DRYLET

CASE STUDY

Winter Solids Reduction Verified Through Sonar Mapping

Central Illinois Rendering Facility

BioDredger® Bioremediation & Sonar Mapping Results

37.9%	347,874 gal	23.5%
Total sludge reduction	Total sludge eliminated	Winter reduction in 3½ months

MEASURED • TREATED • VERIFIED

Drylet Sonar Mapping provides quantifiable before-and-after evidence of lagoon solids reduction and recovered treatment capacity.

Project Overview

Drylet partnered with a Central Illinois rendering facility to address accumulated sludge buildup and the resulting loss of wastewater lagoon treatment capacity. To establish accurate baseline conditions and verify treatment performance over time, Drylet first completed a comprehensive Sonar Mapping Survey to quantify sludge accumulation throughout the lagoon.

The initial sonar survey identified approximately 918,524 gallons of accumulated sludge within the lagoon. Based on these findings, Drylet developed a treatment program utilizing BioDredger®, our patented biological bioremediation technology designed to naturally accelerate the breakdown of organic solids, recover lagoon capacity, and improve overall wastewater treatment performance. BioDredger was applied on November 13, 2025, followed by lagoon mixing to maximize contact between the biological treatment and the accumulated solids.

Treatment & Verification Timeline

10/20/2025	11/13/2025	03/03/2026
Baseline sonar mapping	BioDredger® application + mixing	Winter verification sonar

06/24/2026 Second comparison sonar survey documented continued solids reduction into the summer.

Initial Lagoon Conditions

Prior to treatment, Drylet's Sonar Mapping Service established the following baseline conditions:

Measurement	Before Treatment
Overall Lagoon Depth	14.5 ft
Average Water Depth	5.4 ft
Average Sludge Layer Depth	9.1 ft
Estimated Sludge Volume	918,524 gallons

These measurements showed that nearly two-thirds of the lagoon depth consisted of accumulated sludge, significantly reducing available treatment volume and overall lagoon capacity.

Winter Performance

One of the most impressive aspects of this project was the timing. Treatment was initiated just before winter, when colder water temperatures traditionally slow biological activity and reduce the effectiveness of many treatment programs. Despite these challenging conditions, BioDredger® continued reducing accumulated organic solids throughout the winter months.

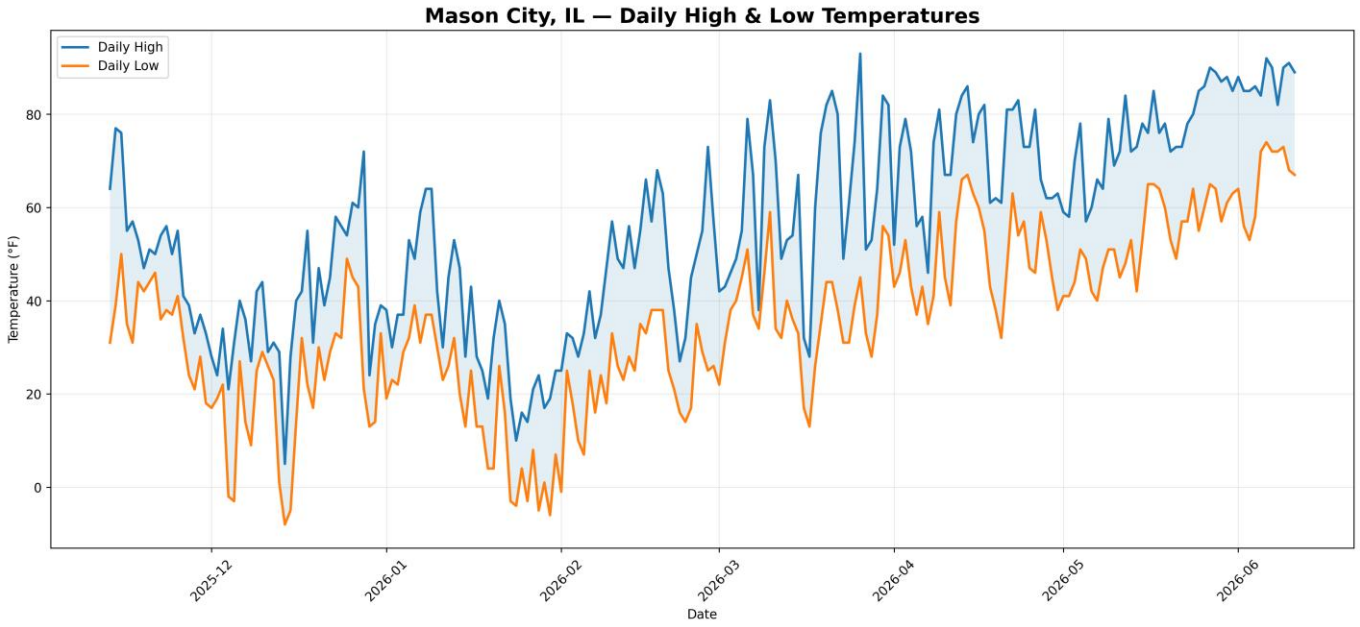


Figure 1. Recorded daily average temperatures in Mason City, IL, November 2025–June 2026.

The first post-treatment sonar survey, completed on March 3, 2026, approximately 3½ months after treatment, documented sludge volumes declining from 918,524 gallons to 702,528 gallons, representing a 23.5% reduction in accumulated solids during the winter period alone. Average sludge depth decreased from 9.1 feet to 7.5 feet, while the average water depth increased from 5.4 feet to 6.0 feet, indicating recovered treatment capacity.

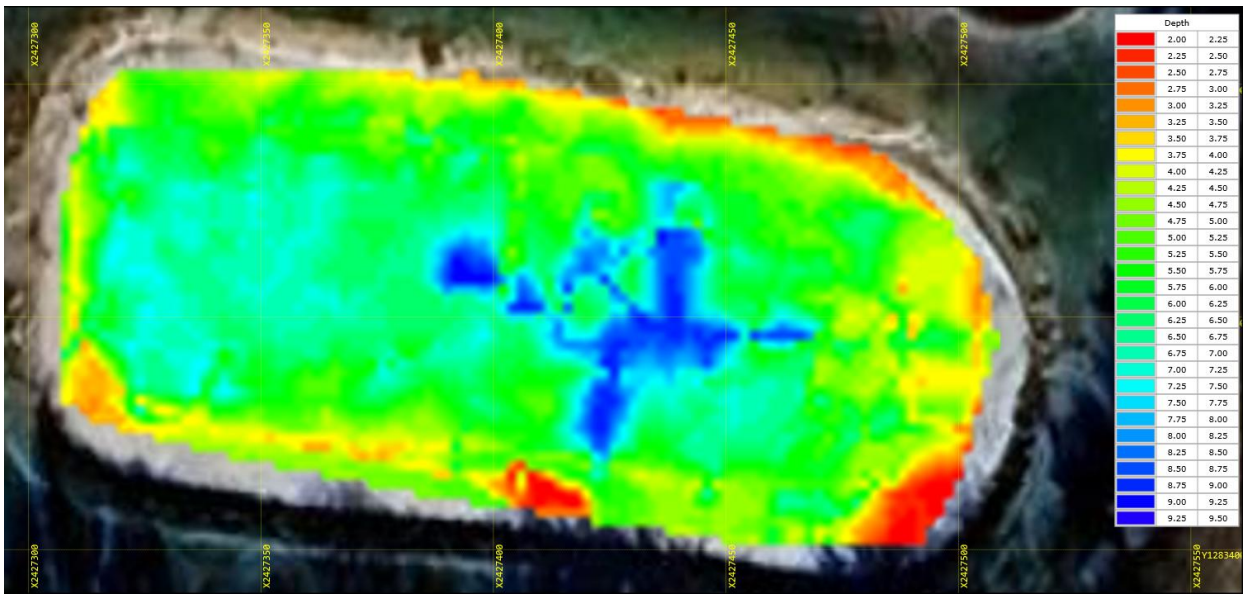
As temperatures increased and biological activity accelerated, treatment performance continued to improve. A second comparison survey completed on June 24, 2026, showed sludge volume had declined to 570,650 gallons, a 37.9% reduction from the original survey. Average sludge depth had decreased further to 6.5 feet, while the average water depth increased to 7.0 feet, recovering approximately 1.6 feet of usable treatment volume.

Project Results

BioDredger® applied	November 13, 2025
Initial sludge volume	918,524 gallons
Winter sludge reduction (3½ months)	23.5%
Total sludge reduction (7 months)	37.9%
Total sludge eliminated	347,874 gallons
Average sludge depth reduced	9.1 ft → 6.5 ft
Average water depth increased	5.4 ft → 7.0 ft
Verification	Results verified through Drylet's Sonar Mapping Service

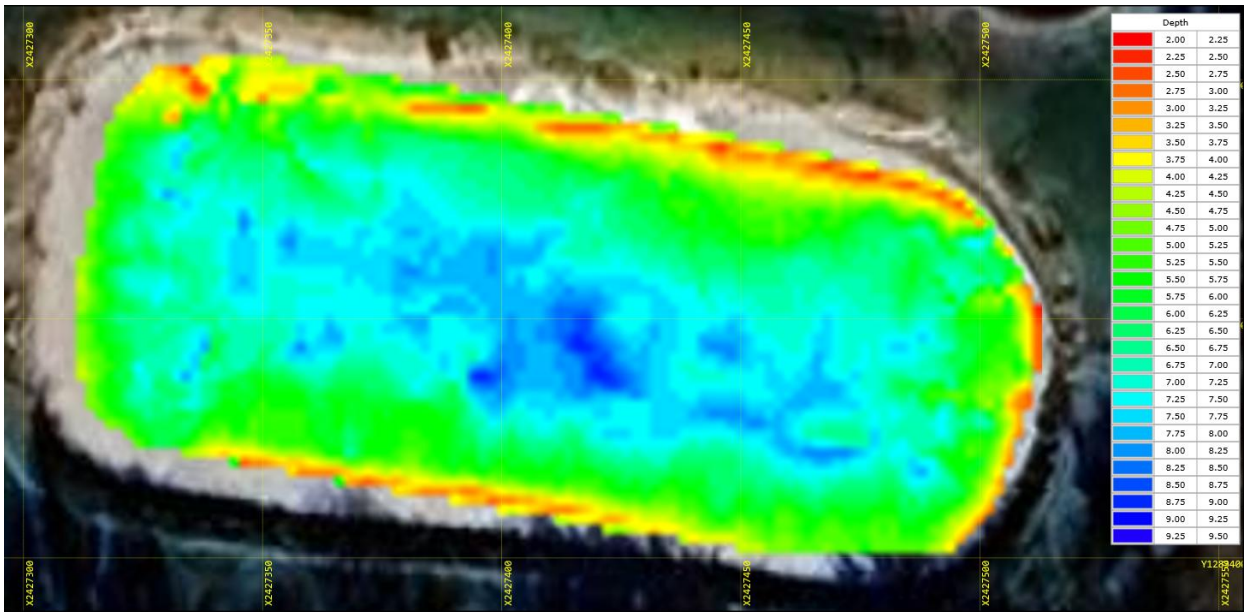
Sonar Mapping Evidence

The same lagoon was mapped at baseline and during two post-treatment verification surveys. The maps below visually document the changing lagoon profile alongside the measured volume reductions.



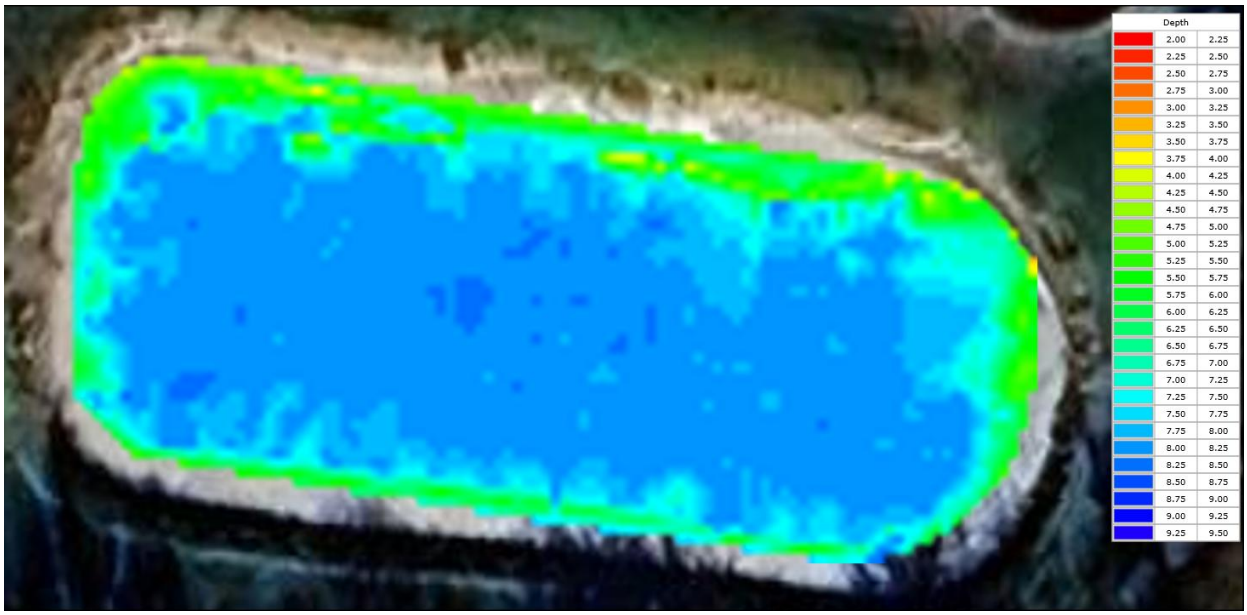
October 20, 2025 — Baseline

Initial sonar mapping established the pre-treatment lagoon profile.



March 3, 2026 — Winter Verification

Post-treatment mapping documented the winter solids reduction.



June 24, 2026 — Summer Verification

Follow-up mapping documented continued solids reduction and recovered water depth.

Summary Data

Metric	10/20/2025	3/3/2026	6/24/2026
Depth of Lagoon	14.5 ft	13.5 ft	13.5 ft
Average Water Depth	5.4 ft	6.0 ft	7.0 ft
Average Sludge Depth	9.1 ft	7.5 ft	6.5 ft
Lower Average Sludge Level	7.9 ft	6.2 ft	5.8 ft
Upper Average Sludge Level	10.3 ft	8.7 ft	7.2 ft
Estimated Sludge Volume	122,789 cu ft	93,914 cu ft	76,285 cu ft
Estimated Sludge Volume	918,524 gal	702,528 gal	570,650 gal
Reduction from Application	—	23.5%	37.9%

Summary

This project demonstrates the power of combining Drylet's patented BioDredger® bioremediation technology with Drylet's Sonar Mapping Service. Rather than relying on visual observations or estimates, sonar mapping provided quantifiable proof of treatment performance, documenting substantial solids reduction and increased lagoon capacity—even during the cold winter months when biological activity is typically at its lowest. The continued improvement into the summer months further demonstrates BioDredger's ability to provide long-term, measurable results while reducing the need for costly mechanical dredging.