CARTER ENGINEERING

Visual Inspection Report

For

Mays Swiss Lake Dam

State ID#:154-027-02309

White County, GA

(34.652778, -83.699813)

Prepared By:
Carter Engineering Consultants
1010 Commerce Dr
Bogart, Ga 30622

November 2023 Inspection

Submittal Information		
Revision	**Date**	**Submitted To:**
A	11/27/2023	Dam Owner

Table of Contents

Acronyms

ACAD	Autodesk AutoCAD Civil 3D (Current Version)
CEC	Carter Engineering Consultants
DEM	Digital Elevation Models
EPD	Georgia Environmental Protection Division
FEMA	Federal Emergency Management Agency
FFE	Finish Floor Elevation
GA DNR	Georgia Department of Natural Resources
GIS	Geographic Information Systems
GASDP	Georgia Safe Dams Program
HEC-RAS	Hydrologic Engineering Center River Analysis System
HEC-1	USACE Flood Hydrograph Package Software
LAG	Lowest Adjacent Grade
Lidar	Light Detection and Ranging
NID	National Inventory of Dams
NAVD88	North American Vertical Datum of 1988
NOAA	National Oceanic and Atmosphere Administration
NRCS	Natural Resource Conservation Service
USACE	United States Army Corps of Engineers
USBR	U.S. Bureau of Reclamation
USGS	Unites States Geological Survey

Preface

Dams can present safety concerns for property and people if they are not properly designed, constructed, and maintained. Therefore, certain dams may be regulated by government agencies and must adhere to certain laws, rules and regulations. All dams in the State of Georgia, that meet certain criteria are inventoried, classified, and regulated by the Georgia Safe Dams Program (GASDP). The Georgia Safe Dams Program is part of the Georgia Environmental Protection Division's (EPD) Watershed Protection Branch. Georgia EPD is a division of the Georgia Department of Natural Resources (DNR). The Georgia Safe Dams Act of 1978 requires that all dams be inventoried and classified by the Georgia Safe Dams Program. Dams are defined by Rule 391-3-8-.02 (h), as any artificial barrier which impounds or diverts water and is twenty-five (25) feet or more in height OR has an impounding capacity of one hundred (100) acre-feet or more. Dams that meet the above-mentioned criteria are classified as either Category I or Category II structures.

Category I structures are dams in which improper operation or failure, WOULD result in a probable loss of human life. Category II structures are dams in which improper operation or failure, WOULD NOT be expected to result in probable loss of human life.

Mays Swiss Lake Dam

As part of this visual inspection, Carter Engineering will reference GASDP's dam inventory to determine if the dam is currently classified as Category I or Category II structure. If it is not classified, Carter Engineering will determine if the dam meets the criteria for classification and include its' findings in the report.

1.0 Carter Engineering Visual Inspection

The dam inspection performed by Carter Engineering is limited to a visual evaluation of the dam, spillway(s) and appurtenances. Where applicable, the inspection may include instrumentation measurements. The inspection will note any deficiencies observed from the visual inspection and provide corrective action guidance. The visual inspection is limited in scope with the following exclusions:

- Geotechnical and/ or Material Testing
- Inspection of Dam Internal Components (i.e., drains, spillway conduits, underdrains, or any appurtenances not visible at the dam's surface)
- Design plans and/or specifications for corrective action or remediation of deficiencies
- Construction or repair of any observed deficiencies
- Report Should not be utilized for permitting (other than submittal to GASDP)

This inspection has been performed in accordance with GASDP engineering guidelines and GASDP's inspection instructions for earthen embankments.

2.0 Introduction

2.1 Identify the Subject Dam

Mays Swiss Lake Dam is the subject dam of this report. According to White County tax assessor, the current owner of the property and Mays Swiss Lake Dam is Yonah Mountain Lake POA Inc. Carter Engineering has been retained by Yonah Mountain Lake POA Inc. to perform a Visual Inspection of the existing condition of the subject dam. Mays Swiss Lake Dam is in the eastern portion of White County, Georgia on White County Parcel ID 059B 220. The dam consists of an earthen embankment constructed by placing fill material across an unnamed tributary to Brasstown Creek.

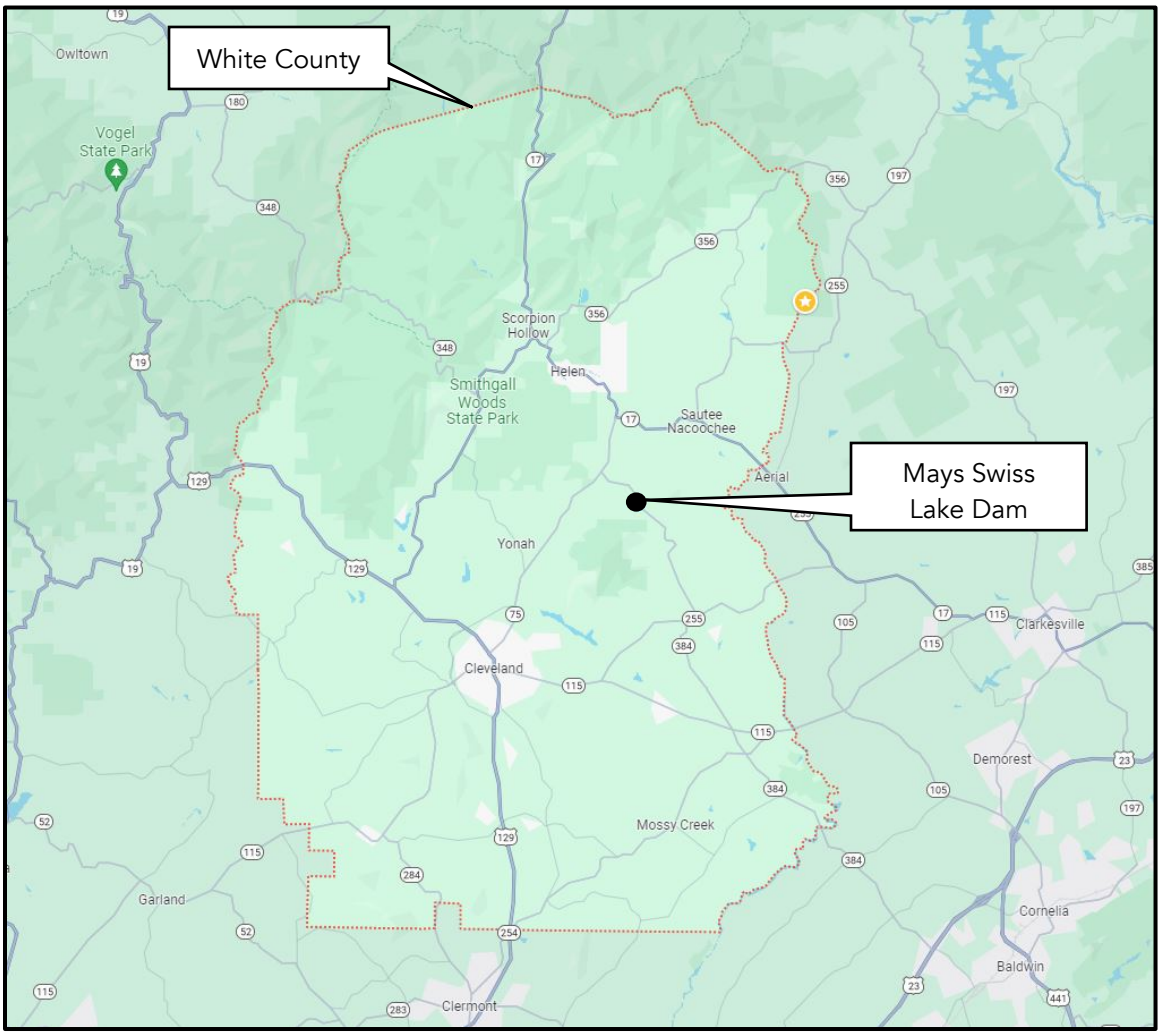

Figure 1 -- Dam Location Map

Mays Swiss Lake Dam is listed on the U.S. Army Corps of Engineers (USACE) National Inventory of Dams (NID) as ID Number GA-00517. The GASDP has given the dam a State ID Number 154-027-02309. The dam is located at North 34.652778°, (Latitude), West -83.699813° (Longitude).

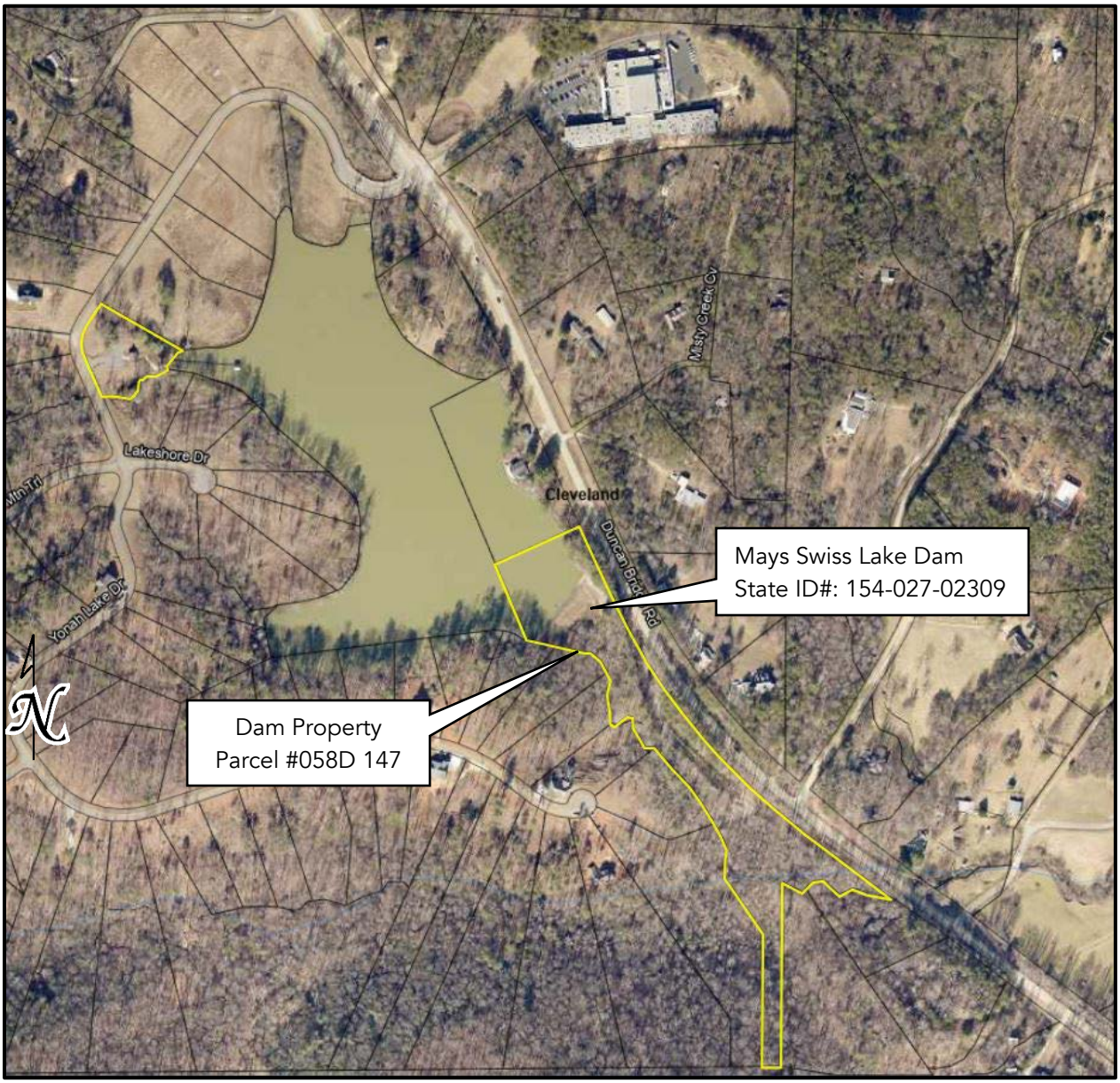

Figure 2 -- Dam Aerial Map

3.0 Dam Characteristics

3.1 Mays Swiss Lake Dam

The dam consists of an earthen embankment constructed by placing fill material across an unnamed tributary to Brasstown Creek. The nomenclature for describing the dam is based on facing downstream. The embankment will be referenced in this manner. All elevations are referenced from the North American Vertical Datum of 1988 (NAVD 88).

Based on the USACE National Inventory of Dams, Mays Swiss Lake Dam construction was completed in 1969. The crest of the dam is approximately 10.0 to 12.0-feet in width. Below is a summary of the dam's characteristics based on the visual inspection and available GIS data.

Dam Information:	
Name:	Mays Swiss Lake Dam
State ID#:	154-027-02309
USACE NID:	GA00517
State/ Condition:	Existing Conditions
Dam Characteristics:	
Type:	Earthen Embankment
Dam Crest Elevation:	± 1464.00 NAVD88-Feet
Toe Elevation:	± 1426.00 NAVD88-Feet
Height:	± 38.00 Feet
Crest Width:	± 12.00 Feet (Average)
Crest Length:	± 255 Feet
Upstream Slope:	± 2.2:1 Horizontal: Vertical (Orientation)
Downstream Slope:	± 2.2:1 Horizontal: Vertical (Orientation)
Spillway Information (Principal/Primary):	
Spillway/Conduit:	Corrugated Metal Riser and Conduit
Crest Elevation:	± 1459.00 NAVD88-Feet
Spillway Information (Auxiliary):	
Spillway:	Open Cut Earthen Channel
Crest Elevation:	±1460.00 NAVD88-Feet

Notes:

1. Elevations have been approximated from available GIS data. A topographic survey has *NOT* been completed.

3.2 Georgia Safe Dams Classification

As previously mentioned, Mays Swiss Lake Dam is currently regulated by the Georgia Safe Dams Program. The dam is shown on their inventory list with State ID# 154-027-02309. This indicates the dam, in its current state, is twenty-five (25) feet or more in height OR has an impounding capacity of one hundred (100) acre-feet. It is currently classified as a Category II structure meaning that improper operation or failure of the dam WOULD NOT be expected to result in probable loss of human life.

Based on the GIS data available, Carter Engineering concurs the dam meets the minimum criteria for regulation as defined by Rule 391-3-8-.02 (h). It should be noted that existing or future conditions downstream of the dam could result in reclassification of Mays Swiss Lake Dam to a Category I Dam. Reclassification would indicate that improper operation or failure of the dam, WOULD result in a probable loss of human life at an identified structure. Based on aerial imagery, there are structures that are downstream of the Mays Swiss Lake Dam that may be impacted by a failure of the subject dam.

3.3 Watershed Description

Utilizing USGS StreamStats, the subject dam receives runoff from a 0.41 square-mile (262.4-Acre) watershed basin. The existing watershed flows from a maximum elevation of 2258-feet to the normal pool elevation ±1459.00' and has a mean basin slope of 19.56%. The overall watershed basin consists mainly of rural wooded area landcover. It should be noted that a residential subdivision is currently being developed around the subject lake and dam.

4.0 Visual Inspection

A detailed engineering visual inspection of Mays Swiss Lake Dam was completed on November 20th, 2023, by Carter Engineering Staff. Specifically, Clayton Hunnicutt, PE performed the site visit and inspection. The dam embankment and spillways were visually inspected to determine the condition, safety and integrity of the dam and appurtenant structures.

In general, the main components of a dam that require inspection are the dam's crest, upstream slope, downstream slope, plunge pool, principal and auxiliary spillways, and any existing instrumentation. The findings of the inspection and any recommendations and/or corrective actions are summarized in the sections below. Photographs documenting the current conditions are presented in the photograph log in the Appendix of this report.

4.1 Dam Crest

The dam crest is currently approximately 10 to 12-feet in width in most places. Overall, the dam's crest appears to be in good structural condition with no major settlement, ruts, holes, or cracks observed. However, several deficiencies were observed and are listed below.

DEFICIENCY NUMBER	DEFICIENCY DESCRIPTION
1	The crest exhibited minor unevenness and minor areas of sparse vegetation. The minor areas of sparse vegetation was noted near the right abutment.

4.2 Upstream Slope

The upstream slope of the dam appears to be in overall fair condition. The overall slope appears to be steeper that a 3:1 horizontal to vertical orientation. The upstream slope mainly had good vegetation coverage with only minor inappropriate vegetation noted. The inspection of the upstream slope was limited due to the presence of inappropriate vegetation and minimal slope above the normal pool. Normally, the visual inspection includes identifying any issues that could indicate structural integrity or lack of slope stability. However, due to the current conditions of the upstream slope, visual inspection was limited and prevented a visual assessment of the slope's structural integrity and slope stability. Several deficiencies were observed and are listed below.

DEFICIENCY NUMBER	DEFICIENCY DESCRIPTION
2	The upstream slope appears to be steeper than a 3:1 horizontal to vertical orientation. This can lead to slope stability issues and inhibit proper maintenance.
3	Wave action erosion was noted and extends, in varying degree, along the waterline of the entire upstream slope. Some erosion has resulted in sloughs areas with shear drops ranging from 24-36" in height.

4.3 Downstream Slope

The downstream slope of the dam appears to be in overall fair condition. The top 8 to 10 vertical feet of the downstream slope had been recently mowed and consisted of grass vegetation. The remainder of the downstream slope consisted of overgrown weeds and brush. The inspection of the downstream slope was limited due to the presence of inappropriate vegetation and buildup of organic matter from plant litter. Several deficiencies were observed and are listed below.

DEFICIENCY NUMBER	DEFICIENCY DESCRIPTION
4	Inappropriate vegetation was observed on the slope. Woody vegetation in the form of brush and weeds were noted. Thorough inspection of the downstream slope was limited due to the presence of inappropriate vegetation and leaf litter groundcover.
5	The entirety of the downstream slope appeared to steeper than a 3:1 (vertical to horizontal orientation). Visual observation of slope cracks, sloughs and excessive seepage was not observed. However, deficiency identification was inhibited, due to inappropriate vegetation, limiting structural integrity and slope stability assessment.
6	A fairly large area of standing water observed at the toe of the downstream slope. The water was "rust" colored, resulting from iron orche, and is typical from seepage through an earthen embankment dam. A CMP outlet pipe was observed and could be from an internal drainage system. The pipe outlet was completely filled with silt and buildup. The standing water at the toe of the dam indicates the dam is experiencing a moderate seepage rate that is, at minimum, surfacing at the toe of slope.

4.4 Plunge Pool

There is no plunge pool present at the subject dam.

DEFICIENCY NUMBER	DEFICIENCY DESCRIPTION
7	Currently there is not a plunge pool at the principal spillway outlet for energy dissipation and downstream channel protection. The existing channel shows signs of damage, likely from the erosive forces of discharging water from the spillway conduit.

4.5 Principal Spillway

The dam currently utilizes a standard CMP riser and conduit as the principal spillway system. There is no active principal spillway at the subject dam. The riser and conduit appear to be in overall fair condition. The riser was only inspected visually from the upstream slope. The riser has a trashrack that appears to be adequate and functioning properly. The integrity of the CMP riser was not ascertainable. The conduit was observed at the spillway outlet. Several deficiencies were observed and are listed below.

DEFICIENCY NUMBER	DEFICIENCY DESCRIPTION
8	The principal spillway conduit was inspected at the outlet. The CMP conduit exhibited significant rust from the invert of the pipe to the springline of the pipe. The rust appeared to be consistent along the pipe for the sections visually inspected.
9	There are two (2) trees 12”-24” in diameter on the left side of the principal spillway conduit outlet. The root system of these trees is exposed next to the pipe cause voids around the pipe outlet. In general, the area around the conduit outlet is overgrown and shows signs of erosion, headcutting and undermining of the pipe outlet and channel.

It should be noted that a PVC siphon system has been installed but only serves drawdown purposes. Significant modifications we be required to this system if it were to be utilized as a principal or secondary spillway system.

4.6 Auxiliary Spillway

The auxiliary spillway appears to be in overall moderate condition. The current spillway consists of an open cut earthen channel. The spillway approach and control section consist of an earthen channel with grassed vegetation. Left of the spillway approach and control section is a recreational area with a picnic table, canoe storage/ launch area. This area is bound with landscape timbers. The dam's gravel access drive runs parallel to the spillway and ends at the recreational area. The outlet section consists of an earthen channel armored with natural rock varying in size. The following deficiencies were observed and listed below.

DEFICIENCY NUMBER	DEFICIENCY DESCRIPTION
10	The right side of the channel slope (dam side) has areas of no vegetation.
11	The rock armament appears to be adequate in size to resist movement from discharging water. However, water appears to be flowing beneath the rock and eroded the foundation due to the lack of geotextile or other means of soil stability and erosion prevention. Erosion was also noted along the edges of the exit channel.
12	The grade change and steep slope at the spillway channel can, over time, damage the spillway channel and downstream channel due to headcutting forces and erosion from discharging water.
13	If spillway flow exceeds 12-18-inches, discharging water may get out of the channel and flow along the access road.

4.7 Instrumentation

No instrumentation, such as survey monuments, piezometers or monitoring wells were observed on the dam. A CMP conduit noted at the toe of the dam that may be an outlet of an internal drainage system was completely filled with sediment and therefore, discharge was could not be measured.

5.0 Deficiency Descriptions

All dams experience aging over time and develop deficiencies that require maintenance. Some of the general deficiencies associated with Mays Swiss Lake Dam were listed in Section 4.0 of this report. discussed and their adverse effects are described in the following sections.

For additional information regarding the specific deficiencies discussed as well as other common deficiencies associated with dams, Carter Engineering refers the owner to the Association of State Dam Safety Officials (ASDSO) Dam Ownership Fact Sheet Document. The document can be found at the internet website: https://www.damsafety.org/dam-owners .

Topics Covered in ASDSO Dam Ownership Fact Sheet Document:

- Ownership Responsibility and Liability
- Funding for Dam Rehabilitation
- How to Procure the Services of an Engineer
- Emergency Action Planning
- Dam Security
- Earth Dam Failures
- Embankment Instabilities
- Seepage through Earthen Dams
- Internal Erosion of Earth Dams
- Ground Cover
- Trees and Brush
- Rodent Control
- Spillway Conduit System Problems
- Open Channel Spillways
- Outlet Erosion Control Structures (Stilling Basins)
- Lake Drains
- Design and Maintenance of Trash racks
- Upstream Slope Protection
- Common Problems with Concrete Channel Spillways
- Inspection of Concrete Structures
- Problems with Concrete Materials
- Concrete Repair Techniques
- Problems with Metal Materials
- Problems with Plastic (Polymer) Materials

6.0 Recommendations and Corrective Actions

All deficiencies observed and noted in Section 4.0 of this report will be provided and discussed below in a table format that will serve as a corrective action plan for the subject dam. The table will detail the recommended corrective action for each deficiency. Furthermore, a priority of low, moderate or high will be given to each deficiency. Priority definitions are as follows:

Low Priority:	Indicates deficiencies that do not require immediate corrective action but, should be monitored and addressed if conditions worsen
Moderate Priority:	Indicates deficiencies that DO NOT present an immediate threat to the safety or operation of the dam, nor any threat to life or property downstream. These deficiencies require non-emergency corrective action that should be addressed within 12-18 months. Some of these deficiencies may be corrected through the regular operation and maintenance program.
High Priority:	Indicates deficiencies that DO present an immediate threat to dam failure, the safety or operation of the dam, and/or any threat to life or property downstream. These deficiencies require emergency corrective action and should be addressed as soon as possible

CORRECTIVE ACTION PLAN

DEFICIENCY NUMBER	DEFICIENCY	PRIORITY	CORRECTIVE ACTION
1	**Dam Crest** Sparce Vegetation	Low	Areas with little or no vegetation should be seeded and mulched to establish a good stand of an approved grass species.
2	**Upstream Slope** Slope Stability	Low	The upstream slope should be regraded and shaped to a 3:1 (horizontal to vertical) orientation.
3	**Upstream Slope** Wave Action	Moderate	All areas of erosion from wave action should be backfilled with compacted structural fill material to original grade. Wave action erosion protection should be provided by armament and/or in general conformance with NRCS TR-56.
4	**Downstream Slope** Inappropriate Vegetation	Moderate	Remove all trees, woody plants, brush and inappropriate vegetation from the slope. Any voids from vegetation removal shall be backfilled with compacted structural fill material to original grade. Any areas of exposed soil should be seeded and mulched to establish a good stand of an approved grass species.
5	**Downstream Slope** Slope Stability	Moderate	The downstream slope should be regraded and shaped to a 3:1 (horizontal to vertical) orientation.
6	**Downstream Slope** Seepage	Moderate	The seepage observed was mainly concentrated at the toe and just downstream of the toe. Any future work on the dam should include investigation and cleaning of the existing CMP drain outlet. It is likely that the installation of a new internal drainage system to collect and monitor seepage is required. Prior to the installation of a drainage system, the owner should monitor the seepage and notify an engineer if seepage discharge (flowing water) is detected, a significant increase in wet areas are observed or if settlement, slough areas, or sink holes begin to form.
7	**Plunge Pool** Inadequate	Moderate	A plunge pool should be designed and installed at the principal spillway conduit outlet. The plunge pool should be designed to sufficiently dissipate energy from discharging water to prevent erosion at the outlet and downstream channel. All inappropriate vegetation should be removed from the plunge pool area.

8	**Principal Spillway** Deterioration	Moderate	The spillway conduit shows significant signs of rust and deterioration. Repair of the system may be possible. However, it is highly likely that replacement of this system will be necessary with a similar system or siphon system.
9	**Principal Spillway** Inappropriate Vegetation	High	The two (2) trees at the spillway conduit outlet should be removed. It recommended this deficiency be corrected in two (2) phases. Phase one (1) should be completed as soon as possible and include cutting and removing the trees while leaving the stump in place to prevent damage to the existing conduit. The voids at the tree rootball. Backfill all voids under rootball and around pipe to strengthen integrity of pipe outlet until phase two can commence. Phase two (2) should remove the entirety of the tree rootball(s) as part of a new principal spillway repair or replacement plan.
10	**Auxiliary Spillway** Sparce Vegetation	Low	Areas with little or no vegetation should be seeded and mulched to establish a good stand of an approved grass species.
11	**Auxiliary Spillway** Channel Erosion	Low	Erosion in the spillway exit channel under and around the rock armament will continue. The spillway exit channel should be monitored for worsening conditions. It is likely periodic maintenance will be required. An engineer should be notified if conditions worsen for a corrective action or remedial plan.
12	**Auxiliary Spillway** Steep Exit Slope	Low	Similar to deficiency number 11, erosion in the spillway exit channel under and around the rock armament will continue where the spillway slope steepens at the confluence with the natural channel. The spillway exit channel should be monitored for worsening conditions. It is likely periodic maintenance will be required. An engineer should be notified if conditions worsen for a corrective action or remedial plan.
13	**Auxiliary Spillway** Capacity	Moderate	It is recommended that the overall hydraulic capabilities of the dam and spillways be evaluated to determine if the auxiliary spillway has the capacity to convey discharge in the designated exit channel.

7.0 Inspection & Maintenance Plan

(1) Dam Owners and operators of dams shall be responsible for conducting routine inspection and maintenance of dams necessary to:

(a) Prevent the growth of trees or brush on the embankment of the dam and on the spillway system;

(b) Prevent the accumulation of debris, obstructions, or other deleterious materials from the spillway system;

(c) Insure that all gates, orifices, dissipators, trash racks, and other appurtenances that affect the proper operation of the dam and reservoir are kept in good repair and working order, and that spillway and outlet gates necessary to pass flood flows should be test operated at least once each year.

(d) Maintain adequate and suitable vegetation to prevent erosion of the embankment and earthen spillway for the dam;

(e) Determine that any seepage on the downstream slopes of the dam does not exceed normal amounts and does not present a situation indicative of potential dam failure.

(f) Dam owners shall immediately notify an Engineer when symptoms of failure, including but not limited to, erosion, surface cracks, seepage, settlement, or movement occur.

(g) The dam owner should inspect the dam each calendar quarter. This inspection may be conducted by the dam owner or operator.

(b) The dam owner should have the dam inspected by an engineer at least every two years. This inspection should be conducted between October 1 and March 31.

APPENDIX

CARTER ENGINEERING

1010 Commerce Drive
Bogart, GA 30622
770-725-1200

PHOTOGRAPH LOG

Picture 1

Picture 2

Picture 3

Picture 4

PICTURE DESCRIPTION & NOTES:

Picture 1: Dam Crest (Some areas of sparce vegetation observed)

Picture 2: Downstream Slope (Inappropriate vegetation)

Picture 3: Downstream Slope (Inappropriate vegetation)

Picture 4: Dam Crest (Some areas of sparce vegetation observed)

CARTER ENGINEERING

1010 Commerce Drive
Bogart, GA 30622
770-725-1200

PHOTOGRAPH LOG

Picture 5

Picture 6

Picture 7

Picture 8

PICTURE DESCRIPTION & NOTES:

Picture 5: Upstream Slope

Picture 6: Upstream Slope (Wave Action Erosion)

Picture 7: Upstream Slope (Wave Action Erosion)

Picture 8: Upstream Slope (Wave Action Erosion)

CARTER ENGINEERING

1010 Commerce Drive
Bogart, GA 30622
770-725-1200

PHOTOGRAPH LOG

Picture 9

Picture 10

Picture 11

Picture 12

PICTURE DESCRIPTION & NOTES:

Picture 9: Upstream Slope & Normal Pool

Picture 10: Upstream Slope & Normal Pool

Picture 11: Principal Spillway Riser

Picture 12: Upstream Slope & Normal Pool

CARTER ENGINEERING

1010 Commerce Drive
Bogart, GA 30622
770-725-1200

PHOTOGRAPH LOG

Picture 13

Picture 14

Picture 15

Picture 16

PICTURE DESCRIPTION & NOTES:

Picture 13: Auxiliary Spillway Approach Section

Picture 14: Auxiliary Spillway right slope (Sparce Vegetation)

Picture 15: Auxiliary Spillway (Note limited capacity on left side)

Picture 16: Auxiliary Spillway Approach Section

CARTER ENGINEERING

1010 Commerce Drive
Bogart, GA 30622
770-725-1200

PHOTOGRAPH LOG

Picture 17

Picture 18

Picture 19

Picture 20

PICTURE DESCRIPTION & NOTES:

Picture 17: Normal Pool

Picture 18: Normal Pool

Picture 19: Auxiliary Spillway/ Recreational Area

Picture 20: Auxiliary Spillway right slope (Sparce Vegetation)

CARTER ENGINEERING

1010 Commerce Drive
Bogart, GA 30622
770-725-1200

PHOTOGRAPH LOG

Picture 21

Picture 22

Picture 23

Picture 24

PICTURE DESCRIPTION & NOTES:

Picture 21: Auxiliary Spillway Exit Channel

Picture 22: Auxiliary Spillway & Downstream Slope

Picture 23: Auxiliary Spillway

Picture 24: Auxiliary Spillway & Downstream Slope

CARTER ENGINEERING

1010 Commerce Drive
Bogart, GA 30622
770-725-1200

PHOTOGRAPH LOG

Picture 25

Picture 26

Picture 27

Picture 28

PICTURE DESCRIPTION & NOTES:

Picture 25: Downstream Slope (Inappropriate Vegetation)

Picture 26: Downstream Slope (Inappropriate Vegetation)

Picture 27: Downstream toe of slope (Seepage)

Picture 28: Downstream toe of slope (Seepage)

CARTER ENGINEERING

1010 Commerce Drive
Bogart, GA 30622
770-725-1200

PHOTOGRAPH LOG

Picture 29

Picture 30

Picture 31

Picture 32

PICTURE DESCRIPTION & NOTES:

Picture 29: Downstream toe of slope (Seepage)

Picture 30: Downstream toe of slope (Seepage)

Picture 31: Downstream toe of slope (Possible internal drain outlet. Note seepage)

Picture 32: Downstream toe of slope (Possible internal drain outlet. Note seepage)

CARTER ENGINEERING

1010 Commerce Drive
Bogart, GA 30622
770-725-1200

PHOTOGRAPH LOG

Picture 33

Picture 34

Picture 35

Picture 36

PICTURE DESCRIPTION & NOTES:

Picture 33: Downstream toe of slope (Possible internal drain outlet. Note seepage)

Picture 34: Downstream toe of slope (Possible internal drain outlet. Note seepage)

Picture 35: Downstream toe of slope (Possible internal drain outlet. Note seepage)

Picture 36: Downstream toe of slope (Possible internal drain outlet. Note seepage)

CARTER ENGINEERING

1010 Commerce Drive
Bogart, GA 30622
770-725-1200

PHOTOGRAPH LOG

Picture 37

Picture 38

Picture 39

Picture 40

PICTURE DESCRIPTION & NOTES:

Picture 37: Downstream toe of slope (Possible internal drain outlet. Note seepage)

Picture 38: Drawdown Siphon

Picture 39: Drawdown Siphon

Picture 40: Principal Spillway Conduit Outlet (Rust & deterioration)

CARTER ENGINEERING

1010 Commerce Drive
Bogart, GA 30622
770-725-1200

PHOTOGRAPH LOG

Picture 41

Picture 42

Picture 43

Picture 44

PICTURE DESCRIPTION & NOTES:

Picture 41: Principal Spillway Conduit Outlet (Rust & deterioration)

Picture 42: Principal Spillway Conduit Outlet (Rust & deterioration)

Picture 43: 2 trees next to spillway outlet with exposed roots and voids around pipe

Picture 44: 2 trees next to spillway outlet with exposed roots and voids around pipe

CARTER ENGINEERING

1010 Commerce Drive
Bogart, GA 30622
770-725-1200

PHOTOGRAPH LOG

Picture 45

Picture 46

Picture 47

Picture 48

PICTURE DESCRIPTION & NOTES:

Picture 45: Principal Spillway outlet conduit & siphon outlet

Picture 46: Principal Spillway outlet conduit & siphon outlet

Picture 47: Principal Spillway outlet conduit & siphon outlet (Note lack of plunge pool)

Picture 48: Principal Spillway outlet conduit & siphon outlet (Note lack of plunge pool)

CARTER ENGINEERING

1010 Commerce Drive
Bogart, GA 30622
770-725-1200

PHOTOGRAPH LOG

Picture 49

Picture 50

Picture 51

Picture 52

PICTURE DESCRIPTION & NOTES:

Picture 49: Auxiliary spillway exit channel

Picture 50: Auxiliary spillway exit channel

Picture 51: Auxiliary spillway exit channel

Picture 52: Auxiliary spillway exit channel

CARTER ENGINEERING

1010 Commerce Drive
Bogart, GA 30622
770-725-1200

PHOTOGRAPH LOG

Picture 53

Picture 54

Picture 55

Picture 56

PICTURE DESCRIPTION & NOTES:

Picture 53: Auxiliary Spillway exit channel (erosion around and beneath rock observed)

Picture 54: Auxiliary Spillway exit channel (erosion around and beneath rock observed)

Picture 55: Auxiliary Spillway exit channel (erosion around and beneath rock observed)

Picture 56: Auxiliary Spillway exit channel (erosion around and beneath rock observed)

CARTER ENGINEERING

1010 Commerce Drive
Bogart, GA 30622
770-725-1200

PHOTOGRAPH LOG

Picture 57

Picture 58

PICTURE DESCRIPTION & NOTES:

Picture 57: Auxiliary Spillway exit channel (erosion around and beneath rock observed)

Picture 58: Auxiliary Spillway exit channel (erosion around and beneath rock observed)

APPENDIX B

FIELD INSPECTION REPORT

Embankment (Earth) Dam Inspection Form

Name of Dam: Mays Swiss Lake Dam (State ID#: 154-027-02309) Date: November 20, 2023

Location of Dam (County): White County Weather: _____

Inspected by (Print Name): Clayton Hunnicutt, PE

If an inspection item requires further action on your part, place a check mark to the left of the number of the item

A. Crest (refer to Glossary for description)

☐ 1. How would you describe the vegetation on the crest? (Check all that apply)

Recently Mowed X Overgrown _____ Good Cover X Sparse _____

Other/Corrective Action (describe): _____

☐ 2. Are there any trees or other inappropriate or excessive vegetation on the crest? Yes _____ No X

If yes, describe (type of vegetation, size, location, etc.)/Corrective Action: _____

☐ 3. Is there a paved road or driveway on the crest? Yes _____ No X

If yes, describe the condition (for example, good condition, numerous cracks, newly paved)/Corrective Action: _____

☐ 4. Are there any depressions, ruts or holes on the crest? Yes _____ No X

If yes, describe (size, location, etc)/Corrective Action: Minor uneveness

☐ 5. Are there any cracks on the crest? Yes _____ No X

If yes, describe (length and width, location, direction of cracking, etc.)/Corrective Action: _____

☐ 6. Other observations on the crest/Corrective Action: Approximately 10' - 12' crest width

B. Upstream Slope (refer to Glossary for description)

1. What is the reservoir level today? At Normal Pool X Above Normal Pool _____Feet Below Normal Pool _____Feet

☐ 2. How would you describe the vegetation on the upstream slope? (Check all that apply)

Recently Mowed X Overgrown _____ Good Cover X Sparse _____

Other/Corrective Action (describe): Moss cover mixed in with grass

☐ 3. Are there any trees or other inappropriate or excessive vegetation on the slope? Yes _____ No X

If yes, describe (type of vegetation, size, location, etc.)/Corrective Action: _____

☐ 4. Are there any depressions, bulges, ruts or holes (such as animal burrows) on the slope? Yes _____ No X

If yes, describe (size, location, etc.)/Corrective Action: Minor uneveness

☐ 5. Are there any eroded areas on the slope (such as wave erosion along the shoreline)? Yes X No _____

If yes, describe (size of area, location, severity, etc.)/Corrective Action: Significant wave action

☐ 6. Are there any cracks, sloughs or slides (vertical cliffs) on the slope? Yes _____ No X

If yes, describe (length, width, height, location, etc.)/Corrective Action: Shear drop height of about 24" - 36"

Upstream Slope (continued)

☐ 7. Is there any type of slope protection along the shoreline (such as riprap)? Yes_____ No X

If yes, describe what type and its condition (for example, riprap - adequate, inadequate, sparse)/Corrective Action:_____

☐ 8. Other observations on the upstream slope/Corrective Action:_____

C. Downstream Slope (refer to Glossary for description)

☐ 1. How would you describe the vegetation on the downstream slope? (Check all that apply)

Recently Mowed_____ Overgrown X Good Cover X Sparse_____

Other/Corrective Action (describe):_____

☐ 2. Are there any trees or other inappropriate or excessive vegetation on the slope? Yes X No_____

If yes, describe (type of vegetation, size, location, etc.)/Corrective Action: Mainly Brush

☐ 3. Are there any depressions, bulges, ruts or holes (such as animal burrows) on the slope? Yes_____ No_____

If yes, describe (size, location, etc.)/Corrective Action: Full inspection inhibited by inappropriate vegetation

☐ 4. Are there any eroded areas on the slope (such as along abutment contacts)? Yes_____ No_____

If yes, describe (size of area, location, severity, etc.)/Corrective Action:
Full inspection inhibited by inappropriate vegetation

☐ 5. Are there any cracks, sloughs or slides (vertical cliffs) on the slope? Yes_____ No_____

If yes, describe (length, width, height, location, etc.)/Corrective Action:
Full inspection inhibited by inappropriate vegetation

☐ 6. Are there any wet areas or areas of hydrophilic (lush, water-loving) vegetation? Yes X No_____

If yes, describe (size of area, location, etc.)/Corrective Action:_____

☐ 7. Do any wet areas indicate seepage through the dam (such as rust-colored, stained water)? Yes X No_____ N/A_____

If yes, describe (for example, new area of seepage, no change from past observations, size of area, location) /Corrective Action: Large wet area at toe of dam

☐ 8. Are there any leaks (flowing water) from the slope or beyond the toe of the dam? Yes X No_____

If yes, describe (location, rate of flow, turbidity of flow)/Corrective Action:
Low or no flow rate. Turbid and rust-colored

☐ 9. Other observations on the downstream slope/Corrective Action:_____

D. Plunge Pool (refer to Glossary for description)

☐ 1. Is there any type of erosion protection around the plunge pool (such as riprap)? Yes_____ No_____

If yes, describe what type and its condition (for example, riprap - adequate, inadequate, obstructed by vegetation) /Corrective Action: No plunge pool.

☐ 2. Is there any erosion and or seeps around or going into the plunge pool? Yes X No_____

If yes, describe (size of area, location, severity, etc.) /Corrective Action:
See written report

☐ 3. Other observations around the plunge pool/Corrective Action:_____

Name of Dam: Mays Swiss Lake Dam (State ID#: 154-027-02309) Date: November 20, 2023

E. Principal and Emergency Spillways (refer to Glossary for description)

☐ 1. What types of spillways does the dam have (such as corrugated metal, concrete or siphon pipe; concrete or earth channel)?
Principal Spillway Riser & Conduit Emergency Spillway _____
Other/Corrective Action: _____

☐ 2. Has the emergency spillway activated (had flow) since the last inspection? Yes_____ No_____
If yes describe (date(s) of flow, reason for activation, depth of flow) /Corrective Action: Unknown

☐ 3. For pipe spillways, is the intake obstructed in any way (such as with excessive debris)? Yes_____ No X
If yes, describe (type of debris, reason for obstruction, etc.) /Corrective Action: _____

☐ 4. For pipe spillways, what is the condition of any trash racks (for example, adequate, inadequate, damaged)? /Corrective Action:

☐ 5. For pipe spillways, are there any visible cracks, separations or holes in the pipe(s) (intake or outlet)? Yes_____ No X
If yes, describe (location, width of crack or separation, etc.)/Corrective Action: _____

☐ 6. For pipe spillways, are there any apparent leaks in the pipe(s)? Yes_____ No X
If yes, describe (location, rate of flow from leak, etc.)/Corrective Action: _____

7. For pipe spillways, how would you describe the overall condition of the pipe(s)? (Check all that apply)
Functioning Normally____ Not Functional____ Deteriorated X Damaged____ Adequate____ Inadequate____

☐ 8. For concrete or earth channel spillways, is the entrance or channel obstructed in any way? Yes_____ No X
If yes, describe (type of obstruction, location, etc.)/Corrective Action: _____

☐ 9. For earth channel spillways, how would you describe the vegetation in the spillway? (Check all that apply)
Recently Mowed_____ Overgrown_____ Good Cover_____ Sparse_____
Other (describe)/Corrective Action: Armored with rock

☐ 10. For earth channel spillways, are there any trees or other inappropriate vegetation in the spillway? Yes_____ No X
If yes, describe (type of vegetation, size, location, etc.)/Corrective Action: _____

☐ 11. For earth channel spillways, are there any eroded areas in the spillway? Yes X No_____
If yes, describe (size of area, location, severity, etc.)/Corrective Action: Around and beneath rock

☐ 12. For concrete channel spillways, are there any cracks or holes in the spillway? Yes_____ No_____
If yes, describe (width of crack or hole, location, etc.)/Corrective Action: N/A

☐ 13. For concrete channel spillways, are there any leaks or evidence of undermining (flow under the concrete)? Yes_____ No_____
If yes, describe (location, rate of flow from leak, indicators of undermining, etc.)/Corrective Action:
N/A

Principal and Emergency Spillways (continued)

14. For earth or concrete channel spillways, how would you describe the overall condition of the spillway? (Check all that apply)

Functioning Normally X Not Functional____ Deteriorated____ Damaged____ Adequate____ Inadequate____

☐ 15. Other observations on the spillways/Corrective Action:_____

_____

F. Instrumentation (refer to Glossary for description)

☐ 1. Are there any toe drains at the downstream toe or any other seepage drains on the dam? Yes_____ No X

If yes, describe the condition (for example, clogged, free flowing, deteriorated, good condition) /Corrective Action:_____

_____

☐ 2. For drains, is an animal guard installed at the outlet of each drain? Yes_____ No X

If no, which drains lack animal guards? /Corrective Action:_____

_____

☐ 3. For drains, measure the rate of flow from each drain and record below (use additional pages if necessary):

Designation/Location of Drain	Flow Rate	Flow Rate in GPM*	Turbidity of Flow (describe – clear, muddy, etc.)

☐ 4. Are there any piezometers on the dam? Yes_____ No X

If yes, describe the condition (for example, good condition, damaged, etc.)/Corrective Action:_____

_____

☐ 5. For piezometers, does each piezometer have a cap with a lock? Yes_____ No_____

If no, which piezometers need caps (to prevent rain water intrusion) and/or locks (to prevent tampering)? /Corrective Action: N/A

☐ 6. For piezometers, are you able to take a measurement (depth to water) in each piezometer? Yes_____ No_____

If yes, record depth to water (in feet) in each piezometer, record on a separate page, and attach to this form.

☐ 7. Are there any other monitoring devices on the dam? Yes_____ No X

If yes, describe what type and the condition (for example, monitoring wells - good condition, damaged) /Corrective Action: N/A

☐ 8. Other observations on instrumentation/Corrective Action:_____

_____

G. Photographs

At a minimum, photographs should be taken of the crest, upstream slope, downstream slope and any other notable features.

List of photographs (be sure to date stamp the photos): _____

_____

_____

_____

**GPM (gallons per minute): to convert from oz/sec multiply by 0.4688; to convert from ml/sec multiply by 0.01585*