goodwin Road bridge over Swift Creek to the south. Both roads meet at approximately 600 feet from both the north and south. This road then extends 2,400 feet to the east to the Debris Flow Deflection Berm and the existing Swift Creek Bridge (within the project area).

### Staging Areas

- **Temporary Stockpile and Staging Area**: This is a roughly triangular shaped area on the southern side of the joined east/west long-term haul road extending from Goodwin Road. This area is bound by the long-term haul road to the north and west and the interim access road to east. The area extends approximately 600 feet north to south, 600 feet east, and 900 feet in a northeast direction.

## Construction Schedule

All construction bullet points are listed generally by elevation from uphill to downhill and/or east to west (diagram right to left).

### Completed

- **Phase 1, Sediment Traps:** System to slow Swift Creek water and allow sediment to settle before continuing downstream. It is located at the confluence of the North Fork and the main South Fork of Swift Creek on the uphill/east side of the diagram. The area extends approximately 600 downstream. The diagram displays a series of three joined rectangles over Swift Creek.
- **Phase 1, Debris Flow Deflection Berm:** Engineered soil barrier for streamflow control during a flooding or landslide event. It extends from the existing Swift Creek Bridge (located approximately 2,700 feet east of Goodwin Road) north/northeast for approximately 1,500 feet. It is north and west of Swift Creek and just east of the Williams Pipeline. The diagram displays an approximate 150 foot-wide, linear berm in a semicircular “C” shape.
- **Wetland Mitigation:** Wetland area to offset and counter other environmental effects from the Swift Creek Project construction. It is located west of Goodwin Road by approximately 500 feet, extends approximately 1,500 feet westward. Swift Creek is the general north boundary. It is approximately 1,000 feet north to south and approximately 30-35 acres.
- **Oat Coles Wetland Mitigation:** Wetland area to offset and counter other environmental effects from the Swift Creek Project construction. This approximately 8-acre site is located just east of

Oat Coles Road and just south of South Pass Road. Swift Creek forms the southern border of the site.

## 2025-2027

- **Phase 1, Canyon Central Repository Site and Clean Cover Stockpile:** Long-term storage location for Swift Creek sediment. This location will also store clean dirt, which will be used to cover sediment stored in long-term repositories. The repository is approximately 30-acres and the clean cover area is roughly 15-acres. Both areas are located uphill and south and east of Swift Creek. The two areas are approximately 600 feet apart from each other.
- **Oat Coles North Setback Levee:** The west portion of the site is a storage location for Swift Creek sediment. This approximately 8-acre site is located just east of Oat Coles Road and just south of South Pass Road. Swift Creek forms the southern border of the site.

## 2027-2029

- **Phase 2, Sediment Traps:** System to slow Swift Creek water and allow sediment to settle before continuing downstream. It is located at the confluence of the North Fork and the main South Fork of Swift Creek on the uphill/east side of the diagram. The area extends approximately 600 downstream. The diagram displays a series of three joined rectangles over Swift Creek.
- **Williams Pipeline Crossing Grade Control:** Natural gas pipelines flow under Swift Creek. This engineered system safely directs Swift Creek over the underground pipelines. These structures are at the intersection of the Williams Pipeline and Swift Creek. They are located downstream from the existing Swift Creek bridge and upstream from the Sediment Basin Areas. They are displayed as two rectangles joined and in-line with Swift Creek.
- **Phase 1, Sediment Basins:** Engineered system to slow Swift Creek water and allow sediment to settle for removal and storage in sediment repositories. They are located upstream on Swift Creek approximately 900 feet southeast of the Goodwin Road Bridge over Swift Creek. The diagram displays a rectangular shape made of five smaller rectangles with a temporarily realigned Swift Creek bisecting.

## 2029-2031

- **Replacement Access Bridge:** Construct a new bridge upstream from the existing project area bridge over Swift Creek for long-term project management. It is located approximately 300 feet upstream from the existing bridge over Swift Creek and connects to the southern portion of the Debris Flow Deflection Berm. The bridge would cross Swift Creek and span approximately 100 feet.
- **Phase 2, Canyon Central Repository Site and Clean Cover Stockpile:** Long-term storage location for Swift Creek sediment. This location will also store clean dirt, which will be used to cover sediment stored in long-term repositories. The repository is approximately 30-acres and the clean cover area is roughly 15-acres. Both areas are located uphill and south and east of Swift Creek. The two areas are approximately 600 feet apart from each other.
- **Phase 2, Sediment Basins:** Engineered system to slow Swift Creek water and allow sediment to settle for removal and storage in sediment repositories. They are located upstream on Swift Creek approximately 900 feet southeast of the Goodwin Road Bridge over Swift Creek. The

diagram displays a rectangular shape made of five smaller rectangles with a temporarily realigned Swift Creek bisecting.

## 2031-2033

- **Phase 2, Debris Flow Deflection Berm:** Access roads constructed on top of engineered soil barrier for streamflow control during a flooding or landslide event. It extends from the existing Swift Creek Bridge (located approximately 2,700 feet east of Goodwin Road) north/northeast for approximately 1,500 feet. It is north and west of Swift Creek and just east of the Williams Pipeline. The diagram displays an approximate 150 foot-wide, linear berm in a semicircular "C" shape.
- **Phase 3, Sediment Basins:** An engineered system to slow Swift Creek water to allow sediment to settle for removal and storage in sediment repositories. This approximately 30-acre area is located approximately 300 feet downstream of the Williams Pipeline Crossing Grade Control and approximately 300 feet east of the Goodwin Road Bridge over Swift Creek. It is displayed as an elongated, octagonal shape – similar in proportions to a hoofed-animal's footprint when viewed from above. It contains six, four-sided interconnected sections in two parallel rows of sections - generally in the direction of the newly aligned streamflow. Each section contains a smaller, similar shape connected by perpendicular lines at regular intervals.
- **Lower Goodwin Reach Berm:** Engineered soil barrier for streamflow control during a flooding or landslide event. This linear element is located on the east side of Goodwin Road extending south from the Goodwin Road Bridge over Swift Creek and paralleling Goodwin Road for approximately 300 feet before turning east and running approximately 2,400 feet before stopping at the Williams Pipeline. It forms the southern border of the Swift Creek Project. The diagram displays an approximate 50-foot wide, linear berm.
- **Final Capping of Oat Coles North Setback Levee:** Clean soil cover and planting. This approximately 8-acre site is located just east of Oat Coles Road and just south of South Pass Road. Swift Creek forms the southern border of the site.

## 2033-2035

- **Lower Reach Stabilization:** Reinforcement of Swift Creek streambed and banks after completion of upstream flood control and sediment management systems and material repository. This area begins at Goodwin Road and extends northwest to Oat Coles Road and encompasses both banks of Swift Creek.

## 2035-2037

- **Final Capping of Canyon Central Repository Site:** Long-term storage location for Swift Creek sediment. The repository is approximately 30-acres and the clean cover area is roughly 15-acres. Both areas are located uphill and south and east of Swift Creek. The two areas are approximately 600 feet apart from each other.