

Final Environmental Assessment
**Cape Lookout State Park
Drainfield Relocation Project**

Tillamook County, Oregon

FEMA-1733-DR-OR (Public Assistance)

July 2009



U.S. Department of Homeland Security
FEMA Region X
130 228th Street SW
Bothell, WA 98021



FEMA

Final Environmental Assessment
Cape Lookout State Park
Drainfield Relocation Project

Tillamook County, Oregon

FEMA-1733-DR-OR (Public Assistance)

Prepared for:

U.S. Department of Homeland Security
FEMA Region X
130 228th Street SW
Bothell, WA 98021

Prepared by:

EDAW, Inc.
710 Second Avenue, Suite 1000
Seattle, WA 98104

July 2009

Contents

1.0 Purpose and Need for Action.....	1-1
1.1 Introduction.....	1-1
1.2 Authority.....	1-1
1.3 Proposed Federal Action.....	1-1
1.4 Purpose and Need	1-1
1.5 Related Activities.....	1-2
1.6 Background and Location.....	1-2
1.7 Scoping and Issue Summary.....	1-7
1.7.1 Scoping	1-7
2.0 Alternatives.....	2-1
2.1 Alternatives Development	2-1
2.1.1 Alternative Elements Eliminated From Further Consideration	2-1
2.1.2 Alternative A - No Action.....	2-1
2.1.3 Alternative B - Proposed Action.....	2-1
2.1.4 Elements Common to Both Alternatives	2-2
2.2 Summary of Effects	2-3
3.0 Affected Environment & Environmental Consequences.....	3-1
3.1 Land Use	3-1
3.1.1 Affected Environment.....	3-1
3.1.2 Threshold of Significance	3-4
3.1.3 Environmental Consequences.....	3-4
3.2 Geology, Soils, and Shoreline Stability.....	3-6
3.2.1 Affected Environment.....	3-6
3.2.2 Threshold of Significance	3-9
3.2.3 Environmental Consequences.....	3-9
3.3 Hydrology and Water Quality.....	3-11
3.3.1 Affected Environment.....	3-11
3.3.2 Threshold of Significance	3-15
3.3.3 Environmental Consequences.....	3-16
3.4 Vegetation and Wetlands	3-18
3.4.1 Affected Environment.....	3-18
3.4.2 Threshold of Significance	3-23
3.4.3 Environmental Consequences.....	3-23
3.5 Fish and Wildlife.....	3-28
3.5.1 Affected Environment.....	3-28
3.5.2 Threshold of Significance	3-35
3.5.3 Environmental Consequences.....	3-35
3.6 Threatened and Endangered Species	3-38
3.6.1 Affected Environment.....	3-38
3.6.2 Threshold of Significance	3-42
3.6.3 Environmental Consequences.....	3-42
3.7 Recreation	3-45
3.7.1 Affected Environment.....	3-45
3.7.2 Threshold of Significance	3-46

3.7.3 Environmental Consequences.....	3-46
3.8 Visual Resources.....	3-48
3.8.1 Affected Environment.....	3-48
3.8.2 Threshold of Significance.....	3-50
3.8.3 Environmental Consequences.....	3-50
3.9 Environmental Justice.....	3-52
3.9.1 Affected Environment and Regulatory Setting.....	3-52
3.9.2 Threshold of Significance.....	3-52
3.9.3 Environmental Consequences.....	3-53
3.10 Cultural and Historical Resources.....	3-54
3.10.1 Affected Environment.....	3-54
3.10.2 Thresholds of Significance.....	3-60
3.10.3 Environmental Consequences.....	3-61
3.11 Transportation and Access.....	3-63
3.11.1 Affected Environment.....	3-63
3.11.2 Threshold of Significance.....	3-64
3.11.3 Environmental Consequences.....	3-64
3.12 Cumulative Effects.....	3-68
4.0 Consultation and Coordination.....	4-1
4.1 Public Involvement.....	4-1
4.1.1 Comments on the Draft EA.....	4-1
4.2 Agency Consultation and Coordination.....	4-1
4.2.1 Endangered Species Act.....	4-1
4.2.2 National Historic Preservation Act.....	4-1
4.2.3 Other Laws and Regulations.....	4-1
5.0 Preparers.....	5-1
6.0 Distribution.....	6-1
7.0 References.....	7-1
7.1 Documents and Internet Source Material.....	7-1
7.2 Personal Communications.....	7-5

Appendices

Appendix A Scoping Letter, Public Notice, and Comments Received

Appendix B Cultural Resources Report and Consultation (Confidential)

Figures

Figure 1.1-1. Project Vicinity.	1-3
Figure 1.6-1. Project Location.	1-5
Figure 3.2-1. Soils of the Cape Lookout Project Area.....	3-7
Figure 3.3-1 Wetlands and Surface Waters of the Cape Lookout Project Area.	3-13
Figure 3.5-1. Salmonid Habitat in Jackson Creek	3-31
Figure 3.6-1. Coho Salmon Distribution and Habitat.....	3-39
Figure 3.11-1. Project Vicinity Roads and Highways.	3-65

Tables

Table 2.2-1. Summary of effects of the No Action and Proposed Action alternatives.....	2-3
Table 3.2-1. Mapped soils in the Cape Lookout State Park drainfield relocation project area.	3-6
Table 3.4-1. Jurisdictional Wetlands and Other waters of the U.S. in the Project Area.....	3-19
Table 3.4-2. Upland and wetland vegetation effect summary.	3-24
Table 3.5-1. Wildlife Species Encountered in the Cape Lookout Project Area.	3-29
Table 3.5-2. Sensitive wildlife species that potentially occur in the project vicinity.	3-33
Table 3.5-3. Resident and Anadromous Fish Species Documented in or likely to be using Jackson Creek.....	3-34
Table 3.6-1. Threatened Species in the Project Area.....	3-41
Table 3.9-1. Race/ethnicity in Tillamook County and Oregon State.....	3-52
Table 3.10-1. Cultural Resources Documented within Cape Lookout State Park.....	3-59

Acronyms and Abbreviations

AADT	Average Annual Daily Traffic
APE	Area of Potential Effect
BP	Before Present
BMP	best management practice
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CIS	Commission on Indian Services
Corps	U.S. Army Corps of Engineers
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
dbh	diameter at breast height
DLCD	Oregon Department of Land Conservation and Development Resources
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FONSI	Finding of Significant Impact
FR	Federal Register
GIS	geographic information system
HDPE	high density polyethylene
HMGP	Hazard Mitigation Grant Program
LOS	level of service
LUO	Land Use Ordinance
MBTA	Migratory Bird Treaty Act
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NOAA Fisheries	National Oceanic and Atmospheric Administration, National Marine Fisheries Service
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OAR	Oregon Administrative Rules
OCMP	Oregon Coastal Management Program
ODEQ	Oregon Department of Environmental Quality
ODF	Oregon Department of Forestry
ODFW	Oregon Department of Fish and Wildlife
ODOT	Oregon Department of Transportation

ODSL	Oregon Department of State Lands
OHV	off-highway vehicle
OHWL	Ordinary High Water Line
OPRD	Oregon Parks and Recreation Department
ORS	Oregon Revised Statutes
ORV	off-road vehicle
PA	Public Assistance
RM	Recreation Management (land use designation)
RTE	Rare, Threatened, or Endangered
RV	Recreation vehicle
SCS	Soil Conservation Service
SH	Shoreland Overlay Zone (land use designation)
SHPO	State Historic Preservation Office
STP	shovel test pit
SWANCC	Solid Waste Agency of Northern Cook County
TMDL	Total Maximum Daily Load
TNW	Traditionally Navigable Water
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

1.0 PURPOSE AND NEED FOR ACTION

1.1 INTRODUCTION

The Department of Homeland Security's Federal Emergency Management Agency (FEMA) is proposing to support the Oregon Parks and Recreation Department (OPRD) by providing partial funding to relocate and replace a damaged septic drainfield at Cape Lookout State Park, southwest of Tillamook, Oregon (Figure 1.1-1). The existing drainfield system at the state park was damaged during severe storms in December 2007. The president declared a federal disaster for the region on December 8, 2007, making funds available to public entities for damage repairs.

The National Environmental Policy Act (NEPA) of 1969 requires FEMA to evaluate the potential effects of the Proposed Action and alternatives on the human and natural environments. This Environmental Assessment (EA) compares two alternatives for the Cape Lookout State Park drainfield relocation project, the No Action Alternative and the Proposed Action. The EA evaluates potential effects of each alternative on land use; soils, geology, and shoreline stability; hydrology and water quality; vegetation and wetlands; fish and wildlife; threatened and endangered species; recreation; visual resources; environmental justice; cultural and historical resources; and transportation and access. It also evaluates cumulative effects of the alternatives. Air quality and noise were considered during an initial screening process, and it was determined that these resources would not be affected by the project. Thus, these resource areas are not covered further in this document.

The NEPA EA process allows FEMA to determine whether to issue a Finding of No Significant Impact (FONSI) or a Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS), which is required under NEPA for federal actions that may have a significant effect on the environment.

1.2 AUTHORITY

The Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1973 (Stafford Act), as amended, provides federal assistance programs for both public and private losses sustained in disasters. FEMA provides assistance to private citizens, public entities, and non-profit groups following declared disasters. Under the Federal Disaster Public Assistance (PA) program, FEMA provides federal funding for repairs to restore property and facilities to their predisaster condition. Additional funding can also be secured from FEMA's Hazard Mitigation Grant Program (HMGP).

1.3 PROPOSED FEDERAL ACTION

The proposed federal action by FEMA is to provide partial project funding to the Oregon Parks and Recreation Department to replace and relocate the campground's drainfield system that was damaged during the storms in 2007 (FEMA disaster project 1733-DR-OR).

1.4 PURPOSE AND NEED

The purpose of the FEMA Public Assistance program is to assist local communities that request funding to recover from damages caused by disasters. The purpose of this project is to provide

FEMA Public Assistance funding to OPRD to replace the function of a damaged septic drainfield at Cape Lookout State Park. OPRD needs to provide septic services to the campground and day use sites at the state park, while protecting the sensitive coastal environment. The new drainfield must be located in a flood-free location, consistent with the Public Assistance program.

1.5 RELATED ACTIVITIES

The damaged septic field will need to be decommissioned, which will involve the installation of a valve to prevent future transference of waste to the old drainfield. No action will be taken to remove the old infrastructure as it was determined that doing so would cause more environmental harm than leaving it in place.

1.6 BACKGROUND AND LOCATION

Rainstorms in December 2007 caused severe flooding, landslides, and mudslides within several coastal communities and counties in Oregon. Flooding associated with these storms caused extensive damage to the existing septic drainfield system at Cape Lookout State Park, which serves the existing campground and related recreation facilities at the state park. All campground sewage and gray water at the state park is routed through a septic tank and pump system to the existing drainfield. The December 2007 storms destroyed one of the three drainfield cells; the remaining two cells are currently operating and meet the needs of existing recreation use at the state park, but without a safety buffer afforded by the third septic cell.

The majority of the park's developed recreation facilities are located at the campground. The campground itself is the largest recreational element, consisting of 233 campsites:

- 38 recreation vehicle (RV) sites with sewer, water, and electrical hook-ups
- 1 RV site with electrical hookup and water
- 175 tent sites
- 2 group campsites
- 1 hiker/biker camp
- 13 yurts
- 3 cabins with plumbing and electrical service

Other facilities at the campground include shower and restroom facilities; a meeting hall and outdoor program areas; day use picnicking areas, including a group picnic shelter; an RV dump station; and two trail loops (OPRD 2008).

The state park and project site are located in Tillamook County, west of U.S. Route 101, approximately 9 miles southeast of Tillamook, Oregon. The state park is adjacent to a sand dune stretch of beach along the Pacific Ocean, near the southern tip of Netarts Bay (see Figure 1.6-1). A salmon-bearing stream (Jackson Creek) flows through the park. The creek originally emptied into the day use area, but in 1949 part of the creek was diverted to empty into Netarts Bay. Specifically, the project site is located in Township 02S, Range 10WW, Section 30.

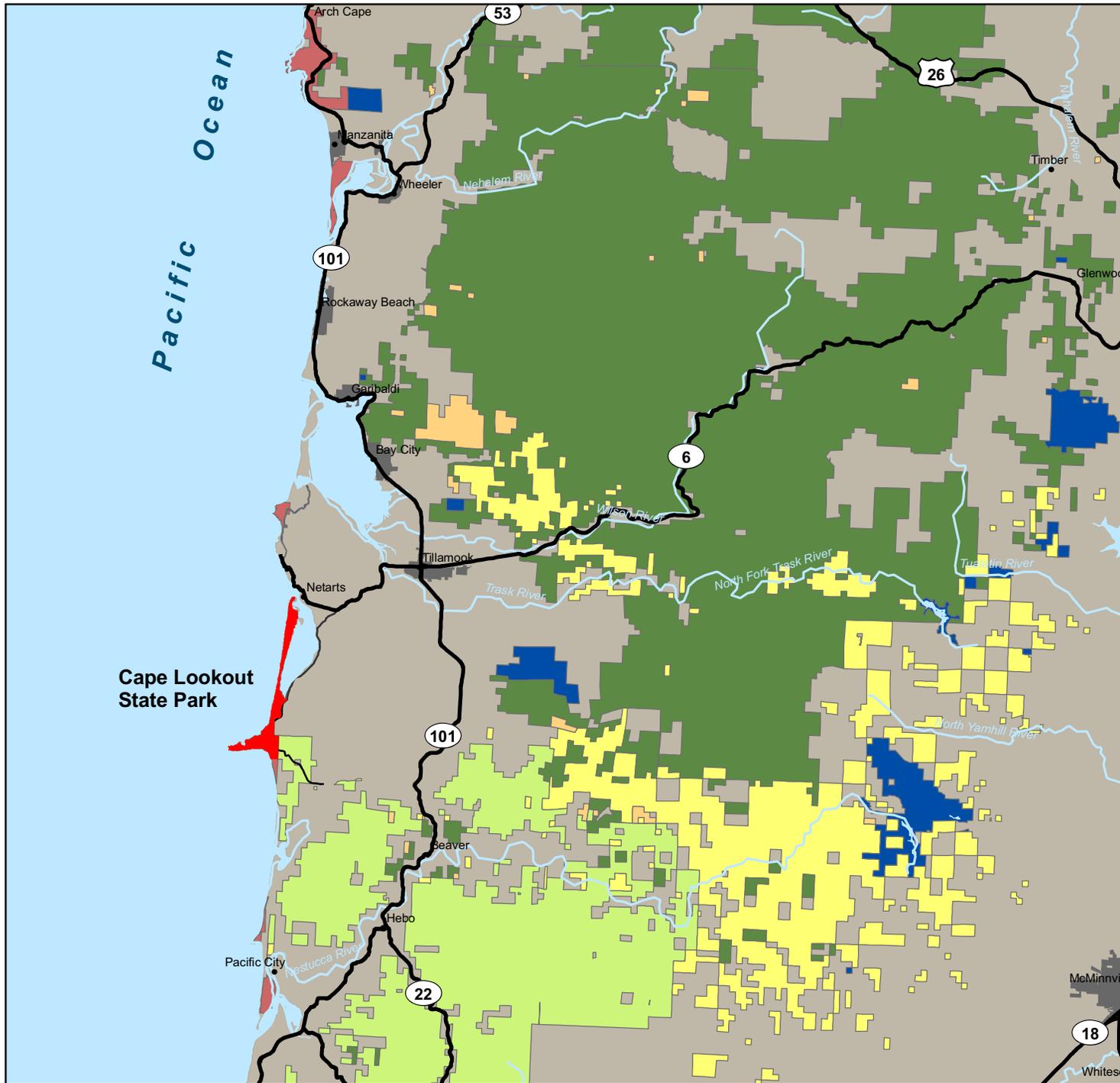


Figure 1.1-1. Project Vicinity

Cape Lookout State Park
 Drainfield Relocation Project
 Environmental Assessment

Legend

- █ Cape Lookout State Park
- Highways
- Major Rivers & Streams
- Water Bodies
- Cities
- City Limits
- Public Land Ownership**
- Bureau of Land Management
- Local Government
- Oregon Department of Forestry
- Oregon Department of State Lands
- Oregon Parks & Recreation Department
- USDA Forest Service



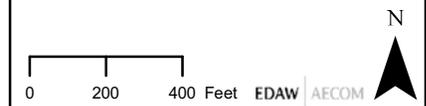


Figure 1.6-1. Project Location

Cape Lookout State Park
 Drainfield Relocation Project
 Environmental Assessment

Legend

-  Wetland Delineation Study Area
-  General Project Area
-  Cape Lookout State Park boundary
-  Campground Hard Surface Features
-  New Lift Station
-  Proposed Drain Field
-  Proposed Effluent Pipeline
-  Roads
-  Streams



The existing three-cell drainfield system is located approximately 2,600 feet north of the main campground area, along a controlled access road, directly landward of the dune system. Because of the extensive damage, OPRD plans to relocate the entire drainfield to an upland, unimproved forested site (approximately 7 acres in area) east of the current park facility. The proposed new drainfield is located on state park property, approximately 1,500 feet southeast of the campground, within a forested parcel along an unimproved logging road. The proposed new drainfield location is approximately 1,470 feet inland from the coast.

FEMA PA funding will be used to pay for the cost of moving the damaged cell as well as the cost for running new pipe to link the cell to the septic system. Additional funding under HMGP will be used to cover the replacement of the remaining two cells to the site of the new drainfield.

For purposes of this EA, the term “project site” refers specifically to the components associated with the proposed project (i.e., the approximately 7-acre area where the new drainfield would be constructed, the new lift station, and the effluent pipeline and associated bore pits); “project area” refers to the broader area of the state park lands in the immediate vicinity of the project site, including the location of the existing drainfield system; and “project vicinity” refers to the larger region, beyond the boundaries of the state park.

The approximate coordinates for the existing three-cell drainfield are N 45° 22' 24.1”, W 123° 58' 4.2”. The approximate coordinates for the proposed new drainfield are N 45° 21' 35.0”, W 123° 57' 53.7”.

1.7 SCOPING AND ISSUE SUMMARY

1.7.1 SCOPING

The purpose of the NEPA scoping process is to inform the public, agencies, and tribes about the EA process and to provide an opportunity to comment on the scope of the project, the range of the proposed alternatives, and any potential effects or issues of concern that should be considered in the EA.

FEMA initiated the scoping process for the project by distributing a scoping notice (via email) on August 12, 2008, to agencies and interested parties. The scoping notice explained the NEPA process and the proposal to partially fund the construction of a new drainfield system to better serve the state park. The public, agencies, and tribes were allowed 30 days to provide comments. No formal scoping comments for the project were received from the agencies or other stakeholders. The scoping notice is included in Appendix A. The agency and public involvement process is fully described in Chapter 4. In addition, OPRD coordinated with Tribal entities regarding cultural resource issues in the project area.

2.0 ALTERNATIVES

This chapter describes the alternatives considered for the replacement and relocation of the drainfield system at Cape Lookout State Park and the process used to develop these alternatives. Two alternatives are analyzed, the No Action Alternative and the Proposed Action. The following narrative describes the alternatives development process, alternatives eliminated from further consideration, the No Action and Proposed Action alternatives, and elements common to both alternatives.

2.1 ALTERNATIVES DEVELOPMENT

NEPA requires federal agencies to consider a reasonable range of alternatives that meet the purpose and need of a proposed action. The NEPA alternatives development process allows FEMA to work with interested agencies, tribes, the public, and other stakeholders to develop alternatives that respond to identified issues. FEMA coordinated with OPRD to develop the Proposed Action.

2.1.1 ALTERNATIVE ELEMENTS ELIMINATED FROM FURTHER CONSIDERATION

FEMA and OPRD discussed the development of the elements of the Proposed Action. There are limited environmentally sensitive options for siting a new drainfield system that serves the users of the state park and avoids sensitive environmental resources. FEMA and OPRD have determined that it is not reasonable to repair the existing three-cell drainfield system at its current location adjacent to the dune system because of the potential for future storm damage and potential effects on the sensitive coastal environment.

No formal comments were received during the scoping process (see Chapter 1), and FEMA did not consider adding or removing elements to the Proposed Action. The few issues raised during the scoping process are addressed in the effects analysis for specific resources sections in Chapter 3.

2.1.2 ALTERNATIVE A - NO ACTION

Under the No Action Alternative, FEMA would not provide any federal funds to OPRD to construct a new drainfield system for the state park. The existing drainfield would remain in its present degraded condition and would be available for limited use. However, the existing drainfield system would continue to be vulnerable to periodic flooding. This would result in higher maintenance and repair costs and the continuing risk that the drainfield could be damaged so that it would not function to accommodate heavy public use of state park lands.

2.1.3 ALTERNATIVE B - PROPOSED ACTION

Under the Proposed Action, FEMA would provide OPRD with partial funding to construct a new drainfield system to support both campground and day use recreation activities at Cape Lookout State Park. The Proposed Action includes:

- Construction of a new pump station and lift station (including an associated underground vault).
- Installation of approximately 3,600 feet of piping to transfer effluent to a new septic field.
- Clearing of 6.97 acres of upland forest for the new septic field.

- Construction of a new septic field with a design flow capacity of 24,000 gallons per day.

The new septic field would be designed to conform to Tillamook County and Oregon Department of Environmental Quality (ODEQ) standards.

Tree removal on the new septic field site would commence in August. Construction would occur from early September through October 15. The park is expected to close campsites around the new pipeline and pump station beginning September 4, 2009, during construction. Piping would be installed by drilling under roadbeds, under wetlands and open spaces, and beneath drainages and one stream. The state park will remain open during construction activities.

Construction activities would involve clearing and grubbing, drainfield excavation and seeding, fertilizing, and mulching the disturbed areas. Clearing, grubbing, and brushing would involve removing and disposing of snags, down timber, brush, and surface objects within the clearing limits. All danger trees, leaning trees, and snags outside the clearing limits that could fall into the construction area also would be removed. Stumps will be left in place at the new septic field as required under ODEQ standards.

Standards and best management practices (BMPs) to minimize effects during construction include (but are not limited to) the following:

- Following Oregon Department of State Lands (ODSL) requirements for logging;
- Limiting ground disturbance (clearing, grubbing, grading) to that essential for construction of the project;
- Scheduling construction activities that expose large areas of soil to reduce erosion potential;
- Incorporating erosion or sedimentation control measures (mulching, seeding, planting, use of silt fences); and
- Adhering to Oregon Department of Fish and Wildlife (ODFW) requirements regarding construction near streams.

Maintenance activities would be limited and would follow ODEQ standards.

2.1.4 ELEMENTS COMMON TO BOTH ALTERNATIVES

While the No Action Alternative and Proposed Action alternative represent distinctly different alternatives, they share common elements, as described below.

- **Access** - The public would continue to have access to state park lands consistent with current policies that consider public safety and protection of cultural and natural resources.
- **Public Information** – OPRD would continue to apply its standards for appropriate, clear, and consistent signage regarding public use of its lands and facilities. OPRD also would continue to provide information materials through existing entities, websites, and recreation areas.

2.2 SUMMARY OF EFFECTS

Table 2.2-1 summarizes effects on specific resource areas, as described in the analysis in Chapter 3.

Table 2.2-1. Summary of effects of the No Action and Proposed Action alternatives.

Resource Area	Alternative A – No Action Alternative	Alternative B – Proposed Action
Land Use	No significant effects on land use would occur.	6.97 acres of forest converted to septic field; no significant change in land use.
Soils and Geology	No significant change to soils and geology would occur.	6.97 acres of soils disturbance; no significant effects on soils and geology.
Hydrology and Water Quality	No significant effects would occur.	0.02 acres of wetlands would be permanently affected. Potential for sedimentation and run-off to reach the stream would be reduced through the use of BMPs. No significant adverse effects would occur.
Vegetation and Wetlands	No significant effects would occur.	Permanent wetland effects totaling 0.02 acres, temporary wetland effects of 0.11 acres. Removal of 6.97 acres of upland forest to accommodate the drainfield. After mitigation for loss of wetland functions, no significant adverse effects.
Fish and Wildlife	No significant effects would occur.	Permanent loss of 6.97 acres of forest habitat. Noise may temporarily affect fish in the stream, for 1-2 days while boring underneath Jackson Creek at the park entrance road. No significant effects on fish or wildlife.
Threatened and Endangered Species	No significant effects would occur.	Noise may temporarily affect coho salmon for 1-2 days while boring underneath Jackson Creek. No significant effects to Threatened or Endangered species.
Recreation	The ability of the park to accommodate visitors may be compromised should the existing drainfield fail.	Temporary closure of up to 37 campsites, 5 RV sites and 7 yurts from September 1 through October 15. No significant adverse effects would occur as a result of the proposed project.
Visual Resources	No significant effects would occur.	6.97 acres of forest removal, not visible from roads or designated viewpoints. No significant effects.
Environmental Justice	No significant effects would occur.	No significant adverse effects.
Cultural and Historical Resources	No significant effects would occur.	No known cultural resources present. No significant adverse effects on cultural are anticipated; mitigation plans are in place should artifacts be found to reduce potential effects to less than significant level.
Transportation & Access	No significant effects would occur.	Temporary restriction to one lane on the park access may be necessary during construction. No significant effects on transportation and access.
Cumulative Effects	No significant effects would occur.	No significant adverse cumulative effects result from the proposed project.

3.0 AFFECTED ENVIRONMENT & ENVIRONMENTAL CONSEQUENCES

The following narrative includes a description of the affected environment (including applicable laws and regulations), thresholds for determining the significance of project-related effects, a summary of the environmental effects associated with the two alternatives under consideration, and any mitigation measures that would be implemented.

3.1 LAND USE

3.1.1 AFFECTED ENVIRONMENT

This section includes a description of the existing land use plans, policies, and regulations that apply to Cape Lookout State Park and the project area. Existing land uses in the vicinity are also described.

3.1.1.1 Project Area

Cape Lookout State Park consists predominantly of recreational open space and includes large areas of forest, beach, and dunes that are available for hiking and other forms of dispersed recreation. Throughout most of the park, developed recreational facilities are limited, consisting mainly of trails and viewpoints. Campgrounds and a day use area are located at the southern end of Netarts Spit, adjacent to Netarts Bay on the north, and the Pacific Ocean to the west. The campground includes approximately 214 campsites, including sites for RVs and tent camping, along with 13 yurts and 3 log cabins. Support facilities include a fenced maintenance yard and a park office building. Day use facilities consist of a large parking lot, a number of picnic areas, and a group picnic shelter. See Section 3.7 (*Recreation*) for more detailed information on recreational facilities.

Park facilities include a septic system that treats wastewater generated at seven restroom/shower buildings and 38 RV campsites with sewer hookups, as well as from one RV waste dump. In the past, effluent was pumped to three drainfield units located to the northwest of the campground on Netarts Spit. Because of the storm damage, only one drainfield is currently operable. See Chapter 1 (*Purpose and Need for Action*) for additional information regarding these facilities.

3.1.1.2 Adjacent Land Uses

Cape Lookout State Park borders on a limited amount of land because of its location adjacent to the Pacific Ocean and Netarts Bay. Immediately adjacent property consists of private forest lands located on steep terrain not well suited for other uses. Portions of these forest lands in the vicinity of the park have been subject to harvesting activity in recent years. The Siuslaw National Forest, located approximately 1 mile to the southwest of the project area, is also subject to timber harvesting activity.

Recreation is a second common land use in the vicinity of the park. Siuslaw National Forest provides structured recreational facilities, including campgrounds and areas for off-road vehicle (ORV) use. Dispersed recreational activities such as hiking and hunting also occur in portions of the Siuslaw National Forest that are managed for commercial forestry. For additional information on hunting and ORV use and facilities, please refer to Section 3.7 (*Recreation*).

Residential development constitutes a third but less common land use in the vicinity of the park. The unincorporated town of Netarts, population 744 at the 2000 census, is located approximately 5 miles north of the site (U.S. Census Bureau 2008). A small number of rural residences are located along Whiskey Creek Road between Netarts Bay and the park; the nearest residence is approximately 1 mile north of the campground entrance. No residences have been developed along Cape Lookout Road south of the park for a number of miles.

3.1.1.3 Regulatory Environment

Applicable federal and Oregon state regulations regarding zoning and land use are described below.

Federal Regulations

Coastal Zone Management Act

The Coastal Zone Management Act (CZMA) requires federal agency activities, including federal license or permit activities and federal financial assistance activities, that have reasonably foreseeable effects on any land or water use or natural resource of the coastal zone, to be consistent to the maximum extent practicable with the enforceable policies of a coastal state's federally approved coastal management program. The Oregon Coastal Management Program (OCMP) is administered by the Oregon Department of Land Conservation and Development Resources (DLCR). The project area is entirely within the designated Oregon coastal zone.

State Regulations

Statewide Planning Goals

Oregon has developed 19 Statewide Planning Goals (Oregon Administrative Rules [OAR] 660-015) with which local comprehensive plans must be consistent and which also apply to state agencies. Goal language is typically general in nature. The following statewide goals apply to the park and project site:

- Goal 5 Natural Resources, Scenic & Historic Areas, and Open Space: This goal identifies resources to be inventoried.
- Goal 8 Recreational Needs: This goal provides general guidelines for recreation planning but deals primarily with destination resort planning.
- Goal 17 Coastal Shorelands: Providing for water-related uses is a permitted activity under this goal. The project site lies within the coastal shorelands planning area defined by this goal. Land within this area is intended to be inventoried "to provide information necessary for identifying coastal shorelands and designating uses and policies" (OAR 660-015-0010(2)). Portions of the site are within the coastal shorelands area as designated by Tillamook County (Land Use Ordinance section 3.090).

The Ocean Shore Law

It is OPRD's responsibility to protect the scenic, recreational, and natural resource values of the Oregon coast. The Ocean Shore Law (Oregon Revised Statutes [ORS] 390.605 – 390.770) and an associated permitting program is the mechanism by which this responsibility is executed. OPRD regulates activities affecting ocean shorelands located to the west of the statutory vegetation line, the survey line, or the line of established vegetation, whichever is most landward. Tillamook County is

responsible for regulating activities east of this line. Portions of the project area are in the vicinity of the statutory vegetation line.

Coastal Management Program

The project falls within Oregon's coastal zone, as defined by the DLCDC OCMP, which extends inland to the crest of the coastal mountain range. Under Oregon law, each county addresses coastal management through its comprehensive plan and zoning ordinances. DLCDC may review local permit applications as a commenting agency and is also responsible for evaluating whether federal actions or actions involving federal permits or licenses occurring within the coastal zone are consistent with the OCMP.

Pacific Coast Scenic Byway Corridor Management Plan

Cape Lookout State Park is located adjacent to the Three Capes Scenic Route/Pacific Coast Scenic Byway, which was designated in 2002 as an All-American Road for its intrinsic natural and scenic qualities. The Pacific Coast Scenic Byway Corridor Management Plan provides the county and other agencies with guidance for maintaining the aesthetic integrity of the byway corridor, which includes Cape Lookout Road and Whiskey Creek Road. However, the plan is a guidance document and provides no inherent mechanisms for enforcement. The Oregon Department of Transportation (ODOT) Scenic Byway Program is, however, able to revoke a scenic byway designation if it is determined that the aesthetic integrity of a byway has been unduly compromised. See Section 3.8 (*Visual Resources*) for additional information.

County and Local Regulations

Tillamook County Comprehensive Plan

The Tillamook County Comprehensive Plan is intended to provide guidance for county actions and programs, facilitate coordination between government entities, and assist in private-sector development-related decision-making (Tillamook County 1982). Much of the current comprehensive plan is out of date, with portions of the plan dating from 1982 or earlier.

Two elements of the Comprehensive Plan apply to the project area. The Recreation Element (Goal 8) describes the county's recreational facilities, demands, and goals at the time that it was written (approximately 1982). This element has not been updated since it was originally written and is superseded by State Planning Goals (pers. comm., Soilihi, July 23, 2008). Both Cape Lookout State Park and adjacent forest lands are shown by this element to be potentially eligible for designation as Planned Destination Resort Zones. However, county planning staff noted that no interest in seeking rezoning of these lands has been expressed by property owners (pers. comm., Soilihi, July 23, 2008).

The Coastal Shorelands Element (Goal 17) contains an inventory of coastal shorelands as well as findings and policies associated with their use and protection of sensitive qualities. This element has also not been updated since it was originally written and is superseded by State Planning Goals (pers. comm., Soilihi, July 23, 2008). Findings presented in this element are codified in Section 3.090 of the Tillamook County Land Use Ordinance (LUO), described below.

Tillamook County Land Use Ordinance

Two sections of the Tillamook County LUO apply to property within the park:

- **Section 3.040: Recreation Management Zone** - The primary zoning classification applied to the park is Recreation Management (RM), a designation applied to nonintensive recreational developments that maintain substantial open space. Permitted uses within this district include "(a) Maintenance and operation of existing structures and facilities... (b) Recreational improvements and additions necessary to serve the same numbers and densities of visitors served by the existing facilities, provided that off-site effects are not increased... and (d) Utility lines, excluding power transmission lines" (Tillamook County 1986). The term "utility lines" is not defined within the LUO; however, the term "utility facilities" is defined as "Structures, pipes, or transmission lines which provide the public with electricity, gas, heat, steam, communication, water, sewage collection, or other similar service" (Tillamook County 2002). Uses permitted conditionally include "(g) Water treatment facilities and sewage treatment plants" (Tillamook County 1986).
- **Section 3.090: Shoreland Overlay Zone** - The Shoreland Overlay Zone (SH) is intended to "provide for development, restoration, conservation or protection of coastal shorelands in a manner which is compatible with the resources and benefits of coastal shorelands and adjacent coastal water bodies" (Tillamook County 1999). The extents of the Shoreland Overlay Zone are designated by the Tillamook County Zoning Maps and by maps presented under Goal 17 of the Tillamook County Comprehensive Plan (pers. comm., Soilhi, July 23, 2008). According to the Tillamook County Comprehensive Plan, the entire park is within the coastal shorelands area (Tillamook County 1982). Section 3.090 identifies two classes of shorelands that are differentiated according to site conditions. The project site is considered to be a Rural Shoreland, a designation under which replacement, repair or improvement of existing state park facilities is a permitted use.

3.1.2 THRESHOLD OF SIGNIFICANCE

Significance under NEPA is determined by assessing the effect of a proposed action in terms of its context and the intensity of its effects. The No Action Alternative or the Proposed Action were determined to result in a significant effect on land use if they would:

- Have a significant adverse effect on existing land uses in the vicinity; or
- Be significantly affected by existing land uses in the vicinity.

3.1.3 ENVIRONMENTAL CONSEQUENCES

Potential effects of the No Action Alternative and the Proposed Action on land use within the project area are discussed below. Mitigation measures to offset any identified effects are also provided, as applicable.

3.1.3.1 Alternative A: No Action Alternative

Under the No Action Alternative, all existing land uses in the vicinity of the proposed project would remain unaltered; however the ability of the park to meet peak recreation demands would be

diminished. Continued erosion and storm activity adjacent to the beach may further threaten the remaining septic cells, and loss of these cells would result in problems providing the current level of service for recreational visitors.

No conflicts would arise with any existing federal or state laws, or management plans, or the Tillamook County Comprehensive Plan or Tillamook County Land Use Ordinances.

3.1.3.2 Alternative B: Proposed Action

Under the Proposed Action, there would be a land use change from the conversion of 6.97 acres of forest to a septic field. All work would be conducted within the state park boundaries, and would comply with the recreational mission of OPRD. There is no current master plan for this park; however, installation of the drainfield would ensure that campers and day visitors would continue to have access to the park.

Mitigation Measures

No mitigation measures are proposed for land use.

Significant and Unavoidable Effects

No unavoidable or significant adverse effects on land use would result from implementation of the Proposed Action.

3.2 GEOLOGY, SOILS, AND SHORELINE STABILITY

The following narrative describes the geology, soils, and shoreline stability of the project area, and the effects of the No Action and Proposed Action alternatives.

3.2.1 AFFECTED ENVIRONMENT

This section describes soils, land forms, and geologic features of Cape Lookout State Park and its vicinity, as well as shoreline stability as it relates to the proposed project.

3.2.1.1 Geology

The geology of Cape Lookout State Park is dominated by Miocene and Pleistocene formations of volcanic basalt and recently deposited ocean-derived sands, interspersed and underlain by Oligocene and Miocene marine sedimentary formations (Mangum 1967). The coast range was uplifted early in the Miocene, forming the dominant north-south ridgelines of the area, and defining the watershed and uplands where alluvial and colluvial inputs to the lowlands originate. Pillows and breccias also occur throughout the lowlands, in areas where basalt lavas flowed into wet marine sedimentary formations. Ocean-derived sands, driven by wave action, form Netarts Spit, as well as the dunes and sand deposits in the campground area. The marine sedimentary rocks interspersed landward of the coastal lowlands (east of Whiskey Creek Road) are part of an extensive micaceous sandstone and tuffaceous sandy shale formation known as the Astoria formation (Mangum 1967). This sedimentary formation contains several species of invertebrate fossils, with fossil sites located on the south side of Cape Lookout and several others along the road south of the project area. The large-scale geologic structure of the project area is slightly concave and tilted seaward, with recent alluvial sediments and coastal forests forming the uppermost soils layers.

3.2.1.2 Soils

Tillamook County soil survey (SCS 1964) maps include three soil types in the project site listed in Table 3.2-1. Heceta fine sand is found closest to the beach, Chitwood medial silt loam is common throughout the campground area, and Condorbridge gravelly medial loam is in the forested eastern portion of the park. Within the Chitwood and Condorbridge soils types are inclusions of Hebo silty clay loam, in depressions and on riparian terraces. Hebo silty clay loam is also the mapped soil in the estuarine wetlands north of the campground, adjacent to Netarts Bay. Heceta fine sand and Hebo silty clay loam are hydric, while Chitwood medial silt loam and Condorbridge gravelly medial loam are non-hydric but contain inclusions of hydric Hebo soils (SCS 1964). Soils are mapped in Figure 3.2-1 (Soils map of Cape Lookout State Park Vicinity) using Natural Resources Conservation Service data (NRCS 2008).

Table 3.2-1. Mapped soils in the Cape Lookout State Park drainfield relocation project area.

Soil Number - Name	Soil Classification	Taxonomy	Drainage Class	Significant Hydric Inclusions?
14A – Heceta fine sand	Hydric	Typic Psammaquents	PD	
18B – Chitwood medial silt loam	Non-Hydric	Aquandic Dystrudepts	SPD	5% Hebo
57B – Condorbridge gravelly medial loam	Non-Hydric	Andic Dystrudepts	WD	5% Hebo
45B – Hebo silty clay loam		Typic Humaquepts	PD	

PD: poorly drained; SPD: somewhat poorly drained; WD: well drained. Source: SCS 1964.

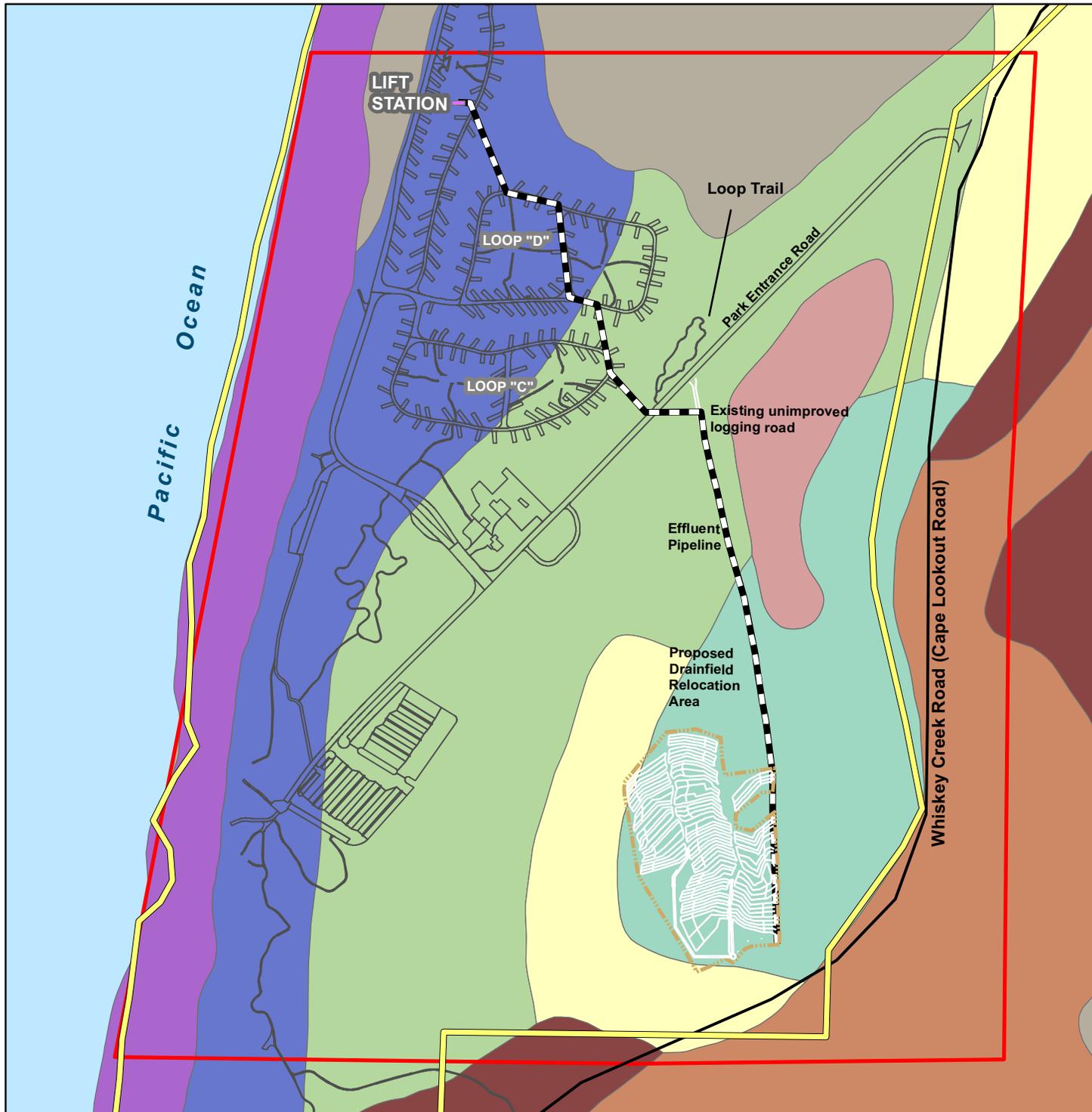
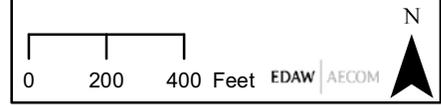
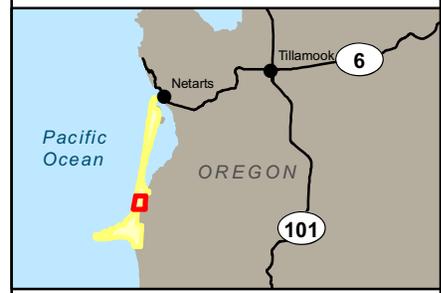


Figure 3.2-1 Soils of the Cape Lookout Project Area

Cape Lookout State Park
 Drainfield Relocation Project
 Environmental Assessment

Legend

- General Project Area
- Cape Lookout State Park boundary
- Soil Type**
- Heceta fine sand
- Chitwood medial silt loam
- Necanicum-Ascar-Kloutchie complex
- Kloutchie-Necanicum complex
- Hebo silty clay loam
- Condorbridge gravelly medial loam
- Condorbridge gravelly medial loam
- Beach
- Campground Hard Surface Features
- New Lift Station
- Proposed Drainfield
- Clearing Limits
- Proposed Effluent Pipeline
- Roads



3.2.1.3 Shoreline Stability

Shorelines at Cape Lookout State Park, especially along Netarts Spit, have experienced significant erosion during recent winter storms, in part motivating the need for this project (see Chapter 1, *Purpose and Need for Action*). Netarts Spit was historically stabilized with vegetation, and additional fill was added to the dunes to enable construction of the existing septic facilities. The stabilized portion of the dunes is several feet smaller on the west than its original design, as a result of natural erosion and wave action processes that occur along the shoreline. Shorelines of Netarts Spit and all other shorelines in the park are ocean derived and dynamic in response to the tides and storms that are frequent along the Oregon coast.

No project activities are proposed for the shoreline, although proposed project activities would allow areas over the current septic fields to be managed for recreational, natural resource, or other uses.

3.2.2 THRESHOLD OF SIGNIFICANCE

Vegetation removal is known to result in increased erosion rates both during harvest, and continually until new vegetation has developed. Therefore, the No Action Alternative and the Proposed Action were determined to result in a significant effect on soils and geologic stability if they:

- Would result in soil erosion rates substantially greater than natural levels;
- Would result in an accumulation of sediment in aquatic habitats; or
- Would affect shoreline stability or stabilizing vegetation at the shoreline.

3.2.3 ENVIRONMENTAL CONSEQUENCES

This section discusses the potential effects of the No Action Alternative and the proposed action on geology, soils and shoreline stability within the immediate vicinity of the project. Mitigation measures to offset any identified adverse effects are provided, as applicable.

3.2.3.1 Alternative A: No Action

Under the No Action Alternative, there would be no man-made disturbance to soils, but it is likely that continued winter storm erosion would eventually compromise the remaining septic field cells, which would affect park operations.

3.2.3.2 Alternative B: Proposed Action

Construction activities (clearing and brushing, grubbing, excavation, and grading) would disturb approximately 7.15 acres of soil for the drainfield, pipeline, and lift station construction. Construction of the project has the potential to mobilize soils that could then be carried to surface water features during storm events. The drainfield project site is relatively flat, minimizing the threat of excess erosion and sedimentation. In addition, OPRD has developed a construction plan to minimize disturbance through the use of innovative construction techniques and implementation of standard BMPs. The 4-inch pipeline would be installed underground using directional drilling techniques, at between 2 and 6 feet beneath the surface. Directional drilling avoids disturbance to

surface soils, and would displace a small amount of subsurface material. Waste water from the new septic field would add nitrogen to the forest soils, which would infiltrate to subsurface layers.

Specific strategies to minimize erosion and sedimentation during construction include, but are not limited to: (1) limiting ground disturbance (clearing, grubbing, grading) to that essential for construction of the project; (2) timing construction activities that expose large areas of soil to occur during the dry summer or early fall months when the threat of erosion from disturbed areas is minimal; (3) incorporating erosion control measures such as mulching, seeding, or planting; and (4) completing construction activities prior to the onset of the rainy season, around the middle of October. The drainfield would be planted with a northwest native grass seed mix after construction is complete.

OPRD would follow Oregon Department of Forestry (ODF) guidelines for tree removal (OAR 629 Division 630) and would implement standard OPRD BMPs for construction.

The use of timing and disturbance limits for drainfield construction, and use of the ODF standards for tree removal would minimize erosion and sediment production to a less-than-significant level, although use of the unimproved logging road would be a minor long-term source of sediment to streams downslope of the project area.

Mitigation Measures

No mitigation measures are proposed for geology, soils, or shoreline stability.

Significant and Unavoidable Effects

No unavoidable or significant adverse effects on soils, geology, or shoreline stability would result from the proposed project.

3.3 HYDROLOGY AND WATER QUALITY

The following narrative describes the hydrology and water quality in the project area, and the effects of the two alternatives on this resource area.

3.3.1 AFFECTED ENVIRONMENT

The project area is entirely within the Netarts Bay watershed, a small watershed of 19.3 square miles that includes 14 perennial streams, the Netarts Bay estuary (3.6 square miles), and approximately 7 miles of Pacific coastline (Follansbee and Mondragon 1999). The Netarts Bay watershed is within the Wilson-Trask-Nestucca watershed (USGS 2008). Climate in the Oregon coastal area is mild and maritime, with an average annual rainfall of 65 to 90 inches. Average low temperatures occur in January at 36°F, and high temperatures occur mainly in August at an average of 68°F (Oregon Climate Service 1971-2000). Precipitation occurs almost exclusively as rain, with 80 percent of precipitation falling from October through May. The project area is primarily within the Jackson Creek subwatershed, with a small northwest portion of the project (near the new lift station), within the Netarts Spit subwatershed. Hydrologic features in the project area are shown on Figure 3.3-1.

Jackson Creek, the only named stream in the project area, flows west from a ridgeline that crests 1,200 feet above sea level approximately 1.8 miles east of the park, and crosses under Whiskey Creek Road through a box culvert. In addition to Jackson Creek, a small headwater stream system, a total of nine drainage ditches, and seven wetlands were described within the general project area (Figure 3.3-1). Several wetlands and ditches are adjacent to Jackson Creek, the dominant water feature of the project area. Jurisdictional wetlands, ditches, and streams are addressed in detail in the wetland delineation report (EDAW 2009a), and are also described in Section 3.4 (*Vegetation and Wetlands*). Note: information presented in this Final EA is based on the June 9, 2009, draft version of the wetland delineation report.

Prior to 1949, Jackson Creek flowed directly east into the Pacific Ocean; however, the creek was rerouted into a reach of created streambed, joining Jackson Creek to a small previously unnamed stream flowing north to Netarts Bay (Follansbee and Mondragon 1999). Jackson Creek is approximately 32 feet wide where it crosses Whiskey Creek Road, and 2-3 feet deep at the thalweg. The creek flows under the park entrance road through a 72-inch underground culvert. There are no U.S. Geological Survey (USGS) water data stations or other publicly available water data in the Netarts Bay watershed, so no data are available on flow rates or seasonal fluctuations. Jackson Creek joins the tidal marsh wetland between the campgrounds and Netarts Bay.

Many activities traditionally implicated in poor water quality are not present in the watershed, such as grazing, active landslides, large-scale vegetation clearing or clearing on steep slopes, food or fiber crops, dairy farms, and industrial or urban land uses.

Water quality information is maintained by the ODEQ as directed by the U.S. Environmental Protection Agency (EPA). ODEQ prepares a biennial Integrated Report that meets the requirements of the federal Clean Water Act (CWA) for Section 305(b) and Section 303(d). Section 303(d) of the CWA requires state agencies to identify waters that do not meet water quality standards where a Total Maximum Daily Load (TMDL) needs to be developed. The EPA approved Oregon's 2004/2006 Integrated Report (ODEQ 2006) Section 303(d) list on February 26, 2007. The ODEQ

online database of Section 303(d) listed water bodies was reviewed for water bodies in the project area. No water bodies in the Netarts Bay subbasin are listed on ODEQ's 2004/2006 Section 303(d) list, and all parameters sampled were within acceptable limits (ODEQ 2007). No water quality data exist for most waterbodies in the Netarts Bay watershed, from either a regulatory or scientific source.

3.3.1.1 Regulatory Considerations

Applicable federal and Oregon state regulations regarding water quality in the project area are described below.

Federal Regulations

Clean Water Act Section 401

Oregon implements Section 401 of the federal Clean Water Act, as administered by the ODEQ. An applicant for a federal license or permit to conduct activities that may result in a discharge to waters of the state, such as wetlands and streams, must provide the permitting agency with a water quality certification issued by the state from which the discharge originates. Water quality certification is reviewed in Oregon concurrently with removal/fill permits and National Pollutant Discharge Elimination System (NPDES) permitting, ensuring that the project stormwater management plan is in compliance with all water quality regulations in the state.

Under the current project design, an ODEQ removal/fill permit will be required, fulfilling review for CWA Section 401.

Coastal Zone Management Act

The Coastal Zone Management Act (CZMA) requires federal agency activities, including federal license or permit activities and federal financial assistance activities, that have reasonably foreseeable effects on any land or water use or natural resource of the coastal zone, to be consistent to the maximum extent practicable with the enforceable policies of a coastal state's federally approved coastal management program. The Oregon Coastal Management Program (OCMP) is administered by the Oregon Department of Land Conservation and Development and consists of a coordinated package of various state statutes for managing Oregon's coastal lands and waters, and includes three basic components: (1) 19 statewide planning goals and Oregon's standards for comprehensive land use planning; (2) City and county comprehensive land use plans; and (3) State agencies and natural resource laws (including the Oregon Beach Bill and Removal/Fill Law).

The OCMP applies to Oregon's coastal zone, which extends from the Washington border to the California border, to the crest of the coast range, and 3 miles out to sea (to the outer limit of Oregon's territorial sea). The project area is located within Oregon's coastal zone.

Clean Water Act Section 402

Oregon Department of Environmental Quality administers 1200-C construction stormwater NPDES permits. This permit regulates stormwater runoff from construction activities that disturb 1 or more acre of land in Oregon. The federal Clean Water Act (Section 402) requires the regulation of stormwater runoff from construction activities.



Legend

- Wetland Delineation Study Area
- Creeks and Drainages
- - - Ordinary High Water Line
- Proposed Drainfield Clearing Limits
- Proposed Drainfield
- Casing, Bore Pit, and Vault
- Proposed Effluent Pipeline
- Whiskey Creek Road
- New Lift Station
- Delineated Wetlands
- General Project Area
- Cape Lookout State Park Boundary
- Campground Hard Surface Features

Figure 3.3-1. Wetlands and Surface Waters of the Cape Lookout Project Area

Cape Lookout State Park
Drainfield Relocation Project
Environmental Assessment



EDAW | AECOM



The 1200-C permit requires permit holders to prepare an Erosion and Sediment Control Plan and incorporate BMPs to prevent erosion and control sediment runoff from the site. The permit focuses on preventing pollution from erosion and runoff. In addition, the permit requires permit holders to inspect and maintain their controls to ensure they are working to prevent erosion and sediment runoff from the site.

Executive Order 11988 Floodplain Management

Executive Order (EO) 11988 (Flood Plain Management), established in May 1977, addresses floodplain issues related to public safety, conservation, and economics. It generally requires federal agencies constructing, permitting, or funding a project to:

- Avoid incompatible floodplain development.
- Be consistent with the standards and criteria of the National Flood Insurance Program (NFIP).
- Restore and preserve natural and beneficial floodplain values.

The FEMA floodplains map for the Cape Lookout area designates the project area as “Undetermined, but possible, flood hazard” (FEMA 1978). This designation is applied to the entire state park.

State Regulations

ODEQ Onsite Wastewater Management Program (Septic Systems)

ODEQ also administers the Oregon Onsite Wastewater Treatment Program, including certification of construction and maintenance professionals, and providing site certification for new construction of septic systems. ORS 454 and 468B regulate onsite septic system design, placement, and construction, and are guided by OAR, Chapter 340, Divisions 71 and 73 (updated July 2008).

3.3.2 THRESHOLD OF SIGNIFICANCE

The Proposed Action and the No Action Alternative were determined to result in a significant effect on hydrology and water quality if they would:

- Violate currently monitored water quality standards (303(d) list qualifying parameters); violate discharge regulations and standards at the local, regional, or federal level; or contribute runoff or other material to designated wetlands or streams that would affect water quality standards, or otherwise measurably degrade water quality as compared to currently documented ranges; or
- Alter the existing drainage pattern in a manner that would result in substantial erosion, siltation, or flooding, in or outside of the project area, or exceed the capacity of existing stormwater drainage systems.

Potential environmental consequences of each alternative on hydrology and water quality are considered from regulatory and ecological perspectives.

3.3.3 ENVIRONMENTAL CONSEQUENCES

This section describes the potential effects of the No Action Alternative and the Proposed Action on water quality and hydrology within the project area. Mitigation measures to offset any identified adverse effects are provided, as applicable.

3.3.3.1 Alternative A: No Action

Under the No Action Alternative, no land clearing would occur; there would be no project-related effects on water quality. Continued winter storm erosion may cause the failure of the remaining septic field cells, causing OPRD to develop alternative wastewater plans.

Mitigation Measures

No mitigation measures are proposed under the No Action Alternative.

3.3.3.2 Alternative B: Proposed Action

Under the Proposed Action, 0.02 acres of disturbed wetlands would be permanently affected by the construction of the new lift station and pipeline, in the western portion of the park near the existing pump house. An additional 0.11 acres of wetlands would be temporarily affected because of the needs for equipment set-up and bore pits to allow for directional drilling of the pipe. Effects on these wetlands would be minimal and limited to those areas necessary for the new pipe and lift station.

These facility placements would have no effects on hydrology and water quality, in part because they are replacing existing facilities. The locations of the new facilities were designed to avoid and minimize effects on wetlands, streams, and stream buffers to the highest extent practicable, as directed by Executive Order (EO) 11990. The drainfield is located outside of the 100-foot buffer area for Jackson Creek and avoids wetlands in the project area. Coordination with the U.S. Army Corps of Engineers (Corps) for mitigation of the affected wetlands and their functions is ongoing through the permitting system by OPRD. Wetlands and potential effects on wetlands from the proposed project are described further in Section 3.4, *Vegetation and Wetlands*.

Additionally, soils would be disturbed throughout the 6.97-acre drainfield clearing limits, and along the unimproved logging road adjacent to the new drainfield. OPRD will use standard BMPs to minimize soil movement and prevent sedimentation and siltation of soils in surface water features. After construction, ongoing drainfield operations would add nitrogen and wastewater discharge to the drainfield area, increasing the potential of these products to reach groundwater and nearby surface waters.

Any heavy equipment used on site will be well maintained and have no leaks, as specified in construction BMPs approved as part of all plans and permitting documents.

Mitigation Measures

Mitigation measures will include wetland mitigation to ensure that water quality functions are replaced, as determined through ODSL and the Corps consultation and permitting process (see Section 3.4, *Vegetation and Wetlands*).

No additional mitigation measures are proposed for hydrology and water quality. Hydrology downstream of any wetlands affected by the project may be slightly altered, although this alteration would be minor.

Significant Unavoidable Adverse Effects

No significant unavoidable or adverse effects on hydrology or water quality are anticipated from the proposed project.

3.4 VEGETATION AND WETLANDS

The following narrative describes the vegetation and wetland resources of the project area, and the effects of the No Action and Proposed Action alternatives.

3.4.1 AFFECTED ENVIRONMENT

3.4.1.1 Upland Vegetation

Conifer and Conifer-Hardwood Forests

Upland forest habitat encompasses areas south of the park entrance road (which include the proposed drainfield area), and areas adjacent to the proposed effluent pipeline along the unimproved logging road west to and beyond Jackson Creek. North of the park entrance, upland forest abuts wetlands at the south end of Netarts Bay and extends southwest along the east edge of Campground Loops C and D and around park facilities.

Sitka spruce (*Picea sitchensis*), western hemlock (*Tsuga heterophylla*), and western red cedar (*Thuja plicata*) are the dominant tree layer species and form a dense second-growth forest. Red alder (*Alnus rubra*) is abundant locally and commonly occurs in most stands. Shrub layer cover is generally sparse under the dense tree canopy and is abundant only in forest openings. The dominant shrub layer species include salal (*Gaultheria shallon*), evergreen huckleberry (*Vaccinium ovatum*), red elderberry (*Sambucus racemosa*), small leaf huckleberry (*Vaccinium parvifolium*), salmonberry (*Rubus spectabilis*), and false azalea (*Ferruginea menziesii*). The herb layer supports only shade-tolerant species such sword fern (*Polystichum munitum*), wood fern (*Dryopteris inexpansa*), Pacific waterleaf (*Hydrophyllum tenuipes*), and Siberian miner's lettuce (*Claytonia siberica*). Along the edge of the campground, the herb layer in upland stands is, in part, maintained campsite pads that support buttercup (*Ranunculus repens*), lawn daisy (*Bellis perenne*), and annual bluegrass (*Poa annua*).

Developed / Disturbed Cover Type

The developed areas within Cape Lookout State Park west and north of the park entrance road are structures and hard surface development associated with the campground and other park facilities. Disturbed habitats south and east of the park entrance road include an old, unimproved logging road and an area at the south end of the proposed drainfield estimated to be an old log landing or staging area related to construction of Cape Lookout Road. The compacted logging road supports a low-growing cover of upland plant species including salal, sword fern, and mosses. The flat, compacted area at the south end of the drainfield has some wetland characteristics and is described further in the following section.

3.4.1.2 Wetland and Drainages

A wetlands delineation conducted at Cape Lookout State Park in December 2008 and January and April 2009 identified seven wetlands and nine drainages that overlap or occur in proximity to the project site (i.e., the site of the proposed drainfield). The wetland study area includes 100 feet perpendicular in all directions of each project activity, including the drainfield, pipe extent, and lift station. The wetland delineation study area is outlined in purple, and mapped in Figure 3.3-1. Detailed results of the delineation are presented in EDAW (2009a). The wetlands and other waters of

the state or U.S. are summarized in Table 3.4-1. Excluding Wetland 1, all of the wetlands and drainages have a hydrologic connection to freshwater and estuarine wetlands located at the south end of Netarts Bay.

Table 3.4-1. Jurisdictional Wetlands and Other waters of the U.S. in the Project Area¹.

Wetlands					
Label	Emergent Wetlands	Scrub-shrub Wetlands	Forested Wetlands	Unvegetated Wetland	Total Acres
Wetland 1				0.006 acres	0.006
Wetland 2			0.52 acres		0.52
Wetland 3	.01 acres	0.03 acres			0.04
Wetland 4	0.058 acres		0.16 acres		0.218
Wetland 5			0.03 acres		0.03
Wetland 6	1.91 acres	0.17 acres	2.76 acres		4.84
Wetland 7	0.03 acres				0.03
Total Acres	2.008	0.200	3.47	0.006	5.684
Drainages					
Label²	Segment³ Length (ft)	OHWL Width (ft)	Area (acres)	Comments	
D1-per	583.1	2.5	0.033	Crosses unimproved logging road through 18-inch culvert	
D2-per	325.4	17	0.127	Jackson Creek, riparian shrub sparse rooted only at edge of OHWL	
D3-int	150.8	1.7	0.003	Overflow from Jackson Creek supports Wetland 4 and inflow to roadside ditch D3	
D4-int	153.3	2	0.007	Roadside ditch tributary to Jackson Creek	
D5-int	86.6	3	0.006	Small flowing creek connects to D2 via Wetland 3	
D6-per	409.9	4.5	0.042	Overflow diversion from D2	
D7-int	217.8	1.7	0.008	Primarily linear ditch drains Wetland 5, connects to D6	
D8-int	190.6	2.5	0.011	Connects to D6; wet swale-like portions contiguous with Wetland 6	
D9-per	198.8	2.5	0.011	Incised, old dredged, yet naturalized channel in Wetland 6	
Total Acres			0.248		
Total Jurisdictional Acres = 5.932 acres					

1. Area calculations based on draft (June 9, 2009) version of EDAW 2009a.
 2. D = drainage, int = intermittent, per = perennial.
 3. Drainage segment length that intersects drainfield relocation project site.
- OHWL = Ordinary High Water Line.

Emergent Wetland

Emergent wetland habitats are associated with Wetlands 3, 4, 6, and 7. In the emergent portion of Wetland 3, skunk cabbage (*Lysitichon americana*) dominates the herb layer, although soils are mostly bare through the winter. In Wetland 4, the dominant plant species is slough sedge (*Carex obnupta*) with scattered western red cedar, red alder, Sitka spruce, and black twinberry (*Lonicera involucrata*). The emergent habitat is on a small Jackson Creek floodplain that grades gently into higher elevation forested wetland. At high flows, this emergent wetland provides access to feeding areas for anadromous fish that pass through a 7-foot-diameter culvert under the park entrance road.

The emergent wetlands associated with Wetland 6 are disturbed, maintained portions (lawn) of campsite pads and the sides of foot paths and roads in the Cape Lookout Campground. The dominant plant species in the disturbed emergent wetland are buttercup, annual bluegrass, lawn daisy, creeping bentgrass (*Agrostis stolonifera*), Baltic rush (*Juncus balticus*), and, on the edges of the disturbed campsite pads, Sitka spruce and red alder. Typically, the vegetation on the campsite pads is trampled by campground users, frequently resulting in a high percentage of bare ground in some campsites. The park staff also mows and maintains some of the emergent wetlands as lawn. This wetland provides recreation opportunities but little in the way of wetland functions and values.

Wetland 7 lacks trees and is somewhat disturbed due to trampling and maintenance of the area as a utility corridor. The area is used as a social trail, and vegetation is dominated by thimbleberry (*Rubus parviflorus*), salmonberry, stink currant (*Ribes bracteosum*), lady-fern (*Athyrium filix-femina*), lily-of-the-valley (*Maianthemum dilatatum*), and skunk cabbage in the shrub and herb layers. Much of the vegetation in this wetland is not present during the summer and winter months, notably the skunk cabbage.

Scrub-shrub Wetland

Scrub shrub wetland habitats are associated with Wetland 3 and form a minority component of Wetland 6. The dominant plant species in Wetland 3 include black twinberry, coltsfoot (*Petasites palmatus*), water parsley (*Oenanthe sarmentosa*), angled bittercress (*Cardamine angulata*), lady fern, and slough sedge. In Wetland 6, the dominant species in scrub-shrub wetlands are generally the same ones described below for the understory of the forested portions of Wetland 6. Salal, an abundant upland shrub species, is also abundant along the margins of the scrub-shrub wetlands where fill surfaces along the edges of the campsites provide better-drained soils.

At Wetland 3, the small patch of scrub-shrub wetland forms a minor component of the mosaic of wet habitats in the vicinity. Nearby wet habitats include Wetland 4 and Jackson Creek along with its connected tributaries, Drainages 3, 4, and 5. The scrub-shrub habitat in Wetland 6 is part of a larger complex of forested wetlands whose functions and values are described below under *Forested Wetlands*.

Forested Wetland

Forested wetland habitats are associated with Wetlands 2, 4, 5, and 6. The tree canopy is generally dense with Sitka spruce, red alder, western hemlock, and western red cedar. The shrub and herb layers are generally sparse except where small canopy openings permit more light to reach the forest floor. Common shrub and herb species include salmonberry, small-leaf huckleberry, deer fern

(*Blechnum spicant*), water parsley, and angled bittercress. The forested wetland in Wetland 6 has a much more open canopy and a denser, more diverse composition of herb and shrub layer species including Oregon crab apple (*Malus fusca*), wax myrtle (*Myrica californica*), Hooker willow (*Salix hookeriana*), evergreen huckleberry, salal, deer fern, skunk cabbage, hairy willowherb (*Epilobium ciliatum*), slough sedge, and water parsley.

Forested wetlands are the dominant wetland type in the vicinity of the project site (i.e., near the proposed drainfield site) and include headwater wetlands on small tributaries (Wetland 2), a small floodplain wetland along Jackson Creek (Wetland 4), a small depressional wetland (Wetland 5), and a large coastal lowlands with shallow groundwater, surface water, and tributaries (Wetland 6), all of which are hydrologically connected to Netarts Bay. Campground development, roads in the park including the unimproved logging road, and numerous park visitors all interfere with the function of forested wetlands and generally decrease their value. Nevertheless, collectively, forested wetlands provide habitat directly or indirectly for cutthroat juveniles, sculpin (*Cottus* spp.), amphibians, song birds, wintering and migratory birds, breeding waterbirds, elk (*Cervus elaphus*), bear (*Ursus americanus*), and deer (*Odocoileus hemionus*).

Unvegetated Wetland

A small, isolated wetland depression surrounded by dense, upland conifer forest is located within the proposed drainfield area south of the park entrance road (Wetland 1). This wetland is sparsely vegetated with two plants of deer fern and a single salmonberry growing in the bottom of the depression and comprising <5 percent cover. A wetland-specialist bryophyte, *Eurhynchium praelongum*, covered approximately 30 percent of the pool bottom during the April/May fieldwork. Dense upland forest surrounding this small unvegetated wet pond provides abundant organic material for primary production. Invertebrates and amphibians such as rough-skinned newts (*Taricha granulosa*) are the primary taxa to directly use this habitat. This wetland feature is a small outlier habitat for similar habitats in portions of the forested Wetland 2.

Drainages: Creeks and Ditches

The drainfield relocation project area is intersected by portions of nine intermittent or perennial drainages. The length of each drainage segment that intersects the wetland study area, the average width of the Ordinary High Water Line (OHWL), and the potential jurisdictional area associated with each of these drainages are summarized in Table 3.4-1. Jackson Creek is connected directly to Netarts Bay and has perennial flow, although summer flows observed in July 2008 were a mere trickle. The portion of Jackson Creek that intersects the project area is a naturalized channel that was diverted in the 1960s from the natural Jackson Creek channel, which drains due west into the Pacific Ocean. The original channel and the diversion channel split upstream inflow. The diverted Jackson Creek channel is deeply incised along much of its course upstream of the park entrance road, and upland forest abuts nearly the entire length of the channel through the project area. The nine drainages do not support riparian vegetation, although Drainages 6, 8, and 9 flow through and are contiguous with Wetland 6; Drainages 1, 2, 3, 4, 5, and 7 have abutting wetlands (Wetlands 2, 4, 3, 5, and 7, respectively).

3.4.1.3 Rare, Threatened, and Endangered Species

There are no known or anticipated occurrences of rare, threatened, and endangered (RTE) plant species in the dense upland forest and freshwater wetland habitats at Cape Lookout State Park. Therefore, no further description is provided for RTE plant species with regard to environmental consequences.

3.4.1.4 Regulatory Environment

Applicable federal and Oregon state regulations regarding upland and wetland vegetation in the project area are described below.

Federal Regulations

Clean Water Act Section 404

NEPA requires FEMA to evaluate the potential effects of the proposed project, including effects on potential wetlands and other waters of the U.S. Section 404 of the Clean Water Act (CWA) defines the Corps' regulatory responsibilities with regard to dredge and fill activities in waters of the U.S., including wetlands. The Secretary of the Army acting through the Chief of Engineers for the Corps authorizes Section 404 permits. Prior to 2001, waters of the U.S. consisted of all navigable waters, including their tributaries and adjacent wetlands and isolated waters, where the use, degradation, or destruction of such waters would affect interstate or foreign commerce. However, as of January 9, 2001, the U.S. Supreme Court issued its opinion in the *Solid Waste Agency of Northern Cook County (SWANCC) v. the U.S. Army Corps of Engineers*. Under this opinion, the Corps no longer takes jurisdiction over *isolated wetlands*, except if they meet certain requirements (e.g., interstate commerce connection).

In June 2007, the Corps and the EPA issued a joint memorandum that clarifies CWA jurisdiction following the Supreme Court's decision in the *Rapanos* case. The *Rapanos* decision did not change CWA jurisdiction for traditionally navigable waters (TNW) of the United States; however, some definitions were refined as a result of the case. These terms are described in detail in the *Wetland Delineation of Wetland and Waters of the State and U.S. for the Cape Lookout State Park Drainfield Relocation project (EDAW 2009a)*.

Coastal Zone Management Act

The Coastal Zone Management Act (CZMA) requires federal agency activities, including federal license or permit activities and federal financial assistance activities, that have reasonably foreseeable effects on any land or water use or natural resource of the coastal zone, to be consistent to the maximum extent practicable with the enforceable policies of a coastal state's federally approved coastal management program.

Executive Order 11990 Protection of Wetlands

EO 11990 requires federal agencies to follow avoidance, mitigation, and preservation procedures, with public input, before proposing new construction in wetlands. It generally requires the following:

- Avoidance of wetlands.

- Minimization of activities in wetlands.
- Coordination with the Corps and CWA Section 404 regarding wetlands mitigation.

Wetlands and other waters of the U.S. are described in detail in the Cape Lookout State Park Drainfield Relocation Project wetland delineation report (EDAW 2009a).

State Regulations

DSL Department of State Lands

The Oregon Department of State Lands (ODSL), in accordance with OAR 141-090-0005 through 141-090-0055, takes jurisdiction over wetlands, including isolated wetlands, provided that they meet all three qualifying criteria - a prevalence of hydrophytic vegetation, hydric soils, and wetland hydrology. ODSL, in accordance with OAR and the Corps, will conduct its own determination of the jurisdictional status of wetlands and other waters of the state and U.S. If effects on wetlands and other waters of the state or U.S. are proposed in regard to a project, then the project proponent is required to submit a Joint Section 404/Removal-Fill Permit Application.

Oregon Coastal Management Program

The Oregon Coastal Management Program (OCMP) complies with CZMA requirements and is administered by the Oregon Department of Land Conservation and Development. The OCMP consists of a coordinated package of various state statutes for managing Oregon's coastal lands and waters, and includes three basic components:

- 19 statewide planning goals, Oregon's standards for comprehensive land use planning;
- City and county comprehensive land use plans; and
- State agencies and natural resource laws (including the Oregon Beach Bill and Removal/Fill Law).

The OCMP applies to Oregon's coastal zone, which extends from the Washington border to the California border, to the crest of the coast range, and 3 miles out to sea (to the outer limit of Oregon's territorial sea). The project area is located within Oregon's coastal zone.

3.4.2 THRESHOLD OF SIGNIFICANCE

The No Action Alternative and the Proposed Action were determined to result in a significant effect on upland and wetland vegetation, or rare plants if they would:

- Result in the loss of uncommon, sensitive, or pristine habitats, particularly those that potentially supports RTE species; or
- Result in a violation of state or federal wetland regulations regarding removal/fill in waters of the U.S., including wetlands.

3.4.3 ENVIRONMENTAL CONSEQUENCES

Potential effects of the No Action Alternative and the Proposed Action on upland and wetland vegetation within the project area are described below. Mitigation measures to offset any identified effects are also provided, as applicable.

3.4.3.1 Alternative A: No Action

Under the No Action Alternative, no drainfield construction or related activities would take place. Forested habitats and wetland features in the vicinity of the project site would remain unaltered. Therefore, there would be no project-related effects on upland and wetland habitats.

3.4.3.2 Alternative B: Proposed Action

The Proposed Action is anticipated to have both temporary and permanent effects on upland and wetland habitats, as summarized in Table 3.4-2.

Table 3.4-2. Upland and wetland vegetation effect summary.

	Facility	Permanent Effects	Temporary Effects ¹	Comment
Upland Habitats				
Forest	Drainfield	6.97 acres	none	Drainfield excavation and cleared buffer total 6.97 acres for life of project.
Forest	Effluent pipeline	none	0.01 acre	Drill rig set up, excavation of bore pits and tie-in pits Jackson Creek crossing to Campground Loop C.
Disturbed/ Developed	Effluent pipeline	none	0.065 acres	Trenching of unimproved logging road (ca 1,420 x 2 feet).
Disturbed/ Developed	Effluent pipeline	none	0.01 acre	Drill rig set up, excavation of bore pits and tie-in pits within paved portions of campground.
Upland Total		6.97 acres	0.085 acres	
Wetland Habitats				
Emergent Wetland 6	Effluent pipeline	none	0.01 acre	Drill rig set up, excavation of bore pits and tie-in pits on lawn portions of campsites and roadsides. Permanent effect for installation of above-grade control structure. Temporary effects workspace for lift station.
	Lift station and vault	0.02 acres ²	0.1 acre	
Emergent Wetland 4	Unimproved logging road	0.001 acres	none	The unimproved logging road would be used for access both during construction and for maintenance after the drainfield is built.
Wetland Total		0.021 acres	0.11 acres³	
Drainage Habitats				
D-3	Unimproved logging road	0.001 acres	none	The unimproved logging road would be used for access both during construction and for maintenance. D-3 may be placed in a culvert.
Drainages Total		0.001 acres	none	

1. Affected area for effluent pipeline and lift station is approximate. Actual positioning and workspace for drill rig set-up, tie-in pits and bore pits will be subject to contractor's discretion within already disturbed areas.
2. This permanent loss of emergent (lawn) vegetation is anticipated to be offset by removal of the existing structure associated with the current lift station pump station. Coordination with DSL and the Corps is required.
3. Based on draft (June 9, 2009) version of EDAW 2009a.

Upland Habitats

Drainfield Development

The primary effect on upland vegetation would be associated with the installation of the drainfield. Land clearing (logging) would be conducted on 6.97 acres of dense second-growth forest. Land clearing and the installation of the drainfield piping would occur on 5.67 acres of the total cleared 6.97 acres. Best management practices for erosion control during both construction and operation of the drainfield would minimize, if not eliminate, the potential for significant erosion effects on site and off site. Drainfield construction would be conducted during the dry time of the year so that bare ground surfaces can be safeguarded against the potential effects of runoff and sedimentation. The clearing of woody vegetation would be maintained as part of maintenance during drainfield operation for the life of the project. The permanent loss of tree cover would increase the rate and force of rainfall hitting the ground, which would increase runoff rates and the potential for erosion. However, the stumps of cut trees would not be removed from the site, which would help maintain a more heterogeneous surface and decrease runoff rates. The site would also be planted with perennial grasses to protect against erosion on site and also protect offsite resources against erosion and sedimentation.

The permanent loss of 6.97 acres of dense second-growth upland forest is not significant given that there are many thousands of acres of this forest type in the coast range of Oregon. Section 3.5 (*Fish and Wildlife*) describes the potential effects of habitat loss on fish and wildlife species.

Effluent Pipeline Installation

The majority of the effluent pipeline is designed to be constructed within sites that are already disturbed, such as the unimproved logging road and Cape Lookout Campground. The effluent pipeline in the unimproved logging road would be installed by digging a 12-inch-wide by 38-inch-deep trench, laying the 4-inch high density polyethylene (HDPE) pipe, reburying the pipe, and then compacting and grading the road to a ¼-inch per foot slope from the road centerline to facilitate runoff to drainage ditches along both sides of road. The length of trenching is estimated to be 1,420 feet long. The installation of the effluent pipeline within the unimproved logging road would occur within the existing road prism (approximately 0.065 acres; Table 3.4-2), resulting in no ground disturbance outside of the road prism. BMPs for the prevention of erosion and sedimentation will be implemented during construction and operation to prevent the degradation of adjacent undisturbed upland and wetland habitats.

The effluent pipeline within the campground and the upland forest habitat between the unimproved logging road and Campground Loop C would be installed underground via directional drilling. The ground disturbance associated with directional drilling is associated with the drill rig set-up sites, bore pit excavations, and excavations of tie-in pits required to connect the loose ends of the installed pipeline sections. The exact location of ground-disturbing activities is not precisely known and is subject to contractor requirements. However, the disturbance area is estimated to be approximately 0.01 acres on asphalt campground surfaces and approximately 0.01 acres within undisturbed upland forest habitat between the unimproved logging road and Campground Loop C (Table 3.4-2). Best management practices for the prevention of erosion and sedimentation will be implemented during construction and operation to prevent the degradation of adjacent undisturbed upland and wetland habitats.

The ground disturbance and project effects on the unimproved logging road, asphalt campground surfaces, and upland forest areas are anticipated to be minimal, primarily because of the use of directional drilling to install the pipeline; in addition, the ground disturbance is temporary, and disturbed surfaces will be reclaimed back to the original grade and cover type.

Wetland Habitats

Drainfield Development

The installation of the drainfield was designed to avoid effects on nearby wetlands. Wetland 1 is a small, 0.006-acre isolated wetland that is a seasonally inundated, very sparsely vegetated depression surrounded by upland forest. Wetland 2 is located at the headwaters of Drainage 1 (Figure 3.3-1). Each of these wetlands is near the drainfield, and was avoided during project design.

Effluent Pipeline

The majority of the length of the effluent pipe would be bored under existing uplands, wetlands, and drainage features, allowing for avoidance of many potential effects. The installation of the effluent pipeline is anticipated to permanently affect an estimated 0.02 acres of emergent wetland associated with Wetland 6 and 45 square feet (0.001 acres) of the emergent portion of Wetland 4 (Table 3.4-2). Additionally, the construction of the pipeline would require crossing the OHWL of Drainage 3 where it serves as the drainage ditch for the Park Entrance Road; 52 square feet of Drainage 3 would be placed in a culvert to avoid sedimentation and other effects caused by repeated crossing. The types of ground-disturbing activities are the same as those described above under *Upland Habitats* for effluent pipeline installation using directional drilling under asphalt surfaces in the Cape Lookout Campground.

The effect on these emergent wetland habitats is anticipated to be small because the project footprint stays within the most disturbed wetland areas, and temporary and permanent effects total less than 1,500 square feet. Temporary ground disturbance associated with the installation of the effluent pipeline would be minor, associated with bore pits and equipment siting to accommodate the underground directional drilling activity. The lift station was sited on disturbed and heavily used emergent wetlands located on campsite pads constructed of native, sand-fill substrates that support predominantly non-native, herbaceous species commonly found in mesic disturbed habitats in the Pacific Northwest. The emergent vegetation is mowed and maintained by the park staff as lawn at some campsites and trampled by campers to bare sand at other campsites. These wetlands essentially have little wetland function and have little to no value to wildlife.

Lift Station Development

The construction of the lift station would be entirely within the emergent wetland or lawn portions of Wetland 6. An above grade control cabinet is planned for the new lift station site and would result in 850 square feet (0.02 acres) of permanent wetland loss (Table 3.4-2). However, this permanent effect would be offset by the removal of the existing current pump station, which is of similar size. Removal of the old pump station and construction of the new lift station would also require temporary ground disturbance for staging areas, construction access areas, and workspace around the site for the new lift station; the amount of temporary effects in the emergent wetlands is anticipated to be no more than 0.1 acres. The effects on the emergent wetland portions of Wetland 6 are

anticipated to be insignificant for the same reasons described above related to installation of the effluent pipeline.

The lift station development is proposed in Wetland 6, which supports higher quality, more intact scrub-shrub and forested wetland vegetation in adjacent areas. The potential for direct and indirect effects on these relatively high functioning wetland habitats would be avoided by restricting ground disturbance to the previously disturbed, maintained lawn surfaces and by implementing erosion and pollution control measures meeting or exceeding state and federal specifications to ensure that no contaminated runoff enters the adjacent intact scrub-shrub and forested habitats.

Mitigation Measures

Compensatory measures will be required to offset permanent losses within Wetlands 4 and 6. Mitigation may also be required for Drainage 3 to offset potential lost function that may occur as a result of putting a portion of this drainage in a culvert. The development of these wet habitats as part of the drainfield will require compliance with ODSL/Corps permit conditions and consultation with these and other pertinent state and federal regulatory agencies to develop compensatory measures to mitigate the loss of these wetland habitats.

Significant and Unavoidable Effects

Unavoidable effects include the development of the lift station in the disturbed emergent wetland; however, because of the size of the project and low function of the wetland, effects would be small. There are no significant and unavoidable adverse effects on vegetation or wetlands from the proposed project. Minor short- and long-term effects on wetlands will be compensated through mitigation jointly developed by the Corps, ODSL, and OPRD.

3.5 FISH AND WILDLIFE

The following narrative describes the fish and wildlife resources of the project area and the effects of the No Action and Proposed Action alternatives.

3.5.1 AFFECTED ENVIRONMENT

Mesic coastal coniferous forests are the dominant habitat within the project area, with the forest structure just beginning to show signs of mid-seral complexity. Coniferous trees include Sitka spruce, western red cedar, and western hemlock, while deciduous trees are dominated by red alder, although some willow (*Salix* spp.) and minor occurrences of other species are present. Canopy closure is dense, with little light penetration to the forest floor except for small gaps, which are often associated with wetlands and sometimes shrubby vegetation thickets. Several small wetlands occur in the project area, associated with drainage depressions near the proposed drainfield area that conduct water to an unnamed headwater stream system. These elements are described in more detail in Section 3.4 (*Vegetation and Wetlands*), and addressed in more detail in the Cape Lookout State Park Drainfield Relocation Project wetland delineation report (EDAW 2009a).

3.5.1.1 General Wildlife Species and Habitat

Wildlife encountered in the project area (during field visits in July and December of 2008) are summarized in Table 3.5-1, and species are described below according to their taxonomic class.

Amphibians

Amphibian species encountered in the project area include the northern red-legged frog (*Rana aurora aurora*) and western rough-skinned newt (*Taricha granulosa*). Both of these species are common in coastal Oregon forests. Western rough-skinned newts use winter and spring flooded pools and wetlands as breeding sites, and this species migrates annually between uplands and breeding pools, making them especially vulnerable to habitat loss and fragmentation (Richter and Azous 2001). A single female northern red-legged frog was observed in the same area on multiple visits. Available habitat within the project area is typical overwintering, foraging, and summer refugia habitat for red-legged frogs, although it is unclear if breeding is occurring. Riparian wetlands adjacent to Jackson Creek may be suitable breeding habitat for this species (based on Jones, Leonard & Olsen 2005). Columbia torrent salamanders (*Rhyacotriton kezeri*) were discovered in a small unnamed stream approximately 300 feet northwest of the proposed drainfield clearing limits, outside of the project area. The availability of appropriate habitat suggests they could be within the project area as well; however, they were not found in the project area when specifically searched for.

Northern red-legged frogs are a federal species of concern, as listed in Table 3.5-2.

Mammals

Mammal species likely to occur in the project vicinity are typical of second-growth lowland coniferous forest. No threatened or endangered mammals were encountered. Cape Lookout State Park staff have reported regular sightings of black bear in the drainfield relocation area, likely using the forested portion of the park as a travel corridor. Elk trails are diffuse and common throughout the project area, and are not particularly linked to the riparian areas, suggesting that the main use of the project area is as a travel corridor.

Table 3.5-1. Wildlife Species Encountered in the Cape Lookout Project Area.

Common Name/Scientific Name	Habitat Associations	Encounter
Amphibians		
Northern red-legged frog <i>Rana aurora aurora</i>	Wetlands, stream edges, forests & meadows	Sight, capture
Western rough-skinned newt <i>Taricha granulosa</i>	Ponds, mesic forests	Sight, capture
Columbia torrent salamander <i>Rhyacotriton kezeri</i>	Headwater streams, seeps	Sight, capture
Mammals		
Elk <i>Cervus elaphus</i>	Mid-late seral forests, woodlands	Scat, tracks
Black-tailed deer <i>Odocoileus hemionus</i>	Widely adaptable, forests	Scat, tracks
Raccoon <i>Procyon lotor</i>	Riparian areas	Tracks
Bobcat <i>Lynx rufus</i>	Forests & mountains	Tracks
Birds		
Fox sparrow <i>Passerella iliaca</i>	Coniferous forest	Sight
Varied thrush <i>Ixoreus naevius</i>	Forest edges	Sight, call
Swainson's thrush <i>Catharus ustulatus</i>	Forest edges	Call
Cedar waxwing <i>Bombycilla cedrorum</i>	Upper canopy coniferous forest	Sight, call
Gulls <i>Larus spp.</i>	Shorelines, forests, disturbed sites	Sight, call
Winter wren <i>Troglodytes troglodytes</i>	Mesic forests, small streams	Sight, song
Bewick's wren <i>Thryomanes bewickii</i>	Forest edges	Song
Black-capped chickadee <i>Poecile atricapilla</i>	Forests	Sight, call
Bushtit <i>Psaltriparus minimus</i>	Forests	Sight, call
Song sparrow <i>Melospiza melodia</i>	Meadows, shrub-scrub	Sight, song
White-crowned sparrow <i>Zonotrichia leucophrys</i>	Forests, meadows, cow pastures	Sight, song
Dark-eyed junco <i>Junco hyemalis</i>	Forest edges	Sight, song
Red-breasted nuthatch <i>Sitta canadensis</i>	Mid- late seral forests	Sight
Raven <i>Corvus corax</i>	Wildlands	Sight, call
Pacific slope flycatcher <i>Empidonax difficilis</i>	Mesic forests	Call
Fish		
Coastal cutthroat trout (Oregon Coast ESU) <i>Oncorhynchus clarkii</i>	Small streams	Sight- small unnamed creek
Sculpin <i>Cottus sp.</i>	Small streams, headwater streams	Sight- small unnamed creek

ESU = evolutionarily significant unit.

Elk are managed by ODFW as a game species, although there are no state or federal regulatory requirements for elk habitat applicable to this site (pers. comm., Schleier, 2008).

No sensitive or special status mammals were encountered during the July and December 2008 site visits; however, sensitive mammals likely to occur in the vicinity of the project area include six bat species. Bats are sensitive to most disturbance (Csuti et al. 2001), and tree removal effectively removes important roosting habitat. Suitable habitat within the project area includes those trees with a diameter at breast height (dbh) greater than 20 inches, and trees with large crevices, folds, and cavities in the bark or trunk where bats can find shelter (Humes et al. 1999). Feeding and dispersal habitat occurs along riparian corridors and over open water. Multiple species of bats are likely present in the project area; however, they are unconfirmed and not documented in the project area specifically. Sensitive bat species potentially in the project vicinity are listed in Table 3.5-2.

Birds

Birds encountered in the project area were typical of second-growth forests near the Oregon coast. Fox sparrows (*Passerella iliaca*) are very common wintering in the campground, and appear to especially use the space under the yurts for shelter and refuge from potential predators. Calls and songs were noted during field visits in both summer and winter.

Bald eagles (*Haliaeetus leucocephalus*) are known to nest on the cape, more than 1,000 feet south of the project area. Peregrine falcons (*Falco peregrinus*) nest on south-facing cliffs in the vicinity; however, known locations of these animals are far outside of the project area (pers. comm., Schleier, 2008). Sensitive passerines include three species associated with mesic conifer forests: olive sided flycatcher (*Contopus cooperi*), mountain quail (*Oreortyx pictus*), and band-tailed pigeon (*Patagioenas fasciata*). Each of these three species has a different life history; however, in general, the breeding season is typically from mid-March to mid-July. Shrubby vegetation near riparian corridors in the project vicinity may provide nesting habitat for olive-sided flycatchers and mountain quail (Altman and Sallabanks 2000; Gutierrez and Delahanty 1999). Conifer forests in proximity to tide lands or mineral springs provide excellent band-tailed pigeon habitat (Sanders 1999). The Migratory Bird Treaty Act protects each of these species.

Fish

Salmonids present in Jackson Creek include coho salmon (*Oncorhynchus kisutch*), winter steelhead, coastal cutthroat trout (*O. clarkii*), and chum salmon (*O. keta*). Salmon spawning habitat (as designated by ODFW) in Jackson Creek is 100 feet from the drainfield clearing limits at the nearest point, as shown in Figure 3.5-1. An unnamed stream begins immediately north of Wetland 2, just outside of the proposed drainfield boundary, and contains habitat appropriate for fish, shown in Photo 3.5-1. The unnamed stream is fish passable, and cutthroat trout and sculpin were both found east of the unimproved logging road during the July 2008 site visit, very high in the system. Fish were not found west of the unimproved logging road. However, cutthroat trout and sculpin, and possibly coho salmon, could occupy the stream on both sides of the unimproved logging road, due to the accessibility of the west side of the stream through an 18-inch concrete culvert that is similar to the other culverts that connect this system to Netarts Bay.

Figure 3.5-1 Salmonid Habitat in Jackson Creek

Cape Lookout State Park
Drainfield Relocation Project
Environmental Assessment

Legend

-  Spawning and Rearing Habitat
Oncorhynchus mykiss (Winter)
Oncorhynchus kisutch
Oncorhynchus keta
Oncorhynchus clarkii
Lampetra ayersii
Lampetra tridentata
Cottid spp.
-  Unnamed Creek- Fish Accessible
-  Wetlands and other surface waters
-  Proposed Effluent Pipeline
-  Casing BorePit & Vault
-  Roads
-  General Project Area
-  Cape Lookout State Park Boundary
-  Campground Hard Surface Features



Table 3.5-2. Sensitive wildlife species that potentially occur in the project vicinity.

Common Name (Scientific Name)	Federal Status	Oregon Status	Habitat Association	Presence Documented	Habitat Use
Amphibians					
Northern red-legged frog (<i>Rana aurora aurora</i>)	SOC	SU	Forested streams	Observed on site	Foraging, Dispersal
Columbia torrent salamander (<i>Rhyacotriton kezeri</i>)	None	SC	Cold headwater streams	Observed on site	Breeding, resident
Mammals					
Townsend’s big-eared bat (<i>Corynorhinus townsendii</i>)	SOC	SC	Conifer forest	Unconfirmed	Foraging, Dispersal, Roosting
Silver-haired bat (<i>Lasionycteris noctivagans</i>)	SOC	SU	Conifer forest	Unconfirmed	Foraging, Dispersal, Roosting
Fringed myotis (<i>Myotis thysanodes</i>)	SOC	SV	Meadows, Lowlands	Unconfirmed	Foraging, Dispersal, Roosting
Long-legged myotis (<i>Myotis volans</i>)	SOC	SU	Conifer forest	Unconfirmed	Foraging, Dispersal, Roosting
Long-eared myotis (<i>Myotis evotis</i>)	SOC	SU	Conifer forest	Unconfirmed	Foraging, Dispersal, Roosting
Yuma myotis bat (<i>Myotis yumanensis</i>)	SOC	None	Riparian forest	Unconfirmed	Foraging, Dispersal, Roosting
Birds					
Olive-sided flycatcher (<i>Contopus cooperi</i>)	SOC	SV	Conifer forest	Unconfirmed	Foraging, Dispersal, Nesting
Mountain quail (<i>Oreortyx pictus</i>)	SOC	SU	Mixed forest	Unconfirmed	Foraging, Dispersal, nesting
Band-tailed pigeon (<i>Patagioenas fasciata</i>)	SOC	SU	Conifer forest	Unconfirmed	Foraging, Dispersal, nesting

SOC = Federal species of concern; SC = Sensitive critical; SV = Sensitive vulnerable; SU = Sensitive undetermined.
Sources: USFWS 2008a, 2008c; ONHIC 2007.



Photo 3.5.1 Fish-accessible unnamed creek, flowing from Wetland 2.

Coho salmon are a threatened species under the federal endangered species act, and are addressed further in Section 3.6 (*Threatened and Endangered Species*). Steelhead and cutthroat trout require clean gravel and prefer cool water temperatures for spawning and incubation (Chilcote 1997; Rosenfeld 2003). Chum salmon spawn in the fall, sometimes in huge numbers, contributing a significant cache of ocean-derived minerals and elements to coastal forests (Helfield and Naiman 2001). Spawning adult salmon require lower gradient gravel-bottomed streams, although cutthroat trout are known to spawn in steeper gradients and lower flow areas than other salmon species. Sculpin were also observed in the small unnamed creek, and are likely to be present in Jackson creek as well. Sculpin species are ubiquitous in small coastal streams and may be adaptable to a variety of substrates and flow regimes (Froese and Pauly 2008). Table 3.5-3 lists fish species that occur in the project area. Adult Pacific and river lamprey (*Lampetra tridentata*, *L. ayresi*) use similar gravel and sand spawning habitats as anadromous salmon, preferring lower gradient areas, and juveniles burrow into the streambed for 4-6 years until maturity when they migrate to sea (Scott and Crossman 1973). In addition to adult habitats, juvenile lamprey use a variety of slow water habitats that are also present in the project vicinity.

Table 3.5-3. Resident and Anadromous Fish Species Documented in or likely to be using Jackson Creek.

Common Name (<i>Scientific Name</i>)	Federal Status	OR Status	Habitat Association	Presence Documented	Habitat Use
Winter steelhead trout (<i>Oncorhynchus mykiss</i>) Oregon Coast ESU	SOC	SV	Cold Fast moving gravel bottom streams	Yes	Migration, Rearing, Spawning
Coastal cutthroat trout (<i>Oncorhynchus clarki</i>)	SOC	SV	Small ocean-connected streams	Yes	Migration, Rearing, Spawning
Chum salmon (<i>Oncorhynchus keta</i>)	Not Listed	Not Listed	Cold gentle sloped streams	Yes	Migration, Rearing, Spawning
Pacific lamprey (<i>Lampetra tridentata</i>)	SOC	SV	Ocean-connected streams	Unconfirmed	Migration, Rearing, Spawning
River lamprey (<i>Lampetra ayresi</i>)	SOC	Not listed	Small gravel and sediment bottomed streams	Unconfirmed	Migration, Rearing, Spawning
Sculpin (<i>Cottid</i> spp.)	Not Listed	Not Listed	Small streams	Observed	Migration, Rearing, Spawning

SOC = Federal status species of concern; SV = Sensitive/Vulnerable; ESU = evolutionarily significant unit.

Sources: StreamNet 2003a, 2003b

3.5.1.2 Regulatory Environment

Applicable federal and Oregon state regulations regarding fish and wildlife and their habitat in the project area are described below.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) prohibits persons, except as permitted by regulations, “to pursue, take, or kill...any migratory bird, or any part, nest or egg of any such bird, included in the terms of conventions” with certain other countries (16 U.S. Code [USC] 703). Direct and indirect acts are prohibited under this definition, although harassment and habitat modification are not included unless they result in the direct loss of birds, nests, or eggs. The current list of species protected by the MBTA includes several hundred species and essentially includes all native birds, including many commonly found in coastal Oregon forested habitats.

Oregon Endangered Species Act and State Sensitive Species

The Oregon Endangered Species Act lists 36 fish and wildlife species, and directs state agencies “to develop programs for the management and protection of endangered species on state lands” (OAR 635-100-0100 to 0130). No state-listed endangered species occur within the project area; however, several sensitive species do occur. The state sensitive species classification is a “non-regulatory tool that helps focus wildlife management and research activities, with the goal of preventing species from declining to the point of qualifying as ‘threatened’ or ‘endangered’” (OAR 635-100-040).

Local Regulations

No local regulations exist for fish, wildlife, or their habitat found within the project area.

3.5.2 THRESHOLD OF SIGNIFICANCE

The No Action Alternative and the Proposed Action were determined to result in a significant effect on fish or wildlife if they would:

- Interfere substantially with the movement of any native resident or migratory fish, bird, amphibian, or mammal species;
- Conflict with any local policies or ordinances protecting fish, wildlife, or habitat;
- Conflict with the provisions of an approved local, regional, or state habitat conservation plan; or
- Result in the long-term degradation of streams in the vicinity of the project.

3.5.3 ENVIRONMENTAL CONSEQUENCES

Potential effects of the No Action Alternative and the Proposed Action on fish and wildlife within the project affected area are described below. Mitigation measures to offset any identified effects are also provided, as applicable.

3.5.3.1 Alternative A: No Action

Under the No Action Alternative, no drainfield construction or related activities would take place. Forested habitats and surface water features in the vicinity of the project would remain unaltered. Thus, there would be no project-related effects on fish and wildlife resources.

3.5.3.2 Alternative B: Proposed Action

Fish and wildlife habitat is mainly affected by 6.97 acres of forest removal to accommodate the drainfield; however, minor effects are also present associated with the construction of the lift station and effluent pipeline. Effects associated with the installation of the effluent pipeline include the disturbance of approximately 2,840 square feet of soils and vegetation along the unimproved logging road, the loss of 45 square feet of Wetland 4, and the placement of 52 square feet (26 linear feet) of Drainage 3 in a culvert to allow truck access to the unimproved logging road. Although no fish are documented in this drainage, because it connects to Jackson Marsh and ultimately to Netarts Bay, the potential for fish presence cannot be ruled out. All construction would take place during the dry season, when Drainage 3 is not flowing, ensuring that fish would not be present during construction. BMPs would be employed to prevent run-off and sedimentation to the drainage caused by

construction activities, which would primarily consist of equipment and vehicle passage at Drainage 3.

The majority of the length of the effluent pipe would be bored under existing wildlife habitat and surface water features, causing minimal disturbance during installation; much of the habitat effects are due to necessary bore pit holes that allow for use of the drilling technique proposed. West of the park entrance road, placement of the effluent pipe is proposed under pre-existing roads and developed areas to minimize disturbance to surface water and features important to wildlife. The lift station would be placed in an area of current heavy human use, in a maintained lawn with little habitat value.

The effluent pipe would be bored under the park entrance road and under the culvert containing Jackson Creek, avoiding long-term effects associated with soils and vegetation disturbance. Increased noise, heavy equipment, and human presence may affect the behavior of fish and wildlife in the area during construction. Fish and wildlife will likely avoid construction areas during the day. Night-time breaks in work may allow some species to move through the area while avoiding contact with humans. The ODFW in-water work period is from November 1 through February 15, and is inclusive of the winter steelhead and coho salmon spawning seasons. Noise may affect fish use of the culvert containing Jackson Creek while work is ongoing. ODSL, in consultation with ODFW, has issued a permit for this project on January 29, 2009 (ODSL 2009).

South of the park entrance road in the drainfield area, 6.97 acres of second-growth forest habitat would be removed, replaced with a maintained lawn. The loss of this forested habitat would have a direct and corresponding effect on the area to support wildlife. Loss of forest habitat would affect canopy-nesting songbirds, bats that may be roosting in trees, and forest ground-dwelling small mammals. These effects are expected to be minor and insignificant in the context of available forested habitat in the area, although the general wildlife habitat of the park would be reduced. The new septic field would be vegetated and maintained in grass after construction is complete, providing little habitat for forest species.

Construction of the drainfield would be completed during the dry time of the year so that the effects of runoff and sedimentation would be minimized. The small unnamed stream system adjacent to the clearing limits would be at higher risk of receiving sediments and run-off during the construction period, potentially affecting the habitat quality of the stream for fish. With the implementation of BMPs to control erosion and run-off during construction, effects on surface water features and aquatic habitat would be minor. The loss of forested habitat would influence sediment and woody debris inputs to the wetland and stream system, and may have minor effects on fish habitat in this creek.

Erosion and run-off during construction would not directly affect Jackson Creek, due to the distance from the construction area and through the use of standard BMPS to control run-off and erosion.

Effluent from the drainfield would increase water, nitrogen, bacterial loads, and sediment inputs to the soils in the drainfield area, changing their nutrient profile. The potential exists for treated products of the effluent to seep into Wetland 2, downslope of the drainfield. Recommendations for drainfield placement in rural or "naturalistic" settings are a minimum of 75 to 100 feet for wildlife

functions (Corlett and Phillips 2008). The optimal distance from a stream corridor for fish and wildlife was recommended at 300 feet in all settings, regardless of soils (Corlett and Phillips 2008). The drainfield clearing limits are 100 feet from Jackson Creek, exceeding the recommended distances, but not reaching the optimal distance.

Mitigation Measures

No mitigation measures are recommended for fish and wildlife, or their habitat.

Significant and Unavoidable Effects

There are no significant and unavoidable effects on fish and wildlife resources from the proposed project.

3.6 THREATENED AND ENDANGERED SPECIES

The following narrative describes the occurrence of federally listed threatened or endangered species in the project area, and the effects of the two alternatives on these species.

3.6.1 AFFECTED ENVIRONMENT

Threatened and endangered species that potentially occur in the project vicinity were determined from lists obtained from the U.S. Fish and Wildlife Service (USFWS) website (USFWS 2008a and 2008b, updated December 29, 2008) for Tillamook county, Oregon; and the National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NOAA Fisheries) (NOAA Fisheries 2008) website (updated February 26, 2008) for federal listing status of species and critical habitats. ODFW and OPRD staff were also contacted to determine known locations of fish and wildlife or habitat features (pers. comm., Schleier 2008).

Jackson Creek provides habitat for threatened Oregon coast coho salmon (*Oncorhynchus kisutch*) (73 Federal Register [FR] 7816), the only federally listed species documented to occur within the project area. The small unnamed creek system, including Drainage 1 and Drainage 3, near the proposed drainfield is not spawning habitat, although it is possible that it is accessible by juvenile coho salmon at high flows through a series of fish-passable small culverts that connect the system with Netarts Bay. These drainages both contain higher sediment loads than is preferred by coho salmon, and Drainage 3 functions as a road-side ditch for the Park Entrance Road, significantly reducing its habitat suitability. Drainage 1 is perennial where it crosses the unimproved logging road, although it is seasonally dry at its mouth, where it meets Wetland 2. Drainage 3 is seasonally dry within the wetland study area, with flows less than 2 inches deep in May 2009, and no greater than 6 inches deep and 20 inches wide in January 2008 during high flow.

Geographic information system (GIS) data from the ODFW indicate that coho salmon spawning habitat occurs on Jackson Creek both east and west of Whiskey Creek Road (Figure 3.6-1) (StreamNet 2003a; pers. comm., Schleier, 2008).

Jackson Creek crosses under Whiskey Creek Road via a box culvert containing a 12-foot wide low gradient fish ladder, shown in Photo 3.6-1.



Photo 3.6-1. Box culvert with fish ladder under Whiskey Creek Road (July low-flow).



Figure 3.6-1 Coho Salmon distribution and habitat

Cape Lookout State Park
Drainfield Relocation Project
Environmental Assessment

Legend

- General Project Area
- Cape Lookout State Park Boundary
- Campground Hard Surface Features
- Proposed Effluent Pipeline
- Roads
- Jackson Creek
- Coho Migration
- Coho Spawning
- Unnamed Creek-Fish Accessible



Clean gravel and cool water temperatures are necessary for coho salmon spawning and incubation, and redds are laid mid-winter when flow is high and water temperatures are very cool (Froese and Pauly 2008). Coho spawning within the park occurs between the park entrance road and Whiskey Creek Road (StreamNet 2003a). The proposed clearing limits for the drainfield are 100 feet from Jackson Creek coho salmon spawning habitat at their nearest point. Mapped spawning habitat is shown in Photo 3.6-2. Downstream of the park entrance road, Jackson Creek is categorized by ODFW as migratory habitat.

Table 3.6-1. Threatened Species in the Project Area.

Common Name (Scientific Name)	Federal Status	OR Status	Habitat Association	Presence Documented	Habitat Use
Coho salmon (<i>Oncorhynchus kisutch</i>) Oregon Coast ESU	T	None	Cold, clean gravel bottomed streams	Jackson Creek	Migration, Rearing, Spawning

T=Federally Threatened; ESU = evolutionarily significant unit.
Sources: StreamNet 2003a.



Photo 3.6-2. Coho salmon spawning habitat, near proposed drainfield (July low-flow).

3.6.1.1 Regulatory Environment

Federal Endangered Species Act of 1973

The Endangered Species Act (ESA) serves as the primary federal protection for species and habitat, by providing a formal designation and implementing programs through which conservation of both populations and habitats may be achieved. Two agencies are responsible for the administration of the ESA: the USFWS and NOAA Fisheries. The USFWS manages terrestrial and freshwater associated species, while NOAA Fisheries manages oceanic and anadromous species, including anadromous coho salmon. Endangered species are defined by the ESA as those species in danger of extinction “throughout all or a portion of their range.” Threatened species are defined as those species “which

may become endangered species within the foreseeable future.” As noted above, Oregon coast coho salmon are the only federally listed species that occur in the project area, listed as Threatened.

Critical habitat has been designated for the Oregon Coast Evolutionarily Significant Unit (ESU), and includes essentially all coho accessible habitat along the Oregon coast. Habitat conservation planning is currently underway; however, a habitat conservation plan document is not yet available for Oregon coast coho salmon.

3.6.2 THRESHOLD OF SIGNIFICANCE

The No Action Alternative and the Proposed Action were determined to result in a significant effect on threatened or endangered species if they would:

- Have a significant adverse effect, either directly or through habitat modifications, on species listed by USFWS or NOAA as threatened or endangered;
- Conflict with the provisions of an adopted habitat conservation plan or other approved federal or state habitat conservation plan, to the extent applicable; or
- Substantially degrade the quality of the environment, substantially reduce the habitat of a listed fish and wildlife species, threaten to eliminate a plant community, reduce the number or restrict the range of an endangered or threatened species.

3.6.3 ENVIRONMENTAL CONSEQUENCES

Potential effects of the No Action Alternative and the Proposed Action on Threatened coho salmon within the project area are described below. Mitigation measures to offset any identified effects are also provided, as applicable.

3.6.3.1 Alternative A: No Action

Under the No Action Alternative, no drainfield construction or related activities would take place. Forested habitats and surface water features in the vicinity of the project would remain unaltered. Thus, there would be no project-related effects on coho salmon or their habitat.

3.6.3.2 Alternative B: Proposed Action

Environmental Effects

The Proposed Action would remove forested habitat in the proposed drainfield area, and require the force-main pipe construction activities to cross Jackson Creek at the park entrance road. Additionally, a portion of Drainage 3 would be placed in a culvert, where it crosses the unimproved logging road.

During construction, noise, the presence of heavy equipment, and increased human activity both on the park entrance road and in the drainfield area may affect fish movement patterns, causing them to seek hiding or avoid the construction area. This may prevent fish movement between migration habitat and spawning habitat. The ODFW in-water work window of November 1 through February

15 coincides (ODSL 2009) with the coho salmon spawning season; however, there will be no in-water work (the crossing will be drilled beneath Jackson Creek). Construction near Jackson Creek will take place over 2 days and will adhere to ODFW guidelines. Directional drilling techniques would avoid direct disturbance to surface waters, vegetation, and soils. The ODSL in-water work permit allows for less than 2 cubic yards of soil disturbance within “essential indigenous anadromous salmon habitat” (OAR 141-089-0500 – OAR 141-089-0530). Construction work related to drilling beneath Jackson Creek should be completed within 2 days, thus limiting the potential for noise disturbance. No soil or other material would be allowed to enter the creek. Construction effects would be limited to daylight hours, and the number of working days to drill under Jackson Creek would be minimized to the greatest extent practicable.

Although coho presence is not documented in Drainage 3, and it does not meet the preferred habitat criteria for coho salmon at this location, it may be possible during winter high flows for juvenile coho to pass into this drainage (pers. comm. Knutsen 2009). The criteria stated above for work done near Jackson Creek would apply as well to work near Drainage 3. The culvert would be no more constricting than the current bed and bank, and although some effects are possible because of the placement of the culvert, these effects are anticipated to be minor, with little if any effect on any potential fish activity in Drainage 3. Compensatory mitigation will be required through ODSL and the Corps permitting process for any lost function because of the culvert. ODFW and ODSL issued a “General Authorization for Minimal Disturbance Activities (Less Than Two Cubic Yards) within Essential Indigenous Anadromous Salmonid Habitat” permit for this project on January 29, 2009 (ODSL 2009).

Drainfield construction would remove trees, potentially affecting soils and water infiltration during storm events. The loss of forest cover within 300 feet of Jackson Creek may permanently increase overland run-off to the stream during storm events, due to a decrease in water uptake by vegetation (Jones 2000). Increased variability in hydrology to Drainage 1 would affect streamflow and fish habitat downstream of the drainfield. These effects correlate to the loss of 6.97 acres of forest vegetation. These effects, while present, are expected to be minor.

ESA Determination

The project crosses Jackson Creek at the same location as the pre-existing park entrance road, and directional drilling would be used to place the pipeline under the creek, beneath the existing culvert. Temporary noise effects, expected to last 2-3 days, are the only anticipated project effects on coho salmon or their habitat. Noise effects are expected to be minor and strictly associated with drill rig- and drilling noise. Because of the temporary and minor nature of the potential effects, the ESA determination for coho salmon for this project is “may affect, not likely to adversely affect.”

Essential Fish Habitat (EFH) Determination

Jackson Creek, Drainage 3, and Drainage 1 are accessible to anadromous fish, and therefore considered EFH (67 FR 2343). Through use of BMPs and development of in-kind wetland mitigation included in the proposed project, only minor effects on EFH due to changes in hydrology are anticipated.

Mitigation Measures

No mitigation measures are recommended for coho salmon.

Significant and Unavoidable Effects

There would be no significant and unavoidable effects on coho salmon from the proposed project.

3.7 RECREATION

This section describes existing recreational resources at and in the vicinity of Cape Lookout State Park. It also addresses the potential effects of the project alternatives on existing recreation opportunities in the project area.

3.7.1 AFFECTED ENVIRONMENT

3.7.1.1 Recreation Opportunities in the State Park

Cape Lookout State Park is a popular regional destination, attracting 160,000 day visitors and 107,000 campers in 2007 (pers. comm., Wilson, July 9, 2008). The park and campground are open throughout the year but are more heavily visited during summer months.

The majority of the park's developed recreation facilities are located at the campground. The campground itself is the largest recreational element, consisting of 233 campsites:

- 38 RV sites with sewer, water, and electrical hook-ups
- 1 RV site with electrical hookups and water
- 175 tent sites
- 2 group campsites
- 1 hiker/biker camp
- 13 yurts
- 3 cabins with plumbing and electrical service

Other facilities at the campground include shower and restroom facilities; a meeting hall and outdoor program areas; day use picnicking areas, including a group picnic shelter; an RV dump station; and two trail loops (OPRD 2008).

In addition to camping, a variety of recreational activities take place at the park, such as picnicking, marine mammal (whale and seal) watching, bird-watching, fishing, beachcombing, and hiking (OPRD 2008). OPRD also holds special events at the park, including nature programs, historic programs, interpretive events, and tours.

Netarts Spit, which extends north from the campground for approximately 4.5 miles, is also a popular destination for dispersed recreation activities including hiking, beachcombing, and wildlife watching. A gated service road accessible to hikers runs north from the campground along the middle of the spit and passes along the western edge of the existing drainfield units, which lie approximately 200 feet north of the campground. Because of the bluffs adjacent to the beach, the existing drainfield sites are not visible from the beach.

The park's other recreational features consist of hiking trails and viewpoints located on Cape Lookout, approximately 1 mile south of the campground. The Cape is accessible on foot from the campground's day use parking lot via the 2.3-mile North Trail. Vehicular access to the Cape is also possible, with a small, paved parking lot located at the western end of Cape Lookout, adjacent to the North Trail's southern terminus.

Recreational activity currently occurring at the project site is very limited. The site is densely vegetated; vegetation extends for approximately 600 feet to the west, where day use parking, picnicking areas, and the park's three cabins are located. The nearest campsites are located approximately 850 feet northwest of the drainfield project site. The site is accessible on foot via an unimproved logging road, but due to the density of vegetation, dispersed recreational activities such as hiking at the site are thought to be infrequent (pers. comm., Marvin, 2008).

3.7.1.2 Other Recreational Activities in the Area

Additional recreation opportunities and facilities are located in the project vicinity, near the state park. The Three Capes Scenic Route runs on a 38-mile, signed route from Cape Meares, west of Tillamook, to Cape Lookout and then south to Cape Kiwanda. This route is part of the federal- and state-designated Pacific Coast Scenic Byway. In addition to being popular with motorists, the Pacific Coast Scenic Byway is identified as a bicycling route in ODOT literature (ODOT 1998).

The Oregon Coast Trail, a 362-mile long hiking trail, follows the shoulder of Whiskey Creek Road to Cape Lookout State Park and continues south along trails within the park (OPRD 2005).

Netarts Bay, located to the northeast of the campground, is a popular location for boating, fishing, crabbing, and other water-related recreational activities. However, wetlands occupy the southern 0.5 mile of the bay, limiting waterborne recreational activities in the immediate vicinity of the park.

Fishing, boating, and other water-related recreational activities also occur on adjacent portions of the Pacific Ocean. The park does not provide any boat launching or mooring facilities.

The Siuslaw National Forest is located approximately 1 mile to the southwest of the project site. The National Forest includes the Sand Lake Recreation Area, a popular off-highway vehicle (OHV) recreation area that contains three developed OHV campgrounds with a total of 190 campsites, as well as a day use OHV staging area (USFS 2008). The adjacent Sand Lake Estuary is a popular location for wildlife viewing and water-related activities. Dispersed recreational activities such as hiking and hunting also occur in portions of the National Forest that are managed for commercial harvesting.

3.7.2 THRESHOLD OF SIGNIFICANCE

Effects related to recreation are considered significant if the project:

- Would increase the use of existing recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or
- Would have a substantial direct or indirect effect on the quantity or quality of recreational activities in the vicinity.

3.7.3 ENVIRONMENTAL CONSEQUENCES

Potential effects of the No Action Alternative and the Proposed Action on recreation resources within the project area are discussed below. Mitigation measures to offset any identified effects are also provided, as applicable.

3.7.3.1 Alternative A: No Action

Under the No Action Alternative, it is possible that continued winter storm erosion could remove the remaining functioning cells of the park's septic system. This would affect OPRD's ability to provide camping opportunities and would require alternative wastewater treatment plans to accommodate day use and overnight visitors.

3.7.3.2 Alternative B: Proposed Action

The force-main pipeline route from the new lift station to the park entrance road crosses through or very near several campsites, RV spaces, and yurts. Construction would take place from September 1 through October 15, placing the construction window after the peak camping and tourist season. The maximum number of temporary closures is expected to be 37 tent campsites, 8 yurts, and 5 full-hookup RV sites. All other camping and recreational facilities would remain open during the construction activities. The total number of temporary closures is based on the closure of all facilities within 100 feet of the force-main pipeline; however, it is unlikely that all of these spaces would require closure over the entire length of the 45-day construction period. It is anticipated that camping, yurt, and RV spaces would be re-opened as soon as possible for reservations, once noise and construction activities is reduced to acceptable levels. All camping spaces would be available for use on October 16.

Ingress and egress to the park may be reduced to one lane on the park entrance road to accommodate construction activities while the force-main is placed under the road. This would likely require wait times at higher traffic times of day, both for park staff and park visitors. Construction in the vicinity of the park road is expected to take less than 1 week.

The project would result in a long-term benefit to park users by providing a reliable wastewater treatment system, ensuring that the campgrounds and recreational facilities are available for use at this popular park.

Mitigation Measures

No additional mitigation measures are recommended for recreational resources. Minor effects associated with campsite closures and access to the park via the park entrance road are temporary and would occur during the fall/winter (non-peak) season.

Significant and Unavoidable Effects

No significant or unavoidable effects on recreational resources would occur due to the proposed project.

3.8 VISUAL RESOURCES

This section describes regional, adjacent, and site-specific visual resources associated with the Cape Lookout State Park; visual quality regulations and guidelines; and potential effects of the project alternatives on the existing visual resources.

3.8.1 AFFECTED ENVIRONMENT

3.8.1.1 Existing Visual Character

Cape Lookout State Park is located on Oregon's Pacific coast, approximately 10 miles southwest of the city of Tillamook. Oregon's coastline is generally considered to be highly scenic, providing views of beaches and dunes, cliffs, headlands, and stacks (offshore rocks). The vicinity of the park can be characterized as having high scenic attractiveness because of a number of local features:

- Forested coastal uplands located immediately east of the park and extending west into the Pacific Ocean to form Cape Lookout.
- Netarts Spit, a 5-mile long vegetated sand spit that extends north from Cape Lookout.
- Netarts Bay and associated wetlands lying east of Netarts Spit.
- Three Arch Rocks National Wildlife Refuge, a group of stacks located approximately 7 miles northwest of the park campground.

The scenic attractiveness of the park vicinity is negatively affected by the harvesting of adjacent forest lands. Very few properties in the vicinity of the park show evidence of recent harvesting activity, but harvested areas that are visible are large and visually prominent.

The park's campground and day use areas, located at the southern end of Netarts Spit, can be divided into three distinct areas based on visual character: (1) beach, (2) campground, and (3) forest.

One of the park's primary attractions is a beach that extends north along Netarts Spit. While the beach is approximately 5 miles long, the majority of visitors remain on a 1-mile portion of the beach that is adjacent to the campground and day use areas. From the beach, views of the Ocean, Cape Lookout, and the adjacent hills are visible, but views to the campground and nearby inland areas are screened by a 10- to 25-foot tall sand dune. The shoreward side of the dune is vegetated, which also limits views from the campground to the west.

The campground and other developed state park facilities are located immediately inland of the beach, to the east of the sand dune. Vegetation in portions of the campground is not dense, and views of Cape Lookout and the adjacent hills are possible. Views of the beach and ocean from the campground are limited by the dunes. The campground and day use parking lot are large and affect the visual character of the park in areas where they are visible. However, views are generally screened by forested areas and the sand dune and therefore limited to the immediate vicinity of these features. One notable exception is the view from a viewpoint on Cape Lookout Road, located approximately 1/2 mile southwest of the day use parking lot. This viewpoint provides a view of Netarts Spit and the campground (Photo 3.8-1). Limited views of the campground from Cape

Lookout are also possible. These viewpoints are distant enough from the campground that adverse effects are not significant.

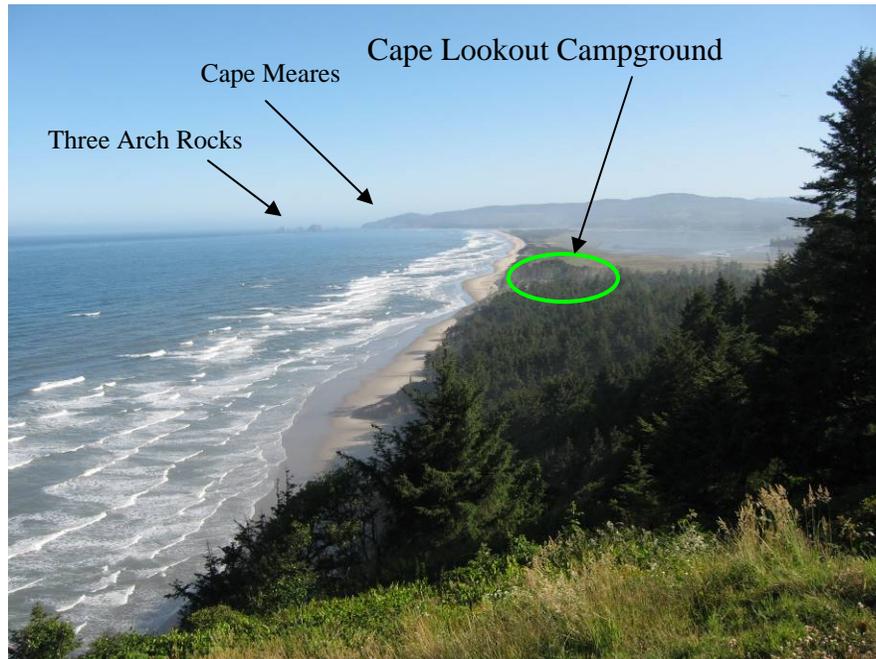


Photo 3.8-1. View from Cape Lookout Designated Viewpoint on Whiskey Creek Road, looking north (Proposed drainfield location is out of the field of view, to the east [right]).

Portions of the park located south and east of the campground and extending west to Cape Lookout Road are heavily vegetated, with forest consisting of Douglas-fir (*Pseudotsuga menziesii*), cedar, and hemlock and with a moderate to dense understory. The project site is located within this portion of the park. Views from roads and trails and from off-trail locations are very limited.

3.8.1.2 Viewers

Cape Lookout State Park is located in an area that is relatively distant from population centers or major transportation routes. The majority of potential viewers are visitors to the park or other nearby recreational facilities, such as Siuslaw National Forest, or travelers following the Three Capes Scenic Route. Such viewers are considered to be more sensitive than the average viewer to the visual quality of the environment, because of their expectations of scenic attractiveness.

A smaller percentage of viewers are park staff and occupants of rural residential dwellings located along Whiskey Creek Road, north of the park. Such viewers are also expected to be more sensitive than the average viewer to the visual quality of the environment, because of their expectations of scenic attractiveness, familiarity with the visual character of the area, and the duration of their viewing experience.

A third category of viewers would be other travelers on Cape Lookout Road or Whiskey Creek Road, including persons associated with local commercial forestry activities. These viewers are expected to have an average level of sensitivity to the visual quality of the environment.

3.8.1.3 Regulatory Environment

Tillamook County has officially recognized the outstanding visual qualities of both the park and adjacent lands. In the Tillamook County Comprehensive Plan (Goal 17), both Cape Lookout and undeveloped portions of Netarts Spit are identified as having “exceptional aesthetic or scenic qualities” (Tillamook County 1982). This is one characteristic applied by the county to identify areas where the Shoreland Overlay Zone is applied (Tillamook County 1999). Visual resources are protected by this zoning classification through limits on the type and scale of development permitted in designated areas. See Section 3.1 (*Land Use*) for additional information.

Tillamook County has designated Cape Lookout Road and Whiskey Creek Road as part of the Three Capes Scenic Route, which runs on a 38-mile, signed route from Cape Meares to Cape Kiwanda. The Federal Highway Administration (FHWA) and ODOT have also included these roads as part of the much longer Pacific Coast Scenic Byway. This byway was designated as an All-American Road in 2002 for its intrinsic natural and scenic qualities; to be so designated, a road must be considered to be "a destination unto itself" (FHWA 1995). A Corridor Management Plan for the Byway provides for the conservation and enhancement of the byway’s intrinsic qualities. Because the road is a county road in the project vicinity, Tillamook County is responsible for application of the Corridor Management Plan. However, the plan is largely a guidance document, and no enforcement mechanisms exist; the only recourse to poor management of the byway is removal of the Scenic Byway designation.

3.8.2 THRESHOLD OF SIGNIFICANCE

The No Action Alternative and the Proposed Action were determined to result in a significant effect on visual resources if they:

- Would exceed visual effects permitted by the Pacific Coast Scenic Byway Corridor Management Plan.

3.8.3 ENVIRONMENTAL CONSEQUENCES

Potential effects of the No Action Alternative and the Proposed Action on visual resources within the project area are described below. Mitigation measures to offset any identified effects are also provided, as applicable.

3.8.3.1 Alternative A: No Action

Under the No Action Alternative, no drainfield construction or related activities would take place. No effects on views or visual resources would occur.

3.8.3.2 Alternative B: Proposed Action

Environmental Effects

Views from Cape Lookout Road

The clearing limits of the proposed project drainfield lie approximately 152 feet west of Cape Lookout Road at the nearest point, which is the closest that most potential viewers would approach

to the project site. All other facilities would be installed underground or replace existing facilities, creating no visual changes to the landscape.

Although Cape Lookout Road is at a slightly higher elevation than the project site, vegetation between the road and the project site is uniformly dense and screens views of the project site. As Cape Lookout Road continues south, it gains elevation to the top of the headland. A viewpoint located approximately 0.4 miles southwest of the project site provides views of Netarts Spit and the campground, but views of the project site are screened by vegetation (see Photo 3.8-1).

Views from Internal Roads, Day Use Areas, Parking Lots, and Campgrounds

The proposed drainfield site lies approximately 700 feet east of the day use parking lot and approximately 750 feet southeast of the campground entry road. Because of the low topography of the site and the heavy vegetation coverage, the proposed drainfield site are not visible from roads, day use, parking, or camping areas within the park.

There would be some temporary disruption to the natural views from the campground from construction during the fall/winter season. Construction would not begin until September 1, when park use is lower than in the peak-use summer season. Visual effects from construction in the campground would be both temporary and minor.

Views from Beaches

The majority of the campground and park is not visible from the beach because of the height of the adjacent dunes and intervening vegetation.

Views from the Pacific Ocean

Because of the site's flat topography and heavy vegetation coverage, the proposed drainfield site (and most of the campground area) is not visible from the Pacific Ocean.

Mitigation Measures

No mitigation measures are recommended for visual resources.

Significant and Unavoidable Effects

No significant and unavoidable effects on visual resources would occur due to the proposed project.

3.9 ENVIRONMENTAL JUSTICE

3.9.1 AFFECTED ENVIRONMENT AND REGULATORY SETTING

Federal agencies are required, by Executive Order 12898 (Environmental Justice, 59 FR 7629 [1994]), to achieve environmental justice by addressing "disproportionately high and adverse human health and environmental effects on minority and low-income populations." Demographic information of a project area is examined to determine whether minority populations, low income populations, or Indian Tribes are present in the area affected by a proposed action. If so, a determination must be made as to whether the implementation or development of the proposed project may cause disproportionately high and adverse human health or environmental effects on these populations.

The Council on Environmental Quality (CEQ) defines "minority" to consist of the following groups: Black/African American, Asian, Native Hawaiian or Other Pacific Islander, American Indian or Alaskan Native, and Hispanic populations (CEQ 1997). Additionally, for the purposes of this analysis, "minority" also includes all other non-white racial categories within the U.S. Census Bureau's 2000 Census of Population and Housing such as "some other race" and "two or more races" (U.S. Census Bureau 2004).

For the purpose of evaluating environmental justice effects, the affected environment is defined as Tillamook County; statistics for Oregon state are also provided for comparison. Table 3.9-1 lists the race and ethnicity of Tillamook County and Oregon state residents, as reported by the 2000 U.S. Census of Population and Housing.

Table 3.9-1. Race/ethnicity in Tillamook County and Oregon State, 2000.

Race/Ethnicity	Tillamook County (Percent)	Oregon State (Percent)
White	93.9	86.6
Black	0.2	1.6
American Indian and Alaska Native	1.2	1.3
Asian	0.6	3.0
Pacific Islander and Native Hawaiian	0.2	0.2
Some other race	1.9	4.2
Two or more races	2.0	3.1
Hispanic or Latino (of any race)	5.1	8.0

Source: U.S. Census Bureau 2004.

The U.S. Census Bureau's 2005 poverty estimates were used to determine low-income populations, defined by the Census Bureau as those households with income at or below 80 percent of area median household income. Estimated median household income in Tillamook County in 2005 was \$37,926; for Oregon state as a whole, it was \$43,065 (U.S. Census Bureau 2008). Approximately 13.5 percent of the Tillamook County population lived below the poverty threshold, compared to 14.1 percent of the population of Oregon State as a whole.

3.9.2 THRESHOLD OF SIGNIFICANCE

EPA guidelines, published in *Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analysis* (EPA 1998), offer guidance for determining population thresholds of significance. According to these guidelines, a minority population refers to a minority

group that has a population of greater than 50 percent of the affected area's general population. Although not specifically stated in the text, the same rule is used for low-income populations; a low-income population exists if there is a community whose general population is comprised of 50 percent or more people living under the poverty threshold. Significant effects may exist on environmental justice if following criteria are met:

- The affected area includes a minority group that has a population of greater than 50 percent of the affected area's general population; or
- The affected area includes a population with 50 percent or more of its residents living under the poverty threshold; and
- The alternative would result in a “disproportionately high and adverse impact” on either or both of these populations.

3.9.3 ENVIRONMENTAL CONSEQUENCES

3.9.3.1 Alternative A: No Action

Under the No Action Alternative, no construction activities would take place, resulting in no change to economic or other opportunities in the project area.

3.9.3.2 Alternative B: Proposed Action

Data provided in Section 3.9.1 indicate that neither minority populations nor low-income populations constitute a significant proportion of the population within the affected environment. Therefore, disproportionate effects on minority or low-income populations, which would constitute environmental justice effects, would not be created, and thresholds of significance would not be exceeded.

Under Alternative B, the Proposed Action would provide equal-opportunity employment opportunities, as OPRD would contract for road construction services using their standard bid procedure. OPRD has adopted OAR 137-047-0000 through 137-047-0810 (effective January 1, 2008), with the exception of OAR 137-047-0270(4), the Department of Justice Model Rules, Public Procurements for Goods or Services General Provisions. OPRD publishes bidding opportunities on the internet through the Oregon Procurement Information Network, which is accessible to the general public. All subcontractors submitting bids are required to sign a contractor's certification of nondiscrimination in obtaining required subcontractors, in accordance with ORS 279A.110(4). This certification attests that the contractor has not discriminated against minority, women, or emerging small business enterprises in obtaining any required subcontracts, and that the contractor is not in violation of any discrimination laws. No significant adverse effects on environmental justice would be created as a result of this proposed method of contracting for construction services.

Mitigation Measures

No mitigation measures associated with environmental justice are proposed under either alternative.

Significant and Unavoidable Adverse Effects

The proposed project could contribute no significant or unavoidable adverse effects associated with environmental justice.

3.10 CULTURAL AND HISTORICAL RESOURCES

This section describes the cultural setting of the project area of potential effect (APE) including ethnographic and historic-era developments that occur within and in the vicinity of Cape Lookout State Park, a review of cultural resources documented near the APE, and an assessment of potential project effects and mitigation measures. Information presented in this analysis is summarized from the Cultural Resources Inventory and Evaluation Report prepared for the project (EDAW 2009b), available to appropriate agencies and parties upon request. More detailed information is presented in the inventory and evaluation report.

3.10.1 AFFECTED ENVIRONMENT

Human occupation in northwestern Oregon dates to at least 6,000 years before the present day, and important habitation and activity sites exist in many areas where landforms and resources important to early Native American populations could be found.

3.10.1.1 Prehistoric Archaeology

The earliest well-documented entry and spread of humans into Oregon occurred at the beginning of the Paleo-Indian Period (approximately 11,000–6000 years before present [BP]). Although isolated Paleo-Indian artifacts such as fluted projectile points (e.g., Clovis and Folsom) have been found in Oregon, none have been found along the present-day coast, and only two sites dating to this period have been documented in Oregon: the Fort Rock Cave site near Bend, and the Dietz site in Harney County in the southeastern part of the state.

Holocene cultural manifestations in coastal Oregon are poorly documented in large part because of coastal landforms being inundated by rising sea levels. Not that environment is the sole source of culture-affecting factors, but general shifts in subsistence and technology can be seen that differentiate Pleistocene from Holocene human habitation and land-use practices. Archaeologically, the Holocene can be divided into the Anithermal, Altithermal, and Medithermal climatic conditions, which roughly correspond to Early, Middle, and Late Archaic archaeological manifestations.

Most coastal sites date to the “Medithermal” period or Late Archaic (roughly 2000 BP – EuroAmerican contact). During this time, the overall climate became somewhat drier and warmer than earlier periods; while it still fluctuated, it was similar to the present day. Native populations appear to have increased greatly during this time, and the most significant technological marker to appear in the archaeological record was the bow and arrow, which replaced the spear-thrower (atlatl) of earlier periods.

Archaeologically, the Late Archaic persisted until sustained contact between the Native American populations and EuroAmerican explorers, traders, and settlers beginning around 1800. Native lifeways, in general, remained unchanged for centuries until the 1830s, when a series of undetermined epidemics decimated the coastal tribes. By 1849, less than one-fifth of the ethnographic population remained, most of whom were removed from the coastal regions to interior reservations by the 1850s.

3.10.1.2 Ethnographic Context

Ethnographically, native peoples referred to as the Tillamook inhabited the lands within and in the region of the project APE and spoke the southern-most dialect of the Salishan language family. The Tillamook traditionally inhabited a coastal strip extending from about Tillamook Head in Clatsop County to the Siletz River in Lincoln County. Although historic-era accounts are incomplete, oral tradition places the eastern-most boundary of traditional Tillamook lands approximately 30 to 40 miles inland along the Wilson and Nehalem rivers (Seaburg and Miller 1990).

Tillamook society was primarily divided into two main classes: the freeborn and a small class of slaves. To a certain extent, status in Tillamook society was linked to the acquisition of a guardian spirit who bestowed certain abilities and powers on the individual. Other social stratification was exhibited in the presence of chiefs or headmen and shamans within villages and river drainages, which served as de-facto local territorial boundaries within the traditional lands inhabited by the Tillamook. Each local community appears to have had one headman who served as a community coordinator and whose authority was believed to have been supernaturally derived. However, headmen could lose their status for any number of reasons, and it was the shaman that held the most lasting position in Tillamook society as healers, religious practitioners, and diplomats (Seaburg and Miller 1990).

In general, Tillamook society and lifeways remained unchanged for hundreds (if not thousands) of years prior to sustained EuroAmerican contact, which began in the early decades of the 19th century. Although based only on limited quantitative evidence, Lewis and Clark's estimates of a Tillamook population of about 1,000 serves as general baseline from which to observe the decline of their numbers in later years. By 1849, the Tillamook population had been dramatically reduced to 200 (Seaburg and Miller 1990). During the 1850s, some Tillamook were confined to the small Siletz and Grand Ronde reservations, although others remained scattered on private lands. The reservation lands were largely sold off in 1954 as an indirect result of the federal Termination Act, which severed the trust relationship between the government and the Grand Ronde Reservation. However, in 1988 the Grand Ronde Reservation Act was signed into law, and more than 9,800 acres of land near the community of Grand Ronde restored and expanded the 1850s reservation. Today, efforts by the Confederated Tribes of the Grand Ronde Community of Oregon are focused on the rebuilding of tribal institutions and developing tribal programs to meet the needs of native peoples in the 21st century (FreePages Genealogy website; see also Grand Ronde website).

3.10.1.3 Historical Context

The historic-era record of the project APE and vicinity began at least as early as the 18th century when various British and American military expeditions including Lewis and Clark visited the region. However, it wasn't until August of 1848 that the U.S. Congress created the Oregon Territory, and the present-day Cape Lookout area officially came under American control. This new territory, the coastline in particular, was quickly mapped by the U.S. Geodesic Survey largely for navigational purposes. A.N. Armstrong, who was involved in this mapping effort through the Oregon Surveyor General, noted the rugged nature of the area and specifically of a trail between present-day Cape Lookout and the town of Oceanside (several miles north of Cape Lookout State Park). Armstrong stated that

...you cross a very high, rugged mountainside, so that it is with the greatest difficulty that mules can pass at all; an animal losing his foothold here would have a clear fall of 300 feet.
(Armstrong 1857)

Despite the difficulties of transportation and isolation, numerous Euro-American settlers were drawn to the Cape Lookout vicinity by the temperate climate, virgin timberlands, fertile soil, and rich marine resources. Although earlier settlers had arrived by the time of the Federal Homestead Act of 1862, most would not arrive in the Netarts area until after this date. The first of these homestead grants within the present-day state park was a grazing claim of 28 acres on Netarts Spit. By 1863, records note that several claims had been established for parcels along Netarts Bay; these included a Tom Goodale, who apparently built a house on Netarts Spit ca. 1867. Other early settlers on the spit and along the bay included a “Mr. Desmond,” “Mr. Grimes,” and Sebastian Hardman (Vaughn 1851-1863).

Cape Lookout and 935 surrounding acres, once under the jurisdiction of the U.S. Lighthouse Service, was donated to the State of Oregon for a park in 1935. Later that same year, the Louis W. Hill Family Foundation donated the Netarts sand spit to add to the Cape Lookout State Park. With the exception of approximately 40 acres on the south side of Cape Lookout which was added to the park in 1988, Cape Lookout State Park has maintained the same property since about 1935. Major additions and improvements have made to the park since including a 5-mile trail constructed through the park to the tip of Cape Lookout in 1939 by the Civilian Conservation Corps operating out of camps along Jackson Creek. Further major enhancements to the park were constructed in 1952 when the existing access road to the park was built along with the campgrounds east and south of the sand dunes at the southern extent of Netarts Bay (OregonCoast.com website).

3.10.1.4 Cultural Resources Documented in the Project APE Vicinity

Methodology

This study included pre-field research consisting of a records search conducted at the Oregon State Historic Preservation Office (SHPO), Native American consultation, and an intensive field inventory of the project APE. Documentation for this investigation was conducted in accordance with Oregon SHPO guidelines.

Pre-Field Research (Records Search)

The research into cultural resource issues for the project APE began with a records search of pertinent information available through the office of the SHPO in Salem, Oregon. The SHPO’s office curates archaeological site records, historic maps, and other documents relevant to Cape Lookout State Park. In addition, OPRD conducted surveys and resource evaluations of Oregon State Parks, including the Area 1 Management Unit (within which Cape Lookout State Park is located) in 2002/2003 (Tasa et al. 2003). Although this surface pedestrian inventory did not cover the drainfield portion of the APE, it did survey the existing campground and the alignment of Cape Lookout Road, both of which include portions of the APE.

The majority of the cultural resources documented within the state park were initially recorded as a result of Richard Ross’ 1976 survey of Oregon Coast State Parks. Rick Minor (1986) also surveyed the coastal parks and revisited many of the prehistoric and historic-era resources noted by Ross.

Minor also documented previously unrecorded sites and made management recommendations for OPRD for the investigation and preservation of sites. Madonna Moss and Jon Erlandson (1995) also revisited sites noted by Ross and Minor and provided National Register of Historic Preservation (NRHP) eligibility recommendations. Most of the prehistoric midden sites within the state park were recommended and ultimately listed on the NRHP because of their data potential.

Native American Consultation

Implementing regulations for Section 106 require that federal agencies identify any Indian tribes that might attach religious and cultural significance to historic properties in the APE and invite them to be consulting parties (36 Code of Federal Regulations [CFR] 800.3[f][2]). Prior to conducting fieldwork, Oregon SHPO archaeologists Nancy Nelson and Matt Diedrich, on behalf of EDAW and OPRD, consulted with the Confederated Tribes of Grand Ronde Community of Oregon (Appendix B). Although Mr. Eirik Thorsgard did not express specific concerns regarding the APE or the proposed archaeological inventory, Ms. Nelson did invite him or other tribal members to monitor and/or participate in the EDAW survey of the project APE. However, no representatives from the Grand Ronde community were present during the survey.

Project APE Field Survey

All aspects of the cultural resource study were conducted in accordance with the *Secretary of the Interior's Standards and Guidelines for Identification of Cultural Resources* (48CFR 44720-23).

Because of the heavily forested and likely depositional nature of the APE, EDAW determined that subsurface survey techniques utilizing shovel test pits (STPs) would be necessary to identify any cultural resources that might be disturbed as a result of the project. Survey techniques utilized for the project consisted of the patterned spacing of STPs within the drainfield site and along the pipeline route. Each STP was approximately 30 centimeters (cm) in diameter and depending on soil conditions and the presence of bedrock, other impenetrable obstructions, or the water table, approximately 1 meter or greater in depth. All excavated soils were screened using 1/8-inch hardware mesh to provide for the recovery of smaller artifactual constituents. Some STPs were terminated because of compacted soil, water table, or other partial obstructions such as rocks. In many cases where STPs could not be fully excavated to approximately 1 meter below the surface, the STP was dug as far as possible and a split spoon was utilized to obtain a sample of deeper sediments and strata.

STPs were placed on a 50-foot (15-meter) grid across the drainfield portion of the APE. Although the proposed drainfield would likely be approximately 6 or 7 acres in total size, an area of approximately 10 acres was designated as its possible location. Within this 10-acre area, the survey excavated a total of 65 STPs. Although these STPs were mapped within a systematic grid, their ultimate placements tended to vary from the grid because of topographic conditions, vegetation, and global positioning system (GPS) coverage.

The pipeline portion of the APE would include trenching within existing asphalt/gravel-paved roadways and unpaved campsites, and/or directional or "bore and jack" drilling with visible ground disturbance only at the initiation and termination of the line. At the time of the STP survey of the project APE, it was not known exactly which method of trenching/drilling would be used in which area. Consequently, in anticipation of the entire pipeline route being potentially dug with open

trenches, and in keeping with the methodology outlined for the drainfield site, STPs were excavated along pipeline trench corridors (outside currently paved areas) at approximately 15-meter intervals. EDAW archaeologists excavated a total of 24 STPs along the proposed pipeline route.

Two portions of the pipeline route, however, could not be subjected to shovel testing. These included an existing gravel-paved logging road extending from the drainfield to the park entrance road, and a portion of the proposed pipeline route located approximately between campsites D58 and B22. The logging road was substantially constructed and consisted of an undetermined depth of compact rock and gravel. Attempted STPs could not penetrate more than 2 or 3 inches through the uppermost level of gravel. The section of proposed pipeline in the campground between campsites D58 and B22 could not be excavated as this area was an existing wetland with standing water.

Findings of the Records Search

Previous studies and the Tasa et al. survey of 2003 have documented a total of 23 prehistoric and historic-era sites, features, and isolated artifacts within Cape Lookout State Park (Table 3.10-1). Although none of these were documented within the project APE, their presence clearly indicates that the state park and vicinity were subjected to frequent habitation and various human activities for thousands of years.

Findings of the Field Survey in the APE

None of the STPs excavated within the pipeline or drainfield portions of the project APE resulted in the recovery of any prehistoric or historic-era sites, features, or artifacts.

3.10.1.5 Regulatory Considerations

Section 106 – National Historic Preservation Act

Section 106 constitutes the main regulatory framework guiding the cultural resources investigations for this project. Section 106 of the National Historic Preservation Act (NHPA) of 1966 and its implementing regulations (36 CFR Part 800, as amended 1999) require federal agencies to consider the effects of their actions, or those they fund or permit, on properties that may be eligible for listing or are listed in the National Register of Historic Places (NRHP).

The significance of a cultural resource per NHPA definitions is an important consideration. Listing, or eligibility for listing on the NRHP, is the primary criterion or deciding whether or not a resource is subjected to further research and documentation. Public agencies should avoid significant effects on historic and unique archaeological resources, particularly those that are listed on or eligible for listing on the NRHP. When significant effects cannot be avoided, their effects need to be mitigated, if feasible, through measure such as:

- Avoidance during construction phases
- Incorporation of sites into open space
- Capping resources with chemically stable fill
- Deeding a site into a permanent conservation easement
- Data recovery (testing and excavation)

Table 3.10-1. Cultural Resources Documented within Cape Lookout State Park.

Site	Association	Type	Reference
35IT1	prehistoric	shell midden, habitation with house pits	Collins 1951, Losey 2002, Newman 1959, Ross 1976, Moss and Erlandson 1995, Tasa et al. 2003
35T135	prehistoric	shell midden	Ross 1976, Tasa et al. 2003, Moss and Erlandson 1995
35T136	prehistoric	shell midden	Ross 1976, Minor 1986, Tasa et al. 2003, Moss and Erlandson 1995
35T137	prehistoric	shell midden	Ross 1976, Minor 1986, Moss and Erlandson 1995, Tasa et al. 2003
35T138	prehistoric	shell midden	Ross 1976, Minor 1986, Moss and Erlandson 1995, Tasa et al. 2003
35T139	prehistoric	shell midden	Ross 1976, Minor 1986, Moss and Erlandson 1995, Tasa et al. 2003
35T140	prehistoric	shell midden	Ross 1976, Minor 1986, Moss and Erlandson 1995, Tasa et al. 2003
35T141	prehistoric	shell midden	Ross 1976, Minor 1986, Moss and Erlandson 1995, Tasa et al. 2003
35T142	prehistoric	shell midden	Ross 1976, Minor 1986, Moss and Erlandson 1995, Tasa et al. 2003
35T143	prehistoric	shell midden, habitation with house pits	Ross 1976, Minor 1986, Moss and Erlandson 1995, Tasa et al. 2003
35T144	prehistoric	shell midden, habitation with house pits	Ross 1976, Minor 1986, Moss and Erlandson 1995, Tasa et al. 2003
35T145	prehistoric	shell midden	Ross 1976, Minor 1986, Moss and Erlandson 1995, Tasa et al. 2003
35T154	prehistoric	shell midden, lithics	Minor 1986, Moss and Erlandson 1995, Tasa et al. 2003
35T161	prehistoric	shell midden	Moss and Erlandson 1995, Tasa et al. 2003
35T164	prehistoric	fish weir	Moss and Erlandson 1995, Tasa et al. 2003
35T165	prehistoric	shell midden, lithics	Moss and Erlandson 1995, Tasa et al. 2003
35T166	prehistoric	FCR, lithic scatter	Moss and Erlandson 1995, Tasa et al. 2003
35T167	prehistoric	FCR, lithic scatter	Moss and Erlandson 1995, Tasa et al. 2003
35T168	prehistoric	FCR, possible fish weir	Moss and Erlandson 1995, Tasa et al. 2003
35T174	prehistoric	FCR, hearths	Minor 1999, Tasa et al. 2003
CL#1	historic-era	possible homestead	Ross 1976, Minor 1986, Moss and Erlandson 1995, Tasa et al. 2003
ISO CL-1	prehistoric	chert flake	Tasa et al. 2003
ISO-CL-2	prehistoric	possible fish weir	Tasa et al. 2003
n/a	historic-era	1943 memorial plaque	n/a

Source: Oregon SHPO; Tasa et al. 2003; compiled by EDAW 2008.

CL = Cape Lookout; ISO = isolate; FCR = fire-cracked rock.

To determine whether an undertaking could affect historic properties, cultural resources (including archaeological, historical, and architectural properties or Native American Traditional Cultural Places) must be identified, inventoried, and evaluated for listing in the NRHP. Although compliance with Section 106 is the responsibility of the lead federal agency, the work necessary to comply can be undertaken by others. The Section 106 review process involves a four-step procedure:

- Initiate the Section 106 process by establishing the undertaking, developing a plan for public involvement, and identifying other consulting parties.
- Identify historic properties by determining the scope of efforts, identifying cultural resources, and evaluating their eligibility for inclusion in the NRHP.
- Assess adverse effects by applying the criteria of adverse effect on historic properties (resources that are eligible for inclusion in the NRHP).
- Resolve adverse effects by consulting with the SHPO and other consulting agencies, including the Advisory Council on Historic Preservation if necessary, to develop an agreement that addresses the treatment of historic properties.

Oregon Revised Statutes

ORS 358.905 to 358.961 prohibits the sale of artifacts and damage to sites on public, non-federal, and private lands. ORS 358.920 specifically states: *person may not excavate, injure, destroy or alter an archaeological site or object or remove an archaeological object located on public or private lands in Oregon unless that activity is authorized by a permit issued under ORS 390.325*. In effect, ORS 358.920 prohibits the intentional excavation, destruction, or disturbance of archaeological sites on private or public land without a permit from the OPRD.

ORS 390.235 is the state's archaeological excavation permitting law for public and private lands. It outlines the procedures and conditions for obtaining a permit to investigate/excavate archaeological sites. An important note in this statute is that a person may not excavate or alter an archaeological site on public lands, make exploratory excavations on public lands to determine the presence of an archaeological site, or remove from public lands any material of an archaeological nature without first obtaining an archaeological permit.

3.10.2 THRESHOLDS OF SIGNIFICANCE

Cultural resources currently listed or recommended for listing on the NRHP are considered significant (“historic property”) per Section 106. Properties may be listed in the NRHP if they possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- a. Are associated with events that have made a significant contribution to the broad patterns of our history;
- b. Are associated with the lives of persons significant in our past;

- c. Embody the distinctive characteristics of a type, period, or method of construction, or represent the work of a master, or possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction; or
- d. Have yielded, or may be likely to yield, information important in prehistory or history.

Most prehistoric archaeological sites are evaluated with regard to Criterion d of the NRHP, which refers to site data potential. Such sites typically lack historical documentation that might otherwise adequately describe their important characteristics. Archaeological methods and techniques are applied to gain an understanding of the types of information that may be recovered from the deposits. Data sought are those recognized to be applicable to scientific research questions or to other cultural values. Some archaeological sites may be of traditional or spiritual significance to contemporary Native Americans or other groups, particularly those known to contain human burials.

Site integrity is a major consideration for the NRHP eligibility of an archaeological locale. The aspects of prehistoric resources for which integrity is generally assessed include location, setting, feeling, and association. These may be compromised to some extent by cultural and post-depositional factors (e.g., highway construction, erosion, bioturbation, etc.), yet the resource may still retain its integrity for satisfying Criterion d if the important information residing in the site survives. Conversely, archaeological materials may not be present in sufficient quantity or may not have adequate preservation for accurate identification. Thus, their potential as data to address important research questions is significantly reduced. Assessment of these qualities is particularly important for archaeological properties where the spatial relationships of artifacts and features are necessary to determine the patterns of past human behavior.

3.10.3 ENVIRONMENTAL CONSEQUENCES

3.10.3.1 Alternative A – No Action Alternative

Under the No Action Alternative, neither the drainfield nor the pipeline would be constructed. There would be no potentially adverse effects on cultural resources potentially situated within the project APE.

3.10.3.2 Alternative B – Proposed Action

Under the Proposed Action, the drainfield and pipeline would be constructed and construction-related activities would result in ground-disturbing activities. Although no historic properties were identified within or in the immediate vicinity of the APE, there is always a possibility that undocumented subsurface prehistoric or historic-era remains or human interments could be present that would be adversely affected.

Proposed Mitigation Measures

Cultural Mitigation Measure 1 – Potential Discovery of Previously Unrecorded Cultural Resources

The project APE has been intensively surveyed by EDAW archaeologists, and a review of documents provided by the SHPO and other sources has been conducted. This field and archival research did not document any potentially significant prehistoric or historic-era cultural resources within or in the vicinity of the project APE. However, early Native American and historic-era sites,

features, artifacts, and human remains could be present in the APE in subsurface contexts that could not be documented through surface inventories or documentary research. If flaked stone implements or unusual quantities of animal bone or marine shell are uncovered or if deposits of historic-era debris or buildings or structures are encountered, potentially destructive work in the vicinity of the find must cease until a qualified archaeologist can examine the find and make recommendations as to treatment and management. Treatment options could include, but not necessarily be limited to, no-action, in-field documentation, construction monitoring in the vicinity of the find, documentary research, subsurface testing, and contiguous block unit excavation.

Cultural Mitigation Measure 2 – Discovery of Human Remains

If suspected human remains are discovered during project-related ground-disturbing activities, all such activity will cease immediately within the vicinity of the discovery site. Native American burial sites are not simply artifacts of the Tribe's cultural past, but are considered sacred and represent a continuing connection with their ancestors. Native American ancestral remains, funerary objects, sacred objects and objects of cultural patrimony associated with Oregon Tribes are protected under state law, including criminal penalties (ORS 97.740-.994 and 358.905-.961). The laws recognize and codify the Tribes' rights in the decision-making process regarding ancestral remains and associated objects. Therefore, both the discovered ancestral remains and their associated objects should be treated in a sensitive and respectful manner by all parties involved.

Oregon laws (ORS 146.090 & .095) outline the types of deaths that require investigation and the accompanying responsibilities for that investigation. The law enforcement official, district medical examiner, and the district attorney for the county where the death occurred are responsible for deaths requiring investigation. Deaths that require investigation include those occurring under suspicious or unknown circumstances.

If human remains that are inadvertently discovered or discovered through criminal investigations are not clearly modern, then there is a high probability that the remains are Native American and therefore ORS 97.745(4) applies, which requires immediate notification of State Police, the SHPO, the Legislative Commission on Indian Services (CIS), and all appropriate Native American Tribes. To determine an appropriate Native American Tribe, the responsible parties should contact the CIS. To determine whether the human remains are Native American, the responsible parties should contact the appropriate Native American Tribes at the initial discovery. It should be noted that there may be more than one appropriate Native American Tribe to be contacted.

If the human remains are possibly Native American, then the area should be secured from further disturbance. The human remains and associated objects should not be disturbed, manipulated, or transported from the original location until a plan is developed in consultation with the above-named parties. These actions will help ensure compliance with Oregon state law that prohibits any person from willfully removing human remains and/or objects of cultural significance from their original location (ORS 97.745).

Significant Effects

With the implementation of the mitigation measures identified above, all potential effects on historic properties and previously undiscovered human remains would be reduced to less-than-significant levels.

3.11 TRANSPORTATION AND ACCESS

This section describes the local and regional transportation network, access to the project site, and potential effects of the project alternatives. It describes existing motorized and non-motorized facilities that provide regional and local access to the project site as well as potential effects on levels of service within the transportation network.

3.11.1 AFFECTED ENVIRONMENT

3.11.1.1 Regional and Local Roads

The primary transportation route in Tillamook County is US 101 (Oregon Coast Highway No. 9), which runs north to south and roughly parallel to the Pacific coast (see Figure 3.11-1). US 101, for much of its length in Oregon, is located immediately adjacent to the coast. However, in west-central Tillamook County, the highway follows an inland route and lies approximately 7 miles west of the coast and Cape Lookout State Park. Oregon Route 6 is the other major highway within Tillamook County. This highway serves as the primary route from the Portland metropolitan area to the city of Tillamook.

Cape Lookout State Park is accessible from US 101 via two routes. The northern route, from the city of Tillamook, is via Oregon Route 131 (Netarts Highway West) and Whiskey Creek Road (Netarts Bay Road). The southern route from US 101 is via Sandlake Road and Cape Lookout Road. Cape Lookout Road and Whiskey Creek Road are two-lane, paved county roads that intersect with one another at the entrance to the park.

Cape Lookout State Park is a primary source of traffic on roads in the immediate area, attracting 160,000 day visitors and 107,000 campers in 2007 (pers. comm., Wilson, July 9, 2008). Vehicular traffic generated by the park on area roads includes a small percentage of RVs as well as bicyclists, both of which are provided with dedicated camping spaces at the campground. Groups of visitors may occasionally arrive by bus; however, there is no regular public transportation service in the vicinity of the park (Tillamook County Transportation District 2008).

Cape Lookout Road and Whiskey Creek Road are also part of the Three Capes Scenic Route/Pacific Coast Scenic Byway, which is a major tourist destination and a primary source of traffic in the project vicinity. A small number of rural residences located along Whiskey Creek Road to the north of the park constitute a third source of traffic. Finally, a limited amount of traffic is periodically generated by commercial timberlands near the park, in the form of logging trucks and other vehicles.

The Tillamook County Road Department has not recently collected traffic data for roads in the vicinity of the park. The most recent data available, collected in 1999, show 309 Annual Average Daily Trips (AADT) at a point on Whiskey Creek Road 2.86 miles south of Oregon Route 131 and approximately 2 miles north of the campground entrance (pers. comm., Gile, 2008). The county has also not determined a level of service (LOS) for either Cape Lookout Road or Whiskey Creek Road (pers. comm., Gile, 2008).

3.11.1.2 Park Access and Roads

Vehicular access into the park is provided via the park access road, at the northern end of the park. Off the park access road to the west, a second paved road provides access to the park's campground and day use area. Within the campground, this road provides access to the day use parking lot, RV waste dump, and camping areas, as shown in Figure 3.11-1. On the north end of the campground, a gated service road provides vehicular access to the existing drainfield site and is used by hikers to access Netarts Spit. Some pedestrian trails have been created in the campground and day use areas; along some roads, pedestrian traffic is separated from vehicular traffic by fences, but in other areas pedestrian traffic occurs on roads. During a site visit by EDAW staff on August 2, 2008, bicycle traffic on internal parks roads was common and increased as one approached the campsites.

What appears to be an unimproved logging road extends south from the campground entry road into the proposed project site (i.e., the location of the proposed drainfield). This road is overgrown and not suitable for passenger vehicle access; however, a 4-wheel drive vehicle could pass it with little problem.

3.11.2 THRESHOLD OF SIGNIFICANCE

Effects related to transportation and access are considered significant if the project:

- Would cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the road system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion);
- Would exceed, either individually or cumulatively, an LOS standard established for designated roads; or
- Would substantially increase hazards because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., recreation and forestry vehicles).

3.11.3 ENVIRONMENTAL CONSEQUENCES

Potential effects of the No Action Alternative and the Proposed Action on transportation and access within the project area are described below. Mitigation measures to offset any identified effects are also provided, as applicable.

3.11.3.1 Alternative A: No Action

Under the No Action Alternative, no project-related construction activities would take place. No effects on transportation or access would occur.

3.11.3.2 Alternative B: Proposed Action

Under the Proposed Action, heavy equipment would be brought in to Cape Lookout State Park, slightly but negligibly increasing heavy vehicle traffic along Whiskey Creek Road.

Access to Cape Lookout State Park may be affected during construction of the force-main pipeline on the park entrance road, creating wait times if need arises to restrict the road to one-lane only.

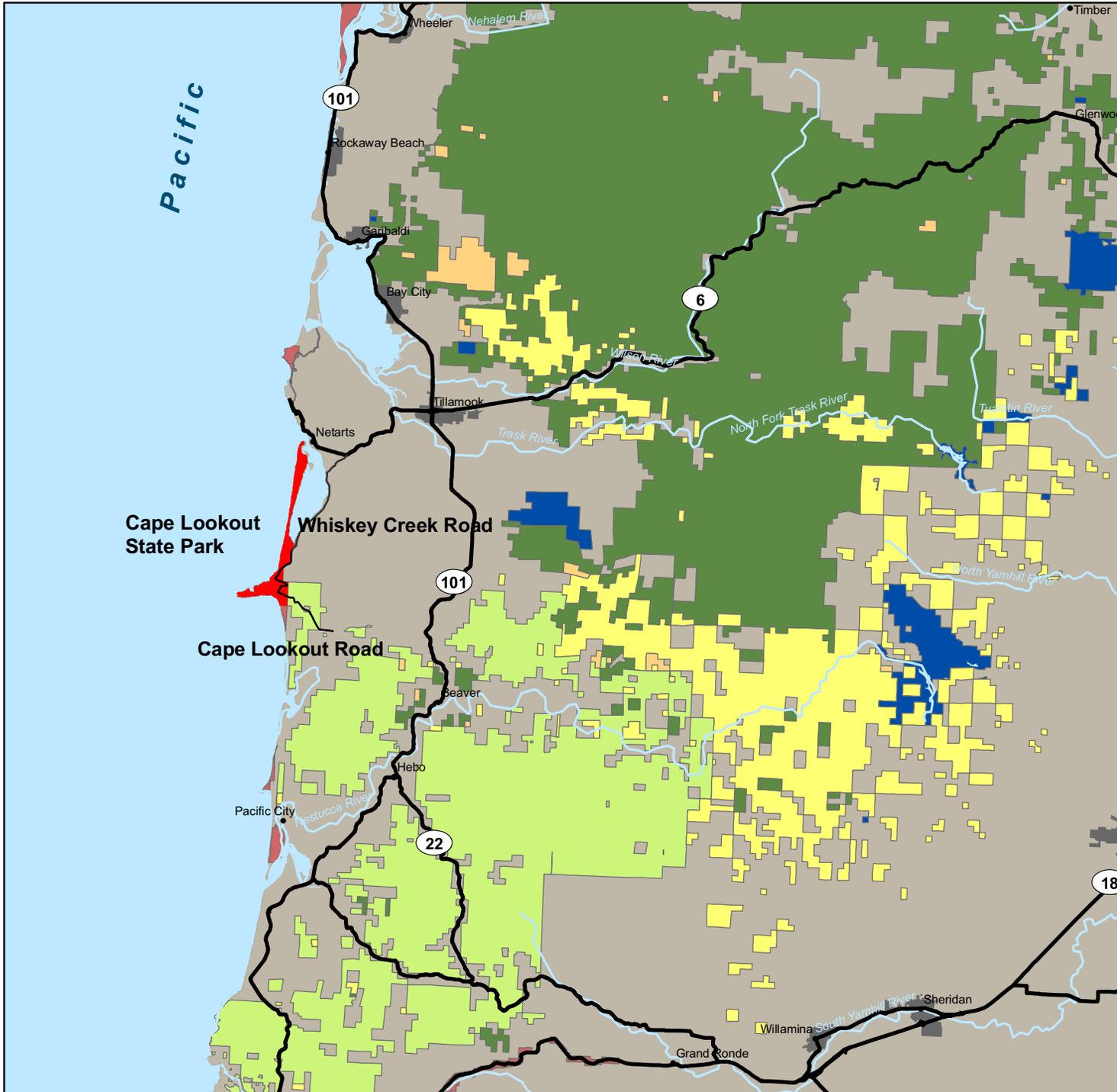
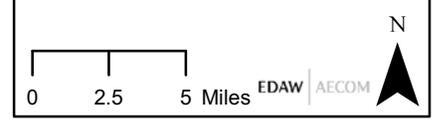


Figure 3.11-1 Project Vicinity Roads and Highways

Cape Lookout State Park
Drainfield Relocation Project
Environmental Assessment

Legend

- █ Cape Lookout State Park
- Highways
- Major Rivers & Streams
- Water Bodies
- Cities
- City Limits
- Public Land Ownership**
- Bureau of Land Management
- Local Government
- Oregon Department of Forestry
- Oregon Department of State Lands
- Oregon Parks and Recreation Department
- USDA Forest Service



All activities for construction would occur after September 1, during the fall/winter low traffic season. No activities from construction of the Proposed Action would increase traffic substantially in relation to existing traffic loads, exceed any established LOS, or increase hazards from design features or incompatible uses.

Mitigation Measures

No mitigation measures are proposed for transportation and access. All effects on this resource area are negligible and temporary.

Significant and Unavoidable Effects

No significant or unavoidable effects on transportation and access would occur because of the proposed project.

3.12 CUMULATIVE EFFECTS

Cumulative effects are defined as effects that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions (40 CFR 1508.7). Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time. Only those resources associated with cumulative effects are described below.

The proposed project's primary adverse effect stems from the loss of 7 acres of upland forest habitat associated with clearing for the new septic field. General land use patterns in the Netarts Bay watershed, including forestry, residential and commercial development, and road building, are other contributors to loss of upland vegetation.

In general the Netarts Bay watershed is rural, with no shortage of native habitat. Forestry is the land use with the largest potential for altering the vegetative land cover. Commercial forest land near the project area has been clearcut within the past 10 years and is likely on a 30- to 50-year rotation. The 7 acres of forest that would be affected from the proposed project is a negligible contribution to upland forest loss in the basin. In addition, implementation of BMPs during construction will minimize effects on surface waters. Loss of upland habitat from the proposed project is considered a less-than-significant cumulative effect.

Cultural resources in the project region typically consist of historic-era buildings and structures associated with late 19th and early 20th century logging and transportation activities and early Native American habitation. Particularly from the latter half of the 20th century to the present, prehistoric and historic-era historic sites, features, and artifacts have been destroyed, disturbed, and modified. During this period, the creation and enforcement of various regulations such as the NHPA and various Oregon statutes protecting cultural resources have substantially reduced the rate and intensity of these effects; however, even with these regulations, cultural resources are still degraded or destroyed as cumulative development in the region proceeds.

Research conducted for the project indicates that the region surrounding the project APE contains a number of cultural resources that are or could potentially be considered historic properties under Section 106 or could be at a later date. Currently undiscovered cultural resources might also be present within the project APE. The cultural resources mitigation measures described in Section 3.10 would reduce adverse effects on prehistoric and historic-era resources and human interments to less-than-significant levels. Implementing these mitigation measures also would ensure that project-related activities would not incrementally contribute to any significant cumulative effects on important cultural resources in the project corridor. These measures ensure compliance with Section 106 and as a result the proposed project would not incrementally contribute to a significant cumulative effect on cultural resources.

4.0 CONSULTATION AND COORDINATION

4.1 PUBLIC INVOLVEMENT

FEMA sent a scoping notice to agencies, Tribes, and local interested parties on August 12, 2008. The notice provided a description of the proposed project and requested comments on issues and concerns, the range of alternatives, and potential effects regarding the project. No formal scoping comments were received on the project from the agencies or other stakeholders. The scoping notice and distribution list are found in Appendix A.

4.1.1 COMMENTS ON THE DRAFT EA

FEMA's Draft EA was released and a notice was published on June 17, 2009, for a 15-day public review and comment period, which ended on July 1, 2009. As of July 3, 2009, FEMA has received two responses on the Draft EA. The USFWS sent a letter/email (included in Appendix A), stating that the agency does "not have any comments to contribute on this proposal." A Tillamook County Commissioner sent a comment stating that "it is refreshing to see all levels of government working together and respecting each others authority." The full text of these comments is included in Appendix A. Neither comment necessitated substantive revisions to the analysis presented in the EA.

4.2 AGENCY CONSULTATION AND COORDINATION

FEMA consulted with several federal and local agencies throughout the EA process to gather valuable input and to meet regulatory requirements. This coordination was integrated with the public involvement process.

4.2.1 ENDANGERED SPECIES ACT

Federally listed or proposed threatened or endangered species that occur in the vicinity of the project include threatened Oregon Coast Coho Salmon (*Oncorhynchus kisutch*). Based on the analysis presented in Section 3.6 (*Threatened and Endangered Species*), FEMA's ESA determination for the project is "may affect, not likely to adversely affect" coho salmon. The USFWS and NOAA Fisheries will review this document and make a formal determination. This consultation process will fulfill FEMA's requirement to evaluate effects on federally listed species; preparation of a separate biological assessment is not necessary.

4.2.2 NATIONAL HISTORIC PRESERVATION ACT

During the scoping process, FEMA contacted the Oregon SHPO and requested that it inform FEMA about known cultural resources or other important sites in the vicinity of the project. As summarized in Section 3.10 (*Cultural and Historical Resources*), the SHPO has records of cultural resources in the general vicinity of the project area. SHPO's concurrence with FEMA's determination of project effect will fulfill FEMA's consultation requirements.

4.2.3 OTHER LAWS AND REGULATIONS

The relationship between federal agencies and sovereign tribes is defined by several laws and regulations addressing the requirement of federal agencies to notify or consult with Native American

groups or otherwise consider their interests when planning and implementing federal undertakings. Among these are the following:

- National Environmental Policy Act
- Executive Order 12875, Enhancing the Intergovernmental Partnership
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations
- Presidential Memorandum: Government-to-Government Relations with Native American Tribal Governments
- Executive Order 13084, Consultation and Coordination with Indian Tribal Governments

Other executive orders that may apply to the project include the following:

- Executive Order 11988, Floodplain Management
- Executive Order 11990, Protection of Wetlands

FEMA has adhered to these laws and regulations as applicable to the development of the EA.

5.0 PREPARERS

The EA for the Cape Lookout State Park drainfield relocation project was prepared by FEMA and its consultant, EDAW, Inc. Key individuals responsible for the preparation of the EA are listed below.

FEMA

Mark Eberlein, Environmental Officer

EDAW, Inc.

Jim Keany, Senior Ecologist, Project Manager

Richard Dwerlkotte, Botanist, Author

Amberlynn Pauley, Terrestrial Ecologist, Author

Brian Ludwig, Archaeologist, Author

Peter Carr, Technical Editor and Production Manager

6.0 DISTRIBUTION

Federal Agencies

U.S. Fish and Wildlife Service
Kemper McMaster, State Supervisor, Oregon Fish & Wildlife Office
2600 S.E. 98th Ave, Ste 100
Portland, OR 97266

NOAA Fisheries
Chief Protected Resources Division National Marine Fisheries Service - F/NWO3
1201 NE Lloyd Boulevard, Suite 1100
Portland, OR 97232-1274

U.S. Army Corps of Engineers
Regulatory Branch
CENWP-0D-GP ATTN: Kathryn Harris
333 SW First Avenue, P.O. Box 2946
Portland, OR 97208-2946

U.S. Department of Homeland Security
FEMA Region X
Attn: Charles Deters, Historic Preservation Specialist
130 228th Street SW
Bothell, WA 98021-9796

State Agencies

Darin Wilson, P.E.
Project Manager
Oregon Parks and Recreation Department
725 Summer Street NE, Suite C
Salem, OR 97301-1271

Nancy Nelson, Archaeologist
Oregon Parks and Recreation Department
725 Summer Street NE, Suite C
Salem, OR 97301-1271

Oregon Department of Emergency Management
Julie Slevin
P.O. Box 14370
Salem, OR 97309-5062

Oregon State Historic Preservation Office
Attn: Susan Lynn White, Assistant State Archaeologist
725 Summer St NE, Suite C
Salem, OR 97301-1266

Oregon Department of Land Conservation
Attn: Dale Blanton, Federal Consistency Coordinator
Coastal Management Program
635 Capitol St. NE, Suite 150
Salem, OR 97301-2540

Oregon Department of Agriculture
Native Plant Conservation Program
Attn: Robert Meinke, Program Supervisor
635 Capitol St NE
Salem, OR 97301

Oregon Department of Fish and Wildlife
Attn: Herman Biederbeck and Dave Plawman
4907 Third Street
Tillamook, OR 97141
503-842-2741

Tribal Governments

Confederated Tribes of Grand Ronde
Attn: Eirik Thorsgard, Cultural Resources Department
9615 Grand Ronde Road
Grand Ronde, OR 97347

Confederated Tribes of Grand Ronde
Attn: Michael Karnosh, Ceded Lands Coordinator
9615 Grand Ronde Road
Grand Ronde, OR 97347

Confederated Tribes of Grand Ronde
Attn: Cheryl Kennedy, Chairperson
9615 Grand Ronde Road
Grand Ronde, OR 97347

Confederated Tribes of Siletz Indians
Attn: Robert Kentta, Cultural Resources Contact
P.O. Box 549
Siletz, OR 97380-0549

Confederated Tribes of Siletz Indians
Attn: Delores Pigsley, Chairman (sic),
P.O. Box 549
Siletz, OR 97380-0549

Confederated Tribes Warm Springs Reservation
Attn: Bridgette Whipple
P.O. Box C
Warm Springs, OR 97761-3001

Confederated Tribes Warm Springs Nation
Attn: Ron Suppah, Chairman
P.O. Box C
Warm Springs, OR 97761-3001

Local Government and Organizations

Tillamook County Commissioners
201 Laurel Avenue
Tillamook, OR 97141

Tillamook Estuaries Partnership
Attn: Mark Trenholm
613 Commercial - P.O. Box 493
Garibaldi, OR 97118

Tillamook Bay Watershed Council
Attention: Denise Lofman
605 Garibaldi Avenue
PO Box 509
Garibaldi, OR 97118-0509

Interest Groups and Organizations

Association of Northwest Steelheaders
President of the North Coast Chapter,
Bob Thurman
608 Beachwood Avenue
Tillamook, OR 97141

Native Fish Society
Bill Bakke, Executive Director
7830 SW 40th Street, Suite #6
Portland, OR 97219

7.0 REFERENCES

7.1 DOCUMENTS AND INTERNET SOURCE MATERIAL

- Altman, B., and R. Sallabanks. 2000. Olive-sided Flycatcher (*Contopus cooperi*). The Birds of North America. No. 502, 28 pp.
- Armstrong, A.N. 1857. Oregon: Comprising a Brief History and Full Description of the Territories of Oregon and Washington. A. Scott, Chicago, Illinois.
- CEQ (Council on Environmental Quality). 1997. Environmental Justice. Guidance under the National Environmental Policy Act. Available at: <http://handle.dtic.mil/100.2/ADA434918>. Accessed October 28, 2008.
- Chilcote, M.W. 1997. Conservation of steelhead in Oregon. Oregon Department of Fish and Wildlife, Portland. Oregon. 109 p.
- Collins, L.R. 1951. Archaeological site form for site 35IT1. On file at the Oregon State Historic Preservation Office, Salem, Oregon.
- Corlett, D., and M. Phillips. 2008. Science-based watershed policy for stream corridors: Integrating economic and ecological considerations. Master's thesis (portion) presented to the Department of Landscape Architecture and Regional Planning at the University of Massachusetts, Amherst. August 2008.
- Csuti, B., T. O'Neil, M. Shaughnessy, E. Gaines, and J. Hak. 2001. Atlas of Oregon Wildlife: distribution, habitat, and natural history. 2nd edition. Oregon State University Press. Corvallis, Oregon. 525 p.
- EDAW. 2009a. Cape Lookout State Park Drainfield Relocation Project; Wetland and Other Waters of the U.S. Delineation Report. Prepared for the Federal Emergency Management Agency (FEMA) by EDAW, Inc. Seattle, Washington. June 2009 (Draft).
- EDAW. 2009b. Cultural Resources Inventory and Evaluation Report, Cape Lookout State Park Drainfield Relocation Project. Prepared for the Federal Emergency Management Agency (FEMA) by EDAW, Inc. Sacramento, California. February 2009 (Draft).
- EPA (U.S. Environmental Protection Agency). 1998. Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analysis. April 1998. Available at URL = www.epa.gov/oecaerth/resources/policies/ej/ej_guidance_nepa_epa0498.pdf.
- EPA (Environmental Protection Agency) and Corps (U.S. Army Corps of Engineers). 2007. Memorandum providing guidance to EPA regions and U.S. Army Corps of Engineers regarding Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in *Rapanos v. United States & Carabell v. United States*. June 5th, 2007. Available online at URL = <http://www.epa.gov/owow/wetlands/pdf/RapanosGuidance6507.pdf>.
- FEMA (Federal Emergency Management Agency). 1978. National Flood Insurance Program Flood Insurance Rate Map for the Tillamook County Oregon, Unincorporated Areas. Community Panel number 410196 0250A p.250 of 425. U.S. Dept. of Housing and Urban Development, Federal Insurance Administration.

- FHWA (Federal Highway Administration). 1995. National Scenic Byways Program Interim Policy Document. 60 FR 26759. May 18, 1995.
- Follansbee, B., and J. Mondragon. 1999. Netarts Watershed Assessment. Tillamook Coastal Watershed Resource Center. January 1999. 43 pp.
- Freepages Genealogy. Website. Available at URL = www.freepages.genealogy.ancestry.com/grand_ronde-history.html.
- Froese, R., and D. Pauley. 2008. Fishbase.org. Available online at URL = <http://fishbase.sinica.edu.tw/summary/SpeciesSummary.php?id=4065>. Accessed December 10, 2008.
- Grand Ronde. Website. The Confederated Tribes of Grand Ronde. Available at URL = www.grandronde.org.
- Gutierrez, R.J., and D.J. Delehanty. 1999. Mountain Quail (*Oreortyx pictus*). The Birds of North America. No. 457, 28 pp.
- Helfield, James M., and Robert J. Naiman. 2001. Effects of salmon-derived nitrogen on riparian forest growth and implications for stream productivity. *Ecology*, 82(9), 2001, pp. 2403–2409.
- Humes, M.L., J.P. Hayes, and M.W. Collopy. 1999. Bat activity in thinned, unthinned, and old-growth forests in western Oregon. *Journal of Wildlife Management*. Vol. 63, no. 2, pp. 553-561.
- Jones, J.A. 2000. Hydrologic processes and peak discharge response to forest removal, regrowth, and roads in 10 small experimental basins, western Cascades, Oregon. *Water Resources Research*, Vol. 36, No.9 Pages 2621–2642.
- Jones, Lawrence L.C., William P. Leonard, Deanna H. Olson, editors. 2005. *Amphibians of the Pacific Northwest*. Seattle Audubon Society, Seattle, Washington.
- Losey, Robert. 2002. *Communities and Catastrophe: Tillamook Response to the AD 1700 Earthquake and Tsunami, Northern Oregon Coast*. Ph.D. Dissertation. University of Oregon, Eugene, Oregon.
- Mangum, Doris. 1967. *Geology of Cape Lookout State Park, near Tillamook, Oregon*. The ORE Bin. Vol. 29 No.5. State of Oregon Department of Geology and Mineral Industries. Portland OR.
- Minor, R. 1986. *An Evaluation of Archaeological Sites on State Park Lands along the Oregon Coast*. Heritage Research Associates Report No. 44. Heritage Research Associates, Eugene, Oregon.
- Minor, R. 1999. Site Form – 35T174. On file at the Oregon State Historic Preservation Office, Salem, Oregon.
- Moss, Madonna L., and Jon M. Erlandson. 1995. *An Evaluation, Survey, and Dating Program for Archaeological Sites on State Lands of the Northern Oregon Coast*. Oregon State Historic Preservation Office, Salem, Oregon.
- Newman, T.M. 1959. *Tillamook Prehistory and its Relation to the Northwest Culture Area*. Unpublished Ph.D. dissertation. Department of Anthropology, University of Oregon, Eugene, Oregon.

- NOAA Fisheries (National Oceanic and Atmospheric Administration, National Marine Fisheries Service). 2008. *Endangered Species Act Status of West Coast Salmon and Steelhead*. Last Updated February 26, 2008. Available online at URL = <http://www.nwr.noaa.gov/ESA-Salmon-Listings/upload/snapshot0208.pdf>. Accessed November 17, 2008.
- NRCS (Natural Resources Conservation Service). 2008. Web Soil Survey for Tillamook County Area. NRCS, United States Department of Agriculture. Available online at URL = <http://websoilsurvey.nrcs.usda.gov/> accessed December 2008.
- ODEQ (Oregon Department of Environmental Quality). 2006. Oregon State Final Integrated Report 2004/2006; 303d list and 305b report and supporting documentation.
- ODEQ. 2007. 2004/2006 Clean Water Act 303d list database. Available online at URL = <http://www.deq.state.or.us/wq/assessment/rpt0406/search.asp>. Accessed January 13, 2009.
- ODOT (Oregon Department of Transportation). 1998. Oregon Coast Bike Route. May 1998. Available online at URL = <http://www.portlandonline.com/shared/cfm/image.cfm?id=58451>. Accessed: July 24, 2008.
- ODSL (Oregon Department of State Lands). 2009. General Authorization for Minimal Disturbance Activities (Less Than Two Cubic Yards) within Essential Indigenous Anadromous Salmonid Habitat. DSL Application Number 41829-GA. Dated January 22, 2009.
- ONHIC (Oregon Natural Heritage Information Center). 2007. Rare, Threatened and Endangered Species of Oregon. Oregon Natural Heritage Information Center, Oregon State University, Portland Oregon. 100pp. Available online at URL = http://oregonstate.edu/ornhic/documents/2007_t&e_book.pdf.
- OPRD (Oregon Department of Parks and Recreation). 2005. Oregon Coast Trail. Available online at URL = http://www.oregonstateparks.org/images/pdf/2005_Coastal_Guide.pdf. Accessed July 28, 2008.
- OPRD. 2008. Cape Lookout State Park. Available online at URL = http://www.oregonstateparks.org/park_186.php. Accessed July 24, 2008.
- Oregon Climate Service. 1971-2000 period of record climate data. Tillamook 1W Monthly means and extremes. Available online at URL = <http://www.ocs.oregonstate.edu/index.html>. Accessed January 12, 2009.
- OregonCoast.com. Website. General History of the Town of Netarts, Tillamook County, Oregon. Available at URL = www.oregoncoast.com/Netarts/Nhistry1.htm.
- Richter, K.O., and A. L. Azous. 2001. Amphibian distribution, abundance and habitat use, p. 143–165. In: Wetlands and urbanization: implications for the future. A.L Azous and R.R. Horner (eds.). CRC Press LLC, Boca Raton, Florida.
- Rosenfeld, Jordan. 2003. Assessing the Habitat Requirements of Stream Fishes. An Overview and Evaluation of Different Approaches. Transactions of the American Fisheries Society 132:953–968.
- Ross, R.E. 1976. Archaeological Survey of State park Lands along the Oregon Coast. Report submitted to State Parks and Recreation, Salem, Oregon.

- Sanders, T.A. 1999. Habitat availability. Dietary mineral supplement, and measuring abundance of band-tailed pigeons in western Oregon. Ph.D. Dissertation, Oregon State University. Corvallis. Oregon.
- Scott, W.B., and E.J. Crossman. 1973. Freshwater fishes of Canada. Bull. Fish. Res. Board Can. 184:1-966.
- SCS (Soil Conservation Service). 1964. Natural Resource Conservation Service Web Soils Survey, prepared by Clyde C. Bowsby and Richard C. Swanson. Available online at URL = <http://websoilsurvey.nrcs.usda.gov/>. Accessed January 22, 2009.
- Seaburg, W., and J. Miller. 1990. Tillamook. In: *Handbook of North American Indians: Northwest Coast*, Volume 7, pps. 560 - 567. Suttles, W., ed., Smithsonian Institution, Wash., D.C.
- StreamNet GIS Data. 2003a. Pacific Northwest Coho Salmon fish distribution spatial data set. Portland (Oregon): StreamNet, June 2005. Available online at URL = <http://www.streamnet.org/online-data/GISData.html>. Accessed December 17, 2008.
- StreamNet GIS Data. 2003b. Pacific Northwest Winter Steelhead Trout fish distribution spatial data set. Portland (OR): StreamNet, March 2006. Available online at URL = <http://www.streamnet.org/online-data/GISData.html>. Accessed December 17, 2008.
- Tasa, Guy, Richard Bland, and Julia Knowles. 2003. Archaeological Resource Evaluation of Area 1, Oregon State Parks, 2002/2003 Surveys. Oregon State Museum of Anthropology, University of Oregon, Eugene, Oregon.
- Tillamook County. 1982. Tillamook County Comprehensive Plan.
- Tillamook County. 1986. Tillamook County Land Use Ordinance Section 3.040: Recreation Management Zone (RM). March 1986.
- Tillamook County. 1999. Tillamook County Land Use Ordinance Section 3.090: Shoreland Overlay Zone (SH). April 21, 1999.
- Tillamook County. 2002. Tillamook County Land Use Ordinance Article I. Introductory Provisions. December 18, 2002.
- Tillamook County Transportation District. 2008. System Map. Available online at URL = <http://www.tillamookbus.com/systemsmap.htm>. Accessed July 23, 2008.
- U.S. Census Bureau. 2004. 2000 Census of Population and Housing. Population and Housing Unit Counts. Washington, DC: U.S. Dept. of Commerce, Economics and Statistics Administration, U.S. Census Bureau.
- U.S. Census Bureau. 2008. 2005. Small Area Income and Poverty Estimates for 2005. Available online at URL=online at: <http://www.census.gov/did/www/saipe/data/statecounty/data/2005.html>.
- USFS (U.S. Forest Service). 2008. Siuslaw National Forest - Sand Lake Recreation Area. Available online at URL = <http://www.fs.fed.us/r6/siuslaw/recreation/tripplanning/sandlake/index.shtml>. Accessed July 24, 2008.

USFWS (U.S. Fish and Wildlife Service). 2008a. Federally listed, proposed, candidate species and species of concern which may occur within Tillamook County, Oregon. Last Updated December 29, 2008. U.S. Fish and Wildlife Service, Oregon Fish and Wildlife Office. Available online at URL = <http://www.fws.gov/oregonfwo/Species/Lists/default.asp>. Accessed January 8, 2009.

USFWS. 2008b. Threatened & Endangered Species System. Available at URL = http://ecos.fws.gov/tess_public/pub/stateListingAndOccurrence.jsp?state=AK.

USFWS. 2008c. Endangered Species, Species Data. Links to our fact sheets and other important sites.(endangered, threatened and species of concern). Available at URL = <http://www.fws.gov/oregonfwo/Species/Data/default.asp>.

USGS (U.S. Geological Survey). 2008. Wilson-Trask Nestucca 4th order HUC basin 17100203. Available online at URL = <http://water.usgs.gov/lookup/getwatershed?17100203/www/cgi-bin/lookup/getwatershed>.

Vaughn, Warren N. 1851-1863. Early History and Settlement of Tillamook County. Diary in the possession of Mrs. Verner Holden, Tillamook, Oregon.

7.2 PERSONAL COMMUNICATIONS

Gile, Walt, Engineering Technician with Tillamook County Road Department. Phone conversation (July 21, 2008) between Michael Schuler, EDAW, Seattle, WA, and Mr. Gile concerning Level of Service, traffic counts, planned improvements and major generators of traffic along Whiskey Creek Road and Cape Lookout Road.

Knutsen, Chris, Fish Biologist, Oregon Department of Fish and Wildlife, North Coast Watershed field office, Tillamook, Oregon. May 7, 2009. Conversation with A. Pauley, EDAW, Seattle, Washington, about fish presence in drainage D-3 and ODFW GIS salmonids data available for the Cape Lookout area.

Marvin, Peter, Park Manager, Oregon Parks and Recreation Department. Cape Lookout State Park, Tillamook Oregon. July 23, 2008 telephone conversation with Michael Schuler of EDAW, Seattle, Washington, regarding activities and facilities at Cape Lookout State Park.

Moran, Patrick, Scenic Byways Program Manager, Oregon Department of Transportation. Salem, Oregon. July 24, 2008 telephone conversation with Michael Schuler of EDAW, Seattle, Washington, regarding the Pacific Coast Scenic Byway.

Moran, Patrick, Scenic Byways Program Manager, Oregon Department of Transportation. Salem, Oregon. July 23, 2008, telephone conversation with Michael Schuler of EDAW, Seattle, Washington, regarding the Pacific Coast Scenic Byway

Schleier, Jay, Biologist, Natural Resource Section, Oregon Parks and Recreation Department. August 12, 2008, 2:15pm. Conversation with A. Pauley, EDAW, Seattle, Washington, about known wildlife locations, GIS data and documented species within Cape Lookout State Park. Regulatory issues were also discussed.

Soilihi, Valerie, Coastal Resource Planner, Tillamook County Department of Community Development. Tillamook, Oregon. July 23, 2008 telephone conversation with Michael Schuler of EDAW, Seattle, Washington, regarding land use and zoning regulations in Tillamook County.

Wilson, Darin, Project Manager, Oregon Department of State Lands. Email communication verifying extension of inwater work period. Received January 30, 2009.

Wilson, Darin, Park Manager, Oregon Parks and Recreation Department. Salem, Oregon. July 9, 2008; email to Jim Keany of EDAW, Seattle, Washington, regarding Cape Lookout State Park visitation data.

Wilson, Darin, Park Manager, Oregon Parks and Recreation Department. Salem, Oregon. January 24, 2009 email to Jim Keany of EDAW, Seattle, Washington, regarding access and construction timing details.

Appendix A

Scoping Letter, Public Notice, and Comments Received

Scoping Notice

From: Carr, Peter J. [mailto:Peter.Carr@edaw.com]

Sent: Tuesday, August 12, 2008 4:54 PM

To: darin.wilson@state.or.us; henry.mackenroth@state.or.us; Kunz.david@deq.state.or.us; Ron.f.rehn@state.or.us; carrie.landrum@dsl.state.or.us; karla.g.ellis@usace.army.mil; susan.a.chase@odot.state.or.us; cathy.tortorici@noaa.gov; monty_knudsen@fws.gov; mike.tehan@noaa.gov; kemper_mcmaster@fws.gov; christine.shirley@state.or.us; yelton.tiffany@deq.state.or.us; steve_wille@fws.gov; Ian.Fergusson@comcast.net; rivergraphics@spiritone.com; bmbakke@qwestoffice.net; joy.vaughan@state.or.us; Anderson, David; tjosi@co.tillamook.or.us; Rick.L.Klumph@state.or.us

Cc: Eberlein, Mark; Creek, Jerry; Keany, Jim Subject: Scoping Notice - Repair of Storm Damage to Drainfields at Cape Lookout State Park, Tillamook, Oregon

[Notice sent for Mark Eberlein, Regional Environmental Officer, FEMA Region 10]

Subject: Scoping of Issues – Repair of Storm Damage to Drainfields at Cape Lookout State Park, Tillamook, Oregon

Interested Party:

The Department of Homeland Security's Federal Emergency Management Agency (FEMA) is proposing to support the Oregon Parks and Recreation Department (OPRD) by providing funding for the repair and reconstruction of damaged drainfields at Cape Lookout State Park, near Tillamook, Oregon. The damage is associated with severe storms that occurred in December 2007. At the state park, all background campground sewage and gray water is routed through a septic tank and pump system to the existing drainfield. Of the three sets of existing drainfield cells, the middle one was damaged during the December 2007 storms.

Because of the extensive damage, OPRD has plans to relocate the entire drainfield to an upland, unimproved forested site (approximately 10 acres in area) west of the current park facility. The primary stream in the area is Jackson Creek, which originally emptied into the day use area. Years ago (approximately the 1950s or 1960s), part of the creek was diverted to empty into Netarts Bay. The creek is a fish-bearing stream and supports coho salmon, listed under the Endangered Species Act, as well as other salmonid species.

The purpose of this letter is to invite you to participate in the scoping process for the project and review the initial proposal and provide your comments to support the development of an Environmental Assessment (EA). The National Environmental Policy Act (NEPA) requires FEMA to evaluate the impacts of this proposed action on the human and natural environments. FEMA intends to develop an EA for the action of construction and operation of the new drainfield. We are asking your assistance to identify potential issues and concerns, develop a range of alternatives to the current conceptual design, and identify potential impacts of implementing this project.

The purpose of this project is to provide FEMA Public Assistance funding to OPRD to construct and operate the new drainfield. OPRD has a need to provide septic services to the campground and day use sites at the state park, while protecting the sensitive coastal environment. The engineering design of the new drainfield is currently being developed.

There may be deviations to the preferred alternative design depending comments and other alternatives identified through the scoping process or the development of the EA. It is anticipated there will be minor changes based on final engineering design considerations.

I request you send your written comments (comments must be received by September 12, 2008) on this proposal to FEMA's consultant:

Jim Keany – Jim.Keany@edaw.com
EDAW
815 Western Avenue, #300
Seattle, WA 98104

If you have questions about this letter, the project, or if you want to receive a copy of the Draft EA for review and comment, please feel free to contact Jerry Creek, Environmental Specialist via email (jerry.creek@dhs.gov) or phone (425-482-3748) or me via email (mark.eberlein@dhs.gov) or phone (425-487-4735).

Sincerely,

Mark Eberlein
Regional Environmental Officer
FEMA Region 10

Public Notice Announcing Availability of Draft EA

Headlight-Herald - Tillamook, Ore., Wednesday, June 17, 2009 - Page A5

Public Notice
The U.S. Department of Homeland Security's
Federal Emergency Management Agency (FEMA)
Draft Environmental Assessment
Cape Lookout State Park, Tillamook County, Oregon
Drainfield Relocation Project

Notice is hereby given that FEMA plans to assist the Oregon Parks and Recreation Department (OPRD) in the replacement and relocation of a septic drainfield at Cape Lookout State Park, near Tillamook, Oregon. Federal financial assistance would be provided pursuant to the authority of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law 93-288, as amended (The Stafford Act).

FEMA prepared a draft environmental assessment (EA) for the proposed project pursuant to the National Environmental Policy Act (NEPA) of 1969 and FEMA's implementing regulations. The Draft EA will be finalized after agency and public review and input. The EA evaluates alternatives for compliance with applicable environmental laws, including: Executive Orders #11988 (Floodplain Management), #11990 (Protection of Wetlands), #12898 (Environmental Justice), and #13084 (Consultation and Coordination with Indian Tribal Governments). The alternatives evaluated in the EA include: (1) partial funding for the replacement and relocation of the campground's drainfield system that was damaged during winter storms in 2007, and (2) no action.

This notice will constitute as the final notice as required by Executive Order 11988, Floodplain Management, and Executive Order 11990, Protection of Wetlands. If no significant issues are identified during the comment period, FEMA will finalize the EA, issue a Finding of No Significant Impact (FONSI), and fund the project.

The Draft EA is available for viewing at the following locations:

Cape Lookout State Park	Tillamook County Library, Main Branch
13000 Whiskey Creek Road W	1716 3rd Street
Tillamook, OR 97141	Tillamook, OR 97141
503-842-4981 or 503-842-3182	503-842-4792

And also at the FEMA website: <http://www.fema.gov/plan/ehp/envdocuments/ea-region10.shtm>

Please submit any written comments on the Draft EA to Jim Keany, FEMA Region X's environmental contractor for this project, no later than 5 p.m. on July 1, 2009. Comments can be:

1. Mailed: EDAW AECOM; attn: Jim Keany; 710 Second Avenue, Suite 1000, Seattle, WA 98104
2. E-mailed: jim.keany@aecom.com

After the public comment period ends, the Final EA and FONSI will be available for viewing at: <http://www.fema.gov/plan/ehp/envdocuments/ea-region10.shtm>.

Comments Received on the Draft EA during the Comment Period

From: Chuck Hurliman [mailto:churlima@co.tillamook.or.us]
Sent: Thursday, June 25, 2009 9:31 AM
To: Keany, Jim
Cc: Tim Josi; Mark Labhart
Subject: Environmental Assessment Cape Lookout State Park

Jim Keany

Tillamook County Commissioners have received a Draft copy.

Comments: EA for the Cape Lookout State Park Drain field Relocation Project.

After reading this document, it is refreshing to see all levels of government working together and respecting each others authority.

Charles J. Hurliman
Tillamook County Commissioner

From: [Anne Walker@fws.gov](mailto:Anne.Walker@fws.gov)
Date: June 30, 2009 4:22:17 PM PDT
To: Jim.Keany@aecom.com
Cc: mark.eberlein@dhs.gov
Subject: Cape Lookout State Park Drainfield Relocation Project

Dear Mr. Keany,

This e-mail is to confirm that we (the US Fish and Wildlife Service) received and reviewed the draft EA for the proposed Cape Lookout State Park Drainfield Relocation Project, dated June 12, 2009. The draft EA stated that FEMA has determined that there would be no affect to listed species for which we have regulatory responsibilities, in Tillamook County, OR. We do not have any comments to contribute on this proposal, based on the draft EA and your affects determination. If you have questions please free to contact Anne Walker or Laura Todd (541) 867-4558.

Anne Walker
Newport Field Office
U.S. Fish and Wildlife Service
2127 SE Marine Science Drive
Newport, OR 97365-5258
Phone: 541-867-4558, x. 239
Fax: 541-867-4551
anne_walker@fws.gov

Appendix B
Cultural Resources Report (Confidential)
and Consultation



Oregon

Theodore R. Kulongoski, Governor

Parks and Recreation Department

State Historic Preservation Office

725 Summer St. NE, Suite C

Salem, OR 97301-1266

(503) 986-0707

FAX (503) 986-0793

www.hcd.state.or.us

September 15, 2008

Brian Ludwig
EDAW, Inc.
2022 J St.
Sacramento, CA 95811



RE: Archaeological Permit No. 1151

Dear Dr. Ludwig:

Enclosed is your archaeological permit for the following project: Cape Lookout Drainfield Replacement Project in Tillamook County. It was sent to CIS for the most appropriate tribe(s): Confederated Tribes of Grand Ronde Community of Oregon, Confederated Tribes of Siletz. Copies were also sent to the landowner, the Tillamook County planning department and OSMA. Replies were received from (attached).

Exploration shall consist of the following:

A maximum of two hundred eighty (280) exploratory shovel tests, cylindrical -shaped and measuring 30 (cm) at the surface, will be excavated within the project area. Hand-augers or split spoons may be used to extend shovel test depths. If archaeological deposits are found, a maximum of twenty (20) square-shaped 50 x 50 cm square test units (TUs) may be excavated to sample and evaluate for National Register eligibility. Both shovel tests (30 cm) and TU's (50 x 50 cxm) will excavated to 50 cm below surface, where possible, as well as two consecutive sterile 10 cm levels. All sediments will be screened through 1/8th-inch hardware mesh cloth.

Please contact me if you have any questions.

Sincerely,

Matt Diederich, MAIS

SHPO Archaeologist

(503) 986-0577

Matthew.Diederich@state.or.us

cc: Jon Erlandson (OSMA)

Karen Quigley (CIS)

Nancy Nelson (Landowner)

Confederated Tribes of Grand Ronde Community of Oregon

Confederated Tribes of Siletz





Oregon

Theodore R. Kulongoski, Governor

Parks and Recreation Department

State Historic Preservation Office

725 Summer St. NE, Suite C

Salem, OR 97301-1266

(503) 986-0707

FAX (503) 986-0793

www.hcd.state.or.us

STATE OF OREGON ARCHAEOLOGICAL EXCAVATION PERMIT NO. AP-1151



Nature
HISTORY
Discovery

The State of Oregon, acting by and through its Parks and Recreation Department, hereinafter called STATE, under authority of ORS 390.235, hereby grants to Brian Ludwig, hereinafter called PERMITTEE, a permit for purposes of excavation and removal of archaeological, historical, prehistoric, or anthropological materials. This permit is granted subject to the following terms and conditions.

1. Term.

PERMITTEE may conduct survey, excavation, and collection work from 9/15/2008 to 11/1/2009 provided that reasonable supervision, as provided hereinafter, is exercised.

2. Location.

This permit shall apply to lands owned by the State of Oregon, a city, county, district, or municipal corporation in Oregon, or private property, more particularly described as follows:

Cape Lookout Drainfield Replacement Project

3s11w-10w25

Tillamook County

3. Supervision

The design and work in connection with the survey or excavation, including exploratory excavation and collection, shall be personally supervised by Brian Ludwig.

4. Compliance.

PERMITTEE shall comply with all applicable federal, state, and local laws, rules, regulations, and ordinances.

5. Exploration shall consist of

A maximum of two hundred eighty (280) exploratory shovel tests, cylindrical -shaped and measuring 30 (cm) at the surface, will be excavated within the project area. Hand-augers or split spoons may be used to extend shovel test depths. If archaeological deposits are found, a maximum of twenty (20) square-shaped 50 x 50 cm square test units (TUs) may be excavated to sample and evaluate for National Register eligibility. Both shovel tests (30 cm) and TU's (50 x 50 cxm) will excavated to 50 cm below surface, where possible, as well as two consecutive sterile 10 cm levels. All sediments will be screened through 1/8th-inch hardware mesh cloth.

6. Indemnification.

PERMITTEE agrees to defend and hold STATE, its officers, agents, and employees harmless, and shall require its contractors to do the same, from any and all claims, damages, or expenses of any kind suffered or alleged to be suffered on the lands described in paragraph 2 or arising out of or in connection with the activities of PERMITTEE or its contractors pursuant to this Permit.



7. Insurance.

PERMITTEE shall obtain at PERMITTEE's expense, and keep in effect during the term of the Permit, comprehensive or commercial general liability insurance covering personal injury and property damage. This insurance shall include contractual liability coverage for the indemnification provided under this Permit. Coverage limits shall not be less than the limits of liability set forth in the provisions of ORS 30.270(1) as now in effect or as hereinafter amended. Such provisions now require that the coverage limits not less than \$500,000 combined single limit per occurrence. The insurance shall be in a form and with compliance acceptable to STATE. Such insurance may be evidenced by certificates or copies of policies. Such evidence shall be provided to STATE prior to the commencement of any operations or activities under this Permit.

8. Records.

PERMITTEE shall submit a final excavation report by 11/1/2010 to the State Historic Preservation Office and the Oregon State Museum of Anthropology. If PERMITTEE is conducting an excavation associated with a prehistoric or historic American Indian archaeological site, then PERMITTEE shall also submit copies of the Final Report to the Commission on Indian Services and the following tribe(s):

Confederated Tribes of Grand Ronde Community of Oregon
Confederated Tribes of Siletz

9. Custody.

All archaeological, historical, prehistoric, or anthropological materials recovered under this permit shall remain under the stewardship of the State of Oregon and shall be curated by Oregon State Museum of Anthropology. Any change in custody must be approved by the Oregon State Museum of Anthropology in accordance with ORS 390.235.

10. Notification

- a. If PERMITTEE is conducting an excavation associated with a prehistoric or historic American Indian archaeological site, PERMITTEE shall notify in writing the most appropriate Indian tribe. The notification shall include:
 - i. The location and schedule of the forthcoming excavation;
 - ii. A description of the nature of the of the investigation; and
- b. Upon discovery of an archaeological object which is demonstrably revered by any ethnic group, religious group, or Indian tribe as holy, which object was or is used in connection with a religious or spiritual service or worship of a deity or spirit power, i.e., a "sacred object", PERMITTEE shall notify in writing:
 - i. The State Historic Preservation Office; and
 - ii. The appropriate ethnic group, religious group, or Indian tribe with which the sacred object is associated.

11. Consultation

If PERMITTEE is conducting an excavation associated with a prehistoric or historic American Indian archaeological site, PERMITTEE shall consult with a representative of the appropriate tribe to establish a procedure for handling sacred objects recovered during the excavation.

12. Conditions.

Grand Ronde Tribe (Eirik Thorsgard)- The Tribe will be given advance notice by five (5) working days by phone or e-mail of all fieldwork. The Tribe will be provided an opportunity to have a Tribal Consultant on hand for all fieldwork under the permit. A copy of the final report will be submitted to the Tribal Cultural Resources Department.

13. Revocation.

Failure to comply with all terms of this Permit, in addition to any agreed upon conditions, may lead to its immediate revocation.

OREGON PARKS AND RECREATION DEPARTMENT



for

Roger Roper
Assistant Director, Heritage Programs

Date: 9/15/2008



Oregon

Theodore R. Kulongoski, Governor

Parks and Recreation Department

State Historic Preservation Office

725 Summer St. NE, Suite C

Salem, OR 97301-1266

(503) 986-0707

FAX (503) 986-0793

www.hcd.state.or.us

August 14, 2008



Nature
HISTORY
Discovery

Dr. Jon Erlandson
Oregon State Museum of Anthropology
1224 University of Oregon
Eugene, OR 97403-1224

RE: Archaeological Permit No. 1151

Dear Dr. Erlandson:

Enclosed is an archaeological permit application submitted to State Parks by Brian Ludwig. It is the responsibility of State Parks to forward all such applications to those parties described under ORS 390.235. Landowners should have been contacted by the applicant for access and disposition of artifacts (private lands).

Please review this application, mark your evaluation below, and return it to us with any comments. If we do not receive a response within thirty (30) days from the date of this notification, we will assume you have no objection to this permit.

Thank you for your cooperation. Please contact me if you have any questions.

Sincerely,

Matt Diederich, MAIS
SHPO Archaeologist
(503) 986-0577
Matthew.Diederich@state.or.us

Reviewer Evaluation

- I approve of the permit
- I request conditions (attach)
- I object to the permit (attach explanation)

Signature: Sam Quigley for Jon Erlandson
Date: 8/15/08

cc: Karen Quigley (CIS)
Tillamook Co Planning Dept
Nancy Nelson (Landowner)
Confederated Tribes of Grand Ronde Community of Oregon
Confederated Tribes of Grand Ronde Community of Oregon





Oregon

Theodore R. Kulongoski, Governor

Parks and Recreation Department

State Historic Preservation Office

725 Summer St. NE, Suite C

Salem, OR 97301-1266

(503) 986-0707

FAX (503) 986-0793

www.hcd.state.or.us

August 14, 2008

Eirik Thorsgard
Confederated Tribes of Grand Ronde
Community of Oregon
9615 Grand Ronde Road
Grand Ronde, OR 97347



Nature
HISTORY
Discovery

RE: Archaeological Permit No. 1151

Dear Eirik:

Enclosed is an archaeological permit application submitted to State Parks by Brian Ludwig. It is the responsibility of State Parks to forward all such applications to those parties described under ORS 390.235. Landowners should have been contacted by the applicant for access and disposition of artifacts (private lands).

Please review this application, mark your evaluation below, and return it to us with any comments. If we do not receive a response within thirty (30) days from the date of this notification, we will assume you have no objection to this permit.

Thank you for your cooperation. Please contact me if you have any questions.

Sincerely,

Matt Diederich, MAIS
SHPO Archaeologist
(503) 986-0577
Matthew.Diederich@state.or.us

Reviewer Evaluation

I approve of the permit

I request conditions (attach)

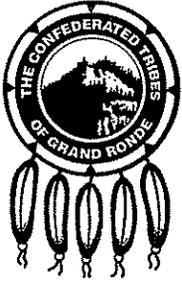
I object to the permit (attach explanation)

Signature:

Date: 8/25/08

cc: Dr. Jon Erlandson (OSMA)
Karen Quigley (CIS)
Tillamook Co Planning Dept
Nancy Nelson (Landowner)
Confederated Tribes of Grand Ronde Community of Oregon





The Confederated Tribes of the Grand Ronde Community of Oregon

Cultural Resources
Phone (503) 879-2268
1-800 422-0232
Fax (503) 879-2126

9615 Grand Ronde Rd
Grand Ronde, OR 97347

August 25, 2008

Matt Diedrich
State Historic Preservation Office
725 Summer Street NE, Suite
Salem, OR 97301

RE: AP – 1151: Cape Lookout Drainfield Replacement Project

Dear Susan,

The Confederated Tribes of Grand Ronde will approve the permit under the following conditions

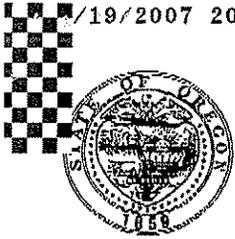
1. The Tribe will be given advance notice by five working days by telephone or email of all field work.
2. The Tribe will be provided an opportunity to have Tribal Consultant on hand for all field work under the permit
3. Final Report will be submitted to the Cultural Resources Department.

Should you have any questions, please contact me at (503) 879-1630.

Respectfully,

A handwritten signature in black ink, appearing to read "E. Thorsgard".

Eirik Thorsgard MAIS,
Cultural Protection Coordinator
Confederated Tribes of the Grand Ronde Community of Oregon



Oregon

Theodore R. Kulongoski, Governor

→ TO: MATT DIEDERICH

Parks and Recreation Department
State Historic Preservation Office
725 Summer St. NE, Suite C
Salem, OR 97301-1266
(503) 986-0707
FAX (503) 986-0793
www.hcd.state.or.us

August 14, 2008

Ms. Karen Quigley
Commission on Indian Services
167 State Capitol
Salem, OR 97301-1347



Nature
HISTORY
Discovery

RE: Archaeological Permit No. 1151

Dear Karen:

Enclosed is an archaeological permit application submitted to State Parks by Brian Ludwig. It is the responsibility of State Parks to forward all such applications to those parties described under ORS 390.235. Landowners should have been contacted by the applicant for access and disposition of artifacts (private lands).

Please review this application, mark your evaluation below, and return it to us with any comments. If we do not receive a response within thirty (30) days from the date of this notification, we will assume you have no objection to this permit.

Thank you for your cooperation. Please contact me if you have any questions.

Sincerely,

Matt Diederich, MAIS
SHPO Archaeologist
(503) 986-0577
Matthew.Diederich@state.or.us

Reviewer Evaluation

- I approve of the permit
- I request conditions (attach)
- I object to the permit (attach explanation)

Signature:
Date: 8-18-08

cc: Dr. Jon Erlandson (OSMA)
Tillamook Co Planning Dept
Nancy Nelson (Landowner)
Confederated Tribes of Grand Ronde Community of Oregon
Confederated Tribes of Grand Ronde Community of Oregon





Oregon

Theodore R. Kulongoski, Governor

Parks and Recreation Department

State Historic Preservation Office

725 Summer St. NE, Suite C

Salem, OR 97301-1266

(503) 986-0707

FAX (503) 986-0793

www.hcd.state.or.us

August 14, 2008

Nancy Nelson
Oregon State Parks and Recreation Dept.
725 Summer St NE Suite C
Salem, OR 97301



Nature
HISTORY
Discovery

RE: Archaeological Permit No. 1151

Dear Ms. Nelson:

Enclosed is an archaeological permit application submitted to State Parks by Brian Ludwig. It is the responsibility of State Parks to forward all such applications to those parties described under ORS 390.235. Landowners should have been contacted by the applicant for access and disposition of artifacts (private lands).

Please review this application, mark your evaluation below, and return it to us with any comments. If we do not receive a response within thirty (30) days from the date of this notification, we will assume you have no objection to this permit.

Thank you for your cooperation. Please contact me if you have any questions.

Sincerely,

Matt Diederich, MAIS
SHPO Archaeologist
(503) 986-0577
Matthew.Diederich@state.or.us

Reviewer Evaluation

I approve of the permit

I request conditions (attach)

I object to the permit (attach explanation)

Signature: Nancy Nelson

Date: 8/14/08

cc: Dr. Jon Erlandson (OSMA)
Karen Quigley (CIS)
Tillamook Co Planning Dept
Confederated Tribes of Grand Ronde Community of Oregon
Confederated Tribes of Grand Ronde Community of Oregon

In the event that human remains are located, all testing will cease in the immediate vicinity. Dr. Ludwig shall report the discovery to Robert Ken Ha with the Confederated Tribes of Siletz and Eirik Thorsgard with the Confederated Tribes of the Grand Ronde Community of Oregon, the Oregon State Police, the Commissioner of Indian Services, the State Historic Preservation Office and OPRD.