Detailed Project Description

We plan to install to install a ground mounted solar array at a private residence location at 30 Flicker Rd. The ground mount is for personnel electric usage for the residence and will only supplement power to that residence.

The ground mount is approximately 45'x 10' W x 17' H. The array will be located 21' North of the planned residence & garage eaves currently under construction. Construction will start in 2026 and will take about 2-3 weeks. The anticipated life expectancy of the solar panels is 25 years. To dispose the solar array, the solar panels, and racking system will be properly recycled through various vendors available but most likely the system will be continuously used by the property owners as long as someone is living there. The system may be revamped as needed in the future. Electrical power does currently exist at the site. There will not be a back-up generator installed or additional noise created from the system.

Valley County Planning and Zoning Department

219 N. Main
PO Box 1350
Cascade, ID 83611
www.co.valley.id.us
cherrick@co.valley.id.us
208-382-7115

Conditional Use Permit Application

TO BE COMPLETED BY THE PLANNING AND ZONING DEPARTMENT ☐ *Check #*_____ *or* ☐ *Cash or* ☒ *Card*

FILE # C.U.P. 25-032 FEE $ 250.00

ACCEPTED BY _____ DEPOSIT _____

CROSS REFERENCE FILE(S): _____ DATE 11-17-2025

PROPOSED USE: Ground-mounted solar array for residential use

When an application has been submitted, it will be reviewed in order to determine compliance with application requirements. A hearing date will be scheduled only after an application has been accepted as complete or if applicant requests the hearing in writing.

Applicant's Signature: Katrina Spencer **Date:** 11-14-2025

The following must be completed and submitted with the conditional use permit application:

- ☑ A detailed project description disclosing the purpose, strategy, and time frame of construction. Include a phasing plan if appropriate. Address fire mitigation, utilities, fencing, access, emissions, dust, noise, and outside storage.
- ☑ A plot plan, drawn to scale, showing the boundaries, dimensions, area of lot, existing and proposed utilities, streets, easements, parking, setbacks, and buildings.
- ☐ A landscaping plan, drawn to scale, showing elements such as trees, shrubs, ground covers, and vines. Include a plant list indicating the size, quantity, location and name (both botanical and common) of all plant material to be used.
- ☐ A site grading plan clearly showing the existing site topography and detailing the best management practices for surface water management, siltation, sedimentation, and blowing of dirt and debris caused by grading, excavation, open cuts, side slopes, and other site preparation and development.
- ☐ A lighting plan.
- ☑ Names and addresses of property owners within 300 feet of the property lines. Information can be obtained through the GIS Portal at www.co.valley.id.us. Only one copy of this list is required.
- ☑ Ten (10) copies of the application, project description, plot plan, landscaping plan, grading plan, and impact report are required.
- ☐ A Development Agreement may be required. Possible road mitigation should be discussed with Dan Coonce, Valley County Engineer (208-382-7195)

We recommend you review the Valley County Code online at www.co.valley.id.us or at the Planning & Zoning Office at 219 North Main Street, Cascade, Idaho

Subject to Idaho Statute Title 55 Chapter 22 Underground Facilities Damage Prevention.

CONTACT INFORMATION

APPLICANT Katrina Spencer (Magic Valley Electric, LLC) PHONE 208-944-4931

Owner ☐ Purchaser ☐ Lessee ☐ Renter ☐

MAILING ADDRESS 395 Railway Street, Jerome, ID ZIP 83338

EMAIL kwilcox@thesolarteam.com

PROPERTY OWNER Kristen McClellan & Bruce Smith

MAILING ADDRESS 30 Flicker Road, McCall, ID ZIP 83638

EMAIL [redacted]

AGENT / REPRESENTATIVE _____ PHONE _____

MAILING ADDRESS _____ ZIP _____

EMAIL _____

CONTACT PERSON (if different from above) _____

MAILING ADDRESS _____ ZIP _____

EMAIL _____ PHONE _____

PROPERTY INFORMATION

ADDRESS OF SUBJECT PROPERTY 30 Flicker Road, McCall, ID 83638

PROPERTY DESCRIPTION (either lot, block & subdivision name or attach a recorded deed with a metes and bounds description.)
TAX NO. 19 IN SE4 SW4 S7 T17N R4E 108300 Lakefork Area Subdivisions

TAX PARCEL NUMBER(S) *RP* 17N04E076605

Quarter _____ Section 4 Township 17N Range 4E

1. PROPOSED USE: Residential ☑ Civic or Community ☐ Commercial ☐ Industrial ☐
2. SIZE OF PROPERTY 8.73 Acres ☑ or Square Feet ☐
3. EXISTING LAND USES AND STRUCTURES ON THE PROPERTY ARE AS FOLLOWS:

   Current residence being construction under seperate building permit.

4. ARE THERE ANY KNOWN HAZARDS ON OR NEAR THE PROPERTY (such as canals, hazardous material spills, and/or soil or water contamination)? If so, describe and give location: N/A
5. ADJACENT PROPERTIES HAVE THE FOLLOWING BUILDING TYPES AND/OR USES:
   North Residential
   South Residential (Southwest)
   East N/A
   West N/A

APPLICATION DETAILS

6. MAXIMUM PROPOSED STRUCTURE HEIGHT: 17'-7 3/4"

7. NON-RESIDENTIAL STRUCTURES OR ADDITIONS (If applicable):
   Number of Proposed Structures: _____ Number of Existing Structures: _____

Proposed Gross Square Feet		Existing Gross Square Feet	
1st Floor		1st Floor	
2nd Floor		2nd Floor	
Total		Total	

8a. TYPE OF RESIDENTIAL USE (If applicable): Single family residence ☑ Multiple residences on one parcel ☐

8b. TYPE OF STRUCTURE: Stick-built ☐ Manufacture Home ☐ Mobile Home ☐ Tiny Home ☐ Other ☑ Ground mount Solar Array

8c. SQUARE FOOTAGE OF PROPOSED RESIDENTIAL STRUCTURES (If applicable): _____

SQUARE FOOTAGE OF EXISTING RESIDENTIAL STRUCTURES: _____

8d. DENSITY OF DWELLING UNITS PER ACRE: N/A

9. SITE DESIGN:
   Percentage of site devoted to building coverage: _____
   Percentage of site devoted to landscaping: _____
   Percentage of site devoted to roads or driveways: _____
   Percentage of site devoted to other uses: _____, describe: _____
   Total: 100%

10. PARKING (If applicable):

		Office Use Only
a. Handicapped spaces proposed:	N/A	Handicapped spaces required: _____
b. Parking spaces proposed:	N/A	Parking spaces required: _____
c. Number of compact spaces proposed:	N/A	Number of compact spaces allowed: _____
d. Restricted parking spaces proposed:	N/A	
e. Are you proposing off-site parking:	N/A	

11. SETBACKS:

	BUILDING	Office Use Only	PARKING	Office Use Only
	Proposed	Required	Proposed	Required
Front	233			
Rear	632			
Side	128'			
Side Street	249'			

12. NUMBER OF EXISTING ROADS: _____ Width: _____
   Existing roads will be: Publicly maintained? ☐ Privately Maintained? ☐ or Combination of both? ☐
   Existing road construction: Gravel ☐ Paved ☐ or Combination of both? ☐

13. NUMBER OF PROPOSED ROADS: _____ Proposed width: _____
   Proposed roads: Publicly maintained? ☐ Privately Maintained? ☐ or Combination of both? ☐
   Proposed road construction: Gravel ☐ Paved ☐ or Combination of both? ☐

14. ARE SHARED DRIVEWAYS PROPOSED? If so, please explain why. Yes ☐ No ☑

15. EXISTING UTILITIES ON THE PROPERTY ARE AS FOLLOWS:
Power, private well & septic

16. PROPOSED UTILITIES: _____

Proposed utility easement widths _____ Locations _____

17. SEWAGE WASTE DISPOSAL METHOD: Septic ☐ Central Sewage Treatment Facility ☐
Name: _____

18. POTABLE WATER SOURCE: Public ☐ Water Association ☐ Individua Well: ☑

If individual, has a test well been drilled? Yes Depth _____ Flow _____ Purity Verified? _____
Nearest adjacent well _____ Depth _____ Flow _____

19. DRAINAGE (Proposed method of on-site retention): _____

Any special drains? _____ (Please attach map)

Soil type(s): _____
(Information can be obtained from the Natural Resource Conservation Service: websoilsurvey.nrcs.usda.gov)

Stormwater Prevention Management Plan will need approval from Valley County Engineer.

20. IS ANY PORTION OF THE PROPERTY LOCATED IN A FLOODWAY OR 100-YR FLOODPLAIN?
(Information can be obtained from the Planning & Zoning Office) Yes ☐ No ☑

21. DOES ANY PORTION OF THIS PARCEL HAVE SLOPES IN EXCESS OF 15%? Yes ☑ No ☑

21. ARE THERE WETLANDS LOCATED ON ANY PORTION OF THE PROPERTY? Yes ☐ No ☑

23. IS THERE ANY SITE GRADING OR PREPARATION PROPOSED? Yes ☐ No ☑
If yes, explain:

_____

_____

24a. ARE THERE ANY EXISTING IRRIGATION SYSTEMS? Yes ☐ No ☑
Are you proposing any alterations, improvements, extensions or new construction? Yes ☐ No ☑
If yes, explain: _____

_____

24b. COMPLETE ATTACHED PLAN FOR IRRIGATION if you have water rights and are in an irrigation district. Submit letter from Irrigation District, if applicable.

25. COMPLETE ATTACHED WEED CONTROL AGREEMENT

26. COMPETE ATTACHED IMPACT REPORT

Irrigation Plan

(Idaho Code 31-3805)

This land: □ Has water rights available to it
☑ Is dry and has no water rights available to it.

Idaho Code 31-3805 states that when all or part of a subdivision is "located within the boundaries of an existing irrigation district or canal company, ditch association, or like irrigation water deliver entity … **no subdivision plat or amendment to a subdivision plat or any other plat or map recognized by the city or county for the division of land will be accepted, approved, and recorded unless:**"

A. The appropriate water rights and assessment of those water rights have been transferred from said lands or excluded from an irrigation entity by the owner; or

B. The owner filing the subdivision plat or amendment to a subdivision plat or map has provided for the division of land of underground tile or conduit for lots of one acre or less or a suitable system for lots of more than one acre which will deliver water to those landowners within the subdivision who are also within the irrigation entity with the appropriate approvals:

   1. For proposed subdivisions located within an area of city impact, both city and county zoning authorities must approve such irrigation system.

   2. For proposed subdivisions outside of negotiated areas of city impact, the delivery system must be approved by the Planning and Zoning Commission and the Board of County Commissioners with the advice of the irrigation entity charged with the delivery of water to said lands (e.g., irrigation district).

To better understand your irrigation request, we need to ask you a few questions. Additional pages can be added. A list of the map requirements follows the short questionnaire. **Any missing information may result in the delay of your request before the Planning and Zoning Commission and ultimately the approval of your irrigation plan by the Board of County Commissioners as part of final plat approval.**

1. Are you within an area of negotiated City Impact? _____ Yes _____ No

2. What is the name of the irrigation district/company and drainage entities servicing the property?

   Irrigation: _____

   Drainage: _____

3. How many acres is the property being subdivided? _____

4. What percentage of this property has water? _____

5. How many inches of water are available to the property? _____

6. How is the land currently irrigated? □ surface □ sprinkler □ irrigation well
   □ above ground pipe □ underground pipe

7. How is the land to be irrigated after it is subdivided? □ surface □ sprinkler □ irrigation well
   □ above ground pipe □ underground pipe

8. Describe how the head gate/pump connects to the canal and irrigated land and where ditches &/or pipes go.

   _____

   _____

9. Is there an irrigation easement(s) on the property? ☐ Yes ☐ No

10. How do you plan to retain storm and excess water on each lot? _____

_____

_____

11. How do you plan to process this storm water and/or excess irrigation water prior to it entering the established drainage system? (i.e. oil, grease, contaminated aggregates)

_____

_____

_____

Irrigation Plan Map Requirements

The irrigation plan **must be on a scalable map** and show all of the irrigation system including all supply and drainage structures and easements. Please include the following information on your map:

- ☐ All canals, ditches, and laterals with their respective names.
- ☐ Head gate location and/or point of delivery of water to the property by the irrigation entity.
- ☐ Pipe location and sizes, if any
- ☐ Rise locations and types, if any.
- ☐ Easements of all private ditches that supply adjacent properties (i.e. supply ditches and drainage ways).
- ☐ Slope of the property in various locations.
- ☐ Direction of water flow (use short arrows on your map to indicate water flow direction →).
- ☐ Direction of wastewater flow (use long arrows on your map to indicate wastewater direction ⟶).
- ☐ Location of drainage ponds or swales, if any where wastewater will be retained on property
- ☐ Other information: _____

Also, provide the following documentation:

- ☐ Legal description of the property.
- ☐ Proof of ownership.
- ☐ A written response from the irrigation entity and/or proof of agency notification.
- ☐ Copy of any water users' association agreement which shows water schedules and maintenance responsibilities.
- ☐ Copy of all new easements ready for recording (irrigation supply and drainage).
- ☐ If you are in a city area of impact, please include a copy of the approvals by the city planning and zoning commission and city council of your irrigation plan.

==========Applicant Acknowledgement==========

I, the undersigned, agree that prior to the Planning and Zoning Department accepting this application, I am responsible to have all the required information and site plans.

I further acknowledge that the irrigation system, as approved by the Planning and Zoning Commission and ultimately the Board of County Commissioners, must be bonded and/or installed prior to the recording of the plat or building permit.

Signed: _____ Date: _____/_____/_____

Applicant

VALLEY COUNTY

WEED CONTROL AGREEMENT

It shall be the duty and responsibility of all landowners to control noxious weeds on their land and property, in accordance with Idaho Statute 22-2407.

The purpose of this agreement is to establish a cooperative relationship between Valley County and the undersigned Cooperator to protect the natural and economic values in the Upper Payette River watershed from damages related to the invasion and expansion of infestations of noxious weeds and invasive plants. This is a cooperative effort to prevent, eradicate, contain and control noxious weeds and invasive plants on public and private lands in this area. Factors related to the spread of weeds are not related to ownership nor controllable at agency boundaries. This agreement formalizes the cooperative strategy for management of these weeds addressed in Valley County's Integrated Weed Management Plan.

In this continuing effort to control Noxious Weeds, Valley County Weed Control will consult with the undersigned Cooperator and outline weed identification techniques, present optional control methods and recommend proper land management practices.

The undersigned Cooperator acknowledges that he/she is aware of any potential or real noxious weed problems on his/her private property and agrees to control said weeds in a timely manner using proper land management principles.

Valley County Weed Department can be contacted at 208-382-7199.

By: Katrina Spencer
Applicant

By: Valley County Weed Supervisor

Date: 11-14-2025

IMPACT REPORT (from Valley County Code 9-5-3-D)

<u>You may add information to the blanks below or attach additional sheets.</u>

- **An impact report shall be required for all proposed Conditional Uses.**
- **Thoroughly answer all questions. Mark N/A if the question is not applicable to your application.**
- **The impact report shall address potential environmental, economic, and social impacts and how these impacts are to be minimized as follows:**

1. Traffic volume, character, and patterns including adequacy of existing or proposed street width, surfacing, alignment, gradient, and traffic control features or devices, and maintenance. Contrast existing with the changes the proposal will bring during construction and after completion, build-out, or full occupancy of the proposed development. Include pedestrian, bicycle, auto, and truck traffic.

   No additional traffic volume beyond what would be expected from the current construction.

2. Provision for the mitigation of impacts on housing affordability.

   N/A

3. Noise and vibration levels that exist and compare to those that will be added during construction, normal activities, and special activities. Include indoor and outdoor, day and night variations.

   Noise and vibration from excavating gound limited on weekdays Monday through Friday 8 am to 4 pm

4. Heat and glare that exist and that might be introduced from all possible sources such as autos in parking areas, outdoor lights, water or glass surfaces, buildings or outdoor activities.

   N/A , no additional heat or glare concerns will be created from the installation of a small residential ground mount.

5. Particulate emissions to the air including smoke, dust, chemicals, gasses, or fumes, etc., both existing and what may be added by the proposed uses.

   No emmisions are created from the installation of a small residential ground mount.

6. Water demand, discharge, supply source, and disposal method for potable uses, domestic uses, and fire protection. Identify existing surface water drainage, wetlands, flood prone areas and potential changes. Identify existing ground water and surface water quality and potential changes due to this proposal.

   N/A , no water is required for the installation or operation of a small residential ground mount.

7. Fire, explosion, and other hazards existing and proposed. Identify how activities on neighboring property may affect the proposed use.

   Small Ground mounted solar panels for personnel use pose very limited fire risk or hazard.The System has been reviewed and approved by Idaho Power and State DOPL electrical permitting that the proposed plan is following local and national electric code.

8. Removal of existing vegetation or effects thereon including disturbance of wetlands, general stability of soils, slopes, and embankments and the potential for sedimentation of disturbed soils.

Current site location has already been scrubbed due to the construction of the residence currently underway. The ground mount is located close enough to the planned residence there is no concerns to soil, slopes and other potential for sedimation of distrubed soils.

9. Include practices that will be used to stabilize soils and restore or replace vegetation.

   Current site location has already been scrubbed due to the construction of the residence currently underway. The ground mount is located close enough to the planned residence there is no concerns to soil, slopes and other potential for sedimation of distrubed soils.

10. Soil characteristics and potential problems in regard to slope stability, embankments, building foundation, utility and road construction. Include suitability for supporting proposed landscaping.

Current site location has already been scrubbed due to the construction of the residence currently underway. The ground mount is located close enough to the planned residence there is no concerns to soil, slopes and other potential for sedimation of distrubed soils.

11. Site grading or improvements including cuts and fills, drainage courses and impoundments, sound and sight buffers, landscaping, fencing, utilities, and open areas.

Current site location has already been scrubbed due to the construction of the residence currently underway. Minimal amount of fill has been brought into the level the area where the ground mount will be installed.

12. Visibility from public roads, adjoining property, and buildings. Include what will be done to reduce visibility of all parts of the proposal but especially cuts and fills and buildings. Include the impacts of shadows from new features on neighboring property.

The ground mount will be minimally visible to not visible at all from public roadways. The ground mount will be visible to the neighbors to the north, which are at a higher elevation than the proposed location which will decrease visibility to that neighbor.

13. Reasons for selecting the particular location including topographic, geographic and similar features, historic, adjoining land ownership or use, access to public lands, recreation, utilities, streets, etc., in order to illustrate compatibility with and opportunities presented by existing land uses or character.

The area was selected due to the proximity to the home as well as the minimal excavation/trenching that would be required by selecting this location.

14. Approximation of increased revenue from change in property tax assessment, new jobs available to local residents, and increased local expenditures.

Value of property has yet to be assesed from new construction of this project and the current residence under construction.

15. Approximation of costs for additional public services, facilities, and other economic impacts.

There should be no additional cost to public services due to the addition of a privatley owned small residential ground mount.

16. State how the proposed development will impact existing developments providing the same or similar products or services.

There should be no impact to existing developments

17. State what natural resources or materials are available at or near the site that will be used in a process to produce a product and the impacts resulting from the depletion of the resource. Describe the process in detail and describe the impacts of each part.

N/A

18. What will be the impacts of a project abandoned at partial completion?

The foundation is a driven pile which requires no concrete, so they foundation posts could easily be removed and soil returned to its original state if project was abandonded.

19. Number of residential dwelling units, other buildings and building sites, and square footage or gross non-residential floor space to be available.

Please see building permit for residence if this information is requried.

20. Stages of development in geographic terms and proposed construction time schedule.

2-3 weeks of proposed construction time schedule

21. Anticipated range of sale, lease or rental prices for dwelling units, building or other site, or non-residential floor space in order to insure compatibility with adjacent land use and development.

N/A

Property Tax Exemption

New and expanding business ***may*** qualify for a property tax exemption for up to 5 years by meeting the qualifications in accordance with Idaho Code§ 63-602NN

Application must be filed with the Valley County Assessor's office before construction begins.

Protocols for qualifying property exemption in Valley County, Idaho:

- Application must be received prior to the start of construction (ex. Building Permits, excavation)
- Term of exemption, not to exceed 5 years, will be up to the discretion of the Valley County Board of Commissioners
- Retail sales business do not qualify
- Multi use may qualify excluding retail sale area
- Housing
  - Multi-family housing must have 5 units or more per structure.
  - Multi-Family housing units may qualify if more than one structure is built totaling 5 or more units
  - For local housing only (workforce)
  - Short term rentals not allowed
  - Units cannot be individually sold (e.g., no condominiums)
- Remodel and/or additions to existing businesses
  - Only the area of remodel/addition may qualify for exemption
  - Retail sales additions/remodel will not qualify

For further information regarding the 63-602NN application process and instructions, please contact the Valley County Assessor's office at 208-382-7126.

EHM Engineers, Inc.
BUILDING THE FUTURE ON A FOUNDATION OF EXCELLENCE

Date: November 3, 2025

To: Magic Valley Electric
Attn: Joey Richardson

From: Brian Martens, P.E.

Re: Smith Solar Foundation

Per your request EHM Engineers has reviewed the feasibility of supporting the approximate 45' x 16' solar array panel on (3) 8" schedule 40 steel pipes driven into the existing ground. The solar array is as documented in the attached Magic Valley Electric plans for Bruce Smith in McCall, Idaho. The vertical and horizontal loads the foundation was checked for were taken from the attached Project Details calculations prepared by MTSOLAR.

The solar array may be supported on the (3) pipe driven piles provided the pipe is driven 12' minimum into existing undisturbed soil with a maximum of 9' extended above finished grade. Please note this is slightly different from what is shown in the plans. The soil was assumed to be primarily fractured granite as indicated in the well log provided in the proximity of the new solar array. Lateral movement of the pipe at ground level of up to ½" could be expected under high design wind conditions.

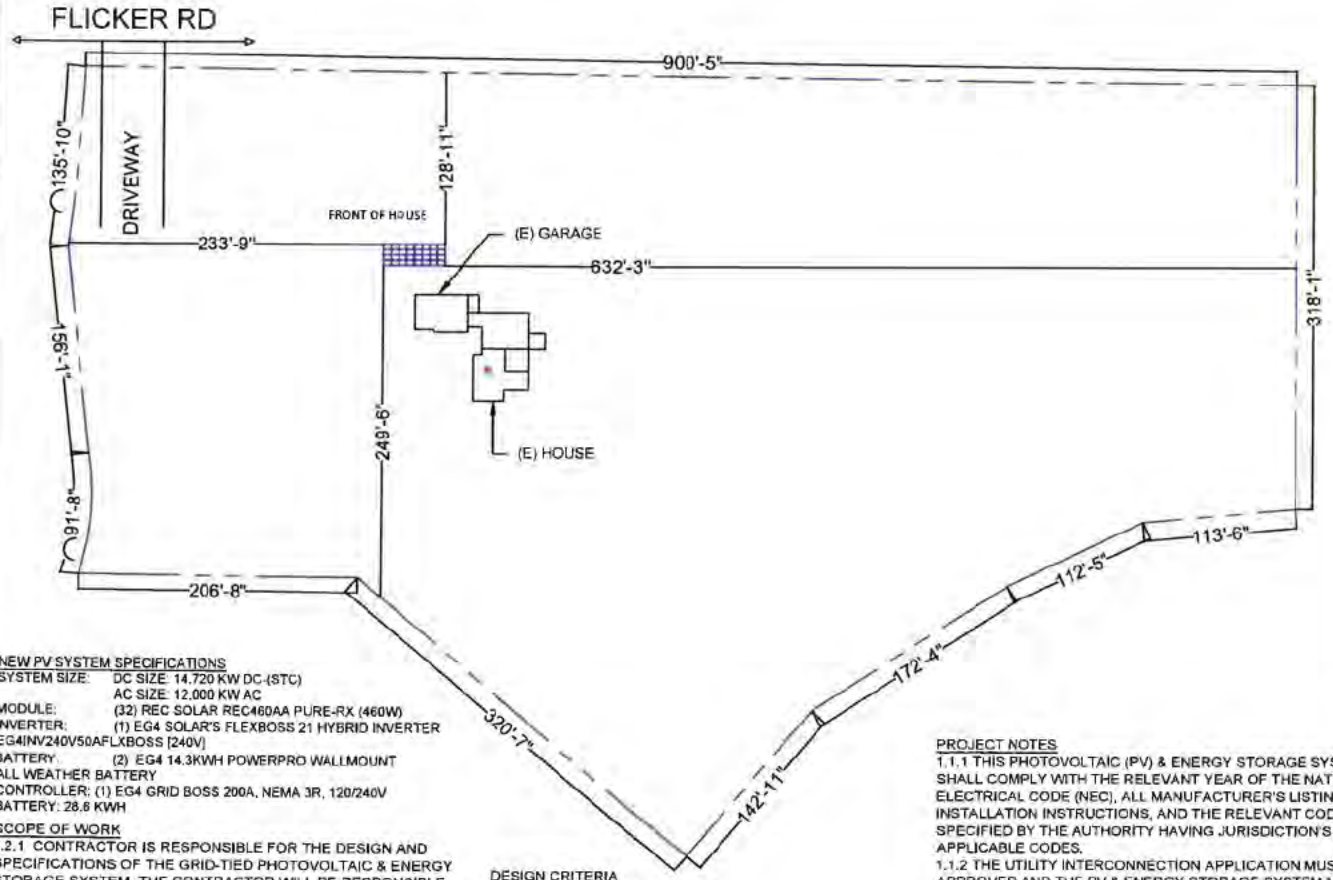
Please let me know if you have any questions or need additional information.

Respectfully,
EHM Engineers

Brian Martens, P.E.

621 North College Rd., Suite 100 • Twin Falls, Idaho 83301 • [208] 734-4888 • Fax [208] 734-6049
3501 W. Elder St., Suite 100 • Boise, Idaho 83705 • [208] 386-9170 • Fax [208] 386-9076

NEW PHOTOVOLTAIC GROUND MOUNT MOUNTED SYSTEM - 14.720 KW DC/12.000 KW AC
& ENERGY STORAGE SYSTEM - 28.6 KWH
30 FLICKER RD, MCCALL, ID 83638



NEW PV SYSTEM SPECIFICATIONS

SYSTEM SIZE:	DC SIZE: 14.720 KW DC-(STC) AC SIZE: 12.000 KW AC
MODULE:	(32) REC SOLAR REC460AA PURE-RX (460W)
INVERTER:	(1) EG4 SOLAR'S FLEXBOSS 21 HYBRID INVERTER EG4INV240V50AFLXBOSS [240V]
BATTERY:	(2) EG4 14.3KWH POWERPRO WALLMOUNT ALL WEATHER BATTERY
CONTROLLER:	(1) EG4 GRID BOSS 200A, NEMA 3R, 120/240V
BATTERY:	28.6 KWH

SCOPE OF WORK

1.2.1 CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND SPECIFICATIONS OF THE GRID-TIED PHOTOVOLTAIC & ENERGY STORAGE SYSTEM. THE CONTRACTOR WILL BE RESPONSIBLE FOR COLLECTION OF EXISTING ONSITE CONDITIONS TO DESIGN, SPECIFY, AND INSTALL THE GROUND MOUNT-MOUNTED PV SYSTEM AND ENERGY STORAGE SYSTEM DETAILED IN THIS DOCUMENT

N

1 PV-01 PROPERTY PLAN

SCALE:1" = 90'-0"

DESIGN CRITERIA

GROUND SNOW LOAD: 120 PSF
WIND SPEED: 115 MPH
WIND EXPOSURE: B
RISK CATEGORY: II

APPLICABLE CODES

ALL WORK SHALL CONFORM TO THE FOLLOWING CODES:
2018 INTERNATIONAL BUILDING CODE
2020 IDAHO RESIDENTIAL CODE
2018 INTERNATIONAL FIRE CODE
2020 NATIONAL ELECTRICAL CODE
AS ADOPTED BY VALLEY COUNTY

PROJECT NOTES

1.1.1 THIS PHOTOVOLTAIC (PV) & ENERGY STORAGE SYSTEM SHALL COMPLY WITH THE RELEVANT YEAR OF THE NATIONAL ELECTRICAL CODE (NEC), ALL MANUFACTURER'S LISTING AND INSTALLATION INSTRUCTIONS, AND THE RELEVANT CODES AS SPECIFIED BY THE AUTHORITY HAVING JURISDICTION'S (AHJ) APPLICABLE CODES.
1.1.2 THE UTILITY INTERCONNECTION APPLICATION MUST BE APPROVED AND THE PV & ENERGY STORAGE SYSTEM MUST BE INSPECTED PRIOR TO OPERATION
1.1.3 ALL PV & ENERGY STORAGE SYSTEM COMPONENTS; MODULES, UTILITY-INTERACTIVE INVERTERS, BATTERIES, AND SOURCE CIRCUIT COMBINER BOXES ARE IDENTIFIED AND LISTED FOR USE IN PHOTOVOLTAIC SYSTEMS AS REQUIRED BY NEC AND OTHER GOVERNING CODES
1.1.4 ALL SIGNAGE TO BE PLACED IN ACCORDANCE WITH LOCAL BUILDING CODE. IF EXPOSED TO SUNLIGHT, IT SHALL BE UV RESISTANT. ALL PLAQUES AND SIGNAGE WILL BE INSTALLED AS REQUIRED BY THE NEC AND AHJ.

SHEET INDEX

LEGEND

- PROPERTY LINE
- FENCE LINE

VICINITY MAP

SATELLITE MAP

CONTRACTOR

MAGIC VALLEY ELECTRIC, LLC
395 RAILWAY ST
JEROME, IDAHO 83338
PHONE - (208) 735-8990
LIC. NO. - ELE-C-33843
(ELECTRICAL - IDAHO), RCE-35670
(GENERAL CONTRACTOR - IDAHO)

PROJECT NAME & ADDRESS

BRUCE SMITH
30 FLICKER RD,
MCCALL, ID 83638

APN #: 1704076605
AHJ: VALLEY COUNTY
UTILITY: IDAHO POWER

SYSTEM DETAILS

14.720 KW DC-(STC) / 12.000 KW AC
(32) REC SOLAR REC460AA PURE-RX (460W)
(1) EG4 SOLAR'S FLEXBOSS 21 HYBRID INVERTER EG4INV240V50AFLXBOSS [240V]
(2) EG4 14.3KWH POWERPRO WALLMOUNT ALL WEATHER BATTERY
BATTERY: 28.6 KWH

REVISIONS

REV	DESCRIPTION	DATE

SHEET TITLE

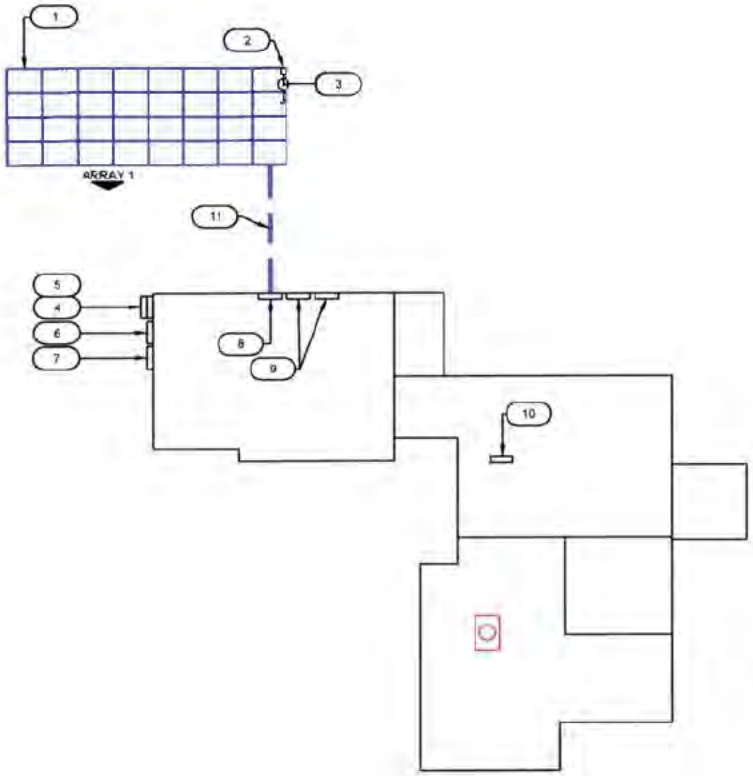
COVER PAGE

DRAWN DATE	10/14/2025
DRAWN BY	ONS

SHEET NUMBER

PV-01

FRONT OF HOUSE



NOTES:
1. STRUCTURES, PATIO COVERS, AND/OR ADDITIONS BUILT WITHOUT PERMITS TO BE RESOLVED BY A SEPARATE PERMIT.

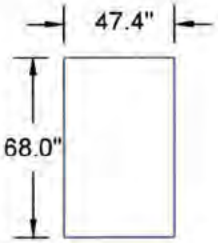
TRENCH NOTES:
1. 18" MINIMUM DEPTH OR BELOW FROST LINE.
2. 24" MINIMUM DEPTH FOR CONDUIT TRENCHED UNDER AREAS SUBJECT TO VEHICLE TRAFFIC.

LEGEND

= MECHANICAL VENT

= FLUE / PLUMBING VENT

1. (32) REC SOLAR REC460AA PURE-RX (460W) MODULES
2. JUNCTION BOX (NEMA 3R)
3. CONDUIT RUN: SURFACE MOUNTED (ACTUAL CONDUIT RUNS TO BE DETERMINED IN FIELD)
4. (E) UTILITY METER
5. (E) MAIN SERVICE PANEL
6. (N) EG4 GRID BOSS 200A, NEMA 3R, 120/240V
7. (N) AC DISCONNECT
8. (N) EG4 SOLAR'S FLEXBOSS 21 HYBRID INVERTER (240V)
9. (N) EG4 14.3KWH POWERPRO WALLMOUNT ALL WEATHER BATTERY (EG4LL48V100AODWMBV2)
10. (E) SUB SERVICE PANEL
11. (N) TRENCHING APPROX 20FT



GROUND-MOUNT ARRAY(S)

ARRAY 1	ARRAY SLOPE	- 30°
	AZIMUTH	- 180°
	MODULE QTY.	- 32

N

1 / PV-02 SITE PLAN
SCALE:1" = 20'-0"

CONTRACTOR

MAGIC VALLEY ELECTRIC, LLC
395 RAILWAY ST
JEROME, IDAHO 83338
PHONE - (208) 735-8990
LIC. NO. - ELE-C-33843
(ELECTRICAL - IDAHO), RCE-35670
(GENERAL CONTRACTOR - IDAHO)

PROJECT NAME & ADDRESS
BRUCE SMITH
30 FLICKER RD,
MCCALL, ID 83638

APN #: 1704076605
AHJ: VALLEY COUNTY
UTILITY: IDAHO POWER

SYSTEM DETAILS
14.720 KW DC-(STC) / 12.000 KW AC
(32) REC SOLAR REC460AA PURE-RX (460W)
(1) EG4 SOLAR'S FLEXBOSS 21 HYBRID INVERTER EGHINV240V50AFLXBOSS (240V)
(2) EG4 14.3KWH POWERPRO WALLMOUNT ALL WEATHER BATTERY
BATTERY: 28.6 KWH

REVISIONS

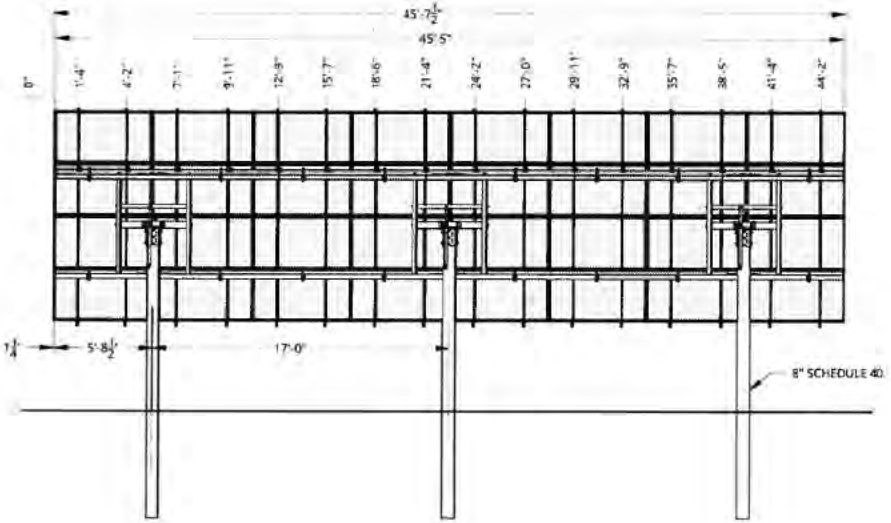
REV	DESCRIPTION	DATE

SHEET TITLE
SITE PLAN

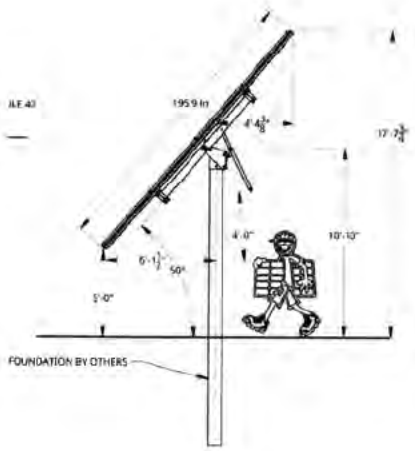
DRAWN DATE	10/14/2025
DRAWN BY	ONS

SHEET NUMBER
PV-02

TYPE OF RACKING :- MT SOLAR
ATTACHMENT :- MT SOLAR



1 PV-03 TOP VIEW
Scale: NTS



2 PV-03 SIDE VIEW
Scale: NTS

ITEM	QUANTITY	NAME	MASS
1	4	BEAM-SD-WING-24-INCHES	22.3 LB
2	8	BEAM-SD-SPLICE-57-INCHES	52 LB
3	6	BEAM-SD-CENTER-90-INCHES	74.9 LB
4	6	TUBE-5X3-SD-90IN	51.8 LB
5	3	PIPE-2.5IN-SD-45IN	11.9 LB
6	3	PIPE-4IN-SD-45IN	41.9 LB
7	6	LOCK-COLLAR-4	1.2 LB
8	3	POLECAP	42.5 LB
9	3	BACKPLATE-8	15.4 LB
10	3	LIFT-INSERT-8	8.5 LB
11	3	SCREW ADJUSTER	
12	8	BEAM-SPLICE-BOLT-KIT-SD	1.7 LB
13	8	TAMARACK-GROUND-LUG	0.1 LB
14	80	TAMARACK-50/50-CLAMP	0.1 LB
15	32	TAMARACK-RAIL-ADAPTER-WITH-BOLT	0.1 LB
16	16	TAMARACK-3.1-RAIL-CUT-195.9-INCHES	15.2 LB
17	32	BEAM-CLAMP-WITH-BOLTS	1.2 LB
18	3	BOLT-KIT-8-TOP-BEAM	N/A
19	3	PALLET-PACKAGING-MATERIALS	N/A

THIS CONFIGURATION SATISFIES THE REQUIREMENTS SET FORTH IN THE:
- 15TH ED. AISC STEEL DESIGN MANUAL

MATERIALS:
GR 5 BOLTS USED AT ALL CONNECTION LOCATIONS U.N.O.
STEEL MATERIALS CONFORM TO THE FOLLOWING
- STEEL PIPE: Fy=50 KSI MIN.
- WIDE FLANGE SECTIONS: ASTM A992, Fy=50 KSI
- RECTANGULAR HSS SECTIONS: ASTM A500, GR C, Fy=50 KSI
- PLATES: ASTM A36 Fy=36 KSI

CONCRETE WORK:
TO BE IN ACCORDANCE WITH ACI 318-14
- CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF (F'c) of 2500 PSI

Tamarack Rail Detail

ITEM	QUANTITY	NAME
1	32	TAMARACK-3.1-RAIL-CUT-88-INCHES
2	16	TAMARACK-3.1-RAIL-CUT-20-INCHES
3	32	TAMARACK 3.1 SPLICE
4	64	TAMARACK RAIL NUT
5	64	HEX BOLT 5/16-18 X 1

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(2) EG4 14.3KWH POWERPRO WALLMOUNT ALL WEATHER BATTERY
BATTERY: 28.6 KWH

REVISIONS

REV	DESCRIPTION	DATE

SHEET TITLE
ATTACHMENT PLAN & DETAILS

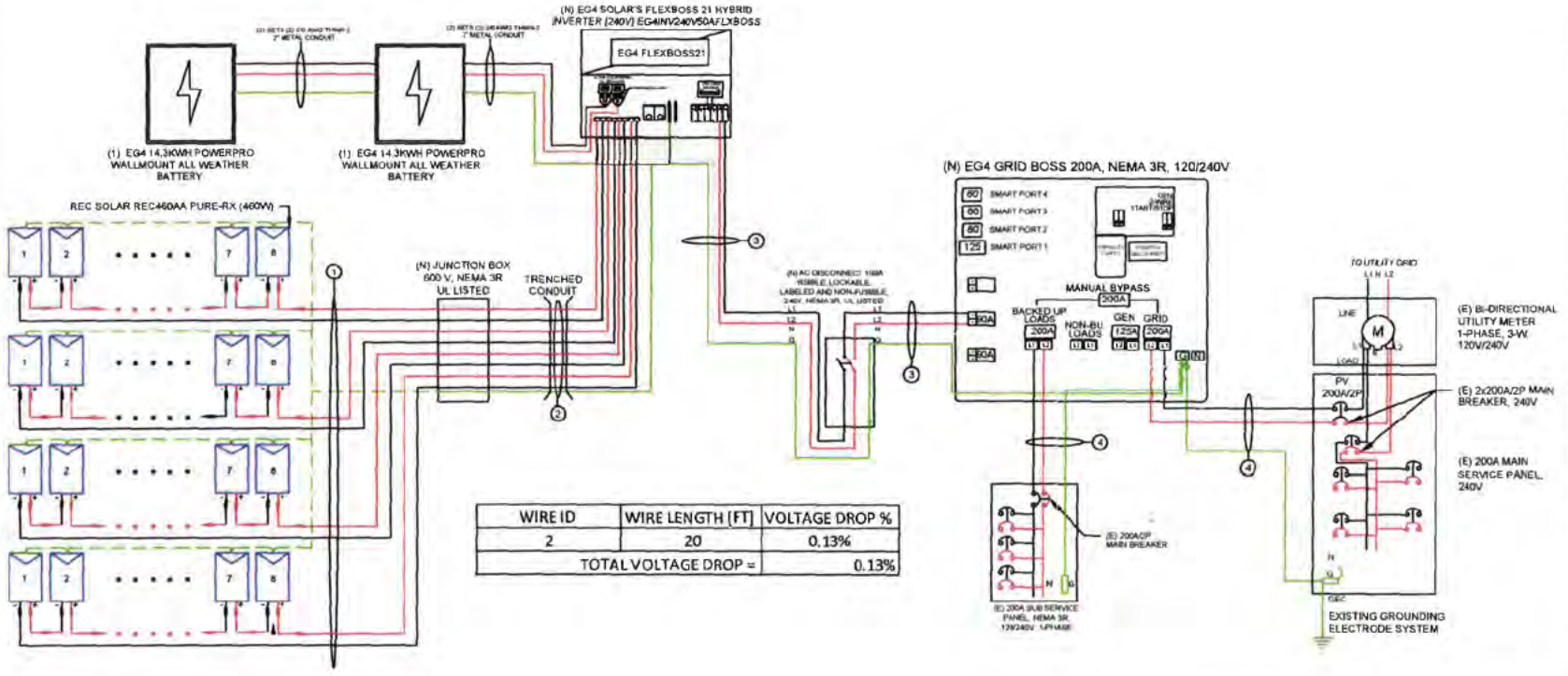
DRAWN DATE	10/14/2025
DRAWN BY	ONS

SHEET NUMBER
PV-03

INVERTER SPECIFICATIONS	
MANUFACTURER / MODEL #	EG4 SOLAR'S FLEXBOSS 21 HYBRID INVERTER [240V]
POWER RATING	12000W
CONT. OUPUT CURRENT	66.7 A
MAX INPUT CURRENT	67 A
MAX DC VOLTAGE	600V

SOLAR MODULE SPECIFICATIONS	
MANUFACTURER / MODEL #	REC SOLAR REC460AA PURE-RX (460W)
VMP	54.9 V
IMP	8.38 A
VOC	65.8 V
ISC	8.88 A
TEMP. COEFF. VOC	-0.24 %/°C

AMBIENT TEMPERATURE SPECIFICATIONS	
RECORD LOW TEMP	-26°C
AMBIENT TEMP (HIGH TEMP 2% AVG.)	29°C
MINIMUM CONDUIT HEIGHT ABOVE ROOF SURFACE	7/8"



WIRE ID	WIRE LENGTH [FT]	VOLTAGE DROP %
2	20	0.13%
TOTAL VOLTAGE DROP =		0.13%

DESCRIPTION	FORMULA	RESULT
PV + ESS OVERCURRENT PROTECTION NEC 690.9(B)	TOTAL INVERTER + ESS OUTPUT CURRENT x 1.25 = (67.00)A x 1.25	83.38A (SELECTED OCP RATING = 200A)

DC WIRE CALCULATION

WIRE ID	EXPECTED WIRE TEMP (°C)	TEMP DERATE (90 °C)	QTY OF CURRENT CARRYING CONDUCTORS	CONDUIT FILL DERATE	MINIMUM CONDUIT SIZE (TBD ON SITE)	WIRE GAUGE & TYPE	CONDUCTOR AMPACITY @ 90°C (A)	CONDUCTOR AMPACITY @ 75°C (A)	REQUIRED CIRCUIT CONDUCTOR AMPACITY (A)	ADJUSTED CONDUCTOR AMPACITY @ 90 °C (A)	NEUTRAL CONDUCTOR SIZE & TYPE	GROUND WIRE SIZE & TYPE
1	29	1	8	IN AIR	N/A	#10 AWG PV WIRE	40	35	13.86	40	NONE	#6 AWG BARE Cu
2	29	1	8	0.7	1" PVC	#10 THWN-2	40	35	13.86	28	NONE	#10 THWN-2

AC WIRE CALCULATION

3	29	1	2	1	1" METAL	#4 THWN-2	95	85	83.38	95	#4 THWN-2	#8 THWN-2
4	29	1	2	1	2" METAL	#3/0 THWN-2	225	200	200	225	#3/0 THWN-2	#6 THWN-2

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REVISIONS

REV	DESCRIPTION	DATE

SHEET TITLE

ELECTRICAL DIAGRAM

DRAWN DATE	10/14/2025
DRAWN BY	ONS

SHEET NUMBER

PV-04

GENERAL NOTES

SITE NOTES
2.1.1 A LADDER WILL BE IN PLACE FOR INSPECTION IN ACCORDANCE WITH OSHA REGULATIONS.
2.1.2 THE PV MODULES ARE CONSIDERED NON-COMBUSTIBLE AND THIS SYSTEM IS A UTILITY INTERACTIVE SYSTEM WITH STORAGE BATTERIES.
2.1.3 THE SOLAR PV INSTALLATION WILL NOT OBSTRUCT ANY PLUMBING, MECHANICAL, OR BUILDING ROOF VENTS.
2.1.4 PROPER ACCESS AND WORKING CLEARANCE AROUND EXISTING AND PROPOSED ELECTRICAL EQUIPMENT WILL BE PROVIDED IN ACCORDANCE WITH SECTION NEC 110.
2.1.5 ROOF COVERINGS SHALL BE DESIGNED, INSTALLED, AND MAINTAINED IN ACCORDANCE WITH THIS CODE AND THE APPROVED MANUFACTURER'S INSTRUCTIONS SUCH THAT THE ROOF COVERING SERVES TO PROTECT THE BUILDING OR STRUCTURE.

EQUIPMENT LOCATIONS
2.2.1 ALL EQUIPMENT SHALL MEET MINIMUM WORKING CLEARANCES IN ACCORDANCE WITH NEC 110.
2.2.2 WIRING SYSTEMS INSTALLED IN DIRECT SUNLIGHT MUST BE RATED FOR EXPECTED OPERATING TEMPERATURE AS SPECIFIED BY 2020 NATIONAL ELECTRICAL CODE.
2.2.3 JUNCTION AND PULL BOXES PERMITTED INSTALLED UNDER PV MODULES IN ACCORDANCE WITH NEC 690.
2.2.4 ALL EQUIPMENT SHALL BE INSTALLED ACCESSIBLE TO QUALIFIED PERSONNEL IN ACCORDANCE WITH NEC APPLICABLE CODES.
2.2.5 ALL COMPONENTS ARE LISTED FOR THEIR PURPOSE AND RATED FOR OUTDOOR USAGE WHEN APPROPRIATE.

STRUCTURAL NOTES
2.3.1 RACKING SYSTEM & PV ARRAY WILL BE INSTALLED IN ACCORDANCE WITH THE CODE-COMPLIANT INSTALLATION MANUAL. TOP CLAMPS REQUIRE A DESIGNATED SPACE BETWEEN MODULES, AND RAILS MUST ALSO EXTEND A MINIMUM DISTANCE BEYOND EITHER EDGE OF THE ARRAY/SUB-ARRAY, IN ACCORDANCE WITH RAIL MANUFACTURER'S INSTALLATION PRACTICES.
2.3.2 JUNCTION BOX WILL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. IF ROOF-PENETRATING TYPE, IT SHALL BE FLASHED & SEALED PER LOCAL REQUIREMENTS.
2.3.3 ROOFTOP PENETRATIONS FOR PV RACEWAY WILL BE COMPLETED AND SEALED W/ APPROVED CHEMICAL SEALANT PER CODE BY A LICENSED CONTRACTOR.
2.3.4 ALL PV RELATED ROOF ATTACHMENTS TO BE SPACED NO GREATER THAN THE SPAN DISTANCE SPECIFIED BY THE RACKING MANUFACTURER OR PROFESSIONAL ENGINEERING GUIDANCE.
2.3.5 WHEN POSSIBLE, ALL PV RELATED RACKING ATTACHMENTS WILL BE STAGGERED AMONGST THE ROOF FRAMING MEMBERS.

WIRING & CONDUIT NOTES
2.4.1 ALL CONDUIT AND WIRE WILL BE LISTED AND APPROVED FOR THEIR PURPOSE, CONDUIT AND WIRE SPECIFICATIONS ARE BASED ON MINIMUM CODE REQUIREMENTS AND ARE NOT MEANT TO LIMIT UP-SIZING.
2.4.2 CONDUCTORS SIZED IN ACCORDANCE WITH THE NEC
2.4.3 AC CONDUCTORS TO BE COLORED OR MARKED PER NEC
2.4.4 LISTED OR LABELED EQUIPMENT SHALL BE INSTALLED AND USED IN ACCORDANCE WITH ANY INSTRUCTIONS INCLUDED IN THE LISTING OR LABELING PER NEC

GROUNDING NOTES
2.5.1 GROUNDING SYSTEM COMPONENTS SHALL BE LISTED FOR THEIR PURPOSE, AND GROUNDING DEVICES EXPOSED TO THE ELEMENTS SHALL BE RATED FOR SUCH USE.
2.5.2 PV EQUIPMENT SHALL BE GROUNDED IN ACCORDANCE WITH NEC 690 AND NEC TABLE 250.122.
2.5.3 METAL PARTS OF MODULE FRAMES, MODULE RACKING, AND ENCLOSURES CONSIDERED GROUNDED IN ACCORDANCE WITH NEC 250.
2.5.4 EQUIPMENT GROUNDING CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH NEC 690 AND INVERTER MANUFACTURER'S INSTALLATION PRACTICES
2.5.5 EACH MODULE WILL BE GROUNDED AS SHOWN IN MANUFACTURER DOCUMENTATION AND APPROVED BY THE AHJ.
2.5.6 THE GROUNDING CONNECTION TO A MODULE SHALL BE ARRANGED SUCH THAT THE REMOVAL OF A MODULE DOES NOT INTERRUPT A GROUNDING CONDUCTOR TO ANOTHER MODULE.
2.5.7 GROUNDING AND BONDING CONDUCTORS, IF INSULATED, SHALL BE COLORED GREEN OR MARKED GREEN IF #4 AWG OR LARGER PER NEC 250.
2.5.8 THE GROUNDING ELECTRODE SYSTEM COMPLIES WITH NEC 690 AND NEC 250. IF EXISTING SYSTEM IS INACCESSIBLE, OR INADEQUATE, A GROUNDING ELECTRODE SYSTEM PROVIDED IN ACCORDANCE WITH NEC 250, NEC 690 AND THE AHJ.
2.5.9 GROUND-FAULT DETECTION SHALL COMPLY WITH NEC 690 TO REDUCE FIRE HAZARDS

DISCONNECTION AND OVERCURRENT PROTECTION NOTES
2.6.1 DISCONNECTING SWITCHES SHALL BE WIRED SUCH THAT WHEN THE SWITCH IS OPENED THE CONDUCTORS REMAINING ENERGIZED ARE CONNECTED TO THE TERMINALS MARKED "LINE SIDE" (TYPICALLY THE UPPER TERMINALS).
2.6.2 DISCONNECTS TO BE ACCESSIBLE TO QUALIFIED UTILITY PERSONNEL, BE LOCKABLE, AND BE A VISIBLE-BREAK SWITCH
2.6.3 PV SYSTEM CIRCUITS INSTALLED ON OR IN HABITABLE BUILDINGS SHALL INCLUDE A RAPID SHUTDOWN FUNCTION TO REDUCE SHOCK HAZARD FOR EMERGENCY RESPONDERS IN ACCORDANCE WITH 690.
2.6.4 ALL OCPD RATINGS AND TYPES SPECIFIED ACCORDING TO NEC 690 AND 240.
2.6.5 INVERTER ON-GRID BRANCHES SHALL BE CONNECTED TO A SINGLE BREAKER OR GROUPED FUSE DISCONNECT(S) IN ACCORDANCE WITH NEC 110.
2.6.6 IF REQUIRED BY THE AHJ, SYSTEM WILL INCLUDE ARC-FAULT CIRCUIT PROTECTION IN ACCORDANCE WITH NEC 690 AND UL1699B.

INTERCONNECTION NOTES
2.7.1 LOAD SIDE INTERCONNECTION SHALL BE IN ACCORDANCE WITH NEC 705.
2.7.2 THE SUM OF THE UTILITY OCPD AND INVERTER CONTINUOUS OUTPUT MAY NOT EXCEED 120 PERCENT OF BUSBAR RATING PER NEC 705.
2.7.3 THE SUM OF 125 PERCENT OF THE POWER SOURCE(S) OUTPUT CIRCUIT CURRENT AND THE RATING OF THE OVERCURRENT DEVICE PROTECTING THE BUSBAR SHALL NOT EXCEED 120 PERCENT OF THE AMPACITY OF THE BUSBAR, PV DEDICATED BACKFEED BREAKERS MUST BE LOCATED OPPOSITE END OF THE BUS FROM THE UTILITY SOURCE OCPD PER NEC 705.
2.7.4 AT MULTIPLE ELECTRIC POWER SOURCES OUTPUT COMBINER PANEL, TOTAL RATING OF ALL OVERCURRENT PROTECTION DEVICES SHALL NOT EXCEED AMPACITY OF BUSBAR. HOWEVER, THE MAIN OVERCURRENT PROTECTION DEVICE MAY BE EXCLUDED IN ACCORDANCE WITH NEC 705.
2.7.5 FEEDER TAP INTERCONNECTION (LOAD SIDE) IN ACCORDANCE WITH NEC 705.
2.7.6 SUPPLY SIDE TAP INTERCONNECTION IN ACCORDANCE WITH TO NEC 705 WITH SERVICE ENTRANCE CONDUCTORS IN ACCORDANCE WITH NEC 230.
2.7.7 BACKFEEDING BREAKER FOR ELECTRIC POWER SOURCES OUTPUT IS EXEMPT FROM ADDITIONAL FASTENING PER NEC 705.

CONTRACTOR

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JEROME, IDAHO 83338
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BRUCE SMITH
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APN #: 1704076605
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UTILITY: IDAHO POWER

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14.720 KW DC-(STC) / 12.000 KW AC
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EG4INV240VS0AFLXBOSS (240V)
(2) EG4 14.3KWH POWERPRO WALLMOUNT ALL WEATHER BATTERY
BATTERY: 28.6 KWH

REVISIONS

REV	DESCRIPTION	DATE

SHEET TITLE
NOTES

DRAWN DATE	10/14/2025
DRAWN BY	ONS

SHEET NUMBER
PV-05

WARNING
ELECTRICAL SHOCK HAZARD
TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

LABEL LOCATION: COMBINER PANEL, AC DISCONNECT, POINT OF INTERCONNECTION
PER CODE: NEC 706.15(C)(4), NEC 690.13(B)

WARNING
TURN OFF PHOTOVOLTAIC AC DISCONNECT PRIOR TO WORKING INSIDE PANEL

LABEL LOCATION: COMBINER PANEL(S), MAIN SERVICE DISCONNECT
PER CODE: NEC 110.27(C), OSHA 1910.145(f)(7)

PHOTOVOLTAIC POWER SOURCE

LABEL LOCATION: DC CONDUIT/RACEWAYS
PER CODE: NEC 690.31(D)(2)

SOLAR PV DC CIRCUIT

LABEL LOCATION: DC CONDUIT/RACEWAYS
PER CODE: NEC 690.31(D)(2)

PHOTOVOLTAIC SYSTEM AC DISCONNECT
RATED AC OUTPUT CURRENT: 83.38 A
NOMINAL OPERATING AC VOLTAGE: 240 V

LABEL LOCATION: AC DISCONNECT/POINT OF INTERCONNECTION
PER CODE: NEC 690.54

WARNING DUAL POWER SOURCE
SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

LABEL LOCATION: MAIN SERVICE DISCONNECT, PRODUCTION/NET METER
PER CODE: NEC 690.59, 705.12(C)

PV SYSTEM
DISCONNECT

LABEL LOCATION: AC DISCONNECT
PER CODE: NEC 690.13(B)

WARNING
THIS EQUIPMENT FED BY MULTIPLE SOURCES.
TOTAL RATING OF ALL OVERCURRENT DEVICES EXCLUDING MAIN POWER SUPPLY SHALL NOT EXCEED AMPACITY OF BUSBAR

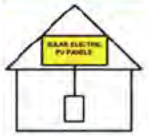
LABEL LOCATION: AC DISCONNECT
PER CODE: NEC 705.12(B)(3)(3)

WARNING
POWER SOURCE OUTPUT CONNECTION. DO NOT RELOCATE THIS OVERCURRENT DEVICE.

LABEL LOCATION: POINT OF INTERCONNECTION
PER CODE: NEC 705.12(B)(3)(2)

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN THE ARRAY



LABEL LOCATION: MAIN SERVICE DISCONNECT
PER CODE: NEC 690.56(C)

MAIN PHOTOVOLTAIC SYSTEM DISCONNECT

LABEL LOCATION: MAIN SERVICE DISCONNECT, UTILITY METER
PER CODE: NEC 690.13(B)

RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

LABEL LOCATION: RSD INITIATION DEVICE, AC DISCONNECT
PER CODE: NEC 690.56(C)(2)

CAUTION
PHOTOVOLTAIC SYSTEM CIRCUIT IS BACKFED

LABEL LOCATION: MAIN SERVICE DISCONNECT
PER CODE: NEC 705.12(D), NEC 690.59

DO NOT DISCONNECT UNDER LOAD

LABEL LOCATION: MAIN SERVICE DISCONNECT
PER CODE: NEC 690.15(B) & NEC 690.33(D)(2)

MAXIMUM DC VOLTAGE
OF PV SYSTEM

LABEL LOCATION: DC DISCONNECT/INVERTER/PV DIST. EQUIPMENT
PER CODE: NEC 690.53

WARNING
ELECTRICAL SHOCK HAZARD
TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION
DC VOLTAGE IS ALWAYS PRESENT WHEN SOLAR MODULES ARE EXPOSED TO SUNLIGHT

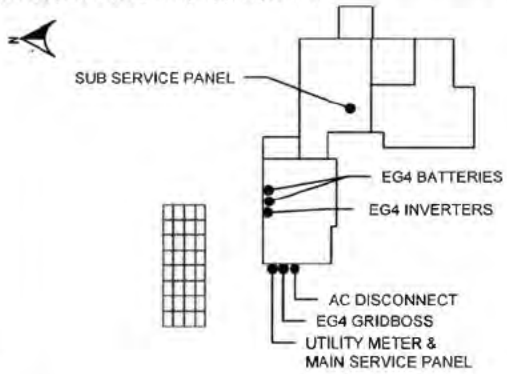
LABEL LOCATION: DC DISCONNECT
PER CODE: NEC 690.13(B)

WARNING
TRI POWER SOURCES SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

CAUTION

MULTIPLE SOURCES OF POWER.
POWER TO THIS BUILDING IS ALSO SUPPLIED FROM THE FOLLOWING SOURCES WITH DISCONNECTS LOCATED AS SHOWN:

ADDRESS: 30 FLICKER RD, MCCALL, ID 83638



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BATTERY: 28.6 KWH

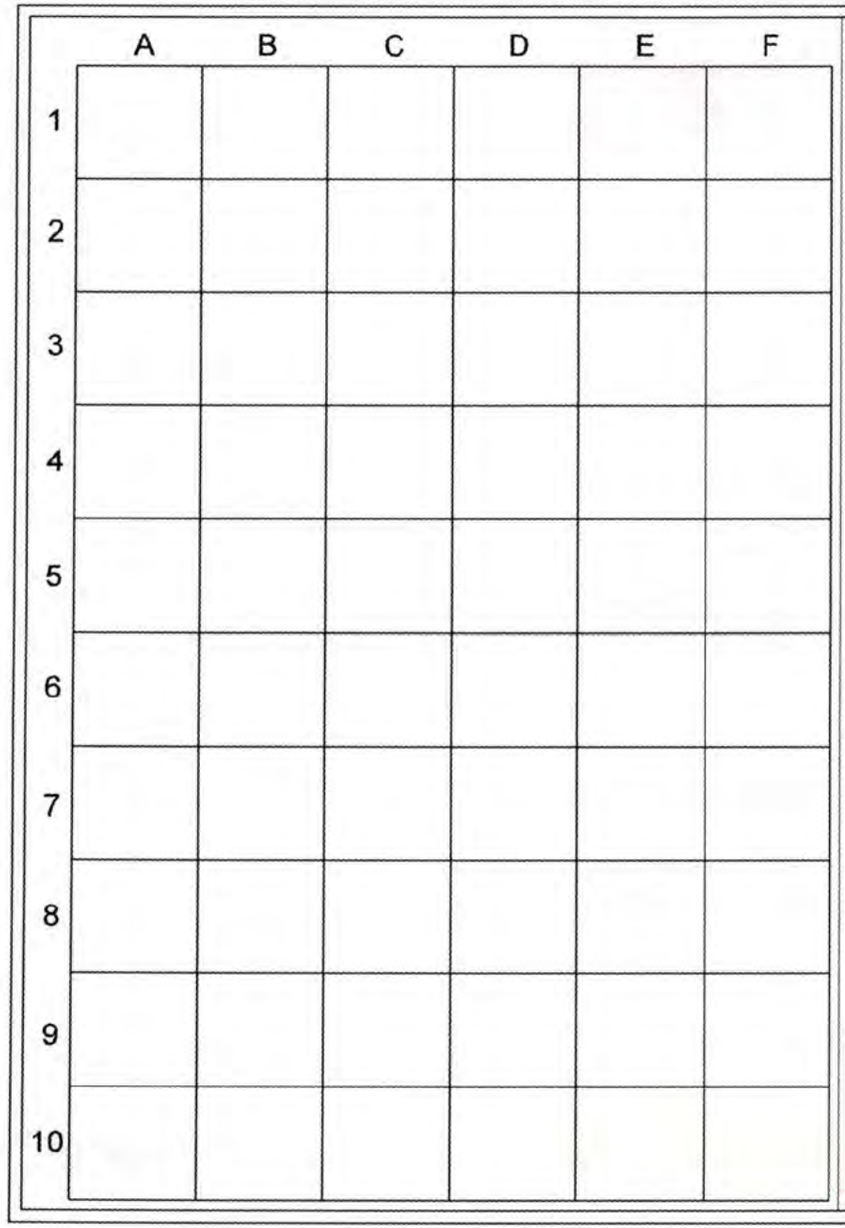
REVISIONS

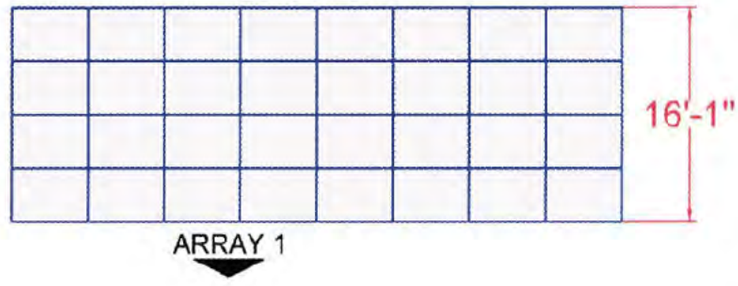
REV	DESCRIPTION	DATE

SHEET TITLE
WARNING LABELS

DRAWN DATE	10/14/2025
DRAWN BY	ONS

SHEET NUMBER
PV-06





**DIMENSIONS ARE 2D (FLAT)

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REVISIONS

REV	DESCRIPTION	DATE

SHEET TITLE
INSTALLATION RESOURCE

DRAWN DATE	10/14/2025
DRAWN BY	ONS

SHEET NUMBER
PV-07

450 - 470W
HETEROJUNCTION
TECHNOLOGY

22.6% EFFICIENCY
>92% POWER IN YEAR 25
-0.24%/K TEMPERATURE COEFFICIENT OF P_{MAX}

REC 25 YEAR PRODUCT WARRANTY
ELIGIBLE

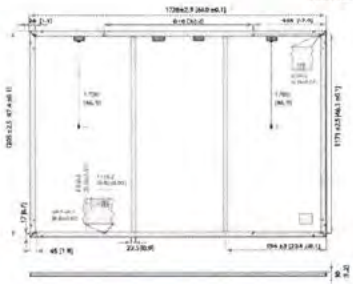
REC ALPHA® PURE-RX SERIES
DATASHEET

REC
SOLAR'S MOST TRUSTED

Measurements in [inches] and mm

GENERAL DATA

Cell Type	88 half-cut bifacial REC heterojunction cells, with gapless technology
Glass	0.13 in solar glass with anti-reflective surface treatment in accordance with EN12150
Backsheet	Highly resistant polymer (Black)
Frame	Anodized aluminum (Black)
Junction Box	4 part, 4 bypass diodes, IP68 rated, in accordance with IEC 62790:2020
Connectors	Stäubli MC4 PV-KBT4/KST4 (12 AWG) in accordance with IEC 62852:2014, IP68 only when connected
Cable	12 AWG solar cable, 66.9 in (1.70 m) + 66.9 in (1.70 m) in accordance with EN50618:2014
Dimensions	68.0 x 47.4 x 1.2 in (22.4 ft²) / 1728 x 1205 x 30 mm (2.08 m²)
Weight	50.0 lb / 22.7 kg
Origin	Made in Singapore



Specifications subject to change without notice.

ELECTRICAL DATA

	PRODUCT CODE*: REC450AA PURE-RX		
STC			
Power Output - P_{max} (Wp)	450	460	470
Watt Class Sorting - (W)	0/+10	0/+10	0/+10
Nominal Power Voltage - V_{mpp} (V)	54.3	54.9	55.4
Nominal Power Current - I_{mpp} (A)	8.29	8.38	8.49
Open Circuit Voltage - V_{oc} (V)	65.6	65.8	65.9
Short Circuit Current - I_{sc} (A)	8.81	8.88	8.95
Power Density (W/ft²)	20.1	20.5	21.0
Panel Efficiency (%)	21.6	22.1	22.6
NMOT			
Power Output - P_{mpp} (Wp)	343	350	358
Nominal Power Voltage - V_{mpp} (V)	51.2	51.7	52.2
Nominal Power Current - I_{mpp} (A)	6.70	6.77	6.86
Open Circuit Voltage - V_{oc} (V)	61.8	62.0	62.1

Values at standard test conditions (STC: airmass AM1.5, irradiance 1000 W/m², temperature 25°C), tolerances at production spread within a tolerance of P_{max}, V_{oc}, I_{sc} ±3% within one watt class. Highest module operating temperature (NMOT: air mass AM 1.5, irradiance 800 W/m², temperature 20°C, windspeed 1 m/s). *Where xxx indicates the nominal power class (P_{max}) at STC above.

CERTIFICATIONS

ISO 14001, ISO 9001, IEC 45001, IEC 62941
IEC 61215-2021, IEC 61730-2023, UL 61730

ISO 11925-2	Ignitability (EN 13501-1 Class E)
IEC 62716	Ammonia Resistance
IEC 61701	Salt Mist (SM6)
IEC 61215-2016	Hailstone (35mm)
UL 61730	Fire Type 2

MODULE RATINGS

Module Operating Temperature (T98)	158°F (70°C)
Min. Environmental Temperature	-40°F (-40°C)
System Voltage	1000 V
Maximum Test Load	+7000 Pa (0.2 lbs/in²)
Maximum Test Load	-4000 Pa (0.56 lbs/in²)
Maximum Test Load	+8000 Pa (1.16 lbs/in²)
Maximum Test Load	-6000 Pa (0.87 lbs/in²)
Max Series Fuse Rating	25 A
Max Reverse Current	25 A

Design load = Test load / 1.5 (safety factor)
@ 98th percentile operating temperature
*IEC61730, UL61730 certified. Refer to installation manual.
**Incorrect loading. Refer to installation manual.

TEMPERATURE RATINGS*

Nominal Module Operating Temperature	44 ± 2°C
Temperature coefficient of P_{max}	-0.24%/K
Temperature coefficient of V_{oc}	-0.24%/K
Temperature coefficient of I_{sc}	0.04%/K

*The temperature coefficients stated are linear values

DELIVERY INFORMATION

Panels per Pallet	33
Panels per 40 ft GP/ft high cube container	594 (18 Pallets)
Panels per 53 ft truck	792 (24 Pallets)

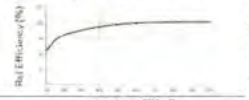
WARRANTY

	Standard	REC ProTrust	
Installed by an REC Certified Professional	No	Yes	Yes
System Size	All	<25 kW	25-500 kW
Product Warranty (yrs)	20	25	25
Power Warranty (yrs)	25	25	25
Labor Warranty (yrs)	0	25	10
Power in Year 1	98%	98%	98%
Annual Degradation	0.25%	0.25%	0.25%
Power in Year 25	92%	92%	92%

REC ProTrust Warranty applies only for 1) REC panels installed by an REC Certified Solar Professional, and 2) panels have been registered by the installer with REC. Subject to System Size and further conditions. See www.recgroup.com for details.

LOW LIGHT BEHAVIOR

Typical low irradiance performance of module at STC



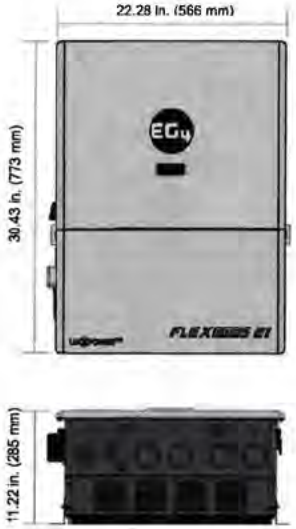
Available from:

Founded in 1996, REC Group is an international pioneering solar energy company dedicated to empowering consumers with clean, affordable solar power. As Solar's Most Trusted, REC is committed to high quality, innovation, and a low carbon footprint in the solar materials and solar panels it manufactures. Headquartered in Norway with operational headquarters in Singapore, REC also has regional hubs in North America, Europe, and Asia Pacific.

REC Solar PTE. LTD.
20 Tuas South Ave 14
Singapore 637312
post@recgroup.com
www.recgroup.com

REC

REF: PM-DS-12-06-REV-4.3@BLEN 12.2024



EG4® FLEXBOSS21 HYBRID INVERTER

The EG4 FlexBOSS21 is a versatile 48V split-phase, hybrid inverter/charger that offers the same dependable power as the 18kPV with enhanced flexibility. Powerful enough to start a 5-ton AC unit, the FlexBOSS21 supports up to 21kW of PV input. Capable of paralleling up to 16 units together, the FlexBOSS21 has an impressive total output of 256kW. Able to provide 16kW of continuous output power with PV & battery, and up to 12kW continuous output by using battery alone. Three individual MPPTs give users optimal control over their solar needs, while the updated EG4 monitoring software allows for convenient total remote management, complete with mobile notifications and remote setting. Seamless interaction with the EG4 GridBOSS gives users control over the entire Energy Storage System (ESS).

HIGH FREQUENCY SPLIT-PHASE DESIGN

*10-YEAR WARRANTY

REMOTE ADJUSTMENT VIA EG4 SOFTWARE

ALL-IN-ONE HYBRID INVERTER
Capable of running entirely off grid, using grid electricity, and selling power back to the grid.

UP TO 600VDC INPUT
The extra high voltage enables lower cable sizing for the 3 MPPTs and a maximum recommended PV input of 21kW, eliminating the need for a combiner box.

PLUG-IN WI-FI DEVICE
Enables wireless connection between our monitoring platform and the FlexBOSS21 through the EG4® app or EG4 Monitor system for remote system management.

CLOSED-LOOP COMMUNICATIONS
Able to communicate with EG4 48V batteries and other battery brands. A battery firmware update is required for closed-loop communications with LifePower4 batteries.

RAPID SHUTDOWN
The FlexBOSS21 is CSA C22.2#330:2017 and NEC 690.12 ready with its built-in RSD capabilities.

VERSION 1.2.6 | INFORMATION SUBJECT TO CHANGE WITHOUT NOTICE.
MODEL#: IV-16000-HYB-AW-FX-XX (XX is a number between 00-99)

*For information regarding warranty registration on EG4® Electronics products, please navigate to https://eg4electronics.com/warranty/ and select the corresponding product to begin the registration process.

EG4 ELECTRONICS

TECHNICAL SPECIFICATIONS

INVERTER	
MODEL	IV-16000-HYB-AW-FX-XX
CEC MODEL #	IV-16000-HYB-AW-FX-XX (240V) | IV-16000-HYB-AW-FX-XX (208V)
TYPE	Hybrid
DESIGN TOPOLOGY	High Frequency – Transformerless
AC SYSTEM	
NOMINAL VOLTAGE	120/240 or 208 VAC
FREQUENCY	50/60Hz
PHASE SUPPORT	1ø
AC OUT	
NOMINAL OUTPUT VOLTAGE	120/240 VAC; 120/208 VAC (L1/L2/N required)
MAX. CONTINUOUS OUTPUT	66.7A | 16kW
MAX. CONTINUOUS OUTPUT – BATTERY ONLY	50A | 6kW
MAX. CONTINUOUS OUTPUT – WITH PV & GRID @25C	66.7A | 16kW
PEAK POWER	24000W (5 sec) | 18000W (1 sec) | 15000W (6 min) | 13200W (12 min)
LOCKED ROTOR AMPS (LRA)	195A
MAX. CONTINUOUS OUTPUT PER-LEG	50A | 6kW
POWER FACTOR	.99 @ Full Load
MAX. PASS-THRU CURRENT FROM GRID	96A
REACTIVE POWER ADJUST RANGE	+0.8/-0.8
THD V	<5%
MAX. APPARENT POWER WITH BATTERY	12kVA
MAX. APPARENT POWER WITH PV & GRID	16kVA
AC IN	
NOMINAL GRID VOLTAGE	120/240 VAC | 120/208 VAC (L1/L2/N required)
MAX. GRID INPUT POWER TO INVERTER (W/ OUT PASS-THRU)	50A | 12kW
MAX. GRID CIRCUIT RATING (W/ PASS-THRU)	96A
MAX. INPUT SHORT CIRCUIT CURRENT RATING	10kA
BATTERY	
NOMINAL VOLTAGE	51.2 VDC
OPERATING VOLTAGE RANGE	40 – 60 VDC
MAX. CHARGE CURRENT (DC AMPS)	250 ADC
MAX. DISCHARGE CURRENT (DC AMPS)	250 ADC
BATTERY CHARGE/DISCHARGE RIPPLE CURRENT	<5%
COMPATIBLE BATTERIES	See www.eg4electronics.com
RECOMMENDED MIN. CAPACITY PER INVERTER	600Ah

EG4® WALLMOUNT INDOOR 280Ah LITHIUM BATTERY

The WallMount Indoor 280Ah batteries are ideal for low-voltage residential indoor energy storage applications. The batteries use lithium iron phosphate cells with the highest safety performance and an intelligent Battery Management System (BMS) that can monitor and record the voltage of each cell along with the current, voltage, and temperature of the module in real-time. The BMS also contains a passive balance function and an advanced battery control method, both of which improve the performance of the battery pack.

BUILT-IN 200A BMS | **INTEGRATED 600A BUSBARS** | **82.6MWh LIFETIME PRODUCTION*** | ***10 YEAR WARRANTY >8000 CYCLES @ 80% DOD**

ON-BOARD LCD TOUCH SCREEN
Easy to see BMS monitoring, and selectable closed-loop communications with EG4, Schneider, Sol-Ark, Victron, Growatt, Megarevo, Luxpower, and Deye inverters.

DUAL ON-BOARD FIRE ARRESTORS
Offer fail-safe protection against thermal runaway.

INTEGRATED SELF-HEATING FEATURE
Internal heating keeps cells operating during cold temperatures.

INTEGRATED BUSBARS
The battery design comes manufactured with 600A internal busbars with multiple terminals (4 positive & 4 negative) eliminating the need for external busbars when paralleling batteries and/or multiple inverters.

INNOVATIVE EMERGENCY STOP FUNCTION
The optional ESS disconnect can shut down all batteries and inverters (if equipped with rapid shut down capability) with the press of a button.

THE PERFECT PARTNER TO EG4 INVERTERS
The optional conduit box mates up directly to the connection ports of EG4 inverters allowing a sleek and efficient installation. For other inverters or stand-alone battery installation, the conduit box plugs should be installed.

VERSION 1.1.7 | INFORMATION SUBJECT TO CHANGE WITHOUT NOTICE.
MODEL #: WM-48|280-LL-00 / WM-48-280-1-IN-LL-00

*For information regarding warranty registration on EG4® Electronics products, please navigate to https://eg4electronics.com/eg4warranty/ and select the corresponding product to begin the registration process.

EG4 ELECTRONICS

TECHNICAL SPECIFICATIONS

MODULE OPERATING PARAMETERS			
PARAMETER	**BMS**		**RECOMMENDED SETTING**
TOTAL ENERGY CAPACITY	14.3kWh @25C, 100% SOC		-
VOLTAGE	51.2V		-
CAPACITY	280Ah		-
CHARGING VOLTAGE (BULK/ABSORB)	56.0V (+/-0.8V)		56.2V (+/-0.2V)
FLOAT	-		54V (+/-0.2V)
SOC CUTOFF	-		20%*
CHARGING CURRENT	140A (Max. continuous)		60 – 140A
DISCHARGING CURRENT	140A (Max. continuous) 200A (Max. continuous for 30 min)		60 – 140A
BMS PARAMETERS			
CHARGE	**SPEC**	**DELAY**	**RECOVERY**
CELL VOLTAGE PROTECTION	3.8V	1 sec	3.45V
MODULE VOLTAGE PROTECTION	60.0V	1 sec	55.2V
OVER CHARGING CURRENT 1	>205A	10 sec	-
OVER CHARGING CURRENT 2	>225A	3 sec	-
TEMPERATURE PROTECTION	<23°F or >158°F <-5°C or >70°C	1 sec	>32°F or <140°F >0°C or <60°C
DISCHARGE	**SPEC**	**DELAY**	**RECOVERY**
CELL VOLTAGE PROTECTION	2.3V	1 sec	3.1V
MODULE VOLTAGE PROTECTION	44.8V	1 sec	48V
OVER-CHARGING CURRENT 1	>205A	10 sec	60 sec
OVER-CHARGING CURRENT 2	>300A	3 sec	60 sec
SHORT CIRCUIT	>600A	<0.1 mS	-
TEMPERATURE PROTECTION	<-4°F or >167°F <-20°C or >75°C	1 sec	>14°F or <149°F >-10°C or <65°C
PCB TEMP PROTECTION	>230°F (>110°C)	1 sec	@ <176°F (<80°C)
GENERAL SPECIFICATIONS			
PARAMETER	**SPEC**		**CONDITION**
CELL BALANCE	120mA	Passive Balance	Cell Voltage Difference >40mV
TEMPERATURE ACCURACY	3%	Cycle Measurement	Measuring Range -40°F to +212°F (-40°C to +100°C)
VOLTAGE ACCURACY	0.5%	Cycle Measurement	For Cells & Module
CURRENT ACCURACY	3%	Cycle Measurement	Measuring Range -200A - 200A
SOC	5%	-	Integral Calculation
POWER CONSUMPTION	Sleep & Off Mode	<300uA	Storage/Transport/Standby
POWER CONSUMPTION	Operating Mode	<25mA	Charging/Discharging
COMMUNICATION PORTS	RS485/CAN		Can be customized
BATTERY HEATER SPECIFICATIONS			
PARAMETER	**SPEC**		**CONDITION**
VOLTAGE	58V		-
POWER CONSUMPTION	224W		-
INTERNAL BATTERY TEMPERATURE	≤32°F (0°C)/≥41°F (5°C)		Heat On/Heat Off

*EG4 recommends this value be set no lower than 20% to maintain the recommended 80% depth of discharge.

EG4® GRID BOSS

MICRO-GRID INTERCONNECTION DEVICE (MID)

The EG4 GridBOSS Micro-Grid Interconnection Device (MID) simplifies Energy Storage Systems (ESS) by consolidating multiple components into a single, innovative unit. It replaces traditional elements such as the point of common connection, back-fed breakers, feeder taps, tap breakers, supply-side taps, transfer switches, and dedicated combiner panels for grid-in, grid-out, and generator input. As a versatile solution, the GridBOSS serves as the service entrance equipment* when paired with the utility meter, providing a single point of connection for utilities, hybrid inverters, generators, smart loads, and AC-coupled inverters.

200A SERVICE ENTRANCE*

4 CONFIGURABLE SMART PORTS

INTEGRATED GENERATOR SUPPORT

CENTRALIZED ESS CONTROL

Provides a single point of connection for utility, hybrid inverters, generators, smart loads, and AC-coupled inverters.

REDUCED ESS COMPLEXITY

Replaces up to 10 components with one unit, including point of common connection, back-fed breakers, feeder taps, feeder tap breakers, supply side taps & breakers, transfer switches, and dedicated combiner panels for grid-in, load/EPS, and generator input.

SERVICE ENTRANCE RATED

200 Amp service entrance with a 22 kAIC main breaker, acts as service entrance equipment in conjunction with a utility meter and a 200A Eaton breaker CSR2200N (CSR25K).

REMOTE MONITORING

Enable remote monitoring, configuration, and firmware updates through the EG4 mobile app or online monitoring system.

SMART PORTS

Includes load shedding, which disconnects loads during low battery voltage and reconnects on high voltage. Power shedding connects loads when at full SOC and PV flow and disconnects on low SOC or PV loss.

*When used with an Eaton 200A main breaker (model CSR2200N), US only.

VERSION 1.1.6 | INFORMATION SUBJECT TO CHANGE WITHOUT NOTICE.
MODEL #: MI-200-2P-HYB-AW-01 / MI-200-2P-HYB-AW-02 / MI-200-2P-HYB-AW-03

EG4 ELECTRONICS

TECHNICAL SPECIFICATIONS

GRID	
NOMINAL AC VOLTAGE	120/240 VAC (L1/L2/N required)
FREQUENCY	60 Hz
MAXIMUM CURRENT	200A
SERVICE ENTRANCE RATED	22kAIC with 200A Eaton CSR2200N (CSR25K) breaker*
GENERATOR	
NOMINAL VOLTAGE	120/240 VAC (L1/L2/N required)
FREQUENCY	60 Hz
MAXIMUM CURRENT	125A
NON-BACKUP	
NOMINAL VOLTAGE	120/240 VAC (L1/L2/N required)
FREQUENCY	60 Hz
MAXIMUM CURRENT	200A
BACKUP	
NOMINAL VOLTAGE	120/240 VAC (L1/L2/N required)
FREQUENCY	60 Hz
MAXIMUM CURRENT	200A
HYBRID	
NUMBER OF PORTS	3
NOMINAL VOLTAGE	120/240 VAC (L1/L2/N required)
FREQUENCY	60 Hz
MAXIMUM CURRENT PER PORT	90A**
SUPPORTED INVERTERS	EG4® 12kPV, 18kPV, FlexBOSS18, FlexBOSS21***
SMART PORTS	
NUMBER OF PORTS	4
NOMINAL VOLTAGE	120/240 VAC (L1/L2/N required)
FREQUENCY	60 Hz
MAXIMUM CURRENT PER PORT	1: 125A | 2: 60A | 3: 60A | 4: 60A
GENERAL DATA	
COMMUNICATION INTERFACE	RS485/WI-FI/CAN
IDLE CONSUMPTION	~55W
TRANSFER TIME	~25 ms
INTERNAL BUS RATING	350A (software limited to 200A)
INTERNAL FUSE RATING	315A
OPERATING ALTITUDE	<6561 ft (<2000 m)
RELATIVE HUMIDITY	0 – 100%
OUTDOOR RATING	NEMA 3R
OPERATING AMBIENT TEMPERATURE RANGE	-40°F – 113°F (-40°C – 45°C)
PRODUCT DIMENSIONS (H×W×D)	31.5×19.7×7 in (800×500×178 mm)
UNIT WEIGHT	55 lbs. (25 kg)
STANDARD WARRANTY	10-year standard warranty****

*US only.

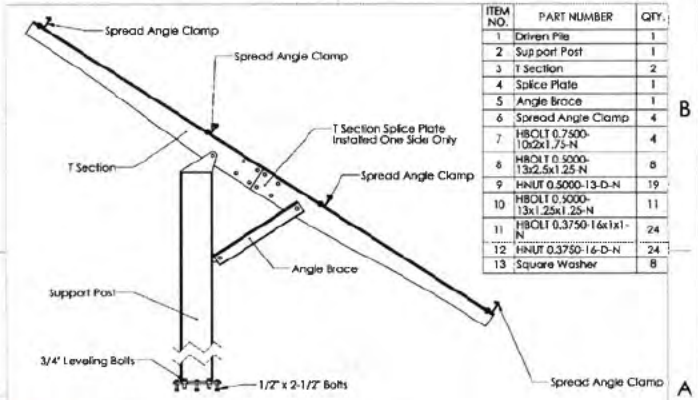
**Install a properly sized breaker for the attached inverter: 50A - 12kPV | 70A - 18kPV, FlexBOSS18 | 90A - FlexBOSS21.

***Third-party inverters are not supported and cannot be connected to the hybrid ports.

****For information regarding warranty registration on EG4® Electronics products, please navigate to https://eg4electronics.com/warranty/ and select the corresponding product to begin the registration process.

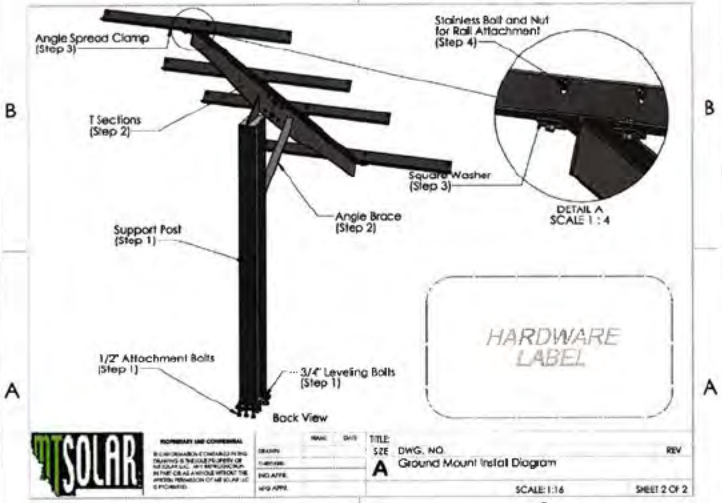
MTS GROUND MOUNT

www.mtsolar.us 844-687-6527 sales@mtsolar.us



ITEM NO.	PART NUMBER	QTY.
1	Driven Pile	1
2	Support Post	1
3	T Section	2
4	Splice Plate	1
5	Angle Brace	1
6	Spread Angle Clamp	4
7	HBOLT 0.7500-10x2x1.75-N	4
8	HBOLT 0.5000-13x2.5x1.25-N	8
9	HNUT 0.5000-13-D-N	19
10	HBOLT 0.5000-13x1.25x1.25-N	11
11	HBOLT 0.3750-16x1x1-N	24
12	HNUT 0.3750-16-D-N	24
13	Square Washer	8

TITLE: Ground Mount Install Diagram
SIZE A DWG. NO. REV
SCALE: 1:16 SHEET 1 OF 2

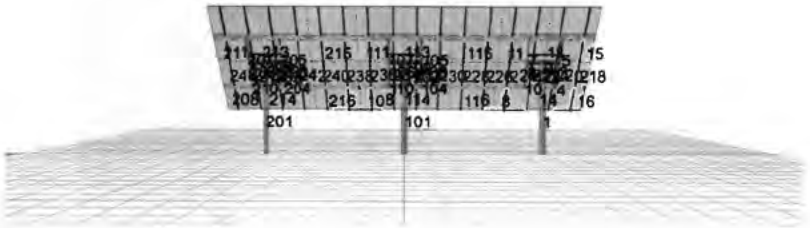


TITLE: Ground Mount Install Diagram
SIZE A DWG. NO. REV
SCALE: 1:16 SHEET 2 OF 2

Project Details

Project Name: Mclellan-Smith 4x8 - V1Jb
Location: 30 Flicker Rd, McCall, ID 83638, USA
Unique ID: 3P-17-8TOP-SD-24-L-4Hx8W-IE89
Dealer: _____

Date: Mon Jul 28 2025
Number of Modules: 32
Number of Poles: 3
Date Sold: _____



SkyCiv

Array Dimensions N/S	15.97 ft
Array Dimensions E/W	46.00 ft
Winter Tilt Angle	50
Front Edge Clearance	5 ft

MT Solar Bill of Materials (3P-17-8TOP-SD-24-L-4Hx8W-IE89)

Part	Short Description	BOM Qty
MTS-PC-8	8IN Pole Cap Assembly	3
MTS-HF-SD	H-Frame Assembly-SD	3
MTS-SD-Wing-24	24IN SD Wing	4
MTS-SD-Splice-57	57IN SD Splice	8
MTS-CLAMP-HOOK-4PK	Hook Clamp	8

Rail Bill of Materials

Part	Qty
Rails (192in)	16
Rail Attachment	32
Module Mid Clamp	48
Module End Clamp	32
Ground Lug	8

Site Details:

Site Address: 30 Flicker Rd, McCall, ID 83638, USA

Array Specification

Duty Classification:	SD
Module Width:	47.40 in
Module Length:	68.00in
Number of Rows:	4
Number of Columns:	8
Total Number of Modules:	32
Winter Tilt Angle:	50
Front Edge Clearance:	5
Total Array Height at Tilt:	17.23 ft
Total Frame Length:	45.50 ft
Module Info/Notes:	REC 420
Array Dimensions N/S:	15.97 ft
Array Dimensions E/W:	46.00 ft
Rail Length:	191.60 in
Rail Spacing:	2.88 ft

Support Specifications

Pole Size:	8in Pipe Sch 40
Pole Length above Grade:	11.12 ft
Number of Poles:	3
Pole Spacing:	17 ft

Foundation Specifications

Foundation Type:	Square
Foundation Dimensions:	48 x 48 in
Foundation Depth (below grade):	Pile 1: 5.75 ft Pile 2: 6.25 ft Pile 3: 5.75 ft
Foundation Volume:	10.519 y^3

Site Info

Risk Category:	I
Exposure:	C
Soil Classification:	sand
Site Location:	30 Flicker Rd, McCall, ID 83638, USA
Wind Speed:	97 mph
Snow Load:	99.56 psf

Design Disclaimer

This software should be used for preliminary designs and should not be used as a final design unless reviewed, verified and designed by a qualified structural engineer.

VALLEY COUNTY ASSESSOR'S OFFICE

Parcel Summary and Improvement Report

PO Box 1350 - 219 N Main St, Cascade, ID 83611 Phone (208) 382 - 7126 | assessor@co.valley.id.us

GENERAL PROPERTY SUMMARY

PARCEL ID	RP17N04E076605
OWNER(S)	MCCLELLEN BRUCE D SMITH AND KRISTEN L LIVING TRUST
SITUS ADDRESS	30 FLICKER RD
SITUS CITY, STATE, ZIP	MCCALL, ID 83638
MAILING ATTENTION	
MAILING ADDRESS	129 ALCOVE CT
MAILING CITY, STATE, ZIP	GRAND JUNCTION CO 81507
MAILING COUNTRY	

PROPERTY DESCRIPTION & LAND DATA

AREA	ACRES: 8.7279	SQUARE FEET: 380187		FRONTAGE: 0	
PRIMARY LAND USE	512 Res Rural Tract Vacant				
LEGAL DESCRIPTIONS	TAX NO. 19 IN SE4 SW4 S7 T17N R4E				
NEIGHBORHOOD	108300 Lakefork Area Subdivisions				
PLAT LINKS	17N 4E S07.pdf				
LAND USE DETAILS	USE: Rural Residential		LAND GRADE: Good (Buffer)	ACRES: 7.7279	
	Rural Residential		Good	1	

**The Land Use Details section shows all land uses associated with the property and how each type is broken down and used for assessment purposes.*

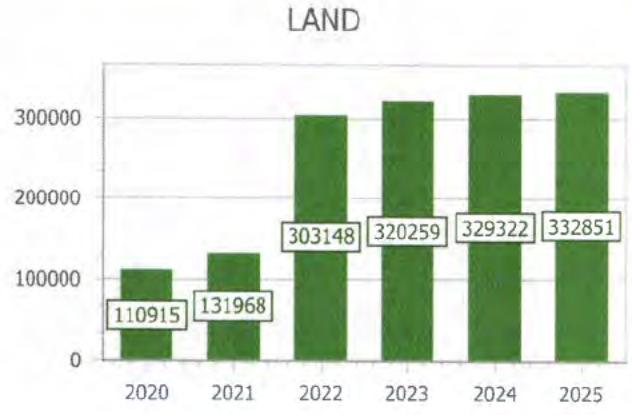
SALES HISTORY

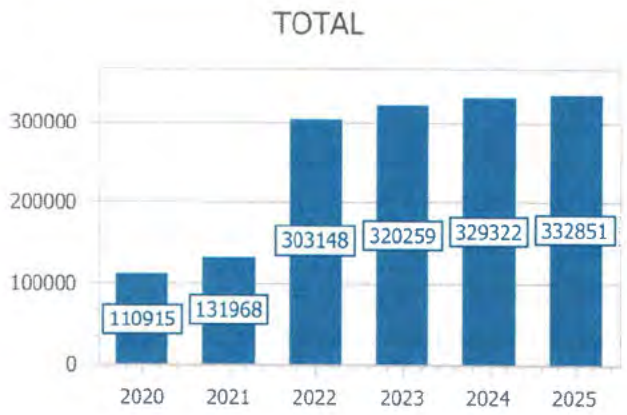
SALE DATE	GRANTOR	DEED REFERENCE
08/21/2024	SMITH BRUCE D	464726
05/19/2020	HEINEY CYNTHIA	428638
07/01/2014	COLE JAMES E II	385724

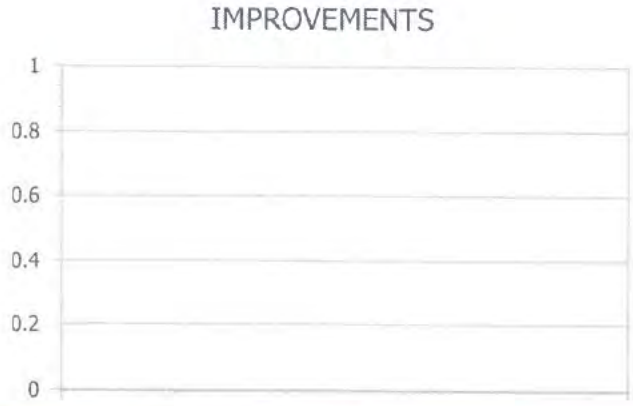
ASSESSMENT HISTORY

ASSESS DATE CHANGE REASON	01/01/2025 01- Revaluat	01/01/2024 01- Revaluat	01/01/2023 01- Revaluat	01/01/2023 01- Revaluat	1/1/2022 01- Revaluat
LAND	332851	329322	320259	320259	303148
IMPROVEMENTS	0	0	0	0	0
TOTAL	332851	329322	320259	320259	303148

ASSESSMENT TRENDS







TAX CODE AREAS & DISTRICTS

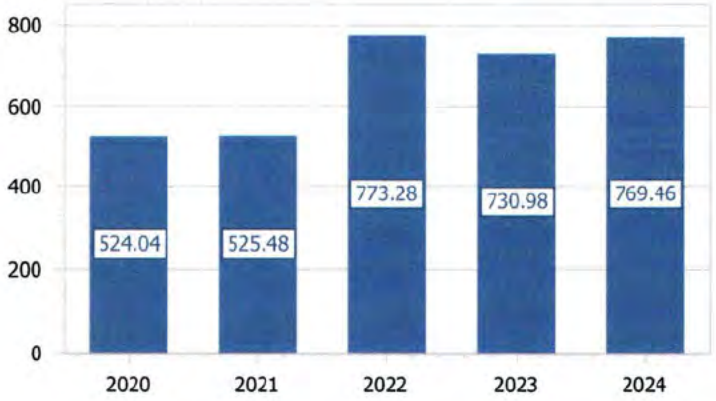
TAX CODE AREA (TAG): 068-0000

CEMETERY	VALLEY CENTER CEMETERY
FIRE	DONNELLY RURAL FIRE PROTECTION DISTRICT
HOSPITAL	MCCALL MEMORIAL HOSPITAL
SCHOOL	MCCALL-DONNELLY SCH #421

VOTER PRECINCT	006 - ROSEBERRY
COMMISSIONER DISTRICT	DONNELLY

TOTAL TAX CHARGES

YEAR	TOTAL CHARGE
2024	769.46
2023	730.98
2022	773.28
2021	525.48
2020	524.04



HOMEOWNER'S EXEMPTION?

☐ YES ☑ NO

January 23, 2026

RE: Valley County CUP 25-032 McClellen Smith Solar Application

Dear Neighbors,

Thank you for expressing your opinions and concerns regarding the ground-mount solar panels we have installed on our property at 30 Flicker Road at the Valley County Planning and Zoning meeting held on January 8th. The circumstances that resulted in the rapid installation of the panels are complicated, but we won't discuss them here.

Truthfully, from the moment we marked the pad location we said to ourselves that we would plant trees or other vegetation to help mask the view of the panels. We regret that we did not approach you prior to the installation.

Enclosed, please find a few ideas for screen options for the solar panel installation. Vegetation is preferred, but we would like to hear back from you on your opinions. We look forward to arriving at an agreeable solution. Please feel free to contact us at:

Email: [redacted]

Phone: [redacted]

We would appreciate you willing to share an email address, as this would greatly facilitate communication.

Sincerely,

Kristen and Bruce

Kristen McClellen and Bruce Smith

cc: Valley County Planning and Zoning Commission

enclosure

Hello All,

I'm throwing out some ideas on how to create a screen to mitigate the views that you have from the end of the cul-de-sac. My thoughts are that during the late spring and summer the panels will be at very low angle so that the structure will look more like a roof of a post shed. During the winter, the back side of the panels will be more visible, but they will not be vertical as they were during construction. Because of the slope of the land to the south southwest, the panels would be approximately 12 above ground surface at the cul-de-sac. Here are some ideas I have for elements that could be combined to create a multi-layered screen.

- Plant a row of trees and or shrubs – conifers, cypress, Syringa (thanks Ferne!)

- Build an arbor or trellis and plant with climbing plants such as Blue Moon Kentucky Wisteria, ivy, grapes, honeysuckle, clematis

7

- Construct a berm to increase the height of vegetation

- Construct planters of Corten steel

- Build short runs of fence or slatted panels

- Outdoor curtains or "fence" of shade cloth

These are just some initial ideas. Please feel free to comment and suggest alternatives.

Thanks,

Kristen McClellen and Bruce Smith

[redacted]

[redacted]ail.[redacted]

4301

4302

EXHIBIT 6
CUP 25-032
PZ 1.8.2026

4304

4305

4289

4293

4281

4284

4299

4300

4306

4277

4290

From: Bruce Smith [redacted]
Sent: Friday, February 13, 2026 3:38 PM
To: Clay Wright[redacted]
Cc: [redacted]; Todd Silverman <[redacted]>;
Cynda Herrick <cherrick@valleycountyid.gov>
Subject: Re: Solar Array

Hi Clay,

Me again. I accidentally hit send.

Anyway, I'm trying to get to McCall within the next two weeks and meet with as many neighbors as will talk to me. Do you and Maggie have any plans to be in McCall? If not, I drive through Boise on my way up from Grand Junction so perhaps we could meet for coffee.

Bruce and I fully want to work with you to alleviate and mitigate any problems you have with the panels.

Kristen McClellen

On Fri, Feb 13, 2026 at 3:30 PM Bruce Smith <[redacted]> wrote:
Hi Clay,

You are absolutely correct and I was wrong. I went back to the picture which I took from the southwest corner of ur property. I did not try to capture views you have from different parts of your house and property. If it would be okay with you I'd like to meet you on your property to discuss what views you want blocked,

The panels are fixed in their N-S and E-W direction. We can not orient them so they would be more directed toward your house than they are now. What I didn't **do a good job** explaining when I said they "can be rotated on a horizontal axis to change its tilt with the seasons" is that they can only be tilted more or less due south. In the summer they will be at an angle of about 25 to 30 degrees. When I was in town in January we adjusted (manually cranked) their tilt to their winter angle shown in your picture. Are you having trouble with reflection as they currently are?

As you can see in my picture below, there is a mound of material we saved from digging the foundation of our house. We plan on using this material to create a natural looking berm between your home and ours and then planting on that berm. I spoke with David Kennedy today to discuss a time to come to McC

On Fri, Feb 13, 2026 at 1:48 PM Clay Wright <[redacted]> wrote:

Attached is a view of your solar panels from my house. It would be incorrect to say that your solar panels would be mostly behind your garage from the perspective of my house. Your statement that the panels can rotate both vertically and horizontally add credence to my argument of glare and reflection towards my property, particularly in the winter months.

Clay Wright
260 Finn Church Lane

On Fri, Jan 30, 2026 at 8:30 PM Bruce Smith <[redacted]> wrote:

Hi Clay and Maggie,

Thank you very much for getting in touch with us and reiterating your concern about potential glare and solar reflection. Joey Richardson, the project manager for Magic Solar, tried to address these issues with the zoning board. Our solar array's orientation is fixed due south and cannot be changed. However, the array can be rotated on a horizontal axis to change its tilt with the seasons. We anticipate an angle of about 25 to 30 degrees in the summer and about 55 to 60 degrees in the winter. The figure attached to the notice showing the placement of the panels on the lot was incorrect in that the panels are due north of the garage and do not extend further west than the western garage roofline, so your view of the panels will be less than shown.

We selected REC 460W Apha Pure solar panels. These panels are full black (cells and frames) which are designed to reduce reflection compared to older panels. They have low specular reflectance so they should produce less glare than a standard window and they are treated with an anti-reflective material per IEC regulations.

We don't anticipate there to be any significant reflection towards your home, but if there is, I'm sure we can come up with a way to mitigate it. Bruce and I are also environmentally minded - he is a hydrogeologist and I am a retired chemistry and environmental science teacher. We also look forward to meeting you. Next time we are in McCall we will stop by to see if you are home.

Regards,

Kristen

On Fri, Jan 30, 2026 at 1:44 PM Clay Wright <[redacted]> wrote:

Kristen and Bruce

This is Clay Wright, your neighbor on the 26.5 acres to the Southwest of your property.

We received your letter concerning the 45x10 foot solar array erected on your property. As the back of our house faces your property we were not so much concerned with the view of the array, and your possible screening ideas, but more concerned with the possible solar reflection (as stated in our letter to the zoning board). If the array is able to orient to the position of the sun in the sky, then a Southwest alignment (particularly during the winter months when the sun is low in the southern sky) would likely result in an intense reflection towards our property. We are both environmentalists and support the installation and use of both solar and wind electric generation.

If the array is fixed and not automatically oriented towards the sun then there is probably not a problem

We look forward to meeting you folks when your house is completed.

Clay and Maggie Wright

Re: C.U.P. 25-032 McClellen/Smith Solar Panels

The attached letter has been sent to

Ferne Krumm

Kristi and Eric Pedersen

Michael Jauregui

Todd Silverman and Kathryn Lomeli

Tom and Lori Ronay

Clay and Margaret Wright

Robert and Kitty Looper

Amy Sue Biondich

Thomas and Carol Moore

David and Mary Heflin

Stella Rae Stahl

David Kennedy

Hello Ferne Krumm, Tom and Lori Ronay, Clay and Maggie Wright, Robert and Kitty Looper, Kristi and Eric Pederson, Todd, Kathryn Lomeli, and David Kennedy

I'd like to update you on the progress we've made on mitigating the impact of views of the solar panels, but first I feel that I need to introduce who we are and apologize for the actions we didn't take prior to the solar panel installation.

Bruce and I met in Tucson at graduate school getting our master's degrees in hydrology in 1986. We were married in 1989 and moved to Grand Junction in 1990 to work for the Department of Energy's contractor. Bruce and a partner started their own hydrogeology firm in 2001. I went on to get a teaching credential and taught science at a public high school until I retired in 2022. I now work part time for his company.

We moved to Grand Junction for several reasons. The area offers different types of recreation, is located between where our families lived to facilitate visiting them, and when we moved here, Grand Junction had a small town feel where we felt comfortable raising a family. We have two boys who are soon to be 32 and 34. The younger one is a welder and black iron worker and the older one got his master's from University of Idaho and is a wildlife biologist. He was fortunate to experience McCall while working for Idaho Fish and Game on a wolverine project.

We are looking forward to being able to retire in a year or so as Bruce is currently 68 and I am 66. As we started looking towards retirement we thought hard about where we might want to live. Idaho was a natural draw because of its climate, abundant recreation in mountains, valleys, and rivers, and stunning night skies. McCall was an obvious choice for us. Family is important to us, and I have a brother and sister-in-law who have live there. McCall also has a good hospital and Boise is not that far away so as we age, and inevitably develop health problems, we can get good medical care.

As we both still work, it has been difficult to get time off to visit McCall. From Grand Junction it takes about 12 hours to drive there. This has contributed to us being horrible communicators. Since this still makes communication difficult, **we wanted to send you this letter to formally apologize for not being proactive about informing you of our plans to build the solar array. We deeply regret not doing so. We know that by not doing so we have caused a great deal of heartache, frustration, anger, and other emotions on your part. We are very sorry**!

We did carefully read the CC&Rs attached to the 4 properties prior to purchasing the land to see if there was any verbiage about solar. There was/is not. We bought the land because it had good solar potential. Had there been restrictions against solar we would not have chosen to build here. When we started to build, we thought that we would install the panels in a couple of years to avoid that expenditure during the costly build. But when the federal government passed the One Big Beautiful Bill which ended tax credits on December 31, 2025, we hadt toon fast track to get them installed.

We had always planned on putting the panels on the roof, but later realized that the angle of our roof was not optimum, snowpack would be an issue, and keeping the panels snow free on the roof would be difficult for people in their 70s.

Bruce and I walked the property and discussed other locations for the panels. We considered the east side of the house. The property on that side of the house slopes east until, after crossing a boggy area, it begins to rise steeply. In this area, because of mountains to the east, there is less morning sun and because the house is two story on the east side, there will be shade and less sun in the afternoon. East of the house is also furthest from the meter so that location will have the most inefficiency in energy transmission.

Moving clockwise there is southeast of the house. This is where our septic system is so that wouldn't work.

South and west of the house. These areas would be in full view of the other three property owners in our CC&R. In addition, because we do care about the beautiful vistas in the area, solar panels out in the fields would interrupt that view and we couldn't imagine that anyone would prefer those locations.

North of the garage. This location is closest to the property boundary to the north (approximately 128 ft from the property boundary) but well within the setback and building envelope. Our reasoning behind selecting this site was that being directly north of the garage, the panels are not blocking anyone's view of the valley from the cul-de-sac because the garage is already there. Also, because the ground slopes up from the house towards the cul-de-sac, some portions of the structure are blocked by ground. Views from the west would be of the side profile of the panels so would have less visual impact. We decided on this location knowing that we would provide screening on the north and west sides of the array.

By this time, it was fall and the December 31st deadline was approaching. Our contractor did not know about the C.U.P requirement until after he applied for the building permit. Since solar panels are not prohibited in the CC&R, and since we did and do not believe that we are in violation, we went ahead with the installation. Having not proceeded we would have missed a valuable tax credit. We realize and have always fully intended to create scenery so that this part of our yard is aesthetically pleasing.

Since this note has gotten longer than I anticipated, we will write a separate letter to go into detail about some potential plans. Being a master gardener for over 30 years, I feel confident analyzing soil nutrient levels and soil structure and working with local experts to select appropriate vegetation. I've been in contact with Kirstin at Franz Witte and Melissa Hamilton with University of Idaho Extension service in Cascade and they have both started providing me with information. We have also engaged a landscape architect to help come up with harmonious landscaping plan. We want to work with you all to move past this very rocky start to our relationship with you in the neighborhood. Our hope is that someday you consider us friends.

With respect, Kristen and Bruce

Distributed to P&Z Commissioners

RECEIVED
MAR 09 2026
BY:

Flicker Rd. Neighborhood Response to P&Z's request to "work out" a solution to C.U.P. 25-032 objection

To: Kristen McClellen & Bruce Smith
Cc: Katrina Spencer, P&Z Valley County Commissioners and Director Cynda Herrick

Summarization of Public Hearing January 8, 2026:

Chairman Roberts, with P&Z Board's approval, tabled the conditional use permit for C.U.P. 25-032 Solar Panels until April 9, 2026 to allow the parties, concurred and opposed, to work out an amenable solution regarding appearance and location.

Chairman Roberts did take note that Magic Valley's lack of following permitting procedures would not be tolerated and that message was to be given to ownership.

Application Review Notables:

Submission Date – November 17, 2025

Construction start date was designated to be in 2026 & will take about 2-3 weeks

Solar Array will only supplement power to the residence and will not be the primary source of power

Impact Report (needed for conditional uses)

Impact Report Item # 12 Visibility from public roads, adjoining properties & buildings

Response: The ground mount will be minimally visible to not visible from all public highways. The ground mount will be visible to the neighbors in the North, which are at a higher elevation than the proposed location which will decrease visibility to that neighbor.

Impact Report Item # 13 Reasons for selecting the particular location in order to illustrate compatibility with and opportunities presented by existing land uses or character.

Response: The area was selected due to the proximity to the home as well minimal excavation/trenching that would be required by selecting this location.

Hello All,

Here is a quick rundown of what happened while I was in McCall March 3 through March 5.

March 3 – Dave Kennedy met with me in the afternoon to walk the property. As we were close to finishing ~~Ferne Krumm~~ came over and we rewalked the property. If he chooses, I'll let Dave fill you in on his observations.

March 3 and 4 - I installed camo netting on the underside of most of the solar arrary. This netting is not meant to be a permanent solution. It was put up to decrease the contrast between the undersides of the panels with the surrounding environment. The first photo was taken from about halfway from the array to the cul-de-sac. The second photo was taken from our driveway at the cul-de-sac. In the second photo there are two fake Christmas trees. The one on the left is a 9 foot tree. The one on the right is 7 ft. These were put there temporarily so that I could get a good feeling as to what size trees will provide screen. They will not be part of our landscaping. There are also two panels of "fencing" made of rusted corten steel. These were temporarily put in the field to get a feeling of how panels or raised beds might block the structure.

March 5 – I met with Kirstin Muench to talk about trees that would be available this spring from their nursery. Her input in summarized below. I also met with Ferne again to better understand her desires for screening. Ferne, please correct me if I'm not accurate, but I believe there are basically 3 ideas that we are proposing.

1. Creating natural looking, low angle berms to increase the height of initial plantings. Plant the north, northwest, and west areas of the panels in a somewhat random fashion. The idea is not to create a constructed landscape.
2. Same as number 1, but also incorporate some slatted fence panels to create more initial converage. These panels would be at angles to each other so the don't appear to be a fence.

Below are some suggested plants the would be incorpated into ideas 1 and 2. Input was provided by Kirstin Muench at Franz Witte (highlighted in yellow), Ferne Krumm (highlighted blue) and some additional ideas of mine (no highlight).

Ginnala Maple height 20 ft; spread 20 ft moderate growth rate	
Colorado Blue Spruce Height 50 ft; spread 20 ft. Slow to medium	

Fat Albert Spruce Height 40 ft Spread 20 ft Typically reaches 10-15 ft tall and 10 ft wide within 10 years	
Vanderwolf Pyramid Pine Height 50 ft; spread 20 ft Moderate to fast growing	

Silver Splendor pine

Height 30-50 ft
Spread 20 - 40 ft

Fast growing
Disease resistent

Ponderosa Pine

Height 60-130 ft
Spread 25 to 40 ft

Moderate to fast growth rate

Spartan Juniper

Height 15-20 ft
Spread 4 to 6 ft

Fast growing

Wichita blue juniper
Height 10 -18 ft
Spread 4 - 6 ft

Moderate growing

Syringa (lilac)
Height 8-15 ft
Spread 6 to 12 ft

Moderate growth rate (1-2 ft per year)

Hollyhock
Height to 8 ft

Burning Bush

Height to 15 ft
Spread 8-12 ft

Purple Smoke Bush Height 10-15 ft Spread 10-12 ft	
Trumpet vine	
Western Larch Height to 90 ft	
Red twig dogwood Height to 10 ft	

Western Sand Cherry Height 6 ft	
Smooth sumac	
White Fir Height 50 ft Spread 15-30 ft	

3. Enclose the north and west sides of the array. Ferne suggested that if this ends up being the selected choice she would prefer that the siding does not have a finished look. Perhaps the walls of the structure would have wood similar to that shown in the second picture below. Both walls, or at least the west wall could also be made of corten steel to blend with the wainscoting of the house. If this were the case, the array would give the appearance of being in an enclosed structure.

I should be receiving an initial drawing from the landscape architect we hired by mid-month.

Best to all,

Kristen and Bruce

From: Bruce Smith <[redacted]
Sent: Sunday, March 22, 2026 6:54 PM
[redacted]; Todd Silverman <[redacted]; Clay Wright <[redacted]; David Kennedy [redacted]; David Heflin <[redacted]; Cynda Herrick <cherrick@valleycountyid.gov>
Subject: C.U.P. 25-032 Vegetation Plan

Hello All,

Attached are two files. The first (McClellen-Smith Residence) shows the site plan for our property overlaid with the site topography per Valley County GIS. The second file is my cartoon drawing of a vegetation plan. I am still waiting on the landscape planner I hired to get me a formal drawing.

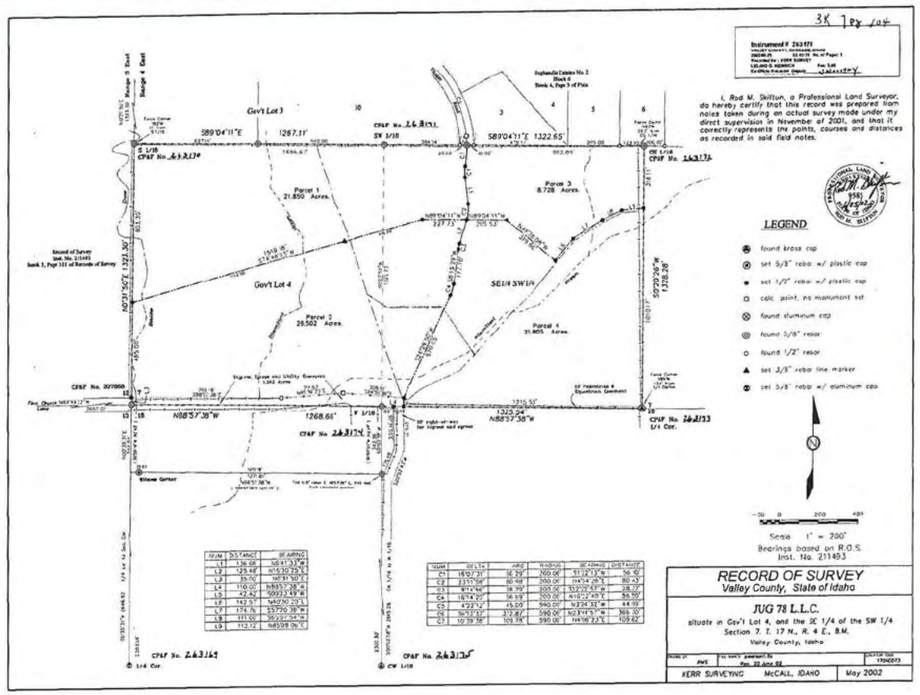
If you compare the topography on the two files you will notice that I have recontoured the ground northwest of the garage. The purpose of this was to create a gradual slope rising as you approach the solar panels. This gradual slope ends near the panels at a wall approximately 3 ft. tall.

For those who I do not have an email (Warren Drake, Amy Sue Biondich, Michael Jauregui, Thomas Moore, Robert Looper, and Stella Rae Stahl), I am mailing these files.

Please email me comments.

Best regards,

Kristen McClellen



SITE PLAN

SITE PLAN- PARTIAL

0 25' 50' 100' 1"=50.0'

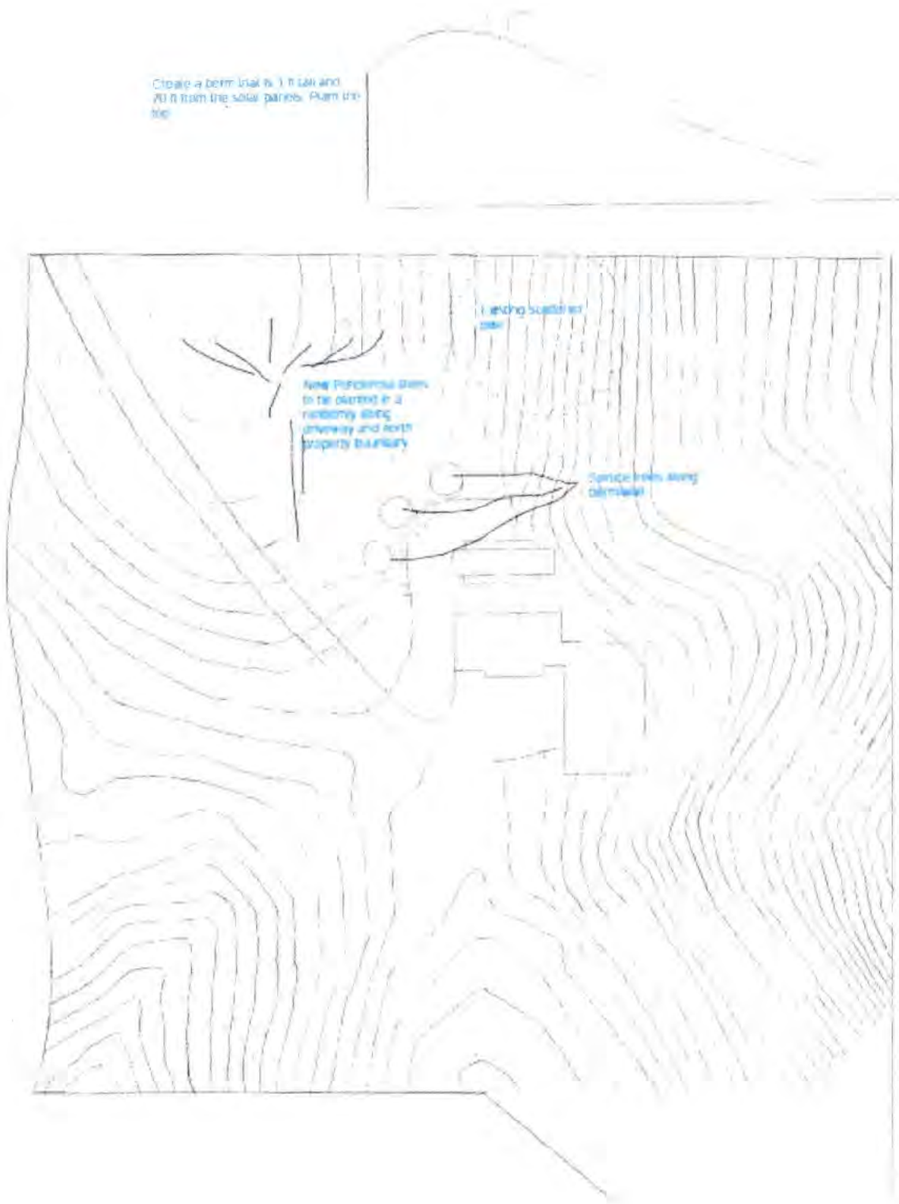
1"=30.0'

BENNETT ARCHITECT INC.
LeGrand Bennett
P.O. Box 1777 McCall, ID 83638 (208) 315-3913
bennettarchitect.com

DATE: 3-21-2026

KRISTEN McCLELLEN and BRUCE SMITH
RESIDENCE w/ ATTACHED GARAGE
30 FLICKER ROAD
VALLEY COUNTY, IDAHO

SP2
SITE PLAN- ARCHITECTURAL
ORIGINAL SHEET SIZE: 42"w X 30"t



Vegetation Plan

Goal:

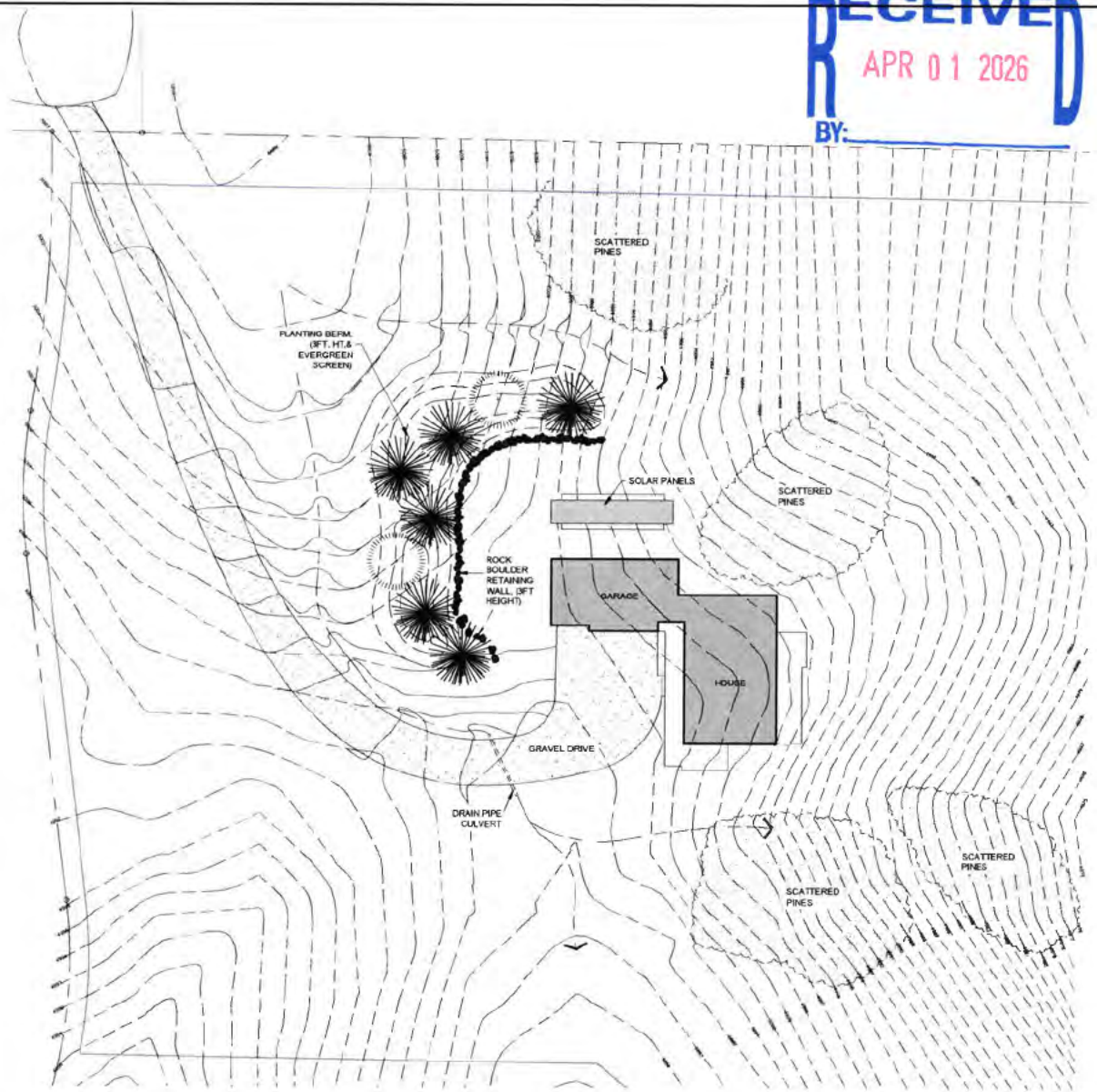
- Screen view of the panels from the driveway to the north, the cul-de-sac, and from the west
- Create a pleasing natural looking vegetative diversion so that a person's eye is not drawn to the panels.

Create a berm that is framed on the east side by a 3 ft wall that is 20 feet from the panels

- Placing the berm near the panels will allow fewer larger trees to be planted to achieve more scrren
- The berm will provide initial extra height to the trees on it
- This provides enough room around the panels if they ever need to be worked on

Plant three 6 ft Blue Spruce trees along the berm

Plant a dozen Ponderosa saplings (or other native evergreen) near the north property boundary and along the east side of the driveway



Before

After

LEGEND:

PROPOSED ASSORTED EVERGREEN TREE
1. PONDEROSA PINE
2. WESTERN WHITE PINE
3. LODGE POLE PINE
4. SPRUCE

Scale: 1"=20'-0"

NORTH

PRELIMINARY-NOT FOR CONSTRUCTION

DRAWN BY: MG
CHECKED BY: MG
DATE: 03/2026
SCALE: —
JOB# 2026-03
ACAD FILE# 2026-03.dwg

REVISIONS:
DATE: BY:

MCCLELLEN & SMITH RESIDENCE

30 FLICKER ROAD
MCCALL, IDAHO

MG Designs, LLC
MARK GIBBONS, PLA
2049 Barberry Avenue
Grand Junction, CO 81506
c.970.260.7386
gibbgraves@gmail.com

Screening & Buffering Plan-Solar Panels

SHEET
L1

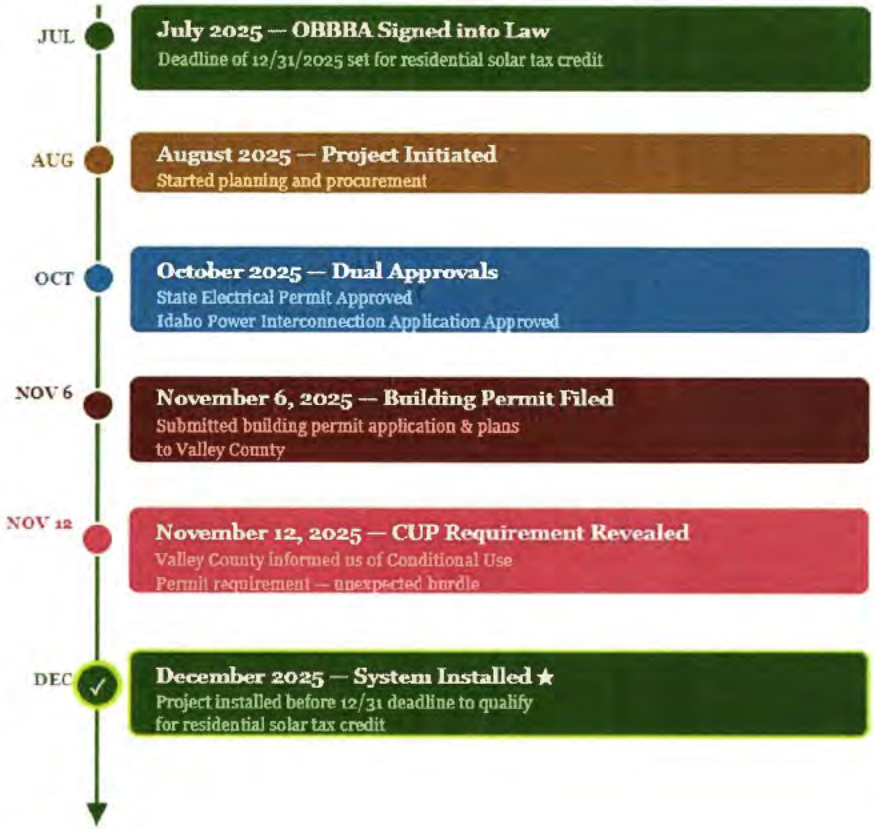
CUP – 25-032 – McClellen Smith Solar

- Agenda
  - Overview & Project Timeline
  - Jug Handle HOA & Property CC&R Review
  - Communication Efforts with Neighbors
  - Proposal for Vegetation Plan

- Why we are Here:
  - Title 9: 9-5G1 Alternative Energy Standards
    - Must be minimum of fifteen feet (15') from property lines
    - Glare shall not create a hazard to vehicular traffic.
    - Cannoy be over thirty feet (30') in height
    - Impact to neighbors will be a determining factor
      - We have an aesthetic dispute with neighbors

- Direction from Commission
  - Meeting Minutes from January 8th 2026:
    - "There was discussion on tabling the matter to allow the property owner to work with neighbors and to submit a landscaping plan or revised site plan showing new location for the solar panel array"

CUP – 25-032 – McClellen Smith Solar – Overview & Project Timeline



- State Electrical Permit #: 1915218
  - Final Inspection Completed December 2026
- Idaho Power Application: 22897
  - Final Inspection Completed January 2026

CUP – 25-032 – McClellen Smith Solar – Jug Handle HOA

Jug Handle Estates

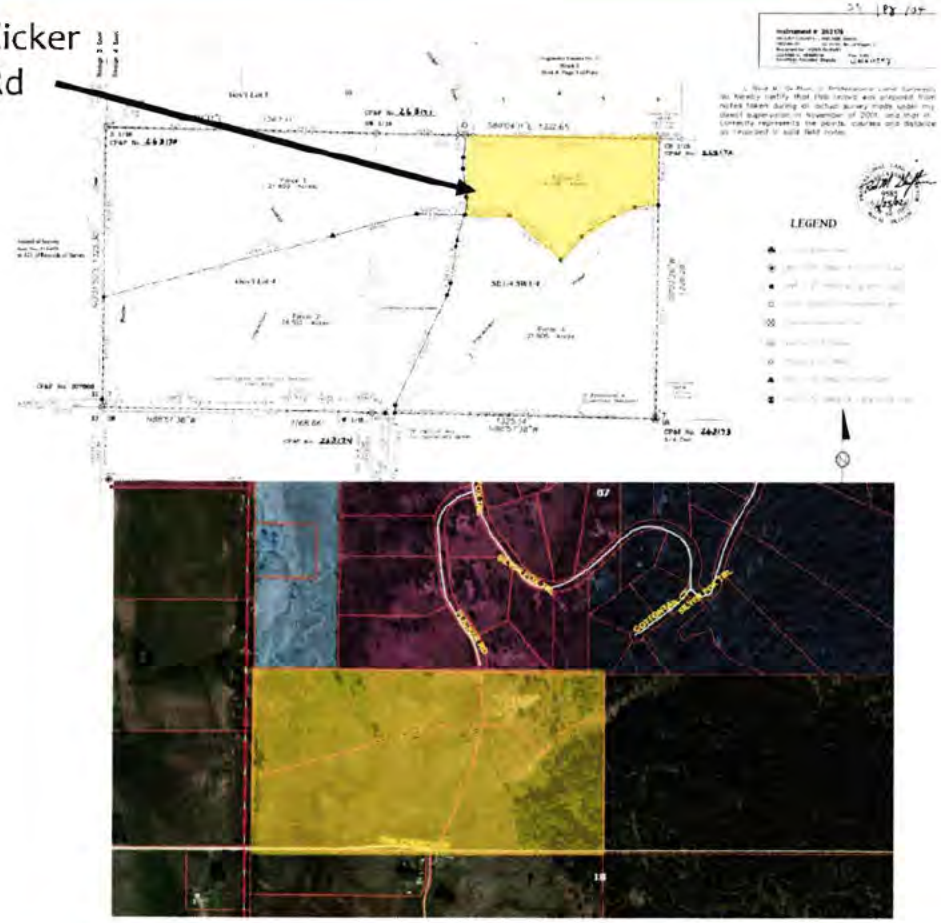
Jug Handle Highlands

30 Flicker Rd

- Property sits outside of any Jug Handle HOA
- Nevertheless, communicated with HOA president and other members of the neighborhood
- Received both negative and positive feedback

CUP – 25-032 – McClellen Smith Solar – Jug-78 LLC CC&R

30 Flicker Rd



- Jug-78, LLC established the CC&Rs recorded in October 2002 for the four parcels established in instrument 236176
- Not an official subdivision within Valley County
- Jug-78, LLC is now dissolved, disputes can only be brought by one of the property owners
- CC&Rs do not explicitly prohibit a solar installation system, especially one that provides backup emergency power
- CC&Rs discussion of unsightliness refers to vehicles, ag equipment, campers, utility/offroad vehicles, misc. construction debris, etc.
- 1 property owner strongly opposed, other two neighbors are neutral or no comment

CUP – 25-032 – McClellen Smith Solar – Communication Efforts with Neighbors

January

- •Met in person with key neighbors Krumm, Pedersen, and Silverman to discuss screening ideas and exchange contact information
- •Reached out to Franz Witte and University of Idaho Extension for expert guidance on shrub and tree selection, beginning ongoing correspondence with Kirstin Muench and Melissa Hamilton respectively
- •Mailed initial screening ideas to six neighbors: Krumm, Ronay, Wright, Pedersen, Silverman, and Kennedy
- •Began receiving responses from Wright and Kennedy by month's end

February

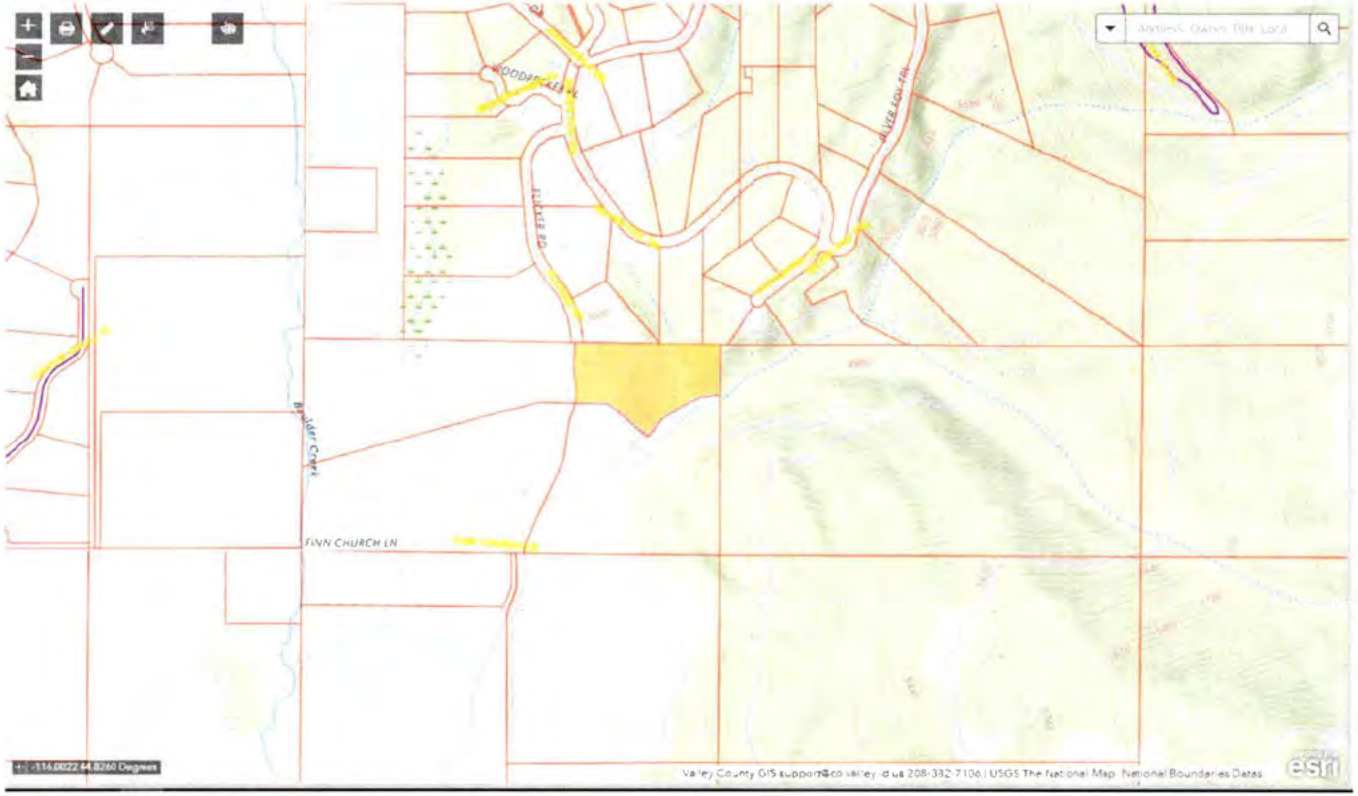
- •Received remaining neighbor responses to the screening letter, including a formal letter from Ferne Krumm designating herself as neighborhood spokesperson regarding CUP 25-032
- •Contacted three landscape professionals — NS Consulting, Plantscape Inc., and MG Designs — ultimately beginning active work with MG Designs on a landscape plan
- •Communicated with the full neighbor group about other on-property locations being considered for solar

March

- •Coordinated a site visit (March 3–6), meeting with Kennedy and Krumm onsite and separately with Ferne Krumm to discuss screening in more detail
- •Visited Franz Witte to review available and incoming tree inventory for the season
- •Sent a formal proposal outlining three screening ideas to the full neighbor group via email and mail
- •Followed up with Melissa Hamilton at UI Extension regarding sources for purchasing bulk native plants
- •Sent final plan to neighbors via email after landscaping plan established

CUP – 25-032 – McClellen Smith Solar – Vegetation Plan

Valley County Assessor's Map with USGS National Map Basemap – 20 ft contour interval



- As you head south on Flicker Rd, the road slopes downward until rising again as you enter the cul-de-sac.

CUP – 25-032 – McClellen Smith Solar – Vegetation Plan

CUP – 25-032 – McClellen Smith Solar – Vegetation Plan

- Solar panels are positioned in this photo at their summer solstice angle.
- Camouflage netting is being installed to shield the "industrial" "erector set" look of the undersides of the panels.
- Two artificial trees have been placed in the foreground to provide an idea of how vegetation might screen the panels.
- The one on the left is 9 ft. The one on the right is 6 and1/2 ft.
- Two temporarily placed, 48 inch tall temporary fence panels are also shown.

CUP – 25-032 – McClellen Smith Solar – Vegetation Plan

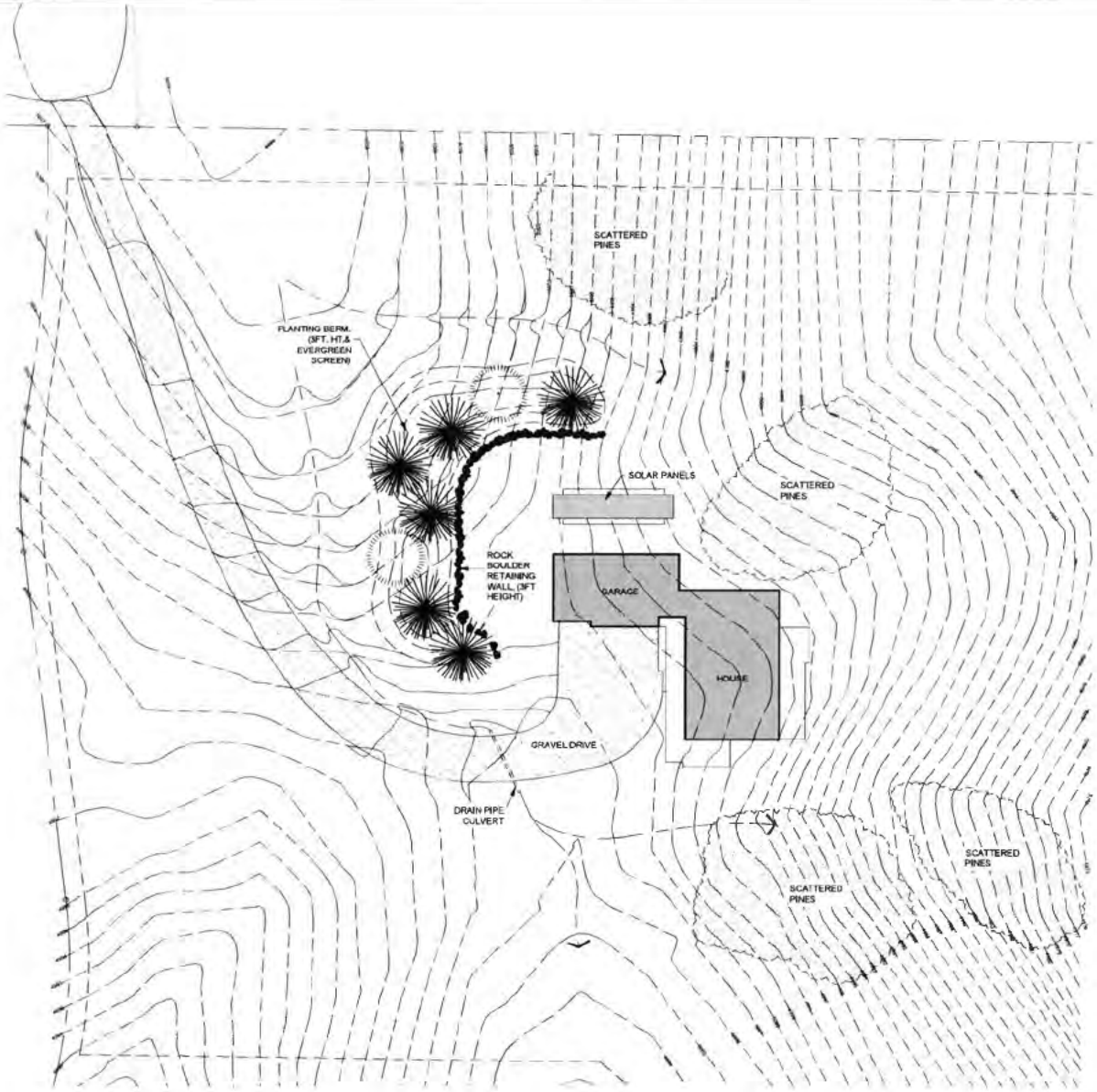
CUP – 25-032 – McClellen Smith Solar – Vegetation Plan

- Goal: Screen views of the panels from our four vantage points:
  - The South end of the cul-de-sac
  - From the driveway of the property located directly North of 30 Flicker Rd
  - From the roughed in driveway of the property to the West of 30 Flicker Rd
  - From the back of the house that is located Southwest of 30 Flicker Rd
- Create a berm that is framed on the east side by a 3 ft wall that is 20 feet from the panels
  - Placing the berm near the panels will allow fewer larger trees to be planted to achieve more screen
  - The berm will provide initial extra height to the trees on it
  - 20 feet of space between the berm and the wall provides enough room around the panels if they ever need to be worked on
- Create a pleasing vegetative diversion so that a person's eye is not drawn to the panels
  - Plant the berm with native evergreens. Proposed tree types are Ponderosa Pine, Western White Pine and Spruce
  - Plant several Ponderosa saplings near the North property boundary and along the east side of the driveway
  - Broadcast native wildflower seed in these same areas.

CUP – 25-032 – McClellen Smith Solar – Vegetation Plan

Before

After – 3D Render



LEGEND:

PROPOSED ASSORTED EVERGREEN TREE
1. PONDEROSA PINE
2. WESTERN WHITE PINE
3. LODGE POLE PINE
4. SPRUCE

Scale: 1"=20'-0"

NORTH

DRAWN BY: MJG
CHECKED BY: MJG
DATE: 05/2016
SCALE: ---
JOB# 282403
ACAD FILE# 282403.dwg

REVISIONS
DATE BY

MCCLELLEN & SMITH RESIDENCE

30 FLICKER ROAD
MCCALL, IDAHO

MG Designs, LLC
MARK GIBBONS, PLA
2949 Battenty Avenue
Grand Junction, CO 81504
c.970.260.7366
jbbgreen@hotmail.com

Screening & Buffering Plan-Solar Panels

SHEET
L1

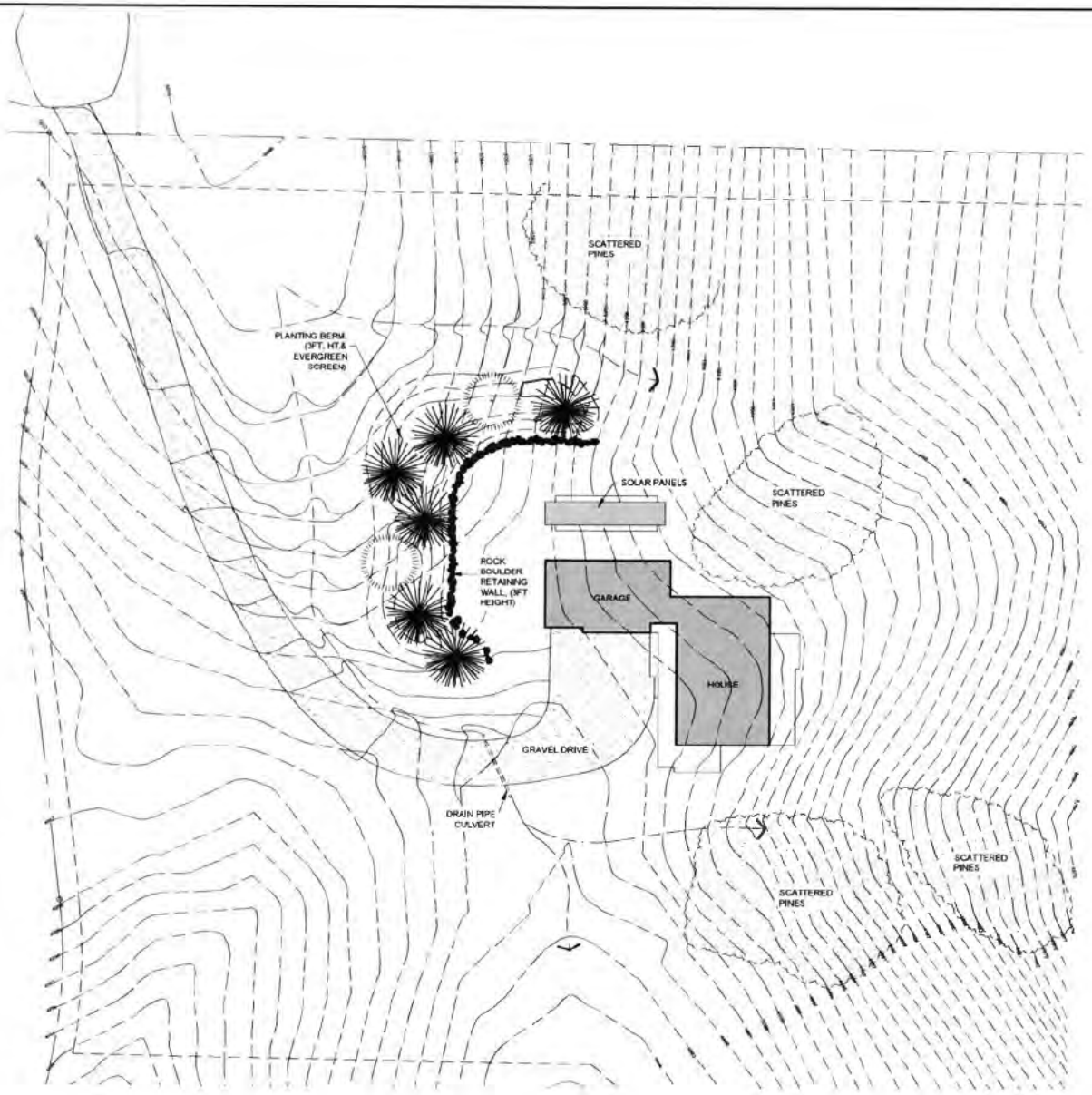
From: Bruce Smith <[redacted]>
Sent: Wednesday, April 1, 2026 8:37 PM
To: [redacted]; Clay Wright [redacted]; Todd Silverman <[redacted]>; David Kennedy [redacted]
Cc: Cynda Herrick <cherrick@valleycountyid.gov>
Subject: CUP 25-032 vegetation plan

Hello All,

Attached are two files. The first is the site plan I received from the landscape planner. The second is a shot of the panels as they are now (Before) and a 3-D rendering (After) of what that area will look like after the berm is constructed and planting completed.

I welcome your comments,

Kristen



LEGEND:

PROPOSED ASSORTED EVERGREEN TREE
1. PONDEROSA PINE
2. WESTERN WHITE PINE
3. LODGE POLE PINE
4. SPRUCE

DRAWN BY: MJG
CHECKED BY: MJG
DATE: 03/2026
SCALE: —
JOB# 25243
ACAD FILE# 25243.dwg

REVISIONS
DATE BY

MCCLELLEN & SMITH RESIDENCE

30 FLICKER ROAD
MCCALL, IDAHO

MG Designs, LLC
MARK GIBBONS, PLA
2049 Bethany Avenue
Grand Junction, CO 81506
c 970.260.7384
gibsgreen2@gmail.com

Screening & Buffering Plan-Solar Panels

SHEET
L1

Before

After

From: Bruce Smith <[redacted]
Sent: Thursday, April 2, 2026 9:35 AM
To: [redacted]; Clay Wright <[redacted]; Todd Silverman <[redacted]; David Kennedy <[redacted]
Cc: Cynda Herrick <cherrick@valleycountyid.gov>
Subject: CUP 25-032 Verbiage to vegetation pictures from yesterday

To all,

Goal: Screen views of the panels from four vantage points:

- The South end of the cul-de-sac
- From the driveway of the property located directly North of 30 Flicker Rd
- From the roughed in driveway of the property to the West of 30 Flicker Rd
- From the back of the house that is located Southwest of 30 Flicker Rd

Create a berm that is framed on the east side by a 3 ft wall that is 20 feet from the panels

- Placing the berm near the panels will allow fewer larger trees to be planted to achieve more screen
- The berm will provide initial extra height to the trees on it
- 20 feet of space between the berm and the wall provides enough room around the panels if they ever need to be worked on
- Create a pleasing vegetative diversion so that a person's eye is not drawn to the panels
- Plant the berm with native evergreens. Proposed tree types are Ponderosa Pine, Western White Pine and Spruce
- Plant several Ponderosa saplings near the North property boundary and along the east side of the driveway
- Broadcast native wildflower seed in these same areas.

Kristen

EXHIBIT 1
CUP 25-032
PZ 4.9.2026

Re: CUP 25-032 – McClellen/Smith Solar Panels
Response to Appeal
May 26, 2026

Chairman Maupin and Commissioners:

This memorandum responds to the appeal submitted by neighboring property owners regarding the Planning and Zoning Commission's approval of Conditional Use Permit 25-032. The Commission's decision reflects a reasoned application of the Code to the facts developed in the record.

The appeal asserts that the Commission's decision was unsupported by substantial evidence and failed to comply with Valley County Code. The record demonstrates otherwise. The Commission conducted a public hearing, received testimony from the applicant, neighboring property owners, and other interested parties, and reviewed the staff report and supporting materials. The Commission then deliberated on each of the applicable standards and imposed conditions of approval specifically designed to address the concerns raised during the hearing.[1]

While the appeal disagrees with the outcome, it largely re-argues factual issues that were presented to and considered by the Commission. The relevant question before the Board is not whether different conclusions could have been drawn, but whether the record contains substantial evidence supporting the Commission's decision and whether the applicable standards were applied. The record reflects a reasoned decision-making process grounded in the applicable standards and supported by substantial evidence. The Commission conducted a public hearing and imposed conditions of approval specifically designed to address the concerns raised during the hearing. The record shows a careful balancing of the applicant's property rights with the neighbors' concerns, resulting in a decision that is well-supported and legally sound.

I. The Record Contains Substantial Evidence Supporting Approval

The record reflects that the Commission considered a range of evidence directly addressing the applicable criteria. This included testimony from the applicant and the professional solar installer regarding site selection and system design, as well as testimony concerning visibility and placement of the array.[2] Neighboring property owners were also heard, and their concerns were part of the deliberative process.[3] In addition, the applicant presented a landscaping and screening plan that was developed specifically in response to concerns raised during earlier hearings.[4]

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[1] Planning and Zoning Commission Draft Minutes for Apr. 9, 2026, pp. 4-5. All page numbers refer to the page number in the .pdf document.
[2] *Id.* at pp. 2-4.
[3] Testimony by David Kennedy, Apr. 9, 2026, Planning and Zoning Commission Meeting at 18:39:30.
[4] Planning and Zoning Commission Draft Minutes for Apr. 9, 2026, at p. 2. See also Applicant Presentation, Apr. 9, 2026, Planning and Zoning Commission Meeting at 18:25:40.

The appeal largely re-argues factual disputes that were already presented to and considered by the Commission. The existence of differing viewpoints in the record does not render the Commission's decision unsupported. Rather, the relevant inquiry is whether substantial evidence exists to support the decision that was made. Here, the record contains sufficient evidence upon which the Commission could reasonably conclude that the criteria for approval were met.

II. The Appeal Overstates Visual and Topographic Impacts

The appeal repeatedly characterizes the solar array as creating an unacceptable visual impact and asserts that the surrounding "open, natural rolling hill topography" is a protected characteristic of the area. However, the Valley County Code does not identify such topography as a protected feature or establish a standard requiring preservation of a particular viewshed. The applicable standard is whether the proposed use can be compatible with surrounding properties, not whether it is entirely invisible from all vantage points. Attachment A contains photographs and figures including aerial photos and photos taken from Flicker Rd approaching the property. These photos and figures show that the solar array is not a dominant feature in the landscape and mitigative vegetative screening will be effective in further reducing visibility issues.

The record demonstrates that the array was intentionally located behind the residence to reduce impacts to the rolling viewshed of the western portion of the property (Photos 1-3) and that the site's natural topography and vegetation limits visibility from certain locations of neighboring properties (Photos 4-9). Specifically, the Topographical Map included in the County's own Staff Report shows a natural, broad-crested knoll that separates the subject property from the appellant's parcel to the west.[5] A topographic map created from the Valley County GIS website is shown in Figure 1. The solar array is sited on the eastern slope of this knoll, further limiting its visibility. This objective mapping provides substantial evidence supporting the Commission's conclusion that topographic features help ensure compatibility. The array and house are in close proximity to the forest in the east, scattered trees to the north, and rolling open topography to the west and south.[6] The applicant also proposed a landscaping plan, including a berm and tree plantings, to further mitigate visibility.[7] Photo 12 and 13 and Figure 3.

Importantly, the Planning and Zoning Commission directly addressed visual impacts during its deliberations. As reflected in the April 9, 2026 meeting minutes, the Commission reviewed site plans, photographs, and proposed screening measures, and specifically evaluated whether vegetative screening and berm construction could mitigate visibility concerns.[9] The Commission determined that a combination of a raised berm and staggered evergreen plantings would be sufficient to conceal the array over time and imposed conditions of approval requiring such mitigation.[10] Photo 12 and 13 and Figure 3.

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[5] Staff Report for Jan. 8, 2026, p. 11.
[6] Staff Report for Apr. 9, 2026, p. 76.
[7] Applicant Presentation, Apr. 9, 2026, pp. 11-12. See also Staff Report for Apr. 9, 2026, at p. 44.
[8] Applicant Testimony, Apr. 9, 2026 Planning and Zoning Commission Meeting at 18:26:00.
[9] Planning and Zoning Commission Draft Minutes for Apr. 9, 2026, p. 4.
[10] Planning and Zoning Commission Draft Minutes for Apr. 9, 2026, pp. 4-5.

The appeal's assertions regarding visual dominance and incompatibility therefore reflect a difference of opinion rather than a violation of any specific code requirement. The record shows that the Commission recognized the concern, analyzed it in detail, and imposed conditions designed to address it.

III. Drainage and Erosion Concerns Are Speculative

The appeal raises concerns that the proposed berm may alter drainage patterns and create erosion issues. However, these claims are entirely speculative and are not supported by any expert testimony, engineering, or hydrologic analysis in the record. The appellants had the opportunity to provide such evidence to the Commission but failed to do so. By contrast, the site's natural topography was discussed during the proceedings.[11] Natural drainage from the location of the panels is to a drainage to the east as shown in Figure 1. This drainage pattern is not impacted by the panels. A thorough description of soils and their characteristics is discussed in Attachment B "NRCS Soil Map 30 Flicker Rd Area". The report describes site soils as "well drained". In the absence of any credible evidence to the contrary, the Commission was correct to find that the speculative concerns raised by the neighbors did not provide a basis for denial.

In the absence of site-specific evidence demonstrating adverse drainage impacts, the Commission was entitled to discount speculative concerns unsupported by evidence in the record and conclude that potential impacts could be adequately addressed through conditions of approval.

IV. The Commission Properly Considered Site Selection

The appeal asserts that the Commission failed to consider alternative locations for the solar array, including placement on the roof of the residence or elsewhere on the property. The record reflects that site selection was addressed through testimony, including input from the professional installer and others familiar with the property.[12] The selected location was based on considerations of functionality, solar orientation, and efforts to minimize visibility.

The Code does not require an applicant to demonstrate that the chosen location is the least impactful or optimal location possible, but rather that the proposed use is compatible with surrounding properties and that impacts can be addressed. The Commission reasonably relied on evidence presented in concluding that the selected location met these standards.

V. The Record Contains a Complete Impact Analysis Consistent with VCC § 9-5-3(D)

The appeal asserts that the application must be denied due to an alleged failure to provide an adequate impact report under VCC § 9-5-3(D). That assertion is not supported by the record.

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[11] Applicant Presentation, Apr. 9, 2026, p. 6. See also Staff Report for Apr. 9, 2026, at pp. 57-58.
[12] Planning and Zoning Commission Draft Minutes for Apr. 9, 2026, pp. 2-4. See also Planning and Zoning Commission Minutes for Jan. 8, 2026, pp. 6-8.

As part of the application, the applicant submitted a completed impact report addressing the

required criteria set forth in VCC § 9-5-3(D), including traffic, noise, emissions, water usage, site grading, visibility, and site selection.[13] The impact report specifically states, among other things, that the project will not generate additional traffic beyond existing residential use,[14] will not produce emissions,[15] and will have minimal visibility impacts due to its location relative to the residence and surrounding topography.[16] An expanded impact report has been prepared and is included as Attachment C. This expanded report supports the original impact report in all elements.

In addition to the applicant's submission, the staff report independently evaluated the proposal under the applicable standards, including compatibility with surrounding land uses, potential impacts to neighboring properties, and environmental considerations.[17] Staff concluded that the applicable requirements had been met and provided a positive compatibility rating.[18]

The hearing record further reflects that the Planning and Zoning Commission engaged in detailed deliberation on each of the applicable standards. As reflected in the draft April 9, 2026, meeting minutes, the Commission specifically discussed potential impacts to neighboring properties, environmental considerations, and consistency with the Comprehensive Plan, and concluded that any impacts could be mitigated through conditions of approval, including vegetative screening and berm construction.

The Code requires that impacts be identified and considered; it does not require that such analysis be presented in a particular format or duplicated in multiple standalone documents. The record demonstrates that the Commission had before it both a completed impact report and staff analysis addressing the relevant criteria.

To the extent the Board determines that additional detail would be helpful, the appropriate remedy would be to impose conditions of approval rather than deny the application outright. The record already contains sufficient information to support the Commission's determination that impacts can be mitigated.

VI. After-the-Fact Permitting Does Not Require Denial

The appeal argues that the CUP should be denied because the solar array was installed prior to obtaining the permit. However, the Valley County Code does not mandate denial on that basis. The Commission correctly recognized that its role is to evaluate the use against the applicable land use standards, not to punish an applicant for procedural timing.

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[13] Applicant Presentation, Apr. 9, 2026, p. 9.
[14] *Id.*
[15] *Id.*
[16] *Id.* at p. 10.
[17] Staff Report for Jan. 8, 2026, at p. 8.
[18] *Id.*

The very purpose of the Conditional Use Permit process, as outlined in the Code, is to provide a mechanism for approving uses that may have impacts, provided those impacts can be addressed. In fact, VCC § 9-5-2(C), cited in the county's own staff report, directs the decision-making body to encourage conditional uses where noncompatible aspects of the application can be satisfactorily mitigated.

This provision demonstrates that the Code's primary intent is to find workable solutions through conditions of approval. It does not require denial based on when construction occurred. The Commission properly focused its analysis on whether the use, as proposed and conditioned, satisfies the compatibility standards, which is precisely the task assigned to it by the Code. Denying the application solely on timing would contradict the Code's explicit direction to seek mitigation.

The Commission properly focused on whether the use, as proposed and conditioned, satisfies the applicable standards. The sequence of installation does not, by itself, require denial of the application. Denying the application based solely on the timing of installation would not resolve the underlying land use question, which is whether the use can meet the applicable standards.

VII. CC&R Issues Are Not Within the County's Authority

The appeal raises alleged violations of private Covenants, Conditions, and Restrictions (CC&Rs). As acknowledged in the appeal itself, enforcement of private covenants is separate from the County's land use process. The Board's role is to apply Valley County Code, not to adjudicate private disputes between property owners.

The appeal also references testimony regarding how the solar array operates and attempts to characterize the system under the terms of the CC&Rs. However, such characterizations relate solely to private covenant interpretation and do not alter the County's obligation to evaluate the application under Valley County Code.

VIII. Conclusion

The record demonstrates that the Planning and Zoning Commission conducted a thorough review of the application, considered the evidence presented by both the applicant and neighboring property owners, and applied the applicable standards under Valley County Code. The Commission specifically addressed potential impacts, including visibility and compatibility with surrounding properties, and imposed conditions of approval designed to mitigate those impacts.

The appeal largely reflects a disagreement with the Commission's weighing of the evidence rather than a failure to apply the Code or a lack of supporting evidence in the record. The Board's role is not to reweigh competing opinions, but to determine whether the Commission's decision is supported by substantial evidence and consistent with the applicable standards. The record reflects that it is.

For these reasons, the applicant respectfully requests that the Board deny the appeal and uphold the Commission's approval of the Conditional Use Permit.

Attachment A

Photographs and Figures

Photo 1: Flicker Rd cul-de-sac showing the properties involved in the appeal in relation to the solar panels (east is at the top of the photo). Krumm and Wright are not appealing the P & Z ruling. The distance from the Pedersen home to the array is approximately 850 ft. The distance from the Silverman home to the array is approximately 950 ft. The distance from the Ronay building pad to the array is approximately 585 ft.

The Smith/McClellen property is located southeast of the knoll located at the end of the cul-de-sac. Predominately ponderosa pine and lodgepole pine are scattered in the midsection of the property. The eastern portion of the property is densely forested. Photo: Mark McClellen 5/18/2026

Photo 2: View looking east from the south end of Flicker Rd cul-de-sac. Krumm home is on the left. Smith/McClellen home and array is in the center, and Wright home is on the right. Ronay driveway entrance is shown in the lower right, Solar array is topographically lower than driveway. Photo: Mark McClellen 5/10/2026

Photo 3: View looking south down Smith/McClellen driveway from the end of Flicker Rd cul-de-sac. Krumm home is on the left. Smith/McClellen home and array is in the center, and Wright home is on the right. Solar array is topographically lower than driveway. Photo: Mark McClellen 5/10/2026

Photo 4: View looking south on Flicker Rd. Pedersen driveway is on the left near a mailbox and Silverman driveway is on the right. Flicker Rd decreases in elevation from photo point before rising again at the end of the cul-de-sac. Smith/McClellen home is shown at the end of the road on the left. Photo: Mark McClellen 5/10/2026

Photo 5: Same as Photo 4 except this photo was taken further south on Flicker Rd. Pedersen driveway is on the left in the foreground. Photo: Mark McClellen 5/10/2026

Photo 6: Same as Photo 5 except this photo was taken further south on Flicker Rd. Photo: Mark McClellen 5/10/2026

Photo 7: Photo looking east from the end of the cul-de-sac. Krumm garage is on the left. Solar array is on the right. Photo: Mark McClellen 5/10/2026

Photo 8: View looking south from Smith/McClellen driveway. Photo: Mark McClellen 5/10/2026

Photo 9: View looking southeast from Smith/McClellen driveway. Sapling pines are shown in the field in the foreground. Photo: Mark McClellen 5/10/2026

Photo 10. View looking north/northwest at solar array directly north of garage. The camouflage netting was **not** intended to be a permanent solution for screening. Photo: Mark McClellen 5/10/2026

Photo 11. View taken from the northeast side of the Smith/McClellen home looking north toward southern side of Krumm home. Photo: Mark McClellen 5/10/2026

Photo 12. Photo is taken from the knoll in the northwest portion of the property. View is to the southeast. Two artificial Christmas trees are in the foreground of the solar array to demonstrate how planting trees on the knoll could effectively screen the array. The larger tree on the left is a 9 ft tree. Photo: Kristen McClellen 3/4/2026

Photo 13. This is a 3D rendering (trees have been added to photo) of how a planted berm may look.

Prepared By MD Designs, LLC.

Figure 1. Topographic map created from Valley County GIS website with topographic overlay. Contour interval is 20 feet. The figure shows that Flicker Rd runs south down a broad ridge with drainage to the east and west. This ridge terminates in a broad knoll in the northwest corner of the Smith/McClellen property.

Flicker Road Area

5/17/2026, 8:35:53 PM

Figure 2. Flicker Road Residents with Acreage and Distance from Solar Array at the Smith/McClellen Property.

1:4,514

0 0.03 0.06 0.11 mi

0 0.04 0.09 0.17 km

Vantor

Valley County

Vantor | BLM Admin State | Valley County | Valley County GIS

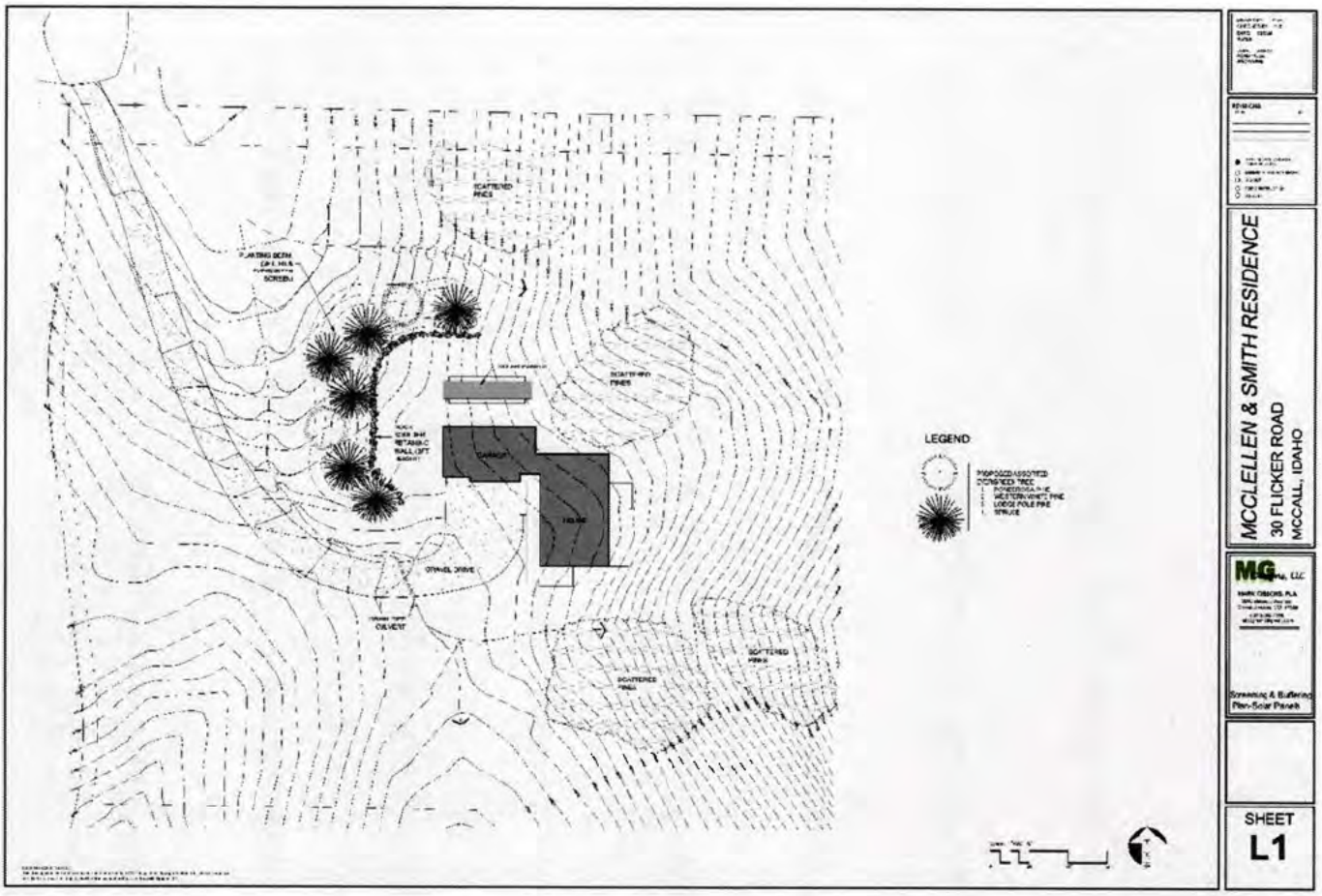


Figure 3. Landscaping Site Plan. North is at the top. The design shows the approximate shape and location of the proposed berm and plantings. Prepared By MD Designs, LLC.

ATTACHMENT B

NRCS Soil Map 30 Flicker Road Area

Valley County, Idaho C.U.P. 25-032
McClellen/Smith Solar Panels

Soil Map—Valley Area, Idaho, Parts of Adams and Valley Counties
(NRCS Soil Map 30 Flicker Road Area)

Map Scale: 1:2,800 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 26, 2022—Oct 12, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3	Archabal loam, 4 to 12 percent slopes	8.2	22.6%
4	Archabal loam, 12 to 20 percent slopes	15.1	41.5%
5	Blackwell silt loam, frequently flooded	5.5	15.0%
26	Jugson coarse sandy loam, 30 to 60 percent slopes	3.2	8.7%
27	Jurvannah sandy loam	2.8	7.8%
37	Nisula loam, 4 to 12 percent slopes	1.6	4.5%
Totals for Area of Interest		**36.5**	**100.0%**

Physical Soil Properties

This table shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In this table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In this table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, saturated hydraulic conductivity (Ksat), plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3- or 1/10-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute linear extensibility, shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates in the table are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity (Ksat) is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. The amount and type of clay minerals in the soil influence volume change.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In this table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter. The content of organic matter in a soil can be maintained by returning crop residue to the soil.

Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in the table as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and Ksat. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind and/or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the "National Soil Survey Handbook."

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Reference:
United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. (http://soils.usda.gov)

Report—Physical Soil Properties

Physical Soil Properties–Valley Area, Idaho, Parts of Adams and Valley Counties														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
3—Archabal loam, 4 to 12 percent slopes														
Archabal	0-14	-41-	-37-	18-22-25	1.25-1.45	4.00-14.00	0.20-0.22	3.0-5.9	3.0-5.0	.17	.17	4	6	48
	14-31	-41-	-37-	18-22-25	1.25-1.45	4.00-14.00	0.17-0.19	3.0-5.9	3.0-5.0	.28	.28			
	31-52	-67-	-19-	10-15-20	1.60-1.70	14.00-42.00	0.10-0.12	0.0-2.9	0.0-0.5	.20	.20			
	52-60	-89-	- 4-	2-7-12	1.70-1.80	42.00-141.00	0.04-0.05	0.0-2.9	0.0-0.5	.02	.02			
4—Archabal loam, 12 to 20 percent slopes														
Archabal	0-14	-41-	-37-	18-22-25	1.25-1.45	4.00-14.00	0.20-0.22	3.0-5.9	3.0-5.0	.17	.17	4	6	48
	14-31	-41-	-37-	18-22-25	1.25-1.45	4.00-14.00	0.17-0.19	3.0-5.9	3.0-5.0	.28	.28			
	31-52	-67-	-19-	10-15-20	1.60-1.70	14.00-42.00	0.10-0.12	0.0-2.9	0.0-0.5	.20	.20			
	52-60	-89-	- 4-	2-7-12	1.70-1.80	42.00-141.00	0.04-0.05	0.0-2.9	0.0-0.5	.02	.02			
5—Blackwell silt loam, frequently flooded														
Blackwell	0-1	10-30-32	50-54-72	15-17-18	1.35-1.45	4.00-14.00	0.15-0.17	1.5-2.1	2.0-4.0	.37	.37	3	5	56
	1-11	25-35-40	25-33-43	30-33-35	1.30-1.50	1.40-4.00	0.14-0.21	3.9-5.2	0.0-0.5	.32	.32			
	11-19	50-55-75	0-17-28	20-28-35	1.35-1.50	4.00-14.00	0.13-0.19	1.8-5.2	0.0-0.5	.20	.20			
	19-27	50-55-75	0-17-28	20-28-35	1.35-1.50	4.00-14.00	0.13-0.19	1.7-5.2	0.0-0.5	.20	.20			
	27-60	65-84-85	0-6-23	6-10-20	1.40-1.55	42.00-141.00	0.12-0.15	0.4-1.9	0.0	.10	.10			

Physical Soil Properties–Valley Area, Idaho, Parts of Adams and Valley Counties														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
26—Jugson coarse sandy loam, 30 to 60 percent slopes														
Jugson	0-1	—	—	—	0.10-0.30	50.00-700.00	0.15-0.45	—	60.0-95.0			3	3	86
	1-2	—	—	—	0.10-0.30	50.00-150.00	0.15-0.45	—	60.0-95.0					
	2-2	55-66- 70	15-24- 36	5-10- 15	1.40-1.50	14.00-42.00	0.10-0.12	0.3-1.7	1.0-2.0	.15	.15			
	2-22	55-66- 70	15-24- 36	5-10- 15	1.40-1.50	14.00-42.00	0.10-0.12	0.3-1.7	1.0-2.0	.15	.15			
	22-37	75-79- 90	-17-	2- 4- 8	1.40-1.60	50.00-100.00	0.04-0.06	0.1-0.6	0.0-0.5	.24	.24			
	37-41	—	—	—	—	0.02-2.00	—	—	—					
	41-51	—	—	—	—	0.00-0.10	—	—	—					
27—Jurvannah sandy loam														
Jurvannah	0-6	-68-	-24-	2- 9- 15	1.40-1.60	14.00-42.00	0.11-0.15	0.0-2.9	2.0-4.0	.17	.17	4	3	86
	6-22	-94-	- 1-	0- 5- 10	1.50-1.65	141.00	0.03-0.06	0.0-2.9	0.0-0.5	.02	.02			
	22-60	-94-	- 1-	0- 5- 10	1.50-1.70	141.00	0.02-0.03	0.0-2.9	0.0-0.5	.02	.02			
37—Nisula loam, 4 to 12 percent slopes														
Nisula	0-25	35-41- 50	28-37- 47	18-22- 25	1.20-1.40	4.00-14.00	0.13-0.21	1.4-2.6	2.0-3.0	.32	.32	5	6	48
	25-51	15-35- 35	30-33- 50	30-33- 35	1.30-1.50	1.40-4.00	0.14-0.21	3.2-4.6	0.0-0.5	.32	.32			
	51-60	55-55- 70	2-17- 25	20-28- 35	1.35-1.50	4.00-14.00	0.13-0.19	1.3-4.6	0.0-0.5	.20	.20			

Data Source Information

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025

Engineering Properties

This table gives the engineering classifications and the range of engineering properties for the layers of each soil in the survey area.

Hydrologic soil group is a group of soils having similar runoff potential under similar storm and cover conditions. The criteria for determining Hydrologic soil group is found in the National Engineering Handbook, Chapter 7 issued May 2007(http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba). Listing HSGs by soil map unit component and not by soil series is a new concept for the engineers. Past engineering references contained lists of HSGs by soil series. Soil series are continually being defined and redefined, and the list of soil series names changes so frequently as to make the task of maintaining a single national list virtually impossible. Therefore, the criteria is now used to calculate the HSG using the component soil properties and no such national series lists will be maintained. All such references are obsolete and their use should be discontinued. Soil properties that influence runoff potential are those that influence the minimum rate of infiltration for a bare soil after prolonged wetting and when not frozen. These properties are depth to a seasonal high water table, saturated hydraulic conductivity after prolonged wetting, and depth to a layer with a very slow water transmission rate. Changes in soil properties caused by land management or climate changes also cause the hydrologic soil group to change. The influence of ground cover is treated independently. There are four hydrologic soil groups, A, B, C, and D, and three dual groups, A/D, B/D, and C/D. In the dual groups, the first letter is for drained areas and the second letter is for undrained areas.

The four hydrologic soil groups are described in the following paragraphs:

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.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly."

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Percentage of rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

References:

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Report—Engineering Properties

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash. The criteria for determining the hydrologic soil group for individual soil components is found in the National Engineering Handbook, Chapter 7 issued May 2007(http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba). Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Engineering Properties–Valley Area, Idaho, Parts of Adams and Valley Counties														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
3—Archabal loam, 4 to 12 percent slopes														
Archabal	80	B	0-14	Loam	CL, ML	A-6, A-7	0-0-0	0-0-0	95-96-100	84-91-100	71-81-92	52-59-69	35-41-47	12-15-17
			14-31	Loam	CL, ML	A-6, A-7	0-0-0	0-0-0	95-96-100	84-91-100	71-81-92	52-59-69	35-41-47	12-15-17
			31-52	Coarse sandy loam	SC, SC-SM	A-6, A-2	0-0-0	0-0-0	95-97-100	86-92-100	50-58-68	28-35-42	20-26-32	6-10-13
			52-60	Coarse sand, loamy coarse sand	SC-SM, SP-SC, SM, SP-SM, SW-SC	A-3, A-2, A-1	0-0-0	0-0-0	96-97-100	87-93-100	39-46-55	7-12-18	0-19-25	NP-4-7

Engineering Properties--Valley Area, Idaho, Parts of Adams and Valley Counties														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H
4—Archabal loam, 12 to 20 percent slopes														
Archabal	90	B	0-14	Loam	CL, ML	A-6, A-7	0-0-0	0-0-0	95-96-100	84-91-100	71-81-92	52-59-69	35-41-47	12-15-17
			14-31	Loam	CL, ML	A-6, A-7	0-0-0	0-0-0	95-96-100	84-91-100	71-81-92	52-59-69	35-41-47	12-15-17
			31-52	Coarse sandy loam	SC, SC-SM	A-6, A-2	0-0-0	0-0-0	95-97-100	86-92-100	50-58-68	28-35-42	20-26-32	6-10-13
			52-60	Coarse sand, loamy coarse sand	SW-SC, SP-SM, SM, SP-SC, SC-SM	A-1, A-2, A-3	0-0-0	0-0-0	96-97-100	87-93-100	39-46-55	7-12-18	0-19-25	NP-4-7
5—Blackwell silt loam, frequently flooded														
Blackwell	80	C/D	0-1	Silt loam	CL, ML	A-4, A-6	0-0-0	0-0-0	95-96-100	89-93-100	79-86-97	64-70-83	30-33-37	9-10-12
			1-11	Clay loam	CL	A-7-6, A-6	0-0-0	0-0-0	95-96-100	89-93-100	78-85-94	60-66-78	40-43-46	21-23-25
			11-19	Sandy clay loam	SC, CL	A-6, A-7-6	0-0-0	0-0-0	95-96-100	90-93-100	72-81-94	38-48-59	30-38-46	13-19-25
			19-27	Sandy clay loam	SC, CL	A-2-6, A-7-6, A-6	0-0-0	0-0-0	90-95-100	80-89-100	65-78-94	34-46-59	30-38-46	13-19-25
			27-60	Loamy coarse sand, stratified loamy coarse sand to sandy clay loam	SP-SM, SC, SC-SM	A-1-b, A-2-6	0-0-0	0-0-0	90-95-100	81-90-100	37-45-60	12-17-31	17-21-30	3-6-13

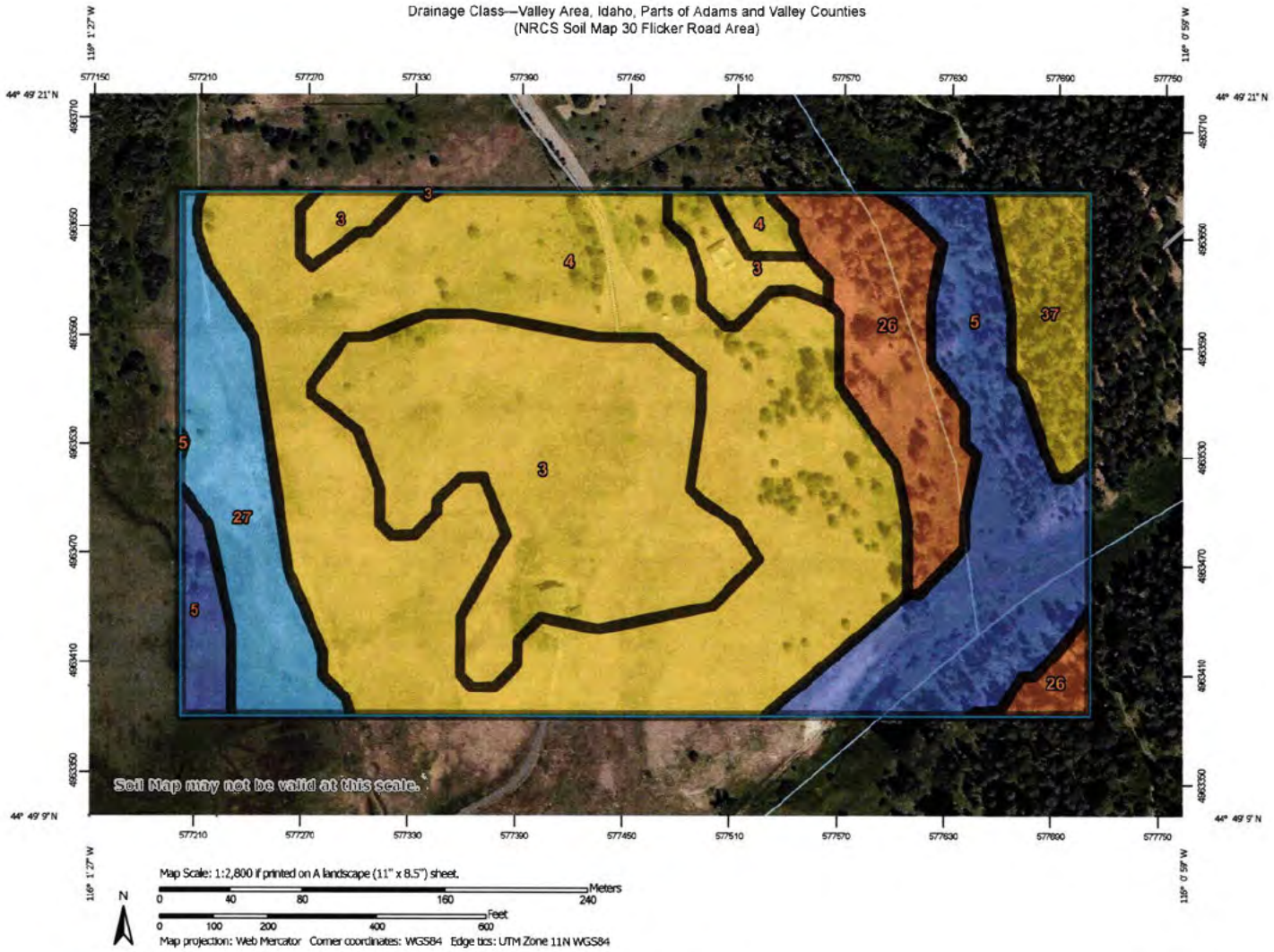
Engineering Properties–Valley Area, Idaho, Parts of Adams and Valley Counties														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity Index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H
26—Jugson coarse sandy loam, 30 to 60 percent slopes														
Jugson	75	B	0-1	Slightly decomposed plant material	PT	A-8	0-0-0	0-0-0	—	—	—	—	—	—
			1-2	Moderately decomposed plant material	PT	A-8	0-0-0	0-0-0	—	—	—	—	—	—
			2-2	Coarse sandy loam	SC-SM, SC, SM	A-2-4, A-4, A-1-b	0-0-0	0-0-0	90-95-100	76-86-100	45-55-68	25-33-44	18-24-30	2-6-9
			2-22	Coarse sandy loam	SC-SM, SC, SM	A-1-b, A-4, A-2-4	0-0-0	0-0-0	90-95-100	76-86-100	45-55-68	25-33-44	18-24-30	2-6-9
			22-37	Sand, gravelly loamy coarse sand, loamy coarse sand	SC-SM, SM	A-1, A-2	0-0-0	0-0-0	65-90-92	56-85-88	32-51-56	13-22-26	0-16-20	NP-3-4
			37-41	Bedrock	—	—	—	—	—	—	—	—	—	—
			41-51	Bedrock	—	—	—	—	—	—	—	—	—	—
27—Jurvannah sandy loam														
Jurvannah	85	A/D	0-6	Sandy loam	SM, SC-SM	A-2, A-4	0-0-0	0-0-0	100-100-100	100-100-100	70-77-83	32-39-45	0-26-35	NP-5-10
			6-22	Sand, fine gravelly sand	SP, SP-SM, SC-SM	A-1, A-3, A-2	0-0-0	0-0-0	100-100-100	61-76-100	44-59-82	3-8-15	0-17-23	NP-2-6
			22-60	Very gravelly sand, very gravelly coarse sand	SP-SC, SP-SM, SP, SW-SM	A-2, A-1	0-0-0	0-0-0	100-100-100	44-52-79	32-40-65	2-5-12	0-17-23	NP-2-6

Engineering Properties–Valley Area, Idaho, Parts of Adams and Valley Counties														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity Index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H	L-R-H
37—Nisula loam, 4 to 12 percent slopes														
Nisula	85	C	0-25	Loam	CL	A-6, A-7-6	0- 0- 5	0- 0- 0	94-96-100	88-92-100	75-82-93	53-60-71	32-36-41	12-14-17
			25-51	Clay loam, silty clay loam	CL	A-7-6, A-6	0- 3- 5	0- 0- 0	94-96-100	89-93-100	78-84-96	61-66-78	39-42-45	21-23-25
			51-60	Sandy clay loam	SC, CL	A-6, A-7-6, A-2-6	0- 3- 4	0- 0- 0	90-95-100	79-89-100	65-78-92	34-46-58	29-37-45	13-19-25

Data Source Information

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025

Drainage Class—Valley Area, Idaho, Parts of Adams and Valley Counties
(NRCS Soil Map 30 Flicker Road Area)



Drainage Class—Valley Area, Idaho, Parts of Adams and Valley Counties
(NRCS Soil Map 30 Flicker Road Area)

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Excessively drained
- Somewhat excessively drained
- Well drained
- Moderately well drained
- Somewhat poorly drained
- Poorly drained
- Very poorly drained
- Subaqueous
- Not rated or not available

Soil Rating Lines
- Excessively drained
- Somewhat excessively drained
- Well drained
- Moderately well drained
- Somewhat poorly drained
- Poorly drained
- Very poorly drained
- Subaqueous
- Not rated or not available

Soil Rating Points
- Excessively drained
- Somewhat excessively drained
- Well drained
- Moderately well drained
- Somewhat poorly drained
- Poorly drained
- Very poorly drained
- Subaqueous
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 26, 2022—Oct 12, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Drainage Class

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
3	Archabal loam, 4 to 12 percent slopes	Well drained	8.2	22.6%
4	Archabal loam, 12 to 20 percent slopes	Well drained	15.1	41.5%
5	Blackwell silt loam, frequently flooded	Very poorly drained	5.5	15.0%
26	Jugson coarse sandy loam, 30 to 60 percent slopes	Somewhat excessively drained	3.2	8.7%
27	Jurvannah sandy loam	Poorly drained	2.8	7.8%
37	Nisula loam, 4 to 12 percent slopes	Well drained	1.6	4.5%
Totals for Area of Interest			**36.5**	**100.0%**

Description

"Drainage class (natural)" refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized-excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained. These classes are defined in the "Soil Survey Manual."

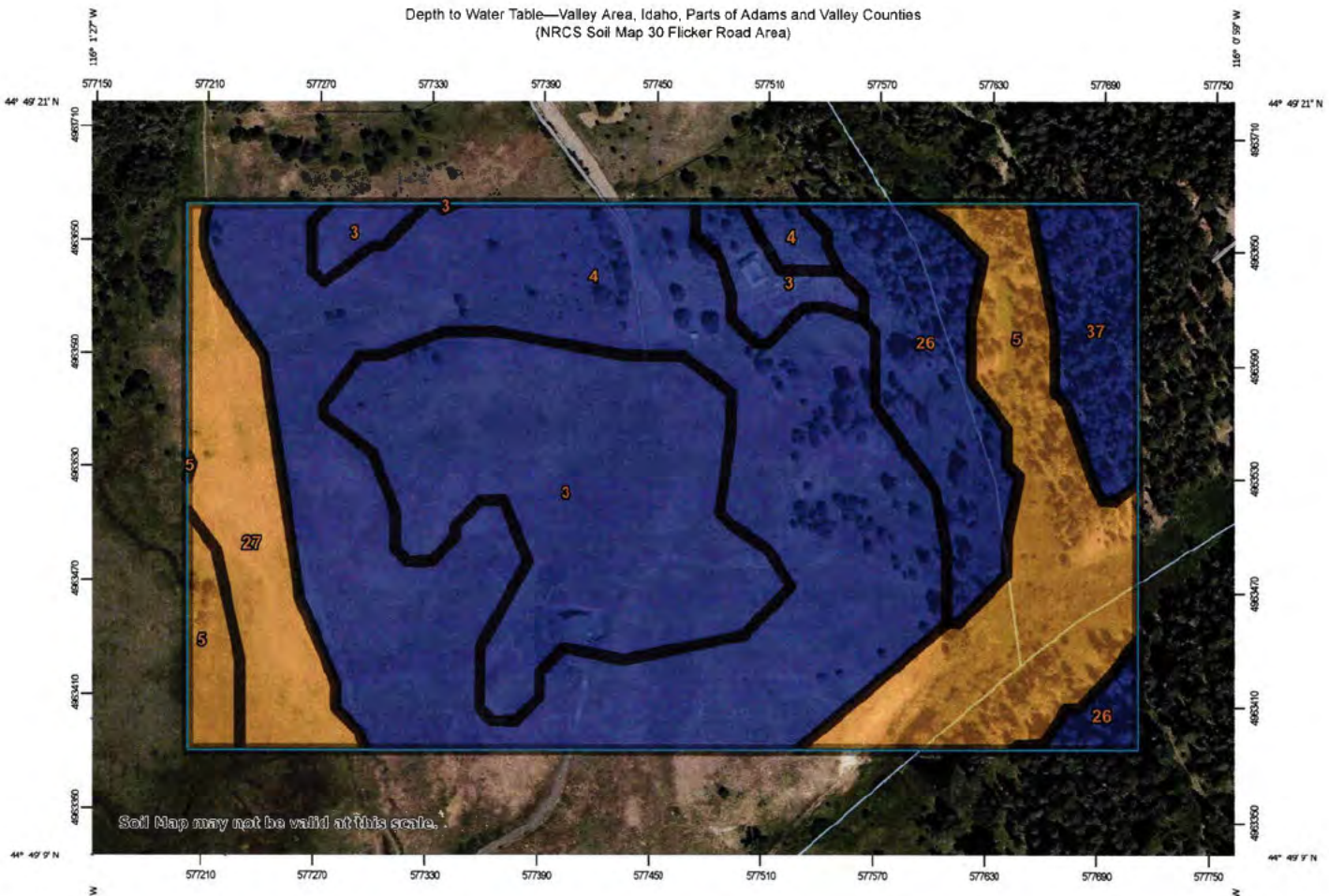
Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Depth to Water Table—Valley Area, Idaho, Parts of Adams and Valley Counties
(NRCS Soil Map 30 Flicker Road Area)



Map Scale: 1:2,800 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Soil Rating Lines
- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Soil Rating Points
- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 26, 2022—Oct 12, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Depth to Water Table

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
3	Archabal loam, 4 to 12 percent slopes	>200	8.2	22.6%
4	Archabal loam, 12 to 20 percent slopes	>200	15.1	41.5%
5	Blackwell silt loam, frequently flooded	30	5.5	15.0%
26	Jugson coarse sandy loam, 30 to 60 percent slopes	>200	3.2	8.7%
27	Jurvannah sandy loam	30	2.8	7.8%
37	Nisula loam, 4 to 12 percent slopes	>200	1.6	4.5%
Totals for Area of Interest			**36.5**	**100.0%**

Description

"Water table" refers to a saturated zone in the soil. It occurs during specified months. Estimates of the upper limit are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

This attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Rating Options

Units of Measure: centimeters

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Interpret Nulls as Zero: No

Beginning Month: January

Ending Month: December

Dwellings and Small Commercial Buildings

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. This table shows the degree and kind of soil limitations that affect dwellings and small commercial buildings.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Information in this table is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this table. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Report—Dwellings and Small Commercial Buildings

[Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. The table shows only the top five limitations for any given soil. The soil may have additional limitations]

Dwellings and Small Commercial Buildings–Valley Area, Idaho, Parts of Adams and Valley Counties							
Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
3—Archabal loam, 4 to 12 percent slopes							
Archabal	80	Somewhat limited		Not limited		Very limited	
		Shrink-swell	0.10			Slope	1.00
						Shrink-swell	0.10

Dwellings and Small Commercial Buildings–Valley Area, Idaho, Parts of Adams and Valley Counties							
Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
4—Archabal loam, 12 to 20 percent slopes							
Archabal	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.10			Shrink-swell	0.10
5—Blackwell silt loam, frequently flooded							
Blackwell	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
26—Jugson coarse sandy loam, 30 to 60 percent slopes							
Jugson	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.01	Depth to hard bedrock	1.00	Depth to hard bedrock	0.01
				Depth to soft bedrock	0.10		
27—Jurvannah sandy loam							
Jurvannah	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
37—Nisula loam, 4 to 12 percent slopes							
Nisula	85	Not limited		Not limited		Very limited	
						Slope	1.00

Data Source Information

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025

Ponds and Embankments

This table gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the saturated hydraulic conductivity (Ksat) of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. Embankments that have zoned construction (core and shell) are not considered. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, Ksat of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Information in this table is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this table. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Report—Ponds and Embankments

[Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. The table shows only the top five limitations for any given soil. The soil may have additional limitations]

Ponds and Embankments–Valley Area, Idaho, Parts of Adams and Valley Counties							
Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Aquifer-fed excavated ponds		Pond reservoir areas	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
3—Archabal loam, 4 to 12 percent slopes							
Archabal	80	Somewhat limited		Very limited		Very limited	
		Piping	0.50	Depth to water	1.00	Seepage	1.00
		Dusty	0.01			Slope	1.00
4—Archabal loam, 12 to 20 percent slopes							
Archabal	90	Somewhat limited		Very limited		Very limited	
		Piping	0.50	Depth to water	1.00	Seepage	1.00
		Dusty	0.01			Slope	1.00

Ponds and Embankments–Valley Area, Idaho, Parts of Adams and Valley Counties							
Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Aquifer-fed excavated ponds		Pond reservoir areas	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
5—Blackwell silt loam, frequently flooded							
Blackwell	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Unstable excavation walls	1.00	Seepage	1.00
		Seepage	0.22				
		Dusty	0.02				
26—Jugson coarse sandy loam, 30 to 60 percent slopes							
Jugson	75	Very limited		Very limited		Very limited	
		Piping	1.00	Depth to water	1.00	Seepage	1.00
		Thin layer	0.70			Slope	1.00
		Seepage	0.35			Depth to bedrock	0.42
27—Jurvannah sandy loam							
Jurvannah	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Unstable excavation walls	1.00	Seepage	1.00
		Seepage	1.00				
37—Nisula loam, 4 to 12 percent slopes							
Nisula	85	Somewhat limited		Very limited		Very limited	
		Dusty	0.02	Depth to water	1.00	Slope	1.00
						Seepage	0.70

Data Source Information

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025

Forestland Planting and Harvesting

This table can help forestland owners or managers plan the use of soils for wood crops. Interpretive ratings are given for the soils according to the limitations that affect planting and harvesting on forestland. The ratings are both verbal and numerical.

Rating class terms indicate the degree to which the soils are suited to a specified aspect of forestland management. *Well suited* indicates that the soil has features that are favorable for the specified management aspect and has no limitations. Good performance can be expected, and little or no maintenance is needed. *Moderately suited* indicates that the soil has features that are moderately favorable for the specified management aspect. One or more soil properties are less than desirable, and fair performance can be expected. Some maintenance is needed. *Poorly suited* indicates that the soil has one or more properties that are unfavorable for the specified management aspect. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration. *Unsuited* indicates that the expected performance of the soil is unacceptable for the specified management aspect or that extreme measures are needed to overcome the undesirable soil properties.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the specified aspect of forestland management (1.00) and the point at which the soil feature is not a limitation (0.00).

The paragraphs that follow indicate the soil properties considered in rating the soils. More detailed information about the criteria used in the ratings is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

Ratings in the columns *suitability for hand planting* and *suitability for mechanical planting* are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, moderately suited, poorly suited, or unsuited to these methods of planting. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *suitability for use of harvesting equipment* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, and ponding. The soils are described as well suited, moderately suited, or poorly suited to this use.

Reference:
United States Department of Agriculture, Natural Resources Conservation Service, National forestry manual.

Report—Forestland Planting and Harvesting

[Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. The table shows only the top five limitations for any given soil. The soil may have additional limitations]

Forestland Planting and Harvesting–Valley Area, Idaho, Parts of Adams and Valley Counties							
Map symbol and soil name	Pct. of map unit	Suitability for hand planting		Suitability for use of harvesting equipment		Suitability for mechanical planting	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
4—Archabal loam, 12 to 20 percent slopes							
Archabal	90	Well suited		Well suited		Poorly suited	
				Low strength	0.15	Slope	0.74
27—Jurvannah sandy loam							
Jurvannah	85	Moderately suited		Well suited		Moderately suited	
		Sandiness	0.02	Sandiness	0.02	Rock fragments	0.05
37—Nisula loam, 4 to 12 percent slopes							
Nisula	85	Well suited		Well suited		Moderately suited	
				Low strength	0.12	Slope	0.20
3—Archabal loam, 4 to 12 percent slopes							
Archabal	80	Well suited		Well suited		Moderately suited	
				Low strength	0.15	Slope	0.20
5—Blackwell silt loam, frequently flooded							
Blackwell	80	Moderately suited		Moderately suited		Moderately suited	
		Stickiness	0.26	Low strength	0.33	Stickiness; high plasticity index	0.22
26—Jugson coarse sandy loam, 30 to 60 percent slopes							
Jugson	75	Moderately suited		Poorly suited		Unsuited	
		Slope	0.10	Slope	1.00	Slope	1.00

Data Source Information

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025

Windbreaks and Environmental Plantings

Windbreaks protect livestock, buildings, yards, fruit trees, gardens, and cropland from wind and snow; help to keep snow on fields; and provide food and cover for wildlife. Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

This table shows the height that locally grown trees and shrubs are expected to reach in 20 years on soils in the survey area. The estimates are based on measurements and observation of established plantings that have been given adequate care. They can be used as a guide in planning windbreaks and screens. Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from the local office of the Natural Resources Conservation Service or of the Cooperative Extension Service or from a commercial nursery.

Report—Windbreaks and Environmental Plantings

Windbreaks and Environmental Plantings–Valley Area, Idaho, Parts of Adams and Valley Counties					
Map symbol and soil name	Trees having predicted 20-year average height of—				
	8 feet or less	>8 to 15 feet	>15 to 25 feet	>25 to 35 feet	>35 feet
3—Archabal loam, 4 to 12 percent slopes					
Archabal	—	Siberian peashrub Common lilac	Rocky mountain juniper Blue spruce Golden willow	Ponderosa pine	—
4—Archabal loam, 12 to 20 percent slopes					
Archabal	—	Siberian peashrub Common lilac	Rocky mountain juniper Blue spruce Golden willow	Ponderosa pine	—
5—Blackwell silt loam, frequently flooded					
Blackwell	—	—	—	—	—
26—Jugson coarse sandy loam, 30 to 60 percent slopes					
Jugson	—	—	—	—	—

Windbreaks and Environmental Plantings–Valley Area, Idaho, Parts of Adams and Valley Counties					
Map symbol and soil name	Trees having predicted 20-year average height of—				
	8 feet or less	>8 to 15 feet	>15 to 25 feet	>25 to 35 feet	>35 feet
27—Jurvannah sandy loam					
Jurvannah	—	—	—	—	—
37—Nisula loam, 4 to 12 percent slopes					
Nisula	—	—	—	—	—

Data Source Information

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025

RUSLE2 Related Attributes

This report summarizes those soil attributes used by the Revised Universal Soil Loss Equation Version 2 (RUSLE2) for the map units in the selected area. The report includes the map unit symbol, the component name, and the percent of the component in the map unit. Soil property data for each map unit component include the hydrologic soil group, erosion factor Kf for the surface horizon, erosion factor T, and the representative percentage of sand, silt, and clay in the mineral surface horizon. Missing surface data may indicate the presence of an organic layer.

Report—RUSLE2 Related Attributes

Soil properties and interpretations for erosion runoff calculations. The surface mineral horizon properties are displayed or the first mineral horizon below an organic surface horizon. Organic horizons are not displayed.

RUSLE2 Related Attributes–Valley Area, Idaho, Parts of Adams and Valley Counties

Map symbol and soil name	Pct. of map unit	Slope length (ft)	Hydrologic group	Kf	T factor	Representative value		
						% Sand	% Silt	% Clay
3—Archabal loam, 4 to 12 percent slopes								
Archabal	80	502	B	.17	4	41.4	37.1	21.5
4—Archabal loam, 12 to 20 percent slopes								
Archabal	90	325	B	.17	4	41.4	37.1	21.5
5—Blackwell silt loam, frequently flooded								
Blackwell	80	200	C/D	.37	3	29.5	54.0	16.5
26—Jugson coarse sandy loam, 30 to 60 percent slopes								
Jugson	75	49	B	.15	3	66.3	23.7	10.0
27—Jurvannah sandy loam								
Jurvannah	85	653	A/D	.17	4	67.8	23.7	8.5
37—Nisula loam, 4 to 12 percent slopes								
Nisula	85	131	C	.32	5	41.4	37.1	21.5

Data Source Information

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025

Conservation Planning

This report provides those soil attributes for the conservation plan for the map units in the selected area. The report includes the map unit symbol, the component name, and the percent of the component in the map unit. It provides the soil description along with the slope, runoff, T Factor, WEI, WEG, Erosion class, Drainage class, Land Capability Classification, and the engineering Hydrologic Group and the erosion factors Kf, the representative percentage of fragments, sand, silt, and clay in the mineral surface horizon. Missing surface data may indicate the presence of an organic surface layer. Further information on these factors can be found in the National Soil Survey Handbook section 618 found at the url http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/ref/?cid=nrcs142p2_054223#00 .

Report—Conservation Planning

Soil properties and interpretations for conservation planning. The surface mineral horizon properties are displayed. Organic surface horizons are not displayed.

Conservation Planning–Valley Area, Idaho, Parts of Adams and Valley Counties																	
Map symbol and soil name	Pct. of map unit	Slope RV	USLE Slope Length ft.	Runoff	T Factor	WEI	WEG	Erosion	Drainage	NIRR LCC	Hydrologic Group	Surface					
												Depths in.	Kf Factor	Frag-ments RV	Sand RV	Silt RV	Clay RV
3—Archabal loam, 4 to 12 percent slopes																	
Archabal	80	8.0	501	—	4	48	6	—	Well drained	6c	B	0 - 14	.17	5	41	37	21
4—Archabal loam, 12 to 20 percent slopes																	
Archabal	90	16.0	324	—	4	48	6	—	Well drained	6c	B	0 - 14	.17	5	41	37	21
5—Blackwell silt loam, frequently flooded																	
Blackwell	80	2.0	200	—	3	56	5	—	Very poorly drained	6c	C/D	0 - 1	.37	4	29	54	16
26—Jugson coarse sandy loam, 30 to 60 percent slopes																	
Jugson	75	45.0	49	—	3	86	3	—	Somewhat excessively drained	7e	B	1 - 2	.15	8	66	23	10
27—Jurvannah sandy loam																	
Jurvannah	85	1.0	652	—	4	86	3	—	Poorly drained	6c	A/D	0 - 5	.17	—	67	23	8
37—Nisula loam, 4 to 12 percent slopes																	
Nisula	85	8.0	131	—	5	48	6	—	Well drained	6c	C	0 - 25	.32	4	41	37	21

Data Source Information

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025

Irrigation - Micro

This table shows the degree and kind of soil limitations that affect irrigation systems on mineral soils. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Irrigation systems are used to provide supplemental water to crops, orchards, vineyards, and vegetables in area where natural precipitation will not support desired production of crops being grown.

Irrigation, micro (above ground) evaluates a soil for irrigation systems that apply water at slow rates and are installed above the soil surface but near the plants or crops being irrigated. The ratings are for soils in their natural condition and do not consider present land use.

Above ground (drip) micro-irrigation systems generally apply frequent applications of small quantities of water on the soil surface as drops, tiny streams or miniature spray through emitters or applicators placed along a water delivery line. Generally, these irrigation systems are very efficient in terms of both water and energy use and are suitable for use in vineyards, orchards, windbreaks, nurseries, and on truck crops and some row crops.

The soil properties and qualities important in the design and management of drip micro-irrigation systems are depth, wetness or ponding, percolation, and flooding. The soil properties and qualities that influence installation are depth, flooding, and ponding. The features that affect performance of the system and plant growth are the content of salts, calcium carbonate, or sodium.

Irrigation, micro (subsurface drip) evaluates a soil for irrigation systems that apply water at slow rates to the soil rooting zone and are installed beneath the soil surface. The ratings are for soils in their natural condition and do not consider present land use.Subsurface micro-irrigation systems are irrigation systems that apply low volumes of water below the soil surface as drops, tiny streams, or miniature spray through emitters or applicators placed along a water delivery line. These irrigation systems are buried and apply water directly and very slowly to the root zone. Generally, these systems are very efficient in terms of both water and energy use and are suitable for use in windbreaks, vegetables, berries, landscape plantings, vineyards, orchards, and some row crops.

The soil properties and qualities important in the design and management of subsurface micro-irrigation systems are soil depth, available water capacity, wetness or ponding, percolation rate, pH (soil reaction), erosion potential, and flooding. The soil properties and qualities that influence installation are soil depth, stoniness, flooding, and ponding. The features that affect performance of the system and plant growth are available water capacity, shrink-swell potential, pH (soil reaction), and the content (or amount) of salts, calcium carbonate, and sodium.

Information in this table is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this table. Local ordinances and regulations should be considered in planning, in site selection, and in design. The irrigation interpretations are not designed or intended to be used in a regulatory manner.

Report—Irrigation - Micro

[The information in this table provides irrigation interpretations for mineral soils. Onsite investigation may be needed to validate the interpretations and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. The table shows only the top five limitations for any given soil. The soil may have additional limitations]

Irrigation - Micro–Valley Area, Idaho, Parts of Adams and Valley Counties					
Map symbol and soil name	Pct. of map unit	Irrigation, Micro (above ground)		Irrigation, Micro (subsurface drip)	
		Rating class and limiting features	Value	Rating class and limiting features	Value
3—Archabal loam, 4 to 12 percent slopes					
Archabal	80	Somewhat limited		Somewhat limited	
		Seepage	0.18	Shrink-swell (LEP 3-6)	0.50
				Seepage	0.18
4—Archabal loam, 12 to 20 percent slopes					
Archabal	90	Somewhat limited		Somewhat limited	
		Seepage	0.18	Shrink-swell (LEP 3-6)	0.50
				Seepage	0.18

Irrigation - Micro--Valley Area, Idaho, Parts of Adams and Valley Counties					
Map symbol and soil name	Pct. of map unit	Irrigation, Micro (above ground)		Irrigation, Micro (subsurface drip)	
		Rating class and limiting features	Value	Rating class and limiting features	Value
5—Blackwell silt loam, frequently flooded					
Blackwell	80	Very limited		Very limited	
		Seepage	1.00	Seepage	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frequent or very frequent flooding	0.70	Frequent or very frequent flooding	0.70
26—Jugson coarse sandy loam, 30 to 60 percent slopes					
Jugson	75	Very limited		Very limited	
		Seepage	1.00	Seepage	1.00
		Low water holding capacity	0.39	Low water holding capacity	0.39
		Depth to soft bedrock	0.03	Depth to soft bedrock	0.03
27—Jurvannah sandy loam					
Jurvannah	85	Very limited		Very limited	
		Seepage	1.00	Seepage	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Low water holding capacity	0.99	Low water holding capacity	0.99
		Frequent or very frequent flooding	0.70	Frequent or very frequent flooding	0.70
37—Nisula loam, 4 to 12 percent slopes					
Nisula	85	Not limited		Not limited	

Data Source Information

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025

ATTACHMENT C

Expanded Impact Report

Valley County, Idaho C.U.P. 25-032
McClellen/Smith Solar Panels

Attachment C

Expanded Impact Report

C.U.P. 25-032 McClellen/Smith Solar Panels

This expanded report includes Magic Solar Electric's Impact Report submitted November 17, 2025.

VCC § 9-5-3

D. Impact Report:

1. **Required: An impact report shall be required for all proposed conditional uses.**

2. **The impact report shall address potential environmental, economic, and social impacts and how these impacts are to be minimized as follows:**

    a. **Traffic: Traffic volume, character, and patterns including adequacy of existing or proposed street width, surfacing, alignment, gradient, and traffic control features or devices, and maintenance. Contrast existing with the changes the proposal will bring during construction and after completion, build-out, or full occupancy of the proposed development. Include pedestrian, bicycle, auto, and truck traffic.**

Magic Solar Electric (MSE) Response: No additional traffic volume beyond what would be expected from the current construction.

Additional Information: The solar panels are on private property located at the end of a cul-de-sac. A private driveway enters the property. There is no public road entering the property. No public traffic will be affected.

    b. **Housing Affordability; Community Housing: Provision for the mitigation of impacts on housing affordability.**

Magic Solar Electric: NA
Additional Information: NA

    c. **Noise and vibration levels that exist and compare to those that will be added during construction, normal activities, and special activities. Include indoor and outdoor, day and night variations.**

Magic Solar Electric: Noise and vibration from excavating ground limited on weekdays Monday through Friday 8am to 4 pm

Additional Information: The solar panel operation does not make noise or vibrations. It is a static, non-polluting structure.

d. Heat and glare that exist and that might be introduced from all possible sources such as autos in parking areas, outdoor lights, water or glass surfaces, buildings or outdoor activities.

Magic Solar Electric: NA, no additional heat or glare concerns will be created from the installation of a small residential ground mount.

Additional Information: The solar panels do not emit any more heat than a dark-colored roof top. Glare or reflection was addressed in the previous hearings (January 8, 2026 and April 9, 2026). Solar panels are designed to absorb light of multiple wavelengths. The REC 460W Alpha Pure panels installed are fully black (cells and frame) and are designed to reduce reflection compared to older models. They have low specular reflectance so they produce less glare than a standard window. In addition, they are treated with an anti-reflective material per the International Electrotechnical Commission regulations.

e. Particulate emissions to the air including smoke, dust, chemicals, gases or fumes, etc., both existing and what may be added by the proposed uses.

Magic Solar Electric: No emissions are created from the installation of a small residential ground mount.

Additional Information: The solar panels do not emit particulates of any kind as a result of its operation. Minimal exhaust was produced during installation as the three columns were driven into the ground by a pile driver.

f. Water demand, discharge, supply source, and disposal method for potable uses, domestic uses, and fire protection. Identify existing surface water drainage, wetlands, flood prone areas and potential changes. Identify existing groundwater and surface water quality and potential changes due to this proposal.

Magic Solar Electric: NA, no water is required for the installation or operation of a small residential ground mount.

Additional Information:
Water Demand
The solar panel installation does not have a direct use of water. However, the proposed mitigation screen will involve planting vegetation. Young, new plantings will be irrigated until mature enough to adequately develop a self-sustaining root network.

Discharge
The solar panels do not discharge water as a matter of day-to-day operations. The panels will shed precipitation in the same manner a roof would on a home. This runoff will be managed using the same methods used to manage stormwater runoff from the garage and home. Drip line runoff will be captured in gravel drains that direct stormwater away from the structure towards the well-vegetated forest floor.

Supply Source
Water supply for the property is from a permitted domestic well. The solar panels will not consume water. The panels may be occasionally washed with water (estimated to be once per year). This activity will consume a small amount of water by evaporation; the bulk of water will runoff and be consumed by surrounding vegetation or recharged to the underlying aquifer.

Disposal
Stormwater runoff from the panels will be distributed on the natural ground surface and will be consumed by vegetation, evaporation, and recharge to the underlying aquifer.

Domestic and Fire Protection
The solar panels do not present a fire hazard to the area.

Topography
The property consists of a main south-trending drainage with 40 - 50 ft of relief to the east and the west. The east slope is forested by natural conifers. The west slope is thinly forested with open grassy and forb cover. West of the drainage, the slope climbs approximately 40 ft (vertical) at an 11% grade (6.3 degrees) before cresting, forming a broad knoll, at an elevation of 5,000 ft above mean sea level. The gentle crest then descends westward at a grade of approximately 9% or 5 degrees on the adjacent property to the west. The home and solar installation are located east and downslope of the top of the knoll (see Attachment A, Photographs and Figures, Figure 1). The panels are located just north of the garage in an area where the natural drainage is to the east. The panels were installed on a small cut and fill bench in an area that was previously disturbed by site preparation for building the home. The building pad for the array was compacted.

Surface Water Drainage
Runoff, when it occurs, is caused by local, high-intensity precipitation events, and rapid snow melt. The panels themselves act like a roof top and intercept rainfall that directly falls over the pad. Precipitation runs off the panels which slope toward the south. The drip line will be armored with gravel aggregate which prevents erosion of underlying soils. Underflow from the base of the aggregate will flow under controlled velocity to the east and into well-vegetated slope that further protects the slope from erosion.

A seasonal wetland is present in the south-trending drainage, approximately 450 feet away from the panels. From our observations, this wetland may have visible surface water for a few months during spring and early summer. Grasses and rush are the main vegetation types. The upland areas both east and west and north and south are naturally well-vegetated and no unusual natural erosional features such as rills or gulleys are present.

g. Fire, explosion, and other hazards existing and proposed. Identify how activities on neighboring property may affect the proposed use.

Magic Solar Electric: Small Ground mounted solar panels for personnel use pose very limited fire risk or hazard. The System has been reviewed and approved by Idaho Power and State DOPL electrical permitting that the proposed plan is following local and national electric code.

Additional Information: The solar panels are not prone to fire, explosions or other hazards. The panel system consists of virtually all metal and glass composite materials. The panels are static with the exception that the angle to the horizon can be manually changed. The azimuth, the direction the panels face, cannot be changed. It is not anticipated that activities on neighboring properties will affect the proposed use as an appropriate set back was used.

h. Removal of existing vegetation or effects thereon including disturbance of wetlands, general stability of soils, slopes, and embankments and the potential for sedimentation of disturbed soils.

Magic Solar Electric: Current site location has already been scrubbed due to the construction of the residence currently underway. The ground mount is located close enough to the planned residence there is no concerns to soil, slopes and other potential for sedimentation of disturbed soils.

Additional Information: Outside of the footprint of the solar array, vegetation on the property consists of grasses, forbs, shrubs, young saplings and fully mature conifers (lodgepole and Ponderosa). However, the top of the knoll and the west portion of the property is open grass and forbs. This cover plays a key role in protecting soils from erosion.

i. Include practices that will be used to stabilize soils and restore or replace vegetation.

Magic Solar Electric: Current site location has already been scrubbed due to the construction of the residence currently underway. The ground mount is located close enough to the planned residence there is no concerns to soil, slopes and other potential for sedimentation of disturbed soils.

Additional information: None

j. Soil characteristics and potential problems in regard to slope stability, embankments, building foundation, utility and road construction. Include suitability for supporting proposed landscaping.

***Magic Solar Electric**: Current site location has already been scrubbed due to the construction of the residence currently underway. The ground mount is located close enough to the planned residence there is no concerns to soil, slopes and other potential for sedimentation of disturbed soils.*

Soils

Soils, as observed on the property, form a moderately think veneer over decomposed granitic rock. Soil thickness varies from about 2 to 5 feet in the area of the constructed home site. Poorly consolidated, decomposed granite, grading to more competent granitic rock underlies soils. Because of these geologic materials, a general reduced amount of ground moisture due to the upland location, and moderately sloped topography, slope stability issues are not of concern – surrounding slopes in the area bare no evidence of slope failures. The foundation of the solar panels consists of compacted native soils. The panels are supported by three 8-inch diameter steel pile pipes, that have been driven into the ground several feet below natural grade. The building site does not interfere with any private or public roads or utilities. The building site was selected, in part, due to its relatively gentle slope and proximity to the garage where electrical connections and equipment could be installed.

Soils and topography are ideally suitable for supporting the native landscaping that has been proposed to effectively screen visibility of the solar panels. Shallow soils are a dark brown loam and currently support a diverse variety of grasses, forbs, and coniferous trees. Irrigation will be used as needed to support any planted vegetation.

A soil report was compiled from data obtained from the NRCS web soil survey website (https:\\websoilsurvey.nrcs.usda.gov/app/) and is presented in Attachment B.

k. Site grading or improvements including cuts and fills, drainage courses and impoundments, sound and sight buffers, landscaping, fencing, utilities, and open areas.

Magic Solar Electric: Current site location has already been scrubbed due to the construction of the residence currently underway. Minimal amount of fill has been brought in to level the area where the ground mount will be installed.

Additional Information: As previously mentioned, site grading for the solar panels consists of a shallow (approximately 1 foot high on the upslope end) cut and fill. The created pad is roughly 50 ft by 20 feet, and is located approximately 30 feet directly north of the garage. A single south-trending drainage transects the property approximately 375 feet east and downslope of the solar panels. Drainage from the solar panel area will flow downhill to the east. Disturbed soil surfaces will be protected through the use of common best management practices including rock aggregate, rock barriers, and/or vegetation. No impoundments are present or proposed. Sound buffers or barriers are not necessary as the solar panels do not make any noise. Landscaping improvements are discussed in Section I.

l. Visibility from public roads, adjoining property, and buildings. Include what will be done to reduce visibility of all parts of the proposal but especially cuts and fills and buildings. Include the effect of shadows from new features on neighboring property.

Magic Solar Electric: The ground mount will be minimally visible to not visible at all from public roadways. The ground mount will be visible to the neighbors to the north, which are at a higher elevation than the propose location which will decrease visibility to that neighbor.

Additional Information: Please see photographs and figures in Attachment A. The photographs show aerial views of the McClellen/Smith property and surrounding properties, several views approaching the McClellen/Smith property from the north on Flicker Road. Figures address property acreage and distances from the solar array, topography, and a mitigation plan.

There are three residences in the Jughandle subdivision that reside on Flicker Road north of the cul-de-sac; two of which are listed as appellants to C.U.P. 25-032. The applicant property is not within the Jughandle subdivision and is the one of two parcels located immediately south of the cul-de-sac. The property immediately to the west of the applicant's property is also an appellant to C.U.P. 25-032.

The three Jughandle residences are located at distances of approximately 260 ft, 850 ft, and 950 ft north and northwest of the solar panels (see Attachment A, Figure 1 and 2). Of these properties, the solar panels are only directly visible from the closest home (the Krumm Property) in a portion of the 230-ft long driveway north of the applicant's property; this property owner is not an appellant to C.U.P. 25-032. The panels are barely visible from the next northern residence (850 ft) and the residence that is 950 ft north-northwest of the panels. This is because the panels are a substantial distance from these homes, the array is at a lower elevation, and there are numerous existing trees that partially screen the array.

The property to the west is currently under development. The owners of that property would see the panels briefly if they choose to look east as they enter their driveway before they turn west to their building site. The home, when built, will be well downslope west (approximately a 20 ft drop in elevation from the top of the knoll) and therefore, the solar panels are not anticipated to be visible from the first floor.

The panels are visible from the house on the adjoining lot to the southwest. These residents are not opposed to the panels, but were originally concerned about a reflection or glare from the panels during certain times of the year. These concerns have been addressed as the panels are inherently constructed with materials of low reflectance.

At the initial (January 8, 2026) Planning and Zoning (P&Z) hearing, the board directed the applicants to work with opposing neighbors to resolve visibility issues. The board mentioned the possible solutions of landscaping or relocation of the panels. The applicants presented several visibility "buffers" and screening concepts to neighbors in the area. These conceptual screens were submitted to neighbors by hardcopy (USPS), email, and/or personal discussions. These concepts consisted of a combination of an earthen berm with planted conifer trees and other native or non-native shrubs, and a broken distribution of vertical wooden and/or metal blinds. This general concept would be effective and is a common solution to reduce or remove visibility issues. In addition to this, the back of the panels, which are white in color, would be covered in an all-weather dark fabric to greatly reduce visibility should the panels be rotated to a greater angle.

It should also be noted that if the panels were not constructed, the casual observer looking south from the end of the cul-de-sac would see the back of the garage/house (which is broader and higher than the panels) and not an unobstructed view of open terrain.

During the second P&Z hearing a landscaping plan was presented. The goals of this plan are to screen views of the panels from four vantage points: the south end of the cul-de-sac, the driveway of the property directly north of the residence (Krumm property), the driveway of the property to the west (Ronay property) and the property to the southwest (Wright property). Screening is to be accomplished by constructing a berm approximately 20 feet from the panels to gain elevation from ground that is already sloping up and away from the berms. The berm would average 3 feet in height if measured from the south and east portions of the berm. On the north and west side of the berm the ground would slope out over approximately 20 ft so as to lend with the rolling topography that is already present.

Kirstin Muench of Franz Witte nursery and Melissa Hamilton of the University of Idaho Extension were contacted to receive expert guidance on tree and shrub selection. The applicant also met with Kirstin Muench to discuss the variety and plant heights of what they would have in stock to begin the 2026 planting season. MG Designs, a landscape design firm, was contracted to provide a schematic of the site plan depicting the berm and plantings and a 3D rendering of how trees could be used to screen the array (see Attachment A, Photo 13). In addition, the NRCS soil report (Attachment B) addresses the suitability of soils for planting as well as the expected height of selected species over a 20-year period, including Ponderosa pine, Rocky mountain juniper, Blue spruce, Golden willow, Siberian peashrub, and common lilac. Site soils are rated as "well suited" for hand planting.

Ultimately, with input from three neighbors, it was proposed at the April 9th P&Z hearing to plant the berm with native evergreens to blend with current vegetation on the property. Proposed species are Ponderosa Pine, Western White Pinel, and Spruce as these trees are naturally occurring on the property.

The applicants, as of April 10th, 2026, have transplanted over 30 conifer saplings near the top of the knoll between the end if the cul-de-sac and solar panels in an effort to begin the screening process.

m. Reasons for selecting the particular location including topographic, geographic and similar features, historic, adjoining land ownership or use, access to public lands, recreation, utilities, streets, etc., in order to illustrate compatibility with and opportunities presented by existing land uses or character.

Magic Solar Electric: The area was selected due to the proximity to the home as well as the minimal excavation/trenching that would be required by selecting this location.

Additional Information: The location of the solar panels north of the garage was selected because it was considered the most advantageous overall:

- *The slope grade was gentle to moderate providing a stable pad with minimal cut and fill.*
- *The panels would be aligned with the garage and not consume additional view shed to the south.*

- *Existing trees along the property line to the north already formed a partial screen.*
- *The addition of further earth, vegetative, and panel screening would effectively block visibility to the panels.*
- *Reduced costs and improved power efficiency due to proximity to main power hook-up.*

A location to the east in the back of the property would be much further from the power hook-up and also be fully exposed to the neighbor to the north from their south porch (see Attachment A, Photo 11).

Any location on the southern or west side of the property is in open grassland and would fully expose the panels as an isolated and highly visible structure.

It was originally thought that the panels would be installed on the roof. However, it was desirable to have the panels operating productively a large part of the time. With the known amount of snow cover in the area, it would be necessary to rotate the panels upward during high snow accumulation periods to avoid the panels from collecting heavy snow cover. Building such an array on a roof top was impractical and would be unsafe from a snow removal process.

n. Increased Revenue: Approximation of increased revenue from change in property tax assessment, new jobs available to local residents, and increased local expenditures.

***Magic Solar Electric**: Value of property has yet to be assessed from new construction of this project and the current residence under construction.*

Solar arrays typically increase property value resulting in increased revenue from property taxes. Property value is increased due to guaranteed lower utility bills; solar panels fulfill a desire of homeowners to have modern technology and upgrades; and, eco conscious buyers view solar arrays as a desirable feature. New homes are increasingly being built to be fully electric (including heating systems). Also, the projected electricity demand is expected to increase substantially, partially due to data centers coming online and private panels connected to the grid contribute to that demand.

o. Approximation of costs for additional public services, facilities, and other economic impacts.

***Magic Solar Electric**: There should be no additional cost to public services due to the addition of a privately owned small residential ground mount.*

Additional Information: None

p. State how the proposed development will impact existing developments providing the same or similar products or services.

***Magic Solar Electric**: There should be no impact to existing developments.*

Additional Information: None

q. State what natural resources or materials are available at or near the site that will be used in a process to produce a product and the impacts resulting from the depletion of the resource. Describe the process in detail and describe the impacts of each part.

Magic Solar Electric: *NA*

Additional Information: Mitigation screening will involve the use of onsite or imported soils and vegetation. Considering that this activity is part of normal landscaping, no depletion of resources is expected.

r. What will be the impacts of a project abandoned at partial completion?

Magic Solar Electric*: The foundation is a driven pile which requires no concrete, so the foundation posts could easily be removed and soil returned to its original state if project was abandoned.*

Additional Information: None

s. Number of residential dwelling units, other buildings and building sites, and square footage or gross nonresidential floor space to be available.

Magic Solar Electric: *Please see building permit or residence if this information is required.*

Additional Information: None

t. Stages of development in geographic terms and proposed construction time schedule.

Magic Solar Electric: *Two to three weeks of proposed construction time.*

Additional Information: *Construction is complete.*

u. Anticipated range of sale, lease or rental prices for dwelling units, building or other site, or nonresidential floor space in order to ensure compatibility with adjacent land use and development.

Magic Solar Electric: NA

Additional Information: The property has a single residential home.

Attachment A

Photographs and Figures

Photo 1: Flicker Rd cul-de-sac showing the properties involved in the appeal in relation to the solar panels (east is at the top of the photo). Krumm and Wright are not appealing the P & Z ruling. The distance from the Pedersen home to the array is approximately 850 ft. The distance from the Silverman home to the array is approximately 950 ft. The distance from the Ronay building pad to the array is approximately 585 ft.

The Smith/McClellen property is located southeast of the knoll located at the end of the cul-de-sac. Predominately ponderosa pine and lodgepole pine are scattered in the midsection of the property. The eastern portion of the property is densely forested. Photo: Mark McClellen 5/18/2026

Photo 2: View looking east from the south end of Flicker Rd cul-de-sac. Krumm home is on the left. Smith/McClellen home and array is in the center, and Wright home is on the right. Ronay driveway entrance is shown in the lower right, Solar array is topographically lower than driveway. Photo: Mark McClellen 5/10/2026

Photo 3: View looking south down Smith/McClellen driveway from the end of Flicker Rd cul-de-sac. Krumm home is on the left. Smith/McClellen home and array is in the center, and Wright home is on the right. Solar array is topographically lower than driveway. Photo: Mark McClellen 5/10/2026

Photo 4: View looking south on Flicker Rd. Pedersen driveway is on the left near a mailbox and Silverman driveway is on the right. Flicker Rd decreases in elevation from photo point before rising again at the end of the cul-de-sac. Smith/McClellen home is shown at the end of the road on the left. Photo: Mark McClellen 5/10/2026

Photo 5: Same as Photo 4 except this photo was taken further south on Flicker Rd. Pedersen driveway is on the left in the foreground. Photo: Mark McClellen 5/10/2026

Photo 6: Same as Photo 5 except this photo was taken further south on Flicker Rd. Photo: Mark McClellen 5/10/2026

Photo 7: Photo looking east from the end of the cul-de-sac. Krumm garage is on the left. Solar array is on the right. Photo: Mark McClellen 5/10/2026

Photo 8: View looking south from Smith/McClellen driveway. Photo: Mark McClellen 5/10/2026

Photo 9: View looking southeast from Smith/McClellen driveway. Sapling pines are shown in the field in the foreground. Photo: Mark McClellen 5/10/2026

Photo 10. View looking north/northwest at solar array directly north of garage. The camouflage netting was **not** intended to be a permanent solution for screening. Photo: Mark McClellen 5/10/2026

Photo 11. View taken from the northeast side of the Smith/McClellen home looking north toward southern side of Krumm home. Photo: Mark McClellen 5/10/2026

Photo 12. Photo is taken from the knoll in the northwest portion of the property. View is to the southeast. Two artificial Christmas trees are in the foreground of the solar array to demonstrate how planting trees on the knoll could effectively screen the array. The larger tree on the left is a 9 ft tree. Photo: Kristen McClellen 3/4/2026

Photo 13. This is a 3D rendering (trees have been added to photo) of how a planted berm may look.

Prepared By MD Designs, LLC.

Figure 1. Topographic map created from Valley County GIS website with topographic overlay. Contour interval is 20 feet. The figure shows that Flicker Rd runs south down a broad ridge with drainage to the east and west. This ridge terminates in a broad knoll in the northwest corner of the Smith/McClellen property.

Flicker Road Area

5/17/2026, 8:35:53 PM

Figure 2. Flicker Road Residents with Acreage and Distance from Solar Array at the Smith/McClellen Property.

1:4,514

0 0.03 0.06 0.11 mi

0 0.04 0.09 0.17 km

Vantor

Valley County

Vantor | BLM Admin State | Valley County | Valley County GIS

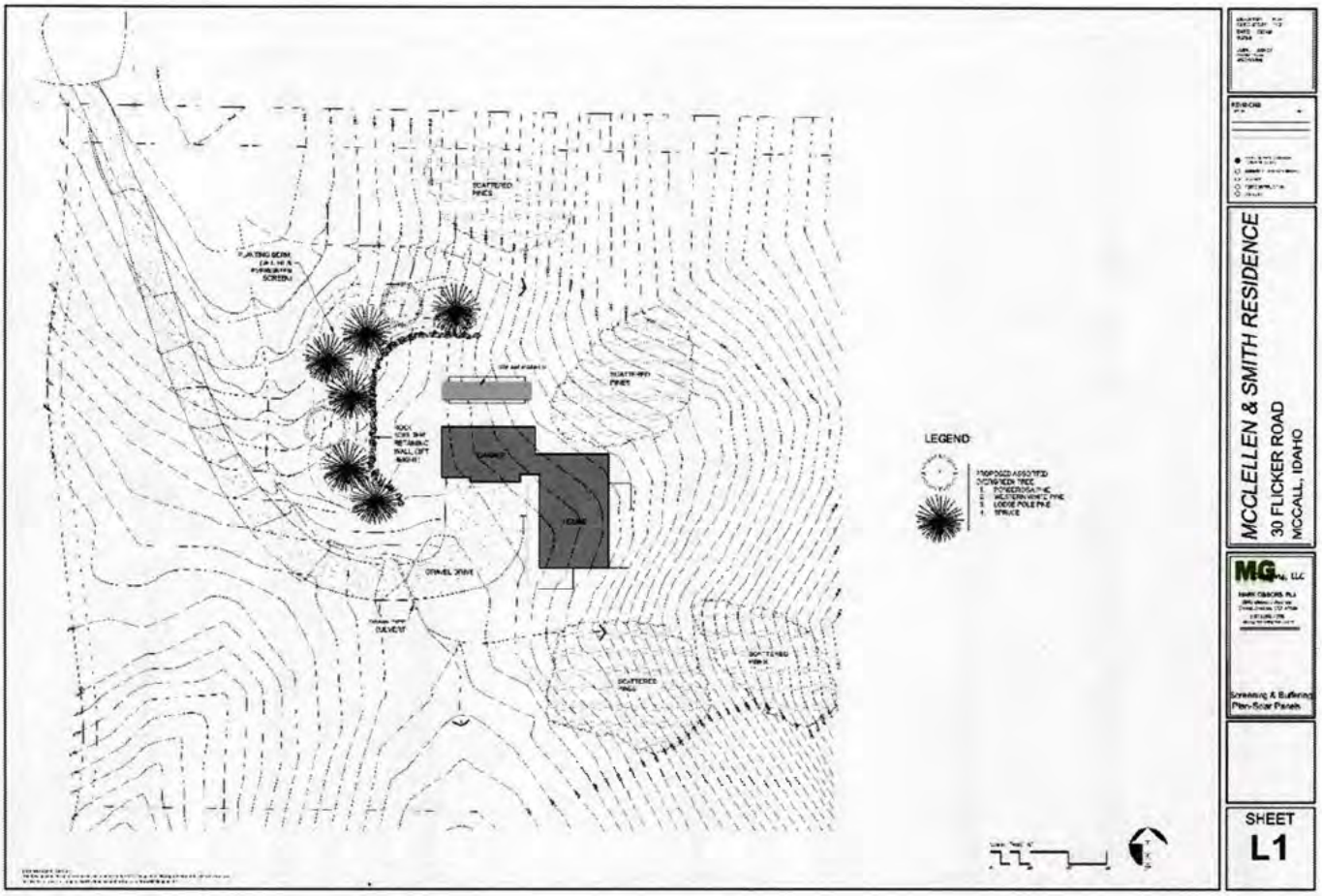


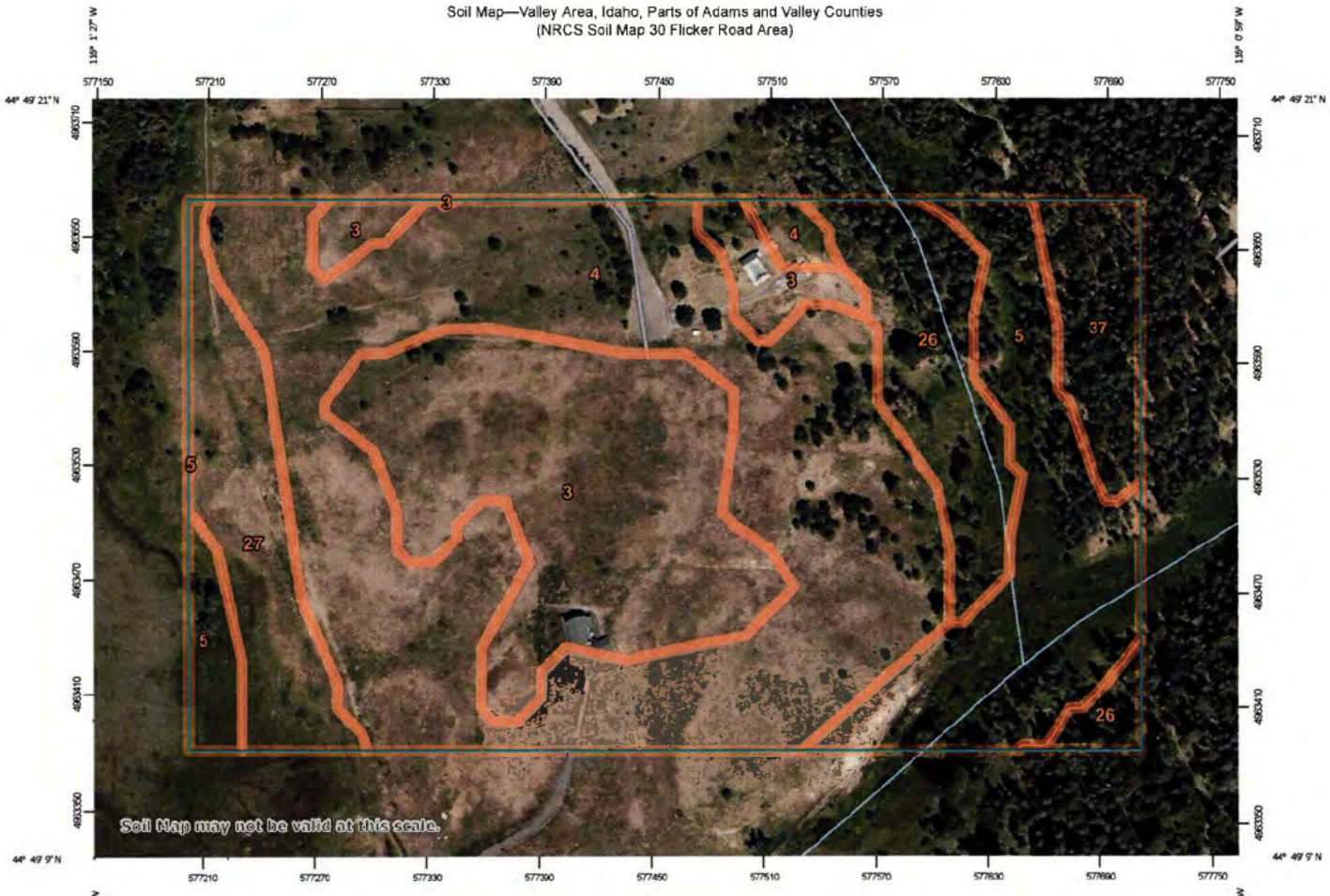
Figure 3. Landscaping Site Plan. North is at the top. The design shows the approximate shape and location of the proposed berm and plantings. Prepared By MD Designs, LLC.

ATTACHMENT B

NRCS Soil Map 30 Flicker Road Area

Valley County, Idaho C.U.P. 25-032
McClellen/Smith Solar Panels

Soil Map—Valley Area, Idaho, Parts of Adams and Valley Counties
(NRCS Soil Map 30 Flicker Road Area)



Map Scale: 1:2,800 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 26, 2022—Oct 12, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3	Archabal loam, 4 to 12 percent slopes	8.2	22.6%
4	Archabal loam, 12 to 20 percent slopes	15.1	41.5%
5	Blackwell silt loam, frequently flooded	5.5	15.0%
26	Jugson coarse sandy loam, 30 to 60 percent slopes	3.2	8.7%
27	Jurvannah sandy loam	2.8	7.8%
37	Nisula loam, 4 to 12 percent slopes	1.6	4.5%
Totals for Area of Interest		**36.5**	**100.0%**

Physical Soil Properties

This table shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In this table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In this table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, saturated hydraulic conductivity (Ksat), plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3- or 1/10-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute linear extensibility, shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates in the table are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity (Ksat) is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. The amount and type of clay minerals in the soil influence volume change.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In this table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter. The content of organic matter in a soil can be maintained by returning crop residue to the soil.

Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in the table as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and Ksat. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind and/or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the "National Soil Survey Handbook."

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Reference:
United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. (http://soils.usda.gov)

Report—Physical Soil Properties

Physical Soil Properties–Valley Area, Idaho, Parts of Adams and Valley Counties														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
3—Archabal loam, 4 to 12 percent slopes														
Archabal	0-14	-41-	-37-	18-22-25	1.25-1.45	4.00-14.00	0.20-0.22	3.0-5.9	3.0-5.0	.17	.17	4	6	48
	14-31	-41-	-37-	18-22-25	1.25-1.45	4.00-14.00	0.17-0.19	3.0-5.9	3.0-5.0	.28	.28			
	31-52	-67-	-19-	10-15-20	1.60-1.70	14.00-42.00	0.10-0.12	0.0-2.9	0.0-0.5	.20	.20			
	52-60	-89-	- 4-	2-7-12	1.70-1.80	42.00-141.00	0.04-0.05	0.0-2.9	0.0-0.5	.02	.02			
4—Archabal loam, 12 to 20 percent slopes														
Archabal	0-14	-41-	-37-	18-22-25	1.25-1.45	4.00-14.00	0.20-0.22	3.0-5.9	3.0-5.0	.17	.17	4	6	48
	14-31	-41-	-37-	18-22-25	1.25-1.45	4.00-14.00	0.17-0.19	3.0-5.9	3.0-5.0	.28	.28			
	31-52	-67-	-19-	10-15-20	1.60-1.70	14.00-42.00	0.10-0.12	0.0-2.9	0.0-0.5	.20	.20			
	52-60	-89-	- 4-	2-7-12	1.70-1.80	42.00-141.00	0.04-0.05	0.0-2.9	0.0-0.5	.02	.02			
5—Blackwell silt loam, frequently flooded														
Blackwell	0-1	10-30-32	50-54-72	15-17-18	1.35-1.45	4.00-14.00	0.15-0.17	1.5-2.1	2.0-4.0	.37	.37	3	5	56
	1-11	25-35-40	25-33-43	30-33-35	1.30-1.50	1.40-4.00	0.14-0.21	3.9-5.2	0.0-0.5	.32	.32			
	11-19	50-55-75	0-17-28	20-28-35	1.35-1.50	4.00-14.00	0.13-0.19	1.8-5.2	0.0-0.5	.20	.20			
	19-27	50-55-75	0-17-28	20-28-35	1.35-1.50	4.00-14.00	0.13-0.19	1.7-5.2	0.0-0.5	.20	.20			
	27-60	65-84-85	0-6-23	6-10-20	1.40-1.55	42.00-141.00	0.12-0.15	0.4-1.9	0.0	.10	.10			

Physical Soil Properties–Valley Area, Idaho, Parts of Adams and Valley Counties

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
26—Jugson coarse sandy loam, 30 to 60 percent slopes														
Jugson	0-1	—	—	—	0.10-0.30	50.00-700.00	0.15-0.45	—	60.0-95.0			3	3	86
	1-2	—	—	—	0.10-0.30	50.00-150.00	0.15-0.45	—	60.0-95.0					
	2-2	55-66-70	15-24-36	5-10-15	1.40-1.50	14.00-42.00	0.10-0.12	0.3-1.7	1.0-2.0	.15	.15			
	2-22	55-66-70	15-24-36	5-10-15	1.40-1.50	14.00-42.00	0.10-0.12	0.3-1.7	1.0-2.0	.15	.15			
	22-37	75-79-90	-17-	2-4-6	1.40-1.60	50.00-100.00	0.04-0.06	0.1-0.6	0.0-0.5	.24	.24			
	37-41	—	—	—	—	0.02-2.00	—	—	—					
	41-51	—	—	—	—	0.00-0.10	—	—	—					
27—Jurvannah sandy loam														
Jurvannah	0-6	-66-	-24-	2-9-15	1.40-1.60	14.00-42.00	0.11-0.15	0.0-2.9	2.0-4.0	.17	.17	4	3	86
	6-22	-94-	- 1-	0-5-10	1.50-1.65	141.00	0.03-0.06	0.0-2.9	0.0-0.5	.02	.02			
	22-60	-94-	- 1-	0-5-10	1.50-1.70	141.00	0.02-0.03	0.0-2.9	0.0-0.5	.02	.02			
37—Nisula loam, 4 to 12 percent slopes														
Nisula	0-25	35-41-50	28-37-47	18-22-25	1.20-1.40	4.00-14.00	0.13-0.21	1.4-2.6	2.0-3.0	.32	.32	5	6	48
	25-51	15-35-35	30-33-50	30-33-35	1.30-1.50	1.40-4.00	0.14-0.21	3.2-4.6	0.0-0.5	.32	.32			
	51-60	55-55-70	2-17-25	20-28-35	1.35-1.50	4.00-14.00	0.13-0.19	1.3-4.6	0.0-0.5	.20	.20			

Data Source Information

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025

Engineering Properties

This table gives the engineering classifications and the range of engineering properties for the layers of each soil in the survey area.

Hydrologic soil group is a group of soils having similar runoff potential under similar storm and cover conditions. The criteria for determining Hydrologic soil group is found in the National Engineering Handbook, Chapter 7 issued May 2007(http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba). Listing HSGs by soil map unit component and not by soil series is a new concept for the engineers. Past engineering references contained lists of HSGs by soil series. Soil series are continually being defined and redefined, and the list of soil series names changes so frequently as to make the task of maintaining a single national list virtually impossible. Therefore, the criteria is now used to calculate the HSG using the component soil properties and no such national series lists will be maintained. All such references are obsolete and their use should be discontinued. Soil properties that influence runoff potential are those that influence the minimum rate of infiltration for a bare soil after prolonged wetting and when not frozen. These properties are depth to a seasonal high water table, saturated hydraulic conductivity after prolonged wetting, and depth to a layer with a very slow water transmission rate. Changes in soil properties caused by land management or climate changes also cause the hydrologic soil group to change. The influence of ground cover is treated independently. There are four hydrologic soil groups, A, B, C, and D, and three dual groups, A/D, B/D, and C/D. In the dual groups, the first letter is for drained areas and the second letter is for undrained areas.

The four hydrologic soil groups are described in the following paragraphs:

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.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly."

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Percentage of rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

References:

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Report—Engineering Properties

Absence of an entry indicates that the data were not estimated. The asterisk "*" denotes the representative texture; other possible textures follow the dash. The criteria for determining the hydrologic soil group for individual soil components is found in the National Engineering Handbook, Chapter 7 issued May 2007(http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba). Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Engineering Properties–Valley Area, Idaho, Parts of Adams and Valley Counties														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
3—Archabal loam, 4 to 12 percent slopes														
Archabal	80	B	0-14	Loam	CL, ML	A-6, A-7	0-0-0	0-0-0	95-96-100	84-91-100	71-81-92	52-59-69	35-41-47	12-15-17
			14-31	Loam	CL, ML	A-6, A-7	0-0-0	0-0-0	95-96-100	84-91-100	71-81-92	52-59-69	35-41-47	12-15-17
			31-52	Coarse sandy loam	SC, SC-SM	A-6, A-2	0-0-0	0-0-0	95-97-100	86-92-100	50-58-68	28-35-42	20-26-32	6-10-13
			52-60	Coarse sand, loamy coarse sand	SC-SM, SP-SC, SM, SP-SM, SW-SC	A-3, A-2, A-1	0-0-0	0-0-0	96-97-100	87-93-100	39-46-55	7-12-18	0-19-25	NP-4-7

Engineering Properties–Valley Area, Idaho, Parts of Adams and Valley Counties														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
4—Archabal loam, 12 to 20 percent slopes														
Archabal	90	B	0-14	Loam	CL, ML	A-6, A-7	0-0-0	0-0-0	95-96-100	84-91-100	71-81-92	52-59-69	35-41-47	12-15-17
			14-31	Loam	CL, ML	A-6, A-7	0-0-0	0-0-0	95-96-100	84-91-100	71-81-92	52-59-69	35-41-47	12-15-17
			31-52	Coarse sandy loam	SC, SC-SM	A-6, A-2	0-0-0	0-0-0	95-97-100	86-92-100	50-58-68	28-35-42	20-26-32	6-10-13
			52-60	Coarse sand, loamy coarse sand	SW-SC, SP-SM, SM, SP-SC, SC-SM	A-1, A-2, A-3	0-0-0	0-0-0	96-97-100	87-93-100	39-46-55	7-12-18	0-19-25	NP-4-7
5—Blackwell silt loam, frequently flooded														
Blackwell	80	C/D	0-1	Silt loam	CL, ML	A-4, A-6	0-0-0	0-0-0	95-96-100	89-93-100	79-86-97	64-70-83	30-33-37	9-10-12
			1-11	Clay loam	CL	A-7-6, A-6	0-0-0	0-0-0	95-96-100	89-93-100	78-85-94	60-66-76	40-43-46	21-23-25
			11-19	Sandy clay loam	SC, CL	A-6, A-7-6	0-0-0	0-0-0	95-96-100	90-93-100	72-81-94	38-48-59	30-38-46	13-19-25
			19-27	Sandy clay loam	SC, CL	A-2-6, A-7-6, A-6	0-0-0	0-0-0	90-95-100	80-89-100	65-78-94	34-46-59	30-38-46	13-19-25
			27-60	Loamy coarse sand, stratified loamy coarse sand to sandy clay loam	SP-SM, SC, SC-SM	A-1-b, A-2-6	0-0-0	0-0-0	90-95-100	81-90-100	37-45-60	12-17-31	17-21-30	3-6-13

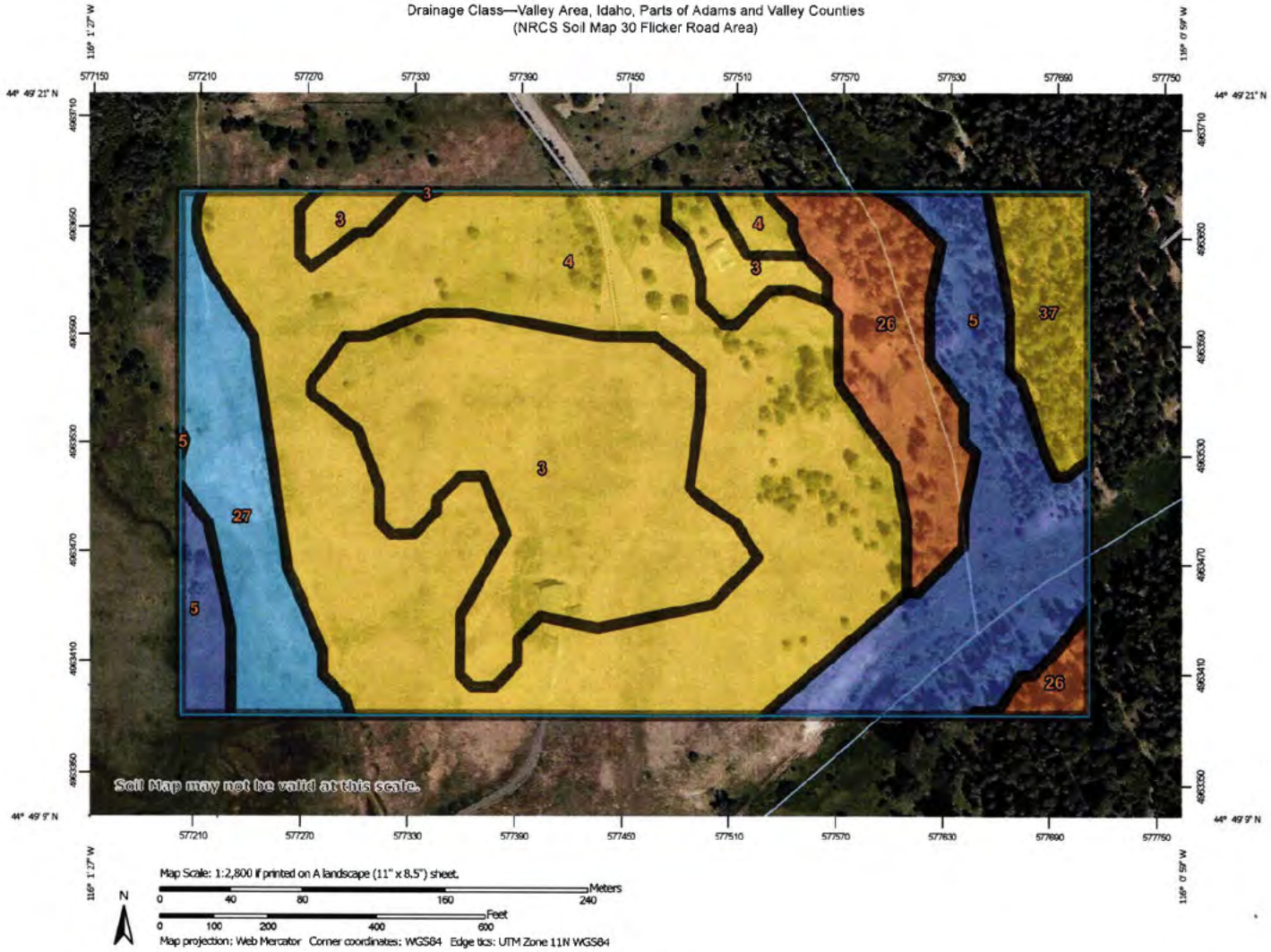
Engineering Properties–Valley Area, Idaho, Parts of Adams and Valley Counties														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
26—Jugson coarse sandy loam, 30 to 60 percent slopes														
Jugson	75	B	0-1	Slightly decomposed plant material	PT	A-8	0-0-0	0-0-0	—	—	—	—	—	—
			1-2	Moderately decomposed plant material	PT	A-8	0-0-0	0-0-0	—	—	—	—	—	—
			2-2	Coarse sandy loam	SC-SM, SC, SM	A-2-4, A-4, A-1-b	0-0-0	0-0-0	90-95-100	76-86-100	45-55-68	25-33-44	18-24-30	2-6-9
			2-22	Coarse sandy loam	SC-SM, SC, SM	A-1-b, A-4, A-2-4	0-0-0	0-0-0	90-95-100	76-86-100	45-55-68	25-33-44	18-24-30	2-6-9
			22-37	Sand, gravelly loamy coarse sand, loamy coarse sand	SC-SM, SM	A-1, A-2	0-0-0	0-0-0	65-90-92	56-85-88	32-51-56	13-22-26	0-16-20	NP-3-4
			37-41	Bedrock	—	—	—	—	—	—	—	—	—	—
			41-51	Bedrock	—	—	—	—	—	—	—	—	—	—
27—Jurvannah sandy loam														
Jurvannah	85	A/D	0-6	Sandy loam	SM, SC-SM	A-2, A-4	0-0-0	0-0-0	100-100-100	100-100-100	70-77-83	32-39-45	0-26-35	NP-5-10
			6-22	Sand, fine gravelly sand	SP, SP-SM, SC-SM	A-1, A-3, A-2	0-0-0	0-0-0	100-100-100	61-76-100	44-59-82	3-8-15	0-17-23	NP-2-6
			22-60	Very gravelly sand, very gravelly coarse sand	SP-SC, SP-SM, SP, SW-SM	A-2, A-1	0-0-0	0-0-0	100-100-100	44-52-79	32-40-65	2-5-12	0-17-23	NP-2-6

Engineering Properties–Valley Area, Idaho, Parts of Adams and Valley Counties														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
37—Nisula loam, 4 to 12 percent slopes														
Nisula	85	C	0-25	Loam	CL	A-6, A-7-6	0-0-5	0-0-0	94-96-100	88-92-100	75-82-93	53-60-71	32-36-41	12-14-17
			25-51	Clay loam, silty clay loam	CL	A-7-6, A-6	0-3-5	0-0-0	94-96-100	89-93-100	78-84-96	61-66-78	39-42-45	21-23-25
			51-60	Sandy clay loam	SC, CL	A-6, A-7-6, A-2-6	0-3-4	0-0-0	90-95-100	79-89-100	65-78-92	34-46-58	29-37-45	13-19-25

Data Source Information

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025

Drainage Class—Valley Area, Idaho, Parts of Adams and Valley Counties
(NRCS Soil Map 30 Flicker Road Area)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Excessively drained
- Somewhat excessively drained
- Well drained
- Moderately well drained
- Somewhat poorly drained
- Poorly drained
- Very poorly drained
- Subaqueous
- Not rated or not available

Soil Rating Lines
- Excessively drained
- Somewhat excessively drained
- Well drained
- Moderately well drained
- Somewhat poorly drained
- Poorly drained
- Very poorly drained
- Subaqueous
- Not rated or not available

Soil Rating Points
- Excessively drained
- Somewhat excessively drained
- Well drained
- Moderately well drained
- Somewhat poorly drained
- Poorly drained
- Very poorly drained
- Subaqueous
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 26, 2022—Oct 12, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Drainage Class

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
3	Archabal loam, 4 to 12 percent slopes	Well drained	8.2	22.6%
4	Archabal loam, 12 to 20 percent slopes	Well drained	15.1	41.5%
5	Blackwell silt loam, frequently flooded	Very poorly drained	5.5	15.0%
26	Jugson coarse sandy loam, 30 to 60 percent slopes	Somewhat excessively drained	3.2	8.7%
27	Jurvannah sandy loam	Poorly drained	2.8	7.8%
37	Nisula loam, 4 to 12 percent slopes	Well drained	1.6	4.5%
Totals for Area of Interest			**36.5**	**100.0%**

Description

"Drainage class (natural)" refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized-excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained. These classes are defined in the "Soil Survey Manual."

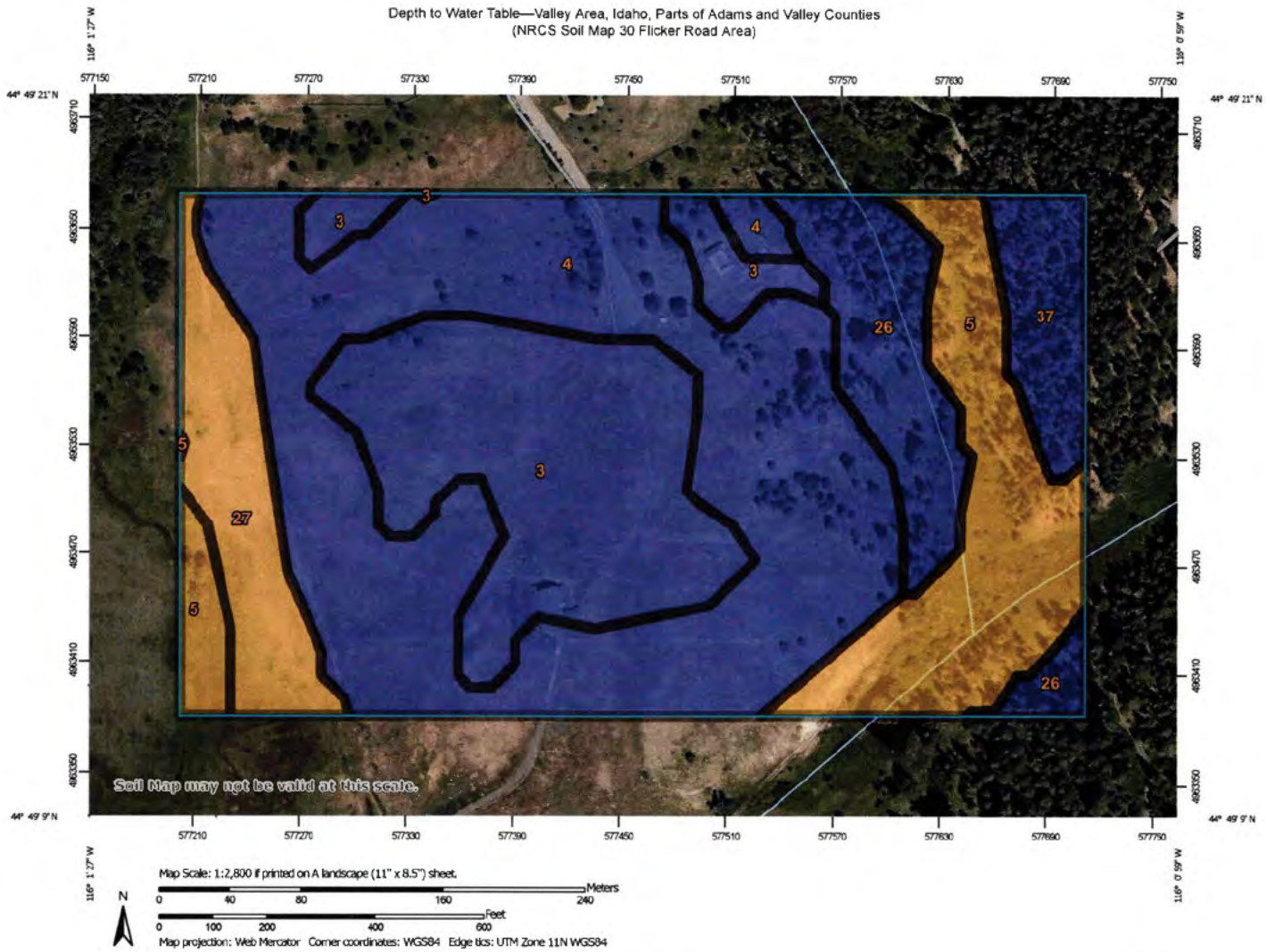
Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Depth to Water Table—Valley Area, Idaho, Parts of Adams and Valley Counties
(NRCS Soil Map 30 Flicker Road Area)



Map Scale: 1:2,800 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Soil Rating Lines
- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Soil Rating Points
- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 26, 2022—Oct 12, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Depth to Water Table

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
3	Archabal loam, 4 to 12 percent slopes	>200	8.2	22.6%
4	Archabal loam, 12 to 20 percent slopes	>200	15.1	41.5%
5	Blackwell silt loam, frequently flooded	30	5.5	15.0%
26	Jugson coarse sandy loam, 30 to 60 percent slopes	>200	3.2	8.7%
27	Jurvannah sandy loam	30	2.8	7.8%
37	Nisula loam, 4 to 12 percent slopes	>200	1.6	4.5%
Totals for Area of Interest			**36.5**	**100.0%**

Description

"Water table" refers to a saturated zone in the soil. It occurs during specified months. Estimates of the upper limit are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

This attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Rating Options

Units of Measure: centimeters

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Interpret Nulls as Zero: No

Beginning Month: January

Ending Month: December

Dwellings and Small Commercial Buildings

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. This table shows the degree and kind of soil limitations that affect dwellings and small commercial buildings.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Information in this table is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this table. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Report—Dwellings and Small Commercial Buildings

[Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. The table shows only the top five limitations for any given soil. The soil may have additional limitations]

Dwellings and Small Commercial Buildings–Valley Area, Idaho, Parts of Adams and Valley Counties							
Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
3—Archabal loam, 4 to 12 percent slopes							
Archabal	80	Somewhat limited		Not limited		Very limited	
		Shrink-swell	0.10			Slope	1.00
						Shrink-swell	0.10

Dwellings and Small Commercial Buildings–Valley Area, Idaho, Parts of Adams and Valley Counties							
Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
4—Archabal loam, 12 to 20 percent slopes							
Archabal	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.10			Shrink-swell	0.10
5—Blackwell silt loam, frequently flooded							
Blackwell	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
26—Jugson coarse sandy loam, 30 to 60 percent slopes							
Jugson	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.01	Depth to hard bedrock	1.00	Depth to hard bedrock	0.01
				Depth to soft bedrock	0.10		
27—Jurvannah sandy loam							
Jurvannah	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
37—Nisula loam, 4 to 12 percent slopes							
Nisula	85	Not limited		Not limited		Very limited	
						Slope	1.00

Data Source Information

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025

Ponds and Embankments

This table gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the saturated hydraulic conductivity (Ksat) of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. Embankments that have zoned construction (core and shell) are not considered. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, Ksat of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Information in this table is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this table. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Report—Ponds and Embankments

[Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. The table shows only the top five limitations for any given soil. The soil may have additional limitations]

Ponds and Embankments--Valley Area, Idaho, Parts of Adams and Valley Counties							
Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Aquifer-fed excavated ponds		Pond reservoir areas	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
3—Archabal loam, 4 to 12 percent slopes							
Archabal	80	Somewhat limited		Very limited		Very limited	
		Piping	0.50	Depth to water	1.00	Seepage	1.00
		Dusty	0.01			Slope	1.00
4—Archabal loam, 12 to 20 percent slopes							
Archabal	90	Somewhat limited		Very limited		Very limited	
		Piping	0.50	Depth to water	1.00	Seepage	1.00
		Dusty	0.01			Slope	1.00

Ponds and Embankments–Valley Area, Idaho, Parts of Adams and Valley Counties							
Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Aquifer-fed excavated ponds		Pond reservoir areas	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
5—Blackwell silt loam, frequently flooded							
Blackwell	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Unstable excavation walls	1.00	Seepage	1.00
		Seepage	0.22				
		Dusty	0.02				
26—Jugson coarse sandy loam, 30 to 60 percent slopes							
Jugson	75	Very limited		Very limited		Very limited	
		Piping	1.00	Depth to water	1.00	Seepage	1.00
		Thin layer	0.70			Slope	1.00
		Seepage	0.35			Depth to bedrock	0.42
27—Jurvannah sandy loam							
Jurvannah	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Unstable excavation walls	1.00	Seepage	1.00
		Seepage	1.00				
37—Nisula loam, 4 to 12 percent slopes							
Nisula	85	Somewhat limited		Very limited		Very limited	
		Dusty	0.02	Depth to water	1.00	Slope	1.00
						Seepage	0.70

Data Source Information

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025

Forestland Planting and Harvesting

This table can help forestland owners or managers plan the use of soils for wood crops. Interpretive ratings are given for the soils according to the limitations that affect planting and harvesting on forestland. The ratings are both verbal and numerical.

Rating class terms indicate the degree to which the soils are suited to a specified aspect of forestland management. *Well suited* indicates that the soil has features that are favorable for the specified management aspect and has no limitations. Good performance can be expected, and little or no maintenance is needed. *Moderately suited* indicates that the soil has features that are moderately favorable for the specified management aspect. One or more soil properties are less than desirable, and fair performance can be expected. Some maintenance is needed. *Poorly suited* indicates that the soil has one or more properties that are unfavorable for the specified management aspect. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration. *Unsuited* indicates that the expected performance of the soil is unacceptable for the specified management aspect or that extreme measures are needed to overcome the undesirable soil properties.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the specified aspect of forestland management (1.00) and the point at which the soil feature is not a limitation (0.00).

The paragraphs that follow indicate the soil properties considered in rating the soils. More detailed information about the criteria used in the ratings is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

Ratings in the columns *suitability for hand planting* and *suitability for mechanical planting* are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, moderately suited, poorly suited, or unsuited to these methods of planting. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *suitability for use of harvesting equipment* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, and ponding. The soils are described as well suited, moderately suited, or poorly suited to this use.

Reference:
United States Department of Agriculture, Natural Resources Conservation Service, National forestry manual.

Report—Forestland Planting and Harvesting

[Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. The table shows only the top five limitations for any given soil. The soil may have additional limitations]

Forestland Planting and Harvesting–Valley Area, Idaho, Parts of Adams and Valley Counties							
Map symbol and soil name	Pct. of map unit	Suitability for hand planting		Suitability for use of harvesting equipment		Suitability for mechanical planting	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
4—Archabal loam, 12 to 20 percent slopes							
Archabal	90	Well suited		Well suited		Poorly suited	
				Low strength	0.15	Slope	0.74
27—Jurvannah sandy loam							
Jurvannah	85	Moderately suited		Well suited		Moderately suited	
		Sandiness	0.02	Sandiness	0.02	Rock fragments	0.05
37—Nisula loam, 4 to 12 percent slopes							
Nisula	85	Well suited		Well suited		Moderately suited	
				Low strength	0.12	Slope	0.20
3—Archabal loam, 4 to 12 percent slopes							
Archabal	80	Well suited		Well suited		Moderately suited	
				Low strength	0.15	Slope	0.20
5—Blackwell silt loam, frequently flooded							
Blackwell	80	Moderately suited		Moderately suited		Moderately suited	
		Stickiness	0.26	Low strength	0.33	Stickiness; high plasticity index	0.22
26—Jugson coarse sandy loam, 30 to 60 percent slopes							
Jugson	75	Moderately suited		Poorly suited		Unsuited	
		Slope	0.10	Slope	1.00	Slope	1.00

Data Source Information

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025

Windbreaks and Environmental Plantings

Windbreaks protect livestock, buildings, yards, fruit trees, gardens, and cropland from wind and snow; help to keep snow on fields; and provide food and cover for wildlife. Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

This table shows the height that locally grown trees and shrubs are expected to reach in 20 years on soils in the survey area. The estimates are based on measurements and observation of established plantings that have been given adequate care. They can be used as a guide in planning windbreaks and screens. Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from the local office of the Natural Resources Conservation Service or of the Cooperative Extension Service or from a commercial nursery.

Report—Windbreaks and Environmental Plantings

Windbreaks and Environmental Plantings–Valley Area, Idaho, Parts of Adams and Valley Counties					
Map symbol and soil name	Trees having predicted 20-year average height of—				
	8 feet or less	>8 to 15 feet	>15 to 25 feet	>25 to 35 feet	>35 feet
3—Archabal loam, 4 to 12 percent slopes					
Archabal	—	Siberian peashrub Common lilac	Rocky mountain juniper Blue spruce Golden willow	Ponderosa pine	—
4—Archabal loam, 12 to 20 percent slopes					
Archabal	—	Siberian peashrub Common lilac	Rocky mountain juniper Blue spruce Golden willow	Ponderosa pine	—
5—Blackwell silt loam, frequently flooded					
Blackwell	—	—	—	—	—
26—Jugson coarse sandy loam, 30 to 60 percent slopes					
Jugson	—	—	—	—	—

Windbreaks and Environmental Plantings–Valley Area, Idaho, Parts of Adams and Valley Counties					
Map symbol and soil name	Trees having predicted 20-year average height of—				
	8 feet or less	>8 to 15 feet	>15 to 25 feet	>25 to 35 feet	>35 feet
27—Jurvannah sandy loam					
Jurvannah	—	—	—	—	—
37—Nisula loam, 4 to 12 percent slopes					
Nisula	—	—	—	—	—

Data Source Information

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025

RUSLE2 Related Attributes

This report summarizes those soil attributes used by the Revised Universal Soil Loss Equation Version 2 (RUSLE2) for the map units in the selected area. The report includes the map unit symbol, the component name, and the percent of the component in the map unit. Soil property data for each map unit component include the hydrologic soil group, erosion factor Kf for the surface horizon, erosion factor T, and the representative percentage of sand, silt, and clay in the mineral surface horizon. Missing surface data may indicate the presence of an organic layer.

Report—RUSLE2 Related Attributes

Soil properties and interpretations for erosion runoff calculations. The surface mineral horizon properties are displayed or the first mineral horizon below an organic surface horizon. Organic horizons are not displayed.

RUSLE2 Related Attributes–Valley Area, Idaho, Parts of Adams and Valley Counties

Map symbol and soil name	Pct. of map unit	Slope length (ft)	Hydrologic group	Kf	T factor	Representative value		
						% Sand	% Silt	% Clay
3—Archabal loam, 4 to 12 percent slopes								
Archabal	80	502	B	.17	4	41.4	37.1	21.5
4—Archabal loam, 12 to 20 percent slopes								
Archabal	90	325	B	.17	4	41.4	37.1	21.5
5—Blackwell silt loam, frequently flooded								
Blackwell	80	200	C/D	.37	3	29.5	54.0	16.5
26—Jugson coarse sandy loam, 30 to 60 percent slopes								
Jugson	75	49	B	.15	3	66.3	23.7	10.0
27—Jurvannah sandy loam								
Jurvannah	85	653	A/D	.17	4	67.8	23.7	8.5
37—Nisula loam, 4 to 12 percent slopes								
Nisula	85	131	C	.32	5	41.4	37.1	21.5

Data Source Information

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025

Conservation Planning

This report provides those soil attributes for the conservation plan for the map units in the selected area. The report includes the map unit symbol, the component name, and the percent of the component in the map unit. It provides the soil description along with the slope, runoff, T Factor, WEI, WEG, Erosion class, Drainage class, Land Capability Classification, and the engineering Hydrologic Group and the erosion factors Kf, the representative percentage of fragments, sand, silt, and clay in the mineral surface horizon. Missing surface data may indicate the presence of an organic surface layer. Further information on these factors can be found in the National Soil Survey Handbook section 618 found at the url http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/ref/?cid=nrcs142p2_054223#00 .

Report—Conservation Planning

Soil properties and interpretations for conservation planning. The surface mineral horizon properties are displayed. Organic surface horizons are not displayed.

Conservation Planning–Valley Area, Idaho, Parts of Adams and Valley Counties																	
Map symbol and soil name	Pct. of map unit	Slope RV	USLE Slope Length ft.	Runoff	T Factor	WEI	WEG	Erosion	Drainage	NIRR LCC	Hydrologic Group	Surface					
												Depths in.	Kf Factor	Fragments RV	Sand RV	Silt RV	Clay RV
3—Archabal loam, 4 to 12 percent slopes																	
Archabal	80	8.0	501	—	4	48	6	—	Well drained	6c	B	0 - 14	.17	5	41	37	21
4—Archabal loam, 12 to 20 percent slopes																	
Archabal	90	16.0	324	—	4	48	6	—	Well drained	6c	B	0 - 14	.17	5	41	37	21
5—Blackwell silt loam, frequently flooded																	
Blackwell	80	2.0	200	—	3	56	5	—	Very poorly drained	6c	C/D	0 - 1	.37	4	29	54	16
26—Jugson coarse sandy loam, 30 to 60 percent slopes																	
Jugson	75	45.0	49	—	3	86	3	—	Somewhat excessively drained	7e	B	1 - 2	.15	6	66	23	10
27—Jurvannah sandy loam																	
Jurvannah	85	1.0	652	—	4	86	3	—	Poorly drained	6c	A/D	0 - 5	.17	—	67	23	8
37—Nisula loam, 4 to 12 percent slopes																	
Nisula	85	8.0	131	—	5	48	5	—	Well drained	6c	C	0 - 25	.32	4	41	37	21

Data Source Information

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025

Irrigation - Micro

This table shows the degree and kind of soil limitations that affect irrigation systems on mineral soils. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Irrigation systems are used to provide supplemental water to crops, orchards, vineyards, and vegetables in area where natural precipitation will not support desired production of crops being grown.

Irrigation, micro (above ground) evaluates a soil for irrigation systems that apply water at slow rates and are installed above the soil surface but near the plants or crops being irrigated. The ratings are for soils in their natural condition and do not consider present land use.

Above ground (drip) micro-irrigation systems generally apply frequent applications of small quantities of water on the soil surface as drops, tiny streams or miniature spray through emitters or applicators placed along a water delivery line. Generally, these irrigation systems are very efficient in terms of both water and energy use and are suitable for use in vineyards, orchards, windbreaks, nurseries, and on truck crops and some row crops.

The soil properties and qualities important in the design and management of drip micro-irrigation systems are depth, wetness or ponding, percolation, and flooding. The soil properties and qualities that influence installation are depth, flooding, and ponding. The features that affect performance of the system and plant growth are the content of salts, calcium carbonate, or sodium.

Irrigation, micro (subsurface drip) evaluates a soil for irrigation systems that apply water at slow rates to the soil rooting zone and are installed beneath the soil surface. The ratings are for soils in their natural condition and do not consider present land use.Subsurface micro-irrigation systems are irrigation systems that apply low volumes of water below the soil surface as drops, tiny streams, or miniature spray through emitters or applicators placed along a water delivery line. These irrigation systems are buried and apply water directly and very slowly to the root zone. Generally, these systems are very efficient in terms of both water and energy use and are suitable for use in windbreaks, vegetables, berries, landscape plantings, vineyards, orchards, and some row crops.

The soil properties and qualities important in the design and management of subsurface micro-irrigation systems are soil depth, available water capacity, wetness or ponding, percolation rate, pH (soil reaction), erosion potential, and flooding. The soil properties and qualities that influence installation are soil depth, stoniness, flooding, and ponding. The features that affect performance of the system and plant growth are available water capacity, shrink-swell potential, pH (soil reaction), and the content (or amount) of salts, calcium carbonate, and sodium.

Information in this table is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this table. Local ordinances and regulations should be considered in planning, in site selection, and in design. The irrigation interpretations are not designed or intended to be used in a regulatory manner.

Report—Irrigation - Micro

[The information in this table provides irrigation interpretations for mineral soils. Onsite investigation may be needed to validate the interpretations and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. The table shows only the top five limitations for any given soil. The soil may have additional limitations]

Irrigation - Micro--Valley Area, Idaho, Parts of Adams and Valley Counties					
Map symbol and soil name	Pct. of map unit	Irrigation, Micro (above ground)		Irrigation, Micro (subsurface drip)	
		Rating class and limiting features	Value	Rating class and limiting features	Value
3—Archabal loam, 4 to 12 percent slopes					
Archabal	80	Somewhat limited		Somewhat limited	
		Seepage	0.18	Shrink-swell (LEP 3-6)	0.50
				Seepage	0.18
4—Archabal loam, 12 to 20 percent slopes					
Archabal	90	Somewhat limited		Somewhat limited	
		Seepage	0.18	Shrink-swell (LEP 3-6)	0.50
				Seepage	0.18

Irrigation - Micro–Valley Area, Idaho, Parts of Adams and Valley Counties					
Map symbol and soil name	Pct. of map unit	Irrigation, Micro (above ground)		Irrigation, Micro (subsurface drip)	
		Rating class and limiting features	Value	Rating class and limiting features	Value
5—Blackwell silt loam, frequently flooded					
Blackwell	80	Very limited		Very limited	
		Seepage	1.00	Seepage	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frequent or very frequent flooding	0.70	Frequent or very frequent flooding	0.70
26—Jugson coarse sandy loam, 30 to 60 percent slopes					
Jugson	75	Very limited		Very limited	
		Seepage	1.00	Seepage	1.00
		Low water holding capacity	0.39	Low water holding capacity	0.39
		Depth to soft bedrock	0.03	Depth to soft bedrock	0.03
27—Jurvannah sandy loam					
Jurvannah	85	Very limited		Very limited	
		Seepage	1.00	Seepage	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Low water holding capacity	0.99	Low water holding capacity	0.99
		Frequent or very frequent flooding	0.70	Frequent or very frequent flooding	0.70
37—Nisula loam, 4 to 12 percent slopes					
Nisula	85	Not limited		Not limited	

Data Source Information

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025

Expanded Impact Report

Valley County, Idaho C.U.P. 25-032
McClellen/Smith Solar Panels

Expanded Impact Report

C.U.P. 25-032 McClellen/Smith Solar Panels

This expanded report includes Magic Solar Electric's Impact Report submitted November 17, 2025.

VCC § 9-5-3

D. Impact Report:

1. **Required: An impact report shall be required for all proposed conditional uses.**

2. **The impact report shall address potential environmental, economic, and social impacts and how these impacts are to be minimized as follows:**

   a. **Traffic: Traffic volume, character, and patterns including adequacy of existing or proposed street width, surfacing, alignment, gradient, and traffic control features or devices, and maintenance. Contrast existing with the changes the proposal will bring during construction and after completion, build-out, or full occupancy of the proposed development. Include pedestrian, bicycle, auto, and truck traffic.**

Magic Solar Electric (MSE) Response: No additional traffic volume beyond what would be expected from the current construction.

Additional Information: The solar panels are on private property located at the end of a cul-de-sac. A private driveway enters the property. There is no public road entering the property. No public traffic will be affected.

   b. **Housing Affordability; Community Housing: Provision for the mitigation of impacts on housing affordability.**

Magic Solar Electric: NA
Additional Information: NA

   c. **Noise and vibration levels that exist and compare to those that will be added during construction, normal activities, and special activities. Include indoor and outdoor, day and night variations.**

Magic Solar Electric: Noise and vibration from excavating ground limited on weekdays Monday through Friday 8am to 4 pm

Additional Information: The solar panel operation does not make noise or vibrations. It is a static, non-polluting structure.

d. Heat and glare that exist and that might be introduced from all possible sources such as autos in parking areas, outdoor lights, water or glass surfaces, buildings or outdoor activities.

Magic Solar Electric: NA, no additional heat or glare concerns will be created from the installation of a small residential ground mount.

Additional Information: The solar panels do not emit any more heat than a dark-colored roof top. Glare or reflection was addressed in the previous hearings (January 8, 2026 and April 9, 2026). Solar panels are designed to absorb light of multiple wavelengths. The REC 460W Alpha Pure panels installed are fully black (cells and frame) and are designed to reduce reflection compared to older models. They have low specular reflectance so they produce less glare than a standard window. In addition, they are treated with an anti-reflective material per the International Electrotechnical Commission regulations.

e. Particulate emissions to the air including smoke, dust, chemicals, gases or fumes, etc., both existing and what may be added by the proposed uses.

Magic Solar Electric: No emissions are created from the installation of a small residential ground mount.

Additional Information: The solar panels do not emit particulates of any kind as a result of its operation. Minimal exhaust was produced during installation as the three columns were driven into the ground by a pile driver.

f. Water demand, discharge, supply source, and disposal method for potable uses, domestic uses, and fire protection. Identify existing surface water drainage, wetlands, flood prone areas and potential changes. Identify existing groundwater and surface water quality and potential changes due to this proposal.

Magic Solar Electric: NA, no water is required for the installation or operation of a small residential ground mount.

Additional Information:
Water Demand
The solar panel installation does not have a direct use of water. However, the proposed mitigation screen will involve planting vegetation. Young, new plantings will be irrigated until mature enough to adequately develop a self-sustaining root network.

Discharge
The solar panels do not discharge water as a matter of day-to-day operations. The panels will shed precipitation in the same manner a roof would on a home. This runoff will be managed using the same methods used to manage stormwater runoff from the garage and home. Drip line runoff will be captured in gravel drains that direct stormwater away from the structure towards the well-vegetated forest floor.

Supply Source
Water supply for the property is from a permitted domestic well. The solar panels will not consume water. The panels may be occasionally washed with water (estimated to be once per year). This activity will consume a small amount of water by evaporation; the bulk of water will runoff and be consumed by surrounding vegetation or recharged to the underlying aquifer.

Disposal
Stormwater runoff from the panels will be distributed on the natural ground surface and will be consumed by vegetation, evaporation, and recharge to the underlying aquifer.

Domestic and Fire Protection
The solar panels do not present a fire hazard to the area.

Topography
The property consists of a main south-trending drainage with 40 - 50 ft of relief to the east and the west. The east slope is forested by natural conifers. The west slope is thinly forested with open grassy and forb cover. West of the drainage, the slope climbs approximately 40 ft (vertical) at an 11% grade (6.3 degrees) before cresting, forming a broad knoll, at an elevation of 5,000 ft above mean sea level. The gentle crest then descends westward at a grade of approximately 9% or 5 degrees on the adjacent property to the west. The home and solar installation are located east and downslope of the top of the knoll (see Attachment A, Photographs and Figures, Figure 1). The panels are located just north of the garage in an area where the natural drainage is to the east. The panels were installed on a small cut and fill bench in an area that was previously disturbed by site preparation for building the home. The building pad for the array was compacted.

Surface Water Drainage
Runoff, when it occurs, is caused by local, high-intensity precipitation events, and rapid snow melt. The panels themselves act like a roof top and intercept rainfall that directly falls over the pad. Precipitation runs off the panels which slope toward the south. The drip line will be armored with gravel aggregate which prevents erosion of underlying soils. Underflow from the base of the aggregate will flow under controlled velocity to the east and into well-vegetated slope that further protects the slope from erosion.

A seasonal wetland is present in the south-trending drainage, approximately 450 feet away from the panels. From our observations, this wetland may have visible surface water for a few months during spring and early summer. Grasses and rush are the main vegetation types. The upland areas both east and west and north and south are naturally well-vegetated and no unusual natural erosional features such as rills or gulleys are present.

g. Fire, explosion, and other hazards existing and proposed. Identify how activities on neighboring property may affect the proposed use.

Magic Solar Electric: Small Ground mounted solar panels for personnel use pose very limited fire risk or hazard. The System has been reviewed and approved by Idaho Power and State DOPL electrical permitting that the proposed plan is following local and national electric code.

Additional Information: The solar panels are not prone to fire, explosions or other hazards. The panel system consists of virtually all metal and glass composite materials. The panels are static with the exception that the angle to the horizon can be manually changed. The azimuth, the direction the panels face, cannot be changed. It is not anticipated that activities on neighboring properties will affect the proposed use as an appropriate set back was used.

h. Removal of existing vegetation or effects thereon including disturbance of wetlands, general stability of soils, slopes, and embankments and the potential for sedimentation of disturbed soils.

Magic Solar Electric: Current site location has already been scrubbed due to the construction of the residence currently underway. The ground mount is located close enough to the planned residence there is no concerns to soil, slopes and other potential for sedimentation of disturbed soils.

Additional Information: Outside of the footprint of the solar array, vegetation on the property consists of grasses, forbs, shrubs, young saplings and fully mature conifers (lodgepole and Ponderosa). However, the top of the knoll and the west portion of the property is open grass and forbs. This cover plays a key role in protecting soils from erosion.

i. Include practices that will be used to stabilize soils and restore or replace vegetation.

Magic Solar Electric: Current site location has already been scrubbed due to the construction of the residence currently underway. The ground mount is located close enough to the planned residence there is no concerns to soil, slopes and other potential for sedimentation of disturbed soils.

Additional information: None

j. Soil characteristics and potential problems in regard to slope stability, embankments, building foundation, utility and road construction. Include suitability for supporting proposed landscaping.

***Magic Solar Electric**: Current site location has already been scrubbed due to the construction of the residence currently underway. The ground mount is located close enough to the planned residence there is no concerns to soil, slopes and other potential for sedimentation of disturbed soils.*

Soils

Soils, as observed on the property, form a moderately think veneer over decomposed granitic rock. Soil thickness varies from about 2 to 5 feet in the area of the constructed home site. Poorly consolidated, decomposed granite, grading to more competent granitic rock underlies soils. Because of these geologic materials, a general reduced amount of ground moisture due to the upland location, and moderately sloped topography, slope stability issues are not of

concern – surrounding slopes in the area bare no evidence of slope failures. The foundation of the solar panels consists of compacted native soils. The panels are supported by three 8-inch diameter steel pile pipes, that have been driven into the ground several feet below natural grade. The building site does not interfere with any private or public roads or utilities. The building site was selected, in part, due to its relatively gentle slope and proximity to the garage where electrical connections and equipment could be installed.

Soils and topography are ideally suitable for supporting the native landscaping that has been proposed to effectively screen visibility of the solar panels. Shallow soils are a dark brown loam and currently support a diverse variety of grasses, forbs, and coniferous trees. Irrigation will be used as needed to support any planted vegetation.

A soil report was compiled from data obtained from the NRCS web soil survey website (https:\\websoilsurvey.nrcs.usda.gov/app/) and is presented in Attachment B.

k. Site grading or improvements including cuts and fills, drainage courses and impoundments, sound and sight buffers, landscaping, fencing, utilities, and open areas.

Magic Solar Electric: Current site location has already been scrubbed due to the construction of the residence currently underway. Minimal amount of fill has been brought in to level the area where the ground mount will be installed.

Additional Information: As previously mentioned, site grading for the solar panels consists of a shallow (approximately 1 foot high on the upslope end) cut and fill. The created pad is roughly 50 ft by 20 feet, and is located approximately 30 feet directly north of the garage. A single south-trending drainage transects the property approximately 375 feet east and downslope of the solar panels. Drainage from the solar panel area will flow downhill to the east. Disturbed soil surfaces will be protected through the use of common best management practices including rock aggregate, rock barriers, and/or vegetation. No impoundments are present or proposed. Sound buffers or barriers are not necessary as the solar panels do not make any noise. Landscaping improvements are discussed in Section I.

l. Visibility from public roads, adjoining property, and buildings. Include what will be done to reduce visibility of all parts of the proposal but especially cuts and fills and buildings. Include the effect of shadows from new features on neighboring property.

Magic Solar Electric: The ground mount will be minimally visible to not visible at all from public roadways. The ground mount will be visible to the neighbors to the north, which are at a higher elevation than the propose location which will decrease visibility to that neighbor.

Additional Information: Please see photographs and figures in Attachment A. The photographs show aerial views of the McClellen/Smith property and surrounding properties, several views approaching the McClellen/Smith property from the north on Flicker Road. Figures address property acreage and distances from the solar array, topography, and a mitigation plan.

There are three residences in the Jughandle subdivision that reside on Flicker Road north of the cul-de-sac; two of which are listed as appellants to C.U.P. 25-032. The applicant property is not within the Jughandle subdivision and is the one of two parcels located immediately south of the cul-de-sac. The property immediately to the west of the applicant's property is also an appellant to C.U.P. 25-032.

The three Jughandle residences are located at distances of approximately 260 ft, 850 ft, and 950 ft north and northwest of the solar panels (see Attachment A, Figure 1 and 2). Of these properties, the solar panels are only directly visible from the closest home (the Krumm Property) in a portion of the 230-ft long driveway north of the applicant's property; this property owner is not an appellant to C.U.P. 25-032. The panels are barely visible from the next northern residence (850 ft) and the residence that is 950 ft north-northwest of the panels. This is because the panels are a substantial distance from these homes, the array is at a lower elevation, and there are numerous existing trees that partially screen the array.

The property to the west is currently under development. The owners of that property would see the panels briefly if they choose to look east as they enter their driveway before they turn west to their building site. The home, when built, will be well downslope west (approximately a 20 ft drop in elevation from the top of the knoll) and therefore, the solar panels are not anticipated to be visible from the first floor.

The panels are visible from the house on the adjoining lot to the southwest. These residents are not opposed to the panels, but were originally concerned about a reflection or glare from the panels during certain times of the year. These concerns have been addressed as the panels are inherently constructed with materials of low reflectance.

At the initial (January 8, 2026) Planning and Zoning (P&Z) hearing, the board directed the applicants to work with opposing neighbors to resolve visibility issues. The board mentioned the possible solutions of landscaping or relocation of the panels. The applicants presented several visibility "buffers" and screening concepts to neighbors in the area. These conceptual screens were submitted to neighbors by hardcopy (USPS), email, and/or personal discussions. These concepts consisted of a combination of an earthen berm with planted conifer trees and other native or non-native shrubs, and a broken distribution of vertical wooden and/or metal blinds. This general concept would be effective and is a common solution to reduce or remove visibility issues. In addition to this, the back of the panels, which are white in color, would be covered in an all-weather dark fabric to greatly reduce visibility should the panels be rotated to a greater angle.

It should also be noted that if the panels were not constructed, the casual observer looking south from the end of the cul-de-sac would see the back of the garage/house (which is broader and higher than the panels) and not an unobstructed view of open terrain.

During the second P&Z hearing a landscaping plan was presented. The goals of this plan are to screen views of the panels from four vantage points: the south end of the cul-de-sac, the driveway of the property directly north of the residence (Krumm property), the driveway of the property to the west (Ronay property) and the property to the southwest (Wright property).

Screening is to be accomplished by constructing a berm approximately 20 feet from the panels to gain elevation from ground that is already sloping up and away from the berms. The berm would average 3 feet in height if measured from the south and east portions of the berm. On the north and west side of the berm the ground would slope out over approximately 20 ft so as to lend with the rolling topography that is already present.

Kirstin Muench of Franz Witte nursery and Melissa Hamilton of the University of Idaho Extension were contacted to receive expert guidance on tree and shrub selection. The applicant also met with Kirstin Muench to discuss the variety and plant heights of what they would have in stock to begin the 2026 planting season. MG Designs, a landscape design firm, was contracted to provide a schematic of the site plan depicting the berm and plantings and a 3D rendering of how trees could be used to screen the array (see Attachment A, Photo 13). In addition, the NRCS soil report (Attachment B) addresses the suitability of soils for planting as well as the expected height of selected species over a 20-year period, including Ponderosa pine, Rocky mountain juniper, Blue spruce, Golden willow, Siberian peashrub, and common lilac. Site soils are rated as "well suited" for hand planting.

Ultimately, with input from three neighbors, it was proposed at the April 9th P&Z hearing to plant the berm with native evergreens to blend with current vegetation on the property. Proposed species are Ponderosa Pine, Western White Pinel, and Spruce as these trees are naturally occurring on the property.

The applicants, as of April 10th, 2026, have transplanted over 30 conifer saplings near the top of the knoll between the end if the cul-de-sac and solar panels in an effort to begin the screening process.

m. Reasons for selecting the particular location including topographic, geographic and similar features, historic, adjoining land ownership or use, access to public lands, recreation, utilities, streets, etc., in order to illustrate compatibility with and opportunities presented by existing land uses or character.

Magic Solar Electric: The area was selected due to the proximity to the home as well as the minimal excavation/trenching that would be required by selecting this location.

Additional Information: The location of the solar panels north of the garage was selected because it was considered the most advantageous overall:

- *The slope grade was gentle to moderate providing a stable pad with minimal cut and fill.*
- *The panels would be aligned with the garage and not consume additional view shed to the south.*
- *Existing trees along the property line to the north already formed a partial screen.*
- *The addition of further earth, vegetative, and panel screening would effectively block visibility to the panels.*
- *Reduced costs and improved power efficiency due to proximity to main power hook-up.*

A location to the east in the back of the property would be much further from the power hook-up and also be fully exposed to the neighbor to the north from their south porch (see Attachment A, Photo 11).

Any location on the southern or west side of the property is in open grassland and would fully expose the panels as an isolated and highly visible structure.

It was originally thought that the panels would be installed on the roof. However, it was desirable to have the panels operating productively a large part of the time. With the known amount of snow cover in the area, it would be necessary to rotate the panels upward during high snow accumulation periods to avoid the panels from collecting heavy snow cover. Building such an array on a roof top was impractical and would be unsafe from a snow removal process.

n. Increased Revenue: Approximation of increased revenue from change in property tax assessment, new jobs available to local residents, and increased local expenditures.

***Magic Solar Electric**: Value of property has yet to be assessed from new construction of this project and the current residence under construction.*

Solar arrays typically increase property value resulting in increased revenue from property taxes. Property value is increased due to guaranteed lower utility bills; solar panels fulfill a desire of homeowners to have modern technology and upgrades; and, eco conscious buyers view solar arrays as a desirable feature. New homes are increasingly being built to be fully electric (including heating systems). Also, the projected electricity demand is expected to increase substantially, partially due to data centers coming online and private panels connected to the grid contribute to that demand.

o. Approximation of costs for additional public services, facilities, and other economic impacts.

***Magic Solar Electric**: There should be no additional cost to public services due to the addition of a privately owned small residential ground mount.*

Additional Information: None

p. State how the proposed development will impact existing developments providing the same or similar products or services.

***Magic Solar Electric**: There should be no impact to existing developments.*

Additional Information: None

q. State what natural resources or materials are available at or near the site that will be used in a process to produce a product and the impacts resulting from the depletion of the resource. Describe the process in detail and describe the impacts of each part.

Magic Solar Electric: *NA*

Additional Information: Mitigation screening will involve the use of onsite or imported soils and vegetation. Considering that this activity is part of normal landscaping, no depletion of resources is expected.

r. What will be the impacts of a project abandoned at partial completion?

Magic Solar Electric*: The foundation is a driven pile which requires no concrete, so the foundation posts could easily be removed and soil returned to its original state if project was abandoned.*

Additional Information: None

s. Number of residential dwelling units, other buildings and building sites, and square footage or gross nonresidential floor space to be available.

Magic Solar Electric: *Please see building permit or residence if this information is required.*

Additional Information: None

t. Stages of development in geographic terms and proposed construction time schedule.

Magic Solar Electric: *Two to three weeks of proposed construction time.*

Additional Information: *Construction is complete.*

u. Anticipated range of sale, lease or rental prices for dwelling units, building or other site, or nonresidential floor space in order to ensure compatibility with adjacent land use and development.

Magic Solar Electric: NA

Additional Information: The property has a single residential home.

Attachment A

Photographs and Figures

Photo 1: Flicker Rd cul-de-sac showing the properties involved in the appeal in relation to the solar panels (east is at the top of the photo). Krumm and Wright are not appealing the P & Z ruling. The distance from the Pedersen home to the array is approximately 850 ft. The distance from the Silverman home to the array is approximately 950 ft. The distance from the Ronay building pad to the array is approximately 585 ft.

The Smith/McClellen property is located southeast of the knoll located at the end of the cul-de-sac. Predominately ponderosa pine and lodgepole pine are scattered in the midsection of the property. The eastern portion of the property is densely forested. Photo: Mark McClellen 5/18/2026

Photo 2: View looking east from the south end of Flicker Rd cul-de-sac. Krumm home is on the left. Smith/McClellen home and array is in the center, and Wright home is on the right. Ronay driveway entrance is shown in the lower right, Solar array is topographically lower than driveway. Photo: Mark McClellen 5/10/2026

Photo 3: View looking south down Smith/McClellen driveway from the end of Flicker Rd cul-de-sac. Krumm home is on the left. Smith/McClellen home and array is in the center, and Wright home is on the right. Solar array is topographically lower than driveway. Photo: Mark McClellen 5/10/2026

Photo 4: View looking south on Flicker Rd. Pedersen driveway is on the left near a mailbox and Silverman driveway is on the right. Flicker Rd decreases in elevation from photo point before rising again at the end of the cul-de-sac. Smith/McClellen home is shown at the end of the road on the left. Photo: Mark McClellen 5/10/2026

Photo 5: Same as Photo 4 except this photo was taken further south on Flicker Rd. Pedersen driveway is on the left in the foreground. Photo: Mark McClellen 5/10/2026

Photo 6: Same as Photo 5 except this photo was taken further south on Flicker Rd. Photo: Mark McClellen 5/10/2026

Photo 7: Photo looking east from the end of the cul-de-sac. Krumm garage is on the left. Solar array is on the right. Photo: Mark McClellen 5/10/2026

Photo 8: View looking south from Smith/McClellen driveway. Photo: Mark McClellen 5/10/2026

Photo 9: View looking southeast from Smith/McClellen driveway. Sapling pines are shown in the field in the foreground. Photo: Mark McClellen 5/10/2026

Photo 10. View looking north/northwest at solar array directly north of garage. The camouflage netting was **not** intended to be a permanent solution for screening. Photo: Mark McClellen 5/10/2026

Photo 11. View taken from the northeast side of the Smith/McClellen home looking north toward southern side of Krumm home. Photo: Mark McClellen 5/10/2026

Photo 12. Photo is taken from the knoll in the northwest portion of the property. View is to the southeast. Two artificial Christmas trees are in the foreground of the solar array to demonstrate how planting trees on the knoll could effectively screen the array. The larger tree on the left is a 9 ft tree. Photo: Kristen McClellen 3/4/2026

Photo 13. This is a 3D rendering (trees have been added to photo) of how a planted berm may look.

Prepared By MD Designs, LLC.

Figure 1. Topographic map created from Valley County GIS website with topographic overlay. Contour interval is 20 feet. The figure shows that Flicker Rd runs south down a broad ridge with drainage to the east and west. This ridge terminates in a broad knoll in the northwest corner of the Smith/McClellen property.

Flicker Road Area

5/17/2026, 8:35:53 PM

Figure 2. Flicker Road Residents with Acreage and Distance from Solar Array at the Smith/McClellen Property.

1:4,514

0 0.03 0.06 0.11 mi

0 0.04 0.09 0.17 km

Vantor

Valley County

Vantor | BLM Admin State | Valley County | Valley County GIS

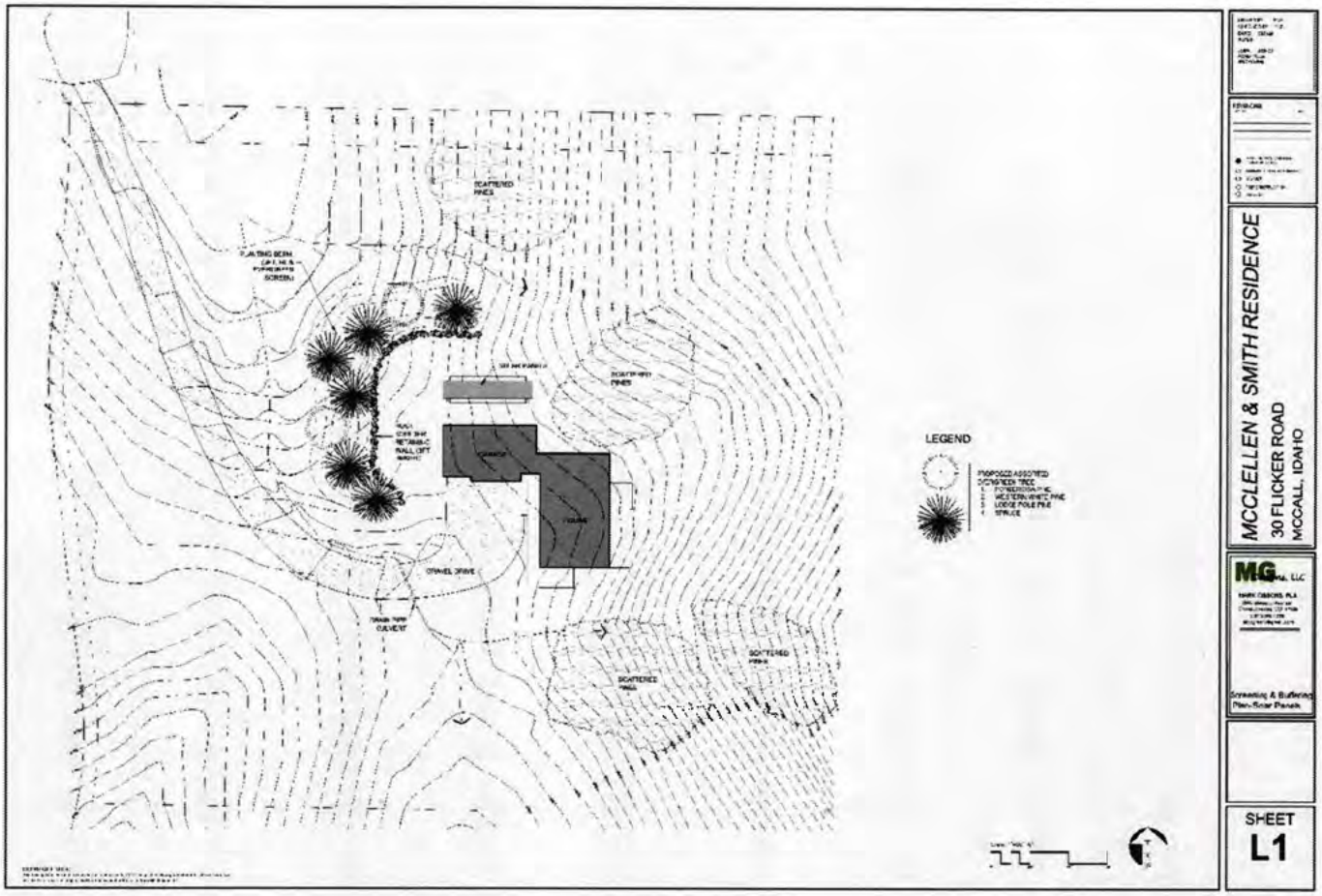


Figure 3. Landscaping Site Plan. North is at the top. The design shows the approximate shape and location of the proposed berm and plantings. Prepared By MD Designs, LLC.

ATTACHMENT B

NRCS Soil Map 30 Flicker Road Area

Valley County, Idaho C.U.P. 25-032
McClellen/Smith Solar Panels

Soil Map—Valley Area, Idaho, Parts of Adams and Valley Counties
(NRCS Soil Map 30 Flicker Road Area)

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 26, 2022—Oct 12, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3	Archabal loam, 4 to 12 percent slopes	8.2	22.6%
4	Archabal loam, 12 to 20 percent slopes	15.1	41.5%
5	Blackwell silt loam, frequently flooded	5.5	15.0%
26	Jugson coarse sandy loam, 30 to 60 percent slopes	3.2	8.7%
27	Jurvannah sandy loam	2.8	7.8%
37	Nisula loam, 4 to 12 percent slopes	1.6	4.5%
Totals for Area of Interest		**36.5**	**100.0%**

Physical Soil Properties

This table shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In this table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In this table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, saturated hydraulic conductivity (Ksat), plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3- or 1/10-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute linear extensibility, shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates in the table are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity (Ksat) is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. The amount and type of clay minerals in the soil influence volume change.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In this table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter. The content of organic matter in a soil can be maintained by returning crop residue to the soil.

Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in the table as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and Ksat. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind and/or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the "National Soil Survey Handbook."

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Reference:
United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. (http://soils.usda.gov)

Report—Physical Soil Properties

Physical Soil Properties–Valley Area, Idaho, Parts of Adams and Valley Counties														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	in/in	Pct	Pct					
3—Archabal loam, 4 to 12 percent slopes														
Archabal	0-14	-41-	-37-	18-22-25	1.25-1.45	4.00-14.00	0.20-0.22	3.0-5.9	3.0-5.0	.17	.17	4	6	48
	14-31	-41-	-37-	18-22-25	1.25-1.45	4.00-14.00	0.17-0.19	3.0-5.9	3.0-5.0	.28	.28			
	31-52	-67-	-19-	10-15-20	1.60-1.70	14.00-42.00	0.10-0.12	0.0-2.9	0.0-0.5	.20	.20			
	52-60	-89-	- 4-	2-7-12	1.70-1.80	42.00-141.00	0.04-0.05	0.0-2.9	0.0-0.5	.02	.02			
4—Archabal loam, 12 to 20 percent slopes														
Archabal	0-14	-41-	-37-	18-22-25	1.25-1.45	4.00-14.00	0.20-0.22	3.0-5.9	3.0-5.0	.17	.17	4	6	48
	14-31	-41-	-37-	18-22-25	1.25-1.45	4.00-14.00	0.17-0.19	3.0-5.9	3.0-5.0	.28	.28			
	31-52	-67-	-19-	10-15-20	1.60-1.70	14.00-42.00	0.10-0.12	0.0-2.9	0.0-0.5	.20	.20			
	52-60	-89-	- 4-	2-7-12	1.70-1.80	42.00-141.00	0.04-0.05	0.0-2.9	0.0-0.5	.02	.02			
5—Blackwell silt loam, frequently flooded														
Blackwell	0-1	10-30-32	50-54-72	15-17-18	1.35-1.45	4.00-14.00	0.15-0.17	1.5-2.1	2.0-4.0	.37	.37	3	5	56
	1-11	25-35-40	25-33-43	30-33-35	1.30-1.50	1.40-4.00	0.14-0.21	3.9-5.2	0.0-0.5	.32	.32			
	11-19	50-55-75	0-17-28	20-28-35	1.35-1.50	4.00-14.00	0.13-0.19	1.8-5.2	0.0-0.5	.20	.20			
	19-27	50-55-75	0-17-28	20-28-35	1.35-1.50	4.00-14.00	0.13-0.19	1.7-5.2	0.0-0.5	.20	.20			
	27-60	65-84-85	0-6-23	6-10-20	1.40-1.55	42.00-141.00	0.12-0.15	0.4-1.9	0.0	.10	.10			

Physical Soil Properties–Valley Area, Idaho, Parts of Adams and Valley Counties														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
26—Jugson coarse sandy loam, 30 to 60 percent slopes														
Jugson	0-1	—	—	—	0.10-0.30	50.00-700.00	0.15-0.45	—	60.0-95.0			3	3	86
	1-2	—	—	—	0.10-0.30	50.00-150.00	0.15-0.45	—	60.0-95.0					
	2-2	55-66-70	15-24-36	5-10-15	1.40-1.50	14.00-42.00	0.10-0.12	0.3-1.7	1.0-2.0	.15	.15			
	2-22	55-66-70	15-24-36	5-10-15	1.40-1.50	14.00-42.00	0.10-0.12	0.3-1.7	1.0-2.0	.15	.15			
	22-37	75-79-90	-17-	2-6-8	1.40-1.60	50.00-100.00	0.04-0.06	0.1-0.6	0.0-0.5	.24	.24			
	37-41	—	—	—	—	0.02-2.00	—	—	—					
	41-51	—	—	—	—	0.00-0.10	—	—	—					
27—Jurvannah sandy loam														
Jurvannah	0-6	-68-	-24-	2-9-15	1.40-1.60	14.00-42.00	0.11-0.15	0.0-2.9	2.0-4.0	.17	.17	4	3	86
	6-22	-94-	-1-	0-5-10	1.50-1.65	141.00	0.03-0.06	0.0-2.9	0.0-0.5	.02	.02			
	22-60	-94-	-1-	0-5-10	1.50-1.70	141.00	0.02-0.03	0.0-2.9	0.0-0.5	.02	.02			
37—Nisula loam, 4 to 12 percent slopes														
Nisula	0-25	35-41-50	28-37-47	18-22-25	1.20-1.40	4.00-14.00	0.13-0.21	1.4-2.6	2.0-3.0	.32	.32	5	6	48
	25-51	15-35-35	30-33-50	30-33-35	1.30-1.50	1.40-4.00	0.14-0.21	3.2-4.6	0.0-0.5	.32	.32			
	51-60	55-55-70	2-17-25	20-28-35	1.35-1.50	4.00-14.00	0.13-0.19	1.3-4.6	0.0-0.5	.20	.20			

Data Source Information

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025

Engineering Properties

This table gives the engineering classifications and the range of engineering properties for the layers of each soil in the survey area.

Hydrologic soil group is a group of soils having similar runoff potential under similar storm and cover conditions. The criteria for determining Hydrologic soil group is found in the National Engineering Handbook, Chapter 7 issued May 2007(http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba). Listing HSGs by soil map unit component and not by soil series is a new concept for the engineers. Past engineering references contained lists of HSGs by soil series. Soil series are continually being defined and redefined, and the list of soil series names changes so frequently as to make the task of maintaining a single national list virtually impossible. Therefore, the criteria is now used to calculate the HSG using the component soil properties and no such national series lists will be maintained. All such references are obsolete and their use should be discontinued. Soil properties that influence runoff potential are those that influence the minimum rate of infiltration for a bare soil after prolonged wetting and when not frozen. These properties are depth to a seasonal high water table, saturated hydraulic conductivity after prolonged wetting, and depth to a layer with a very slow water transmission rate. Changes in soil properties caused by land management or climate changes also cause the hydrologic soil group to change. The influence of ground cover is treated independently. There are four hydrologic soil groups, A, B, C, and D, and three dual groups, A/D, B/D, and C/D. In the dual groups, the first letter is for drained areas and the second letter is for undrained areas.

The four hydrologic soil groups are described in the following paragraphs:

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.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly."

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Percentage of rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination. Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

References:

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Report—Engineering Properties

Absence of an entry indicates that the data were not estimated. The asterisk '*' denotes the representative texture; other possible textures follow the dash. The criteria for determining the hydrologic soil group for individual soil components is found in the National Engineering Handbook, Chapter 7 issued May 2007(http://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=17757.wba). Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Engineering Properties--Valley Area, Idaho, Parts of Adams and Valley Counties														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
3—Archabal loam, 4 to 12 percent slopes														
Archabal	80	B	0-14	Loam	CL, ML	A-6, A-7	0-0-0	0-0-0	95-96-100	84-91-100	71-81-92	52-59-69	35-41-47	12-15-17
			14-31	Loam	CL, ML	A-6, A-7	0-0-0	0-0-0	95-96-100	84-91-100	71-81-92	52-59-69	35-41-47	12-15-17
			31-52	Coarse sandy loam	SC, SC-SM	A-6, A-2	0-0-0	0-0-0	95-97-100	86-92-100	50-58-68	28-35-42	20-26-32	6-10-13
			52-60	Coarse sand, loamy coarse sand	SC-SM, SP-SC, SM, SP-SM, SW-SC	A-3, A-2, A-1	0-0-0	0-0-0	96-97-100	87-93-100	39-46-55	7-12-18	0-19-25	NP-4-7

Engineering Properties–Valley Area, Idaho, Parts of Adams and Valley Counties														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity Index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			in				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
4—Archabal loam, 12 to 20 percent slopes														
Archabal	90	B	0-14	Loam	CL, ML	A-6, A-7	0-0-0	0-0-0	95-96-100	84-91-100	71-81-92	52-59-69	35-41-47	12-15-17
			14-31	Loam	CL, ML	A-6, A-7	0-0-0	0-0-0	95-96-100	84-91-100	71-81-92	52-59-69	35-41-47	12-15-17
			31-52	Coarse sandy loam	SC, SC-SM	A-6, A-2	0-0-0	0-0-0	95-97-100	86-92-100	50-58-68	28-35-42	20-26-32	6-10-13
			52-60	Coarse sand, loamy coarse sand	SW-SC, SP-SM, SM, SP-SC, SC-SM	A-1, A-2, A-3	0-0-0	0-0-0	96-97-100	87-93-100	39-46-55	7-12-18	0-19-25	NP-4-7
5—Blackwell silt loam, frequently flooded														
Blackwell	80	C/D	0-1	Silt loam	CL, ML	A-4, A-6	0-0-0	0-0-0	95-96-100	89-93-100	79-86-97	64-70-83	30-33-37	9-10-12
			1-11	Clay loam	CL	A-7-6, A-6	0-0-0	0-0-0	95-96-100	89-93-100	78-85-94	60-66-76	40-43-46	21-23-25
			11-19	Sandy clay loam	SC, CL	A-6, A-7-6	0-0-0	0-0-0	95-96-100	90-93-100	72-81-94	38-48-59	30-38-46	13-19-25
			19-27	Sandy clay loam	SC, CL	A-2-6, A-7-6, A-6	0-0-0	0-0-0	90-95-100	80-89-100	65-78-94	34-46-59	30-38-46	13-19-25
			27-60	Loamy coarse sand, stratified loamy coarse sand to sandy clay loam	SP-SM, SC, SC-SM	A-1-b, A-2-6	0-0-0	0-0-0	90-95-100	81-90-100	37-45-60	12-17-31	17-21-30	3-6-13

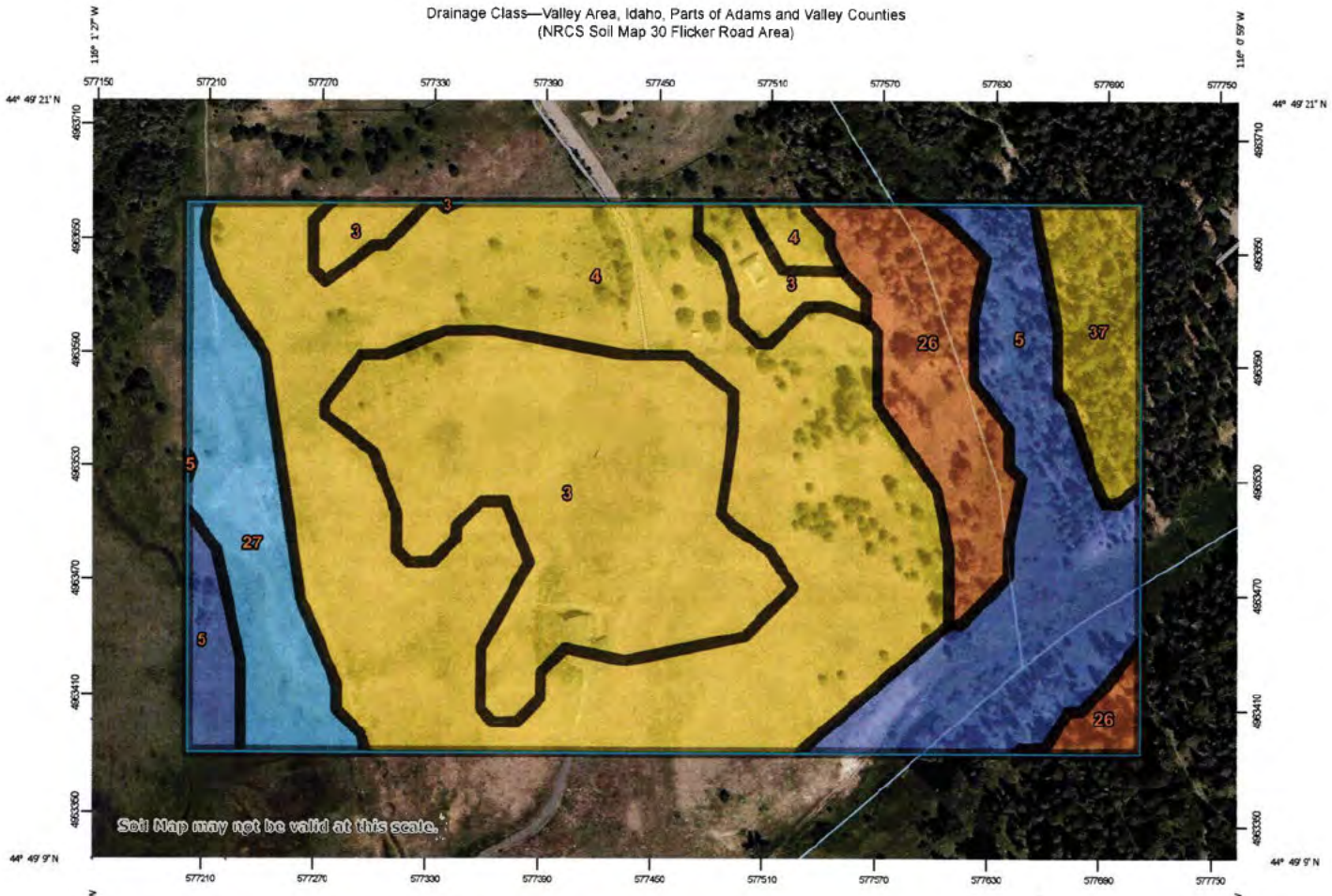
Engineering Properties–Valley Area, Idaho, Parts of Adams and Valley Counties														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
26—Jugson coarse sandy loam, 30 to 60 percent slopes														
Jugson	75	B	0-1	Slightly decomposed plant material	PT	A-8	0-0-0	0-0-0	—	—	—	—	—	—
			1-2	Moderately decomposed plant material	PT	A-8	0-0-0	0-0-0	—	—	—	—	—	—
			2-2	Coarse sandy loam	SC-SM, SC, SM	A-2-4, A-4, A-1-b	0-0-0	0-0-0	90-95-100	76-86-100	45-55-68	25-33-44	18-24-30	2-6-9
			2-22	Coarse sandy loam	SC-SM, SC, SM	A-1-b, A-4, A-2-4	0-0-0	0-0-0	90-95-100	76-86-100	45-55-68	25-33-44	18-24-30	2-6-9
			22-37	Sand, gravelly loamy coarse sand, loamy coarse sand	SC-SM, SM	A-1, A-2	0-0-0	0-0-0	65-90-92	56-85-88	32-51-56	13-22-25	0-16-20	NP-3-4
			37-41	Bedrock	—	—	—	—	—	—	—	—	—	—
			41-51	Bedrock	—	—	—	—	—	—	—	—	—	—
27—Jurvannah sandy loam														
Jurvannah	85	A/D	0-6	Sandy loam	SM, SC-SM	A-2, A-4	0-0-0	0-0-0	100-100-100	100-100-100	70-77-83	32-39-45	0-26-35	NP-5-10
			6-22	Sand, fine gravelly sand	SP, SP-SM, SC-SM	A-1, A-3, A-2	0-0-0	0-0-0	100-100-100	61-76-100	44-59-82	3-8-15	0-17-23	NP-2-6
			22-60	Very gravelly sand, very gravelly coarse sand	SP-SC, SP-SM, SP, SW-SM	A-2, A-1	0-0-0	0-0-0	100-100-100	44-52-79	32-40-65	2-5-12	0-17-23	NP-2-6

Engineering Properties–Valley Area, Idaho, Parts of Adams and Valley Counties														
Map unit symbol and soil name	Pct. of map unit	Hydrologic group	Depth	USDA texture	Classification		Pct Fragments		Percentage passing sieve number—				Liquid limit	Plasticity Index
					Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
			In				*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*	*L-R-H*
37—Nisula loam, 4 to 12 percent slopes														
Nisula	85	C	0-25	Loam	CL	A-6, A-7-6	0-0-5	0-0-0	94-96-100	88-92-100	75-82-93	53-60-71	32-36-41	12-14-17
			25-51	Clay loam, silty clay loam	CL	A-7-6, A-6	0-3-5	0-0-0	94-96-100	89-93-100	78-84-96	61-66-78	39-42-45	21-23-25
			51-60	Sandy clay loam	SC, CL	A-6, A-7-6, A-2-6	0-3-4	0-0-0	90-95-100	79-89-100	65-78-92	34-46-58	29-37-45	13-19-25

Data Source Information

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025

Drainage Class—Valley Area, Idaho, Parts of Adams and Valley Counties
(NRCS Soil Map 30 Flicker Road Area)



Drainage Class—Valley Area, Idaho, Parts of Adams and Valley Counties
(NRCS Soil Map 30 Flicker Road Area)

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Excessively drained
- Somewhat excessively drained
- Well drained
- Moderately well drained
- Somewhat poorly drained
- Poorly drained
- Very poorly drained
- Subaqueous
- Not rated or not available

Soil Rating Lines
- Excessively drained
- Somewhat excessively drained
- Well drained
- Moderately well drained
- Somewhat poorly drained
- Poorly drained
- Very poorly drained
- Subaqueous
- Not rated or not available

Soil Rating Points
- Excessively drained
- Somewhat excessively drained
- Well drained
- Moderately well drained
- Somewhat poorly drained
- Poorly drained
- Very poorly drained
- Subaqueous
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 26, 2022—Oct 12, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Drainage Class

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
3	Archabal loam, 4 to 12 percent slopes	Well drained	8.2	22.6%
4	Archabal loam, 12 to 20 percent slopes	Well drained	15.1	41.5%
5	Blackwell silt loam, frequently flooded	Very poorly drained	5.5	15.0%
26	Jugson coarse sandy loam, 30 to 60 percent slopes	Somewhat excessively drained	3.2	8.7%
27	Jurvannah sandy loam	Poorly drained	2.8	7.8%
37	Nisula loam, 4 to 12 percent slopes	Well drained	1.6	4.5%
Totals for Area of Interest			**36.5**	**100.0%**

Description

"Drainage class (natural)" refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized-excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained. These classes are defined in the "Soil Survey Manual."

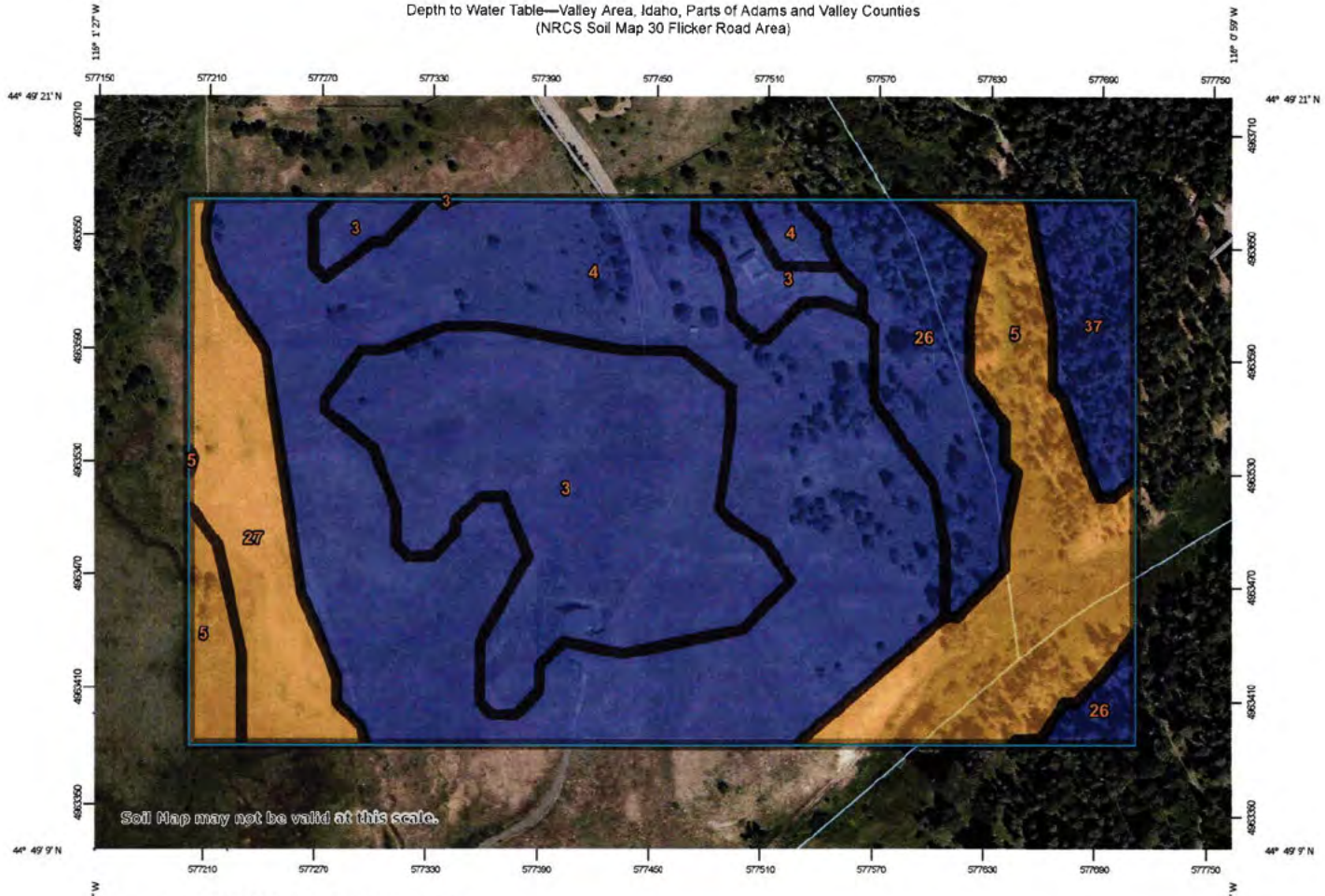
Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Depth to Water Table—Valley Area, Idaho, Parts of Adams and Valley Counties
(NRCS Soil Map 30 Flicker Road Area)



Map Scale: 1:2,800 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

Depth to Water Table—Valley Area, Idaho, Parts of Adams and Valley Counties
(NRCS Soil Map 30 Flicker Road Area)

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Soil Rating Lines
- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Soil Rating Points
- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 26, 2022—Oct 12, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Depth to Water Table

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
3	Archabal loam, 4 to 12 percent slopes	>200	8.2	22.6%
4	Archabal loam, 12 to 20 percent slopes	>200	15.1	41.5%
5	Blackwell silt loam, frequently flooded	30	5.5	15.0%
26	Jugson coarse sandy loam, 30 to 60 percent slopes	>200	3.2	8.7%
27	Jurvannah sandy loam	30	2.8	7.8%
37	Nisula loam, 4 to 12 percent slopes	>200	1.6	4.5%
Totals for Area of Interest			**36.5**	**100.0%**

Description

"Water table" refers to a saturated zone in the soil. It occurs during specified months. Estimates of the upper limit are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

This attribute is actually recorded as three separate values in the database. A low value and a high value indicate the range of this attribute for the soil component. A "representative" value indicates the expected value of this attribute for the component. For this soil property, only the representative value is used.

Rating Options

Units of Measure: centimeters

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Interpret Nulls as Zero: No

Beginning Month: January

Ending Month: December

Dwellings and Small Commercial Buildings

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. This table shows the degree and kind of soil limitations that affect dwellings and small commercial buildings.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Information in this table is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this table. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Report—Dwellings and Small Commercial Buildings

[Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. The table shows only the top five limitations for any given soil. The soil may have additional limitations]

Dwellings and Small Commercial Buildings–Valley Area, Idaho, Parts of Adams and Valley Counties							
Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
3—Archabal loam, 4 to 12 percent slopes							
Archabal	80	Somewhat limited		Not limited		Very limited	
		Shrink-swell	0.10			Slope	1.00
						Shrink-swell	0.10

Dwellings and Small Commercial Buildings–Valley Area, Idaho, Parts of Adams and Valley Counties							
Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
4—Archabal loam, 12 to 20 percent slopes							
Archabal	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.10			Shrink-swell	0.10
5—Blackwell silt loam, frequently flooded							
Blackwell	80	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
26—Jugson coarse sandy loam, 30 to 60 percent slopes							
Jugson	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.01	Depth to hard bedrock	1.00	Depth to hard bedrock	0.01
				Depth to soft bedrock	0.10		
27—Jurvannah sandy loam							
Jurvannah	85	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
37—Nisula loam, 4 to 12 percent slopes							
Nisula	85	Not limited		Not limited		Very limited	
						Slope	1.00

Data Source Information

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025

Ponds and Embankments

This table gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the saturated hydraulic conductivity (Ksat) of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. Embankments that have zoned construction (core and shell) are not considered. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, Ksat of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Information in this table is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this table. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Report—Ponds and Embankments

[Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. The table shows only the top five limitations for any given soil. The soil may have additional limitations]

Ponds and Embankments–Valley Area, Idaho, Parts of Adams and Valley Counties							
Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Aquifer-fed excavated ponds		Pond reservoir areas	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
3—Archabal loam, 4 to 12 percent slopes							
Archabal	80	Somewhat limited		Very limited		Very limited	
		Piping	0.50	Depth to water	1.00	Seepage	1.00
		Dusty	0.01			Slope	1.00
4—Archabal loam, 12 to 20 percent slopes							
Archabal	90	Somewhat limited		Very limited		Very limited	
		Piping	0.50	Depth to water	1.00	Seepage	1.00
		Dusty	0.01			Slope	1.00

Ponds and Embankments–Valley Area, Idaho, Parts of Adams and Valley Counties							
Map symbol and soil name	Pct. of map unit	Embankments, dikes, and levees		Aquifer-fed excavated ponds		Pond reservoir areas	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
5—Blackwell silt loam, frequently flooded							
Blackwell	80	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Unstable excavation walls	1.00	Seepage	1.00
		Seepage	0.22				
		Dusty	0.02				
26—Jugson coarse sandy loam, 30 to 60 percent slopes							
Jugson	75	Very limited		Very limited		Very limited	
		Piping	1.00	Depth to water	1.00	Seepage	1.00
		Thin layer	0.70			Slope	1.00
		Seepage	0.35			Depth to bedrock	0.42
27—Jurvannah sandy loam							
Jurvannah	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Unstable excavation walls	1.00	Seepage	1.00
		Seepage	1.00				
37—Nisula loam, 4 to 12 percent slopes							
Nisula	85	Somewhat limited		Very limited		Very limited	
		Dusty	0.02	Depth to water	1.00	Slope	1.00
						Seepage	0.70

Data Source Information

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025

Forestland Planting and Harvesting

This table can help forestland owners or managers plan the use of soils for wood crops. Interpretive ratings are given for the soils according to the limitations that affect planting and harvesting on forestland. The ratings are both verbal and numerical.

Rating class terms indicate the degree to which the soils are suited to a specified aspect of forestland management. *Well suited* indicates that the soil has features that are favorable for the specified management aspect and has no limitations. Good performance can be expected, and little or no maintenance is needed. *Moderately suited* indicates that the soil has features that are moderately favorable for the specified management aspect. One or more soil properties are less than desirable, and fair performance can be expected. Some maintenance is needed. *Poorly suited* indicates that the soil has one or more properties that are unfavorable for the specified management aspect. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration. *Unsuited* indicates that the expected performance of the soil is unacceptable for the specified management aspect or that extreme measures are needed to overcome the undesirable soil properties.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the specified aspect of forestland management (1.00) and the point at which the soil feature is not a limitation (0.00).

The paragraphs that follow indicate the soil properties considered in rating the soils. More detailed information about the criteria used in the ratings is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

Ratings in the columns *suitability for hand planting* and *suitability for mechanical planting* are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, moderately suited, poorly suited, or unsuited to these methods of planting. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *suitability for use of harvesting equipment* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, and ponding. The soils are described as well suited, moderately suited, or poorly suited to this use.

Reference:
United States Department of Agriculture, Natural Resources Conservation Service, National forestry manual.

Report—Forestland Planting and Harvesting

[Onsite investigation may be needed to validate the interpretations in this table and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. The table shows only the top five limitations for any given soil. The soil may have additional limitations]

Forestland Planting and Harvesting–Valley Area, Idaho, Parts of Adams and Valley Counties							
Map symbol and soil name	Pct. of map unit	Suitability for hand planting		Suitability for use of harvesting equipment		Suitability for mechanical planting	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
4—Archabal loam, 12 to 20 percent slopes							
Archabal	90	Well suited		Well suited		Poorly suited	
				Low strength	0.15	Slope	0.74
27—Jurvannah sandy loam							
Jurvannah	85	Moderately suited		Well suited		Moderately suited	
		Sandiness	0.02	Sandiness	0.02	Rock fragments	0.05
37—Nisula loam, 4 to 12 percent slopes							
Nisula	85	Well suited		Well suited		Moderately suited	
				Low strength	0.12	Slope	0.20
3—Archabal loam, 4 to 12 percent slopes							
Archabal	80	Well suited		Well suited		Moderately suited	
				Low strength	0.15	Slope	0.20
5—Blackwell silt loam, frequently flooded							
Blackwell	80	Moderately suited		Moderately suited		Moderately suited	
		Stickiness	0.26	Low strength	0.33	Stickiness; high plasticity index	0.22
26—Jugson coarse sandy loam, 30 to 60 percent slopes							
Jugson	75	Moderately suited		Poorly suited		Unsuited	
		Slope	0.10	Slope	1.00	Slope	1.00

Data Source Information

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025

Windbreaks and Environmental Plantings

Windbreaks protect livestock, buildings, yards, fruit trees, gardens, and cropland from wind and snow; help to keep snow on fields; and provide food and cover for wildlife. Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

This table shows the height that locally grown trees and shrubs are expected to reach in 20 years on soils in the survey area. The estimates are based on measurements and observation of established plantings that have been given adequate care. They can be used as a guide in planning windbreaks and screens. Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from the local office of the Natural Resources Conservation Service or of the Cooperative Extension Service or from a commercial nursery.

Report—Windbreaks and Environmental Plantings

Windbreaks and Environmental Plantings–Valley Area, Idaho, Parts of Adams and Valley Counties					
Map symbol and soil name	Trees having predicted 20-year average height of—				
	8 feet or less	>8 to 15 feet	>15 to 25 feet	>25 to 35 feet	>35 feet
3—Archabal loam, 4 to 12 percent slopes					
Archabal	—	Siberian peashrub Common lilac	Rocky mountain juniper Blue spruce Golden willow	Ponderosa pine	—
4—Archabal loam, 12 to 20 percent slopes					
Archabal	—	Siberian peashrub Common lilac	Rocky mountain juniper Blue spruce Golden willow	Ponderosa pine	—
5—Blackwell silt loam, frequently flooded					
Blackwell	—	—	—	—	—
26—Jugson coarse sandy loam, 30 to 60 percent slopes					
Jugson	—	—	—	—	—

Windbreaks and Environmental Plantings–Valley Area, Idaho, Parts of Adams and Valley Counties					
Map symbol and soil name	Trees having predicted 20-year average height of—				
	8 feet or less	>8 to 15 feet	>15 to 25 feet	>25 to 35 feet	>35 feet
27—Jurvannah sandy loam					
Jurvannah	—	—	—	—	—
37—Nisula loam, 4 to 12 percent slopes					
Nisula	—	—	—	—	—

Data Source Information

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025

RUSLE2 Related Attributes

This report summarizes those soil attributes used by the Revised Universal Soil Loss Equation Version 2 (RUSLE2) for the map units in the selected area. The report includes the map unit symbol, the component name, and the percent of the component in the map unit. Soil property data for each map unit component include the hydrologic soil group, erosion factor Kf for the surface horizon, erosion factor T, and the representative percentage of sand, silt, and clay in the mineral surface horizon. Missing surface data may indicate the presence of an organic layer.

Report—RUSLE2 Related Attributes

Soil properties and interpretations for erosion runoff calculations. The surface mineral horizon properties are displayed or the first mineral horizon below an organic surface horizon. Organic horizons are not displayed.

RUSLE2 Related Attributes–Valley Area, Idaho, Parts of Adams and Valley Counties

Map symbol and soil name	Pct. of map unit	Slope length (ft)	Hydrologic group	Kf	T factor	Representative value		
						% Sand	% Silt	% Clay
3—Archabal loam, 4 to 12 percent slopes								
Archabal	80	502	B	.17	4	41.4	37.1	21.5
4—Archabal loam, 12 to 20 percent slopes								
Archabal	90	325	B	.17	4	41.4	37.1	21.5
5—Blackwell silt loam, frequently flooded								
Blackwell	80	200	C/D	.37	3	29.5	54.0	16.5
26—Jugson coarse sandy loam, 30 to 60 percent slopes								
Jugson	75	49	B	.15	3	66.3	23.7	10.0
27—Jurvannah sandy loam								
Jurvannah	85	653	A/D	.17	4	67.8	23.7	8.5
37—Nisula loam, 4 to 12 percent slopes								
Nisula	85	131	C	.32	5	41.4	37.1	21.5

Data Source Information

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025

Conservation Planning

This report provides those soil attributes for the conservation plan for the map units in the selected area. The report includes the map unit symbol, the component name, and the percent of the component in the map unit. It provides the soil description along with the slope, runoff, T Factor, WEI, WEG, Erosion class, Drainage class, Land Capability Classification, and the engineering Hydrologic Group and the erosion factors Kf, the representative percentage of fragments, sand, silt, and clay in the mineral surface horizon. Missing surface data may indicate the presence of an organic surface layer. Further information on these factors can be found in the National Soil Survey Handbook section 618 found at the url http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/ref/?cid=nrcs142p2_054223#00 .

Report—Conservation Planning

Soil properties and interpretations for conservation planning. The surface mineral horizon properties are displayed. Organic surface horizons are not displayed.

Conservation Planning–Valley Area, Idaho, Parts of Adams and Valley Counties																	
Map symbol and soil name	Pct. of map unit	Slope RV	USLE Slope Length ft.	Runoff	T Factor	WEI	WEG	Erosion	Drainage	NIRR LCC	Hydrologic Group	Surface					
												Depths in.	Kf Factor	Frag-ments RV	Sand RV	Silt RV	Clay RV
3—Archabal loam, 4 to 12 percent slopes																	
Archabal	80	8.0	501	—	4	48	6	—	Well drained	6c	B	0 - 14	.17	5	41	37	21
4—Archabal loam, 12 to 20 percent slopes																	
Archabal	90	16.0	324	—	4	48	6	—	Well drained	6c	B	0 - 14	.17	5	41	37	21
5—Blackwell silt loam, frequently flooded																	
Blackwell	80	2.0	200	—	3	56	5	—	Very poorly drained	6c	C/D	0 - 1	.37	4	29	54	16
26—Jugson coarse sandy loam, 30 to 60 percent slopes																	
Jugson	75	45.0	49	—	3	86	3	—	Somewhat excessively drained	7e	B	1 - 2	.15	8	66	23	10
27—Jurvannah sandy loam																	
Jurvannah	85	1.0	652	—	4	86	3	—	Poorly drained	6c	A/D	0 - 5	.17	—	67	23	8
37—Nisula loam, 4 to 12 percent slopes																	
Nisula	85	8.0	131	—	5	48	6	—	Well drained	6c	C	0 - 25	.32	4	41	37	21

Data Source Information

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025

Irrigation - Micro

This table shows the degree and kind of soil limitations that affect irrigation systems on mineral soils. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Irrigation systems are used to provide supplemental water to crops, orchards, vineyards, and vegetables in area where natural precipitation will not support desired production of crops being grown.

Irrigation, micro (above ground) evaluates a soil for irrigation systems that apply water at slow rates and are installed above the soil surface but near the plants or crops being irrigated. The ratings are for soils in their natural condition and do not consider present land use.

Above ground (drip) micro-irrigation systems generally apply frequent applications of small quantities of water on the soil surface as drops, tiny streams or miniature spray through emitters or applicators placed along a water delivery line. Generally, these irrigation systems are very efficient in terms of both water and energy use and are suitable for use in vineyards, orchards, windbreaks, nurseries, and on truck crops and some row crops.

The soil properties and qualities important in the design and management of drip micro-irrigation systems are depth, wetness or ponding, percolation, and flooding. The soil properties and qualities that influence installation are depth, flooding, and ponding. The features that affect performance of the system and plant growth are the content of salts, calcium carbonate, or sodium.

Irrigation, micro (subsurface drip) evaluates a soil for irrigation systems that apply water at slow rates to the soil rooting zone and are installed beneath the soil surface. The ratings are for soils in their natural condition and do not consider present land use.Subsurface micro-irrigation systems are irrigation systems that apply low volumes of water below the soil surface as drops, tiny streams, or miniature spray through emitters or applicators placed along a water delivery line. These irrigation systems are buried and apply water directly and very slowly to the root zone. Generally, these systems are very efficient in terms of both water and energy use and are suitable for use in windbreaks, vegetables, berries, landscape plantings, vineyards, orchards, and some row crops.

The soil properties and qualities important in the design and management of subsurface micro-irrigation systems are soil depth, available water capacity, wetness or ponding, percolation rate, pH (soil reaction), erosion potential, and flooding. The soil properties and qualities that influence installation are soil depth, stoniness, flooding, and ponding. The features that affect performance of the system and plant growth are available water capacity, shrink-swell potential, pH (soil reaction), and the content (or amount) of salts, calcium carbonate, and sodium.

Information in this table is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this table. Local ordinances and regulations should be considered in planning, in site selection, and in design. The irrigation interpretations are not designed or intended to be used in a regulatory manner.

Report—Irrigation - Micro

[The information in this table provides irrigation interpretations for mineral soils. Onsite investigation may be needed to validate the interpretations and to confirm the identity of the soil on a given site. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. The table shows only the top five limitations for any given soil. The soil may have additional limitations]

Irrigation - Micro–Valley Area, Idaho, Parts of Adams and Valley Counties					
Map symbol and soil name	Pct. of map unit	Irrigation, Micro (above ground)		Irrigation, Micro (subsurface drip)	
		Rating class and limiting features	Value	Rating class and limiting features	Value
3—Archabal loam, 4 to 12 percent slopes					
Archabal	80	Somewhat limited		Somewhat limited	
		Seepage	0.18	Shrink-swell (LEP 3-6)	0.50
				Seepage	0.18
4—Archabal loam, 12 to 20 percent slopes					
Archabal	90	Somewhat limited		Somewhat limited	
		Seepage	0.18	Shrink-swell (LEP 3-6)	0.50
				Seepage	0.18

Irrigation - Micro–Valley Area, Idaho, Parts of Adams and Valley Counties					
Map symbol and soil name	Pct. of map unit	Irrigation, Micro (above ground)		Irrigation, Micro (subsurface drip)	
		Rating class and limiting features	Value	Rating class and limiting features	Value
5—Blackwell silt loam, frequently flooded					
Blackwell	80	Very limited		Very limited	
		Seepage	1.00	Seepage	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frequent or very frequent flooding	0.70	Frequent or very frequent flooding	0.70
26—Jugson coarse sandy loam, 30 to 60 percent slopes					
Jugson	75	Very limited		Very limited	
		Seepage	1.00	Seepage	1.00
		Low water holding capacity	0.39	Low water holding capacity	0.39
		Depth to soft bedrock	0.03	Depth to soft bedrock	0.03
27—Jurvannah sandy loam					
Jurvannah	85	Very limited		Very limited	
		Seepage	1.00	Seepage	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Low water holding capacity	0.99	Low water holding capacity	0.99
		Frequent or very frequent flooding	0.70	Frequent or very frequent flooding	0.70
37—Nisula loam, 4 to 12 percent slopes					
Nisula	85	Not limited		Not limited	

Data Source Information

Soil Survey Area: Valley Area, Idaho, Parts of Adams and Valley Counties
Survey Area Data: Version 23, Aug 27, 2025