



Visual resources are physical features that define the visual and aesthetic character of an area, including natural features, scenic vistas, or man-made urban or community visual characteristics such as architecture and skylines. Visual resources are important because of their uniqueness, and often provide a sense of community for local residents and may attract visitors to the area.

STUDY AREA AND METHODOLOGY

The study area used to analyze the visual impacts of the proposed project included the sensitive viewpoints that could be affected by changes at the proposed project site at the Shell Puget Sound Refinery (PSR), the proposed wetland mitigation site, and the Anacortes Subdivision. Because the potential impacts associated with visual resources are localized, the cumulative impacts study area would be the same as that described for direct and indirect impacts.

Select laws, regulations, and guidance applicable to visual resources are summarized in Table 3.13-1.

Table 3.13-1 Laws, Regulations, and Guidance for Project-Related Visual Resources

Laws, Regulations, and Guidance	Description
State	
State Environmental Policy Act (SEPA) (RCW 43.21c; WAC 197-11)	Helps state and local agencies in Washington identify possible environmental impacts that could result from a proposed action, alternatives to the proposed action, and potential impact minimization and mitigation measures. Information learned through the review process can be used to change a proposal to reduce likely impacts and inform permitting decisions at the state and local levels.
Local	
Skagit County Code Performance Standards (SCC14.16.840)	It is intended that all activities and land uses within Skagit County adhere to a common standard of environmental performance criteria. Criteria are listed for heat, glare, and steam.

Impact analyses of visual resources are typically conducted using methods developed by the agency that is reviewing the project or managing the land where the project would be constructed. In this case, Skagit County (County) and the Washington State Department of Ecology (Ecology) do not have their own methods for analyzing visual impacts. Therefore, the Visual Resources Management (VRM) methodology adapted by the U.S. Bureau of Land Management (BLM), a commonly used system, was chosen as the framework for this analysis to describe the existing scenic quality of the proposed project and its impacts on visual resources (BLM 1984).

Impacts on visual resources were analyzed using the following steps:

1. Identify viewpoints or *Key Observation Points (KOPs)* of the landscape in and near the proposed project and wetland mitigation sites and the Anacortes Subdivision (Figure 3.13-1).
2. Assess the character and quality of these KOPs relative to overall regional visual character.
3. Determine the importance or sensitivity people have of views in the landscape.
4. Determine impacts on visual resources from project activities at each KOP, including light and glare from the facility and train traffic (light and glare impacts on wildlife are discussed in Chapter 3.6 – Vegetation and Terrestrial Wildlife).

Key Observation Point (KOP) is a term used by the BLM in their VRM methodology to describe potentially sensitive viewpoints where a project may be seen. Typically these include viewpoints from public spaces such as parks, or locations along publicly-accessible areas.

A detailed inventory of visual resources along the Anacortes Subdivision was not conducted because rail traffic currently occurs in these areas and is part of the baseline for the visual settings. Instead, the general character of these areas was described using information available from maps, photographs, and other sources. Sensitive viewers were identified using information on recreation and tourism. Visual impacts from the increase in rail traffic associated with the proposed project were described qualitatively.

A level of impact was assigned to each KOP based on the degree of contrast between project elements and the surrounding landscape. A negligible impact level was assigned if no contrast occurred. A minor level of impact was assigned where weak or moderate contrast occurred in a low or medium scenic quality area. A major level of impact was assigned where a strong contrast occurred in a minimally altered or highly scenic area.



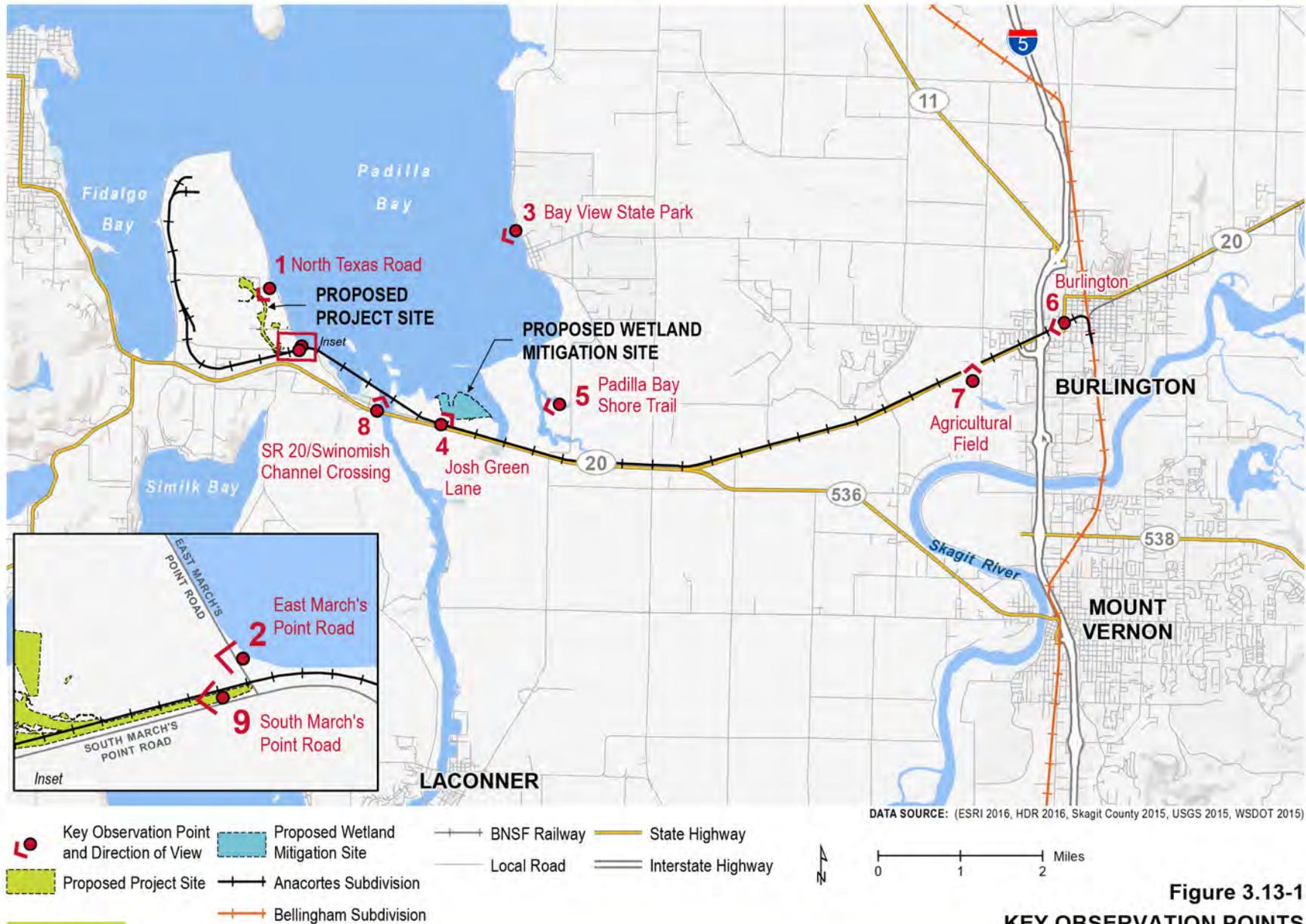


Figure 3.13-1
KEY OBSERVATION POINTS



AFFECTED ENVIRONMENT

Proposed Project Site

The Shell PSR includes the following existing facilities: storage tanks, docks for marine vessels, refining equipment and facilities, pipelines, a parking and laydown area, a rail line and spur to receive manifest trains, paved and graveled roads, and fences. An aerial photo of the project site, with proposed project features overlaid, is shown in the photo below.



Graphic representation of the proposed project

The visual setting for the proposed project site is comprised of heavy industrial areas, including both the Shell PSR and Tesoro Anacortes Refinery, and nearby commercial and industrial development. The dominant natural features include Padilla Bay to the east, and Fidalgo Bay, which lies west of the project area on the opposite side of March Point. The proposed project site is primarily undeveloped and has been used as grazed pasture land. Buildings and structures are typically of concrete or metal construction.

Nearby recreation and tourism areas include Padilla Bay and its National Estuarine Research Reserve, Fidalgo Bay Aquatic Reserve, Fidalgo Bay Resort, the Tommy Thompson Trail, the Swinomish Casino, Swinomish Golf Links, Bayview State Park, the City of Anacortes, and the Anacortes Ferry Terminal that serves the San Juan Islands. There are no neighborhoods or concentrations of residences nearby; however, there are a few single-family residences on March Point. Roads near the proposed project site are largely used by workers at the Shell PSR and Tesoro Anacortes Refinery, birders, and residents on March Point.



Viewer Sensitivity

Viewers’ activity often influences their sensitivity to the visual environment. Residents or visitors to recreation areas typically are more stationary and view an area over an extended period of time, which often makes the surrounding scenery an important aspect of their experience. Alternatively, motorists typically experience a particular view for shorter periods and are engaged in other activities that occupy their attention. Workers may observe a particular area frequently but are also engaged in other activities and would not be considered sensitive viewers.

Based on surrounding land uses, the proposed project site is most frequently viewed by workers at the Shell and Tesoro refineries, people engaged in recreational activities in Padilla Bay, local residents, and motorists. Sensitive viewers could also include members of local Indian tribes who use lands and waters nearby. Members of these Indian tribes would likely be very perceptive of changes in the visual environment and, as such, would have higher sensitivity levels.

The proposed project site is visible from a close distance along adjacent roads and Padilla Bay, and would also be visible from recreational and residential areas to the east, across Padilla Bay. A *scenic quality* rating was developed for each KOP using methods adapted from VRM methodology. Figure 3.13-1 (above) shows the location of each KOP and the direction of the view. Table 3.13-2 provides the name, location, viewer type, viewer *sensitivity level*, and scenic quality rating of each KOP at the proposed project site.

Scenic quality is a measure of the visual appeal of an area based on landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications.

Sensitivity levels are a measure of public concern for scenic quality and are assigned a value of low, medium, or high by evaluating the type of users, amount of use, public interest, adjacent land uses, and any land use designations that require protection of visual resources.

Table 3.13-2 Key Observation Point Summary – Proposed Project Site

KOP	Location	Viewer Type	Viewer Sensitivity Level	Scenic Quality Rating
1	North Texas Road	Motorists	Low	Low
		Workers	Low	
2	East March's Point Road	Recreationists	Medium	Low
		Residents	Medium	
		Indian tribes	High	
		Motorists	Low	
		Workers	Low	
3	Bay View State Park	Recreationists	Medium	Medium
		Residents	Medium	



Key Observation Point 1, North Texas Road

North Texas Road is primarily used by workers at the adjacent Shell and Tesoro refineries, and provides an east/west connection across March Point. The sensitivity for motorists and workers in this area is low at this viewpoint as it is a frequently used road. The viewing time at this location would be limited to a few seconds.

The photo of KOP 1 (below) shows the current view approximately 650 feet northeast of the proposed project site along North Texas Road. Topography is flat, and vegetation provides different textures with pasture, shrubs, and mixed evergreen and deciduous trees. Colors are primarily greens, browns, and grays from vegetation, buildings, and roadways. Adjacent scenery is mainly industrial in nature. Man-made features are visible, including North Texas Road, several outbuildings, and the Shell PSR features in the background. The scenic quality rating for this viewpoint is low (Table 3.13-2).



Key Observation Point 1, North Texas Road (looking southwest)



Key Observation Point 2, East March's Point Road

East March's Point Road roughly parallels the proposed project site for approximately 4,200 feet. Much of this road acts as a visual break from Padilla Bay because of the change in topography; however, toward the intersection of East March's Point Road/South March's Point Road, the topography is more in line with Padilla Bay. Therefore, this KOP was selected to provide a representation of views from recreationists in Padilla Bay.

Topography is generally flat with distant hills visible in the background. Vegetation provides varying colors and textures. Wetlands are visible but blend in with surrounding vegetated areas, and are not unique to March Point. The Shell PSR is a dominant feature of the background. The sensitivity of the majority of views is low as viewing times are typically short and topography farther north along East March's Point Road effectively obscures interior areas of March Point from recreationists or Indian tribal members on Padilla Bay. The scenic quality rating is low (Table 3.13-2).



Key Observation Point 2, East March's Point Road (looking west)

Key Observation Point 3, Bay View State Park

Distant views (approximately 3 miles) of the proposed project site are experienced by recreationists at Bay View State Park and nearby residents. The existing view from KOP 3 is shown in the photo below. Padilla Bay dominates the view in the foreground and middleground, while the distant background contains heavy industrial (refinery) developments with forested hills farther in the distance. Color varies between tones of blues/grays from water, gravel, and distant features. The scenic quality rating for this KOP is medium (Table 3.13-2).



Key Observation Point 3, Bay View State Park (looking southwest across Padilla Bay)

Light and Glare

Current ambient lighting levels at the proposed project site occur from lights used at the Shell PSR and nearby Tesoro Anacortes Refinery, street lighting on East March's Point Road, the rail corridor, and from car headlights on East March's Point Road and North Texas Road. Minimal light also results from residential and commercial/industrial areas on March Point.

Wetland Mitigation Site

The proposed wetland mitigation site is located approximately 2 miles east of the project site at the south end of Padilla Bay (Figure 3.13-1) and was planted with hybrid poplars in 1997; however, due to damage from tidewaters, these trees have not been harvested. The mitigation site is approximately 100 acres and contains poplars that range in height from approximately 30 to 60 feet. Nearby above-grade features include single-family residences and associated outdoor storage areas, agricultural fields, buildings, power lines, and a marina farther west along Josh Green Lane.



Viewer Sensitivity

Based on surrounding land uses, the wetland mitigation site is most frequently viewed by motorists traveling along State Route (SR) 20, people engaged in recreational activities in Padilla Bay, and local residents. SR 20 is classified as a *scenic and recreational highway* by the Washington State Department of Transportation (WSDOT), as part of the scenic Cascade Loop. Sensitive viewers could also include members of Indian tribes who use lands and waters nearby.

Scenic and recreational highways are identified in State law (RCW 47.39 and 47.42) and designated because of a need to develop management plans that will protect and preserve the scenic and recreational resources from loss through inappropriate development.

A management plan for the Cascade Loop is currently in development.

Sensitive Views

The wetland mitigation site is visible from a close distance along adjacent roads, Padilla Bay, and agricultural areas. The site would also be visible in the distance from recreational and agricultural areas to the east. Figure 3.13-1 shows the location of each KOP and the direction of the view. Table 3.13-3 provides the name, location, viewer type, viewer sensitivity level, and scenic quality rating of each KOP of the wetland mitigation site.

Table 3.13-3 Key Observation Point Summary – Wetland Mitigation Site

KOP	Location	Viewer Type	Viewer Sensitivity Level	Scenic Quality Rating
4	Josh Green Lane/SR 20	Motorists	Low	Low/Medium
		Residents	Medium	
		Indian tribes	High	
5	Padilla Bay Shore Trail	Recreationists	Medium	Medium
		Indian tribes	High	



Key Observation Point 4, Josh Green Lane

Josh Green Lane is located immediately north of SR 20 and is typically used by nearby residents, Indian tribal members, and motorists (including farmers and users of the marina and associated commercial areas to the west). The photo below offers a current view of the wetland mitigation site as seen from SR 20. Man-made structures, including power lines and the Anacortes Subdivision rail line, are visible in the foreground, while outbuildings associated with a single-family residence comprise the background. Poplars are visible in the middleground and background. Similar textures and colors are characteristic of this KOP from vegetation and man-made structures. Viewing time would be short (seconds) for motorists and longer for residents. The scenic quality rating is low/medium (Table 3.13-3), based on the rural character of the area and durations of viewing time.



Key Observation Point 4, Josh Green Lane (looking northeast)



Key Observation Point 5, Padilla Bay Shore Trail

Padilla Bay Shore Trail is a 2.25-mile-dike-top bicycle and pedestrian pathway managed by Skagit County. Users of this trail include recreationists, birders, and Indian tribal members. The trail is open year-round. Area views are shown in the photo below, dominated by Indian Slough, nearby agricultural fields, and distant trees and hills. Colors are muted blues, greens, and grays. Texture is relatively smooth from the water and fields, and topography is flat until the distant hills. Viewing time depends on the type of recreation and could be several minutes or longer. Similar views are found farther north along the trail. The scenic quality rating for this KOP is medium (Table 3.13-3).



Key Observation Point 5, Padilla Bay Shore Trail (looking west/southwest)



Anacortes Subdivision

The 14-mile-long Anacortes Subdivision connects to the Bellingham Subdivision in Burlington and currently serves the Shell PSR, Tesoro Anacortes Refinery, and other neighboring industries (Figure 3.13-1). As described in Chapter 3.12 – Land Use and Social Elements, land uses along the Anacortes Subdivision are varied and include agricultural, single-family residential, industrial, and commercial. SR 20 parallels the Anacortes Subdivision for much of the line, and there are several at-grade railroad crossings as described in Chapter 3.16 – Vehicle Traffic and Transportation.

Viewer Sensitivity

Based on surrounding land uses, the Anacortes Subdivision is most frequently viewed by motorists traveling along SR 20, local residents, farmers, workers, recreationists, and Indian tribal members who live or use lands and waters nearby who may have views of trains.

Sensitive Views

The Anacortes Subdivision is visible from a close distance along adjacent roads, residential and commercial/industrial areas, and Padilla Bay. Figure 3.13-1 shows the location of each KOP and the direction of the view. Table 3.13-4 provides the name, location, viewer type, viewer sensitivity level, and scenic quality rating of each KOP along the Anacortes Subdivision.

Table 3.13-4 Key Observation Point Summary – Anacortes Subdivision

KOP	Location	Viewer Type	Viewer Sensitivity Level	Scenic Quality Rating
6	Burlington	Motorists	Low	Low
		Residents	Low	
		Workers	Low	
7	Agricultural Field	Workers	Low	Low
		Residents	Low	
8	SR 20/Swinomish Channel Crossing	Motorists	Low	Medium
		Tourists	Medium	
		Recreationists	Medium	
		Indian tribes	High	
9	South March's Point Road	Motorists	Low	Low
		Workers	Low	
		Residents	Low	



Key Observation Point 6, Burlington

The photo below was taken from the intersection of the Anacortes Subdivision and South Burlington Boulevard (also known as SR 20). This view is representative of other at-grade railroad crossings near the beginning of the Anacortes Subdivision in the City of Burlington. The area is frequented by motorists, nearby workers, and local residents. Land is flat and contains some trees and grassy areas. Visuals are mostly gray with pops of color from nearby buildings and trees. Man-made features dominate the area. If no train is crossing, viewing time at this intersection is short (seconds) for motorists and longer for local workers and residents walking along South Burlington Boulevard. If a train is crossing and the gates are down, viewing time is longer (around 4 minutes on average). The scenic quality rating is low (Table 3.13-4).



Key Observation Point 6, Burlington (intersection of South Burlington Boulevard/Anacortes Subdivision, looking southwest)

Key Observation Point 7, Agricultural Field

The photo of KOP 7 (below) was taken from an active agricultural field just south of the Anacortes Subdivision and SR 20, and west of Pulver Road. This photo is representative of the many farms within the study area. Viewers would be workers and single-family residences surrounding these agricultural areas. Topography along the Anacortes Subdivision is generally flat; mountains and hills may be visible in the distance depending on the viewpoint. Colors vary depending on the crops and other vegetation (mainly greens/browns), along with muted blues of distant mountains and hills. Man-made features include equipment, power lines, buildings, SR 20, and the Anacortes Subdivision rail line. Viewing times may be long and depend on activities being done by workers and nearby residents. The scenic quality rating is low (Table 3.13-4).



Key Observation Point 7, Agricultural field along the Anacortes Subdivision (west of Burlington, looking north)



Key Observation Point 8, SR 20/Swinomish Channel Crossing

The photo of KOP 8 (below) was taken looking north from the SR 20 crossing of the Swinomish Channel, southeast of the Swinomish Casino. This photo is also representative of views from both the casino and the Swinomish Channel. Viewers would be motorists, boaters (both recreationists and Indian tribal members), and tourists. Topography is flat with mountains in the distance. The Swinomish Channel and the swing bridge dominate the view. Colors are mainly blues, greens, and browns. Man-made features include the swing bridge and associated bank armoring. Viewing times are likely short (seconds) for motorists and longer for recreationists and tourists, depending on the activity. The scenic quality rating is medium (Table 3.13-4), as functional swing bridges are relatively rare.



Key Observation Point 8, SR 20/Swinomish Channel Crossing (view of Anacortes Subdivision, looking north)

Key Observation Point 9, South March's Point Road

The photo of KOP 9 (below) was taken looking northwest along South March's Point Road, south of the proposed project site. Viewers would be motorists, workers at nearby businesses and the refineries, and local residents. The topography is relatively flat. The existing Anacortes Subdivision tracks, rock armoring, and Puget Sound Energy power lines are the prominent man-made features visible. The Shell PSR is also visible in the background. Vegetation includes shrubs, deciduous, and evergreen trees. Colors include gray, browns, and greens. Viewing times are likely short (seconds) for motorists. The scenic quality rating is low (Table 3.13-4).



Key Observation Point 9, South March's Point Road (view of Anacortes Subdivision, looking northwest)



ENVIRONMENTAL IMPACTS

No Action Alternative

Because no construction or operation would take place under the no action alternative, there would be no impacts to visual resources. Existing conditions of visual resources in the project vicinity would remain the same unless affected by other projects in the future.

Proposed Project

Direct Impacts

Construction

During construction, temporary changes to the visual setting at KOPs 1 and 2 near the project site would occur from the presence of construction workers, equipment, vehicles, and partially constructed structures. The roads along KOPs 1 and 2 serve motorists, all of which could have views of the proposed project. Dust and emissions generated by construction activities such as grading could cause visual impacts. Temporary outdoor lighting would be used during construction for on-site safety; however, construction activities would occur during daylight hours. Users of Padilla Bay (including recreationists and Indian tribal members) would pass by the project area, but because of site topography, it is unlikely that they would be able to see construction activities, which would take place farther inland. Because the proposed project would be constructed in an area with existing industrial development and activities, visual impacts from construction would be minor at KOPs 1 and 2. Given the distance from the proposed project site, visual impacts during construction are not anticipated from KOP 3.

Operation

The proposed rail spur would be located adjacent to the existing rail line and within the Shell PSR property. The largest structure would be a new overhead platform that would run the length of the unloading area and be approximately 20 feet high (Chapter 2, Figure 2-8). Small buildings associated with operations are also proposed. Most of the project area would be constructed within a depression and would, therefore, not be visible from surrounding areas, including East **March's Point Road and Padilla Bay.**

The proposed project site is located within an industrially-zoned area and would be largely obstructed from view by topography and existing vegetation. Therefore, the project is not expected to alter views in the immediate vicinity or from KOPs 1, 2, and 3.

Impacts from light and glare from the proposed project would be minor because neighboring properties share similar land uses, hours of operation, and security requirements. The facility would adhere to applicable performance standards for light and glare set forth in Skagit County Code 14.16.840 related to building materials and lighting.



The facility would also minimize impacts from light on neighboring properties in accordance with recommendations from the *International Dark Sky Association (IDA)*, which includes installing full cut-off light boxes, adjusting light direction, and providing additional screens with supplemental light shields. The proposed project would make minimal contribution to overall ambient light levels in the immediate vicinity. Light and glare impacts on residential areas would be minor as lighting levels would be similar to that of existing conditions. Light and glare impacts during operation of the proposed facility are expected to be minor from KOPs 1, 2, and 3.

A common source of technical information on the impacts and mitigation of light and glare is the International Dark Sky Association (IDA). The IDA recognizes the necessity for night lighting to maintain security, safety, utility and an attractive environment. The IDA has identified a number of impacts from poor night lighting, including urban sky glow, glare, light trespass, and energy waste.

Wetland Mitigation Site

Direct Impacts

Construction

During construction, temporary changes to the visual setting near the proposed wetland mitigation site would occur from the presence of construction workers, equipment, and vehicles. An approximately 4- to 5-foot-tall new setback dike and pump station would be constructed (see Chapter 3.5 – Wetlands, Figure 3.5-7). Temporary outdoor lighting would be used during construction for on-site safety; however, construction activities would occur during daylight hours. Tree removal outside of the wetland mitigation site is not proposed. As poplars surrounding the site would remain and largely obscure construction activities, the view would not change substantially from KOP 4 during construction. Removal of poplars during construction would be noticeable from KOP 5; however, given its distance (approximately 1 mile) from the wetland mitigation site, on-site construction activities would be difficult to see.

Because construction activities at the wetland mitigation site would be largely shielded from surrounding areas or occur at a distance, visual impacts from construction at KOPs 4 and 5 would be minor.

Operation

While all of the poplars waterward of the new setback dike would be removed, poplars surrounding the site would remain and would largely obscure the new setback dike and pump station. Therefore, the view would not substantially change from KOP 4.

The new setback dike and pump station would be behind an existing band of poplars and would not be visible from Josh Green Lane, SR 20, or nearby residences. Permanent removal of poplars would change the existing view from KOP 5; however, due to the distance (approximately 1 mile), it would be difficult to see on-site features. Also, views from the shore trail are dominated by adjacent agricultural areas and Padilla Bay, rather than the wetland mitigation site. Since the habitat restoration activities at the wetland mitigation site would be similar in character to the surrounding areas and would not attract attention of viewers, visual impacts are not anticipated after construction from KOP 4 or KOP 5.



While SR 20 is considered part of the Cascade Loop Scenic Highway, a management plan for this corridor has not been created; therefore, there are no specific design standards in place. However; as the view of the wetland mitigation site would largely remain unchanged from SR 20 because a band of poplars would remain along its southern perimeter, visual impacts on motorists driving along SR 20 are not anticipated.

Anacortes Subdivision

Direct Impacts

Construction

A retaining wall would be constructed by BNSF Railway along an approximately 1,000-foot-long stretch of the Anacortes Subdivision to provide stability for the additional track proposed within BNSF Railway right of way. This retaining wall would be located between the BNSF Railway tracks and South March's Point Road, generally along the existing ditch (see photograph of KOP 9). Construction would likely require the use of heavy equipment and possibly materials and equipment staging along South March's Point Road. Motorists along South March's Point Road would see equipment, construction workers, and lighting during construction of the retaining wall. This would be temporary and would likely occur during daylight hours. Visual impacts during construction would be minor from KOP 9.

Operation

The retaining wall proposed by BNSF Railway along the Anacortes Subdivision near the project site would be approximately 1,000 feet long and an average of 10 feet tall (maximum height of 12.5 feet tall). As the retaining wall is in the conceptual design phase, construction details are not yet known about the material or design. However, retaining walls along railroads may be designed as gravity walls (such as cast-in-place concrete or modular block walls) or nongravity walls (such as soldier pile walls). A simulation of the retaining wall is presented below from KOP 9 showing approximate location, height, and bulk. The wall would be at a similar height level as the existing tracks, but located close to the roadway in the existing ditch area. The retaining wall would result in a moderate visual impact from KOP 9.





Visual simulation of proposed retaining wall, KOP 9 (looking southwest along South March's Point Road)

The proposed project would add up to two trains per day (one in each direction) along the Anacortes Subdivision. This rail line is currently used to transport crude oil on unit trains to the Tesoro Anacortes Refinery, manifest trains to the Shell PSR and Tesoro Anacortes Refinery, and other trains to neighboring industries. Trains are currently part of the visual setting along the Anacortes Subdivision as shown in the photos of KOPs 7 and 8. Additional trains traveling along the Anacortes Subdivision would result in an increase in the frequency and the length of time that trains are operating and in view, but would not add a new type of visual impact to the existing rail corridor. Therefore, visual impacts from trains associated with the proposed project would be minor.

Cumulative Impacts

As described above, construction and operation of the proposed project could result in impacts to visual resources. Within the study area, there has been significant agricultural, industrial, commercial, and residential development. It is assumed that with this growth and new construction, visual resources have been affected. It is assumed that with this growth and new construction, visual resources have been affected. Construction and operation of the Tesoro Clean Products Upgrade Project (Tesoro 2015) (see Table 3.0-2 in Chapter 3.0 – Introduction, for additional project details) has the potential to impact these resources. Together, these projects would contribute to a cumulative impact on visual resources. However, given their proximity, the impacts would be localized to the Tesoro Anacortes Refinery site and the proposed project and mitigation sites.



MITIGATION MEASURES

Avoidance and Minimization

Impacts to visual resources would be minimized by the implementation of the best management practices (BMPs) required as part of the Shoreline Substantial Development Permit and in accordance with Skagit County Code, which states that:

- Building materials with high light-reflective qualities would not be used in construction of buildings where sunlight would throw intense glare on adjacent areas.
- Artificial lighting would use full cut-off fixtures so that direct light from high-intensity lamps would not result in glare.
- Lighting would be directed away from adjoining properties so that not more than 1 *foot-candle of light* leaves the property boundaries.

A foot-candle of light refers to the intensity of light that is cast on a surface one foot away from the source.

In addition, Shell would minimize the impacts of light on neighboring properties in accordance with recommendations from the IDA, which includes installing full cut-off light boxes, adjusting light direction, and providing additional screens with supplemental light shields.

Mitigation

No additional mitigation measures are proposed beyond the avoidance and minimization measures that would be developed and enforced as part of the permit conditions.



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