REQUEST FOR PROPOSAL (RFP)

Chesapeake Conservancy is a non-profit organization that works with conservation partners and landowners to implement Best Management Practices (BMPs) on agricultural land.

Chesapeake Conservancy is soliciting proposals for the following services:

- Engineering Services to design a roofed heavy use area/waste storage facility and all associated practices for a beef operation. Services will also include designs for pasture related practices such as stream crossing, fencing, hedgerow planting for windbreaks and concrete pad for watering facilities.
- Project and Construction Oversight
- Quality Assurance Inspections and Final Certification with PE Stamp

RFP OVERVIEW AND PROJECT DESCRIPTION

RFP Release Date: March 25, 2026

Landowner Name: Michael Evanko

Project Location: 4957 Halfmoon Valley Road
Warriors Mark, PA 16877
Huntingdon County (Warriors Mark Township) and Centre County (Halfmoon Township)

RFP Issuing Office: Chesapeake Conservancy
Email: paprograms@chesapeakeconservancy.org
Phone: 570-372-4075

RFP Due Date: **All proposals must be submitted by:**
April 27, 2026 at 10:00 am EDT
Proposals will not be accepted after this date and time.

RFP Submission: **All proposals must be submitted electronically to the following email address*:**

Email: paprograms@chesapeakeconservancy.org
Include "Evanko Engineering RFP Response" in the subject line.

**If bidder is unable to submit proposal via email, please contact Chesapeake Conservancy to arrange another method to submit proposal.*

RFP Results: RFP results and notification of award are dependent upon confirmation of project funding (grant amendments) by the Conservancy. Notification will be made to all bidders as soon as possible following confirmation of funding. Contracts for this RFP will not be executed if grant amendments are not approved.

Questions: All questions regarding this RFP should be submitted no later than April 15, 2026 to: Kathy Rohrer, 570-372-4075, paprograms@chesapeakeconservancy.org

Project Description:
The successful bidder will be responsible for providing engineering and professional services to design and oversee construction of a roofed heavy use area/waste storage facility and all associated practices for a farm operation consisting of 17 beef cattle and 6 hogs. Services will also include designs for pasture related practices such as stream crossing, fencing, hedgerow planting for windbreaks and concrete pad for watering facilities.

Bidders should refer to Attachment A – Evanko Farm Site Inventory and Evaluation (I&E) for a list of proposed practices and estimated quantities. BMPs may include but are not limited to those identified in the landowner's I&E (Attachment A). This information is provided for informational purposes only. ***The design shall include all BMP components that will adequately address water quality.***

The landowner's preference is to have his existing barn torn down, however if that is not possible then the new roofed facility would be located to the west of the existing barn.

The contract resulting from this RFP will include, but is not limited to the following services:

Project Design

- Site survey(s) and engineering of planned BMPs
- Contractor shall maintain clear and consistent communication with the landowner throughout all phases of the project. Good communication is essential to ensure the Contractor fully understands the landowners needs and expectations, and that the design and constructed project address those needs.
- Obtain landowner feedback to ensure the design addresses their requests, works with their operation and includes all BMPs that address the resource concerns on their property. Contractor is expected to be proactive in their communication and feedback process with the landowner.
- Complete wetland determination and cultural resource analysis, if required
- Provide final design and drawings to Chesapeake Conservancy with copy to the landowner
    - The Engineer shall prepare all necessary design plans, drawings and specifications to be used for the construction of the BMPs. All information provided shall be complete in detail and contain all necessary information. Drawings shall conform with standard professional practice, including site plans, profiles and sections, erosion and sediment control plan, quality assurance/inspection plan, operation and maintenance plan and all details necessary to illustrate the complete scope of the work.
    - The Engineer shall include design calculations, documentation, estimated quantities and cost estimate.
    - The design and drawings shall be signed and sealed by a qualified, licensed professional, and shall meet Pennsylvania Technical Guide Standards and Specifications.
- Provide technical standards and specifications (NRCS) of planned BMPs
    - Planned BMPs and estimated quantities are found in Attachment A – Inventory and Evaluation.
- Provide printed sets of 11"x17" or larger drawings and designs for the site showing. Quantity will be determined based on number of attendees.

Project Permits

It is the responsibility of the bidder to determine what permits and plans (including stormwater management) are required for this project prior to submitting a bid. The successful bidder will be responsible for writing, submitting, overseeing and implementing any applicable permits and plans. Proposals should reflect these services. Bidders shall include with their proposal, a list of all required permits and plans. The bidder is not responsible for any permit fees.

The farm property is located in two counties (Huntingdon and Centre) and coordination will be necessary between the two townships to ensure all necessary permits are obtained for this project. Even though the county line goes through some of the farm buildings where the facility is planned, the two county's GIS parcel viewers identify the northwest parcel as Centre County. The southeast parcel where the landowner resides is primarily used for crops and pasture and is entirely in Huntingdon County.

The following are types of permits that are commonly needed on projects of this scope. Bidders should confirm which permits and plans are required, including any not listed here:

- General Permits per Pennsylvania Department of Environmental Protection (DEP) Chapter 105

- Erosion and Sediment Control per DEP Chapter 102
- Stormwater Management Plan and Permits per county and local municipality ordinances
- National Pollutant Discharge Elimination System (NPDES) Permit per U.S. Environmental Protection Agency
    - It is anticipated that less than 1 acre, as defined by DEP for agricultural BMP's will be disturbed for this project. Unless the scope of work changes, the project should not require a NPDES permit. Bidders should confirm this with the appropriate agencies.
- Zoning and Building Permits per local municipality and/or county

The landowner will be responsible for applying for and obtaining all permits required for this project. The Engineer will make a reasonable effort to ensure the permits are obtained prior to implementation.

Project Meetings

Project meetings include but are not limited to:

- Pre-design meeting on site
- At least one meeting with landowner on site to discuss and coordinate design
    - Follow-up meetings with the landowner via phone and/or on site, as needed
- Site showing for bids on site
- Bid opening or review of bids
- Pre-construction meeting on site

Construction Oversight and Quality Assurance

The Engineer is expected to furnish customary engineering advice and assistance necessary to Chesapeake Conservancy, the landowner and contractors to enable all parties to readily understand the project and design. The Engineer shall provide oversight of the project and shall coordinate with Chesapeake Conservancy, the landowner and contractors throughout the project. This includes working directly with the landowner on such things as design, site visits and other aspects of the project as well as working directly with the contractors on the construction timeline, implementation of BMPs and quality assurance inspections.

The Engineer shall visit the construction site to observe progress and quality of work, to determine if work is proceeding in accordance with the design, to keep Chesapeake Conservancy informed of progress, to guard against defects and deficiencies and to disapprove of work not in conformance with the design and NRCS specifications.

The Engineer shall complete quality assurance inspections on-site during construction of the BMPs to adequately sign off on the project and document that the installation of the BMPs conform with the design and NRCS specifications. The number of inspections is at the Engineer's discretion. Quality assurance inspections may include but are not limited to:

- Placing compacted fill or subgrade/stone preparation
- Checking materials (rebar, posts, etc.) before installation
- Checking reinforcing steel before concrete pour (not same day as pour)
- Pouring any concrete
- Backfilling poured concrete walls or final grading
- Setting trusses and associated truss bracing
    (Trusses must be approved by the Engineer prior to ordering. Final truss design needs a P.E. seal)
- Installing stormwater pipes and drop boxes
- Final inspection for conformity with design, concept and NRCS specifications

Contractor is responsible for certifying installed practices and ensuring that the practices are installed to NRCS standards and specifications.

When the project is complete, the Engineer will provide the Conservancy and the landowner with an electronic copy of the following:

- "As Built" documentation consisting of final drawings of practices and quantities installed and certification statement signed by a professional engineer stating installed practices meet the PA Technical Guide Standards and Specifications.

Bidding Process

Chesapeake Conservancy will be required to utilize a competitive bidding process for the implementation phase of the project. The Conservancy will be responsible for compiling a bid package following their procurement policy. The Engineer will review the Conservancy's final bid package for accuracy and completeness. The Engineer shall be available to answer contractors' questions pertaining to the design and supply the Conservancy with addenda, if required. The Engineer shall be prepared to provide printed sets of 11"x17" or larger of the designs and drawings for the site showing.

RFP TERMS AND CONDITIONS

Selected contractors will be working with Chesapeake Conservancy and the landowner on the implementation of this project.

DESIGN AND CONSTRUCTION TIMELINE AND SCHEDULE:
Designs shall be completed as soon as possible. Contractors shall include with their response when they can begin working on the design and their proposed completion date of the design.

Preference shall be given to contractors who can complete the designs in a timeframe which could allow construction to be completed before June 2027 as funding for implementation/construction needs to be spent within this timeframe.

If the contracted services are not completed within the designated time period (as specified in the resulting contract from this RFP), the contract can be extended if agreed to in writing by Chesapeake Conservancy and the contractor.

PENNSYLVANIA ONE CALL:
Contractor shall follow all laws and regulations relating to the Pennsylvania One-Call System, including submitting all required design notifications to the Pennsylvania One-Call System to assist with the prevention of accidental damage to underground public utilities.

COMMUNICATION:
Communication between the Contractor, Conservancy and the landowner is crucial to a successful project. Contractor shall work closely with the Conservancy and the landowner during the design and implementation phases of the project to ensure the project is completely timely.

PAYMENT INFORMATION:
This project is being funded through Chesapeake Conservancy grants. Selected Contractor will receive payments from the Conservancy. If the landowner requests upgrades to BMPs that the Conservancy cannot pay for then those details will be worked out directly with the landowner and payment for those items will be paid to the Contractor by the landowner.

Contractor shall invoice the Conservancy for services rendered during the preceding month. Invoices will be paid after all required documentation have been received and approved AND the Conservancy receives reimbursement from its funding source. We anticipate the time from invoice submission to payment to be 60 calendar days. This may be longer if our payment from our funder is delayed.

GRANTS:
The terms and conditions of the Pennsylvania Department of Environmental Protection Growing Greener (C990003716 and C990004397), National Fish and Wildlife Foundation (0602.24.082478) and Pennsylvania Hamer Foundation grants may apply to the contracts that result from this RFP. Copies of the grants are available upon request.

WORKER PROTECTION INVESTMENT AND CERTIFICATION FORM:
Commonwealth grants require contractors to sign the Commonwealth of Pennsylvania Worker Protection Investment and Certification Form acknowledging compliance with Executive Order 2021-06, Worker Protection and Investment (October 21, 2021). Contractors shall complete the Worker Protection Investment and Certification Form and submit it with their RFP response.

LOBBYING CERTIFICATION FORM:

As required by National Fish and Wildlife Foundation grants, the successful bidder will be required to sign a Lobbying Certification Form acknowledging compliance with 43 CFR §18 New Restrictions on Lobbying. This form will be signed at the time of contract execution.

ENHANCED MINIMUM WAGE PROVISIONS:

Enhanced minimum wage provisions apply to all labor. Contractor and all subcontractors shall follow the required enhanced minimum wage provisions outlined below per Pennsylvania's Department of General Services*.

- Effective July 1, 2025, the enhanced minimum wage rate is $17.31 per hour (55.Pa.B.2421).
- An annual cost of living adjustment is applied to the minimum wage rate each July. *All services completed after July 1, 2026 must be paid at the new rate.*
- Contractor's invoice shall include the hours worked and hourly rate reflecting compliance with these provisions.

***PA Department of General Services**
Enhanced Minimum Wage Provisions

a. ***Enhanced Minimum Wage.*** *Contractor/Lessor agrees to pay no less than $17.31 per hour to its employees for all hours worked directly performing the services called for in this Contract/Lease, and for an employee's hours performing ancillary services necessary for the performance of the contracted services or lease when such employee spends at least twenty percent (20%) of their time performing ancillary services in a given work week.*
b. ***Adjustment****. Beginning July 1, 2023, and annually thereafter, the minimum wage shall be increased by an annual cost-of-living adjustment using the percentage change in the Consumer Price Index for All Urban Consumers (CPI-U) for Pennsylvania, New Jersey, Delaware, and Maryland. The applicable adjusted amount shall be published in the Pennsylvania Bulletin by March 1 of each year to be effective the following July 1.*
c. ***Exceptions****. These Enhanced Minimum Wage Provisions shall not apply to employees:*
    1. *Exempt from the minimum wage under the Minimum Wage Act of 1968;*
    2. *Covered by a collective bargaining agreement;*
    3. *Required to be paid a higher wage under another state or federal law governing the services, including the Prevailing Wage Act and Davis-Bacon Act; or*
    4. *Required to be paid a higher wage under any state or local policy or ordinance.*
d. ***Notice****. Contractor/Lessor shall post these Enhanced Minimum Wage Provisions for the entire period of the contract conspicuously in easily-accessible and well-lighted places customarily frequented by employees at or near where the contracted services are performed.*
e. ***Records.*** *Contractor/Lessor must maintain and, upon request and within the time periods requested by the Commonwealth, furnish all employment and wage records necessary to document compliance with these Enhanced Minimum Wage Provisions.*
f. ***Sanctions****. Failure to comply with these Enhanced Minimum Wage Provisions may result in the imposition of sanctions, which may include, but shall not be limited to, termination of the contract or lease, nonpayment, debarment or referral to the Office of General Counsel for appropriate civil or criminal referral.*
g. ***Subcontractors****. Contractor/Lessor shall include the provisions of these Enhanced Minimum Wage Provisions in every subcontract so that these provisions will be binding upon each subcontractor.*

INSURANCE REQUIREMENTS:

Bidders shall include a copy of their **current (not expired!)** Certificate of Insurance (COI) that reflects their existing levels of liability insurance coverage. Prior to executing a contract with the Conservancy, the successful bidder and all subcontractors must obtain the following minimum levels of liability insurance, ***at their own expense***. Contractors who do not carry commercial liability insurance for religious reasons and/or are self-insured should provide applicable documentation with their bid response.

Type of Insurance Coverage	*Limit Required*
General Liability -	
Each Occurrence:	$1,000,000
Automobile Liability -	
Combined Single Limit (Each Accident):	$1,000,000
Excess or Umbrella Liability -	
Each Occurrence:	$2,000,000
Workers Compensation and Employer's Liability* -	
E.L. Each Accident:	$1,000,000
E.L. Disease - Each Employee:	$1,000,000
E.L. Disease - Policy Limit:	$1,000,000
Professional Liability -	
Per Claim:	$1,000,000

* *Workers Compensation and Employer's Liability can be waived for sole proprietors.*

Contractors and subcontractors will be required to include a waiver of subrogation in favor of Chesapeake Conservancy on all liability policies.

"**Chesapeake Conservancy"** and "**National Fish and Wildlife Foundation**" must be named as additional insured on all contractor's and subcontractor's policies except workers compensation and professional liability.

Contractors shall include the cost to obtain additional insurance coverage that is above what they currently carry when calculating their price on the Contractor Response Form.

Immediately following the RFP award notification, the successful bidder shall work with their insurance agent to obtain the insurance requirements noted above. The awarded Contractor and all subcontractors shall provide Chesapeake Conservancy with a current COI certified by a licensed insurance broker within 14 days of award notification. The approved COIs need to be provided to Chesapeake Conservancy prior to signing a contract.

Note: *Bidders **do not** need to change their current liability insurance or add additional insured and waiver of subrogation to their policies when responding to the RFP. Only the successful bidder will be required to meet the insurance requirements noted above after the bid is awarded. The Certificate Holder should be as follows: Chesapeake Conservancy, 1212 West Street, Annapolis, MD 21401.*

BIOSECURITY:

The successful bidder is encouraged to follow basic farm biosecurity practices.

DOMESTIC PREFERENCE FOR PROCUREMENT:

In accordance with 2 C.F.R. 200.322, the successful bidder shall to the greatest extent practicable, purchase, acquire, or use goods, products or materials produced in the United States (including but not limited to iron, aluminum, steel, cement, and other manufactured products).

For purposes of this RFP, the following definitions apply:

i. Produced in the United States means, for iron and steel products, that all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States; and
ii. Manufactured products means items and construction materials composed in whole or in part of non-ferrous metals such as aluminum; plastics and polymer based products such as polyvinyl chloride pipe; aggregates such as concrete; glass, including optical fiber; and lumber.

DEBARMENT AND TAX LIABILITY:

Contractors will be required to certify that they and any subcontractors are not listed on the Debarment and Suspension List maintained by the Pennsylvania Department of General Services (https://www.dgs.internet.state.pa.us/debarmentsearch/debarment/index) and the General Services Administration's List of Parties Excluded from Federal Procurement or Nonprocurement Programs (www.SAM.gov) in accordance with Executive Orders 12549 and 12689, "Debarment and Suspension" and have no outstanding tax liabilities. Contractors will also be required to certify that they and any subcontractors are not in default of a loan or funding agreement administered by any Commonwealth agency.

SMALL BUSINESS AND SMALL DIVERSE BUSINESS:

Chesapeake Conservancy encourages the use of small and small diverse businesses when soliciting Requests for Proposals. Contractors are encouraged to register with the federal government at www.sam.gov and with the Pennsylvania Department of General Services at www.dgs.pa.gov (search Small Diverse Business Verification). Please note Pennsylvania Department of General Service registration is only valid for three years. Contractors are encouraged to verify that their registration is current.

Contractors and any subcontractors who register on Sam.gov and with the PA Dept of General Services and who qualify as a small and/or small diverse business should check the applicable boxes on the Contractor Response Form. Points will be awarded as per the scoring sheet in Attachment B to contractors whose registration is confirmed by Chesapeake Conservancy.

EQUAL EMPLOYMENT OPPORTUNITY:

Chesapeake Conservancy is an equal opportunity employer. The successful bidder shall comply with all federal, state, and local equal employment opportunity requirements. Additional information can be found at https://www.ecfr.gov and searching 41 CFR 60-1.4(b).

SUBMISSION OF PROPOSALS AND SELECTION CRITERIA

SUBMISSION OF PROPOSALS:

Proposals are requested for the items described in the Project Description, in accordance with the Terms and Conditions included in this RFP. Any estimated quantities included in this RFP are for information only. The successful bidder will be responsible for determining the final quantities and practices as part of the design process.

At a minimum each proposal response must include:

- Contractor Response Form
  - Price
  - Three references
  - List of subcontractors used (if applicable)
  - Proposed start date
  - Proposed completion date
  - Identify any permits required
  - Enhanced minimum wage certification
  - Debarment and tax liability certification
  - List of exclusions and assumptions
  - Insurance requirements - agreement to obtain or documentation of self-insurance
  - Signed by authorized representative
- Current Certificate of Insurance
  - ***All policies on the COI must have current dates. Do not submit expired COIs!!***
- Commonwealth of Pennsylvania Worker Protection Investment and Certification Form (signed) - ***Sign the form that is for this specific RFP even if you have signed this form for previous RFPs.***

All proposals must be submitted electronically to Chesapeake Conservancy by the RFP due date specified on Page 1 of the RFP.

It is the responsibility of each contractor to ensure that the proposal is received prior to the due date and time for submission of proposals. No proposal shall be considered if it was sent or received after this date and time.

CONTRACTOR SELECTION CRITERIA:

Proposals will be evaluated based on the criteria listed in Attachment B.

Proposals must be firm. The proposal may be rejected if the items offered by the contractor are not in conformance with the specifications as determined by the Issuing Office.

Proposals will be awarded to the most qualified economic bidder, as determined by Chesapeake Conservancy. Chesapeake Conservancy reserves the right to reject any or all proposals and/or cancel the RFP for any reason and to waive any technical defects, if it determines that it is in the best interest of the landowner, partner or Chesapeake Conservancy.

Chesapeake Conservancy reserves the right to check with other conservation partners and landowners for feedback on working relationship and quality of work of bidders.

CONTRACTOR RESPONSE FORM

Contractor Name: _____

Project Name: Evanko Engineering

Project Location: 4957 Halfmoon Valley Road, Warriors Mark, PA 16877 (Huntingdon and Centre Counties)

1. Total price for supply materials, labor, equipment and insurance for performing the work as described in the Project Description - ***Required***: $_____

2. I/We plan to use the following subcontractors in order to perform parts of this project (include Tax ID):

   Name:_____ EIN:_____

   Name:_____ EIN:_____

3. The following three references are provided with telephone numbers of projects completed of similar scope and size - ***Required***:

   Name:_____ Telephone:_____

   Name:_____ Telephone:_____

   Name:_____ Telephone:_____

4. Proposed start date of design - ***Required***: _____

5. Proposed completion date of design - ***Required***: _____

6. Identify any permits required - ***Required***: _____

   _____

   _____

7. Enhanced Minimum Wage Rate Provisions (See Terms and Conditions for details) - ***Required***:

   ☐ I/We agree to comply with the enhanced minimum wage rate provisions.

8. Small Business or Small Diverse Business (See Terms and Conditions for details) - *Check if Applicable*

   I have registered with Sam.gov and my business (or any subcontractors listed above) qualifies as a
   ☐ Small Business and/or ☐ Small Diverse Business

   I have registered with the PA Dept of General Services and my business (or any subcontractors listed above) has been certified as a ☐ Small Business and/or ☐ Small Diverse Business.

9. Debarment and tax liability status (See Terms and Conditions for details) - ***Required***:

   ☐ I certify that my business, and any subcontractors, are not debarred by the State of Pennsylvania or the federal government.

   ☐ I certify that my business, and any subcontractors, have no tax liabilities and are not in default of a loan or funding agreement administered by the State of Pennsylvania.

CONTRACTOR RESPONSE FORM

10. Commonwealth of Pennsylvania Worker Protection Investment and Certification Form (See Terms and Conditions for details) - ***Required***:

    ☐ I have included with my response the completed Worker Protection Investment and Certification Form

11. Insurance Requirements (See Terms and Conditions for details) - ***Required***:

    ☐ I have included a copy of my current COI ***(not expired)***. If awarded the contract, I agree to obtain the levels of insurance outlined in the Terms and Conditions of the RFP within 14 days of award notification and prior to signing a contract.

    ☐ I do not carry commercial liability insurance due to religious reasons and/or I am self-insured. I have included supporting documentation with my response.

12. List any exclusions and assumptions associated with your proposal:_____

_____

_____

_____

_____

This proposal is submitted in response to the RFP for the project described within. The proposal is based on my knowledge of the plans and specifications identified within. This proposal will remain valid for 90 days after submission. If awarded the RFP, I agree to sign a contract with the Chesapeake Conservancy.

Company Name:_____ Company Tax ID (EIN):_____

Company Address:_____

Representative's Name:_____ Telephone:_____

Email Address:_____

Signature:_____ Title:_____ Date:_____

WORKER PROTECTION AND INVESTMENT CERTIFICATION FORM

A. Pursuant to Executive Order 2021-06, *Worker Protection and Investment* (October 21, 2021), the Commonwealth is responsible for ensuring that every worker in Pennsylvania has a safe and healthy work environment and the protections afforded them through labor laws. To that end, contractors and grantees of the Commonwealth must certify that they are in compliance with Pennsylvania's Unemployment Compensation Law, Workers' Compensation Law, and all applicable Pennsylvania state labor and workforce safety laws including, but not limited to:

1. Construction Workplace Misclassification Act
2. Employment of Minors Child Labor Act
3. Minimum Wage Act
4. Prevailing Wage Act
5. Equal Pay Law
6. Employer to Pay Employment Medical Examination Fee Act
7. Seasonal Farm Labor Act
8. Wage Payment and Collection Law
9. Industrial Homework Law
10. Construction Industry Employee Verification Act
11. Act 102: Prohibition on Excessive Overtime in Healthcare
12. Apprenticeship and Training Act
13. Inspection of Employment Records Law

B. Pennsylvania law establishes penalties for providing false certifications, including contract termination; and three-year ineligibility to bid on contracts under 62 Pa. C.S. § 531 (Debarment or suspension).

CERTIFICATION

I, the official named below, certify I am duly authorized to execute this certification on behalf of the contractor/grantee identified below, and certify that the contractor/grantee identified below is compliant with applicable Pennsylvania state labor and workplace safety laws, including, but not limited to, those listed in Paragraph A, above. I understand that I must report any change in the contractor/grantee's compliance status to the Purchasing Agency immediately. I further confirm and understand that this Certification is subject to the provisions and penalties of 18 Pa. C.S. § 4904 (Unsworn falsification to authorities).

Signature ***Date***
Name (Printed)
Title of Certifying Official (Printed)
Contractor/Grantee Name (Printed)

ATTACHMENTS:

The following Attachments are included for reference as part of this RFP:

Attachment A – Evanko Farm Site Inventory and Evaluation (I&E)
Attachment B – RFP Scoring Sheet

Attachment A

SITE INVENTORY & EVALUATION

Evanko Farm

Halfmoon Township, Centre County and Warriors Mark Township, Huntingdon County, Pennsylvania

PREPARED FOR:

Mike Evanko
4957 Halfmoon Valley Road
Warriors Mark, PA 16877

PREPARED BY:

Larson Design Group
1000 Commerce Park Drive, Suite 201
Williamsport, PA 17701

LDG Project No. 13508-006

January 2026

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APPENDICES:

Signatures and Approvals

I&E Completed By: Eddie Stockert **Date:** 01/16/2026

Title: Environmental Specialist

"I have reviewed the Inventory and Evaluation (I&E) as proposed. I am in agreement with the general principles, concept and practices recommended to address the environmental concerns identified on my operation. I understand that my Financial Assistance Program contract will be based on the practices and approximate quantities in the I&E."

Landowner/Operator:_____ **Date:**_____

I&E Approved By: Christopher M. Sheaffer **Date:** 1/16/26

Title: Practice Manager

Operation Description

On October 22, 2025 a site meeting was held at the Evanko Farm located in Halfmoon Township, Centre County and Warriors Mark Township, Huntingdon County, PA to discuss aspects of a Conservation Nutrient Management Plan (CNMP) for the current operation. Attendees included Mike and Drew Evanko (Operators), Eddie Stockert and Adam Winey (Larson Design Group), Jennifer Dombroskie and Jill Barskey (Clearwater Conservancy), and Jeremy Weaver (Weaver Environmental Consulting).

The Evanko Farm is approximately 50 acres in size with the property split by State Route 550 (Halfmoon Valley Road). The 5-acre parcel located on the northwestern side of the state road contains an old barn, a machinery shed, office, and a pasture used for cattle in the winter months. The southeastern parcel from the state road has crop and pasture land where cattle are rotationally grazed. The primary residence of the landowner is also on this parcel. Altogether, there are seven (7) paddocks for cattle grazing and six (6) fields that are rotated through with various crops.

The farm currently has seventeen (17) beef cattle consisting of seven (7) heifers/cows, five (5) calves, and five (5) feeders. Feeders are kept on the farm until they reach approximately 700 pounds and are then sent to the butcher. The cattle are grazed in six (6) different pastures on the southeastern parcel and moved to new paddocks each week. The paddock located on the northwestern parcel is used for winter housing due to ease of access to feeding with round bales.

The Evankos also rear 6 pigs that are bought from Penn State at 80 pounds in the spring and reared until 250 pounds in the fall before being butchered. The pigs are fed grain feed through a gravity feeder and kept in a pen within the old barn structure. The pigs do have limited access outside within a penned area.

Eight (8) laying chickens and four (4) meat turkeys are free ranged around the primary residence on the southeastern parcel. The operators also look to acquire two (2) meat sheep in the future that they will rotate through with the cattle in the paddocks.

Resource Concerns

The operation has previously had work completed by NRCS for a grazing system and stream crossings. However, due to recent heavy flooding, the stream fencing and crossings have been removed or deteriorated and are in need of replacement. The stream, Warriors Mark Run, carries a PADEP Chapter 93 Designated Use of High Quality – Cold Water Fishery (HQ-CWF) with Migratory Fish (MF) and is classified by PA Fish and Boat Commission as a naturally reproducing trout stream. The stream is located in Field 13 in the northwestern parcel from the state road. Currently, all fencing has been removed due to flooding and cattle are able to access the stream for watering purposes when in the pasture.

When cattle are being kept in Field 13, there are no covered areas for them to stay out of inclement weather. Additionally, the water that supplies the barn has been determined to contain high levels of sulfur and not suitable for watering cattle. The current barn structure that houses the pigs is becoming dilapidated and could pose structural problems.

The paddock system for rotational grazing maintains a stable vegetative growth, but there is no shade cover for cattle during sunny parts of the day. The watering system to the paddocks comes from the operator's residence and is piped out to frost-free hydrants that fill watering troughs. These watering areas do not have stable heavy use areas and can create muddy areas within the paddock system.

All other aspects of the farm operation function and perform effectively for resource quality.

Recommendations

The Evankos and attending individuals discussed the recommendations for addressing the resource concerns that were listed in the previous section.

The main concern of the operators was the lack of winter housing for the cattle. It was recommended to provide a roofed heavy use area and manure stacking structure. The total structure size is 40' x 72' with a manure stacking section that will measure 30' x 20' to allow dry manure to be stored for three (3) months at a four (4) foot high stack. The heavy use area section of the structure was requested to have enough space for a mobile round bale feeder. Water supply to the structure will need to come from a new well or re-working of the existing well for removal of sulfur within the water supply. A roof runoff system of gutters, downspouts, and underground outlets. The structure will be used to house the pigs in the months that cattle are not within the structure. Proper sanitary measures will need to be followed to clean the structure between housing of different animal types. The Evankos look to re-utilize the gravity feeding system in the new structure for the pigs.

The existing barn structure on the northwestern parcel is also in failing shape. The operators would like to demolish the structure if possible. The barn was built in 1957, which places it over the 50-year-old mark for the requirements of a cultural resource analysis. If the structure is deemed a cultural resource that can not be destroyed, a secondary option of raising the floor of the barn to allow for more under clearance where the pigs currently are housed is requested.

The existing stream crossing will need to be established. The operators requested that the southern crossing be removed and fenced out, while the northern crossing be reconstructed with a hog slat bottom for long-term stability. The existing fence posts on the northwestern side of the stream are adequately distanced for a good riparian buffer. The southeastern edge of the stream is very steep, and the operators requested the buffer fencing be placed along the top of the slope to prevent injury to their cattle on the slope. It was requested to add tree plantings with some fruit trees on the upper portion of the sloped buffer section.

The pasture fencing for Field 13 was requested to be extended beside the house/office space to provide additional grazing ground. Additionally, they requested that Path 25 be moved to the southern side of the parcel. This was due to concerns over the safety of moving cattle across the road. A gate will need to be installed along the Field 1 with an additional Path running west to east along the southern edge of the field.

The operators expressed concern over a lack of shade their cattle in the pastures during the summer months that they are grazing. It was discussed that hedgerow plantings would be an option for providing both shade and windbreaks for protection of the cattle. Tree species will be at the discretion of the funding source and preference of the landowner.

The pasture watering areas need to be stabilized with gravel or concrete. The operators prefer concrete, but if cost prohibits, gravel is an acceptable choice. These areas should be 10' in diameter to allow cattle to stand entirely on the pads. A total of four (4) heavy use areas (HUAs) will need to be constructed for each watering location.

All disturbed areas of the project site will be seeded and mulched immediately following construction activities.

A concept plan of the proposed practices for the operation is included in this I&E.

Other Comments and Considerations

A. Additional Practices
   a. Roof gutters and underground outlets will be installed on the building. A General Permit 4: Intake and Outfall Structures will be needed if the outlet terminates within the stream limits.
   b. An access road will need to be constructed around the new structure from the existing driveway.
   c. A pumping plant system will need to be installed for distributing water to the watering facilities from the new well or re-worked existing well. This will either be an above ground insulated room or buried vault that will contain the pressure tank and manifold with shutoff valves.
   d. A livestock pipeline will be needed from the well to a pumping plant system. Additionally, a pipeline will be needed from the pumping plant system to the watering facilities. This will be a buried polypropylene waterline.

B. Other Considerations/Concerns
   a. With the proposed logistics of moving cattle across the state road (Halfmoon Valley Road) and proposed construction activities within the right-of-way, PennDOT should be included in discussions regarding the project planning in the case that a Highway Occupancy Permit (HOP) be needed.
   b. The farm properties sit within two (2) separate counties with two (2) separate townships. The western parcel of the property sits partially within Huntingdon County and Warriors Mark Township. The remainder of the property sits in Centre County and Halfmoon Township. Coordination will be necessary at both the county and township levels for zoning and permitting clearances.
   c. A General Permit 6: Agricultural Crossings may be needed for the reconstruction of the existing crossing. Coordination with DEP would be recommended to confirm the need of this permit or if the work would classify under a maintenance of the existing structure.

Practices

Proposed Practices	Estimated Quantities
313- Waste Storage Facility	600 ft^2
342- Critical Area Planting	0.75 acres
367- Roofs and Covers	2,880 ft^2
382- Fence (All Exterior Fencing)	2,223 ft
391- Riparian Forest Buffer	1.25 acres
422- Hedgerow Planting	2,570 ft
468- Lined Waterway or Outlet	8 ft
500- Obstruction Removal (Existing Barn)	2,330 ft^2
500- Obstruction Removal (Stream Crossing)	400 ft^2

Proposed Practices	Estimated Quantities
516- Livestock Pipeline (Estimated)	200 ft
533- Pumping Plant	1
558- Roof Runoff Structure	144 ft
560- Access Road	100 ft
561- Heavy Use Area Protection (Concrete)	2,280 ft^2
561- Heavy Use Area Protection (Gravel)	480 ft^2
575- Trails and Walkways (At New HUA)	65 ft
575- Trails and Walkways (To Homestead)	410 ft
578- Stream Crossing	1
606- Subsurface Drain	232 ft
612- Tree/Shrub Establishment	0.25 acres
614- Watering Facility	1
620- Underground Outlet	290 ft

Appendix A

Photo Log

Inventory & Evaluation Photo Log

PHOTO #: 1 DATE: 10/22/2025 DIRECTION: West PHOTO DESCRIPTION: The existing barn planned to be removed due to poor conditions. NRCS will determine if a cultural resources clearance will be needed for this structure.	

PHOTO #: 2 DATE: 10/22/2025 DIRECTION: East PHOTO DESCRIPTION: Looking at the area of the proposed roofed HUA/MSA for cattle and pigs.	

PHOTO #: 3 DATE: 10/22/2025 DIRECTION: West PHOTO DESCRIPTION: Looking at the northern stream crossing that will be reconstructed with hog slats. The fenceposts and dimensions are to remain the same.	

PHOTO #: 4 DATE: 10/22/2025 DIRECTION: East PHOTO DESCRIPTION: Looking upstream at the current stream on the property with proposed work to re-establish the northern stream crossing with hog slat crossing and decommission the southern crossing	

PHOTO #: 5 DATE: 10/22/2025 DIRECTION: North PHOTO DESCRIPTION: Looking at Path 23, an animal walkway along the eastern side of Field 1.	

PHOTO #: 6 DATE: 10/22/2025 DIRECTION: South PHOTO DESCRIPTION: Looking at the far eastern side of the property where the pasture fields transition into crop fields. It is proposed to have fence line plantings along these fences for protection and shade cover for the cattle.	

Appendix B

Soil Report

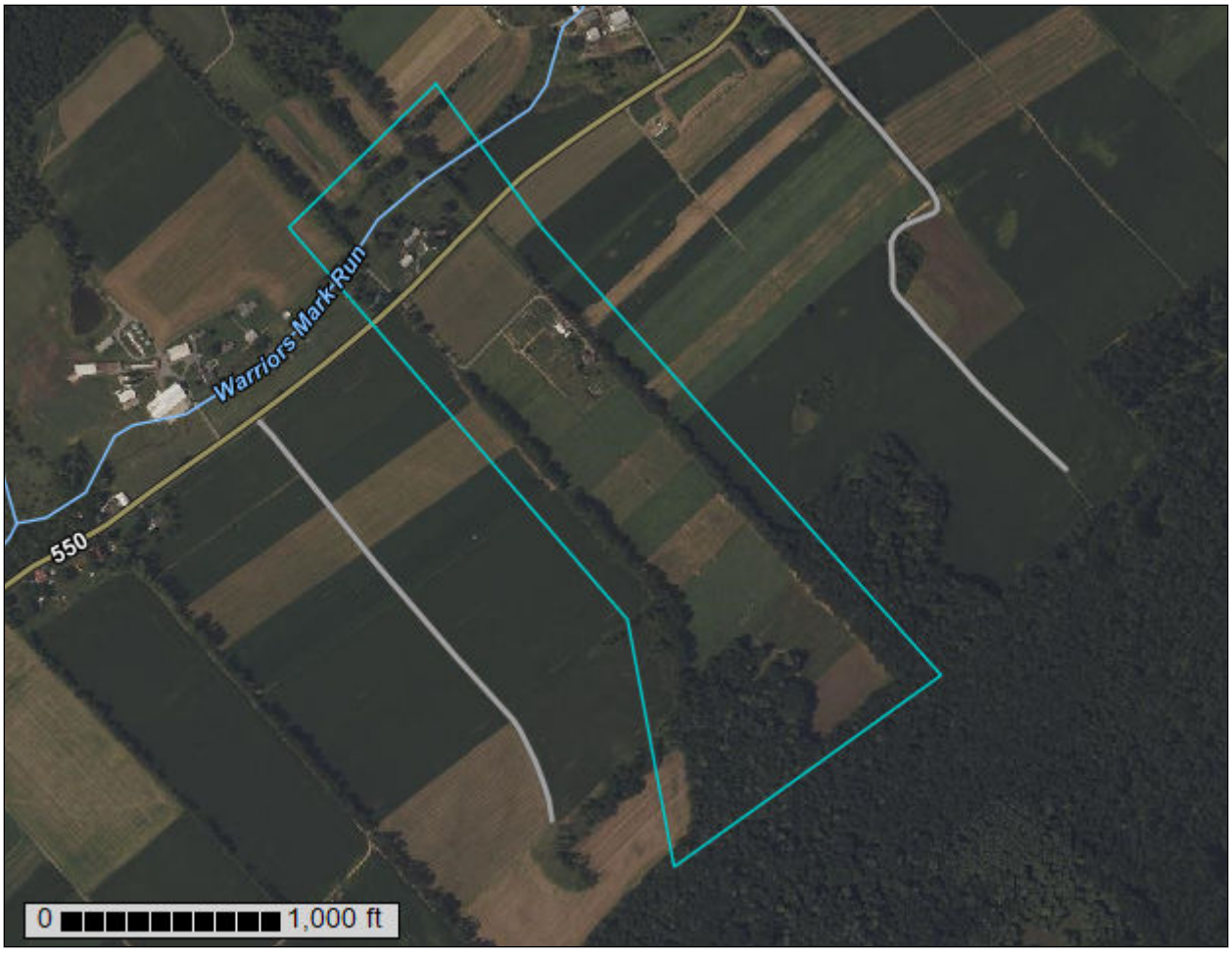
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Centre County, Pennsylvania, and Huntingdon County, Pennsylvania



November 24, 2025

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

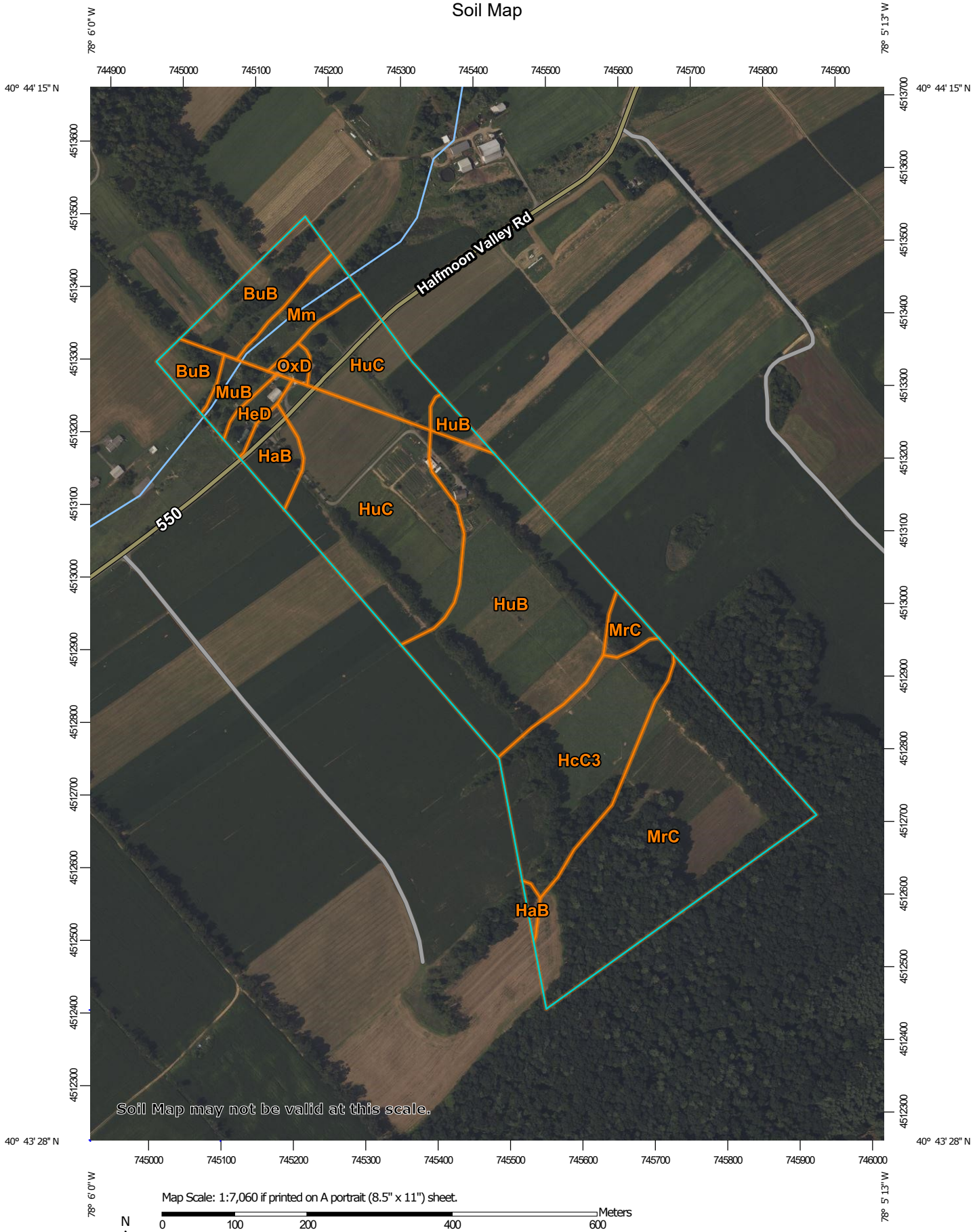
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



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 1:20,000.

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: Centre County, Pennsylvania
Survey Area Data: Version 25, Sep 5, 2025

Soil Survey Area: Huntingdon County, Pennsylvania
Survey Area Data: Version 19, Sep 5, 2025

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

MAP LEGEND

MAP INFORMATION

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

Date(s) aerial images were photographed: Aug 20, 2023—Sep 16, 2023

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
BuB	Buchanan channery loam, 3 to 8 percent slopes	3.7	4.7%
HuB	Hublersburg silt loam, 3 to 8 percent slopes	0.7	0.8%
HuC	Hublersburg silt loam, 8 to 15 percent slopes	4.8	6.0%
Mm	Melvin silt loam	2.4	3.0%
OxD	Opequon-Rock outcrop complex, 8 to 25 percent slopes	0.5	0.6%
Subtotals for Soil Survey Area		**12.0**	**15.1%**
Totals for Area of Interest		**79.3**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BuB	Buchanan channery loam, 3 to 8 percent slopes	1.3	1.6%
HaB	Hagerstown silt loam, 3 to 8 percent slopes	2.0	2.5%
HcC3	Hagerstown silty clay loam, 8 to 15 percent slopes, eroded	10.1	12.7%
HeD	Hagerstown-Rock outcrop complex, 5 to 25 percent slopes	0.9	1.2%
HuB	Hublersburg silt loam, 2 to 8 percent slopes	17.2	21.7%
HuC	Hublersburg silt loam, 8 to 15 percent slopes	14.1	17.8%
MrC	Morrison sandy loam, 8 to 15 percent slopes	20.5	25.8%
MuB	Murrill gravelly loam, 3 to 8 percent slopes	1.3	1.6%
Subtotals for Soil Survey Area		**67.4**	**84.9%**
Totals for Area of Interest		**79.3**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named

according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Centre County, Pennsylvania

BuB—Buchanan channery loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2z1n4
Elevation: 480 to 1,730 feet
Mean annual precipitation: 37 to 50 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 155 to 177 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Buchanan and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Buchanan

Setting

Landform: Mountain slopes, hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Lower third of mountainflank, side slope
Down-slope shape: Linear, concave
Across-slope shape: Concave, linear
Parent material: Fine-loamy colluvium derived from sandstone and shale

Typical profile

Ap - 0 to 8 inches: channery loam
Bt1 - 8 to 20 inches: channery loam
Bt2 - 20 to 29 inches: channery loam
Btx1 - 29 to 35 inches: channery loam
Btx2 - 35 to 50 inches: channery loam
C - 50 to 71 inches: very channery loam
R - 71 to 81 inches: bedrock

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 24 to 30 inches to fragipan; 60 to 79 inches to lithic bedrock
Drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 15 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C/D
Hydric soil rating: No

Minor Components

Laidig

Percent of map unit: 5 percent
Landform: Mountain slopes, hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Lower third of mountainflank, side slope
Down-slope shape: Convex
Across-slope shape: Convex, linear
Hydric soil rating: No

Berks

Percent of map unit: 5 percent
Landform: Mountain slopes, ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Lower third of mountainflank, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Other vegetative classification: Very Rocky, Acid Soils (RA3)
Hydric soil rating: No

Andover

Percent of map unit: 5 percent
Landform: Mountain slopes, hillslopes
Landform position (two-dimensional): Backslope, footslope, toeslope
Landform position (three-dimensional): Lower third of mountainflank, side slope
Down-slope shape: Convex
Across-slope shape: Convex, linear
Hydric soil rating: Yes

HuB—Hublersburg silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: l249
Elevation: 310 to 3,000 feet
Mean annual precipitation: 30 to 50 inches
Mean annual air temperature: 45 to 57 degrees F
Frost-free period: 120 to 205 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Hublersburg and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hublersburg

Setting

Landform: Valleys
Landform position (two-dimensional): Summit

Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear

Typical profile
Ap - 0 to 9 inches: silt loam
Bt - 9 to 70 inches: silty clay

Properties and qualities
Slope: 3 to 8 percent
Depth to restrictive feature: 60 to 99 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.7 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F147XY003PA - Mixed Limestone Upland
Hydric soil rating: No

Minor Components

Nolin
Percent of map unit: 5 percent
Hydric soil rating: No

Opequeon
Percent of map unit: 5 percent
Hydric soil rating: No

HuC—Hublersburg silt loam, 8 to 15 percent slopes

Map Unit Setting
National map unit symbol: l24b
Elevation: 310 to 3,000 feet
Mean annual precipitation: 30 to 50 inches
Mean annual air temperature: 45 to 57 degrees F
Frost-free period: 120 to 205 days
Farmland classification: Farmland of statewide importance

Map Unit Composition
Hublersburg and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hublersburg

Setting

Landform: Valleys
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear

Typical profile

Ap - 0 to 9 inches: silt loam
Bt - 9 to 70 inches: silty clay

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 60 to 99 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F147XY003PA - Mixed Limestone Upland
Hydric soil rating: No

Minor Components

Opequeon

Percent of map unit: 7 percent
Hydric soil rating: No

Nolin

Percent of map unit: 3 percent
Hydric soil rating: No

Mm—Melvin silt loam

Map Unit Setting

National map unit symbol: l253
Elevation: 0 to 1,500 feet
Mean annual precipitation: 35 to 50 inches
Mean annual air temperature: 46 to 59 degrees F
Frost-free period: 120 to 200 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Melvin and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Melvin

Setting

Landform: Flood plains
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Alluvium derived from sedimentary rock

Typical profile

H1 - 0 to 10 inches: silt loam
H2 - 10 to 36 inches: silt loam
H3 - 36 to 72 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very high (about 12.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B/D
Ecological site: F147XY011PA - Poorly Drained Fine Mixed Floodplain
Hydric soil rating: Yes

Minor Components

Penlaw

Percent of map unit: 5 percent
Landform: Swales
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Tyler

Percent of map unit: 5 percent
Hydric soil rating: No

Lindside

Percent of map unit: 5 percent
Hydric soil rating: No

OxD—Opequon-Rock outcrop complex, 8 to 25 percent slopes

Map Unit Setting

National map unit symbol: 2sg9z
Elevation: 400 to 3,000 feet
Mean annual precipitation: 30 to 45 inches
Mean annual air temperature: 43 to 57 degrees F
Frost-free period: 129 to 190 days
Farmland classification: Not prime farmland

Map Unit Composition

Opequon and similar soils: 65 percent
Rock outcrop: 25 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Opequon

Setting

Landform: Hills
Landform position (two-dimensional): Shoulder, backslope, summit
Landform position (three-dimensional): Side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from limestone

Typical profile

A - 0 to 6 inches: silty clay loam
Bt - 6 to 16 inches: channery clay
R - 16 to 26 inches: bedrock

Properties and qualities

Slope: 8 to 25 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: 10 to 19 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 0.2 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 1.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Ecological site: F147XY003PA - Mixed Limestone Upland

Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, nose slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Clayey residuum weathered from limestone and dolomite

Properties and qualities

Slope: 8 to 25 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Drainage class: Well drained

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

Minor Components

Edom

Percent of map unit: 10 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Other vegetative classification: Fertile Hills (FH2)
Hydric soil rating: No

Huntingdon County, Pennsylvania

BuB—Buchanan channery loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2z1n4
Elevation: 480 to 1,730 feet
Mean annual precipitation: 37 to 50 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 155 to 177 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Buchanan and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Buchanan

Setting

Landform: Mountain slopes, hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Lower third of mountainflank, side slope
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Fine-loamy colluvium derived from sandstone and shale

Typical profile

Ap - 0 to 8 inches: channery loam
Bt1 - 8 to 20 inches: channery loam
Bt2 - 20 to 29 inches: channery loam
Btx1 - 29 to 35 inches: channery loam
Btx2 - 35 to 50 inches: channery loam
C - 50 to 71 inches: very channery loam
R - 71 to 81 inches: bedrock

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 24 to 30 inches to fragipan; 60 to 79 inches to lithic bedrock
Drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 15 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C/D
Hydric soil rating: No

Minor Components

Laidig

Percent of map unit: 5 percent
Landform: Mountain slopes, hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Lower third of mountainflank, side slope
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: No

Berks

Percent of map unit: 5 percent
Landform: Mountain slopes, ridges
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Lower third of mountainflank, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Other vegetative classification: Very Rocky, Acid Soils (RA3)
Hydric soil rating: No

Andover

Percent of map unit: 5 percent
Landform: Mountain slopes, hillslopes
Landform position (two-dimensional): Backslope, footslope, toeslope
Landform position (three-dimensional): Lower third of mountainflank, side slope
Down-slope shape: Convex
Across-slope shape: Linear, convex
Hydric soil rating: Yes

HaB—Hagerstown silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2rc98
Elevation: 600 to 1,750 feet
Mean annual precipitation: 37 to 45 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 155 to 190 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Hagerstown and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hagerstown

Setting

Landform: Hills
Landform position (two-dimensional): Summit, backslope, footslope

Landform position (three-dimensional): Interfluve, side slope, base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Clayey residuum weathered from limestone

Typical profile

Ap - 0 to 10 inches: silt loam
Bt1 - 10 to 21 inches: silty clay loam
Bt2 - 21 to 56 inches: silty clay
C - 56 to 73 inches: silty clay loam
R - 73 to 83 inches: bedrock

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 43 to 98 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F147XY003PA - Mixed Limestone Upland
Hydric soil rating: No

Minor Components

Opequon

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Hydric soil rating: No

Carbo

Percent of map unit: 5 percent
Landform: Hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Hydric soil rating: No

Funkstown

Percent of map unit: 3 percent
Landform: Valley floors
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave

Across-slope shape: Concave, linear
Hydric soil rating: No

Timberville

Percent of map unit: 2 percent
Landform: Hills
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Head slope, base slope
Down-slope shape: Concave, linear
Across-slope shape: Convex, linear, concave
Hydric soil rating: No

HcC3—Hagerstown silty clay loam, 8 to 15 percent slopes, eroded

Map Unit Setting

National map unit symbol: l5zr
Elevation: 460 to 1,500 feet
Mean annual precipitation: 30 to 45 inches
Mean annual air temperature: 45 to 59 degrees F
Frost-free period: 139 to 200 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Hagerstown and similar soils: 90 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hagerstown

Setting

Landform: Valley floors, ridges
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Residuum weathered from limestone

Typical profile

H1 - 0 to 8 inches: silty clay loam
H2 - 8 to 70 inches: clay

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 48 to 84 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Available water supply, 0 to 60 inches: High (about 10.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: F147XY003PA - Mixed Limestone Upland
Hydric soil rating: No

Minor Components

Hublersburg

Percent of map unit: 5 percent
Landform: Ridges on valleys
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

HeD—Hagerstown-Rock outcrop complex, 5 to 25 percent slopes

Map Unit Setting

National map unit symbol: l5zt
Elevation: 460 to 1,500 feet
Mean annual precipitation: 30 to 46 inches
Mean annual air temperature: 45 to 59 degrees F
Frost-free period: 139 to 210 days
Farmland classification: Not prime farmland

Map Unit Composition

Hagerstown and similar soils: 75 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hagerstown

Setting

Landform: Valley floors, ridges
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Residuum weathered from limestone

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 70 inches: clay

Properties and qualities

Slope: 5 to 25 percent

Depth to restrictive feature: 48 to 84 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 10.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: F147XY003PA - Mixed Limestone Upland
Hydric soil rating: No

Minor Components

Hublersburg

Percent of map unit: 5 percent
Landform: Ridges on valleys
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Edom

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

HuB—Hublersburg silt loam, 2 to 8 percent slopes

Map Unit Setting

National map unit symbol: l5zz
Elevation: 310 to 3,000 feet
Mean annual precipitation: 30 to 50 inches
Mean annual air temperature: 45 to 57 degrees F
Frost-free period: 120 to 205 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Hublersburg and similar soils: 90 percent
Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hublersburg

Setting

Landform: Valleys
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear

Typical profile

Ap - 0 to 9 inches: silt loam
Bt - 9 to 70 inches: silty clay

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 60 to 99 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F147XY003PA - Mixed Limestone Upland
Hydric soil rating: No

Minor Components

Nolin

Percent of map unit: 5 percent
Hydric soil rating: No

Opequeon

Percent of map unit: 5 percent
Hydric soil rating: No

HuC—Hublersburg silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: l600
Elevation: 310 to 3,000 feet
Mean annual precipitation: 30 to 50 inches
Mean annual air temperature: 45 to 57 degrees F
Frost-free period: 120 to 205 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Hublersburg and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hublersburg

Setting

Landform: Valleys
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear

Typical profile

Ap - 0 to 9 inches: silt loam
Bt - 9 to 70 inches: silty clay

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 60 to 99 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F147XY003PA - Mixed Limestone Upland
Hydric soil rating: No

Minor Components

Opequeon

Percent of map unit: 7 percent
Hydric soil rating: No

Nolin

Percent of map unit: 3 percent
Hydric soil rating: No

MrC—Morrison sandy loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: l60l
Elevation: 430 to 1,800 feet
Mean annual precipitation: 35 to 50 inches
Mean annual air temperature: 46 to 55 degrees F
Frost-free period: 120 to 180 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Morrison and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Morrison

Setting

Landform: Ridges
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Residuum weathered from limestone and sandstone

Typical profile

H1 - 0 to 14 inches: sandy loam
H2 - 14 to 53 inches: sandy loam
H3 - 53 to 74 inches: channery sandy loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 72 to 99 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A
Ecological site: F147XY003PA - Mixed Limestone Upland
Hydric soil rating: No

Minor Components

Murrill

Percent of map unit: 5 percent
Hydric soil rating: No

Vanderlip

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Mountaintop, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

MuB—Murrill gravelly loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: l60q
Elevation: 200 to 1,800 feet
Mean annual precipitation: 32 to 50 inches
Mean annual air temperature: 48 to 57 degrees F
Frost-free period: 120 to 200 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Murrill and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Murrill

Setting

Landform: Hills
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Parent material: Colluvium derived from limestone, sandstone, and shale over residuum weathered from limestone

Typical profile

A - 0 to 9 inches: gravelly loam
Bt - 9 to 31 inches: gravelly clay loam
2Bt - 31 to 64 inches: gravelly silty clay loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 72 to 99 inches to lithic bedrock
Drainage class: Well drained

Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F147XY002PA - Mixed Sedimentary Upland
Hydric soil rating: No

Minor Components

Penlaw

Percent of map unit: 4 percent
Landform: Swales
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Clarksburg

Percent of map unit: 4 percent
Landform: Valley flats
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: No

Thorndale

Percent of map unit: 2 percent
Landform: Depressions
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave, linear
Hydric soil rating: Yes

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.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

Appendix C

Field Notes

Evanko Conservation Nutrient Management Plan (CNMP)

Field Notes – October 22, 2025

Location: Evanko Farm, 4957 Halfmoon Valley Rd., Warriors Mark, PA 16877

Attendants: Mike Evanko, Drew Evanko, Adam Winey (LDG), Eddie Stockert (LDG), Jeremy Weaver (Weaver Enviro.), Jennifer Dombroskie (Clearwater Cons.), Jill Barskey (Clearwater Cons.)

Wants:

- Roofed HUA/MSA for cattle and pigs
- Fence out buffer for stream on west side of farm (potential to enroll in CREP) – 5 strand HT
- Remove existing barn if possible (Built in 1957 so cultural resource clearance needed
- Add concrete HUAs around hydrants for watering locations in east side pastures
- Either rework current well (sulfur water) or drill new well for HUA (neighbor has a clean well and a sulfur well)
- Fencerow tree planting for shade and windbreaks
- Re-establish northern stream crossing with hog slat crossing. Decommission southern crossing. Both located in Field 13.

Animals:

- Currently has 17 beef cattle
    - 7 heifers/cows – 1200lbs
    - 5 calves – 200lbs
    - 5 feeders – 700lbs
- 6 pigs – 80lbs when bought and 250lbs when butchered
- 8 laying chickens and 4 meat turkeys – free range around east side paddocks
- Plans to acquire 2 meat sheep that will rotate with cattle in paddocks
- Feeds wrapped round bales to cattle in winter (4x4 bales)- Approx. 4 per week

Paddocks:

- Fields 1-4: alfalfa for 5 years then rotate sweet corn or sorghum in for 1 year, cover crop with rye or tridicale after sorghum/sweet corn
- Fields 5-10: Rotate cattle to each field every week (7 days on)

- Fields 11-12: Field corn/hay – rotate every 3-4 years
- Field 13: Winter pasture for cattle, butcher-ready cattle on pasture very short time before being sent due to ease of loading.
- All crop fields are bottom plowed every 4-5 years, tilled every year
- Currently has frost free hydrants in each paddock – supply from house well
- Pigs currently kept in barnyard

Proposed Structure:

- 12-14' clearance
- 4' manure stack
- Round bale feeder
- Plan to use sawdust bedding
- No feed table, scrape ally
- Location adjacent west of existing barn if barn can't be taken down

Manure Storage:

- 3 months of storage proposed (cattle manure only)
- 2 box spreaders worth of manure currently in spring when ready to spread on Fields 1-4, 11-13

Zoning:

- Property is split between Halfmoon Township, Centre County and Warriors Mark Township, Huntingdon County
- Area where new structure is to be built is Warriors Mark Twp.
    - 50' setback from front
    - 10' setback from side
    - Per landowner, need to confirm with boundaries and zoning official

Landowner Data:

- Soil sample taken last year – will provide to LDG for use in plan
- Manure sample needs to be taken and data provided to LDG
- Manure management plan – Currently has one and request to send to LDG for reference in developing new plan

Appendix D

Calculations

Animal Numbers:

Operation

Beef

	Number	lbs	AU	SF/Animal	Total sq.ft	Manure
Cow-			0	85	0	1.2
Cow-	7	1200	8.4	75	525	1.2
Bull-			0	140	0	1.2
Finishing-			0	75	0	1.2
Finishing-			0	70	0	1.2
Finishing-			0	60	0	1.2
Finishing-	5	700	3.5	55	275	1.2
Calves-			0	40	0	1.2
Calves-	5	200	1	30	150	1.2
Total:	17		12.9		950	

HUA/Bedpack #1

Animals:		# Per Post					
	Yes/No	Spacing	SF Require	Length Pen	Width Pen	Pen SF	Width Used SF
Cow-	No	3	0	0	0	0	0
Cow-	Yes	3	525	24	21.875	525	960
Bull-	No	3	0	0	0	0	0
Finishing-	No	4	0	0	0	0	0
Finishing-	No	4	0	0	0	0	0
Finishing-	No	5	0	0	0	0	0
Finishing-	Yes	4	275	16	17.1875	350	640
Calves-	No	5	0	0	0	0	0
Calves-	Yes	5	150	8	18.75	175	320
Total:		6	950			1050	1920

Recommended Minimum Heavy Use Area= 1,050 ft^2
Total Heavy Use Area as per landowner request= 2,280 ft^2

Storage #1

		AU	Manure	Storage
Days of storage		0	0	0
90		8.4	10.08	907.2
	Percent	0	0	0
Scrape	100	0	0	0
Bedpack		0	0	0
		0	0	0
Manure Solids Content		3.5	4.2	378
14		0	0	0
Bedding Solids Content		1	1.2	108
61				
Bedding:	Sawdust	12.9	15.48	1393.2
			cuft/day	cu/ft

Bedding Volume
30% Stack 719
50% Stack 4560

Bedding Volume Stack
720
Adjusted Bedding Stack
30.01%
Stackable
Total Adjusted Bedding and Manure
2113.2 cuft

Total bedding to store for 90 days

HT - Total Manure Height	4	ft.
H1 - Structure Wall Height	4	ft.
H2 - Stackable Height above wall	0	ft.
LT - Total Structure Length	30	ft. (Recommend making length divisible by 8')
L1 - Length for VA1	4	ft.
L2 - Length for VA2	26	ft.
W - Structure Width	20	ft.

CALCULATED VOLUMES

VA1 =	160.0	cu. ft.
VA2 =	2,080.0	cu. ft.
VA3 =	0.0	cu. ft.
TOTAL VOLUME =	2,240.0	cu. ft.

Total Storage Available

Appendix E

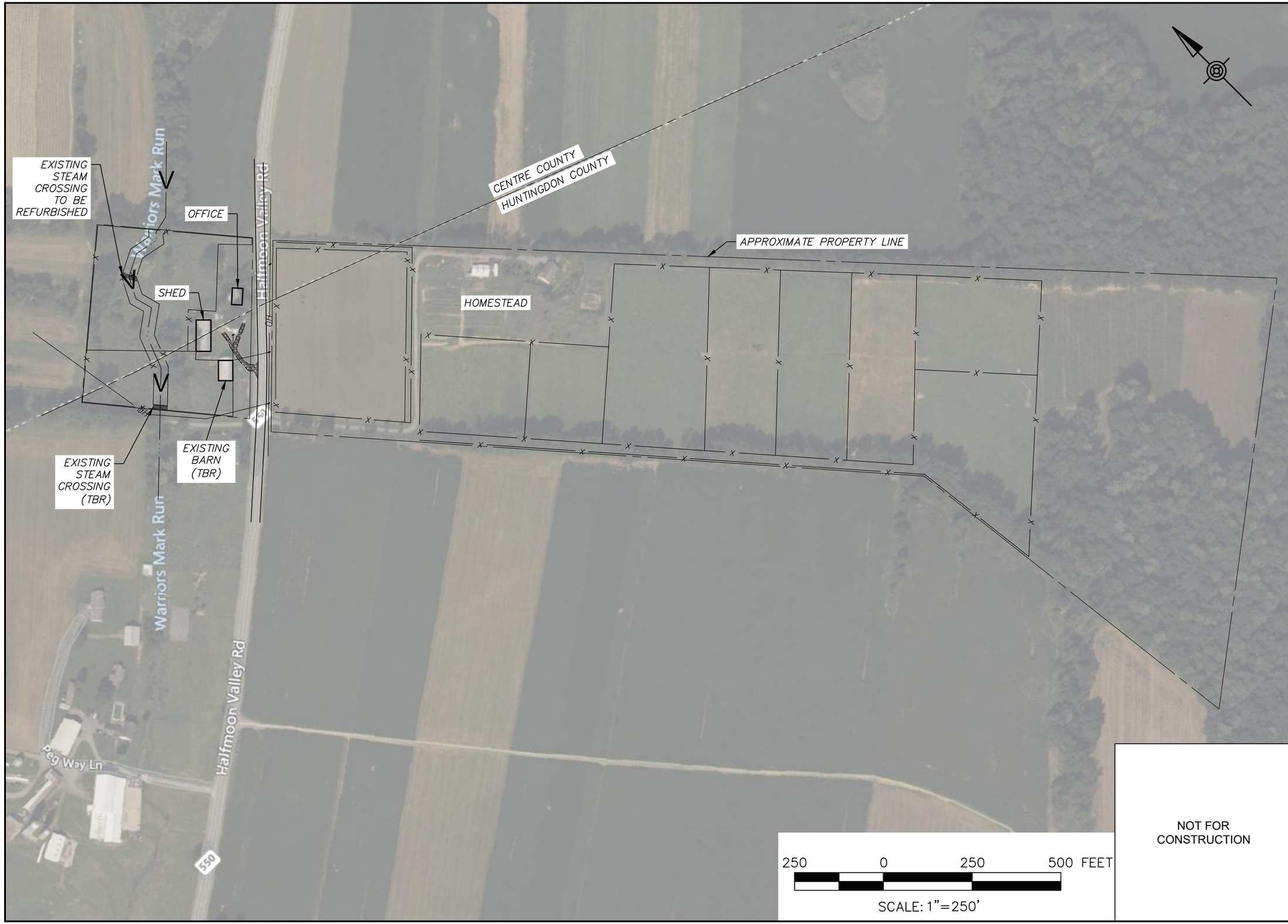
Engineer’s Estimate

Engineering Estimates:			***Item***	***Unit***	***Quantity***	***I***
HUA/Storage:	Yes		Excavation	CY	123.85	
			Fill	CY	123.85	
Length	72		Stone	Ton	64.58	
Width	40					
Excavation/Fill			Backcut:		Backfill:	
Under Pad:		Percentage	Length		Length	
Cut Depth	1	100%	Width		Width	
Fill Depth	1	100%	Height		Height	
			Roof & Concrete	SF	2880	

Practice	Input	Item	Unit	Quantity	Cost
342		Critical Area Planting	AC	0.75	$
382	Fence	8' Gate	EA	2	$
382	Fence	16' Gate	EA	1	$
382	Fence	Woven Wire Fence	LF	200	$
382	Fence	High Tensile 5-strand	LF	2223	$
391		Riparian Forest Buffer Planting	AC	1.25	$
422		Hedgerow Planting	LF	2570	$
468		Rock Lined Waterway	LF	8.00	$
500	Ob Rem	Timber Structures	SF	2730	$
516		Livestock Pipe Line: 2"	LF	200	$
533		Pump	EA	1	$
558		Roof Gutters	LF	144	$
# Downs	4	Downs	LF	40	$
560		Access Road	Ton	249.30	$
Area	4207.00	Geotextile	SY	467.44	$
575		Walkway	Ton	367.76	$
Area	6206	Geotextile	SY	689.56	$
606		Perimeter Drain	LF	232	$
612		Tree/Shrub Establisment	AC	0.25	$
614		Water Facility	EA	1	$
620	UGO	6" SCH-40	LF	290	$
642		Well 6"	LF	300	$
2		HUA Pads	EA	4	$
4		Stream Crossing	SF	1200	$

Appendix F

Concept Plan



NOT FOR CONSTRUCTION

LDG
Larson Design Group
3000 WESTINGHOUSE DRIVE
SUITE 400
CRANBERRY TWP, PA 16066
(877) 323-6603

MARK	DATE	COMMENTS
2	1-5-2026	COMPLETED I&E
1	12-29-2025	FINAL REVIEW SUBMISSION
0	11-26-2025	REVIEW SUBMISSION

CHESAPEAKE CONSERVANCY
500 WEST SASSAFRAS STREET
SELINSGROVE, PA 17870

MICHAEL EVANKO
4957 HALFMOON VALLEY RD
WARRIORS MARK, PA 16877

EXISTING PLAN VIEW

I&E REVIEW SET

Date: 1-5-2026
Project No.: 13508-006
Sheet No.: **X-001**
70

I&E REVIEW SET SET

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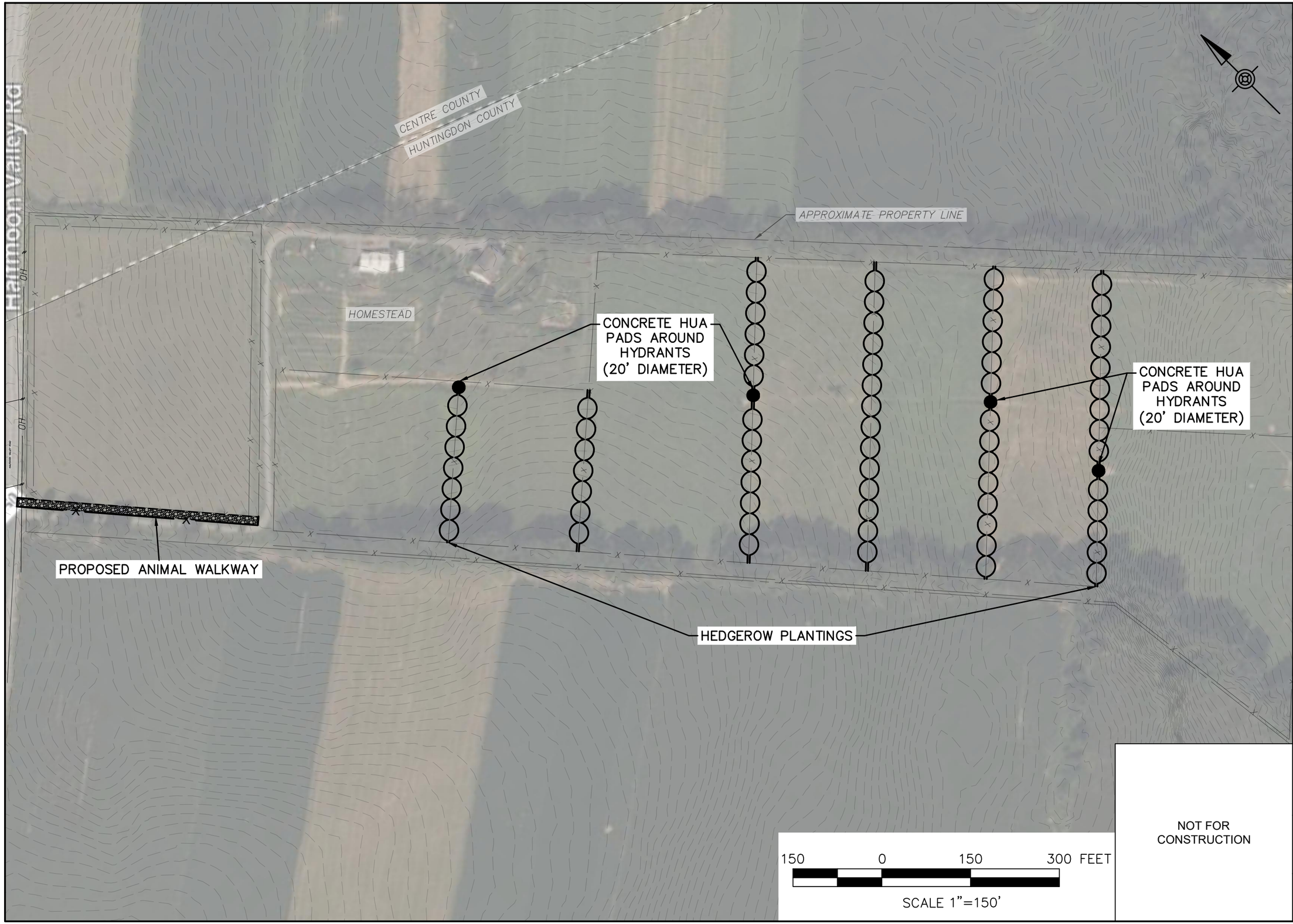

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SITE PLAN VIEW
I&E REVIEW SET

Date: 1-5-2026
Project No.: 13508-006
Sheet No.: **X-002**
71

I&E REVIEW SET SET

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REFURBISH EXISTING STREAM CROSSING
(INCLUDE HOG SLAT BOTTOM)

CENTRE COUNTY
HUNTINGDON COUNTY

RIPARIAN FORESTED BUFFER
(35' MINIMUM FROM TOP OF BANK)

FRUIT TREES

PROPOSED GRAVEL HEAVY USE AREA
(12' x 40')

SHED

PROPOSED HEAVY USE AREA AND MANURE STORAGE
(40' x 72')

EXISTING BARN (TBR)

OFFICE

ADDITIONAL FENCING TO EXPAND PASTURE

PROPOSED ACCESS ROAD

PROPOSED WALKWAY

HALFMOON VALLEY ROAD

*NEW WELL IS PROPOSED AND LOCATION WILL BE DETERMINED BY THE WELL DRILLER. A PUMPING PLANT SYSTEM AND WATERLINE WILL NEED TO BE INSTALLED TO PROVIDE WATER TO THE HEAVY USE AREA.

60 0 60 120 FEET
SCALE: 1"=60'

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SITE PLAN VIEW
I&E REVIEW SET

Date: 1-5-2026
Project No.: 13508-006
Sheet No.: **X-003**
72

I&E REVIEW SET SET

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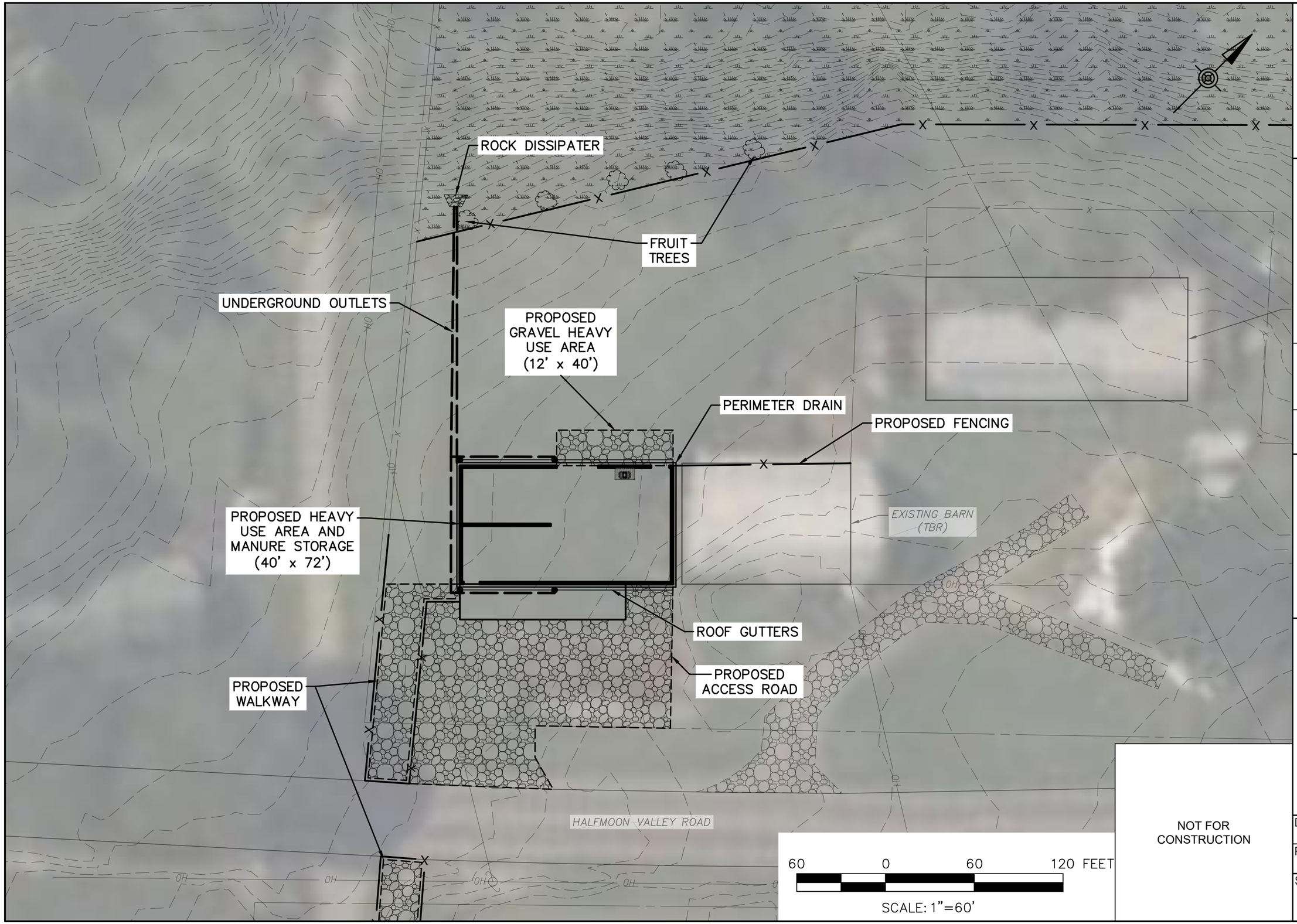

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SITE PLAN VIEW
I&E REVIEW SET

Date: 1-5-2026
Project No.: 13508-006
Sheet No.: **X-004**

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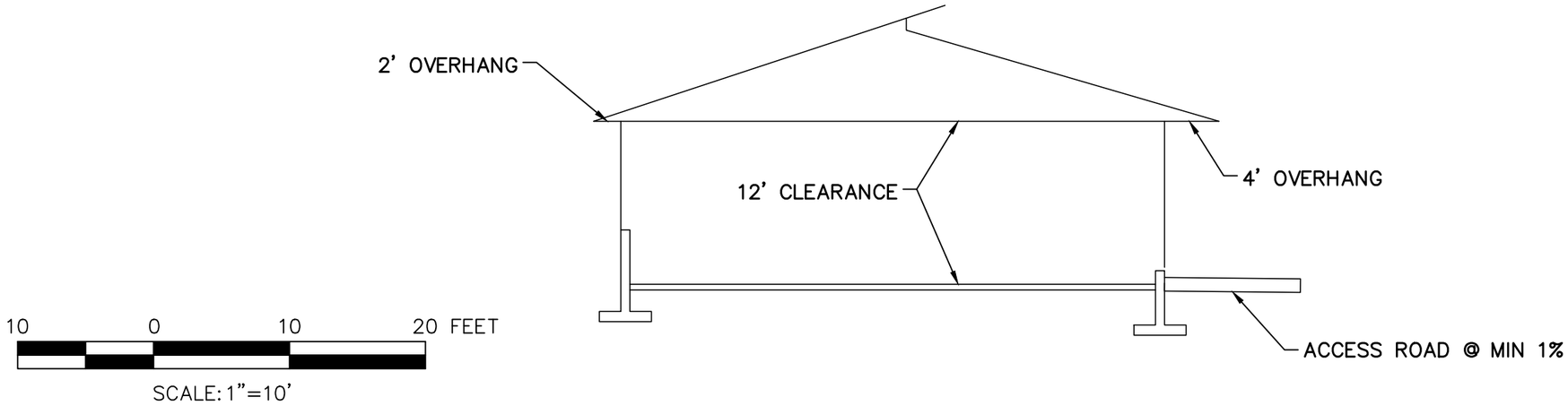
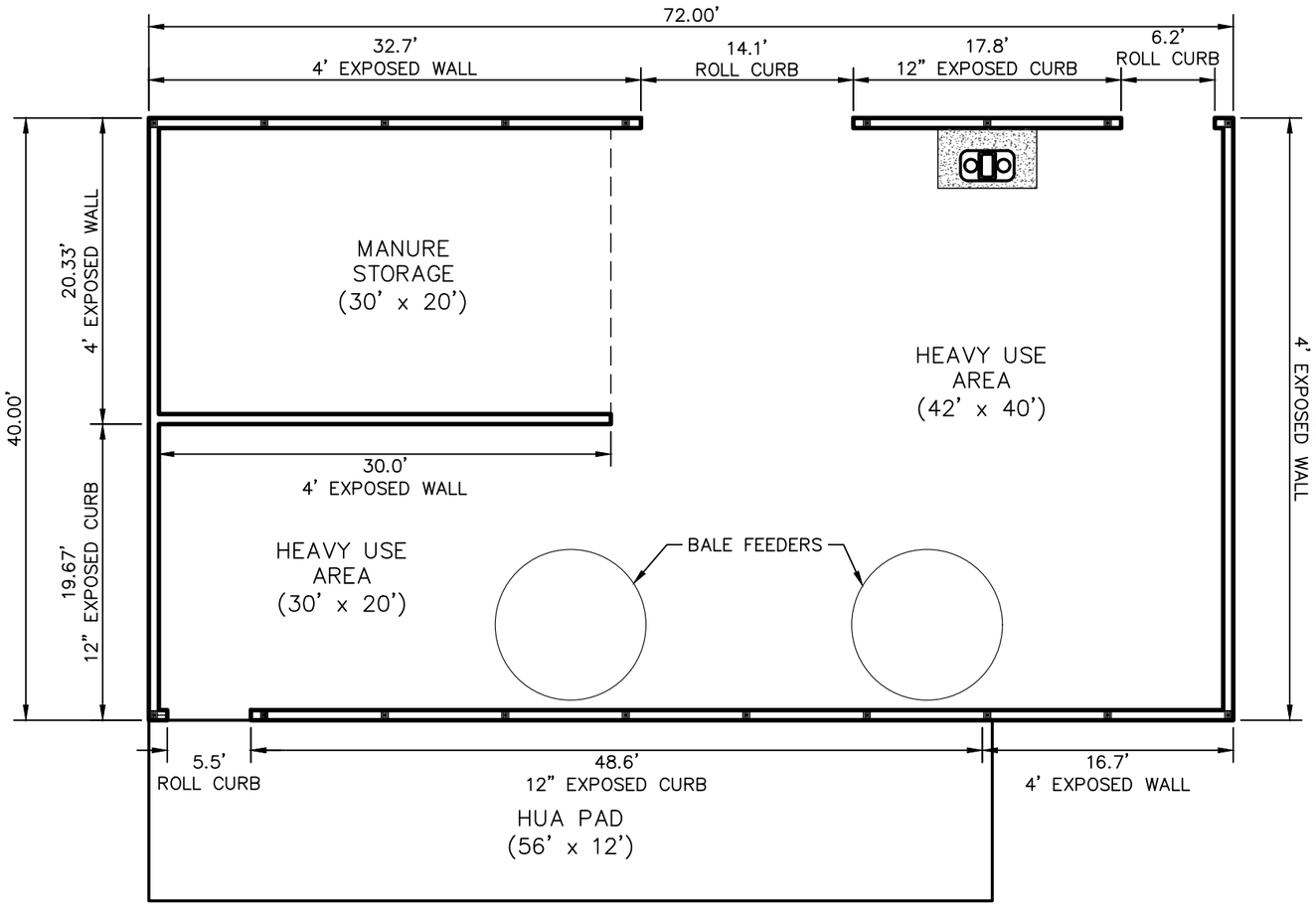


10 0 10 20 FEET

SCALE: 1"=10'



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HUA AND STORAGE LAYOUT

I&E REVIEW SET

Date: 1-5-2026
Project No.: 13508-006
Sheet No.: **X-005**
74

I&E REVIEW SET SET

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ATTACHMENT B
RFP Scoring Sheet

Landowner/Job Name: Evanko Engineering
BMP #: 114

		Bidder Name		Bidder Name		Bidder Name		Bidder Name	
Evaluation Criteria / Points	**%**	Score (1-10)	Result	Score (1-10)	Result	Score (1-10)	Result	Score (1-10)	Result
Adherence to RFP Instructions 1 (some documents filled out completely) - 10 (all documents filled out completely)	10		0		0		0		0
Bid Price 1 (highest price) - 10 (lowest price)	30		0		0		0		0
Safety Record 1 (did not provide record) - 10 (no reportables/good record)	10		0		0		0		0
Confidence in Quality of Work *(Conservancy may also check with other partners for feedback)* 1 (no references provided and unknown) - 10 (references provided and has done great work)	30		0		0		0		0
Small, Small Diverse Business 1 (no information provided) - 10 (federal and state small and small diverse business)	10		0		0		0		0
Design and Construction Schedule Adherence 1 (no dates or schedule provided) - 10 (schedule completed within preferred timeframe)	10		0		0		0		0
Total -- All Evaluation Points	**100**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**