AQUATIC RESOURCES DELINEATION REPORT FOR POWERS BUTTE ENERGY CENTER, ADA AND CANYON COUNTIES, IDAHO

Prepared for

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REPORT SUMMARY

The Survey Area covers 2,385.18 acres within Ada and Canyon Counties, Idaho, on privately-owned lands. SWCA observed no hydrophytic vegetation and no hydric soils within the Survey Area. Four human-made ponds (2.59 acres) were delineated within the Survey Area with hydrology but no other wetland indicators. Additionally, seven irrigation canals (15,079.76 feet; 4.57 acres) were delineated within the Survey Area. None of the delineated aquatic resources are suspected to be jurisdictional.

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ACRONYMS AND ABBREVATIONS

CFR	Code of Federal Regulations
CWA	Clean Water Act
delineation	aquatic resources delineation
EPA	U.S. Environmental Protection Agency
FAC	Facultative
FACU	Facultative Upland
FACW	Facultative Wetland
GPS	global positioning system
IDWR	Idaho Department of Water Resources
NHD	National Hydrography Dataset
NLCD	National Land Cover Database
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OBL	Obligate Wetland
OHWM	ordinary high-water mark
project	Powers Butte Energy Center
SSURGO	Soil Survey Geographic Database
SWCA	SWCA Environmental Consultants
UPL	Upland
USACE	U.S. Army Corps of Engineers
WOTUS	Waters of the United States

1.0 INTRODUCTION

Savion LLC, doing business as Powers Butte Energy Center, LLC, is seeking to develop the Powers Butte Energy Center (project), a 250-megawatt (MW) solar generation facility, 200-MW battery energy storage system, and ancillary facilities on 2,385.18 acres of private developable land in Ada and Canyon Counties, Idaho (Figure A-1 in Appendix A). Savion LLC contracted SWCA Environmental Consultants (SWCA) to conduct an aquatic resources delineation (delineation). The purposes of this delineation are to identify and evaluate potential aquatic resources including wetlands, within the Survey Area that may be subject to U.S. Army Corps of Engineers (USACE) Walla Walla District and the State of Idaho jurisdiction as defined in Sections 401 and/or 404 of the Clean Water Act and Idaho code § 42- 3801.

1.1 Contact Information

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1.2 Survey Area Location

The Survey Area covers 2,385.18 acres within Ada and Canyon Counties, Idaho, on privately-owned lands (see Figure A-1). The center point of the Survey Area is located at 43.43402, -116.51994. To access the Survey Area from Nampa, Idaho, head southeast on 1st Street South toward Wall Street for 0.3 mile. Turn right, heading southwest, onto 16th Avenue South for 374 feet. Turn left, heading southeast, onto 2nd Street South for 1.7 miles. Turn left onto Southside Boulevard, and head south for 8.5 miles. Turn left, heading east, onto Rose Lane to arrive at the center of the Survey Area.

2.0 METHODS

2.1 Desktop Resource Review

Before the delineation fieldwork, SWCA reviewed the following data sources as they pertain to the Survey Area:

- Aerial photographs (see Figure A-1) and aquatic resources maps to identify potential aquatic resources in the Survey Area (see Appendix A, Appendix B)
- Antecedent Precipitation Tool (Appendix C) to compare recent rainfall conditions of the Survey Area to the range of normal rainfall conditions that occurred during the preceding 30 years and evaluate how that affects site conditions
- Topographic maps (Figure D-1 in Appendix D) to identify nearest aquatic resources to the Survey Area (see Appendix D)

- National Wetlands Inventory (NWI) data (U.S. Fish and Wildlife Service 2023) and the National Hydrography Dataset (NHD) (Idaho Department of Water Resources [IDWR] and U.S. Geological Survey 2022) to identify potential aquatic resources in the Survey Area (Figure D-2 in Appendix D)
- Natural Resources Conservation Service (NRCS) Soil Survey Geographic Database (SSURGO) to identify potential hydric soils in the Survey Area (NRCS 2023) (Figure D-3 in Appendix D).

2.2 Regulatory Setting

2.2.1 Waters of the United States

On December 30, 2022, the U.S. Environmental Protection Agency (EPA) and the U.S. Department of the Army ("the agencies") announced the final "Revised Definition of 'Waters of the United States' " rule promulgated by the current administration, and the rule took effect on March 20, 2023. Due to ongoing litigation, the agencies were interpreting "waters of the United States" consistent with the pre-2015 regulatory regime in approximately half of the states with the other half utilizing the new rule.

On May 25, 2023, the U.S. Supreme Court issued the Sackett v. EPA decision narrowing the interpretation of federal WOTUS. The opinion determined that the Clean Water Act (CWA) extends to only those wetlands with a "continuous surface connection to bodies that 'are Waters of the United States' in their own right," so that they are" indistinguishable" from those waters. In addition, the decision abandons the existing significant nexus test for adjacent wetlands moving forward. The Sackett v. EPA opinion also emphasizes statutory language in the CWA that protects the "primary responsibilities and rights of States" to reduce water pollution and to manage land and water resources.

The decision is inconsistent with the most recent "Revised Definition of 'Waters of the United States' " rule that took effect on March 20, 2023, as well as the pre-2015 CWA regulatory regime, both of which are in effect in different states. In light of this decision, the agencies will interpret the phrase "waters of the United States" consistent with the Supreme Court's decision in Sackett.

> "The term waters of the United States in as defined by the agencies under 43 CFR 120 and 33 CFR 328.3 is as follows:

(a)Water of the United States means:

(1) All waters which are:

(i) currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(ii) territorial seas; or

(iii) Interstate waters, including interstate wetlands;

(2) Impoundments of waters otherwise defined as waters of the United States under this definition, other than impoundments of waters identified under paragraph (a)(5) of this section;

(3) Tributaries of waters identified in paragraph (a)(1) or (2) of this section:

(i) That are relatively permanent, standing or continuously flowing bodies of water; or

(ii) That either alone or in combination with similarly situated waters in the region, significantly affect the chemical, physical, or biological integrity of waters identified in paragraph (a)(1) of this section;

(4) Wetlands adjacent to the following waters:

(i) Waters identified in paragraph (a)(1) of this section; or

(ii) Relatively permanent, standing or continuously flowing bodies of water identified in paragraph (a)(2) or (a)(3)(i) of this section and with a continuous surface connection to those waters; or

(iii) Waters identified in paragraph (a)(2) or (3) of this section when the wetlands either alone or in combination with similarly situated waters in the region, significantly affect the chemical, physical, or biological integrity of waters identified in paragraph (a)(1) of this section;

(5) Intrastate lakes and ponds, streams, or wetlands not identified in paragraphs (a)(1) through (4) of this section:

(i) That are relatively permanent, standing or continuously flowing bodies of water with a continuous surface connection to the waters identified in paragraph (a)(1) or (a)(3)(i) of this section; or

(ii) That either alone or in combination with similarly situated waters in the region, significantly affect the chemical, physical, or biological integrity of waters identified in paragraph (a)(1) of this section.

Eight exclusions from the definition of “waters of the United States” are codified at 43 Code of Federal Regulations (CFR) 120 and 33 CFR 328.3 paragraph (b), and key terms are defined at paragraph (c).

Wetlands are a subset of jurisdictional WOTUS and are jointly defined by the USACE and the EPA as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas” (Environmental Laboratory 1987).

Under Section 404 of the CWA, dredged and fill material may not be discharged into jurisdictional WOTUS, including wetlands, without a permit.

Regulated activities include

- fill for development,
- utility line projects (such as pipelines), and
- infrastructure development (such as roads).

2.2.2 Waters of the State

Sections 42-3801-3802 of the Idaho Statutes requires that the stream channels of the state and their environments be protected against alteration for the protection of fish and wildlife habitat, aquatic life, recreation, aesthetic beauty, and water quality. No alteration of any stream channel shall hereafter be made unless approval therefore has been given as provided in this act (Justia US Law 2022). *Stream channel* refers to a natural watercourse of perceptible extent, with definite bed and banks, which confines and conducts continuously flowing water. Ditches, canals, laterals, and drains that are constructed and used for irrigation or drainage purposes are not stream channels (Idaho Statute 42-3802). The IDWR must approve any work being done within the beds and banks of a continuously flowing stream. A stream channel alteration permit from IDWR must be acquired before beginning any work that alters a stream channel. Stream alteration is defined as “any activity that will obstruct, diminish, destroy, alter, modify, relocate or change the natural existing shape or direction of water flow of any stream channel. This includes taking material out of the channel or placing material or structures in or across the channel where the potential exists to affect flow in the channel” (IDWR 2023).

The Idaho Department of Water Resources, Idaho Department of Lands, and the USACE have developed a joint application for permits under the Stream Protection Act. An application must be filed at least 60 days before the applicant proposes to start construction. The application is required to be accompanied by plans that clearly describe the nature and purpose of the proposed work. In those cases where the applicant intends to follow the minimum standards, detailed plans may be eliminated by referring to the specific minimum standard; however, drawings necessary to adequately define the extent, purpose, and location of the work may be required (Cornell Law School 2023).

2.3 Field Survey

2.3.1 Wetlands

During the fieldwork, all potential wetland and upland vegetation communities observed were sampled to characterize vegetation, soil, and hydrology. SWCA recorded all sampling points and wetland boundaries using a global positioning system (GPS) unit with submeter accuracy.

The fieldwork was done in accordance with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (USACE 2008). The delineation methodology used was routine and there were no deviations from the USACE guidelines. Based on these documents, wetlands are identified using the following three criteria:

1. Hydrophytic vegetation
2. Wetlands hydrology
3. Hydric soil

All three criteria must be met for an area to be considered a wetland. An explanation of the three wetlands criteria follows.

2.3.1.1 HYDROPHYTIC VEGETATION

Hydrophytic plants are plants that are adapted to wet conditions. The National Wetland Plant List (USACE 2020) is used to determine the wetlands indicator status of plant species observed at the sampling points. There are five categories of wetland indicator status ratings: Obligate Wetland (OBL), Facultative Wetland (FACW), Facultative (FAC), Facultative Upland (FACU), and Upland (UPL). These rating categories are defined by the USACE as follows:

- OBL: almost always occur in wetlands;
- FACW: usually occur in wetlands but may occur in non-wetlands;
- FAC: occur in wetlands and non-wetlands;
- FACU: usually occur in non-wetlands but may occur in wetlands; and
- UPL: almost always occur in non-wetlands.

2.3.1.2 WETLANDS HYDROLOGY

Wetlands hydrology examines the behavior of water in wetlands. Primary hydrologic indicators assessed in the field include soil saturation, surface water, hydrogen sulfide odor, and presence of reduced iron in the soil. Secondary indicators are also assessed and can include drainage patterns, dry-season water table, crayfish burrows, saturation visible on aerial imagery, shallow aquitard, FAC-neutral test, water marks (Riverine), sediment deposits (Riverine), and drift deposits (Riverine). One primary indicator or two or more secondary indicators is sufficient to conclude wetland hydrology is present.

2.3.1.3 HYDRIC SOILS

The NRCS defines hydric soils as those soils formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper portion of the soil column (above 12- to 20-inch soil depth, depending on soil texture [NRCS 2018]). Soils are assessed for hydric conditions in the field using a sharpshooter shovel to excavate a soil pit and to examine the soil profile. Some hydric soil indicators are depleted matrix, redox dark surface, stripped matrix, depleted dark surface, and black histic. A Munsell soil color chart is used to determine soil color.

2.3.2 Other Aquatic Resources

Potential non-wetland aquatic resources, including ephemeral, intermittent, and perennial streams, were delineated based on the location of the ordinary high-water mark (OHWM), which typically occurs at the transition between the active floodplain and the low terrace. An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. A perennial stream has flowing water year-round during a typical year (USACE 2022). Indicators of OHWM can be physical or vegetative and include benches, drift lines, changes in sediment size distribution, and transitions in vegetation type and density. During the delineation process, SWCA uses the *Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Lichvar and McColley 2008); *A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States* (Mersel and Lichvar 2014); and *Regulatory Guidance Letter 05-05* (USACE 2005). Although the OHWM field guide (Lichvar and McColley 2008) focuses primarily on ephemeral and intermittent streams, the OHWM indicators also apply to perennial streams and were used to delineate these types of systems in the Survey Area. OHWM indicators include a change in average sediment texture, vegetation species, or vegetation cover; a break in bank slope; and a change in soil crust. OHWM width and height were also recorded.

3.0 EXISTING CONDITIONS

SWCA conducted the delineation of the 2,385.18 -acre Survey Area between April 24 and 27, 2023. The entire Survey Area was field verified. According to the USACE Antecedent Precipitation Tool, the Survey Area had normal conditions during the field survey (see Appendix C). There was no surface water flow within the Survey Area. At the time of the survey, there was evidence of heavy cattle use and manure storage in the Survey Area. Several irrigation canals had been constructed along the perimeter.

The Survey Area is composed of agricultural fields, grasslands, and upland shrub habitat. The National Land Cover Database (NLCD) (Dewitz 2019) characterizes the Survey Area as predominantly Cultivated Crops (84.24%) (Table 1).

Table 1. NLCD cover types within the Survey Area

NLCD cover type	Acres	Percent of Survey Area
Cultivated Crops	2,104.63	88.24%

NLCD cover type	Acres	Percent of Survey Area
Herbaceous	177.83	7.46%
Shrub/Scrub	46.19	1.94%
Hay/Pasture	24.62	1.03%
Developed, Open Space	19.27	0.81%
Developed, Low Intensity	10.04	0.42%
Developed, Medium Intensity	2.38	0.10%
Open Water	0.22	0.01%
Total	**2,385.18**	**100.00%**

Source: Dewitz (2019).

4.0 AQUATIC RESOURCES

There were no wetlands delineated within the Survey Area (see Appendix B). SWCA observed no indications of wetlands, including no hydrophytic vegetation and no hydric soils. Four human-made ponds (2.59 acres) were delineated within the Survey Area (Table 2), but these lacked hydric soils and vegetation. These human-made ponds are not jurisdictional under the CWA.

U01 is an human-made pond that lacked wetland vegetation. This pond was located behind a fence located in a neighbor's front yard. SWCA was unable to dig a wetland soil pit (Figure 1).

Figure 1. Photograph of U01 from photo point PP12.

U02, U03, and U04 are human-made pond features that are used as manure holding ponds (Figures 2 through 4). These features lacked hydric soils and wetland vegetation. Active manure dumping was present at the time of the survey.

Figure 2. Photograph of U02 from photo point PP48.

Figure 3. Photograph of U03 from photo point PP48.

Figure 4. Photograph of U04 from photo point PP47.

Additionally, seven irrigation canals (15,079.76 feet; 4.57 acres) were delineated within the Survey Area (see Table 2).

C01 is an irrigation canal on the western edge of the Survey Area (Figure 5). C01 flows southwest outside the Survey Area and is characterized by a change in vegetation with an OHWM width of 2 feet. Both C01 and C02 begin at a water control feature from an irrigation canal outside of the Survey Area.

Figure 5. Photograph of C01 from cross section XS01.

C02 is an irrigation canal on the western edge of the Survey Area beginning at an irrigation feature outside of the Survey Area and flows south out of the Survey Area to the west (Figure 6). C02 is characterized by a change in vegetation with an OHWM width of 4 feet.

Figure 6. Photograph of C02 from cross section XS03.

C03 is an irrigation canal flowing west on the northern edge of the Survey Area beginning and ending outside of the Survey Area. It is characterized by a bed and bank and a change in vegetation within an OHWM width of 4 feet (Figure 7). Water was present at the time of the survey.

Figure 7. Photograph of C03 from cross section XS05.

C04 is an irrigation canal along the northern edge of the Survey Area that flows west outside of the Survey Area and connects to C03 (Figure 8). The OHWM indicators include a bed and bank and a change in vegetation with an OHWM width of 5 feet.

Figure 8. Photograph of C04 from cross section XS06.

C05 is an irrigation canal along the southern edge of the Survey Area with several water control features throughout that flows south outside of the Survey Area (Figure 9). OHWM indicators include a bed and bank and OHWM width of 4 feet. C05 connects to C06 outside of the Survey Area.

Figure 9. Photograph of C05 from cross section XS04.

C06 is an irrigation canal with several water control features throughout it that flows west along the edge of the Survey Area from C07, continues out of the Survey Area, and flows into C05 (Figure 10). Water was present at the time of the survey. OHWM indicators include a bed and bank and a change in vegetation and OHWM width of 4 feet.

Figure 10. Photograph of C06 from cross section XS08.

C07 is a large irrigation canal, named the Waldvogel Canal, which begins outside the Survey Area to the north, flows south along the edge of the Survey Area, and continues south (Figure 11). Some water is diverted from C07 into C06 for irrigation purposes. Water was present at the time of the survey. OHWM indicators consist of a bed and bank, and a change in vegetation. The OHWM width is 25 feet. There were many water control features throughout the canal.

Figure 11. Photograph of C07 from cross section XS07.

SWCA took representative photographs of habitat throughout the Survey Area (see Figures 1–12, see Appendix B for photo locations).

Figure 12. Representative photograph of habitat from photo point PP04.

Biologists took one upland sampling point within the Survey Area (U1). This area lacked hydric soil indicators and hydrophytic vegetation. Hydrology within the area is driven by irrigation for agriculture and runs through the area. Corresponding wetland forms are in Appendix E.

Figure 13. Photograph of upland area from point U1.

4.1 Aquatic Resources Table

Table 2. Other Aquatic Resources in the Survey Area

Aquatic Resource Name	Photo Point	Type	Location		Length (feet)	Mean OHWM Width (feet)	Area (acres)
			Latitude	Longitude			
C01	XS01	Canal	43.43527	-116.54330	108.93	1.5	0.01
C02	XS03	Canal	43.43599	-116.54338	500.66	3.5	0.05
C03	XS05	Canal	43.43015	-116.49723	969.17	4	0.09
C04	XS06	Canal	43.44803	-116.51294	2,872.98	5	0.33
C05	XS05	Canal	43.45033	-116.49831	2,856.24	4	0.26
C06	XS07	Canal	43.43648	-116.48607	1,355.17	4	0.12
C07	XS08	Canal	43.43383	-116.49046	6,416.62	25	3.71
U01	PP12	Human-made pond	43.43550	-116.53396	N/A	N/A	0.08
U02	PP48	Human-made pond	43.43576	-116.49504	N/A	N/A	1.14
U03	PP48	Human-made pond	43.43576	-116.49504	N/A	N/A	0.35
U04	PP47	Human-made pond	43.43258	-116.49518	N/A	N/A	1.03
Total					**15,079.77**		**7.17**

N/A: Not applicable.

4.2 Non-jurisdictional Aquatic Resources

The aquatic resources delineated within the Survey Area are suspected to be non-jurisdictional. The four human-made ponds lack wetland indicators and are artificial ponds used for agricultural purposes. The seven irrigation canals are suspected to be non-jurisdictional because they are human made and used for agricultural purposes and lack a continuous connection with traditionally navigable waters. C07 does not connect two navigable WOTUS that are used for interstate commerce and is not susceptible to use in interstate or foreign commerce. C07, the Waldvogel Canal, is a distributary of Mora canal and appears to end within agricultural fields south of the Survey Area (see Figure D-1).

Under the CWA, the USACE has sole authority to determine what resources are jurisdictional or not jurisdictional 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.

4.3 Vegetation

The Survey Area is relatively flat and is characterized by large hay and alfalfa agricultural fields, upland shrubland habitat, and invasive-plant-dominated grasslands. Dominant vegetation includes yellow rabbitbrush (*Chrysothamnus viscidiflorus*), burningbush (*Bassia scoparia*), narrowleaf willow (*Salix exigua*), timothy (*Phleum pratense*), lenspod whitetop (*Cardaria draba*), prickly Russian thistle (*Salsola tragus*), cheatgrass (*Bromus tectorum*), and African mustard (*Malcolmia africana*).

There are 16.38 acres of mapped NWI data within the Survey Area (Table 3). NWI data for the Survey Area and the surrounding area are shown on Figure D-2.

Table 3. Wetland Features within the Survey Area

Wetland Type	Acres
Freshwater emergent wetland	12.03
Freshwater pond	0.77
Riverine	3.57
Total	**16.38**

Source: U.S. Fish and Wildlife Service (2023).

4.4 Hydrology

There are 8,020.76 linear feet of mapped NHD data within the Survey Area. NHD data for the Survey Area are provided in Table 4 and shown on Figure D-2. There are also 2.63 acres of NHD waterbodies mapped within the Survey Area. The Waldvogel Canal, C07, flows through the eastern portion of the Survey Area and is the nearest aquatic resource that appears on the USGS topographic map.

Table 4. National Hydrography Dataset Results for the Survey Area

NHD Classification	Length (feet)
Stream/river: intermittent	2,535.08
Canal/ditch	4,137.11
Artificial path	1,348.57
Total	**8,020.76**

Source: Idaho Department of Water Resources and U.S. Geological Survey (2022).

4.5 Soils

NRCS SSURGO soil data for the Survey Area are provided in Table 5 and shown on Figure D-3. There are no hydric soils mapped within the Survey Area.

Table 5. NRCS SSURGO Soil Data for the Survey Area

Map Unit Symbol	Soil Unit Name	Hydric? (yes or no)	Area (acres)
161	Scism silt loam, 2 to 4 percent slopes	No	442.34
127	Potratz-Power silt loams, 4 to 8 percent slopes	No	322.68
SdC	Scism silt loam, deep over basalt, 3 to 7 percent slopes	No	266.07
PhB	Power silt loam, 1 to 3 percent slopes	No	258.94
160	Scism silt loam, 0 to 2 percent slopes	No	234.66
PcC	Potratz-Power silt loams, 3 to 7 percent slopes	No	175.96
TkE	Trevino-Rock outcrop complex, 0 to 20 percent slopes	No	108.66

Map Unit Symbol	Soil Unit Name	Hydric? (yes or no)	Area (acres)
165	Scism silt loam, bedrock substratum, 4 to 8 percent slopes	No	101.07
SdB	Scism silt loam, deep over basalt, 1 to 3 percent slopes	No	87.61
164	Scism silt loam, bedrock substratum, 2 to 4 percent slopes	No	66.10
130	Power silt loam, 2 to 4 percent slopes	No	64.39
166	Scism silt loam, bedrock substratum, 8 to 12 percent slopes	No	52.81
TrD	Trevino silt loam, 3 to 12 percent slopes	No	33.44
145	Purdam-Power silt loams, 2 to 4 percent slopes	No	30.61
BaE	Bahem silt loam, 12 to 30 percent slopes	No	29.53
PhA	Power silt loam, 0 to 1 percent slopes	No	24.97
PeC	Power-McCain silt loams, 8 to 12 percent slopes	No	20.42
136	Power-Potratz silt loams, 2 to 4 percent slopes	No	19.19
140	Potratz silt loam, 1 to 3 percent slopes	No	17.18
PaB	Potratz-Power silt loams, 1 to 3 percent slopes	No	9.67
PeB	Scism silt loam, 7 to 12 percent slopes	No	6.36
ScD	Trevino silt loam, 1 to 3 percent slopes	No	4.96
TrB	Rock outcrop-Trevino complex, 5 to 20 percent slopes	Unranked	3.26
158	Scism silt loam, 1 to 3 percent slopes	No	2.22
ScB	Garbutt silt loam, 4 to 8 percent slopes	No	1.21
62	Scism silt loam, 4 to 8 percent slopes	No	0.73
162	Potratz silt loam, 4 to 8 percent slopes	No	0.14
	Total		**2,385.18**

Source: NRCS (2023).

5.0 REFERENCES

Cornell Law School. 2023. Idaho Administrative Code 37.03.07.030. Available at: https://www.law.cornell.edu/regulations/idaho/IDAPA-37.03.07.030. Accessed May 29, 2023.

Dewitz, J. 2019. National Land Cover Database (NLCD) 2016 Products: U.S. Geological Survey data release. Available at: https://doi.org/10.5066/P96HHBIE. Accessed May 15, 2023.

Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1. Vicksburg, Mississippi: U.S. Army Corps of Engineers Waterways Experiment Station.

Idaho Department of Water Resources (IDWR). 2023. Stream channel protection program. Available at: https://idwr.idaho.gov/streams/#:~:text=A%20stream%20channel%20alteration%20is,flow%20of%20any%20stream%20channel. Accessed May 22, 2023.

Idaho Department of Water Resources (IDWR) and U.S. Geological Survey (USGS). 2022. NHD and WBD Datasets. Available at: https://idwr.idaho.gov/gis/nhd/datasets/. Accessed May 17, 2023.

Justia US Law. 2023. *2018 Idaho Statutes Title 42 – Irrigation and Drainage – Water Rights and Reclamation.* Available at: https://law.justia.com/codes/idaho/2018/title-42/chapter-38/section-42-3801/. Accessed May 29, 2023.

Lichvar, R.W., and S.M. McColley. 2008. *Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States*. Hanover, New Hampshire: Cold Regions Research and Engineering Laboratory, USACE Research and Development Center.

Mersel, M.K., and R.W. Lichvar. 2014. *A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States*. Hanover, New Hampshire: Cold Regions Research and Engineering Laboratory, USACE Research and Development Center.

Natural Resources Conservation Service (NRCS). 2018. *Field Indicators of Hydric Soils in the United States: A Guide for Identifying and Delineating Hydric Soils, Version 8.2, 2018*. Edited by L.M Vasilas, G.W. Hurt, and J.F. Berkowitz. U.S. Department of Agriculture, Natural Resources Conservation Service, in cooperation with the National Technical Committee for Hydric Soils.

———. 2023. Soil Survey Geographic Database (SSURGO) Data. Soil Survey Staff, Natural Resources Conservation Service, U.S. Department of Agriculture. Web Soil Survey. Available at: http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm. Accessed May 17, 2023.

U.S. Army Corps of Engineers (USACE). 2005. *Regulatory Guidance Letter 05-05*. Available at: https://usace.contentdm.oclc.org/utils/getfile/collection/p16021coll9/id/1253. Accessed May 17, 2023.

———. 2008. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0).* Vicksburg, Mississippi: USACE Research and Development Center.

———. 2020. National Wetland Plant List, version 3.5. Available at: https://cwbi-app.sec.usace.army.mil/nwpl_static/v34/home/home.html. Accessed May 17, 2023.

———. 2022. Definitions. Available at: https://www.nap.usace.army.mil/Missions/Regulatory/Definitions/#Per%20Stream. Accessed May 17, 2023.

U.S. Fish and Wildlife Service. 2023. National Wetlands Inventory. Available at: http://www.fws.gov/wetlands/Data/Mapper.html. Accessed May 17, 2023.

APPENDIX A

Location Map

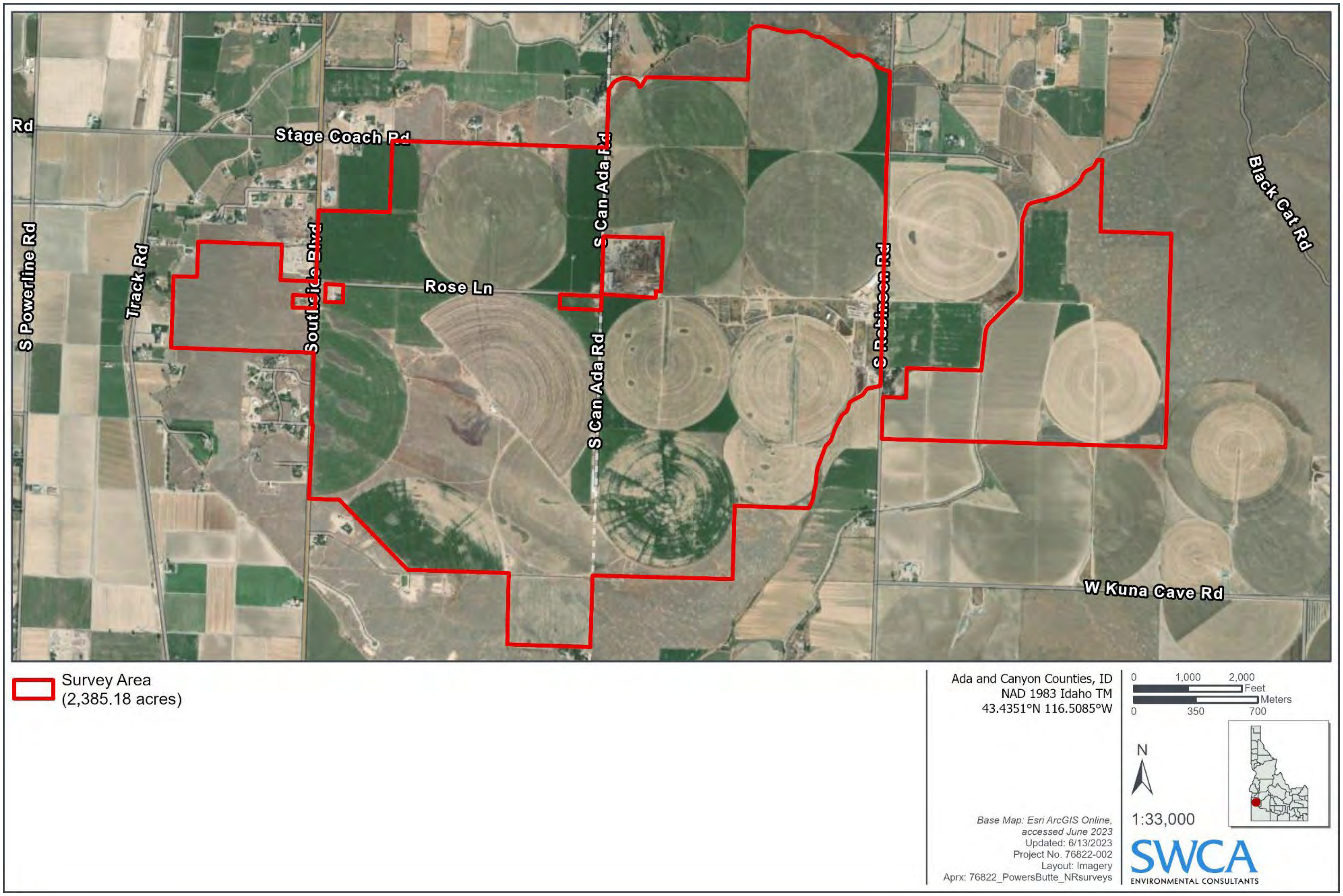


Figure A-1. Survey Area location.

APPENDIX B

Aquatic Resources Maps

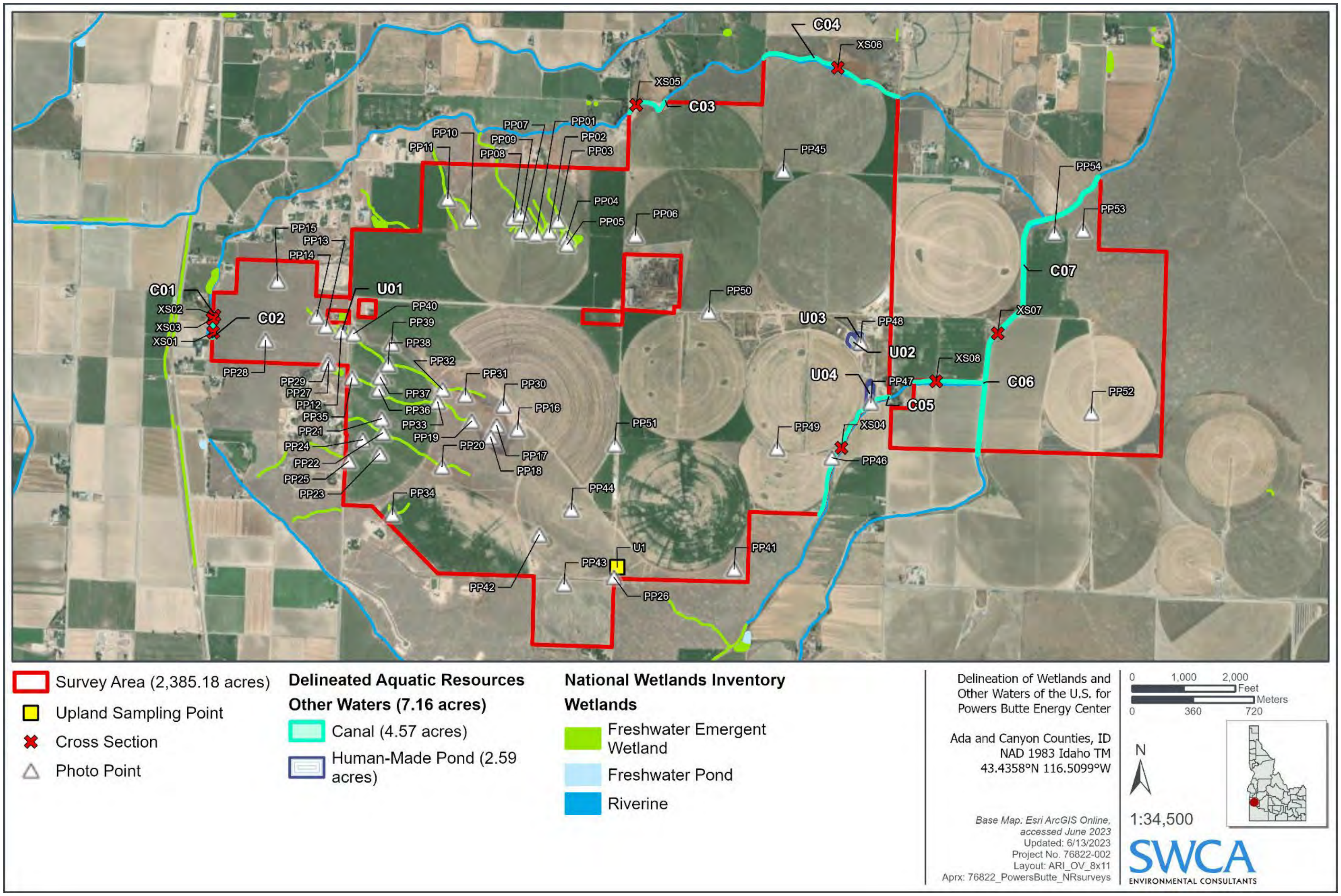


Figure B-1. Overview map of aquatic resources delineation.

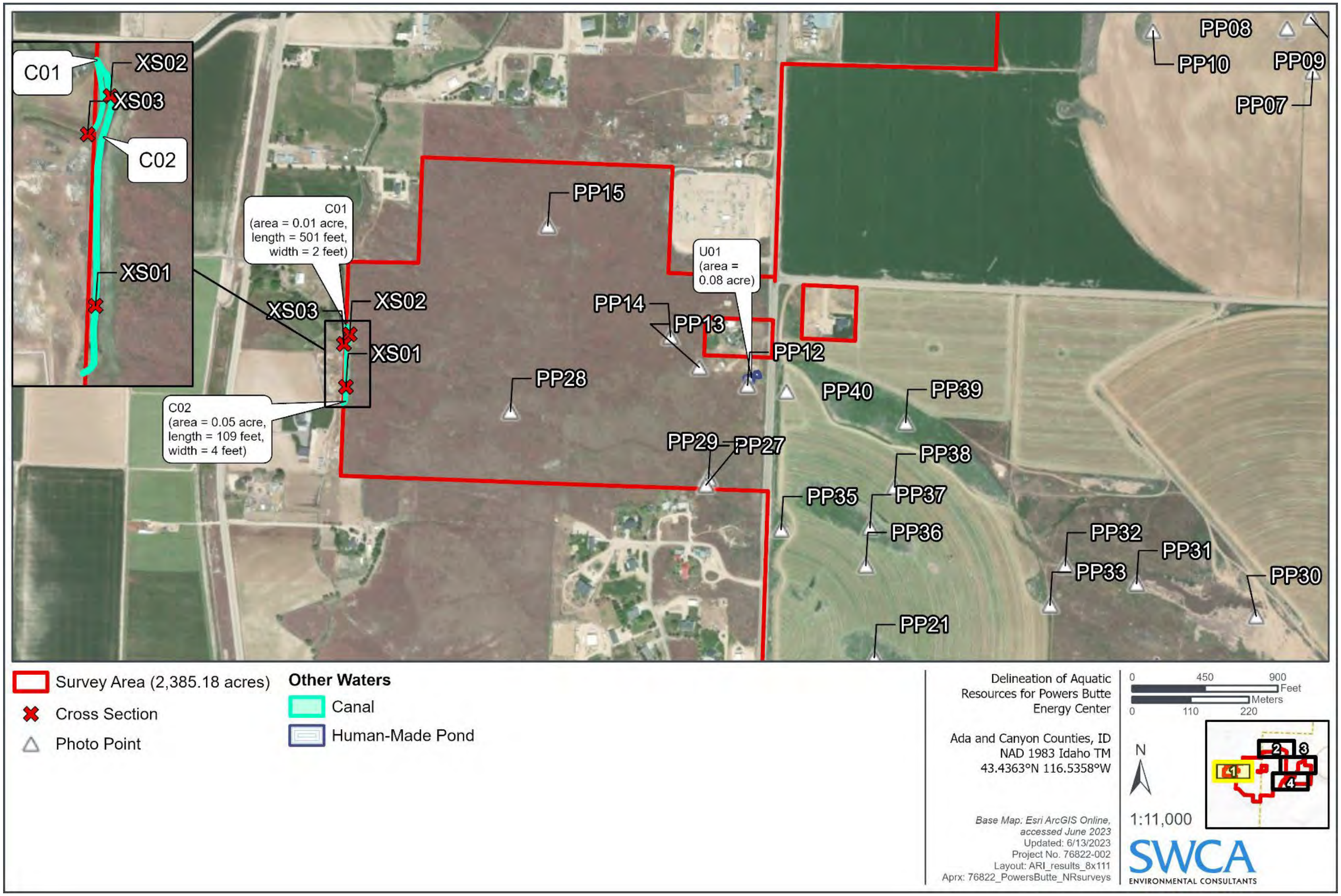


Figure B-2. Results of aquatic resources delineation (map 1 of 4).

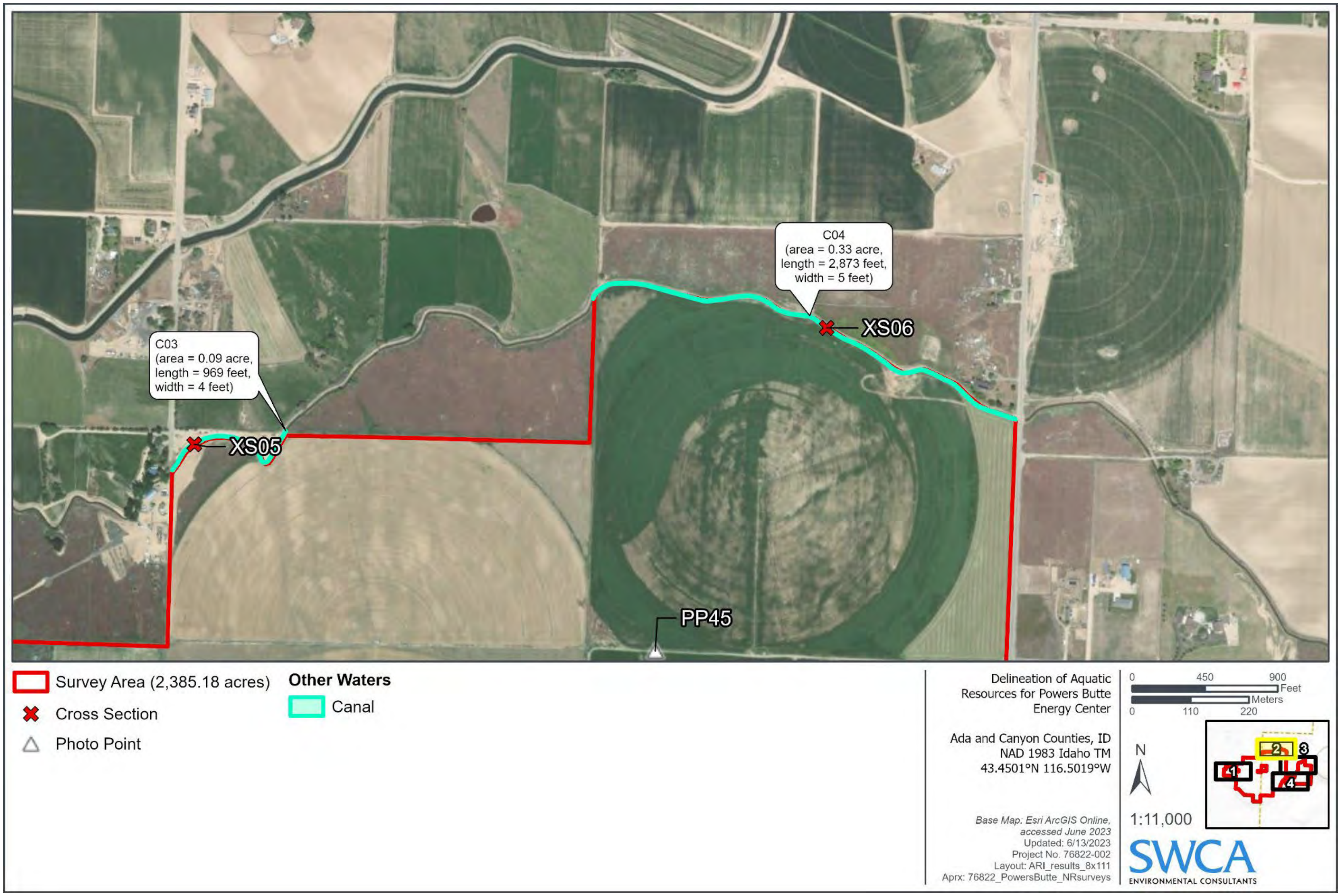


Figure B-3. Results of aquatic resources delineation (map 2 of 4).

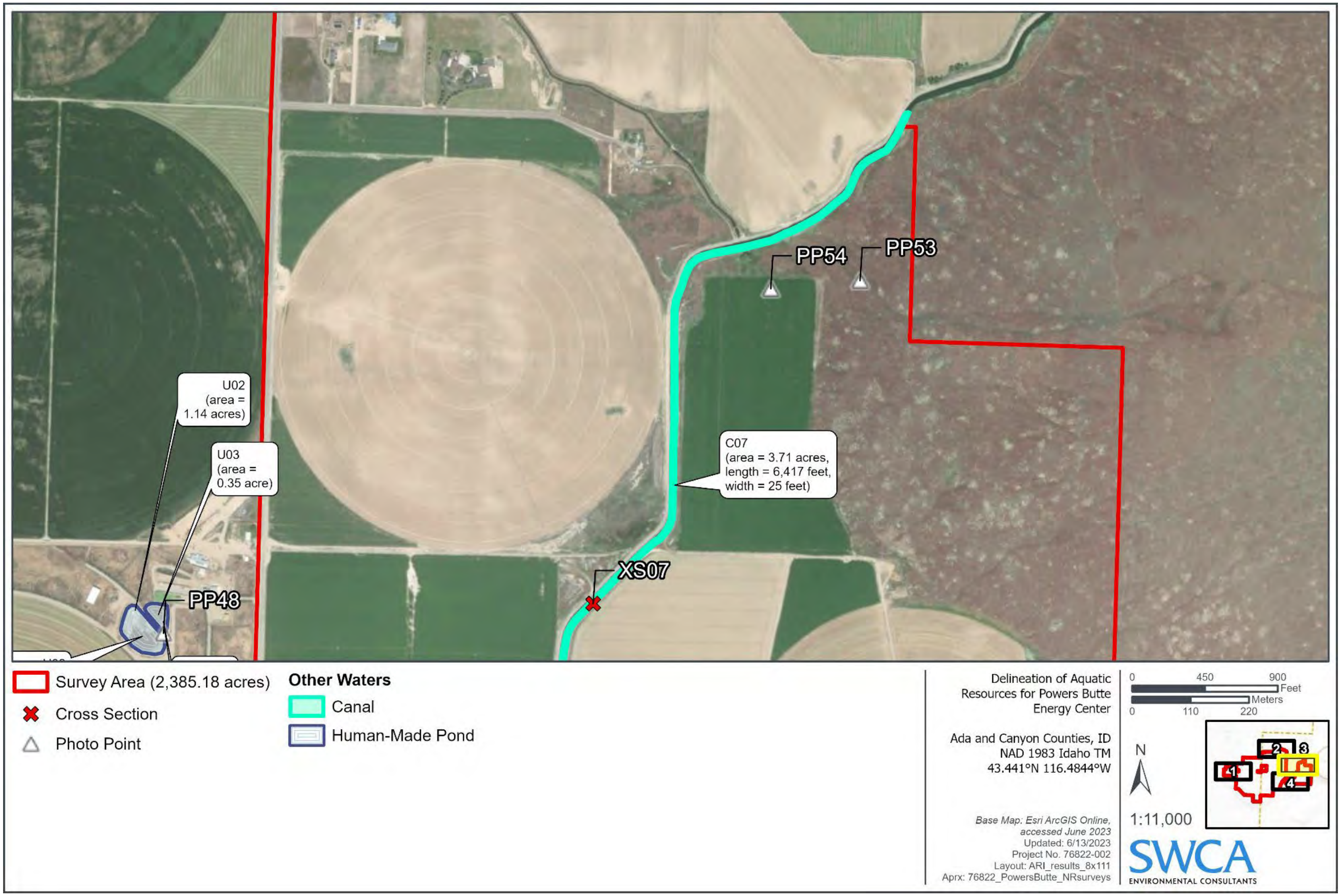


Figure B-4. Results of aquatic resources delineation (map 3 of 4).

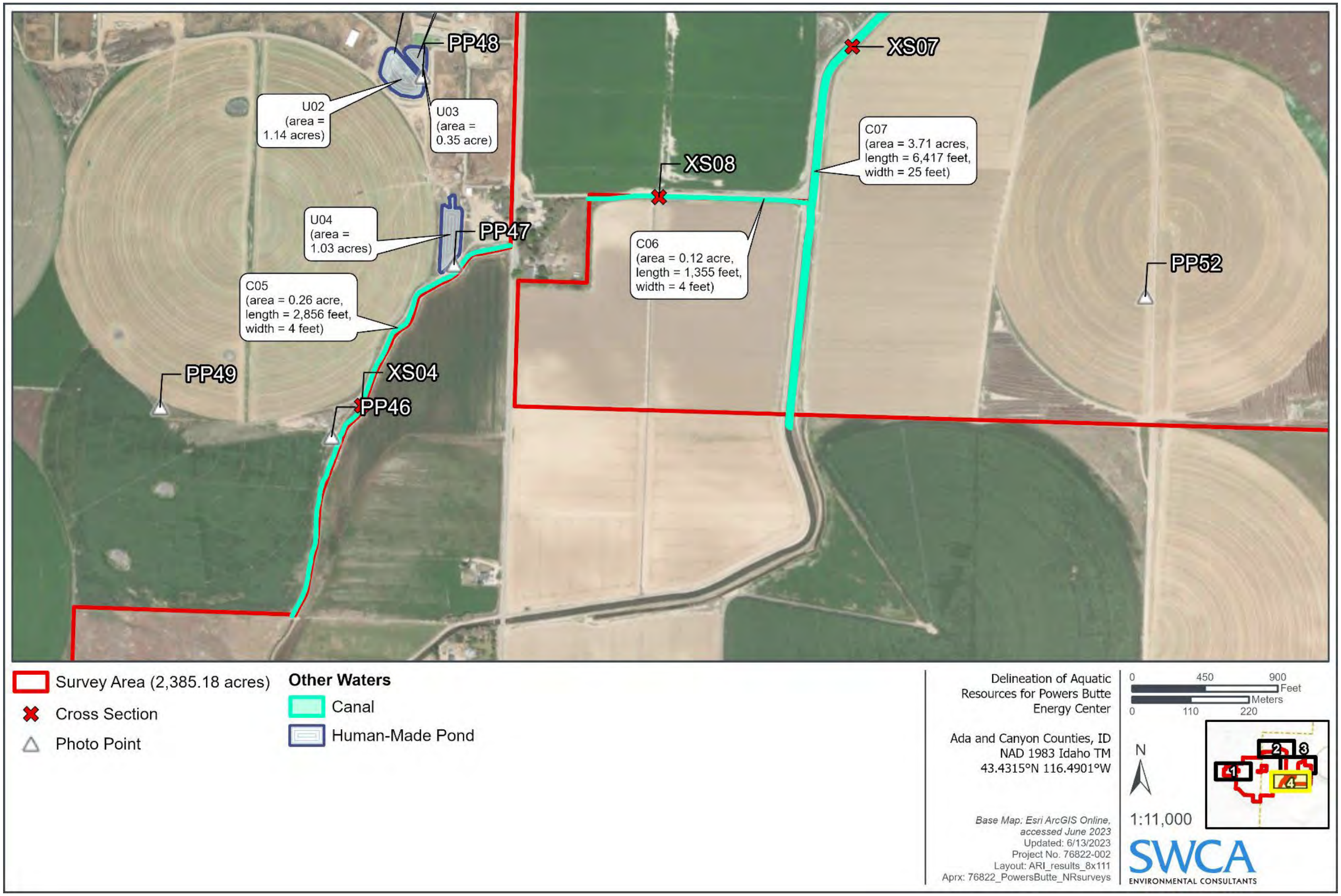
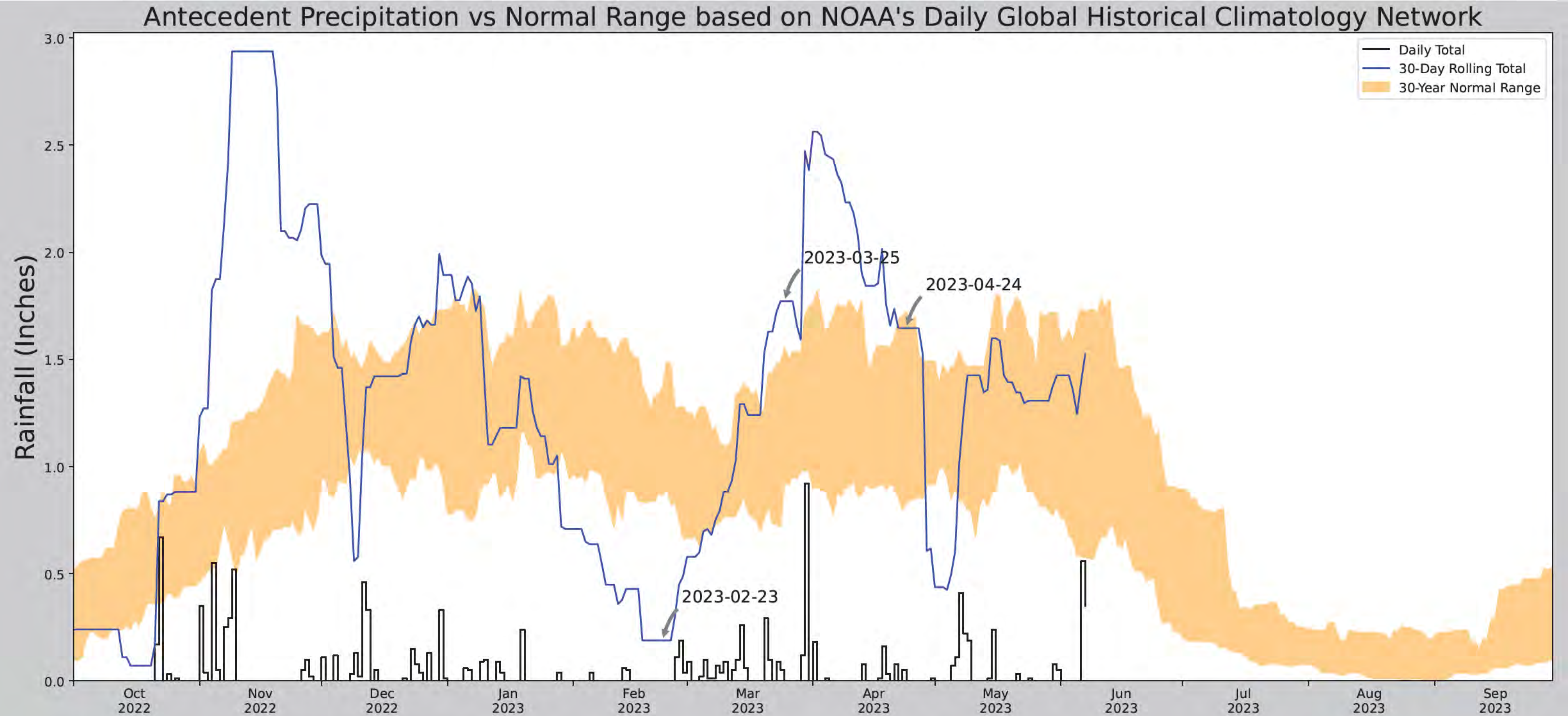


Figure B-5. Results of aquatic resources delineation (map 4 of 4).

APPENDIX C

U.S. Army Corps of Engineers Antecedent Precipitation Tool for the Survey Area



Coordinates	43.43401873, -116.51993947
Observation Date	2023-04-24
Elevation (ft)	2859.969
Drought Index (PDSI)	Mild wetness
WebWIMP H_2O Balance	Dry Season

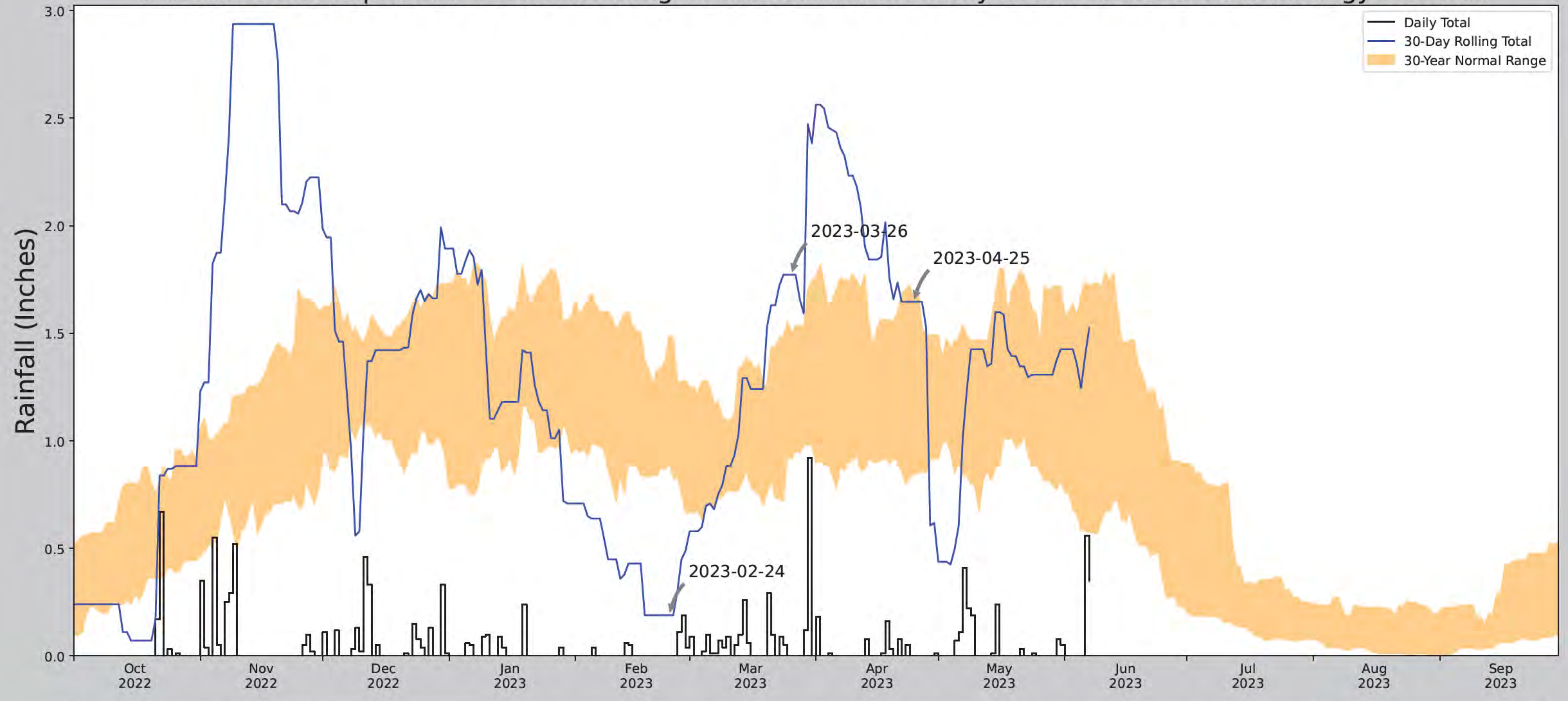
30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-04-24	0.830315	1.720866	1.645669	Normal	2	3	6
2023-03-25	0.933071	1.552362	1.771654	Wet	3	2	6
2023-02-23	0.866535	1.370079	0.188976	Dry	1	1	1
Result							Normal Conditions - 13

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BOISE AIR TERMINAL	43.5669, -116.2406	2823.163	16.742	36.806	8.15	11353	90

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	43.43401873, -116.51993947
Observation Date	2023-04-25
Elevation (ft)	2859.969
Drought Index (PDSI)	Mild wetness
WebWIMP H_2O Balance	Dry Season

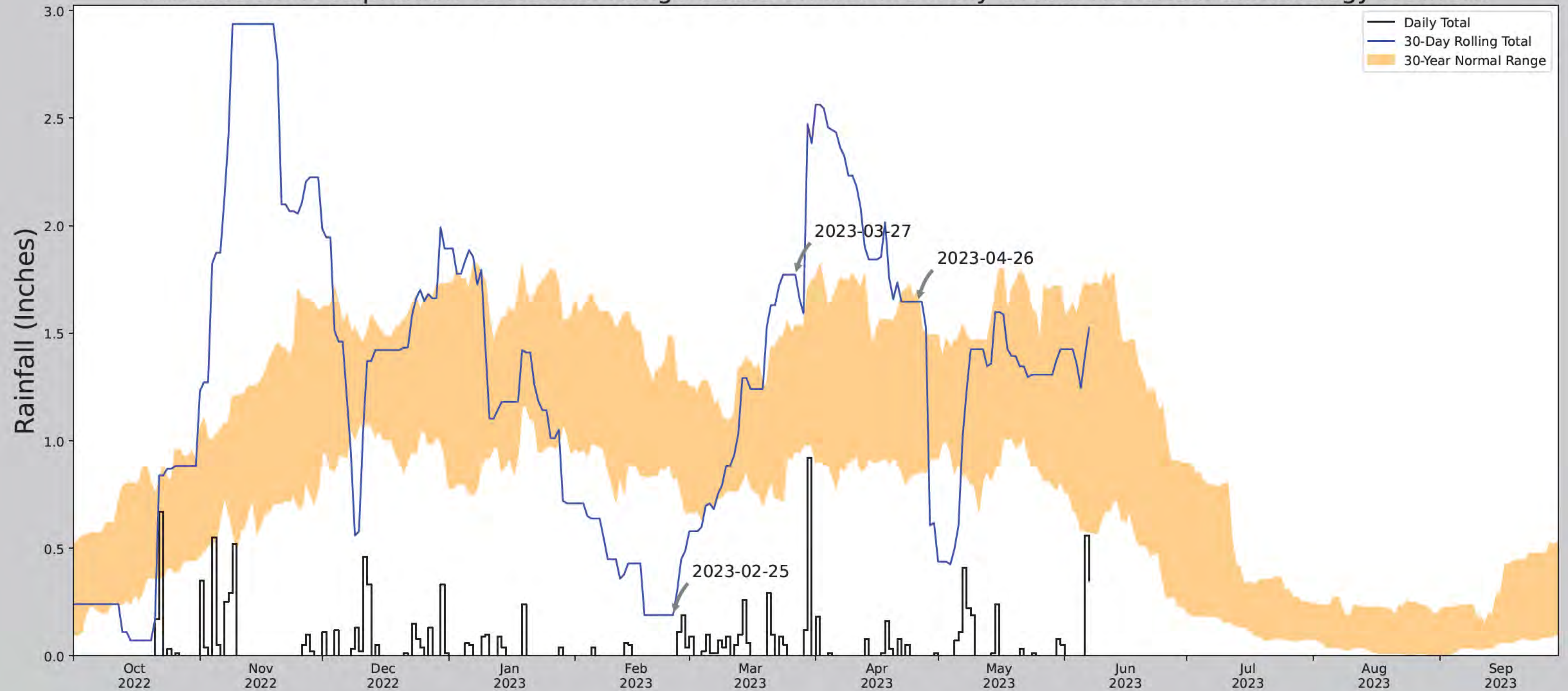
30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-04-25	0.844095	1.656299	1.645669	Normal	2	3	6
2023-03-26	0.91378	1.501969	1.771654	Wet	3	2	6
2023-02-24	0.914567	1.487402	0.188976	Dry	1	1	1
Result							Normal Conditions - 13

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BOISE AIR TERMINAL	43.5669, -116.2406	2823.163	16.742	36.806	8.15	11353	90

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	43.43401873, -116.51993947
Observation Date	2023-04-26
Elevation (ft)	2859.969
Drought Index (PDSI)	Mild wetness
WebWIMP H_2O Balance	Dry Season

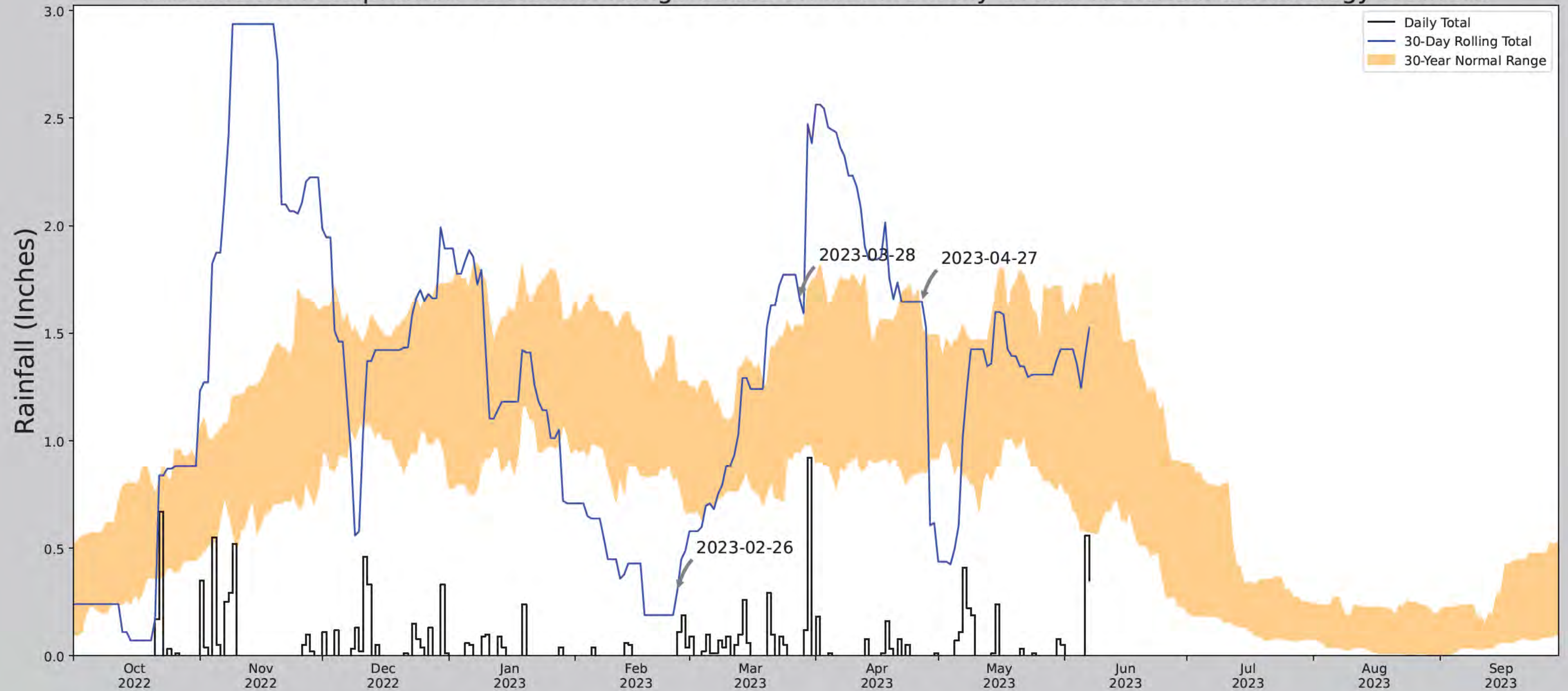
30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-04-26	0.84685	1.699213	1.645669	Normal	2	3	6
2023-03-27	0.95315	1.533465	1.771654	Wet	3	2	6
2023-02-25	0.823622	1.474409	0.188976	Dry	1	1	1
Result							Normal Conditions - 13

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BOISE AIR TERMINAL	43.5669, -116.2406	2823.163	16.742	36.806	8.15	11353	90

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	43.43401873, -116.51993947
Observation Date	2023-04-27
Elevation (ft)	2859.969
Drought Index (PDSI)	Mild wetness
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-04-27	0.86063	1.521654	1.645669	Wet	3	3	9
2023-03-28	0.944882	1.53937	1.661417	Wet	3	2	6
2023-02-26	0.83622	1.266929	0.299213	Dry	1	1	1
Result							Wetter than Normal - 16

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BOISE AIR TERMINAL	43.5669, -116.2406	2823.163	16.742	36.806	8.15	11353	90

APPENDIX D

Supplementary Maps

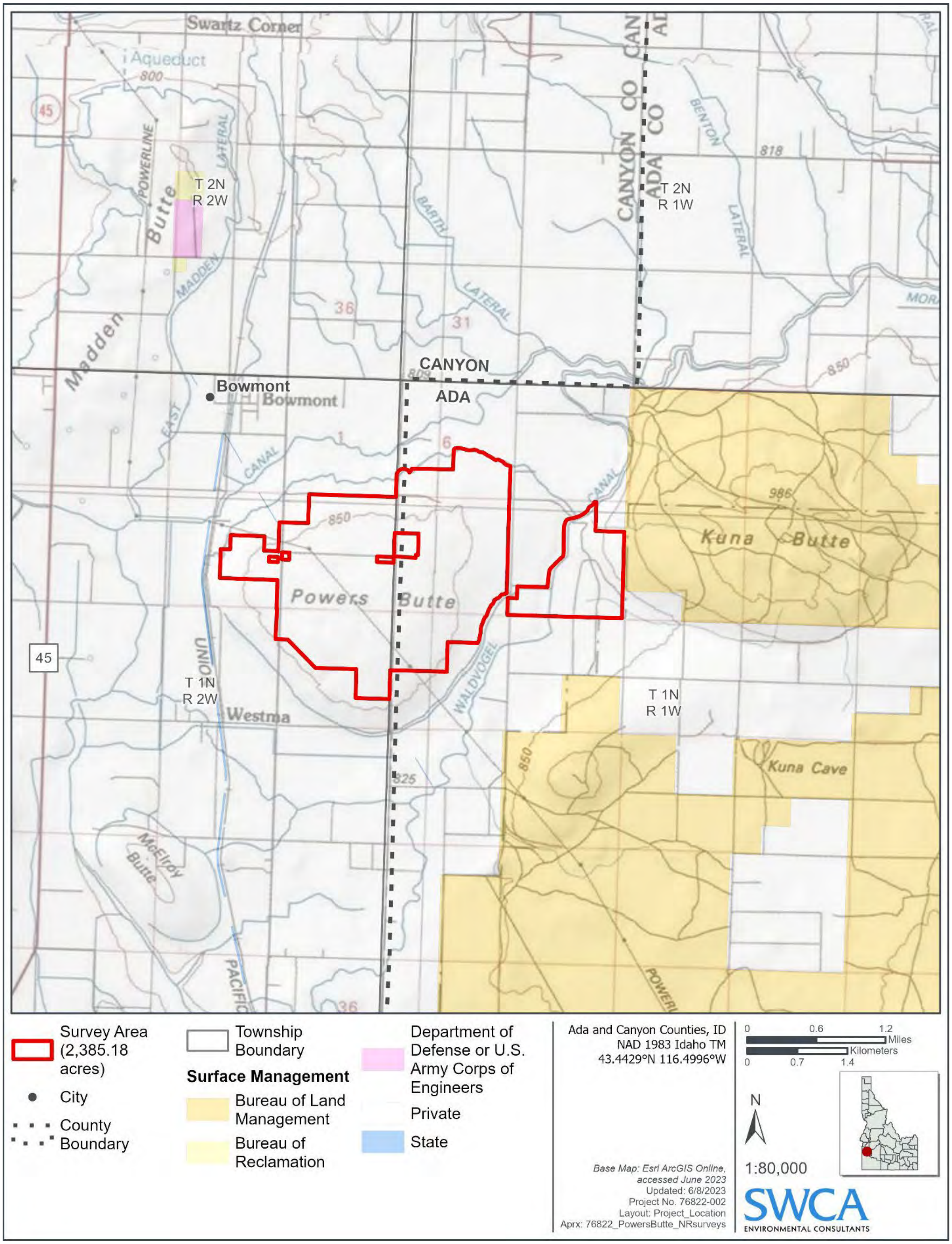


Figure D-1. Topographic map of the Survey Area.

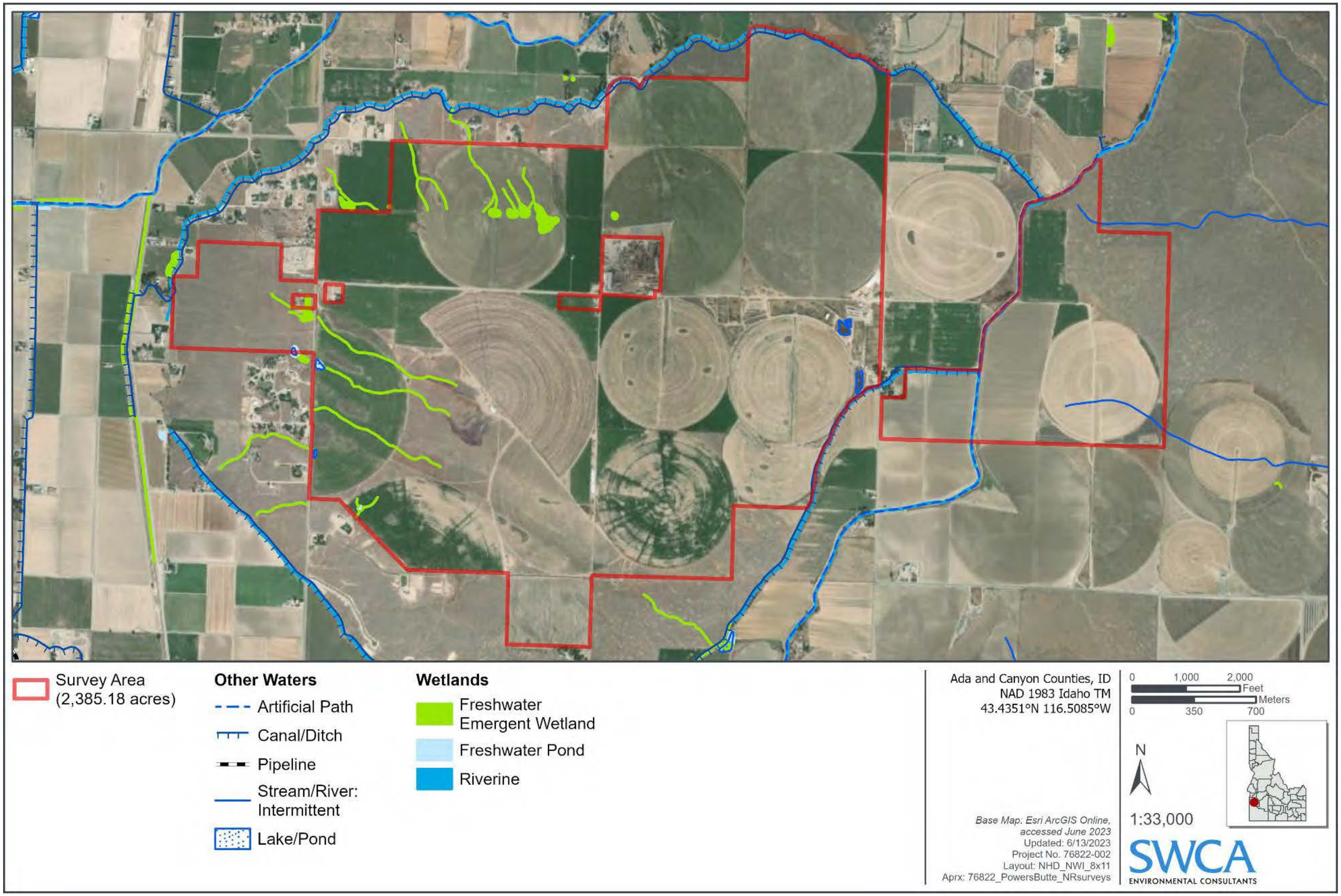


Figure D-2. National Wetlands Inventory and National Hydrography Dataset features within the Survey Area.

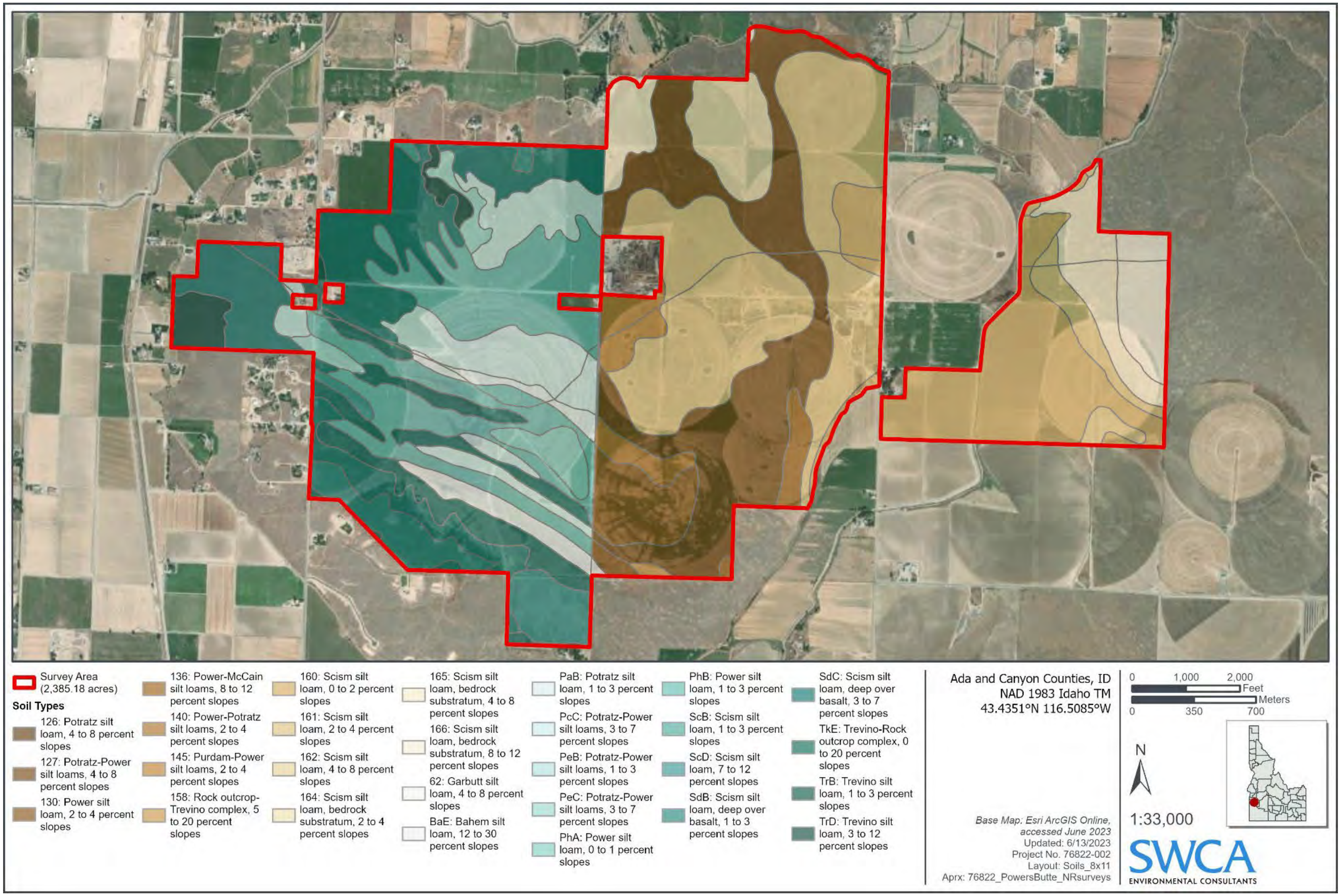


Figure D-3. SSURGO soils data for the Survey Area.

APPENDIX E

Wetland Determination Data Form

WETLAND DETERMINATION DATA FORM — Arid West Region

Project/Site: Powers Butte City/County: Ada County Sampling Date: 04/25/2023

Applicant/Owner: Savion State: ID Sampling Point: U1

Investigator(s): SMF, ZEV Section, Township, Range: Sec. 18 T1N R1W

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): ______ Slope (%): <5%

Subregion (LRR): LRR B Lat: 43.4234 Long: 116.513 Datum: NAD83

Soil Map Unit Name: 130 - Power silt loam, 2 to 4 percent slopes NWI classification: No

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ______ No ______ (If no, explain in Remarks.)

Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed? Are "Normal Circumstances" present? Yes X No ______

Are Vegetation ______, Soil ______, or Hydrology ______ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes:		No:	X	**Is the Sampled Area within a Wetland?** **Yes** ______ **No** X
Hydric Soil Present?	Yes:		No:	X	
Wetland Hydrology Present?	Yes:	X	No:		

Remarks: Some wetland plant species are present due to agricultural irrigation.Areas that could have standing water are limited due to micro topographic changes. AKA piles of rocks.

VEGETATION — Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum: (Plot size: 15)			
1.			
2.			
3.			
4.			
	0	=Total Cover	
Sapling/Shrub Stratum: (Plot size: 10)			
1. *Salix exigua*	35	Y	FACW
2.			
3.			
4.			
5.			
	35	=Total Cover	
Herb Stratum: (Plot size: 5)			
1. *Cardaria draba*	50	Y	UPL
2. *Phleum pratense*	35	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	85	=Total Cover	
Woody Vine Stratum: (Plot size:)			
1.			
2.			
	0	=Total Cover	

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Domant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	35	x 2 =	70
FAC species	0	x 3 =	0
FACU species	35	x 4 =	140
UPL species	50	x 5 =	250
Column Totals:	120 (A)		460 (B)

Prevalence Index = B/A= 3.83

Hydrophytic Vegetation Indicators:

- ____ Dominance Test is >50%
- ____ Prevalence Index is 3.0[1]
- ____ Morphological Adaptations[1] (Profice supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks: Heavy herbacious litter cover, beginning of growing season, not able to identify all species.

SOIL

Sampling Point: U1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type [1]	Loc [2]	Texture	Remarks
0 12	10YR 3/4	100		0			Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):
Type: ___
Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** X

Remarks: No hydric soils present, no redox

HYDROLOGY

Wetland Hydrology Indicators:

Primary indicators (minimum of one required: check all that apply):

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres along Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary indicators (2 or more required):

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
X Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
X Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ___ Depth (inches): ___
Water Table Present? Yes ___ No X Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes ___ No ___ Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Hydrology is driven by irrigation agriculture. Irrigation runs through the area.

Ada 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