

The selected route (Alternative 4) has the following major affects:

- Reduces the number of stream and river crossings from 42 to 17.
- Shortens the line by approximately 1.5 miles.
- Reduces the impacts on the number of landowners and human development.
- Reduces the visual impact by moving the pipeline right-of-way to ridge tops, away from the view of residents and roadway users.
- Reduces the complexity of construction associated with the valley construction by moving the line out of areas of standing water and potential wetlands.

#### **4.0 RELATIONSHIP OF PROPOSED PIPELINE ROUTE (ALTERNATIVE 4) TO SELECTION CRITERIA**

This section describes specific considerations taken into account to determine the proposed pipeline route.

##### **4.1 SELECTED ENGINEERING**

Use of the equipment necessary to build a 16 - 20 inch pipeline requires a normal working right-of-way width of approximately 65 feet. The Supply System is proposing a 75-foot-wide construction right-of-way to provide a 5-foot-wide buffer on each side of the working right-of-way.

The Supply System's contractor has met with Bonneville Power Administration (BPA) representatives to discuss the installation of the pipeline in the BPA electrical transmission rights-of-way. The Supply System has agreed to follow BPA's design requirements for work within the BPA transmission rights-of-way, and BPA has agreed to allow the pipeline to be constructed within their transmission rights-of-way. During final engineering and design studies, the Supply System's contractor will develop detailed specifications regarding safe construction of the pipeline in the transmission line rights-of-way. Development of these specifications will include further consultation with BPA to ensure that their requirements regarding construction of the pipeline in the transmission line right-of-way are fully met.

Construction on the sides of hills will be kept to a minimum to reduce the need for costly and labor-intensive earth stabilization techniques and the potential for routine maintenance work on or near the right-of-way. The route selected also requires minimal maintenance of the banks of river or stream crossings, with only 24 water crossings along the 48-mile length.

## 4.2 ENVIRONMENTAL CONSIDERATIONS

To minimize environmental impacts, the Supply System selected a route that is within or adjacent to existing corridors for nearly 80 percent of its length. Approximately 21 miles of the route are adjacent to and partially within existing pipeline rights-of-way, and approximately 13 miles are located within existing BPA transmission rights-of-way. In addition, approximately 3 miles of the proposed route are located within or adjacent to logging roads, and approximately 1 mile is adjacent to an existing roadway through agricultural land. The remainder of the route was selected based on environmental and engineering considerations in the area between the point where the pipeline departs an existing corridor and the point where it returns to an existing corridor.

During studies of the existing biological conditions in the vicinity of the route, an active eagle's nest was identified within approximately 1,000 feet of the preliminary route. In response to this, the Supply System moved the route to a point that is no closer than 2,000 feet from the nest.

Wetlands are present throughout the western Washington area, and route selection studies were directed toward avoiding wetland areas to the extent possible. Crossings of watercourses were selected to avoid sensitive spawning or rearing areas to the extent possible. In addition, geologic hazards and areas of high erosion potential were also avoided as much as possible.

Alternative 4, as originally designed, would have crossed 42 wetlands totalling approximately 20 acres. The following mitigation measures have reduced the number of wetlands crossed to 34 and the number of acres affected to about 7.64. The following has been proposed to minimize impacts to wetlands along the pipeline corridor:

- The width of the construction corridor has been reduced from 75 feet to 50 feet in wetland areas.
- In those areas where the proposed pipeline parallels an existing natural gas pipeline, the proposed pipeline construction corridor was moved towards the existing pipeline easement.
- In those areas where the proposed pipeline parallels the BPA easement, bends will be put in the pipe so that the pipeline is in the existing cleared BPA easement, thereby reducing impacts to woody wetland vegetation.
- Bends will be put in the pipe to avoid small isolated wetlands where feasible.

These measures have also reduced the amount of woody wetland vegetation that would be cleared for the easement. Alternative 4 is the least environmentally damaging alignment for this project.

The possibility of moving the pipeline into the BPA easement (between towers) is being investigated. This requires a permit from BPA and will occur only with their approval. This action would reduce both the temporary construction impacts and permanent easement maintenance impacts.

Additional information on site-specific environmental considerations in route selection are presented below in Subsection 4.5 (Summary Route Description in Relation to Selection Criteria).



### **4.3 POPULATION CONSIDERATIONS**

The proposed route was selected to avoid direct impacts to developed areas. Although most portions of the selected route are sparsely populated now, many areas along the proposed route have the potential for future human development. The proposed route was chosen to minimize routing through these areas. For example, valleys are crossed at right angles to minimize the useable land areas affected as much as possible.

Additional information on site-specific population considerations in route selection are presented below in Subsection 4.5 (Summary Route Description in Relation to Selection Criteria).

### **4.4 FEDERAL AND STATE STANDARDS**

Class Locations 1 through 4 correspond with design factors that govern aspects of pipeline design such as wall thickness. The eastern half of the route selected (from approximately the connection with the Northwest Pipeline Corporation (NWPC) mainline near Vail to the area west of Black Lake) extends near some populated areas, and land development in this portion of the route is expected to continue to increase. As a result, the entire pipeline will be designed to meet a Class 3 design standard.

The Supply System has selected a preliminary pipeline design pressure of 250 pounds per square inch, gravity. As a result, the proximity requirements of WAC 480-93-020 and WAC 480-93-030 do not apply to the pipeline. If during final design studies the Supply System identifies a need for a higher pipeline pressure, a waiver request will be submitted in accordance with the requirements of these state regulations.

### **4.5 SUMMARY ROUTE DESCRIPTION IN RELATION TO SELECTION CRITERIA**

From the connection with the NWPC pipeline, the route proceeds northwest along the west side of the existing NWPC pipeline corridor. The west side was chosen to minimize conflicts with another pipeline (Olympic Pipeline) which is located on the eastern side of the existing right-of-way.

West of approximately Milepost (MP) 14, the route continues west through an increasingly urbanized area south of the Olympia airport. As noted above, the pipeline will be designed to a Class 3 location level through this area and along the entire route.

Approximately 0.25-mile into Section 17, the proposed route departs from the existing NWPC right-of-way. The existing NWPC pipeline continues due west and crosses a large wetland area south of Black Lake. This crossing would be very difficult to make without a potentially substantial impact to the wetlands. In addition, the existing NWPC route is now situated in a heavily developed subdivision area west of Black Lake and pipeline construction through this area may be of concern to the surrounding property owners. As a result, the proposed route will turn north and run parallel to or within an existing BPA electrical transmission line corridor for most of the next 8 miles. The BPA corridor contains multiple lines and is several hundred feet wide. The pipeline will typically lie between 25 and 50 feet from the bases of the transmission towers.

The proposed pipeline route is in the eastern side of the BPA transmission line corridor until it is approximately 0.5-mile into Section 5, Township 17 North, Range 2 West. There, the route crosses to the west side of the corridor to avoid impacts to a trailer park adjacent to the parcel and will pass adjacent to large residential lots and commercial buildings which are approximately 100 yards to the west.

The crossing of Black Lake Drainage Ditch at the north end of Black Lake diverts from the BPA corridor to avoid a severe slope immediately west of Black Lake Boulevard. Two alternative routes have been examined for crossing the Black Lake Drainage Ditch at the north end of Black Lake in Thurston County (see Figure 3).

One route would diagonally cross under a large wetland area by directional drilling under the Black Lake Drainage Ditch and the adjacent wetlands. The pipeline route would angle northwest from the BPA corridor to a point west of the Black Lake Boulevard and Black Lake-Belmore Road intersection. The pipeline would then proceed west and northwest and rejoin the BPA corridor.

The second route would bypass the wetland area by departing the BPA right-of-way at its intersection with Sapp Road. The pipeline would follow the Sapp Road right-of-way west to its intersection with Black Lake-Belmore Road, then north along the Black Lake-Belmore Road right-of-way to a point just west of Black Lake Boulevard. The remainder of the route is the same in both alternatives. The pipeline would be within the roadway right-of-way. Both routes appear to be technically feasible and would be consistent with Shoreline Management Program and local land use regulations. The route within the roadway right-of-way is preferable due to difficulty and expense of the directional drilling under the wetlands provided there would be no interference with utility lines that currently use the right-of-way.

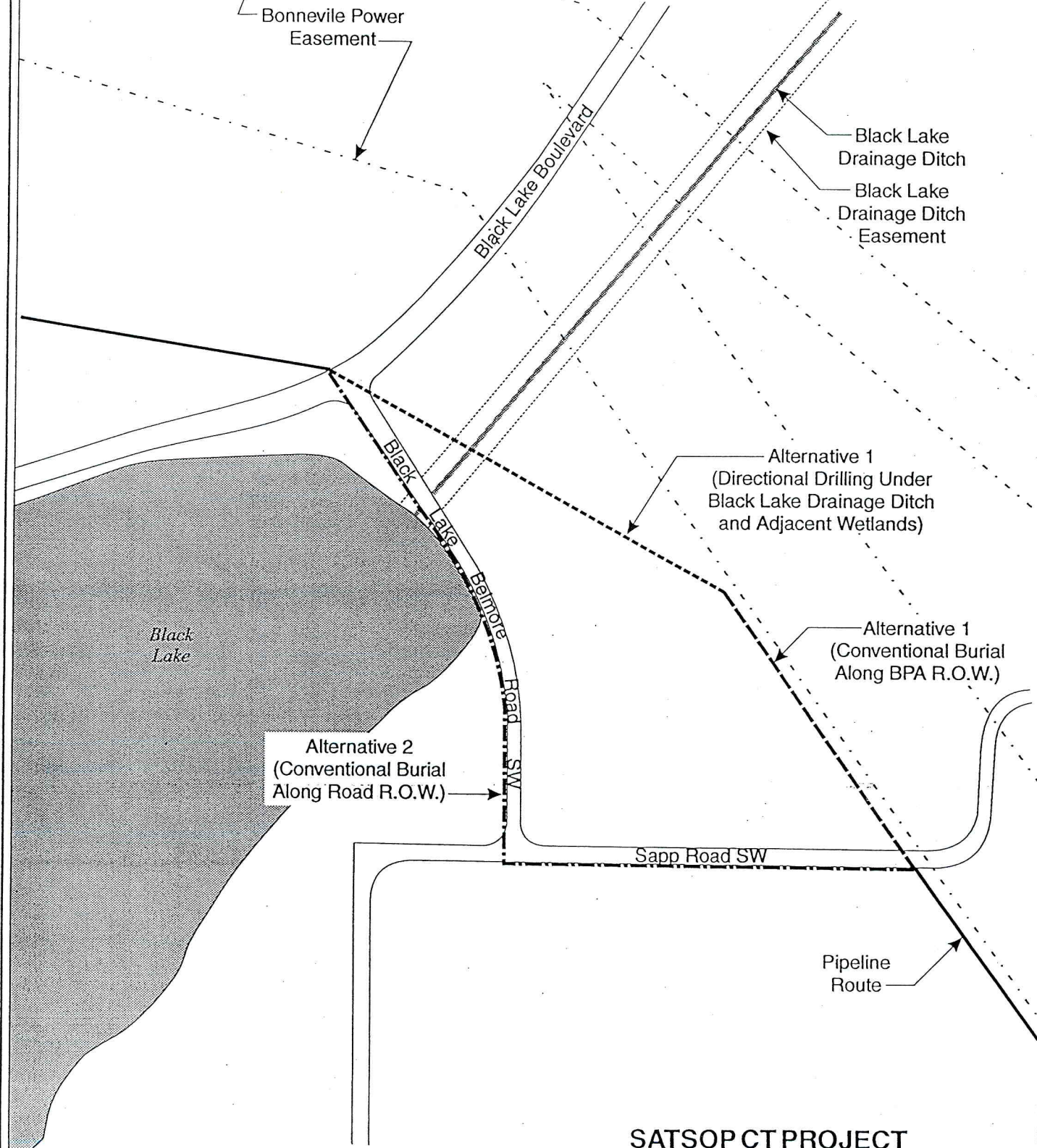
In Section 22, Township 18 North, Range 3 West, the route departs from both the BPA corridor and the existing NWPC pipeline corridor to continue west over the ridge tops in Sections 21 and 22. The route avoids the severe sidehill and gully areas which the parcel span on the north-facing slopes, as well as numerous water crossings, wet areas, and populated areas along the existing NWPC route through the valley along State Route 8. Because the proposed pipeline will meander across the tops of the hills, there are very few crossings of drainages or streams. In addition, this area will not have visual impacts on viewers from the valley floor and is away from existing development.

The route will rejoin the BPA corridor at the west side of Section 20, extending along the south side of the corridor for approximately 1 mile. The existing NWPC right-of-way is on the north side of the corridor and traverses many wet areas. The southern edge of the powerline corridor is higher and does not contain wet areas.

After crossing Sand Creek east of approximately MP 40, the route climbs out of the Sand Creek drainage into the hills to the west, then descends into the Chehalis River Valley where it crosses State Route 12, a railroad spur, and a county road. The route passes through agricultural land in the central valley and crosses the Chehalis River at about MP 43. The route across the valley was chosen to follow the edges of existing agricultural fields and to avoid the wetland areas immediately to the south of the selected route. The route does not follow the BPA corridor in this area because of the congestion of a home and a bridge across Workman Creek, with a very steep slope to the west.



**FIGURE 3**  
**Pipeline Routing Alternatives**  
**North of Black Lake**



**SATSOP CT PROJECT**

West of the river crossing, the route continues through agricultural fields until it crosses Lambert Road on the west side of the river valley. Shortly after the roadway crossing the route rejoins the BPA right-of-way, remaining within the corridor for approximately 1.5 miles. Just east of Workman Creek the route leaves the corridor, crosses the creek and an unpaved road, and extends generally west along the top of the ridges where it is parallel to or within an existing logging road for approximately 1 mile. From about MP 45.5, the route rejoins the BPA corridor, entering the Satsop Power Plant property. From that point the route crosses Purgatory Creek and Lambert Road within the BPA corridor, then extends along the county road to the south side of the Satsop Plant's equalization and settling ponds before turning west and rejoining the BPA corridor to cross Fuller Creek. The route terminates at the CT Project site at about MP 48.3.