Pacific Connector Gas Pipeline, LP

Resource Report No. 8

Land Use, Recreation and Aesthetics

Pacific Connector Gas Pipeline Project

May 2017

Land Use, Recreation and Aesthetics Location of Information to Satisfy Minimum Filing Requirements	
Requirement	**Section**
1. Classify and quantify land use affected by: Title 18 Code of Federal Regulations ("CFR") part (§) 380.12 (j) (1) a. Pipeline construction and permanent rights-of-way; b. Extra work/staging areas; c. Access roads; d. Pipe and contractor yards; and e. Aboveground facilities.	Section 8.3 Section 8.4
2. Identify by milepost all locations where the pipeline right-of-way would at least partially coincide with existing right-of-way, where it would be adjacent to existing rights-of-way, and where it would be outside of existing right-of-way – 18 CFR § 380.12 (j) (1)	Section 8.3.6 Appendix A.8 - Table A.8-5
3. Provide detailed typical construction right-of-way cross section diagrams showing information such as widths and relative locations of existing rights-of-way, new permanent right-of-way and temporary construction right-of-way – 18 CFR – § 380.12 (j) (1)	See end of Resource Report 1
4. Summarize the total acreage of land affected by construction and operation of the project – 18 CFR § 380.12 (j) (1)	Table 8.4-1
5. Identify by milepost all planned residential or commercial/business development and the timeframe for construction – 19 CFR § 380.12 (j) (4)	Section 8.5.5 Section 8.7.6
6. Identify by milepost special land uses (e.g., maple sugar stands, specialty crops, natural areas, national and state forests, conservation land, etc.) – 18 CFR § 380.12 (j) (4)	Section 8.5
7. Identify by beginning milepost and length of crossing all land administered by federal, state, or local agencies, or private conservation organizations – 18 CFR § 380.12 (j) (4)	Table 8.5-1
8. Identify by milepost all natural, recreational, or scenic areas, and all registered natural landmarks crossed by the project – 18 CFR § 380.12 (j) (4 & 6)	Section 8.5.1.2
9. Identify all facilities that would be within designated coastal zone management areas – 18 CFR § 380.12 (j) (4))	Section 8.5.1.2
10. Identify by milepost all residences that would be within 50 feet of the construction right-of-way or extra work area – 18 CFR § 380.12 (j) (5)	Section 8.5.2 Section 8.7.3
11. Identify all designated or proposed candidate National or State Wild and Scenic Rivers crossed by the project – 18 CFR – § 380.12 (j) (6)	Section 8.5.1.2
12. Describe any measures to visually screen aboveground facilities, such as compressor stations – 18 CFR § 380.12 (j) (11)	Section 8.7.13.2
13. Demonstrate that applications for rights-of-way or other proposed land use have been or soon will be filed with federal land-managing agencies with jurisdiction over land that would be affected by the project – 18 CFR § 380.12 (j) (12)	Resource Report 1 Table 1.6-1

Information Recommended or Often Missing	
Requirement	**Section**
Identify all buildings within 50 feet of the construction right-of-way or extra work areas.	Appendix A.8 - Table A.8-7
Describe the management and use of all public lands that would be crossed.	Section 8.5.1
Provide a list of landowners by milepost or tract number that corresponds to information on alignment sheets.	See Resource Report 1
Provide a site-specific construction plan for residences within 25 feet of construction or as requested by Federal Energy Regulatory Commission staff.	Appendix F.8

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(to be filed with final application unless noted below **)

List of Abbreviations

ABVA	automated block valve assembly
ACEC	Area of Critical Environmental Concern
ACS	Aquatic Conservation Strategy
BLM	Bureau of Land Management
BMPs	Best Management Practices
BTEX	benzene, toluene, ethylbenzene and xylene
BVA	block valve assembly
CBN	Coos Bay Net
CBWR	Coos Bay Wagon Road
CFR	Code of Federal Regulations
CMP	Compensatory Mitigation Plan
CRTP	Coos Regional Trails Partnership
CZMA	Coastal Zone Management Act
DLCD	Department of Land Conservation and Development
DOE	Department of Energy
DOT	U.S. Department of Transportation
Dth/d	dekatherms per day
ECSI	Environmental Cleanup Site Information
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ERMA	Extensive Recreation Management Area
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement
FERC	Federal Energy Regulatory Commission
FG	foreground
Forest Service	USDA Forest Service
FR	Forest Road
FWS	U.S. Fish and Wildlife Service
GIS	Geographic Information System
GTN	Gas Transmission Northwest, LLC
HDD	horizontal directional drilling
IRA	Inventoried Roadless Area
JCEP	Jordan Cove Energy Project, LP
JCLNG	Jordan Cove Energy LNG, LLC
KOAC	known spotted owl activity centers
KOP	Key Observation Point
LNG	Liquefied Natural Gas
LRMP	Land and Resource Management Plan
LSR	Late Successional Reserve
LUST	leaking underground storage tank

MG	middle ground
MP	milepost
NEPA	National Environmental Policy Act
NFS	National Forest System
NGA	Natural Gas Act
NLCD	National Land Cover Database
NMFS	National Marine Fisheries Service
NOI	Notice of Intent
NPL	National Priorities List
NPS	National Park Service
NRA	National Recreation Area
NWFP	Northwest Forest Plan
NWR	National Wildlife Refuge
O&C	Oregon and California
OCMP	Oregon Coastal Management Program
ODEQ	Oregon Department of Environmental Quality
ODFW	Oregon Department of Fish and Wildlife
ODPR	Oregon Department of Parks and Recreation
OHV	off-highway vehicle
ONHP	Oregon Natural Heritage Program
OSMB	Oregon State Marine Board
PAH	polyaromatic hydrocarbons
PAR	permanent access road
PCB	polychlorinated biphenyl
PCGP	Pacific Connector Gas Pipeline
PCT	Pacific Crest Trail
PCTA	Pacific Crest Trail Association
POD	Plan of Development
PR	partial retention
R	retention
Reclamation	Bureau of Reclamation
RMP	Resource Management Plan
RMS	Riparian Management Strategy
RNA	Research Natural Area
ROD	Record of Decision
Ruby	Ruby Pipeline LLC
SMS	Scenery Management System
SPCC	Spill Prevention, Containment, and Countermeasures
SRMA	Special Resource Management Area
TAR	temporary access road
TEWA	temporary extra work area
TMP	Transportation Management Plan
TMPNFL	Transportation Management Plan for Non-Federal Lands
TPH	total petroleum hydrocarbons
UCSA	uncleared storage area
USDA	U.S. Department of Agriculture
USDI	U.S. Department of Interior
USDOT	U.S. Department of Transportation
USGS	U.S. Geological Survey
VOCs	volatile organic compounds
VMS	Visual Management System
VQO	Visual Quality Objective
VRM	Visual Resource Management
WSRs	Wild and Scenic Rivers
WOPR	Western Oregon Plan Revisions

8. LAND USE, RECREATION AND AESTHETICS

8.1 INTRODUCTION

Pacific Connector Gas Pipeline, L.P. ("PCGP") is seeking authorization from the Federal Energy Regulatory Commission ("FERC" or "Commission") under Section 7 of the Natural Gas Act ("NGA") to construct and operate a new approximate 235-mile-long, 36-inch-diameter natural gas transmission pipeline ("Pipeline") capable of transporting approximately 1,200,000 dekatherms per day ("Dth/d") of natural gas from interconnections with two existing interstate natural gas pipelines (Ruby Pipeline LLC's Ruby Pipeline ("Ruby") and Gas Transmission Northwest LLC's GTN Pipeline ("GTN")) near Malin, Oregon, to the proposed Jordan Cove Liquefied Natural Gas ("LNG") export facility ("LNG Terminal") being developed by Jordan Cove Energy Project, L.P. ("JCEP"). The Pipeline and the LNG Terminal are referred to, collectively, as the "Project."

The Pipeline will be constructed in Coos, Douglas, Jackson, and Klamath counties ("Proposed Route") (see Figure 1.1-1 in Resource Report 1). This Resource Report addresses the use, ownership, and management of private and public lands that could be affected along the Proposed Route. It describes land use resources and assesses the potential effects associated with the construction and operation of the Pipeline and related aboveground facilities. Recreational and visual resource impacts are also addressed. The report characterizes and quantifies land affected, identifies public lands and designated recreation or other special use areas affected, and discusses special construction techniques or other forms of mitigation that would be used to reduce impacts during construction and operation of the Pipeline. The report uses information obtained from federal, state, and county land use documents and resource managers.

8.2 LAND USE CLASSIFICATION METHODOLOGY

This report utilizes a land use classification system developed by the U.S. Geological Survey ("USGS"), which is a standardized system of identifying land use and land cover with a goal of better assessing and managing areas of critical concern for environmental control such as floodplains and wetlands, energy resource development and production areas, wildlife habitat, recreational lands, and residential and industrial development sites (Anderson et al. 1976; Homer et al. 2012). For the Pipeline, the USGS National Land Cover Database ("NLCD") system is used to determine land use and land cover on a project-wide level and is detailed in the sections below.

Another classification system used in this report is the land use allocation system as provided in the Northwest Forest Plan ("NWFP") and in the 2016 Bureau of Land Management ("BLM") Resource Management Plans ("RMPs") (BLM 2016a and 2016b). The NWFP was developed to coordinate management direction for lands administered by the U.S. Department of Agriculture ("USDA"), Forest Service ("Forest Service"), and the U.S. Department of the Interior ("USDI"), BLM, and other federal agencies within the range of the Northern Spotted Owl. The 2016 BLM RMPs replace the NWFP management direction on BLM lands. Under the NWFP, seven land allocations were designated, each with its own set of Standards and Guidelines, to support the goal of producing timber products while protecting the long-term health of watersheds, wildlife habitat, forest ecosystems and surrounding communities (Forest Service and 1994). The 2016 BLM RMPs designate several land use allocations for BLM lands and set out

their objectives, which include: providing a sustained yield of timber; contributing to the conservation and recovery of threatened and endangered species; and providing clean water in watersheds. For the Pipeline, the NWFP and 2016 BLM RMP land allocation systems are used to determine impacts to wildlife habitat, watersheds, and forest resources inventories on National Forest System ("NFS") and BLM lands. The lands allocated under the NWFP and 2016 BLM RMPs are further delineated in Section 8.5.1.1.

8.2.1 United States Geological Survey Land Use and Land Cover Classification

Land uses crossed by the Pipeline are categorized in accordance with the USGS protocol's nine primary classifications, which are further divided into more detailed and specific land use descriptions (Anderson et al. 1976). Of the land use types found along the Proposed Route, 7 are primary, 18 are secondary, and 3 are tertiary.

The primary land use classification provides a broad category for identifying land use on a national, statewide, or regional scale (*e.g.*, Rangeland, Forest Land, Urban, Agriculture). Secondary land use classifications provide more detail for analyzing land cover and use within the primary, or more general categories. A large portion of the Proposed Route is on Forest Land, but these land types vary greatly from the coastal forests to the eastern slope of the Cascade Mountains. Secondary classifications are needed to determine what type of Forest Land might be in each area (i.e., Deciduous Forest, Evergreen Forest, or Mixed Forest Land).

Additionally, the USGS system allows for classifying more detailed levels of land use to generate localized information at the intrastate, district, county, or municipal scale, depending on the application. For example, along the Proposed Route, Evergreen Forest Land includes Clearcut Forest and Regenerating Forest Lands.

The USGS-based land use data described in this report were developed through interpretation of aerial photography (acquired in 2016), land management agency maps and Geographic Information System ("GIS") data, and USGS NLCD mapping. Additionally, visual inspections of the Proposed Route from the air and on the ground were conducted between 2006 and 2016 to confirm land use data. The USGS land use categories that will be crossed by the Proposed Route are defined in Section 8.2.2 below and listed in Table 8.2-1.

Table 8.2-1
USGS Land Use Classifications of Areas Crossed by the Proposed Route

Primary Code	Primary Classification	Secondary Code	Secondary Classification	Tertiary Code	Tertiary Classification
1	Urban or Built-Up Land	11	Residential		
		12	Commercial		
		13	Industrial		
		14	Transportation/Communications		
		17	Other Urban or Built-up Land		
2	Agriculture	21	Cropland/Pastureland		
		22	Orchards, Groves, Vineyards		
3	Rangeland	31	Herbaceous Rangeland		
		32	Shrub/Brush Rangeland		
		33	Mixed Rangeland		
4	Forest Land	41	Deciduous Forest Land		
		42	Evergreen Forest Land	421	Clearcut Forest
				422	Regenerating Forest

Primary Code	Primary Classification	Secondary Code	Secondary Classification	Tertiary Code	Tertiary Classification
		43	Mixed Forest Land		
5	Water	51	Streams	512	Ditches and Canals
		54	Bay and Estuaries		
6	Wetlands	61	Forested Wetland		
		62	Nonforested Wetland		
7	Barren Land	75	Mines, Quarries, Gravel Pits		
		76	Transitional Areas		
Source: Anderson et al. 1976.					

8.2.2 USGS Primary and Secondary Land Classification Definitions for the Proposed Route

Urban or Built-Up Land (1). These are lands comprised of areas of intensive use with much of the land covered by structures. Included in this category are cities, towns, and villages; strip developments along highways; transportation, power, and communications facilities; and areas such as those occupied by lumber mills, shopping centers, and industrial and commercial complexes. Also included are lands that are isolated from urban centers, but still reflect built-up land characteristics. Described below are the five secondary land use categories of Urban or Built-Up Land along the Proposed Route. Mitigation measures described by land use type are found in section 8.7 Impacts and Mitigation.

- **Residential (11).** Residential land uses range from high density, represented by the multiple-unit structures of urban cores, to low density, where houses are on lots of more than an acre, on the periphery of urban expansion. Areas of sparse residential land use, such as farmsteads and rural residential and recreational subdivisions, are included in this category since the land is almost totally committed to residential use although it may have forest or range types of cover.

- **Commercial and Services (12).** Commercial areas are those used predominantly for the sale of products and services. They are often abutted by residential, agricultural, or other contrasting uses which help define them. Components of the Commercial and Services category are central business districts, shopping centers, commercial strip developments along major highways and access routes to cities, junkyards, resorts, and others. Commercial areas may include some noncommercial uses too small to be separated out.

- **Industrial (13).** Industrial areas include a wide array of land uses from light manufacturing to heavy manufacturing plants. Light industrial areas may be directly in contact with urban areas, but as along the Proposed Route, many are found in relatively open country and rural areas. Included are pulp and lumber mills, electric power generating stations, tank farms, chemical plants, and brick making plants. Stockpiles of raw materials and waste-product disposal areas are usually visible, along with transportation facilities capable of handling heavy materials.

- **Transportation, Communications, and Utilities (14).** The land uses included in this category occur to some degree within all the other Urban or Built-Up categories, and can be found within many other categories. Highways and railways are characterized by areas of activity connected in linear patterns. Communications and utilities areas such as those involved in the transportation

of water, gas, oil, and electricity and areas used for airwave communications are also included in this category. Long-distance gas, electric, telephone, water, or other transmission facilities rarely constitute the dominant use of the lands with which they are associated, but are delineated as communications and utilities corridors along the Proposed Route.

- **Other Urban or Built-Up Land (17).** Other Urban or Built-Up Land typically consists of uses such as golf courses, urban parks, cemeteries, waste dumps, water-control structures and spillways, ski areas, and undeveloped land within an urban setting. Open land that may be in very intensive use but a use that does not require structures, such as urban playgrounds, or botanical gardens is included.

Agriculture (2). Agricultural land may be defined broadly as land used primarily for production of food and fiber. The interface of Agricultural with other categories of land use may sometimes be a transition zone in which there is an intermix of land uses at first and second levels of categorization. Where farming activities are limited by wetness, the exact boundary also may be difficult to locate, and Agricultural Land may grade into Wetland. Secondary land uses described under Agriculture along the Proposed Route include Cropland and Pasture, and Orchards, Groves, Vineyards, and are described below. Mitigation measures described by land use type are found in section 8.7 Impacts and Mitigation.

- **Cropland and Pasture (21).** Several components are used in identifying Cropland and Pasture and some include: harvested cropland; bush fruits; cultivated summer fallow and idle cropland; cropland in soil-improvement grasses and legumes; cropland used for pasture in rotation with crops; and pasture on land used for that purpose. Drainage or water control on land used for cropland and pasture also creates a recognizable pattern that may aid in identification of the land use. Cropland and Pasture along the Proposed Route mostly consists of livestock forage, hay and alfalfa, and food crops in the Klamath Valley.

- **Orchards, Groves, Vineyards (22).** Orchards, groves, and vineyards produce various fruit and nut crops. Along the Proposed Route, isolated small orchards comprise the bulk of this land use category.

Rangeland (3). Rangeland historically has been defined as land where the potential natural vegetation is predominantly grasses, grass-like plants, forbs or shrubs, and where natural herbivory was an important influence in its pre-civilization state. Some rangelands have been or may be seeded with introduced or domesticated plant species. Herbaceous, Shrub and Brush, and Mixed Rangelands are three secondary Rangeland land uses found along the Proposed Route, and they are defined below.

- **Herbaceous Rangeland (31).** The Herbaceous Rangeland category encompasses lands dominated by naturally occurring grasses and forbs as well as those areas of actual rangeland which have been modified to include grasses and forbs as their principal cover, when the land is managed for rangeland purposes and not managed using practices typical of pastureland. It includes the tall grass, short grass, bunch grass, and desert grass regions.

- **Shrub and Brush Rangeland (32).** The typical shrub occurrences are found in those arid and semiarid regions characterized by vegetative types with woody stems such as big sagebrush, shadscale, or greasewood. When bottom lands and moist flats are characterized by dense stands of typical wetland species they are considered Wetland. Also included in this category are: chaparral, mountain mahogany, and scrub oak.

- **Mixed Rangeland (33).** When more than one-third intermixture of either Herbaceous, or Shrub and Brush Rangeland species occurs in a specific area, it is classified as Mixed Rangeland. Where the intermixed land use or uses total less than one-third of the specific area, the category appropriate to the dominant type of Rangeland is applied.

Forest Land (4). Forest Lands have a tree crown density (crown closure percentage) of 10 percent or more, are stocked with trees capable of producing timber or other wood products, and exert an influence on the climate or water regime. Lands from which trees have been removed to less than 10 percent crown closure but which have not been developed for other uses also are included. For example, lands on which there are rotation cycles of clearcutting and blockplanting are part of Forest Land. Secondary Forest Land classifications crossed by the Proposed Route are described below and include: Deciduous, Evergreen, and Mixed Forest Land.

- **Deciduous Forest Land (41).** Deciduous Forest Land includes all forested areas having a predominance of trees that lose their leaves at the end of the frost-free season or at the beginning of a dry season. In most parts of the Proposed Route, these would be the hardwoods such as oak, maple, and the "soft" hardwoods, such as alder. Deciduous forest types characteristic of Wetlands are not included in this category.

- **Evergreen Forest Land (42).** Evergreen Forest Land includes all forested areas where the trees are predominantly those which remain green throughout the year. Both coniferous and broadleaved evergreens are included in this category. In most areas, the coniferous evergreens dominate. The coniferous evergreens are commonly referred to or classified as softwoods. Along the Proposed Route, they include such species as: douglas-fir, western redcedar, western hemlock, sitka spruce, engelmann spruce, lodgepole pine, ponderosa pine, and others. Along the Proposed Route, Evergreen Forest lands have been classified by the following age classes: 0 to 5 years – clearcut; 5 to 40 years – regenerating; 40 to 80 years - mid-seral; 80 to 175 years – late successional; and 175+ years – old-growth.

  As noted above, the USGS Land Use Classification protocols allow for flexibility in determining land use categories to better reflect the land use patterns in a particular region. A large portion (approximately 45.43 miles, or 19.31 percent) of the Proposed Route will pass through the Evergreen Forest Land use category. For determining more accurate land use in this classification, Evergreen Forest Land is divided into two tertiary classifications—Clearcut Forest and Regenerating Forest. Descriptions of these land use classifications are provided below.

- Clearcut Forest (421). Land use classified as Clearcut Forest along the Proposed Route is usually land surrounded by markedly different stands of forest. Clearcut Forest includes areas where it is obvious that trees have been recently harvested, usually from one to four years before the aerial photography was taken. Because of the limitations of the Project's 2016 aerial photography, some lands classified as Clearcut Forest might have very small replanted tree or shrub growth present.

- Regenerating Forest (422). Land use that successionally falls between the Clearcut Forest classification and Evergreen Forest land is Regenerating Forest. Typically, Regenerating Forest lands contain replanted evergreen stocks that may be in a range of 4 to 40 years old, depending upon the physiographic location of the tree stand. The Regenerating Forest classification is also used on lands along the Proposed Route where a selective harvest has occurred. Often in these stretches of forest, there will be about 20 to 30 percent of large and older trees intermixed with younger regenerating evergreen trees. Regenerating Forest lands may also contain some small percentages of deciduous vegetation and trees. The deciduous growth commonly establishes in areas that have been harvested and replanted with evergreen stock. Depending on the physiographic location this vegetation might include, but is not limited to, Himalayan blackberry, vine maple, alder, Pacific madrone, Scotch broom, manzanita, and chinquapin.

- **Mixed Forest Land (43).** Mixed Forest Land includes all forested areas where both Evergreen and Deciduous Forest Lands occur and neither predominates. When more than one-third intermixture of either evergreen or deciduous species occurs in a specific area, it is classified as Mixed Forest Land. Where the intermixed land use or uses total less than one-third of the specified area, the category appropriate to the dominant type of Forest Land is applied, whether Deciduous or Evergreen Forest Land.

Water (5). The delineation of Water areas depends on the scale and resolution characteristics of data used for interpretation of land use and land cover. In the Pipeline project area, water consists of ponds, stock ponds, irrigation canals, ditches, small reservoirs, streams, estuaries, and bays. The three secondary and one tertiary land use classifications for Water found along the Proposed Route are described below.

- **Streams (51).** The Streams category includes rivers and creeks. Intermittent streams are included in this category. Where the water course is interrupted by a control structure, the impounded area will be placed in the Reservoirs category. Man-made water distribution features are classified as a subset of Streams and are described below.

  - Ditches and Canals (512). Ditches and canals are excavated anthropogenic features consisting of drainages or conveyance features that drain agricultural or upland areas and include roadside ditches. Channels are primarily U-shaped or trapezoid shaped with mud bottoms and bermed banks ranging in width from 1 to 40 feet. In general, drainage ditches were dry during field reconnaissance while irrigation

ditches and canals contained flowing water. The vegetation present in the features varies with moisture regime.

- **Bays and Estuaries (54).** Bays and Estuaries are inlets or arms of the sea that extend inland and often mix with river mouths influenced by tidal flows. These are concentrated around the Coos Bay region of the Proposed Route.

Wetlands (6). Wetlands are those areas where the water table is at, near, or above the land surface for a significant part of most years. The hydrologic regime is such that aquatic or hydrophytic vegetation usually is established, although some alluvial and tidal flats may be nonvegetated. Wetlands frequently are associated with topographic lows, even in mountainous regions. They include wet meadows or perched bogs in high mountain valleys and seasonally wet or flooded basins with no surface-water outflow. Shallow water areas where aquatic vegetation is submerged are classed as open water and are not included in the Wetland category. Forested and Nonforested Wetlands are two secondary forms of Wetlands found along the Proposed Route, and are described below. Wetlands in these land use categories were based on the wetland field surveys conducted for the Pipeline between 2006 and 2016 (see Resource Report 2).

- **Forested Wetlands (61).** Forested Wetlands are wetlands dominated by woody vegetation. These areas include seasonally flooded bottomland hardwoods, shrub swamps, and wooded swamps including those around bogs. Because delineation of Forested Wetlands is needed for many environmental planning activities, they are separated from other categories of Forest Land.

- **Nonforested Wetlands (62).** Nonforested Wetlands are dominated by wetland herbaceous vegetation or are nonvegetated. These wetlands include tidal and nontidal fresh, brackish, and salt marshes and nonvegetated flats, and freshwater meadows, emergent wetlands, wet prairies, and open bogs.

Barren Land (7). Barren Land is land of limited ability to support life and in which less than one-third of the area has vegetation or other cover. In general, it is an area of thin soil, sand, or rocks. Vegetation, if present, is more widely spaced and scrubby than that in the Shrub and Brush category of Rangeland. Unusual conditions, such as a heavy rainfall, occasionally result in growth of short-lived plant cover. The five secondary land use classifications for Barren Land found along the Proposed Route are described below.

- **Strip Mines, Quarries and Gravel Pits (75).** Extractive mining activities that cause significant surface disturbance are included in this land use category. Vegetative cover and overburden are removed to expose such deposits as gravel, boulders, and minerals. Quarrying of building and decorative stone and recovery of sand and gravel deposits also result in large open surface pits. Current mining activity is not always distinguishable, and inactive, unreclaimed, and active strip mines, quarries, borrow pits, and gravel pits are included in this category.

- **Transitional Areas (76).** The Transitional Areas category is intended for those areas which are in transition from one land use activity to another. This transitional phase occurs when, for example, forest lands are cleared for agriculture, wetlands are drained for development, or when any type of land use

ceases as areas become temporarily bare and construction is planned for such future uses as residences, shopping centers, industrial sites, or suburban and rural residential subdivisions. Land being altered by filling, such as occurs in spoil dumps or sanitary landfills, is also indicative of this transitional phase.

8.3 EXISTING LAND USE

8.3.1 Pipeline Facilities

The Pipeline will extend east and then southeast from the LNG Terminal traversing Coos, Douglas, Jackson, and Klamath counties in Oregon. The Pipeline will interconnect with the GTN and Ruby systems at the terminus of the Pipeline (milepost ["MP"] 228.81) near Malin, Oregon.

Approximately 62.16 percent of the land crossed by the Pipeline is classified as Forest Land; 13.57 percent is classified as Agricultural Lands; 14.36 percent as Rangelands and 8.09 percent as Urban or Built-up Lands. The other land classifications combined (Water, Wetlands, Barren Lands) comprise about 2 percent of the Pipeline. A summary of existing land uses crossed by the Pipeline is presented in Table 8.3-1. Information by county is shown in Appendix I.8.

Table 8.3-1
Land Uses Crossed by the Pipeline

USGS Land Use Classification		Pipeline Total (miles)	Percent of Total
Urban or Built-Up Land	Residential (11)	0.25	0.11
	Commercial (12)	<0.01	0.00
	Industrial (13)	0.50	0.21
	Transportation/Communication (14)	17.77	7.55
	Other Urban or Built-Up Land (17)	0.50	0.21
	Subtotal	**19.02**	**8.09**
Agricultural Lands	Cropland and Pasture (21)	31.88	13.55
	Orchards, Groves, Vineyards, etc. (22)	0.03	0.01
	Subtotal	**31.91**	**13.57**
Rangeland	Herbaceous Rangeland (31)	9.42	4.00
	Shrub and Brush Rangeland (32)	16.59	7.05
	Mixed Rangeland (33)	7.77	3.30
	Subtotal	**33.78**	**14.36**
Forest Land	Deciduous Forest Land (41)	4.42	1.88
	Evergreen Forest Land (42)	45.43	19.31
	Clearcut Forest Land (421)	12.27	5.22
	Regenerating Forest Land (422)	54.22	23.05
	Mixed Forest Land (43)	29.87	12.70
	Subtotal	**146.21**	**62.16**
Water	Streams (51)	0.83	0.35
	Ditches and Canals (512)	0.26	0.11
	Bay and Estuaries (54)	1.36	0.58
	Subtotal	**2.45**	**1.04**
Wetlands	Forested Wetland (61)	0.22	0.09
	Nonforested Wetland (62)	1.36	0.58
	Subtotal	**1.58**	**0.67**
Barren Land	Beaches (72)	0.25	0.11
	Mines, Quarries, Gravel Pits (75)	0.02	0.01

USGS Land Use Classification	Pipeline Total (miles)	Percent of Total
Subtotal	**0.27**	**0.11**
Pipeline Total	**235.22**	**100**

8.3.2 Rock Source and Permanent Disposal Sites

Disposal sites may be required to handle excess rock, spoil, or drilling mud that are generated during construction. Preferred locations for these materials include existing rock/gravel quarries and pits near the Pipeline. Where existing quarries or pits are not available, PCGP has identified stable sites along the right-of-way as permanent disposal sites. Table A.8-4 in Appendix A.8 provides land use, size, purpose, land ownership and location of each rock source and disposal site proposed for the Pipeline. Appendix G.8 provides figures of the sites. Land use impacts for these sites are also included in Table 8.4-1.

8.3.3 Contractor and Pipe Storage Yards

PCGP has identified yards and rail ports in the general area of the Pipeline that may be used during construction to off-load and store pipe and stage contractor equipment. Table 8.3-2 provides a list of the yards, their locations, associated land uses and a brief description of each. The main criteria used for selecting the pipe storage yards and disposal sites are as follows:

- existing commercial/industrial site;
- proximity of site to route;
- proximity of site to railroad and/or barge dock;
- proximity of site to paved traffic infrastructure;
- size of usable site;
- presence of existing improved surface;
- security fencing/lighting availability;
- probability of site availability when needed;
- utilities and hook-ups for office/storage trailers; and
- vehicle and equipment parking space.

8.3.4 Access Roads

Ingress and egress points from existing roads are sufficient along most portions of the Pipeline to allow for safe, efficient construction and movement of equipment and materials. Table A.8-1 in Appendix A.8 provides a list of necessary access roads, as well as methods for crossing roads that intersect the Pipeline. It will be necessary to construct 11 new temporary access roads ("TARs") for the Pipeline. The TARs will be reclaimed upon completion of construction. Additionally, PCGP will construct 15 new permanent access roads ("PARs") to access Pipeline aboveground facilities. Table 8.3-3 lists each of these roads, their lengths, purposes, jurisdiction, and land use impacts. The roads are shown on the topographic maps provided in the Mapping Supplement (see Appendix G.1 to Resource Report 1) and on the Environmental Alignment Sheets (see Appendix H.1 to Resource Report 1).

Table 8.3-2
Privately-Owned Contractor and Pipe Storage Yards that May Be Used during Construction of the Pipeline

Name	County	Landowner	Section Township and Range	Landuse Code	Size (acres)	Description
North Spit Dock Yard	Coos	Private	Section 38, T25S, R13W	13	4.79	Industrial dock with gravel/native surface lot
Menasha	Coos	Private	Section 10, T25S, R13W	13	36.93	Export log yard and dock with rail sidings
K-2	Coos	Private	Section 15, T25S, R13W	13	25.56	Export log yard and dock with rail sidings
Brunell	Coos	Private	Section 26, T25S, R13W	13	12.87	Vacant industrial lot and dock with rail siding
Millington 1	Coos	Private	Section 12, T26S, R13W	13	28.4	Log yard
Millington 2	Coos	Private	Section 12, T26S, R13W	13	5.66	Vacant industrial lot, connected to railroad
Coquille Yard	Coos	Private	Section 1, T28S, R13W	13	20.37	Old industrial mill site, vacant lot
Coquille Park	Coos	Municipal/ Private	Section 1, T28S, R13W	14/17	3.28	Sturdivant Park, adjacent to rail siding
Coquille Mill	Coos	Private	Section 35, T27S, R13W	13	4.37	Mill log, lumber, storage yard and parking lot, adjacent to rail siding
Coquille Sawmill Yard	Coos	Private	Section 18, T28S, R12W	13	7.46	Industrial lot/previous sawmill that was utilized as a contractor's yard
Winchester	Douglas	Private	Section 24, T26S, R6W	14/33	101.94	Undeveloped lots connected to rail yard, adjacent to interstate interchange
Green #1 Yard	Douglas	Private	Section 11, T28S, R6W	14/31	9.37	Vacant industrial lot, adjacent to rail siding
Green District Yard	Douglas	Private	Section 11, T28S, R6W	13	7.06	Vacant industrial lot/ log yard, gravel surface/ parking lot adjacent to railroad
Hult Chip Yard 2 (Pipe)	Douglas	Private	Section 29, T28S, R6W	13	13.30	Vacant industrial site; paved/gravel surface
Hult Chip Yard (Parking)	Douglas	Private	Section 29, T28S, R6W	13	2.65	Vacant industrial site; gravel surface
Hult Chip Yard 1 (Roll)	Douglas	Private	Section 29, T28S, R6W	13	8.91	Vacant industrial site; paved lot with rail siding
Roth	Douglas	Private	Section 18, T29S, R5W	31	3.79	Pasture, adjacent to rail siding, connects to Pipeline right-of-way
Weaver Highway 99	Douglas	Private	Section 7, T30S, R5W	17/31	6.37	Vacant undeveloped lot adjacent to Interstate interchange and close to railroad and sidings
Weaver Road Yard	Douglas	Private	Section 12, T30S, R6W	12/31	7.77	Vacant industrial log storage yard, adjacent to railroad

Name	County	Landowner	Section Township and Range	Landuse Code	Size (acres)	Description
Riddle Main Street	Douglas	Private	Section 23, T30S, R6W	13	8.78	Vacant industrial lots including railroad siding
Riddle Pasture	Douglas	Private	Section 23, T30S, R6W	13	7.31	Vacant field adjacent to industrial sites and rail siding
Milo Yard 1	Douglas	Private	Section 27, T30S, R3W	33	5.27	Reclaimed quarry
Milo Yard 2	Douglas	Private	Section 27, T30S, R3W	33	10.41	Reclaimed quarry
Burrill Lumber	Jackson	Private	Section 17, T36S, R1W	13	61.44	Vacant lumber mill/log yard
Avenue F and 11th Street	Jackson	Private	Section 18, T36S, R1W	13	26.15	Industrial business and vacant graveled lot, adjacent to rail sidings
WC Short	Jackson	Private	Section 17, T36S, R1W	13/14	8.38	Rail siding and industrial yard
Rogue Aggregates	Jackson	Private	Section 20, T36S, R2W	14/33	38.90	Rangeland-pasture/undeveloped land within active aggregate quarry and processing facility and undeveloped land includes rail siding
Collins Pacific Yard 1	Klamath	Private	Section 13, T39S, R8E	17	9.47	Active wood products plant – vacant gravel lot
Collins Pacific Yard 2	Klamath	Private	Section 13, T39S, R8E	17	5.41	Active wood products plant – vacant gravel lot
Klamath Falls Amuchastegui Building	Klamath	Private	Section 10, T39S, R9E	13	25.46	Existing commercial site and undeveloped industrial lots adjacent to rail siding
Klamath Falls Industrial Oil	Klamath	Private	Section 9, T39S, R9E	31/14	39.48	Undeveloped industrial lots adjacent highway, rail and rail sidings.
Klamath Falls Memorial Drive 2 / Bair	Klamath	Private	Section 8, T39S, R9E	31/14	65.53	Undeveloped industrial lots adjacent to rail siding
Klamath Falls Memorial Drive 1 Pipe Yard	Klamath	Private	Section 17, T39S, R9E	13 / 14	24.72	Vacant industrial mill site / lot, adjacent to railroad and sidings
Klamath Falls Cross Road East	Klamath	Private	Section 1, T40S, R9E	21/17	7.01	Farmland, adjacent to rail siding
Klamath Falls Cross Road West (Stukel) Rail siding	Klamath	Private	Section 1, T40S, R9E	21 / 14	9.92	Railroad siding
Merrill Oregon RR Siding	Klamath	Private	Section 12, T41S, R10E	13 / 11	9.78	Pasture adjacent to rail siding
Total					**674.27**	

Table 8.3-3
Temporary and Permanent Access Roads for the Pipeline

Access Road (TAR/PAR-MP)	Dimension (feet)	Impact (acres) [1]	Land Use Description	Ownership (County)	Purpose
TAR-13.80	20x512	0.24	Regenerating Evergreen Forest	Private (Coos)	Access to TEWA 13.96-W
TAR-27.06	20x1,500	0.69	Cropland Pasture	BLM – Coos Bay (Coos)	Access to TEWA 27.05-W
TAR-29.92	16x3,372	1.24	Cropland Pasture, Transportation, Communication, Utilities	Private (Coos)	Access TEWA 29.87-N
TAR-88.69	20x416	0.19	Cropland Pasture, Deciduous Forest Land	Private (Douglas)	Access to TEWA 88.62-N
TAR-94.81	20x114	0.05	Mixed Rangeland	Private (Douglas)	Access to S. Umpqua River
TAR 101.70	25x1,517	0.87	Evergreen Forest Land, Clearcut Forest Land	Private/FS – Umpqua (Douglas)	Access to TEWA 101.63-W
TAR-141.10	25x471	0.27	Mixed Rangeland	Private (Jackson)	Access to TEWA-140.98
TAR 143.19	20x146	0.07	Deciduous Forest Land	Private (Jackson)	Access to right-of-way
TAR 145.60	20x391	0.18	Cropland Pasture	Private (Jackson)	Access to TEWA 145.58-N
TAR-208.72	20x281	0.13	Cropland Pasture	Private (Klamath)	Access to TEWA-208.67-W
TAR-215.72	14x728	0.23	Cropland Pasture, Evergreen Forest Land, Industrial	Private (Klamath)	Access from Taylor Road
	Total TAR	**4.16**			
PAR-15.65	25x607	0.35	Transportation, Communication, Utilities, Cropland Pasture	Private (Coos)	Access to BVA#2
PAR-29.48	25x85	0.05	Cropland Pasture	Private (Coos)	Access to BVA#3
PAR-48.58	25x225	0.13	Mixed Forest Land	BLM (Douglas)	Access to BVA#4
PAR-59.58	N/A*	N/A*	Transportation, Communication, Utilities	Private (Douglas)	Access to BVA#5 McNabb Creek Rd. (No Impact – existing road)
PAR-59.58	25x90	0.05	Cropland Pasture	Private (Douglas)	Access to BVA#5
PAR-71.46	25x828	0.48	Herbaceous Rangeland, Grasslands	Private (Douglas)	Access to BVA#6; Access to right-of-way
PAR-80.03	25x92	0.05	Transportation, Communication, Utilities, Regenerating Evergreen Forest Land	BLM (Douglas)	Access to BVA #7
PAR-94.66	25x501	0.29	Mixed Rangeland	Private (Douglas)	Access to BVA#8
PAR-113.66	25x50	0.03	Clearcut Forest Land	Private (Jackson)	Access to BVA#9

Access Road (TAR/PAR-MP)	Dimension (feet)	Impact (acres) [1]	Land Use Description	Ownership (County)	Purpose
PAR-122.18	25x171	0.10	Mixed Rangeland	Private	Access to BVA#10
PAR-132.46	25x271	0.16	Transportation, Communication, Utilities, Mixed Rangeland	Private (Jackson)	Access to BVA#11 Launcher/Receiver
PAR-150.70	25x282	0.16	Shrub Brush Rangelands, Transportation, Communication, Utilities	BLM (Jackson)	Access to BVA#12
PAR-169.48	N/A*	N/A*	Transportation, Communication, Utilities	Private (Klamath)	Access to BVA#12 (existing road)
PAR-169.48	25x123	0.07	Regenerating Evergreen Forest Land	Private (Klamath)	Access to BVA#13
PAR-187.46	N/A*	N/A*	Transportation, Communication, Utilities	Private (Klamath)	Access to BVA#14/ Launcher/Receiver (existing road)
PAR-187.46	25x50	0.03	Shrub Brush Rangelands,	Private (Klamath)	Access to BVA#14/ Launcher/Receiver
PAR-196.53	25x106	0.06	Cropland Pasture	Private (Klamath)	Access to BVA#15
PAR-211.58	25x72	0.04	Cropland Pasture	Private (Klamath)	Access to BVA#16
	Total PAR	**2.05**			
	Total TAR & PAR	**6.21**			

[1] All or portions of the PARs are located within the permanent Pipeline easement.
*Existing roads not included in acres of impact.

8.3.5 Aboveground Facilities

Aboveground facilities will consist of three meter station locations, the Klamath Compressor Station, communications towers, pig launchers/receivers, and 17 mainline block valve assemblies ("BVAs") spaced along the Pipeline according to U.S. Department of Transportation ("DOT") spacing requirements, 49 CFR § 192.179. Detailed descriptions of these facilities are provided in Resource Report 1. Because the aboveground facilities are part of the Pipeline construction right-of-way, only brief descriptions of each are provided below. Table 8.3-4 lists these facilities and their associated land uses.

Jordan Cove Meter Station

The Jordan Cove Meter Station (MP 1.47R) will be in Coos County on JCEP property within the LNG Terminal facility site, which will be fenced and secured. The current land uses at the location of this facility is Industrial and Transportation, Utilities, and Communications Corridors. The meter station will occupy a site of approximately 0.85 acre and will be enclosed by a 7-foot high chain-link fence. A communications antenna will be installed to provide a link with the gas control monitoring system. It is anticipated that the antenna can be installed on a structure that will be part of the meter station however, if that is not the case, PCGP would install an approximately 140-foot tall steel tower to support its communications antenna. The entire site will be graveled and existing power and phone service for gas control communication equipment is available.

Table 8.3-4
Permanent Impacts Associated with the Aboveground Facilities and Associated Land Uses
Summary of Disturbance Associated with Aboveground Facilities

Facility [1]	MP	Acres Disturbed During Construction [2]	Land Use	Jurisdiction
Jordan Cove MS, BVA #1, and Receiver[4,5]	1.47R	0.85	Industrial	Private
BVA #2 (Boone Creek Road)	15.66	0.09	Mixed Forest Land, Transportation	Private
BVA #3 (Myrtle Point Sitkum Road)	29.50	0.09	Cropland Pasture	Private
ABVA #4 (Deep Creek Spur) [5]	48.58	0.09	Mixed Forest Land	BLM
BVA #5 (South of Olalla Creek)	59.58	0.09	Cropland Pasture	Private
BVA #6, Launcher/Receiver [5]	71.51	0.44	Herbaceous Rangeland	Private
BVA #7 (Pack Saddle Road)	80.03	0.09	Mixed Forest Land	BLM
BVA #8 (Hwy 227)	94.66	0.09	Mixed Rangeland	Private
BVA #9 (BLM Road 33-2-12/Dead Horse Creek)	113.65	0.09	Evergreen Forest Land, Clearcut Forest Land	Private
ABVA #10 (Shady Cove) [5]	122.18	0.09	Mixed Rangeland	Private
ABVA #11, Launcher/Receiver (Butte Falls) [5]	132.46	0.29	Mixed Rangeland	Private
BVA #12 (Heppsie Mtn Quarry Spur)	150.70	0.09	Shrub and Brush Rangeland	BLM
BVA #13 (Clover Creek Road)	169.48	0.09	Regenerating Evergreen Forest	Private
BVA #14 and Launcher/Receiver Site	187.43	0.44	Regenerating Evergreen Forest Land, Shrub and Brush Rangeland	Private
ABVA #15 (Klamath River) [5]	196.53	0.09	Cropland Pasture	Private
ABVA #16 (Hill Road) [5]	211.58	0.09	Cropland Pasture	Private
Klamath Compressor Station, Klamath-Beaver and Klamath-Eagle Meter Stations, BVA #17, Launcher & Communications Tower [5]	228.81	17.14	Shrub and Brush Rangeland	Private
	Total	**20.24**		
Blue Ridge Communication Site – Coos County [6]	~ 20	0.23	Transportation, Communications, and Utilities/Commercial	BLM
Signal Tree Communication Site – Coos County [6]	~45.0	0.23		BLM
Sheep Hill Communication Site – Douglas County [6]	~70	0.23		Private
Harness Mountain Communication Site – Douglas County [7]	~75	0.00		Private
Starvout Communication Site – Jackson County [6]	~115	0.23		Private
Flounce Rock Communication Site – Jackson County [6]	~123.0	0.23		BLM
Robinson Butte Communication Site – Jackson County [6]	~159.0	0.23		Forest Service
Stukel Mountain Communication Site – Klamath County [6]	~209	0.23		BLM
	Total	**1.61**		
	Grand Total	**21.85**		

Facility [1]	MP	Acres Disturbed During Construction [2]	Land Use	Jurisdiction

[1] BVAs denoted as ABVA are automated valves and will include a 40-foot tall communication tower.
[2] Temporary construction disturbance associated with the aboveground facilities is included within the Pipeline construction right-of-way, and is not double counted in total Pipeline disturbance estimates.
[3] The 17 mainline block valves will be located within areas disturbed by the construction right-of way or within associated aboveground facility footprints (*i.e.*, meter stations and the compressor station); however, the permanent operation acres provided will remain as permanent disturbance associated with these graded, graveled and fenced facilities.
[4] The Jordan Cove Meter Station will be located entirely within the proposed LNG Terminal.
[5] Communication facilities are included in the disturbed areas associated with the meter station, block valves and compressor station.
[6] Communication facilities will utilize existing towers and equipment buildings, where space is available for lease, with no associated disturbance. If construction of new facilities is required, PCGP will obtain an approximate 100 x 100 foot (0.23 acre) area in the immediate area of the existing communication tower facilities (see Appendix F.1 for site drawings).
[7] The Harness Mountain Communication Tower is an existing communication facility, where no new disturbance is required.

Klamath Compressor Station

The Klamath Compressor Station will be located at MP 228.81 on JCEP-owned land in Klamath County, approximately 1.75 miles northeast of Malin, Oregon. The compressor station will occupy a site of approximately 17.14 acres, secured by a 7-foot high chain-link fence. To minimize visual intrusions, the security fence around the perimeter of the station will be installed with screening slates and landscaping along appropriate sides of the station to reduce potential visual effects to area residences. As requested by the adjacent landowner on the north side of the compressor station a tree screen will be planted as a visual and noise screen within TEWA-228.81. The entire site will be graveled. The southern edge of the site is adjacent to Malin Loop Road, which will provide primary access to the site. The proposed site land use is classified as Shrub and Brush Rangeland and Urban/Built-Up Land and is adjacent to Cropland and Pasture. The nearest residential dwelling is approximately 1,400 feet from the center of the site; two other residences are located approximately 1,500 feet and 1,960 feet from the center of the site.

There will be a small office in one of the buildings with phone and computer access. The station will also be utilized as a maintenance base for operation of the Pipeline facilities. The station will not be manned 24 hours per day, but will have pipe, spare parts, portable equipment such as blow-down silencers, and small hand tools stored on site. The facility will be equipped with outside lighting to support night work activities; however, these lights will only be utilized when operations personnel are working at the station. During operations, nighttime work or maintenance activities will not generally be scheduled; therefore, these lights will only be used periodically and possibly for short periods during the winter when daylight hours are shorter.

Klamath Meter Stations

The Pipeline will receive its gas supply from interconnections with the GTN and Ruby transmission systems near Malin, Oregon. These meter stations will be co-located within the Klamath Compressor Station (MP 228.81) as described above. The Klamath-Eagle Meter Station will serve as the interconnect with Ruby, and the Klamath-Beaver

Meter Station will serve as the interconnect with GTN. Each meter station will be capable of receiving up to 100 percent of the Pipeline system design capacity.

Gas Control Communications

The ABVAs, meter stations and compressor station need a communications link with the gas control system. PCGP has conducted initial communications studies and determined that in addition to the proposed towers that will be installed at the ABVAs, meter station and compressor station, leased space on existing communication towers as well as new towers may be needed for the Pipeline.

PCGP has developed a Communication Facilities Plan (Appendix F.1). The Communication Facilities Plan describes the construction, modification, operation and maintenance of communication facilities necessary for the operation of the Pipeline on lands managed by the BLM and the Forest Service. PCGP prefers to co-locate with existing facilities when possible and will do so if leased space is available within existing facility sites at the time of construction. If leased space is not available on existing facilities, and construction of new facilities is required, PCGP will seek to obtain an approximate 100 foot by 100 foot (0.23 acre) area for each of the new facility installations in the immediate vicinity of the existing communication tower facilities (see Table 8.3-4). The new towers and communication buildings will be enclosed within a 50 foot by 50 foot (0.06 acre) fenced footprint located within the larger 100 foot by 100 foot area. The Communication Facilities Plan provides preliminary location maps for the potential tower sites, as well as the BLM/Forest Service guidance for communication site development plans regarding new facilities (see Appendix F.1). PCGP is reviewing the Communication Facilities Plan based on current technologies and Pipeline requirements. The existing sites are classified as Transportation, Communications, and Utilities/Commercial (see Table 8.3-4).

Launchers/Receivers and Mainline Block Valves

Mainline block valves will be located along the Pipeline according to DOT's spacing requirements (49 CFR § 192.179). Each mainline block valve will occupy a site 50 x 75 feet (0.09 acre) and will be enclosed by a 7-foot high, chain-link fence. Five mainline BVAs will be automated ("ABVA") to allow remote operation, which will require a 40-foot tower to be installed within the facility's fenced footprint. PCGP located the mainline block valves adjacent to existing roads to minimize the need for or length of new permanent access roads. PCGP will paint the aboveground piping in the valve locations green unless otherwise dictated by permit conditions. Locations of mainline block valves are depicted on the quad based site location maps in the Mapping Supplement (see Appendix G.1) and on the photo-based Environmental Alignment Sheets (see Appendix H.1).

Pig launchers/receivers will be located at each end of the Pipeline (Jordan Cove Meter Station and Klamath Compressor Station). Due to current limitations of in-line inspection tools (pigs), there will also be pig launcher/receiver equipment co-located at BVAs #6, #11 and #14 (MPs 71.51, 132.46, and 187.43 respectively). At these locations, the block valve and pig launcher/receiver assembly sites will each be 95 x 200 feet (0.44 acre); however, BVA #11 will be 0.29 acre to avoid adjacent wetlands. Pig launcher/receiver facilities will be located inside the fenced areas at all locations. Table 8.3-4 provides the land use classifications for each aboveground facility location.

8.3.6 Use of Existing Corridors

Approximately 98.91 miles or 42 percent of the Pipeline will be constructed within or adjacent to existing utility and transportation corridors. Table 8A-5 in Appendix 8.A provides the locations where the Pipeline is within or parallels existing corridors.

8.4 LAND REQUIREMENTS

8.4.1 Construction

8.4.1.1 Pipeline Facilities

Table 8.4-1 provides the land use impacts for construction and operation of the Pipeline. For both construction and operation, the impacts are provided for the various Pipeline components.

The typical construction right-of-way width for the Pipeline will be 95 feet, which is shown on the Environmental Alignment Sheets (see Appendix H.1). The total impact associated with the construction right-of-way is 2664.9 acres, of which approximately 1,697.02 acres occurs within Forest Lands and 367.1 acres occurs within Cropland/Pasture.

In various locations, additional TEWAs have been included in the Pipeline design to allow for segregating topsoil, negotiating steep terrain and side slopes, crossing roads and waterbodies, avoiding other utilities, storing cleared timber, staging equipment and parking and other engineering or construction-related activities. The total impact associated with the TEWAs is 979.4 acres, of which approximately 456.74 acres is within Forest Lands and 187.31 acres is within Cropland/Pasture. Table A.8-2 in Appendix A.8 provides a list of the individual TEWAs for the Pipeline and includes the land use for each as well as the size and purpose.

PCGP identified the need for additional TEWAs in various locations such as in dense, mature forested areas; in areas of steep slopes; and in areas where the Pipeline follows steep, narrow ridgelines. However, to minimize overall disturbance, PCGP has specifically designated some areas as uncleared storage areas ("UCSAs"). Unlike the TEWAs, these UCSAs will not need to be cleared of trees during construction. These areas will be used to store forest slash, stumps and dead and downed log materials that will be scattered across the right-of-way after construction. The amount of this type of material is expected to be large enough to hinder construction activities if it were stored on the right-of-way. The total footprint associated with the UCSAs is 665.4 acres, of which 630.22 acres is within Forest Lands. Table A.8-3 in Appendix A.8 provides a list of the individual UCSAs for the Pipeline and includes the land use for each as well as the size and purpose.

Table 8.4-1
Land Uses Affected by Construction and Operation of the Pipeline (in acres)

Component	Residential (11)	Commercial (12)	Industrial (13)	Transportation/ Communication (14)	Other Urban/Built-up Land (17)	Cropland/Pastureland (21)	Orchards, Groves, Vineyards, Nurseries (22)	Herbaceous Rangeland (31)	Shrub/Brush Rangeland (32)	Mixed Rangeland (33)	Deciduous Forest Land (41)	Evergreen Forest Land (42)	Mixed Forest Land (43)	Clearcut Forest Land (421)	Regenerating Forest Land (422)	Streams (51)	Ditches (512)	Bays and Estuaries (54)	Forested Wetlands (61)	Nonforested Wetlands (62)	Beaches (72)	Strip Mines, Quarries, Gravel Pits (75)	Total
CONSTRUCTION DISTURBANCE [1]																							
Pipeline Facilities																							
Construction Right-of-Way	3.11	0.05	5.71	173.39	5.59	367.08	0.48	107.29	187.94	87.38	52.03	527.13	348.97	143.08	625.81	6.47	3.61	0.17	2.35	14.63	2.15	0.52	2,664.94
Temporary Extra Work Areas	3.11	0.01	23.48	71.53	5.86	187.31	0.14	50.50	69.66	56.72	16.13	104.62	92.60	34.38	209.01	2.21	1.05	8.89	0.30	9.68	9.57	22.66	979.44
Uncleared Storage Areas	0.03	0.00	0.00	18.62	0.00	0.25	0.00	2.97	10.32	2.79	5.79	125.99	216.39	92.28	189.77	0.15	0.01	0.00	0.00	0.02	0.00	0.02	665.40
Rock Source/Disposal	0.00	0.00	0.00	2.15	0.00	2.77	0.00	1.74	0.00	0.00	0.00	2.55	0.00	0.00	5.85	0.00	0.00	0.00	0.00	0.00	0.00	26.12	41.18
Access Roads (TARs/PARs/Road Improvements) [3]	0.08	0.00	0.04	21.92	0.00	2.28	0.00	1.03	0.28	1.01	0.11	0.43	0.02	0.31	0.33	0.00	0.00	0.00	0.00	0.02	0.00	0.00	27.86
Aboveground Facilities (Klamath CS)	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	17.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	17.14
Total	**6.33**	**0.06**	**29.23**	**287.62**	**11.45**	**559.69**	**0.62**	**163.53**	**285.33**	**147.90**	**74.06**	**760.72**	**657.98**	**270.05**	**1,030.77**	**8.83**	**4.67**	**9.06**	**2.65**	**24.35**	**11.72**	**49.32**	**4,395.96**
OPERATION DISTURBANCE																							
Pipeline Facilities																							
Permanent Easement [4]	1.72	0.03	2.98	104.65	2.94	192.37	0.20	56.99	99.96	47.05	26.77	274.16	181.97	75.76	329.71	3.82	1.59	1.72	1.38	7.84	1.20	0.24	1,415.05
Aboveground Facilities	0.00	0.00	0.85	1.61	0.00	0.36	0.00	0.44	17.45	0.47	0.00	0.04	0.27	0.05	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.85
Permanent Access Roads	0.06	0.00	0.00	0.30	0.00	0.32	0.00	0.20	0.12	0.21	0.38	0.03	0.01	0.00	0.39	0.00	0.00	0.00	0.00	0.03	0.00	0.00	2.05
Total[5]	**1.78**	**0.03**	**3.83**	**106.56**	**2.94**	**193.05**	**0.20**	**57.63**	**117.53**	**47.73**	**27.15**	**274.23**	**182.25**	**75.81**	**330.41**	**3.82**	**1.59**	**1.72**	**1.38**	**7.87**	**1.20**	**0.24**	**1,438.95**
30-Foot Maintenance Corridor[5]	0.98	0.02	1.81	63.55	1.73	115.51	0.12	34.16	60.20	27.86	15.98	164.87	108.33	45.01	196.51	2.12	0.95	0.05	0.82	4.60	0.67	0.12	845.97

[1] Construction disturbance associated with the aboveground facilities is included in the pipeline construction right-of-way impacts.
[2] These are sites located outside the construction right-of-way. Small brush or trees may be cleared by a rubber-tired rotary or flail motor (brush hog) or by hand with machetes/chainsaws. No soil disturbance will occur. A rubber-tired or track hoe will be utilized to lay the discharge line and to remove the saturated hay bales or filter bags upon completion of hydrostatic discharge.
[3] Portions of some of the PARs are located within the construction right-of-way and, therefore, there is some duplication in the acreage calculations.
[4] The permanent easement is located within the disturbed acreage of the construction right-of-way. It is not an addition to the construction impacts.
[5] Land use operational disturbance for aboveground facilities is summarized in Table 8.3-4. The total acres for the permanent easement and 30-foot maintenance area do not include subsurface lands impacted by HDD crossings; therefore, these totals do not match those in Resource Report 1.

8.4.1.2 Rock Source and Permanent Disposal Sites

Table 8.4-1 includes the land use acreages for the 20 rock source and disposal sites, covering a total of 85.98 acres, which are all associated with existing quarries. There are 5 sites proposed to occur within TEWAs, totaling 44.80 acres, all of which are associated with existing quarries. Table 8.A-4 in Appendix A.8 provides a detailed list of the sites by landowner and land use type, and Appendix G.8 provides figures of the sites. Although some of the existing/abandoned sites appear to have land use types other than quarries/gravel pits, it is not PCGP's intent to expand these sites beyond the existing or previously disturbed footprints.

8.4.1.3 Contractor and Pipe Storage Yards

The identified contractor and pipe storage yards (except for, or portions of, the Roth, Riddle Pasture, Rogue Aggregates, Klamath Falls North of Cross Roads East, and Merrill RR siding) are existing industrial sites, vacant lots, or previously disturbed sites, which will be utilized for pipe storage and staging activities during construction (see the Mapping Supplement for site locations). A total of 674.27 acres are associated with the currently proposed yards, of which, approximately 607.47 acres are in Urban or Built-Up Lands or Barren Lands and 66.8 acres are in Agriculture/Pasture land use types. The acreages associated with each of the yards are provided in Table 8.3-2.

8.4.1.4 Access Roads

For the most part, PCGP will access the construction areas along existing public or private roads. In certain places, it will be necessary for PCGP to construct temporary or permanent access roads ("TARs"/"PARs"). These roads and their purposes are provided in Table 8.3-3. In other areas, existing roads will need to be widened/improved to access the construction right-of-way. The 11 TARs (4.16 acres) will be restored following construction. Access road impacts and mitigation is discussed in Resource Report 2.

PCGP will need to construct 15 PARs for access to the aboveground facilities (see Table 8.3-3). These roads will provide access during operational and maintenance activities while the Pipeline is in service. Most of the PARs will be located within PCGP's permanent easement. Construction of the PARs will permanently impact 2.05 acres.

Existing ingress and egress points to and from the construction right-of-way have been identified in Table A.8-1 in Appendix A.8 to Resource Report 8 as well as on the quad-based maps in the Mapping Supplement (see Appendix G.1) and on the Environmental Alignment Sheets (see Appendix H.1). These points have been identified to allow for safe, efficient construction and movement of equipment and materials. Minor improvements (e.g., potholing, grading to remove ruts, and/or limbing to remove overgrowth) may be needed in some areas to accommodate oversized and heavy construction equipment within the existing road prism (see footnotes in Table A.8-1 in Appendix A.8). In general, roadway improvements will require a minimal amount of site disturbance and earthwork necessary to make the roads useable for access to the construction right-of-way. All maintenance will conform to BLM, Forest Service, state, county, and landowner requirements. No maintenance or improvements will be allowed on any road not authorized for use and approved for improvements. A total of 21.65 acres will be impacted by the existing road improvements associated with minor road widening, turnouts, and curve widenings. Table A.8-1 in Appendix A.8, provides a comprehensive list of the locations and mileposts of existing road improvements that

would be used for construction access to the right-of-way, and the locations of the road improvements are shown on the quad-based maps in the Mapping Supplement (see Appendix G.1).

8.4.1.5 Aboveground Facilities

Construction disturbance associated with the Pipeline's aboveground facilities is included within the Pipeline construction right-of-way. PCGP will utilize existing offsite mountain top communication towers and equipment buildings, where space is available for lease with no associated disturbance (see Section 8.3.5). However, PCGP has developed a Communication Facilities Plan in consultation with the BLM and Forest Service (see Appendix F.1) in the event space is not available at an existing Communication Facility located on federally-managed lands. If construction of new facilities is required at any of the existing communication site facilities, PCGP will obtain an approximate 100 x 100 foot (0.23 acre) plot in the immediate area of the existing communication tower facilities.

8.4.2 Operation

PCGP will negotiate a 50-foot wide permanent easement for long-term operations of the Pipeline. Of the 50-foot width, PCGP intends to maintain 30 feet (15 feet each side of the centerline of the Pipeline), with no trees allowed to grow greater than 15 feet in height through all potentially forested land regardless of ownership. PCGP will have no restrictions on future use on pasture and agricultural lands following construction except for restrictions defined in construction stipulation documents.

The total estimated acreage required for operation of the Pipeline is 1,438.95 acres (see Tables 8.3-4 and 8.4-1), which includes 1,415.05 acres of permanent easement. There are also 2.05 acres of PARs and 21.85 acres of aboveground facilities, which are mostly located within the permanent easement. Of the total acres disturbed, 888.4 acres are within Forest Lands and 192.6 acres are within Agriculture.

8.5 PUBLIC LAND, RECREATION AND OTHER DESIGNATED OR SPECIAL USE AREAS

This portion of Resource Report 8 addresses land ownership, recreation resources and special use areas near the Pipeline project area. Special use areas include sensitive and specially-managed public lands, unique private lands, and residences in proximity (within 50 feet) of the construction right-of-way or TEWAs. Planned land uses within 0.25 mile of the Pipeline right-of-way are also discussed here.

A variety of public and private lands will be crossed by the Pipeline. Land ownership along the Pipeline is approximately 30.33 percent federal and 68.70 percent private. State lands constitute 0.97 percent of all lands crossed by the Pipeline (see Table 8.5-1).

Table 8.5-1
Ownership of Lands Crossed by the Pipeline (Miles)

	Federal Land		State Land		Private Land		
County	**Miles**	**%**	**Miles**	**%**	**Miles**	**%**	**Total**
Coos	10.93	4.65	1.82	0.77	38.61	16.41	**51.37**
Douglas	21.02	8.94	0.00	0.00	45.28	19.25	**66.30**
Jackson	30.14	12.81	0.22	0.09	25.61	10.89	**55.96**

Klamath	9.25	3.93	0.24	0.10	51.11	21.73	**61.60**
Total	**71.34**	**30.33**	**2.28**	**0.97**	**161.60**	**68.70**	**235.23**

Recreational opportunities along the Proposed Route are varied in opportunities and location. This section provides an overview of the various recreational sites that are along the Proposed Route. These lands include federal, state and county lands designated for recreational use including dispersed recreational opportunities. If recreation sites are not expected to be potentially impacted by the Pipeline, a brief explanation is provided below with each site description. For recreation sites that could potentially be impacted, details are provided in Section 8.7 Impacts and Mitigation.

The Pipeline will not affect and is not in the vicinity of any Natural Landmarks, Natural Areas, or Historic Districts.

8.5.1 Public and Tribal Land

The Pipeline will cross four BLM districts totaling approximately 40.48 miles. From west to east the BLM districts are: Coos Bay, Roseburg, Medford, and Lakeview. The Pipeline will cross through approximately 30.58 miles of land in the National Forest System ("NFS"). This includes the Umpqua National Forest, the Rogue River-Siskiyou National Forest, and the Fremont-Winema National Forest. Table 8.5-2 summarizes the miles of BLM, Bureau of Reclamation ("Reclamation"), and NFS lands crossed by the Pipeline. No tribal-owned lands will be crossed (see Table 8.5-1).

Table 8.5-2
Federally-Managed Land Crossed by the Pipeline

Federal Land Management Agency	Approximate Milepost Range of BLM, NFS, or Reclamation Lands Crossed by the Pipeline [1]	Federally-Managed Lands Crossed (miles)
BLM – Coos Bay District – Umpqua & Myrtlewood RA	17.04 – 27.48	3.35
	28.40 – 45.72	7.58
BLM – Roseburg District – South River RA	46.87 – 102.32	13.11
BLM – Medford District – Ashland & Butte Falls RA	115.11 – 141.92	11.26
	148.27 – 153.81	3.89
BLM – Lakeview District – Klamath Falls RA	176.15 – 216.75	1.29
	Total BLM	**40.48**
Umpqua NF– Tiller Ranger District	99.30 – 113.20	10.81
Rogue River-Siskiyou NF – Ashland Ranger District	153.81 – 168.01	13.72
Fremont-Winema-NF – Klamath Ranger District	168.01 – 175.37	6.05
	Total NFS	**30.58**
Bureau of Reclamation	**200.52 – 214.18**	**0.31**
	Total Federal	**71.37**

[1] Federal land management jurisdictional boundaries include other landowners: state, local and private landowners where federal land management does not apply.

8.5.1.1 Tribal Lands

The Proposed Route will not cross any Tribal Lands. Between MPs 30.7 and 34.7, the Proposed Route is within approximately 65 feet of three parcels of the Coquille Forest which are under the jurisdiction of the Bureau of Indian Affairs. The Coquille Forest is managed by the Coquille Tribe and is subject to the Standards and Guidelines of federal forest plans that apply on nearby federal lands, per Title V of the Oregon Resource Conservation Act of 1996 (BLM 2016a). Therefore, the management direction in the BLM Resource Management Plan ("RMP") (BLM 2016a) applies to the Coquille Forest, but the RMP does not determine specific land use allocations or the rate or extent of timber harvest on the Coquille Forest.

The Proposed Route is adjacent to four parcels owned by the Cow Creek Band of Umpqua Tribe of Indians in Douglas County. The closest parcel is approximately 40 feet from the construction right-of-way between MPs 69.4 and 69.7; an existing access road crosses this parcel. The proposed Weaver Highway 99 Yard is located on a parcel that abuts two parcels owned by the Tribe.

8.5.1.2 Bureau of Land Management and U.S. Forest Service

The Pipeline will cross federal lands administered by the BLM and the Forest Service. Federal land management agencies are mandated by law to prepare land use plans for managing federal lands under their jurisdiction. These laws also require federal agencies to analyze the environmental impacts of implementing their land use plans. To comply with these laws, the BLM prepares RMPs for lands under its jurisdiction. The Forest Service prepares Land and Resource Management Plans ("LRMPs," also called "Forest Plans") for lands under its jurisdiction.

According to federal law and corresponding BLM and Forest Service policy, all actions authorized subsequent to the plans (RMPs and LRMPs) must be in conformance with the approved land use plans. An action must be specifically mentioned in the plan or the BLM or Forest Service must determine the action is consistent with the management directions in the plan. In addition an action must comply with: 1) all stipulations, constraints, standards, and guidelines listed in a plan; and 2) all stipulations developed specifically for a proposed project for the purpose of avoiding or reducing impacts on sensitive resources.

The BLM and Forest Service will consider the need to amend the applicable land management plans to provide for the PCGP right-of-way. Preliminary issues and plan amendments have been identified by BLM and Forest Service personnel; federal, state, and local agencies; and other stakeholders. Given that the Pipeline has not significantly changed from that analyzed in FERC's 2015 Final Environmental Impact Statement ("EIS"), the issues that will need to be addressed should be similar and are summarized below:

- Effects of proposed amendments on Survey and Manage species and their habitat;
- Effects of proposed amendments on contiguous existing or recruitment habitat for marbled murrelets within 0.5 mile of occupied marbled murrelet sites;
- Effects of proposed amendments on habitat in Known Owl Activity Centers; and
- Effects of the proposed amendments on Late Successional Reserves ("LSR").

The BLM will need to review the Northwestern and Coastal and Southwestern Oregon RMPs to determine what amendments may be necessary. As the applicable plans for the Forest Service have not been amended, the following amendments will likely be required:

Amendment of the Umpqua National Forest LRMP:

- UNF-1, Site-Specific Amendment to Allow Removal of Effective Shade on Perennial Streams.
- UNF-2, Site-Specific Amendment to Allow Utility Corridors in Riparian Areas.
- UNF-3, Site-Specific Amendment to Waive Limitations on Detrimental Soil Conditions within the PCGP Right-of-Way in All Management Areas
- UNF-4, Reallocation of Matrix Lands to Late Successional Reserves

Amendment of the Rogue River National Forest ("RRNF") LRMP:

- RRNF-1, Amendment to Provide for Energy Transmission.
- RRNF-2, Site-Specific Amendment of Visual Quality Objectives on the Big Elk Road.
- RRNF-3, Site-Specific Amendment of Visual Quality Objectives on the Pacific Crest Trail.
- RRNF-4, Site-Specific Amendment of Visual Quality Objectives Adjacent to Highway 140.
- RRNF-5, Site-Specific Amendment to Allow Utility Transmission Corridors in Management Strategy 26, Restricted Riparian Areas.
- RRNF-6, Site-Specific Amendment to Waive Limitations on Detrimental Soil Conditions within the PCGP Right-of-Way in All Management Areas.
- RRNF-7, Reallocation of Matrix Lands to Late Successional Reserves.

Amendment of the Winema National Forest LRMP:

- WNF-1, Site-Specific Amendment to Allow Utility Corridors in Management Area 3.
- WNF-2, Site-Specific Amendment of Visual Quality Objectives on the Dead Indian Memorial Highway.
- WNF-3, Site-Specific Amendment of Visual Quality Objectives Adjacent to the Clover Creek Road.
- WNF-4, Site-Specific Amendment to Waive Limitations on Detrimental Soil Conditions within the PCGP Right-of-Way in All Management Areas.
- WNF-5, Site-Specific Amendment to Waive Limitations on Detrimental Soil Conditions within the PCGP Right-of-Way in Management Area 8.

Northwest Forest Plan

In 1993, a comprehensive NWFP was initiated to end the impasse over management of federal forest lands in the Pacific Northwest within the range of the Northern Spotted Owl. With the signing of the 1994 Record of Decision ("ROD") for Amendments to the Forest Service and BLM Planning Documents within the Range of the Northern Spotted

Owl, a framework and system of Standards and Guidelines were established, using an ecosystem approach to address resource management.

The 1994 NWFP ROD introduced and described the Aquatic Conservation Strategy ("ACS"), which was developed to restore and maintain the ecological health of watersheds and aquatic ecosystems contained within them. It also created land allocations that comprise a comprehensive ecosystem management strategy. These land allocations include areas set aside by an Act of Congress (Congressionally Reserved Areas), Late-Successional Reserves, Adaptive Management Areas, Managed Late-Successional Areas, Administratively Withdrawn Areas, Matrix and Riparian Reserves. The ACS and land allocations are each described in sections below.

The 1994 NWFP ROD also amended the planning documents of 19 National Forests and 7 BLM Districts within the range of the Northern Spotted Owl, including those crossed by the Pipeline.

On August 5, 2016, the BLM signed new RODs for the Southwestern Oregon and Northwestern and Coastal Oregon RMPs (BLM 2016a and 2016b). Both RMPs revise the 1995 RMPs in their entirety, revising the applicability of the NWFP for the management of BLM-administered lands.

The RMPs provide overall direction for the management of the lands administered by the BLM. The overarching principles are:

- Provide a sustained yield of timber.
- Contribute to the conservation and recovery of threatened and endangered species, including marbled murrelet.
    - o Maintaining a network of large blocks of forest to be managed for late successional forests; and
    - o Maintaining older and more structurally-complex multi-layered conifer forests.
- Provide clean water in watersheds.
- Restore fire-adapted ecosystems.
- Provide recreation opportunities.
- Coordinate management of lands surrounding the Coquille Forest with the Coquille Tribe.

Aquatic Conservation Strategy. The intent of the ACS is to maintain and restore ecosystem health at the watershed and landscape scales to protect habitat for fish and other riparian-dependent species and resources, and to restore currently degraded habitats. This approach seeks to prevent further habitat degradation and restore habitat over broad landscapes as opposed to implementing individual projects or focusing on small watersheds. The ACS acknowledges the importance of natural disturbance processes at the landscape-level; the NWFP ROD recognized that it may take decades, and possibly more than a century, to accomplish all nine objectives outlined in the ACS. The ACS also defines Riparian Reserves and establishes a system of Key Watersheds, specifies analytical procedures for evaluating watersheds, and defines a program for watershed restoration. Riparian Reserves also double as a federal land allocation category on NFS lands, as determined in the NWFP ROD. The land allocations are described in the following section.

While the ACS emphasizes the conservation of anadromous salmon and steelhead, the nine specified ACS objectives focus on maintaining and restoring aquatic systems, floodplains, wetlands, upslope habitats, and riparian zones in general to support aquatic and riparian dependent species and their habitats.

The BLM's 2016 RMPs address the components of the ACS through the Riparian Management Strategy that allows more variable management of Riparian Reserves within identified key watersheds on BLM managed lands. Together, these site-specific management tools are designed to provide for long-term water quality and conservation of anadromous salmon, steelhead, and other riparian-dependent organisms, while providing for timber production within boundaries of the riparian ecosystem. The BLM developed the Riparian Management Strategy together with National Marine Fisheries Service ("NMFS"), U.S. Fish and Wildlife Service ("FWS"), and the U.S. Environmental Protection Agency ("EPA"). The Riparian Management Strategy addresses all four components of the ACS but modified and updated several components, consistent with the purpose and need and guidance for the development of the BLM's 2016 RMP revisions and in light of monitoring results and new scientific information.

Determination of a proposed project's consistency with the NWFP requires National Environmental Policy Act ("NEPA") analyses to include consistency determinations with the nine ACS objectives (Attachment A of the 1994 NWFP ROD), allowing decision makers to make a finding that the project or management action "meets" or "does not prevent attainment" of the ACS objectives.

The 2015 FERC Final EIS developed an ACS Consistency Assessment for the 2015 Final EIS Route (see Final EIS Section 4.1.3.5 and Appendix J). This document provided the design measures and Best Management Practices ("BMPs") that PCGP incorporated into its plans for constructing and operating the Pipeline, as well as the proposed mitigation measures to help ensure watershed function would be maintained or restored. A similar document will be incorporated into the new NEPA documentation to serve as a basis for the Forest Service and BLM to make a consistency determination for the ACS objectives. The evaluation presented effects from the Pipeline's construction and operation on Riparian Reserves and Key Watersheds, assessed area watershed analyses, and identified mitigation projects for watershed restoration. It described the Pipeline's short-term and long-term effects to the ACS objectives at the site- and watershed- and landscape-scale, as well as the justification for the Pipeline's consistency with the ACS objectives under the 1994 NWFP ROD. The Forest Service will make the final determinations regarding consistency of the Pipeline with the ACS objectives, which will be included in the NEPA analysis for the Pipeline. Similarly, the BLM will determine the Pipeline's consistency with the 2016 RMPs.

Federal Land Allocations. Federal land allocations created in the NWFP and 2016 BLM RMPs have differing management directions and are located and configured in the landscape to support overall ecosystem function and to meet the vision for management of federal lands. Planning objectives provide a coordinated ecosystem management approach to the planning area and involve the use of ecological, economic, social, and managerial principles to achieve healthy and sustainable natural systems.

The NWFP and 2016 BLM RMP land allocations crossed by the Pipeline are Late-Successional Reserves ("LSRs" - Forest Service and BLM), Matrix (Forest Service), Harvest Land Base (BLM), District-Designated Reserves (BLM), Eastside Management Area (BLM), and Riparian Reserves (Forest Service and BLM). The acres of each land

allocation affected by the Pipeline are provided in Table 8.5-3a for NFS lands and Table 8.5-4a for BLM lands. The miles of each land allocation crossed by the Pipeline within each of the federal land management districts are provided in Table 8.5-3b for NFS lands and Table 8.5-4b for BLM lands. The locations of land allocations crossed by the Pipeline are shown on the Environmental Alignment Sheets (see Appendix H.1 to Resource Report 1). The management direction or objective of the land allocations are described below for those crossed by the Pipeline.

Late-Successional Reserves (Forest Service and BLM). The 1994 NWFP ROD created an allocation to protect and enhance late-successional and old-growth ecosystems. LSRs are identified with an objective to protect and enhance habitat for late-successional and old-growth related species, including the northern spotted owl and marbled murrelet. The 2016 BLM RMPs further details objectives promoting nesting-roosting habitat for northern spotted owls in stands not currently supporting their nesting and roosting as well as promoting the development of nesting habitat for the marbled murrelet in stands not currently meeting nesting habitat criteria. Limited silvicultural treatments are permitted to benefit late-successional characteristics or to reduce the risk of catastrophic loss. Limited salvage is also permitted. Under the 2016 BLM RMPs, construction of linear rights-of-way are allowed as long as: (a) northern spotted owl nesting-roosting habitat continues to support nesting and roosting at the stand level, (2) northern spotted owl dispersal habitat continues to support movement and survival at the landscape level, and (3) marbled murrelet occupied stands continue to support marbled murrelet nesting.

These reserves represent a network of existing old-growth forests that are retained in their natural condition with natural processes, such as fire, and allowed to function to the extent possible. LSRs are designed to serve a number of purposes. First, they provide a distribution, quantity, and quality of old-growth forest habitat sufficient to avoid foreclosure of future management options. Second, they provide habitat for populations of species that are associated with late-successional forests. Third, they will help ensure that late-successional species diversity will be conserved.

Unmapped Late-Successional Reserves (Forest Service). Unmapped LSRs are areas within Matrix or other land allocations that are to be managed as LSRs and prohibit or limit activities within these other land use allocations. Unmapped LSRs are identified for areas around occupied marbled murrelet stands and for 100 acres around known spotted owl activity centers (“KOAC”).

Late-successional forests are typically a minimum of 80 years old and are those forest seral stages that include mature and old-growth age classes of Douglas-fir with four major structural attributes: live old-growth trees, standing dead trees (snags), fallen trees or logs on the forest floor, and logs in streams. One goal of the 1994 NWFP ROD is to maintain late-successional and old-growth species habitat and ecosystems on federal lands. A second goal is to maintain biological diversity associated with native species and ecosystems in accordance with laws and regulations.

Riparian Reserves (Forest Service and BLM). Riparian Reserves are a key element of the ACS and Riparian Management Strategy (“RMS”). Riparian Reserves provide an area along all streams, wetlands, ponds, lakes, reservoirs and unstable and potentially unstable areas where riparian-dependent resources receive primary emphasis. Riparian Reserves apply to flowing and intermittent streams and ephemeral streams and ponds. The main purpose of these reserves is to protect the health of the aquatic system and its

dependent species. Riparian Reserves also provide important habitat to terrestrial species. They help maintain and restore riparian structures and functions, benefit fish and riparian-dependent non-fish species, enhance habitat conservation for organisms dependent on the transition zone between upslope and riparian areas, improve travel and dispersal corridors for terrestrial animals and plants, and provide for greater connectivity of late-successional forest habitat.

Under the BLM's 2016 RMS, the Riparian Reserve widths on some streams are narrower than under the NWFP. However, the RMS provides more aquatic protection and greater implementation predictability and consistency as well as greater protection near streams within the Riparian Reserves than the NWFP. The RMS provides clearer direction about where and under what circumstances management actions, such as thinning and fuels treatment, are appropriate within the Riparian Reserves. The RMS prohibits certain management actions within the Riparian Reserve, such as salvage harvest (except when necessary to protect public safety or to keep roads and other infrastructure clear of debris). Tables 8.5-4c and 8.5-4d provide the acres affected and miles crossed according to the various Riparian Reserve buffers and classes on BLM lands.

The RMS tailors the Riparian Reserve widths and management to the importance of the subwatershed to ESA-listed fish. The NWFP included a process for modifying Riparian Reserve widths, but that process proved ineffective (BLM 2016a). The subwatershed classes delineated in the RMP identify those areas important to fish conservation and recovery better than the key watersheds under the NWFP. As a result, the RMS provides a better balance of protecting ESA-listed fish and water quality with other purposes, providing greater protection than the NWFP. The RMS minimizes the risk of adverse effects to ESA-listed fish and water quality while providing a high degree of predictability and consistency when implementing land management actions.

Table 8.5-3a
Forest Service Federal Land Allocations – Acres Impacted by the Pipeline [1]

Project Component	Late Successional Reserves	Unmapped LSRs	Matrix	Riparian Reserves [2]
Forest Service – Umpqua				
Construction Right-of-Way	57.18	0.00	66.74	8.92
TEWAs	10.05	0.00	30.66	5.60
UCSAs	17.23	0.00	23.57	0.00
Off-site Source/Disposal	4.93	0.00	15.87	3.93
Temporary Access Roads (TAR)	0.00	0.00	0.16	0.00
Existing Roads Improvements	0.73	0.00	0.88	0.92
Total Temporary Impacts	**90.12**	**0.00**	**137.88**	**19.37**
Permanent Easement	30.33	0.00	35.16	4.76
Permanent Access Roads (PAR)	0.00	0.00	0.06	0.00
30-Foot Maintained	18.19	0.00	21.11	2.85
Forest Service – Rogue River-Siskiyou				
Construction Right-of-Way	157.11	0.00	0.00	2.66
TEWAs	49.99	0.00	0.00	0.89
UCSAs	69.53	0.00	0.00	0.93
Off-site Source/Disposal	15.27	0.00	4.91	0.00
Temporary Access Roads (TAR)	0.00	0.00	0.00	0.00
Existing Roads Improvements	0.00	1.00	0.00	1.00
Total Temporary Impacts	**291.90**	**1.00**	**4.91**	**5.48**
Permanent Easement	83.17	0.00	0.06	1.52
Permanent Access Roads (PAR)	0.00	0.00	0.00	0.00
Aboveground Facilities	0.00	0.00	0.00	0.00
30-Foot Maintained	49.90	0.00	0.00	0.90
Forest Service – Fremont-Winema				
Construction Right-of-Way	0.00	0.00	68.64	3.94
TEWAs	0.49	0.00	11.55	0.29

Project Component	Late Successional Reserves	Unmapped LSRs	Matrix	Riparian Reserves [2]
UCSAs	0.00	0.00	11.55	0.43
Temporary Access Roads (TAR)	0.00	0.00	0.00	0.00
Existing Roads Improvements	0.00	0.00	0.00	0.00
Total Temporary Impacts	**0.49**	**0.00**	**91.74**	**4.66**
Permanent Easement	0.00	0.00	36.67	2.20
30-Foot Maintained	0.00	0.00	22.00	1.34

[1] Due to differences between the landownership (LLI coverage) and land use allocation shapefiles, the acres will vary slightly when compared to the vegetation and land use tables organized by jurisdiction.
[2] Riparian Reserves overlay other land use allocations.

Table 8.5-3b
Forest Service Federal Land Allocations – Miles Crossed by the Pipeline

Jurisdiction	Late Successional Reserves	Unmapped LSRs	Matrix	Riparian Reserves [1]
Forest Service – Umpqua	5.00	0.00	5.81	0.78
Forest Service – Rogue River-Siskiyou	13.72	0.00	0.00	0.24
Forest Service – Fremont-Winema	0.00	0.00	6.05	0.38

[1] Riparian Reserves overlay other land use allocations.

Table 8.5-4a
BLM Federal Land Allocations – Acres Impacted by the Pipeline

Pipeline Component	District-Designated Reserve (No Harvest)	District-Designated Reserve (Non-Forest)	Eastside Management Area	Harvest Land Base (Low Intensity Timber Area)	Harvest Land Base (Moderate Intensity Timber Area)	Harvest Land Base (Uneven-Aged Timber Area)	Late-Successional Reserve (Dry Forest)	Late-Successional Reserve (Moist Forest)	Riparian Reserve (Dry Forest)	Riparian Reserve (Moist Forest)	Totals
BLM – Coos Bay District											
Construction Right-of-Way	0.47	4.74	0.00	8.24	23.36	0.00	0.00	67.69	0.00	15.97	120.47
TEWAs	0.08	1.34	0.00	1.27	7.76	0.00	0.00	17.03	0.00	6.07	33.55
UCSAs	0.36	0.16	0.00	0.65	1.75	0.00	0.00	10.91	0.00	1.05	14.88
Off-Site Source/Disposal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.51	0.00	1.50	4.01
Temporary Access Roads (TAR)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.69	0.69
Total Temporary Impacts	**0.91**	**6.24**	**0.00**	**10.16**	**32.87**	**0.00**	**0.00**	**98.14**	**0.00**	**25.28**	**173.60**
Permanent Easement	0.22	2.89	0.00	4.36	12.13	0.00	0.00	38.09	0.00	8.54	66.23
Aboveground Facilities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30-Foot Maintained	0.13	1.69	0.00	2.62	7.32	0.00	0.00	22.96	0.00	5.03	39.75
BLM – Roseburg District											
Construction Right-of-Way	0.72	18.74	0.00	0.09	23.37	29.62	56.80	17.50	2.03	1.33	150.20
TEWAs	0.09	7.56	0.00	0.00	10.77	10.44	19.54	2.27	1.26	0.42	52.35
UCSAs	1.96	4.87	0.00	0.00	18.44	34.93	54.37	3.18	4.67	0.00	122.42
Off-site Source/Disposal	0.37	1.20	0.00	0.00	2.26	0.49	2.13	0.14	0.00	0.00	6.59
Temporary Access Roads (TAR)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Temporary Impacts	**3.14**	**32.37**	**0.00**	**0.09**	**54.84**	**75.48**	**132.84**	**23.09**	**7.96**	**1.75**	**331.56**
Permanent Easement	0.45	11.07	0.00	0.01	11.60	14.45	30.51	9.16	0.96	0.69	78.90
Aboveground Facilities	0.00	0.00	0.00	0.00	0.09	0.00	0.09	0.00	0.00	0.00	0.18
30-Foot Maintained	0.24	7.13	0.00	0.00	6.81	8.57	18.14	5.49	0.55	0.41	47.34
BLM – Medford District											
Construction Right-of-Way	58.57	25.82	0.00	7.78	0.00	23.02	48.42	0.00	10.72	0.00	174.33
Hydrostatic Test Site [3]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TEWAs	18.97	9.12	0.00	1.70	0.00	7.12	25.46	0.00	2.19	0.00	64.56
UCSAs	8.26	2.71	0.00	3.24	0.00	9.71	9.51	0.00	0.87	0.00	34.30
Temporary Access Roads (TAR)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Temporary Impacts	**85.80**	**37.65**	**0.00**	**12.72**	**0.00**	**39.85**	**83.39**	**0.00**	**13.78**	**0.00**	**273.19**
Permanent Easement	30.52	13.92	0.00	4.16	0.00	12.13	25.50	0.00	5.59	0.00	91.82
Aboveground Facilities	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.09
30-Foot Maintained	18.31	8.41	0.00	2.49	0.00	7.25	15.30	0.00	3.35	0.00	55.11
BLM – Lakeview District											
Construction Right-of-Way	0.00	0.74	2.96	0.00	0.00	10.90	0.00	0.00	0.22	0.00	14.82
TEWAs	0.00	0.18	0.58	0.00	0.00	2.72	0.00	0.00	0.06	0.00	3.54
Temporary Access Roads (TAR)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Temporary Impacts	**0.00**	**0.92**	**3.54**	**0.00**	**0.00**	**13.62**	**0.00**	**0.00**	**0.28**	**0.00**	**18.36**
Permanent Easement	0.00	0.29	1.56	0.00	0.00	5.88	0.00	0.00	0.11	0.00	7.84
30-Foot Maintained	0.00	0.16	0.94	0.00	0.00	3.54	0.00	0.00	0.07	0.00	4.71

Table 8.5-4b
BLM Federal Land Allocations – Miles Crossed by the Pipeline

Land Allocation	Coos Bay District	Roseburg District	Medford District	Lakeview District	Total
District-Designated Reserve (No Harvest)	0.04	0.06	5.04	0.00	**5.14**
District-Designated Reserve (Non-Forest)	0.43	2.11	2.32	0.04	**4.90**
Eastside Management Area	0.00	0.00	0.00	0.26	**0.26**
Harvest Land Base (Low Intensity Timber Area)	0.72	0.00	0.68	0.00	**1.40**
Harvest Land Base (Moderate Intensity Timber Area)	2.05	1.84	0.00	0.00	**3.89**
Harvest Land Base (Uneven-Aged Timber Area)	0.00	2.32	1.98	0.97	**5.27**
Late-Successional Reserve (Dry Forest)	0.00	5.02	4.21	0.00	**9.23**
Late-Successional Reserve (Moist Forest)	6.36	1.51	0.00	0.00	**7.87**
Riparian Reserve (Dry Forest)	0.00	0.14	0.92	0.02	**1.08**
Riparian Reserve (Moist Forest)	1.33	0.11	0.00	0.00	**1.44**
Totals	**10.93**	**13.11**	**15.15**	**1.29**	**40.48**

Table 8.5-4c
BLM Riparian Reserves – Acres Impacted by the Pipeline

Riparian Reserve Buffer	Class I	Class II	Class III	Grand Total
Coos Bay District				
Perennial or fish-bearing rapid, stream/river, or estuary	0.11	0.00	0.00	0.11
Perennial or fish-bearing rapid, stream/river, or estuary: Inner Zone (0' - 120' Buffer)	0.94	0.00	0.00	0.94
Perennial or fish-bearing stream: Inner Zone (0' - 120' Buffer)	1.78	0.00	0.00	1.78
Intermittent and non-fish bearing stream: Inner Zone (0' - 50' Buffer)	4.08	0.29	0.00	4.37
Intermittent and non-fish bearing stream: Middle Zone (50' - 120' Buffer)	7.24	0.00	0.00	7.24
Perennial or fish-bearing rapid, stream/river, or estuary: Outer Zone (120' - 1 SPTH Buffer)	0.99	0.00	0.00	0.99
Perennial or fish-bearing stream: Outer Zone (120' - 1 SPTH Buffer)	1.20	0.00	0.00	1.20
Intermittent and non-fish bearing stream: Outer Zone (120' - 1 SPTH Buffer)	12.64	0.00	0.00	12.64
Intermittent and non-fish bearing stream: Outer Zone (50' - 1 SPTH Buffer)	0.00	2.99	0.00	2.99
Coos Bay District Totals	**28.99**	**3.29**	**0.00**	**32.28**
Roseburg District				
Perennial or fish-bearing stream: Inner Zone (0' - 120' Buffer)	0.67	0.00	0.77	1.44
Intermittent and non-fish bearing stream: Inner Zone (0' - 50' Buffer)	0.59	0.00	0.52	1.11
Intermittent and non-fish bearing stream: Middle Zone (50' - 120' Buffer)	4.02	0.00	0.00	4.02
Perennial or fish-bearing stream: Outer Zone (120' - 1 SPTH Buffer)	0.29	0.00	0.55	0.84
Intermittent and non-fish bearing stream: Outer Zone (120' - 1 SPTH Buffer)	5.91	0.00	0.00	5.91

Riparian Reserve Buffer	Class I	Class II	Class III	Grand Total
Intermittent and non-fish bearing stream: Outer Zone (50' - 1 SPTH Buffer)	0.00	0.07	0.00	0.07
Roseburg District Totals	**11.48**	**0.07**	**1.84**	**13.39**
Medford District				
Lake, natural pond, reservoir, or wetland >= 1 acre	1.57	0.00	0.00	1.57
Perennial or fish-bearing stream: Inner Zone (0' - 120' Buffer)	1.00	0.00	0.00	1.00
Intermittent and non-fish bearing stream: Inner Zone (0' - 50' Buffer)	1.95	0.00	0.00	1.95
Lake, natural pond, reservoir, or wetland >= 1 acre: (0' - 100' Buffer)	0.84	0.00	0.00	0.84
Intermittent and non-fish bearing stream: Middle Zone (50' - 120' Buffer)	4.36	0.00	0.00	4.36
Perennial or fish-bearing stream: Outer Zone (120' - 1 SPTH Buffer)	0.85	0.00	0.00	0.85
Intermittent and non-fish bearing stream: Outer Zone (120' - 1 SPTH Buffer)	4.12	0.00	0.00	4.12
Intermittent and non-fish bearing stream: Outer Zone (50' - 1 SPTH Buffer)	0.00	0.66	0.00	0.66
Medford District Totals	**14.69**	**0.66**	**0.00**	**15.35**
Lakeview District				
Intermittent and non-fish bearing stream: Inner Zone (0' - 50' Buffer)	0.00	0.00	0.28	0.28
Lakeview District Totals	**0.00**	**0.00**	**0.28**	**0.28**
Grand Total	**55.16**	**4.02**	**2.11**	**61.29**

Table 8.5-4d
BLM Riparian Reserves – Miles Crossed by the Pipeline

Riparian Reserve Buffer	Class I	Class II	Class III	Grand Total
Coos Bay District				
Perennial or fish-bearing rapid, stream/river, or estuary	0.01	0.00	0.00	0.01
Perennial or fish-bearing rapid, stream/river, or estuary: Inner Zone (0' - 120' Buffer)	0.05	0.00	0.00	0.05
Perennial or fish-bearing stream: Inner Zone (0' - 120' Buffer)	0.11	0.00	0.00	0.11
Intermittent and non-fish bearing stream: Inner Zone (0' - 50' Buffer)	0.30	0.00	0.00	0.30
Intermittent and non-fish bearing stream: Middle Zone (50' - 120' Buffer)	0.55	0.00	0.00	0.55
Perennial or fish-bearing rapid, stream/river, or estuary: Outer Zone (120' - 1 SPTH Buffer)	0.03	0.00	0.00	0.03
Perennial or fish-bearing stream: Outer Zone (120' - 1 SPTH Buffer)	0.10	0.00	0.00	0.10
Intermittent and non-fish bearing stream: Outer Zone (120' - 1 SPTH Buffer)	0.82	0.00	0.00	0.82
Intermittent and non-fish bearing stream: Outer Zone (50' - 1 SPTH Buffer)	0.00	0.06	0.00	0.06
Coos Bay District Totals	**1.97**	**0.06**	**0.00**	**2.03**
Roseburg District				
Perennial or fish-bearing stream: Inner Zone (0' - 120' Buffer)	0.00	0.00	0.05	0.05
Intermittent and non-fish bearing stream: Inner Zone (0' - 50' Buffer)	0.00	0.00	0.02	0.02
Intermittent and non-fish bearing stream: Middle Zone (50' - 120' Buffer)	0.06	0.00	0.00	0.06
Perennial or fish-bearing stream: Outer Zone (120' - 1 SPTH Buffer)	0.00	0.00	0.04	0.04

Riparian Reserve Buffer	Class I	Class II	Class III	Grand Total
Intermittent and non-fish bearing stream: Outer Zone (120' - 1 SPTH Buffer)	0.13	0.00	0.00	0.13
Roseburg District Totals	**0.19**	**0.00**	**0.11**	**0.30**
Medford District				
Lake, natural pond, reservoir, or wetland >= 1 acre	0.07	0.00	0.00	0.07
Perennial or fish-bearing stream: Inner Zone (0' - 120' Buffer)	0.08	0.00	0.00	0.08
Intermittent and non-fish bearing stream: Inner Zone (0' - 50' Buffer)	0.13	0.00	0.00	0.13
Lake, natural pond, reservoir, or wetland >= 1 acre: (0' - 100' Buffer)	0.05	0.00	0.00	0.05
Intermittent and non-fish bearing stream: Middle Zone (50' - 120' Buffer)	0.32	0.00	0.00	0.32
Perennial or fish-bearing stream: Outer Zone (120' - 1 SPTH Buffer)	0.04	0.00	0.00	0.04
Intermittent and non-fish bearing stream: Outer Zone (120' - 1 SPTH Buffer)	0.22	0.00	0.00	0.22
Intermittent and non-fish bearing stream: Outer Zone (50' - 1 SPTH Buffer)	0.00	0.08	0.00	0.08
Medford District Totals	**0.91**	**0.08**	**0.00**	**0.99**
Lakeview District				
06 - Intermittent and non-fish bearing stream: Inner Zone (0' - 50' Buffer)	0.00	0.00	0.02	0.02
Lakeview District Totals	**0.00**	**0.00**	**0.02**	**0.02**
Grand Total	**3.07**	**0.14**	**0.13**	**3.34**

Key Watersheds (Forest Service and BLM). Another component of the ACS and RMS is Key Watersheds. These are watersheds that provide high quality water and are crucial to at-risk fish species and stocks. Tier 1 Key Watersheds consist primarily of watersheds directly contributing to anadromous salmonid, bull trout, and resident fish species conservation. Tier 2 watersheds do not necessarily contain at-risk fish stocks, but are important sources of high quality water. Watershed analysis is required in Key Watersheds and for roadless areas in non-Key Watersheds prior to determining how proposed land management activities meet current ACS and RMS objectives as outlined in the NWFP and RMPs, respectively.

Matrix (Forest Service). Matrix areas consist of all other federal lands outside of Congressionally Reserved Areas, Late-Successional Reserves, Adaptive Management Areas, Managed Late-Successional Areas, Administratively Withdrawn Areas, and Riparian Reserves. These areas include conifer and hardwood forests, brushfields, and open areas. Approximately 65 to 75 percent of the matrix contains forest lands available for regularly scheduled timber harvests. Production of timber and other commodities is an important objective for the matrix areas. However, forests in the matrix function as connectivity between Late-Successional Reserves and provide habitat for a variety of organisms associated with both late-successional and younger forests. The matrix will also add ecological diversity by providing early-successional habitat and serves as a protection buffer for specific rare and locally endemic species.

District-Designated Reserves (No Harvest and Non Forest) (BLM). The BLM has reserved these areas from sustained-yield timber production. The BLM will manage these areas according to the Timber Production Capability Classification system for other uses as long as the uses are compatible with the reason for which the BLM has reserved the lands.

Harvest Land Base (BLM). There are three categories in this allocation (Low Intensity, Moderate Intensity, and Uneven-aged Timber Area). This allocation, including all categories, is managed to achieve continual timber production that can be sustained through a balance of growth and harvest.

Eastside Management Area (BLM). The two categories in this allocation include Forested and Non-forested lands. Forested is managed for multiple use (i.e., wildlife and riparian habitats, recreation, commercial timber). Non-forested is also managed for multiple use as well as providing for the conservation of Special Status Species.

Standards and Guidelines. As defined by the 1994 NWFP ROD, all land allocations (on NFS lands) have specific management direction. This management direction is known as “Standards and Guidelines.” The Standards and Guidelines provide the rules and limits governing actions and the principles specifying the environmental conditions or levels to be achieved and maintained. In some areas, land allocations overlap. For example, Riparian Reserve standards and guidelines apply and are added to the Standards and Guidelines of other land allocations; when Riparian Reserves occur within Late-Successional Reserves, the Standards and Guidelines of both designations apply. Key Watershed designations may overlap any of the land allocations and the Standards and Guidelines for the allocations apply.

Standards and Guidelines for Multiple Use Activities Other than Silviculture. The 1994 NWFP ROD provides Standards and Guidelines for multiple use activities such as

road construction and maintenance, fuel wood gathering, mining, land exchanges, range management, fire suppression and prevention as well as for development of new facilities and rights-of-way and easements. The Pipeline would be considered a new development project on NFS lands that would require rights-of-way and special use permits. The Standards and Guidelines for Development of New Facilities and Rights-of-Way, Contracted Rights, Easements and Special Use Permits are summarized in the following sections.

Late-Successional Reserves - Development of New Facilities. The Standards and Guidelines in the 1994 NWFP ROD specify that new development proposals addressing public needs or providing significant public benefits, such as powerlines, pipelines, reservoirs, recreation sites or other public works projects, will be reviewed on a case-by-case basis and may be approved when adverse effects can be minimized and mitigated. (1994 NWFP ROD, Attachment A, C-17.)

As indicated in Table 8.5-3a and Table 8.5-3b, the Pipeline will affect LSRs on the Umpqua and Rogue River-Siskiyou National Forests. For the Pipeline to comply with the Standards and Guidelines so that a Right-of-Way Grant can be acquired, it will be necessary to demonstrate the Pipeline has a public need or provides a significant public benefit. FERC's issuance of the requested certificates under the Natural Gas Act will demonstrate that the Pipeline has a public need and/or provides significant public benefit.

PCGP has studied proposed alternative routes recommended by the Umpqua and Rogue River-Siskiyou National Forests which primarily followed existing roads and which the Forest Service predicted would have fewer impacts to LSRs. PCGP met with representatives of the National Forests to discuss the proposed routes and the goals of minimizing impacts to LSRs and fragmentation among others issues as well as the Pipeline's objectives to ensure constructability and long-term safety, stability, and integrity. PCGP has developed mitigation measures in coordination with the Forest Service where necessary to mitigate potential effects of the Pipeline on LSRs.

Rights-of-Way, Contacted Rights, Easements and Special Use Permits. The Standards and Guidelines for rights-of-way, easements, and special use permits specify that access to non-federal lands through LSRs will be considered (1994 NWFP ROD, Attachment A, C-19). New access proposals may require mitigation measures to reduce adverse effects on LSRs. In these cases, alternate routes that avoid late successional habitat should be considered. Although the Pipeline has been routed through LSRs, as previously stated, no new roads have been proposed through LSRs. The Pipeline's proposed mitigation measures will ensure that adverse effects to LSRs are minimized.

Riparian Reserves. As a general rule, Standards and Guidelines for Riparian Reserves prohibit or regulate activities in Riparian Reserves that prevent attainment of the ACS objectives (1994 NWFP ROD, Attachment A, C-31). Through the Pipeline's routing efforts, impacts to Riparian Reserves have been minimized by aligning the Pipeline primarily along ridgelines across the steeply dissected Coast and Cascade mountain ranges. This alignment places the Pipeline in the most stable landscape features and avoids streams in most areas.

Key Watersheds. The Standards and Guidelines (1994 NWFP ROD, Attachment A, C-7) for Key Watersheds include:

- Reduce existing system and non-system road mileage. If funding is insufficient to implement reductions, there will be no net increase in the amount of roads in Key Watersheds;
- Key Watersheds are the highest priority for watershed restoration;
- Watershed analysis is required prior to management activities, except minor activities such as those Categorically Excluded under NEPA (and not including timber harvest); and Watershed analysis is required prior to timber harvest.

Transportation and Utility Corridors. Existing or designated transportation or utility corridors are not available on federally-managed lands between the proposed LNG Terminal, near Coos Bay, Oregon and the interconnection near Malin, Oregon or are not feasible for construction of the Pipeline. The Proposed Route was not analyzed in the West-wide Energy Corridor Programmatic EIS completed by the U.S. Department of Energy ("DOE"), Department of Defense, BLM, and the Forest Service (DOE 2008).

Oregon and California ("O&C") and Coos Bay Wagon Road Lands ("CBWR"). Oregon and California Railroad ("O&C") lands and Coos Bay Wagon Road Lands are a unique category of federal lands crossed by the Pipeline that are managed by the various BLM Districts and National Forests. These federal lands and their management are described below. Table 8.5-5 provides the miles of each federal land category crossed by the Pipeline.

Table 8.5-5
Federally-Managed O&C Lands, Coos Bay Wagon Road Lands and Reserved Public Domain Lands Crossed by the Pipeline

Federal Land Managing Agency	O&C Lands (miles)	Coos Bay Wagon Road Lands (miles)	Reserved Public Domain Lands [1] (miles)	Total (miles)
BLM – Coos Bay District	1.14	9.79	0.00	10.93
BLM – Roseburg District	10.59	1.79	0.73	13.11
BLM – Medford District	12.30	0.00	2.85	15.15
BLM – Lakeview District	1.03	0.00	0.26	1.29
Total BLM	**25.06**	**11.58**	**3.84**	**40.48**
Forest Service – Umpqua NF	3.44	0.00	7.37	10.81
Forest Service – Rogue River-Siskiyou NF	0.00	0.00	13.72	13.72
Forest Service – Fremont-Winema NF	0.00	0.00	6.05	6.05
Total Forest Service	**3.44**	**0.00**	**27.14**	**30.58**
Total	**28.50**	**11.58**	**30.98**	**71.06**

[1] Reserved Public Domain Lands are the remaining lands not classified as O&C or Coos Bay Wagon Road lands.

O&C Lands. The Oregon and California Railroad grant lands were designated by Congress in 1866 to support the construction of a railroad in the State of Oregon. The O&C lands, which were to be sold by the Oregon and California Railroad Company to aid in offsetting the cost of building the railroad between Portland and the California border, included all odd-numbered sections of land for a distance of 20 miles on both sides of the railroad. Oregon O&C lands comprised a total of 4,220,000 acres in 1866. The railroad ended its sales of O&C lands to private citizens in 1903. In 1916, Congress

passed the O&C Reinvestment Act, 39 Stat. 218, after the company failed in its obligations under the terms of the grant, returning over 2.4 million acres of Oregon's O&C lands to federal ownership and management. Resource Report 5 further discusses tax revenues from BLM lands and O&C lands and payments to counties under the Secure Rural Schools Act.

Coos Bay Wagon Road Lands. The Coos Bay Wagon Road ("CBWR") Lands were established by a land grant in 1869 to the Southern Oregon Company, a decade after Oregon entered the United States. These lands were also subsequently reconveyed to the United States, 40 Stat 1179. The Oregon and California Railroad and Coos Bay Wagon Road Grant Lands Act of 1937, 43 USC 1181a ("O&C Act") requires the Secretary of the Interior to manage O&C and CBWR Lands for permanent forest production in conformity with the principle of sustained-yield. The O&C Act directs that the lands are also to be managed for protection for watersheds, regulation of stream flow, recreational facilities, and contribution to the economic stability of local communities and industries. These lands must also be managed in accordance with the applicable BLM RMP.

8.5.1.3 Other Federal Lands

National Parks and Monuments

Avoidance of scenic waterways, byways, wildernesses, national parks and monuments was a factor in the development of the Proposed Route. The closest National Park to the Proposed Route is Crater Lake National Park, which is approximately 26 miles northeast of MP 132.0. The Cascade-Siskiyou National Monument is the closest monument to the Proposed Route at approximately 10 miles southwest of MP 175.0. Because of their distance from the Proposed Route, national parks or monuments will not be impacted by the Pipeline.

National Scenic Byways

Three National Scenic Byways will be crossed by the Pipeline: The Pacific Coast Scenic Byway (State Highway 101), the Rogue-Umpqua Scenic Byway (State 62), and the Volcanic Legacy Scenic Byway (State Highway 97).

Following Highway 101 from Astoria to Brookings, many locations along the Pacific Coast Scenic Byway host spectacular views of the rugged Oregon coast. The Pipeline will be installed by horizontal directional drill ("HDD") underneath Highway 101 before it surfaces immediately east of Highway 101, at MP 3.12 H). The construction right-of-way and HDD activities would be visible where the Coos Bay North Slough HDD will be staged within the highway easement. There would be no surface disturbance to the highway; construction traffic and ingress/egress will occur at the HDD staging area at the intersection of Highway 101 and Hill Crest Drive. PCGP would implement traffic control measures while the HDD activities are occurring to ensure safety for the public and PCGP construction personal. Temporary short-term traffic interruptions would occur at the intersection during construction of the HDD staging area, staging the HDD equipment, and when heavy equipment traffic is required to service the HDD operations. Once the HDD is completed, it will be undetectable to those traveling on Highway 101.

The Rogue-Umpqua Scenic Byway forms a semi-circle route through the Umpqua and Rogue River-Siskiyou National Forests between the cities of Roseburg and Gold Hill.

The Pipeline will cross the Rogue-Umpqua Scenic Byway approximately 0.2 mile south of the town of Trail (MP 122.6) on State Highway 62. An HDD will be used to cross under State Highway 62 and the adjacent Gold River; therefore, the Pipeline is not expected to impact the Rogue-Umpqua Scenic Byway.

The third National Scenic Byway crossed by the Pipeline is the Volcanic Legacy Scenic Byway, which creates a touring route of south-central Oregon and northeastern California. The Oregon portion of the Volcanic Legacy Scenic Byway begins on U.S. 97, north of Crater Lake, circles Crater Lake, and then continues south on State Routes 62 and 140 through Klamath Falls and into California. The Pipeline will cross the Volcanic Legacy Scenic Byway just south of Klamath Falls (near MP 199.6). An HDD will be used to cross under Highway 97 and the adjacent Klamath River, and the surrounding agricultural lands will be restored; therefore, the Pipeline is not expected to impact the scenic qualities of this byway.

Refuges and Wilderness Areas

Designated Wilderness Areas. There are several federally-designated Wilderness Areas in the Umpqua, Rogue River-Siskiyou, and Fremont-Winema National Forests, but none of them will be crossed by the Pipeline, and none will be impacted by construction and operation. Two wilderness areas, however, are in proximity to the Pipeline: Sky Lakes Wilderness (113,590 acres) is in both the Fremont-Winema and Rogue River-Siskiyou National Forests and its southern tip is approximately 3.7 miles north of the Pipeline at MP 162.0; and Mountain Lakes Wilderness (23,071 acres), in the Fremont-Winema National Forest, is approximately 1.5 miles north of MP 173.0. Because of the distance between the Pipeline and the wilderness areas, construction and operation of the Pipeline will not result in any impacts.

There are no BLM Wilderness Areas and no designated areas with Wilderness Characteristics along the Proposed Route. Near the town of Trail, the BLM has designated the Berry Creek area as meeting the criteria for Wilderness; this area is approximately 0.5 mile from the Pipeline at MP 120.6. The Berry Creek area is separated from the Pipeline by private lands and State Highway 227.

The next nearest BLM area with Wilderness Characteristics is near MP 93. The Coffee Creek area is four miles to the northeast of the Pipeline and is separated by a mix of private and BLM lands.

Klamath Basin National Wildlife Refuges. The Klamath Basin hosts a complex of six National Wildlife Refuges in the Klamath Falls region of Southern Oregon and Northern California. These refuges, managed by the FWS, consist of a variety of habitats including freshwater marshes, lakes, meadows, coniferous forests, sagebrush and juniper grasslands, agricultural lands, and rocky cliffs and slopes. The habitats support diverse and abundant populations of resident and migratory wildlife, with 433 species having been observed on or near the refuges. Each year the refuges serve as a migratory stopover for about 75 percent of the Pacific Flyway waterfowl, with peak fall concentrations of more than 1 million birds (FWS 2015).

At MP 191.5, the Pipeline is approximately 3.5 miles north of the Bear Valley National Wildlife Refuge ("NWR"), and at MP 212, the Pipeline is approximately 3.7 miles north of the Lower Klamath NWR. Between MPs 196 and 199, the Pipeline wraps around on the north side of the Klamath River. On the south side of the river, the FWS owns two small

80-acre "out parcels," which are surrounded by State of Oregon lands managed by the Oregon Department of Fish and Wildlife ("ODFW"). The two parcels are approximately 0.8 to 1.2 miles south of the Pipeline.

Some USGS topographic maps show former Lower Klamath Refuge boundaries on lands that were withdrawn from consideration in the 1920s (Coles 2006). PCGP confirmed with the FWS that the Pipeline will not impact any lands within the Klamath Basin Refuge boundaries.

Inventoried Roadless Areas

The Pipeline right-of-way and related construction and maintenance facilities will not be in any Inventoried Roadless Areas ("IRAs"). The nearest IRA is the Brown Mountain IRA, located on the Rogue River-Siskiyou National Forest approximately 0.58 mile north of the Proposed Route at MP 162.0. On the Fremont-Winema National Forest, the West Boundary IRA is about 2.23 miles northeast of the Pipeline right-of-way at MP 172.25.

U.S. Bureau of Reclamation Lands ("Reclamation")

The Pipeline will cross a portion of a Reclamation land parcel at approximately MP 200.53, which is administered by Reclamation's Klamath Basin Area Office of the Mid-Pacific Region. The parcel is a Reclamation withdrawn land lot and canal, totaling about 40 feet. The land use for this area is a combination of Cropland and Pasture and Shrub and Brush Rangeland. The Pipeline and construction right-of-way will also cross 23 other Reclamation linear facilities (canals, laterals, and drains) between MPs 200.5 and 214.18. In consultation with Reclamation, to support the federal Right-of-Way Grant, PCGP developed a Klamath Facilities Crossing management plan as part of the Plan of Development ("POD") (see Appendix F.1) in order to detail mitigation measures and minimize impacts to Reclamation's resources.

National Wild and Scenic Rivers

The Proposed Route will not impact any federally-designated Wild and Scenic Rivers ("WSRs"). The Rogue River, which the Pipeline crosses near the community of Trail, is a designated WSR from the Crater Lake National Park boundary downstream to the community of Prospect, but the Pipeline will cross the Rogue River approximately 20 miles downstream of the nearest section of WSR designation. Additionally, an 84-mile section of the Rogue River is designated as Wild and Scenic starting about seven miles west of the city of Grants Pass and proceeding west toward the town of Gold Beach (National Park Service 2005). Neither of the designated WSR segments will be affected by the Pipeline.

Indirect impacts could occur if the Pipeline crossing of the Rogue River were to cause sedimentation that ran downstream and affected water quality. However, the Pipeline will cross the Rogue River using an HDD, which will avoid direct and indirect impacts to this river. Also, while this segment of the Rogue River was found eligible for Wild and Scenic designation by the BLM Medford District (BLM 1995), its river-related values are only protected on BLM-managed lands (approximately one mile from the Pipeline crossing). The Proposed Route does not cross any segments of the Rogue River on protected BLM-managed lands. No effects to the river are anticipated during construction and operation.

National Recreational Areas and Trails

Coos Bay Shorelands Recreation Management Area ("RMA") and Oregon Dunes National Recreation Area ("NRA"). Under the RMP revision (BLM 2016a), the BLM has designated four Recreation Management Areas ("RMAs") within the Coos Bay/North Spit area. They are: Bastendorff Beach (39-acre Special Recreation Management Area [SRMA]), Coos Head (11-acre SRMA), North Spit Boat Ramp (5-acre SRMA), and North Spit Trail System (1,948-acre Extensive Recreation Management Area ["ERMA"]). These SRMA and ERMA areas are collectively called the Coos Bay Shorelands RMA, and provide non-motorized and motorized recreation opportunities along the Pacific Coast and in the greater Coos Bay area for use by the local community and regional visitors.

In combination with the BLM RMA, the Forest Service (Siuslaw National Forest) manages the adjacent Oregon Dunes National Recreation Area ("NRA"). The NRA is generally located north and northwest of the Pipeline at MP 1.6. It extends 40 miles along the Oregon Coast between Florence and Coos Bay. The Oregon Dunes NRA contains the largest expanse of coastal sand dunes in North America, as well as a coastal forest with over 30 lakes and ponds. Recreational opportunities at the NRA include off-highway vehicle ("OHV") use, hiking, photography, angling, canoeing, horseback riding and camping. Thousands of OHV users take advantage of the three main riding areas with the Oregon Dunes NRA. The day use and overnight camping facilities are used by more than 400,000 visitors per year (Forest Service 2017a).

Within the Coos Bay Shorelands RMA, the BLM manages the Bastendorff Beach SRMA, the Coos Head SRMA, and the North Spit ERMA to provide picnicking, limited camping, and trail use for locals and regional visitors; the North Spit Boat Ramp SRMA also provides boating access to Coos Bay. The Coos Head SRMA was designed to help fill a gap in the Oregon Coast Trail, connecting Bastendorff Beach with the community of Charleston. The RMA is about 0.5 mile west and northwest of the Pipeline at the Jordan Cove Meter Station. The BLM's goal is to manage the 1,726 acres of the Coos Bay Shorelands RMA to sustain outdoor recreation in a manner compatible with protection of wildlife and cultural resources.

The Pipeline will not have any direct impacts on the Coos Bay Shorelands RMA and the Oregon Dunes NRA, because it will not cross those recreational areas. The Transportation Management Plan ("TMP" – see Appendix F.1) addresses potential indirect impacts construction-related traffic may have on recreational users who drive on Highway 101, the Trans-Pacific Parkway, and Horsfall Beach Road to reach those areas. During construction of the Pipeline, there will be increased traffic volumes on Trans Pacific Parkway, which provides access to these recreation areas; travelers may experience increased traffic congestion and short delays, but access or use of the RMA or NRA areas would not be precluded.

Pacific Crest National Scenic Trail. The Pacific Crest National Scenic Trail ("PCT") is a 2,650-mile hiking and equestrian trail stretching from the Canadian border in Washington to the Mexican border in California. With the passage of the National Trails System Act of 1968, Congress designated the PCT as one of the first scenic trails in the nation (Forest Service 1982). It has become an internationally significant recreation resource. Thousands of hikers and horse riders use the trail each year (Forest Service 2017b). Approximately 430 miles of the trail runs along the mostly forested crest of the

Cascade Mountain Range in Oregon. The PCT in Oregon is very popular among hikers of all abilities and is considered to contain many of the easiest sections of the trail (Pacific Crest Trail Association 2017).

The Pacific Crest Trail Association ("PCTA") is a membership organization formed in 1977 and is the Forest Service's primary private partner in managing the PCT. The association serves as a communications link among users and land management agencies, and it assists the Forest Service as well as other agencies in the maintenance, restoration, and protection of the PCT.

Trail users can access the trail in several locations near the Proposed Route, including a registered trailhead on the Dead Indian Memorial Highway (County Road 533). This trailhead is about 1.3 miles west of where the Pipeline crosses Dead Indian Memorial Highway The trail can also be accessed using Forest Road ("FR") 700 or using the Brown Mountain trail accessed by FR 3705. This section of the trail can be used year-round by hikers, equestrian users, cross-country skiers, and snowshoers. The Pipeline crosses the PCT at approximately MP 167.8. Impacts to the trail and mitigation details are discussed in Section 8.7.2.

South Brown Mountain Shelter. The South Brown Mountain Shelter is a small, fully enclosed log cabin about two hundred yards off the Pacific Crest National Scenic Trail in Section 32, T. 37 S., R. 5 E. The shelter, located in the Rogue River-Siskiyou National Forest near its boundary with the Fremont-Winema National Forest, is used year-round by hikers, cross-country skiers, snowmobilers, and others. The cabin contains a wood stove and primitive storage facilities and counter spaces. In the Fall of 2005, it was significantly repaired and updated by a group of volunteers (PCTA 2017). Potable well water is also available using a hand pump that is operational from mid-May to late-October. The shelter is approximately 600 feet north of the Pipeline near MP 167.7 and will not be directly impacted by construction or operation. Temporary construction activities will be audible at the shelter, but visitors will not be able to see the Pipeline because of the existing vegetation screening between the cabin and the Proposed Route.

Brown Mountain Trail. The Brown Mountain Trail is a path for non-motorized users on the Fremont-Winema and Rogue River-Siskiyou National Forests. The trail is linked by two short sections of forest roads and circles Brown Mountain. One access point is about a mile north of MP 165.0 at a trailhead on FR 3705, near South Fork Little Butte Creek The Brown Mountain Trail and access on FR 3705 are not expected to be impacted by construction or operation.

John C. Boyle Reservoir. Boat launches and the Topsy Recreation site, operated by the BLM, provide camping, picnicking, fishing, boating and swimming for visitors to this section of the Klamath River approximately 8 miles south of MP 184.31. Recreation and access to the reservoir and recreation site will not be impacted by construction activities, although construction could cause some temporary delays on Keno Access Road (State Highway 66). The reservoir could be a potential source of water for hydrostatic testing (see Resource Report 1), and it would not be expected to significantly draw down the reservoir or impact recreational activities.

Special Recreation Management Areas and Extensive Recreation Management Areas

There are two kinds of RMAs: SRMAs and ERMAs. Within SRMAs, the BLM manages and protects specific recreation opportunities and recreation setting characteristics on a long-term basis. This recreation management may restrict other land uses where SRMAs overlap. ERMAs are areas where the BLM has developed and currently manages recreation activities outside of developed facilities, primarily where the BLM has authorized motorized and non-motorized trails and where the BLM currently manages dispersed recreation activities.

Buck Berry Rock ERMA. This 6,504-acre ERMA is within the Medford District. It was designated for non-motorized trail systems in a remote setting and is north of the community of Trail. It is approximately 0.5 mile from the Pipeline at its closest point, near MP 121, and is separated by private lands and SH 227. Construction is not anticipated to have any impacts on this ERMA.

Green Top Mountain ERMA. This 5,316-acre ERMA is within the Medford District. It was designated for non-motorized trail systems and is not located in proximity to any larger communities. It is approximately 0.3 mile from the Pipeline at its closest point, near MP 138.5. Construction is not anticipated to have any impacts on this ERMA.

Surveyor Mountain ERMA. This 17,376-acre ERMA is within the Lakeview District. It is within a short distance of Klamath Falls and is frequented by big game hunters, OHV users, and snowmobilers. From MPs 172 to 178, the Pipeline is within one mile of the ERMA, and between MPs 176.1 and 177, the Pipeline traverses the ERMA. In this area, the right-of-way is co-located immediately adjacent to Clover Creek Road (County Road 603), and no new impacts would be anticipated to occur.

Stukel Mountain ERMA. This 9,622-acre ERMA is within the Lakeview District. Stukel Mountain ERMA is a mountainous block of land close to Klamath Falls and attracts OHV users, hikers, and mountain bikers. The Pipeline is approximately 0.4 mile from the ERMA, near MP 212.5, and is separated by private lands. Construction is not anticipated to have any impacts on this ERMA.

Bryant Mountain ERMA. This 9,093-acre ERMA is within the Lakeview District. The Bryant Mountain ERMA has potential for an OHV trail system. The site is close to Klamath Falls and is mostly a contiguous block of BLM land. The Pipeline is approximately 0.4 mile from the ERMA near MP 228, and is separated by private lands. Construction is not anticipated to have any impacts on this ERMA.

Areas of Critical Environmental Concern ("ACEC") and Research Natural Areas ("RNA").

An ACEC is an area within BLM-managed public lands where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect life and safety from natural hazards. RNAs are areas dedicated to the preservation of significant ecosystems, to providing educational activities and ecological research, and the preservation of gene pools of native species.

North Spit ACEC. The North Spit ACEC is a 725-acre area managed by the BLM Coos Bay District within the Coos Bay Shorelands SRMA. This ACEC is designated to protect outstanding biological, cultural, and scenic resources. It is located about 3.5 miles

southwest of the Jordan Cove Meter Station. Construction and operation of the Pipeline will not impact the North Spit ACEC directly. Indirect impacts are limited to increased traffic on the Trans Pacific Parkway that may occur during construction, which has the potential to cause congestion and short delays but would not preclude access to or use of the ACEC.

Upper Rock Creek ACEC. The Upper Rock Creek ACEC is a 363-acre area, managed by the BLM Coos Bay District, Myrtlewood Field Office. This ACEC was designated for its fish, wildlife, and natural process values. There is limited motorized access and no surface occupancy for new development or resource extraction. This ACEC supports a large red cedar dominated forest with sedge dominated wetlands. It also supports the western red cedar-western hemlock/skunk cabbage Oregon Natural Heritage Program ("ONHP") Coast Range Ecological cell as well as habitat for marbled murrelet and northern spotted owl. At its closest point, the construction right-of-way is approximately 100 feet south of this ACEC at MP 43.15 and will not conflict with the management of the ACEC.

Round Top Butte RNA. The Pipeline near MP 135.64 will be less than 0.25 mile from the Round Top Butte RNA, which is managed by the BLM's Medford District, Butte Falls Field Office. This 604-acre area was designated because of its natural systems, vernal pools, Ponderosa pine, oak woodland, chaparral, and grassland communities. The Pipeline will not cross this RNA.

Coastal Zone Management

Coos County and part of Douglas County are within Oregon's coastal zone and fall under the Coastal Zone Management Act ("CZMA") of 1972. The portion of the Pipeline that occurs within the coastal zone (MPs 0.0 to 53.2) must be reviewed by the Oregon Department of Land Conservation and Development ("DLCD") for consistency with the mandatory enforceable policies of the Oregon Coastal Management Program ("OCMP") (see Resource Report 1). Procedures for DLCD coastal zone reviews are specified in federal (15 CFR 930) and state regulations (Oregon Administration Rule ["OAR"] 660-035).

JCEP and PCGP will submit their applications to the DLCD for certification of consistency with the CZMA in the summer of 2017. The CZMA allows for a six-month review of the applications, with extensions upon agreement. JCEP and PCGP would not begin construction of their respective facilities until the companies each file with the Secretary of the Army a copy of the DLCD's determination of consistency with the CZMA.

8.5.1.4 State, Public, and Private Recreation Lands

State Lands

Oregon Coast Trail. The Oregon Coast Trail is a 382-mile hiking trail from the Columbia River to the California border. The trail was created by the Oregon Recreation Trails Advisory Council and is managed by the Oregon Department of Parks and Recreation Department ("ODPR") as part of the state park system. The trail crosses beaches, follows roads, passes through forests, and hugs coastal headlands. North of Coos Bay the trail leaves the beach and follows Horsfall Beach Access Road where it eventually connects with Highway 101, passes through the cities of North Bend and Coos Bay, and reaches the Pacific again near Cape Arago (ODPR 2001). The Pipeline

will be within 0.25 mile of the trail where it follows Horsfall Beach road and joins the Trans-Pacific Parkway north of MP 1.47R.

Hikers that utilize the Trans-Pacific Parkway will be exposed to construction traffic because the parkway is the only access to the North Spit area and the Jordan Cove Meter Station. The Pipeline will cross the Trans-Pacific Parkway at MP 1.89H by conventional bore to avoid traffic impacts. The HDD pullback string for the Coos Bay / North Slough crossing will also be elevated to pass over the Parkway and powerlines along the Parkway, immediately west of the Parkway crossing at MP 1.89H to avoid impacts to these features. Traffic and Pipeline construction activities could be visible and audible to hikers on the Oregon Coast Trail where it joins with the Trans-Pacific Parkway, but these impacts will be temporary during Pipeline installation. This area is adjacent to large-scale industrial uses (Roseburg Forest Products site and the LNG Terminal), a railroad and a wide, paved service/access road. Therefore, effects to trail users from Pipeline construction will be subordinate to and blend in with the larger scale construction activities associated with the LNG Terminal.

Haynes Inlet and Coos Bay Estuary. The Coos Bay estuary covers 54 square miles of open channels and periodically flooded tidal flats. The estuary is used for recreational boating, angling, clamming, crabbing, as well as commercial fishing. Canoeing, kayaking and boating are also common in the sloughs, feeder streams, and relatively calm tidal waters of Coos Bay (OCMP 2000).

Coos Bay is the tenth most popular waterbody among boaters in Oregon. Recreational boaters in Coos Bay spent an estimated total of 22,134 activity days in 2011, with the years from 2005 to 2008 averaging 23,193 use days per season. Nearly 90 percent of the boat use-days involved fishing (including angling, crabbing, and clamming), with the remaining days used for pleasure cruising and sailing. A large majority of the boating activities in Coos Bay launched from the Charleston Marina and Empire ramp (OSMB 2017). The heaviest boater use in the bay occurs between May and September.

Coos Bay provides a popular fall Chinook salmon fishery for regional anglers. Many anglers, mostly by boat, participate in this fishery from late August through late October. Boats troll for Chinook from around the Roseburg Forest Products dock following the channel around past the Mill Casino, up the Marshfield Channel, and to the mouth of Catching Slough.

The Coos Regional Trails Partnership ("CRTP"), a consortium of land management agencies and economic development groups mapped Coos Bay's water trails for kayakers and other paddlers (CRTP 2004). Portions of two water trails are crossed by the Pipeline. The North Slough Trail begins at the west end of the North Spit Causeway / Trans-Pacific Parkway, on the north side of the Parkway and east of the railroad adjacent to the Pipeline at MP 1.90H. and follows the North Slough northward. The Pipeline will cross this water trail using trenchless HDD crossing methods at about 2.61H. The Haynes Inlet Trail begins at the boat launch at the Conde B. McCullough State Wayside, about 0.8 mile west of where the Pipeline crosses Haynes Inlet. The Pipeline will cross the Haynes Inlet Trail using trenchless HDD crossing methods at about MP 5.11H.

To cross the Coos Bay estuary North Slough (approximately MPs 2.1 to 3.12) and Haynes Inlet (MPs 4.93 to 5.35), PCGP will utilize two HDDs, and therefore, there would

be no impacts to boaters using these areas during or after construction. However, to complete the North Slough HDD, pipe would need to be strung across Jordan Cove waters for the HDD rig to pull the string of pipe through the bore hole in one operation. This string of pipe would likely be staged on temporary floats or barges in Jordan Cove, extending approximately 0.75 mile across the cove. During the period that the pipe is staged for the HDD operation, boaters would not have access to waters immediately around the pullback string. After the HDD operation is complete, access to Jordan Cove water would be available with no long-term impacts.

The Haynes Inlet HDD would stage pipe in upland areas, requiring no in-water equipment; therefore, no impacts to Haynes Inlet would occur.

Klamath Wildlife Area. The Klamath Wildlife Area is managed by ODFW to provide habitat for wintering and nesting waterfowl, upland game birds and a variety of other wildlife. Bald eagles, white pelicans and ospreys are among the bird species present during certain times of the year. The Miller Island Unit, along the Klamath River south of West Klamath, also serves as a recreation spot for fishing, hunting, and boating (ODFW 2017a). The Pipeline right-of-way passes within 0.1 mile along the north side of the Miller Island Unit near MP 199.15, but is separated from the Unit by the Klamath River and other industrial areas (timber mills, etc.). Construction in this area will be limited to the ODFW-recommended work period of July 1 through January 31 to avoid impacting wildlife populations the area supports.

State Parks. There are no Oregon State Parks within one mile of the Pipeline. Some USGS maps show a Camas Mountain State Park in Section 9, T. 29 S., R. 8 W. near MP 51.7. However, the Oregon State Parks and Recreation Department records do not show that there is, or historically has been, a state park or any state land ownership at this location (Teal 2006).

State Forest Lands. Between MPs 124.22 to 124.38, the Oregon Department of Forestry manages an 80-acre tract of State lands. This parcel does not have any roads and is bounded by BLM lands and private lands.

County Lands

County Parks. There are five county parks near the Pipeline, three of which are in Coos County and accessed by the Coos Bay Wagon Road. Middle Creek Park lies approximately one-half mile west of the Pipeline at about MP 27.5. Middle Creek is an unimproved, day use park. Ham Bunch-Cherry Creek Park, with about eight primitive campsites and fishing on Cherry Creek, is located about a mile northwest of the Pipeline at MP 28.5. Frona County Park, offering a primitive group campground and fishing area along the East Fork of the Coquille River, is less than one-half mile northwest of the Pipeline at MP 29.9 (Coos Bay Net 2006 and Coos County Park and Recreation 2006).

In Douglas County, the Ben Irving Reservoir, located about 1.5 miles south of the Pipeline near the town of Tenmile and State Highway 42 (near MP 55.80), is a large man-made water body used for fishing, boating, and other water related recreation. The day use park has a picnic site and boat launch. The reservoir could be a source of water for hydrostatic testing (see Resource Report 1). The water impoundment is not expected to significantly draw down the reservoir or impact boating or other day-use activities.

In Douglas County, North Myrtle Park is located approximately 1.5 miles north of MP 79 on CR 15 (North Myrtle Road). This park is a day use park, with a ball field and picnic area. The Pipeline will cross the access road to this park.

Also, in Douglas County, near Milo, the Hill Country Wayside provides a picnic area and fishing along the South Umpqua River. This day use area is approximately 0.70 mile southwest of the Pipeline at MP 94.73, where the Proposed Route crosses the South Umpqua using open-cut construction methods. At this location, there is also a large pipe laydown yard; construction traffic would be likely in this area.

In Jackson County, the Rogue Elk Country Park provides camping, hiking, and picnicking opportunities. This park is located west on SH 62 (Crater Lake Highway), approximately 2 miles west of the Town of Trail. The park, at its closest point, is approximately 0.64 mile from the Pipeline. No construction traffic or other related indirect impacts are anticipated because construction activities will be accessing the Pipeline on different roadways.

Although construction-related activities will temporarily increase traffic on local roads utilized to access these parks, the five relatively remote county parks (Middle Creek, Ham Bunch-Cherry Creek, Frona, Ben Irving Reservoir, North Myrtle, and Rogue Elk Country) will not be directly impacted by construction and operation. The Hill Country Wayside picnic area may experience increased construction traffic and noise due to its proximity to State Highway 227 and the presence of a large pipe laydown and staging yard. Park visitors will be able to hear construction activities upriver. The proposed diverted open cut of the South Umpqua River is scheduled to coincide with the low water season of late summer/early fall to minimize impacts to boaters and anglers in the area.

8.5.1.5 Dispersed Recreation

The public lands surrounding the Proposed Route provide users with many opportunities for self-guided and individualized forms of recreation. These include, but are not limited to, berry picking, mushroom harvesting, wildlife viewing, hunting, fishing, firearm use, camping, back country snow skiing, mountain biking, jogging, OHV use, driving, hang gliding, and tree climbing.

The various forms of dispersed recreation along the Proposed Route will not be permanently impacted by construction and operation of the Pipeline. Forest Service and BLM access roads will experience temporary traffic increases during construction and some roads will be temporarily closed or traffic will be regulated. There could also be temporary land access restrictions to hunters, anglers, and others at sites like Peavine and Project camps. Because construction and restoration along the Pipeline will span a period of two years, certain areas along the Pipeline could remain off limits to dispersed recreationists until the areas are restored.

A goal of the Recreation Management Plan, developed in consultation with the BLM and Forest Service (see Appendix F.1), is to minimize recreation access and dispersed recreation disruptions on public lands. The Plan offers mitigation measures to help achieve this goal. Additionally, the Recreation Management Plan addresses OHV access restrictions, access barriers, and measures that will be implemented to minimize potential impacts on public and private lands (see Section 8.7.2). It is PCGP's preference to limit OHV use on the right-of-way in order to minimize conflicts with right-

of-way revegetation efforts, prevent potential erosion problems, and because it is typically the preference of the landowner.

Off-Highway Vehicle Use. If not managed effectively, the right-of-way could increase OHV access and potential resource impacts. To minimize OHV access on the right-of-way, PCGP will install OHV barriers at appropriate locations in coordination with the appropriate land management agency. These barriers may include dirt/rock berms, log barriers, signs, and locked gates. PCGP recognizes the importance of these barriers being constructed in a manner that effectively prevents unauthorized motor vehicle/OHV use along the Pipeline; however, PCGP is aware that unauthorized OHV trespass can be difficult to control in some heavy OHV use areas. Where available, slash from clearing operations will also be redistributed on the right-of-way which will help discourage OHV use. During operation of the Pipeline, PCGP will continue to monitor and implement corrective measures to minimize OHV access on the right-of-way in consultation with the appropriate land management agency.

Potential locations identified by federal land managers where unauthorized OHV use could be exacerbated by the Pipeline right-of-way include the area around the Pacific Crest National Scenic Trail near MPs 166.0 to 168.0 on the Rogue River-Siskiyou National Forest and along Obenchain Road near MP 137.3 on land managed by BLM Medford District. In the Obenchain area, four-wheel drive vehicles have already caused extensive resource damage, and there is concern that the Pipeline right-of-way might create opportunities for access and impacts in other nearby areas.

Peavine Camp. Peavine Camp is a primitive recreation area located off FR 3232 in the Umpqua National Forest in Section 28, T. 32 S., R. 3 W. The area contains no facilities, developed camping, or parking but is often used for camping and as a base location for dispersed recreation. The camp is near FR 3232 (South Fork Cow Creek Road) at MP 110.55. The site will not be directly impacted by Pipeline construction or operation, but users would hear construction activities and experience heavier traffic on the forest roads which access the camp if using FR 3232. Approximately 0.35 mile from the Pipeline, PCGP has identified the Peavine Rock Quarry as a potential TEWA; the Forest Road and Peavine Rock Quarry area would likely see additional traffic and use during the construction process.

Project Camp. On the Rogue River-Siskiyou National Forest about one mile south of the Big Elk Guard Station, “Project Camp,” as it is known locally, is accessed east off of FR 37 by FR 120 (not shown on many maps). The dispersed recreation site is located on Section 16 of T. 37 S., R. 4 E., on the north side of South Fork Little Butte Creek. Project Camp is approximately 0.25 mile south of the Pipeline at MP 161.70. The site, sheltered by large evergreen trees, has a large picnic table, a fire ring and is very popular with hunters, fishers, campers, and others seeking solitude. Project Camp will not be directly impacted by the Pipeline but there is a possibility that the access road could be temporarily closed for a short period of time or rerouted during construction.

Snowmobiling. The NFS and BLM lands surrounding the Proposed Route provide opportunities for snowmobile enthusiasts. There are several miles of groomed trails and hundreds of miles of snowed-over roads and trails each winter throughout the forests and foothills of the Cascade Mountains. Along the Proposed Route, snowmobiling is popular in the areas south of Fish Lake, Lake of the Woods, and Brown Mountain, approximately between MPs 150.0 and 171.0. The Pipeline crosses the Robinson

Prairie, Fish Lake, Daley Prairie, and Hyatt-Lake of the Woods trails and parallels the Keno-Spencer snowmobile trail before crossing it near MP 170.8 of the Pipeline. The Surveyor Mountain ERMA (near MP 167) is also called out by the BLM as an important snowmobiling area.

Construction through the mountainous areas will take place during the summer months and snowmobilers will not be directly impacted. It is likely that the Pipeline right-of-way could create additional access for snowmobilers, and PCGP will not deter such use in certain areas, unless land management agencies regulate otherwise. However, this additional access could increase conflicts with Nordic skiers using the Pederson Nordic Trail, and in the areas between MPs 160.0 and 161.0 of the Pipeline, and in other areas not traditionally used for snowmobiling.

River Boating. River rafting, kayaking, canoeing, tubing, and fishing are popular water sports on the Rogue and South Umpqua rivers. The Pipeline will cross the Rogue River at MP 122.65 using the HDD installation method. It is unlikely that Rogue River travelers will be impacted by construction because temporary extra work areas associated with the HDD crossing are located approximately 500 feet from the river at the closest point; therefore, boaters should be unaffected by the HDD activities. Resource Report 2 provides the HDD crossing plan for the Rogue River. A temporary bridge will not be used to cross the Rogue River.

At the second South Umpqua River crossing (MP 94.4, near the town of Milo), a primitive boat launch at the site on the up-stream side of the right-of-way will be temporarily inaccessible during construction. Temporary bridges will be built to span the South Umpqua River crossing locations to transport heavy equipment and materials; boaters/floaters may not be able to safely pass under these bridges. PCGP will place signs upstream of the bridges warning boaters/floaters of the downstream impediment and will provide safe portage around the construction work area. A diverted open-cut dry crossing is being proposed for the South Umpqua River crossing. Construction is scheduled to coincide with the low water season of late-summer/early fall to minimize impacts to boaters, anglers and aquatic species.

For the South Umpqua River crossing at MP 71.30, Direct Pipe® construction methods will be employed and there would be no impact on river-based recreational activities.

Regional Lakes and Rivers. Numerous area lakes, reservoirs, and rivers provide users with a variety of recreational opportunities including fishing, swimming, boating, skiing, and more. After installing the Pipeline, PCGP may withdraw water from several area waterbodies for use in hydrostatic testing (see Resource Report 1). Recreational areas where water potentially could be withdrawn include:

- Ben Irving Reservoir (near MP 55.90);
- South Umpqua River (MPs 71.30 and 94.73);
- Rogue River (MP 122.5);
- Fish Lake (near MP 161, Rogue River-Siskiyou National Forest);
- Lake of the Woods (near MP 168, Fremont-Winema National Forest);
- John C. Boyle Reservoir (near MP 184.30); and/or
- Keno Reservoir (near MP 189.00).

Withdrawal from these waterbodies is not expected to significantly diminish the flows or capacities and thus is not expected to directly impact recreational use. PCGP would apply for the required water withdrawal permits and would not withdraw water until the necessary permits/authorizations were issued.

8.5.1.6 Other Designated Areas

C2 Cattle Ranch Conservation Easement

The Pipeline crosses through the C2 Cattle Ranch for approximately 6 miles between MPs 141.9 and 148.3 in Jackson County. About 1,660 acres of the 9,000-acre ranch have been placed under permanent protection through a conservation easement managed by the Southern Oregon Land Conservancy. The conservation easement is composed of multiple areas on the ranch that provide conservation values including: natural, scenic, habitat, forest and open space. The Jackson County Board of Commissioners allocated funds to establish the easement to conserve the forest resource, the scenic viewshed and to benefit the people of Jackson County through funds available under PL 106-393 Title III.

The C2 Ranch through the Southern Oregon Land Conservancy provided PCGP digital polygon locations of the largely forested easements on the Ranch, and the Pipeline has been routed to minimize effects to these easements. The Pipeline was further adjusted and finalized based on recommendations from the landowner to adjust the Pipeline to minimize impacts to irrigated pastures and irrigation facilities (canals/ditches) on the ranch.

8.5.2 Residences

Drawings showing the locations of residences/structures within 50 feet of the proposed construction right-of-way and TEWAs are provided in Appendix F.8. A list of residences that are within 50 feet of the proposed construction right-of-way and TEWAs is provided in Table 8.5-6. A list of structures within 150 feet of the construction right-of-way or TEWAs is provided in Table A.8-7 in Appendix A.8.

A potential water withdrawal source for hydrostatic testing has been proposed at the Lake of the Woods Sunset Boat Launch. This site is about 400 feet north of the northern-most house within the Lake of the Woods Eastside Recreation Residence Tract. The area could be subject to additional temporary activities of pumping and water hauling, as well as increases in truck traffic on Dead Indian Memorial Highway and the boat launch access road.

Table 8.5-6
Residences within 50 feet of the Construction Right-of-Way or Temporary Extra Work Areas

Milepost	Distance from Pipeline (feet)	Distance from Edge of Construction Right-of-Way or TEWA (feet)	Number of Residences	Proposed Mitigation	Reference Drawing Number (To be provided with final application)
14.19	39	2	1	1. Install orange safety fence between the construction right-of-way and the residence. 2. Avoid removal of trees and landscaping wherever possible.	
49.65	57	41	1		

Milepost	Distance from Pipeline (feet)	Distance from Edge of Construction Right-of-Way or TEWA (feet)	Number of Residences	Proposed Mitigation	Reference Drawing Number (To be provided with final application)
56.88[1]	0	2	1	3. Restore all lawn areas and landscaping within the construction right-of-way consistent with the requirements of FERC's Upland Plan. 4. Maintain access to residence at all times during construction. 5. Provide alternative sewer facilities if septic system is disturbed during construction. Repair and restore septic system affected by construction.	
57.51	57	17	1		
65.64	112	47	1		
65.91	52	15	1		
94.67	202	17	1		
199.71	168	31	1		

[1] Abandoned residence at MP-56.88 will be removed prior to construction

8.5.3 Commercial/Industrial

The right-of-way crosses a very limited amount of land in commercial or industrial uses (Table 8.4-1). Most of the area in commercial/industrial use, or zoned for it, is in Coos (North Spit area) and Klamath (Collins Forest Products Plant) counties.

8.5.4 Private Forest Lands

In addition to public forest lands on BLM and NFS lands, the region crossed by the Pipeline hosts several private forest land operations. Approximately 65 miles of commercial private forestlands will be affected by the Pipeline construction right-of-way, TEWAs, and temporary access roads. Forest management on private and state lands in Oregon is governed by the Forest Practices Act. The timber industry is regulated and operations are reviewed by the Oregon Department of Forestry to ensure operators follow measures to protect Oregon's natural resources; such as restocking harvested forests, riparian areas, streams, wildlife, and avoiding activities on steep ground that potentially can lead to landslides. Private forest lands crossed by the Pipeline include those owned by: Weyerhaeuser, Roseburg Resources, Plum Creek Timberlands, AP Timber LLC, Bavarian Olympus Timber, FIA Timber Growth, Green Diamond, Hancock Timberland X Inc., New Growth Olympus, Pacific West Timber Company, (Oregon), System Global Timberlands, Keystone Forest Investments, LLC, Treeland Resources, LLC, John Hancock Life Insurance Company (USA) , Lone Rock Timberland Co., Rome Creek Timber LLC, Moore Mill & Lumber Co., Perpetua Forest Co. C & D Lumber Co., Silver Butte Timber Co., Seneca Jones Timber Co., Laird Timberlands, Hancock, D.R. Johnson Lumber Company, Collins Timberlands, Coos Sheep Co., and other family owned timber lands.

8.5.5 Planned Land Uses

No large-scale residential, commercial, or business projects/planned developments have been identified in the vicinity of the Pipeline in the four counties. PCGP will include updated correspondence with planners in the affected counties regarding planned developments with the final application (see Appendix C.8).

Small-scale timber sales may occur along the Proposed Route. They support the existing local socioeconomic conditions and are not expected to have a negative cumulative effect on the local socioeconomic conditions.

8.5.6 Road, Railroad, and Utility Crossings

The Pipeline will cross roads, railroads, and existing utility lines. Table A.8-1 in Appendix A.8 provides a list of the roads/railroads crossed by the Pipeline and the proposed crossing method. TEWAs will typically be required at public road and railroad crossings for temporary staging areas and are shown on the Environmental Alignment Sheets (see Appendix H.1 to Resource Report 1).

8.5.7 Transportation Corridors

Construction equipment will primarily be transported on existing public roads to access the construction right-of-way (see Table A.8-1 in Appendix A.8). Workers will also use existing public roads to travel to and from the construction sites. New access roads planned as part of the Pipeline are provided in Table 8.3-3. Resource Report 5 provides more detail regarding possible transportation routes that may be utilized during construction.

8.5.8 Waterbodies

The Pipeline will affect 371 waterbodies (see Tables A.2-2 and A.2-4 in Appendix A.2 to Resource Report 2) – 88 are perennial, 155 are intermittent, 113 are ditches, 11 are stock ponds, and four are estuarine (Coos Bay - North Slough, Haynes Inlet, Coos Bay, and Lillian Creek). Of the 371 waterbodies, 63 are not crossed by the centerline but are within the construction right-of-way or TEWAs. Waterbody crossings are further addressed in Resource Report 2.

8.5.9 Shellfish Beds

Oysters in Coos Bay are farmed from seeded beds because the waters there are too cold for them to easily spawn. The beds are seeded yearly on a rotational basis, and harvested every 2.5 to 4 years, depending on the desired size of the oyster. There are approximately 1,600 acres of oyster beds in production in Coos Bay with ownership spread among varying entities. Clausen's Silver Point Oysters is the largest grower in Oregon with three crops rotating on approximately 600 acres of beds in Coos Bay and the Haynes Inlet (Clausen 2012). The crossings of Coos Bay are proposed as HDDs, which are aligned across North Slough and Haynes Inlet and will avoid effects to the commercial oyster beds.

8.5.10 Sites of Cultural or Historic Significance

Resource Report 4 provides information regarding sites of cultural or historic significance along the Proposed Route as well as any potential impacts and mitigation methods.

8.5.11 Landfills/Hazardous Waste Sites/Mines and Quarries

Federal and state databases have been reviewed for documentation of National Priorities List ("NPL") sites, state hazardous waste sites or landfills that are located within 0.25 mile of the Pipeline. To determine the location of landfills that are in the vicinity of the Pipeline, PCGP acquired a geospatial data set from the Oregon Department of Environmental Quality ("ODEQ") of all solid waste landfills located in Coos, Douglas, Jackson and Klamath counties (April 2017). The ODEQ Oregon Facility Profiler (http://deq12.deq.state.or.us/fp20/) was used to determine if there were any

recorded hazardous waste sites, cleanup sites or leaking underground storage tanks within 0.25 mile of the Pipeline. PCGP also completed a review of the ODEQ Environmental Cleanup Site Information Database ("ECSI") to assess the presence of known or potential contamination. Additionally, PCGP completed a review of the EPA's Facility Detail Report (https://www.epa.gov/emefdata/em4ef.home) under their Facility Registry Service program of all sites within 0.25 of the Pipeline.

8.5.11.1 Landfills

North Spit Landfill – (includes ECSI Site 1083)

Fort Chicago Holdings II U.S. LLC purchased the Weyerhaeuser parcel in 2012, and the North Spit landfill is located on part of that parcel. This landfill, which is near North Bend, Oregon, north of MP 1.47R, is the only landfill identified within approximately 0.25 mile of the Pipeline. Starting in 1995, Weyerhaeuser used the landfill to dispose of non-hazardous materials generated by the operation of a containerboard recycling mill located on the same parcel as the landfill. Primarily, non-recyclable solid waste products (such as metal, plastic, etc.) were disposed of in the landfill. Other non-hazardous wastes that were disposed of in the landfill included effluent treatment solids from the facility's clarifiers, boiler ash, and miscellaneous non-routine mill cleanup materials. Weyerhaeuser discontinued operations of the Containerboard Facility in June 2003 and dismantled the facility. Facility demolition debris was also disposed of in the landfill.

Groundwater samples collected from monitoring wells installed near the landfill indicate that since the mill was demolished, overall groundwater quality has improved. Minor calcium, magnesium, iron, manganese and a few other inorganics have contaminated groundwater near the landfill. The landfill is permitted by the ODEQ through 2021. The permit allows continued activities related to groundwater monitoring, solid waste disposal, landfill cover and maintenance, and environmental monitoring. The location of the Pipeline's proposed subsurface activities on the former Weyerhaeuser land will be greater than 1,800 feet from the landfill. Monitoring wells located between the landfill and the Proposed Route have never shown signs of groundwater contamination. It can, therefore, be reasonably anticipated that subsurface activities necessary for construction and operation of the Pipeline will not occur in any areas at this location where groundwater contamination would occur.

Weyerhaeuser – Mettman Ridge Landfill – ECSI Site 290

At this landfill, a dumpster of pentachlorophenol dip tank bottoms was accidently deposited. Pentachlorophenol-contaminated soils were landfilled, as was a demolished concrete containment area. ODEQ has closed out this site, as contaminant levels were low, and there was very low risk of off-site contamination. This location is approximately 450 feet from the right-of-way at MP 6.7, there is no anticipated impact.

Roseburg Forest Products-Dillard – ECSI Site 583

Approximately 400 feet from Hult Chip Yard 1, there is the Roseburg Forest Products – Dillard, ECSI Site 583. At this site, Roseburg Forest Products Co. has been landfilling hazardous substances in its own solid waste landfill for years. On October 6, 1985, a diesel tank ruptured when a weld on the end of the truck broke loose, resulting in a release of 8,000 gallons of fuel. Hazardous substances included methyl isobutyl ketone, toluene, xylene, methyl ethyl ketone, acetone, mineral spirits, chromium, lead, oil. ODEQ Solid Waste is working with Roseburg Forest Products to install a liner in the

landfill to stop off-site groundwater contamination. As no excavation work would occur at the chip yards, there is no anticipated impact.

Collins Products Landfill – ECSI Site 3264

This location is a wood-waste landfill; there is no other information available for this location. This location is 1,100 feet southwest of a TEWA at MP 198.3; there is no anticipated impact to this location.

Malin Substation – LUST 18-93-0020

This location was reported to have a spill or leaking underground storage tank ("LUST"), discovered during decommissioning; there is no other information available for this site. This location is 560 feet north of the right-of-way at MP 226.1; there is no anticipated impact to this location.

8.5.11.2 Hazardous Waste Sites

The following sites are part of the ODEQ ECSI and LUST Database; they are presented in relation to their closest points from the Pipeline. PCGP has developed a Contaminated Substances Discovery Plan, included in Appendix F.1. This plan outlines practices to protect human health and worker safety and to prevent further contamination in the event of an unanticipated discovery of contaminated soil, water, or groundwater during construction.

Proposed North Spit Dock, Pipe Yard LUST Locations

Within the 0.25-mile buffer around this proposed pipe yard, there are four LUST sites. These sites include heating oil, miscellaneous gas, and waste oil contaminations of soils from either spills or leaking tanks. The closest location is 325 feet from the pipe yard. Given the distance from these LUST locations, and as there would be no excavation at the proposed pipe yard, there is no anticipated impact.

Proposed Menasha Pipe Yard LUST and ECSI Locations

Within the 0.25-mile buffer around this proposed pipe yard, there are 15 LUST locations and two ECSI locations. The majority of the LUST locations are associated with leaking residential heating oil tanks, gasoline/diesel spills, or leaks. Given there would be no excavation at the pipe yard and the LUST locations are not located within the yard footprint, there is no anticipated impact to these sites.

The Chambers Fuel Oil Inc. ECSI Site 22 operated as a heating oil storage and distribution facility from 1954 to 1988 at the south end of the proposed pipe yard. At the end of facility operation in 1988, DEQ's Southwest Region office required Chambers to empty its tanks and remove on-site asbestos. Coos County assumed ownership in 1990 due to tax default. DEQ's Site Assessment program completed a Preliminary Assessment at the site in 1991 and concluded that further investigation was required. DEQ conducted a Site Investigation and Removal Assessment in early 1994 that confirmed oil contamination in the soil and groundwater. A security fence was installed around the site in June 1994, and DEQ removed some drums from the site in November 1994. Over 300 tons of soil contaminated with total petroleum hydrocarbons ("TPH") and 80,000 gallons of contaminated groundwater was removed in 1997; the site was backfilled with clean sand and regraded. The site is now considered remediated. As

there would be no excavation at the pipe yard, there is no anticipated impact to this location.

Approximately 1,020 feet south of the pipe yard is the North Bend Pipeline ECSI Site 4375. This was an heating oil release from when North Bend Public Works was digging a ditch for a sewer pipeline in 2005 and punctured the pipe. The oil spill was cleaned up and the site is considered remediated. Given the distance to this location, and as there would be no excavation at the pipe yard, there is no anticipated impact to this location.

Proposed Brunell Pipe Yard LUST and ECSI Locations

Within the 0.25-mile buffer around this proposed pipe yard, there are 15 LUST locations and four ECSI locations. The majority of the LUST locations are associated with gasoline/diesel spills or leaks and residential heating oil tank leaks. Given there would be no excavation at the pipe yard, there is no anticipated impact to these sites.

Of note, within the proposed pipe yard there is one LUST site: Champion International LUST 06-90-0009. This was a diesel spill in 1990 and was remediated the same year; the log file has been closed. Also in the pipe yard is Central Dock Company LUST 06-93-0042. This was a leaded gas spill in 1993 that contaminated soil, groundwater, surface water, and drinking water. The site was cleaned up and remediated the same year, and the log file has been closed.

Within the proposed pipe yard is the Central Dock ECSI 4646 location. This location was previously a Standard Oil and Union Oil petroleum, product-related warehouse facility dating from at least 1911 through approximately 1945. From 1945 to 1993, the property was used for log and lumber storage, handling, and shipping. From 1993 to 1996, Hall-Buck Marine, Inc. operated a copper ore concentrate handling and shipping facility on the property. The property has been vacant since 1996. Soil, sediments, and/or groundwater at or near the property have been contaminated by petroleum compounds and/or metals, primarily arsenic and copper. Remediation was to include capping the entire upland property and implementing institutional controls (no excavation groundwater extraction, etc.). While portions of the area have been capped, aerial photography shows that some areas have not been capped. Additional follow-up discussions with ODEQ are necessary to determine which areas of the proposed pipe yard should be avoided.

Marshfield Corp. Property ECSI Site 4196 is located approximately 690 feet south of the pipe yard. Soil sample results showed elevated arsenic and chromium concentrations at one location; elevated lead concentrations, elevated diesel and lube oil range TPH concentrations at two locations; and elevated polychlorinated biphenyl ("PCB") concentrations. PCBs were detected at all four sample locations. This location is on the Confirmed Release List and Inventory list as of 2005. No remediation has occurred at this time. Given the distance to the pipe yard, there would be no impact to this site.

Approximately 100 feet to the north of the pipe yard is the BLM Parking Lot Coos Bay ECSI Site 1945; there is no information available for this location.

Millington 1 Pipe Yard LUST – 06-98-0036

At the proposed Millington 1 pipe yard, there is one LUST site. This site had a reported spill of diesel that contaminated soils and groundwater in 1998. This site has been remediated and the log file has been closed; there is no risk of impact.

Proposed Coquille Park Pipe Yard LUST Sites

At the proposed Coquille Park pipe yard, there are two LUST sites within the 0.25-mile buffer. One site is from a BLM shop, which had a spill of gasoline from overfilling a tank, and the other site is a diesel spill from the Waste Water Plant. Both of these locations have been remediated, and the log files have been closed.

Proposed Coquille Yard, Pipe Yard LUST Sites

At the proposed Coquille pipe yard, there are 10 LUST sites within the 0.25-mile buffer. Most of these sites are associated with spills of gasoline or diesel, and some are from heating oil tank leaks. All of these locations have been remediated, and the log files have been closed.

Proposed Winchester Pipe Yard ECSI Site

This was the location of the former Winchester Mill. Contaminants at the site include carbon tetrachloride, trichloroethylene, perchloroethylene, and 1,2-Dichloroethane, located within the old log pond soils. As these contaminants are in the old log pond, and this area would not be disturbed, there would be no impact. Within the 0.25-mile buffer area there is one LUST site, which has been remediated and the log files have been closed.

Proposed Highway 99 Hay Field Pipe Yard LUST and ECSI Sites

Adjacent to the proposed pipe yard, there are two LUST sites associated with gas stations; these sites have been remediated and the log files have been closed. Approximately 450 feet to the northwest of the pipe yard is the South Umpqua Industrial Park ECSI Site 4351. This location was reported to have no contamination.

Proposed Riddle Pasture and Riddle Main Street Pipe Yard LUST and ECSI Sites

Within the 0.25-mile buffer area for these two proposed pipe yards, there are 5 LUST sites and one ECSI site. The LUST sites are associated with gas stations; four of the sites have been remediated and closed, and one is still open and remediation is ongoing. This location is not anticipated to be impacted by use of the pipe yard.

The Tosco Bulk Plant No 0645 ECSI Site 2250 is immediately adjacent to the Riddle Main Street Pipe Yard. This site has contamination from BTEX and PAH in soils and groundwater. Site characterization and remediation is still underway; access to the pipe yard should avoid this location, and no impact is anticipated.

Kay's Market – LUST 10-99-0024

This location had a LUST reportedly leaking miscellaneous gas products. ODEQ has closed out this site, as contaminant levels were low, and there was very low risk of off-site contamination. This location is approximately 315feet from the right-of-way at MP 50.0, and there is no anticipated impact.

Private Residence Heating Oil Tank – LUST 06-10-0979

This location is from a leaking underground heating oil tank. ODEQ has determined this site has been remediated, and the case log is closed. This location is approximately 80 feet from a TEWA at MP 7.44; there is no anticipated impact.

Proposed Hult Chip Yard LUST and ECSI Locations

At the proposed Hult Chip Yards 1 and 2, there are three LUST locations within the buffer area and 1 LUST within the Hult Chip Yard 2 boundaries. The one LUST site within the yard was spilled waste oil; this site was remediated and the site closed out. As no excavation would occur at the chip yards, there is no anticipated impact.

Proposed Green #1 and Green District Pipe Yards LUST and ECSI Sites

Within the 0.25-mile buffer area around these proposed pipe yards, there are five LUST sites. As no excavation would occur at these pipe yards, there is no anticipated impact to these LUST sites.

Approximately 125 feet south of Green #1 Pipe Yard, there is the Horizon Auto Body & Glass ECSI Site 2287. In 1999, contaminants included include PAHs, metals, and VOCs, and were observed running off site and leaking, with contaminants potentially flowing to the north towards the proposed chip yard. As of 2015, the site has been mostly cleaned up and only some oil-contaminated soils occur within the facility, with no to little risk of offsite contamination. As no excavation would occur at the chip yards, there is no anticipated impact.

Approximately 450 feet north of Green #1, there is ECSI site 4968; there is no information for this location. Approximately 800 feet northwest of Green #1, there is McGovern Metals Inc. ECSI Site 1461; there is no information for this location. Based on the distance from and the activities proposed at Green #1, there is no anticipated impact.

Proposed Burrill Lumber, WC Short, and Ave. F & 11th Street Pipe Yards LUST Sites

Within the 0.25-mile buffer around these three pipe yards in White City, there are nine LUST sites. These sites are associated with spilled or leaked diesel, gasoline, and waste oil. None of these sites is within the pipe yards, and all of the sites have been remediated and the log files have been closed.

There are also nine ECSI sites within the 0.25 buffer area:

- EF Burrill Lumber Site, ECSI Site 3395; this location is pending further investigation.
- Cascade Wood Products, ECSI 20; this site has pentachlorophenol contamination found in soils, surface water and groundwater as a result of two or more spills (1973 and 1985), and operating practices since 1952. The site is a potential threat to the Rogue River. Contaminated surface runoff has impacted sediments in ponds of the State Wildlife Refuge. Groundwater also appears to discharge to ponds and wetlands in the wildlife refuge. There is no anticipated impact on this location from pipe yard use.
- C&R Salvage, ECSI 1419, this site reportedly had oil spills but further investigation is needed. This location would not be impacted by pipe yard use.

- Burrill Ave. G, ECSI 4146; additional investigation is needed, no details. There is no anticipated impact on this location from pipe yard use.
- Down River Forest Products, Inc., ECSI Site 582; site has urea resin contamination and evidence of old petroleum contamination; site has been remediated, and no further action is required. There is no anticipated impact on this location from pipe yard use.
- Boise Cascade – White City, ECSI 534; Boise Cascade used a chlorophenate dip tank at the site until 1983. Chlorophenate wood treatment at the site pre-dates the 1976 transfer of the property from Olsen-Lawyer to Boise Cascade. In January 1982, Boise Cascade re-constructed the old lumber dip system because existing containment measures were considered inadequate in the case of a tank failure. No further remediation is necessary. There is no anticipated impact on this location from pipe yard use.
- Medite Corp. Stud Mill, ECSI 2059; this site was investigated for contaminants, and numerous sites and contaminants were identified, including benzene, gasoline, lube oil, and dioxins. Site has seen some remediation, but ODEQ has determined no additional actions are needed at this time. There is no anticipated impact on this location from pipe yard use.
- Central Point Auto Wreckers, ECSI Site 4720; site screening is recommended by ODEQ, but no further information is available. There is no anticipated impact on this location from pipe yard use.
- CertainTeed – White City, ECSI Site 5131; during construction activities in the mid-2000s, two areas were found in which the oil that was used to lubricate the molds in which the siding was pressed had been released to soils. Project activities have been closed out at this time. There is no anticipated impact on this location from pipe yard use.

Milo Adventist Academy LUST 10-90-0054

This site had a LUST leaking leaded gas. ODEQ reports that this site was remediated and the case log is closed. This location is approximately 830 feet from MP 94.7; there is no anticipated impact to this location.

Ed's Trail Market LUST 15-96-0006

This location was reported to have unleaded and leaded gas spills from overfill of storage tanks. ODEQ reports that the site was remediated and the base log is closed. This location is approximately 700 feet north of MP 122.6; there is no anticipated impact to this location.

Ground Wave Emergency Network ECSI Site 3510

There is no information for this site. This location is approximately 450 feet south of MP 196.5; there is no anticipated impact to this location.

J.A. Jones Construction Company LUST 26-99-0924

This location was reported to a have heating oil spill. ODEQ reports that the site was remediated and the base log is closed. This location is approximately 1,200 feet north of MP 199.1; there is no anticipated impact to this location.

Proposed K-Falls Memorial Dr. #1 Pipe Yard ECSI and LUST Sites

There is one LUST location approximately 343 feet north of the proposed pipe yard. Within the pipe yard there is also the Klamath Basin Pine Mills ECSI Site 5368; there is no information for this location. As there would be no excavation at the pipe yard, there is no anticipated impact to this site.

There are two other ECSI Sites located to the northwest of the pipe yard: Sturdicraft Inc, and DG Shelter Products Co. These two locations were entered into the ECSI system for further research by ODEQ, but there is no information or contaminants known for these locations. Given the distance to the proposed pipe yards, there are no anticipated impacts.

Proposed K-Falls Memorial Dr. #2 Pipe Yard ECSI and Lust Sites

There is one LUST location approximately 1,500 feet north of the proposed pipe yard. To the west of the pipe yard, approximately 440 feet, is McVay Machine Shop ECSI Site 4828. The site is a former machine shop that has also been used for welding and sandblasting. There is no contaminant information for this location, but it has been tagged for further investigation by ODEQ. Approximately 1,080 feet to the north of the pipe yard is the PacifiCorp Power and Light ECSI Site 70. This site had a PCB spill from a capacitor in 1988, which was cleaned up. Given the distance to the pipe yard, there is no anticipated impact.

Proposed K-Falls Industrial Oil Pipe Yard ECSI Sites

Approximately 300 feet north of the proposed pipe yard, there is the Long-Bell Lumber ECSI Site 5423. This location has no information but has been tagged for further investigation by ODEQ. Approximately 880 feet to the east of the proposed pipe yard is the Industrial Oils ECSI Site 1821. This site is reported to have chlorobenzene and dichlorobenzene detected in groundwater. Given the distance to this location, there is no anticipated impact.

Proposed K-Falls – Amuchastegui Pipe Yard ECSI Site

Approximately 1,140 feet northwest of the proposed pipe yard there is the Washburn Way & Laverne St. ECSI Site 4452. The site is located adjacent to, and was originally part of, the BNSF Midland Market rail yard facility. The BNSF facility is an active voluntary cleanup project. Despite documented contamination on the site, including former removal actions, BNSF's land department sold this land to a third party without the knowledge of BNSF's environmental department. At the time of this transaction, it was not clear whether the site had persistent residual contamination exceeding acceptable limits or not. BNSF has removed close to 20 tons of soils contaminated with TPH. At this time TPH concentrations are well below environmental health standards, and the site is considered remediated. Given the distance to this location, there is no anticipated impact.

Proposed Merrill Oregon RR Siding Pipe Yard ECSI Sites

Approximately 440 feet to the north of the proposed pipe yard is the Tri-Met Merlo Garage ECSI Site 1348. Sources of contamination included three main areas: piping leaks at North UST farm; leakage from piping associated with hydraulic lift; and leakage from a failed surface drain in fuel building. Contaminants included BTEX, TPH, and naphthalene. Investigation of releases of contaminants to a treatment wetland via the

stormwater outfall was begun under the Stormwater Program. In 1999, the Cleanup Program took lead to assess risk associated with impacted wetland. In 2006, this location was deemed remediated.

Approximately 490 feet to the northwest of the proposed pipe yard is the Unocal Bulk Plan – Merrill ECSI Site 2702. Formal investigations of this site have not occurred, but in 2007 groundwater in the area was tested and results were in compliance with state and EPA requirements.

Based on the distance to these two locations, and as no excavation would occur at the pipe yard, no impacts are anticipated.

8.5.11.3 Mines and Quarries

The Geologic Hazards and Mineral Resources Report (see Resource Report 6) describes the mineral mines and quarries in the vicinity of the Pipeline as well as potential impacts and mitigation measures.

8.6 VISUAL RESOURCES AND AESTHETICS

8.6.1 Overview of Visual Resources

The Proposed Route spans the Southern Coast, Klamath Mountains and Cascade Mountain Ranges in the southwestern corner of Oregon. Landscape and viewshed characteristics along the Proposed Route are influenced by varying geographic, topographic, vegetation types, and conditions. The associated human development activities (e.g., industrial, timber management, agricultural, rural) within these landscapes and viewsheds contribute significantly to the character of these areas. Elevations along the route range from approximately 10 feet above sea-level at the Jordan Cove Meter Station (MP 1.47R) to approximately 5,400 feet above sea level where the Pipeline crosses the Cascades and the Pacific Crest National Scenic Trail near MP 168.

Visual resources along the proposed approximately 235-mile Pipeline vary greatly. Viewsheds range from sandy, treed dunes, to expansive bay views and temperate rain forest in the Coos Bay area, to rolling, steep conifer-forested hillsides in the Coast and Cascade ranges and foothills. Open oak savanna, pasturelands and rolling hills are common in the viewsheds near Roseburg and east of Medford, with views transitioning to dramatic conifer mountain and volcanic landscapes in the Cascades. Croplands, pasturelands, rolling sagebrush rangeland and pine-juniper forests punctuated by westerly views of the Cascades compose a unique scenic landscape in the Klamath Basin surrounding Klamath Falls at the beginning of the Pipeline.

The forested viewsheds along much of the Proposed Route are characterized by various aged forest stands that are actively being harvested and are in various stages of regeneration. Several viewsheds along the western portion of the Pipeline are of very low scenic integrity, dominated by forested hillsides that have been recently altered by logging (clear-cuts) and are traversed by logging roads; at this time, regenerating trees have not reached a height and density to obscure these areas. A few forested viewsheds also support existing utility corridors. Where the Pipeline crosses NFS lands within the Umpqua, Rogue River-Siskiyou, and Fremont-Winema National Forests, the forested viewsheds are generally characterized as ranging from low to high scenic

integrity, varying with the stages of regenerating forest maturity. Current timber harvesting (typically conducted with clear cut harvesting techniques), while still present in some areas, is now a less dominant characteristic of the landscape.

On BLM and NFS lands, visual resources are managed according to visual resource management guidelines. Most of the Pipeline passes through viewsheds which allow moderate change, given the active timber management regimes. These are areas where alterations of the existing landscape will not significantly alter the existing characteristics of the viewshed. In selected areas, the Pipeline crosses federally-managed public lands that are designated as having high visual resource sensitivity under the agencies' visual management systems.

In the Rogue River-Siskiyou National Forest, Big Elk Road, Dead Indian Memorial Highway, and the Pacific Crest Trail are areas of high visual sensitivity. In the Fremont-Winema National Forest, the area along Clover Creek Road is considered to have moderate to high visual sensitivity. These areas are discussed in Section 8.6.3 on Sensitive Viewsheds and in the Aesthetics Management Plan (see Appendix F.1).

As part of the previous NEPA process, a visual impact assessment was conducted to determine the potential impacts on the visual resources associated with the LNG Terminal and Pipeline. Representative viewing points (hereafter referred to as key observation points or "KOPs") were identified within the Pipeline viewsheds, or the area from which the LNG Terminal or Pipeline would be potentially visible. Objects typically become apparent to the viewer when they are seen in the foreground, at one-half mile or less, but may affect viewers when they are present in the middleground (up to 4 miles from the viewer), depending on the extent of landscape modification and other visual factors. For the Pipeline, the viewshed extends to a distance of 5 miles. This was defined using aerial and ground photography, local planning documents, computer modeling, and field reconnaissance. Site visits to document existing visual conditions along the Proposed Route and to identify potentially affected sensitive viewing locations were initially conducted in April 2006 and were updated in May 2013 to incorporate changes in Pipeline components. These KOPs were selected to characterize the visibility of the Pipeline and the impact on potential viewers and the landscape in which it would be constructed and operated. Based on site visits, it is anticipated that views of much of the Pipeline would be partially or fully screened by existing trees, landforms, or intervening man-made development.

The viewing points that were included in the assessment consisted of locations with concentrations of viewers, such as major roadways or housing developments, visually sensitive land uses such as parks and recreation areas, culturally sensitive locations such as historic sites, and places where people congregate.

General descriptions of the Pipeline viewsheds are presented in the sections below by county. These descriptions are based on aerial photography, USGS mapping, agency maps, as well as on-the-ground and aerial field surveys. Several segments of the Pipeline would be co-located in or adjacent to existing utility corridors and roads. These areas are listed by milepost in Table A.8-5 in Appendix A.8 and discussed in Section 8.3.6.

Coos County

The Pipeline traverses Coos County between MPs 1.47R and 45.70. Viewsheds in the Coos Bay area are mixed industrial and urban but also include forested hillsides, agriculture and pasturelands. Evergreen forests are dominated by Douglas-fir, with western hemlock, western redcedar, and grand fir also very prevalent. Riparian areas, non-conifer dominated stands, big leaf maple, and red alder are common. From approximately MPs 1.47R to 11.0R there are industrial areas, mixed conifer forest, and broad bay and city views. In residential areas on the fringes of Coos Bay, forested hillsides slope down to sea level and often end in tidal mud flats, sloughs and pasturelands. Inland between about MPs 11.0R and 30.0, pasture lands within the numerous small stream valleys (Stock Slough, Catching Slough, North Fork Coquille River, Middle Creek and East Fork Coquille River) are bounded by hills and low mountains covered with various stages of forest regeneration. On the western flank of the Coast Range (MPs 30.0 to 45.0), viewsheds are of rugged coastal mountain terrain with mixed forest cover ranging from clearcuts to small, fragmented portions of old-growth forest.

Douglas County

The Pipeline crosses Douglas County between MPs 45.70 and 110.0. Viewsheds vary from rural agricultural and mixed forest in the Camas Valley area to forested hillsides and rural bottomland pastures along State Highway 42. Evergreen forest vegetation is dominated by Douglas-fir, with western hemlock, western redcedar and grand fir also very prevalent. Deciduous forest stands and open oak savanna are present in the foothills surrounding the Roseburg area and include a wide range of trees, shrubs and grasses; including fir, pine, oak, Pacific madrone and scrub oaks. The Pipeline crosses the South Umpqua River and Interstate 5 corridor between MPs 70.6 and 73.0 in an area of mixed residential, agricultural, hilly grassland and mixed forest landscapes. As the Pipeline continues east, the views transition to more densely mixed forested hills with narrow valleys and pasture bottomlands. In the eastern stretches of the Douglas County region the Pipeline enters remote areas of the Umpqua National Forest where views from winding gravel access roads are mostly of mature forested hillsides.

Jackson County

The Pipeline crosses Jackson County between MPs 110.0 and 166.41. Much of the area traversed by the Pipeline is comprised of mixed forested hills and ridges in the lower elevations of the western flank of the Cascades. Forest vegetation types are diverse in the Pipeline project area with a wide range of trees, shrubs and grasslands, including various firs and pines, oak, Pacific madrone, manzanita, scrub oaks, and sagebrush. Logging and agriculture are major land use activities in the County, and their visual contributions to the landscapes are widespread. Steep slopes and jagged ridges of volcanic rock are common sights in many parts of Jackson County. Mt. McLoughlin, a 9,495-foot volcanic peak, is also a signature landmark seen from many parts of the county along the Proposed Route.

Klamath County

The Pipeline traverses Klamath County between MPs 166.41 and 228.8. Here, the Pipeline crosses a transition zone from the higher, rugged volcanic stretches of the eastern flank of the Cascade Mountains and Brown Mountain to the arid sage-steppe rangelands and irrigated croplands and pastures of the Klamath Basin in Southwest

Oregon. Vegetation traversed by the Pipeline in the County is a mix of fir and pine in the highlands, and juniper, grasslands, and shrub/brush rangelands in the lower elevations. Common crops grown in the Klamath Basin include alfalfa and potatoes. Views are more expansive in this portion of the Proposed Route and consist of broad stretches of shrub/brush rangeland and irrigated agricultural lands framed by the mildly sloping forested hills and Mt. McLoughlin in the west.

8.6.2 Visual Resource Methodology

The responsibility for protecting visual resources on lands under the jurisdiction of the BLM is established by the Federal Land Policy and Management Act (1976). Portions of the Pipeline on BLM lands are classified as Visual Resource Management ("VRM") Class IV, as identified in the 2016 Northwest & Coastal Oregon RMP and the 2016 Southwestern Oregon RMP. The objectives for VRM Classes are defined in BLM's Handbook H-8410-1 – Visual Resource Inventory.

The National Forest Management Act (1976) required the completion of Forest Plans which established Visual Quality Objectives ("VQOs") for National Forests.

BLM

The BLM VRM systems consist of two stages – inventory and analysis. The inventory stage involves identifying the visual resources of an area and assigning them to inventory classes using BLM's visual resource inventory process. This process results in assigning VRM classes to visual resources within a BLM district and becomes an important component of the area's RMP. The rating system was devised to ensure that an earnest attempt is made to minimize potential visual impacts for a given development. The system is driven by the philosophy that "the degree to which a management activity affects the visual quality of a landscape depends on the visual contrast created between a project and the existing landscape" (BLM 2001). BLM has developed four VRM Class Objectives to apply to visual resources. The objectives are as follows:

- Class I—To reserve the existing character of the landscape. This class allows for natural ecological changes, but does not preclude very limited management activity and the level of change must not attract attention.

- Class II—To retain the existing character of the landscape. The level of change to the landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the landscape.

- Class III—To partially retain the existing character of the landscape. The level of change to the landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the landscape.

- Class IV—To provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may

dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

The BLM contrast rating system also establishes degrees of contrast criteria with which to assess the impact a particular project may have on the landscape. The degrees are: 1) None—the element contrast is not visible or perceived; 2) Weak—the element can be seen but does not attract attention; 3) Moderate—the element contrast begins to attract attention and begins to dominate the landscape; and 4) Strong—the element contrast demands attention, will not be overlooked, and is dominant in the landscape. Factors to be considered when determining degree of contrast criteria are distance, angle of observation, length of time project is in view, relative size or scale, season of use, light conditions, recovery time, spatial relationships, atmospheric conditions, and motion.

Forest Service

For standards, guidelines, and monitoring techniques for scenery management, the Forest Service uses the Scenery Management System ("SMS") developed in *Landscape Aesthetics: A Handbook for Scenic Management, Agricultural Handbook 701* (Forest Service 1995). The SMS replaces the Visual Management System ("VMS"), which was developed in *The National Forest Management, Vol.2, Agricultural Handbook 462* (Forest Service 1974). However, the LRMPs covering the Proposed Route were written prior to 1995 and use terminology from the older VMS.

Moreover, the GIS data provided by Forest Service land managers also use the VMS terms to classify viewsheds, albeit differently for each National Forest. Ultimately, the umbrella terms have been modified, but the principles of visual resource classification and assessment remain constant. In order to avoid confusion, terminology from the VMS is used with SMS terminology following in parentheses.

In the Forest Service system there are five differing levels of Visual Quality Objectives (Scenic Integrity Objectives):

- Preservation (Very High)—Management activities are prohibited except for very low visually impacting recreation facilities.
- Retention (High)—Management activities should not be visually evident. Contrasts in form, line, color and texture must be reduced during or immediately after the management activity.
- Partial Retention (Moderate)—Management activities must remain visually subordinate to the characteristic landscape. Associated visual impacts in form, line, color and texture must be reduced as soon after the project completion as possible but within one year.
- Modification (Low)—Management activities may visually dominate the characteristic landscape. Landform and vegetative alterations must borrow from naturally established form, line, color or texture so as to blend in with the surrounding landscape character.
- Maximum Modification (Very Low)—Activities including vegetative and landform alterations may dominate the characteristic landscape. However, when viewed as background they must visually appear as natural occurrences within the surrounding landscapes or character type. Reduction of contrast should be accomplished within five years.

The Umpqua, Rogue River-Siskiyou, and Fremont-Winema Forest LRMPs follow these levels of VQOs with slight variations. For example, the Fremont-Winema LRMP allows a longer timeframe to reduce impacts for Retention and Partial Retention (one and two to three years, respectively).

8.6.3 Sensitive Viewsheds

Viewshed classification and scenic resource management guidelines, described above, established by the BLM and Forest Service, with correlating GIS coverages, were used to determine the visual resources found along the Pipeline. These classifications categorize visually sensitive areas according to the agencies' and districts' visual impact criteria. The Proposed Route crosses VRM Classes II, III, and IV on BLM-managed lands and Retention, Partial Retention, Modification, Maximum Modification VQOs on NFS lands. Table 8.6-1 provides by the areas that have been identified as having visual characteristics for which the BLM and Forest Service visual impact criteria might apply. Most of the Pipeline passes through visual classification areas where changes are acceptable if they are subordinate to the visual landscape.

BLM Sensitive Viewsheds

On BLM-managed lands, the Pipeline only passes through lands designated as VRM Class IV (BLM 2016a and BLM 2016b). As noted above, these are lands where major modification of the existing landscape character is allowed and the level of change can be high (BLM 2001).

The Pipeline intersects two short sensitive viewshed areas, which are located in the BLM Lakeview District along Clover Creek Road (MPs 176.15 to 177.04). Here, the Pipeline right-of-way runs parallel to and is co-located with the road right-of-way. The routing was proposed by Forest Service and BLM land managers to avoid impacts to nearby Buck Lake resources. While these areas are a VRM Class IV area (BLM 2016b), PCGP will implement mitigation such that development activities may be seen but should not attract the attention of the casual observer and the level of change to the landscape should be low. KOPs were selected to depict the areas crossed by the Pipeline. Short-term mitigation measures for crossing these visually sensitive areas are summarized in Section 8.7.13 and detailed in the Aesthetics Management Plan (see Appendix F.1).

Forest Service Sensitive Viewsheds

Within the Rogue River-Siskiyou and Fremont-Winema National Forests, the Pipeline crosses viewsheds that are managed for Retention and Partial Retention VQOs. Areas in these National Forests designated as having high visual sensitivity are clustered around the Cascade Crest along the Proposed Route south of Brown Mountain and Lake of the Woods where the Pipeline crosses Big Elk Road, the Pacific Crest National Scenic Trail, Clover Creek Road, and Dead Indian Memorial Highway. Section 8.7.13 summarizes mitigation strategies for Forest Service VQOs impacted by the Pipeline. The Pipeline Aesthetics Management Plan and its Attachment 1 – Federal Lands Scenery Management Analysis (see Appendix F.1) provides recommendations to improve restoration and mitigation efforts. The remaining NFS lands in the Pipeline project area are managed for Modification or Maximum Modification, and the Pipeline activities are compatible with these VQOs.

Table 8.6-1
Summary of Visually Sensitive Areas along the Proposed Route

Milepost	Viewshed	Critical Viewpoint	Jurisdiction	Visual Designation	Pipeline Crossing/ Aboveground Facility	Visual Sensitivity
123.33-124.23	State Hwy 62	State Hwy 62	BLM-MD	VRM IV	Pipeline	low-moderate
161.07-161.64	Big Elk Road (NFS Road 37)	Big Elk Road	FS-SRR	FG, R	Pipeline	high
167.49-167.93	Pacific Crest Scenic Trail	Trail Mile Post ~ 889	FS-SRR	FG, PR	Pipeline	high
167.49-167.92	Crest Trail/Highway Buffer	Pacific Crest Trail/Dead Indian Memorial Hwy	FS-FW	MG, PR	Pipeline	moderate
168.4-169.0	Dead Indian Highway	Dead Indian Memorial Hwy	FS-FW	FG, R	Pipeline	high
169.0-171.1*	Clover Cr. Road	Clover Cr. Road	FS-FW	FG, PR	Pipeline	moderate-high
176.15-176.45 176.60-177.04	Clover Cr. Road	Clover Cr. Road	BLM-LV	VRM IV	Pipeline	low-moderate
2.64	Pacific Coast Scenic Byway	U.S. Hwy 101	State	Scenic Byway	Pipeline	low-moderate
122.6	Rogue-Umpqua Scenic Byway (State Hwy 62)	State Hwy 62	State	Scenic Byway	Pipeline	low-moderate
199.57	Volcanic Legacy Scenic Byway (U.S. Highway 97)	U.S. Hwy 97	State	Scenic Byway	Pipeline	low-moderate

Sources: *BLM Manual 8431-Visual Resource Contrast Rating*, http://blmwyomingvisual.anl.gov/docs/BLM_VCR_8431.pdf, accessed May 2017. *Landscape Aesthetics-A Handbook for Scenery Management*, Ag Handbook #701, https://www.fs.fed.us/cdt/carrying_capacity/landscape_aesthetics_handbook_701_no_append.pdf, accessed May 2017.
*MP 169.3 thru 170.0 is private land and not subject to viewshed classification.
BLM – Visual Resource Management Classification System:
VRM Class IV – Areas where management activities require major modification of the existing character of the landscape; the level of change to the characteristic landscape can be high and the management activities may dominate the view and be the major focus of viewer attention.
Forest Service – Visual Quality Objectives (Scenic Integrity Objectives)
("R") Retention: Activities in area may only repeat form, line, color, and texture of landscape.
("PR") Partial Retention: Management activities must remain visually subordinate to the characteristic landscape. ("FG") Foreground ("MG") Middle Ground

Key Observation Points

KOPs are geographic places within a landscape where views are located by observers to help assess the level of visual impact. The Pipeline construction activities and subsequent permanent easement will be visible from several vantage points along its course. In many areas, when construction is completed, the Pipeline will not impact viewsheds or be noticeable to the casual observer. Elsewhere, mostly in forested areas, the permanent easement might be visible from communities, recreational and residential areas, and other lands where federal visual management guidelines do not apply.

PCGP, with guidance from the Forest Service and BLM, selected six points from which to assess visual and aesthetic impacts. Five of the KOPs were chosen based on their proximity to federal lands with high scenic qualities and management objectives. These KOPs also serve as locales from which to monitor mitigation implementation. Section 3.4 of the Aesthetics Management Plan (see Appendix F.1) further describes the KOPs and addresses specific mitigation measures.

Oregon Dunes National Recreation Area. The high sand dunes in the recreation area, north of MP 1.47H, provide a broad vantage point from which to analyze construction and operation in the background distance zone. Visual impacts from this KOP might also be influenced by construction activities at the proposed LNG Terminal, as well as activities associated with the industrial areas, air and sea ports, and municipal settings in the Coos Bay region.

Trail Post Office (near MP 123). The KOP at the Trail Post Office is northwest of where the Pipeline would cross Highway 62 and the Rogue River. The KOP provides casual observers with foreground, middle, and background views of the forested hills that form the viewshed east of town. The hill and ridge tops are comprised of BLM VRM Class III and IV viewsheds. Pipeline construction and the permanent right-of-way would be clearly visible from this KOP in the foreground/middleground where the Pipeline climbs the hill across VRM Class IV, and could present a moderate to high level of change in the short-term. Because the Pipeline right-of-way will clear a swath through what is now dark, dense forest in the foreground/middleground, the contrast of texture, line, and color will be apparent in the short term. Where the Pipeline right-of-way is located along the ridgetop, the right-of-way will be in the background and mostly screened by existing vegetation. Modification of the Viewshed in Class IV areas is allowed under the BLM's RMP.

Highway 140 at MP 145.6. This KOP is located along Highway 140 east of Medford near Little Butte Creek, and provides a middleground/background view onto BLM land, which is managed as VRM Class IV. From here, observers will see the Pipeline right-of-way in the foreground as it crosses private lands next to Highway 140, then in the middleground/background as it climbs a hill onto BLM land. This hill and ridgeline are visible to eastbound travelers on Highway 140 for almost five miles.

Big Elk Road and MP 161.41. Big Elk Road (FS 37) provides access for snowmobilers as well as paved summer access to anglers, hikers, and others traveling through to Lake of the Woods. It is located in an area with the Foreground Retention visual quality objective on the Rogue River-Siskiyou National Forest and provides observers with both foreground and middleground perspectives of the Pipeline.

Pacific Crest National Scenic Trail. This highly used trail is open to hikers, equestrians, and Nordic skiers. In the area where the Pipeline intersects the trail (MP 167.87), users can also access South Brown Mountain Shelter. The KOP is located in a Foreground Partial Retention area of the Fremont-Winema National Forest with mostly large trees immediately surrounding the trail.

Lakewoods Village (intersection of Dead Indian Memorial Highway and Clover Creek Road). Located near a small, developing neighborhood of resort homes, this KOP can provide observers with middleground and background distance zone perspectives along two scenic backcountry highways. From here, observers might also see the Pipeline right-of-way as it both crosses Dead Indian Memorial Highway and later parallels Clover Creek Road heading east on the near horizon.

8.7 IMPACTS AND MITIGATION

8.7.1 General Land Use Impacts and Mitigation

If specific mitigation is necessary for various parcels, it will be negotiated through the federal Right-of-Way Grant application process with federal agencies and the land acquisition/easement process with private landowners.

8.7.1.1 Impacts to Federal Lands

Temporary impacts to federal lands will include timber and brush clearing, grading, trenching, and soil compaction due to equipment driving and storage of logs, slash, pipe, and other supplies (see Table 8.7-1). Long-term impacts include the time required for trees to grow back within the temporary construction right-of-way. Permanent impacts include the transition from forest to herbaceous and shrub vegetation within the 30-foot wide maintained portion of the 50-foot permanent easement, which will be kept clear of trees, and possible prohibitions associated with use of the operating easement.

Table 8.7-1
Federally-Managed Lands Affected (Acres) by the Pipeline

Pipeline Facility/Component	BLM	Forest Service	Reclamation
Temporary Construction Requirements			
Construction Right-of-Way	460.25	349.75	3.69
TEWAs	154.17	102.76	0.46
UCSAs	171.54	123.17	0.00
Off-site Source/Disposal	6.99	9.26	0.00
Existing Roads Needing Improvements in Limited Locations	8.16	0.64	0.00
Temporary Access Roads (TAR)	0.69	0.24	0.00
Total Temporary Impacts	**801.80**	**585.82**	**4.15**
Permanent Operations Requirements			
Permanent Easement	245.13	185.35	1.90
Permanent Access Roads (PAR)	0.25	0.06	0.00
Aboveground Facilities	0.26	0.00	0.00
Total Permanent Impacts	**245.64**	**185.41**	**1.90**
30-Foot Maintained Right-of-Way	147.11	111.20	1.14

To address concerns about potential impacts of the Pipeline on current and future forest management activities on federally-managed lands resulting from prohibited or restricted management and use activities within or near the Pipeline right-of-way, PCGP developed a list of activities that may be prohibited or restricted (see Table 8.7-2).

Table 8.7-2
Land Management and Land Use Activities
Prohibited or Restricted within the Right-of-Way

Location	Prohibited/ Restricted Activities	Duration
Directly over the Pipeline	Obstructions that may endanger, hinder or conflict with the construction, operation, inspection, protection, maintenance and use of the Pipeline (i.e., trees, engineered structures, buildings, roads-parallel, other utilities-parallel, logging, blasting, mining)	During construction, operations, and maintenance of Pipeline facilities.
Within the Pipeline right-of-way clearing limits	Obstructions that may endanger, hinder or conflict with the construction, operation, inspection, protection, maintenance and use of the Pipeline (i.e., engineered structures, buildings, roads-parallel, limited logging, blasting, mining)	
Within the Pipeline right-of-way	Obstructions that may endanger, hinder or conflict with the construction, operation, inspection, protection, maintenance and use of the Pipeline (i.e. engineered structures, buildings, roads-parallel, limited logging, blasting, mining)	
Within one-quarter mile of the Pipeline	Some blasting and mining	
On existing federally-managed roads and trails	Only when within the right-of-way, obstructions that may, endanger, hinder or conflict with the construction, operation, inspection, protection, maintenance, and use of the Pipeline as described above; otherwise none	

PCGP will handle situations on a case-by-case basis where prohibited or restricted activities within the Pipeline right-of-way may affect parties who hold valid existing rights on federal lands along the Proposed Route. This could arise in conflicts with landowners with rights granted by the BLM through reciprocal agreements and easements. Table A.8-6 in Appendix A.8 identifies BLM third-party rights that may be affected by the Pipeline. PCGP will identify all landowners and interested parties in each of these situations and work with them and the federal land manager to minimize potential easement conflicts. PCGP will rely on a Public Awareness and Damage Prevention procedure (to be developed) for any aboveground alterations. This procedure will require the company to notify in writing at least once per year any landowner or interested party within 660 feet from either side of the Pipeline. The notification includes written information of where the Pipeline is and who and how to reach the Pipeline operator for any concerns they may have with the Pipeline. These notifications provide landowners or interested parties with the information they need to contact the company to discuss any work around the Pipeline or right-of-way.

BLM Lands

The Pipeline will cross four BLM districts totaling approximately 40.5 miles. From west to east, approximate miles crossed through the Coos Bay, Roseburg, Medford, and Lakeview Districts will be, respectively: 10.9, 13.1, 15.2 and 1.3 miles. Of the proposed aboveground facilities, three BVAs will be located on BLM-managed lands. One TAR to support construction, and three PARs to support construction and operation, will be constructed on BLM-managed lands. Acres of BLM-managed lands, by land use classification, that will be affected by construction and operation are listed in Table 8.7-3.

NFS Lands

The Pipeline will cross approximately 30.6 miles of NFS lands within the Umpqua, Rogue River-Siskyou, and Fremont-Winema National Forests (10.8, 13.7, and 6.0 miles respectively). A portion of one TAR will be constructed on NFS lands. Acreages of NFS

lands, by land use classification, that will be affected by construction or operation are included in Table 8.7-4.

PCGP is revising its Compensatory Mitigation Plan ("CMP") to mitigate for potential effects on BLM and NFS lands. The BLM and Forest Service have proposed a suite of off-site mitigation projects which are intended to be responsive to BLM RMP and Forest Service LRMP objectives that include:

- Compliance with the Aquatic Conservation Strategy of the Northwest Forest Plan and 2016 RMPs;
- Habitat for T&E species including northern spotted owls, marbled murrelets, and coho;
- Mitigation of impacts on LSRs; and
- Specific resource issues as they occur by watershed.

The CMP will provide the BLM and Forest Service mitigation summaries which provide the various offsite mitigation projects as supplemental mitigation to address important issues or land management plan objectives that cannot be mitigated on-site. The BLM's and Forest Service's mitigation summaries list the proposed projects by watershed. The mitigation projects include placement of LWD in steams, road surfacing and drainage repairs, road decommissioning, fish passage culvert replacements, reallocation of Matrix lands to LSR and the acquisition of matrix lands, terrestrial restoration, fire protection, fuels reduction, and projects to enhance special habitats.

PCGP is assessing the BLM's mitigation projects in relation to Pipeline effects by watershed, along with the Forest Service's mitigation projects that have been approved in principle by PCGP. The BLM and Forest Service mitigation projects will also be reviewed with respect to PCGP's responsibilities to mitigate for potential effects to Endangered Species Act ("ESA") listed species and their habitats during the consultation process with FWS.

Bureau of Reclamation

The Pipeline crosses 0.31 mile of Reclamation lands, located at MPs 200.5 and 214.18, in the Klamath Basin. Land use in the Klamath Basin is a combination of cropland and pasture, rangeland, streams and canals, and transportation-related facilities. The Pipeline will cross two parcels of withdrawn land and 23 other linear facilities that fall under Reclamation's Klamath Basin Area Office of the Mid-Pacific Region. During construction, current uses of these lands will be temporarily interrupted, but following restoration, the land uses will proceed as they did prior to construction. PCGP's Klamath Facilities Crossing Plan details mitigation measures to minimize impacts to these resources (see Appendix F.1). It lists all Reclamation facilities crossings, locations, and describes Pipeline crossing methods.

Due to the topography within the Klamath Valley and the linear nature of Reclamation facilities, complete avoidance is impossible, and Reclamation facility crossings are necessary. Pipeline construction will occur in the Klamath Basin during the winter months to minimize impacts to agricultural activities in the area and to cross irrigation facilities when they are dewatered and not providing irrigation service. Facility crossings will be made nearly perpendicular to the axis of the channel as recommended in the

Reclamation's Engineering and Operations & Maintenance ("O&M") Guidelines for Crossings and based on engineering and routing constraints to minimize disturbance and the crossing length. It is anticipated that most of Reclamation facilities, including drains and laterals, will be dry or contain relatively little water at the time of construction. All canals and laterals (a total of 13) will be crossed using conventional bore methods. Ten drains will be crossed, nine of which will use dry open cut crossing methods (flume or dam and pump) or, conventional bore methods depending on actual conditions at the time of construction. One drain will be crossed by a span.

Any sensitive fish species discovered in Reclamation facilities potentially impacted by construction of the Pipeline will be handled in accordance with the PCGP Fish Salvage Plan (see Appendix F.1). Construction and operation impacts, by land use classifications, to Reclamation lands are provided in Table 8.7-5.

8.7.1.2 Agriculture (Land Use Classification 21 and 22)

The Pipeline will cross approximately 32 miles of land that support agriculture (approximately 368 acres in the construction right-of-way), mostly irrigated croplands and pasture. Along the right-of-way, 13.55 percent of land is in Cropland and Pasture use. The largest proportion of agricultural land is private irrigated cropland in Klamath County. The planting of deep-rooted crops such as orchards and vineyards will not be permitted over the Pipeline. Orchards comprise about 0.03 mile of the Pipeline. PCGP will compensate landowners for crop losses or orchards affected by Pipeline construction. The only other permanent impact on agricultural lands will be the construction of aboveground facilities.

Impacts to agricultural lands will depend on the timing of construction with respect to the growing season of a particular crop and its harvest. For agricultural lands, PCGP will allow agricultural activities to resume following construction. Impacts to agricultural lands and production during operation of the Pipeline are not expected. PCGP will address crop damage or loss caused during construction with each landowner during the land acquisition process. The Pipeline will cross numerous developed pasturelands where temporary removal of fences during construction could result in a release of livestock. PCGP will minimize disturbance to existing fences and other improvements on pasturelands by constructing temporary gates and fences, and promptly repairing fences or cattle guards to their original state as soon as practical. Functional use of the pasturelands will be maintained and PCGP will contact the owners of fences prior to disturbing them. PCGP is proposing a winter construction schedule in the Klamath Basin between MPs 190.8 and 228.81 to minimize impacts to agricultural activities. This construction schedule will also coincide with the period when many of the canals are dry and the seasonal high water tables, which are influenced by irrigation activities, are minimized. A winter construction schedule in this area will also correspond with the ODFW-recommended crossing window for the Lost River.

Table 8.7-3
BLM Lands Required for Construction and Operation of the Pipeline by Land Use Type (acres)

BLM District	Residential (11)	Industrial (13)	Transportation / Communication (14)	Cropland and Pasture (21)	Orchards, Groves, Vineyards, Nurseries (22)	Herbaceous Rangeland (31)	Shrub/Brush Rangeland (32)	Mixed Rangeland (33)	Deciduous Forest Land (41)	Evergreen Forest Land (42)	Mixed Forest Land (43)	Clearcut Forest Land (421)	Regenerating Forest Land (422)	Streams (51)	Ditches (512)	Forested Wetlands (61)	Nonforested Wetlands (62)	Strip Mines, Quarries, Gravel Pits (75)	Total
Coos Bay																			
Construction*	0.00	0.00	19.10	1.09	0.01	0.00	0.00	0.00	0.00	107.70	3.97	5.14	35.70	0.29	0.00	0.38	0.03	0.39	**173.81**
Permanent Easement (50ft)	0.00	0.00	9.54	0.19	<0.01	0.00	0.00	0.00	0.00	42.82	1.35	2.31	9.68	0.14	0.00	0.20	0.03	0.00	**66.26**
Roseburg																			
Construction*	0.00	0.00	26.00	0.00	0.00	0.36	1.73	2.69	0.00	54.03	150.08	26.00	66.51	0.06	0.00	0.00	0.01	0.79	**328.26**
Permanent Easement (50ft)	0.00	0.00	9.77	0.00	0.00	0.06	0.28	0.75	0.00	18.98	30.39	4.78	14.06	0.02	0.00	0.00	0.00	0.10	**79.19**
Medford																			
Construction*	0.01	0.00	5.64	0.00	0.00	11.62	55.48	2.73	30.67	75.15	60.92	0.30	30.19	0.37	0.05	0.07	0.00	0.00	**273.19**
Permanent Easement (50ft)	0.00	0.00	1.75	0.00	0.00	3.90	18.99	1.30	10.51	24.50	19.74	0.11	10.84	0.14	0.03	0.03	0.00	0.00	**91.84**
Lakeview																			
Construction*	0.00	0.00	1.19	0.00	0.00	0.00	0.67	0.64	0.00	15.85	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	**18.37**
Permanent Easement (50ft)	0.00	0.00	0.65	0.00	0.00	0.00	0.22	0.16	0.00	6.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**7.84**

* Construction totals include Construction Right-of-Way, TEWAs, UCSAs, TARs, Off-site source and disposal areas, and hydrostatic discharge locations outside the right-of-way.

Table 8.7-4
NFS Lands Required for Construction and Operation of the Pipeline by Land Use Type (acres)

National Forest	Transportation / Communication (14)	Herbaceous Rangeland (31)	Shrub/Brush Rangeland (32)	Mixed Rangeland (33)	Evergreen Forest Land (42)	Clearcut Forest Land (421)	Regenerating Forest Land (422)	Streams (51)	Ditches (512)	Forested Wetlands (61)	Nonforested Wetlands (62)	Beaches (72)	Strip Mines, Quarries, Gravel Pits (75)	Total
Umpqua														
Construction*	13.34	0.00	0.00	0.00	126.66	44.37	14.49	0.15	0.08	0.00	0.23	0.00	12.05	**211.38**
Permanent Easement (50ft)	4.08	0.00	0.00	0.00	41.93	12.98	6.35	0.08	0.04	0.00	0.07	0.00	0.00	**65.53**
Rogue River-Siskiyou														
Construction*	14.62	0.15	7.36	3.09	128.16	0.02	104.83	0.22	0.00	0.00	0.00	0.96	15.67	**275.08**
Permanent Easement (50ft)	4.05	0.00	1.08	0.98	43.62	0.00	30.77	0.06	0.00	0.00	0.00	0.00	0.00	**80.56**
Fremont-Winema														
Construction*	3.02	0.91	0.00	0.00	58.85	0.44	34.60	0.07	0.00	0.00	0.26	0.00	0.00	**98.15**
Permanent Easement (50ft)	0.45	0.42	0.00	0.00	24.31	0.18	13.73	0.03	0.00	0.00	0.17	0.00	0.00	**39.29**

* Construction totals include Construction Right-of-Way, TEWAs, UCSAs, TARs, Off-site source and disposal areas, and hydrostatic discharge locations outside the right-of-way.

Table 8.7-5
Bureau of Reclamation Lands Required for Construction and Operation of the Pipeline by Land Use Type (acres)

Component	Cropland and Pasture (21)	Shrub/Brush Rangeland (32)	Ditches (512)	Total
Construction	1.30	2.85	0.00	**4.15**
Operation	0.08	1.06	0.00	**1.14**

Any fence cut for construction equipment access will be braced and secured to prevent slacking of the wire before cutting the wire for Pipeline construction. A temporary gate will be placed in the opening and kept closed to prevent passage of domestic livestock. The fence will be constructed to landowner specifications. When construction associated with the right-of-way breaks or destroys a natural barrier used for livestock control, gaps will be temporarily fenced to prevent passage of livestock.

Mitigation measures in agricultural areas include topsoil segregation and repair of any damaged irrigation systems and drain tiles. PCGP will conserve topsoil in all actively cultivated and rotated cropland, improved pasture, non-saturated wetlands, and residential areas as required by the landowner or the land management agency. A maximum of 12 inches of topsoil will be segregated over the trench line or as designated by the landowner in these areas and in other areas at the specific request of the landowner or land management agency (except where a modification is approved – see Resource Report 1). The topsoil and subsoil will be stored in separate windrows on the construction right-of-way and will not be allowed to mix. Where topsoil is less than 12 inches deep, the actual depth of the topsoil will be removed and segregated based on the soil types that are present. Resource Report 7 discusses topsoil segregation in more detail, and provides the areas where topsoil segregation is proposed by milepost. The USGS Land Use Classifications are included on the Environmental Alignment Sheets (see Appendix H.1 to Resource Report 1) and identify agricultural and other land where topsoil segregation is anticipated. In agricultural areas, the Pipeline will have a minimum depth of cover of 5 feet over the top of the pipe, where possible, to avoid any operational impacts.

Grazing

The Pipeline will cross six livestock grazing allotments on NFS lands and six on BLM lands, managed by the Medford and Lakeview districts (see Tables 8.7-6 and 8.7-7). PCGP believes grazing deferments will not be necessary because grazing is not a dominant land use crossed by the Pipeline. PCGP has consulted with the Forest Service and BLM regarding grazing resources.

Potential impacts to grazing allotments may occur from the temporary loss of forage from vegetation clearing and grading activities. In addition, these activities could disturb improvements such as developed springs and fences or other barriers that restrict livestock to the allotment allowing them to trail outside the allotment. Noxious weed establishment could also occur on disturbed areas of the right-of-way. Grazing permittees often utilize naturally occurring barriers, such as rock outcrops and thick stands of vegetation as livestock barriers. The Pipeline right-of-way will remove some of these features, possibly facilitating livestock movement outside of the grazing allotments. PCGP will mitigate these impacts by installing temporary fences during construction as needed to control livestock movement. This includes temporary fences where barriers have been disturbed that prevent livestock from grazing outside the allotment. Measures detailed in the Erosion Control and Revegetation Plan (see Appendix B.1 to Resource Report 1) will also mitigate impacts to grazing resources and help re-establish forage growth in disturbed areas. Any weed control measures on federal lands will be in accordance with the Integrated Pest Management Plan, developed in consultation with the BLM and Forest Service (see Appendix F.1).

Table 8.7-6
Grazing Allotments on National Forest Lands Crossed by the Pipeline

Allotment Number	Allotment Name/Pasture	MP	Allotment Acres	Impacts		Management Category*	Total AUMs	3-Year Average AUMs	Season Used	Livestock Kind	Grazing System	Notes
				Miles	Acres							
Umpqua National Forest - Tiller Ranger District												
00R12	Diamond Rock	105.4 - 113.2	23,565	7.49	128.8	PB: I, A, F	680	187	5/1-10/31	Cow/Calf	Continuous Season	Managed in conjunction with an adjoining allotment.
Rogue River - Siskiyou National Forest – Ashland Ranger District												
00R08	South Butte	153.8 - 167.5	25,592	13.85	280.4	PB: A, F	230	230	6/1-10-15	Cow/Calf	Continuous	1035 AUs
00R07	Deadwood	167.5 - 167.9	21,337	0.39	5.5	PB: A, F	382/150 Total of 532	382/150	6/1-10/15 See notes	Cow/Calf	Deferred	Managed with BLM Odd yrs = 6/1-8/15 on FS Even yrs =8/16 -10/15 on FS
NA	Fish Lake	**	23,336	0**	4.9							
Fremont - Winema National Forest – Klamath Ranger District												
OR250	Indian	167.9 - 171.3	10,619	4.79	78.1	PB: I,A, F	906	665	7/1-10/15	Cow/Calf	Continuous Season	Managed with Buck Allotment as 1 Allotment.
OR220	Buck	171.3 - 172.4	12,617	2.71	36.4	PB: I,A, F						Same as Indian, managed as 1 Allotment.

(*) 'PB' classification indicates that allotments that have potential to be managed under a quality management strategy. Basic resource damage is not occurring.
'P' = lack of permittee interest participation;
'I' = lack of total Allotment Management Plan implementation;
'A' = lack of reliable range analysis data, and
'F' = lack of funding to implement quality management.
(**) Centerline does not cross Fish Lake allotment; only portion of allotment affected by the Pipeline is an old quarry, which has been identified as a rock source and disposal area near MP 160.41.

Table 8.7-7
Grazing Allotments on BLM Lands Crossed by the Pipeline

Allotment Number	Allotment Name/Pasture	MP	Allotment Acres	Impacts		Management Category*	Total AUMs	3-Year Average AUMs	Season Used	Livestock Kind	Grazing System	Notes
				Miles	Acres							
Medford District												
10038	Cright-of-wayfoot	123.5 - 128.4	7,400	3.46	58.8	I			4\15-6\30	"	SS	
10031	Summit Prairie/Carney	131.4 - 131.8	30,578	0.57	9.0	I	1,158	827	6\1-10\30	"	DF	
10024	Big Butte	133.6 - 141.9	21,802	2.09	31.4	I	1,663	301	4\16-5\31	Cattle	SL	Rice Place pasture now closed to grazing
00126	Heppsie Mountain	148.8 - 153.8	4,105	3.89	77.0	I	294	277	5/1-10/15	Cattle	SL	
Lakeview District												
0147	Grubb Spring	178.3 - 189.1	3,564****	1.04	14.8	C	130**	130**	5/1 – 9/15	Cattle	***	
0848	Pope	216.5 - 216.8	446*****	0.26	3.5	C	48**	63**	5/1 – 7/31	Cattle	***	

*I = intensive management
C = custodial
M = maintain
**BLM licensed Animal Unit Months only
***Grazing is every year for the listed season; no other specific grazing system
****BLM Klamath Falls Resource Area acres only listed
*****A portion of the allotment was recently sold reducing the acreage

After construction, permanent repairs to fences and natural barriers or other improvements that were disrupted by construction activities will occur to equivalent or better standards to ensure that cattle do not trail outside the allotment. Additional permanent fences may also be required during operation where natural barriers consisting of heavily forested or topographic conditions that kept cattle contained are disrupted and allow cattle to stray outside the allotment. These disturbed barriers may only be identified after construction, during the restoration phase of the Pipeline. From current Pipeline survey activities, PCGP is not aware of any range improvements, such as springs, that will be impacted. PCGP does not believe it is necessary to remove livestock from the allotments during construction activities because of the significant size of most of the allotments crossed. Prior to construction, PCGP will coordinate with the BLM and Forest Service regarding lease holder notifications. Revegetation of all disturbed areas associated with the Pipeline is expected to return allotment forage quantity and values to preconstruction conditions within one to two growing seasons and will likely increase the quantity of forage available on the right-of-way within the allotments.

8.7.1.3 Forest Lands (Land Use Classifications 41, 42, 43, 421 and 422)

The Pipeline will cross a total of 146.21 miles of forest land (62.16 percent) of the right-of-way. During construction, PCGP will disturb approximately 2,163.36 acres of Forest Land. Much of the USGS-classified forest land is Regenerating and Clearcut Forest Land (about 1,031 and 270 acres, respectively). Disturbance from UCSAs (630.22 total Forest Land acres) is not included in this acreage because it will not require forest removal. For operation, about 888.4 acres of Forest Land will be within the permanent easement and roads (this acreage includes lands currently classified as Clearcut - 421). Disturbed Forest Lands will be reforested up to a 30-foot maintained width centered over the Pipeline. The 30-foot width will result in about 530.7 acres that will not be reforested within Forest Lands.

Construction of the Pipeline in forested areas will require the removal of trees to prepare the construction work area. Clearing and disposal of trees will be conducted in accordance with applicable federal, state, and local regulations including the Oregon Department of Forestry's Forest Practice Administrative Rules and Forest Practices Act. The Right-of-Way Clearing Plan (see Appendix F.1) describes the Pipeline's forest clearing operations on federally-managed lands. Although forest cleared within TEWAs will be allowed to regenerate to pre-construction conditions following restoration of the right-of-way as per the Erosion Control and Revegetation Plan (see Appendix B.1), impacts to forest resources within the TEWAs would last for a number of years.

Forest resources that are removed from either temporary or operational rights-of-way include merchantable timber for lumber products, firewood, and trees left for open space, buffer zones, wildlife habitat, residential vegetative screens and landscaping. Impacts to forested vegetation are discussed in more detail in Resource Report 3. Forested wetland areas are addressed in Resource Report 2.

8.7.1.4 Rangeland (Land Use Classifications 31, 32 and 33)

During construction, the Pipeline will impact a total of 433.23 acres of lands classified as Rangeland (33.78 miles or approximately 14.36 percent of the entire route). Approximately 134.93 acres will be included in the permanent easement and access

roads. Rangeland will typically be taken out of production only during the year of construction.

8.7.1.5 Wetlands (Land Use Classifications 51, 54, 61 and 62)

Under the wetlands land use categorization, these waterbodies include streams, bays and estuaries, and forested and non-forested wetlands. Wetlands are included on the Environmental Alignment Sheets (see Appendix H.1 to Resource Report 1), which are based on aerial photography obtained in 2016 and additional on-the-ground wetlands surveys. Impacts to wetlands from Pipeline construction are discussed in detail in Resource Report 2. PCGP proposes to adopt and implement FERC's Wetland and Waterbody Construction and Mitigation Procedures during construction and operation of the Pipeline. PCGP will perform construction and restoration in accordance with federal, state, and local permits.

8.7.2 Public Land, Recreation and Other Designated Areas

8.7.2.1 Pipeline

Recreation Impacts and Mitigation

Construction of the Pipeline near recreation sites will involve temporary ground disturbance, including vegetation clearing, grading, excavating, and stockpiling of soils. Additionally, heavy equipment will be operating along the construction right-of-way to string the pipe, weld and install the pipe, backfill the trench, and restore the right-of-way. These large-scale construction operations and ground disturbing activities may draw the attention of nearby recreationists and could temporarily impede some recreational activities. Much of the Pipeline is in areas away from popular recreation sites, and therefore most forms of recreation would not be impacted.

The impacts to recreational activities will depend on the timing of construction and the location and type of the recreational activity. During construction, there would be temporary land and water access restrictions for safety reasons along the construction right-of-way. Because construction and restoration will span a period of two years, there may be areas that remain off limits to recreationists until restoration is complete, revegetation has established, and the construction right-of-way is stabilized. Temporary access restrictions would be dealt with on a case-by-case basis and in consultation with agency recreation specialists and user groups.

Extended periods of solitude or peaceful off-road camping, hiking or sightseeing in dispersed recreation sites (e.g., Peavine Camp, Project Camp, Brown Mountain Shelter, or other dispersed camping areas) within the vicinity of Pipeline construction could be temporarily disrupted by the noise from heavy equipment use and traffic. Appendix B.1 provides PCGP's Air/Noise and Fugitive Dust Control Plan, which describes the BMPs that will be utilized to control noise emissions and fugitive dust in more detail.

Forest Service and BLM access roads will experience short-term traffic increases during construction, and some roads may be temporarily closed to ensure safe transport of construction equipment to and from the construction right-of-way, as well as to facilitate construction in areas where the Pipeline is aligned within existing roads.

The Recreation Management Plan (see Appendix F.1) details procedures to be taken prior to, during, and following construction and establishes goals for managing recreation

in the vicinity of the Pipeline; the objective being to provide continued safe access, prevent resource damage, and to avoid potential user conflict. Goals of this plan include:

- Provide for safe and continual access to the Pacific Crest National Scenic Trail.
- Minimize potential user conflicts at trail intersections.
- Prevent unauthorized OHV use on federal land where the Pipeline right-of-way could create additional access points.
- Provide boaters and anglers safe access within the Coos Bay Estuary, specifically in Haynes Inlet and in Jordan Cove.
- Minimize recreation access disruption on public lands.

The Recreation Management Plan offers specific actions to prevent or mitigate resource damage resulting from the Pipeline. Generally, recreation mitigation on federal lands will be ongoing through all phases of construction and will consist of multi-use trail barriers, signage, agency and user group consultation, and adaptive construction techniques. Detours will be established for trails, if necessary, and PCGP will coordinate with the appropriate agencies to minimize construction-related impacts. Construction near these areas will be short-term in nature. Following construction, all disturbed areas will be restored to pre-construction contours and recreational activities will continue unimpeded. Where practical, PCGP will design recreation resource mitigation measures in ways that do not conflict with the area's visual resources. Pipeline operation activities will not be noticeable to recreationists, except in periodic cases of inspection and maintenance during the life of the Pipeline.

Overall, construction-related impacts to recreation will be minimized by:

- Not allowing construction workers to camp on federal lands;
- Continued coordination with each affected land management agency, as necessary, to finalize site-specific mitigation measures to address recreational land impacts; and
- Effective post-construction reclamation of the construction right-of-way as outlined in the Erosion Control and Revegetation Plan (see Appendix B.1 to Resource Report 1).

During Pipeline operation, monitoring methods will be conducted, which will benefit vegetation restoration and discourage vehicle access. Specifically, and where necessary, steep portions and other sensitive areas of the Pipeline right-of-way will be posted closed to all vehicles. Successful revegetation efforts and the absence of vehicle tracks on these areas will help discourage unauthorized vehicle use by not attracting attention to "hill climbs."

Haynes Inlet and Coos Bay Estuary. During the HDD of the Coos Bay – North Slough and Haynes Inlet, users of the Haynes Inlet Trail or other boaters using the main channel of the inlet near the boat ramp will not be restricted from passage up the channel. Near MP 11.13R, the Pipeline will cross under the Coos River and Water Trail 4, also using an HDD.

The Pacific Crest National Scenic Trail (PCT). PCGP incorporated a minor route variation at the crossing of the PCT on the Fremont-Winema National Forest to minimize potential visual effects to ensure the Forest Service standards for Retention or Partial

Retention Visual Quality Objective would be met. Although the PCT and its users will be temporarily impacted by Pipeline construction near MP 167.82, the right-of-way will cross the trail approximately 0.50 mile south of FR 700 in a relatively undisturbed area. To minimize impacts to the popular trail and its various users, PCGP has "necked down" the construction right-of-way width from the standard 95 feet to 75 feet for approximately 300 feet on either side of the trail.

Construction of the trail crossing will be completed as a "tie-in" so that trenching, pipe stringing and installation activities do not interrupt trail users for extended periods. It is expected that construction of the trail tie-in would be completed within 48 hours or less to minimize impacts and the need for trail detours. Upon completion of construction in the area, PCGP will revegetate the right-of-way using native trees, shrubs, and plants.

Specific mitigation measures for the PCT, detailed in the Recreation Management Plan, include:

- Establish a roughed-in trail head within 24 hours of crossing completion, with temporary directional signs posted at each end of the crossing.
- Remediate trail to full design standards within two weeks of the trail crossing.
- Install standard Nordic ski trail markers as needed post-construction.
- Provide as much advance notice as possible to the Forest Service and the Pacific Crest Trail Association ("PCTA") as to the estimated construction dates in the area of the trail.
- Provide at least 7 days advance notice if the PCT needs to be detoured.
- If practicable, plan for PCT disruption outside of the trail's busiest hiking season (mid-July to early August).
- Use a combination of rocks, logs, slash, and gates to deter motorized vehicles and OHVs from gaining access to the PCT.

Representatives of PCGP and the Forest Service conducted a site visit to the PCT in November 2016. The purpose of the site visit was to develop additional measures that could be implemented at the PCT crossing to minimize impacts and to shorten vegetative recovery to achieve a VQO of Modification within five years. Additional measures include:

- Identify trees along the edge of the construction right-of-way that can be saved from clearing, based on hazard tree and construction safety.
- Scallop adjacent edges of timber as directed by the Forest Service landscape architect.
- Salvage topsoil (duff and A horizon) to a depth of 12-inches along the trench line, segregate from spoil material, and replace during restoration.
- Minimize grading within the 75-foot construction right-of-way based on safety requirements. Stumps would be removed, or gridded as necessary to provide a safe equipment working plane.
- A 75-foot wide visual screen on either side of the trail would be replanted with nursery trees and shrubs within 6 days of final grading, dependent on seasonal planting constraints (and not within the 30 foot-operational easement). Replanting would be with mixed conifer species of differing age class per the USFS landscape plan and would include hydro-mulch seeding.

- Revegetate the remaining right-of-way with nursery trees and shrubs planted along the edges of the right-of-way in scalloped arrangement.
- Hydro-mulch seeding all disturbed soils.
- Place logs and LWD in the construction right-of-way as directed by the USFS landscape plan.
- A gravity drip irrigation system would be used, with a water source from the well at Brown Mountain Shelter, to improve replanting establishment.
- Replanting would occur if mortality exceeds 30 percent.

Off-Highway Vehicles and Right-of-Way Access

The Pipeline right-of-way could increase unauthorized OHV, snowmobile, and dispersed motorized access and associated resource impacts. Locations where unauthorized access could be exacerbated by the Pipeline right-of-way include: the area around the PCT near MPs 167.0-169.0; the Camel Hump area between MPs 123 and 128; the Obenchain area between MPs 132 and 137.2; and along the Clover Creek Road between MPs 168.9 and 175.4 (on NFS land); MPs 176.2 to 177 and 179.6 to 179.7 (on BLM lands). In the Obenchain area, four-wheel drive vehicles have caused extensive resource damage and there is concern that the Pipeline right-of-way might create opportunities for more access and impacts. The Camel Hump and Obenchain areas are located within the Jackson Access and Cooperative Travel Management Area, which encompasses both private and BLM lands and is generally closed to motorized use from mid-October through April. In the area along the Clover Creek Road, the Pipeline will closely parallel the road for 18 miles (on public and private lands); thus, the Pipeline right-of-way could potentially turn into an OHV thoroughfare without appropriate barriers and mitigation.

PCGP prefers to limit OHV use on the right-of-way in order to avoid problems with revegetation efforts, prevent potential erosion, and because it is typically the preference of the landowner. To minimize user access on the right-of-way, PCGP will install barriers at appropriate locations in coordination with the land management agencies or landowners.

To deter potential user conflicts and resource damage caused by unauthorized OHV, snowmobile, and dispersed recreation use, PCGP will provide access control measures at select right-of-way and road and trail crossings (e.g., the PCT, areas near the Obenchain Road, Dead Indian Memorial Highway, FR 700, and other appropriate locations along the Pipeline right-of-way).

Some specific measures for preventing illegal access and resource damage along the proposed right-of-way have been identified through consultation with resource managers and while developing the Recreation Management Plan (see Appendix F.1).

Brown Mountain Multi-Use Trails. In addition to summer recreation, the PCT and surrounding/connecting trails form a popular cross-country ski trail system when covered with snow. Snowmobile use is also a popular winter activity in the area around MPs 160.0-170.0. Due in part to a new housing development at Clover Creek Road, land managers have noted that snowmobile users have been accessing and crossing the PCT between Dead Indian Memorial Road and FR 700. The Pipeline could potentially intensify this problem without appropriate mitigation.

To help prevent potential user conflict, PCGP will provide OHV and snowmobile control measures, to the extent practicable and safe, at key right-of-way road and trail crossings. These include the Dead Indian Memorial Highway, FR 700, and other appropriate locations. PCGP will engage in ongoing consultation and monitoring with local recreation groups and land managers during construction and, if necessary, following construction to assess and modify the mitigation.

Lake of the Woods and Fish Lake Hydrostatic Test Water Withdrawals

Lake of the Woods and Fish Lake are potential sources of water for use in the Pipeline's hydrostatic testing requirements. The proposed withdrawals will likely occur in late summer/fall. Although no roads or recreation facility closures are anticipated for water withdrawals and transport, potential impacts to the lakes' recreational users could occur from these Pipeline activities, if not properly planned. Therefore, once PCGP has selected a Contractor for the Pipeline, and the Contractor has assessed the water withdrawal requirements, the Contractor will work through PCGP to submit a water withdrawal plan to the Forest Service to minimize potential recreational user impacts at these lakes.

8.7.2.2 Aboveground Facilities

Aboveground facilities include mainline block valve assembly sites in remote locations, one compressor station on private land co-located with two meter stations, and another meter station on private land. These facilities are not expected to have any impacts on recreation. To maintain the aesthetic integrity of federal lands, visual screening will be implemented for block valves located on BLM and NFS lands as described in Section 8.7.13.2 below.

New communications towers and associated facilities may be required if lease space on existing facilities is not available; if new facilities are required, they will be located immediately adjacent to existing communication facilities. They are not expected to impact recreation resources.

All contractor and pipe storage yards have been located in existing industrial facilities, on pasture lands, in previously disturbed areas, and on vacant lots in towns near the Pipeline. Their use during construction of the Pipeline will not create any adverse impacts to recreation activities.

8.7.3 Residences

There are eight residences within 50 feet of the construction right-of-way or TEWAs, and they are listed in Table 8.5-6 with proposed mitigation measures. No residences are within 50 feet of the compressor station (see Resource Report 9 for other noise sensitive areas near the compressor station).

The principal method for mitigating impacts to existing residential areas is to ensure that the construction proceeds quickly through such areas (thus minimizing exposure to nuisance effects, such as noise and dust) and limiting the hours of operations that high-decibel noise levels can be conducted. Landowners will be notified at least 45 days prior to construction via US Mail and telephone and property access and traffic flows will be maintained during construction activities, particularly for emergency vehicles. PCGP has developed and will implement the Landowner Complaint Resolution Procedures which are provided in Appendix B.8.

Dust minimization techniques such as watering will be used on-site and all litter and debris will be removed daily from the construction site. PCGP will comply with local noise ordinances. PCGP does not currently plan to work on Sundays. However certain activities, such as waterbody crossing construction and hydrotesting, may require a 24-hour work schedule. PCGP will attempt to schedule activities during normal working hours.

After construction, landowners affected by the Pipeline will have use of the right-of-way, provided it does not interfere with the easement rights granted to PCGP for construction and operation of the Pipeline.

Mature trees, vegetation screens and landscaping will be preserved to the extent possible while ensuring the safe operation of construction equipment. Landowners will be compensated for removal of trees. Within 10 days after backfilling the trench, weather permitting, all disturbed areas within the construction work area will be graded, topsoil replaced, and permanent erosion control measures installed. All lawn areas and landscaping will be restored immediately follow clean-up operations, or as specified in landowner agreements, as described in FERC's Upland Plan (V.A.1 and H). Typical permanent structures that will not be permitted on the permanent right-of-way include: houses, tool sheds, garages, poles, guy wires, catch basins, swimming pools, trailers, leaching fields, septic tanks, or any other objects not easily removed; nor in general is grading or removal of cover allowed without PCGP's involvement. PCGP will compensate landowners for damage to homes and associated facilities if the damage is caused by Pipeline construction. Depending on the specific circumstances, PCGP may choose to relocate residents during construction activities. Arrangements will be determined through negotiations between the landowner and PCGP's Land Representative prior to construction.

PCGP developed a Groundwater Supply Monitoring and Mitigation Plan (see Appendix F.2 to Resource Report 2), the purpose of which is to identify the potential susceptibility of groundwater resources to impacts and to provide monitoring and mitigation measures. Within 50 feet of a residence, the edge of the construction work area will be fenced for 100 feet on either side to ensure that construction equipment and materials, including the spoil pile, remain within the construction work area. Signage and fencing will be maintained, at a minimum, throughout the open trench phases of Pipeline installation. Where feasible, PCGP has reduced the construction right-of-way near residences and placed TEWAs as far as practicable from the residences. PCGP will also limit the period of time the trench remains open prior to backfilling. For the residences within 50 feet of the proposed right-of-way, PCGP has developed site-specific drawings depicting the temporary and permanent rights-of-way and noting special construction techniques and mitigation measures. The residential drawings are included in Appendix F.8.

8.7.4 Commercial/Industrial

Industrial/commercial land uses may be temporarily impacted during construction by increased dust from exposed soils, noise, and traffic congestion. Impacts to these areas would generally be limited to the construction period when activities could cause disruption and inconvenience. This impact will be minimized by providing access across the construction right-of-way during construction or by coordinating the timing of construction. Potential long-term impacts to industrial/commercial land uses are anticipated to be minimal due to PCGP's efforts to identify and avoid development centers, and to coordinate with the owners/developers on route selection through these

areas. It is not anticipated that any businesses will be displaced. PCGP will work with individual businesses to ensure that potential construction impacts are minimized.

PCGP has not identified any detours that would be necessary or required to minimize effects to business. During landowner negotiations, PCGP will determine if detours or temporary displacement is necessary during construction.

8.7.5 Private Forest Lands

As noted in Section 8.5.4, approximately 65 miles of commercial private forestlands would be affected by the construction right-of-way, TEWAs, and TARs. To mitigate potential effects to private forest landowners, PCGP will negotiate an easement, which will account for the value of timber to be cleared within the construction right-of-way and TEWAs as well as potential operational easement effects. During the FERC's previous NEPA process, concerns were raised that the Pipeline could interfere with forest operations or timber harvest and potential fire suppression efforts. The following sections address these concerns.

8.7.5.1 Forest Operations

Forest operations, including timber production and harvesting, hauling timber, logging road construction and maintenance, application of chemicals, and disposal of slash on forest lands adjacent to the permanent Pipeline easement are not expected to be significantly altered, nor are the costs of forestry operations expected to increase due to the presence of the Pipeline. Affected forestry operators will be able to cross the Pipeline right-of-way with heavy hauling and logging equipment provided they coordinate those crossings with PCGP and safety precautions are implemented to protect the integrity of the Pipeline. For example, it may be necessary to provide additional cover directly over the Pipeline in equipment crossing areas and on logging roads. If a landowner demonstrates a need to cross the Pipeline to conduct forestry operations, PCGP is committed to working with that owner to develop a Pipeline crossing plan that allows the access points to be constructed and used in a safe manner. While the requirement to coordinate with the Pipeline operator may be an inconvenience for some forest operators, it does not constitute a significant change in forestry operations because the operator will be able to continue to cross the Proposed Route to access or haul timber. Additionally, timber operators generally develop and carefully consider future harvesting and access plans. The need to consult with the Pipeline operator if those plans include future crossings of the Pipeline right-of-way is not a significant imposition or significant change in normal forest operations planning activities.

8.7.5.2 Pipeline Design Standards Minimizing Fire Risk to Forest Lands

Pursuant to 49 CFR § 192.615, each pipeline operator must develop an Emergency Response Plan that includes procedures to minimize the hazards in the event of a natural gas pipeline emergency. The key elements of the required plan include: establishing and maintaining communications with local fire officials and coordinating emergency response; emergency shutdown of the system and safe restoration of service; making personnel, equipment, tools, and materials available at the scene of an emergency; and protecting people and property from hazards. These written plans and procedures will be established before construction begins. 49 CFR § 192.615 requires that each pipeline operator establish and maintain a liaison with appropriate fire officials to learn the resources and responsibilities of each organization that may respond to a natural gas pipeline emergency, and must coordinate mutual assistance. Resource

Report 11 describes PCGP's emergency response capabilities. PCGP Gas Operator will also establish and coordinate 24-hour emergency response capabilities with private forest landowners and adjacent landowners in compliance with API RP-1162 (2010) and the Pipeline Safety Improvement Act (2002).

In addition, in compliance with the federal requirements discussed above, PCGP must develop an emergency response plan for the entire system which has been developed in consultation with the BLM and Forest Service and is included in Appendix F.1 which applies to all lands crossed by the Pipeline. The Emergency Response Plan will require operations personnel to attend training for emergency response procedures and will require the Pipeline operator to meet with local emergency responder groups, including fire departments, to review plans and educate the responder groups on the specifics of the Pipeline facilities within the relevant service area. After the initial coordination with local responders, PCGP will also meet periodically with the groups to review plans and revise them when necessary. Finally, if requested by local response personnel, PCGP will participate in any simulated emergency exercises and post-exercise critiques. Through these coordination activities, the fire response personnel will become familiar with the location and specific safety and fire issues associated with the Pipeline. This information will significantly reduce risks to the fire response personnel responding to a fire either caused by, or near, the Pipeline. The majority of the training costs will be borne by PCGP; therefore, the coordination requirements will not significantly increase fire suppression costs.

In the event a fire was to occur on the surface near the Pipeline, the presence of the Pipeline would not increase fire hazards. As explained in Resource Report 11, fires on the surface are not a direct threat to underground natural gas pipelines because of the insulating effects of soil cover over the pipeline. Resource Report 11 cites a study conducted in North Carolina that measured both surface and subsurface temperatures during a prescribed burn. Fire temperatures on the surface approached 1,500 degrees Fahrenheit, while soil temperature at a depth of approximately 2.5 inches was recorded at 113 degrees Fahrenheit during the burn. PCGP acknowledges that specific fuel, climate, geographic, and geological conditions at the study area likely differ from those surrounding the Proposed Route. Despite those expected differences, the study illustrates the order of magnitude a potential fire may have on subsurface temperatures. The Pipeline will have a minimum of 3 feet of cover within forested areas; therefore, any risks associated with fires on the surface above the Pipeline are eliminated by the depth to the Pipeline. Aboveground facility sites will be graveled, which would minimize fire risk.

In the event that a fire was to occur in forest lands in the vicinity of, or including the Pipeline easement, PCGP would take an active role in the emergency response in coordination with the local fire response personnel. Within forested areas, the local fire personnel would take on fire suppression and control duties similar to conventional forest fire situations. Local fire departments within forested areas are already trained and equipped to fight forest fires using conventional techniques and equipment. PCGP will provide personnel knowledgeable with the Pipeline to cooperatively work with fire responders to confirm the location of the Pipeline easement, depth of ground cover and any precautionary measures to be undertaken if crossing the Pipeline with heavy load bearing equipment or vehicles. Therefore, the presence of the Pipeline will not interfere with fire suppression efforts, require the local fire departments to purchase any new or specialized equipment, or require local fire departments to hire additional personnel.

PCGP has also developed a Fire Prevention and Suppression Plan in consultation with the BLM and Forest Service, which is provided in Appendix F.1. The intent of the Plan is to identify measures to minimize the chances of a fire starting and spreading from Pipeline facilities and to reduce the risk of wildland and structural fire. This Plan is consistent with Forest Service and BLM policies, current practices and plans.

8.7.6 Planned Land Uses

PCGP will coordinate with the four affected counties to address planned developments. Where developing areas are identified, Pipeline design will be reviewed to determine whether revisions or route variations are required for the Pipeline to be compatible with new land uses. To date, no planned developments have been identified.

8.7.7 Road, Railroad, and Utility Crossings

Construction methods will vary depending on the types of right-of-way crossed by the Pipeline. Table A.8-1 in Appendix A.8 provides PCGP's proposed crossing method for roads (see also Environmental Alignment Sheets, Appendix H.1 to Resource Report 1). Paved roads will either be bored or open-cut as determined by State or local jurisdiction crossing permits. Unpaved roads will be crossed using the open-cut method. This technique will require temporary closure and detour of these roads. If no reasonable detour is feasible, at least one traffic lane will be maintained, except for brief periods essential to laying the new Pipeline. The length of time for construction disturbance at each open-cut road crossing will typically be one day, which is not expected to have a significant impact on local traffic patterns. Where Pipeline construction crosses roads necessary for access to private residences and no alternative entrance exists, measures will be implemented to maintain passage for landowners during construction. Attempts will be made during construction to avoid temporary road closures during peak traffic periods. Existing power lines and pipeline rights-of-way will be crossed by conventional construction methods acceptable to the facility operator. PCGP will develop traffic plans, as required by local agencies, to ensure that safety considerations are considered and that impacts to traffic patterns are minimized.

To maintain safe conditions, PCGP will keep roads free of mud or other debris that may be deposited by construction equipment. Track-driven equipment will cross paved roads on tire mats or equipment pads to minimize damage to the roadway surface. PCGP and its contractors will minimize road damage by following local and State weight limitations and restrictions. Roadways damaged during construction will be repaired to pre-construction conditions. No long-term effects to roadways are expected.

8.7.8 Transportation Corridors

Where possible, PCGP will use existing highways and roads for construction access. The working side of the right-of-way will be used for moving equipment and materials along the spread. Temporary and permanent access roads necessary for the Pipeline are provided in Table 8.3-3; Table A.8-1 in Appendix A.8 provides the access roads to be utilized.

Impacts to the existing transportation system should be minimal and limited to commuting construction workers. Work hours for construction workers are typically from dawn to dusk, which does not coincide with peak morning and evening traffic times. In addition, because construction will move sequentially along the Pipeline, any traffic flow impacts that do arise will be temporary on any given roadway.

Transportation of construction equipment and materials may also temporarily affect existing transportation networks. To minimize any disruption, equipment and materials will be strategically located at pipe storage yards with existing adequate roadway access to the Pipeline construction sites. Where access to roadways may impede traffic flow; appropriate traffic control measures will be used.

Major highways will be used to transport heavy construction equipment to the Pipeline right-of-way. The equipment will move along the right-of-way as construction progresses. Where it is necessary for equipment to cross the highway, traffic flow will be interrupted for a short period of time. Interruptions will be minimized and driver safety ensured by utilizing appropriate scheduling and traffic control measures, such as a flag person, signs, barriers, and flashing lights.

Operation and maintenance of the Pipeline facilities will not significantly affect flow on paved and unpaved roads or highways. Required periodic maintenance and inspection procedures will involve a low frequency of light vehicle movement on and off roadways. Therefore, no significant transportation network impacts are expected.

On gravel and dirt roads that may be utilized by the Pipeline, road impacts will be dependent upon the season, the type of vehicle and the frequency of use. Impacts may include rutting or other minor surface impacts. Table A.8-1 in Appendix A.8 lists existing roads requiring improvements. PCGP will comply with agency requirements when conducting road improvements and maintenance as detailed in the TMP, which was developed in consultation with the BLM and Forest Service (see Appendix F.1). PCGP has also developed a TMP for Non-Federal Lands ("TMPNFL" – see Appendix F.1), which describes the measures PCGP and its contractor(s) will implement in the use of private roads.

8.7.9 Waterbodies

In order to minimize short-term impacts during construction while crossing the perennial and intermittent or ephemeral waterbodies identified along the Proposed Route, PCGP will adopt FERC's Wetland and Waterbody Construction and Mitigation Procedures with limited modifications (see Resource Report 1). Other conditions such as those from the U.S. Army Corps of Engineer's Section 404 permit, ODEQ's 401 Water Quality Certification and local permits will be also be implemented during construction. No long-term impacts to the waterbodies are expected because of the presence of the Pipeline or the permanent right-of-way (see Resource Report 2).

8.7.10 Shellfish Beds

The Pipeline crossings in Coos Bay are proposed as HDDs and are aligned across North Slough and Haynes Inlet, which will avoid direct effects to oyster beds, minimize potential impacts to eelgrass beds, and eliminate trenching activities within the estuary. Topographic constraints on the north end of the Coos Bay North Slough HDD prevent the HDD pullback string from being staged in upland areas; therefore, the HDD pullback will require a TEWA to be aligned within Jordan Cove to allow the full length of HDD pipe string to be staged prior to being pulled through the HDD bore hole in one continuous operation. Although this TEWA would reduce access to some potential fishing areas, Jordan Cove is not identified as a productive shellfish area (ODFW 2017b); however, eelgrass beds are known to occur in the vicinity and may be temporarily affected in the short-term.

8.7.11 Sites of Cultural or Historic Significance

Resource Report 4 provides information regarding sites of cultural or historic significance along the Proposed Route as well as any potential impacts and mitigation methods.

8.7.12 Landfills/Hazardous Waste Sites

The ODEQ Environmental Cleanup Site Information ("ECSI") and Leaking Underground Storage Tank ("LUST") databases were queried for any location within 0.25 mile of the Pipeline, and Sections 8.5.11.1 and 8.5.11.2 provide ODEQ's details for each site.

8.7.12.1 Sites

Based on the current datasets from ODEQ, there is only one location that may involve excavation near a former landfill.

Weyerhaeuser North Spit Landfill (includes ECSI Site 1083): At Jordan Cove, MP 1.5. Jordan Cove now owns the parcel on which the ECSI site is located. The construction right-of-way and TEWAs will not impact the landfill cells. It is not expected that groundwater will be encountered during construction activities; however, if trench dewatering activities are required at this site, PCGP will coordinate with ODEQ to test for potential contaminants and ensure dewatering compliance.

Nine contaminated sites occur within pipe yards. They are listed below. Because excavation will not occur at the yards, no impacts are anticipated.

- The Chambers Fuel Oil Inc. ECSI Site 22 – Located at Menasha Pipe Yard in Coos Bay.
- Weyerhaeuser Heating Oil Tank LUST 06-94-0049 – Located at K-2 Pipe Yard in Coos Bay.
- Champion International LUST 06-90-0009 – Located in Brunell Pipe Yard.
- Central Dock ECSI 4646 – Located in Brunell Pipe Yard.
- Central Dock Company LUST 06-93-0042 – Located in Brunell Pipe Yard.
- Millington Shop LUST 06-98-0036 - Located in Millington 1 Pipe Yard.
- Georgia Pacific Mill – Coquille ECSI Site 1255 - Located in Coquille Yard Pipe Yard.
- Roseburg Lumber Products Sawmill #2 LUST 10-90-0172 - Located in the Hult Chip Yard Pipe Yard.
- Winchester Mill ECSI 4441 - Located in the Winchester Pipe Yard.

Of note, the Brunell Pipe Yard has two LUST and one ECSI location, and additional discussions with ODEQ may be necessary prior to use.

8.7.12.2 Mitigation Measures for Unanticipated Encounters of Hazardous Waste

If unanticipated hazardous materials/waste is encountered (typically based on evidence of land-filled debris, subsoil discoloration, or odor), PCGP will implement the Contaminated Substances Discovery Plan (see Appendix F.1). The Plan outlines practices to protect human health and worker safety and to prevent further contamination in the event of an unanticipated discovery of contaminated soil, water or groundwater during construction of the Pipeline. Key measures of the plan, which can be applied to federal and non-federal lands are summarized as follows:

- All construction work in the immediate vicinity of areas where hazardous or unknown wastes are encountered will be halted.

- All construction, oversight, and observing personnel will be evacuated to a road or other accessible up-wind location, until the types and levels of potential contamination can be verified.
- PCGP's Chief Inspector, Environmental Inspector, and Environmental Lead will be notified. Following consultation with on-site personnel, the Environmental Inspector will be responsible for designating follow-up actions, including mobilizing emergency response personnel and coordinating with EPA and/or State or local agencies. PCGP personnel will also contact the Oregon Emergency Response System, who will then notify the appropriate response agencies.
- If an immediate or imminent threat to human health or the environment exists, one of PCGP's emergency response contractors, identified in the Spill Prevention, Containment, and Countermeasures ("SPCC") Plan (see Appendix B.2 to Resource Report 2) will be notified and mobilized.
- If an immediate or imminent threat to human health or the environment does not exist, or has been abated, PCGP or qualified subcontractor personnel will collect representative samples of the waste and surrounding materials for laboratory analysis.
- The contaminated materials in the area of the excavation will be removed and properly disposed of in accordance with appropriate regulations and ordinances and in accordance with Section VI of the SPCC Plan. If the extent of contamination is too widespread for economical removal, or if disposal options are technically infeasible or cost-prohibitive, backfilling of that portion of the Pipeline will be suspended until appropriate mitigation options are approved. Where hazardous substances or wastes must be stockpiled pending characterization or regulatory approval, PCGP will take precautions to isolate the substances (e.g., appropriate liner for storage area, berms, etc.).

8.7.13 Visual Resources and Aesthetics

8.7.13.1 Pipeline

Construction of the Pipeline will involve temporary visible ground disturbance, including vegetation clearing, grading, excavating and stockpiling of soils. Additionally, heavy equipment will be operating along the construction right-of-way to clear and grade the right-of-way, dig the trench, string the pipe, weld and install the pipe, backfill the trench and restore the right-of-way. These large-scale construction operations and ground disturbing activities may draw the visual attention of nearby viewers. However, much of the Pipeline, other than highway and county road crossings, is in remote locations seldom visited by the public. Before revegetation is complete, the visual contrast in color, line, and texture between the disturbed, unvegetated ground and the adjacent vegetation will be noticeable. Revegetation efforts will be initiated following construction and these efforts are expected to mitigate the visual contrast in color, line and texture in the short-term in 2 to 5 years. Replacing slash on the right-of-way in forested areas during restoration activities will also help reduce the visual contrast in color and texture of the disturbed right-of-way areas.

During construction, motorists will be able to see Pipeline construction activities at road crossings. Construction safety signs and flaggers at these crossings will visually and purposely warn motorists of the construction activities. Construction activities may also

be visible from some scattered local rural residences; however, this impact would be temporary and short-term.

Upon completion of construction, potential visual impacts from operation of the Pipeline would be the linear pattern of the Pipeline right-of-way in forested and shrubby areas. The right-of-way may be seen from places such as road crossings or other view points, depending on the distance, line-of-sight, topographic, and vegetation conditions at these locations as well as the conditions along the Pipeline right-of-way. It is expected that after construction and restoration, the contrast of the cleared construction right-of-way within forested areas compared to the adjacent or surrounding areas would draw the greatest attention from casual observers compared to other vegetation types. However, right-of-way clearing impacts in forested areas would be less than common timber harvesting practices in the region. Right-of-way contrast differences which may attract the attention of observers could also be attributed to some areas where surface rock or stumps may be scattered across the right-of-way or placed in piles at road crossings for OHV barriers or in other areas as habitat features. Visual impacts would be most pronounced where the Pipeline traverses forested slopes creating a utility corridor similar to transmission lines that are common regionally. The degree of this impact would be dependent on the specific conditions at each observation point and would be greatest in the short-term (0-5 years after construction) while the right-of-way is revegetating. However, over time as the right-of-way revegetates, narrows in width, and changes in form, texture and color, potential visual impacts would diminish. Further, over time as other land use activities occur adjacent to the Pipeline right-of-way, the visibility of the right-of-way is expected to decrease.

In cropland, pastures and rangeland, visual effects will remain until the establishment of a vegetative cover resembling undisturbed areas adjacent to the right-of-way – generally for one growing season. In these environments, visual contrasts would be the most noticeable immediately after construction and would steadily become less obvious with revegetation of the right-of-way.

After successful restoration, the Pipeline right-of-way will be returned to its pre-construction condition, except in forested areas where a 30-foot wide permanent right-of-way or easement centered over the Pipeline will be maintained in an herbaceous and shrub condition to facilitate operational surveys. In forested areas, the 30-foot operational width will be maintained periodically (approximately every three to five years) with removal of trees within 15 feet of the Pipeline centerline. This maintained 30-foot width is required for operational purposes to conduct both aerial and ground surveys to ensure the safety and integrity of the Pipeline system. A schematic drawing depicting the Pipeline maintenance right-of-way is provided in the ECRP (see Appendix B.1 to Resource Report 1 - Drawing 3430.34-X-0017).

BLM and Forest Service Sensitive Viewsheds

In areas of sensitive viewsheds and to the extent practicable, PCGP located the Pipeline to cause the least potential impact and contrast to the existing landscape. Depending on the location, impacts to the BLM and Forest Service sensitive viewsheds described in Section 8.6.3 and in Table 8.6-1 will be minimized by the Pipeline's perpendicular crossing configuration, a parallel right-of-way, or an abutment to and widening of the current road easement. The perpendicular crossings will help minimize the visual effects of the Pipeline right-of-way because in most cases the casual observer traveling on

these roads or hiking on the trail will be exposed to the right-of-way for only a short length of time as they pass.

At the Forest Service and BLM's request, the right-of-way will run parallel to Clover Creek Road and abut the road easement for approximately 1.5 miles starting at approximately MP 169.54. Additionally, near MP 170.93, the right-of-way angles out to run parallel to Clover Creek Road at an off-set ranging from approximately 50 to 450 feet. The off-set, parallel configuration, will minimize impacts to the viewshed for casual observers traveling on Clover Creek Road between MPs 176.06 and 176.70. Routing in this section was also recommended by the Forest Service and BLM because it avoids traversing a wet meadow that is known to support the Oregon Spotted Frog, a FWS candidate species. It also avoids crossing Buck Lake (an extensive emergent wetland), Oregon spotted frog habitat, and redband trout spawning areas in Spencer Creek.

Mid-term impacts on sensitive viewsheds are expected in areas where forest vegetation cannot be shaped and blended to soften the linear pattern of the Pipeline right-of-way and retain the existing the character of the landscape. PCGP will utilize the BLM's "A Sample List of Design Techniques for Mitigating Visual Impacts" (BLM Manual 8431, Appendix 3) on a case-by-case basis, where practicable. In some cases, PCGP has already used design techniques to mitigate visual impacts as outlined in BLM Manual 8431 (BLM 2001). For example, the Pipeline is designed to cross some visually sensitive areas at right angles, to set structures back from crossings, and to minimize viewing time for casual observers.

Aesthetics Management Plan and Potential Forest Plan Amendments

PCGP's Aesthetics Management Plan (see Appendix F.1), developed in consultation with the BLM and Forest Service, describes both general and specific mitigation measures designed to temper and prevent impacts to visual resources. However, even with the development and approval of the Aesthetics Management Plan and specific mitigation measures, the Forest Service has determined that VQOs for Foreground Retention and Foreground Partial Retention will not be met in several areas. Amendments will be necessary where the Pipeline would not be consistent with the Rogue River-Siskiyou and Fremont-Winema LRMPs VQO Standards and Guidelines. The Pipeline and/or similar projects were not proposed when the current LRMPs were developed, and the LRMPs do not include provisions for such projects. Plan amendments will be necessary for visual resources in three areas of the Rogue River-Siskiyou National Forest and two areas in the Fremont-Winema National Forest (see section 8.5.1.2).

Rogue River-Siskiyou National Forest LRMP Amendments. Near Highway 140 the Rogue River-Siskiyou National Forest LRMP would be amended to allow 10 to 15 years to meet the VQO of Middleground Partial Retention between MPs 156.3 and 156.8 and MPs 157.2 and 157.5. The current Standards and Guidelines for Middleground Partial Retention require that VQOs for a given location be achieved within three years of completion of a project, and given the revegetation conditions, more time would likely be needed for vegetation establishment to meet the VQO. Approximately 0.8 mile or 9 acres of the right-of-way in the Middleground Partial Retention VQO is visible at distances of 0.75 to 5 miles from State Highway 140 and would be affected by this amendment (Amendment RRNF-4).

The LRMP would be amended to change the VQO where the Pipeline crosses Big Elk Road at MP 161.4 from Foreground Retention to Foreground Partial Retention, allowing 10 to 15 years for the amended VQO to be attained. The existing Standards and Guidelines require that VQOs be met within one year of completion of a project and that management activities not be visually evident (Amendment RRNF-2-).

At the crossing of the PCT (MP 168), the LRMP would be amended to change the VQO from Foreground Partial Retention to Modification and to allow 5 years for amended VQOs to be attained. The existing Standards and Guidelines require that visual mitigation measures meet the stated VQO within three years of the completion of a project and that management activities be visually subordinate to the landscape (Amendment RRNF-3).

Fremont-Winema National Forest ("WNF") LRMP Amendments. At MP 168.8, the Fremont-Winema National Forest LRMP would be amended to allow 10 to 15 years to achieve the VQO of Foreground Retention where the Pipeline crosses Dead Indian Memorial Highway. Standards and Guidelines for Scenic Management, Foreground Retention requires VQOs for a given location be achieved within one year of completion of a project (Amendment WNF-2).

A second site-specific amendment may be needed to allow 10 to 15 years to meet the VQO for Scenic Management, Foreground Partial Retention, where the right-of-way is adjacent to Clover Creek Road from MPs 170 to 175. This change would potentially affect approximately 50 acres. Standards and Guidelines for Foreground Partial Retention require that VQOs be met within three years of completion of a project (Amendment WNF-3).

Key Observation Points

PCGP, with guidance from the Forest Service and BLM, selected six points from which to assess visual and aesthetic impacts. Five of the KOPs were chosen based on their proximity to federal lands with high scenic qualities and management objectives. These KOPs also serve as locales from which to monitor mitigation implementation. Section 3.4 of the Aesthetics Management Plan (see Appendix F.1) addresses specific mitigation measures.

Oregon Dunes National Recreation Area (near MP 1.47R). Visual impacts caused by construction and operation in the area south of the Oregon Dunes would be diminished by construction activities at the LNG Terminal. There, two multi-story LNG tanks are proposed for construction as part of the LNG Terminal. Currently, Roseburg Forest Products has facilities, including wood chip piles, a 190-foot high loading tower, and shipping docks adjacent to the Jordan Cove Meter Station at MP 1.47R. The southern foreground, middleground and background viewsheds as seen from the Oregon Dunes National Recreation Area have a relatively low visual sensitivity due to the activities that accompany the industrial areas, air and sea ports, and municipal settings in the Coos Bay region.

Trail Post Office (near MP 123). The Pipeline construction and permanent right-of-ways will be visible from this KOP in the foreground/middleground where the Pipeline climbs the hill across VRM Class IV (BLM 2016b) and could present a moderate to high level of change in the short-term. Because the Pipeline right-of-way will clear a swath through what is now dark, dense forest in the foreground/middleground, the contrast of

texture, line, and color will be apparent in the short term. Where the Pipeline right-of-way is located along the ridgetop the right-of-way will be in the background and mostly screened by existing vegetation.

In the viewshed visible in the foreground/middleground, PCGP will minimize contrast by regrading to approximate original contours, slash placement and replanting following construction in this area with native grasses, shrubs and trees. Slash/chip redistribution and hydro-mulch will be utilized to dampen the color contrast. During planning and construction, some trees on the edge of the right-of-way will be salvaged to aid in shaping and softening the linear edges to blend in with the existing landscape and reduce contrast, where feasible. Further, during restoration tree planting along, but outside, the 30-foot maintained easement can also be shaped to ease the contrast in line, form, and color caused by the Pipeline, as directed by the BLM. Other appropriate mitigation could also be applied as determined appropriate to minimize visual impacts and to facilitate meeting visual objectives over mid- and long-term. These could include transplanting trees or clumps of trees within the right-of-way to reduce sharp linear edges including the appropriate placement of rootwads and boulders and planting of shrubs.

These measures will be utilized where appropriate as determined by the BLM landscape architect in consultation with PCGP's Environmental Inspector and Chief Inspector who will determine where it will be practicable and safe. All measures will be subject to agency approval. Within approximately 5 to 10 years after revegetation, the contrast in line, form and color of the right-of-way effect will be minimized in the middleground, although the 30-foot maintained permanent easement will still be noticeable.

Highway 140 (MP 145.6). The KOP at the Highway 140 crossing is east of where the Pipeline crosses the highway. The hill and ridgetop are managed as VRM Class IV (BLM 2016b). Revegetation, construction techniques, and slash and salvage usage will serve as essential mitigation measures at this KOP. For the ridgetop in the background, existing trees will mostly mask both the construction and permanent easement because of the ridgetop placement of the Pipeline.

In the middleground where the Pipeline climbs the hill, PCGP will seek to minimize contrast by slash placement and replanting native trees, shrubs and plants immediately following construction. During planning and construction, some trees on the edge of the right-of-way will be salvaged to aid in shaping the linear edges to blend in with the existing landscape and reduce contrast, where feasible. This measure will be utilized where PCGP's Environmental Inspector and Chief Inspector determine it will be practical and safe. All measures will be subject to agency approval. Within approximately 5 to 10 years after revegetation, the contrast, line and form of the right-of-way will be minimized in the middle ground, although the 30-foot maintained permanent easement will still be noticeable. Construction, operation, and maintenance of the Pipeline would be consistent with the objective of VRM Class IV.

Big Elk Road and MP 161.41. Within the Rogue River-Siskiyou National Forest, the Pipeline crosses an area managed for Foreground Retention with high scenic integrity. The viewshed consists of a scenic buffer of large trees on both sides of the Big Elk Road (FR 37). The Pipeline right-of-way crosses generally perpendicular to the road. PCGP consulted with Forest Service representatives and determined that the construction right-of-way could be necked down to a width of 50 feet immediately adjacent to either side of

the Big Elk Road crossing. The construction right-of-way would then expand from 50 feet to the full 95-foot construction right-of-way width at approximately 100 feet from either side of the road. To ensure that the appropriate large trees are conserved on either side of Big Elk Road, PCGP's Environmental Inspectors ("EIs") will verify the limits of the staked construction limits in conjunction with a Forest Service representative (see Leave Tree Protection Plan in Appendix F.1). PCGP will revegetate the right-of-way using large native trees and shrubs to begin the mitigation process. A buffer of vegetation will mask the right-of-way on both sides of the road and it is expected that within 10 to 15 years, retention objectives can be achieved. Additionally, PCGP will implement the mitigation recommendations in the Aesthetics Management Plan (see Appendix F.1) to minimize potential visual effects at this road crossing. All measures will be subject to agency approval. The LRMP may be amended for this location as described above (see section 8.5.1.2).

Pacific Crest National Scenic Trail. The area where the Pipeline intersects the PCT on the Fremont-Winema National Forest supports a stand of old-growth forest and is managed for Foreground Partial Retention in order to maintain the aesthetic forest appeal for trail users. The typical construction right-of-way width for the Pipeline is 95 feet, which could devalue this trail crossing segment during construction. However, to minimize impacts to the scenic quality of the area, PCGP has "necked down" the construction right-of-way width from 95 feet to 75 feet for a distance of more than 320 feet on either side of the trail. UCSAs (no tree clearing) have also been located behind these neckdowns, outside of the immediate foreground visual area, to minimize disturbance. The UCSAs will be used to store slash and stumps during construction that will be redistributed across the right-of-way during restoration. To further minimize potential visual impacts at the PCT crossing, the Pipeline was realigned at the request of the Forest Service to shorten the potential visual corridor down the right-of-way.

Upon completion of construction in the area, PCGP will revegetate the right-of-way using large native trees, shrubs, and plants. A buffer of vegetation will skirt the right-of-way at the PCT crossing, and within 3 to 5 years the right-of-way is expected to be visually subordinate, although evidence of forest harvest and alteration will be evident to trail users for several more years. Hikers along this trail are observant and the speed at which they travel will allow them ample to time to view the right-of-way, so it is expected that they will notice more of the right-of-way effects, but the edges will be softened by vegetative growth. The Partial Retention VQO states that management activities must remain subordinate to the characteristic landscape, and that visual impacts must be reduced within one year. Because of the undisturbed setting of the foreground area at the proposed PCT crossing, for the short- and mid-term these objectives will not be attainable. PCGP will implement the mitigation recommendations in the Aesthetics Management Plan (see Appendix F.1) at the PCT crossing location and it is expected that the visual quality level would meet the Modification VQO within five years. The LRMP may be amended for this location as noted above.

Lakewoods Village (intersection of Dead Indian Memorial Highway and Clover Creek Road). Located near a developing neighborhood of resort homes, three KOPs provide observers with foreground, middleground and background distance zone perspectives along two scenic backcountry highways. Observers will see the Pipeline right-of-way as it crosses Dead Indian Memorial Highway and later parallels Clover Creek Road heading east in the foreground, middleground, and background. Residents in the Lakewoods Village will not see the right-of-way because the closest developed lot

in the community is approximately 1,000 feet west of the right-of-way at MP 169.02, based on review of 2016 NAIP aerial imagery[1]. The closest lot, which is undeveloped (2016 NAIP aerial imagery[1]), is approximately 750 feet west of the right-of-way at MP 168.95. This community is buffered from the right-of-way by various age classes of evergreen forest lands that should visually screen the construction right-of-way and construction activities from the community.

The Pipeline crosses the Dead Indian Memorial Highway perpendicularly in a thick forest foreground setting. Motorists on the highway are traveling at high speeds. Therefore, exposure to the Pipeline right-of-way from both directions is limited to less than a few seconds at most, which minimizes any potential visual impacts associated with the Pipeline crossing. The densely forested foregrounds combined with the sharp angle of observation, length of time viewed, and relative size of the crossing's opening is such that the degree of contrast to the landscape is low and only briefly visually evident.

The Forest Service suggested that the Pipeline right-of-way be moved as close to Clover Creek Road as possible, based on site-specific conditions, to eliminate the strip of trees between the road and Pipeline right-of-way. This locates the Pipeline right-of-way immediately adjacent to the road, except in a few areas where physical (e.g., stream crossings) and topographic conditions prevent abutting the road. The placement will also potentially reduce impacts on land management for owners of the previously proposed buffer strip. Additionally, this "widening effect" because of the abutment along the Clover Creek Road corridor will provide travelers with more extensive views of the forested hills in the background. PCGP also relocated Block Valve 13, which was previously located adjacent to the Dead Indian Memorial Highway, to MP 169.48 on private lands. The block valve will be set back from Clover Creek Road and accessed from an existing private road to screen the block valve from view.

Pipeline restoration efforts including regrading to the approximate original contours, reseeding, scattering slash across the right-of-way, and replanting will minimize visual contrast of the right-of-way. During restoration, PCGP will plant trees within forested areas to within 15 feet of the Pipeline, which will allow a strip of trees to establish along the easement and between the Pipeline and the road in this area. Because the Pipeline was recommended to abut the road and to eliminate the strip of trees between the road and the Pipeline easement, the Forest Service and BLM would specify if tree planting would occur on federal lands between the Pipeline centerline and Clover Creek Road. PCGP would also implement the mitigation recommendations in the Aesthetics Management Plan (see Appendix F.1).

Even with restoration efforts, it is expected that the Forest Service will require an LRMP amendment to meet visual quality objectives for Partial Retention between MPs 170 and 175 (see section 8.5.1.2).

8.7.13.2 Aboveground Facilities

Aboveground facilities include three meter stations, the Klamath Compressor Station, communications towers, pig launchers/receivers, and 17 block valves. To minimize the potential intrusions on the existing visual setting of the areas, all aboveground piping on

1 https://www.fsa.usda.gov/programs-and-services/aerial-photography/imagery-programs/naip-imagery/index

federal lands will be painted with a color approved by the BLM or Forest Service to meet visual quality objectives.

Although the Klamath Compressor Station will be located on private lands, the 17.14-acre facility size could pose an intrusion on the surrounding visual setting. The location is one of several considered (see Resource Report 10) and is preferred because of its proximity to interconnecting pipeline facilities and co-location with adjacent facility footprints (i.e., GTN and Ruby systems), among other efficiency benefits. It will be located in a rural, flat, and relatively isolated area about 1.75 miles northeast of the town of Malin at the base of the western slopes of Bryant Mountain in a landscape that transitions from cropland and pasture to native pinyon and juniper woodlands. The facility will include outside lighting to support night work activities; however, these lights will only be utilized when operations personnel are working at the station. During operations, nighttime work or maintenance activities will generally not be scheduled; therefore, these lights will only be used periodically and possibly for short periods during the winter when daylight hours are shorter. The buildings on site will be painted in a color selected to blend with the hues of the surrounding landscape. The station will be secured by a 7-foot high chain-link fence, which will be installed with screening slats; the appropriate sides of the station will be landscaped to reduce potential visual effects to area residences.

PCGP anticipates that in addition to the communications towers at the compressor meter stations and automated block valves, leased space on existing communication towers is necessary at up to eight additional sites. The Communication Facilities Plan (see Appendix F.1) describes the construction, modification, operation, and maintenance of communication facilities necessary for the operation of the Pipeline on lands managed by the BLM and the Forest Service. PCGP prefers to co-locate with existing facilities when possible and will do so if leased space is available within existing facility sites at the time of construction. If leased space is not available on existing facilities and construction of new facilities is required, PCGP will seek to obtain an approximate 100 foot by 100 foot (0.23 acre) area for each of the new facility installations in the immediate vicinity of the existing communication tower facilities. Therefore, additional towers or buildings are not expected to impair the visual setting.

The towers at the meter stations, compressor station, and automated block valves will be located within the fenced facility sites. The proposed communication facilities are not expected to significantly alter or impair the visual setting.

8.8 AGENCY CONSULTATION AND STATUS OF FEDERAL PERMITTING

PCGP has consulted and will continue to consult with various federal, state, and local agencies to obtain feedback on identified areas that may be impacted. Open discussions with various federal, state and local agencies have occurred from the onset of the Pipeline and will continue through the final phases of construction, reclamation, and operation.

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Appendix A.8

Tables

Table A.8-1

Access Roads and Road Crossing Methods (To Be Provided in a Subsequent Draft)

Table A.8-2

Temporary Extra Work Areas
(To Be Provided in a Subsequent Draft)

Table A.8-3

Uncleared Storage Areas
(To Be Provided in a Subsequent Draft)

Table 8A-4

Rock Source and Permanent Disposal Sites Identified for Construction of the Pipeline

Table 8A-4
Rock Source and Permanent Disposal Sites Identified for Construction of the Pipeline

Rock Source and/or Permanent Disposal Sites	Size (acres)	Pipeline MP location	Purpose	Jurisdiction	Land Use	Vegetation
Coos County						
TEWA 38.90-W	4.5	38.90	Rock source and disposal, staging, ingress/egress, spoil storage	Private	Strip mines, quarries, and gravel pits, clearcut forest land, regenerating evergreen forest land, transportation, communication, utilities corridors	Douglas fir-W. Hemlock-W. red cedar, roads, corridors, urban. industrial
Douglas County						
Signal Tree Road Quarry – Sec. 3	1.22	45.86	Rock source and disposal; spoil storage, staging	BLM-Roseburg District	Quarries	Industrial
Signal Tree Road Quarry – Sec. 35	1.09	47	Rock source and disposal	BLM-Coos Bay District	Quarries	Industrial
Weaver Road Quarry Site 1	1.62	47	Rock source and disposal	BLM-Coos Bay District	Quarries	Industrial
Weaver Road Quarry Site 2	1.30	47	Rock source and disposal	BLM-Coos Bay District	Quarries	Industrial
Signal Tree Quarry Site – Sec. 15	1.75	47	Rock source and disposal	BLM-Roseburg District	Quarries	Industrial
Private Quarry Benedict Rd.	1.49	56.75	Rock source	Private	Quarries	Industrial
Roth 1 – Existing Quarry #1	0.77	72.61	Rock source and disposal	Private	Quarries	Industrial
Roth 2– Existing Quarry #2	0.34	72.76	Rock source and disposal	Private	Quarries	Industrial
TEWA 79.85-N (BLM Quarry Site)	3.61	79.85	Rock source and disposal, PI, spoil storage, log landing, steep slope staging	BLM-Roseburg District	Quarries, transportation, communication, utilities corridors, mixed forest land, regenerating evergreen forest land	Roads, corridors, Douglas fir dominant - mixed conifer
Hatchet Quarry MP 102.30	2.00	102.3	Log Storage (Mitigation)	FS-Umpqua	Strip mines, quarries, gravel pit, transportation, communication, utilities corridors	Industrial, roads and corridors

Rock Source and/or Permanent Disposal Sites	Size (acres)	Pipeline MP location	Purpose	Jurisdiction	Land Use	Vegetation
Rock Disposal MP 104.12 (C&D Pit)	3.36	104.12	Disposal	FS-Umpqua/Private	Strip mines, quarries, and gravel pits, transportation, communication, utilities corridors, regenerating forest land	Industrial, roads and corridors, Douglas fir dominant – mixed conifer
Jackson County						
TEWA 110.73 (Peavine Quarry)	15.87	110.54	Staging, Parking, Disposal, hydrostatic discharge	FS-Umpqua	Strip mines, quarries, gravel pit and evergreen forest	Industrial and Douglas fir dominant - mixed conifer
TEWA 150.31-W (Heppsie Mountain Quarry)	5.56	150.31	Ingress/egress, staging, spoil storage, parking, rock source and disposal	Private and BLM-Medford District	Strip mines, quarries, and gravel pits, mixed rangeland, evergreen forest land, mixed forest land, transportation, communication, utilities corridors, regenerating evergreen forest land, clearcut forest land, herbaceous rangeland	Grasslands (W. Cascades), industrial, Ponderosa Pine/white oak, roads, corridors, grass-shrub-sapling or regenerating young forest
Rum Rye MP 160.41	4.91	160.41	Log Storage (Mitigation)	FS-Rogue River-Siskiyou	Strip mines, quarries, and gravel pits,	Industrial
TEWA 160.54-W (Big Elk Cinder Pit) (Ichabod Rock Quarry)	15.26	160.54	Log landing/decking/ hauling, ingress/egress, staging, rock source and disposal	FS-Rogue River-Siskiyou	Strip mines, quarries, and gravel pits, transportation, communication, utilities corridors, evergreen forest land,	Industrial, grasslands (W. Cascades), roads, corridors, true-fir hemlock montane, Douglas fir dominant - mixed conifer
Klamath County						
Rock Source and Disposal MP 180.56	7.76	180.56	Rock source and disposal	Private	Strip mines, quarries, gravel pit, transportation communication and utilities corridors, and regenerating forest land	Industrial, roads and corridors, and ponderosa pine/white oak
Rock Source and Disposal MP 180.71	2.95	180.71	Rock source and disposal	Private	Strip mines, quarries, gravel pits, clearcut forest land	Industrial, roads and corridors, and ponderosa pine/white oak
Rock Source and Disposal MP 182.40	5.66	182.40	Rock source and disposal	Private	Quarries, gravel pits	Industrial

Rock Source and/or Permanent Disposal Sites	Size (acres)	Pipeline MP location	Purpose	Jurisdiction	Land Use	Vegetation
Rock Source and Disposal MP 201.61	4.96	201.61	Disposal	Private	Quarries, gravel pits, transitional areas, communication and utilities corridors	Industrial, roads corridors, and grasslands (E. Cascades)
TEWA (5) (associated with existing quarries) Total	**44.80**					
Existing Quarries and Rock Source and Disposal Sites (15) Total	**41.18**					
Grand Total	**85.98**					

[1] The 44.80 acres are included in the total TEWA acreage in Table 8A-2.

Table A.8-5

Areas Where the Pipeline is Co-Located with Existing Rights-of-Way and Corridors

Table 8A-5
Areas Where the Pipeline is Co-Located with Existing Rights-of-Way and Corridors

Begin Milepost	End Milepost	Total Length (miles)	Right-of-Way/ Corridor Type	Ownership	Pipeline Distance from Right-of-Way (feet)	Off-set
Coos County						
1.59H	2.2H	0.61	Railroad – Coos Bay Rail Link	Port of Coos Bay	0-100	Coincides/Adjacent
3.12	3.15	0.03	Hill Crest Dr.	County	0	Coincides
3.28H	3.48H	0.20	Logging Road	Private	0	Coincides
3.60H	4.58H	0.98	Logging Road (Marine Way)	Private	0	Coincides
5.75H	7.08H	1.33	Logging road	Private	0-190	Coincides/Adjacent
5.29R	6.00R	1.03[3]	Logging Road	Private	0-390	Coincides/Adjacent
6.63R	7.45R	0.90[3]	Logging Road	Private	0-175	Coincides/Adjacent
8.45R	9.15R	0.7	Powerline/Logging Road	BPA Transmission Line/Private	0-80	Coincides/Adjacent
9.29R	9.51R	0.22	Logging Road	Private	0	Coincides
9.74R	10.02R	0.28	Logging Road	Private	0-35	Coincides/Adjacent
10.54R	10.73R	0.19	Logging Spur	Private	0-35	Coincides
8.76	9.39	0.63	Lillian Ln/Messerle Logging Rd	Private	0-335	Coincides/Adjacent
10.04	10.40	0.44[3]	Raven Wood Ln/Private Rd	Private	0-100	Coincides/Adjacent
10.08	10.92	0.74[3]	Private Rd	Private	0-245	Coincides/Adjacent
12.56	12.86	0.30	Logging Rd/BPA Powerline Rd	Private	0	Coincides
13.16	13.75	0.58[3]	Logging Rd	Private	0-35	Coincides/Adjacent
14.17	14.30	0.06[3]	Private Rd	Private	0	Coincides
14.61	15.02	0.41	Menasha Logging Spur	Private	0	Coincides
16.26	17.12	1.21[3]	Powerline/Emineth Private Rd	BPA Transmission Line/Private	180	Coincides/Adjacent
17.12	17.40	0.28	South Sumner Rd	County	35-75	Adjacent
17.68	18.54	0.86	Powerline/Menasha	BPA Transmission	0-135	Coincides/Adjacent

Begin Milepost	End Milepost	Total Length (miles)	Right-of-Way/ Corridor Type	Ownership	Pipeline Distance from Right-of-Way (feet)	Off-set
			Logging Spur	Line/Private		20 feet [1]
18.82	21.61	3.37[3]	Powerline, Coos Co Sheep - Logging Rd, Pvt Powerline Access Rd, BLM 27-12-28.0	BPA Transmission Line/Private/BLM	0-250	Coincides/Adjacent 20 feet [1]
21.90	22.15	0.25	Powerline Access Road	Private	15-75	Adjacent
23.22	23.66	0.44	Unknown Rd	BLM	0-85	Coincides/Adjacent
23.66	24.12	0.46	Coos Bay Wagon Road	County	50-75	Adjacent
24.12	24.31	0.19	Powerline/Hudson Ridge Tie - BLM 27-11-17.1	BLM	0-150	Coincides/Adjacent
24.55	25.05	0.60	Powerline/Logging Spur, BLM 27-11-30.1, BLM	BLM	0-60	Coincides/Adjacent
25.60	26.75	1.15	Powerline/Menasha Logging Rd, BLM 27-11-30.1	Private BPA Transmission Line	0-60	Coincides/Adjacent 20 feet [1]
27.65	28.13	0.48	Logging Rd	Private	0-85	Coincides
29.17	29.26	0.09	Logging Spur	Private	0-60	Coincides
30.40	31.18	0.78	Logging Spur	Private	0-160	Coincides/Adjacent
31.44	31.69	0.25	Logging Spur/Dora Spur Rd, BLM 28-11-13.2B, 13.2A	Private	0-80	Coincides/Adjacent
31.69	31.81	0.12	Dora Spur Rd, BLM 28-11-13.2B, Back Dora, BLM 28-11-13.6	BLM	0-70	Coincides/Adjacent
33.74	33.81	0.07	Elk Mountain Loop, BLM 28-11-25.0	BLM	0-65	Coincides
34.02	34.31	0.27[3]	Gold Brick Rd	BLM	0-140	Coincides/Adjacent
34.68	35.12	0.44	Logging Rd, Logging Spur	Private	0	Coincides
35.33	35.80	0.47	Elk Creek Rd, BLM 28-11-29.0	BLM	0-65	Coincides
35.83	36.18	0.35	Elk Creek Rd, BLM 28-11-29.0, BLM 28-10-29.2	BLM	0-65	Coincides

Begin Milepost	End Milepost	Total Length (miles)	Right-of-Way/ Corridor Type	Ownership	Pipeline Distance from Right-of-Way (feet)	Off-set
36.63	37.22	0.59	Elk Creek Rd, BLM 28-10-29.0, BLM Logging Spur	BLM	0-30	Coincides
38.36	38.92	0.56	Weaver Sitkum Tie Rd, BLM 28-10-9.4	BLM	0-90	Coincides
39.02	39.06	0.04	Co Rd 171, Plum Creek Logging Spur	BLM	0	Coincides
39.20	39.25	0.05	Co Rd 171, Plum Creek Logging Spur	BLM	0-65	Coincides
39.40	39.56	0.16	Weaver Sitkum Tie Rd, BLM 28-10-9.4	BLM	0-90	Coincides
39.72	39.78	0.06	Tri-W Group Access Spur	Private	0-30	Coincides
39.78	39.88	0.10	Weaver Sitkum Tie Rd, BLM 28-10-9.4	Private	0	Coincides
40.30	40.43	0.13	Weaver Sitkum Tie Rd, BLM 28-10-9.4	Private	0-75	Coincides
40.79	41.48	0.69	Weaver Sitkum Tie Rd, BLM 28-10-9.4	Private	0-75	Coincides/Adjacent
42.03	42.48	0.45	Weaver Rd, BLM 28-8-18.0	BLM	0-120	Coincides/Adjacent
42.73	42.86	0.10[3]	North Rock Creek, BLM 30-10-3	BLM	0-65	Coincides
42.93	43.11	0.18	Logging Spur, BLM 30-10-3, North Rock Creek	BLM	0-150	Coincides/Adjacent
43.28	43.46	0.18	BLM 30-10-3, North Rock Creek	BLM	0-65	Coincides
43.61	43.91	0.30	BLM 29-9-8, Co Rd 177.2R, Lone Rock Logging Spur	BLM	0-135	Coincides/Adjacent
44.53	45.24	0.71	BLM 29-9-9.3, Pvt RWA C-344 G.P., Upper signal Tree, BLM 28-9-35,	BLM	0-255	Coincides/Adjacent

Begin Milepost	End Milepost	Total Length (miles)	Right-of-Way/ Corridor Type	Ownership	Pipeline Distance from Right-of-Way (feet)	Off-set
			Logging Spur, BLM 29-9-9.2			
Douglas County						
45.49	45.71	0.22	Unknown Logging Road	BLM	0-50	Coincides/Adjacent
45.85	46.58	0.77[3]	BLM 28-9-35, Plum Creek Logging Spur	BLM	0-125	Coincides
47.10	47.79	0.69	Bingham Holmes Road - BLM 29-9-23,Holmes Creek Spur, Deep Reed Divide Spur	BLM/Private	0-160	Coincides/Adjacent
48.20	49.15	1.10[3]	Deep Creek, BLM 29-9-12.1, Deep Creek Spur, BLM 29-09-13.0, BLM Logging Road	BLM	0-135	Coincides/Adjacent
51.99	52.07	0.08	Private Dirt Road	Private	0-125	Coincides/Adjacent
53.22	53.74	0.52	Shields Creek Spur, BLM 29-8-2.2	BLM	0-230	Adjacent
54.20	54.34	0.14	Logging Spur	BLM	0-90	Adjacent
54.84	55.06	0.22	Seneca Logging Spur	Private	0-30	Coincides
55.53	55.75	0.22	Logging Rd	Private	0-30	Coincides
56.80	56.88	0.08	Ireland Rd	Public	50	Adjacent
61.89	62.51	0.62	Nichols Bros Pvt Rd, John Clarke, DG-075	Private	0-115	Coincides
62.52	63.64	1.12	DR Johnson Pvt Dr (BLM 29-7-6.0)	Private	0-165	Coincides
64.55	64.61	0.06	Private Rd, DG-090.500, PLMP 58.3+4.87	Private	0-65	Coincides
64.61	64.73	0.12	Private Rd, DG-090.500, PLMP 58.3+4.87	BLM	0-75	Coincides
64.90	65.35	0.45	Private Rd – DG-090.500	Private	0	Coincides
66.20	66.26	0.06	Private Rd, DG-098.000	Private	0-65	Coincides
66.37	66.47	0.10	Private Rd, DG-099.000	Private	0-65	Coincides
67.19	67.29	0.10	Barton Private Rd	Private	0-95	Coincides

Begin Milepost	End Milepost	Total Length (miles)	Right-of-Way/ Corridor Type	Ownership	Pipeline Distance from Right-of-Way (feet)	Off-set
67.71	68.26	0.55	Barton Private Rd	Private	0-80	Coincides
68.60	68.88	0.28	Unknown Rd	Private	0-60	Coincides
69.66	70.37	0.71	Unknown Private Dirt Rd	Private	0	Coincides
72.36	72.65	0.29	Private Dirt Road	Private	0-140	Coincides/Adjacent
74.36	74.43	0.07	Gow Ranch Rd	Private	0	Coincides
74.71	74.55	0.42[3]	Gow Ranch Rd	Private	0	Coincides
75.03	75.05	0.02	Bilger Creek Rd, BLM 29-5-11	Public Domain	0-65	Coincides
75.05	75.16	0.11	Private Rd, BLM 29-5-11, Bilger Creek Rd	Public Domain	0-10	Coincides
75.16	75.52	0.36	BLM 29-5-11, Bilger Creek Rd	USA (O&C)	0-10	Coincides
75.52	75.70	0.18	BLM 29-5-11, Bilger Creek Rd	Private	0-65	Coincides
75.74	75.92	0.18	Bilger Creek Rd, BLM 29-5-2.2, Private Logging Spur	Private	0-65	Coincides
77.07	77.13	0.06	Unknown Rd	Private	0-115	Coincides/Adjacent
77.83	78.00	0.17	Little Lick Private Rd	Private	0-120	Adjacent
79.89	80.42	0.53	School Hollow Spur, BLM 29-4-17	BLM	0-250	Adjacent
80.61	81.10	0.49	Powerline corridor/ Private Rd	Private	0-30	Coincides
82.23	82.43	0.20	Unknown Dirt Rd	Private	0-120	Coincides/Adjacent
82.75	83.75	1.00	Wood Creek Rd, BLM 29-4-35	BLM	0-165	Coincides
83.79	83.85	0.06	Logging Spur	BLM	0	Coincides
84.66	84.81	0.15	Logging Rd	Private		
86.25	86.44	0.19	Unknown Dirt Rd	Private	0	Coincides
86.44	86.97	0.53	East Fork Wood Crek Rd High Noon Spur, BLM 29-3-31.3, BLM 29-3-31.4	Private	0-65	Coincides

Begin Milepost	End Milepost	Total Length (miles)	Right-of-Way/ Corridor Type	Ownership	Pipeline Distance from Right-of-Way (feet)	Off-set
86.97	87.38	0.99[3]	Logging Spur High Noon Spur, BLM 29-3-31.3, BLM 29-3-31.4	USA (O&C)	0	Coincides
88.15	88.48	0.33	Fate Creek Rd, BLM 30-3-6	Private	0-200	Adjacent
89.11	89.51	0.40	Unknown Access Rd Seneca Jones Private Rd 7 & 8 (?poorly-placed Seneca?)	Private	0-80	Coincides
89.79	89.88	0.12[3]	New Logging Spur	Private	0-55	Coincides/Adjacent
90.15	90.36	0.21	Bland Mtn, BLM 30-4-1	USA (O&C)	0-160	Adjacent
90.36	90.49	0.13	Lavadoure Creek Spur, BLM 30-3-20.2	USA (O&C)	0-160	Adjacent
90.49	91.26	0.77	BLM 30-3-20.2, Unknown Spur, John Days Spur, BLM 30-3-28, Wook Rd	Private	0-130	Coincides
91.26	91.76	0.50	John Days Spur BLM 30-3-28	Private	0-175	Coincides/Adjacent
91.96	92.15	0.19	New Logging Spur	Private	0-145	Coincides
93.04	93.50	0.46	Unknown Rd	BLM	0-30	Coincides/Adjacent
93.75	94.07	0.32	Maize Ts Rd, BLM 30-3-23.5, Unknown Rd	Private USA (O&C)	0-65	Coincides
95.93	96.22	0.29	Unknown Rd	Private	0-50	Coincides
96.28	96.38	0.70[3]	Academy Rd, BLM 31-3-3	Private	0-65	Coincides
96.67	96.93	0.26	Private Rd	Private	0-100	Coincides
97.07	97.67	0.60	BLM 31-3-3, Academy Rd, Unknown Rd	BLM	0-140	Coincides
98.29	98.48	0.19	East Fork Stouts Creek Spur, BLM 31-3-1.1	BLM	0-90	Coincides
98.48	98.60	0.12	East Fork Stouts Creek Spur, BLM 31-3-1.1	Private	0-130	Adjacent

Begin Milepost	End Milepost	Total Length (miles)	Right-of-Way/ Corridor Type	Ownership	Pipeline Distance from Right-of-Way (feet)	Off-set
98.70	98.87	0.17	Unknown Rd	Private	0	Coincides
98.93	99.30	0.37	Unknown Rd BLM 31-3-12.A Non-Inv	Private	0-100	Coincides/Adjacent
100.02	100.38	0.36	FS3220705	BLM	0-75	Coincides
100.38	100.68	0.30	FS3220705	Umpqua National Forest	0-75	Coincides
100.68	100.80	0.12	BLM 31-3-24 Non-Inv.	Private	0-50	Coincides
100.86	101.17	0.33[3]	Unknown Rd	Private	0-75	Coincides
101.75	101.90	0.15	FS 3220790	Umpqua National Forest	0-50	Coincides/Adjacent
102.64	102.86	0.22	Sweetheart T.S., FS 3220792	Umpqua National Forest	0-100	Coincides
102.86	103.66	0.80	C&D Lumber	Private	0-120	Coincides/Adjacent
104.84	104.88	0.04	Granite T.S., FS 3230120	Umpqua National Forest	0-65	Coincides
105.39	105.51	0.12	Wildcat Ridge Rd, FS 32	Umpqua National Forest	0-140	Coincides
105.89	106.03	0.34[3]	Neu Thin T.S., FS 3200255	Umpqua National Forest	0-170	Coincides/Adjacent
106.13	106.40	0.27	East Fork T.S., FS 3200260	Umpqua National Forest	0-70	Coincides
106.45	107.12	0.68[3]	Wildcat Ridge Rd, Cow Creek , FS 3200301	Umpqua National Forest	0-200	Coincides/Adjacent
107.26	107.63	0.37	Wildcat Ridge Rd, Cow Creek, FS 3200301	Umpqua National Forest	0-75	Coincides/Adjacent
108.07	108.41	0.34	Wildcat Ridge Rd, Cow Creek, FS 32, 3200330	Umpqua National Forest	0-65	Coincides/Adjacent
108.41	108.54	0.14[3]	FS 3200359	Umpqua National Forest	0-80	Coincides/Adjacent
108.90	108.97	0.07	Cow Creek/Wildcat Ridge Rd (FS 3200000)	Umpqua National Forest	10-150	Adjacent
109.30	109.37	0.07	FS 3200500	Umpqua National Forest	0	Coincides

Begin Milepost	End Milepost	Total Length (miles)	Right-of-Way/ Corridor Type	Ownership	Pipeline Distance from Right-of-Way (feet)	Off-set
109.59	109.68	0.09	FS 3200500	Umpqua National Forest	0-140	Coincides/Adjacent
110.42	110.55	0.13	FS 3232891, South Fork Cow Creek, USFS 3232	Umpqua National Forest	0-75	Coincides/Adjacent
Jackson County						
111.53	112.07	0.54	Wildcat Ridge Rd, FS 32, Ol Blue, FS 3200750	Umpqua National Forest	0-162	Adjacent
112.55	112.63	0.08	Wildcat Ridge Rd, FS 32	Umpqua National Forest	0-65	Coincides
113.37	113.65	0.28	Unknown Rd	Private	0-150	Coincides
119.96	120.08	0.12	Canyon Creek Ridge Rd	Private	0	Coincides
122.76	122.99	0.23	Old Ferry Rd	Private	0-100	Coincides/Adjacent
124.97	125.12	0.15	Indian Creek Firebreak, BLM 34-1-23	BLM - USA (O&C)	0-65	Adjacent
125.39	125.66	0.27	Indian Creek Firebreak, BLM 34-1-23	BLM	0-115	Coincides
126.27	126.36	0.09	Indian Creek Firebreak, BLM 34-1-23	Private	0-100	Adjacent
126.36	126.60	0.24	Indian Creek Firebreak, BLM 34-1-23	BLM - USA (O&C)	0-175	Adjacent
127.28	127.38	0.10	Indian Creek Firebreak, BLM 34-1-23	Private	0-190	Adjacent
128.06	128.18	0.12	BLM 34-1W-23.5	BLM	0-80	Coincides/Adjacent
133.97	134.15	0.18	Unknown Rd	Private	0-100	Coincides/Adjacent
139.41	139.48	0.07	Unknown Rd	Private	0	Coincides
141.50	141.80	0.30	BLM Road	BLM - USA	0-70	Coincides
142.02	142.14	0.12	Salt Creek Access Rd, BLM 36-2E-7	Private	115-150	Coincides/Adjacent
142.78	142.86	0.08	Unknown Access Rd	Private	0-95	Coincides
143.31	143.51	0.20	Unknown Rd	Private	0-105	Coincides/Adjacent
144.69	144.77	0.08	Salt Creek Access Rd, BLM 36-2E-19	Private	0-40	Coincides
145.50	145.17	0.06[3]	Gardener Rd, (Salt Creek	Private	0-50	Coincides

Begin Milepost	End Milepost	Total Length (miles)	Right-of-Way/ Corridor Type	Ownership	Pipeline Distance from Right-of-Way (feet)	Off-set
			Rd)			
150.42	150.65	0.23	Heppsie Mtn. D Spur, BLM 37-2E-1.1	BLM	0-335	Coincides/Adjacent
150.95	151.57	0.62	BLM 37-3E-6.10	BLM	0-60	Coincides/Adjacent
151.77	152.13	0.36	BLM 37-3E-6.10, Unknown Rd	Private	0-90	Adjacent
152.24	152.31	0.07	Unknown Rd	BLM	0-225	Adjacent
155.31	155.45	0.14	Private Rd	Private	0-65	Coincides
155.45	155.50	0.05	FS 2815-410	Rogue River-Siskiyou National Forest	0-95	Adjacent
155.66	155.98	0.32	FS 2815-410	Rogue River-Siskiyou National Forest	0-100	Coincides
157.44	157.56	0.12	FS 2815-300	Rogue River National Forest	0-95	Coincides
158.78	159.44	0.66	FS 3707500	Rogue River-Siskiyou National Forest	0-170	Coincides/Adjacent
159.98	160.91	0.93	South Fork Little Butte Creek Rd, FS 3730, 3700133, 3700130	Rogue River-Siskiyou National Forest	0-95	Coincides
162.80	162.93	0.13	FS 3700113	Rogue River-Siskiyou National Forest	0-65	Coincides
163.14	163.22	0.08	FS 3700115	Rogue River-Siskiyou National Forest	0-65	Coincides
163.79	164.04	0.35[3]	FS 3720180	Rogue River-Siskiyou National Forest	0	Coincides
164.21	165.93	1.72	FS 3720000	Rogue River-Siskiyou National	0-80	Adjacent

Begin Milepost	End Milepost	Total Length (miles)	Right-of-Way/ Corridor Type	Ownership	Pipeline Distance from Right-of-Way (feet)	Off-set
				Forest		
Klamath County						
167.51	167.69	0.18	Unknown Rd	Rogue River-Siskiyou National Forest	0	Coincides
168.26	168.68	0.42	West Muddy Springs, FS 3700750	Fremont-Winema National Forest	0-95	Adjacent/Coincides
169.52	184.20	14.68	Clover Creek Rd (Co Rd 603)	County ROW	50-350	Adjacent
175.38	176.02	--0.64[2]	3852015	Private	0-155	Coincides/Adjacent
177.89	178.29	--0.40[2]	Private Rd	Private	0	Coincides
181.29	181.37	--0.08[2]	Private Rd	Private	0	Coincides
182.97	183.65	--0.68[2]	Private Rd	Private	0-70	Adjacent
184.06	184.15	--0.09[2]	Unknown Rd	Private	0	Coincides
184.85	187.28	2.43	Clover Creek Rd (Co Rd 603)	County ROW	50-150	Adjacent
187.76	188.83	1.07	Powerline/Private Road	PP&L/Private	0-50	Adjacent
189.32	189.83	0.51	Private Road	Private	0-50	Coincides/Adjacent
190.69	191.46	0.77	Homestead Ln	Private	0-100	Coincides/Adjacent
192.67	195.45	2.78	Weyerhaeuser Timber Company Rd, Existing Pipeline	Private	100	Adjacent
197.62	199.18	1.56	Weyerhaeuser Corp Rd	Private	0-270	Adjacent/ Coincides
199.96	200.22	0.26	Powerline	PP&L/Private	30	0 feet
200.65	202.16	1.51	Powerline	PP&L/Private	30	0 feet
202.16	202.34	0.18	Powerline	PP&L/Private	0-55	0-65 feet
202.34	203.59	1.25	Powerline/Private Rd	PP&L/Private	55	10 feet
203.90	204.19	0.29	Powerline	PP&L/Private	45-65	0-20 feet
206.03	207.50	1.47	Powerline	PP&L/Private	30	0 feet
209.38	210.08	0.70	State Hwy 39 (Klamath Falls - Malin Highway), Railroad	State	130-200	Adjacent
210.57	211.54	0.97	State Hwy 39 (Klamath	State	130-	Adjacent

Begin Milepost	End Milepost	Total Length (miles)	Right-of-Way/ Corridor Type	Ownership	Pipeline Distance from Right-of-Way (feet)	Off-set
			Falls - Malin Highway), Railroad		200	
211.54	211.87	0.33	IOOF Cemetery Rd	Private	80-110	Adjacent
215.34	217.00	1.66	Powerline	Private/PP&L/ BLM	10	20 feet [1]
217.49	217.54	0.05	Unknown Rd	Private	0-125	Coincides/Adjacent
217.54	217.84	0.30	Dodds Hallow Rd	County	0-100	Adjacent
217.84	220.07	2.25[3]	Powerline	PP&L/Private	0-100	Adjacent
220.67	220.75	0.08	Unknown Rd	Private	0-100	Adjacent
222.74	222.79	0.05	Powerline/Private Rds	PP&L	100	Adjacent
223.10	223.25	0.24[3]	Private Rd	Private	50	Adjacent
223.70	223.89	0.19	Powerline	PP&L	75	Adjacent
224.86	225.44	0.42[3]	Unknown Rd	Private	0-110	Coincides/Adjacent
225.63	226.34	0.69[3]	Powerline	PP&L	75	Adjacent
226.36	226.71	0.35	Unknown Rd	Private	40-90	Adjacent
226.93	227.15	0.12[3]	Unknown Rd	Private	100	Adjacent
227.59	227.64	0.05	Unknown Rd	Private	45	Adjacent
228.37	228.62	0.25	Unknown Rd	Private	25	Adjacent
	Total	**98.91**				

[1] Standard right-of-way overlap – see Resource Report 1/Figure 1.5-1.
[2] Denotes double Co-Location. Not included in the Total.
[3] Denotes Co-Location that includes a milepost equation. Column represents actual length.

Table A.8-6

BLM Third Party Rights Which May Be Affected by the Pipeline

Table 8A-6
BLM Third-Party Rights which May Be Affected by the Pipeline

BLM Casefile Number	Easement/ Right-of-Way Name	Authorized Use
Coos Bay BLM		
ORORO 047856FD	Georgia Pacific West Plum Creek Timber Lands LP The Timber Company Reciprocal Right-Of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
ORORO 048821FD	Weyerhaeuser Reciprocal Right-Of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
ORORO 057224FD	Oxbow Timber I LLC.	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
ORORO 048686FD ORORO 048686PT	Moore Mill & Lumber Reciprocal Right-Of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
ORORO 002571	Ken and Dorothy Rogge Road No. 28-10-25.0 Elk Mountain Loop	Crossing Access - Crossing the land with a vehicle or fence is authorized (may include construction and/or timber)
ORORO 047238FD ORORO 047238PT	Lone Rock Timber Reciprocal Right-of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
ORORO 047576FD	Coos Head Timber Reciprocal Right-of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
ORORO 047844FD ORORO 047844PT	Plum Creek Timber Reciprocal Right-of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
ORORO 066564FD ORORO 066564PT	Tri-W Inc. Reciprocal Right-Of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
ORORO 047856FD ORORO 047856PT	Plum Creek Timber Reciprocal Right-of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
ORORO 048041FD ORORO 048041PT	Menasha Reciprocal Right-Of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
ORORO 041490	Coos Bay Lumber Company Georgia Pacific Corp Road No. 28-8-18.0	Crossing Access - Crossing the land with a vehicle or fence is authorized (may include construction and/or timber)
ORORO 001958	Wilt - Weaver Stikum Tie Road No. 28-10-9.4	Crossing Access - Crossing the land with a vehicle or fence is authorized (may include construction and/or timber)
ORORO 039880	International Paper Upper Rock Creek Road	Crossing Access - Crossing the land with a vehicle or fence is authorized (may include construction and/or timber)
Roseburg BLM		
ORORO 001104FD	C&D Lumber Reciprocal Right-of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
ORORO 000123	BLM - Fate Creek Ranch Rd Easement	Crossing Access - Crossing the land with a vehicle or fence is authorized (may include construction and/or timber)
ORORO 000239	BLM - Jones Access Rd Easement	Crossing Access - Crossing the land with a vehicle or fence is authorized (may include construction and/or timber)

BLM Casefile Number	Easement/ Right-of-Way Name	Authorized Use
OROR 002504FD OROR 002504PT	Roseburg Resources	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
OROR 003572	Stinchfield St. John Creek Road	Crossing Access - Crossing the land with a vehicle or fence is authorized (may include construction and/or timber)
OROR 015897	Spurlock Access Road	Crossing Access - Crossing the land with a vehicle or fence is authorized (may include construction and/or timber)
OROR 041914	Anderson-McMann Access Road Easement	Crossing Access - Crossing the land with a vehicle or fence is authorized (may include construction and/or timber)
OROR 041980	Wilken Access Road Easement	Crossing Access - Crossing the land with a vehicle or fence is authorized (may include construction and/or timber)
OROR 053731FD OROR 053731PT	Lone Rock Timber Reciprocal Right-of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
OROR 056391FD OROR 056391PT	Lone Rock Timber Crooked River Reciprocal Right-of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
OROR 056397FD	Lone Rock Timber Reciprocal Right-of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
OROR 056452FD OROR 056452PT	McAlpine Reciprocal Right-of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
OROR 056448FD OROR 056448PT	Hunt Reciprocal Right-of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
OROR 056463FD	Reservation Ranch Reciprocal Right-of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
OROR 056476FD	Plum Creek Timber Reciprocal Right-of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products Forest Products Management and Removal - Access to forest lands for management and transport of forest products
OROR 056498FD OROR 056498PT	Seneca Jones Reciprocal Right-of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
OROR 061121PT	Dugan-Marion-Mooney Reciprocal Right-of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
OROR 060325FD	Douglas County Right-of-Way Permission	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
OROR 062790FD	Stinchfield Right-of-Way Permission	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
OROR 065839FD OROR 065839PT	Stinchfield Reciprocal Right-of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
OROR 068086FD	Douglas County Reciprocal Right-of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
ORORE 0013209FD	Lone Rock Timber Reciprocal Right-of-Way	Forest Products Management and Removal - Access to forest lands for management and

BLM Casefile Number	Easement/ Right-of-Way Name	Authorized Use
		transport of forest products
ORORE 0013855	Dickerson Access Road Easement	Crossing Access - Crossing the land with a vehicle or fence is authorized (may include construction and/or timber)
ORORE 0015880FD	Roseburg Resources Reciprocal Right-of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
ORORE 0016267FD ORORE 0016267PT	Seneca Jones Reciprocal Right-of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
ORORE 0018309FD	Roseburg Resources Reciprocal Right-of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
Medford BLM		
ORORE 001104FD ORORE 001104PT	Silver Butte Timber Reciprocal Right-of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
ORORE 048747FD ORORE 048747PT	Tri-Star Reciprocal Right-of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
ORORE 041058	Morey Access Road Easement	Crossing Access - Crossing the land with a vehicle or fence is authorized (may include construction and/or timber)
ORORE 048747FD	Riggs Logging Reciprocal Right-of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
ORORE 053794FD ORORE 053794PT	Medford Corp Reciprocal Right-of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
ORORE 054243	Terbeck Access Road Easement	Crossing Access - Crossing the land with a vehicle or fence is authorized (may include construction and/or timber)
ORORE 054245PT	Harrington Access Road Easement	Crossing Access - Crossing the land with a vehicle or fence is authorized (may include construction and/or timber)
ORORE 056841FD	Silver Butte Timber Reciprocal Right-of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
ORORE 056842FD	Coast Range Resources Reciprocal Right-of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
ORORE 056843FD ORORE 056843PT	Indian Hill Reciprocal Right-of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
ORORE 056844FD ORORE 056844PT	Superior Lumber Reciprocal Right-of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
ORORE 058508FD ORORE 058508PT	JWTR Oregon Reciprocal Right-of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
ORORE 058513FD	Plum Creek Reciprocal Right-of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
ORORE 068118FD	Plum Creek Reciprocal Right-of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
ORORE 065534PT	NYE Reciprocal Right-of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products

BLM Casefile Number	Easement/ Right-of-Way Name	Authorized Use
ORORR 067682PT	Murphy Creek Lumber Reciprocal Right-of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
ORORR 64117PT	Roy Elliot Reciprocal Right-of-Way	Forest Products Management and Removal - Access to forest lands for management and transport of forest products
Klamath Falls BLM		
ORORR 011170	Weyerhaeuser Access Rd Easement	Crossing Access - Crossing the land with a vehicle or fence is authorized (may include construction and/or timber)
Source: USDI, Bureau of Land Management. 2017. Oregon Easements and Rights-of-Way. Geodatabase. April.		

Table A.8-7

Structures within 150 feet of the Construction Right-of-Way or Temporary Extra Work Areas

Table 8A-7
Structures within 150 Feet of the Pipeline Right-of-Way

MP	Length	Type of Structure	Environmental Alignment Sheet (to be updated)
7.42R	8	Industrial	1
10.98R	107	Residence	2
11.00R	32	Barn	3
11.04R	80	Residence	4
11.20R	33	Residence	5
11.22R	128	Barn	6
11.60R	14	Barn	7
10.19	61	Rural Fire House	8
10.37	135	Residence	9
10.39	131	Garage	10
10.55	84	Residence	11
10.86	106	Barn	12
10.90	37	Garage	13
11.42	41	Barn	14
12.02	70	Residence	15
14.17	100	Residence	16
14.18	110	Garage	17
14.19	2	Residence	18
14.20	2	Garage	19
22.56	109	Residence	20
22.61	140	Residence	21
29.25	156	Residence	22
49.65	41	Residence	23
49.74	131	Residence	24
49.79	110	Garage	25
50.78	81	Residence	26
50.79	7	Garage	27
51.47	12	Garage	28
51.50	96	Garage	29
55.79	102	Residence	30
55.82	173	Residence	31
55.85	126	Garage	32
55.87	85	Residence	33
56.08	96	Residence	34
56.23	128	Garage	35
56.25	125	Residence	36
56.88	2	Residence	37
56.94	70	Residence	38
57.10	134	Residence	39
57.51	17	Residence	40
57.64	110	Residence	41
65.64	47	Residence	42
65.65	93	Garage	43
65.78	108	Residence	44
65.89	97	Garage	45
65.91	15	Residence	46
66.47	136	Residence	47
69.35	100	Barn	48
78.96	62	Residence	49
81.14	106	Residence	50
94.60	90	Garage	51
94.66	53	Garage	52
94.67	17	Residence	53

MP	Length	Type of Structure	Environmental Alignment Sheet (to be updated)
120.81	119	Residence	54
120.82	34	Garage	55
121.14	145	Garage	56
122.00	27	Garage	57
122.02	87	Residence	58
122.22	128	Barn	59
122.40	74	Residence	60
122.58	118	Residence	61
122.75	131	Residence	62
122.78	123	Residence	63
122.91	135	Garage	64
132.16	20	Barn	65
132.60	123	Residence	66
133.03	142	Barn	67
133.35	55	Garage	68
191.41	81	Barn	69
191.42	91	Barn	70
191.43	125	Garage	71
191.44	132	Residence	72
191.71	15	Barn	73
197.58	22	Barn	74
197.59	57	Garage	75
197.65	30	Industrial	76
197.69	127	Industrial	77
197.70	135	Industrial	78
197.71	78	Industrial	79
198.67	123	Industrial	80
198.99	72	Industrial	81
199.04	109	Industrial	82
199.71	31	Residence	83
200.30	3	Barn	84
200.45	100	Garage	85
200.47	80	Residence	86
202.92	121	Barn	87
203.93	73	Garage	88
203.94	69	Garage	89
203.95	123	Residence	90
204.00	136	Barn	91
206.23	107	Barn	92
206.24	25	Garage	93
206.25	74	Residence	94
206.34	2	Rail Road Shed	95
207.36	55	Residence	96
207.70	120	Barn	97
208.15	123	Garage	98
208.17	107	Barn	99
209.02	24	Barn	100
209.10	123	Garage	101
209.12	122	Garage	102
210.11	60	Residence	103
210.12	127	Garage	104
210.13	75	Garage	105
210.14	98	Garage	106
210.20	28	Garage	107
210.21	45	Car Port	108
210.22	92	Residence	109

MP	Length	Type of Structure	Environmental Alignment Sheet (to be updated)
211.83	152	Barn	110
211.87	169	Barn	111
211.94	129	Residence	112
214.12	52	Garage	113
214.13	126	Residence	114
218.92	140	Garage	115
225.12	102	Residence	116
226.29	2	Rail Road Shed	117
227.80	115	Barn	118
228.80	87	Barn	119

Table A.8-8

Land Ownership/Jurisdiction by Milepost

Table 8A-8
Landownership/Jurisdiction by Milepost

Begin MP	End MP	Jurisdiction	BLM District/National Forest/Reclamation/ River Name/Department	Length Crossed (miles)
Coos County				
1.47R or H	2.13H	Private		0.66
2.13H	3.08H	State	North Slough	0.95
3.08H	4.82H	Private		1.74
4.82H	5.30H	State	Haynes Inlet	0.48
5.30H	7.11H	Private		1.81
5.15R	6.21R	Private		1.06
6.21R	6.44R	State	Kentuck Slough	0.23
6.44R	11.08R	Private		4.64
11.08R	11.18R	State	Coos River	0.10
11.18R	12.39	Private		1.21
8.58	11.08	Private		2.50
11.08	11.13	State	Coos River	0.05
11.13	17.04	Private		5.91
17.04	17.11	BLM	Coos Bay District	0.07
17.11	17.14	Private		0.03
17.14	17.31	BLM	Coos Bay District	0.17
17.31	17.40	Private		0.09
17.40	17.44	BLM	Coos Bay District	0.04
17.44	18.82	Private		1.38
18.82	18.84	BLM	Coos Bay District	0.02
18.84	20.04	Private		1.20
20.04	20.56	BLM	Coos Bay District	0.52
20.56	21.21	Private		0.65
21.21	21.81	BLM	Coos Bay District	0.60
21.81	23.19	Private		1.38
23.19	23.87	BLM	Coos Bay District	0.68
23.87	23.99	Private		0.12
23.99	24.36	BLM	Coos Bay District	0.37
24.36	25.36	Private		1.00
25.36	25.57	BLM	Coos Bay District	0.21
25.57	26.82	Private		1.25
26.82	27.08	BLM	Coos Bay District	0.26
27.08	27.11	Private		0.03
27.11	27.47	BLM	Coos Bay District	0.36
27.47	28.40	Private		0.93
28.40	28.79	BLM	Coos Bay District	0.39
28.79	31.58	Private		2.79
31.58	32.47	BLM	Coos Bay District	0.89
32.47	33.77	Private		1.30
33.77	34.21	BLM	Coos Bay District	0.44
34.21	35.12	Private		0.91
35.12	38.93	BLM	Coos Bay District	3.81
38.93	40.18	Private		1.25
40.18	40.21	BLM	Coos Bay District	0.03
40.21	41.44	Private		1.23
41.44	42.01	BLM	Coos Bay District	0.57
42.01	43.50	Private		1.49
43.19	43.50	BLM	Coos Bay District	0.31
43.50	44.51	Private		1.01
44.53	44.63	Private		0.10
44.63	45.72	BLM	Coos Bay District	1.09
Douglas County				
45.72	46.90	Private		1.18

Begin MP	End MP	Jurisdiction	BLM District/National Forest/Reclamation/ River Name/Department	Length Crossed (miles)
46.90	47.17	BLM	Roseburg District	0.27
47.17	48.27	Private		1.10
48.27	49.20	BLM	Roseburg District	0.93
49.20	51.04	Private		1.84
51.04	51.29	BLM	Roseburg District	0.25
51.29	52.61	Private		1.32
52.61	52.95	BLM	Roseburg District	0.34
52.95	53.11	Private		0.16
53.11	53.70	BLM	Roseburg District	0.59
53.70	54.38	Private		0.68
54.38	54.43	BLM	Roseburg District	0.05
54.43	60.85	Private		6.42
60.85	61.66	BLM	Roseburg District	0.81
61.66	64.38	Private		2.72
64.38	64.50	BLM	Roseburg District	0.12
64.50	64.61	Private		0.11
64.61	64.88	BLM	Roseburg District	0.27
64.88	74.87	Private		9.99
74.87	75.52	BLM	Roseburg District	0.65
75.52	76.02	Private		0.50
76.02	76.11	BLM	Roseburg District	0.09
76.11	78.18	Private		2.07
78.18	78.79	BLM	Roseburg District	0.61
78.79	79.60	Private		0.81
79.60	80.56	BLM	Roseburg District	0.96
80.56	82.71	Private		2.15
82.71	83.32	BLM	Roseburg District	0.61
83.32	84.91	Private		1.59
84.91	85.19	BLM	Roseburg District	0.28
85.19	85.95	Private		0.76
85.95	86.25	BLM	Roseburg District	0.30
86.25	86.97	Private		0.72
86.97	87.49	BLM	Roseburg District	0.52
87.49	89.85	Private		2.36
89.85	90.48	BLM	Roseburg District	0.63
90.48	91.26	Private		0.78
91.26	91.93	BLM	Roseburg District	0.67
91.93	93.00	Private		1.07
93.00	93.07	BLM	Roseburg District	0.07
93.07	93.62	Private		0.55
93.62	93.92	BLM	Roseburg District	0.30
93.92	95.15	Private		1.23
95.15	95.82	BLM	Roseburg District	0.67
95.82	97.07	Private		1.25
97.07	98.47	BLM	Roseburg District	1.40
98.47	99.31	Private		0.84
99.31	99.83	Forest Service	Umpqua NF	0.52
99.83	100.39	BLM	Roseburg District	0.56
100.39	100.68	Forest Service	Umpqua NF	0.29
100.68	101.20	Private		0.52
101.20	101.89	Forest Service	Umpqua NF	0.69
101.89	102.16	BLM	Roseburg District	0.27
102.18	102.32	BLM	Roseburg District	0.14

Begin MP	End MP	Jurisdiction	BLM District/National Forest/Reclamation/ River Name/Department	Length Crossed (miles)
102.32	102.85	Forest Service	Umpqua NF	0.53
102.85	104.10	Private		1.25
104.10	113.20	Forest Service	Umpqua NF	9.10
Jackson County				
113.20	115.11	Private		1.91
115.11	115.39	BLM	Medford District	0.28
115.39	115.42	Private		0.03
115.42	116.77	BLM	Medford District	1.35
116.77	116.84	Private		0.07
116.84	117.80	BLM	Medford District	0.96
117.80	118.91	Private		1.11
118.91	119.90	BLM	Medford District	0.99
119.90	120.27	Private		0.37
120.27	120.46	BLM	Medford District	0.19
120.46	121.26	Private		0.80
121.26	121.55	BLM	Medford District	0.29
121.55	122.62	Private		1.07
122.62	122.70	State	Gold River	0.08
122.70	123.33	Private		0.63
123.33	124.23	BLM	Medford District	0.90
124.23	124.38	State	Oregon Department of Forestry	0.15
124.38	125.54	BLM	Medford District	1.16
125.54	126.28	Private		0.74
126.28	126.58	BLM	Medford District	0.30
126.58	126.86	Private		0.28
126.86	127.11	BLM	Medford District	0.25
127.11	127.39	Private		0.28
127.39	128.42	BLM	Medford District	1.03
128.42	128.73	Private		0.31
128.73	129.45	BLM	Medford District	0.72
129.45	131.36	Private		1.91
131.36	131.93	BLM	Medford District	0.57
131.93	133.20	Private		1.27
133.20	133.45	BLM	Medford District	0.25
133.45	136.82	Private		3.37
136.82	137.12	BLM	Medford District	0.30
137.12	139.88	Private		2.76
139.88	140.57	BLM	Medford District	0.69
140.57	140.83	Private		0.26
140.83	141.92	BLM	Medford District	1.09
141.92	148.27	Private		6.35
148.27	149.90	BLM	Medford District	1.63
149.90	150.49	Private		0.59
150.49	151.65	BLM	Medford District	1.16
151.65	152.19	Private		0.54
152.19	153.81	BLM	Medford District	1.62
153.81	154.93	Forest Service	Rogue River-Siskiyou NF	1.12
154.93	155.45	Private		0.52
155.45	169.37	Forest Service	Rogue River-Siskiyou NF	13.92
Klamath County				
169.37	170.04	Private		0.67
170.04	171.39	Forest Service	Fremont Winema NF	1.35

Begin MP	End MP	Jurisdiction	BLM District/National Forest/Reclamation/ River Name/Department	Length Crossed (miles)
171.39	171.59	Private		0.20
171.59	172.71	Forest Service	Fremont Winema NF	1.12
172.71	173.11	Private		0.40
173.11	174.81	Forest Service	Fremont Winema NF	1.70
174.81	174.95	Private		0.14
174.95	175.37	Forest Service	Fremont Winema NF	0.42
175.37	176.15	Private		0.78
176.15	177.04	BLM	Lakeview District	0.89
177.04	179.58	Private		2.54
179.58	179.72	BLM	Lakeview District	0.14
179.72	199.27	Private		19.55
199.27	199.46	State	Klamath River	0.19
199.46	200.52	Private		1.06
200.52	200.53	Reclamation	Bureau of Reclamation	0.01
200.53	202.56	Private		2.03
202.56	202.86	Reclamation	Bureau of Reclamation	0.30
202.86	212.06	Private		9.20
212.06	212.11	State	Lost River	0.05
212.11	216.49	Private		4.38
216.49	216.75	BLM	Lakeview District	0.26
216.75	228.81	Private		12.06
Total				**235.23**

[1] Because equations have been inserted to prevent the mileposts from changing, it is no longer possible to use the distance between mileposts as an accurate length (e.g., the centerline is now 235.23 miles long but the ending MP is 228.13).

Appendix B.8

Landowner Complaint Resolution Procedure (To Be Provided in a Subsequent Draft)

Appendix C.8

Records of Conversation
(To Be Provided in a Subsequent Draft)

Appendix D.8

Communications Study
(To Be Provided in a Subsequent Draft)

Appendix E.8

BLM and Forest Service Tables
(To Be Provided in a Subsequent Draft)

Appendix F.8

Residential Figures
(To Be Provided in a Subsequent Draft)

Appendix G.8

Figures of Rock Source/Disposal and TEWAs (outside the photoband of the Environmental Alignment Sheets) (To Be Provided in a Subsequent Draft)

Appendix H.8

Transportation Management Plan for Non-Federal Lands (To Be Provided in a Subsequent Draft)

Appendix I.8

County Zoning

Coos County Zoning Designations Crossed by the Pipeline

Zoning Designation	Miles Crossed
10-NA	0.89
11-NA	0.31
11-RS	0.46
20-CA	0.10
20-RS	0.62
21-CA	0.05
21-RS	0.28
EFU	4.13
F	43.52
IND	0.71
RR-2	0.03
RR-5	0.27
Total	**51.37**

Douglas County Zoning Designations Crossed by the Pipeline

Zoning Designation	Miles Crossed
5R	0.49
AW	1.38
F2	0.13
FF	16.63
FG	11.17
TR	36.50
Total	**66.30**

Note: FERC projects are exempted by Jackson County's Comprehensive Plan and the previously proposed aboveground facilities (Butte Falls Compressor Station and Shady Cove Meter Station) in Jackson County have been relocated or removed.

Jackson County Zoning Designations Crossed by the Pipeline

Zoning Designation	Miles Crossed
EFU	10.35
FR	37.77
OSR	1.13
RR-5	0.04
RS	0.02
WR	6.65
Total	**55.96**

Klamath County Zoning Designations Crossed by the Pipeline

Zoning Designation	Miles Crossed
EFU-C	15.79
EFU-CG	2.50
F	19.34
FR	12.47
IH	3.86
NR	0.76
R5	1.77
RS	0.08
Unknown	5.03
Total	**61.60**