# EXHIBIT J

Project Area Hydrology and Flood Inundation Study



HYDROLOGY AND FLOOD INUNDATION STUDY

POWERS BUTTE SOLAR PROJECT ADA & CANYON COUNTY, IDAHO KLEINFELDER PROJECT NO: 24001535.001A

January 5, 2024

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# HYDROLOGY AND FLOOD INUNDATION REPORT POWERS BUTTE SOLAR PROJECT ADA & CANYON COUNTY, IDAHO

## **1 EXECUTIVE SUMMARY**

Savion Energy (Savion) is considering development of a 205 MW AC solar energy facility, located in Ada and Canyon County, Idaho. The property is located along Southside Boulevard, approximately 20 miles southwest of Boise, Idaho.

The project is located on approximately 2,385 acres of property and will include ground-mounted solar photovoltaic (PV) arrays and underground electrical conduits. Ancillary construction will consist of gravel access roads, perimeter fence, and pads for power transformers, inverters, and switchgear.

Hydrologic and hydraulic modeling analyses were performed to evaluate maximum flood depths, velocities and scour potential for the 100-year, 24-hour storm event associated with the pre-development condition of the proposed project area.

This report represents the pre-development hydrologic and hydraulic model results for the site. The predevelopment hydrologic and hydraulic model results are based on publicly available data described herein. Flood depths range from 0 to 1.5 feet and flood velocities range from 0 to 3 feet per second (fps) within the project area.



## 2 INTRODUCTION

#### 2.1 PROJECT DESCRIPTION

The proposed solar site is approximately 2,385 acres and located along the Ada and Canyon County line, south of Stage Coach Road and east of Southside Boulevard. Refer to **Appendix A** for the location map.

The topography in the project area contains elevations ranging from approximately 2,722 to 2,906 feet – NAVD 88. All elevations listed in this report and provided in appendices are referenced to NAVD 88 unless otherwise noted.

### 2.2 DESIGN DATA AND METHODOLOGIES

Based on a review of the FEMA Flood Insurance Rate Map (FIRM)<sup>1</sup> panel 16001C0375G (effective February 19, 2003) and panel 16001C0400J (effective October 2, 2003), the project site is within FEMA unshaded Zone X floodplain. Zone X floodplains are at minimal risk of inundation. **Appendix B** shows the project boundary with the FEMA floodplain delineation obtained from the online FEMA mapping database.

The stormwater analyses of the proposed solar site were conducted in accordance with the Boise Stormwater Design Manual<sup>2</sup>. Rainfall data at the project site for the design storm events was obtained from the NOAA Atlas 2 Precipitation Frequency Database<sup>3</sup>. **Appendix C** shows the rainfall depth data used for the study area. Type II 24-hour rainfall distribution was utilized for the 100-year, 24-hour storm event and average moisture conditions were utilized in all simulations.

Soil data was obtained from the National Resources Conservation Service (NRCS) Web Soil Survey<sup>4</sup> database to determine soil type and runoff parameters. Refer to **Appendix D** for the soil types and hydrologic soil groups (HSG) defined in the study area. Soils within the study area generally have moderately high runoff potential. The most common HSG in the study area is soil group C. For this analysis, dual class soil groups were modeled as soil group D.

Topographic LiDAR (Light Detection and Ranging) Digital Elevation Model (DEM) was downloaded for the study area from the United States Geological Survey (USGS) data portal<sup>5</sup>. The elevation data was collected in 2018 and published in 2019. The DEM elevations were converted from meters to feet. This best



available USGS LiDAR data has 13 arc-second resolution, which resulted in a DEM with approximately 29 by 29 feet cell size. The DEM lacks definition at this resolution to show the elevations of features like ditches and roads within the project area. The DEM also included some interpolation artifacts in the eastern portion of the project area. A site-specific topographic survey is recommended to update the flood analysis as design progresses.

Land use and cover data were obtained from the 2019 National Land Cover Dataset (NLCD)<sup>6</sup>. Curve numbers for the study area were selected using the NRCS hydrologic soil groups, land use/land cover data for the pre-development conditions and the Urban Hydrology for Small Watersheds TR-55<sup>7</sup> manual, as directed by the Boise Stormwater Design Manual.

Kleinfelder conducted a site visit on July 20, 2023, to observe existing conditions and site drainage considerations. Refer to **Appendix E** for the site visit field report.



#### **3** PRE-DEVELOPMENT FLOOD STUDY

A hydrologic and hydraulic analysis was performed on the existing conditions of the proposed solar site to determine flooding depths and velocities during the 100-year 24-hour storm. The total flood model area is approximately 16,858 acres and includes upstream drainage areas that generate runoff to the project and downstream areas to simulate any tailwater conditions that may impact flooding onsite. Refer to **Appendix F** for the Flood Model Boundary Map.

The study area topography includes butte landforms in otherwise mildly sloping topography. The majority of the existing landcover is cultivated crops and herbaceous, with smaller areas of shrub/scrub and hay/pasture.

Onsite culvert sizes, material and condition were verified during the site visit. The USGS DEM utilized for the analyses did not contain some roads noted within Google Earth imagery and the site visit, which precluded the inclusion of some culverts. It is recommended that the analyses are updated after a topographic survey of the site is conducted, which may result in changes to the findings and therefore conclusions.

The pre-development flood analyses were simulated using the computer modeling software HEC-RAS<sup>8</sup>. HEC-RAS is a computer design program for modeling the hydraulics of open channel systems. The 2-dimensional (2D) capabilities of HEC-RAS version 6.4.1 were utilized for the solar site. HEC-RAS 2D can simulate water flow in multiple directions over large terrain. The topography used in the pre-development flood study is described in Section 2.2.

Variable Manning's 'n' values are utilized to represent ground roughness across the site. Manning's 'n' values were estimated based on pre-development land cover. Manning's 'n' values from NLCD types, which range from 0.027 to 0.16, were developed from the Boise Stormwater Design Manual Table G-5, with values from any excluded types developed using the HEC-RAS 2D Modeling User's Manual Table 2-19. Refer to Table 3-1 for Manning's 'n' values used in the analysis and **Appendix G** for the Pre-Development Manning's 'n' map.



MANNING'S 'n'	LAND COVER DESCRIPTION	
0.027	Barren Land	
0.03	Hay/Pasture	
0.035	Cultivated Crops	
0.038	Herbaceous, Open Water	
0.04	Developed, Open Space	
0.06	Shrub/Scrub	
0.09	Developed, Low Intensity	
0.12	Developed, Medium Intensity	
0.16	Developed, High Intensity	

#### TABLE 3-1: MANNING'S 'N' VALUES

A computational mesh made up of 100-foot cells was generated to conduct the analysis. Hydraulic breaklines were utilized at locations of hydraulic barriers (roads) and major conveyance locations (ditches, streams) discernable in the DEM. A variable computational time-step based on the Courant number was utilized to increase model efficiency. A Courant number-based time-step allows the model to adjust to large inflows or outflows throughout the simulation. The Full Momentum equations were utilized. The model was run for a simulation time of 48 hours, which allows the peak stage to pass through the entire study area after the 24-hour duration storm.

The hydrologic analysis of the flood model area was conducted using the NRCS Curve Number method. Kleinfelder utilized the 'Infiltration Layer' functionality within HEC-RAS to create a spatially variable representation of infiltration capacity and runoff generation within the study area. The NRCS Infiltration Method within HEC-RAS uses a unique curve number assigned to each land cover and soil type combination, and an abstraction ratio, to calculate the runoff from each cell within the model. An abstraction ratio of 0.2 was used for the study area. Refer to **Appendix H** for a map of the Pre-Development Flood Curve Numbers.

Normal depth and precipitation boundary conditions were utilized for the analysis. Normal depth slope boundary conditions were used in locations where water is expected to leave the site and are based on



the terrain slope. The precipitation hyetograph is based on NOAA Atlas 2 rainfall depths for the design storm and SCS Type II rainfall distribution, discussed above.

Refer to **Appendix I and J** for the resulting pre-development flood depth and velocity grids. Flood depths are less than 1.5 feet during the design simulation, with most of the project area inundated by less than 0.5 feet. Velocities within the project area range from 0 to 3 feet per second (fps).

A scour analysis was performed on the study area to determine locations of scour potential at array piers during the design storms in the existing condition. The scour analysis utilized the maximum depth and velocity results of the pre-development HEC-RAS flood model.

Kleinfelder utilized the HEC-18 pier scour Equation 7.1 provided in Hydraulic Engineering Circular No. 18: Evaluating Scour at Bridges Fifth Edition<sup>10</sup> to assess scour potential surrounding the solar panel support piles. The HEC-18 pier scour equation is recommended for live-bed and clear-water pier scour and predicts maximum scour depths. Maximum Froude number and flood depth raster files were generated from the HEC-RAS flood model results and used in the scour calculations. This method can yield conservative scour estimates as it assumes the maximum flood depth and velocity occur at the same time, which may not be true onsite. Equation variable inputs and assumptions are listed in **Table 3-2**.

HEC-18 Equation 7.1

$$\frac{y_s}{y_1} = 2.0 \text{ K}_1 \text{ K}_2 \text{ K}_3 \left(\frac{a}{y_1}\right)^{0.65} \text{ Fr}_1^{0.43}$$

- y<sub>s</sub> = Scour depth, ft (m)
- $y_1$  = Flow depth directly upstream of the pier, ft (m)
- K<sub>1</sub> = Correction factor for pier nose shape from Figure 7.3 and Table 7.1
- K<sub>2</sub> = Correction factor for angle of attack of flow from Table 7.2 or Equation 7.4
- $\overline{K_3}$  = Correction factor for bed condition from Table 7.3
- a = Pier width, ft (m)
- L = Length of pier, ft (m)
- $Fr_1$  = Froude Number directly upstream of the pier = V<sub>1</sub>/(gy<sub>1</sub>)<sup>1/2</sup>
- V1 = Mean velocity of flow directly upstream of the pier, ft/s (m/s)
- g = Acceleration of gravity  $(32.2 \text{ ft/s}^2) (9.81 \text{ m/s}^2)$



VARIABLE	INPUT	ASSUMPTION	
y1	HEC-RAS depth (ft)	Maximum flood depth	
K1 1.1		Square nose pier	
K2	1.125	Skew angle of flow is 30 degrees	
К3	1.1	Clear water scour	
а	6-inch	W-pile dimension	
L	4-inch	W-pile dimension	

#### TABLE 3-2: PIER SCOUR EQUATION ASSUMPTIONS

Scour calculations estimate that most of the project area is expected to experience less than 1.5 feet of scour. Areas of higher scour potential are located within deeper flood waters. Refer to **Appendix K** for the scour potential depth maps.

Kleinfelder recommends stabilizing all areas with velocities exceeding 2-fps with erosion control blanket and seeding for grass to grow. In areas with velocities exceeding 5 fps, using rip rap in place of the erosion control blanket and seeding to avoid excessive washout is recommended. Grading and longer pile-heights can be implemented in areas where flooding exceeds allowable depths.



#### 4 REFERENCES

- Federal Emergency Management Agency. Flood Insurance Rate Maps and 100-year Floodplain Delineation from Web Database. Available at https://msc.fema.gov/portal/advanceSearch
- 2. City of Boise Public Works. 2018. Boise Stormwater Design Manual.
- National Oceanic and Atmospheric Administration. Atlas 14, Volume 8, Version 2. Precipitation Frequency Data Server. Available at: https://hdsc.nws.noaa.gov/hdsc/pfds/
- U.S. Department of Agriculture. Natural Resources Conservation Service. Web Soil Survey. Available at http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx
- 5. U.S. Geological Survey (USGS), National Elevation Dataset. Located at: https://viewer.nationalmap.gov/basic/
- 6. U.S. Geological Survey (USGS). 2019. National Land Cover Database (NLCD). Available at: https://www.mrlc.gov/data
- 7. U.S. Department of Agriculture, Natural Resources Conservation Service. 1986. Urban Hydrology for Small Watersheds TR-55.
- 8. U.S. Army Corps of Engineers. Hydrologic Engineering Center. March 2022. *HEC-RAS Version 6.4.1.*
- 9. HEC-RAS 2D Modeling User's Manual, Version 6.0, May 2021. Table 2-1 Page 2-21 to 2-23.
- 10. U.S. Department of Transportation Federal Highway Administration. Evaluating Scour at Bridges: Fifth Edition. April 2012.



#### LIMITATIONS

5

This work was performed in a manner consistent with that level of care and skill ordinarily exercised by other members of Kleinfelder's profession practicing in the same locality, under similar conditions and at the date the services are provided. Our conclusions, opinions, and recommendations are based on a limited number of observations and data known to date. It is possible that conditions could vary between or beyond the data evaluated. Kleinfelder makes no other representation, guarantee, or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

The science of climate change and translating climate risks into design criteria are new and evolving practices, involving many uncertainties. The projections made in this report only reflect the professional judgment of the Project Team applying a standard of care consistent with the level of care and skill of other professionals undertaking similar work in the same locality under similar conditions at the date the services are provided. For these reasons, the recommendations, predictions, and projections made within this report provide guidelines based on the knowledge available to Kleinfelder as of the date provided based on Kleinfelder's review of the resources identified herein. Any predictions or projections made in this report are not guaranteed predictions or projections of future events. The nature and climate impacts may differ significantly from predictions based on currently available data. Kleinfelder recommends that the results of these evaluations be updated over time as science, data, and modeling techniques advance. Unless so engaged, Kleinfelder disclaims any undertaking to update these predictions in the future. Any reliance upon maps or data presented herein used to make decisions or conclusions is at the sole discretion and risk of the user. This information is provided with the understanding that the data is not guaranteed to be accurate, correct, or complete and assumes no responsibility for errors or omissions. This report may be used only by the Client and the registered design professional in responsible charge and only for the purposes stated for this specific engagement within a reasonable time from its issuance, but in no event later than two (2) years from the date of the report.

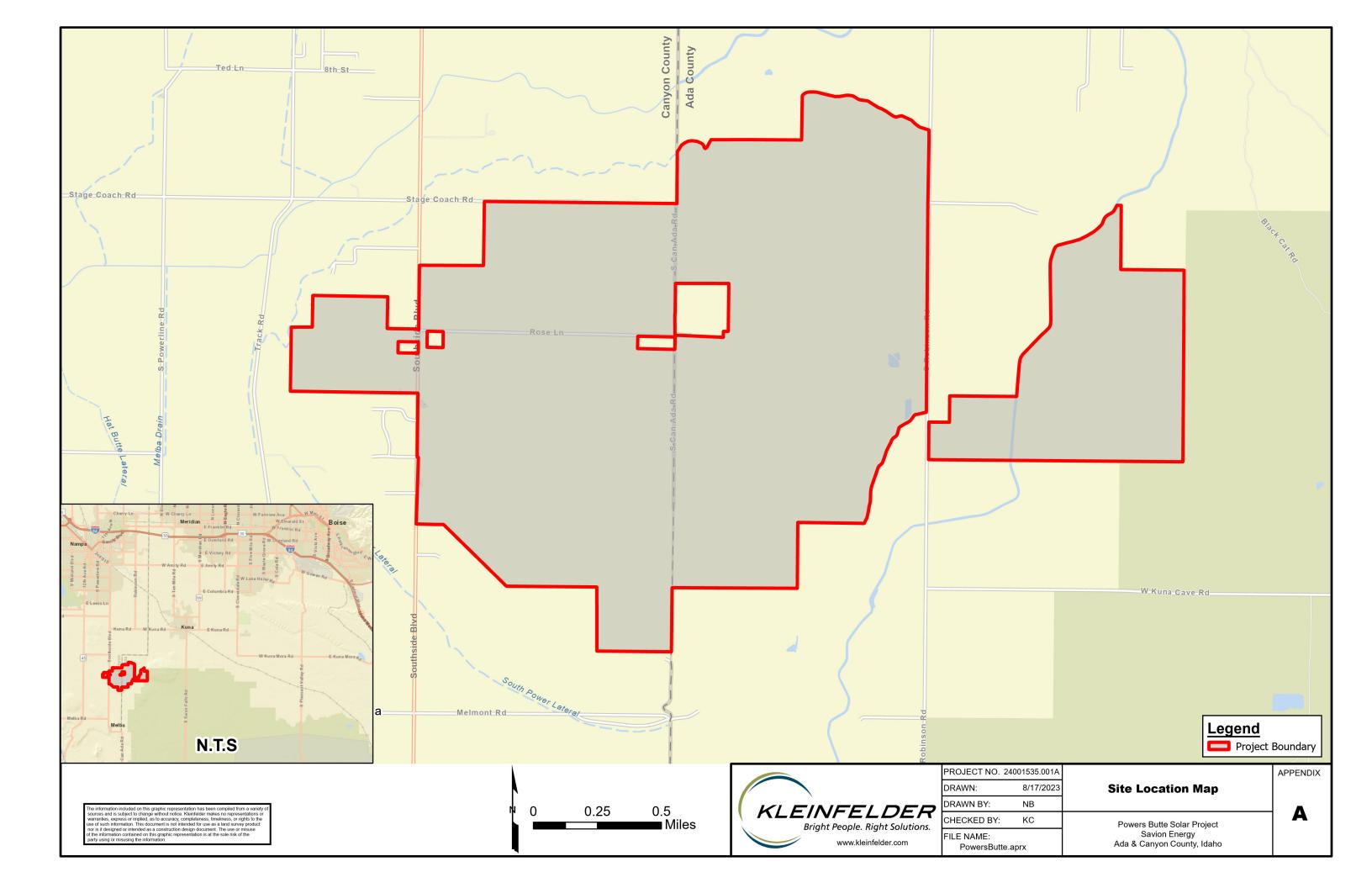
The work performed was based on project information provided by Client and publicly available information. This work is preliminary in nature and not intended to be used for permitting, design, or construction.



## APPENDIX A

#### SITE LOCATION MAP

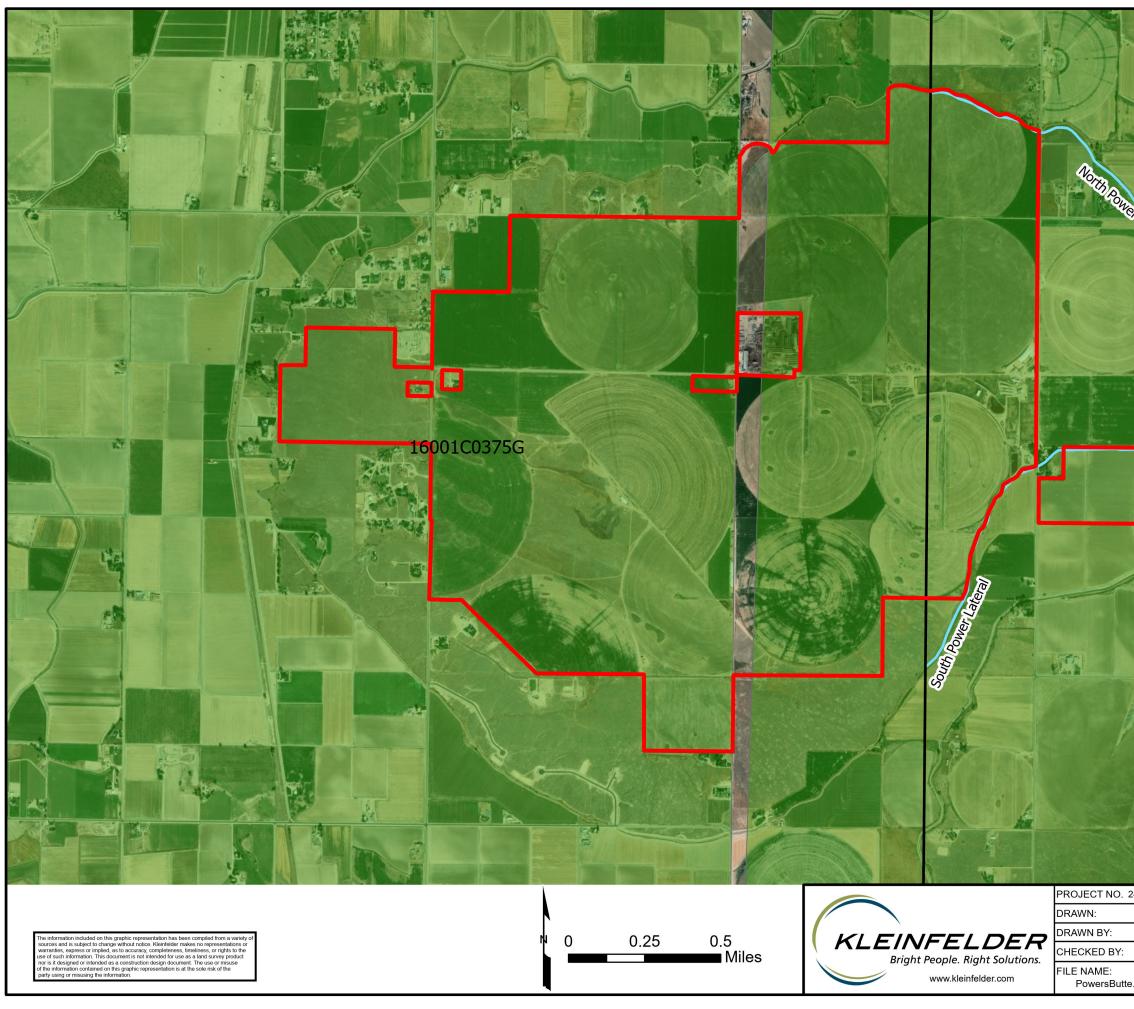
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APPENDIX B

**FLOODPLAIN MAP** 



SP Lateral	
160	01C0400J
24001535.001A 8/17/2023	Legend Project Boundary Project Boundary FEMA Firm Panel Streams FEMA Map Service Effective Floodplain X, Minimal flood hazard APPENDIX
NB KC e.aprx	Powers Butte Solar Project Savion Energy Ada & Canyon County, Idaho



## APPENDIX C

#### PRECIPITATION DATA

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# **Precipitation Frequency Data Output**

#### NOAA Atlas 2

Idaho 43.4305092°N 116.5218909°W Site-specific Estimates

Мар	Precipitation (inches)	Precipitation Intensity (in/hr)	
2-year 6-hour	0.65	0.11	
2-year 24-hour	0.99	0.04	
100-year 6-hour	1.53	0.26	
100-year 24- hour	2.11	0.09	

#### Go to PFDS Go to NA2

Hydrometeorological Design Studies Center - NOAA/National Weather Service 1325 East-West Highway - Silver Spring, MD 20910 - (301) 713-1669 Mon Aug 7 17:48:06 2023



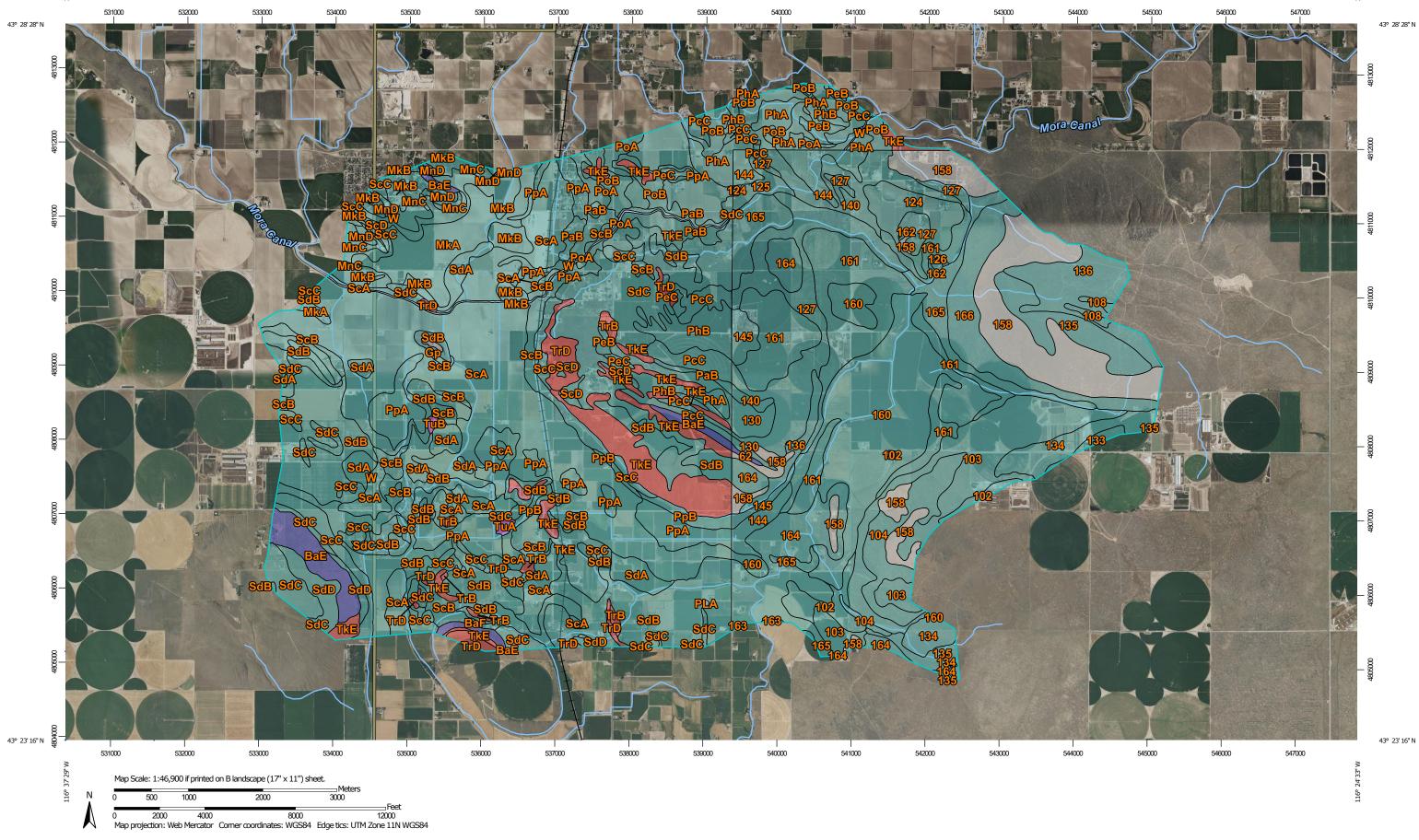
## APPENDIX D

### NRCS SOIL SURVEY REPORT

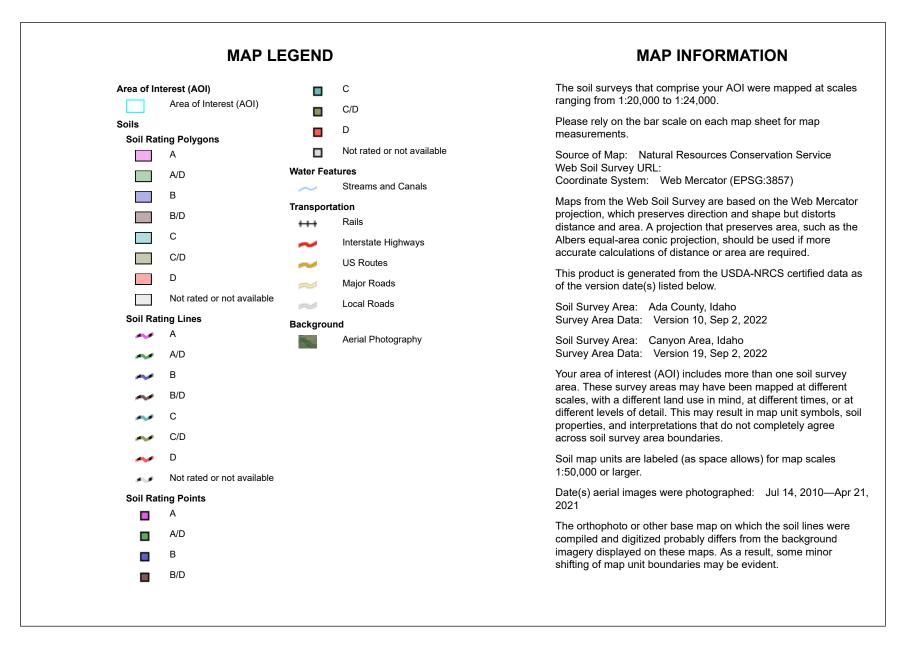
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#### Hydrologic Soil Group—Ada County, Idaho, and Canyon Area, Idaho (Savion Powers Butte Solar Project)



USDA





# Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
62	Garbutt silt loam, 4 to 8 percent slopes	В	6.6	0.0%
102	McCain silt loam, 2 to 4 percent slopes	С	113.9	0.7%
103	McCain silt loam, 4 to 8 percent slopes	С	606.9	3.6%
104	McCain silt loam, 8 to 12 percent slopes	С	222.2	1.3%
108	McCain stony silt loam, 8 to 12 percent slopes, extremely stony	C	21.9	0.1%
124	Potratz silt loam, 0 to 2 percent slopes	С	170.5	1.0%
125	Potratz silt loam, 2 to 4 percent slopes	С	49.2	0.3%
126	Potratz silt loam, 4 to 8 percent slopes	С	4.4	0.0%
127	Potratz-Power silt loams, 4 to 8 percent slopes	C	548.0	3.3%
130	Power silt loam, 2 to 4 percent slopes	С	71.7	0.4%
133	Power-McCain silt loams, 0 to 2 percent slopes	C	22.0	0.1%
134	Power-McCain silt loams, 2 to 4 percent slopes	С	209.8	1.2%
135	Power-McCain silt loams, 4 to 8 percent slopes	С	251.3	1.5%
136	Power-McCain silt loams, 8 to 12 percent slopes	C	328.9	2.0%
140	Power-Potratz silt loams, 2 to 4 percent slopes	C	214.8	1.3%
144	Purdam-Power silt loams, 0 to 2 percent slopes	С	185.7	1.1%
145	Purdam-Power silt loams, 2 to 4 percent slopes	С	76.1	0.5%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
158	Rock outcrop-Trevino complex, 5 to 20 percent slopes		810.6	4.8%
160	Scism silt loam, 0 to 2 percent slopes	С	990.1	5.9%
161	Scism silt loam, 2 to 4 percent slopes	С	831.4	4.9%
162	Scism silt loam, 4 to 8 percent slopes	С	12.3	0.1%
163	Scism silt loam, bedrock substratum, 0 to 2 percent slopes	С	3.9	0.0%
164	Scism silt loam, bedrock substratum, 2 to 4 percent slopes	С	508.7	3.0%
165	Scism silt loam, bedrock substratum, 4 to 8 percent slopes	С	320.3	1.9%
166	Scism silt loam, bedrock substratum, 8 to 12 percent slopes	с	314.9	1.9%
Subtotals for Soil Survey Area			6,896.3	40.9%
Totals for Area of Interest			16,858.6	100.0%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BaE	Bahem silt loam, 12 to 30 percent slopes	В	180.2	1.1%
BaF	Bahem silt loam, 30 to 50 percent slopes	В	25.2	0.1%
Gp	Gravel pit		4.8	0.0%
MkA	Minidoka silt loam, 0 to 1 percent slopes	С	326.3	1.9%
MkB	Minidoka silt loam, 1 to 3 percent slopes	С	299.9	1.8%
MnC	Minidoka-Scism silt loams, 3 to 7 percent slopes	С	170.9	1.0%
MnD	Minidoka-Scism silt loams, 7 to 12 percent slopes	С	39.8	0.2%
PaB	Potratz silt loam, 1 to 3 percent slopes	С	168.0	1.0%
PcC	Potratz-Power silt loams, 3 to 7 percent slopes	С	182.1	1.1%
PeB	Potratz-Power silt loams, 1 to 3 percent slopes	С	47.6	0.3%

USDA

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
PeC	Potratz-Power silt loams, 3 to 7 percent slopes	С	46.0	0.3%
PhA	Power silt loam, 0 to 1 percent slopes	С	214.6	1.3%
PhB	Power silt loam, 1 to 3 percent slopes	С	292.1	1.7%
PLA	Playas		1.4	0.0%
PoA	Power-Potratz silt loams, 0 to 1 percent slopes	С	135.8	0.8%
РоВ	Power-Potratz silt loams, 1 to 3 percent slopes	С	313.9	1.9%
РрА	Power-Purdam silt loams, 0 to 1 percent slopes	С	742.3	4.4%
РрВ	Power-Purdam silt loams, 1 to 3 percent slopes	С	66.0	0.4%
ScA	Scism silt loam, 0 to 1 percent slopes	С	2,143.0	12.7%
ScB	Scism silt loam, 1 to 3 percent slopes	С	710.0	4.2%
ScC	Scism silt loam, 3 to 7 percent slopes	С	300.2	1.8%
ScD	Scism silt loam, 7 to 12 percent slopes	С	59.0	0.3%
SdA	Scism silt loam, deep over basalt, 0 to 1 percent slopes	C	222.3	1.3%
SdB	Scism silt loam, deep over basalt, 1 to 3 percent slopes	С	1,382.8	8.2%
SdC	Scism silt loam, deep over basalt, 3 to 7 percent slopes	С	1,072.2	6.4%
SdD	Scism silt loam, deep over basalt, 7 to 12 percent slopes	С	103.8	0.6%
TkE	Trevino-Rock outcrop complex, 0 to 20 percent slopes	D	470.7	2.8%
TrB	Trevino silt loam, 1 to 3 percent slopes	D	55.5	0.3%
TrD	Trevino silt loam, 3 to 12 percent slopes	D	130.3	0.8%
TuA	Turbyfill fine sandy loam, 0 to 1 percent slopes	A	10.4	0.1%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
TuB	Turbyfill fine sandy loam, 1 to 3 percent slopes	A	8.3	0.0%
W	Water		36.9	0.2%
Subtotals for Soil Survey Area			9,962.3	59.1%
Totals for Area of Interest			16,858.6	100.0%

# Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

# **Rating Options**

Aggregation Method: Dominant Condition

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie. The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

#### Component Percent Cutoff: None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

#### Tie-break Rule: Higher

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.





## APPENDIX E

#### SITE VISIT FIELD REPORT

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#### APPENDIX F

#### FLOOD MODEL BOUNDARY MAP

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#### **APPENDIX G**

PRE-DEVELOPMENT MANNING'S 'N' MAP



#### APPENDIX H

PRE-DEVELOPMENT CURVE NUMBER MAP



#### **APPENDIX I**

PRE-DEVELOPMENT 100-YR 24-HR FLOOD DEPTH MAP



#### **APPENDIX J**

PRE-DEVELOPMENT 100-YR 24-HR FLOOD VELOCITY MAP

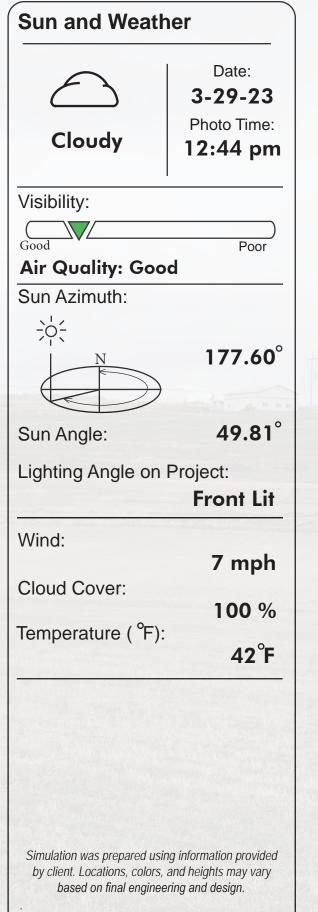


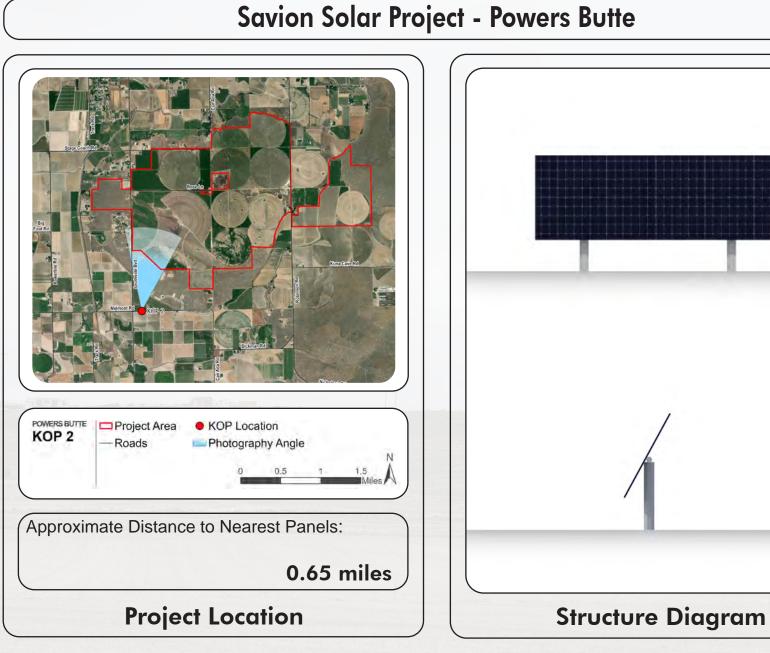
#### APPENDIX K

PRE-DEVELOPMENT 100-YR 24-HR FLOOD SCOUR MAP

# EXHIBIT K

Canyon County Visual Resources Technical Simulations







# KOP 2 - Melmont Road

Base Photographic Documentation Latitude, Longitude (degrees):

43.41566, -116.53128 Viewpoint Elevation (feet):2,670 Camera Height (meters): 1.5 Camera Heading (degrees): 10

7 ft

4.5 ft

Camera Make & Model: Canon EOS 5D Mark IV Camera Sensor Size (mm): 36 x 24 Full Frame Crop Factor:

1x Lens Make & Model: AF-P Nikkor Lens Focal Length (mm): 50

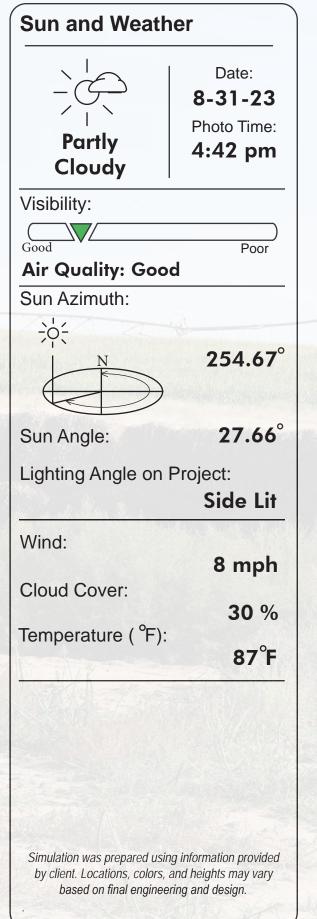
Image Size (pixels): 6720 x 4480

Viewing Instructions: Printed at 100% the resulting simulation is 16 inches wide by 10 inches high. At this size and focal length, the simulation should be viewed at arms length (24 inches). If viewed on a computer monitor, scale should be 100%.

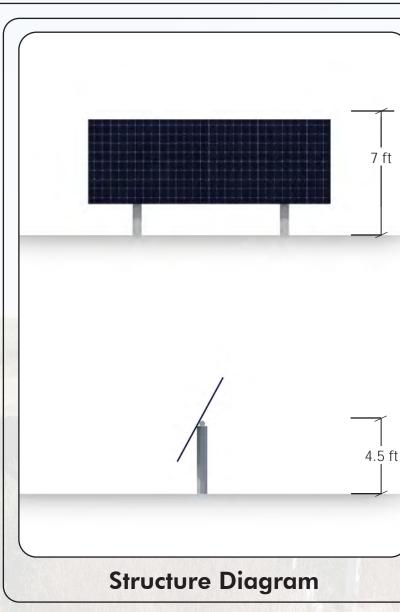








# Savion Solar Project - Powers Butte POWERS BUTTE KOP Location Project Area KOP 3 Roads Photography Angle Approximate Distance to Nearest Panels: 0.07 mile **Project Location**





# KOP 3 - Stage Coach Road

Base Photographic Documentation Latitude, Longitude (degrees):

**43.44464, -116.52570** Viewpoint Elevation (feet):**2,754** Camera Height (meters): **1.5** Camera Heading (degrees):

180 Camera Make & Model: Canon EOS 5D Mark IV Camera Sensor Size (mm): 36 x 24 Full Frame Crop Factor:

1x Lens Make & Model: AF-P Nikkor Lens Focal Length (mm): 50

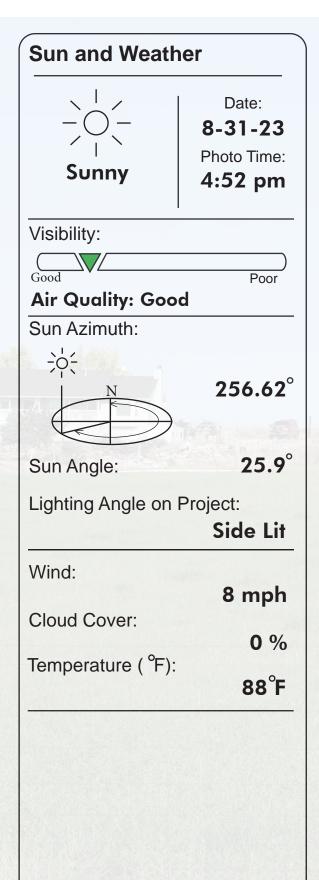
Image Size (pixels): 6720 x 4480

Viewing Instructions: Printed at 100% the resulting simulation is 16 inches wide by 10 inches high. At this size and focal length, the simulation should be viewed at arms length (24 inches). If viewed on a computer monitor, scale should be 100%.



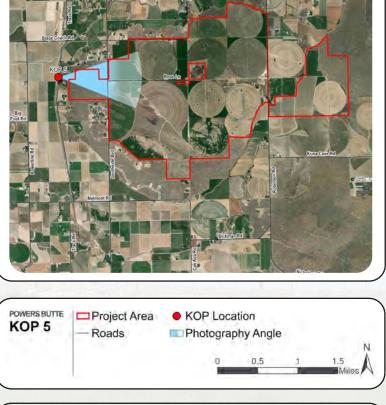






Simulation was prepared using information provided by client. Locations, colors, and heights may vary based on final engineering and design.

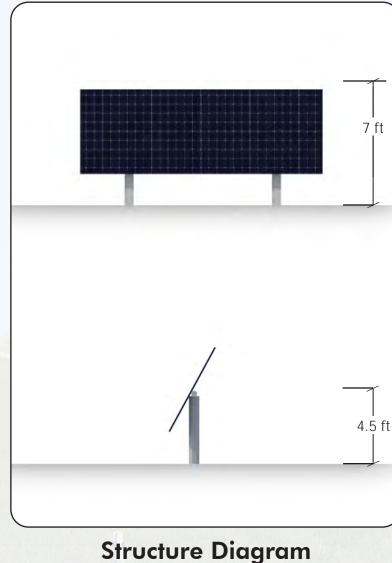
# Savion Solar Project - Powers Butte



Approximate Distance to Nearest Panels:

0.22 mile

**Project Location** 





# KOP 5 - Track Road

Base Photographic Documentation Latitude, Longitude (degrees):

**43.43809, -116.54561** Viewpoint Elevation (feet):**2,681** Camera Height (meters): **1.5** Camera Heading (degrees):

90 Camera Make & Model: Canon EOS 5D Mark IV Camera Sensor Size (mm): 36 x 24 Full Frame Crop Factor: 1x

Lens Make & Model: **AF-P Nikkor** Lens Focal Length (mm): **50** 

Image Size (pixels):

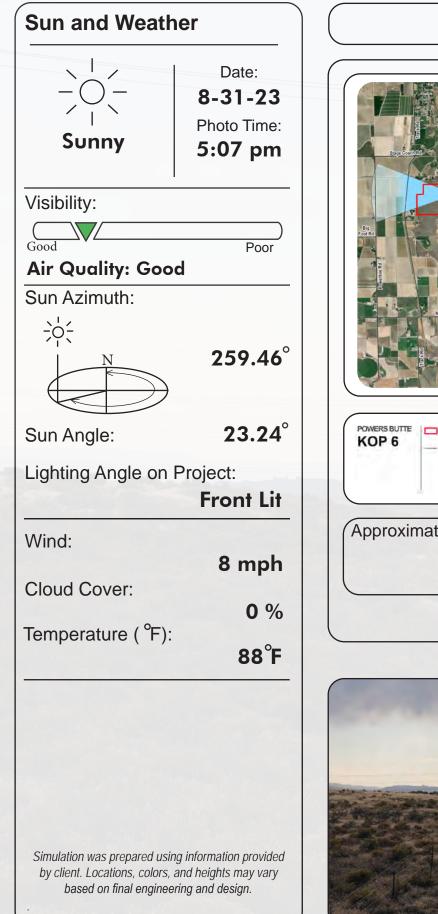
6720 x 4480

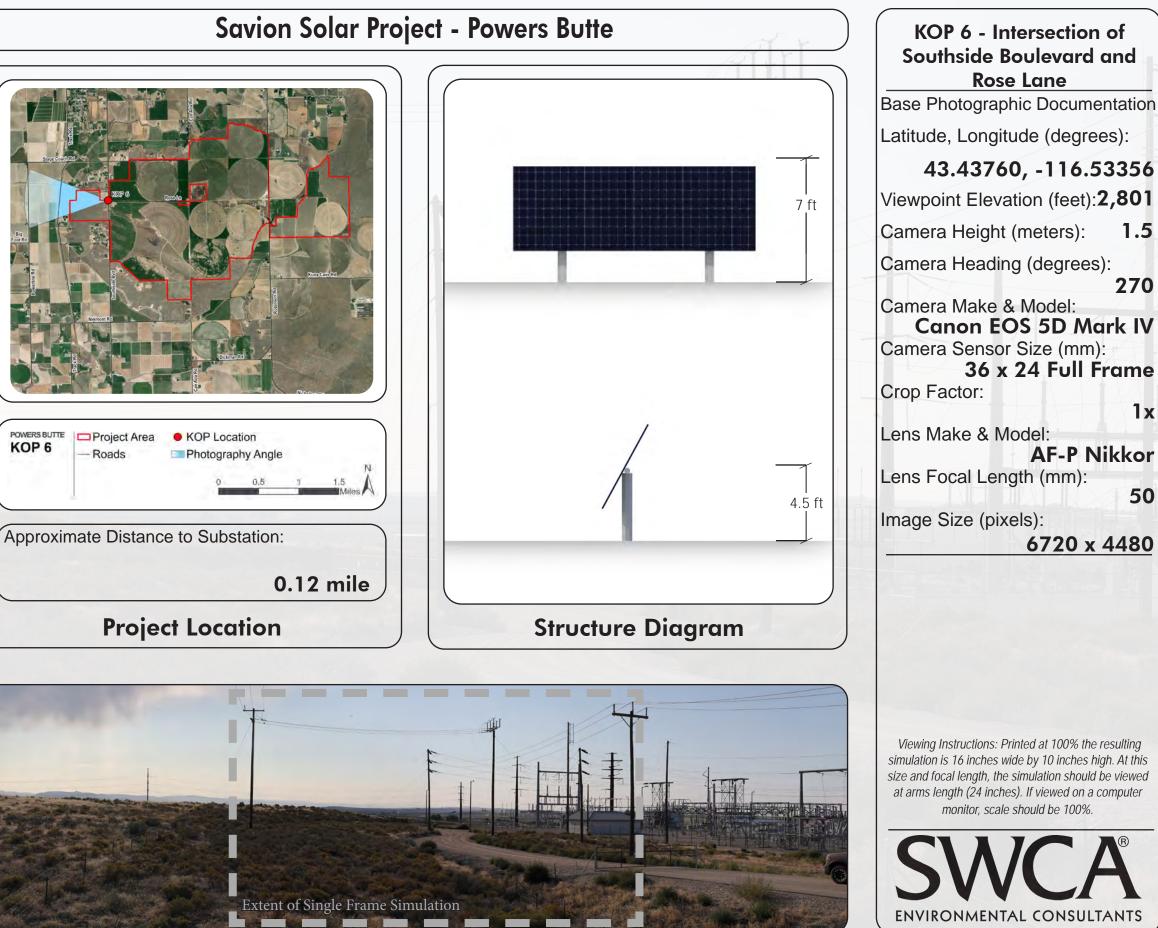
Viewing Instructions: Printed at 100% the resulting simulation is 16 inches wide by 10 inches high. At this size and focal length, the simulation should be viewed at arms length (24 inches). If viewed on a computer monitor, scale should be 100%.





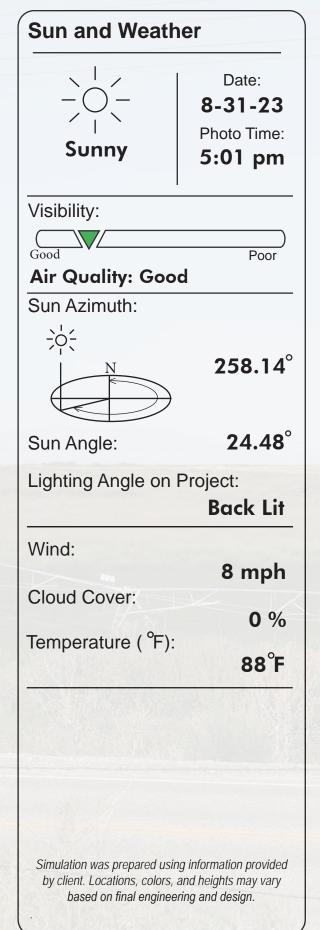


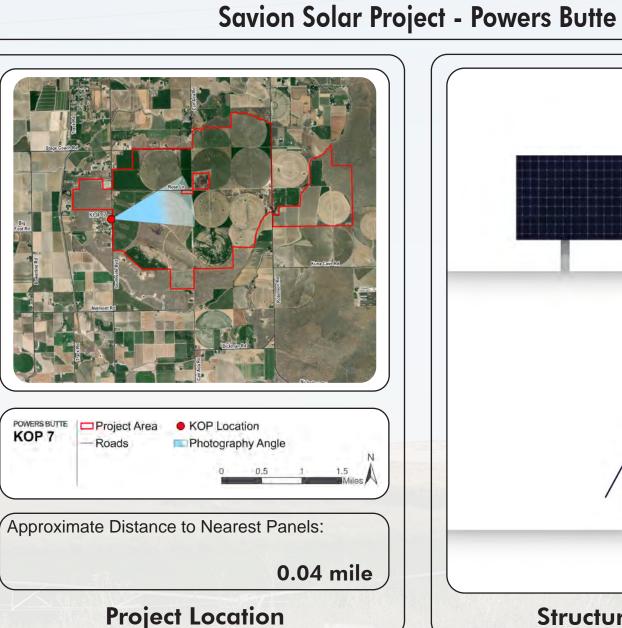


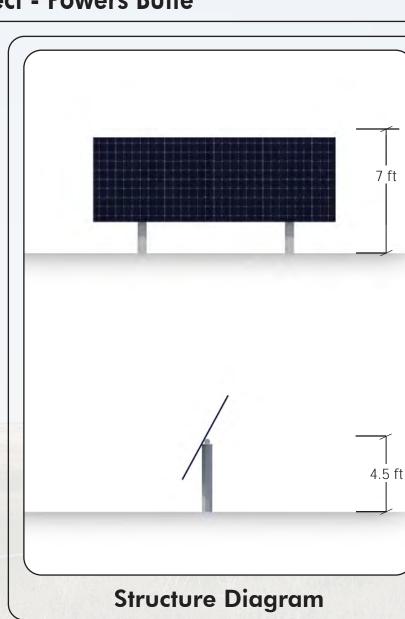














# KOP 7 - Southside Boulevard

Base Photographic Documentation Latitude, Longitude (degrees):

# 43.43222, -116.53366

Viewpoint Elevation (feet):**2,859** Camera Height (meters): **1.5** Camera Heading (degrees):

80

Camera Make & Model: Canon EOS 5D Mark IV Camera Sensor Size (mm): 36 x 24 Full Frame

Crop Factor:

1x Lens Make & Model: AF-P Nikkor Lens Focal Length (mm): 50

Image Size (pixels): 6720 x 4480

Viewing Instructions: Printed at 100% the resulting simulation is 16 inches wide by 10 inches high. At this size and focal length, the simulation should be viewed at arms length (24 inches). If viewed on a computer monitor, scale should be 100%.







# EXHIBIT L

Agency Acknowledgement Form

#### Canyon County Agency Outreach

Agency	Point of Contact	Communication Log
SW District Health	Valerie Greer (Idaho Department of Environmental Quality)	12/15/2023 – phone discussion 12/18/2023 – phone discussion
Nampa Highway District	Eddie Thiel	12/12/2023 – in-person meeting
Melba Rural Fire Protection District	Kenny Hoagland (deputy fire marshal)	12/11/2023 – in-person meeting
Boise Project/Irrigation	Tom Rithauler	12/12/2023 – phone discussion, in-person meeting to be scheduled

Signatures to be provided by date of hearing.

### EXHIBIT M

Letter from Idaho Fish and Game Department

From:	Flack,Brandon
To:	Anneke Solsby
Cc:	Mitchell Taylor; Stephanie Blochowiak; Brenna Garro
Subject:	RE: Powers Butte Energy Center (Ada and Canyon counties) - Request for Information
Date:	Friday, December 22, 2023 12:43:45 PM
Attachments:	image003.png

Hi Anneke,

The Idaho Department of Fish and Game (IDFG) has received your request for information related to the Powers Butte Energy Center Project, a 250-megawatt solar power and 200-megawatt battery energy storage project on approximately 2,385 acres located 1.5 miles southeast of the Bowmont in both Ada County and Canyon County, Idaho. This email serves as an IDFG letter addressing fish, wildlife, and plant resources as a component of the natural features of the property, including any sensitive plant and wildlife species recorded in the project vicinity.

IDFG has not conducted specific wildlife surveys on the property. The Idaho Fish and Wildlife Information System (IFWIS) database contains observation records of 3 Idaho Species of Greatest Conservation Need (SGCN) on the project property and 3 additional SGCN within 1 mile of the property boundary.

SGCN Observed on Project Property			
	Species Name	SGCN Tier	State Rank
	California gull	2b	S3B, S2N
	Hoary bat	2	S3
	Ring-billed gull	3b	S2B, S2N
SGCN (	SGCN Observed within 1 mile of Project Property		
	Species Name	SGCN Tier	State Rank
	California gull	2b	S3B, S2N
	Ferruginous hawk	2	S3B
	Golden eagle	2	S3
	Hoary bat	2	S3
	Pygmy rabbit	2	S3
	Ring-billed gull	3b	S2B, S2N

Definitions of SGCN tiers can be found in the Idaho State Wildlife Action Plan (<u>https://idfg.idaho.gov/swap</u>) and definitions of state ranks can be found here: <u>https://idfg.idaho.gov/species/taxa/ranks</u>

Aerial imagery and the report from SWCA indicate most of the project property is currently disturbed, being used mainly for agricultural production, and contains little native vegetation that could provide habitat for native wildlife species. Considering the footprint of the project overlays an area that has already been disturbed (or is surrounded by other suburban development or agricultural lands) and little intact native habitat exists on the project property or on the adjacent properties, IDFG would not anticipate effects of the proposed activities on native plant or terrestrial wildlife populations.

Thank you for your interest in the state's fish, wildlife, and plant resources. Please feel free to contact me with additional information needs or other questions.

Regards,

#### **Brandon Flack**

Regional Technical Assistance Manager

Idaho Dept. of Fish and Game Southwest Region 15950 N. Gate Blvd. Nampa, ID 83687 Ph: (208) 854-8947



 From: Anneke Solsby

 Sent: Friday, December 15, 2023 3:16 PM

 To: Flack,Brandon <brandon.flack@idfg.idaho.gov>

 Cc: Mitchell Taylor
 ; Steph

; Stephanie Blochowiak

Subject: Powers Butte Energy Center (Ada and Canyon counties) - Request for Information

CAUTION: This email originated outside the State of Idaho network. Verify links and attachments BEFORE you click or open, even if you recognize and/or trust the sender. Contact your agency service desk with any concerns.

Hi Brandon –

Savion, LLC (Savion), doing business as Powers Butte Energy Center, LLC is proposing the construction and operation of the utility-scale Powers Butte Energy Center (Project), which would consist of an up to 250-megawatt (MW) solar photovoltaic (PV) generation array, 200-MW battery energy storage system (BESS), and ancillary facilities on approximately 2,385 acres of privately-owned lands in both Ada County and Canyon County, Idaho. The Project Area is located approximately 1.5 miles southeast of Bowmont, Idaho (see attached kmz).

We anticipate submitting land use applications to Ada and Canyon counties in mid-January for the Project. Therefore, we are requesting a letter from Idaho Dept of Fish & Game regarding protected wildlife on the site to inform permit development and review for sensitive wildlife and critical habitat review for the site. Our environmental consultant, SWCA, conducted a preliminary records search of sensitive plant and wildlife and special-status species using data from the Idaho Conservation Data Center and USFWS databases followed by pedestrian surveys last spring for a general habitat characterization and identifying potential areas for slickspot peppergrass. The survey results are attached. Additional surveys will be conducted prior to construction, as pertinent, in consideration of feedback from IDFG and USFWS.

Please let me know if you have any questions or need anything else to inform your review.

Thank you in advance!

Anneke Solsby | Director, Permitting & Environmental 503.894.0258 | Savion, LLC



Canyon County, Idaho, Conditional Use Permit Application for the Powers Butte Energy Center

**JANUARY 2024** 

PREPARED FOR

Powers Butte Energy Center, LLC

PREPARED BY

**SWCA Environmental Consultants** 

# CANYON COUNTY, IDAHO, CONDITIONAL USE PERMIT APPLICATION FOR THE POWERS BUTTE ENERGY CENTER

Submitted by

#### Powers Butte Energy Center, LLC 422 Admiral Boulevard Kansas City, Missouri 64106

Submitted to

Canyon County Development Services Department 111 North 11th Avenue Caldwell, Idaho 83605

January 2024

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- Exhibit B. Master Application Form with Signatures
- Exhibit C. Land Use Worksheet
- Exhibit D. Site Plan
- Exhibit E. Legal Description of the Canyon County Permit Boundary
- Exhibit F. List of Parcels in the Canyon County Permit Boundary
- Exhibit G. Property Deeds for the Canyon County Permit Boundary
- Exhibit H. Notice of Neighborhood Meeting and Meeting Sign-up Sheet
- Exhibit I. Project Area Aquatic Resources Delineation Report
- Exhibit J. Project Area Hydrology and Flood Inundation Study
- Exhibit K. Canyon County Visual Resources Technical Simulations
- Exhibit L. Agency Acknowledgement Form
- Exhibit M. Letter from Idaho Fish and Game Department

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# **1** INTRODUCTION

Savion, LLC (Savion), doing business as Powers Butte Energy Center, LLC (Applicant), is pleased to file this application for a conditional use permit (CUP) to comply with the County Code of Canyon County, Idaho (County Code) and to support Canyon County's *Comprehensive Plan 2030* (General Plan) (Canyon County 2022). Savion is proposing the construction and operation of the utility-scale Powers Butte Energy Center (Project), which would consist of an up to 250-megawatt (MW) solar photovoltaic (PV) generation array and ancillary facilities and may include an up-to-200-MW battery energy storage system (BESS), on 2,385 acres of privately owned lands in both Canyon County and Ada County, Idaho; the Project straddles the Canyon County and Ada County line (Project area). The Project area is located approximately 1.5 miles southeast of Bowmont, Idaho (Figure 1).

The Project would include a utility-scale solar PV generation array, BESS, and ancillary facilities in Canyon County, with additional PV panels in the Ada County Permit Boundary (the portion of the Project within Ada County only). The PV generation arrays and associated infrastructure in the Ada County Permit Boundary will be described in detail in the CUP application for that county. The Applicant intends to continue agricultural operations in the Project area, a practice known as agrivoltaics. The term *agrivoltaics* (also known as *dual-use solar* or *agrisolar*) refers to using land for both agriculture and solar PV energy generation to pair generating energy with agricultural practices; for example, providing space for crops, grazing, and/or pollinator habitat within and among the PV generation arrays (U.S. Department of Agriculture 2023).

The Applicant is filing this CUP application in accordance with the Canyon County Zoning Ordinance (CCZO), Chapter 7, Article 7, Zoning Regulations (CCZO 7) and all applicable standards in the County Code. This CUP application is for the Canyon County Permit Boundary (the portion of the Project within Canyon County only), which is proposed on approximately 1,028 acres of privately owned lands in Canyon County, zoned as Agriculture (A) and within the Intensive Agriculture Overlay District (IAO) (Figures 2 and 3). Another 1,356 acres of the Project area comprises privately owned lands under the jurisdiction of Ada County. A separate CUP application for the Ada County Permit Boundary will be prepared and submitted for review by Ada County.

# 1.1 Proposed Use and Application Summary

The proposed use in the Canyon County Permit Boundary is considered a similar use to a wind farm and is a permitted conditional use in land use zone A. A utility-scale solar PV generation array, up to 200-MW BESS, and ancillary facilities are proposed in the Canyon County Permit Boundary. This CUP application is organized to meet the requirements of CCZO 7-7 (Conditional Use Permits). The following exhibits supplement this application as required by Canyon County for the Powers Butte Energy Center Canyon County Permit Boundary:

- Exhibit A. Conditional Use Permit Checklist (CCZO 7-7-5 and CCZO 7-7-13)
- Exhibit B. Master Application Form with Signatures (CCZO 7-7-3)
- Exhibit C. Land Use Worksheet (CCZO 7-7-5)
- Exhibit D. Site Plan (CCZO 7-2-3)
- Exhibit E. Legal Description of the Canyon County Permit Boundary (CCZO 7-2-3)
- Exhibit F. List of Parcels in the Canyon County Permit Boundary (CCZO 7-1-15 and 7-2-3)
- Exhibit G. Property Deeds for the Canyon County Permit Boundary (CCZO 7-2-3 and 7-7-5)
- Exhibit H. Notice of Neighborhood Meeting and Meeting Sign-up Sheet (CCZO 7-1-15)

- Exhibit I. Project Area Aquatic Resources Delineation Report
- Exhibit J. Project Area Hydrology and Flood Inundation Study
- Exhibit K. Canyon County Permit Boundary Visual Resources Technical Simulations
- Exhibit L. Agency Acknowledgement Form
- Exhibit M. Letter from Idaho Fish and Game Department

# **1.2 Executive Summary and Project Outreach**

This document and accompanying exhibits comprise the Powers Butte Energy Center, LLC, application for a CUP for an up to 250-MW utility-scale solar PV generation array in Canyon County, approximately 1.5 miles southeast of Bowmont, Idaho. Powers Butte Energy Center, LLC, is a wholly owned subsidiary of the Applicant. The Project will be constructed on land owned by the Applicant or land expected to be owned by the Applicant in Ada and Canyon Counties (Project area) with construction anticipated to begin in early 2025 and a planned commercial operation date as early as June 2026, pending application approval and the issuance of applicable zoning and building permits.

The portion of the Project within Canyon County (Canyon County Permit Boundary) will contain an array of ground-mounted solar PV panels, single-axis tracking structures to support the solar arrays, a power collection system, on-site substation, point-of-interconnection switchyard, generation interconnect (gentie) transmission poles and lines, and an operations and maintenance (O&M) building; the Project may also include an up to 200-MW BESS in Canyon County. Additionally, the Applicant is seeking opportunities to deploy one of a variety of agrivoltaic (multi-use solar photovoltaic and agriculture and/or grazing) options within the Project area. As of January 2024, the Applicant is in active discussions with the Idaho National Laboratory and is seeking to collaborate with the University of Idaho and Boise State University to maximize the potential opportunity to continue to use the land between rows of panels for continued agricultural operations. Additionally, the Applicant is already in discussions with a sheep grazer actively grazing under solar facilities in Idaho and are incorporating the recommended site requirements to ensure grazing could be feasible on this project.

The Project will help diversify Idaho and the region's energy sources while contributing to Idaho Power's statewide initiative of providing 100% clean energy by 2045. Additionally, Project construction is anticipated to create 400 jobs during construction, and four permanent jobs during Project O&M. The total amount of property tax generated by the Project is estimated to exceed \$20 million over the life of the Project (40 years).

The Applicant recognized that many local stakeholders are interested in the outcomes of the Project, especially immediate neighbors. To best incorporate stakeholder concerns into the Project, the Applicant has conducted outreach to various agencies (Table 1) and hosted a neighborhood meeting from 6 to 8 p.m. October 26, 2023, in Melba, Idaho, to provide Project information, gather public input, and respond to questions. A Project website (powersbutteenergycenter.com) has been active since October 2023 to provide information and an option to provide comments. The Applicant revised the preliminary site layout in response to public input received and continues to endeavor to act in a way that is respectful of Project neighbors. Revisions include, but are not limited to, removal and relocation of the proposed site for the BESS and a significantly increased setback along Southside Road. The Applicant moved the BESS from the westernmost portion of the Project area to a more interior location, allowing for reduced potential of visual and noise impacts from the BESS. This allows greater distance between residential areas while still meeting industry specifications and safety requirements. The BESS portion of the Project might be constructed after the solar array in a phased approach to construction and long-term operation commencement.

Agency	Point of Contact	Communication log
SW District Health	Valerie Greer (Idaho Department of Environmental Quality)	12/15/2023 – phone discussion 12/18/2023 – phone discussion
Nampa Highway District	Eddie Thiel	12/12/2023 – in-person meeting
Melba Rural Fire Protection District	Kenny Hoagland (deputy fire marshal)	12/11/2023 – in-person meeting
Boise Project/Irrigation	Tom Rithauler	12/12/2023 – Phone discussion, in-person meeting to be scheduled

#### Table 1. Canyon County Agency Outreach

The Applicant plans to conduct additional outreach, from in-person discussions with neighbors following the neighborhood meeting to local events in 2024 and will continue outreach throughout the development process. The Applicant works diligently to be a good neighbor and looks forward to bringing this Project to fruition in a way that is sensitive to those in this community.

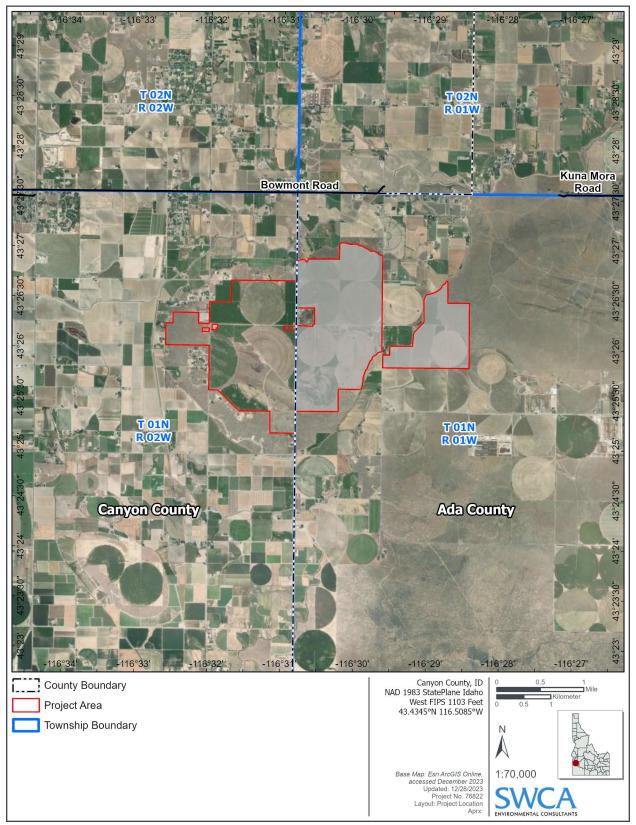


Figure 1. Project area location.

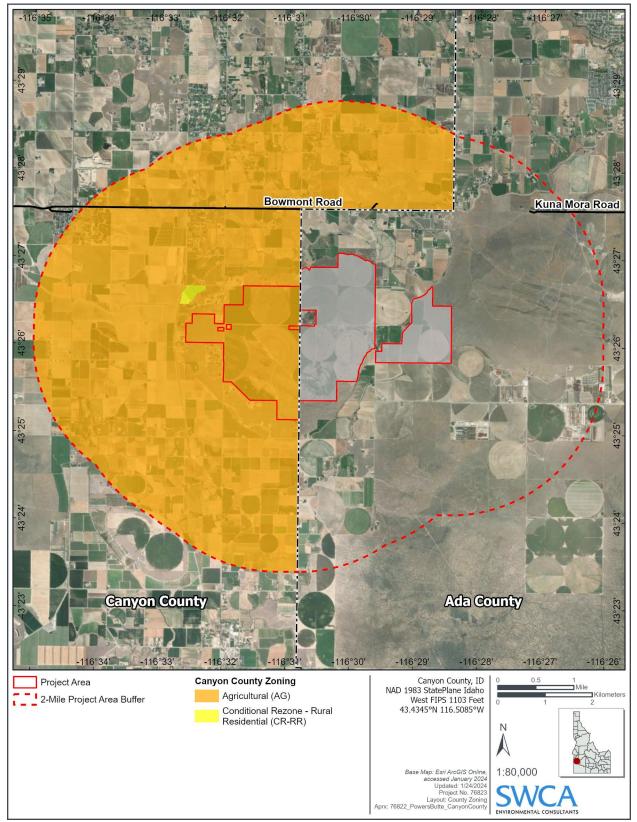


Figure 2. Project Area and Canyon County zoning.

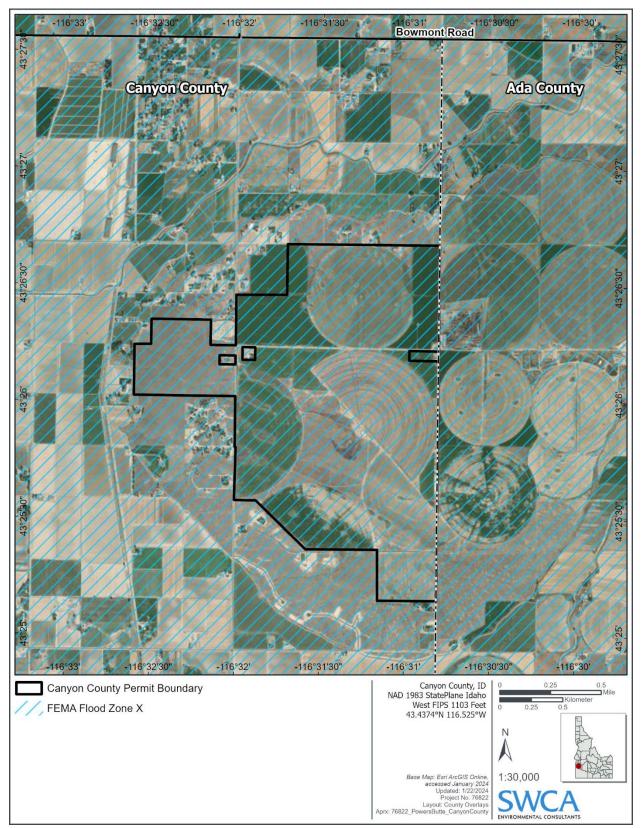


Figure 3. Canyon County Permit Boundary in relation to Canyon County overlay districts.

# 1.3 Conformance with Canyon County Land Use and Zoning

The proposed use in the Canyon County Permit Boundary is considered an Unspecified Use per CCZO 7-10-7; however, if a proposed use is similar to or accessory to at least one of the allowed or permitted uses in that particular zone, an applicant may receive permission for the similar or accessory use through a CUP. Currently, the CCZO does not define a use for solar energy facility, solar facility, centralized energy facility, or BESS. On October 25, 2023, the Director of Canyon County Development Services Department (DSD) confirmed the Project "should be processed as a use similar to a wind farm" (personal communication, email, Sabrina Minshall, Director, Canyon County Development Services Department, to Madelyn Vander Veen, Canyon County Development Services and forwarded to Anneke Solsby, Savion, LLC, October 26, 2023). A wind farm is a defined use in CCZO 7-2-3 as: "Multiple wind turbines grouped in a single location for the purpose of generating a large amount of electric power." The Project's proposed use is like a wind farm in that it consists of multiple solar arrays and a BESS grouped in a single location for the purpose of generating a large amount of electric power. The proposed Project meets the definition of a Similar Use per CCZO 7-2-3 in that it is a "use that has characteristics generally like those of a listed or defined use."

Per the CCZO 7-10-27 (Land Use Regulations Matrix), the following land uses are allowed in the Agricultural (AG) land use zone A: accessory uses and/or structures to allowed use; agricultural-related activities; landscape business; nursery; private tower with antenna; similar uses to allowed use; and utility distribution system. The following land uses are permitted by CUP in Agricultural (AG) zone: animal facility (large and small) (bird farm, calf-raising operation, dairy, feedlot, swine farm); ethanol plant; farm implement sales or service; fertilizer processing facility; food processing facility; long-term mineral extraction; wholesale retail nursery; commercial sale of hay, grain, seed, and related supplies; sanitary landfill; indoor shooting range; outdoor shooting range; similar uses to a conditional use; slaughterhouse; telecommunication facility; and wind farm (CCZO 7-10-27).

Wind Farms and Similar Uses to a Conditional Use are permitted conditional uses in the land use zone A, per CCZO 7-10-27 (Table 2). Additional discussion pertaining to siting is included in Section 4 of this CUP application.

Land Use	Zone District AG
Agriculture	А
Similar Uses to a Conditional Use	С
Similar Uses to Allowed Use	А
Wind Farm	С

Table 2. Allowed and Permitted Conditional Uses in the AgricultureZone District

Source: CCZO 7-10-27 Canyon County Land Use Regulations Matrix

Notes: A = Allowed Use, C = Permitted Uses through a Conditional Use Permit

# 1.4 Consistency with Canyon County Comprehensive Plan

The General Plan outlines Canyon County's goals, policies, and actions for long-term growth and development, and in accordance with the Idaho Local Land Use Planning Act. The proposed use supports

several General Plan goals as well as Idaho Power Western Treasure Valley Electrical Plan (Idaho Power 2023) as listed in Table 3.

General Plan Goal	Project Consistency
G1.01.00 – Protect the integrity of individual property rights while safeguarding public health, safety, and welfare.	The Applicant owns outright most of the Project area. The Project will conform to the county zoning codes, adhere to safety standards, and abate public nuisances on Project property.
G2.01.00 – Incorporate population growth trends and projections when making land-use decisions.	The Project will help provide clean energy to a region experiencing population growth.
G3.05.00 – Support a diverse economy in Canyon County and recognize that residential, commercial, and industrial uses are necessary components of overall economic stability.	The Project will use up to 400 full-time construction workers for up to 24 months.
G4.05.00 – Support a diversity of agricultural uses to sustain the agricultural and agriculturally related economy.	The Project will work to integrate the use of agrivoltaics, allowing for diverse development while preserving the agricultural character and economy of Canyon County.
G5.01.00 – Protect, enhance, and steward natural resources.	The Project will avoid any impacts to sensitive natural resources. Additionally, integrating agrivoltaics will potentially allow for natural features in the Project design and help protect ground and surface water in the area.
G7.01.00 – Endeavor to continue providing reliable public services, public safety facilities, and public utilities that support existing developed areas and future growth.	The Project will help diversify the energy sources for Canyon County, will jointly use utility corridors, and will not increase canal runoff.
G12.01.00 – Protect agricultural lands for long-term agricultural production from the encroachment of incompatible uses.	The Project's design proposes to use agriculture, helping preserve the agricultural character of the area and keeping the soil beneath the panels in its natural state, allowing for the absorption of water, in contrast to typical developments with impervious surfaces.
G13.01.00 – Promote the coordination of providers to develop plans for energy services and public utility facilities for the County's long-term energy and utility needs.	The Project will help to diversify Idaho's and the region's sources of energy while contributing to Idaho Power's statewide initiative of providing 100% clean energy by 2045.
P13.01.02 – Recognize and support the long-range planning of electricity infrastructure detailed in the Idaho Power Western Treasure Valley Electrical Plan.	This Project has an expected life of 40 years, which will help provide renewable energy to the region for the long term.
P13.01.05 – Encourage the development of renewable energy resources and enhance their capacity and reliability.	This Project will help to diversify Idaho's and the region's sources of energy while contributing to Idaho Power's statewide initiative of providing 100% clean energy by 2045.

Source: Canyon County (2022).

The IAO is described in the General Plan as an overlay district:

Applied to protect working lands and operations. These areas may have higher quality soils, water availability, and relatively flat topography. Uses may include seed production, crops, orchards, vineyards, concentrated animal feeding operations, grazing, and other agriculturally-based uses. This designation aims to protect agriculture operations from incompatible uses and reduce the conflicts concerning noise, dust, smells, and safety. (Canyon County 2022:28)

The Powers Butte Project is compatible with the intensive agricultural overlay. Due to the temporary use of the site, the underlying property is not removed from agricultural uses in perpetuity. Rather, to the extent possible, the underlying soils will be preserved and can be used for agricultures uses in the future. Further, the agrivoltaics component allows some agriculture use to continue throughout the duration of the Project. Unlike residential development adjacent to agricultural use, solar power generation is entirely

consistent with agriculture uses, and there are no conflicts between solar power use and agriculture use concerning noise, dust, smells, and safety.

# 2 SITE AND OPERATION PLAN

This section addresses the standards listed in the CUP Checklist (see Exhibit A). The organization of this section follows the CUP Checklist and responds to the Canyon County definitions of Site Plan and Operation Plan (CCZO 7-2-3). A Site Plan for the Canyon County Permit Boundary is provided in Exhibit D and shows the proposed use, structures, and roads discussed in this application. As required, the Site Plan includes lot lines, lot area, parking area, private roadways, walkways, topographic features, reserved open space, buildings and other structures, and major landscape features. A list of Canyon County Permit Boundary parcels is provided in Exhibit F, and property deeds are provided in Exhibit G. Details on Project components and features shown in the Site Plan are provided below.

# 2.1 Site Plan

# 2.1.1 Existing Uses and Structures

Existing land uses within the Canyon County Permit Boundary are primarily irrigated agriculture and existing transmission line corridors.

There are no existing buildings within the Canyon County Permit Boundary. Private residences, two agricultural retailers, and a substation are adjacent to the Canyon County Permit Boundary.

# 2.1.2 Proposed Use and Structures

The proposed use in the Canyon County Permit Boundary is a Similar Use to a Wind Farm. A utilityscale solar PV generation array and ancillary facilities are proposed in the Canyon County Permit Boundary with an up-to-200-MW BESS proposed as its own phase, that may or may not occur concurrently with the remainder of the solar facility. The Canyon County Permit Boundary is approximately 1,028 acres based on preliminary design, and the structures will be contained within this footprint. The final design may vary slightly based on final engineering and design requirements and coordination with permitting agencies, which will be reflected in the zoning permit application and subsequent building permits.

#### 2.1.2.1 UTILITY-SCALE SOLAR PV GENERATION

#### 2.1.2.1.1 Solar Arrays

Solar arrays in the Canyon County Permit Boundary include approximately 372,000 PV modules (panels) to convert solar energy into direct current (DC) electrical energy. The individual solar modules will be connected in a series to create "strings." The strings will be grouped into combiner blocks, and then further grouped into solar arrays using an aboveground or belowground collection system and ganged together at inverter stations.

The solar arrays will be oriented to allow them to follow the sun's movement throughout the day. The panel faces will be minimally reflective, dark in color, and highly absorptive. Depending on the dimensions of the chosen solar panel, the individual tracker units will have a height of approximately 8 to

10 feet above grade. The solar arrays will be separated by a distance of approximately 20 to 30 feet to provide access for first responders along interior roads and for workers engaged in O&M.

The PV modules will be transported by truck to the site. Steel piles will support the trackers and modules. The piles will be driven into the ground using pneumatic pounding and/or drilling techniques to varying depths depending on soil characteristics. After the steel piles have been installed, workers will assemble tracker motors, torque tubes, and other components. These systems will be field-assembled and attached according to the manufacturer's guidelines. The final selection of the tracking system will occur closer to final design and building plans.

#### 2.1.2.1.2 Power Collection System

The DC electricity from the solar modules will be connected to power inverters to convert to the electricity to alternating current (AC), which is used by the regional electrical grid. Underground cables, either rated for direct bury or installed in a polyvinyl chloride conduit, will transmit the DC electricity via combiner boxes throughout the solar array to the inverters. The inverter stations are typically open air, approximately 10 to 14 feet high, and suitable for a high desert environment. The inverters will perform three critical functions for the Project: 1) collect DC power in a central location, 2) convert the DC power into AC power, and 3) convert low-voltage AC power to medium-voltage AC power via a co-located transformer.

The output voltage from the inverters is stepped up to the voltage of the electrical collection system (i.e., 34.5 kilovolt [kV]). From the inverters, medium-voltage wiring rated at 34.5 kV is encased in conduit and buried 18 to 24 inches below grade. This medium-voltage wiring is routed to the on-site substation and stepped up to 138 or 230 kV. The accumulated power is then transmitted to the Project's gen-tie line and routed to Idaho Power's Bowmont Substation where it will connect to the regional electric power grid.

## 2.1.2.2 ON-SITE SUBSTATION

The on-site substation will be located in the western portion of the Project area, west of the existing Bowmont Substation (see Exhibit D). Prior to construction, the substation location will be cleared and graded, and a bed of crushed rock will be applied to create a durable surface for construction and O&M activities. The substation will consist of transformers, transmission line termination structures, a bus bar, circuit breakers and fuses, control systems, meters, and other equipment. The approval of utility facilities (including substations) are a Director administrative decision in the A zone.

# 2.1.2.3 POINT OF INTERCONNECTION GEN-TIE TRANSMISSION POLES AND LINE

The Project will interconnect the Bowmont Substation via a short 0.1-mile 138-kV or 230-kV gen-tie line connecting the Project substation to the Idaho Power point of interconnection. The gen-tie will be constructed for the nominal operating voltage of the selected substation. Monopole, H-frame, and/or lattice structures will be used depending on Project needs and resource requirements. Final hardware design will be determined during final engineering of the gen-tie. The poles are anticipated to be less than 100 feet in height and are an allowed use per CCZO 07-10-09. If higher than 100 feet, the Applicant will provide Canyon County with appropriate Federal Aviation Administration compliance documentation.

#### 2.1.2.4 UTILITY-SCALE BATTERY ENERGY STORAGE SYSTEM

As shown on the Site Plan Map (see Exhibit D), the up-to-200-MW BESS is proposed in the western portion of the Canyon County Permit Boundary, east of the intersection of Southside Boulevard and Rose

Lane on the south side of Rose Lane and east of the existing Idaho Power Bowmont to Canyon Creek 138-kV transmission line. The BESS will be approximately 7 acres and will be connected to the solar arrays via an AC-coupled system. The BESS may be constructed separately or in conjunction with the solar facility and is considered its own phase of the Project.

An AC-coupled system will be connected to a bidirectional inverter to convert DC energy to AC energy, allowing energy to flow in or out of the batteries to provide charge and discharge. The batteries would be located at a centralized location as a series of housing units similar to shipping containers. Power switches and relays would be installed for the purpose of protecting the system, and suitable site access and pads will contain the system.

#### 2.1.2.5 ANCILLARY STRUCTURES

The ancillary structures in the Canyon County Permit Boundary are described below.

#### 2.1.2.5.1 Operations and Maintenance Facility

The O&M facility will be located in Canyon County proximate to the on-site substation (see Exhibit D). The O&M facility will be constructed using a pre-engineered metal structure up to 5,000 square feet and will include a small administrative area with a supervisory control and data acquisition (SCADA) control room, a work area to perform minor repairs, and a storage area.

#### 2.1.2.5.2 Telecommunications

The SCADA system will collect operating, performance, and weather data from the solar arrays, providing continuous operation and 24/7 monitoring of the solar facility. The solar arrays will be linked to a central, on-site computer that reports to a remote operations center using a combination of fiber-optics and cellular networks. The fiber-optic cables will primarily be buried with the on-site electrical distribution lines to the central computer. The SCADA system will interface with local utility grid operations to allow for monitoring of plant operations and to disable output as necessary to ensure safety and/or grid operation requirements.

#### 2.1.2.5.3 Exterior Lighting

Permanent outdoor night lighting will be installed at the BESS, O&M facility, water storage facility (if required by the fire department), and Project substation. Some portable lighting may be needed for maintenance activities that must be performed at night. The lighting system will consist primarily of AC lighting but will include DC lighting for activities or emergency egress required during any unplanned outage of the Project's AC electrical system. Lights will be directed downward or toward the area to be illuminated to reduce glare in adjacent areas. Project light fixtures will be designed to not reflect light beyond the site. Lights in high-illumination areas that are not continuously occupied will be activated by switches, timer switches, or motion detectors so that the lights will be off when the area is not occupied. Where feasible, vehicle-mounted lights will be used for night maintenance activities. The Applicant will provide additional details closer to final design and with building plans.

#### 2.1.2.5.4 Perimeter Fencing and Gates

The Project will be fenced to restrict public access during construction and operations. The security fence will consist of one of several varieties including a wire mesh at 7-foor-high wire mesh with wood poles, a 7-foor-high wire mesh with metal poles, or a 6-foot-high chain-link security fence with 1 foot of barbed wire (three strands) mounted on 45-degree extension arms facing outward. These fences will be installed around the site perimeter, the switchyard, and other areas requiring controlled access. Controlled security

gates will be installed at the site entrance and will require an electronic swipe card or other similar electronic access. First responders will have access through the use of a key stored in a Knox Box or other approved method.

#### 2.1.2.5.5 Signs

Signs will be needed during construction and will be primarily related to traffic control. Project facilities will not be used for advertisements, except for reasonable identification of affiliated construction companies, facility operators, etc. The Applicant will ensure all temporary signs used for construction are removed. Signs unrelated to construction and traffic, if any, will be sited according to County Code and provided with the building plans. Project associated signs will also comply with applicable guidelines from the Idaho Department of Transportation, Ada County Highway District, and the Nampa Highway District.

### 2.1.3 Existing and Proposed Roads

The Canyon County Permit Boundary is generally situated between the existing North Power Lateral Canal (north), Memont Road and Kuna Cave Road (south), Robinson Boulevard (east), and Track Road (west) and as shown in the Site Plan Map (see Exhibit D). The proposed internal site access roads in the Canyon County Permit Boundary are shown in Figure 2 and on the Site Plan in Exhibit D. If required, naming of internal Canyon County Permit Boundary private roads and any required private road signs will comply with CCZO 6-5-13 and CCZO 6-5-15 and will be provided closer to final design and with building plans. As part of the zoning permit application, the Applicant will demonstrate that the private road and driveway requirements have been met (CCZO 7-10-03). The Applicant has coordinated with the Nampa Highway District and has updated the site plan to reflect an increased road setback from the county line between Ada and Canyon County (setting back 100 feet on each side) and Rose Lane (setting back 40 feet each side) (CCZO 7-10-05).

# 2.1.4 Off-Street Parking and Loading (CCZO 7-13-1)

The off-street parking and loading facilities are in conformance with CCZO Sections 7-13-1 and 7-13-3. The Applicant believes the most similar use for parking requirements is that for "manufacturing establishments" (7-13-3). A designated parking and loading area will be located proximate to the main entrance of the Project off Southside Boulevard. A maximum of four parking spaces will be provided: one parking space for each employee (based on the greatest number of employees for long-term site operations and management).

### 2.1.5 Temporary Construction Laydown Areas

Up to four temporary laydown yards approximately 3 acres in size will be established within the fenced solar facility area during construction. These laydown yards will be used for office trailers (at one location), primarily be used for parking areas for construction and personal vehicles, and storage of construction equipment and materials. The laydown yards will be developed with permanent Project infrastructure as construction progresses or will be restored following construction. The location of laydown yards is shown in the Site Plan (see Exhibit D).

### 2.1.6 Reserved Open Space

No part of the Canyon County Permit Boundary is in an area designated as Reserved Open Space.

### 2.1.7 Proposed Utility Easements

The Applicant will continue working with Idaho Power, PacifiCorp, and the relevant irrigation districts to ensure an acceptable crossing of facilities is achieved. This will be provided, as required, with the building plans. Although not expected, if the Project requires the relocation of any utility easements, the Applicant will work closely with the applicable utility to facilitate such relocation.

# 2.2 Operation Plan

The future operations plan depends on several factors, including the needs of utility and other power purchasers. In the preconstruction phase, geotechnical and drainage studies will be conducted to further refine the Project design, and construction financing will be coordinated. Completion of a power sales agreement with an electricity off-taker is required for financing and will establish the Project schedule. At this time, construction is anticipated to start in early 2025.

### 2.2.1 *Time Requirements*

Construction activities are anticipated to be completed over a period of approximately 12 to 18 months. The construction timeline is subject to change and is dependent on various contractual agreements, financing arrangements, or unforeseen circumstances outside of the Applicant's control.

### 2.2.2 Commencement of the Operation

At present, construction is planned to commence in early 2025, and the Project is planned for a commercial operation date as early as June 2026. The Project schedule is still being developed and will be coordinated and reviewed with Canyon County.

### 2.2.3 *Employees and Hours of Operation*

Construction will generally follow a 12-hour, 5-day workweek, with work activities occurring between 7 a.m. and 7 p.m., Monday through Friday. Additional hours and/or weekends may be necessary to make up schedule deficiencies or to complete critical construction activities. The Applicant currently anticipates that Project construction will require approximately 400 full-time construction workers during the peak construction period of the Project. Construction activities are expected to take between 12 to 18 months to complete, and the daily number of construction workers physically on-site will vary over time. As much as possible, qualified workers will be sourced from local communities in Canyon County. Construction activities will require qualified engineers, surveyors, electricians, general contractors, projects managers, and general laborers with applicable industry requirements for utility-scale energy projects.

The Applicant does not anticipate the need for full-time staff on-site during Project operations, but approximately four personnel will be needed for periodic maintenance during the lifetime of the Project. Site personnel will typically be present between 7 a.m. and 8 p.m. (depending on task requirements) during a typical workday, unless circumstances at the facility require an alternate schedule.

The Applicant's maintenance personnel will visit the facility for normal preventative maintenance, but no less than quarterly. Maintenance workers will perform regular inspection of field components, condition assessment of critical equipment, and routine lubrication of equipment. Any painted facilities will be repainted on a regular basis to maintain their appearance and provide protection from the elements. Data from other solar facilities across the country indicate that panel washing may not be needed. Should this

not be the case, the PV panels may be washed up to 2 times per year to increase the average optical absorption of the panel surface.

### 2.2.4 Noise Levels

Noise from construction activities will vary, depending on such factors as equipment used, operations schedule, and meteorological conditions. Truck traffic and heavy equipment will cause elevated noise levels at and near active construction sites. Noise will also be generated along access roads by vehicles transporting workers and materials during construction. Most construction activities will occur during the day, and nighttime noise levels are anticipated to drop to the background levels of the site.

Once in operation, the inverters that are dispersed in the solar arrays, and the HVAC equipment for the BESS and the substation transformers will be the primary sources of noise. Generally, BESS facilities such as the one proposed are not louder than other typical activities in the area, for example, traffic during the busiest time of day for road travel, or ongoing noise level of the existing substation adjacent to the proposed Project. The noise levels from the Project are not anticipated to exceed acceptable noise levels listed in CCZO 07-14-27 of 55 A-weighted decibels (dBA) at the site's property line, the approximate equivalent of an average household refrigerator (Yale Environmental Health and Safety 2024).

### 2.2.5 Dust Levels

Short-term increases in dust emissions during construction will be mitigated by the implementation of a dust abatement plan. All vehicles and construction equipment will be maintained to minimize exhaust emissions and will be properly muffled to minimize noise. Disturbed areas will be watered as necessary to suppress dust. The Applicant has coordinated with the Idaho Department of Environmental Quality (IDEQ) and will work with the agency to secure any necessary dust-related permits.

The Project is expected to have minimal short-term impacts on dust during operations. Fugitive dust from occasional O&M activities will be minimal.

### 2.2.6 Air Quality

Localized impacts to air quality could occur from Project construction and O&M activities in association with tailpipe emissions from delivery and construction vehicles, fugitive dust from soil disturbance, and vehicle travel on unpaved roads. Short-term increases in dust emissions during construction will be mitigated by the implementation of a dust abatement plan. All vehicles and construction equipment will be maintained to minimize exhaust emissions and will be properly muffled to minimize noise. Disturbed areas will be watered as necessary to suppress dust. The Applicant will work with the IDEQ and secure any necessary air quality–related permits before construction begins.

The Project is expected to have no impacts on air quality, dust, or odors during operations. Solar facilities do not generate emissions or odors. Fugitive dust and vehicle emissions from occasional O&M activities will be minimal.

### 2.2.7 Water Quality

During construction, water will be used for compaction of electrical trenches and foundations, dust control (including truck wheel washing), and non-potable water for the temporary construction trailer. Water may be used for panel washing during operations, if needed. The source of water will be the water wells associated with the land. No adverse impacts to surface water or groundwater are anticipated. The

Project will comply with all IDEQ permits and will secure water quality-related permits before construction begins.

### 2.2.8 Raw Material Delivery

Construction materials and supplies will be delivered to the Project area via truck (see Exhibit D, Site Plan). Approximately 20 trucks per day are expected to deliver various materials and construction equipment. Between one and four temporary laydown yards approximately 3 acres in size will be established within the fenced solar facility area during construction. These laydown yards will be used for office trailers, parking areas for construction and personal vehicles, and storage of construction equipment and materials. The laydown yards will be developed with permanent Project infrastructure as construction progresses or will be restored following construction. The location of the laydown yards is shown in the Site Plan (see Exhibit D).

The Applicant will implement a 25-mile-per-hour speed limit on Project access roads for safety and dust control. Delivery vehicles will be directed to the temporary construction laydown yards or active construction sites. Vehicles not needed for installation of Project components will be staged at the laydown yards until the end of the workday. Traffic management procedures will be designed to minimize potential hazards from increased truck traffic and worker traffic and to minimize impacts to traffic flow in the vicinity of the Project.

### 2.2.9 Finished Product and Marketing

The proposed Project will provide new electricity into the regional transmission grid while contributing to Idaho Power's goal of providing 100% clean energy by 2045 (Rodriguez 2021). The proposed Project's BESS will balance electrical load on the transmission grid by moving energy during times of low and high demand. The BESS will provide energy storage to reduce load on congested transmission and distribution systems, reduce the need for costly grid upgrades, and add generation to meet periods of systemwide peak load.

### 2.2.10 Site Improvements

All proposed structures and site improvements are described in the following sections and are shown in the Site Plan, Exhibit D. Proposed site improvements comply with CCZO 7-17-31.

#### 2.2.10.1 PUBLIC AND PRIVATE FACILITIES

The proposed use will be privately owned and operated. No public facilities are planned.

#### 2.2.10.2 PUBLIC AMENITIES AND INFRASTRUCTURE

The proposed Project will provide a reliable source of renewable energy that will benefit the public in Canyon County and the region. The Project area will be gated and fenced for site security and public safety. All infrastructure proposed as part of the Project is shown in the Site Plan (see Exhibit D) and described in Section 2.

# 2.3 Decommissioning

The Project is expected to have a useable lifespan of approximately 40 years. After the Project is no longer operational, it will be decommissioned and the Project area will be reclaimed. The

decommissioning process and procedures will be designed to promote public health and safety, environmental protection, and compliance with applicable regulations. Project decommissioning activities will likely occur in a phased and sequential manner and are estimated to require 2 to 3 years to complete. A Project decommissioning plan will be developed in accordance with all applicable regulations and submitted to Canyon County for review and approval prior to permanent closure. The decommissioning plan will likely include the following key components:

- Documenting and establishing health and safety procedures and all applicable federal, state, and local regulations.
- Conducting pre-decommissioning activities, such as final decommissioning and restoration planning.
- Dismantling equipment that can be sold on the used-equipment market.
- Recycling facility components where technologically and economically feasible.
- Demolishing above-ground structures (dismantling and removing improvements and materials) in a phased approach through mechanical or other approved methods while still using some items until decommissioning has been completed (e.g., water supply, O&M facility).
- Demolishing and removing belowground facilities (e.g., floor slabs, footings, and underground utilities) as needed to meet the decommissioning goals.
- Disposing hazardous materials and hazardous waste to appropriate facilities for treatment/disposal or recycling, as required.
- Conducting subsurface remediation, if required.
- Recontouring lines and grades to match the natural gradient.

# 3 LETTER OF INTENT (CCZO 7-7-5)

This section is provided to address the standards listed in the CUP Checklist (see Exhibit A). The organization of this section follows and responds to CCZO 7-7-5(1-8) (Hearing Criteria):

- 1. Is the proposed use permitted in the zone by conditional use permit;
- 2. What is the nature of the request;
- 3. Is the proposed use consistent with the comprehensive plan;
- 4. Will the proposed use be injurious to other property in the immediate vicinity and/or negatively change the essential character of the area;
- 5. Will adequate water, sewer, irrigation, drainage and stormwater drainage facilities, and utility systems be provided to accommodate the use;
- 6. Does legal access to the subject property for the development exist or will it exist at the time of development;
- 7. Will there be undue interference with existing or future traffic patterns; and
- 8. Will essential services be provided to accommodate the use including, but not limited to, school facilities, police and fire protection, emergency medical services, irrigation facilities, and will the services be negatively impacted by such use or require additional public funding in order to meet the needs created by the requested use?

# 3.1 Conformance with Zone District

The proposed use in the Canyon County Permit Boundary is considered a Similar Use to a Wind Farm per the determination by the DSD Director on October 25, 2023, and is a CCZO permitted conditional use in land use zone A. The Canyon County Permit Boundary does not overlap any Area of City Impact as described in CCZO 7-10-23.

# 3.2 Nature of the Request

This CUP application is for the proposed construction and operation of the portion of the Powers Butte Energy Center proposed in Canyon County. The use in the Canyon County Permit Boundary would contribute to the overall Project, an up-to-250-MW solar PV generation array, up-to-200-MW BESS, and ancillary facilities on approximately 1,028 acres of privately owned land in Canyon County, Idaho, approximately 1.5 miles southeast of Bowmont, Idaho (see Figure 2). The Project will play a crucial role in enhancing grid resilience by diversifying the energy sources and decentralizing energy production in the region. By generating electricity closer to where it is consumed, the Project will minimize the dependency on long-distance transmission lines and vulnerable power plants.

# 3.3 Consistency with the Comprehensive Plan

The proposed use is consistent with the General Plan and could support the realization of several goals as listed in Table 3 in Section 1.3.

Almost all the land not in an Impact Area or designated as open space in Canyon County is designated IAO. The Impact Areas are needed to support expected continued community growth such as for residential and commercial development close to existing urban development and related public resources and infrastructure and therefore would not be suitable for a utility-scale solar project. Therefore, siting the Project outside the IAO is not feasible. The Project would not preclude agricultural use when the land is used for a solar facility; is compatible with adjacent agricultural uses due to no operational impacts to traffic, dust, soils, or water as previously described; preserves the land for agricultural use in the future; and will maintain the rural feel of the surroundings. Therefore, the Project is consistent with the IAO to protect agriculturally based uses from incompatible uses and conflicts.

# 3.4 Proposed Use Compatibility with the Character of the Area

The proposed use is a private action proposed on privately owned lands and would not adversely affect the human or natural environment, other property in the immediate vicinity, or negatively change the essential character of the Project area vicinity as noted throughout this application. The proposed use is compatible with existing agricultural, commercial, industrial, and residential uses and the character of the area. The Project is compatible with adjacent uses as it has no operational impacts to traffic, dust, soils, or water as previously described, and preserves the land for agricultural use in the future. Moreover, the Project will maintain the rural feel of the surrounding area because the panels will be low in height (panels are expected to be 8 to 10 feet high at full tilt). Additionally, the site plan incorporates substantial setbacks from major roads, and the area under the panels is expected to be vegetated.

### 3.4.1 Existing Conditions

This section provides a summary of Canyon County Permit Boundary existing land use and resource conditions and how the preliminary design and proposed use is responding to existing conditions.

#### 3.4.1.1 AQUATIC RESOURCES

The Applicant has retained an environmental consulting firm with qualified staff to perform all required environmental analysis, field studies, and permitting. The Applicant is also coordinating with Idaho Fish and Game Department (IDFG), IDEQ, and other state and local agencies, as required.

#### 3.4.1.1.1 Hydrology

The Applicant's consultant (SWCA Environmental Consultants [SWCA]) conducted a review of the U.S. Geological Survey's (USGS's) National Hydrography Dataset (Idaho Department of Water Resources and USGS 2022) data in preparation for a 2,385.18-acre wetland field survey conducted in Ada and Canyon Counties between April 24 and 27, 2023 (Exhibit I). The field survey did not differentiate between aquatic resources in Ada and Canyon Counties, so the results for both counties are discussed together.

The desktop reviews indicated a total of approximately 8,020.76 linear feet of mapped National Hydrography Dataset features and 2.63 acres of intermittent lake/pond waterbodies within the surveyed areas (see Exhibit I). The Waldvogel Canal, C07, flows through the eastern portion of the Project area (referred to as Survey Area in Exhibit I) and is the nearest aquatic resource that appears on the USGS topographic map.

No surface water flow was found during field surveys within the Survey Area. At the time of the surveys, there was evidence of heavy cattle use and manure storage in the Survey Area. Several irrigation canals were identified along the perimeter of the Survey Area. The hydrologic features are shown in Figure 4. A copy of the aquatic resources delineation report is provided in Exhibit I. A hydrology and flood inundation report was also conducted for the Project and is included as Exhibit J.

There are no stream corridors in the Canyon County Permit Boundary and the Project layout has been designed to avoid adverse impacts to sensitive hydrologic features and impacts to drainages. Detailed maps of all aquatic features delineated on site in the Project area are provided in Exhibit I. The analysis of hydrologic features also includes wetlands and floodplains as described below.

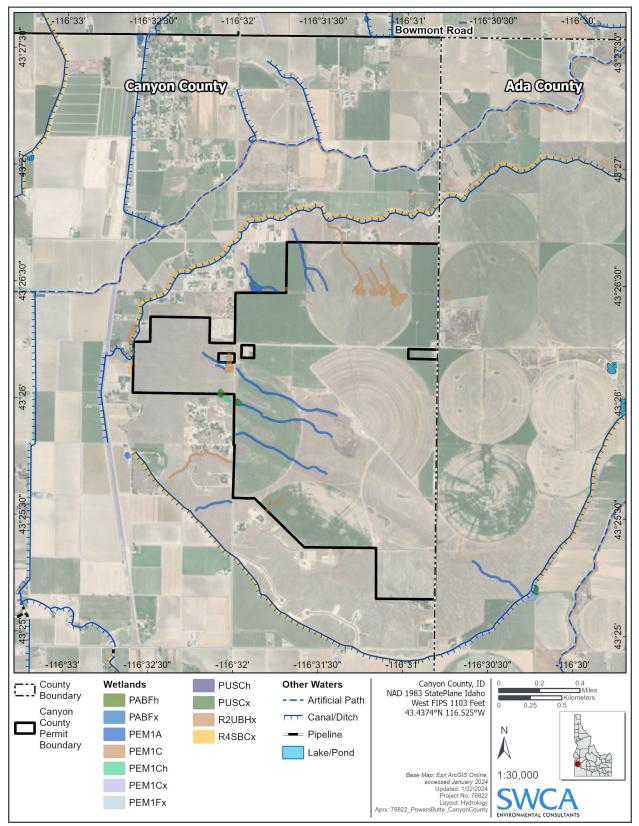


Figure 4. Canyon County Permit Boundary hydrologic features.

#### 3.4.1.1.2 Wetlands

The Applicant's consultant (SWCA) conducted an initial field survey of aquatic resources and wetlands of the entire Project area between April 24 and 27, 2023, (approximately 2,385 acres) to identify and delineate wetlands. The aquatic resources delineation report is attached to this application (see Exhibit I).

The initial survey delineated four human-made cattle ponds (2.6 acres) lacking hydric soils and vegetation, and seven irrigation canals (15,079.76 feet, 4.57 acres) totaling 7.17 acres. All of the delineated aquatic resources are suspected to be non-jurisdictional as they are human-made, used for agriculture, and lack a continuous connection with traditionally navigable waters. Under the Clean Water Act, the U.S. Army Corps of Engineers has sole authority to determine what resources are jurisdictional or not jurisdictional at the federal level. Under Idaho Code, ditches, canals, laterals, and drains that are constructed and used for irrigation or drainage purposes are not stream channels.

The mapped aquatic resources delineated in the survey areas are summarized in Table 4. The Project footprint will avoid natural wetlands and drainages.

This section provides a summary of Canyon County Permit Boundary existing land use and resource conditions, and how the preliminary design and proposed use is responding to existing conditions.

Aquatic Resource ID	Number of Aquatic Resources	Total Wetland Acreage
Human-made pond	4	2.60
Canal	7	4.57
Total	11	7.17

#### Table 4. Aquatic Resources in the Project Area

#### 3.4.1.1.3 Floodplains

Federal Emergency Management Agency maps were evaluated to determine potential for flooding in the Project area (Federal Emergency Management Agency 2021). The entire Project area (2,385 acres) is designated as Flood Zone X, which is defined as an area of minimal flood hazard. The Project footprint was designed to avoid natural drainages and floodplains; therefore, it will not contribute to flood hazard. The Applicant's consultant (Kleinfelder) prepared a hydrology and flood inundation report for the Project that is included as Exhibit J.

#### 3.4.1.2 HISTORIC RESOURCES

Based on a review of the Idaho State Historical Society and associated Idaho State Historic Preservation Office's (SHPO's) National Register of Historic Places (NRHP) database, there are no NRHP-listed resources or districts in the Project area (SHPO 2021). All workers with access to the Project site will receive training on cultural resource protection. In accordance with Idaho Statute Title 67, Chapter 41, 67-4121, "No person shall remove from the state of Idaho any part of any such ruins, pictographs, petroglyphs, relics, deposits, objects, specimens, or artifacts recovered from any such archaeological or vertebrate paleontological site or deposit without first obtaining the consent of the board of trustees of the Idaho State Historical Society."

The closest mapped NRHP-listed resource is the Diversion Dam and Power Plant Building, which is approximately 6 miles northeast of the Project area, southeast of the Boise River in Ada County. A desktop file search and literature review results indicate that 68 previous cultural resources projects have

been conducted in and within 1 mile of the Project area. These projects were conducted between 1989 and 2022 (SHPO 2022).

#### 3.4.1.3 LAND USE

The Project area is currently used for agricultural use, primarily cultivated alfalfa. Adjacent uses include rural residences, public utilities, and a commercial soils, barks, mulches distributer. The Project does not preclude agricultural use when the land is used for a solar facility; is compatible with adjacent agricultural uses due to no operational impacts to traffic, dust, soils, or water as previously described; and preserves the land for agricultural use in the future. Moreover, the Project will maintain the rural feel of the surroundings because the panels will be low in height; panels are expected to be 8 to 10 feet high at full tilt, the site plan incorporates substantial setbacks from major roads, and the area under the panels will be vegetated. The only areas that will not have a vegetated base are at the substation, O&M facility, and BESS, which will have gravel around them. Per CCZO 07-10-15: In residential and agricultural zones, no county regulations regulate the maximum area of a lot which can be covered by impervious surface. Therefore, other allowed or conditionally allowed uses would likely substantially impact the property more than the proposed Project.

As shown on the site plan, the Project will meet or exceed all setbacks shown in CCZO Section 07-10-21 (Front 30 feet, Side 10 feet, Rear 20 feet, Corner 30 feet). The BESS, O&M facility, and substation will each be less than 35 feet high (CCZO 07-10-21-3). The transmission poles will be less than 100 feet high, and if they will be higher than 100 feet, the Applicant will have the appropriate approvals from the Federal Aviation Administration.

#### 3.4.1.4 SENSITIVE PLANT AND WILDLIFE SPECIES

A U.S. Fish and Wildlife (USFWS) Information for Planning and Consultation (IPaC) query found that there is one Endangered Species Act (ESA)–listed wildlife species, yellow-billed cuckoo (*Coccyzus americanus*); one candidate insect species for listing under the ESA, monarch butterfly (*Danaus plexippus*); and one ESA-listed plant species, slickspot peppergrass (*Lepidium papilliferum*) that have potential to occur in or near the Project area (USFWS 2022). There is no designated or proposed critical habitat for any of these species in the Project area; however, according to a desktop review, approximately 526 acres (30%) of the Project is located within the potential habitat for slickspot peppergrass (an ESA-listed threatened species). Additionally, this species is known to occur within Canyon County (IDFG 2022a).

Several migratory bird species are likely to occur in the Project area (USFWS 2022). Based on review of IDFG species data, no ESA-listed wildlife species occur in Canyon County (IDFG 2022a). The Project area is also within the known ranges for elk (*Cervus elaphus*) and mule deer (*Odocoileus hemionus*) (IDFG 2022b, 2022c). Golden eagle (*Aquila chrysaetos*) may forage within the Project area (IDFG 2024).

IDFG species data show that the greater sage-grouse (*Centrocercus urophasianus*) occurs in Canyon County and may occur near the Project area (IDFG 2019, 2020). This species is not listed under the ESA but was a candidate for listing between 2010 and 2015 and remains a species of management concern for many federal agencies (e.g., Bureau of Land Management, U.S. Forest Service, and USFWS). The Project area is not located in a designated habitat management or conservation area for greater sage-grouse (IDFG 2019, 2020).

Field surveys of the Project area were conducted between April 24 and 27, 2023, to evaluate habitat for slickspot peppergrass and yellow-billed cuckoo (SWCA 2023). No suitable habitat was observed within

the Project area as the area lacks sagebrush steppe vegetation communities with patches of biological soil crust known as slickspots. There was no suitable habitat for yellow-billed cuckoo in the Project area.

The Applicant has shared the results of the fieldwork with IDFG and in response, Brandon Flack with IDFG stated: "Aerial imagery and the report from SWCA indicate most of the Project property is currently disturbed, being used mainly for agricultural production, and contains little native vegetation that could provide habitat for native wildlife species. Considering the footprint of the Project overlays an area that has already been disturbed (or is surrounded by other suburban development or agricultural lands) and little intact native habitat exists on the Project property or on the adjacent properties, IDFG would not anticipate effects of the proposed activities on native plant or terrestrial wildlife populations" (see Exhibit M). Additional preconstruction field surveys for sensitive nesting species will be conducted, as necessary, in compliance with state and federal law.

#### 3.4.1.5 SOILS

A desktop review of soils data from the Natural Resources Conservation Service (NRCS 2022) was conducted for the Canyon County Permit Boundary to identify soil types and slopes by acreage. The results are shown in Figure 5 and Table 5. The predominant soil type is the Scism silt loam, deep over basalt, on 3 to 7 percent slopes (soil unit SdC). Shallow sloping areas are well suited for solar installations. The Applicant will obtain an Idaho Pollutant Discharge Elimination System (IDPES) permit prior to construction.

Map Unit Symbol*	Soil Unit Name	Area (acres)
SdC	Scism silt loam, deep over basalt, 3 to 7 percent slopes	268.0
PhB	Power silt loam, 1 to 3 percent slopes	258.9
PcC	Potratz-Power silt loams, 3 to 7 percent slopes	153.6
TkE	Trevino0Rock outcrop complex, 0 to 20 percent slopes	108.6
SdB	Scism silt loam, deep over basalt, 1 to 3 percent slopes	87.6
TrD	Trevino silt loam, 3 to 12 percent slopes	33.4
BaE	Bahem silt loam, 12 to 30 percent slopes	29.5
PhA	Power silt loam, 0 to 1 percent slopes	25.0
PeC	Potratz-Power silt loams, 3 to 7 percent slopes	22.3
PaB	Potratz silt loam, 1 to 3 percent slopes	17.2
PeB	Potratz-Power silt loams, 1 to 3 percent slopes	9.7
ScD	Scism silt loam, 7 to 12 percent slopes	6.4
TrB	Trevino silt loam, 1 to 3 percent slopes	5.0
ScB	Scism silt loam, 1 to 3 percent slopes	2.2
145	Purdam-Power silt loams 2 to 4 percent slopes	0.5
164	Scism silt loam, bedrock substratum, 2 to 4 percent slopes	0.4
158	Rock outcrop-Trevino complex, 5 to 20 percent slopes	0.1
Total		1,028

#### Table 5. Soils in the Canyon County Permit Boundary

Source: NRCS (2023).

\* Soil unit number corresponds to soil units mapped in Figure 5.

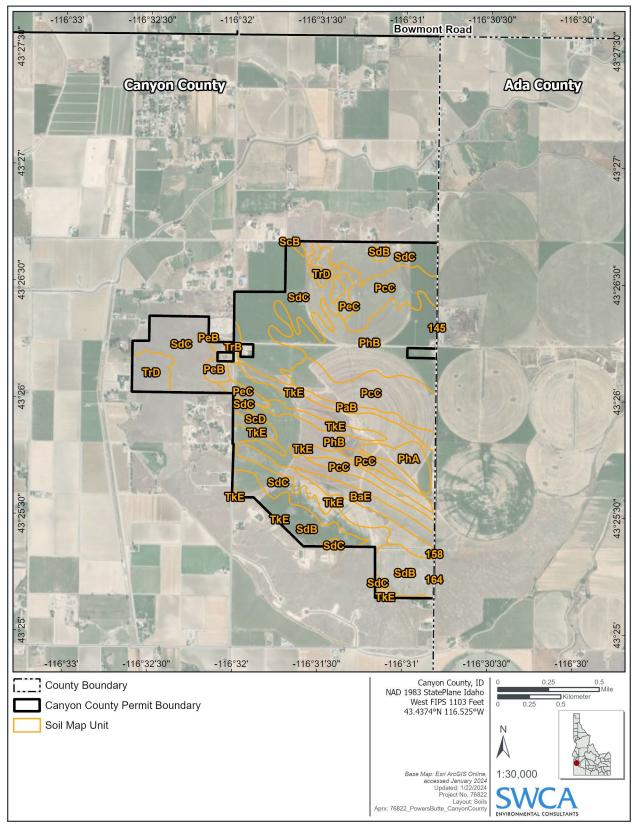


Figure 5. Canyon County Permit Boundary soil map units (see Table 5).

#### 3.4.1.6 VEGETATION

A desktop review of the USGS's National Land Cover Database (USGS 2019) indicates that the Project area primarily consists of herbaceous and shrub-scrub land cover categories (Table 6, Figure 6). Remaining land cover types make up less than 1% of the Project area (see Table 6). Field surveys of vegetation and habitats in the Project area were performed by qualified biologists between April 24 and 27, 2023, and on September 4, 2023, to inform the design and construction process (see Exhibit I). A vegetation management plan will be developed for implementation during Project construction and O&M.

Land Cover Category	Acreage in Project Area	Percentage of Project Area
Cultivated Crops	873.6	84.9%
Herbaceous	79.6	7.7%
Shrub/Scrub	42.4	4.1%
Developed, open space	12.9	1.3%
Hay/Pasture	10.4	1.0%
Developed, low intensity	7.4	0.7%
Developed, medium intensity	2.0	0.2%
Total	1,028.4	100.0%

#### Table 6. Land Cover in the Canyon County Permit Boundary

Source: USGS (2019)

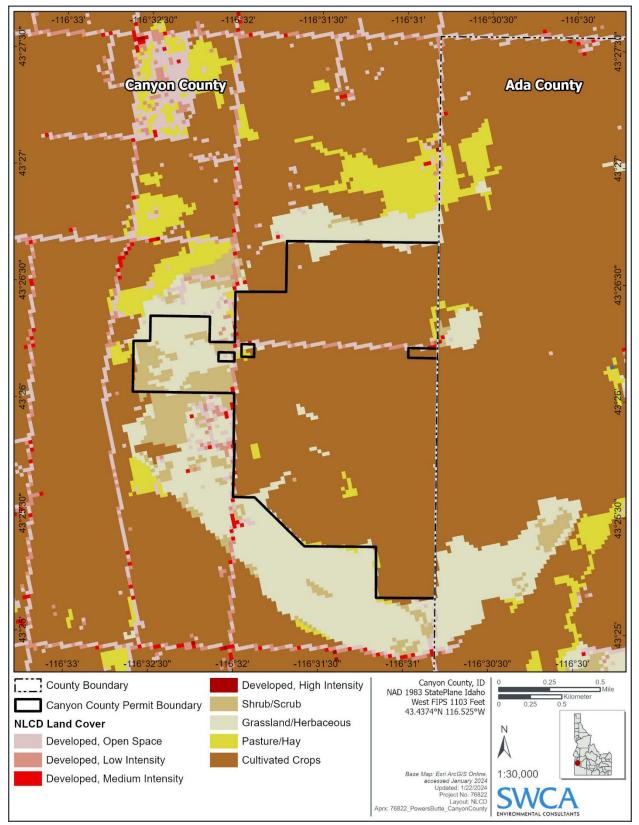


Figure 6. Canyon County Permit Boundary National Land Cover Database land cover types.

#### 3.4.1.7 VISUAL RESOURCES

A visual resources analysis of the Project area was conducted to assess impacts within viewsheds, adjacent properties, and public viewing areas. The visual resource simulations are provided in Exhibit K. Ultimately, due to terrain and topography that shield some areas of the Project, substantial setbacks from roads, low height of solar panels, spacing/limited density of solar panels, and vegetated ground cover, the Project will not create a visual impact that significantly changes the overall rural feel of the surroundings.

# 3.5 Adequate Facilities

### 3.5.1 Water and Irrigation

During construction, water will be used for compaction of electrical trenches and foundations, dust control (including truck wheel washing), and non-potable water for the temporary construction trailer. During O&M, 5 to 15 acre-feet of water may be used annually for panel washing, if needed. The Applicant has access to an on-site water source; an off-site source might be used through a third-party vendor that supplies their own water. No adverse impacts to surface water or groundwater are anticipated. The Project will comply with all IDEQ permits and will secure water quality–related permits prior to commencement of construction.

The Applicant envisions reduced use of on-site wells with minimal operational water requirements (5–10 acre-feet per year for operations of the solar facility), dust suppression during construction, and reduced water use from more direct and less consumptive agrivoltaic irrigation practices. Some water may be stored on-site for fire suppression during construction and O&M if deemed necessary in the Wildfire Management Plan. The O&M facility will require potable water and septic; the Applicant anticipates using an on-site well for this and will work with the IDEQ to ensure acceptable and appropriate design and disposal practices are maintained.

### 3.5.2 Sewer

Portable sanitary stations will be used and maintained by a vendor during construction.

The Project will need a septic/sewage disposal system at the O&M facility. Because it is a septic system, the Project will not place a burden on existing sewer infrastructure. The Applicant will obtain required permits from IDEQ, Southwest District Health, and Canyon County.

### 3.5.3 Drainage and Stormwater Drainage Facilities

The Applicant has prepared a hydrology and flood inundation study for the Project area (see Exhibit J). The Project will comply with CCZO 07-17-33 such that all graded surfaces and erosion prevention devises and drainage structures will be repaired and maintained. Additionally, any work on slopes >15% will include an engineered grading and drainage plan per CCZO 07-18-05. The majority of the site will remain natural impervious surface. All runoff from the Project will infiltrate on-site; therefore, the Project will not impact stormwater drainage systems.

### 3.5.4 Utility Systems

Where possible, electric cables associated with the Project will be located underground. Local electric utility service will be coordinated with Idaho Power. The final location and specifications of telecommunications facilities will be determined as part of the final design permit package. The Project

includes a SCADA system to provide remote control of communications and to monitor energy generation within each solar array. The SCADA system will connect to the Project with a fiber-optic cable. All utilities will comply with all local, state, and federal regulations. See Site Plan Map (see Exhibit D) for details regarding the location of proposed utility easements.

# 3.6 Legal Access

The Applicant has legal access to the subject properties in the Canyon County Permit Boundary for the development or will have legal access at the time of development, as shown in the Master Application Form with Signatures (see Exhibit B).

# 3.7 Potential Impacts to Existing or Future Traffic Patterns

The proposed primary access to the Project is anticipated to be located off Southside Boulevard for the substation and operations and management portion of the site. The primary access to the largest and central portion of the facility will be from Rose Lane. The primary access to the easternmost portion of the Project will be from Robinson Road (see Exhibit D). The site design, as shown in the Site Plan, will provide sufficient internal circulation for all development activities. The Applicant has coordinated with the Nampa Highway District and has updated the site plan for additional setbacks from the county line between Canyon and Ada County (100 feet on each side) and Rose Lane (40 feet each side). The Project's design will adequately address road widths and turnarounds for delivery vehicles and fire trucks. Emergency access to the Project area will be identified on the final design and with building plans, and all required approvals and improvements will be completed before construction begins.

There will be a slight temporary increase in traffic pattern impacts during Project construction. There will be no temporary or permanent undue interference with existing or future traffic patterns from O&M due to the limited number of permanent employees, expected to be four at most. There will be incidental delivery trucks during O&M, but it is expected there would be less than one delivery on average per day.

# 3.8 Potential Impacts to Essential Services

The Project is not anticipated to adversely impact essential services. The proposed use is a low intensity use compared to other allowed uses and conditionally permitted uses in the Agricultural zoning district, such as a dairy facility, feedlot, swine farm, ethanol plant, fertilizer processing facility, or sanitary landfill. There are adequate essential services to accommodate the use. The Project's use of essential services, including police and fire protection and emergency medical services, is expected to be minimal. There will be no impact on local school systems. It is not anticipated that essential services will be negatively impacted by the proposed use or require additional public funding in order to meet the needs created by the proposed use.

### 3.8.1 Schools

The Project is not anticipated to have adverse impacts on schools but will contribute to the county tax base, materially benefiting local school funding.

### 3.8.2 Irrigation Facilities

The Project is not anticipated to have adverse impacts on irrigation facilities. The agricultural components of the Project will rely on existing irrigation facilities and water rights.

### 3.8.3 Emergency Services

The Project is not anticipated to have adverse impacts on emergency services. Much of the powergeneration system operates at low voltage and power levels. Substation equipment will be contained in a secure fenced area. The proposed voltages and transmitted power are at similar (or lower) levels as the existing transmission lines traversing the immediate area. The design, construction, and O&M of the Project will meet the requirements of the National Electrical Safety Code and U.S. Department of Labor Occupational Safety and Health Administration, as well as requirements for the safety and protection of landowners and their property. The Applicant and all associated contractors will provide a safe work environment at all times. During non-work periods, all tools and materials will be gathered, cached, and secured to prevent safety problems and vandalism. Safety plans will be developed and implemented as required by federal, state, and local regulations. Access to and within the Project area will be designed to allow appropriate access for fire and emergency vehicles. Appropriate signage will be used to assist fire fighters and emergency response personnel.

#### 3.8.3.1 LAW ENFORCEMENT

The responsibility for law enforcement in the Project vicinity is under the jurisdiction of the Canyon County Sheriff. The Applicant does not anticipate adverse impacts to the operations of the sheriff's office or its ability to provide adequate protection services to the surrounding community including because of the limited number of operational employees.

#### 3.8.3.2 FIRE PROTECTION

The solar panels and other electrical equipment will be designed to meet all applicable Underwriters Laboratories and International Electrotechnical Commission ratings for their resistance to fire. The BESS will be designed and constructed in accordance with safety guidelines from the National Fire Protection Association. The battery storage will incorporate seismic protection features to mitigate risks associated with earthquakes and will incorporate smoke and fire detection and suppression systems. The Project is within the jurisdiction of the Melba Rural Fire Protection District, which was contacted and coordinated with in advance of this application submittal. The Applicant will continue to coordinate with state and local fire officials to develop fire prevention, notification, and response procedures.

# 4 USE STANDARDS: WIND FARM

After consulting with the Applicant, the DSD Director determined that the proposed use in the Canyon County Permit Boundary is considered a Similar Use to a Wind Farm, a permitted conditional use in land use zone A. Additional standards for a wind farm are listed in CZZO 7-14-33, are discussed in this section, and shown on the Site Plan (see Exhibit D).

# 4.1 Lot Size

The Canyon County Permit Boundary consists of four parcels totaling 1,028 acres (see Exhibit F for the list of parcels).

# 4.2 Lot Configuration

The configuration of the Canyon County Permit Boundary parcels and Project components is shown in the Site Plan (see Exhibit D).

# 4.3 **Proximity to Neighboring Structures**

The BESS system is 0.28 mile from the nearest residence, and the substation is 0.1 mile from the nearest residence.

# 4.4 Topography

The Canyon County Permit Boundary is located on the Snake River Plain, a broad, flat depression that covers a large portion of southern Idaho. Topography at the Project area is varied, but most of the site has slopes of less than 5 percent and is well suited to PV solar development. Figure 7 shows topography in the Canyon County Permit Boundary with contours. Contours are also provided on the Site Plan Map (see Exhibit D). Development in the Project area will avoid steep slopes areas (slopes greater than 15 percent).

# 4.5 Viewsheds

A visual resources simulation of the Project area was conducted to assess impacts within viewsheds, adjacent properties, and public viewing areas. The visual results are provided in Exhibit K. Ultimately, due to terrain and topography, which shield some areas of the Project, substantial setbacks from roads, low height of solar panels, spacing/limited density of solar panels, and vegetated ground cover, the Project will not create a visual impact that significantly distracts from the rural feel of the surroundings.

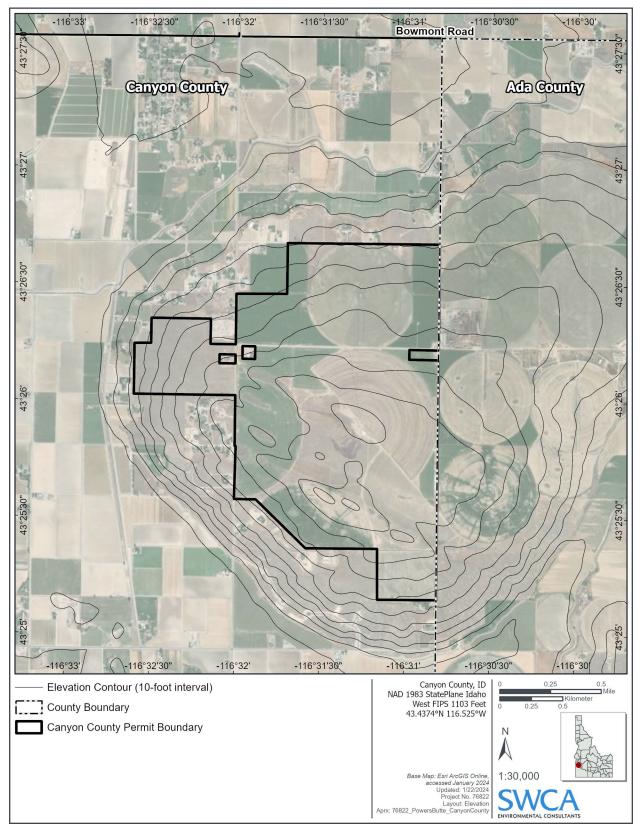


Figure 7. Topography within the Canyon County Permit Boundary.

# 5 LAND USE WORKSHEET

A completed Land Use Worksheet is attached to this CUP application (see Exhibit C). Section 3 of this CUP application provides additional information and details on the contents of the worksheet.

# 6 PRE-HEARING REQUIREMENTS

# 6.1 Neighborhood Meeting

Per the requirements of CCZO 7-1-15, a neighborhood meeting was held from 6 p.m. to 8 p.m. October 26, 2023, at the American Legion at Melba, Idaho. Written notice was provided to all property owners or purchasers of record owning property within 600 feet of the exterior boundary of the Canyon County Permit Boundary. Exhibit H provides documentation of the neighborhood meeting and Canyon County Neighborhood Meeting Sign-up Sheet.

# 6.2 Agency Consultations and Communications

The Applicant consulted with required agencies as part of this CUP application in accordance with local, state, and federal laws and regulations. Documentation of communications are within Exhibit L. The list of consulted agencies includes the Federal Energy Regulatory Commission, Federal Aviation Administration, National Guard, Mountain Home Air Force Base, Idaho Division of Aeronautics, Boise Airport director, Idaho Public Utilities Commission, Idaho Power, IDFG, USFWS, Idaho Department of Water Resources, IDEQ, Canyon County Emergency Management and Community Resilience, Idaho Bureau of Homeland Security Public Safety Communications section, and the Melba Rural Fire Protection District.

The Canyon County Permit Boundary is not located within an Area of City Impact.

# 7 REFERENCES

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