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9.0 VISUAL RESOURCES

9.1 AESTHETIC / VISUAL RESOURCE STUDY (VIS 1)

FERC Regulations for relicensing require preparation of a report on the aesthetic/visual resources associated with hydroelectric projects [18 CFR 4.51 (F)]. This report evaluates the aesthetic/visual resources associated with the Merwin and Swift No. 1 and No. 2 projects, and incorporates the results of a visual resource analysis completed for the 1999 Yale License Application (PacifiCorp 1999).

9.1.1 Study Objectives

The Aesthetic/Visual Resource Study is comprised of 5 study components:

- Existing Aesthetic/Visual Resource Conditions Documentation
- Visual Assessment of Reservoir Level Fluctuation
- Visual Assessment of Project Features
- Visual Assessment of River Flow Fluctuations
- Compliance with Visual Resource Objectives, Policies, and Guidelines

In compliance with FERC regulations, PacifiCorp and Cowlitz PUD conducted several studies to evaluate the aesthetic/visual effects of continued operation of the Merwin, Yale and Swift No. 1 and No. 2 projects. The studies were designed to address the following potential visual effects associated with the projects that were identified by the Applicants:

- Visual character of project features, including hydroelectric generation, transmission and recreation facilities;
- Visibility of project features from locations of high public use such as SR 503 and recreation areas;
- Visual effect of reservoir water level fluctuations, particularly in the summer when public use levels are high;
- Visual effect of instream flows in sections of the Lewis River affected by the projects; and
- Consistency of the projects with plans, policies and objectives regarding the visual resource.

Table 9.1-1 shows the aesthetic/visual resource topics that apply to the project area.

Table 9.1-1. Aesthetic/visual resource topics.

Visual Topics	PROJECT AREA					
	Lewis River Below Merwin Project	Merwin Project	Yale Project	Swift No.2 Project	Lewis River Bypass Reach	Swift No.1 Project
Visual Character of Project Features		X	X	X		X
Visibility of Project Features		X	X	X		X
Reservoir Water Level Fluctuations		X	X			X
Lewis River Instream Flows	X				X	
Consistency with Plans, Policies, and Objectives	X	X	X	X	X	X

9.1.2 Study Area

The visual analysis study area for the Merwin, Yale and Swift projects generally encompasses the Lewis River valley, but more specifically those areas viewed from the Lewis River Road (SR 503 and SR 503 Spur/Forest Road 90), the reservoir surface, and from public use/recreation areas in the vicinity.

9.1.3 Methods

To document existing conditions, a "viewpoint analysis" method was used to document current aesthetic/visual resource conditions related to project facilities and operations. These conditions, once documented, may be used to address the 5 topics identified in Table 9.1-1. A viewpoint analysis selects locations from which photographs are taken based on that location's ability to represent typical views. The photograph locations are referred to as Key Observation Points (KOPs) and are considered representative of views experienced by the public in the project vicinity.

The purpose of the visual assessment of existing project facilities is to document areas from which the public is able to view these facilities and determine the consistency of their visual character with applicable agency visual resource objectives, policies, and guidelines. Results of the study will indicate if existing facilities have an adverse effect on aesthetic/visual resources.

A reconnaissance of the Merwin and Swift project areas was conducted by vehicle and boat on March 27 and 28, 2000 to identify KOPs. On the following day, the Recreation Resources Group (RRG) toured the area with the Applicants, and reviewed and approved the identified KOPs. A total of 26 KOPs were identified for the Merwin and Swift project areas as representative locations from which project features, including reservoirs and sections of project-affected reaches of river, are viewed by the public. The Yale reconnaissance work was conducted on July 11 and July 12, 1996. A total of 11 KOPs were identified as representative locations for the Yale project area. Facilities at all reservoirs were inventoried and described during the same timeframes. Notes and photographs were taken to document conditions.

Figure 9.1-1 depicts the spatial location and orientation of the KOPs. Tables 9.1–2 and 9.1-3 correlate to the KOPs on Figure 9.1-1 and provide descriptions and photographs of the KOPs. KOPs are representative locations from public viewing areas considered to be visually sensitive because project facilities, including reservoirs and project-affected reaches of stream, can be seen.

All photographic images were taken with SLR cameras and 50mm lens. The 50mm lens corresponds most closely with the image perceived by the human eye. While scanned electronic copies of the photographs were used in this report, the aspect and ratio of the images was not modified. Therefore, while the size of the images may be enlarged or reduced from the scanned image for this report, the proportions of the images remain constant.

9.1.4 Key Questions

The Lewis River project watershed planning process identified no key aesthetic questions.

9.1.5 Results

The visual character of the study area is rural and mountainous with sweeping vistas of forested hillsides and mountain reservoirs. Dominant landscape features include the forested hillsides that enclose and define the Lewis River Valley. Mount St. Helens and Mount Adams are striking visual features seen in the distance on a clear day. The combination of extensive timber harvest activities, forested slopes, open meadows, and low-density residential development in the area create a rural setting with dominant signs of landscape modifications from natural resource-based industries.

The Lewis River is one of several southwesterly flowing rivers that drain the western flank of the Cascade Mountain Range. The Lewis River travels 93 miles from its headwaters near Mount Adams to its confluence with the Columbia River near Woodland, Washington. The Merwin, Yale, Swift No. 1 and Swift No. 2 projects are located between the high elevations of the Cascade Mountains and the lowlands of the Columbia River, in a physiographic region known as the Cascade Foothills. Landscape character in the vicinity of the Swift No. 1 and Swift No. 2 projects is defined by steep, heavily forested, volcanic slopes that are deeply incised with streams and rivers. Landscape character in the Yale vicinity is composed of steep, heavily forested hills with some gentler sloped areas on the east shore. The recreation sites and the Town of Cougar are located on these areas of gentler terrain. Landscape character of the Merwin Project is less steeply forested hillsides and broad river plateaus of open fields and woodlands.

The majority of the Lewis River valley is forested, except for a 30-square-mile area located in the upper basin that was denuded by the eruption of Mount St. Helens in 1980. The remainder of the valley landscape is managed for commercial timber production and consists of second growth Douglas fir and mixed conifer-hardwood forests. Harvesting practices have given the valley hillsides a patchwork appearance due to varying sizes and growth-stages of clearcuts. Logging roads from exposed earth and cut/fill slopes appear as tan scars against the green of the forest. Areas where large stands of trees were removed are evident. Most harvested timber areas are in various stages of regrowth. The resulting pattern and mixed ages produces various shades of green.

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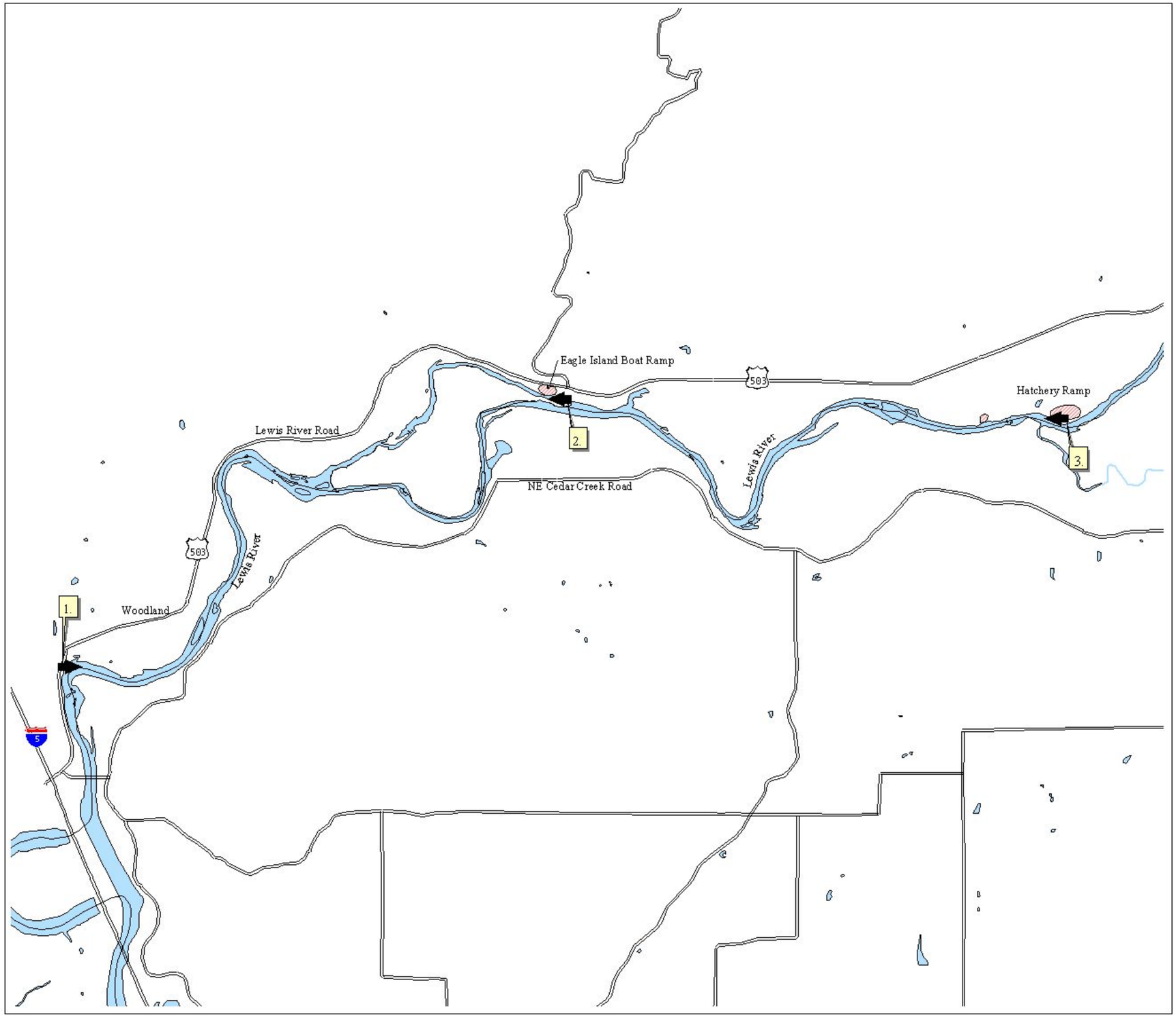
Lewis River
Hydroelectric Projects

Figure 9.1-1

Key Observation Point Photo Locations

SHEET 1 of 4

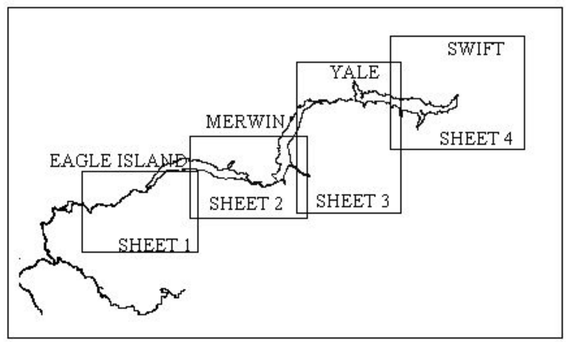


FERC Project Boundary

Project Recreation Site

Project Facility Site

Project Transmission Lines



0.5 0 0.5 1 Miles

PACIFICORP
Geographic Information System

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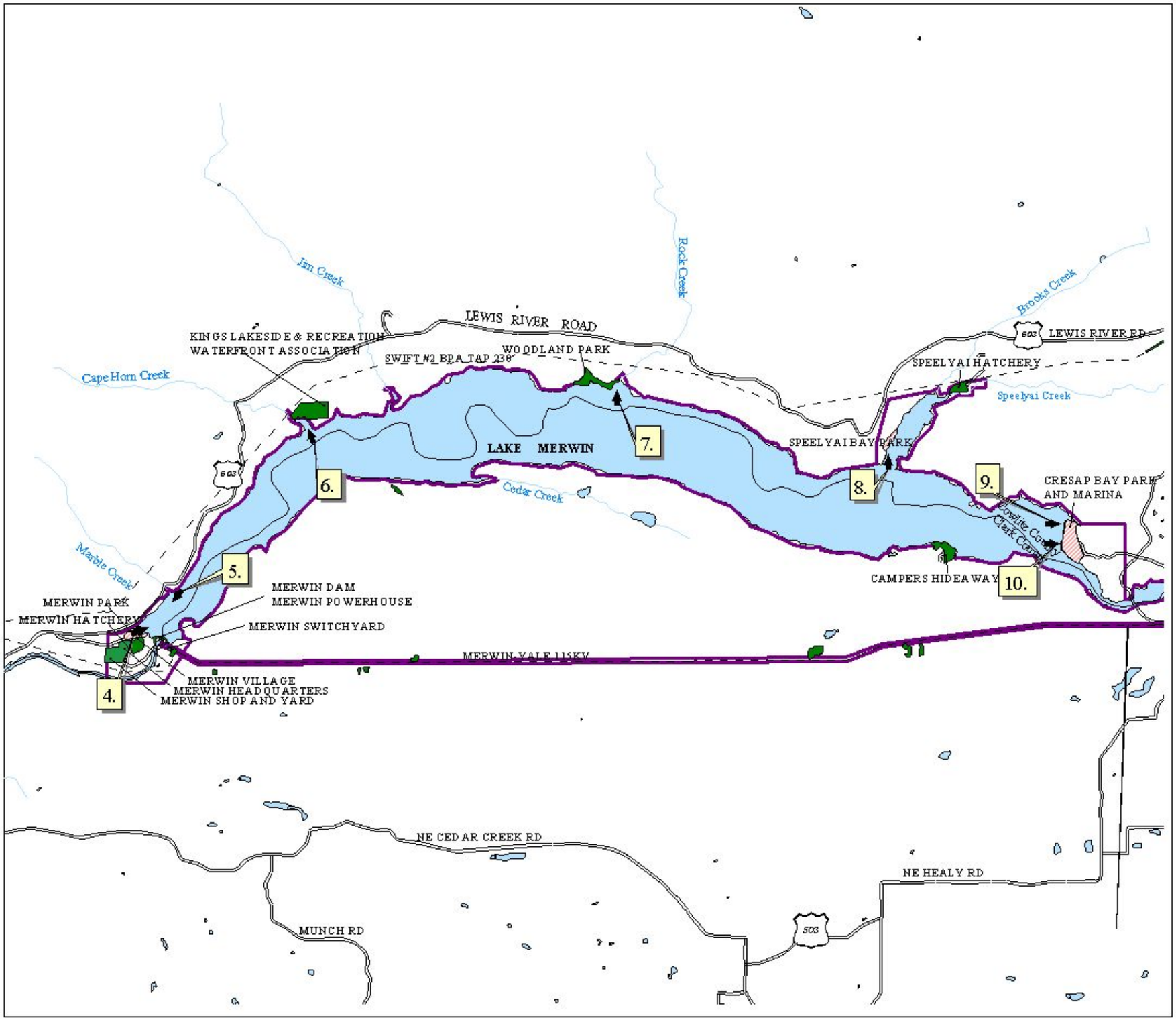
March 21, 2002

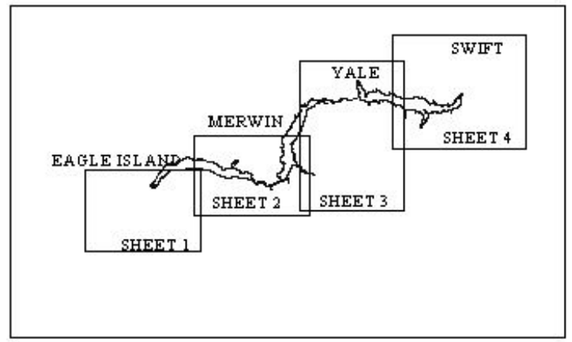
Lewis River
Hydroelectric Projects

Figure 9.1-1

Key Observation Point Photo Locations

SHEET 2 of 4





FERC Project Boundary

Project Recreation Site

Project Facility Site

Project Transmission Lines

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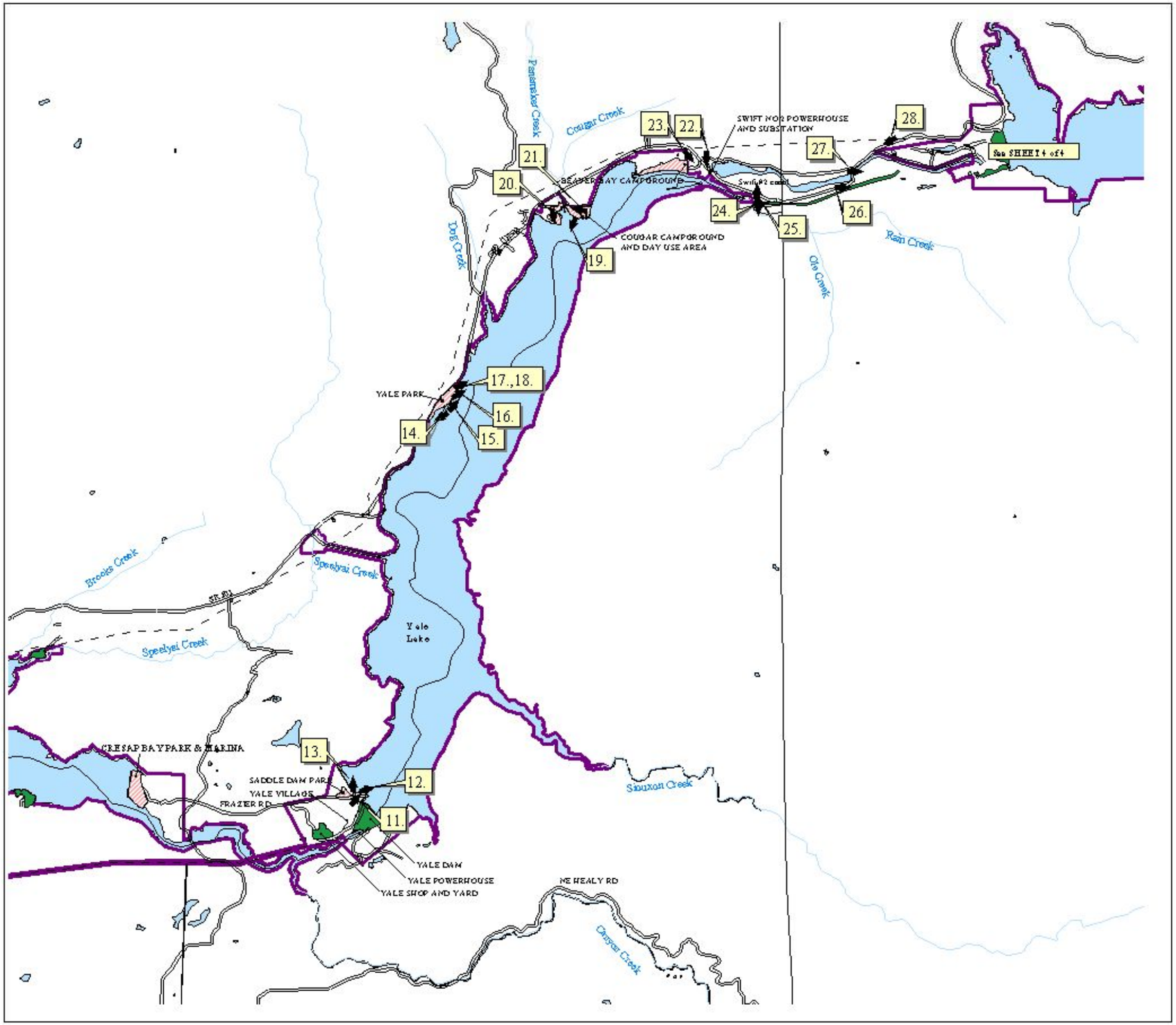
Lewis River
Hydroelectric Projects

Figure 9.1-1

Key Observation Point Photo Locations

SHEET 3 of 4

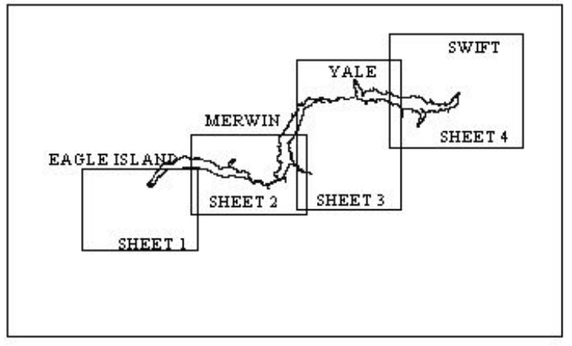


FERC Project Boundary

Project Recreation Site

Project Facility Site

Project Transmission Lines



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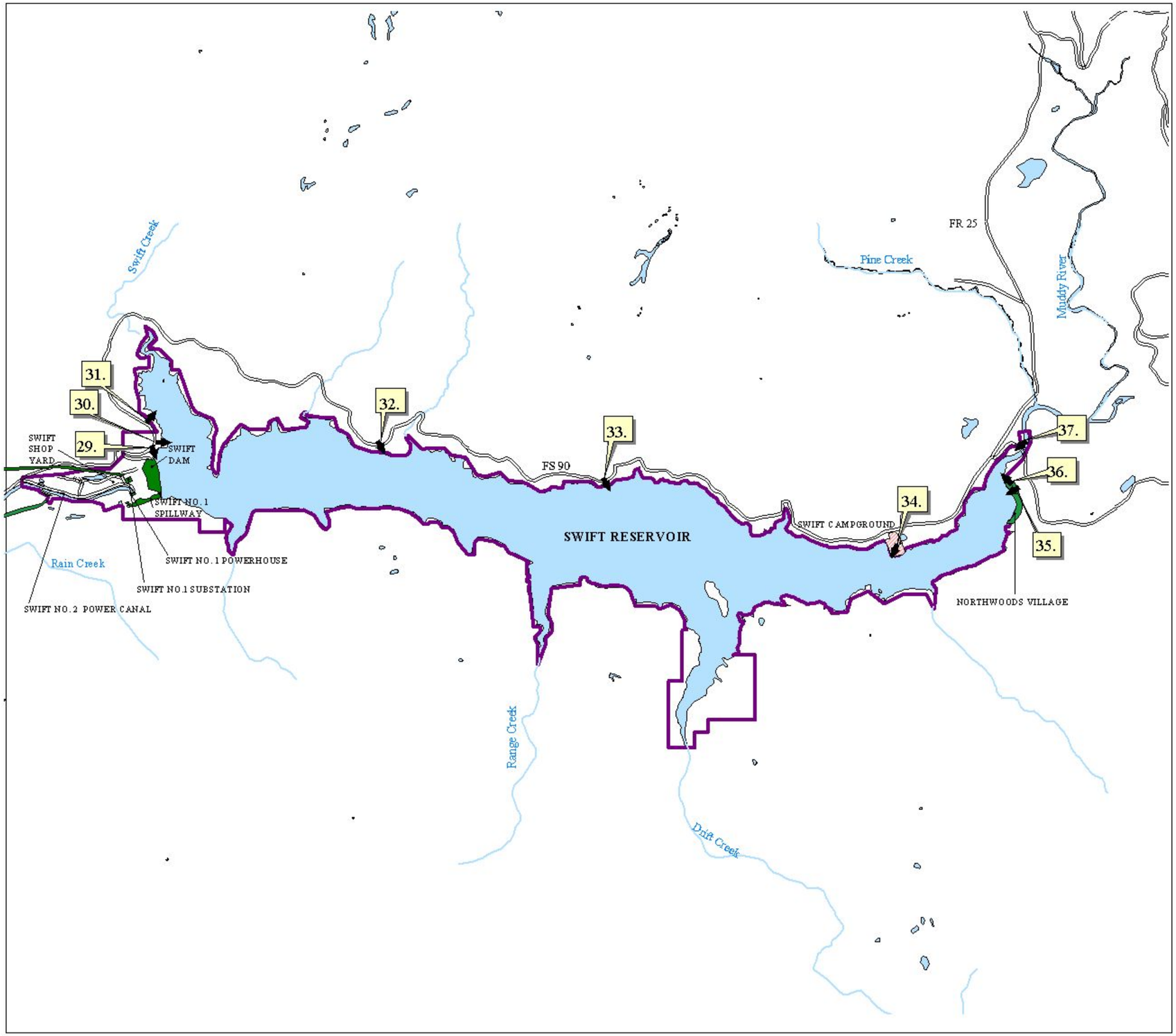
March 21, 2002

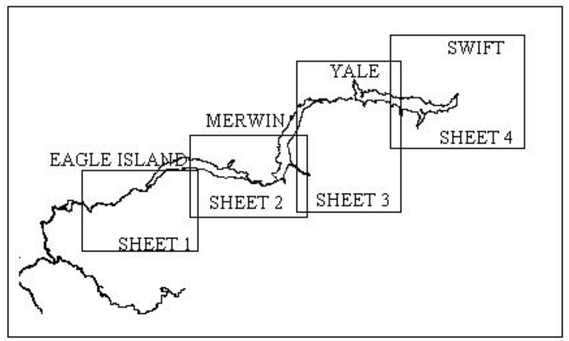
Lewis River
Hydroelectric Projects

Figure 9.1-1

Key Observation Point Photo Locations

SHEET 4 of 4





FERC Project Boundary

Project Recreation Site

Project Facility Site

Project Transmission Lines

0.5 0 0.5 1 1.5 2 Miles

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March 21, 2002

Table 9.1-2. Key Observation Points (KOPs) for the Merwin, Swift No. 1, and Swift No. 2 projects.

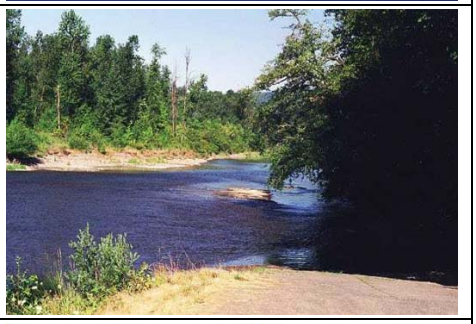
Project Area	KOP #	KOP Description	KOP Photograph
Lewis River below Merwin Dam	1	View of the Lewis River looking upstream from State Route 503 (SR 503) in Woodland.	
	2	View of the Lewis River looking downstream from the Eagle Island Boat Ramp.	
	3	View of the Lewis River looking downstream from the Hatchery Boat Ramp across from Cedar Creek.	
Lake Merwin	4	View of Lake Merwin from Merwin Park.	

Table 9.1-2. Key Observation Points (KOPs) for the Merwin, Swift No. 1, and Swift No. 2 projects (cont.)

Project Area	KOP #	KOP Description	KOP Photograph
Lake Merwin	5	View of Merwin Park from Lake Merwin.	
	6	View of the Kings Lakeside Recreation and Waterfront Association from Lake Merwin.	
	7	View of Woodland Park from Lake Merwin.	
	8	View of Speelyai Bay Park from Lake Merwin.	
	9	View of Cresap Bay Marina from Lake Merwin.	

Table 9.1-2. Key Observation Points (KOPs) for the Merwin, Swift No. 1, and Swift No. 2 projects (cont.)

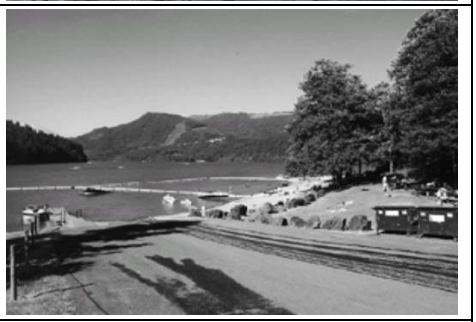
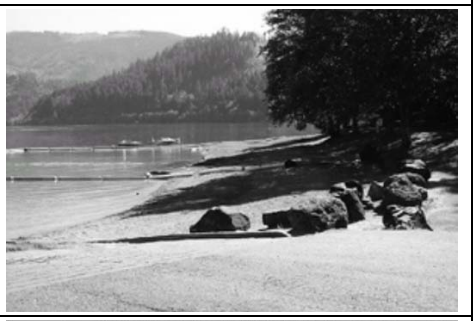
Project Area	KOP #	KOP Description	KOP Photograph
Lake Merwin	10	View of Cresap Bay day-use area and boat ramp from Lake Merwin.	
Yale Lake	11	View of Yale Lake from Saddle Dam Park boat ramp.	
	12	Saddle Dam Park picnic area from boat ramp.	
	13	View of Saddle Dam Park from boat ramp.	
	14	Yale Lake looking south from Yale Park boat ramp.	

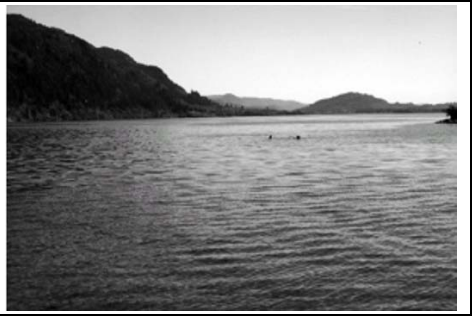
Table 9.1-2. Key Observation Points (KOPs) for the Merwin, Swift No. 1, and Swift No. 2 projects (cont.)			
Project Area	**KOP #**	**KOP Description**	**KOP Photograph**
Yale Lake	15	Yale Lake looking north from Yale Park boat ramp.	
	16	Yale Lake looking east from Yale Park swim beach.	
	17	Yale Lake from SR 503 Spur looking east.	
	18	Yale Lake from shoreline looking east.	
	19	Yale Lake from Cougar Park looking west.	

Table 9.1-2. Key Observation Points (KOPs) for the Merwin, Swift No. 1, and Swift No. 2 projects (cont.)

Project Area	KOP #	KOP Description	KOP Photograph
Yale Lake	20	Yale Lake looking out from Cougar Park day-use area.	
	21	Cougar Park day-use and swim area as seen from boat ramp.	
Swift No. 2 / Lewis River Bypass Reach	22	View of Swift No. 2 Substation from Lewis River Road (SR 503 Spur).	
	23	View of Swift No. 2 Powerhouse from Lewis River Road (SR 503 Spur).	
	24	View of the Lewis River from the IP Road Bridge, looking upstream.	

Table 9.1-2. Key Observation Points (KOPs) for the Merwin, Swift No. 1, and Swift No. 2 projects (cont.)

Project Area	KOP #	KOP Description	KOP Photograph
Swift No. 2/ Lewis River Bypass Reach	25	View of the Lewis River from the IP Road Bridge, looking downstream.	
	26	Forest Road 90 (FR 90) roadside at pullout before rise to the Swift No. 2 canal road crossing.	
	27	View of the Lewis River, looking upstream from FR 90 crossing of the Swift No. 2 canal.	
	28	View of the Swift No. 2 canal from FR 90.	
Swift Reservoir	29	View of Swift Dam from the Reservoir Viewpoint on FR 90.	

Table 9.1-2. Key Observation Points (KOPs) for the Merwin, Swift No. 1, and Swift No. 2 projects (cont.)

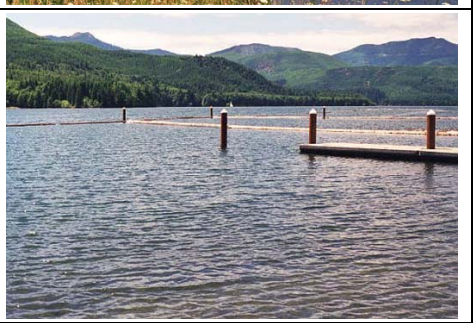
Project Area	KOP #	KOP Description	KOP Photograph
Swift Reservoir	30	View of Swift Reservoir from the Reservoir Viewpoint on FR 90.	
	31	View of Swift Reservoir from the Mount St. Helens pullout on FR 90.	
	32	View of Swift Reservoir from the Devil's Backbone area pullout on FR 90.	
	33	View of Swift Reservoir from Drift Creek area pullout on FR 90.	
	34	View of Swift Reservoir from the Swift Camp boat ramp.	

Table 9.1-2. Key Observation Points (KOPs) for the Merwin, Swift No. 1, and Swift No. 2 projects (cont.)

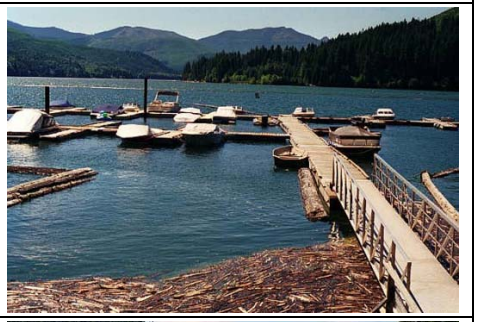
Project Area	KOP #	KOP Description	KOP Photograph
Swift Reservoir	35	View of Swift Reservoir looking west from the Northwood Village Marina.	
	36	View of Swift Reservoir looking north from the Northwood Village Marina.	
Lewis River upstream of Swift Reservoir	37	View of the Lewis River looking downstream from the FR 90 Eagle Cliff Bridge.	

Table 9.1-3. Merwin, Yale, Swift No.1 & Swift No. 2 Project Area Facilities.

Project Area	Photo #	Photo Description	Facility Photograph
Merwin Project Area	1	Merwin Dam and Powerhouse	
	2	Merwin Substation	
	3	Merwin Village	
	4	Merwin Headquarters	
	5	Merwin Shop and Yard	

Table 9.1-3 Merwin, Yale, Swift No. 1 and Swift No. 2 Project Area Facilities (cont.)			
Project Area	**Photo #**	**Photo Description**	**Facility Photograph**
Merwin Project Area	6	Merwin Hatchery	
	7	Merwin Park	
	8	Kings Lakeside Waterfront and Recreation Association	
	9	Woodland Park	
	10	Campers Hideaway	

Table 9.1-3 Merwin, Yale, Swift No. 1 and Swift No. 2 Project Area Facilities *(cont.)*			
Project Area	**Photo #**	**Photo Description**	**Facility Photograph**
Merwin Project Area	11	Speelyai Bay Park	
	12	Speelyai Hatchery	
	13	Cresap Bay Marina	
	14	Cresap Bay Campground and Day Use Area	
	15	Cresap Bay Campground	

Table 9.1-3 Merwin, Yale, Swift No. 1 and Swift No. 2 Project Area Facilities *(cont.)*			
Project Area	**Photo #**	**Photo Description**	**Facility Photograph**
Merwin Project Area	16	Yale-Merwin 115-KV Transmission Line	
Yale Project Area	17	Yale Dam Facility	
	18	Yale Dam & Powerhouse	
	19	Yale Village	
	20	Yale Shop	

Table 9.1-3 Merwin, Yale, Swift No. 1 and Swift No. 2 Project Area Facilities *(cont.)*			
Project Area	**Photo #**	**Photo Description**	**Facility Photograph**
Yale Project Area	21	Saddle Dam	
	22	Saddle Dam Park Restroom and Parking	
	23	Yale Park Restroom and Parking	
	24	Cougar Park Day Use Area	
	25	Cougar Campground	

Table 9.1-3 Merwin, Yale, Swift No. 1 and Swift No. 2 Project Area Facilities *(cont.)*			
Project Area	**Photo #**	**Photo Description**	**Facility Photograph**
Yale Project Area	26	Beaver Bay Campground	
Swift No. 2 Project Area	27	Swift No. 1 230-KV Transmission Line	
	28	Swift No. 2 Substation	
	29	Swift No. 2 Powerhouse	
	30	Swift No. 2 Canal	

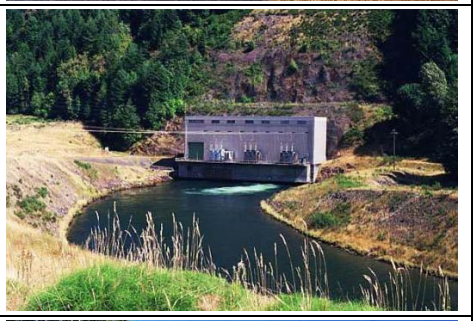
Table 9.1-3 Merwin, Yale, Swift No. 1 and Swift No. 2 Project Area Facilities *(cont.)*			
Project Area	**Photo #**	**Photo Description**	**Facility Photograph**
Swift No. 1 Project Area	31	Swift No. 1 Dam	
	32	Swift No. 1 Powerhouse	
	33	Swift No. 1 Substation	
	34	Swift No. 1 Maintenance Shop	
	35	Swift Campground	

Table 9.1-3 Merwin, Yale, Swift No. 1 and Swift No. 2 Project Area Facilities (cont.)			
Project Area	**Photo #**	**Photo Description**	**Facility Photograph**
Swift No. 1 Project Area	36	Swift Campground	
	37	Northwood Village	

Other significant human-made features seen in the area are the Swift BPA 230kV transmission line, which follows the State Route (SR) 503 corridor, and the highway itself as it runs along or near the reservoirs. There are also pockets of various developments, including the Swift No. 2 powerhouse and canal, the small communities of Ariel and Cougar, and PacifiCorp recreation facilities on all 3 reservoirs and the Lewis River below Merwin Dam.

Areas of the valley not in timber production support small farms, single-family homes and small suburban developments. Conversion of forest and agricultural land to home sites and recreational dwellings has begun to alter the rural, commodity-based landscape to a more developed rural landscape that includes suburban and recreation-oriented development. In recent years, residential development within the Lewis River corridor has increased and is moving eastward from the Woodland area.

Scenic resources of the area are important to the rural and suburban residents that reside in and near the study area; the regional visitors that come to recreate at public and private recreation facilities on the reservoir, and national and international visitors that travel through the valley on their way to Mount St. Helens National Volcanic Monument. SR 503 takes travelers through the Merwin and Yale projects, then becomes FR 90 just east of the Swift No. 2 Project site.

9.1.5.1 Visual Assessment of Reservoir Level Fluctuations

Operation of the Merwin, Yale, Swift No. 1 and Swift No. 2 projects can result in reservoir level fluctuations that can affect the visual quality of the reservoir viewshed. The Swift No. 2 powerhouse uses water from the Swift No. 2 canal and does not directly

affect the levels of Swift Reservoir; therefore, the Swift No. 2 Project is not discussed in this section.

When outflow from a reservoir exceeds inflow, water surface elevations decrease and reservoir shoreline is exposed (drawdown). Depending on the extent of drawdown and viewing location, it can detract from the visual quality of the reservoir viewshed by exposing the shoreline.

Effects to reservoir visual quality from water levels are most significant during periods of high public use as compared to periods of low use. Merwin, Yale and Swift receive the highest levels of use during the summer recreation period (Memorial to Labor Day) and PacifiCorp historically has maintained reservoir surface elevations at or near full pool in these reservoirs throughout the summer.

Coincidentally, winter recreation use and access to the reservoirs decrease significantly primarily due to the weather. This reduced use coincides with reduced pool levels. Swift Reservoir is lowered the most for flood storage and receives the lowest amount of off-season use. Swift Campground is generally closed in October at the end of hunting season; year-round fishing is not permitted on Swift. Merwin and Yale receive low but consistent winter use.

To evaluate the visual effect of reservoir fluctuations, 3 pool elevations were identified as representative of the range that occurs in the Merwin, Yale and Swift reservoirs (Table 9.1-4).

Table 9.1-4. Pool elevation photo documentation for Merwin, Swift, and Yale reservoirs.

Representative Reservoir Pool Condition	Swift Reservoir Elevation (msl)	Yale Reservoir Elevation (msl)	Merwin Reservoir Elevation (msl)
Summer High Pool	999	490	238
Summer Low Pool	991	480	236
Low Pool	964	470	234

The reservoirs were documented photographically from the respective KOPs at the 3 pool elevations shown above. The summer high pool is representative of typical summer full-pool conditions. Summer low pool is representative of conditions where reservoir elevations could range between the summer high pool and this elevation in response to changes in project operations. Low pool is representative of the lowest pool elevation that typically occurs in the late winter or early spring. The photographs used for the visual assessment of reservoir fluctuations were taken from the KOPs discussed in Section 9.1.3 above (see Table 9.1-2 for the KOPs and Figure 9.1-1 for a map of KOP locations). The analysis considers two time periods:

1) Memorial Day to Labor Day (peak recreation season)
2) Labor Day to Memorial Day

KOPs from which a difference in the reservoir pool elevations was noticeable are shown in the following section. KOPs from which changes were not visually apparent due to the

viewing location are not shown. The affect of fluctuating pool elevations was assessed based on field reconnaissance and review of the photographs taken from KOPs.

Visual Assessment of Lake Merwin Level Fluctuations. Lake Merwin is operated as a reregulating reservoir and therefore fluctuates minimally. Typically, pool elevations range from 239.5 feet msl (maximum pool) to 234 feet msl (minimum pool) throughout the year. From Memorial Day through Labor Day, the reservoir is kept at or near a full pool elevation of 238-239 feet. This maintains the highest visual quality of the reservoir during the period of highest visitor use. After Labor Day, the reservoir is drawn down and the minimum pool elevation of 236-234 feet is maintained throughout most of the winter. Visitor use is lowest in the winter months when the reservoir is at the minimum pool. By Memorial Day, the beginning of the recreation season, the pool is back to near maximum pool.

The following 4 KOPs are representative of the visual changes that occur at Lake Merwin due to pool level fluctuation. Figures 9.1-2 through 9.1-5 show Merwin at an average summer pool elevation of 238 feet, summer low pool of 236 feet and a low pool of 234 feet (note: shoreline photos of Merwin and Speelyai parks were taken at 232.58 feet). The KOPs used for comparative purposes are Merwin Park (KOP 4), Woodland Park (KOP 7), Speelyai Bay park (KOP 8) and Cresap Bay Recreation Area (KOP 10). KOP 4 is located above the swim beach in Merwin Park looking across the beach and swim area. KOP 7 is located on the water looking at the Woodland Park Community and moorage facilities. KOP 8 is located at the Speelyai boat ramp with a view of the swimming area, the sandy beach shoreline, and the picnic area. KOP 10 is on Lake Merwin, and views the Cresap boat launch (left side) and swim area (right side) with the day-use area and restrooms in the background. See Figure 9.1-1 for the location of the KOPs.

Summer High, Summer Low, and Low Pool - At the summer high, summer low and low pool elevations, little if any of the lake shoreline is exposed at elevation 238 or 234. Other than beach areas that are maintained for swimming at the parks, there are no noticeable areas of exposed shoreline or sand bars in and around the reservoir shoreline. The most noticeable difference between the recreation and non-recreation times of year is the amount of woody debris in the water and along the shoreline. There is more debris on beaches and in the water during the winter months because of increased wind action and less frequent beach cleaning in the parks. Results of the photo analysis indicate that Lake Merwin has a high level of scenic attractiveness throughout the year due to the limited range in reservoir level fluctuation combined with steep topography that limits the amount of ground exposed when reservoir levels are not at full pool.

Visual Assessment of Yale Reservoir Level Fluctuations. Yale Lake is maintained at a normal maximum pool of 490 feet msl (spillway elevation) and a normal minimum pool of 470 feet msl in the winter and early spring. A summer pool level between 480 feet and 490 feet is maintained to accommodate public recreation use during peak season (Memorial Day to Labor Day). This practice maintains the highest visual quality during the period when the vast majority project area visitors are present. During the fall/winter drawdown, the lake is lowered 20 vertical feet for flood control purposes. The drawdown process begins in late fall, with a minimum pool level reached several weeks after Labor Day. The reservoir is then filled in early spring, typically reaching full pool conditions before Memorial Day.

The non-peak season includes the weeks immediately after Labor Day and before Memorial Day when good weather may encourage people to visit the lake. The lake surface would be closer to full pool than minimum pool during these times. At mid-winter, when the lake has reached minimum pool, numbers of visitors are lowest.

The following 4 KOPs are representative of the visual changes that occur at Yale Lake due to pool level fluctuations. Figures 9.1-6 through 9.1-9 show Yale Lake at full pool (490 feet), low summer pool (481 feet), and during winter drawdown (470 feet). The KOPs used for comparative purposes are Saddle Dam (KOP 12), Yale Park (KOP 15), SR 503 spur (KOP 17), and Cougar Campground (KOP 21). KOP 12 is located on the boat ramp at Saddle Dam looking across the swim area; KOP 15 is located in Yale Park on the boat ramp looking east along the shoreline; KOP 17 is from SR 503 Spur just east of Yale Park; and KOP 21 is from the Cougar Park boat ramp looking across Cougar Creek toward the Cougar Park day-use area.

Summer High, Summer Low and Low Pool - Conditions vary depending on the locations. In general, at maximum pool, sandbars are exposed in some places, for example west of the boat ramp at Yale Park. The lake bottom can be seen in shallow areas, particularly in and around the places where swimming is allowed. Accumulated driftwood appears along the shore in many areas.

At minimum pool, areas of near-shore lake bottom are exposed at all of the developed recreation sites. On average, these areas are estimated to extend about 10 to 40 feet from the location of the summer shoreline, but extending much farther in some places. Exposed areas are often nearly flat to gently sloping and are mostly covered with gravel, allowing access to the water's edge. Among the recreation sites, the most extensive areas are exposed at Cougar Park during the off season closure. While the park is closed, the entire bay where swimming occurs in summer is exposed. Many tree stumps are also exposed in this area. At Saddle Dam, only a few tree stumps in the area near the swimming beach are exposed. At Yale Park, there are no exposed tree stumps adjacent to the park, but many are visible a short distance away.

Trees and brush limit views of Yale Lake from Lewis River Road (SR 503 Spur). In locations where openings occur and the lake is in view, areas of exposed lake bottom can be seen, including some that contain tree stumps. Conditions associated with drawdown, however, are much less evident from the road than from recreation sites located at the shore.

Due to the extent and character of exposed lake bottom, the visual quality of the reservoir is lowest when its surface is at minimum pool. Conversely, visual quality is highest when the reservoir is at full or near-full pool. Since minimum pool conditions typically occur during the time when the fewest number of people visit the lake or travel the highway, the impact to visitors is minimized.

Summer High Pool (El. 238)

Summer Low Pool (El. 236)

Low Pool (El. 234)

Figure 9.1-2. KOP 4-Comparative photographs of summer high, summer low and low pool conditions at Merwin Dam Park.

Summer High Pool (El. 238)

Summer Low Pool (El. 236)

Low Pool (El. 234)

Figure 9.1-3. KOP 7-Comparative photographs of summer high, summer low and low pool conditions at Woodland Park.

Summer High Pool (El. 238)

Summer Low Pool and Low Pool (El. 236)

Low Pool (El. 234)

Figure 9.1-4. KOP 8-Comparative photographs of summer high, summer low and low pool conditions at Speelyai Bay Park.

Summer High Pool (El. 238)

Summer Low Pool and Low Pool (El. 236)

Low Pool (El. 234)

Figure 9.1-5. KOP 10-Comparative photographs of summer high, summer low, and low pool conditions at Cresap Bay Recreation Area.

Visual Assessment of Swift Reservoir Level Fluctuations. Operation of Swift Reservoir results in greater pool elevation fluctuations than Merwin or Yale reservoirs. Typically, Swift is drafted in late August and September. In the fall and winter months, reservoir elevations fluctuate to some extent in response to storm events, but remain relatively low throughout the winter and early spring to ensure flood storage capacity. Visitor use is lowest during the winter months. Depending on the water year, Swift Reservoir typically reaches full pool (1000 feet msl) in May or early June. From Memorial Day to Labor Day (the recreation use period) the reservoir is kept at or near full pool. Historically, PacifiCorp has kept the reservoir near full pool until after the Labor Day weekend.

Many of the KOPs for Swift Reservoir show visual changes in response to pool elevation fluctuations. Figures 9.1-10 through 9.1-13 show Swift Reservoir at a representative summer high pool elevation (999 feet msl), a summer low pool elevation of 991 feet msl, and a low pool elevation of 964 feet msl that is typical of winter drawdown. The KOPs include reservoir viewpoints on FR 90 (KOP 30); Drift Creek pullout on FR 90 (KOP 33); Swift Boat Ramp (KOP 34); and the Northwoods Village Marina (KOP 35).

KOP 30 is located along FR 90 at a pullout above the reservoir. KOP 30 is over 300 feet above the water surface and KOP 33 is about 150 feet above the reservoir. These KOPs are representative of the expansive middle-distance views of the reservoir that visitors traveling through the area on FR 90 experience.

KOPs 34 and 35 (Figures 9.1-12 and 9.1-13) are taken from shoreline recreation areas. KOP 34 is located at the only public boat ramp on the reservoir at Swift Campground. KOP 35 is a view of the Northwoods Marina, a private community on the upstream end of Swift Reservoir. These KOPs are located at the upstream end of Swift Reservoir where inflow to the reservoir from the Lewis River becomes channelized into the historic riverbed as the reservoir recedes. These areas of the reservoir received a large amount of sediment from the eruption of Mount St. Helens in 1980, which is visible during drawdown.

Water surface elevations on Swift Reservoir fluctuate noticeably on an annual basis, although like Merwin and Yale reservoirs, Swift is at or near full pool (summer high pool) during most of the summer recreation period. Drawdown of the water surface at Swift, and the associated shoreline exposure, can reduce the visual quality of the reservoir, depending on the viewer's location. From distant viewing locations such as FR 90, the visual effect of drawdown may detract from the reservoir view, but not dominate the overall visual quality of the reservoir viewshed. From viewing locations such as KOPs 34, 35 and 36, visitors have foreground views of the reservoir shoreline, where drawdown can dominate the scenic quality because of the proximity to the tail end of the reservoir. However, the low pool drawdowns generally do not occur during the primary recreation season.

Summer High Pool – Typically, Swift Reservoir is at or near the full pool elevation of 1000 feet msl throughout the summer recreation period. During this period, views of the reservoir from distant, middle, and foreground locations are highly scenic. The blue water of the reservoir is surrounded by dark green, forested hills and hummocks with snow-capped peaks in the distance. There are few, if any areas of exposed shoreline during this period. Foreground viewing locations, such as those from the Swift Boat

Ramp and Northwoods Marina, are also scenic. The reservoir is full and there are no noticeable areas of exposed shoreline.

Summer Low Pool – A summer low pool elevation of 991 feet msl occasionally occurs in mid-August and continues through Labor Day weekend. This 9-foot drop from full pool results in some exposure of the reservoir shoreline. The exposed shoreline creates a narrow, light tan-colored ring around the reservoir that is in contrast to the blue water and dark-green forested hillsides. The width of the exposed shoreline area is relatively small in the overall reservoir viewshed. From distant viewing locations such as FR 90 (KOPs 29 and 30), the exposed shoreline is readily noticeable but does not affect the visual quality of the reservoir viewshed due to the sheer scale and panoramic vistas of the mountainous landscape.

From foreground viewing locations at the Swift Boat Ramp and Northwoods Village Marina, the change in reservoir conditions is noticeable. At the Swift Boat Ramp, an inlet is formed due to the exposed shoreline and a portion of the docks are out of the water. Looking west from the Northwoods Village Marina, docks are floating, but there are no boats because the water is too shallow for ingress and egress. Looking north along the shoreline, most of the docks are out of the water and there is exposed shoreline along the reservoir edge. A large sand bar is exposed between the marina and the old Lewis River bed that runs along the northern shoreline. The summer low pool elevation detracts from the high scenic quality of the reservoir that is experienced at high pool. However, the exposed shoreline and sandbars do not dominate the view as occurs at low pool because water still covers most of the reservoir area.

Low Pool – Swift Reservoir typically reaches the representative low pool elevation of 964 feet msl in late September or October. The reservoir is drawn down for flood control purposes throughout the winter and early spring. By April or May the reservoir begins to fill and is at or near full pool by the Memorial Day weekend. Low pool conditions occur during the winter months when visitation to the area is low.

At elevation 964 feet msl, most of Swift Reservoir (except the upstream end, which is discussed later), has a band of exposed soil around most of the shoreline that gives the appearance of a ring around the "bathtub" of the reservoir. The light sand color of the exposed soil contrasts against the blue of the water and the dark green of the forested hillsides. The band is fairly even around the shoreline, although there are larger exposed sandbars and delta-like areas at the upstream end of the reservoir and near Drift Creek.

When water surface elevation drops to low pool, in the vicinity of the Swift Boat Ramp (KOP 34) and the Northwoods Village Marina (KOPs 35 and 36), the change in reservoir conditions is more dramatic than in the lower portions of the reservoir. Drawdown of more than 10 feet below full pool (El. 990) results in the exposure of broad expanses of the reservoir floor in the upstream end of the reservoir. At this elevation, the water in the upper reaches of the reservoir is confined to the Lewis River channel cut through the sediment deposited by Mount St. Helens. In the background view from KOPs 29 and 30, the ring of exposed soil is readily noticeable and detracts from the scenic quality of the reservoir viewshed; however, it does not dominate the view. While the drawdown does

Summer High Pool (El. 490)

Summer Low Pool (El. 481)

Low Pool (El. 470)

Figure 9.1-6. KOP 12 - Comparative photographs of summer high, summer low, and low pool conditions at Saddle Dam Park.

Summer High Pool (El. 490)

Summer Low Pool (El.481)

Low Pool (El. 470)

Figure 9.1-7. KOP 15 - Comparative photographs of summer high, summer low, and low pool conditions at Yale Park.

Summer High Pool (El. 490)

Summer Low Pool (El. 481)

Low Pool (El. 470)

Figure 9.1-8. KOP 17 – Comparative photographs of summer high, summer low, and low pool conditions at Yale Lake as seen from SR 503 Spur east of Yale Park.

Summer High Pool (El. 490)

Summer Low Pool (El. 481)

Low Pool (El. 470)

Figure 9.1-9. KOP 21 – Comparative photographs of summer high, summer low, and low pool conditions at Cougar Park as seen from the boat ramp at Cougar Campground.

Summer High Pool (El. 999)

Summer Low Pool (El. 991)

Low Pool (El. 964)

Figure 9.1-10. KOP 30-Comparative photographs of summer high, summer low, and low pool conditions from the Reservoir Viewpoint off of FR 90.

Summer High Pool (El. 999)

Summer Low Pool (El. 991)

Low Pool (El. 964)

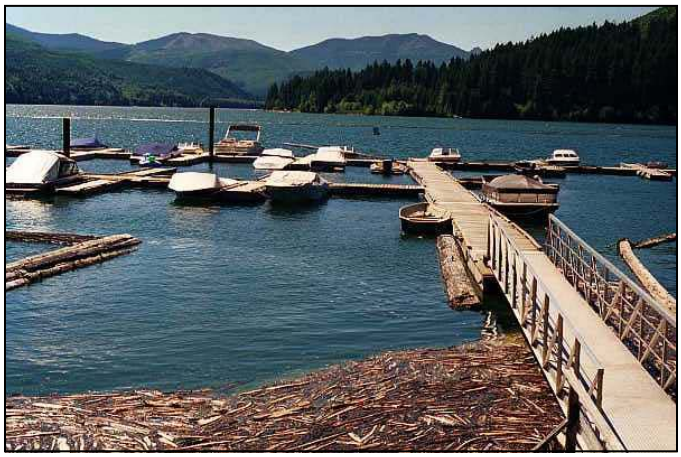
Figure 9.1-11. KOP 33- Comparative photographs of summer high, summer low, and low pool conditions from Drift Creek Pullout off of FR 90.

Summer High Pool (El. 999)

Summer Low Pool (El. 991)

Low Pool (El. 964)

Figure 9.1-12. KOP 34- Comparative photographs of summer high, summer low, and low pool conditions from Swift Boat Ramp.



Summer High Pool (El. 999)

Summer Low Pool (El. 991)

Low Pool (El. 964)

Figure 9.1-13. KOP 35 - Comparative photographs of summer high, summer low, and low pool conditions from the Northwoods Village Marina, looking west.

adversely affect the scenic quality of the reservoir, it is not significant because of the relatively low level of recreation use the area receives during the winter months.

At the upstream end of the reservoir, the low pool conditions shown in KOPs 34, 35 and 36 are representative of the foreground views that visitors could experience in the fall, winter, and spring when the reservoir is at low pool. However, visitation is low at these times of the year. From these foreground viewing locations, the exposed soil of the reservoir bottom dominates the view and adversely affects the scenic quality of the reservoir viewshed. However, the effect is not considered significant due to the low level of recreation use during this time of year.

9.1.5.2 Visual Assessment of Project Features

The purpose of the visual assessment of existing project facilities is to document areas from which the public is able to view project facilities. Results of the study will indicate the extent to which these project facilities are visible to the general public and if there are adverse effects on aesthetic/visual resources.

The visual character of project facilities (e.g., reservoirs, dams, bypass reaches, levees, canals, diversions, powerhouses, substations, switching stations, transmission lines and corridors, operations areas, recreation facilities/sites and roads) was photographed and described. Existing visual conditions in the study area and the visual character of project facilities were inventoried and described. Notes and photographs were taken to document conditions.

The projects are first encountered approximately 10 miles east of the city of Woodland, Washington. The sequence of the projects from the confluence of the Lewis River and the Columbia River is as follows: Merwin, Yale, Swift No. 2, and Swift No.1. Each project, except for Swift No. 2, includes a dam and reservoir. Swift No. 2 includes a canal formed from an earthen structure that directs water from the tailrace of the Swift No. 1 powerhouse to Swift No. 2 powerhouse.

Visual Character of the Merwin Project Features. The Merwin Project is the first of 4 hydroelectric projects encountered on the Lewis River when traveling west to east through the study area. Merwin Dam is a concrete arch structure with a total crest length of 1,300 feet and a maximum height above its lowest foundation of 314 feet. The Merwin Project was begun in 1929 and completed in 1932. The powerhouse that sits at the base of the dam was expanded with additional units in 1949 and 1958. The powerhouse is eligible for the National Register of Historic Places. Merwin Dam creates the 14.5-mile-long Lake Merwin. Lake Merwin, which covers approximately 4,000 acres and is oriented east to west.

Operational facilities associated specifically with the Merwin Project include Merwin Dam, Merwin powerhouse, and the 115 kV Merwin transmission line. A steel truss bridge crosses the Lewis River downstream from the powerhouse and provides access to the powerhouse. The powerhouse sits directly in front of the dam. On the reservoir just upstream of the dam, orange floating balls are cabled in place to prevent boats from approaching the dam. The Merwin Project also includes the Hydro North Headquarters

facilities, where operations of the Lewis River projects and other small PacifiCorp hydro projects are coordinated. Associated with the headquarters compound, is a shop, maintenance yard, employee housing, and Merwin Park. The headquarters building, constructed of concrete masonry units with a red metal roof, harmonizes nicely with the forested backdrop. Two large shop buildings and a maintenance yard are west of the headquarters building. The appearance of these buildings and work areas is consistent with their function, and reflects an orderly, clean appearance. Employee housing is located adjacent to the headquarters building and Merwin Park. The houses and grounds are well maintained.

Merwin Park is the largest day-use park that PacifiCorp operates. It was constructed in 1934 and includes 2 restroom buildings, a swimming area, picnic areas, and large grass areas suitable for informal play. The entrance road and some of the parking are paved, although the majority of the parking areas are grass with concrete bumper logs. Ongoing maintenance of the park keeps it looking highly manicured. Some of the trees are declining, especially several along the entrance to the park.

Located adjacent to these facilities is the Merwin Fish Hatchery, owned by PacifiCorp and operated by WDFW. Built in 1993, hatchery building and grounds are maintained in a neat and orderly manner.

Approximately mid-reservoir is Speelyai Bay Park, built in 1958. Speelyai Fish Hatchery is a short distance from this park. The fish hatchery, built in 1954, is owned by both PacifiCorp and Cowlitz PUD, and operated by WDFW.

On the western end of the Merwin Project is Cresap Bay Campground and Day Use Area, operated by PacifiCorp. Cresap Bay Campground and Day Use Area was opened in 1992. Facilities include a campground, group site, boat ramp, moorage, day-use and swimming area. Campsites are well spaced and screened with vegetation. Boat moorage is nestled into a cove surrounded by forested hillsides. The day-use area, swimming beach and boat moorage are well laid out and receive a high level of landscape maintenance. The day-use restroom and lawn areas are on the shoreline of the lake.

Visual Character of the Yale Project Features. The Yale Project is located directly upstream from the Merwin Project. Construction of the Yale Project began in 1951 and was completed in 1953. Two dams form Yale Lake: Yale Dam, a rolled earthfill embankment type dam with a crest length of 1,305 feet and a height of 323 feet above its lowest foundation point; and Saddle Dam, located ¼ mile north of the main dam, and approximately 1,600 feet long and 40 feet high. The reservoir formed by these dams is approximately 10.5 miles long, with a surface area of approximately 3,800 acres. Yale Lake is oriented north to south.

Facilities at Yale Dam include a powerhouse situated at its base on the left side of the river channel, with 2 generating units and 10.5 miles of 115kV transmission line (the Merwin-Yale line). Yale Dam and powerhouse are reached by a bridge that crosses the spillway. The spillway structure is on the west end of the dam. A concrete abutment extends into the lake to direct water into the spillway. There are 5 spillway gates and a large concrete apron on the downstream face of the dam. The dam itself is faced with rock and grass, which blends well with the surrounding forested areas. The powerhouse

rests at the base of the dam near its east end, where it is visually inconspicuous, even from the top of the dam. The exposed portion of the dam facing the lake has approximately 10 to 15 feet of freeboard. The intake structure is about 15 to 20 feet high and is situated at the east end of the dam in front of some steep, rocky slopes that rise abruptly behind it. It has a gray metal superstructure that has weathered and darkened over time. It is always seen against a background of earth and vegetation into which it blends very well. A floating log boom extends the width of the area in front of the dam to prevent floating debris from entering the intake or spillway. There are at least 6 security lights, each 10 to 12 feet high, spaced approximately 150 to 200 feet apart along the top of the dam. There are also overhead lights at the top of the spillway gates and a flashing red light mounted on the top of the intake structure. The lights are illuminated as necessary to support project operations. An employee housing compound, Yale Village is located on higher ground, on the north side of Yale Dam. A shop yard and maintenance building are near the employee housing. The employee housing area landscape is well maintained, as are the 6 homes.

The recreation facilities at the nearby Saddle Dam Park include a large gravel parking area, restroom, and boat launch with boarding floats. The park facility was renovated in 2001. A beach area for sunbathing and swimming consists of a grassy strip fronted by a narrow sand beach. Looking east from the beach area, the view is down the length of the reservoir; the enclosing, forested slopes of the valley walls frame a view of snow-capped Mount St. Helens, which rises in the distance and forms the terminus of the view. The contrast between the blue-green water of the lake, the dark green of the forested slopes and the nearly white, snow-capped mountain set against a bright blue sky (in clear weather) produces a stunning scene of very high scenic quality. From the gravel parking lot, the 40-foot-high earthen dam is the only visible project component and it dominates the landscape. The dam itself is faced with earth, rock, and grass and it is situated between the parking area and the reservoir.

Yale Park, originally built in 1958, is a 10-acre area with a large gravel and grass parking area, boat launches, restroom, sand beach and swim area, and 2 separate lawn areas with numerous shade trees and picnic tables. New restroom facilities were constructed in 1994. There is a partial background view of Mount St. Helens from Yale Park. Virtually all the recreation facilities at Yale Lake, especially the day-use facilities, are well maintained and have a neat, orderly, high-quality appearance and attractive visual character.

Cougar Campground and Cougar Park were originally constructed in 1958 and are accessed by 2 short roads from Lewis River Road (SR 503 Spur). Facilities at Cougar Park included a day-use parking lot, bathhouse and restrooms, picnic area, lawn leading to a beach and swimming area, and a group campsite. Facilities at the adjacent Cougar Campground include a tent-only campground facility with restrooms and a day-use parking lot with a boat launch. All facilities appear neat, attractive and well maintained.

Beaver Bay Campground, the largest on Yale Lake, was built in 1959 and shows signs of heavy use. There is little vegetation between campsites to buffer views. There are substantial areas of bare ground and a lack of campsite definition due to haphazard RV and vehicle parking. A main access road parallels the shoreline, providing views of the lake and access to 3 campsite loops. There are 3 restrooms, 2 of which are of older

design. The tree canopy in the campground was recently thinned to provide more sunlight for understory vegetation growth. This has partially opened up views within the campground. Overall, the campground appears well maintained and clean. However, the lack of vegetation between RV sites and their close spacing result in multiple rows of large RVs parked close to one another, blocking views of the shoreline and the natural surroundings. At the far west end of the campground is a well maintained day-use site with boat launch, picnic area, parking lot, and swim beach. A large wetland complex nearby provides good visual separation between the highway and the campground.

Visual Character of the Swift No. 1 and Swift No. 2 Project Features. These are the farthest upstream hydroelectric facilities on the Lewis River. Construction of the Swift No. 1 Project began in 1956 and was completed by 1958. Swift Dam is an earthfill embankment type dam with a crest length of 2,100 feet and a height of 512 feet above its lowest foundation. At the time of its construction, Swift Dam was the tallest earthfill dam in the world. The dam is faced with large stone that has weathered to a dark gray color and is mostly covered with moss. It blends with the surrounding hills when viewed from the bridge crossing the power canal. The reservoir formed by the dam is approximately 11.5 miles long with a surface area of approximately 4,680 acres. The Swift No. 1 powerhouse is located on the left bank directly below the dam and houses 3 generating units. It is linked to a switchyard at the toe of the dam. A surge tank is visible on the south bank downstream from the dam. From the reservoir at full pool, 10 to 15 feet of freeboard are visible. Log booms keep debris out of the spillway located on the south end of the dam. A gravel access road from FR 90 crosses the top of the dam. The powerhouse is reached from a one-lane paved road that parallels the north side of the Swift No. 2 canal. The light gray powerhouse sits near the south shore where it is visually subordinate to the dam structure. From an outdoor switchyard located on the north bank, a 230 kV transmission line extends from Swift No. 1 to the Swift No. 2 switchyard. The transmission line is visible along portions of FR 90. Associated with Swift Dam is a small maintenance yard with a 4- bay steel building. Swift Dam, powerhouse No.1, along with the 3.2-mile canal and Swift No. 2 powerhouse, create an historic district eligible for the National Register of Historic Places.

Swift No. 2 powerhouse and canal are adjacent to SR 503 Spur. FR 90 crosses the canal on a low bridge. The canal is faced with rock that is covered with moss and grass. The Swift No. 2 powerhouse is located 3.2 miles downstream of the Swift No. 1 powerhouse. Construction of Swift No. 2 began in 1956 and was complete by 1958. The project consists of a canal, penstocks, powerhouse, and transmission lines. The Swift No. 2 canal begins at the tailrace of the Swift No. 1 Project. Tailrace water immediately enters the canal, which carries the water to the Swift No. 2 powerhouse. Two buried penstocks cross under SR 503 Spur to the powerhouse.

On April 21, 2002, the Swift No. 2 canal embankment above the powerhouse failed, sending large amounts of debris and water across SR 503 Spur and heavily damaging the switchyard, powerhouse and tailrace. Cowlitz PUD will repair these facilities as soon as possible.

The photographs from KOPs 22 and 23, and project facility photographs 28, 29 and 30 show the Swift No. 2 switchyard, powerhouse and canal prior to the embankment failure.

Swift Campground, built in 1959, is the largest of all the PacifiCorp campgrounds. It is located on land leased from the DNR. The entrance road to the park goes through a collection of private recreation homes that present a somewhat disheveled appearance. Once inside the campground, the view is of a neat, well-maintained wooded camp setting. All facilities are highly maintained, and campsites are well spaced and screened with vegetation. Tree thinning is needed in much of the campground. Many of the trees are of small diameter and crowded together, resulting in too much competition and low vigor. The day use facilities at Swift Campground include a 2-lane boat ramp with boarding floats, swim beach and picnic area. This area of the recreation facility is somewhat unattractive– a large expanse of gravel and short grass contrasts with the pleasant wooded setting of the campground. A large portion of this area is used for the storage and burning of large quantities of woody debris that are collected from the reservoir surface. Views from the day use area and boat ramp parking are highly scenic; visitors can see Drift Creek Island to the west and steep hillsides that flank the linear reservoir surface.

Eagle Cliff Park, built in 1959, is the eastern-most PacifiCorp recreation facility. It is located on the north shore of the Lewis River directly upstream from Swift Reservoir. Park facilities consist of a parking lot on the east side of the road and picnic area and restroom on the west side (downstream side of the road). The picnic area was damaged by a 1996 flood and remains in a rather primitive state as volunteer pine trees and Scotch broom reclaim the former picnic area. The picnic area restroom is well maintained in contrast to the picnic area that is being overgrown.

Visibility of Project Facilities. The viewing public is made up of: (1) local residents, primarily living along the Lewis River Road/SR 503 and in the towns of Cougar and Ariel; (2) motorists traveling along Lewis River Road/SR503/FR 90 and SR 503 Spur; (3) recreation visitors to PacifiCorp campgrounds and day-use sites in the study area; and (4) lakeside residential communities. Most local residents live in the town of Cougar and along the Lewis River Road east of the SR 503 Spur. A smaller number of residents live along the SR 503 Spur, Frazier Road and near Speelyai Canal. On Merwin Reservoir, 3 lakeside communities support a substantial number of recreation and permanent homes (1,589 homes). King's Lakeside Landing and Woodland Park are on the north side and Camper's Hideaway is on the south side of Lake Merwin. Yale Lake has one shoreline development, an 8-home subdivision just north of Speelyai Canal. On Swift Reservoir, 2 established communities, Northwoods and Swift Creek Estates, are long-term fixtures on the reservoir (273 homes). A few small private RV parks operate in Cougar. A few new private residential developments are currently underway around Swift Reservoir. All these lakeside residential areas have views of the reservoirs but not of project facilities. Residents of Cougar, Ariel and those along SR 503 Spur, SR 503, FR 90, and Frazier Road cannot view project facilities. All of the lakeside communities are visible from the reservoir surface.

Most motorists view Merwin, Yale and Swift reservoirs from the north and western shores. The primary vehicle access on the north and western shoreline is from SR 503 and SR 503 Spur, FR 90 and Frazier Road. The destinations of travelers on SR 503 and SR 503 Spur are either project recreation sites, State DNR recreation resources, USFS recreation resources in the Gifford Pinchot National Forest, or the Mount St. Helens National Volcanic Monument. The nearby Mount St. Helens National Monument draws

approximately 4.7 million visitors per year; however, most use SR 504 on the north side of the Monument for access. A portion use Lewis River Road (SR 503 and SR 503 Spur), and many stop at project recreation facilities to camp or recreate along the way. In particular, Yale Park is a popular stop.

Although Lewis River Road (SR 503 and SR 503 Spur) runs along or near the shore of Yale and Merwin Reservoirs, there are few opportunities for views of the lake from the roadway because of a relatively narrow yet dense stand of coniferous trees between the highway and the shoreline. One notable exception is in the area of Yale Park, where gaps in the trees and the developed area of the park allow views of the lake. Along Merwin Reservoir, there are a couple widened pullouts along SR 503 Spur where limited views can be had of the reservoir and dam. Conversely, from the lake surface and the lakeshore of Yale and Merwin Reservoirs, the roadway (and) traffic is mostly screened from view by trees or topography.

Traveling along FR 90 along Swift Reservoir provides the motorist with a different experience than the other 2 reservoirs. This stretch of the highway has many long distances of unobstructed views of Swift Reservoir. The steep terrain, high elevation of the road, and recent clearcuts on private property all contribute to making this the most scenic road section along the 3 reservoirs. This visual opportunity will be short-lived though, as replanted clear-cuts grow and obscure the views. In 10 to 15 years, the motorist's experience will be similar to that of driving along Merwin or Yale reservoirs.

Less traveled routes offer views of the project area. On the south side of Merwin, minor vehicle access is possible on a narrow gravel county road near the west end of the reservoir. Motorists can view the top of Merwin Dam and a substation from this area. Views of the project facilities are fairly consistent middleground views, though partially obscured by trees. Lake Merwin Campers Hideaway, a private gated recreational community, has unobstructed fore- and middle-ground views of the reservoir that include views of Speelyai Bay Park and Cresap Bay Campground and Day Use Area.

Minor vehicle and pedestrian access is available on the east side of Yale Lake via the IP Road (which is officially closed to public use, but does receive substantial unauthorized use), and via hillside logging roads generally under the jurisdiction of the State DNR. From the eastern shoreline along the IP Road, both Yale and Saddle dams are visible middle or background elements. Yale Park, Cougar Camp and Beaver Bay Campground are visible across the reservoir from the IP Road. The 115-kV Merwin-Yale transmission line is visible south of Frazier Road along the SR 503 Spur where it crosses perpendicular to the highway. In addition, the transmission line is visible near the Merwin substation near Merwin Dam and Merwin Park.

Visitors to PacifiCorp campgrounds and day-use areas are the primary observers of project facilities. Most project recreation visitation occurs between Memorial Day and Labor Day weekends when Yale Lake is at or near full pool and when the weather is warmer and clearer. Approximately 559,000 people visited the Lewis River recreation facilities during the 2000 recreation season. As described previously, developed recreation sites are provided at all 3 reservoirs and on the Lewis River below Merwin Dam. The visual condition of each of these sites was described in the preceding sections.

The Merwin generating facilities are mostly out of site of recreation visitors. At Merwin Park visitors can see the Headquarters building and shop building that are behind it. Park visitors can view the reservoir side of the dam but not the powerhouse. Merwin Village is largely hidden by vegetation, although park visitors may glimpse some rooftops.

Most of the Yale Project generating facilities (2 dams, powerhouse, spillway, canal, and transmission line) are not visible from developed recreation areas. Saddle Dam itself is visible from the adjacent Saddle Dam Park. Yale Dam is in the background view from Yale Park and Cougar Park and Campground, but is more than 4 miles and 6 miles away, respectively. At such distances, the dam is barely perceptible without the aid of binoculars. The other Yale facilities are not visible from these locations. The 2 dams are visible from the adjacent lake surface and are seen by boaters, water skiers, and PWC riders. The top of the spillway and portion of the intake structure that is above water are also visible from the lake, but only in the immediate vicinity of Yale Dam; these components are not visible from most of the lake's 3,800-acre surface. The 115-kV Merwin-Yale transmission line is supported on steel towers that are visible from Merwin Park across the reservoir. The Swift No. 2 powerhouse, transmission line, and canal are visible as foreground elements from SR 503 Spur at the entrance road to the Beaver Bay Campground. The switchyard and powerhouse are visible from the surface of the Yale Lake upstream from Beaver Bay Campground foreground elements.

Just east of the entrance to Beaver Bay Campground, the Swift No. 2 powerhouse is adjacent to the SR 503 Spur and the earthen embankment of the canal is on the opposite side of the road. SR 503 Spur changes to FR 90 here and parallels the canal for a short distance. FR 90 then extends upslope and crosses the canal on a bridge. From this location, views are available of the length of the canal and of Swift Dam in the distance. Immediately after crossing the canal, the road enters the forest and project facilities are no longer visible. At the west end of Swift Reservoir, there are 2 overlooks on FR 90, both approximately 300 feet above the reservoir. From the first overlook, Swift Dam, the canal, powerhouse, surge tank and spillway are visible in the middle view range to the south. Looking east, this overlook provides a high-quality view of the steep forested hillsides and Swift Reservoir. The second overlook provides views into the Swift Creek arm of Swift Reservoir. This is a spectacular viewing location for Mount St. Helens on a clear day.

9.1.5.3 Visual Assessment of River Flow Fluctuations

Operation of the Merwin and Swift projects affects river flow in the Lewis River below their respective powerhouses. River flow in the Lewis River between Merwin Dam and the city of Woodland is primarily affected by the operation of the Merwin Project. River flow in the bypass reach of the Lewis River, between the Swift No. 1 and Swift No. 2 powerhouses is also affected by project operations. Yale is not included in this assessment because Lake Merwin extends to the tailrace of the Yale powerhouse. Therefore, there is no riverine section.

The purpose of the visual assessment of river flow fluctuations is to determine whether ongoing operations of the Merwin and Swift projects affect the visual quality of the Lewis River. Project operations are considered to affect the visual quality of river flow if

they adversely impact the visual experience of the general public. Impacts to visual quality are considered significant if they occur during periods of higher public use.

To evaluate the visual effect of river flow in the Lewis River below Merwin Dam and in the Swift bypass reach, a range of flows were photographed from KOPs associated with the respective reach of river.

Lewis River Below Merwin Dam. A primary function of Merwin Dam is to regulate flows downstream of the project. FERC License Article 49 stipulates minimum flows, ramping rates and other operational constraints for the project throughout the year. The purpose of Article 49 is to provide for the public safety, recreation, and enhancement of spawning and rearing habitat for fish.

Flows in the Lewis River below Merwin Dam, downstream to the City of Woodland, are influenced by operation of the Merwin Project and inflow from tributaries. Downstream of Woodland, tidal influences from the Pacific Ocean in the Columbia River dominate the flow regime and the effects of Merwin operations are not discernable. Therefore, the visual analysis of changes in river flows below Merwin Dam applies to the reach of river between Merwin Dam and the City of Woodland.

River flows selected for the visual analysis represent the range that typically occurs during periods of peak recreation use on the Lewis River. Fishing is the primary recreation use and popular species include Chinook and coho salmon, steelhead, and sea-run cutthroat trout. Based on vehicle count information (pers. com. M. Stenberg, PacifiCorp, May 31, 2000), the peak fishing months, in descending order are: September, June, May, April, August, July and October. Table 9.1-5 presents flows typical during the high use recreation months based on the historical hydrograph.

These flows were documented photographically from the KOPs located below Merwin Dam, including a pullout on SR 503 in Woodland, the Eagle Island Boat Ramp, and the Hatchery Boat Ramp (see Table 9.1-2 for representative photos, and Figure 9.1-1 for locations of KOPs).

Table 9.1-5. River flow photo documentation for the Lewis River below Merwin Dam.

Representative Instream Flow Condition	Lewis River Flow (cfs)	Photo Date
August	1,430	08/31/00
July/September	2,150	09/17/00
June	2,990	09/07/00
April/May/October	4,989	10/17/01

Lewis River Bypass Reach. The Lewis River bypass reach is associated with the Swift No. 1 and Swift No. 2 projects. The approximately 2-mile reach of river roughly parallels the Swift No. 2 canal to the south, running from the Swift No. 1 tailrace to Yale Lake near the Swift No. 2 powerhouse. Flows in the bypass reach typically range from about 10 to 15 cfs. There is no FERC license article requiring minimum instream flows at this time. The purpose of the visual assessment of bypass reach flows is to provide information on the visual affect of possible minimum flows.

The visual assessment for the bypass reach photographically documented the same flows that were released for the streamflow modeling for the Swift Bypass Reach Instream Flow Study (AQU 2). Four different flows between 60 and 300 cfs were released into the bypass reach for the study. These flows were determined through consultation with fisheries resource agencies and are considered to span a range of flows that might reasonably provide fish habitat in the bypass reach. This flow range would provide an aesthetically pleasing minimum flow in the bypass reach. Table 9.1-6 shows the flows released in the bypass reach for the visual assessment and the date of photo documentation.

Table 9.1-6. Instream flow photo documentation of the Lewis River bypass reach.

Representative Flow Condition	Flow (cfs)	Photo Date
Flow #1	68	05/16/00
Flow #2	134	05/17/00
Flow #3	200	05/15/00
Flow #4	290	05/19/00

These flows were documented from the KOPs located in the bypass reach of the Lewis River, which include the IP Bridge and 2 pullouts along the SR 503 Spur.

Visual Assessment of the Lewis River Below Merwin Dam. The photographs from the identified KOPs on the Lewis River below Merwin Dam depict representative changes in stream flow that occur during the primary recreation months discussed previously.

SR 503 Pullout in Woodland (KOP 1). KOP 1 is representative of the views of the Lewis River experienced by the public traveling on SR 503. KOP 1 is located at the east end of Woodland (3 miles from Interstate 5) where SR 503 follows a bend in the river before veering to the north away from the river. From KOP 1 there is an open view of the Lewis River corridor. The stream gradient is low and the channel is wide and interspersed with small islands and peninsulas (Figure 9.1-14).

Photo documentation of 4 river flows ranging from 1,430 to 4,989 cfs indicated no substantial change in the visual appearance of the river with changes in flow. The flow in the river appears as a large pool or run-pool and no riffles emerge at any of the documented flows. The shoreline of the small peninsula in the foreground of the photograph changes with flow; however, the change is not readily apparent to a casual observer. The peninsula is a sand bar covered with grasses and shrubs. At the highest flow documented, there is one small sandy beach area near the middle of the peninsula. As flows recede, this sandy beach area expands and other beach areas along the shoreline appear. Other shoreline areas shown in the KOP are too steep or too distant to discern any differences between the documented flows.

Eagle Island Boat Ramp (KOP 2). The Eagle Island Boat Ramp is a popular access point for boat and bank fishing. The boat ramp is adjacent to SR 503 and is about 4.5 miles east of Woodland. KOP 2 is located on the north bank of the river on the ramp leading to the water. The view is downstream. From KOP 2 the view of the Lewis River is constrained to the immediate river corridor due to a mature riparian habitat of alders and

maples that enclose the river viewshed. The river gradient is moderate and the channel is fairly narrow and deep. The river appears as pool or run-pool habitat with no islands or peninsulas. Between the riparian habitat and the river there is a fairly flat shoreline with beach areas of sands and cobbles.

Photo documentation of the 4 river flows indicate no substantial change in the visual appearance of the river, except at the highest flow. The beach areas on both sides of the river are popular locations for bank fishing. These areas remain fairly constant in size and appearance as flows increase to 2,990 cfs (June flow). Between 2,990 and 4,989 cfs flow levels begin to encroach on the beaches and limit the area available for bank fishing. The river appears to have more of a current at 4,989 cfs and the shoreline appears flooded (Figure 9.1-15).

Hatchery Boat Ramp (KOP 3). The Hatchery Boat Ramp is a popular access point for boat and bank fishing. The boat ramp is on Hatchery Road, about 0.25 miles from SR 503 and 4.0 miles upriver from the Eagle Island Boat Ramp. KOP 3 is located on the north bank of the river on the boat ramp leading to the water. The view is downstream. At KOP 3, the river is constrained to the immediate river corridor, similar to KOP 2. The river gradient is moderate, the channel is fairly narrow and the river appears as pool or run-pool habitat. Much of the shoreline is vegetated and there are few sandy beach areas along the shoreline.

Photo documentation of the 4 river flows indicated a change in the visual appearance of the river at the lower flows. At the lowest flow (August flow) there is a sand bar just downstream of the boat launch. At 2,150 cfs, just the tip of the sand bar is exposed, but the flow of water around the shallow area is apparent. At 2,990 cfs water covers the surface of the sand bar, but the shallowness of the water depth is apparent from the change in color and the current of the water around the shallow area. At the highest flow, (4,989 cfs), the bar is completely covered and the flow of water across the bar is similar to the flow in the rest of the channel. Other changes in shoreline and water surface conditions are not apparent at any of the flows documented (Figure 9.1-16)

Summary Conclusion – The range of flows that typically occur in the Lewis River below Merwin Dam during periods of popular recreation use do not adversely affect the visual quality of the river corridor. Analysis of flows ranging between approximately 1,400 and 5,000 cfs indicate that the river maintains its scenic quality. While the August flow of around 1,400 cfs may result in expanded areas of exposed shoreline or an occasional sand bar, the appearance of the river is not substantially different from higher flows in the 2,000 to 3,000 cfs range. Flows around 5,000 cfs that occur in April, May and October tend to have somewhat of a flooded or bank-full appearance as compared to flows in the 2,000 to 3,000 cfs range. At flows around 5,000 cfs, beach areas are limited, the sand bar at KOP 3 is not visible, and there is more of a current in the pool and run-pool sections of the river. Of the flows assessed, the middle-range flows around 3,000 cfs appear the most visually pleasing, although as stated above, the visual differences between the entire range of flows is not significant.

August Flow (1,430 cfs)

July/September Flow (2,150 cfs)

Figure 9.1-14. Comparative photographs of representative flows in the Lewis River as seen from SR 503 in the city of Woodland (KOP 1).

June Flow (2,990 cfs)

April/May/October Flow (4,989 cfs)

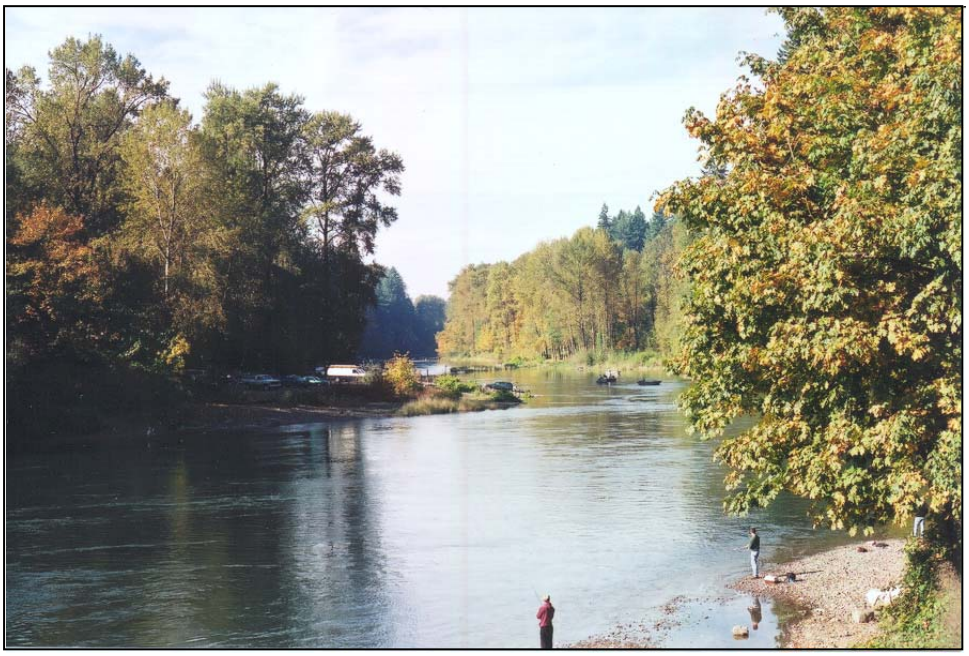
Figure 9.1-14. Comparative photographs of representative flows in the Lewis River as seen from SR 503 in the city of Woodland (KOP 1) (cont.).

August Flow (1,430 cfs)

July/September Flow (2,150 cfs)

Figure 9.1-15. Comparative photographs of representative flows in the Lewis River as seen from the Eagle Island Boat Ramp (KOP 2).

June Flow (2,990 cfs)



April/May/October Flow (4,989 cfs)

Figure 9.1-15. Comparative photographs of representative flows in the Lewis River as seen from the Eagle Island Boat Ramp (KOP 2) (cont.).

August Flow (1,430 cfs)

July/September Flow (2,150 cfs)

Figure 9.1-16. Comparative photographs of representative flows in the Lewis River as seen from the Hatchery Boat Ramp (KOP 3).

June Flow (2,990 cfs)

April/May/October Flow (4,989 cfs)

Figure 9.1-16. Comparative photographs of representative flows in the Lewis River as seen from the Hatchery Boat Ramp (KOP 3) (cont.).

Visual Assessment of River Flows in the Lewis River Bypass Reach. The photographs from the identified KOPs for the Lewis River bypass reach depict a range of stream flows from which a minimum instream flow that maintains the scenic quality of the river is identified.

Upstream and downstream views of the IP Road bridge area are documented in KOP 24 and KOP 25 (Figures 9.1-17 and 9.1-18). The IP Road bridge is located off of Lewis River Road (SR 503 Spur), about 1.0 mile east of the Swift No. 2 powerhouse. The IP Road bridge area and road receive dispersed recreation use that includes hiking, fishing, camping, bicycling, picnicking and swimming.

The Lewis River forms a narrow stream-like channel as it flows between the Swift No. 1 spillway and Yale Lake. At KOP 24, the river flows through riffle structure with small pools upstream and downstream of the riffle. A gravel bar forms the left riverbank of the riffle and a rock slab forms the right. Shrubs and grasses grow on portions of the gravel bar and riparian and coniferous forest borders the exposed bedrock on the right shoreline.

Photo documentation of the 4 river flows in the bypass reach from KOP 24 indicates a change in the visual appearance of the river as flows increase, although these changes are not dramatic. The riffle run habitat of the reach is more sensitive to changes in flow as compared to pool habitat. At the lower flows (flow # 1–68 cfs and flow #2–134 cfs), the river bottom can be seen below the surface, giving the river a brown appearance. The water has some velocity as it drops through the riffle-run, but the overall appearance of the river changes little between these 2 flows. Areas of turbulent water are slightly larger at the higher flow (Flow #2). The width of the river channel appears narrow and confined and is visually dominated by the gravel bar on the left bank.

At the higher flows of 200 and 290 cfs (flow #3 and #4, respectively) the river continues to conform to almost the same width as at lower flows; however, the depth increases so the bottom is not as visible and the color changes, reflecting the sky. The amount of turbulent water does not change substantially from the lower flows. The 2 higher flows and especially the #4 flow (290 cfs) cover more rocks in the channel. The highest flow extends 2 or 3 feet farther up the left bank at the gravel bar. Sound characteristics improve at the IP Road bridge KOPs with the higher flows, but they are easily drowned out by traffic on nearby FR 90. The width of the river channel continues to appear narrow and confined and is visually dominated by the gravel bar on the left bank (Figure 9.1-17).

KOP 25 is the same location as KOP 24 on the IP Road bridge, except the view is downstream, where the Lewis River transitions into pool structure. As mentioned above, pool structure is much less sensitive to changes in flow than riffle and runs due to increased depth and width.

Photo documentation of the 4 flows assessed from KOP 25 indicates that there is no significant difference in the visual appearance of the river. There is some increase in the width of the pool as evidenced by the changes in shoreline conditions on the left bank; however, the changes are not substantial enough to be readily noticeable. At the lower flows of 68 and 134 cfs (flows #1 and #2, respectively) there is no visible sign of water movement in the pool. At the higher flows of 200 and 290 cfs (Flow #3 and #4,

respectively) there is more of an appearance of velocity. This is most apparent where the water flows over a large submerged rock near the base of the pool and the right bank (most visible in the 290 cfs photo). Overall, there is no significant difference in the visual appearance of the flows from KOP 25 (Figure 9.1-18).

KOR 27 is located along FR 90 near the Swift No. 2 power canal. This view is representative of the views of the Lewis River bypass reach that the public experiences when traveling on FR 90. This KOP is located on FR 90 about 2.5 miles east of the Swift No. 2 powerhouse where the road rises to cross the Swift No. 2 canal. KOP 27 provides an expansive upstream view of the Lewis River bypass reach. Here the river forms a run habitat on the left side of the river and a side pool on the right.

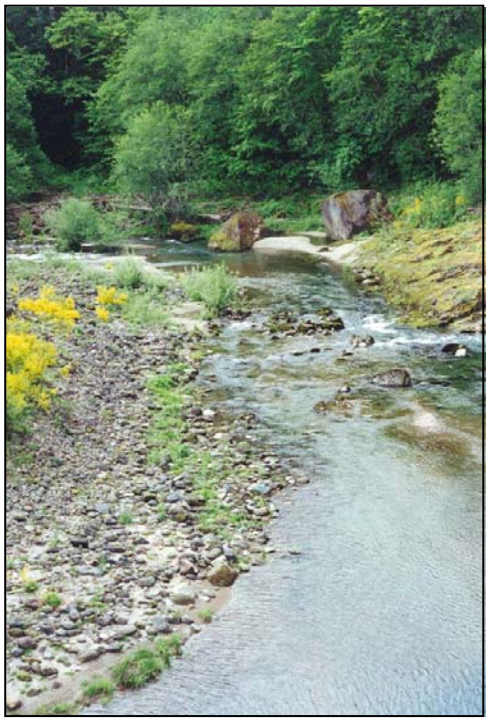
KOP 27 offers a more expansive and distant view of the Lewis River bypass reach as compared to views from the IP Road bridge. Changes in the characteristics of the river in response to flow are not readily discernable from this vantage point. While there is some change in river characteristics, the general appearance of width, shape and velocity at the 4 documented flows does not change significantly from this KOP. Increases in depth expose fewer rocks in this reach, a change that is barely discernable from KOP 27. This is most noticeable at the highest flow of 290 cfs, as fewer rocks are exposed at the surface. No change in sound characteristics can be discerned at this distance from the river (Figure 9.1-19).

Summary / Conclusion. Change in the visual characteristics of the Lewis River bypass reach at 4 flow levels was not very noticeable even though the highest flow (290 cfs) was more than 5 times the lowest flow (68 cfs). From KOPs 25 and 26, there was little change in the visual appearance as flows increased. For KOP 25, this was due to the pool structure, whereas KOP 26 was more distant from the river and therefore changes in river conditions were more difficult to discern. KOP 24 had the most changes in stream conditions with increases in flow. The visual appearance of KOP 24 improved when flows were between 200 and 290 cfs, mostly due to increased water depth and increased reflection of the sky colors.

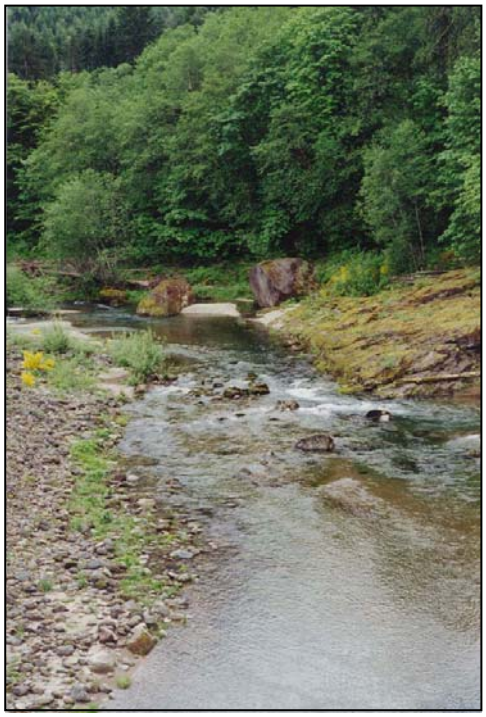
9.1.5.4 Compliance with Visual Resource Objectives, Policies, and Guidelines

This study component researches the existence of published agency plans and policies relative to the management of aesthetic/visual resources in the study area. Once identified, these documents are reviewed for any potential adopted regulations or policy statements that may affect project facilities or operations.

The Merwin, Yale, Swift No.1 and Swift No. 2 projects are located in Clark, Cowlitz and Skamania counties. The Merwin Project is located in both Clark and Cowlitz counties, with the Lewis River (and the historic river channel in Merwin Reservoir) forming the county line. The Yale Project also lies in both Cowlitz and Clark counties, with the inundated river channel marking the county line. The Swift No.1 Project is located entirely within Skamania County. The Swift No. 2 powerhouse and the western end of the canal are in Cowlitz County, while the majority of the canal extends into Skamania County.



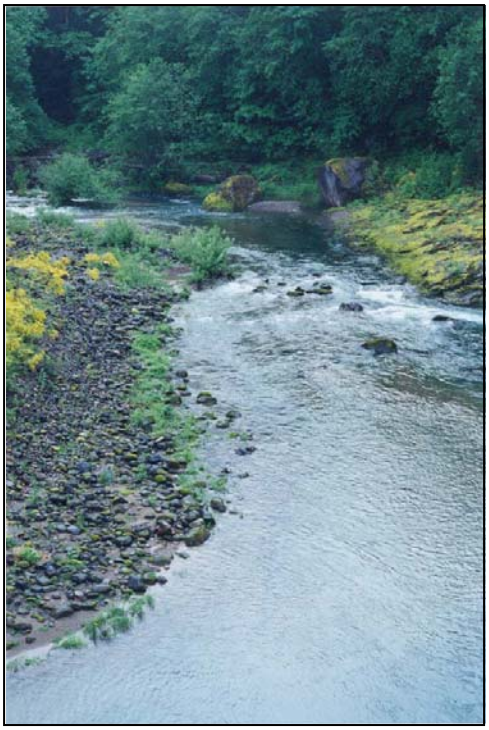
Flow #1 (68 cfs)



Flow #2 (134 cfs)

Figure 9.1-17. Comparative photographs of the Lewis River bypass reach as seen from the IP Road bridge looking upstream (KOP 24).

Flow #3 (200 cfs)



Flow #4 (290 cfs)

Figure 9.1-17. Comparative photographs of the Lewis River bypass reach as seen from the IP Road bridge looking upstream (KOP 24) (cont.).

Flow #1 (68 cfs)

Flow #2 (134 cfs)

Figure 9.1-18. Comparative photographs of the Lewis River bypass reach as seen from the IP Road bridge looking downstream (KOP 25).

Flow #3 (200 cfs)

Flow #4 (290 cfs)

Figure 9.1-18. Comparative photographs of the Lewis River bypass reach as seen from the IP Road bridge looking downstream (KOP 25) (cont.).

Flow #1 (68 cfs)

Flow #2 (134 cfs)

Figure 9.1-19. Comparative photographs of the Lewis River bypass reach as seen from FR 90 near the Swift No. 2 Canal (KOP 27).

Flow #3 (200 cfs)

Flow #4 (290 cfs)

Figure 9.1-19. Comparative photographs of the Lewis River bypass reach as seen from FR 90 near the Swift No. 2 Canal (KOP 27) (cont.).

Available adopted agency plans and policies were collected and reviewed for Cowlitz, Clark and Skamania counties, as well as the Washington State DNR and USDA Forest Service (Gifford Pinchot National Forest and Mount St. Helens National Volcanic Monument). Policy guidance regarding aesthetic/visual resources was reviewed, and any issues or conflicts were noted and analyzed.

Plans and policies are discussed below by agency. The plans included County Comprehensive Plans, the State DNR Siouxon Landscape Plan, and the Forest Service's local Land and Resource Management Plan.

Cowlitz County. The Cowlitz County Comprehensive Plan (Cowlitz County 1976) contains 2 zoning designation for the project area, Rural Residential 2 and Forestry/Open Space. The Forestry/Open Space and Rural Residential classifications do not contain goals for management of visual resources. Within the Community Facilities Element of the Parks and Recreation Section of this same plan, 3 goals are identified for project lands, 2 of which relate to scenic resources. The first is to develop scenic vistas to view Lake Merwin and Yale Lake from SR 503 and SR 503 Spur. Currently no actions are proposed to develop view corridors; however, several natural viewpoints exist. The second is to maintain scenic values at Marble Creek Falls on Lake Merwin. These falls are north of SR 503. Vegetation removal to improve views of the falls may be possible; however, the views would be from a sharp bend in the highway. Encouraging stopping or distracting drivers could be dangerous.

Clark County. The Clark County 20-Year Comprehensive Growth Management Plan (Clark County 1994) contains 3 zoning classifications that apply to project lands: Forest Tier I, Forest Tier II, and Parks/Open Space. The Comprehensive Plan contains no language about managing aesthetic/visual resources for these zoning classifications.

Skamania County. The Skamania County Comprehensive Plan (Skamania County 1977) does not identify zoning classifications for project lands. As a result, no aesthetic/visual resource management policies exist.

Washington State Department of Natural Resources

The State of Washington DNR manages extensive lands on the south shore of Yale Lake. Two documents direct the management of these lands: the Forest Resource Plan (DNR 1992) and the Siouxon Landscape Plan (DNR 1996). The Siouxon Plan implements the Forest Resource Plan. At the time it was published, the DNR had no established policies for visual management, but indicated that procedures would be developed as part of landscape planning (DNR 1996).

USDA Forest Service – Gifford Pinchot National Forest & Mount St. Helens National Volcanic Monument. The Gifford Pinchot National Forest Land and Resource Management Plan (USFS 1990) covers federal lands in the Gifford Pinchot National Forest & Mount St. Helens National Volcanic Monument. This plan contains Visual Quality Objectives (VQO) for USFS lands. The VQO do not apply to privately held lands (such as project lands) within or outside National Forest boundaries. Two isolated parcels of Forest Service land near the project where the VQO apply are the Pine Creek

Ranger Station property and property at Drift Creek on Swift Reservoir. Continued project operations will not affect the ability of the USFS to maintain VQOs at the Pine Creek and Drift Creek properties.

9.1.6 Discussion

Another important aesthetic/visual resource topic is the visibility of industrial facilities in a natural setting. During the NEPA scoping process, the USFS raised the issue of the potential effect of the Swift No. 2 powerhouse on the aesthetic experience from the SR 503 Spur and FR 90. The USFS proposed 2 potential actions to mitigate these perceived effects:

- When facility maintenance is performed, paint or treat the Swift No. 2 powerhouse with a color treatment that would make the facility visually blend in with the surrounding natural environment as viewed from key visitor use areas.

- Visually screen the Swift No. 2 powerhouse from key visitor use areas using native landscape plantings. Facility safety and security must be considered.

In response to these proposed enhancement measures, Cowlitz PUD conducted the following tasks:

- A review of opportunities to screen the powerhouse with plantings was completed. It was found that insufficient distance exists between the roadway and project facilities to plant and maintain a vegetation screen. Overhead lines, nearby transformers at the powerhouse, and underground structures associated with the powerhouse preclude any screening directly between the powerhouse and the roadway. The small area between the roadway and the canal must be clear to maintain positive drainage and a clear zone for errant vehicles along the highway.

- Paved areas around the powerhouse were evaluated for their potential to be converted to landscape screening areas. These paved areas provide a minimal amount of parking and staging for powerhouse operations. All paved areas were deemed critical to project operations, safety, and security.

- A review of the potential for mitigating the visual effect of the powerhouse by changing its color was completed. Generally, paint schemes that mimic the overall color of the surrounding landscape work well to lower the visual impact of manmade structures when seen from a distance, especially when those structures are visible as part of a scenic view or are in contrast with larger natural features. The Swift No. 2 Powerhouse situation does not meet either of these conditions. It is visible from very close range both on FS 90 and by boaters on the narrow north end of Yale Lake. The majority of viewers are driving on FS 90 and pass within a few feet of the fence around the substation and transformers. In addition, the existing powerhouse color is a neutral light gray and blends with the sky tones, fog and rainy conditions that are prevalent in the area throughout a large portion of the year. For highway travelers, a color that blends the powerhouse with the surrounding vegetation might lessen its impact some-what, but the minor benefit, if there is one, may not be justifiable when compared to the

expense. Moreover, the powerhouse is part of the Eligible Swift Historic District so color modification likely would be inconsistent with future management objectives for the historic district. Recreation boaters on the narrow northern end of Yale Lake may see a greater change in the visual impact of the powerhouse if the color were changed. The reservoir side of the structure does not have the transformers, powerlines and towers, and the boaters are farther away from the powerhouse than the highway travelers. This on-water improvement though would have little large-scale effect on the visual quality of the area. Because of its location on the narrow north end of Yale Lake, the powerhouse is visible only for a short distance.

9.1.7 Existing and Potential Proposed Measures

One of the most important aesthetic/visual resource topics is reservoir pool levels. To minimize any adverse effects, PacifiCorp maintains Lake Merwin between 239 and 235 feet msl during the summer recreation season. Full pool is 239 feet msl (spillway elevation). This pool level is normally maintained to accommodate public recreation use during the peak season from Memorial Day to Labor Day. This practice maintains the highest visual quality of the reservoir during the period when the majority of users are present. Outside the recreation season, the annual low pool is normally 235-ft msl. Visual quality is not reduced outside of the recreation season.

PacifiCorp maintains Yale Lake between 480 and 490 feet msl during the summer recreation season. Full pool is 490 feet msl (spillway elevation). This pool level is normally maintained and accommodates public recreation use during the peak season from Memorial Day to Labor Day. This practice maintains the highest visual quality of the reservoir during the period when the majority of users are present.

PacifiCorp maintains Swift Reservoir between 999 and 991 feet msl during the summer recreation season. Full pool is 1000 feet msl (spillway elevation). This summer pool range is normally maintained and accommodates public recreation use during the peak season from Memorial Day to Labor Day. This practice maintains the highest visual quality of the reservoir during the period when the majority of users are present.

Summary Conclusion. The evaluation of applicable agency plans and policies conducted to assess compliance with land resource management policies and regulations revealed that continued operation of the project would not adversely affect aesthetic/visual resources in the project area. No conflicts with applicable plans or policies were identified.

9.1.8 Schedule

This study is complete.

9.1.9 References

Clark County. 1994. Clark County 20-Year Comprehensive Growth Management Plan. Vancouver, WA. December 1994.

Cowlitz County. 1976. Cowlitz County Comprehensive Plan, as amended in May 1981. Longview, WA.

PacifiCorp. 1999. Application for FERC License for the Yale Hydroelectric Project. Portland, OR. April 1999.

Skamania County. 1977. Skamania County Comprehensive Plan. Stevenson, WA. 1977.

Washington Department of Natural Resources. 1992. Forest Resource Plan. July 1992.

Washington Department of Natural Resources. 1996. Siouxon Landscape Plan. September 1996.

U.S. Forest Service. 1990. Gifford Pinchot National Forest Land and Resource Management Plan. U.S. Department of Agriculture. Olympia, WA.

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