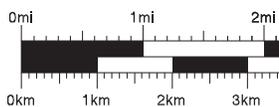


PROPOSED ACTION and ALTERNATIVES on the CEDAR RIVER WATERSHED

Map 1



May 09, 2003



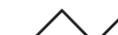
-  Existing Transmission Lines
-  Proposed Transmission Line Alternatives Under Consideration
-  BPA Substation
-  Alternative



Map 2

**ADDITIONAL ALTERNATIVES
CONSIDERED**

Legend

-  Existing BPA Transmission Lines
-  Proposed Transmission Line Alternatives Under Consideration
-  BPA Substations

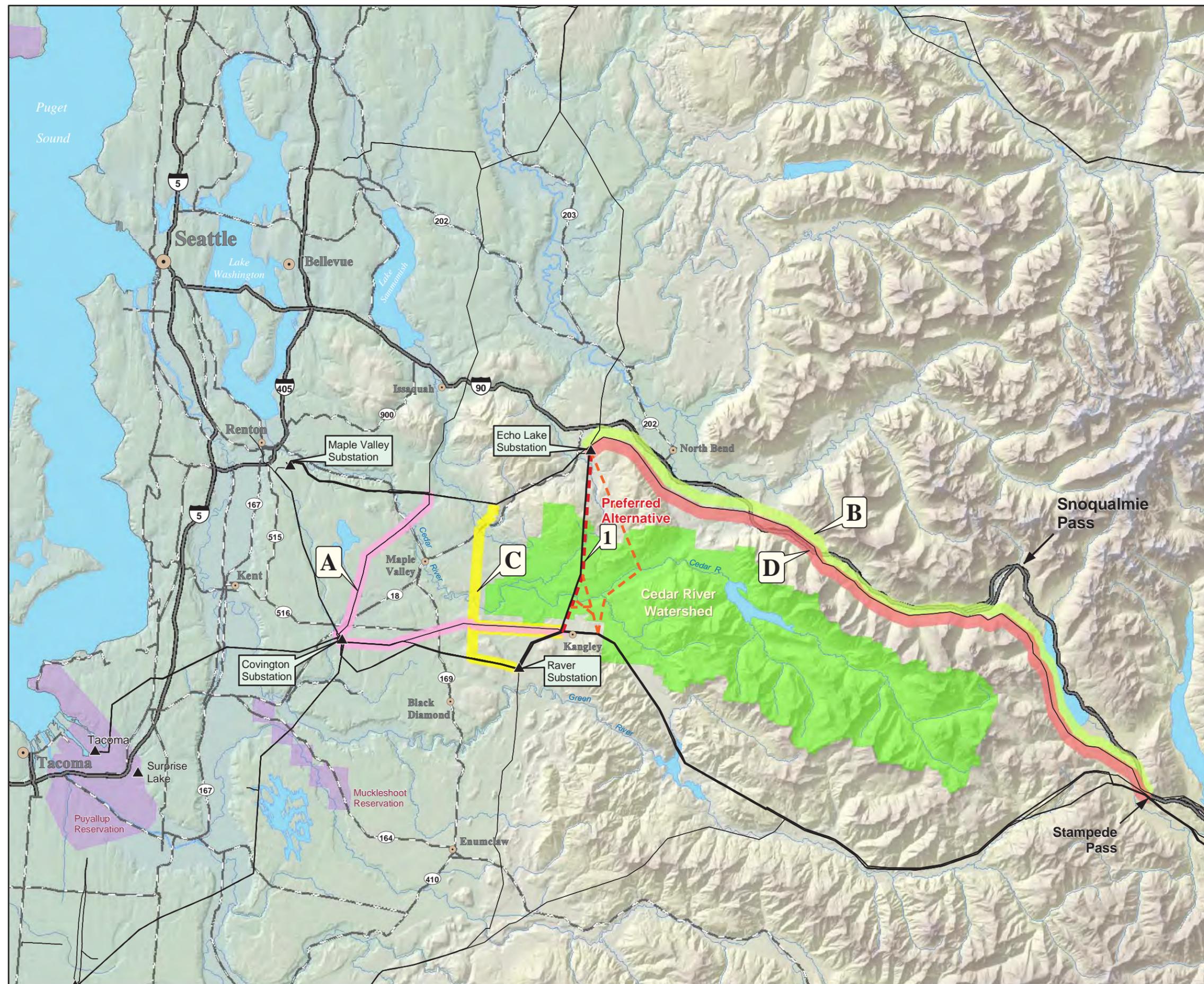
Alternatives

-  **A** Construct New Single-Circuit 500-kV Line from tap near Kangley to Covington Substation. Rebuild portion of Covington - Maple Valley 230-kV to Double-Circuit 500-kV.
-  **B** Rebuild Portion of Rocky Reach-Maple Valley 345-kV to Double-Circuit 500-kV from East of Stampede Pass to Echo Lake Substation.
-  **C** Construct New Single-Circuit 500-kV Line West of the Cedar River Watershed to the Echo Lake - Maple Valley Lines.
-  **D** Construct New Single-Circuit 500-kV Line from East of Stampede Pass Adjacent to Rocky Reach-Maple Valley Line.



Miles

May, 2003



Map 9

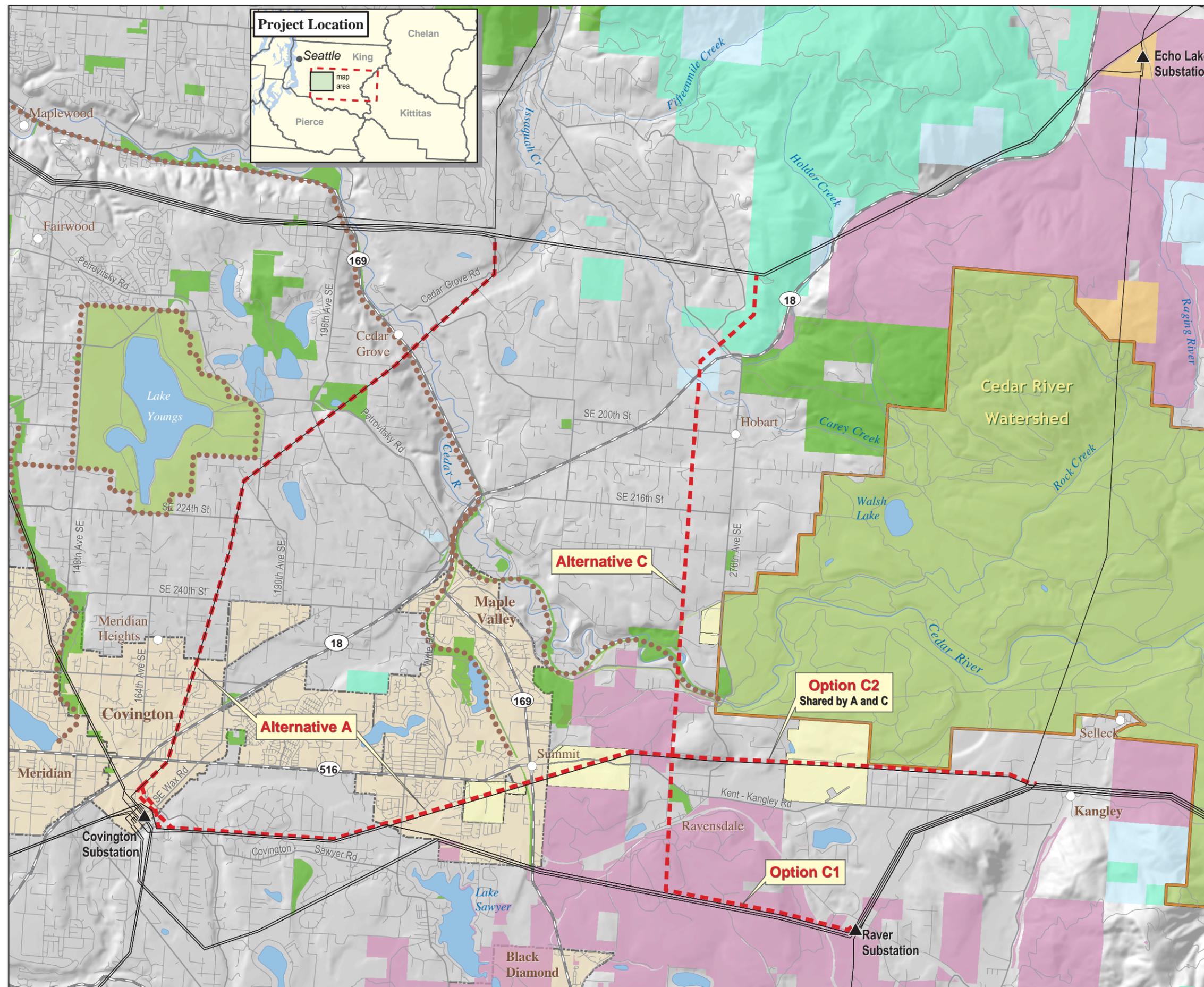
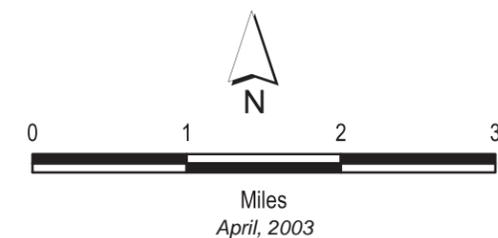
RECREATION and OWNERSHIP

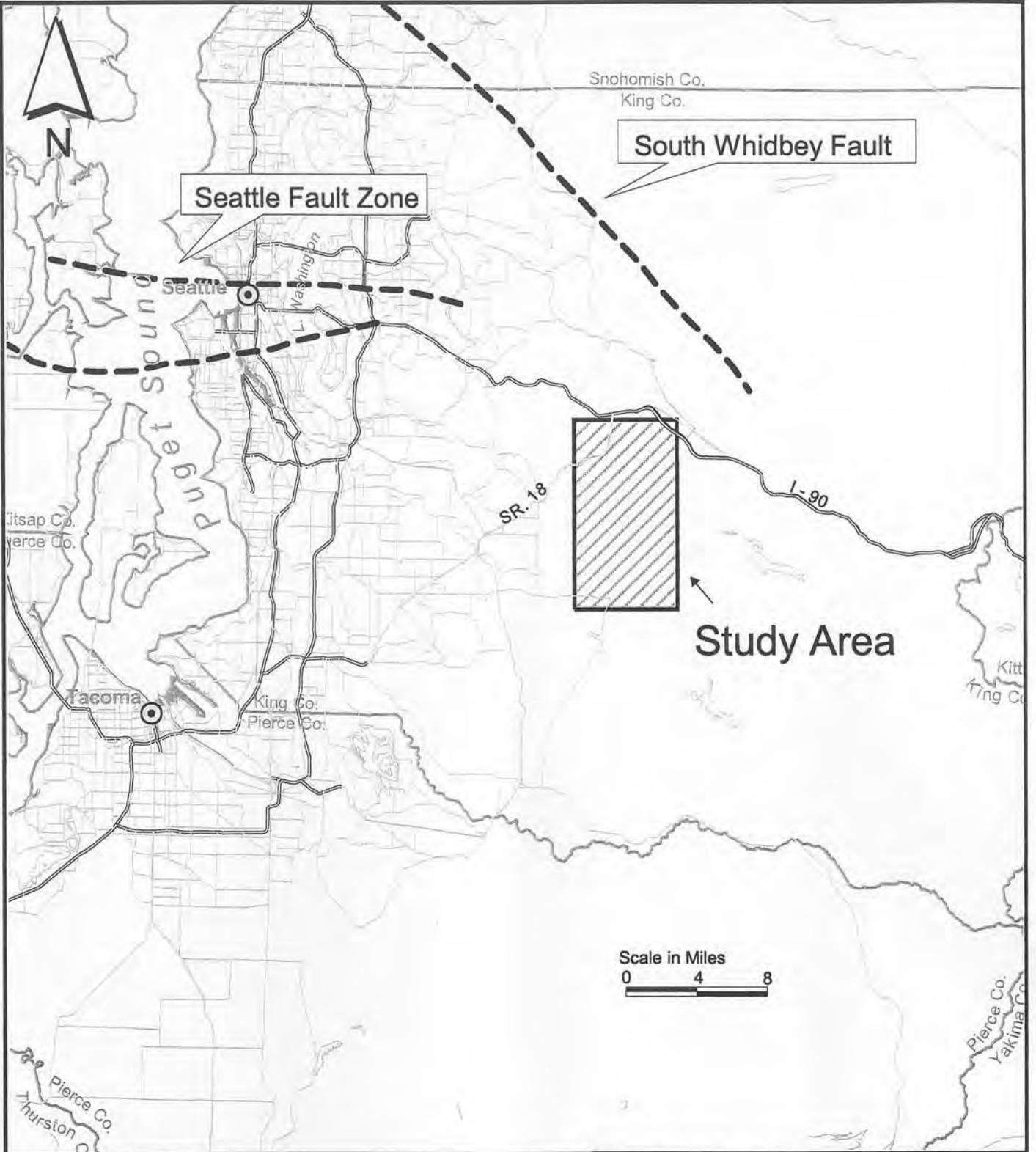
Alternatives A and C

Legend

- Proposed Transmission Line Alternatives
- Existing BPA Transmission Lines
- Existing BPA Substation
- WA Dept. of Natural Resources
- State Park or Recreation Area
- Other State Lands
- Bonneville Power Administration
- City
- Other Public - City or County
- Private Timber or Other Private Land
- Other Private or Unspecified
- Cedar River Watershed Boundary
- Trail

Source: Washington DNR, King County GIS, 2000.

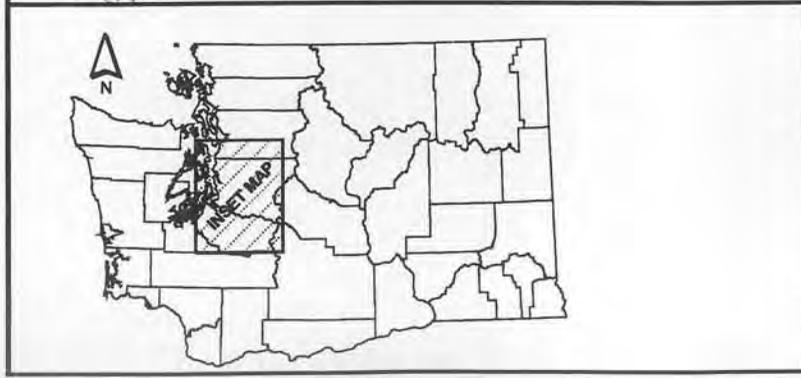
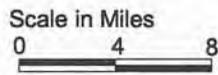




Snohomish Co.
King Co.
South Whidbey Fault

Seattle Fault Zone

Study Area



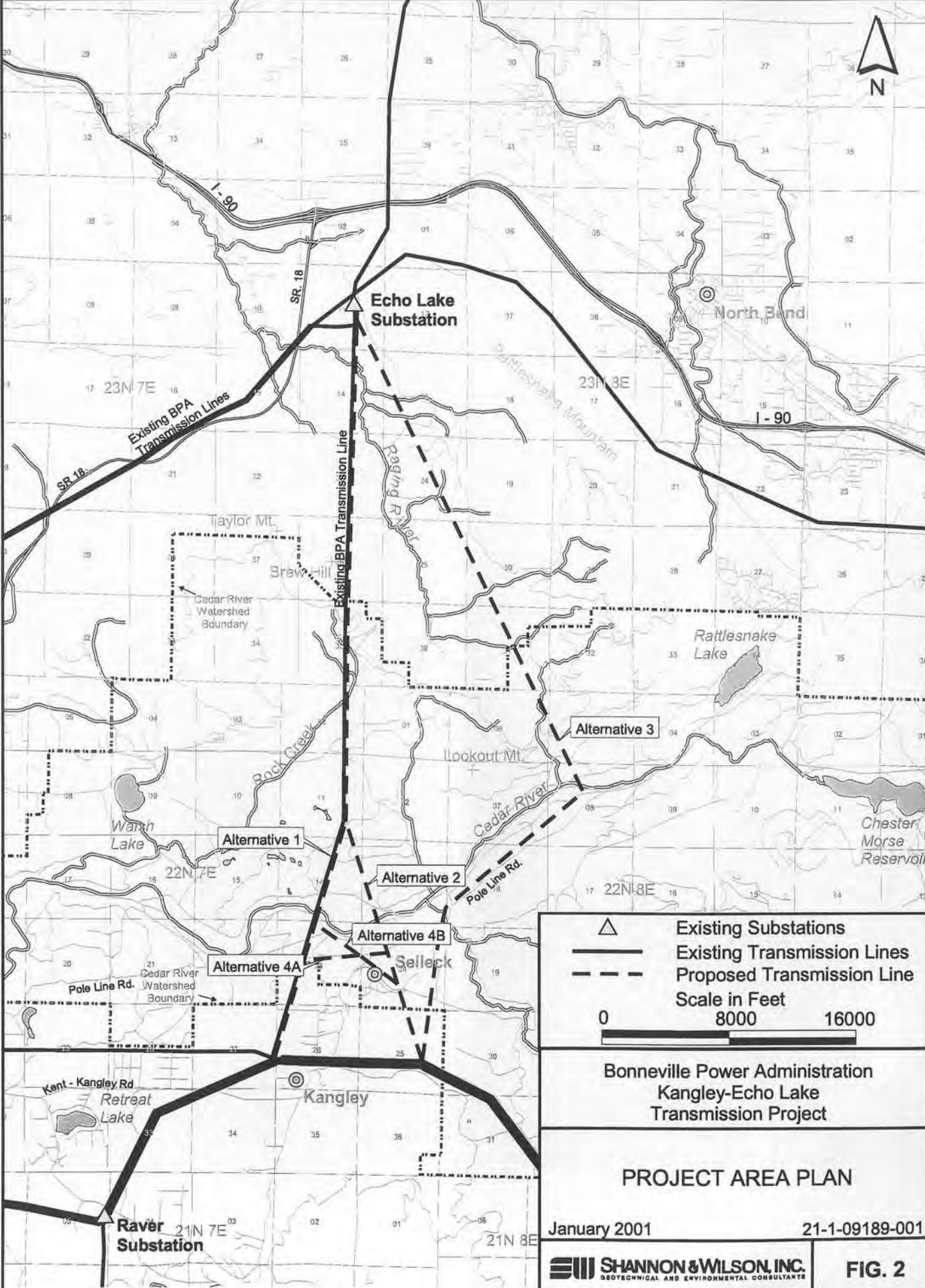
Bonneville Power Administration
Kangley-Echo Lake
Transmission Project

VICINITY MAP

January 2001 21-1-09189-001

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 1



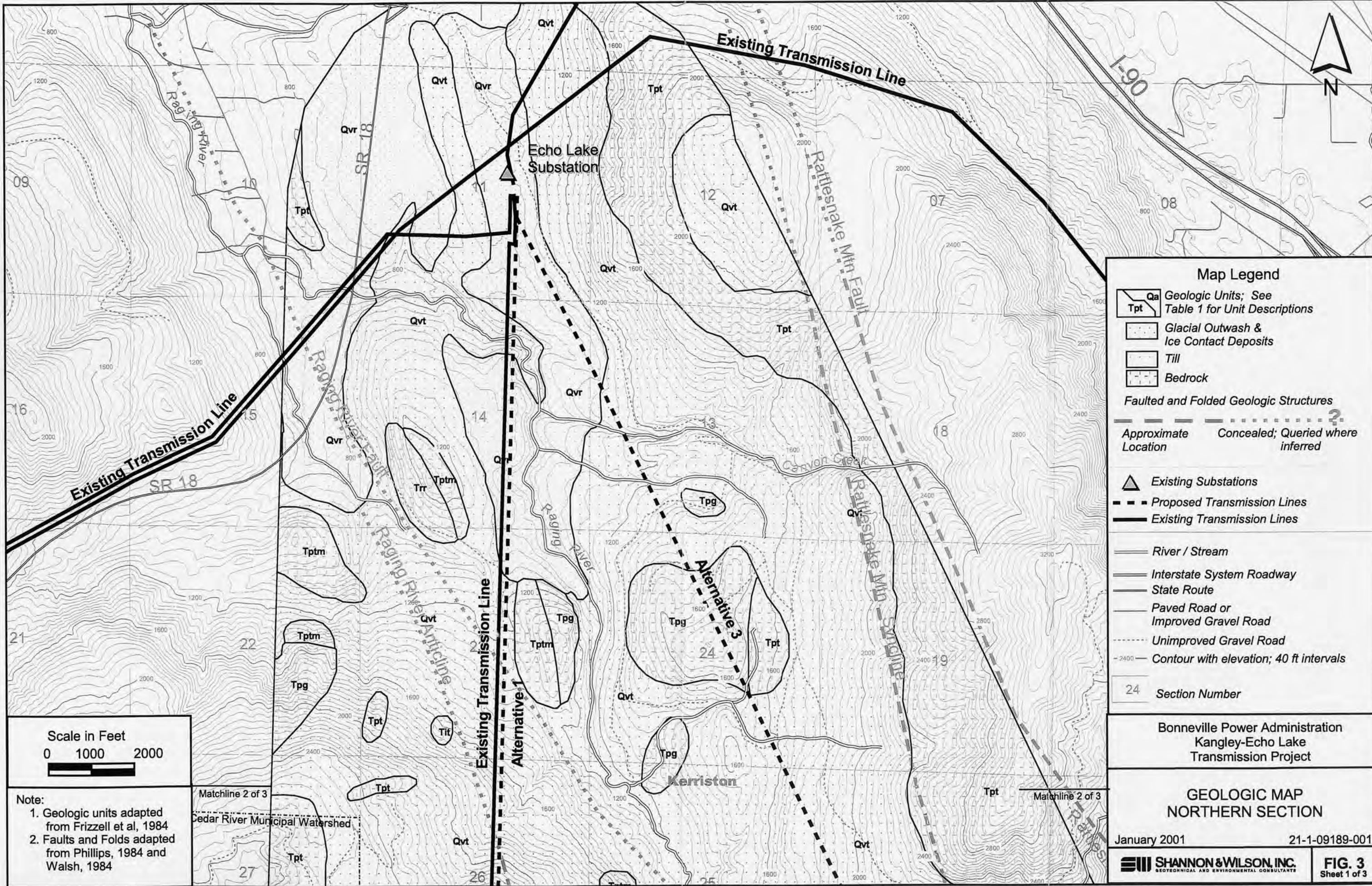
| | |
|---------------|-----------------------------|
| | Existing Substations |
| | Existing Transmission Lines |
| | Proposed Transmission Line |
| Scale in Feet | |
| 0 | 8000 |
| | 16000 |

Bonneville Power Administration
Kangley-Echo Lake
Transmission Project

PROJECT AREA PLAN

January 2001

21-1-09189-001



Map Legend

| | |
|---|---|
| Qa | Geologic Units; See Table 1 for Unit Descriptions |
| Tpt | Glacial Outwash & Ice Contact Deposits |
| | Till |
| | Bedrock |
| <i>Faulted and Folded Geologic Structures</i> | |
| --- | Approximate Location |
| --- | Concealed; Queried where inferred |
| | |
| ▲ | Existing Substations |
| --- | Proposed Transmission Lines |
| --- | Existing Transmission Lines |
| | |
| --- | River / Stream |
| --- | Interstate System Roadway |
| --- | State Route |
| --- | Paved Road or Improved Gravel Road |
| --- | Unimproved Gravel Road |
| -2400- | Contour with elevation; 40 ft intervals |
| 24 | Section Number |



Note:

1. Geologic units adapted from Frizzell et al, 1984
2. Faults and Folds adapted from Phillips, 1984 and Walsh, 1984

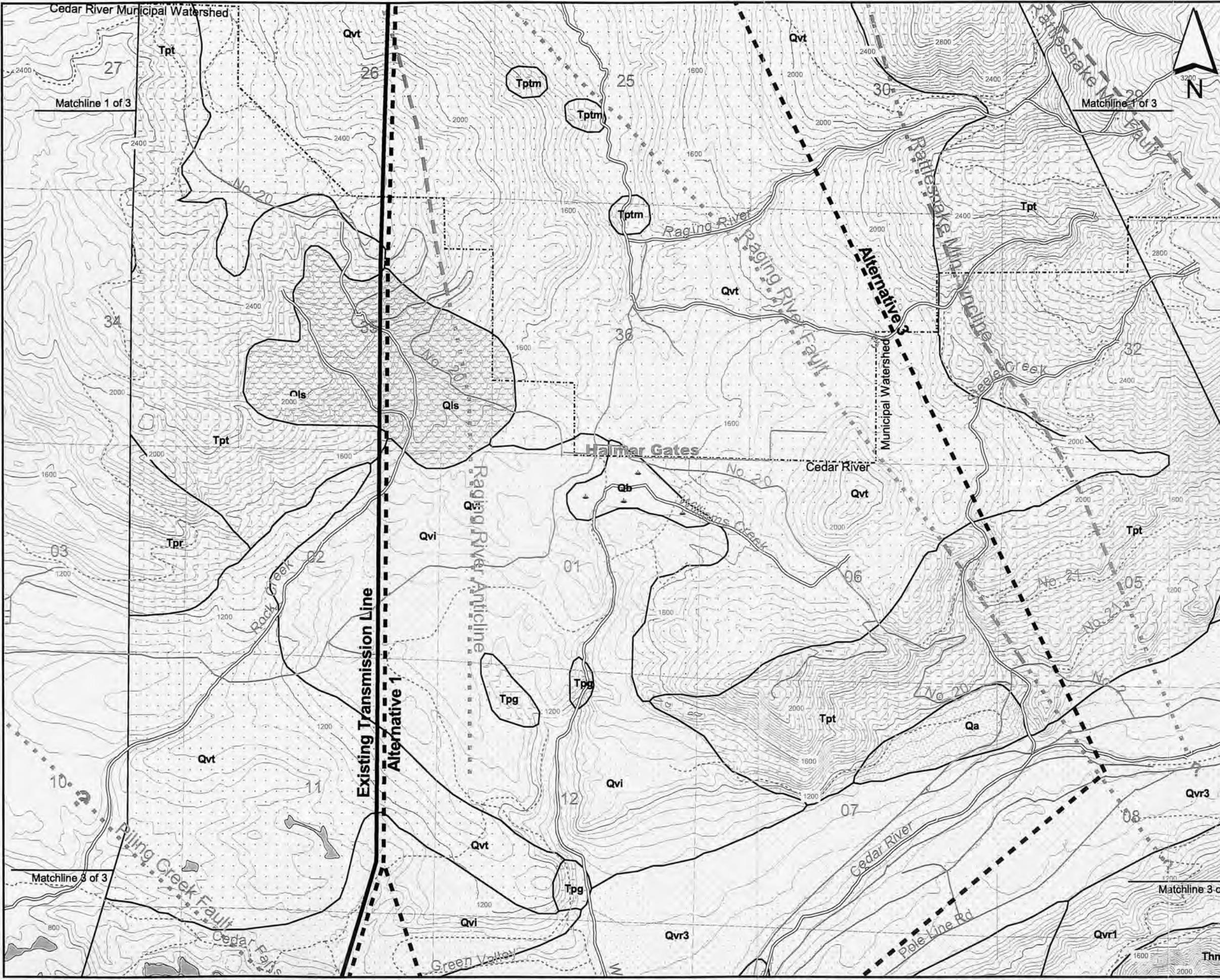
Matchline 2 of 3

Cedar River Municipal Watershed

Bonneville Power Administration
Kangley-Echo Lake
Transmission Project

GEOLOGIC MAP NORTHERN SECTION

January 2001 21-1-09189-001



Map Legend

- Qa** Geologic Units; See Table 1 for Unit Descriptions
- Pond
- Bog
- Landslide Deposit
- Alluvium
- Glacial Outwash & Ice Contact Deposits
- Till
- Bedrock

- Faulted and Folded Geologic Structures**
- Approximate Location
- Concealed; Queried where inferred

- Existing Substations
- Proposed Transmission Lines
- Existing Transmission Lines

- River / Stream
- Interstate System Roadway
- State Route
- Paved Road or Improved Gravel Road
- Unimproved Gravel Road
- Contour with elevation; 40 ft intervals

- 24 Section Number



Note:

1. Geologic units adapted from Frizzell et al, 1984
2. Faults and Folds adapted from Phillips, 1984 and Walsh, 1984

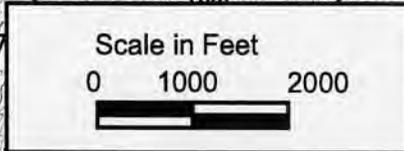
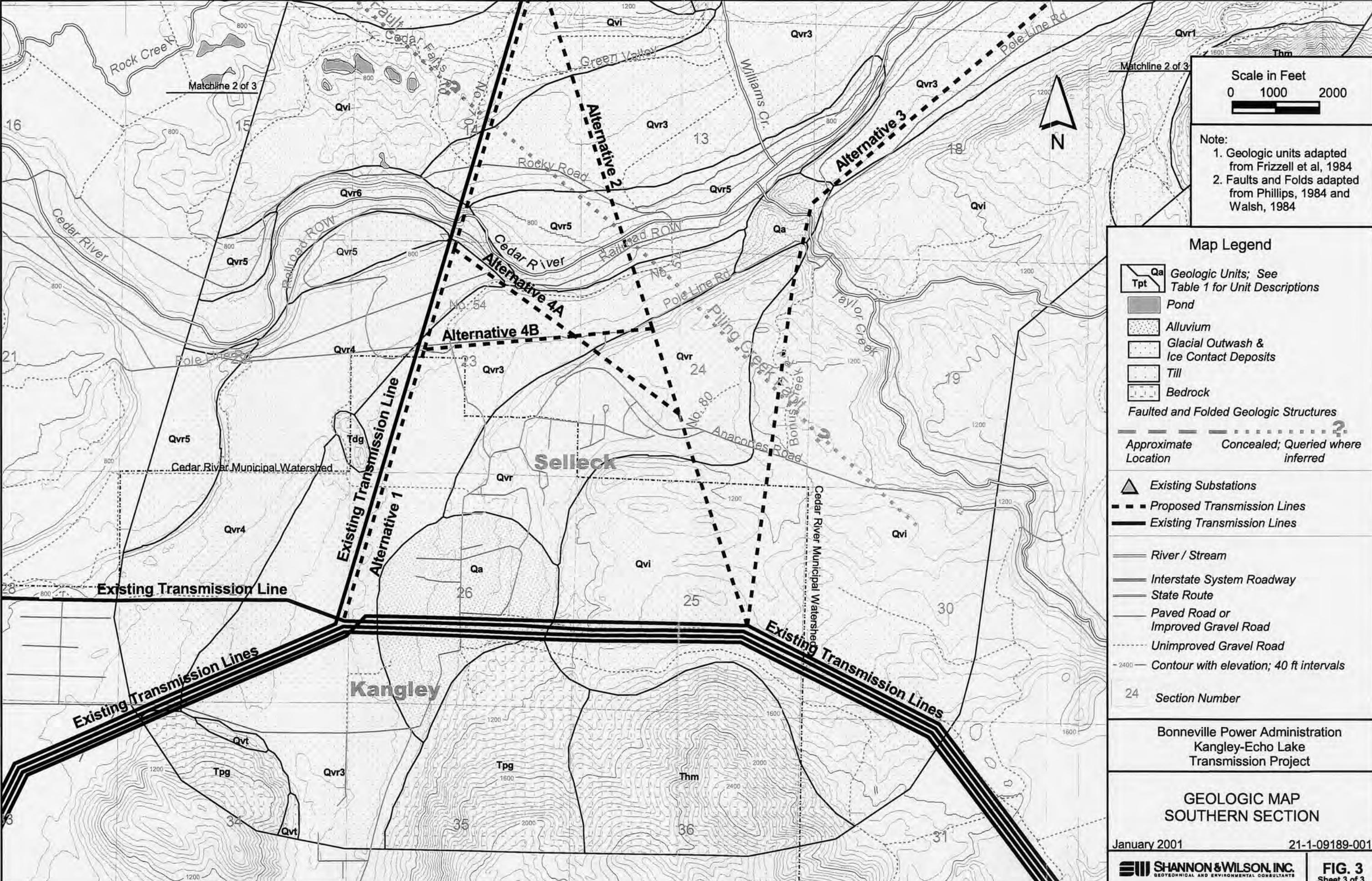
Bonneville Power Administration
Kangley-Echo Lake
Transmission Project

**GEOLOGIC MAP
CENTRAL SECTION**

January 2001 21-1-09189-001

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

FIG. 3
Sheet 2 of 3



Note:

1. Geologic units adapted from Frizzell et al, 1984
2. Faults and Folds adapted from Phillips, 1984 and Walsh, 1984

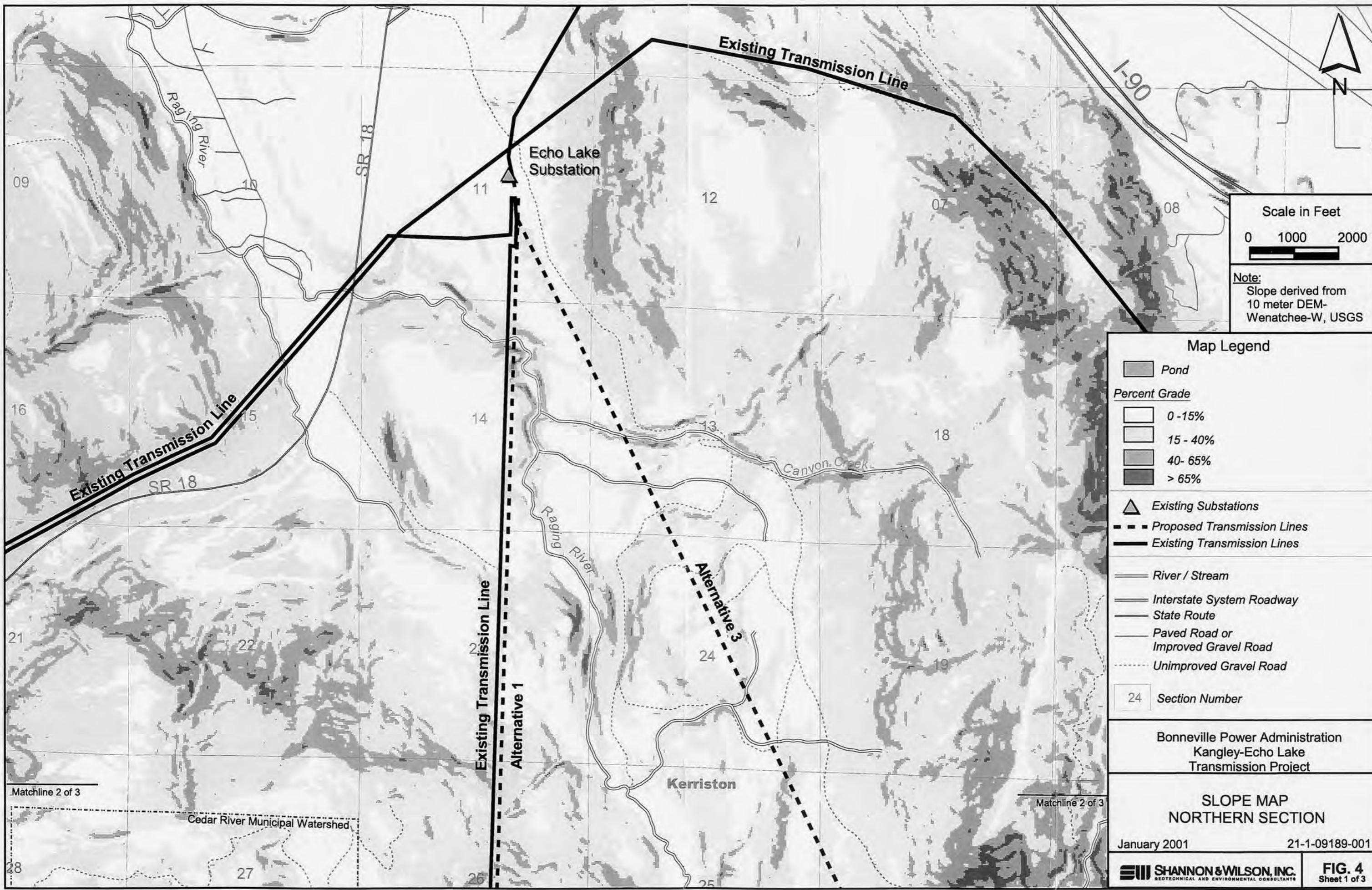
Map Legend

- Geologic Units; See Table 1 for Unit Descriptions
- Pond
- Alluvium
- Glacial Outwash & Ice Contact Deposits
- Till
- Bedrock
- Faulted and Folded Geologic Structures**
- Approximate Location
- Concealed; Queried where inferred
- Existing Substations
- Proposed Transmission Lines
- Existing Transmission Lines
- River / Stream
- Interstate System Roadway
- State Route
- Paved Road or Improved Gravel Road
- Unimproved Gravel Road
- Contour with elevation; 40 ft intervals
- Section Number

Bonneville Power Administration
Kangley-Echo Lake
Transmission Project

GEOLOGIC MAP
SOUTHERN SECTION

January 2001 21-1-09189-001



Scale in Feet

0 1000 2000

Note:
Slope derived from
10 meter DEM-
Wenatchee-W, USGS

Map Legend

- Pond
- Percent Grade**
- 0 - 15%
- 15 - 40%
- 40 - 65%
- > 65%
- Existing Substations
- Proposed Transmission Lines
- Existing Transmission Lines
- River / Stream
- Interstate System Roadway
- State Route
- Paved Road or Improved Gravel Road
- Unimproved Gravel Road
- Section Number

Bonneville Power Administration
Kangley-Echo Lake
Transmission Project

SLOPE MAP
NORTHERN SECTION

January 2001 21-1-09189-001

Matchline 2 of 3

Matchline 2 of 3

Cedar River Municipal Watershed

Kerriston

Existing Transmission Line
Alternative 1

Alternative 3

Existing Transmission Line

Existing Transmission Line

Raging River

Echo Lake
Substation

Canyon Creek

Raging River

09

10

SR 18

11

12

07

08

I-90

16

15

SR 18

14

13

18

21

22

23

24

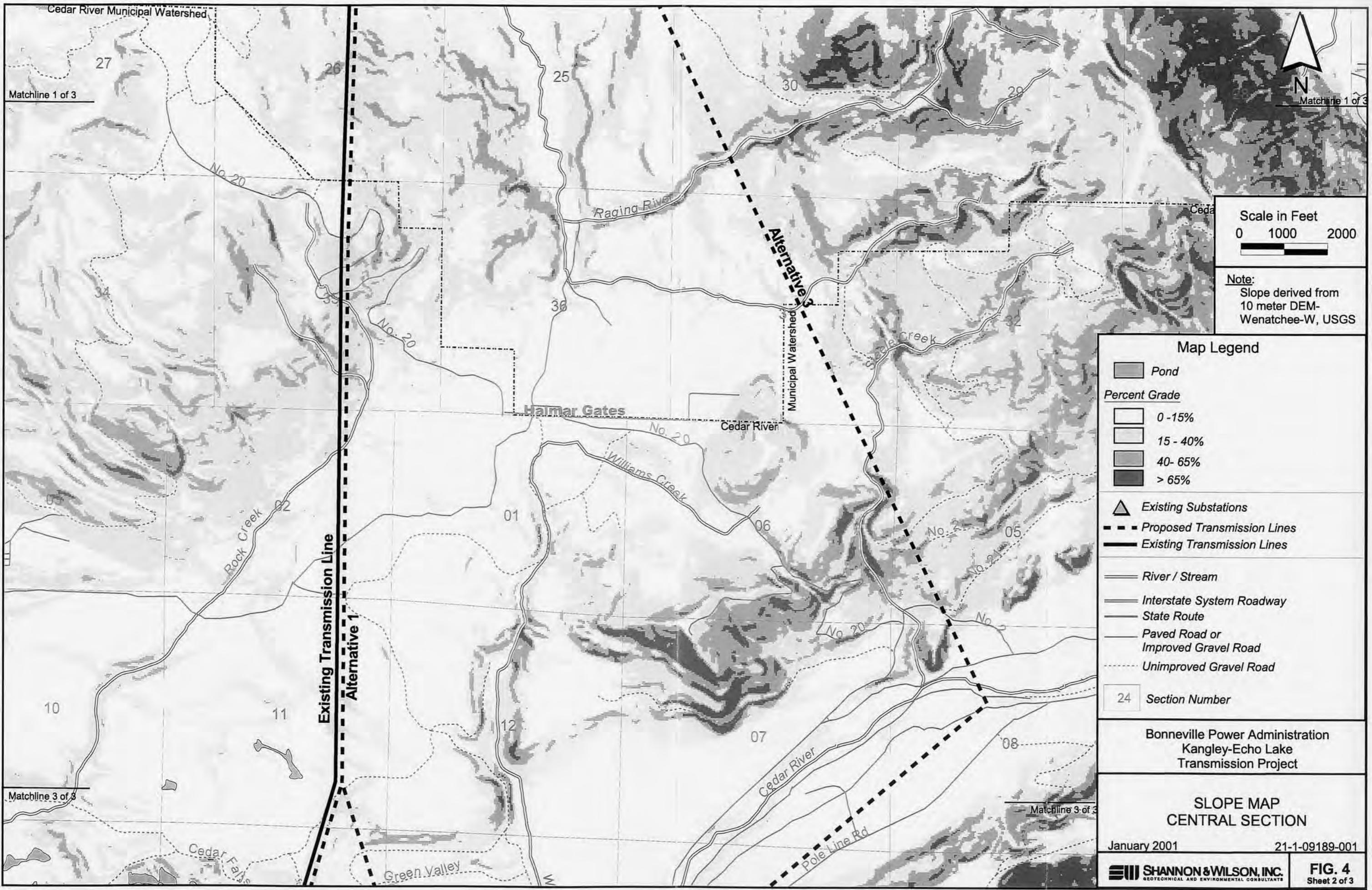
19

28

27

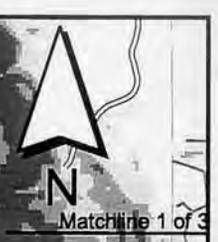
26

25

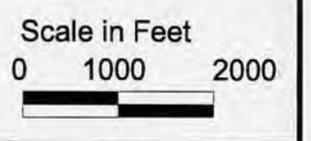


Cedar River Municipal Watershed

Matchline 1 of 3



Matchline 1 of 3



Note:
Slope derived from
10 meter DEM-
Wenatchee-W, USGS

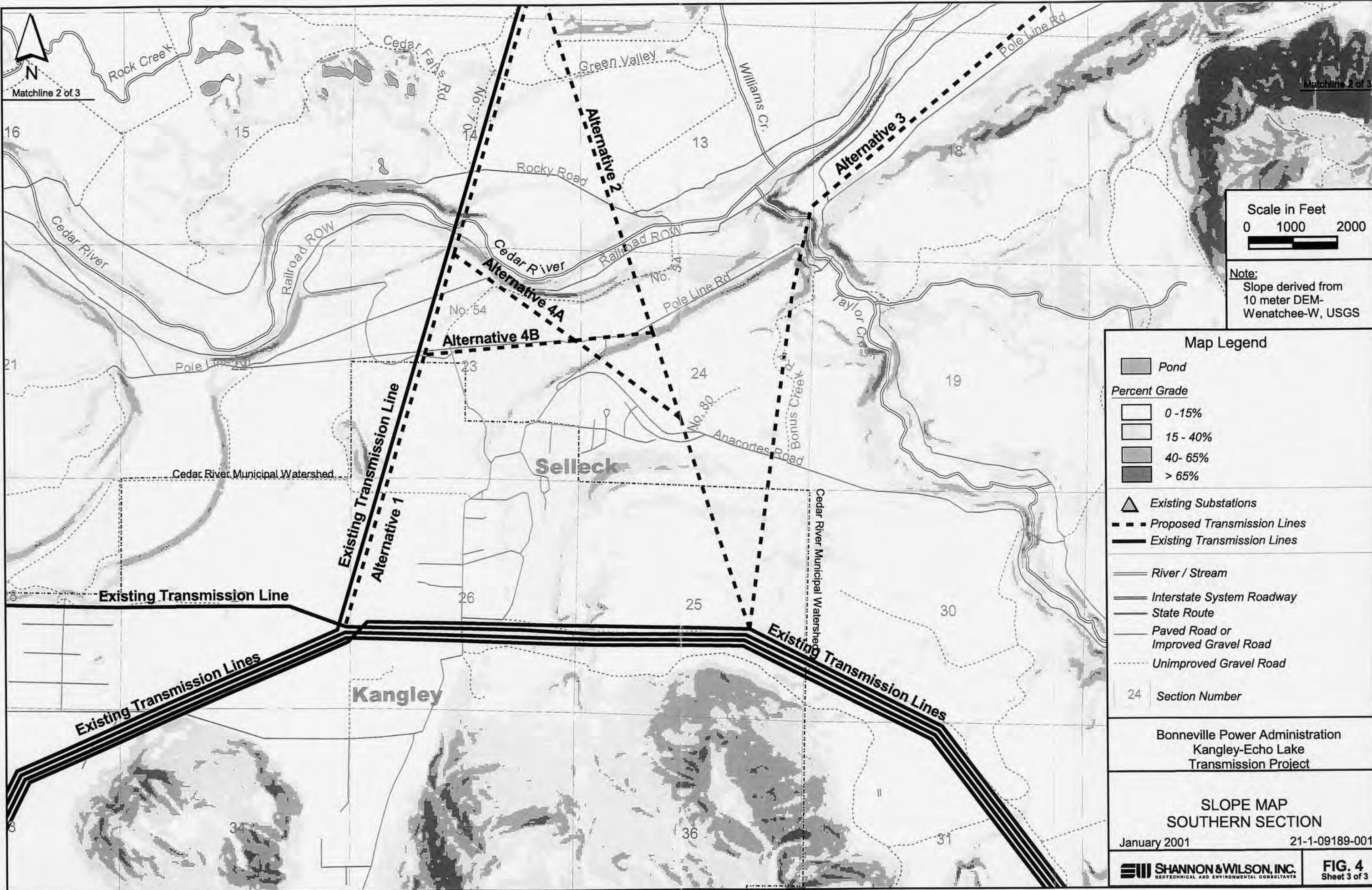
Map Legend

- Pond
- Percent Grade**
 - 0 - 15%
 - 15 - 40%
 - 40 - 65%
 - > 65%
- Existing Substations
- Proposed Transmission Lines
- Existing Transmission Lines
- River / Stream
- Interstate System Roadway
- State Route
- Paved Road or Improved Gravel Road
- Unimproved Gravel Road
- Section Number

Bonneville Power Administration
Kangley-Echo Lake
Transmission Project

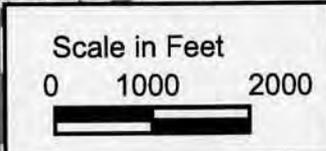
SLOPE MAP CENTRAL SECTION

January 2001 21-1-09189-001



Matchline 2 of 3

Matchline 2 of 3



Note:
Slope derived from
10 meter DEM-
Wenatchee-W, USGS

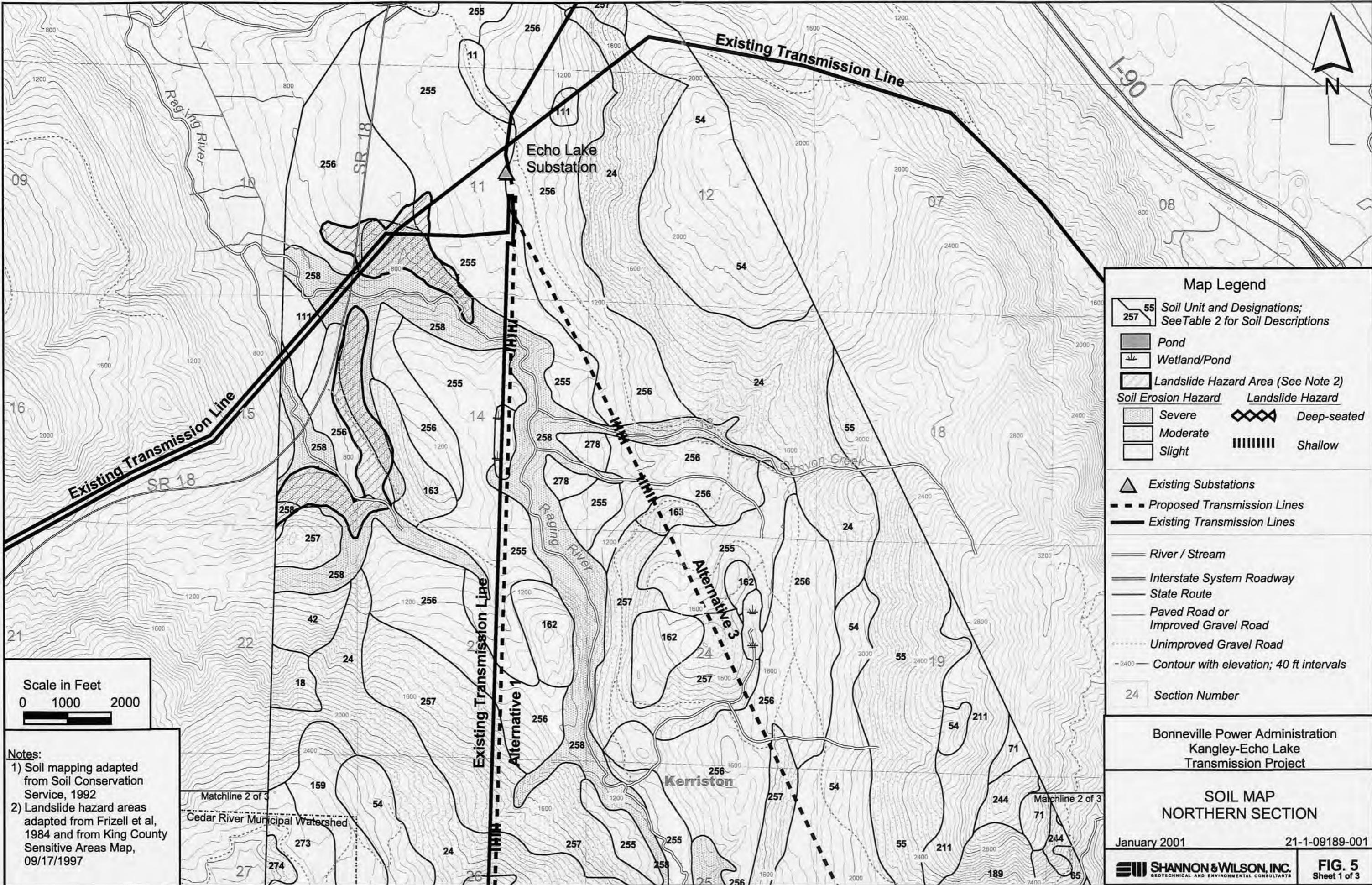
Map Legend

- Pond
- Percent Grade**
- 0 - 15%
- 15 - 40%
- 40 - 65%
- > 65%
- Existing Substations
- Proposed Transmission Lines
- Existing Transmission Lines
- River / Stream
- Interstate System Roadway
- State Route
- Paved Road or Improved Gravel Road
- Unimproved Gravel Road
- 24 Section Number

Bonneville Power Administration
Kangley-Echo Lake
Transmission Project

**SLOPE MAP
SOUTHERN SECTION**

January 2001 21-1-09189-001



Map Legend

- 55 Soil Unit and Designations; See Table 2 for Soil Descriptions
- 257 Pond
- Wetland/Pond
- Landslide Hazard Area (See Note 2)
- Soil Erosion Hazard**
- Severe
- Moderate
- Slight
- Landslide Hazard**
- Deep-seated
- Shallow
- Existing Substations
- Proposed Transmission Lines
- Existing Transmission Lines
- River / Stream
- Interstate System Roadway
- State Route
- Paved Road or Improved Gravel Road
- Unimproved Gravel Road
- Contour with elevation; 40 ft intervals
- 24 Section Number

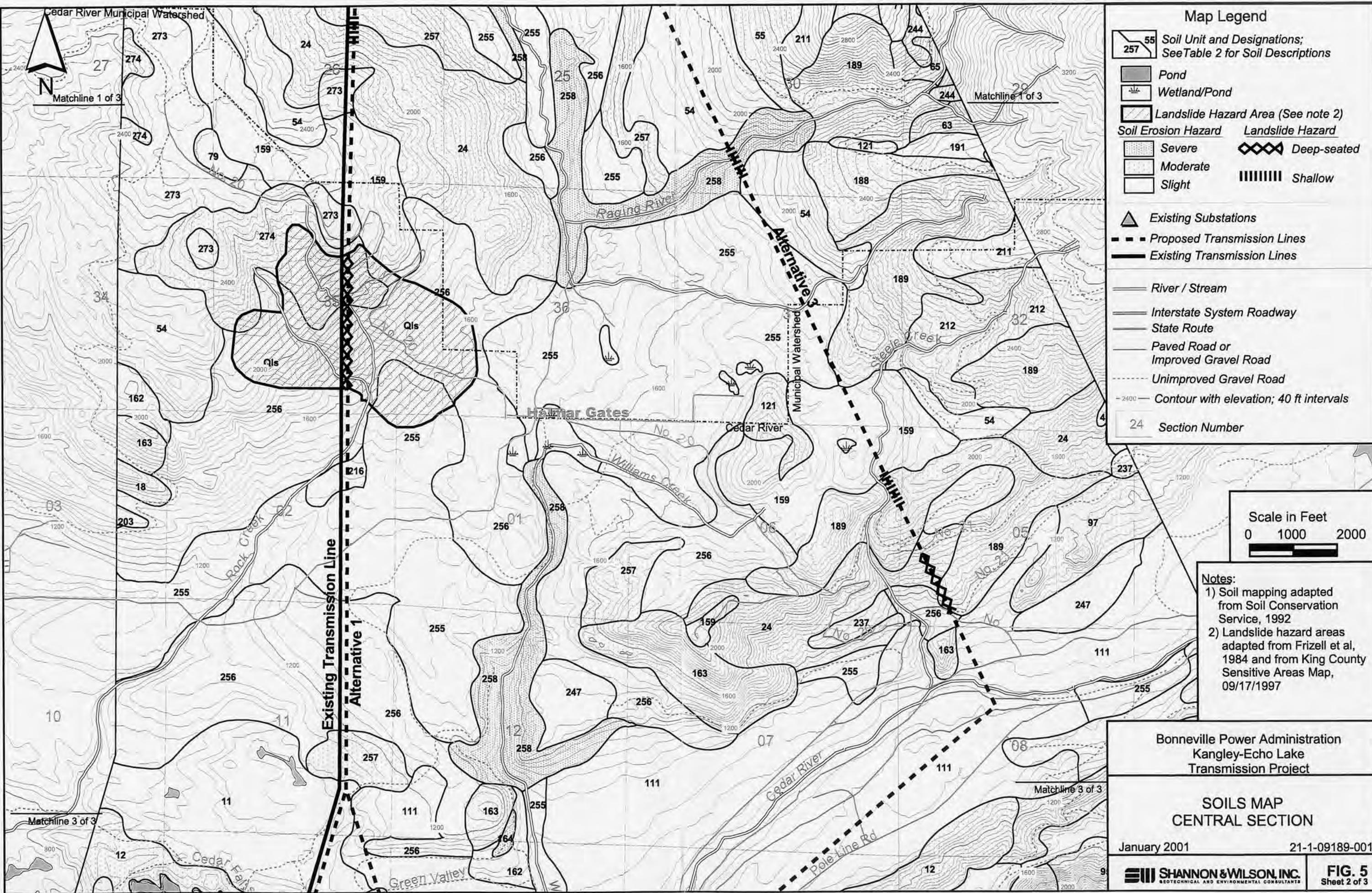
Scale in Feet
0 1000 2000

Notes:
 1) Soil mapping adapted from Soil Conservation Service, 1992
 2) Landslide hazard areas adapted from Frizell et al, 1984 and from King County Sensitive Areas Map, 09/17/1997

Bonneville Power Administration
Kangley-Echo Lake
Transmission Project

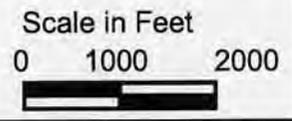
**SOIL MAP
NORTHERN SECTION**

January 2001 21-1-09189-001



Map Legend

- 55** Soil Unit and Designations; See Table 2 for Soil Descriptions
- Pond
- Wetland/Pond
- Landslide Hazard Area (See note 2)
- Soil Erosion Hazard**
- Severe
- Moderate
- Slight
- Landslide Hazard**
- Deep-seated
- Shallow
- Existing Substations
- Proposed Transmission Lines
- Existing Transmission Lines
- River / Stream
- Interstate System Roadway
- State Route
- Paved Road or Improved Gravel Road
- Unimproved Gravel Road
- Contour with elevation; 40 ft intervals
- 24 Section Number

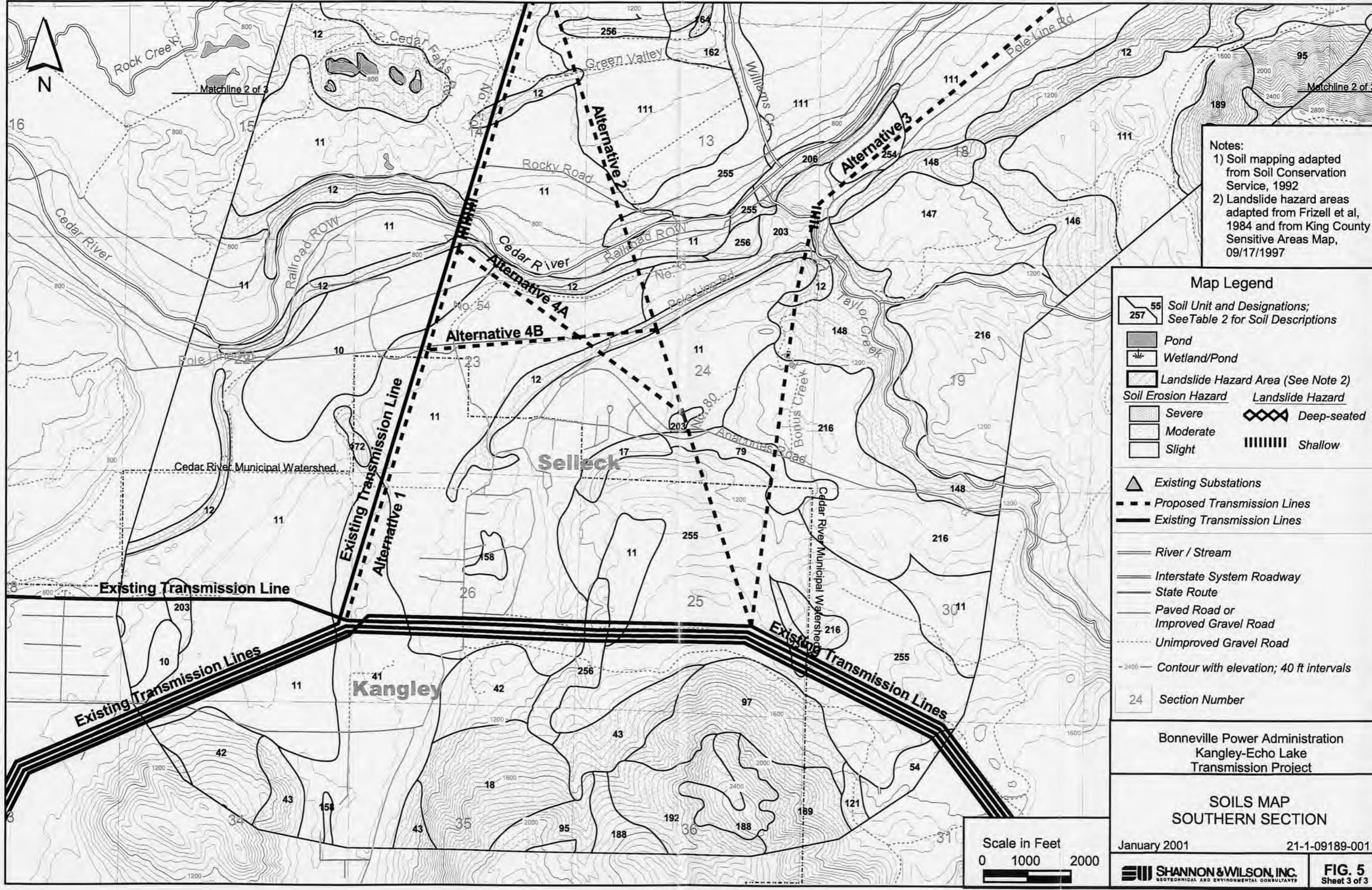


- Notes:**
- 1) Soil mapping adapted from Soil Conservation Service, 1992
 - 2) Landslide hazard areas adapted from Frizell et al, 1984 and from King County Sensitive Areas Map, 09/17/1997

Bonneville Power Administration
Kangley-Echo Lake
Transmission Project

**SOILS MAP
CENTRAL SECTION**

January 2001 21-1-09189-001



Notes:
 1) Soil mapping adapted from Soil Conservation Service, 1992
 2) Landslide hazard areas adapted from Frizell et al, 1984 and from King County Sensitive Areas Map, 09/17/1997

Map Legend

- 55 Soil Unit and Designations; See Table 2 for Soil Descriptions
- 257 Pond
- Wetland/Pond
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 - Severe
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Bonneville Power Administration
 Kangley-Echo Lake
 Transmission Project

**SOILS MAP
 SOUTHERN SECTION**

January 2001 21-1-09189-001

