

Appendix C
Wetlands Report

Wetland Delineation Report Saddleback Wind Energy Project Skamania County, Washington

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Summary

CH2M HILL conducted a delineation of potentially jurisdictional wetlands and waters of the State/U.S. and a determination of potential county-required buffer widths adjacent to wetlands and waters within the proposed project areas for the Saddleback Wind Energy Project. The investigation was conducted in the vicinity of Underwood Mountain, approximately 7 miles northwest of the City of White Salmon, in an unincorporated area of Skamania County, Washington (Figure 1). The project area is situated adjacent to, but entirely outside of, the Columbia Gorge National Scenic Area.

Study area boundaries are shown in Figure 2. The project study area for potential wetlands and waters included:

- 300-foot corridors centered on all proposed turbine strings and their associated access roads;
- 50-foot corridors on either side of all existing roads proposed for improvement in conjunction with the project; and
- an approximately 15-acre plot for proposed substation construction, and two 5-acre and five 2-acre areas identified as proposed construction staging areas.

No jurisdictional wetlands or waters of the State/U.S. were observed in the study area. Five sites were identified as potential "drainageways having short periods of spring or storm runoff" that would be subject to county buffer requirements. The five drainageways appear to meet criteria as Type V streams subject to a 25 foot buffer requirement.

This delineation represents the best professional judgment and conclusions of CH2M HILL. It is considered a preliminary jurisdictional determination; final authority for jurisdictional determinations for regulatory permitting rests with the U.S. Army Corps of Engineers and Skamania County Department of Planning and Community Development.

Results

Office Review

USGS Topographic Map

The USGS topographic map shows an intermittent pond identified as "Cedar Swamp" mapped within the general project area but outside of the study areas/proposed project facilities. Three unnamed perennial streams (Cedar Swamp tributaries) are mapped as crossing an existing road that is proposed to be widened to 20 feet. A proposed underground collector line will also follow the road. An unnamed perennial stream is mapped beginning at the western edge of the proposed 15 acre staging area (Figure 2).

National Wetland Inventory (NWI) Map

The National Wetland Inventory map shows one wetland in the general project area (Figure 3). The wetland is classified as a *palustrine unconsolidated bottom, semipermanently flooded, diked/impounded* (PUBFh) wetland and corresponds with the "Cedar Swamp" mapped on the USGS topographic map. It is outside the study areas.

Washington Department of Natural Resources (DNR) Forest Practices Stream Mapping

The Washington Department of Natural Resources Forest Practices Stream Mapping shows ten stream segments that are located within project study areas (Figure 3). These included the streams on the USGS map as well as additional streams. The streams at sites B-1, B-2 and B-3 are unnamed drainages that flow toward the Little White Salmon River. The other streams are unnamed tributaries of Little Buck Creek.

Skamania County Area Soil Survey

A review of the *Soil Survey of Skamania County Area, Washington* (Haagen, 1990) shows six soil series and 13 types or phases mapped within the project area (Figure 4). None are listed as hydric according the *Hydric Soils List for the Skamania County Area, Washington* (NRCS, 2001) and none are listed as containing inclusions of hydric soils.

Field Investigation

Wetlands

No wetlands were observed within the study areas. All of the potential stream crossing sites examined for the delineation were dominated by upland species. No wetland hydrology indicators were observed on the surface. Due to the lack of wetland vegetation or hydrology indicators on the surface no sample pits were dug.

Waters of the State/U.S.

Ten sites with potential stream crossings of proposed project facilities were documented in the field delineation and determination of potential buffer widths (Table 1; Figure 3). Site photos are in the Appendix. None of the crossings appear to have waters of the U.S./State present. They did not contain channels or other characteristics of waters.

TABLE 1
 Site Summary

Site ID	Site Characteristics	Water of the State/U.S.	Skamania County Critical Area	Buffer Width (feet)
B-1	plateau; west edge is steep forested slope with broad swale; upland vegetation; no channel, scour or other indicators of a drainageway	NO	NO	0
B-2	gully in forest; upland vegetation; no channel, culvert, scour or other indicators of a drainageway	NO	NO	0
B-3	gully in forest and clearcut; upland vegetation; no channel, culvert, scour or other indicators of a drainageway	NO	NO	0
D-2	very subtle broad forested swale; upland vegetation; no channel, culvert, scour or other indicators of a drainageway	NO	NO	0
D-3	narrow forested gully; upland vegetation; 12" culvert under road; no channel; isolated areas of scour upstream of road; 12" wide scour path extends downstream of road approximately 100', then ends	NO	Class V stream	25
D-4	broad, shallow forested gully; upland vegetation; 12" culvert under road; no channel or scour	NO	Class V stream	25
D-5	very subtle broad forested swale; upland vegetation; no channel, culvert, scour or other indicators of a drainageway	NO	NO	0
D-6	broad, shallow forested gully; upland vegetation; 12" culvert under road; no channel or scour	NO	Class V stream	25
F-1	broad gully in recent clearcut; upland vegetation; 12" culvert under road; no channel; isolated areas of scour	NO	Class V stream	25
F-2	gentle slope in recent clearcut; upland vegetation; water from snow melt flowing across the ground; no culvert, channel or scour	NO	Class V stream	25



LEGEND

- City
- Columbia River
- Freeway
- Highway
- County Boundary

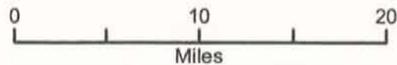


Figure 1

Vicinity Map

Wetland Delineation
Saddleback Wind Project



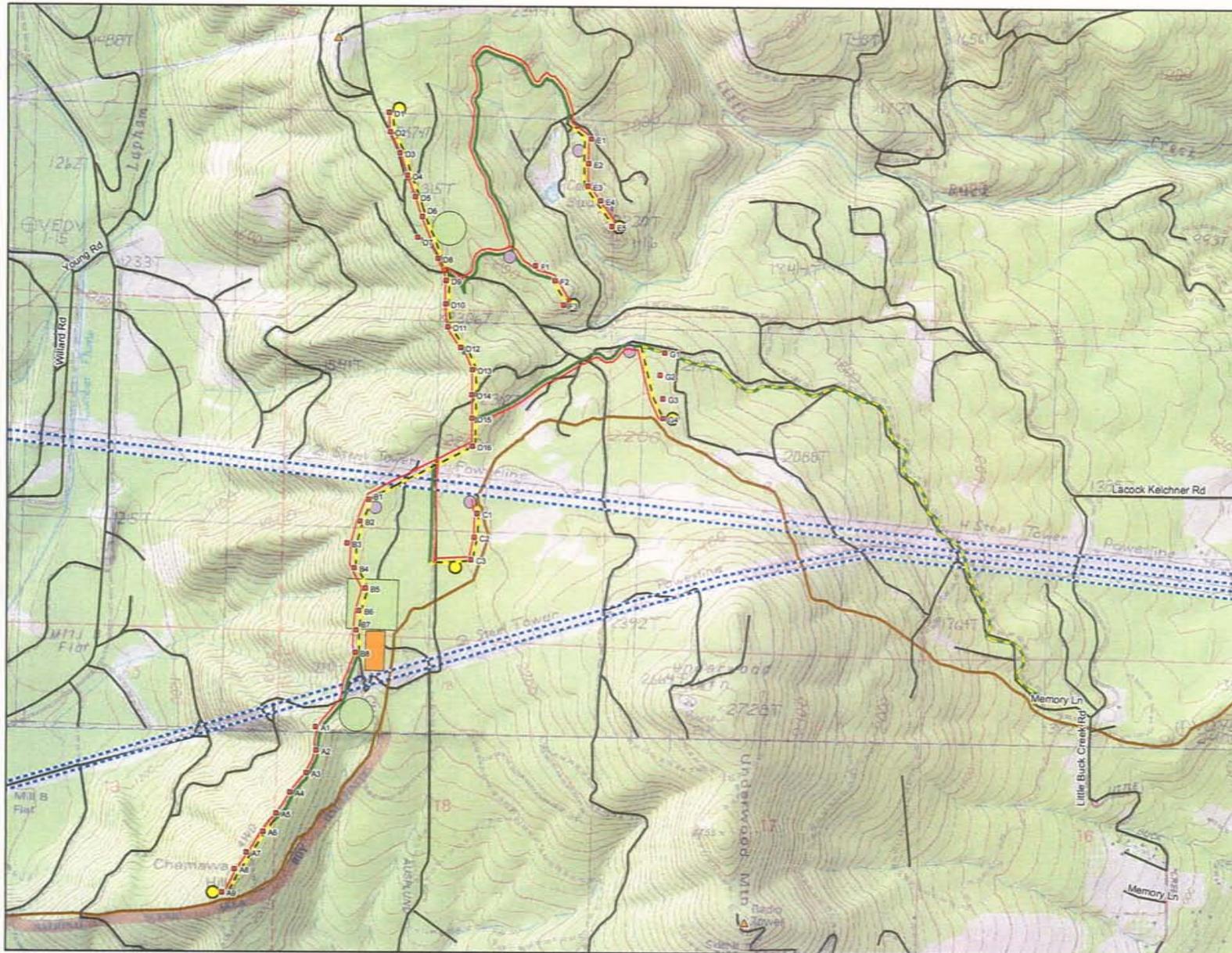
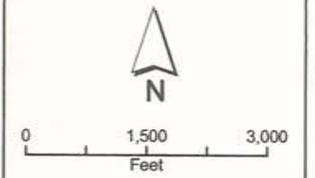


Figure 2
Project Area
 Wetland Delineation
 Saddleback Wind Project

- LEGEND**
- Proposed Permanent Facilities**
 - Proposed Turbine
 - Proposed Access Road - 20'
 - Existing Road - Widened to 15'
 - Existing Road - Widened to 20'
 - Proposed Underground 34.5kV Collector Line
 - Proposed Substation & O&M Facility
 - Proposed Temporary Facilities**
 - Temporary Turnaround Area
 - Temporary Staging Area - 5 and 15 Acres
 - Temporary Staging Area - 2 Acres
 - Existing Features**
 - ▲ Existing Microwave Tower
 - Existing Transmission Line
 - Existing Road
 - National Scenic Area Boundary



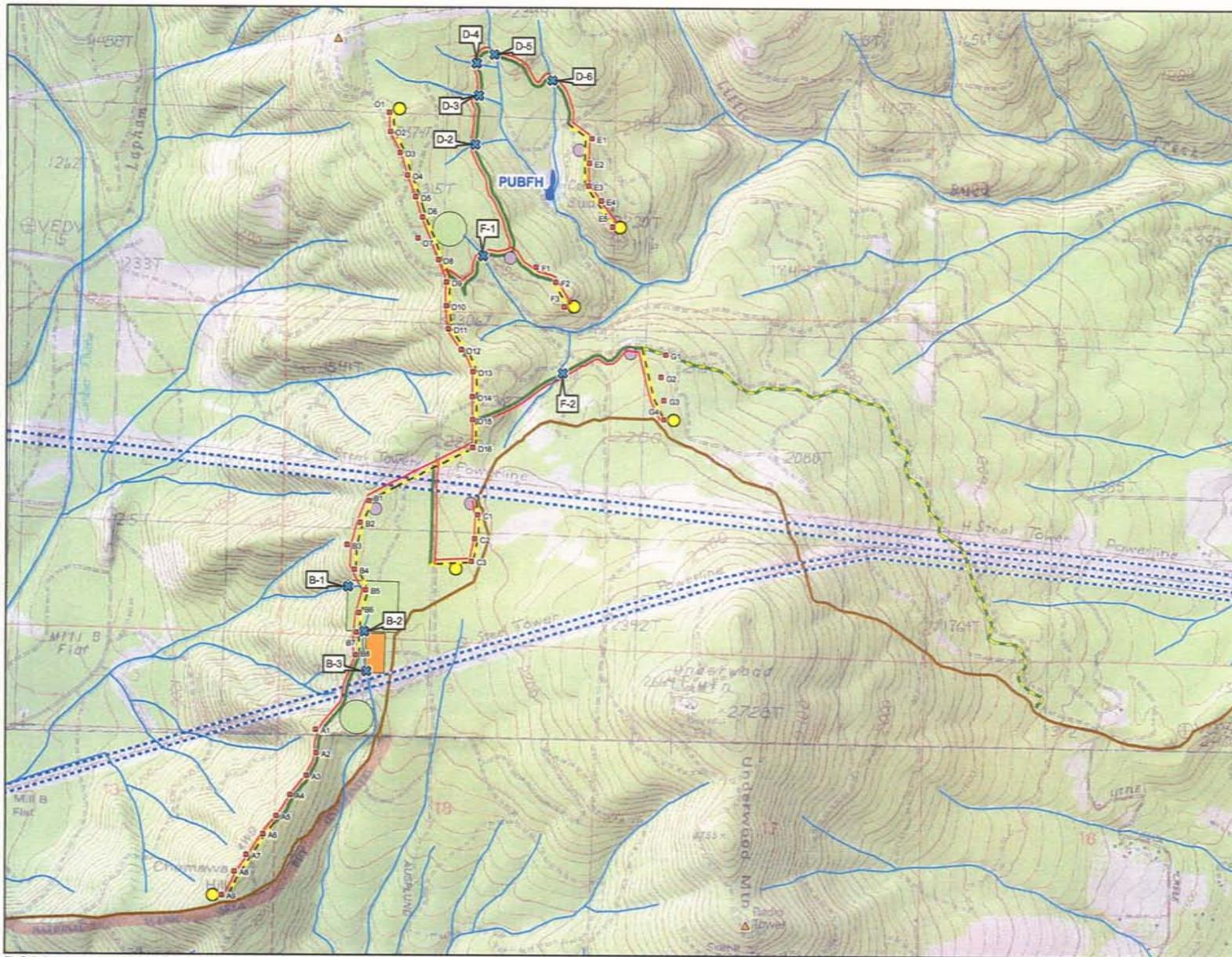
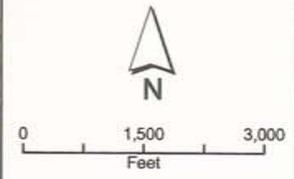


Figure 3
DNR Streams
 Wetland Delineation
 Saddleback Wind Project

LEGEND

-  NWI Wetlands
-  Stream Crossing
-  Streams (from WA DNR)
- Proposed Permanent Facilities**
-  Proposed Turbine
-  Proposed Access Road - 20'
-  Existing Road - Widened to 15'
-  Existing Road - Widened to 20'
-  Proposed Underground 34.5kV Collector Line
-  Proposed Substation & O&M Facility
- Proposed Temporary Facilities**
-  Temporary Turnaround Area
-  Temporary Staging Area - 5 and 15 Acres
-  Temporary Staging Area - 2 Acres
- Existing Features**
-  Existing Microwave Tower
-  Existing Transmission Line
-  National Scenic Area Boundary



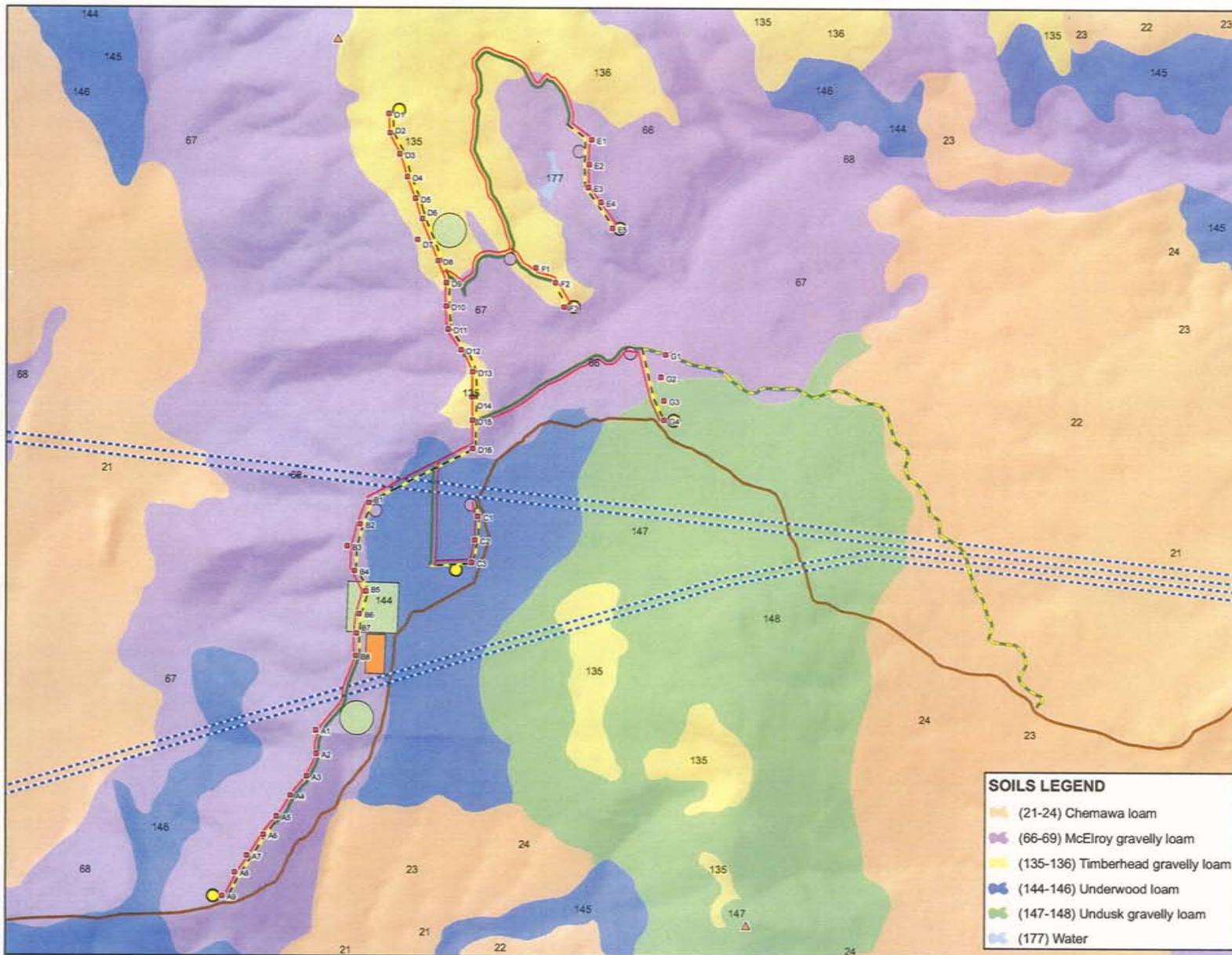


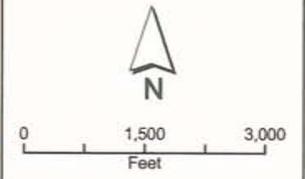
Figure 4
Soils Mapping
 Wetland Delineation
 Saddleback Wind Project

LEGEND

- Proposed Permanent Facilities**
- Proposed Turbine
 - ▲ Proposed Access Road - 20'
 - ▲ Existing Road - Widened to 15'
 - ▲ Existing Road - Widened to 20'
 - Proposed Underground 34.5kV Collector Line
 - Proposed Substation & O&M Facility
- Proposed Temporary Facilities**
- Temporary Turnaround Area
 - Temporary Staging Area - 5 and 15 Acres
 - Temporary Staging Area - 2 Acres
- Existing Features**
- ▲ Existing Microwave Tower
 - Existing Transmission Line
 - National Scenic Area Boundary

SOILS LEGEND

- (21-24) Chemawa loam
- (66-69) McElroy gravelly loam
- (135-136) Timberhead gravelly loam
- (144-146) Underwood loam
- (147-148) Undusk gravelly loam
- (177) Water



APPENDIX
SITE PHOTOS



Photo B1-01 . Looking west down slope from edge of plateau at location of upper end of USGS and DNR-mapped stream. 10/26/06.



Photo B1-02. Looking west downslope approximately 100 feet below plateau edge. 10/26/06.



Photo B1-03. Looking east at location of proposed temporary staging area on plateau. 10/26/06.



Photo B2-01. Looking north up slope at location of upper end of DNR mapped stream in proposed temporary staging area. No channel or other evidence of wetlands or waters was observed during this site visit or on an October 26, 2006 site visit. 01/08/07.



Photo B2-02. Looking south at subtle swale in location of DNR-mapped stream in proposed temporary staging area. Swale becomes a larger gully down slope. 01/08/07.

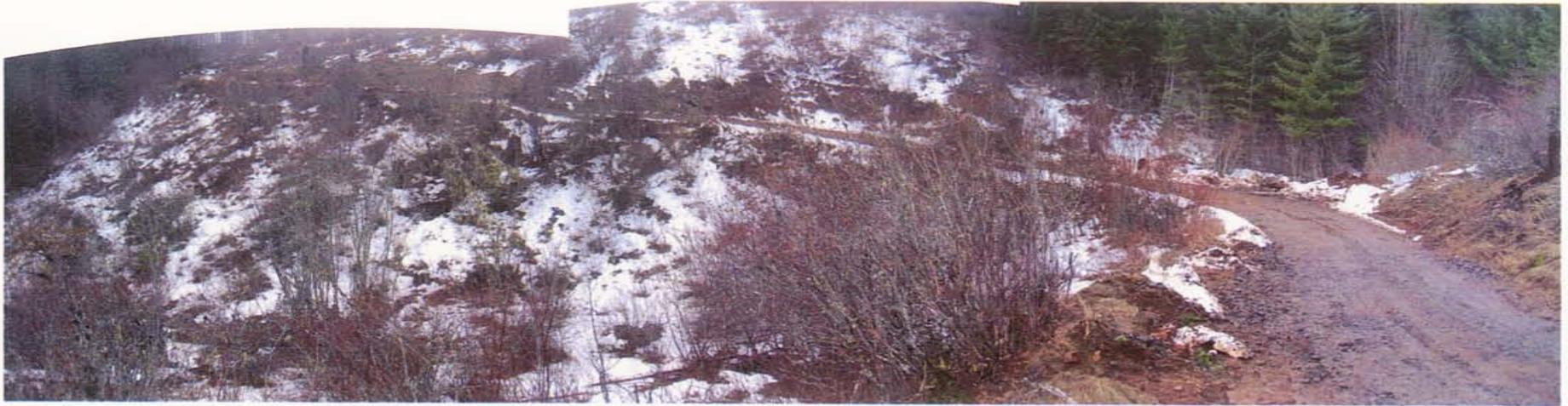


Photo B3-01. Looking west where transmission line access road crosses gully at location of DNR mapped stream. Proposed Substation & O&M Facility location is just north (right) of the road. 01/08/07.



Photo B3-02. Looking north upslope from road at gully. 01/08/07.





Photo B3-03. Looking south downslope from transmission line access road at gully.
01/08/07.

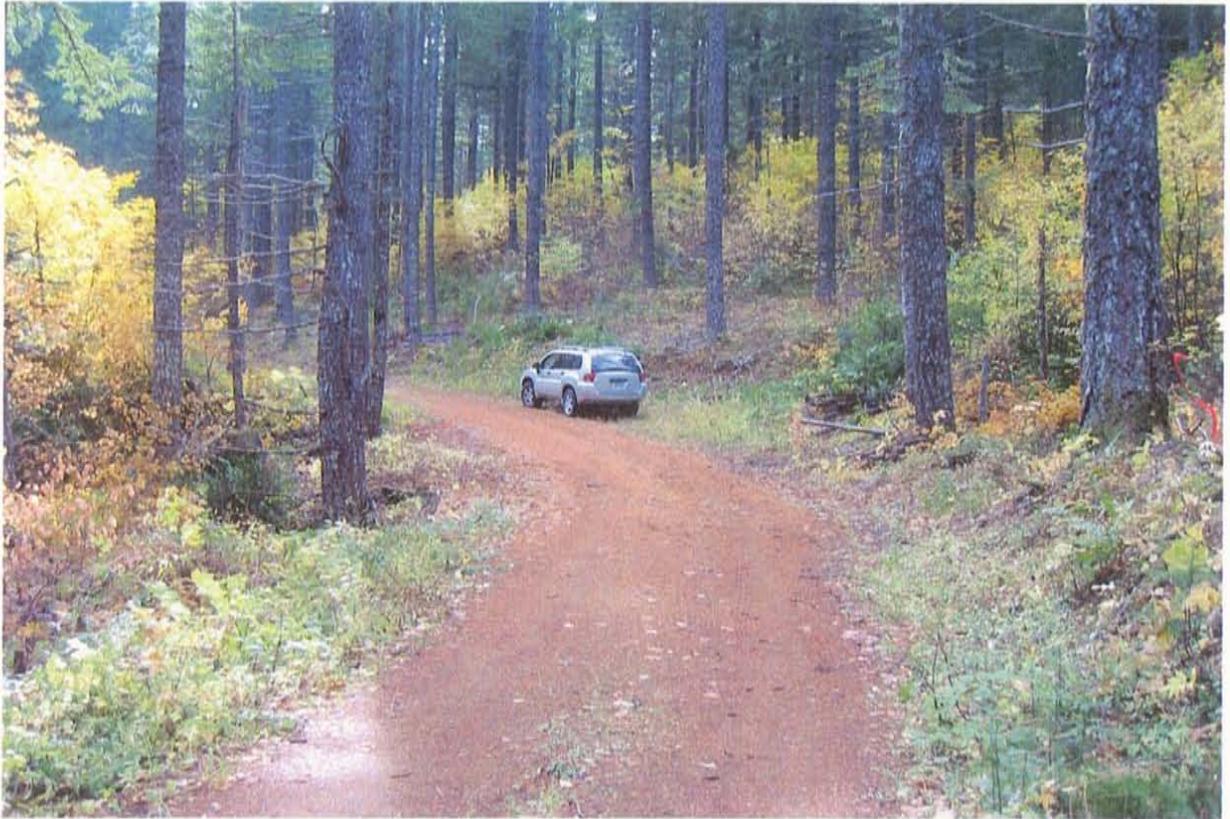


Photo D2-01. Looking south at location of DNR-mapped stream. 10/26/06.

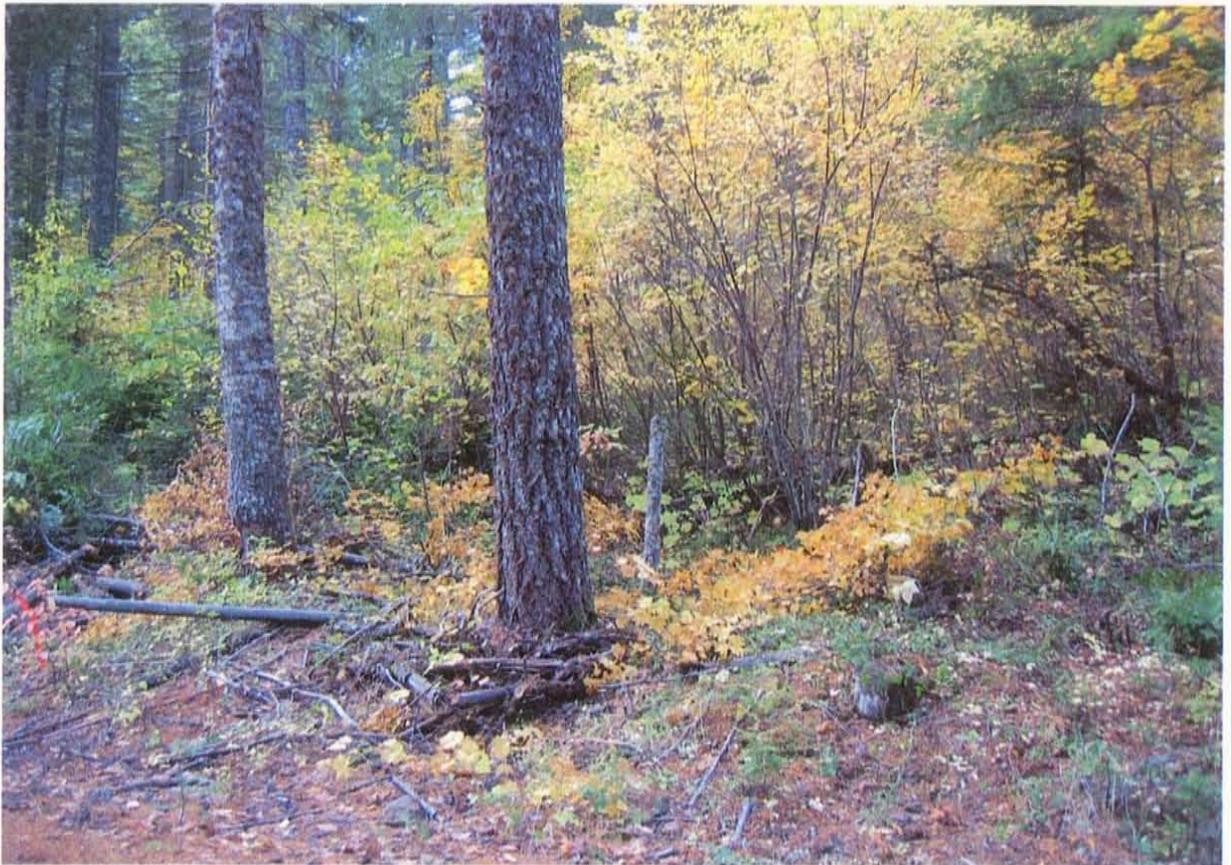


Photo D2-02. Looking west upslope from road. 10/26/06.



Photo D2-03. Looking west upslope from approximately 25 feet below road. 10/26/06.



Photo D3-01. Looking north at location of USGS and DNR-mapped stream. Drainageway is in front of vehicle. 10/26/06.



Photo D3-02. Looking west upslope approximately 200 feet below road. 10/26/06.



Photo D3-03. Looking west upslope from road. 10/26/06.



Photo D3-04. Looking west upslope approximately 100 feet above road. 10/26/06.

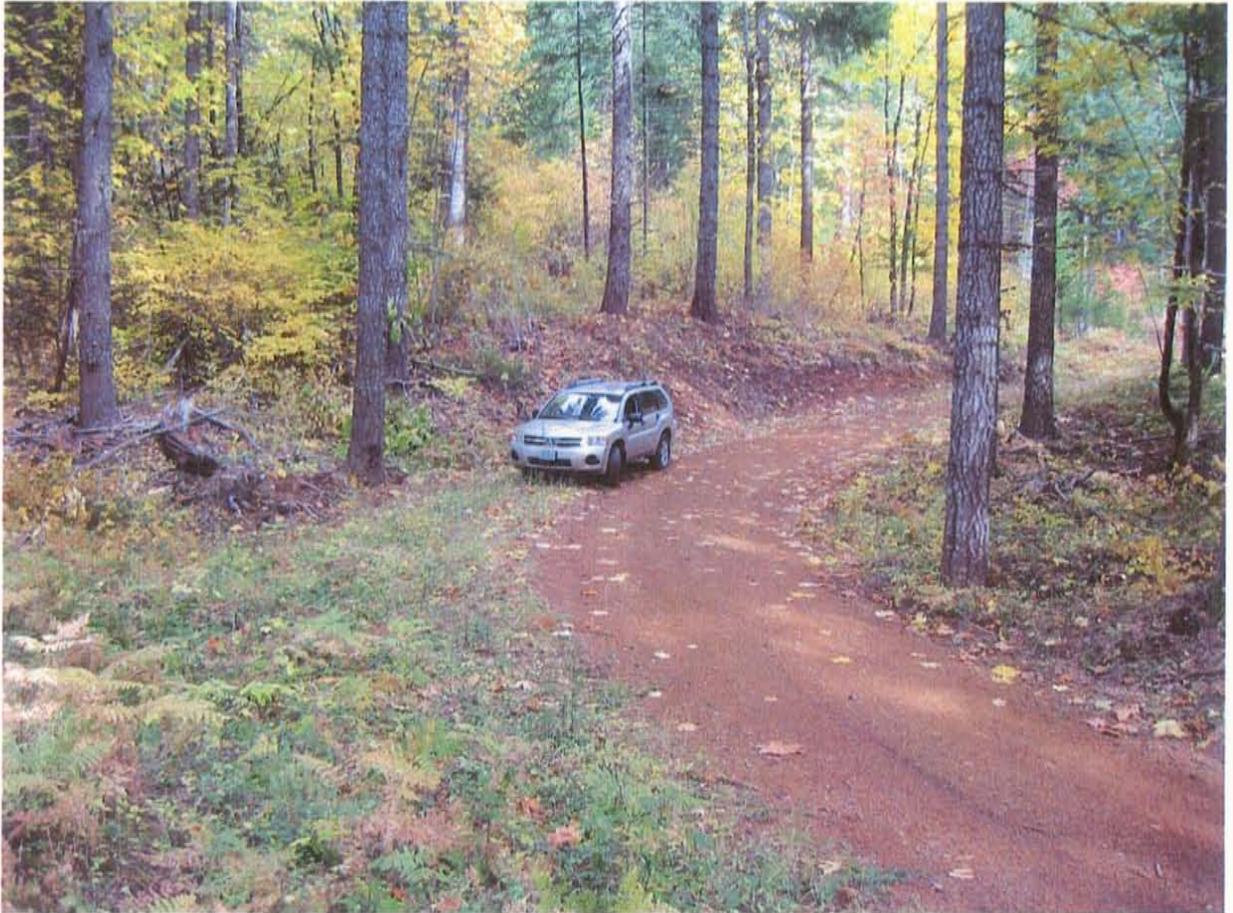


Photo D4-01. Looking northeast at location of DNR-mapped stream. Drainageway is in front of vehicle. 10/26/06.



Photo D4-02. Looking northwest upslope from road. 10/26/06.



Photo D4-03. Looking southeast downslope approximately 100 feet above road. 10/26/06.

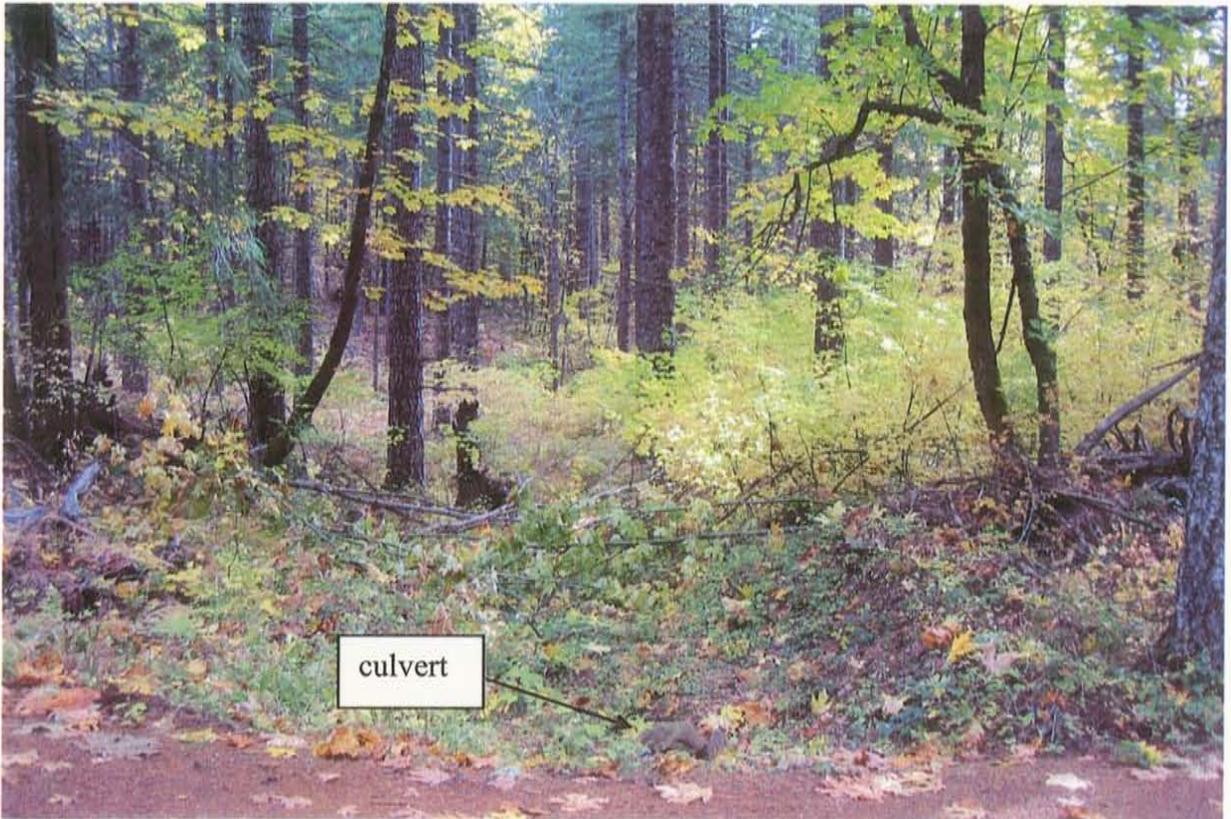


Photo D4-04. Looking southeast downslope from road. Note rock over culvert. 10/26/06.



Photo D4-05. Looking northwest upslope approximately 200 feet below road. 10/26/06.

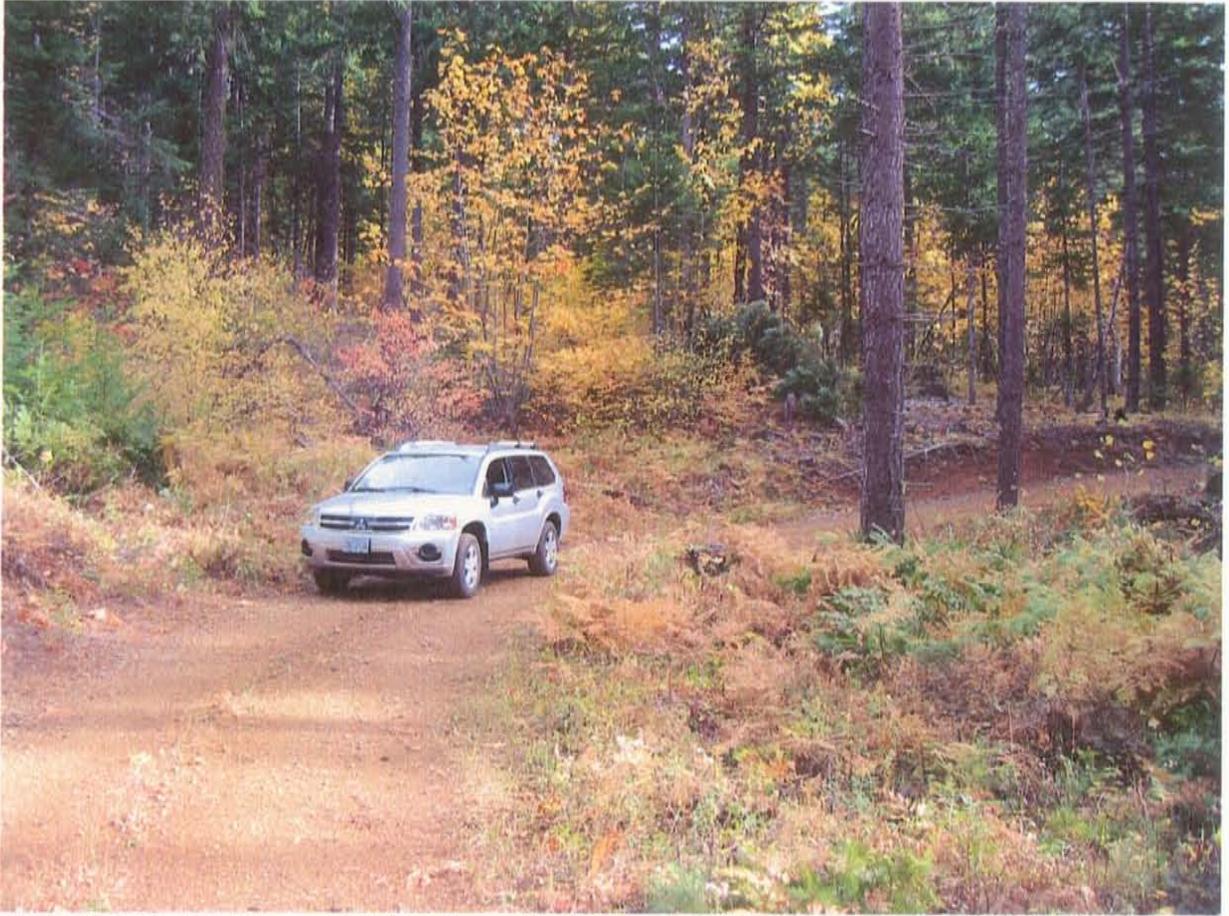


Photo D5-01. Looking east at location of USGS and DNR-mapped stream. Vehicle is at lowest portion of site. 10/26/06.



Photo D5-02. Looking north upslope from road. 10/26/06.



Photo D5-03. Looking north upslope approximately 100 feet above road. 10/26/06.



Photo D5-04. Looking south downslope from road. 10/26/06.



D5-05. Looking north upslope approximately 200 feet below road (note vehicle on road in center of photo). 10/26/06.



Photo D6-01. Looking east at location of USGS and DNR-mapped stream. Drainageway is in front of vehicle. 10/26/06.

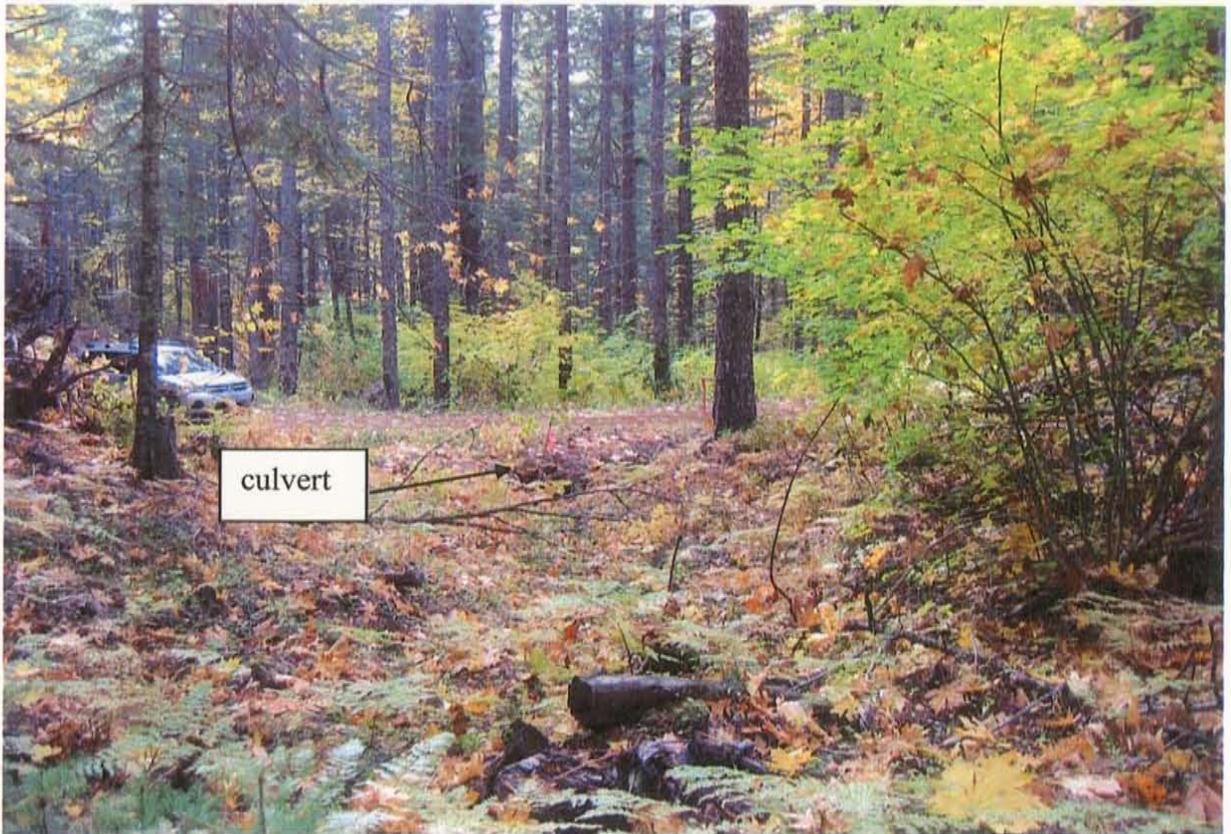


Photo D6-02. Looking south downslope approximately 100 feet above road. Culvert inlet is at pink flag. 10/26/06.

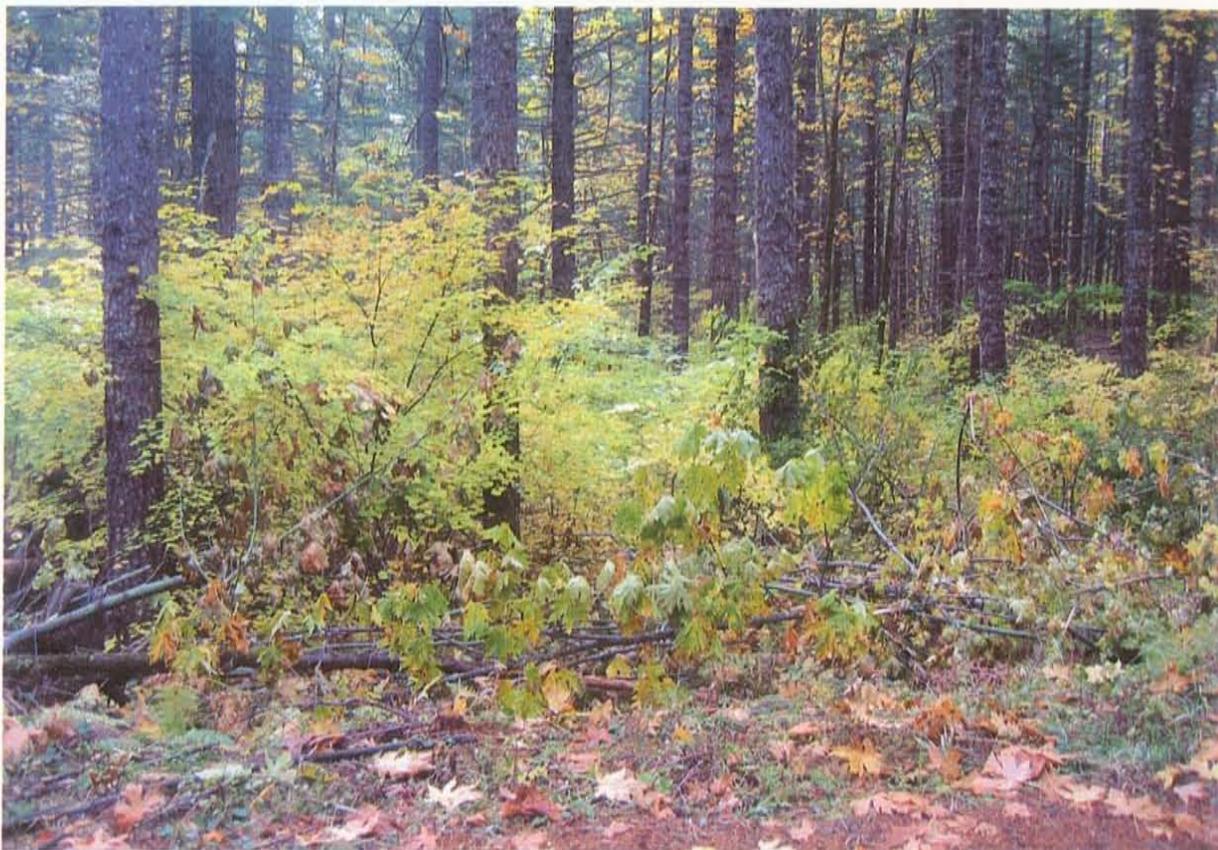


Photo D6-03. Looking south downslope from road. 10/26/06.

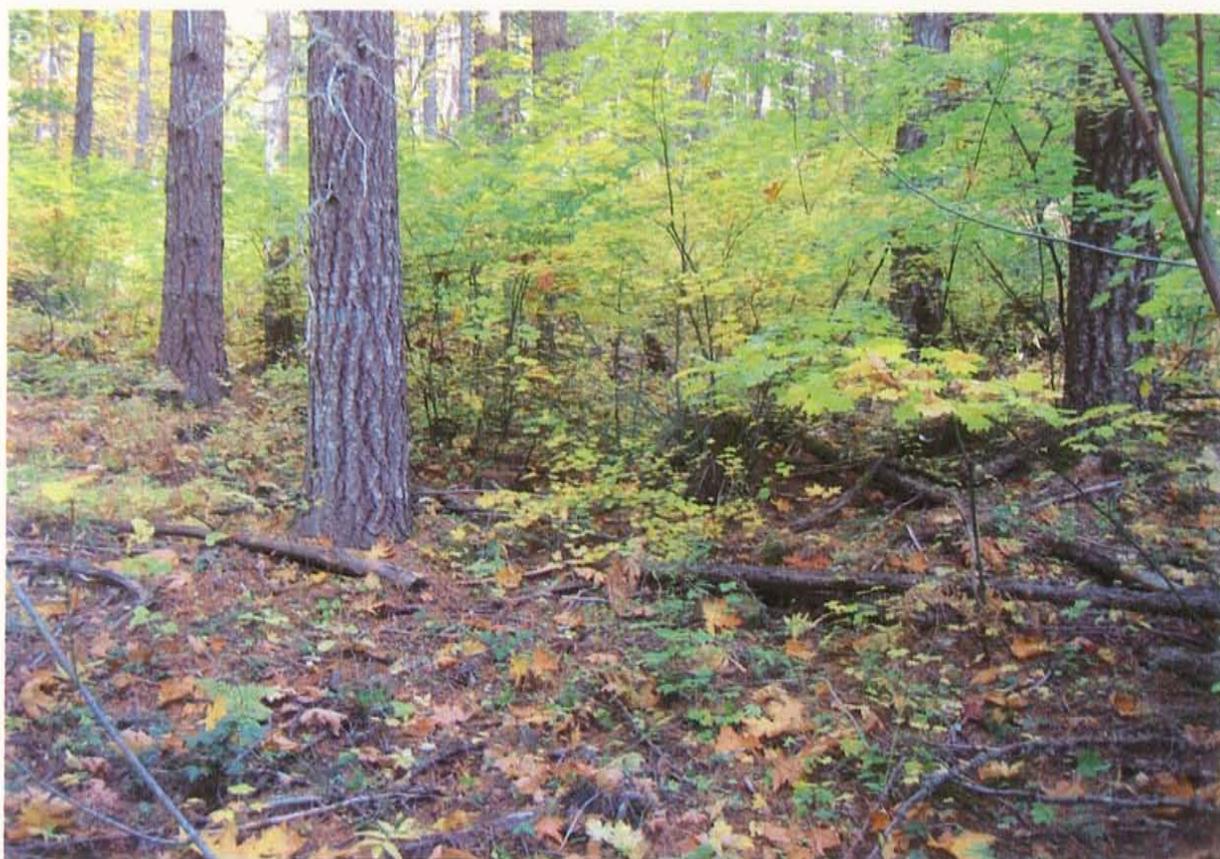


Photo D6-04. Looking north upslope approximately 250 feet below road. 10/26/06.



Photo F1-01. Looking west at location of DNR-mapped stream. Drainageway is behind vehicle. 10/26/06.



Photo F1-02. Looking southeast downslope from road. 10/26/06.



Photo F1-03. Looking northwest upslope approximately 200 feet below road. 10/26/06.

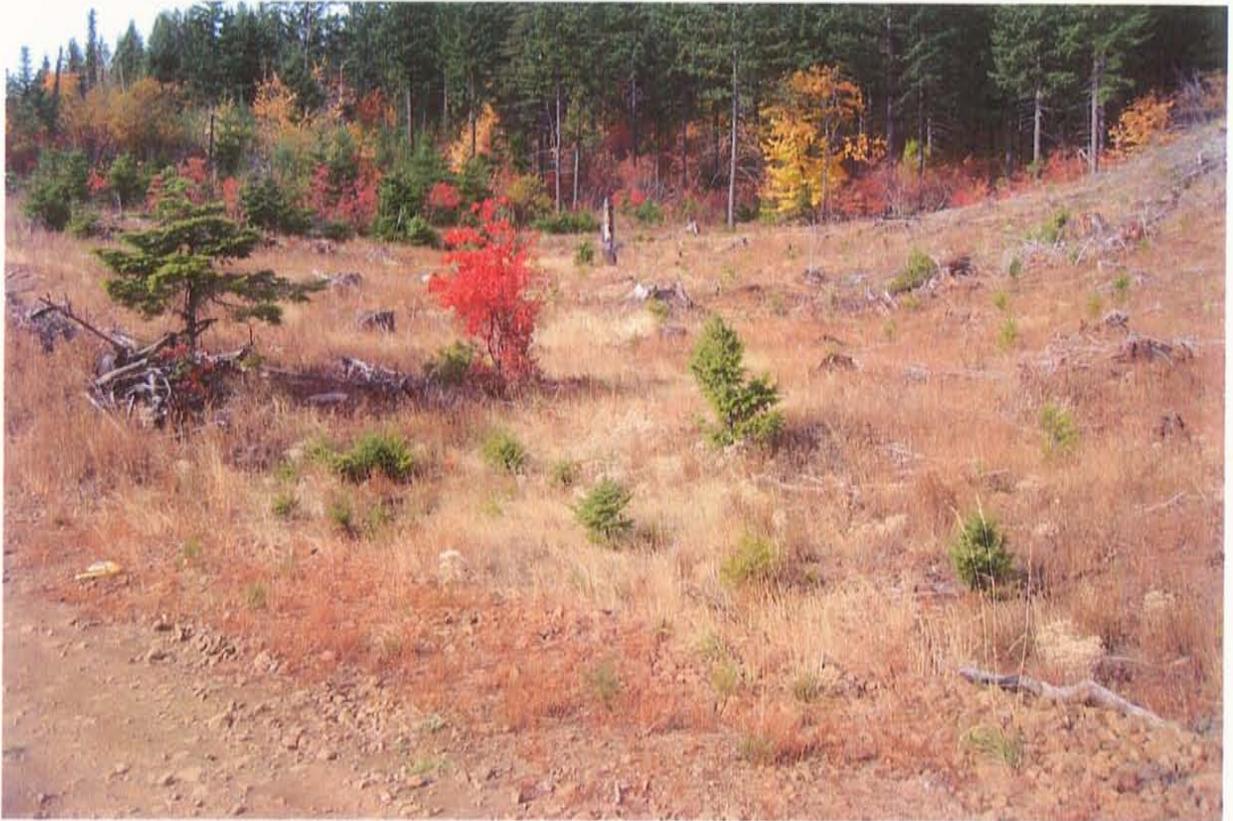


Photo F1-04. Looking northwest upslope from road. 10/26/06.



Photo F1-05. Looking upslope approximately 100 feet above road. 10/26/06.



Photo F2-01. Looking southwest at location of DNR-mapped stream. Dashed line is location of existing dirt road proposed for widening. 01/08/07.



Photo F2-02. Looking northwest along existing dirt road at location of DNR-mapped stream. 01/08/07.



Photo F2-03. Looking south upslope approximately 50 feet above existing dirt road.
01/08/07.



Photo F4-04. Looking north downslope approximately 100 feet below existing dirt road.
Surface flow sinks into ground and disappears approximately 100 feet below this point.
01/08/07.