Supplemental
Stormwater Infiltration Report

for the

Proposed Accessory Buildings Land Development
Water Gap Wellness
Stroudsburg, Monroe County, Pennsylvania

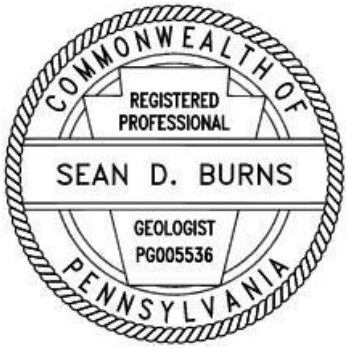
Prepared for:

Water Gap Wellness
296 Mountain Road
Stroudsburg, Pennsylvania 18360

Prepared by:

Barry Isett and Associates, Inc.
525 Main St.
Stroudsburg, Pennsylvania, 18360

Sean D. Burns, P.G.
PA Registration: PG005536
Project Geologist



Date: May 02, 2024
Project No.: 1022419.004

BARRY ISETT & associates INC
MULTI-DISCIPLINE ENGINEERS AND CONSULTANTS

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SUPPLEMENTAL

STORMWATER INFILTRATION REPORT

Proposed Accessory Buildings Land Development

Water Gap Wellness

296 Mountain Road

Stroudsburg, Monroe County, Pennsylvania

1.0 INTRODUCTION

Barry Isett & Associates, Inc. (Isett), has evaluated the feasibility for infiltration of stormwater at the Water Gap Wellness center in Smithfield Township, Monroe County, Pennsylvania. The purpose of this evaluation was to assess the feasibility of an alternate surface stormwater management system to support the proposed site development. This study included a review of applicable site information from published sources; a review of previous subsurface information obtained at the site by Isett; a field investigation consisting of test pits and infiltration testing; an analysis of data; and presentation of geotechnical recommendations for stormwater management design.

This report satisfies the deliverable requirements outlined in Isett's *Proposal for Environmental Services* dated April 5, 2024.

2.0 BACKGROUND

Isett previously performed a stormwater infiltration evaluation for a proposed subsurface infiltration system to support recent and proposed site development. The infiltration evaluation consisted of three (3) test pits and infiltration tests within the footprint of the proposed infiltration system located west of the existing maintenance building. Due to the occurrence of a shallow bedrock limiting horizon within the proposed infiltration system footprint, the design team and owner considered it prudent to evaluate an alternate stormwater infiltration location on the site before proceeding with modifications to the original stormwater management system design.

The prior *Stormwater Infiltration Evaluation* prepared by Isett for the previously proposed stormwater management system is included as *Appendix A* for reference.

3.0 SITE DESCRIPTION

The roughly 74-acre site consists of the Water Gap Wellness mental health and recovery center, golf course, wooded area, wetland, and access roads. The site is bordered as follows:

- North: residential development, wooded area, and maintained lawns
- East and south: wooded area and a topographic ridge
- West: wooded area and residential development

Topographic relief at the site is high, with grade sloping from approximately El. 635 feet in the south to approximately El. 355 feet in the north. The specific study area for this evaluation was limited to the footprint of the proposed alternative stormwater management system. The study area is located near the western site

border, within the golf course and along the tree line. Existing grades within the study area range from approximately El. 453 feet in the east to approximately El. 443 feet in the west. *Figure 1* in *Appendix B* shows the site and surrounding area on a recent aerial photograph obtained from *Google Earth Pro*, dated October 14, 2022.

The location of the site is depicted in Appendix B.

4.0 PROPOSED SITE DEVELOPMENT

Recent site development at the site includes a maintenance building with perimeter gravel drive lane, concrete pads and decks around an existing dwelling structure, and new bituminous drive lanes. Proposed site improvements include the construction of a 7,900 square foot recreation center with a finished floor elevation of 547.5 feet.

A new stormwater management system is required to accommodate additional stormwater runoff from the recent and proposed impervious area. The currently proposed stormwater management system includes a surface infiltration basin located approximately 700 feet northwest, and approximately 100 feet downgradient of the recent/proposed development area. The proposed infiltration basin has a footprint of approximately 11,000 square feet, and an invert elevation of El. 448 feet.

5.0 DOCUMENT REVIEW

5.1 Soils

United States Department of Agriculture, Natural Resource Conservation Service (USDA/NRCS) soil mapping indicates the presence of two (2) soil units within the footprint of the proposed stormwater management basin: Bath channery silt loam, 3 to 8 % slopes (Bab) and Chippewa and Norwich soils, 0 to 8% slopes, extremely stony (CnB) within the site.

The Bath channery silt loam consists of loamy till derived mainly from gray and brown siltstone, sandstone, and shale. Depth to restrictive features is typically 26 inches to 38 inches to fragipan, and reported infiltration rates typically range from 0.00 inches per hour to 0.14 inches per hour in the most limiting layer.

The Chippewa and Norwich soils consist of loamy till dominated by siltstone, sandstone, and shale fragments. Depth to restrictive features is typically 8 inches to 20 inches to fragipan, and reported infiltration rates typically range from 0.00 inches per hour to 0.14 inches per hour in the most limiting layer.

The USDA Custom Soil Resource Report is included as *Appendix C*.

5.2 Geologic Setting

According to mapping presented by the United States Geological Survey, the project site is situated on the Blue Mountain Section of the Ridge and Valley Physiographic Province. The Blue Mountain Section consists of a long linear ridge to the south and valley to the north. The valley widens eastward and includes low linear ridges and shallow valleys. Sediments originate from fluvial erosion, and some glacial erosion and deposition in the northeast. Relief is low (100 to 300 feet) to very high (>1,000 feet). The geologic structure of the Blue Mountain Section is characterized by the southern limb of a broad fold (Blue Mountain) with small folds to the north.

The project site is underlain by the Silurian-aged Bloomsburg Formation (Sb). The Bloomsburg Formation consists of red shale and siltstone. It contains some sandstone, thin impure limestone, green shale, and mudstone. It is moderately well bedded and has fissile to thin beds. The sandstone units are mostly flaggy to

thick. The maximum thickness of the formation is about 500 feet. Maps showing the site geology and topography are include in *Appendix B*.

6.0 FIELD INVESTIGATION

6.1 Test Pits

On April 26, 2024, three (3) test pits, identified as TP-101 through TP-103, were performed within the footprint of the proposed surface infiltration basin to classify the soil conditions and perform infiltration tests to support the stormwater management design. The test pit locations were determined by the project civil engineer. The excavations were prepared using a Kubota KX040-4 mini-excavator to depths ranging from 5.2 to 5.5 feet below existing grades, corresponding to El. 445.0 ft. to El. 442.6 feet.

The presence of limiting zones was evaluated to a depth of no less than 3 feet below the infiltration testing elevation.

The locations of these excavations are depicted on the *Testing Location Plan* provided as *Appendix D*.

6.2 Infiltration Testing

At the direction of the project civil engineer, infiltration tests were conducted at each test pit location at an elevation of 448.0 feet. This testing was performed using the double-ring infiltrometer test method in general accordance with the protocols outlined in Appendix C of the Pennsylvania Stormwater Best Management Practices Manual (PA BMP Manual) dated December 30, 2006.

The test rings measured 12 inches in height, with a 6-inch diameter inner ring and a 12-inch diameter outer ring. One test was conducted within each excavation.

7.0 OBSERVATIONS

7.1 Stratigraphy

The soil profile was relatively consistent between the test pits. Below a relatively thin (4 inches) to thick (1.5 feet) layer of surficial topsoil, naturally occurring glacial till soils were encountered. The glacial till soils consisted of Sandy SILT (ML), Sandy Silty CLAY with Gravel (CL-ML), and Silty SAND with Gravel (SM) in accordance with the Unified Soil Classification System (USCS). The glacial till stratum soils were found to be relatively consistent with the description of the Bath channery silt loam.

The glacial soils were gray, tan, dark-brown, and brown, exhibited low plasticity or were non-plastic, were moist to wet, and became increasingly granular with depth. Granular particles were subangular to rounded, indicative of deposition in a glacial outwash environment in the geologic past. Excavation within the glacial till required moderate excavation effort, suggestive of a loose to medium dense relative density.

A limiting horizon consisting of a high groundwater table was encountered at the location of TP-102 at approximately El. 446.2 feet. The water surface rose to approximately El. 447.2 feet within one hour of completing the test pit. Groundwater, bedrock, or other limiting zones were not encountered in TP-101 or TP-103 above elevations 444.4 feet and El. 442.6 feet, respectively. The groundwater encountered at TP-102 is representative of an artesian condition originating in the underlying fractured bedrock.

Soil profiles and morphologic characteristics were documented in the field.

This subsurface information is presented on the *Typed Test Pit Logs*, provided in *Appendix E*.

Representative test pit photographs are included in *Appendix F*.

7.2 Infiltration Rates

Refer to the following table for a summary of the infiltration testing performed for this proposed surface infiltration basin.

Table 1. Double Ring Infiltrometer Test Results

Test No.	Test Depth (*in.*)	Test Elevation (*ft.*)	Measurement Interval, *t* (*min.*)	Water Level Drop (in.)				Stabilized or Final Measurement (*in.*)	Infiltration Rate (*in/hr.*)	Design Infiltration Rate (*in/hr.*)
				1	2	3	4			
TP-101	20	448.0	30	0.42	0.30	0.30	0.36	0.36	0.72	**0.36**
TP-102	26	448.0	30	0.00	0.00	0.00	0.00	0.00	0.12	**0.00**
TP-103	1	448.0	30	0.66	0.42	0.48	0.54	0.54	1.08	**0.54**

Notes: 1) *The design infiltration rate applies a safety factor of two (2).*
2) *Intervals 1 through 4 represent final intervals performed for the specific test location.*

The test at TP-103 was performed within the topsoil. The tests at TP-101 and TP-102 were performed within the glacial till stratum.

Tests performed at El. 448.0 feet yielded an unfactored, average infiltration rate of 0.60 inches per hour, and design (safety factor of 2.0 applied) average infiltration rate of 0.30 inches per hour. The design infiltration rate at any particular location should be considered representative of the specific soil horizon at that test elevation.

The ability for water to infiltrate the soils was impacted by the relatively high fine-particle (silt and clay) content of the glacial till, as well as the presence of an elevated groundwater table at TP-102.

The readings collected during this testing, including the depths at which tests were conducted, and the raw infiltration rates are provided in *Appendix G*.

8.0 RECOMMENDATIONS

Infiltration testing confirmed permeability of the soils making stormwater infiltration a feasible option for managing post-construction stormwater at the majority of test locations.

A limiting condition (high groundwater) was encountered during the exploratory excavation at one location (TP-102). It will be necessary to modify the proposed system where limiting horizons were encountered. It is recommended that the new system be designed with a minimum 2-foot clearance above regularly occurring seasonal high groundwater table to minimize the effect of groundwater mounding on the infiltration system.

In order to maintain compliance with the PA BMP Manual infiltration system guidelines, Isett expects that the invert elevation would have to be raised to a minimum elevation of approximately El. 449.2 feet. Appropriate stormwater management within the study area would involve placement of approved fill to raise grades. The approved fill should consist of an engineered soil mixture of suitable permeability. Additional infiltration testing would be required for acceptance of the engineered soil mixture as an infiltration medium.

All stormwater management systems designed for the purpose of infiltration must be excavated in a manner that prevents any additional compaction and permeability loss of the infiltrating soils. Excavation should be performed with back-hoe or track-hoe type equipment, with work performed from the inside out.

Upon establishment of the proposed subgrade elevation(s), construction equipment and vehicle travel must be prohibited from the prepared area. Where unavoidable, low contact pressure, tracked equipment should be implemented to perform the required tasks.

If required, maximum basin slope geometry shall be 2H:1V.

9.0 DISCLAIMER

The findings in this report are based on conditions readily visible and recorded at the time of this evaluation. Observations and findings are limited to the locations in which this evaluation was conducted. Isett has used its experience and professional judgment in rendering the conclusions in this report.

All proposed stormwater/infiltration BMPs should be consistent with applicable municipal ordinances and the requirements of the PA BMP Design Manual. It is advisable to have a qualified soil scientist, or a professional geologist familiar with the project and contents of this report witness the preparation of infiltration BMPs at the time of construction.

BARRY ISETT & associates INC

MULTI-DISCIPLINE ENGINEERS AND CONSULTANTS

Appendix A

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STORMWATER INFILTRATION EVALUATION

FOR

WATER GAP WELLNESS - EXISTING MAINTENANCE BUILDING

Smithfield Township, Monroe County, Pennsylvania

Isett Project No.: 1022419.004-02INFSG
Date: February 9, 2024

Barry Isett & Associates, Inc. (Isett), has conducted an evaluation of the above-referenced project site in Smithfield Township, Monroe County, Pennsylvania, to assess the general feasibility for soils to infiltrate stormwater in support of the recently constructed maintenance building.

This evaluation was accomplished by observing and recording the morphologic characteristics of the soils and performing permeability testing to quantify infiltration rates in general conformance to the requirements prescribed by the Pennsylvania Department of Environmental Protection (PA DEP), and other reviewing agencies. The observations made and the results derived from this study are detailed below.

Background

Soils

According to the United States Department of Agriculture Natural Resources Conservation Service (USDA/NRCS) mapping, the soils underlying the subject site are mapped as Bath channery silt loam.

Bath series are very deep, well-drained soils formed in till from siltstone, sandstone, and shale. Solum thickness ranges from 40 to 80 inches. A fragipan can sometimes be observed. Depth to bedrock typically ranges from 40 inches to 240 inches or more.

Geology

According to the online geologic mapping application Pennsylvania GEOlogic Data Exploration (PaGEODE) (www.gis.dcnr.state.pa.us/pageode/), the subject site is underlain by the Bloomsburg Formation. The Bloomsburg Formation consists of red shale and siltstone. It contains some sandstone, green shale, and mudstone. It is moderately well-bedded. Its maximum thickness is about 500 feet.

Morphologic Evaluation

On February 7, 2024, three (3) backhoe excavations (TP-201 through TP-203) were prepared to evaluate morphological conditions in the vicinity of the proposed stormwater BMP. The locations of these excavations are depicted on the attached test location plan. The soil profiles were reviewed, and the morphologic characteristics of the soils were documented. Profiles were generally exposed to depths of 9-14 feet below ground surface (bgs.). Detailed soil profile logs are attached to this letter.

Isett generally found the soils to be very deep and moderately well-drained. The soils showed characteristics of the Bath and Lackawanna series. The topsoil generally consisted of dark grayish brown channery silt loam that was underlain by yellowish brown channery loam. These soils overlaid reddish brown very to extremely channery reddish brown loam, which transitioned to a weak red diggable shale bedrock. Coarse fragments generally increased with depth.

Diggable shale bedrock was encountered within all three test pits. The bedrock was observed at depths starting at 75 inches to 160 inches bgs. No groundwater seeps were observed within any of the excavations.

Redoximorphic features were observed within each test pit. However, these features likely formed as a result of perched saturation from slow permeability or form a textural discontinuity and shall not be interpreted to indicate a seasonal high-water table.

Testing

Isett performed infiltration testing in test pits TP-201 and TP-202 using the double-ring infiltrometer test method in general accordance with the protocol described in Appendix C (p.6) of the Pennsylvania Stormwater Best Management Practices Manual (December 30, 2006) (BMP Manual). The test rings measured 12 inches in height, with a 6-inch diameter inner ring and a 12-inch diameter outer ring. Infiltration tests were conducted at depths of 4.25 feet bgs and 7.00 feet bgs. The following is a summary of the test results.

The tests conducted at an elevation of 541.50 feet yielded raw infiltration rates ranging from 3.00 to 8.50 inches per hour (in/hr.), with design rates incorporating a safety factor of two, that range from 1.50 to 4.25 in/hr.

The readings collected during this testing, including the depths at which tests were conducted, the raw infiltration rates, and the calculated design infiltration rates, are attached to this letter.

Conclusions

Isett has determined that the morphologic characteristics of the soils characterized by excavations TP-201 through TP-203 are generally consistent with USDA/NRCS mapping and with the soil characteristics prescribed in Appendix C (p.6) of the BMP Manual. Infiltration testing generally confirmed the permeability of the soils with rates in the range of those preferred by the reviewing agencies, making stormwater infiltration a feasible option at the locations and elevations evaluated.

The infiltration tests were conducted at the lowest elevation where two feet of suitable soil material was able to be maintained per the BMP Manual. If a deeper infiltration elevation is required due to design constraints, the diggable shale material may be undercut and a minimum of 2 feet of amended soils shall be added to achieve infiltration rates in the range of those preferred by the reviewing agencies to provide sufficient treatment to the stormwater.

Disclaimers

The findings in this report are based on conditions readily visible and recorded at the time of this evaluation. Observations and findings are limited to the locations in which this evaluation was

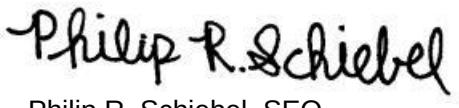
conducted. Isett has used its experience and professional judgment in rendering the conclusions in this report.

All proposed stormwater/infiltration BMPs) should be consistent with applicable municipal ordinances and the requirements of the *BMP Manual*.

Please be aware that any areas reserved for infiltration must be protected from construction traffic prior to and during site development to prevent compaction of the soils.

It is advisable to have a qualified soil scientist or a professional geologist witness the preparation of infiltration BMPs at the time of construction.

Report prepared by:



Philip R. Schiebel, SEO
Staff Environmental Scientist
(PA SEO No. 03975)

Attachments

Test Location Plan
Water Gap Wellness – Existing Maintenance Building
Smithfield Township, Monroe County, Pennsylvania

N
Not to Scale

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MULTI-DISCIPLINE ENGINEERS AND CONSULTANTS

BARRY ISETT & associates INC
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Date: February 7, 2024
Project: Water Gap Wellness –Existing Maintenance Building
Location Smithfield Township
Monroe County, Pennsylvania

Soil Log # TP-201 **Stormwater Limiting Zone: 75”-108”+** **Condition: Bedrock** **Lat/Long: 40.97384, -75.14879**

Horizon	Depth	Color	Texture		Structure			Consistence	Redox Features	Boundary (Dist/Topo)
			C.F.	Class	Grade	Size	Type			
---	0-6	---	Gravel Stone					---	---	---
A	6-16	10YR 4/2	ch	sil	3	co	pl	fr	---	c/s
Bw1	16-36	10YR 5/4	ch	sil	2	med	sbk	fr	---	g/w
Bw2	36-46	7.5 YR 4/4	vch	l	1	fi	sbk	fi	c/d	g/w
2C	46-75	5YR 4/4	exch	l	1	fi	gr	fr	---	d/w
2R	75-108	10R 4/3	Diggable Shale					---	---	---
---	---	---	---	---	---	---	---	---	---	---

Qualified Soil Scientist: Philip R. Schiebel, SEO (PA SEO No. 03975) **Soil Series: Bath Taxadjunct**

Drainage Class
Moderately Well Drained

Coarse Fragments (C.F.)
15–35%
gr – gravelly
ch – channery
cb – cobbly
fl – flaggy
st – stony
35–65%
vgr – very gravelly
vch – very channery
vcb – very cobbly
vfl – very flaggy
vst – very stony
>65%
exgr – extremely gravelly
exch – extremely channery
excb – extremely cobbly
exfl – extremely flaggy
exst – extremely stony

Textural Class
cs – coarse sand
s – sand
fs – fine sand
ls – loamy sand
sl – sandy loam
l – loam
sil – silt loam
si – silt
scl – sandy clay loam
cl – clay loam
sicl – silty clay loam
sc – sandy clay
sic – silty clay
c – clay

Structure
Grade
0 – structureless
1 – weak
2 – moderate
3 – strong

Structure
Size
fi – fine
med – medium
co – coarse
Type
sg – single grain
gr – granular
pl – platy
pr – prismatic
cm – columnar
abk – angular blocky
sbk – subangular blocky
m – massive
Consistence
l – loose
vfr – very friable
fr – friable
fi – firm
vfi – very firm
exfi – extremely firm

Redox Features
Abundance
f – few <2%
c – common 2–20%
m – many >20%
Redox Features
Contrast
f – faint
d – distinct
p – prominent
Boundary
Distinctness
a – abrupt < 1” thick
c – clear 1–2.5”
g – gradual 2.5–5”
d – diffuse > 5”
Topography
s – smooth
w – wavy
i – irregular
b – broken

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barryisett.com

Date: February 7, 2024
Project: Water Gap Wellness –Existing Maintenance Building
Location Smithfield Township
Monroe County, Pennsylvania

Soil Log # TP-202 **Stormwater Limiting Zone: 110”-138”+** **Condition: Bedrock** **Lat/Long: 40.97363, -75.14903**

Horizon	Depth	Color	Texture		Structure			Consistence	Redox Features	Boundary (Dist/Topo)
			C.F.	Class	Grade	Size	Type			
A	0-15	10YR 4/2	ch	sil	3	co	pl	fr	---	c/s
Bw1	15-33	10YR 4/6	ch	sil	1	med	sbk	fr	---	g/w
Bw2	33-49	10YR 5/4	---	l	2	med	sbk	fr	c/d	g/w
2Bw	49-60	7.5YR 4/4	vch	l	1	fi	sbk	fi	c/d	g/w
2C	60-110	5YR 4/4	exch	l	1	fi	gr	fr	---	d/w
2R	110-138	10R 4/3	Diggable Shale					---	---	---
---	---	---	---	---	---	---	---	---	---	---

Qualified Soil Scientist: Philip R. Schiebel, SEO (PA SEO No. 03975) **Soil Series: Bath Taxadjunct**

Drainage Class
Moderately Well Drained

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Date: February 7, 2024
Project: Water Gap Wellness –Existing Maintenance Building
Location Smithfield Township
Monroe County, Pennsylvania

Soil Log # TP-203 **Stormwater Limiting Zone: 160”-165”+** **Condition: Bedrock** **Lat/Long: 40.97348, -75.14902**

Horizon	Depth	Color	Texture		Structure			Consistence	Redox Features	Boundary (Dist/Topo)
			C.F.	Class	Grade	Size	Type			
A	0-16	10YR 4/2	ch	sil	3	co	pl	fr	---	c/s
Bw1	16-35	10YR 4/6	ch	sil	1	med	sbk	fr	---	g/w
Bw2	35-50	10YR 5/4	---	l	2	med	sbk	fr	c/d	g/w
2Bw	50-72	7.5YR 4/4	vch	l	1	fi	sbk	fi	c/d	g/w
2C	72-160	5YR 4/4	exch	l	1	fi	gr	fr	---	d/w
2R	160-165	10R 4/3	Diggable Shale					---	---	---
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Qualified Soil Scientist: Philip R. Schiebel, SEO (PA SEO No. 03975) **Soil Series: Bath Taxadjunct**

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DOUBLE RING INFILTROMETER TESTING FIELD READINGS FOR STORMWATER INFILTRATION

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Project: **Water Gap Wellness - Existing Maintenance Building**
Smithfield Township
Monroe County, Pennsylvania
Test Date: **February 7, 2024**

Table 1. Double Ring Infiltrometer Test Results

Test No.	Test Depth (in.)	Surface Elev. (ft.)	Test Elev. (ft)	Hole Dia. (in.)	Reading Interval *t (min.)*	Readings *(in)*								Stabilized or Final Drop (in.)	Infiltration Rate (in/hr.)	Design Inf. Rate (in/hr.)
						1	2	3	4	5	6	7	8			
TP-1A	51	545.73	541.50	6.00	30.00	4.50	4.50	4.25	4.25	---	---	---	---	4.25	8.50	4.25
TP-1B	51			6.00	30.00	1.50	1.75	1.50	1.50	---	---	---	---	1.50	3.00	1.50
TP-2A	84	548.50	541.50	6.00	30.00	3.00	2.75	2.75	2.75	---		---	---	2.75	5.50	2.75
TP-2B	84			6.00	30.00	1.75	1.50	1.50	1.50	---		---	---	1.50	3.00	1.50

Notes: 1) A stabilized rate of drop is indicated by a ¼ inch or less difference between the highest and lowest drop in four (4) consecutive readings.
2) The drop that occurs in the inner ring during the final period, expressed as inches per hour, shall represent the infiltration rate for that test location.
3) The design infiltration rate reflects a safety factor of two (2).
E = Empty

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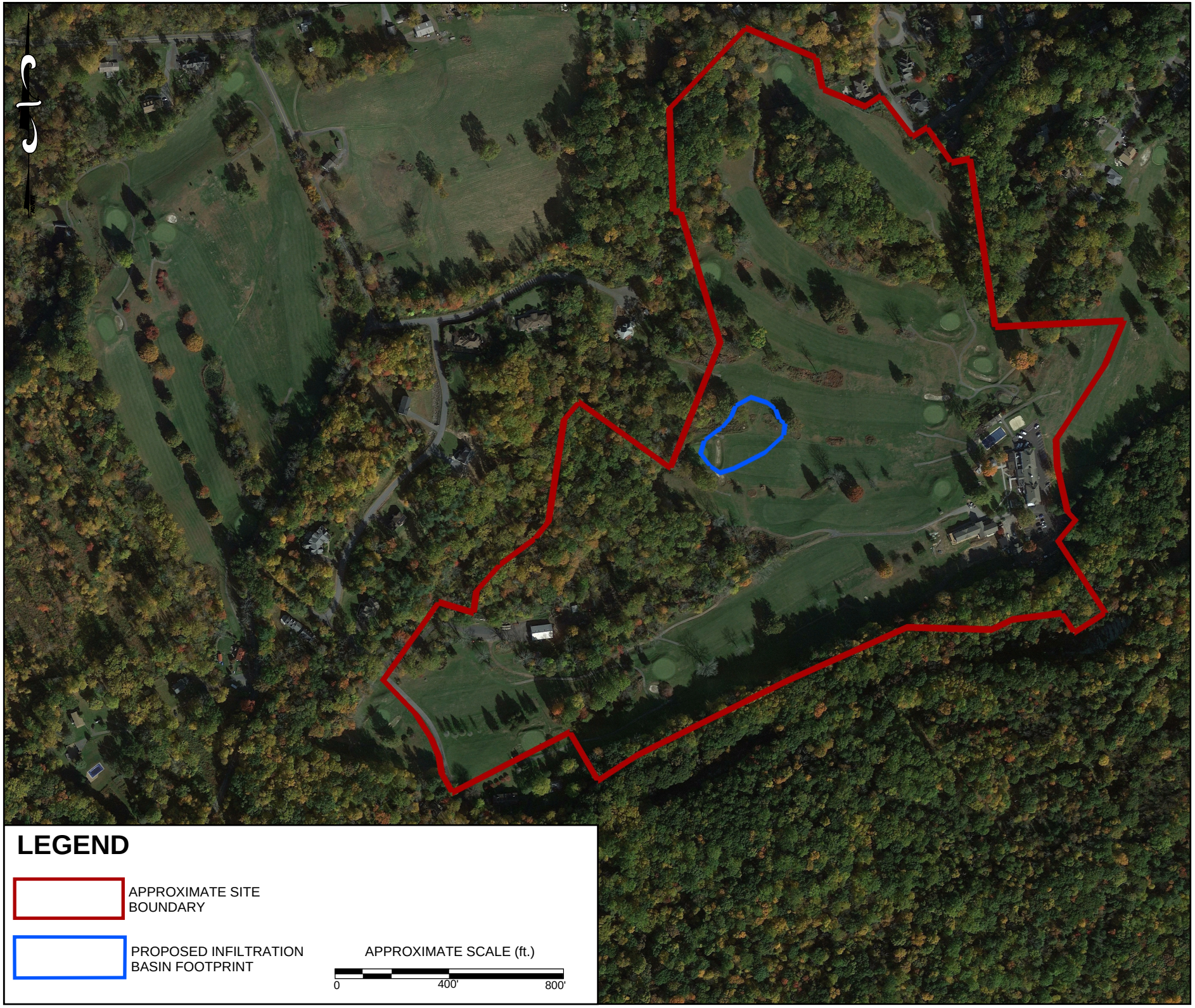
Appendix B



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SITE AERIAL PHOTOGRAPH

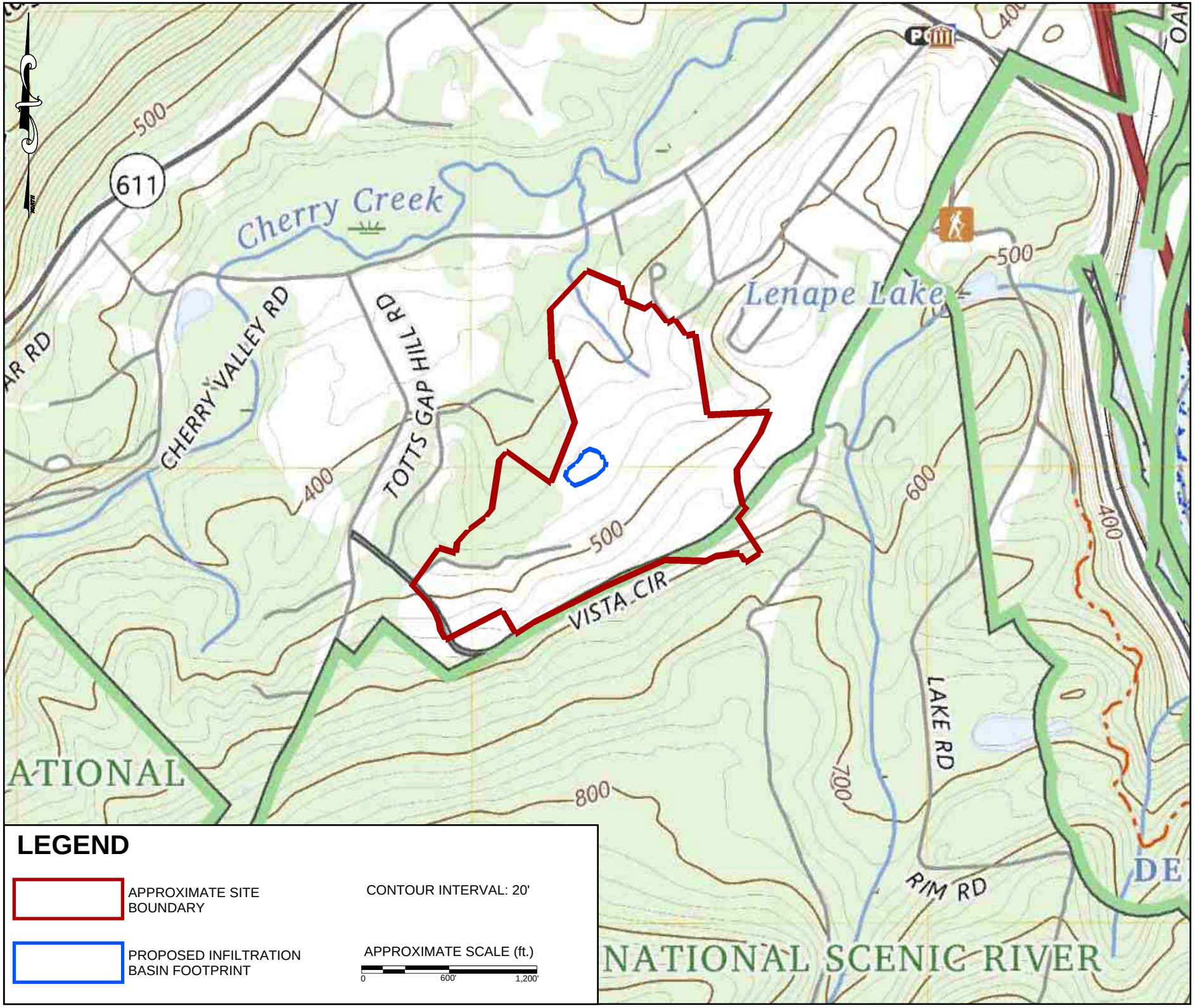
WATER GAP WELLNESS ACCESSORY BUILDINGS LD
296 MOUNTAIN ROAD
STROUDSBURG
MONROE COUNTY, PENNSYLVANIA

DATE: 4/30/2024	DSGN:
SCALE: GRAPHIC	CHK: JDK
DRAWN: SDB	APPRD:
JOB: 1022419.004	P MGR: JK

SHEET:

FIGURE 1

DRAWING SOURCE: *Google Earth* - Accessed 4/30/2024



LEGEND

APPROXIMATE SITE BOUNDARY

PROPOSED INFILTRATION BASIN FOOTPRINT

CONTOUR INTERVAL: 20'

APPROXIMATE SCALE (ft.)

0 600' 1,200'

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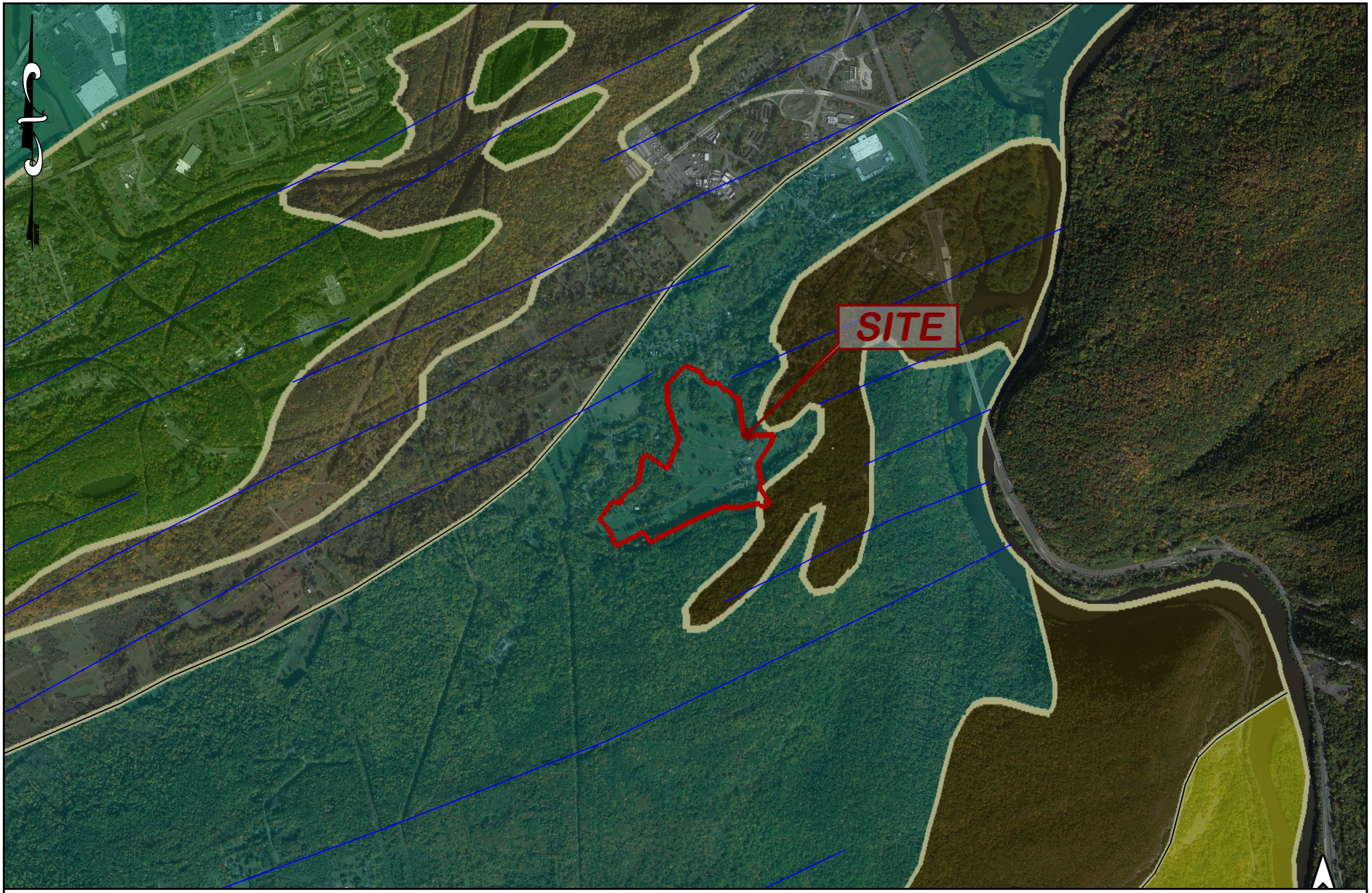
SITE TOPOGRAPHY

WATER GAP WELLNESS ACCESSORY BUILDINGS LD
296 MOUNTAIN ROAD
STROUDSBURG
MONROE COUNTY, PENNSYLVANIA

DATE: 4/30/2024	DSGN:
SCALE: GRAPHIC	CHK: JDK
DRAWN: SDB	APPRD:
JOB: 1022419.004	P MGR: JK

SHEET: FIGURE 2

DRAWING SOURCE: PADCNR Web Mapping Application - Accessed 4/30/2024



LEGEND

APPROXIMATE SITE LOCATION

GEOLOGIC CONTACT

APPROXIMATE SCALE (miles)

0 2,000' 4,000'

FAULTS

Existence Certain, location accurate

Existence Certain, location approximate

FOLDS

Anticline

Syncline

Fold pair

GEOLOGIC UNITS

- Sb - Bloomsburg Formation
- Ss - Shawangunk Formation
- Omgs - Shale and Graywacke of Martinsburg Formation
- Sdp - Decker Formation through Poxono Island Formation
- Drc - Ridgeley Formation through Coeymans Formation
- Dbe - Buttermilk Falls Limestone through Esopus Formation

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SITE GEOLOGY

WATER GAP WELLNESS ACCESSORY BUILDINGS LD
296 MOUNTAIN ROAD
STROUDSBURG
MONROE COUNTY, PENNSYLVANIA

DATE: 4/30/2024	DSGN:
SCALE: GRAPHIC	CHK: JDK
DRAWN: SDB	APPRD:
JOB: 1022419.004	P MGR: JK

SHEET:

FIGURE 3

DRAWING SOURCE: PADCNR Web Mapping Application - Accessed 4/30/2024

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MULTI-DISCIPLINE ENGINEERS AND CONSULTANTS

Appendix C

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 Monroe County, Pennsylvania

April 29, 2024

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.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

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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.

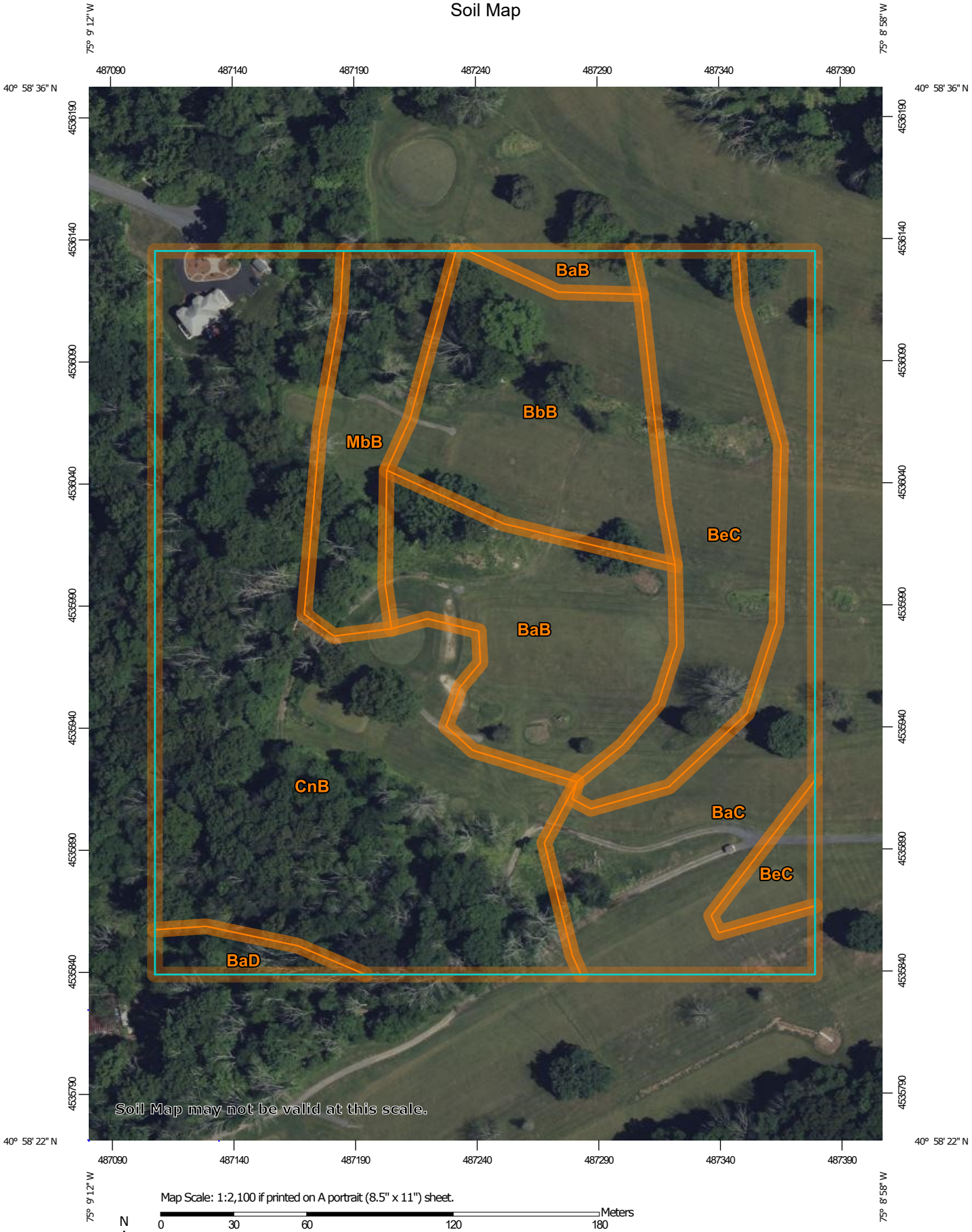
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree 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.



Map Scale: 1:2,100 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 30 60 120 180

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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: Monroe County, Pennsylvania
Survey Area Data: Version 18, Sep 7, 2023

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

Date(s) aerial images were photographed: Jun 3, 2022—Jul 20, 2022

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BaB	Bath channery silt loam, 3 to 8 percent slopes	2.5	12.6%
BaC	Bath channery silt loam, 8 to 15 percent slopes	2.9	14.6%
BaD	Bath channery silt loam, 15 to 25 percent slopes	0.3	1.4%
BbB	Bath channery silt loam, 0 to 8 percent slopes, extremely stony	2.5	12.3%
BeC	Benson-Rock outcrop complex, 8 to 25 percent slopes	2.7	13.6%
CnB	Chippewa and Norwich soils, 0 to 8 percent slopes, extremely stony	7.7	38.5%
MbB	Mardin very stony silt loam, 0 to 8 percent slopes	1.4	6.9%
Totals for Area of Interest		**20.0**	**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.

Monroe County, Pennsylvania

BaB—Bath channery silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2v30x
Elevation: 330 to 2,460 feet
Mean annual precipitation: 31 to 70 inches
Mean annual air temperature: 39 to 52 degrees F
Frost-free period: 105 to 180 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Bath

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Side slope, interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till derived mainly from gray and brown siltstone, sandstone, and shale

Typical profile

Ap - 0 to 9 inches: channery silt loam
Bw1 - 9 to 15 inches: channery silt loam
Bw2 - 15 to 25 inches: channery loam
E - 25 to 29 inches: channery loam
Bx - 29 to 52 inches: very channery silt loam
C - 52 to 72 inches: very channery silt loam

Properties and qualities

Slope: 3 to 8 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: 26 to 38 inches to fragipan
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 24 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F140XY030NY - Well Drained Dense Till
Hydric soil rating: No

Minor Components

Mardin

Percent of map unit: 10 percent
Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Lordstown

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

BaC—Bath channery silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2v314
Elevation: 330 to 2,460 feet
Mean annual precipitation: 31 to 70 inches
Mean annual air temperature: 39 to 52 degrees F
Frost-free period: 105 to 180 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

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

Description of Bath

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loamy till derived mainly from gray and brown siltstone, sandstone, and shale

Typical profile

Ap - 0 to 9 inches: channery silt loam
Bw1 - 9 to 15 inches: channery silt loam
Bw2 - 15 to 25 inches: channery loam

E - 25 to 29 inches: channery loam
Bx - 29 to 52 inches: very channery silt loam
C - 52 to 72 inches: very channery silt loam

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: 26 to 38 inches to fragipan
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 24 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: F140XY030NY - Well Drained Dense Till
Hydric soil rating: No

Minor Components

Lordstown

Percent of map unit: 5 percent
Landform: Hills, mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountaintop, side slope, nose slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Mardin

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

BaD—Bath channery silt loam, 15 to 25 percent slopes

Map Unit Setting

National map unit symbol: 2v316
Elevation: 330 to 2,460 feet
Mean annual precipitation: 31 to 70 inches
Mean annual air temperature: 39 to 52 degrees F

Frost-free period: 105 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Bath

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Nose slope, side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy till derived mainly from gray and brown siltstone, sandstone, and shale

Typical profile

Ap - 0 to 9 inches: channery silt loam
Bw1 - 9 to 15 inches: channery silt loam
Bw2 - 15 to 25 inches: channery loam
E - 25 to 29 inches: channery loam
Bx - 29 to 52 inches: very channery silt loam
C - 52 to 72 inches: very channery silt loam

Properties and qualities

Slope: 15 to 25 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: 26 to 38 inches to fragipan
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 24 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: F140XY030NY - Well Drained Dense Till
Hydric soil rating: No

Minor Components

Lordstown

Percent of map unit: 10 percent
Landform: Hills, mountains
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Mountaintop, side slope, nose slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Mardin

Percent of map unit: 5 percent
Landform: Mountains, hills
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

BbB—Bath channery silt loam, 0 to 8 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2v31k
Elevation: 330 to 2,460 feet
Mean annual precipitation: 31 to 70 inches
Mean annual air temperature: 39 to 52 degrees F
Frost-free period: 105 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Bath, Extremely Stony

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till derived mainly from gray and brown siltstone, sandstone, and shale

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: channery silt loam
Bw1 - 3 to 15 inches: channery silt loam
Bw2 - 15 to 25 inches: channery loam
E - 25 to 29 inches: channery loam
Bx - 29 to 52 inches: very channery silt loam
C - 52 to 72 inches: very channery silt loam

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 7.0 percent
Depth to restrictive feature: 26 to 38 inches to fragipan
Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 24 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: F140XY030NY - Well Drained Dense Till
Hydric soil rating: No

Minor Components

Swartswood, extremely stony

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

Mardin, extremely stony

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

BeC—Benson-Rock outcrop complex, 8 to 25 percent slopes

Map Unit Setting

National map unit symbol: 9y9c
Elevation: 90 to 2,460 feet
Mean annual precipitation: 28 to 70 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 105 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition

Benson and similar soils: 60 percent
Rock outcrop: 20 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Benson

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope, summit
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Parent material: Loamy till

Typical profile

H1 - 0 to 8 inches: channery silt loam
H2 - 8 to 18 inches: very channery silt loam
H3 - 18 to 22 inches: unweathered bedrock

Properties and qualities

Slope: 8 to 25 percent
Depth to restrictive feature: 12 to 20 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: Very low (about 2.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Ecological site: F101XY011NY - Shallow Till Upland
Hydric soil rating: No

Description of Rock Outcrop

Interpretive groups

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

Minor Components

Wyoming

Percent of map unit: 4 percent
Landform: Terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Chenango

Percent of map unit: 4 percent
Landform: Outwash terraces
Landform position (three-dimensional): Riser
Down-slope shape: Convex, linear

Across-slope shape: Linear, convex
Hydric soil rating: No

Bath

Percent of map unit: 4 percent
Landform: Mountains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Upper third of mountainflank, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Mardin

Percent of map unit: 4 percent
Hydric soil rating: No

Volusia

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

CnB—Chippewa and Norwich soils, 0 to 8 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2vcjj
Elevation: 330 to 2,460 feet
Mean annual precipitation: 31 to 70 inches
Mean annual air temperature: 39 to 52 degrees F
Frost-free period: 105 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition

Chippewa, extremely stony, and similar soils: 41 percent
Norwich, extremely stony, and similar soils: 39 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Chippewa, Extremely Stony

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave

Across-slope shape: Concave
Parent material: Loamy till dominated by siltstone, sandstone, and shale fragments

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 5 inches: channery silt loam
Eg - 5 to 15 inches: channery silt loam
Bxg - 15 to 45 inches: channery silt loam
C - 45 to 72 inches: channery silt loam

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 7.0 percent
Depth to restrictive feature: 8 to 20 inches to fragipan
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Available water supply, 0 to 60 inches: Low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: F140XY016NY - Mineral Wetlands
Hydric soil rating: Yes

Description of Norwich, Extremely Stony

Setting

Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Loamy till dominated by reddish sandstone, siltstone and shale fragments

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 5 inches: channery silt loam
Eg - 5 to 10 inches: channery silt loam
Bg - 10 to 16 inches: channery silt loam
Bgx - 16 to 46 inches: channery silt loam
C - 46 to 72 inches: channery silt loam

Properties and qualities

Slope: 0 to 8 percent
Surface area covered with cobbles, stones or boulders: 7.0 percent
Depth to restrictive feature: 10 to 24 inches to fragipan
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 0 to 6 inches

Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: F140XY016NY - Mineral Wetlands
Hydric soil rating: Yes

Minor Components

Norwich, extremely stony, very poorly drained

Percent of map unit: 5 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Volusia, extremely stony

Percent of map unit: 5 percent
Landform: Mountains, hills
Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Base slope, interfluve, side slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Morris, extremely stony

Percent of map unit: 5 percent
Landform: Mountains, hills
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Interfluve, side slope, head slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Chippewa, extremely stony, very poorly drained

Percent of map unit: 5 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

MbB—Mardin very stony silt loam, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9yc2
Elevation: 750 to 1,800 feet
Mean annual precipitation: 30 to 50 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 110 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Mardin

Setting

Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy till

Typical profile

A - 0 to 8 inches: very stony silt loam
Bw - 8 to 17 inches: channery silt loam
BE - 17 to 21 inches: channery silt loam
Bx - 21 to 60 inches: channery silt loam
C - 60 to 80 inches: very channery silt loam

Properties and qualities

Slope: 3 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: 14 to 26 inches to fragipan
Drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 11 to 22 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D

Ecological site: F140XY024NY - Moist Dense Till
Hydric soil rating: No

Minor Components

Lordstown
Percent of map unit: 6 percent
Hydric soil rating: No

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

Chippewa
Percent of map unit: 4 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave
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

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Appendix D

LEGEND

APPROXIMATE SITE BOUNDARY

PROPOSED INFILTRATION BASIN FOOTPRINT

TP-101 APPROXIMATE TEST PIT LOCATION - APRIL 2024

TP-1 APPROXIMATE TEST PIT LOCATION - FEBRUARY 2024

NOTES:

1. INFILTRATION TEST PITS TP-101 THROUGH TP-103 PERFORMED ON APPRIL 26, 2024 BY WGW UNDER THE SUPERVISION OF ISETT.

3. TEST PIT LOCATIONS WERE FIELD LOCATED BY ISETT'S GEOTECHNICAL PROFESSIONAL AND SHOULD BE CONSIDERED APPROXIMATE.

APPROXIMATE SCALE (ft)

0 200' 400'

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MULTI-DISCIPLINE ENGINEERS AND CONSULTANTS
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610.398.0904 610.481.9098
barryisett.com

TESTING LOCATION PLAN

WATER GAP WELLNESS ACCESSORY BUILDINGS LD
296 MOUNTAIN ROAD
STROUDSBURG
MONROE COUNTY, PENNSYLVANIA

DATE: 4/30/2024	DSGN:
SCALE: GRAPHIC	CHK: JDK
DRAWN: SDB	APPRD:
JOB: 1022419.004	P MGR: JK

SHEET:

FIGURE 4

DRAWING SOURCE: *Google Earth* - Accessed 10/06/2022

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Appendix E

TEST PIT NUMBER TP-101

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CLIENT Water Gap Wellness
PROJECT NAME Accessory Buildings Land Development
PROJECT NUMBER 1022419.004
PROJECT LOCATION 296 Mountain Road, Stroudsburg, PA 18350
DATE STARTED 4/26/24 **COMPLETED** 4/26/24
GROUND ELEVATION 449.7 ft **TEST PIT SIZE** 72x48 inches
EXCAVATION CONTRACTOR Water Gap Wellness
GROUND WATER LEVELS:
EXCAVATION METHOD Mini-Excavator
AT TIME OF EXCAVATION 4/26/2024, Not Encountered
LOGGED BY BRF **CHECKED BY** SDB
AT END OF EXCAVATION
NOTES
BEFORE BACKFILLING

DEPTH (ft)	SAMPLE DEPTH TYPE & NUMBER	U.S.C.S.	Moisture Content	GRAPHIC LOG	MATERIAL DESCRIPTION	
0.0			Moist		TOPSOIL	
					0.4	449.3
		ML	Moist		(ML) f-c Sandy SILT, trace f-m, Gravel, tan-brown, low plasticity, subangular to rounded, 10YR4/2, friable [GLACIAL TILL]	
					0.7	449.0
		CL-ML	Moist		(CL-ML) f-c Sandy Silty CLAY with f-m Gravel, few cobbles, brown, low to moderate plasticity, subangular to rounded, 10YR4/4, friable [GLACIAL TILL]	
2.5					El. 448 ft.: Performed infiltration test	
					3.0	446.7
		SM	Very Moist		(SM) Silty f-c SAND with f-c GRAVEL, some cobbles, brown to dark-brown, low plasticity, subrounded to rounded, 7.5YR2/2, friable [GLACIAL TILL]	
5.0					5.3	444.4

END OF TEST PIT, 5.3 feet.

TEST PIT NUMBER TP-102

BARRY ISETT & associates INC
MULTI-DISCIPLINE ENGINEERS AND CONSULTANTS

CLIENT Water Gap Wellness
PROJECT NAME Accessory Buildings Land Development
PROJECT NUMBER 1022419.004
PROJECT LOCATION 296 Mountain Road, Stroudsburg, PA 18350
DATE STARTED 4/26/24 **COMPLETED** 4/26/24
GROUND ELEVATION 450.2 ft **TEST PIT SIZE** 72x48 inches
EXCAVATION CONTRACTOR Water Gap Wellness
GROUND WATER LEVELS:
EXCAVATION METHOD Mini-Excavator
AT TIME OF EXCAVATION
LOGGED BY BRF **CHECKED BY** SDB
AT END OF EXCAVATION 4/26/2024, 3.00 ft
NOTES
BEFORE BACKFILLING

DEPTH (ft)	SAMPLE DEPTH TYPE & NUMBER	REMARKS	U.S.C.S.	Moisture Content	GRAPHIC LOG	MATERIAL DESCRIPTION	
0.0		Topsoil thickness = 1.5 ft. on west side of test pit		Moist		TOPSOIL	
						0.8	449.4
			ML	Moist		(ML) f-c Sandy SILT, trace f-m, Gravel, tan-brown, low plasticity, subangular to rounded, 10YR4/2, friable [GLACIAL TILL]	
						1.2	449.0
2.5			SM	Very Moist to Wet		(SM) Silty f-c SAND with f-c GRAVEL, some cobbles, brown to dark-brown, low plasticity, subrounded to rounded, 7.5YR2/2, friable [GLACIAL TILL]	
						El. 448 ft.: Performed infiltration test	
						El. 447.2 ft.: Groundwater Encountered	
5.0						5.3	444.9

END OF TEST PIT, 5.3 feet.

TEST PIT NUMBER TP-103

BARRY ISETT & associates INC
MULTI-DISCIPLINE ENGINEERS AND CONSULTANTS

CLIENT Water Gap Wellness
PROJECT NAME Accessory Buildings Land Development
PROJECT NUMBER 1022419.004
PROJECT LOCATION 296 Mountain Road, Stroudsburg, PA 18350
DATE STARTED 4/26/24 **COMPLETED** 4/26/24
GROUND ELEVATION 448.1 ft **TEST PIT SIZE** 72x48 inches
EXCAVATION CONTRACTOR Water Gap Wellness
GROUND WATER LEVELS:
EXCAVATION METHOD Mini-Excavator
AT TIME OF EXCAVATION
LOGGED BY BRF **CHECKED BY** SDB
AT END OF EXCAVATION
NOTES
BEFORE BACKFILLING 4/26/2024, Not Encountered

DEPTH (ft)	SAMPLE DEPTH TYPE & NUMBER	U.S.C.S.	Moisture Content	GRAPHIC LOG	MATERIAL DESCRIPTION	
0.0			Moist		TOPSOIL El. 448 ft.: Performed infiltration test	447.8
		ML	Moist	0.3	(ML) f-c Sandy SILT, trace f-m, Gravel, tan-brown, low plasticity, subangular to rounded, 10YR4/2, friable [GLACIAL TILL]	446.9
2.5		CL-ML	Moist	1.2	(CL-ML) f-c Sandy Silty CLAY with f-m Gravel, few cobbles, brown, low to moderate plasticity, subangular to rounded, 10YR4/4, friable [GLACIAL TILL]	445.3
5.0		SM	Moist to Very Moist	2.8	(SM) Silty f-c SAND with f-c GRAVEL, some cobbles, brown to dark-brown, low plasticity, subrounded to rounded, 7.5YR2/2, friable [GLACIAL TILL]	442.6
				5.5	END OF TEST PIT, 5.5 feet.	

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Appendix F

Photo #1 – TP-101 Excavation

Photo #2 – TP-101 Soil Profile

Photo #3 – TP-102 – Note High Groundwater Limiting Horizon

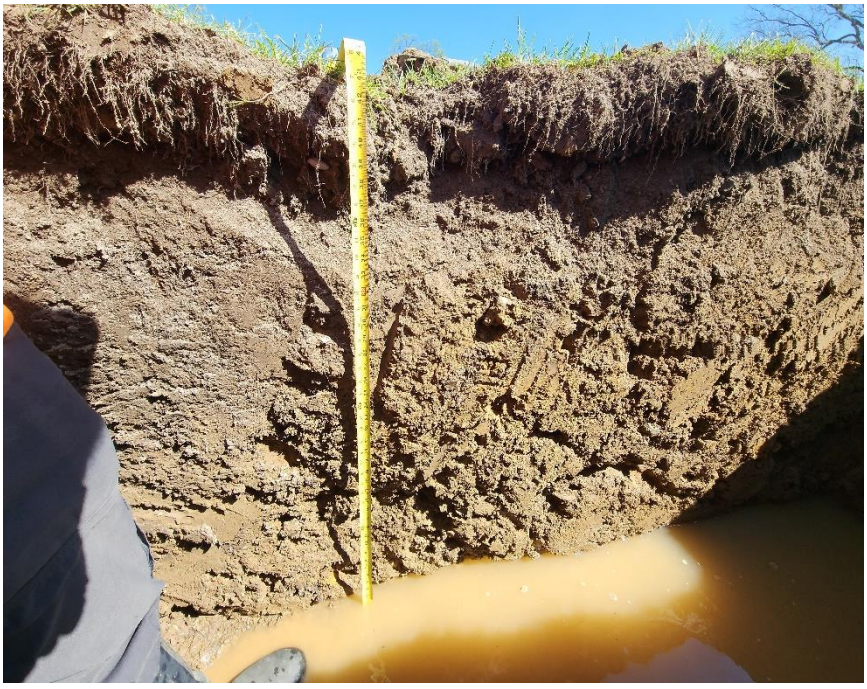

Photo #4 – TP-102 Soil Profile

Photo #5 – TP-103 Soil Profile

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Appendix G

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INFILTRATION TESTING FIELD DATA COLLECTION FORM

Client: Water Gap Wellness
Project Number: 1022419.004 Date: 4/26/24
Project: Water Gap Wellness Accesssory Buildings Land Development
Project Location: 296 Mountian Road, Stroudsburg, PA

Test Pit ID#:	TP-101	Test Pit Dim. (ft.):	4 ft. x 6 ft.
Lattitude:	40.974904	Weather:	Clear, 50s - 60s
Longitude:	-75.15162	BIA Representative:	S. Burns, B. Fox
GSE (ft.):	449.7		
Proposed Testing Depth (ft.):	1.7	Test Elev. (ft.):	448.0
Total Depth (ft.):	5.3	Bottom Elev. (ft.):	444.4

Presoak:

	Water Level Drop (ft.)	
Elapsed Time (min.)	Ring #1	Ring #2
30	0.08	0.00
60	0.08	0.01

If the water level drop in the 2nd measurement interval is 2 inches or more, use 10 minute measurement intervals during the infiltration test. Otherwise, use 30 minute measurement intervals.

Test:

	Water Level Drop (ft.)	
Elapsed Time (min.)	Ring #1	Ring #2
30	0.06	0.01
60	0.04	0.01
90	0.04	0.01
120	0.05	0.01

Infiltration Rate (in/hr.): 0.72

Notes: Infiltration test performed at El. 448.0 ft. No evidence of limiting horizons within 3.6 feet of infiltration testing elevation.

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INFILTRATION TESTING FIELD DATA COLLECTION FORM

Client: Water Gap Wellness
Project Number: 1022419.004 Date: 4/26/24
Project: Water Gap Wellness Accesssory Buildings Land Development
Project Location: 296 Mountian Road, Stroudsburg, PA

Test Pit ID#:	TP-102	Test Pit Dim. (ft.):	4 ft. x 6 ft.
Lattitude:	40.975031	Weather:	Clear, 50s - 60s
Longitude:	-75.151272	BIA Representative:	S. Burns, B. Fox
GSE (ft.):	450.23		
Proposed Testing Depth (ft.):	2.2	Test Elev. (ft.):	448.0
Total Depth (ft.):	5.2	Bottom Elev. (ft.):	445.0

Presoak:

	Water Level Drop (ft.)	
Elapsed Time (min.)	Ring #1	Ring #2
30	0.02	0.00
60	0.00	0.00

If the water level drop in the 2nd measurement interval is 2 inches or more, use 10 minute measurement intervals during the infiltration test. Otherwise, use 30 minute measurement intervals.

Test:

	Water Level Drop (ft.)	
Elapsed Time (min.)	Ring #1	Ring #2
30	0.00	0.00
60	0.00	0.00
90	0.00	0.00
120	0.00	0.00

Infiltration Rate (in/hr.): 0.00

Notes: Infiltration test performed at El. 448.0 ft. Groundwater encountered at El. 446.2 ft. - rose to El. 447.2 ft. over duration of test.

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INFILTRATION TESTING FIELD DATA COLLECTION FORM

Client: Water Gap Wellness
Project Number: 1022419.004 Date: 4/26/24
Project: Water Gap Wellness Accesssory Buildings Land Development
Project Location: 296 Mountian Road, Stroudsburg, PA

Test Pit ID#:	TP-103	Test Pit Dim. (ft.):	4 ft. x 6 ft.
Lattitude:	40.975194	Weather:	Clear, 50s - 60s
Longitude:	-75.151268	BIA Representative:	S. Burns, B. Fox
GSE (ft.):	448.13		
Proposed Testing Depth (ft.):	0.1	Test Elev. (ft.):	448.0
Total Depth (ft.):	5.5	Bottom Elev. (ft.):	442.6

Presoak:

	Water Level Drop (ft.)	
Elapsed Time (min.)	Ring #1	Ring #2
30	0.19	0.16
60	0.13	0.08

If the water level drop in the 2nd measurement interval is 2 inches or more, use 10 minute measurement intervals during the infiltration test. Otherwise, use 30 minute measurement intervals.

Test:

	Water Level Drop (ft.)	
Elapsed Time (min.)	Ring #1	Ring #2
30	0.13	0.04
60	0.08	0.03
90	0.06	0.01
120	0.07	0.01
150	0.08	0.01

Infiltration Rate (in/hr.): 1.08

Notes: Infiltration test performed at El. 448.0 ft. No evidence of limiting horizons within 5.4 feet of infiltration testing elevation.