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LAKE PETIT DAM State ID No. 112-009-00462 NID No. GA00685

Summary of Visual Assessment

Prepared for:

Big Canoe® Property Owners Association, Inc. 10586 Big Canoe Jasper, GA 30143

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1. INTRODUCTION

This Summary of Visual Assessment (Report) was prepared by Geosyntec Consultants, Inc. (Geosyntec) of Chattanooga, Tennessee under the direction of Mr. Jamey Dotson, P.E. on behalf of the Big Canoe® Property Owners Association, Inc. (POA or Owner), Jasper, Georgia.

On 01 and 02 February 2024, representatives from Geosyntec, including Ms. Kelsey Boldiszar, E.I., and Mr. Jamey Dotson, P.E., performed an Engineer-Led Inspection (Inspection) of the Lake Petit Dam (Dam) State Identification (ID) Number (No.) 112-009-00462 and National Inventory of Dams (NID) No. GA00685. An Engineer-Led Inspection of Lake Petit Dam is required every two years as stipulated by the Georgia Environmental Protection Division (GA EPD) Safe Dams Program and can be used in place of a Quarterly Owner Inspection of the Dam from 01 October to 31 March of the reporting year. Geosyntec representatives walked and visually inspected the crest of the Dam; the upstream slope, or face of the Dam; the downstream slope, including each bench and the toe of the Dam; and plunge pool area, where the principal overflow spillway discharges into Petit Creek. In addition to performing visual observations of the Dam, Geosyntec personnel collected water level elevations on the vibrating wire piezometers (VWPs) and conventional standpipe piezometers (PZs) located on the downstream slope.

General observations were noted in the GA EPD Safe Dams Program Embankment (Earth) Dam Inspection Form (Inspection Form), included in Appendix A. The remainder of this Report provides additional details of the Dam Inspection, including: (i) site observations; (ii) recommendations for ongoing maintenance (iii) summary and review of historical and new piezometer data; and (iv) an annotated site plan and photograph log.

1.1 Background

Lake Petit Dam is located within the Big Canoe development on Petit Creek, approximately 5.8 miles upstream of Marble Hill, Georgia. The reservoir formed by the Dam has a surface area of approximately 105 acres at a normal pool elevation (El.) of 1,635.5 feet (ft) mean sea level (MSL), vertical datum North American Vertical Datum of 1988 (NAVD88). According to 2021 data from the NID, the normal storage for the reservoir is approximately 4,600 acre-ft. The Dam is permitted as a Category I Dam under Chapter 391-3-8 of the Georgia State Code "Rules for Dam Safety".

Lake Petit Dam was constructed in 1972 as a zoned earth embankment consisting of a central clayey silt core with predominantly silty sand upstream and downstream embankment shells. According to the NID, the Dam has a maximum height of 126 ft measured as the vertical difference from crest to the current streambed, a crest length of approximately 908 ft, and a crest width of approximately 35 ft. The upstream slope of the Dam is inclined at 3.5 horizontal to 1.0 vertical (3.5H:1V). The downstream shell is inclined at 2.5H:1V with 10 ft wide benches at approximate 20 ft vertical intervals. Wolfscratch Drive crosses the crest of the Dam and also runs parallel to the downstream toe of the embankment. Water conveyance is provided by a Low-Level Outlet (LLO) in the reservoir discharging through a conduit under the embankment, a principal overflow spillway separate from the embankment in the left abutment, and an auxiliary siphon system which is used to control partial drawdown of the reservoir when needed. Design drawings for the Dam were prepared by Baldwin and Cranston Associates in 1971.



The remainder of this Report is organized as follows:

- Section 2 presents a summary of findings relative to the observations made during the Engineer-Led Inspection in February 2024.
- Section 3 presents a summary of recommended actions.
- Appendix A presents a copy of the 2024 GA EPD Safe Dams Inspection Form completed by Geosyntec for this Engineer-Led Inspection, as well as a photograph log of the observations made during this Engineer-Led Inspection.
- Appendix B presents other Quarterly Owner Inspection Forms completed by Geosyntec on behalf of the Owner and conducted since the last update to GA EPD (i.e., Quarterly observations since April 2023), as well as a photograph log of the observations made during each Quarterly Owner Inspection.

2. OBSERVATIONS

2.1 Overview

Visual observations of the upstream slope of the Dam and the principal overflow spillway were made on 01 February 2024, and visual observations of the downstream slope of the Dam were made on 02 February 2024.

At the time of this Engineer-Led Inspection, the reservoir level was at normal pool. The visible portions of the embankment and the principal overflow spillway were observed. The LLO gate and conduit were not observed during the Inspection as these are located below normal pool elevation. However, camera inspection of the LLO pipe and dive team inspection of the LLO intake structure have been conducted since the previous Engineer-Led Inspection. In addition to visual observations, Geosyntec collected water level elevations from piezometers located on the downstream slope of the Dam.

Photographs were taken to record the general condition of the Dam, with representative photographs presented in Appendix A of this Report. A graphical layout of the Dam including identified areas of interest and piezometer locations is presented in Figure 2-1. This remainder of this section of the Report presents the findings of Inspection observations together with a summary of the piezometer data.

2.2 Crest

The crest of the Dam was observed by walking the approximately 908-ft length. The crest includes a two-lane, asphalt-paved road (Wilderness Parkway), which received an asphalt overlay in 2012.

In general, the crest of the Dam was found to be in good condition, with vegetation along the shoulders of the road observed to be well-maintained with no trees. Identified areas of interest that should be monitored or repaired as part of routine operations include the following:

• The asphalt paving showed signs of progressive traffic wear, as noted during successive Quarterly Owner Inspections in 2023. As observed in this Inspection, an area of longitudinal cracking in the asphalt had expanded to a pothole in the westbound lane. This pothole should be repaired or patched as part of routine maintenance, and other existing longitudinal or transverse cracking on the crest should be monitored for changes and sealed as needed.

No additional significant changes were observed based on a comparison of Inspection observations to previous photographs taken of comparable areas.

2.3 Upstream Slope

The upstream slope of the Dam was observed by walking the upstream slope and crest. Maintenance repairs to the shoreline protection conducted in March 2022 to improve areas of minor shoreline erosion and "beaching" appear to be performing as intended.

In general, the upstream slope of the Dam was found to be in good condition, with adequate vegetal cover and no signs of distress such as sloughs, cracks, soft areas, or depressions.



No significant changes were observed based on a comparison of Inspection observations to previous photographs taken of comparable areas.

2.4 Downstream Slope

The downstream slope and five benches of the Dam were observed by walking each bench and slope. The downstream slope of the Dam is equipped with VWPs and PZs and are discussed in Section 2.7. The lower two benches of the Dam (Benches 1 and 2) are equipped with concrete channels that are intended to collect and convey both surface water and discharge from 13 interceptor drains off the slope or face of the Dam. The 13 interceptor drains exit into the concrete channel on Bench 1 and are a series of 4-inch (in.) diameter corrugated plastic pipes with gravel backfill surrounding them, however there are no as-built records of the installation of these drains.

In January 2023, a pipe inspection was conducted on the interceptor drains using a remote operated vehicle (ROV) equipped with a camera which attempted to map the length of each drain through the Dam. The interceptor drains appear to be approximately three ft below the Dam surface on the slope face and extend up to approximately two-thirds the length of the slope upstream from Bench 1. During the camera inspection, multiple drains were observed to have collapsed sections or obstructions which prevented inspection of the entire pipe length.

Eleven of the thirteen slope interceptor drains were located during this Inspection. Drains 12 and 13 were covered by construction of the two-stage filter between Bench 1 and 2 near the left abutment. The drains have been numbered for identification and their approximate locations are shown on Figure 2-1. Every exposed drain, except for the right-most interceptor drain (Number 1), was observed to have clear flow at a rate less than 1 gallon per minute. Drain Number 1showed signs of recent flow (i.e., had stagnant water in the drain exit) but was not flowing at the time of inspection. The condition of the drains at their discharge point is variable, ranging from being partially crushed to fully open, with certain drains discharging directly on the slope instead of discharging directly into the concrete channel.

A permit application for a seepage collection system modification for replacement of the interceptor drains was originally submitted on 28 April 2023 for regulatory review and was revised and resubmitted on 08 March 2024 to address GA Safe Dams Program comments and to exclude a section of the original permit submittal to address global stability of the Dam while the stability information was undergoing third-party review. The modifications are intended to improve the drainage capacity of the existing interceptor drains with a more robust drainage system. The revised permit application is currently awaiting approval. In the interim before replacement, the drains should continue to be maintained and kept free of vegetal growth to ensure performance of these features that are intended to lower the phreatic surface and prevent seepage on the slope of the Dam.

In general, the downstream slope of the Dam was found to be in good condition, needing only minor maintenance items. Identified areas of interest that should be monitored or repaired as part of routine operations include the following:

• Minor erosion features were identified along the groin between the abutment and main portion of the Dam on the left side from El. 1606 (Bench 4) up to the crest (Wilderness



Parkway) and upslope of the two-stage filter seepage repair between El. 1544 (Bench 1) and at El. 1562 (Bench 2). The erosion appears to be due to surface water flow overtopping the benches, or the benches not providing full containment for surface water. Big Canoe POA has attempted to reseed and regrade the area immediately downstream of Wilderness Parkway along the groin between the abutment and main portion of the Dam on the left side, but erosion has persisted at this location. The upper benches at El. 1606 (Bench 4) and at El. 1626 (Bench 5), especially near the groins, should be maintained to contain surface water flow, and regraded and reseeded if necessary. Additional debris and vegetation should continue to be removed from the benches and both abutments to prevent surface water flow backup.

- The lower concrete channel was observed to be wet with slowly draining flow at the time of Inspection, and the upper concrete channel was dry. The lower channel tends to collect sediment and debris believed to be from backfill from around the interceptor drains eroding into the channel. This sediment should be routinely cleaned out to allow proper drainage of water toward the abutments. In addition, the concrete of both channels has deteriorated in certain locations and the joints between adjacent sections of channel are no longer watertight, though the majority of flow in the channels does appear to drain toward the abutments. Minor cracking and open joints in the concrete channel should be monitored for further deterioration and should be repaired if the cracking becomes large enough to impede or redirect flow. Areas in Benches 1 or 2 where the concrete in the channel has broken off should be repaired to restore the channel and prevent erosion.
- The area between Benches 1 and 2 was found to have localized areas that were wet and slightly soft. This area generally corresponds to the location of interceptor drains and may indicate damage to an interceptor drain, causing water to flow into the backfill around the pipe instead of flowing through the pipe into the concrete channel. The wet areas may be compounded by expected seasonal conditions during the wettest part of the year in the first calendar quarter; however, these areas will be remediated as part of the seepage collection system modification.
- The upper concrete channel on Bench 2 on the left abutment of the Dam was observed to have been undermined and eroded, likely from upstream flow. It is likely that the drainage bench upstream from this point was previously clogged with vegetation, which may have resulted in surface water being directed downslope to the upper concrete channel. The influx of surface water likely overtopped the upper concrete channel and initiated the observed undermining and erosion. The eroded areas should be repaired by placing and compacting clayey soils in the undermined area and establishing vegetation to the extent possible. Debris should be removed from channels on the left abutment above the affected area and all channels on the Dam and abutments should continue to be kept clean of loose debris and vegetation to ensure free flow of water.
- The area at the left side toe of the Dam drains poorly and is consistently wet. This area collects the accumulated runoff from the left side of the embankment and left abutment and does not drain towards the nearest drop inlet on the north side of Wolfscratch Drive. The downstream slope of the Dam between Wolfscratch Drive and Bench 1 also tends to

be wet and slightly soft. Regrading the area near the toe to drain more effectively would improve conditions and prevent the left toe from becoming saturated or having ponded water in periods of high precipitation.

• Ant hills and possible animal burrows were observed across the downstream slope. Animal burrows and any holes that remain after removal of ant hills must be filled with clayey soils and compacted, and the area should be seeded with turf grass. In general, the frequency of mowing is such that the presence of animal burrows and ant hills has diminished compared to previous observations.

No significant changes were observed based on a comparison of Inspection observations to previous photographs taken of comparable areas.

2.5 Plunge Pool

The plunge pool of the Dam was observed by walking around its perimeter. The plunge pool is comprised of a concrete impact-type stilling basin that is approximately 17-ft by 10-ft and 8.25-ft deep and accepts discharge from the LLO. The plunge pool discharges into a vegetated channel that ultimately flows into the tailwaters of Petit Creek located at the toe of the Dam. Water from the LLO was observed to be minimally flowing into the plunge pool.

In general, the plunge pool and associated discharge for the Dam was found to be in good condition, needing only minor maintenance items. Identified areas of interest that should be monitored or repaired as part of routine operations include the following:

- Bacteria growth and debris tends to collect in the plunge pool and should be cleaned out during routine maintenance on an annual basis, or more frequently if required.
- The area of discharge from the plunge pool tends to be difficult to access due to vegetal growth and waterlogged conditions. In the past, this area has been cleaned out and maintained to facilitate access and inspection and should be cleaned out during routine maintenance on an annual basis, or more frequently if required.

There are additional pipes that discharge both internal drainage through the plunge pool and surface water to the channel. There are two internal drainage pipes (8-in. diameter asbestos cement) that discharge into the stilling basin and were observed to be flowing. Additional unidentified pipes exit into the channel outside of the plunge pool. These pipes have previously been cleared and were not obstructed or carrying turbid flow at the time of Inspection.

The exact routing of these pipes is not well understood, but no observations indicating a potential negative effect on dam safety were made at the time of Inspection.

No significant changes were observed based on a comparison of Inspection observations to previous photographs taken of comparable areas.

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2.6 Principal and Emergency Spillways

2.6.1 Principal Spillway

The principal overflow spillway of the Dam was observed by walking along both sides of its approximate 750-ft length. The spillway conveys water from the reservoir around the Dam and discharges to the creek at the toe of the Dam and is a lightly reinforced gunite lined (i.e., sprayed concrete) stepped chute with 45 steps, with Step 1 starting at the crest of the Dam. The spillway was re-faced with gunite around September 2009.

In July 2020, water was first observed daylighting adjacent to the spillway near Step 45. This area was monitored in subsequent Quarterly Owner Inspections, and flow was observed to daylight near Step 45 through September 2021 with increasing erosion of backfill along the walls of the spillway chute. The spillway was dewatered in December 2021 to enable a detailed inspection of the chute. Observations made during this Inspection were used to develop a scope of work for maintenance repairs to the spillway. These maintenance repairs were conducted in April 2022 and included grout injection, surface patching of cracks, and full depth repairs of localized areas of several locations. Representative examples of these repairs were shown in the 2022 Engineer-Led Inspection Report.

Shortly after the April 2022 repairs, during the June 2022 Quarter 2 (Q2) Quarterly Owner Inspection, flow was once again observed to daylight near Step 45. Big Canoe POA conducted a dye test at the spillway to investigate potential sources of seepage. Observations by Big Canoe POA during the dye test suggested that the source of the daylighting water may be flow through the spillway. Based on these observations, the spillway was dewatered again in August 2023 to allow thorough inspection of the spillway chute for signs of deterioration and to inform a scope of work for additional repairs. Possible sources of seepage were identified on three steps (Steps 33, 37, and 42) during the Inspection, and maintenance grouting repairs to these steps were conducted on 31 August 2023. No flow has been observed to daylight adjacent to the spillway following these repairs, but the area around Step 45 should be monitored for changes to confirm that flow does not resume.

In general, the spillway was found to be in good condition during the Engineer-Led Inspection, needing only minor maintenance items. Identified areas that should be monitored or repaired as part of routine operations include the following:

- Minor cracking was observed in the gunite walls of Steps 13, 21, 22, 23, and 33 of the spillway. No apparent diversion of flow or signs of seepage or undermining of the spillway were observed at these locations, but the cracks should be monitored for changes.
- A general lack of backfill behind the walls of the spillway was observed, especially near the bottom of the chute at the location of the previous flow near Step 45. This is likely due to the flow of water adjacent to the spillway washing out the backfill over time. Backfill should be restored at these locations to prevent undermining of the spillway and/or cracking of the gunite over time.

Big Canoe POA is planning to identify and permit a path forward to rehabilitate or replace the existing spillway.

No significant changes were observed based on a comparison of Inspection observations to previous photographs taken of comparable areas.

2.6.2 Emergency Spillway

The Dam does not have an emergency spillway other than a 36-in. diameter concrete LLO pipe. The LLO is located at the bottom of the upstream pool and discharges through a concrete impactstyle stilling basin and earthen channel to the tailwater creek located at the toe of the Dam. The LLO was not observed as part of this Inspection.

A dive inspection of the sluice gate structure which serves as the intake for the LLO was completed in September 2020. A camera inspection of the LLO conduit was completed in December 2020. Both inspections indicated that the inlet (i.e., sluice gate) structure and pipe are in generally fair to good condition. The sluice gate structure was noted have an intact trash rack and to be free of obstruction by sediment or debris following cleaning by divers during that inspection. The conduit inspection, following cleanout of sediment in the pipe via jetting, identified select pipe joints with calcite formations, indicating minor seepage, but otherwise did not identify any apparent leaks or issues with the conduit's overall condition.

A subsequent inspection of the LLO pipe and inlet structure was conducted in December 2022 during which inspectors visually inspected the interior of the LLO pipe by entering from the downstream outlet and crawling the entire length to the inlet structure. The inspection contractor identified a buildup of calcite deposits, minor corrosion, and sediment buildup at the inlet structure. The contractor rated the pipe in satisfactory condition.

In April 2023, a specialty underwater contractor conducted an operational test of the handcrank and LLO gate, The contractor conducted the operational test by first installing a plug with a primary and secondary restraint system on the downstream end of the LLO gate and in the process of installing the plug, the contractor cleaned out the previously identified calcite deposits, corrosion, and sediment buildup. The contractor then began testing the operations of the handcrank and gate. The contractor was able to open the gate a few inches; however, the stem and stem guide system were observed to be in need of repairs by their diver. The gate was closed, and the plug was left installed. The contractor noted that the gate, in its condition at the time of inspection, could be reused, but the stem and stem guides should be replaced.

Big Canoe POA is currently working with the GA Safe Dams Program to identify and permit a path forward to rehabilitate or replace the LLO operating system.

In addition to the LLO, the Dam also has an auxiliary siphon system comprised of a 12-in. raw water main for intake and an 8-in. ductile iron pipe for the outlet. The siphon system is used for partial drawdown of the reservoir when needed for maintenance activities.

2.7 Instrumentation

The instrumentation of the Dam was observed by walking the downstream slope. The instrumentation includes two types of piezometers, which have been installed on the Dam:



(i) VWPs that consist of electrical pressure transducers that provide a means of measuring water pressures at discrete locations within the shell; and (ii) conventional standpipe PZs that consist of PVC casings with screened sections strategically located to facilitate direct measurement of water levels within the shell of the Dam. Both types of piezometers provide an excellent means of monitoring the level of water at discrete points through the Dam. In addition, changes in water levels and pressures provide useful information regarding the effectiveness of the Dam's internal drainage system. In general, consistent water level and pressure data indicates that internal conditions have likely not changed significantly, whereas sustained changes may be indicative of potential issues.

- VWPs include P-2 (A, B, and C), P-4 (A, B, and C), P-6 (A, B, and C), and P-7 (A, B, and C), where the A transducer is installed at the shallowest depth, the B transducer is installed at an intermediate depth, and the C transducer is installed at the deepest depth for each instrument series.
- Conventional standpipe PZs include G-1A (Shallow and Deep), G-1B, G-2 (Shallow, Intermediate, and Deep), and G-3.

Since 2019, piezometer data has been collected on a quarterly basis concurrent with visual inspections of the embankment. Geosyntec collected data from the VWPs and PZs on 02 February 2024. VWP and PZ data are summarized in Tables 2-1 and 2-2, respectively, and are presented graphically on Figures 2-2 through 2-6.

In general, instrumentation for the Dam was found to be in good condition. The following sections provide further detail from the review of VWP and PZ data to date.

2.7.1.1 VWP Data

Conventional VWP data was collected intermittently beginning in February 2004. The reading interval from these instruments has varied over time including a period of time from May 2008 to July 2011 where no data is available. Since March 2020, the VWPs have been read on a quarterly basis. Available VWP data from February 2004 to July 2019 and quarterly data since March 2020 was reviewed as part of this assessment and is contained in Table 2-1 and Figures 2-2 through 2-5.

Currently VWP data is collected at a minimum quarterly frequency. Recent VWP data trends indicate relatively stable to slightly decreasing piezometric levels on the order of a 1- to 8-ft difference between the March 2020 and February 2024 Quarter 1 peaks. The P-2 series has remained relatively stable since March 2020. The largest decreases were observed in the P-4 series, but the sensors in the P-6 series and P-7A were also observed to reach their historical minimum piezometric levels in either September 2022 or November 2023 based on available data. P-7B and P-7C similarly reached within 0.1 ft of their historical minima in November 2023. According to the National Integrated Drought Information System (NIDIS), Pickens County experienced "Severe" to "Extreme" drought in the autumns of 2022 and 2023, which is consistent with lower piezometric readings for the site. While these trends are not currently considered a dam safety concern, the data from the P-4, P-6, and P-7 series should continue to be reviewed to evaluate trends and to determine the threshold level at which action may be required, if deemed necessary.



2.7.1.2 Conventional PZ Data

Conventional PZ data was collected intermittently from 1998 to 2020. Since March 2020, the standpipe PZs have been read on a quarterly basis, which allows a more accurate representation of typical seasonal piezometric fluctuations. Available conventional PZ data from 1998 to 2020 and quarterly data since March 2020 was reviewed as part of this assessment and is contained in Table 2-2 and Figure 2-6.

In general, data from the standpipe PZs indicates consistent piezometric levels from October 1998 until August 2013 when the data shows an increase in the PZs on the order of 2- to 5-ft. Subsequent data from November 2014 through January 2018 typically shows a return to pre-August 2013 piezometric levels. The data from the initial period of quarterly measurements in March 2020 indicated a general increase ranging from 2.5- to 8-ft over levels measured in January 2018. This increase in piezometric levels has been attributed to a wet period with approximately double the average precipitation in January and February 2020. Data reported for the remainder of 2020 and subsequent years indicate a return to levels generally consistent with or slightly higher than the trends prior to 2020.

The PZs across the embankment appear to have similar responses to typical seasonal precipitation including increases during periods of increased precipitation during the first quarter of the calendar year. Overall, standpipe PZ data appears to be stable or display a slightly decreasing trend after March 2020. In the most recent data from 02 February 2024, the data for all PZs showed an expected seasonal increase. Consistent with previous observations, PZ G-2 Shallow data tends to be more reactive in a given period, showing fluctuations on the order of twice what the remainder of the PZs exhibit. While these trends are not currently considered a dam safety concern, data for the G-2 series of instruments should be reviewed carefully in subsequent measurement intervals to determine whether the trends accurately reflect conditions in the embankment and subsurface or may be an indication that the instruments are becoming unreliable.

None of the piezometric data reviewed indicates a developing dam safety issue.



3. SUMMARY OF RECOMMENDED ACTIONS

In general, the Dam and associated structures appear to be in good condition; however, continued maintenance, as well as inspections and monitoring of the instruments, should be performed to evaluate piezometric trends and changes in the extent or persistence of wet areas. At the time of Inspection, repairs to the principal overflow spillway were recently completed, permitting for the seepage collection system modification was undergoing regulatory review, and the identification of and permitting for a path forward to rehabilitate or replace the LLO system was underway. These activities will close several previous recommendations to improve dam safety and monitoring of Lake Petit Dam and will help to ensure future performance of the facility and protect dam safety.

In the short-term, Geosyntec recommends the following items as part of ongoing maintenance:

- The pothole ion Wilderness Parkway along the Dam crest should be repaired or patched as part of routine maintenance, and other existing longitudinal or transverse cracking on the crest should be monitored for changes and sealed as needed.
- Cleaning of debris and vegetation in the concrete channels on Bench 1 and Bench 2 of the downstream slope should be continued as routine maintenance and should extend to the sections of channel on each abutment of the Dam as well.
- Minor cracking in the concrete channels on Bench 1 and Bench 2 should be monitored for further deterioration and should be repaired if the cracking becomes large enough to impede or redirect flow. Areas in Bench 1 or Bench 2 where the concrete in the channel has broken off should be repaired to restore the channel and prevent erosion.
- The undermined portion of the Bench 2 concrete channel on the left abutment should be repaired by placing and compacting clayey soils in the undermined area and establishing vegetation to the extent possible.
- The unlined drainage swales on Benches 3, 4, and 5 should continue to have debris removed and be periodically regraded to promote positive drainage and to ensure stormwater is contained.
- Erosion features, burrows, and ant hills on the downstream slope of the Dam should continue to be repaired as they occur and vegetated with turf grass.
- The vegetation at the groins between the abutments and the main portion of the dam should be cleared to promote proper drainage from the benches to the abutments.
- The area downstream and left of the toe of the embankment should be graded to drain to the adjacent drop inlet more effectively. This may alleviate the wet area that tends to form on the downstream slope of the dam between Wolfscratch Drive and Bench 1.
- The eroded backfill behind the walls of the spillway chute should be repaired to prevent undermining of the spillway and/or cracking of the gunite over time.

- Cleaning of the stilling basin for the LLO and surrounding area should be continued as routine maintenance.
- Bacteria growth and debris in the plunge pool should be cleaned out during routine maintenance on an annual basis, or more frequently if required.
- The area of discharge from the plunge pool should be cleaned out during routine maintenance on an annual basis, or more frequently if required.
- Minor cracking in the gunite walls of Steps 13, 21, 22, 23, and 33 of the spillway should be monitored for changes.
- Backfill should be restored at noted locations of the spillway to prevent undermining of the spillway and/or cracking of the gunite over time.

Geosyntec further recommend that the following items should be performed:

- Continued quarterly inspections of the Dam.
- Continued quarterly piezometer readings are recommended to further define piezometric trends and possible changes over time.
- Continued monitoring of the previous seep area adjacent to the spillway on the left side of Step 45 is recommended to confirm that the August 2023 repairs to the spillway chute are performing as intended.
- Replace the shallow interceptor drains which discharge to the Bench 1 concrete channel. Replacement for these drainage features is currently under permit approval. The drains should continue to be monitored and maintained to prevent plugging and ensure continued flow. Continue to monitor soft and wet areas following maintenance activities.
- Repair or replacement of the stem and stem guide system for the LLO intake structure is recommended to ensure functionality of the system as an emergency spillway. Big Canoe POA is currently identifying a path forward for this item.
- Identify and permit a path forward to rehabilitate or replace the existing spillway.

TABLES

			Piezometer	r ID: P-2A			
Date of reading	Water Elevation (ft. MSL)	Date of reading	Water Elevation (ft. MSL)	Date of reading	Water Elevation (ft. MSL)	Date of reading	Water Elevation (ft. MSL)
2/6/2004	1623.0	1/19/2005	1623.8	6/16/2006	1622.7	3/17/2015	1626.5
2/13/2004	1623.1	2/4/2005	1623.5	6/23/2006	1622.7	6/15/2015	1626.9
2/15/2004	1623.3	2/15/2005	1623.4	6/30/2006	1622.6	9/2/2015	1627.0
2/20/2004	1623.2	2/25/2005	1623.4	7/17/2006	1622.7	10/21/2015	1626.0
2/27/2004	1623.3	3/4/2005	1623.6	7/24/2006	1622.6	3/2/2016	1627.3
3/12/2004	1623.4	3/11/2005	1623.8	8/10/2006	1622.5	4/4/2016	1627.3
3/19/2004	1623.4	3/18/2005	1623.8	8/17/2006	1622.4	5/20/2016	1627.3
3/27/2004	1623.3	3/24/2005	1623.8	9/7/2006	1622.4	6/23/2016	1625.8
3/30/2004	1623.3	4/1/2005	1623.9	9/18/2006	1622.3	12/1/2016	1624.8
4/7/2004	1623.1	4/4/2005	1624.0	10/4/2006	1622.2	6/28/2017	1626.3
4/16/2004	1622.9	4/19/2005	1624.2	10/13/2006	1622.2	1/26/2018	1626.4
4/22/2004	1622.9	4/29/2005	1623.1	10/19/2006	1622.2	12/14/2018	1626.4
4/30/2004	1622.8	5/6/2005	1623.7	11/10/2006	1622.3	4/3/2019	1627.3
5/7/2004	1622.7	5/13/2005	1623.6	11/17/2006	1622.3	7/15/2019	1626.1
5/13/2004	1622.7	5/19/2005	1623.5	11/23/2006	1622.3	3/9/2020	1627.0
5/21/2004	1622.7	5/27/2005	1623.4	11/29/2006	1622.2	5/12/2020	1626.9
6/2/2004	1622.7	6/14/2005	1623.1	12/12/2006	1622.7	6/17/2020	1626.7
6/18/2004	1622.6	6/22/2005	1623.2	12/20/2006	1622.7	7/21/2020	1626.0
6/29/2004	1622.7	7/18/2005	1623.3	1/3/2007	1623.0	11/20/2020	1626.2
7/6/2004	1622.7	8/5/2005	1623.5	1/12/2007	1623.2	3/10/2021	1626.6
7/22/2004	1623.0	8/19/2005	1623.3	5/15/2007	1622.4	6/18/2021	1626.1
7/26/2004	1623.0	9/7/2005	1623.3	5/31/2007	1622.4	7/1/2021	1625.8
8/6/2004	1623.0	9/28/2005	1623.1	6/29/2007	1622.4	9/3/2021	1626.2
8/12/2004	1623.0	10/12/2005	1623.0	8/8/2007	1622.4	12/13/2021	1626.1
8/16/2004	1622.9	10/21/2005	1622.9	9/11/2007	1622.4	3/10/2022	1626.6
8/26/2004	1622.9	11/4/2005	1623.1	11/2/2007	1622.0	6/6/2022	1626.0
9/3/2004	1622.9	11/17/2005	1622.8	12/14/2007	1623.2	9/28/2022	1625.4
9/10/2004	1622.9	12/29/2005	1622.7	1/25/2008	1622.2	12/20/2022	1625.4
9/27/2004	1623.1	1/27/2006	1623.0	3/4/2008	1622.5	3/29/2023	1626.4
10/7/2004	1623.2	2/1/2005	1622.9	5/16/2008	1623.0	6/12/2023	1625.8
10/15/2004	1623.2	2/10/2006	1622.8	5/22/2008	1623.0	8/17/2023	1625.4
11/1/2004	1623.1	2/17/2006	1623.0	7/26/2011	1622.9	11/17/2023	1625.0
11/11/2004	1623.1	2/21/2006	1623.4	5/8/2012	1624.8	2/2/2024	1625.0
11/19/2004	1623.3	3/1/2006	1623.5	8/2/2012	1635.8		
11/23/2004	1623.4	3/9/2006	1623.5	11/8/2012	1625.9		
12/3/2004	1623.6	3/13/2006	1623.4	8/15/2013	1627.3		
12/17/2004	1624.1	4/7/2006	1623.3	8/20/2013	1627.3		
12/22/2004	1624.1	4/14/2006	1623.2	6/6/2014	1626.7		
12/30/2004	1624.0	4/21/2006	1623.1	9/5/2014	1626.1		
1/4/2005	1624.0	4/28/2006	1623.1	10/15/2014	1625.7		
1/13/2005	1623.9	5/8/2006	1623.1	1/27/2015	1626.3		

			Piezometer	r ID: P-4A			
Date of reading	Water Elevation (ft. MSL)	Date of reading	Water Elevation (ft. MSL)	Date of reading	Water Elevation (ft. MSL)	Date of reading	Water Elevation (ft. MSL)
2/6/2004	1586.5	1/19/2005	1589.4	6/16/2006	1584.7	3/17/2015	1588.6
2/13/2004	1587.0	2/4/2005	1588.3	6/23/2006	1584.6	6/15/2015	1587.2
2/15/2004	1588.2	2/15/2005	1587.9	6/30/2006	1584.4	9/2/2015	1585.0
2/20/2004	1587.6	2/25/2005	1588.5	7/17/2006	1583.9	10/21/2015	1586.0
2/27/2004	1588.1	3/4/2005	1589.8	7/24/2006	1583.9	3/2/2016	1592.3
3/12/2004	1588.5	3/11/2005	1589.9	8/10/2006	1583.2	4/4/2016	1589.1
3/19/2004	1588.5	3/18/2005	1589.9	8/17/2006	1583.1	5/20/2016	1586.5
3/27/2004	1588.4	3/24/2005	1589.9	9/7/2006	1583.0	6/23/2016	1585.1
3/30/2004	1588.0	4/1/2005	1591.6	9/18/2006	1582.3	12/1/2016	1581.4
4/7/2004	1587.4	4/4/2005	1592.5	10/4/2006	1582.3	6/28/2017	1591.1
4/16/2004	1587.2	4/19/2005	1591.5	10/13/2006	1581.9	1/26/2018	1587.0
4/22/2004	1587.0	4/29/2005	1590.2	10/19/2006	1581.8	12/14/2018	1591.0
4/30/2004	1587.0	5/6/2005	1589.9	11/10/2006	1581.7	4/3/2019	1591.7
5/7/2004	1586.8	5/13/2005	1589.4	11/17/2006	1581.7	7/15/2019	1586.6
5/13/2004	1586.7	5/19/2005	1588.9	11/23/2006	1581.8	3/9/2020	1594.4
5/21/2004	1586.6	5/27/2005	1589.1	11/29/2006	1581.9	5/12/2020	1590.3
6/2/2004	1586.2	6/14/2005	1587.3	12/12/2006	1582.9	6/17/2020	1588.2
6/18/2004	1585.8	6/22/2005	1621.5	12/20/2006	1583.2	7/21/2020	1586.6
6/29/2004	1585.6	7/18/2005	1589.6	1/3/2007	1583.7	11/20/2020	1588.9
7/6/2004	1585.5	8/5/2005	1588.9	1/12/2007	1584.7	3/10/2021	1590.7
7/22/2004	1586.6	8/19/2005	1588.0	5/15/2007	1585.0	6/18/2021	1587.4
7/26/2004	1586.8	9/7/2005	1587.3	5/31/2007	1584.3	7/1/2021	1588.5
8/6/2004	1586.5	9/28/2005	1586.2	6/29/2007	1583.6	9/3/2021	1591.6
8/12/2004	1586.4	10/12/2005	1586.0	8/8/2007	1582.6	12/13/2021	1587.3
8/16/2004	1586.4	10/21/2005	1585.1	9/11/2007	1582.2	3/10/2022	1590.8
8/26/2004	1586.0	11/4/2005	1585.4	11/2/2007	1581.9	6/6/2022	1586.4
9/3/2004	1588.2	11/17/2005	1584.5	12/14/2007	1581.5	9/28/2022	1583.7
9/10/2004	1585.5	12/29/2005	1583.8	1/25/2008	1581.4	12/20/2022	1584.7
9/27/2004	1586.9	1/27/2006	1584.7	3/4/2008	1581.7	3/29/2023	1591.9
10/7/2004	1587.8	2/1/2005	1584.6	5/16/2008	1585.7	6/12/2023	1587.7
10/15/2004	1587.2	2/10/2006	1584.8	5/22/2008	1585.6	8/17/2023	1585.9
11/1/2004	1586.7	2/17/2006	1585.1	7/26/2011	1585.0	11/17/2023	1583.8
11/11/2004	1587.0	2/21/2006	1586.7	5/8/2012	1587.1	2/2/2024	1586.5
11/19/2004	1587.4	3/1/2006	1586.9	8/2/2012	1585.0		
11/23/2004	1587.6	3/9/2006	1586.9	11/8/2012	1582.8		
12/3/2004	1589.1	3/13/2006	1586.9	8/15/2013	1592.8		
12/17/2004	1591.2	4/7/2006	1586.7	8/20/2013	1592.6		
12/22/2004	1590.7	4/14/2006	1586.8	6/6/2014	1587.4		
12/30/2004	1590.7	4/21/2006	1586.6	9/5/2014	1584.7		
1/4/2005	1590.3	4/28/2006	1586.1	10/15/2014	1583.5		
1/13/2005	1589.5	5/8/2006	1585.8	1/27/2015	1587.6		

			Piezometer	r ID: P-6A			
Date of reading	Water Elevation (ft. MSL)	Date of reading	Water Elevation (ft. MSL)	Date of reading	Water Elevation (ft. MSL)	Date of reading	Water Elevation (ft. MSL)
2/6/2004	1557.4	1/13/2005	1557.6	4/28/2006	1556.1	9/5/2014	1554.2
2/13/2004	1557.6	1/19/2005	1558.2	5/8/2006	1556.1	10/15/2014	1554.7
2/15/2004	1557.6	2/4/2005	1557.8	6/16/2006	1555.1	1/27/2015	1555.4
2/20/2004	1557.4	2/15/2005	1557.6	6/23/2006	1555.3	3/17/2015	1555.6
2/27/2004	1557.4	2/25/2005	1557.8	6/30/2006	1555.5	6/15/2015	1555.0
3/12/2004	1557.5	3/4/2005	1557.8	7/17/2006	1555.1	9/2/2015	1554.0
3/19/2004	1557.4	3/11/2005	1557.6	7/24/2006	1555.2	10/21/2015	1554.8
3/27/2004	1557.4	3/18/2005	1557.8	8/10/2006	1555.0	3/2/2016	1556.6
3/30/2004	1557.2	3/24/2005	1557.9	8/17/2006	1555.1	4/4/2016	1555.7
4/7/2004	1556.8	4/1/2005	1558.3	9/7/2006	1555.1	5/20/2016	1554.6
4/16/2004	1557.2	4/4/2005	1558.4	9/18/2006	1554.8	6/23/2016	1553.4
4/22/2004	1556.8	4/19/2005	1558.0	10/4/2006	1554.8	12/1/2016	1552.9
4/30/2004	1557.0	4/29/2005	1557.8	10/13/2006	1554.6	6/28/2017	1555.6
5/7/2004	1557.0	5/6/2005	1557.9	10/19/2006	1555.3	1/26/2018	1555.0
5/13/2004	1557.0	5/13/2005	1557.5	11/10/2006	1555.3	12/14/2018	1556.0
5/21/2004	1557.0	5/19/2005	1557.2	11/17/2006	1555.2	4/3/2019	1556.1
6/2/2004	1556.7	5/27/2005	1557.1	11/23/2006	1555.2	7/15/2019	1554.3
6/18/2004	1556.9	6/14/2005	1557.5	11/29/2006	1555.1	3/9/2020	1557.0
6/29/2004	1557.0	6/22/2005	1557.1	12/12/2006	1555.9	5/12/2020	1555.6
7/6/2004	1557.0	7/18/2005	1557.8	12/20/2006	1555.8	6/17/2020	1554.9
7/22/2004	1556.6	8/5/2005	1557.2	1/3/2007	1556.5	7/21/2020	1554.0
7/26/2004	1556.7	8/19/2005	1557.2	1/12/2007	1556.9	11/20/2020	1555.4
8/6/2004	1556.4	9/7/2005	1556.8	5/15/2007	1555.0	3/10/2021	1555.8
8/12/2004	1556.3	9/28/2005	1556.3	5/31/2007	1554.5	6/18/2021	1554.6
8/16/2004	1556.6	10/12/2005	1556.3	6/29/2007	1554.5	7/1/2021	1555.0
8/26/2004	1556.6	10/21/2005	1555.8	8/8/2007	1554.5	9/3/2021	1555.8
9/3/2004	1557.5	11/4/2005	1555.8	9/11/2007	1553.9	12/13/2021	1555.5
9/10/2004	1556.9	11/17/2005	1556.1	11/2/2007	1553.9	3/10/2022	1555.9
9/27/2004	1557.0	12/29/2005	1556.1	12/14/2007	1553.9	6/6/2022	1554.2
10/7/2004	1557.4	1/27/2006	1557.0	1/25/2008	1555.1	9/28/2022	1553.0
10/15/2004	1556.8	2/1/2005	1556.9	3/4/2008	1555.3	12/20/2022	1555.0
11/1/2004	1557.0	2/10/2006	1556.9	5/16/2008	1555.8	3/29/2023	1555.7
11/11/2004	1557.4	2/17/2006	1556.8	5/22/2008	1555.4	6/12/2023	1554.6
11/19/2004	1557.4	2/21/2006	1556.8	7/26/2011	1554.4	8/17/2023	1554.1
11/23/2004	1557.6	3/1/2006	1556.8	5/8/2012	1555.2	11/17/2023	1552.4
12/3/2004	1557.7	3/9/2006	1556.5	8/2/2012	1554.3	2/2/2024	1554.8
12/17/2004	1558.1	3/13/2006	1556.7	11/8/2012	1553.6		
12/22/2004	1557.9	4/7/2006	1556.4	8/15/2013	1556.7		
12/30/2004	1558.2	4/14/2006	1556.4	8/20/2013	1556.8		
1/4/2005	1558.0	4/21/2006	1556.3	6/6/2014	1555.2		

			Piezometer	r ID: P-7A			
Date of reading	Water Elevation (ft. MSL)						
2/6/2004	1536.9	1/13/2005	1537.3	4/28/2006	1536.3	9/5/2014	1535.8
2/13/2004	1537.2	1/19/2005	1537.5	5/8/2006	1536.3	10/15/2014	1536.3
2/15/2004	1537.2	2/4/2005	1537.5	6/16/2006	1535.8	1/27/2015	1536.1
2/20/2004	1537.1	2/15/2005	1537.3	6/23/2006	1535.7	3/17/2015	1536.1
2/27/2004	1536.7	2/25/2005	1537.7	6/30/2006	1536.6	6/15/2015	1536.3
3/12/2004	1536.9	3/4/2005	1537.4	7/17/2006	1536.5	9/2/2015	1536.3
3/19/2004	1536.6	3/11/2005	1537.2	7/24/2006	1536.4	10/21/2015	1536.2
3/27/2004	1536.7	3/18/2005	1537.3	8/10/2006	1536.3	3/2/2016	1536.5
3/30/2004	1536.5	3/24/2005	1537.3	8/17/2006	1536.5	4/4/2016	1536.0
4/7/2004	1536.3	4/1/2005	1537.5	9/7/2006	1536.6	5/20/2016	1535.9
4/16/2004	1536.6	4/4/2005	1537.7	9/18/2006	1536.6	6/23/2016	1535.5
4/22/2004	1536.5	4/19/2005	1537.3	10/4/2006	1536.6	12/1/2016	1535.9
4/30/2004	1536.7	4/29/2005	1537.2	10/13/2006	-	6/28/2017	1536.6
5/7/2004	1536.7	5/6/2005	1537.4	10/19/2006	1536.6	1/26/2018	1536.2
5/13/2004	1536.6	5/13/2005	1537.1	11/10/2006	1536.7	12/14/2018	1536.7
5/21/2004	1536.8	5/19/2005	1537.0	11/17/2006	1536.8	4/3/2019	1536.1
6/2/2004	1536.5	5/27/2005	1537.1	11/23/2006	1536.7	7/15/2019	1536.0
6/18/2004	1536.9	6/14/2005	1537.8	11/29/2006	1536.8	3/9/2020	1536.9
6/29/2004	1537.2	6/22/2005	1537.4	12/12/2006	1536.8	5/12/2020	1536.0
7/6/2004	1537.3	7/18/2005	1537.9	12/20/2006	1536.6	6/17/2020	1535.8
7/22/2004	1537.0	8/5/2005	1537.4	1/3/2007	1537.2	7/21/2020	1535.8
7/26/2004	1536.9	8/19/2005	1537.7	1/12/2007	1537.5	11/20/2020	1536.5
8/6/2004	1536.9	9/7/2005	1537.5	5/15/2007	1535.6	3/10/2021	1536.4
8/12/2004	1536.9	9/28/2005	1536.3	5/31/2007	1535.6	6/18/2021	1536.3
8/16/2004	1537.1	10/12/2005	1536.8	6/29/2007	1536.2	7/1/2021	1536.7
8/26/2004	1537.2	10/21/2005	1536.6	8/8/2007	1536.5	9/3/2021	1536.7
9/3/2004	1537.0	11/4/2005	1536.6	9/11/2007	1535.9	12/13/2021	1536.0
9/10/2004	1537.6	11/17/2005	1536.5	11/2/2007	1536.2	3/10/2022	1536.3
9/27/2004	1537.4	12/29/2005	1536.7	12/14/2007	1536.0	6/6/2022	1535.3
10/7/2004	1537.4	1/27/2006	1537.0	1/25/2008	1536.3	9/28/2022	1535.2
10/15/2004	1537.2	2/1/2005	1536.9	3/4/2008	1536.4	12/20/2022	1536.1
11/1/2004	1537.4	2/10/2006	1536.8	5/16/2008	1536.1	3/29/2023	1536.1
11/11/2004	1537.6	2/17/2006	1536.7	5/22/2008	1536.3	6/12/2023	1535.6
11/19/2004	1537.7	2/21/2006	1536.6	7/26/2011	1536.1	8/17/2023	1536.3
11/23/2004	1537.7	3/1/2006	1536.6	5/8/2012	1535.6	11/17/2023	1535.4
12/3/2004	1537.7	3/9/2006	1536.3	8/2/2012	1536.1	2/2/2024	1535.9
12/17/2004	1537.7	3/13/2006	1536.4	11/8/2012	1535.9		
12/22/2004	1537.4	4/7/2006	1536.3	8/15/2013	-		
12/30/2004	1537.5	4/14/2006	1536.2	8/20/2013	1537.4		
1/4/2005	1537.5	4/21/2006	1536.2	6/6/2014	1536.4		

			Piezometer	r ID: P-2B			
Date of reading	Water Elevation (ft. MSL)	Date of reading	Water Elevation (ft. MSL)	Date of reading	Water Elevation (ft. MSL)	Date of reading	Water Elevation (ft. MSL)
2/6/2004	1609.3	1/19/2005	1610.5	6/16/2006	1608.9	3/17/2015	1612.6
2/13/2004	1609.4	2/4/2005	1610.1	6/23/2006	1609.2	6/15/2015	1612.7
2/15/2004	1609.6	2/15/2005	1609.9	6/30/2006	1608.8	9/2/2015	1612.1
2/20/2004	1609.5	2/25/2005	1609.9	7/17/2006	1608.8	10/21/2015	1612.3
2/27/2004	1609.4	3/4/2005	1609.9	7/24/2006	1608.7	3/2/2016	1613.6
3/12/2004	1609.6	3/11/2005	1609.9	8/10/2006	1608.4	4/4/2016	1613.2
3/19/2004	1609.6	3/18/2005	1609.9	8/17/2006	1608.3	5/20/2016	1612.4
3/27/2004	1609.7	3/24/2005	1610.0	9/7/2006	1608.2	6/23/2016	1612.1
3/30/2004	1609.7	4/1/2005	1610.1	9/18/2006	1608.1	12/1/2016	1602.2
4/7/2004	1609.6	4/4/2005	1610.2	10/4/2006	1607.7	6/28/2017	1612.3
4/16/2004	1609.4	4/19/2005	1610.7	10/13/2006	1607.5	1/26/2018	1611.4
4/22/2004	1609.5	4/29/2005	1610.6	10/19/2006	1607.5	12/14/2018	1611.6
4/30/2004	1609.4	5/6/2005	1610.5	11/10/2006	1607.6	4/3/2019	1607.1
5/7/2004	1609.4	5/13/2005	1610.4	11/17/2006	1607.7	7/15/2019	1611.0
5/13/2004	1609.4	5/19/2005	1610.3	11/23/2006	1607.7	3/9/2020	1613.2
5/21/2004	1609.4	5/27/2005	1610.3	11/29/2006	1607.6	5/12/2020	1611.9
6/2/2004	1609.2	6/14/2005	1609.8	12/12/2006	1608.1	6/17/2020	1611.4
6/18/2004	1609.1	6/22/2005	1609.7	12/20/2006	1608.1	7/21/2020	1610.9
6/29/2004	1609.1	7/18/2005	1609.8	1/3/2007	1608.3	11/20/2020	1611.4
7/6/2004	1609.1	8/5/2005	1610.1	1/12/2007	1608.7	3/10/2021	1611.7
7/22/2004	1609.1	8/19/2005	1610.1	5/15/2007	1608.9	6/18/2021	1611.1
7/26/2004	1609.1	9/7/2005	1609.8	5/31/2007	1608.9	7/1/2021	1611.0
8/6/2004	1609.1	9/28/2005	1609.7	6/29/2007	1608.9	9/3/2021	1611.6
8/12/2004	1609.2	10/12/2005	1609.5	8/8/2007	1641.6	12/13/2021	1610.5
8/16/2004	1609.2	10/21/2005	1609.4	9/11/2007	1608.3	3/10/2022	1609.9
8/26/2004	1609.2	11/4/2005	1603.8	11/2/2007	1608.0	6/6/2022	1610.4
9/3/2004	1609.6	11/17/2005	1609.2	12/14/2007	1608.7	9/28/2022	1609.8
9/10/2004	1609.1	12/29/2005	1609.0	1/25/2008	1607.7	12/20/2022	1610.1
9/27/2004	1609.4	1/27/2006	1608.8	3/4/2008	1608.0	3/29/2023	1611.6
10/7/2004	1609.4	2/1/2005	1608.8	5/16/2008	1609.4	6/12/2023	1610.7
10/15/2004	1609.5	2/10/2006	1609.0	5/22/2008	1609.4	8/17/2023	1609.9
11/1/2004	1609.5	2/17/2006	1608.9	7/26/2011	1610.9	11/17/2023	1609.6
11/11/2004	1609.6	2/21/2006	1609.0	5/8/2012	1612.0	2/2/2024	1609.7
11/19/2004	1609.7	3/1/2006	1609.1	8/2/2012	1602.2		
11/23/2004	1609.7	3/9/2006	1609.2	11/8/2012	-		
12/3/2004	1609.8	3/13/2006	1609.2	8/15/2013	1613.8		
12/17/2004	1610.2	4/7/2006	1609.3	8/20/2013	1613.9		
12/22/2004	1610.3	4/14/2006	1609.1	6/6/2014	1612.7		
12/30/2004	1610.5	4/21/2006	1609.0	9/5/2014	1612.0		
1/4/2005	1610.6	4/28/2006	1603.4	10/15/2014	1611.8		
1/13/2005	1610.5	5/8/2006	1609.2	1/27/2015	1612.3		

			Piezometer	r ID: P-4B			
Date of reading	Water Elevation (ft. MSL)	Date of reading	Water Elevation (ft. MSL)	Date of reading	Water Elevation (ft. MSL)	Date of reading	Water Elevation (ft. MSL)
2/6/2004	1572.3	1/19/2005	1574.8	6/16/2006	1570.5	3/17/2015	1572.8
2/13/2004	1572.7	2/4/2005	1574.1	6/23/2006	1570.4	6/15/2015	1572.3
2/15/2004	1573.6	2/15/2005	1573.7	6/30/2006	1570.3	9/2/2015	1570.1
2/20/2004	1573.1	2/25/2005	1574.1	7/17/2006	1570.0	10/21/2015	1570.7
2/27/2004	1573.3	3/4/2005	1574.7	7/24/2006	1570.0	3/2/2016	1576.2
3/12/2004	1573.7	3/11/2005	1574.8	8/10/2006	1569.7	4/4/2016	1573.8
3/19/2004	1573.7	3/18/2005	1574.8	8/17/2006	1569.3	5/20/2016	1571.5
3/27/2004	1573.7	3/24/2005	1574.8	9/7/2006	1569.2	6/23/2016	1570.2
3/30/2004	1573.5	4/1/2005	1575.5	9/18/2006	1569.1	12/1/2016	1567.1
4/7/2004	1573.1	4/4/2005	1576.3	10/4/2006	1568.8	6/28/2017	1574.2
4/16/2004	1572.7	4/19/2005	1576.3	10/13/2006	1568.5	1/26/2018	1571.4
4/22/2004	1572.7	4/29/2005	1575.4	10/19/2006	1568.5	12/14/2018	1574.4
4/30/2004	1572.6	5/6/2005	1575.3	11/10/2006	1568.8	4/3/2019	1576.0
5/7/2004	1572.5	5/13/2005	1574.8	11/17/2006	1568.9	7/15/2019	1571.5
5/13/2004	1572.5	5/19/2005	1574.4	11/23/2006	1568.8	3/9/2020	1577.9
5/21/2004	1572.5	5/27/2005	1574.4	11/29/2006	1568.8	5/12/2020	1574.5
6/2/2004	1572.0	6/14/2005	1573.3	12/12/2006	1570.0	6/17/2020	1572.7
6/18/2004	1571.8	6/22/2005	1553.5	12/20/2006	1570.0	7/21/2020	1571.4
6/29/2004	1571.8	7/18/2005	1574.6	1/3/2007	1570.3	11/20/2020	1572.8
7/6/2004	1572.0	8/5/2005	1574.2	1/12/2007	1567.0	3/10/2021	1574.2
7/22/2004	1572.4	8/19/2005	1573.9	5/15/2007	1570.5	6/18/2021	1572.3
7/26/2004	1572.4	9/7/2005	1573.1	5/31/2007	1570.2	7/1/2021	1572.8
8/6/2004	1572.1	9/28/2005	1572.1	6/29/2007	1569.6	9/3/2021	1574.8
8/12/2004	1572.0	10/12/2005	1571.5	8/8/2007	1568.9	12/13/2021	1572.3
8/16/2004	1571.9	10/21/2005	1571.3	9/11/2007	1568.6	3/10/2022	1574.7
8/26/2004	1571.7	11/4/2005	1571.6	11/2/2007	1568.0	6/6/2022	1571.5
9/3/2004	1573.5	11/17/2005	1570.6	12/14/2007	1567.9	9/28/2022	1569.1
9/10/2004	1571.4	12/29/2005	1570.3	1/25/2008	1568.3	12/20/2022	1570.5
9/27/2004	1572.9	1/27/2006	1571.2	3/4/2008	1569.0	3/29/2023	1575.0
10/7/2004	1573.5	2/1/2005	1571.2	5/16/2008	1571.4	6/12/2023	1572.4
10/15/2004	1573.2	2/10/2006	1571.4	5/22/2008	1571.3	8/17/2023	1570.8
11/1/2004	1572.8	2/17/2006	1571.4	7/26/2011	1570.4	11/17/2023	1568.7
11/11/2004	1573.0	2/21/2006	1572.2	5/8/2012	1572.2	2/2/2024	1571.5
11/19/2004	1573.3	3/1/2006	1572.0	8/2/2012	1570.4		
11/23/2004	1573.3	3/9/2006	1572.3	11/8/2012	1568.6		
12/3/2004	1574.0	3/13/2006	1572.3	8/15/2013	1555.2		
12/17/2004	1575.6	4/7/2006	1572.3	8/20/2013	1576.6		
12/22/2004	1575.5	4/14/2006	1572.1	6/6/2014	1572.4		
12/30/2004	1575.6	4/21/2006	1571.9	9/5/2014	1569.7		
1/4/2005	1575.5	4/28/2006	1571.7	10/15/2014	1569.0		
1/13/2005	1574.9	5/8/2006	1571.5	1/27/2015	1572.2		

			Piezometer	r ID: P-6B			
Date of reading	Water Elevation (ft. MSL)						
2/6/2004	1539.6	1/13/2005	1540.5	4/28/2006	1539.8	9/5/2014	1537.8
2/13/2004	1540.0	1/19/2005	1540.4	5/8/2006	1539.8	10/15/2014	1537.6
2/15/2004	1540.5	2/4/2005	1540.0	6/16/2006	1538.9	1/27/2015	1539.2
2/20/2004	1540.1	2/15/2005	1540.5	6/23/2006	1539.0	3/17/2015	1538.9
2/27/2004	1540.1	2/25/2005	1540.6	6/30/2006	1539.0	6/15/2015	1546.4
3/12/2004	1540.6	3/4/2005	1540.9	7/17/2006	1538.9	9/2/2015	1538.5
3/19/2004	1540.7	3/11/2005	1540.8	7/24/2006	1539.0	10/21/2015	1538.6
3/27/2004	1540.7	3/18/2005	1540.6	8/10/2006	1538.2	3/2/2016	1540.6
3/30/2004	1540.6	3/24/2005	1540.6	8/17/2006	1538.0	4/4/2016	1540.1
4/7/2004	1540.2	4/1/2005	1540.5	9/7/2006	1537.6	5/20/2016	1539.0
4/16/2004	1540.0	4/4/2005	1540.6	9/18/2006	1537.5	6/23/2016	1538.2
4/22/2004	1557.4	4/19/2005	1540.5	10/4/2006	1537.2	12/1/2016	1537.1
4/30/2004	1540.3	4/29/2005	1540.7	10/13/2006	1537.1	6/28/2017	1539.1
5/7/2004	1540.4	5/6/2005	1541.2	10/19/2006	1536.9	1/26/2018	1538.8
5/13/2004	1540.4	5/13/2005	1540.6	11/10/2006	1537.5	12/14/2018	1539.3
5/21/2004	1540.5	5/19/2005	1540.2	11/17/2006	1537.6	4/3/2019	1540.1
6/2/2004	1539.9	5/27/2005	1540.1	11/23/2006	1537.5	7/15/2019	1538.5
6/18/2004	1557.4	6/14/2005	1540.6	11/29/2006	1537.5	3/9/2020	1540.4
6/29/2004	1557.6	6/22/2005	1540.7	12/12/2006	1538.6	5/12/2020	1539.2
7/6/2004	1540.1	7/18/2005	1540.9	12/20/2006	1538.8	6/17/2020	1538.8
7/22/2004	1540.0	8/5/2005	1540.3	1/3/2007	1539.0	7/21/2020	1538.5
7/26/2004	1540.0	8/19/2005	1540.0	1/12/2007	1539.6	11/20/2020	1538.8
8/6/2004	1539.7	9/7/2005	1540.1	5/15/2007	1538.7	3/10/2021	1540.0
8/12/2004	1539.6	9/28/2005	1539.4	5/31/2007	1538.4	6/18/2021	1538.7
8/16/2004	1539.6	10/12/2005	1539.0	6/29/2007	1538.1	7/1/2021	1538.4
8/26/2004	1539.6	10/21/2005	1538.8	8/8/2007	1538.1	9/3/2021	1539.1
9/3/2004	1540.4	11/4/2005	1538.8	9/11/2007	1537.2	12/13/2021	1539.1
9/10/2004	1539.5	11/17/2005	1538.3	11/2/2007	1537.2	3/10/2022	1540.1
9/27/2004	1540.1	12/29/2005	1537.8	12/14/2007	1537.3	6/6/2022	1538.4
10/7/2004	1540.2	1/27/2006	1538.7	1/25/2008	1538.1	9/28/2022	1536.9
10/15/2004	1540.1	2/1/2005	1538.8	3/4/2008	1540.7	12/20/2022	1538.4
11/1/2004	1540.2	2/10/2006	1538.7	5/16/2008	1538.6	3/29/2023	1539.6
11/11/2004	1540.4	2/17/2006	1538.8	5/22/2008	1538.4	6/12/2023	1538.8
11/19/2004	1540.7	2/21/2006	1539.3	7/26/2011	1538.8	8/17/2023	1538.5
11/23/2004	1540.6	3/1/2006	1539.5	5/8/2012	1538.7	11/17/2023	1537.2
12/3/2004	1540.9	3/9/2006	1539.6	8/2/2012	1538.9	2/2/2024	1538.6
12/17/2004	1541.0	3/13/2006	1539.6	11/8/2012	1537.6		
12/22/2004	1540.9	4/7/2006	1539.9	8/15/2013	1540.4		
12/30/2004	1541.0	4/14/2006	1539.9	8/20/2013	1540.3		
1/4/2005	1540.9	4/21/2006	1539.8	6/6/2014	1539.4		

			Piezometer	r ID: P-7B			
Date of reading	Water Elevation (ft. MSL)						
2/6/2004	1523.2	1/13/2005	1523.2	4/28/2006	1522.6	9/5/2014	1522.0
2/13/2004	1523.3	1/19/2005	1523.5	5/8/2006	1522.7	10/15/2014	1521.7
2/15/2004	1523.5	2/4/2005	1523.4	6/16/2006	1522.7	1/27/2015	1522.0
2/20/2004	1523.3	2/15/2005	1523.3	6/23/2006	1522.7	3/17/2015	1522.2
2/27/2004		2/25/2005	1523.3	6/30/2006	1522.7	6/15/2015	1522.2
3/12/2004	1523.5	3/4/2005	1523.3	7/17/2006	1522.6	9/2/2015	1522.0
3/19/2004	1523.6	3/11/2005	1523.1	7/24/2006	1522.5	10/21/2015	1522.2
3/27/2004	1523.7	3/18/2005	1523.2	8/10/2006	1522.4	3/2/2016	1522.8
3/30/2004	1523.2	3/24/2005	1523.2	8/17/2006	1522.6	4/4/2016	1522.4
4/7/2004	1523.1	4/1/2005	-	9/7/2006	1522.6	5/20/2016	1522.1
4/16/2004	1523.4	4/4/2005	1523.6	9/18/2006	1522.6	6/23/2016	1522.0
4/22/2004	1523.2	4/19/2005	1523.6	10/4/2006	1522.6	12/1/2016	1521.9
4/30/2004	1523.3	4/29/2005	1523.2	10/13/2006	-	6/28/2017	1528.1
5/7/2004	1523.3	5/6/2005	1523.2	10/19/2006	1522.4	1/26/2018	1522.6
5/13/2004	1523.3	5/13/2005	1523.2	11/10/2006	1522.5	12/14/2018	1522.7
5/21/2004	1523.2	5/19/2005	1523.0	11/17/2006	1522.6	4/3/2019	1522.8
6/2/2004	1523.1	5/27/2005	-	11/23/2006	1522.5	7/15/2019	1522.1
6/18/2004	1523.1	6/14/2005	1522.8	11/29/2006	-	3/9/2020	1523.7
6/29/2004	1523.2	6/22/2005	1523.0	12/12/2006	1523.0	5/12/2020	1522.7
7/6/2004	1523.2	7/18/2005	1523.2	12/20/2006	1522.8	6/17/2020	1522.3
7/22/2004	1523.1	8/5/2005	1523.1	1/3/2007	1523.0	7/21/2020	1522.1
7/26/2004	1523.1	8/19/2005	1523.0	1/12/2007	1523.3	11/20/2020	1522.6
8/6/2004	1522.8	9/7/2005	1523.1	5/15/2007	1522.4	3/10/2021	1523.1
8/12/2004	1522.8	9/28/2005	1522.8	5/31/2007	1522.1	6/18/2021	1522.4
8/16/2004	1523.2	10/12/2005	1522.8	6/29/2007	1522.1	7/1/2021	1522.4
8/26/2004	1523.1	10/21/2005	1522.6	8/8/2007	1522.4	9/3/2021	1522.5
9/3/2004	1523.4	11/4/2005	1522.6	9/11/2007	1522.1	12/13/2021	1522.6
9/10/2004	1523.1	11/17/2005	1522.9		1522.1	3/10/2022	1522.8
9/27/2004	1523.0	12/29/2005	1522.5	12/14/2007	1522.2	6/6/2022	1522.2
10/7/2004	1523.4	1/27/2006	1523.2	1/25/2008	1522.5	9/28/2022	1522.1
10/15/2004	1522.7	2/1/2005	1523.2	3/4/2008	1522.6	12/20/2022	1522.5
11/1/2004	1523.1	2/10/2006	1523.0	5/16/2008	1522.3	3/29/2023	1523.0
11/11/2004	1523.3	2/17/2006	1523.0	5/22/2008	1522.2	6/12/2023	1522.2
11/19/2004	1523.2	2/21/2006	1522.9	7/26/2011	1521.9	8/17/2023	1522.0
11/23/2004	1523.0	3/1/2006	1522.8	5/8/2012	1522.2	11/17/2023	1521.8
12/3/2004	1523.3	3/9/2006	1522.7	8/2/2012	1522.0	2/2/2024	1522.1
12/17/2004	1523.8	3/13/2006	1522.8	11/8/2012	1522.1		
12/22/2004	1523.7	4/7/2006	1522.7	8/15/2013			
12/30/2004	1523.8	4/14/2006	1522.6	8/20/2013	1523.0		
1/4/2005	1523.7	4/21/2006	1522.5	6/6/2014	1522.1		

			Piezometer	r ID: P-2C			
Date of reading	Water Elevation (ft. MSL)	Date of reading	Water Elevation (ft. MSL)	Date of reading	Water Elevation (ft. MSL)	Date of reading	Water Elevation (ft. MSL)
2/6/2004	1594.7	1/19/2005	1595.7	6/16/2006	1594.4	3/17/2015	1595.5
2/13/2004	1594.6	2/4/2005	1595.6	6/23/2006	1594.5	6/15/2015	1606.8
2/15/2004	1594.8	2/15/2005	1595.5	6/30/2006	1594.4	9/2/2015	1595.0
2/20/2004	1594.7	2/25/2005	1595.4	7/17/2006	1594.3	10/21/2015	1595.0
2/27/2004	1594.7	3/4/2005	1595.3	7/24/2006	1594.2	3/2/2016	1596.9
3/12/2004	1594.9	3/11/2005	1595.3	8/10/2006	1594.0	4/4/2016	1596.5
3/19/2004	1594.9	3/18/2005	1595.3	8/17/2006	1594.0	5/20/2016	1595.8
3/27/2004	1594.9	3/24/2005	1595.3	9/7/2006	1593.8	6/23/2016	1595.3
3/30/2004	1595.0	4/1/2005	1595.4	9/18/2006	1593.6	12/1/2016	1593.4
4/7/2004	1595.0	4/4/2005	1595.4	10/4/2006	1593.4	6/28/2017	1595.8
4/16/2004	1594.9	4/19/2005	1595.7	10/13/2006	1593.3	1/26/2018	1595.5
4/22/2004	1594.9	4/29/2005	1596.0	10/19/2006	1593.3	12/14/2018	1595.7
4/30/2004	1594.9	5/6/2005	1595.9	11/10/2006	1593.2	4/3/2019	1604.2
5/7/2004	1594.9	5/13/2005	1595.9	11/17/2006	1593.1	7/15/2019	1595.9
5/13/2004	1594.9	5/19/2005	1595.8	11/23/2006	1593.1	3/9/2020	1597.6
5/21/2004	1594.9	5/27/2005	1595.9	11/29/2006	1593.0	5/12/2020	1596.9
6/2/2004	1594.8	6/14/2005	1595.4	12/12/2006	1593.5	6/17/2020	1596.4
6/18/2004	1594.7	6/22/2005	1595.3	12/20/2006	1593.6	7/21/2020	1595.9
6/29/2004	1594.6	7/18/2005	1595.2	1/3/2007	1593.6	11/20/2020	1596.0
7/6/2004	1594.5	8/5/2005	1595.4	1/12/2007	1593.8	3/10/2021	1596.4
7/22/2004	1594.7	8/19/2005	1595.5	5/15/2007	1594.1	6/18/2021	1595.8
7/26/2004	1594.7	9/7/2005	1595.4	5/31/2007	1594.1	7/1/2021	1596.1
8/6/2004	1594.6	9/28/2005	1595.3	6/29/2007	1593.8	9/3/2021	1596.5
8/12/2004	1594.8	10/12/2005	1595.1	8/8/2007	1593.8	12/13/2021	1596.2
8/16/2004	1594.7	10/21/2005	1595.0	9/11/2007	1593.5	3/10/2022	1595.6
8/26/2004	1594.6	11/4/2005	1595.1	11/2/2007	1593.1	6/6/2022	1595.7
9/3/2004	1594.8	11/17/2005	1594.7	12/14/2007	1593.8	9/28/2022	1595.3
9/10/2004	1594.6	12/29/2005	1594.6	1/25/2008	1592.9	12/20/2022	1595.2
9/27/2004	1594.7	1/27/2006	1594.3	3/4/2008	1592.9	3/29/2023	1596.6
10/7/2004	1594.8	2/1/2005	1594.3	5/16/2008	1590.7	6/12/2023	1596.3
10/15/2004	1594.9	2/10/2006	1594.3	5/22/2008	1594.3	8/17/2023	1595.4
11/1/2004	1595.0	2/17/2006	1594.2	7/26/2011	1594.8	11/17/2023	1594.8
11/11/2004	1595.0	2/21/2006	1594.4	5/8/2012	1595.6	2/2/2024	1594.9
11/19/2004	1595.1	3/1/2006	1594.5	8/2/2012	1595.1		
11/23/2004	1595.1	3/9/2006	1594.5	11/8/2012	1595.1		
12/3/2004	1595.2	3/13/2006	1594.5	8/15/2013	1596.9		
12/17/2004	1595.4	4/7/2006	1594.7	8/20/2013	1596.9		
12/22/2004	1595.5	4/14/2006	-	6/6/2014	1596.0		
12/30/2004	1595.6	4/21/2006	-	9/5/2014	1595.0		
1/4/2005	1595.7	4/28/2006	1601.2	10/15/2014	1594.7		
1/13/2005	1595.8	5/8/2006	1594.7	1/27/2015	1595.1		

			Piezometer	r ID: P-4C			
Date of reading	Water Elevation (ft. MSL)						
2/6/2004	1571.0	1/13/2005	1572.8	4/28/2006	1570.6	9/5/2014	1568.7
2/13/2004	1571.2	1/19/2005	1572.7	5/8/2006	1570.5	10/15/2014	1568.3
2/15/2004	1571.7	2/4/2005	1572.2	6/16/2006	1569.8	1/27/2015	1569.7
2/20/2004	1571.4	2/15/2005	1571.9	6/23/2006	1569.9	3/17/2015	1573.3
2/27/2004	1571.5	2/25/2005	1571.9	6/30/2006	1569.6	6/15/2015	1601.6
3/12/2004	1571.8	3/4/2005	1572.1	7/17/2006	1569.5	9/2/2015	1568.8
3/19/2004	1571.8	3/11/2005	1572.3	7/24/2006	1569.6	10/21/2015	1568.8
3/27/2004	1571.8	3/18/2005	1572.4	8/10/2006	1569.1	3/2/2016	1572.6
3/30/2004	1571.8	3/24/2005	1572.4	8/17/2006	1569.0	4/4/2016	1571.4
4/7/2004	1571.6	4/1/2005	1572.6	9/7/2006	1568.8	5/20/2016	1569.9
4/16/2004	1571.4	4/4/2005	1572.8	9/18/2006	1568.7	6/23/2016	1569.0
4/22/2004	1571.4	4/19/2005	1573.6	10/4/2006	1568.6	12/1/2016	1567.1
4/30/2004	1571.3	4/29/2005	1573.2	10/13/2006	1568.5	6/28/2017	1571.1
5/7/2004	1571.2	5/6/2005	1573.0	10/19/2006	1568.5	1/26/2018	1569.6
5/13/2004	1571.2	5/13/2005	1572.7	11/10/2006	1568.7	12/14/2018	1584.7
5/21/2004	1571.2	5/19/2005	1572.5	11/17/2006	1568.5	4/3/2019	1573.3
6/2/2004	1571.0	5/27/2005	1572.5	11/23/2006	1568.6	7/15/2019	1569.8
6/18/2004	1570.8	6/14/2005	1571.5	11/29/2006	1568.5	3/9/2020	1574.1
6/29/2004	1570.8	6/22/2005	1558.3	12/12/2006	1569.2	5/12/2020	1571.8
7/6/2004	1570.9	7/18/2005	1571.7	12/20/2006	1569.3	6/17/2020	1570.6
7/22/2004	1571.0	8/5/2005	1572.3	1/3/2007	1569.3	7/21/2020	1569.7
7/26/2004	1571.1	8/19/2005	1572.0	1/12/2007	1569.6	11/20/2020	1570.2
8/6/2004	1571.0	9/7/2005	1571.6	5/15/2007	1569.7	3/10/2021	1571.2
8/12/2004	1570.9	9/28/2005	-	5/31/2007	1569.4	6/18/2021	1570.3
8/16/2004	1570.9	10/12/2005	1570.8	6/29/2007	1568.8	7/1/2021	1570.3
8/26/2004	1570.8	10/21/2005	1570.5	8/8/2007	1568.8	9/3/2021	1571.2
9/3/2004	1571.6	11/4/2005	1570.5	9/11/2007	1568.5	12/13/2021	1570.3
9/10/2004	1570.6	11/17/2005	1570.1	11/2/2007	1568.2	3/10/2022	1571.5
9/27/2004	1571.1	12/29/2005	1569.9	12/14/2007	1567.9	6/6/2022	1569.8
10/7/2004	1571.5	1/27/2006	1570.0	1/25/2008	1567.9	9/28/2022	1568.4
10/15/2004	1571.5	2/1/2005	1570.0	3/4/2008	1568.4	12/20/2022	1568.7
11/1/2004	1571.4	2/10/2006	1570.2	5/16/2008	1569.9	3/29/2023	1571.7
11/11/2004	1571.4	2/17/2006	1570.3	5/22/2008	1569.8	6/12/2023	1570.3
11/19/2004	1571.6	2/21/2006	1570.5	7/26/2011	1569.1	8/17/2023	1569.1
11/23/2004	1571.6	3/1/2006	1570.7	5/8/2012	1570.4	11/17/2023	1568.0
12/3/2004	1571.9	3/9/2006	1570.7	8/2/2012	1569.3	2/2/2024	1569.2
12/17/2004	1572.6	3/13/2006	1570.7	11/8/2012	1568.2		
12/22/2004	1572.9	4/7/2006	1570.8	8/15/2013	1561.0		
12/30/2004	1573.0	4/14/2006	1570.8	8/20/2013	1573.1		
1/4/2005	1573.1	4/21/2006	1570.6	6/6/2014	1570.5		

Piezometer ID: P-6C									
Date of readingWater Elevation (ft. MSL)Date of reading		Water Elevation (ft. MSL)	Date of reading	Water Elevation (ft. MSL)	Date of reading	Water Elevation (ft. MSL)			
2/6/2004	1556.2	1/13/2005	1556.6	4/28/2006	1555.2	9/5/2014	1553.2		
2/13/2004	1556.5	1/19/2005	1556.9	5/8/2006	1555.0	10/15/2014	1553.6		
2/15/2004	1556.6	2/4/2005	1556.8	6/16/2006	1554.0	1/27/2015	1554.5		
2/20/2004	1556.4	2/15/2005	1556.5	6/23/2006	1554.0	3/17/2015	1554.7		
2/27/2004	1556.4	2/25/2005	1556.8	6/30/2006	1554.4	6/15/2015	1554.0		
3/12/2004	1556.4	3/4/2005	1556.8	7/17/2006	1554.0	9/2/2015	1553.1		
3/19/2004	1556.2	3/11/2005	1556.7	7/24/2006	1554.1	10/21/2015	1553.8		
3/27/2004	1556.4	3/18/2005	1556.8	8/10/2006	1553.3	3/2/2016	1555.7		
3/30/2004	1556.1	3/24/2005	1556.8	8/17/2006	1553.6	4/4/2016	1554.8		
4/7/2004	1555.7	4/1/2005	1559.8	9/7/2006	1553.6	5/20/2016	1553.6		
4/16/2004	1556.1	4/4/2005	1557.4	9/18/2006	1553.7	6/23/2016	1552.5		
4/22/2004	1540.0	4/19/2005	1557.0	10/4/2006	1553.6	12/1/2016	1551.9		
4/30/2004	1556.0	4/29/2005	1556.8	10/13/2006	-	6/28/2017	1554.7		
5/7/2004	1555.9	5/6/2005	1556.9	10/19/2006	1554.0	1/26/2018	1554.0		
5/13/2004	1555.9	5/13/2005	1556.4	11/10/2006	1554.0	12/14/2018	1555.1		
5/21/2004	1555.9	5/19/2005	1556.2	11/17/2006	1554.1	4/3/2019	1555.2		
6/2/2004	1555.6	5/27/2005	1556.1	11/23/2006	1554.1	7/15/2019	1553.3		
6/18/2004	1539.6	6/14/2005	1556.4	11/29/2006	1554.2	3/9/2020	1556.1		
6/29/2004	1539.7	6/22/2005	1556.0	12/12/2006	1554.7	5/12/2020	1554.7		
7/6/2004	1556.0	7/18/2005	1556.8	12/20/2006	1554.5	6/17/2020	1554.0		
7/22/2004	1555.5	8/5/2005	1556.1	1/3/2007	1555.3	7/21/2020	1553.0		
7/26/2004	1555.6	8/19/2005	1556.1	1/12/2007	1555.7	11/20/2020	1554.4		
8/6/2004	1555.3	9/7/2005	1555.7	5/15/2007	1553.8	3/10/2021	1554.8		
8/12/2004	1555.1	9/28/2005	1555.2	5/31/2007	1553.3	6/18/2021	1553.7		
8/16/2004	1555.5	10/12/2005	1555.1	6/29/2007	1553.3	7/1/2021	1554.1		
8/26/2004	1555.5	10/21/2005	1554.7	8/8/2007	1553.5	9/3/2021	1554.8		
9/3/2004	1556.5	11/4/2005	1554.7	9/11/2007	1553.0	12/13/2021	1554.4		
9/10/2004	1555.7	11/17/2005	1554.9	11/2/2007	1552.8	3/10/2022	1555.0		
9/27/2004	1555.9	12/29/2005	1554.9	12/14/2007	1553.0	6/6/2022	1553.2		
10/7/2004	1556.2	1/27/2006	1555.9	1/25/2008	1553.8	9/28/2022	1552.0		
10/15/2004	1555.7	2/1/2005	1556.0	3/4/2008	1554.1	12/20/2022	1554.0		
11/1/2004	1555.9	2/10/2006	1555.9	5/16/2008	1554.7	3/29/2023	1554.8		
11/11/2004	1556.2	2/17/2006	1555.8	5/22/2008	1554.3	6/12/2023	1553.6		
11/19/2004	1556.3	2/21/2006	1555.7	7/26/2011	1553.3	8/17/2023	1553.1		
11/23/2004	1556.4	3/1/2006	1555.7	5/8/2012	1554.2	11/17/2023	1551.4		
12/3/2004	1556.6	3/9/2006	1555.5	8/2/2012	1553.3	2/2/2024	1553.8		
12/17/2004	1557.1	3/13/2006	1555.6	11/8/2012	1552.6				
12/22/2004	1556.9	4/7/2006	1555.3	8/15/2013	1555.9				
12/30/2004	1557.1	4/14/2006	1555.3	8/20/2013	1556.0				
1/4/2005	1557.0	4/21/2006	1555.3	6/6/2014	1554.3				

Piezometer ID: P-7C									
Date of reading	Water Elevation (ft. MSL)	Elevation (ft. MSL)		Water Elevation (ft. MSL) Date of reading		Date of reading	Water Elevation (ft. MSL)		
2/6/2004	1528.4	1/19/2005	1528.6	6/16/2006	1527.1	3/17/2015	1527.5		
2/13/2004	1528.6	2/4/2005	1528.6	6/23/2006	1527.1	6/15/2015	1527.3		
2/15/2004	1528.2	2/15/2005	1528.6	6/30/2006	1527.5	9/2/2015	1527.2		
2/20/2004	1528.7	2/25/2005	1528.8	7/17/2006	1527.7	10/21/2015	1527.4		
2/27/2004	1527.7	3/4/2005	1528.8	7/24/2006	1527.8	3/2/2016	1529.0		
3/12/2004	1528.2	3/11/2005	1528.8	8/10/2006	1527.4	4/4/2016	1527.3		
3/19/2004	1528.2	3/18/2005	1528.8	8/17/2006	1527.5	5/20/2016	1527.1		
3/27/2004	1528.2	3/24/2005	1528.9	9/7/2006	1527.7	6/23/2016	1526.5		
3/30/2004	1528.1	4/1/2005	1530.5	9/18/2006	1527.6	12/1/2016	1527.0		
4/7/2004	1528.0	4/4/2005	1527.9	10/4/2006	1527.7	6/28/2017	1527.4		
4/16/2004	1528.0	4/19/2005	1528.3	10/13/2006	-	1/26/2018	1527.6		
4/22/2004	1527.6	4/29/2005	1528.1	10/19/2006	1527.5	12/14/2018	1527.8		
4/30/2004	1527.8	5/6/2005	1528.2	11/10/2006	1527.7	4/3/2019	1528.0		
5/7/2004	1528.0	5/13/2005	1528.2	11/17/2006	1527.8	7/15/2019	1527.3		
5/13/2004	1528.0	5/19/2005	1528.1	11/23/2006	1527.8	3/9/2020	1528.4		
5/21/2004	1528.2	5/27/2005	1528.0	11/29/2006	1527.7	5/12/2020	1527.8		
6/2/2004	1527.4	6/14/2005	1528.5	12/12/2006	1528.0	6/17/2020	1527.7		
6/18/2004	1528.0	6/22/2005	1528.6	12/20/2006	1527.9	7/21/2020	1526.9		
6/29/2004	1528.3	7/18/2005	1528.6	1/3/2007	1528.0	11/20/2020	1527.4		
7/6/2004	1528.5	8/5/2005	1528.0	1/12/2007	1528.3	3/10/2021	1528.0		
7/22/2004	1527.6	8/19/2005	1528.5	5/15/2007	1526.6	6/18/2021	1527.2		
7/26/2004	1527.7	9/7/2005	1528.1	5/31/2007	1526.9	7/1/2021	1527.7		
8/6/2004	1527.8	9/28/2005	1527.5	6/29/2007	1527.4	9/3/2021	1527.7		
8/12/2004	1527.9	10/12/2005	1527.9	8/8/2007	1527.2	12/13/2021	1527.4		
8/16/2004	1528.0	10/21/2005	1528.1	9/11/2007	1527.2	3/10/2022	1528.2		
8/26/2004	1528.2	11/4/2005	1528.2	11/2/2007	1527.4	6/6/2022	1527.7		
9/3/2004	1528.0	11/17/2005	1527.8	12/14/2007	1527.2	9/28/2022	1527.2		
9/10/2004	1527.9	12/29/2005	1527.7	1/25/2008	1527.3	12/20/2022	1527.7		
9/27/2004	1528.4	1/27/2006	1528.0	3/4/2008	1527.1	3/29/2023	1527.7		
10/7/2004	1527.8	2/1/2005	1528.0	5/16/2008	1527.4	6/12/2023	1526.9		
10/15/2004	1527.9	2/10/2006	1527.9	5/22/2008	1527.4	8/17/2023	1526.9		
11/1/2004	1528.2	2/17/2006	1527.8	7/26/2011	1527.0	11/17/2023	1526.6		
11/11/2004	1528.0	2/21/2006	1528.0	5/8/2012	1527.0	2/2/2024	1527.4		
11/19/2004	1528.3	3/1/2006	1528.1	8/2/2012	1527.4				
11/23/2004	1528.3	3/9/2006	1528.1	11/8/2012	1527.0				
12/3/2004	1528.5	3/13/2006	1528.0	8/15/2013	-				
12/17/2004	1528.3	4/7/2006	1527.9	8/20/2013	1528.2				
12/22/2004	1528.3	4/14/2006	1527.9	6/6/2014	1527.3				
12/30/2004	1528.5	4/21/2006	1527.8	9/5/2014	1527.1				
1/4/2005	1528.6	4/28/2006	1527.5	10/15/2014	1527.1				
1/13/2005	1528.5	5/8/2006	1527.4	1/27/2015	1527.2				

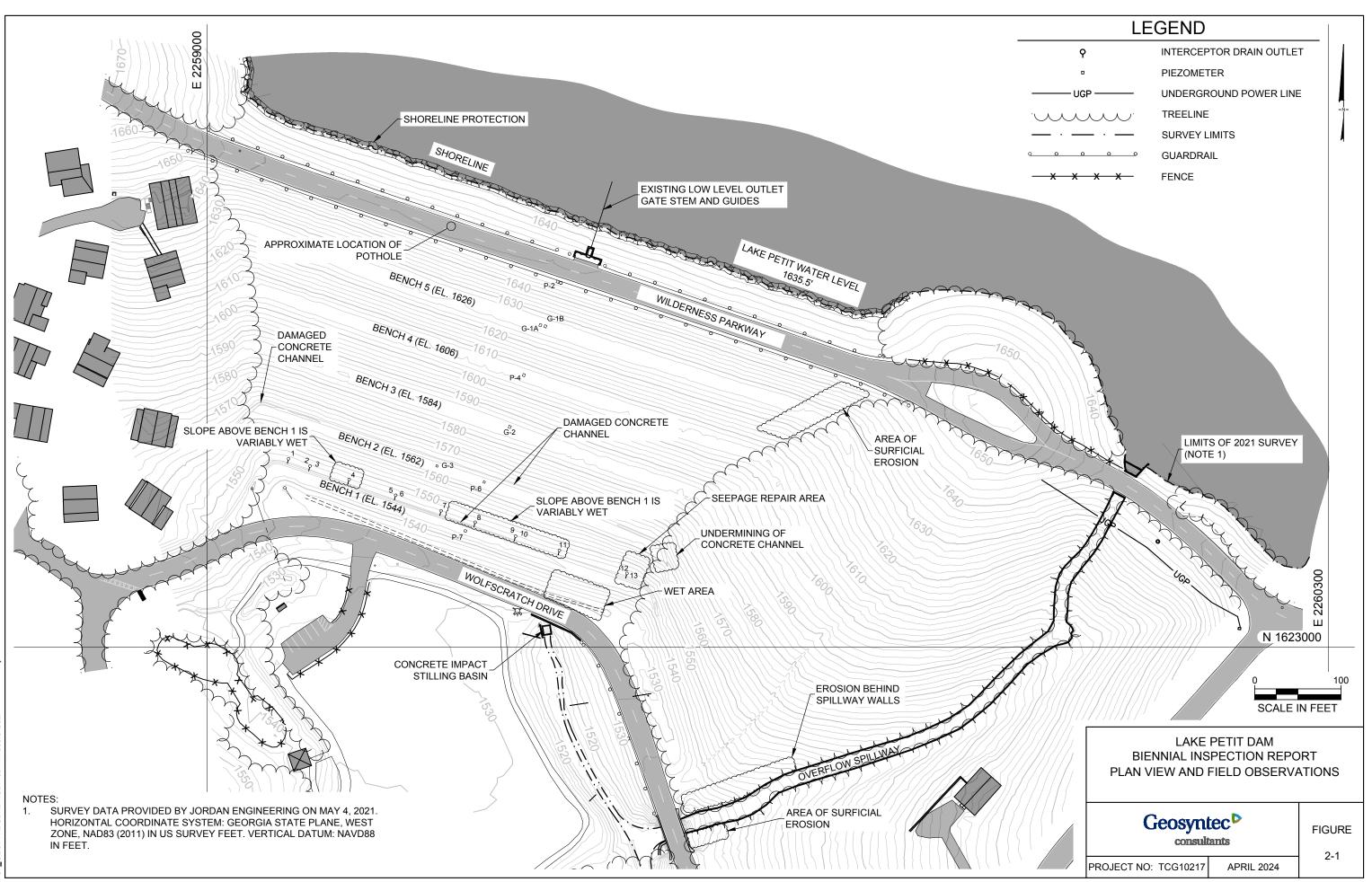
Table 2-2
Standpipe Piezometer Water Elevation Data

	22-Oct-98	23-Oct-98	26-Oct-98	29-Oct-98	3-Jan-07	19-Jan-07	22-May-08	20-Aug-13	15-Nov-14	20-Oct-15
					Water Eleva	tion (ft MSL)				
G-1A Shallow	1593.68	1593.43	1593.42	1593.67	1592.84	1592.84	1593.73	1599.59	1594.43	1594.00
G-1A Deep	1577.07	1576.93	1576.51	1576.92	1575.59	1575.59	1577.81	1581.31	1576.46	1576.46
G-1B	1580.87	1583.84	1583.85	1583.89	1583.44	1583.44	1583.98	^a	1582.85	1583.07
G-2 Shallow	1566.23	1566.12	1566.06	1566.07	1566.70	1569.25	1567.50	1571.20	1565.52	1567.79
G-2 Intermediate	1588.90	1558.68	1558.81	1559.00	1534.17	* 1553.65	1557.40	1560.36	1555.68	1556.79
G-2 Deep	1553.41	1553.71	1553.52	1553.75	1518.64	* 1554.00	1553.77	1554.46	1552.96	1553.27
G-3	1531.94	1531.93	1531.92	1531.95	N/A	1533.82	1533.64	1535.49	1533.04	1533.08
	23-Jun-16	26-Jan-18	9-Mar-20	12-May-20	17-Jun-20	21-Jul-20	20-Nov-20	11-Mar-21	1-Jul-21	3-Sep-21
					Water Eleva	tion (ft MSL)				
G-1A Shallow	1595.86	1596.72	1601.90	1600.11	1598.68	1597.45	1597.86	1600.25	1598.20	1599.90
G-1A Deep	1577.10	1577.45	1582.08	1580.99	1579.61	1578.44	1579.23	1580.54	1579.64	1579.64
G-1B	1582.85	1582.93	1586.32	1586.41	1585.61	1584.93	1584.93	1585.84	1585.22	1586.04
G-2 Shallow	1566.51	1567.78	1575.95	1571.95	1569.88	1568.22	1569.98	1571.45	1570.28	1574.30
G-2 Intermediate	1556.22	1558.56	1562.62	1561.28	1559.33	1559.53	1559.70	1559.78	1560.11	1560.95
G-2 Deep	1553.09	1552.99	1555.39	1553.82	1553.82	1552.89	1553.35	1554.05	1553.38	1553.86
G-3	1533.24	1533.48	1536.84	1534.77	1534.77	1533.44	1533.73	1535.40	1534.24	1534.73
	13-Dec-21	14-Mar-22	6-Jun-22	28-Sep-22	20-Dec-22	29-Mar-23	12-Jun-23	31-Aug-23	17-Nov-23	2-Feb-24
	Water Elevation (ft MSL)									
G-1A Shallow	1597.82	1599.70	1597.55	1595.30	1595.08	1601.54	1599.24	1597.12	1595.79	1596.01
G-1A Deep	1579.18	1580.64	1578.88	1576.51	1576.67	1580.98	1580.03	1577.95	1576.53	1577.61
G-1B	1584.80	1585.16	1582.29	1584.64	1585.09	1586.06	1585.22	1584.69	1584.19	1584.87
G-2 Shallow	1569.52	1573.20	1567.85	1565.65	1568.70	1571.77	1569.75	1567.54	1564.10	1570.39
G-2 Intermediate	1559.97	1560.97	1559.82	1558.10	1555.95	1559.76	1560.29	1558.15	1557.99	1559.54
G-2 Deep	1553.09	1551.56	1553.25	1552.80	1553.12	1553.97	1553.38	1552.80	1552.50	1553.18
G-3	1534.16	1535.84	1534.22	1533.34	1533.69	1535.70	1534.42	1533.49	1533.12	1534.06

Note:

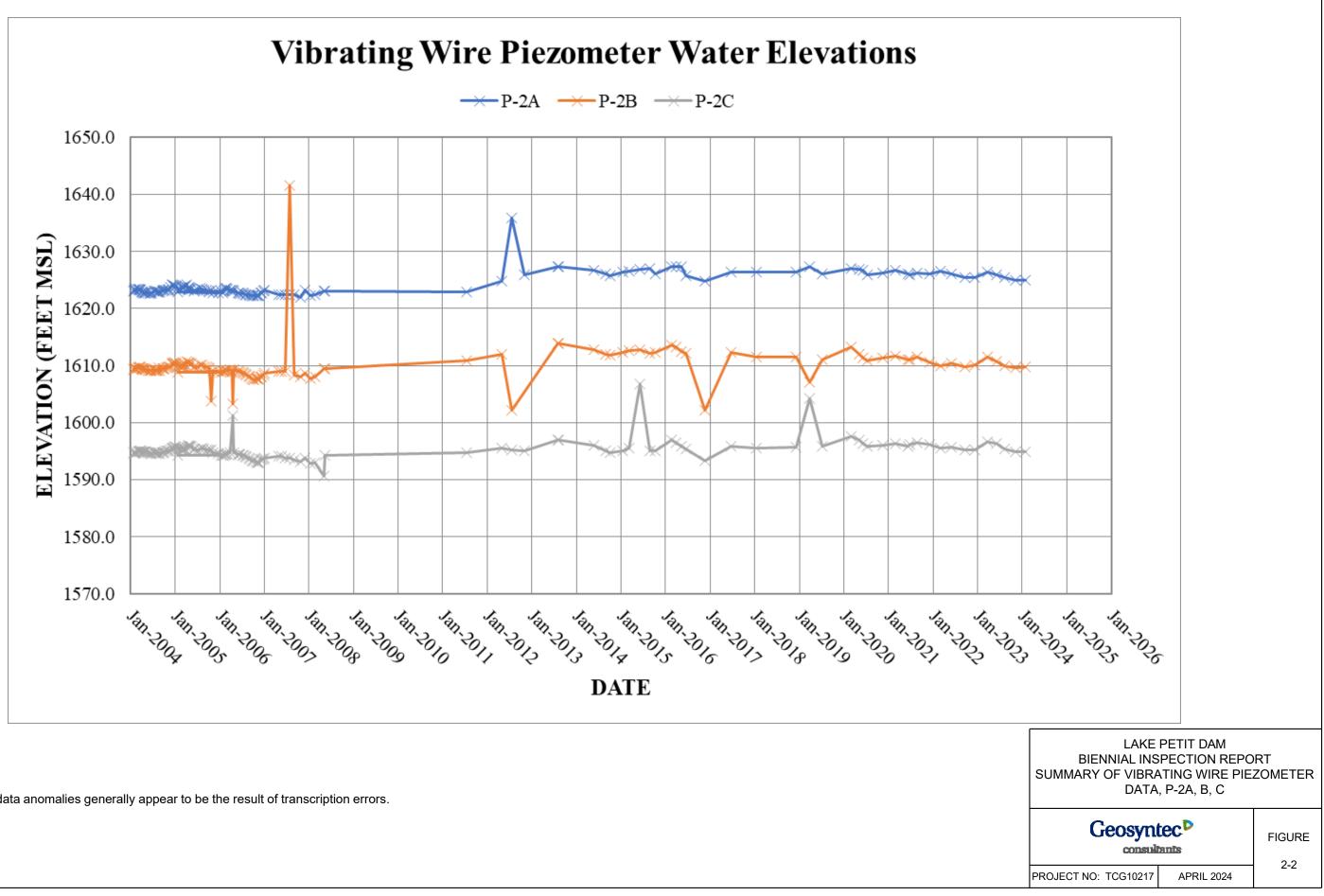
* water levels noted as anomolous on 3 Jan 2007. Re-measured 19 Jan 2007, and levels more consistent with previous readings. a - No measurment in standpipe G-1B on 20 August 2013. Unable to locate due to overgrown grass.

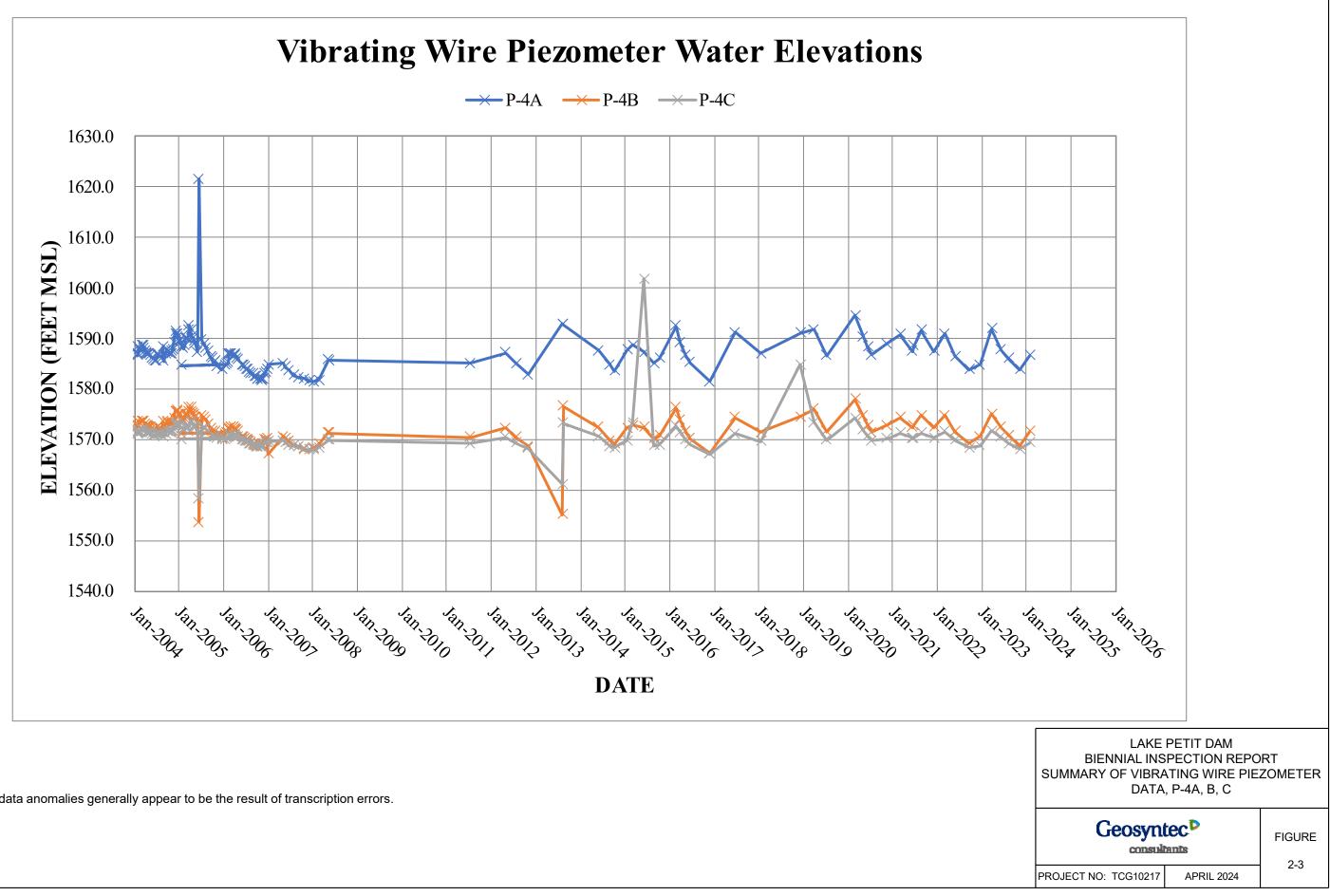
FIGURES

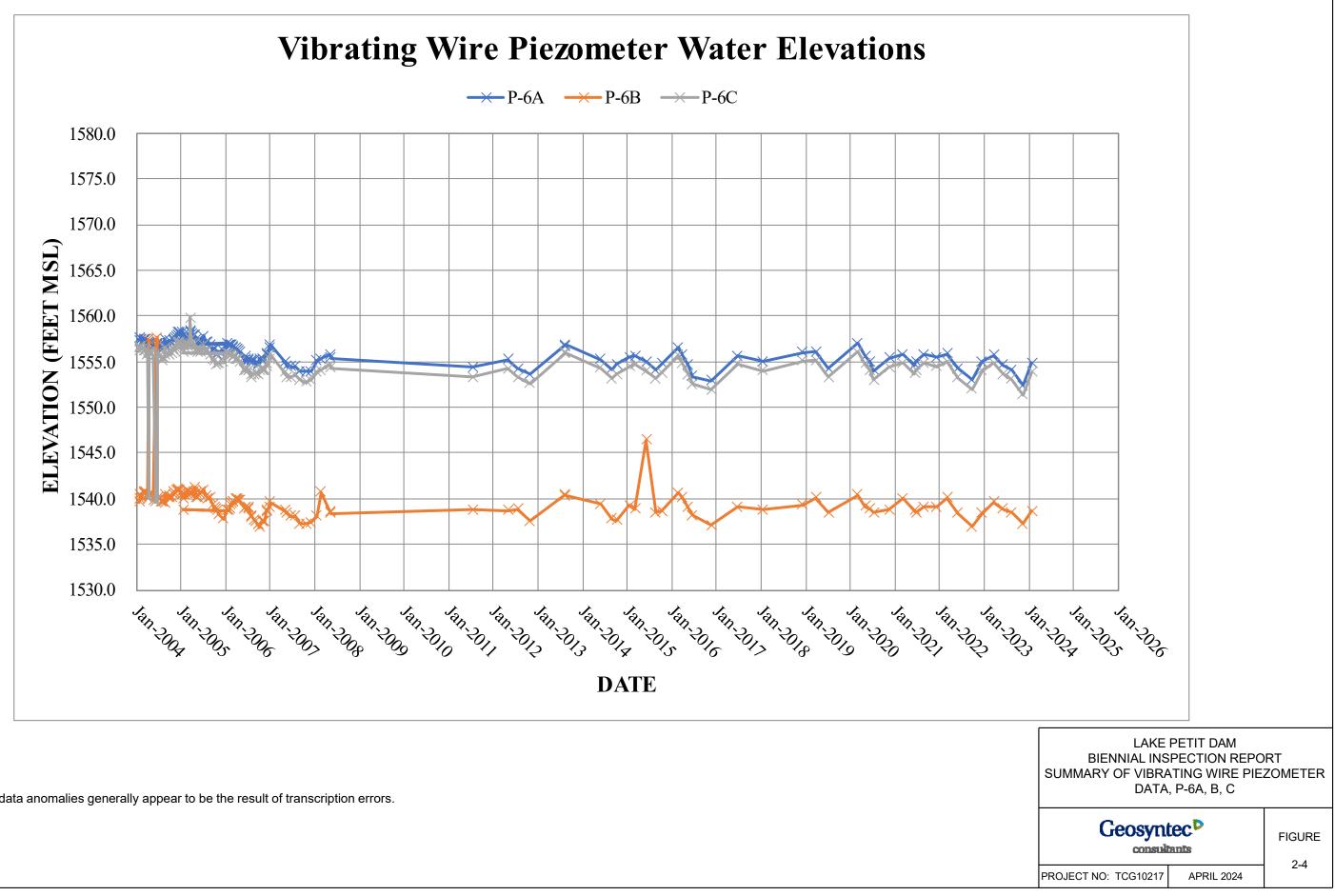


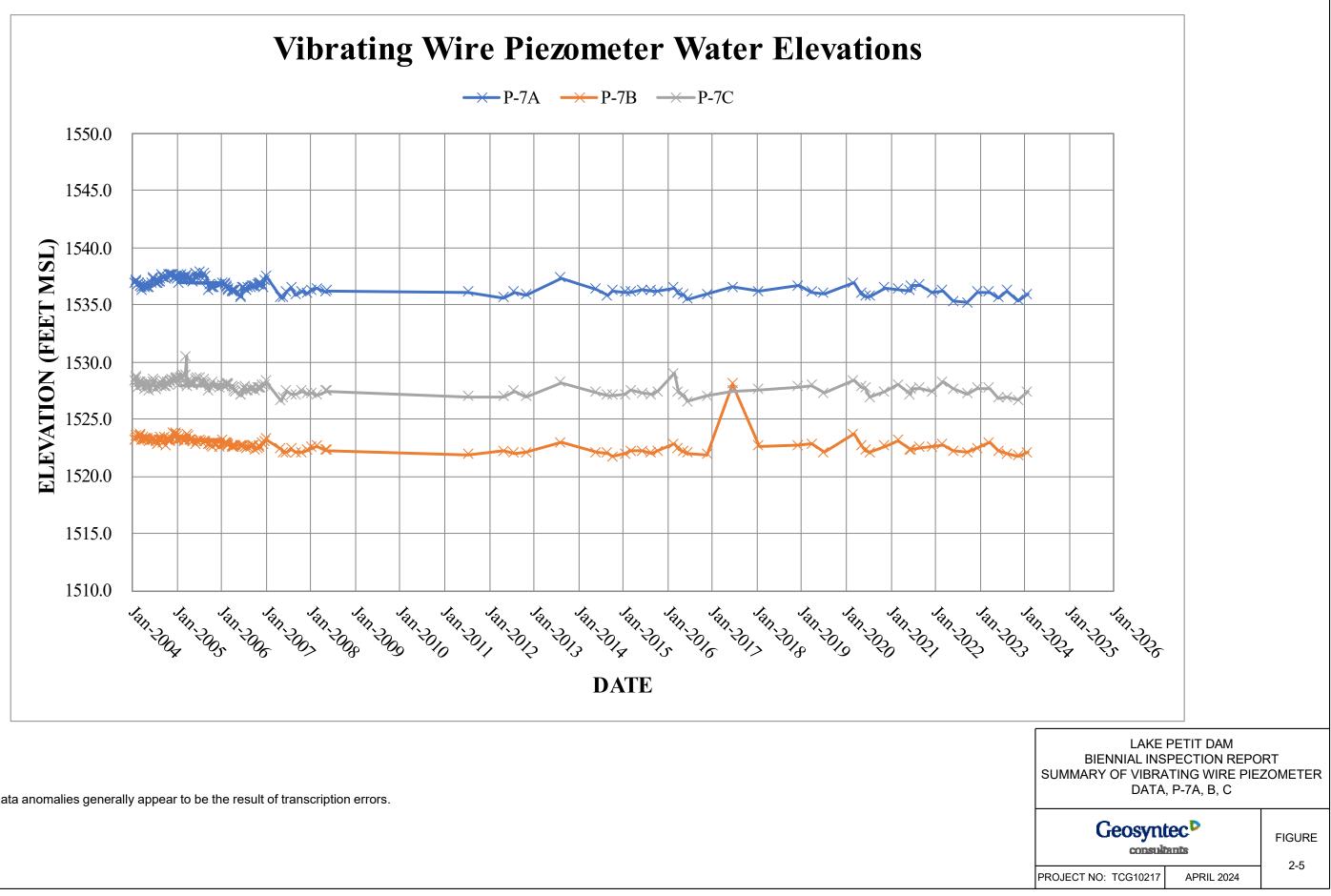
:_GEOPW\DS01\DMS04153\TN7833.9-C02 - Last Saved by: JCureton on 4/1:

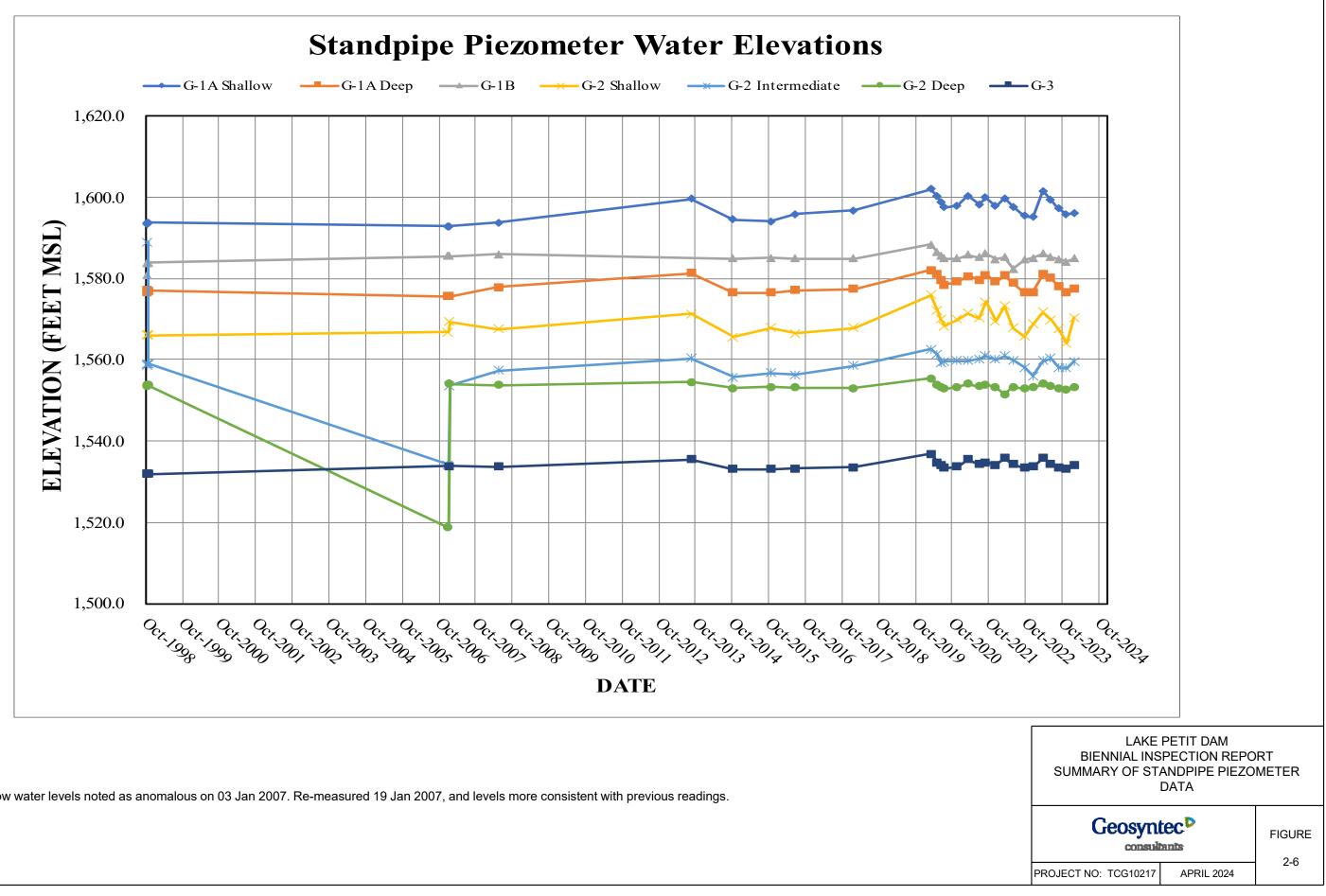
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Note: G-2 Shallow water levels noted as anomalous on 03 Jan 2007. Re-measured 19 Jan 2007, and levels more consistent with previous readings.

APPENDIX A

Georgia EPD Safe Dams Program Embankment (Earth) Dam Inspection Form – 2024 Engineer-Led Inspection

Embankment (Earth) Dam Inspection Form

Name of Dam: Lake Petit Dam	Date: 01 and 02 February 2024
Location of Dam (County): Pickens County	Weather: Sunny, 60 degrees F
Inspected by (Print Name): Jamey Dotson and Kelsey Boldiszar	
If an inspection item requires further action on your part, place a check mark to the	left of the number of the item
A. <u>Crest</u> (refer to Glossary for description)	
☐ 1. How would you describe the vegetation on the crest? (Check all that apply))
Recently Mowed X Overgrown Good Cover	
Other/Corrective Action (describe): The crest of the dam is an asphalt-pa	
the shoulders of the road was observed to be well-maintained.	
2. Are there any trees or other inappropriate or excessive vegetation on the cres	st? Yes No <u>X</u>
If yes, describe (type of vegetation, size, location, etc.)/Corrective Action	
\Box 3. Is there a paved road or driveway on the crest? Yes <u>X</u> No	
If yes, describe the condition (for example, good condition, numerous cr	
2012 and in generally good condition but showing signs of progressive the	raffic wear.
4. Are there any depressions, ruts or holes on the crest? Yes X_{-}	No
If yes, describe (size, location, etc)/Corrective Action: <u>A pothole approxi</u>	
the westbound lane of Wilderness Parkway. A crack in the asphalt was in	dentified at this location in the previous inspection,
and the pothole appears to be the result of continued tire wear and rutting	g since then. The pothole does not appear to be
associated with embankment deformations. Recommend patching the po	othole.
\boxtimes 5. Are there any cracks on the crest? Yes <u>X</u> No	
If yes, describe (length and width, location, direction of cracking, etc.)/Co	orrective Action: Minor transverse and longitudinal
pavement cracks associated with normal pavement wear were observed	I. These cracks do not appear to be associated with
embankment deformations. Recommend continued monitoring of the	condition of the pavement. Sealing the cracks or
repaving may eventually be necessary if cracks continue to expand.	
\Box 6. Other observations on the crest/Corrective Action: <u>N/A</u>	
B. <u>Upstream Slope</u> (refer to Glossary for description)	
1. What is the reservoir level today? At Normal Pool \underline{X} Above Normal P	PoolFeet Below Normal PoolFeet
\bowtie 2. How would you describe the vegetation on the upstream slope? (Check all t	that apply)
Recently MowedX Overgrown Good Cover	<u>X</u> Sparse
Other/Corrective Action (describe): Grass observed to provide generally	y good cover. The shoreline of the upstream face is
protected via riprap erosion protection. Along the left and right groins of t	the upstream face, pedestrian paths were established
with granular material.	
3. Are there any trees or other inappropriate or excessive vegetation on the slop	pe? Yes <u>No X</u>
If yes, describe (type of vegetation, size, location, etc.)/Corrective Action	n: Vegetation that was observed growing through
and along the upslope limit of riprap erosion protection has been remove	ed since the previous inspection.
4. Are there any depressions, bulges, ruts or holes (such as animal burrows) on	the slope? Yes No X
If yes, describe (size, location, etc.)/Corrective Action: N/A	
\Box 5. Are there any eroded areas on the slope (such as wave erosion along the sho	oreline)? Yes <u>No X</u>
If yes, describe (size of area, location, severity, etc.)/Corrective Action: 1	<u>N/A</u>
$\Box 6. \text{ Are there any cracks, sloughs or slides (vertical cliffs) on the slope?} \qquad Ye$	les No <u>X</u>
If yes, describe (length, width, height, location, etc.)/Corrective Action:]	<u>N/A</u>

Name of Dam: Lake Petit Dam	Date: 01 and 02 February 2024
B. Upstream Slope (continued)	
7. Is there any type of slope protection along the shoreline (such as riprap)? Yes	X No
If yes, describe what type and its condition (for example, riprap - adequate, inac	
riprap cover observed – installed in April 2022.	
8. Other observations on the upstream slope/Corrective Action: <u>N/A</u>	
C. <u>Downstream Slope</u> (refer to Glossary for description)	
1. How would you describe the vegetation on the downstream slope? (Check all that	apply)
Recently Mowed \underline{X} Overgrown Good Cover \underline{X}	
Other/Corrective Action (describe): Grass was observed to provide generally good	
2. Are there any trees or other inappropriate or excessive vegetation on the slope?	
If yes, describe (type of vegetation, size, location, etc.)/Corrective Action: <u>N/A</u>	
\searrow 3. Are there any depressions, bulges, ruts or holes (such as animal burrows) on the slo	ppe? Yes <u>X</u> No
If yes, describe (size, location, etc.)/Corrective Action: <u>Previous ant hills appe</u>	
minor animal burrows and ant hills were observed on the downstream face. C	
restore vegetation.	
\checkmark 4. Are there any eroded areas on the slope (such as along abutment contacts)? Y	es X No
If yes, describe (size of area, location, severity, etc.)/Corrective Action: <u>Re</u>	
inspection on a previously identified eroded area near the right abutment on the	
this inspection, surficial erosion/sparse vegetation were observed at: (i) slope be	-
of the seepage repair and (ii) slopes between Bench No. 4 to 5 and Bench No.	
Parkway. Continue normal maintenance, revegetation, and erosion control mea	•
5. Are there any cracks, sloughs or slides (vertical cliffs) on the slope? Yes	
If yes, describe (length, width, height, location, etc.)/Corrective Action: <u>N/A</u>	
	es <u>X</u> No
If yes, describe (size of area, location, etc.)/Corrective Action: The two-stage fil	
between Bench No. 1 to 2 appears to be performing as designed. Sediment and y	regetation were observed within the concrete
channel at Bench No. 1. The source of the sediment is believed to be the backfil	I material surrounding the interceptor drains.
Wet areas were observed at: (i) left side of slope between the road and Bench	<u>No.1, extending approximately 8 ft up the</u>
slope and 30 ft along the slope; (ii) right side of slope between Bench No. 2	and Bench No. 3, extending approximately
halfway up the slope from the concrete channel and 17 ft along the slope; and	(iii) several localized areas extending 2 to 5
ft directly upslope of interceptor drains. Recommend continued monitoring o	f these areas for changes to conditions and
implementation of an interceptor drain replacement, which is ongoing permit ap	pproval presently.
7. Do any wet areas indicate seepage through the dam (such as rust-colored, stained w	vater)? Yes <u>No X</u> N/A
If yes, describe (for example, new area of seepage, no change from past observa-	
Action: No active seepage, rust coloration, or turbidity observed at the wet area	s discussed in item C.6. Recommend
continued monitoring of these areas for changes to conditions.	

Name of Dam: Lake Petit Dam

Date:01 and 02 February 2024

Downstream Slope (continued)

- 8. Are there any leaks (flowing water) from the slope or beyond the toe of the dam? Yes X _____ No _____ If yes, describe (location, rate of flow, turbidity of flow)/Corrective Action: Small volume flows of clear water continue from the interceptor drains along Bench No. 1 as intended, with the exception of the right-most interceptor drain (No. 1) (not flowing, was dry). The two leftmost interceptor drains (paired drains, Nos. 12 and 13) were covered by the installation of the two-stage filter for the seepage repair. Interceptor drains No. 9, 10, and 11 were observed to be partially crushed near the concrete channel, likely from mowing operations, and water was observed daylighting through the backfill adjacent to the broken pipes. Interceptor drain replacement plans are ongoing permit approval presently. Continue to monitor the drains and weirs for changes in flow amount and turbidity.
- 9. Other observations on the downstream slope/Corrective Action: <u>N/A.</u>
- **D.** <u>Plunge Pool</u> (refer to Glossary for description)
- Is there any type of erosion protection around the plunge pool (such as riprap)? Yes _____ No _X____
 If yes, describe what type and its condition (for example, riprap adequate, inadequate, obstructed by vegetation)/Corrective Action: The plunge pool is comprised of a concrete impact-type stilling basin. Downstream from the stilling basin, there is a vegetated ditch with no riprap. Based on current operations riprap does not appear to be needed.
- 2. Is there any erosion and or seeps around or going into the plunge pool?
 Yes ______
 No _X____

 If yes, describe (size of area, location, severity, etc.) /Corrective Action: N/A
 No _X_____
- 3. Other observations around the plunge pool/Corrective Action: <u>Vegetation growth and bacteria buildup was observed at the bottom of the concrete stilling basin. Recommend continuing to monitor the potential buildup and clean out annually, or more frequently if required.</u>
- E. Principal and Emergency Spillways (refer to Glossary for description)
- 1. What types of spillways does the dam have (such as corrugated metal, concrete or siphon pipe; concrete or earth channel)?
 Principal Spillway <u>Gunite</u>, <u>Stepped Spillway</u> Emergency Spillway <u>None other than a Low-level Outlet Pipe</u>
 Other/Corrective Action: <u>Auxiliary siphon system is used to control partial drawdown of the reservoir when needed.</u>
- 3. For pipe spillways, is the intake obstructed in any way (such as with excessive debris)? Yes _____ No __X____ If yes, describe (type of debris, reason for obstruction, etc.) /Corrective Action: The intake for the low-level outlet is not visible from the surface, but was inspected by a dive team in April 2023. The sluice gate structure was noted to not have been obstructed by sediment or debris following cleaning by divers during that inspection.

Name of Dam: Lake Petit Dam

Date: 01 and 02 February 2024

E. Principal and Emergency Spillways (Continued)

- 4. For pipe spillways, what is the condition of any trash racks (for example, adequate, inadequate, damaged)? /Corrective Action: <u>The intake for the low-level outlet is not visible from the surface but was inspected by a dive team in April 2023. The</u> <u>sluice gate structure was noted to have an intact trash rack by the divers. The specialty underwater contractor cleaned out</u> <u>the debris and sediment in front of the trash rack and confirmed that the trash rack was in adequate condition.</u>
- 5. For pipe spillways, are there any visible cracks, separations or holes in the pipe(s) (intake or outlet)? Yes _____ No _X____
 If yes, describe (location, width of crack or separation, etc.)/Corrective Action: <u>A specialty underwater contractor inspected</u> the low-level outlet pipe in December 2022 and rated the pipe in satisfactory condition.
- G. For pipe spillways, are there any apparent leaks in the pipe(s)? Yes _____ No _X____
 If yes, describe (location, rate of flow from leak, etc.)/Corrective Action: For the testing of the program of the low-level outlet sluice gate, an inspection of the low-level outlet pipe and inlet structure was conducted in December 2022. The inspection identified the buildup of calcite deposits, minor corrosion, and sediment buildup at the inlet structure. In April 2023, a specialty underwater contractor conducted an operational test of the handcrank and low-level outlet gate, and in the process of installing the plug, the contractor cleaned out previously identified calcite deposits, corrosion, and sediment buildup to install the plug.
 - 7. For pipe spillways, how would you describe the overall condition of the pipe(s)? (Check all that apply)
 Functioning Normally_X_ Not Functional ____ Deteriorated ____ Damaged ____ Adequate ____ Inadequate _____
 <u>Note: The pipe appears to be able to function normally; however, a plug was left installed directly behind the gate. Big Canoe</u>
 <u>POA is currently identifying a path forward to rehabilitate or replace the gate opening system.</u>
- 8. For concrete or earth channel spillways, is the entrance or channel obstructed in any way?
 Yes______ No <u>X</u>

 If yes, describe (type of obstruction, location, etc.)/Corrective Action: N/A
- 9. For earth channel spillways, how would you describe the vegetation in the spillway? (Check all that apply)

 Recently Mowed _____ Overgrown _____ Good Cover _____ Sparse _____

 Other (describe)/Corrective Action: N/A
- 10. For earth channel spillways, are there any trees or other inappropriate vegetation in the spillway? Yes _____ No _____
 If yes, describe (type of vegetation, size, location, etc.)/Corrective Action: N/A
- 11. For earth channel spillways, are there any eroded areas in the spillway? Yes _____ No _____
 If yes, describe (size of area, location, severity, etc.)/Corrective Action: N/A
- \boxtimes 12. For concrete channel spillways, are there any cracks or holes in the spillway? Yes <u>X</u> No _____
 - If yes, describe (width of crack or hole, location, etc.)/Corrective Action: <u>Throughout the spillway, there are minor cracks</u> observable; however, these smaller cracks and holes were classified as deficiencies that do not hinder the performance of the spillway. Continue to monitor for changes to minor cracks. Backfill behind the spillway walls also appears to have washed out near several steps at the bottom of the spillway. Recommend restoring backfill at these areas to prevent collection of water and potential damage to spillway walls and/or undermining of the spillway.

Name of Dam: Lake Petit Dam

Date: 01 and 02 February 2024

E. Principal and Emergency Spillways (Continued)

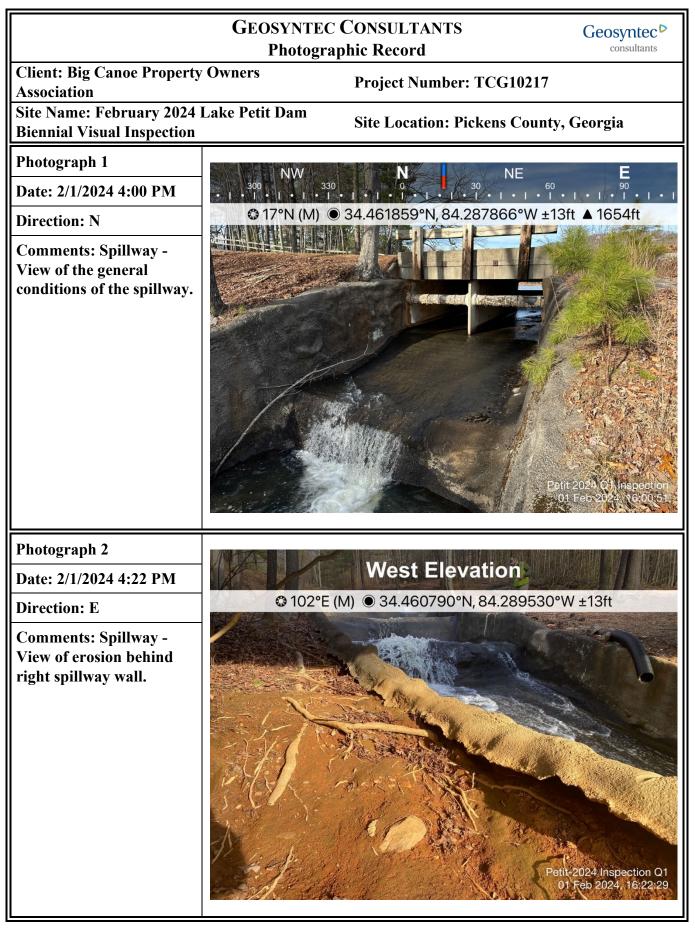
- I3. For concrete channel spillways, are there any leaks or evidence of undermining (flow under the concrete)? Yes _____ No __X____ If yes, describe (location, rate of flow from leak, indicators of undermining, etc.)/Corrective Action: Maintenance repairs were conducted in 2022 and in August 2023 to address possible sources of seepage and prevent further erosion near Step 45. No flow was observed to daylight in the previously identified seepage area during this inspection. Continue to monitor the state of the repairs and any changes to flow near Step 45.
 - 14. For earth or concrete channel spillways, how would you describe the overall condition of the spillway? (Check all that apply)

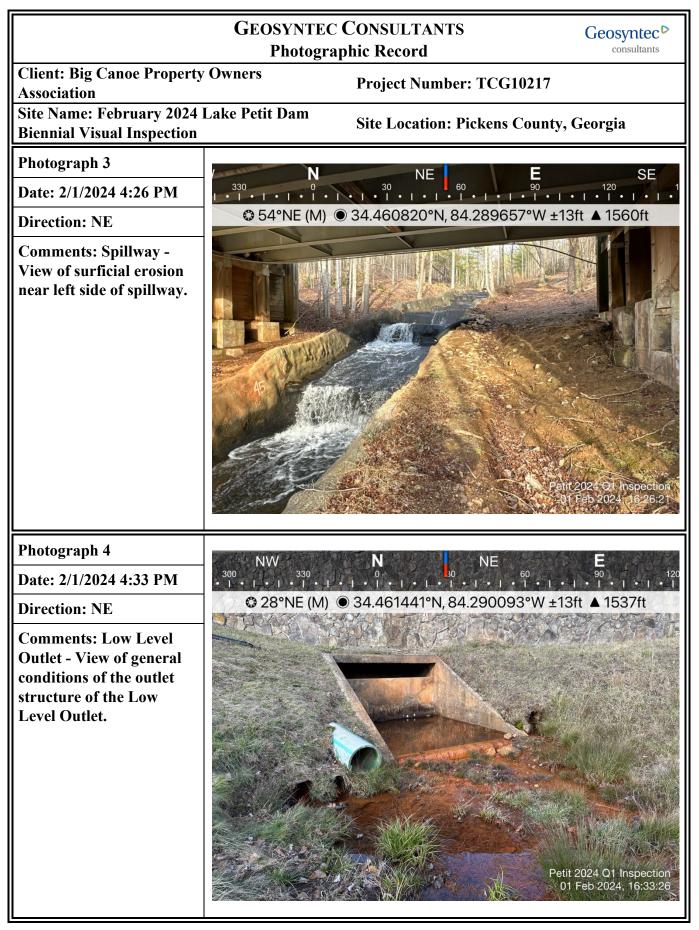
 Functioning Normally X
 Not Functional _____ Deteriorated _____ Damaged _____ Adequate _____ Inadequate _____
- \square 15. Other observations on the spillways/Corrective Action: <u>N/A</u>
- F. Instrumentation (refer to Glossary for description)
- 1. Are there any toe drains at the downstream toe or any other seepage drains on the dam? Yes X ______ No ______ If yes, describe the condition (for example, clogged, free flowing, deteriorated, good condition) /Corrective Action: The interceptor drains along Bench No. 1 were identified (as noted in Item C.8). The drains at the toe of the dam had flow exiting. Interceptor drains No. 9, 10, and 11 were observed to be partially crushed near the concrete channel, likely from mowing operations. Water was observed daylighting through the backfill adjacent to drains No. 9 and 10, which were significantly cracked. The inverts for the internal drain system of the dam are located at the concrete stilling basin. Four pipe outlets were observed in the vicinity of the concrete stilling basin: (i) 3 pipes to the right of the concrete stilling basin; and (ii) one to the left of the concrete stilling basin. Pipes were observed to have irregular, clear flow, except for one of the pipes to the right of the impact stilling basin which was observed to be dry.
- 2. For drains, is an animal guard installed at the outlet of each drain? Yes _____ No __X____
 If no, which drains lack animal guards? /Corrective Action: <u>Animal guards are not installed on interceptor drainpipes nor</u> the other pipe outlets; however, they do not appear necessary on the interceptor drains or internal drain system pipes due to continuous flow and relatively small diameter.
- 3. For drains, measure the rate of flow from each drain and record below (use additional pages if necessary):

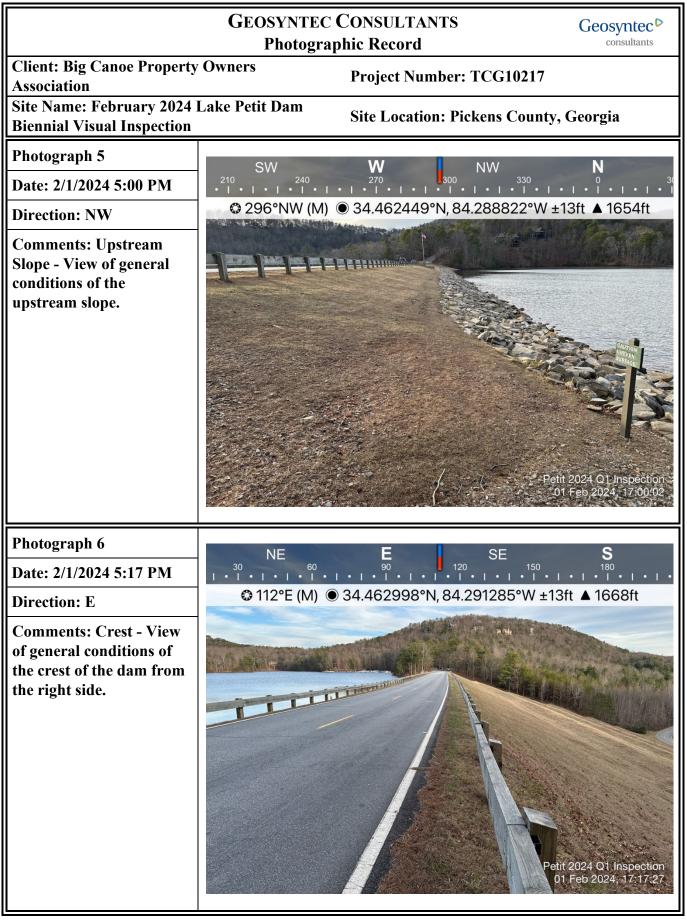
Designation/Location of Drain	Flow Rate	Flow Rate in GPM*	Turbidity of Flow (describe – clear, muddy, etc.)
Interceptor Drains on Bench No. 1 (With the exception of Interceptor Drain Nos. 1, 12, and 13)	Very low	Less than 0.5 GPM from each observable drain	Clear
Internal Drain System Two 8-in. diameter	0.5-in. height of flow over the weir of the concrete impact basin		Clear
Pipe No. 2	Moderate	Approximately 7.5 GPM	Clear
Pipe No. 3	Very low	Approximately 0.75 GPM	Clear
Pipe No. 4	Very low	Less than 0.5 GPM	Clear

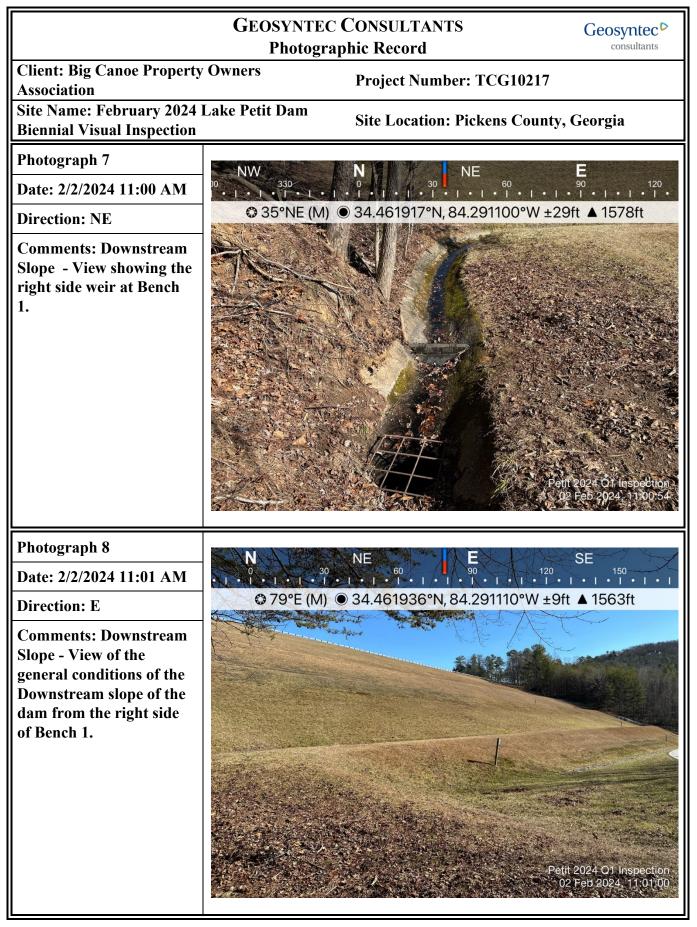
Name of Dam: Lake Petit Dam Date: 01 and 02 February 2024
F. Instrumentation (Continued) \Box 4. Are there any piezometers on the dam?Yes \underline{X} No
If yes, describe the condition (for example, good condition, damaged, etc.)/Corrective Action: The piezometers are generally
in good condition.
\Box 5. For piezometers, does each piezometer have a cap with a lock? Yes No <u>X</u>
If no, which piezometers need caps (to prevent rainwater intrusion) and/or locks (to prevent tampering)? /Corrective
Action: Individual piezometers have caps to prevent water from intruding but no locks. Monument covers have bolted lids
to prevent tampering.
\Box 6. For piezometers, are you able to take a measurement (depth to water) in each piezometer? Yes X No
If yes, record depth to water (in feet) in each piezometer, record on a separate page, and attach to this form.
\Box 7. Are there any other monitoring devices on the dam? Yes No <u>X</u>
If yes, describe what type and the condition (for example, monitoring wells - good condition, damaged) /Corrective Action:
N/A
\square 8. Other observations on instrumentation/Corrective Action: <u>N/A</u>
G. <u>Photographs</u>
At a minimum, photographs should be taken of the crest, upstream slope, downstream slope and any other notable features.
List of photographs (be sure to date stamp the photos): <u>Photographs have been attached to this inspection form.</u>

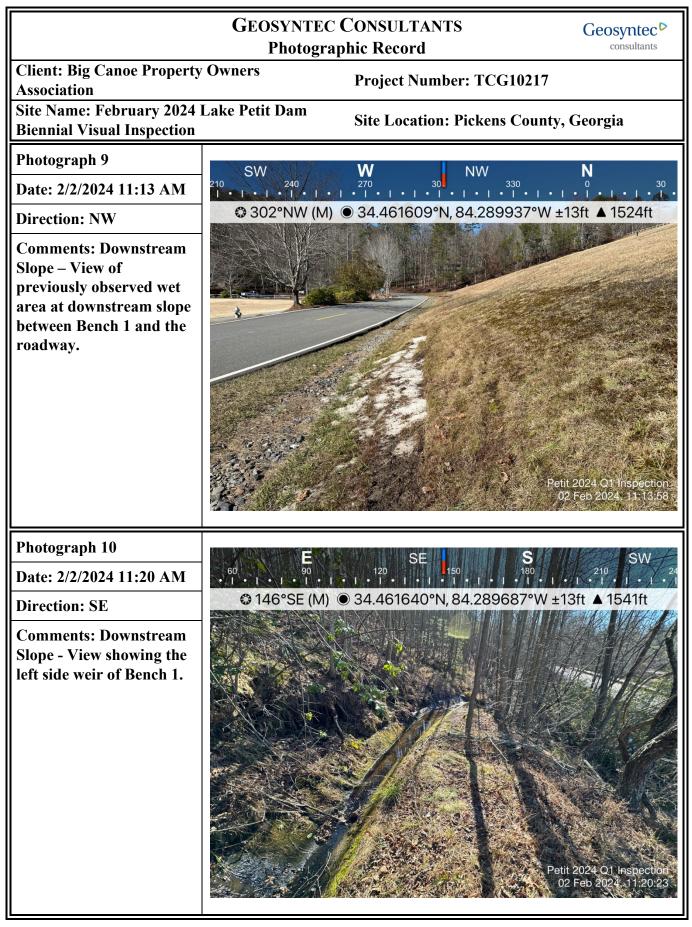
*GPM (gallons per minute): to convert from oz/sec multiply by 0.4688; to convert from ml/sec multiply by 0.01585

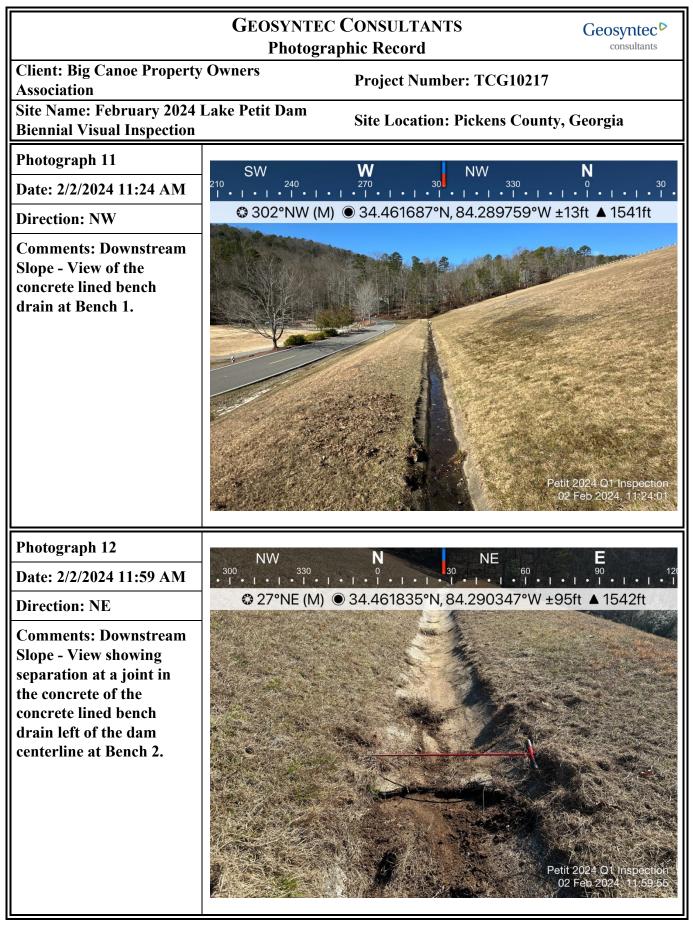


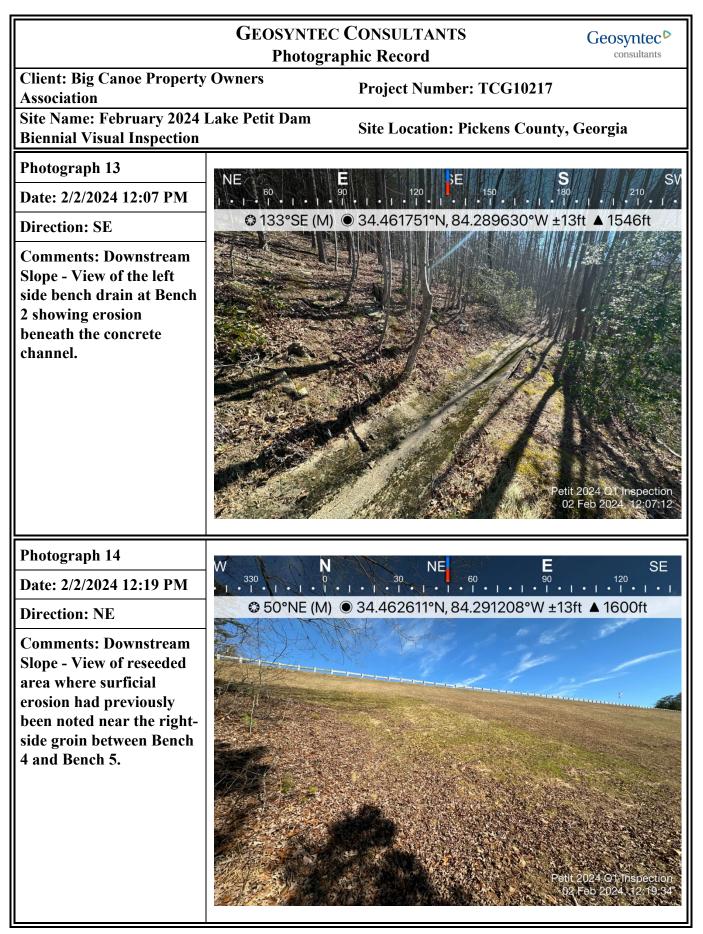














APPENDIX B

Georgia EPD Safe Dams Program Embankment (Earth) Dam Inspection Forms – 2023 Quarterly Owner Inspections (Q2, Q3, and Q4) 2023 Q2 Quarterly Owner Inspection Form

Embankment (Earth) Dam Inspection Form

Name of Dam: Lake Petit Dam	Date: 12 June 2023		
Location of Dam (County): Pickens County	Weather: <u>Cloudy, 77 degrees F</u>		
Inspected by (Print Name): Edisson Ortega Avila, Kelsey Boldiszar, and Jonathan Driggers			
If an inspection item requires further action on your part, place a check mark to the left of th	e number of the item		
A. <u>Crest</u> (refer to Glossary for description)			
1. How would you describe the vegetation on the crest? (Check all that apply)			
$\frac{1}{10000000000000000000000000000000000$	Sparse		
Other/Corrective Action (describe): The crest of the dam is an asphalt pave			
along the shoulders of the road was observed to be well-maintained.	· · · ·		
	Yes No <u>X</u>		
If yes, describe (type of vegetation, size, location, etc.)/Corrective Action: <u>N/</u>			
\Box 3. Is there a paved road or driveway on the crest? Yes X No			
If yes, describe the condition (for example, good condition, numerous cracks, new	vly paved)/Corrective Action: <u>Good</u>		
condition. Paved in 2012.			
\Box 4. Are there any depressions, ruts or holes on the crest? Yes No_X			
If yes, describe (size, location, etc)/Corrective Action: N/A			
\Box 5. Are there any cracks on the crest? Yes X No			
If yes, describe (length and width, location, direction of cracking, etc.)/Corrective	e Action: <u>Minor transverse and</u>		
longitudinal pavement cracks associated with normal pavement wear were ob-			
associated with embankment deformations. No changes were observed in the crac	cks relative to previous inspections.		
6. Other observations on the crest/Corrective Action: None			
B. <u>Upstream Slope</u> (refer to Glossary for description)			
1. What is the reservoir level today? At Normal Pool \underline{X} Above Normal Pool \underline{F}			
\square 2. How would you describe the vegetation on the upstream slope? (Check all that apply			
Recently Mowed X Overgrown Good Cover X	Sparse		
Other/Corrective Action (describe): Grass observed to provide generally g	_		
face is protected via riprap erosion protection. Along the left and right groins of			
established with granular material. Sparse vegetation was observed to extend appr	oximately 3 ft up the slope from the riprap.		
Attempt to re-establish vegetation in areas with sparse vegetation. \square	Yes X No		
3. Are there any trees or other inappropriate or excessive vegetation on the slope? If yes, describe (type of vegetation, size, location, etc.)/Corrective Action: Vegetation.			
and along the upslope limit of riprap erosion protection. It is recommended that of	• • • •		
	vergrown vegetation growing on the		
$\frac{1}{2}$	a? Vas No V		
 4. Are there any depressions, bulges, ruts or holes (such as animal burrows) on the slop If yes, describe (size, location, etc.)/Corrective Action: N/A 			
5. Are there any eroded areas on the slope (such as wave erosion along the shoreline)?			
If yes, describe (size of area, location, severity, etc.)/Corrective Action: N/			
in yes, accorde (size of area, rotation, severity, etc.) Concenter retion.	4 1		

Name of Dam: <u>Lake Petit Dam</u>	Date: <u>12 June 2023</u>
<u>B. Upstream Slope</u> (continued)	
6. Are there any cracks, sloughs or slides (vertical cliffs) on the slope? Yes	No <u>X</u>
If yes, describe (length, width, height, location, etc.)/Corrective Action:	N/A
7. Is there any type of slope protection along the shoreline (such as riprap)? Yes	<u>s_XNo</u>
If yes, describe what type and its condition (for example, riprap - adequate, inac	dequate, sparse)/Corrective Action:
Shoreline protection completed in April 2022. The shoreline protection consists	s of a rip rap, approximately 4 feet above and
3 feet below the normal pool reservoir level.	
8. Other observations on the upstream slope/Corrective Action: N/A	
C. <u>Downstream Slope</u> (refer to Glossary for description)	
\bowtie 1. How would you describe the vegetation on the downstream slope? (Check all that	apply)
$\begin{array}{cccc} Recently Mowed \underline{X} & Overgrown \underline{M} & Good Cover \underline{X} \\ \end{array}$	Sparse
Other/Corrective Action (describe): Grass was observed to provide gene	rally good cover. Areas of sparse vegetation
observed in generally the same areas outlined in Item C.4. Attempt to re-establish	vegetation in areas with sparse vegetation.
2. Are there any trees or other inappropriate or excessive vegetation on the slope?	Yes No_ <u>X</u>
If yes, describe (type of vegetation, size, location, etc.)/Corrective Action:	N/A
3. Are there any depressions, bulges, ruts or holes (such as animal burrows) on the slo	ope? Yes_ <u>X</u> No
If yes, describe (size, location, etc.)/Corrective Action: Several minor anii	mal burrows and ant hills were observed on
the downstream face. Continue maintenance filling of burrows and restore vege	etation.
\checkmark 4. Are there any eroded areas on the slope (such as along abutment contacts)? Y	Ves <u>X</u> No
If yes, describe (size of area, location, severity, etc.)/Corrective Action:	Surficial erosion observed at: (i) slope
between Bench No. 1 and 2, left side, upslope of the seepage repair; (ii) slope b	etween Bench No. 2 and 3, left side; (iii)
slope between Bench No. 4 to 5, right side; and (iv) slopes between Bench No.	4 to 5 and Bench No. 5 to 6, left side.
Regrading and reseeding was conducted near the left abutment previously, how	vever, surficial erosion has persisted.
Continue normal maintenance, revegetation, and erosion control measures to re	store.
5. Are there any cracks, sloughs or slides (vertical cliffs) on the slope? Yes	No <u>X</u>
If yes, describe (length, width, height, location, etc.)/Corrective Action:	N/A

Name of Dam: Lake Petit Dam

Date: 12 June 2023

C. Downstream Slope (continued)

- Are there any wet areas or areas of hydrophilic (lush, water-loving) vegetation? Yes X _____ No _____
 If yes, describe (size of area, location, etc.)/Corrective Action: <u>The two-stage filter at the left side of the slope between</u> <u>Bench No. 1 to 2 appears to be performing as designed. Sediment and vegetation were observed within the concrete channel at Bench No. 1. The source of the sediment is believed to be the backfill material surrounding the interceptor drains. Wet areas were observed at: (i) left side of slope between the road and Bench No.1, approximately 6 ft up the slope and 40 ft along the slope; (ii) left of interceptor drain No. 5 at Bench No. 1, approximately 5 ft up the slope and 10 ft along the slope; and (iii) between interceptor drains No. 6 and 7 at Bench No. 1, extending approximately 5 ft up the slope from the channel and 40 ft along the slope. Surficial soft soils and ponding water were observed in the first wet area, but no flow or stained water was observed. Recommend continued monitoring of these areas for changes to conditions and implementation of an interceptor drain replacement, which is ongoing permit approval presently.
 </u>
- 7. Do any wet areas indicate seepage through the dam (such as rust-colored, stained water)? Yes____ No_X__ N/A____
 If yes, describe (for example, new area of seepage, no change from past observations, size of area, location) /Corrective
 Action: No active seepage, rust coloration, or turbidity observed at the wet areas discussed in item C.6. Recommend
 continued monitoring of these areas for changes to conditions.
- 8. Are there any leaks (flowing water) from the slope or beyond the toe of the dam? Yes X No If yes, describe (location, rate of flow, turbidity of flow)/Corrective Action: <u>Small volume flows of clear water continue from the interceptor drains along Bench No. 1 as intended, with the exception of the right-most interceptor drain (No. 1) (not flowing, dry). The two leftmost interceptor drains (paired drains, No. 13 and 14) were covered by the installation of the two-stage filter for the seepage repair. Clear flows were observed out of the interceptor drains where water flows were observed. Continue to monitor the drains and weirs for changes in flow amount and turbidity.</u>
- 9. Other observations on the downstream slope/Corrective Action: <u>Two weirs are located on the left and right ends of the concrete channel located at Bench No. 1. The right weir was flowing easily and required no clearing. The left weir has been cleaned out since the previous inspection but tends to become clogged with vegetation/debris and requires cleaning out regularly.</u>
- D. <u>Plunge Pool</u> (refer to Glossary for description)
- Is there any type of erosion protection around the plunge pool (such as riprap)? Yes <u>No X</u>
 If yes, describe what type and its condition (for example, riprap adequate, inadequate, obstructed by vegetation)/Corrective Action: <u>There is no plunge pool</u>. Downstream from the impact-type stilling basin, there is no riprap, however, based on current operations it does not appear to be needed.
- 2. Is there any erosion and or seeps around or going into the plunge pool?
 Yes_____ No_X___

 If yes, describe (size of area, location, severity, etc.) /Corrective Action: N/A
 NA
- 3. Other observations around the plunge pool/Corrective Action: <u>As part of the inspection for the low-level outlet testing program in December 2022, sediment and bacteria growth were dug out of the impact-style stilling basin. A buildup of 3 to 4 inches of sediment and bacterial growth at bottom of concrete stilling basin noted in previous inspection was largely dug out. During this inspection, less than 1 in. of sediment was observed at the bottom of the concrete stilling basin. Continue to monitor the potential build-up of sediment and bacterial growth and clean out as needed.
 </u>

Name of Dam: Lake Petit Dam

Date: 12 June 2023

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

- What types of spillways does the dam have (such as corrugated metal, concrete or siphon pipe; concrete or earth channel)?
 Principal Spillway <u>Gunite</u>, Stepped Spillway <u>Emergency</u> Spillway <u>None</u>, other than a low-level outlet pipe.
 Other/Corrective Action: <u>Also has an auxiliary siphon system to control partial drawdown of the reservoir when needed.</u>
- ✓ 2. Has the emergency spillway activated (had flow) since the last inspection? Yes_____ No__X____ If yes describe (date(s) of flow, reason for activation, depth of flow) /Corrective Action: _____ A specialty underwater contractor inspected the low-level outlet pipe and back side of the sluice gate structure in December 2022 and indicated that the pipe is in satisfactory condition. In April 2023, a specialty underwater contractor conducted an operational test of the handcrank and low-level outlet gate by first installing a plug with a primary and secondary restraint system on the downstream end of the low-level outlet gate and then testing the operations of the handcrank and gate. The contractor was able to crack and open the gate a few inches; however, the stem and stem guide system were observed to be in need of repairs. The gate was closed, and the plug was left installed. Big Canoe POA is currently identifying a path forward to rehab or replace the system.
- 3. For pipe spillways, is the intake obstructed in any way (such as with excessive debris)? Yes <u>No X</u>.
 If yes, describe (type of debris, reason for obstruction, etc.) /Corrective Action: <u>The intake for the low-level outlet</u> is not visible from the surface, but was inspected by a dive team in April 2023. The sluice gate structure was noted to not have been obstructed by sediment or debris following cleaning by divers during that inspection.
- 4. For pipe spillways, what is the condition of any trash racks (for example, adequate, inadequate, damaged)? /Corrective Action: <u>The intake for the low-level outlet is not visible from the surface but was inspected by a dive team in April 2023. The</u> <u>sluice gate structure was noted to have an intact trash rack by the divers. The specialty underwater contractor cleaned out</u> <u>the debris and sediment in front of the trash rack and confirmed that the trash rack was in adequate condition.</u>
- 5. For pipe spillways, are there any visible cracks, separations or holes in the pipe(s) (intake or outlet)? Yes _____ No X_____
 If yes, describe (location, width of crack or separation, etc.)/Corrective Action: _____ A specialty underwater contractor inspected the low-level outlet pipe in December 2022 and rated the pipe in satisfactory condition.
- 6. For pipe spillways, are there any apparent leaks in the pipe(s)? Yes <u>No_X</u>.
 If yes, describe (location, rate of flow from leak, etc.)/Corrective Action: <u>For the testing of the program of the low-level outlet sluice gate, an inspection of the low-level outlet pipe and inlet structure was conducted in December 2022. The inspection identified the buildup of calcite deposits, minor corrosion, and sediment buildup at the inlet structure. In April 2023, a specialty underwater contractor conducted an operational test of the handcrank and low-level outlet gate, and in the process of installing the plug, the contractor cleaned out previously identified calcite deposits, corrosion, and sediment buildup to install the plug.
 </u>
 - 7. For pipe spillways, how would you describe the overall condition of the pipe(s)? (Check all that apply)
 Functioning Normally X Not Functional Deteriorated Damaged Adequate Inadequate

Name of Dam: <u>Lake Petit Dam</u>	Date: <u>12 June 2023</u>
E. Principal and Emergency Spillways (Continued)	
8. For concrete or earth channel spillways, is the entrance or channel obstru	cted in any way? Yes No_X
If yes, describe (type of obstruction, location, etc.)/Corrective Action:	Debris previously noted appeared to have been
removed. Additional small branches (less than 4 inches in diameter) obs	served at the entrance of the overflow spillway and
tend to collect in this area; however, these items are not impeding the fl	ow into the spillway. Recommend clearing any debris
at the entrance of the overflow spillway.	
9. For earth channel spillways, how would you describe the vegetation in the	e spillway? (Check all that apply)
Recently Mowed Overgrown Good Cover_	Sparse
Other (describe)/Corrective Action: N/A	
\Box 10. For earth channel spillways, are there any trees or other inappropriate veg	getation in the spillway? Yes No
If yes, describe (type of vegetation, size, location, etc.)/Corrective Action	on: N/A
11. For earth channel spillways, are there any eroded areas in the spillway?	Yes No
If yes, describe (size of area, location, severity, etc.)/Corrective Actio	n:N/A
\boxtimes 12. For concrete channel spillways, are there any cracks or holes in the spillw	way? Yes_ <u>X</u> No
If yes, describe (width of crack or hole, location, etc.)/Corrective Act	ion: The spillway was fully operational, and the
spillway repairs conducted in April 2022 were observed to be intact an	d withstanding the flows within the spillway. Continue
to monitor the status of the repairs. The spillway repairs addressed	ed deficiencies that were required for the acceptable
performance of the spillway. Throughout the spillway, there are still r	ninor cracks observable, however, these smaller cracks
and holes were classified as deficiencies that do not hinder the perf	ormance of the spillway. These minor cracks should
continue to be monitored for changes.	
\boxtimes 13. For concrete channel spillways, are there any leaks or evidence of under	nining (flow under the concrete)? Yes X No
If yes, describe (location, rate of flow from leak, indicators of under	mining, etc.)/Corrective Action: Repairs completed in
2022 included additional backfilling against and under the walls along	g the left side of Step 45 to prevent further erosion. As
of this inspection, surficial erosion was observed over the backfilled	areas. Water flow was observed to daylight over the
backfilled areas. The flow appears to remain clear and daylights near	the bridge abutment along the left, downstream end of
the spillway channel. The flow does not appear to hinder the performa	nce of the spillway or present an immediate dam safety
deficiency. This flow should be monitored for changes in discolor	ation and flow rate, and additional investigation and
maintenance repairs to fill in the eroded areas are planned to be condu	ucted.
Follow-up investigations are scheduled to be conducted in 2023 Q3	to attempt to isolate the origin of flow and to inform
future maintenance repairs.	
14. For earth or concrete channel spillways, how would you describe the over	erall condition of the spillway? (Check all that apply)

 Functioning Normally_X
 Not Functional
 Deteriorated
 Damaged
 Adequate
 Inadequate

15. Other observations on the spillways/Corrective Action: <u>No other observations.</u>

Name of Dam: Lake Petit Dam

Date: 12 June 2023

F. Instrumentation (refer to Glossary for description)

- 1. Are there any toe drains at the downstream toe or any other seepage drains on the dam? Yes_X____ No_____ If yes, describe the condition (for example, clogged, free flowing, deteriorated, good condition) /Corrective Action: <u>The</u> interceptor drains along Bench No. 1 were identified (as noted in Item C.8). The drains at the toe of the dam had flow exiting. <u>The inverts for the internal drain system of the dam are located at the concrete stilling basin.</u> Four pipe outlets were observed in the vicinity of the concrete stilling basin: (i) 3 pipes to the right of the concrete stilling basin; and (ii) one to the left of the concrete stilling basin. Pipes were observed to be free flowing with clear flow, except for one of the pipes to the right of the impact stilling basin which was observed to be dry.
- 2. For drains, is an animal guard installed at the outlet of each drain? Yes <u>No X</u>.
 If no, which drains lack animal guards? /Corrective Action: <u>Animal guards are not installed on interceptor drainpipes nor</u> the other pipe outlets; however, they do not appear necessary on the interceptor drains or internal drain system pipes due to continuous flow and relatively small diameter.
- 3. For drains, measure the rate of flow from each drain and record below (use additional pages if necessary):

Designation/Location of Drain	Flow Rate	Flow Rate in GPM*	Turbidity of Flow (describe – clear, muddy, etc.)
Interceptor Drains on Bench No. 1 (With the exception for Interceptor Drain No. 1, 13, and 14)	Very low	Less than 0.5 GPM from each observable drain	Clear
Internal Drain System	¹ / ₂ " height of flow over the weir of the concrete impact basin		Clear
Drainpipe No. 2	Moderate	Approximately 11 GPM	Clear
Drainpipe No. 3	Very low	Approximately 0.8 GPM	Clear
Drainpipe No. 4	Very low	Less than 0.5 GPM	Clear

A. Are there any piezometers on the dam? Yes X No_____
If yes, describe the condition (for example, good condition, damaged, etc.)/Corrective Action: <u>The piezometers are</u> generally in good condition.

- 5. For piezometers, does each piezometer have a cap with a lock? Yes _____ No ___X____
 If no, which piezometers need caps (to prevent rain water intrusion) and/or locks (to prevent tampering)? /Corrective Action: ______ Individual piezometers have caps to prevent water from intruding but no locks. Monument covers have bolted lids to prevent tampering.
- \Box 6. For piezometers, are you able to take a measurement (depth to water) in each piezometer? Yes X No If yes, record depth to water (in feet) in each piezometer, record on a separate page, and attach to this form.

F. Instrumentation (Continued)

 \Box 7. Are there any other monitoring devices on the dam? Yes_____ No__X_

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

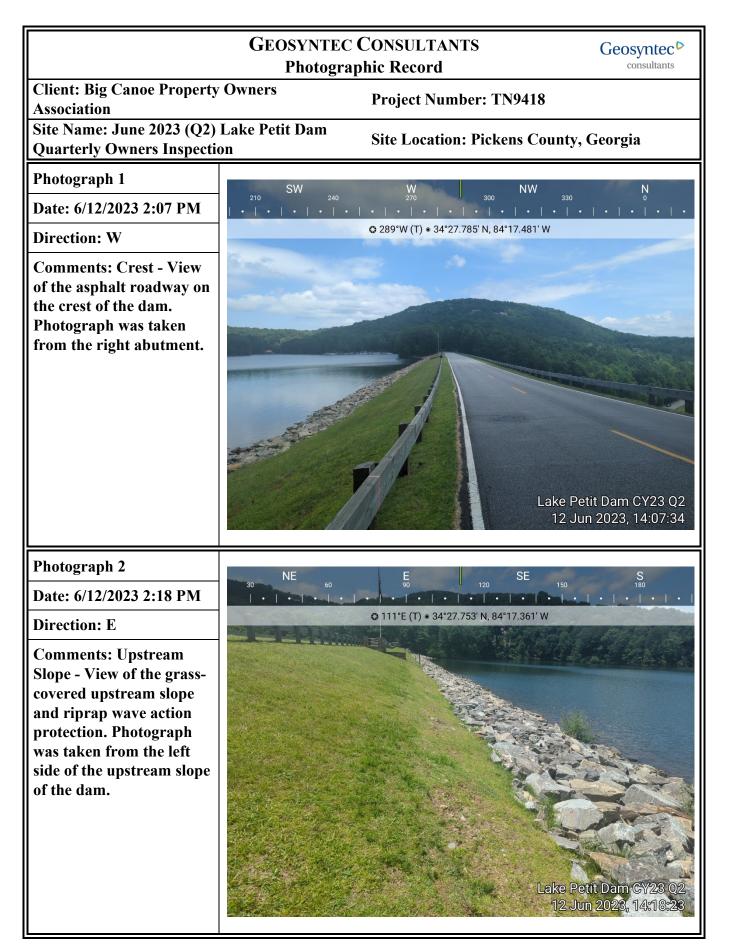
↑ Check if corrective action is noted/required.

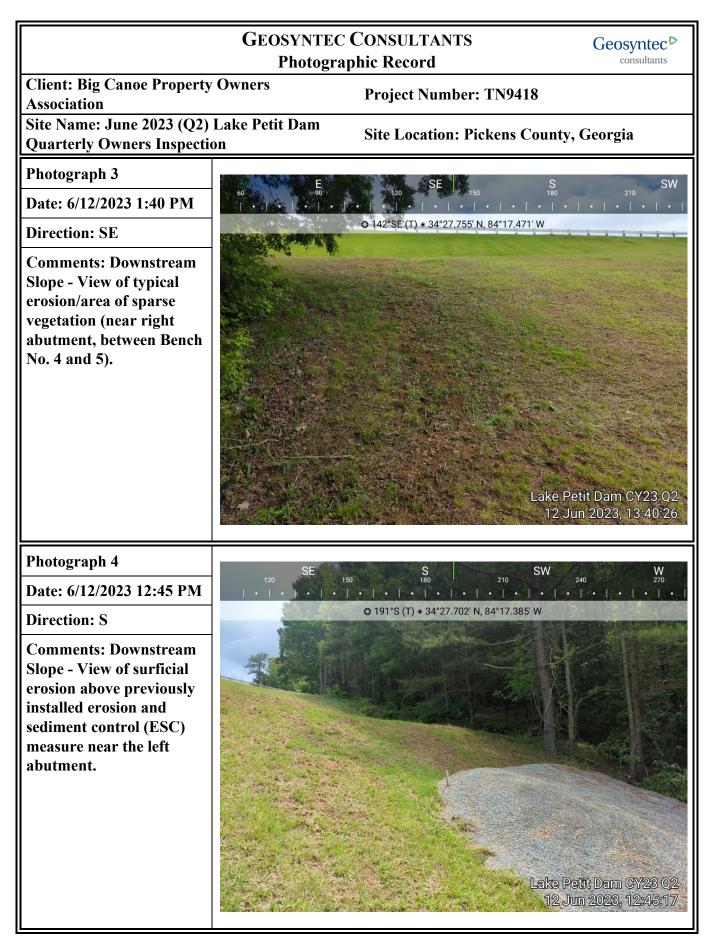
Name of Dam: Lake Petit Dam	Date: <u>12</u> June 2023
N/A	
8. Other observations on instrumentation/Corrective Action:	No other observations.

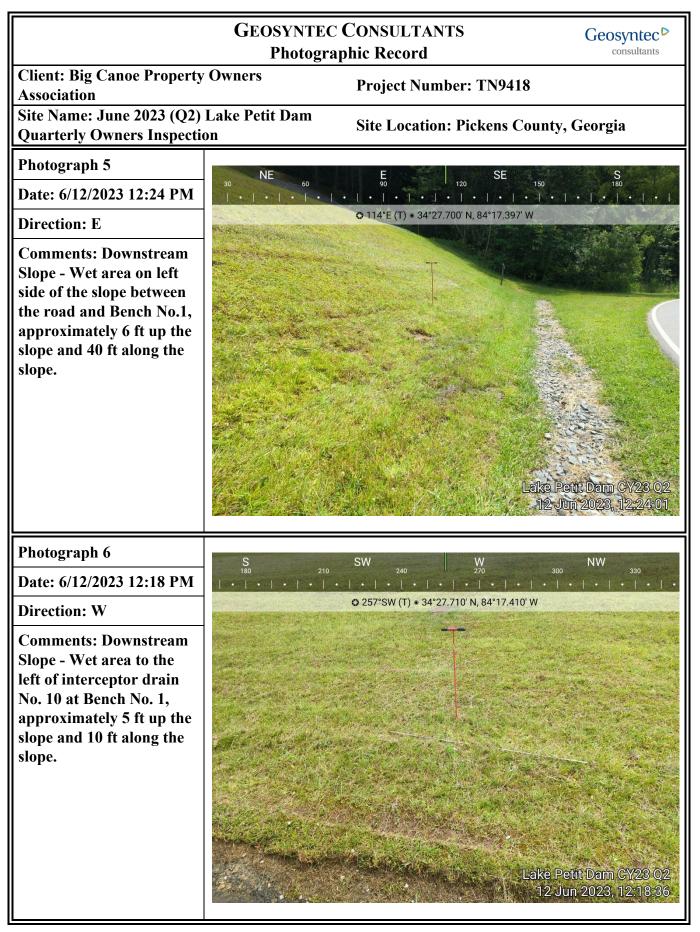
G. Photographs

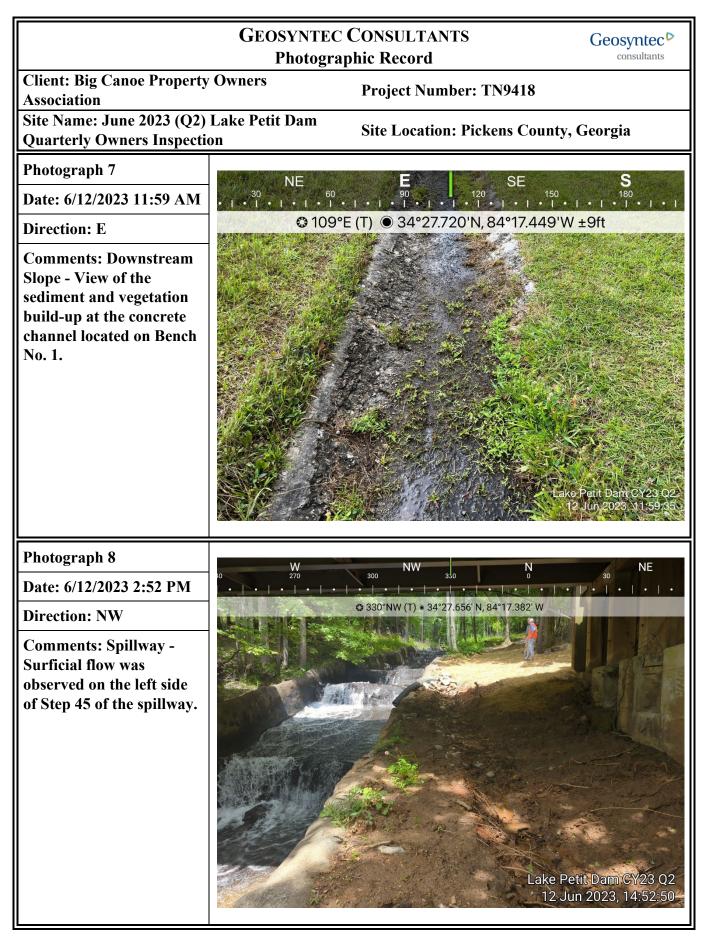
At a minimum, photographs should be taken of the crest, upstream slope, downstream slope and any other notable features. List of photographs (be sure to date stamp the photos): <u>Photographs have been attached to this inspection report.</u>

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









2023 Q3 Quarterly Owner Inspection Form

Embankment (Earth) Dam Inspection Form

Name of Dam: Lake Petit Dam	Date: 17 and 31 August 2023
Location of Dam (County): Pickens County	Weather: Sunny, 87 degrees F
Inspected by (Print Name): Edisson Ortega Avila and Kelsey Boldiszar	
If an inspection item requires further action on your part, place a check mark to the left	of the number of the item
A. <u>Crest</u> (refer to Glossary for description)	
1. How would you describe the vegetation on the crest? (Check all that apply)	
Recently Mowed X Overgrown Good Cover X	Sparse
Other/Corrective Action (describe): The crest of the dam is an asphal	
along the shoulders of the road was observed to be well-maintained.	
2. Are there any trees or other inappropriate or excessive vegetation on the crest?	
If yes, describe (type of vegetation, size, location, etc.)/Corrective Action:	N/A
\Box 3. Is there a paved road or driveway on the crest? Yes <u>X</u> No	
If yes, describe the condition (for example, good condition, numerous crack	s, newly paved)/Corrective Action: <u>Good</u>
condition. Re-paved in 2012.	
4. Are there any depressions, ruts or holes on the crest? Yes No	о <u> Х </u>
If yes, describe (size, location, etc)/Corrective Action: N/A	
\boxtimes 5. Are there any cracks on the crest? Yes X No	
If yes, describe (length and width, location, direction of cracking, etc.)/Corr	
longitudinal pavement cracks associated with normal pavement wear we	
westbound lane has expanded from continued tire wear since the previou associated with embankment deformations. Recommend continued monito	
the asphalt or repaying may eventually be necessary if cracks continue to ex	• • •
6. Other observations on the crest/Corrective Action: <u>None</u>	tpanu.
B. <u>Upstream Slope</u> (refer to Glossary for description)	
1. What is the reservoir level today? At Normal Pool \underline{X} Above Normal Pool	Feet Below Normal Pool Feet
2. How would you describe the vegetation on the upstream slope? (Check all that	
$\begin{array}{cccc} Recently Mowed \underline{X} & Overgrown \underline{\qquad} & Good Cover \underline{X} \\ \end{array}$	
Other/Corrective Action (describe): Grass observed to provide gene	
face is protected via riprap erosion protection. Along the left and right gro	
established with granular material. Sparse vegetation was observed to extend	approximately 3 ft up the slope from the riprap.
Attempt to enhance vegetation in areas with sparse vegetation.	
3. Are there any trees or other inappropriate or excessive vegetation on the slope?	Yes_X No
If yes, describe (type of vegetation, size, location, etc.)/Corrective Action:_	Vegetation was observed growing through
and along the upslope limit of riprap erosion protection. The vegetation gro	wing on the riprap should be removed.
4. Are there any depressions, bulges, ruts or holes (such as animal burrows) on the	e slope? Yes No_ <u>X</u>

If yes, describe (size, location, etc.)/Corrective Action: N/A

Name of Dam: Lake Petit Dam	Date: 17 and 31 August 2023
 B. <u>Upstream Slope</u> (continued) □ 5. Are there any eroded areas on the slope (such as wave erosion along the shoreline)? If yes, describe (size of area, location, severity, etc.)/Corrective Action:N/_ □ 6. Are there any cracks, sloughs or slides (vertical cliffs) on the slope? Yes	ANo_X
 7. Is there any type of slope protection along the shoreline (such as riprap)? Yes_ If yes, describe what type and its condition (for example, riprap - adequate, inade riprap cover observed – installed in April 2022. 	quate, sparse)/Corrective Action: Good
 8. Other observations on the upstream slope/Corrective Action: N/A C. Downstream Slope (refer to Glossary for description) 1. How would you describe the vegetation on the downstream slope? (Check all that ap Recently Mowed X_ Overgrown Good Cover X_ 	oply) Sparse
Other/Corrective Action (describe): Grass was observed to provide general Image: 2. Are there any trees or other inappropriate or excessive vegetation on the slope? If yes, describe (type of vegetation, size, location, etc.)/Corrective Action:	Yes NoX
3. Are there any depressions, bulges, ruts or holes (such as animal burrows) on the slope If yes, describe (size, location, etc.)/Corrective Action: <u>Previous ant hills a</u> <u>several minor animal burrows and ant hills were observed on the downstream face</u> <u>and restore vegetation.</u>	ppear to have been addressed, however
 Are there any eroded areas on the slope (such as along abutment contacts)? Yes If yes, describe (size of area, location, severity, etc.)/Corrective Action: <u>Renear the left abutment since the previous inspection, however, surficial erosion has vegetation observed at: (i) slope between Bench No 1 and 2, left side, upslope of Bench No. 2 and 3, left side; (iii) slope between Bench No. 4 to 5, right side; and Bench No. 5 to 6, left side. Continue normal maintenance, revegetation, and eros</u> 	grading and reseeding was conducted as persisted. Surficial erosion/sparse the seepage repair; (ii) slope between
5. Are there any cracks, sloughs or slides (vertical cliffs) on the slope? Yes If yes, describe (length, width, height, location, etc.)/Corrective Action: N/	No <u>X</u>

Name of Dam: Lake Petit Dam

Date: 17 and 31 August 2023

C. Downstream Slope (continued)

- 7. Do any wet areas indicate seepage through the dam (such as rust-colored, stained water)? Yes _____ No_X ___ N/A ____ If yes, describe (for example, new area of seepage, no change from past observations, size of area, location) /Corrective Action: No active seepage, rust coloration, or turbidity observed at the wet areas discussed in item C.6. Recommend continued monitoring of these areas for changes to conditions.
- 9. Other observations on the downstream slope/Corrective Action: <u>N/A</u>
- D. <u>Plunge Pool</u> (refer to Glossary for description)
- Is there any type of erosion protection around the plunge pool (such as riprap)? Yes <u>No X</u>
 If yes, describe what type and its condition (for example, riprap adequate, inadequate, obstructed by vegetation)/Corrective Action: <u>There is no plunge pool</u>. Downstream from the impact-type stilling basin, there is no riprap, however, based on current operations it does not appear to be needed.
- Is there any erosion and or seeps around or going into the plunge pool?
 Yes_____ No_X___

 If yes, describe (size of area, location, severity, etc.)/Corrective Action:
 N/A
- 3. Other observations around the plunge pool/Corrective Action: <u>Approximately 2 to 3 in. of debris buildup was observed at the</u> bottom of the concrete stilling basin. Recommend continuing to monitor the potential build-up and clean out as needed.

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

- 1. What types of spillways does the dam have (such as corrugated metal, concrete or siphon pipe; concrete or earth channel)?
 Principal Spillway <u>Gunite</u>, Stepped Spillway <u>Emergency</u> Spillway <u>None</u>, other than a low-level outlet pipe.
 Other/Corrective Action: <u>Also has an auxiliary siphon system to control partial drawdown of the reservoir when needed.</u>
- \boxtimes 2. Has the emergency spillway activated (had flow) since the last inspection? Yes_____ No__X_

Name of Dam: Lake Petit Dam

Date: 17 and 31 August 2023

E. Principal and Emergency Spillways (Continued)

If yes describe (date(s) of flow, reason for activation, depth of flow) /Corrective Action: In April 2023, a specialty underwater contractor conducted an operational test of the handcrank and low-level outlet gate by first installing a plug with a primary and secondary restraint system on the downstream end of the low-level outlet gate and then testing the operations of the handcrank and gate. The contractor was able to crack and open the gate a few inches; however, the stem and stem guide system were observed to be in need of repairs. The gate was closed, and the plug was left installed. Big Canoe POA is currently identifying a path forward to rehab or replace the system.

- 3. For pipe spillways, is the intake obstructed in any way (such as with excessive debris)? Yes <u>No X</u>.
 If yes, describe (type of debris, reason for obstruction, etc.) /Corrective Action: <u>The intake for the low-level outlet</u> is not visible from the surface, but was inspected by a dive team in April 2023. The sluice gate structure was noted to not have been obstructed by sediment or debris following cleaning by divers during that inspection.
- 4. For pipe spillways, what is the condition of any trash racks (for example, adequate, inadequate, damaged)? /Corrective Action: <u>The intake for the low-level outlet is not visible from the surface but was inspected by a dive team in April 2023. The</u> <u>sluice gate structure was noted to have an intact trash rack by the divers. The specialty underwater contractor cleaned out</u> <u>the debris and sediment in front of the trash rack and confirmed that the trash rack was in adequate condition.</u>
- 5. For pipe spillways, are there any visible cracks, separations or holes in the pipe(s) (intake or outlet)? Yes _____ No X_____
 If yes, describe (location, width of crack or separation, etc.)/Corrective Action: _____ A specialty underwater contractor inspected the low-level outlet pipe in December 2022 and rated the pipe in satisfactory condition.
- 6. For pipe spillways, are there any apparent leaks in the pipe(s)? Yes <u>No_X</u>.
 If yes, describe (location, rate of flow from leak, etc.)/Corrective Action: <u>For the testing of the program of the low-level outlet sluice gate, an inspection of the low-level outlet pipe and inlet structure was conducted in December 2022. The inspection identified the buildup of calcite deposits, minor corrosion, and sediment buildup at the inlet structure. In April 2023, a specialty underwater contractor conducted an operational test of the handcrank and low-level outlet gate, and in the process of installing the plug, the contractor cleaned out previously identified calcite deposits, corrosion, and sediment buildup to install the plug.
 </u>
 - 7. For pipe spillways, how would you describe the overall condition of the pipe(s)? (Check all that apply) Functioning Normally_X___ Not Functional____ Deteriorated____ Damaged____ Adequate____ Inadequate____ Note: the pipe appears to be able to function normally, however a plug was left installed directly behind the gate. Big Canoe <u>POA is currently identifying a path forward to rehabilitate or replace the gate opening system.</u>
- ▲ 8. For concrete or earth channel spillways, is the entrance or channel obstructed in any way? Yes _____ No_X____ If yes, describe (type of obstruction, location, etc.)/Corrective Action: <u>Debris previously noted appeared to have been removed</u>. Additional small branches (less than 4 inches in diameter) observed at the entrance of the overflow spillway and tend to collect in this area; however, these items are not impeding the flow into the spillway. Recommend clearing any debris at the entrance of the overflow spillway
- 9. For earth channel spillways, how would you describe the vegetation in the spillway? (Check all that apply)

 Recently Mowed_____
 Overgrown_____
 Good Cover_____
 Sparse_____
- Other (describe)/Corrective Action: N/A

 ↑ Check if corrective action is noted/required.

Name of Dam: Lake Petit Dam

Date: 17 and 31 August 2023

E. Principal and Emergency Spillways (Continued)

- 10. For earth channel spillways, are there any trees or other inappropriate vegetation in the spillway? Yes_____ No____

 If yes, describe (type of vegetation, size, location, etc.)/Corrective Action: N/A
- I1. For earth channel spillways, are there any eroded areas in the spillway?
 Yes_____ No____

 If yes, describe (size of area, location, severity, etc.)/Corrective Action:
 N/A
- ☑ 12. For concrete channel spillways, are there any cracks or holes in the spillway? Yes_X____ No_____ If yes, describe (width of crack or hole, location, etc.)/Corrective Action: _____ The reservoir had been lowered and flow to the spillway reduced prior to this inspection to allow better observation of the spillway steps. The spillway was fully operational, and the spillway repairs conducted in April 2022 to address deficiencies that were required for the acceptable performance of the spillway were observed to be intact and withstanding the flows within the spillway. Additional maintenance repairs to select steps were conducted on 31 August 2023. During this time, no flow was within the spillway. Throughout the spillway, there are still minor cracks observable; however, these smaller cracks and holes were classified as deficiencies that do not hinder the performance of the spillway. Continue to monitor the status of the repairs and for changes to minor cracks.
- 14. For earth or concrete channel spillways, how would you describe the overall condition of the spillway? (Check all that apply) Functioning Normally X_____ Not Functional_____ Deteriorated_____ Damaged_____ Adequate_____ Inadequate_____
 15. Other observations on the spillways/Corrective Action: <u>No other observations.</u>

F. Instrumentation (refer to Glossary for description)

- 1. Are there any toe drains at the downstream toe or any other seepage drains on the dam? Yes_X____ No_____ If yes, describe the condition (for example, clogged, free flowing, deteriorated, good condition) /Corrective Action: <u>The interceptor drains along Bench No. 1 were identified (as noted in Item C.8)</u>. The drains at the toe of the dam had flow exiting. The inverts for the internal drain system of the dam are located at the concrete stilling basin. Four pipe outlets were observed in the vicinity of the concrete stilling basin: (i) 3 pipes to the right of the concrete stilling basin; and (ii) one to the left of the concrete stilling basin. Pipes were observed to be free flowing with clear flow, except for one of the pipes to the right of the impact stilling basin which was observed to be dry.
- \Box 2. For drains, is an animal guard installed at the outlet of each drain? Yes_____ No_X___
- ↑ Check if corrective action is noted/required.

Name of Dam: Lake Petit Dam

Date: 17 and 31 August 2023

F. Instrumentation (Continued)

If no, which drains lack animal guards? /Corrective Action: <u>Animal guards are not installed on interceptor drainpipes nor</u> the other pipe outlets; however, they do not appear necessary on the interceptor drains or internal drain system pipes due to continuous flow and relatively small diameter.

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

Designation/Location of Drain	Flow Rate	Flow Rate in GPM*	Turbidity of Flow (describe – clear, muddy, etc.)
Interceptor Drains on Bench No. 1 (With the exception for Interceptor Drain No. 1, 13, and 14)	Very low	Less than 0.5 GPM from each observable drain	Clear
Internal Drain System	¹ / ₂ " height of flow over the weir of the concrete impact basin		Clear
Drainpipe No. 2	Moderate	Approximately 9 GPM	Clear
Drainpipe No. 3	Very low	Less than 0.5 GPM	Clear
Drainpipe No. 4	Very low	Less than 0.5 GPM	Clear

Are there any piezometers on the dam? Yes X No______
 If yes, describe the condition (for example, good condition, damaged, etc.)/Corrective Action: <u>The piezometers are generally in good condition.</u>
 5. For piezometers, does each piezometer have a cap with a lock? Yes No_X_

If no, which piezometers need caps (to prevent rain water intrusion) and/or locks (to prevent tampering)? /Corrective Action: Individual piezometers have caps to prevent water from intruding but no locks. Monument covers have bolted lids to prevent tampering.

 \Box 7. Are there any other monitoring devices on the dam? Yes____ No__X___

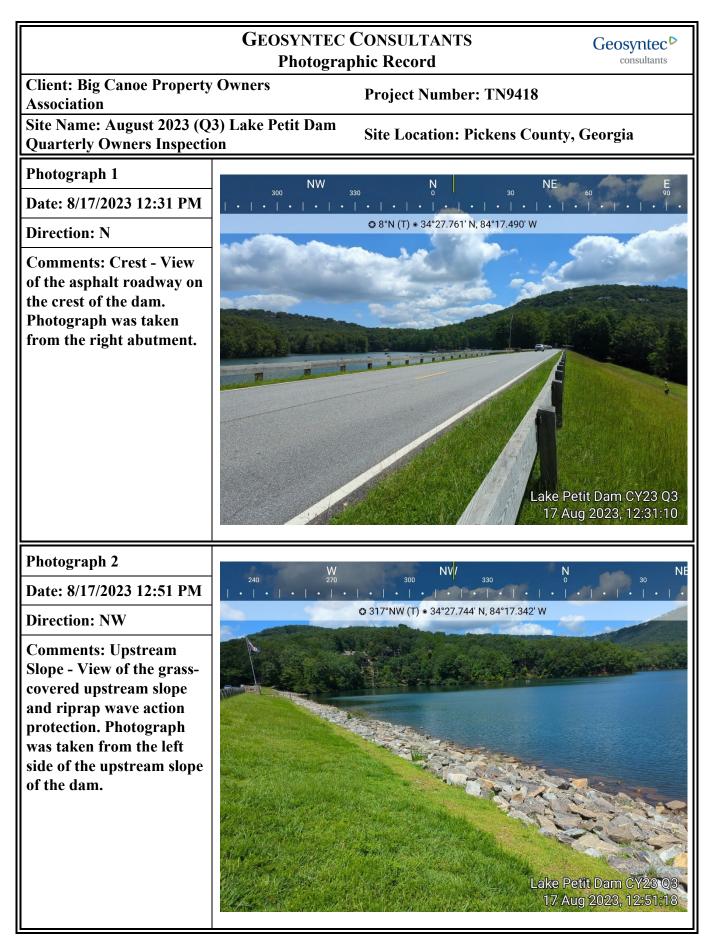
If yes, describe what type and the condition (for example, monitoring wells - good condition, damaged) /Corrective Action: N/A

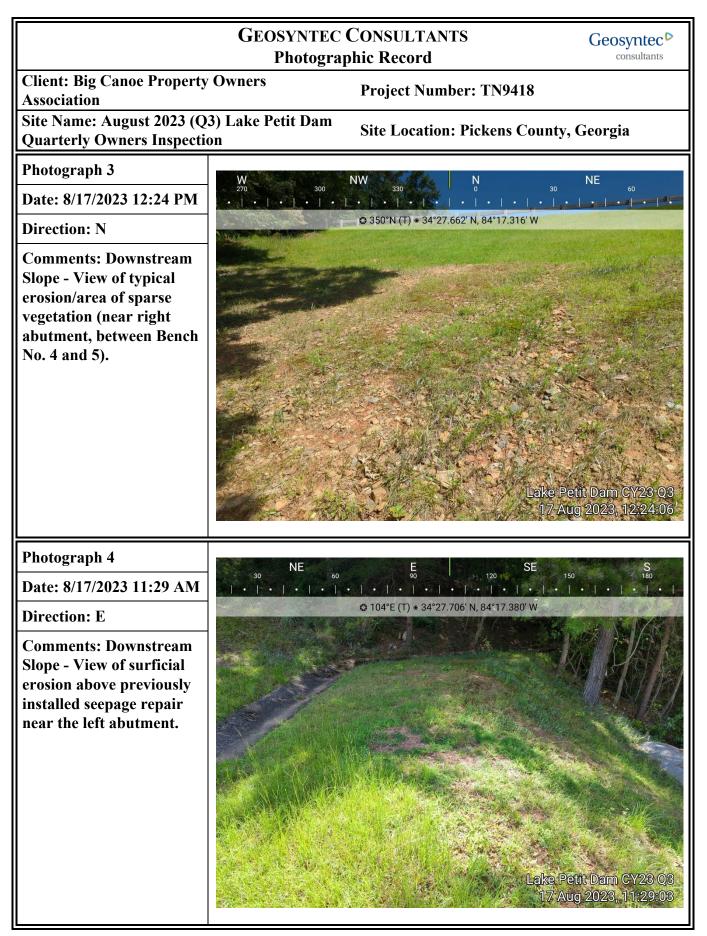
8. Other observations on instrumentation/Corrective Action: <u>No other observations.</u>

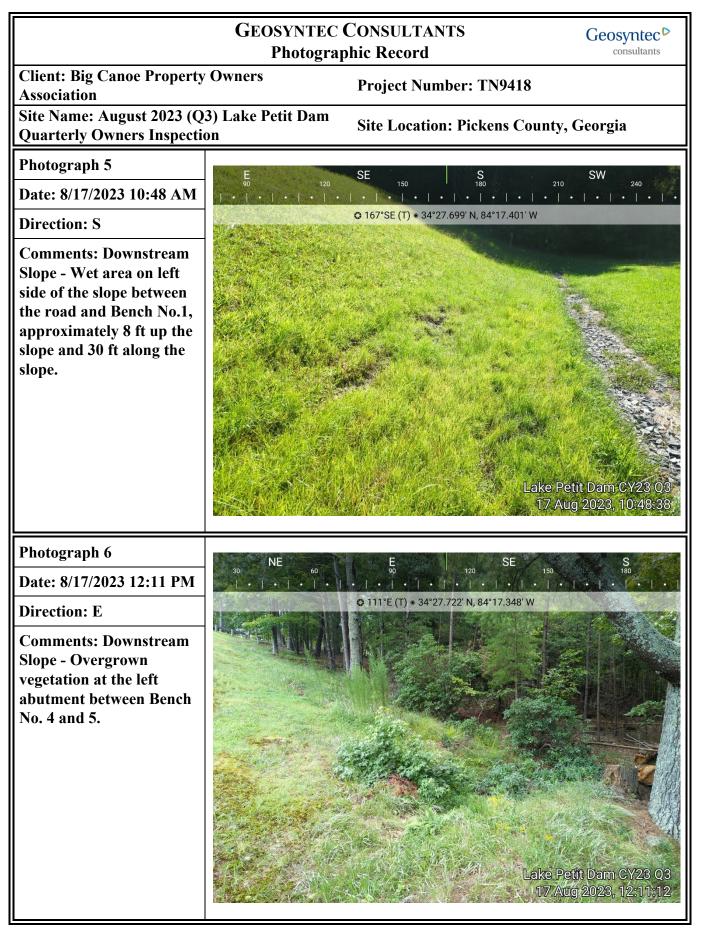
G. Photographs

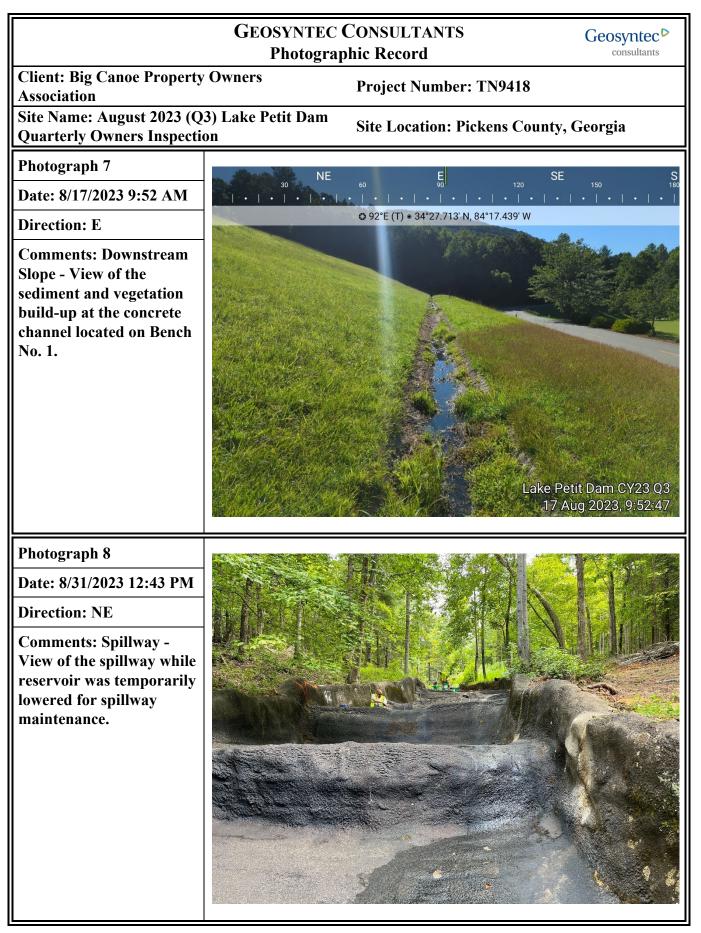
At a minimum, photographs should be taken of the crest, upstream slope, downstream slope and any other notable features. List of photographs (be sure to date stamp the photos): <u>Photographs have been attached to this inspection report.</u>

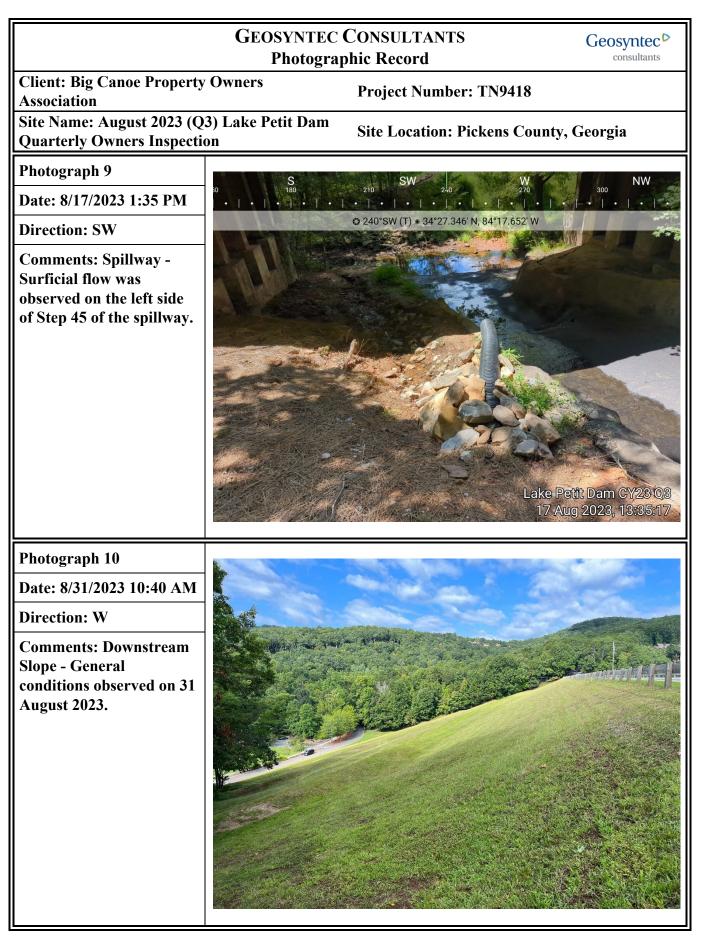
*GPM (gallons per minute): to convert from oz/sec multiply by 0.4688; to convert from ml/sec multiply by 0.01585











2023 Q4 Quarterly Owner Inspections Form

Embankment (Earth) Dam Inspection Form

Name of Dam: Lake Petit Dam	Date: 17 November 2023
Location of Dam (County): Pickens County	Weather: Cloudy, 70 degrees F
Inspected by (Print Name): Wesley MacDonald and Kelsey Boldiszar	
If an inspection item requires further action on your part, place a check mark to the left	of the number of the item
A. <u>Crest</u> (refer to Glossary for description)	
1. How would you describe the vegetation on the crest? (Check all that apply)	
Recently Mowed X Overgrown Good Cover X	Sparse
Other/Corrective Action (describe): The crest of the dam is an asphalt	
along the shoulders of the road was observed to be well-maintained.	
2. Are there any trees or other inappropriate or excessive vegetation on the crest?	Yes No_ <u>X</u>
If yes, describe (type of vegetation, size, location, etc.)/Corrective Action:	
\Box 3. Is there a paved road or driveway on the crest? Yes <u>X</u> No	_
If yes, describe the condition (for example, good condition, numerous cracks	, newly paved)/Corrective Action: <u>Good</u>
condition. Repaved in 2012.	
\square 4. Are there any depressions, ruts or holes on the crest? Yes X N	0
If yes, describe (size, location, etc)/Corrective Action: Minor longitudi	
appears to be due to normal traffic wear. These ruts do not appear to be associated	iated with embankment deformations.
Recommend continued monitoring of the condition of the pavement for the condition of the pavement for the conditional sector and the sector a	evelopment of new cracks in the rutted areas.
X 5. Are there any cracks on the crest? Yes X No	
If yes, describe (length and width, location, direction of cracking, etc.)/Corre	ctive Action: Minor transverse and
longitudinal pavement cracks associated with normal pavement wear were	e observed. These cracks do not appear to be
associated with embankment deformations. Recommend continued monitor	ng of the condition of the pavement. Patching
the asphalt or repaying may eventually be necessary if cracks continue to exp	band.
6. Other observations on the crest/Corrective Action: None	
B. <u>Upstream Slope</u> (refer to Glossary for description)	
1. What is the reservoir level today? At Normal Pool Above Normal Pool	Feet Below Normal Pool <u>0.5</u> Feet
\bowtie 2. How would you describe the vegetation on the upstream slope? (Check all that	apply)
Recently Mowed X Overgrown Good Cover X	Sparse
Other/Corrective Action (describe): Grass observed to provide genera	lly good cover. The shoreline of the upstream
face is protected via riprap erosion protection. Along the left and right groi	ns of the upstream face, pedestrian paths were
established with granular material. Sparse vegetation was observed to extend	approximately 3 ft up the slope from the riprap.
Attempt to enhance vegetation in areas with sparse vegetation.	
3. Are there any trees or other inappropriate or excessive vegetation on the slope?	Yes_X No
If yes, describe (type of vegetation, size, location, etc.)/Corrective Action:	Some new vegetation was observed growing
through and along the upslope limit of riprap erosion protection. Continue to	remove vegetation growing on the riprap as it
is observed.	
4. Are there any depressions, bulges, ruts or holes (such as animal burrows) on the	slope? Yes No_X
If yes, describe (size, location, etc.)/Corrective Action: N/A	

Name of Dam: Lake Petit Dam	Date: <u>17 November 2023</u>
B. <u>Upstream Slope</u> (continued)	
5. Are there any eroded areas on the slope (such as wave erosion along the shoreline)? If yes, describe (size of area, location, severity, etc.)/Corrective Action: N/A	
\square 6. Are there any cracks, sloughs or slides (vertical cliffs) on the slope? Yes	
If yes, describe (length, width, height, location, etc.)/Corrective Action: <u>N/A</u>	
 7. Is there any type of slope protection along the shoreline (such as riprap)? Yes 2 If yes, describe what type and its condition (for example, riprap - adequate, inadeq riprap cover observed – installed in April 2022. 	uate, sparse)/Corrective Action: Good
8. Other observations on the upstream slope/Corrective Action: N/A	
C. <u>Downstream Slope</u> (refer to Glossary for description)	
 1. How would you describe the vegetation on the downstream slope? (Check all that app Recently Mowed X Overgrown Good Cover X Other/Corrective Action (describe): Grass was observed to provide generally 	Sparse
$\boxed{1}$ 2. Are there any trees or other inappropriate or excessive vegetation on the slope?	
If yes, describe (type of vegetation, size, location, etc.)/Corrective Action: Large	
along the left groin from Bench No. 2 to the crest. Recommend removing this vege	
3. Are there any depressions, bulges, ruts or holes (such as animal burrows) on the slope. If yes, describe (size, location, etc.)/Corrective Action: <u>Previous ant hills ap</u> <u>several minor animal burrows and ant hills were observed on the downstream face.</u> and restore vegetation.	ppear to have been addressed, however
 Are there any eroded areas on the slope (such as along abutment contacts)? Yes_If yes, describe (size of area, location, severity, etc.)/Corrective Action: Surrective Action: Surrective Bench No. 4 and 5, left side, erosion channel approximately 6 in. deep; (iii) 1, right side; (iii) slope between Bench No. 4 to 5, right side; and (iv) slopes between 	i) slope between the road and Bench No. een Bench No. 4 to 5 and Bench No. 5 to
6, left side. Continue normal maintenance, revegetation, and erosion control meas 5. Are there any cracks, sloughs or slides (vertical cliffs) on the slope? Yes If yes, describe (length, width, height, location, etc.)/Corrective Action: N/A	No <u>X</u>

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C. Downstream Slope (continued)

- 7. Do any wet areas indicate seepage through the dam (such as rust-colored, stained water)? Yes _____ No_X___ N/A____ If yes, describe (for example, new area of seepage, no change from past observations, size of area, location) /Corrective Action: <u>No active seepage, rust coloration, or turbidity observed at the wet areas discussed in item C.6. Recommend</u> <u>continued monitoring of these areas for changes to conditions.</u>
- 8. Are there any leaks (flowing water) from the slope or beyond the toe of the dam? Yes X No If yes, describe (location, rate of flow, turbidity of flow)/Corrective Action: <u>Small volume flows of clear water continue from the interceptor drains along Bench No. 1 as intended, with the exception of the right-most interceptor drain (No. 1) (not flowing, dry). Flows from the interceptor drains were reduced compared to previous inspections, likely due to lower than average rainfall during this quarter. The two leftmost interceptor drains (paired drains, No. 13 and 14) were covered by the installation of the two-stage filter for the seepage repair. Continue to monitor the drains and weirs for changes in flow amount and turbidity.</u>
- 9. Other observations on the downstream slope/Corrective Action: <u>Two weirs are located on the left and right ends of the concrete channel located at Bench No. 1. Both weirs contained vegetation/debris typical of the autumn season. The left weir tends to become clogged with additional vegetation/debris and requires cleaning out regularly. The source of the vegetation/debris is believed to be surficial erosion and leaves/twigs/vegetation from the left abutment upslope of the weir. Recommend cleaning out the weirs regularly.</u>
- D. <u>Plunge Pool</u> (refer to Glossary for description)
- Is there any type of erosion protection around the plunge pool (such as riprap)? Yes <u>No X</u>
 If yes, describe what type and its condition (for example, riprap adequate, inadequate, obstructed by vegetation)/Corrective Action: <u>There is no plunge pool. Downstream from the impact-type stilling basin, there is no riprap, however, based on current operations it does not appear to be needed.</u>
- 2. Is there any erosion and or seeps around or going into the plunge pool?
 Yes_____ No_X___

 If yes, describe (size of area, location, severity, etc.) /Corrective Action:
 N/A
- 3. Other observations around the plunge pool/Corrective Action: <u>Approximately 2 to 3 in. of debris/buildup was observed at</u> the bottom of the concrete stilling basin. Recommend continuing to monitor the potential build-up and clean out as needed.

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

- 1. What types of spillways does the dam have (such as corrugated metal, concrete or siphon pipe; concrete or earth channel)?
 Principal Spillway <u>Gunite</u>, Stepped Spillway <u>Emergency</u> Spillway <u>None</u>, other than a low-level outlet pipe.
 Other/Corrective Action: <u>Also has an auxiliary siphon system to control partial drawdown of the reservoir when needed.</u>
- 2. Has the emergency spillway activated (had flow) since the last inspection? Yes _____ No __X____ If yes describe (date(s) of flow, reason for activation, depth of flow) /Corrective Action: _____ In April 2023, a specialty underwater contractor conducted an operational test of the handcrank and low-level outlet gate by first installing a plug with a primary and secondary restraint system on the downstream end of the low-level outlet gate and then testing the operations of the handcrank and gate. The contractor was able to crack and open the gate a few inches; however, the stem and stem guide system were observed to be in need of repairs. The gate was closed, and the plug was left installed. Big Canoe POA is currently identifying a path forward to rehab or replace.
- 3. For pipe spillways, is the intake obstructed in any way (such as with excessive debris)? Yes <u>No X</u>.
 If yes, describe (type of debris, reason for obstruction, etc.) /Corrective Action: <u>The intake for the low-level outlet</u> is not visible from the surface, but was inspected by a dive team in August 2023. The sluice gate structure was noted to not have been obstructed by sediment or debris following cleaning by divers during that inspection.
- 4. For pipe spillways, what is the condition of any trash racks (for example, adequate, inadequate, damaged)? /Corrective Action: <u>The intake for the low-level outlet is not visible from the surface but was inspected by a dive team in April 2023. The</u> <u>sluice gate structure was noted to have an intact trash rack by the divers. The specialty underwater contractor cleaned out</u> <u>the debris and sediment in front of the trash rack and confirmed that the trash rack was in adequate condition.</u>
- 5. For pipe spillways, are there any visible cracks, separations or holes in the pipe(s) (intake or outlet)? Yes _____ No X_____
 If yes, describe (location, width of crack or separation, etc.)/Corrective Action: _____ A specialty underwater contractor inspected the low-level outlet pipe in December 2022 and rated the pipe in satisfactory condition.
- 6. For pipe spillways, are there any apparent leaks in the pipe(s)? Yes <u>No_X</u>.
 If yes, describe (location, rate of flow from leak, etc.)/Corrective Action: <u>For the testing of the program of the low-level outlet sluice gate, an inspection of the low-level outlet pipe and inlet structure was conducted in December 2022. The inspection identified the buildup of calcite deposits, minor corrosion, and sediment buildup at the inlet structure. In April 2023, a specialty underwater contractor conducted an operational test of the handcrank and low-level outlet gate, and in the process of installing the plug, the contractor cleaned out previously identified calcite deposits, corrosion, and sediment buildup to install the plug.
 </u>
 - For pipe spillways, how would you describe the overall condition of the pipe(s)? (Check all that apply)
 Functioning Normally_X_ Not Functional_ Deteriorated_ Damaged_ Adequate_ Inadequate_____
 Note: the pipe appears to be able to function normally, however a plug was left installed directly behind the gate. Big
 <u>Canoe POA is currently identifying a path forward to rehabilitate or replace the gate opening system.</u>
- 8. For concrete or earth channel spillways, is the entrance or channel obstructed in any way?
 Yes_____ No_X___

 If yes, describe (type of obstruction, location, etc.)/Corrective Action: N/A
 No_X____

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E. Principal and Emergency Spillways (Continued)
9. For earth channel spillways, how would you describe the vegetation in the spillway? (Check all that apply)
Recently Mowed Overgrown Good Cover Sparse
Other (describe)/Corrective Action: N/A
10. For earth channel spillways, are there any trees or other inappropriate vegetation in the spillway? Yes No
If yes, describe (type of vegetation, size, location, etc.)/Corrective Action: N/A
□ 11. For earth channel spillways, are there any eroded areas in the spillway? Yes No
If yes, describe (size of area, location, severity, etc.)/Corrective Action: N/A
\square 12. For concrete channel spillways, are there any cracks or holes in the spillway? Yes X No
If yes, describe (width of crack or hole, location, etc.)/Corrective Action: The reservoir had been lowered and flow
the spillway reduced prior to this inspection. The spillway was fully operational, and the spillway repairs conducted in A
2022 to address deficiencies that were required for the acceptable performance of the spillway were observed to be in
and withstanding the flows within the spillway. Additional maintenance repairs to select steps were conducted on 31 Aug
2023. The spillway was not flowing at the time of the inspection and leaves from the fall had covered pars of it. Previ
inspections had noted there are still minor cracks observable; however, these smaller cracks and holes were classified
deficiencies that do not hinder the performance of the spillway. Continue to monitor the status of the repairs and for chan
to minor cracks
X 13. For concrete channel spillways, are there any leaks or evidence of undermining (flow under the concrete)? YesNoX
If yes, describe (location, rate of flow from leak, indicators of undermining, etc.)/Corrective Action: Maintenance rep
completed in early 2022 included additional backfilling against and under the walls along the left side of Step 45 to prev
further erosion. As of the date of this inspection, evidence of previous surficial erosion was observed over the backfi
areas. No water flow was observed during the inspection. Continue to monitor the state of the repairs and any change
flow near Step 45.
14. For earth or concrete channel spillways, how would you describe the overall condition of the spillway? (Check all that app
Functioning Normally_X Not Functional Deteriorated Damaged Adequate Inadequate
15. Other observations on the spillways/Corrective Action: <u>No other observations.</u>
F. <u>Instrumentation</u> (refer to Glossary for description)
\Box 1. Are there any toe drains at the downstream toe or any other seepage drains on the dam? Yes X No
If yes, describe the condition (for example, clogged, free flowing, deteriorated, good condition) /Corrective Action:
interceptor drains along Bench No. 1 were identified (as noted in Item C.8). The drains at the toe of the dam had flow exit
The inverts for the internal drain system of the dam are located at the concrete stilling basin. Four pipe outlets were obser
in the vicinity of the concrete stilling basin: (i) 3 pipes to the right of the concrete stilling basin; and (ii) one to the left of
concrete stilling basin. Pipes were observed to be free flowing with clear flow, except for one of the pipes to the right of
impact stilling basin which was observed to be dry.
\Box 2. For drains, is an animal guard installed at the outlet of each drain? Yes No_X
If no, which drains lack animal guards? /Corrective Action: Animal guards are not installed on interceptor drainpipes not
the other pipe outlets; however, they do not appear necessary on the interceptor drains or internal drain system pipes due
continuous flow and relatively small diameter.

↑ Check if corrective action is noted/required.

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F. Instrumentation (Continued)

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

	Designation/Location of Drain	Flow Rate	Flow Rate in GPM*	Turbidity of Flow (describe – clear, muddy, etc.)	
	Interceptor Drains on Bench No. 1 (With the exception for Interceptor Drain No. 1, 13, and 14)	Very low	Less than 0.5 GPM from each observable drain	Clear	
	Internal Drain System	¹ / ₂ " height of flow over the weir of the concrete impact basin		Clear	
	Drainpipe No. 2	Moderate	Approximately 9 GPM	Clear	
	Drainpipe No. 3	Very low	Approximately 0.9 GPM	Clear	
	Drainpipe No. 4	Very low	Less than 0.5 GPM	Clear	
□ 5. F	If yes, describe the condition (for ex- generally in good condition. For piezometers, does each piezometer h If no, which piezometers need caps Action: Individual piezomet bolted lids to prevent tampering.	ave a cap with a lock? (to prevent rain water intr	YesNoX_usion) and/or locks (to preven	t tampering)? /Corrective	
	For piezometers, are you able to take a n	peasurement (denth to wat	er) in each niezometer?	Yes X No	
	If yes, record depth to water (in feet Are there any other monitoring devices of If yes, describe what type and the co) in each piezometer, reco on the dam? Yes	rd on a separate page, and atta	ach to this form.	
	N/A				
□ 8. 0	Other observations on instrumentation/C	orrective Action: N	lo other observations.		
G. <u>Pho</u>	otographs				
At a minimum, photographs should be taken of the crest, upstream slope, downstream slope and any other notable features.					
List	of photographs (be sure to date stamp t	he photos): <u>Photograp</u>	hs have been attached to this	inspection report.	

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

