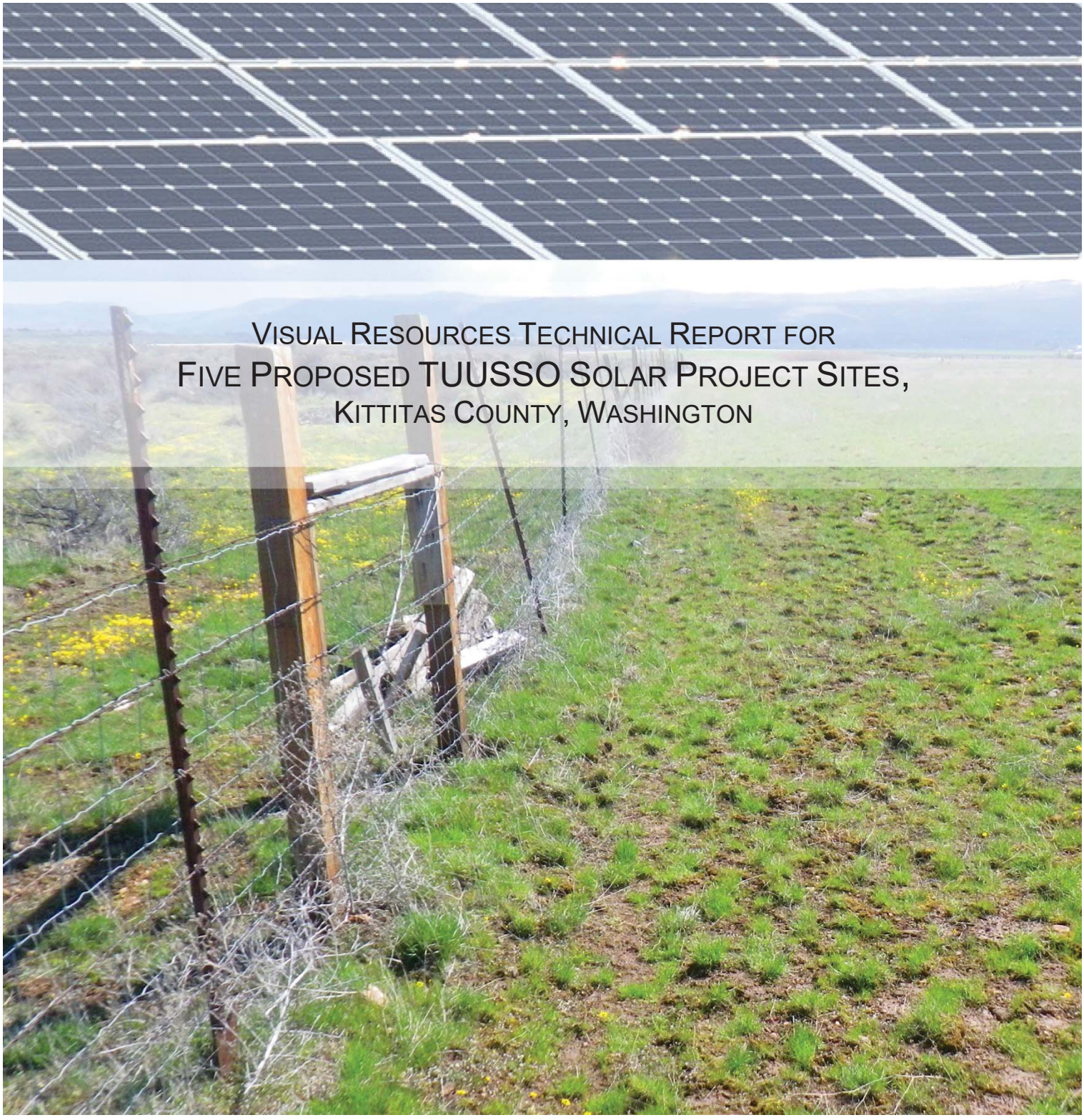
Appendix D: Visual/Aesthetic Assessment Report



VISUAL RESOURCES TECHNICAL REPORT FOR FIVE PROPOSED TUUSSO SOLAR PROJECT SITES, KITTITAS COUNTY, WASHINGTON

September 12, 2017

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SEATTLE, WASHINGTON

VISUAL RESOURCES TECHNICAL REPORT FOR FIVE PROPOSED TUUSSO SOLAR PROJECT SITES, KITTITAS COUNTY, WASHINGTON

Report Prepared for

TUUSSO Energy, LLC

September 12, 2017

Project Number 38727.05

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1 PROJECT BACKGROUND

TUUSSO Energy, LLC (TUUSSO), is proposing to construct the Columbia Solar Projects, five 5-MWac solar photovoltaic project sites in Kittitas County, Washington, for a total of 25 MWac (Figure 1). The five projects would be constructed over approximately 200 acres of the total 232 acres under lease. These projects have been sited based on several criteria: consistency with the Kittitas County zoning code and comprehensive plan, efficient land use by locating in one of the sunniest parts of Washington, access to a power off-taker by locating within Puget Sound Energy's (PSE's) service territory, avoiding environmentally sensitive areas by locating on previously disturbed farmland, and minimizing new electrical infrastructure by locating close to existing distribution lines.

This visual resource assessment describes both the current condition of the landscape within and surrounding the general project area, and the potential effects to the landscape from the proposed projects in order to support future documentation for the Washington State Environmental Policy Act (SEPA) (Revised Code of Washington [RCW] 43.21C). Other plans that are relevant to the project include:

- The Kittitas County Comprehensive Plan (Kittitas County 2016)
- The Ellensburg Comprehensive Plan (Ellensburg 2014)

2 VISUAL RESOURCE ASSESSMENT METHODOLOGY

For the purposes of analyzing the environmental effects from the development of the five proposed Columbia Solar Projects on the visual resources of the area, the U.S. Bureau of Land Management's (BLM's) Visual Resource System was applied. The BLM manages landscapes for varying levels of protection and modification, giving consideration to other resource values and uses and the scenic quality of the landscape. While each of the five solar project sites is located on private agricultural lands, the BLM's Visual Resource Management (VRM) analysis approach provides a useful tool for providing data that help to identify potential impacts to visual resources.

This technical report follows four steps to assess the impacts to the landscape using the BLM VRM system: 1) create viewshed delineations from each project location to determine areas from where each solar project can be seen and to select key observation points (KOPs); 2) use the viewshed delineations and points of interest to the public to select KOPs; 3) collect field data including photographs at each KOP and a description of the affected environment; 4) create visual simulations for each solar project using the KOP photographs and complete contrast rating forms to assess impacts. These four steps are outlined in detail below.

2.1 Introduction to VRM System

Visual resources (i.e., the landscape), as per the BLM VRM system, consist of landform (e.g., topography and soils), vegetation, bodies of water (e.g., lakes, streams, and rivers), and human-made structures (e.g., roads, buildings, and modifications of the land, vegetation, and water). These elements of the landscape can be described in terms of their form, line, color, and texture. Normally, the more variety of these elements there is in a landscape, the more interesting or scenic the landscape becomes, especially if the elements exist in harmony with each other.

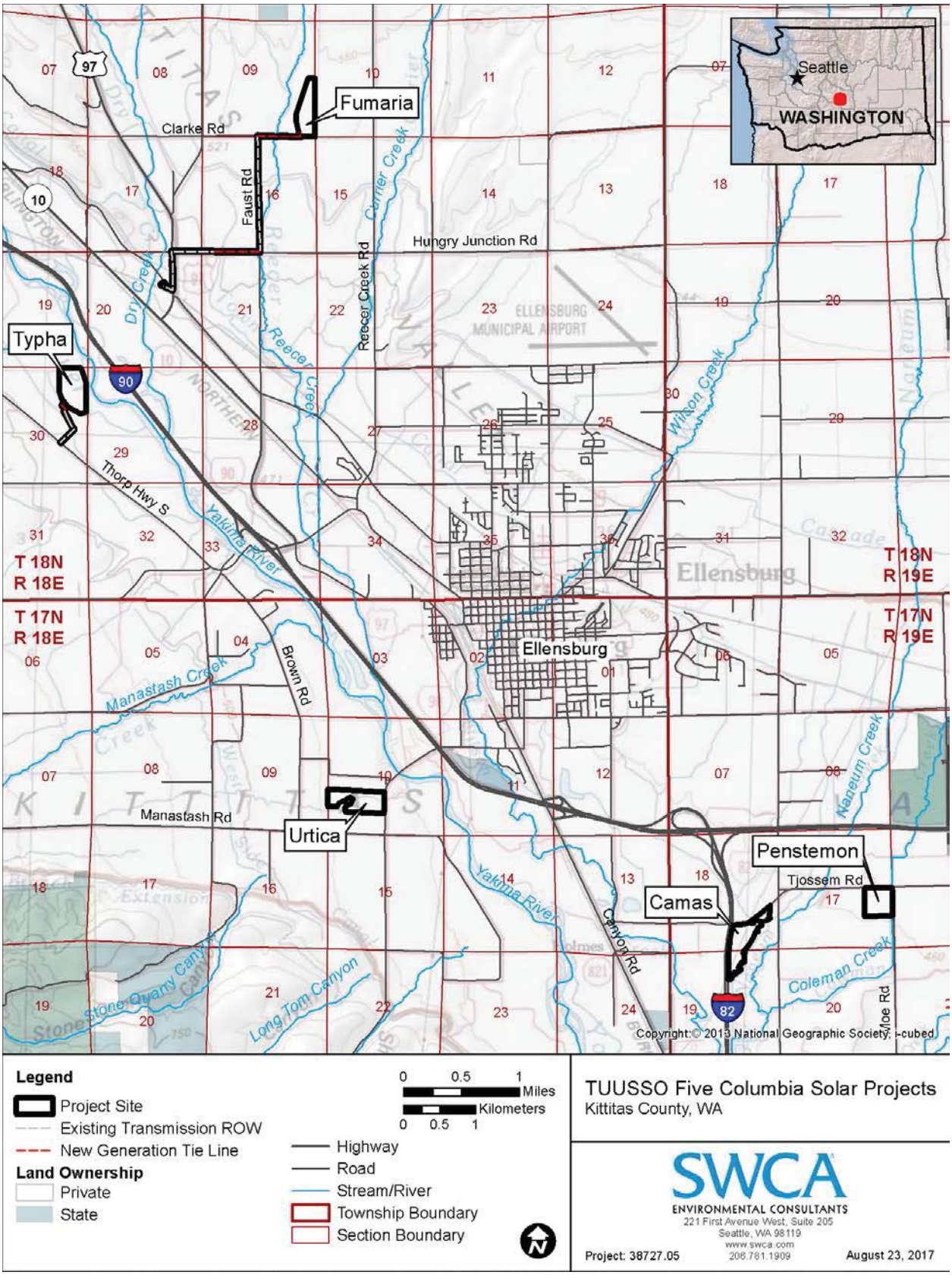

Figure 1. Project locations.

The VRM Analysis involves determining whether the potential visual impacts from proposed surface-disturbing activities or developments are consistent with the surrounding landscape, and any visual or aesthetic goals, objectives, or standards therein. A visual contrast rating process is used to compare the project features with the major features in the existing landscape using the basic design elements of form, line, color, and texture. This process is described in the BLM *Handbook H-8431-1, Visual Resource Contrast Rating*. The greater the degree of contrast between the elements, the greater the impact. The changes to the viewshed for the five Columbia Solar Project sites are portrayed through visual simulations that depict the project sites from select KOPs.

The purpose of preparing the visual simulations for the five Columbia Solar Project sites is to provide information to meet the Washington Energy Facility Site Evaluation Council (EFSEC) Application for Site Certification (ASC) and State Environmental Policy Act (SEPA) Environmental Checklist requirements for aesthetics (visual) (Washington Administrative Code [WAC] 197-11-960), which include:

1. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?
2. What views in the immediate vicinity would be altered or obstructed?
3. Proposed measures to reduce or control aesthetic impacts, if any.

Information gathered from the VRM approach was used to provide baseline conditions and impact analysis to support the aesthetics analysis requirements under SEPA.

2.2 Step 1. Viewshed Delineation

The visual analysis area is where potential visual effects to the landscape from each of the five Columbia Solar Project sites may be discerned. To better define the areas of analysis, SWCA Environmental Consultants (SWCA) prepared a viewshed delineation. The viewshed delineation reveals those areas from which the proposed projects would be in a clear line of sight (i.e., likely visible or not visible), and is a useful tool in defining the final areas of analysis and facilitating the selection of KOPs. To generate the three-dimensional (3-D) environment necessary for the viewshed delineation, Digital Elevation Model (DEM) data files from the U.S. Geological Survey were joined into a mosaic with an extent expansive enough to include the areas of analysis and potential KOPs. The areas of analysis for the five solar projects will consist of a 2-mile radius around each project site, which roughly marks the maximum distance from which an observer could clearly distinguish the facilities. Two miles is proposed due to the relatively flat topography of the Kittitas Valley. See Section 5 below for the viewshed delineation.

2.3 Step 2. KOP Selection

KOPs are used to generate representative views of the areas TUUSSO is proposing for the five Columbia Solar Project sites. KOPs represent views that an array of users would see, but the focus will be on sensitive viewers and their views. KOPs were identified considering the following potential major sensitive viewers/groups:

- those living or working in the surrounding topography,
- travelers along major transportation routes, and
- recreational users of public lands.

Factors that were considered in selecting the KOPs included:

- the types of users,
- amount of use,
- level of public interest,
- adjacent land uses,
- special areas, and
- other relevant factors that might be considered.

Three KOPs were selected to represent the viewshed from each of the five project sites (Camas, Fumaria, Penstemon, Typha, and Urtica Solar Project sites), resulting in a total of 15 KOPs. The viewshed is broken down into three areas; the foreground (0.31 mile from the KOP), the middle ground (0.50 mile from the KOP), and the background (up to 2.0 miles from the KOP). The existing conditions at each site and KOP are discussed below.

2.4 Step 3. Collect Field Data

SWCA conducted a field assessment at each of these KOPs that followed the protocols and methods for contrast rating evaluation described in detail in BLM Manual 8431 *Visual Resource Contrast Rating*. Data collected at each of the KOPs included the following:

- Global positioning system (GPS) location
- A digital photographic panorama of the viewscape, which is used for visual simulations
- Required information to complete the BLM's Visual Contrast Rating Worksheet
- Time of day and atmospheric conditions
- Existing structures and roads in the viewshed

The visual resources at each KOP were documented in a Visual Contrast Rating Worksheet (Appendix A).

2.5 Step 4. Visual Simulations and Analysis

A digital rendering of each solar project site was superimposed upon the selected KOP photographs, illustrating a simulated view of each of the projects, which assisted in determining contrasts before and after construction. For the KOPs carried forward for fieldwork and analyses, a visual contrast rating worksheet was completed for each KOP during fieldwork, as described below.

The photo simulations were constructed using ESRI ArcGIS Pro (for 3-D modeling of proposed structures), ESRI ArcGIS Desktop Advanced and Google Earth Pro (for site location, perspective, and landscape information), and Adobe Photoshop (for alteration of the existing landscape and site photographs).

Google Earth Pro was used to plot these photo points on a 3-D landscape. SWCA constructed a 3-D model of each of the five proposed solar photovoltaic project sites. Structures were modeled in SketchUp Pro and ArcGIS Pro. The models were placed in Google Earth Pro, SketchUp Pro, and ArcGIS Pro at their respective proposed locations. Using the same perspective and time of day as the actual photograph, images of the views from the KOPs in one or all of those programs were exported.

Photoshop was then used to incorporate the exported view into the photograph to generate the final simulation.

The final step in the visual impacts assessment is to rate the degree of contrast between the existing environment or viewshed and the environment after the solar project has been constructed. The degree of contrast is rated for each element (e.g., land/water, vegetation, and structures) as none, weak, moderate, or strong. The criteria for each degree of contrast are outlined in Table 1.

Table 1. Criteria for Degree of Contrast

Degree of Contrast	Criteria
None	The element contrast is not visible or perceived
Weak	The element contrast can be seen but does not attract attention
Moderate	The element contrast begins to attract attentions and begins to dominate the characteristic landscape
Strong	The element contrast demands attention, will not be overlooked, and is dominant in the landscape

Source: BLM Manual 8431 – Visual Resource Contrast Rating.

3 GENERAL COUNTY SETTING

The five proposed TUUSSO Columbia Solar Project sites are located in the Columbia Basin physiographic province, just east of the Northern and Southern Cascades provinces in Washington State. The area consists of scattered houses and farm buildings, flat agricultural fields, irrigation ditches, county roads, and major highways. The agricultural flatlands give way to rolling hills and to the north the high peaks of the Cascade Range. The topography of each of the five project areas can be characterized as flat. Elements of line, form, color and texture common to all project sites in the existing environment are shown in Table 2. Additional elements for each KOP site can be found in the descriptions for each KOP below and in Appendix B – Contrast Rating Forms. Note that the photographs for the KOPs were taken in April, before all of the vegetation had fully developed and during a time that there was no snow on the ground.

Table 2. Elements of Line, Form, Color, and Texture Common to all 5 Kittitas County Solar Project Sites

Element	Land/water	Vegetation	Structures
Form	Flat, rolling, tall, steep, and triangular	Oval, circular, and lanceolate	Houses/Buildings: Triangular, square, and rectangular Fences/Roads: Bold, simple, horizontal, and directional Signs/Utility Poles: Circular, square, hexagonal, and rectangular
Line	Straight, horizontal, and parallel	Vertical, parallel, and converging	Houses/Buildings: Straight, vertical, horizontal, and semi-circular Fences/Roads: Straight, bold, horizontal, vertical, parallel, and perpendicular Signs/Utility Poles: Geometric and bold
Color	Land: Brown, gray, and white Water: Dark olive green	Various shades of green, tan, gray, and brown	Houses/Buildings: Gray, white, red, and tan Fences/Roads: Gray, silver, white, and brown
Texture	Fine, medium, and smooth	Fine, medium, and coarse	Smooth, fine, directional, and matte

4 SOLAR PROJECT SITES

The overall visual character of each of the five Columbia Solar Project sites, as well as views from key observation points for each site, are described below. Inventory photographs are provided in Appendix A; the photographs used for simulations are provided in Section 6 below. The photographs are presented in Section 6 to offer a "side-by-side" view of the photographs showing the existing view (before) and the simulated view (after).

Table 3 summarizes the location, direction of view, and elements not common to each KOP.

Table 3. Summary of the Five Kittitas County Solar Project KOP Locations, Directions of View, and Viewsheds

KOP	Location	Direction of the View from the KOP	Viewshed
Camas Solar Project Site			
Camas KOP 1	U.S. Highway 82 at the southernmost tip of the Camas Solar Project site	Northeast	*Foreground*: Highway, fields, houses, and fences *Middle ground*: Same as the foreground *Background*: Rolling hills and snow-capped peaks
Camas KOP 2	Northeast tip of the Camas Solar Project site on Tjossem Road	Southwest to Southeast	*Foreground:* Open fields, roads, houses, farm buildings, fencing, road signs, and rows of trees *Middle ground:* Same as the foreground *Background*: Distant structures, flat agricultural lands, and trees
Camas KOP 3	Northwest intersection of U.S. Highway 82 and Tjossem Road.	Northeast to Southeast	*Foreground:* Same as Camas KOP 2 *Middle ground:* Same as Camas KOP 2, with more prominent road views *Background*: Same as Camas KOP 2
Fumaria Solar Project Site			
Fumaria KOP 1	Reecer Creek Road at the intersection of a private house driveway and an irrigation canal	Southwest to Northwest	*Foreground:* Buildings, driveway, cattle guard, ditch, shrubs, and utility poles *Middle ground:* Shrubs, trees, house and barn, and industrial and farm buildings *Background*: Ridges and distant peaks
Fumaria KOP 2	Northwest of the Fumaria Solar Project site, approximately 2.0 miles from the western boundary and generation tie line corridor on U.S. Route 97	Southeast	*Foreground:* County road, fencing, trees, houses, and utility poles *Middle ground:* Pond, agricultural field, and farm buildings *Background*: Flat topped mountain and distant peaks
Fumaria KOP 3	Southwest of the Fumaria Solar Project site, on Hungry Junction Road, 200 feet east of its intersection with Faust Road	West to Northeast	*Foreground:* Roads, ditch, fencing, and agricultural field *Middle ground:* Agricultural fields, sparse trees, and houses *Background*: Rolling hills and distant peaks
Penstemon Solar Project Site			

Table 3. Summary of the Five Kittitas County Solar Project KOP Locations, Directions of View, and Viewsheds

KOP	Location	Direction of the View from the KOP	Viewshed
Penstemon KOP 1	Along Tjossem Road, approximately 140 feet from the intersection of Moe Road, and is a few feet from the northeast boundary of the Penstemon Solar Project site	Southwest	*Foreground:* Agricultural field and no trespass sign *Middle ground:* Trees and sporadic houses *Background*: Agricultural fields, houses, rolling hills, and distant peaks
Penstemon KOP 2	Approximately 1,500 feet south of the Penstemon Solar Project southeast site boundary, on Moe Road	Northwest	*Foreground:* Coleman Creek, grass, and agricultural field *Middle ground:* Trees of varying shapes, houses, and farm buildings with red roofs *Background*: Agricultural fields, houses, hills, and distant peaks
Penstemon KOP 3	Approximately 840 feet west of the Penstemon Solar Project northwest site boundary, on Tjossem Road	Southeast	*Foreground:* Concrete-lined irrigation ditch, white water line, and grassy field *Middle ground:* Grassy field, trees of varying shapes, and houses *Background*: Fields, houses, farm buildings, rolling hills, and distant peaks
Typha Solar Project Site			
Typha KOP 1	Approximately 2.0 miles northwest of the Typha Solar Project site, on U.S. Route 97 and southwest of Thorp Highway South	Southeast	*Foreground:* I-90 freeway, green road sign, grassy area, agricultural field, and overhead irrigation sprinklers *Middle ground:* Same as the foreground *Background*: Rolling hills and distant peaks
Typha KOP 2	1.4 miles northwest from the Typha Solar Project site, on Thorp Highway South and the intersection of a county road	Southeast	*Foreground:* Road with gravel edge, utility poles, mailboxes, and agricultural field *Middle ground:* Farm buildings, trees, and agricultural fields *Background*: Boylston and Saddle Mountains
Typha KOP 3	1.0 mile to the southwest of the Typha Solar Project site, at the intersection of Cove Road and Robinson Canyon Road	Northeast	*Foreground:* Overhead irrigation sprinklers, agricultural field, houses, and trees *Middle ground:* Rolling agricultural fields and houses *Background*: Mountain ridges of Wenatchee National Forest
Urtica Solar Project Site			
Urtica KOP 1	On Umptanum Road, approximately 65 feet north of where it diverges from Brown Road	Southwest	*Foreground:* Umptanum Road, agricultural field, wire fence, and metal gate *Middle ground:* Houses, fences, and trees *Background*: Manastash and Umptanum Ridges, and the distant peaks of Snoqualmie National Forest
Urtica KOP 2	On Umptanum Road, approximately 800 feet from the Urtica Solar Project site southern boundary	Northwest	*Foreground:* Shallow ditch, wire and wood fencing, and road signs *Middle ground:* Trees, road, houses, fences *Background*: Rolling hills and peaks of Wenatchee National Forest

Table 3. Summary of the Five Kittitas County Solar Project KOP Locations, Directions of View, and Viewsheds

KOP	Location	Direction of the View from the KOP	Viewshed
Urtica KOP 3	On Brondt Road, approximately 2,000 feet (0.4 mile) from the northeast boundary of the Urtica Solar Project site	Southeast	*Foreground:* Irrigation pipe and agricultural field *Middle ground:* Barn, houses, and trees *Background*: Manastash and Umptanum Ridges, and the peaks of Snoqualmie National Forest

4.1 Camas Solar Site

The Camas Solar Project site is composed of actively farmed alfalfa agricultural land, associated irrigation lines and ditches, an underground natural gas pipeline in the northwest portion of the site crossing from northeast to southwest, and Little Naneum Creek forming the eastern property boundary. The project site is located southeast of the city of Ellensburg. It is in Sections 18 and 19, Township (T) 17 North (N), Range (R) 19 East (E), Willamette Meridian, and in the southeast corner of where the Tjossem Road overpass crosses Interstate 82 (I-82). The project site is divided by an irrigation ditch.

4.1.1 Camas KOP 1

Camas KOP 1 is located on U.S. Highway 82 at the southernmost tip of the Camas Solar Project site. The view is to the northeast, where the project would be constructed. The foreground and middle ground topography includes the highway and flat agricultural fields, a tan grassy area surrounding a ditch, a few white and gray houses, and fences with straight smooth lines. The background view, while initially flat, eventually gives rise to the blue-gray Ellensburg Hills and then to the Cascade Range with snowy white peaks. Dominant colors for the landscape are brown, green, and tan while the structures (e.g., houses, highway, and fencing) are white and gray. The grasses, deciduous trees, and shrubs have varying textures of fine, medium, and coarse (Appendix A, KOP Photo Log).

4.1.2 Camas KOP 2

Camas KOP 2 is located at the northeast tip of the Camas Solar Project site on Tjossem Road. The view from the KOP is southwest to south-southeast, where the project would be constructed. The foreground and middle ground at Camas KOP 2 consist of strong vertical and diagonal lines of demarcated agricultural fields, roads, houses, farm buildings, fencing, utility poles, and a road sign along with straight rows of trees and randomly placed trees with oval, lanceolate, and circular canopies. The background consists of distant buildings, flat agricultural lands, and green trees, which all give way to Manastash Ridge in the distant background (Appendix A, KOP Photo Log).

4.1.3 Camas KOP 3

Camas KOP 3 is located at the northwest intersection of U.S. Highway 82 and Tjossem Road; KOP 3 is located at a superior position, elevated approximately 25 feet higher than the Camas Solar Project site. The view from Camas KOP 3 is a panorama looking east to southeast, where the Camas Solar Project would be constructed. The foreground, middle ground, and background are all similar to Camas KOP 2, except there are long curving lines from the gray and white-striped four-lane freeway and overpass that dominate the foreground. The freeway curves in the middle ground as it retreats into the blue-gray

undulating Manastash Ridge in the background. To the southeast there is a flat grassy field where the project would be constructed (Appendix A, KOP Photograph Log).

4.2 Fumaria Solar Site

The Fumaria Solar Project site is composed of fallow agricultural land and a ditch along the western boundary. It is located northwest of the city of Ellensburg. It is in the southeast portion of Section 9, T18N, R18E, north of Hungry Junction Road and east of Lower Green Canyon Road. An 80-foot-wide by 2.2-mile-long generation tie line corridor with wooden poles would be included as part of the project site. This generation tie line would run along existing roads from the southwest corner of the project site; approximately 0.4 mile east to west along Clarke Road, turning due south for 1.0 mile along Faust Road, turning west again for 0.75 mile on Hungry Junction Road. From Hungry Junction Road, the final segment would run south along U.S. Route 97 before turning northwest into an electrical substation near the John Wayne Pioneer Trail.

4.2.1 Fumaria KOP 1

Fumaria KOP 1 is located on Reecer Creek Road at the intersection of a private house driveway and an irrigation canal, approximately 2,650 feet (0.5 mile) from the eastern boundary of the Fumaria Solar Project site. The view from Fumaria KOP 1 is westerly, from southwest to west. The foreground topography includes gray and white buildings next to a lot full of scrap metal and industrial vehicles including dump trucks, backhoes, and trailers. There is also a grey-brown dirt/gravel road with a cattle guard, utility poles, a brown earthen ditch bordered by tall tan grasses on one side and bright green short clump grass on the other, and a slightly inclining hill covered with low lying dense shrubs in the foreground (e.g., bitter-brush [*Purshia tridentata*], big sagebrush [*Artemisia tridentata*]). The middle ground topography contains shrubs giving way to a line of trees of various shapes, a large brown and tan house, a red barn, and other industrial and farm buildings. The background consists of blue-gray ridges and the distant snowy peaks of the Wenatchee National Forest (Appendix A, KOP Photograph Log).

4.2.2 Fumaria KOP 2

Fumaria KOP 2 is located to the northwest of the Fumaria Solar Project site, approximately 2.0 miles from the western boundary and the generation tie line corridor on U.S. Route 97. The view from Fumaria KOP 2 is east to southeast towards the project site. The foreground topography is dominated by the gray U.S. Route 97, straight wire fencing, a few roundish trees shielding a house, a mailbox, white irrigation pipes, and brown wooden utility poles. The middle ground has an agricultural field surrounded by patches of shrubs and trees, with sparse distant buildings and houses. The background consists of blue-gray flat topped Table Mountain and the distant peaks of the Wenatchee National Forest (Appendix A, KOP Photograph Log).

4.2.3 Fumaria KOP 3

Fumaria KOP 3 is located to the southwest of the Fumaria Solar Project site, on Hungry Junction Road, 200 feet east of its intersection with Faust Road. The view from Fumaria KOP 3 is a panorama from west to north toward the solar project site and the generation tie line that would travel along Hungry Junction and Faust Roads. The foreground consists of gray roads with yellow striping, a ditch blackened by fire and surrounded by grasses, brown smooth wire fencing, and a green agricultural field. The middle ground is composed of agricultural fields, sparse trees, and gray and white houses and storage buildings. The background is composed of blue-gray rolling hills and the distant peaks of the Wenatchee National Forest (Appendix A, KOP Photograph Log).

4.3 Penstemon Solar Site

The Penstemon Solar Project site is composed of actively farmed Sudangrass hay agricultural land, associated irrigation lines and ditches, and Coleman Creek forming the eastern property boundary. The project site is located southeast of the city of Ellensburg. It is in Section 17, T17N, R19E, at the corner of the intersection of Tjossem Road and Moe Road.

4.3.1 Penstemon KOP 1

Penstemon KOP 1 is located on Tjossem Road, approximately 140 feet from the intersection of Moe Road, and is a few feet from northeast boundary of the Penstemon Solar Project site. The view from the Penstemon KOP 1 is a panorama from southeast to southwest. A row of trees borders Coleman Creek on the east boundary of the project site, providing cover for a blue houses located 145 feet away. The foreground topography is a flat brown, tilled agricultural field with a black, orange, and brown private property, no trespass sign, and a short section of a guardrail. The middle ground consists of various shapes (e.g., round, lanceolate) and heights (e.g., short, medium, and tall) of trees and wood utility poles. Sporadic houses are mostly white and gray. The background has more fields and houses, and the distant background consists of blue-gray rolling hills and the distant peaks of the Wenatchee National Forest (Appendix A, KOP Photograph Log).

4.3.2 Penstemon KOP 2

Penstemon KOP 2 is located approximately 1,500 feet south of the Penstemon Solar Project site southeast boundary, on Moe Road. Moe Road runs parallel to the eastern project site boundary. The view from Penstemon KOP 2 is to the northwest where the solar project site would be located. The foreground topography consists of Coleman Creek, which is surrounded by tall grasses trees and shrubs edging up to Moe Road, a flat agricultural field, and wood utility poles and lines. The middle ground topography consists of trees of various shapes, as noted in Penstemon KOP 1. Several houses and farm buildings are present, many with red roofs or sides. The background consists of smooth green and brown fields, gray and white houses, and the distant background consists of blue-gray rolling hills and the distant peaks of the Wenatchee National Forest (Appendix A, KOP Photograph Log).

4.3.3 Penstemon KOP 3

Penstemon KOP 3 is located approximately 840 feet west of the Penstemon Solar Project site northwest boundary, on Tjossem Road. Tjossem Road runs parallel to the northern project site boundary. The view from Penstemon KOP 3 is east to southeast, where the project site would be located. The foreground topography consists of a gray, concrete-lined irrigation ditch; a smooth, white, tubular water line; and a flat, medium-textured grassy field. The middle ground topography also has a flat grassy field, along with a line of trees of varying shapes and a few white and gray houses and farm buildings to the southeast. The background has more fields and houses, and the distant background consists of blue-gray rolling hills and the distant peaks of the Wenatchee National Forest (Appendix A, KOP Photograph Log).

4.4 Typha Solar Site

The Typha Solar Project site is composed of irrigated agricultural land being used for a grazing pasture, associated irrigation ditches and a circular irrigator, and small wetlands. The project site is located northwest of the city of Ellensburg. It is in Section 30, T18N, R18E, with the Yakima River running near the northeast border of the site, a wetland along the southern border, Interstate 90 (I-90) to the northeast, and Thorp Highway South to the southwest.

4.4.1 Typha KOP 1

Typha KOP 1 is located approximately 2.0 miles northwest of the Typha Solar Project site on I-90/U.S. Route 97, southwest of Thorp Highway South . The view from Typha KOP 1 is to the southeast, where the project site would be located (Appendix A, KOP Photograph Log). The foreground consists of an agricultural field that at the time of the photograph had a long, metal overhead irrigation system present and a white pipeline. There are grasses and shrubs in the foreground bordering the agricultural field. The middle ground consists of trees, houses, and more agricultural fields. The background consists of dark blue-gray rolling hills and the distant peaks of the Wenatchee National Forest.

4.4.2 Typha KOP 2

Typha KOP 2 is located 1.4 miles northwest of the Typha Solar Project site on Thorp Highway South and the intersection of Miller Road, a county road. The view from Typha KOP 2 is to the east-northeast and to the east-southeast (Appendix A, KOP Photograph Log). The foreground topography consists of a short brown utility pole and a creosote log that appears to be part of an old fence that lies in front of a bright green grassy agricultural field. The middle ground consists of farm buildings, trees of varying shapes, and smooth brown and green agricultural fields. The background consists of the blue-gray Boylston and Saddle Mountains.

4.4.3 Typha KOP 3

Typha KOP 3 is located 1.0 mile to the southwest of the Typha Solar Project site, at the intersection of Cove Road and Robinson Canyon Road. The view from Typha KOP 3 is north to the east-northeast, where the project would be constructed (Appendix A, KOP Photograph Log). The foreground consists of smooth, silver, overhead irrigation sprinklers; a finely textured, grassy agricultural field; red, tan, and gray houses with flat and triangular roofs; and a few roughly textured, dark green sparse trees. The middle ground consists of rolling agricultural fields and houses. The background consists of the curving line of the blue-gray mountains of the Wenatchee National Forest.

4.5 Urtica Solar Site

The Urtica Solar Project site is composed of actively farmed timothy hay agricultural land, associated irrigation lines and ditches, and McCarl Creek running through the center of the site. The project site is located southwest of the city of Ellensburg. It is in Section 10, T17N, R18E, bordered on the west side by Umptanum Road and located north of Manastash Road.

4.5.1 Urtica KOP 1

Urtica KOP 1 is located on Umptanum Road, approximately 65 feet north of where it diverges from Brown Road. The Urtica Solar Project site northeast boundary is approximately 350 feet from Urtica KOP 1. The view is south to west-southwest, where the project would be constructed. The foreground topography includes the gray and white striped curving Umptanum Road; a flat, grassy, green agricultural field; bunched medium height trees near a wood and metal brown wire fence; a gray, smooth metal gate; road signs; wire fencing; and wooden utility poles. The middle ground consists of more houses and farm buildings, agricultural fields, and medium and tall trees. The background consists of Manastash and Umptanum Ridges and the distant snowy peaks of the Snoqualmie National Forest (Appendix A, KOP Photograph Log).

4.5.2 Urtica KOP 2

Urtica KOP 2 is located on Umptanum Road, approximately 800 feet from the Urtica Solar Project site southern boundary. The view from Urtica KOP 2 is to the west and the northwest. The foreground topography includes a chain-link fence that divides a parking lot from an agricultural field, a wire fence with metal and wood poles, the back side of a road sign, and a brown and green agricultural field. The middle ground appears as a line of trees of varying heights and shapes, houses, and farm buildings. The background consists of curving blue-gray rolling hills and the distant snowy peaks of the Wenatchee National Forest (Appendix A, KOP Photograph Log).

4.5.3 Urtica KOP 3

Urtica KOP 3 is located on Brondt Road, approximately 2,000 feet (0.4 mile) from the northeast boundary of the Urtica Solar Project site. The view from Urtica KOP 3 is east-southeast to southeast. The foreground topography includes a silver irrigation pipe with circular wheels and a medium textured green grassy field. The middle ground topography includes a red barn with a diagonal gray roof, several white and brown houses, and a line of various shaped trees of different heights. The background consists of the blue-gray Manastash and Umptanum Ridges and the distant snowy peaks of the Snoqualmie National Forest (Appendix A, KOP Photograph Log).

5 VIEWSHED DELINEATION

The 2-mile-radius analysis area surrounding each site includes a variety of landscape settings and land uses. For purposes of describing this delineation, the viewshed is described by combining each site into one viewshed; in other words, the delineation groups the viewsheds together as one delineation, as shown on Figure 2. The shaded areas indicate where the Columbia Solar Projects may be visible to a human's naked eye.

Divided by the I-90 and Interstate 82 (I-82) transportation corridors, the land in the analysis area includes privately owned lands. The community of Ellensburg is centrally located among the five sites. Transportation corridors, arterial streets, transmission lines, and distribution lines cross the landscape. The Yakima River flows in a southeasterly direction, bisecting the analysis area. Farming, ranching, rangeland, and grazing improvements such as fences, ditches, barns, and corrals occur intermittently along the dirt roads that also cross the proposed projects area. There are residential dwellings interspersed throughout the analysis area.

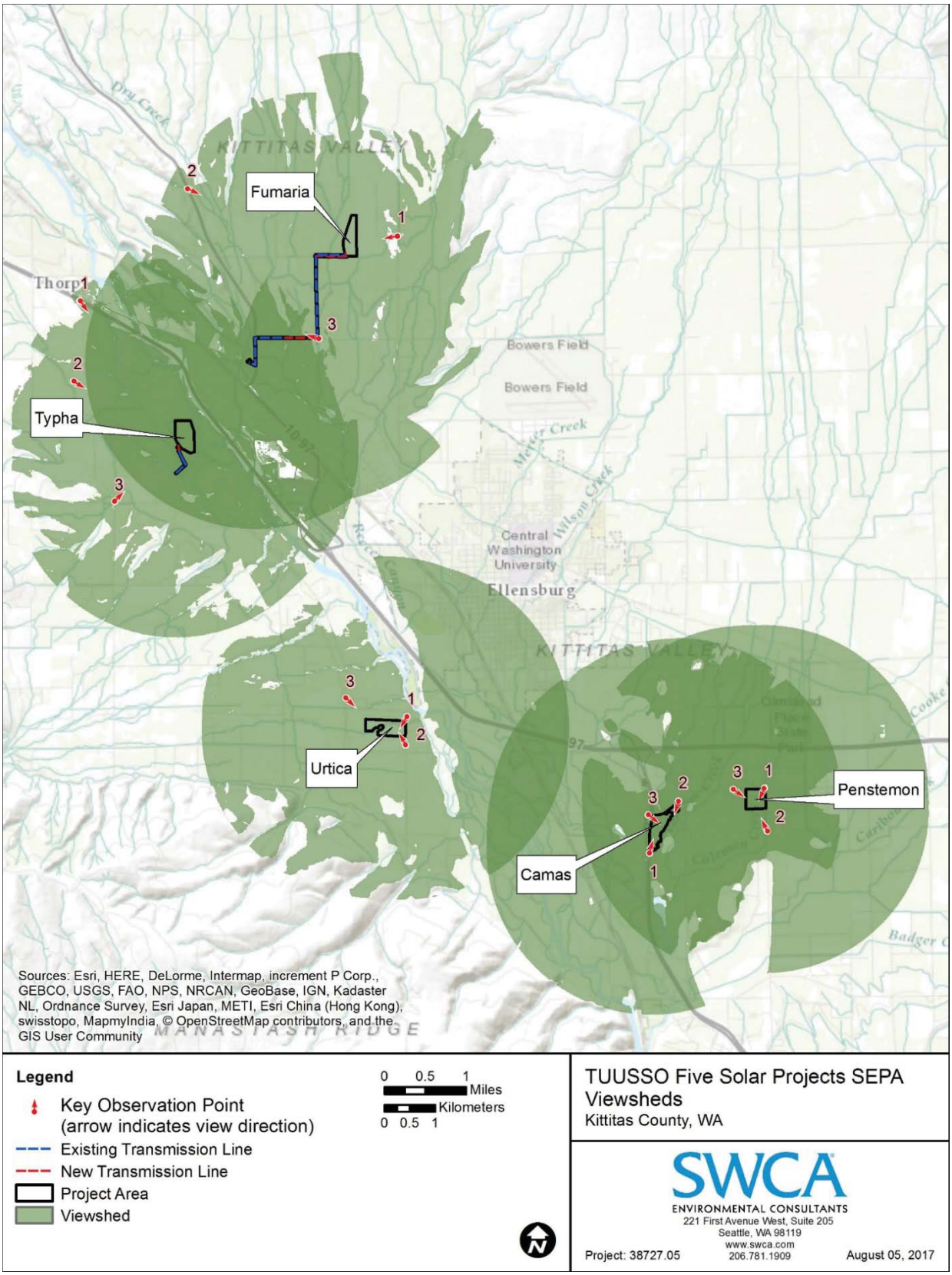

Figure 2. Project area viewsheds.

6 VISUAL CONTRAST ANALYSIS

To determine the five Columbia Solar Project sites' potential to contrast with the surrounding landscape, the contrast rating system was used to evaluate the effects of the five project sites on visual resources. Contrast rating is done from the KOPs. KOPs for the proposed projects were selected based on the following considerations:

- Anticipated viewshed delineation
- Distance from the project site
- High degree of visibility to the project site
- Angle of observation or slope of the project site
- The vast open area of the landscape
- Number of potential viewers of the project site
- Length of time that the project sites would be in view
- Relative size of the project sites
- Light conditions

Using BLM Form 8400-4 – Visual Contrast Rating Worksheet, visual resource specialists evaluated the degree of visual contrasts from each KOP, based on the form, line, color, and texture changes between the existing landscapes and how the landscapes would look after implementation of the proposed projects. As part of the contrast rating process, visual simulations of the proposed projects were used to visually portray the realistic changes in landscape features that would be perceivable to the general public. Visual simulations of the proposed projects were created for each of the selected KOPs. Visual Contrast Rating Worksheets are included as Appendix B; summaries of each visual contrast rating worksheets are provided below in Section 6.2s through 6.6.

6.1 Impacts Common to all Five Sites

6.1.1 Construction Impacts

Construction impacts (visual contrasts) with the characteristic landscape of the project sites would result from activities associated with construction of the five Columbia Solar Project sites. Removal of existing vegetation, grading for all-weather access roads (leveling), and trenching would result in visual contrasts in the color and irregular texture and lines of the characteristic landscape over the 10-month construction period. In addition, construction equipment, vehicles, supplies, and associated project activities would be clearly visible from the KOPs during construction activities. During the initial phases of construction, these changes to the views may seem uncharacteristic or appear out of place, discordant, or distracting; however, as construction progresses and much of the equipment is no longer needed, equipment is removed from the site, and the views would appear more normal, less discordant, and less distracting. Construction activities will be transient and of short duration as construction progresses, and given the other activities in the area (e.g., commercial agriculture), construction would not substantially degrade the existing visual character or quality.

Construction of the proposed project would be visible from ten of the fifteen KOPs and contrast to a minor to moderate degree with the surrounding landscape. The level of change to the landscape apparent from the construction of any of the solar project sites would be minor to moderate based on the visual resource contrast analysis (see Sections 6.2 through 6.6 for detailed analysis). Minor to moderate contrasts in the elements of the environment would generally be consistent with the characteristic landscape; though primarily agricultural in setting, there are numerous transmission lines,

pipelines, metal buildings, and fence lines visible from each of the KOPs. There are existing visible contrasts apparent from each of the KOPs. None of the KOPs would experience a major or significant change to the characteristic views.

The proposed project would generally repeat the basic elements of line, texture, color, and form found in the predominant natural features of the characteristic landscape. Contrast from construction would be less apparent the further the view is from the site, and would be more apparent the closer the view is to the site. Adjacent viewers (farmers, private landowners, motorists) would experience the greatest change in views since the contrast is most noticeable when viewing up close (i.e., 25 feet or closer); however, as these views are not representative of public views they were therefore not considered for KOP selection.

Viewers accustomed to the typical rural, agrarian landscape would be affected by the minor contrast created from construction impacts. The construction of the solar sites would cause a long-term change to scenery (see Operational Impacts below), while the actual construction of the sites and facilities would be short-term changes. During construction, the motion associated with construction equipment, movement, panel placement, alteration of topography, earthwork, vegetation clearing, short-term impacts from dust generation, and landform modification would be noticeable to all viewers (residents, motorists, tourists) and create visual contrast within the viewshed.

The minor contrast would occur along routes of various travel speeds (trail, unpaved routes, and high-speed interstate) and would generally be visible in the foreground for only a few hundred feet and for a brief duration. As described below in detail, contrasts are less likely to be visible the further away the viewer is from the sites, eventually becoming indiscernible as the viewer moves further away. When considering the minor to moderate contrast cumulatively, construction of the Columbia Solar Projects would attract attention and be seen, but would not dominate the view of the casual observer from the KOPs. In most cases, the views from the KOPs would be minimally altered from existing conditions.

Simulations demonstrate that the construction of the Columbia Solar Project would result in changes to the visual and aesthetic conditions, but these changes would be moderate and weak when considering the surrounding landscapes. In addition, the applicant-proposed mitigation measures (see Section 7 below) are intended to decrease the contrasts of constructing the Columbia Solar Project.

6.1.2 Operational Impacts

During operation of the five solar project sites, the regular geometric forms and strong horizontal and vertical lines associated with the solar arrays and associated infrastructure would result in a visual contrast with the irregular, organic forms and colors of the existing landform and vegetation. However, the existing fence lines, transmission/distribution lines, metal buildings, and roads also possess horizontal and vertical lines and therefore the introduction of the Columbia Solar Project sites would not dominate the landscape. Applicant-proposed mitigation such as vegetation screening would decrease the contrast more each year as the vegetation matures and covers larger areas.

In addition, color contrast associated with the solar panels would vary throughout the day as the panels rotate to track the sun from east to west. Although concentrated light would not be directly reflected toward any of the KOPs, the solar panels, when viewed from distant elevated viewing positions at certain times of the day, would reflect the sky, resembling a dark blue body of water, resulting in a contrast with the dull hues of the surrounding green/tan agricultural fields and grey-green vegetation. The contrast would be dull due to the flat plate and anti-reflective design.

Once operational, the contrast would remain unchanged from construction. As vegetative screening (see mitigation measures) matures and grows, the contrast of the Columbia Solar Project sites would become less visible and the contrast of the site to the surrounding areas would be decreased.

Operation of the Columbia Solar Project sites would require routine and periodic equipment testing, panel cleaning, and other ongoing maintenance tasks. However, these activities will not increase in duration or intensity in such a way as to alter or adversely affect the existing landscape (i.e., the aesthetics) beyond what occurred during construction.

The applicant has proposed numerous mitigation measures intended to decrease the contrasts that may result from construction (Section 7 below).

6.2 Camas

6.2.1 Construction Impact

Weak visual contrast at Camas KOP 1 would directly result from introduction of the solar site, converters, and fencing into the landscape, removal of vegetation to construct and maintain the solar array, construction of access roads, temporary construction laydown yards, and any landform modifications necessary to prepare the site for construction (Figures 3 and 4).

Figure 3. View from Camas KOP 1 – existing.

The view from Camas KOP 1 would be altered from the existing conditions, but the solar project site would not dominate the view, block any current views, or change the characteristic landscape. As Figure 4 illustrates, the contrast would repeat the form and line of the existing view, but the color would change. The view duration would be very brief since viewers would be travelling at a high speed (55-plus miles per hour [mph]). See Appendix B for the contrast rating worksheet.

Figure 4. View from Camas KOP 1 – simulation.

Moderate visual contrast at Camas KOP 2 would directly result from introduction of the solar project site, converters, and fencing into the landscape; removal of vegetation to construct and maintain the solar array; construction of access roads; creation of temporary construction laydown yards; and any landform modifications necessary to prepare the site for construction (Figures 5 and 6).

Figure 5.View from Camas KOP 2 – existing.

The view from Camas KOP 2 would be altered from the existing conditions, but the solar project site would not dominate the view, block any current views, or change the characteristic landscape. As Figure 6 illustrates, form and line contrast would increase from the existing view since the Camas KOP 2 is located very nearby the site, and the level of contrast appears more apparent. The view duration would be very brief since viewers would be travelling at a moderate speed (35-plus mph). See Appendix B for the contrast rating worksheet.

Figure 6. View from Camas KOP 2 - simulation.

Moderate visual contrast at Camas KOP 3 would directly result from introduction of the solar site, converters, and fencing into the landscape; removal of vegetation to construct and maintain the solar array; construction of access roads; creation of temporary construction laydown yards; and any landform modifications necessary to prepare the site for construction (Figures 7 and 8). Camas KOP 3 offers a rare perspective for the Kittitas Valley: the view is elevated above the surrounding landscape (approximately 25 feet higher than the Camas KOP 3 site). Because the viewer would be looking down on the site rather than across at it (such as Camas KOPs 1 and 2), the viewer is able to see the entire site. Even with an increase in the amount of the site that is visible, the contrast would be moderate and the changes to the site would not change the overall aesthetics of the site and surrounding areas.

Figure 7. View from Camas KOP 3 – existing.

The view from Camas KOP 3 would be altered from the existing conditions, and the solar project site would not dominate the view, block any current views, or change the characteristic landscape. As Figure 8 illustrates, form and line contrast would increase from the existing view since the Camas KOP 3 is located at a superior position in reference to the site, and the level of contrast appears more apparent. The view duration would be very brief since viewers would be travelling at a moderate speed (35-plus mph). See Appendix B for the contrast rating worksheet.

Figure 8. View from Camas KOP 3 – simulation.

6.2.2 Operational Impacts

Table 4 provides a summary of the operational impacts expected for the Camas Solar Project site.

Table 4. Summary of Contrasts for the Camas KOPs

KOP	Line	Form	Color	Texture
Camas KOP 1	Long-term, weak contrasts created in the land/water, vegetation and structures from the solar panels adding additional straight lines to the viewshed	Long-term, weak to moderate contrasts created by the addition of angular and flat infrastructure	Moderate contrasts from the change of the green, tans, and browns of vegetation to blue, silver, and black of the solar panels	Moderate contrasts from the change in medium and coarse textures to smooth textures from the solar panels
Camas KOP 2	Long-term, weak contrasts created in the land/water, vegetation and structures from the solar panels adding additional straight lines to the viewshed	Long-term, weak to moderate contrasts created by the addition of angular and flat infrastructure	Moderate contrasts from change of colors	Moderate contrasts from change of colors
Camas KOP 3	Long-term, weak contrasts created in the land/water, vegetation and structures from the solar panels adding additional straight lines to the viewshed	Long-term, weak to moderate contrasts created by the addition of angular and flat infrastructure	Weak contrasts from the change of the green, tans, and browns of vegetation to blue, silver, and black of the solar panels	Moderate contrasts from the change in medium and coarse textures to smooth textures from the solar panels

6.3 Fumaria

6.3.1 Construction Impacts

No visual contrast at Fumaria KOP 1 would result from introduction of the solar site, converters, fencing, and new generation tie line (Figure 9). Viewers from Fumaria KOP 1 would not see the site due to topographic screening.

Figure 9. View from Fumaria KOP 1 – existing.

No visual contrast at Fumaria KOP 2 would result from introduction of the solar site, converters, fencing, and new generation tie line (Figure 10). Viewers from Fumaria KOP 2 would not see the site due to topographic screening.

Figure 10. View from Fumaria KOP 2 – existing.

No visual contrast at Fumaria KOP 3 would result from introduction of the solar site, converters, or fencing; the Fumaria solar site would not be visible from Fumaria KOP 3 (Figure 11). However, viewers would see the contrast the new generation tie line and structures create. The contrast would be weak since there are already distribution towers present; however, the new generation tie line has the potential to increase the number of and height of generation tie line towers (Figure 12). Viewers from Fumaria KOP 3 would not see the site due to topographic screening.

Figure 11. View from Fumaria KOP 3 – existing.

The view from Fumaria KOP 3 would be altered from the existing conditions since the new generation tie line would be visible (Figure 12). The new generation tie line has the potential to increase the number of poles as well as increase the height, but would not dominate the view, block any current views, or change the characteristic landscape. The view duration would be brief since viewers would be travelling at a moderate speed (35-plus mph). See Appendix B for the contrast rating worksheet.

Figure 12. View from Fumaria KOP 3 – simulation.

6.3.2 Operational Impacts

Table 5 provides a summary of the operational impacts expected for the Fumaria site.

Table 5. Summary of Contrasts for the Fumaria KOPs

KOP	Line	Form	Color	Texture
Fumaria KOP 1	None	None	None	None
Fumaria KOP 2	None	None	None	None
Fumaria KOP 3	Solar project site: None Generation tie line: Long-term, weak contrasts from the transmission line towers extending height of straight lines to the viewshed	Solar project site: None Generation tie line: None	Solar project site: None Generation tie line: None	Solar project site: None Generation tie line: None

6.4 Penstemon

6.4.1 Construction Impacts

Moderate visual contrast at Penstemon KOP 1 would directly result from introduction of the solar site, converters, and fencing into the landscape; construction of access roads; creation of temporary construction laydown yards; and any landform modifications necessary to prepare the site for construction (Figures 13 and 14).

Figure 13. View from Penstemon KOP 1 – existing.

The view from Penstemon KOP 1 would be altered from the existing conditions, but would not dominate the view, block any current views, or change the characteristic landscape. As Figure 14 illustrates, the contrast would change the form and line of the exiting view, and the color would change; these changes would be moderate in the context of the view from this KOP. The foreground view would change, and the middle ground and background views would be slightly altered. The view duration would be very brief since viewers would be travelling at a moderate speed (35-plus mph). See Appendix B for the contrast rating worksheet.

Figure 14. View from Penstemon KOP 1 – simulation.

Weak visual contrast at Penstemon KOP 2 would directly result from introduction of the solar site, converters, and fencing into the landscape; removal of vegetation to construct and maintain the solar array; construction of access roads; creation of temporary construction laydown yards; and any landform modifications necessary to prepare the site for construction (Figures 15 and 16).

Figure 15. View from Penstemon KOP 2 – existing.

The view from Penstemon KOP 2 would experience a minor change from the existing conditions, but the solar project site would not dominate the view, block any current views, or change the characteristic landscape. As Figure 16 illustrates, the contrast would change the line of the existing view (adding to the already present “edge or hedgerow” look), and the color would change to a darker shade; these changes would be minor in the context of the view from this KOP. The foreground view would not change, and the middle ground and background views would be slightly altered. The view duration would be very brief since viewers would be travelling at a moderate speed (35-plus mph). See Appendix B for the contrast rating worksheet.

Figure 16. View from Penstemon KOP 2 - simulation.

Weak visual contrast at Penstemon KOP 3 would directly result from introduction of the solar site, converters, and fencing into the landscape; removal of vegetation to construct and maintain the solar array; construction of access roads; creation of temporary construction laydown yards; and any landform modifications necessary to prepare the site for construction (Figures 17 and 18).

Figure 17. View from Penstemon KOP 3 – existing.

The view from Penstemon KOP 3 would be slightly altered from the existing conditions, but the solar project site would not dominate the view, block any current views, or change the characteristic landscape. As Figure 18 illustrates, the contrast would repeat the form and line of the exiting view. The view duration would be very brief since viewers would be travelling at a high speed (55-plus mph). See Appendix B for the contrast rating worksheet.

Figure 18. View from Penstemon KOP 3 – simulation.

6.4.2 Operational Impacts

Table 6 provides a summary of the operational impacts expected for the Penstemon site.

Table 6. Summary of Contrasts for the Penstemon KOPs

KOP	Line	Form	Color	Texture
Penstemon KOP 1	Long-term, moderate contrasts created in the land/water, vegetation and structures from the solar panels adding additional straight lines to the viewshed	Long-term, moderate contrasts created by the additional of angular and flat infrastructure	Moderate contrasts from the change of the green, tans, and browns of vegetation to blue, silver, and black of the solar panels	Moderate contrasts from the change in medium and coarse textures to smooth textures from the solar panels
Penstemon KOP 2	Long-term, weak contrasts created in the land/water, vegetation and structures from the solar panels adding additional straight lines to the viewshed	Long-term, weak contrasts created by the additional of angular and flat infrastructure	Weak contrasts from the change of the green, tans, and browns of vegetation to blue, silver, and black of the solar panels	Weak contrasts from the change in medium and coarse textures to smooth textures from the solar panels
Penstemon KOP 3	Long-term, weak contrasts created in the land/water, vegetation and structures from the solar panels adding additional straight lines to the viewshed	Long-term, weak contrasts created by the additional of angular and flat infrastructure	Weak contrasts from the change of the green, tans, and browns of vegetation to blue, silver, and black of the solar panels	Weak contrasts from the change in medium and coarse textures to smooth textures from the solar panels

6.5 Typha

6.5.1 Construction Impacts

Typha KOP 1 is located 2.0 miles northwest of the Typha Solar Project site on I-90 /U.S. Route 97, southwest of Thorp Highway South. From this location, viewers would be exclusively motorists traveling southeast on I-90. Due to the high speed of travel (65-plus mph), the view duration at this KOP is very brief (less than 10 seconds). The existing view toward the project site includes irrigation infrastructure, farmhouses, fields, and distant mountains. Due to the short view duration, distance, and vegetative screening, the aesthetics from this KOP would not change during construction. No visual contrast at Typha KOP 1 would directly result from introduction of the solar site, converters, and fencing into the landscape; removal of vegetation to construct and maintain the solar array; construction of access roads; creation of temporary construction laydown yards; and any landform modifications necessary to prepare the site for construction; Figure 19 illustrates no discernible changes to the characteristic landscape.

Figure 19. View from Typha KOP 1 – existing.

Typha KOP 2 is located 1.4 miles northwest from the Typha Solar Project site on Thorp Highway South and the intersection of Miller Road. From this location, viewers would be local residents and motorists traveling southeast on the Thorp Highway South. Due to the moderate speed of travel (35-plus mph), the view duration at this KOP is brief (less than 20 seconds). The existing view towards the project site includes open fields, fence posts, farmhouses, and distant mountains. Due to the short view duration, and distance, the aesthetics from this KOP would not change during construction (no contrasts would occur); Figure 20 shows no discernible changes to the characteristic landscape.

Figure 20. View from Typha KOP 2 – existing.

Typha KOP 3 is located 1.0 mile to the southwest of the Typha Solar Project site, at the intersection of Cove Road and Robinson Canyon Road. From this location, viewers would be local residents and traveling north. Due to the moderate speed of travel (35-plus mph), the view duration at this KOP is brief (less than 20 seconds). The existing view toward the project site includes open fields, barns, and distant mountains. Due to the short view duration, and distance, the aesthetics from this KOP would not change during construction (no contrasts would occur); Figure 21 shows no discernible changes to the characteristic landscape.

Figure 21. View from Typha KOP 3 – existing.

Operational Impacts

Table 7. provides a summary of the operational impacts expected for the Typha site. The Typha site would not be visible from any of the selected KOPs.

Table 7. Summary of Contrasts for the Typha KOPs

KOP	Line	Form	Color	Texture
Typha KOP 1	None	None	None	None
Typha KOP 2	None	None	None	None
Typha KOP 3	None	None	None	None

6.6 Urtica

6.6.1 Construction Impacts

Weak visual contrast at Urtica KOP 1 would directly result from introduction of the solar site, converters, and fencing into the landscape; removal of vegetation to construct and maintain the solar array; construction of access roads; temporary construction laydown yards; and any landform modifications necessary to prepare the site for construction (Figures 22 and 23).

Figure 22. View from Urtica KOP 1 – existing.

The view from Urtica KOP 1 would be altered from the existing conditions, but the solar project site would not dominate the view, block any current views, or change the characteristic landscape. As Figure 23 illustrates, the contrast would repeat the form and line of the existing view, but the color would slightly change due to the vegetation screening. The view duration would be very brief since viewers would be travelling at a moderate speed (35-plus mph). See Appendix B for the contrast rating worksheet.

Figure 23. View from Urtica KOP 1 – simulation.

Weak visual contrast at Urtica KOP 2 would directly result from introduction of the solar site, converters, and fencing into the landscape; removal of vegetation to construct and maintain the solar array; construction of access roads; creation of temporary construction laydown yards; and any landform modifications necessary to prepare the site for construction (Figures 24 and 25).

Figure 24. View from Urtica KOP 2 – existing.

The view from Urtica KOP 2 would be altered from the existing conditions, but the solar project site would not dominate the view, block any current views, or change the characteristic landscape. As Figure 25 illustrates, the contrast would repeat the form and line of the existing view, but the color would slightly change due to the vegetation screening and fencing surrounding the site. The view duration would be very brief since viewers would be travelling at a moderate speed (35-plus mph). See Appendix B for the contrast rating worksheet.

Figure 25. View from Urtica KOP 2 - simulation.

Weak visual contrast at Urtica KOP 3 would directly result from introduction of the solar site, converters, and fencing into the landscape; removal of vegetation to construct and maintain the solar array; construction of access roads; creation of temporary construction laydown yards; and any landform modifications necessary to prepare the site for construction (Figures 26 and 27).

Figure 26. View from Urtica KOP 3 – existing.

The view from Urtica KOP 3 would be altered from the existing conditions, but would not dominate the view, block any current views, or change the characteristic landscape. As Figure 27 illustrates, the contrast would repeat the form and line of the existing view, but the color would slightly change due to the vegetation screening. The view duration would be very brief since viewers would be travelling at a moderate speed (35-plus mph). See Appendix B for the contrast rating worksheet.

Figure 27. View from Urtica KOP 3 – simulation.

6.6.2 Operational Impacts

Table 8 provides a summary of the operational impacts expected for the Urtica site.

Table 8. Summary of Contrasts for the Urtica KOPs

KOP	Line	Form	Color	Texture
Urtica KOP 1	Long-term, weak contrasts created in the land/water, vegetation and structures from the solar panels adding additional straight lines to the viewshed	Long-term, weak to moderate contrasts created by the additional of angular and flat infrastructure	Weak contrasts from the change of the green, tans, and browns of vegetation to blue, silver, and black of the solar panels	Weak contrasts from the change in medium and coarse textures to smooth textures from the solar panels
Urtica KOP 2	Long-term, weak contrasts created in the land/water, vegetation and structures from the solar panels adding additional straight lines to the viewshed	Long-term, weak to moderate contrasts created by the additional of angular and flat infrastructure	Weak contrasts from the change of the green, tans, and browns of vegetation to blue, silver, and black of the solar panels	Weak contrasts from the change in medium and coarse textures to smooth textures from the solar panels
Urtica KOP 3	Long-term, weak contrasts created in the land/water, vegetation and structures from the solar panels adding additional straight lines to the viewshed	Long-term, weak to moderate contrasts created by the additional of angular and flat infrastructure	Weak contrasts from the change of the green, tans, and browns of vegetation to blue, silver, and black of the solar panels	Weak contrasts from the change in medium and coarse textures to smooth textures from the solar panels

7 MITIGATION MEASURES

The project is being designed as a sustainable amenity for the community and will be reviewed by EFSEC for compliance with design guidelines.

The following measures are proposed to decrease the aesthetic contrasts of construction, operation, maintenance, and decommissioning activities:

7.1 General Mitigation Measures

- Vegetation or fencing would be used to interrupt the line of sight from nearby KOPs at or near the same elevation of the projects.
- Vegetation and ground disturbance would be minimized near roads, and the use of existing clearings would be maximized.
- The use of non-necessary and/or non-safety-related signs and project construction signs should be minimized; necessary signs would be made of nonglare materials and use unobtrusive colors; reverse sides of signs and mounts would be painted or coated using the most suitable color to reduce color contrasts with the existing landscape; however, placement and design of any signs required by safety regulations must conform to regulatory requirements.
- "Good housekeeping" procedures would be developed to ensure that the sites are kept clean of debris, garbage, fugitive trash or waste, and graffiti; to prohibit scrap heaps and dumps; and to minimize storage yards. Design features regarding waste management would be applied.
- A lighting plan would be prepared that documents how lighting will be designed and installed to minimize night-sky impacts during facility construction and operations phases. Lighting for facilities would not exceed the minimum number of lights and brightness required for safety and security, and would not cause excessive reflected glare. Full cut-off luminaires would be used to minimize upward shining lighting. Lights would be directed downward or toward the area to be illuminated. Light fixtures would not spill light beyond the project boundary. Lights in high illumination areas not occupied on a continuous basis would have switches, timer switches, or motion detectors so that the lights operate only when the area is occupied. Where feasible, vehicle-mounted lights would be used for night maintenance activities. Wherever feasible, consistent with safety and security, lighting would be kept off when not in use. The lighting plan would include a process for promptly addressing and mitigating complaints about potential lighting impacts.
- Each of the five solar sites would be adequately screened by either existing or new vegetation or through the application of perimeter fencing to reduce contrast from glint and glare for KOPs with level views.

7.2 Construction

- Project developers would integrate visual and aesthetics mitigation elements early in the construction, which may include treatments such as thinning and feathering vegetation along project edges, salvaging landscape materials from within construction areas, etc.

- Visual impacts would be reduced during construction by clearly delineating construction boundaries. Within areas not intended for long-term use, impacts would be reduced by minimizing areas of surface disturbance within those boundaries; preserving vegetation to the greatest extent possible; using undulating surface disturbance edges; controlling erosion; using fugitive dust suppression techniques; and restoring exposed soils to their original contour and vegetation.

- An interim reclamation plan would be in place prior to construction. Interim reclamation of the construction site would begin immediately after construction to reduce the likelihood of visual contrasts associated with erosion and invasive weed infestation and to reduce the visibility of impacted areas as quickly as possible.

- Existing rocks, vegetation, and drainage patterns would be preserved to the maximum extent practicable, particularly within temporary use areas.

- Brush-beating or mowing, or using protective surface matting rather than vegetation removal would be done where feasible.

- For interim reclamation areas, slash from vegetation removal would be mulched and spread to cover fresh soil disturbances as part of the revegetation plan. Slash piles would not be left in sensitive viewing areas.

- No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate surveyor construction activity limits, except in areas defined and designated for disturbance.

- All stakes and flagging would be removed from the construction area and disposed of in an approved facility.

7.3 Operations

- The project developer would maintain revegetated surfaces until a self-sustaining stand of vegetation is re-established and visually adapted to the undisturbed surrounding vegetation. For new areas of disturbance (beyond the scope of this project), no new disturbance would be created during operation.

- Interim restoration would be undertaken during the operating life of the project as soon as possible after disturbances.

- Maintenance activities would include noxious weed control.

- Road maintenance activities would avoid blading existing forbs and grasses in ditches and adjacent to roads.

- Painted facilities would be kept in good repair and repainted when color fades or flakes increase visual contrast.

8 LITERATURE CITED

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APPENDIX A: KOP PHOTOGRAPH LOG

Date

April 5, 2017

Feature ID

KOP 1

Project Site

Camas

Description

View north northwest

Date

April 5, 2017

Feature ID

KOP 1

Project Site

Camas

Description

View north northeast

Date April 5, 2017 **Feature ID** KOP 1 **Project Site** Camas **Description** View northeast	
Date April 5, 2017 **Feature ID** KOP 1 **Project Site** Camas **Description** View east northwest	

Date

April 5, 2017

Feature ID

KOP 2

Project Site

Camas

Description

View Southeast

Date

April 5, 2017

Feature ID

KOP 2

Project Site

Camas

Description

View south southeast

Date

April 5, 2017

Feature ID

KOP 2

Project Site

Camas

Description

View south southwest

Date

April 5, 2017

Feature ID

KOP 2

Project Site

Camas

Description

View southwest

Date

April 5, 2017

Feature ID

KOP 2

Project Site

Camas

Description

View west southwest

Date

April 5, 2017

Feature ID

KOP 3

Project Site

Camas

Description

View northeast

Date

April 5, 2017

Feature ID

KOP 3

Project Site

Camas

Description

View east

Date

April 5, 2017

Feature ID

KOP 3

Project Site

Camas

Description

View east

Date

April 5, 2017

Feature ID

KOP 3

Project Site

Camas

Description

View southeast

Date

April 5, 2017

Feature ID

KOP 3

Project Site

Camas

Description

View south southeast

Date

April 5, 2017

Feature ID

KOP 1

Project Site

Fumaria

Description

View south southwest

Date

April 5, 2017

Feature ID

KOP 1

Project Site

Fumaria

Description

View southwest

Date

April 5, 2017

Feature ID

KOP 1

Project Site

Fumaria

Description

View west southwest

Date

April 5, 2017

Feature ID

KOP1

Project Site

Fumaria

Description

View west

Date April 5, 2017 **Feature ID** KOP 1 **Project Site** Fumaria **Description** View west northwest	
Date April 5, 2017 **Feature ID** KOP 2 **Project Site** Fumaria **Description** View north	

Date April 5, 2017 **Feature ID** KOP 2 **Project Site** Fumaria **Description** View northeast	
Date April 5, 2017 **Feature ID** KOP 2 **Project Site** Fumaria **Description** View east northeast	

Date April 5, 2017 **Feature ID** KOP 2 **Project Site** Fumaria **Description** View east southeast	
Date April 5, 2017 **Feature ID** KOP 2 **Project Site** Fumaria **Description** View southeast	

Date

April 5, 2017

Feature ID

KOP 3

Project Site

Fumaria

Description

View west

Date

April 5, 2017

Feature ID

KOP 3

Project Site

Fumaria

Description

View northwest

Date

April 5, 2017

Feature ID

KOP 3

Project Site

Funmaria

Description

View north northwest

Date

April 5, 2017

Feature ID

KOP 3

Project Site

Fumaria

Description

View north

Date April 5, 2017 **Feature ID** KOP 3 **Project Site** Fumaria **Description** View northeast	
Date April 5, 2017 **Feature ID** KOP 3 **Project Site** Fumaria **Description** View east northeast	

Date

April 5, 2017

Feature ID

KOP 1

Project Site

Penstemon

Description

View southeast

Date

April 5, 2017

Feature ID

KOP 1

Project Site

Penstemon

Description

View south

Date

April 5, 2017

Feature ID

KOP 1

Project Site

Penstemon

Description

View southwest

Date

April 5, 2017

Feature ID

KOP 1

Project Site

Penstemon

Description

View southwest

Date

April 5, 2017

Feature ID

KOP 1

Project Site

Penstemon

Description

View west

Date

April 5, 2017

Feature ID

KOP 2

Project Site

Penstemon

Description

View west northwest

Date

April 5, 2017

Feature ID

KOP 2

Project Site

Penstemon

Description

View northwest

Date

April 5, 2017

Feature ID

KOP 2

Project Site

Penstemon

Description

View north northwest

Date April 5, 2017 **Feature ID** KOP 2 **Project Site** Penstemon **Description** View north	
Date April 5, 2017 **Feature ID** KOP3 **Project Site** Penstemon **Description** View east	

Date April 5, 2017 **Feature ID** KOP 3 **Project Site** Penstemon **Description** View east southeast	
Date April 5, 2017 **Feature ID** KOP 3 **Project Site** Penstemon **Description** View southeast	

Date April 5, 2017 **Feature ID** KOP 1 **Project Site** Typha **Description** View east southeast	
Date April 5, 2017 **Feature ID** KOP 1 **Project Site** Typha **Description** View southeast	

Date

April 5, 2017

Feature ID

KOP 1

Project Site

Typha

Description

View south southeast

Date

April 5, 2017

Feature ID

KOP 2

Project Site

Typha

Description

View east northeast

Date

April 5, 2017

Feature ID

KOP 2

Project Site

Typha

Description

View east southeast

Date

April 5, 2017

Feature ID

KOP 2

Project Site

Typha

Description

View southeast

Date April 5, 2017 **Feature ID** KOP 3 **Project Site** Typha **Description** View north	
Date April 5, 2017 **Feature ID** KOP 3 **Project Site** Typha **Description** View northeast	

Date April 5, 2017 **Feature ID** KOP 3 **Project Site** Typha **Description** View east northeast	
Date April 5, 2017 **Feature ID** KOP 1 **Project Site** Urtica **Description** View south	

Date

April 5, 2017

Feature ID

KOP 1

Project Site

Urtica

Description

View south southwest

Date

April 5, 2017

Feature ID

KOP 1

Project Site

Urtica

Description

View southwest

Date

April 5, 2017

Feature ID

KOP1

Project Site

Urtica

Description

View west southwest

Date

April 5, 2017

Feature ID

KOP 2

Project Site

Urtica

Description

View west

Date

April 5, 2017

Feature ID

KOP 2

Project Site

Urtica

Description

View west northwest

Date

April 5, 2017

Feature ID

KOP 2

Project Site

Urtica

Description

View northwest

Date

April 5, 2017

Feature ID

KOP 2

Project Site

Urtica

Description

View north

Date

April 5, 2017

Feature ID

KOP 3

Project Site

Urtica

Description

View east northeast

Date April 5, 2017 **Feature ID** KOP 3 **Project Site** Urtica **Description** View east southeast	
Date April 5, 2017 **Feature ID** KOP 3 **Project Site** Urtica **Description** View southeast	

Date April 5, 2017 **Feature ID** KOP 3 **Project Site** Urtica **Description** View south southeast	
Date April 5, 2017 **Feature ID** KOP 3 **Project Site** Urtica **Description** View southeast	

APPENDIX B: VISUAL CONTRAST RATING WORKSHEETS

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date:
District/ Field Office:
Resource Area:
Activity (program):

SECTION A. PROJECT INFORMATION

1. Project Name TUUSSO Solar Fumaria Site	4. Location Township_____	5. Location Sketch
2. Key Observation Point KOP 1	Range_____	
3. VRM Class NOT ON FEDERAL LAND	Section_____	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Distant hills – smooth, rounded Undeveloped land – gentle, rolling, irregular	Grasses – smooth and rough, simple, short and tall Shrubs – rounded, regular, short Trees – large, irregular, rounded and vertical	Gravel roadway – prominent, curving, Irrigation ditch – linear, parallel Buildings – low, small, contrasting, angular Utility pole – tall, vertical
LINE	Distant hills – soft, simple, undulating Undeveloped land – complex, broken, undulating	Grasses – soft and hard, simple and complex Shrubs – simple, rounded, regular, short Trees – large, irregular, rounded and vertical	Gravel roadway – grey, light brown Irrigation ditch – irregular, continuous, parallel Buildings – straight, diagonal Utility poles: Vertical, horizontal
COLOR	Distant hills – blue, grey, medium brown Undeveloped land – green, grey, light brown	Grasses – dark green, light brown Shrubs – light green, grey Trees – dark green, light brown	Gravel roadway – regular, curving, parallel Irrigation ditch – brown, grey Buildings - white, gray, black, red Utility poles – brown
TEX-TURE	Distant hills – medium grain, sparse snow patches Undeveloped land – coarse grain, dotted with regular vegetation	Grasses – fine to medium grain, uniform short grass, patchy clumped tall grasses. Shrubs – random, dotted Trees – random, discontinuous, scattered	Gravel roadway – fine grain, directional tracks Irrigation ditch – rough edges, clumped vegetation Buildings – smooth, medium, even Utility poles – ordered, contrasting, directional

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Indiscernible	Indiscernible	Not visible
LINE	Indiscernible	Indiscernible	Not visible
COLOR	Indiscernible	Indiscernible	Not visible
TEX-TURE	Indiscernible	Indiscernible	Not visible

SECTION D. CONTRAST RATING __SHORT TERM __LONG TERM

1. DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1) STRONG	MODERATE	WEAK	NONE	VEGETATION (2) STRONG	MODERATE	WEAK	NONE	STRUCTURES (3) STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM				x				x				x
	LINE				x				x				x
	COLOR				x				x				x
	TEXTURE				x				x				x

2. Does project design meet visual resource management objectives? ___Yes ___No
(Explain on reverses side)
NOT ON FEDERAL LAND

3. Additional mitigating measures recommended
_x__Yes ___No (Explain on reverses side)

Evaluator's Names Date
Ryan Rausch August 2017

Comments from item 2.

Additional Mitigating Measures (See item 3)

See technical report

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date:
District/ Field Office:
Resource Area:
Activity (program):

SECTION A. PROJECT INFORMATION

1. Project Name TUUSSO Solar Camas Site	4. Location Township_____	5. Location Sketch
2. Key Observation Point KOP 1	Range_____	
3. VRM Class: NOT ON FEDERAL LAND	Section_____	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Distant hills – tall, smooth, Drainage swale – long, linear, parallel Fields – flat	Agricultural fields – regular Trees and shrubs – irregular, rounded, short and tall Grasses – irregular, rough	Distant farms/houses – low, small, contrasting Roadway – prominent, flat, regular, straight, linear
LINE	Distant hills – simple, undulating Drainage swale – continuous, irregular Fields – horizontal	Agricultural fields – simple, regular Trees and shrubs – complex, irregular, broken Grasses – irregular, rough	Distant farms/houses – discontinuous, irregular Roadway – regular, straight, horizontal
COLOR	Distant hills – blue, grey Drainage swale – tan, brown, grey Fields – green	Agricultural fields – green Trees and shrubs – light brown, light grey, dark green Grasses – gold, brown, grey	Distant farms/houses – white, light grey, tan Roadway – grey, white striping
TEX-TURE	Distant hills – continuous, patchy snow Drainage swale – coarse, patchy Fields – uniform, fine	Fine, medium and coarse	Distant farms/houses – random, dotted Roadway – fine, continuous, striped

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat	Geometric and linear forms created by vegetation clearing	Square, contrasting, block, solid, smooth
LINE	Horizontal (solar site and road)	Weak irregular lines, edge effect	Straight, regular
COLOR	Dark grey, saturated fill, glaring	Brown/tans	Dark grey
TEX-TURE	Fine to smooth	Course, rough, random, dotted	Fine to smooth

SECTION D. CONTRAST RATING __SHORT TERM __LONG TERM

1. DEGREE OF CONTRAST		FEATURES											
		LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM			x				x					
	LINE			x				x			x		
	COLOR		x				x					x	
	TEXTURE			x				x		x			

2. Does project design meet visual resource management objectives? ___Yes ___No
(Explain on reverses side)
NOT ON FEDERAL LAND

3. Additional mitigating measures recommended
_x__Yes ___No (Explain on reverses side)

YES
Evaluator's Names Ryan Rausch, August 2017
Date

Comments from item 2.

Additional Mitigating Measures (See item 3)

See Technical Report

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date:	
District/ Field Office:	
Resource Area:	
Activity (program):	

SECTION A. PROJECT INFORMATION

1. Project Name TUUSSO	4. Location Township_____	5. Location Sketch
2. Key Observation Point Camas KOP 2	Range_____	
3. VRM Class NOT FEDERAL LAND	Section_____	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat terrain of fields and highways in foreground Rolling terrain of low lying mountains in middle and background	Regular and irregular, rounded, oval and lanceolate tree canopies and shrubs	Cylindrical fence posts Tall vertical utility poles Straight linear fencing Rectangular, triangular, vertical and horizontal buildings
LINE	Diagonal band from the road, gently curving line from the low lying mountains, straight line from the flat terrain intersecting the low lying mountains	Vertical and branching lines created by trees and shrubs Random, curving lines of patchy vegetation; edge effects	Diagonal lines created by the highway and fence Vertical lines created by utility poles Horizontal lines from utility pole wires Diamond shaped lines from street signs
COLOR	Brown, light and dark gray, white Low lying hills appear dark blue	Green, white and tan low growing grasses and weeds Brownish gray of deciduous trees not in foliage Dark green of evergreen trees	Brown, gray, silver fencing and road signs White, gray, tan buildings
TEX-TURE	Uniform, medium texture of the road	Patchy, medium – low lying grasses and weeds rough	Rough wooden fence and utility pole Smooth road sign Fine, even houses

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat	Geometric and linear forms created by vegetation clearing	Square, contrasting, block, solid, smooth
LINE	Horizontal (solar site and road)	Weak irregular lines, edge effect	Straight, regular
COLOR	Dark grey, saturated fill, glaring	Brown/tans	Dark grey
TEX-TURE	Fine to smooth	Course, rough, random, dotted	Fine to smooth

SECTION D. CONTRAST RATING __SHORT TERM __LONG TERM

1. DEGREE OF CONTRAST		FEATURES											
		LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM		x					x				x	
	LINE			x				x				X	
	COLOR		x				x					x	

2. Does project design meet visual resource management objectives? ___Yes ___No
(Explain on reverses side)
NOT ON FEDERAL LAND

3. Additional mitigating measures recommended
_x__Yes ___No (Explain on reverses side)

Evaluator's Names Ryan Rausch August 2017
Date

	TEXTURE													

SECTION D. (Continued)

Comments from item 2.

Additional Mitigating Measures (See item 3)

See Technical Report

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date:
District/ Field Office:
Resource Area:
Activity (program):

SECTION A. PROJECT INFORMATION

1. Project Name TUUSSO Solar Camas Site	4. Location Township_____	5. Location Sketch
2. Key Observation Point KOP 3	Range_____	
3. VRM Class NOT ON FEDERAL LAND	Section_____	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Bold, parallel, curving highway Flat foreground terrain Angular, rolling distant mountains in background terrain	Round, lanceolate, triangular, oval - trees and shrubs	Vertical and horizontal - road/highway overpass Rectangular, vertical reflector signs
LINE	Bold band of the curving highway	Converging simple agricultural field	Straight and curving, perpendicular
COLOR	Gray roads with yellow and white striping Dark blue distant rolling hills	Bright green and dark green of deciduous and evergreen trees and shrubs	Gray overpass of road/highway Black and yellow reflector sign Brown creosote road stabilizers White/gray/tan buildingsB
TEX-TURE	Smooth	Medium, even texture of grassy field	Fine texture of the concrete overpass Smooth texture of road reflectors

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Flat, sloping, superior	Geometric and linear forms created by vegetation clearing	Square, contrasting, block, solid, smooth
LINE	Horizontal (solar site and road)	Weak irregular lines, edge effect	Straight, regular
COLOR	Dark grey, saturated fill, glaring	Brown/tans, greens	Light grey & white
TEX-TURE	Fine to smooth	Course, rough, random, dotted	Fine to smooth

SECTION D. CONTRAST RATING __SHORT TERM __LONG TERM

1. DEGREE OF CONTRAST		FEATURES											
		LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM			x				x			x		
	LINE		x					x				x	
	COLOR		x					x			x		
	TEXTURE			x				x				x	

2. Does project design meet visual resource management objectives? ___Yes ___No
(Explain on reverses side)
NOT ON FEDERAL LAND

3. Additional mitigating measures recommended
x___Yes ___No (Explain on reverses side)

Evaluator's Names Ryan Rausch August 2017
Date

SECTION D. (Continued)

Comments from item 2.

Additional Mitigating Measures (See item 3)

See Technical Report

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date:
District/ Field Office:
Resource Area:
Activity (program):

SECTION A. PROJECT INFORMATION

1. Project Name TUUSSO Solar Fumaria Site	4. Location Township_____	5. Location Sketch
2. Key Observation Point KOP 2	Range_____	
3. VRM Class NOT ON FEDERAL LAND	Section_____	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Road – bold, regular, curving Field – flat, low Distant hills – smooth, rounded	Trees – roundish Shrubs – patches of low lying rectangular shapes	Building – triangular and rectangular Mailbox - rectangular Irrigation pipes – linear, narrow Utility poles – Tall, vertical
LINE	Road- bold, curving Field- straight, converging Distant hills-weak, smooth	Trees – Circular, complex Shrubs- perpendicular, continuous	Building – Angular, straight Mailbox - angular Irrigation pipes – straight Utility poles – perpendicular
COLOR	Road- gray, white, yellow Field – brown, tan green Distant hills - Blue, gray	Trees- brown/gray without foliage Shrubs-tan, brown gray without foilage	Building – white, gray Mailbox – silver, red, brown Irrigation pipes – white Utility poles – brown
TEX-TURE	Road- fine, smooth Field – medium, uneven Distant hills – fine, uniform	Trees- Coarse, patchy Shrubs – coarse, random	Building – directional Mailbox – smooth, ordered Irrigation pipes – smooth, ordered Utility poles – coarse

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Indiscernible	Indiscernible	Not visible
LINE	Indiscernible	Indiscernible	Not visible
COLOR	Indiscernible	Indiscernible	Not visible
TEX-TURE	Indiscernible	Indiscernible	Not visible

SECTION D. CONTRAST RATING __SHORT TERM __LONG TERM

1. DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM				x				x				x
	LINE				x				x				x
	COLOR				x				x				x
	TEXTURE				x				x				x

2. Does project design meet visual resource management objectives? ___Yes ___No
(Explain on reverses side)
NOT ON FEDERAL LAND

3. Additional mitigating measures recommended
___Yes ___No (Explain on reverses side)

Evaluator's Names Date
Ryan Rausch August 2017

SECTION D. (Continued)

Comments from item 2.

Additional Mitigating Measures (See item 3)

See technical report

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date:
District/ Field Office:
Resource Area:
Activity (program):

SECTION A. PROJECT INFORMATION

1. Project Name TUUSSO Solar Fumaria Site	4. Location Township_____	5. Location Sketch
2. Key Observation Point KOP 3	Range_____	
3. VRM Class NOT ON FEDERAL LAND	Section_____	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Distant hills – low, rounded Fields – flat, simple,	Agricultural fields – flat and simple Trees – irregular, rounded, short and tall, branching Cattails and grasses – irregular, nondirectional, short and tall	Roadway – prominent, flat, horizontal Utility poles – tall, vertical, regular Fencing – low, regular, simple Buildings – angular, diverse, irregular
LINE	Distant hills – simple, undulating Fields – horizontal, simple, continuous	Agricultural fields – horizontal, simple, continuous Trees – complex, soft, irregular Cattails and grasses – irregular, jagged	Roadway – simple, regular, straight, continuous Utility poles – straight, vertical, regular Fencing – straight, vertical, regular Buildings – regular, hard, angular
COLOR	Distant hills – blue, grey Fields – green, light brown, black	Agricultural fields – green, light brown, black Trees – light brown, dark green Cattails and grasses – golden brown, tan	Roadway – grey, yellow striping Utility poles – dark brown Fencing – dark brown, yellow and white Buildings – white, light brown, red
TEX-TURE	Distant hills – fine and medium grain, patchy random snow Fields – fine grain, uniform	Agricultural fields – uniform, fine grain Trees – complex, soft, irregular Cattails and grasses – irregular, jagged	Roadway – uniform, fine, continuous, striped Utility poles – ordered, contrasting Fencing – ordered Buildings – random, scattered

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Indiscernible	Indiscernible	Not visible
LINE	Transmission line: horizontal, consistent with existing landscape	Indiscernible	Horizontal, vanishing, parallel with ground
COLOR	Indiscernible	Indiscernible	Not visible
TEX-TURE	Indiscernible	Indiscernible	Not visible

SECTION D. CONTRAST RATING __SHORT TERM __LONG TERM

1. DEGREE OF CONTRAST		FEATURES											
		LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM				x				x				x
	LINE				x				x			x	
	COLOR				x				x				x

2. Does project design meet visual resource management objectives? ___Yes ___No (Explain on reverses side)

NOT ON FEDERAL LAND

3. Additional mitigating measures recommended ___Yes ___No (Explain on reverses side)

Evaluator's Names Ryan Rausch August 2017
Date

	TEXTURE				x				x				x	

SECTION D. (Continued)

Comments from item 2.

Additional Mitigating Measures (See item 3)

See technical report

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date:
District/ Field Office:
Resource Area:
Activity (program):

SECTION A. PROJECT INFORMATION

1. Project Name TUUSSO Solar Penstemon Site	4. Location Township_____	5. Location Sketch
2. Key Observation Point KOP 1	Range_____	
3. VRM Class NOT ON FEDERAL LAND	Section_____	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Foreground field- flat Distant hills – tall, smooth, rolling	Trees and shrubs – round, lanceolate, short and tall	Buildings- rectangular, triangular Guardrail – short, rectangular Utility poles- tall, vertical
LINE	Field- horizontal Hills – Simple, flowing Creek- Flat, straight	Trees and shrubs – Vertical, branching, perpendicular	Buildings- Straight, vertical Guardrail – Straight, vertical Utility Poles – Straight, vertical
COLOR	Brown, gray, tan	Green, brown, tan	Buildings- White, red, blue and gray Guardrail – Brown, silver/gray Utility poles - brown
TEX-TURE	Fine to medium	Medium to coarse	Buildings- smooth Guardrail – rough wood, smooth metal Utility Poles - Rough

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Foreground – flat Distant hills – tall, smooth, rolling	Trees and shrubs - oval, roundish	Chain link fence – Rough, transparent, vertical, linear Solar panels – Low, horizontal, parallel Guardrail – Short, rectangular Utility poles – tall, vertical
LINE	Foreground – horizontal Hills – Simple, flowing	Trees and shrubs – Curving, circular, vertical	Chain link fence - Straight, regular, continuous Solar panels – Parallel, regular, straight Guardrail – Straight, vertical Utility poles – Straight, vertical
COLOR	Brown, gray tan	Trees and shrubs – Green Grasses - Green	Chain link fence - Gray Solar panels - Gray, silver Guardrail – Brown, gray Utility poles – Brown Vegetation screening - green
TEX-TURE	Foreground - Fine to medium Distant hills - Patchy	Trees and shrubs – Rough, continuous	Chain link fence – Even/ordered, directional Solar panels – Even/ordered, directional Guardrail – Rough wood, smooth metal Utility poles - Rough

SECTION D. CONTRAST RATING __SHORT TERM __LONG TERM

1. DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1) STRONG	MODERATE	WEAK	NONE	VEGETATION (2) STRONG	MODERATE	WEAK	NONE	STRUCTURES (3) STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM			x				x				x	
	LINE			x			x				x		

2. Does project design meet visual resource management objectives? ___Yes ___No
(Explain on reverses side)

NOT ON FEDERAL LAND
3. Additional mitigating measures recommended
__x_Yes ___No (Explain on reverses side)

	COLOR			x				x			x			Evaluator's Names Ryan Rausch August 2017 Date
	TEXTURE			x				x				x		

SECTION D. (Continued)

Comments from item 2.

Additional Mitigating Measures (See item 3)

See technical report

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date:
District/ Field Office:
Resource Area:
Activity (program):

SECTION A. PROJECT INFORMATION

1. Project Name TUUSSO Solar Penstemon Site	4. Location Township_____	5. Location Sketch
2. Key Observation Point KOP 2	Range_____	
3. VRM Class NOT ON FEDERAL LAND	Section_____	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Fields – flat Distant hills – tall, smooth, rolling Stream – regular and meandering	Agricultural fields – regular Riparian growth – low, irregular Trees/shrubs - irregular, rounded, short and tall, branching	Distant farms – low, small, contrasting Roadway – prominent, flat, regular, linear, horizontal Utility poles – tall, vertical
LINE	Fields – horizontal Distant hills – simple, flowing Stream – horizontal, parallel shorelines	Agricultural fields – simple, regular Riparian growth –complex, broken Trees/shrubs – vertical, irregular	Distant farms – broken, discontinuous Roadway – simple, straight, continuous Utility poles – straight, vertical
COLOR	Fields – green Distant hills – blue, grey, light grey Stream – grey with some glare	Agricultural fields – green Riparian growth – golden brown, light brown, grey Trees/shrubs – grey, brown, light green	Distant farms – white, light brown Roadway – light and medium grey, monotone Utility poles – light and dark brown
TEX-TURE	Fields – uniform, fine Distant hills – uniform, fine Stream – uniform, stippled	Agricultural fields – uniform, fine Riparian growth – coarse, rough, nondirectional Trees/shrubs – patchy, clumped	Distant farms – random, dotted Roadway – uniform, fine, continuous \ Utility poles – ordered, contrasting

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Fields – flat Distant hills – tall, smooth, rolling Stream – regular and meandering	Agricultural fields – regular Riparian growth – low, irregular Trees/shrubs - irregular, rounded, short and tall, branching	Distant farms – low, small, contrasting Roadway – prominent, flat, regular, linear, horizontal Utility poles – tall, vertical Solar panels – low, horizontal
LINE	Fields – horizontal Distant hills – simple, flowing Stream – horizontal, parallel shorelines	Agricultural fields – simple, regular Riparian growth –complex, broken Trees/shrubs – vertical, irregular	Distant farms – broken, discontinuous Roadway – simple, straight, continuous Utility poles – straight, vertical Solar panels – Straight, parallel, continuous
COLOR	Fields – green Distant hills – blue, grey, light grey Stream – grey with some glare	Agricultural fields – green Riparian growth – golden brown, light brown, grey Trees/shrubs – grey, brown, light green	Distant farms – white, light brown Roadway – light and medium grey, monotone Utility poles – light and dark brown Solar panels – White, gray
TEX-TURE	Fields – uniform, fine Distant hills – uniform, fine Stream – uniform, stippled	Agricultural fields – uniform, fine Riparian growth – coarse, rough, non-directional Trees/shrubs – patchy, clumped	Distant farms – random, dotted Roadway – uniform, fine, continuous \ Utility poles – ordered, contrasting Solar panels – Smooth, matte

SECTION D. CONTRAST RATING __SHORT TERM __LONG TERM

1. DEGREE OF CONTRAST		FEATURES											
		LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM			x				x				x	
	LINE			x				x				x	
	COLOR			x				x				x	

2. Does project design meet visual resource management objectives? ___Yes ___No (Explain on reverses side)
NOT ON FEDERAL LAND

3. Additional mitigating measures recommended _x__Yes ___No (Explain on reverses side)

Evaluator's Names Date
Ryan Rausch August 2017

	TEXTURE			x				x				x		

SECTION D. (Continued)

Comments from item 2.

Additional Mitigating Measures (See item 3)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date:
District/ Field Office:
Resource Area:
Activity (program):

SECTION A. PROJECT INFORMATION

1. Project Name TUUSSO Solar Penstemon Site	4. Location Township_____	5. Location Sketch
2. Key Observation Point KOP 3	Range_____	
3. VRM Class NOT ON FEDERAL LAND	Section_____	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Fields – flat Distant hills – tall, smooth, rolling	Agricultural fields – regular Trees – irregular, rounded, low	Distant farms – low, small, contrasting Roadway – prominent, flat, regular, linear, horizontal Utility poles – tall, vertical Irrigation line and ditch – simple, low, linear, contrasting
LINE	Fields – simple, horizontal Distant hills – undulating	Agricultural fields – regular Trees – irregular, broken	Distant farms – broken, discontinuous Roadway – simple, straight, continuous Utility poles – straight, vertical Irrigation line and ditch – straight, parallel
COLOR	Fields – green Distant hills – blue, grey, light brown	Agricultural fields – green, brown Trees – light and dark brown	Distant farms – while, light grey Roadway –medium grey, with while striping Utility poles – dark brown Irrigation line and ditch – white irrigation line, grey concrete ditch
TEX-TURE	Fields – uniform, fine Distant hills – patchy, discontinuous	Agricultural fields – regular Trees – patchy, clumped	Distant farms – random, dotted Roadway – uniform, fine, striped Utility poles – ordered, contrasting Irrigation line and ditch – smooth and contrasting irrigation line, rough concrete ditch

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Fields – flat Distant hills – tall, smooth, rolling	Agricultural fields – regular Trees – irregular, rounded, low New trees and shrubs – lanceolate trees, round shrubs, short and tall	Distant farms – low, small, contrasting Roadway – prominent, flat, regular, linear, horizontal Utility poles – tall, vertical Irrigation line and ditch – simple, low, linear, contrasting Solar panels – Indistinct, horizontal
LINE	Fields – simple, horizontal Distant hills – undulating	Agricultural fields – regular Trees – irregular, broken New trees and shrubs – regular,continuous	Distant farms – broken, discontinuous Roadway – simple, straight, continuous Utility poles – straight, vertical Irrigation line and ditch – straight, parallel Solar panels – straight, parallel, horizontal
COLOR	Fields – green Distant hills – blue, grey, light brown	Agricultural fields – green, brown Trees – light and dark brown New trees and shrubs –green	Distant farms – while, light grey Roadway –medium grey, with while striping Utility poles – dark brown Irrigation line and ditch – white irrigation line, grey concrete ditch Solar panels – white, gray
TEX- TURE	Fields – uniform, fine Distant hills – patchy, discontinuous	Agricultural fields – regular Trees – patchy, clumped New trees and shrubs – Even, directional	Distant farms – random, dotted Roadway – uniform, fine, striped Utility poles – ordered, contrasting Irrigation line and ditch – smooth and contrasting irrigation line, rough concrete ditch Solar panels – smooth, matte

SECTION D. CONTRAST RATING __SHORT TERM __LONG TERM

1.	FEATURES			2. Does project design meet visual resource
	LAND/WATER BODY (1)	VEGETATION (2)	STRUCTURES (3)	

DEGREE OF CONTRAST		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM			x				x			x		
	LINE			x			x				x		
	COLOR			x			x				x		
	TEXTURE			x			x				x		

management objectives? ___Yes ___No
(Explain on reverses side)
NOT ON FEDERAL LAND

3. Additional mitigating measures recommended
__x_Yes ___No (Explain on reverses side)

Evaluator's Names Date
Ryan Rausch August 2017

SECTION D. (Continued)

Comments from item 2.

Additional Mitigating Measures (See item 3)

See technical report

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date:
District/ Field Office:
Resource Area:
Activity (program):

SECTION A. PROJECT INFORMATION

1. Project Name TUUSSO Solar Typha Site	4. Location Township_____	5. Location Sketch
2. Key Observation Point KOP 1	Range_____	
3. VRM Class NOT ON FEDERAL LAND	Section_____	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Distant hills – low, rounded, irregular Fields – flat, regular, horizontal	Agricultural fields – flat, regular, horizontal Trees – rounded, irregular, short and tall Weeds and grasses – rough, irregular	Roadway – prominent, flat, regular, linear Irrigation equipment –prominent, complex regular Distant buildings – low, indistinct, irregular
LINE	Distant hills – simple, undulating Fields – simple, horizontal, continuous	Agricultural fields – simple, horizontal, continuous Trees – irregular, tall and short Weeds and grasses – complex, broken	Roadway – simple, regular, straight, continuous Irrigation equipment – regular, hard, undulating, parallel Distant buildings – broken, irregular
COLOR	Distant hills – blue, grey, light brown Fields – green, brown	Agricultural fields – green, brown Trees – dark and light brown Weeds and grasses – grey, golden brown	Roadway – light and medium grey, white roads striping Irrigation equipment – grey, white Distant buildings – white, grey
TEX-TURE	Distant hills – fine and medium grain, patchy snow Fields – fine uniform grain	Agricultural fields – fine uniform grain Trees – patchy, clumped Weeds and grasses – patchy, rough, scattered	Roadway – fine uniform grain, directional, striped Irrigation equipment – ordered, contrasting, rough Distant buildings – random, dotted

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Foreground – flat Distant hills – tall, smooth, rolling	Trees and shrubs - oval, roundish	None
LINE	Foreground – horizontal Hills – Simple, flowing	Trees and shrubs – Curving, circular, vertical	None
COLOR	Brown, gray tan	Trees and shrubs – Green Grasses - Green	None
TEX-TURE	Foreground - Fine to medium Distant hills - Patchy	Trees and shrubs – Rough, continuous	None

SECTION D. CONTRAST RATING __SHORT TERM __LONG TERM

1. DEGREE OF CONTRAST		FEATURES: LAND/WATER BODY (1) STRONG	MODERATE	WEAK	NONE	VEGETATION (2) STRONG	MODERATE	WEAK	NONE	STRUCTURES (3) STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM			x				x					x
	LINE			x				x					x
	COLOR			x				x					x
	TEXTURE			x				x					x

2. Does project design meet visual resource management objectives? ___Yes ___No
(Explain on reverses side)
NOT ON FEDERAL LAND

3. Additional mitigating measures recommended
_x__Yes ___No (Explain on reverses side)

Evaluator's Names Date
Ryan Rausch August 2017

Comments from item 2.

Additional Mitigating Measures (See item 3)

See technical report

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date:
District/ Field Office:
Resource Area:
Activity (program):

SECTION A. PROJECT INFORMATION

1. Project Name TUUSSO Solar Typha Site	4. Location Township_____	5. Location Sketch
2. Key Observation Point KOP 2	Range_____	
3. VRM Class NOT ON FEDERAL LAND	Section_____	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Distant hills – low, rolling, simple Fields – low, flat, smooth	Agricultural crops – low, flat, smooth Trees – rounded, conical, irregular, short and tall	Roadway – prominent, flat, simple, curved Utility poles – tall, vertical Fencing – vertical and horizontal Distant buildings – low, irregular, angular
LINE	Distant hills – simple, undulating Fields – simple, horizontal, continuous	Agricultural crops – simple, horizontal, continuous Trees – irregular, broken, tall and short	Roadway – simple, regular, curving, continuous Utility poles – straight, vertical Fencing – bold, straight, diagonal Distant buildings – complex, hard, irregular
COLOR	Distant hills – blue, grey Fields – green	Agricultural crops – green Trees –light brown, dark green	Roadway – light grey, white and yellow striping Utility poles – dark brown Fencing – dark brown Distant buildings –White, grey
TEX-TURE	Distant hills – fine grain, smooth Fields – fine grain, uniform	Agricultural crops – fine grain, uniform Trees – patchy, clumped	Roadway – fine grain, uniform, directional, striped Utility poles – ordered, contrasting Fencing – rough, random Distant buildings – ransom, dotted

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Foreground – flat Distant hills – tall, smooth, rolling	Trees and shrubs - oval, roundish	None
LINE	Foreground – horizontal Hills – Simple, flowing	Trees and shrubs – Curving, circular, vertical	None
COLOR	Brown, gray tan	Trees and shrubs – Green Grasses - Green	None
TEX-TURE	Foreground - Fine to medium Distant hills - Patchy	Trees and shrubs – Rough, continuous	None

SECTION D. CONTRAST RATING __SHORT TERM __LONG TERM

1. DEGREE OF CONTRAST		FEATURES											
		LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM			x				x					x
	LINE			x				x					x
	COLOR			x				x					x

2. Does project design meet visual resource management objectives? ___Yes ___No
(Explain on reverses side)
NOT ON FEDERAL LAND

3. Additional mitigating measures recommended
_x__Yes ___No (Explain on reverses side)

Evaluator's Names Date
Ryan Rausch August 2017

	TEXTURE			x				x					x	

SECTION D. (Continued)

Comments from item 2.

Additional Mitigating Measures (See item 3)

See technical report

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date:
District/ Field Office:
Resource Area:
Activity (program):

SECTION A. PROJECT INFORMATION

1. Project Name TUUSSO Solar Typha Site	4. Location Township_____	5. Location Sketch
2. Key Observation Point KOP 3	Range_____	
3. VRM Class NOT ON FEDERAL LAND	Section_____	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Field – Flat, simple Distant Hills – Rounded, simple	Field in Foreground – Low, flat Trees and Shrubs in Middle ground – Lanceolate, triangular, vertical	Overhead Sprinklers – Triangular, tall, directional Buildings – Rectangular, triangular Utilities, Fence posts – Rectangular, vertical, low and tall
LINE	Field – Horizontal, simple Distant Hills – Horizontal, curving, simple	Field in Foreground – Straight, flat Trees and Shrubs in Middle ground – Irregular, vertical, converging	Overhead Sprinklers – Bold, angular Buildings – Angular, parallel Utilities, Fence posts – Straight, parallel
COLOR	Field – Brown Distant Hills – blue, gray, white	Field in Foreground - Green Trees and Shrubs in Middle ground – Dark green	Overhead Sprinklers – silver, gray Buildings –Red, gray, light yellow, brown Utilities, Fence posts – dark brown, yellow
TEX-TURE	Field – Fine to medium Distant Hills – Fine, even	Field in Foreground – Fine to medium grain, dense Trees and Shrubs in Middle ground – Coarse grain, sparse	Overhead Sprinklers – Smooth, uniform Buildings – Smooth, uniform Utilities, Fence posts – Rough, uniform

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Foreground – flat Distant hills – tall, smooth, rolling	Trees and shrubs - oval, roundish	None
LINE	Foreground – horizontal Hills – Simple, flowing	Trees and shrubs – Curving, circular, vertical	None
COLOR	Brown, gray tan	Trees and shrubs – Green Grasses - Green	None
TEX-TURE	Foreground - Fine to medium Distant hills - Patchy	Trees and shrubs – Rough, continuous	None

SECTION D. CONTRAST RATING __SHORT TERM __LONG TERM

1. DEGREE OF CONTRAST		FEATURES											
		LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM			x				x					x
	LINE			x				x					x
	COLOR			x				x					x

2. Does project design meet visual resource management objectives? ___Yes ___No
(Explain on reverses side)
NOT ON FEDERAL LAND

3. Additional mitigating measures recommended
_x__Yes ___No (Explain on reverses side)

Evaluator's Names Date
Ryan Rausch

	TEXTURE			x				x					x	

SECTION D. (Continued)

Comments from item 2.

Additional Mitigating Measures (See item 3)

See technical report

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date:	
District/ Field Office:	
Resource Area:	
Activity (program):	

SECTION A. PROJECT INFORMATION

1. Project Name TUUSSO Solar Urtica Site	4. Location Township_____	5. Location Sketch
2. Key Observation Point KOP 1	Range_____	
3. VRM Class NOT ON FEDERAL LAND	Section_____	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Road – Flat, definite, curving Field – Flat, simple Hills – Rolling, horizontal	Field – Flat, simple Road edge trees and shrubs – Vertical, complex, branching Middle ground trees and shrubs – Lancelolate, circular, vertical	Buildings – Rectangular, triangular Road signs – Octagonal, diamond, rectangular, vertical Gates, fencing and utility poles – vertical, horizontal, parallel
LINE	Road – Curving, diverging Field – Diverging, weak Hills – Undulating	Field – Simple, continuous Road edge trees and shrubs– Complex, branching Middle ground Trees and Shrubs – Lanceloate, roundish	Buildings – Straight, angular Road signs – Geometric Gates, fencing and utility poles – Vertical, straight
COLOR	Road – Gray, white Land – Brown, tan	Field – Bright green Road edge trees and shrubs – Brown, dark green Middle ground Trees and Shrubs – Dark Green, brownish	Buildings – White, gray Road signs – Red, white, yellow, black, silver/gray Gates, fencing and utility poles – Brown, silver/gray, white
TEX-TURE	Road – Rough, patchy Field – Uniform, medium grain Hills – Fine to medium grain, patchy	Field – Medium grain, uniform Road edge trees and shrubs – Coarse grain, dense Middle ground Trees and Shrubs – Coarse grain, random	Buildings – Smooth Road signs – Smooth, glossy Gates, fencing and utility poles – Coarse grain, contrasty

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Fields – flat Distant hills – tall, smooth, rolling	Agricultural fields – regular Trees – irregular, rounded, low New trees and shrubs – lanceolate trees, round shrubs, short and tall	Distant farms – low, small, contrasting Roadway – prominent, flat, regular, linear, horizontal Utility poles – tall, vertical Irrigation line and ditch – simple, low, linear, contrasting Solar panels – Indistinct, horizontal
LINE	Fields – simple, horizontal Distant hills – undulating	Agricultural fields – regular Trees – irregular, broken New trees and shrubs – regular,continuous	Distant farms – broken, discontinuous Roadway – simple, straight, continuous Utility poles – straight, vertical Irrigation line and ditch – straight, parallel Solar panels – straight, parallel, horizontal
COLOR	Fields – green Distant hills – blue, grey, light brown	Agricultural fields – green, brown Trees – light and dark brown New trees and shrubs –green	Distant farms – while, light grey Roadway –medium grey, with while striping Utility poles – dark brown Irrigation line and ditch – white irrigation line, grey concrete ditch Solar panels – white, gray
TEX- TURE	Fields – uniform, fine Distant hills – patchy, discontinuous	Agricultural fields – regular Trees – patchy, clumped New trees and shrubs – Even, directional	Distant farms – random, dotted Roadway – uniform, fine, striped Utility poles – ordered, contrasting Irrigation line and ditch – smooth and contrasting irrigation line, rough concrete ditch Solar panels – smooth, matte

SECTION D. CONTRAST RATING __SHORT TERM __LONG TERM

1.	FEATURES			2. Does project design meet visual resource
	LAND/WATER BODY (1)	VEGETATION (2)	STRUCTURES (3)	

DEGREE OF CONTRAST		STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE
ELEMENTS	FORM			x				x				x	
	LINE			x			x					x	
	COLOR			x			x				x		
	TEXTURE			x			x				x		

management objectives? ___Yes ___No
(Explain on reverses side)
NOT ON FEDERAL LAND

3. Additional mitigating measures recommended
_x__Yes ___No (Explain on reverses side)

Evaluator's Names Date
Ryan Rausch August 2017

SECTION D. (Continued)

Comments from item 2.

Additional Mitigating Measures (See item 3)

See technical report

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date:	
District/ Field Office:	
Resource Area:	
Activity (program):	

SECTION A. PROJECT INFORMATION

1. Project Name TUUSSO Solar Urtica Site	4. Location Township_____	5. Location Sketch
2. Key Observation Point KOP 2	Range_____	
3. VRM Class NOT ON FEDERAL LAND	Section_____	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Foreground, middle ground – Flat Background hills – Rolling, solid	Field – Flat, regular Middle ground trees and shrubs – Roundish, lanceolate, vertical	Fences – Vertical, regular, horizontal Road signs – Rectangular, pentagonal Buildings – Rectangular, triangular
LINE	Foreground – Straight, diverging Middle ground – Irregular, broken Background hills – Curving, simple	Field – Straight, horizontal Middle ground trees and shrubs – vertical, branching	Fences – Horizontal, vertical, parallel Road Signs – Angular, vertical Buildings - Straight, smooth
COLOR	Foreground land – Brown, gray Foreground parking lot – Dark gray Background hills – Blue/gray, white	Field – Green, tan, brown Middle ground trees and shrubs – Dark green	Fences – Brown,orange, white, silver/gray Road Signs – Silver/gray Buildings - White, gray
TEX-TURE	Foreground land – Rough, granular Foreground parking lot - Smooth Background hills – Smooth, fine	Field – Medium grain, even Middle ground trees and shrubs – Coarse grain, medium density Background hills – Fine grain, even	Fences – Smooth, directional Road Signs – Smooth, glossy Buildings – Medium, uniform

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Fields – flat Distant hills – tall, smooth, rolling	Agricultural fields – regular Trees – irregular, rounded, low New trees and shrubs – lanceolate trees, round shrubs, short and tall	Distant farms – low, small, contrasting Roadway – prominent, flat, regular, linear, horizontal Utility poles – tall, vertical Irrigation line and ditch – simple, low, linear, contrasting Solar panels – Indistinct, horizontal
LINE	Fields – simple, horizontal Distant hills – undulating	Agricultural fields – regular Trees – irregular, broken New trees and shrubs – regular,continuous	Distant farms – broken, discontinuous Roadway – simple, straight, continuous Utility poles – straight, vertical Irrigation line and ditch – straight, parallel Solar panels – straight, parallel, horizontal
COLOR	Fields – green Distant hills – blue, grey, light brown	Agricultural fields – green, brown Trees – light and dark brown New trees and shrubs –green	Distant farms – while, light grey Roadway –medium grey, with while striping Utility poles – dark brown Irrigation line and ditch – white irrigation line, grey concrete ditch Solar panels – white, gray
TEX- TURE	Fields – uniform, fine Distant hills – patchy, discontinuous	Agricultural fields – regular Trees – patchy, clumped New trees and shrubs – Even, directional	Distant farms – random, dotted Roadway – uniform, fine, striped Utility poles – ordered, contrasting Irrigation line and ditch – smooth and contrasting irrigation line, rough concrete ditch Solar panels – smooth, matte

SECTION D. CONTRAST RATING __SHORT TERM __LONG TERM

1.	FEATURES												
	LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)				2. Does project design meet visual resource management objectives? ___Yes ___No (Explain on reverses side) NOT ON FEDERAL LAND 3. Additional mitigating measures recommended
DEGREE OF CONTRAST	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	

ELEMENTS	FORM			x			x					x		___Yes ___No (Explain on reverses side)
	LINE			x				x				x		
	COLOR			x			x				x			Evaluator's Names Date
	TEXTURE			x			x				x			

SECTION D. (Continued)

Comments from item 2.

Additional Mitigating Measures (See item 3)

See technical report

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
VISUAL CONTRAST RATING WORKSHEET

Date:	
District/ Field Office:	
Resource Area:	
Activity (program):	

SECTION A. PROJECT INFORMATION

1. Project Name TUUSSO Solar Urtica Site	4. Location Township_____	5. Location Sketch
2. Key Observation Point KOP 3	Range_____	
3. VRM Class NOT ON FEDERAL LAND	Section_____	

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Foreground, Middle ground – Flat Background Hills – Rolling, vertical	Foreground field– Flat Foreground and middle ground trees and shrubs – Lanceolate, roundish	Sprinklers – Circular, straight, horizontal Utility Pole/guy wire – Vertical, angular Buildings – Triangular, rectangular
LINE	Foreground – Flat, diverging Middle ground – Broken, rugged Background hills - Undulating	Foreground field – Simple, straight Middle ground trees and shrubs – Branching, complex Background hills - Undulating	Sprinklers – Curving and straight Utility Pole/guy wire – Angular, vertical Buildings – Straight, vertical
COLOR	Foreground, middle ground – Brown, gray Background hills – Blue/gray	Foreground field – Green, tan Middle ground trees and shrubs – Dark green, brown	Sprinklers – Silver/gray Utility Pole/guy wire – Brown, silver, yellow Buildings – Red, white, gray, rust, tan
TEX-TURE	Foreground, middle ground – Medium and coarse grain Background hills – Fine, smooth	Foreground field – Medium grain, even Foreground and middle ground trees – Coarse, clumped	Sprinklers – Smooth, continuous Utility Pole/guy wire – Rough and smooth Buildings – Smooth, directional

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Fields – flat Distant hills – tall, smooth, rolling	Agricultural fields – regular Trees – irregular, rounded, low New trees and shrubs – lanceolate trees, round shrubs, short and tall	Distant farms – low, small, contrasting Roadway – prominent, flat, regular, linear, horizontal Utility poles – tall, vertical Irrigation line and ditch – simple, low, linear, contrasting Solar panels – Indistinct, horizontal
LINE	Fields – simple, horizontal Distant hills – undulating	Agricultural fields – regular Trees – irregular, broken New trees and shrubs – regular,continuous	Distant farms – broken, discontinuous Roadway – simple, straight, continuous Utility poles – straight, vertical Irrigation line and ditch – straight, parallel Solar panels – straight, parallel, horizontal
COLOR	Fields – green Distant hills – blue, grey, light brown	Agricultural fields – green, brown Trees – light and dark brown New trees and shrubs –green	Distant farms – while, light grey Roadway –medium grey, with while striping Utility poles – dark brown Irrigation line and ditch – white irrigation line, grey concrete ditch Solar panels – white, gray
TEX- TURE	Fields – uniform, fine Distant hills – patchy, discontinuous	Agricultural fields – regular Trees – patchy, clumped New trees and shrubs – Even, directional	Distant farms – random, dotted Roadway – uniform, fine, striped Utility poles – ordered, contrasting Irrigation line and ditch – smooth and contrasting irrigation line, rough concrete ditch Solar panels – smooth, matte

SECTION D. CONTRAST RATING __SHORT TERM __LONG TERM

1.	FEATURES												2. Does project design meet visual resource management objectives? ___Yes ___No (Explain on reverses side) NOT ON FEDERAL LAND 3. Additional mitigating measures recommended
	LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)				
DEGREE OF CONTRAST	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	STRONG	MODERATE	WEAK	NONE	

ELEMENTS	FORM			x				x			x			__x_Yes ___No (Explain on reverses side)
	LINE			x			x				x			
	COLOR			x			x				x			Evaluator's Names Date Ryan Rausch August 2017
	TEXTURE			x				x			x			

SECTION D. (Continued)

Comments from item 2.

Additional Mitigating Measures (See item 3)

See technical report