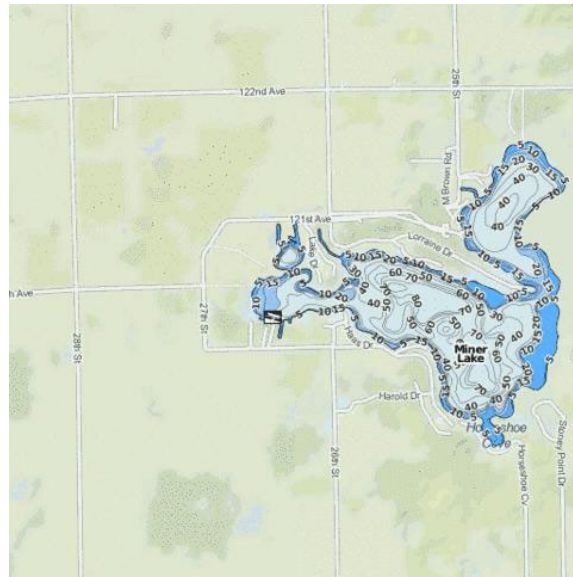


ALLEGAN TOWNSHIP ALLEGAN COUNTY, MI



MINER LAKE AREA SEWER FEASIBILITY STUDY – 2022 UPDATE

May 2022
Project No. 851210

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Introduction & History

In 2007, Allegan Township hired F&V (Fleis & VandenBrink Engineering, Inc.) to prepare a sewer feasibility study for the Miner Lake area. This study culminated in a Clean Water Revolving Fund (SRF) Project Plan report. The study was then presented to the Township Board and Lake Association, including explanation of the four options for providing sewer service around the lake and their associated costs. A “straw poll” was taken by landowners in the service area and the project was shelved due to the lack of a convincing majority in favor of moving forward with the project.

Fast forward to 2022, and there has been renewed interest in sewer around the Lake. The Township has hired F&V to revisit and update the original Project Plan. Specifically, the goals of this update are as follows:

- Review existing historical data and project documentation
- Research new available documentation since the prior study including lake studies, Health Department records
- Update service area and properties within
- Confirm prior alternatives are still viable and identify any new alternatives
- Provide updated preliminary cost estimates
- Identify current funding alternatives

Service Area

The service area for the sewer system is the entire area around Miner Lake in Sections 11, 12, 13 and 14 of Allegan Township. The outline of the service area is shown in Appendix A. The service area consists of the developed land immediately adjacent to the Lake as well as lots near the Lake.

Miner Lake is a lake 1-1/2 miles in length and less than a mile in width and is located approximately three miles northeast of the City of Allegan. There are approximately 248 primary properties in the study area. A DNR public access is located at the southwest portion of the Lake just north of 120th Avenue. There is no commercial/industrial land use within the study area.

Most of the eastern shoreline consists of freshwater emergent or freshwater forested/shrub wetland with additional areas along Miner Creek at the far southeast outlet of the Lake. Additional wetlands are located along the western inland areas.

The existing land use surrounding Miner Lake is both full-time and seasonal residential homes. It is estimated that 60% of the homes are full-time residents. There are no Township or County parks in the service area.

The City of Allegan’s Wastewater Treatment Facilities (WWTF) are the closest municipal facilities and are approximately 1.7 miles west and 2.3 miles south of the Miner Lake service area.

Wastewater treatment is currently provided by on-site septic systems in the study area.

Health Department Records

Several meetings with the Health Department were conducted to help gain their institutional knowledge of the existing systems in and around the lake, as well as searching their available records to quantify the types of systems. The systems were sorted into the following categories: Original, Replacement, Mound, Pre-Treatment, Pump and Haul, and No Record. These are shown graphically on the map in Appendix B.

Of the systems listed above, only the original and replacement systems meet the full requirements of the Health Department. Mound, Pre-Treatment, and Pump and Haul systems are only approved due to the lack of other viable options. These systems would not be approved if there weren't already homes on the properties.

Treatment Alternatives

Three different alternatives were investigated as part of this study update. The first two were the lowest cost alternatives considered in the original study. The third was a different disposal option detailed below.

1. Pressure Sewer System with Treatment at the City of Allegan

The pressure sewer system would utilize a small single grinder pump at each building or larger dual pumps for two or more homes. These grinder pumps would force the sewage into and through collector lines in the road right-of-way and easements. The small diameter pressure sewers can be installed flat without sloping and, therefore, they are usually kept at 5-6 feet deep. The service lines and small diameter sewers are typically 1-1/2 to 4 inches in diameter. Manholes are not necessary although slightly less expensive clean outs are utilized throughout the system. Pressure sewer systems are more difficult to expand in the future and careful planning at the time of design is required to anticipate future system needs.

The advantages of the pressure sewer system include the ease of installation of smaller, shallower pressure sewer lines. All the buildings would be provided with basement service including the walkouts with lower levels or at lake level below existing road elevations. The pressure sewer lines can also be installed by directional drilling methods both on the private property and road rights-of-way which reduce restoration costs and construction impacts to adjacent properties. Significant savings in construction costs are also due to the fact that less dewatering would be required as in conventional gravity sewer construction and the directional drilling would not require sand backfill in the poor soils as compared to open-trench conventional gravity system construction. With this type of system, the existing septic tanks are abandoned and/or removed.

2. Pressure Sewer System with Township Lagoon Facilities

This alternative has the same pressure sewer system listed above, but with a proposed Allegan Township Wastewater Lagoon site. The location of an independent Township treatment facility is assumed to be within a 2 ½ mile radius of the Miner Lake service area and would utilize aerated lagoons along with spray irrigation on Township crops and on leased farmland already in production.

This alternative would involve constructing PVC lined lagoons on top of a “native” compacted clay liner. Aeration equipment and an aeration pond and storage lagoons would be constructed as part of the treatment site, along with spray irrigation equipment. The Township-owned and other leased farmland would utilize spray irrigation during the crop season between late spring and summer months.

3. Pressure Sewer System with Township Drainfield Facility(s)

This alternative has the same pressure sewer system listed above, but with a proposed Allegan Township Wastewater Drainfield site(s). The location of an independent Township disposal facility(s) is assumed to be within a 1 mile radius of the Miner Lake service area and would utilize a septic tank and drainfield type disposal system. Based on the geography of the lake, there is a potential of having separate north and south drainfields.

This alternative would utilize large septic tanks and expansive drainfields for subsurface disposal of the sewage not unlike a typical single-family home, but on a larger scale.

Funding Alternatives

Five sources of funding have been identified for Allegan Township to move forward with a project if desired. A brief description of each follows:

Clean Water State Revolving Fund

This is a low interest loan program sponsored by EGLE. The current interest rate is 2.125% for a 30-year loan. Some projects may be eligible for principal forgiveness under the Green Project Reserve if the project addresses green infrastructure, or other environmentally innovative activities.

The program is competitive, and projects are scored on a point system that ranks them on a priority list. Not all projects submitted are funded so it is important to maximize points on the application. Requirements include an extensive project plan, but most expenses, including the project plan, are eligible activities that can be rolled into the loan. An Intent-to-Apply (ITA) form is due by January 1st and applications are submitted by June 1st every year.

USDA – Rural Utilities Service – Water & Waste Disposal Loans & Grants

The program provides funding for projects in eligible rural areas, with populations of 10,000 or less. The program will assist qualified applicants who are not otherwise able to obtain commercial credit on reasonable terms.

Long-term loans (40-years) are available at a fixed interest rate, based on the need for the project and the median household income of the area to be served. The current intermediate and market interest rates are 2.000% and 2.500% respectively.

When funds are available, a grant may be combined with a loan if necessary to keep user costs reasonable.

Special Assessment Bonds

Special assessments levied under PA 188 of 1954 are one of the most common ways to finance infrastructure improvements. The Township may levy special assessments against properties that receive special benefits from a public improvement. Property owners have petition rights that must be satisfied before the special assessment can go forward.

Special assessments typically can be repaid in installments with interest. The bonds may not exceed the amount of the special assessment roll and may be secured secondarily by a pledge of the Township's full faith and credit.

Revenue Bonds

Revenue bonds are authorized by PA 94 of 1933. They authorize the Township to borrow money and issue bonds. They are paid from user fees generated by the operation of the improvements.

Revenue bonds are subject to the right of referendum. Petitions for a public vote can be filed by registered Township voters during a 45-day referendum period. Voter approval is not required if the referendum period expires without petitions being filed.

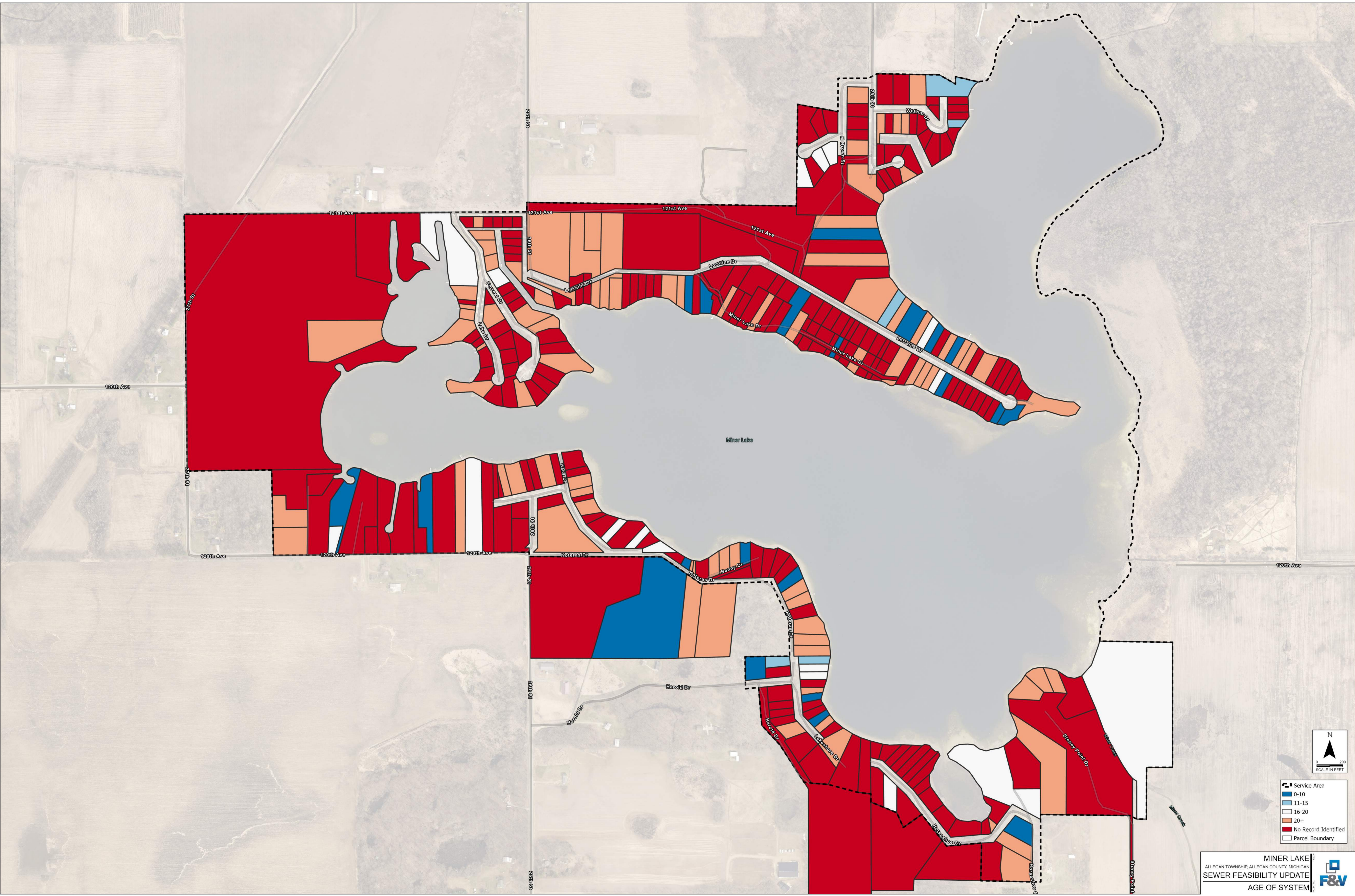
Contract Bonds

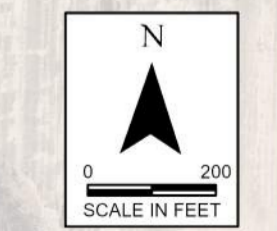
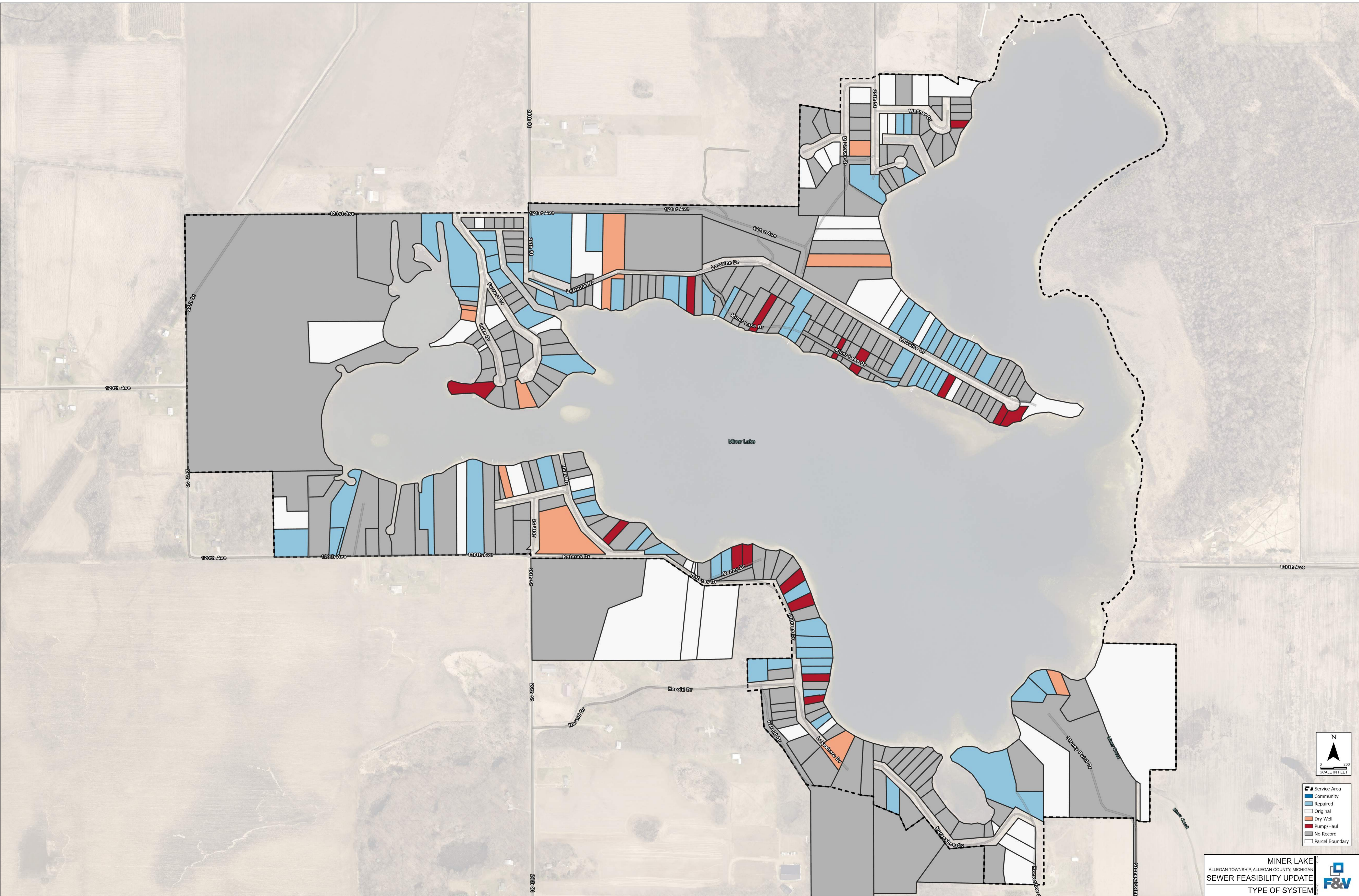
Contract bonds are authorized by several state laws. They authorize the Township to enter into an agreement with the County or a public authority to have the County or authority issue bonds on behalf of the Township.

The Township may want to consider a contract bond as the County may be able to borrow at a more favorable rate than the Township if they are willing to pledge its taxing power as secondary security for repayment of the bonds. Also contract bonds may be paid back by a number of sources including specials assessments, connection fees, and user fees.

Appendix A – Service Area Map

Appendix B – Existing Systems Maps





- Service Area
- Community
- Repaired
- Original
- Dry Well
- Pump/Haul
- No Record
- Parcel Boundary

Appendix C – Preliminary Cost Estimates

Allegan Township/Miner Lake



Project No.: 851210
 By: JSW
 Date: 4/19/2022

Project: Miner Lake Pressure Sewer System / City of Allegan Treatment - Alternative 1

Basis for Estimate: Conceptual Basis of Design Other Final

Work: _____

Item Number	Item Description	Unit	Qty.	Unit Price	Amount
1	General Conditions, Bonds, Insurances and Mobilization, Max. 5%	Lsum	1	\$ 407,000.00	\$ 407,000.00
2	Wastewater Forcemain - To City	LFt	17,200	\$ 40.00	\$ 688,000.00
3	Air Release Valves	EA	5	\$ 5,500.00	\$ 27,500.00
4	Small Diameter Pressure Sewer	LFt	29,700	\$ 34.00	\$ 1,009,800.00
5	Grinder Pumps w/Small Dia FM	EA	254	\$ 12,000.00	\$ 3,048,000.00
6	Electrical Service Upgrades	EA	76	\$ 900.00	\$ 68,400.00
7	Main Lift Stations	EA	1	\$ 275,000.00	\$ 275,000.00
8	Odor Control Equipment	EA	1	\$ 82,000.00	\$ 82,000.00
9	Bituminous Removal/Replacement	LFt	3700	\$ 73.00	\$ 270,100.00
10	Gravel Road Replacement	LFt	3100	\$ 50.00	\$ 155,000.00
11	Restoration	SYd	32,500	\$ 8.00	\$ 260,000.00
12	Directional Drill	LFt	14,900	\$ 100.00	\$ 1,490,000.00
13	Dewatering	Lsum	1	\$ 25,000.00	\$ 25,000.00
14	Easement Acquisition	EA	100	\$ 2,000.00	\$ 200,000.00
15	Spare Grinder Pumps	EA	13	\$ 2,000.00	\$ 26,000.00
16	Creek Crossing	EA	5	\$ 9,000.00	\$ 45,000.00
17	Permanent Generator Installation	EA	1	\$ 85,000.00	\$ 85,000.00
<i>The Design Professional has no control over costs or the price of labor, equipment or materials, or over the Contractor's method of pricing. Bid prices may vary significantly based on these factors and market conditions at time of bid</i>				Subtotal:	\$ 8,162,000.00
				Contingency (5%)	\$ 409,000.00
				Design Engineering	\$ 490,000.00
				Construction Engineering	\$ 409,000.00
				Total:	\$ 9,470,000.00

Allegan Township/Miner Lake



Project No.: 851210
By: JSW
Date: 4/19/2022

Project: Pressure Sewer System / Township Lagoon - Alternative 2

Basis for Estimate: Conceptual Basis of Design Other Final

Work: _____

Item Number	Item Description	Unit	Qty.	Unit Price	Amount
1	General Conditions, Bonds, Insurances and Mobilization, Max. 5%	Lsum	1	\$ 540,000.00	\$ 540,000.00
2	Wastewater Forcemain - To WWTP within 2.5 miles	LFt	13,200	\$ 40.00	\$ 528,000.00
3	Air Release Valves	EA	5	\$ 5,500.00	\$ 27,500.00
4	Small Diameter Pressure Sewer	LFt	29,700	\$ 34.00	\$ 1,009,800.00
5	Grinder Pumps w/Small Dia FM	EA	254	\$ 12,000.00	\$ 3,048,000.00
6	Electrical Service Upgrades	EA	76	\$ 900.00	\$ 68,400.00
7	Main Lift Stations	EA	1	\$ 275,000.00	\$ 275,000.00
8	Odor Control Equipment	EA	1	\$ 82,000.00	\$ 82,000.00
9	Bituminous Removal/Replacement	LFt	3700	\$ 73.00	\$ 270,100.00
10	Gravel Road Replacement	LFt	3100	\$ 50.00	\$ 155,000.00
11	Restoration	SYd	32,500	\$ 8.00	\$ 260,000.00
12	Directional Drill	LFt	14,900	\$ 100.00	\$ 1,490,000.00
13	Dewatering	Lsum	1	\$ 25,000.00	\$ 25,000.00
14	Easement Acquisition	EA	100	\$ 2,000.00	\$ 200,000.00
15	Spare Grinder Pumps	EA	13	\$ 1,700.00	\$ 22,100.00
16	Creek Crossing	EA	5	\$ 9,000.00	\$ 45,000.00
17	Permanent Generator Installation	EA	1	\$ 85,000.00	\$ 85,000.00
18	Township WWTP Facility	Lsum	1	\$ 2,500,000.00	\$ 2,500,000.00
19	Land for WWTP	Ac	20	\$ 10,000.00	\$ 200,000.00
<i>The Design Professional has no control over costs or the price of labor, equipment or materials, or over the Contractor's method of pricing. Bid prices may vary significantly based on these factors and market conditions at time of bid</i>				Subtotal:	\$ 10,831,000.00
				Contingency (5%)	\$ 542,000.00
				Design Engineering	\$ 650,000.00
				Construction Engineering	\$ 542,000.00
				Total:	\$ 12,565,000.00

Allegan Township/Miner Lake



Project No.: 851210
By: JKP2
Date: 4/26/2022

Project: Pressure Sewer System / Township Septic / Drainfield System - Alternative 3

Basis for Estimate: Conceptual Basis of Design Other Final

Work: _____

Item Number	Item Description	Unit	Qty.	Unit Price	Amount
1	General Conditions, Bonds, Insurances and Mobilization, Max. 5%	Lsum	1	\$ 450,000.00	\$ 450,000.00
2	Wastewater Forcemain - To Septic System within 2.0 miles	LFt	10,600	\$ 40.00	\$ 424,000.00
3	Air Release Valves	EA	5	\$ 5,500.00	\$ 27,500.00
4	Small Diameter Pressure Sewer	LFt	29,700	\$ 34.00	\$ 1,009,800.00
5	Grinder Pumps w/Small Dia FM	EA	254	\$ 12,000.00	\$ 3,048,000.00
6	Electrical Service Upgrades	EA	76	\$ 900.00	\$ 68,400.00
7	Main Lift Stations	EA	1	\$ 275,000.00	\$ 275,000.00
8	Odor Control Equipment	EA	1	\$ 82,000.00	\$ 82,000.00
9	Bituminous Removal/Replacement	LFt	3700	\$ 73.00	\$ 270,100.00
10	Gravel Road Replacement	LFt	3100	\$ 50.00	\$ 155,000.00
11	Restoration	SYd	32,500	\$ 8.00	\$ 260,000.00
12	Directional Drill	LFt	14,900	\$ 100.00	\$ 1,490,000.00
13	Dewatering	Lsum	1	\$ 25,000.00	\$ 25,000.00
14	Easement Acquisition	EA	100	\$ 2,000.00	\$ 200,000.00
15	Spare Grinder Pumps	EA	13	\$ 2,000.00	\$ 26,000.00
16	Creek Crossing	EA	5	\$ 9,000.00	\$ 45,000.00
17	Permanent Generator Installation	EA	1	\$ 85,000.00	\$ 85,000.00
18	Township Septic / Drainfield Facility	Lsum	1	\$ 1,000,000.00	\$ 1,000,000.00
19	Land for WWTP	Ac	10	\$ 10,000.00	\$ 100,000.00
<i>The Design Professional has no control over costs or the price of labor, equipment or materials, or over the Contractor's method of pricing. Bid prices may vary significantly based on these factors and market conditions at time of bid</i>				Subtotal:	\$ 9,041,000.00
				Contingency (5%)	\$ 453,000.00
				Design Engineering	\$ 543,000.00
				Construction Engineering	\$ 453,000.00
				Total:	\$ 10,490,000.00

Appendix D – Health Department Letter of Support

ALLEGAN COUNTY HEALTH DEPARTMENT

3255 - 122nd Ave., Suite 200, Allegan, MI 49010

Office Administration

(269) 673-5411 Fax (269) 673-4172

Bioterrorism Preparedness

(269) 673-5411

Personal Health

(269) 673-5411



Communicable Disease

(269) 673-5411

Environmental Health

(269) 673-5415

Resource Recovery

(269) 673-5415

April 25, 2022

Mr. Steve Schulz
Allegan Township Supervisor
3037 118th Ave
Allegan, MI 49010-9555

RE: Proposed Sanitary Sewer around Miner Lake; Allegan Township; Allegan County, Michigan

Dear Mr. Schulz;

I would like to thank you and the Allegan Township for including the Allegan County Health Department (ACHD) in your discussion for the proposed sewer for the residents of Miner Lake, Allegan Township.

As you are probably aware, the ACHD is vested in protecting public health, which includes protecting our vital groundwater and surface water resources. The area that has been outlined by the site plan from Fleis and Vandenbrink is an area of high density, small lots and groundwater and surface water quality concerns. Because of these obstacles, we would very much like to work with the Township to further explore methods to protect these vital resources.

If there is anything else we can assist the township with, please do not hesitate to reach out to us.

Sincerely,

Randy Rapp, RS
Environmental Health Services Manager
Allegan County Health Department