ALLENDALE CHARTER TOWNSHIP
PLANNING COMMISSION MEETING

January 2, 2023
7:00 p.m.
Allendale Township Public Meeting Room

1. Call the Meeting to Order

2. Roll Call

3. Communications and Correspondence:

4. Approval of the December 19, 2022 Planning Commission Minutes

5. Approval of the Agenda

6. Public Comments for *non-public hearing items*

7. Public Hearings:
   A. John Bakale Mining Application – 12943 76th Avenue & 12673 76th Avenue

8. Site Plan Review:
   A. Rusk Lake Associates Mining Application – 10618 Pierce Street

9. New Business:
   A. 2022 Annual Report
   B. 2023 Work Program
   C. Election of Officers

10. Old Business:

11. Public Comments

12. Township Board Reports

13. Commissioner and Staff Comments

14. Adjourn

<u>Next meeting January 16, 2023 at 7:00 p.m.</u>

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ALLENDALE CHARTER TOWNSHIP
PLANNING COMMISSION MEETING

December 19, 2022
7:00 p.m.
Allendale Township Public Meeting Room

1. Call the Meeting to Order
2. Roll Call:
   Present: Longcore, Adams, Zuniga, Nadda
   Absent: Westerling, Zeinstra, Chapla
   Staff and Guests Present: Planner Greg Ransford, Kelly Kuiper, Steve Griffioen, Scott Dekkenga, Eric DeYoung
3. Communications and Correspondence: None
4. Motion by Nadda to approve the December 5, 2022, Planning Commission Minutes as presented. Seconded by Adams. **Approved 4-0**
5. Motion by Longcore to approve the December 19, 2022, Planning Commission Agenda as presented. Seconded by Nadda. **Approved 4-0**
6. Public Comments for *non-public hearing item*:

   Chairperson Longcore opened the public comment section for non-public hearing items.

   Seeing no comments, Chairperson Longcore closed the public comment section.
7. Public Hearings:

   A. Map Amendment Applications
   - Stillwater Capital – 11500 56th Ave.
     - Seeking rezoning from Industrial to R-1

       Kelly Kuiper, representing the applicant, presented the request for rezoning.

       Planner Ransford reviewed his memo and explained to the public present the process of rezoning.

       Chairperson Longcore opened the public comment section of the public hearing.

       Seeing no comments, Chairperson Longcore closed the public comment section.

       Commissioners opined that this is a good transition and would be a good fit in this area.

       Motion by Adams to recommend to the Board adoption of the R-1 zoning request. Seconded by Zuniga. **Approved 4-0**
   - Suchowian (previously IMD Capital, LLC) – 10222 52nd Ave., 10274 52nd Ave., 10320 52nd Ave.
     - Seeking rezoning from RE to R-4

       Eric DeYoung, representing the applicant, presented the request for rezoning.

       Planner Ransford reviewed his memo.

       Chairperson Longcore opened the public comment section of the public hearing.

       Steve Griffioen, a resident of Allendale, has questions regarding the timeline of improvements needed to support a project in the R-4 zoning district as the road is gravel and there is no water and sewer down 52nd Ave. past Pierce St.

       Seeing no more comments, Chairperson Longcore closed the public comment section.

Mr. DeYoung addressed the concerns brought up by Mr. Griffioen, and stated that when the area was developed, the applicant seeking that development would be responsible for those improvements. Planner Ransford confirmed this statement.

Motion by Adams to recommend to the Board adoption of the rezoning of 10222 52nd Ave., 10274 52nd Ave., and 10320 52nd Ave. from the Rural Estates Zoning District to the R-4 Zoning District. Seconded by Nadda. **Approved 4-0**

8. Site Plan Review: None
9. New Business:
   A. 2023 Meeting Schedule

      Planner Ransford presented the proposed 2023 Meeting Schedule.

      Commissioners discussed the July 3rd meeting date and agreed to leave it off the calendar, but as a possible add on *if needed* date.

      Motion by Adams to approve the 2023 proposed meeting schedule and to leave the July 3rd as an *if needed* date. Seconded by Zuniga. **Approved 4-0**
10. Old Business: None
11. Public Comments:

    Chairperson Longcore opened the public comment section for non-public hearing items.

    Seeing no comments, Chairperson Longcore closed the public comment section.
12. Township Board Reports: None
13. Commissioner and Staff Comments:

    Commissioners discussed the Penske trucks parking at the True Value and are satisfied that the rental trucks are not being parked in the front of the building.

    Mr. Nadda asked about Station 45 and the status of the request regarding the building and parking of vehicles on the property next to the car wash. Planner Ransford informed the Commissioners that in the staff meeting this was discussed and we are continuing to work with Station 45 and its owner to bring it to compliance.

    Planner Ransford will be on vacation for the next meeting, but his associate, Mr. Yeomans, will be attending in his place.
14. Chairperson Longcore adjourned the meeting at 7:39 p.m.

<u>Next meeting January 2, 2023, at 7:00 p.m.</u>

Minutes respectfully submitted by Kelli McGovern

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Fresh Coast Planning

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www.freshcoastplanning.com

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Kevin Yeomans
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MEMORANDUM

To: Allendale Charter Township Planning Commission
From: Gregory L. Ransford, MPA
Date: December 26, 2022
Re: Bakale Mining Special Use Application – Final Review

Pursuant to your December 5, 2022 meeting, attached is a final site plan and related application for a special use permit from John and Rebecca Bakale to excavate approximately 280,000 cubic yards of sand and gravel 12943 76th Avenue and 12673 76th Avenue, parcel numbers 70-09-16-100-047 and 70-09-16-100-061, respectively, which will result in the formation of a pond. As you are aware, the subject property currently contains their personal dwelling and pole barn, and is located within the Agricultural and Rural Zoning District.

We reviewed the final application materials and do not have any additional observations or findings to provide since your preliminary plan review. Given that you did not direct the applicant to revise the plans, we simply note your findings from your preliminary review.

Planning Commission Findings

As you know, at your December 5, 2022 meeting you concluded that the plan was complete, with the following findings:

- Operations shall be limited to Monday through Friday from 8:00am to 5:00pm
- No impact studies are necessary
- Satisfaction with the proposed limestone entry drive
- Satisfaction with the exclusion of additional landscaping
- Sidewalk deferment along 76th Avenue is appropriate
- A bond in the amount of $50,000.00 shall be posted for the Ottawa County Road Commission

Removal of Topsoil, Sand, Gravel, or Other Minerals Review Standards

Pursuant to Section 23.08G – Review by Planning Commission; Standards for Approval/Denial of the Allendale Charter Township Zoning Ordinance (ACTZO), the Planning Commission shall review the application and determine if the proposal meets the intent and purpose of Section 23.08, is compliant with the requirements of Section 23.08F4, meets the standards provided therein (Section 23.08G2), and meets the special use standards of the ACTZO. For your convenience, below is a copy of the Purpose, Section 23.08F4, in part, and Section 23.08G2.

Section 23.08B – Purpose

While we would ordinarily provide our comments to assist with your review, and we anticipate that the proposed will not cause any very serious consequences to occur particularly given the excavation has been occurring for some time, we felt it was appropriate to first receive public comment prior to commenting on Section 23.08B below.

> Section 23.08B - Purpose
>
> The purpose of the mineral mining special land use is to regulate the appropriate excavation and removal of mineral resources, but to authorize

such activity only if it can be accomplished without very serious consequences to other land uses in the vicinity and elsewhere in the Township. While the excavation and removal of mineral resources is a legitimate land use, it may involve activities which are incompatible with residential uses or other uses permitted by this Ordinance. The objective of these special land use provisions is to enable the Township to permit such mineral extraction and removal, where such activity can reasonable be permitted, but only upon such terms and conditions as will adequately protect residential and other land uses from very serious consequences and also assure that, once mineral material has been removed, the land shall be reclaimed and restored so as to be available for residential uses or other uses permitted by this Ordinance.

Section 23.08F4 – Operating and Site Reclamation Conditions

As you are aware, each condition provided within Section 23.08F4 is very lengthy and generally provides a required provision rather than a provision of discretion. Given this and rather than providing the entirety of each condition within this memorandum, we have included the subtitle, along with a synopsis of the condition, as well as our comments in italic font for each. If you require the entirety of any condition, please let us know and we will provide it to you.

Section 23.08F4 – Operating and Site Reclamation Conditions

All mineral mining activities which are approved for a special land use shall comply with all of the following conditions:

a. Driveways – Driveway access shall be only at the locations approved for such purpose

   Given that the Planning Commission is satisfied with the proposed driveway location, and the Ottawa County Road Commission is satisfied as well, it appears this condition has been met.

b. Truck Routes – Routes for trucks shall comply with the Allendale Charter Township Truck Route Ordinance

   The applicant has proposed a truck route in compliance with the Allendale Charter Township Truck Route Ordinance. As a result, it appears this condition has been met.

c. Entry Roads – The entry road shall be composed of asphalt, concrete, or similar dustless hard surface material

   Given that the Planning Commission is satisfied with the proposed limestone surface, it appears this condition has been met.

d. Setbacks – Minimum setbacks are required for the excavation area, machinery, and storage or stockpiles

   The Planning Commission concluded that the applicant met all of the required setbacks during the preliminary plan review. The applicant proposes the same setbacks within the final plan. As a result, it appears this condition has been met.

e. Fencing and Signs – Any area subject to excavation shall be fenced and gated as well as signed with no trespassing signage

   As was found during your preliminary plan review, the applicant provided satisfactory fencing and signage. As a result, it appears this condition has been met.

f. Entrance Gate – The property shall contain a gate that is properly placed to accommodate mining vehicles on site waiting outside the gate. In addition, the gate entrance shall be appropriately signed.

The applicant has provided the required accommodations pursuant to this condition, which was found satisfactory by the Planning Commission during preliminary plan review. As a result, it appears this condition has been met.

g. Hours of Operation – The hours of operation of any mining site shall be limited to 7:00a.m. to 6:00p.m., Monday through Friday, and 8:00a.m. to 1:00p.m. on Saturday. Operations are prohibited on Sundays and legal holidays.

As presented during the preliminary review, the applicant agreed to limited hours of 8:00am to 5:00pm Monday through Friday and no weekend hours. As a result, it appears this condition has been met.

h. Noise – Mining sites shall be operated in such a fashion that noise or vibration cannot reasonably be considered disturbing to neighboring uses or users of land

While we do not anticipate the site will operate in an objectionable manner, particularly because the applicant has indicated acknowledgement of this requirement within their formal submission, public comment may reveal concerns in this regard. Pending comments received during the public hearing, it appears this condition has been met.

i. Crushing & Processing of Materials – The processing of material from off-site and from within the site may be occur on the property, with conditions

The applicant does not propose any processing of materials within the site. As a result, it appears this condition has been met.

j. Dust Control – The operator shall maintain all interior access roads by preventing dust from the use of said roads

The applicant has included provisions for dust control within their narrative indicating that routine watering will occur. As a result, it appears this condition has been met.

k. Drainage – Measures shall be taken to avoid surface water exiting the site in an adverse fashion

Following approval, the applicant will be subject to the drainage regulations of the Ottawa County Water Resource Commissioner's Office. As a result, it appears this condition has been met.

l. Topsoil – The replacement of topsoil shall be to a depth of not less than four (4) inches, unless it is demonstrated that less than four (4) inches existed prior to excavation of the site

The applicant indicated that topsoil will be returned at a depth of at least four (4) inches. As a result, it appears this condition has been met.

m. Phasing – If phases exist for a project, reclamation shall occur in one phase prior to operations in another phase

Given that the applicant does not propose any phasing, it appears this condition has been met.

n. Final Slopes – The final slopes shall not exceed one (1) foot of elevation to each four (4) feet of horizontal distance, unless otherwise approved by the Planning Commission. Further, if the mining operation results in a body of water, the final slopes shall not exceed one (1) foot of elevation to each six (6) feet of horizontal distance to a depth of five (5) feet.

   The applicant proposes a pond and resulting slopes, which comply with this condition. As a result, it appears this condition has been met.

o. Screening – Earth berms, landscaping or both may be required along the boundaries of the site

   As a result of your preliminary plan review, no additional screening was deemed necessary beyond that proposed. As a result, it appears this condition has been met.

p. Lake – The creation of a lake shall only be permitted when a hydrogeological study demonstrates that the waters will not become polluted or stagnant and will not adversely affect groundwater supplies for nearby uses.

   Given that the applicant proposes a pond and not a lake, it appears this condition has been met.

Section 23.08G2 – Standards

In addition to the aforementioned conditions, the ACTPC shall also consider the factors within Section 23.08G2 of the ACTZO, which is provided below for your convenience, prior to approving a special use permit. Given that these factors are generally discretionary, based on their applicability, we have not provided our routine comments under each factor.

Section 23.08G2 – Standards

The Township Planning Commission shall not approve any special land use for mineral mining unless the application sufficiently demonstrates that the proposed mineral mining operations and activities will not create very serious consequences or serious environmental impact upon adjacent or nearby lands or other lands in the Township or the area.

Furthermore, before approving a Special Use Permit for mineral mining activities under this Ordinance the Planning Commission shall consider the following factors of the proposed mining operation as applicable:

a. The relationship of extraction and associated activities with existing land uses.
b. The impact on existing land uses in the vicinity of the property.
c. The impact on property values in the vicinity of the property and along the proposed hauling route serving the property, based on credible evidence.
d. The impact on pedestrian and traffic safety in the vicinity of the property and along the proposed hauling route serving the property.
e. The impact on other identifiable health, safety, and welfare interests in the local unit of government.
f. The overall public interest in the extraction of the specific natural resources on the property.

Special Use Standards

As you are aware, you must additionally review the request in accordance with your standards provided for special use approval in Section 20.06 – Standards of the ACTZO. In that regard, below is copy of said Standards as well as our response to each in italic font, in an effort to assist you with your review of the request.

Section 20.06 STANDARDS.

No special land use shall be approved by the Planning Commission unless the Commission finds:

A. That the establishment, maintenance, or operation of the special land use will not be detrimental to or endanger the public health, safety, or general welfare.

   We believe the Planning Commission tentatively concluded during its preliminary review that the special land use will not be detrimental. Given that the final plan has not changed since the preliminary plan, we expect that the special land use will not be detrimental to the public health, safety, or general welfare. As a result, this standard appears to be met.

   However, pending comment received during the public hearing and after reviewing the final plan, the Planning Commission may disagree with our conclusion.

B. That the special land use will not be injurious to the use and enjoyment of other property in the immediate vicinity for the purposes already permitted, nor shall it substantially diminish and impair property values in the neighborhood.

   We do not believe the special land use will be injurious to the use and enjoyment of other property in the immediate vicinity. However, pending comment received during the public hearing, the Planning Commission may disagree with our conclusion. Further, and although not found necessary during the preliminary review, the Planning Commission possesses the authority to require hydrogeological or other relevant studies to determine if any negative impacts may result from the proposed use.

C. That the establishment of the special land use will not impede the normal and orderly development and improvement of the surrounding property for uses permitted in the district.

   We do not believe the special land use will impede the normal and orderly development and improvement of the surrounding property, particularly given that it is located within the Agricultural and Rural Zoning District. As a result, this standard appears to be met.

D. That adequate utilities, access roads, drainage, and necessary facilities have been or are being provided.

   The access road to the site has been deemed sufficient by the Ottawa County Road Commission. Pending review by the Ottawa County Water Resources Commissioner's Office related to drainage, the standard appears to be met.

E. That adequate measures have been or will be taken to provide ingress or egress so designed as to minimize traffic congestion in the public streets.

   We believe adequate measures have been taken to insure the minimization of traffic congestion in public streets, particularly given the limited operating hours, which avoid typical pre-work and post-work travel, and weekend travel from neighboring properties. As a result, this standard appears to be met.

F. That the special land use shall, in all other respects, conform to the applicable regulations of the district in which it is located and to any additional conditions or procedures as specified in Article 23.

We believe the proposed special land use conforms to the applicable regulations of the district in which it is located as well as those provided in Article 23 of the ACTZO. As a result, this standard appears to be met.

Site Plan Review Standards

As you are aware, Section 24.06 – Standards for Approval of the ACTZO provides your standards of review when deliberating regarding a site plan application. In that regard, below, in part, is copy of said Standards for Approval. While we would ordinarily provide our response to each in an effort to assist you with your review of the request, we suspect that exercise is unnecessary given that most of the standards do not apply to the project. As you are further aware, each standard is very lengthy and provides guidance and authority to the Planning Commission. Given this, rather than providing the entirety of each standard within this memorandum, we have only included the subtitle. If you require the entirety of any standard, please let us know and we will provide it to you.

Section 24.06 STANDARDS FOR APPROVAL

Prior to approving a site plan, the Planning Commission shall require that the following standards and requirements be satisfied. If these standards and all other requirements of applicable Township ordinances are met, the site plan shall be approved.

A. General Access Requirements
B. Environmental Considerations
C. Sidewalks and Pedestrian Circulation
D. Landscaping and Buffering
E. Lighting
F. Utility Service
G. Outdoor Features
H. Waste Disposal Facilities
I. The location and dimensions of all existing and proposed structures on the subject property
J. Building Appearance
K. Site plans shall conform to all applicable requirements of County, State and Federal statutes and approval may be conditioned on the applicant receiving necessary County, State and Federal permits before final site plan or an occupancy permit is granted
L. Traffic Impact Study

Township Department Reviews

No further comments have been received from township staff since the preliminary plan review. In the instance we receive additional comments, we will transmit them to you.

Resolution

Attached is a proposed resolution of approval for the project. While the resolution can be modified if denial is supported, we drafted the resolution for approval based on your favorable response during the preliminary review.

Planning Commission Considerations

As the Planning Commission deliberates regarding this application, we believe the following warrant your review and consideration. They are listed in no particular order.

- The content of the proposed resolution
    - Conclusion of sidewalk deferment – during your December 5, 2022 meeting, a specific date or occurrence was not established related to the deferment. We recommend that a concluding date or occurrence is clearly conditioned on the proposed.
- The standards, conditions, or considerations provided within:
    - Section 23.08B – Purpose
    - Section 23.08F4 – Operating and Site Reclamation Conditions
    - Section 23.08G2 – Standards (mining)
    - Section 20.06 – Standards (special use)
    - Section 24.06 – Standards for Approval (site plan)
- Whether studies are necessary to determine the need for and consequences of the proposed excavation

The application has been scheduled for a public hearing at your January 2, 2022 meeting. We expect the applicant to be in attendance. If you have any questions, please let us know.

GLR
Planner

Attachments

cc: Adam Elenbaas, Supervisor
Nathan Koella, Lakeshore Environmental

Allendale
CHARTER TOWNSHIP

"Where community is more than just a concept!"

October 10, 2022

RE: TEMPORARY ADMINISTRATIVE APPROVAL OF SOIL/SAND/GRAVEL REMOVAL AT PARCEL 70-09-16-100-047

Mr. John Bakale,

This letter serves as temporary conditional approval to excavate materials and remove them from the parcel referenced above. The conditions of this approval are listed below. ALL conditions must be met prior to the removal of materials from the site.

1. An active application must be in process with the Township to acquire a special use mining permit;
2. All neighbors with occupied dwellings within 300 feet of the excavation area must provide a written record stating they do not object to this temporary approval. Additionally, the neighbors to the north of the haul route leading to the public road must provide a written record stating they do not object to this temporary approval;
3. A gate must be installed at the entrance/exit of the haul route;
4. Dust control for the haul route and site must be in place and utilized;
5. The hours of operation shall be as follows:
    a. Monday – Friday: 8:00am to 5:00pm
    b. No weekends
    c. No holidays
    d. *The hours of operation pertain to the running of equipment, excavation, and transport of material

This temporary approval expires December 16, 2022.

Regards,

Adam Elenbaas
Township Supervisor

Steve Kushion
Zoning Administrator

6676 Lake Michigan Drive | P.O. Box 539 | Allendale MI 49401
Phone: 616-895-6295 Fax: 616-895-6670 or 616-895-6330
www.allendale-twp.org

For reference, the neighbors below are within the distances specified in Item #2. This page may be used as the "written record" described in Item #2, provided that each property owner signs below and has received a copy of the Temporary Administrative Approval letter from the Township dated October 10, 2022.

Shannon Coffee
7971 Warner St

Karan Van Timmeren
7782 Lincoln St

Franklin & Nancy Swartz
7740 Lincoln St

Ryan & Tara Bosch
7714 Lincoln St

Eric & Jessica Jones
7690 Lincoln St

David Walters
7670 Lincoln St

Aaron & Stacy Mockridge
12755 76th Ave

Allendale
CHARTER TOWNSHIP

"Where community is more than just a concept!"

Planning Commission

Site Plan Review Application

Submission Date: 10/3/2022

Application for Site Plan Review in conjunction with which of the following:

- ☐ Site Plan Review Only
- ☐ PUD Rezoning
- ☒ Special Use Application
- ☐ Other:_____

Property Owner:	John Jr & Rebecca Dakale Trust		
Mailing Address:	12943 76th Ave, Allendale, MI 49401		
Phone Number:		Cell Phone:	
Email Address:	john@michignmeverygreennursery.com	Fax:	
Owner's Signature:	See physical copy submitted 10/3/2022		

Applicant Name: (if not owner)			
Mailing Address:			
Phone Number:		Cell Phone:	
Email Address:		Fax:	
Applicant's Signature:			

Who is the responsible party for future invoices? Check one: ☒ Property Owner ☐ Applicant

Architect, Engineer, Attorney or other professionals associated with the project (attach additional sheets if necessary):

Contact:	Nathan C Koella		
Mailing Address:	803 Verhoeks St, Grand Haven, MI 49417		
Phone Number:		Cell Phone:	616-212-6259
Email Address:	Natek@my-lei.com	Fax:	

6676 Lake Michigan Drive | P.O. Box 539 | Allendale MI 49401
Phone: 616-895-6295 Fax: 616-895-6670 or 616-895-6330
www.allendale-twp.org

Address of Property:	12943 76th Ave, Allendale, MI 49401
Permanent Parcel Number:	70 - 09 - 16 - 100 - 047
Legal Description of Property (or attach to the application):	
PART OF SEC 9 & 16 COM N 0D 55M 50S W 970.15 FT FROM S 1/4 COR SEC 9, TH N 0D 55M 50S W 66.07 FT, N 88D 19M 08S W 1416.7 FT, S 0D 50M E 1027.47 FT, E 66 FT, N 0D 50M W 661.84 FT, S 88D 19M 08S E 1018.23 FT, N 0D 55M 50S W 300 FT, TH S 88D 19M 08S E 333.03 FT TO BEG, ALSO S 67.08 FT OF W 1/2 OF SW 1/4, EXC E 66 FT, ALSO NW 1/4 OF NW 1/4 SEC 16. SEC 9 & 16 T7N R14W	

Lot Area:	53.87	Lot Depth:	1400'	Lot Width:	1350'

Current Zoning of Parcel:	AG	Current Use of Parcel:	Residential
Proposed Use of Parcel:			

Name of Proposed Development (if applicable):			
Name of Proposed Buildings to be constructed:			
Square feet of gross:		Square feet of usable floor area:	
Number of Permanent Employees (if applicable):			

- Please include 6 sets of the proposed Site Plan and 1 electronic copy for staff review along with your application and escrow fee. (When ready for submission to the Planning Commission, smaller than typical plans are allowed when they can be easily interpreted and are to scale.)
- Please see Resolution 2011-2 for our full escrow fee policy. If you would like a copy of this policy it is available online or by request at the Township office.
- If your escrow is not kept up to date, according to our policy, the Township reserves the right to withhold approval of your project, issue a stop work order, or withhold final occupancy until the escrow balance is made current.

For Office Use Only

Date Received:			
Amount Paid:		Check No:	
Notes:			

ALLENDALE CHARTER TOWNSHIP
6676 Lake Michigan Drive | P.O. Box 539 | Allendale MI 49401
Phone: 616-895-6295 Fax: 616-895-6670 or 616-895-6330
www.allendale-twp.org

FLEIS&VANDENBRINK
DESIGN. BUILD. OPERATE.

October 11, 2022

Mr. Greg Ransford, MPA
Fresh Coast Planning
950 Taylor Avenue, Ste. 200
Grand Haven, MI 49417

RE: Bakale Mine Permit Application Review

Dear Greg:

Thanks for sending the application for review. It was received on Monday, October 10, 2022 and was dated October 3, 2022. It consisted of 14 pages on information referencing the site plan requirements of the Township, specifically Section 23.08 of the Zoning Ordinance regarding special land use requirements. The following comments are made for the Township's consideration:

1. F.1.e – The entire excavation will supply 280,000 cubic yards of sand and gravel. Of this amount, it is noted that 86,650 cubic yards (approximately 31%) have already been mined. No action required.
2. F.1.h – The applicant is proposing 80 truck trips per day or 8 truck trips per working hour. No action required.
3. F.1.k – The equipment to be utilized for mining includes long-reach excavators, front end loader, bulldozer, and dump truck(s). There is no mention of any other equipment to be used for the underwater excavation portions. The township should expect a fuel tank and water truck as well.
4. F.1.l.i – The haul road is noted as being no closer than 450 feet from the closest residence, but review of a current aerial photograph shows the haul road gate as being 300 feet away from the residence. The applicant should clarify.
5. F.1.l.ii and F.4.j – "The haul road will be routinely watered during the growing season to control dust." The applicant needs to be more specific regarding frequency of watering and other measures of controlling dust.
6. The project is to be completed in one year. The applicant will remove approximately 2,000 cubic yards per day. Using 10-hour workdays as specified, the pond will be dug out in about 100 workdays. No action required.
7. F.1.p – The Township should confirm it has the proper insurance certificates on file.
8. F.2.b.iv – The single stockpile is noted as being 15 feet tall. The Township should expect more than one stockpile for this operation. Stockpiles will be needed for topsoil, clay (if any), wet sand, and dry sand.
9. Existing 4' chain link fencing secures 2 sides of the subject parcel. The Township should consider if this is adequate for security.
10. F.4.c – The Township requires the entry road to be partially paved but this is not noted on the plans. The applicant should revise the drawings as required.
11. F.4.d – The setbacks appear to comply with requirements. No action is required.
12. F.4.i - No processing of mined materials will be performed. No action is required.

2960 Lucerne Drive SE
Grand Rapids, MI 49546
P: 616.977.1000
F: 616.977.1005
www.fveng.com

In summary the Township should take the following actions:

- Expect some additional equipment to remain on site.
- Confirm the Contractor's insurance certificates are on file.
- Expect additional stockpiles on site.
- Consider whether adequate fencing has been provided.

Also in summary, the applicant should take the following actions:

- Clarify isolation distances as noted above.
- Specify what dust controls measures will be employed and the frequency of applications.
- Revise the drawings to indicate paving of the entry road as required.

If there are any questions on the above, feel free to call me at 616.260.4306 or email me at bpindzia@fveng.com. Thank you for this opportunity to support Allendale Charter Township.

Sincerely,

FLEIS & VANDENBRINK

Bruce Pindzia, P.E.
Project Manager

CHARTER TOWNSHIP OF ALLENDALE
COUNTY OF OTTAWA
STATE OF MICHIGAN

RESOLUTION #_____

At a regular meeting of the Planning Commission of the Charter Township of Allendale, Ottawa County, Michigan, held on the 2nd day of January, 2023 at 7:00 p.m. local time.

PRESENT: _____

ABSENT: _____

It was moved by member _____ and supported by member _____ that the following Resolution be adopted.

WHEREAS, John Jr. and Rebecca Bakale Trust (the "Applicant"), whose address is 12943 76th Avenue, Allendale, Michigan, 49401, applied to Allendale Charter Township (the "Township") for a special use approval pursuant to Article 20 and Section 23.08 of the Allendale Charter Township Zoning Ordinance (the "Zoning Ordinance"), to excavate approximately 280,000 cubic yards of sand and gravel, resulting in a lake of 4.9 acres in area within parcel numbers 70-09-16-100-047 and 70-09-16-100-061, as shown in the site plan submission titled "12943 76th Ave, Allendale, MI 49401," prepared by Lakeshore Environmental, Incorporated, dated November 2022 (the "Development"), which includes;

1. A two-page Special Land Use Application, dated 10/3/2022;
2. A 14 page narrative titled John and Rebecca Bakale Trust Special Land Use Permit: Mineral Mining, dated November 2022;
3. Figure 1, Property Location map, dated November 2022;
4. Figure 2, Site Plan, dated November 2022;

5. Figure 3, Mining Plan, dated November 2022;

6. Figure 4, Reclamation Plan, dated November 2022;

7. Figure 5, Proposed Pond Grading, dated November 2022; and

WHEREAS**,** before taking any action to approve or deny a request for approval of the Development, it is necessary that the Planning Commission hold a public hearing on the proposed special land use and give notice as required by Michigan Act 110 of 2006, as amended; and

WHEREAS**,** proper notice of the public hearing on the special land use and related site plan having been given as is required by Michigan Act 110 of 2006, as amended, as is evidenced by the Affidavits of Publication and Mailing on file in the office of the Township Clerk and the public hearing having been held on January 2, 2023; and

WHEREAS, the Township Planning Commission found that the Development complies with the purpose of Section 23.08 of the Zoning Ordinance, the conditions of Section 23.08F4 of the Zoning Ordinance, the standards of Section 23.08G2 of the Zoning Ordinance, the standards of Section 20.06 of the Zoning Ordinance, and the standards of Section 24.06 of the Zoning Ordinance and;

WHEREAS**,** pursuant to Article 20 and Section 23.08 of the Zoning Ordinance, the Township Planning Commission desires to approve the Development.

NOW, THEREFORE, BE IT RESOLVED THAT THE DEVELOPMENT IS APPROVED WITH THE FOLLOWING CONDITIONS:

1. The operation is subject to the terms and conditions of the Temporary Administrative Approval of Soil/Sand/Gravel Removal at Parcel 70-09-16-100-047, dated October 10, 2022, despite its expiration date.

2. No activity shall be conducted outside of the hours of 8:00am and 5:00pm Monday through Friday. Activity is prohibited on Saturday and Sunday.
3. The pedestrian pathway parallel to 76th Avenue is to be constructed at the time [INSERT TERMS].
4. Crushing and processing of material are prohibited. Processing off-site material is prohibited.
5. All trucks shall be routed south on 76th Avenue to Warner Street, then east to various locations.
6. All topsoil returned to the site shall be replaced at a depth of not less than four (4) inches.
7. The special land use shall be completed within five (5) years from January 2, 2022.
8. Stockpiles shall not exceed fifteen (15) feet in height from original grade.
9. The special land use permit shall be subject to annual review by the Planning Commission on or about the anniversary date of approval of the permit. The applicant shall provide a written description of the progress of the special land use pursuant to Section 23.08G6 of the Zoning Ordinance.
10. The special land use shall be subject to periodic inspections by the Township Engineer to determine if the approved activity is proceeding in accordance with the conditions of the approved site plan and the site plan itself.
11. Upon expiration of the special land use permit, the Applicant shall provide to the Township a certification from a registered civil engineer, landscape architect, or registered land surveyor that the site has been restored in

conformance with the approved reclamation plan and may consult with the Township Engineer. Any costs incurred by the Township for such engineering services shall be paid for by the Applicant.

12. Review and approval from the Ottawa County Water Resources Commissioner's office. If significant changes are required to the site, as determined by the Township Zoning Administrator, as a result of approval by the Ottawa County Water Resources Commissioner's office, the Applicant shall return to the Planning Commission for revised approval.
13. Review and approval from the Ottawa County Soil Erosion and Sedimentation Control Agency.
14. Compliance with the conditions of approval provided by the Fleis and VandenBrink review letter dated October 11, 2022, and any subsequent letter.
15. A cash deposit or irrevocable letter of credit in an amount of $_____ or as otherwise determined by the Township Engineer, naming the Township as the beneficiary thereof, shall be posted pursuant to and in accordance with Section 23.08G5 of the Zoning Ordinance.
16. The Applicant shall provide a $50,000.00 bond or other surety required by the Ottawa County Road Commission for the purpose of repair of any damage and or application of appropriate dust control to 76th Avenue resulting from Applicant's operation, as determined by the Ottawa County Road Commission or the Township.
17. These conditions shall be binding on the Applicant and all successor owners or parties in interest in the Development, or any portion of the Development.

18. Any violation of these conditions shall constitute a violation of the Zoning Ordinance and, in addition to the remedies provided therein, shall be cause for the Township Board to suspend or revoke any zoning or building permit applicable to the Development.

YEAS: _____

NAYS: _____

RESOLUTION DECLARED _____.

_____
Tom Zuniga, Secretary
Allendale Charter Township
Planning Commission

Section 23.08 - Removal of Topsoil, Sand, Gravel, or Other Minerals

F. Requirements for Mining Permitted by the Planning Commission. All mining activities not subject to the approval of the Zoning Administrator or otherwise exempted by this Ordinance in all zoning districts except the R2, R3 and all PUD districts shall be reviewed by the Planning Commission as a Special Land Use in accordance with the following procedures and conditions:

1. Application Requirements. An application for a special land use for mineral removal shall include the following:

a. Name of all of the owner(s) of the land from which removal is to be made or upon which mining operations will take place.

John Jr & Rebecca Bakale Trust

b. Name and address of the applicant(s)

John Jr & Rebecca Bakale

12943 76th Ave, Allendale, MI 49401

c. Name and address of the person, firm or corporation who will be conducting the actual removal and/or processing operation.

Schippers Excavating Inc.

9829 Lake Michigan Drive, West Olive, MI 49460

d. Location, size, and legal description of the area from which the removal is to be made.

Address: 12943 76th Ave, Allendale, MI 49401

Lot Area: 53.87 Acres

Lot Depth: ~1395’

Lot Width: ~1350'

Parcel #: 70-09-16-100-047

Address: 12673 76th Ave, Allendale, MI 49401

Lot Area: 30.53 Acres

Lot Depth: ~970’

Lot Width: ~1360'

Parcel #: 70-09-16-100-061

Legal Description: PART OF SEC 9 & 16 COM N 0D 55M 50S W 970.15 FT FROM S 1/4 COR SEC 9, TH N 0D 55M 50S Ð 66.07 FT, N 88D 19M 08S W 1416.7 FT, S 0D 50M E 1027.47 FT, E 66 FT, N 0D 50M W 661.84 FT, Ð 88D 19M 08S E 1018.23 FT, N 0D 55M 50S W 300 FT, TH S 88D 19M 08S E 333.03 FT TO BEG, ÚLSO S 67.08 FT OF W 1/2 OF SW 1/4, EXC E 66 FT, ALSO NW 1/4 OF NW 1/4 SEC 16. SEC 9 & 16 Ð7N R14W

e. A description of the type of mineral to be removed and an estimate of the total quantity and an annual quantity to be removed. This estimate shall be verified by a registered civil engineer or land surveyor.

Approximately 280,000 cyd of sand and gravel are to be mined. As of September 6, 2022, 86,650 cyds have been removed with an additional 193,350 cyds remaining to complete the project. Clay, if encountered, will be utilized to stabilize slopes and will not be removed from the Site.

f. If over 100,000 cubic yards of material is to be removed provide evidence to reasonable demonstrate that the amount of material proposed to be removed actually exists on the site.

Bakale's residential well log verifies 25 feet of sand and gravel below ground surface. This does not include the elevated hill where the pond is proposed. Soil borings completed for observation wells surrounding the pond verify a minimum of 20 feet of sand and gravel.

g. A description of the trucks to be used to transport the minerals described in cubic yard capacity and single or double bottom.

The trucks are single bottom with 25-cyd capacity.

h. Estimated number of truck trips per day. (A truck going in and coming out is two truck trips.)

The Site will have 80 truck trips per day. A trip generation study is not required as the amount of daily trips is less than 750.

i. The roads which will primarily be used to transport the minerals. (Haul route)

The haul route is approximately 2,100 feet long. It extends east from the excavation site through the existing agricultural field to 76th Avenue (Figure 2). From 76th Ave the trucks will travel south to Warner Street, then east to various projects located in Allendale. The closest residence to the haul route is 280 feet away.

j. The proposed hours and days of operation.

The proposed hours of operation will be 7:30 a.m. to 5:30 p.m., Monday through Friday, and 8:00 a.m. to 12:00 p.m. on Saturday. No hours of operation shall be permitted on Sundays and legal holidays.

k. A description of the types of equipment to be used in the mining operation.

The excavation will be accomplished utilizing one or more long-reach excavators, a loader, a bulldozer, and a dump truck.

l. A description of the methods to be used for dust control.

The material will be removed from the Site along a haul road located towards the center of the property that runs due east of the proposed pond to 76th Ave ~280 ft from the closest residence. The haul road will be watered as appropriate to climate concerns with dust.

m. State if materials such as asphalt and concrete will be brought into the site for crushing and mixing with on-site mining minerals. If so, describe the extent of this activity, the equipment to be used, and if additional permits are required from state or federal agencies.

No asphalt or concrete will be brought to the Site.

n. The estimated number of years to complete operations and number of phases.

The project will be complete by October 2023. Due to the small size of the proposed pond, the excavation will not occur in designated phases.

o. A description of the proposed use of the land following completion of mining activities.

The land use will not change. The residents of the property are building a pond for their personal use.

p. Proof of liability insurance with at least one million dollars of coverage.

The project will be completed by Schippers Excavating, who has insurance certificates on file with Allendale Charter Township.

2. Site Plan Requirements. Eight copies of the following site plans shall be submitted to the Township Clerk drawn at a scale not exceeding 1”=100’ if the site is less than 50 acres and 1”=200’ if the site is 50 acres or more. The plans shall be sealed by a registered civil engineer, landscape architect or registered land surveyor.

a. Provide a separate site plan showing the existing conditions of the property including:

i. A north arrow, scale and date;

Included in Figure 2 Site Plan.

ii. Property lines and dimensions of the parcel proposed for mineral removal including any buildings on the site and noting the area on which mineral removal operations and activities will take place;

Included in Figure 2 Site Plan.

iii. The location and width of all easements or rights-of-way on or abutting the property;

Included in Figure 2 Site Plan.

iv. Natural features of the site including wooded areas, wetlands, bodies of water and the location and direction of all water courses which may be affected by the mineral removal operations;

Included in Figure 2 Site Plan.

v. Existing elevations of the land at intervals of not more than 5 feet for the site and to a distance 50 feet beyond the boundaries of the site. Such elevations shall be based on USGS datum;

Included in Figure 2 Site Plan.

vi. A current aerial photograph, or other accurate drawing or plan, showing the lands included in the application, and all other parcels with addresses within 1000 feet thereof, and also showing the location of and distance to dwellings and other existing land uses.

Included in Figure 2 Site Plan.

vii. Estimated depth of the water table.

Included in Figure 4 Reclamation Plan.

viii. Zoning and property lines on adjacent parcels.

Included in Figure 2 Site Plan.

b. Provide a separate site plan which complies with the requirements Section 23.08.F.4 showing how the site is to be mined including:

i. The entire mining operation showing the limits of the mining operation and the setbacks from all property lines.

Included in Figures 2 and 3.

ii. Phasing of the mining operation including place of beginning and direction of mining. Phasing shall comply with the requirements of Section 23.08.F.4.m herein.

The proposed mining excavation plan is to begin at the northwest corner of the proposed pond and progress counterclockwise. Due to the small size of the proposed pond, the excavation will not occur in designated phases.

iii. Proposed final elevations at two feet contour elevations.

Included in Figure 5.

iv. Mineral processing, storage areas and stockpiling areas including the height of the stockpiles.

The approximate height of the stockpiles will be 15 feet. Included in Figure 3 Mining Plan.

v. Proposed fencing, gates, parking areas, temporary or permanent structures, drives, signs, truck washing facilities, soil erosion measures and other features of the proposed use; an illustration of the type of fencing and gate proposed shall also be provided;

A 6-foot-high galvanized wire fence currently exists on the north and west property boundaries. The existing gate is east of the site at the end of the haul road. Fencing is proposed for the entire mining area. Another gate is proposed east of the mining area at the parcel boundary. Included in Figure 3 Mining Plan.

vi. Roads for ingress to and egress from the lands, including on-site roads, acceleration and deceleration lanes, other areas to be used for movement of vehicles;

Included in Figure 3 Mining Plan.

vii. If a lake or pond is to be created, details of the same, including planned depth contours and the proposed slope into the lake for the first 30 feet from the shore.

The excavation above/below the water table will be graded to a 1:3 slope, with the exception of a 30-ft wide beach area which will have a 1:6 slope to a 5 foot depth. The location of the beach area is yet to be determined. Included on Figures 3, 4, and 5.

viii. Proposed or required landscaping and berms.

No landscaping or berms are proposed for the Site.

c. Provide a separate site reclamation plan which illustrates:

i. The condition of the site after completion of all mining activities demonstrating that it can be used for its intended purpose as recommended in the Township Master Plan or as currently zoned.

Included in Figure 4 Reclamation Plan.

ii. The final contour elevations at two feet contours, and also

Included in Figure 4 Reclamation Plan.

iii. Any water courses and any ponds or lakes including the final depth of the pond or lake and slopes into the lake for a distance of 30 feet.

Included in Figure 4 Reclamation Plan.

iv. Landscaping and plantings.

Included in Figure 4 Reclamation Plan.

3. Additional Information Required: The Planning Commission may require the applicant to provide studies or information concerning the need for and consequences of the proposed mineral extraction and removal. Such studies may include but need not be limited to the following: an environmental impact study, hydro-geological study, engineering data, traffic impact study, and economic analysis in particular the impact on the property values of nearby properties. The environmental impact study may include a site inspection to determine whether or not the land contains threatened or endangered species or habitat. Such study shall also consult the Michigan Natural Features Inventory. If a mineral removal operation will result in the creation of a lake or is proposed within 1000 feet of a lake, river, stream or a wetland regulated by the State of Michigan a hydro geological study may be required to determine the impact of the mining operation on nearby wells and nearby water features.

4. Operating and Site Reclamation Conditions All mineral mining activities which are approved for a special land use shall comply with all of the following conditions:

a.Driveways. Driveway access to a mineral removal site shall be only at the locations approved for such purpose in the special land use.

The applicant understands.

b.Truck Routes. Routes for truck movements to and from the removal site shall comply with the Allendale Township Truck Route Ordinance.

The applicant understands. Included in Figure 3 Mining Plan.

c.Entry Roads. The entry road or roads to and from a removal area shall be composed of asphalt, concrete, or similar dustless hard surface extending from the public road surface for a distance of at least 30 feet into the site unless a greater distance is required by the Commission. This entry road shall be swept at regular intervals to minimize dust.

The existing haul road is surfaced with a mix of recycled asphalt and limestone. This temporary haul road will be removed upon completion of the pond. The haul road is sufficiently compacted and graded to protect the existing shoulder and asphalt paving of 76th Avenue and will be watered routinely to control dust.

d.Setbacks. The following setbacks shall apply although the Planning Commission may require a greater setback if deemed necessary to protect adjoining properties or may allow a lesser setback based upon evidence that such lesser distance will not result in adverse effect upon nearby residents or properties

i. No cut or excavation shall be made closer than 25 feet to any street right-of-way line or property line and closer than 100 feet to a principle building on an adjoining property.

The applicant understands. Included in Figure 2 Site Plan.

ii. No machinery for mineral processing shall be located or used within 250 feet of any property or street line and shall, where practicable, be located at a lower level than the surrounding terrain to lessen visual and noise impact.

There is no mineral processing proposed on Site.

iii. Storage or stockpile area, equipment used for mineral mining or processing or interior truck access drive shall not be closer than 250 feet to a principal building or dwelling on adjoining or nearby lands Allendale Township Zoning Ordinance Standards existing at the time of the approval of the special land use.

The applicant understands. Included in Figure 3 Mining Plan.

iv. No cut or excavation shall be made within 100 feet of the banks of any stream or waterway unless previously approved, in writing, by the Michigan Department of Environmental Quality.

The applicant understands. Included in Figure 2 Site Plan.

e. Fencing and Signs. All phases in which mineral excavation or earth moving activities are taking place shall be fenced and gated at all times, so as to avoid hazards to persons who may enter the removal area. Such fencing shall be installed before any activity pertaining to the mining operation begins. Such fencing may be removed upon the completed reclamation of each phase. No trespassing signs shall be placed every 100 feet along all property lines. Fencing shall be at least four feet high and sturdily installed. Such fencing, shall, at a minimum be plastic or similar visible

material as may be approved by the Planning Commission. Gates shall be at least four feet in height and locked when operations are not occurring. The Planning Commission may require fencing along the perimeter of the property to restrict or deter access by motorized vehicles.

A 6-foot high galvanized wire fence currently exists on the north and west property boundaries. Fencing is proposed for the entirety of the site. Trespassing signs will be placed every 100 feet around the property boundary. Included in Figure 3 Mining Plan.

f. Entrance Gate. The entrance to the site shall have a gate which shall be located so there is room on the site to accommodate mining vehicles waiting outside the gate. The entrance gate shall be posted with the name and phone number of the mine operator and the approved hours of operation.

A 4 foot high gate exists east of the excavation site at the end of the haul road. Included in Figure 3 Mining Plan.

g.Hours of Operation. The hours of operation of any mining operation shall be limited to 7:00 a.m. to 6:00 p.m., Monday through Friday, and 8:00 a.m. to 1:00 p.m. on Saturday. No hours of operation shall be permitted on Sundays and legal holidays. In certain situations, this time period may be modified by the prior written consent of the Township Zoning Administrator, provided that such order shall not be effective for more than 72 hours. No mining uses or mining or processing-related activity of any kind shall occur outside of the permitted hours of operation.

The proposed hours of operation will be 7:30a.m. to 5:30 p.m., Monday through Friday, and 8:00 a.m. to 12:00 p.m. on Saturday. No hours of operation shall be permitted on Sundays and legal holidays.

h.Noise. Mining sites shall be operated in such a fashion that the noises of operation or equipment vibration cannot reasonably be considered disturbing to neighboring uses or users of land. Objectionable noises due to intermittence, beat, frequency, or shrillness shall be muffled so as not to become a nuisance to the owners or occupants of adjoining properties.

The applicant understands.

i. Crushing & Processing of Materials. Concrete, asphalt or other artificial minerals and natural minerals may be brought to and stored on a mineral removal site for processing into a usable product subject to the specific approval of the Planning Commission which may attach conditions for such processing including limiting the amount of material brought into the site, the location and size of stockpiles and when such material may be processed and removal of the processed product from the site. Additional permits may be required for such activities from county, state and federal agencies and copies of such permits shall be provided to the Township.

No material will be processed on the Site.

j. Dust Control. Interior access roads shall be maintained by the operator of the site so as to keep the dust arising from the use of said roads. Such maintenance shall be accomplished through the application of calcium chloride, brine, water, and/or similar dust retardant material. Application of oil is prohibited. Dust control measures used on public roadways are subject to the approval of the Ottawa County Road Commission.

The haul road will be watered routinely to control dust.

k. Drainage. Drainage on the mineral mining site shall be maintained in a manner which most closely approximates the natural drainage patterns. Measures shall be taken to avoid or mitigate the run off of surface water so that adjacent or nearby lands shall not be adversely affected by excessive surface water drainage, erosion or other effects.

All surface water and runoff will be directed into the proposed pond.

l. Topsoil. Topsoil shall be replaced on the site to a depth of not less than four inches unless it is demonstrated that there was less than four inches or topsoil on the site prior to any excavation in which case topsoil shall be replaced to the extent that it existed on the site prior to an excavation.

The applicant understands. Included in Figure 4 Reclamation Plan.

m. Phasing. If the mining operation is to occur in phases, topsoil shall be replaced and slopes shall be graded and stabilized in one phase before mineral removal operations or activities are commenced in another phase or area. Within each phase no more than five acres, at any time shall be cleared and actively mined at any time without reclamation occurring consistent with the approved reclamation plan. Provided however, that the Commission may require a lesser acreage if deemed necessary to avoid serious adverse consequences on adjacent properties. The area used for stockpiling excavated material shall not be included in the five acres. It is the intent of this section that site restoration and reclamation occur in unison with the mining process. Allendale Township Zoning Ordinance Standards

Due to the small size of the proposed pond, the excavation will be completed in one phase (will not occur in designated phases).

n. Final Slopes. Final Slopes shall have a ratio of not greater than one foot of elevation to each four feet of horizontal distance. However, the Planning Commission may approve a ratio of one foot of elevation to each three feet of horizontal distance for portions of the site if it is demonstrated: that such slopes are necessary to blend with the grades on adjoining parcels; that they can be properly maintained and: that such slopes will still allow the land to be used in accordance with the recommendation of the Township Master Plan. If the mining operation creates a lake or a pond the slope from the shore into the water shall be one to six (rise to run) or flatter to a depth of five feet.

The applicant understands. Included in Figure 4 Reclamation Plan.

o. Screening. Earth berms, landscaping or both may be required by the Planning Commission along all boundaries of the site which lack natural screening conditions through existing contours or evergreen growth. Berms shall have slopes that are not in excess of one foot vertical to three feet horizontal and shall at a minimum be planted with grass. Berms which are constructed but which are intended to be removed before the completion of the entire mining activity are considered to be temporary and may have a steeper slope.

The applicant understands.

p. Lake. The creation or enlargement of a lake, in connection with reclamation of the site, shall be permitted only where the applicant demonstrates from engineering and hydro geological studies that the waters of the lake will not become polluted or stagnant due to depth, lack of fresh water inflow or other reason and that the creation of the lake will not adversely affect groundwater supplies for nearby uses. Any such lake shall be approved by those state and county agencies having jurisdiction. Construction of the lake shall not begin until written approvals from these agencies have been provided to the Township.

The proposed pond will be connected to the water table, where fresh groundwater will flow in one side of the pond and out the other (for simplicity) therefore diminishing stagnant water. No chemicals are proposed or currently used on site, thus pollution is not a concern. Due to the small size of the proposed pond, adverse effects on local groundwater supplies are not a concern. Additionally, no dewatering is proposed and all sand and gravel excavated will be stored in a stockpile and allowed to drain back into the aquifer before being trucked off site.

REVIEW COMMENTS

LEI has provided additional information below, which was requested by Allendale Charter Township on October 12, 2022. Most of the additional information has been added to the original figures submitted on October 4, 2022. A new figure package comprising of Figure 1 through 5 is summarized below and is attached to this document:

Figure 1 – Property Location

Figure 2 – Site Plan

Figure 3 – Mining Plan

Figure 4 – Reclamation Plan

Figure 5 – Proposed Pond Grading

Additional Comments Received 10/12/2022

Article 21-A – Landscaping Requirements

• Section 21A.04F – Please provide front yard landscaping. In anticipation of your desire to not install, you may formally request a waiver pursuant to Section 21A.02C of the Zoning Ordinance.

Section 23.08 – Removal of Topsoil, Sand, Gravel, Or Other Minerals

• F1e – Provide annual quantity to be removed and verify by the seal of a civil engineer on plan.

Included in Figure 2 Site Plan.

• F1i – The truck route is from 76th Avenue to where?

Trucks will generally be routed from 76th Avenue south to Warner Street, and then east to various projects located in Allendale. The closest residence to the haul route is 280 feet away, as illustrated in Figure 2.

• F1p – Provide

The project will be completed by Schippers Excavating, who has insurance certificates on file with Allendale Charter Township.

• F2a.ii – Provide dimensions of both the subject property and adjacent property (if internal truck road is not modified)

Included in Figure 2 Site Plan.

• F2a.iii – Show 76th Avenue

Included in Figures 2 and 3.

• F2a.vi – Provide for all parcels within 1000 feet (for both properties) and distance to dwellings and existing land uses

Included in Figure 2. The closest dwelling is approximately 240 feet south of the mining area. All parcels within ¼ mile of the Site are zoned as agricultural and rural.

• F2bi – The south setback is illegible. Please provide clearly.

Included in Figure 3 Mining Plan.

• F2bii – Provide place of beginning on the site plan drawing.

Included in Figure 3 Mining Plan.

• F2biii – Please improve the numbers identified to the contour lines. Consider a separate sheet for just the pond.

Included in Figure 5 Proposed Pond Grading.

• F2biv – Provide height of stockpile on site plan

Included in Figure 3 Mining Plan.

• F2bv – Provide fencing details, gate details, show on plan (both properties), show illustration
Included in Figure 3 Mining Plan.

• F2bvi – Show to 76th Avenue

Included in Figures 2 and 3.

• F4a – Show all driveways

Included in Figure 3 Mining Plan.

• F4b – Show compliance with Truck Route. 76th Avenue to where?

Trucks will generally be routed from 76th Avenue south to Warner Street, and then east to various projects located in Allendale. The closest residence to the haul route is 280 feet away, as illustrated in Figure 2.

• F4c – Provide detail

The existing crushed concrete haul road is temporary and will be removed upon completion of the pond. The haul road is sufficiently compacted and graded to protect the existing shoulder and asphalt of 76th Avenue and will be watered routinely to control dust.

• F4di – Show setbacks to the south for principal buildings

Included in Figure 3 Mining Plan.

• F4diii – Provide setbacks of the stockpile area

Included in Figure 3 Mining Plan.

• F4e – Provide fencing for entire mining area and gate. Show trespassing sign locations.

Included Figure 3 Mining Plan.

• F4f – Provide entrance gate details

Included in Figure 3 Mining Plan.

• F4n – Provide cross section of final slopes

Article 24 – Site Plan Review

• Section 24.05D

• 3 – Provide to an extent of at least a quarter mile (of both properties)

Included in Figure 2 Site Plan.

• 4 – Provide

Included in Figure 1 Property Location.

• 6 – Provide acres and square feet (of both properties)

Included in Figure 2 Site Plan.

• 7 – Provide dimensions (of both properties)

Included in Figure 2 Site Plan.

• 8 – Provide for both properties

Included in Figure 3 Mining Plan.

• 10 – Show to 76th Avenue

Included in Figures 2 and 3.

• 11 – Provide

Included in Figures 2 and 3.

• 12 – Provide

All parcels within ¼ mile are zoned as agricultural and rural.

• 21 – Provide gate signage detail

The existing 'No Trespassing' signs on the property (more than 10) are sufficient as this residential property.

• Section 24.05F – Provide 1-6, and 9, unless waiver is requested

If a landscaping waiver is necessary then please consider this as a formal request for a waiver. The land immediately adjacent to 76th Avenue will be restored to its original planting (i.e. agricultural use) upon completion of the pond and removal of the haul road.

• Section 24.06

• C1 – Provide

No sidewalks are located where the haul road connects to 76th Avenue.

• L – Provide trip generation analysis

The site will have 80 truck trips per day. A trip generation study is not required as the number of daily trips is less than 750.

REVIEW COMMENTS

LEI has provided additional information below, which was requested by Allendale Charter Township on November 9, 2022. The additional information has been added to the original figures submitted on October 4, 2022.

Additional Comments Received 11/09/2022

• The overall depth of the excavation, from top of existing grade to bottom of pond, varies from 32 feet on the north to 42 feet on the south. The expected depth of water has been noted at 20 feet. There are over 14 residences which adjoin the subject property most of which can be found on the south and east sides of the subject mining. The applicant has noted existing fencing along the north and west property lines. No other fencing is proposed. The Planning Commission should consider if additional fencing is necessary for security purposes as required in Section 23.08 (F)(4)(e).

Fencing is proposed for entire mining area. Included in Figure 3 Mining Plan.

• Signage is noted as being required at 100-foot intervals. Existing signs have been previously installed and are noted as numbering "more than 10". The Planning Commission should consider whether additional signage is necessary given the depth of the excavation, stockpiles anticipated, and the number of adjoining residences,

No trespassing signs are proposed at 100-foot intervals around the site. Included in Figure 3 Mining Plan.

• The applicant states that watering of the haul road will be performed routinely. The Planning Commission should consider if the frequency of watering is adequately defined by (routinely). I would suggest greater clarification of the Township's expectation (i.e., as needed, weekly, daily, etc.).

The applicant understands.

• Noise is required by ordinance to be "reasonable". The Township may wish to consider clarifying the measure of "reasonable" as this could impact the numerous homes in the vicinity.

The applicant understands.

• As previously noted by myself and the Road Commission, the entrance road is required to be hard surfaced. Plans should be revised to reflect this. The Road Commission had additional comments which can be found in their email correspondence dated October 24, 2022.

The applicant understands. The current pavement (recycled asphalt) is the entire length of the haul road as noted in Figure 3 Mining Plan. We are in contact with the Road Commission to determine what is appropriate for this project.

• On Figure 4 – Reclamation Plan – I plotted this drawing on 24" x 36" paper. All of the noted scales appear wrong. The plan view has a scale of 1' = 100 feet not 200 feet. Cross Section A-A has scales of 20 feet (vertical) and 200 feet (horz) not the 40' and 400' as noted. Plans need to be revised.

This error has been corrected. Included in Figure 4 Reclamation Plan.

• I would agree that the driveway approach needs to be paved. Depending on the length of pavement being required, cobble should also be placed if necessary for a minimum combined length of 100 feet. A temporary driveway permit should be obtained from the Road Commission.

The applicant understands. We are in contact with the Road Commission to determine what is appropriate for this project.

• Truck traffic should use 76th Ave to Warner St. The Township should consider whether a bond will be required for 76th Ave from Warner St to the driveway to ensure maintenance and damage to the road, if any, are addressed. A bond amount of $50,000 is recommended.

The applicant understands.

Section 23.08 – Removal of Topsoil, Sand, Gravel, Or Other Minerals

• F2a.vi – Provide for all parcels within 1000 feet (for both properties) and distance to dwellings and existing land uses

All parcels within 1,000 feet are zoned as agricultural and rural. A table listing the distances of dwellings to the site boundary is provided in Figure 2 Site Plan.

• F4c – Provide length of material surface. Also, the Planning Commission would need to authorize the proposed surface.

The current pavement (recycled asphalt) is the entire length of the haul road as noted in Figure 3 Mining Plan. We are in contact with the Road Commission to determine what is appropriate for this project.

• F4e – Provide fencing for entire mining area and gate. Show trespassing sign locations. Trespassing signs shall be located every 100 feet for the entire site.

Fencing is proposed to be installed as shown in Figure 3 Mining Plan.

• F4f – Provide entrance gate details for the required signage

Included in Figure 3 Mining Plan.

Article 24 – Site Plan Review
• Section 24.06

• C1 – Sidewalk is required to be constructed, however, you can request deferment of its construction. Please formally provide that request in your narrative.

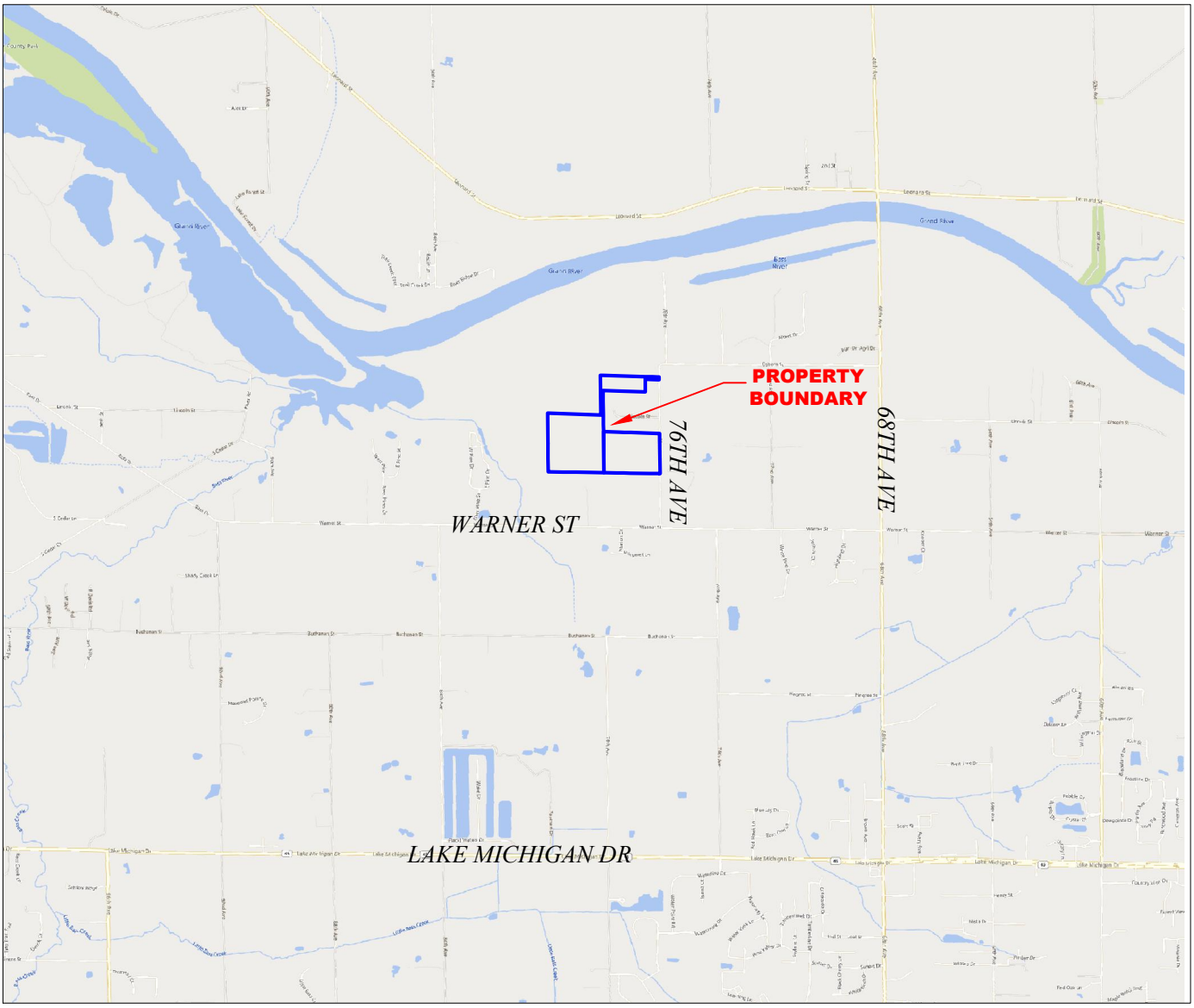
No adjacent parcels to the haul road have a sidewalk. The applicant formally requests a deferment of the construction of a sidewalk.

The additional information provided above should address the comments received from Allendale Charter Township. Please advise if there is further information required. Thank you for your consideration.

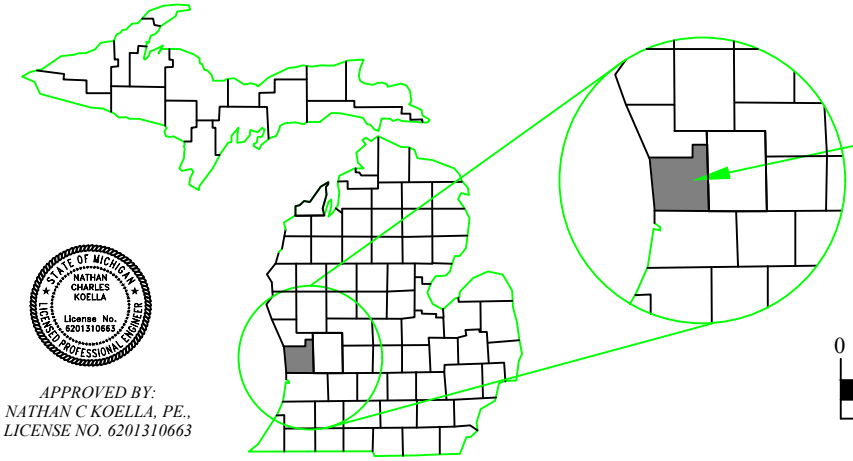
Sincerely,
Lakeshore Environmental, Inc.

Nathan C. Koella, PE
Environmental Engineer
Email: NateK@My-LEI.com

Attachments: Figure 1 – Property Location
Figure 2 – Site Plan
Figure 3 – Mining Plan
Figure 4 – Reclamation Plan
Figure 5 – Proposed Pond Grading



NOTE:
PARCEL BOUNDARIES OBTAINED FROM OTTAWA COUNTY GIS
IMAGERY OBTAINED FROM BING



SECTION 9/16, T7N, R14W
ALLENDALE TOWNSHIP
OTTAWA COUNTY, MICHIGAN

STATE OF MICHIGAN
NATHAN CHARLES KOELLA
License No. 6201310663
LICENSED PROFESSIONAL ENGINEER

APPROVED BY:
NATHAN C KOELLA, PE.,
LICENSE NO. 6201310663

0 4,000' 8,000'

SCALE: 1" = 4,000'

DWN BY: TJW

N

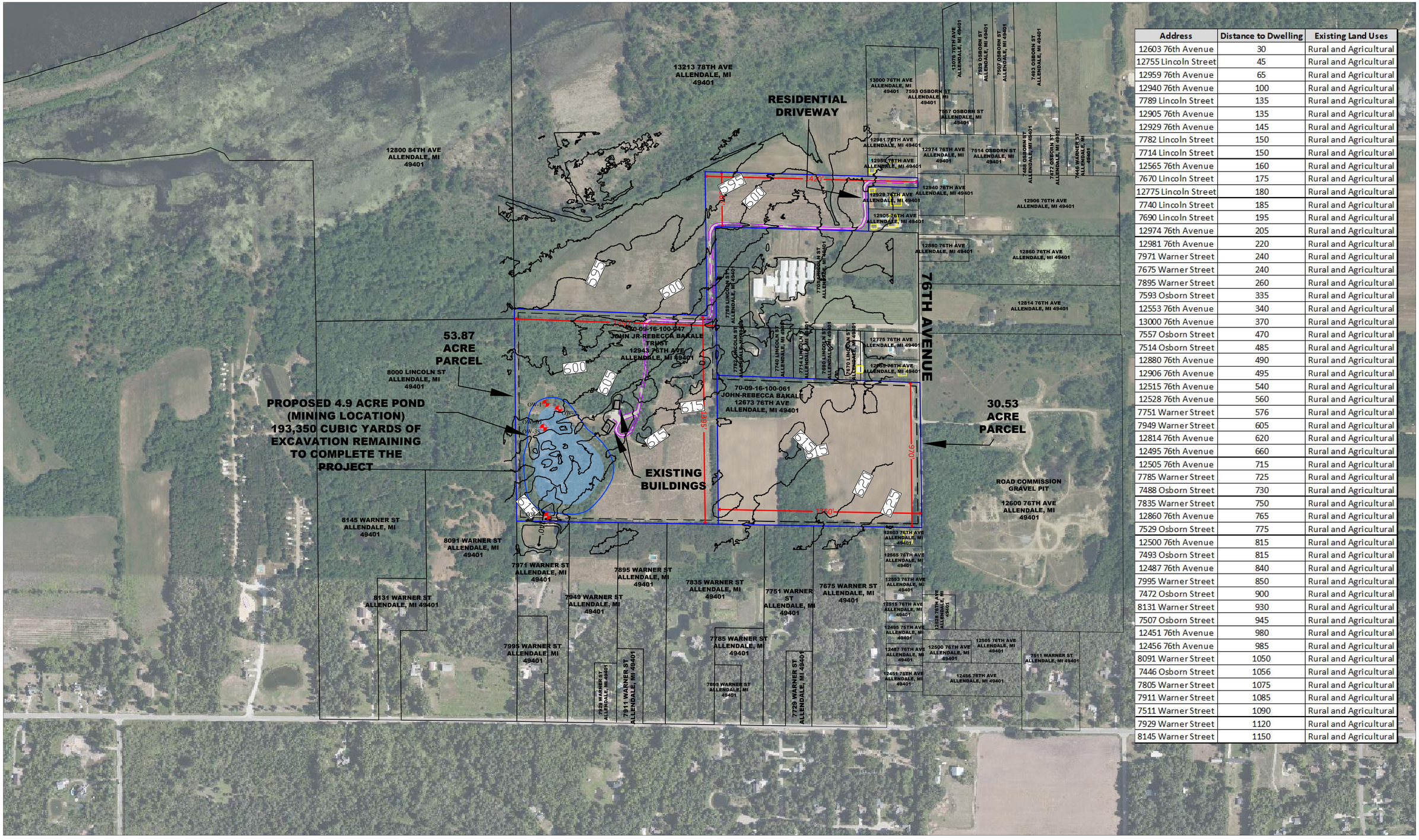
Lakeshore Environmental, Inc.
Scientists | Engineers | Planners

PROPERTY LOCATION

PARCEL #'S 70-09-16-100-047, 70-09-16-100-061

12943 76TH AVENUE
ALLENDALE, MICHIGAN 49401

PROJECT 21-700	NOVEMBER 2022	FIGURE 1



Address	Distance to Dwelling	Existing Land Uses
12603 76th Avenue	30	Rural and Agricultural
12755 Lincoln Street	45	Rural and Agricultural
12959 76th Avenue	65	Rural and Agricultural
12940 76th Avenue	100	Rural and Agricultural
7789 Lincoln Street	135	Rural and Agricultural
12905 76th Avenue	135	Rural and Agricultural
12929 76th Avenue	145	Rural and Agricultural
7782 Lincoln Street	150	Rural and Agricultural
7714 Lincoln Street	150	Rural and Agricultural
12565 76th Avenue	160	Rural and Agricultural
7670 Lincoln Street	175	Rural and Agricultural
12775 Lincoln Street	180	Rural and Agricultural
7740 Lincoln Street	185	Rural and Agricultural
7690 Lincoln Street	195	Rural and Agricultural
12974 76th Avenue	205	Rural and Agricultural
12981 76th Avenue	220	Rural and Agricultural
7971 Warner Street	240	Rural and Agricultural
7675 Warner Street	240	Rural and Agricultural
7895 Warner Street	260	Rural and Agricultural
7593 Osborn Street	335	Rural and Agricultural
12553 76th Avenue	340	Rural and Agricultural
13000 76th Avenue	370	Rural and Agricultural
7557 Osborn Street	470	Rural and Agricultural
7514 Osborn Street	485	Rural and Agricultural
12880 76th Avenue	490	Rural and Agricultural
12906 76th Avenue	495	Rural and Agricultural
12515 76th Avenue	540	Rural and Agricultural
12528 76th Avenue	560	Rural and Agricultural
7751 Warner Street	576	Rural and Agricultural
7949 Warner Street	605	Rural and Agricultural
12814 76th Avenue	620	Rural and Agricultural
12495 76th Avenue	660	Rural and Agricultural
12505 76th Avenue	715	Rural and Agricultural
7785 Warner Street	725	Rural and Agricultural
7488 Osborn Street	730	Rural and Agricultural
7835 Warner Street	750	Rural and Agricultural
12860 76th Avenue	765	Rural and Agricultural
7529 Osborn Street	775	Rural and Agricultural
12500 76th Avenue	815	Rural and Agricultural
7493 Osborn Street	815	Rural and Agricultural
12487 76th Avenue	840	Rural and Agricultural
7995 Warner Street	850	Rural and Agricultural
7472 Osborn Street	900	Rural and Agricultural
8131 Warner Street	930	Rural and Agricultural
7507 Osborn Street	945	Rural and Agricultural
12451 76th Avenue	980	Rural and Agricultural
12456 76th Avenue	985	Rural and Agricultural
8091 Warner Street	1050	Rural and Agricultural
7446 Osborn Street	1056	Rural and Agricultural
7805 Warner Street	1075	Rural and Agricultural
7911 Warner Street	1085	Rural and Agricultural
7511 Warner Street	1090	Rural and Agricultural
7929 Warner Street	1120	Rural and Agricultural
8145 Warner Street	1150	Rural and Agricultural

NOTE:
PARCEL BOUNDARIES OBTAINED FROM OTTAWA COUNTY GIS
AERIAL IMAGERY OBTAINED FROM BING MAPS
ZONING OF ALL PROPERTIES WITHIN ¼ MILE OF PROPERTY IS AGRICULTURAL AND RURAL

LEGAL DESCRIPTION OF ADDRESS 12943 76TH AVE, ALLENDALE MI # 70-09-16-100-047:

PART OF SEC 9 & 16 COM N 0D 55M 50S W 970.15 FT FROM S 1/4 COR SEC 9, TH N 0D 55M 50S Ð 66.07 FT, N 88D 19M 08S W 1416.7 FT, S 0D 50M E 1027.47 FT, E 66 FT, N 0D 50M W 661.84 FT, Ð 88D 19M 08S E 1018.23 FT, N 0D 55M 50S W 300 FT, TH S 88D 19M 08S E 333.03 FT TO BEG, ÚLSO S 67.08 FT OF W 1/2 OF SW 1/4, EXC E 66 FT, ALSO NW 1/4 OF NW 1/4 SEC 16. SEC 9 & 16 Ð7N R14W

LEGEND

- 620 — GROUND SURFACE CONTOURS (OTTAWA COUNTY GIS)
- PROPERTY LINE SETBACKS (25 FEET)
- OBSERVATION WELL LOCATION
- STRUCTURES WITHIN 100' OF PROPERTY BOUNDARY

APPLICANT CONTACT:
JOHN JR & REBECCA BAKALE TRUST
12943 76TH AVE
ALLENDALE, MI 49401
EMAIL: JOHN@MICHIGANEVERGREENNURSERY.COM

0 300' 600'
SCALE: 1" = 300'

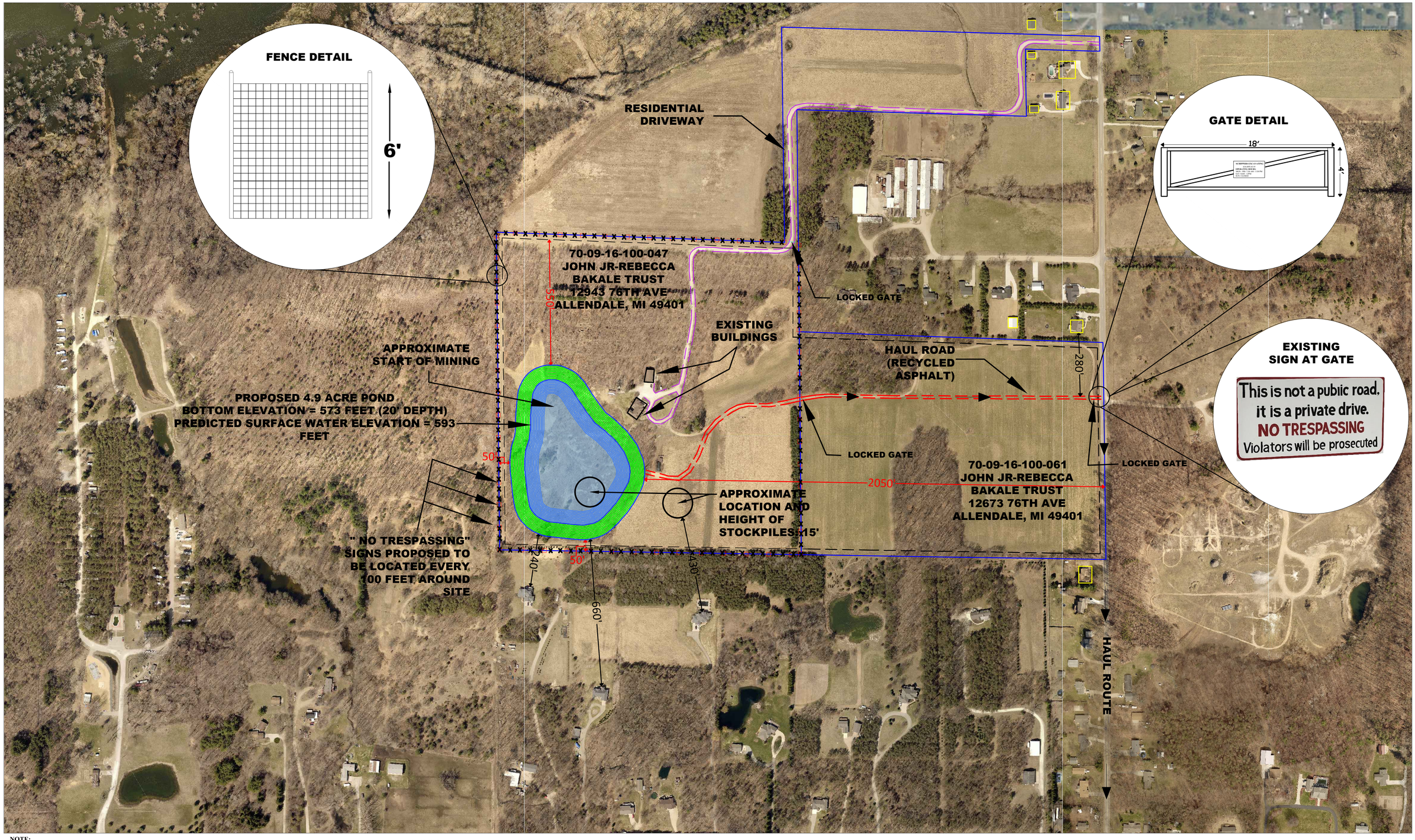
DRAWN BY: TJW

APPROVED BY:
NATHAN C KOELLA, PE.
LICENSE NO. 6201310663

Lakeshore Environmental, Inc.
Scientists | Engineers | Planners

SITE PLAN
PARCEL #'S 70-09-16-100-047, 70-09-16-100-061
12943 76TH AVE, ALLENDALE, MI 49401

PROJECT 21-700	NOVEMBER 2022	FIGURE 2



NOTE:
PARCEL BOUNDARIES OBTAINED FROM OTTAWA COUNTY GIS
AERIAL IMAGERY OBTAINED FROM OTTAWA COUNTY 2021
ZONING OF ALL PROPERTIES WITHIN ¼ MILE OF PROPERTY IS AGRICULTURAL AND RURAL

LEGAL DESCRIPTION OF ADDRESS 12943 76TH AVE, ALLENDALE MI # 70-09-16-100-047:

PART OF SEC 9 & 16 COM N 0D 55M 50S W 970.15 FT FROM S 1/4 COR SEC 9, TH N 0D 55M 50S Ð 66.07 FT, N 88D 19M 08S W 1416.7 FT, S 0D 50M E 1027.47 FT, E 66 FT, N 0D 50M W 661.84 FT, Ð 88D 19M 08S E 1018.23 FT, N 0D 55M 50S W 300 FT, TH S 88D 19M 08S E 333.03 FT TO BEG, ÚLSO S 67.08 FT OF W 1/2 OF SW 1/4, EXC E 66 FT, ALSO NW 1/4 OF NW 1/4 SEC 16. SEC 9 & 16 Ð7N R14W

LEGEND

- PROPOSED POND CONTOURS
- PROPERTY LINE SETBACKS (25 FEET)
- STRUCTURES WITHIN 100' OF PROPERTY BOUNDARY

0 200' 400'
SCALE: 1" = 200'

DRAWN BY: TJW

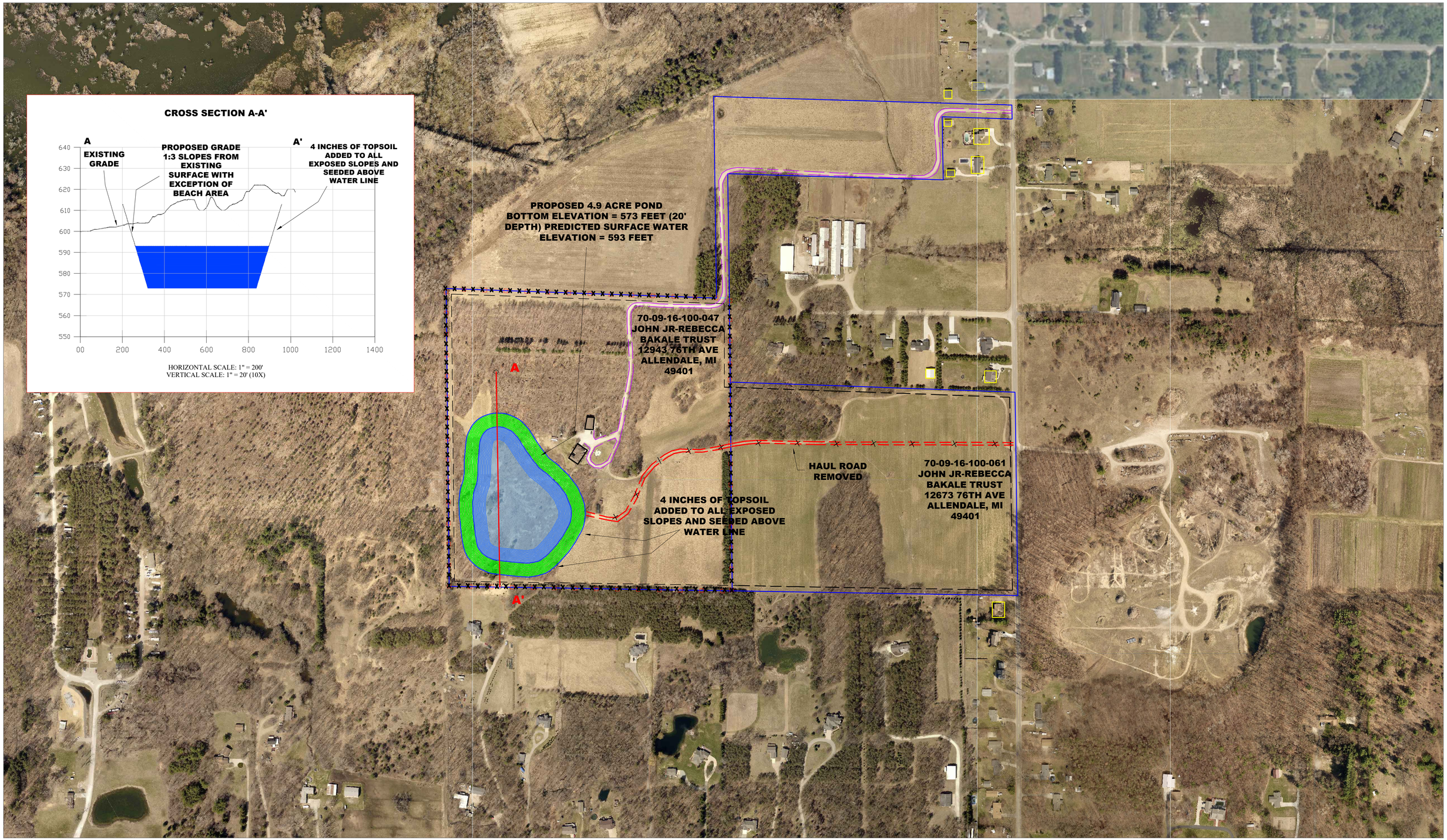
APPLICANT CONTACT:
JOHN JR & REBECCA BAKALE TRUST
12943 76TH AVE
ALLENDALE, MI 49401
EMAIL: JOHN@MICHIGANEVERGREENNURSERY.COM

APPROVED BY:
NATHAN C KOELLA, P.E.
LICENSE NO: 6201310663

Lakeshore Environmental, Inc.
Scientists | Engineers | Planners

MINING PLAN
PARCEL #'S 70-09-16-100-047, 70-09-16-100-061
12943 76TH AVE, ALLENDALE, MI 49401

PROJECT 21-700	NOVEMBER 2022	FIGURE 3



NOTE:
PARCEL BOUNDARIES OBTAINED FROM OTTAWA COUNTY GIS
AERIAL IMAGERY OBTAINED FROM OTTAWA COUNTY 2021
DEPTH TO WATER TABLE IS 10 - 28 FEET, DEPENDING ON TOPOGRAPHY

LEGAL DESCRIPTION OF ADDRESS 12943 76TH AVE, ALLENDALE MI # 70-09-16-100-047:

PART OF SEC 9 & 16 COM N 0D 55M 50S W 970.15 FT FROM S 1/4 COR SEC 9, TH N 0D 55M 50S Ð 66.07 FT, N 88D 19M 08S W 1416.7 FT, S 0D 50M E 1027.47 FT, E 66 FT, N 0D 50M W 661.84 FT, Ð 88D 19M 08S E 1018.23 FT, N 0D 55M 50S W 300 FT, TH S 88D 19M 08S E 333.03 FT TO BEG, ÚLSO S 67.08 FT OF W 1/2 OF SW 1/4, EXC E 66 FT, ALSO NW 1/4 OF NW 1/4 SEC 16. SEC 9 & 16 Ð7N R14W

LEGEND

- PROPOSED POND CONTOURS
- PROPERTY LINE SETBACKS (25 FEET)
- STRUCTURES WITHIN 100' OF PROPERTY BOUNDARY

APPLICANT CONTACT:
JOHN JR & REBECCA BAKALE TRUST
12943 76TH AVE
ALLENDALE, MI 49401
EMAIL: JOHN@MICHIGANEVERGREENNURSERY.COM

N

200' 400'

SCALE: 1" = 200'

DRAWN BY: TJW

STATE OF MICHIGAN NATHAN CHORLLA PE-LICENSE NO. 6201310663 PROFESSIONAL ENGINEER

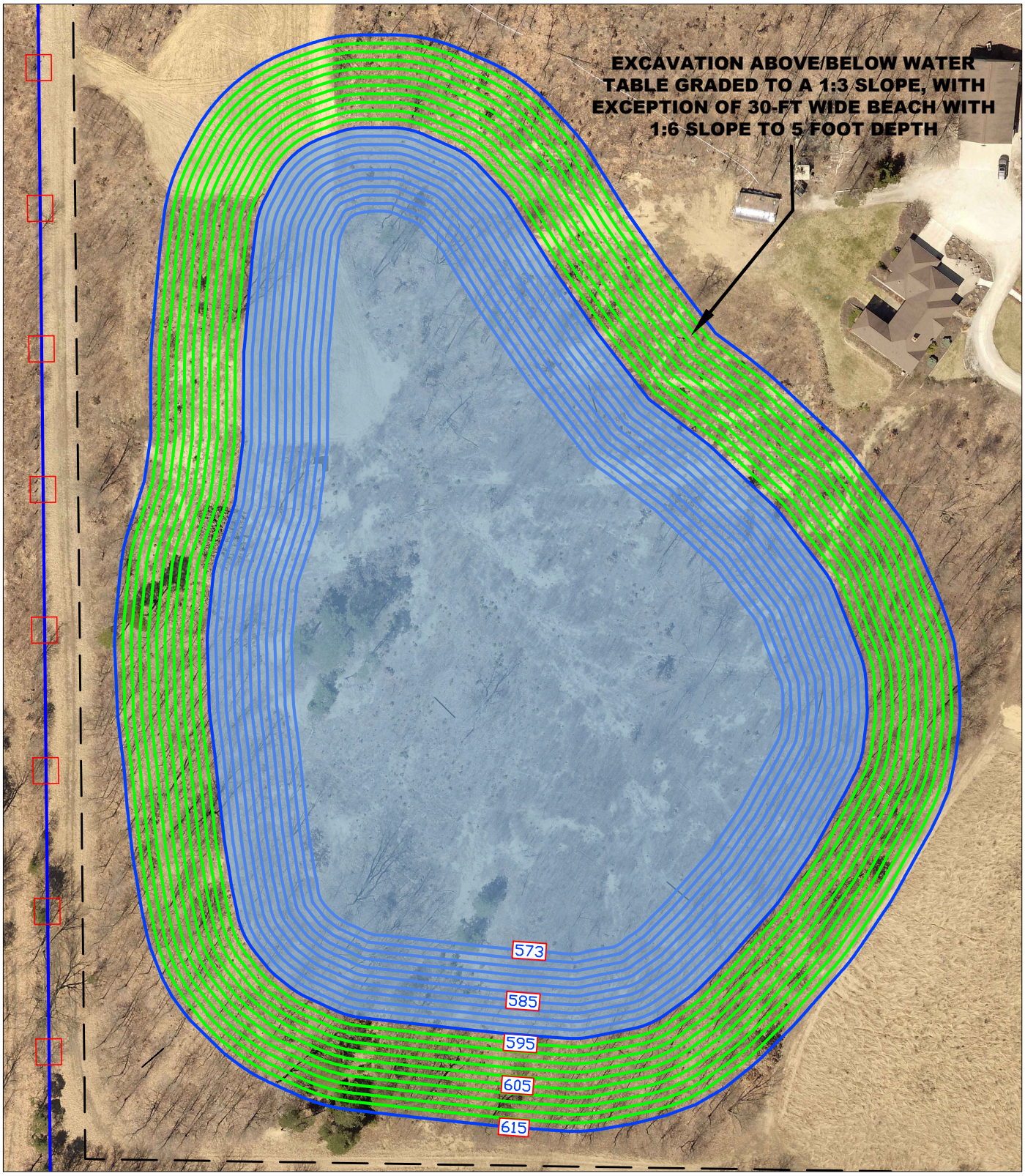
APPROVED BY:
NATHAN C.KOHLLA, PE.,
LICENSE NO. 6201310663

Lakeshore Environmental, Inc.
Scientists | Engineers | Planners

RECLAMATION PLAN
PARCEL # 70-09-16-100-047, 70-09-16-100-061

12943 76TH AVE, ALLENDALE, MI 49401

PROJECT 21-700	NOVEMBER 2022	FIGURE 4



AERIAL IMAGERY OBTAINED FROM OTTAWA COUNTY 2021

LEGEND

PROPOSED POND CONTOUR (4.9 ACRES)

PROPERTY LINE SETBACKS (25 FEET)

N

0 100' 200'

SCALE: 1" = 100'

DWN BY: TJW

Lakeshore Environmental, Inc.
Scientists | Engineers | Planners

PROPOSED POND GRADING
PARCEL #'S 70-09-16-100-047, 70-09-16-100-061

12943 76TH AVENUE
ALLENDALE, MICHIGAN 49401

PROJECT 21-700	NOVEMBER 2022	FIGURE 5

Fresh Coast Planning

950 Taylor Avenue, Ste 200
Grand Haven, MI 49417
www.freshcoastplanning.com

Gregory L. Ransford, MPA
616-638-1240
greg@freshcoastplanning.com

Julie Lovelace
616-914-0922
julie@freshcoastplanning.com

Kevin Yeomans
616-821-4969
kevin@freshcoastplanning.com

MEMORANDUM

To: Allendale Charter Township Planning Commission
From: Gregory L. Ransford, MPA
Date: December 27, 2022
Re: Rusk Lake Associate, LLC Mining Special Use Application – Preliminary Review

---

In accordance with Section 23.08 – Removal of Topsoil, Sand, Gravel, or Other Minerals of the Allendale Charter Township Zoning Ordinance (ACTZO), attached is a Special Use Application from Rusk Lake Associates, LLC to excavate approximately 1,100,000 cubic yards of sand from 10618 Pierce Street, parcel number 70-09-30-400-038, which will result in a 21-acre lake. The property is currently vacant and is located within the Agricultural and Rural Zoning District.

Preliminary Review Comments

Pursuant to your longstanding direction, we reviewed the proposed site plan and related documents as a preliminary plan review. While our review was comprehensive related to the ACTZO, our notations within this memorandum are not composed of the traditional final review format (i.e. site plan review standards, inclusion of all staff recommendations, and etcetera). Subsequent to our initial review, we provided our review comments to the applicant and received the attached in response. Below are our remaining observations for the Planning Commission and applicant to consider prior to final site plan review as well as other relevant notations regarding the proposed.

Section 23.08F3 – Requirements for Mining Permitted by the Planning Commission

The Planning Commission possesses the authority to require studies or information concerning the need for and the consequences of the mineral extraction. Studies may include, but are not necessarily limited to, an environmental impact, hydro-geological, engineering, traffic impact, and economic analysis impact on adjacent property values.

Further, if the excavation will result in the creation of a lake, a hydrogeological study may be required to determine the impact of the mining operation on nearby wells or water features. Regardless of this provision, the applicant has provided a hydrogeological report that is included within the submission materials.

Section 23.08G4 – Duration & 23.08I – Renewal of Special Land Use

As you know, mining operations are permitted for up to five years. The applicant has indicated that excavation will last approximately ten years. Given this, the applicant must renew their special land use in advance of the conclusion of the five-year authorization period. While the hydrogeological report indicates a period of five years, the applicant has indicated that this report is not typically written for a ten year period. Given this, it may be appropriate to require a new report at the time of application for renewal.

Section 23.08F4o – Requirements for Mining Permitted by the Planning Commission

The Planning Commission possesses the authority to require earth berms, landscaping, or both along all boundaries of the site which lack natural screening conditions through existing contours or evergreen growth. As a result, in combination with Section 24.06D, which we outline further below, the Planning Commission will need to determine if additional earth berms and/or landscaping is appropriate. It is important to note that the applicant intends to

remove proposed berm along the east property line after the conclusion of each phase, as shown in the Reclamation Plan.

Article 21-A Landscaping Requirements

In the same regard as Section 23.08F4o above, the applicant is subject to the landscaping requirements of Article 21-A of the ACTZO. As you know, the Planning Commission possesses the authority to increase, decrease, or otherwise modify the landscaping requirements of Article 21-A, pursuant to certain criteria. Given this, the Planning Commission will need to determine if additional landscaping beyond the existing vegetation is appropriate, as the applicant does not propose to add any landscaping to the site and requests a waiver of those requirements.

Section 24.06D – Landscaping and Buffering

Pursuant to your site plan standards for approval, the applicant is required to provide reasonable visual and sound privacy for adjacent dwelling units. As aforementioned, the applicant is not proposing any additional landscaping than what exists on site, except for a four foot tall berm along the east property line.

Section 24.06C – Sidewalks and Pedestrian Circulation

Pursuant to your site plan standards for approval, the applicant is required to either install a sidewalk along the 92nd Avenue and Pierce Street property frontage or receive deferment from the Planning Commission. The applicant does not propose any sidewalk along 92nd Avenue or Pierce Street until such time that sidewalks are provided to the site from adjacent properties. As a result, a deferment of the sidewalk would be necessary in the instance the Planning Commission agrees with their proposal.

General Notations

- The end use of 28 site condominiums is not part of this application and must return for formal approval in the future
- The private road is not part of this application and must return for formal approval in the future

Township Department Reviews

Review comments are attached from the Township Engineer. No concerns have been received from the Superintended of Public Utilities or the Township Fire Department.

Public Hearing

Following your review of the proposed, a public hearing is required to be scheduled for final site plan consideration.

Planning Commission Considerations

As the Planning Commission performs their preliminary review of this request, the following warrant your review and consideration. They are listed in no particular order.

- Whether additional studies, beyond the hydrogeological study, are necessary to determine the need for and consequences of the proposed excavation
- Whether the landscaping as proposed and a waiver from the required front yard landscaping is appropriate
- Deferment of the sidewalk along 92nd Avenue and Pierce Street, as proposed
- The proposed ten year excavation period

The application has been scheduled for preliminary review at your January 2, 2023 meeting. We expect the applicant to be in attendance. If you have any questions, please let us know.

GLR
Planner

Attachments

cc: Adam Elenbaas, Supervisor
Todd Stuive, Exxel Engineering, Incorporated

FLEIS&VANDENBRINK
DESIGN. BUILD. OPERATE.

October 17, 2022

Mr. Greg Ransford, MPA
Fresh Coast Planning
950 Taylor Avenue, Ste. 200
Grand Haven, MI 49417

RE: Rusk Farms Mine Permit Application Review

Dear Greg:

Fleis & VandenBrink has reviewed the application materials sent over on October 2, 2022. The application consisted of the following materials:

- A mining plan set of drawings (4) dated September 23, 2022, prepared by Exxel Engineering,
- A draft version of a Hydrogeological Report dated April 20, 2022, prepared by Lakeshore Environmental and
- A Special Land Use Application dated September 23, 2022, prepared by the Owner, Rusk Lake Associates.

The following background information is made for reference:

- The overall site area is 68.5 acres. The extraction of sand and gravel will result in a permanent pond covering approximately 21 acres. The ultimate use of the property is for residential purposes tentatively yielding 28 lots.
- The applicant expects to excavate the pond in two phases. Each phase is expected take five years to complete.
- No mineral processing is planned.
- Parcels A, B and C as depicted on Sheet 4, End Use Plan, were not considered as part of this application. Therefore, they were not reviewed.
- The excavation is expected to yield approximately 1.1 million cubic yards of sand and gravel. Excavations will be approximately 30 feet deep.
- Over a ten-year period, the average excavation will yield 110,000 cubic yards annually.

The following comments are made for the Township's consideration:

1. The setbacks specified within the mineral extraction portion of the zoning ordinance (Section 23.08) have been complied with. No action is required.
2. Existing homes on Pierce Street, Lauren Drive and Little Bass Lane are approximately 100 feet away from the proposed excavation. No action is required.
3. Stockpiles must be at least 250 feet away from all principal buildings. Although not depicted, the applicant should confirm his intent to comply.

2960 Lucerne Drive SE
Grand Rapids, MI 49546
P: 616.977.1000
F: 616.977.1005
www.fveng.com

4. Perimeter fences have not been shown. The proposed excavation will be partially submerged, and thirty feet deep situated in a residential neighborhood. The project if approved, will last a decade. The Planning Commission should consider whether a need exists for additional security afforded by perimeter fences.
5. The Hydrogeological Report is noted as being a draft. It indicates that the mining will occur over a five-year period. The applicant should reconcile this with notes on the plans indicating a ten-year period of mining.
6. The Hydrogeological Report also indicates the effect of mining will be a drawdown of the ground water table of six feet. Many existing houses are within the influence of this drawdown. The applicant should clarify how a 6-foot drawdown on adjacent wells will not impact ground water availability in a community known for a diminishing ground water table.

In summary the Township should consider whether additional security fencing is merited on this site.

Also in summary, the applicant should take the following actions:

- Identify stockpile locations or otherwise confirm their intent to comply with 250-foot isolation distances.
- Update the draft hydrogeological report to a final report.
- Clarify whether the mineral extraction is planned for 5 years or as 10 years.
- Clarify to the Planning Commission's satisfaction that the anticipated drawdown on the ground water table will not impact the neighbors existing wells.

If there are any questions on the above, feel free to call me at 616.260.4306 or email me at bpindzia@fveng.com. Thank you for this opportunity to support Allendale Charter Township.

Sincerely,

FLEIS & VANDENBRINK

Bruce Pindzia, P.E.
Project Manager

May 5, 2022

Sent via e-mail only: ssterk@grar.com

Mr. Sam Sterk
Rusk Lake Associates, LLC
10560 Creek Flat Ct
Zeeland, Michigan 49464

Re: Hydrogeological Certification
Rusk Lake Associates, LLC
Allendale Township, Ottawa County, MI

Dear Mr. Sterk,

Per your request, Lakeshore Environmental, Inc. (LEI), has prepared this document to provide an analysis and corresponding certification of the predicted hydrogeological conditions during and after the proposed lake construction for Rusk Lake Associates, LLC (Rusk Lake). The primary hydrogeological concerns are short-term changes in groundwater elevations during lake construction, and long-term changes in the overall quality or quantity of groundwater. A summary of our analysis with regard to these concerns is provided below.

PERTINENT HYDROGEOLOGICAL CONDITIONS

Rusk Lake proposes to construct a 21.9-acre lake at the property located at 10618 Pierce Street, Allendale, Michigan (Site). The Site is characterized by lacustrine sand and gravel deposited in an ancient, large glacial lake (Lake Chicago) that was formed as ice retreated northward approximately 14,000 years ago.

Topography of the Site is generally characterized as gently rolling agricultural land. Most of the surface elevations at the Site range from a high of 633 feet at the south property boundary to a low of 606 feet at the north property boundary.

To evaluate subsurface conditions and groundwater elevations, LEI installed five observation wells and one piezometer at the Site (**Figure 1**). Based on soil boring data and local water well logs, local stratigraphy consists of fine to medium sand to an average depth of 19 feet with underlying clay to a minimum depth of 82 feet.

Groundwater within the shallow aquifer occurs at an average depth of 16 feet below grade, depending on topography. Based on observation well data, groundwater flow is to the northwest at a moderate gradient of 0.005 (ft/ft). Utilizing this gradient and groundwater calculations, the conservative predicted water elevation of the proposed lake is 620 feet. Please note that it is typical for a lake in this hydrologic setting to have natural fluctuations of +/- 1.0 foot. Soil boring, well and piezometer construction logs are included as **Attachment A**. A summary of observation well and piezometer data is included as **Table 1**.

LEI utilized the stratigraphy recorded in the soil borings to construct a north to south cross section (**Figure 2**), and a west to east cross sections (**Figure 3**). As illustrated, the stratigraphy generally consists of fine to medium sand overlying clay.

Based on available information from EGLE's *GeoWebFace*, *Wellogic,* and a Freedom of Information Act (FOIA) request to Ottawa County, all 179 available water wells located within a quarter mile of the Site are installed in bedrock or deep glacial aquifers. Two adjacent residences, located at 10643 Lauren Drive and 9010 Pierce Street, do not have available well logs. The two residences are located approximately 835 feet and 1,210 feet from the center of the proposed lake, respectively. Considering all nearby water wells are installed in deep, protected aquifers, this report assumes the two wells are also installed in a deep, protected aquifer. Furthermore, the average shallow aquifer thickness at the Site is 8 feet, which is less than the thickness required for a shallow residential well. Therefore, these wells are likely not installed in the shallow aquifer. Wellhead protection areas are not a concern as the closest area is located over 3.5 miles north of the proposed lake.

In addition, *Barr Engineering Co.* delineated an on-site wetland located at the northern portion of the Site, as illustrated in **Figure 1**. The wetland is located approximately 1,090 feet from the center of the proposed lake. A residential pond (Little Bass Creek Condominium Association) exists to the northeast at approximately 1,080 feet northeast of the center of the proposed lake. Little Bass Creek flows west along the northern property boundary and is approximately 1,870 feet from the center of the proposed lake.

No flooding or long-term dewatering concerns are predicted as a result of the proposed lake construction for the following reasons:

1. All stormwater at the mine Site will be contained within the Site.
2. The lake will not be created by dewatering.
3. Wet sand will be placed adjacent to the lake to allow water to drain back into the lake.
4. The lake will not be excavated through a confining layer or unusual stratigraphy.
5. The lake will be a water table lake. The lake elevation will not be held up by a dam, pump, or a clay liner.

SHORT TERM CHANGES IN THE GROUNDWATER ELEVATION DURING LAKE CONSTRUCTION

Rusk Lake proposes to construct a lake with a total area of 21.9 acres. The projected average lake elevation, based on regional geology, seasonal water table fluctuations and hydrology is 620 feet. Again, it is typical for a lake in this hydrologic setting to have natural fluctuations of +/- 1.0 foot.

To construct the proposed lake, Rusk Lake will excavate approximately 286,900 cubic yards of sand from below the existing water table. Rusk Lake anticipates the construction of the lake to take approximately 5 years. The wet sand will be stockpiled near the lake and water will be allowed to drain back into the aquifer (recycled). Even though there is no actual loss of groundwater (with the exception of an insignificant amount of evaporation from the stockpiles), the sand removal results in a short-term lowering of the water table as groundwater flows into the excavation to fill the void where the sand was located. This lowering only occurs during

excavation activities, and does not occur in the winter, when no mining takes place and groundwater levels equilibrate.

Groundwater elevation changes and potential effects on adjoining properties can be predicted utilizing standard hydrogeological calculations and models. Aquifer thickness values used in the calculations were obtained from local water well logs and on-site soil boring data. Hydraulic conductivity values were derived from aquifer material collected during the observation well installation. In summary, the maximum groundwater inflow rate to account for sand removal is calculated to be 20 gallon per minute (GPM), based on an annual mining schedule of 240 days. Sand removal results in a maximum theoretical drawdown of 0.48 feet at 10643 Lauren Drive and 0.21 feet at 9010 Pierce Street. In addition, sand removal results in a maximum theoretical drawdown of 0.28 feet at the Little Bass Creek Condominium Association pond and 0.27 feet at the wetland. This level of drawdown is less than the seasonal fluctuation in the water table and will not result in a significant decrease in the availability or quality of groundwater. Again, 10643 Lauren Drive and 9010 Pierce Street wells are likely installed in deep, protected aquifers and therefore will not be impacted by groundwater fluctuations in the shallow aquifer.

This prediction is conservative for the following reasons:

1. The calculations assume there is no recharge to the aquifer for a period of 240 days. Based on historical precipitation records, this has not occurred to date.
2. The amount of infiltration will be increased during and after the lake construction as a greater percentage of precipitation will be maintained on-site and not allowed to run off (it will fall into the lake). Groundwater calculations do not account for increased infiltration.

A summary of the sieve analyses and hydraulic conductivity calculations utilized in the predictions is provided in **Table 2**. The actual sieve analysis data sheets are provided as **Attachment B**. The hydrogeological calculations and drawdown predictions are provided in **Attachment C**.

LONG TERM EFFECTS OF LAKE CONSTRUCTION

In general, the potential long-term effects of the lake construction relate to the following:

1. A change in groundwater quality as a result of the lake construction.
2. A reduction of area groundwater elevations due to increased evaporation.
3. Long term changes in groundwater elevations as a result of the presence of the new lake.

An analysis of these potential effects is provided below:

1. Groundwater quality of the aquifer is likely to be improved due to the construction of the lake. Since the lake is a water table lake, where groundwater flows in one side of the lake and out the other (for simplicity), iron and hardness are readily removed as the water in the lake is exposed to the atmosphere where it can exchange dissolved oxygen and carbon dioxide. This improved lake water is then returned to the aquifer. In addition, no chemicals are utilized at the Site, nor are they proposed for the future.

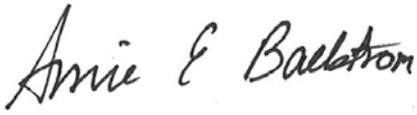
2. The construction of the lake will result in an increase in evaporation during the summer. The net loss in the water budget from lake evaporation can be predicted utilizing the EGLE recommended EVAP model. The model compares the existing evapotranspiration to the future lake evaporation and calculates the net deficit. Based on this, a net deficit of 9.7 GPM will occur at the lake following lake construction. The effect of these losses on local groundwater was calculated using the Theis Drawdown Equation, which resulted in a theoretical drawdown of 0.18 feet at 10643 Lauren Drive and 0.07 feet at 9010 Pierce Street. In addition, a theoretical drawdown of 0.10 feet is predicted at the Little Bass Creek Condominium Association pond and 0.09 feet is predicted at the wetland. This amount of drawdown is insignificant considering normal seasonal fluctuations in the groundwater elevations and precipitation. EVAP model calculations and Theis Drawdown Equation are provided in **Attachment D**.
3. The existing groundwater elevations at the location of the proposed lake vary from approximately 627.12 feet at OW-2 to 618.45 feet at OW-5. The theoretical, average surface elevation of the proposed lake is 620 feet. The lake creation will result in a localized decrease of 6.0 feet in the immediate vicinity of the upgradient (southeastern) edge of the lake. However, within a short distance of the lake (approximately 400 feet) the groundwater will return to natural levels, resulting in no drawdown at the southeastern property corner. Therefore, the lake creation will not have a significant impact on area groundwater. The theoretical groundwater elevation after lake construction is illustrated in **Figure 4**.

CONCLUSION

LEI collected hydrogeological information relating to the proposed lake construction. This included a review of area water wells and geology, local elevation surveys, installation of observation wells, data analysis, and groundwater calculations to predict the theoretical effects of lake construction on area groundwater resources. Based on the collected data, LEI concludes any short term or long-term reduction of the groundwater elevation due to the lake construction is insignificant based on conservative predictions. In fact, the storage, recharge, and quality of the aquifer is likely to be improved with the construction of the lake. As a result of the above analysis and assumptions, the proposed lake construction will not have an adverse effect on area groundwater resources.

Thank you for your consideration. Please contact me with any questions or concerns regarding this information.

Sincerely,
Lakeshore Environmental, Inc.



Amie E. Baelstrom
Project Geologist

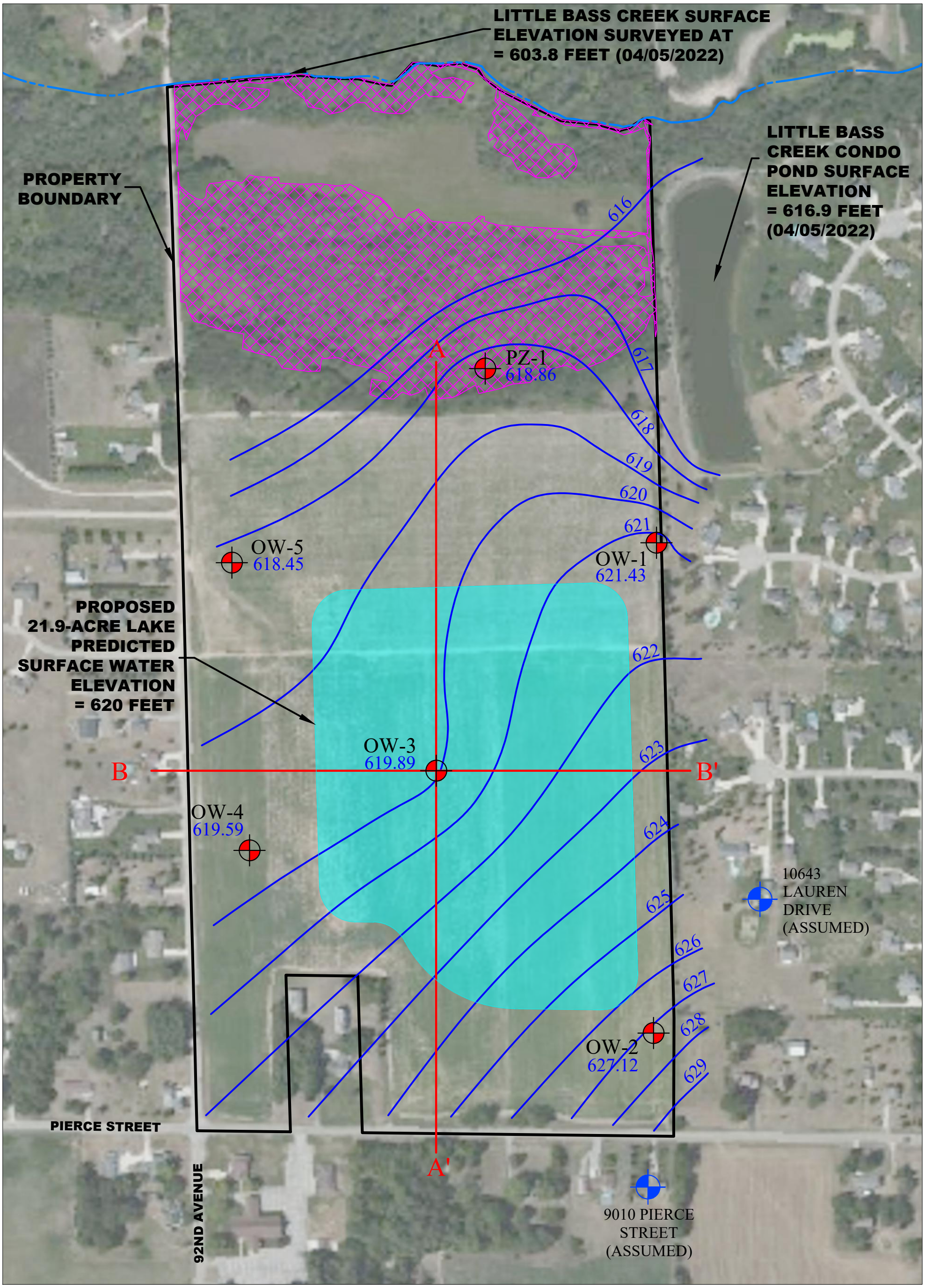
Email: AmieB@My-LEI.com

Attachments: Figures and Tables
A: Soil Boring and Well Construction Logs
B: Sieve Analyses and Hydraulic Conductivity Calculations
C: Short Term Drawdown Calculations
D: Long Term Evapotranspiration Calculations

Cc: None
File – LEI (21-716/ck: NCK/AEB)

Figures and Tables

Figure 1	-	Site Map with Existing Groundwater Elevations
Figure 2	-	Cross section A-A' (North to South)
Figure 3	-	Cross section B-B' (West to East)
Figure 4	-	Theoretical Groundwater Elevations
Table 1	-	Groundwater Observation Well Data Summary
Table 2	-	Aquifer Material Characteristics



NOTE: PARCEL BOUNDARIES OBTAINED FROM OTTAWA COUNTY GIS

0 250' 500'

SCALE: 1" = 250'

LEGEND

- OBSERVATION WELL LOCATION
- WATER WELL LOCATION
- PROPOSED 21.9-ACRE LAKE
- WETLAND (DELINEATED BY BARR ENGINEERING)
- 620 GROUNDWATER ELEVATION CONTOUR (4/5/2022)

N

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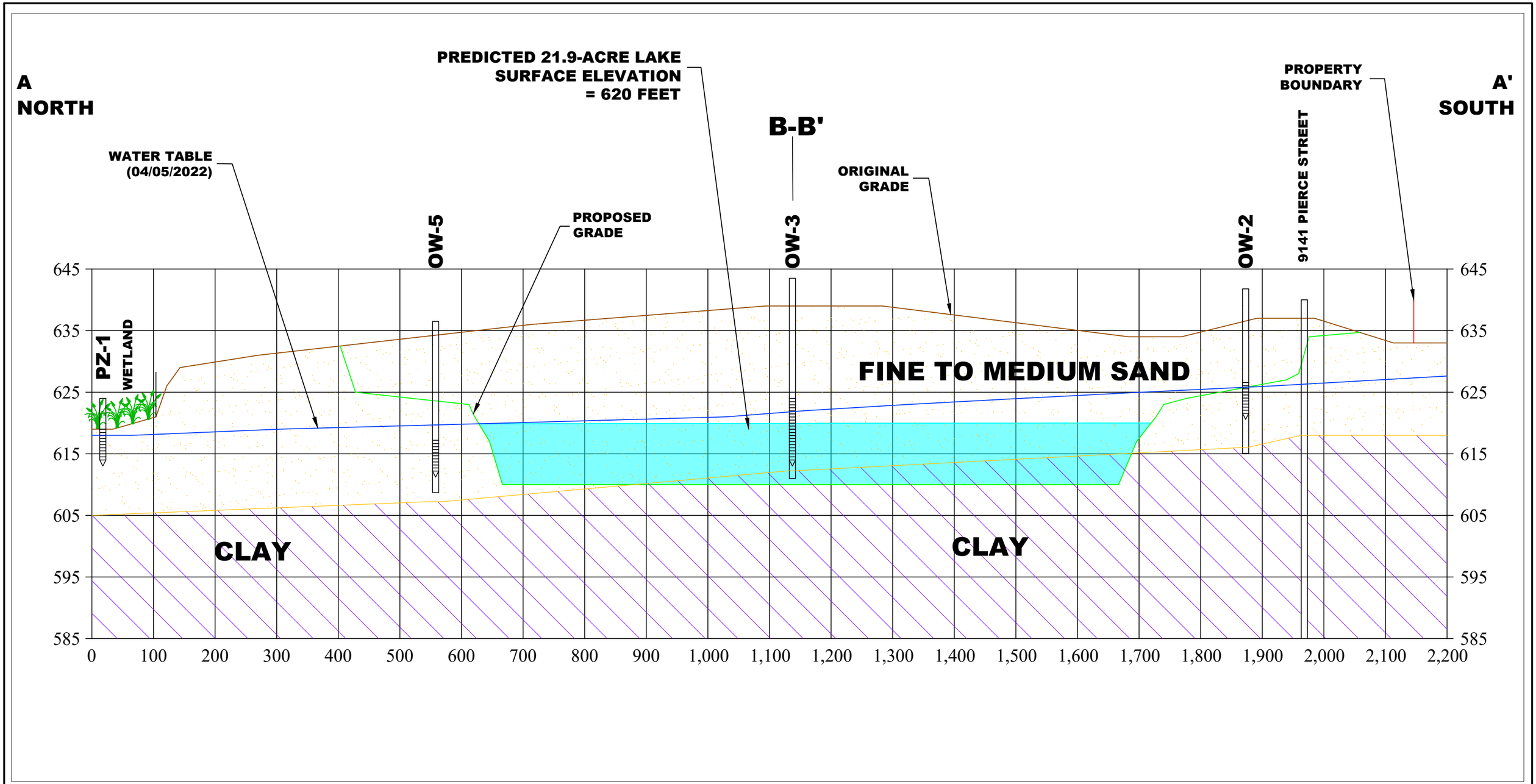
GROUNDWATER ELEVATIONS

10618 PIERCE STREET
ALLENDALE, MICHIGAN

PROJECT 22-700	MAY 2022	FIGURE 1



N

0 150' 300'

SCALE: 1" = 150'
VERTICAL EXAGGERATION = 10X

DWN BY: AEB

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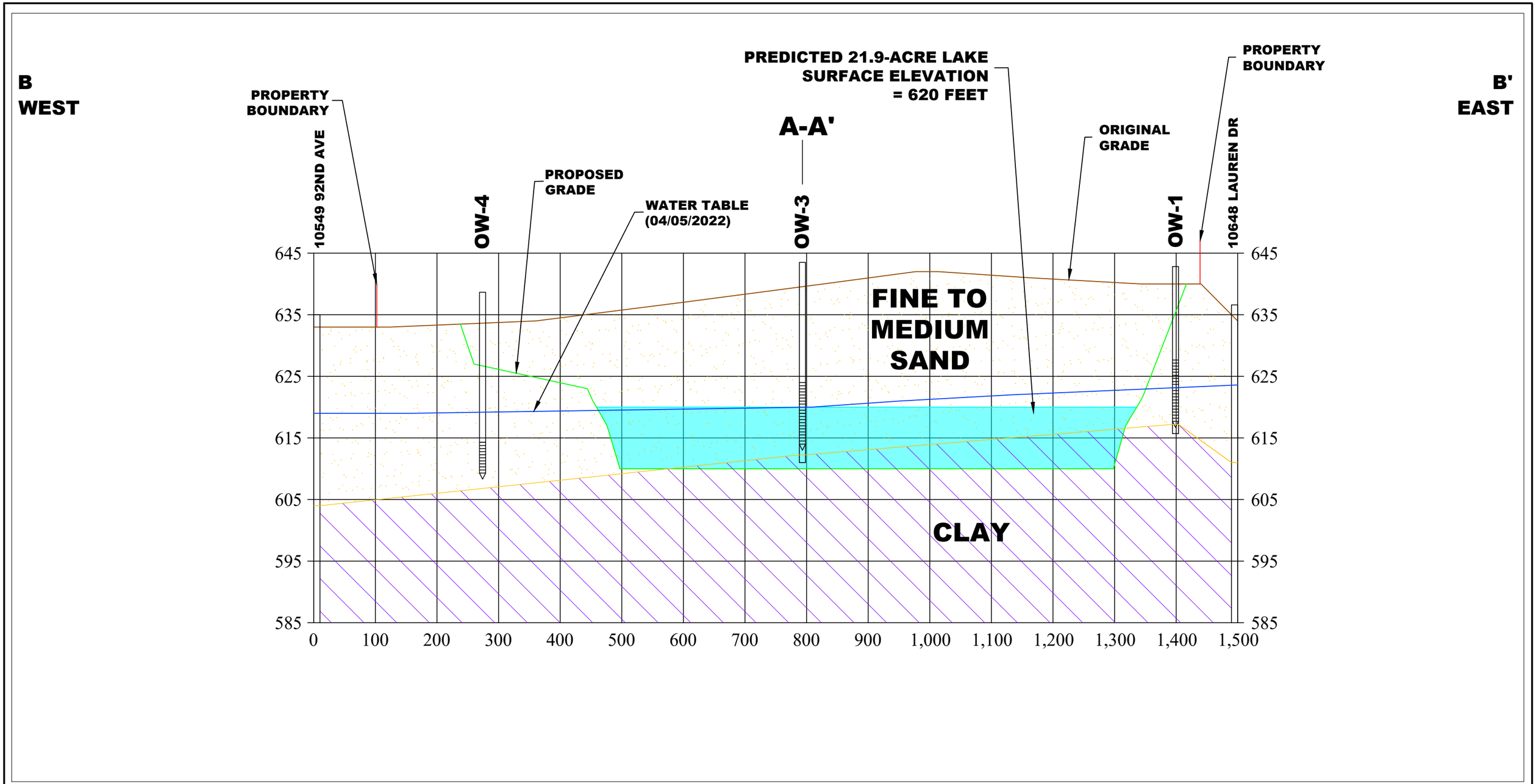
CROSS SECTION A-A'
(NORTH TO SOUTH)

10618 PIERCE STREET
ALLENDALE, MICHIGAN

PROJECT 22-700	MAY 2022	FIGURE 2



DWN BY: AEB

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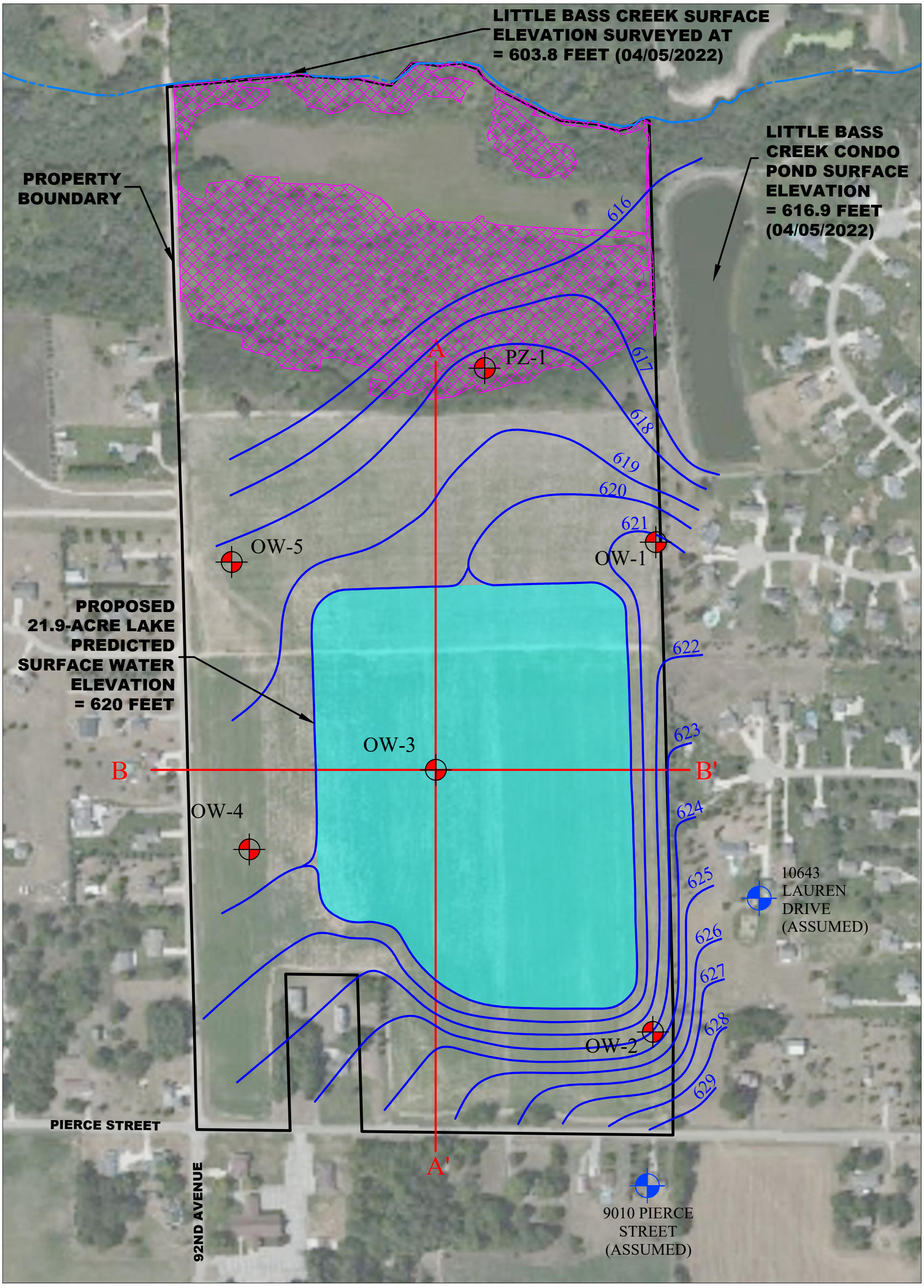
CROSS SECTION B-B'
(WEST TO EAST)

10618 PIERCE STREET
ALLENDALE, MICHIGAN

PROJECT 22-700	MAY 2022	FIGURE 3



NOTE: PARCEL BOUNDARIES OBTAINED FROM OTTAWA COUNTY GIS

0 250' 500'

SCALE: 1" = 250'

LEGEND

- OBSERVATION WELL LOCATION
- WATER WELL LOCATION
- PROPOSED 21.9-ACRE LAKE
- WETLAND (DELINEATED BY BARR ENGINEERING)
- 620 THEORETICAL GROUNDWATER ELEVATION CONTOUR

N

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THEORETICAL GROUNDWATER ELEVATIONS

10618 PIERCE STREET
ALLENDALE, MICHIGAN

PROJECT 22-700	MAY 2022	FIGURE 1

Table 1 - Groundwater Observation Well Data Summary

Rusk Lake Associates, LLC - Allendale, Michigan

Well ID	Depth of Boring (ft BGS)	Screened Interval (ft BGS)	Ground Elevation (ft NAVD88)	Top of Casing (ft NAVD88)	Most Recent Data for Wells			
					SWL	GWE	SWL	GWE
					3/10/2022		4/5/2022	
OW-1	24.0	12.0-22.0	639.79	642.83	21.64	621.19	21.40	621.43
OW-2	24.0	12.5-17.5	639.03	641.73	15.15	626.58	14.61	627.12
OW-3	28.0	15.0-25.0	639.09	643.59	23.61	619.98	23.70	619.89
OW-4	24.0	20.0-25.0	634.30	638.66	19.37	619.29	19.07	619.59
OW-5	20.0	15.5-20.5	632.70	636.50	18.29	618.21	18.05	618.45
PZ-1	5.0	0-5.0	618.95	624.06	5.59	618.47	5.20	618.86

Notes:
ft BGS - Feet Below Ground Surface
SWL - Static Water Level
GWE - Groundwater Elevation (ft NAVD88)

Table 2 - Aquifer Material Characteristics

Rusk Lake Associates, LLC - Allendale, Michigan

Observation Well Soil Borings			
Observation Well	**ASTM Soil Description**	**ASTM Classification**	**Hydraulic Conductivity* (feet/day)**
OW-1	Poorly-Graded Fine to Medium Sand With Clay	**SP-SC**	**48**
OW-2	Poorly-Graded Fine to Medium Sand	**SP**	**80**
OW-3	Poorly-Graded Fine to Medium Sand With Clay	**SP-SC**	**44**
OW-4	Poorly-Graded Fine Sand	**SP**	**71**
OW-5	Poorly-Graded Fine to Medium Sand	**SP**	**76**
		Average	**64**

Notes:

* - Hazen (1911), Masch & Denny (1966), Alyamani & Sen (1993), & EPA Table C

Attachment A: Soil Boring and Well Construction Logs

SOIL BORING / WELL CONSTRUCTION LOG

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DRILLING METHOD:	DIRECT PUSH – GEOPROBE
BORING NO.	OW–1
SAMPLING METHOD:	CONTINUOUS TO 20', THEN CLOSED SAMPLER 20–24'
SHEET	1 OF 1
SURFACE CONDITIONS:	SAND, PLOWED FIELD
DRILLING START TIME	11:10 AM
DRILLING FINISH TIME	11:50 AM
SITE NAME:	RUSK LAKE ASSOCIATES, LLC
LOCATION:	10618 PIERCE STREET ALLENDALE, MICHIGAN
WATER LEVEL DURING DRILLING	15.0'
STATIC GROUNDWATER LEVEL	21.64'
DRILLING START DATE	03/10/2022
DRILLING FINISH DATE	03/10/2022
DRILL RIG:	GP 5400
OPERATOR:	NCK
DRILLING CONTRACTOR:	LEI
GROUND ELEVATION:	639.79
LEI PROJECT #:	22–700
T.O.C. ELEVATION	642.83
SUPERVISED BY:	AEB
GROUNDWATER ELEVATION	621.19

DEPTH IN FEET	SOIL GRAPH	DESCRIPTION OF MATERIAL	WELL CONSTRUCTION
		0–0.5': DARK BROWN SILTY FINE SAND, LOOSE, DRY (TOPSOIL).	3.04' STICK UP W/WELL PLUG AND LOCK
5'		0.5–22.5': TAN FINE TO MEDIUM SAND WITH CLAY, LOOSE, DRY, WET AT 15.0'.	NATURAL COLLAPSE 0' TO 24.0'
10'			
15'			
20'			INSTALLED 1.0" DIAMETER P.V.C. WELL SCREENED INTERVAL 12.0' TO 22.0'
		22.5–24.0': GRAY CLAY, TRACE GRAVEL, SOFT, MOIST.	
		E.O.B. at 24.0' IN GRAY CLAY	

SOIL BORING / WELL CONSTRUCTION LOG

Lakeshore Environmental, Inc.
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DRILLING METHOD:	DIRECT PUSH – GEOPROBE
BORING NO.	OW–2
SAMPLING METHOD:	CONTINUOUS TO 24'
SHEET	1 OF 1
SURFACE CONDITIONS:	SAND, PLOWED FIELD
DRILLING START TIME	2:00 PM
DRILLING FINISH TIME	2:30 PM
SITE NAME:	RUSK LAKE ASSOCIATES, LLC
LOCATION:	10618 PIERCE STREET ALLENDALE, MICHIGAN
WATER LEVEL DURING DRILLING	11.5'
DRILLING START DATE	03/10/2022
DRILLING FINISH DATE	03/10/2022
DRILL RIG:	GP 5400
OPERATOR:	NCK
STATIC GROUNDWATER LEVEL	15.15'
DRILLING CONTRACTOR:	LEI
GROUND ELEVATION:	639.09
LEI PROJECT #:	22–700
T.O.C. ELEVATION	641.73
SUPERVISED BY:	AEB
GROUNDWATER ELEVATION	626.58

DEPTH IN FEET	SOIL GRAPH	DESCRIPTION OF MATERIAL	WELL CONSTRUCTION
		0–0.5': DARK BROWN SILTY FINE SAND, LOOSE, DRY (TOPSOIL).	2.70' STICK UP W/WELL PLUG AND LOCK
		0.5–23.0': TAN FINE TO MEDIUM SAND, LOOSE, DRY, WET AT 11.5'.	NATURAL COLLAPSE 0' TO 24.0'
5'			
10'			
15'			INSTALLED 1.0" DIAMETER P.V.C. WELL SCREENED INTERVAL 12.5' TO 17.5'
20'			
		23.0–24.0': GRAY CLAY, SOFT, MOIST.	
		E.O.B. at 24.0' IN GRAY CLAY	

SOIL BORING / WELL CONSTRUCTION LOG

Lakeshore Environmental, Inc.
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DRILLING METHOD:	DIRECT PUSH – GEOPROBE
SAMPLING METHOD:	CONTINUOUS TO 24', THEN CLOSED SAMPLER 24–28'
SURFACE CONDITIONS:	SAND, PLOWED FIELD
WATER LEVEL DURING DRILLING	21.0'
STATIC GROUNDWATER LEVEL	23.61'
BORING NO.	OW–3
SHEET	1 OF 1
DRILLING	
START TIME	9:50 AM
FINISH TIME	10:50 AM
START DATE	03/10/2022
FINISH DATE	03/10/2022

SITE NAME: RUSK LAKE ASSOCIATES, LLC
LOCATION: 10618 PIERCE STREET ALLENDALE, MICHIGAN

DRILL RIG: GP 5400 | OPERATOR: NCK

DRILLING CONTRACTOR:	LEI	GROUND ELEVATION:	639.09
LEI PROJECT #:	22–700	T.O.C. ELEVATION	643.59
SUPERVISED BY:	AEB	GROUNDWATER ELEVATION	619.98

DEPTH IN FEET	SOIL GRAPH	DESCRIPTION OF MATERIAL	WELL CONSTRUCTION
		0–0.5': DARK BROWN SILTY FINE SAND, LOOSE, DRY (TOPSOIL).	4.50' STICK UP W/WELL PLUG AND LOCK
5'		0.5–26.75': LIGHT BROWN FINE TO MEDIUM SAND WITH CLAY, TRACE GRAVEL, LOOSE, DRY, WET @ 21.0'.	
10'			NATURAL COLLAPSE 0' TO 28.0'
15'			
20'			INSTALLED 1.0" DIAMETER P.V.C. WELL SCREENED INTERVAL 15.0' TO 25.0'
25'			
		26.75–28.0': GRAY CLAY, TRACE GRAVEL, SOFT, MOIST.	
		E.O.B. at 28.0' IN CLAY	

SOIL BORING / WELL CONSTRUCTION LOG

Lakeshore Environmental, Inc.
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DRILLING METHOD: DIRECT PUSH – GEOPROBE	BORING NO. OW–4	
SAMPLING METHOD: CONTINUOUS TO 24'	SHEET 1 OF 1	
	DRILLING	
SURFACE CONDITIONS: SAND, PLOWED FIELD	START	FINISH
	TIME 1:10 PM	TIME 1:25 PM
WATER LEVEL DURING DRILLING 9.0'		
STATIC GROUNDWATER LEVEL 19.37'	DATE 03/10/2022	DATE 03/10/2022

SITE NAME: RUSK LAKE ASSOCIATES, LLC
LOCATION: 10618 PIERCE STREET ALLENDALE, MICHIGAN

DRILL RIG: GP 5400 | OPERATOR: NCK

DRILLING CONTRACTOR:	LEI	GROUND ELEVATION:	634.30
LEI PROJECT #:	22–700	T.O.C. ELEVATION	638.66
SUPERVISED BY:	AEB	GROUNDWATER ELEVATION	619.29

DEPTH IN FEET	SOIL GRAPH	DESCRIPTION OF MATERIAL	WELL CONSTRUCTION
		0–0.5': DARK BROWN SILTY FINE SAND, LOOSE, DRY (TOPSOIL).	4.36' STICK UP W/WELL PLUG AND LOCK
		0.5–24.0': TAN FINE SAND, LOOSE, DRY, WET @ 9.0'.	
5'			
10'			NATURAL COLLAPSE 0' TO 24.0'
15'			
20'			INSTALLED 1.0" DIAMETER P.V.C. WELL SCREENED INTERVAL 20.0' TO 25.0'
25'		E.O.B. at 24.0' IN FINE SAND	

SOIL BORING / WELL CONSTRUCTION LOG

Lakeshore Environmental, Inc.
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DRILLING METHOD:	DIRECT PUSH – GEOPROBE
BORING NO.	OW–5
SAMPLING METHOD:	CONTINUOUS TO 16', THEN CLOSED SAMPLER 16–20'
SHEET	1 OF 1
SURFACE CONDITIONS:	SAND, PLOWED FIELD
DRILLING START TIME	12:30 PM
DRILLING FINISH TIME	12:50 PM
SITE NAME:	RUSK LAKE ASSOCIATES, LLC
LOCATION:	10618 PIERCE STREET ALLENDALE, MICHIGAN
WATER LEVEL DURING DRILLING	15.0'
DRILLING START DATE	03/10/2022
DRILLING FINISH DATE	03/10/2022
DRILL RIG:	GP 5400
OPERATOR:	NCK
STATIC GROUNDWATER LEVEL	18.29'
DRILLING CONTRACTOR:	LEI
GROUND ELEVATION:	632.70
LEI PROJECT #:	22–700
T.O.C. ELEVATION	636.50
SUPERVISED BY:	AEB
GROUNDWATER ELEVATION	618.21

DEPTH IN FEET	SOIL GRAPH	DESCRIPTION OF MATERIAL	WELL CONSTRUCTION
		0–0.5': DARK BROWN SILTY FINE SAND, LOOSE, DRY (TOPSOIL).	3.80' STICK UP W/WELL PLUG AND LOCK
		0.5–20.0': TAN FINE TO MEDIUM SAND, TRACE GRAVEL, LOOSE, DRY, WET @ 15.0'.	
5'			
10'			NATURAL COLLAPSE 0' TO 20.0'
15			
20'			INSTALLED 1.0" DIAMETER P.V.C. WELL SCREENED INTERVAL 15.5' TO 20.5'
		E.O.B. at 24.0' IN FINE TO MEDIUM SAND	

SOIL BORING / WELL CONSTRUCTION LOG

Lakeshore Environmental, Inc.
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DRILLING METHOD: HAND AUGER	BORING NO. PZ–1	
SAMPLING METHOD: CONTINUOUS	SHEET 1 OF 1	
SURFACE CONDITIONS: VEGETATED MUCK	DRILLING	
	START	FINISH
	TIME 3:15 PM	TIME 3:25 PM
WATER LEVEL DURING DRILLING 1.0'		
STATIC GROUNDWATER LEVEL 5.59'	DATE 03/10/2022	DATE 03/10/2022

SITE NAME: RUSK LAKE ASSOCIATES, LLC
LOCATION: 10618 PIERCE STREET ALLENDALE, MICHIGAN

DRILL RIG: – OPERATOR: NCK

DRILLING CONTRACTOR:	LEI	GROUND ELEVATION:	618.95
LEI PROJECT #:	22–700	T.O.C. ELEVATION	624.06
SUPERVISED BY:	–	GROUNDWATER ELEVATION	618.47

DEPTH IN FEET	SOIL GRAPH	DESCRIPTION OF MATERIAL	WELL CONSTRUCTION
		0.0–1.5': DARK BROWN SILTY SAND WITH ORGANIC DETRITUS (MUCK), ROOTS, LOOSE, MOIST, WET AT 1.0'.	5.11' STICK UP W/WELL PLUG AND LOCK
		1.5–5.0': TAN FINE TO MEDIUM SAND WITH GRAVEL, LOOSE, WET.	NATURAL COLLAPSE 0' TO 5.0'
			INSTALLED 1.0" DIAMETER P.V.C. WELL SCREENED INTERVAL 0' TO 5.0'
5'		E.O.B. at 5.0' IN FINE TO MEDIUM SAND	

Attachment B: Sieve Analyses and Hydraulic Conductivity Calculations

PARTICLE SIZE ANALYSIS*

Client : Rusk Lake Associates LLC
10618 Pierce Street
Allendale, MI

Project Number : 22-700
Project Name : Rusk Lake

Sample ID : **OW-1**
Sample Depth (ft) : **20.0-22.5'**
Visual Description : Tan fine to medium sand with clay, trace gravel, loose, wet.

Sample Date : 3/10/2022
Test Date : 3/23/2022
Analyzed By : TLW

Weight of soil sample :	**233.6**	Grams	**In-place Moisture :**	*Saturated*
Weight of dried sample :	**209.8**	Grams	**Moisture Content, ω :**	11.3%
Weight of dried sample after #200 wash:	**194.3**	Grams		
Percent loss by wash (ASTM) :	**7.4**	%		

Sieve #	Size (mm)	Weight Retained	Percent Retained	Cum. % Retained	Cum. % Passing	Comments
4	4.75	22.2	10.6	10.6	89.4	Fine gravel retained on #4 sieve
10	2.0	13.8	6.6	17.2	82.8	Coarse sand retained on #10
40	0.425	95.3	45.6	62.9	37.1	Medium sand retained on #40
100	0.15	58.1	27.8	90.7	9.3	Fine sand retained on #100
200	0.075	3.7	1.8	92.4	7.6	Fine sand retained on #200
Pan	-	0.3	0.1			Fines passing #200 (*silt &/or clay*)
Loss by Wash		15.5	7.4			

Recovered weight = 208.9 grams
± 0.9 grams (*Allowed Variance from Initial*)
± 0.4 %

Breakdown by percent weight : Gravel : **10.6%** Sand : **81.8%** Fines : **7.6%**

D_{60}	D_{30}	D_{10}
0.90	**0.34**	**0.16**

Cu = D_{60} / D_{10} = **5.63**

Cc = $(D_{30})^2 / (D_{10} \times D_{60})$ = **0.80**

Soil classifies as fine-grained soil if greater than 50 percent passes the #200 sieve.
Soil classifies as well-graded if Cu > 6 and 3 > Cc > 1.
Soil classifies as a poorly-graded sand (SP) if above criteria is not met.

The soil classifies as : **SP-SC (Poorly-Graded Fine to Medium Sand With Clay)**

* Method: ASTM D422-63 "Particle-size Analysis of Soils"
* Method: ASTM D2216-92 "Laboratory Determination of Water content of Soil and Rock"
* Method: ASTM D2487-93 "Classification of Soils for Engineering Purposes"
* Method: ASTM D2488-93 "Description and Identification of Soils (Visual-Manual Procedure)"

HYDRAULIC CONDUCTIVITY ANALYSIS

Based on Grain Size Analysis, the average hydraulic conductivity for the soil is: **48** **feet/day**

PARTICLE SIZE ANALYSIS*

Client : Rusk Lake Associates LLC
10618 Pierce Street
Allendale, MI

Project Number : 22-700
Project Name : Rusk Lake

Sample ID : **OW-2**
Sample Depth (ft) : **22.75-23.0'**
Visual Description : Tan fine to medium sand, loose, wet.

Sample Date : 3/10/2022
Test Date : 3/23/2022
Analyzed By : TLW

Weight of soil sample :	**176.3**	Grams	**In-place Moisture :**	*Saturated*
Weight of dried sample :	**165.4**	Grams	**Moisture Content, ω :**	6.6%
Weight of dried sample after #200 wash:	**161.4**	Grams		
Percent loss by wash (ASTM) :	**2.4**	%		

Sieve #	Size (mm)	Weight Retained	Percent Retained	Cum. % Retained	Cum. % Passing	Comments
4	4.75	0.0	0.0	0.0	100.0	Fine gravel retained on #4 sieve
10	2.0	1.2	0.7	0.7	99.3	Coarse sand retained on #10
40	0.425	33.7	20.4	21.1	78.9	Medium sand retained on #40
100	0.15	122.5	74.2	95.3	4.7	Fine sand retained on #100
200	0.075	3.0	1.8	97.2	2.8	Fine sand retained on #200
Pan	-	0.7	0.4			Fines passing #200 (*silt &/or clay*)
Loss by Wash		4.0	2.4			

Recovered weight = 165.1 grams
± 0.3 grams (*Allowed Variance from Initial*)
± 0.2 %

Breakdown by percent weight : Gravel : **0.0%** Sand : **97.2%** Fines : **2.8%**

D_{60}	D_{30}	D_{10}
0.30	**0.21**	**0.17**

Cu = D_{60} / D_{10} = **1.76**

Cc = $(D_{30})^2 / (D_{10} \times D_{60})$ = **0.86**

Soil classifies as fine-grained soil if greater than 50 percent passes the #200 sieve.
Soil classifies as well-graded if Cu > 6 and 3 > Cc > 1.
Soil classifies as a poorly-graded sand (SP) if above criteria is not met.

The soil classifies as : **SP** **(Poorly-Graded Fine to Medium Sand)**

* Method: ASTM D422-63 "Particle-size Analysis of Soils"
* Method: ASTM D2216-92 "Laboratory Determination of Water content of Soil and Rock"
* Method: ASTM D2487-93 "Classification of Soils for Engineering Purposes"
* Method: ASTM D2488-93 "Description and Identification of Soils (Visual-Manual Procedure)"

HYDRAULIC CONDUCTIVITY ANALYSIS

Based on Grain Size Analysis, the average hydraulic conductivity for the soil is: **80** **feet/day**

PARTICLE SIZE ANALYSIS*

Client : Rusk Lake Associates LLC
10618 Pierce Street
Allendale, MI

Project Number : 22-700
Project Name : Rusk Lake

Sample ID : **OW-3**
Sample Depth (ft) : **24.5-25.0'**
Visual Description : Light brown fine to medium sand with clay, trace gravel, loose, wet.

Sample Date : 3/10/2022
Test Date : 3/23/2022
Analyzed By : TLW

Weight of soil sample :	**226.0**	Grams	**In-place Moisture :**	*Saturated*
Weight of dried sample :	**202.5**	Grams	**Moisture Content, ω :**	11.6%
Weight of dried sample after #200 wash:	**180.3**	Grams		
Percent loss by wash (ASTM) :	**11.0**	%		

Sieve #	Size (mm)	Weight Retained	Percent Retained	Cum. % Retained	Cum. % Passing	Comments
4	4.75	8.2	4.1	4.1	95.9	Fine gravel retained on #4 sieve
10	2.0	20.1	9.9	14.0	86.0	Coarse sand retained on #10
40	0.425	63.8	31.6	45.5	54.5	Medium sand retained on #40
100	0.15	79.6	39.4	84.9	15.1	Fine sand retained on #100
200	0.075	7.8	3.9	88.8	11.2	Fine sand retained on #200
Pan	-	0.5	0.2			Fines passing #200 (*silt &/or clay*)
Loss by Wash		22.2	11.0			

Recovered weight = 202.2 grams
± 0.3 grams (*Allowed Variance from Initial*)
± 0.1 %

Breakdown by percent weight : Gravel : **4.1%** Sand : **84.7%** Fines : **11.2%**

D_{60}	D_{30}	D_{10}
0.54	**0.22**	**0.01**

Cu = D_{60} / D_{10} = **54.00**

Cc = $(D_{30})^2 / (D_{10} \times D_{60})$ = **8.96**

Soil classifies as fine-grained soil if greater than 50 percent passes the #200 sieve.
Soil classifies as well-graded if Cu > 6 and 3 > Cc > 1.
Soil classifies as a poorly-graded sand (SP) if above criteria is not met.

The soil classifies as : **SP-SC (Poorly-Graded Fine to Medium Sand With Clay)**

* Method: ASTM D422-63 "Particle-size Analysis of Soils"
* Method: ASTM D2216-92 "Laboratory Determination of Water content of Soil and Rock"
* Method: ASTM D2487-93 "Classification of Soils for Engineering Purposes"
* Method: ASTM D2488-93 "Description and Identification of Soils (Visual-Manual Procedure)"

HYDRAULIC CONDUCTIVITY ANALYSIS

Based on Grain Size Analysis, the average hydraulic conductivity for the soil is: **44** **feet/day**

PARTICLE SIZE ANALYSIS*

Client : Rusk Lake Associates LLC
10618 Pierce Street
Allendale, MI

Project Number : 22-700
Project Name : Rusk Lake

Sample ID : **OW-4**
Sample Depth (ft) : **23.75-24'**
Visual Description : Tan fine sand, loose, wet.

Sample Date : 3/10/2022
Test Date : 3/23/2022
Analyzed By : TLW

Weight of soil sample :	**141.6**	Grams	**In-place Moisture :**	*Saturated*
Weight of dried sample :	**132.3**	Grams	**Moisture Content, ω :**	7.0%
Weight of dried sample after #200 wash:	**128.9**	Grams		
Percent loss by wash (ASTM) :	**2.6**	%		

Sieve #	Size (mm)	Weight Retained	Percent Retained	Cum. % Retained	Cum. % Passing	Comments
4	4.75	0.0	0.0	0.0	100.0	Fine gravel retained on #4 sieve
10	2.0	0.0	0.0	0.0	100.0	Coarse sand retained on #10
40	0.425	14.1	10.7	10.7	89.3	Medium sand retained on #40
100	0.15	106.3	80.7	91.4	8.6	Fine sand retained on #100
200	0.075	8.0	6.1	97.4	2.6	Fine sand retained on #200
Pan	-	0.0	0.0			Fines passing #200 (*silt &/or clay*)
Loss by Wash		3.4	2.6			

Recovered weight = 131.8 grams
± 0.5 grams (*Allowed Variance from Initial*)
± 0.4 %

Breakdown by percent weight : Gravel : **0.0%** Sand : **97.4%** Fines : **2.6%**

D_{60}	D_{30}	D_{10}
0.27	**0.20**	**0.15**

Cu = D_{60} / D_{10} = **1.80**

Cc = $(D_{30})^2 / (D_{10} \times D_{60})$ = **0.99**

Soil classifies as fine-grained soil if greater than 50 percent passes the #200 sieve.
Soil classifies as well-graded if Cu > 6 and 3 > Cc > 1.
Soil classifies as a poorly-graded sand (SP) if above criteria is not met.

The soil classifies as : **SP** **(Poorly-Graded Fine Sand)**

* Method: ASTM D422-63 "Particle-size Analysis of Soils"
* Method: ASTM D2216-92 "Laboratory Determination of Water content of Soil and Rock"
* Method: ASTM D2487-93 "Classification of Soils for Engineering Purposes"
* Method: ASTM D2488-93 "Description and Identification of Soils (Visual-Manual Procedure)"

HYDRAULIC CONDUCTIVITY ANALYSIS

Based on Grain Size Analysis, the average hydraulic conductivity for the soil is: **71** **feet/day**

PARTICLE SIZE ANALYSIS*

Client : Rusk Lake Associates LLC
10618 Pierce Street
Allendale, MI

Project Number : 22-700
Project Name : Rusk Lake

Sample ID : **OW-5**
Sample Depth (ft) : **16.5-17.5'**
Visual Description : Tan fine to medium sand, trace gravel, loose, wet.

Sample Date : 3/10/2022
Test Date : 3/23/2022
Analyzed By : TLW

Weight of soil sample :	**237.7**	Grams	**In-place Moisture :**	*Saturated*
Weight of dried sample :	**206.6**	Grams	**Moisture Content, ω :**	15.1%
Weight of dried sample after #200 wash:	**201.7**	Grams		
Percent loss by wash (ASTM) :	**2.4**	%		

Sieve #	Size (mm)	Weight Retained	Percent Retained	Cum. % Retained	Cum. % Passing	Comments
4	4.75	13.1	6.4	6.4	93.6	Fine gravel retained on #4 sieve
10	2.0	9.2	4.5	10.8	89.2	Coarse sand retained on #10
40	0.425	46.6	22.7	33.5	66.5	Medium sand retained on #40
100	0.15	130.0	63.2	96.7	3.3	Fine sand retained on #100
200	0.075	1.6	0.8	97.5	2.5	Fine sand retained on #200
Pan	-	0.2	0.1			Fines passing #200 (*silt &/or clay*)
Loss by Wash		4.9	2.4			

Recovered weight = 205.6 grams
± 1.0 grams (*Allowed Variance from Initial*)
± 0.5 %

Breakdown by percent weight : Gravel : **6.4%** Sand : **91.1%** Fines : **2.5%**

D_{60}	D_{30}	D_{10}
0.37	**0.23**	**0.17**

Cu = D_{60} / D_{10} = **2.18**

Cc = $(D_{30})^2 / (D_{10} \times D_{60})$ = **0.84**

Soil classifies as fine-grained soil if greater than 50 percent passes the #200 sieve.
Soil classifies as well-graded if Cu > 6 and 3 > Cc > 1.
Soil classifies as a poorly-graded sand (SP) if above criteria is not met.

The soil classifies as : **SP** **(Poorly-Graded Fine to Medium Sand)**

* Method: ASTM D422-63 "Particle-size Analysis of Soils"
* Method: ASTM D2216-92 "Laboratory Determination of Water content of Soil and Rock"
* Method: ASTM D2487-93 "Classification of Soils for Engineering Purposes"
* Method: ASTM D2488-93 "Description and Identification of Soils (Visual-Manual Procedure)"

HYDRAULIC CONDUCTIVITY ANALYSIS

Based on Grain Size Analysis, the average hydraulic conductivity for the soil is: **76** **feet/day**

PARTICLE SIZE ANALYSIS*

Client : Rusk Lake Associates LLC
10618 Pierce Street
Allendale, MI

Project Number : 22-700
Project Name : Rusk Lake

Sample ID : **PZ-1**
Sample Depth (ft) : **1.5-2.0'**
Visual Description : Tan fine to medium sand with gravel, loose, wet.

Sample Date : 3/10/2022
Test Date : 3/23/2022
Analyzed By : TLW

Weight of soil sample :	**307.3**	Grams	**In-place Moisture :**	*', Moist, Satura*
Weight of dried sample :	**250.1**	Grams	**Moisture Content, ω :**	Saturated
Weight of dried sample after #200 wash:	**244.1**	Grams		
Percent loss by wash (ASTM) :	**2.4**	%		

Sieve #	Size (mm)	Weight Retained	Percent Retained	Cum. % Retained	Cum. % Passing	Comments
4	4.75	47.7	19.1	19.1	80.9	Fine gravel retained on #4 sieve
10	2.0	11.8	4.7	23.8	76.2	Coarse sand retained on #10
40	0.425	84.3	33.8	57.6	42.4	Medium sand retained on #40
100	0.15	94.6	37.9	95.5	4.5	Fine sand retained on #100
200	0.075	4.8	1.9	97.4	2.6	Fine sand retained on #200
Pan	-	0.5	0.2			Fines passing #200 (*silt &/or clay*)
Loss by Wash		6.0	2.4			

Recovered weight = 249.7 grams
± 0.4 grams (*Allowed Variance from Initial*)
± 0.2 %

Breakdown by percent weight : Gravel : **19.1%** Sand : **78.3%** Fines : **2.6%**

D_{60}	D_{30}	D_{10}
0.85	**0.30**	**0.18**

Cu = D_{60} / D_{10} = **4.72**

Cc = $(D_{30})^2 / (D_{10} \times D_{60})$ = **0.59**

Soil classifies as fine-grained soil if greater than 50 percent passes the #200 sieve.
Soil classifies as well-graded if Cu > 6 and 3 > Cc > 1.
Soil classifies as a poorly-graded sand (SP) if above criteria is not met.

The soil classifies as : **SP** **(Poorly-Graded Fine to Medium Sand With Gravel)**

* Method: ASTM D422-63 "Particle-size Analysis of Soils"
* Method: ASTM D2216-92 "Laboratory Determination of Water content of Soil and Rock"
* Method: ASTM D2487-93 "Classification of Soils for Engineering Purposes"
* Method: ASTM D2488-93 "Description and Identification of Soils (Visual-Manual Procedure)"

HYDRAULIC CONDUCTIVITY ANALYSIS

Based on Grain Size Analysis, the average hydraulic conductivity for the soil is: **104** **feet/day**

Attachment C: Short-Term Drawdown Calculations

Volume of Water Flowing from Aquifer into Proposed Mine Excavation

22-700 Rusk Lake Associates, LLC - Allendale, Michigan

Volume of Ore to be Removed :	286,900	yd^3
Percent Water :	41	% *(per Todd, Groundwater Hydrology, 2nd Ed., pg. 28)*
Percent Ore :	59	%
Volume currently ore, which will be occupied by water after proposed lake construction :	169,271	yd^3 of water
=	34,185,971	gallons of water

Proposed Excavation Time :	5	years
Volume of water removed :	6,837,194	gallons of water per year

Mining activity <u>each year</u> will roughly occur March 15th to November 15th

Assuming 30 days per month, mining activity = 240 days/year

Therefore 6,837,194 gal divided by 240 days/year

= 28,488 gallons of water removed per day each year

(flow into lake to fill the void created by excavation)

28,488 gallons per day x 1 day / 1,440 minutes = 20 gallons per minute

20 gpm for 240 days each year for

5 years will be typical scenario from mine excavation

Lakeshore Environmental, Inc.

Scientists | Engineers | Planners

Theoretical Lake Excavation Drawdown Calculation

CLIENT:	Rusk Lake Associates, LLC	DATE:	4/13/2022
PROJECT:	Rusk Lake	PROJECT NO.:	22-700
LOCATION:	SEC 30 T7N R14W ALLENDALE, OTTAWA COUNTY, MI	WELL:	SITE EXCAVATION

Assumptions: 1 pumping well located at the center of the 21.9-acre lake
1D steady-state flow with no lateral boundaries or vertical leakage

Theis Equation

$$s' = \frac{114.6\ Q\ W}{T}$$

$$W = -0.58 - \ln(u) + u - \frac{u^2}{4} + \frac{u^3}{18} - \frac{u^4}{96} + \frac{u^5}{600}$$

$$u = \frac{1.87\ r^2\ S}{T\ t}$$

Theis Correction for Unconfined Aquifer

$$s = b\left(1 - \sqrt{1 - \left(\frac{2\ s'}{b}\right)}\right)$$

where: s' = confined drawdown (ft)
Q = pump rate (gpm)
T = transmissibility (gpd/ft)
W = well function of u (exponential integral)
t = time pumped (days)
S = storage coefficient (unitless)
r = radius from the center of the well (ft)
s = corrected drawdown for unconfined aquifer (ft)

INPUT

Q = 20 gpm, based on water fill rate of: 239 yd^3/day (*5 year mine)*
T = 3,830 gpd/ft, based on: hydraulic conductivity (K) = 64 ft/day
aquifer thickness (b) = 8 ft
S = 0.25 (per *Todd, Groundwater Hydrology, 2nd Ed., pg. 38*)

Observation Point	t (days)	RADIUS r (ft) *(from Lake Center)*	*u*	*W*	THEIS DRAWDOWN (ft)	UNCONFINED DRAWDOWN (ft)
10643 Lauren Drive	240	835	*0.4*	*0.8*	0.5	**0.48**
Little Bass Creek Condo Pond	240	1,080	*0.6*	*0.5*	0.3	**0.28**
Wetland (Nearest Point to North Wetland)	240	1,090	*0.6*	*0.5*	0.3	**0.27**
9010 Pierce Street	240	1,210	*0.7*	*0.3*	0.2	**0.21**

Note : All other wells either beyond a quarter mile or installed in a bedrock or deep, confined aquifer.

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Attachment D: Long-Term Drawdown Calculations

Lake Evaporation Loss

22-700 Rusk Lake Associates, LLC - Allenadale, Michigan

Using the DEQ Land and Water Management Division Guidance Document for Water Budgets:

Proposed Lake Area = **21.9** Acres

= 137,370,816 in^2

Precipitation data for Grand Rapids Gerald R. Ford International Airport
Averaged over a 30 year period:

Month	Liquid Equivalent (in)	Temperature (°F)
January	2.09	24.40
February	1.79	26.80
March	2.37	35.60
April	3.35	48.00
May	3.98	58.70
June	3.77	68.40
July	3.78	72.50
August	3.59	70.80
September	4.28	62.80
October	3.26	51.00
November	3.51	40.10
December	2.50	29.20
Sum =	38.3	in/yr

365.00 days at 38.3 in/yr = **0.10485 in/day**

Evaporation Data from NOAA Technical Report NWS 33 Map 3 of 4: Annual FWS Evaporatior

At the site, Open Surface Water Evaporation approximately 32.50 in/yr

365.0 days at 32.50 in/yr = **0.08904 in/day**

Evapotranspiration data using the EVAP model from :

Sellinger, C.E., Computer program for Estimating Evapotranspiration Using the Thornwaite Method, NOAA Technical Memorandum ERL GLERL-101, U.S. Dept. of Commerce, Washington, D.C., 9 pp. (1996).

*Assumed 30 days to a month and 12 hour average day length of each month

Input: Precipitation (mm) and Temperature (°C) data from above
Specified Northern Hemisphere, Latitude 42.8847
Soil Moisture Holding Capacity of the soil taken from the NOAA Technical Memorandum to be
75 mm for fine sand in moderately deep-rooted crops (corn, cotton, tobacco, cereal grains)

Output: PET = Potential Evapotranspiration (mm)
Actual ET = Actual Evapotranspiration (mm)

30 Year Average Site Conditions					
Year	Month	Precipitation (mm)	Temperature (°C)	PET	Actual ET
1981-2010	1	53.09	0.00	0.00	0.00
1981-2010	2	45.47	0.00	0.00	0.00
1981-2010	3	60.20	2.00	6.18	6.18
1981-2010	4	85.09	8.89	40.32	40.32
1981-2010	5	101.09	14.83	86.94	86.94
1981-2010	6	95.76	20.22	121.92	95.76
1981-2010	7	96.01	22.50	142.08	115.28
1981-2010	8	91.19	21.56	124.95	120.45
1981-2010	9	108.71	17.11	84.24	84.24
1981-2010	10	82.80	10.56	42.75	42.75
1981-2010	11	89.15	4.50	14.76	14.76
1981-2010	12	63.50	0.00	0.00	0.00
				Sum =	606.68 mm

606.68 mm = 23.89 in / 365 days = **0.06544 in/day**

Present amount of precipitation that results in aquifer storage

Storage = P-ET = (Precipitation - Evapotranspiration) * Lake Area

(0.10485 in/day - 0.06544 in/day) * 137,370,816 in^2

= 5,413,905 in^3/day = **16.3 gpm**

Aquifer storage after lake construction and increased evaporation

Storage = P-E = (Precipitation - Evaporation) * Lake Area

(0.10485 in/day - 0.08904 in/day) * 137,370,816 in^2

= 2,171,588 in^3/day = **6.5 gpm**

Loss in aquifer storage due to removal of vegetation and creation of lake (net loss):

= 16.3 gpm - 6.5 gpm = **9.7 gpm**

Lakeshore Environmental, Inc.
Scientists | Engineers | Planners

Theoretical Lake Evaporation Drawdown Calculation

CLIENT:	Rusk Lake Associates, LLC	DATE:	4/13/2022
PROJECT:	Rusk Lake	PROJECT NO.:	22-700
LOCATION:	SEC 30 T7N R14W ALLENDALE, OTTAWA COUNTY, MI	WELL:	Site Excavation

Assumptions: 1 pumping well located at center of the completed 21.9-acre lake
1D steady-state flow with no lateral boundaries or vertical leakage

Theis Equation

$$s' = \frac{114.6\ Q\ W}{T}$$

$$W = -0.58 - \ln(u) + u - \frac{u^2}{4} + \frac{u^3}{18} - \frac{u^4}{96} + \frac{u^5}{600}$$

$$u = \frac{1.87\ r^2\ S}{T\ t}$$

Theis Correction for Unconfined Aquifer

$$s = b\left(1 - \sqrt{1 - \left(\frac{2\ s'}{b}\right)}\right)$$

where: s' = confined drawdown (ft)
Q = pump rate (gpm)
T = transmissibility (gpd/ft)
W = well function of u (exponential integral)
t = time pumped (days)
S = storage coefficient (unitless)
r = radius from the center of the well (ft)
s = corrected drawdown for unconfined aquifer (ft)

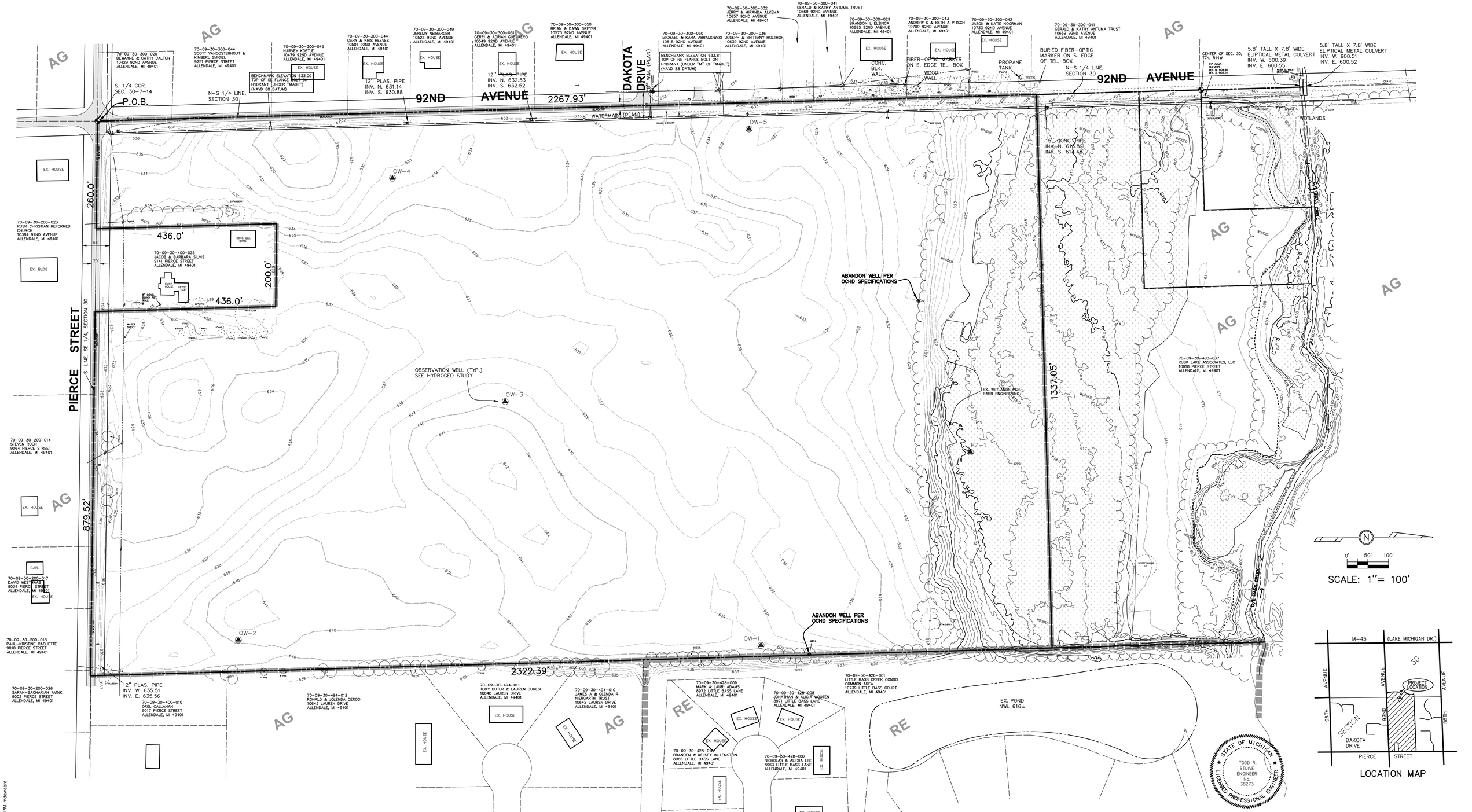
INPUT

Q = 9.7 gpm, based on EVAP storage loss
T = 3,830 gpd/ft, based on: hydraulic conductivity (K) = 64 ft/day
aquifer thickness (b) = 8 ft
S = 0.25 (per *Todd, Groundwater Hydrology, 2nd Ed., pg. 38*)

Observation Point	t (days)	RADIUS r (ft) *(from lake center)*	*u*	*W*	THEIS DRAWDOWN (ft)	UNCONFINED DRAWDOWN (ft)
10643 Lauren Drive	184	835	*0.5*	*0.6*	0.18	**0.18**
Little Bass Creek Condo Pond	184	1,080	*0.8*	*0.3*	0.10	**0.10**
Wetland (Nearest Point to North Wetland)	184	1,090	*0.8*	*0.3*	0.09	**0.09**
9010 Pierce Street	184	1,210	*1.0*	*0.2*	0.07	**0.07**

Note : All other wells either beyond a quarter mile or installed in a bedrock or deep, confined aquifer.

Lakeshore Environmental, Inc.
Scientists | Engineers | Planners



Legal Description:
Part of the SE 1/4 of Section 30, T7N, R14W, Allendale Township, Ottawa County, Michigan, described as: BEGINNING at the South 1/4 corner of said Section; thence N89°39'50"E 260.00 feet along the South line of said SE 1/4; thence N02°39'57"W 436.00 feet, parallel with the West line of said SE 1/4; thence N89°39'50"E 200.00 feet; thence S02°39'57"E 436.00 feet to said South line; thence N89°39'50"E 879.49 feet along said South line to the East line of the West 1/2 of said SE 1/4; thence N02°41'55"W 2322.39 feet along said East line, the West line of Cozy Acres, Ottawa County Condominium Subdivision Plan No. 253 (as recorded in Liber 2682, Pages 158-210) and the West line of Little Bass Creek Estates Condominium, Ottawa County Condominium Subdivision Plan No. 296 (as amended, recorded in Liber 3174, Pages 131-194); thence S87°20'03"W 1337.05 feet to the West line of said SE 1/4; thence S02°39'57"E 2267.93 feet along said West line to the place of beginning. This parcel contains 68.48 acres, 2,983,056 s.ft.

EXISTING CONDITIONS

RE: RUSK LAKE

FOR: RUSK LAKE ASSOCIATES, LLC
ATTN: JOSH THURKETTLE
10560 CREEK FLAT COURT
ZEELAND, MI 49464

PART OF THE 1/4, SECTION 30, T7N, R14W, ALLENDALE TOWNSHIP, OTTAWA COUNTY, MICHIGAN

DATE	REVISION	BY
12/16/22	REV. PER TOWNSHIP	MDW

exxel engineering, inc.
planners · engineers · surveyors
5252 Clyde Park, S.W. • Grand Rapids, MI 49509
Phone: (616) 531-3660 www.exxelengineering.com

DRAWN BY: MDW, JB
APPROVED BY: TRS
FILE NO.: 192157E
PROJ. ENG.: TRS
PROJ. SURV.: BK
DATE: 09/23/2022

SHEET 1 of 4

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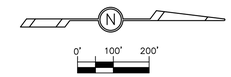

SCALE: 1"= 200'

LOCATION MAP

STATE OF MICHIGAN
TODD R. STUIVE
ENGINEER
No. 38273
LICENSED PROFESSIONAL ENGINEER

AERIAL MAP

RE: RUSK LAKE

FOR: RUSK LAKE ASSOCIATES, LLC
ATTN: JOSH THURKETTLE
10560 CREEK FLAT COURT
ZEELAND, MI 49464

PART OF THE 1/4, SECTION 30, T7N, R14W, ALLENDALE TOWNSHIP, OTTAWA COUNTY, MICHIGAN

DATE	REVISION	BY
12/16/22	REV. PER TOWNSHIP	MDW

exxel engineering, inc.
planners · engineers · surveyors
5252 Clyde Park, S.W. • Grand Rapids, MI 49509
Phone: (616) 531-3660 www.exxelengineering.com

DRAWN BY: MDW, JB	PROJ. ENG.: TRS	SHEET	
APPROVED BY: TRS	PROJ. SURV.: BK	2 of 4	
FILE NO.: 192157E	DATE: 09/23/2022		

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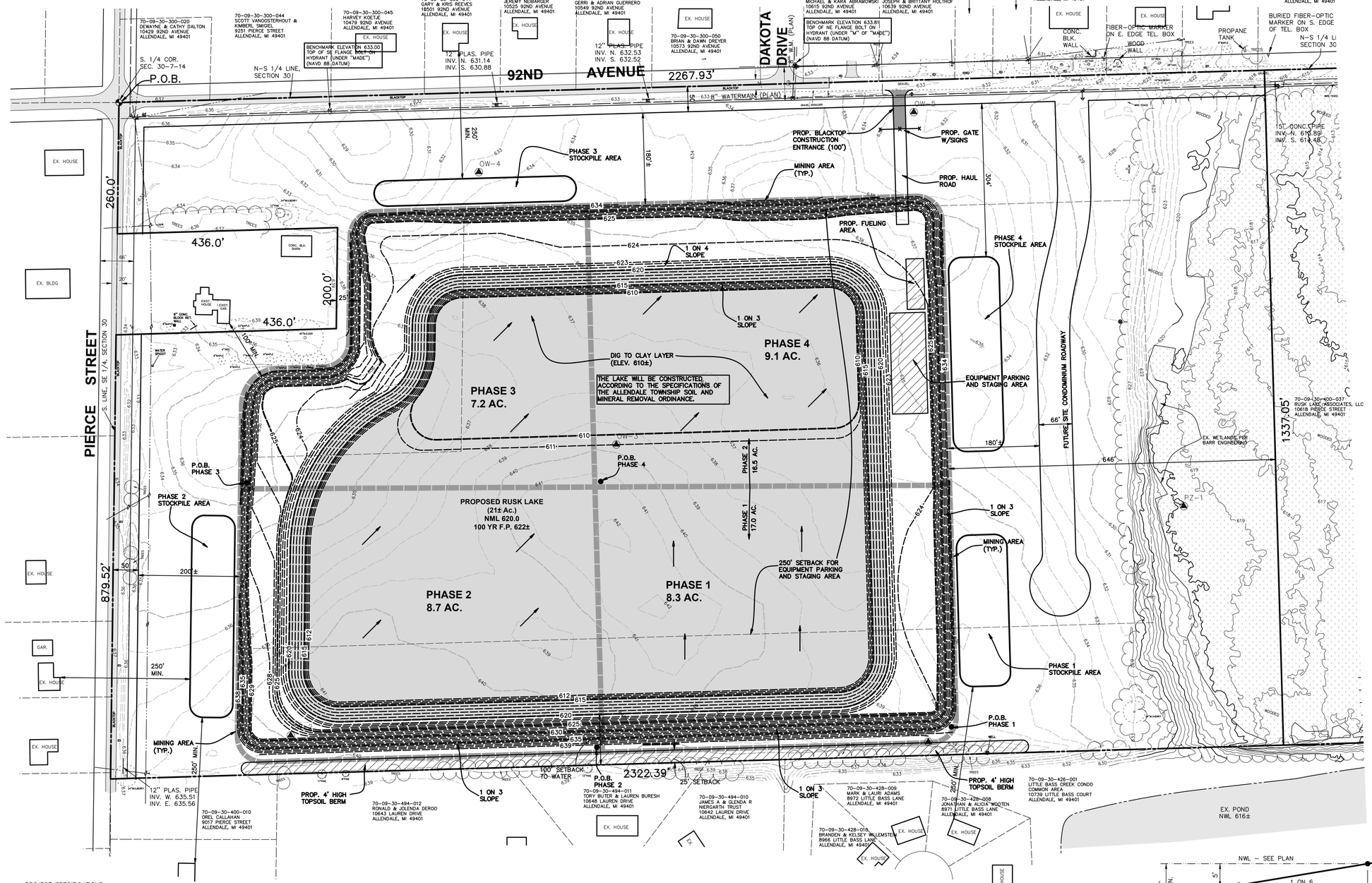

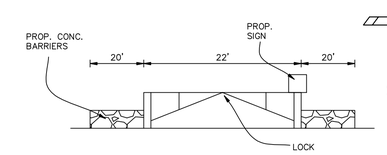

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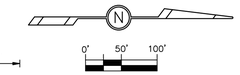
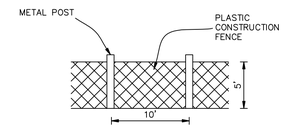


SCALE: 1"= 100'

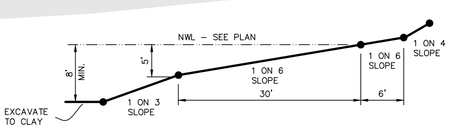


FENCE DETAIL

RUSK LAKE SAND PIT
OPERATED BY: SCHIPPERS EXCAVATING, INC.
(616) 895-4119
HOURS OF OPERATION:
M-F: 7:00AM TO 6:00PM
SAT: 8:00AM TO 1:00PM
CLOSED ON SUNDAYS

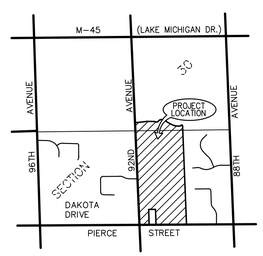
SIGN DETAIL

WAIVER REQUESTS
1. LANDSCAPING SEC.21A.04F. REQUEST WAIVER TO NOT INSTALL FRONT YARD LANDSCAPING.
2. SIDEWALK SEC.24.08.C1. REQUEST WAIVER TO NOT INSTALL SIDEWALK IN 92ND AVENUE & PIERCE STREET UNTIL SUCH TIME THAT SIDEWALKS ARE PROVIDED TO THE SITE FROM ADJACENT PROPERTIES.



LAKE CROSS SECTION

STATE OF MICHIGAN
TODD R. STUIVE
ENGINEER
No. 38273
LICENSED PROFESSIONAL ENGINEER



LOCATION MAP

PROJECT SPECIFICATIONS:

1. A soil removal permit shall be in effect prior to and during any soil removal operations or activities on the site. A copy of the NPDES Permit required from EGLE shall be submitted to the Township. All of the required control measures must be installed prior to commencing any mining operations. As a condition of that permit, the contractor shall provide a certified storm water operator to ensure the soil erosion control measures are continually maintained. The required record keeping shall be available for review.
2. The permittee shall comply with all provisions of the Allendale Charter Township Mineral Mining Ordinance and all other provision of applicable Township ordinances and state and federal statutes.
3. Equipment to be used for mining operation includes front end loaders, bulldozers, farm-type tractors, scrapers, water truck, grader, hydraulic excavator & anticipated trucks to be used for soil removal are single lead truck (23 c.yd. capacity) & double trains (40 c.yd. capacity). No dewatering of lake for mineral mining is proposed. Fueling of any equipment on-site shall be consistent with the requirements of EGLE and shall occur from a single location that shall consist of a bermed and lined area, or other means of secondary containment acceptable to EGLE.
4. Material to be mined includes sand. A sufficient amount of topsoil to respread 4" over the distubed area will be retained on-site in order to provide sufficient topsoil for respread over the entire site above the lake water level for restoration.
5. Based on the proposed grading plan, approximately 1.1 million cubic yards of sand are to be mined from the site. All proposed contours shown shall be the final grades after mining and restoration are complete. During the mining operation material encountered below the proposed contours may be mined except that no mining is permitted deeper than 15' below the final proposed contours. All over-excavated areas to be backfilled with on-site material and compacted up to the proposed contours shown on the plan. Average annual soil removal = 110,000 c.yd. Average 20 truck trips per day (assuming 9 months of operation per year).
6. Topsoil and overburden will be stored adjacent to the phase actively being mined.
7. Hours of operation.
   Soil removal, loading of vehicles used to transport soil are permitted only between the hours of 7:00 a.m. and 6:00 p.m., Monday through Friday and between 8:00 a.m. and 1:00 p.m. on Saturday. No soil removal or loading of vehicles is permitted on Sunday or the following holidays: New Years Day (January 1), Memorial Day (last Monday in May), Independence Day (July 4), Labor Day (first Monday in September), Thanksgiving Day (fourth Thursday in November), and Christmas Day (December 25).
8. The access drive off of 92nd Avenue is paved with HMA and will be kept free of debris. Maintain the pavement in acceptable condition.
9. The site shall be graded in accordance with the NPDES permit. Storm water within the work area will be retained on site to allow for percolation of surface runoff.
10. Permanent side slope areas and finish grades will be stabilized with topsoil and grass seeding (contractor's mix).
11. Final slopes will be no steeper than 1 foot vertical to 3 feet horizontal.
12. The anticipated phasing of the site will be as indicated on the plan. Approx. time: Phase 1/2 (Easterly half of site)– 2023–2027
    Phase 3/4 (Westerly half of site)– 2028–2032 (renewal required)
13. Topsoil & overburden stockpiles shall be limited to 30' maximum height with 1 on 3 slopes.
14. Truck route shall be 92nd Avenue North to Lake Michigan Drive, then to the East or West.
15. An EGLE permit is required for the lake area greater than 5 acres.
16. Signs stating "Mineral Mining, Danger, Keep Out" will be placed at approximately 100' intervals around the parcel perimeter. Entry sign shall include hours of operation, states a prohibition of idling, and provides the phone number of the applicant on the front. The sign shall state the approved truck routes on the back.
17. The site shall be inspected and monitored each work day and water applied as necessary to control dust. The paved access drives and adjacent public roads shall be inspected and monitored throughout the work day and swept as necessary to keep free of debris and tracked sediment. Equipment to apply water to control dust and to keep paved areas free of debris and tracked sediment shall be available at the site.
18. Truck speeds should be kept as low as possible for all on-site access roads. Unpaved access roads shall be maintained to provide a reasonably smooth surface to reduce tire noise and airborne vibration. When possible, construction activity and truck traffic flow should be oriented on the site to minimize equipment backups.
19. Any changes to the lake size, mineral extraction methods, or proposed grading shall be approved by Allendale Township.
20. No material screening, processing or crushing is proposed on site.
21. Fencing will be provided per ordinance requirements phase by phase.
22. Mining within each phase will generally start at the identified place of beginning (P.O.B.) and generally proceed in the direction of the directional arrows.

CONTRACTOR:
SCHIPPERS EXCAVATING
ATTN: JAY SCHIPPERS
9829 LAKE MICHIGAN DRIVE
WEST OLIVE, MI 49460

MINING OPERATION PLAN

RE: RUSK LAKE

FOR: RUSK LAKE ASSOCIATES, LLC
ATTN: JOSH THURKETTLE
10560 CREEK FLAT COURT
ZEELAND, MI 49464

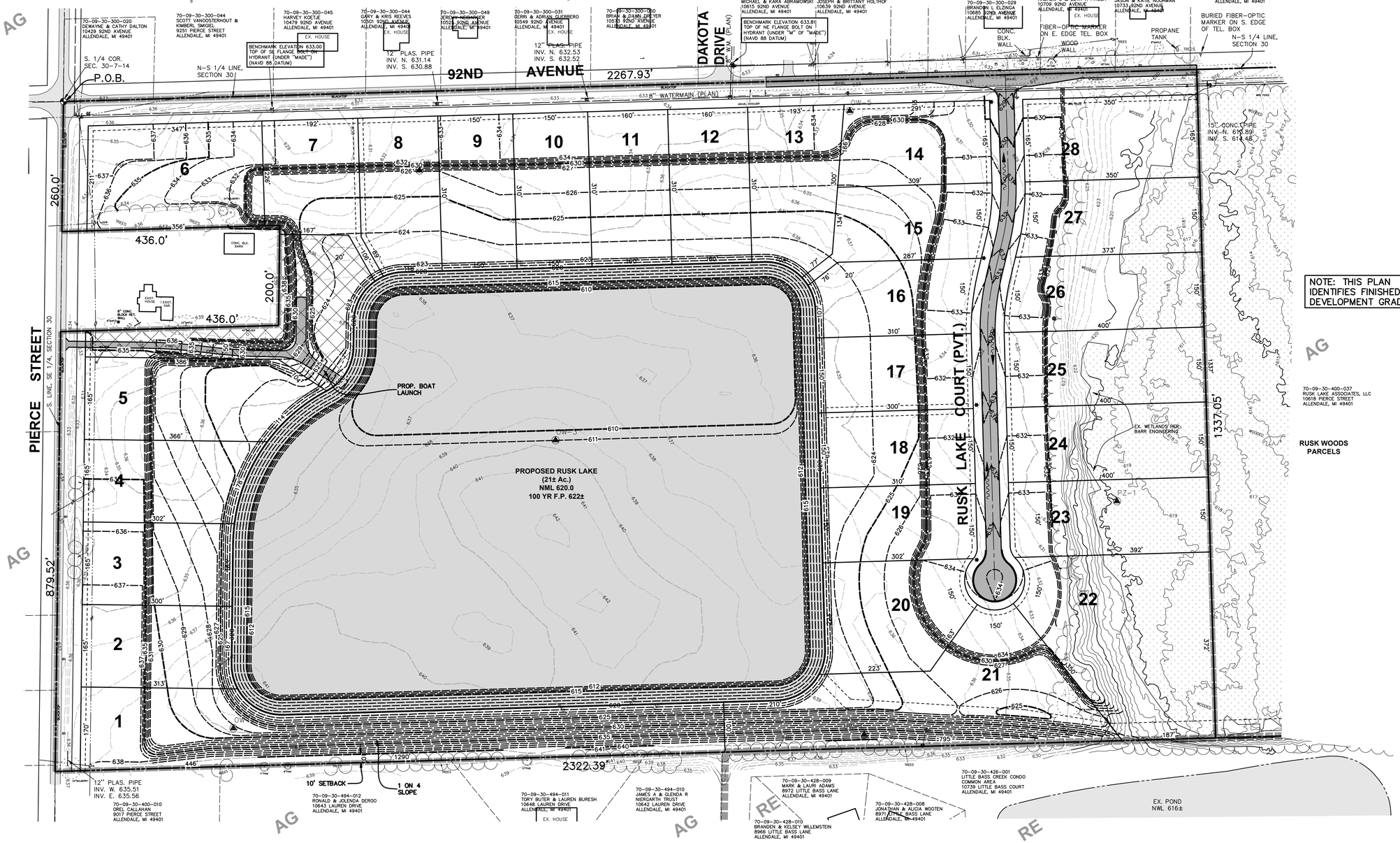
PART OF THE 1/4, SECTION 30, T7N, R14W, ALLENDALE TOWNSHIP, OTTAWA COUNTY, MICHIGAN

DATE	REVISION	BY
12/16/22	REV. PER TOWNSHIP	MDW

exxel engineering, inc.
planners · engineers · surveyors
5252 Clyde Park, S.W. • Grand Rapids, MI 49509
Phone: (616) 531-3660 www.exxelengineering.com

DRAWN BY: MDW, JB
APPROVED BY: TRS
FILE NO.: 192157E
PROJ. ENG.: TRS
PROJ. SURV.: BK
DATE: 09/23/2022

SHEET 3 of 4



NOTE: THIS PLAN IDENTIFIES FINISHED DEVELOPMENT GRADING.

SCALE: 1"= 100'

0' 50' 100'

LOT AREA SUMMARY

Unit Number:	Total Unit Area:	Buildable Envelope Area:
1	149,350 S.F. (3.4 Ac.)	27,245 square feet
2	49,705 S.F. (1.4 Ac.)	30,000 square feet
3	49,530 S.F. (1.1 Ac.)	28,000 square feet
4	53,800 S.F. (1.2 Ac.)	30,000 square feet
5	69,795 S.F. (1.6 Ac.)	44,795 square feet
6	77,042 S.F. (1.7 Ac.)	34,735 square feet
7	46,225 S.F. (1.0 Ac.)	21,760 square feet
8	48,310 S.F. (1.1 Ac.)	28,185 square feet
9	46,500 S.F. (1.0 Ac.)	26,250 square feet
10	46,500 S.F. (1.1 Ac.)	26,250 square feet
11	49,600 S.F. (1.1 Ac.)	28,350 square feet
12	49,600 S.F. (1.1 Ac.)	27,350 square feet
13	59,225 S.F. (1.3 Ac.)	24,065 square feet
14	49,480 S.F. (1.1 Ac.)	21,690 square feet
15	47,595 S.F. (1.0 Ac.)	27,180 square feet
16	47,250 S.F. (1.0 Ac.)	28,905 square feet
17	46,500 S.F. (1.0 Ac.)	27,500 square feet
18	46,500 S.F. (1.0 Ac.)	27,500 square feet
19	46,440 S.F. (1.0 Ac.)	27,440 square feet
20	60,505 S.F. (1.3 Ac.)	38,430 square feet
21	123,935 S.F. (2.8 Ac.)	38,490 square feet
22	116,690 S.F. (2.6 Ac.)	43,025 square feet
23	59,940 S.F. (1.3 Ac.)	16,110 square feet
24	60,000 S.F. (1.3 Ac.)	14,755 square feet
25	60,000 S.F. (1.3 Ac.)	14,755 square feet
26	58,525 S.F. (1.3 Ac.)	25,780 square feet
27	53,675 S.F. (1.2Ac.)	21,965 square feet
28	57,750 S.F. (1.1 Ac.)	21,500 square feet

"AG" district regulations:
Lot size: 150' x 1 Acre
Front yard: 40' min., 50' min. from primary street.
Side yard: 10' min. (25' total)
Rear yard: 50' min.

STATE OF MICHIGAN
TODD R. STUIVE
ENGINEER
No. 38273
LICENSED PROFESSIONAL ENGINEER

GENERAL RECLAMATION NOTES:

1. Respread minimum of 4" of topsoil in all disturbed areas outside of proposed water surfaces.
2. Seed all disturbed areas as described within the soil erosion control notes.
3. Finalize individual phase restoration upon completion of the excavation within the phase.
4. Remove topsoil screening stockpiles as part of individual phase restoration process.
5. Maintain erosion controls within individual phases until grass is established.
6. Maximum finished slope shall be 3:1 (horz./vert.)

END USE PLAN

RE: RUSK LAKE SITE CONDOMINIUM

FOR: RUSK LAKE ASSOCIATES, LLC
ATTN: JOSH THURKETTLE
10560 CREEK FLAT COURT
ZEELAND, MI 49464

PART OF THE 1/4, SECTION 30, T7N, R14W, ALLENDALE TOWNSHIP, OTTAWA COUNTY, MICHIGAN

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SHEET 4 of 4

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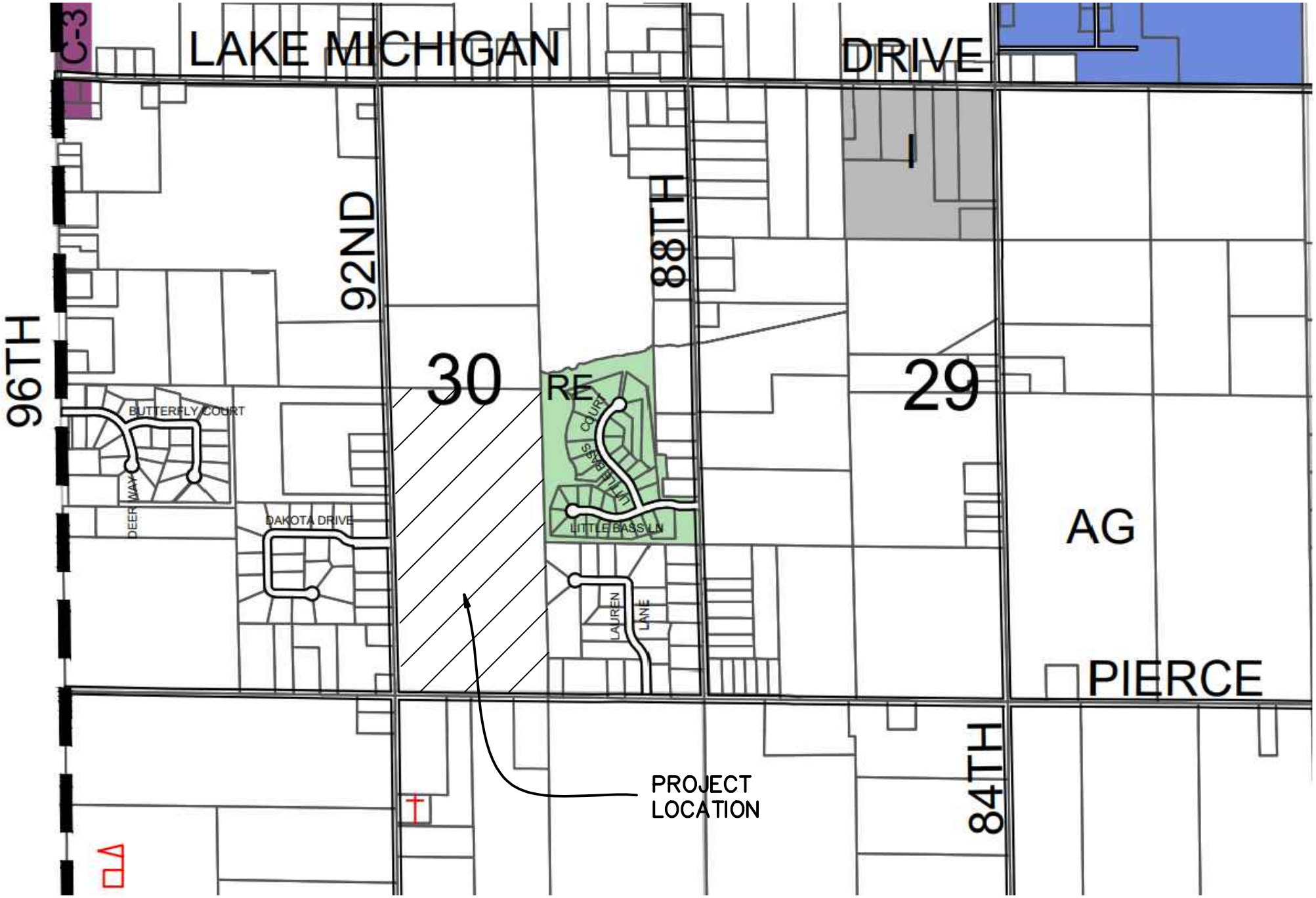
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BUTTERFLY COURT
DEER WAY
DAKOTA DRIVE
LITTLE BASS COURT
LITTLE BASS LN
LAUREN LANE
PIERCE
84TH
PROJECT LOCATION

2022 ANNUAL REPORT of the PLANNING COMMISSION of ALLENDALE CHARTER TOWNSHIP

Pursuant to Section 9 of the Allendale Charter Township Planning Commission Bylaws & Rules of Procedure

Executive Summary

On February 17, 2014, the Allendale Charter Township Planning Commission adopted its Bylaws and Rules of Procedure of the Planning Commission to facilitate the performance of its duties as outlined in the Michigan Planning Enabling Act, PA 33 of 2008, MLC 125.3801, et seq., and the Michigan Zoning Enabling Act, PA 110 of 2006, MCL 125.3101, et seq. Pursuant to Section 9 of the Allendale Charter Township Planning Commission Bylaws and Rules of Procedure, we present the following report regarding the structure and operations of the Planning Commission, the status of planning activities as well as other pertinent actions of the Planning Commission.

Membership & Meetings

Membership of the Planning Commission

- Andrew Longcore
- Ray Nadda
- Bruce Zeinstra
- Rick Chapla
- Tom Zuniga
- Rick Westerling
- Mark Adams

Officers of the Planning Commission

- Chairperson – Andrew Longcore
- Vice Chairperson – Rick Chapla
- Secretary – Tom Zuniga

Meetings & Meeting Attendance

Regular Meetings: 21 <> Special Meetings: 0

- Longcore: 21
- Nadda: 19
- Zeinstra: 15
- Zuniga: 18
- Adams: 19
- Westerling: 12
- Chapla: 16

Operations & Activity

Procedural Approvals and Documents

- Elected Officers of the Planning Commission
- 2022 Annual Work Program
- 2021 Annual Report

Site Plan Approvals

- Churchside Estates – Tentative Preliminary Plat
- Centennial Farms – Site Condominiums
- Conifer Creek – Planned Unit Development Phase
- Mystic Woods – Planned Unit Development Phase
- Marcusse Office Building – Multiple tenant office building
- Pearline Estates – Tentative Preliminary Plat
- ALDI – Grocery Store

Site Plan Denials, Suspensions, or Withdrawals

- None

Special Use Approvals

- Wendy's Restaurant – Drive through and site down restaurant
- Great Lakes Excavating Service (JMM Developers) – Mining amendment
- Griffioen – Farm Equipment Storage with Incidental Repair and Service
- Tommy's Express – Drive Through Car Wash

Special Use Denials, Suspensions, or Withdrawals

- None

Zoning Map & Text Amendment Recommendations of Approval

- Map (Rezone)
    - 5380 & 5316 Lake Michigan Drive – from R-2 to GC
    - 5713 Lake Michigan Drive – from R-1 to GC
    - 5630 Lake Michigan Drive – from R-2 and R-3 to GC
    - 11500 56th Avenue – from Industrial to R-1
    - 10222, 10274, & 10320 52nd Avenue – from RE to R-4
- Text
    - Zoning Ordinance
        - Section 4.01D – Zoning Districts
        - Article 8 – [Title change]
        - Section 12.06A – Development Requirements for PUD's with Residential Uses, Determination of Number of Dwellings
        - Section 12.06B7 – Formula to Determine Number of Dwellings
        - Section 13A.05(3) – Area Regulations, Side Yard
        - Section 13A.05(4) – Area Regulations, Rear Yard
        - Section 14.01 – Description and Purpose

        - Section 14.03O – Uses Requiring Special Approval
        - Section 14.05B – Area Regulations, Side Yard
        - Section 14.05C – Area Regulations, Rear Yard
        - Section 14.07 – Moratorium
        - Section 15.02AC – Use Regulation
        - Section 15.05B – Area Regulations, Side Yard
        - Section 15.05 C – Area Regulations, Rear Yard
        - Section 16.02I – Permitted Uses
        - Section 16.06 B – Area Regulations, Side Yard
        - Section 16.06C – Area Regulations, Rear Yard
        - Section 23.20 – Renewable Energies
        - Section 24.06H –Waste Disposal Facilities
        - Section 24.06J – Building Appearance
    - Subdivision Ordinance
        - None

Zoning Map & Text Amendment Recommendations of Denial

- Map (Rezone)
    - None
- Text
    - None

Other Amendments, Approvals, or Reviews

- Bliss Street Annual Mining Report
- 5015 Warner Annual Mining Report
- Master Plan

<u>General Recommendations & Inquiries</u>

- No general recommendations or inquiries are provided with this Report.

_____

Andrew Longcore, Chairperson
Allendale Charter Township Planning Commission

Allendale Charter Township Planning Commission – 2023 Work Program

Adopted: _____

Revised: _____

1. Consider amendments to regulate outdoor furnaces, other alternative energies

2. Mining Operations
    - Consider requiring resulting lots to possess the ability to appropriately accommodate septic systems that will experience longevity
    - Minimum provisions

3. Improve Planned Unit Development language, particularly open space minimums in residential development

4. Consider revisions to Section 23.18 – Residential Open Space Development

5. Consider whether language is needed to allow Short Term Rentals in residential zoning districts

6. Revise and clarify the requirements which trigger site plan review and major and minor amendments to an approved site plan

7. Regulations for development in the 100-year flood plain are needed

8. Examine means to improve ground water quality

9. Non-Motorized Pathway 2015 amendment to Section 24.06C1

10. Review the Zoning Ordinance to revise those sections in the Ordinance that allow certain discretionary decisions by the Zoning Administrator

11. Update Planning Commission Bylaws
    - Meeting date and time

12. Differentiate farm use versus special uses within the Agricultural and Rural Zoning District