Welcome to the Cedar Lake Improvement Board

Regular Public Meeting

July 10, 2026

Board Members

Carolyn Brummund	Alcona County Commissioner
Jesse Campbell	Alcona County Road Commission Rep.
C. Lee Major	Greenbush Township Supervisor
Adam Kline	Oscoda Township Manager
Terry Dutcher	Iosco County Commissioner
Fred Strauer	Iosco County Drain Commissioner
Rex Vaughn	Citizen Riparian Representative

Cedar Lake Improvement Board
Regular Public Meeting
Greenbush Township Hall
Greenbush, MI 48738
Friday, July 10, 2026
10:00 AM ET

Proposed Agenda (Corrected)

1) Call to Order.

2) Roll Call. (Welcome to C. Lee Major, representing Greenbush Township).

3) Moment of Silence for Dave Dailey.

4) Conference Call Meeting Operating Protocol & Housekeeping.
   a) Audio only, video services not available.
   b) Please keep your phone muted until invited to speak by the Chair during Public Comments.

5) Public Comments.
   a) Please hold comments to 3 minutes or less (per Board Rule adopted 4/10/2026).

6) Approval of Agenda as Presented.

7) Review and Approve Minutes from the April 10, 2026, Regular Meeting.

8) Old Business.
   a) Update on delayed Midwest Glacial Lakes Fish Habitat Partnership Grant administered by the US Fish & Wildlife Service.
      i) Multiple email exchanges with Justin Chiotti, Habitat Biologist, USFWS - Fish and Aquatic Conservation Program confirms we are still waiting.
      ii) Follow up with Joe Nohner, Midwest Glacial Lakes Partnership Coordinator Michigan Department of Natural Resources.
      iii) Followed up with Colin Gwillim, Legislative Assistant, Representative Jack Bergman (MI-01), awaiting reply.
      iv) Correspondence with the three gentlemen included in Board Notebook and Board Packet.
   b) E. coli FAQ Draft document under review by Board's attorney and will be shared with the Board once completed.
   c) Additional shallow ground water testing on CLIB property and Jones Ditch. (Mark Kieser will join the meeting remotely to discuss findings).
      i) Following up on the November 24, 2025, shallow ground water testing where samples on CLIB property could not be obtained due to environmental conditions, successful samples were collected on June 3, 2026.
      ii) Preliminary Technical Memo w/the test results shared with the CLIB on June 17, 2026, via email.
      iii) Preliminary Technical Memo w/the test results also shared with EGLE and DHD2 on June 18, 2026, via email.
      iv) The 7/7/2026 Updated Technical Memo, which includes the soluble reactive phosphorous (SRP) results will be discussed by Mark Kieser.
      v) The 7/7/2026 Updated Technical Memo shared with DHD2 and EGLE on 7/8/2026 via email.
      vi) Updated Technical Memo also posted to the CLIB web site: https://cedarlakewmp.net/monitoring-reports
      vii) The Updated Technical Memo Update is included in the Board Notebook and Board Packet.

d) 2025 Audit.
   i) Hired Lindsey Roberts, Radiant Bookkeeping Solutions, LLC, Alpena, MI to complete the bookkeeping tasks required by the auditor.
   ii) She completed that task on 7/2/26 and has delivered the work product to the auditor.
   iii) Expect audit completion around month end.
e) Updated on 2026 Watershed Management Plan.
   i) The updated plan is one step closer to final approval by EGLE and the EPA.
   ii) Teresa Salveta, EGLE Environmental Quality Analyst, Water Resources Division, Gaylord District Office, signed off on the final draft.
   iii) Next step is a review/approval process and collaboration with EPA by Peter Vincent, Watershed Planning Coordinator in Lansing.
   iv) Final approval, if all goes well, is expected early fall 2026.
   v) The final draft of the Updated 2026 Watershed Management Plan has been uploaded to the CLIB website at: https://cedarlakewmp.net/monitoring-reports.

9) New Business.
   a) 2025 Cedar Lake Hydrology Report presented by Mark Kieser, who will join the meeting remotely.
      i) Executive Summary included in Board Notebook.
      ii) Complete report (43 pages) posted on CLIB website: https://cedarlakewmp.net/monitoring-reports , and included in the online Board Packet.
      iii) Key takeaway: 2025 was a good year for lake levels during the recreational season.
   b) First 2026 Aquatic Herbicide Lake Treatment by SOLitude Lake Management.
      i) Based upon the whole lake pre-season lakes survey that took place on June 2nd, only sites north of the causeway on the west side of the lake required treatment.
      ii) The total area to be treated was 20.75 acres. Eurasian Water Milfoil was targeted in nine (9) locations as shown on the treatment map included in the Board Notebook and Board Packet.
      iii) On June 15, 2026, the state mandated Pre-Treatment Notification Letter for the 2026 Aquatic Nuisance Control season was mailed to riparian property owners on Cedar Lake. The addresses used were the same addresses used for property tax mailings by Greenbush Township and Oscoda Township.
      iv) The first 2026 lake herbicide treatment for aquatic invasive species took place on Monday, June 29, 2026.
      v) Lake properties within the treatment areas, or within 100 feet of a treatment area, received postings along their shorelines with the EGLE designed and mandated posting notice, copy included in Board Notebook & Packet.
      vi) To evaluate the effectiveness of the treatment, Kieser & Associates technicians will survey the entire lake later this month (tentative date 7-13 & 14). The need for a second treatment will be determined after the survey results are reviewed.
   c) Review and approve bills that were paid since the 4-10-2026 meeting or are now due. (Note: bills i-ix are paid, bills x-xii are new.)
      i) Bloom Sluggett PC, professional services through 3/31/2026, Inv. 28122, $778.50 (paid).
      ii) Rex Vaughn, reimbursement for 6/2/2026 Lake Survey Crew expenses, $46.87 (paid).
      iii) Kieser & Associates, Watershed Consulting Contract, professional services, Inv. 26-277, $1,850.00 (paid).

iv) SOLitude Lake Management LLC, pre-season lake survey, Inv. PSI276768, $900.00 (paid).
v) SOLitude Lake Management LLC, additional annual EGLE ANC Permit Fee for permit treatment coverage area, Inv. PSI267614, $667.50 (paid).
vi) SOLitude Lake Management LLC, 6/30/2026 Aquatic Herbicide Lake Treatment, Inv. PSI277350, $10,984.24 (paid).
vii) Radiant Bookkeeping Services, professional services, Inv. 1212, $275.00 (paid).
viii) Kieser & Associates, Watershed Consulting Contract, professional services, Inv. 26-291, $6,052.50 (paid).
ix) Alcona County Treasurer, Winter 2025 Property Taxes, Parcel ID 041-196-000-068-00, $160.59(paid).
x) SOLitude Lake Management LLC, state mandated Riparian Notification Mailing, Inv. PSI277130, $747.00 (new).
xi) Kelly VonFintel, scribe services for two (2) 2026 CLIB meetings, Inv. Dated 7/6/2026, $200.00 (new).
xii) Rex Vaughn, reimbursement for office supplies, $20.31 (new).

10) Public Comment.
a) Please hold comments to 3 minutes or less (per Board Rule adopted 4/10/2026).

11) Next Regular Meeting Date: October 9, 2026. (Corrected)

12) Adjournment.

Cedar Lake Improvement Board Regular Public Meeting
Public Access Instructions

Friday, July 10, 2026, at 10:00 AM ET

CONFERENCE CALL-IN INFORMATION:

To join the conference call, participants should call 302-202-1110 & enter Conference Code: 639770

Cedar Lake Improvement Board
Regular Public Meeting
Greenbush Township Hall
Greenbush, MI, 48738
Friday, April 10, 2026
10:00 AM ET

Call to order at 10 AM by Mr. Vaughn.

1. Board Roll Call. Present: Brummund, Kline, Dutcher, Vaughn, Campbell. Absent: Strauer and Dailey. There is a quorum.

2. Public comment.
   i. Mark Laszlo, Cedar Lake property owner, asked the Board to consider putting a time limit on Public Comments.

3. Approval of agenda. No additions or changes. Motion by Brummund to accept agenda as submitted. Seconded by Dutcher. All ayes. Motion carried.

4. Review and approve minutes from February 20, 2026, Regular Meeting. Motion to approve the minutes as submitted made by Dutcher/seconded by Campbell. All ayes. Motion carried.

5. Old Business.
   a) Update on delayed Midwest Glacial Lakes Fish Habitat Partnership Grant administered by the US Fish & Wildlife Service.
      i. Vaughn contacted Representative Jack Bergman's office, via email, to see if any movement can be made with grant funding release. Rep. Bergman's office replied that they will inquire with the Department of the Interior to see if they can get the ball rolling on payment of this grant.
   b) Update on the Consumers Energy Foundation 2026 Planet Award Grant Application.
      i. An email from Catherine Wilson of Consumers Energy stated that the Cedar Lake Improvement Board was not selected for their grant.
   c) E. Coli FAQ document status.
      i. The Board was tasked with putting together a FAQ document for the website. Mark Kieser is consulting on this. It is hoped that the document will be ready by the next board meeting and might be adopted then. Board approval and Legal review will be sought before being released to the public.
   d) 2025 Audit.
      i. The start of the audit process has been delayed due to the unavailability of the current fiduciary.
      ii. Our auditor suggested that we hire a temporary bookkeeper to help prepare the financial documents that must be submitted for the 2025 audit. Auditor also recommended not using their firm to help prepare those financial documents to maintain independence of the auditor.
      iii. Motion to find and hire an independent bookkeeper to assist CLIB with audit preparations made by Dutcher. Seconded by Brummund. ROLL CALL: Vaughn YES, Dutcher YES, Kline YES, Campbell YES, Brummund YES. Motion carried.
   e) 2025 Winter Tax Bill for CLIB Owned Property.
      i. Parcel #041-196-000-068-00 needs to be removed from the Special Assessment Roll as it is owned by a public agency (CLIB).
      ii. Motion to removal Parcel #041-196-000-068-00 from the Cedar Lake Special Assessment Roll and instruct Greenbush Township assessor, clerk, and

treasurer to remove the property from the Roll made by Dutcher. Seconded by Brummund. Roll Call: Vaughn YES, Dutcher YES, Kline YES, Campbell YES, Brummund YES. Motion carried.

iii. Commissioner Brummund will contact the County Treasurer about resolving the overdue 2025 assessment (which if paid by the CLIB, will then get automatically paid back to the CLIB as part of the SAD).

6. New Business.
   a) Consider placing a time limit per person during the Public Comment section of meetings.
      i. Discussion was had about what time limit would be prudent for public comments during meetings.
      ii. Motion made by Dutcher to make a rule to have two public comment periods per meeting, limit the public comments to three (3) minutes per person during the first public comment period, and limit the public comments to three (3) minutes per person during the second public comment period. Seconded by Brummund. ROLL CALL: Campbell YES, Brummund YES, Vaughn YES, Dutcher YES, Kline YES. Motion carried.

   b) Review and approve bills that were paid since the 2-20-2026 meeting or are now due.
      i. 2025 Winter Tax Bill for CLIB, Parcel #041-196-000-068-00, $150.00 (if necessary).
      ii. Bloom Suggett PC, professional services through 2/28/2026, Inv. 27953, $969.00 (paid).
      iii. Michigan Millers Insurance, General Liability Policy renewal, Account #CL0044967P, $523.00 (paid).
      iv. Michigan Millers Insurance, Directors & Officers Policy renewal, Account #s0101541, $480.00 (paid).
      v. SOLitude Lake Management LLC, annual EGLE ANC Permit Fee, Inv. No. PSI240110, $1,182.50 (paid).
      vi. Mike's Computer Repair, website changes and updates, Inv. 1946, $130.00 (paid).

      Brummund made a motion to approve Items (i) through (vi) above as submitted. Dutcher seconded. ROLL CALL: Campbell YES, Brummund YES, Vaughn YES, Dutcher YES, Kline YES. Motion carried.

      vii. Kieser & Associates, Watershed Consulting Contract, professional services, Inv. 26-223, $8722.25 (new).
      viii. Kieser & Associates, LakeScan Lake Management Contract, professional services, Inv. $3873.60 (new).
      ix. Rex Vaughn, reimbursement for 2 reams of printer paper, $16.92 (new).

      Brummund made a motion to approve payment of Items (vii) through (ix) above as submitted. Dutcher seconded. ROLL CALL: Vaughn YES, Dutcher YES, Kline YES, Campbell YES, Brummund YES. Motion carried.

7. Public Comment.
   a. Russell Miller, Cedar Lake property owner, asked if Cedar Lake groundwater that was lost into Lakewood Shores through the south end of the lake was going to be redirected back into Cedar Lake as part of a new Lakewood Shores

drain project. Vaughn responded that the scope of work on a new Lakewood Shores drain project has not been defined by the Iosco County Drain Commissioner, and that a Board of Determination Hearing must take place before any project scope can be considered or designed. The Drain Commission has scheduled the Board of Determination Hearing for April 15, 2026, at 4 PM at the Lakewood Shores Beach Club.

8. Next regular meeting: Friday July 10, 2026, at 10 AM at the Greenbush Township Hall.

9. Motion to adjourn by Dutcher/Campbell. All ayes, motion carried, adjourned 10:47 AM.

Subject: Re: [EXTERNAL] Re: Environmental Compliance - FY25 Midwest Glacial Lakes Project
Date: Monday, July 6, 2026 at 10:12:01 AM Eastern Daylight Time
From: Chiotti, Justin <justin_chiotti@fws.gov>
To: Rex Vaughn <rvaughn@tir.com>
CC: mkieser@kieser-associates.com <mkieser@kieser-associates.com>
Attachments: image002.png

Hi Rex,
I checked the status of your award just now and still in the same review status "Returned to Approval Coordinator (Director Approved)". I have not had any FY25 awards approved at this point and I know many other project officers are in a similar situation. Our Regional Director is aware that many awards are held up in the review phase, so hopefully we see some movement soon.

Thanks,
Justin

--
Justin Chiotti
Habitat Biologist
USFWS - Fish and Aquatic Conservation Program
Region 3 - Midwest Regional Office
Phone: (248) 891-0087 | justin_chiotti@fws.gov

From: Rex Vaughn <rvaughn@tir.com>
Sent: Sunday, July 5, 2026 4:04 PM
To: Chiotti, Justin <justin_chiotti@fws.gov>
Cc: mkieser@kieser-associates.com <mkieser@kieser-associates.com>
Subject: Re: [EXTERNAL] Re: Environmental Compliance - FY25 Midwest Glacial Lakes Project

Justin:

Checking in with you again, any news?

Kindest Regards,

Rex Vaughn

Subject: Re: [EXTERNAL] MGLP Small Grant Application Update - Cedar Lake
Date: Monday, July 6, 2026 at 7:15:15 AM Eastern Daylight Time
From: Rex Vaughn <rvaughn@tir.com>
To: Nohner, Joe (DNR) <NohnerJ@michigan.gov>
CC: Mark Kieser <mkieser@kieser-associates.com>
Attachments: image003.png, image008.png, image009.png, image010.png, image011.png, image012.png

Joe:

Thanks for the encouragement, we'll keep hangin' in there.

Kindest Regards,

Rex Vaughn

From: Joe Nohner <NohnerJ@michigan.gov>
Date: Monday, July 6, 2026 at 6:47 AM
To: Rex Vaughn <rvaughn@tir.com>
Cc: Mark Kieser <mkieser@kieser-associates.com>
Subject: Re: [EXTERNAL] MGLP Small Grant Application Update - Cedar Lake

Hi Rex,

I'm sorry it has been such a slow process. Yes, there is hope! For what it is worth, your project is one of many across the upper midwest region that I'm aware of that have been stuck at the DOJ approval stage. Unfortunately, this administration has intentionally slowed this process, and it's having broad ranging effects. I have been hearing that there's been some movement and that projects are starting to be approved, but I haven't seen that with my grants yet. I do think it will be coming, though.

Joe
From: Rex Vaughn <rvaughn@tir.com>
Sent: Sunday, July 5, 2026 4:26 PM
To: Nohner, Joe (DNR) <NohnerJ@michigan.gov>
Cc: Mark Kieser <mkieser@kieser-associates.com>
Subject: Re: [EXTERNAL] MGLP Small Grant Application Update - Cedar Lake

Joe:

It has been over a year since we got the great news from you concerning our grant application for our grant "Acre-for-acre Restoration of Lake Hydrology and Pike Spawning Habitat for the 1,075-acre Cedar Lake". As of July 3, 2026, we still have no clue when funding will be released by USFWS. All follow-ups with Justin Chiotti, Habitat Biologist, USFWS - Fish and Aquatic Conservation Program, Region 3 - Midwest Regional Office are the same, we are stuck in a review status known as "Returned to Approval Coordinator (Director Approved)".

Is there any hope left?

Kindest Regards,

Rex Vaughn
Cedar Lake Improvement Board
Mobile: 810-516-6686

Subject: Re: Assistance with Approved USFWS Grant Stuck in Bureaucratic Purgatory
Date: Monday, July 6, 2026 at 8:03:44 AM Eastern Daylight Time
From: Rex Vaughn <rvaughn@tir.com>
To: Gwillim, Colin <Colin.Gwillim@mail.house.gov>
CC: Burns, Amelia <Amelia.Burns@mail.house.gov>, michelle kanipes <mkanipes@yahoo.com>
Attachments: image001.png, image002.png, image003.png, image004.png

Good Morning, Colin.

I'm following up again on our problem with DOI/USFWS and our grant authorization. It has been over a year since we were informed that our grant application had been selected for full funding by the Midwest Glacial Lakes Partnership with USFWS as the administrator. We are beginning to think that this grant will never get funded. Can you take another look at this and see if it can get moving forward?

Kindest Regards,

Rex Vaughn
Chairman, Cedar Lake Improvement Board
PO Box 53
Greenbush, MI 48738
Mobile: 810-516-6686
Email: mailto:rvaughn@tir.com

From: Rex Vaughn <rvaughn@tir.com>
Date: Monday, April 27, 2026 at 4:35 PM
To: "Gwillim, Colin" <Colin.Gwillim@mail.house.gov>
Cc: "Burns, Amelia" <Amelia.Burns@mail.house.gov>, michelle kanipes <mkanipes@yahoo.com>
Subject: Re: Assistance with Approved USFWS Grant Stuck in Bureaucratic Purgatory

Thanks, Colin.

Kindest Regards,

Rex Vaughn
Chairman, Cedar Lake Improvement Board
PO Box 53
Greenbush, MI 48738
Mobile: 810-516-6686
Email: mailto:rvaughn@tir.com

From: "Gwillim, Colin" <Colin.Gwillim@mail.house.gov>
Date: Monday, April 27, 2026 at 4:18 PM
To: Rex Vaughn <rvaughn@tir.com>
Cc: "Burns, Amelia" <Amelia.Burns@mail.house.gov>, michelle kanipes <mkanipes@yahoo.com>
Subject: RE: Assistance with Approved USFWS Grant Stuck in Bureaucratic Purgatory

Good afternoon, Mr. Vaughn,

Thanks for following up here. When I initially reached out to DOI, they confirmed receipt of my inquiry and said they'd take a look. I haven't received a substantive update yet, but I'll follow up with them again now and will keep you posted as soon as I hear back.

Best,

Colin Gwillim
Legislative Assistant
Representative Jack Bergman (MI-01)

From: Rex Vaughn <rvaughn@tir.com>
Sent: Monday, April 27, 2026 4:11 PM
To: Gwillim, Colin <Colin.Gwillim@mail.house.gov>
Cc: Burns, Amelia <Amelia.Burns@mail.house.gov>; michelle kanipes <mkanipes@yahoo.com>
Subject: Re: Assistance with Approved USFWS Grant Stuck in Bureaucratic Purgatory

Colin:

I'm following up to see if you've heard anything back from DOI/USFWS on our grant. Good or bad, please let us know.

Kindest Regards,

Rex Vaughn
Chairman, Cedar Lake Improvement Board
PO Box 53
Greenbush, MI 48738
Mobile: 810-516-6686
Email: mailto:rvaughn@tir.com

KIESER & ASSOCIATES
ENVIRONMENTAL SCIENCE & ENGINEERING

TECHNICAL MEMORANDUM

To:	Rex Vaughn, Chair Cedar Lake Improvement Board	**Date:**	June 15, 2026 *July 7, 2026 UPDATE*
From:	Mark S. Kieser Senior Scientist, K&A	**cc:**	Natalie Crum, K&A

RE: **UPDATED Summary of June 3, 2026 Water Quality Sampling of Shallow Groundwater at the CLIB Property and Surface Water in Jones Ditch for *E. coli*, Total Coliform Bacteria and Soluble Reactive Phosphorus**

Overview

A June 3, 2026 water quality survey was conducted by Kieser & Associates, Inc. (K&A) of shallow groundwater at the CLIB property north of Jones Ditch, as well as surface water in Jones Ditch. These efforts were conducted at the behest of the CLIB as a follow-up to 2025 monitoring that identified possible local sources of elevated phosphorus and bacteria in Jones Ditch, as well as shoreline areas adjacent to the confluence of the ditch and lake. A June 15, 2026 K&A Technical Memorandum presented background information and bacterial sampling results; this UPDATE includes laboratory data for soluble reactive phosphorus (SRP) samples not otherwise available at the time of the June 15th reporting.

Sampling Conditions on June 3, 2026

A previous November 24, 2025 attempt by K&A to retrieve a shallow groundwater sample at the CLIB property directly adjacent to, and north of Jones Ditch was unsuccessful due to non-water bearing lithology encountered in the wetland immediately downgradient of the historic septic system drain field. The June 3, 2026 sampling was conducted further to the west of the 2025 attempted groundwater sampling location in the former yard area of the original cabin on the CLIB property. Two manually installed, shallow groundwater monitoring wells encountered groundwater approximately 6 feet below ground surface at locations approximating downgradient conditions of the former drain field. One-inch diameter, stainless steel groundwater monitoring well materials were used to retrieve groundwater samples via low-flow pumping. Each well was purged for approximately 20 minutes before sampling, recovering between 1.5-3.0 gallons of groundwater before samples were retained for bacterial and soluble reactive phosphorus (SRP) samples. This methodology is consistent with groundwater monitoring at the Cedar Lake shoreline conducted by K&A in November 2025 (as reported on November 18, 2026).

Figure 1 identifies the two locations on the CLIB property where groundwater sampling was completed. In addition to groundwater sampling, three surface water samples were taken from Jones Ditch; one just to the west of the West Cedar Lake Road culvert crossing, a second at the private walking bridge moving east from the roadway between the CLIB property and the property to the south of Jones Ditch, and a third at a location further down Jones Ditch to the east, upstream of the confluence with Cedar Lake. Bacterial analyses were conducted by the local Enviro Lab Services in Oscoda, MI for *E. coli* and Total Coliform bacteria. Samples were delivered for processing at the lab within six hours of collection. Samples for SRP analysis were delivered frozen to the Great Lakes Environmental Center (GLEC) in Traverse City, MI following field filtering of raw water samples using 0.45µ Millepore filters within six hours of collection.

Figure 1. Groundwater and Water Quality Sampling Locations on June 3, 2026.

Findings

Results of groundwater sampling at the Jones Ditch CLIB property and Jones Ditch surface water samples are shown in Table 1. Attachment A includes a copy of lab results for bacterial analyses; Attachment B includes GLEC SRP lab reports.

CLIB property groundwater sampling results were non-detect for both E. *coli* and Total Coliform bacteria suggesting that there are no indications of residual bacterial discharge impacts from the former septic system. SRP levels suggest residual phosphorus in the

groundwater at both groundwater sampling locations. These SRP levels were similar to groundwater concentrations noted downgradient of an abandoned drain field at one of the properties sampled at the shoreline by K&A in November 2025 (i.e., Temporary GW-5 at 30.4 µg/L). That shoreline system was abandoned approximately three years ago with new home construction and a modern septic system replacement installed between West Cedar Lake Road and the new residence (whereas the old system was adjacent to the shoreline).

For Jones Ditch, both *E. coli* and Total Coliform results showed elevated levels of bacteria. The lowest concentrations were seen at West Cedar Lake Road ("Jones Rd"), the highest concentrations were observed at the pedestrian bridge ("Jones Bridge"), while intermediate levels were noted above the confluence with Cedar Lake ("Jones Lake") (refer to Figure 1). These are substantially elevated over Jones Ditch bacterial levels measured in August of 2025.

Corresponding SRP levels in Table 1 for these Jones Ditch locations were 3.9, 1.9, and 5.1 µg/L, respectively. These SRP concentrations are very similar to or less than previously observed concentrations from the 2025 surface water sampling. Neither the August 2025 or June 2026 sampling of Jones Ditch shows readily discernable impacts of septic system drain field SRP contributions.

Table 1. Groundwater and Water Quality Sampling Bacterial Results from June 3, 2026.

Sample Description	Type	Sampling Date	Time	Conductivity (µs/cm)	*E.* coli (CFU/100mL)	Total Coliforms (CFU/100mL)	SRP (µg/L)
CedarGW1	GW	6/3/2026	9:40	424.6	ND	ND	30.0
CedarGW2	GW	6/3/2026	10:15	433.6	ND	ND	33.0
Jones Lake	SW	6/3/2026	10:45	234.3	330	1,280	5.1
Jones Bridge	SW	6/3/2026	11:00	376.1	1,112	3,620	1.9
Jones Rd	SW	6/3/2026	11:20	434.4	120	1,190	3.9

It is preliminarily suspected that a possible source for the higher bacteria concentrations noted halfway down the ditch may be related to two active septic systems to the immediate south of the ditch. Two tile drain fields on the property to the south are located closer to West Cedar Lake Road and within approximately 100 feet from Jones Ditch as indicated by county health department installation permit records. November 2025 sampling along the Cedar Lake shoreline at this residence revealed no substantial indications of a drain field discharge towards the lakeshore.

A preliminary K&A "flow net" analysis of groundwater suggests groundwater flows towards the deeply incised Jones Ditch channel in the proximity of local drain fields. This condition could account for bacteria levels in the mid to lower Jones Ditch sections. Elevated bacterial levels at West Cedar Lake Road suggest that there is also an upstream source of *E. coli* and Total Coliform bacteria at this location.

Recommendations

A second round of surface water monitoring along the Jones Ditch water course should be conducted in the summer of 2026 with the collection of additional water quality samples for DNA analysis by GLEC. These DNA samples could help identify if these are human and/or animal sources of observed bacterial levels in the Ditch.[1] Additional Ditch samples for *E. coli* and Total Coliform Bacteria could be sampled in triplicate at each to the three June 2026 locations in accordance with EGLE suggestions to discern geometric means at each station. Such means for *E. coli* are used by the Agency to determine potential surface water quality criteria violations. How EGLE will interpret third-party collected data in these regards is uncertain at this time, though clarification of such has been requested. There was no response from EGLE in these regards by the time of this reporting.

An expanded flow net analysis of groundwater towards Jones Ditch will further reveal the potential for contributions from adjacent properties. Additional sampling of groundwater might be warranted in this area on both south and north sides of Jones Ditch (but on CLIB property) to discern possible active or old septic system discharges into the ditch for bacteria and SRP. Bacterial DNA sourcing will be important given high bacterial levels in the ditch along with background water quality considerations for the forthcoming ditch restoration through a Midwest Glacial Lakes Partnership grant to the CLIB.

[1] Previous shoreline groundwater samples collected by K&A in November of 2025 had insufficient *E. coli* levels to produce DNA levels necessary for source analysis. Jones Ditch levels from June 2026 would otherwise likely have been sufficient. Such testing requires immediate and time-sensitive sample processing that could not be accommodated in the June 2026 sampling timeframe.

ATTACHMENT A

Surface and Groundwater Monitoring Results for June 3, 2026 Samples of *E. coli* and Total Coliform Bacteria as Analyzed by Enviro Lab Services of Oscoda, MI

Enviro Lab Services

Analytical Laboratory Report

USEPA Lab ID: MI9885 Michigan EGLE Lab ID: 9115

Order ID:	26060301		**Client:**	Kieser & Associates, LLC
Sample ID:	26060301-1		**Project Name:**	E. coli/ Total Coliform Enumeration
Client Sample ID:	Jones Lake		**Address:**	Jones Ditch, Cedar Lake Oscoda, MI
Sample Matrix:	Surface Water		**Contact:**	Mark Kieser
Sample Date/Time:	6/3/2026	10:45	**Reporting To:**	data@kieser-associates.com
Received Date/Time:	6/3/2026	12:18		rvaughn@tir.com
Sample Collected By:	Natalie Crum		**Phone #:**	(269) 344-7117
Analyst:	Jonas Berenkowski		**Report Date:**	6/5/2026

TEST: E. coli / Total Coliforms Ennumeration **Analysis Date/Time:** 6/3/2026 4:35:00 PM **Read Date:** 6/4/2026 4:41:00 PM

Analyte	CAS #	Method	Result	Units	Reporting Limit	MCL[A]	MCLG[A]
Total Coliforms	N/A	mColiBlue-24	**1280**	CFU/100mL	1	0	0
E. coli	N/A	mColiBlue-24	**330**	CFU/100mL	1	0	0

Definitions:
ND = Not detected
POS = Analyte detected in sample above reporting limit
MCL = Maximum contaminant level
MCLG = Maximum contaminant level goal
Comments:

FINAL APPROVAL

APPROVED BY:		Lab Director	Date:	6/5/2026

The results herein relate only to the items/batch tested, calibrated, or sampled in this report. "ND" indicates that the analyte was not detected nor present in the sample tested at levels at or above the limit of quantitation. Results only pertain to sample as recived or sampled by Enviro Lab Services Inc.

Enviro Lab Services, Inc.
4150 Arrow Street, Oscoda, MI 48750
Phone: (620) 417-3608
www.envirolabservice.com

USEPA Lab ID: MI9885 Michigan EGLE Lab ID: 9115

Order ID:	26060301	**Client:**	Kieser & Associates, LLC
Sample ID:	26060301-2	**Project Name:**	E. coli/ Total Coliform Enumeration
Client Sample ID:	Jones Bridge	**Address:**	Jones Ditch, Cedar Lake Oscoda, MI
Sample Matrix:	Surface Water	**Contact:**	Mark Kieser
Sample Date/Time:	6/3/2026 11:08	**Reporting To:**	data@kieser-associates.com
Received Date/Time:	6/3/2026 12:18		rvaughn@tir.com
Sample Collected By:	Natalie Crum	**Phone #:**	(269) 344-7117
Analyst:	Jonas Berenkowski	**Report Date:**	6/5/2026

TEST: E. coli / Total Coliforms Ennumeration **Analysis Date/Time:** 6/3/2026 4:35:00 PM **Read Date:** 6/4/2026 4:41:00 PM

Analyte	CAS #	Method	Result	Units	Reporting Limit	MCL[A]	MCLG[A]
Total Coliforms	N/A	mColiBlue-24	**3620**	CFU/100mL	1	0	0
E. coli	N/A	mColiBlue-24	**1112**	CFU/100mL	1	0	0

Definitions:
ND = Not detected
POS = Analyte detected in sample above reporting limit
MCL = Maximum contaminant level
MCLG = Maximum contaminant level goal
Comments:

FINAL APPROVAL

APPROVED BY:		Lab Director	Date:	6/5/2026

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Enviro Lab Services, Inc.
4150 Arrow Street, Oscoda, MI 48750
Phone: (620) 417-3608
www.envirolabservice.com

USEPA Lab ID: MI9885 Michigan EGLE Lab ID: 9115

Order ID:	26060301		**Client:**	Kieser & Associates, LLC
Sample ID:	26060301-3		**Project Name:**	E. coli/ Total Coliform Enumeration
Client Sample ID:	Jones Rd		**Address:**	Jones Ditch, Cedar Lake Oscoda, MI
Sample Matrix:	Surface Water		**Contact:**	Mark Kieser
Sample Date/Time:	6/3/2026	11:20	**Reporting To:**	data@kieser-associates.com
Received Date/Time:	6/3/2026	12:18		rvaughn@tir.com
Sample Collected By:	Natalie Crum		**Phone #:**	(269) 344-7117
Analyst:	Jonas Berenkowski		**Report Date:**	6/5/2026

TEST: E. coli / Total Coliforms Ennumeration **Analysis Date/Time:** 6/3/2026 4:35:00 PM **Read Date:** 6/4/2026 4:41:00 PM

Analyte	CAS #	Method	Result	Units	Reporting Limit	MCL[A]	MCLG[A]
Total Coliforms	N/A	mColiBlue-24	**1190**	CFU/100mL	1	0	0
E. coli	N/A	mColiBlue-24	**120**	CFU/100mL	1	0	0

Definitions:
ND = Not detected
POS = Analyte detected in sample above reporting limit
MCL = Maximum contaminant level
MCLG = Maximum contaminant level goal
Comments:

FINAL APPROVAL

APPROVED BY:		Lab Director	Date:	6/5/2026

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USEPA Lab ID: MI9885 Michigan EGLE Lab ID: 9115

Order ID:	26060301		**Client:**	Kieser & Associates, LLC
Sample ID:	26060301-4		**Project Name:**	E. coli/ Total Coliform Enumeration
Client Sample ID:	Cedar GW1		**Address:**	Jones Ditch, Cedar Lake Oscoda, MI
Sample Matrix:	Ground Water		**Contact:**	Mark Kieser
Sample Date/Time:	6/3/2026	9:40	**Reporting To:**	data@kieser-associates.com
Received Date/Time:	6/3/2026	12:18		rvaughn@tir.com
Sample Collected By:	Natalie Crum		**Phone #:**	(269) 344-7117
Analyst:	Jonas Berenkowski		**Report Date:**	6/5/2026

TEST: E. coli / Total Coliforms Ennumeration **Analysis Date/Time:** 6/3/2026 4:35:00 PM **Read Date:** 6/4/2026 4:41:00 PM

Analyte	CAS #	Method	Result	Units	Reporting Limit	MCL[A]	MCLG[A]
Total Coliforms	N/A	mColiBlue-24	**ND**	CFU/100mL	1	0	0
E. coli	N/A	mColiBlue-24	**ND**	CFU/100mL	1	0	0

Definitions:
ND = Not detected
POS = Analyte detected in sample above reporting limit
MCL = Maximum contaminant level
MCLG = Maximum contaminant level goal
Comments:

FINAL APPROVAL

APPROVED BY:		Lab Director	Date:	6/5/2026

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USEPA Lab ID: MI9885 Michigan EGLE Lab ID: 9115

Order ID:	26060301		**Client:**	Kieser & Associates, LLC
Sample ID:	26060301-5		**Project Name:**	E. coli/ Total Coliform Enumeration
Client Sample ID:	Cedar GW2		**Address:**	Jones Ditch, Cedar Lake Oscoda, MI
Sample Matrix:	Ground Water		**Contact:**	Mark Kieser
Sample Date/Time:	6/3/2026	10:15	**Reporting To:**	data@kieser-associates.com
Received Date/Time:	6/3/2026	12:18		rvaughn@tir.com
Sample Collected By:	Natalie Crum		**Phone #:**	(269) 344-7117
Analyst:	Jonas Berenkowski		**Report Date:**	6/5/2026

TEST: E. coli / Total Coliforms Ennumeration **Analysis Date/Time:** 6/3/2026 4:35:00 PM **Read Date:** 6/4/2026 4:41:00 PM

Analyte	CAS #	Method	Result	Units	Reporting Limit	MCL[A]	MCLG[A]
Total Coliforms	N/A	mColiBlue-24	**ND**	CFU/100mL	1	0	0
E. coli	N/A	mColiBlue-24	**ND**	CFU/100mL	1	0	0

Definitions:
ND = Not detected
POS = Analyte detected in sample above reporting limit
MCL = Maximum contaminant level
MCLG = Maximum contaminant level goal
Comments:

FINAL APPROVAL

APPROVED BY:		Lab Director	Date:	6/5/2026

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ATTACHMENT B

Surface and Groundwater Monitoring Results for June 3, 2026 Samples of Soluble Reactive Phosphorus as Analyzed by the Great Lakes Environmental Center of Traverse City, MI

Great Lakes Environmental Center

Project Number: 2592-B10

June 25, 2026

Kieser & Associates-Cedar Lake
536 E. Michigan Ave., Suite 300
Kalamazoo, MI 49007

Attention: Natalie Crum

Project Description: Water Quality Sampling

Dear Client,

Enclosed is a copy of your laboratory report relating to samples, as they were received. All tests were performed within the maximum holding times and have met or exceeded QC criteria. Test results are in compliance with The NELAC Institute Standards. Visit our web site for a full list of tests for which GLEC (Lab 2059) is accredited through the New Hampshire Environmental Laboratory Accreditation Program (NH ELAP).

Please don't hesitate to call if you have questions or require further information.

Sincerely,

Michelle A. Moore
Laboratory Coordinator and Research Scientist/Nutrient Chemistry

Great Lakes Environmental Center, Inc.
739 Hastings St., Traverse City, MI 49686
Phone: 231-941-2230; Fax: 231-941-2240; www.glec.com

Great Lakes Environmental Center

739 Hastings St., Traverse City MI 49686 - (231) 941-2230 - FAX: (231) 941-2240

Client ID: 2592-B10

Kieser-Cedar Lake

REPORT OF ANALYSIS

Soluble Reactive Phosphorus

Lab ID	Sample Description	Sample Date	Result	Units	Rep Limit	MDL	Qualifier	Analysis Date	Comments	Initials
3K060300062	Jones Lake	6/3/2026	0.0051	mg/L	0.001	0.00042		6/24/2026		BSC
3K060300063	Jones Bridge	6/3/2026	0.0019	mg/L	0.001	0.00042		6/24/2026		BSC
3K060300064	Jones Road	6/3/2026	0.0039	mg/L	0.001	0.00042		6/24/2026		BSC
3K060300065	Cedar GW1	6/3/2026	0.030	mg/L	0.004	0.00168		6/25/2026		BSC
3K060300066	Cedar GW2	6/3/2026	0.033	mg/L	0.004	0.00168		6/25/2026		BSC

LabQualifiers:

U - Analyte not detected.

J - Result between MDL and RL should be considered estimated.

Thursday, June 25, 2026

Method: SM 4500-P F

GLEC
Great Lakes Environmental Center

GREAT LAKES ENVIRONMENTAL CENTER, INC.

CHAIN OF CUSTODY RECORD

Traverse City, MI - Laboratory
739 Hastings Street
Traverse City, MI 49686

www.glec.com
Phone (231)941-2230
Fax (231)941-2240

Section I.

Submitting Company: Kieser & Associates, LLC

Report Results To: Natalie Crum

Address: 536 E. Michigan Ave, Kalamazoo, MI 49007

Phone: (269)-344-7117 E-mail: data@kieser-associates.com

Section II.

Project Name: Cedar Lake

Project Number:

P.O.#:

Sampled by: (initials) ☐ GLEC _____ ☒ Client AIC + HD

Section III. **Sample Information at Collection**

#	GLEC No.	Sample Identification	Sample Information: Date	Time	Matrix	Grab or Composite	Preservative	Filtered Y or N	Sample Containers: Type	Size	No.	SRP								pH of Sample Upon Receipt
1		Jones Lake	6/3/26	10:45am	SW	grab	None	Y (SRP)	Plastic	125mL	1	X								
2		Jones Bridge	6/3/26	11:00am	SW	grab		Y (SRP)	Plastic	125mL	1	X								
3		Jones Rd	6/3/26	11:20am	SW	grab		Y (SRP)	Plastic	125mL	1	X								
4		Cedar GW1	6/3/26	9:40 am	GW	grab		Y (SRP)	plastic	125mL	1	X								
5		Cedar GW2	6/3/26	10:15am	GW	grab	↓	Y (SRP)	Plastic	125mL	1	X								
6																				
7																				
8																				

Section IV. Requested Analysis

Client Notes:

RELEASED BY / ORGANIZATION	DATE	TIME	RECEIVED BY / ORGANIZATION	DATE	TIME
Print Name & Organization: Hope Dzok Kieser & Associates, LLC / Mark Kieser	6-22-26	9:00	Print Name & Organization		
Signature: Hope Dzok / Mark K.	~~6/22/26~~	~~11:00~~ am	Signature: Alice	6/22/26	9:00
Print Name & Organization			Print Name & Organization		
Signature			Signature		

FOR LAB USE ONLY

Temperature of Samples: 5.8 °C Initials: CTG Bottle ID #, if applicable 37646 ☒ Received on Wet Ice

Notes/Anomalies/Discrepancies:

GLEC may subcontract out analyses that we do not perform.

MATRIX CODES: S = SEDIMENT; SW = SURFACE WATER; E = EFFLUENT; GW = GROUNDWATER; SL = SLUDGE; AO = AQUATIC ORGANISM

Cedar Lake 2025 Hydrology Report: Executive Summary (7-6-26)

The Cedar Lake 2025 Hydrology Report presents technical results of the Cedar Lake water level monitoring program, ongoing since 2004. The program helps determine critical management needs and influences toward supporting year-round desired in-lake water levels. Maintaining desirable summer-month water levels in Cedar Lake is a function of rainfall and targeted management strategies.

Management strategies to date focus on improving water retention and natural hydrological functions in the northwest cedar swamp. Efforts include railroad culvert cleanouts since 2014, wetland enhancement berm in 2017, Sherman Creek grade structures built in 2019, as well as the Lake Board's purchase of several critical wetland parcels encompassing large portions of Sherman Creek and Jones Ditch for protection and enhancement. The water level monitoring program continues to be vital for assessing, understanding, and cost-effectively pursuing appropriate phased water level augmentation options for Cedar Lake.

2025 Water Level Monitoring Program Results

Precipitation, spring snow melt, groundwater losses, and evaporation remain the dominant factors that influence the Cedar Lake elevation throughout the summer. Summer precipitation in 2025 was above the 11-inch threshold for avoiding a >1ft drop in lake level during the recreation period (Jun-Sep). Lake outflows occurred from late-March to early-September, providing ideal lake levels during the summer recreation season. The average and maximum lake level during the 2025 recreation period (Jun-Sep) were the highest recorded since the installation of the new lake outlet management structure in fall 2020.

Lake level data continue to show the expected correlation between summer lake levels and precipitation. The 2025 data also how the new lake outlet structure responds to above-average spring and summer rainfall compared to the old structure prior to 2020. This is reflected in maximum lake levels maintained at about 0.5-ft on average above the legal level during the outflow period.

Intentional watershed enhancements in the Sherman Creek and Jones Ditch wetlands have continued to show value in terms of greater contributions to lake elevations throughout the summer. An analysis of trends shows that lake elevations prior to the construction of the wetland berm (in 2017) were more sensitive to spring and summer precipitation fluctuations, suggesting that watershed improvements have acted as a stabilizing force for summer lake elevations. The wetland berm has limited watershed losses via the King's Corner culvert, as well as redirected groundwater flow towards the lake. The 2017 Jones Ditch culvert replacement has increased wetland flows to the lake. Planning and coordination by the CLIB and K&A will continue to rely on monitored trends within the watershed to implement engineering designs as needed. As such, the continuation of the hydrology monitoring program is recommended in 2026, as detailed below.

Recommendations for the 2026 Monitoring Program

1. Identify hydraulic improvements in Jones Ditch including maintenance of railroad culverts for watershed flows, and identify improvements to contributing wetlands for ecological enhancements, fish passage, and flow management, in tandem with the pending MGLP award to CLIB.
2. Redeployment of groundwater piezometers in Sherman Creek to better assess flows for fish passage movement in the Creek, including potential new piezometers up- and down-stream of the railroad culverts, in conjunction with planned improvements for Jones Ditch and the pending MGLP grant.
3. Consider additional groundwater level evaluations for the southeastern portions of the Cedar Lake shoreline where County Drain Commission drainage improvements are being contemplated. Preliminary evaluation of possible implementation efforts would provide a backdrop for future approaches to protect and/or improve already impactful drain conditions on Cedar Lake levels.

KIESER & ASSOCIATES
ENVIRONMENTAL SCIENCE & ENGINEERING

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KIESER & ASSOCIATES
ENVIRONMENTAL SCIENCE & ENGINEERING

TECHNICAL MEMORANDUM

To: Rex Vaughn, Chairman
Cedar Lake Improvement Board

Date: June 18, 2026

From: Mark Kieser, Senior Scientist
John Jacobson, PE, Senior Engineer
Josh Kieser, Field Manager
Kieser & Associates, LLC

cc: Files

RE: **Findings for 2025 Cedar Lake Groundwater/Surface Water Level Monitoring**

This memorandum presents 2025 results compiled by Kieser & Associates, LLC (K&A) related to the ongoing water level monitoring program at Cedar Lake, Alcona and Iosco Counties, MI. K&A staff were authorized to continue management and oversight of ongoing data collection efforts in 2025 on behalf of the Cedar Lake Improvement Board (CLIB). The purpose of this long-term monitoring program is to best understand critical needs and relevant influences on water levels in Cedar Lake. Findings are used to identify new opportunities for enhanced lake level management and monitor benefits of previous improvement projects towards maintaining recreationally suitable lake levels.

Desirable summer month water levels in Cedar Lake are a function of both rainfall and management strategies designed to support water level maintenance in dry summer months. These management strategies, as defined in the approved Cedar Lake Watershed Management Plan (WMP), relate to ongoing efforts to bolster water retention in the northwest cedar swamp throughout the year. Data collection started in 2004. Based on robust data collection, the CLIB has implemented and expanded successful water level control efforts in the Cedar Lake watershed since 2017 as summarized in this report. They have also avoided alternatives with high costs and uncertain benefits. Implemented efforts have included:

1) A wetland berm to the south of Sherman Creek paralleling this water course was constructed in 2017 to retain water in immediately adjacent areas of the northwest cedar swamp on CLIB property. This reduced out-of-watershed losses to the south through the King's Corner Culvert.

2) Sherman Creek instream grade structure controls, designed and permitted in 2018 and constructed in Fall 2019, serve to further retain water levels in the cedar swamp. This promotes extended surface water inflows and enhanced groundwater volume inputs to Cedar Lake. These bolster lake level management during open-water recreational periods and enhance northern pike spawning wetland habitat under spring-time flow conditions.

   K&A and CLIB representatives continue to monitor and observe flow conditions around these structures to ensure they are operating as designed and to verify benefits under a range of spring snowpack and summer-time precipitation conditions.

3) The Cedar Lake outlet structure, designed by the Drain Commission to maintain the lake at the legal lake level of 608.20 feet, was reconstructed in September of 2020. Concerns regarding a suspected loss of water from the outlet structure were voiced by Cedar Lake stakeholders, however, periodically collected streamflow data by K&A suggest that low-flow groundwater is likely the culprit of the continual trickle visually exiting through the lake outlet structure. Future monitoring efforts will continue to closely inspect the outlet structure and will guide any action needed to correct potential losses of water through the structure.

This technical memorandum presents findings of the 2025 water level conditions as observed in Cedar Lake and its watershed, with discussions of implemented, ongoing, and potential future water level management strategies. Readers can find all tables and figures referenced in the body of this memorandum published at the end of the memo narrative.

Program Background

A volunteer water level monitoring program was initially developed at select groundwater and surface water monitoring sites around Cedar Lake in 2004. Since then, water level monitoring efforts have expanded to include additional critical areas using automated water level logger equipment in lieu of intermittent volunteer measurements. The 2025 water level monitoring totaled 32 level loggers in operation around the Cedar Lake from March to November. The location and addresses of the sites of the level loggers are provided on the map in Figure 1.

The combination of surface water stations, shallow piezometers, and deep piezometers allow and facilitate observations of the interactions between surface water, groundwater, and Cedar Lake water levels. Monitoring continued at Sherman Creek and Jones Ditch as well as within their contributing wetlands in 2025, to calculate estimated surface water flows into Cedar Lake.

Monitoring also continued at the wetland berm on CLIB property, constructed as part of the ongoing efforts to retain water levels in the cedar swamp. The berm's stone-laden spillway design allows overflows above an elevation of 611.50 feet so as not to permanently alter historic high-water levels in the swamp or alter any historic flooding or outflow southward out of this area and out of the Cedar Lake watershed. This station provides critical information regarding water retention improvements in the northwest cedar swamp including those related to the Sherman Creek instream grade structures and stream flows into Cedar Lake.

Monitoring in 2025 also included instream level loggers deployed at newer sites in Jones Ditch since 2022 within the contributing wetland complex. The Jones Ditch data loggers will help further define the Jones Ditch wetland contribution of surface and groundwater to the lake following several structural changes within the last decade monitoring. In 2018 the Alcona County Road Commission replaced the creek culvert during reconstruction on West Cedar Lake Road affecting flow estimates through Jones Ditch during the 2018-2020 reporting period. K&A modified the flow equation in 2021 to more accurately quantify flow data and continue to refine wetland and streamflow relationships using additional logger locations data since 2022. These recent data suggest that Jones Ditch, under certain conditions, may contribute more surface water to Cedar Lake than Sherman Creek; a discovery with implications for potential future engineering designs and management efforts in and along the northwest corner of Cedar Lake.

The estimated lifespan of the level loggers is ten years. Replacement of aged-out level loggers around Cedar Lake began in 2018, with all thirty-two level loggers since updated to ensure a high degree of confidence in the dataset. This includes three loggers replaced in 2017, eleven in 2019, eight in 2020, seven in 2021, and three new loggers deployed in 2022 at Jones Ditch and the Timberlakes property on the northwest and northeast sides, respectively of Cedar Lake. K&A rigorously evaluates logger data each year to ensure accuracy in the dataset. Table 1 illustrates the current age and predicted lifespan of the Cedar Lake level logger regime. Three loggers are predicted to age out in 2027 and should be considered for replacement at that time.

2025 Precipitation and Water Level Data

Precipitation Analysis:

Historic summer precipitation totals for the Cedar Lake area presented in Figure 2, show 2025 summer precipitation information from the Cedar Lake volunteer rain gauge. Data from this monitoring station, updated with a new rain gauge in 2020, were analyzed for quality against other regional weather stations and found to be the most representative localized data available. From 2016 to 2020, reported rainfall data present triangulated data from the Harrisville 2 NNE (USC00203628) and Oscoda Wurtsmith Airport (Station #14808) weather stations, and the Cedar Lake rain gauge. Available data from 1998 to 2025 (minus 2006 with no local functioning rain gauges) reflect a 28-year summer average (June-September) of 12.40 inches of rainfall.

The 2011 Cedar Lake Augmentation Feasibility Study revealed that 2.75 inches of precipitation during each summer month is needed to avoid a lake level drop of >3-inches per month (June-September). As such, during any summer month that does not exceed the 2.75 inches of precipitation threshold, Cedar Lake can expect a drop in lake level of 3 inches or more. Since 2011, this summer precipitation threshold of 11 inches (i.e., 2.75 inches multiplied by 4 months) has guided lake-wide assessments of summer conditions and their effect on desirable lake levels. Ongoing management efforts aim to lower this threshold or augment the water budget of the Cedar Lake watershed to limit the impact of low summer precipitation on lake level.

Figure 2 graphs the 28-year summer precipitation dataset against the critical precipitation threshold. In 2025, Cedar Lake precipitation exceeded the critical threshold of 2.75 inches (to avoid lake-elevation drop) in June (4.84 inches), July (5.05 inches), and August (3.63 inches). Each of these months experienced above-average rainfall relative to past years. Monthly total precipitation in September (1.37 inches) fell below the threshold and the respective 28-year average for that month. The resulting summer (June – September) precipitation total was 14.89 inches, an above-average value indicative of a relatively wet summer season.

Cedar Lake Water Elevation:

Figure 3 plots the 2025 Cedar Lake outlet water elevation from March to November, with daily precipitation data recorded from the Cedar Lake volunteer rain gauge to visualize the correlation of precipitation and lake elevation. Flow over the Cedar Lake outlet weir occurs when the lake elevation exceeds 608.2 ft. The new outlet structure controls the lake level elevation closer to the legal level throughout the year compared to the historic outlet structure. Elevations above 607.2 ft (within one foot below the legal lake limit) generally provide recreationally acceptable conditions for summer month recreation.

Lake levels in March were just below the lake outlet elevation until heavy rain events in late-March and early-April induced lake outlet flows with elevations well-above the legal lake level. Lake outlet flows continued through the summer months, producing a record amount of outflow volume (approximately 1,089 Mgal) from April until early September. No lake outlet flows occurred after September. Lake elevations remained above the desired lake level threshold (607.2 ft) throughout the monitoring period until early November.

Cedar Lake mid to late-summer water levels followed the predicted pattern for a year with above-average summer rainfall. Periodic rises in summer lake elevation responded directly to rainfall and corresponding inflows from the Sherman and Jones wetlands throughout the summer months. Both Sherman Creek and Jones Ditch flowed continuously until the end of August, underscoring the importance of water retention efforts implemented in the watershed.

Since construction of the Cedar Lake outlet structure in fall of 2020, Cedar Lake stakeholders have voiced concerns of an apparent constant "leak" of water coming from the outlet structure even when the lake elevation sits below the outlet weir of 608.20 ft. Site visits since 2021 confirm a very low flow of groundwater exiting through the north side of the outlet structure. K&A field staff have periodically collected measurements of the velocity and channel area of the outlet structure, as well as downstream channel to understand the discharge of water flowing through the outlet structure during non-wet weather/weir overflow conditions. Based on low flow rates from the outlet structure box culvert, impacts on lake level associated with groundwater leakage into the box culvert can reasonably be described as negligible.

Figure 4 presents Cedar Lake outlet discharge data and calculated equivalent fluctuations in Cedar Lake water elevations. Evaporation and discharge (leakage) to groundwater across the entirety of the lake's 1,050-acre surface area remain the leading causes of water losses from Cedar Lake during critical summer months. The average lake outflow in 2025 of 5.1 million gallons per day (Mgpd) was several orders of magnitude higher than the average daily outflow over the past four years (since March of 2021) of approximately 0.07 Mgpd or 0.0002 ft/day in equivalent lake level. This reflects a year with plentiful spring snowmelt along with spring and summer rainfall amounts.

Figure 4 also illustrates the relationship between summer precipitation and water elevation fluctuations with respect to the critical summer precipitation threshold, water level goals designed in the Cedar Lake WMP, and the legal lake level. The average summer-month water elevation of Cedar Lake for June – September 2025 was 608.12 ft, or just 0.08 ft below the legal lake level. The 2025 season saw the highest average water level since 2019, the highest maximum water level since 2015, and the highest average and maximum levels since construction of the new lake outlet spillway since 2020. Comparing the average summer-month lake level with the average summer-month rainfall shows some interesting trends, discussed in the next paragraph.

Following wetland flow enhancements in Sherman Creek (2017-2020), average lake elevations increased despite a decline in average rainfall as compared to a decade earlier (2007-2010), showing the importance of such water retention efforts to improving lake levels. The important influence of winter snowfall and spring snowmelt amounts must also be considered. For

example, summer-month lake level in 2021 was much lower than average due to far-below average snowmelt in early-spring 2021, causing severely reduced lake levels despite higher-than-average summer rainfall.

The new lake outlet structure controls the winter and spring lake levels at an elevation closer to the legal lake elevation. Nonetheless, higher than average rainfall during the 2025 monitoring period produced higher than average early-spring flows from the contributing wetlands of Sherman and Jones Ditches. These are reflected in the above-average summer month lake levels and relatively high lake outflow volumes.

Groundwater Levels and Gradients

Figures 5-18 present the 2025 groundwater elevation data from the groundwater monitoring Sites 1-12, as well as TL-2 and TL-Road, referenced with the estimated Cedar Lake water levels. Level loggers on the east side of Cedar Lake typically show groundwater elevations below the lake level, while those on the lake's west side show groundwater elevations above the lake level, showing in fine detail the surface and groundwater gradient movements in the watershed.

East Side of Cedar Lake

On the east-central section of Cedar Lake, at Sites 1 and 4 (Figures 5 and 8), level loggers continued to record groundwater elevations below Cedar Lake level with no exceptions in 2025. With this gradient present throughout the summer, northeastward groundwater movement serves as a continual loss vector for Cedar Lake, well-documented since monitoring began.

Level loggers on the southeast section of Cedar Lake at Sites 8, 9, 10, and 11 (Figures 12 – 15), report even steeper groundwater gradients consistently moving groundwater away from Cedar Lake, towards the southeast. This exemplifies the surface grades away from the lake and the groundwater-losing condition intensified by a neighborhood subdrainage system designed to help keep house foundations and crawl spaces dry and residential septic systems functioning properly in the Lakewood Shores neighborhood.

K&A also installed three new loggers in 2023 near the Timberlakes development on the lake's northeastern-most section. "TL Lake" is a level loggers in a stilling tube along the seawall at the Timberlakes Clubhouse. "TL Lake 2" (Figure 17) and "TL Road" (Figure 18) are groundwater piezometers installed adjacent to the lake and at distance from the shoreline, respectively. The goal for groundwater monitoring at these latter two stations is to better understand northeasterly groundwater losses occurring near the Timberlakes residential development. Comparing these elevations and gradients to stations in the southeast allows for a comparison of the Timberlakes area to the Lakewood Shores residential district where subsurface drains already exist. Like the other eastern groundwater loggers (1, 4, and 8-10), TL Road showed a four to five foot drop in groundwater elevation compared to TL-Lake and TL-2, which were well above the lake outlet elevation throughout the year. This shows that a natural northeasterly groundwater gradient flow away from the lake and the nearshore already exists towards the Timberlakes district.

West Side of the Lake

On the southwest section of Cedar Lake, Site 3 (Figure 7) tracks the more-nuanced movement of shallow groundwater toward or away from Cedar Lake throughout the summer months. From

late-March to early-May, shallow groundwater at Site 3 moved mostly toward Cedar Lake. Conversely, from mid-May to November, shallow groundwater moved mostly away from Cedar Lake, except in response to occasional rain events which tilted gradients back toward the lake. The seasonal periods of groundwater gradient tilting towards Phelan Creek (Van Etten Lake) represent water loss from Cedar Lake during the dryest summer months. Since construction of the wetland berm (2017) and instream Sherman Creek grade structures (2019), groundwater gradients at Site 3 have periodically shown greater contributions to Cedar Lake than were observed historically.

Similarly, and prior to 2021, shallow groundwater at Site 6 (Figure 10) experienced intermittent gradient flow patterns under dry or wet conditions much like Site 3. Since 2021, groundwater has more-consistently moved towards Cedar Lake at this location, suggesting increased groundwater elevations resulting from the 2017 and 2020 Sherman wetland improvements. In 2025, shallow groundwater flowed strongly toward Cedar Lake from March until the driest period, September to November when gradients began tilting slightly away from the lake.

Site 12 (Figure 16), installed in 2018 approximately 1,750 ft south of Sherman Creek and 85 ft southeast from the intersection of West Cedar Lake Road and King's Corner Road, further illustrates effects on groundwater gradients from the Sherman wetland improvements. As in years past, the groundwater at Site 12 was consistently 1 to 2-feet above lake level during spring and the gradient remained flowing toward the lake all year, flattening out a bit by late-summer.

Site 7 (Figure 11), along the western lakeshore just north of Sherman Creek, also continues to reflect an increase in groundwater recharge in the spring months as compared to years prior to 2021, resulting from the wetland water-retention improvements. Like Site 12, groundwater at upgradient PZ-7s2 was consistently 1 to 2 feet above the near-lake PZ-7s groundwater as well as the lake level throughout the 2025 monitoring period. This year-long trend was not evident at this location prior to the 2017 wetland berm installation.

The cedar swamp complex northwest of Cedar Lake continues to contribute a critical supply of groundwater throughout the recreational season, from both the Sherman and Jones Ditch. Site 2 (Figure 6), on the northwest side of the lake nearest to Jones Ditch, shows groundwater levels above the lake elevation in both the shallow and deep wells with a natural gradient of shallow groundwater toward the lake throughout the monitoring period. Groundwater levels at Site 2 continue to consistently and closely mirror the surface water fluctuations at the Lake Outlet.

2025 Estimated Surface Flows

Water level loggers located in or near the Cedar Lake outlet, Sherman Creek, Jones Ditch, and the King's Corner culverts were used to monitor incoming and outgoing surface water discharges. Sherman Creek and Jones Ditch are critical vectors by which surface water flows from the northwest wetland complex into Cedar Lake. The King's Corner Road culvert historically diverted water from the southernmost portion of the wetland complex away from the Cedar Lake watershed to the south towards Phelan Creek and Van Etten Lake. The wetland enhancement berm constructed in 2017 serves to retain surface water in the Cedar Lake swamp and limit surface water losses through the King's Corner culvert. The new Cedar Lake outlet

structure constructed in September 2020 functions to maintain the legal lake level of 608.2 feet. If the lake elevation exceeds this limit, water spills over the outlet and eventually drains to Lake Huron.

Additional efforts regarding water retention improvements in Sherman Creek were conducted in September 2019 with the implementation of three instream grade structures. Large stone instream grade structures were installed at approximately 50 ft, 100 ft and 150 ft upstream of the Sherman Creek culvert. These instream barriers serve to retain water in the northwestern wetland complex by slowing discharge rates into Cedar Lake during snowmelt and rain events in the spring. By lengthening the time needed for surface water in the wetland complex to reach Cedar Lake, the high flows present in spring can be extended into the summer when lake inputs become critically important for lake level.

Surface water discharge rates and total volumes associated with the full 2025 monitoring period at Jones Ditch, Sherman Creek, Cedar Lake outlet, and the King's Corner culvert are presented in Figures 20, 21, 22, 23, and 24, respectively, in addition to the wetland berm in Figure 25. All flow data are derived from water level stage-discharge relationships specific to each monitoring station that have been calibrated and validated using previous data collected on Cedar Lake. The discharge data and estimated total volumes are graphically displayed together in Figure 26.

The water level stage-discharge relationship for Jones Ditch was re-calibrated following the installation of the new culvert in 2018 that allows increased flows under Cedar Lake Road. The stage-discharge equation was updated in 2021 to quantify the increased flow more accurately through the larger diameter culvert. New logger stations installed upstream and downstream of the culvert in 2022 have helped to further refine this flow equation over time.

Surface Water Inflows and Outflows:

The following discussion of estimated surface water flows and volumes focuses on the late-spring to late-summer period of May 1 to September 30 to assess the impact of inflows and outflows on lake levels during the summer recreational months. Table 2 summarizes estimated inflow or outflow volumes for surface water stations from May-September of each year 2014-2025 for more than a decade of comparison. Jones Ditch and Sherman Creek provide inflows of surface water into Cedar Lake from the northwest cedar swamp contributing area, while King's Corner culvert and the Lake Outlet represent surface water leaving the watershed and flowing toward Phelan Creek and Lake Huron, respectively.

From May 1 to September 30, 2025, inflows from Jones Ditch and Sherman Creek totaled 260.4 million gallons (Mgal) and 262.6 Mgal, respectively. Summer month inflow volumes from these two sources were slightly less than the previous year in Jones Ditch but slightly higher in Sherman Creek. Notably though, inflows from these two creeks were much higher than average in spring (late March-April). Total inflows for the whole monitoring period in Jones Ditch and Sherman Creek were estimated at 809.9 and 488.2 Mgal, respectively. These inflow volumes reflect heavy precipitation events during the early spring months, prior to the summer month recreation period. This led to higher-than-average inflows from both creeks during early spring. Flows from both creeks slowed to a trickle with only some periodic flows by September 2025.

Comparing 2025 summer month inflow volumes to 2014, a year with similar summer month rainfall prior to the Sherman Creek wetland enhancements and Jones Ditch culvert replacement, shows a marked increase in inflow volumes from both Sherman and Jones Ditch. This comparison confirms how inflow volumes have improved because of these wetland water retention and infrastructure improvement efforts. Connectivity in the Jones Ditch wetland generally allows precipitation to runoff rather than being infiltrated as groundwater. This geomorphic feature and the larger surface area of the Jones Ditch wetland complex represent the difference in outflows between the Sherman Creek and Jones Ditch cumulative discharges.

During the May 1 – September 30 timeframe in 2025, a higher than average 990 MGal discharged through the outlet from Cedar Lake. This cumulative discharge exited Cedar Lake for a longer than average period, with continuous flows occurring between April 4 and August 26, 2025. From August 26 to the end of the monitoring period, no surface water flowed over the outlet weir and the lake elevation remained below the legal lake limit of 608.2 ft. Lake levels in 2025 also marked the largest fluctuation in maximum and minimum water level, relative to the legal lake level as recorded since the installation of the new outlet structure.

The implementation of the wetland berm continues to retain water within the Sherman Creek wetland and limits losses through the King's corner culvert. The outflow volume that exited the Cedar Lake watershed through the King's Corner culvert during the May-September period totaled 5.21 MGal. This volume is higher than the previous year which was historically low, but still in line with historic higher-precipitation years since retention improvements began in the wetland. The most volume of runoff occurred during April of 2025, in line with other high early season flow observations from the wetlands to Cedar Lake.

Surface Water Retention Design Implications:

The wetland berm continues to prove highly effective in limiting losses through the King's Corner culvert and out of the Cedar Lake watershed. Prior to implementation of the berm, approximately 13.6% of the total water volume leaving the Sherman Creek wetland area was lost out of the watershed through King's Corner culvert (on average between May-September). After implementing the berm, only about 1.8% of the total volume, on average, is lost from this area through Kings Corner culvert (between May-Sep). In 2025, this percentage of water lost through Kings Corner culvert was near average, at 1.9% (between May-September). Water elevations and flows through the wetland enhancement berm on the Lake Board parcel should continue to be closely monitored to definitively demonstrate additional long-term improvements to water retention in the wetlands via reductions to water volume lost through King's Corner culvert.

Sherman Creek cumulative discharge in 2025 for the May 1 – September 30 period (262.6 Mgal) was just below the historic 10-year average of 279 MGal. Snowpack and spring precipitation are the biggest factors in Sherman Creek contributions. As such, Sherman Creek produced higher than average spring flows in April following snowmelt and spring rain, with the cumulative volume of the entire 2025 monitoring period calculated at 500.2 Mgal, nearly twice the total May-September volume. Improvements to water retention bolstered by the wetland berm and instream grade structures helped to extend the Sherman Creek discharge period in 2025 to the end of August.

Figure 27 presents the surface/groundwater elevations at the Sherman Creek culvert and upstream wetland (Sherman 2) stations. These data are consistent with observations from previous years of improved water retention and storage in the wetland complex. Figure 28 illustrates the 2025 water elevations at the wetland berm monitoring station, positioned at the upstream side of the berm spillway, compared to lake levels. Figure 29 compares water elevations at the wetland berm spillway, King's Corner culvert, and Sherman 2 located in the cedar swamp upstream of the Sherman Creek culvert. Figure 30 compares surface water flows and volumes for the 2025 monitoring season at the wetland berm spillway to outflows at King's Corner Culvert and inflows to Cedar Lake via Sherman Creek.

Surface water flowed through the wetland berm spillway from early spring to early summer, after which no flows occurred. Surface outflows through the spillway totaled 19.4 MGal from May 1 to September 30, 2025. About 5.21 MGal, or 27% of the berm's outflowing volume, flowed out of the watershed through King's Corner culvert. Since the berm was constructed, an average of 24.5% of runoff outflowing through the berm spillway flows out through King's Corner culvert. This varies from year to year, depending on annual wetland soil saturation conditions that either allow or do not allow berm spillway runoff to absorb into the ground before reaching the King's Corner culvert. The approximately 75% of berm spillway runoff not flowing out of King's Corner indicates gains in groundwater contributed toward Cedar Lake.

These observations once again underscore the importance of precipitation as the ultimate factor in limiting substantial decline in lake level throughout the monitoring period. Continued monitoring is necessary to determine additional viable lake level augmentation strategies and improve on previously implemented projects and their effectiveness in maintaining Cedar Lake's water elevation within the desirable range.

Conclusions and Recommendations

Improvements in water retention continue to prove effective in limiting outflow losses from the watershed as reported by previous years' findings. Water retention improvements have limited outflows through King's Corner culvert as a percentage of the total Sherman Creek outflow (Sherman Creek and King's Corner culvert).

Jones Ditch continues to supply an increased amount of discharge following the culvert replacement in 2018. The purchasing of the parcel through which Jones Ditch originates will allow the CLIB to continue to protect Jones Ditch and further improve connectivity between the northwest wetland complex and Cedar Lake. The extra piezometers placed in Jones Ditch will continue to help K&A improve the current discharge-stage relationship and work to quantify incoming flows more accurately from Jones Ditch. These data monitoring efforts should help guide any future action in augmenting Jones Ditch to improve Cedar Lake water levels throughout the summer recreation months.

Precipitation, spring snow melt, and evaporation remain as the three dominant factors that influence the Cedar Lake elevation throughout the summer. Twenty-seven years of rainfall data show how precipitation in the Cedar Lake area oscillates between multi-year periods of dryer and wetter years. While lake level has improved despite declining or stagnant precipitation totals in past years, drier conditions in the future could require new or novel management implementation

efforts. Planning and coordination by the CLIB and K&A should always consider emerging trends within the watershed and implement engineering design as needed. As such, K&A recommends the continuation of the hydrology monitoring program in 2026.

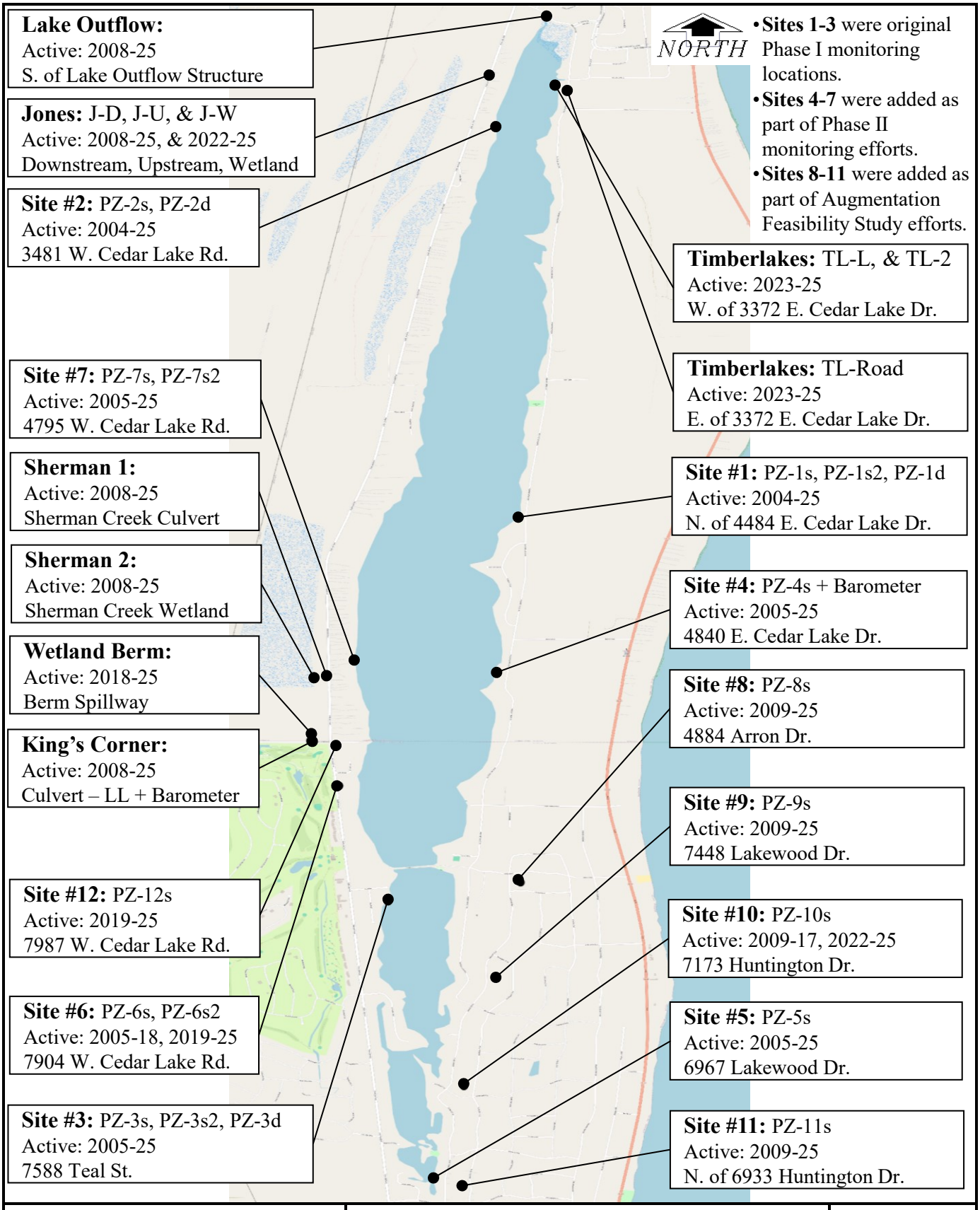
Recommendations for the 2026 Monitoring Program:

1. Identify additional hydraulic improvements in Jones Ditch areas including the maintenance of railroad culverts for watershed flows, and identify improvements to Jones Ditch contributing wetlands to provide ecological enhancements such as fish passage and flow management. Such additional monitoring is planned in these regards with the pending Midwest Glacial Lakes Partnership award to the CLIB for lower Jones Ditch improvements.

2. Redeployment of groundwater piezometers in Sherman Creek, especially with potential Jones Ditch grant funding for fish passage improvements to better assess flows, particularly for fish passage movement in the Creek in conjunction with those for Jones Ditch. Upstream level loggers above and below the railroad culvert should be considered.

3. Consider additional groundwater level evaluations for the southeastern portions of the Cedar Lake shoreline where County Drain Commission drainage improvements are being contemplated. Preliminary evaluation of possible implementation efforts would provide a backdrop for future approaches to protect and/or improve already impactful drain conditions on Cedar Lake levels.

2025 Cedar Lake Hydrology Report: List of Tables and Figures.



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Map of 2025 groundwater and surface water elevation monitoring sites with piezometers & level loggers, located around the perimeter of Cedar Lake.

FIGURE 1

Table 1. Cedar Lake level loggers 2025 status.

Piezometer ID #	LL Manu-factured Year	LL Age (years)	Predicted LL Lifespan (years)	Predicted Year of LL "Age-Out"	Status
Wetland Berm	2017	8	10	2027	Functioning (Added site in 2017)
PZ-02s	2017	8	10	2027	Functioning
TL Lake 2	2017	8	10	2027	Functioning (Added site in 2023)
Sherman 1(Culvert)	2019	6	10	2029	Functioning
Sherman 2 (Wetland)	2019	6	10	2029	Functioning
Kings Corner	2019	6	10	2029	Functioning
Kings Corner Barlog	2019	6	10	2029	Functioning
Lake Out	2019	6	10	2029	Functioning
PZ-12s	2019	6	10	2029	Functioning (Added site in 2019)
TL Road	2019	6	10	2029	Functioning (Added site in 2023)
PZ-06s	2019	6	10	2029	Functioning (Added site in 2019)
PZ-06s2	2019	6	10	2029	Functioning (Added site in 2019)
PZ-07s2	2019	6	10	2029	Functioning
Jones (Upstream)	2019	6	10	2029	Functioning
PZ-01s	2020	5	10	2030	Functioning
PZ02d	2020	5	10	2030	Functioning
PZ-03s	2020	5	10	2030	Functioning
PZ-03s2	2020	5	10	2030	Functioning
PZ-03d	2020	5	10	2030	Functioning
PZ-07s	2020	5	10	2030	Functioning
PZ-10s	2020	5	10	2030	Functioning
PZ-09s	2020	5	10	2030	Functioning
PZ-01s2	2021	4	10	2031	Functioning
PZ-01d	2021	4	10	2031	Functioning
PZ-04s	2021	4	10	2031	Functioning
PZ-04s Barlog	2021	4	10	2031	Functioning
PZ-05s	2021	4	10	2031	Functioning
PZ-08s	2021	4	10	2031	Functioning
PZ-11s	2021	4	10	2031	Functioning
TL-Lake	2022	3	10	2032	Functioning (Added site in 2023)
Jones (Downstream)	2022	3	10	2032	Functioning (Added site in 2023)
Jones (Wetland)	2022	3	10	2032	Functioning (Added site in 2023)

Table 2. Comparison of Surface Water Volumes from May 1 to Sep 30, 2014 to 2025.

Site	Volume (Mgal)											
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Sherman Creek (inflow to CL)	136.040	190.929	198.126	449.441	328.134	446.753	359.857	195.171	147.428	[4] 296.374	252.977	262.600
Jones Ditch (inflow to CL)	64.817	21.587	17.964	[1] 59.784	75.712	654.691	[3] 177.250	[3] 799.967	287.755	[4] 555.566	260.380	260.406
Cedar Lake Outlet (outflow from CL)	13.003	109.500	[2] 0.162	[2] 26.123	51.975	143.156	21.560	0.000	0.145	[4] 40.991	1.110	990.020
Kings Corner (outflow away from CL)	32.208	46.862	17.049	38.053	4.384	10.161	21.819	0.158	0.156	10.373	0.050	5.200

[1] Jones Ditch 2017 flows from 5/1/17 to 9/1/17 only.

[2] Lake elevations affected by presence of beaver dam upstream of Cedar Lake outlet, mechanically removed in fall 2017.

[3] Jones Ditch volume calculations affected by sediment accumulation resultant of beaver activity within Jones Ditch culvert after its replacement in 2018.

[4] The 2023 table incorrectly showed 2023 flow volumes for a period of Mar 30 - Sep 30 (Table 2 corrects this to compare volumes for May 1 - Sep 30 only).

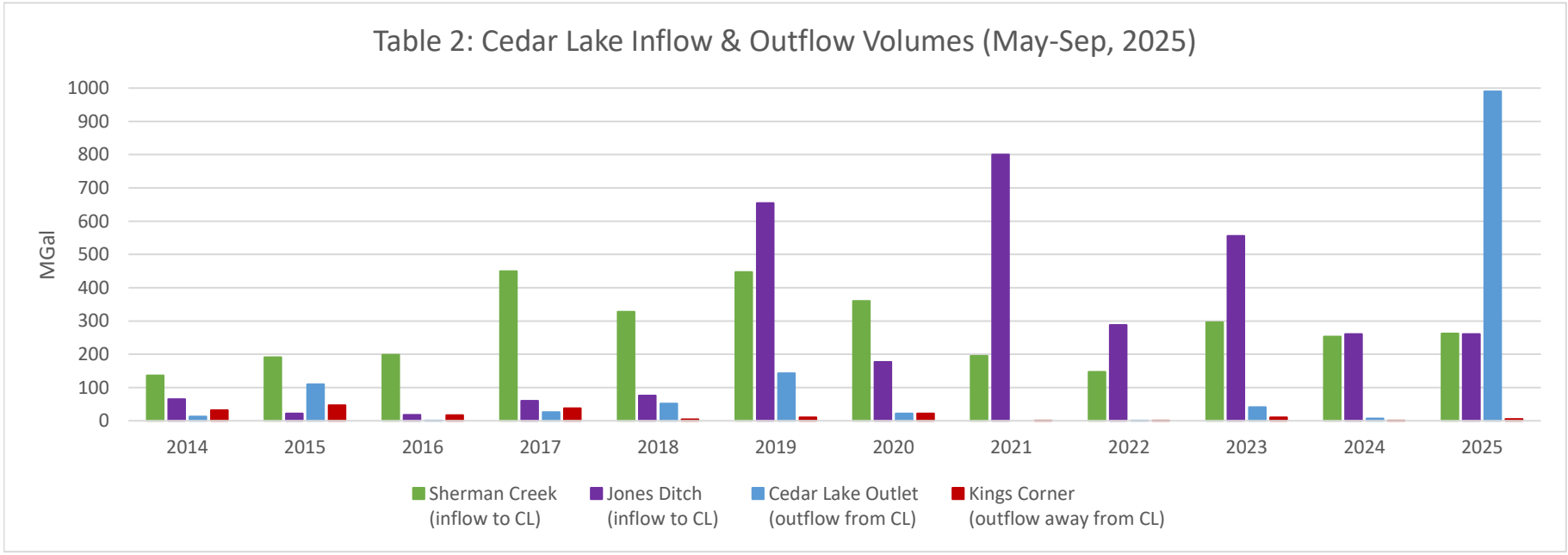

Figure 2. Historic Summer (Jun - Sep) Precipitation Totals for Cedar Lake

(*Precipitation Sources:* Cedar Lake Rain Gauge, Alcona County, MI,
Harrisville 2 NNE (USC00203628), Alcona County, MI
Oscoda Wurtsmith Airport (Station #14808), Iosco County, MI

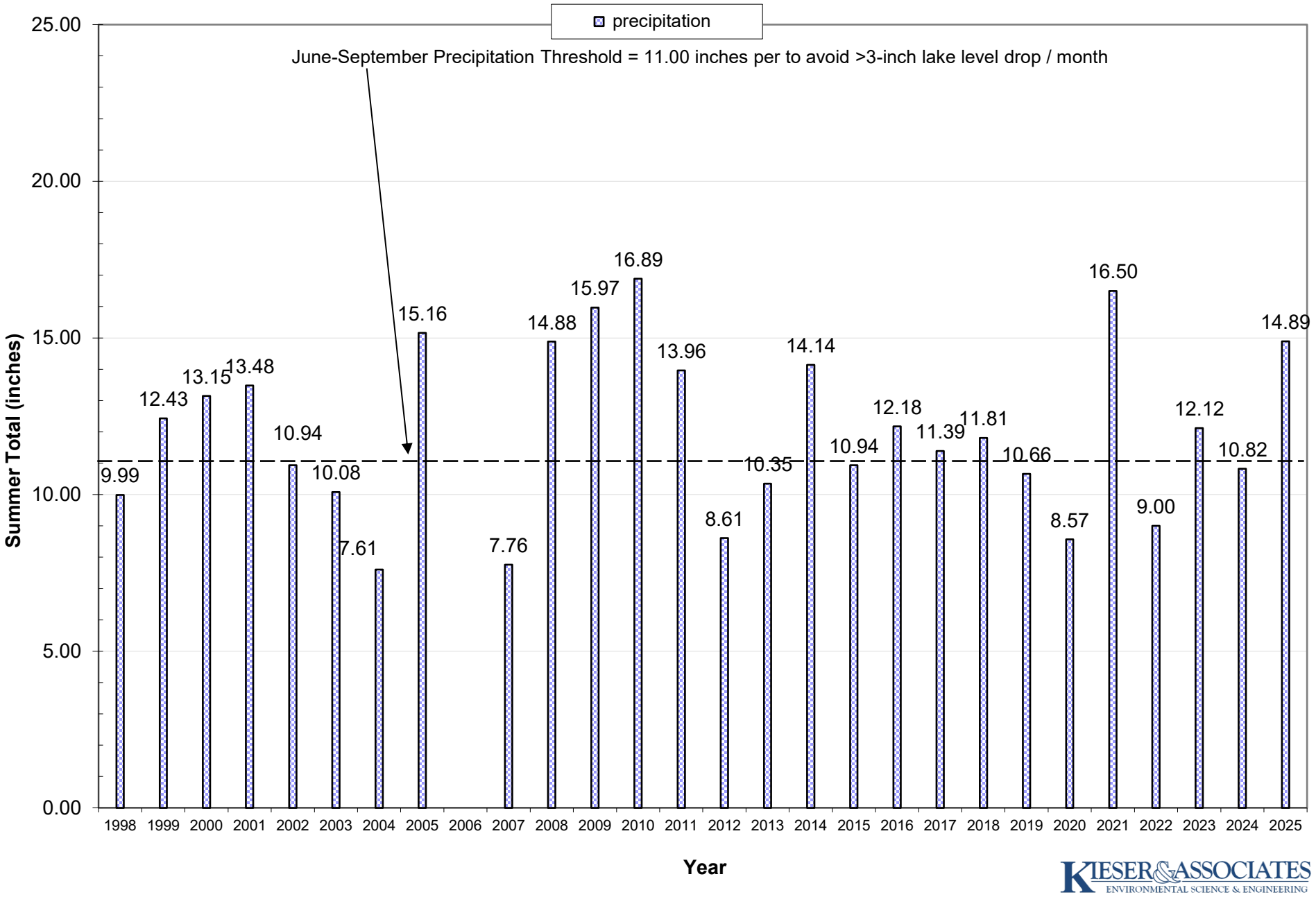

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Figure 3. 2025 Cedar Lake Elevation and Measured Rainfall

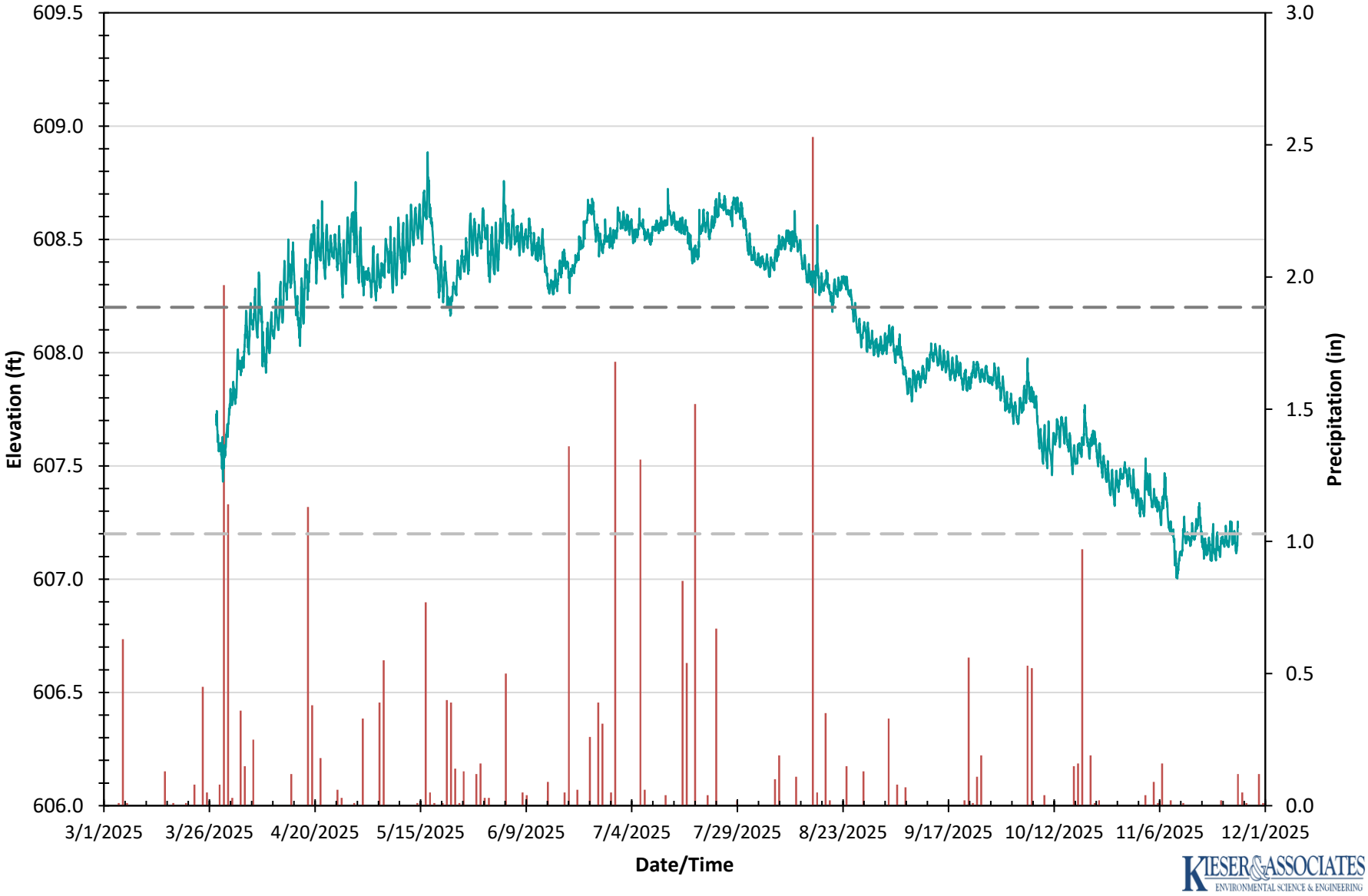

Figure 4. Cedar Lake Summer (Jun-Sep) Lake Level Fluctuations and Precipitation

Lake Level Minimum, Maximum, and Average Relative to Legal Lake Level (Outlet)

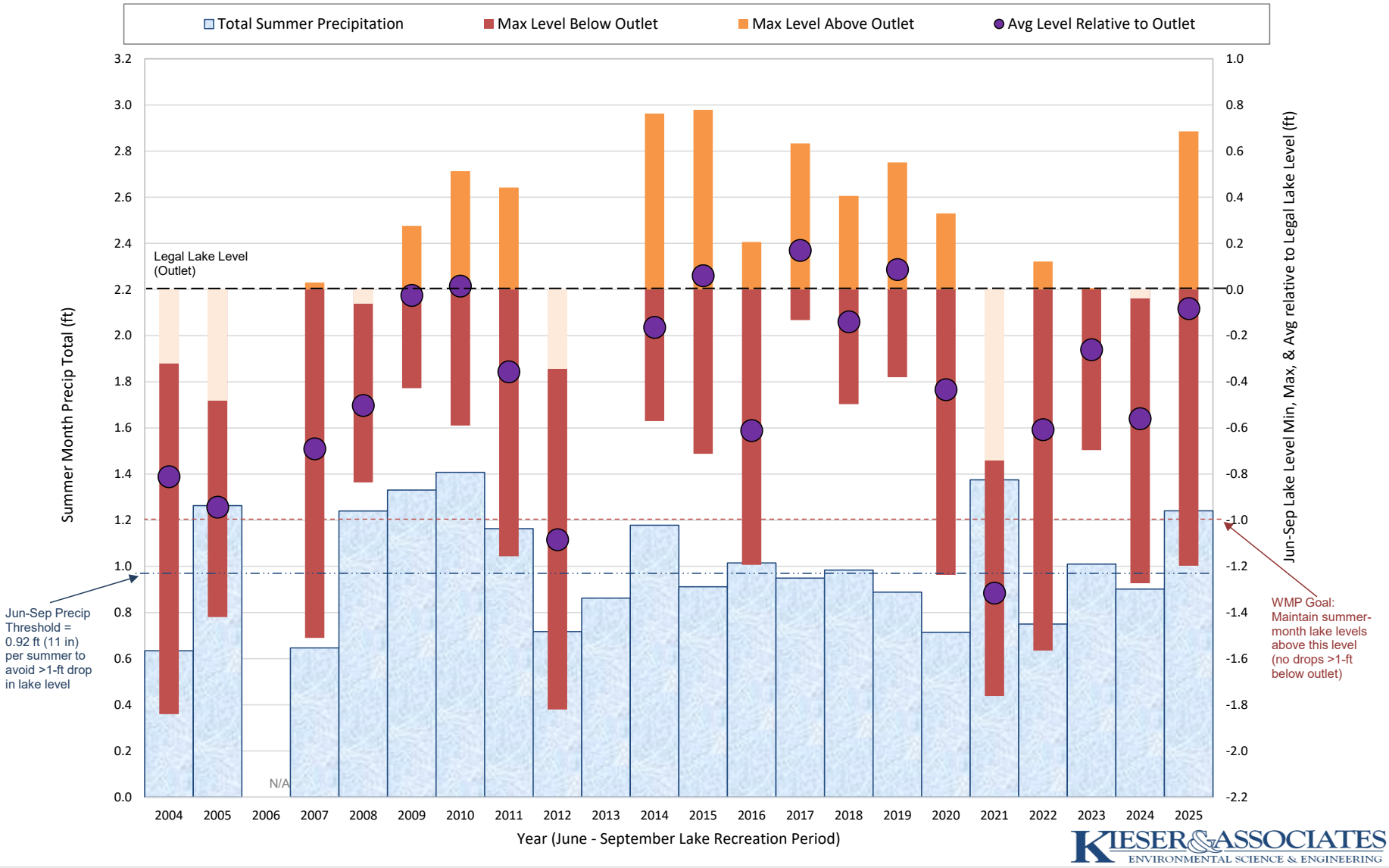

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Figure 5. 2025 Cedar Lake Groundwater / Surface Water Elevations (Site 1)

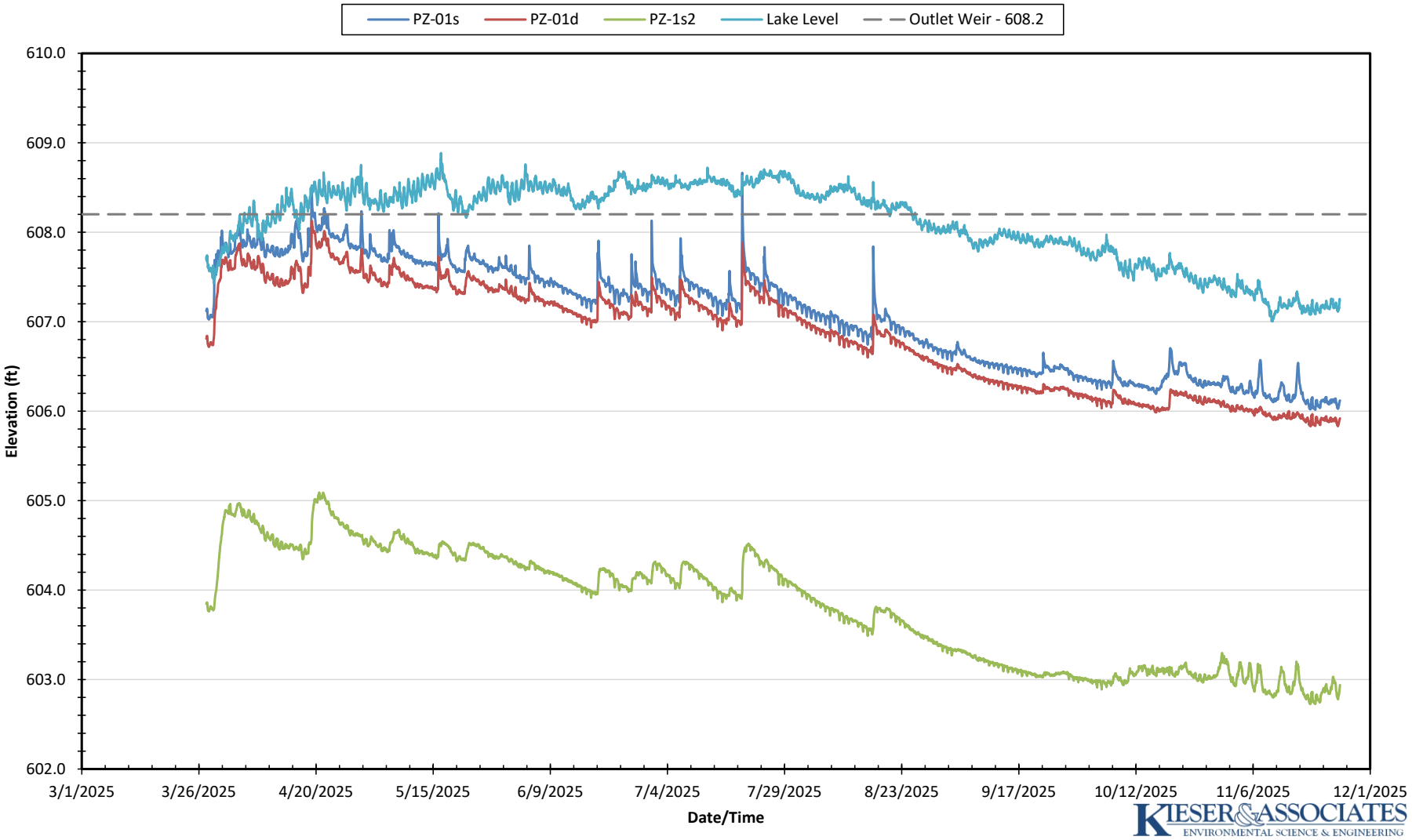

Figure 6. 2025 Cedar Lake Groundwater / Surface Water Elevations (Site 2)

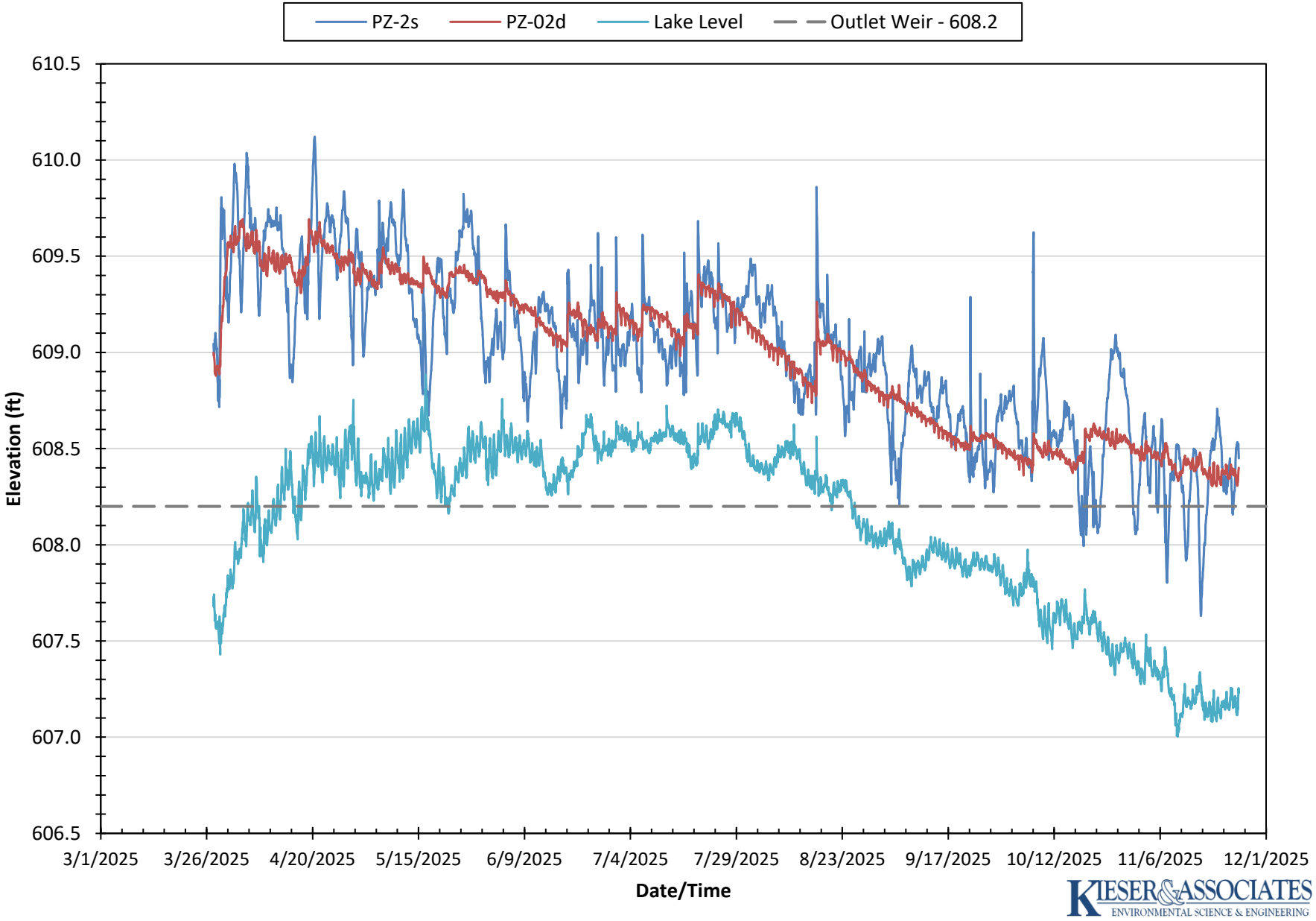

Figure 7. 2025 Cedar Lake Groundwater / Surface Water Elevations (Site 3)

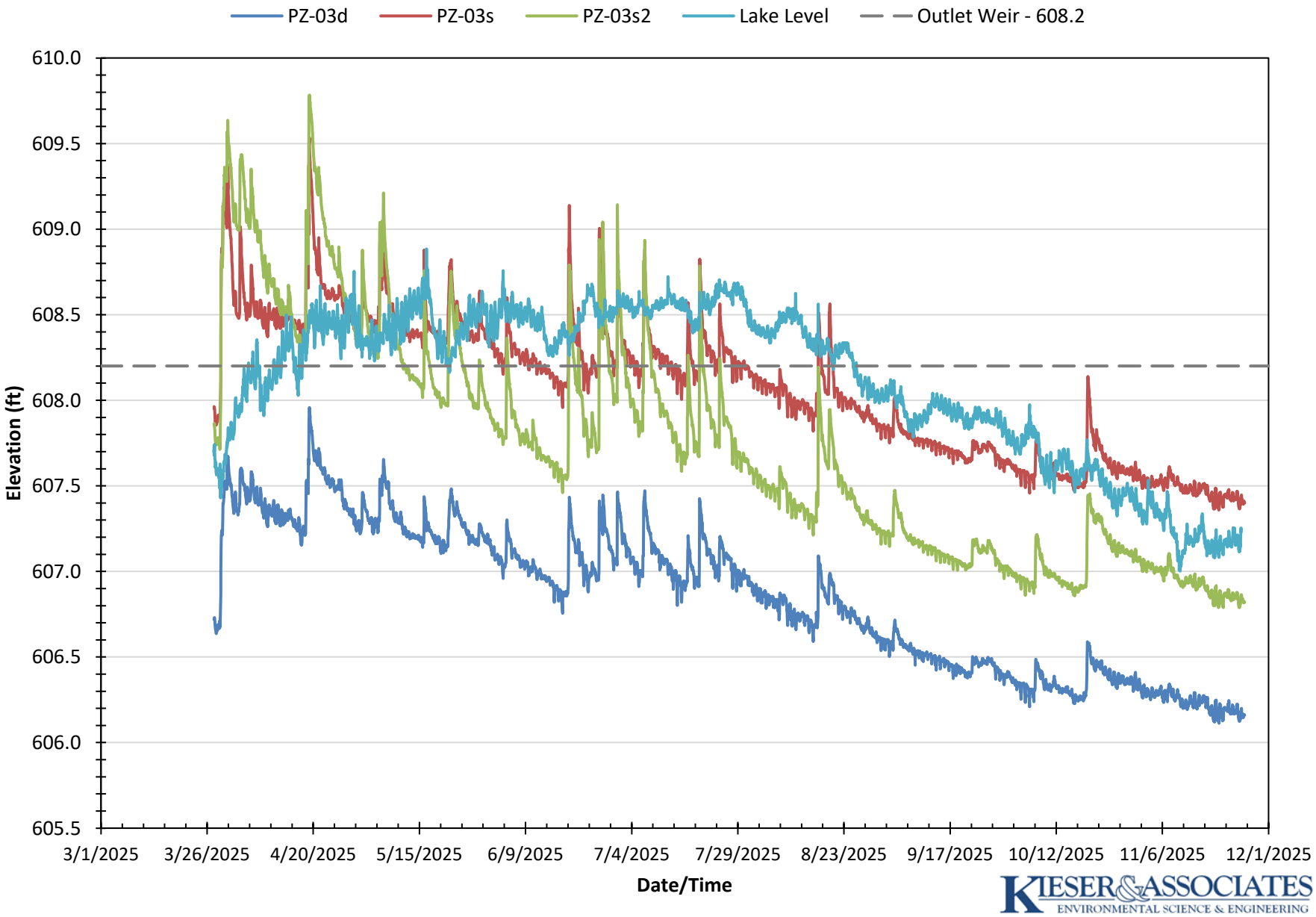

Figure 8. 2025 Cedar Lake Groundwater / Surface Water Elevations (Site 4)

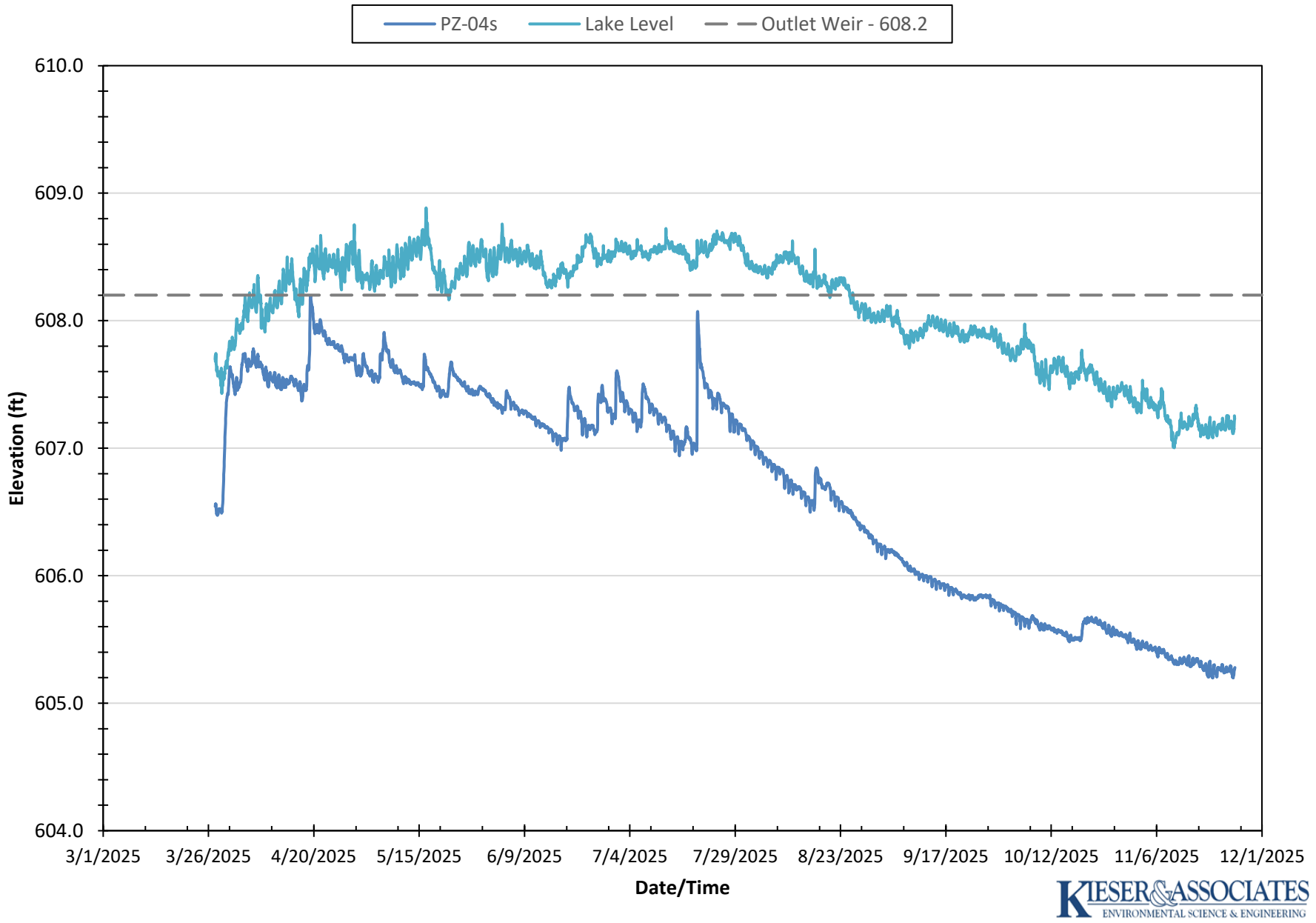

Figure 9. 2025 Cedar Lake Groundwater / Surface Water Elevations (Site 5)

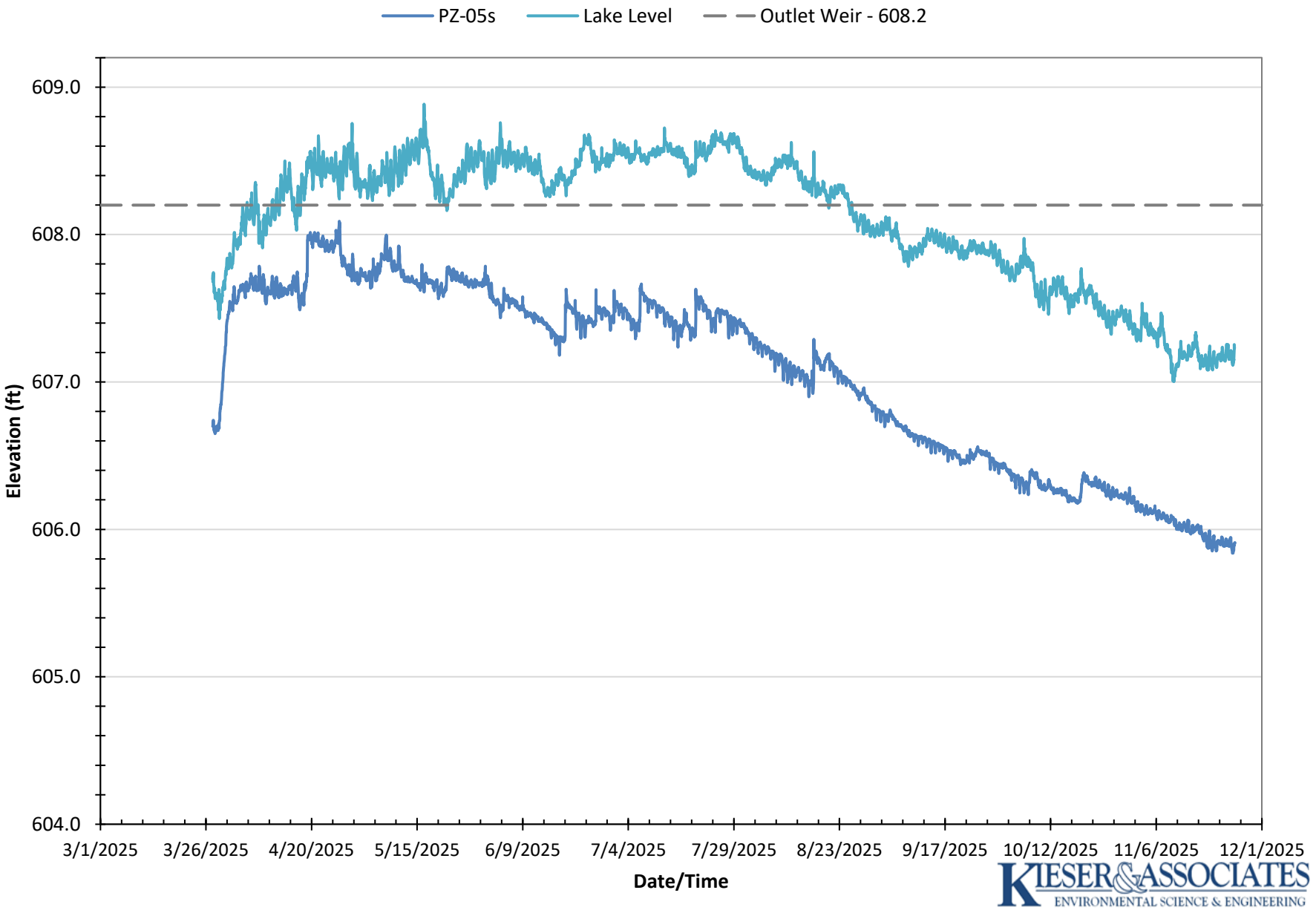

Figure 10. 2025 Cedar Lake Groundwater / Surface Water Elevation (Site 6)

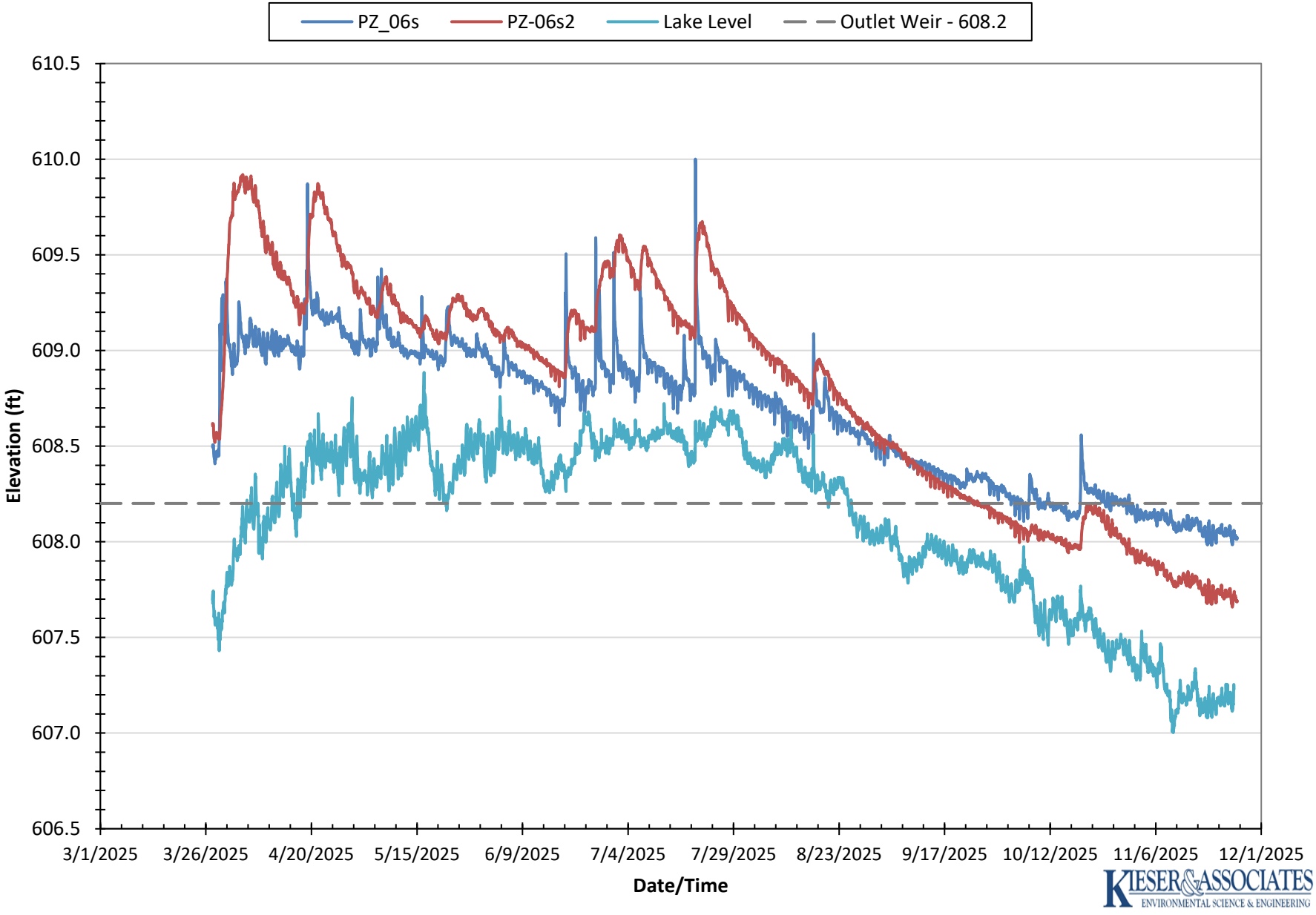

Figure 11. 2025 Cedar Lake Groundwater / Surface Water Elevations (Site 7)

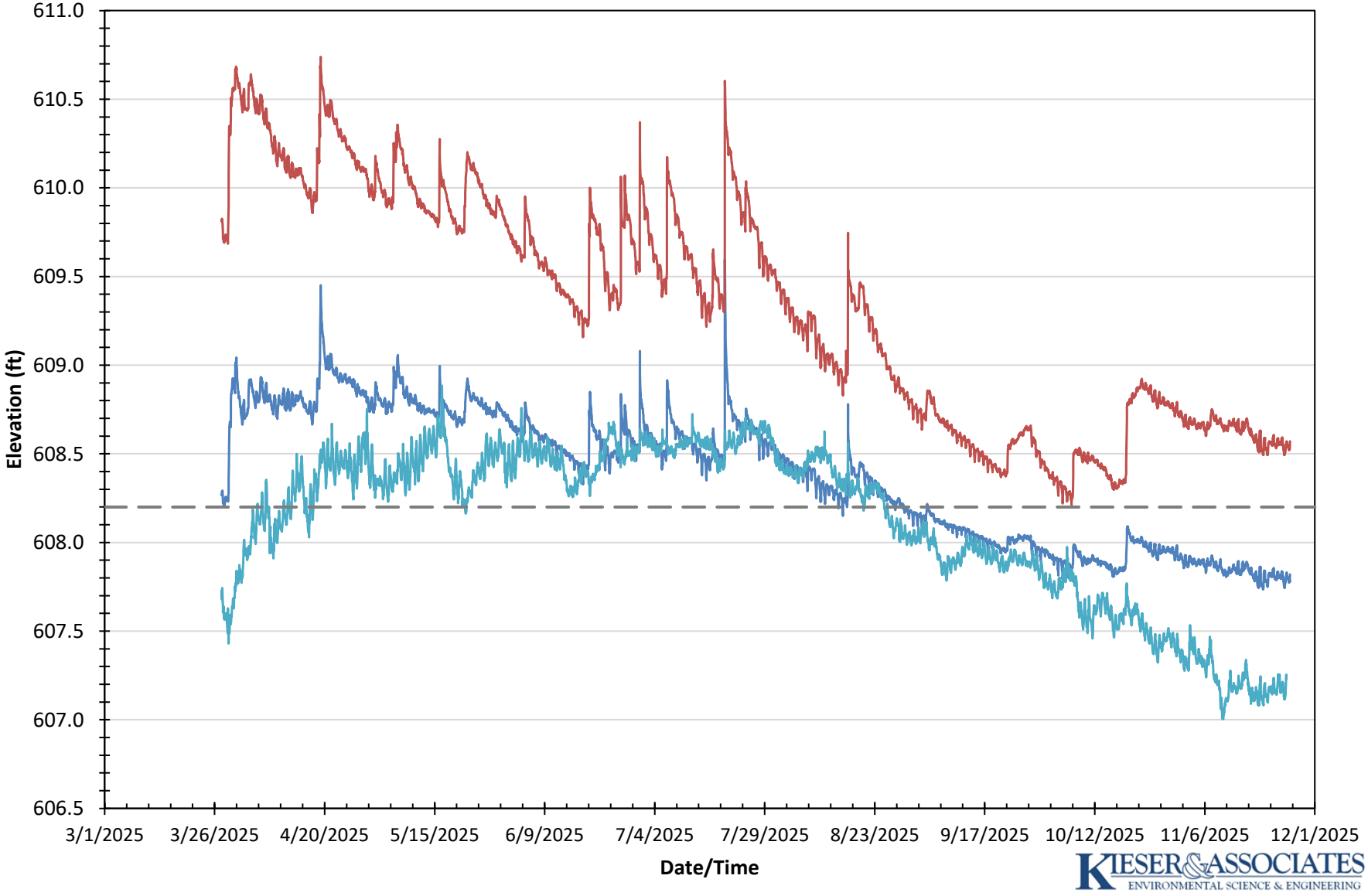

Figure 12. 2025 Cedar Lake Groundwater / Surface Water Elevations (Site 8)

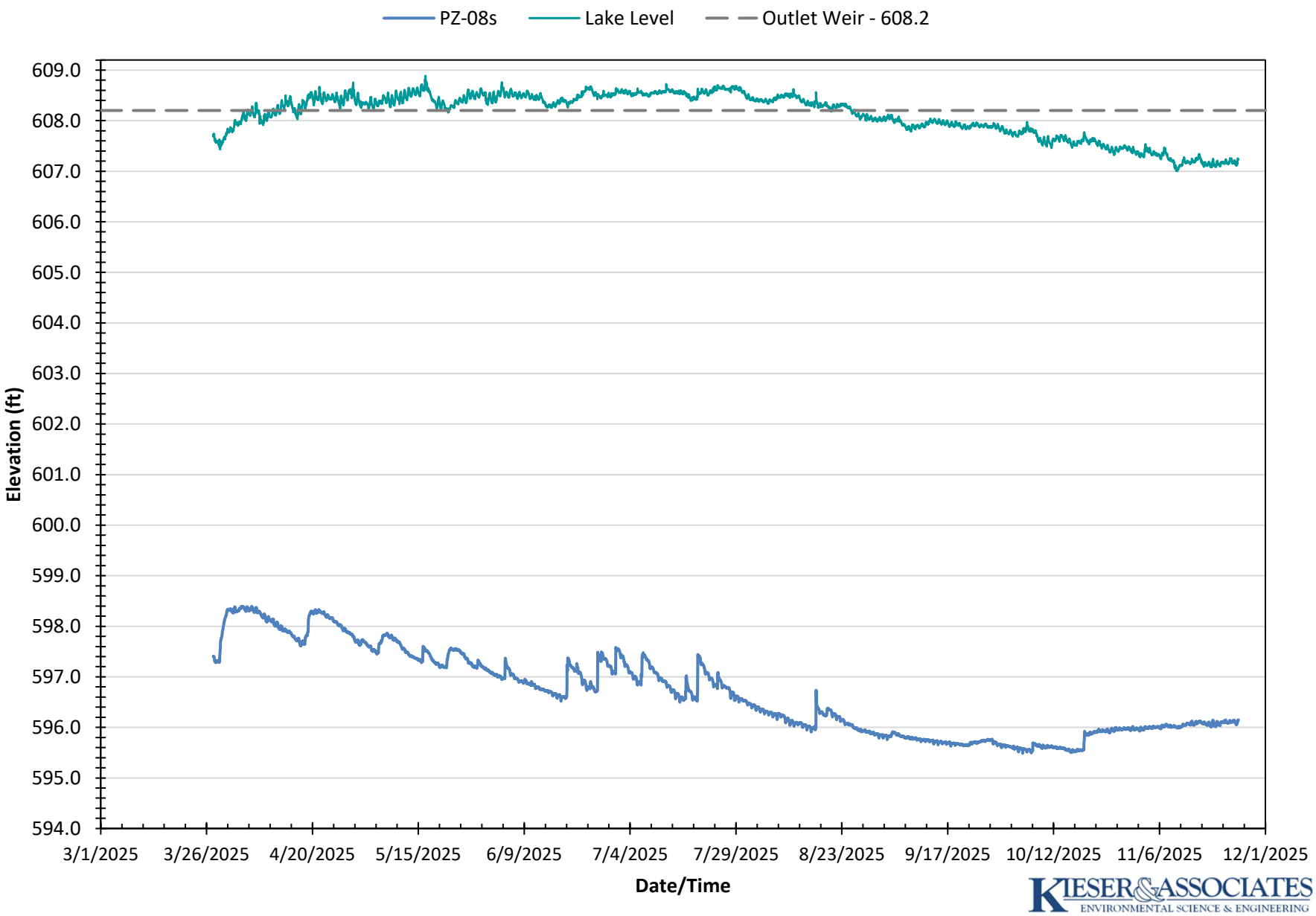

Figure 13. 2025 Cedar Lake Groundwater / Surface Water Elevations (Site 9)

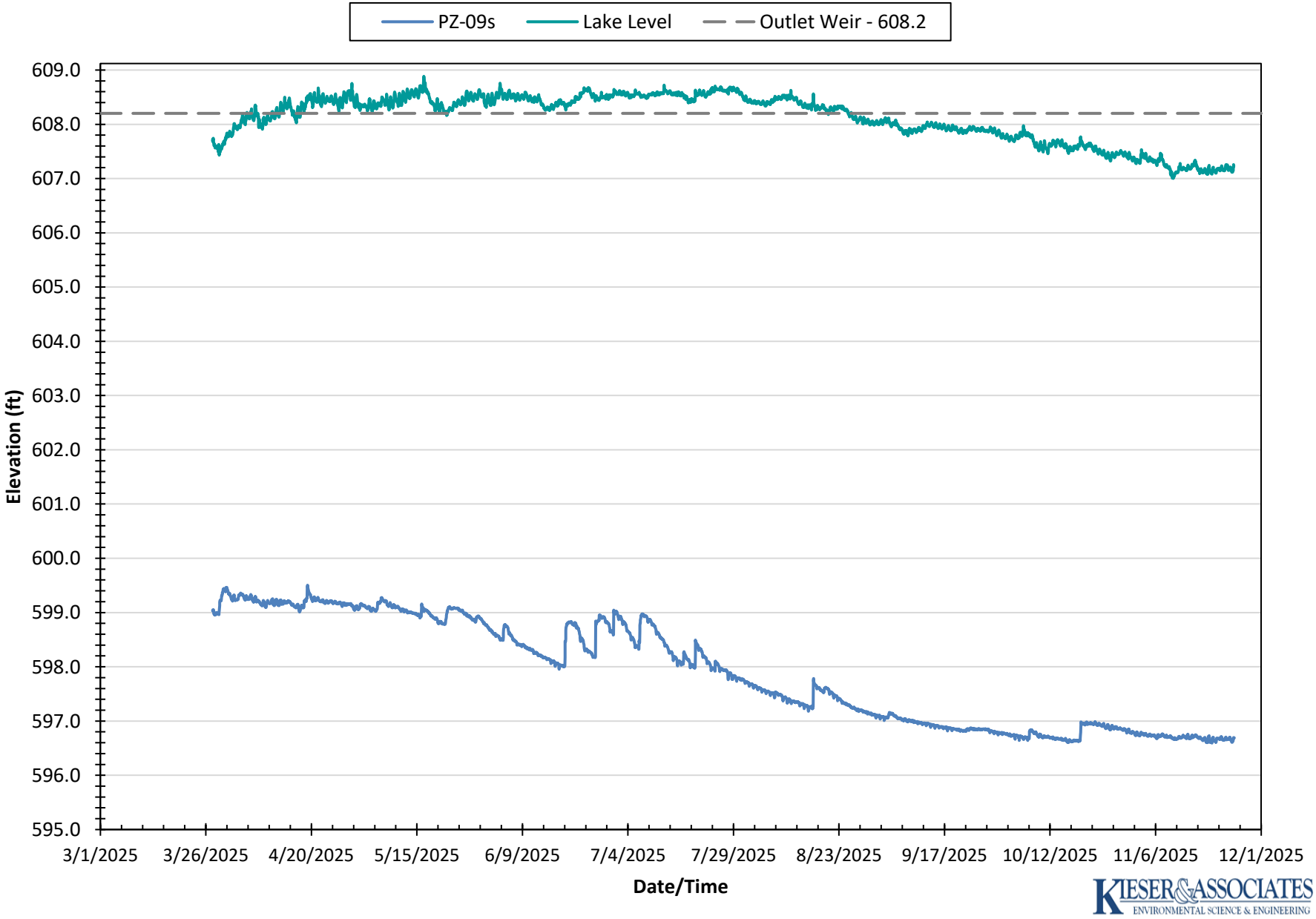

Figure 14. 2025 Cedar Lake Groundwater / Surface Water Elevations (Site 10)

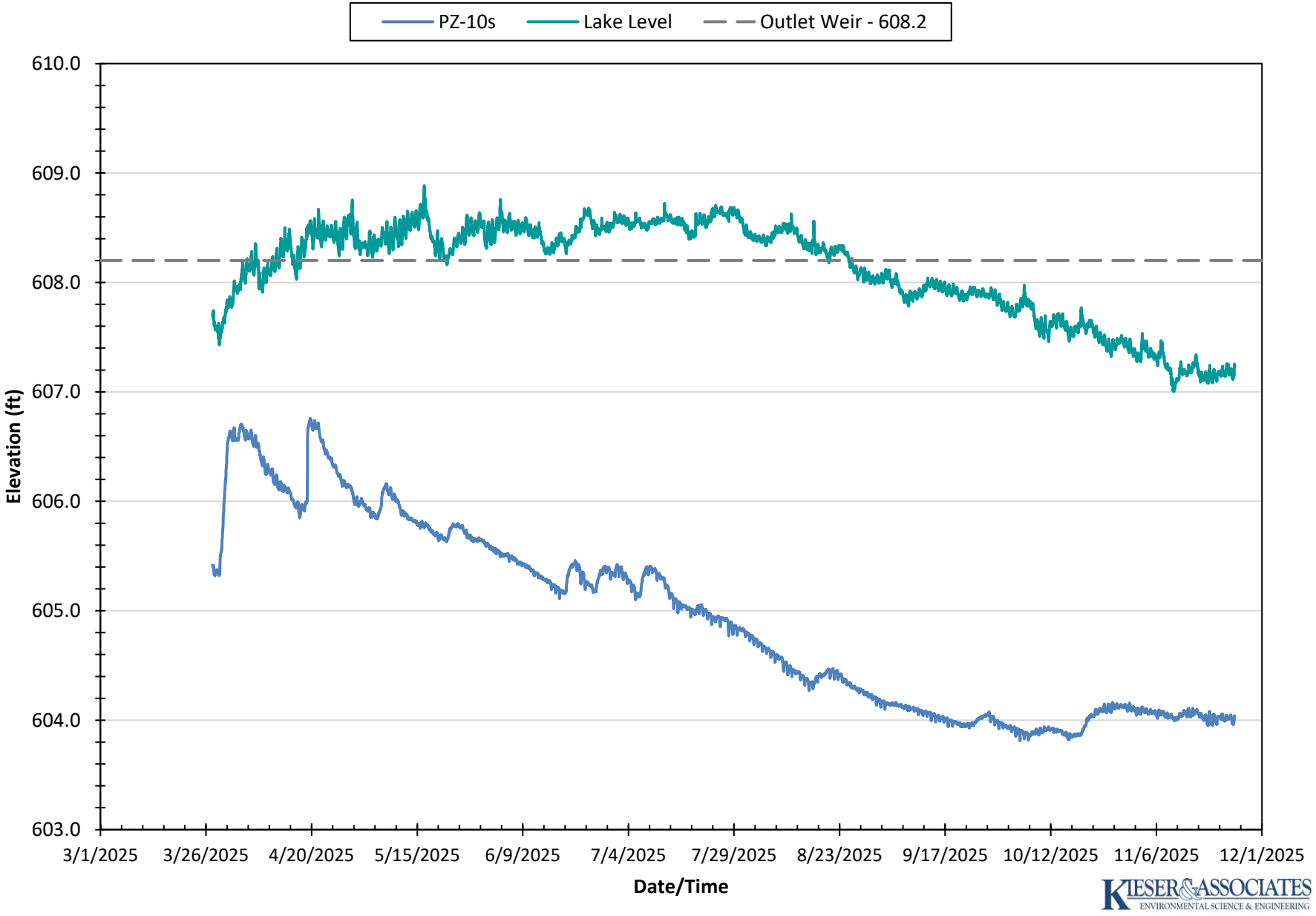

Figure 15. 2025 Cedar Lake Groundwater / SurfaceWater Elevations (Site 11)

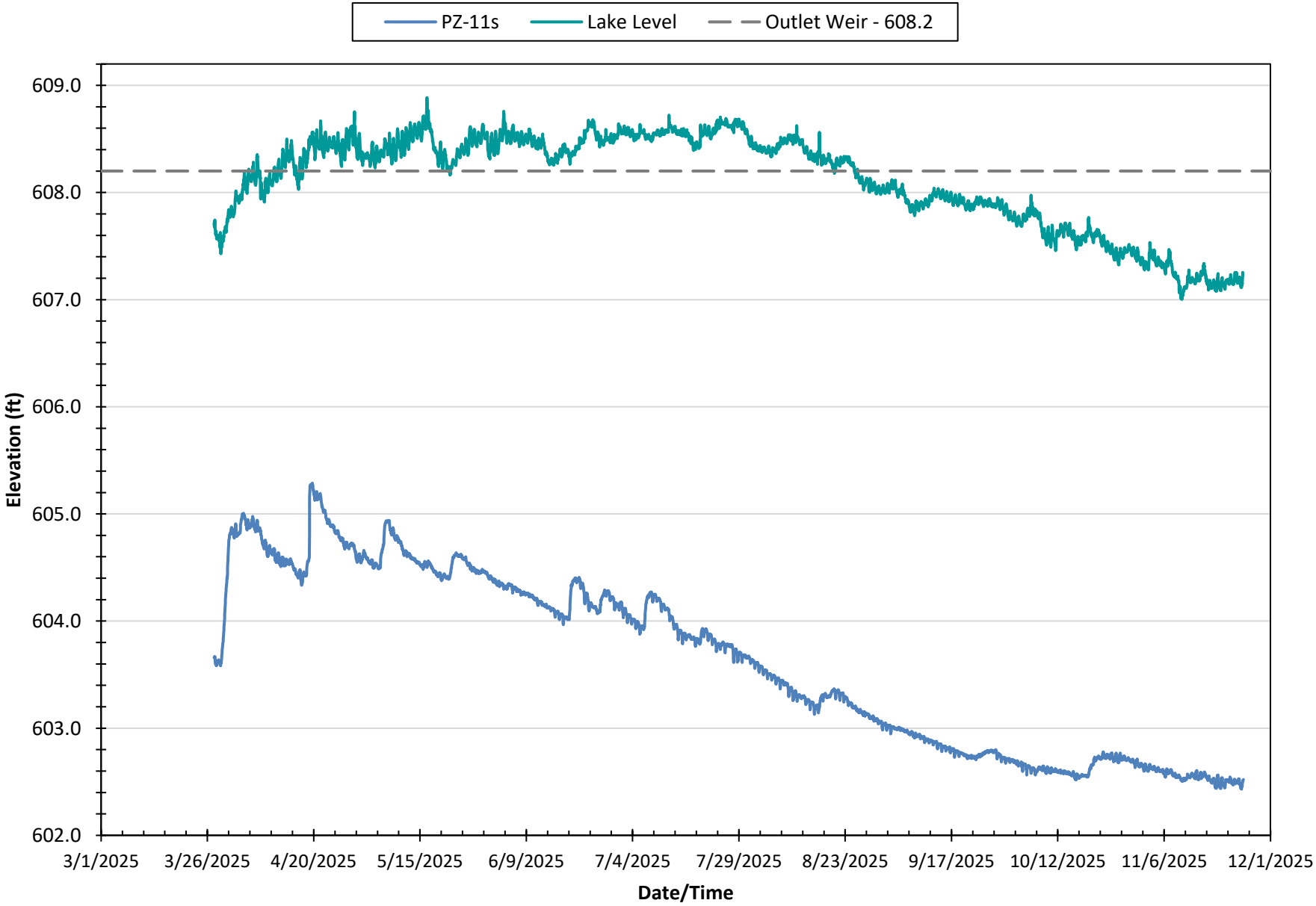

Figure 16. 2025 Cedar Lake Groundwater / Surface Water Elevations (Site 12)

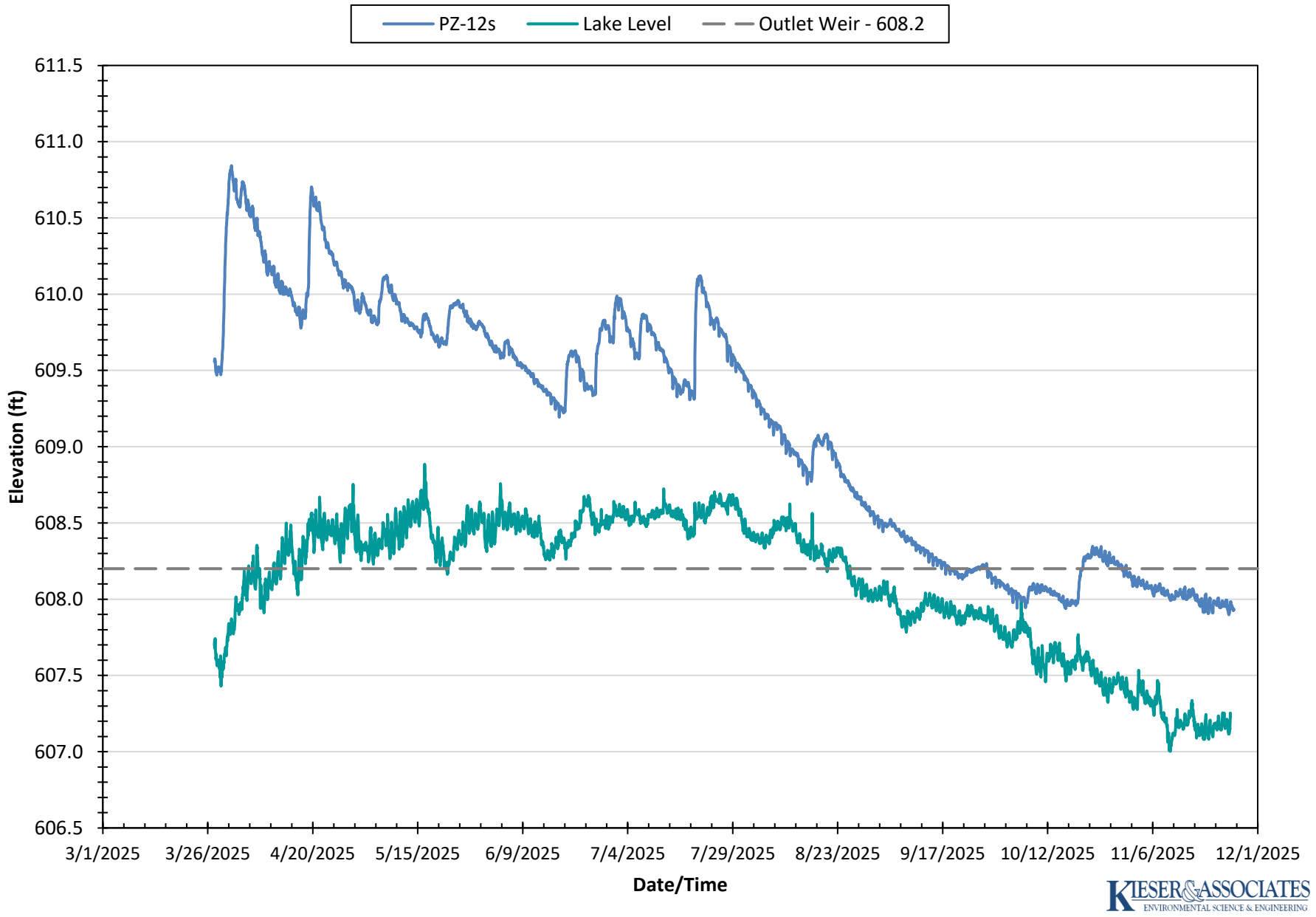

Figure 17. 2025 Cedar Lake Groundwater / Surface Water Elevations (TL Lake 1 & 2)

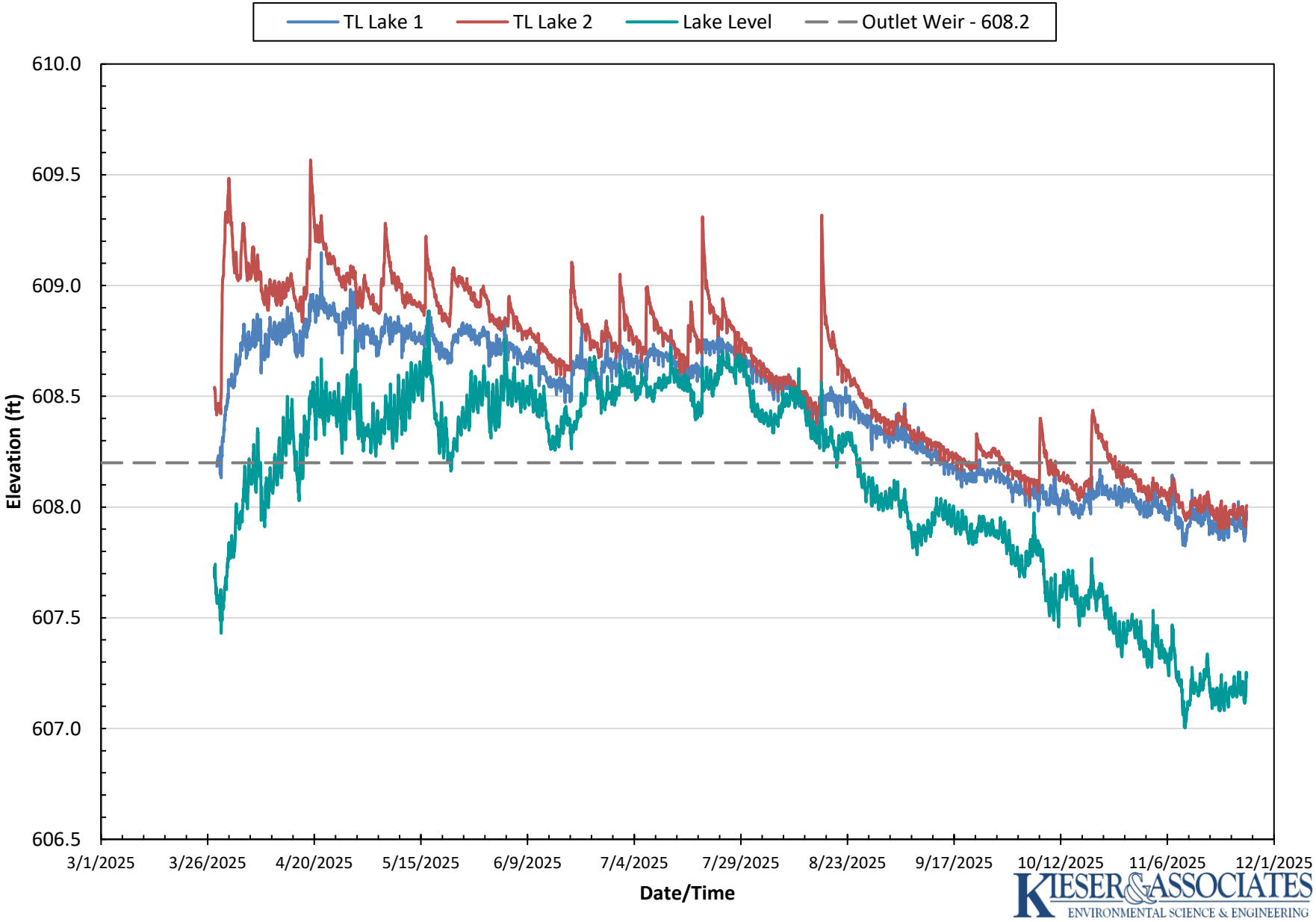

Figure 18. 2025 Cedar Lake Groundwater / Surface Water Elevations (TL Road)

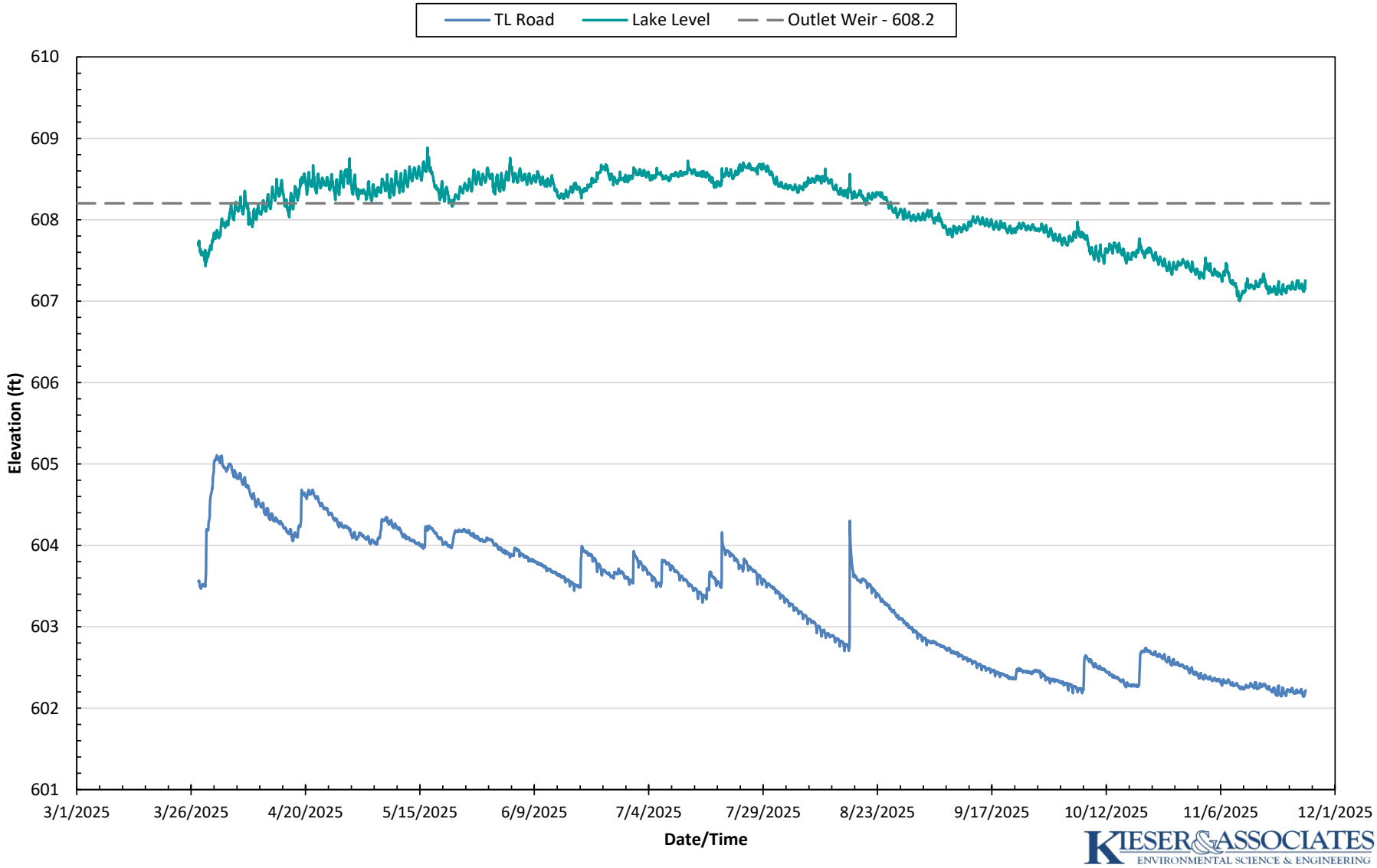

Figure 19. 2025 Cedar Lake Groundwater / Surface Water Elevations (King's Corner Area Loggers)

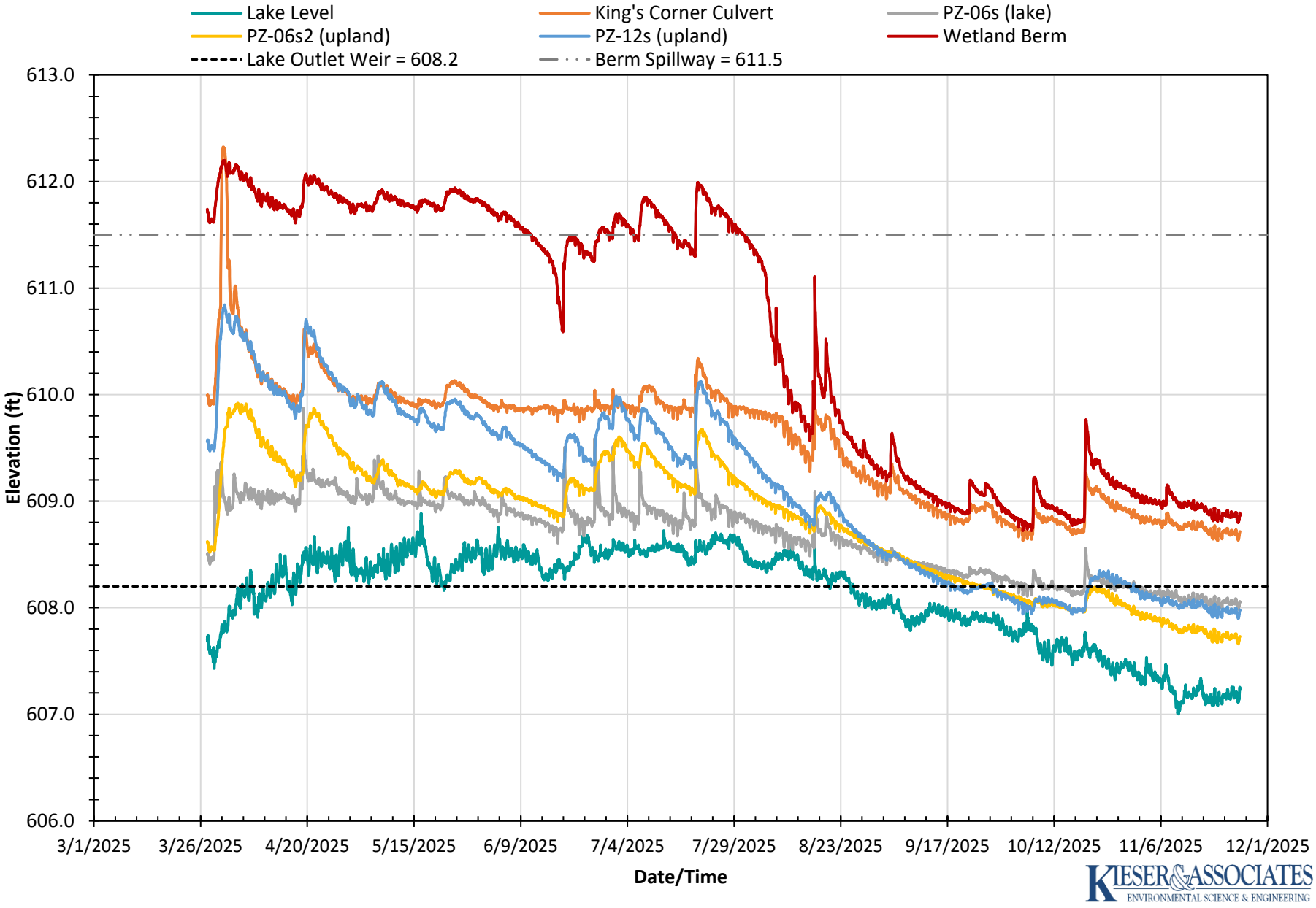

Figure 20. 2025 Jones Ditch Groundwater / Surface Water Elevations

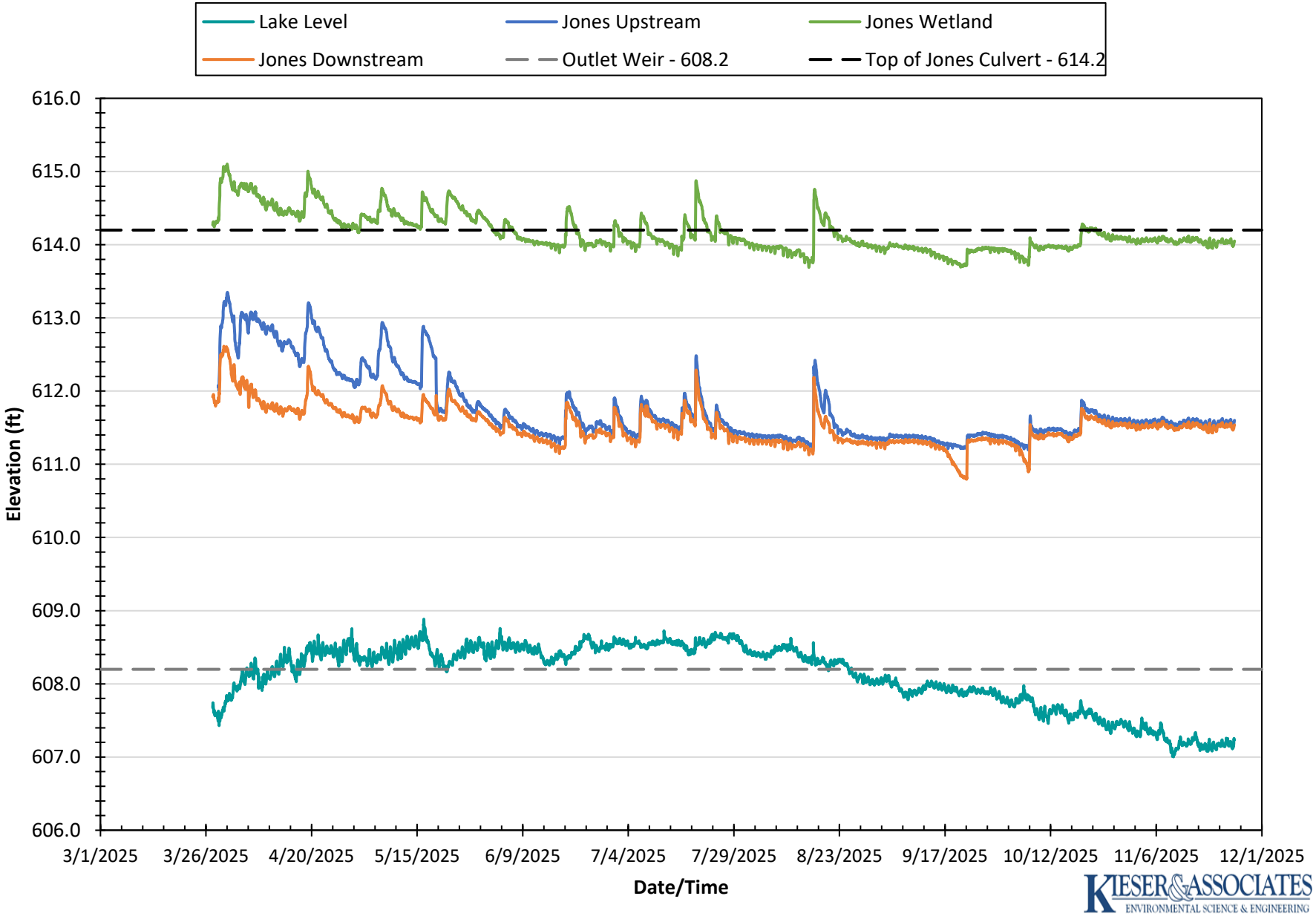

Figure 21. 2025 Estimated Jones Ditch Flows

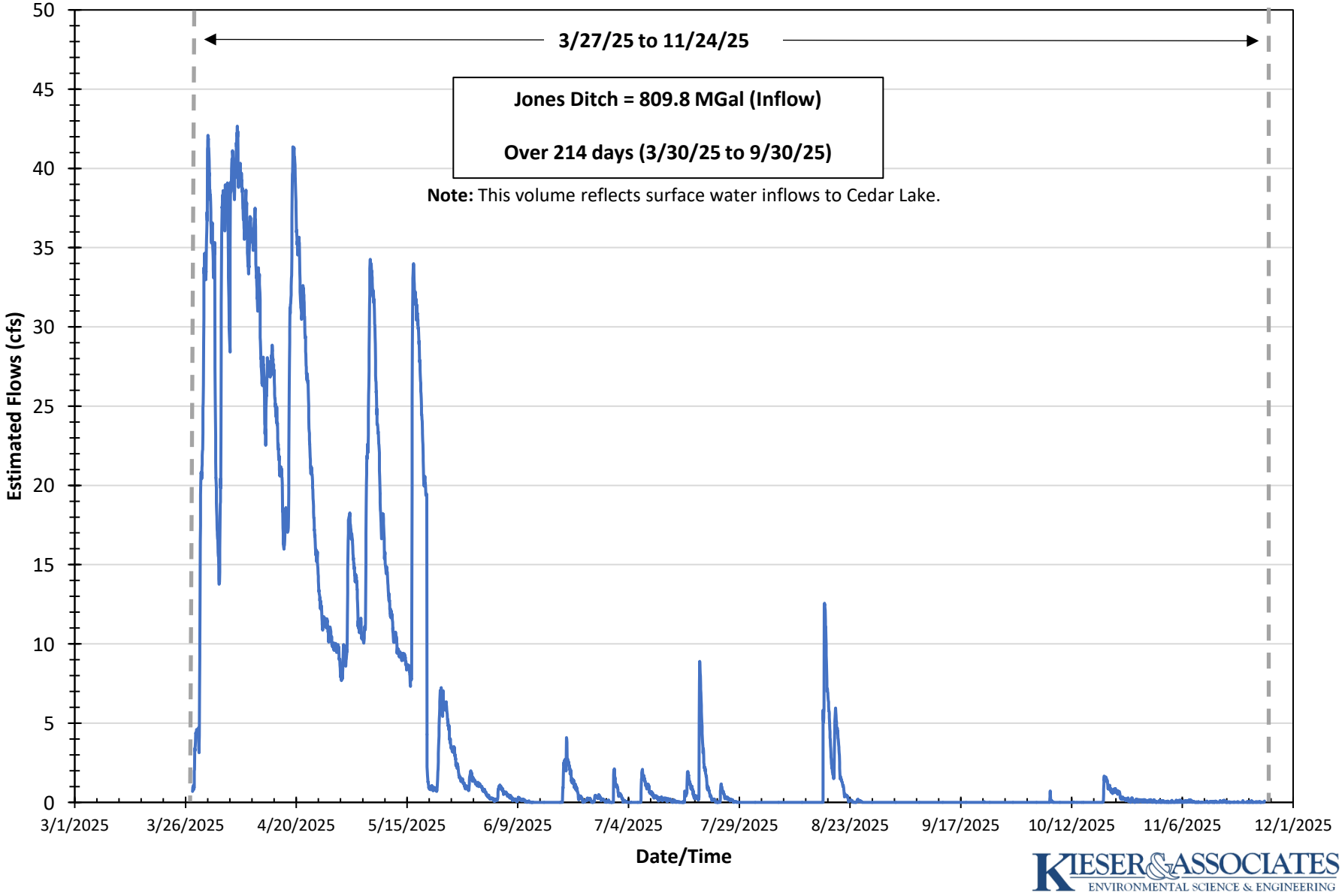

Figure 22. 2025 Estimated Sherman Creek Flows

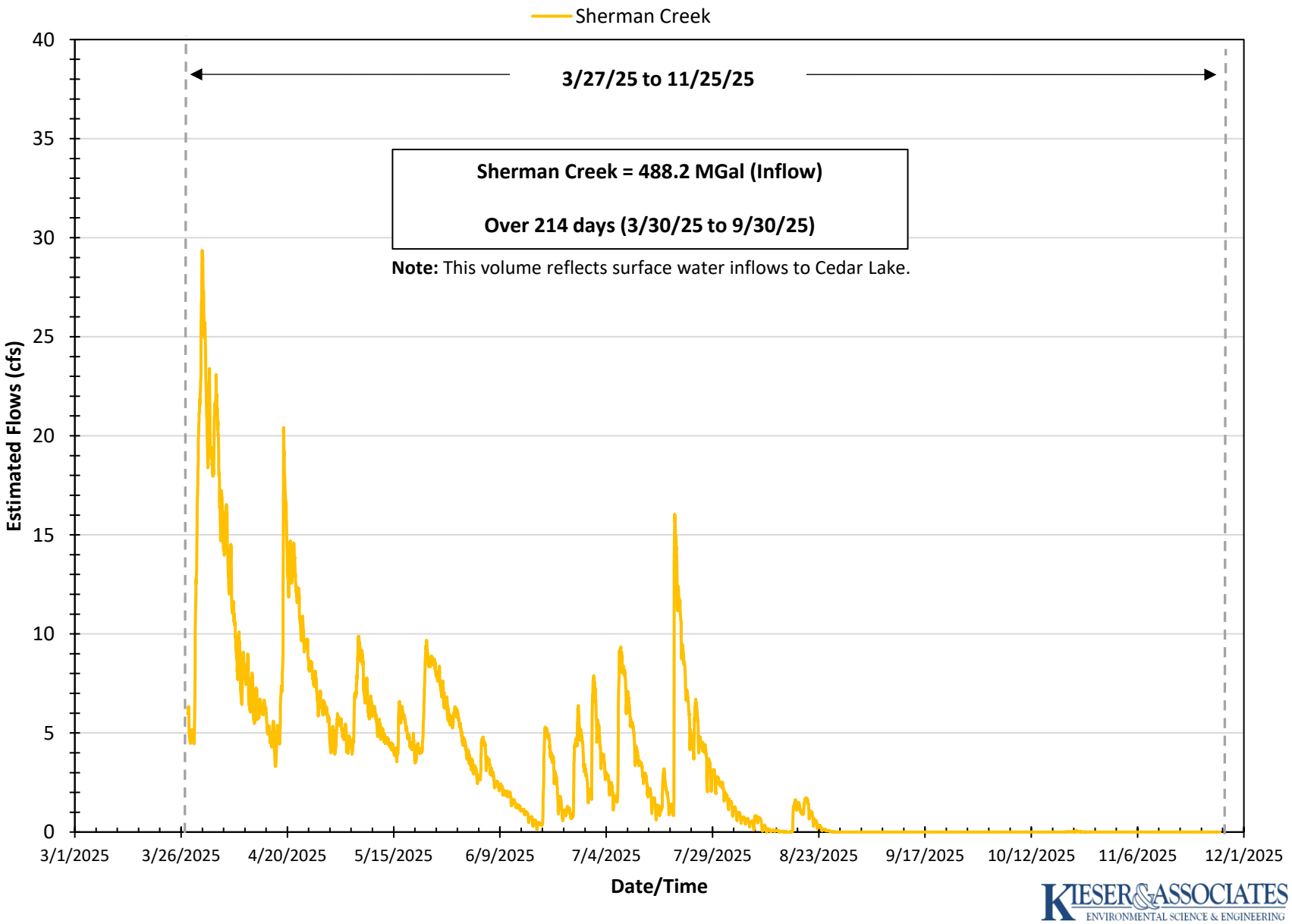

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Figure 23. 2025 Estimated Cedar Lake Outflows

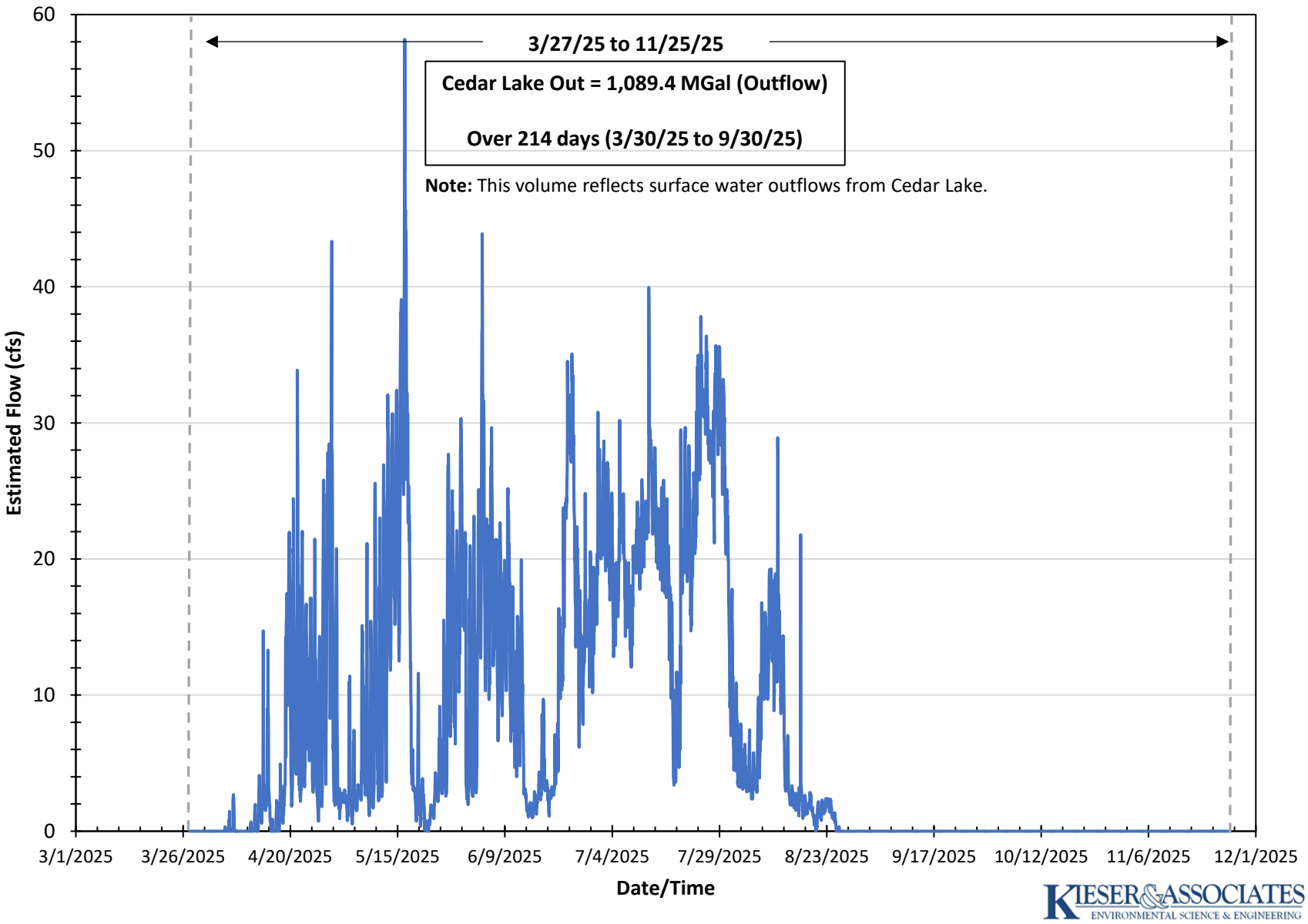

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Figure 24. 2025 Estimated King's Corner Outflow

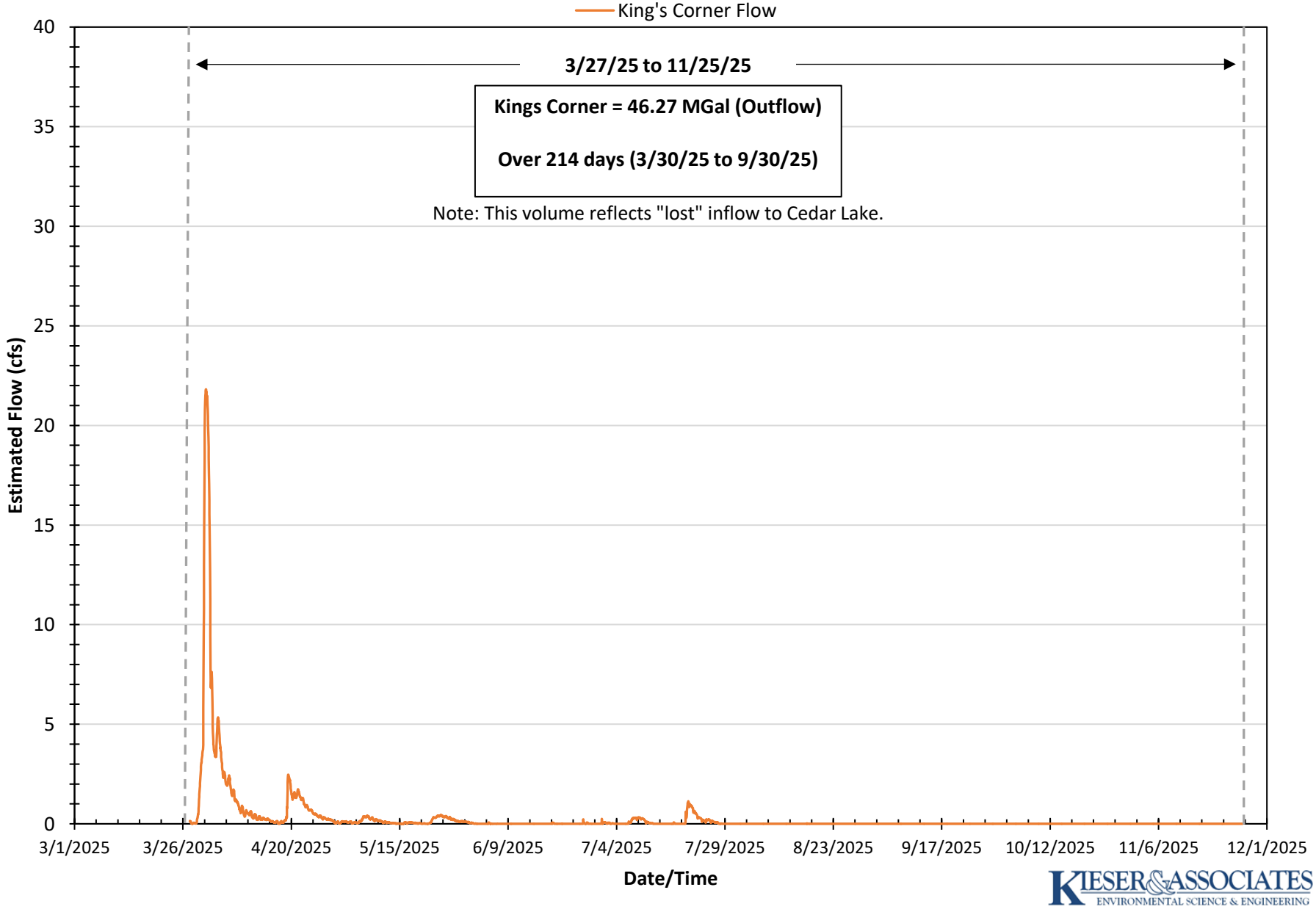


Figure 25. 2025 Estimated Wetland Berm Spillway Flows

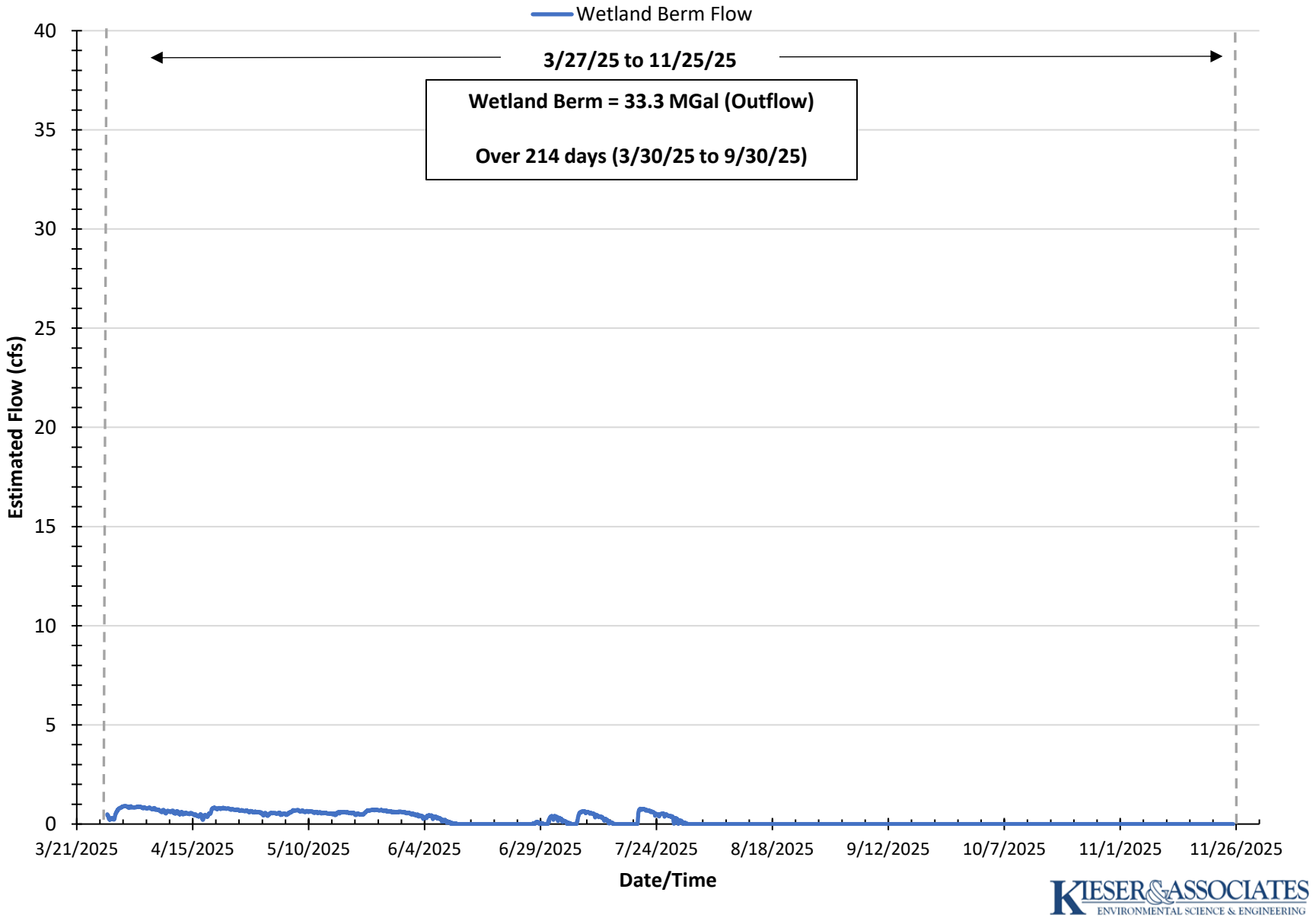


Figure 26. 2025 Estimated Cedar Lake Inflows/Outflows

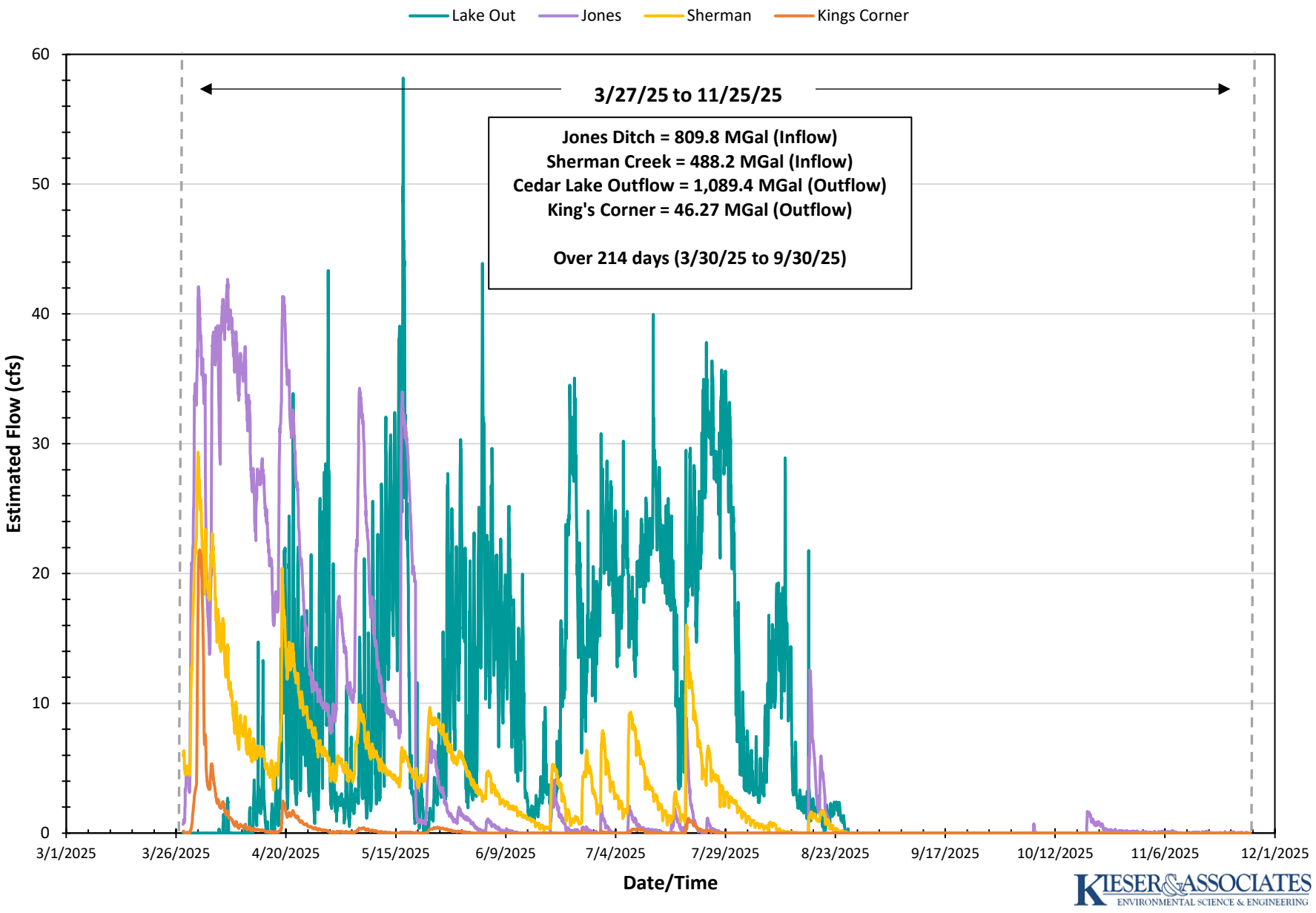


Figure 27. 2025 Sherman Creek Stations: Groundwater / Surface Water Elevations

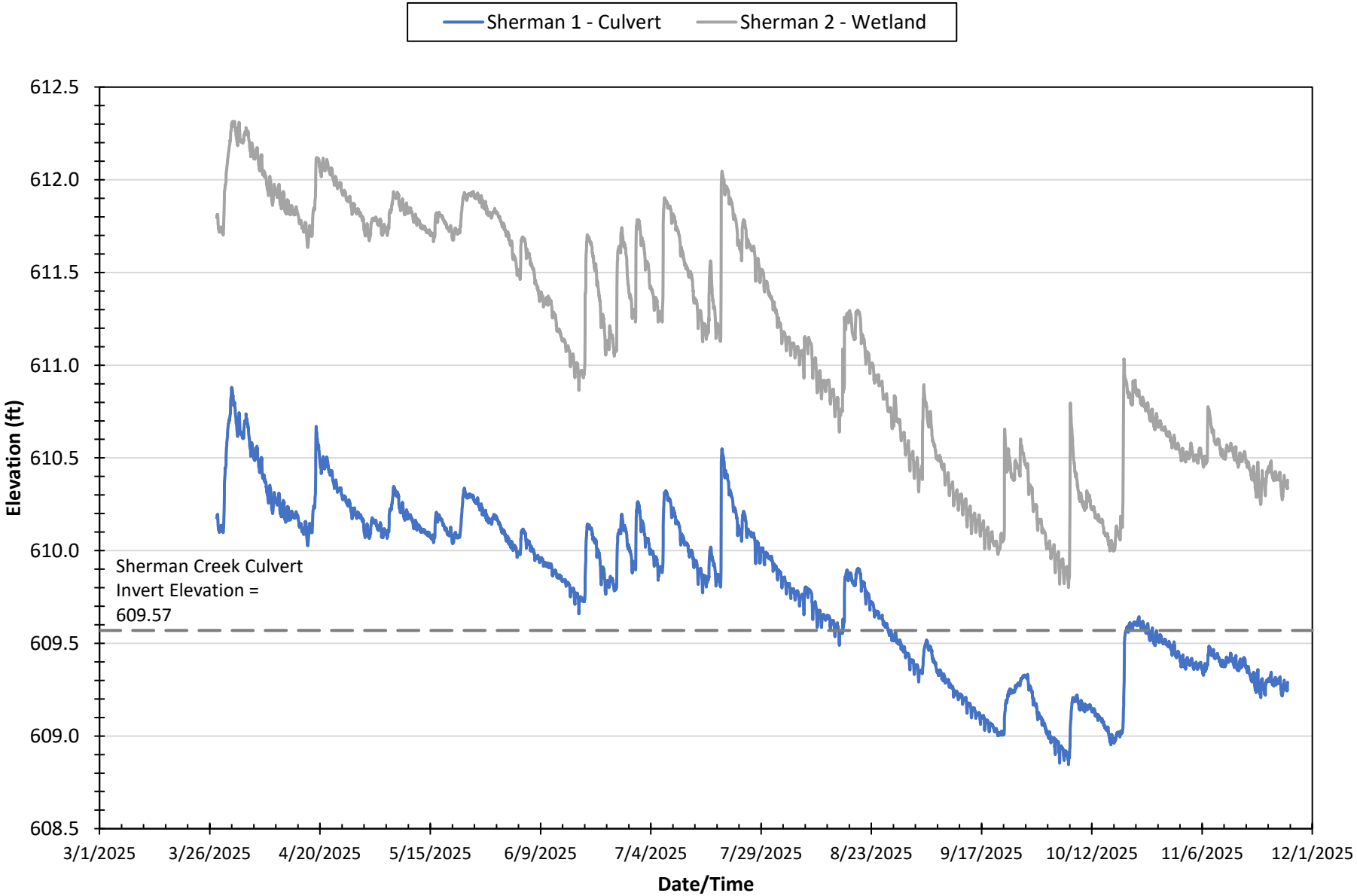


Figure 28. 2025 Cedar Lake Groundwater / Surface Water Elevations (Wetland Berm)

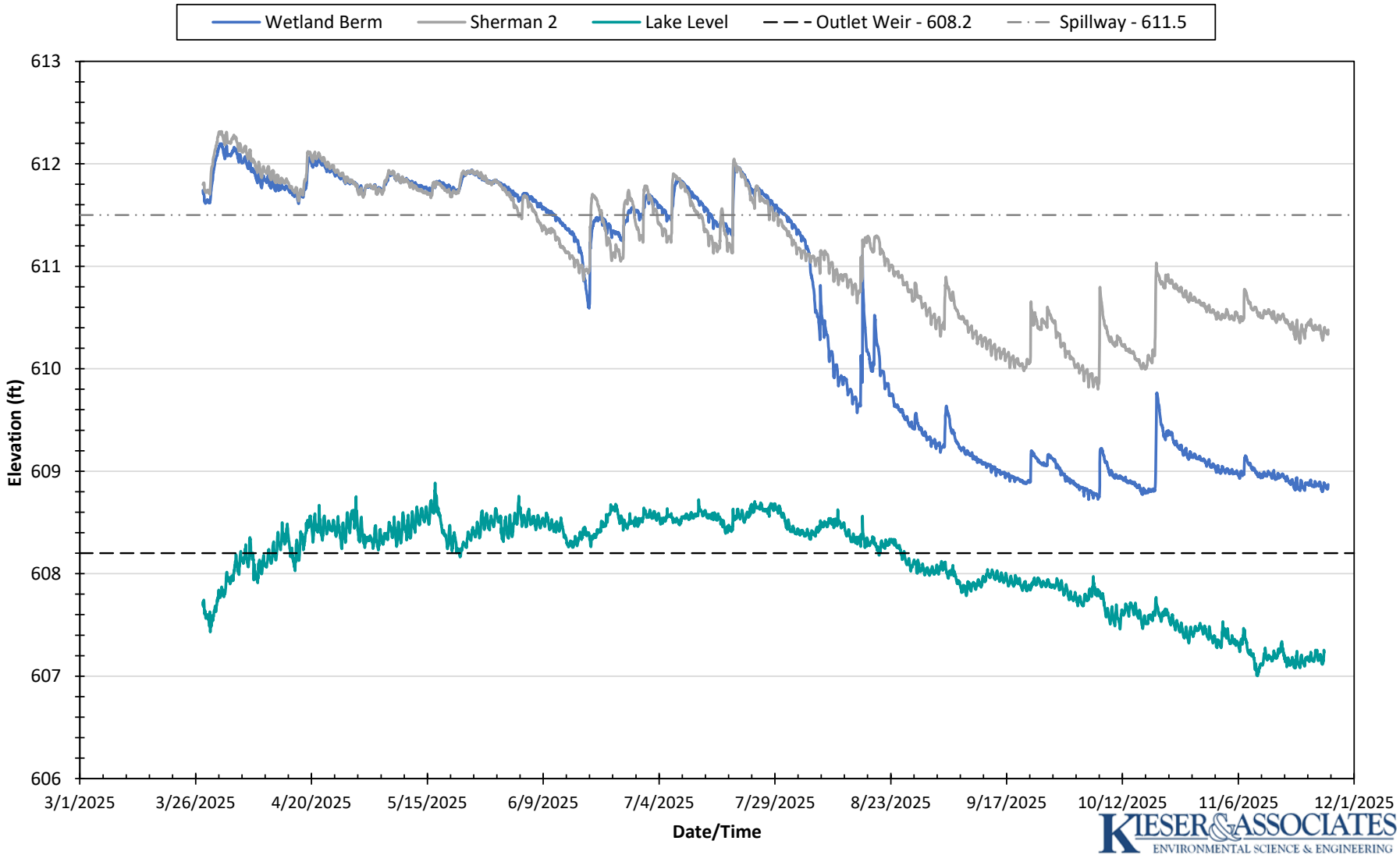


Figure 29. 2025 Cedar Lake Groundwater / Surface Water Elevations (Wetland Berm, King's Corner, and Sherman 2)

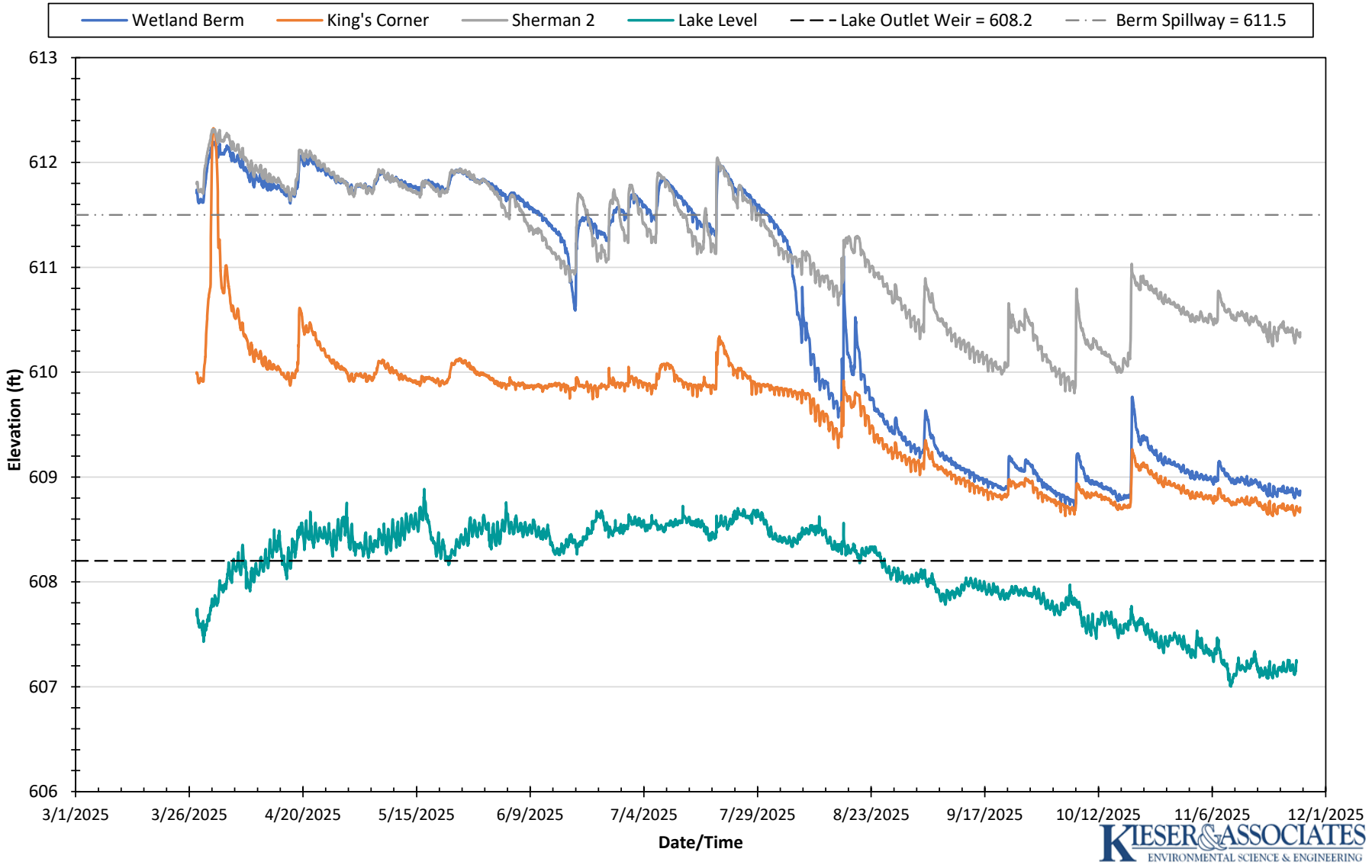
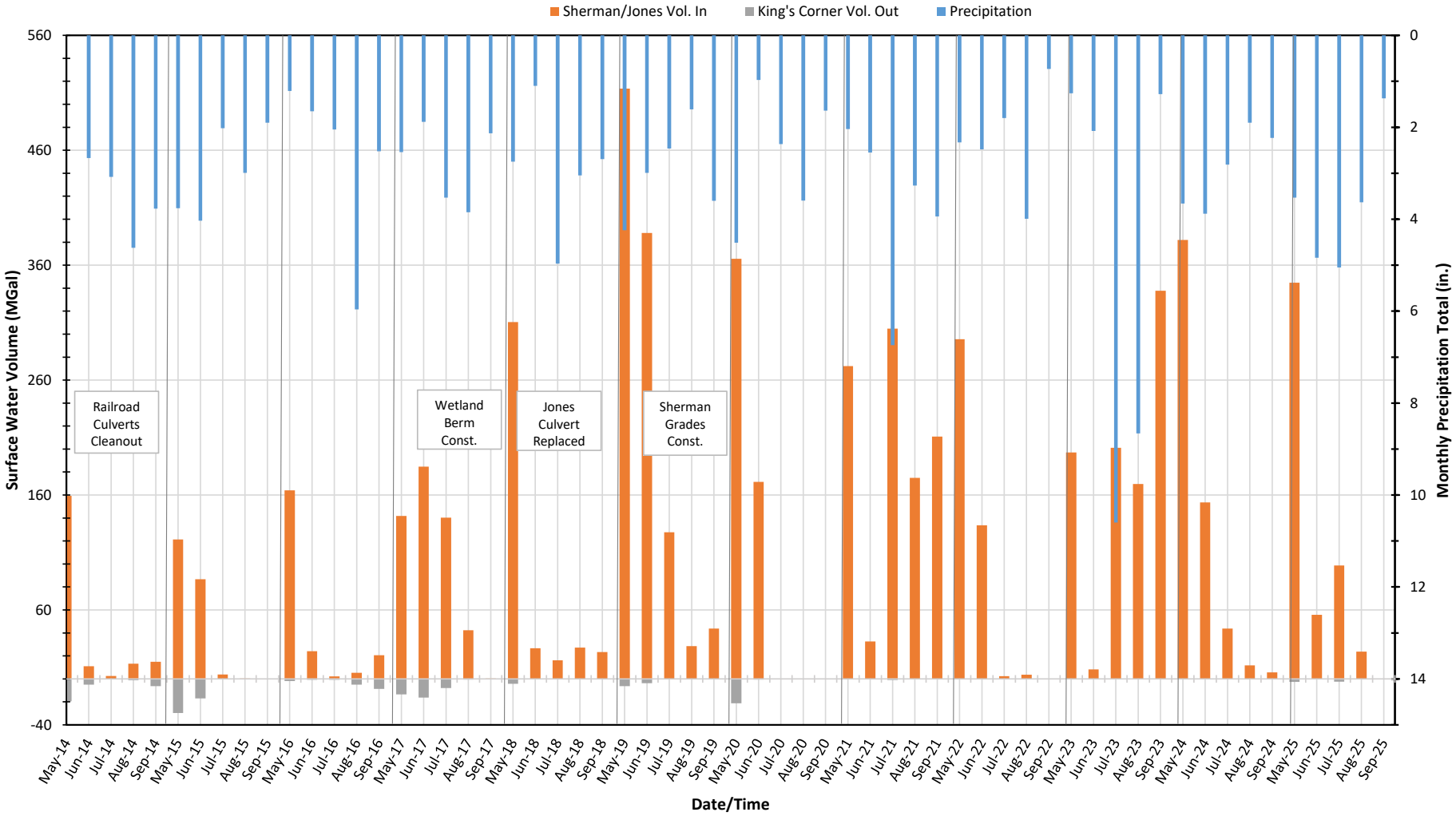


Figure 30. May-Sept, 2014-2025: Precipitation, Sherman/Jones Creek Combined Surface Water Volume into Cedar Lake, and King's Corner Water Volume Away from Cedar Lake



May - September	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Precipitation (in.)	14.14	14.70	13.39	13.93	14.55	14.90	13.08	18.54	11.33	23.88	14.48	18.42
Inflow Volume (Mgal)	200.90	212.50	216.10	509.20	338.30	534.30	383.50	995.10	435.20	1,477.10	1,121.20	523.01
King's Outflow Vol. (Mgal)	32.20	46.90	17.10	38.10	4.30	10.20	21.80	0.16	0.16	10.37	0.05	5.20


N
0
0.25
0.5
0.75
1 mi
Legend
Aquatic Resource Observation Sites (AROS)
EWM Treatment Areas
26TMTZ 1
0.63 Acres
26TMTZ 2
0.17 Acres
26 TMTZ 3
0.16 Acres
Trench 1
3.57 Acres
26 TMTZ 4
0.38 Acres
Trench 2
1.79 Acres
Trench 3
3.7 Acres
Trench 4
3.97 Acres
Trench 5
5.45 Acres

SOLITUDE
LAKE MANAGEMENT

Restoring Balance. Enhancing Beauty.

Cedar Lake, Alcona County, and Iosco County
PRE-TREATMENT NOTIFICATION

2026 Aquatic Nuisance Control

This notice is to inform you that the **Cedar Lake Improvement Board** has contracted with **SOLitude Lake Management** for aquatic nuisance control services. Treatments will occur throughout the summer at the recommendation of the lake consultant and approval of the lake improvement board. Various areas of the lake will be treated with aquatic herbicides and/or algaecides for the control of aquatic nuisance plants and/or algae.

Any and all products used in the lake are federally registered with the **Environmental Protection Agency (EPA)**, registered for use in **Michigan by the Department of Agriculture and Rural Development (MDARD)**, and permitted for this lake by the **Michigan Department of Environmental, Great Lakes, and Energy (MDEGLE)**. Applications approved under the MDEGLE permit include rates, locations, and timing that minimize impacts to non-target organisms, such as fish, other wildlife and pets.

Please watch the shoreline for the posting of YELLOW treatment notifications signs, which indicate the day of treatment. exact products applied and all associated water use restrictions Signs will be posted along the shoreline within each treated area homes adjacent to the treatment area the DNR boat launch and Cedar Lake Park (Greenbush Township).

The products applied to the lake may be either liquid or granular formulations. Liquid products are sprayed across the lake surface or injected below the surface depending on treatment strategies and/or weather conditions. Granular formulations are applied with broadcast spreaders.

The approximate date of the first treatment is June 23 & 30, 2026

Control activities are performed by **SOLitude Lake Management**. For inquiries concerning the planned herbicide applications, please reach out to SOLitude Lake Management at:

SOLitude Lake Management

3390 N. State rd. STE D
Davison, MI 48423
(888) 480-LAKE

MDEGLE ANC Permit Information:

- Cedar Lake, Iosco & Alcona Counties
  MDEGLE ANC Permit no. ANC9811451

https://www.soiltudelakemanagement.com

SOLITUDE
LAKE MANAGEMENT

Restoring Balance. Enhancing Beauty.

The following is a list of herbicides that may be applied to the lake as part of the aquatic plant management program. The table includes the maximum water use restrictions associated with each herbicide.

Active Ingredient	Do not swim for:	Do not irrigate turf for:	Do not irrigate ornamentals for:	Do not irrigate food crops for:	Do not water livestock for:	Do not use as drinking water for:
Copper Sulfate	N/R	N/R	N/R	N/R	N/R	N/R
Copper Ethanolamine (Chelated Copper)	N/R	N/R	N/R	N/R	N/R	N/R
Copper Ethylenediamine (Chelated Copper)	24 hours	N/R	N/R	N/R	N/R	N/R
Sodium Carbonate Peroxyhydrate	24 hours	N/R	N/R	N/R	N/R	N/R
Endothall	24 hours	N/R	N/R	N/R	N/R	N/R
Diquat Dibromide	24 hours	3 days	3 days	5 days	1 day	3 days
Flumioxazin	24 hours	2 days	2 days	2 days	N/R	N/R
Carfentrazone	24 hours	14 days	14 days	14 days	1 day	1 day
2,4-d	24 hours	Up to 120 days	Up to 120 days	Up to 120 days	N/R	Up to 21 days
Triclopyr	24 hours	Up to 120 days	Up to 120 days	Up to 120 days	N/R	N/R
Florpyrauxifen-benzyl	24 hours	Up to 35 days	Up to 35 days	Up to 35 days	24 hours	N/R
Fluridone	24 hours	14 days	14 days	14 days	N/R	N/R
Glyphosate	24 hours	N/R	N/R	N/R	N/R	N/R
Imazapyr	24 hours	Up to 120 days	Up to 120 days	Up to 120 days	N/R	N/R
Adjuvant	N/R	N/R	N/R	N/R	N/R	N/R
Shade Products (Dyes)	24 hours	N/R	N/R	N/R	N/R	N/R

N/R = "No restrictions"

* There are no restrictions on using treated lake water for domestic uses (e.g., laundry, dishwashing), fishing, or consuming fish
* Pets should follow the restrictions for swimming & bathing unless the lake is their primary source of drinking water

For each application, 8.5" X 11" YELLOW treatment notification signs will be posted along the shoreline. The signs will be posted at all properties along each treatment zone or within 100 feet of a treatment zone. ****** If you do not have a sign, the nearest treatment zone is more than 100 feet from your property and you DO NOT need to follow the water use restrictions. ******

The signs shall indicate the day of treatment, permit number, contact information, exact products applied and the corresponding water use restrictions. New signs will be posted for each treatment event, including the new products and water use restrictions.

Posting of treatment notification signs may be completed in advance of the actual treatment date. The signs include a small box that, if checked, indicates the signs were posted prior to the treatment date. If the box is not checked, the application will be made on the same day as the posting.

Posters will be attached to trees, posts, decks, docks and other vertical objects along the immediate shoreline. However, riparian property owners who choose not to have the posters affixed to their personal property may have alternative postings. Within 30 feet of the immediate shoreline, you may supply your own bright YELLOW painted supporting device (stake) at least 30 inches tall and the posters will be stapled to that device.

Treatment signs and treatment maps will also be be posted at DNR boat launch and Cedar Lake Park (Greenbush Township)

NOTICE

DO NOT REMOVE POSTING SIGNS OR MAPS UNTIL ALL WATER USE RESTRICTIONS HAVE EXPIRED

This area of CEDAR LAKE was chemically treated on 6/29/2026 for the control of an aquatic nuisance under:

- ☑ **EGLE ANC Permit No. ANC- 9811451**
- ☐ **EGLE ANC Certificate of Coverage No. ANC**
- ☐ **Permit by Rule, pursuant to R323.3102 (2)**

Check all that apply	Active Ingredient	Trade Name(s)	Do not use this water for swimming or bathing	Do not use this to irrigate ornamentals	Do not use this water for turf irrigation	Do not use this water for agricultural irrigation	Do not use this water for livestock watering
☑	Carfentrazone	**STINGRAY**	1 DAY	5 DAYS	5 DAYS	5 DAYS	5 DAYS
☑	Chelated Copper	**CUTRINE PLUS**	OK	OK	OK	OK	OK
☐	Triclopyr	**NAVITROL LIQUID**	1 DAY	3 WEEKS	OK	3 WEEKS	3 WEEKS
☐	Copper Sulfate	**OLD BRIDGE**	OK	OK	OK	OK	OK
☑	Diquat Dibromide	**TRIBUNE**	1 DAY	3 DAYS	3 DAYS	5 DAYS	1 DAY
☐	Endothal	**HYDROTHOL 191 / AQUATHOL K**	1 DAY	OK	OK	OK	OK
☑	Flumioxazin	**PROPELLER**	1 DAY	3 DAYS	3 DAYS	5 DAYS	1 DAY
☑	Polyacryamide Copolymer	**Polyan**	OK	OK	OK	OK	OK

****** Imazapyr / Glyphosate Restrictions only apply in Phragmite / Cattail / Lilypad Treated areas******

NOTE: Restrictions are from the treatment date **OK** = Does not apply

Triclopyr & 2, 4-D: Do not use treated water for irrigation for the posted amount of time after application. As an alternative to waiting the number of specified days, treated water may be used for irrigation once the concentration level in the treatment area is determined to be safe as determined by laboratory analysis or approximately 3 weeks after treatment.

The chemicals used for Aquatic Nuisance Control are registered by the U.S. Environmental Protection Agency and the Michigan Department of Agriculture. The potential for damage to fish and other non-target organisms is minimal provided that the product is used as directed on the product label and the permit. To minimize the possible effects on health and the environment, the treated water is restricted for the above purposes.

Treatments Conducted By:
Solitude Lake Management
3390 N State Road, Suite D
Davison, MI 48423
(888) 480 - LAKE
www.solitudelake.com

EGLE
MDEGLE
Aquatic Nuisance Control Program
(517) 284 – 5593
EGLE-WRD-ANC@Michigan.gov

☐ This box indicates that signs have been posted prior to the actual day of treatment, as indicated by the date at the top of this sign.

Bloom Sluggett, PC

161 Ottawa Ave NW, Ste. 400
Grand Rapids, MI 49503
(616) 965-9340

April 7, 2026

Cedar Lake Improvement Board
Attn: Rex Vaughn, Chairperson
PO Box 53
Greenbush, MI 48738

Re: 19627-001
Cedar Lake Improvement Board

Enclosed is invoice 28122, which covers services through 3/31/2026. This invoice, dated 4/7/2026, is for $778.50. Prompt payment of your total balance is appreciated and is due 30 days from invoice date.

Billing Summary

Total for services rendered	$778.50
Total expenses	$0.00
Total previous balance	$969.00
Total payments and other transactions	$0.00
Balance Due	**$1,747.50**

If you have questions, please call us at (616) 965-9340. Thank you.

Enclosure

Cedar Lake Grocery

3448 S U.S. 23
GREENBUSH, MI 48738
989 739 9812

Cedar Lake Grocery
Cashier: Employee of the Month
02-Jun-2026 9:54:53A

Transaction **001833**

3	Sub - Italian	$20.97
2	Sub - Turkey	$13.98
1	Sub - Buffalo Chicken	$6.99
	$2.00 Off	-$2.00

NO_TAX	0%	$0.00
Total		**$39.94**

CREDIT CARD SALE $39.94
MASTERCARD 4388

Retain this copy for statement validation
Station: Cedar Lake Grocery

02-Jun-2026 9:55:44A
$39.94 | Method: CONTACTLESS
MASTERCARD XXXXXXXXXXXX4388
Reference ID: 615300532629
Auth ID: 36962Z
MID: ****2727
AID: A0000000041010
AthNtwkNm: MASTERCARD

THANK YOU

Clover ID: 465SD9WM6M1CG
Payment ZNAH51QGQ2KXY

Clover Privacy Policy
https://clover.com/privacy

Subway#13562-0 Phone 989-739-3770
5121 N US 23
Oscoda, MI, 48750
Served by: 974 6/1/2026 11:50:22 am
Term ID-Trans# 1/A-595132

Qty	Size	Item	Price
1		6" Veggie Delite Sub	5.69

Sub Total	5.69
State Tax (6%)	0.34
Total (Eat In)	6.03
Tips	0.90
Total (With Tips)	6.93
Credit Card	6.93

********** PURCHASE **********
APPROVED

Subtotal:	$6.03
Tip:	$0.90
Total:	$6.93

Card Type: MASTERCARD
Card Entry: Contactless
Acct #: **********4388
Approval Code: 66869Z
Trans Id: 615298742761

********** EMV PURCHASE **********
App Label: MASTERCARD
Mode: Issuer
AID: A0000000041010
TVR: 0000008001
IAD:
0114A14003020000000400000000000000FF
TSI:
ARC: 00
AC: 8091CFD3148B969A
CVM: 3F0002

CUSTOMER COPY

Host Order ID:
01Z6NSR0DR02PC2QQ5F5UJ19P1B5330Y

KIESER & ASSOCIATES
ENVIRONMENTAL SCIENCE & ENGINEERING

536 E. Michigan Avenue
Suite 300
Kalamazoo, MI 49007

Invoice

DATE	INVOICE #
6/8/2026	26-277

BILL TO:

Cedar Lake Improvement Bd.
C/o Rex Vaughn
PO Box 53
Greenbush, MI 48738

P.O. NO.	TERMS
2025-2026 Budget	Net 30

DESCRIPTION	QTY	RATE	AMOUNT
Senior Scientist/ Principal - Task 2	1.75	210.00	367.50
Professional Engineer - Task 5f	1	170.00	170.00
Senior Scientist/ Principal - Task 5f	6.25	210.00	1,312.50
This invoice is for professional services rendered through April 30, 2026, as related to Cedar Lake Improvement Bd. 2025-2026 Services.			

Please remit payment to Kieser & Associates, LLC
For questions, please contact Becky Hough.

Total USD 1,850.00

Phone #	Fax #
(269) 344-7117	(269) 344-2493

Kieser & Associates, LLC
Time by Job Detail
April 2026

Cedar Lake Improvement Bd. (2025-2026)	Date	Name	Duration	Cost	Notes
Cedar Lake Improvement Bd. (2025-2026): Task 2 - CLIB Coordination					
	04/17/2026	Kieser, Mark	1.75	367.50	Coord. with Rex on high flows
Total Cedar Lake Improvement Bd. (2025-2026): Task 2:			**1.75**	**367.50**	
Cedar Lake Improvement Bd. (2025-2026): Task 5f-Hydrology- Annual Reporting					
	04/27/2026	Jacobson, John	1.00	170.00	Report investigation
	04/24/2026	Kieser, Mark	2.50	525.00	Annual report review
	04/26/2026	Kieser, Mark	2.25	472.50	Final review of report narrative/hydrology report
	04/27/2026	Kieser, Mark	1.50	315.00	Hydrology report figure review
Total Cedar Lake Improvement Bd. (2025-2026): Task 5f:			**7.25**	**1,482.50**	
TOTAL: CEDAR LAKE IMPROVEMENT BD. (2025-2026):			**9.00**	**1,850.00**	

Cedar Lake Improvement May 1, 2025 - April 30, 2026 Budget

Task/Description	Total 2025 Authorized Task Budget	INV# 25-165 to 9/30/25	INV# 25-187 to 11/30/25	INV# 25-207 to 12/31/25	INV# 26-211 to 1/31/26	INV# 26-223 to 3/31/26	INV# 26-277 to 4/30/26	TOTAL INVOICED TO DATE	Total Remaining Task $s
Task 1a - CLIB Meetings	2,196.00							0.00	2,196.00
Task 1b - CLIB Meetings - Direct Costs	400.00							0.00	400.00
Task 2a - CLIB Coordination	3,802.00		122.50	1,230.00		1,365.00	367.50	3,238.75	563.25
Task 2b - CLIB Coordination - Direct Costs	200.00							0.00	200.00
Task 3a - Watershed Management Plan (WMP) Updates (Remaining Contract Budget)	1,565.00							4,782.50	-3,217.50
Task 4a - Fisheries Habitat Analysis of Lake and Tributary (Remaining Contract)	341.73					153.75		855.00	-513.27
Task 5a - Annual Hydrology Monitoring Program - Standard Logger Maint. +2 Ex Visits	6,057.00		3,905.59			2,150.75		6,056.34	0.66
Task 5b - Annual Hydrology Monitoring Program - Jones Creek Data Analysis/Options	1,560.00				80.00			1,508.75	51.25
Task 5c - Annual Hydrology Monitoring Program - Ongoing Sherman Creek Analysis	1,560.00							698.75	861.25
Task 5f - Annual Hydrology Monitoring Program - Annual Reporting	7,571.00	297.50		1,040.00	1,410.00	1,126.25	1,482.50	6,315.00	1,256.00
Task: Nearshore Sampling:	16,396.75	1,120.75	8,804.25					16,396.75	0.00
Task: Shallow GW Sampling	5,000.00		3,775.81	242.50		981.50		4,999.81	0.19
Task: Extra - Ongoing Reporting/Coordination	2,945.00					2,945.00		2,945.00	0.00
Total Budget:	**49,594.48**	**1,418.25**	**16,608.15**	**2,512.50**	**1,490.00**	**8,722.25**	**1,850.00**	**47,796.65**	**1,797.83**

SOLITUDE
LAKE MANAGEMENT

INVOICE

Please Remit Payment to:
Solitude Lake Management, LLC
*****ADDRESS CHANGED******
PO BOX 85529
CHICAGO, IL 60689-5529
Phone #: (888) 480-5253
Fax #: (888) 358-0088

Invoice Number: PSI276768
Invoice Date: 6/13/2026

Bill To: Cedar Lake Improvement Board
PO Box 53
Greenbush, MI 48738

Ship To: Cedar Lake Improvement Board
PO Box 53
Greenbush, MI 48738

Ship Via
Ship Date 6/13/2026
Due Date 7/13/2026
Terms Net 30

Customer ID 18536
P.O. Number
P.O. Date 6/13/2026
Our Order No.

Item/Description	Unit	Order Qty	Quantity	Unit Price	Total Price
Consulting (Permitting,Survey) One-Time Service Cedar Lake Improvement Board 00-01 CONSULTING		1	1	900.00	900.00

Amount Subject to Sales Tax 0.00
Amount Exempt from Sales Tax 900.00

Subtotal:	**900.00**
Invoice Discount:	0.00
Total Sales Tax:	0.00
Payment Amount:	0.00
Total:	**900.00**

SOLITUDE
LAKE MANAGEMENT

INVOICE

Please Remit Payment to:
Solitude Lake Management, LLC
*****ADDRESS CHANGED******
PO BOX 85529
CHICAGO, IL 60689-5529
Phone #: (888) 480-5253
Fax #: (888) 358-0088

Invoice Number: PSI267614
Invoice Date: 5/6/2026

Bill To: Cedar Lake Improvement Board
PO Box 53
Greenbush, MI 48738

Ship To: Cedar Lake Improvement Board
PO Box 53
Greenbush, MI 48738

Customer ID 18536
Ship Via
Ship Date 5/6/2026
P.O. Number
P.O. Date 5/6/2026
Due Date 6/5/2026
Our Order No.
Terms Net 30

Item/Description	Unit	Order Qty	Quantity	Unit Price	Total Price
Consulting (Permitting,Survey) One-Time Service Cedar Lake Improvement Board 00-01 PERMITTING		1	1	667.50	667.50

2026 Additional fee to increase the 2026 EGLE ANC Permit's treatment acreage.
-
Initial Fee Invoiced, PSI240110 - $1,182.50
Add-on Fee, PSI267614 - $667.50
Total Fee for 2026 - $1,850.00

Amount Subject to Sales Tax 0.00
Amount Exempt from Sales Tax 667.50

Subtotal:	**667.50**
Invoice Discount:	0.00
Total Sales Tax:	0.00
Payment Amount:	0.00
Total:	**667.50**

SOLITUDE
LAKE MANAGEMENT

INVOICE

Please Remit Payment to:
Solitude Lake Management, LLC
*****ADDRESS CHANGED******
PO BOX 85529
CHICAGO, IL 60689-5529
Phone #: (888) 480-5253
Fax #: (888) 358-0088

Invoice Number: PSI277350
Invoice Date: 6/29/2026

Bill To: Cedar Lake Improvement Board
PO Box 53
Greenbush, MI 48738

Ship To: Cedar Lake Improvement Board
PO Box 53
Greenbush, MI 48738

Ship Via
Ship Date 6/29/2026
Due Date 7/29/2026
Terms Net 30

Customer ID 18536
P.O. Number
P.O. Date 6/29/2026
Our Order No.

Item/Description	Unit	Order Qty	Quantity	Unit Price	Total Price
Lake, Pond & Wetland Application One-Time Service Cedar Lake Improvement Board 00-01 INVASIVES CONTROL		1	1	10,984.24	10,984.24

June 29, 2026 - Lake treatment

* A2) Cost to apply liquids to more than 5 acre(s) @ $95.00 per/acre
41.5-acre(s) X $95.00 = $3,942.50

* Diquat Dibromide (Tribune) @ $77.38 per/gal.
20.75 gal(s) X $77.38 =$1,605.64

* Carfentrazone (Stingray) @ $730.00 per/gal.
2.6 gal(s) X $730.00 =$1,898 .00

* Flumioxazin (Propeller) @ $48.15 per/lb.
41.5 lb.(s) X $48.15 = $1,998.23

* Chelated Copper (Captain XTR) @ $52.09 per/gal.
20.75 gal(s) X $52.09 = $1,080.87

* Polyacrylamide Copolymer (Polyan) @ $91.80 per/gal.
5 gal(s) X $91.80 = $459.00

Total Treatment Cost = $10,984.24

Amount Subject to Sales Tax 0.00
Amount Exempt from Sales Tax 10,984.24

Subtotal:	**10,984.24**
Invoice Discount:	0.00
Total Sales Tax:	0.00
Payment Amount:	0.00
Total:	**10,984.24**

INVOICE

Radiant Bookkeeping Solutions
PO Box 4
Alpena, MI 49707-0004

lindsey@radiantbookkeepingsolutions.com
+1 (989) 340-6979
www.radiantbookkeepingsolutions.com

RADIANT
BOOKKEEPING SOLUTIONS

Bill to
Cedar Lake Improvement Board
PO Box 53
Greenbush, MI 48738-0053

Invoice details
Invoice no.: 1212
Terms: Net 30
Invoice date: 07/02/2026
Due date: 08/01/2026

#	Date	Product or service	Description	Qty	Rate	Amount
1.	06/20/2026	**Hours**	Entered all 2025 & 2026 transactions, reconciled bank accounts through 4-2026, pulled reports for accountant and sent via email.	5.5	$50.00	$275.00

Total **$275.00**

Ways to pay

BANK

View and pay

Client Hourly Tracking:
June 2026

Date	Client	Billable Hours	Notes
6/20/2026	Cedar Lake	5.5	Entered all 2025 & 2026 transactions, reconciled bank accounts through 4-2026, pulled reports for accountant and sent via email.

KIESER & ASSOCIATES
ENVIRONMENTAL SCIENCE & ENGINEERING

536 E. Michigan Avenue
Suite 300
Kalamazoo, MI 49007

Invoice

DATE	INVOICE #
7/6/2026	26-291

BILL TO:

Cedar Lake Improvement Bd.
C/o Rex Vaughn
PO Box 53
Greenbush, MI 48738

P.O. NO.	TERMS
2026-2027 Budget	Net 30

DESCRIPTION	QTY	RATE	AMOUNT
Senior Scientist/ Principal - Task 2a	0.5	210.00	105.00
Professional Engineer - Task 2a	0.5	170.00	85.00
Hope - Intern - Task 5a	2.25	65.00	146.25
Project Manager - Task 5a	2.25	90.00	202.50
Senior Scientist/ Principal - Task 5a	1.25	210.00	262.50
Professional Engineer - Task 5a	5	170.00	850.00
Field Manager - Task 5a	0.5	85.00	42.50
Hope - Intern - Task 5f	1	65.00	65.00
Field Manager - Task 5f	2	85.00	170.00
Senior Scientist/ Principal - Task 5f	1.5	210.00	315.00
Senior Scientist/ Principal - Task: Extra	8.25	210.00	1,732.50
Professional Engineer - Task: Extra	0.5	170.00	85.00
Hope - Intern - Task: Extra	10.25	65.00	666.25
Grace - Intern - Task: Extra	3	65.00	195.00
Project Manager - Task: Extra	7.5	90.00	675.00
Enviro Lab Services, Inv. #: 004452, 6/05/26 -Task: Extra		250.00	250.00
GLEC Labs, Invoice #36522, 6/30/26 - Task: Extra		205.00	205.00

This invoice is for professional services rendered through June 30, 2026, as related to Cedar Lake Improvement Bd. 2026-2027 Services.

Please remit payment to Kieser & Associates, LLC
For questions, please contact Becky Hough.

Total USD 6,052.50

Phone #	Fax #
(269) 344-7117	(269) 344-2493

Kieser & Associates, LLC
Time by Job Detail
June 2026

Cedar Lake Improvement Bd. (2026-2027)	Date	Name	Duration	Cost	Notes
Cedar Lake Improvement Bd. (2026-2027): Task 2a - CLIB Coord.					
	05/20/2026	Kieser, Mark	0.50	105.00	Phelan Creek flows/golf course pond permit
	05/20/2026	Jacobson, John	0.50	85.00	Research on WOTS issues
Total Cedar Lake Improvement Bd. (2026-2027): Task 2a:			**1.00**	**190.00**	
Cedar Lake Improvement Bd. (2026-2027): Task 5a - Hydrology-Logger Maint+ 2 Visit					
	06/02/2026	Dzik, Hope	2.25	146.25	Timberlake area collecting elevation data and berm checks.
	06/02/2026	Crum, Natalie	2.25	202.50	Timberlakes elevation and checking the berm
	06/01/2026	Kieser, Mark	0.50	105.00	Confirming Timberlake survey monitoring needs
	06/08/2026	Kieser, Mark	0.25	52.50	TimerLakes measured piezo elevations
	06/15/2026	Kieser, Mark	0.50	105.00	Timber Lakes elevation corrections with John
	06/15/2026	Jacobson, John	2.50	425.00	Elevation Adjustment for Timberlakes, Review of Jone Ditch Flows
	06/17/2026	Jacobson, John	2.50	425.00	Review of Jone Ditch GW Drawdown
	06/12/2026	Kieser, Josh	0.50	42.50	Assessing TL piezometer elevation data for discrepancies.
Total Cedar Lake Improvement Bd. (2026-2027): Task 5a:			**11.25**	**1,503.75**	
Cedar Lake Improvement Bd. (2026-2027): Task 5f-Hydrology- Annual Reporting					
	06/15/2026	Dzik, Hope	1.00	65.00	Prep and begin Cedar Lake reporting.
	06/18/2026	Kieser, Josh	2.00	170.00	Finalizing 2025 hydrology report.
	06/18/2026	Kieser, Mark	1.50	315.00	Wrap up of 2025 data report
Total Cedar Lake Improvement Bd. (2026-2027): Task 5f:			**4.50**	**550.00**	
Cedar Lake Improvement Bd. (2026-2027): Task- Extra - Shallow GW Sampling $5K					
	06/01/2026	Kieser, Mark	1.50	315.00	Coord. for June 3 CLIB GW sampling
	06/05/2026	Kieser, Mark	0.75	157.50	Jones Ditch/ GW bacteria data review/forward
	06/06/2026	Kieser, Mark	0.25	52.50	Results coord. with Rex Vaughn
	06/07/2026	Kieser, Mark	0.25	52.50	Preliminary drafting of tech memo on sampling

Kieser & Associates, LLC
Time by Job Detail
June 2026

Cedar Lake Improvement Bd. (2026-2027)	Date	Name	Duration	Cost	Notes
	06/12/2026	Kieser, Mark	0.50	105.00	Draft narrative for sampling
	06/14/2026	Kieser, Mark	0.50	105.00	Draft of preliminary bacteria sampling report
	06/15/2026	Kieser, Mark	1.50	315.00	Finalize preliminary bacteria results report
	06/17/2026	Kieser, Mark	0.25	52.50	Call with Rex on bacteria results memo
	06/19/2026	Kieser, Mark	2.75	577.50	FAQ doc wrap-up
	06/29/2026	Jacobson, John	0.50	85.00	Review of septic South of Jones Ditch
	06/03/2026	Dzik, Hope	5.00	325.00	Groundwater & surface water sampling at Jones ditch, Ecoli testing
	06/09/2026	Dzik, Hope	1.75	113.75	Compiled data, collected pictures, mapped GIS ecoli & sampling areas
	06/09/2026	Dzik, Hope	0.75	48.75	Upload images & compile data; Review E.coli info & GIS mapping
	06/09/2026	Dzik, Hope	2.00	130.00	Cedar Prep-Hydrology with piezo levels
	06/01/2026	Dzik, Hope	0.75	48.75	Cedar lake planning & meeting with Natalie & J. Kieser
	06/04/2026	Simpson, Grace	3.00	195.00	GIS mapping for Cedar Lake (North), & worked on the quick ID slides.
	06/01/2026	Crum, Natalie	1.00	90.00	Prepping for groundwater sampling
	06/03/2026	Crum, Natalie	5.00	450.00	Groundwater and Jones E. Coli sampling
	06/09/2026	Crum, Natalie	1.25	112.50	Identifying follow-up tasks for sampling
	06/29/2026	Crum, Natalie	0.25	22.50	Data Upload
	08/27/1901	Enviro Lab Serv.		250.00	Enviro Lab Services Invoice No.: 004452, E.Coli & Coliform
	06/30/2026	GLEC Labs		205.00	GLEC Labs Invoice #: 36522, Samples
Total Cedar Lake Improvement Bd. (2026-2027): Task- Extra:			**29.50**	**3,808.75**	
TOTAL: CEDAR LAKE IMPROVEMENT BD. (2026-2027):			**46.25**	**6,052.50**	

INVOICE

Enviro Lab Services
4150 Arrow St
Oscoda, MI 48750-1561

travis@envirolabusa.com
+1 (989) 820-2339
www.envirolabservice.com

Enviro
Lab Services

Kieser & Associates, LLC.

Bill to
Rex Vaughn
536 E. Michigan Ave.
Kalamazoo, MI 49007

Ship to
Mark Kieser
536 E. Michigan Ave.
Kalamazoo, MI 49007

Invoice details
Invoice no.: #004452
Terms: Net 30
Invoice date: 06/05/2026
Due date: 07/05/2026

#	Product or service	Description	Qty	Rate	Amount
1.	**L-030 E. Coli/Coliform Test**	E.Coli and Coliform Enumeration	5	$50.00	$250.00

Total **$250.00**

Paid

Complete your account to speed through your next checkout! >

Paid invoice ^

Invoice #004452 $250.00
Transaction ID: 18aa2qmub35o

Payment details ^ Download confirmation

Invoice	#004452
Business	Enviro Lab Services
Email	bhough@kieser-associates.com
Payment method	AMEX****4008
Transaction ID	18aa2qmub35o
Due date	July 5, 2026
Invoice amount	$250.00
Total charged	**$250.00**

Your feedback matters
Tell QuickBooks how we can make paying better

Give feedback

Great Lakes Environmental Center, Inc.
Applied Environmental Sciences
231 941-2230 231 941-2240 fax

KIESER & ASSOCIATES, LLC
JOSH KIESER
536 E. MICHIGAN AVE
SUITE 300
KALAMAZOO, MI 49007

Invoice Number: ***36522***
Date: ***06/30/2026***

Project: **2592 KIESER & ASSOCIATES, LLC**
PO#:

For Professional Services Performed During June

Date Sample Received: June 22, 2026

GLEC #: 3K00062-00066

CEDAR LAKE BILLING

	Units	*Rate*	*Amount*
Low Level SRP-Soluble Reactive Phosphorus Tests	5	41.00	205.00
Total Invoice Amount:			**$205.00**

Approved by:

Michelle A Moore

MICHELLE A. MOORE

PAYMENT DUE UPON RECEIPT OF INVOICE
REMIT TO: Great Lakes Environmental Center, Inc.
739 Hastings Street, Traverse City, MI 49686

Cedar Lake Improvement May 1, 2026 - April 30, 2027 Budget

Task/Description	Total 2026 Authorized Task Budget	INV# 26-291 to 6/30/26	INV# 26-2XX to 7/31/26	INV# 26-2XX to 8/31/26	INV# 26-2XX to 9/30/26	INV# 26-2XX to 10/31/26	TOTAL INVOICED TO DATE	Total Remaining Task $s
Task 1a - CLIB Meetings	2,300.00	190.00					190.00	2,110.00
Task 1b - CLIB Meetings - Direct Costs	400.00						0.00	400.00
Task 2a - CLIB Coordination	3,962.00						0.00	3,962.00
Task 2b - CLIB Coordination - Direct Costs	200.00						0.00	200.00
Task 5a - Annual Hydrology Monitoring - Standard Logger Maint. +2 Ex Visits	6,299.00	1,503.75					1,503.75	4,795.25
Task 5b - Annual Hydrology Monitoring - Jones Creek Data Analysis/Options	1,622.00						0.00	1,622.00
Task 5c - Annual Hydrology Monitoring - Ongoing Sherman Creek Analysis	1,622.00						0.00	1,622.00
Task 5f - Annual Hydrology Monitoring - Annual Reporting	7,874.00	550.00					550.00	7,324.00
Task: Extra - Ongoing Reporting/Coordination	3,558.75	3,808.75					3,808.75	-250.00
Total Budget:	**27,837.75**	**6,052.50**	**0.00**	**0.00**	**0.00**	**0.00**	**6,052.50**	**21,785.25**

ALCONA COUNTY DELINQUENT TAX NOTICE

Print Date: 04/02/2026

ALCONA COUNTY TREASURER
P.O. BOX 158
HARRISVILLE, MI 48740
041-196-000-068-00

Property Address: W CEDAR LAKE RD

Delinquent Tax for Property Number:
041-196-000-068-00

Due if paid by	04/30/26	160.59
Due if paid by	05/31/26	162.11
Due if paid by	06/30/26	163.62

CEDAR LAKE IMPROVEMENT BOARD
PO BOX 53
GREENBUSH MI 48738

Make check payable to:

ALCONA COUNTY TREASURER

Amount Remitted: _____

PLEASE RETURN THIS PORTION WITH YOUR PAYMENT. THANK YOU.

PROPERTY INFORMATION

CEDAR LAKE IMPROVEMENT BOARD

PO BOX 53
GREENBUSH MI 48738

Property Number: 041-196-000-068-00
School Dist: School District 35010

Property Address:
W CEDAR LAKE RD
GREENBUSH

LEGAL DESCRIPTION:

T25N R9E SEC 15 LOT 68 EXC S 50 FT & LOT 69 FIRST ADD TO MCCLATCHEYS CEDAR LAKE ESTATES SUB S437/1070 PARCEL "1" SV 2022-2686

DELINQUENT TAXES DUE

TAX YEAR	DELIQUENT BASE	TOTAL DUE IF PAID BY 04/30/26	TOTAL DUE IF PAID BY 05/31/26	TOTAL DUE IF PAID BY 06/30/26
2025	151.50	160.59	162.11	163.62
TOTAL	151.50	160.59	162.11	163.62

If you have questions or need assistance on delinquent taxes our office number is:
989-724-9420
or by email at: actreasurer@alconacounty.gov

Delinquent and Forfeited tax payments can be made by mailing a check or money order or certified funds to:
ALCONA COUNTY TREASURER
P.O. BOX 158
HARRISVILLE, MI 48740

Make check or money order payable to: ALCONA COUNTY TREASURER

ALLPAID debit/credit card payments please scan the QR code to make a payment online for PLC# 7584

BSA payment online is now available for payments, debit/credit card and ACH. Please scan the QR code then seach your parcel.

https://alconacountymi.com/home/treasurer/

SOLITUDE
LAKE MANAGEMENT

INVOICE

Please Remit Payment to:
Solitude Lake Management, LLC
*****ADDRESS CHANGED******
PO BOX 85529
CHICAGO, IL 60689-5529
Phone #: (888) 480-5253
Fax #: (888) 358-0088

Invoice Number: PSI277130
Invoice Date: 6/23/2026

Bill To: Cedar Lake Improvement Board
PO Box 53
Greenbush, MI 48738

Ship To: Cedar Lake Improvement Board
PO Box 53
Greenbush, MI 48738

Ship Via
Ship Date 6/23/2026
Due Date 7/23/2026
Terms Net 30

Customer ID 18536
P.O. Number
P.O. Date 6/23/2026
Our Order No.

Item/Description	Unit	Order Qty	Quantity	Unit Price	Total Price
Lake, Pond & Wetland Application One-Time Service Cedar Lake Improvement Board 00-01 INVASIVES CONTROL: Notifications		1	1	747.00	747.00

* S2 Riparian Notifications and Communications
MI EGLE Required 7-Day Notice (includes postage) @ $ 1.00 per address
747 addresses X $1.00 = $747.00

Amount Subject to Sales Tax 0.00
Amount Exempt from Sales Tax 747.00

Subtotal: **747.00**
Invoice Discount: 0.00
Total Sales Tax: 0.00
Payment Amount: 0.00
Total: **747.00**

INVOICE

DATE
JULY 6, 2026

TO: Cedar Lake Improve. Board
C/O Carolyn Brummond
106 5th Street
Harrisville MI 48740

CLIENT	JOB	PAYMENT TERMS	DUE DATE
Kelly VonFintel	Scribe	Due on receipt	8/1/2026

QTY	DESCRIPTION	UNIT PRICE	LINE TOTAL
1	February 2026 CLIB Meeting Minutes	100.00	100.00
1	April 2026 CLIB Meeting Minutes	100.00	100.00
		SUBTOTAL	200.00
		TOTAL	200.00

sam's club

CLUB MANAGER RHONDA
8102306700

FLINT, MI
06/23/26 13:26 7386 8291 83

PRINTER + COPY PAPER

19.16 + 6% TAX = $20.31

0980196687	HPMEGAREAM	
	2 AT 1 FOR 9.58	19.16 T
0980267491	[redacted]	[redacted]
0980261983	MMNAP6PK	[redacted]
0980150188	[redacted]	[redacted]
0990003141	[redacted]	[redacted]
0990364706	[redacted]	[redacted]
0990340010	[redacted]	[redacted]
0980314036	[redacted]	[redacted]
0000319852	[redacted]	[redacted]
0000179651	[redacted]	[redacted]
0000561914	[redacted]	[redacted]
INST SV	[redacted]	[redacted]
INST SV	[redacted]	[redacted]

[redacted]

TAX 1	6 %	3.29
TAX 12	0 %	0.00

[redacted]

ITEMS SOLD 12

TC# 6300 9495 2659 6357 0296 4

06/23/26 13:26