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MEMORANDUM

TO: Shelley Hildebrandt, Honey Lake Protection and Rehabilitation District

FROM: Kirsten James, PE, CLM

DATE: August 20, 2025

RE: Honey Lake Dredging Investigation

PROJECT NO. 24-0238

BACKGROUND

Honey Lake is an approximately 44-acre lake located in Walworth County, Wisconsin. The lake is created by a dam at the southeastern corner of Honey Lake. According to the WDNR records, a dam in the location of the present Honey Lake dam dated back to at least 1926. Sugar Creek flows into the lake from the west. Honey Creek flows parallel to the lake from the north but is separated by a constructed berm. A culvert discharging from the lake to Honey Creek is present at the northeastern corner of the lake. An additional culvert discharging from the lake to Delmonte Lake is present at the southeastern corner, north of the dam. The dam and associated spillway flow into Honey Creek to the south.

The Honey Lake Protection and Rehabilitation District (District) is in the initial phases of evaluating the feasibility of dredging in Honey Lake. This memorandum collects and summarizes information on sediment quantity and characterization to inform the feasibility of dredging activities in the future.

This investigation consists of the following items:

- Bathymetric survey to collect hard bottom and soft sediment data;
- Sediment sampling and analysis;
- And investigation of potential disposal sites on land.

A prior dredging project was undertaken in the late 1980s. Select pages of the engineering plans, entitled *Honey Lake Rehabilitation Project*, prepared by R.A. Smith and Associates (R.A. Smith), dated August 4, 1986, were provided for review. As-built plans or documentation were not recovered.

BATHYMETRIC SURVEY

On July 24, 2025, Hey staff performed bathymetric survey of Honey Lake. Bathymetric depth measurements to the top of soft sediment and depth to hard bottom were collected using a boat mounted Lowrance HDS 16. The depth measurements and GPS data were recorded using the Lowrance unit while the boat operator transversed the study area. To verify the unit was collecting accurate data, manual measurements were taken periodically during data collection using a Topcon Tesla GPS unit. A level rod was used to manually check the depth to the top

of the soft sediment and then lowered through the soft sediment to determine the depth to the hard bottom. Once the data was collected, it was processed using ReefMaster 2.0 software for analysis. Results of this survey are included in Exhibit 1, Exhibit 2, and Exhibit 3. Spatial data is included in Appendix A.

The bathymetric results were compared to the Wisconsin Department of Natural Resources (WDNR) bathymetric maps prepared in August 1966 (Appendix B) and the prior dredging plans prepared by R.A. Smith in 1986 (Exhibit 7).

WDNR depths ranged from 6 feet, just upstream of the dam, to 2-4 feet throughout much of the lake. Depths to soft sediment collected in 2025 are deeper than those in the WDNR map, which is consistent with the dredging took place in the late 1980s. Preliminarily, it appears that sediment has not resettled in the lake to the level as was surveyed in 1966, although potential changes in water level may also explain some of the differences.

When compared to the 1986 Plans, many differences were noted, including:

- The size and location of the western sediment basin
- The presence of what appears to be a large spoil pile on the eastern side of County Highway DD, encroaching into what was once open water area
- The presence of the larger sediment basin, directly upstream of the dam

The 1990 aerial image (Figure 1) shows a drawdown condition during prior dredging and suggests that the prior dredging was not built per plan in the West Arm location. It appears that the planned disposal location was abandoned and dredged material was used to build out onto the eastern side of County Highway DD. Comparison of historical aerial imagery also indicates placement of spoil material long the berm separating Honey Creek from Honey Lake.

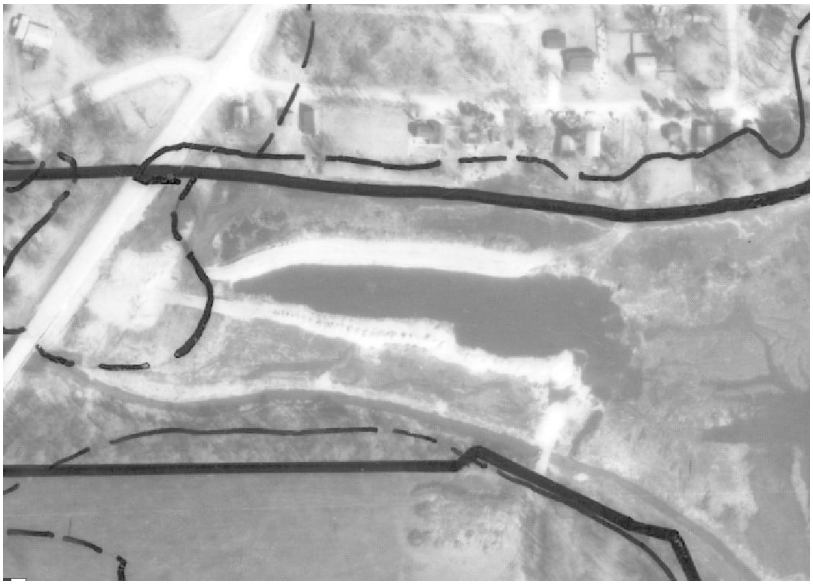


Figure 1. 1990 Aerial Imagery, Walworth County

The difference in soft sediment and hard bottom contours was used to estimate the total amount of relatively unconsolidated soft sediment in the lake. This can be referred to as “total dredgeable material.” It estimated that approximately 143,279 cubic yards of submerged sediment could be removed to remove soft sediment from the lake to reflect hard bottom depth contours in bathymetric depth. This amount of material removal would be costly

and may not be practical or necessary given the lake uses. It is also estimated that 10,635 cubic yards of material could be removed from the western sediment basin area for maintenance/clean out. Further definition of depth goals during future project planning phases will help inform the quantity of material for removal.

SEDIMENT SAMPLING

Because a potential future dredging project would involve sediment removal and may trigger special handling and disposal requirements depending on the chemical composition of the material, it was determined that limited sediment sampling would be conducted as part of this study. Early identification and assessment of potential contaminants may inform project recommendations and guide planning efforts.

One sediment sample (SS-01) was collected from the soft sediment layer of the lake on July 24, 2025. The sample was collected using a petite Ponar grab-sampler from the top 6 inches of soft sediment. The sample was placed in laboratory-provided jars and bags using a clean stainless-steel scooper. The sample was placed on ice in a cooler and delivered to CT Laboratories of Baraboo, Wisconsin, a WDNR-certified laboratory, on July 25, 2025. Laboratory assessment results and the Chain of Custody form are included. The sample was analyzed for total metals, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), total organic carbon (TOC), total phosphorus, ammonia nitrogen, nitrate, nitrite, total Kjeldahl nitrogen (TKN), moisture content, and particle size.

Figure 2. SS-01 Location

The collected sediment consisted of dark brown clayey silt with organic material and trace gravel. A photograph of the soft sediment is included in the site photograph log (Exhibit 7).

Sediment analytics data is included in Table 1. The results were compared to the non-industrial direct contact residual contaminant levels (RCLs) and groundwater RCLs listed in ch. NR 720, Wisconsin Administrative Code (Wis. Admin Code), and the consensus-based sediment quality guidelines (CBSQGs) issued in ch. NR 347, Wis. Admin Code. WDNR Table RR-0151 were used to identify the current RCLs in accordance with ch. NR 720, Wis. Admin Code. WDNR guidance document RR-088, issued in December 2003, was used to identify the current CBSQGs. The laboratory analytical results are included in Appendix C and the Chain of Custody is included in Appendix D.

The concentration of arsenic (3.5 mg/kg) exceeded the groundwater pathway RCL (0.58 mg/kg) and the non-industrial direct contact RCL (0.677 mg/kg). The concentration of chromium (12 mg/kg) exceeded the groundwater pathway RCL (3.8 mg/kg). The concentrations are below the background threshold values (BTVs) for arsenic and chromium assigned by WDNR. The WDNR-assigned BTVs are reported in WDNR Guidance Document RR-015, and were derived from USGS soil data for Wisconsin to reflect background concentrations of various naturally occurring metals.

The concentrations of three PAHs (2-Methylnaphthalene, acenaphthene, and acenaphthylene) exceeded the Threshold Effects Concentrations (TECs) of the Wisconsin CBSQGs. These PAHs are found ubiquitously in the environment. The normalization of these results for a dry weight TOC of 1% may eliminate concern for these concentrations.

No exceedances were detected for PCBs and inorganics.

The results for the collected sediment sample do not indicate the presence of any contaminants over background values. However, the results are limited to one sample location and do not represent sediment quality throughout the lake. Consultation with the WDNR during the preliminary dredging permit application process will determine further assessment needs. Additional sampling will likely be required to assess sediment throughout the proposed dredging area.

Disposal Investigation

In the 1986 Plans, sediment placement locations identified included the berm and an agricultural field that is now comprised of the residential properties located just south of the West Arm, including tax parcels OA28690000-1, -2, and -3, and O SP2400003. From review of aerial imagery, it appears the berm was indeed expanded with dredged material and material was also placed adjacent to County Highway DD, which reduced the total surface water area. Evidence of material respread on the agricultural field was not recovered.

Site Suitability

The characteristics of suitable sites for dewatering and upland placement of dredged material typically include:

- Willing landowner
- Proximity to dredging location, to limit project cost
- At a relatively flat elevation, to limit site preparation to manage return water
- Ability to drain return water to lake or other feasible waterway
- Outside of a flood hazard area
- Outside of a wetland area
- Does not impede local drainage
- Compatible land use for accepting dredged material

As part of this effort, the suitability of three parcels was investigated for dewatering and dredged material placement. The matrix below was developed to assess these sites.

Parcel Number	SP1300009 “South Parcel”	SP1300015 “Lake Parcel”	OHL1 00049A “Park Parcel”
Exhibit Number	4	5	6
Ownership	Private Property Owner	District	District

Description	single family home and the southernmost portion of the berm	lake, berm, dam, and fill adjacent to County Highway DD	Honey Lake Public Beach
Willing landowner	Requested by District	Yes	Yes
Proximity to dredging location(s)	Nearby	Nearby	Nearby
At a relatively flat elevation	Yes	Yes	Yes
Ability to drain return water	Yes	Yes	Yes
Outside of a flood hazard area	Partially	Partially	Partially
Outside of a wetland area	Partially, further investigation needed	Partially, further investigation needed	Partially, further investigation needed
Does not impede local drainage	If designed appropriately, yes	If designed appropriately, yes	If designed appropriately, yes
Compatible land use	Partially	Partially	Partially

Exhibit 4, Exhibit 5, and Exhibit 6 were prepared to show these sites and their resource characteristics. Overall, potential dewatering and respread locations may be limited to the general extents of the park, berm, and the fill adjacent to County Highway DD. This sediment material is clayey silt with organic material and trace gravel.

Since the organic content is relatively high, the material will likely have limited structural stability, even when dried, limiting potential material uses. The existing berm shows signs of erosion and settlement, which is likely due to the use of previously dredged material, similarly high in organic content, in construction. Per the berm cross section detail included in Exhibit 7, the 3-foot horizontal to 1-foot vertical slope is also relatively steep for material use in this configuration.

Based on preliminary investigations, there may be

- 0.5-acres at the Park Parcel, where the present grass and beach area is located
- 2.4 acres at the Lake Parcel, 1.4 on top of the existing berm and 1.0 acres adjacent to County Highway DD
- 0.5-acres at the South Parcel, on top of the existing berm

Preliminary, it appears that the berm is not a component of the existing dam spillway (Exhibit 8). It is recommended that the dam design and permit be recovered during the design process to determine if there are any potential function impacts if the berm elevation is raised.

Collectively, 3.4-acres may be available between these three parcels to accommodate sediment, which would be limiting given a clean out estimate of 10,635 cubic yards. For comparison, if that amount of material were respread over that area, sediment would be approximately 2 feet thick. There may be opportunity to increase respread depth on the area adjacent to County Highway DD in order to reduce depth along the berm and park.

Overall, removing as much unconsolidated material as possible from the lake bed during one mobilization is the most cost-effective approach. Based on general site constraints and material stability concerns, it is recommended that additional potential respread sites be identified prior to further planning a dredging project.

Agricultural lands to the north of the lake and to the south of the lake, in the location of the original planned respread location, may be the best suited for potential additional respread locations. As a guideline, it is typically recommended that respread depths not exceed 6-inches in agricultural fields for them to be continued in production.

Using this rule of thumb, and considering the soil material condition, we would also recommend that respread depths in the identified three parcels not exceed 6-inches to maintain their current uses. Based on the 6-inches guideline, 13.2-acres would be needed for respread based on the maintenance dredging of sediment basin only, which would necessitate identifying an additional 9.8-acres of suitable lands. Similarly, 177.6-acres would be needed for respread based on dredging all unconsolidated sediment from the lake, which would necessitate identifying an additional 174.2-acres of suitable lands. Again, this magnitude of project is likely not practical.

PROJECT PLANNING - DESIGN

The design process will first include identifying a final dredging approach and final respread and/or reuse locations, and then a final design phase to complete engineering design to detail out the project.

An essential element in the design phase will be to identify target depths, which are typically derived from recreational uses, aquatic plant management, habitat considerations, and lake-specific characteristics. Since no motorized watercraft are permitted on Honey Lake per ordinance, recreational access goals should consider watercraft equipped with electric trolling motors or non-motorized watercraft. Understanding use needs will help inform target dredging depths.

These phases will help to further define permit and authorization needs, costs, timelines, and will include preparation of engineering plans, specifications, permit application packages, and support information (may include hydrologic and hydraulic modeling). A project of this nature could include retaining a consulting engineer to prepare bid documents to solicit a construction contractor, or selecting a design-build team to complete the project with the engineer and contractor working together.

PROJECT PLANNING - PERMITTING

Applicable permits and authorizations will be needed for the dredging itself, and for the sediment respread activities. Permits will likely need to be secured at the local, county, state, and federal level for this project and may include:

Town of Spring Prairie

Building Permit

Walworth County

Waterfront Zoning Permit

Construction Site and Erosion Control General Permit

Racine County (if any respread areas were to expand into Racine County)

Shoreland Zoning

Site Plan Permit

State of Wisconsin, Department of Natural Resources

A Dredging Pre-Application Information Form (3500-178) should be completed and sent to your water management specialist, Erin Cox, with a pre-application meeting request. It is recommended that your Regional

Lake Biologist, Heidi Bunk, and your Regional Stream Biologist, Rachel Sabre, also attend this meeting. After the pre-application meeting, a Preliminary Permit Application will be prepared and submitted, by completing the WDNR Chapter 30 (Wetlands and Waters), Dredging – Lakes Individual Permit application online, which will initiate the WDNR review process. The WDNR document, *Guidance for Applying the Sediment Sampling and Analysis Requirements of Chapter NR 347, Wisconsin Administrative Code* (Publ. WT-778, 2003) includes the following two flowcharts (Figure 3, Figure 4) that will guide the permitting phase of the project.

Once additional sediment sampling needs are identified and completed, WDNR review will identify all necessary WDNR permits and approvals, which will likely include:

- Wetland and Waters delineation and concurrence
- Dredging – Lakes Individual Permit
- Public comment period
- Water Quality Certification
- Threatened and endangered species consultation
- Wisconsin Historical Society review
- Wisconsin Pollutant Discharge Elimination System (WPDES) for Construction Sites
- WPDES for Carriage and Interstitial Water from Dredging Operations
- WPDES for Dewatering Operations

Figure 3. The State of Wisconsin Dredging Review Process, Publ. WT-778

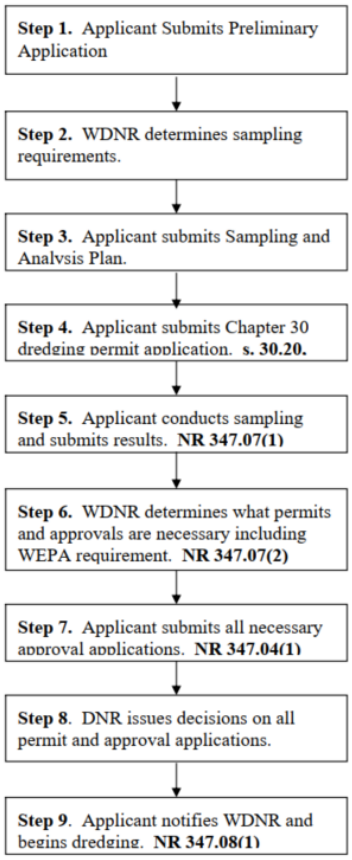
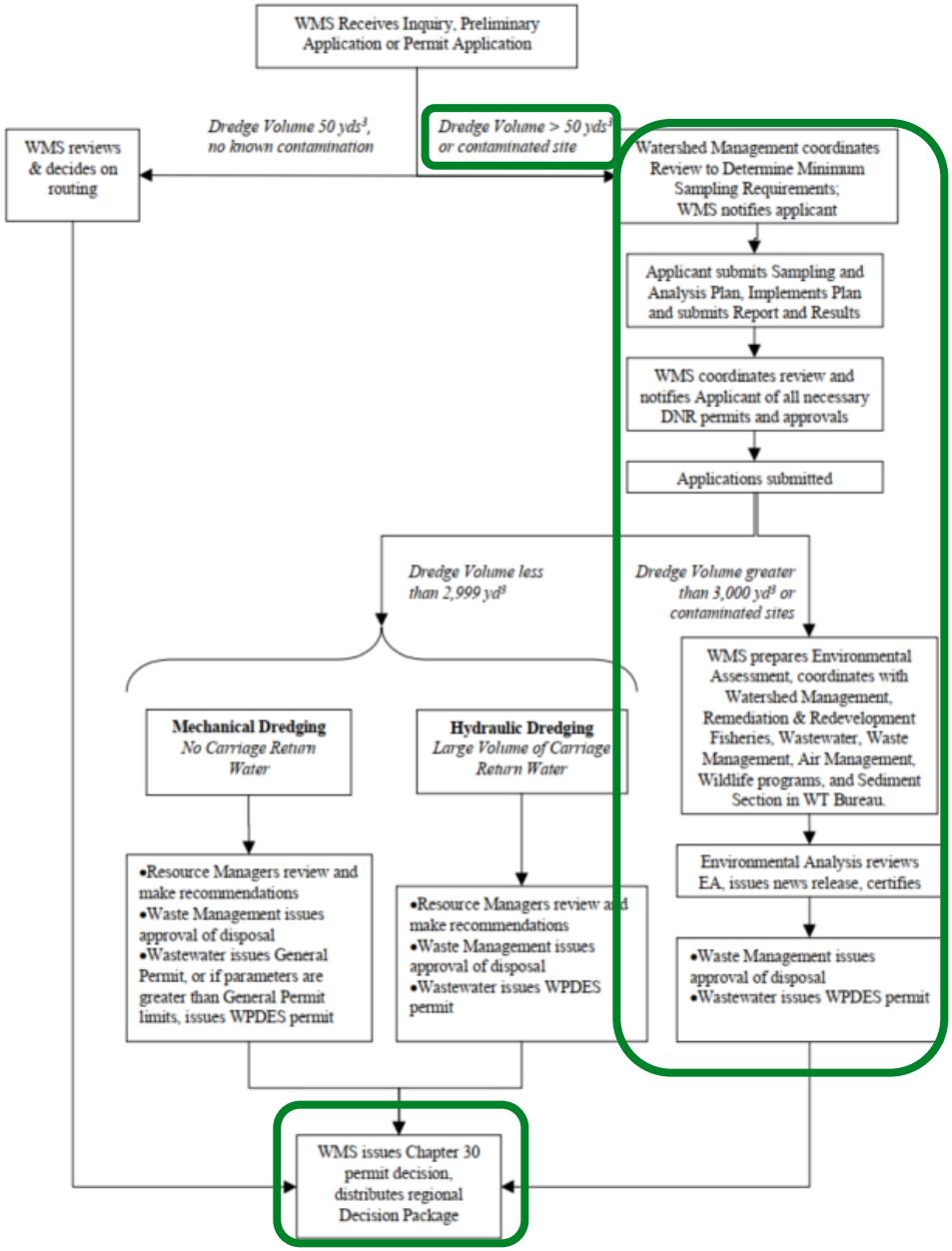


Figure 4. Internal Review and Routing for Dredging Projects, Publ. WT-778



Federal, US Army Corps of Engineers

As part of the WDNR submittal process, WDNR will forward your application materials to USACE St. Paul District Office for review. The following Nationwide Permits (NWP) will likely be applicable to this project:

- NWP 16. Return Water From Upland Contained Disposal Areas
- NWP 27. Aquatic habitat restoration, enhancement, and established activities
- NWP 33. Temporary Construction, Access, and Dewatering
- NWP 35. Maintenance Dredging of Existing Basins

PROJECT PLANNING - FUNDING

An Engineer's Opinion of Probable Cost was developed for planning use that includes estimates for design and construction phases and is included as Appendix E. Future planning and design phases will better define and refine these estimates. Estimates were prepared for both maintenance dredging of sediment basin only and dredging all unconsolidated sediment. Actual project cost will fall between these two estimates based on final sediment depth targets and the availability of respread locations.

The grant environment is dynamic and constantly changing. Through the Wisconsin Department of Natural Resources, the Wisconsin Waterways Commission's Recreational Boating Facilities Grant program allocated funds to support dredging projects, although this project type is ranked towards the bottom of the overall project lists in every cycle. Based on future design, creative approaches to integrate habitat restoration into the overall dredging project may provide an opportunity to pursue additional grant funds. Cost-share percentages vary amongst grant programs, but are generally in the 50% grant, 50% match range.

Since the Honey Lake Protection and Rehabilitation District is a designated Lake District in the State of Wisconsin, potential financial resources may include adjusting the tax levy and bonding. Building partnerships with and support from local groups and representatives may provide access to more funding resources and more competitive funding requests. Lake Districts have also been the recipient of State budget appropriations in the last few years.

PROJECT PLANNING - TIMELINE

The timeline for a project of this nature is highly dependent on permit review timelines, District approval schedule, and potential grant and other fundraising timelines. Permit review timelines will vary, but it is likely that the WDNR process and review timelines will be the lengthiest; approximately 6months is a good planning window. The funding component will likely be the primary driver for the process, as identifying and securing resources to fund design and permitting phases as well as construction may lean on a variety of sources. Grant programs typically have specific timeline requirements and may also introduce additional review requirements that may extend planning phases. For a project of this nature, we would recommend targeting major completion milestones, preferred timelines, contingency plans, and adjustment strategies to update the project timeline as major milestones are reached.

SUMMARY

Although it is difficult to assess potential sedimentation rates without bathymetric survey after the prior dredging effort, it does not appear that rapid sediment accumulation has occurred since the prior dredging project. The lake bottom sediment may be somewhat at a stable condition, with additional inputs continuing to flow through the system. Although lake bed sediment can also be a source for excessive nutrients in the lake ecosystem, is does not immediately appear as if there are aquatic vegetation or algae concerns stemming from internal nutrient loading.

The bathymetric survey prepared as part of this study will act as a baseline for comparison of future bathymetric surveys. It is recommended that in 5 years, the survey be repeated to better understand the rate of sedimentation. This step will cost-effectively assess the potential future dredging timeframe needs.

Overall, the District should assess the desired extent of dredging based on the desired outcomes. In addition to considering maintenance on the existing sediment basin, targeting specific goals for depth zones in the lake based on the compiled bathymetric data and lake uses will better inform respread area needs and cost estimates.

Although initial sediment analysis did not identify significant contamination concerns at this time, the sediment characterization did suggest long-term sediment stability may be of concern. Berm settlement and sloughing in locations where previously dredged sediment was placed supports the uncertainty in stability of this type of material.

Dewatering and respread opportunities at the three parcels identified are likely limiting when considering either a maintenance dredging or whole lake dredging project. Additional areas for dewatering and respread should be identified prior to engaging in future phases of project planning. Agricultural land uses, particularly to the north, and southwest of the lake may be potential locations for respread based on proximity and land use.

Next steps for the District should include financial planning for a project of at least $1M and identifying potential landowners that may accept dredged material to be respread on their property.

EXHIBITS

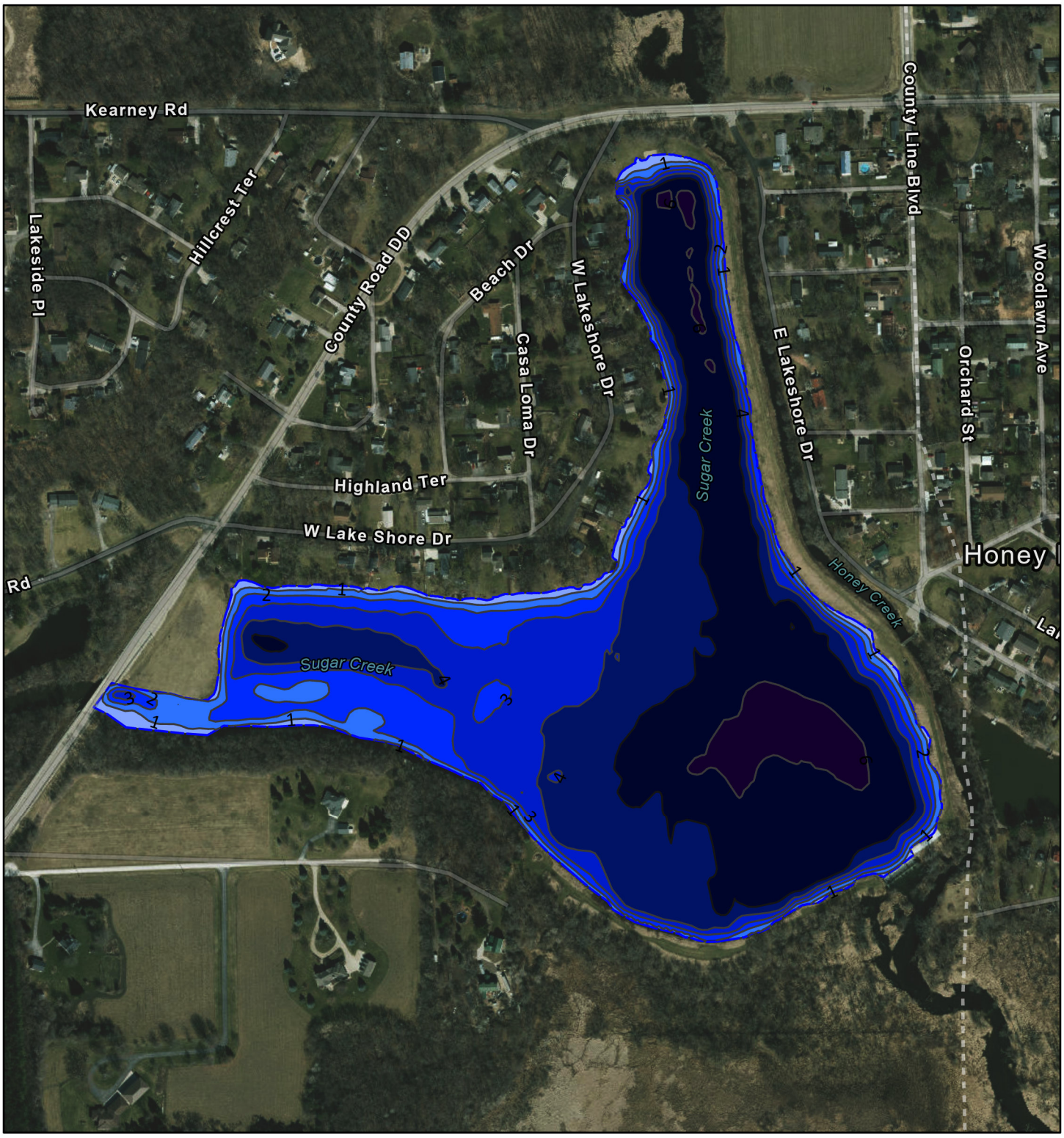
Exhibit 1: Depth to Soft Sediment
Exhibit 2: Depth to Hard Bottom
Exhibit 3: Sediment Depth
Exhibit 4: Site 1
Exhibit 5: Site 2
Exhibit 6: Site 3
Exhibit 7: Project and Site Photographs
Exhibit 8: Honey Lake Dam Structure

TABLES

Table 1: Summary of Sediment Analytical Data

APPENDICES

Appendix A: Digital Bathymetric Data
Appendix B: WDNR Bathymetric Map
Appendix C: Laboratory Assessment Results
Appendix D: Chain of Custody Form
Appendix E: Preliminary Engineer's Opinion of Probable Costs



Scale:

0 400 Feet

Orientation:

Project Number: 24-0238

Date: 8/14/2025

Legend:

Depth Range - Feet

- 0-1
- 1-2
- 2-3
- 3-4
- 4-5
- 5-6
- 6-7

Shoreline

Soft Sediment Index Depth Contours

Soft Sediment Intermediate Depth Contours

Project Name:

Honey Lake Dredging Investigation

Prepared for:

HLPRD

Survey Notes:

Bathymetric Survey Completed 7/24/2025
Water Surface Elevation = 770.26 NAVD88

Exhibit Title:

Depth to Soft Sediment

Exhibit:

1

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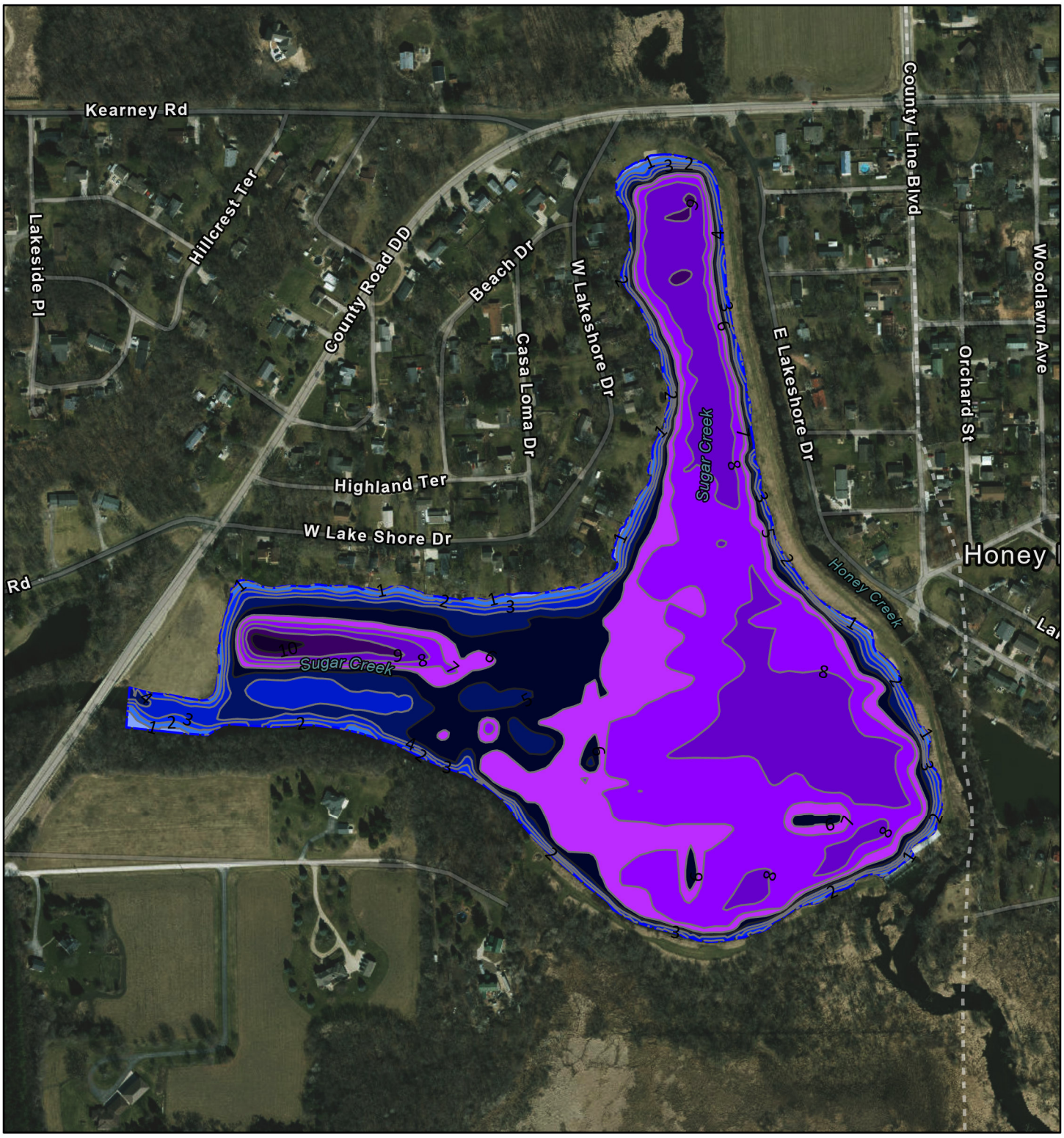

Scale:

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Project Number: 24-0238

Orientation:

Date: 8/18/2025

Legend:

Depth Range - Feet

- 0-1
- 1-2
- 2-3
- 3-4
- 4-5
- 5-6
- 6-7
- 7-8
- 8-9
- 9-10
- 10-11
- Shoreline

Project Name:

Honey Lake Dredging Investigation

Prepared for:

HLPRD

Survey Notes:

Bathymetric Survey Completed 7/24/2025
Water Surface Elevation = 770.26 NAVD88

Exhibit Title:

Depth to Hard Bottom

Exhibit:

2

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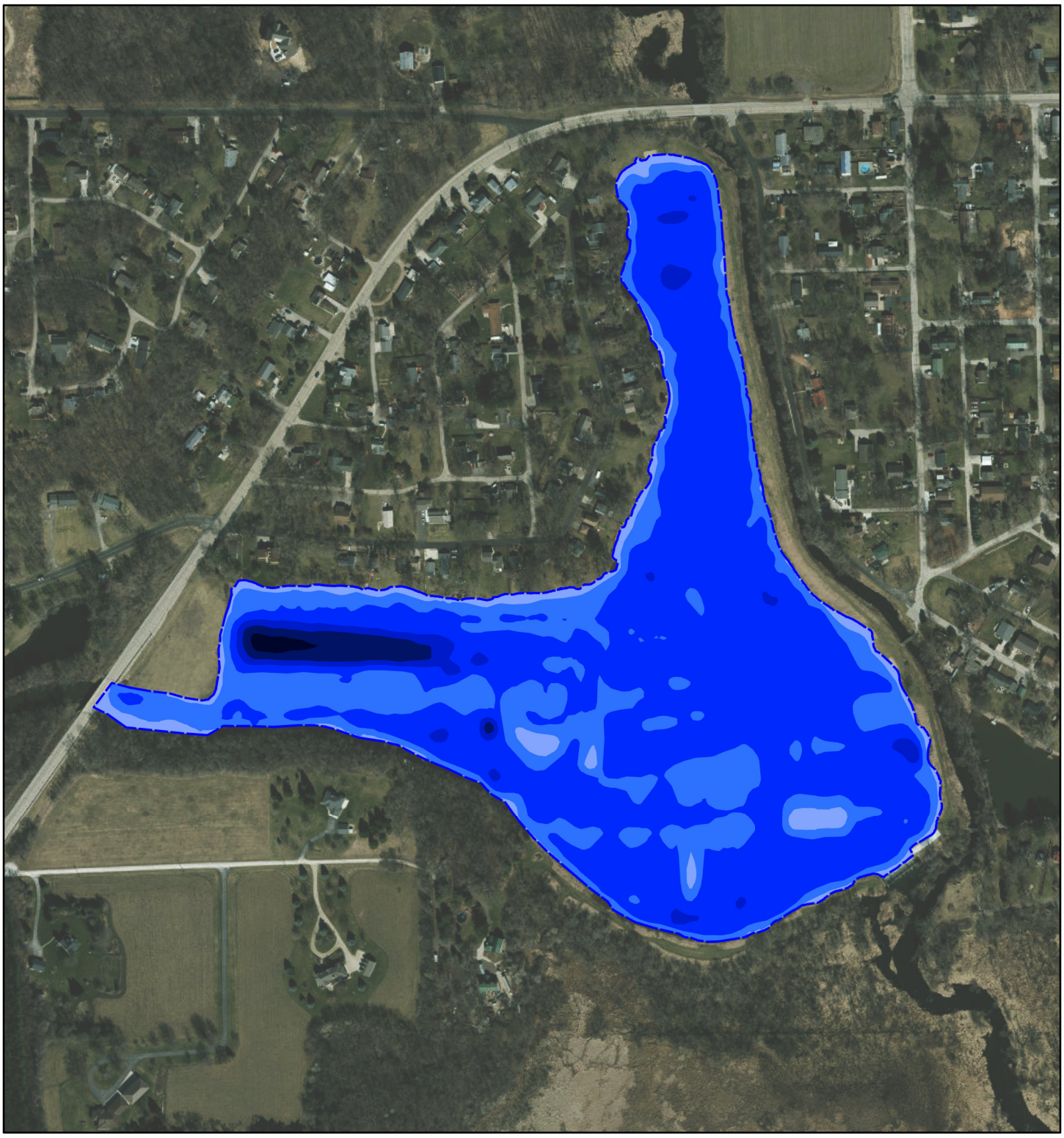

Scale:

0 400 Feet

Project Number: 24-0238

Orientation:

Date: 8/18/2025

Legend:

Sediment Thickness - Feet

- 0-1
- 1-2
- 2-3
- 3-4
- 4-5
- 5-6
- Shoreline

Project Name:

Honey Lake Dredging Investigation

Prepared for:

HLPRD

Survey Notes:

Bathymetric Survey Completed 7/24/2025
Water Surface Elevation = 770.26 NAVD88

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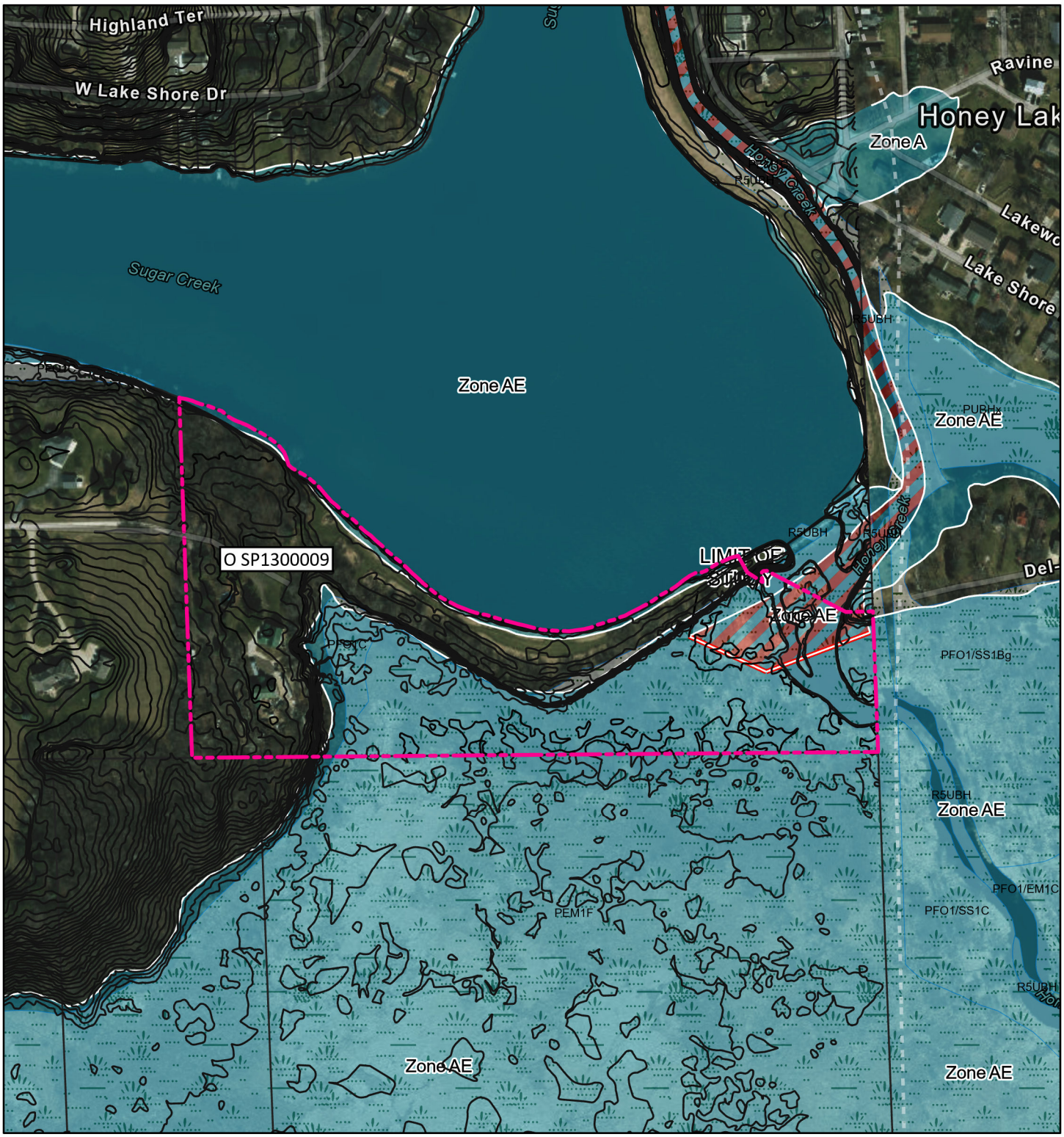
Exhibit Title:

Sediment Depth

Exhibit:

3



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Orientation:

Project Number: 24-0238

Date: 8/19/2025

Legend:

- Potential Disposal Site
- Parcels
- National Wetland Inventory
- Walworth Co Index Contours (ft)
- Walworth Co Intermediate Contours (ft)
- 1% Annual Chance Flood Hazard
- Regulatory Floodway

Project Name:

Honey Lake Dredging Investigation

Prepared for:

HLPRD

Aerial Date:

2024

Exhibit Title:

Site #1

Exhibit:

4

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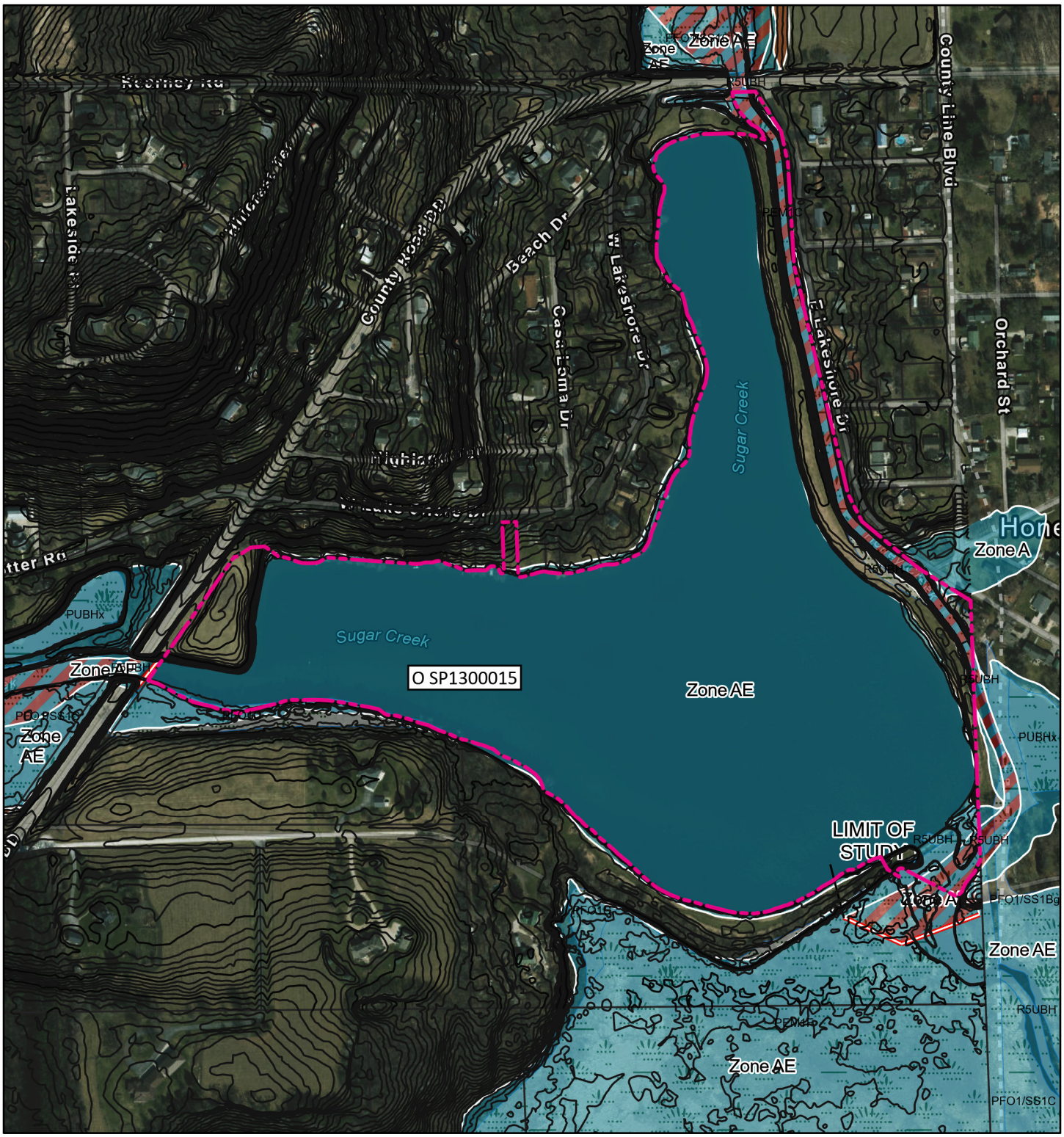

Scale:

0 400 Feet

Orientation:

Project Number: 24-0238

Date: 8/19/2025

Legend:

- Potential Disposal Site
- Parcels
- National Wetland Inventory
- Walworth Co Index Contours (ft)
- Walworth Co Intermediate Contours (ft)
- 1% Annual Chance Flood Hazard
- Regulatory Floodway
- 0.2% Annual Chance Flood Hazard

Project Name:

Honey Lake Dredging Investigation

Prepared for:

HLPRD

Aerial Date:

2024

Exhibit Title:

Site #2

Exhibit:

5

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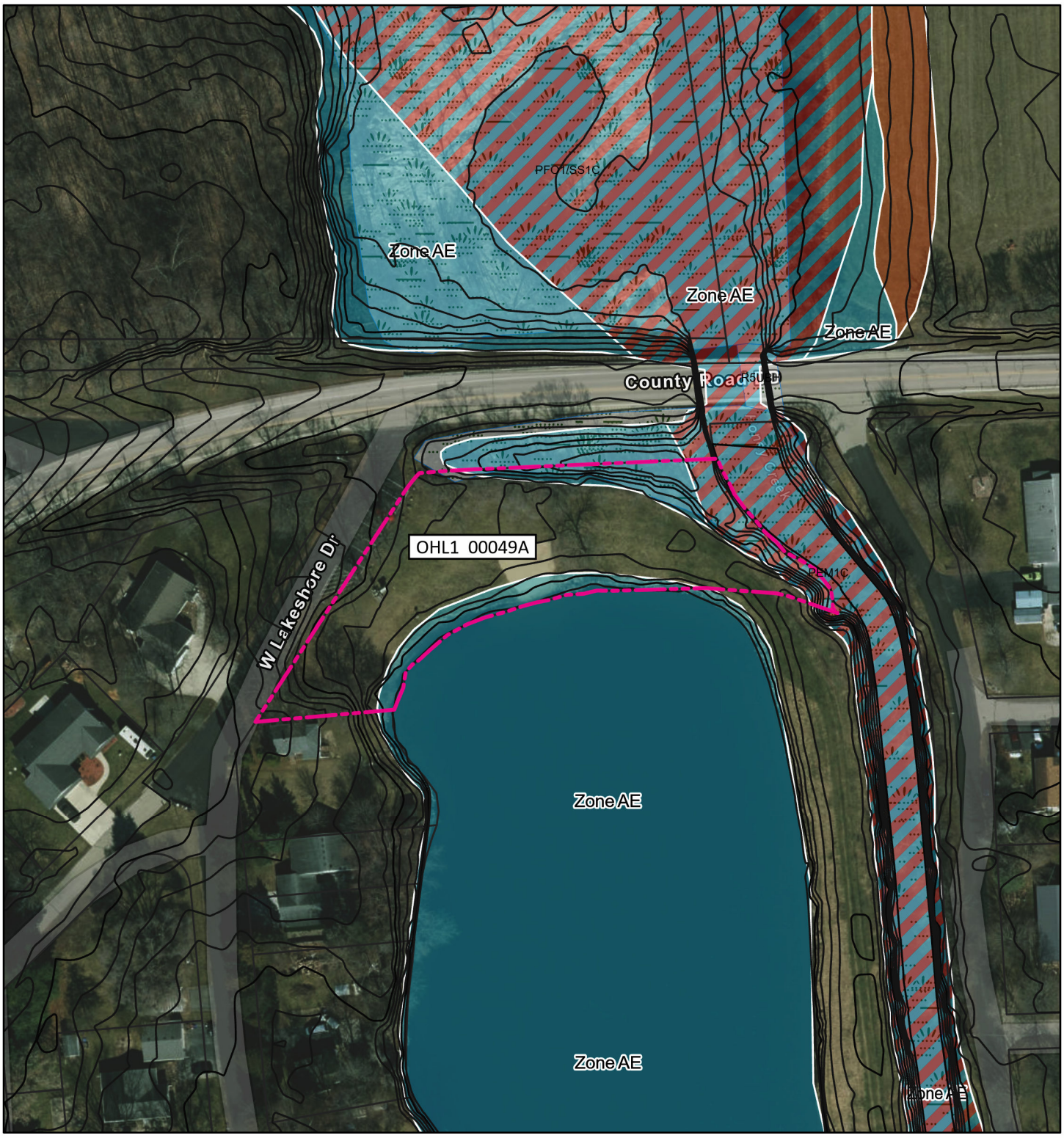

Scale:

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Orientation:

Project Number: 24-0238

Date: 8/19/2025

Legend:

- Potential Disposal Site
- Parcels
- National Wetland Inventory
- Walworth Co Index Contours (ft)
- Walworth Co Intermediate Contours (ft)
- 1% Annual Chance Flood Hazard
- Regulatory Floodway
- 0.2% Annual Chance Flood Hazard

Project Name:

Honey Lake Dredging Investigation

Prepared for:

HLPRD

Aerial Date:

2024

Exhibit Title:

Site #3

Exhibit:

6

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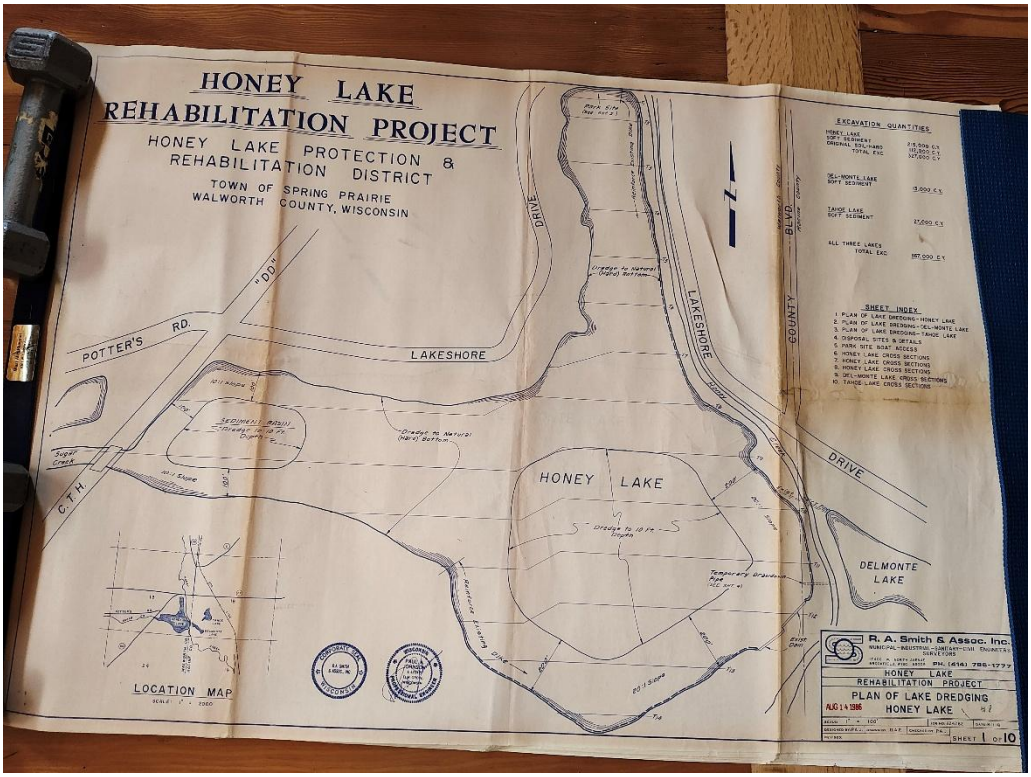
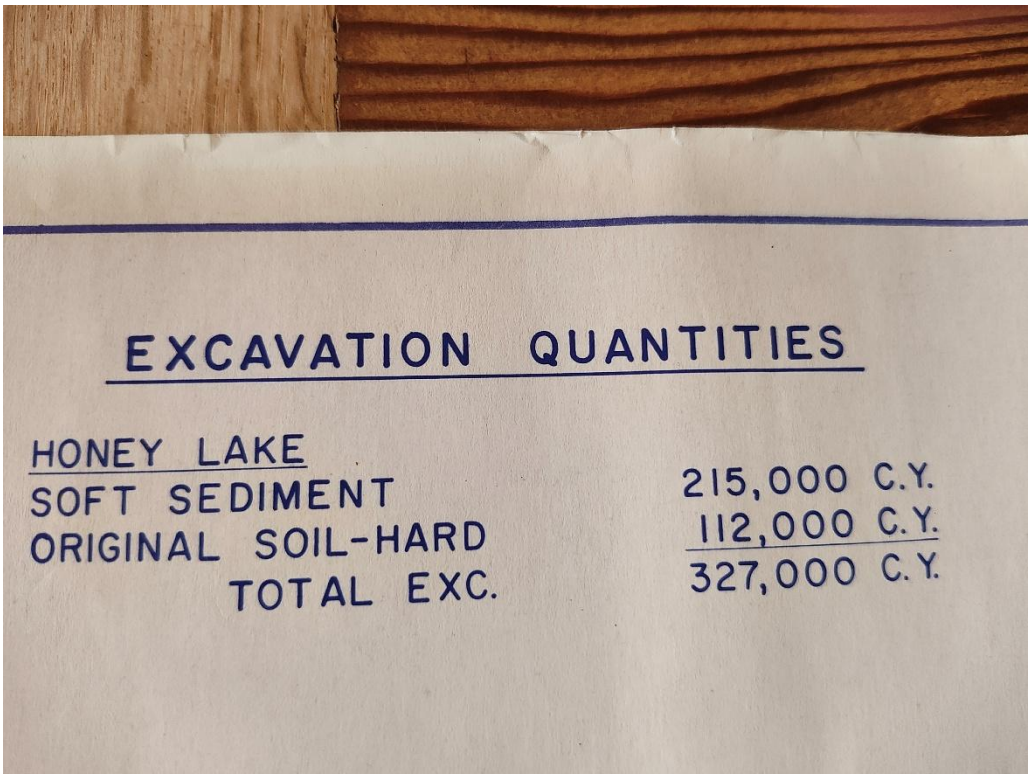


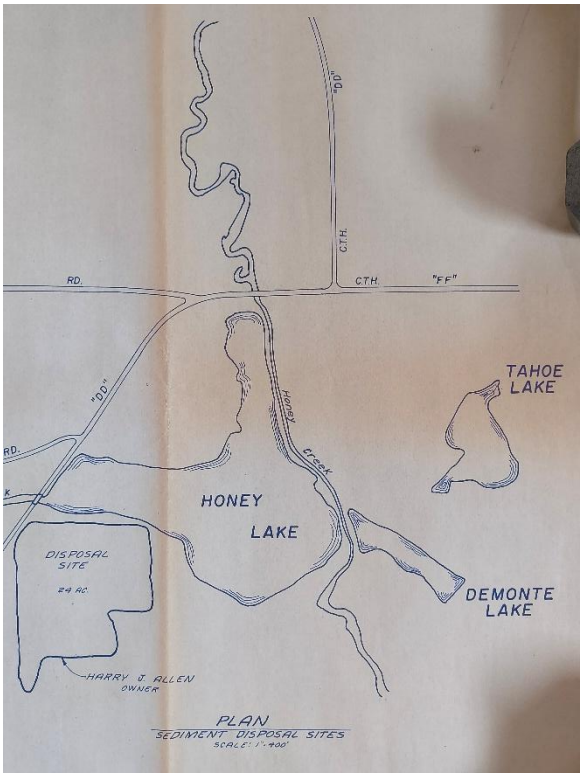
Photograph 1:

Cover Sheet of the "Honey Lake Rehabilitation Project" engineering plans, prepared by R.A. Smith and Associates, dated August 4, 1986. Referred to as "1986 Plans"



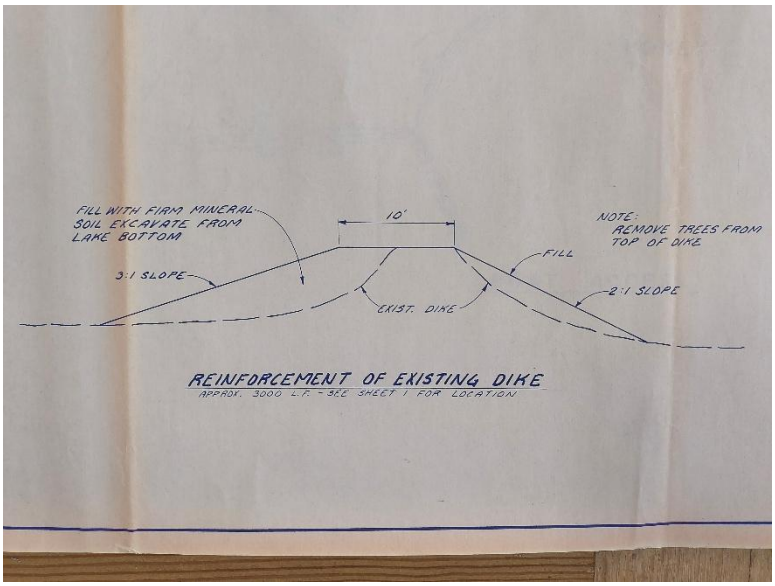
Photograph 2:

Excavation quantities summary included on the Cover Page of the 1986 Plans



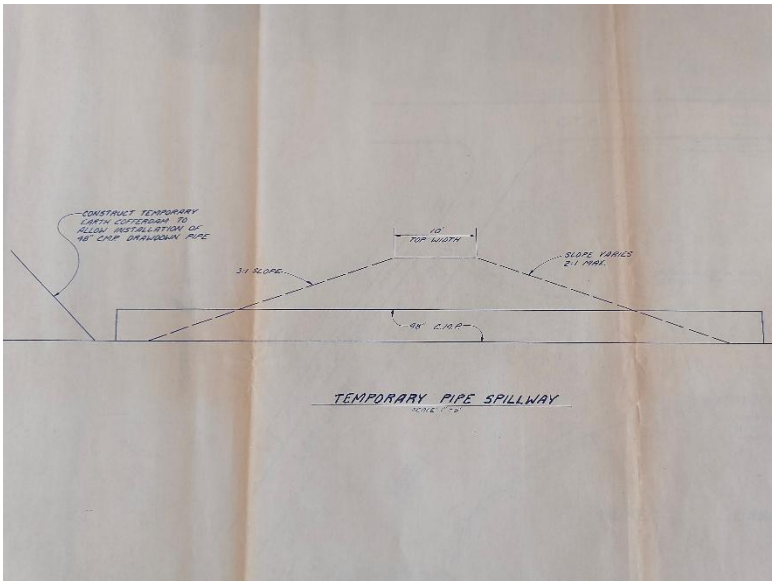
Photograph 3:

Sediment respread site included in the 1986 Plans



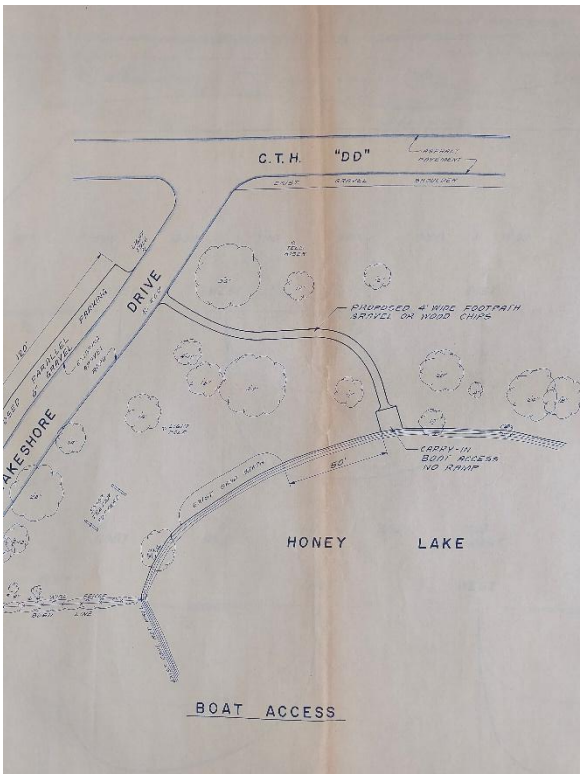
Photograph 4:

Sediment respread for expand berm Cross Section included in the 1986 Plans



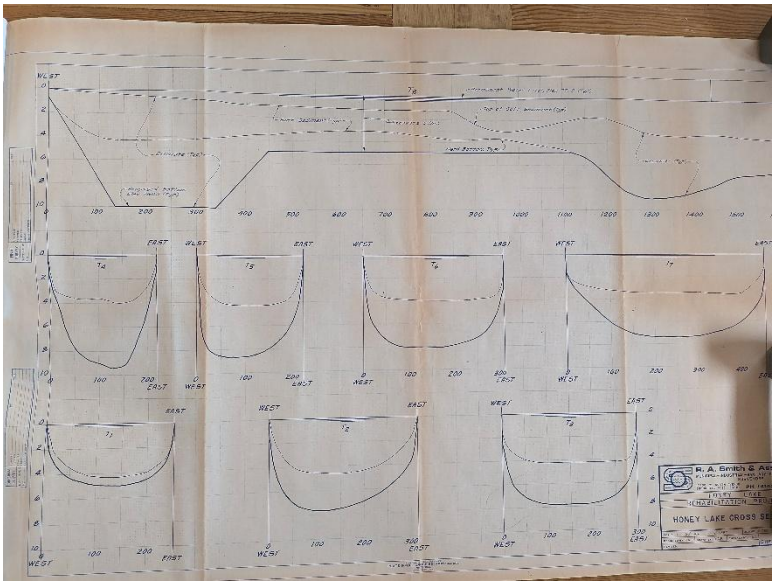
Photograph 5:

Temporary Pipe Cross Section included in the 1986 Plans



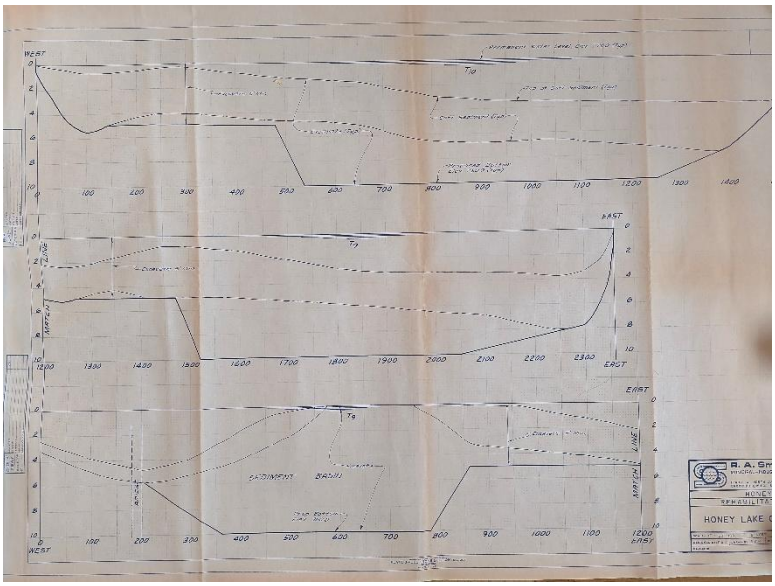
Photograph 6:

Boat Access plan at the Honey Lake Public Beach included in the 1986 Plans



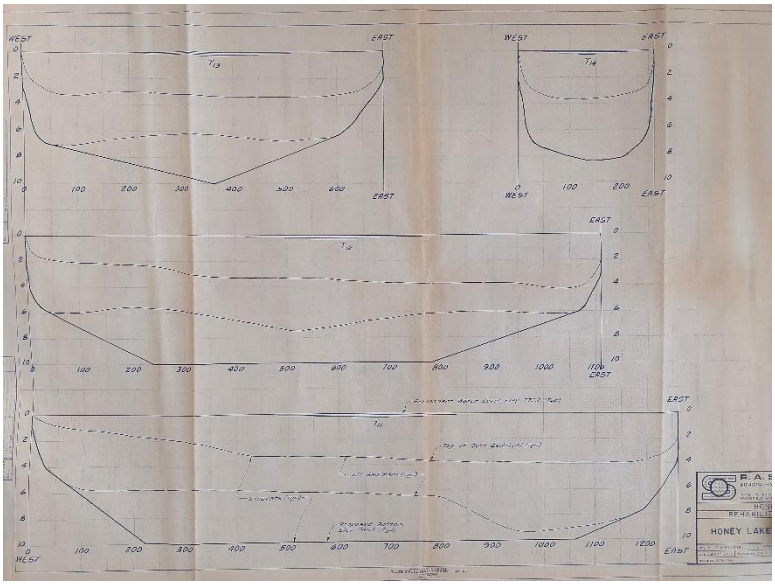
Photograph 7:

Existing and Proposed Cross Sections of Honey Lake



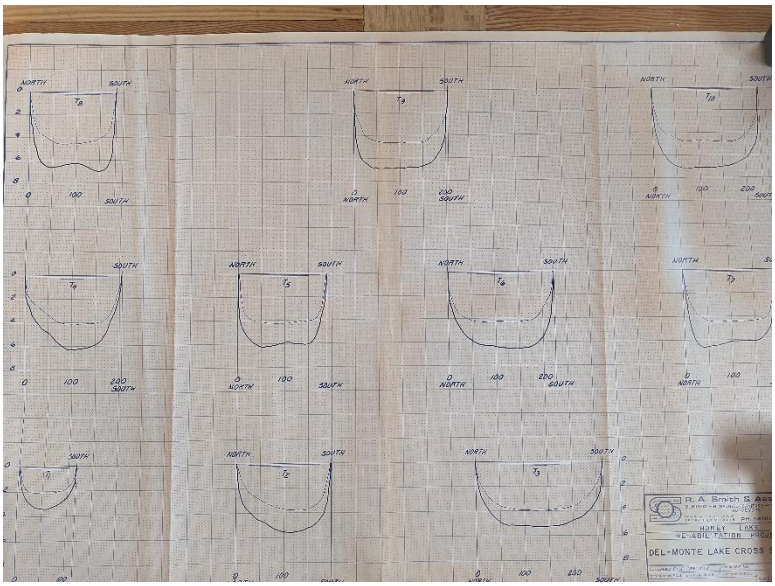
Photograph 8:

Existing and Proposed Cross Sections of Honey Lake



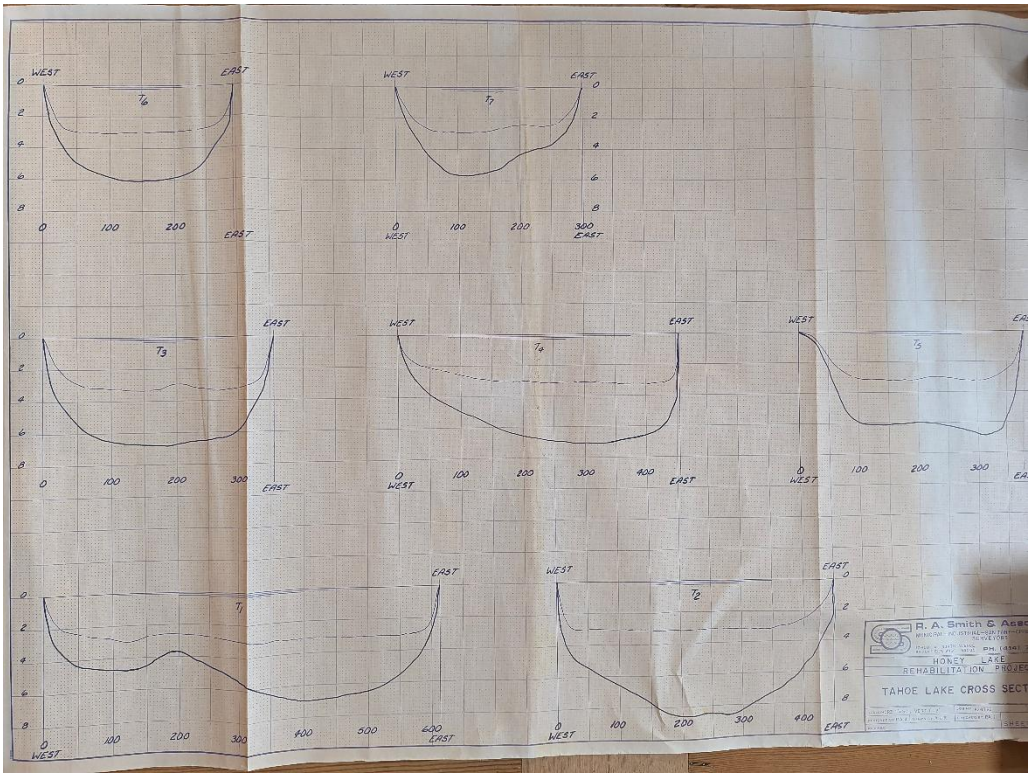
Photograph 9:

Existing and Proposed Cross Sections of Honey Lake



Photograph 20:

Existing and Proposed Cross Sections of Del Monte Lake



Photograph 31:

Existing and Proposed Cross Sections of Tahoe Lake

Photograph 42:

View of the parking and beach areas at the north end of Honey Lake, within the Park Parcel. Facing southeast.

Photograph 53:

Outlet structure located at the northeastern corner of the lake. Water is discharged to Honey Creek to the east. Facing east.

Photograph 64:

View of Honey Creek from the pedestrian bridge located near Ravine Drive and Lakeshore Drive. Facing northwest.

Photograph 75:

View of the public sand beach located on the eastern side of Honey Lake, near the intersection of Ravine Drive and Lakeshore Drive. Facing southwest.

Photograph 86:

Outlet structure discharging to Delmonte Lake via a pipe over Honey Creek. Facing northeast.

Photograph 97:

View of the spillway and dam at the southeastern corner of Honey Lake. Facing southwest.

Photograph 108:

View of overflow structure located west of the dam. Facing southwest.

Photograph 119:

View of the County Highway DD bridge crossing over Sugar Creek. Facing west.

Photograph 20:

View of the Lake Parcel from the western portion of Honey Lake. Facing southwest.

Photograph 212:

View of the Lake Parcel from the southwestern corner. Facing north.

Photograph 22:

View of the South Parcel from the southern part of Honey Lake. Facing south.

Photograph 23:

View of the South Parcel from the southeastern part of Honey Lake. Facing southwest.

Photograph 24:

Sediment sample

Exhibit 8

CONTROL / BENCHMARK POINT DATA					
POINT NO.	FEATURE	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	BM	380555.08'	825887.36'	772.61'	BRASS PLATE
2	BM	380548.99'	825821.96'	852.38'	CHIS X IN CONC

HORIZONTAL COORDINATES ARE BASED ON WCCS-WALWORTH COUNTY, NAD83.
ELEVATIONS ARE BASED ON NAVD88.

AA-Standard.stb
3/22/2018
V:\WR-EC\Honey Lake Protection District\2017 Repairs\CAD\03. Site Plan.dwg, Layout: EXISTING SITE PLAN & PROJECT CONTROL

DES BY	BOOK NO
CTG	-
DR BY	PROJ NO
RJW	26-1017.00
CHK BY	DATE
CRH	MARCH 2018

NO	DATE	REVISION

NO	DATE	REVISION

HONEY LAKE DAM REPAIRS
HONEY LAKE PROTECTION DISTRICT
WALWORTH COUNTY, WISCONSIN

AYRES ASSOCIATES
EAU CLAIRE

EXISTING SITE PLAN & PROJECT CONTROL

SHEET NO
03

Table 1
Summary of Sediment Analytical Data (July 2025)
Honey Lake Dredging Feasibility Study
Burlington, WI

Sample ID		CAS Number	Method	SS-01	WI SOIL STANDARDS			WI CBSQG		
Sample Depth				0-9 inches	Groundwater	Non-Industrial	Background	Threshold Effects	Median Effects	Probable Effects
					Pathway RCL	Direct Contact RCL	Threshold Value	Concentration (TEC)	Concentration (MEC)	Concentration (PEC)
METALS	Units									
Arsenic	mg/kg	7440-38-2	EPA 6010C	**3.5**	0.58	0.677	8.3	9.8	21.4	33
Cadmium	mg/kg	7440-43-9	EPA 6010C	0.20	0.75	7.14	1	0.99	3	5
Chromium	mg/kg	7440-47-3	EPA 6010C	**12**	3.8	NE	44	43	76.5	110
Copper	mg/kg	7440-50-8	EPA 6010C	14	92	3130	35	32	91	150
Lead	mg/kg	7439-92-1	EPA 6010C	8.5	27	200	52	36	83	130
Mercury	mg/kg		EPA 7471B	0.04	0.21	3.13	NE	0.18	0.64	1.1
Nickel	mg/kg	7440-02-0	EPA 6010C	9.3	13	1430	31	23	36	49
Zinc	mg/kg	7440-66-6	EPA 6010C	50	NE	23500	150	120	290	460
PAHs										
1-Methylnaphthalene	ug/kg	90-12-0	EPA 8270-SIM	42.3	NE	265	NE	ne	ne	ne
2-Methylnaphthalene	ug/kg	91-57-6	EPA 8270-SIM	38.5	NE	239000	NE	20.2	111	201
Acenaphthene	ug/kg	83-32-9	EPA 8270-SIM	12.8	NE	3590000	NE	6.7	48	89
Acenaphthylene	ug/kg	208-96-8	EPA 8270-SIM	14.0	NE	NE	NE	5.9	67	128
Anthracene	ug/kg	120-12-7	EPA 8270-SIM	22.9	197000	17900000	NE	57.2	451	845
Benzo(a)anthracene	ug/kg	56-55-3	EPA 8270-SIM	20.4	NE	1140	NE	108	579	1050
Benzo(a)pyrene	ug/kg	50-32-8	EPA 8270-SIM	35.7	470	115	NE	150	800	1450
Benzo(b)fluoranthene	ug/kg	205-99-2	EPA 8270-SIM	73.1	480	1150	NE	240	6820	13400
Benzo(e)pyrene	ug/kg	192-97-2	EPA 8270-SIM	34.7	NE	NE	NE	150	800	1450
Benzo(g,h,i)perylene	ug/kg	191-24-2	EPA 8270-SIM	31.5	NE	NE	NE	170	1685	3200
Benzo(k)fluoranthene	ug/kg	207-08-9	EPA 8270-SIM	10.5	NE	11500	NE	240	6820	13400
Chrysene	ug/kg	218-01-9	EPA 8270-SIM	44.0	140	115000	NE	166	728	1290
Dibenz(a,h)anthracene	ug/kg	53-70-3	EPA 8270-SIM	5.08	NE	115	NE	33	84	135
Fluoranthene	ug/kg	206-44-0	EPA 8270-SIM	74.1	89000	2390000	NE	423	1327	2230
Fluorene	ug/kg	86-73-7	EPA 8270-SIM	59.4	15000	2390000	NE	77.4	307	536
Indeno(1,2,3-cd)pyrene	ug/kg	193-39-5	EPA 8270-SIM	25.9	NE	1150	NE	200	1700	3200
Naphthalene	ug/kg	91-20-3	EPA 8270-SIM	32.4	660	2400	NE	176	369	561
Phenanthrene	ug/kg	85-01-8	EPA 8270-SIM	185	NE	NE	NE	204	687	1170
Pyrene	ug/kg	129-00-0	EPA 8270-SIM	75.3	55000	1790000	NE	195	858	1520
PCBs										
Aroclor-1016	mg/kg	12674-11-2	EPA 8082A	<0.048	NE	4.11	NE	NE	NE	NE
Aroclor-1221	mg/kg	11104-28-2	EPA 8082A	<0.070	NE	0.213	NE	NE	NE	NE
Aroclor-1232	mg/kg	11141-16-5	EPA 8082A	<0.031	NE	0.19	NE	NE	NE	NE
Aroclor-1242	mg/kg	53469-21-9	EPA 8082A	<0.028	NE	0.235	NE	NE	NE	NE
Aroclor-1248	mg/kg	12672-29-6	EPA 8082A	<0.039	NE	0.233	NE	NE	NE	NE
Aroclor-1254	mg/kg	11097-69-1	EPA 8082A	<0.061	NE	0.239	NE	NE	NE	NE
Aroclor-1260	mg/kg	11096-82-5	EPA 8082A	<0.031	NE	0.243	NE	NE	NE	NE
Total PCBs	mg/kg	1336-36-3		ND	NE	0.234	0.009	0.06	0.368	0.676
Inorganics										
Ammonia Nitrogen	mg/kg	7664-41-7	SM 4500-NH3H	152	NE	NE	NE	NE	NE	NE
Nitrogen Kjeldahl	mg/kg		EPA 351.2	5440	NE	NE	NE	NE	NE	NE
Nitrate + Nitrite Nitrogen	mg/kg		EPA 9056A	<2.6	NE	NE	NE	NE	NE	NE
Nitrate Nitrogen	mg/kg		EPA 9056A	<2.3	NE	NE	NE	NE	NE	NE
Nitrite Nitrogen	mg/kg		EPA 9056A	<2.6	NE	NE	NE	NE	NE	NE
Total Phosphorus	mg/kg	7723-14-0	EPA 365.4	1110	NE	NE	NE	NE	NE	NE
Total Organic Carbon	mg/kg	OM	L-Kahn/9060A	74800	NE	NE	NE	NE	NE	NE
Percent Solids	%	SOLID	EPA 8000C	34.4	NE	NE	NE	NE	NE	NE

NOTES
Results are listed in mg/kg except as noted
< = not present above detection limit
NA = not analyzed
NE = no established standard
ND = sum of compouds not detected above detection limits

RCL - Residual Contaminant Level
CBSQG - Consensus-Based Sediment Quality Guideline
PEC = Probable Effects Concentration
MEC = Median Effects Concentration
TEC = Threshold Effects Concentration

Bold exceeds Groundwater Pathway RCL
Underline exceeds Non-Industrial Direct Contact Pathway RCL
Green Shaded exceed TEC
Blue Shaded exceed MEC
Purple Shaded exceed PEC

Hey and Associates, Inc.
Engineering, Ecology, and Landscape Architecture

APPENDIX A: DIGITAL BATHYMETRIC DATA

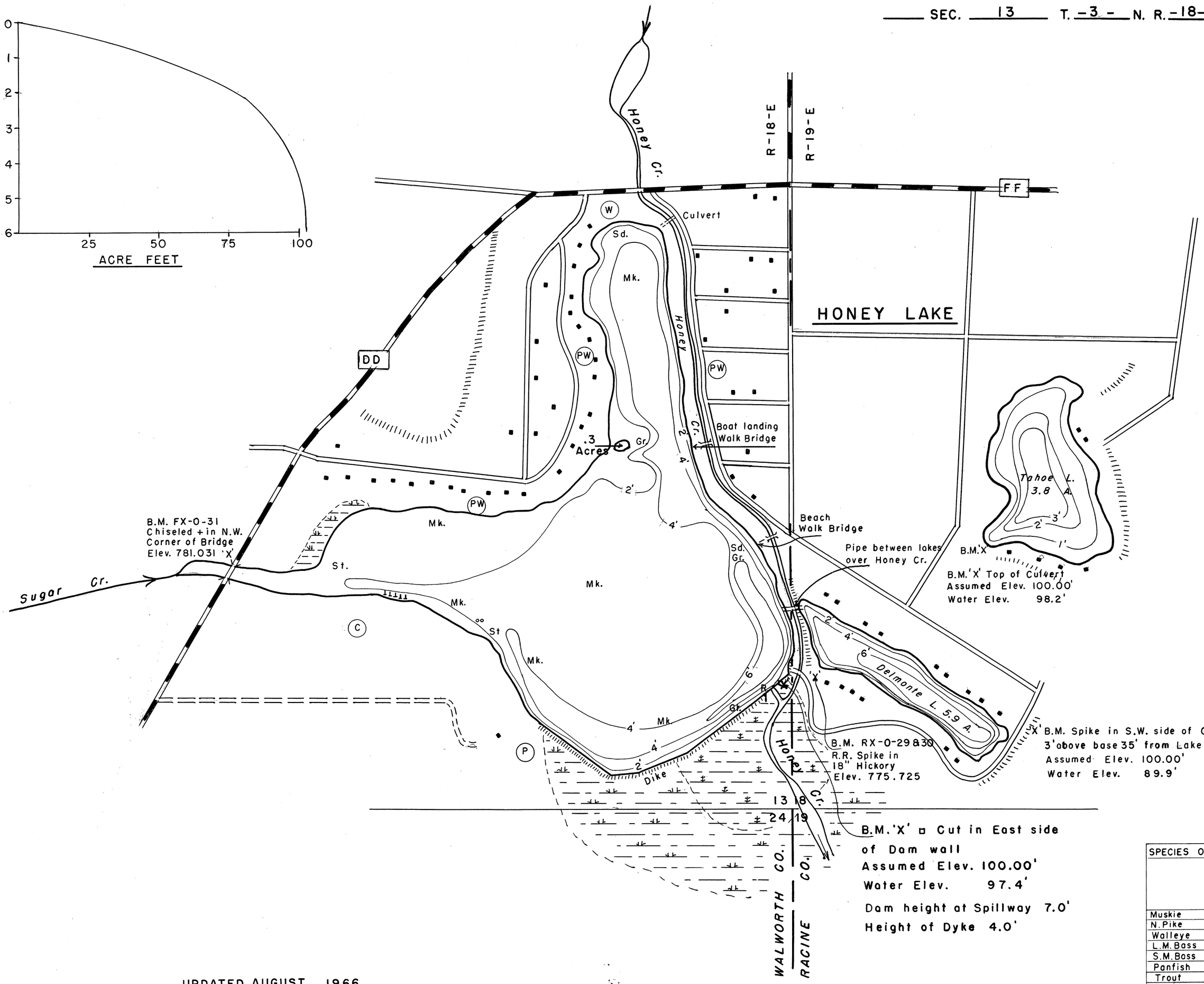
APPENDIX B: WDNR BATHYMETRIC MAP

WISCONSIN CONSERVATION DEPARTMENT

LAKE SURVEY MAP

HONEY LAKE | WALWORTH COUNTY

SEC. 13 T. -3- N. R. -18- E



SPECIES OF FISH	Abundant	Common	Rare
Muskie			
N. Pike			X
Walleye			
L.M. Bass			X
S.M. Bass			X
Panfish		X	
Trout			
Catfish			X

EQUIPMENT SONAR MAPPED APRIL 1955 (MO. / YR.) UPDATED AUGUST 1966

WATER ELEV. 97.4'

TOPOGRAPHIC SYMBOLS

- (B) Brush
- (PW) Partially wooded
- (W) Wooded
- (C) Cleared
- (P) Pastured
- (A) Agricultural
- B.M. Bench Mark
- ▪ Dwelling
- ▣ Resort
- Steep slope
- Indefinite shoreline
- Marsh
- Spring
- Intermittent stream
- Permanent inlet
- Permanent outlet
- Dam

LAKE BOTTOM SYMBOLS

- P. Peat
- Mk. Muck
- C. Clay
- M. Marl
- Sd. Sand
- St. Silt
- Gr. Gravel
- R. Rubble
- Br. Bedrock
- Stumps & Snags
- T Submergent vegetation
- ⊥ Emergent vegetation
- Floating vegetation

300' 0' 300' 600' 900' 1,200' 1,500'

SCALE

◇ Access ◆ Access with Parking ◆ Boat Livery

Field work by: H. Schwenn Drawn by: E. Eaton

AREA 44.0 ACRES
UNDER 3FT. 50 %
OVER 20FT. 0 %
VOLUME 103.6 ACRE FT.
TOTAL ALK. 240 P.P.M.
SHORELINE 1.6 MILES
MAX. DEPTH 6 FEET

Source: Wisconsin Department of Natural Resources 608-266-2621
Honey Lake – Walworth County, Wisconsin DNR Lake Map
Date – Aug 1966 - Historical Lake Map - Not for Navigation
A Public Document - Please Identify the Source when using it.

APPENDIX C: LABORATORY ASSESSMENT RESULTS

CT LABORATORIES
delivering more than data from your environmental analyses

CT Laboratories LLC • 1230 Lange Ct • Baraboo, WI 53913
608 -356-2760 • www.ctlaboratories.com

ANALYTICAL REPORT

HEY & ASSOCIATES
ALA JANKOWSKI
26575 W COMMERCE DR
VOLO, IL 60073

Copy: AJANKOWSKI@HEYASSOC.COM

Project Name: HONEY LAKE
Project Phase:
Contract #: 3089
Project #: 24-0238
Folder #: 196823
Purchase Order #:

Arrival Temperature: See COC
Report Date: 8/6/2025
Date Received: 7/25/2025
Reprint Date: 8/6/2025

CT LAB Sample#: 1608078 Sample Description: SS-01 Sampled: 7/24/2025 11:30

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Inorganic Results										
Solids, Percent	**34.4**	%			1			7/28/2025 23:20	BMP	EPA 8000C
Ammonia Nitrogen	**152**	mg/kg	10	34	1		7/29/2025 09:15	7/29/2025 12:17	RLB	SM 4500-NH3H
Phosphorus	**1110**	mg/kg	160	540	2		7/30/2025 10:00	8/1/2025 13:26	HLB	EPA 365.4
Nitrogen Kjeldahl	**5440**	mg/kg	270	920	2	M	7/30/2025 10:00	8/1/2025 12:07	HLB	EPA 351.2
Nitrate + Nitrite Nitrogen	<2.6	mg/kg	2.6	8.7	1		7/29/2025 09:54	7/29/2025 20:16	TMG	EPA 9056A
Nitrate Nitrogen	<2.3	mg/kg	2.3	7.8	1		7/29/2025 09:54	7/29/2025 20:16	TMG	EPA 9056A
Nitrite Nitrogen	<2.6	mg/kg	2.6	8.7	1		7/29/2025 09:54	7/29/2025 20:16	TMG	EPA 9056A
Total Organic Carbon	**74800**	mg/kg	470	1600	1			7/30/2025 10:10	TMG	L-Kahn/9060A
Metals Results										
Arsenic	**3.5**	mg/kg	0.75	3.0	1		7/27/2025 18:53	7/28/2025 18:04	NAH	EPA 6010C
Cadmium	**0.20**	mg/kg	0.081	0.75	1	J	7/27/2025 18:53	7/28/2025 18:04	NAH	EPA 6010C
Chromium	**12**	mg/kg	0.21	1.5	1		7/27/2025 18:53	7/28/2025 18:04	NAH	EPA 6010C
Copper	**14**	mg/kg	0.36	1.5	1		7/27/2025 18:53	7/28/2025 18:04	NAH	EPA 6010C
Lead	**8.5**	mg/kg	0.23	1.5	1		7/27/2025 18:53	7/28/2025 18:04	NAH	EPA 6010C
Nickel	**9.3**	mg/kg	0.19	1.5	1		7/27/2025 18:53	7/28/2025 18:04	NAH	EPA 6010C
Zinc	**50**	mg/kg	0.36	1.5	1		7/27/2025 18:53	7/28/2025 18:04	NAH	EPA 6010C

Unless specifically stated to the contrary, soil/sediment/sludge sample results/LOD/LOQ/RLs were reported on a Dry Weight Basis

CT LAB Sample#: 1608078 Sample Description: SS-01 Sampled: 7/24/2025 11:30

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Mercury	**0.040**	mg/kg	0.0092	0.031	1		7/29/2025 13:45	8/1/2025 10:34	MDS	EPA 7471B
Organic Results										
Aroclor-1016	<0.048	mg/kg	0.048	0.17	1		7/29/2025 09:00	8/5/2025 16:21	JJY	EPA 8082A
Aroclor-1221	<0.079	mg/kg	0.079	0.26	1		7/29/2025 09:00	8/5/2025 16:21	JJY	EPA 8082A
Aroclor-1232	<0.031	mg/kg	0.031	0.11	1		7/29/2025 09:00	8/5/2025 16:21	JJY	EPA 8082A
Aroclor-1242	<0.028	mg/kg	0.028	0.11	1		7/29/2025 09:00	8/5/2025 16:21	JJY	EPA 8082A
Aroclor-1248	<0.039	mg/kg	0.039	0.14	1		7/29/2025 09:00	8/5/2025 16:21	JJY	EPA 8082A
Aroclor-1254	<0.051	mg/kg	0.051	0.17	1		7/29/2025 09:00	8/5/2025 16:21	JJY	EPA 8082A
Aroclor-1260	<0.031	mg/kg	0.031	0.11	1		7/29/2025 09:00	8/5/2025 16:21	JJY	EPA 8082A
1-Methylnaphthalene	**42.3**	ug/kg	3.4	14	1		7/29/2025 09:00	7/30/2025 13:42	ALD	EPA 8270D-SIM
2-Methylnaphthalene	**38.5**	ug/kg	2.8	14	1		7/29/2025 09:00	7/30/2025 13:42	ALD	EPA 8270D-SIM
Acenaphthene	**12.8**	ug/kg	2.8	14	1	J	7/29/2025 09:00	7/30/2025 13:42	ALD	EPA 8270D-SIM
Acenaphthylene	**14.0**	ug/kg	2.8	14	1		7/29/2025 09:00	7/30/2025 13:42	ALD	EPA 8270D-SIM
Anthracene	**22.9**	ug/kg	3.1	14	1		7/29/2025 09:00	7/30/2025 13:42	ALD	EPA 8270D-SIM
Benzo(a)anthracene	**20.4**	ug/kg	2.8	14	1		7/29/2025 09:00	7/30/2025 13:42	ALD	EPA 8270D-SIM
Benzo(a)pyrene	**35.7**	ug/kg	2.6	14	1		7/29/2025 09:00	7/30/2025 13:42	ALD	EPA 8270D-SIM
Benzo(b)fluoranthene	**73.1**	ug/kg	2.8	14	1		7/29/2025 09:00	7/30/2025 13:42	ALD	EPA 8270D-SIM
Benzo(e)pyrene	**34.7**	ug/kg	2.6	14	1		7/29/2025 09:00	7/30/2025 13:42	ALD	EPA 8270D-SIM
Benzo(g,h,i)perylene	**31.5**	ug/kg	3.4	14	1		7/29/2025 09:00	7/30/2025 13:42	ALD	EPA 8270D-SIM
Benzo(k)fluoranthene	**10.5**	ug/kg	2.8	14	1	J	7/29/2025 09:00	7/30/2025 13:42	ALD	EPA 8270D-SIM
Chrysene	**44.0**	ug/kg	2.8	14	1		7/29/2025 09:00	7/30/2025 13:42	ALD	EPA 8270D-SIM
Dibenzo(a,h)anthracene	**5.08**	ug/kg	3.4	14	1	J	7/29/2025 09:00	7/30/2025 13:42	ALD	EPA 8270D-SIM
Fluoranthene	**74.1**	ug/kg	3.4	14	1		7/29/2025 09:00	7/30/2025 13:42	ALD	EPA 8270D-SIM
Fluorene	**59.4**	ug/kg	2.6	14	1		7/29/2025 09:00	7/30/2025 13:42	ALD	EPA 8270D-SIM
Indeno(1,2,3-cd)pyrene	**25.9**	ug/kg	3.4	14	1		7/29/2025 09:00	7/30/2025 13:42	ALD	EPA 8270D-SIM
Naphthalene	**32.4**	ug/kg	2.8	14	1		7/29/2025 09:00	7/30/2025 13:42	ALD	EPA 8270D-SIM

Unless specifically stated to the contrary, soil/sediment/sludge sample results/LOD/LOQ/RLs were reported on a Dry Weight Basis

CT LAB Sample#: 1608078 Sample Description: SS-01 Sampled: 7/24/2025 11:30

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Phenanthrene	**185**	ug/kg	3.4	14	1		7/29/2025 09:00	7/30/2025 13:42	ALD	EPA 8270D-SIM
Pyrene	**75.3**	ug/kg	2.6	14	1		7/29/2025 09:00	7/30/2025 13:42	ALD	EPA 8270D-SIM
Sub Lab Results										
Hydrometer	**attached**		N/A	N/A	1			8/4/2025 00:00	SUB	
Moisture Content	**291**	%	1.0	N/A	1			7/28/2025 23:20	BMP	ASTM D2216

Unless specifically stated to the contrary, soil/sediment/sludge sample results/LOD/LOQ/RLs were reported on a Dry Weight Basis

Notes regarding entire Chain of Custody:

Notes: "J" Indicates a value in between the LOD (limit of detection) and the LOQ (limit of quantitation). All LOD/LOQs are adjusted to reflect dilution and also any differences in the sample weight / volume as compared to standard amounts.

All samples were received intact and properly preserved unless otherwise noted. The results reported relate only to the samples tested. This report shall not be reproduced, except in full, without written approval of this laboratory. The Chain of Custody is attached.

Submitted by: Eric T. Korthals
Project Manager
608-356-2760

QC Qualifiers

Code	Description
A	Result cannot be used for compliance due to QC issue
B	Analyte detected in the associated Method Blank.
C	Toxicity present in BOD sample.
D	Diluted Out.
E	Safe, No Total Coliform detected.
F	Unsafe, Total Coliform detected, no E. Coli detected.
G	Unsafe, Total Coliform detected and E. Coli detected.
H	Holding time exceeded.
I	Incubator temperature was outside acceptance limits during test period.
J	Estimated value.
L	Significant peaks were detected outside the chromatographic window.
M	Matrix spike and/or Matrix Spike Duplicate recovery outside acceptance limits.
N	Insufficient BOD oxygen depletion.
O	Complete BOD oxygen depletion.
P	Concentration of analyte differs more than 40% between primary and confirmation analysis.
Q	Laboratory Control Sample outside acceptance limits.
R	See Narrative at end of report.
S	Surrogate standard recovery outside acceptance limits due to apparent matrix effects.
T	Sample received with improper preservation or temperature.
U	Analyte concentration was below detection limit.
V	Raised Quantitation or Reporting Limit due to limited sample amount or dilution for matrix background interference.
W	Sample amount received was below program minimum.
X	Analyte exceeded calibration range.
Y	Replicate/Duplicate precision outside acceptance limits.
Z	Specified calibration criteria was not met.

Current CT Laboratories Certifications

Wisconsin (WDNR) Chemistry ID# 157066030
Wisconsin (DATCP) Bacteriology ID# 289
Louisiana NELAP (primary) ID# 115843
Illinois NELAP Lab ID# 200073
Kansas NELAP Lab ID# E-10368
Virginia NELAP Lab ID# 460203
Florida NELAP Lab ID# E871111

DoD-ELAP QSM5.4 -
PJLA Testing Accreditation # 78929

ISO/IEC 17025-2017 Accredited -
PJLA Testing Accreditation # 78929

ANALYTICAL REPORT

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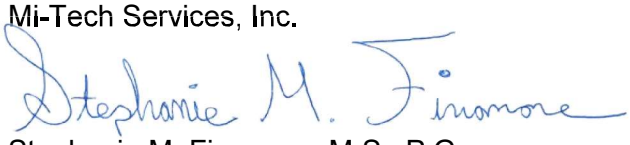
Baraboo, WI 53913
ekorthals@ctlaboratories.com

PROJECT NAME:	**HONEY LAKE, WI**		
REPORT DATE:	08/04/25	CT LABS PO #	196823 MITECH
ANALYSIS:	Grain Size – Full Gradation (sieve & hydrometer)	MI-TECH #	12760
METHOD:	ASTMs D7928/ D6913/ D1140	DATE RECEIVED:	07/29/25

Dear Mr. Korthals:

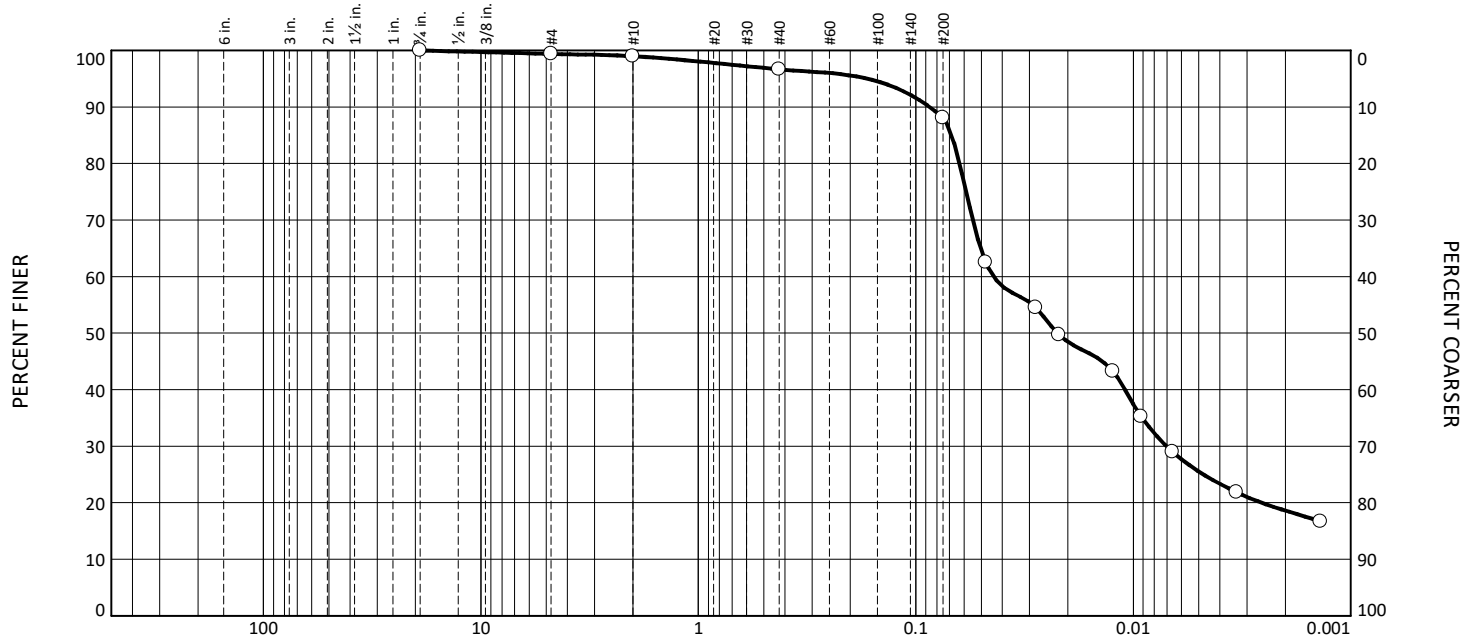
Analytical results for the above-referenced project are enclosed. Thank you for your business.

Sincerely,
Mi-Tech Services, Inc.



Stephanie M. Finamore, M.S., P.G.
Environmental Manager

Particle Size Distribution Report (Hydrometer & Sieve Test)



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	0.4	2.3	8.6	62.6	25.5

Test Results (ASTM D6913 & D1140, D7928)

Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)
0.75	100.0		
#4	99.4		
#10	99.0		
#40	96.7		
#200	88.1		
0.0477 mm.	62.5		
0.0280 mm.	54.5		
0.0219 mm.	49.7		
0.0124 mm.	43.3		
0.0092 mm.	35.2		
0.0066 mm.	29.0		
0.0033 mm.	21.8		
0.0014 mm.	16.6		

· (no specification provided)

Sample Number: 1608078

Client Sample ID
SS-01

Sieve Test (ASTM D6913 & D1140)

Test Date: 7/31/25 **Technician:** CZ/CH

Test Notes

Hydrometer Test (ASTM D7928)

Test Date: 7/31/25 **Technician:** CH

Test Notes

Atterberg (ASTM D4318)

PL= NP **LL=** NP **PI=** NP

Coefficients

D_{90}= 0.0864 D_{85}= 0.0684
D_{60}= 0.0438 D_{50}= 0.0224
D_{30}= 0.0070 D_{15}=
D_{10}=
C_u= C_c=

USCS (ASTM D2487)
ML

Date Sampled: 7/24/25
Date Received: 7/29/25
Checked By: SMF
Title: MANAGER

Mi-Tech Services, Inc.

Wausau, WI

Client: CT Laboratories
Project: Honey Lake (WI)

Project No: 12760 (PO #196823) **Figure** 1

CT LABORATORIES
delivering more than data from your environmental analyses

1230 Lange Court • Baraboo, WI 53913 • 608-356-2760
www.ctlaboratories.com

Sub-Contract Laboratory Chain-of-Custody and Purchase Order

PURCHASE ORDER #: 196823 MITECH

The PO# must appear on all invoice and reports!

Upon Receipt of Samples, please verify that samples were received in acceptable condition then sign this form and fax to (608)356-2766 or email to the project manager. Sample temperature, upon receipt, must be recorded on this document unless thermal preservation is not a method requirement.

Ship to: **Mi-Tech**
4901 STEWART AVE
WAUSAU, WI 54401

Return Invoice and Results to: **ekorthals@ctlaboratories.com**

CTLaboratories
Eric Korthals
1230 Lange Court
Baraboo WI 53913

Government UPS Shipping Acct ? **Y** **N**

Ship by: Speedee [X] UPS Grnd [ ] UPS 2nd [ ] UPS NDA [ ]

Date Due: STD ***RUSH TURNAROUND NEEDED? Y or (N) (Circle One)***

Project Name: HONEY LAKE **Project State:** WI

Analytical/QC Criteria: (NONE INDICATED) STATE DOD QSM NELAP (Circle one) OTHER_____

Report results as EDD? (N) Y (Circle one and indicate type: _____) Data Deliverable Package LEVEL: STD

CTLabs ID#	Sample Date/Time		Matrix	Sample Description	Analyses / Method		Cost
1608078	7/24/2025	11:30	SOIL	SS-01	HYDROMETER + GSA		
1608078	7/24/2025	11:30	SOIL	SS-01	MOISTURE CONTENT	ASTM D2216	

Relinquished by: _____ Date/Time: 7-28-25 / 0830h

Received by: Cindy Zelenka Date/Time: 7/29/25 10:30 Receipt Temperature (C) _____

COMMENTS:

REPORT ALL SOLIDS ON A DRY WEIGHT BASIS UNLESS OTHERWISE INDICATED

Rev. 02/2017

CHAIN OF CUSTODY

Company: HEY and ASSOCIATES
Project Contact: ALA JANKOWSKI
Telephone: 815-333-6274
Project Name: HONEY LAKE
Project #: 24-0238
Location: Burlington, WI
Sampled By: ATJ

CT LABORATORIES
1230 Lange Court, Baraboo, WI 53913
608-356-2760 Fax 608-356-2766
www.ctlaboratories.com

Folder #: 196823
Company: GENERAL MISC
Project: HEY AND ASSOCIATES
Logged By: erc PM: ETK

Program:
QSM RCRA SDWA NPDES
Solid Waste Other ______

PO #

Report To:
EMAIL: ajankowski@heyassoc.com
Company: Hey & Associates
Address: 26575 W Commerce Drive, Volo IL

Invoice To:*
EMAIL: ajankowski@heyassoc.com
Company: Hey & Associates
Address:

*Party listed is responsible for payment of invoice as per CT Laboratories' terms and conditions

Client Special Instructions

Matrix:
GW – groundwater SW - surface water WW - wastewater DW - drinking water
S - soil/sediment SL - sludge A - air M - misc/waste

Turnaround Time
Normal (circled) RUSH*
Date Needed: ______
Rush analysis requires prior CT Laboratories' approval
Surcharges:
24 hr 200%
2-3 days 100%
4-9 days 50%

ANALYSES REQUESTED — Fill in Spaces with Bottles per Test

Collection Date	Collection Time	Matrix	Grab/Comp	Sample #	Sample ID Description	Filtered? Y/N	PCBs	PAHs	Phosphorus	NO2 + NO3	AMMONIA	TKN	TOC	METALS	HYDROMETER	MOISTURE CONTENT					Total # Containers	Designated MS/MSD	CT Lab ID # (Lab use only)
7/24	1130	S	G		SS-01	N	X	X	X	X	X	X	X	X	X	X					5		1608078

Relinquished By:	Date/Time	Received By:	Date/Time
Leonard Dane ~~Ala Jankowski~~ (signature)	7/25/25 1420?	(signature)	7/25/25 1907
Received by:	Date/Time	Received for Laboratory by: (signature)	Date/Time 7/28/25 1423

Lab Use Only
Ice Present: Yes (circled) No
Temp: 4.3 IR Gun: 32
Cooler #: 6393

APPENDIX D: CHAIN OF CUSTODY FORM

Rev. 02/2017

CHAIN OF CUSTODY

Company: HEY and Associates
Project Contact: ALA Jankowski
Telephone: 815-333-6274
Project Name: HONEY LAKE
Project #: 24-0238
Location: Burlington, WI
Sampled By: ATJ

CT LABORATORIES
1230 Lange Court, Baraboo, WI 53913
608-356-2760 Fax 608-356-2766
www.ctlaboratories.com

Lab Use Only
Place Header Sticker Here:

Program:
QSM RCRA SDWA NPDES
Solid Waste Other ________

PO #

Report To:
EMAIL: ajankowski@heyassoc.com
Company: Hey & Associates
Address: 26575 W Commerce Dr, Volo IL

Invoice To:*
EMAIL: ajankowski@heyassoc.com
Company: Hey & Associates
Address:

**Party listed is responsible for payment of invoice as per CT Laboratories' terms and conditions*

Client Special Instructions

Matrix:
GW – groundwater **SW** - surface water **WW** - wastewater **DW** - drinking water
S - soil/sediment **SL** - sludge **A** - air **M** - misc/waste

Turnaround Time
Normal (circled) RUSH*
Date Needed: ________
Rush analysis requires prior CT Laboratories' approval
Surcharges:
24 hr 200%
2-3 days 100%
4-9 days 50%

ANALYSES REQUESTED — Fill in Spaces with Bottles per Test

Collection Date	Collection Time	Matrix	Grab/Comp	Sample #	Sample ID Description	Filtered? Y/N	PCBs	PAHs	Phosphorus	NO2 + NO3	AMMONIA	TKN	TOC	METALS	HYDROMETER	MOISTURE CONTENT						Total # Containers	Designated MS/MSD	CT Lab ID # *Lab use only*
7/24	1130	S	G		SS-01	N	X	X	X	X	X	X	X	X	X	X						5		

Relinquished By:	Date/Time	Received By:	Date/Time
Leonard Dane Lundke	7/25/25 1420?	E	7/25 1407

Received by:	Date/Time	Received for Laboratory by:	Date/Time

Lab Use Only
Ice Present (Yes circled) No
Temp 4.3 IR Gun 32
Cooler # 6395

CT Laboratories Terms and Conditions

Where a purchaser (Client) places an order for laboratory, consulting or sampling services from CT Laboratories (CTL), CTL shall provide the ordered services pursuant to these Terms and Conditions, and the related Quotation, or as agreed in a negotiated contract. In the absence of a written agreement to the contrary, the Order constitutes an acceptance by the Client of CTL's offer to do business under these Terms and Conditions, and an agreement to be bound by these Terms and Conditions. No contrary or additional terms and conditions expressed in a Client's document shall be deemed to become a part of the contract created upon acceptance of these Terms and Conditions, unless accepted by CTL in advance of the start of the project and in writing.

1. ORDERS AND RECEIPT OF SAMPLES (Sample Acceptance Policy)

1.1 The Client may place the Order (i.e., specify a Scope of Work) either by submitting a purchase order to CTL in writing, by telephone (confirmed in writing) or by negotiated contract. Whichever option the Client selects for placing the Order, the Order shall not be valid unless it contains sufficient information to enable CTL to carry out the Client's requirements. It is the policy of CTL that samples not meeting the acceptance criteria, outlined in the NELAC standards and Section 5.8.3.2 of the DOD QSM, will not be accepted by the laboratory or will be qualified on the final report. All samples submitted to the laboratory must: (a) be accompanied by proper, full and complete documentation, including sample identification, location, date and time of collection, the collector's name, type of preservation (if any), type of sample, any special comments concerning the sample and any additional pertinent fields on the chain-of-custody. In the absence of any of the required information, the laboratory will attempt to contact the client to obtain the information; if unable to obtain the necessary information, the final report will be qualified.
(b) samples must be labeled appropriately with a unique sample identification written with indelible ink on water resistant labels. If the laboratory cannot determine the identity of a sample, it may be rejected and the client will be contacted for further instructions or resampling. (c) samples must be in an appropriate sample container. If the container is inappropriate, the client will be contacted for further instructions or resampling. If analysis is possible, the final report will be qualified. CTL can provide a sampling guide containing approved containers and preservations for analytical methods requested. (d) adhere to method specified holding times. If samples are received with less than ½ the holding time remaining for the requested test, CTL will make its best effort to analyze the samples and notify the client. If holding times are exceeded, the final report will be qualified. (e) contain adequate sample volume to perform the necessary testing. If sufficient volume is not present, the sample may be rejected and the client will be contacted for further instructions or resampling. If samples show signs of damage, contamination or inadequate preservation, the client will be notified. If analysis can be performed, the final report will be qualified. If not, the samples will be rejected and the client notified for further instructions or resampling. It is the Client's responsibility to understand and package samples correctly and provide the proper amount of temperature control (ice) suitable to current weather conditions.
1.2 CTL must be supplied with complete written disclosure of the known or suspected presence of any hazardous substances, as defined by applicable federal or state law. Where any samples which were not accompanied by the required disclosure, cause interruptions in the lab's ability to process work due to contamination of instruments or work areas, the Client will be responsible for the costs of clean up and recovery.
1.3 Prior to Sample Acceptance, the entire risk of loss or damage to samples remains with the Client. In no event will CTL have any responsibility or liability for the action or inaction of any carrier shipping or delivering any sample to or from CTL's premises. Client is responsible to assure that any sample containing any hazardous substance which is to be delivered to CTL's premises will be packaged, labeled, transported and delivered properly and in accordance with applicable laws.
1.4 Clients using CTL's shipping account(s) do so at their own risk and must purchase separate insurance if they do not wish to assume risk of loss. CTL will not assume any risk whatsoever for any samples outside of CTL's control and not successfully delivered to the laboratory within specified hold times.
1.5 CTL will not accept liability for any sample(s), except sample(s) damaged or broken by log-in staff prior to successful log-in of the sample(s) into the CTL- LIMS system. This includes, but may not be limited to: complete, valid COC documentation, all sample receiving issues being resolved from a delay caused by the Client in CTL's ability to log-in samples, including missed turnaround and hold times, delay in processing and, ultimately, additional charges to the Client.
1.6 CTL will only reject samples per directions from the Client. CTL's sole liability is to inform the Client of any sample receipt issues, and may provide an indication how proceeding with the analysis may affect results and final acceptance by the regulating agency. Ultimately, suitability for use is between the Client and the regulating agency(s).
1.7 Signing of this COC by the Client or Client's representative, or directions to CTL via email or Fax constitutes acceptance of these Terms and Conditions, and guarantees payment by the Client to CTL.

2. PAYMENT TERMS

2.1 Services performed by CTL will be in accordance with prices quoted and later confirmed in writing or as stated in the Price Schedule. Invoices may be submitted to Client upon completion of any sample delivery group. Payment in advance is required for all Clients except those whose credit has been established with CTL. For Clients with approved credit, payment terms are net 30 days from the date of invoice by CTL. All overdue payments are subject to an additional interest and service charge of one and one-half percent (1.5%) or the maximum rate permissible by law, per month or portion thereof from the due date until the date of payment. All fees are charged or billed directly to the Client. The billing of a third party will not be accepted without a statement, signed by the third party that acknowledges and accepts payment responsibility. CTL may suspend work and withhold delivery of data under this order at any time in the event Client fails to make timely payment of its invoices. Client shall be responsible for all costs and expenses of collection including reasonable attorney's fees. CTL reserves the right to refuse to proceed with work at any time based upon an unfavorable Client credit report.

3. CHANGE ORDERS, TERMINATION

3.1 Changes to the Scope of Work, price, or result delivery date may be initiated by CTL after Sample Acceptance due to any condition which conflicts with analytical, QA or other protocols warranted in these Terms and Conditions. CTL will not proceed with such changes until an agreement with the Client is reached on the amount of any cost, schedule change or technical change to the Scope of Work, and such agreement is documented in writing.
3.2 Changes to the Scope of Work, including but not limited to increasing or decreasing the work, changing test and analysis specification or acceleration in the performance of the work may be initiated by the Client after sample acceptance. Such a change will be documented in writing and may result in a change in cost and turnaround time commitment. CTL's acceptance of such changes is contingent upon technical feasibility and operational capacity.
3.3 Suspension or termination of all or any part of the work may be initiated by the Client. CTL will be compensated consistent with Section 2 of these Terms and Conditions. CTL will complete all work in progress and be paid in full for all work completed.

4. WARRANTIES AND LIABILITY

4.1 Where applicable, CTL will use analytical methodologies which are in substantial conformity with published test methods. CTL has implemented these methods in its Laboratory Quality Manuals and referenced Standard Operating Procedures and where the nature or composition of the sample requires it, CTL reserves the right to deviate from these methodologies as necessary or appropriate, based on the reasonable judgment of CTL, which deviations, if any, will be made on a basis consistent with recognized standards of the industry and/or CTL's Laboratory Quality Manuals. Client may request that CTL perform according to a mutually agreed Quality Assurance Project Plan (QAPP). In the event that samples arrive prior to agreement on a QAPP, CTL will proceed with analyses under its standard Quality Manuals then in effect, and CTL will not be responsible for any resampling or other charges if work must be repeated to comply with a subsequently finalized QAPP.
4.2 CTL shall start preparation and/or analysis within holding times provided that Sample Acceptance occurs within 48 hours of sampling or 1/2 of the holding time for the test, whichever is less. Samples received that do not meet this provision will be charged as expedited samples and the appropriate rate will be added accordingly. Where resolution of inconsistencies leading to Sample Acceptance does not occur within this period, CTL will use its best efforts to meet holding times and will proceed with the work provided that, in CTL's judgment, the chain-of-custody or definition of the Scope of Work provide sufficient guidance. Reanalysis of samples to comply with CTL's Quality Manuals will be deemed to have met holding times provided the initial analysis was performed within the applicable holding time. Where reanalysis demonstrates that sample matrix interference is the cause of failure to meet any Quality Manual requirements, the warranty will be deemed to have been met.
4.3 CTL warrants that it possesses and maintains all licenses and certifications which are required to perform services under these Terms and Conditions provided that such requirements are specified in writing to CTL prior to Sample Acceptance. CTL will notify the Client in writing of any decertification or revocation of any license, or notice of either, which affects work in progress.
4.4 The warranty obligations set forth in Sections 4.1, 4.2 and 4.3 are the sole and exclusive warranties given by CTL in connection with any services performed by CTL or any Results generated from such services, and CTL gives and makes NO OTHER REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. No representative of CTL is authorized to give or make any other representation or warranty or modify this warranty in any way.
4.5 Client's sole and exclusive remedy for the breach of warranty in connection with any services performed by CTL, will be limited to repeating any services performed, contingent on the Client's providing, at the request of CTL and at the Client's expense, additional sample(s) if necessary. Any reanalysis requested by the Client generating Results consistent with the original Results will be at the Client's expense. If resampling is necessary, CTL's liability for resampling costs will be limited to actual cost or one hundred or one hundred fifty dollars ($150) per sample, whichever is less.
4.6 CTL's liability for any and all causes of action arising hereunder, whether based in contract, tort, warranty, negligence or otherwise, shall be limited to the lesser amount of compensation for the services performed or $100,000. All claims, including those for negligence, shall be deemed waived unless suit thereon is filed within one year after CTL's completion of the services. Under no circumstances, whether arising in contract, tort (including negligence), or otherwise, shall CTL be responsible for loss of use, loss of profits, or for any special, indirect, incidental or consequential damages occasioned by the services performed or by application or use of the reports prepared.
4.7 In no event shall CTL have any responsibility or liability to the Client for any failure or delay in performance by CTL which results, directly or indirectly, in whole or in part, from any cause or circumstance beyond the reasonable control of CTL. Such causes and circumstances shall include, but not be limited to, acts of God, acts of Client, acts or orders of any governmental authority, strikes or other labor disputes, natural disasters, accidents, wars, civil disturbances, equipment breakdown, matrix interference or unknown highly contaminated samples that impact instrument operation, unavailability of supplies from usual suppliers, difficulties or delays in transportation, mail or delivery services, or any other cause beyond CTL's reasonable control.

5. RESULTS, WORK PRODUCT

5.1 Data or information provided to CTL or generated by services performed under this agreement shall only become the property of the Client upon receipt in full by CTL of payment for the whole Order. Ownership of any analytical method, QA/QC protocols, software programs or equipment developed by CTL for performance of work will be retained by CTL, and Client shall not disclose such information to any third party.
5.2 Data and sample materials provided by Client or at Client's request, and the result obtained by CTL shall be held in confidence (unless such information is generally available to the public or is in the public domain or Client has failed to pay CTL for all services rendered or is otherwise in breach of these Terms and Conditions), subject to any disclosure required by law or legal process.
5.3 Should the Results delivered by CTL be used by the Client or Client's client, even though subsequently determined not to meet the warranties described in these Terms and Conditions, then the compensation will be adjusted based upon mutual agreement. In no case shall the Client unreasonably withhold CTL's right to independently defend its data.
5.4 CTL reserves the right to subcontract services ordered by the Client to another laboratory or laboratories, if, in CTL's sole judgment, it is reasonably necessary, appropriate or advisable to do so, and with the Client's permission. CTL will in no way be liable for any subcontracted services and all applicable warranties, guarantees and insurance are those of the subcontracted laboratory.
5.5 CTL shall dispose of the Client's samples and extracts 30 days after the analytical report is issued, unless instructed to store them for an alternate period of time or to return such samples to the Client, in a manner consistent with U.S. Environmental Protection Agency regulations or other applicable Federal, state or local requirements. Additional charges will apply for samples or extracts stored longer than 30 days at the Clients request. Any samples for projects that are canceled or not accepted, or for which return was requested, will be returned to the Client at Client expense. CTL reserves the right to return to the Client any sample or unused portion of a sample that is not within CTL's permitted capability or the capabilities of CTL's designated waste disposal vendor(s), or will make arrangements to dispose of these samples at Client direction and expense.
5.6 Unless a different time period is agreed to in any order under these Terms and Conditions, CTL agrees to retain all records for five (5) years.
5.7 In the event that CTL is required to respond to legal process related to services for Client, Client agrees to reimburse CTL for hourly charges for personnel involved in the response and attorney fees reasonably incurred in obtaining advice concerning the response, preparation to testify, and appearances related to the legal process, travel and all reasonable expenses associated with the litigation.

6. INSURANCE

6.1 CTL shall maintain in force during the performance of services under these Terms and Conditions, Workers' Compensation and Employer's Liability Insurance in accordance with the laws of the states having jurisdiction over CTL's employees who are engaged in the performance of the work. CTL shall also maintain during such period, Comprehensive General and Contractual Liability (limit of $2,000,000 per occurrence/ aggregate), Comprehensive Automobile Liability, owned and hired, ($1,000,000 combined single limit), and Professional/Pollution Liability Insurance (limit of $5,000,000 per occurrence/aggregate). Any Client required changes to these limits or conditions will result in a change in cost to the Client.

7. AUDIT

7.1 Upon prior notice to CTL, the Client may audit and inspect CTL's records and accounts covering reimbursable costs related to work done for the Client, for a period of one (1) year after completion of the work. The purpose of any such audit shall be only for verification of such costs, and CTL shall not be required to provide access to cost records where prices are expressed as fixed fees or published unit prices.

APPENDIX E: PRELIMINARY ENGINEER'S OPINION OF PROBABLE COSTS

Hey and Associates, Inc.
Engineering, Ecology and Landscape Architecture

Honey Lake Dredging Investigation
Conceptual Cost Opinion

ITEM	DESCRIPTION	UNIT	ESTIMATED QUANTITY	BID UNIT PRICE (2025)	BID PRICE (2025)
MAINTENANCE DREDGING OF SEDIMENT BASIN ONLY					
DESIGN PHASE					
1	CONCEPT DESIGN	EA	1	1	$30,000 - $50,000
2	FINAL DESIGN AND PERMITTING	EA	1	1	$50,000 - $75,000
3	EASEMENT PREPARATION AND SITE PERMISSIONS COORDINATION	LS	1	$ 10,000.00	$ 10,000.00
4	BID PREPARATION AND BID ASSISTANCE	LS	1	$ 10,000.00	$ 10,000.00
				DESIGN PHASE SUBTOTAL	**$100,000 - $145,000**
CONSTRUCTION PHASE					
5	MOBILIZATION AND DEMOBILIZATION	LS	1	$ 75,000.00	$ 75,000.00
6	SIGNAGE, TRAFFIC CONTROL, AND PROTECTION	LS	1	$ 5,000.00	$ 5,000.00
7	SOIL EROSION AND SEDIMENT CONTROL	LS	1	$ 15,000.00	$ 15,000.00
8	SITE PREPARATION	EA	1	$ 50,000.00	$ 50,000.00
9	SEDIMENT DREDGING AND RESPREAD OPERATIONS	CY	10,635	$ 50.00	$ 531,746.30
10	OVERSIGHT, RETURN WATER MONITORING, AND PERIODIC INSPECTIONS	LS	1	$ 10,000.00	$ 10,000.00
11	STABILIZATION AND RESTORATION	AC	13.2	$ 2,000.00	$ 26,367.58
12	AS-BUILT SURVEY	LS	1	$ 7,000.00	$ 7,000.00
13	CONSTRUCTION CONTINGENCY	PERC	1	20%	$ 144,022.78
				CONSTRUCTION PHASE SUBTOTAL	**$ 864,136.66**
				PROJECT TOTAL	**$964,137 - $1,009,137**

ITEM	DESCRIPTION	UNIT	ESTIMATED QUANTITY	BID UNIT PRICE (2025)	BID PRICE (2025)
DREDGING ALL UNCONSOLIDATED SEDIMENT					
DESIGN PHASE					
1	CONCEPT DESIGN	EA	1	1	$40,000 - $60,000
2	FINAL DESIGN AND PERMITTING	EA	1	1	$75,000 - $100,000
3	EASEMENT PREPARATION AND SITE PERMISSIONS COORDINATION	LS	5	$ 10,000.00	$ 50,000.00
4	BID PREPARATION AND BID ASSISTANCE	LS	1	$ 10,000.00	$ 10,000.00
				DESIGN PHASE SUBTOTAL	**$175,000 - $220,000**
CONSTRUCTION PHASE					
5	MOBILIZATION AND DEMOBILIZATION	LS	1	$ 75,000.00	$ 75,000.00
6	SIGNAGE, TRAFFIC CONTROL, AND PROTECTION	LS	1	$ 5,000.00	$ 5,000.00
7	SOIL EROSION AND SEDIMENT CONTROL	LS	1	$ 15,000.00	$ 15,000.00
8	SITE PREPARATION	EA	1	$ 50,000.00	$ 50,000.00
9	SEDIMENT DREDGING AND RESPREAD OPERATIONS	CY	143,278	$ 50.00	$ 7,163,924.07
10	OVERSIGHT, RETURN WATER MONITORING, AND PERIODIC INSPECTIONS	LS	1	$ 10,000.00	$ 10,000.00
11	STABILIZATION AND RESTORATION	AC	177.6	$ 2,000.00	$ 355,235.90
12	AS-BUILT SURVEY	LS	1	$ 7,000.00	$ 7,000.00
13	CONSTRUCTION CONTINGENCY	PERC	1	20%	$ 1,536,232.00
				CONSTRUCTION PHASE SUBTOTAL	**$ 9,217,391.97**
				PROJECT TOTAL	**$9,392,392 - $9,437,392**