Chapter 10  Aesthetics and Visual Resources

10.1 Introduction

This chapter assesses the potential impacts on aesthetics and visual resources of the proposed project’s Technology Alternatives and Marine Terminal Alternatives and a No-Action Alternative. For the purposes of this assessment, aesthetics and visual resources refer to the overall visual character of the project site and the surrounding area. This chapter describes the regulatory setting and methodology used to conduct the aesthetic analysis, and describes the affected environment, including an identification of existing visual resources, such as key viewpoints in the study area. The report then assesses the proposed project’s potential impacts on aesthetics and visual resources. This assessment also includes an evaluation of potential impacts due to light (i.e., man-made artificial nighttime light) and glare (i.e., a strong or dazzling lighting condition originating with sources of either direct or reflected light that causes visual discomfort) resulting from the proposed project.

In addition to the proposed project, this chapter evaluates the proposed project’s related actions: the Kalama Lateral Project (the proposed pipeline) and the upgraded transmission lines and substation improvements.

This analysis concludes that the proposed project, with either Technology Alternative and either Marine Terminal Alternative, would not result in significant adverse impacts to aesthetics or visual resources.

10.2 Regulatory Setting and Guidance Context

This environmental impact statement has been prepared pursuant to the Washington State Environmental Policy Act (SEPA) (Revised Code of Washington [RCW] Chapter 43.21C) and the Cowlitz County (County) Environmental Policy (Cowlitz County Code [CCC] Chapter 19.11) implementing SEPA in the County. SEPA rules set forth in Washington Administrative Code (WAC) Chapter 197-11 and adopted by Cowlitz County require the consideration of aesthetics as an element of the environment in SEPA review.

State and County SEPA regulations and supporting materials, such as the Washington State Department of Ecology SEPA Handbook, do not provide specific guidance for conducting assessments of aesthetics and visual resources. However, such guidance is provided by various federal agencies and addresses appropriate methods, considerations, and procedures for aesthetics and visual resources assessments. This assessment of aesthetics and visual resources draws on the guidance provided by these agencies. For the purposes of this aesthetics and visual resources assessment, guidance provided by resource managers in various federal agencies has been used to develop the assessment methodology. The most widely known of these methodologies are those developed by U.S. Department of Agriculture and U.S. Forest Service (Landscape Aesthetics, A Handbook for Scenery Management), the U.S. Department of Transportation, Federal Highways Administration (Visual Impact Assessment for Highway Projects), and U.S. Department of Interior, Bureau of Land Management (The Visual Resource Management System). These methodologies have been used in prior Northwest energy project assessments (most recently in analyzing the visual impacts of wind energy facilities); however, the landscape and land use setting of the proposed project are considerably different than those generally evaluated by these federal agencies. While none of these methodologies apply
directly to this project, each utilizes a process of conducting a visual inventory within the local landscape and visual context and identifying viewer sensitivity and response. This process forms a general framework for assessing a project’s potential visual impacts.

Federal and state regulations also designate areas of scenic importance. These areas are considered in this assessment as appropriate. At the federal level, areas of outstanding natural and scenic value are designated as National Scenic Areas. There are no National Scenic Areas within the study area. At the state level, roadways of scenic and recreational value are designated as Washington State Scenic and Recreational Highways. As discussed below, Interstate 5 (I-5) in the vicinity of the project site is designated as part of the Lewis and Clark Trail Scenic Byway.

### 10.3 Methodology

The visual resource methodology used to inventory and assess the potential impacts of the proposed project and alternatives includes the following steps:

- Define the study area;
- Prepare a viewshed determination;
- Identify and evaluate potentially sensitive viewers and viewpoints within the landscape context of the development;
- Use visual simulations to describe the visual changes introduced by the construction and operation of the proposed project and alternatives, as appropriate;
- Assess the visual impacts from potentially sensitive viewpoints within the visual context of the proposed project and alternatives; and
- Recommend mitigation measures, if necessary.

#### 10.3.1 Define the Study Area

The study area for the affected environment for aesthetics and visual resources is generally defined as the area within visual range of the proposed project. This area should encompass ground-based locations from which a project could be appreciably observed in detail (Bureau of Land Management 1986). Given the regional physiography, vegetation, and built environment surrounding the project site, details of the proposed project would be appreciably observable for viewers at ground-based locations within approximately 5 miles of the project site. Beyond 5 miles, the proposed project would blend into the visual context of surrounding land uses and details would no longer be visually apparent. Therefore, a 5-mile radius, including areas on the west side of the Columbia River, has been defined as the study area.
10.3.2 Prepare a Viewshed Determination

A viewshed is the area within visual range of a given viewpoint, which is defined by the regional physiography, vegetation, and built environment. In order to determine the viewshed area from which aesthetic changes on the project site may be experienced, City and County maps, U.S. Geological Survey quadrangle maps, project maps, and aerial and site photographs were consulted to determine the physiographic features within the study area that influence views of the project site and define the visual environment. A digital elevation model of the area was then created using ESRI ArcGIS, a 3-D mapping software package. The digital model was used to create a viewshed determination that identifies locations based on topographic screening (excluding vegetation) that may have views of the project site. The viewshed determination defines the general area within the study area from which specific viewpoints will be selected.

As shown in Figure 10-1, the viewshed encompasses most areas within the Columbia River floodplain to the north, south, and west of the project site but is limited by the hills bordering the floodplain. Views from the east are obstructed by topography (e.g., Drays Mound, a prominent rock outcropping near the project site). The viewshed determination is a screening level assessment that only accounts for topography in determining which locations may have views of the project site. The next step in the analysis, viewpoint selection, accounts for vegetation and the built environment.
Figure 10-1. Viewshed Determination
10.3.3 Viewpoint Selection

Digital mapping software (ESRI ArcGIS, Google Earth, Google Maps, Map Quest, Bing Maps, etc.) and aerial and site photographs were used to identify built environments, public amenities, travel routes, urban areas, residential areas, and existing vegetation within the 5-mile study area. This information, in combination with the viewshed determination, was used to select viewpoint locations for this assessment.

Natural landforms block views of the project site for viewers in portions of the study area. In addition, the built environment and existing vegetation obstruct views of the project site for many remaining viewers. However, six viewpoints were identified from which views of the project site could be altered by the proposed project. Figure 10-2 shows the locations of these six viewpoints.

At each proposed viewpoint, general views were verified and photographs were taken using a high-resolution DSLR camera with a 50-mm lens. Daytime photos were taken on a clear sunny day with a high sun angle to show the most direct and brightest sunlight at each viewpoint. Although glare conditions would vary depending on sun angle, viewer location and glare surface, a high sun angle was used to provide a reasonably conservative and consistent baseline condition for light and glare at all of the viewpoints. Photographic inventory sheets, which include information on weather conditions, time of day, and technical specifications for the camera, are provided for each photograph in Appendix I.

To create photos as close as possible to what the human eye would see, photographs were taken at the height of an average viewer’s eye (approximately 5 feet 5 inches above ground level). Because a single photograph cannot capture the field of vision of a human eye, a sequence of photographs was taken from each viewpoint. Using Adobe Photoshop, the photos were digitally stitched or “grouped” together to form panoramas; the photos were overlapped and their edges were cropped to reduce edge distortion and to fit print materials. No other photo manipulations were performed. Using the photographs, the extent of the view of the existing site from each viewpoint was identified and its existing visual character and the types of viewers using that viewpoint was assessed.

Based on the existing land uses and environmental conditions at the viewpoints, views of the project site were classified into three categories.

- **Urban/Industrial Views** – Viewers within this landscape view the site in the context of an existing built environment of urban industrial areas or travel corridors.
- **Rural/Residential Views** – Viewers within this landscape view the site in the context of a mixture of surrounding natural and man-made features/patterns, including land used for farming, mineral extraction, or forestry.
- **Natural Views** – Viewers within this landscape view the site in a context of surrounding natural features and a largely undisturbed recreational or open space setting. Few man-made developments or disturbances are present.
10.3.4 Viewer Sensitivity

Viewer sensitivity is the measure of concern for visual quality and the response to changes to the elements of the natural and constructed environments the viewer experiences through sight. Viewer sensitivity is related to changes in available views of the landscape, buildings, construction and demolition of structures, operational equipment, and emissions. The effects of those changes on viewers depends on the types of users, the amount of use (number of viewers and view frequency), and adjacent land uses, as described below.

- **Types of Users** – Based on the viewpoint locations, the general types of viewers who see the site can be characterized as residents, workers, travelers, and recreationalists. Visual perception and sensitivity vary with the type of user. Residential or recreational sightseers may be highly sensitive to changes, while those in a work setting, such as industrial, manufacturing, or warehouse workers, tend to have a low sensitivity. A working viewer’s activity, awareness, and sensitivity are typically limited to the visual setting immediately outside the workplace and do not extend to surrounding views.

- **Amount of Use** – The number of viewers varies depending on activity and the location, but areas used by large numbers of people are potentially considered to have a higher exposure, or sensitivity, because more viewers could be affected. Impacts to visual quality usually become more likely as the number of viewers and the duration of views increase.

- **Adjacent Land Uses** – Proposed changes may or may not affect the visual quality or other aspects of land uses in adjacent lands directly. The visual elements of adjacent landscapes and natural areas, buildings, structures, and operations define a visual character or context with which the proposed uses and facilities are compatible or in conflict.

10.3.5 Visual Impact Assessment Methodology

Visual impact assessments are based on the evaluation of the visual quality and viewer sensitivity. Viewer sensitivity is considered within the context of reasonable expectations of those experiencing views of a heavily industrialized area. The degree of effect depends on both the magnitude of change to the visual resource and the potential viewer response to and concern for those changes. The levels of effect are identified as high, moderate, low, and no effect.

- **High Level of Effect (H)** – Assigned in situations in which operations, buildings, or other structures would be highly visible to a large number of sensitive viewers and would impact the visual quality of the landscape setting negatively. Mitigation measures may or may not provide benefit to this level of impact.

- **Moderate Level of Effect (M)** – Assigned in situations in which the operations, buildings, or other structures could be visible to high numbers of viewers with a low sensitivity or a low number of highly sensitive viewers. Moderate impacts may be generally consistent with adjacent land uses and some mitigation may be required to minimize impacts to sensitive viewers.

- **Low Level of Effect (L)** – Assigned in situations in which there are a low number of viewers or the proposed operations, buildings, or other structures would be minimally visible. Impacts would also be low if distance and/or visual compatibility with other existing land uses make impacts difficult to perceive.

- **No Effect** – Assigned in situations in which the proposed operations, buildings, or other structures would not be visible.
The assessment of potential impacts also accounts for measures included in the proposed project that would be intended to minimize effects to aesthetics and visual resources, such as lighting controls. This assessment uses the levels of effect to identify potential significant adverse impacts. Potential significant adverse impacts may be identified for high levels of adverse effect on visual resources, depending on the specific circumstances of the view and viewer sensitivity.

In order to assess potential impacts on aesthetics and visual quality, visual simulations were prepared illustrating the fully constructed condition of the proposed project. The visual simulations were developed using existing conditions photographs from each of the viewpoints discussed below. A combination of AutoCAD files and Google SketchUp Pro were used to create an overall 3-D model of the project site and the surrounding area. The 3-D models were then geo-referenced and placed in Google Earth Pro. Perspective views of the 3-D models were generated using the existing viewpoint locations. Images from the 3-D model were then superimposed over the high-resolution digital photographs in Adobe Photoshop to simulate the constructed condition of the proposed project. The digital photographs and the simulations represent before and after images and help describe the visual change that would be associated with this project. No other photo editing or touchup work was done to the simulations. The visual simulation task and analysis provided the basis for the visual assessment.

The visual simulations in this assessment are of the Ultra-Low Emissions (ULE) Alternative and Marine Terminal Alternative 1, but these views are representative of the potential visual impacts of the proposed project with either Technology Alternative and with either Marine Terminal Alternative. The size, layout, and appearance of the proposed project would vary slightly depending on which Technology Alternative and which Marine Terminal Alternative was selected. But in either case, the proposed project would result in the development of a methanol manufacturing facility and a new marine terminal. The aesthetic, light, and glare differences between the alternatives would be minor for viewers within the context of the larger viewshed and would not affect the overall perception of the proposed project.

10.3.6 Data Sources
The evaluation uses the following sources of information to evaluate the visual characteristics of the study area.

- Cowlitz County GIS data
- Guidance documents prepared by the U.S. Department of Interior Bureau of Land Management, U.S. Department of Agriculture, and U.S. Department of Transportation Federal Highways Administration
- AutoCAD files of the proposed project provided by Northwest Innovation Works, LLC
- Field surveys conducted in February and March 2015
- Resource Report 8, Land Use, Recreation, and Aesthetics, prepared for the proposed pipeline (the related action as discussed in this assessment) for Northwest Pipeline LLC (Northwest) Section 7(c) application to the Federal Energy Regulatory Commission (FERC)
- Environmental assessment prepared by FERC for the proposed pipeline
10.4 Affected Environment

This section describes the affected environment for visual resources for the project site. The project site and most areas within the viewshed determination lie in the Columbia River valley, including rural areas on both sides of the Columbia River. This floodplain is the defining feature of the affected viewshed and affords wide views of the river and surrounding hillsides because of its relatively flat topography and limited landform interruptions. The width of the floodplain varies based on the proximity of hillsides east and west of the river. At the project site, the floodplain extends approximately 2.5 miles perpendicular to the river.

With the exception of Drays Mound directly east of the project site between the BNSF railway and I-5 (approximate elevation 265 feet), the elevation of the floodplain generally ranges from approximately 5 to 30 feet in the study area. The hillsides east and west of the floodplain rise steeply and are generally heavily forested and in a natural or semi/natural condition. The native vegetation of the floodplain is a complex landscape composed of riparian and lowland deciduous and conifer forests but, in many areas, depending on the level of existing development, the vegetation has been highly modified. The built environment and existing vegetation across the relatively flat floodplain block most views of the project site. The viewshed is also influenced by the floodplain and topography associated with the Kalama River (approximately 1,500 feet south of the project site) extending east of the Columbia River.

The urban areas nearest the project site are Kalama, Washington, and Prescott, Oregon. As shown in Figure 10-1, the project site is not visible from most of Kalama due to intervening topography and vegetation. Downtown Kalama is located approximately 2.5 miles south of the project site. The City of Prescott, Oregon, which consists of a small cluster of residential land uses along the Columbia River, lies west of the project site on the opposite shore of the river. Residences along the Columbia River in Prescott have views of the project site.

I-5 is the nearest major land transportation corridor. I-5 is part of the Washington State Department of Transportation Lewis and Clark Trail Scenic Byway. This scenic byway extends 572 miles between Clarkston on the Idaho border and Cape Disappointment on the Pacific Coast. Overall, the byway passes through a variety of terrains and visual landscapes, including transitions between urban and rural areas.

There are a number of residential areas located within unincorporated Cowlitz County that may have views of the project site. They are generally located at least 1 mile east of the project site on the hills and bluffs above the floodplains.

There are numerous recreational opportunities and sites within the viewshed area. The most notable for the purposes of this assessment include the Kress Lake property and Prescott Beach Park. The Kress Lake property is located approximately 0.5 mile east of the project site and is a popular fishing location with a small boat launch and hiking trail. This property is owned and managed by the Washington Department of Fish and Wildlife (WDFW). Prescott Beach Park is located on the west shore of the Columbia River, approximately 0.5 mile northwest of project site.

Both the Columbia River and the Kalama River are prominent recreational resources and support boating, fishing, and other forms of water recreation.
10.4.1 Viewer Groups and Associated Key Viewpoints for Proposed Project

As discussed above, digital mapping software (Google Earth, Google Maps, Map Quest, Bing Maps, etc.) and aerial and site photographs were used to identify built environments, public amenities, travel routes, urban areas, residential areas, and existing vegetation. This information, in combination with the viewed determination, was used to select six key viewpoints from which views of the project site could be affected. Viewpoints are described individually below and are grouped by view type (i.e., Urban/Industrial Views, Rural/Residential Views, and Natural Views). The following sections describe the viewer sensitivity and associated key viewpoints.

10.4.1.1 Urban/Industrial Views

The typical viewers in this area are assumed to be industrial workers and commuters traveling on Kalama River Road, North Hendrickson Drive or Tradewinds Road. Visual sensitivity within the industrial use area along the Columbia River is expected to be low because of the existing industrial character. Existing industrial facilities appear large in scale and define the visual character of the area. Major visual lines are defined by large-scale, man-made buildings and structures, and thus are straight vertical, horizontal, and diagonal lines. The colors of the existing structures and surfaces vary but are primarily white, grey and other light colors. Artificial lighting is common throughout the industrial area along the Columbia River and along I-5.

Viewers also include travelers along I-5. Movement resulting from vehicular traffic, personnel, and industrial emissions (i.e., water vapor plumes) is a common feature of views of the area. Although most facilities lack extensive windows or other highly reflective surfaces, glare from light-colored building surfaces can be common in bright sunlight conditions. The concentration of similar facilities and land uses can make potential changes in nighttime lighting difficult to discern within this industrial context. Additional viewpoints are available throughout the Urban/Industrial area but visual character would be comparable to the representative viewpoints discussed below and viewers would have similar visual sensitivities.

The following is a summary of the key urban/industrial viewpoints.

Key Urban/Industrial Viewpoints

**Viewpoint 1** – North Hendrickson Drive (1,700 feet south of the nearest project limit line): This viewpoint represents views of the project site from nearby industrial areas. This view is from the edge of the Kalama River Bridge slightly above the elevation of the project site. The view is dominated by the numerous large-scale industrial facilities associated with the existing Steelscape manufacturing facility. North Hendrickson Drive runs nearly perpendicular the project site, illustrating some of the most direct views to the site (see Figure 10-3). Viewer sensitivity at this viewpoint is low.

**Viewpoint 2** – Southbound I-5 (4,650 feet north of the nearest project limit line): Both north and southbound travelers on I-5 have views of the project site; however the most direct views are from southbound I-5 north of the site. Figure 10-4 shows a view of the project site from I-5. Most views of the site are blocked for northbound I-5 travelers by existing vegetation, particularly during summer months when existing deciduous trees are leafed out. Views are also limited by the Kalama River Road interchange (Exit 32) ramps and bridge. Drays Mound blocks views for both northbound and southbound travelers from the east. Although I-5 is a scenic byway, these viewers tend to be focused on driving and have transitory views of short duration. Therefore, travelers have a low sensitivity to change.
Figure 10-4

Existing Conditions Photograph - Viewpoint 2

Approximate Project Site location

Viewpoint 2 - I-5
10.4.1.2 Rural/Residential Views

The typical Rural/Residential viewer is a resident on the hillside to the east of the project site in low-density unincorporated Cowlitz County or the northern portion of Kalama. Viewpoints 3 and 4, discussed below, provide representative views for rural/residential viewers in these areas. There are also residential viewers west of the river in Prescott, Oregon. Their views would be similar to those described in viewpoint 6 below.

The visual character of Rural/Residential views consists of natural and man-made features and patterns. The more intensely developed large-scale industrial facilities, high voltage electrical transmission lines, electrical substations, and plumes of industrial emissions are less prominent in these views and may not be clearly visible. From these views, industrial emission plumes and artificial lighting in the industrial area along the Columbia River may be visible, but the concentration of emissions and light sources at similar facilities and land uses in this industrial area reduces the visual distinction of any single site or facility.

Public and semi-public locations within the hillside residential area, such as the Mount Pleasant Cemetery, were evaluated for affected views of the proposed project site. All direct views of the site were blocked by large-scale physiography and/or existing vegetation. Therefore, these areas were not included in the evaluations.

The following is a summary of the key Rural/Residential viewpoints.

Key Rural/Residential Viewpoints

Viewpoint 3 – West Kingsbury Road (3,900 feet northeast of the nearest project limit line): This viewpoint represents views of the project site from the rural residential areas in unincorporated Cowlitz County. The general character of the area is large residential lots on forested hillsides located northeast of the project site. Many residences have cleared trees and vegetation to open views of the Columbia River and surrounding areas which may include views of the project site. The viewshed determination shows that only the westernmost residential lots have the views of the project site (see Figure 10-1). Due to prolonged and frequent views from rural/residential locations, the overall viewer sensitivity to changes in aesthetic resources from this Rural/Residential viewpoint is assumed to be high. However, there are a low number of viewers from this area, and their views include existing industrial development, such as the Steelscape facility adjacent to the project site.

The West Kingsbury Road viewpoint illustrates the aesthetic and visual resource conditions a typical residential viewer would experience (see Figure 10-5). There may be additional views from public locations in the hills east of the project site, such as public roadways. These viewers would experience similar aesthetic conditions but views would be less frequent and of shorter duration; thus, viewer sensitivity would be lower.
Figure 10-5. Viewpoint 3 – West Kingsbury Road
**Viewpoint 4** – North 5th Street (12,100 feet southeast of the nearest project limit line): Although access constraints to private residential lots within the City of Kalama prohibit the evaluation of most of this viewing area, viewpoint photos were available from an undeveloped lot on North Fifth Street (see Figure 10-6). These areas are generally characterized by contiguous neighborhoods on winding hillside streets and offer sweeping views of the Columbia River, its floodplain, and the surrounding hillsides. Existing vegetation and large-scale topographic features block most views to the north from residential neighborhoods, but some views may include the project site and industrial areas associated with the Port of Kalama. Urban areas in Longview and Kelso, including commercial and industrial areas and artificial lighting, may also be seen in the background of these views.

Residential viewers tend to have high sensitivity to potential changes. However, views from this residential area in Kalama are more than 2 miles from the project site. As a result, it is difficult to discern individual facilities within the context of the larger industrial area along the waterfront. Nighttime views would include commercial and industrial lighting of Kalama and the Port of Kalama; however, no single facility or light source dominates existing views. The overall viewer sensitivity to change in aesthetic and visual resources from this viewpoint is assumed to be moderate.

**10.4.1.3 Natural Views**

The typical viewers in natural areas are assumed to be recreationalists using public parks, natural areas, or the Columbia River and/or Kalama River. Prescott Beach and Trojan Park offer public beach and water access, hiking, biking, fishing, swimming, picnicking, sunbathing, and other passive recreation opportunities. Recreational opportunities also include Kress Lake to the east of the project site, which offers fishing, boating and hiking. The visual character of natural areas is formed by distinctive and memorable natural features (landforms, rock, outcrops, etc.) and patterns (vegetation and open space) with few man-made features. The visual texture consists of rough natural surfaces and colors, including browns, yellows, and greens, and smooth surfaces of river or lake water.

The Columbia River offers a variety of on-water recreational opportunities such as wind/kite surfing, boating, fishing, and other forms of water recreation. Views for a typical recreationalist are assumed to be infrequent and of short to moderate duration; however, viewer sensitivity tends to be high due to the public nature and interest in natural areas and the inconsistent environment of natural and industrial lands.

In addition to its use by recreationalists, the Columbia River is also navigable by commercial boat operators. Viewers from commercial boats are expected to have a low sensitivity to change in aesthetics because of the infrequent and transitory nature of their views, making it unlikely that they would focus on the project site.

The proposed project would improve the roadway used to access the informal recreation area located to the north of the project site and would provide a new parking area. The project site is visible in views to the south from this recreation area and appears mainly as a barren dredge material disposal site Viewers currently access the recreational area through an industrial setting, passing by the existing Steelscape facility, Air Liquide facility, and the Port of Kalama wastewater treatment plant. Thus, viewer sensitivity is expected to be low as it is not characterized by an expectation of natural scenic settings. There are also a low number of viewers from this location.
Figure 10-6

Viewpoint 4 - North 5th Street

Approximate Project Site location
The following is a summary of the key natural viewpoints.

**Key Natural Viewpoints**

**Viewpoint 5 – Kress Lake** (2,700 feet east of the nearest project limit line): The project site lies east of I-5 and Drays Mound and large tracts of natural vegetation; therefore, it is not anticipated that recreational users would have direct views of the project site except during times when the vegetation is dormant (see **Figure 10-7**). Some screened views of the northern portions of the project site may be possible during winter months when vegetation is dormant; however, it is anticipated that the majority of recreational users access Kress Lake in summer months when vegetation blocks most views. Furthermore, Kress Lake is a day-use only facility and therefore viewers are not sensitive to nighttime lighting conditions. This viewpoint has been included because views are possible in winter months and water vapor plumes from the project site may be visible, depending on atmospheric conditions. Recreational viewers from Kress Lake (e.g., anglers, hikers), are expected to have an overall low viewer sensitivity to changes at the project site.

**Viewpoint 6 – Prescott Beach Park** (2,800 feet northwest of the nearest project limit line): Viewers from Prescott Beach Park, as well as on-water river recreationalists (e.g., anglers, cruisers, wind/kite surfers) view the site from public locations and may have expectations of naturalistic settings. Visual elements down-river of the project site are compatible with viewer expectations and are characterized by natural riparian vegetation and shorelines along the east bank of the Columbia River, including Cottonwood Island. On the other hand, visual elements upstream from Prescott Beach Park are characterized by existing Port of Kalama industrial uses and facilities (see **Figure 10-8**). Viewers are expected to have a moderate sensitivity to visual changes to the existing site.

Nighttime light along the Columbia River mainly originates from industrial facilities and is reflected in water surfaces. Prescott Beach Park is a day-use only facility (open from an hour before sunrise to an hour after sunset) and most on-water recreationalists view the project site during daylight hours. Therefore, viewers at this viewpoint have low sensitivity to light and glare.

As noted above, this viewpoint also represents potential views from residential uses within Prescott, Oregon.
### 10.4.2 Viewpoint Summary

Table 10-1 summarizes the potential viewer sensitivity levels and existing visual quality of each viewpoint as it relates to the proposed project.

**Table 10-1. Proposed Project - Viewpoints, Potential Viewer Sensitivity, and Existing Visual Quality**

<table>
<thead>
<tr>
<th>Viewpoint</th>
<th>View</th>
<th>Distance from Viewpoint to Project Site</th>
<th>Potential Viewer Sensitivity</th>
<th>Viewer Description</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Looking north on North Hendrickson Drive</td>
<td>±1,700 feet</td>
<td>Low</td>
<td>Assumed to be industrial workers and commuters travelling on North Hendrickson Drive and other local roads west of I-5. Viewers experience frequent views of the project site from nearby industrial areas.</td>
<td>Urban/Industrial</td>
</tr>
<tr>
<td>2</td>
<td>Looking south along I-5</td>
<td>±4,650 feet</td>
<td>Low</td>
<td>Assumed to be travelers on I-5. Viewers would experience short duration views of the project site and frequency may range from infrequent to daily for commuters.</td>
<td>Urban/Industrial</td>
</tr>
<tr>
<td>3</td>
<td>Looking southwest from West Kingsbury Road</td>
<td>±3,900 feet</td>
<td>High</td>
<td>Assumed to be residents looking southwest toward the project site from hillsides in unincorporated Cowlitz County. Views may be frequent and of long duration.</td>
<td>Rural/Residential</td>
</tr>
<tr>
<td>4</td>
<td>Looking north from North 5th Street</td>
<td>±12,100 feet</td>
<td>Moderate</td>
<td>Assumed to be residents looking north toward the project site from hillsides in Kalama or unincorporated Cowlitz County. Views may be frequent and of long duration.</td>
<td>Rural/Residential</td>
</tr>
<tr>
<td>5</td>
<td>Looking west from Kress Lake</td>
<td>±2,700 feet</td>
<td>Low</td>
<td>Assumed to be recreational viewers looking west toward the site. Views of the project site are primarily obstructed by Drays Mound and existing vegetation. Day-use only facility.</td>
<td>Natural</td>
</tr>
<tr>
<td>6</td>
<td>Looking southeast from Prescott Beach Park</td>
<td>±2,800 feet</td>
<td>Moderate</td>
<td>Assumed to be public beach and/or on-water recreationalists looking southeast toward the site. Viewers would likely experience infrequent views of the project area of short duration but may be highly aware of change. Day-use only facility.</td>
<td>Natural</td>
</tr>
</tbody>
</table>

### 10.4.3 Related Actions

#### 10.4.3.1 Kalama Lateral Project

The proposed pipeline alignment would pass through areas that are primarily privately owned forest and undeveloped lands. There are three residences within 250 feet of the proposed pipeline route. The proposed route does not cross designated scenic areas.

#### 10.4.3.2 Electrical Service

The new electrical service transmission lines would cross I-5 to connect with an existing transmission line corridor on the east side of the highway. The proposed substation improvements would occur within the existing footprint of the substation.
10.5 Environmental Impacts

10.5.1 Proposed Project Alternative

As discussed in Chapter 2, Proposed Project and Alternatives, the proposed project would redevelop the project site with a methanol manufacturing facility that would include processing facilities, storage facilities, loading facilities, and a new marine terminal in the Columbia River. Exterior building materials in the proposed project would include concrete, steel, and wood.

The size, layout, and appearance of the proposed project would vary depending on the alternative selected from among the Technology Alternatives and Marine Terminal Alternatives. However, these differences would be minor in the context of the larger viewshed and would not affect the overall perception of the proposed project for a viewer. The visual simulations in this assessment are of the ULE Alternative and Marine Terminal Alternative 1, but these views are representative of the potential visual impacts of the proposed project with either Technology Alternative and either Marine Terminal Alternative. Therefore, this assessment does not differentiate between the various alternatives.

The new facilities would result in new sources of light and glare. However, these changes would be consistent with the existing industrial aesthetics of the project site and the Port of Kalama industrial area.

Water vapor exhaust plumes from cooling towers has the potential to result in visual and aesthetic impacts to viewers within the study area. Plume size and height would vary depending on atmospheric conditions such as temperature, humidity, and wind speed and direction; however, the Seasonal Annual Cooling Tower Impact (SACTI) modeling analysis described in Chapter 4, Air Quality and Greenhouse Gas Emissions, indicates that most plumes would be less than 1,000 meters high and less than 60 meters in radius. The largest plumes occurring during conditions of high relative humidity, cooler air temperatures, and stable atmospheric conditions may have a radius of less than 500 meters and extend out to the north and south to a distance of 7 kilometers.

Water vapor exhaust plumes, while not considered pollution, introduce white emission plumes that are not consistent with the natural character of the viewshed. Visual impacts also include vertical and horizontal movement which tend to distract viewers. Depending on atmospheric conditions water vapor plumes can also cause shadows or ground level fog in surrounding areas. Additionally, the water vapor plume may reflect light during nighttime conditions.

Plumes are expected to be visible to most viewers; however, viewers would see this project within the visual context of the Kalama and Longview industrial areas, which include numerous emission plumes. Additionally, conditions conducive to larger emission plumes also coincide with atmospheric cloud cover, precipitation and fog which would reduce the visual and aesthetic impact of water vapor emissions from cooling towers. Water vapor emission plume details are provided in Chapter 4 and Appendix D.

A flare system would be used for safe disposal of combustible gases during process upset or an emergency shutdown situation, and during the normal start-up and shutdown of the production process with either of the Technology Alternatives. The flare is anticipated to be in use for approximately 14 hours per start-up event, 1.4 hours per shutdown event, 4 hours during a plant upset event, and 2 hours per emergency shutdown. The flare would be approximately 245 feet in height and would be the tallest structure in the proposed project. The project assumes the worst case scenario of six startups, four shutdowns, four upsets, and two emergency shutdowns.
per year. The flare would be enclosed and flames would only be visible during events described above. Flare usage events would be clearly visible to viewers. However, these events would be irregular, infrequent, and not part of the regular operation of the proposed project. Therefore, flare usage events were not modeled in the analysis below. The approximately 245-foot-tall flare structure is shown in the photo simulations for the proposed project.

As noted in Chapter 2, Proposed Project and Alternatives, the project site would be graded to an elevation of approximately 23 feet Columbia River Datum (CRD), but the northwest portion of the project site may be up to 10 feet higher. This area would include the infiltration pond, flare, first flush pond, fire suppression and water storage, cooling towers, chemical storage and waste water treatment facilities. The visual simulations presented in this assessment were prepared with the entire project site at approximately 23 feet CRD. Raising the northwest portion of the project site up to 10 feet higher than the rest of the site would be barely perceptible from viewpoints north, south, and east of the project site (i.e., viewpoints 1 through 5) because of existing obstructions, natural topography and the location of viewpoints at generally higher elevations than the project site. The change in elevation on the northwest portion of the project site may be visible from viewpoint 6; these potential impacts are discussed below.

Nighttime Lighting with the Proposed Project

Upon buildout, some outdoor areas of the facility would be illuminated at night as required by Occupational Safety and Health Administration (OSHA) regulations. Artificial light is common throughout the Kalama area along the Columbia River. It clearly defines the extent of the industrial operations but the concentration of similar facilities and land uses would make changes in nighttime lighting with the proposed project less discernible (see Figure 10-9b and Figure 10-14b). This lighting would include general ambient lighting for roadways (0.5 foot-candle minimum) and building exteriors (1 foot-candle minimum). This lighting would be placed above doorways, walkways, and stairs around the exteriors of buildings and ancillary equipment for operator access and safety under regular operating conditions.

Spot lighting would be provided for illumination-level enhancement where needed in the methanol manufacturing area (5 foot-candle minimum) and the pump area and cooling towers (5 foot-candle minimum). This lighting would be higher in intensity than general outside lighting, but would be limited to specific areas.

Exterior lighting fixtures are proposed to be energy efficient light emitting diode (LED) fixtures and are intended to create less visual impact than traditional lighting fixtures and layouts. LED lights placed on poles and mounted to the exterior of some of the buildings are flexible and have adjustable mounting heads designed to illuminate very specific areas while minimizing light pollution. The lighting system layout has been designed so that no direct light would leave the grounds of the methanol manufacturing facility. The lighting would be designed to be very focused and allow precise control of where the fixture emits light, and more importantly, where it does not emit light. Overall, the proposed project lighting would be designed to minimize potential light pollution.

Night sky viewing opportunities in the study are limited. Ideal conditions for night sky viewing call for high elevations (i.e., in areas with less atmosphere) away from light pollution. The proposed project lies at less than 30 feet elevation and existing industrial, roadways and

1 A foot-candle is a unit of illuminance or illumination, equivalent to the illumination produced by a source of one candle at a distance of 1 foot.
residential/commercial areas in Kalama and Longview make night sky viewing unsatisfactory. Additional light from the proposed project would have little effect on night sky viewing conditions in the context of existing lighting along the Columbia River and in the cities of Kalama and Longview.

10.5.1.1 Construction Impacts

During construction, activity within the project site would increase. As construction proceeds, construction equipment such as cranes, methanol production line modules, wheel loaders, dozers, dump trucks, excavators, graders, rollers, compactors, drill rigs, pile driving equipment, portable ready-mix batch plant, ready-mix trucks, concrete pumps, elevated work platforms, forklifts, natural gas pipe laying equipment, welders, water pumps, river dredging barges, and related equipment would be utilized and visible to viewers. Construction activities on the project site would be visible to residents, workers, commuters, recreationalists, and boat operators, but these activities would be temporary and consistent with the general industrial context of the adjacent area. These activities would alter the context of some views by changing the use of an existing cleared site. However, construction of the proposed project would be temporary and would not alter the overall visual character or aesthetic quality of surrounding views. Viewers with moderate or high sensitivity to change (i.e., those at viewpoints 3, 4, and 6) would continue to have views of the Columbia River and surrounding floodplain, the defining feature of the surrounding visual character. Furthermore, within the project site’s industrial context, it is expected that it would be difficult for more distant viewers, such as those at viewpoints 2 and 4 (see Figure 10-4 and Figure 10-6), to perceive noticeable changes during construction activities.

Overall, construction of the proposed project would result in a low level of temporary adverse effect to aesthetics and visual quality. Therefore, construction activities would not result in significant adverse impacts to aesthetics and visual resources.

10.5.1.2 Operational Impacts

The operation of the proposed project would introduce new visual features to the project site and accompanying new sources of light and glare. The new visual features would include new structures and equipment on the project site, additional workers, and increased vehicle and ship movements on and adjacent to the site. These features would alter the aesthetics of the project site. The potential for these changes to affect the various viewpoints is discussed below.

Urban/Industrial Views (Viewpoints 1 and 2)

Viewpoints from Urban/Industrial areas are generally within the immediate vicinity of the project site or from major transportation corridors. Figure 10-9a presents the photo simulations for viewpoint 1. As discussed above, views from this viewpoint are dominated by existing industrial facilities, operations, and activities. Large-scale buildings, heavy utility transmission lines, industrial plumes, and ancillary facilities and equipment define the existing visual character of this view. The proposed project’s facilities and water vapor plumes would be a new element in these views but would be consistent with the overall visual character of the industrial area. Furthermore, the visual perception of viewers at this viewpoint is limited because their attention is focused on work, construction, or commuting activities.

The proposed project would also alter views for travelers on southbound I-5 by introducing new industrial features and water vapor plumes. Figure 10-10a presents the photo simulations for viewpoint 2. However, these viewers have low sensitivity to aesthetic and visual resources
because they tend to be focused on driving and have transitory views of short duration, and many views from I-5 are partially obstructed by existing vegetation.

With respect to the designation of I-5 as part of the Lewis and Clark Trail Scenic Byway, the proposed project would not affect substantial natural areas and would develop contiguous to existing industrial areas and facilities. The proposed project would be consistent with the overall character of the byway, which passes through a variety of terrains and landscapes and transitions between urban and rural areas.
Figure 10-9a

Viewpoint 1 - North Hendrickson Drive
Viewpoint 1 - North Hendrickson Drive

Figure 10-9b
Figure 10-10a

Visual Simulation - Viewpoint 2

Notes:
1. The True View Distance is the reading distance for the photograph. The true view distance is the normal viewing scale for the photograph.
2. Blurring Conditions: Photograph taken with Nikon D-70 (Censor level) and panoramic photograph overlaid with Photoshop CS5.
3. Visual Simulation is based on 2D model and AutoCAD. Created using KENZ CO.
4. Visual Simulation created with AutoCAD, Render Pro, ConceptDraw and Photoshop CS5.
5. Project site boundaries are not translated to indicate proposed facility location.
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Figure 10-10b. Viewpoint 2

Notes:
1. Existing Conditions photograph taken with Nikon D700 (Tenax lens) 11mm fisheye (protection cover, black)
2. Photograph taken from airplane in early morning.
4. Project Site boundaries shown are not intended to indicate proposed facility height.

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Artificial light is common throughout the Port of Kalama industrial area and along the Columbia River. In nighttime views, the presence of artificial lighting clearly defines the extent of the industrial operations along the Columbia River. Site operational activities would occur 24 hours per day, which at times would be similar to those of adjacent industrial areas. The proposed project would result in new nighttime lighting and would expand the extent of artificially lit industrial activities along the river. However, the concentration of similar facilities and land uses would make changes in nighttime lighting on the project site difficult for viewers to discern. From viewpoint 1, the proposed project’s lighting would likely be visible behind existing lighting at the Steelscape facility. From viewpoint 2, the proposed project would add new sources of nighttime lighting to a view that currently has little artificial light, and this lighting may result in new reflections in the Columbia River. However, as discussed above, viewers from viewpoint 2 on I-5 would have low sensitivity to changes in light and glare, and new lighting in industrial views, such as those from viewpoint 1, would be consistent with the overall visual character.

Overall, the proposed project would not affect the visual character and aesthetic quality of Urban/Industrial views adversely. The proposed project would have a low level of effect on viewers at Urban/Industrial viewpoints and would not result in significant adverse impacts to the aesthetics and visual resources of these views.

Additional impacts associated with raising the infiltration pond would largely be blocked by existing and proposed facilities for industrial viewers, and existing natural vegetation would block most impacts for viewers traveling along I-5 (see Figure 10-9a and Figure 10-10a). With the low sensitivity of these viewers and the minimal additional impacts associated with the raised facilities, there would be little or no additional impacts. Table 10-2 is a summary of visual and light/glare effects from viewpoints 1 and 2.

### Table 10-2. Proposed Project - Visual and Light/Glare Effects from Viewpoints 1 and 2

<table>
<thead>
<tr>
<th>Viewpoint</th>
<th>View</th>
<th>Distance (feet)*</th>
<th>Visual Effects</th>
<th>Light/Glare Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Looking north on North Hendrickson Drive. Primary view would be of Steelscape buildings with some views of proposed project facilities above. Emission plumes are expected to be visible in most atmospheric conditions and may cause shadows or ground level fog.</td>
<td>+1,700</td>
<td>L</td>
<td>L</td>
</tr>
<tr>
<td>2</td>
<td>Looking south along I-5. Views of proposed project would be partially obstructed by existing vegetation. Water vapor plumes, the taller facilities, and both indirect and ambient lighting may be visible. Individual facilities and light sources can be discerned but no single facility expected to dominate views. Some lighting may be reflected in water of Columbia River. Emission plumes are expected to be visible in most atmospheric conditions and may cause shadows.</td>
<td>+4,650</td>
<td>L</td>
<td>L</td>
</tr>
</tbody>
</table>

Notes:
- L = low level of effect.
- * Distance measured from viewpoint to nearest project limit line.

### Rural/Residential Views (Viewpoints 3 and 4)

As discussed above, prominent features of the views from the Rural/Residential viewpoints include the existing industrial area along the Columbia River as well as a broader context that includes the Columbia River, surrounding hillsides, rural farmland, and fairly continuous stands of native vegetation and other features that bring natural characteristics into the visual
character. The existing dominant character seen by rural/residential viewers is the Columbia River and floodplain, rural forested hillsides, and open space as well as intermittent views of industrial development along the Columbia River.

Views from the rural/residential viewpoints would change as the relatively empty and flat project site is developed with the proposed project. For many viewers at Rural/Residential viewpoints, existing landforms and vegetation would partially obstruct views of the project site.

**Figure 10-11a and Figure 10-12a** present the photo simulations for viewpoints 3 and 4. At views where the proposed project facilities, including the bulk product storage tanks and methanol production lines, would be visible, they would appear in a larger context of the industrial facilities along the Columbia River. The proposed project would alter views of the Columbia River by changing the appearance of the project site, but it would not obstruct views of the Columbia River from Rural/Residential viewpoints.

New artificial lighting with the proposed project would be discernible for rural/residential viewers. In addition, glare may be introduced with light colored or reflective man-made surfaces, or from the lighting reflected in the Columbia River. However, the existing concentration of similar facilities and land uses along the waterfront and the distance to some viewpoints would make changes in nighttime lighting less perceptible.

Potential viewers at the Rural/Residential viewpoints are presumed to be residents within neighborhoods located in low-density residential areas in unincorporated Cowlitz County or residences in the City of Kalama. Visual sensitivity for such viewers would be high because views are often frequent and/or prolonged. However, most residents would not have direct views of the site and the proposed project would be in keeping with the industrial character of the area, and some residential areas, such as those at viewpoint 4, are located more than 2 miles away from the project site. Depending on atmospheric conditions, water vapor emission plumes may be visible to residential viewers but would be viewed with the context and uses of the Kalama and Longview industrial areas, which include similar emission sources.

Overall, although the proposed project would not obstruct views of the Columbia River, a prominent feature in Rural/Residential viewpoints, it would result in low to moderate adverse effects to these views. From viewpoint 3, the proposed project would introduce visible changes to views and new sources of light and glare in relatively close proximity to residences. From viewpoint 4, the proposed project would alter distant views and changes would be more difficult to discern. Therefore, the proposed project would result in a moderate level of effect on views from viewpoint 3 and a low level of effect on views from viewpoint 4. However, given that many viewers in Rural/Residential areas would not have direct views of the project site, it is expected that the proposed project would affect only a small number of viewers at each viewpoint. Therefore, the proposed project would not result in significant adverse impacts to the aesthetics and visual resources of these views.

If the northwest portion of the project site is elevated 10 feet higher than the remainder of the project site, views of this change would largely be blocked by existing natural vegetation for rural/residential viewers. These viewers would view the proposed project from at least 3,900 feet away and most rural/residential viewers would also be viewing from a higher elevation making the additional 10 feet in elevation on the project site more difficult to discern (see **Figure 10-11a and Figure 10-12a**). Artificial lighting impacts may be slightly more visible; however, the context of the existing and proposed industrial facilities would make these additional artificial lighting impacts minimal.
Figure 10-11a  
Viewpoint 3 - West Kingsbury Road
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Figure 10-11b. Viewpoint 3 - West Kingsbury Road

Notes:
1. Existing Conditions photograph taken with Nikon D7100 Digital single and processed using Photoshop CS6.
2. Visual simulation is based on night time simulation provided by Creative Lighting Collections and MD Post.
4. Project Site land use shown does not include proposed facility footprint.
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Figure 10-12a

Viewpoint 4 - North 5th Street

Visual Simulation - Viewpoint 4

Project Site

Kalama Manufacturing and Marine Export Facility
SEPA Final Environmental Impact Statement
Kalama, Washington
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Figure 10-12b. Viewpoint 4 - North 5th Street

Notes:
1. Existing Conditions photographs taken with Nikon D-35 (camera lens) and post processed using Photoshop CS5.
2. Viewshed analysis is based on night time simulation provided by Creative Lighting Solutions and 3DPSI.
4. Project shadows shown are not intended to indicate proposed facility height.
Table 10-3 is a summary of visual and light/glare impacts from viewpoints 3 and 4.

<table>
<thead>
<tr>
<th>Viewpoint</th>
<th>View</th>
<th>Distance (feet)*</th>
<th>Visual Effects</th>
<th>Light/ Glare Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Looking southwest from West Kingsbury Road. Views are</td>
<td>+3,900</td>
<td>M</td>
<td>M</td>
</tr>
<tr>
<td></td>
<td>elevated above proposed project. Areas are characterized by</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>low density residential neighborhoods on winding hillsides. General</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>visual character is Columbia River and floodplain with large tracts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>of vegetation. Project site would be in middle ground of</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>residential areas in this location. Indirect sources and ambient</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>light would be clearly visible. Light sources may be discerned but</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>no single facility expected to dominate views. Emission plumes are</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>expected to be visible in most atmospheric conditions. Views would</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>potentially be experienced by a low number of highly sensitive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>viewers.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Looking north from hillside residential areas (from North 5th</td>
<td>+12,100</td>
<td>L</td>
<td>L</td>
</tr>
<tr>
<td></td>
<td>Street). Areas are characterized by contiguous residential</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>neighborhoods on winding hillsides. Views are elevated above</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>proposed project and would be visible for some residential areas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>in the City of Kalama; however, most views would be partially/</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>completely blocked by landform and existing vegetation. Light</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>sources may be discerned but no single facility expected to</td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>dominate views. Emission plumes are expected to be visible in</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>most atmospheric conditions.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:
M= moderate level of effect; L = low level of effect.
* Distance measured from viewpoint to nearest project limit line

**Natural Views (Viewpoints 5 and 6)**
The project site lies directly east of Drays Mound, which partially blocks views of the project site from Kress Lake (viewpoint 5). Therefore, recreational users at Kress Lake (viewpoint 5) would not have direct views of the project site except during the winter months when the surrounding vegetation is dormant (see Figure 10-13a). Depending on atmospheric conditions, water vapor plumes may be visible at any time of year. Recreational viewers from Kress Lake (e.g., anglers, hikers) are expected to have low viewer sensitivity to changes in the existing site. No direct lighting sources associated with the project are anticipated to be seen by recreational users at Kress Lake because it is a day-use only facility. Given that only water vapor plumes from the proposed project may be visible, the proposed project would result in a low level of effect on visual character and aesthetic quality at viewpoint 5, and no effect due to light and glare.

The proposed project would introduce additional large-scale industrial uses along the Columbia River and would introduce straight lines, geometric forms, hard visual textures, and manmade materials to the site. These changes would be visible to on-water recreational users and viewers from Prescott Beach Park on the west shore of the river (viewpoint 6) and would affect these views adversely by replacing a cleared site with a new industrial use. Figure 10-14a presents the photo simulation for viewpoint 6. However, the proposed project would be contiguous and visually consistent with existing industrial facilities along the Columbia River upriver of the project site. Emission plumes are expected to be visible in most atmospheric conditions. As noted above, viewer sensitivity at this viewpoint would be high because of viewers’ expectation of natural views, the public nature of and interest in some natural areas, and the inconsistent environment of natural and industrial lands. However, it is expected that the proposed project would affect a low number of viewers at this viewpoint.
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Figure 10-13a

Viewpoint 5 - Kress Lake Park
Figure 10-13b. Viewpoint 5 - Kress Lake Park

Viewpoint Location Map

Existing Conditions Site Photograph - Viewpoint 5

Visual Simulation - Viewpoint 5

Notes:
1. Existing Conditions photographs taken with Micro-DA70 Harris 1.1MP and processed using Photoshop CS2.
2. Visual Simulation based on sight line simulation provided by Creative Lighting Solutions and DNV.
4. Project Site boundaries shown are not intended to indicate proposed facility height.

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Figure 10-14a

Viewpoint 6 - Prescott Beach Park
Figure 10-14b. Viewpoint 6 - Prescott Beach Park

Notes:
1. Existing Conditions photograph taken with Nikon D-80 (100 ISO) at 1/200 second at f/8.5.
2. Visual Simulation created with Photoscape software.
4. Project Scenario shown or not yielded the night proposed facility height.
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The proposed dock facilities would require moderate to high levels of light for operation at night while vessels are arriving, departing, or being loaded. Lighting associated with the proposed project would be reflected in the waters of the Columbia River and may be visible from Prescott Beach Park. However, artificial lighting is common along the Columbia River in the study area and Prescott Beach Park is designated as a day-use only facility. Furthermore, most on-water recreational viewers access the river during daylight hours and would not experience increased light and glare impacts. Therefore, viewers at this viewpoint would experience a low level of effect due to proposed project-generated light and glare.

Overall, the proposed project would result in a moderate level of effect to viewpoint 6, and a low level of effect due to light and glare.

The Columbia River is also navigated by commercial boat operators. Viewers from commercial boats are expected to have a low sensitivity to changes in aesthetics. Because of low sensitivity, infrequent views, and the transitory nature of boat operator views, it is unlikely that viewers would experience adverse visual effects based on changes to the project site.

As noted above, the proposed project would improve the roadway used to access the informal recreation area located to the north of the project site and would provide a new parking area. No photo simulations of this view were produced but the following section describes the predicted changes to views from the recreational area with the proposed project.

The project site is visible in views to the south from this recreation area. Views north, west, and east from this recreation area would not be affected by the proposed project. The proposed project would, however, result in a substantial change in the character of views to the south from the recreation area. As noted above, existing views to the south are of a dredge material disposal site with weedy, low-growing vegetation. With the proposed project, facilities including the flare, stormwater infiltration pond, and water treatment facilities would be located in close proximity to this recreation area (e.g., approximately 100 feet from the recreation parking area to the edge of the infiltration pond and approximately 250 feet to the flare) and would be visible in views to the south. However, the project site is part of an existing industrial area and viewers would continue to access the recreational area through an industrial setting, much like they do currently. There would also be a low number of viewers from this area, and viewer sensitivity would be low as the area is not characterized by an expectation of natural scenic settings. Recreational users are not expected to utilize the area after sunset and therefore would not be affected by nighttime light and glare from the proposed project.

As noted above, viewpoint 5 would not have views of the northwest portion of the project site, and an additional 10 feet in elevation would not be visible. Views would be blocked by the proposed project itself and by existing natural vegetation. The greater elevation on the northwest portion of the project site would be most visible to viewers at viewpoint 6. However, changes in elevation would be viewed in the context of the surrounding proposed project and the existing industrial areas. The infiltration pond and first flush pond are at surface elevation and would have little or no visual impact. The fire suppression and water storage, cooling towers, chemical storage, and waste water treatment facilities would be at a higher elevation, but would be viewed in front of the larger and taller bulk product storage tanks. Artificial lighting would be slightly more visible; however, the context of the existing and proposed industrial facilities would make these additional artificial lighting impacts minimal. The additional height of the proposed flare tower would be visible but would not change its overall effect on visual resource.
Overall, the proposed project would not result in significant adverse impacts to the aesthetics and visual resources of natural views.

**Table 10-4** is a summary of visual and light/glare impacts from viewpoints 5 and 6.

<table>
<thead>
<tr>
<th>Viewpoint</th>
<th>View</th>
<th>Distance (feet)*</th>
<th>Visual Effects</th>
<th>Light/ Glare Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Looking west from Kress Lake. Direct views are blocked by Drays Mound and existing vegetation. Water vapor plumes may be seen depending on atmospheric conditions. Ambient light may be discerned; however, recreational viewers are generally not present at night.</td>
<td>+2,700</td>
<td>L</td>
<td>N</td>
</tr>
<tr>
<td>6**</td>
<td>Looking east from Prescott Beach Park. Views are of wide flat-water channel with Cottonwood Island to northeast. Heavy industrial uses and facilities characterize Columbia River upriver from project site. Lighting for dock facilities would be visible and reflected by Columbia River while vessels are arriving, departing, or being loaded. Upland light sources would be discerned and glare effects are increased by water; however, few recreational viewers should be present at night. Emission plumes are expected to be visible in most atmospheric conditions.</td>
<td>+2,800</td>
<td>M</td>
<td>L</td>
</tr>
</tbody>
</table>

Notes:
- L = low level of effect; M = moderate level of effect.
- * Distance measured from viewpoint to nearest project limit line
- ** This viewpoint also represents the potential impacts of the On-Site Alternative for on-water viewers. Views would be comparable from Prescott Beach Park and an on-water location.

**10.5.2 Related Actions**

**10.5.2.1 Kalama Lateral Project**

Construction of the proposed pipeline, particularly the removal of trees from the route, would result in temporary and permanent effects on visual resources. However, the existing topography would be contoured to as near pre-construction condition as practical and the disturbed soils would be revegetated soon after the completion of pipeline construction.

Visual impacts from the construction of aboveground facilities would be minimal. The new take-off and interconnection facility at the proposed tie-in location with Northwest Pipeline LLC’s (Northwest) existing mainline would be constructed within the already cleared portion of the existing right-of-way. The new meter station at the project site would be constructed in a cleared area already prepared for development.

The area most likely to experience visual impacts from the proposed pipeline is along the portion of the alignment between approximately MP 1.1 and 1.5. Five homes, Mount Pleasant Cemetery, and Hale Barber Road and Raven Ridge Road are located at varying distances from the pipeline centerline in this area. This area includes notable stands of evergreen trees and mixed forest that provide a sense of privacy and seclusion to nearby residents and visitors to the cemetery. Several landowners in this area expressed concern that land clearing and tree removal in this area would change its character and appearance. Northwest would install a combination of mid-sized shrubs and appropriate trees, selected in consultation with the landowners, to provide visual screening between homes, similar to preconstruction conditions. Northwest has committed to working with affected landowners to develop a revegetation plan.
for the temporary construction right-of-way and temporary extra workspace that would minimize visual impacts in this area. Therefore, construction of the proposed pipeline would result in a low level of effect on visual resources.

During operation of the proposed pipeline, the aboveground facilities would be located either on forested land or at the project site, among the other facilities associated with the proposed project. Because of the small footprint and low profile of these aboveground facilities, they would have a low level of effect on visual resources.

Overall, construction and operation of the proposed pipeline would not result significant adverse impacts to aesthetics and visual resources.

10.5.2.2 Electrical Service

The potential transmission line and substation improvement-related action would have a low level of effect on visual resources. The transmission line crossing over I-5 and the substation upgrades may be visible to motorists on I-5, but these viewers have low sensitivity to aesthetic and visual resources because they tend to be focused on driving and have transitory views of short duration. The transmission line crossing would appear in the context of many other existing power lines along I-5 and the substation improvements would be within the existing substation next to existing electrical equipment. Therefore, the potential transmission line and substation improvements would not result in significant adverse impacts to aesthetics and visual resources.

10.5.3 On-Site Alternative Impact Summary

As discussed above, the construction and operation of the proposed project would introduce new visual, aesthetic, and light and glare elements that would be visible from viewpoints within the study area. These elements would result in varying levels of effect to aesthetics and visual resources depending on the type of viewer, the amount of use of the view, and the context of the view.

Viewers from Urban/Industrial viewpoints would view the proposed project from within similar heavy industrial areas or from major travel corridors. The proposed project would be visually compatible with adjacent industrial uses and would affect a low number of sensitive viewers, and thus is anticipated to result in a low level of effect to viewpoints within Urban/Industrial areas.

At Rural/Residential viewpoints, the proposed project would appear in the context of the existing industrial areas as a relatively continuous visual resource. The proposed project would not obstruct views of the Columbia River, a prominent feature in many Rural/Residential views. The degree of effect on views would depend on the distance from the project site. In more distant views, such as those at viewpoint 4, it would be difficult to perceive specific changes and the proposed project would result in a low level of effect. In closer views, such as those at viewpoint 3, changes due to the proposed project would be easily perceived and could result in adverse effects on views. Therefore, the proposed project would result in a moderate level of effect on views from viewpoint 3 and a low level of effect on views from viewpoint 4.

For viewers at Natural viewpoints, the proposed project would introduce operations, buildings, and structures that would be visible to sensitive viewers from the Columbia River and Prescott Beach Park. The proposed project would also introduce artificial lighting for nighttime operations. However, viewers would experience a low level of effect due to this lighting
because there should be very few viewers at Natural viewpoints during the night. The proposed project is anticipated to result in a low level of effect to viewers from Kress Lake (viewpoint 5) and a moderate level of effect to viewers from Prescott Beach Park (viewpoint 6).

Overall, the proposed project, with either Technology Alternative and either Marine Terminal Alternative, would not result in significant adverse impacts to aesthetics or visual resources.

10.5.4 No-Action Alternative

Under the No-Action Alternative, the proposed project would not be constructed. It is expected that the Port of Kalama would pursue future industrial or marine terminal development of the site absent the proposed project.

10.5.4.1 Construction Impacts

As with the proposed project, construction activities under the No-Action Alternative would be visible to residents, workers, commuters, recreationalists, and boat operators, but these activities would be temporary and consistent with the general industrial context of the adjacent area. Like the proposed project, it would be difficult for more distant viewers (particularly Rural/Residential viewers at viewpoint 4) to perceive noticeable changes during construction under the No-Action Alternative, and viewers with moderate to high sensitivity to change (i.e., those at viewpoints 3, 4, and 6) would continue to have views of the Columbia River and surrounding floodplain, a defining feature of the surrounding visual character.

Overall, like the proposed project, construction of the No-Action Alternative would have a low level of temporary adverse effect on aesthetics and visual quality. Therefore, construction of the No-Action Alternative would not result in significant adverse impacts to aesthetics and visual resources.

10.5.4.2 Operational Impacts

The No-Action Alternative could result in new uses, buildings, and/or structures on the project site. Like the proposed project, the operation of the No-Action Alternative would introduce new visual features to the project site and accompanying new sources of light and glare. These features would alter the aesthetics of the project site. However, as discussed below, these changes would likely be consistent with the existing industrial aesthetics of the site and the Port and would therefore result in a low level of effect. Because there are no specific development plans with the No-Action Alternative, no photo simulations were produced.

New activities and structures under the No-Action Alternative would likely be visible to viewers at industrial viewpoints (viewpoint 1) but, as noted above, these viewers tend to have low sensitivity to changes in visual conditions. Furthermore, new industrial forms would be compatible with the existing visual character of the adjacent industrial area. Therefore, the No-Action Alternative would result in a low level of effect on industrial viewpoints.

From more distant viewpoints (viewpoints 2, 3, and 4), changes to conditions on the project site would become more difficult to perceive, and potential new buildings or facilities would be expected to appear as a relatively continuous industrial waterfront for viewers. Therefore, the No-Action Alternative would result in a low level of effect to viewers at more distant viewpoints (viewpoints 2, 3, and 4). Depending on the type of development pursued in the No-Action Alternative, changes may or may not be visible from viewpoint 5 and are expected to result in no to low effect to this viewpoint.
As with the proposed project, the No-Action Alternative would be visible to viewers at Prescott Beach Park (viewpoint 6) and on the Columbia River. Potential new or changed facilities, especially development along the river, would be visible to a low number of viewers with high sensitivity; however the No-Action Alternative, like the proposed project, would be adjacent to existing industrial facilities and would be contiguous and visually consistent with existing industrial facilities along the Columbia River shoreline. Therefore, the overall visual impacts to views from viewpoint 6 would be a moderate level of effect.

Light and glare impacts to recreational viewers on the Columbia River would be low because most recreational viewers access the river during daylight hours and would not experience increased light and glare impacts. Furthermore, potential changes to nighttime lighting under the No-Action Alternative would be seen within the industrial visual context of this section of the Columbia River waterfront.

Overall, the No-Action Alternative, like the proposed project, would not result in significant adverse impacts to aesthetics and visual resources.

### 10.6 Mitigation Measures

#### 10.6.1 Project Mitigation

The design features and BMPs the Applicant proposes to avoid or minimize environmental impacts during construction and operations and those required by agency standards or permits are assumed to be part of the Project and have been considered in assessing the environmental impacts to aesthetics and visual resources and are listed below.

##### 10.6.1.1 Design Measures

The proposed project and alternatives would implement measures designed to minimize the effects on aesthetics and visual resources. These measures would include:

- Motion- and/or user-controlled light systems would minimize the amount of nighttime artificial lighting produced by the proposed project where practicable.
- Neutral colors would be used for non-safety-related structures and equipment to reduce the visual impact of bright colors.
- Non-reflecting materials and finishes would be used to reduce glare where practicable.

#### 10.6.2 Additional Mitigation

There are no significant adverse impacts identified for aesthetics and visual resources and therefore no additional mitigation measures are identified.

### 10.7 Unavoidable Significant Adverse Impacts

The proposed project, with either Technology Alternative and either Marine Terminal Alternative, would not result in unavoidable significant adverse impacts to aesthetics and visual resources.
10.8 References


