



Technical Memorandum

Date: August 24, 2021

Project: Chehalis River Basin Flood Damage Reduction Project

To: Chehalis Basin Flood Control Zone District

From: HDR – Keith Moen

Subject: Access Road Update and Best Management Practices

Attachment: Attachment A. Figures

1.0 Introduction and Purpose

The Draft Environmental Impact Statements (EISs) prepared by the Washington Department of Ecology (Ecology; pursuant to the State Environmental Policy Act) and the U.S. Army Corps of Engineers (USACE; pursuant to the National Environmental Policy Act) evaluate anticipated impacts associated with construction and operation of a proposed Flood Retention Only - Expandable (FRE) facility (i.e., the Chehalis River Basin Flood Damage Reduction Project [proposed project]) in the Chehalis Basin, Washington State. The Chehalis Basin Flood Control Zone District (District) is the project proponent. During development of the Final EISs, Ecology and USACE requested additional information to inform the assumptions for construction access road requirements. This memo identifies existing forest roads that could be used as alternative access routes around the active construction area and quarry access, and describes best management practices (BMPs) to reduce impacts of sedimentation from construction of the new access roads or use of existing roads during construction.

2.0 Existing Access Roads

Existing access roads would be used for construction access and to provide access around the temporary inundation area. The current approach for access road construction is to minimize disturbance by using existing roads to provide permanent access around the flood inundation area and temporary access to and around the FRE construction site. Existing roads would be improved to provide safe temporary access to and around the construction site. Attachment A includes three figures that depict the FRE facility site construction access roads:

- Figure A-1: FRE Facility Construction Access Roads
- Figure A-2: FRE Facility Site Vicinity Access Roads
- Figure A-3: FRE Facility and Inundation Area Access Roads

2.1 Construction Access

Access to the FRE construction site would be provided from Muller Road and Forest Road (FR) 1000. The District anticipates that construction workers would park off-site in existing lots and be shuttled to the construction area to limit construction-related traffic and vehicles. At this time,

no new parking areas are anticipated; however, this would be confirmed during future design phases. Site mobilization and staging activities would be required to prepare the site for construction. The FRE facility would be located within the 100-year floodplain of the Chehalis River. FR 1000 to the FRE construction site would be used for construction equipment, materials, and supplies.

2.2 Access Around Temporary Inundation Area

To the extent possible, the District proposes to use existing roads to provide permanent access around the temporary inundation area. However, a bypass may be required for FR 1000, which is a main access road for Weyerhaeuser forestry operations. Up to 6 miles of FR 1000 would be inundated during FRE operations, at which time a detour could be used consisting of FR A-line, FR F-line, and FR 2000 to rejoin FR 1000 upstream of the temporary inundation area footprint. Future designs would inform the nature of proposed upgrades and long-term vehicular access.

During the approximately 5-year construction period, a bypass would be necessary around the construction site for vehicle and truck use not associated with construction. Alternative access around the site is known to exist, and discussions with the existing landowner regarding bypass routes around the site and improvements to existing roads would be conducted. All road construction activity would include the use of appropriate BMPs for resource protection. The access road approach will be further developed during future design phases. Some bypass and access road improvements may be located in the 100-year floodplain of the Chehalis River.

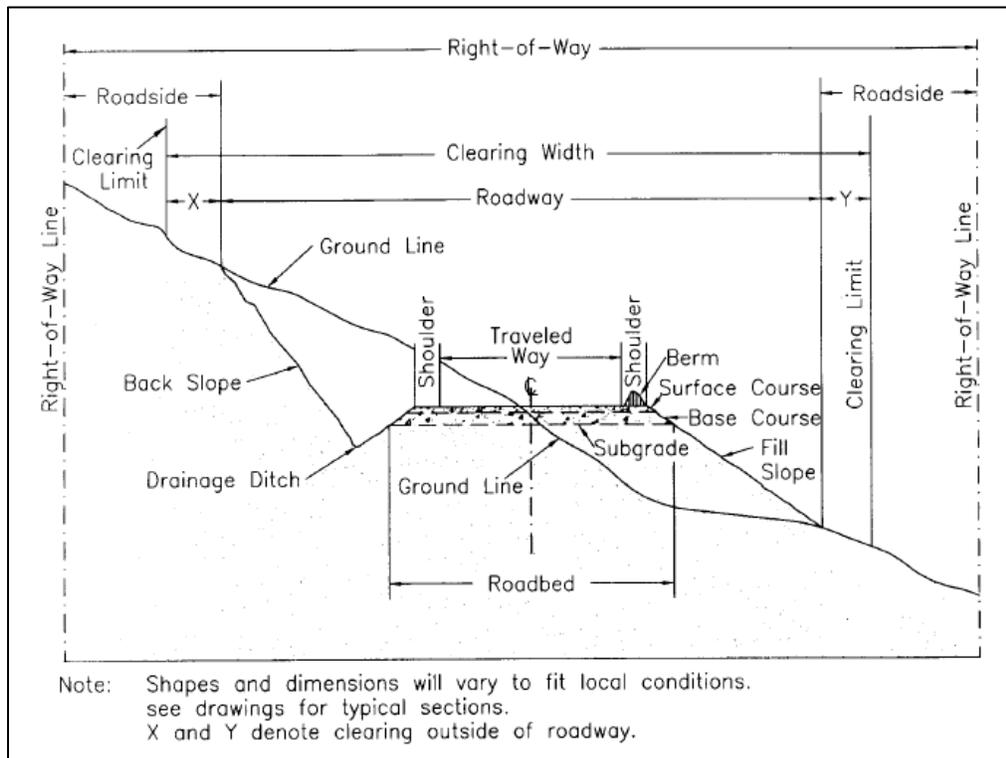
3.0 New Construction Roads

Narrower, new temporary roads for construction access would be constructed within the active construction site and quarry. Some conceptual access roads for the FRE structure are shown on Figure A-1; however, conceptual access roads for the quarry have not yet been developed. Temporary roads within the active construction site would be removed and restored after construction.

4.0 Construction Access Road BMP

To the extent possible, the District would minimize disturbance and creation of new impervious surfaces by using existing roads to provide access to and around the construction site. However, some permanent road improvements would be necessary to provide sufficient load-bearing capacity for construction equipment. Improvements would likely include amendment with quarry spalls and subsequent maintenance activities. Designed improvements would require implementation of applicable BMPs to minimize erosion and sediment inputs to the river. A typical forest service road cross-section is provided on Figure 1 below. The precise dimensions of the roadway are expected to vary depending on location and will be determined during the subsequent design and permitting phase for the project.

Figure 1. General Cross-section of a Typical Forest Service Road



Source: National Road Construction Specifications EM-7720-100, Revised August 1996 Division 100 General Specification

4.1 General Construction Best Management Practices

At a minimum, BMPs and other resource protection actions would include:

- All new and improved roads would be constructed to conform to regulatory guidelines that apply to each set of roads at the time of permitting. In some cases, Washington State Forest Practices Rules (Title 222 Washington Administrative Code) standards may apply to road construction. As applicable, these standards would be considered during future design of permanent and temporary access roads or existing road improvements.
- Installation of high-visibility fence to define construction limits.
- Maintenance of access to private properties to the extent possible by installing signs, marking detour routes, flagging, and providing information to property owners, including notification in advance of construction activities.
- Development of a traffic control plan, if necessary.
- Stabilization of construction entrances.
- Implementation of a spill prevention control and countermeasures plan for temporary fuel tanks, construction equipment, and diesel generator on-site, including identified refueling locations, spill control measures, and necessary containment equipment and materials.
- Compliance with dust control policies and plans, including the use of water trucks.
- Stabilization of construction access roads and parking areas.
- Implementation of adaptive management for stormwater control during construction.

- Measurement of identified pollutants such as turbidity and pH during construction at identified permit-required compliance points.

4.2 Erosion Control Best Management Practices – Construction

Construction would comply with the National Pollutant Discharge Elimination System permit, Washington Administrative Code 173-201A: Water Quality Standards for Surface Waters of the State of Washington, and other federal, state, and local codes and regulations. BMPs would be implemented in accordance with Ecology's *Stormwater Management Manual for Western Washington*, current Washington State Department of Transportation's *Standard Specifications for Road, Bridge, and Municipal Construction and Standard Plans*, and Lewis County standards.

As part of the construction contract, the District would require the contractor to prepare and implement a temporary erosion and sediment control plan for all aspects of construction, including clearing and grading within the FRE facility construction footprint, temporary access road, and improvements to existing access roads (e.g., to selected quarry site). Implementation of the plan would minimize stormwater impacts, such as high storm flow runoff, soil erosion, waterborne sediment from exposed soils, and degradation of water quality from on-site pollutant sources. At a minimum, and for consideration as part of the proposed project, the following BMPs would be implemented to minimize the potential for erosion and sediment production:

- Using straw bales, silt fencing, vegetation strips, brush barriers or other suitable sedimentation control or containment devices.
- Washing truck tires to reduce tracking of sediments and aquatic invasive species from construction sites.
- Covering exposed soil stockpiles and exposed slopes using mulch, nets and blankets, plastic coverings, temporary seeding and sodding, and compost blankets.
- Using straw mulch (certified free of noxious weeds and their seeds) and erosion control matting to stabilize graded areas where appropriate.
- Retaining vegetation where possible to minimize soil erosion.
- Seeding or planting appropriate vegetation on exposed areas as soon as possible after work is completed.
- Constructing temporary sedimentation ponds to detain runoff water where appropriate.
- Using Baker tanks, sediment traps, flow control structures, oil/water separators, ditches, and level spreaders to control erosion.
- Using berms, ditching, and other on-site measures to prevent soil loss.
- Monitoring downstream turbidity during construction to document the effectiveness of implemented measures.
- Visually monitoring for signs of erosion and implementation of additional erosion control measures, as required.
- Relative to excavated slopes that may be prone to bank instability during construction:
 - Excavation would begin from the upper portion of the slope first to avoid stability issues.
 - Steep rock slopes would include pattern rock bolts for stability.



- Over-steepened slopes included as part of the permanent design would be stabilized to meet slope design criteria. Options include:
 - Introduction of horizontal drainage into vulnerable slopes to improve stability
 - Berms placed at the toes of steep slopes
 - Introduction of tieback walls to retain slopes
- The District would comply with all permit requirements and monitor erosion during construction.

5.0 Conclusions

This memo clarifies assumptions for the use of existing access roads between the FRE facility and quarries, and access around the temporary inundation area, for the construction of the proposed FRE facility. This information is intended to refine the assumptions regarding access roads for development of the Final EISs. Most traffic during construction of the FRE would be in the general area between the FRE site and the quarry area. The existing road system including FS 1000 to the FRE construction site would be utilized for transporting construction equipment, materials, personnel, and supplies.

Furthermore, BMPs will be utilized for the new access roads at the FRE construction site and quarries, and for the existing U.S. Forest Service roads between the construction site and quarry, and for modifications of existing roads to mitigate construction disturbances. All BMPs will be designed to meet permit requirements. This District commits to avoiding, minimizing, or mitigating all impacts related to the proposed project.

Attachment A. Figures

Figure A-1. FRE Facility Construction Access Roads

Figure A-2. FRE Facility Site Vicinity Access Roads

Figure A-3. FRE Facility and Inundation Area Access Roads

**FIGURE A-1
FRE FACILITY
CONSTRUCTION
ACCESS ROADS**

-  Main Channel OHWM
-  Existing Access Road
-  Temporary Construction Access Road
-  Existing Rural Road
-  State Route 6

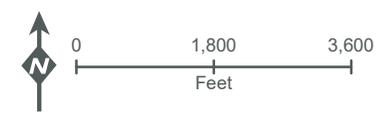
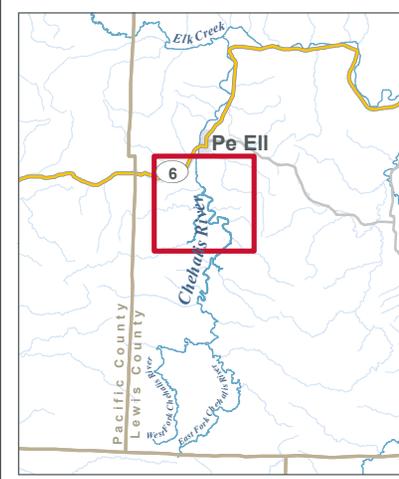
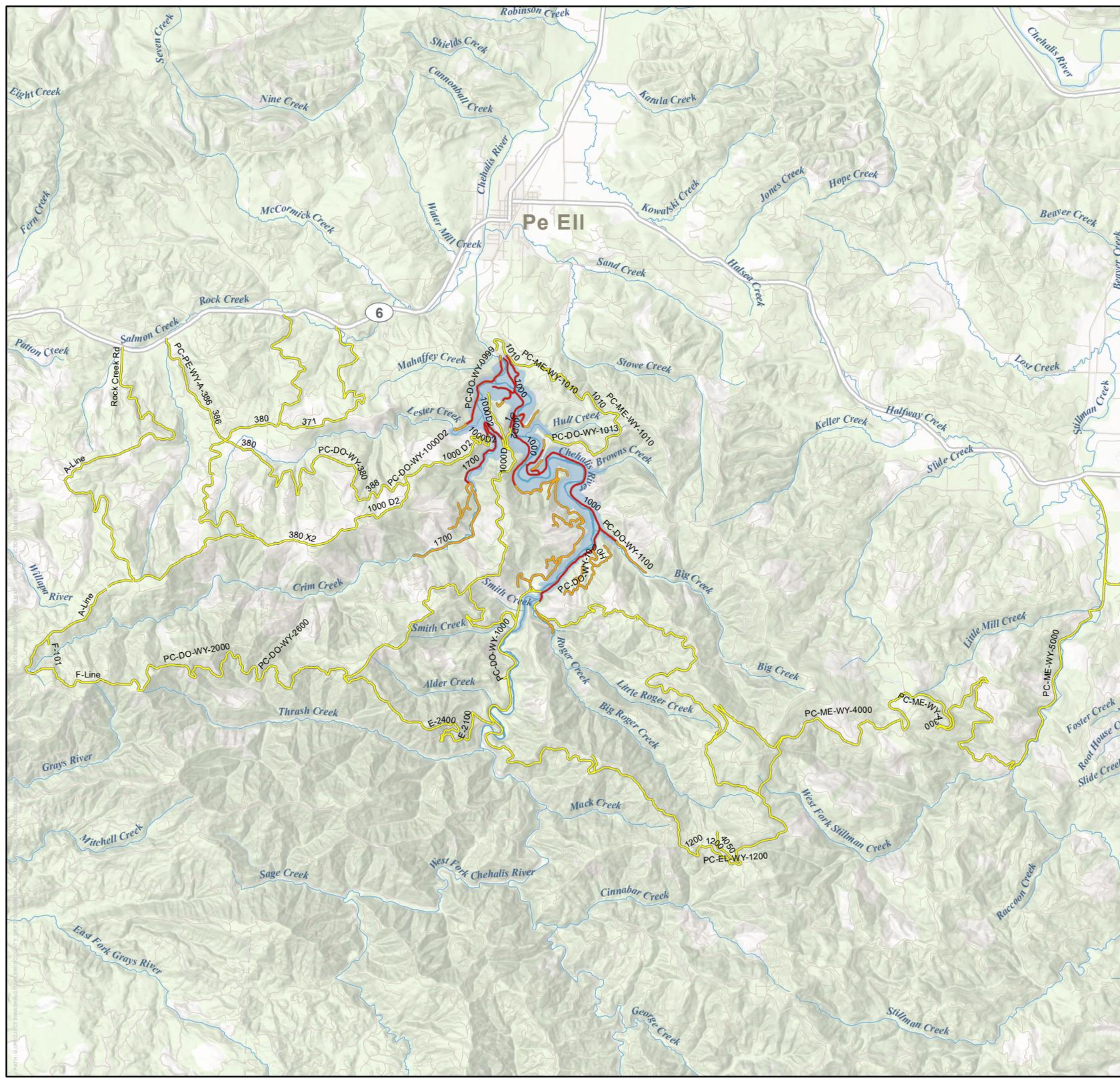


FIGURE A-2 FRE FACILITY SITE VICINITY ACCESS ROADS

-  Main Channel OHWM
-  Secondary Highway
-  Rural / Forest Service Road
-  Alternative Access
-  Orphaned Access Road
-  Potentially Inundated Road
-  Inundation Area



DATA SOURCE: WASHINGTON STATE DEPARTMENT OF TRANSPORTATION, WASHINGTON STATE GEOLOGIC SURVEY, AND WASHINGTON STATE DEPARTMENT OF ECOSYSTEMS, FORESTRY AND FISHeries.

