Kevin Mooney
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Via Electronc Mail

February 9, 2024

Mr. Joshua Fontaine
Project Manager
U.S. Environmental Protection Agency, Region I
Five Post Office Square, Suite 100
Boston, MA 02109

Re: GE-Pittsfield/Housatonic River Site
Rest of River (GECD850)
Phase 1 Inspection/Evaluation Report for Woods Pond Dam

Dear Mr. Fontaine

Enclosed is GE's Phase 1 Inspection/Evaluation Report for Woods Pond Dam, prepared for GE by GZA GeoEnvironmental, Inc. This report presents the results of GZA's November 14, 2023 biennial Phase 1 Inspection/Evaluation of Woods Pond Dam.

Please let me know if you have any questions about this report.

Very truly yours,

Kevin G. Mooney
Senior Project Manager – Environmental Remediation

Enclosure

Cc: (via electronic mail)
Dean Tagliaferro, EPA
Anni Loughlin, EPA
Tim Conway, EPA
John Kilborn, EPA
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WOODS POND DAM

PHASE 1

INSPECTION / EVALUATION REPORT

Dam Name: Woods Pond Dam

NID ID#: MA00731

Owner: General Electric Company

Town: Lee & Lenox, Massachusetts

Consultant: GZA GeoEnvironmental, Inc.

Date of Inspection: November 14, 2023

Date of Report: February 9, 2024

EXECUTIVE SUMMARY

This report summarizes the results of the Phase 1 visual dam inspection conducted by GZA GeoEnvironmental, Inc. (GZA) on behalf of the General Electric Company (GE) on November 14, 2023 at Woods Pond Dam in Lee and Lenox, Massachusetts (the Dam) in accordance with GE's revised Operation, Monitoring, and Maintenance Plan (OM&M Plan) for Woods Pond Dam, dated June 25, 2019, and subsequent amendment dated September 4, 2020, approved by the United States Environmental Protection Agency (EPA) on July 17, 2019 and September 22, 2020, respectively.

In general, the overall condition of the Woods Pond Dam during the November 14, 2023 Phase 1 visual inspection was judged to be **SATISFACTORY**. This overall condition rating remains unchanged from the previous Phase 1 inspection conducted in November 2021. Based on the results of this inspection, the Dam is in compliance with Massachusetts Department of Conservation and Recreation (MassDCR) Office of Dam Safety (ODS) regulations.

During the November 14, 2023 visual inspection, the Dam was found to have the following unusual conditions of note (several of which had also been noted in the prior Phase 1 inspection and/or in intervening quarterly inspections:

1. The stone masonry wall in the raceway approach area was observed to be tilted, as it was in prior inspections. This tilt has been monitored for several years with no changes and appears to be a stable condition.
2. Minor deterioration and historical orange staining of concrete were observed around a horizontal joint at the water level at the right downstream training wall, as was the case in prior inspections. No signs of soil migration were observed. This staining and deterioration have been monitored for several years with little change and appear to be a stable condition.
3. Two logs were observed to be lodged on the crest of the spillway near the right training wall. The logs did not appear to be impeding flow over the spillway.
4. Minor cracking, efflorescence, and wet spots were observed on the downstream training walls of the raceway stoplog sluice structure (downstream closure), as was the case in some prior inspections. This condition continues to be monitored with little change and appears to be a stable condition.
5. The two staff gages installed at the Dam – one on the upstream left spillway training wall and one on the downstream right stoplog sluice structure (downstream closure) – are becoming difficult to read due to faded numbers, particularly where normal water levels fluctuate.
6. On the eastern side slope of the raceway outside GE property, a utility pole was seen to be leaning toward the channel, and vegetation downstream of that pole has grown toward the raceway. These conditions have been observed in prior inspections and do not present any issues relating to dam safety.

GZA recommends that specific activities be conducted to address the above-described conditions observed during the November 14, 2023 Phase 1 Inspection, in addition to complying with the regular maintenance and repair requirements specified in Sections 4.1 and 4.2 of the OM&M Plan. Those recommended activities and their current status are as follows:

Studies and Analyses

GZA recommends that the following analyses be performed:

Recommendation	Current Status/Schedule
1. Since dam break analyses for the current dam configuration have not been performed, perform an updated dam break analysis in accordance with current MassDCR ODS guidelines to better define the potential inundation area downstream of the Dam.	It is recommended that the updated dam break analysis be performed and incorporated into the 2024 Emergency Action Plan (EAP) update by the end of 2024.

Monitoring and Maintenance

GZA recommends that the Dam be maintained and monitored in accordance with the OM&M Plan. In addition, the following items should be monitored and maintained:

Recommendation	Current Status/Schedule
1. Continue to monitor the stone masonry wall in the raceway approach area was observed to be tilted.	The monitoring point that was established in August 2020 will continue to be used to monitor wall movement quantitatively during quarterly and biennial inspections.
2. Continue to monitor the minor deterioration and historical orange staining of concrete that were observed around a horizontal joint at the water level at the right downstream training wall. Continue to look for signs of soil migration.	This area is monitored during quarterly and biennial inspections.
3. Monitor the logs that were observed to be lodged on the crest of the spillway near the right training wall. Remove the logs if they appear to impede flow over the spillway.	The condition will continue to be monitored and the log(s) will be cleared if they are impeding flow.
4. Continue to monitor the minor cracking, efflorescence, and wet spots that were observed on the downstream training walls of the raceway stoplog sluice structure (downstream closure). Continue to look for signs of seepage at this location.	These conditions are monitored during quarterly and biennial inspections.

Recommendation	Current Status/Schedule
5. Continue to monitor the utility pole that was seen to be leaning toward the raceway channel on the eastern side slope of the raceway outside GE property. Continue to monitor the vegetation downstream of the pole and clear the vegetation if it falls into the raceway channel and impedes flow.	This area is monitored during quarterly and biennial inspections. The vegetation will be cut if it falls into the raceway channel and impedes flow.

Minor Repairs

GZA recommends that the following minor repair be performed at the Dam:

Recommendation	Current Status/Schedule
1. Repair / restore the legibility of the two existing staff gages: one on the upstream left spillway training wall and one on the downstream right stoplog sluice structure (downstream closure). Install a third staff gage in the approach area to the upstream raceway closure structure.	The two staff gages will be repaired or restored to be legible and the third staff gage added to the raceway closure structure approach area during a period of low flow in 2024.

Remedial Modifications:

In GZA's opinion, no remedial modifications are necessary at this time.

Dam Evaluation Summary Detail Sheet

1. NID ID:	**MA00731**	**4. Inspection Date:**	**November 14, 2023**
2. Dam Name:	**Woods Pond Dam**	**5. Last Insp. Date:**	**November 11, 2021**
3. Dam Location:	**Lee, MA**	**6. Next Inspection:**	**November 14, 2025**
7. Inspector:	**Jonathan D. Andrews, P.E.**		
8. Consultant:	**GZA GeoEnvironmental, Inc.**		
9. Hazard Code:	**Significant**	**9a. Is Hazard Code Change Requested?:**	**No**
10. Insp. Frequency:	**5 Years**	**11. Overall Physical Condition of Dam:**	**SATISFACTORY**
12. Spillway Capacity (% SDF)	**>100% SDF w/ no actions by Caretaker**		

E1. Design Methodology:	**4**	**E7. Low-Level Discharge Capacity:**	**4**
E2. Level of Maintenance:	**4**	**E8. Low-Level Outlet Physical Condition:**	**4**
E3. Emergency Action Plan:	**5**	**E9. Spillway Design Flood Capacity:**	**5**
E4. Embankment Seepage:	**4**	**E10. Overall Physical Condition of the Dam:**	**4**
E5. Embankment Condition:	**4**	**E11. Estimated Repair Cost:**	**Not applicable**
E6. Concrete Condition:	**4**		

Evaluation Description

E1: DESIGN METHODOLOGY
1. Unknown Design – no design records available
2. No design or post-design analyses
3. No analyses, but dam features appear suitable
4. Design or post design analysis show dam meets most criteria
5. State of the art design – design records available & dam meets all criteria

E2: LEVEL OF MAINTENANCE
1. Dam in disrepair, no evidence of maintenance, no O&M manual
2. Dam in poor level of upkeep, very little maintenance, no O&M manual
3. Dam in fair level of upkeep, some maintenance and standard procedures
4. Adequate level of maintenance and standard procedures
5. Dam well maintained, detailed maintenance plan that is executed

E3: EMERGENCY ACTION PLAN
1. No plan or idea of what to do in the event of an emergency
2. Some idea but no written plan
3. No formal plan but well thought out
4. Available written plan that needs updating
5. Detailed, updated written plan available and filed with MADCR, annual training

E4: SEEPAGE (Embankments, Foundations, & Abutments)
1. Severe piping and/or seepage with no monitoring
2. Evidence of monitored piping and seepage
3. No piping but uncontrolled seepage
4. Minor seepage or high volumes of seepage with filtered collection
5. No seepage or minor seepage with filtered collection

E5: EMBANKMENT CONDITION (See Note 1)
1. Severe erosion and/or large trees
2. Significant erosion or significant woody vegetation
3. Brush and exposed embankment soils, or moderate erosion
4. Unmaintained grass, rodent activity and maintainable erosion
5. Well maintained healthy uniform grass cover

E6: CONCRETE CONDITION (See Note 2)
1. Major cracks, misalignment, discontinuities causing leaks, seepage or stability concerns
2. Cracks with misalignment inclusive of transverse cracks with no misalignment but with potential for significant structural degradation
3. Significant longitudinal cracking and minor transverse cracking
4. Spalling and minor surface cracking
5. No apparent deficiencies

E7: LOW-LEVEL OUTLET DISCHARGE CAPACITY
1. No low level outlet, no provisions (e.g. pumps, siphons) for emptying pond
2. No operable outlet, plans for emptying pond, but no equipment
3. Outlet with insufficient drawdown capacity, pumping equipment available
4. Operable gate with sufficient drawdown capacity
5. Operable gate with capacity greater than necessary

E8: LOW-LEVEL OUTLET PHYSICAL CONDITION
1. Outlet inoperative needs replacement, non-existent or inaccessible
2. Outlet inoperative needs repair
3. Outlet operable but needs repair
4. Outlet operable but needs maintenance
5. Outlet and operator operable and well maintained

E9: SPILLWAY DESIGN FLOOD CAPACITY
1. 0 - 50% of the SDF or unknown
2. 50-90% of the SDF
3. 90 - 100% of the SDF
4. >100% of the SDF with actions required by caretaker (e.g. open outlet)
5. >100% of the SDF with no actions required by caretaker

E10: OVERALL PHYSICAL CONDITION OF DAM
1. UNSAFE – Major structural, operational, and maintenance deficiencies exist under normal operating conditions
2. POOR - Significant structural, operation and maintenance deficiencies are clearly recognized under normal loading conditions
3. FAIR - Significant operational and maintenance deficiencies, no structural deficiencies. Potential deficiencies exist under unusual loading conditions that may realistically occur. Can be used when uncertainties exist as to critical parameters
4. SATISFACTORY - Minor operational and maintenance deficiencies. Infrequent hydrologic events would probably result In deficiencies.
5. GOOD - No existing or potential deficiencies recognized. Safe performance is expected under all loading including SDF

E11: ESTIMATED REPAIR COST

Estimation of the total cost to address all identified structural, operational, maintenance deficiencies. Cost shall be developed utilizing standard estimating guides and procedures

Changes/Deviations to Database Information since Last Inspection

Owner conducts biennial inspections (every 2-years) in accordance with the current Operations, Monitoring, and Maintenance Plan.

PREFACE

The assessment of the general condition of the Woods Pond Dam reported herein was based upon available data and visual inspections. Detailed investigations and analyses involving topographic mapping, subsurface investigations, testing and detailed computational evaluations were beyond the scope of this report unless reported otherwise.

In reviewing this report, it should be realized that the reported condition of the Dam was based on observations of field conditions at the time of inspection, along with data available to the inspection team.

It is critical to note that the condition of the Dam depends on numerous and constantly changing internal and external conditions and is evolutionary in nature. It would be incorrect to assume that the reported condition of the Dam will continue to represent the condition of the Dam at some point in the future. Only through continued care and inspection can there be any chance that unsafe conditions be detected.

Jonathan D. Andrews, P.E.

Massachusetts License No.: 46462
Principal-In-Charge
GZA GeoEnvironmental, Inc.

Seth D. Krause, P.E.

Massachusetts License No.: 54114
Project Manager
GZA GeoEnvironmental, Inc.

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1.0 DESCRIPTION OF PROJECT

1.1 GENERAL

1.1.1 Authority

The General Electric Company (GE) retained GZA GeoEnvironmental, Inc. (GZA) to perform a visual inspection/evaluation and develop a report of conditions for the Woods Pond Dam (the Dam) along the Housatonic River in Lee and Lenox, Berkshire County, Massachusetts, as required by GE's revised Operation, Monitoring, and Maintenance Plan (OM&M Plan) for Woods Pond Dam, dated June 25, 2019, and subsequent amendment dated September 4, 2020, which were approved by the United States Environmental Protection Agency (EPA) on July 17, 2019 and September 22, 2020, respectively. This inspection was performed on November 14, 2023, and this report was prepared in accordance with Section 3.2 of that OM&M Plan (which requires biennial Phase 1 engineering inspections of this Dam) and with M.G.L. Chapter 253, Sections 44-50 of the Massachusetts General Laws as amended by Chapter 330 of the Acts of 2002. This report is subject to the Limitations in **Appendix A.**

GE's OM&M Plan was developed and submitted pursuant to a Permit that was initially issued by EPA in 2016 under the federal Resource Conservation and Recovery Act (RCRA) for the Rest of River portion of the GE-Pittsfield/Housatonic River Site. That Permit was subsequently revised and re-issued by EPA on December 16, 2020.

1.1.2 Purpose of Work

The purpose of this Phase 1 engineering investigation/evaluation was to inspect and evaluate the present condition of the Dam and appurtenant structures in accordance with Section 3.2 of the OM&M Plan and 302 CMR 10.07 to provide information that will assist in both prioritizing dam repair needs and planning/conducting maintenance and operations.

The investigation was divided into three parts: (1) obtain and review available reports, investigations, and data previously submitted to the owner pertaining to the Dam and appurtenant structures; (2) perform a visual inspection of the Dam; and (3) prepare and submit a final report presenting the evaluation of the structure, including recommendations for maintenance, repair, and remedial actions (if warranted).

1.1.3 Definitions

To provide the reader with a better understanding of the report, definitions of commonly used terms associated with Dams are provided in **Appendix E**. Many of these terms may be included in this report. The terms are presented under common categories associated with dams, which include: (1) orientation; (2) dam components; (3) size classification; (4) hazard classification; and (5) miscellaneous.

Elevations used in this report are referenced to the National Geodetic Vertical Datum of 1929 (NGVD29).

1.2 DESCRIPTION OF DAM

1.2.1 Location

Towns: Lee and Lenox

County: Berkshire

The left abutment of Woods Pond Dam is located off Valley Street in Lee and can be accessed by vehicle. Valley Street runs through an industrial complex into a parking lot. A locked chain link fence controls access from the parking lot to the raceway embankment and Dam. The right abutment is off Crystal Street in Lenox, adjacent to a set of railroad tracks.

The location of the Dam is shown on the United States Geological Survey (USGS) East Lee, MA topographic map (see **Figure 1**). The approximate coordinates are:

Latitude: 42.3471731 N Longitude: 73.2445881 W

1.2.2 Owner/Caretaker

The Dam is owned and operated by the General Electric Company. See **Table 1.1** (in Section 1.4 below) for the Owner and Caretaker names and contact information.

1.2.3 Purpose of the Dam

There have been two dams impounding Woods Pond at this location. The original Woods Pond Dam was a timber crib dam built between 1876 and 1882. It was located about 80 to 250 feet upstream of the current Dam. The purpose of the original dam was to divert water to an adjacent mill. The purpose of the current Dam (circa 1989) is to impound Woods Pond reservoir. It is GZA's understanding that this purpose includes impounding existing sediments that are impacted by polychlorinated biphenyls.

1.2.4 Description of the Dam and Appurtenances

Moving from right (west) to left (east), Woods Pond Dam is a run-of-the-river structure consisting of a concrete section as the right (west) abutment, a spillway, sheetpile cells filed with concrete as the left (east) abutment, and then a raceway closure structure, which controls flow into the raceway channel. (Right and left are assigned to dam components from the perspective of mid-channel upstream of the Dam looking downstream.) Additionally, a raceway embankment extends both upstream and downstream of the Dam on the left side, forming a boundary between the river and the raceway channel. Outflow at the downstream end of the raceway channel is controlled by the raceway stoplog sluice structure. An aerial photograph of the Dam and its appurtenances is shown on **Figure 2**.

The right abutment is a concrete structure with a sloped downstream face and formed concrete walls on the upstream and downstream sides and extends approximately 60 feet between the railroad tracks and the spillway. The top elevation of the non-overflow gravity section is 954.0 feet. The right abutment is referred to as the non-overflow gravity section on the record drawings. Although this structure is termed "non-overflow," this section of the Dam is designed to overflow during the applicable Spillway Design Flood (SDF).

The spillway is an uncontrolled, ogee-shaped concrete weir with a top elevation between 948.2 and 948.4 feet. The spillway is approximately 140 feet long.

The left abutment extends approximately 60 feet between the spillway and the raceway closure structure and consists of steel sheetpile cells filled and capped with concrete. The sheetpiles were driven to bedrock during construction. The top elevation of the section is 954.0 feet and is about 21 feet wide.

The raceway closure structure is located on the left side of the Dam between the left abutment and riverbank. It is a formed concrete control structure that can hold up to five, two-foot-high steel and concrete stoplogs that are lifted into place using a gantry crane and hoist. The stop logs are used to control flow into the raceway channel that runs parallel to the river downstream of the Dam for approximately 350 feet between downstream section of the raceway embankment and the left riverbank. A one-inch spacer is typically located between the second and third stoplogs at an elevation of 948.0 feet to provide flow into the raceway channel to prevent water stagnation.

The raceway embankment extends parallel to the river for approximately 450 feet extending both upstream and downstream of the Dam's left abutment. Although structurally connected to the current Dam, the raceway embankment serves no functional role in the current Dam. The upstream section is the left abutment of the previous dam that was located immediately upstream of the current Dam. The right (river) embankment slopes are protected by grouted riprap and the left side has vertical stone masonry walls that line the raceway channel upstream of the raceway closure structure. The downstream section forms the 350-foot boundary between the raceway channel and the river. Immediately downstream of the left abutment, the raceway embankment slopes are protected by grouted riprap on both sides of the embankment for approximately 25 feet. Continuing 325 feet downstream, both sides of the earthen fill raceway embankment consist of riprap-protected slopes. The raceway embankment ends at the downstream raceway channel outlet (raceway stoplog sluice structure).

The downstream outlet of the raceway channel is a controlled concrete and masonry structure referred to as the raceway stoplog sluice structure. The purpose of the raceway stoplog sluice structure is to control the water level in the downstream Mill Pond and within the raceway. The controls consist of up to seven 14-inch-high steel stoplogs. A truck-mounted crane can be mobilized to install and remove the stoplog controls. Three of the stoplogs are typically left in-place to maintain the raceway and Mill Pond level between the Woods Pond impoundment and river tailwater levels.

Instrumentation at the Dam consists of a staff gage on the right upstream training wall. An additional staff gage is located at the downstream raceway stoplog sluice structure. Downstream raceway embankment instrumentation consists of three open standpipe observation wells (historically referred to as piezometers). These wells are labeled (from downstream to upstream) B-1, B-2, and B-3.

A pre-construction geotechnical exploration program conducted in 1988 determined that the Dam and appurtenant structures are founded on shallow "marbleized" bedrock, which is vertically bedded and is generally finely grained, hard with variable medium to close joint spacing. Details of the subsurface field investigation can be found in the 1989 General Design Report for Woods Pond Dam Rehabilitation.

In accordance with the OM&M Plan, an updated topographic survey of the Dam was conducted in February 2020 and an updated bathymetric survey was completed in August 2020. A plan showing the results of those surveys is included in **Appendix F**.

In response to questions raised by EPA in Condition #22 of its July 10, 2020 conditional approval letter regarding potential scour at the toe of the spillway, the Caretaker has indicated that bedrock in the spillway channel and the dam embankments and abutments has been monitored by GE contractors twice in the past (2002 and 2007) to evaluate whether scour or other changes were occurring. As noted above, an additional bathymetric survey was completed in August 2020. These three bedrock surveys showed that the low spot had not changed appreciably, indicating that no appreciable scour was occurring. A plan reflecting the results of the 2002 and 2007 bedrock surveys is included in **Appendix F**, along with the plan showing the results of the 2020 bathymetric survey. A topographic survey is performed once every 10 years in accordance with the current OM&M Plan to monitor for scour at the toe of the spillway.

At EPA's direction, GE has installed and maintains warning signs at Woods Pond Dam. On August 10, 2020, GE submitted a proposal for the format, wording, and locations of those signs; and EPA issued a conditional approval letter for that proposal on September 4, 2020. The signs were installed in November and December of 2020.

In spring 2021, the area just upstream of the left abutment near Valley Road was found to have missing soil from underneath the grouted riprap, and from between the two sets of upstream sheetpiles. One of those sets of sheetpiles, oriented left-right, comprises the Dam; and the other set, oriented diagonally, is not integral to the dam structure and seems to have been constructed to provide protection to Valley Road in the area between the old abutments to the previous dam and the abutment to the current Dam. The size of the of area missing soil was about five feet wide, five feet deep, and one to three feet high. The upstream-most sheetpile was not in contact with the old raceway training wall, which may have contributed to soil erosion. Although this condition is not on the Dam and would not affect the safety of the Dam, GE excavated the area, replaced the soil, and slush-grouted the surface in September 2021.

1.2.5 Operations and Maintenance

GE is the owner of the Woods Pond Dam and is responsible for overseeing the operations and maintenance of the Dam. The current Caretaker on GE's behalf is:

Kevin Mooney
General Electric Company
Global Operations – Environment, Health & Safety
1 Plastics Avenue
Pittsfield, MA 01201
Daytime Phone: 413-553-6610 (Direct Office Number)
Cell Phone: 413-441-4619

On GE's behalf, GZA personnel conducts visual inspections of the Dam on a quarterly basis as required by the approved OM&M Plan. Inspection checklists for those quarterly inspections are included in Appendix C of the OM&M Plan. Operations and maintenance requirements for the Dam are also described in the OM&M Plan.

1.2.6 DCR Size Classification

Woods Pond Dam has a height of approximately 17.6 feet and a maximum storage capacity of 5,300 acre-feet. Refer to **Appendix E** for definitions of height of Dam and storage. Therefore, in accordance with the classification procedures of the Massachusetts Department of Conservation and Recreation (MassDCR) Office of Dam Safety (ODS), under the Massachusetts Dam Safety Regulations in 302 CMR 10.00 as amended by Chapter 330 of the Acts of 2002, Woods Pond Dam is a **Large** size structure based on maximum storage above 1,000 acre-feet.

1.2.7 DCR Hazard Potential Classification

In accordance with MassDCR classification procedures, under the Massachusetts Dam Safety Regulations, Woods Pond Dam is classified as a dam with **Significant** hazard potential. This hazard class (Significant Hazard) assessment is consistent with the hazard class for the Dam on record with the MassDCR ODS. No change in hazard classification is recommended.

1.3 PERTINENT ENGINEERING DATA

1.3.1 Drainage Area

The drainage area for the Dam is approximately 170 square miles and encompasses land within the Housatonic River Valley Wildlife Management Area. The drainage area is hilly with marshes and bogs. The upstream watershed is delineated on **Figure 3** and the downstream area plan is shown on **Figure 4**.

1.3.2 Reservoir

See **Summary Data Table 1.1** in Section 1.4 for data regarding normal, maximum, and SDF pools. Reservoir surface area and storage volume data presented are based on previous analyses, as well as data developed for the 2007 Phase 1 Inspection Report.

1.3.3 Discharges at the Dam Site

Woods Pond Dam's spillway constantly discharges water unless the raceway stoplogs are removed to adequately divert and convey the full flow of the Housatonic River through the raceway channel. A low volume of water also consistently discharges, via one-inch spacers between the closure structure stoplogs, through the raceway channel and over the downstream raceway sluice structure stoplogs back to the river downstream of the Dam.

The estimated 500-year Spillway Design Flood event pool elevation is about 955.8 feet, which would overtop the Dam by 1.8 feet. The Dam was designed to overtop and act as a broad-crested weir outside of the ogee-weir spillway, safely passing flood flows downstream. See Section 2.6 of this report for more detail.

1.3.4 General Elevations (feet, NGVD29)[1]

A.	Top of Dam:	954.0
B.	Spillway Design Flood Pool:	955.8 (designed to overtop during SDF – see Section 2.6)
C.	Normal Pool:	948.8±
D.	Spillway Crest:	948.2 to 948.4
E.	Low Level Outlet Invert:	944.0
F.	Upstream Water at Time of Inspection:	949.3±
G.	Downstream Water at Time of Inspection:	941.8±
H.	Streambed at Toe of the Dam:	936.4 to 942.0
I.	Low Point along Toe of the Dam:	936.5

[1] These elevations have been updated based on the 2020 topographic and bathymetric survey.

1.3.5 Main Spillway Data

A.	Type:	Concrete, ogee-shaped, uncontrolled
B.	Weir Length:	140.0 feet
C.	Weir Crest Elevation:	948.2 to 948.4 feet NGVD29
D.	Upstream Channel:	Housatonic River/Woods Pond
E.	Downstream Channel:	Housatonic River
F.	Channel Bottom Elevation:	934.7 feet NGVD29

1.3.6 Outlet Structure

A.	Type:	Raceway channel, stoplog controlled
B.	Opening Width:	8 feet
C.	Operating Elevation at Structure:	944.4 to 954 feet NGVD29
D.	Upstream Control:	Stoplogs at raceway closure structure
E.	Downstream Control:	Stoplogs at raceway stoplog sluice structure

1.3.7 Key Elevations to be Monitored

The following list is a table of elevations at key points that are required to be monitored by survey in accordance with the requirements of the OM&M Plan. Locations are shown on the most recent topographic and bathymetric plan in **Appendix F**.

Point	Location	Elevation, feet NGVD 29
A	Right side spillway abutment (chiseled square)	954.06
B	Left side spillway abutment (center of concrete)	954.20
C	BH-1 (on raceway embankment)	952.80
D	BH-2 (on raceway embankment)	953.70
E	BH-3 (on raceway embankment)	953.80
F	Spillway Midpoint	948.40
G	Sill of Raceway Stoplog Sluice Structure	941.60
H	Sill of Raceway Closure Structure	944.40
I	Right Side Platform (chiseled square TBM 2)	954.22
J	Downstream End of Raceway (chiseled square)	951.83

1.3.8 Design and Construction Records and History

The Dam was constructed in two stages in 1989 and in 1991 to replace the previous dam that was about 80 to 250 feet upstream of the current Dam. The first phase of construction included the construction of the raceway closure structure, and the second phase was the replacement of the spillway and non-overflow gravity section. Drawings and construction records are available through the Caretaker.

1.3.9 Operating Records

Quarterly visual inspections of the dam include readings of the observation wells installed in the downstream raceway embankment. These records are maintained by the Caretaker and submitted to EPA in the quarterly inspection reports. A summary of collected instrumentation data and water level records is included as **Appendix G**.

1.4 SUMMARY DATA TABLE

See the following page for **Table 1.1, Summary Data Table**.

1.1 Summary Data Table

Required Phase 1 Report Data	Data Provided
National ID #	MA00731
Dam Name	Woods Pond Dam
Dam Name (Alternate)	Valley Mill Dam (former Woods Pond Dam)
River Name	Housatonic River
Impoundment Name	Woods Pond or Woods Pond Reservoir
Hazard Class	Significant
Size Class	Large
Dam Type	Concrete / sheetpile with riprap abutments
Dam Purpose	Impound Woods Pond Reservoir / PCB sediments
Structural Height of Dam (feet)	17.6
Hydraulic Height of Dam (feet)	11.9
Drainage Area (sq. mi.)	170
Reservoir Surface Area (acres)	122
Normal Impoundment Volume (acre-feet)	460 at El. 948.8'
Max Impoundment Volume ((top of Dam) acre-feet)	5,300 at El. 955.8'
SDF Impoundment Volume (acre-feet)	5,300 at El. 955.8'
Spillway Type	Concrete ogee
Spillway Length (feet)	140
Freeboard at Normal Pool (feet)	5
Principal Spillway Capacity (cfs)	12,100 at El. 955.8'
Auxiliary Spillway Capacity (cfs)	Not applicable
Low-Level Outlet Capacity (cfs)	850 at El. 955.8' (no stoplogs)
Spillway Design Flood (flow rate - cfs)	500-year / 12,100
Winter Drawdown (feet below normal pool)	Not applicable
Drawdown Impoundment Vol. (acre-feet)	Not applicable
Latitude	42.3471731 N
Longitude	73.2445881 W
City/Town	Lee
County Name	Berkshire
Public Road on Crest	No
Public Bridge over Spillway	No
EAP Date (if applicable)	12/14/2023
Owner Name	General Electric Company
Owner Address	1 Plastics Avenue
Owner Town	Pittsfield, MA 01201
Owner Phone	413-448-6610
Owner Emergency Phone	413-441-4619
Owner Type	Private
Caretaker Name	Kevin Mooney, Senior Project Manager
Caretaker Address	1 Plastics Avenue
Caretaker Town	Pittsfield, MA 01201
Caretaker Phone	413-448-6610
Caretaker Emergency Phone	413-441-4919
Date of Field Inspection	11/14/2023
Consultant Firm Name	GZA GeoEnvironmental, Inc.
Inspecting Engineer	Jonathan D. Andrews, P.E.
Engineer Phone Number	(781) 983-2881

2.0 INSPECTION

2.1 VISUAL INSPECTION

Woods Pond Dam was inspected on November 14, 2023 by Jonathan Andrews, P.E., Seth Krause, P.E., and Leslie DeCristofaro, E.I.T. of GZA. Scott Campbell of Taconic Ridge Environmental (representing EPA) was also present during the inspection.

It should be noted that, on September 4, 2020, in response to a directive from EPA, GE submitted an Amendment to the OM&M Plan stating that the biennial Phase 1 inspections of Woods Pond Dam would be conducted on a schedule that alternates between normal-flow and low-flow conditions, so that the spillway could be dewatered and observed under low-flow conditions every four years. Due to wet weather throughout the summer and fall of 2021 and after discussion with EPA, the 2021 Phase 1 inspection was conducted on November 11, 2021 under normal-flow conditions. A low-flow conditions inspection was subsequently conducted on August 17, 2022. A copy of a report on that August 17, 2022 low-flow inspection is included in **Appendix F**.

Accordingly, the November 14, 2023 Phase 1 inspection was conducted under normal-flow conditions. The 2025 Phase 1 inspection will be conducted under low-flow conditions in accordance with the current approved OM&M Plan, subject to river flow conditions at the time of the inspection.

At the time of the November 2023 inspection, the weather was partly cloudy, and the temperature was in the 40s °F. Elevated river flow hindered observations of some components of the Dam. Photographs to document the current conditions of the Dam were taken during the inspection and are included in **Appendix B**. A site plan with photograph locations is provided on **Figure 5**, and a site sketch showing unusual conditions of note is provided on **Figure 6**. The approximate elevation of the impoundment at the time of inspection was about El. 949.3 feet. Underwater areas were not inspected during this inspection. A copy of the inspection checklist is provided in **Appendix C**.

2.1.1 General Findings

In general, the Dam was found to be in **SATISFACTORY** condition, which remains unchanged from the previous Phase 1 inspection conducted in November 2021. The 1989 General Design Report indicates that floods up to and including the SDF (500-year flood) are expected to be passed without causing the failure of the dam structures, as the abutments have been designed to withstand overtopping during the SDF. Likewise, the General Design Report states that the minimum factors of safety for structural stability, as established by the Office of Dam Safety, are met or exceeded.

Specific conditions identified during this Phase 1 inspection are described in more detail in the sections below:

2.1.2 Dam

The crest of the left side of the Dam was observed to be in satisfactory condition. Minor surface cracking, spalling, and efflorescence on the crest and downstream face of the concrete abutments and abutment joints were observed. The upstream and downstream sheetpile faces were obscured by riprap making them difficult to observe.

On the right side (non-overflow gravity section), the concrete section was observed to be in satisfactory condition. Minor vegetative growth was observed in the riprap that protects the upstream and downstream sides of the concrete; however, this condition did not obstruct observation.

2.1.3 Appurtenant Structures

Primary Spillway

Observation of and access to the spillway were limited by flow. Generally, the ogee flow appeared to be fairly smooth and laminar. The next low-flow inspection is scheduled for 2025.

Minor cracking and efflorescence in the left and right trainings walls were observed. This condition is similar to that observed during previous inspections. The right downstream training wall has historical orange staining and minor deterioration around a horizontal joint. The condition is similar to that observed during previous inspections and appears to be stable.

Two logs were observed on the right side of the spillway crest. The logs were not impeding flow over the spillway.

Based on visual observations, sediment was not observed to interfere with the flow of water over the spillway. The reservoir level prevented observation of sediment below the flow line. Sediment was not visible in the flowing water.

Raceway Channel and Outlets

Three stoplogs, with a one-inch spacer below the top stoplog, were in place in the raceway closure structure (upstream control) during the November 2023 inspection.

About halfway down the left side of the raceway, a utility pole is leaning toward the channel. This condition was observed during prior Phase 1 (2019, 2021) and subsequent quarterly inspections. The angle of the utility pole does not appear to have changed since the previous inspections. No indications of slope instability were observed. It should be noted that this utility pole is not located on GE's property and that the stability of this area does not affect the stability of the Dam.

Seepage had been previously observed at the bottom of the right and left training walls downstream of the raceway stoplog sluice structure (downstream control). Slight, clear seepage has also historically been observed at the vertical walls of the downstream stoplog structure in the area where the grouting program was reportedly performed in 1991. The lack of cloudy seepage discharge during past inspections indicates that soil is not being transported from behind the wall. During the November 2023 inspection, wet spots were observed on the training walls downstream of the stoplog sluice structure; however, no active seepage or leakage was observed. The downstream left stoplog sluice structure training wall also appears to have some longitudinal cracking and some efflorescence immediately downstream of the stoplog groove structure. This condition is similar to that observed during past inspections.

The metal bridge used to provide access to operate the stoplogs at the raceway stoplog sluice structure is underlain by rotted planking. The metal bridge extends beyond the planking and appeared to be generally stable.

A concrete patch is present on the left wall upstream of the approach area to the raceway. Near the waterline, a small portion of the patch is broken off. This patch is monitored and appears to be stable.

The GE Dam Contractor reportedly exercised the stoplogs in the raceway closure structure (upstream control) and raceway stoplog sluice structure (downstream control) prior to the Phase 1 inspection. No issues were reported with the operation.

Based on visual observations, sediment did not interfere with the flow of water through the raceway or at the upstream or downstream controls. The reservoir, river, and raceway levels prevented observation of sediment below the flow line. Sediment was not visible in the flowing water.

Raceway Embankment

The raceway embankment is a related, but not integral, dam structure. Slight unevenness of the crest was observed, as noted in the previous Phase 1 inspection checklist. The upstream (left) and downstream (right) slopes are protected by riprap armoring, which appeared to be in good condition.

On the left side of the upstream end of the embankment located upstream of the Dam, the stone masonry wall appears to have undergone tilting into the raceway approach channel at some point in the past, which has been noted in several previous inspections. A monitoring point was installed in August 2020. Measurements of the tilt have been consistently about 5.5 inches toward the raceway since installation of the monitoring point.

The slush-grouted riprap located upstream of the Dam that was previously observed to have some holes in the grout had been repaired. Vegetation had been cleared recently, though minor weeds remain.

2.1.4 Instrumentation

Instrumentation on the raceway embankment includes three active observation wells, B-1, B-2, and B-3, constructed as open PVC standpipes contained within locked protective casing. Their locations are shown on **Figures 5** and **6**. The internal standpipes are marked with the observation well labels, and the locations are marked with traffic cones for visibility.

The monitoring wells were measured, and data were collected in accordance with Section 3.1.2 of the OM&M Plan. The water elevation data in these wells, along with those in the impoundment, the raceway channel, and the river downstream of the Dam, from 2010 through the date of the November 2023 inspection are presented in **Appendix G**. The water levels in the monitoring wells are generally between those in the raceway and those in the river downstream and are within the historical ranges presented in Section 8 of Appendix C to the OM&M Plan.

There are two staff gages at the Dam – one painted on the left upstream spillway training wall and one painted on the right downstream raceway stoplog sluice structure (downstream control) training wall. These staff gage markings are beginning to fade, notably around the typical fluctuation in water levels.

2.1.5 Downstream Area

The downstream area is the Housatonic River. There is a mill building on the left side of the river and train tracks on the right.

2.1.6 Reservoir Area

The reservoir is an impoundment of the Housatonic River.

2.2 CARETAKER INTERVIEW

Kevin Mooney, GE's Dam Caretaker, and GE's Dam Contractor, LB Corporation, were available prior to the visual inspection of the Dam. GZA maintains regular communication with both the Caretaker and the Dam Contractor regarding the operations, monitoring, and maintenance of the Dam.

2.3 INSPECTION AND MAINTENANCE PROCEDURES

The inspection and maintenance procedures for the Dam are specified in the June 2019 OM&M Plan and the September 4, 2020 amendment to it and are briefly summarized below.

2.3.1 Inspection Procedures

The Dam is inspected by GZA personnel on GE's behalf on a quarterly basis using the forms in Appendix C to the OM&M Plan. In addition to visually inspecting the Dam, the quarterly inspections include photographing specific locations and recording monitoring well levels. Collected instrumentation data are included in **Appendix G**. Additional inspections are conducted in accordance with Section 3 of the OM&M Plan.

GE monitors the USGS Advanced Hydrologic Prediction Service, which forecasts river flows on the Housatonic River in Great Barrington. All stoplogs are generally kept in place, with a small spacer placed below the uppermost raceway closure structure stoplog to allow some flow into the raceway channel.

The following inspections have been conducted since the 2021 Phase 1 inspection/evaluation:

- Dewatered spillway inspection: August 17, 2022
- Quarterly inspections: March 3, May 27, September 6, and November 21, 2022; February 2, May 30, and August 17, 2023
- Post-storm inspections: July 17 and December 21, 2023.

2.3.2 Maintenance of Dam and Operating Facilities

Maintenance of the Dam is conducted in accordance with Sections 4.1 and 4.2 of the OM&M Plan. Maintenance includes, but is not limited to, vegetative maintenance, cleaning of the spillway, stoplog system maintenance, minor erosion repair, rodent damage control, slope traffic damage control, seepage damage control, riprap damage control, sediment removal where necessary concrete and masonry maintenance, metal component maintenance, instrumentation repair, security item repair, and sign maintenance. GE performs additional maintenance activities as they are required after identification during inspections.

A summary of the monitoring, maintenance, and repair items that were identified at or since the 2021 Phase 1 inspection (including those observed during the November 14, 2023 Phase 1 inspection) and that had not been

addressed as of the date of the last prior quarterly inspection is provided in the maintenance tracking table in **Appendix H**, along with their current status (e.g., completed, scheduled, subject to ongoing monitoring).

2.4 EMERGENCY WARNING SYSTEM

There is no physical early warning system at Woods Pond Dam. Quarterly inspections of the Dam are conducted by dam safety engineers. An Emergency Action Plan (EAP) was developed in 2000, and is updated annually, with the most recent major revision in June 2019, which was attached as Appendix B to the OM&M Plan, and the latest update submitted on December 14, 2023. Inundation mapping with updated base mapping from December 2023 is included in **Appendix F**. Note that, as discussed further in Section 2.6, the inundation mapping in the EAP relies on a dam break analysis developed for the original Woods Pond Dam and presented in a 1987 report; formal dam break analyses for the current Woods Pond Dam configuration have not been developed.

2.5 AWARENESS OF POTENTIAL DAM RELATED SAFETY HAZARDS AT, NEAR, AND ON DAMS

Primary access to the Dam is via the downstream end of the raceway embankment through a locked access gate. The Dam may also be accessed to the left of the raceway channel near the raceway closure structure (upstream control) through a locked access gate, or via the right abutment by crossing a set of railroad tracks. Dam warning signs are installed upstream and downstream of the Dam, and a buoy line is installed upstream of the Dam.

2.6 HYDROLOGIC/HYDRAULIC DATA

A hydrologic/hydraulic (H&H) analysis was performed as part of the 1998 Phase 1 evaluation. According to the report on that evaluation, flood frequency was computed at the USGS Housatonic River stream gage near Great Barrington. The record from 1914 through 1996 was input into the Hydraulic Engineering Center - Water Resources Council computer program. The results of the analysis were that the 100-year peak flow is 11,700 cubic feet per second (cfs) and that the 500-year peak flow is 16,400 cfs at the gage. Applying a drainage area ratio to the calculated numbers, the expected 100-year peak flow at the Dam is 8,600 cfs and the 500-year flow would be about 12,100 cfs.

According to the 2007 Phase 1 inspection report, the estimated flood elevation for a 500-year flood event is about 955.8 feet, which would overtop the Dam by 1.8 feet. The duration of overtopping was estimated to be about 37.5 hours. The Dam was designed to act as a broad-crested weir outside of the ogee-weir spillway; thus, anticipated overtopping was not considered to be a deficiency. Some bypass flooding to the west of the inundated non-overflow right section would occur during flooding events. The 2007 report indicated that evaluation of flood flows along this railroad bed area indicated that the bypass flow should not result in the failure of the project structures.

A dam break analysis for the original Woods Pond Dam was conducted by the US Army Corps of Engineers (USACE) and presented in the Phase 1 report prepared by USACE in 1979. A dam break analysis has not been performed for Woods Pond Dam in its current configuration. Attachment A to GE's Emergency Action Plan for Woods Pond Dam describes the prior dam break analysis as follows:

> *"For failure under the sunny day condition, USACE assumed the failure to occur at a reservoir elevation of 952.7 ft, 4.4 ft above the spillway crest. Failure under this condition resulted in a maximum outflow of about 11,200 cfs and a water surface elevation of about 948.2 feet at a*

distance of 0.5 mile downstream from the Dam. The FEMA study indicated a 100-year flood of about 11,700 cfs and a 500-year flood of about 16,300 cfs.

. . . .

Under flood conditions, the USACE assumed the Dam to fail when the old canal (raceway) embankment would have been overtopped by two feet. For failure under this condition, the maximum outflow would be about 16,000 cfs. This flow is nearly [the] same as the 500-year flood estimated by FEMA."

As previously mentioned, the 1989 General Design Report indicates that floods up to and including the SDF (500-year flood) are expected to be passed without causing the failure of the dam structures, as the abutments have been designed to withstand overtopping during the SDF.

The H&H data below were compiled from previous reports made available by GE.

A.	SDF Return Period	500 year
B.	Precipitation (inches) and methodology	Not available
C.	SDF Inflow (cfs)	Not available
D.	SDF Outflow (cfs)	12,100 cfs
E.	Principal Spillway Capacity (cfs)	12,100 cfs*
F.	Auxiliary Spillway Capacity (cfs)	Not applicable
G.	Low-level Outlet Capacity without stoplogs(cfs)	850 cfs
H.	Percentage of the SDF passing	100%
I.	Maximum Depth of Overtopping for SDF (ft)	1.8 feet
J.	Maximum Duration of Overtopping for SDF	37.5 hours

** including overtopping of raceway and non-overflow section.*

Based on the information contained in the referenced USACE documents and the 1989 General Design Report, it is GZA's opinion that the Dam has sufficient spillway capacity, including overtopping of the raceway and non-overflow section, to accommodate the SDF required by MassDCR ODS regulations. However, as discussed in Section 3.2.1 below, GZA recommends that an updated dam break analysis be performed for the Dam in its current configuration to better define the potential inundation area downstream of the Dam.

2.7 STRUCTURAL STABILITY

The 1989 General Design Report states that the minimum factors of safety for structural stability, as established by the MassDCR Office of Dam Safety, are met, or exceeded for Woods Pond Dam. A revised stability analysis was performed by Harza in 2001, which also stated that the minimum factors of safety for structural stability, as established by the MassDCR ODS are met or exceeded for the Dam.

The June 2017 report on the December 2016 Phase 1 inspection/evaluation indicated that changes made to the raceway embankment since the prior stability analysis included:

- Addition of riprap on the slopes of the embankment and on the riverside slope;
- Filling of the narrow area which was identified as the critical section; and
- Flattening of oversteep slopes.

GZA concurs with the previous report in its assumption that these changes constitute an improvement to the stability of the raceway embankment.

According to previous reports, the lowest spot near the Dam is along the railroad tracks at the right end. The 2007 Structural Integrity Report noted that previous analyses indicate that the railroad tracks, while overtopped, will not fail due to the size and geometry of the railroad ballast and other features. GE added additional riprap behind the right abutment to further increase the factor of safety against scour in the area.

Previous stability analyses assumed linear reductions in piezometric uplift pressures for stability analysis of gravity sections and observed piezometric levels for raceway embankment stability analyses. These analyses indicated adequate factors of safety for structural stability.

No visual indications of structural instability of the dam structures were observed during this inspection.

3.0 ASSESSMENTS AND RECOMMENDATIONS

3.1 ASSESSMENTS

In general, the overall condition of the Woods Pond Dam during the November 14, 2023 Phase 1 visual inspection was judged to be **SATISFACTORY**. This overall condition rating remains unchanged from the previous Phase 1 inspection conducted in November 2021. Based on the results of this inspection, the Dam is in compliance with MassDCR ODS regulations.

During the November 14, 2023 visual inspection, the Dam was found to have the following unusual conditions of note (several of which had also been noted in the prior Phase 1 inspection and/or in intervening quarterly inspections):

1. The stone masonry wall in the raceway approach area was observed to be tilted, as it was in prior inspections. This tilt has been monitored for several years with no changes and appears to be a stable condition.
2. Minor deterioration and historical orange staining of concrete were observed around a horizontal joint at the water level at the right downstream training wall, as was the case in prior inspections. No signs of soil migration were observed. This staining and deterioration have been monitored for several years with little change and appear to be a stable condition.
3. Two logs were observed to be lodged on the crest of the spillway near the right training wall. The logs did not appear to be impeding flow over the spillway.
4. Minor cracking, efflorescence, and wet spots were observed on the downstream training walls of the raceway stoplog sluice structure (downstream closure), as was the case in some prior inspections. This condition continues to be monitored with little change and appears to be a stable condition.
5. The two staff gages installed at the Dam – one on the upstream left spillway training wall and one on the downstream right stoplog sluice structure (downstream closure) – are becoming difficult to read due to faded numbers, particularly where normal water levels fluctuate.
6. On the eastern side slope of the raceway outside GE property, a utility pole was seen to be leaning toward the channel, and vegetation downstream of that pole has grown toward the raceway. These conditions have been observed in prior inspections and do not present any issues relating to dam safety.

The locations of these conditions are shown on **Figure 6**.

The following table presents a comparison of the unusual conditions of note identified during the prior Phase 1 inspection in November 2021 to current conditions and the actions taken to address them.

Unusual Condition Identified in 2021 Phase 1 Inspection	*Resolution or Current Condition*
The stone masonry wall in the raceway approach area was observed to be tilted, as it was in prior inspections. This tilt had been monitored for several years with no changes and appeared to be a stable condition.	No significant change was observed during this Phase 1 inspection. The condition continues to be monitored during quarterly and Phase 1 inspections.
Minor deterioration was observed at the right downstream training wall around water level, as it was in prior inspections. This deterioration had been monitored for several years with little change and appeared to be a stable condition.	No significant change was observed during this Phase 1 inspection. The condition continues to be monitored during quarterly and Phase 1 inspections.
On the eastern side slope of the raceway outside GE property, a utility pole was seen to be leaning toward the channel (as it was in prior inspections), and vegetation downstream of that pole had grown toward the raceway.	No significant change was observed during this Phase 1 inspection. The condition continues to be monitored during quarterly and Phase 1 inspections.

3.2 RECOMMENDED ACTIVITIES

GZA recommends the activities described below to address the unusual conditions listed at the beginning of Section 3.1, in addition to complying with the regular maintenance and repair requirements specified in Sections 4.1 and 4.2 of the OM&M Plan.

3.2.1 Studies and Analyses

GZA recommends that the following analyses be performed:

Recommendation	Current Status/Schedule
1. Since dam break analyses for the current dam configuration have not been performed, perform an updated dam break analysis in accordance with current MassDCR ODS guidelines to better define the potential inundation area downstream of the Dam.	It is recommended that the updated dam break analysis be performed and incorporated into the 2024 EAP update by the end of 2024.

3.2.2 Monitoring and Maintenance

GZA recommends that the Dam be maintained and monitored in accordance with the OM&M Plan. In addition, the following items should be monitored and maintained:

Recommendation	Current Status/Schedule
1. Continue to monitor the stone masonry wall in the raceway approach area was observed to be tilted.	The monitoring point that was established in August 2020 will continue to be used to monitor wall movement quantitatively during quarterly and biennial inspections.
2. Continue to monitor the minor deterioration and historical orange staining of concrete that was observed around a horizontal joint at the water level at the right downstream training wall. Continue to look for signs of soil migration.	This area is monitored during quarterly and biennial inspections.
3. Monitor the logs that were observed to be lodged on the crest of the spillway near the right training wall. Remove the logs if they appear to impede flow over the spillway.	The condition will continue to be monitored and the log(s) will be cleared if they are impeding flow.
4. Continue to monitor the minor cracking, efflorescence, and wet spots that were observed on the downstream training walls of the raceway stoplog sluice structure (downstream closure). Continue to look for signs of seepage at this location.	These conditions are monitored during quarterly and biennial inspections.
5. Continue to monitor the utility pole that was seen to be leaning toward the raceway channel on the eastern side slope of the raceway outside GE property. Continue to monitor the vegetation downstream of the pole and clear the vegetation if it falls into the raceway channel and impedes flow.	This area is monitored during quarterly and biennial inspections. The vegetation will be cut if it falls into the raceway channel and impedes flow.

3.2.3 Minor Repairs

GZA recommends that the following minor repair be performed at the Dam:

Recommendation	Current Status/Schedule
1. Repair / restore the legibility of the two existing staff gages: one on the upstream left spillway training wall and one on the downstream right stoplog sluice structure (downstream closure). Install a third staff gage in the approach area to the upstream raceway closure structure.	The two staff gages will be repaired or restored to be legible and the third staff gage added to the raceway closure structure approach area during a period of low flow in 2024.

3.3 REMEDIAL MODIFICATIONS

There are no remedial modifications recommended at this time.

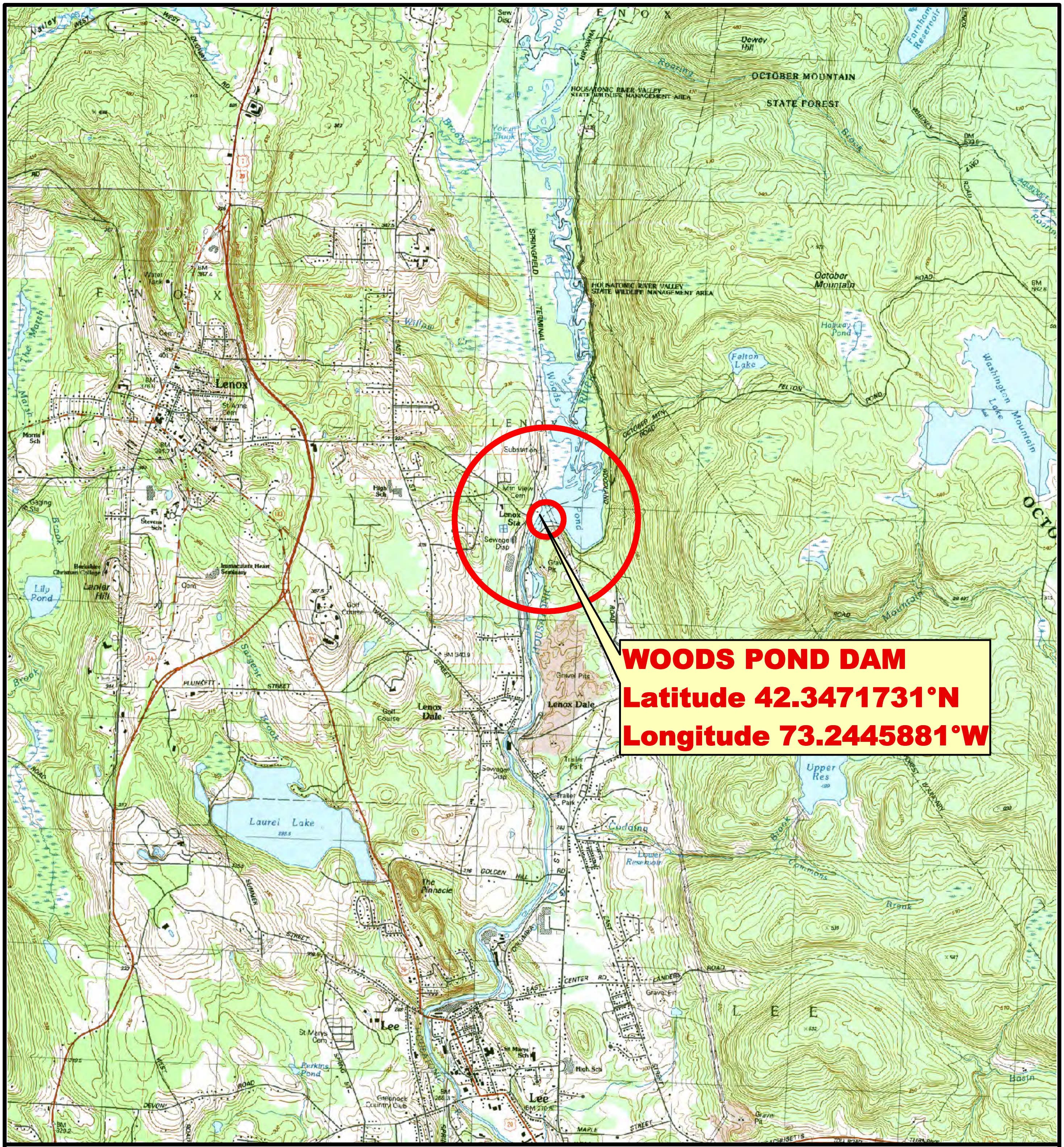
3.4 ALTERNATIVES

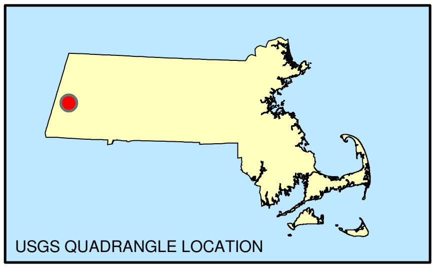
There are no alternatives that need to be considered at this time. Dam removal is not considered a feasible alternative due to the importance of the impoundment to local flood control and impounding existing sediments that are impacted by polychlorinated biphenyls. Maintenance-level work and minor repairs are considered necessary to maintain the safety and functionality of the Dam in the long term.

3.5 OPINION OF PROBABLE CONSTRUCTION COSTS

Since only a minor repair and no remedial modifications are recommended at this time, a cost estimate has not been prepared.

FIGURES





SOURCE : SCANNED USGS TOPOGRAPHIC QUADRANGLES
SCANNED BY THE MASSACHUSETTS EXECUTIVE OFFICE OF
ENVIRONMENTAL AFFAIRS, MASSGIS. DISTRIBUTED JUNE, 2001.

Data Supplied by :

0 1,0002,000 4,000 6,000 Feet

N W E S

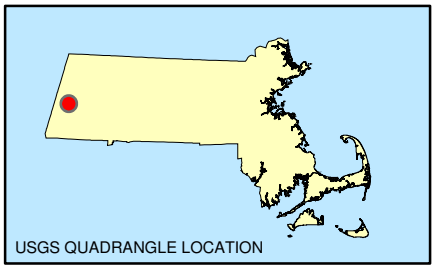
PROJ. MGR.: SDK
DESIGNED BY: SDK
REVIEWED BY: JDA
OPERATOR: LAD
DATE: 11-14-2023

LOCUS PLAN
SHOWING 500 FOOT & 1/2 MILE RADII

WOODS POND DAM
LEE/LENOX, MASSACHUSETTS

JOB NO.
01.0019896.50

FIGURE NO.
1



SOURCE : ORTHO IMAGERY PROVIDED BY MASSGIS, THE EXECTUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS (EOEA), THE DEPARTMENT OF EVIRONMENTAL PROTECTION, THE MASSACHUSETTS HIGHWAY DEPARTMENT, AND THE DEPARTMENT OF PUBLIC HEALTH.

0 1,000 2,000 4,000 6,000 Feet

Data Supplied by : MASSGIS

N W E S

GZA

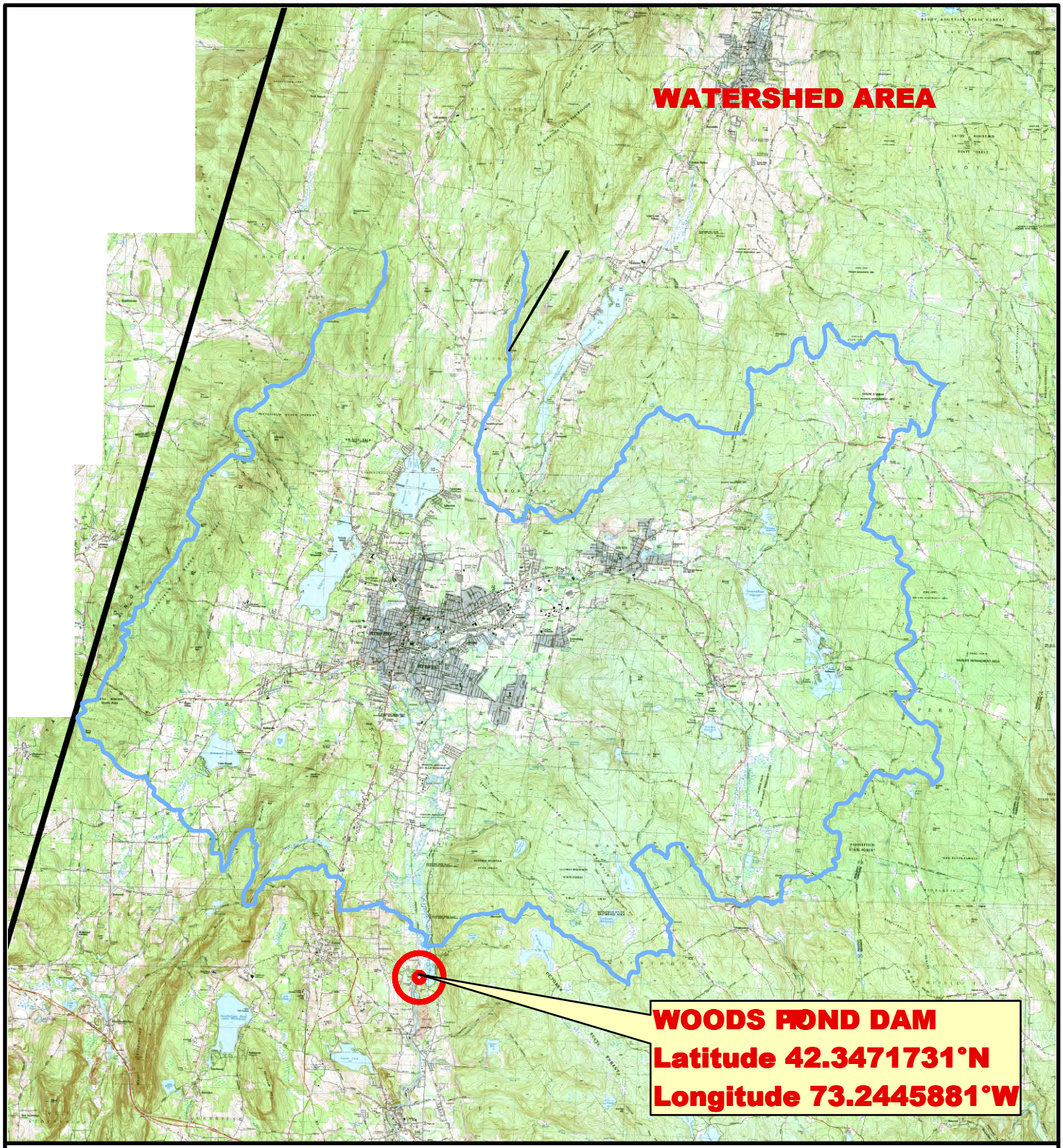
PROJ. MGR.: SDK
DESIGNED BY: SDK
REVIEWED BY: JDA
OPERATOR: LAD
DATE: 11-14-2023

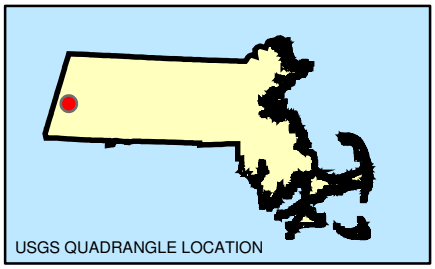
AERIAL PHOTOGRAPH

JOB NO. 01.0019896.50

WOODS POND DAM, MA00731
LEE/LENOX, MASSACHUSETTS

FIGURE NO. 2





SOURCE : SCANNED USGS TOPOGRAPHIC QUADRANGLES
SCANNED BY THE MASSACHUSETTS EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS, MASSGIS. DISTRIBUTED JUNE, 2001.

WATERSHED DELINEATED BY STREAMSTATS
PROVIDED BY THE UNITED STATES GEOLOGICAL SURVEY

Data Supplied by : MASSGIS

GZA

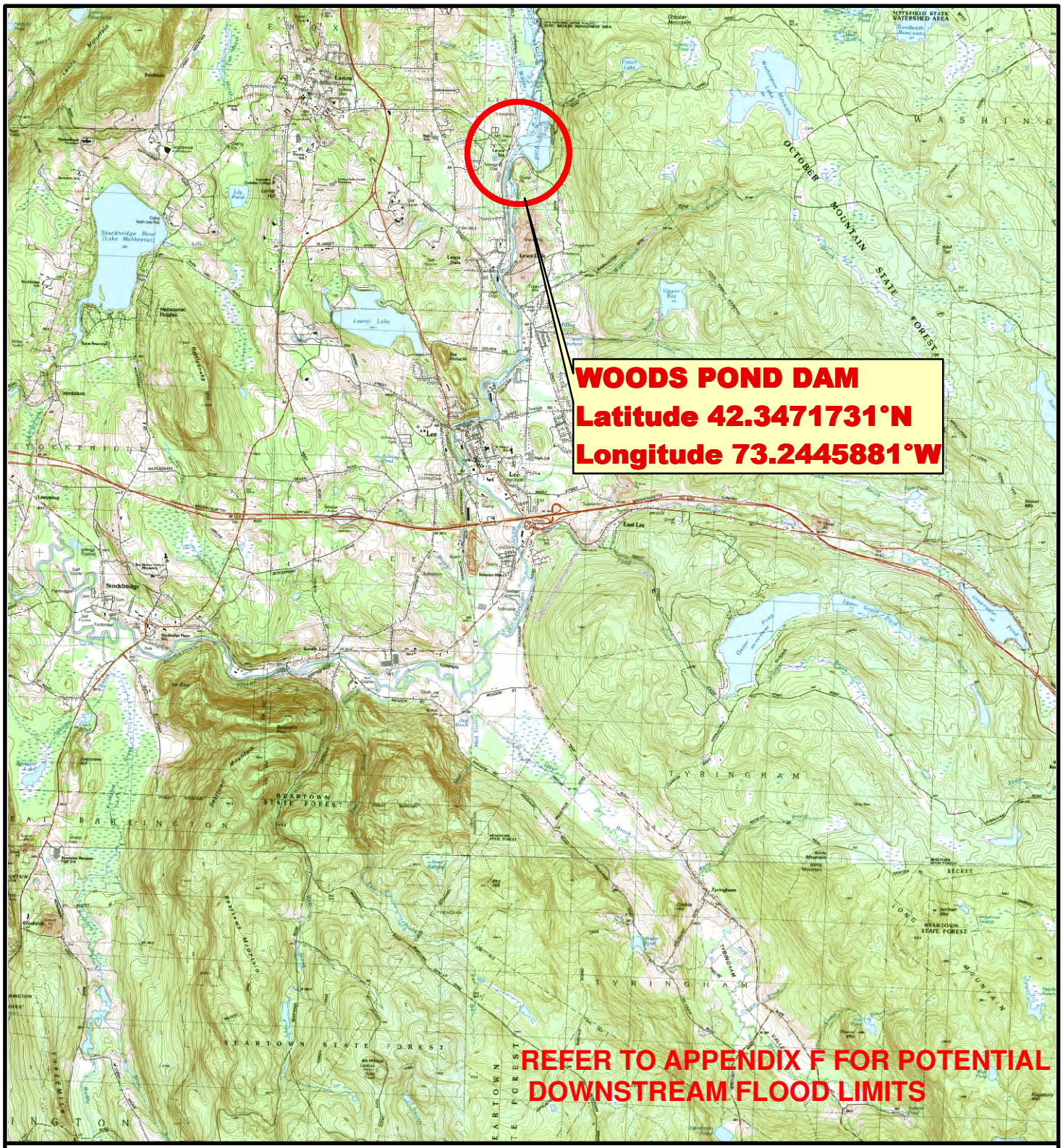
PROJ. MGR.: SDK
DESIGNED BY: SDK
REVIEWED BY: JDA
OPERATOR: LAD
DATE: 11-14-2023

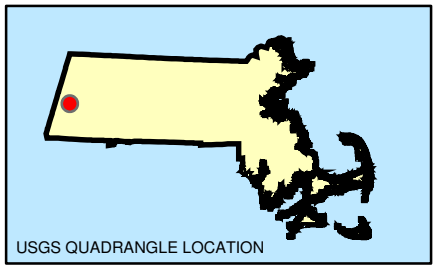
WATERSHED PLAN

JOB NO. 01.0019896.50

WOODS POND DAM
LEE/LENOX, MASSACHUSETTS

FIGURE NO. 3





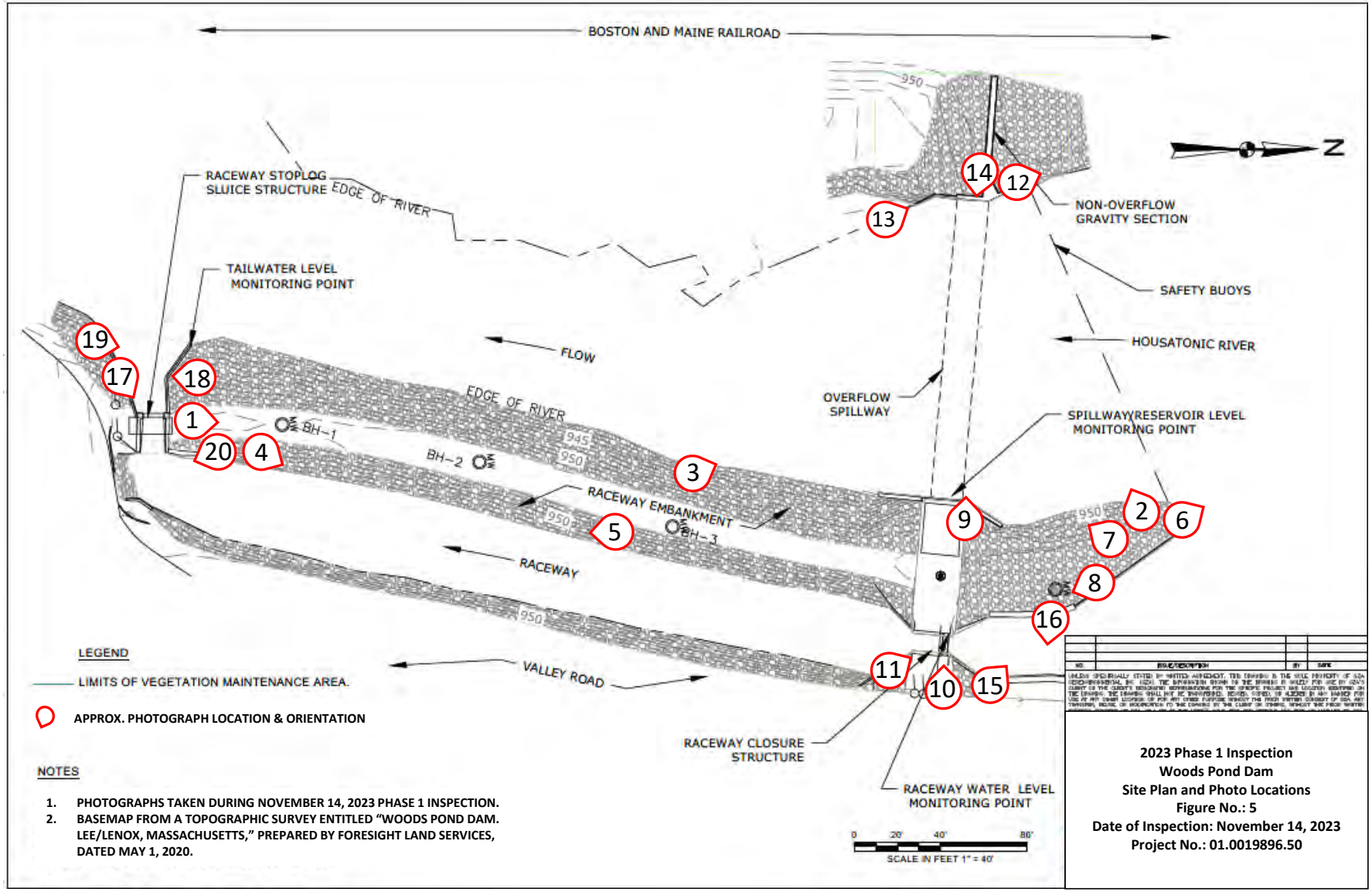
SOURCE : SCANNED USGS TOPOGRAPHIC QUADRANGLES
SCANNED BY THE MASSACHUSETTS EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS, MASSGIS. DISTRIBUTED JUNE, 2001.

Data Supplied by : MASSGIS

N
W E
S

0 5,000 10,000 20,000 30,000
Feet

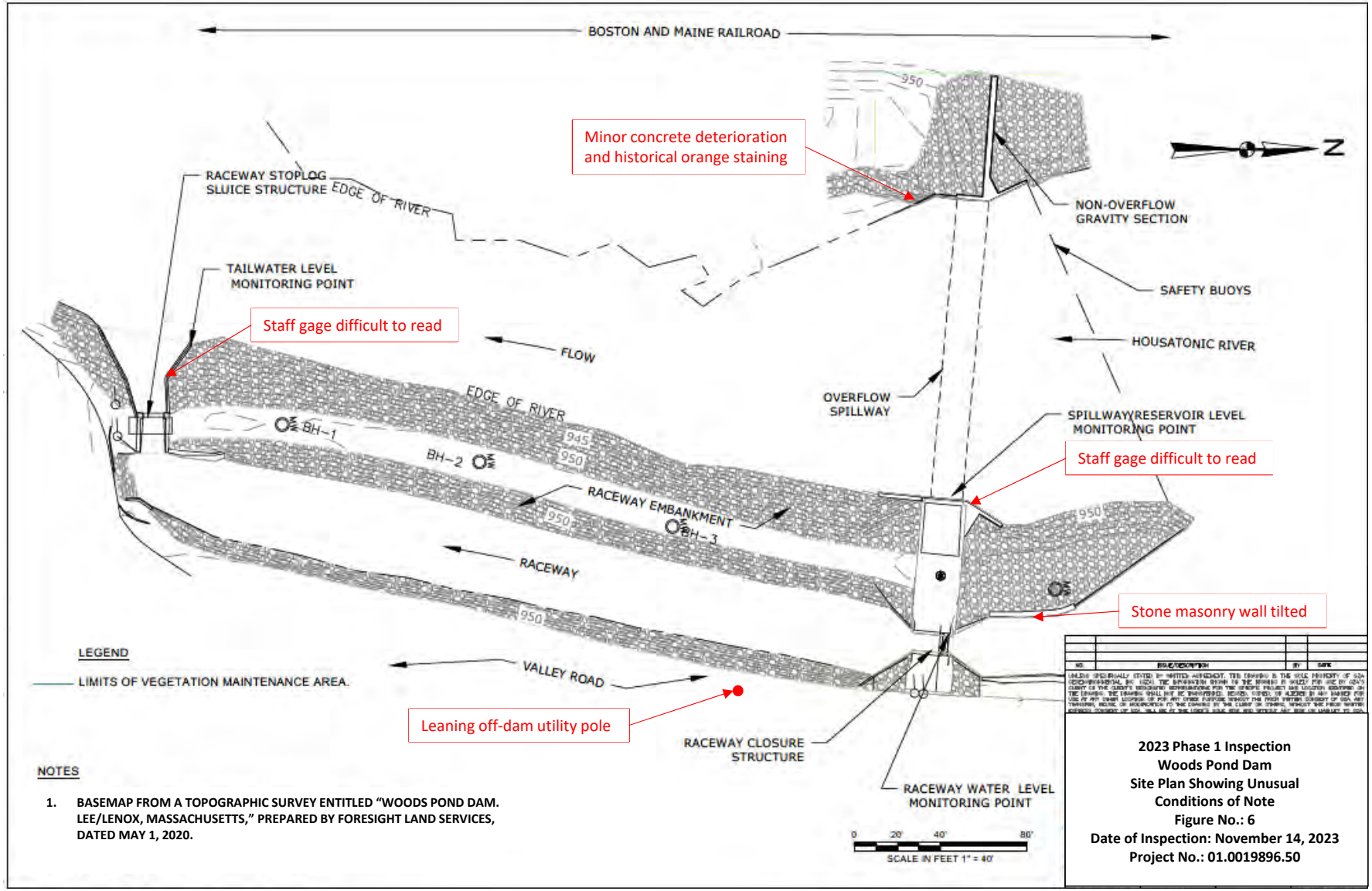
GZA	PROJ. MGR.: SDK DESIGNED BY: SDK REVIEWED BY: JDA OPERATOR: LAD DATE: 11-14-2023	DOWNSTREAM AREA PLAN	JOB NO. 01.0019896.50
		WOODS POND DAM LEE/LENOX, MASSACHUSETTS	FIGURE NO. 4



NOTES

1. PHOTOGRAPHS TAKEN DURING NOVEMBER 14, 2023 PHASE 1 INSPECTION.
2. BASEMAP FROM A TOPOGRAPHIC SURVEY ENTITLED "WOODS POND DAM. LEE/LENOX, MASSACHUSETTS," PREPARED BY FORESIGHT LAND SERVICES, DATED MAY 1, 2020.

2023 Phase 1 Inspection
Woods Pond Dam
Site Plan and Photo Locations
Figure No.: 5
Date of Inspection: November 14, 2023
Project No.: 01.0019896.50



NOTES

1. BASEMAP FROM A TOPOGRAPHIC SURVEY ENTITLED "WOODS POND DAM. LEE/LENOX, MASSACHUSETTS," PREPARED BY FORESIGHT LAND SERVICES, DATED MAY 1, 2020.

2023 Phase 1 Inspection
Woods Pond Dam
Site Plan Showing Unusual Conditions of Note
Figure No.: 6
Date of Inspection: November 14, 2023
Project No.: 01.0019896.50

APPENDIX A – LIMITATIONS

DAM ENGINEERING REPORT LIMITATIONS

Use of Report

1. GeoEnvironmental, Inc. (GZA) prepared this report on behalf of, and for the exclusive use of the General Electric Company, (Client) for the stated purpose(s) and location(s) identified in the Report. Use of this report, in whole or in part, at other locations, or for other purposes, may lead to inappropriate conclusions; and we do not accept any responsibility for the consequences of such use(s). Further, reliance by any party not identified in the agreement, for any use, without our prior written permission, shall be at that party's sole risk, and without any liability to GZA.

Standard of Care

2. Our findings and conclusions are based on the work conducted as part of the Scope of Services set forth in the Report and/or proposal, and reflect our professional judgment. These findings and conclusions must be considered not as scientific or engineering certainties, but rather as our professional opinions concerning the limited data gathered during the course of our work. Conditions other than described in this report may be found at the subject location(s).
3. Our services were performed using the degree of skill and care ordinarily exercised by qualified professionals performing the same type of services at the same time, under similar conditions, at the same or a similar property. No warranty, expressed or implied, is made.

General

4. The observations described in this report were made under the conditions stated therein. The conclusions presented were based solely upon the services described therein, and not on scientific tasks or procedures beyond the scope of described services or the time and budgetary constraints imposed by the Client.
5. in preparing this report, GZA relied on certain information provided by the Client, state and local officials, and other parties referenced therein available to GZA at the time of the evaluation. GZA did not attempt to independently verify the accuracy or completeness of all information reviewed or received during the course of this evaluation.
6. Any GZA hydrologic analysis presented herein is for the rainfall volumes and distributions stated herein. For storm conditions other than those analyzed, the response of the site's spillway, impoundment, and drainage network has not been evaluated.
7. Observations were made of the site and of structures on the site as indicated within the report. Where access to portions of the structure or site, or to structures on the site was unavailable or limited, GZA renders no opinion as to the condition of that portion of the site or structure. In particular, it is noted that water levels in the impoundment and elsewhere and/or flow over the spillway may have limited GZA's ability to make observations of underwater portions of the structure. Excessive vegetation, when present, also inhibits observations.
8. In reviewing this Report, it should be realized that the reported condition of the dam is based on observations of field conditions during the course of this study along with data made available to GZA. It is important to note that the condition of a dam depends on numerous and constantly changing internal and external conditions, and is evolutionary in nature. It would be incorrect to assume that the present condition of the dam will continue to represent the condition of the dam at some point in the future. Only through continued inspection and care can there be any chance that unsafe conditions be detected.

Compliance with Codes and Regulations

9. We used reasonable care in identifying and interpreting applicable codes and regulations. These codes and regulations are subject to various, and possibly contradictory, interpretations. Compliance with codes and regulations by other parties is beyond our control.
10. This scope of work does not include an assessment of the need for fences, gates, no trespassing signs, swimming or boating barriers, repairs to existing fences and railings and other items which may be needed to minimize trespass and provide greater security for the facility and safety to the public. An evaluation of the project for compliance with OSHA rules and regulations is also excluded.

Additional Services

11. It is recommended that GZA be retained to provide services during any future: site observations, explorations, evaluations, design, implementation activities, construction and/or implementation of remedial measures recommended in this Report. This will allow us the opportunity to: i) observe conditions and compliance with our design concepts and opinions; ii) allow for changes in the event that conditions are other than anticipated; iii) provide modifications to our design; and iv) assess the consequences of changes in technologies and/or regulations.

APPENDIX B – PHOTOGRAPHS

Photographic Log

Client Name:	Site Location:	Project No.
General Electric Company	Woods Pond Dam (MA00731), Lee/Lenox, MA	01.0019896.50

Photo No.	Date:
1	11/14/2023

Direction Photo Taken:
Upstream

Description:
Overview of Woods Pond Dam and raceway embankment from near downstream stoplog sluice structure. Slight unevenness of the top of embankment (crest) was observed.

Photo No.	Date:
2	11/14/2023

Direction Photo Taken:
Right

Description:
Overview of upstream side of Woods Pond Dam from the upstream end of the raceway embankment.

Photographic Log

Client Name:	Site Location:	Project No.
General Electric Company	Woods Pond Dam (MA00731), Lee/Lenox, MA	01.0019896.50

Photo No.	Date:
3	11/14/2023

Direction Photo Taken:
Upstream

Description:
Overview of discharge area and Woods Pond Dam.

Photo No.	Date:
4	11/14/2023

Direction Photo Taken:
Upstream

Description:
Overview of raceway, looking upstream. Raceway outlet structure in distance. Note leaning utility pole.

Photographic Log

Client Name:	Site Location:	Project No.
General Electric Company	Woods Pond Dam (MA00731), Lee/Lenox, MA	01.0019896.50

Photo No.	Date:
5	11/14/2023

Direction Photo Taken:
Downstream

Description:
Downstream end of the raceway, and the upstream (right) slope of the raceway embankment.

Photo No.	Date:
6	11/14/2023

Direction Photo Taken:
Upstream

Description:
Woods Pond/Housatonic River from the upstream end of the raceway embankment.

Photographic Log

Client Name:	Site Location:	Project No.
General Electric Company	Woods Pond Dam (MA00731), Lee/Lenox, MA	01.0019896.50

Photo No.	Date:
7	11/14/2023

Direction Photo Taken:
Downstream

Description:
Spillway from the upstream end of the raceway embankment.

Photo No.	Date:
8	11/14/2023

Direction Photo Taken:
Downstream

Description:
Approach area to the raceway closure structure (upstream control). See photos 15 and 16 for upstream training walls.

Photographic Log

Client Name:	Site Location:	Project No.
General Electric Company	Woods Pond Dam (MA00731), Lee/Lenox, MA	01.0019896.50

Photo No.	Date:
9	11/14/2023

Direction Photo Taken:
Right

Description:
Overview of spillway weir and right training wall. Note two logs lodged on the right side of the spillway crest.

Photo No.	Date:
10	11/14/2023

Direction Photo Taken:
Right

Description:
Crest of left side of dam. Raceway closure structure (upstream control) in the foreground.

Photographic Log

Client Name:	Site Location:	Project No.
General Electric Company	Woods Pond Dam (MA00731), Lee/Lenox, MA	01.0019896.50

Photo No.	Date:
11	11/14/2023

Direction Photo Taken:
Upstream and Down

Description:
Downstream side of the raceway closure structure (upstream control) stoplogs. One-inch spacer is present between second and third stoplog to help prevent downstream stagnation in raceway.

Photo No.	Date:
12	11/14/2023

Direction Photo Taken:
Upstream and Right

Description:
Area upstream of right non-overflow section of dam.

Photographic Log

Client Name:	Site Location:	Project No.
General Electric Company	Woods Pond Dam (MA00731), Lee/Lenox, MA	01.0019896.50

Photo No.	Date:
13	11/14/2023

Direction Photo Taken:
Upstream

Description:
Right downstream training wall. Note orange staining and minor deterioration at the horizontal joint; similar to past inspections.

Photo No.	Date:
14	11/14/2023

Direction Photo Taken:
Left

Description:
Spillway from right abutment. Note one log present on crest (Second log in photo foreground and not pictured).

Also note staff gage on the upstream left training wall. Staff gage numbering difficult to read.

Photographic Log

Client Name:	Site Location:	Project No.
General Electric Company	Woods Pond Dam (MA00731), Lee/Lenox, MA	01.0019896.50

Photo No.	Date:
15	11/14/2023

Direction Photo Taken:
Upstream and Right

Description:
Tilted masonry wall at left side of upstream raceway embankment / right side of raceway closure structure approach area. Tilt measured about 5.5-inches out of plumb, similar to past inspections.

Photo No.	Date:
16	11/14/2023

Direction Photo Taken:
Left

Description:
Upstream left raceway approach training wall showing previously repaired area.

Photographic Log

Client Name:	Site Location:	Project No.
General Electric Company	Woods Pond Dam (MA00731), Lee/Lenox, MA	01.0019896.50

Photo No.	Date:
17	11/14/2023

Direction Photo Taken:
Upstream and Left

Description:
Downstream raceway stoplog sluice structure (downstream control).

Photo No.	Date:
18	11/14/2023

Direction Photo Taken:
Downstream and Left

Description:
Downstream raceway stoplog sluice structure (downstream control) left training wall. Note minor wet spot, vertical and longitudinal cracking, and efflorescence.

Photographic Log

Client Name:	Site Location:	Project No.
General Electric Company	Woods Pond Dam (MA00731), Lee/Lenox, MA	01.0019896.50

Photo No.	Date:
19	11/14/2023

Direction Photo Taken:
Right and upstream.

Description:
Downstream stoplog sluice structure (downstream control) right training wall. Note vertical crack in the concrete.

Photo No.	Date:
20	11/14/2023

Direction Photo Taken:
Downstream

Description:
Culvert at the downstream end of the raceway. Culvert leads to Mill Pond.

APPENDIX C – INSPECTION CHECKLIST

DAM SAFETY INSPECTION CHECKLIST

NAME OF DAM: Woods Pond Dam

STATE ID #: 1-2-150-11

REGISTERED: ☑ YES ☐ NO

NID ID #: MA00731

STATE SIZE CLASSIFICATION: Large

STATE HAZARD CLASSIFICATION: Significant

CHANGE IN HAZARD CLASSIFICATION REQUESTED?: No

DAM LOCATION INFORMATION

CITY/TOWN: Lee

COUNTY: Berkshire

DAM LOCATION: 100 Valley St, Lenox, MA 01240
(street address if known)

ALTERNATE DAM NAME: Valley Mill Dam (former Woods Pond Dam)

USGS QUAD.: Housatonic

LAT.: 42.3471731 N

LONG.: 73.2445881 W

DRAINAGE BASIN: Housatonic

RIVER: Housatonic River

IMPOUNDMENT NAME(S): Woods Pond or Woods Pond Reservoir

GENERAL DAM INFORMATION

TYPE OF DAM: Concrete / sheetpile with riprap abutments

OVERALL LENGTH (FT): 298

PURPOSE OF DAM: Impound Woods Pond Reservoir / PCB sediments

NORMAL POOL STORAGE (ACRE-FT): 460 at El. 948.8'

YEAR BUILT: 1864, rebuilt 150' downstream in 1989 (current configuration)

MAXIMUM POOL STORAGE (ACRE-FT): 5,300 at El. 955.8'

STRUCTURAL HEIGHT (FT): 17.6

EL. NORMAL POOL (FT): 948.8±

HYDRAULIC HEIGHT (FT): 11.9

EL. MAXIMUM POOL (FT): 955.8

FOR INTERNAL MADCR USE ONLY

FOLLOW-UP INSPECTION REQUIRED: ☐ YES ☐ NO

CONDITIONAL LETTER: ☐ YES ☐ NO

NAME OF DAM: Woods Pond Dam | STATE ID #: 1-2-150-11

INSPECTION DATE: November 14, 2023 | NID ID #: MA00731

INSPECTION SUMMARY

DATE OF INSPECTION: November 14, 2023 | DATE OF PREVIOUS INSPECTION: November 11, 2021

TEMPERATURE/WEATHER: 40s F / Partly Cloudy | ARMY CORPS PHASE I: ☐ YES ☑ NO | If YES, date

CONSULTANT: GZA GeoEnvironmental, Inc. | PREVIOUS DCR PHASE I: ☑ YES ☐ NO | If YES, date 11/11/2021

BENCHMARK/DATUM: NGVD29

OVERALL PHYSICAL CONDITION OF DAM: SATISFACTORY | DATE OF LAST REHABILITATION: Late 1980s - major modifications

SPILLWAY CAPACITY: >100% SDF w/ no actions by Caretaker

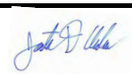
EL. POOL DURING INSP.: 949.3± | EL. TAILWATER DURING INSP.: 941.8±

PERSONS PRESENT AT INSPECTION

NAME	TITLE/POSITION	REPRESENTING
Jonathan D. Andrews, P.E.	Principal-in-Charge	GZA GeoEnvironmental, Inc.
Seth D. Krause, P.E.	Project Manager	GZA GeoEnvironmental, Inc.
Leslie DeCristofaro	Engineer I	GZA GeoEnvironmental, Inc.
Scott Campbell	Regulator	Taconic Ridge Environmental (representing EPA)

EVALUATION INFORMATION

	Click on box to select E-code		Click on box to select E-code
E1) TYPE OF DESIGN	4	E8) LOW-LEVEL OUTLET CONDITION	4
E2) LEVEL OF MAINTENANCE	4	E9) SPILLWAY DESIGN FLOOD CAPACITY	5
E3) EMERGENCY ACTION PLAN	5	E10) OVERALL PHYSICAL CONDITION	4
E4) EMBANKMENT SEEPAGE	4	E11) ESTIMATED REPAIR COST	Not applicable
E5) EMBANKMENT CONDITION	4	ROADWAY OVER CREST	NO
E6) CONCRETE CONDITION	4	BRIDGE NEAR DAM	NO
E7) LOW-LEVEL OUTLET CAPACITY	4		

NAME OF INSPECTING ENGINEER: Jonathan D. Andrews, P.E. | SIGNATURE: 

NAME OF DAM:	Woods Pond Dam	STATE ID #:	1-2-150-11
INSPECTION DATE:	November 14, 2023	NID ID #:	MA00731

OWNER:		CARETAKER:	
ORGANIZATION	General Electric Company	ORGANIZATION	General Electric Company
NAME/TITLE	Kevin Mooney, Senior Project Ma	NAME/TITLE	Kevin Mooney, Senior Project Manager
STREET	1 Plastics Avenue	STREET	1 Plastics Avenue
TOWN, STATE, ZIP	Pittsfield, MA 01201	TOWN, STATE, ZIP	Pittsfield, MA 01201
PHONE	413-448-6610	PHONE	413-448-6610
EMERGENCY PH. #	413-441-4619	EMERGENCY PH. #	413-441-4919
FAX	-	FAX	-
EMAIL	kevin.mooney@ge.com	EMAIL	kevin.mooney@ge.com
OWNER TYPE	Private		

PRIMARY SPILLWAY TYPE	Concrete ogee		
SPILLWAY LENGTH (FT)	140	SPILLWAY CAPACITY (CFS)	12,100 at El. 955.8'
AUXILIARY SPILLWAY TYPE	Not applicable	AUX. SPILLWAY CAPACITY (CFS)	Not applicable
NUMBER OF OUTLETS	One	OUTLET(S) CAPACITY (CFS)	850 at El. 955.8' (no stoplogs)
TYPE OF OUTLETS	Raceway closure structure (stoplogs)	TOTAL DISCHARGE CAPACITY (CFS)	12,950 at El. 955.8'
DRAINAGE AREA (SQ MI)	170	SPILLWAY DESIGN FLOOD (PERIOD/CFS)	500-year / 12,100

HAS DAM BEEN BREACHED OR OVERTOPPED ☐ YES ☑ NO IF YES, PROVIDE DATE(S) Not applicable

FISH LADDER (LIST TYPE IF PRESENT) Not applicable

DOES CREST SUPPORT PUBLIC ROAD? ☐ YES ☑ NO IF YES, ROAD NAME: Not applicable

PUBLIC BRIDGE WITHIN 50' OF DAM? ☐ YES ☑ NO IF YES, ROAD/BRIDGE NAME: Not applicable

MHD BRIDGE NO. (IF APPLICABLE) Not applicable

NAME OF DAM: Woods Pond Dam STATE ID #: 1-2-150-11

INSPECTION DATE: November 14, 2023 NID ID #: MA00731

EMBANKMENT (CREST) - RACEWAY EMBANKMENT

AREA INSPECTED	CONDITION	OBSERVATIONS	NO ACTION	MONITOR	REPAIR
CREST	1. SURFACE TYPE	Grass and gravel on the downstream end; slush grouted riprap on the upstream end.	X		
	2. SURFACE CRACKING	None observed.	X		
	3. SINKHOLES, ANIMAL BURROWS	None observed.	X		
	4. VERTICAL ALIGNMENT (DEPRESSIONS	Slight unevenness.		X	
	5. HORIZONTAL ALIGNMENT	No unusual movement or misalignment observed.	X		
	6. RUTS AND/OR PUDDLES	Slight unevenness.		X	
	7. GRASS COVER CONDITION	Full coverage. Grass recently mowed. Minor weeds.		X	
	8. WOODY VEGETATION (TREES/BRUSH)	None observed.	X		
	9. ABUTMENT CONTACT	The right side of the embankment intersects the dam upstream; the left side intersects the roadway/culvert downstream. No signs of crest settlement, movement, etc.	X		

ADDITIONAL COMMENTS: See "Instrumentation" for raceway embankment monitoring wells.

Note: Raceway embankment impounds the raceway channel (raceway embankment does not impound Woods Pond Dam)

NAME OF DAM: Woods Pond Dam STATE ID #: 1-2-150-11

INSPECTION DATE: November 14, 2023 NID ID #: MA00731

EMBANKMENT (D/S SLOPE) - RACEWAY EMBANKMENT

AREA INSPECTED	CONDITION	OBSERVATIONS	NO ACTION	MONITOR	REPAIR
D/S SLOPE	1. WET AREAS (NO FLOW)	None observed.	X		
	2. SEEPAGE	None observed.	X		
	3. SLIDE, SLOUGH, SCARP	None observed.	X		
	4. EMB.-ABUTMENT CONTACT	The right side of the embankment intersects the dam upstream; the left side intersects the roadway/culvert downstream. No signs of seepage, sloughing, etc.	X		
	5. SINKHOLE/ANIMAL BURROWS	None observed.	X		
	6. EROSION	None observed.	X		
	7. UNUSUAL MOVEMENT	None observed.	X		
	8. GRASS COVER CONDITION	Downstream slope protected with riprap armoring - good coverage / condition.	X		
	9. WOODY VEGETATION (TREES/BRUSH)	None observed.	X		

ADDITIONAL COMMENTS: D/S Slope refers to

Note: Raceway embankment impounds the raceway channel (raceway embankment does not impound Woods Pond Dam)

NAME OF DAM: Woods Pond Dam STATE ID #: 1-2-150-11

INSPECTION DATE: November 14, 2023 NID ID #: MA00731

EMBANKMENT (U/S SLOPE) - RACEWAY EMBANKMENT

AREA INSPECTED	CONDITION	OBSERVATIONS	NO ACTION	MONITOR	REPAIR
U/S SLOPE	1. SLIDE, SLOUGH, SCARP	None observed.	X		
	2. SLOPE PROTECTION TYPE AND COND.	Upstream slope protected with riprap armoring - good coverage / condition. Embankment	X		
	3. SINKHOLE/ANIMAL BURROWS	None observed.	X		
	4. EMB.-ABUTMENT CONTACT	The right side of the embankment intersects the dam upstream; the left side intersects the roadway/culvert downstream. No signs of seepage, sloughing, etc.	X		
	5. EROSION	None observed.	X		
	6. UNUSUAL MOVEMENT	Slight tilt in masonry wall upstream of the raceway inlet; measures ~5.5-inches out of plumb. Similar to previous observations and inspections.		X	
	7. GRASS COVER CONDITION	Upstream slope protected with riprap armoring - good coverage / condition.	X		
	8. WOODY VEGETATION (TREES/BRUSH)	None observed.	X		

ADDITIONAL COMMENTS:

Note: Raceway embankment impounds the raceway channel (raceway embankment does not impound Woods Pond Dam)

NAME OF DAM: Woods Pond Dam STATE ID #: 1-2-150-11

INSPECTION DATE: November 14, 2023 NID ID #: MA00731

INSTRUMENTATION

AREA INSPECTED	CONDITION	OBSERVATIONS	NO ACTION	MONITOR	REPAIR
INSTR.	1. PIEZOMETERS	None.			
	2. OBSERVATION WELLS	Three observation wells on the crest of the raceway embankment; B-1, B-2, B-3. Water levels measured during inspection. Measurements within expected range.		X	
	3. STAFF GAGE AND RECORDER	Staff gage painted on the left upstream spillway training wall and on the right downstream raceway stoplog sluice structure (downstream control) training wall. Staff gage markings difficult to read.			X
	4. WEIRS	None.	X		
	5. INCLINOMETERS	None.	X		
	6. SURVEY MONUMENTS	None.	X		
	7. DRAINS	None.	X		
	8. FREQUENCY OF READINGS	Observation wells are read quarterly.		X	
	9. LOCATION OF READINGS	Taken by GZA during quarterly visual inspections.		X	

ADDITIONAL COMMENTS:

NAME OF DAM: Woods Pond Dam STATE ID #: 1-2-150-11

INSPECTION DATE: November 14, 2023 NID ID #: MA00731

DOWNSTREAM AREA

AREA INSPECTED	CONDITION	OBSERVATIONS	NO ACTION	MONITOR	REPAIR
D/S AREA	1. ABUTMENT LEAKAGE	Previously observed seepage at the bottom of the downstream left and right stoplog sluice structure (downstream control); previouly observed seepage reported clear; seepage flow imperceptable. Seepage not observed during this inspection; only a minor wet spot. (1)		X	
	2. FOUNDATION SEEPAGE	None observed.	X		
	3. SLIDE, SLOUGH, SCARP	Previously reported bedrock scour at the toe of the spillway; see survey. Scour not observed during this inspection (underwater).		X	
	4. WEIRS	None.	X		
	5. DRAINAGE SYSTEM	None.	X		
	6. INSTRUMENTATION	See "Instrumentation".	X		
	7. VEGETATION WITHIN 15 FT	None observed.	X		
	8. ACCESSIBILITY	Locked gates at the downstream end of the raceway embankment and left side of the spillway. Access to the right side of the dam is across railroad tracks.	X		
	9. DOWNSTREAM HAZARD DESCRIPTION	Industrial area, residences, and secondary highways.	X		
	10. DATE OF LAST EAP UPDATE	12/14/2023	X		

ADDITIONAL COMMENTS: 1) Vertical crack on right downstream raceway outlet training wall. Vertical and longitudinal cracks (possibly joints) and efflorescence on the left downstream raceway outlet wall.

NAME OF DAM: Woods Pond Dam STATE ID #: 1-2-150-11

INSPECTION DATE: November 14, 2023 NID ID #: MA00731

MISCELLANEOUS

AREA INSPECTED	CONDITION	OBSERVATIONS
MISC.	1. RESERVOIR DEPTH (AVG)	Approximately 8 feet at normal pool.
	2. RESERVOIR SHORELINE	Wooded.
	3. RESERVOIR SLOPES	Shallow slopes.
	4. ACCESS ROADS	Access via parking lot downstream of the dam.
	5. SECURITY DEVICES	Locked gates.
	6. WATER PUBLIC HAZARDS & PROTECTION	Buoys installed upstream of the dam.
	7. LAND-SIDE PUBLIC HAZARDS & PROTECTION	Warning signs installed.
	8. VANDALISM OR TRESPASS	☐ YES ☑ NO WHAT: n/a
	9. AVAILABILITY OF PLANS	☑ YES ☐ NO DATE: 1989-1991
	10. AVAILABILITY OF DESIGN CALCS	☑ YES ☐ NO DATE: 1989-1991
	11. AVAILABILITY OF EAP/LAST UPDATE	☑ YES ☐ NO DATE: 12/14/2023
	12. AVAILABILITY OF O&M MANUAL	☑ YES ☐ NO DATE: 6/17/2019 (amendment issued on 9/4/2020)
	13. CARETAKER/OWNER AVAILABLE	☑ YES ☐ NO DATE: 11/14/2023
	14. CONFINED SPACE ENTRY REQUIRED	☐ YES ☑ NO PURPOSE: n/a

ADDITIONAL COMMENTS:

NAME OF DAM: Woods Pond Dam STATE ID #: 1-2-150-11

INSPECTION DATE: November 14, 2023 NID ID #: MA00731

PRIMARY SPILLWAY

AREA INSPECTED	CONDITION	OBSERVATIONS	NO ACTION	MONITOR	REPAIR
SPILLWAY	1. SPILLWAY TYPE	Concrete overflow weir.	X		
	2. WEIR TYPE	Ogee-shaped.	X		
	3. SPILLWAY CONDITION	Flow over the spillway obscured observations.		X	
	4. TRAINING WALLS	Minor cracking and efflorescence in the left and right training walls, similar to previous inspections. (1)		X	
	5. SPILLWAY CONTROLS AND CONDITION	None - overflow weir.	X		
	6. UNUSUAL MOVEMENT	None observed.	X		
	7. APPROACH AREA	Housatonic River, clear. Buoys installed upstream of the dam.	X		
	8. DISCHARGE AREA	Housatonic River, clear.	X		
	9. DEBRIS	Debris / logs observed on the right side of the spillway crest. Debris did not appear to be impacting flow.		X	

ADDITIONAL COMMENTS: 1. Right downstream training wall has historical orange staining and minor deterioration around a horizontal joint. Condition appears stable and is similar to that observed in previous inspections.

NAME OF DAM: Woods Pond Dam STATE ID #: 1-2-150-11

INSPECTION DATE: November 14, 2023 NID ID #: MA00731

AUXILIARY SPILLWAY (N/A)

AREA INSPECTED	CONDITION	OBSERVATIONS	NO ACTION	MONITOR	REPAIR
SPILLWAY	1. SPILLWAY TYPE				
	2. WEIR TYPE				
	3. SPILLWAY CONDITION				
	4. TRAINING WALLS				
	5. SPILLWAY CONTROLS AND CONDITION				
	6. UNUSUAL MOVEMENT				
	7. APPROACH AREA				
	8. DISCHARGE AREA				
	9. DEBRIS				

N/A

ADDITIONAL COMMENTS:

NAME OF DAM: Woods Pond Dam STATE ID #: 1-2-150-11

INSPECTION DATE: November 14, 2023 NID ID #: MA00731

OUTLET WORKS

AREA INSPECTED	CONDITION	OBSERVATIONS	NO ACTION	MONITOR	REPAIR
OUTLET WORKS	1. TYPE	Stoplog controlled raceway.	X		
	2. INTAKE STRUCTURE	Raceway closure structure (upstream control). Good condition.	X		
	3. TRASHRACK	None.	X		
	4. PRIMARY CLOSURE	Steel and cocnrete stoplogs with small gap between the second and third stoplog to prevent stagnation downstream.	X		
	5. SECONDARY CLOSURE	Raceway stoplog sluice structure (downstream control). See "Downstream Area".	X		
	6. CONDUIT	Raceway channel.	X		
	7. OUTLET STRUCTURE/HEADWALL	Sheetpile wall immediately upstream; good condition. See "Embankment (U/S Slope)".	X		
	8. EROSION ALONG TOE OF DAM	None observed.	X		
	9. SEEPAGE/LEAKAGE	See "Downstream Area".	X		
	10. DEBRIS/BLOCKAGE	None observed.			
	11. UNUSUAL MOVEMENT	See "Embankment (U/S Slope)".	X		
	12. DOWNSTREAM AREA	See "Downstream Area".	X		
	13. MISCELLANEOUS	Upstream and downstream stoplogs exercised by the caretaker prior to the inspection.	X		

ADDITIONAL COMMENTS: A utility pole on the shoreline to the left of the raceway channel is leaning slightly towards the raceway channel. This condition is similar to that observed in previous inspections.

NAME OF DAM: Woods Pond Dam STATE ID #: 1-2-150-11

INSPECTION DATE: November 14, 2023 NID ID #: MA00731

CONCRETE/MASONRY DAMS (CREST)

AREA INSPECTED	CONDITION	OBSERVATIONS	NO ACTION	MONITOR	REPAIR
CREST	TYPE	Concrete with sheetpile walls.	X		
	SURFACE CONDITIONS	Good condition. Minor cracks in concrete abutments. See "Primary Spillway".		X	
	CONDITIONS OF JOINTS	Good condition. Minor spalling of concrete abutment joints. See "Primary Spillway".		X	
	UNUSUAL MOVEMENT	None observed.	X		
	HORIZONTAL ALIGNMENT	No unusual movement or misalignment observed.	X		
	VERTICAL ALIGNMENT	No unusual movement or misalignment observed.	X		

ADDITIONAL COMMENTS:

NAME OF DAM: Woods Pond Dam STATE ID #: 1-2-150-11

INSPECTION DATE: November 14, 2023 NID ID #: MA00731

CONCRETE/MASONRY DAMS (DOWNSTREAM FACE)

AREA INSPECTED	CONDITION	OBSERVATIONS	NO ACTION	MONITOR	REPAIR
D/S FACE	TYPE	Concrete with sheetpile walls.	X		
	SURFACE CONDITIONS	Good condition. Minor cracks in concrete abutments. See "Primary Spillway".		X	
	CONDITIONS OF JOINTS	Good condition. Minor spalling of concrete abutment joints. See "Primary Spillway".		X	
	UNUSUAL MOVEMENT	None observed.	X		
	ABUTMENT CONTACT	Good condition. No signs of seepage, movement, etc.	X		
	LEAKAGE	None observed.	X		

ADDITIONAL COMMENTS:

NAME OF DAM: Woods Pond Dam STATE ID #: 1-2-150-11

INSPECTION DATE: November 14, 2023 NID ID #: MA00731

CONCRETE/MASONRY DAMS (UPSTREAM FACE)

AREA INSPECTED	CONDITION	OBSERVATIONS	NO ACTION	MONITOR	REPAIR
U/S FACE	TYPE	Sheetpiles surrounded by riprap on the left; riprap on the right.	X		
	SURFACE CONDITIONS	Mostly covered by sheetpile / riprap. No indications of deterioration.	X		
	CONDITIONS OF JOINTS	Mostly covered by sheetpile / riprap. No indications of deterioration.	X		
	UNUSUAL MOVEMENT	None observed.			
	ABUTMENT CONTACTS	Good condition. No signs of erosion, movement, etc.	X		

ADDITIONAL COMMENTS:

APPENDIX D – PREVIOUS REPORTS & REFERENCES

PREVIOUS REPORTS AND REFERENCES

The following is a list of reports that were located during the file review or were referenced in previous reports.

1. Woods Pond Dam Post-Storm Inspection Report prepared for General Electric Company, Pittsfield, MA by GZA GeoEnvironmental, Inc., Norwood, MA, December 21, 2023.
2. Woods Pond Dam Quarterly Inspection/Evaluation Report prepared for General Electric Company, Pittsfield, MA by GZA GeoEnvironmental, Inc., Norwood, MA, August 17, 2023.
3. Woods Pond Dam Post-Storm Inspection Report prepared for General Electric Company, Pittsfield, MA by GZA GeoEnvironmental, Inc., Norwood, MA, July 17, 2023.
4. Woods Pond Dam Quarterly Inspection/Evaluation Report prepared for General Electric Company, Pittsfield, MA by GZA GeoEnvironmental, Inc., Norwood, MA, May 30, 2023.
5. Woods Pond Dam Quarterly Inspection/Evaluation Report prepared for General Electric Company, Pittsfield, MA by GZA GeoEnvironmental, Inc., Norwood, MA, February 2, 2023.
6. Woods Pond Dam Quarterly Inspection/Evaluation Report prepared for General Electric Company, Pittsfield, MA by GZA GeoEnvironmental, Inc., Norwood, MA, November 21, 2022.
7. Woods Pond Dam Quarterly Inspection/Evaluation Report prepared for General Electric Company, Pittsfield, MA by GZA GeoEnvironmental, Inc., Norwood, MA, September 6, 2022.
8. Woods Pond Dam Dewatered Spillway Inspection prepared for General Electric Company, Pittsfield, MA by GZA GeoEnvironmental, Inc., Norwood, MA, August 17, 2022.
9. Woods Pond Dam Quarterly Inspection/Evaluation Report prepared for General Electric Company, Pittsfield, MA by GZA GeoEnvironmental, Inc., Norwood, MA, June 27, 2022.
10. Woods Pond Dam Quarterly Inspection/Evaluation Report prepared for General Electric Company, Pittsfield, MA by GZA GeoEnvironmental, Inc., Norwood, MA, March 4, 2022.
11. Woods Pond Dam Phase I Inspection/Evaluation Report (2021) prepared for General Electric Company, Pittsfield, MA by GZA GeoEnvironmental, Inc., Norwood, MA, November 2021.
12. Woods Pond Dam Quarterly Inspection/Evaluation Report prepared for General Electric Company, Pittsfield, MA by GZA GeoEnvironmental, Inc., Norwood, MA, May 19,2021.
13. Woods Pond Dam Quarterly Inspection/Evaluation Report prepared for General Electric Company, Pittsfield, MA by GZA GeoEnvironmental, Inc., Norwood, MA, March 10,2021.
14. Woods Pond Dam Quarterly Inspection/Evaluation Report prepared for General Electric Company, Pittsfield, MA by GZA GeoEnvironmental, Inc., Norwood, MA, December 10, 2020.
15. Woods Pond Dam Quarterly Inspection/Evaluation Report prepared for General Electric Company, Pittsfield, MA by GZA GeoEnvironmental, Inc., Norwood, MA, August 7, 2020.
16. Woods Pond Dam Quarterly Inspection/Evaluation Report prepared for General Electric Company, Pittsfield, MA by GZA GeoEnvironmental, Inc., Norwood, MA, May 8, 2020.
17. Woods Pond Dam Quarterly Inspection/Evaluation Report prepared for General Electric Company, Pittsfield, MA by GZA GeoEnvironmental, Inc., Norwood, MA, February 12, 2020.
18. Woods Pond Dam Phase I Inspection/Evaluation Report (2019) prepared for General Electric Company, Pittsfield, MA by GZA GeoEnvironmental, Inc., Norwood, MA, November 2019.
19. Woods Pond Dam Phase I Inspection/Evaluation Report (2016) prepared for General Electric Company, Pittsfield, MA by GZA GeoEnvironmental, Inc., Norwood, MA, December 2016.

20. Woods Pond Dam Phase I Inspection/Evaluation Report (2014), prepared for General Electric Company, Pittsfield, MA by GZA GeoEnvironmental, Inc., Norwood, MA, November, 2014.
21. Woods Pond Dam Phase I Inspection/Evaluation Report (2012), prepared for General Electric Company, Pittsfield, MA by GZA GeoEnvironmental, Inc., Norwood, MA, December, 2012.
22. Woods Pond Dam Phase I Inspection/Evaluation Report (2009) prepared for General Electric Company, Pittsfield, MA by GZA GeoEnvironmental, Inc., Norwood, MA, July 2010.
23. Woods Pond Dam Structural Integrity Assessment and Inspection/Evaluation Report (2007) prepared for General Electric Company, Pittsfield, MA by MWH, Chicago, IL, November 2007.
24. Emergency Action Plan for Woods Pond Dam, prepared for General Electric Company, Pittsfield, MA by MWH, Chicago, IL, July 2008.
25. Operations & Maintenance Plan for Woods Pond Dam, prepared for General Electric Company, Pittsfield, MA by MWH, Chicago, IL, September 2006.
26. Woods Pond Dam Structural Integrity Assessment Report (2005) prepared for General Electric Company, Pittsfield, MA by MWH, Chicago, IL, April 2006.
27. Woods Pond Dam Structural Integrity Assessment Report (2004) prepared for General Electric Company, Pittsfield, MA by MWH, Chicago, IL, February 2005.
28. Woods Pond Dam Structural Integrity Assessment Report (2002), prepared for General Electric Company, Pittsfield, MA by MWH, Chicago, IL, May 2003.
29. Letter to Andrew Silfer, General Electric Project Coordinator from Dale C. Young, Lead Administrative Trustee of The Trustees of The Commonwealth of Massachusetts Executive Office of Environmental Affairs, July 9, 2001.
30. Woods Pond Dam Structural Integrity Assessment Report (2000), prepared for General Electric Company, Pittsfield, MA by Harza Engineering Company, Chicago, IL, January 2001.
31. Railroad Design and Rehabilitation (2000), Technical Instructions TI 850-02 by U. S. Army Corps of Engineers, March 2000.
32. Downstream Raceway Embankment Slope Stability Analysis, prepared for General Electric Company, Pittsfield, MA by Harza Engineering Company, Chicago, IL, March 2000.
33. Woods Pond Dam Inspection Report (1998), prepared for General Electric Company, Pittsfield, MA by Harza Engineering Company, Chicago, IL, March 1999.
34. Inspection/Evaluation Report for Woods Pond Dam, prepared for Massachusetts Department of Environmental Management, Office of Dam Safety, by Root Engineering, based on inspection conducted on May 27, 1998 (report undated).
35. First Annual Inspection Report of Woods Pond Dam, prepared for General Electric Company, Pittsfield, MA by Harza Engineering Company, Chicago, IL, March 1991.
36. General Design Report for Woods Pond Dam Rehabilitation, prepared for General Electric Company, Pittsfield, MA by Harza Engineering Company, Chicago, IL, April 1989.
37. Phase II Investigation Report at Woods Pond Dam, Lee, Massachusetts, prepared for General Electric Company, Pittsfield, MA by Harza Engineering Company, Chicago, IL, June 1988.
38. Hydraulic Design Criteria, Sheet 712-1, Stone Stability – Velocity vs. Stone Diameter, by U. S. Army Corps of Engineers, revised 9-70.

39. Phase I Inspection Report, National Dam Inspection Program, Woods Pond (Valley Mill) Dam MA00731, Lee-Lenox, Massachusetts, prepared by the United States Army Corps of Engineers, New England Division, Waltham, MA, July 1979.

The following reference was utilized during the preparation of this report and the development of the recommendations presented herein.

1. Commonwealth of Massachusetts Regulations, 302 CMR 10.00 – Dam Safety, Effective 02/10/17.

APPENDIX E – DEFINITIONS

COMMON DAM SAFETY DEFINITIONS

For a comprehensive list of Dam engineering terminology and definitions refer to 302 CMR10.00 Dam Safety, or other reference published by FERC, Dept. of the Interior Bureau of Reclamation, or FEMA. Please note should discrepancies between definitions exist, those definitions included within 302 CMR 10.00 govern for Dams located within the Commonwealth of Massachusetts.

Orientation

Upstream – Shall mean the side of the Dam that borders the impoundment.

Downstream – Shall mean the high side of the Dam, the side opposite the upstream side.

Right – Shall mean the area to the right when looking in the downstream direction.

Left – Shall mean the area to the left when looking in the downstream direction.

Dam Components

Dam – Shall mean any artificial barrier, including appurtenant works, which impounds or diverts water.

Embankment – Shall mean the fill material, usually earth or rock, placed with sloping sides, such that it forms a permanent barrier that impounds water.

Crest – Shall mean the top of the Dam, usually provides a road or path across the Dam.

Abutment – Shall mean that part of a valley side against which a Dam is constructed. An artificial abutment is sometimes constructed as a concrete gravity section, to take the thrust of an arch Dam where there is no suitable natural abutment.

Appurtenant Works – Shall mean structures, either in Dams or separate therefrom, including but not be limited to, spillways; reservoirs and their rims; low-level outlet works; and water conduits including tunnels, pipelines, or penstocks, either through the Dams or their abutments.

Spillway – Shall mean a structure over or through which water flows are discharged. If the flow is controlled by gates or boards, it is a controlled spillway; if the fixed elevation of the spillway crest controls the level of the impoundment, it is an uncontrolled spillway.

Size Classification
(as listed in Commonwealth of Massachusetts, 302 CMR 10.00 Dam Safety)

Large – structure with a height greater than 40 feet or a storage capacity greater than 1,000 acre-feet.

Intermediate – structure with a height between 15 and 40 feet or a storage capacity of 50 to 1,000 acre-feet.

Small – structure with a height between 6 and 15 feet and a storage capacity of 15 to 50 acre-feet.

Non-Jurisdictional – structure less than 6 feet in height or having a storage capacity of less than 15 acre-feet.

Hazard Classification
(as listed in Commonwealth of Massachusetts, 302 CMR 10.00 *Dam Safety*)

High Hazard (Class I) – Shall mean Dams located where failure will likely cause loss of life and serious Damage to home(s), industrial or commercial facilities, important public utilities, main highway(s) or railroad(s).

Significant Hazard (Class II) – Shall mean Dams located where failure may cause loss of life and Damage to home(s), industrial or commercial facilities, secondary highway(s) or railroad(s), or cause the interruption of the use or service of relatively important facilities.

Low Hazard (Class III) – Dams located where failure may cause minimal property Damage to others. Loss of life is not expected.

General

EAP – Emergency Action Plan – Shall mean a predetermined (and properly documented) plan of action to be taken to reduce the potential for property Damage and/or loss of life in an area affected by an impending Dam failure.

O&M Manual – Operations and Maintenance Manual; Document identifying routine maintenance and operational procedures under normal and storm conditions.

Normal Pool – Shall mean the elevation of the impoundment during normal operating conditions.

Acre-foot – Shall mean a unit of volumetric measure that would cover one acre to a depth of one foot. It is equal to 43,560 cubic feet. One million U.S. gallons = 3.068 acre feet.

Height of Dam (Structural Height) – Shall mean the vertical distance from the lowest portion of the natural ground, including any stream channel, along the downstream toe of the Dam to the lowest point on the crest of the Dam.

Hydraulic Height – means the height to which water rises behind a Dam and the difference between the lowest point in the original streambed at the axis of the Dam and the maximum controllable water surface.

Maximum Water Storage Elevation – means the maximum elevation of water surface which can be contained by the Dam without overtopping the embankment section.

Spillway Design Flood (SDF) – Shall mean the flood used in the design of a Dam and its appurtenant works particularly for sizing the spillway and outlet works, and for determining maximum temporary storage and height of Dam requirements.

Maximum Storage Capacity – The volume of water contained in the impoundment at maximum water storage elevation.

Normal Storage Capacity – The volume of water contained in the impoundment at normal water storage elevation.

Condition Rating

Unsafe – Major structural*, operational, and maintenance deficiencies exist under normal operating conditions.

Poor – Significant structural*, operation and maintenance deficiencies are clearly recognized for normal loading conditions.

Fair – Significant operational and maintenance deficiencies, no structural deficiencies. Potential deficiencies exist under unusual loading conditions that may realistically occur. Can be used when uncertainties exist as to critical parameters.

Satisfactory – Minor operational and maintenance issues. Infrequent hydrologic events could result in deficiencies.

Good – No existing or potential deficiencies recognized. Safe performance is expected under all loading including SDF.

* Structural deficiencies include but are not limited to the following:

- Excessive uncontrolled seepage (e.g., upwelling of water, evidence of fines movement, flowing water, erosion, etc.).
- Missing riprap with resulting erosion of slope.
- Sinkholes, particularly behind retaining walls and above outlet pipes, possibly indicating loss of soil due to piping, rather than animal burrows.
- Excessive vegetation and tree growth, particularly if it obscures features of the Dam and the Dam cannot be fully inspected.
- Deterioration of concrete structures (e.g., exposed rebar, tilted walls, large cracks with or without seepage, excessive spalling, etc.).
- Inoperable outlets (gates and valves that have not been operated for many years or are broken).

APPENDIX F – SUPPORTING DOCUMENTATION

GENERAL NOTES

1. Topographic Survey was performed by Foresight Land Services on February 24 and 25, 2020, using Electronic Total Station with Data Collector.

2. Plan was compiled on a PC-based computer using AutoCAD Civil 3D 2018.

3. Contours are computer-generated interpolations, edited to generally conform to field observations. Contour interval = 1 (one) foot. Contractor shall verify critical elevations and grades in the field prior to construction.

4 Horizontal Datum is based on NAD 83.

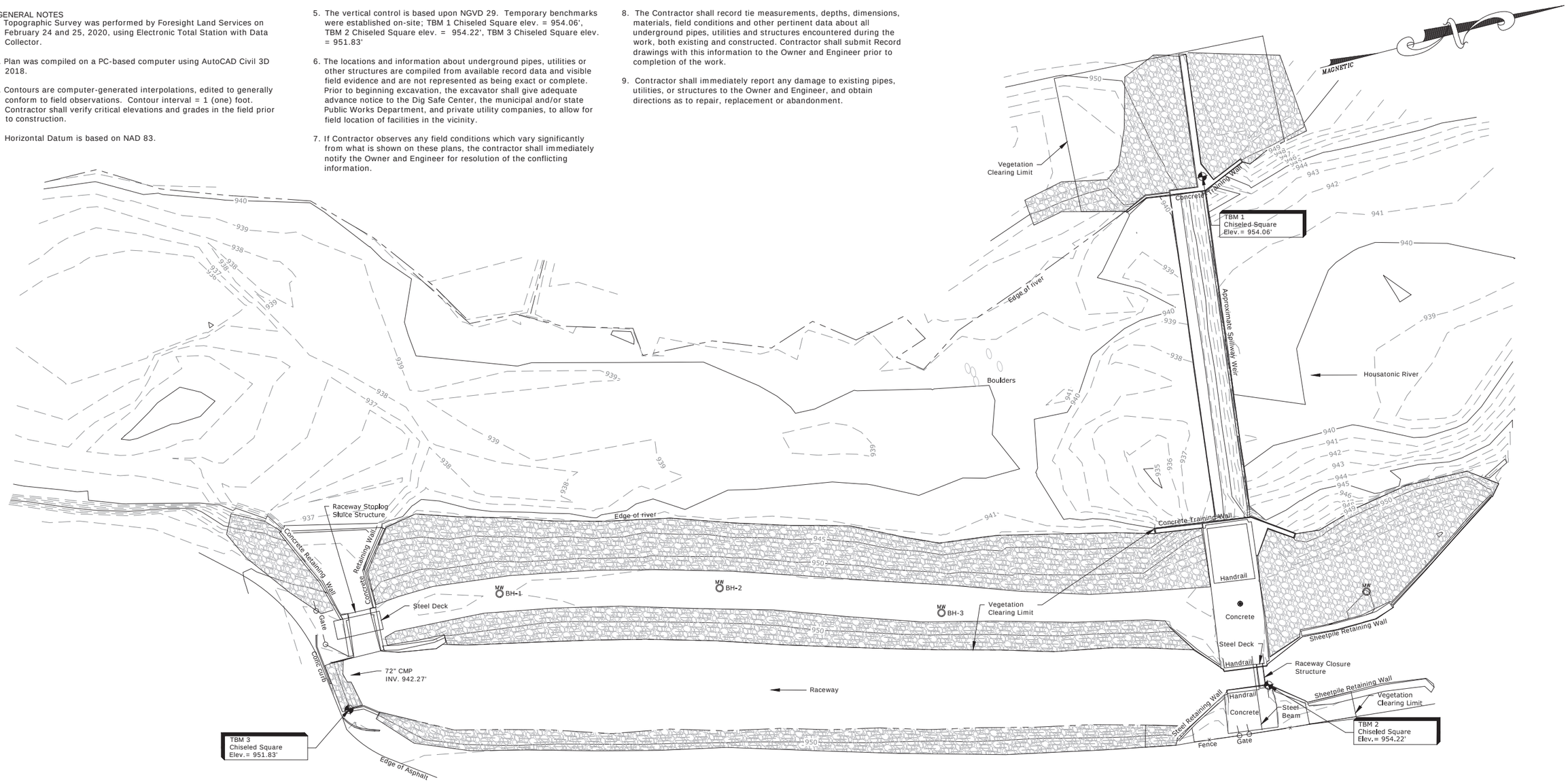
5. The vertical control is based upon NGVD 29. Temporary benchmarks were established on-site; TBM 1 Chiseled Square elev. = 954.06', TBM 2 Chiseled Square elev. = 954.22', TBM 3 Chiseled Square elev. = 951.83'

6. The locations and information about underground pipes, utilities or other structures are compiled from available record data and visible field evidence and are not represented as being exact or complete. Prior to beginning excavation, the excavator shall give adequate advance notice to the Dig Safe Center, the municipal and/or state Public Works Department, and private utility companies, to allow for field location of facilities in the vicinity.

7. If Contractor observes any field conditions which vary significantly from what is shown on these plans, the contractor shall immediately notify the Owner and Engineer for resolution of the conflicting information.

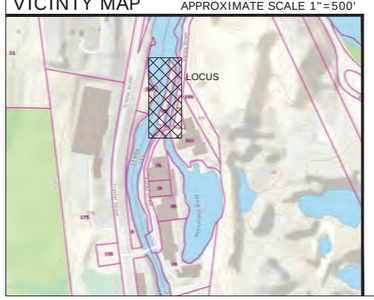
8. The Contractor shall record tie measurements, depths, dimensions, materials, field conditions and other pertinent data about all underground pipes, utilities and structures encountered during the work, both existing and constructed. Contractor shall submit Record drawings with this information to the Owner and Engineer prior to completion of the work.

9. Contractor shall immediately report any damage to existing pipes, utilities, or structures to the Owner and Engineer, and obtain directions as to repair, replacement or abandonment.



VICINITY MAP

APPROXIMATE SCALE 1"=500'



LEGEND

- TEMPORARY BENCHMARK
- IRON PIPE FOUND
- BOUND FOUND
- MW MONITOR WELL
- SIGN
- GATE POST
- EDGE OF ASPHALT
- EDGE OF RIVER
- LIMIT OF VEGETATION CLEARING
- 724 1' CONTOUR
- 725 5' CONTOUR
- x FENCE
- RIP RAP

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

NO.	DATE	REVISION	BY

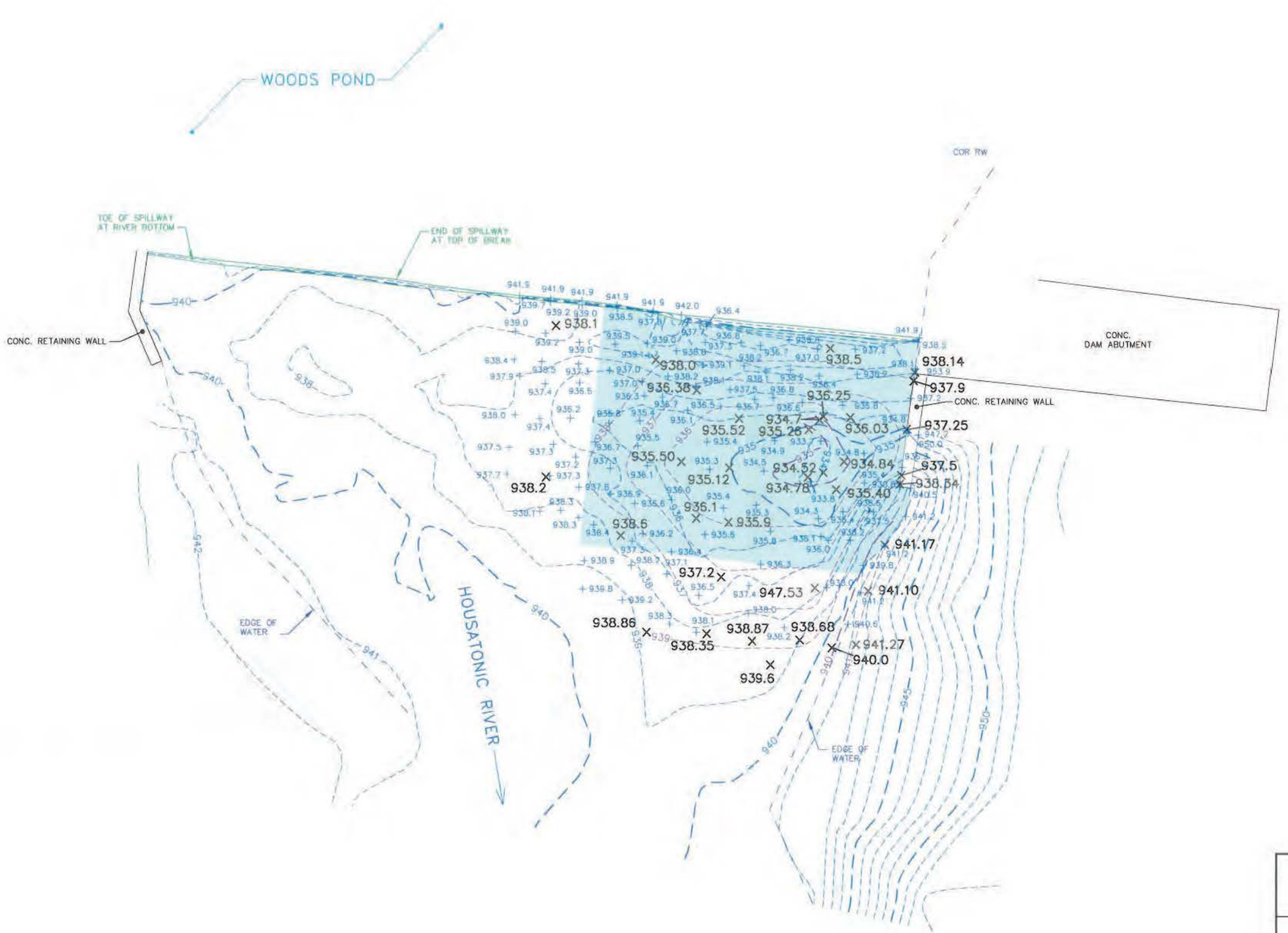
TOPOGRAPHIC SURVEY PLAN
Prepared For
GEOENVIRONMENTAL, INC.

Woods Pond

LENOX MASSACHUSETTS

FORESIGHT LAND SERVICES
ENGINEERING SURVEYING PLANNING
FORESIGHT LAND SERVICES, INC.
1496 WEST HOUSATONIC STREET - PITTSFIELD, MA 01201
TEL: (413) 499-1560 FAX: (413) 499-3307 WWW.FORESIGHTLAND.COM

SCALE: 1" = 20'	DWN. BY: DMW	CHK. BY: SAM
DATE: October 6, 2020	DWG. NO. S3013BW02	
JOB NO. S3013B	Layout Tab: W01	



LEGEND:

- APPROXIMATE AREA OF DEPRESSION
- 950 INDEX CONTOUR (2002)
- 939 INTERMEDIATE CONTOUR (2002)
- 940 INDEX CONTOUR (2007)
- 939 INTERMEDIATE CONTOUR (2007)
- +934.9 SPOT ELEVATION (2002)
- ×951.1 SPOT ELEVATION (2007)

NOTE:

1. BASEMAP PROVIDED BY MONTGOMERY WATSON HARZA, DECEMBER 2002.
2. SURVEYING AND CONTOUR MAPPING COMPLETED BY D.L. MOWERS, OCTOBER 2002.
3. HORIZONTAL DATUM IS NAD27 MASSACHUSETTS MAINLAND ZONE.
4. VERTICAL DATUM IS NGVD 1929.
5. 2007 CONTOURS BASED ON 2007 SPOT ELEVATION INFORMATION FROM A FIELD SURVEY PERFORMED BY ARCADIS OF NEW YORK, INC. ON JULY 9 AND SEPTEMBER 14, 2007.

DRAFT

0 10' 20'
GRAPHIC SCALE

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
WOODS POND DAM

CONTOUR MAP OF RIVERBED DOWNSTREAM OF SPILLWAY

ARCADIS BBL
Infrastructure, environment, facilities

FIGURE
1

Known for excellence.
Built on trust.

GEOTECHNICAL
ENVIRONMENTAL
ECOLOGICAL
WATER
CONSTRUCTION MANAGEMENT

M E M O R A N D U M

To: Kevin Mooney, General Electric (GE)

From: Leslie DeCristofaro, Chris J. Tsinidis, P.E., Jonathan D. Andrews, P.E.
GZA GeoEnvironmental (GZA)

Date: September 21, 2022

File No.: 01.0019896.50

Re: Dewatered Spillway Inspection
Woods Pond Dam
Lee and Lenox, Massachusetts

On November 11, 2021, on behalf of the General Electric Company (GE), GZA GeoEnvironmental, Inc. (GZA) performed a Phase 1 visual inspection/evaluation of Woods Pond Dam on the Housatonic River in Lee and Lenox, Massachusetts, as required by GE's Operation, Monitoring, and Maintenance Plan (OM&M Plan) for Woods Pond Dam, dated June 25, 2019 and approved by the United States Environmental Protection Agency (EPA) on July 17, 2019. In accordance with a September 4, 2020 Amendment to the OM&M Plan, the 2021 Phase 1 inspection was scheduled to be performed under low-flow conditions and to include an inspection of the spillway under dewatered conditions. However, as noted in GE's February 9, 2022 report on that inspection, continued high-flow conditions in the summer and fall of 2021 precluded performance of the dewatered spillway inspection. As a result, an inspection of the dewatered spillway was re-scheduled for a low-flow period in 2022. GZA conducted the required follow-up inspection of the dewatered spillway on August 17, 2022. This memorandum describes that inspection and the conditions observed at the dewatered spillway.

Photographs to help document the current conditions of the dam were taken during the inspection and are included in **Attachment A**, with approximate locations shown on **Figure 1**.

SPILLWAY AND RIVER FLOW

The primary spillway at Woods Pond Dam is an ogee-shaped concrete overflow weir. Woods Pond Dam is typically operated as a run-of-river dam with flow over the spillway. Prior to the dewatered inspection, LB Corporation (LB), a GE Contractor, removed one stoplog at the upstream Raceway Closure Structure, and two stoplogs at the downstream Raceway Stoplog Sluice Structure. The effect of the stoplog removals, combined with low-flow conditions in the Housatonic River, lowered the impoundment below the spillway crest, diverted river flow through the raceway, and dewatered the spillway. During the dewatered inspection, the upstream impoundment level was measured at approximately 0.4 foot below the spillway crest, corresponding to elevation 947.9 feet± (National Geodetic Vertical Datum of 1929; NGVD), and the

downstream tailwater level was measured at approximately 23 inches below the downstream spillway apron, corresponding to approximate elevation 940.1 feet, NGVD. Housatonic River average daily flow for August 17 was reported as 12.3 cubic feet per second (cfs) at the upstream gage on the East Branch at Coltsville[1] and 77.9 cfs at the downstream gage at Division Street.[2] LB replaced the raceway stoplogs following the dewatered inspection to restore spillway flow.

SPILLWAY AND DOWNSTREAM APRON OBSERVATIONS

Observation of areas of the spillway and apron surface were hindered by algae-like vegetative growth. Some areas of vegetation were removed with an ice scraper to allow for observation. None of the vegetation was found to be rooted in the concrete.

No alignment irregularities were observed in the spillway crest or apron except that the downstream apron edge exhibited small horizontal alignment irregularities that appeared to be a construction artifact. Some areas of minor surface spalling were observed, primarily below the inflection point between ogee spillway and apron. No separation or displacement at joints was observed. Mild unevenness was observed along some of the joints and at the transition from the ogee spillway to the discharge apron; the unevenness appeared to be an artifact of original construction.

TRAINING WALLS

Minor concrete deterioration was observed on the right and left training walls. The left wall exhibited hairline cracks with efflorescence. The right wall exhibited minor deterioration along a horizontal joint near the typical tailwater level with staining below. The deterioration consisted of spalling of concrete along the joint with efflorescence and orange staining below. This efflorescence on both training walls and minor deterioration near the waterline on the right training wall have been observed and monitored for several years. Two reference points, A and B, were established along the deteriorated joint on the right training wall as shown on Photograph No. 6 in **Attachment A**. The following measurements were made at the two reference points:

Reference Point	Distance from Downstream Edge of Apron	Maximum Spalled Joint Height (measured vertically)	Maximum Spalled Joint Depth (measured horizontally from face of wall)
A	8.5 feet±	1 inch±	1 inch±
B	5.1 feet±	½ inch±	½ inch±

APPROACH AREA

With the pond drawn down and no water flowing over the spillway, the water upstream of the weir was relatively still. Live algae were observed on both the left and right sides of the upstream pool, and several large logs were perched on the spillway crest next to the right training wall, but were not impeding flow. Logs on the spillway are often found and are monitored during the quarterly and biennial inspections.

[1] https://waterdata.usgs.gov/nwis/dv?cb_00060=on&format=html&site_no=01197000&referred_module=sw&period=&begin_date=2022-08-16&end_date=2022-08-18.

[2] https://waterdata.usgs.gov/nwis/dv?cb_00060=on&format=html&site_no=01197500&referred_module=sw&period=&begin_date=2022-08-16&end_date=2022-08-18.

DISCHARGE AREA AND DEPTH MEASUREMENTS

The discharge area downstream of the apron was observed to consist of bedrock or boulders, with some boulders at the base of the spillway above water at the time of the inspection. Measurements of the depth to bottom at the downstream edge of the spillway apron were taken during the dewatered inspection and are shown in the following table. The river bottom felt "hard" (e.g., like bedrock or boulder) when sounded with a weighted measuring tape at each measuring point. These measurements are intended to be replicated during future dewatered spillway inspections. Depth measurements were found to vary by up to about six inches at the same location, likely due to locally sloping river bottom conditions.

Bottom Depth Measurements Immediately Downstream of Spillway Apron

Location[1]	Bottom Depth[2]	Location[1]	Bottom Depth[2]	Location[1]	Bottom Depth[2]
0	33 inches	50 feet	60 inches	100 feet	39 inches
10 feet	45 inches	60 feet	57 inches	110 feet	37 inches
20 feet	55 inches	70 feet	46 inches	120 feet[3]	14 inches
30 feet	60 inches	80 feet	38 inches	130 feet	23 inches
40 feet	51 inches	90 feet	26 inches	140 feet	22 inches

Notes:

1) Location indicates approximate distance from left training wall.

2) Bottom depth measurements are from top of spillway apron concrete and should be considered approximate due to variations in river bottom.

3) Boulder visible at measurement location 120 feet from left training wall.

Small sticks and garbage were observed lodged in rocks at the base of the spillway near the right training wall. Small amounts of vegetation were observed in rocks exposed by low water level downstream of the dam. The upstream and downstream areas were otherwise largely free of debris. No unusual movements were observed in the discharge apron or downstream area.

CONCLUSION

Based on the August 17, 2022 inspection, no significant deficiencies were observed in the dewatered spillway that are expected to adversely affect the operation or stability of the Woods Pond Dam. We recommend continuance of dewatered spillway inspections every four years as outlined in the September 4, 2020 Amendment to the OM&M Plan for Woods Pond Dam.

ATTACHMENT

Attachment A Photographic Log and Figure 1 – Photo Location Plan

ATTACHMENT A – PHOTOGRAPHIC LOG AND FIGURE 1 - PHOTO LOCATION PLAN

Photographic Log

Client Name: General Electric Company	**Site Location:** Woods Pond Dam (MA00731) Lee & Lennox, MA	**Project No.** 01.0019896.50

Photo No.	**Date:**
1	8/17/2022

Direction Photo Taken:
From downstream channel, looking upstream.

Description:
Overview of spillway from downstream.

Photo No.	**Date:**
2	8/17/2022

Direction Photo Taken:
From left end of spillway, looking right.

Description:
Overview of spillway crest and downstream apron. Note areas of algae-like growth that obscured observation of some areas of the spillway. Growth was removed in areas during the inspection to facilitate observation.

Photographic Log

Client Name: General Electric Company	**Site Location:** Woods Pond Dam (MA00731) Lee & Lennox, MA	**Project No.** 01.0019896.50

Photo No.	**Date:**
3	8/17/2022

Direction Photo Taken:
From right abutment of spillway, looking left.

Description:
Overview of spillway crest.

Note logs on spillway crest are monitored during quarterly and biennial inspections.

Photo No.	**Date:**
4	8/17/2022

Direction Photo Taken:
Left.

Description:
Left spillway abutment and training wall.

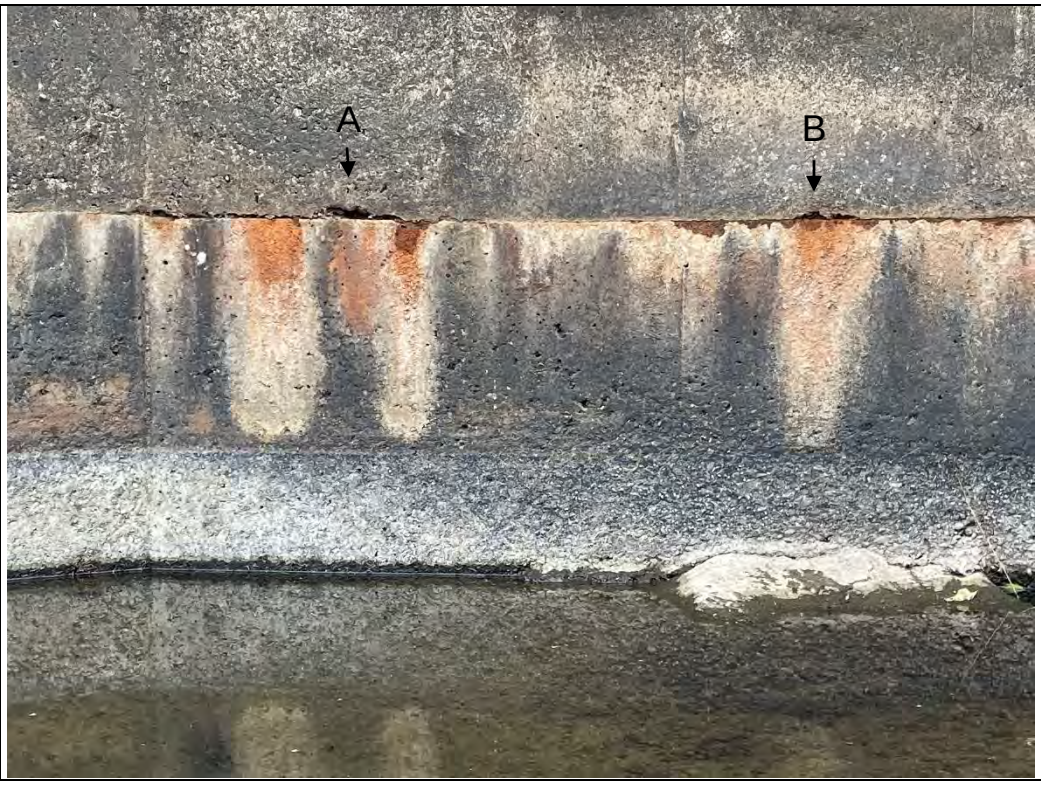
Note “hairline" cracks in training wall with efflorescence

Photographic Log

Client Name: General Electric Company	**Site Location:** Woods Pond Dam (MA00731) Lee & Lennox, MA	**Project No.** 01.0019896.50

Photo No. 5	**Date:** 8/17/2022
Direction Photo Taken: Right.	
Description: Overview of right spillway abutment and training walls.	

Photo No. 6	**Date:** 8/17/2022
Direction Photo Taken: Right.	
Description: Minor deterioration and staining of right training wall downstream of spillway apron. Note: Deterioration appears to be at a horizontal joint in the concrete. Reference Points A and B added to photograph. Refer to text for measurements at reference points.	

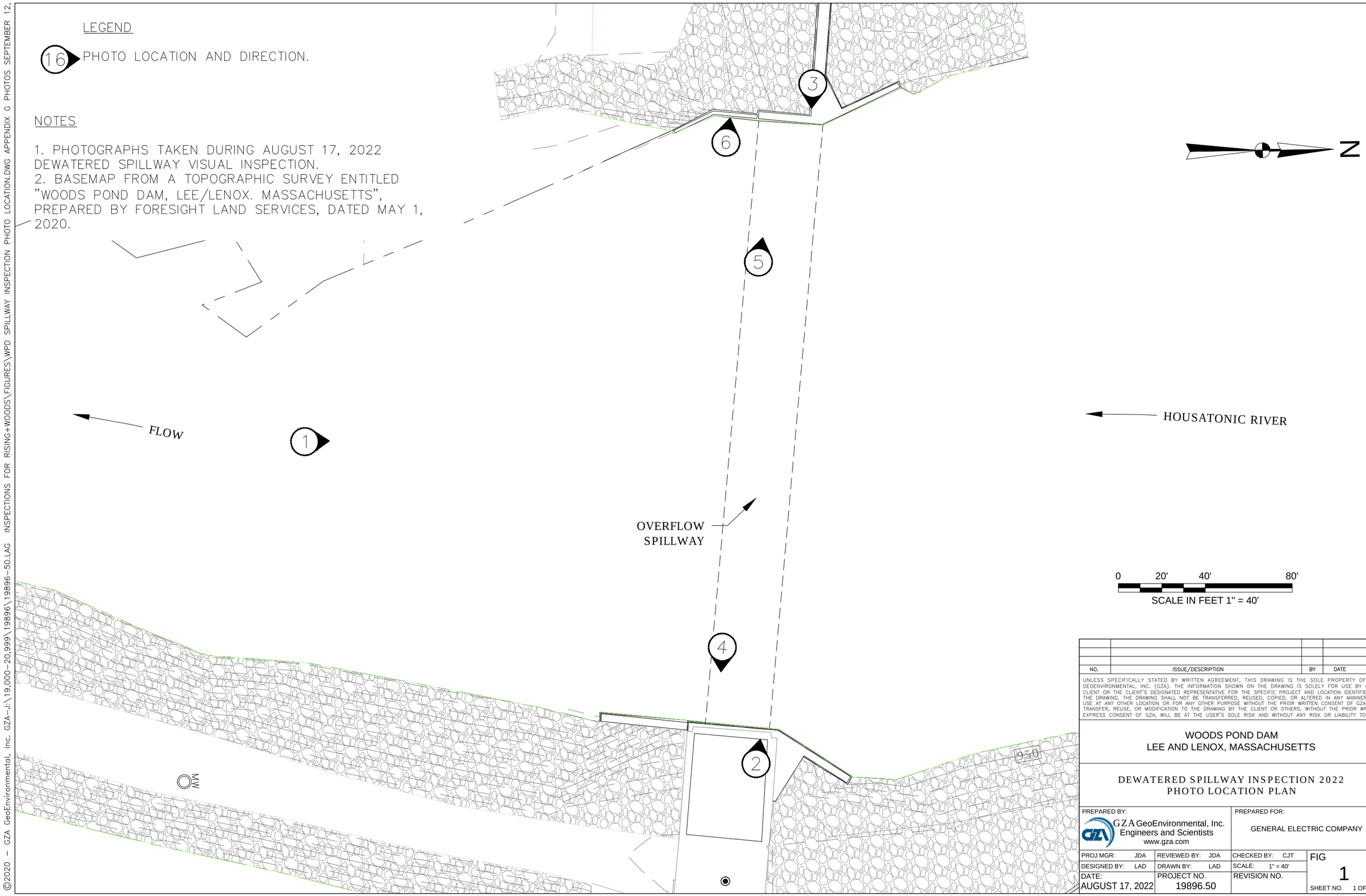


LEGEND

16 PHOTO LOCATION AND DIRECTION.

NOTES

1. PHOTOGRAPHS TAKEN DURING AUGUST 17, 2022 DEWATERED SPILLWAY VISUAL INSPECTION.
2. BASEMAP FROM A TOPOGRAPHIC SURVEY ENTITLED "WOODS POND DAM, LEE/LENOX. MASSACHUSETTS", PREPARED BY FORESIGHT LAND SERVICES, DATED MAY 1, 2020.



0 20' 40' 80'

SCALE IN FEET 1" = 40'

NO.	ISSUE/DESCRIPTION	BY	DATE

WOODS POND DAM
LEE AND LENOX, MASSACHUSETTS

DEWATERED SPILLWAY INSPECTION 2022 PHOTO LOCATION PLAN

PREPARED BY:		PREPARED FOR:	
GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		GENERAL ELECTRIC COMPANY	
PROJ MGR: JDA	REVIEWED BY: JDA	CHECKED BY: CJT	FIG 1
DESIGNED BY: LAD	DRAWN BY: LAD	SCALE: 1" = 40'	
DATE: AUGUST 17, 2022	PROJECT NO. 19896.50	REVISION NO.	SHEET NO. 1 OF 1

NOTES:

1. THE INUNDATED AREAS SHOWN ON THIS MAP REFLECT EVENTS OF AN EXTREMELY REMOTE NATURE. THESE RESULTS ARE NOT IN ANY WAY INTENDED TO REFLECT UPON THE INTEGRITY OF WOODS POND DAM.
2. NUMBERS INSIDE CROSS SECTION SYMBOLS INDICATE DISTANCE DOWN-STREAM OF WOODS POND DAM IN MILES.
3. INUNDATION AREAS SHOWN ARE APPROXIMATE AND SHOULD BE USED AS A GUIDELINE FOR ESTABLISHING EVACUATION ZONES. INUNDATED AREA WILL DEPEND ON ACTUAL CONDITIONS.
4. SEE TABLES 1-7 FOR CONTACT INFORMATION.
5. NOTE THAT THE INUNDATION AREA INCLUDES NATURAL FLOODING ALONG THE HOUSATONIC RIVER.
6. INUNDATION LIMITS DITIGTIZED FROM EAP DEVELOPED BY MWH GLOBAL INC. IN MARCH 2003,, ARE APPROXIMATE, AND MAY VARY BASED ON ACTUAL CONDITIONS. REFER TO ATTACHMENT A AND THE 2003 EAP FOR THE DETAILS.
7. BASEMAP FROM MASSGIS, ACCESSED FROM ARCGIS ONLINE.

WOODS POND DAM

0.00

HOUSATONIC RIVER

1.00

2.00

3.00

4.00

5.00

6.00

7.00

8.00

9.00

MATCHLINE: SEE FIGURE E-2 FOR DOWNSTREAM FLOODING

POTENTIAL FLOOD LIMITS WITHIN STREAM BANKS

LANIER HILL

LENOX

LEE

SOUTH LEE

THE PINNACLE

BRIDGE

LEGEND

- AREA FLOODED BY FAILURE OF WOODS POND DAM, FLOOD CONDITION (SEE NOTE 6)
- AREA FLOODED BY FAILURE OF WOODS POND DAM, SUNNY DAY (SEE NOTE 6)
- FLOW DIRECTION
- 1.53 CROSS SECTION MILEAGE FROM WOODS POND DAM
- CITY / TOWN BOUNDARY

CRITICAL INFRASTRUCTURE

- FIRE STATIONS
- POLICE STATIONS
- TOWN HALLS
- SCHOOLS
- HOSPITALS

ROADS CLASSIFICATION

- Limited Access Highway
- Multi-lane Hwy, not limited access
- Other Numbered Highway
- Major Road, Collector
- Minor Road, Arterial

N W E S

1 INCH = 1,000 FEET

0 500 1,000 2,000 Feet

GZA GeoEnvironmental, Inc.
249 Vanderbilt Ave
Norwood, MA 02062
Phone: (781) 278-3700 Fax: (781) 278-5701

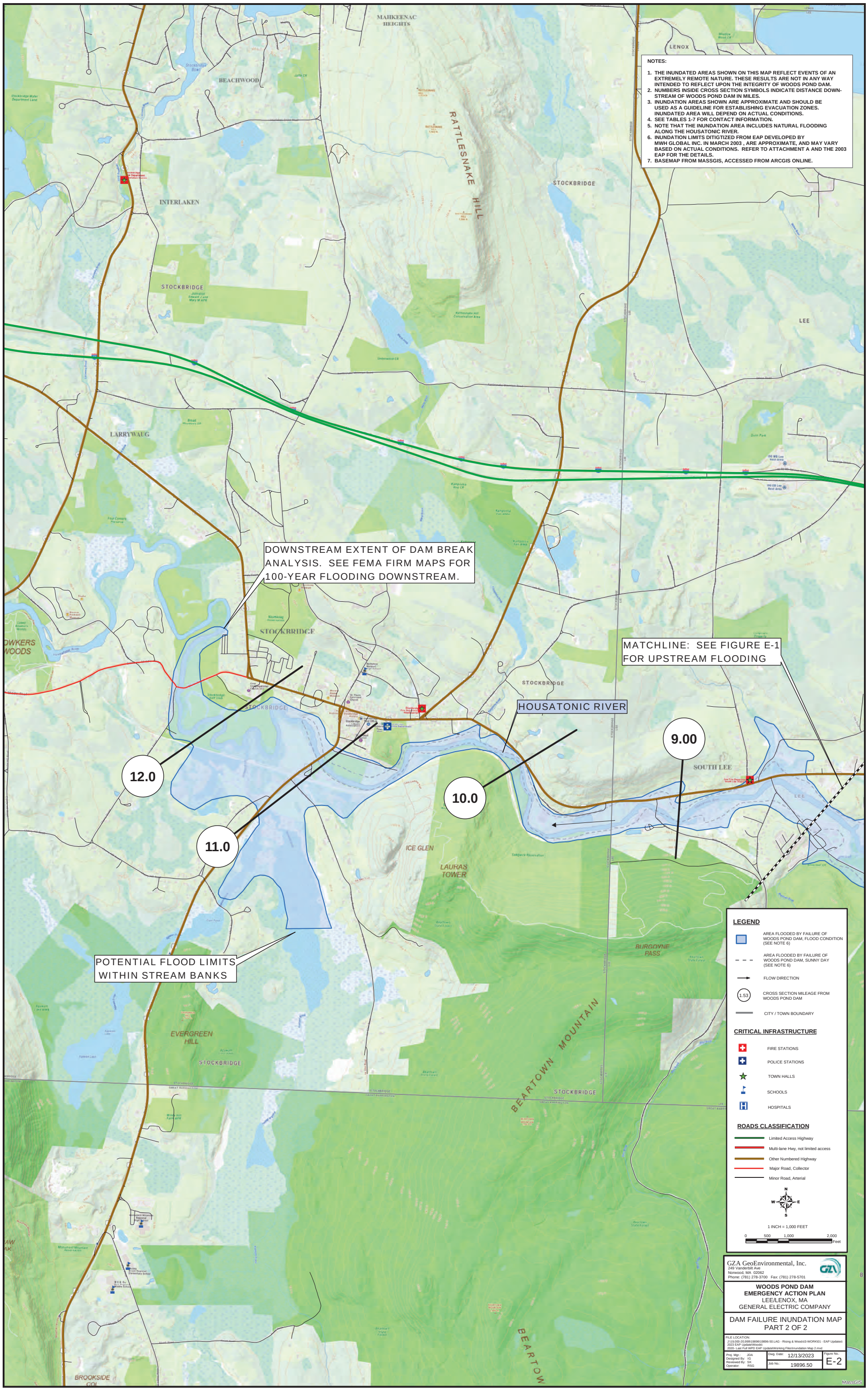
WOODS POND DAM
EMERGENCY ACTION PLAN
LEE/LENOX, MA
GENERAL ELECTRIC COMPANY

DAM FAILURE INUNDATION MAP
PART 1 OF 2

FILE LOCATION:
J:\19,000-20,999\19896\19896-50.LAG - Rising & Woods\3-WORK\01 - EAP Updates\ 2023 EAP Update\Woods\ 2020- Last Full WPD EAP Update\Working Files\Inundation Map 1.mxd

Proj. Mgr: JDA Designed By: IG Reviewed By: SK Operator: RSG	Dwg. Date: 12/13/2023 Job No.: 19896.50	Figure No.: E-1

MassGIS


NOTES:
1. THE INUNDATED AREAS SHOWN ON THIS MAP REFLECT EVENTS OF AN EXTREMELY REMOTE NATURE. THESE RESULTS ARE NOT IN ANY WAY INTENDED TO REFLECT UPON THE INTEGRITY OF WOODS POND DAM.
2. NUMBERS INSIDE CROSS SECTION SYMBOLS INDICATE DISTANCE DOWN-STREAM OF WOODS POND DAM IN MILES.
3. INUNDATION AREAS SHOWN ARE APPROXIMATE AND SHOULD BE USED AS A GUIDELINE FOR ESTABLISHING EVACUATION ZONES. INUNDATED AREA WILL DEPEND ON ACTUAL CONDITIONS.
4. SEE TABLES 1-7 FOR CONTACT INFORMATION.
5. NOTE THAT THE INUNDATION AREA INCLUDES NATURAL FLOODING ALONG THE HOUSATONIC RIVER.
6. INUNDATION LIMITS DITIGTIZED FROM EAP DEVELOPED BY MWH GLOBAL INC. IN MARCH 2003 , ARE APPROXIMATE, AND MAY VARY BASED ON ACTUAL CONDITIONS. REFER TO ATTACHMENT A AND THE 2003 EAP FOR THE DETAILS.
7. BASEMAP FROM MASSGIS, ACCESSED FROM ARCGIS ONLINE.
MAHKEENAC HEIGHTS
LENOX
BEACHWOOD
RATTLESNAKE HILL
STOCKBRIDGE
INTERLAKEN
LEE
LARRYWAUG
DOWNSTREAM EXTENT OF DAM BREAK ANALYSIS. SEE FEMA FIRM MAPS FOR 100-YEAR FLOODING DOWNSTREAM.
MATCHLINE: SEE FIGURE E-1 FOR UPSTREAM FLOODING
HOUSATONIC RIVER
12.0
11.0
10.0
9.00
SOUTH LEE
ICE GLEN
LAURAS TOWER
BURGOYNE PASS
EVERGREEN HILL
BEARTOWN MOUNTAIN
POTENTIAL FLOOD LIMITS WITHIN STREAM BANKS
LEGEND
AREA FLOODED BY FAILURE OF WOODS POND DAM, FLOOD CONDITION (SEE NOTE 6)
AREA FLOODED BY FAILURE OF WOODS POND DAM, SUNNY DAY (SEE NOTE 6)
FLOW DIRECTION
1.53 CROSS SECTION MILEAGE FROM WOODS POND DAM
CITY / TOWN BOUNDARY
CRITICAL INFRASTRUCTURE
FIRE STATIONS
POLICE STATIONS
TOWN HALLS
SCHOOLS
HOSPITALS
ROADS CLASSIFICATION
Limited Access Highway
Multi-lane Hwy, not limited access
Other Numbered Highway
Major Road, Collector
Minor Road, Arterial
N
W
E
S
1 INCH = 1,000 FEET
0 500 1,000 2,000 Feet
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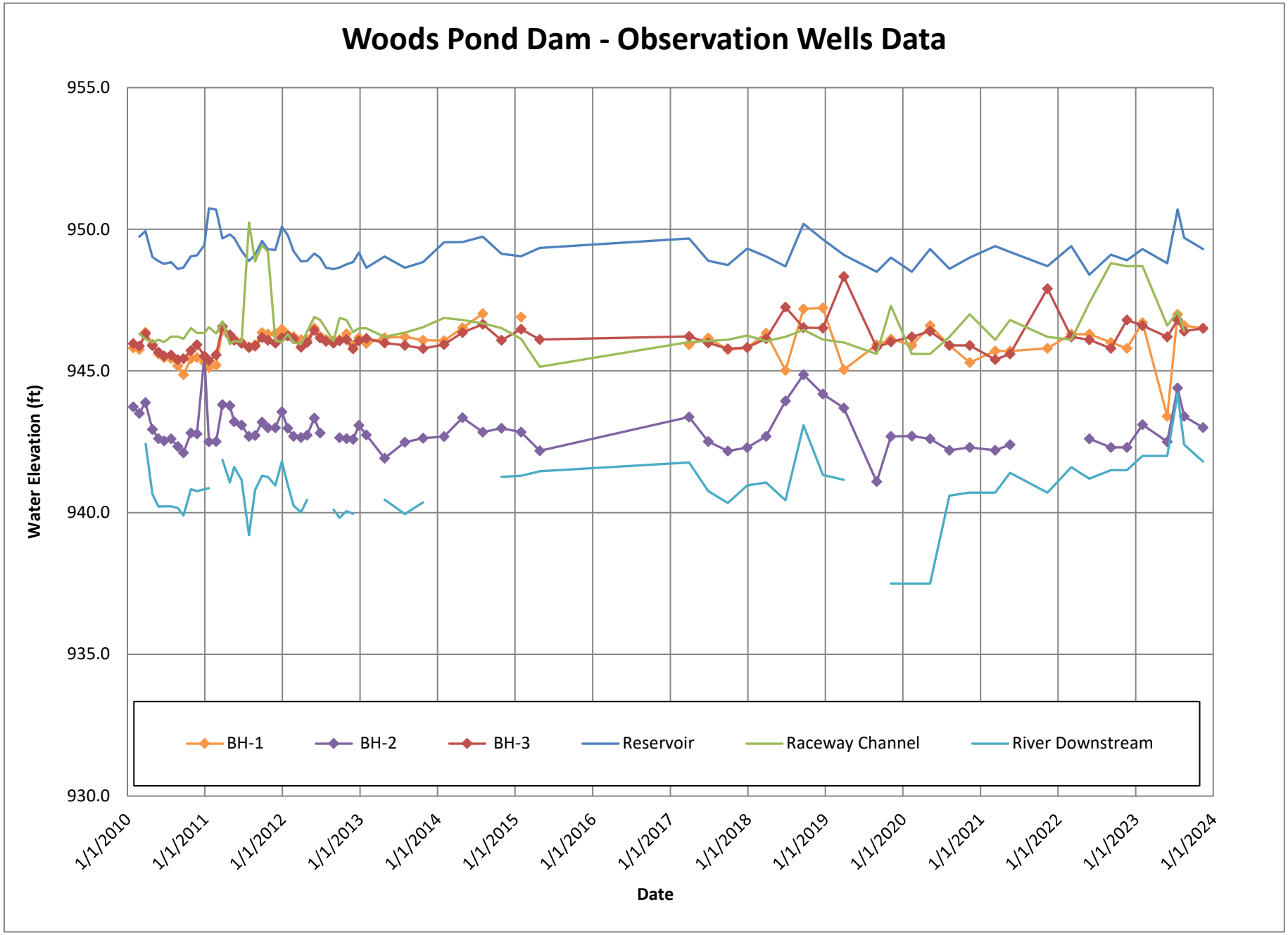
WOODS POND DAM
EMERGENCY ACTION PLAN
LEE/LENOX, MA
GENERAL ELECTRIC COMPANY
DAM FAILURE INUNDATION MAP
PART 2 OF 2
FILE LOCATION:
J:\19,000-20,999\19896\19896-50.LAG - Rising & Woods\3-WORK\01 - EAP Updates\2023 EAP Update\Woods\2020- Last Full WPD EAP Update\Working Files\Inundation Map 2.mxd
Proj. Mgr.: JDA
Designed By: IG
Reviewed By: SK
Operator: RSG
Dwg. Date: 12/13/2023
Job No.: 19896.50
Figure No.: E-2
MassGIS

APPENDIX G – WATER LEVEL RECORDS


Woods Pond Dam - Observation Wells Data
955.0
950.0
945.0
940.0
935.0
930.0
Water Elevation (ft)
1/1/2010
1/1/2011
1/1/2012
1/1/2013
1/1/2014
1/1/2015
1/1/2016
1/1/2017
1/1/2018
1/1/2019
1/1/2020
1/1/2021
1/1/2022
1/1/2023
1/1/2024
Date
BH-1
BH-2
BH-3
Reservoir
Raceway Channel
River Downstream

APPENDIX H – MAINTENANCE TRACKING TABLE

Woods Pond Dam – Maintenance Tracking Table – Dated February 9, 2024 (based on November 14, 2023 Inspection)			
Condition Observed Requiring Monitoring or Maintenance/Repair	**When Observed**	**Proposed Response**	**Status**
1. The stone masonry wall in the raceway approach area continues to be tilted.	Since the 2019 Phase 1 Inspection	Monitor the tilt at the monitoring point that was set in August 2020.	Monitoring point will be used to monitor wall movement quantitatively during quarterly and biennial inspections.
2. Minor concrete deterioration and orange staining were observed around a horizontal joint at the right downstream training wall near the water level; no sign of soil migration observed.	Minor deterioration since the 2019 Phase 1 Inspection and orange staining since the fourth quarterly inspection in 2020 (when spillway flow allows observation)	Monitor the area, including during low-flow conditions.	This area is monitored during quarterly and biennial inspections. It will be specifically monitored during the next dewatered spillway inspection.
3. Logs were observed lodged on the crest of the spillway near the right training wall. The logs do not appear to be impeding flow over the spillway.	Logs have been periodically observed in this area since the first quarterly inspection in 2020 and are either removed if impeding flow or washed downstream during high flow events.	Monitor and clear if impeding flow.	Area will continue to be monitored for log(s) and log(s) will be cleared if impeding flow.
4. Minor efflorescence was observed on the right and left upstream training walls.	Since the first quarterly inspection in 2020.	Monitor efflorescence.	Efflorescence is regularly monitored during quarterly and biennial inspections.
5. Minor cracking, efflorescence, and damp areas were observed on the right and left downstream training walls of the raceway stoplog sluice structure (downstream closure).	Since the 2019 Phase 1 inspection for the right wall and since the second quarterly inspection in 2020 for the left wall (except during periods of high water flows).	Monitor affected areas.	These conditions are monitored during quarterly and biennial inspections.

Woods Pond Dam – Maintenance Tracking Table – Dated February 9, 2024 (based on November 14, 2023 Inspection)			
Condition Observed Requiring Monitoring or Maintenance/Repair	**When Observed**	**Proposed Response**	**Status**
6. On the eastern side slope of the raceway (outside GE property), a utility pole appears to be leaning toward the channel, and vegetation downstream of that pole is unmaintained.	Since the 2019 Phase 1 Inspection	Monitor the pole and vegetation; cut the vegetation if it falls into the raceway channel and impedes flow.	This area is monitored during quarterly and biennial inspections. The vegetation will be cut if it falls into the raceway channel and impedes flow.
7. Some debris was lodged on the stoplogs at upstream raceway closure structure.	Since the second quarterly inspection in 2020. During prior inspections in 2023, debris was lodged in the gap between the 2nd and 3rd stoplogs, but did not appear to be impeding raceway inflow.	Monitor area and clear additional debris if impeding raceway inflow.	No debris was observed during the 2023 Phase 1 inspection.
8. Logs were observed in the raceway channel.	First observed during the second quarterly inspection of 2022.	Remove logs.	Logs had been removed prior to the November 14, 2023 Phase 1 inspection.
9. Seasonal grassy vegetation growth was observed on left and right abutments and on the raceway embankment and riprap slopes.	Second and third quarterly inspections for 2023.	Clear vegetation in these areas.	Vegetation had been removed prior to the 2023 Phase 1 inspection.

Woods Pond Dam – Maintenance Tracking Table – Dated February 9, 2024 (based on November 14, 2023 Inspection)			
Condition Observed Requiring Monitoring or Maintenance/Repair	**When Observed**	**Proposed Response**	**Status**
10. Minor vegetation growth was observed in the spacer gap between stoplog at upstream raceway closure structure. The debris and vegetation are not adversely impacting raceway inflow.	Third quarterly inspection for 2023, but vegetation did not appear to be impeding raceway inflow.	Monitor area and clear vegetation if impeding raceway inflow.	No debris or vegetation growth was observed during the 2023 Phase 1 inspection.
11. The two existing staff gages installed at the Dam (one on the upstream left spillway training wall and one on the downstream right stoplog sluice structure) are difficult to read due to fading numbers.	November 14, 2023 Phase 1 Inspection	Repair / restore the staff gages to be legible. Install a third staff gage in the upstream raceway closure structure approach area.	The two existing staff gages will be repaired or restored to be legible and a new staff gage will be installed during a period of low flow in 2024.
Note: Gray-shaded cells indicate that a listed condition had been addressed or was not present during the current inspection.			